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PART 4

HEAT TRANSFER AND FRICTIONAL EFFECTS IN LAMINAR BOUNDARY LAYERS

Part 4. Universal Series Solutions

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THE OHIO STATE UNIVERSITY RESEARCH FOUNDATION

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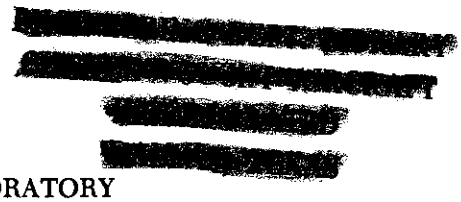

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FOREWORD

This report was written by Professor A. N. Tifford of The Ohio State University Research Foundation under USAF Contract AF33(038)10834. The original contract was initiated and administered by Dr. A. M. Kuethe of the Office of Air Research of the Air Research and Development Command. More recently it has been administered by The Aeronautical Research Laboratory of the Air Research and Development Command, Dr. Hans U. Eckert acting as project engineer. This report is one phase of a series being issued on the project.

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ABSTRACT

In Section I tables of values are obtained for universal functions applicable to the laminar velocity and thermal boundary layers occurring on an isothermal surface having symmetric, two-dimensional flow, i.e., a local free stream velocity distribution given by a series of odd powers of the distance from the forward stagnation point. Using some of these functions, it has been found that, for a Prandtl number of one, the friction coefficient in a linearly-increasing velocity field increases eleven percent as the local Mach number increases from 0 to 1.60.

Equations defining universal functions applicable to the thermal boundary layer occurring in the flow field of Section I when the surface is not isothermal have been derived in Section II. Relationships between some of these functions and those of Section I have been determined.

Section III presents velocity and thermal analyses of the laminar boundary layer on an isothermal surface subject to a local free stream velocity distribution expressible as a complete Taylor series. Equations have been derived defining applicable universal functions.

PUBLICATION REVIEW

The publication of this report does not constitute approval by the Air Force of the findings or the conclusions contained therein. It is published only for the exchange and stimulation of ideas.

FOR THE COMMANDER:

Leslie B. Williams

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INTRODUCTION

In 1935, Howarth published a general solution (Ref. 1) for the velocity profile of the laminar boundary layer subject to a main stream velocity distribution expressible as a power series of the distance along the surface from the forward stagnation point. This solution is theoretically universal for two-dimensional bodies with a round leading edge. Unfortunately, however, it is in the form of an infinite series whose convergence is not very rapid for portions of the surface somewhat distant from the forward stagnation region. Consequently its direct use tends to be limited to the analysis of the boundary layer on blunt bodies and on the forwardmost portions of other bodies. It has also been used in approximate boundary layer studies of particular flow regions, e.g., the separation region, and as a theoretically precise yardstick for measuring the performance of approximate methods of analysis.

In some unpublished work in 1943, the senior author of this report obtained a Howarth-type solution for the temperature profile of the laminar boundary layer on an isothermal surface, neglecting viscous heating (Ref. 2). This work had been anticipated by Frossling (Ref. 3). It was in effect independently repeated (for a Prandtl number of one) in the course of a study of the boundary layer on yawed cylinders (Ref. 4). Its applications are thermal analogs of the application of Howarth's solution.

While preparing for the computation of the universal thermal boundary layer functions of the above analysis, it became apparent that precise computations of Howarth's universal velocity boundary layer functions, upon which the thermal functions depend, were not available beyond the first few functions. Before more than the first few thermal functions could be evaluated, the computation of the velocity functions had to be extended. It was decided to compute sufficient of these functions to give an adequate solution in most cases when the free stream velocity variation along the surface is given by the first four odd terms of the power series.

Section I presents the analyses of the velocity and thermal boundary layers, described above. Although the analysis of the velocity boundary layer duplicates Howarth's work, it is necessary in order to obtain the equations for additional universal velocity functions. The thermal analysis, on the other hand, is more general than that discussed. It includes consideration of viscous heating effects.

A second thermal analysis of the boundary layer when the free stream velocity variation along the surface is given by the odd terms of the power series is presented in Section II. It differs from the

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thermal analysis of Section I in that the surface temperature is allowed to vary as a Taylor series of the distance along the surface from the forward stagnation point.

Section III presents the velocity and thermal analyses of Ref. 5 of the laminar boundary layer on an isothermal surface subject to a local free stream velocity distribution expressible as a complete Taylor series. Because the leading term of the power series, free-stream velocity representation is an arbitrary constant, the analysis differs from the previous two.

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UNIVERSAL BOUNDARY LAYER FUNCTIONS FOR SYMMETRICAL FLOW OVER ISOTHERMAL SURFACES

SYMBOLS

Symbol	Definition
a_t	speed of sound at the free-stream total temperature
a_1	speed of sound at the local free-stream static temperature
b_5, b_9, b_{11}	universal thermal boundary layer functions of η defined by the functional transformations ahead of Eq. (38)
c_p	specific heat of fluid at constant pressure
C_{12}, d_5, d_9, d_{11}	universal thermal boundary layer functions of η defined by the functional transformations ahead of Eq. (38)
f_1, f_3	universal velocity boundary layer functions of η defined by the functional transformations ahead of Eq. (13)
$F_1, F_3, F_5, \cdots$	velocity boundary layer functions of y defined in Eq. (4)
g_5, g_7, g_9, g_{11}	universal velocity boundary layer functions of η defined by the functional transformations ahead of Eq. (13)
$G_1, G_3, G_5, \cdots$	thermal boundary layer functions of y defined in Eq. (37)
h_5, h_7, h_9, h_{11}	universal velocity boundary layer functions of η defined by the functional transformations ahead of Eq. (13)
H_2, H_4, H_6	thermal boundary layer functions of y having to do with viscous heating effects in Eq. (37)
j_9, j_{11}	universal velocity boundary layer functions of η defined by the functional transformations ahead of Eq. (13)

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J	mechanical equivalent of heat
k	thermal conductivity of fluid
k_7, k_9, k_{11}	universal velocity boundary layer functions of η defined by the functional transformations ahead of Eq. (13)
l_6, l_{10}, l_{12}	universal thermal boundary layer functions of η defined by the functional transformations ahead of Eq. (38)
m_{11}, n_{11}	universal velocity boundary layer functions of η defined by the functional transformations ahead of Eq. (13)
o_{11}	universal thermal boundary layer function of η defined by the functional transformations ahead of Eq. (38)
p	static pressure
P_6, P_{10}, P_{12}	universal thermal boundary layer functions of η defined by the functional transformations ahead of Eq. (38)
q_9, q_{11}	universal velocity boundary layer functions of η defined by the functional transformations ahead of Eq. (13)
r_7, r_9, r_{11}	universal thermal boundary layer functions of η defined by the functional transformations ahead of Eq. (38)
S_7, S_9, S_{11}	universal thermal boundary layer functions of η defined by the functional transformations ahead of Eq. (38)
T	fluid static temperature
T_w	constant surface temperature
T_1	local free stream static temperature
T_7, T_9, T_{11}	universal thermal boundary layer functions of η defined by the functional transformations ahead of Eq. (38)
u	velocity component in x-direction

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u_1	local free stream velocity
u_8, u_{10}, u_{12}	universal thermal boundary layer functions of η defined by the functional transformations ahead of Eq. (38)
v	velocity component in y-direction
v_8, v_{10}, v_{12}	universal thermal boundary layer functions of η defined by the functional transformations ahead of Eq. (38)
w_8, w_{10}, w_{12}	universal thermal boundary layer functions of η defined by the functional transformations ahead of Eq. (38)
x	distance along the surface normal to the leading edge
y	distance perpendicular to the surface
Y_{12}, Z_{11}	universal thermal boundary layer functions of η defined by the functional transformations ahead of Eq. (38)
$\beta_1, \beta_3, \beta_5, \cdots$	coefficients in Eq. (3) defining the local free-stream velocity distribution
γ	stream function of flow in the boundary layer
$\eta = (\beta_1/\nu)^{1/2} y,$	non-dimensional boundary layer coordinate
$\theta = (T-T_1)/(T_1-T_w)$	
ν	kinematic viscosity of fluid
ρ	density of fluid
$\sigma = \rho c_p \nu/k,$	Prandtl number
τ_w	surface shearing stress
$\phi_1, \phi_3, \psi_2, \psi_4$	universal thermal boundary layer functions of η defined by the functional transformations ahead of Eq. (38)

[Quantities with a subscript "w" are evaluated at the wall.]

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The Velocity Boundary Layer

The two-dimensional flow field under consideration is that around a symmetrical cylinder at zero angle of attack (Fig. 1). The applicable Navier-Stokes equations of motion read in rectangular coordinates as Eqs. (1) and (2), after simplification by means of Prandtl's order-of-magnitude arguments.

$$u\partial u/\partial x + v\partial u/\partial y = -(1/\rho)\partial p/\partial x + \nu\partial^2 u/\partial y^2 \qquad (1)$$

$$0 = \partial p/\partial y \qquad (2)$$

According to Eq. (2), the static pressure within the boundary layer does not vary with the normal distance from the surface. Therefore the partial derivative, $\partial p/\partial x$, of Eq. (1) may be replaced by the total derivative, dp/dx. The latter in turn may be replaced by $-\rho u_1 du_1/dx$ because of Bernoulli's equation, applicable at the outer edge of the boundary layer. Eq. (1) then reads as

$$u\partial u/\partial x + v\partial u/\partial y = u_1 du_1/dx + \nu\partial^2 u/\partial y^2 \qquad (1)'$$

Because of the symmetry of the flow field, the free stream velocity variation along both upper and lower surfaces of the cylinder may be described by an odd power series of the distance from the forward stagnation point.

$$u_1 = \beta_1 x + \beta_3 x^3 + \beta_5 x^5 + \beta_7 x^7 + \cdots \qquad (3)$$

Therefore we shall assume a solution of the form of Eq. (4) for the stream function, γ.

$$\gamma = \beta_1 x F_1(y) + \beta_3 x^3 F_3(y) + \beta_5 x^5 F_5(y) + \beta_7 x^7 F_7(y) + \cdots \qquad (4)$$

The latter satisfies the equation of continuity

$$\partial u/\partial x + \partial v/\partial y = 0, \qquad (5)$$

i.e., $u = \partial\gamma/\partial y$ and $v = -\partial\gamma/\partial x$.

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Substitution of the above relations into Eq. (1') yields

$$(\beta_1 xF_1' + \beta_3 x^3 F_3' + \beta_5 x^5 F_5' + \beta_7 x^7 F_7' + \cdots)(\beta_1 F_1' + 3\beta_3 x^2 F_3' + 5\beta_5 x^4 F_5' + 7\beta_7 x^6 F_7' + \cdots)$$

$$- (\beta_1 F_1 + 3\beta_3 x^2 F_3 + 5\beta_5 x^4 F_5 + 7\beta_7 x^6 F_7 + \cdots)(\beta_1 xF_1'' + \beta_3 x^3 F_3'' + \beta_5 x^5 F_5'' + \beta_7 x^7 F_7'' + \cdots)$$

$$= (\beta_1 x + \beta_3 x^3 + \beta_5 x^5 + \beta_7 x^7 + \cdots)(\beta_1 + 3\beta_3 x^2 + 5\beta_5 x^4 + 7\beta_7 x^6 + \cdots)$$

$$+ \nu(\beta_1 xF_1''' + \beta_3 x^3 F_3''' + \beta_5 x^5 F_5''' + \beta_7 x^7 F_7''' + \cdots) \qquad (6)$$

Collecting terms having the same power of x after the indicated multiplications, we obtain Eqs. (7) to (12).

$$\beta_1^2\left[(F_1')^2 - F_1F_1'' - 1\right] = \nu\beta_1 F_1''' \qquad (7)$$

$$\beta_1\beta_3(4F_1'F_3' - 3F_1''F_3 - F_1F_3'' - 4) = \nu\beta_3 F_3''' \qquad (8)$$

$$\beta_1\beta_5(6F_1'F_5' - 5F_1''F_5 - F_1F_5'' - 6) + 3\beta_3^2\left[(F_3')^2 - F_3F_3'' - 1\right] = \nu\beta_5 F_5''' \qquad (9)$$

$$\beta_1\beta_7(8F_1'F_7' - 7F_1''F_7 - F_1F_7'' - 8) + \beta_3\beta_5(8F_3'F_5' - 3F_3F_5'' - 5F_3''F_5 - 8) = \nu\beta_7 F_7''' \qquad (10)$$

$$\beta_1\beta_9(10F_1'F_9' - 9F_1''F_9 - F_1F_9'' - 10) + \beta_3\beta_7(10F_3'F_7' - 3F_3F_7'' - 7F_3''F_7 - 10)$$

$$+ 5\beta_5^2\left[(F_5')^2 - F_5F_5'' - 1\right] = \nu\beta_9 F_9''' \qquad (11)$$

$$\beta_1\beta_{11}(12F_1'F_{11}' - 11F_1''F_{11} - F_1F_{11}'' - 12) + \beta_3\beta_9(12F_3'F_9' - 3F_3F_9'' - 9F_3''F_9 - 12)$$

$$+ \beta_5\beta_7(12F_5'F_7' - 5F_5F_7'' - 7F_5''F_7 - 12) = \nu\beta_{11}F_{11}''' \qquad (12)$$

In order to express the functions, F_1, F_3, F_5, etc., in terms of universal functions, i.e., functions whose values do not depend upon the coefficients, $\beta_1, \beta_3, \beta_5$, etc., the independent variable is changed to $(\beta_1/\nu)^{1/2}y$ and the functions themselves, to sums of products of coefficients and universal functions. The function transformations

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are tabulated below. (The numerical coefficients used normalize the equations for the leading functions, f_3, g_5, g_7, g_9, and g_{11}).

$$F_1 = (\nu/\beta_1)^{1/2} f_1; \quad F_3 = 4(\nu/\beta_1)^{1/2} f_3; \quad F_5 = 6(\nu/\beta_1)^{1/2}\left[g_5 + (\beta_3^2/\beta_1\beta_5)h_5\right];$$

$$F_7 = 8(\nu/\beta_1)^{1/2}\left[g_7 + (\beta_3\beta_5/\beta_1\beta_7)h_7 + (\beta_3^3/\beta_1^2\beta_7)k_7\right];$$

$$F_9 = 10(\nu/\beta_1)^{1/2}\left[g_9 + (\beta_3\beta_7/\beta_1\beta_9)h_9 + (\beta_5^2/\beta_1\beta_9)k_9 + (\beta_3^2\beta_5/\beta_1^2\beta_9)j_9 + (\beta_3^4/\beta_1^3\beta_9)q_9\right];$$

$$F_{11} = 12(\nu/\beta_1)^{1/2}\left[g_{11} + (\beta_3\beta_9/\beta_1\beta_{11})h_{11} + (\beta_5\beta_7/\beta_1\beta_{11})k_{11} + (\beta_3^2\beta_7/\beta_1^2\beta_{11})j_{11} + (\beta_3\beta_5^2/\beta_1^2\beta_{11})q_{11} + (\beta_3^3\beta_5/\beta_1^3\beta_{11})m_{11} + (\beta_3^5/\beta_1^4\beta_{11})n_{11}\right].$$

Making these substitutions into Eqs. (7) - (12) and collecting terms with the same coefficient groups, Eqs. (13) - (31) are obtained for the universal functions. Appropriate boundary conditions are tabulated after each equation.

$$f_1''' + f_1 f_1'' = (f_1')^2 - 1 \tag{13}$$

at $\eta = 0$: $f_1 = 0$, $f_1' = 0$;

as $\eta \to \infty$: $f_1' \to 1$.

$$f_3''' + f_1 f_3'' - 4 f_1' f_3' + 3 f_1'' f_3 = -1 \tag{14}$$

at $\eta = 0$: $f_3 = 0$, $f_3' = 0$;

as $\eta \to \infty$: $f_3' \to 1/4$.

$$g_5''' + f_1 g_5'' - 6 f_1' g_5' + 5 f_1'' g_5 = -1 \tag{15}$$

at $\eta = 0$: $g_5 = 0$, $g_5' = 0$;

as $\eta \to \infty$: $g_5' \to 1/6$.

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$$h_5''' + f_1 h_5'' - 6f_1' h_5' + 5f_1'' h_5 = -1/2 + 8(f_3')^2 - 8f_3 f_3'' \tag{16}$$

at $\eta = 0$: $h_5 = 0$, $h_5' = 0$;

as $\eta \to \infty$: $h_5' \to 0$.

$$g_7''' + f_1 g_7'' - 8f_1' g_7' + 7f_1'' g_7 = -1 \tag{17}$$

at $\eta = 0$: $g_7 = 0$, $g_7' = 0$;

as $\eta \to \infty$: $g_7' \to 1/8$.

$$h_7''' + f_1 h_7'' - 8f_1' h_7' + 7f_1'' h_7 = -1 + 24f_3' g_5' - 9f_3 g_5'' - 15f_3'' g_5 \tag{18}$$

at $\eta = 0$: $h_7 = 0$, $h_7' = 0$;

as $\eta \to \infty$: $h_7' \to 0$.

$$k_7''' + f_1 k_7'' - 8f_1' k_7' + 7f_1'' k_7 = 24f_3' h_5' - 9f_3 h_5'' - 15f_3'' h_5 \tag{19}$$

at $\eta = 0$: $k_7 = 0$, $k_7' = 0$;

as $\eta \to \infty$: $k_7' \to 0$.

$$g_9''' + f_1 g_9'' - 10f_1' g_9' + 9f_1'' g_9 = -1 \tag{20}$$

at $\eta = 0$: $g_9 = 0$, $g_9' = 0$;

as $\eta \to \infty$: $g_9' \to 1/10$.

$$h_9''' + f_1 h_9'' - 10f_1' h_9' + 9f_1'' h_9 = -1 - (112/5)f_3'' g_7 - (48/5)f_3 g_7'' + 32f_3' g_7'$$

at $\eta = 0$: $h_9 = 0$, $h_9' = 0$; (21)

as $\eta \to \infty$: $h_9' \to 0$

$$k_9''' + f_1 k_9'' - 10f_1' k_9' + 9f_1'' k_9 = -1/2 - 18g_5 g_5'' + 18(g_5')^2 \tag{22}$$

at $\eta = 0$: $k_9 = 0$, $k_9' = 0$;

as $\eta \to \infty$: $k_9' \to 0$.

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$$j_9''' + f_1 j_9'' - 10f_1' j_9' + 9f_1'' j_9 = -(112/5)f_3'' h_7 - (48/5)f_3 h_7'' + 32f_3' h_7' + 36g_5' h_5' - 18g_5 h_5'' - 18g_5'' h_5 \qquad (23)$$

at $\eta = 0$: $j_9 = 0$, $j_9' = 0$;

as $\eta \to \infty$: $j_9' \to 0$.

$$q_9''' + f_1 q_9'' - 10f_1' q_9' + 9f_1'' q_9 = -18h_5 h_5'' + 18(h_5')^2 - (112/5)f_3'' k_7 - (48/5)f_3 k_7'' + 32f_3' k_7' \qquad (24)$$

at $\eta = 0$: $q_9 = 0$, $q_9' = 0$;

as $\eta \to \infty$: $q_9' \to 0$.

$$g_{11}''' + f_1 g_{11}'' - 12f_1' g_{11}' + 11f_1'' g_{11} = -1 \qquad (25)$$

at $\eta = 0$: $g_{11} = 0$, $g_{11}' = 0$;

as $\eta \to \infty$: $g_{11}' \to 1/12$.

$$h_{11}''' + f_1 h_{11}'' - 12f_1' h_{11}' + 11f_1'' h_{11} = -1 + 40f_3' g_9' - 10f_3 g_9'' - 30f_3'' g_9 \qquad (26)$$

at $\eta = 0$: $h_{11} = 0$, $h_{11}' = 0$;

as $\eta \to \infty$: $h_{11}' \to 0$.

$$k_{11}''' + f_1 k_{11}'' - 12f_1' k_{11}' + 11f_1'' k_{11} = -1 - 20g_5 g_7'' - 28g_5'' g_7 + 48g_5' g_7' \qquad (27)$$

at $\eta = 0$: $k_{11} = 0$, $k_{11}' = 0$;

as $\eta \to \infty$: $k_{11}' \to 0$.

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$$j'''_{11} + f_1 j''_{11} - 12f'_1 j'_{11} + 11f''_1 j_{11} = -10f_3 h'' - 30f''_3 h_9 + 40f'_3 h'_9$$
$$- 20h_5 g''_7 - 28h''_5 g_7 + 48h'_5 g'_7 \qquad (28)$$

at $\eta = 0$: $j_{11} = 0$, $j'_{11} = 0$;

as $\eta \to \infty$: $j'_{11} \to 0$.

$$q'''_{11} + f_1 q''_{11} - 12f'_1 q'_{11} + 11f''_1 q_{11} = -10f_3 k'' - 30f''_3 k_9 + 40f'_3 k'_9$$
$$- 20g_5 h''_7 - 28g''_5 h_7 + 48g'_5 h'_7 \qquad (29)$$

at $\eta = 0$: $q_{11} = 0$, $q'_{11} = 0$;

as $\eta \to \infty$: $q'_{11} \to 0$.

$$m'''_{11} + f_1 m''_{11} - 12f'_1 m'_{11} + 11f''_1 m_{11} = -10f_3 j'' - 30f''_3 j_9 + 40f'_3 j'_9 - 20g_5 k''_7$$
$$- 28g''_5 k_7 + 48g'_5 k'_7 - 20h_5 h''_7 - 28h''_5 h_7$$
$$+ 48h'_5 h'_7 \qquad (30)$$

at $\eta = 0$: $m_{11} = 0$, $m'_{11} = 0$;

as $\eta \to \infty$: $m'_{11} \to 0$.

$$n'''_{11} + f_1 n''_{11} - 12f'_1 n'_{11} + 11f''_1 n_{11} = -10f_3 q'' - 30f''_3 q_9 + 40f'_3 q'_9$$
$$- 20h_5 k''_7 - 28h''_5 k_7 + 48h'_5 k'_7 \qquad (31)$$

at $\eta = 0$: $n_{11} = 0$, $n'_{11} = 0$;

as $\eta \to \infty$: $n'_{11} \to 0$.

The velocity components are expressed in terms of the universal functions as

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$$u = \beta_1 f_1' x + 4\beta_3 f_3' x^3 + 6\left[\beta_5 g_5' + (\beta_3^2/\beta_1)h_5'\right]x^5 + 8\left[\beta_7 g_7' + (\beta_3\beta_5/\beta_1)h_7' + (\beta_3^3/\beta_1^2)k_7'\right]x^7 + 10\left[\beta_9 g_9' + (\beta_3\beta_7/\beta_1)h_9' + (\beta_5^2/\beta_1)k_9' + (\beta_3^2\beta_5/\beta_1^2)j_9' + (\beta_3^4/\beta_1^3)q_9'\right]x^9 + 12\left[\beta_{11} g_{11}' + (\beta_3\beta_9/\beta_1)h_{11}' + (\beta_5\beta_7/\beta_1)k_{11}' + (\beta_3^2\beta_7/\beta_1^2)j_{11}' + (\beta_3\beta_5^2/\beta_1^2)q_{11}' + (\beta_3^3\beta_5/\beta_1^3)m_{11}' + (\beta_3^5/\beta_1^4)n_{11}'\right]x^{11} + \cdots \tag{32}$$

and

$$v = -(\nu/\beta_1)^{1/2}\left\{\beta_1 f_1 + 12\beta_3 f_3 x^2 + 30\left[\beta_5 g_5 + (\beta_3^2/\beta_1)h_5\right]x^4 + 56\left[\beta_7 g_7 + (\beta_3\beta_5/\beta_1)h_7 + (\beta_3^3/\beta_1^2)k_7\right]x^6 + 90\left[\beta_9 g_9 + (\beta_3\beta_7/\beta_1)h_9 + (\beta_5^2/\beta_1)k_9 + (\beta_3^2\beta_5/\beta_1^2)j_9 + (\beta_3^4/\beta_1^3)q_9\right]x^8 + 132\left[\beta_{11} g_{11} + (\beta_3\beta_9/\beta_1)h_{11} + (\beta_5\beta_7/\beta_1)k_{11} + (\beta_3^2\beta_7/\beta_1^2)j_{11} + (\beta_3\beta_5^2/\beta_1^2)q_{11} + (\beta_3^3\beta_5/\beta_1^3)m_{11} + (\beta_3^5/\beta_1^4)n_{11}\right]x^{10} + \cdots\right\}. \tag{33}$$

The surface shearing stress is evaluated by means of Eq. (34).

$$\tau_w = \rho\nu(\partial u/\partial y)_w = \rho(\beta_1\nu)^{1/2}\left\{\beta_1 f_1''(0)x + 4\beta_3 f_3''(0)x^3 + 6\left[\beta_5 g_5''(0) + (\beta_3^2/\beta_1)h_5''(0)\right]x^5 + 8\left[\beta_7 g_7''(0) + (\beta_3\beta_5/\beta_1)h_7''(0) + (\beta_3^3/\beta_1^2)k_7''(0)\right]x^7 + 10\left[\beta_9 g_9''(0) + (\beta_3\beta_7/\beta_1)h_9''(0) + (\beta_5^2/\beta_1)k_9''(0) + (\beta_3^2\beta_5/\beta_1^2)j_9''(0) + (\beta_3^4/\beta_1^3)q_9''(0)\right]x^9 + 12\left[\beta_{11} g_{11}''(0) + (\beta_3\beta_9/\beta_1)h_{11}''(0) + (\beta_5\beta_7/\beta_1)k_{11}''(0) + (\beta_3^2\beta_7/\beta_1^2)j_{11}''(0) + (\beta_3\beta_5^2/\beta_1^2)q_{11}''(0) + (\beta_3^3\beta_5/\beta_1^3)m_{11}''(0) + (\beta_3^5/\beta_1^4)n_{11}''(0)\right]x^{11} + \cdots\right\}. \tag{34}$$

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The Thermal Boundary Layer

After simplification by means of Prandtl's order-of-magnitude arguments, the form of the energy equation applicable to a constant-property analysis of the thermal boundary layer is

$$\rho c_p J(u\partial T/\partial x + v\partial T/\partial y) = kJ\partial^2 T/\partial y^2 + \rho\nu(\partial u/\partial y)^2 + u dp/dx \qquad (35)$$

Replacing T with the dimensionless temperature ratio, $(T-T_1)/(T_1-T_w) = \theta$, and simplifying, Eq. (35) becomes

$$u\partial\theta/\partial x + v\partial\theta/\partial y = (k/\rho c_p)\partial^2\theta/\partial y^2 + \left[\nu/c_p J(T_1-T_w)\right](\partial u/\partial y)^2 + \left[1/c_p J(T_1-T_w)\right]\theta u u_1 du_1/dx \qquad (36)$$

Note that the surface has been assumed isothermal and that at the outer edge of the boundary layer, $T_1 + u_1^2/2c_p J = \text{constant}$.

A solution of the form of Eq. (37) will be assumed.

$$\theta = \left\{\left[xG_1(y) + x^3G_3(y) + x^5G_5(y) + \cdots\right]/u_1\right\} + \left\{\left[x^2H_2(y) + x^4H_4(y) + x^6H_6(y) + \cdots\right]/c_p J(T_1-T_w)\right\} \qquad (37)$$

The H functions, which account for the frictional heating effects, satisfy the inhomogeneous form of the equation. Appropriate boundary conditions follow.

At $y = 0$: $G_n = -\beta_n$ and $H_n = 0$;

as $y \to \infty$: $G_n \to 0$ and $H_n \to 0$.

In order to obtain universal functions (as in the analysis of the velocity boundary layer), the G and H functions are transformed as follows:

$$G_1 = \beta_1\phi_1;\ G_3 = \beta_3\phi_3;\ G_5 = \beta_5 b_5 + (\beta_3^2/\beta_1)d_5;$$

$$G_7 = \beta_7 r_7 + (\beta_3\beta_5/\beta_1)s_7 + (\beta_3^3/\beta_1^2)T_7;$$

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$$G_9 = \beta_9 b_9 + (\beta_3\beta_7/\beta_1)d_9 + (\beta_5^2/\beta_1)r_9 + (\beta_3^2\beta_5/\beta_1^2)s_9 + (\beta_3^4/\beta_1^3)T_9;$$

$$G_{11} = \beta_{11} b_{11} + (\beta_3\beta_9/\beta_1)d_{11} + (\beta_5\beta_7/\beta_1)r_{11} + (\beta_3^2\beta_7/\beta_1^2)s_{11} + (\beta_3\beta_5^2/\beta_1^2)T_{11} + (\beta_3^3\beta_5/\beta_1^3)o_{11} + (\beta_3^5/\beta_1^4)z_{11};$$

$$H_2 = \beta_1^2 \Psi_2; \quad H_4 = \beta_1\beta_3 \Psi_4; \quad H_6 = \beta_1\beta_5 l_6 + \beta_3^2 P_6;$$

$$H_8 = \beta_1\beta_7 u_8 + \beta_3\beta_5 v_8 + (\beta_3^3/\beta_1)w_8;$$

$$H_{10} = \beta_1\beta_9 l_{10} + \beta_3\beta_7 P_{10} + \beta_5^2 u_{10} + (\beta_3^2\beta_5/\beta_1)v_{10} + (\beta_3^4/\beta_1^2)w_{10};$$

$$H_{12} = \beta_1\beta_{11} l_{12} + \beta_3\beta_9 P_{12} + \beta_5\beta_7 u_{12} + (\beta_3^2\beta_7/\beta_1)v_{12} + (\beta_3\beta_5^2/\beta_1)w_{12} + (\beta_3^3\beta_5/\beta_1^2)C_{12} + (\beta_3^5/\beta_1^3)Y_{12}.$$

(The functions on the right-hand side of the equations are considered to have $\eta = (\beta_1/\nu)^{1/2}y$ as their independent variable). Substituting these transformations and Eqs. (3), (32), (33), and (37) into the energy equation, Eq. (36), we obtain upon collecting like powers of x:

$$(1/\sigma)\phi_1'' + f_1\phi_1' = 0; \tag{38}$$

$$(1/\sigma)\Psi_2'' + f_1\Psi_2' - 2f_1'\Psi_2 = -(f_1'')^2 - f_1'\phi_1; \tag{39}$$

$$(1/\sigma)\phi_3'' + f_1\phi_3' - 2f_1'\phi_3 = -2f_1'\phi_1 - 12f_3\phi_1'; \tag{40}$$

$$(1/\sigma)\Psi_4'' + f_1\Psi_4' - 4f_1'\Psi_4 = 8f_3'\Psi_2 - 12f_3\Psi_2' - 8f_1''f_3'' - 4f_3'\phi_1 - 3f_1'\phi_1 - f_1'\phi_3; \tag{41}$$

$$(1/\sigma)b_5'' + f_1 b_5' - 4f_1' b_5 = -4f_1'\phi_1 - 30g_5\phi_1'; \tag{42}$$

$$(1/\sigma)d_5'' + f_1 d_5' - 4f_1' d_5 = 8f_3'\phi_3 - 8f_3'\phi_1 + 2f_1'\phi_1 - 2f_1'\phi_3 - 12f_3\phi_3' - 30h_5\phi_1'; \tag{43}$$

$$(1/\sigma)l_6'' + f_1 l_6' - 6f_1' l_6 = 12g_5'\Psi_2 - 30g_5\Psi_2' - 12f_1''g_5'' - 5f_1'\phi_1 - 6g_5'\phi_1 - f_1' b_5; \tag{44}$$

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$$(1/\sigma)P_6'' + f_1P_6' - 6f_1'P_6 = 12h_5'\Psi_2 - 30h_5\Psi_2' + 16f_3'\Psi_4 - 12f_3\Psi_4' - 16(f_3'')^2 - 12f_1''h_5'' - 12f_3'\phi_1 - 6h_5'\phi_1 - 4f_3'\phi_3 - 3f_1'\phi_3 - f_1'd_5; \quad (45)$$

$$(1/\sigma)r_7'' + f_1r_7' - 6f_1'r_7 = -6f_1'\phi_1 - 56g_7\phi_1'; \quad (46)$$

$$(1/\sigma)S_7'' + f_1S_7' - 6f_1'S_7 = -56h_7\phi_1' - 2f_1'b_5 + 16f_3'b_5 + 12g_5'\phi_3 - 12g_5'\phi_1 - 12f_3b_5' - 30g_5\phi_3' - 4f_1'\phi_3 - 16f_3'\phi_1 + 6f_1'\phi_1; \quad (47)$$

$$(1/\sigma)T_7'' + f_1T_7' - 6f_1'T_7 = -56k_7\phi_1' - 2f_1'd_5 + 16f_3'd_5 + 12h_5'\phi_3 - 12h_5'\phi_1 - 12f_3d_5' - 30h_5\phi_3' - 8f_3'\phi_3 + 8f_3'\phi_1 - 2f_1'\phi_1 + 2f_1'\phi_3; \quad (48)$$

$$(1/\sigma)u_8'' + f_1u_8' - 8f_1'u_8 = 16g_7'\Psi_2 - 56g_7\Psi_2' - 16f_1''g_7'' - 8g_7'\phi_1 - f_1'r_7 - 7f_1'\phi_1; \quad (49)$$

$$(1/\sigma)v_8'' + f_1v_8' - 8f_1'v_8 = 24f_3'l_6 + 24g_5'\Psi_4 + 16h_7'\Psi_2 - 12f_3l_6' - 30g_5\Psi_4' - 56h_7\Psi_2' - 16f_1''h_7'' - 48f_3''g_5'' - 8h_7'\phi_1 - 18g_5'\phi_1 - 20f_3'\phi_1 - 6g_5'\phi_3 - 5f_1'\phi_3 - 4f_3'b_5 - 3f_1'b_5 - f_1's_7; \quad (50)$$

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$$(1/\sigma)w_8'' + f_1 w_8' - 8f_1' w_8 = 24f_3' P_6 + 24h_5' \Psi_4 + 16k_7' \Psi_2 - 12f_3 P_6' - 30h_5 \Psi_4'$$
$$- 56k_7 \Psi_2' - 16f_1'' k_7'' - 48f_3'' h_5'' - 8k_7' \phi_1 - 18h_5' \phi_1$$
$$- 6h_5' \phi_3 - 12f_3' \phi_3 - 4f_3' d_5 - 3f_1' d_5 - f_1' T_7; \quad (51)$$

$$(1/\sigma)b_9'' + f_1 b_9' - 8f_1' b_9 = - 8f_1' \phi_1 - 90g_9 \phi_1'; \quad (52)$$

$$(1/\sigma)d_9'' + f_1 d_9' - 8f_1' d_9 = - 2f_1' r_7 - 6f_1' \phi_3 + 8f_1' \phi_1 + 24f_3' r_7 - 24f_3' \phi_1$$
$$+ 16g_7' \phi_3 - 16g_7' \phi_1 - 12f_3 r_7' - 56g_7 \phi_3'$$
$$- 90h_9 \phi_1'; \quad (53)$$

$$(1/\sigma)r_9'' + f_1 r_9' - 8f_1' r_9 = 24g_5' b_5 - 24g_5' \phi_1 - 30g_5 b_5' - 90k_9 \phi_1'$$
$$- 4f_1' b_5 + 4f_1' \phi_1; \quad (54)$$

$$(1/\sigma)S_9'' + f_1 S_9' - 8f_1' S_9 = - 2f_1' S_7 + 6f_1' \phi_3 - 8f_1' \phi_1 + 24f_3' S_7$$
$$- 8f_3' b_5 - 16f_3' \phi_3 + 24g_5' d_5 + 24h_5' b_5$$
$$- 24h_5' \phi_1 + 16h_7' \phi_3 - 16h_7' \phi_1 - 12f_5 S_7'$$
$$- 30g_5 d_5' - 30h_5 b_5' - 56h_7 \phi_3' - 90j_9 \phi_1'$$
$$+ 2f_1' b_5 + 24f_3' \phi_1 - 12g_5' \phi_3 + 12g_5' \phi_1 - 4f_1' d_5; \quad (55)$$

$$(1/\sigma)T_9'' + f_1 T_9' - 8f_1' T_9 = - 2f_1' T_7 + 24f_3' T_7 - 8f_3' d_5 + 24h_5' d_5 + 16k_7' \phi_3$$
$$- 16k_7' \phi_1 - 12f_3 T_7' - 30h_5 d_5' - 56k_7 \phi_3'$$
$$- 90q_9 \phi_1' + 2f_1' d_5 - 12h_5' \phi_3 + 12h_5' \phi_1 + 8f_3' \phi_3$$
$$- 8f_3' \phi_1 + 2f_1' \phi_1 - 2f_1' \phi_3; \quad (56)$$

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$$(1/\sigma)l''_{10} + f_1 l'_{10} - 10f'_1 l_{10} = 20g'_9\Psi_2 - 90g_9\Psi'_2 \quad 20f''_1 g''_9 - f'_1 b_9$$
$$- 9f'_1\phi_1 - 10g'_9\phi_1; \qquad (57)$$

$$(1/\sigma)P''_{10} + f_1 P'_{10} - 10f'_1 P_{10} = 32f'_3 u_8 + 32g'_7\Psi_4 + 20h'_9\Psi_2 - 12f_3 u'_8$$
$$- 56g_7\Psi'_4 - 90h_9\Psi'_2 - 20f''_1 h''_9 - 64f''_3 g''_7$$
$$- f'_1 d_9 - 3f'_1 r_7 - 7f'_1\phi_3 - 4f'_3 r_7 - 28f'_3\phi_1$$
$$- 8g'_7\phi_3 - 24g'_7\phi_1 - 10h'_9\phi_1; \qquad (58)$$

$$(1/\sigma)u''_{10} + f_1 u'_{10} - 10f'_1 u_{10} = 36g'_5 l_6 + 20k'_9\Psi_2 - 30g_5 l'_6 - 90k_9\Psi'_2$$
$$- 20f''_1 k''_9 - 36(g''_5)^2 - f'_1 r_9 - 5f'_1 b_5$$
$$- 6g'_5 b_5 - 30g'_5\phi_1 - 10k'_9\phi_1; \qquad (59)$$

$$(1/\sigma)v''_{10} + f_1 v'_{10} - 10f'_1 v_{10} = 32f'_3 v_8 + 36h'_5 l_6 + 36g'_5 P_6 + 32h'_7\Psi_4$$
$$+ 20j'_9\Psi_2 - 12f_3 v'_8 - 30g_5 P'_6 - 30h_5 l'_6$$
$$- 56h_7\Psi'_4 - 90j_9\Psi'_2 - 20f''_1 j''_9 - 64f''_3 h''_7$$
$$- 72g''_5 h''_5 - f'_1 s_9 - 3f'_1 s_7 - 5f'_1 d_5 - 4f'_3 s_7$$
$$- 12f'_3 b_5 - 20f'_3\phi_3 - 6g'_5 d_5 - 6h'_5 b_5$$
$$- 18g'_5\phi_3 - 30h'_5\phi_1 - 8h'_7\phi_3 - 24h'_7\phi_1 - 10j'_9\phi_1; \qquad (60)$$

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$$(1/\sigma)w''_{10} + f_1 w'_{10} - 10f'_1 w_{10} = 32f'_3 w_8 + 36h'_5 P_6 + 32k'_7 \Psi_4 + 20q'_9 \Psi_2 + 12f_3 w'_8$$
$$- 30h_5 P'_6 - 56k_7 \Psi'_4 - 90q_9 \Psi'_2 - 20f''_1 q''_9$$
$$- 64f''_3 k''_7 - 36(h''_5)^2 - f'_1 T_9 - 3f'_1 T_7 - 4f'_3 T_7$$
$$- 12f'_3 d_5 - 6h'_5 d_5 - 18h'_5 \phi_3 - 8k'_7 \phi_3 - 24k'_7 \phi_1$$
$$- 10q'_9 \phi_1; \qquad (61)$$

$$(1/\sigma)b''_{11} + f_1 b'_{11} - 10f'_1 b_{11} = - 10f'_1 \phi_1 - 132g_{11} \phi'_1; \qquad (62)$$

$$(1/\sigma)d''_{11} + f_1 d'_{11} - 10f'_1 d_{11} = - 2f'_1 b_9 + 10f'_1 \phi_1 - 8f'_1 \phi_3 + 32f'_3 b_9$$
$$- 32f'_3 \phi_1 + 20g'_9 \phi_3 - 20g'_9 \phi_1 - 12f_3 b'_9$$
$$- 90g_9 \phi'_3 - 132h_{11} \phi'_1; \qquad (63)$$

$$(1/\sigma)r''_{11} + f_1 r'_{11} - 10f'_1 r_{11} = - 4f'_1 r_7 - 6f'_1 b_5 + 10f'_1 \phi_1 + 36g'_5 r_7$$
$$- 36g'_5 \phi_1 + 32g'_7 b_5 - 32g'_7 \phi_1 - 30g_5 r'_7$$
$$- 56g_7 b'_5 - 132k_{11} \phi'_1; \qquad (64)$$

$$(1/\sigma)S''_{11} + f_1 S'_{11} - 10f'_1 S_{11} = - 2f'_1 d_9 - 6f'_1 d_5 + 2f'_1 r_7 + 8f'_1 \phi_3 - 10f'_1 \phi_1$$
$$+ 32f'_3 d_9 - 8f'_3 r_7 + 32f'_3 \phi_1 - 24f'_3 \phi_3$$
$$+ 36h'_5 r_7 - 36h'_5 \phi_1 + 32g'_7 d_5 + 20h'_9 \phi_3$$
$$- 20h'_9 \phi_1 - 12f_3 d'_9 - 16g'_7 \phi_3 + 16g'_7 \phi_1$$
$$- 30h_5 r'_7 - 56g_7 d'_5 - 90h_9 \phi'_3 - 132j_{11} \phi'_1; \qquad (65)$$

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$$(1/\sigma)T''_{11} + f_1 T'_{11} - 10f'_1 T_{11} = - 2f'_1 r_9 - 4f'_1 S_7 + 6f'_1 b_5 + 4f'_1 \phi_3 - 10f'_1 \phi_1$$
$$+ 32f'_3 r_9 - 16f'_3 b_5 + 16f'_3 \phi_1 + 36g'_5 S_7$$
$$- 12g'_5 b_5 - 24g'_5 \phi_3 + 36g'_5 \phi_1 + 32h'_7 b_5$$
$$- 32h'_7 \phi_1 + 20k'_9 \phi_3 - 20k'_9 \phi_1 - 12f_3 r'_9$$
$$- 30g_5 S'_7 - 56h_7 b'_5 - 90k_9 \phi'_3 - 132q_{11} \phi'_1; \qquad (66)$$

$$(1/\sigma)O''_{11} + f_1 O'_{11} - 10f'_1 O_{11} = - 2f'_1 S_9 - 4f'_1 T_7 + 2f'_1 S_7 + 6f'_1 d_5 - 2f'_1 b_5$$
$$- 8f'_1 \phi_3 + 10f'_1 \phi_1 + 32f'_3 S_9 - 8f'_3 S_7$$
$$- 16f'_3 d_5 + 8f'_3 b_5 + 24f'_3 \phi_3 - 32f'_3 \phi_1$$
$$+ 36g'_5 T_7 - 12g'_5 d_5 - 12h'_5 b_5 + 36h'_5 S_7$$
$$- 24h'_5 \phi_3 + 36h'_5 \phi_1 + 12g'_5 \phi_3 - 12g'_5 \phi_1$$
$$+ 32k'_7 b_5 + 32h'_7 d_5 - 32k'_7 \phi_1 - 16h'_7 \phi_3$$
$$+ 16h'_7 \phi_1 + 20j'_9 \phi_3 - 20j'_9 \phi_1 - 12f_3 S'_9$$
$$- 30g_5 T'_7 - 30h_5 S'_7 - 56k_7 b'_5 - 56h_7 d'_5$$
$$- 90j_9 \phi'_3 - 132m_{11} \phi'_1; \qquad (67)$$

$$(1/\sigma)Z''_{11} + f_1 Z'_{11} - 10f'_1 Z_{11} = - 2f'_1 T_9 + 2f'_1 T_7 - 2f'_1 d_5 + 2f'_1 \phi_3 - 2f'_1 \phi_1$$
$$+ 32f'_3 T_9 - 8f'_3 T_7 + 8f'_3 d_5 - 8f'_5 \phi_3 + 8f'_3 \phi_1$$
$$+ 36h'_5 T_7 - 12h'_5 d_5 + 12h'_5 \phi_3 - 12h'_5 \phi_1$$
$$+ 32k'_7 d_5 - 16k'_7 \phi_3 + 16k'_7 \phi_1 + 20q'_9 \phi_3$$
$$- 12f_3 T'_9 - 30h_5 T'_7 - 56k_7 d'_5 - 90q_9 \phi'_3$$
$$- 20q'_9 \phi_1 - 132n_{11} \phi'_1; \qquad (68)$$

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$$(1/\sigma)l''_{12} + f_1 l'_{12} - 12f'_1 l_{12} = 24g'_{11}\Psi_2 - 132g_{11}\Psi'_2 - 24f''_1 g''_{11} - 12g'_{11}\phi_1 - 11f'_1\phi_1 - f'_1 b_{11}; \quad (69)$$

$$(1/\sigma)P''_{12} + f_1 P'_{12} - 12f'_1 P_{12} = 40f'_3 l_{10} + 40g'_9\Psi_4 + 24h'_{11}\Psi_2 - 12f_3 l'_{10} - 90g_9\Psi'_4 - 132h_{11}\Psi'_2 - 24f''_1 h''_{11} - 80f''_3 g''_9 - 12h'_{11}\phi_1 - 30g'_9\phi_1 - 10g'_9\phi_3 - 36f'_3\phi_1 - 4f'_3 b_9 - 9f'_1\phi_3 - 3f'_1 b_9 - f'_1 d_{11}; \quad (70)$$

$$(1/\sigma)u''_{12} + f_1 u'_{12} - 12f'_1 u_{12} = 48g'_5 u_8 + 48g'_7 l_6 + 24k'_{11}\Psi_2 - 30g_5 u'_8 - 56g_7 l'_6 - 132k_{11}\Psi'_2 - 24f''_1 k''_{11} - 96g''_5 g''_7 - 12k'_{11}\phi_1 - 40g'_7\phi_1 - 8g'_7 b_5 - 42g'_5\phi_1 - 6g'_5 r_7 - 7f'_1 b_5 - 5f'_1 r_7 - f'_1 r_{11}; \quad (71)$$

$$(1/\sigma)v''_{12} + f_1 v'_{12} - 12f'_1 v_{12} = 40f'_3 P_{10} + 48h'_5 u_8 + 48g'_7 P_6 + 40h'_9\Psi_4 + 24j'_{11}\Psi_2 - 12f_3 P'_{10} - 30h_5 u'_8 - 56g_7 P'_6 - 90h_9\Psi'_4 - 132j_{11}\Psi'_2 - 24f''_1 j''_{11} - 80f''_3 h''_9 - 96h''_5 g''_7 - 12j'_{11}\phi_1 - 30h'_9\phi_1 - 10h'_9\phi_3 - 24g'_7\phi_3 - 8g'_7 d_5 - 42h'_5\phi_1 - 6h'_5 r_7 - 28f'_5\phi_3 - 12f'_3 r_7 - 4f'_3 d_9 - 7f'_1 d_5 - 3f'_1 d_9 - f'_1 s_{11}; \quad (72)$$

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$$(1/\sigma)w''_{12} + f_1 w'_{12} - 12f'_1 w_{12} = 40f'_3 u_{10} + 48g'_5 v_8 + 48h'_7 l_6 + 40k'_9 \Psi_4$$
$$+ 24q'_{11}\Psi_2 - 12f_3 u'_{10} - 30g_5 v'_8 - 56h_7 l'_6$$
$$- 90k_9\Psi'_4 - 132q_{11}\Psi'_2 - 24f''_1 q''_{11} - 80f''_3 k''_9$$
$$- 96g''_5 h''_7 - 12q'_{11}\phi_1 - 30k'_9\phi_1 - 10k'_9\phi_3$$
$$- 40h'_7\phi_1 - 8h'_7 b_5 - 30g'_5\phi_3 - 18g'_5 b_5 - 6g'_5 S_7$$
$$- 20f'_3 b_5 - 4f'_3 r_9 - 5f'_1 S_7 - 3f'_1 r_9 - f'_1 T_{11}; \qquad (73)$$

$$(1/\sigma)C''_{12} + f_1 C'_{12} - 12f'_1 C_{12} = 40f'_3 v_{10} + 48g'_5 w_8 + 48h'_5 v_8 + 48h'_7 P_6$$
$$+ 48k'_7 l_6 + 40j'_9\Psi_4 + 24m'_{11}\Psi_2 - 12f_3 v'_{10}$$
$$- 30g_5 w'_8 - 30h_5 v'_8 - 56h_7 P'_6 - 56k_7 l'_6$$
$$- 90j_9\Psi'_4 - 132m_{11}\Psi'_2 - 24f''_1 m''_{11} - 80f''_3 j''_9$$
$$- 96h''_5 h''_7 - 96g''_5 k''_7 - 12m'_{11}\phi_1 - 30j'_9\phi_1$$
$$- 10j'_9\phi_3 - 40k'_7\phi_1 - 24h'_7\phi_3 - 8h'_7 d_5$$
$$- 8k'_7 b_5 - 30h'_5\phi_3 - 18g'_5 d_5 - 18h'_5 b_5$$
$$- 6h'_5 S_7 - 6g'_5 T_7 - 20f'_3 d_5 - 12f'_3 S_7 - 4f'_3 S_9$$
$$- 5f'_1 T_7 - 3f'_1 S_9 - f'_1 O_{11}; \qquad (74)$$

$$(1/\sigma)Y''_{12} + f_1 Y'_{12} - 12f'_1 Y_{12} = 40f'_3 w_{10} + 48h'_5 w_8 + 48k'_7 P_6 + 40q'_9\Psi_4$$
$$+ 24n'_{11}\Psi_2 - 12f_3 w'_{10} - 30h_5 w'_8 - 56k_7 P'_6$$
$$- 90q_9\Psi'_4 - 132n_{11}\Psi'_2 - 24f''_1 n''_{11} - 80f''_3 q''_9$$
$$- 96h''_5 k''_7 - 12n'_{11}\phi_1 - 30q'_9\phi_1 - 10q'_9\phi_3$$
$$- 24k'_7\phi_3 - 8k'_7 d_5 - 18h'_5 d_5 - 6h'_5 T_7$$
$$- 12f'_3 T_7 - 4f'_3 T_9 - 3f'_1 T_9 - f'_1 Z_{11}. \qquad (75)$$

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Appropriate boundary conditions are

at $\eta = 0$: $-1 = \phi_1 = \phi_3 = b_5 = r_7 = b_9 = b_{11}$, and all the other thermal functions = 0;

as $\eta \to \infty$: all the thermal functions $\to 0$.

The surface rate of heat transfer per unit area may be expressed in terms of the universal functions as Eq. (76).

$$
\begin{aligned}
k(\partial T/\partial y)_w = k(T_1 - T_w)(\partial\theta/\partial y)_w = \left[k(T_1 - T_w)(\beta_1/\nu)^{1/2}/u_1\right]\Big\{ & x\beta_1\phi_1'(0) \\
& + x^3\beta_3\phi_3'(0) + x^5\left[\beta_5 b_5'(0) + (\beta_3^2/\beta_1)d_5'(0)\right] + x^7\left[\beta_7 r_7'(0)\right. \\
& \left. + (\beta_3\beta_5/\beta_1)S_7'(0) + (\beta_3^3/\beta_1^2)T_7'(0)\right] + x^9\left[\beta_9 b_9'(0) + (\beta_3\beta_7/\beta_1)d_9'(0)\right. \\
& \left. + (\beta_5^2/\beta_1)r_9'(0) + (\beta_3^2\beta_5/\beta_1^2)S_9'(0) + (\beta_3^4/\beta_1^3)T_9'(0)\right] \\
& + x^{11}\left[\beta_{11} b_{11}'(0) + (\beta_3\beta_9/\beta_1)d_{11}'(0) + (\beta_5\beta_7/\beta_1)r_{11}'(0)\right. \\
& \left. + (\beta_3^2\beta_7/\beta_1^2)S_{11}'(0) + (\beta_3\beta_5^2/\beta_1^2)T_{11}'(0) + (\beta_3^3\beta_5/\beta_1^3)O_{11}'(0)\right. \\
& \left. + (\beta_3^5/\beta_1^4)Z_{11}'(0)\right] + \cdots\Big\} + \left[k(\beta_1/\nu)^{1/2}/c_p J\right]\Big\{x^2\beta_1^2\Psi_2'(0) \\
& + x^4\beta_1\beta_3\Psi_4'(0) + x^6\left[\beta_1\beta_5 l_6'(0) + \beta_3^2 P_6'(0)\right] + x^8\left[\beta_1\beta_7 u_8'(0)\right. \\
& \left. + \beta_3\beta_5 v_8'(0) + (\beta_3^3/\beta_1)w_8'(0)\right] + x^{10}\left[\beta_1\beta_9 l_{10}'(0) + \beta_3\beta_7 P_{10}'(0)\right. \\
& \left. + \beta_5^2 u_{10}'(0) + (\beta_3^2\beta_5/\beta_1)v_{10}'(0) + (\beta_3^4/\beta_1^2)w_{10}'(0)\right] \\
& + x^{12}\left[\beta_1\beta_{11} l_{12}'(0) + \beta_3\beta_9 P_{12}'(0) + \beta_5\beta_7 u_{12}'(0) + (\beta_3^2\beta_7/\beta_1)v_{12}'(0)\right. \\
& \left. + (\beta_3\beta_5^2/\beta_1)w_{12}'(0) + (\beta_3^3\beta_5/\beta_1^2)C_{12}'(0) + (\beta_3^5/\beta_1^3)Y_{12}'(0)\right] + \cdots\Big\}
\end{aligned}
\tag{76}
$$

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RESULTS

The solutions for the universal velocity boundary layer functions of Eqs. (13)-(31) are tabulated in Appendix A. These tables are reproduced from Refs. 6 and 7, Progress Report Nos. 14 and 23 of The Computation Laboratory at Harvard University, respectively. The initial values of the second derivatives have been retabulated in Table I.

The substitution of the above initial values into Stewartson's and Howarth's analyses (Refs. 8 and 9) of the compressibility effect upon the local surface friction coefficient in a linearly accelerating velocity field yields Eq. (77).

$$(\tau_w \sqrt{u_1 x/\nu_w})/\rho_w u_1^2 = 1.23259+0.05592(u_1/a_t)^2+0.01169(u_1/a_t)^4 + 0.00227(u_1/a_t)^6+0.00029(u_1/a_t)^8-0.00024(u_1/a_t)^{10} \quad (77)$$

The effect of compressibility is shown in the computed results of Table II.

The solutions obtained for the universal thermal boundary layer functions with odd subscripts of Eqs. (38)-(69) are tabulated in Appendix B. A Prandtl number of one has been used throughout. The tables of values are taken from Ref. 7. The initial values of the first derivatives have been collected and retabulated in Table III.

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The Velocity Boundary Layer

As mentioned in the Introduction, it was originally decided to compute sufficient universal velocity boundary layer functions to make available an adequate solution in most cases when the free stream velocity variation along the surface is given by the first four odd terms of a Taylor series in x, i.e., Eq. (3). This decision was based on the fact that not only would an adequate foundation thus be laid for the later computation of the thermal boundary layer functions, but also a desirable augmentation of the available universal velocity boundary layer function values would be effected. An additional consideration was the feeling that a superior, four-parameter, general boundary layer analysis technique based on these functions, could be developed. We have not as yet applied ourselves to this task.

The functions g_9, g_{11}, and h_{11}, of Eqs. (20), (25), and (26) are not required for the above purposes. Hence they were not evaluated during the initial computations reported in Ref. 6. Because of Stewartson's work (Ref. 8), however, it became apparent that these three relatively simple functions would be of value in extending to higher Mach numbers Howarth's study (Ref. 9) of the effect of compressibility upon the velocity boundary layer in a linearly accelerating free stream velocity field. Consequently they were evaluated during the later computation of the universal thermal boundary layer functions of Ref. 7.

Eq. (77) (see Results) utilizes all of the initial values of the second derivative of the universal velocity boundary layer functions computed (Table I). It makes possible the quick determination of the effect of compressibility upon the local surface friction coefficient in a linearly accelerating velocity field when the local Mach numbers (based on local free stream static temperature) are at most somewhat less than 2 and the Prandtl number is one. Table II summarizes the results of a few such determinations. Although the compressibility effect indicated is much larger than in the case of zero pressure gradient, it is still only a 5% effect at sonic speeds. Furthermore, some reduction in its magnitude is to be expected when the Prandtl number considered decreases from 1 to a value more appropriate for air, e.g., 0.73.

The seven decimal places of most of the initial values of the second derivatives of Table I are in contrast with the six decimal places of the tables of Appendix A. They are the result of a check by Mr. Warren Semon of The Harvard Computation Laboratory on the precision of the original evaluation. As compared with the original ten-place computation, a 15-place determination was made using a more

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precise integrating formula. Twelve of the functions were re-evaluated. In each case the initial value checked through at least the seventh decimal place. It has therefore been assumed that the remaining unchecked initial values are also correct through at least the seventh decimal place. When available, all seven places have been given in Table I. The unchecked values have been underscored.

It is clear that boundary layer solutions applicable to permeable surfaces may be obtained from Eqs. (13)-(31) through the use of arbitrary constants for the initial values of the functions. Under these circumstances, however, the derived functions would not be universal. Each case of a permeable surface would call for a different combination of initial values and, as a consequence, different functional solutions. No attempt was made to obtain functions of such limited applicability.

The location of the point of separation of the boundary layer from the surface may be determined by setting equal to zero the summation in braces in Eq. (34). To expedite this process it may be noted that, after a division by x, the expression is a fifth order polynomial in x^2. Its roots are obtainable through standard computational and/or machine techniques. The electronic polynomial root extractor of the Computation Laboratory at WADC is particularly well-suited to this task.

The Thermal Boundary Layer

The initial values of the first derivatives of the odd thermal boundary layer functions have been collected from the tables of Appendix B and regrouped as Table III. They were determined using ten decimal places and an integration procedure similar to that employed in the original evaluation of the universal velocity boundary layer functions. A similar precision presumably was attained. In view of the seven-decimal-place precision of the latter, it is to be expected that all six decimal places of the initial values of Table III are correct.

The initial values of Table III are directly applicable to heat transfer computations only when the fluid's Prandtl number is one. By introducing a multiplicative Prandtl number correction such as $\sigma^{-0.36}$ (Ref. 10), however, they may also be used when the Prandtl number differs from one. Under this circumstance an additional correction must be included if the viscous heating effect is relatively significant. This correction requires that the effective fluid temperature (Ref. 11) be used, rather than the total fluid temperature, in determining the temperature difference causing heat transfer. In the absence of the numerical evaluation of the even functions, i.e., the viscous heating functions, of the present analysis, the effective fluid temperature corrections summarized in Ref. 11 are recommended.

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Aside from their direct application, the present relatively precise function values may find their widest employment to be that of a yardstick against which is measured the precision of proposed approximate methods of calculating the heat transfer with isothermal surfaces. Examples of this kind are contained in Refs. 12 and 2.

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UNIVERSAL THERMAL BOUNDARY LAYER FUNCTIONS FOR SYMMETRICAL FLOW OVER NONISOTHERMAL SURFACES

SYMBOLS

Symbol	Definition
A_o, A_1	universal thermal boundary layer functions of η defined by the functional transformations ahead of Eq. (II-7)
B	mathematically arbitrary constant set equal to minus one
c	mathematically arbitrary constant set equal to one
c_p	specific heat of fluid at constant pressure
$C_2, C_3, C_4, C_5, C_6, C_7, C_8$ $D_2, D_3, D_4, D_5, D_6, D_7, D_8$ E_4, E_5, E_6, E_7, E_8	universal thermal boundary layer functions of η defined by the functional transformations ahead of Eq. (II-7)
f_1, f_3, g_5, g_7, g_9	universal velocity boundary layer functions of η defined by the functional transformations ahead of Eq. (13) of Section I
G_n	the n'th thermal boundary layer function of y defined in Eq. (II-3)
h_5, h_7, h_9	universal velocity boundary layer functions of η defined by the functional transformations ahead of Eq. (13) of Section I
H_n	the n'th thermal boundary layer function of y having to do with viscous heating effects in Eq. (II-3)
j_9	universal velocity boundary layer function of η defined by the functional transformations ahead of Eq. (13) of Section I
J	mechanical equivalent of heat

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k	thermal conductivity of fluid
k_5, k_7, k_9	universal velocity boundary layer functions of η defined by the functional transformations ahead of Eq. (13) of Section I
K_4, K_5, K_6, K_7, K_8 L_6, L_7, L_8	universal thermal boundary layer functions of η defined by the functional transformations ahead of Eq. (II-7)
m	arbitrary integer
$M_6, M_7, M_8,$ N_6, N_7, N_8	universal thermal boundary layer functions of η defined by the functional transformations ahead of Eq. (II-7)
p	static pressure
P_8	universal thermal boundary layer function of η defined by the functional transformations ahead of Eq. (II-7)
q_9	universal velocity boundary layer function of η defined by the functional transformations ahead of Eq. (13) of Section I
Q_8, R_8, S_8	universal thermal boundary layer functions of η defined by the functional transformations ahead of Eq. (II-7)
T	fluid static temperature
T_e	effective fluid temperature causing heat transfer (Ref. 11)
T_t	free stream constant total temperature
T_w	surface temperature
T_1	local free stream static temperature
T_8	universal thermal boundary layer function of η defined by the functional transformations ahead of Eq. (II-7)
u	velocity component in x-direction
u_1	local free stream velocity
v	velocity component in y-direction

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x	distance along the surface normal to the leading edge
y	distance perpendicular to the surface
α_n	the n'th coefficient in Eq. (II-60), the specification of the surface temperature distribution
$\beta_1, \beta_3, \beta_5, \cdots$	coefficients in Eq. (3) of Section I defining the local free stream velocity distribution
$\delta_8, \epsilon_8, \gamma_4, \gamma_6, \gamma_8$	universal thermal boundary layer functions of η defined by the functional transformations ahead of Eq. (II-7)
$\eta = (\beta_1/\nu)^{1/2} y,$	non-dimensional boundary layer coordinate
$\theta = (T/T_t)-c$	
λ_o, λ_2	universal thermal boundary layer functions of η defined by the functional transformations ahead of Eq. (II-7)
ν	kinematic viscosity of fluid
ρ	density of fluid
$\sigma = \rho c_p \nu/k,$	Prandtl number
$\phi_4, \phi_6, \phi_8, \omega_6, \omega_8$	universal thermal boundary layer functions of η defined by the functional transformations ahead of Eq. (II-7)

[Derivatives with a subscript "w" are evaluated at the wall.]

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The standard simplified form of the energy equation is applicable to the present analysis.

$$\rho c_p J(u\partial T/\partial x + v\partial T/\partial y) = kJ\partial^2 T/\partial y^2 + \rho\nu(\partial u/\partial y)^2 + u dp/dx \qquad \text{(II-1)}$$

Replacing the temperature, T, with the dimensionless ratio, $(T/T_t) - c = \theta$, and the pressure gradient, dp/dx, by its equivalent, $-\rho u_1 du_1/dx$, Eq. (II-1) may be rewritten as

$$u\partial\theta/\partial x + v\partial\theta/\partial y = (k/\rho c_p)\partial^2\theta/\partial y^2 + (\nu/c_p JT_t)(\partial u/\partial y)^2 - (uu_1 du_1/dx)/c_p JT_t. \qquad \text{(II-2)}$$

A solution of the form of Eq. (II-3) will be assumed.

$$\theta = G_o(y) + xG_1(y) + x^2 G_2(y) + \cdots + (u_1^2/2c_p JT_t)\left[B + H_o(y) + xH_1(y) + x^2 H_2(y) + \cdots\right] \qquad \text{(II-3)}$$

In this formulation, the G functions satisfy the homogeneous form of the equation; the rest of the solution, the inhomogeneous form of the equation. Let us examine the latter more closely.

After substitution of the assumed solution, the inhomogeneous equation reads as

$$\left[(uu_1 du_1/dx)/c_p JT_t\right](B + \sum_o^m x^n H_n) + (u_1/2c_p JT_t)(u\sum_o^m nx^{n-1}H_n + v\sum_o^m x^n dH_n/dy) = (k/\rho c_p)(u_1^2/2c_p JT_t)\sum_o^m x^n d^2H_n/dy^2 + (\nu/c_p JT_t)(\partial u/\partial y)^2 - (uu_1 du_1/dx)/c_p JT_t. \qquad \text{(II-4)}$$

Clearly the adoption of minus one as the value of the arbitrary constant, B, simplifies the equation in that the first and last terms are thereby caused to cancel.

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Having set B = -1, we may now determine the boundary conditions applicable to the G and H functions. Those arising at the outer edge of the boundary layer will be considered first.

Along the outer edge of the boundary layer, the total temperature is constant and is given by Eq. (II-5).

$$T_t = T_1 + u_1^2/2c_pJ. \qquad \text{(II-5)}$$

But from the definition of θ, we have there

$$\theta(\infty) = (T_1/T_t) - c.$$

It follows that

$$\theta(\infty) = 1 - c - u_1^2/2c_pJT_t.$$

Consequently,

$$\sum_o^m x^n G_n(\infty) + (u_1^2/2c_pJT_t)\left[-1 + \sum_o^m x^n H_n(\infty)\right] = 1 - c - u_1^2/2c_pJT_t.$$

This identity is most conveniently satisfied by setting c = 1 and $G_n(\infty) = 0 = H_n(\infty)$.

Along the inner edge of the boundary layer, that is, along the surface, Eq. (II-3) may now be written as

$$T_w/T_t = 1 + \sum_o^m x^n G_n(o) + (u_1^2/2c_pJT_t)\left[-1 + \sum_o^m x^n H_n(o)\right]. \qquad \text{(II-6)}$$

The initial values for the G and H functions are arbitrary constants determined by the surface temperature distribution. In the case of an isothermal surface, it is particularly convenient to set $G_o(o) = \alpha_o$, $H_o(o) = 1$, and $G_n(o) = 0 = H_n(o)$ when n differs from zero. In the general case of a nonisothermal surface, however, it is most convenient to use the initial boundary conditions:

$$G_n(o) = \alpha_n \text{ and } H_n'(o) = 0 \quad \text{(See Ref. 11)}$$

These are the initial conditions to which reference is made hereafter.

In order to obtain universal functions (for a given Prandtl number), the G and H functions are transformed as follows:

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$$G_o = \alpha_o A_o;\ G_1 = \alpha_1 A_1;\ G_2 = \alpha_2 C_2 + (\alpha_o \beta_3/\beta_1) D_2;$$

$$G_3 = \alpha_3 C_3 + (\alpha_1 \beta_3/\beta_1) D_3;\ G_4 = \alpha_4 C_4 + (\alpha_2 \beta_3/\beta_1) D_4 + (\alpha_o \beta_3^2/\beta_1^2) E_4 + (\alpha_o \beta_5/\beta_1) K_4;$$

$$G_5 = \alpha_5 C_5 + (\alpha_3 \beta_3/\beta_1) D_5 + (\alpha_1 \beta_3^2/\beta_1^2) E_5 + (\alpha_1 \beta_5/\beta_1) K_5;$$

$$G_6 = \alpha_6 C_6 + (\alpha_4 \beta_3/\beta_1) D_6 + (\alpha_2 \beta_3^2/\beta_1^2) E_6 + (\alpha_2 \beta_5/\beta_1) K_6 + (\alpha_o \beta_3^3/\beta_1^3) L_6 + (\alpha_o \beta_3 \beta_5/\beta_1^2) M_6 + (\alpha_o \beta_7/\beta_1) N_6;$$

$$G_7 = \alpha_7 C_7 + (\alpha_5 \beta_3/\beta_1) D_7 + (\alpha_3 \beta_3^2/\beta_1^2) E_7 + (\alpha_3 \beta_5/\beta_1) K_7 + (\alpha_1 \beta_3^3/\beta_1^3) L_7 + (\alpha_1 \beta_3 \beta_5/\beta_1^2) M_7 + (\alpha_1 \beta_7/\beta_1) N_7;$$

$$G_8 = \alpha_8 C_8 + (\alpha_6 \beta_3/\beta_1) D_8 + (\alpha_4 \beta_3^2/\beta_1^2) E_8 + (\alpha_4 \beta_5/\beta_1) K_8 + (\alpha_2 \beta_3^3/\beta_1^3) L_8 + (\alpha_2 \beta_3 \beta_5/\beta_1^2) M_8 + (\alpha_2 \beta_7/\beta_1) N_8 + (\alpha_o \beta_3^4/\beta_1^4) P_8 + (\alpha_o \beta_3^2 \beta_5/\beta_1^3) Q_8 + (\alpha_o \beta_3 \beta_7/\beta_1) R_8 + (\alpha_o \beta_5^2/\beta_1^2) S_8 + (\alpha_o \beta_o/\beta_1) T_8;$$

$$H_o = \lambda_o;\ H_1 = H_3 = H_5 = H_7 = 0;$$

$$H_2 = (\beta_3/\beta_1)\lambda_2;\ H_4 = (\beta_3^2/\beta_1^2)\phi_4 + (\beta_5/\beta_1)\gamma_4;$$

$$H_6 = (\beta_3^3/\beta_1^3)\phi_6 + (\beta_3 \beta_5/\beta_1^2)\gamma_6 + (\beta_7/\beta_1)\omega_6;$$

$$H_8 = (\beta_o/\beta_1)\phi_8 + (\beta_3 \beta_7/\beta_1^2)\gamma_8 + (\beta_5^2/\beta_1^2)\omega_8 + (\beta_3^2 \beta_5/\beta_1^3)\delta_8 + (\beta_3^4/\beta_1^4)\epsilon_8.$$

(The universal functions on the right-hand side of the equations are considered to have $\eta = (\beta_1/\nu)^{1/2} y$ as their independent variable). Substituting these transformations, Eqs. (3), (32), and (33) of Section I, and Eqs. (II-3) (with B = -1) into the energy equation, we obtain upon collecting like powers of x in the homogeneous portion of the solution:

$$(1/\sigma)A_o'' + f_1 A_o' = 0; \qquad \text{(II-7)}$$

$$(1/\sigma)A_1'' + f_1 A_1' - f_1' A_1 = 0; \qquad \text{(II-8)}$$

$$(1/\sigma)C_2'' + f_1 C_2' - 2f_1' C_2 = 0; \qquad \text{(II-9)}$$

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$$(1/\sigma)D_2'' + f_1 D_2' - 2f_1' D_2 = -12f_3 A_o'; \tag{II-10}$$

$$(1/\sigma)C_3'' + f_1 C_3' - 3f_1' C_3 = 0; \tag{II-11}$$

$$(1/\sigma)D_3'' + f_1 D_3' - 3f_1' D_3 = -12f_3 A_1' + 4f_3' A_1; \tag{II-12}$$

$$(1/\sigma)C_4'' + f_1 C_4' - 4f_1' C_4 = 0; \tag{II-13}$$

$$(1/\sigma)D_4'' + f_1 D_4' - 4f_1' D_4 = -12f_3 C_2' + 8f_3' C_2; \tag{II-14}$$

$$(1/\sigma)E_4'' + f_1 E_4' - 4f_1' E_4 = -12f_3 D_2' + 8f_3' D_2 - 30h_5 A_o'; \tag{II-15}$$

$$(1/\sigma)K_4'' + f_1 K_4' - 4f_1' K_4 = -30g_5 A_o'; \tag{II-16}$$

$$(1/\sigma)C_5'' + f_1 C_5' - 5f_1' C_5 = 0; \tag{II-17}$$

$$(1/\sigma)D_5'' + f_1 D_5' - 5f_1' D_5 = -12f_3 C_3' + 12f_3' C_3; \tag{II-18}$$

$$(1/\sigma)E_5'' + f_1 E_5' - 5f_1' E_5 = -12f_3 D_3' + 12f_3' D_3 - 30h_5 A_1' + 6h_5' A_1; \tag{II-19}$$

$$(1/\sigma)K_5'' + f_1 K_5' - 5f_1' K_5 = -30g_5 A_1' + 6g_5' A_1; \tag{II-20}$$

$$(1/\sigma)C_6'' + f_1 C_6' - 6f_1' C_6 = 0; \tag{II-21}$$

$$(1/\sigma)D_6'' + f_1 D_6' - 6f_1' D_6 = -12f_3 C_4' + 16f_3' C_4; \tag{II-22}$$

$$(1/\sigma)E_6'' + f_1 E_6' - 6f_1' E_6 = -12f_3 D_4' + 16f_3' D_4 - 30h_5 C_2' + 12h_5' C_2; \tag{II-23}$$

$$(1/\sigma)K_6'' + f_1 K_6' - 6f_1' K_6 = -30g_5 C_2' + 12g_5' C_2; \tag{II-24}$$

$$(1/\sigma)L_6'' + f_1 L_6' - 6f_1' L_6 = -12f_3 E_4' + 16f_3' E_4 - 30h_5 D_2' + 12h_5' D_2 - 56k_7 A_o'; \tag{II-25}$$

$$(1/\sigma)M_6'' + f_1 M_6' - 6f_1' M_6 = -12f_3 K_4' + 16f_3' K_4 - 30g_5 D_2' + 12g_5' D_2 - 56h_7 A_o'; \tag{II-26}$$

$$(1/\sigma)N_6'' + f_1 N_6' - 6f_1' N_6 = -56g_7 A_o'; \tag{II-27}$$

$$(1/\sigma)C_7'' + f_1 C_7' - 7f_1' C_7 = 0; \tag{II-28}$$

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$$(1/\sigma)D_7'' + f_1 D_7' - 7f_1' D_7 = -12f_3 C_5' + 20f_3' C_5; \qquad \text{(II-29)}$$

$$(1/\sigma)E_7'' + f_1 E_7' - 7f_1' E_7 = -12f_3 D_5' + 20f_3' D_5 - 30h_5 C_3' + 18h_5' C_3; \qquad \text{(II-30)}$$

$$(1/\sigma)K_7'' + f_1 K_7' - 7f_1' K_7 = -30g_5 C_3' + 18g_5' C_3; \qquad \text{(II-31)}$$

$$(1/\sigma)L_7'' + f_1 L_7' - 7f_1' L_7 = -12f_3 E_5' + 20f_3' E_5 - 30h_5 D_3' + 18h_5' D_3 - 56k_7 A_1' + 8k_7' A_1; \qquad \text{(II-32)}$$

$$(1/\sigma)M_7'' + f_1 M_7' - 7f_1' M_7 = -12f_3 K_5' + 20f_3' K_5 - 30g_5 D_3' + 18g_5' D_3 - 56h_7 A_1' + 8h_7' A_1; \qquad \text{(II-33)}$$

$$(1/\sigma)N_7'' + f_1 N_7' - 7f_1' N_7 = -56g_7 A_1' + 8g_7' A_1; \qquad \text{(II-34)}$$

$$(1/\sigma)C_8'' + f_1 C_8' - 8f_1' C_8 = 0; \qquad \text{(II-35)}$$

$$(1/\sigma)D_8'' + f_1 D_8' - 8f_1' D_8 = -12f_3 C_6' + 24f_3' C_6; \qquad \text{(II-36)}$$

$$(1/\sigma)E_8'' + f_1 E_8' - 8f_1' E_8 = -12f_3 D_6' + 24f_3' D_6 - 30h_5 C_4' + 24h_5' C_4; \qquad \text{(II-37)}$$

$$(1/\sigma)K_8'' + f_1 K_8' - 8f_1' K_8 = -30g_5 C_4' + 24g_5' C_4; \qquad \text{(II-38)}$$

$$(1/\sigma)L_8'' + f_1 L_8' - 8f_1' L_8 = -12f_3 E_6' + 24f_3' E_6 - 30h_5 D_4' + 24h_5' D_4 - 56k_7 C_2' + 16k_7' C_2; \qquad \text{(II-39)}$$

$$(1/\sigma)M_8'' + f_1 M_8' - 8f_1' M_8 = -12f_3 K_6' + 24f_3' K_6 - 30g_5 D_4' + 24g_5' D_4 - 56h_7 C_2' + 16h_7' C_2; \qquad \text{(II-40)}$$

$$(1/\sigma)N_8'' + f_1 N_8' - 8f_1' N_8 = -56g_7 C_2' + 16g_7' C_2; \qquad \text{(II-41)}$$

$$(1/\sigma)P_8'' + f_1 P_8' - 8f_1' P_8 = -12f_3 L_6' + 24f_3' L_6 - 30h_5 E_4' + 24h_5' E_4 - 56k_7 D_2' + 16k_7' D_2 - 90q_9 A_o'; \qquad \text{(II-42)}$$

$$(1/\sigma)Q_8'' + f_1 Q_8' - 8f_1' Q_8 = -12f_3 M_6' + 24f_3' M_6 - 30g_5 E_4' - 30h_5 K_4' + 24g_5' E_4 + 24h_5' K_4 - 56h_7 D_2' + 16h_7' D_2 - 90j_9 A_o'; \qquad \text{(II-43)}$$

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$$(1/\sigma)R_8'' + f_1R_8' - 8f_1'R_8 = -12f_3N_6' + 24f_3'N_6 - 56g_7D_2' + 16g_7'D_2 - 90h_9A_o'; \quad \text{(II-44)}$$

$$(1/\sigma)S_8'' + f_1S_8' - 8f_1'S_8 = -30g_5K_4' + 24g_5'K_4 - 90k_9A_o'; \quad \text{(II-45)}$$

$$(1/\sigma)T_8'' + f_1T_8' - 8f_1'T_8 = -90g_9A_o'. \quad \text{(II-46)}$$

Appropriate boundary conditions are

at $\eta = 0$: $1 = A_o = A_1 = C_2 = C_3 = C_4 = C_5 = C_6 = C_7 = C_8$,
and all the other thermal functions = 0;

as $\eta \to \infty$: all the thermal functions $\to 0$.

We obtain similarly from the inhomogeneous portion of the solution:

$$(1/\sigma)\lambda_o'' + f_1\lambda_o' - 2f_1'\lambda_o = -2(f_1'')^2; \quad \text{(II-47)}$$

$$(1/\sigma)\lambda_2'' + f_1\lambda_2' - 4f_1'\lambda_2 = -12f_3\lambda_o' + 8f_3'\lambda_o + 4f_1'\lambda_o - 16f_1''f_3'' + 4(f_1'')^2; \quad \text{(II-48)}$$

$$(1/\sigma)\phi_4'' + f_1\phi_4' - 6f_1'\phi_4 = -12f_3\lambda_2' + 16f_3'\lambda_2 + 4f_1'\lambda_2 - 30h_5\lambda_o' + 12h_5'\lambda_o + 16f_3'\lambda_o - 4f_1'\lambda_o - 24f_1''h_5'' - 32(f_3'')^2 + 32f_1''f_3'' - 6(f_1'')^2; \quad \text{(II-49)}$$

$$(1/\sigma)\gamma_4'' + f_1\gamma_4' - 6f_1'\gamma_4 = -30g_5\lambda_o' + 12g_5'\lambda_o + 8f_1'\lambda_o - 24f_1''g_5'' + 4(f_1'')^2; \quad \text{(II-50)}$$

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$$(1/\sigma)\phi_6'' + f_1\phi_6' - 8f_1'\phi_6 = - 12f_3\phi_4' + 24f_3'\phi_4 + 4f_1'\phi_4 - 30h_5\lambda_2' + 24h_5'\lambda_2 + 16f_3'\lambda_2 - 4f_1'\lambda_2 - 56k_7\lambda_o' + 16k_7'\lambda_o - 16f_3'\lambda_o + 24h_5'\lambda_o + 4f_1'\lambda_o - 32f_1''k_7'' - 96f_3''h_5'' + 48f_1''h_5'' + 64(f_3'')^2 - 48f_1''f_3'' + 8(f_1'')^2; \quad \text{(II-51)}$$

$$(1/\sigma)\gamma_6'' + f_1\gamma_6' - 8f_1'\gamma_6 = - 12f_3\gamma_4' + 24f_3'\gamma_4 + 4f_1'\gamma_4 - 30g_5\lambda_2' + 24g_5'\lambda_2 + 8f_1'\lambda_2 - 56h_7\lambda_o' + 16h_7'\lambda_o + 24g_5'\lambda_o + 32f_3'\lambda_o - 12f_1'\lambda_o - 32f_1''h_7'' - 96f_3''g_5'' + 48f_1''g_5'' + 32f_1''f_3'' - 12(f_1'')^2; \quad \text{(II-52)}$$

$$(1/\sigma)\omega_6'' + f_1\omega_6' - 8f_1'\omega_6 = - 56g_7\lambda_o' + 16g_7'\lambda_o + 12f_1'\lambda_o - 32f_1''g_7'' + 4(f_1'')^2; \quad \text{(II-53)}$$

$$(1/\sigma)\phi_8'' + f_1\phi_8' - 10f_1'\phi_8 = - 90g_9\lambda_o' + 20g_9'\lambda_o + 16f_1'\lambda_o - 40f_1''g_9'' + 4(f_1'')^2; \quad \text{(II-54)}$$

$$(1/\sigma)\gamma_8'' + f_1\gamma_8' - 10f_1'\gamma_8 = - 12f_3\omega_6' + 32f_3'\omega_6 + 4f_1'\omega_6 - 56g_7\lambda_2' + 32g_7'\lambda_2 + 12f_1'\lambda_2 - 90h_9\lambda_o' + 20h_9'\lambda_o + 32g_7'\lambda_o + 48f_3'\lambda_o - 16f_1'\lambda_o + 64f_1''g_7'' - 40f_1''h_9'' - 128f_3''g_7'' + 32f_1''f_3'' - 12(f_1'')^2; \quad \text{(II-55)}$$

$$(1/\sigma)\omega_8'' + f_1\omega_8' - 10f_1'\omega_8 = - 30g_5\gamma_4' + 36g_5'\gamma_4 + 8f_1'\gamma_4 - 90k_9\lambda_o' + 20k_9'\lambda_o + 48g_5'\lambda_o - 8f_1'\lambda_o - 40f_1''k_9'' - 72(g_5'')^2 + 48f_1''g_5'' - 6(f_1'')^2; \quad \text{(II-56)}$$

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$$(1/\sigma)\delta_8'' + f_1\delta_8' - 10f_1'\delta_8 = - 12f_3\gamma_6' + 32f_3'\gamma_6 + 4f_1'\gamma_6 - 30g_5\phi_4'$$
$$+ 36g_5'\phi_4 + 8f_1'\phi_4 - 30h_5\gamma_4' + 36h_5'\gamma_4$$
$$+ 16f_3'\gamma_4 - 4f_1'\gamma_4 - 56h_7\lambda_2' + 32h_7'\lambda_2$$
$$+ 24g_5'\lambda_2 + 32f_3'\lambda_2 - 12f_1'\lambda_2 - 90j_9\lambda_o'$$
$$+ 20j_9'\lambda_o + 32h_7'\lambda_o + 48h_5'\lambda_o - 24g_5'\lambda_o$$
$$- 48f_3'\lambda_o + 16f_1'\lambda_o - 40f_1''j_9'' - 128f_3''h_7''$$
$$- 144g_5''h_5'' + 64f_1''h_7'' + 192f_3''g_5'' - 72f_1''g_5''$$
$$- 96f_1''f_3'' + 48f_1''h_5'' + 64(f_3'')^2 + 24(f_1'')^2; \qquad \text{(II-57)}$$

$$(1/\sigma)\epsilon_8'' + f_1\epsilon_8' - 10f_1'\epsilon_8 = - 12f_3\phi_6' + 32f_3'\phi_6 + 4f_1'\phi_6 - 30h_5\phi_4'$$
$$+ 36h_5'\phi_4 + 16f_3'\phi_4 - 4f_1'\phi_4 - 56k_7\lambda_2'$$
$$+ 32k_7'\lambda_2 + 24h_5'\lambda_2 - 16f_3'\lambda_2 + 4f_1'\lambda_2$$
$$- 90q_9\lambda_o' + 20q_9'\lambda_o + 32k_7'\lambda_o - 24h_5'\lambda_o$$
$$+ 16f_3'\lambda_o - 4f_1'\lambda_o - 40f_1''q_9'' - 128f_3''k_7''$$
$$- 72(h_5'')^2 + 64f_1''k_7'' + 192f_3''h_5'' - 72f_1''h_5''$$
$$- 96(f_3'')^2 + 64f_1''f_3'' - 10(f_1'')^2. \qquad \text{(II-58)}$$

Appropriate boundary conditions are

at $\eta = 0$: the first derivative of the viscous heating functions is zero;

as $\eta \longrightarrow \infty$: the viscous heating functions $\longrightarrow 0$.

The surface rate of heat transfer per unit area may be expressed in terms of the universal functions as Eq. (II-59).

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$$k(\partial T/\partial y)_w = kT_t(\partial\theta/\partial y)_w = kT_t(\beta_1/\nu)^{1/2}\Big\{\alpha_o A_o'(o) + x\alpha_1 A_1'(o)$$
$$+ x^2\Big[\alpha_2 C_2'(o) + (\alpha_o\beta_3/\beta_1)D_2'(o)\Big] + x^3\Big[\alpha_3 C_3'(o) + (\alpha_1\beta_3/\beta_1)D_3'(o)\Big]$$
$$+ x^4\Big[\alpha_4 C_4'(o) + (\alpha_2\beta_3/\beta_1)D_4'(o) + (\alpha_o\beta_3^2/\beta_1^2)E_4'(o)$$
$$+ (\alpha_o\beta_5/\beta_1)K_4'(o)\Big] + x^5\Big[\alpha_5 C_5'(o) + (\alpha_3\beta_3/\beta_1)D_5'(o)$$
$$+ (\alpha_1\beta_3^2/\beta_1^2)E_5'(o) + (\alpha_1\beta_5/\beta_1)K_5'(o)\Big] + x^6\Big[\alpha_6 C_6'(o)$$
$$+ (\alpha_4\beta_3/\beta_1)D_6'(o) + (\alpha_2\beta_3^2/\beta_1^2)E_6'(o) + (\alpha_2\beta_5/\beta_1)K_6'(o)$$
$$+ (\alpha_o\beta_3^3/\beta_1^3)L_6'(o) + (\alpha_o\beta_3\beta_5/\beta_1^2)M_6'(o) + (\alpha_o\beta_7/\beta_1)N_6'(o)\Big]$$
$$+ x^7\Big[\alpha_7 C_7'(o) + (\alpha_5\beta_3/\beta_1)D_7'(o) + (\alpha_3\beta_3^2/\beta_1^2)E_7'(o)$$
$$+ (\alpha_3\beta_5/\beta_1)K_7'(o) + (\alpha_1\beta_3^3/\beta_1^3)L_7'(o) + (\alpha_1\beta_3\beta_5/\beta_1^2)M_7'(o)$$
$$+ (\alpha_1\beta_7/\beta_1)N_7'(o)\Big] + x^8\Big[\alpha_8 C_8'(o) + (\alpha_6\beta_3/\beta_1)D_8'(o)$$
$$+ (\alpha_4\beta_3^2/\beta_1^2)E_8'(o) + (\alpha_4\beta_5/\beta_1)K_8'(o) + (\alpha_2\beta_3^3/\beta_1^3)L_8'(o)$$
$$+ (\alpha_2\beta_3\beta_5/\beta_1^2)M_8'(o) + (\alpha_2\beta_7/\beta_1)N_8'(o) + (\alpha_o\beta_3^4/\beta_1^4)P_8'(o)$$
$$+ (\alpha_o\beta_3^2\beta_5/\beta_1^3)Q_8'(o) + (\alpha_o\beta_3\beta_7/\beta_1^2)R_8'(o) + (\alpha_o\beta_5^2/\beta_1^2)S_8'(o)$$
$$+ (\alpha_o\beta_9/\beta_1)T_8'(o)\Big]\Big\}. \qquad \text{(II-59)}$$

The values of the coefficients, α_n, are determined by the surface temperature distribution.

$$T_w - T_1 = T_t\sum_o^m \alpha_n x^n + (u_1^2/2c_pJ)\sum_o^m x^n H_n(o)$$

or

$$T_w - T_e = T_t\sum_o^m \alpha_n x^n \qquad \text{(II-60)}$$

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Eqs. (C-6) to (C-17) of Appendix C relate certain of the universal thermal functions, i.e., those having α_o as a coefficient in Eq. (II-59), with those of Section I. Table IV tabulates the initial value of the first derivative of these functions when the Prandtl number is one. In view of the six-decimal place precision of Table III upon which the values of Table IV are based, the precision of the latter is no better than five decimal places.

It is unfortunate that none of the other universal thermal functions of this Section have been evaluated as yet. Their application as a yardstick for the measurement of the relative precision of various approximate methods of calculating the heat transfer from non-isothermal surfaces must, as a result, be deferred.

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SECTION III

UNIVERSAL BOUNDARY LAYER FUNCTIONS FOR ISOTHERMAL SURFACES HAVING A LOCAL FREE STREAM VELOCITY GIVEN BY A TAYLOR SERIES

SYMBOLS

Symbol	Definition
b_2, b_4, b_5	universal thermal boundary layer functions of η defined by the functional transformations ahead of Eq. (III-38)
c_p	specific heat of fluid at constant pressure
C_5, d_2, d_4, d_5	universal thermal boundary layer functions of η defined by the functional transformations ahead of Eq. (III-38)
f_o, f_1	universal velocity boundary layer functions of η defined by the functional transformations ahead of Eq. (III-14)
F_n	the n'th velocity boundary layer function of η defined in Eq. (III-6)
g_2, g_3, g_4, g_5	universal velocity boundary layer functions of η defined by the functional transformations ahead of Eq. (III-14)
G_n	the n'th thermal boundary layer function of η defined in Eq. (III-37)
h_2, h_3, h_4, h_5	universal velocity boundary layer functions of η defined by the functional transformations ahead of Eq. (III-14)
H_n	the n'th thermal boundary layer function of η having to do with viscous heating effects in Eq. (III-37)
j_4, j_5	universal velocity boundary layer functions of η defined by the functional transformations ahead of Eq. (III-14)
J	mechanical equivalent of heat
k	thermal conductivity of fluid

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k_3, k_4, k_5	universal velocity boundary layer functions of η defined by the functional transformations ahead of Eq. (III-14)
l_2, l_4, l_5	universal thermal boundary layer functions of η defined by the functional transformations ahead of Eq. (III-38)
m_5, n_5	universal velocity boundary layer functions of η defined by the functional transformations ahead of Eq. (III-14)
O_5	universal thermal boundary layer function of η defined by the functional transformations ahead of Eq. (III-38)
p	static pressure
P_2, P_4, P_5	universal thermal boundary layer functions of η defined by the functional transformations ahead of Eq. (III-38)
q	stream function of flow in the boundary layer
q_4, q_5	universal velocity boundary layer functions of η defined by the functional transformations ahead of Eq. (III-14)
$r_3, r_4, r_5, S_3, S_4, S_5$	universal thermal boundary layer functions of η defined by the functional transformations ahead of Eq. (III-38)
T	fluid static temperature
T_t	free stream constant total temperature
T_w	constant surface temperature
T_1	local free stream static temperature
T_3, T_4, T_5	universal thermal boundary layer functions of η defined by the functional transformations ahead of Eq. (III-38)
u	velocity component in x-direction
u_1	local free stream velocity
v	velocity component in y-direction

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w_3, w_4, w_5	universal thermal boundary layer functions of η defined by the functional transformations ahead of Eq. (III-38)
x	distance along the surface normal to the leading edge
y	distance perpendicular to the surface
Y_5, Z_5	universal thermal boundary layer functions of η defined by the functional transformations ahead of Eq. (III-38)
β_n	the n'th coefficient of the Taylor series representation of the local free stream velocity distribution, $u_1 = \sum \beta_n x^n$
$\gamma_3, \gamma_4, \gamma_5$	universal thermal boundary layer functions of η defined by the functional transformations ahead of Eq. (III-38)
$\eta = (\beta_o/x\nu)^{1/2} y/2$	non-dimensional boundary layer coordinate
$\theta = (T-T_1)/(T_1-T_w)$	
ν	kinematic viscosity of fluid
ρ	density of fluid
$\sigma = \rho c_p \nu/k$	Prandtl number
τ_w	surface shearing stress
$\phi_o, \phi_1, \psi_o, \psi_1, \psi_3, \psi_4, \psi_5$	universal thermal boundary layer functions of η defined by the functional transformations ahead of Eq. (III-38)

[Derivatives with a subscript "w" are evaluated at the wall.]

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The Velocity Boundary Layer

Prandtl's simplified boundary layer equations for two-dimensional flow are:

$$u\partial u/\partial x + v\partial u/\partial y = - (1/\rho)\partial p/\partial x + \nu\partial^2 u/\partial y^2 \qquad \text{(III-1)}$$

and

$$0 = (1/\rho)\partial p/\partial y. \qquad \text{(III-2)}$$

In view of Eq. (III-2), the term, $\partial p/\partial x$, in the previous equation may be replaced by the pressure gradient along the outer edge of the boundary layer. The latter is obtainable from Bernoulli's equation,

$$dp/\rho + d(u_1^2/2) = 0,$$

as

$$dp/dx = - \rho u_1 du_1/dx. \qquad \text{(III-3)}$$

The equation of continuity,

$$\partial u/\partial x + \partial v/\partial y = 0,$$

is satisfied by a stream function, q, defined by Eq. (III-4).

$$u = \partial q/\partial y \text{ and } v = - \partial q/\partial x. \qquad \text{(III-4)}$$

Substituting Eqs. (III-3) and (III-4) into Eq. (III-1) yields

$$(\partial q/\partial y)\partial^2 q/\partial x\partial y - (\partial q/\partial x)\partial^2 q/\partial y^2 = u_1 du_1/dx + \nu\partial^3 q/\partial y^3 . \qquad \text{(III-5)}$$

The velocity at the outer edge of the boundary layer being expressed as the Taylor series,

$$u_1 = \beta_o + \beta_1 x + \beta_2 x^2 + \beta_3 x^3 + \beta_4 x^4 + \cdots ,$$

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we shall assume a power series expansion for the stream function of the form,

$$q = (\beta_o x\nu)^{1/2}\left[F_o(\eta) + xF_1(\eta) + x^2F_2(\eta) + x^3F_3(\eta) + x^4F_4(\eta) + \cdots\right] \tag{III-6}$$

Here $\eta = (\beta_o/x\nu)^{1/2}y/2$.

In order to make use of solution (III-6), we shall have to change the independent variables of Eq. (III-5) to x and η. Eq. (III-7) results.

$$\begin{aligned}(\partial q/\partial\eta)\left[(\beta_o/x\nu)^{1/2}/2\right]\left\{(\partial^2 q/\partial x\partial\eta)\left[(\beta_o/x\nu)^{1/2}/2\right]\right.\\ \left. + (\partial q/\partial\eta)\left[-(\beta_o/x\nu)^{1/2}/4x\right]\right\} - (\partial^2 q/\partial\eta^2)(\partial q/\partial x)\\ (\beta_o/4x\nu) = u_1 du_1/dx + (\partial^3 q/\partial\eta^3)(\beta_o/x\nu)^{1/2}(\beta_o/8x)\end{aligned} \tag{III-7}$$

Substituting solution (III-6) and the Taylor series representation of the local free stream velocity and then simplifying, we obtain

$$\begin{aligned}&(F_o''' + xF_1''' + x^2F_2''' + x^3F_3''' + x^4F_4''' + x^5F_5''' + \cdots)\\ &\quad + (F_o'' + xF_1'' + x^2F_2'' + x^3F_3'' + x^4F_4'' + x^5F_5'' + \cdots)(F_o + 3xF_1\\ &\quad + 5x^2F_2 + 7x^3F_3 + 9x^4F_4 + 11x^5F_5 + \cdots) - (F_o' + xF_1' + x^2F_2'\\ &\quad + x^3F_3' + x^4F_4' + x^5F_5' + \cdots)(2xF_1' + 4x^2F_2' + 6x^3F_3'\\ &\quad + 8x^4F_4' + 10x^5F_5' + \cdots) = -(8/\beta_o^2)(\beta_o + \beta_1x + \beta_2x^2 + \beta_3x^3\\ &\qquad + \beta_4x^4 + \beta_5x^5 + \cdots)(\beta_1x + 2\beta_2x^2\\ &\qquad + 3\beta_3x^3 + 4\beta_4x^4 + 5\beta_5x^5 + \cdots)\end{aligned}$$

Equating like powers of x, Eqs. (III-8) to (III-13) follow.

$$F_o''' + F_oF_o'' = 0; \tag{III-8}$$

$$F_1''' + F_oF_1'' - 2F_o'F_1' + 3F_o''F_1 = -8\beta_1/\beta_o; \tag{III-9}$$

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$$F_2''' + F_o F_2'' - 4F_o' F_2' + 5F_o'' F_1 + 3F_1 F_1'' - 2(F_1')^2 = -8\beta_1^2/\beta_o^2 - 16\beta_2/\beta_o; \qquad \text{(III-10)}$$

$$F_3''' + F_o F_3'' - 6F_o' F_3' + 7F_o'' F_3 = 6F_1' F_2' - 3F_1 F_2'' - 5F_2 F_1'' - 24\beta_1\beta_2/\beta_o^2 - 24\beta_3/\beta_o; \qquad \text{(III-11)}$$

$$F_4''' + F_o F_4'' - 8F_o' F_4' + 9F_o'' F_4 = 4(F_2')^2 - 5F_2 F_2'' + 8F_1' F_3' - 3F_1 F_3'' - 7F_1'' F_3 - 32\beta_4/\beta_1 - 32\beta_1\beta_3/\beta_o^2 - 16\beta_2^2/\beta_o^2; \qquad \text{(III-12)}$$

$$F_5''' + F_o F_5'' - 10F_o' F_5' + 11F_o'' F_5 = 10F_1' F_4' - 3F_1 F_4'' - 9F_1'' F_4 + 10F_2' F_3' - 5F_2 F_3'' - 7F_2'' F_3 - 40\beta_5/\beta_o - 40\beta_1\beta_4/\beta_o^2 - 40\beta_2\beta_3/\beta_o^2. \qquad \text{(III-13)}$$

The boundary conditions applicable to an impervious surface are

$$\text{at } \eta = 0: \quad F_n = F_n' = 0;$$

$$\text{as } \eta \to \infty: \quad F_n' \longrightarrow 2\beta_n/\beta_o .$$

In order to obtain universal functions, the F functions are transformed as follows:

$$F_o = f_o; \; F_1 = 8(\beta_1/\beta_o) f_1; \; F_2 = (8)^2 \left[(\beta_2/\beta_o) g_2 + (\beta_1/\beta_o)^2 h_2\right];$$

$$F_3 = (8)^3 \left[(\beta_3/\beta_o) g_3 + (\beta_1\beta_2/\beta_o^2) h_3 + (\beta_1/\beta_o)^3 k_3\right];$$

$$F_4 = (8)^4 \left[(\beta_4/\beta_o) g_4 + (\beta_1\beta_3/\beta_o^2) h_4 + (\beta_2/\beta_o)^2 k_4 + (\beta_1^2\beta_2/\beta_o^3) j_4 + (\beta_1/\beta_o)^4 q_4\right];$$

$$F_5 = (8)^5 \left[(\beta_5/\beta_o) g_5 + (\beta_1\beta_4/\beta_o^2) h_5 + (\beta_2\beta_3/\beta_o^2) k_5 + (\beta_1^2\beta_3/\beta_o^3) j_5 + (\beta_1\beta_2^2/\beta_o^3) q_5 + (\beta_1^3\beta_2/\beta_o^4) m_5 + (\beta_1/\beta_o)^5 n_5\right].$$

The universal functions on the right-hand side satisfy Eqs. (III-14) to (III-32).

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$$f_o''' + f_o f_o'' = 0; \tag{III-14}$$

$$f_1''' + f_o f_1'' - 2f_o' f_1' + 3f_o'' f_1 = -1; \tag{III-15}$$

$$g_2''' + f_o g_2'' - 4f_o' g_2' + 5f_o'' g_2 = -1/4; \tag{III-16}$$

$$h_2''' + f_o h_2'' - 4f_o' h_2' + 5f_o'' h_2 = -1/8 + 2(f_1')^2 - 3f_1 f_1''; \tag{III-17}$$

$$g_3''' + f_o g_3'' - 6f_o' g_3' + 7f_o'' g_3 = -3/64; \tag{III-18}$$

$$h_3''' + f_o h_3'' - 6f_o' h_3' + 7f_o'' h_3 = -3/64 + 6f_1' g_2' - 3f_1 g_2'' - 5f_1'' g_2; \tag{III-19}$$

$$k_3''' + f_o k_3'' - 6f_o' k_3' + 7f_o'' k_3 = 6f_1' h_2' - 3f_1 h_2'' - 5f_1'' h_2; \tag{III-20}$$

$$g_4''' + f_o g_4'' - 8f_o' g_4' + 9f_o'' g_4 = -1/128; \tag{III-21}$$

$$h_4''' + f_o h_4'' - 8f_o' h_4' + 9f_o'' h_4 = -1/128 + 8f_1' g_3' - 3f_1 g_3'' - 7f_1'' g_3; \tag{III-22}$$

$$k_4''' + f_o k_4'' - 8f_o' k_4' + 9f_o'' k_4 = -1/256 + 4(g_2')^2 - 5g_2 g_2''; \tag{III-23}$$

$$j_4''' + f_o j_4'' - 8f_o' j_4' + 9f_o'' j_4 = 8f_1' h_3' - 3f_1 h_3'' - 7f_1'' h_3 + 8h_2' g_2' - 5g_2 h_2'' - 5g_2'' h_2; \tag{III-24}$$

$$q_4''' + f_o q_4'' - 8f_o' q_4' + 9f_o'' q_4 = 8f_1' k_3' - 3f_1 k_3'' - 7f_1'' k_3 + 4(h_2')^2 - 5h_2 h_2''; \tag{III-25}$$

$$g_5''' + f_o g_5'' - 10f_o' g_5' + 11f_o'' g_5 = -5/4096; \tag{III-26}$$

$$h_5''' + f_o h_5'' - 10f_o' h_5' + 11f_o'' h_5 = -5/4096 + 10f_1' g_4' - 3f_1 g_4'' - 9f_1'' g_4; \tag{III-27}$$

$$k_5''' + f_o k_5'' - 10f_o' k_5' + 11f_o'' k_5 = -5/4096 + 10g_2' g_3' - 5g_2 g_3'' - 7g_2'' g_3; \tag{III-28}$$

$$j_5''' + f_o j_5'' - 10f_o' j_5' + 11f_o'' j_5 = 10f_1' h_4' - 3f_1 h_4'' - 9f_1'' h_4 + 10h_2' g_3' - 5h_2 g_3'' - 7h_2'' g_3; \tag{III-29}$$

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$$q_5''' + f_o q_5'' - 10f_o' q_5' + 11f_o'' q_5 = 10f_1' k_4' - 3f_1' k_4'' - 9f_1'' k_4 + 10g_2' h_3' - 5g_2 h_3'' - 7g_2'' h_3 ; \quad \text{(III-30)}$$

$$m_5''' + f_o m_5'' - 10f_o'' m_5' + 11f_o'' m_5 = 10f_1' j_4' - 3f_1 j_4'' - 9f_1'' j_4 + 10g_2' k_3' - 5g_2 k_3'' - 7g_2'' k_3 + 10h_2' h_3' - 5h_2 h_3'' - 7h_2'' h_3 ; \quad \text{(III-31)}$$

$$n_5''' + f_o n_5'' - 10f_o' n_5' + 11f_o'' n_5 = 10f_1' q_4' - 3f_1 q_4'' - 9f_1'' q_4 + 10h_2' k_3' - 5h_2 k_3'' - 7h_2'' k_3 . \quad \text{(III-32)}$$

The boundary conditions are

at $\eta = 0$: the universal functions and their first derivatives are zero;

as $\eta \to \infty$: $f_o' \to 2$, $f_1' \to 2/8$, $g_2' \to 2/(8)^2$, $g_3' \to 2/(8)^3$, $g_4' \to 2/(8)^4$, $g_5' \to 2/(8)^5$, and the first derivative of all the other universal functions $\to 0$.

The surface shearing stress may be evaluated by means of Eq. (III-33).

$$\tau_w = \rho\nu(\partial u/\partial y)_w = (\rho\beta_o/4)(\nu/\beta_o x)^{1/2}\Big\{\beta_o f_o''(o) + 8x\beta_1 f_1''(o) + (8x)^2\Big[\beta_2 g_2''(o) + (\beta_1^2/\beta_o)h_2''(o)\Big] + (8x)^3\Big[\beta_3 g_3''(o) + (\beta_1\beta_2/\beta_o)h_3''(o) + (\beta_1^3/\beta_o^2)k_3''(o)\Big] + (8x)^4\Big[\beta_4 g_4''(o) + (\beta_1\beta_3/\beta_o)h_4''(o) + (\beta_2^2/\beta_o)k_4''(o) + (\beta_1^2\beta_2/\beta_o^2)j_4''(o) + (\beta_1^4/\beta_o^3)q_4''(o)\Big] + (8x)^5\Big[\beta_5 g_5''(o) + (\beta_1\beta_4/\beta_o)h_5''(o) + (\beta_2\beta_3/\beta_o)k_5''(o) + (\beta_1^2\beta_3/\beta_o^2)j_5''(o) + (\beta_1\beta_2^2/\beta_o^2)q_5''(o) + (\beta_1^3\beta_2/\beta_o^3)m_5''(o) + (\beta_1^5/\beta_o^4)n_5''(o)\Big] + \cdots\Big\} . \quad \text{(III-33)}$$

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The Thermal Boundary Layer

The two-dimensional, rectilinear energy equation, after the conventional boundary layer simplifications of Prandtl, reads as

$$\rho c_p J(u\partial T/\partial x + v\partial T/\partial y) = kJ\partial^2 T/\partial y^2 + \rho\nu(\partial u/\partial y)^2 + u dp/dx \ ; \tag{III-34}$$

At the outer edge of the boundary layer, we have simply

$$T_1 + u_1^2/2c_p J = T_t \ . \tag{III-35}$$

When the dependent variable of Eq. (III-34) is changed from T to $\Theta = (T - T_1)/(T_1 - T_w)$ and Eqs. (III-3) and (III-4) are used, the energy equation becomes

$$(\partial q/\partial y)\partial\Theta/\partial x - (\partial q/\partial x)\partial\Theta/\partial y = (k/\rho c_p)\partial^2\Theta/\partial y^2 + \left[\nu/c_p J(T_1 - T_w)\right](\partial^2 q/\partial y^2)^2 + \left[1/c_p J(T_1 - T_w)\right]\Theta u_1(du_1/dx)\partial q/\partial y \ .$$

Changing to the independent variables, x and η, of the velocity boundary layer analysis, the energy equation appears in the following form:

$$(\partial\eta/\partial y)\left[(\partial\Theta/\partial x)\partial q/\partial\eta - (\partial\Theta/\partial\eta)\partial q/\partial x\right] = (k/\rho c_p)(\partial^2\Theta/\partial\eta^2)(\partial\eta/\partial y)^2 + \left[\nu/c_p J(T_1 - T_w)\right](\partial^2 q/\partial\eta^2)^2 (\partial\eta/\partial y)^4 + \left[1/c_p J(T_1 - T_w)\right] u_1(du_1/dx)\Theta(\partial q/\partial\eta)\partial\eta/\partial y \ . \tag{III-36}$$

Recalling the solution for the stream function, q, previously obtained, it is clear that a possible solution of Eq. (III-36) is

$$\Theta = \left[G_o(\eta) + xG_1(\eta) + x^2G_2(\eta) + x^3G_3(\eta) + \cdots\right]/u_1 + \left[H_o(\eta) + xH_1(\eta) + x^2H_2(\eta) + x^3H_3(\eta) + \cdots\right]/c_p J(T_1 - T_w). \tag{III-37}$$

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The H functions, accounting for frictional heating effects, satisfy the inhomogeneous form of the equation. Appropriate boundary conditions follow.

$$\text{At } \eta = 0: \quad G_n = -\beta_n \text{ and } H_n = 0;$$

$$\text{as } \eta \longrightarrow \infty: \quad G_n \longrightarrow 0 \text{ and } H_n \longrightarrow 0.$$

In order to obtain universal functions (as in the analysis of the velocity boundary layer), the G and H functions are transformed as follows:

$$G_0 = \beta_0\phi_0;\ G_1 = \beta_1\phi_1;\ G_2 = \beta_2 b_2 + (\beta_1^2/\beta_0)d_2;$$

$$G_3 = \beta_3 r_3 + (\beta_1\beta_2/\beta_0)S_3 + (\beta_1^3/\beta_0^2)T_3;$$

$$G_4 = \beta_4 b_4 + (\beta_1\beta_3/\beta_0)d_4 + (\beta_2^2/\beta_0)r_4 + (\beta_1^2\beta_2/\beta_0^2)S_4 + (\beta_1^4/\beta_0^3)T_4;$$

$$G_5 = \beta_5 b_5 + (\beta_1\beta_4/\beta_0)d_5 + (\beta_2\beta_3/\beta_0)r_5 + (\beta_1^2\beta_3/\beta_0^2)S_5 + (\beta_1\beta_2^2/\beta_0^2)T_5 + (\beta_1^3\beta_2/\beta_0^3)O_5 + (\beta_1^5/\beta_0^4)Z_5;$$

$$H_0 = \beta_0^2\psi_0;\ H_1 = \beta_0\beta_1\psi_1;\ H_2 = \beta_0\beta_2 l_2 + \beta_1^2 P_2;$$

$$H_3 = \beta_0\beta_3\psi_3 + \beta_1\beta_2\gamma_3 + (\beta_1^3/\beta_0)w_3;$$

$$H_4 = \beta_0\beta_4 l_4 + \beta_1\beta_3 P_4 + \beta_2^2\psi_4 + (\beta_1^2\beta_2/\beta_0)\gamma_4 + (\beta_1^4/\beta_0^2)w_4;$$

$$H_5 = \beta_0\beta_5 l_5 + \beta_1\beta_4 P_5 + \beta_2\beta_3\psi_5 + (\beta_1^2\beta_3/\beta_0)\gamma_5 + (\beta_1\beta_2^2/\beta_0)w_5 + (\beta_1^3\beta_2/\beta_0^2)c_5 + (\beta_1^5/\beta_0^3)Y_5 .$$

Upon substituting these transformations, solution (III-37), and the velocity field solution into the energy equation and collecting like powers of x, Eqs. (III-38) to (III-75) are obtained.

$$(1/\sigma)\phi_0'' + f_0\phi_0' = 0; \qquad \text{(III-38)}$$

$$(1/\sigma)\psi_0'' + f_0\psi_0' = -(1/4)(f_0'')^2; \qquad \text{(III-39)}$$

$$(1/\sigma)\phi_1'' + f_0\phi_1' - 2f_0'\phi_1 = -2f_0'\phi_0 - 24f_1\phi_0'; \qquad \text{(III-40)}$$

$$(1/\sigma)\psi_1'' + f_0\psi_1' - 2f_0'\psi_1 = -2f_0'\phi_0 - 4f_0''f_1'' - 24f_1\psi_0'; \qquad \text{(III-41)}$$

$$(1/\sigma)b_2'' + f_0 b_2' - 4f_0' b_2 = -4f_0'\phi_0 - 5(8)^2 g_2\phi_0'; \qquad \text{(III-42)}$$

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$$(1/\sigma)d_2'' + f_o d_2' - 4f_o' d_2 = 16f_1'\phi_1 - 16f_1'\phi_o - 2f_o'\phi_1 - 24f_1\phi_1' - 5(8)^2 h_2\phi_o' + 2f_o'\phi_o; \quad \text{(III-43)}$$

$$(1/\sigma)l_2'' + f_o l_2' - 4f_o' l_2 = -5(8)^2 g_2\Psi_o' - 32f_o'' g_2'' - 4f_o'\phi_o; \quad \text{(III-44)}$$

$$(1/\sigma)P_2'' + f_o P_2' - 4f_o' P_2 = 16f_1'\Psi_1 - 24f_1\Psi_1' - 5(8)^2 h_2\Psi_o' - 32f_o'' h_2'' - 16(f_1'')^2 - 2f_o'\phi_1 - 16f_1'\phi_o; \quad \text{(III-45)}$$

$$(1/\sigma)r_3'' + f_o r_3' - 6f_o' r_3 = -6f_o'\phi_o - 7(8)^3 g_3\phi_o'; \quad \text{(III-46)}$$

$$(1/\sigma)S_3'' + f_o S_3' - 6f_o' S_3 = 6f_o'\phi_o - 2f_o' b_2 - 4f_o'\phi_1 + 32f_1' b_2 - 32f_1'\phi_o + 2(8)^2 g_2'\phi_1 - 2(8)^2 g_2'\phi_o - 24f_1 b_2' - 5(8)^2 g_2\phi_1' - 7(8)^3 h_3\phi_o'; \quad \text{(III-47)}$$

$$(1/\sigma)T_3'' + f_o T_3' - 6f_o' T_3 = -2f_o'\phi_o - 2f_o' d_2 + 2f_o'\phi_1 + 16f_1'\phi_o - 16f_1'\phi_1 + 32f_1' d_2 + 2(8)^2 h_2'\phi_1 - 2(8)^2 h_2'\phi_o - 24f_1 d_2' - 5(8)^2 h_2\phi_1' - 7(8)^3 k_3\phi_o'; \quad \text{(III-48)}$$

$$(1/\sigma)\Psi_3'' + f_o\Psi_3' - 6f_o'\Psi_3 = -7(8)^3 g_3\Psi_o' - 4(8)^2 f_o'' g_3'' - 6f_o'\phi_o; \quad \text{(III-49)}$$

$$(1/\sigma)\gamma_3'' + f_o\gamma_3' - 6f_o'\gamma_3 = 32f_1' l_2 + 2(8)^2 g_2'\Psi_1 - 24f_1 l_2' - 5(8)^2 g_2\Psi_1' - 7(8)^3 h_3\Psi_o' - 4(8)^2 f_o'' h_3'' - 4(8)^2 f_1'' g_2'' - 2f_o' b_2 - 4f_o'\phi_1 - 32f_1'\phi_o - 2(8)^2 g_2'\phi_o; \quad \text{(III-50)}$$

$$(1/\sigma)w_3'' + f_o w_3' - 6f_o' w_3 = 32f_1' P_2 + 2(8)^2 h_2'\Psi_1 - 24f_1 P_2' - 5(8)^2 h_2\Psi_1' - 7(8)^3 k_3\Psi_o' - 4(8)^2 f_o'' k_3'' - 4(8)^2 f_1'' h_2'' - 2f_o' d_2 - 16f_1'\phi_1 - 2(8)^2 h_2'\phi_o; \quad \text{(III-51)}$$

$$(1/\sigma)b_4'' + f_o b_4' - 8f_o' b_4 = -8f_o'\phi_o - 9(8)^4 g_4\phi_o'; \quad \text{(III-52)}$$

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$$(1/\sigma)d_4'' + f_o d_4' - 8f_o' d_4 = 8f_o' \phi_o - 6f_o' \phi_1 - 2f_o' r_3 - 48f_1' \phi_o + 48f_1' r_3$$
$$- 2(8)^3 g_3' \phi_o + 2(8)^3 g_3' \phi_1 - 24 f_1 r_3'$$
$$- 7(8)^3 g_3 \phi_1' - 9(8)^4 h_4 \phi_o' \; ; \qquad \text{(III-53)}$$

$$(1/\sigma)r_4'' + f_o r_4' - 8f_o' r_4 = 4f_o' \phi_o - 4f_o' b_2 + 4(8)^2 g_2' b_2 - 4(8)^2 g_2' \phi_o$$
$$- 5(8)^2 g_2 b_2' - 9(8)^4 k_4 \phi_o' \; ; \qquad \text{(III-54)}$$

$$(1/\sigma)S_4'' + f_o S_4' - 8f_o' S_4 = - 8f_o' \phi_o + 6f_o' \phi_1 - 4f_o' d_2 + 2f_o' b_2 - 2f_o' S_3$$
$$- 16f_1' b_2 + 48f_1' S_3 - 32f_1' \phi_1 + 48f_1' \phi_o$$
$$+ 4(8)^2 g_2' d_2 + 4(8)^2 h_2' b_2 - 4(8)^2 h_2' \phi_o$$
$$- 2(8)^2 g_2' \phi_1 + 2(8)^2 g_2' \phi_o + 2(8)^3 h_3' \phi_1$$
$$-2(8)^3 h_3' \phi_o - 24 f_1 S_3' - 5(8)^2 g_2 d_2'$$
$$- 5(8)^2 h_2 b_2' - 7(8)^3 h_3 \phi_1' - 9(8)^4 j_4 \phi_o' \; ; \qquad \text{(III-55)}$$

$$(1/\sigma)T_4'' + f_o T_4' - 8f_o' T_4 = - 2f_o' T_3 + 2f_o' d_2 - 2f_o' \phi_1 + 2f_o' \phi_o + 48f_1' T_3$$
$$- 16f_1' d_2 + 16f_1' \phi_1 - 16f_1' \phi_o + 4(8)^2 h_2' d_2$$
$$- 2(8)^2 h_2' \phi_1 + 2(8)^2 h_2' \phi_o + 2(8)^3 k_3' \phi_1$$
$$- 2(8)^3 k_3' \phi_o - 24 f_1 T_3' - 5(8)^2 h_2 d_2'$$
$$- 7(8)^3 k_3 \phi_1' - 9(8)^4 q_4 \phi_o' \; ; \qquad \text{(III-56)}$$

$$(1/\sigma)l_4'' + f_o l_4' - 8f_o' l_4 = - 9(8)^4 g_4 \Psi_o' - 4(8)^3 f_o'' g_4'' - 8f_o' \phi_o \; ; \qquad \text{(III-57)}$$

$$(1/\sigma)P_4'' + f_o P_4' - 8f_o' P_4 = 48f_1' \Psi_3 + 2(8)^3 g_3' \Psi_1 - 24 f_1 \Psi_3' - 7(8)^3 g_3 \Psi_1'$$
$$- 9(8)^4 h_4 \Psi_o' - 4(8)^3 f_o'' h_4'' - 4(8)^3 f_1'' g_3''$$
$$- 6f_o' \phi_1 - 2f_o' r_3 - 48f_1' \phi_o - 2(8)^3 g_3' \phi_o \; ; \qquad \text{(III-58)}$$

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$$(1/\sigma)\psi_4'' + f_o\psi_4' - 8f_o'\psi_4 = 4(8)^2 g_2' l_2 - 5(8)^2 g_2 l_2' - 9(8)^4 k_4 \psi_o'$$
$$- 4(8)^3 f_o'' k_4'' - 2(8)^3 (g_2'')^2 - 4f_o' b_2 - 4(8)^2 g_2' \phi_o ; \quad \text{(III-59)}$$

$$(1/\sigma)\gamma_4'' + f_o\gamma_4' - 8f_o'\gamma_4 = 48f_1'\gamma_3 + 4(8)^2 g_2' P_2 + 4(8)^2 h_2' l_2 + 2(8)^3 h_3' \psi_1$$
$$- 24f_1\gamma_3' - 5(8)^2 g_2 P_2' - 5(8)^2 h_2 l_2' - 7(8)^3 h_3 \psi_1'$$
$$- 9(8)^4 j_4 \phi_o' - 4(8)^3 f_o'' j_4'' - 4(8)^3 f_1'' h_3''$$
$$- 4(8)^3 g_2'' h_2'' - 4f_o' d_2 - 2f_o' s_3 - 16f_1' b_2 - 32f_1' \phi_1$$
$$- 2(8)^2 g_2' \phi_1 - 4(8)^2 h_2' \phi_o - 2(8)^3 h_3' \phi_o ; \quad \text{(III-60)}$$

$$(1/\sigma)w_4'' + f_o w_4' - 8f_o' w_4 = 48f_1' w_3 + 4(8)^2 h_2' P_2 + 2(8)^3 k_3' \psi_1 - 24f_1 w_3'$$
$$- 5(8)^2 h_2 P_2' - 7(8)^3 k_3 \psi_1' - 9(8)^4 q_4 \psi_o'$$
$$- 4(8)^3 f_o'' q_4'' - 4(8)^3 f_1'' k_3'' - 2(8)^3 (h_2'')^2$$
$$- 2f_o' T_3 - 16f_1' d_2 - 2(8)^2 h_2' \phi_1 - 2(8)^3 k_3' \phi_o ; \quad \text{(III-61)}$$

$$(1/\sigma)b_5'' + f_o b_5' - 10f_o' b_5 = - 10f_o' \phi_o - 11(8)^5 g_5 \phi_o' ; \quad \text{(III-62)}$$

$$(1/\sigma)d_5'' + f_o d_5' - 10f_o' d_5 = - 2f_o' b_4 - 8f_o' \phi_1 + 10f_o' \phi_o + 64f_1' b_4 - 64f_1' \phi_o$$
$$+ 2(8)^4 g_4' \phi_1 - 2(8)^4 g_4' \phi_o - 24f_1 b_4' - 9(8)^4 g_4 \phi_1'$$
$$- 11(8)^5 h_5 \phi_o' ; \quad \text{(III-63)}$$

$$(1/\sigma)r_5'' + f_o r_5' - 10f_o' r_5 = - 4f_o' r_3 - 6f_o' b_2 + 10f_o' \phi_o + 6(8)^2 g_2' r_3$$
$$- 6(8)^2 g_2' \phi_o + 4(8)^3 g_3' b_2 - 4(8)^3 g_3' \phi_o$$
$$- 5(8)^2 g_2 r_3' - 7(8)^3 g_3 b_2' - 11(8)^5 k_5 \phi_o' ; \quad \text{(III-64)}$$

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$$(1/\sigma)S_5'' + f_o S_5' - 10f_o' S_5 = - 2f_o' d_4 + 2f_o' r_3 - 6f_o' d_2 + 8f_o' \phi_1 - 10f_o' \phi_o$$
$$+ 64f_1' d_4 - 16f_1' r_3 - 48f_1' \phi_1 + 64f_1' \phi_o$$
$$+ 6(8)^2 h_2' r_3 - 6(8)^2 h_2' \phi_o + 4(8)^3 g_3' d_2$$
$$- 2(8)^3 g_3' \phi_1 + 2(8)^3 g_3' \phi_o + 2(8)^4 h_4' \phi_1$$
$$- 2(8)^4 h_4' \phi_o - 24f_1 d_4' - 5(8)^2 h_2 r_3'$$
$$- 7(8)^3 g_3 d_2' - 9(8)^4 h_4 \phi_1' - 11(8)^5 j_5 \phi_o' \ ; \qquad \text{(III-65)}$$

$$(1/\sigma)T_5'' + f_o T_5' - 10f_o' T_5 = - 2f_o' r_4 - 4f_o' S_3 + 6f_o' b_2 + 4f_o' \phi_1 - 10f_o' \phi_o$$
$$+ 64f_1' r_4 - 32f_1' b_2 + 32f_1' \phi_o + 6(8)^2 g_2' S_3$$
$$- 2(8)^2 g_2' b_2 - 4(8)^2 g_2' \phi_1 + 6(8)^2 g_2' \phi_o$$
$$+ 4(8)^3 h_3' b_2 - 4(8)^3 h_3' \phi_o + 2(8)^4 k_4' \phi_1$$
$$- 2(8)^4 k_4' \phi_o - 24f_1 r_4' - 5(8)^2 g_2 S_3'$$
$$- 7(8)^3 h_3 b_2' - 9(8)^4 k_4 \phi_1' - 11(8)^5 q_5 \phi_o' \ ; \qquad \text{(III-66)}$$

$$(1/\sigma)O_5'' + f_o O_5' - 10f_o' O_5 = - 2f_o' S_4 - 4f_o' T_3 + 6f_o' d_2 - 2f_o' b_2 + 2f_o' S_3$$
$$- 8f_o' \phi_1 + 10f_o' \phi_o + 64f_1' S_4 - 16f_1' S_3 - 32f_1' d_2$$
$$+ 16f_1' b_2 + 48f_1' \phi_1 - 64f_1' \phi_o + 6(8)^2 g_2' T_3 + 6(8)^2 h_2' S_3$$
$$- 2(8)^2 g_2' d_2 - 2(8)^2 h_2' b_2 + 2(8)^2 g_2' \phi_1$$
$$- 2(8)^2 g_2' \phi_o + 6(8)^2 h_2' \phi_o - 4(8)^2 h_2' \phi_1$$
$$+ 4(8)^3 h_3' d_2 + 4(8)^3 k_3' b_2 - 4(8)^3 k_3' \phi_o$$
$$- 2(8)^3 h_3' \phi_1 + 2(8)^3 h_3' \phi_o + 2(8)^4 j_4' \phi_1$$
$$- 2(8)^4 j_4' \phi_o - 24f_1 S_4' - 5(8)^2 g_2 T_3' - 5(8)^2 h_2 S_3'$$
$$- 7(8)^3 h_3 d_2' - 7(8)^3 k_3 b_2' - 9(8)^4 j_4 \phi_1'$$
$$- 11(8)^5 m_5 \phi_o'; \qquad \text{(III-67)}$$

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$$(1/\sigma)Z_5'' + f_o Z_5' - 10f_o' Z_5 = - 2f_o' T_4 + 2f_o' S_3 - 2f_o' d_2 + 2f_o' \phi_1 - 2f_o' \phi_o$$
$$+ 64f_1' T_4 - 16f_1' T_3 + 16f_1' d_2 - 16f_1' \phi_1$$
$$+ 16f_1' \phi_o + 6(8)^2 h_2' T_3 - 2(8)^2 h_2' d_2 + 2(8)^2 h_2' \phi_1$$
$$- 2(8)^2 h_2' \phi_o + 4(8)^3 k_3' d_2 - 2(8)^3 k_3' \phi_1$$
$$+ 2(8)^3 k_3' \phi_o + 2(8)^4 q_4' \phi_1 - 2(8)^4 q_4' \phi_o - 24f_1 T_4'$$
$$- 5(8)^2 h_2 T_3' - 7(8)^3 k_3 d_2' - 9(8)^4 q_4 \phi_1'$$
$$- 11(8)^5 n_5 \phi_o' \; ; \qquad \text{(III-68)}$$

$$(1/\sigma)l_5'' + f_o l_5' - 10f_o' l_5 = - 11(8)^5 g_5 \Psi_o' - 4(8)^4 f_o'' g_5'' - 10f_o' \phi_o \; ; \qquad \text{(III-69)}$$

$$(1/\sigma)P_5'' + f_o P_5' - 10f_o' P_5 = 64f_1' l_4 + 2(8)^4 g_4' \Psi_1 - 24f_1 l_4' - 9(8)^4 g_4 \Psi_1'$$
$$- 11(8)^5 h_5 \Psi_o' - 4(8)^4 f_o'' h_5'' - 4(8)^4 f_1'' g_4''$$
$$- 2f_o' b_4 - 8f_o' \phi_1 - 64f_1' \phi_o - 2(8)^4 g_4' \phi_o \; ;$$
$$\text{(III-70)}$$

$$(1/\sigma)\Psi_5'' + f_o \Psi_5' - 10f_o' \Psi_5 = 6(8)^2 g_2' \Psi_3 + 4(8)^3 g_3' l_2 - 5(8)^2 g_2 \Psi_3'$$
$$- 7(8)^3 g_3 l_2' - 11(8)^5 k_5 \Psi_o' - 4(8)^4 f_o'' k_5'' - 4(8)^4 g_2'' g_3''$$
$$- 4f_o' r_3 - 6f_o' b_2 - 6(8)^2 g_2' \phi_o - 4(8)^3 g_3' \phi_o \; ;$$
$$\text{(III-71)}$$

$$(1/\sigma)\gamma_5'' + f_o \gamma_5' - 10f_o' \gamma_5 = 64f_1' P_4 + 6(8)^2 h_2' \Psi_3 + 4(8)^3 g_3' P_2 + 2(8)^4 h_4' \Psi_1$$
$$- 24f_1 P_4' - 5(8)^2 h_2 \Psi_3' - 7(8)^3 g_3 P_2' - 9(8)^4 h_4 \Psi_1'$$
$$- 11(8)^5 j_5 \Psi_o' - 4(8)^4 f_o'' j_5'' - 4(8)^4 f_1'' h_4''$$
$$- 4(8)^4 h_2'' g_3'' - 2 f_o' d_4 - 6f_o' d_2 - 16f_1' r_3 - 48f_1' \phi_1$$
$$- 6(8)^2 h_2' \phi_o - 2(8)^3 g_3' \phi_1 - 2(8)^4 h_4' \phi_o \; ;$$
$$\text{(III-72)}$$

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$$(1/\sigma)w_5'' + f_o w_5' - 10f_o' w_5 = 64f_1' \Psi_4 + 6(8)^2 g_2' \gamma_3 + 4(8)^3 h_3' l_2 + 2(8)^4 k_4' \Psi_1$$
$$- 24f_1 \Psi_4' - 5(8)^2 g_2 \gamma_3' - 7(8)^3 h_3 l_2'$$
$$- 9(8)^4 k_4 \Psi_1' - 11(8)^5 q_5 \Psi_o' - 4(8)^4 f_o'' q_5''$$
$$- 4(8)^4 f_1'' k_4'' - 4(8)^4 g_2'' h_3'' - 2f_o' r_4 - 4f_o' S_3$$
$$- 32f_1' b_2 - 2(8)^2 g_2' b_2 - 4(8)^2 g_2' \phi_1 - 4(8)^3 h_3' \phi_o$$
$$- 2(8)^4 k_4' \phi_o \; ; \qquad \text{(III-73)}$$

$$(1/\sigma)C_5'' + f_o C_5' - 10f_o' C_5 = 64f_1' \gamma_4 + 6(8)^2 g_2' w_3 + 6(8)^2 h_2' \gamma_3 + 4(8)^3 h_3' P_2$$
$$+ 4(8)^3 k_3' l_2 + 2(8)^4 j_4' \Psi_1 - 24f_1 \gamma_4' - 5(8)^2 g_2 w_3'$$
$$- 5(8)^2 h_2 \gamma_3' - 7(8)^3 h_3 P_2' - 7(8)^3 k_3 l_2'$$
$$- 9(8)^4 j_4 \Psi_1' - 11(8)^5 m_5 \Psi_o' - 4(8)^4 f_o'' m_5''$$
$$- 4(8)^4 f_1'' j_4'' - 4(8)^4 g_2'' k_3'' - 4(8)^4 h_2'' h_3'' - 2f_o' S_4$$
$$- 4f_o' T_3 - 32f_1' d_2 - 16f_1' S_3 - 2(8)^2 g_2' d_2$$
$$- 2(8)^2 h_2' b_2 - 4(8)^2 h_2' \phi_1 - 2(8)^3 h_3' \phi_1 - 4(8)^3 k_3' \phi_o$$
$$- 2(8)^4 j_4' \phi_o \; ; \qquad \text{(III-74)}$$

$$(1/\sigma)Y_5'' + f_o Y_5' - 10f_o' Y_5 = 64f_1' w_4 + 6(8)^2 h_2' w_3 + 4(8)^3 k_3' P_2 + 2(8)^4 q_4' \phi_1$$
$$- 24f_1 w_4' - 5(8)^2 h_2 w_3' - 7(8)^3 k_3 P_2' - 9(8)^4 q_4 \Psi_1'$$
$$- 11(8)^5 n_5 \Psi_o' - 4(8)^4 f_o'' n_5'' - 4(8)^4 f_1'' q_4''$$
$$- 4(8)^4 h_2'' k_3'' - 2f_o' T_4 - 16f_1' T_3 - 2(8)^2 h_2' d_2$$
$$- 2(8)^3 k_3' \phi_1 - 2(8)^4 q_4' \phi_o \; . \qquad \text{(III-75)}$$

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The applicable boundary conditions are

at $\eta = 0$: $-1 = \phi_0 = \phi_1 = b_2 = r_3 = b_4 = b_5$, and all the other thermal functions = 0;

as $\eta \rightarrow \infty$: all the thermal functions $\longrightarrow 0$.

The surface rate of heat transfer per unit area may be expressed in terms of the universal thermal functions as Eq. (III-76).

$$
\begin{aligned}
k(\partial T/\partial y)_w = k(T_1 - T_w)(\partial\theta/\partial y)_w = & \left[k(T_1 - T_w)(\beta_o/x\nu)^{1/2}/2u_1\right] \\
& \Big\{\beta_o\phi_o'(0) + x\beta_1\phi_1'(0) + x^2\left[\beta_2 b_2'(0) + (\beta_1^2/\beta_o)d_2'(0)\right] \\
& + x^3\left[\beta_3 r_3'(0) + (\beta_1\beta_2/\beta_o)s_3'(0) + (\beta_1^3/\beta_o^2)T_3'(0)\right] \\
& + x^4\left[\beta_4 b_4'(0) + (\beta_1\beta_3/\beta_o)d_4'(0) + (\beta_2^2/\beta_o)r_4'(0)\right. \\
& \left. + (\beta_1^2\beta_2/\beta_o^2)s_4'(0) + (\beta_1^4/\beta_o^3)T_4'(0)\right] + x^5\left[\beta_5 b_5'(0)\right. \\
& + (\beta_1\beta_4/\beta_o)d_5'(0) + (\beta_2\beta_3/\beta_o)r_5'(0) + (\beta_1^2\beta_3/\beta_o^2)s_5'(0) \\
& \left. + (\beta_1\beta_2^2/\beta_o^2)T_5'(0) + (\beta_1^3\beta_2/\beta_o^3)o_5'(0) + (\beta_1^5/\beta_o^4)z_5'(0)\right]\Big\} \\
& + \left[k(\beta_o/x\nu)^{1/2}/2c_p J\right]\Big\{\beta_o^2\,\Psi_o'(0) + x\beta_o\beta_1\,\Psi_1'(0) \\
& + x^2\left[\beta_o\beta_2 l_2'(0) + \beta_1^2 P_2'(0)\right] + x^3\left[\beta_o\beta_3\,\Psi_3'(0) + \beta_1\beta_2\gamma_3'(0)\right. \\
& \left. + (\beta_1^3/\beta_o)w_3'(0)\right] + x^4\left[\beta_o\beta_4 l_4'(0) + \beta_1\beta_3 P_4'(0) + \beta_2^2\,\Psi_4'(0)\right. \\
& \left. + (\beta_1^2\beta_2/\beta_o)\gamma_4'(0) + (\beta_1^4/\beta_o^2)w_4'(0)\right] + x^5\left[\beta_o\beta_5 l_5'(0)\right. \\
& + \beta_1\beta_4 P_5'(0) + \beta_2\beta_3\,\Psi_5'(0) + (\beta_1^2\beta_3/\beta_o)\gamma_5'(0) + (\beta_1\beta_2^2/\beta_o)w_5'(0) \\
& \left. + (\beta_1^3\beta_2/\beta_o^2)c_5'(0) + (\beta_1^5/\beta_o^3)Y_5'(0)\right]\Big\} \qquad \text{(III-76)}
\end{aligned}
$$

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The Velocity Boundary Layer

Hartree's series type of boundary layer solution when the local free stream velocity distribution is given by $u_1 = \beta_o + \beta_1 x$ (Ref.13) has in effect been extended to the more general case where $u_1 = \beta_o + \beta_1 x + \beta_2 x^2 + \beta_3 x^3 + \cdots$. Unfortunately, none of the additional universal functions involved have been evaluated, although the total differential equations defining them have been made available.

The solution presented is applicable, not only to low speed boundary layer problems, but also to boundary layers in supersonic flow, particularly the flow behind an attached oblique shock wave at the leading edge of a body. The latter is possible not only through use of the simplified compressible boundary layer theory of Ref. 14, but also through use of Stewartson's analysis (Ref. 8). He and others (Refs. 15 and 16) have shown that, under certain conditions, boundary layer flow problems in a compressible fluid can be transformed into boundary layer flow problems in an incompressible fluid.

The Thermal Boundary Layer

The universal functions (for a given Prandtl number) applicable to the solution of the thermal boundary layer problem on an isothermal surface with a Taylor series local free stream velocity distribution have not been numerically evaluated. When the initial first derivatives are in hand, they will be very useful in checking upon the precision of approximate thermal analyses applied to such isothermal surfaces.

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REFERENCES

1. Howarth, L., "On the Calculation of Steady Flow in the Boundary Layer Near the Surface of a Cylinder in a Stream," A.R.C. R and M 1632, (1934).

2. Tifford, Arthur N. and Wolansky, John, "On the Calculation of the Rate of Heat Transfer Through a Laminar Boundary Layer," Readers' Forum, Journal of the Aeronautical Sciences, 18, No. 6, 427-428, (June, 1951).

3. Frossling, Nils, "Verdunstung, Warmeubergang und Geschwindigkeits-verteilung bei Zweidimensionaler und rotationssymmetrischer laminarer Grenzschichtstromung," Lunds Universitates Arsskrift, N. F. Avd. 2, 36, No. 4, 1-31, (1940).

4. Sears, W. R., "The Boundary Layer of Yawed Cylinders," Journal of the Aeronautical Sciences, 15, No. 1, 49-52, (January, 1948).

5. Chao, Chi-Chang, "Universal Functions Applicable to Certain Boundary Layer Problems," Master's Thesis, The Ohio State University, (1951).

6. Aiken, H. et al., " Progress Report No. 14," Contract No. AF 33(038)-9461, The Harvard University Computation Laboratory, (1951).

7. Aiken, H. et al., "Progress Report No. 23," Contract No. AF 33(038)-9461, The Harvard University Computation Laboratory, (1953).

8. Stewartson, K., "Correlated Incompressible and Compressible Boundary Layers," Proceedings of the Royal Society of London, A, 200, No. 1060, 84-100,(December, 1949).

9. Howarth, L., "Concerning the Effect of Compressibility on Laminar Boundary Layers and Their Separation, "Proceedings of the Royal Society of London, A, 194, No. 1036, 16-42 (July, 1948).

10. Tifford, Arthur N., "The Thermodynamics of the Laminar Boundary Layer of a Heated Body in a High-Speed Gas Flow Field," Journal of the Aeronautical Sciences, 12, No. 2, 241-251, (April, 1945).

11. Tifford, Arhur N. and Chu, S. T., "Heat Transfer in Laminar Boundary Layers Subject to Surface Pressure and Temperature Distributions," Proceedings of the Second Midwestern Conference on Fluid Mechanics, 363-377, The Ohio State University Press, (September, 1952); also, WADC Tech. Report No. 53-288, Part I Wright Air Development Center, (1953).

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Contrails

12. Goland, Leonard, "A Theoretical Investigation of Heat Transfer in the Laminar Flow Regions of Airfoils," Journal of the Aeronautical Sciences, 17, No. 7, 436-440, (July, 1950).

13. Howarth, L., "On the Solution of the Laminar Boundary Layer Equations," Proceedings of the Royal Society, A, 164, 547-579, (February, 1938).

14. Tifford, Arthur N., "Simplified Compressible Laminar Boundary Layer Theory," Readers' Forum, Journal of the Aeronautical Sciences, 18, No. 5, 358-359, (May, 1951).

15. Illingworth, C. R., "Steady Flow in the Laminar Boundary Layer of a Gas," Proceedings of the Royal Society of London, A, 199, 533-558, (December, 1949).

16. Christensen, S., "Solutions of the Compressible Laminar Boundary Layer Equations for Arbitrary Pressure Distributions Along Thermally Insulated Surfaces," Ph.D. Dissertation, Harvard University, (December, 1950).

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TABLE I. Initial value of the second derivative of the universal velocity boundary layer functions

$f_1''(0) = 1.2325877$	$g_9''(0) = \underline{0.539932}$	$g_{11}''(0) = \underline{0.509986}$
$f_3''(0) = 0.7244473$	$h_9''(0) = 0.1519703$	$h_{11}''(0) = \underline{0.132290}$
$g_5''(0) = 0.6347023$	$k_9''(0) = 0.0571846$	$k_{11}''(0) = 0.0741998$
$h_5''(0) = 0.1191818$	$j_9''(0) = 0.0607414$	$j_{11}''(0) = \underline{0.0805536}$
$g_7''(0) = 0.5792016$	$q_9''(0) = \underline{-.0307865}$	$q_{11}''(0) = \underline{0.1163614}$
$h_7''(0) = 0.1829482$		$m_{11}''(0) = -.1796476$
$k_7''(0) = 0.0076383$		$n_{11}''(0) = \underline{0.0515608}$

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TABLE II. Friction coefficient as a function of local Mach number in a linearly-increasing velocity field

u_1/a_t	u_1/a_1	$\tau_w(u_1 x/\nu_w)^{1/2}/\rho_w u_1^2$
0	0	1.23259
0.5	0.51	1.24734
1.0	1.12	1.30252
1.3	1.60	1.37050

TABLE III. Initial value of the first derivative of the thermal boundary layer functions for isothermal surfaces when the Prandtl number is one

	$\phi_1'(0) = 0.570466$	
$b_5'(0) = 1.257365$		$r_{11}'(0) = 0.348039$
	$\phi_3'(0) = 1.091492$	
$d_5'(0) = 0.294784$		$S_{11}'(0) = 0.388420$
	$d_9'(0) = 0.549617$	
$r_7'(0) = 1.398942$		$T_{11}'(0) = 0.547273$
	$r_9'(0) = 0.230640$	
$S_7'(0) = 0.573680$		$O_{11}'(0) = -.878301$
	$S_9'(0) = 0.237898$	
$T_7'(0) = 0.021991$		$Z_{11}'(0) = 0.260767$
	$T_9'(0) = -.124511$	

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TABLE IV. Initial value of the first derivative of some of the universal thermal boundary layer functions when the Prandtl number is one

$A_0'(0) = -0.57047$	$L_6'(0) = -0.24823$	$P_8'(0) = 0.37274$
$D_2'(0) = -0.52103$	$M_6'(0) = 0.63425$	$Q_8'(0) = -1.09839$
$E_4'(0) = 0.22624$	$N_6'(0) = -0.82848$	$R_8'(0) = 0.79989$
$K_4'(0) = -0.68690$		$S_8'(0) = 0.45626$

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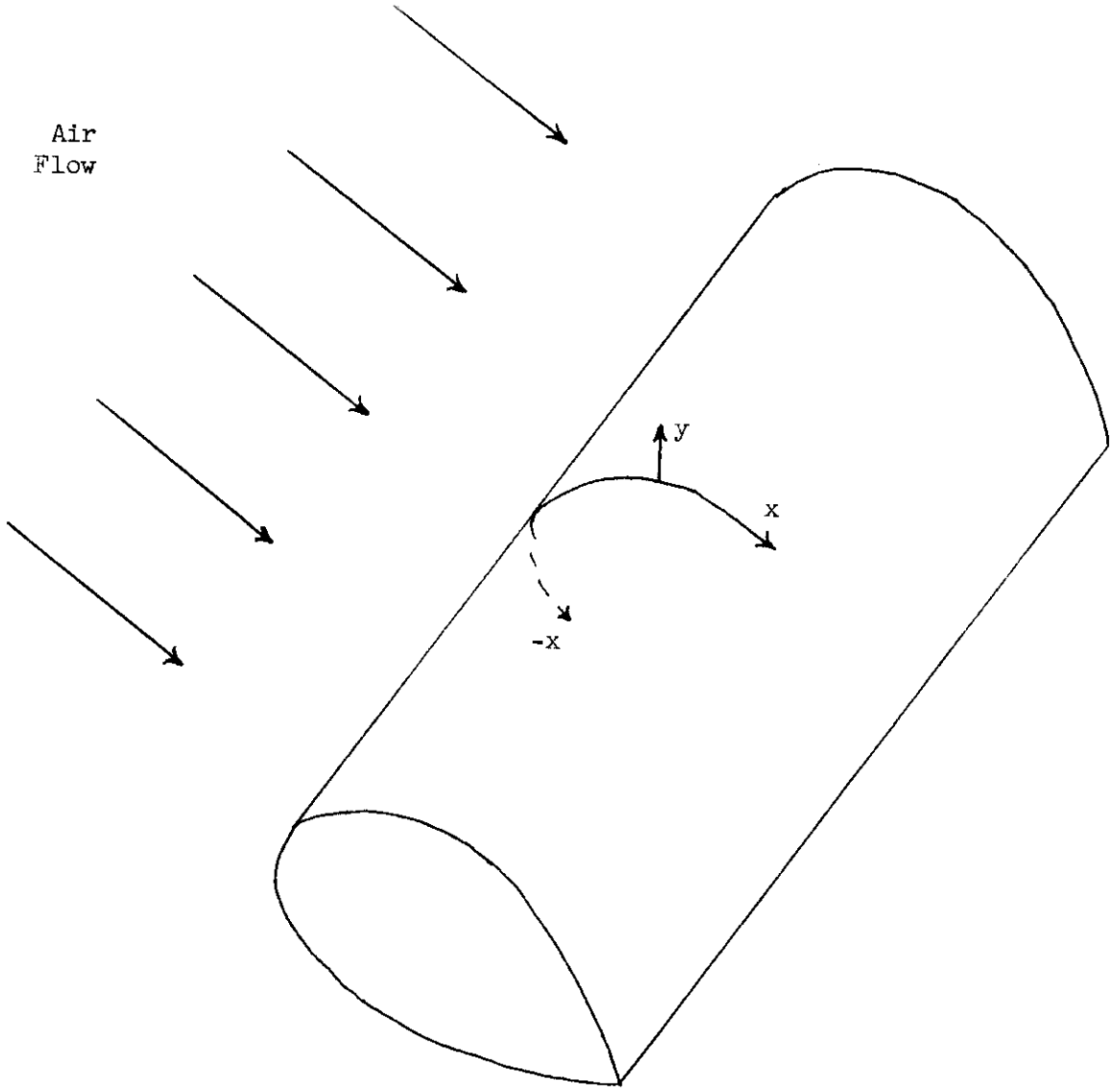

Fig. 1 Symmetrical cylinder at zero angle of attack

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APPENDIX A

THE UNIVERSAL VELOCITY BOUNDARY LAYER FUNCTIONS FOR SYMMETRICAL FLOW

(Reproduced from Progress Reports No. 14 and 23, Contract No. AF 33(038)-9461, The Harvard University Computation Laboratory, (1951))

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η	f_1	f_1'	f_1''	f_1'''	f_3	f_3'	f_3''	f_3'''
0.00	0.000000	0.000000	1.232588	-1.000000	0.000000	0.000000	0.724447	-1.000000
0.01	0.000061	0.012276	1.222588	-0.999924	0.000036	0.007194	0.714448	-0.999823
0.02	0.000245	0.024452	1.212590	-0.999699	0.000144	0.014289	0.704452	-0.999297
0.03	0.000550	0.036528	1.202594	-0.999327	0.000322	0.021284	0.694463	-0.998432
0.04	0.000975	0.048504	1.192604	-0.998811	0.000569	0.028178	0.684484	-0.997236
0.05	0.001520	0.060380	1.182619	-0.998152	0.000885	0.034973	0.674519	-0.995717
0.06	0.002183	0.072156	1.172641	-0.997353	0.001268	0.041669	0.664571	-0.993885
0.07	0.002963	0.083833	1.162672	-0.996417	0.001718	0.048265	0.654643	-0.991747
0.08	0.003859	0.095410	1.152713	-0.995345	0.002233	0.054762	0.644737	-0.989311
0.09	0.004871	0.106887	1.142766	-0.994141	0.002813	0.061160	0.634858	-0.986586
0.10	0.005996	0.118265	1.132831	-0.992806	0.003456	0.067459	0.625006	-0.983580
0.11	0.007236	0.129544	1.122910	-0.991343	0.004162	0.073660	0.615187	-0.980302
0.12	0.008587	0.140723	1.113004	-0.989754	0.004929	0.079763	0.605401	-0.976758
0.13	0.010050	0.151804	1.103115	-0.988042	0.005756	0.085768	0.595653	-0.972957
0.14	0.011623	0.162786	1.093244	-0.986207	0.006644	0.091676	0.585943	-0.968906
0.15	0.013305	0.173669	1.083391	-0.984254	0.007590	0.097487	0.576275	-0.964613
0.16	0.015096	0.184453	1.073559	-0.982183	0.008593	0.103202	0.566652	-0.960086
0.17	0.016994	0.195140	1.063748	-0.979998	0.009653	0.108820	0.557074	-0.955332
0.18	0.018998	0.205728	1.053960	-0.977699	0.010769	0.114343	0.547546	-0.950359
0.19	0.021108	0.216219	1.044195	-0.975290	0.011940	0.119771	0.538068	-0.945173
0.20	0.023322	0.226612	1.034454	-0.972773	0.013164	0.125105	0.528643	-0.939782
0.21	0.025640	0.236908	1.024740	-0.970149	0.014442	0.130344	0.519273	-0.934192
0.22	0.028060	0.247107	1.015052	-0.967420	0.015771	0.135490	0.509960	-0.928412
0.23	0.030582	0.257209	1.005391	-0.964590	0.017151	0.140544	0.500705	-0.922447
0.24	0.033204	0.267215	0.995760	-0.961659	0.018582	0.145505	0.491511	-0.916304
0.25	0.035926	0.277125	0.986159	-0.958630	0.020061	0.150374	0.482380	-0.909990
0.26	0.038746	0.286938	0.976588	-0.955505	0.021589	0.155153	0.473312	-0.903512
0.27	0.041664	0.296657	0.967049	-0.952286	0.023164	0.159841	0.464310	-0.896875
0.28	0.044679	0.306280	0.957542	-0.948975	0.024785	0.164439	0.455375	-0.890087
0.29	0.047789	0.315808	0.948070	-0.945573	0.026452	0.168948	0.446509	-0.883153
0.30	0.050995	0.325241	0.938631	-0.942084	0.028164	0.173369	0.437712	-0.876080
0.31	0.054294	0.334580	0.929228	-0.938507	0.029919	0.177703	0.428988	-0.868874
0.32	0.057686	0.343826	0.919861	-0.934847	0.031718	0.181949	0.420335	-0.861540
0.33	0.061170	0.352978	0.910532	-0.931104	0.033558	0.186110	0.411757	-0.854084
0.34	0.064745	0.362037	0.901240	-0.927281	0.035440	0.190185	0.403254	-0.846512
0.35	0.068411	0.371003	0.891986	-0.923378	0.037361	0.194175	0.394827	-0.838830
0.36	0.072165	0.379876	0.882772	-0.919399	0.039323	0.198082	0.386478	-0.831043
0.37	0.076008	0.388658	0.873598	-0.915345	0.041323	0.201905	0.378207	-0.823157
0.38	0.079938	0.397348	0.864466	-0.911218	0.043361	0.205646	0.370015	-0.815177
0.39	0.083954	0.405948	0.855374	-0.907019	0.045435	0.209305	0.361903	-0.807108
0.40	0.088057	0.414456	0.846325	-0.902751	0.047546	0.212884	0.353873	-0.798955
0.41	0.092243	0.422874	0.837320	-0.898414	0.049693	0.216383	0.345925	-0.790724
0.42	0.096514	0.431203	0.828357	-0.894012	0.051874	0.219803	0.338059	-0.782419
0.43	0.100867	0.439442	0.819440	-0.889546	0.054089	0.223145	0.330276	-0.774045
0.44	0.105302	0.447592	0.810567	-0.885016	0.056336	0.226409	0.322578	-0.765607
0.45	0.109819	0.455653	0.801739	-0.880426	0.058617	0.229596	0.314965	-0.757109
0.46	0.114415	0.463627	0.792958	-0.875777	0.060928	0.232708	0.307436	-0.748557
0.47	0.119091	0.471512	0.784224	-0.871070	0.063270	0.235745	0.299994	-0.739953
0.48	0.123845	0.479311	0.775537	-0.866307	0.065643	0.238709	0.292637	-0.731304
0.49	0.128677	0.487023	0.766898	-0.861490	0.068044	0.241599	0.285368	-0.722613
0.50	0.133585	0.494649	0.758307	-0.856621	0.070475	0.244416	0.278185	-0.713884
0.51	0.138569	0.502190	0.749766	-0.851700	0.072932	0.247163	0.271090	-0.705122
0.52	0.143629	0.509645	0.741274	-0.846730	0.075418	0.249838	0.264083	-0.696330
0.53	0.148762	0.517015	0.732831	-0.841713	0.077929	0.252444	0.257164	-0.687512
0.54	0.153969	0.524302	0.724440	-0.836649	0.080466	0.254982	0.250333	-0.678673
0.55	0.159248	0.531504	0.716099	-0.831540	0.083028	0.257451	0.243590	-0.669815
0.56	0.164599	0.538624	0.707809	-0.826389	0.085615	0.259854	0.236936	-0.660943
0.57	0.170020	0.545661	0.699571	-0.821196	0.088225	0.262190	0.230371	-0.652059
0.58	0.175511	0.552615	0.691385	-0.815962	0.090859	0.264462	0.223895	-0.643169
0.59	0.181072	0.559488	0.683252	-0.810691	0.093514	0.266669	0.217508	-0.634274
0.60	0.186701	0.566281	0.675171	-0.805382	0.096192	0.268812	0.211210	-0.625379
0.61	0.192397	0.572992	0.667144	-0.800037	0.098890	0.270893	0.205000	-0.616486
0.62	0.198161	0.579624	0.659171	-0.794658	0.101609	0.272912	0.198880	-0.607598
0.63	0.203990	0.586176	0.651251	-0.789247	0.104348	0.274871	0.192848	-0.598719
0.64	0.209884	0.592649	0.643386	-0.783804	0.107107	0.276770	0.186906	-0.589852
0.65	0.215842	0.599044	0.635575	-0.778331	0.109884	0.278609	0.181051	-0.581000
0.66	0.221864	0.605360	0.627819	-0.772829	0.112679	0.280391	0.175286	-0.572165
0.67	0.227949	0.611600	0.620119	-0.767301	0.115491	0.282115	0.169608	-0.563349
0.68	0.234096	0.617763	0.612474	-0.761747	0.118321	0.283784	0.164018	-0.554557
0.69	0.240304	0.623850	0.604884	-0.756168	0.121167	0.285396	0.158517	-0.545790
0.70	0.246573	0.629861	0.597350	-0.750566	0.124029	0.286954	0.153103	-0.537052
0.71	0.252901	0.635797	0.589873	-0.744942	0.126906	0.288458	0.147776	-0.528343
0.72	0.259289	0.641659	0.582451	-0.739297	0.129798	0.289910	0.142536	-0.519667
0.73	0.265734	0.647446	0.575087	-0.733634	0.132704	0.291309	0.137382	-0.511027
0.74	0.272237	0.653160	0.567779	-0.727952	0.135624	0.292658	0.132315	-0.502423

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Contrails

η	f_1	f_1'	f_1''	f_1'''	f_3	f_3'	f_3''	f_3'''
0.75	0.278797	0.658802	0.560528	-0.722254	0.138557	0.293956	0.127334	-0.493860
0.76	0.285413	0.664371	0.553334	-0.716540	0.141502	0.295205	0.122438	-0.485337
0.77	0.292084	0.669869	0.546197	-0.710811	0.144461	0.296405	0.117627	-0.476859
0.78	0.298810	0.675295	0.539118	-0.705070	0.147430	0.297558	0.112900	-0.468426
0.79	0.305590	0.680651	0.532096	-0.699317	0.150412	0.298663	0.108258	-0.460040
0.80	0.312423	0.685937	0.525131	-0.693553	0.153404	0.299723	0.103699	-0.451704
0.81	0.319309	0.691154	0.518225	-0.687779	0.156406	0.300738	0.099224	-0.443419
0.82	0.326246	0.696302	0.511376	-0.681998	0.159418	0.301708	0.094831	-0.435187
0.83	0.333234	0.701382	0.504585	-0.676208	0.162440	0.302635	0.090520	-0.427009
0.84	0.340273	0.706394	0.497852	-0.670413	0.165471	0.303518	0.086290	-0.418887
0.85	0.347362	0.711339	0.491177	-0.664613	0.168510	0.304361	0.082142	-0.410823
0.86	0.354500	0.716218	0.484559	-0.658808	0.171558	0.305162	0.078074	-0.402818
0.87	0.361686	0.721031	0.478000	-0.653001	0.174613	0.305922	0.074085	-0.394874
0.88	0.368920	0.725778	0.471499	-0.647192	0.177676	0.306644	0.070176	-0.386991
0.89	0.376201	0.730461	0.465057	-0.641382	0.180746	0.307326	0.066345	-0.379172
0.90	0.383529	0.735079	0.458672	-0.635572	0.183822	0.307971	0.062592	-0.371417
0.91	0.390903	0.739634	0.452345	-0.629764	0.186905	0.308578	0.058917	-0.363728
0.92	0.398322	0.744126	0.446076	-0.623958	0.189994	0.309149	0.055318	-0.356105
0.93	0.405785	0.748556	0.439866	-0.618155	0.193088	0.309685	0.051794	-0.348550
0.94	0.413293	0.752924	0.433713	-0.612356	0.196187	0.310185	0.048346	-0.341064
0.95	0.420843	0.757231	0.427619	-0.606563	0.199292	0.310652	0.044973	-0.333649
0.96	0.428437	0.761476	0.421582	-0.600775	0.202400	0.311085	0.041673	-0.326303
0.97	0.436073	0.765662	0.415603	-0.594994	0.205513	0.311486	0.038447	-0.319030
0.98	0.443750	0.769789	0.409682	-0.589222	0.208630	0.311854	0.035292	-0.311829
0.99	0.451468	0.773856	0.403819	-0.583458	0.211750	0.312192	0.032210	-0.304702
1.00	0.459227	0.777865	0.398013	-0.577704	0.214874	0.312499	0.029198	-0.297648
1.01	0.467025	0.781817	0.392265	-0.571960	0.218000	0.312776	0.026257	-0.290670
1.02	0.474863	0.785711	0.386574	-0.566228	0.221129	0.313024	0.023384	-0.283767
1.03	0.482740	0.789548	0.380940	-0.560508	0.224261	0.313244	0.020581	-0.276940
1.04	0.490654	0.793330	0.375364	-0.554801	0.227394	0.313436	0.017845	-0.270190
1.05	0.498606	0.797056	0.369844	-0.549109	0.230529	0.313601	0.015177	-0.263517
1.06	0.506595	0.800727	0.364381	-0.543430	0.233666	0.313740	0.012575	-0.256921
1.07	0.514620	0.804344	0.358975	-0.537767	0.236804	0.313853	0.010038	-0.250404
1.08	0.522682	0.807907	0.353626	-0.532121	0.239943	0.313941	0.007566	-0.243966
1.09	0.530778	0.811416	0.348333	-0.526491	0.243083	0.314004	0.005159	-0.237606
1.10	0.538910	0.814873	0.343096	-0.520879	0.246223	0.314044	0.002814	-0.231326
1.11	0.547076	0.818278	0.337915	-0.515286	0.249363	0.314061	0.000532	-0.225125
1.12	0.555275	0.821632	0.332790	-0.509711	0.252504	0.314055	-0.001689	-0.219005
1.13	0.563508	0.824934	0.327721	-0.504157	0.255644	0.314027	-0.003849	-0.212964
1.14	0.571774	0.828186	0.322707	-0.498623	0.258784	0.313978	-0.005948	-0.207004
1.15	0.580072	0.831389	0.317748	-0.493110	0.261924	0.313908	-0.007989	-0.201124
1.16	0.588401	0.834542	0.312845	-0.487619	0.265063	0.313819	-0.009971	-0.195325
1.17	0.596762	0.837646	0.307996	-0.482150	0.268200	0.313709	-0.011896	-0.189606
1.18	0.605154	0.840702	0.303202	-0.476704	0.271337	0.313581	-0.013763	-0.183968
1.19	0.613576	0.843710	0.298462	-0.471282	0.274472	0.313434	-0.015575	-0.178411
1.20	0.622028	0.846671	0.293776	-0.465885	0.277605	0.313270	-0.017332	-0.172935
1.21	0.630509	0.849586	0.289144	-0.460512	0.280737	0.313088	-0.019034	-0.167540
1.22	0.639020	0.852454	0.284566	-0.455165	0.283867	0.312889	-0.020683	-0.162225
1.23	0.647558	0.855277	0.280041	-0.449844	0.286995	0.312674	-0.022279	-0.156991
1.24	0.656125	0.858055	0.275569	-0.444549	0.290120	0.312444	-0.023823	-0.151838
1.25	0.664719	0.860789	0.271150	-0.439281	0.293244	0.312198	-0.025316	-0.146765
1.26	0.673341	0.863478	0.266783	-0.434041	0.296364	0.311937	-0.026759	-0.141772
1.27	0.681989	0.866125	0.262469	-0.428829	0.299482	0.311663	-0.028152	-0.136860
1.28	0.690663	0.868728	0.258206	-0.423645	0.302598	0.311375	-0.029496	-0.132027
1.29	0.699363	0.871289	0.253996	-0.418491	0.305710	0.311073	-0.030793	-0.127274
1.30	0.708089	0.873808	0.249836	-0.413366	0.308819	0.310759	-0.032042	-0.122600
1.31	0.716839	0.876286	0.245728	-0.408271	0.311925	0.310432	-0.033245	-0.118005
1.32	0.725614	0.878723	0.241671	-0.403206	0.315028	0.310094	-0.034402	-0.113489
1.33	0.734413	0.881119	0.237664	-0.398172	0.318127	0.309745	-0.035515	-0.109052
1.34	0.743236	0.883476	0.233707	-0.393170	0.321222	0.309384	-0.036584	-0.104692
1.35	0.752083	0.885794	0.229800	-0.388199	0.324314	0.309013	-0.037609	-0.100411
1.36	0.760952	0.888072	0.225943	-0.383260	0.327403	0.308632	-0.038592	-0.096207
1.37	0.769844	0.890313	0.222135	-0.378353	0.330487	0.308241	-0.039533	-0.092079
1.38	0.778758	0.892515	0.218376	-0.373479	0.333567	0.307841	-0.040434	-0.088029
1.39	0.787694	0.894680	0.214666	-0.368638	0.336644	0.307433	-0.041294	-0.084054
1.40	0.796652	0.896809	0.211003	-0.363830	0.339716	0.307016	-0.042115	-0.080155
1.41	0.805630	0.898901	0.207389	-0.359056	0.342784	0.306591	-0.042898	-0.076331
1.42	0.814630	0.900957	0.203822	-0.354317	0.345848	0.306158	-0.043642	-0.072582
1.43	0.823649	0.902977	0.200302	-0.349611	0.348907	0.305718	-0.044349	-0.068907
1.44	0.832689	0.904963	0.196830	-0.344940	0.351962	0.305271	-0.045020	-0.065306
1.45	0.841749	0.906914	0.193403	-0.340304	0.355013	0.304818	-0.045656	-0.061778
1.46	0.850827	0.908831	0.190023	-0.335703	0.358059	0.304358	-0.046256	-0.058323
1.47	0.859925	0.910715	0.186689	-0.331138	0.361100	0.303893	-0.046823	-0.054939
1.48	0.869041	0.912565	0.183401	-0.326608	0.364136	0.303422	-0.047355	-0.051627
1.49	0.878176	0.914383	0.180157	-0.322114	0.367168	0.302946	-0.047855	-0.048386

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Contrails

η	f_1	f_1'	f_1''	f_1'''	f_3	f_3'	f_3''	f_3'''
1.50	0.887329	0.916168	0.176958	-0.317656	0.370195	0.302465	-0.048323	-0.045215
1.51	0.896499	0.917922	0.173804	-0.313234	0.373218	0.301979	-0.048760	-0.042113
1.52	0.905687	0.919644	0.170693	-0.308849	0.376235	0.301490	-0.049166	-0.039081
1.53	0.914892	0.921336	0.167627	-0.304500	0.379247	0.300996	-0.049542	-0.036117
1.54	0.924114	0.922997	0.164603	-0.300188	0.382255	0.300499	-0.049888	-0.033220
1.55	0.933352	0.924628	0.161623	-0.295914	0.385257	0.299998	-0.050206	-0.030391
1.56	0.942606	0.926230	0.158685	-0.291676	0.388255	0.299495	-0.050496	-0.027628
1.57	0.951877	0.927802	0.155789	-0.287475	0.391247	0.298988	-0.050759	-0.024931
1.58	0.961162	0.929346	0.152935	-0.283312	0.394234	0.298480	-0.050995	-0.022299
1.59	0.970463	0.930861	0.150123	-0.279187	0.397217	0.297969	-0.051205	-0.019731
1.60	0.979779	0.932348	0.147351	-0.275099	0.400194	0.297456	-0.051390	-0.017227
1.61	0.989110	0.933808	0.144621	-0.271048	0.403166	0.296941	-0.051550	-0.014786
1.62	0.998456	0.935241	0.141930	-0.267036	0.406133	0.296425	-0.051686	-0.012407
1.63	1.007815	0.936647	0.139280	-0.263061	0.409094	0.295907	-0.051798	-0.010090
1.64	1.017188	0.938027	0.136669	-0.259124	0.412051	0.295389	-0.051888	-0.007833
1.65	1.026575	0.939380	0.134097	-0.255225	0.415002	0.294870	-0.051955	-0.005637
1.66	1.035976	0.940709	0.131564	-0.251365	0.417948	0.294350	-0.052001	-0.003500
1.67	1.045390	0.942012	0.129070	-0.247542	0.420889	0.293830	-0.052025	-0.001421
1.68	1.054816	0.943290	0.126613	-0.243757	0.423825	0.293309	-0.052029	0.000599
1.69	1.064255	0.944544	0.124194	-0.240011	0.426755	0.292789	-0.052014	0.002563
1.70	1.073707	0.945774	0.121813	-0.236303	0.429681	0.292269	-0.051978	0.004470
1.71	1.083171	0.946981	0.119468	-0.232632	0.432601	0.291750	-0.051924	0.006322
1.72	1.092646	0.948164	0.117160	-0.229000	0.435516	0.291231	-0.051852	0.008118
1.73	1.102134	0.949324	0.114888	-0.225406	0.438425	0.290713	-0.051762	0.009861
1.74	1.111633	0.950462	0.112652	-0.221850	0.441330	0.290196	-0.051655	0.011550
1.75	1.121143	0.951577	0.110451	-0.218333	0.444229	0.289680	-0.051531	0.013187
1.76	1.130664	0.952671	0.108285	-0.214853	0.447123	0.289165	-0.051392	0.014772
1.77	1.140196	0.953743	0.106154	-0.211411	0.450013	0.288652	-0.051236	0.016306
1.78	1.149739	0.954794	0.104057	-0.208007	0.452896	0.288140	-0.051066	0.017790
1.79	1.159292	0.955824	0.101994	-0.204641	0.455775	0.287631	-0.050880	0.019224
1.80	1.168855	0.956834	0.099964	-0.201312	0.458649	0.287123	-0.050681	0.020609
1.81	1.178429	0.957823	0.097967	-0.198022	0.461518	0.286617	-0.050468	0.021947
1.82	1.188012	0.958793	0.096003	-0.194769	0.464381	0.286113	-0.050243	0.023237
1.83	1.197605	0.959744	0.094072	-0.191553	0.467240	0.285612	-0.050004	0.024481
1.84	1.207207	0.960675	0.092172	-0.188375	0.470094	0.285113	-0.049753	0.025679
1.85	1.216818	0.961587	0.090304	-0.185234	0.472942	0.284617	-0.049490	0.026832
1.86	1.226438	0.962481	0.088467	-0.182130	0.475786	0.284124	-0.049217	0.027941
1.87	1.236068	0.963357	0.086661	-0.179063	0.478625	0.283633	-0.048932	0.029007
1.88	1.245705	0.964214	0.084886	-0.176034	0.481459	0.283145	-0.048637	0.030030
1.89	1.255352	0.965054	0.083141	-0.173041	0.484288	0.282660	-0.048331	0.031011
1.90	1.265006	0.965877	0.081425	-0.170084	0.487112	0.282178	-0.048016	0.031951
1.91	1.274669	0.966683	0.079739	-0.167164	0.489931	0.281700	-0.047692	0.032851
1.92	1.284340	0.967472	0.078082	-0.164281	0.492746	0.281225	-0.047360	0.033711
1.93	1.294019	0.968245	0.076453	-0.161434	0.495556	0.280753	-0.047018	0.034532
1.94	1.303705	0.969001	0.074853	-0.158622	0.498361	0.280284	-0.046669	0.035315
1.95	1.313399	0.969742	0.073280	-0.155847	0.501162	0.279819	-0.046312	0.036061
1.96	1.323100	0.970467	0.071736	-0.153107	0.503957	0.279358	-0.045948	0.036770
1.97	1.332808	0.971177	0.070218	-0.150403	0.506749	0.278900	-0.045577	0.037443
1.98	1.342523	0.971871	0.068728	-0.147734	0.509535	0.278447	-0.045199	0.038081
1.99	1.352245	0.972551	0.067263	-0.145100	0.512318	0.277996	-0.044815	0.038684
2.00	1.361974	0.973217	0.065825	-0.142502	0.515095	0.277550	-0.044426	0.039254
2.01	1.371710	0.973868	0.064413	-0.139937	0.517869	0.277108	-0.044030	0.039790
2.02	1.381451	0.974505	0.063027	-0.137408	0.520638	0.276670	-0.043630	0.040295
2.03	1.391200	0.975129	0.061665	-0.134913	0.523402	0.276235	-0.043225	0.040767
2.04	1.400954	0.975739	0.060328	-0.132451	0.526162	0.275805	-0.042815	0.041209
2.05	1.410714	0.976335	0.059016	-0.130024	0.528918	0.275379	-0.042401	0.041621
2.06	1.420481	0.976919	0.057728	-0.127630	0.531670	0.274957	-0.041982	0.042003
2.07	1.430253	0.977490	0.056463	-0.125270	0.534417	0.274539	-0.041561	0.042356
2.08	1.440030	0.978048	0.055222	-0.122943	0.537161	0.274126	-0.041135	0.042681
2.09	1.449814	0.978594	0.054004	-0.120649	0.539900	0.273717	-0.040707	0.042978
2.10	1.459602	0.979128	0.052809	-0.118388	0.542635	0.273312	-0.040276	0.043248
2.11	1.469396	0.979651	0.051636	-0.116159	0.545366	0.272911	-0.039842	0.043493
2.12	1.479195	0.980161	0.050486	-0.113962	0.548093	0.272515	-0.039406	0.043711
2.13	1.488999	0.980660	0.049357	-0.111798	0.550816	0.272123	-0.038968	0.043905
2.14	1.498808	0.981148	0.048250	-0.109665	0.553536	0.271736	-0.038528	0.044075
2.15	1.508622	0.981625	0.047164	-0.107563	0.556251	0.271353	-0.038087	0.044220
2.16	1.518441	0.982092	0.046098	-0.105493	0.558963	0.270974	-0.037644	0.044343
2.17	1.528264	0.982547	0.045054	-0.103454	0.561671	0.270600	-0.037200	0.044444
2.18	1.538092	0.982993	0.044029	-0.101446	0.564375	0.270230	-0.036755	0.044522
2.19	1.547924	0.983428	0.043025	-0.099468	0.567075	0.269865	-0.036310	0.044580
2.20	1.557760	0.983853	0.042040	-0.097520	0.569772	0.269504	-0.035864	0.044616
2.21	1.567601	0.984269	0.041074	-0.095602	0.572465	0.269147	-0.035417	0.044633
2.22	1.577446	0.984675	0.040127	-0.093714	0.575155	0.268795	-0.034971	0.044631
2.23	1.587294	0.985072	0.039200	-0.091855	0.577841	0.268448	-0.034525	0.044609
2.24	1.597147	0.985459	0.038290	-0.090026	0.580524	0.268105	-0.034079	0.044569

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Contrails

η	f_1	f_1'	f_1''	f_1'''	f_3	f_3'	f_3''	f_3'''
2.25	1.607004	0.985837	0.037399	-0.088225	0.583203	0.267766	-0.033633	0.044512
2.26	1.616864	0.986207	0.036526	-0.086453	0.585879	0.267432	-0.033189	0.044437
2.27	1.626728	0.986568	0.035670	-0.084709	0.588552	0.267103	-0.032745	0.044345
2.28	1.636595	0.986921	0.034831	-0.082993	0.591221	0.266777	-0.032302	0.044238
2.29	1.646466	0.987265	0.034010	-0.081305	0.593888	0.266457	-0.031860	0.044115
2.30	1.656340	0.987601	0.033205	-0.079644	0.596551	0.266140	-0.031420	0.043976
2.31	1.666218	0.987929	0.032417	-0.078010	0.599210	0.265828	-0.030981	0.043824
2.32	1.676099	0.988249	0.031645	-0.076404	0.601867	0.265521	-0.030543	0.043657
2.33	1.685983	0.988562	0.030889	-0.074824	0.604521	0.265217	-0.030107	0.043476
2.34	1.695870	0.988867	0.030148	-0.073270	0.607172	0.264918	-0.029674	0.043283
2.35	1.705760	0.989165	0.029423	-0.071742	0.609819	0.264624	-0.029242	0.043077
2.36	1.715653	0.989456	0.028713	-0.070240	0.612464	0.264334	-0.028812	0.042859
2.37	1.725549	0.989739	0.028018	-0.068764	0.615106	0.264048	-0.028385	0.042629
2.38	1.735448	0.990016	0.027338	-0.067312	0.617745	0.263766	-0.027960	0.042388
2.39	1.745350	0.990286	0.026672	-0.065886	0.620381	0.263488	-0.027537	0.042136
2.40	1.755254	0.990549	0.026020	-0.064484	0.623015	0.263215	-0.027117	0.041874
2.41	1.765161	0.990806	0.025382	-0.063107	0.625646	0.262946	-0.026700	0.041602
2.42	1.775070	0.991057	0.024758	-0.061753	0.628274	0.262681	-0.026285	0.041321
2.43	1.784982	0.991302	0.024147	-0.060423	0.630899	0.262420	-0.025873	0.041030
2.44	1.794896	0.991540	0.023550	-0.059117	0.633522	0.262164	-0.025464	0.040731
2.45	1.804813	0.991773	0.022965	-0.057834	0.636142	0.261911	-0.025059	0.040424
2.46	1.814731	0.991999	0.022393	-0.056574	0.638760	0.261662	-0.024656	0.040109
2.47	1.824653	0.992221	0.021833	-0.055336	0.641376	0.261418	-0.024256	0.039786
2.48	1.834576	0.992436	0.021286	-0.054121	0.643989	0.261177	-0.023860	0.039457
2.49	1.844501	0.992646	0.020751	-0.052928	0.646599	0.260941	-0.023467	0.039120
2.50	1.854429	0.992851	0.020227	-0.051757	0.649208	0.260708	-0.023078	0.038778
2.51	1.864358	0.993051	0.019716	-0.050607	0.651813	0.260479	-0.022692	0.038429
2.52	1.874290	0.993246	0.019215	-0.049478	0.654417	0.260254	-0.022309	0.038075
2.53	1.884223	0.993435	0.018726	-0.048370	0.657019	0.260033	-0.021930	0.037715
2.54	1.894158	0.993620	0.018248	-0.047283	0.659618	0.259815	-0.021555	0.037350
2.55	1.904096	0.993800	0.017780	-0.046216	0.662215	0.259602	-0.021183	0.036981
2.56	1.914034	0.993976	0.017323	-0.045170	0.664810	0.259392	-0.020815	0.036608
2.57	1.923975	0.994147	0.016877	-0.044143	0.667403	0.259185	-0.020451	0.036230
2.58	1.933917	0.994313	0.016440	-0.043135	0.669994	0.258983	-0.020091	0.035849
2.59	1.943861	0.994476	0.016014	-0.042147	0.672582	0.258784	-0.019734	0.035464
2.60	1.953807	0.994634	0.015597	-0.041178	0.675169	0.258588	-0.019381	0.035077
2.61	1.963754	0.994788	0.015190	-0.040228	0.677754	0.258396	-0.019033	0.034686
2.62	1.973703	0.994937	0.014793	-0.039296	0.680337	0.258207	-0.018688	0.034293
2.63	1.983653	0.995083	0.014404	-0.038382	0.682918	0.258022	-0.018347	0.033897
2.64	1.993604	0.995226	0.014025	-0.037486	0.685498	0.257840	-0.018010	0.033500
2.65	2.003557	0.995364	0.013655	-0.036608	0.688075	0.257662	-0.017677	0.033100
2.66	2.013512	0.995499	0.013293	-0.035748	0.690651	0.257487	-0.017348	0.032699
2.67	2.023467	0.995630	0.012940	-0.034904	0.693225	0.257315	-0.017023	0.032297
2.68	2.033424	0.995758	0.012595	-0.034077	0.695797	0.257146	-0.016702	0.031894
2.69	2.043382	0.995882	0.012258	-0.033267	0.698368	0.256981	-0.016385	0.031490
2.70	2.053342	0.996003	0.011929	-0.032473	0.700937	0.256819	-0.016072	0.031085
2.71	2.063302	0.996120	0.011608	-0.031696	0.703504	0.256660	-0.015763	0.030680
2.72	2.073264	0.996235	0.011295	-0.030934	0.706070	0.256503	-0.015458	0.030274
2.73	2.083227	0.996346	0.010990	-0.030188	0.708634	0.256350	-0.015158	0.029869
2.74	2.093191	0.996455	0.010691	-0.029457	0.711197	0.256200	-0.014861	0.029464
2.75	2.103156	0.996560	0.010401	-0.028742	0.713758	0.256053	-0.014568	0.029059
2.76	2.113122	0.996663	0.010117	-0.028041	0.716318	0.255909	-0.014280	0.028654
2.77	2.123089	0.996763	0.009840	-0.027355	0.718877	0.255767	-0.013995	0.028251
2.78	2.133057	0.996860	0.009569	-0.026683	0.721433	0.255629	-0.013715	0.027848
2.79	2.143027	0.996954	0.009306	-0.026026	0.723989	0.255493	-0.013438	0.027446
2.80	2.152997	0.997046	0.009049	-0.025382	0.726543	0.255360	-0.013166	0.027046
2.81	2.162967	0.997135	0.008798	-0.024752	0.729096	0.255230	-0.012898	0.026647
2.82	2.172939	0.997222	0.008554	-0.024136	0.731648	0.255102	-0.012633	0.026249
2.83	2.182912	0.997306	0.008315	-0.023533	0.734198	0.254977	-0.012373	0.025854
2.84	2.192885	0.997388	0.008083	-0.022942	0.736748	0.254855	-0.012116	0.025459
2.85	2.202860	0.997468	0.007857	-0.022365	0.739295	0.254735	-0.011863	0.025067
2.86	2.212835	0.997545	0.007636	-0.021800	0.741842	0.254617	-0.011615	0.024677
2.87	2.222811	0.997620	0.007421	-0.021248	0.744388	0.254503	-0.011370	0.024289
2.88	2.232787	0.997694	0.007211	-0.020708	0.746932	0.254390	-0.011129	0.023904
2.89	2.242764	0.997765	0.007006	-0.020179	0.749476	0.254280	-0.010892	0.023520
2.90	2.252742	0.997834	0.006807	-0.019663	0.752018	0.254172	-0.010658	0.023140
2.91	2.262721	0.997901	0.006613	-0.019157	0.754559	0.254067	-0.010429	0.022762
2.92	2.272700	0.997966	0.006424	-0.018664	0.757099	0.253964	-0.010203	0.022386
2.93	2.282680	0.998029	0.006240	-0.018181	0.759638	0.253863	-0.009981	0.022014
2.94	2.292661	0.998091	0.006060	-0.017709	0.762176	0.253764	-0.009763	0.021644
2.95	2.302642	0.998151	0.005886	-0.017248	0.764714	0.253667	-0.009548	0.021277
2.96	2.312624	0.998209	0.005715	-0.016797	0.767250	0.253573	-0.009337	0.020913
2.97	2.322606	0.998265	0.005550	-0.016357	0.769785	0.253481	-0.009130	0.020553
2.98	2.332589	0.998320	0.005388	-0.015926	0.772319	0.253390	-0.008926	0.020195
2.99	2.342573	0.998373	0.005231	-0.015506	0.774853	0.253302	-0.008726	0.019841

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Contrails

η	f_1	f_1'	f_1''	f_1'''	f_3	f_3'	f_3''	f_3'''
3.00	2.352557	0.998424	0.005078	-0.015095	0.777386	0.253216	-0.008529	0.019491
3.01	2.362541	0.998474	0.004929	-0.014694	0.779917	0.253132	-0.008336	0.019143
3.02	2.372526	0.998523	0.004784	-0.014303	0.782448	0.253049	-0.008147	0.018799
3.03	2.382512	0.998570	0.004643	-0.013920	0.784978	0.252969	-0.007960	0.018459
3.04	2.392498	0.998616	0.004506	-0.013546	0.787508	0.252890	-0.007777	0.018122
3.05	2.402484	0.998660	0.004372	-0.013182	0.790036	0.252813	-0.007598	0.017788
3.06	2.412471	0.998703	0.004242	-0.012826	0.792564	0.252738	-0.007422	0.017459
3.07	2.422458	0.998745	0.004115	-0.012478	0.795091	0.252665	-0.007249	0.017133
3.08	2.432446	0.998785	0.003992	-0.012139	0.797617	0.252593	-0.007079	0.016810
3.09	2.442434	0.998825	0.003873	-0.011808	0.800143	0.252523	-0.006912	0.016492
3.10	2.452422	0.998863	0.003756	-0.011485	0.802668	0.252455	-0.006749	0.016177
3.11	2.462411	0.998900	0.003643	-0.011169	0.805192	0.252388	-0.006589	0.015866
3.12	2.472400	0.998936	0.003533	-0.010862	0.807715	0.252323	-0.006432	0.015559
3.13	2.482390	0.998971	0.003426	-0.010562	0.810238	0.252259	-0.006278	0.015255
3.14	2.492380	0.999004	0.003322	-0.010269	0.812761	0.252197	-0.006127	0.014956
3.15	2.502370	0.999037	0.003220	-0.009983	0.815282	0.252137	-0.005979	0.014660
3.16	2.512360	0.999069	0.003122	-0.009705	0.817803	0.252078	-0.005833	0.014368
3.17	2.522351	0.999099	0.003026	-0.009433	0.820324	0.252020	-0.005691	0.014080
3.18	2.532342	0.999129	0.002933	-0.009168	0.822844	0.251964	-0.005552	0.013796
3.19	2.542334	0.999158	0.002843	-0.008910	0.825363	0.251909	-0.005415	0.013516
3.20	2.552325	0.999186	0.002755	-0.008659	0.827882	0.251856	-0.005281	0.013240
3.21	2.562317	0.999213	0.002670	-0.008413	0.830400	0.251803	-0.005150	0.012968
3.22	2.572310	0.999240	0.002587	-0.008174	0.832918	0.251753	-0.005022	0.012699
3.23	2.582302	0.999265	0.002506	-0.007941	0.835435	0.251703	-0.004896	0.012435
3.24	2.592295	0.999290	0.002428	-0.007714	0.837952	0.251655	-0.004773	0.012174
3.25	2.602288	0.999314	0.002352	-0.007492	0.840468	0.251608	-0.004653	0.011918
3.26	2.612281	0.999337	0.002278	-0.007277	0.842984	0.251562	-0.004535	0.011665
3.27	2.622275	0.999359	0.002206	-0.007067	0.845500	0.251517	-0.004420	0.011416
3.28	2.632268	0.999381	0.002137	-0.006862	0.848014	0.251473	-0.004307	0.011171
3.29	2.642262	0.999402	0.002069	-0.006663	0.850529	0.251431	-0.004196	0.010929
3.30	2.652257	0.999422	0.002003	-0.006469	0.853043	0.251389	-0.004088	0.010692
3.31	2.662251	0.999442	0.001940	-0.006279	0.855557	0.251349	-0.003982	0.010458
3.32	2.672245	0.999461	0.001878	-0.006095	0.858070	0.251310	-0.003879	0.010228
3.33	2.682240	0.999479	0.001818	-0.005916	0.860583	0.251271	-0.003778	0.010002
3.34	2.692235	0.999497	0.001759	-0.005742	0.863096	0.251234	-0.003679	0.009780
3.35	2.702230	0.999515	0.001703	-0.005572	0.865608	0.251198	-0.003582	0.009561
3.36	2.712225	0.999531	0.001648	-0.005406	0.868119	0.251162	-0.003488	0.009346
3.37	2.722221	0.999548	0.001595	-0.005246	0.870631	0.251128	-0.003395	0.009135
3.38	2.732216	0.999563	0.001543	-0.005089	0.873142	0.251094	-0.003305	0.008927
3.39	2.742212	0.999579	0.001493	-0.004937	0.875653	0.251062	-0.003217	0.008723
3.40	2.752208	0.999593	0.001444	-0.004788	0.878163	0.251030	-0.003130	0.008523
3.41	2.762204	0.999607	0.001397	-0.004644	0.880673	0.250999	-0.003046	0.008326
3.42	2.772200	0.999621	0.001351	-0.004504	0.883183	0.250969	-0.002964	0.008132
3.43	2.782196	0.999634	0.001307	-0.004367	0.885693	0.250940	-0.002884	0.007943
3.44	2.792193	0.999647	0.001264	-0.004235	0.888202	0.250912	-0.002805	0.007756
3.45	2.802189	0.999660	0.001222	-0.004106	0.890711	0.250884	-0.002728	0.007573
3.46	2.812186	0.999672	0.001182	-0.003980	0.893220	0.250857	-0.002654	0.007394
3.47	2.822183	0.999683	0.001143	-0.003858	0.895728	0.250831	-0.002580	0.007217
3.48	2.832179	0.999695	0.001105	-0.003739	0.898236	0.250805	-0.002509	0.007045
3.49	2.842176	0.999705	0.001068	-0.003624	0.900744	0.250781	-0.002440	0.006875
3.50	2.852174	0.999716	0.001032	-0.003512	0.903252	0.250757	-0.002372	0.006709
3.51	2.862171	0.999726	0.000998	-0.003403	0.905759	0.250733	-0.002305	0.006546
3.52	2.872168	0.999736	0.000964	-0.003297	0.908267	0.250710	-0.002241	0.006386
3.53	2.882165	0.999745	0.000932	-0.003194	0.910774	0.250688	-0.002178	0.006229
3.54	2.892163	0.999755	0.000900	-0.003094	0.913280	0.250667	-0.002116	0.006075
3.55	2.902161	0.999763	0.000870	-0.002997	0.915787	0.250646	-0.002056	0.005925
3.56	2.912158	0.999772	0.000840	-0.002903	0.918293	0.250626	-0.001998	0.005777
3.57	2.922156	0.999780	0.000812	-0.002811	0.920799	0.250606	-0.001941	0.005632
3.58	2.932154	0.999788	0.000784	-0.002723	0.923305	0.250587	-0.001885	0.005491
3.59	2.942152	0.999796	0.000757	-0.002636	0.925811	0.250568	-0.001831	0.005352
3.60	2.952150	0.999803	0.000731	-0.002552	0.928317	0.250550	-0.001778	0.005216
3.61	2.962148	0.999811	0.000706	-0.002471	0.930822	0.250533	-0.001726	0.005083
3.62	2.972146	0.999817	0.000682	-0.002392	0.933327	0.250516	-0.001676	0.004953
3.63	2.982144	0.999824	0.000658	-0.002315	0.935833	0.250499	-0.001627	0.004826
3.64	2.992142	0.999831	0.000636	-0.002240	0.938337	0.250483	-0.001580	0.004701
3.65	3.002141	0.999837	0.000614	-0.002168	0.940842	0.250468	-0.001533	0.004579
3.66	3.012139	0.999843	0.000592	-0.002098	0.943347	0.250453	-0.001488	0.004459
3.67	3.022138	0.999849	0.000572	-0.002030	0.945851	0.250438	-0.001444	0.004343
3.68	3.032136	0.999854	0.000552	-0.001964	0.948356	0.250424	-0.001401	0.004228
3.69	3.042135	0.999860	0.000532	-0.001900	0.950860	0.250410	-0.001360	0.004117
3.70	3.052133	0.999865	0.000514	-0.001838	0.953364	0.250396	-0.001319	0.004007
3.71	3.062132	0.999870	0.000496	-0.001777	0.955868	0.250383	-0.001279	0.003901
3.72	3.072131	0.999875	0 000478	-0.001719	0.958371	0.250371	-0.001241	0.003796
3.73	3.082130	0.999880	0.000461	-0.001662	0.960875	0.250359	-0.001204	0.003694
3.74	3.092128	0.999884	0.000445	-0.001607	0.963379	0.250347	-0.001167	0.003594

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Contrails

η	f_1	f_1'	f_1''	f_1'''	f_3	f_3'	f_3''	f_3'''
3.75	3.102127	0.999889	0.000429	-0.001554	0.965882	0.250335	-0.001132	0.003497
3.76	3.112126	0.999893	0.000414	-0.001502	0.968385	0.250324	-0.001097	0.003402
3.77	3.122125	0.999897	0.000399	-0.001452	0.970889	0.250313	-0.001064	0.003309
3.78	3.132124	0.999901	0.000385	-0.001403	0.973392	0.250303	-0.001031	0.003218
3.79	3.142123	0.999904	0.000371	-0.001356	0.975895	0.250293	-0.000999	0.003129
3.80	3.152122	0.999908	0.000358	-0.001311	0.978397	0.250283	-0.000968	0.003043
3.81	3.162121	0.999912	0.000345	-0.001267	0.980900	0.250273	-0.000938	0.002958
3.82	3.172120	0.999915	0.000332	-0.001224	0.983403	0.250264	-0.000909	0.002875
3.83	3.182120	0.999918	0.000320	-0.001182	0.985906	0.250255	-0.000881	0.002795
3.84	3.192119	0.999921	0.000309	-0.001142	0.988408	0.250247	-0.000853	0.002716
3.85	3.202118	0.999924	0.000297	-0.001103	0.990910	0.250238	-0.000827	0.002639
3.86	3.212117	0.999927	0.000286	-0.001066	0.993413	0.250230	-0.000800	0.002565
3.87	3.222117	0.999930	0.000276	-0.001029	0.995915	0.250222	-0.000775	0.002492
3.88	3.232116	0.999933	0.000266	-0.000994	0.998417	0.250214	-0.000751	0.002420
3.89	3.242115	0.999935	0.000256	-0.000959	1.000919	0.250207	-0.000727	0.002351
3.90	3.252115	0.999938	0.000247	-0.000926	1.003421	0.250200	-0.000704	0.002283
3.91	3.262114	0.999940	0.000238	-0.000894	1.005923	0.250193	-0.000681	0.002217
3.92	3.272113	0.999943	0.000229	-0.000863	1.008425	0.250186	-0.000659	0.002153
3.93	3.282113	0.999945	0.000220	-0.000833	1.010927	0.250180	-0.000638	0.002090
3.94	3.292112	0.999947	0.000212	-0.000804	1.013429	0.250174	-0.000617	0.002029
3.95	3.302112	0.999949	0.000204	-0.000776	1.015931	0.250167	-0.000597	0.001969
3.96	3.312111	0.999951	0.000197	-0.000749	1.018432	0.250162	-0.000578	0.001911
3.97	3.322111	0.999953	0.000189	-0.000722	1.020934	0.250156	-0.000559	0.001855
3.98	3.332110	0.999955	0.000182	-0.000697	1.023435	0.250150	-0.000541	0.001800
3.99	3.342110	0.999957	0.000175	-0.000672	1.025937	0.250145	-0.000523	0.001746
4.00	3.352109	0.999959	0.000169	-0.000649	1.028438	0.250140	-0.000506	0.001694
4.01	3.362109	0.999960	0.000162	-0.000625	1.030940	0.250135	-0.000489	0.001643
4.02	3.372109	0.999962	0.000156	-0.000603	1.033441	0.250130	-0.000473	0.001594
4.03	3.382108	0.999963	0.000150	-0.000582	1.035942	0.250126	-0.000457	0.001545
4.04	3.392108	0.999965	0.000145	-0.000561	1.038443	0.250121	-0.000442	0.001499
4.05	3.402108	0.999966	0.000139	-0.000541	1.040945	0.250117	-0.000427	0.001453
4.06	3.412107	0.999968	0.000134	-0.000521	1.043446	0.250112	-0.000413	0.001408
4.07	3.422107	0.999969	0.000129	-0.000502	1.045947	0.250108	-0.000399	0.001365
4.08	3.432107	0.999970	0.000124	-0.000484	1.048448	0.250104	-0.000386	0.001323
4.09	3.442106	0.999971	0.000119	-0.000467	1.050949	0.250101	-0.000373	0.001282
4.10	3.452106	0.999973	0.000114	-0.000450	1.053450	0.250097	-0.000360	0.001243
4.11	3.462106	0.999974	0.000110	-0.000433	1.055951	0.250093	-0.000348	0.001204
4.12	3.472106	0.999975	0.000106	-0.000418	1.058452	0.250090	-0.000336	0.001166
4.13	3.482105	0.999976	0.000102	-0.000402	1.060953	0.250087	-0.000325	0.001130
4.14	3.492105	0.999977	0.000098	-0.000388	1.063454	0.250084	-0.000314	0.001094
4.15	3.502105	0.999978	0.000094	-0.000373	1.065954	0.250080	-0.000303	0.001060
4.16	3.512105	0.999979	0.000090	-0.000359	1.068455	0.250077	-0.000292	0.001026
4.17	3.522104	0.999980	0.000087	-0.000346	1.070956	0.250075	-0.000282	0.000994
4.18	3.532104	0.999980	0.000083	-0.000333	1.073457	0.250072	-0.000272	0.000962
4.19	3.542104	0.999981	0.000080	-0.000321	1.075957	0.250069	-0.000263	0.000931
4.20	3.552104	0.999982	0.000077	-0.000309	1.078458	0.250067	-0.000254	0.000901
4.21	3.562104	0.999983	0.000074	-0.000297	1.080959	0.250064	-0.000245	0.000872
4.22	3.572103	0.999983	0.000071	-0.000286	1.083459	0.250062	-0.000236	0.000844
4.23	3.582103	0.999984	0.000068	-0.000276	1.085960	0.250059	-0.000228	0.000817
4.24	3.592103	0.999985	0.000065	-0.000265	1.088460	0.250057	-0.000220	0.000790
4.25	3.602103	0.999985	0.000063	-0.000255	1.090961	0.250055	-0.000212	0.000764
4.26	3.612103	0.999986	0.000060	-0.000246	1.093462	0.250053	-0.000205	0.000739
4.27	3.622103	0.999987	0.000058	-0.000236	1.095962	0.250051	-0.000197	0.000715
4.28	3.632103	0.999987	0.000056	-0.000227	1.098463	0.250049	-0.000190	0.000692
4.29	3.642102	0.999988	0.000053	-0.000219	1.100963	0.250047	-0.000184	0.000669
4.30	3.652102	0.999988	0.000051	-0.000210	1.103464	0.250045	-0.000177	0.000647
4.31	3.662102	0.999989	0.000049	-0.000202	1.105964	0.250044	-0.000171	0.000625
4.32	3.672102	0.999989	0.000047	-0.000195	1.108464	0.250042	-0.000165	0.000604
4.33	3.682102	0.999990	0.000045	-0.000187	1.110965	0.250040	-0.000159	0.000584
4.34	3.692102	0.999990	0.000043	-0.000180	1.113465	0.250039	-0.000153	0.000564
4.35	3.702102	0.999991	0.000042	-0.000173	1.115966	0.250037	-0.000147	0.000545
4.36	3.712102	0.999991	0.000040	-0.000166	1.118466	0.250036	-0.000142	0.000527
4.37	3.722102	0.999991	0.000038	-0.000160	1.120966	0.250034	-0.000137	0.000509
4.38	3.732102	0.999992	0.000037	-0.000154	1.123467	0.250033	-0.000132	0.000492
4.39	3.742101	0.999992	0.000035	-0.000148	1.125967	0.250032	-0.000127	0.000475
4.40	3.752101	0.999993	0.000034	-0.000142	1.128467	0.250030	-0.000122	0.000459
4.41	3.762101	0.999993	0.000032	-0.000136	1.130968	0.250029	-0.000118	0.000443
4.42	3.772101	0.999993	0.000031	-0.000131	1.133468	0.250028	-0.000113	0.000428
4.43	3.782101	0.999993	0.000030	-0.000126	1.135968	0.250027	-0.000109	0.000413
4.44	3.792101	0.999994	0.000029	-0.000121	1.138468	0.250026	-0.000105	0.000399
4.45	3.802101	0.999994	0.000027	-0.000116	1.140969	0.250025	-0.000101	0.000385
4.46	3.812101	0.999994	0.000026	-0.000111	1.143469	0.250024	-0.000097	0.000371
4.47	3.822101	0.999995	0.000025	-0.000107	1.145969	0.250023	-0.000094	0.000358
4.48	3.832101	0.999995	0.000024	-0.000103	1.148469	0.250022	-0.000090	0.000346
4.49	3.842101	0.999995	0.000023	-0.000099	1.150970	0.250021	-0.000087	0.000334

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η	f_1	f_1'	f_1''	f_1'''	f_3	f_3'	f_3''	f_3'''
4.50	3.852101	0.999995	0.000022	-0.000095	1.153470	0.250020	-0.000084	0.000322
4.51	3.862101	0.999995	0.000021	-0.000091	1.155970	0.250019	-0.000080	0.000311
4.52	3.872101	0.999996	0.000020	-0.000087	1.158470	0.250019	-0.000077	0.000300
4.53	3.882101	0.999996	0.000019	-0.000084	1.160970	0.250018	-0.000074	0.000289
4.54	3.892101	0.999996	0.000019	-0.000080	1.163471	0.250017	-0.000072	0.000279
4.55	3.902101	0.999996	0.000018	-0.000077	1.165971	0.250016	-0.000069	0.000269
4.56	3.912101	0.999996	0.000017	-0.000074	1.168471	0.250016	-0.000066	0.000259
4.57	3.922101	0.999997	0.000016	-0.000071	1.170971	0.250015	-0.000064	0.000250
4.58	3.932100	0.999997	0.000016	-0.000068	1.173471	0.250015	-0.000061	0.000241
4.59	3.942100	0.999997	0.000015	-0.000065	1.175971	0.250014	-0.000059	0.000232
4.60	3.952100	0.999997	0.000014	-0.000063	1.178471	0.250013	-0.000057	0.000223
4.61	3.962100	0.999997	0.000014	-0.000060	1.180972	0.250013	-0.000054	0.000215
4.62	3.972100	0.999997	0.000013	-0.000058	1.183472	0.250012	-0.000052	0.000207
4.63	3.982100	0.999997	0.000013	-0.000055	1.185972	0.250012	-0.000050	0.000200
4.64	3.992100	0.999998	0.000012	-0.000053	1.188472	0.250011	-0.000048	0.000193
4.65	4.002100	0.999998	0.000012	-0.000051	1.190972	0.250011	-0.000046	0.000185
4.66	4.012100	0.999998	0.000011	-0.000049	1.193472	0.250010	-0.000045	0.000179
4.67	4.022100	0.999998	0.000011	-0.000047	1.195972	0.250010	-0.000043	0.000172
4.68	4.032100	0.999998	0.000010	-0.000045	1.198472	0.250009	-0.000041	0.000166
4.69	4.042100	0.999998	0.000010	-0.000043	1.200972	0.250009	-0.000040	0.000159
4.70	4.052100	0.999998	0.000009	-0.000041	1.203473	0.250009	-0.000038	0.000153
4.71	4.062100	0.999998	0.000009	-0.000039	1.205973	0.250008	-0.000036	0.000148
4.72	4.072100	0.999998	0.000008	-0.000038	1.208473	0.250008	-0.000035	0.000142
4.73	4.082100	0.999998	0.000008	-0.000036	1.210973	0.250008	-0.000034	0.000137
4.74	4.092100	0.999999	0.000008	-0.000035	1.213473	0.250007	-0.000032	0.000132
4.75	4.102100	0.999999	0.000007	-0.000033	1.215973	0.250007	-0.000031	0.000127
4.76	4.112100	0.999999	0.000007	-0.000032	1.218473	0.250007	-0.000030	0.000122
4.77	4.122100	0.999999	0.000007	-0.000030	1.220973	0.250006	-0.000029	0.000117
4.78	4.132100	0.999999	0.000006	-0.000029	1.223473	0.250006	-0.000027	0.000113
4.79	4.142100	0.999999	0.000006	-0.000028	1.225973	0.250006	-0.000026	0.000108
4.80	4.152100	0.999999	0.000006	-0.000027	1.228473	0.250006	-0.000025	0.000104
4.81	4.162100	0.999999	0.000006	-0.000025	1.230973	0.250005	-0.000024	0.000100
4.82	4.172100	0.999999	0.000005	-0.000024	1.233473	0.250005	-0.000023	0.000096
4.83	4.182100	0.999999	0.000005	-0.000023	1.235973	0.250005	-0.000022	0.000093
4.84	4.192100	0.999999	0.000005	-0.000022	1.238473	0.250005	-0.000021	0.000089
4.85	4.202100	0.999999	0.000005	-0.000021	1.240973	0.250004	-0.000021	0.000086
4.86	4.212100	0.999999	0.000005	-0.000020	1.243474	0.250004	-0.000020	0.000082
4.87	4.222100	0.999999	0.000004	-0.000020	1.245974	0.250004	-0.000019	0.000079
4.88	4.232100	0.999999	0.000004	-0.000019	1.248474	0.250004	-0.000018	0.000076
4.89	4.242100	0.999999	0.000004	-0.000018	1.250974	0.250004	-0.000017	0.000073
4.90	4.252100	0.999999	0.000004	-0.000017	1.253474	0.250003	-0.000017	0.000070
4.91	4.262100	0.999999	0.000004	-0.000016	1.255974	0.250003	-0.000016	0.000067
4.92	4.272100	1.000000	0.000003	-0.000016	1.258474	0.250003	-0.000015	0.000065
4.93	4.282100	1.000000	0.000003	-0.000015	1.260974	0.250003	-0.000015	0.000062
4.94	4.292100	1.000000	0.000003	-0.000014	1.263474	0.250003	-0.000014	0.000060
4.95	4.302100	1.000000	0.000003	-0.000014	1.265974	0.250003	-0.000013	0.000057
4.96	4.312100	1.000000	0.000003	-0.000013	1.268474	0.250003	-0.000013	0.000055
4.97	4.322100	1.000000	0.000003	-0.000012	1.270974	0.250002	-0.000012	0.000053
4.98	4.332100	1.000000	0.000003	-0.000012	1.273474	0.250002	-0.000012	0.000051
4.99	4.342100	1.000000	0.000002	-0.000011	1.275974	0.250002	-0.000011	0.000048
5.00	4.352100	1.000000	0.000002	-0.000011	1.278474	0.250002	-0.000011	0.000047
5.01	4.362100	1.000000	0.000002	-0.000010	1.280974	0.250002	-0.000010	0.000045
5.02	4.372100	1.000000	0.000002	-0.000010	1.283474	0.250002	-0.000010	0.000043
5.03	4.382100	1.000000	0.000002	-0.000009	1.285974	0.250002	-0.000010	0.000041
5.04	4.392100	1.000000	0.000002	-0.000009	1.288474	0.250002	-0.000009	0.000039
5.05	4.402100	1.000000	0.000002	-0.000009	1.290974	0.250002	-0.000009	0.000038
5.06	4.412100	1.000000	0.000002	-0.000008	1.293474	0.250002	-0.000008	0.000036
5.07	4.422100	1.000000	0.000002	-0.000008	1.295974	0.250001	-0.000008	0.000035
5.08	4.432100	1.000000	0.000002	-0.000008	1.298474	0.250001	-0.000008	0.000033
5.09	4.442100	1.000000	0.000002	-0.000007	1.300974	0.250001	-0.000007	0.000032
5.10	4.452100	1.000000	0.000002	-0.000007	1.303474	0.250001	-0.000007	0.000031
5.11	4.462100	1.000000	0.000001	-0.000007	1.305974	0.250001	-0.000007	0.000029
5.12	4.472100	1.000000	0.000001	-0.000006	1.308474	0.250001	-0.000007	0.000028
5.13	4.482100	1.000000	0.000001	-0.000006	1.310974	0.250001	-0.000006	0.000027
5.14	4.492100	1.000000	0.000001	-0.000006	1.313474	0.250001	-0.000006	0.000026
5.15	4.502100	1.000000	0.000001	-0.000005	1.315974	0.250001	-0.000006	0.000025
5.16	4.512100	1.000000	0.000001	-0.000005	1.318474	0.250001	-0.000005	0.000024
5.17	4.522100	1.000000	0.000001	-0.000005	1.320974	0.250001	-0.000005	0.000023
5.18	4.532100	1.000000	0.000001	-0.000005	1.323474	0.250001	-0.000005	0.000022
5.19	4.542100	1.000000	0.000001	-0.000004	1.325974	0.250001	-0.000005	0.000021
5.20	4.552100	1.000000	0.000001	-0.000004	1.328474	0.250001	-0.000005	0.000020
5.21	4.562100	1.000000	0.000001	-0.000004	1.330974	0.250001	-0.000004	0.000019
5.22	4.572100	1.000000	0.000001	-0.000004	1.333474	0.250001	-0.000004	0.000018
5.23	4.582100	1.000000	0.000001	-0.000004	1.335974	0.250001	-0.000004	0.000017
5.24	4.592100	1.000000	0.000001	-0.000004	1.338474	0.250000	-0.000004	0.000017

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Contrails

η	g_5	g_5'	g_5''	g_5'''	h_5	h_5'	h_5''	h_5'''
0.00	0.000000	0.000000	0.634702	-1.000000	0.000000	0.000000	0.119182	-0.500000
0.01	0.000032	0.006297	0.624703	-0.999768	0.000006	0.001167	0.114183	-0.499749
0.02	0.000126	0.012494	0.614708	-0.999079	0.000023	0.002284	0.109188	-0.499008
0.03	0.000281	0.018591	0.604723	-0.997948	0.000051	0.003351	0.104204	-0.497794
0.04	0.000497	0.024589	0.594751	-0.996389	0.000090	0.004368	0.099234	-0.496126
0.05	0.000773	0.030486	0.584797	-0.994413	0.000139	0.005335	0.094283	-0.494019
0.06	0.001106	0.036285	0.574864	-0.992033	0.000197	0.006254	0.089355	-0.491491
0.07	0.001498	0.041984	0.564957	-0.989264	0.000263	0.007123	0.084455	-0.488560
0.08	0.001946	0.047584	0.555080	-0.986117	0.000339	0.007943	0.079585	-0.485240
0.09	0.002449	0.053085	0 545236	-0.982605	0.000422	0.008714	0.074751	-0.481549
0.10	0.003007	0.058489	0.535429	-0.978741	0.000513	0.009438	0.069955	-0.477502
0.11	0.003619	0.063794	0.525662	-0.974536	0.000611	0.010114	0.065202	-0.473115
0.12	0.004283	0.069002	0.515939	-0.970003	0.000715	0.010742	0.060494	-0.468403
0.13	0.004998	0.074113	0.506263	-0.965153	0.000825	0.011324	0.055835	-0.463382
0.14	0.005765	0.079127	0.496637	-0.959999	0.000941	0.011859	0.051228	-0.458066
0.15	0.006581	0.084046	0.487064	-0.954551	0.001062	0.012348	0.046675	-0.452469
0.16	0.007445	0.088869	0.477547	-0.948821	0.001188	0.012793	0.042179	-0.446607
0.17	0.008358	0.093597	0.468089	-0.942820	0.001318	0.013192	0.037743	-0.440493
0.18	0.009317	0.098231	0.458692	-0.936559	0.001452	0.013548	0.033370	-0.434141
0.19	0.010322	0.102771	0.449359	-0.930050	0.001589	0.013860	0.029061	-0.427564
0.20	0.011372	0.107218	0.440092	-0.923301	0.001729	0.014129	0.024819	-0.420775
0.21	0.012466	0.111573	0.430893	-0.916325	0.001871	0.014356	0.020646	-0.413788
0.22	0.013603	0.115836	0.421766	-0.909130	0.002016	0.014542	0.016544	-0.406614
0.23	0.014783	0.120009	0.412711	-0.901728	0.002162	0.014688	0.012515	-0.399266
0.24	0.016003	0.124091	0.403732	-0.894128	0.002310	0.014793	0.008560	-0.391757
0.25	0.017264	0.128084	0.394829	-0.886339	0.002458	0.014859	0.004680	-0.384098
0.26	0.018564	0.131988	0.386006	-0.878371	0.002607	0.014887	0.000878	-0.376300
0.27	0.019903	0.135804	0 377263	-0.870234	0.002755	0.014877	-0.002845	-0.368374
0.28	0.021280	0.139533	0.368602	-0.861935	0.002904	0.014830	-0.006489	-0.360332
0.29	0.022694	0.143176	0.360024	-0.853485	0.003052	0.014747	-0.010052	-0.352184
0.30	0.024143	0.146734	0.351532	-0.844892	0.003199	0.014629	-0.013532	-0.343940
0.31	0.025628	0.150207	0.343127	-0.836164	0.003344	0.014477	-0.016930	-0.335611
0.32	0.027147	0.153597	0.334809	-0.827309	0.003488	0.014291	-0.020244	-0.327206
0.33	0.028700	0.156904	0.326581	-0.818337	0.003630	0.014072	-0.023474	-0.318735
0.34	0.030285	0.160129	0.318443	-0.809254	0.003770	0.013822	-0.026619	-0.310207
0.35	0.031902	0.163273	0.310396	-0.800068	0.003906	0.013540	-0.029678	-0.301630
0.36	0.033550	0.166337	0.302442	-0.790787	0.004040	0.013229	-0.032651	-0.293015
0.37	0.035229	0.169322	0.294581	-0.781419	0.004171	0.012887	-0.035538	-0.284368
0.38	0.036937	0.172229	0.286814	-0.771970	0.004298	0.012518	-0.038339	-0.275699
0.39	0.038673	0.175059	0.279142	-0.762447	0.004421	0.012121	-0.041052	-0.267015
0.40	0.040437	0.177812	0.271565	-0.752857	0.004540	0.011697	-0.043679	-0.258324
0.41	0.042229	0.180490	0.264085	-0.743208	0.004655	0.011248	-0.046219	-0.249634
0.42	0.044047	0.183094	0.256701	-0.733504	0.004765	0.010773	-0.048672	-0.240951
0.43	0.045891	0.185625	0.249415	-0.723754	0.004870	0.010275	-0.051038	-0.232282
0.44	0.047759	0.188083	0.242226	-0.713962	0.004971	0.009753	-0.053317	-0.223635
0.45	0.049652	0.190470	0.235136	-0.704134	0.005065	0.009209	-0.055511	-0.215015
0.46	0.051568	0.192786	0.228144	-0.694277	0.005155	0.008643	-0.057618	-0.206429
0.47	0.053508	0.195033	0.221250	-0.684396	0.005238	0.008056	-0.059639	-0.197883
0.48	0.055469	0.197211	0.214456	-0.674497	0.005316	0.007450	-0.061576	-0.189383
0.49	0.057452	0.199322	0.207760	-0.664584	0.005387	0.006825	-0.063427	-0.180934
0.50	0.059455	0.201367	0.201164	-0.654663	0.005452	0.006182	-0.065194	-0.172541
0.51	0.061479	0.203346	0.194667	-0.644739	0.005511	0.005522	-0.066878	-0.164210
0.52	0.063522	0.205260	0.188269	-0.634817	0.005563	0.004845	-0.068479	-0.155945
0.53	0.065584	0.207112	0.181971	-0.624900	0.005608	0.004152	-0.069997	-0.147752
0.54	0.067664	0.208900	0.175771	-0.614995	0.005646	0.003445	-0.071434	-0.139634
0.55	0.069761	0.210627	0.169671	-0.605105	0.005676	0.002724	-0.072790	-0.131596
0.56	0.071876	0.212294	0.163669	-0.595233	0.005700	0.001990	-0.074066	-0.123642
0.57	0.074007	0.213901	0.157766	-0.585386	0.005716	0.001243	-0.075263	-0.115775
0.58	0.076154	0.215450	0.151961	-0.575565	0.005725	0.000485	-0.076382	-0.108000
0.59	0.078316	0.216941	0.146255	-0.565776	0.005726	-0.000285	-0.077424	-0.100321
0.60	0.080493	0.218375	0.140646	-0.556021	0.005719	-0.001064	-0.078389	-0.092739
0.61	0.082683	0.219754	0.135134	-0.546305	0.005705	-0.001852	-0.079279	-0.085259
0.62	0.084887	0.221078	0.129720	-0.536630	0.005682	-0.002649	-0.080094	-0.077883
0.63	0.087105	0.222348	0.124401	-0.527000	0.005652	-0.003454	-0.080837	-0.070615
0.64	0.089334	0.223566	0.119179	-0.517418	0.005613	-0.004266	-0.081507	-0.063456
0.65	0.091576	0.224732	0.114053	-0.507887	0.005566	-0.005084	-0.082106	-0.056410
0.66	0.093829	0.225848	0.109021	-0.498410	0.005511	-0.005907	-0.082636	-0.049478
0.67	0.096093	0.226913	0.104085	-0.488989	0.005448	-0.006736	-0.083096	-0.042662
0.68	0.098367	0.227930	0.099241	-0.479628	0.005377	-0.007569	-0.083489	-0.035966
0.69	0.100651	0.228898	0.094492	-0.470329	0.005297	-0.008406	-0.083816	-0.029389
0.70	0.102945	0.229820	0.089835	-0.461094	0.005208	-0.009245	-0.084078	-0.022935
0.71	0.105247	0.230695	0.085270	-0.451925	0.005112	-0.010087	-0.084275	-0.016605
0.72	0.107558	0.231526	0.080796	-0.442825	0.005007	-0.010931	-0.084410	-0.010400
0.73	0.109878	0.232312	0.076413	-0.433796	0.004893	-0.011775	-0.084484	-0.004321
0.74	0.112205	0.233054	0.072120	-0.424840	0.004771	-0.012620	-0.084497	0.001630

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Contrails

η	g_5	g_5'	g_5''	g_5'''	h_5	h_5'	h_5''	h_5'''
0.75	0.114539	0.233754	0.067916	-0.415959	0.004641	-0.013465	-0.084451	0.007453
0.76	0.116879	0.234413	0.063800	-0.407154	0.004502	-0.014309	-0.084348	0.013146
0.77	0.119227	0.235031	0.059773	-0.398427	0.004355	-0.015152	-0.084189	0.018709
0.78	0.121580	0.235608	0.055832	-0.389781	0.004199	-0.015992	-0.083975	0.024141
0.79	0.123939	0.236147	0.051977	-0.381216	0.004035	-0.016831	-0.083707	0.029442
0.80	0.126303	0.236648	0.048207	-0.372733	0.003862	-0.017666	-0.083386	0.034611
0.81	0.128672	0.237112	0.044522	-0.364335	0.003681	-0.018498	-0.083015	0.039648
0.82	0.131045	0.237539	0.040920	-0.356022	0.003492	-0.019326	-0.082594	0.044553
0.83	0.133422	0.237931	0.037401	-0.347797	0.003295	-0.020150	-0.082124	0.049325
0.84	0.135803	0.238287	0.033964	-0.339658	0.003089	-0.020969	-0.081608	0.053965
0.85	0.138188	0.238610	0.030608	-0.331609	0.002876	-0.021782	-0.081045	0.058472
0.86	0.140575	0.238900	0.027331	-0.323650	0.002654	-0.022590	-0.080439	0.062847
0.87	0.142966	0.239157	0.024134	-0.315781	0.002424	-0.023391	-0.079789	0.067091
0.88	0.145358	0.239383	0.021015	-0.308003	0.002186	-0.024185	-0.079097	0.071202
0.89	0.147753	0.239578	0.017974	-0.300318	0.001940	-0.024973	-0.078365	0.075183
0.90	0.150150	0.239742	0.015009	-0.292726	0.001686	-0.025752	-0.077594	0.079032
0.91	0.152548	0.239878	0.012119	-0.285227	0.001425	-0.026524	-0.076785	0.082752
0.92	0.154947	0.239985	0.009304	-0.277823	0.001156	-0.027288	-0.075939	0.086342
0.93	0.157348	0.240064	0.006562	-0.270513	0.000879	-0.028043	-0.075059	0.089804
0.94	0.159749	0.240116	0.003893	-0.263298	0.000595	-0.028789	-0.074144	0.093137
0.95	0.162150	0.240142	0.001296	-0.256178	0.000304	-0.029526	-0.073196	0.096344
0.96	0.164551	0.240143	-0.001231	-0.249154	0.000005	-0.030253	-0.072217	0.099424
0.97	0.166953	0.240118	-0.003687	-0.242227	-0.000301	-0.030970	-0.071208	0.102379
0.98	0.169354	0.240069	-0.006075	-0.235395	-0.000615	-0.031677	-0.070170	0.105211
0.99	0.171754	0.239997	-0.008396	-0.228659	-0.000935	-0.032373	-0.069104	0.107919
1.00	0.174153	0.239901	-0.010649	-0.222021	-0.001262	-0.033059	-0.068012	0.110505
1.01	0.176552	0.239784	-0.012836	-0.215478	-0.001596	-0.033733	-0.066895	0.112971
1.02	0.178949	0.239645	-0.014959	-0.209032	-0.001937	-0.034397	-0.065753	0.115317
1.03	0.181345	0.239485	-0.017017	-0.202683	-0.002284	-0.035048	-0.064589	0.117545
1.04	0.183739	0.239305	-0.019013	-0.196430	-0.002638	-0.035688	-0.063403	0.119657
1.05	0.186131	0.239105	-0.020946	-0.190273	-0.002998	-0.036316	-0.062196	0.121653
1.06	0.188521	0.238886	-0.022819	-0.184213	-0.003364	-0.036932	-0.060970	0.123535
1.07	0.190908	0.238649	-0.024631	-0.178248	-0.003736	-0.037536	-0.059726	0.125304
1.08	0.193294	0.238394	-0.026384	-0.172379	-0.004115	-0.038127	-0.058464	0.126962
1.09	0.195676	0.238121	-0.028079	-0.166606	-0.004499	-0.038705	-0.057187	0.128511
1.10	0.198056	0.237832	-0.029716	-0.160928	-0.004889	-0.039270	-0.055894	0.129953
1.11	0.200433	0.237527	-0.031298	-0.155344	-0.005284	-0.039823	-0.054588	0.131287
1.12	0.202807	0.237206	-0.032824	-0.149856	-0.005685	-0.040362	-0.053269	0.132517
1.13	0.205177	0.236871	-0.034295	-0.144461	-0.006091	-0.040888	-0.051938	0.133644
1.14	0.207544	0.236521	-0.035713	-0.139160	-0.006503	-0.041401	-0.050596	0.134669
1.15	0.209907	0.236157	-0.037079	-0.133952	-0.006919	-0.041900	-0.049245	0.135595
1.16	0.212267	0.235779	-0.038392	-0.128837	-0.007341	-0.042386	-0.047885	0.136423
1.17	0.214623	0.235389	-0.039656	-0.123814	-0.007767	-0.042858	-0.046517	0.137154
1.18	0.216975	0.234986	-0.040869	-0.118883	-0.008198	-0.043316	-0.045142	0.137791
1.19	0.219323	0.234572	-0.042034	-0.114042	-0.008633	-0.043761	-0.043761	0.138334
1.20	0.221666	0.234146	-0.043150	-0.109293	-0.009073	-0.044191	-0.042376	0.138787
1.21	0.224005	0.233709	-0.044220	-0.104633	-0.009517	-0.044608	-0.040986	0.139151
1.22	0.226340	0.233262	-0.045243	-0.100063	-0.009965	-0.045011	-0.039593	0.139427
1.23	0.228671	0.232804	-0.046221	-0.095581	-0.010417	-0.045400	-0.038198	0.139617
1.24	0.230996	0.232337	-0.047155	-0.091187	-0.010873	-0.045775	-0.036801	0.139724
1.25	0.233317	0.231861	-0.048045	-0.086881	-0.011333	-0.046136	-0.035403	0.139748
1.26	0.235634	0.231377	-0.048893	-0.082661	-0.011796	-0.046483	-0.034006	0.139692
1.27	0.237945	0.230884	-0.049699	-0.078527	-0.012262	-0.046816	-0.032610	0.139558
1.28	0.240251	0.230383	-0.050464	-0.074479	-0.012732	-0.047135	-0.031215	0.139348
1.29	0.242552	0.229874	-0.051189	-0.070514	-0.013205	-0.047440	-0.029823	0.139062
1.30	0.244849	0.229359	-0.051874	-0.066634	-0.013681	-0.047732	-0.028434	0.138704
1.31	0.247140	0.228837	-0.052522	-0.062836	-0.014160	-0.048009	-0.027049	0.138275
1.32	0.249425	0.228309	-0.053131	-0.059120	-0.014641	-0.048273	-0.025669	0.137776
1.33	0.251706	0.227775	-0.053704	-0.055486	-0.015125	-0.048522	-0.024294	0.137210
1.34	0.253981	0.227235	-0.054241	-0.051932	-0.015611	-0.048759	-0.022925	0.136578
1.35	0.256250	0.226690	-0.054743	-0.048458	-0.016100	-0.048981	-0.021563	0.135883
1.36	0.258515	0.226140	-0.055211	-0.045063	-0.016591	-0.049190	-0.020208	0.135126
1.37	0.260773	0.225586	-0.055645	-0.041745	-0.017084	-0.049385	-0.018860	0.134308
1.38	0.263026	0.225027	-0.056046	-0.038505	-0.017579	-0.049567	-0.017522	0.133433
1.39	0.265274	0.224465	-0.056415	-0.035341	-0.018075	-0.049736	-0.016192	0.132501
1.40	0.267516	0.223899	-0.056753	-0.032253	-0.018573	-0.049891	-0.014872	0.131514
1.41	0.269752	0.223330	-0.057060	-0.029239	-0.019073	-0.050033	-0.013562	0.130474
1.42	0.271982	0.222758	-0.057338	-0.026299	-0.019574	-0.050162	-0.012262	0.129383
1.43	0.274207	0.222183	-0.057587	-0.023431	-0.020076	-0.050278	-0.010974	0.128242
1.44	0.276426	0.221606	-0.057807	-0.020636	-0.020579	-0.050382	-0.009698	0.127054
1.45	0.278639	0.221027	-0.058000	-0.017911	-0.021084	-0.050472	-0.008433	0.125820
1.46	0.280846	0.220446	-0.058165	-0.015257	-0.021589	-0.050550	-0.007182	0.124541
1.47	0.283048	0.219864	-0.058305	-0.012672	-0.022095	-0.050616	-0.005943	0.123220
1.48	0.285244	0.219280	-0.058419	-0.010155	-0.022601	-0.050669	-0.004717	0.121858
1.49	0.287434	0.218696	-0.058508	-0.007705	-0.023108	-0.050710	-0.003506	0.120457

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Contrails

η	g_5	g_5'	g_5''	g_5'''	h_5	h_5'	h_5''	h_5'''
1.50	0.289618	0.218110	-0.058573	-0.005322	-0.023615	-0.050739	-0.002308	0.119018
1.51	0.291796	0.217524	-0.058615	-0.003005	-0.024123	-0.050757	-0.001125	0.117544
1.52	0.293968	0.216938	-0.058634	-0.000752	-0.024630	-0.050762	0.000043	0.116035
1.53	0.296135	0.216352	-0.058630	0.001437	-0.025138	-0.050756	0.001195	0.114493
1.54	0.298295	0.215766	-0.058605	0.003563	-0.025645	-0.050738	0.002332	0.112921
1.55	0.300450	0.215180	-0.058559	0.005627	-0.026153	-0.050709	0.003453	0.111318
1.56	0.302599	0.214595	-0.058493	0.007630	-0.026660	-0.050669	0.004559	0.109688
1.57	0.304742	0.214010	-0.058407	0.009572	-0.027166	-0.050618	0.005647	0.108031
1.58	0.306879	0.213426	-0.058302	0.011456	-0.027672	-0.050556	0.006719	0.106350
1.59	0.309010	0.212844	-0.058178	0.013281	-0.028177	-0.050484	0.007774	0.104645
1.60	0.311136	0.212263	-0.058036	0.015049	-0.028682	-0.050401	0.008812	0.102917
1.61	0.313256	0.211683	-0.057877	0.016761	-0.029185	-0.050308	0.009832	0.101170
1.62	0.315369	0.211105	-0.057701	0.018416	-0.029688	-0.050204	0.010835	0.099403
1.63	0.317478	0.210529	-0.057509	0.020017	-0.030189	-0.050091	0.011820	0.097618
1.64	0.319580	0.209955	-0.057301	0.021565	-0.030689	-0.049968	0.012788	0.095817
1.65	0.321677	0.209383	-0.057078	0.023059	-0.031188	-0.049835	0.013737	0.094001
1.66	0.323768	0.208814	-0.056840	0.024501	-0.031686	-0.049693	0.014668	0.092171
1.67	0.325853	0.208247	-0.056588	0.025892	-0.032182	-0.049542	0.015580	0.090329
1.68	0.327933	0.207682	-0.056322	0.027233	-0.032677	-0.049382	0.016474	0.088476
1.69	0.330007	0.207120	-0.056043	0.028525	-0.033170	-0.049213	0.017350	0.086613
1.70	0.332075	0.206561	-0.055752	0.029768	-0.033661	-0.049035	0.018206	0.084742
1.71	0.334138	0.206005	-0.055448	0.030963	-0.034151	-0.048849	0.019044	0.082863
1.72	0.336195	0.205452	-0.055133	0.032112	-0.034638	-0.048654	0.019864	0.080978
1.73	0.338247	0.204903	-0.054806	0.033215	-0.035124	-0.048451	0.020664	0.079088
1.74	0.340293	0.204356	-0.054469	0.034272	-0.035607	-0.048241	0.021445	0.077194
1.75	0.342334	0.203813	-0.054121	0.035286	-0.036088	-0.048022	0.022208	0.075298
1.76	0.344370	0.203274	-0.053763	0.036256	-0.036568	-0.047797	0.022951	0.073400
1.77	0.346400	0.202738	-0.053396	0.037183	-0.037044	-0.047564	0.023676	0.071501
1.78	0.348424	0.202206	-0.053020	0.038069	-0.037519	-0.047323	0.024381	0.069603
1.79	0.350444	0.201678	-0.052635	0.038914	-0.037991	-0.047076	0.025068	0.067707
1.80	0.352458	0.201153	-0.052241	0.039719	-0.038460	-0.046822	0.025735	0.065813
1.81	0.354467	0.200633	-0.051840	0.040485	-0.038927	-0.046561	0.026384	0.063922
1.82	0.356471	0.200117	-0.051432	0.041212	-0.039391	-0.046294	0.027014	0.062036
1.83	0.358469	0.199604	-0.051016	0.041902	-0.039853	-0.046021	0.027625	0.060156
1.84	0.360463	0.199096	-0.050594	0.042555	-0.040312	-0.045742	0.028217	0.058282
1.85	0.362451	0.198592	-0.050165	0.043172	-0.040768	-0.045457	0.028790	0.056415
1.86	0.364435	0.198093	-0.049731	0.043753	-0.041221	-0.045166	0.029345	0.054556
1.87	0.366413	0.197598	-0.049290	0.044300	-0.041671	-0.044870	0.029882	0.052707
1.88	0.368387	0.197107	-0.048845	0.044813	-0.042118	-0.044569	0.030399	0.050866
1.89	0.370355	0.196621	-0.048394	0.045294	-0.042563	-0.044262	0.030899	0.049037
1.90	0.372319	0.196139	-0.047939	0.045742	-0.043004	-0.043951	0.031380	0.047219
1.91	0.374278	0.195662	-0.047479	0.046158	-0.043442	-0.043635	0.031843	0.045412
1.92	0.376232	0.195190	-0.047016	0.046544	-0.043876	-0.043314	0.032289	0.043619
1.93	0.378182	0.194722	-0.046549	0.046900	-0.044308	-0.042989	0.032716	0.041839
1.94	0.380127	0.194259	-0.046078	0.047226	-0.044736	-0.042660	0.033125	0.040073
1.95	0.382067	0.193800	-0.045604	0.047524	-0.045161	-0.042326	0.033517	0.038322
1.96	0.384003	0.193347	-0.045128	0.047794	-0.045583	-0.041989	0.033892	0.036586
1.97	0.385934	0.192898	-0.044648	0.048037	-0.046001	-0.041649	0.034249	0.034866
1.98	0.387861	0.192454	-0.044167	0.048253	-0.046416	-0.041304	0.034589	0.033163
1.99	0.389783	0.192015	-0.043683	0.048444	-0.046827	-0.040957	0.034912	0.031477
2.00	0.391701	0.191580	-0.043198	0.048609	-0.047235	-0.040606	0.035219	0.029808
2.01	0.393615	0.191151	-0.042711	0.048750	-0.047639	-0.040253	0.035509	0.028158
2.02	0.395524	0.190726	-0.042223	0.048867	-0.048040	-0.039896	0.035782	0.026526
2.03	0.397429	0.190306	-0.041734	0.048960	-0.048437	-0.039537	0.036039	0.024914
2.04	0.399330	0.189891	-0.041244	0.049032	-0.048830	-0.039175	0.036280	0.023321
2.05	0.401227	0.189481	-0.040753	0.049081	-0.049220	-0.038811	0.036506	0.021748
2.06	0.403120	0.189076	-0.040263	0.049109	-0.049607	-0.038445	0.036715	0.020195
2.07	0.405009	0.188676	-0.039771	0.049116	-0.049989	-0.038077	0.036910	0.018664
2.08	0.406893	0.188281	-0.039280	0.049103	-0.050368	-0.037707	0.037089	0.017153
2.09	0.408774	0.187890	-0.038789	0.049071	-0.050743	-0.037335	0.037253	0.015664
2.10	0.410651	0.187505	-0.038299	0.049019	-0.051115	-0.036962	0.037402	0.014197
2.11	0.412524	0.187124	-0.037809	0.048949	-0.051483	-0.036587	0.037537	0.012751
2.12	0.414394	0.186749	-0.037320	0.048862	-0.051847	-0.036211	0.037657	0.011329
2.13	0.416259	0.186378	-0.036832	0.048757	-0.052207	-0.035834	0.037763	0.009928
2.14	0.418121	0.186012	-0.036345	0.048636	-0.052563	-0.035456	0.037856	0.008551
2.15	0.419980	0.185651	-0.035859	0.048498	-0.052916	-0.035077	0.037935	0.007197
2.16	0.421834	0.185295	-0.035375	0.048345	-0.053265	-0.034698	0.038000	0.005866
2.17	0.423685	0.184944	-0.034892	0.048177	-0.053610	-0.034317	0.038052	0.004559
2.18	0.425533	0.184597	-0.034411	0.047994	-0.053951	-0.033937	0.038091	0.003276
2.19	0.427377	0.184255	-0.033933	0.047798	-0.054289	-0.033555	0.038118	0.002016
2.20	0.429218	0.183918	-0.033456	0.047587	-0.054622	-0.033174	0.038132	0.000780
2.21	0.431056	0.183586	-0.032981	0.047364	-0.054952	-0.032793	0.038133	-0.000431
2.22	0.432890	0.183259	-0.032508	0.047128	-0.055278	-0.032412	0.038123	-0.001618
2.23	0.434721	0.182936	-0.032038	0.046880	-0.055600	-0.032030	0.038101	-0.002781
2.24	0.436549	0.182618	-0.031571	0.046621	-0.055919	-0.031650	0.038067	-0.003920

Approved for Public Release

Contrails

η	g_5	g_5'	g_5''	g_5'''	h_5	h_5'	h_5''	h_5'''
2.25	0.438373	0.182305	-0.031106	0.046350	-0.056233	-0.031269	0.038023	-0.005034
2.26	0.440195	0.181996	-0.030644	0.046068	-0.056544	-0.030889	0.037967	-0.006123
2.27	0.442013	0.181692	-0.030185	0.045777	-0.056851	-0.030510	0.037900	-0.007189
2.28	0.443829	0.181392	-0.029728	0.045475	-0.057154	-0.030131	0.037823	-0.008229
2.29	0.445641	0.181097	-0.029275	0.045164	-0.057454	-0.029753	0.037736	-0.009245
2.30	0.447451	0.180807	-0.028825	0.044844	-0.057749	-0.029377	0.037638	-0.010237
2.31	0.449257	0.180521	-0.028378	0.044516	-0.058041	-0.029001	0.037531	-0.011204
2.32	0.451061	0.180239	-0.027935	0.044179	-0.058329	-0.028626	0.037414	-0.012146
2.33	0.452862	0.179962	-0.027495	0.043835	-0.058614	-0.028252	0.037288	-0.013065
2.34	0.454660	0.179689	-0.027058	0.043483	-0.058894	-0.027880	0.037153	-0.013958
2.35	0.456456	0.179421	-0.026625	0.043124	-0.059171	-0.027509	0.037009	-0.014828
2.36	0.458249	0.179157	-0.026196	0.042758	-0.059445	-0.027140	0.036857	-0.015674
2.37	0.460039	0.178897	-0.025770	0.042387	-0.059714	-0.026772	0.036696	-0.016495
2.38	0.461827	0.178641	-0.025348	0.042009	-0.059980	-0.026406	0.036527	-0.017293
2.39	0.463612	0.178390	-0.024930	0.041625	-0.060242	-0.026042	0.036350	-0.018066
2.40	0.465395	0.178143	-0.024515	0.041237	-0.060501	-0.025679	0.036166	-0.018817
2.41	0.467175	0.177900	-0.024105	0.040843	-0.060756	-0.025319	0.035974	-0.019543
2.42	0.468953	0.177661	-0.023699	0.040445	-0.061007	-0.024960	0.035775	-0.020246
2.43	0.470728	0.177426	-0.023296	0.040043	-0.061255	-0.024603	0.035569	-0.020927
2.44	0.472501	0.177195	-0.022898	0.039636	-0.061499	-0.024248	0.035356	-0.021584
2.45	0.474272	0.176968	-0.022503	0.039226	-0.061740	-0.023896	0.035137	-0.022218
2.46	0.476040	0.176744	-0.022113	0.038813	-0.061977	-0.023546	0.034912	-0.022829
2.47	0.477807	0.176525	-0.021727	0.038396	-0.062211	-0.023198	0.034681	-0.023419
2.48	0.479571	0.176310	-0.021345	0.037977	-0.062441	-0.022852	0.034444	-0.023986
2.49	0.481333	0.176098	-0.020968	0.037555	-0.062668	-0.022509	0.034201	-0.024531
2.50	0.483093	0.175891	-0.020594	0.037131	-0.062892	-0.022168	0.033953	-0.025054
2.51	0.484851	0.175686	-0.020225	0.036705	-0.063111	-0.021830	0.033700	-0.025555
2.52	0.486607	0.175486	-0.019860	0.036277	-0.063328	-0.021494	0.033442	-0.026036
2.53	0.488361	0.175289	-0.019500	0.035848	-0.063541	-0.021161	0.033180	-0.026495
2.54	0.490112	0.175096	-0.019143	0.035417	-0.063751	-0.020831	0.032912	-0.026934
2.55	0.491862	0.174906	-0.018791	0.034985	-0.063958	-0.020503	0.032641	-0.027352
2.56	0.493611	0.174720	-0.018443	0.034553	-0.064161	-0.020178	0.032365	-0.027749
2.57	0.495357	0.174538	-0.018100	0.034119	-0.064362	-0.019855	0.032086	-0.028127
2.58	0.497101	0.174358	-0.017761	0.033686	-0.064559	-0.019536	0.031803	-0.028485
2.59	0.498844	0.174182	-0.017426	0.033252	-0.064752	-0.019219	0.031516	-0.028824
2.60	0.500585	0.174010	-0.017096	0.032819	-0.064943	-0.018906	0.031227	-0.029143
2.61	0.502324	0.173840	-0.016770	0.032385	-0.065130	-0.018595	0.030934	-0.029443
2.62	0.504062	0.173674	-0.016448	0.031952	-0.065315	-0.018287	0.030638	-0.029725
2.63	0.505798	0.173511	-0.016131	0.031519	-0.065496	-0.017982	0.030339	-0.029989
2.64	0.507532	0.173352	-0.015818	0.031088	-0.065674	-0.017680	0.030038	-0.030235
2.65	0.509265	0.173195	-0.015509	0.030657	-0.065850	-0.017381	0.029735	-0.030462
2.66	0.510996	0.173041	-0.015205	0.030227	-0.066022	-0.017086	0.029429	-0.030673
2.67	0.512726	0.172891	-0.014905	0.029799	-0.066192	-0.016793	0.029121	-0.030866
2.68	0.514454	0.172743	-0.014609	0.029372	-0.066358	-0.016503	0.028812	-0.031043
2.69	0.516181	0.172599	-0.014317	0.028946	-0.066522	-0.016217	0.028500	-0.031203
2.70	0.517906	0.172457	-0.014030	0.028522	-0.066682	-0.015933	0.028188	-0.031347
2.71	0.519630	0.172318	-0.013747	0.028101	-0.066840	-0.015653	0.027873	-0.031475
2.72	0.521352	0.172182	-0.013468	0.027681	-0.066995	-0.015376	0.027558	-0.031588
2.73	0.523073	0.172049	-0.013193	0.027263	-0.067148	-0.015102	0.027242	-0.031686
2.74	0.524793	0.171918	-0.012923	0.026847	-0.067297	-0.014831	0.026924	-0.031768
2.75	0.526512	0.171790	-0.012656	0.026434	-0.067444	-0.014563	0.026606	-0.031836
2.76	0.528229	0.171665	-0.012394	0.026023	-0.067589	-0.014299	0.026288	-0.031890
2.77	0.529945	0.171542	-0.012136	0.025615	-0.067730	-0.014037	0.025969	-0.031930
2.78	0.531660	0.171422	-0.011882	0.025209	-0.067869	-0.013779	0.025649	-0.031956
2.79	0.533373	0.171305	-0.011632	0.024806	-0.068006	-0.013524	0.025330	-0.031969
2.80	0.535086	0.171190	-0.011385	0.024406	-0.068140	-0.013273	0.025010	-0.031969
2.81	0.536797	0.171077	-0.011143	0.024009	-0.068271	-0.013024	0.024690	-0.031956
2.82	0.538507	0.170967	-0.010905	0.023615	-0.068400	-0.012779	0.024371	-0.031931
2.83	0.540217	0.170859	-0.010671	0.023225	-0.068527	-0.012537	0.024052	-0.031894
2.84	0.541925	0.170753	-0.010441	0.022837	-0.068651	-0.012298	0.023733	-0.031845
2.85	0.543632	0.170650	-0.010214	0.022453	-0.068773	-0.012062	0.023415	-0.031785
2.86	0.545338	0.170549	-0.009992	0.022072	-0.068892	-0.011830	0.023097	-0.031714
2.87	0.547043	0.170450	-0.009773	0.021694	-0.069010	-0.011600	0.022781	-0.031632
2.88	0.548747	0.170354	-0.009558	0.021320	-0.069124	-0.011374	0.022465	-0.031539
2.89	0.550450	0.170259	-0.009346	0.020949	-0.069237	-0.011151	0.022150	-0.031437
2.90	0.552152	0.170167	-0.009139	0.020582	-0.069348	-0.010931	0.021836	-0.031324
2.91	0.553853	0.170076	-0.008935	0.020219	-0.069456	-0.010714	0.021523	-0.031202
2.92	0.555553	0.169988	-0.008734	0.019859	-0.069562	-0.010501	0.021212	-0.031071
2.93	0.557253	0.169902	-0.008538	0.019503	-0.069666	-0.010290	0.020902	-0.030930
2.94	0.558951	0.169817	-0.008344	0.019151	-0.069768	-0.010082	0.020593	-0.030782
2.95	0.560649	0.169735	-0.008155	0.018803	-0.069867	-0.009878	0.020286	-0.030624
2.96	0.562346	0.169654	-0.007968	0.018458	-0.069965	-0.009677	0.019981	-0.030459
2.97	0.564042	0.169575	-0.007785	0.018118	-0.070061	-0.009478	0.019677	-0.030286
2.98	0.565738	0.169498	-0.007606	0.017781	-0.070155	-0.009283	0.019375	-0.030105
2.99	0.567432	0.169423	-0.007430	0.017448	-0.070247	-0.009091	0.019075	-0.029917

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Contrails

η	g_5	g_5'	g_5''	g_5'''	h_5	h_5'	h_5''	h_5'''
3.00	0.569126	0.169350	-0.007257	0.017119	-0.070337	-0.008902	0.018777	-0.029723
3.01	0.570819	0.169278	-0.007087	0.016794	-0.070425	-0.008715	0.018481	-0.029521
3.02	0.572512	0.169208	-0.006921	0.016473	-0.070511	-0.008532	0.018187	-0.029313
3.03	0.574203	0.169140	-0.006758	0.016157	-0.070595	-0.008352	0.017894	-0.029099
3.04	0.575894	0.169073	-0.006598	0.015844	-0.070678	-0.008174	0.017605	-0.028880
3.05	0.577585	0.169008	-0.006441	0.015535	-0.070759	-0.008000	0.017317	-0.028654
3.06	0.579275	0.168944	-0.006287	0.015230	-0.070838	-0.007828	0.017031	-0.028423
3.07	0.580964	0.168882	-0.006136	0.014929	-0.070915	-0.007659	0.016748	-0.028187
3.08	0.582652	0.168821	-0.005989	0.014633	-0.070991	-0.007493	0.016468	-0.027947
3.09	0.584340	0.168762	-0.005844	0.014340	-0.071065	-0.007330	0.016190	-0.027701
3.10	0.586028	0.168704	-0.005702	0.014052	-0.071138	-0.007169	0.015914	-0.027452
3.11	0.587714	0.168648	-0.005563	0.013767	-0.071209	-0.007011	0.015640	-0.027198
3.12	0.589400	0.168593	-0.005426	0.013487	-0.071278	-0.006856	0.015370	-0.026940
3.13	0.591086	0.168539	-0.005293	0.013210	-0.071346	-0.006704	0.015102	-0.026679
3.14	0.592771	0.168487	-0.005162	0.012938	-0.071412	-0.006554	0.014836	-0.026414
3.15	0.594456	0.168436	-0.005034	0.012670	-0.071477	-0.006407	0.014573	-0.026146
3.16	0.596140	0.168386	-0.004909	0.012405	-0.071540	-0.006263	0.014313	-0.025875
3.17	0.597824	0.168338	-0.004786	0.012145	-0.071602	-0.006121	0.014056	-0.025601
3.18	0.599507	0.168291	-0.004666	0.011889	-0.071663	-0.005982	0.013801	-0.025325
3.19	0.601189	0.168245	-0.004548	0.011636	-0.071722	-0.005845	0.013549	-0.025046
3.20	0.602872	0.168200	-0.004433	0.011388	-0.071780	-0.005711	0.013300	-0.024765
3.21	0.604553	0.168156	-0.004321	0.011143	-0.071836	-0.005579	0.013054	-0.024482
3.22	0.606235	0.168113	-0.004210	0.010903	-0.071891	-0.005450	0.012811	-0.024197
3.23	0.607916	0.168072	-0.004102	0.010666	-0.071945	-0.005323	0.012570	-0.023911
3.24	0.609596	0.168031	-0.003997	0.010433	-0.071998	-0.005198	0.012333	-0.023623
3.25	0.611276	0.167992	-0.003894	0.010204	-0.072049	-0.005076	0.012098	-0.023334
3.26	0.612956	0.167953	-0.003793	0.009979	-0.072099	-0.004956	0.011866	-0.023044
3.27	0.614635	0.167916	-0.003694	0.009757	-0.072148	-0.004839	0.011637	-0.022753
3.28	0.616314	0.167880	-0.003598	0.009539	-0.072196	-0.004723	0.011411	-0.022461
3.29	0.617993	0.167844	-0.003503	0.009325	-0.072243	-0.004610	0.011188	-0.022169
3.30	0.619671	0.167809	-0.003411	0.009115	-0.072288	-0.004500	0.010967	-0.021876
3.31	0.621349	0.167776	-0.003321	0.008909	-0.072333	-0.004391	0.010750	-0.021583
3.32	0.623027	0.167743	-0.003233	0.008706	-0.072376	-0.004285	0.010536	-0.021290
3.33	0.624704	0.167711	-0.003147	0.008506	-0.072418	-0.004180	0.010324	-0.020996
3.34	0.626381	0.167680	-0.003063	0.008310	-0.072460	-0.004078	0.010116	-0.020703
3.35	0.628058	0.167650	-0.002981	0.008118	-0.072500	-0.003978	0.009910	-0.020411
3.36	0.629734	0.167620	-0.002900	0.007929	-0.072539	-0.003880	0.009708	-0.020119
3.37	0.631410	0.167592	-0.002822	0.007744	-0.072577	-0.003784	0.009508	-0.019827
3.38	0.633086	0.167564	-0.002746	0.007562	-0.072615	-0.003690	0.009311	-0.019536
3.39	0.634761	0.167537	-0.002671	0.007384	-0.072651	-0.003598	0.009117	-0.019246
3.40	0.636437	0.167511	-0.002598	0.007209	-0.072687	-0.003507	0.008926	-0.018956
3.41	0.638112	0.167485	-0.002527	0.007037	-0.072721	-0.003419	0.008738	-0.018668
3.42	0.639786	0.167460	-0.002457	0.006868	-0.072755	-0.003333	0.008553	-0.018381
3.43	0.641461	0.167436	-0.002389	0.006703	-0.072788	-0.003248	0.008370	-0.018095
3.44	0.643135	0.167412	-0.002323	0.006541	-0.072820	-0.003165	0.008191	-0.017811
3.45	0.644809	0.167389	-0.002258	0.006382	-0.072851	-0.003084	0.008014	-0.017528
3.46	0.646483	0.167367	-0.002195	0.006226	-0.072882	-0.003005	0.007840	-0.017246
3.47	0.648156	0.167345	-0.002134	0.006074	-0.072911	-0.002927	0.007669	-0.016966
3.48	0.649830	0.167324	-0.002074	0.005924	-0.072940	-0.002851	0.007501	-0.016688
3.49	0.651503	0.167304	-0.002015	0.005778	-0.072968	-0.002777	0.007336	-0.016411
3.50	0.653176	0.167284	-0.001958	0.005634	-0.072996	-0.002705	0.007173	-0.016137
3.51	0.654849	0.167265	-0.001903	0.005493	-0.073023	-0.002634	0.007013	-0.015864
3.52	0.656521	0.167246	-0.001849	0.005355	-0.073049	-0.002564	0.006856	-0.015594
3.53	0.658193	0.167228	-0.001796	0.005220	-0.073074	-0.002497	0.006701	-0.015325
3.54	0.659866	0.167210	-0.001744	0.005088	-0.073099	-0.002430	0.006549	-0.015059
3.55	0.661538	0.167193	-0.001694	0.004959	-0.073123	-0.002366	0.006400	-0.014795
3.56	0.663209	0.167176	-0.001645	0.004832	-0.073146	-0.002302	0.006253	-0.014533
3.57	0.664881	0.167160	-0.001597	0.004708	-0.073169	-0.002241	0.006109	-0.014273
3.58	0.666553	0.167144	-0.001551	0.004587	-0.073191	-0.002180	0.005968	-0.014016
3.59	0.668224	0.167129	-0.001505	0.004468	-0.073212	-0.002121	0.005829	-0.013761
3.60	0.669895	0.167114	-0.001461	0.004352	-0.073233	-0.002064	0.005692	-0.013509
3.61	0.671566	0.167100	-0.001418	0.004239	-0.073253	-0.002007	0.005559	-0.013259
3.62	0.673237	0.167086	-0.001377	0.004128	-0.073273	-0.001953	0.005427	-0.013012
3.63	0.674908	0.167072	-0.001336	0.004019	-0.073293	-0.001899	0.005298	-0.012768
3.64	0.676579	0.167059	-0.001296	0.003913	-0.073311	-0.001847	0.005172	-0.012526
3.65	0.678249	0.167046	-0.001258	0.003809	-0.073329	-0.001795	0.005048	-0.012287
3.66	0.679920	0.167034	-0.001220	0.003707	-0.073347	-0.001746	0.004926	-0.012050
3.67	0.681590	0.167022	-0.001183	0.003608	-0.073364	-0.001697	0.004807	-0.011816
3.68	0.683260	0.167010	-0.001148	0.003511	-0.073381	-0.001649	0.004690	-0.011585
3.69	0.684930	0.166999	-0.001113	0.003417	-0.073397	-0.001603	0.004575	-0.011357
3.70	0.686600	0.166988	-0.001079	0.003324	-0.073413	-0.001558	0.004463	-0.011131
3.71	0.688270	0.166977	-0.001047	0.003234	-0.073429	-0.001514	0.004352	-0.010909
3.72	0.689940	0.166967	-0.001015	0.003145	-0.073443	-0.001471	0.004244	-0.010689
3.73	0.691609	0.166957	-0.000984	0.003059	-0.073458	-0.001429	0.004139	-0.010472
3.74	0.693279	0.166947	-0.000954	0.002975	-0.073472	-0.001388	0.004035	-0.010258

Approved for Public Release

Contrails

η	g_5	g_5'	g_5''	g_5'''	h_5	h_5'	h_5''	h_5'''
3.75	0.694948	0.166938	-0.000924	0.002893	-0.073486	-0.001348	0.003933	-0.010047
3.76	0.696618	0.166929	-0.000896	0.002812	-0.073499	-0.001309	0.003834	-0.009839
3.77	0.698287	0.166920	-0.000868	0.002734	-0.073512	-0.001272	0.003737	-0.009633
3.78	0.699956	0.166911	-0.000841	0.002658	-0.073524	-0.001235	0.003641	-0.009431
3.79	0.701625	0.166903	-0.000815	0.002583	-0.073537	-0.001199	0.003548	-0.009231
3.80	0.703294	0.166895	-0.000789	0.002510	-0.073548	-0.001164	0.003457	-0.009034
3.81	0.704963	0.166887	-0.000765	0.002439	-0.073560	-0.001130	0.003367	-0.008841
3.82	0.706632	0.166880	-0.000741	0.002370	-0.073571	-0.001096	0.003280	-0.008650
3.83	0.708300	0.166873	-0.000717	0.002302	-0.073582	-0.001064	0.003194	-0.008462
3.84	0.709969	0.166866	-0.000695	0.002236	-0.073592	-0.001032	0.003111	-0.008277
3.85	0.711638	0.166859	-0.000673	0.002172	-0.073602	-0.001002	0.003029	-0.008094
3.86	0.713306	0.166852	-0.000651	0.002110	-0.073612	-0.000972	0.002949	-0.007915
3.87	0.714975	0.166846	-0.000630	0.002048	-0.073622	-0.000943	0.002871	-0.007739
3.88	0.716643	0.166839	-0.000610	0.001989	-0.073631	-0.000914	0.002794	-0.007565
3.89	0.718312	0.166833	-0.000591	0.001931	-0.073640	-0.000887	0.002719	-0.007394
3.90	0.719980	0.166828	-0.000572	0.001874	-0.073649	-0.000860	0.002646	-0.007226
3.91	0.721648	0.166822	-0.000553	0.001819	-0.073657	-0.000834	0.002575	-0.007061
3.92	0.723316	0.166817	-0.000535	0.001766	-0.073666	-0.000809	0.002505	-0.006899
3.93	0.724985	0.166811	-0.000518	0.001714	-0.073674	-0.000784	0.002437	-0.006739
3.94	0.726653	0.166806	-0.000501	0.001663	-0.073681	-0.000760	0.002370	-0.006583
3.95	0.728321	0.166801	-0.000484	0.001613	-0.073689	-0.000736	0.002305	-0.006429
3.96	0.729989	0.166797	-0.000469	0.001565	-0.073696	-0.000714	0.002241	-0.006277
3.97	0.731657	0.166792	-0.000453	0.001518	-0.073703	-0.000692	0.002179	-0.006129
3.98	0.733324	0.166787	-0.000438	0.001472	-0.073710	-0.000670	0.002119	-0.005983
3.99	0.734992	0.166783	-0.000424	0.001428	-0.073716	-0.000649	0.002060	-0.005840
4.00	0.736660	0.166779	-0.000410	0.001384	-0.073723	-0.000629	0.002002	-0.005699
4.01	0.738328	0.166775	-0.000396	0.001342	-0.073729	-0.000609	0.001946	-0.005561
4.02	0.739996	0.166771	-0.000383	0.001301	-0.073735	-0.000590	0.001891	-0.005426
4.03	0.741663	0.166767	-0.000370	0.001261	-0.073741	-0.000571	0.001837	-0.005293
4.04	0.743331	0.166764	-0.000358	0.001223	-0.073746	-0.000553	0.001785	-0.005163
4.05	0.744999	0.166760	-0.000346	0.001185	-0.073752	-0.000536	0.001734	-0.005035
4.06	0.746666	0.166757	-0.000334	0.001148	-0.073757	-0.000519	0.001684	-0.004910
4.07	0.748334	0.166753	-0.000323	0.001112	-0.073762	-0.000502	0.001636	-0.004787
4.08	0.750001	0.166750	-0.000312	0.001078	-0.073767	-0.000486	0.001589	-0.004667
4.09	0.751669	0.166747	-0.000301	0.001044	-0.073772	-0.000470	0.001542	-0.004549
4.10	0.753336	0.166744	-0.000291	0.001011	-0.073777	-0.000455	0.001498	-0.004433
4.11	0.755004	0.166741	-0.000281	0.000979	-0.073781	-0.000440	0.001454	-0.004320
4.12	0.756671	0.166739	-0.000271	0.000948	-0.073785	-0.000426	0.001411	-0.004209
4.13	0.758338	0.166736	-0.000262	0.000918	-0.073790	-0.000412	0.001370	-0.004101
4.14	0.760006	0.166733	-0.000253	0.000889	-0.073794	-0.000399	0.001329	-0.003995
4.15	0.761673	0.166731	-0.000244	0.000861	-0.073798	-0.000385	0.001290	-0.003891
4.16	0.763340	0.166729	-0.000236	0.000833	-0.073801	-0.000373	0.001251	-0.003789
4.17	0.765008	0.166726	-0.000227	0.000806	-0.073805	-0.000360	0.001214	-0.003689
4.18	0.766675	0.166724	-0.000219	0.000780	-0.073809	-0.000348	0.001177	-0.003592
4.19	0.768342	0.166722	-0.000212	0.000755	-0.073812	-0.000337	0.001142	-0.003496
4.20	0.770009	0.166720	-0.000204	0.000731	-0.073815	-0.000326	0.001108	-0.003403
4.21	0.771677	0.166718	-0.000197	0.000707	-0.073819	-0.000315	0.001074	-0.003312
4.22	0.773344	0.166716	-0.000190	0.000684	-0.073822	-0.000304	0.001041	-0.003222
4.23	0.775011	0.166714	-0.000183	0.000661	-0.073825	-0.000294	0.001010	-0.003135
4.24	0.776678	0.166712	-0.000177	0.000640	-0.073827	-0.000284	0.000979	-0.003050
4.25	0.778345	0.166710	-0.000171	0.000619	-0.073830	-0.000274	0.000949	-0.002967
4.26	0.780012	0.166709	-0.000165	0.000598	-0.073833	-0.000265	0.000919	-0.002885
4.27	0.781679	0.166707	-0.000159	0.000578	-0.073836	-0.000256	0.000891	-0.002806
4.28	0.783346	0.166706	-0.000153	0.000559	-0.073838	-0.000247	0.000863	-0.002728
4.29	0.785013	0.166704	-0.000148	0.000540	-0.073841	-0.000239	0.000836	-0.002652
4.30	0.786680	0.166703	-0.000142	0.000522	-0.073843	-0.000230	0.000810	-0.002578
4.31	0.788347	0.166701	-0.000137	0.000505	-0.073845	-0.000222	0.000785	-0.002506
4.32	0.790014	0.166700	-0.000132	0.000488	-0.073847	-0.000215	0.000760	-0.002435
4.33	0.791681	0.166699	-0.000127	0.000471	-0.073849	-0.000207	0.000736	-0.002366
4.34	0.793348	0.166697	-0.000123	0.000455	-0.073851	-0.000200	0.000713	-0.002299
4.35	0.795015	0.166696	-0.000118	0.000440	-0.073853	-0.000193	0.000690	-0.002233
4.36	0.796682	0.166695	-0.000114	0.000425	-0.073855	-0.000186	0.000668	-0.002169
4.37	0.798349	0.166694	-0.000110	0.000410	-0.073857	-0.000180	0.000647	-0.002106
4.38	0.800016	0.166693	-0.000106	0.000396	-0.073859	-0.000173	0.000626	-0.002045
4.39	0.801683	0.166692	-0.000102	0.000382	-0.073861	-0.000167	0.000606	-0.001986
4.40	0.803350	0.166691	-0.000098	0.000369	-0.073862	-0.000161	0.000586	-0.001928
4.41	0.805017	0.166690	-0.000094	0.000356	-0.073864	-0.000155	0.000567	-0.001871
4.42	0.806684	0.166689	-0.000091	0.000344	-0.073865	-0.000150	0.000549	-0.001816
4.43	0.808351	0.166688	-0.000088	0.000332	-0.073867	-0.000144	0.000531	-0.001762
4.44	0.810018	0.166687	-0.000084	0.000320	-0.073868	-0.000139	0.000513	-0.001710
4.45	0.811684	0.166686	-0.000081	0.000309	-0.073870	-0.000134	0.000497	-0.001659
4.46	0.813351	0.166685	-0.000078	0.000298	-0.073871	-0.000129	0.000480	-0.001609
4.47	0.815018	0.166685	-0.000075	0.000288	-0.073872	-0.000125	0.000464	-0.001561
4.48	0.816685	0.166684	-0.000072	0.000278	-0.073873	-0.000120	0.000449	-0.001514
4.49	0.818352	0.166683	-0.000070	0.000268	-0.073875	-0.000116	0.000434	-0.001468

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Contrails

η	g_5	g_5'	g_5''	g_5'''	h_5	h_5'	h_5''	h_5'''
4.50	0.820019	0.166683	-0.000067	0.000258	-0.073876	-0.000111	0.000420	-0.001423
4.51	0.821686	0.166682	-0.000064	0.000249	-0.073877	-0.000107	0.000406	-0.001380
4.52	0.823352	0.166681	-0.000062	0.000240	-0.073878	-0.000103	0.000392	-0.001338
4.53	0.825019	0.166681	-0.000060	0.000231	-0.073879	-0.000099	0.000379	-0.001296
4.54	0.826686	0.166680	-0.000057	0.000223	-0.073880	-0.000096	0.000366	-0.001256
4.55	0.828353	0.166680	-0.000055	0.000215	-0.073881	-0.000092	0.000354	-0.001217
4.56	0.830020	0.166679	-0.000053	0.000207	-0.073882	-0.000088	0.000342	-0.001179
4.57	0.831686	0.166678	-0.000051	0.000200	-0.073883	-0.000085	0.000330	-0.001142
4.58	0.833353	0.166678	-0.000049	0.000192	-0.073883	-0.000082	0.000319	-0.001106
4.59	0.835020	0.166677	-0.000047	0.000185	-0.073884	-0.000079	0.000308	-0.001072
4.60	0.836687	0.166677	-0.000045	0.000179	-0.073885	-0.000076	0.000298	-0.001038
4.61	0.838353	0.166677	-0.000044	0.000172	-0.073886	-0.000073	0.000287	-0.001005
4.62	0.840020	0.166676	-0.000042	0.000166	-0.073886	-0.000070	0.000277	-0.000973
4.63	0.841687	0.166676	-0.000040	0.000160	-0.073887	-0.000067	0.000268	-0.000941
4.64	0.843354	0.166675	-0.000039	0.000154	-0.073888	-0.000065	0.000259	-0.000911
4.65	0.845020	0.166675	-0.000037	0.000148	-0.073888	-0.000062	0.000250	-0.000882
4.66	0.846687	0.166675	-0.000036	0.000142	-0.073889	-0.000060	0.000241	-0.000853
4.67	0.848354	0.166674	-0.000034	0.000137	-0.073890	-0.000057	0.000233	-0.000825
4.68	0.850021	0.166674	-0.000033	0.000132	-0.073890	-0.000055	0.000224	-0.000798
4.69	0.851687	0.166674	-0.000032	0.000127	-0.073891	-0.000053	0.000217	-0.000772
4.70	0.853354	0.166673	-0.000031	0.000122	-0.073891	-0.000051	0.000209	-0.000747
4.71	0.855021	0.166673	-0.000029	0.000117	-0.073892	-0.000049	0.000202	-0.000722
4.72	0.856688	0.166673	-0.000028	0.000113	-0.073892	-0.000047	0.000195	-0.000698
4.73	0.858354	0.166672	-0.000027	0.000109	-0.073893	-0.000045	0.000188	-0.000675
4.74	0.860021	0.166672	-0.000026	0.000105	-0.073893	-0.000043	0.000181	-0.000653
4.75	0.861688	0.166672	-0.000025	0.000101	-0.073894	-0.000041	0.000175	-0.000631
4.76	0.863354	0.166672	-0.000024	0.000097	-0.073894	-0.000039	0.000168	-0.000609
4.77	0.865021	0.166671	-0.000023	0.000093	-0.073894	-0.000038	0.000162	-0.000589
4.78	0.866688	0.166671	-0.000022	0.000089	-0.073895	-0.000036	0.000157	-0.000569
4.79	0.868355	0.166671	-0.000021	0.000086	-0.073895	-0.000035	0.000151	-0.000550
4.80	0.870021	0.166671	-0.000020	0.000083	-0.073895	-0.000033	0.000146	-0.000531
4.81	0.871688	0.166671	-0.000020	0.000079	-0.073896	-0.000032	0.000140	-0.000513
4.82	0.873355	0.166670	-0.000019	0.000076	-0.073896	-0.000030	0.000135	-0.000495
4.83	0.875021	0.166670	-0.000018	0.000073	-0.073896	-0.000029	0.000131	-0.000478
4.84	0.876688	0.166670	-0.000017	0.000070	-0.073897	-0.000028	0.000126	-0.000461
4.85	0.878355	0.166670	-0.000017	0.000068	-0.073897	-0.000026	0.000121	-0.000445
4.86	0.880022	0.166670	-0.000016	0.000065	-0.073897	-0.000025	0.000117	-0.000430
4.87	0.881688	0.166670	-0.000015	0.000062	-0.073897	-0.000024	0.000113	-0.000415
4.88	0.883355	0.166669	-0.000015	0.000060	-0.073898	-0.000023	0.000109	-0.000400
4.89	0.885022	0.166669	-0.000014	0.000057	-0.073898	-0.000022	0.000105	-0.000386
4.90	0.886688	0.166669	-0.000014	0.000055	-0.073898	-0.000021	0.000101	-0.000372
4.91	0.888355	0.166669	-0.000013	0.000053	-0.073898	-0.000020	0.000097	-0.000359
4.92	0.890022	0.166669	-0.000013	0.000051	-0.073898	-0.000019	0.000094	-0.000346
4.93	0.891688	0.166669	-0.000012	0.000049	-0.073899	-0.000018	0.000090	-0.000334
4.94	0.893355	0.166669	-0.000012	0.000047	-0.073899	-0.000017	0.000087	-0.000322
4.95	0.895022	0.166668	-0.000011	0.000045	-0.073899	-0.000016	0.000084	-0.000310
4.96	0.896688	0.166668	-0.000011	0.000043	-0.073899	-0.000015	0.000081	-0.000299
4.97	0.898355	0.166668	-0.000010	0.000041	-0.073899	-0.000015	0.000078	-0.000288
4.98	0.900022	0.166668	-0.000010	0.000040	-0.073899	-0.000014	0.000075	-0.000277
4.99	0.901688	0.166668	-0.000009	0.000038	-0.073900	-0.000013	0.000072	-0.000267
5.00	0.903355	0.166668	-0.000009	0.000036	-0.073900	-0.000012	0.000070	-0.000257
5.01	0.905022	0.166668	-0.000009	0.000035	-0.073900	-0.000012	0.000067	-0.000248
5.02	0.906689	0.166668	-0.000008	0.000033	-0.073900	-0.000011	0.000065	-0.000239
5.03	0.908355	0.166668	-0.000008	0.000032	-0.073900	-0.000010	0.000062	-0.000230
5.04	0.910022	0.166668	-0.000008	0.000031	-0.073900	-0.000010	0.000060	-0.000221
5.05	0.911689	0.166668	-0.000007	0.000029	-0.073900	-0.000009	0.000058	-0.000213
5.06	0.913355	0.166667	-0.000007	0.000028	-0.073900	-0.000009	0.000056	-0.000205
5.07	0.915022	0.166667	-0.000007	0.000027	-0.073900	-0.000008	0.000054	-0.000197
5.08	0.916689	0.166667	-0.000007	0.000026	-0.073900	-0.000008	0.000052	-0.000190
5.09	0.918355	0.166667	-0.000006	0.000025	-0.073901	-0.000007	0.000050	-0.000182
5.10	0.920022	0.166667	-0.000006	0.000024	-0.073901	-0.000007	0.000048	-0.000175
5.11	0.921689	0.166667	-0.000006	0.000023	-0.073901	-0.000006	0.000047	-0.000169
5.12	0.923355	0.166667	-0.000006	0.000022	-0.073901	-0.000006	0.000045	-0.000162
5.13	0.925022	0.166667	-0.000005	0.000021	-0.073901	-0.000005	0.000043	-0.000156
5.14	0.926689	0.166667	-0.000005	0.000020	-0.073901	-0.000005	0.000042	-0.000150
5.15	0.928355	0.166667	-0.000005	0.000019	-0.073901	-0.000004	0.000040	-0.000144
5.16	0.930022	0.166667	-0.000005	0.000018	-0.073901	-0.000004	0.000039	-0.000138
5.17	0.931689	0.166667	-0.000005	0.000017	-0.073901	-0.000004	0.000038	-0.000133
5.18	0.933355	0.166667	-0.000005	0.000016	-0.073901	-0.000003	0.000036	-0.000127
5.19	0.935022	0.166667	-0.000004	0.000016	-0.073901	-0.000003	0.000035	-0.000122
5.20	0.936689	0.166667	-0.000004	0.000015	-0.073901	-0.000003	0.000034	-0.000117
5.21	0.938355	0.166667	-0.000004	0.000014	-0.073901	-0.000002	0.000033	-0.000113
5.22	0.940022	0.166667	-0.000004	0.000014	-0.073901	-0.000002	0.000032	-0.000108
5.23	0.941689	0.166667	-0.000004	0.000013	-0.073901	-0.000002	0.000031	-0.000104
5.24	0.943355	0.166667	-0.000004	0.000012	-0.073901	-0.000001	0.000030	-0.000099

Approved for Public Release

Contrails

η	g_7	g_7'	g_7''	g_7'''	h_7	h_7'	h_7''	h_7'''
0.00	0.000000	0.000000	0.579202	-1.000000	0.000000	0.000000	0.182948	-1.000000
0.01	0.000029	0.005742	0.569203	-0.999717	0.000009	0.001779	0.172950	-0.999366
0.02	0.000115	0.011384	0.559209	-0.998882	0.000035	0.003459	0.162965	-0.997499
0.03	0.000256	0.016926	0.549227	-0.997512	0.000078	0.005039	0.153004	-0.994449
0.04	0.000453	0.022369	0.539261	-0.995626	0.000136	0.006519	0.143080	-0.990263
0.05	0.000703	0.027712	0.529316	-0.993240	0.000208	0.007901	0.133203	-0.984991
0.06	0.001007	0.032955	0.519397	-0.990373	0.000293	0.009183	0.123383	-0.978681
0.07	0.001362	0.038100	0.509510	-0.987042	0.000391	0.010369	0.113632	-0.971378
0.08	0.001768	0.043145	0.499658	-0.983264	0.000500	0.011456	0.103959	-0.963130
0.09	0.002225	0.048093	0.489846	-0.979057	0.000620	0.012448	0.094373	-0.953981
0.10	0.002730	0.052942	0.480078	-0.974436	0.000749	0.013344	0.084882	-0.943976
0.11	0.003283	0.057695	0.470359	-0.969418	0.000887	0.014146	0.075496	-0.933158
0.12	0.003883	0.062350	0.460691	-0.964019	0.001032	0.014854	0.066222	-0.921571
0.13	0.004530	0.066909	0.451080	-0.958255	0.001183	0.015471	0.057067	-0.909255
0.14	0.005221	0.071372	0.441527	-0.952142	0.001341	0.015996	0.048039	-0.896252
0.15	0.005957	0.075739	0.432038	-0.945695	0.001503	0.016432	0.039144	-0.882602
0.16	0.006736	0.080013	0.422614	-0.938929	0.001669	0.016780	0.030389	-0.868344
0.17	0.007557	0.084192	0.413260	-0.931859	0.001838	0.017040	0.021779	-0.853517
0.18	0.008419	0.088278	0.403978	-0.924499	0.002010	0.017216	0.013320	-0.838157
0.19	0.009322	0.092272	0.394771	-0.916864	0.002182	0.017307	0.005018	-0.822301
0.20	0.010264	0.096174	0.385642	-0.908967	0.002356	0.017317	-0.003124	-0.805984
0.21	0.011245	0.099985	0.376593	-0.900822	0.002528	0.017245	-0.011101	-0.789242
0.22	0.012264	0.103706	0.367626	-0.892442	0.002700	0.017095	-0.018908	-0.772108
0.23	0.013319	0.107338	0.358745	-0.883841	0.002870	0.016868	-0.026542	-0.754615
0.24	0.014410	0.110881	0.349950	-0.875031	0.003037	0.016565	-0.033999	-0.736794
0.25	0.015536	0.114337	0.341245	-0.866024	0.003201	0.016188	-0.041277	-0.718677
0.26	0.016697	0.117706	0.332630	-0.856833	0.003361	0.015740	-0.048372	-0.700294
0.27	0.017890	0.120990	0.324109	-0.847469	0.003516	0.015222	-0.055282	-0.681673
0.28	0.019116	0.124189	0.315681	-0.837944	0.003665	0.014635	-0.062004	-0.662844
0.29	0.020374	0.127304	0.307350	-0.828270	0.003808	0.013982	-0.068538	-0.643833
0.30	0.021662	0.130336	0.299116	-0.818457	0.003944	0.013265	-0.074880	-0.624667
0.31	0.022980	0.133286	0.290981	-0.808515	0.004073	0.012485	-0.081031	-0.605371
0.32	0.024327	0.136156	0.282947	-0.798456	0.004194	0.011645	-0.086988	-0.585971
0.33	0.025703	0.138946	0.275013	-0.788288	0.004306	0.010746	-0.092750	-0.566491
0.34	0.027106	0.141657	0.267181	-0.778023	0.004409	0.009790	-0.098317	-0.546952
0.35	0.028536	0.144290	0.259453	-0.767670	0.004502	0.008780	-0.103689	-0.527379
0.36	0.029992	0.146846	0.251828	-0.757237	0.004584	0.007717	-0.108865	-0.507791
0.37	0.031473	0.149327	0.244308	-0.746734	0.004656	0.006604	-0.113845	-0.488210
0.38	0.032978	0.151732	0.236893	-0.736169	0.004716	0.005441	-0.118629	-0.468656
0.39	0.034507	0.154065	0.229585	-0.725551	0.004764	0.004232	-0.123218	-0.449147
0.40	0.036059	0.156325	0.222383	-0.714888	0.004800	0.002977	-0.127612	-0.429702
0.41	0.037633	0.158513	0.215287	-0.704188	0.004824	0.001680	-0.131812	-0.410338
0.42	0.039229	0.160631	0.208299	-0.693458	0.004834	0.000342	-0.135819	-0.391073
0.43	0.040846	0.162679	0.201418	-0.682706	0.004831	-0.001036	-0.139634	-0.371921
0.44	0.042482	0.164659	0.194645	-0.671939	0.004813	-0.002450	-0.143258	-0.352898
0.45	0.044139	0.166572	0.187979	-0.661163	0.004781	-0.003900	-0.146693	-0.334020
0.46	0.045814	0.168419	0.181422	-0.650386	0.004735	-0.005383	-0.149939	-0.315299
0.47	0.047507	0.170201	0.174972	-0.639613	0.004674	-0.006898	-0.152999	-0.296749
0.48	0.049217	0.171919	0.168629	-0.628851	0.004597	-0.008443	-0.155875	-0.278383
0.49	0.050945	0.173574	0.162395	-0.618106	0.004505	-0.010015	-0.158567	-0.260212
0.50	0.052689	0.175167	0.156267	-0.607383	0.004397	-0.011614	-0.161080	-0.242247
0.51	0.054448	0.176700	0.150247	-0.596688	0.004272	-0.013236	-0.163413	-0.224500
0.52	0.056222	0.178173	0.144333	-0.586026	0.004132	-0.014881	-0.165570	-0.206981
0.53	0.058011	0.179587	0.138526	-0.575402	0.003975	-0.016547	-0.167553	-0.189698
0.54	0.059814	0.180944	0.132825	-0.564820	0.003801	-0.018232	-0.169365	-0.172660
0.55	0.061630	0.182244	0.127230	-0.554287	0.003610	-0.019934	-0.171008	-0.155877
0.56	0.063459	0.183488	0.121739	-0.543805	0.003402	-0.021651	-0.172483	-0.139355
0.57	0.065300	0.184679	0.116353	-0.533378	0.003177	-0.023383	-0.173796	-0.123102
0.58	0.067152	0.185816	0.111071	-0.523012	0.002934	-0.025127	-0.174946	-0.107124
0.59	0.069016	0.186901	0.105893	-0.512710	0.002674	-0.026881	-0.175939	-0.091429
0.60	0.070890	0.187934	0.100817	-0.502475	0.002397	-0.028645	-0.176776	-0.076020
0.61	0.072774	0.188917	0.095843	-0.492311	0.002101	-0.030416	-0.177460	-0.060905
0.62	0.074668	0.189851	0.090970	-0.482222	0.001788	-0.032194	-0.177995	-0.046086
0.63	0.076571	0.190737	0.086198	-0.472209	0.001457	-0.033976	-0.178383	-0.031570
0.64	0.078483	0.191576	0.081526	-0.462277	0.001109	-0.035761	-0.178627	-0.017359
0.65	0.080402	0.192368	0.076953	-0.452428	0.000742	-0.037548	-0.178731	-0.003457
0.66	0.082330	0.193115	0.072477	-0.442665	0.000358	-0.039335	-0.178698	0.010133
0.67	0.084265	0.193818	0.068099	-0.432990	-0.000044	-0.041121	-0.178530	0.023408
0.68	0.086206	0.194477	0.063817	-0.423405	-0.000465	-0.042905	-0.178231	0.036367
0.69	0.088154	0.195094	0.059631	-0.413913	-0.000903	-0.044685	-0.177803	0.049006
0.70	0.090108	0.195670	0.055538	-0.404516	-0.001358	-0.046461	-0.177251	0.061325
0.71	0.092067	0.196205	0.051540	-0.395215	-0.001832	-0.048230	-0.176578	0.073322
0.72	0.094032	0.196701	0.047634	-0.386013	-0.002323	-0.049992	-0.175786	0.084997
0.73	0.096001	0.197158	0.043819	-0.376911	-0.002832	-0.051745	-0.174879	0.096349
0.74	0.097975	0.197578	0.040095	-0.367911	-0.003358	-0.053489	-0.173860	0.107377

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Contrails

η	g_7	g'_7	g''_7	g'''_7	h_7	h'_7	h''_7	h'''_7
0.75	0.099953	0.197961	0.036461	-0.359014	-0.003901	-0.055222	-0.172733	0.118083
0.76	0.101934	0.198307	0.032915	-0.350221	-0.004462	-0.056944	-0.171500	0.128465
0.77	0.103919	0.198619	0.029456	-0.341533	-0.005040	-0.058652	-0.170164	0.138525
0.78	0.105906	0.198897	0.026084	-0.332952	-0.005635	-0.060346	-0.168730	0.148263
0.79	0.107896	0.199141	0.022797	-0.324479	-0.006247	-0.062026	-0.167200	0.157681
0.80	0.109889	0.199353	0.019594	-0.316114	-0.006876	-0.063690	-0.165578	0.166781
0.81	0.111883	0.199533	0.016474	-0.307859	-0.007521	-0.065337	-0.163866	0.175562
0.82	0.113879	0.199683	0.013436	-0.299713	-0.008182	-0.066967	-0.162067	0.184028
0.83	0.115877	0.199802	0.010479	-0.291678	-0.008860	-0.068579	-0.160186	0.192181
0.84	0.117875	0.199893	0.007602	-0.283754	-0.009554	-0.070171	-0.158225	0.200022
0.85	0.119875	0.199955	0.004804	-0.275942	-0.010263	-0.071743	-0.156187	0.207553
0.86	0.121874	0.199989	0.002083	-0.268241	-0.010989	-0.073294	-0.154075	0.214779
0.87	0.123874	0.199997	-0.000561	-0.260652	-0.011729	-0.074824	-0.151892	0.221700
0.88	0.125874	0.199978	-0.003130	-0.253175	-0.012485	-0.076332	-0.149642	0.228321
0.89	0.127874	0.199934	-0.005625	-0.245811	-0.013256	-0.077817	-0.147327	0.234644
0.90	0.129873	0.199866	-0.008047	-0.238559	-0.014041	-0.079278	-0.144950	0.240672
0.91	0.131871	0.199774	-0.010397	-0.231420	-0.014841	-0.080715	-0.142514	0.246409
0.92	0.133868	0.199658	-0.012676	-0.224393	-0.015655	-0.082128	-0.140023	0.251859
0.93	0.135864	0.199520	-0.014885	-0.217478	-0.016484	-0.083516	-0.137478	0.257024
0.94	0.137859	0.199361	-0.017026	-0.210674	-0.017326	-0.084878	-0.134883	0.261908
0.95	0.139851	0.199180	-0.019099	-0.203983	-0.018181	-0.086213	-0.132241	0.266516
0.96	0.141842	0.198979	-0.021106	-0.197403	-0.019050	-0.087522	-0.129554	0.270851
0.97	0.143831	0.198758	-0.023047	-0.190933	-0.019932	-0.088804	-0.126825	0.274917
0.98	0.145817	0.198518	-0.024925	-0.184575	-0.020826	-0.090059	-0.124056	0.278718
0.99	0.147801	0.198260	-0.026739	-0.178326	-0.021733	-0.091285	-0.121251	0.282258
1.00	0.149782	0.197984	-0.028492	-0.172187	-0.022651	-0.092484	-0.118412	0.285542
1.01	0.151761	0.197690	-0.030183	-0.166157	-0.023582	-0.093653	-0.115541	0.288574
1.02	0.153736	0.197380	-0.031815	-0.160235	-0.024524	-0.094794	-0.112641	0.291359
1.03	0.155708	0.197054	-0.033388	-0.154422	-0.025478	-0.095906	-0.109715	0.293899
1.04	0.157677	0.196713	-0.034904	-0.148715	-0.026442	-0.096988	-0.106764	0.296201
1.05	0.159643	0.196356	-0.036363	-0.143115	-0.027418	-0.098041	-0.103792	0.298269
1.06	0.161604	0.195985	-0.037767	-0.137620	-0.028403	-0.099064	-0.100800	0.300106
1.07	0.163562	0.195601	-0.039116	-0.132231	-0.029399	-0.100057	-0.097790	0.301718
1.08	0.165516	0.195203	-0.040412	-0.126945	-0.030404	-0.101020	-0.094766	0.303110
1.09	0.167466	0.194793	-0.041655	-0.121763	-0.031419	-0.101952	-0.091729	0.304285
1.10	0.169412	0.194370	-0.042847	-0.116684	-0.032443	-0.102855	-0.088681	0.305249
1.11	0.171354	0.193936	-0.043989	-0.111705	-0.033476	-0.103726	-0.085624	0.306006
1.12	0.173291	0.193491	-0.045082	-0.106828	-0.034518	-0.104567	-0.082561	0.306561
1.13	0.175223	0.193035	-0.046126	-0.102051	-0.035567	-0.105377	-0.079494	0.306918
1.14	0.177151	0.192568	-0.047123	-0.097372	-0.036625	-0.106157	-0.076424	0.307082
1.15	0.179075	0.192092	-0.048074	-0.092791	-0.037690	-0.106906	-0.073353	0.307059
1.16	0.180993	0.191607	-0.048979	-0.088307	-0.038763	-0.107624	-0.070283	0.306851
1.17	0.182907	0.191113	-0.049840	-0.083920	-0.039843	-0.108311	-0.067216	0.306466
1.18	0.184815	0.190610	-0.050658	-0.079627	-0.040929	-0.108968	-0.064154	0.305905
1.19	0.186719	0.190100	-0.051433	-0.075428	-0.042022	-0.109595	-0.061099	0.305176
1.20	0.188617	0.189582	-0.052167	-0.071322	-0.043121	-0.110190	-0.058051	0.304281
1.21	0.190511	0.189057	-0.052860	-0.067307	-0.044226	-0.110756	-0.055014	0.303227
1.22	0.192399	0.188525	-0.053513	-0.063384	-0.045336	-0.111291	-0.051987	0.302016
1.23	0.194281	0.187987	-0.054128	-0.059550	-0.046451	-0.111795	-0.048974	0.300655
1.24	0.196158	0.187442	-0.054704	-0.055805	-0.047572	-0.112270	-0.045975	0.299146
1.25	0.198030	0.186893	-0.055244	-0.052148	-0.048697	-0.112715	-0.042992	0.297496
1.26	0.199896	0.186338	-0.055748	-0.048577	-0.049826	-0.113130	-0.040025	0.295708
1.27	0.201757	0.185778	-0.056216	-0.045091	-0.050959	-0.113515	-0.037078	0.293787
1.28	0.203612	0.185213	-0.056650	-0.041690	-0.052096	-0.113872	-0.034150	0.291737
1.29	0.205461	0.184645	-0.057050	-0.038372	-0.053237	-0.114199	-0.031243	0.289563
1.30	0.207304	0.184073	-0.057417	-0.035136	-0.054380	-0.114497	-0.028359	0.287268
1.31	0.209142	0.183497	-0.057753	-0.031981	-0.055526	-0.114766	-0.025499	0.284858
1.32	0.210974	0.182918	-0.058057	-0.028907	-0.056675	-0.115007	-0.022662	0.282336
1.33	0.212801	0.182336	-0.058331	-0.025910	-0.057826	-0.115219	-0.019852	0.279707
1.34	0.214621	0.181751	-0.058576	-0.022992	-0.058980	-0.115404	-0.017069	0.276975
1.35	0.216436	0.181164	-0.058791	-0.020150	-0.060134	-0.115561	-0.014313	0.274143
1.36	0.218244	0.180575	-0.058979	-0.017384	-0.061291	-0.115690	-0.011586	0.271217
1.37	0.220047	0.179985	-0.059139	-0.014692	-0.062448	-0.115792	-0.008889	0.268199
1.38	0.221844	0.179393	-0.059273	-0.012073	-0.063606	-0.115868	-0.006222	0.265094
1.39	0.223635	0.178799	-0.059381	-0.009527	-0.064765	-0.115917	-0.003587	0.261906
1.40	0.225420	0.178205	-0.059464	-0.007051	-0.065925	-0.115940	-0.000985	0.258639
1.41	0.227199	0.177610	-0.059522	-0.004646	-0.067084	-0.115937	0.001585	0.255296
1.42	0.228972	0.177015	-0.059557	-0.002309	-0.068243	-0.115908	0.004121	0.251882
1.43	0.230739	0.176419	-0.059569	-0.000041	-0.069402	-0.115854	0.006623	0.248399
1.44	0.232501	0.175823	-0.059558	0.002162	-0.070560	-0.115776	0.009089	0.244852
1.45	0.234256	0.175228	-0.059526	0.004298	-0.071718	-0.115673	0.011519	0.241244
1.46	0.236005	0.174633	-0.059472	0.006370	-0.072874	-0.115546	0.013914	0.237579
1.47	0.237749	0.174039	-0.059399	0.008379	-0.074028	-0.115395	0.016271	0.233860
1.48	0.239486	0.173445	-0.059305	0.010325	-0.075182	-0.115220	0.018591	0.230090
1.49	0.241217	0.172853	-0.059192	0.012209	-0.076333	-0.115023	0.020872	0.226273

Approved for Public Release

Contrails

η	g_7	g_7'	g_7''	g_7'''	h_7	h_7'	h_7''	h_7'''
1.50	0.242943	0.172261	-0.059061	0.014034	-0.077482	-0.114803	0.023116	0.222412
1.51	0.244663	0.171671	-0.058912	0.015799	-0.078629	-0.114561	0.025321	0.218511
1.52	0.246376	0.171083	-0.058745	0.017506	-0.079773	-0.114297	0.027486	0.214572
1.53	0.248084	0.170497	-0.058562	0.019156	-0.080915	-0.114011	0.029612	0.210599
1.54	0.249786	0.169912	-0.058362	0.020750	-0.082053	-0.113705	0.031698	0.206594
1.55	0.251483	0.169329	-0.058147	0.022288	-0.083189	-0.113377	0.033744	0.202562
1.56	0.253173	0.168749	-0.057917	0.023773	-0.084321	-0.113030	0.035749	0.198504
1.57	0.254858	0.168171	-0.057672	0.025204	-0.085449	-0.112663	0.037714	0.194423
1.58	0.256536	0.167596	-0.057413	0.026583	-0.086574	-0.112276	0.039637	0.190323
1.59	0.258210	0.167023	-0.057140	0.027911	-0.087695	-0.111870	0.041520	0.186206
1.60	0.259877	0.166453	-0.056855	0.029189	-0.088811	-0.111446	0.043362	0.182074
1.61	0.261539	0.165886	-0.056557	0.030418	-0.089924	-0.111003	0.045162	0.177931
1.62	0.263195	0.165322	-0.056247	0.031598	-0.091031	-0.110542	0.046920	0.173779
1.63	0.264845	0.164761	-0.055925	0.032731	-0.092134	-0.110065	0.048637	0.169621
1.64	0.266490	0.164203	-0.055592	0.033818	-0.093232	-0.109570	0.050312	0.165458
1.65	0.268129	0.163649	-0.055249	0.034860	-0.094326	-0.109058	0.051946	0.161294
1.66	0.269763	0.163098	-0.054895	0.035856	-0.095414	-0.108531	0.053538	0.157130
1.67	0.271391	0.162551	-0.054532	0.036810	-0.096496	-0.107988	0.055089	0.152969
1.68	0.273014	0.162008	-0.054159	0.037720	-0.097573	-0.107429	0.056598	0.148814
1.69	0.274631	0.161468	-0.053777	0.038589	-0.098645	-0.106856	0.058065	0.144666
1.70	0.276243	0.160932	-0.053387	0.039417	-0.099710	-0.106268	0.059491	0.140527
1.71	0.277850	0.160400	-0.052989	0.040205	-0.100770	-0.105666	0.060876	0.136400
1.72	0.279451	0.159873	-0.052583	0.040954	-0.101824	-0.105051	0.062219	0.132286
1.73	0.281047	0.159349	-0.052170	0.041664	-0.102871	-0.104422	0.063522	0.128187
1.74	0.282638	0.158829	-0.051750	0.042337	-0.103912	-0.103781	0.064783	0.124106
1.75	0.284224	0.158314	-0.051324	0.042973	-0.104947	-0.103127	0.066004	0.120044
1.76	0.285805	0.157803	-0.050891	0.043574	-0.105975	-0.102461	0.067184	0.116003
1.77	0.287380	0.157296	-0.050452	0.044139	-0.106996	-0.101783	0.068324	0.111984
1.78	0.288950	0.156794	-0.050008	0.044670	-0.108010	-0.101094	0.069424	0.107989
1.79	0.290516	0.156296	-0.049559	0.045168	-0.109018	-0.100395	0.070484	0.104021
1.80	0.292076	0.155802	-0.049105	0.045634	-0.110018	-0.099685	0.071504	0.100079
1.81	0.293632	0.155314	-0.048646	0.046067	-0.111011	-0.098965	0.072485	0.096167
1.82	0.295183	0.154830	-0.048184	0.046470	-0.111997	-0.098235	0.073428	0.092285
1.83	0.296729	0.154350	-0.047717	0.046842	-0.112976	-0.097496	0.074331	0.088434
1.84	0.298270	0.153875	-0.047247	0.047184	-0.113947	-0.096749	0.075196	0.084617
1.85	0.299806	0.153405	-0.046774	0.047498	-0.114911	-0.095993	0.076024	0.080833
1.86	0.301338	0.152940	-0.046297	0.047784	-0.115867	-0.095228	0.076813	0.077086
1.87	0.302865	0.152479	-0.045818	0.048042	-0.116815	-0.094456	0.077565	0.073375
1.88	0.304387	0.152023	-0.045336	0.048274	-0.117756	-0.093677	0.078281	0.069702
1.89	0.305905	0.151572	-0.044853	0.048479	-0.118689	-0.092891	0.078960	0.066068
1.90	0.307419	0.151126	-0.044367	0.048660	-0.119614	-0.092098	0.079602	0.062474
1.91	0.308928	0.150685	-0.043879	0.048815	-0.120531	-0.091299	0.080209	0.058920
1.92	0.310433	0.150249	-0.043391	0.048947	-0.121440	-0.090494	0.080781	0.055409
1.93	0.311933	0.149817	-0.042901	0.049055	-0.122341	-0.089683	0.081318	0.051941
1.94	0.313429	0.149391	-0.042410	0.049141	-0.123234	-0.088868	0.081820	0.048516
1.95	0.314921	0.148969	-0.041918	0.049205	-0.124118	-0.088047	0.082288	0.045136
1.96	0.316408	0.148552	-0.041426	0.049248	-0.124994	-0.087222	0.082723	0.041801
1.97	0.317892	0.148141	-0.040933	0.049269	-0.125863	-0.086393	0.083124	0.038512
1.98	0.319371	0.147734	-0.040440	0.049271	-0.126722	-0.085560	0.083493	0.035270
1.99	0.320847	0.147332	-0.039948	0.049253	-0.127574	-0.084723	0.083830	0.032075
2.00	0.322318	0.146935	-0.039455	0.049216	-0.128417	-0.083883	0.084135	0.028928
2.01	0.323785	0.146543	-0.038963	0.049160	-0.129251	-0.083040	0.084409	0.025830
2.02	0.325249	0.146156	-0.038472	0.049087	-0.130078	-0.082195	0.084652	0.022781
2.03	0.326708	0.145773	-0.037982	0.048996	-0.130895	-0.081348	0.084864	0.019781
2.04	0.328164	0.145396	-0.037492	0.048889	-0.131704	-0.080498	0.085047	0.016831
2.05	0.329616	0.145023	-0.037004	0.048766	-0.132505	-0.079647	0.085201	0.013931
2.06	0.331065	0.144656	-0.036517	0.048627	-0.133297	-0.078794	0.085326	0.011082
2.07	0.332509	0.144293	-0.036031	0.048473	-0.134081	-0.077940	0.085423	0.008284
2.08	0.333951	0.143935	-0.035548	0.048304	-0.134856	-0.077086	0.085492	0.005538
2.09	0.335388	0.143582	-0.035065	0.048121	-0.135623	-0.076231	0.085534	0.002843
2.10	0.336822	0.143234	-0.034585	0.047925	-0.136381	-0.075375	0.085549	0.000199
2.11	0.338253	0.142890	-0.034107	0.047715	-0.137130	-0.074520	0.085538	-0.002392
2.12	0.339680	0.142552	-0.033631	0.047493	-0.137871	-0.073664	0.085501	-0.004931
2.13	0.341104	0.142218	-0.033157	0.047259	-0.138604	-0.072810	0.085440	-0.007418
2.14	0.342524	0.141889	-0.032686	0.047013	-0.139327	-0.071956	0.085353	-0.009852
2.15	0.343942	0.141564	-0.032217	0.046756	-0.140043	-0.071103	0.085243	-0.012234
2.16	0.345356	0.141244	-0.031751	0.046488	-0.140749	-0.070251	0.085109	-0.014564
2.17	0.346767	0.140929	-0.031287	0.046210	-0.141448	-0.069401	0.084952	-0.016841
2.18	0.348174	0.140618	-0.030827	0.045921	-0.142137	-0.068552	0.084772	-0.019065
2.19	0.349579	0.140313	-0.030369	0.045623	-0.142819	-0.067705	0.084570	-0.021237
2.20	0.350981	0.140011	-0.029914	0.045317	-0.143492	-0.066861	0.084347	-0.023357
2.21	0.352379	0.139714	-0.029463	0.045001	-0.144156	-0.066018	0.084103	-0.025425
2.22	0.353775	0.139422	-0.029014	0.044677	-0.144812	-0.065179	0.083839	-0.027440
2.23	0.355168	0.139134	-0.028569	0.044345	-0.145460	-0.064342	0.083555	-0.029404
2.24	0.356558	0.138850	-0.028127	0.044006	-0.146099	-0.063508	0.083251	-0.031316

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Contrails

η	g_7	g'_7	g''_7	g'''_7	h_7	h'_7	h''_7	h'''_7
2.25	0.357945	0.138571	-0.027689	0.043659	-0.146730	-0.062677	0.082929	-0.033176
2.26	0.359329	0.138297	-0.027254	0.043306	-0.147352	-0.061849	0.082588	-0.034985
2.27	0.360711	0.138026	-0.026823	0.042946	-0.147967	-0.061025	0.082229	-0.036743
2.28	0.362090	0.137760	-0.026395	0.042580	-0.148573	-0.060205	0.081853	-0.038450
2.29	0.363466	0.137498	-0.025971	0.042209	-0.149171	-0.059388	0.081460	-0.040107
2.30	0.364840	0.137241	-0.025551	0.041832	-0.149761	-0.058575	0.081051	-0.041713
2.31	0.366211	0.136987	-0.025135	0.041449	-0.150342	-0.057767	0.080626	-0.043270
2.32	0.367579	0.136738	-0.024722	0.041063	-0.150916	-0.056963	0.080186	-0.044777
2.33	0.368945	0.136493	-0.024313	0.040671	-0.151482	-0.056163	0.079731	-0.046235
2.34	0.370309	0.136252	-0.023909	0.040275	-0.152039	-0.055368	0.079261	-0.047644
2.35	0.371671	0.136015	-0.023508	0.039876	-0.152589	-0.054578	0.078778	-0.049005
2.36	0.373029	0.135782	-0.023111	0.039473	-0.153131	-0.053793	0.078281	-0.050318
2.37	0.374386	0.135552	-0.022718	0.039066	-0.153665	-0.053013	0.077772	-0.051584
2.38	0.375741	0.135327	-0.022330	0.038657	-0.154191	-0.052237	0.077250	-0.052803
2.39	0.377093	0.135106	-0.021945	0.038245	-0.154710	-0.051468	0.076716	-0.053975
2.40	0.378443	0.134888	-0.021565	0.037830	-0.155221	-0.050703	0.076171	-0.055101
2.41	0.379790	0.134675	-0.021189	0.037413	-0.155724	-0.049944	0.075614	-0.056181
2.42	0.381136	0.134465	-0.020817	0.036994	-0.156219	-0.049191	0.075047	-0.057217
2.43	0.382480	0.134258	-0.020449	0.036573	-0.156708	-0.048443	0.074470	-0.058208
2.44	0.383821	0.134056	-0.020085	0.036151	-0.157188	-0.047702	0.073883	-0.059155
2.45	0.385161	0.133856	-0.019726	0.035727	-0.157662	-0.046966	0.073287	-0.060058
2.46	0.386499	0.133661	-0.019371	0.035302	-0.158128	-0.046236	0.072682	-0.060919
2.47	0.387834	0.133469	-0.019020	0.034877	-0.158586	-0.045512	0.072069	-0.061737
2.48	0.389168	0.133281	-0.018673	0.034450	-0.159038	-0.044794	0.071448	-0.062514
2.49	0.390500	0.133096	-0.018331	0.034024	-0.159482	-0.044083	0.070819	-0.063249
2.50	0.391830	0.132914	-0.017993	0.033597	-0.159920	-0.043378	0.070183	-0.063944
2.51	0.393158	0.132736	-0.017659	0.033170	-0.160350	-0.042680	0.069540	-0.064599
2.52	0.394485	0.132561	-0.017329	0.032743	-0.160773	-0.041987	0.068891	-0.065215
2.53	0.395809	0.132389	-0.017004	0.032316	-0.161190	-0.041302	0.068236	-0.065792
2.54	0.397132	0.132221	-0.016683	0.031890	-0.161599	-0.040623	0.067575	-0.066331
2.55	0.398454	0.132055	-0.016366	0.031464	-0.162002	-0.039950	0.066909	-0.066832
2.56	0.399773	0.131893	-0.016054	0.031040	-0.162398	-0.039285	0.066239	-0.067297
2.57	0.401092	0.131734	-0.015745	0.030616	-0.162788	-0.038625	0.065563	-0.067725
2.58	0.402408	0.131578	-0.015441	0.030193	-0.163171	-0.037973	0.064884	-0.068117
2.59	0.403723	0.131425	-0.015142	0.029772	-0.163547	-0.037328	0.064201	-0.068475
2.60	0.405037	0.131276	-0.014846	0.029352	-0.163917	-0.036689	0.063515	-0.068799
2.61	0.406349	0.131129	-0.014554	0.028934	-0.164281	-0.036058	0.062825	-0.069088
2.62	0.407659	0.130984	-0.014267	0.028517	-0.164639	-0.035433	0.062133	-0.069345
2.63	0.408968	0.130843	-0.013984	0.028102	-0.164990	-0.034815	0.061439	-0.069570
2.64	0.410276	0.130705	-0.013705	0.027689	-0.165335	-0.034204	0.060742	-0.069763
2.65	0.411582	0.130569	-0.013430	0.027279	-0.165674	-0.033600	0.060043	-0.069925
2.66	0.412888	0.130436	-0.013160	0.026870	-0.166007	-0.033003	0.059343	-0.070056
2.67	0.414191	0.130306	-0.012893	0.026464	-0.166334	-0.032413	0.058642	-0.070158
2.68	0.415494	0.130178	-0.012630	0.026060	-0.166655	-0.031830	0.057940	-0.070231
2.69	0.416795	0.130053	-0.012372	0.025658	-0.166971	-0.031254	0.057238	-0.070275
2.70	0.418095	0.129931	-0.012117	0.025259	-0.167280	-0.030686	0.056535	-0.070292
2.71	0.419393	0.129811	-0.011867	0.024863	-0.167584	-0.030124	0.055832	-0.070281
2.72	0.420691	0.129693	-0.011620	0.024470	-0.167883	-0.029569	0.055129	-0.070245
2.73	0.421987	0.129578	-0.011377	0.024079	-0.168176	-0.029021	0.054427	-0.070182
2.74	0.423283	0.129466	-0.011138	0.023691	-0.168463	-0.028480	0.053726	-0.070095
2.75	0.424577	0.129356	-0.010903	0.023307	-0.168745	-0.027947	0.053025	-0.069982
2.76	0.425870	0.129248	-0.010672	0.022925	-0.169022	-0.027420	0.052326	-0.069847
2.77	0.427162	0.129142	-0.010445	0.022547	-0.169294	-0.026900	0.051629	-0.069688
2.78	0.428452	0.129039	-0.010221	0.022172	-0.169560	-0.026387	0.050933	-0.069506
2.79	0.429742	0.128938	-0.010001	0.021800	-0.169822	-0.025881	0.050239	-0.069303
2.80	0.431031	0.128839	-0.009785	0.021431	-0.170078	-0.025382	0.049547	-0.069078
2.81	0.432319	0.128742	-0.009573	0.021066	-0.170329	-0.024890	0.048857	-0.068833
2.82	0.433606	0.128647	-0.009364	0.020704	-0.170576	-0.024405	0.048170	-0.068567
2.83	0.434892	0.128555	-0.009159	0.020346	-0.170817	-0.023927	0.047486	-0.068282
2.84	0.436177	0.128464	-0.008957	0.019991	-0.171054	-0.023456	0.046805	-0.067979
2.85	0.437461	0.128376	-0.008759	0.019640	-0.171287	-0.022991	0.046126	-0.067657
2.86	0.438745	0.128289	-0.008564	0.019293	-0.171514	-0.022533	0.045451	-0.067318
2.87	0.440027	0.128204	-0.008373	0.018949	-0.171737	-0.022082	0.044780	-0.066962
2.88	0.441309	0.128122	-0.008185	0.018609	-0.171956	-0.021637	0.044112	-0.066589
2.89	0.442590	0.128041	-0.008001	0.018273	-0.172170	-0.021200	0.043448	-0.066201
2.90	0.443870	0.127962	-0.007820	0.017940	-0.172380	-0.020768	0.042788	-0.065797
2.91	0.445149	0.127884	-0.007642	0.017611	-0.172585	-0.020344	0.042132	-0.065379
2.92	0.446427	0.127809	-0.007467	0.017286	-0.172787	-0.019926	0.041481	-0.064946
2.93	0.447705	0.127735	-0.007296	0.016965	-0.172984	-0.019514	0.040834	-0.064500
2.94	0.448982	0.127663	-0.007128	0.016648	-0.173177	-0.019109	0.040191	-0.064042
2.95	0.450258	0.127592	-0.006963	0.016334	-0.173366	-0.018710	0.039553	-0.063570
2.96	0.451534	0.127523	-0.006801	0.016025	-0.173551	-0.018318	0.038919	-0.063087
2.97	0.452809	0.127456	-0.006643	0.015719	-0.173732	-0.017932	0.038291	-0.062592
2.98	0.454083	0.127391	-0.006487	0.015417	-0.173910	-0.017552	0.037668	-0.062087
2.99	0.455357	0.127327	-0.006334	0.015119	-0.174084	-0.017179	0.037049	-0.061571

Approved for Public Release

Contrails

η	g_7	g_7'	g_7''	g_7'''	h_7	h_7'	h_7''	h_7'''
3.00	0.456630	0.127264	-0.006185	0.014825	-0.174253	-0.016811	0.036436	-0.061045
3.01	0.457902	0.127203	-0.006038	0.014535	-0.174420	-0.016450	0.035828	-0.060510
3.02	0.459174	0.127143	-0.005894	0.014249	-0.174582	-0.016095	0.035226	-0.059967
3.03	0.460445	0.127085	-0.005753	0.013967	-0.174742	-0.015745	0.034629	-0.059414
3.04	0.461715	0.127028	-0.005615	0.013689	-0.174897	-0.015402	0.034038	-0.058854
3.05	0.462985	0.126973	-0.005479	0.013414	-0.175050	-0.015065	0.033452	-0.058287
3.06	0.464255	0.126919	-0.005346	0.013143	-0.175199	-0.014733	0.032872	-0.057712
3.07	0.465524	0.126866	-0.005216	0.012877	-0.175344	-0.014407	0.032298	-0.057131
3.08	0.466792	0.126814	-0.005089	0.012614	-0.175487	-0.014087	0.031729	-0.056544
3.09	0.468060	0.126764	-0.004964	0.012355	-0.175626	-0.013772	0.031167	-0.055951
3.10	0.469327	0.126715	-0.004842	0.012100	-0.175762	-0.013464	0.030610	-0.055353
3.11	0.470594	0.126667	-0.004722	0.011849	-0.175895	-0.013160	0.030060	-0.054751
3.12	0.471861	0.126620	-0.004605	0.011601	-0.176026	-0.012862	0.029515	-0.054143
3.13	0.473127	0.126575	-0.004490	0.011357	-0.176153	-0.012570	0.028977	-0.053532
3.14	0.474392	0.126531	-0.004377	0.011118	-0.176277	-0.012283	0.028445	-0.052917
3.15	0.475657	0.126487	-0.004267	0.010881	-0.176398	-0.012001	0.027919	-0.052299
3.16	0.476922	0.126445	-0.004160	0.010649	-0.176517	-0.011724	0.027399	-0.051678
3.17	0.478186	0.126404	-0.004054	0.010420	-0.176633	-0.011453	0.026885	-0.051055
3.18	0.479450	0.126364	-0.003951	0.010195	-0.176746	-0.011187	0.026378	-0.050429
3.19	0.480714	0.126325	-0.003851	0.009974	-0.176857	-0.010925	0.025877	-0.049802
3.20	0.481977	0.126287	-0.003752	0.009756	-0.176965	-0.010669	0.025382	-0.049173
3.21	0.483239	0.126250	-0.003655	0.009542	-0.177070	-0.010418	0.024893	-0.048543
3.22	0.484502	0.126214	-0.003561	0.009332	-0.177173	-0.010171	0.024411	-0.047912
3.23	0.485764	0.126179	-0.003469	0.009125	-0.177274	-0.009930	0.023935	-0.047280
3.24	0.487025	0.126145	-0.003379	0.008922	-0.177372	-0.009693	0.023465	-0.046649
3.25	0.488286	0.126111	-0.003290	0.008722	-0.177467	-0.009460	0.023002	-0.046017
3.26	0.489547	0.126079	-0.003204	0.008526	-0.177561	-0.009232	0.022545	-0.045386
3.27	0.490808	0.126047	-0.003120	0.008333	-0.177652	-0.009009	0.022094	-0.044756
3.28	0.492068	0.126016	-0.003037	0.008143	-0.177741	-0.008791	0.021650	-0.044126
3.29	0.493328	0.125987	-0.002957	0.007957	-0.177828	-0.008576	0.021212	-0.043498
3.30	0.494588	0.125957	-0.002878	0.007774	-0.177913	-0.008366	0.020780	-0.042871
3.31	0.495848	0.125929	-0.002801	0.007595	-0.177995	-0.008161	0.020354	-0.042246
3.32	0.497107	0.125901	-0.002726	0.007419	-0.178076	-0.007959	0.019935	-0.041623
3.33	0.498366	0.125874	-0.002653	0.007246	-0.178154	-0.007762	0.019522	-0.041001
3.34	0.499624	0.125848	-0.002581	0.007076	-0.178231	-0.007569	0.019115	-0.040383
3.35	0.500883	0.125823	-0.002511	0.006910	-0.178306	-0.007380	0.018714	-0.039767
3.36	0.502141	0.125798	-0.002443	0.006746	-0.178379	-0.007194	0.018320	-0.039153
3.37	0.503398	0.125774	-0.002377	0.006586	-0.178450	-0.007013	0.017931	-0.038543
3.38	0.504656	0.125750	-0.002311	0.006429	-0.178519	-0.006836	0.017549	-0.037936
3.39	0.505913	0.125728	-0.002248	0.006275	-0.178586	-0.006662	0.017172	-0.037332
3.40	0.507171	0.125705	-0.002186	0.006124	-0.178652	-0.006492	0.016802	-0.036732
3.41	0.508428	0.125684	-0.002125	0.005975	-0.178716	-0.006326	0.016438	-0.036136
3.42	0.509684	0.125663	-0.002066	0.005830	-0.178779	-0.006164	0.016079	-0.035543
3.43	0.510941	0.125643	-0.002009	0.005688	-0.178840	-0.006005	0.015727	-0.034955
3.44	0.512197	0.125623	-0.001953	0.005548	-0.178899	-0.005849	0.015380	-0.034371
3.45	0.513453	0.125604	-0.001898	0.005411	-0.178957	-0.005697	0.015039	-0.033791
3.46	0.514709	0.125585	-0.001844	0.005277	-0.179013	-0.005548	0.014704	-0.033216
3.47	0.515965	0.125567	-0.001792	0.005146	-0.179068	-0.005403	0.014375	-0.032645
3.48	0.517221	0.125549	-0.001741	0.005018	-0.179121	-0.005261	0.014051	-0.032079
3.49	0.518476	0.125532	-0.001692	0.004892	-0.179173	-0.005122	0.013733	-0.031518
3.50	0.519731	0.125515	-0.001644	0.004769	-0.179223	-0.004986	0.013421	-0.030962
3.51	0.520986	0.125499	-0.001597	0.004648	-0.179272	-0.004853	0.013114	-0.030411
3.52	0.522241	0.125483	-0.001551	0.004530	-0.179320	-0.004724	0.012813	-0.029865
3.53	0.523496	0.125468	-0.001506	0.004414	-0.179367	-0.004597	0.012517	-0.029325
3.54	0.524751	0.125453	-0.001462	0.004301	-0.179412	-0.004473	0.012226	-0.028790
3.55	0.526005	0.125439	-0.001420	0.004190	-0.179456	-0.004353	0.011941	-0.028260
3.56	0.527259	0.125425	-0.001379	0.004082	-0.179499	-0.004235	0.011661	-0.027736
3.57	0.528514	0.125411	-0.001338	0.003976	-0.179541	-0.004119	0.011386	-0.027217
3.58	0.529768	0.125398	-0.001299	0.003872	-0.179582	-0.004007	0.011117	-0.026705
3.59	0.531021	0.125385	-0.001261	0.003771	-0.179621	-0.003897	0.010852	-0.026197
3.60	0.532275	0.125373	-0.001224	0.003672	-0.179660	-0.003790	0.010593	-0.025696
3.61	0.533529	0.125361	-0.001187	0.003575	-0.179697	-0.003685	0.010338	-0.025201
3.62	0.534782	0.125349	-0.001152	0.003480	-0.179733	-0.003583	0.010089	-0.024711
3.63	0.536036	0.125338	-0.001118	0.003387	-0.179769	-0.003483	0.009844	-0.024228
3.64	0.537289	0.125327	-0.001084	0.003297	-0.179803	-0.003386	0.009604	-0.023750
3.65	0.538542	0.125316	-0.001052	0.003209	-0.179836	-0.003291	0.009369	-0.023278
3.66	0.539796	0.125306	-0.001020	0.003122	-0.179869	-0.003199	0.009139	-0.022813
3.67	0.541049	0.125295	-0.000989	0.003038	-0.179900	-0.003108	0.008913	-0.022353
3.68	0.542301	0.125286	-0.000959	0.002955	-0.179931	-0.003020	0.008691	-0.021900
3.69	0.543554	0.125276	-0.000930	0.002875	-0.179961	-0.002935	0.008475	-0.021453
3.70	0.544807	0.125267	-0.000902	0.002796	-0.179990	-0.002851	0.008262	-0.021011
3.71	0.546060	0.125258	-0.000874	0.002719	-0.180018	-0.002769	0.008054	-0.020576
3.72	0.547312	0.125250	-0.000848	0.002644	-0.180045	-0.002690	0.007851	-0.020147
3.73	0.548565	0.125241	-0.000821	0.002571	-0.180072	-0.002612	0.007651	-0.019725
3.74	0.549817	0.125233	-0.000796	0.002499	-0.180097	-0.002537	0.007456	-0.019308

Approved for Public Release

Contrails

η	g_7	g'_7	g''_7	g'''_7	h_7	h'_7	h''_7	h'''_7
3.75	0.551069	0.125225	-0.000771	0.002430	-0.180122	-0.002463	0.007265	-0.018897
3.76	0.552321	0.125218	-0.000748	0.002362	-0.180147	-0.002391	0.007078	-0.018493
3.77	0.553574	0.125210	-0.000724	0.002295	-0.180170	-0.002322	0.006895	-0.018095
3.78	0.554826	0.125203	-0.000702	0.002230	-0.180193	-0.002253	0.006716	-0.017703
3.79	0.556078	0.125196	-0.000680	0.002167	-0.180215	-0.002187	0.006541	-0.017317
3.80	0.557330	0.125190	-0.000658	0.002106	-0.180237	-0.002123	0.006370	-0.016936
3.81	0.558581	0.125183	-0.000637	0.002046	-0.180258	-0.002060	0.006203	-0.016563
3.82	0.559833	0.125177	-0.000617	0.001987	-0.180278	-0.001999	0.006039	-0.016195
3.83	0.561085	0.125171	-0.000598	0.001930	-0.180298	-0.001939	0.005879	-0.015833
3.84	0.562337	0.125165	-0.000579	0.001874	-0.180317	-0.001881	0.005722	-0.015477
3.85	0.563588	0.125159	-0.000560	0.001820	-0.180335	-0.001825	0.005569	-0.015127
3.86	0.564840	0.125154	-0.000542	0.001767	-0.180353	-0.001770	0.005420	-0.014782
3.87	0.566091	0.125148	-0.000525	0.001715	-0.180371	-0.001716	0.005273	-0.014444
3.88	0.567343	0.125143	-0.000508	0.001665	-0.180388	-0.001664	0.005131	-0.014112
3.89	0.568594	0.125138	-0.000492	0.001616	-0.180404	-0.001613	0.004991	-0.013785
3.90	0.569846	0.125133	-0.000476	0.001569	-0.180420	-0.001564	0.004855	-0.013464
3.91	0.571097	0.125129	-0.000460	0.001522	-0.180435	-0.001516	0.004722	-0.013149
3.92	0.572348	0.125124	-0.000445	0.001477	-0.180450	-0.001470	0.004592	-0.012839
3.93	0.573599	0.125120	-0.000431	0.001433	-0.180465	-0.001425	0.004465	-0.012535
3.94	0.574851	0.125116	-0.000417	0.001390	-0.180479	-0.001380	0.004341	-0.012237
3.95	0.576102	0.125112	-0.000403	0.001348	-0.180492	-0.001338	0.004220	-0.011944
3.96	0.577353	0.125108	-0.000390	0.001308	-0.180506	-0.001296	0.004102	-0.011656
3.97	0.578604	0.125104	-0.000377	0.001268	-0.180518	-0.001256	0.003987	-0.011374
3.98	0.579855	0.125100	-0.000364	0.001230	-0.180531	-0.001216	0.003875	-0.011097
3.99	0.581106	0.125096	-0.000352	0.001192	-0.180543	-0.001178	0.003765	-0.010826
4.00	0.582357	0.125093	-0.000340	0.001156	-0.180554	-0.001141	0.003658	-0.010560
4.01	0.583608	0.125090	-0.000329	0.001120	-0.180565	-0.001105	0.003554	-0.010299
4.02	0.584859	0.125086	-0.000318	0.001086	-0.180576	-0.001070	0.003452	-0.010043
4.03	0.586109	0.125083	-0.000307	0.001052	-0.180587	-0.001036	0.003353	-0.009792
4.04	0.587360	0.125080	-0.000297	0.001020	-0.180597	-0.001003	0.003256	-0.009546
4.05	0.588611	0.125077	-0.000287	0.000988	-0.180607	-0.000971	0.003162	-0.009306
4.06	0.589862	0.125075	-0.000277	0.000957	-0.180617	-0.000940	0.003070	-0.009070
4.07	0.591113	0.125072	-0.000268	0.000927	-0.180626	-0.000909	0.002981	-0.008839
4.08	0.592363	0.125069	-0.000259	0.000898	-0.180635	-0.000880	0.002894	-0.008612
4.09	0.593614	0.125067	-0.000250	0.000870	-0.180643	-0.000851	0.002809	-0.008391
4.10	0.594865	0.125064	-0.000241	0.000842	-0.180652	-0.000824	0.002726	-0.008174
4.11	0.596115	0.125062	-0.000233	0.000816	-0.180660	-0.000797	0.002645	-0.007961
4.12	0.597366	0.125060	-0.000225	0.000790	-0.180668	-0.000771	0.002567	-0.007753
4.13	0.598616	0.125057	-0.000217	0.000765	-0.180675	-0.000746	0.002490	-0.007550
4.14	0.599867	0.125055	-0.000210	0.000740	-0.180683	-0.000721	0.002415	-0.007351
4.15	0.601118	0.125053	-0.000202	0.000716	-0.180690	-0.000697	0.002343	-0.007156
4.16	0.602368	0.125051	-0.000195	0.000693	-0.180697	-0.000674	0.002272	-0.006966
4.17	0.603619	0.125049	-0.000188	0.000671	-0.180703	-0.000652	0.002204	-0.006780
4.18	0.604869	0.125047	-0.000182	0.000649	-0.180710	-0.000630	0.002137	-0.006598
4.19	0.606120	0.125046	-0.000175	0.000628	-0.180716	-0.000609	0.002072	-0.006420
4.20	0.607370	0.125044	-0.000169	0.000607	-0.180722	-0.000589	0.002008	-0.006246
4.21	0.608620	0.125042	-0.000163	0.000588	-0.180728	-0.000569	0.001947	-0.006076
4.22	0.609871	0.125041	-0.000158	0.000568	-0.180733	-0.000550	0.001887	-0.005909
4.23	0.611121	0.125039	-0.000152	0.000549	-0.180739	-0.000531	0.001829	-0.005747
4.24	0.612372	0.125038	-0.000147	0.000531	-0.180744	-0.000513	0.001772	-0.005588
4.25	0.613622	0.125036	-0.000141	0.000514	-0.180749	-0.000496	0.001717	-0.005433
4.26	0.614872	0.125035	-0.000136	0.000497	-0.180754	-0.000479	0.001663	-0.005282
4.27	0.616123	0.125033	-0.000131	0.000480	-0.180758	-0.000462	0.001611	-0.005134
4.28	0.617373	0.125032	-0.000127	0.000464	-0.180763	-0.000447	0.001560	-0.004990
4.29	0.618623	0.125031	-0.000122	0.000448	-0.180767	-0.000431	0.001511	-0.004849
4.30	0.619874	0.125030	-0.000118	0.000433	-0.180772	-0.000416	0.001463	-0.004712
4.31	0.621124	0.125028	-0.000113	0.000419	-0.180776	-0.000402	0.001417	-0.004578
4.32	0.622374	0.125027	-0.000109	0.000404	-0.180780	-0.000388	0.001372	-0.004447
4.33	0.623624	0.125026	-0.000105	0.000391	-0.180783	-0.000375	0.001328	-0.004320
4.34	0.624875	0.125025	-0.000102	0.000377	-0.180787	-0.000361	0.001286	-0.004195
4.35	0.626125	0.125024	-0.000098	0.000364	-0.180791	-0.000349	0.001244	-0.004074
4.36	0.627375	0.125023	-0.000094	0.000352	-0.180794	-0.000337	0.001204	-0.003955
4.37	0.628625	0.125022	-0.000091	0.000340	-0.180797	-0.000325	0.001165	-0.003840
4.38	0.629876	0.125021	-0.000087	0.000328	-0.180801	-0.000313	0.001127	-0.003727
4.39	0.631126	0.125021	-0.000084	0.000317	-0.180804	-0.000302	0.001090	-0.003618
4.40	0.632376	0.125020	-0.000081	0.000306	-0.180807	-0.000291	0.001055	-0.003511
4.41	0.633626	0.125019	-0.000078	0.000295	-0.180809	-0.000281	0.001020	-0.003407
4.42	0.634876	0.125018	-0.000075	0.000285	-0.180812	-0.000271	0.000987	-0.003305
4.43	0.636127	0.125018	-0.000072	0.000275	-0.180815	-0.000261	0.000954	-0.003207
4.44	0.637377	0.125017	-0.000070	0.000265	-0.180817	-0.000252	0.000923	-0.003110
4.45	0.638627	0.125016	-0.000067	0.000256	-0.180820	-0.000243	0.000892	-0.003017
4.46	0.639877	0.125015	-0.000065	0.000247	-0.180822	-0.000234	0.000862	-0.002925
4.47	0.641127	0.125015	-0.000062	0.000238	-0.180825	-0.000226	0.000833	-0.002836
4.48	0.642377	0.125014	-0.000060	0.000229	-0.180827	-0.000217	0.000805	-0.002750
4.49	0.643628	0.125014	-0.000058	0.000221	-0.180829	-0.000210	0.000778	-0.002666

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Contrails

η	g_7	g'_7	g''_7	g'''_7	h_7	h'_7	h''_7	h'''_7
4.50	0.644878	0.125013	-0.000055	0.000213	-0.180831	-0.000202	0.000752	-0.002584
4.51	0.646128	0.125013	-0.000053	0.000206	-0.180833	-0.000194	0.000727	-0.002504
4.52	0.647378	0.125012	-0.000051	0.000198	-0.180835	-0.000187	0.000702	-0.002426
4.53	0.648628	0.125011	-0.000049	0.000191	-0.180837	-0.000180	0.000678	-0.002351
4.54	0.649878	0.125011	-0.000047	0.000184	-0.180839	-0.000174	0.000655	-0.002278
4.55	0.651128	0.125011	-0.000046	0.000177	-0.180840	-0.000167	0.000633	-0.002206
4.56	0.652378	0.125010	-0.000044	0.000171	-0.180842	-0.000161	0.000611	-0.002137
4.57	0.653628	0.125010	-0.000042	0.000165	-0.180843	-0.000155	0.000590	-0.002069
4.58	0.654879	0.125009	-0.000041	0.000159	-0.180845	-0.000149	0.000570	-0.002004
4.59	0.656129	0.125009	-0.000039	0.000153	-0.180846	-0.000144	0.000550	-0.001940
4.60	0.657379	0.125008	-0.000038	0.000147	-0.180848	-0.000138	0.000531	-0.001878
4.61	0.658629	0.125008	-0.000036	0.000142	-0.180849	-0.000133	0.000512	-0.001818
4.62	0.659879	0.125008	-0.000035	0.000136	-0.180851	-0.000128	0.000494	-0.001760
4.63	0.661129	0.125007	-0.000033	0.000131	-0.180852	-0.000123	0.000477	-0.001703
4.64	0.662379	0.125007	-0.000032	0.000126	-0.180853	-0.000119	0.000460	-0.001648
4.65	0.663629	0.125007	-0.000031	0.000122	-0.180854	-0.000114	0.000444	-0.001594
4.66	0.664879	0.125006	-0.000030	0.000117	-0.180855	-0.000110	0.000428	-0.001542
4.67	0.666129	0.125006	-0.000029	0.000113	-0.180856	-0.000105	0.000413	-0.001492
4.68	0.667379	0.125006	-0.000027	0.000108	-0.180857	-0.000101	0.000399	-0.001442
4.69	0.668629	0.125006	-0.000026	0.000104	-0.180858	-0.000097	0.000384	-0.001395
4.70	0.669879	0.125005	-0.000025	0.000100	-0.180859	-0.000094	0.000371	-0.001349
4.71	0.671129	0.125005	-0.000024	0.000097	-0.180860	-0.000090	0.000357	-0.001304
4.72	0.672379	0.125005	-0.000023	0.000093	-0.180861	-0.000087	0.000345	-0.001260
4.73	0.673630	0.125005	-0.000022	0.000089	-0.180862	-0.000083	0.000332	-0.001218
4.74	0.674880	0.125004	-0.000022	0.000086	-0.180863	-0.000080	0.000320	-0.001177
4.75	0.676130	0.125004	-0.000021	0.000082	-0.180864	-0.000077	0.000309	-0.001138
4.76	0.677380	0.125004	-0.000020	0.000079	-0.180864	-0.000074	0.000297	-0.001099
4.77	0.678630	0.125004	-0.000019	0.000076	-0.180865	-0.000071	0.000287	-0.001062
4.78	0.679880	0.125004	-0.000018	0.000073	-0.180866	-0.000068	0.000276	-0.001026
4.79	0.681130	0.125003	-0.000018	0.000070	-0.180866	-0.000065	0.000266	-0.000991
4.80	0.682380	0.125003	-0.000017	0.000068	-0.180867	-0.000063	0.000256	-0.000957
4.81	0.683630	0.125003	-0.000016	0.000065	-0.180868	-0.000060	0.000247	-0.000924
4.82	0.684880	0.125003	-0.000016	0.000062	-0.180868	-0.000058	0.000238	-0.000892
4.83	0.686130	0.125003	-0.000015	0.000060	-0.180869	-0.000055	0.000229	-0.000861
4.84	0.687380	0.125003	-0.000015	0.000057	-0.180869	-0.000053	0.000221	-0.000831
4.85	0.688630	0.125002	-0.000014	0.000055	-0.180870	-0.000051	0.000213	-0.000802
4.86	0.689880	0.125002	-0.000013	0.000053	-0.180870	-0.000049	0.000205	-0.000774
4.87	0.691130	0.125002	-0.000013	0.000051	-0.180871	-0.000047	0.000197	-0.000747
4.88	0.692380	0.125002	-0.000012	0.000049	-0.180871	-0.000045	0.000190	-0.000720
4.89	0.693630	0.125002	-0.000012	0.000047	-0.180872	-0.000043	0.000183	-0.000695
4.90	0.694880	0.125002	-0.000011	0.000045	-0.180872	-0.000041	0.000176	-0.000670
4.91	0.696130	0.125002	-0.000011	0.000043	-0.180873	-0.000040	0.000169	-0.000646
4.92	0.697380	0.125002	-0.000011	0.000041	-0.180873	-0.000038	0.000163	-0.000623
4.93	0.698630	0.125002	-0.000010	0.000040	-0.180873	-0.000036	0.000157	-0.000601
4.94	0.699880	0.125001	-0.000010	0.000038	-0.180874	-0.000035	0.000151	-0.000579
4.95	0.701130	0.125001	-0.000009	0.000036	-0.180874	-0.000033	0.000145	-0.000558
4.96	0.702380	0.125001	-0.000009	0.000035	-0.180874	-0.000032	0.000140	-0.000538
4.97	0.703630	0.125001	-0.000009	0.000033	-0.180875	-0.000031	0.000134	-0.000518
4.98	0.704880	0.125001	-0.000008	0.000032	-0.180875	-0.000029	0.000129	-0.000499
4.99	0.706130	0.125001	-0.000008	0.000031	-0.180875	-0.000028	0.000124	-0.000481
5.00	0.707380	0.125001	-0.000008	0.000029	-0.180876	-0.000027	0.000120	-0.000463
5.01	0.708630	0.125001	-0.000008	0.000028	-0.180876	-0.000026	0.000115	-0.000446
5.02	0.709880	0.125001	-0.000007	0.000027	-0.180876	-0.000024	0.000111	-0.000429
5.03	0.711130	0.125001	-0.000007	0.000026	-0.180876	-0.000023	0.000107	-0.000414
5.04	0.712380	0.125001	-0.000007	0.000025	-0.180877	-0.000022	0.000103	-0.000398
5.05	0.713630	0.125001	-0.000007	0.000023	-0.180877	-0.000021	0.000099	-0.000383
5.06	0.714880	0.125000	-0.000006	0.000022	-0.180877	-0.000020	0.000095	-0.000369
5.07	0.716130	0.125000	-0.000006	0.000021	-0.180877	-0.000019	0.000091	-0.000355
5.08	0.717380	0.125000	-0.000006	0.000020	-0.180877	-0.000018	0.000088	-0.000341
5.09	0.718630	0.125000	-0.000006	0.000020	-0.180877	-0.000018	0.000084	-0.000328
5.10	0.719880	0.125000	-0.000005	0.000019	-0.180878	-0.000017	0.000081	-0.000316
5.11	0.721130	0.125000	-0.000005	0.000018	-0.180878	-0.000016	0.000078	-0.000304
5.12	0.722380	0.125000	-0.000005	0.000017	-0.180878	-0.000015	0.000075	-0.000292
5.13	0.723630	0.125000	-0.000005	0.000016	-0.180878	-0.000014	0.000072	-0.000281
5.14	0.724880	0.125000	-0.000005	0.000015	-0.180878	-0.000014	0.000070	-0.000270
5.15	0.726130	0.125000	-0.000005	0.000015	-0.180878	-0.000013	0.000067	-0.000259
5.16	0.727380	0.125000	-0.000005	0.000014	-0.180879	-0.000012	0.000064	-0.000249
5.17	0.728630	0.125000	-0.000004	0.000013	-0.180879	-0.000012	0.000062	-0.000239
5.18	0.729880	0.125000	-0.000004	0.000013	-0.180879	-0.000011	0.000060	-0.000230
5.19	0.731130	0.125000	-0.000004	0.000012	-0.180879	-0.000011	0.000057	-0.000221
5.20	0.732380	0.125000	-0.000004	0.000011	-0.180879	-0.000010	0.000055	-0.000212
5.21	0.733630	0.125000	-0.000004	0.000011	-0.180879	-0.000009	0.000053	-0.000203
5.22	0.734880	0.125000	-0.000004	0.000010	-0.180879	-0.000009	0.000051	-0.000195
5.23	0.736130	0.125000	-0.000004	0.000010	-0.180879	-0.000008	0.000049	-0.000187
5.24	0.737380	0.125000	-0.000004	0.000009	-0.180879	-0.000008	0.000047	-0.000180

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Contrails

η	k_7	k_7'	k_7''	k_7'''	h_9	h_9'	h_9''	h_9'''
0.00	0.000000	0.000000	0.007638	0.000000	0.000000	0.000000	0.151970	-1.000000
0.01	0.000000	0.000076	0.007639	0.000105	0.000007	0.001470	0.141973	-0.999246
0.02	0.000002	0.000153	0.007641	0.000412	0.000029	0.002839	0.131990	-0.997027
0.03	0.000003	0.000229	0.007648	0.000909	0.000064	0.004110	0.122037	-0.993409
0.04	0.000006	0.000306	0.007660	0.001582	0.000111	0.005280	0.112127	-0.988455
0.05	0.000010	0.000382	0.007680	0.002419	0.000169	0.006352	0.102272	-0.982228
0.06	0.000014	0.000459	0.007709	0.003410	0.000238	0.007326	0.092486	-0.974789
0.07	0.000019	0.000537	0.007748	0.004542	0.000315	0.008202	0.082780	-0.966199
0.08	0.000024	0.000614	0.007800	0.005804	0.000401	0.008982	0.073166	-0.956518
0.09	0.000031	0.000693	0.007865	0.007184	0.000495	0.009666	0.063653	-0.945805
0.10	0.000038	0.000772	0.007944	0.008673	0.000594	0.010255	0.054253	-0.934115
0.11	0.000046	0.000852	0.008039	0.010260	0.000699	0.010751	0.044974	-0.921506
0.12	0.000055	0.000933	0.008150	0.011935	0.000809	0.011155	0.035826	-0.908032
0.13	0.000065	0.001015	0.008278	0.013687	0.000922	0.011468	0.026816	-0.893747
0.14	0.000076	0.001098	0.008424	0.015508	0.001038	0.011692	0.017953	-0.878702
0.15	0.000087	0.001183	0.008588	0.017388	0.001156	0.011828	0.009244	-0.862949
0.16	0.000099	0.001270	0.008771	0.019318	0.001274	0.011878	0.000696	-0.846538
0.17	0.000112	0.001359	0.008974	0.021291	0.001393	0.011842	-0.007684	-0.829515
0.18	0.000127	0.001450	0.009197	0.023296	0.001511	0.011724	-0.015892	-0.811930
0.19	0.000141	0.001543	0.009440	0.025327	0.001627	0.011525	-0.023921	-0.793827
0.20	0.000157	0.001638	0.009704	0.027376	0.001741	0.011247	-0.031767	-0.775250
0.21	0.000174	0.001737	0.009988	0.029436	0.001852	0.010891	-0.039425	-0.756243
0.22	0.000192	0.001838	0.010293	0.031499	0.001959	0.010459	-0.046891	-0.736847
0.23	0.000211	0.001943	0.010618	0.033559	0.002061	0.009953	-0.054161	-0.717103
0.24	0.000231	0.002051	0.010964	0.035609	0.002158	0.009376	-0.061232	-0.697049
0.25	0.000252	0.002162	0.011330	0.037643	0.002248	0.008729	-0.068101	-0.676724
0.26	0.000274	0.002277	0.011717	0.039655	0.002332	0.008015	-0.074765	-0.656164
0.27	0.000298	0.002397	0.012123	0.041640	0.002408	0.007235	-0.081223	-0.635404
0.28	0.000322	0.002520	0.012549	0.043592	0.002476	0.006391	-0.087473	-0.614478
0.29	0.000348	0.002648	0.012995	0.045507	0.002536	0.005486	-0.093512	-0.593418
0.30	0.000375	0.002780	0.013459	0.047379	0.002586	0.004522	-0.099341	-0.572257
0.31	0.000404	0.002917	0.013942	0.049205	0.002626	0.003500	-0.104957	-0.551023
0.32	0.000434	0.003059	0.014443	0.050979	0.002656	0.002423	-0.110361	-0.529747
0.33	0.000465	0.003206	0.014962	0.052699	0.002674	0.001293	-0.115552	-0.508455
0.34	0.000498	0.003358	0.015497	0.054360	0.002682	0.000113	-0.120530	-0.487175
0.35	0.000532	0.003516	0.016049	0.055959	0.002677	-0.001117	-0.125296	-0.465932
0.36	0.000568	0.003679	0.016616	0.057492	0.002659	-0.002392	-0.129849	-0.444750
0.37	0.000606	0.003848	0.017198	0.058958	0.002629	-0.003713	-0.134191	-0.423651
0.38	0.000645	0.004023	0.017795	0.060352	0.002585	-0.005076	-0.138323	-0.402659
0.39	0.000686	0.004204	0.018405	0.061674	0.002527	-0.006479	-0.142245	-0.381795
0.40	0.000729	0.004391	0.019028	0.062919	0.002455	-0.007920	-0.145959	-0.361077
0.41	0.000774	0.004585	0.019663	0.064087	0.002368	-0.009397	-0.149467	-0.340526
0.42	0.000821	0.004785	0.020310	0.065176	0.002267	-0.010908	-0.152770	-0.320158
0.43	0.000870	0.004991	0.020966	0.066184	0.002150	-0.012452	-0.155871	-0.299992
0.44	0.000921	0.005204	0.021633	0.067109	0.002018	-0.014025	-0.158771	-0.280042
0.45	0.000974	0.005424	0.022308	0.067950	0.001870	-0.015627	-0.161472	-0.260324
0.46	0.001029	0.005650	0.022992	0.068707	0.001705	-0.017254	-0.163978	-0.240852
0.47	0.001087	0.005883	0.023682	0.069378	0.001524	-0.018905	-0.166290	-0.221639
0.48	0.001147	0.006124	0.024379	0.069963	0.001327	-0.020579	-0.168412	-0.202698
0.49	0.001209	0.006371	0.025081	0.070462	0.001113	-0.022273	-0.170345	-0.184039
0.50	0.001274	0.006625	0.025788	0.070873	0.000881	-0.023985	-0.172093	-0.165675
0.51	0.001342	0.006887	0.026498	0.071197	0.000633	-0.025714	-0.173660	-0.147614
0.52	0.001412	0.007155	0.027212	0.071434	0.000367	-0.027458	-0.175047	-0.129866
0.53	0.001485	0.007431	0.027927	0.071583	0.000084	-0.029215	-0.176258	-0.112439
0.54	0.001561	0.007714	0.028643	0.071646	-0.000217	-0.030983	-0.177297	-0.095341
0.55	0.001639	0.008004	0.029359	0.071623	-0.000536	-0.032760	-0.178166	-0.078580
0.56	0.001721	0.008301	0.030075	0.071513	-0.000872	-0.034545	-0.178869	-0.062160
0.57	0.001805	0.008605	0.030789	0.071319	-0.001227	-0.036337	-0.179410	-0.046089
0.58	0.001893	0.008917	0.031501	0.071039	-0.001599	-0.038133	-0.179792	-0.030370
0.59	0.001984	0.009235	0.032210	0.070677	-0.001990	-0.039932	-0.180019	-0.015009
0.60	0.002078	0.009561	0.032915	0.070231	-0.002398	-0.041733	-0.180094	-0.000010
0.61	0.002175	0.009894	0.033614	0.069704	-0.002824	-0.043534	-0.180020	0.014625
0.62	0.002276	0.010233	0.034308	0.069097	-0.003269	-0.045333	-0.179802	0.028893
0.63	0.002380	0.010580	0.034996	0.068411	-0.003731	-0.047129	-0.179444	0.042790
0.64	0.002487	0.010933	0.035676	0.067647	-0.004211	-0.048921	-0.178948	0.056316
0.65	0.002598	0.011293	0.036349	0.066806	-0.004709	-0.050708	-0.178319	0.069470
0.66	0.002713	0.011660	0.037012	0.065892	-0.005225	-0.052487	-0.177560	0.082249
0.67	0.002832	0.012034	0.037666	0.064903	-0.005759	-0.054258	-0.176675	0.094655
0.68	0.002954	0.012413	0.038310	0.063844	-0.006310	-0.056020	-0.175668	0.106686
0.69	0.003080	0.012800	0.038943	0.062715	-0.006879	-0.057771	-0.174542	0.118344
0.70	0.003210	0.013192	0.039564	0.061517	-0.007466	-0.059511	-0.173302	0.129629
0.71	0.003344	0.013591	0.040173	0.060254	-0.008070	-0.061237	-0.171951	0.140542
0.72	0.003482	0.013996	0.040769	0.058926	-0.008690	-0.062949	-0.170493	0.151085
0.73	0.003624	0.014406	0.041351	0.057537	-0.009328	-0.064647	-0.168930	0.161259
0.74	0.003770	0.014823	0.041919	0.056086	-0.009983	-0.066328	-0.167269	0.171067

Approved for Public Release

Contrails

η	k_7	k_7'	k_7''	k_7'''	h_9	h_9'	h_9''	h_9'''
0.75	0.003920	0.015245	0.042473	0.054578	-0.010655	-0.067992	-0.165510	0.180511
0.76	0.004075	0.015672	0.043011	0.053013	-0.011343	-0.069638	-0.163660	0.189593
0.77	0.004234	0.016105	0.043533	0.051394	-0.012048	-0.071264	-0.161720	0.198318
0.78	0.004397	0.016543	0.044039	0.049723	-0.012768	-0.072872	-0.159694	0.206687
0.79	0.004564	0.016986	0.044527	0.048001	-0.013505	-0.074458	-0.157587	0.214704
0.80	0.004736	0.017433	0.044998	0.046232	-0.014257	-0.076023	-0.155401	0.222374
0.81	0.004913	0.017885	0.045452	0.044418	-0.015025	-0.077566	-0.153141	0.229699
0.82	0.005094	0.018342	0.045887	0.042559	-0.015809	-0.079086	-0.150809	0.236684
0.83	0.005280	0.018803	0.046303	0.040660	-0.016607	-0.080582	-0.148408	0.243333
0.84	0.005470	0.019268	0.046700	0.038721	-0.017420	-0.082054	-0.145943	0.249650
0.85	0.005665	0.019737	0.047077	0.036745	-0.018248	-0.083500	-0.143416	0.255641
0.86	0.005865	0.020210	0.047434	0.034734	-0.019090	-0.084922	-0.140831	0.261309
0.87	0.006070	0.020686	0.047772	0.032691	-0.019946	-0.086317	-0.138191	0.266659
0.88	0.006279	0.021165	0.048088	0.030617	-0.020816	-0.087685	-0.135499	0.271697
0.89	0.006493	0.021647	0.048384	0.028515	-0.021700	-0.089027	-0.132758	0.276427
0.90	0.006712	0.022133	0.048658	0.026387	-0.022597	-0.090340	-0.129972	0.280855
0.91	0.006935	0.022620	0.048912	0.024235	-0.023507	-0.091626	-0.127142	0.284985
0.92	0.007164	0.023111	0.049143	0.022061	-0.024429	-0.092883	-0.124273	0.288823
0.93	0.007398	0.023603	0.049353	0.019867	-0.025364	-0.094111	-0.121367	0.292375
0.94	0.007636	0.024098	0.049540	0.017656	-0.026311	-0.095310	-0.118426	0.295646
0.95	0.007880	0.024594	0.049706	0.015430	-0.027270	-0.096480	-0.115455	0.298641
0.96	0.008128	0.025092	0.049849	0.013190	-0.028241	-0.097619	-0.112454	0.301366
0.97	0.008382	0.025591	0.049969	0.010938	-0.029223	-0.098729	-0.109428	0.303827
0.98	0.008640	0.026091	0.050068	0.008678	-0.030215	-0.099808	-0.106379	0.306029
0.99	0.008903	0.026592	0.050143	0.006410	-0.031219	-0.100856	-0.103308	0.307977
1.00	0.009172	0.027094	0.050196	0.004136	-0.032232	-0.101874	-0.100220	0.309679
1.01	0.009445	0.027596	0.050226	0.001860	-0.033256	-0.102861	-0.097116	0.311138
1.02	0.009724	0.028098	0.050233	-0.000419	-0.034289	-0.103816	-0.093998	0.312361
1.03	0.010007	0.028601	0.050217	-0.002696	-0.035332	-0.104741	-0.090869	0.313353
1.04	0.010296	0.029103	0.050179	-0.004972	-0.036384	-0.105634	-0.087732	0.314121
1.05	0.010589	0.029604	0.050118	-0.007244	-0.037445	-0.106495	-0.084588	0.314670
1.06	0.010888	0.030105	0.050034	-0.009509	-0.038514	-0.107325	-0.081439	0.315005
1.07	0.011191	0.030605	0.049928	-0.011767	-0.039591	-0.108124	-0.078288	0.315133
1.08	0.011500	0.031103	0.049799	-0.014016	-0.040676	-0.108891	-0.075137	0.315058
1.09	0.011813	0.031601	0.049647	-0.016254	-0.041769	-0.109627	-0.071988	0.314787
1.10	0.012132	0.032096	0.049474	-0.018479	-0.042869	-0.110331	-0.068842	0.314324
1.11	0.012455	0.032590	0.049278	-0.020690	-0.043975	-0.111004	-0.065702	0.313677
1.12	0.012784	0.033082	0.049060	-0.022885	-0.045089	-0.111645	-0.062569	0.312849
1.13	0.013117	0.033571	0.048820	-0.025062	-0.046208	-0.112255	-0.059445	0.311846
1.14	0.013455	0.034058	0.048559	-0.027221	-0.047334	-0.112834	-0.056333	0.310675
1.15	0.013798	0.034542	0.048276	-0.029360	-0.048465	-0.113382	-0.053232	0.309340
1.16	0.014146	0.035023	0.047972	-0.031477	-0.049601	-0.113899	-0.050146	0.307846
1.17	0.014499	0.035502	0.047647	-0.033570	-0.050743	-0.114385	-0.047076	0.306199
1.18	0.014856	0.035976	0.047300	-0.035640	-0.051889	-0.114840	-0.044023	0.304404
1.19	0.015218	0.036448	0.046934	-0.037683	-0.053039	-0.115265	-0.040988	0.302466
1.20	0.015585	0.036915	0.046547	-0.039700	-0.054194	-0.115660	-0.037974	0.300390
1.21	0.015956	0.037378	0.046140	-0.041689	-0.055353	-0.116025	-0.034981	0.298181
1.22	0.016332	0.037838	0.045713	-0.043648	-0.056514	-0.116360	-0.032011	0.295845
1.23	0.016713	0.038293	0.045267	-0.045577	-0.057680	-0.116665	-0.029065	0.293385
1.24	0.017098	0.038743	0.044802	-0.047474	-0.058848	-0.116941	-0.026144	0.290808
1.25	0.017488	0.039189	0.044318	-0.049339	-0.060018	-0.117188	-0.023249	0.288117
1.26	0.017882	0.039629	0.043815	-0.051170	-0.061191	-0.117406	-0.020382	0.285317
1.27	0.018280	0.040065	0.043294	-0.052967	-0.062366	-0.117596	-0.017543	0.282413
1.28	0.018683	0.040495	0.042756	-0.054728	-0.063543	-0.117757	-0.014734	0.279410
1.29	0.019090	0.040920	0.042200	-0.056453	-0.064721	-0.117890	-0.011955	0.276312
1.30	0.019502	0.041339	0.041627	-0.058141	-0.065901	-0.117996	-0.009208	0.273123
1.31	0.019917	0.041752	0.041037	-0.059791	-0.067081	-0.118075	-0.006493	0.269847
1.32	0.020337	0.042160	0.040431	-0.061402	-0.068262	-0.118126	-0.003811	0.266490
1.33	0.020760	0.042561	0.039809	-0.062974	-0.069444	-0.118151	-0.001163	0.263055
1.34	0.021188	0.042956	0.039172	-0.064506	-0.070625	-0.118150	0.001450	0.259546
1.35	0.021619	0.043344	0.038519	-0.065997	-0.071807	-0.118122	0.004027	0.255967
1.36	0.022055	0.043726	0.037852	-0.067447	-0.072988	-0.118069	0.006569	0.252322
1.37	0.022494	0.044101	0.037171	-0.068855	-0.074168	-0.117991	0.009074	0.248616
1.38	0.022937	0.044470	0.036475	-0.070220	-0.075347	-0.117888	0.011541	0.244851
1.39	0.023383	0.044831	0.035766	-0.071543	-0.076526	-0.117760	0.013971	0.241032
1.40	0.023833	0.045185	0.035044	-0.072822	-0.077702	-0.117609	0.016362	0.237162
1.41	0.024287	0.045532	0.034310	-0.074058	-0.078878	-0.117433	0.018714	0.233246
1.42	0.024744	0.045871	0.033563	-0.075250	-0.080051	-0.117234	0.021026	0.229285
1.43	0.025204	0.046203	0.032805	-0.076397	-0.081222	-0.117013	0.023299	0.225284
1.44	0.025668	0.046527	0.032036	-0.077500	-0.082391	-0.116769	0.025532	0.221247
1.45	0.026135	0.046843	0.031255	-0.078557	-0.083558	-0.116502	0.027724	0.217176
1.46	0.026605	0.047152	0.030465	-0.079570	-0.084721	-0.116214	0.029875	0.213074
1.47	0.027078	0.047453	0.029664	-0.080537	-0.085882	-0.115905	0.031985	0.208946
1.48	0.027554	0.047745	0.028854	-0.081458	-0.087039	-0.115575	0.034054	0.204793
1.49	0.028033	0.048030	0.028035	-0.082334	-0.088193	-0.115224	0.036081	0.200619

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Contrails

η	k_7	k_7'	k_7''	k_7'''	h_9	h_9'	h_9''	h_9'''
1.50	0.028514	0.048306	0.027207	-0.083164	-0.089344	-0.114853	0.038066	0.196426
1.51	0.028999	0.048574	0.026372	-0.083949	-0.090490	-0.114463	0.040010	0.192219
1.52	0.029486	0.048833	0.025529	-0.084687	-0.091633	-0.114053	0.041911	0.187998
1.53	0.029975	0.049084	0.024678	-0.085380	-0.092771	-0.113625	0.043770	0.183768
1.54	0.030468	0.049327	0.023821	-0.086027	-0.093905	-0.113178	0.045586	0.179530
1.55	0.030962	0.049561	0.022958	-0.086628	-0.095035	-0.112713	0.047360	0.175288
1.56	0.031459	0.049786	0.022089	-0.087184	-0.096159	-0.112231	0.049092	0.171043
1.57	0.031958	0.050003	0.021214	-0.087694	-0.097279	-0.111731	0.050781	0.166798
1.58	0.032459	0.050210	0.020335	-0.088159	-0.098394	-0.111215	0.052428	0.162556
1.59	0.032962	0.050409	0.019451	-0.088579	-0.099504	-0.110683	0.054032	0.158319
1.60	0.033467	0.050599	0.018564	-0.088954	-0.100608	-0.110135	0.055594	0.154089
1.61	0.033974	0.050781	0.017672	-0.089284	-0.101706	-0.109571	0.057114	0.149868
1.62	0.034482	0.050953	0.016778	-0.089570	-0.102799	-0.108993	0.058592	0.145658
1.63	0.034993	0.051116	0.015881	-0.089812	-0.103886	-0.108400	0.060027	0.141462
1.64	0.035505	0.051270	0.014982	-0.090010	-0.104967	-0.107792	0.061421	0.137281
1.65	0.036018	0.051416	0.014081	-0.090164	-0.106042	-0.107171	0.062773	0.133117
1.66	0.036533	0.051552	0.013179	-0.090275	-0.107110	-0.106537	0.064083	0.128972
1.67	0.037049	0.051679	0.012276	-0.090344	-0.108172	-0.105890	0.065352	0.124848
1.68	0.037567	0.051798	0.011372	-0.090370	-0.109228	-0.105230	0.066580	0.120747
1.69	0.038085	0.051907	0.010468	-0.090354	-0.110277	-0.104558	0.067767	0.116669
1.70	0.038605	0.052007	0.009565	-0.090297	-0.111319	-0.103875	0.068914	0.112618
1.71	0.039125	0.052098	0.008663	-0.090199	-0.112354	-0.103180	0.070020	0.108594
1.72	0.039647	0.052180	0.007761	-0.090060	-0.113383	-0.102475	0.071086	0.104599
1.73	0.040169	0.052253	0.006862	-0.089882	-0.114404	-0.101759	0.072112	0.100634
1.74	0.040692	0.052317	0.005964	-0.089663	-0.115418	-0.101032	0.073099	0.096701
1.75	0.041215	0.052373	0.005068	-0.089406	-0.116425	-0.100297	0.074046	0.092800
1.76	0.041739	0.052419	0.004176	-0.089111	-0.117424	-0.099552	0.074955	0.088935
1.77	0.042263	0.052456	0.003286	-0.088778	-0.118416	-0.098798	0.075825	0.085104
1.78	0.042788	0.052485	0.002400	-0.088407	-0.119400	-0.098035	0.076657	0.081311
1.79	0.043313	0.052504	0.001518	-0.088000	-0.120376	-0.097265	0.077451	0.077555
1.80	0.043838	0.052515	0.000641	-0.087557	-0.121345	-0.096486	0.078208	0.073838
1.81	0.044363	0.052517	-0.000233	-0.087079	-0.122306	-0.095701	0.078928	0.070161
1.82	0.044889	0.052510	-0.001101	-0.086566	-0.123259	-0.094908	0.079611	0.066525
1.83	0.045414	0.052495	-0.001964	-0.086019	-0.124204	-0.094109	0.080259	0.062931
1.84	0.045938	0.052471	-0.002821	-0.085438	-0.125141	-0.093303	0.080870	0.059380
1.85	0.046463	0.052439	-0.003673	-0.084825	-0.126070	-0.092491	0.081446	0.055872
1.86	0.046987	0.052398	-0.004518	-0.084180	-0.126991	-0.091674	0.081988	0.052408
1.87	0.047511	0.052348	-0.005356	-0.083504	-0.127904	-0.090852	0.082495	0.048990
1.88	0.048034	0.052291	-0.006188	-0.082797	-0.128808	-0.090024	0.082968	0.045617
1.89	0.048557	0.052225	-0.007012	-0.082060	-0.129704	-0.089192	0.083407	0.042291
1.90	0.049079	0.052150	-0.007829	-0.081295	-0.130592	-0.088356	0.083814	0.039012
1.91	0.049600	0.052068	-0.008638	-0.080501	-0.131471	-0.087516	0.084188	0.035781
1.92	0.050120	0.051978	-0.009439	-0.079679	-0.132342	-0.086673	0.084530	0.032598
1.93	0.050639	0.051879	-0.010231	-0.078830	-0.133205	-0.085826	0.084840	0.029463
1.94	0.051157	0.051773	-0.011015	-0.077956	-0.134059	-0.084976	0.085119	0.026378
1.95	0.051675	0.051659	-0.011790	-0.077056	-0.134904	-0.084123	0.085368	0.023343
1.96	0.052191	0.051537	-0.012556	-0.076131	-0.135741	-0.083269	0.085586	0.020357
1.97	0.052705	0.051408	-0.013313	-0.075183	-0.136569	-0.082412	0.085775	0.017422
1.98	0.053219	0.051271	-0.014060	-0.074212	-0.137389	-0.081553	0.085935	0.014537
1.99	0.053731	0.051127	-0.014797	-0.073218	-0.138201	-0.080693	0.086066	0.011704
2.00	0.054241	0.050975	-0.015524	-0.072204	-0.139003	-0.079832	0.086169	0.008921
2.01	0.054750	0.050816	-0.016241	-0.071168	-0.139797	-0.078970	0.086244	0.006190
2.02	0.055258	0.050650	-0.016947	-0.070113	-0.140583	-0.078107	0.086293	0.003511
2.03	0.055763	0.050477	-0.017643	-0.069038	-0.141359	-0.077244	0.086315	0.000883
2.04	0.056267	0.050297	-0.018328	-0.067946	-0.142127	-0.076381	0.086311	-0.001692
2.05	0.056769	0.050111	-0.019002	-0.066836	-0.142887	-0.075518	0.086281	-0.004216
2.06	0.057269	0.049917	-0.019665	-0.065709	-0.143638	-0.074655	0.086227	-0.006688
2.07	0.057767	0.049718	-0.020316	-0.064566	-0.144380	-0.073794	0.086148	-0.009107
2.08	0.058264	0.049511	-0.020956	-0.063409	-0.145114	-0.072933	0.086045	-0.011475
2.09	0.058758	0.049298	-0.021584	-0.062237	-0.145839	-0.072073	0.085918	-0.013790
2.10	0.059250	0.049080	-0.022201	-0.061051	-0.146555	-0.071214	0.085769	-0.016054
2.11	0.059739	0.048854	-0.022805	-0.059853	-0.147263	-0.070357	0.085597	-0.018265
2.12	0.060227	0.048623	-0.023398	-0.058643	-0.147962	-0.069502	0.085404	-0.020425
2.13	0.060712	0.048387	-0.023978	-0.057421	-0.148653	-0.068649	0.085189	-0.022533
2.14	0.061194	0.048144	-0.024546	-0.056189	-0.149335	-0.067799	0.084953	-0.024589
2.15	0.061675	0.047896	-0.025102	-0.054948	-0.150009	-0.066950	0.084697	-0.026594
2.16	0.062152	0.047642	-0.025645	-0.053697	-0.150674	-0.066105	0.084422	-0.028548
2.17	0.062627	0.047383	-0.026176	-0.052439	-0.151331	-0.065262	0.084127	-0.030451
2.18	0.063100	0.047118	-0.026694	-0.051173	-0.151980	-0.064422	0.083813	-0.032303
2.19	0.063570	0.046849	-0.027199	-0.049901	-0.152620	-0.063586	0.083481	-0.034104
2.20	0.064037	0.046575	-0.027692	-0.048622	-0.153251	-0.062753	0.083131	-0.035856
2.21	0.064501	0.046295	-0.028172	-0.047339	-0.153875	-0.061923	0.082764	-0.037557
2.22	0.064963	0.046011	-0.028638	-0.046051	-0.154490	-0.061098	0.082380	-0.039209
2.23	0.065421	0.045722	-0.029093	-0.044759	-0.155097	-0.060276	0.081980	-0.040811
2.24	0.065877	0.045429	-0.029534	-0.043464	-0.155695	-0.059458	0.081564	-0.042365

Approved for Public Release

Contrails

η	k_7	k_7'	k_7''	k_7'''	h_9	h_9'	h_9''	h_9'''
2.25	0.066330	0.045132	-0.029962	-0.042167	-0.156286	-0.058645	0.081133	-0.043870
2.26	0.066780	0.044830	-0.030377	-0.040868	-0.156868	-0.057835	0.080687	-0.045327
2.27	0.067227	0.044524	-0.030779	-0.039568	-0.157443	-0.057031	0.080226	-0.046736
2.28	0.067670	0.044215	-0.031168	-0.038269	-0.158009	-0.056231	0.079752	-0.048098
2.29	0.068111	0.043901	-0.031545	-0.036969	-0.158567	-0.055436	0.079264	-0.049412
2.30	0.068548	0.043584	-0.031908	-0.035670	-0.159118	-0.054646	0.078764	-0.050681
2.31	0.068983	0.043263	-0.032258	-0.034374	-0.159660	-0.053861	0.078251	-0.051903
2.32	0.069414	0.042939	-0.032595	-0.033079	-0.160195	-0.053081	0.077726	-0.053079
2.33	0.069841	0.042611	-0.032920	-0.031788	-0.160722	-0.052306	0.077190	-0.054211
2.34	0.070266	0.042280	-0.033231	-0.030499	-0.161241	-0.051537	0.076642	-0.055298
2.35	0.070687	0.041946	-0.033530	-0.029216	-0.161752	-0.050773	0.076084	-0.056341
2.36	0.071105	0.041610	-0.033815	-0.027936	-0.162256	-0.050015	0.075515	-0.057340
2.37	0.071519	0.041270	-0.034088	-0.026663	-0.162753	-0.049263	0.074937	-0.058296
2.38	0.071930	0.040928	-0.034349	-0.025395	-0.163242	-0.048517	0.074349	-0.059210
2.39	0.072338	0.040583	-0.034596	-0.024133	-0.163723	-0.047776	0.073753	-0.060082
2.40	0.072742	0.040236	-0.034831	-0.022878	-0.164197	-0.047042	0.073148	-0.060912
2.41	0.073143	0.039887	-0.035054	-0.021631	-0.164664	-0.046313	0.072535	-0.061702
2.42	0.073539	0.039535	-0.035264	-0.020392	-0.165124	-0.045591	0.071914	-0.062451
2.43	0.073933	0.039181	-0.035462	-0.019162	-0.165576	-0.044875	0.071286	-0.063160
2.44	0.074323	0.038826	-0.035647	-0.017940	-0.166021	-0.044165	0.070651	-0.063831
2.45	0.074710	0.038469	-0.035821	-0.016728	-0.166459	-0.043462	0.070010	-0.064462
2.46	0.075092	0.038110	-0.035982	-0.015526	-0.166890	-0.042765	0.069362	-0.065056
2.47	0.075472	0.037749	-0.036131	-0.014335	-0.167315	-0.042075	0.068709	-0.065613
2.48	0.075847	0.037387	-0.036269	-0.013154	-0.167732	-0.041391	0.068050	-0.066132
2.49	0.076219	0.037024	-0.036394	-0.011984	-0.168142	-0.040714	0.067386	-0.066616
2.50	0.076588	0.036659	-0.036508	-0.010826	-0.168546	-0.040043	0.066718	-0.067064
2.51	0.076953	0.036294	-0.036611	-0.009681	-0.168943	-0.039379	0.066045	-0.067477
2.52	0.077314	0.035927	-0.036702	-0.008547	-0.169334	-0.038722	0.065368	-0.067856
2.53	0.077671	0.035560	-0.036782	-0.007427	-0.169718	-0.038072	0.064688	-0.068201
2.54	0.078025	0.035191	-0.036850	-0.006320	-0.170095	-0.037429	0.064004	-0.068513
2.55	0.078375	0.034823	-0.036908	-0.005226	-0.170466	-0.036792	0.063318	-0.068793
2.56	0.078721	0.034453	-0.036955	-0.004146	-0.170831	-0.036162	0.062628	-0.069041
2.57	0.079064	0.034083	-0.036991	-0.003081	-0.171190	-0.035539	0.061937	-0.069257
2.58	0.079403	0.033713	-0.037017	-0.002030	-0.171542	-0.034924	0.061243	-0.069444
2.59	0.079738	0.033343	-0.037032	-0.000994	-0.171888	-0.034315	0.060548	-0.069600
2.60	0.080070	0.032973	-0.037037	0.000028	-0.172228	-0.033713	0.059852	-0.069727
2.61	0.080398	0.032602	-0.037031	0.001033	-0.172562	-0.033118	0.059154	-0.069825
2.62	0.080722	0.032232	-0.037016	0.002024	-0.172891	-0.032530	0.058455	-0.069896
2.63	0.081042	0.031862	-0.036991	0.002998	-0.173213	-0.031948	0.057756	-0.069939
2.64	0.081359	0.031492	-0.036956	0.003956	-0.173530	-0.031374	0.057056	-0.069955
2.65	0.081672	0.031123	-0.036912	0.004898	-0.173840	-0.030807	0.056357	-0.069945
2.66	0.081982	0.030754	-0.036858	0.005824	-0.174146	-0.030247	0.055658	-0.069910
2.67	0.082287	0.030386	-0.036795	0.006733	-0.174445	-0.029694	0.054959	-0.069849
2.68	0.082589	0.030018	-0.036724	0.007625	-0.174740	-0.029148	0.054261	-0.069765
2.69	0.082888	0.029652	-0.036643	0.008500	-0.175028	-0.028609	0.053564	-0.069657
2.70	0.083182	0.029286	-0.036554	0.009358	-0.175312	-0.028077	0.052868	-0.069525
2.71	0.083473	0.028920	-0.036456	0.010198	-0.175590	-0.027552	0.052173	-0.069372
2.72	0.083761	0.028556	-0.036350	0.011021	-0.175863	-0.027033	0.051480	-0.069196
2.73	0.084045	0.028194	-0.036235	0.011827	-0.176131	-0.026522	0.050789	-0.069000
2.74	0.084325	0.027832	-0.036113	0.012615	-0.176393	-0.026018	0.050100	-0.068783
2.75	0.084601	0.027471	-0.035983	0.013385	-0.176651	-0.025520	0.049414	-0.068545
2.76	0.084874	0.027112	-0.035846	0.014138	-0.176904	-0.025029	0.048730	-0.068289
2.77	0.085143	0.026754	-0.035701	0.014873	-0.177152	-0.024545	0.048048	-0.068013
2.78	0.085409	0.026398	-0.035548	0.015589	-0.177395	-0.024068	0.047369	-0.067720
2.79	0.085671	0.026043	-0.035389	0.016288	-0.177633	-0.023598	0.046694	-0.067408
2.80	0.085930	0.025690	-0.035223	0.016969	-0.177867	-0.023134	0.046021	-0.067080
2.81	0.086185	0.025339	-0.035049	0.017632	-0.178096	-0.022678	0.045352	-0.066735
2.82	0.086437	0.024989	-0.034870	0.018277	-0.178320	-0.022227	0.044687	-0.066374
2.83	0.086685	0.024642	-0.034684	0.018904	-0.178540	-0.021784	0.044025	-0.065997
2.84	0.086930	0.024296	-0.034492	0.019513	-0.178756	-0.021347	0.043367	-0.065606
2.85	0.087171	0.023952	-0.034294	0.020104	-0.178967	-0.020916	0.042713	-0.065201
2.86	0.087409	0.023610	-0.034090	0.020677	-0.179174	-0.020493	0.042063	-0.064781
2.87	0.087643	0.023270	-0.033880	0.021232	-0.179377	-0.020075	0.041417	-0.064349
2.88	0.087874	0.022932	-0.033665	0.021770	-0.179576	-0.019664	0.040776	-0.063903
2.89	0.088102	0.022597	-0.033445	0.022289	-0.179770	-0.019260	0.040139	-0.063446
2.90	0.088326	0.022263	-0.033220	0.022791	-0.179961	-0.018861	0.039507	-0.062977
2.91	0.088547	0.021932	-0.032989	0.023275	-0.180148	-0.018470	0.038880	-0.062496
2.92	0.088765	0.021604	-0.032754	0.023742	-0.180330	-0.018084	0.038257	-0.062005
2.93	0.088979	0.021277	-0.032514	0.024192	-0.180509	-0.017704	0.037639	-0.061504
2.94	0.089190	0.020953	-0.032270	0.024624	-0.180685	-0.017331	0.037027	-0.060993
2.95	0.089398	0.020632	-0.032022	0.025038	-0.180856	-0.016964	0.036420	-0.060473
2.96	0.089603	0.020313	-0.031770	0.025436	-0.181024	-0.016603	0.035818	-0.059944
2.97	0.089805	0.019997	-0.031513	0.025817	-0.181188	-0.016247	0.035221	-0.059406
2.98	0.090003	0.019683	-0.031253	0.026181	-0.181349	-0.015898	0.034629	-0.058861
2.99	0.090198	0.019371	-0.030990	0.026528	-0.181506	-0.015555	0.034044	-0.058309

Approved for Public Release

Contrails

η	k_7	k_7'	k_7''	k_7'''	h_9	h_9'	h_9''	h_9'''
3.00	0.090390	0.019063	-0.030723	0.026859	-0.181660	-0.015217	0.033463	-0.057749
3.01	0.090579	0.018757	-0.030453	0.027174	-0.181810	-0.014886	0.032889	-0.057183
3.02	0.090766	0.018454	-0.030179	0.027472	-0.181958	-0.014559	0.032320	-0.056611
3.03	0.090949	0.018153	-0.029903	0.027754	-0.182102	-0.014239	0.031756	-0.056033
3.04	0.091129	0.017856	-0.029624	0.028020	-0.182242	-0.013924	0.031199	-0.055449
3.05	0.091306	0.017561	-0.029343	0.028271	-0.182380	-0.013615	0.030647	-0.054861
3.06	0.091480	0.017269	-0.029059	0.028506	-0.182515	-0.013311	0.030102	-0.054268
3.07	0.091651	0.016980	-0.028773	0.028726	-0.182646	-0.013013	0.029562	-0.053671
3.08	0.091819	0.016694	-0.028485	0.028931	-0.182775	-0.012720	0.029028	-0.053071
3.09	0.091985	0.016410	-0.028194	0.029121	-0.182901	-0.012432	0.028501	-0.052467
3.10	0.092148	0.016130	-0.027902	0.029296	-0.183024	-0.012150	0.027979	-0.051860
3.11	0.092308	0.015852	-0.027608	0.029457	-0.183144	-0.011873	0.027464	-0.051250
3.12	0.092465	0.015577	-0.027313	0.029604	-0.183261	-0.011601	0.026954	-0.050638
3.13	0.092619	0.015306	-0.027016	0.029736	-0.183376	-0.011334	0.026451	-0.050023
3.14	0.092771	0.015037	-0.026718	0.029855	-0.183488	-0.011072	0.025954	-0.049408
3.15	0.092920	0.014771	-0.026419	0.029960	-0.183597	-0.010815	0.025463	-0.048790
3.16	0.093066	0.014509	-0.026119	0.030052	-0.183704	-0.010562	0.024978	-0.048172
3.17	0.093210	0.014249	-0.025818	0.030130	-0.183809	-0.010315	0.024499	-0.047553
3.18	0.093351	0.013992	-0.025517	0.030196	-0.183911	-0.010072	0.024027	-0.046934
3.19	0.093490	0.013739	-0.025214	0.030249	-0.184010	-0.009835	0.023561	-0.046314
3.20	0.093626	0.013488	-0.024912	0.030290	-0.184107	-0.009601	0.023100	-0.045695
3.21	0.093760	0.013241	-0.024609	0.030318	-0.184202	-0.009373	0.022647	-0.045076
3.22	0.093891	0.012996	-0.024305	0.030335	-0.184295	-0.009148	0.022199	-0.044457
3.23	0.094020	0.012754	-0.024002	0.030340	-0.184385	-0.008929	0.021757	-0.043840
3.24	0.094146	0.012516	-0.023699	0.030333	-0.184473	-0.008713	0.021322	-0.043223
3.25	0.094270	0.012280	-0.023395	0.030316	-0.184559	-0.008502	0.020893	-0.042608
3.26	0.094392	0.012048	-0.023092	0.030287	-0.184643	-0.008295	0.020470	-0.041995
3.27	0.094511	0.011819	-0.022790	0.030248	-0.184725	-0.008093	0.020053	-0.041383
3.28	0.094628	0.011592	-0.022488	0.030198	-0.184805	-0.007894	0.019642	-0.040774
3.29	0.094743	0.011369	-0.022186	0.030138	-0.184883	-0.007700	0.019238	-0.040167
3.30	0.094855	0.011148	-0.021885	0.030068	-0.184959	-0.007509	0.018839	-0.039562
3.31	0.094966	0.010931	-0.021584	0.029989	-0.185033	-0.007323	0.018446	-0.038960
3.32	0.095074	0.010717	-0.021285	0.029900	-0.185106	-0.007140	0.018060	-0.038361
3.33	0.095180	0.010505	-0.020987	0.029802	-0.185176	-0.006962	0.017679	-0.037765
3.34	0.095284	0.010297	-0.020689	0.029695	-0.185245	-0.006787	0.017304	-0.037173
3.35	0.095386	0.010092	-0.020393	0.029579	-0.185312	-0.006616	0.016936	-0.036583
3.36	0.095486	0.009889	-0.020097	0.029455	-0.185377	-0.006448	0.016573	-0.035998
3.37	0.095584	0.009690	-0.019804	0.029323	-0.185441	-0.006284	0.016216	-0.035416
3.38	0.095680	0.009493	-0.019511	0.029182	-0.185503	-0.006124	0.015864	-0.034838
3.39	0.095774	0.009299	-0.019220	0.029035	-0.185563	-0.005967	0.015519	-0.034264
3.40	0.095866	0.009109	-0.018930	0.028879	-0.185622	-0.005813	0.015179	-0.033694
3.41	0.095956	0.008921	-0.018642	0.028717	-0.185680	-0.005663	0.014845	-0.033129
3.42	0.096044	0.008736	-0.018356	0.028547	-0.185736	-0.005516	0.014517	-0.032568
3.43	0.096131	0.008554	-0.018071	0.028371	-0.185790	-0.005373	0.014194	-0.032011
3.44	0.096215	0.008374	-0.017789	0.028189	-0.185843	-0.005233	0.013876	-0.031459
3.45	0.096298	0.008198	-0.017508	0.028000	-0.185895	-0.005095	0.013564	-0.030912
3.46	0.096379	0.008024	-0.017229	0.027805	-0.185945	-0.004961	0.013258	-0.030370
3.47	0.096459	0.007853	-0.016952	0.027605	-0.185994	-0.004830	0.012957	-0.029833
3.48	0.096536	0.007685	-0.016677	0.027399	-0.186042	-0.004702	0.012661	-0.029301
3.49	0.096612	0.007520	-0.016404	0.027188	-0.186088	-0.004577	0.012371	-0.028774
3.50	0.096687	0.007357	-0.016133	0.026971	-0.186133	-0.004455	0.012086	-0.028253
3.51	0.096759	0.007197	-0.015864	0.026750	-0.186177	-0.004335	0.011806	-0.027736
3.52	0.096831	0.007040	-0.015598	0.026524	-0.186220	-0.004219	0.011531	-0.027226
3.53	0.096900	0.006885	-0.015334	0.026294	-0.186261	-0.004105	0.011261	-0.026720
3.54	0.096968	0.006733	-0.015072	0.026060	-0.186302	-0.003993	0.010997	-0.026220
3.55	0.097035	0.006584	-0.014813	0.025822	-0.186341	-0.003885	0.010737	-0.025726
3.56	0.097100	0.006437	-0.014556	0.025580	-0.186380	-0.003779	0.010482	-0.025237
3.57	0.097164	0.006293	-0.014301	0.025334	-0.186417	-0.003675	0.010232	-0.024754
3.58	0.097226	0.006151	-0.014049	0.025085	-0.186453	-0.003574	0.009987	-0.024277
3.59	0.097287	0.006012	-0.013799	0.024833	-0.186488	-0.003475	0.009747	-0.023806
3.60	0.097346	0.005875	-0.013552	0.024578	-0.186523	-0.003379	0.009511	-0.023340
3.61	0.097404	0.005741	-0.013308	0.024320	-0.186556	-0.003285	0.009280	-0.022880
3.62	0.097461	0.005609	-0.013066	0.024060	-0.186588	-0.003193	0.009053	-0.022426
3.63	0.097516	0.005479	-0.012827	0.023797	-0.186620	-0.003104	0.008831	-0.021978
3.64	0.097571	0.005352	-0.012590	0.023533	-0.186650	-0.003017	0.008614	-0.021536
3.65	0.097623	0.005227	-0.012356	0.023266	-0.186680	-0.002932	0.008401	-0.021100
3.66	0.097675	0.005105	-0.012125	0.022997	-0.186709	-0.002849	0.008192	-0.020669
3.67	0.097726	0.004985	-0.011896	0.022727	-0.186737	-0.002768	0.007987	-0.020245
3.68	0.097775	0.004867	-0.011670	0.022455	-0.186764	-0.002689	0.007787	-0.019826
3.69	0.097823	0.004752	-0.011447	0.022182	-0.186791	-0.002612	0.007591	-0.019414
3.70	0.097870	0.004638	-0.011226	0.021908	-0.186817	-0.002537	0.007398	-0.019007
3.71	0.097916	0.004527	-0.011009	0.021633	-0.186842	-0.002464	0.007210	-0.018607
3.72	0.097960	0.004418	-0.010794	0.021357	-0.186866	-0.002393	0.007026	-0.018212
3.73	0.098004	0.004311	-0.010582	0.021080	-0.186890	-0.002323	0.006846	-0.017823
3.74	0.098047	0.004206	-0.010372	0.020803	-0.186912	-0.002256	0.006670	-0.017440

Approved for Public Release

Contrails

η	k_7	k_7'	k_7''	k_7'''	h_9	h_9'	h_9''	h_9'''
3.75	0.098088	0.004104	-0.010166	0.020525	-0.186935	-0.002190	0.006497	-0.017063
3.76	0.098129	0.004003	-0.009962	0.020247	-0.186956	-0.002126	0.006329	-0.016692
3.77	0.098168	0.003904	-0.009761	0.019969	-0.186977	-0.002063	0.006163	-0.016327
3.78	0.098207	0.003808	-0.009562	0.019691	-0.186998	-0.002003	0.006002	-0.015967
3.79	0.098244	0.003713	-0.009367	0.019413	-0.187017	-0.001943	0.005844	-0.015614
3.80	0.098281	0.003620	-0.009174	0.019136	-0.187036	-0.001886	0.005690	-0.015266
3.81	0.098317	0.003530	-0.008984	0.018859	-0.187055	-0.001830	0.005539	-0.014924
3.82	0.098352	0.003441	-0.008797	0.018582	-0.187073	-0.001775	0.005391	-0.014587
3.83	0.098386	0.003354	-0.008612	0.018306	-0.187091	-0.001722	0.005247	-0.014257
3.84	0.098419	0.003269	-0.008431	0.018031	-0.187107	-0.001670	0.005106	-0.013931
3.85	0.098451	0.003185	-0.008252	0.017757	-0.187124	-0.001620	0.004968	-0.013612
3.86	0.098482	0.003103	-0.008076	0.017484	-0.187140	-0.001571	0.004834	-0.013298
3.87	0.098513	0.003024	-0.007902	0.017211	-0.187155	-0.001523	0.004702	-0.012990
3.88	0.098543	0.002945	-0.007731	0.016940	-0.187170	-0.001477	0.004574	-0.012687
3.89	0.098572	0.002869	-0.007563	0.016671	-0.187185	-0.001431	0.004449	-0.012389
3.90	0.098600	0.002794	-0.007398	0.016402	-0.187199	-0.001388	0.004326	-0.012097
3.91	0.098628	0.002721	-0.007235	0.016135	-0.187213	-0.001345	0.004207	-0.011810
3.92	0.098655	0.002649	-0.007075	0.015870	-0.187226	-0.001303	0.004090	-0.011529
3.93	0.098681	0.002579	-0.006918	0.015606	-0.187239	-0.001263	0.003976	-0.011252
3.94	0.098706	0.002511	-0.006763	0.015344	-0.187251	-0.001224	0.003865	-0.010981
3.95	0.098731	0.002444	-0.006611	0.015084	-0.187263	-0.001186	0.003756	-0.010715
3.96	0.098755	0.002379	-0.006461	0.014826	-0.187275	-0.001149	0.003651	-0.010454
3.97	0.098779	0.002315	-0.006314	0.014569	-0.187286	-0.001113	0.003547	-0.010198
3.98	0.098802	0.002253	-0.006170	0.014314	-0.187297	-0.001078	0.003447	-0.009948
3.99	0.098824	0.002192	-0.006028	0.014062	-0.187308	-0.001044	0.003348	-0.009702
4.00	0.098845	0.002132	-0.005889	0.013812	-0.187318	-0.001011	0.003253	-0.009461
4.01	0.098866	0.002074	-0.005752	0.013563	-0.187328	-0.000979	0.003159	-0.009224
4.02	0.098887	0.002017	-0.005618	0.013317	-0.187338	-0.000948	0.003068	-0.008993
4.03	0.098907	0.001961	-0.005486	0.013074	-0.187347	-0.000917	0.002979	-0.008766
4.04	0.098926	0.001907	-0.005356	0.012832	-0.187356	-0.000888	0.002893	-0.008544
4.05	0.098945	0.001854	-0.005229	0.012593	-0.187365	-0.000860	0.002808	-0.008326
4.06	0.098963	0.001803	-0.005104	0.012357	-0.187373	-0.000832	0.002726	-0.008113
4.07	0.098981	0.001752	-0.004982	0.012122	-0.187381	-0.000805	0.002646	-0.007904
4.08	0.098998	0.001703	-0.004862	0.011891	-0.187389	-0.000779	0.002568	-0.007700
4.09	0.099015	0.001655	-0.004744	0.011662	-0.187397	-0.000754	0.002492	-0.007500
4.10	0.099031	0.001608	-0.004628	0.011435	-0.187404	-0.000729	0.002418	-0.007304
4.11	0.099047	0.001562	-0.004515	0.011211	-0.187411	-0.000705	0.002346	-0.007113
4.12	0.099063	0.001518	-0.004404	0.010990	-0.187418	-0.000682	0.002276	-0.006925
4.13	0.099078	0.001474	-0.004295	0.010771	-0.187425	-0.000660	0.002207	-0.006742
4.14	0.099092	0.001432	-0.004189	0.010555	-0.187432	-0.000638	0.002141	-0.006563
4.15	0.099106	0.001391	-0.004084	0.010341	-0.187438	-0.000617	0.002076	-0.006388
4.16	0.099120	0.001350	-0.003982	0.010130	-0.187444	-0.000597	0.002013	-0.006216
4.17	0.099133	0.001311	-0.003882	0.009922	-0.187450	-0.000577	0.001952	-0.006049
4.18	0.099146	0.001273	-0.003784	0.009717	-0.187455	-0.000557	0.001892	-0.005885
4.19	0.099159	0.001235	-0.003687	0.009515	-0.187461	-0.000539	0.001834	-0.005725
4.20	0.099171	0.001199	-0.003593	0.009315	-0.187466	-0.000521	0.001778	-0.005569
4.21	0.099183	0.001163	-0.003501	0.009118	-0.187471	-0.000503	0.001723	-0.005416
4.22	0.099194	0.001129	-0.003411	0.008923	-0.187476	-0.000486	0.001669	-0.005267
4.23	0.099205	0.001095	-0.003323	0.008732	-0.187481	-0.000470	0.001617	-0.005121
4.24	0.099216	0.001062	-0.003236	0.008543	-0.187486	-0.000454	0.001567	-0.004979
4.25	0.099226	0.001030	-0.003152	0.008357	-0.187490	-0.000439	0.001518	-0.004840
4.26	0.099237	0.000999	-0.003069	0.008174	-0.187495	-0.000424	0.001470	-0.004704
4.27	0.099246	0.000969	-0.002988	0.007994	-0.187499	-0.000409	0.001424	-0.004572
4.28	0.099256	0.000939	-0.002909	0.007816	-0.187503	-0.000395	0.001379	-0.004443
4.29	0.099265	0.000911	-0.002832	0.007641	-0.187507	-0.000382	0.001335	-0.004317
4.30	0.099274	0.000883	-0.002756	0.007469	-0.187510	-0.000368	0.001292	-0.004193
4.31	0.099283	0.000856	-0.002682	0.007300	-0.187514	-0.000356	0.001251	-0.004074
4.32	0.099291	0.000829	-0.002610	0.007133	-0.187517	-0.000343	0.001211	-0.003956
4.33	0.099299	0.000803	-0.002540	0.006970	-0.187521	-0.000332	0.001172	-0.003842
4.34	0.099307	0.000778	-0.002471	0.006808	-0.187524	-0.000320	0.001134	-0.003731
4.35	0.099315	0.000754	-0.002404	0.006650	-0.187527	-0.000309	0.001097	-0.003622
4.36	0.099322	0.000730	-0.002338	0.006494	-0.187530	-0.000298	0.001062	-0.003517
4.37	0.099330	0.000707	-0.002274	0.006341	-0.187533	-0.000288	0.001027	-0.003414
4.38	0.099337	0.000685	-0.002211	0.006191	-0.187536	-0.000277	0.000993	-0.003313
4.39	0.099343	0.000663	-0.002150	0.006043	-0.187539	-0.000268	0.000961	-0.003215
4.40	0.099350	0.000642	-0.002090	0.005898	-0.187541	-0.000258	0.000929	-0.003120
4.41	0.099356	0.000621	-0.002032	0.005756	-0.187544	-0.000249	0.000898	-0.003027
4.42	0.099362	0.000601	-0.001975	0.005616	-0.187546	-0.000240	0.000868	-0.002936
4.43	0.099368	0.000582	-0.001920	0.005478	-0.187549	-0.000232	0.000839	-0.002848
4.44	0.099374	0.000563	-0.001865	0.005344	-0.187551	-0.000224	0.000811	-0.002762
4.45	0.099379	0.000544	-0.001813	0.005211	-0.187553	-0.000216	0.000784	-0.002679
4.46	0.099385	0.000527	-0.001761	0.005082	-0.187555	-0.000208	0.000758	-0.002597
4.47	0.099390	0.000509	-0.001711	0.004955	-0.187557	-0.000200	0.000732	-0.002518
4.48	0.099395	0.000492	-0.001662	0.004830	-0.187559	-0.000193	0.000707	-0.002441
4.49	0.099400	0.000476	-0.001614	0.004707	-0.187561	-0.000186	0.000683	-0.002366

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Contrails

η	k_7	k_7'	k_7''	k_7'''	h_9	h_9'	h_9''	h_9'''
4.50	0.099405	0.000460	-0.001568	0.004587	-0.187563	-0.000180	0.000660	-0.002293
4.51	0.099409	0.000445	-0.001523	0.004470	-0.187565	-0.000173	0.000638	-0.002222
4.52	0.099413	0.000430	-0.001479	0.004355	-0.187566	-0.000167	0.000616	-0.002153
4.53	0.099418	0.000415	-0.001436	0.004242	-0.187568	-0.000161	0.000594	-0.002086
4.54	0.099422	0.000401	-0.001394	0.004131	-0.187570	-0.000155	0.000574	-0.002021
4.55	0.099426	0.000387	-0.001353	0.004023	-0.187571	-0.000149	0.000554	-0.001958
4.56	0.099429	0.000374	-0.001313	0.003917	-0.187573	-0.000144	0.000535	-0.001896
4.57	0.099433	0.000361	-0.001275	0.003813	-0.187574	-0.000139	0.000516	-0.001836
4.58	0.099437	0.000348	-0.001237	0.003711	-0.187575	-0.000133	0.000498	-0.001778
4.59	0.099440	0.000336	-0.001200	0.003612	-0.187577	-0.000129	0.000481	-0.001721
4.60	0.099443	0.000324	-0.001165	0.003515	-0.187578	-0.000124	0.000464	-0.001666
4.61	0.099447	0.000313	-0.001130	0.003419	-0.187579	-0.000119	0.000447	-0.001613
4.62	0.099450	0.000302	-0.001096	0.003326	-0.187580	-0.000115	0.000431	-0.001561
4.63	0.099453	0.000291	-0.001064	0.003235	-0.187582	-0.000111	0.000416	-0.001511
4.64	0.099455	0.000280	-0.001032	0.003146	-0.187583	-0.000107	0.000401	-0.001462
4.65	0.099458	0.000270	-0.001001	0.003059	-0.187584	-0.000103	0.000387	-0.001414
4.66	0.099461	0.000260	-0.000971	0.002973	-0.187585	-0.000099	0.000373	-0.001368
4.67	0.099463	0.000251	-0.000941	0.002890	-0.187586	-0.000095	0.000359	-0.001323
4.68	0.099466	0.000242	-0.000913	0.002809	-0.187587	-0.000092	0.000346	-0.001280
4.69	0.099468	0.000233	-0.000885	0.002729	-0.187587	-0.000088	0.000334	-0.001238
4.70	0.099471	0.000224	-0.000858	0.002652	-0.187588	-0.000085	0.000322	-0.001197
4.71	0.099473	0.000215	-0.000832	0.002576	-0.187589	-0.000082	0.000310	-0.001157
4.72	0.099475	0.000207	-0 000807	0.002502	-0.187590	-0.000079	0.000298	-0.001119
4.73	0.099477	0.000199	-0.000782	0.002429	-0.187591	-0.000076	0.000287	-0.001082
4.74	0.099479	0.000192	-0.000758	0.002359	-0.187592	-0.000073	0.000277	-0.001045
4.75	0.099481	0.000184	-0.000735	0.002289	-0.187592	-0.000070	0.000267	-0.001010
4.76	0.099483	0.000177	-0.000712	0.002222	-0.187593	-0.000068	0.000257	-0.000976
4.77	0.099484	0.000170	-0.000690	0.002156	-0.187594	-0.000065	0.000247	-0.000943
4.78	0.099486	0.000163	-0.000669	0.002092	-0.187594	-0.000063	0.000238	-0.000911
4.79	0.099488	0.000156	-0.000648	0.002030	-0.187595	-0.000060	0.000229	-0.000880
4.80	0.099489	0.000150	-0.000628	0.001969	-0.187595	-0.000058	0.000220	-0.000850
4.81	0.099491	0.000144	-0.000609	0.001909	-0.187596	-0.000056	0.000212	-0.000821
4.82	0.099492	0.000138	-0.000590	0.001851	-0.187597	-0.000054	0.000204	-0.000793
4.83	0.099493	0.000132	-0.000572	0.001795	-0.187597	-0.000052	0.000196	-0.000766
4.84	0.099495	0.000126	-0.000554	0.001740	-0.187598	-0.000050	0.000188	-0.000739
4.85	0.099496	0.000121	-0.000537	0.001686	-0.187598	-0.000048	0.000181	-0.000714
4.86	0.099497	0.000116	-0.000521	0.001633	-0.187599	-0.000046	0.000174	-0.000689
4.87	0.099498	0.000111	-0.000505	0.001582	-0.187599	-0.000045	0.000167	-0.000665
4.88	0.099499	0.000106	-0.000489	0.001533	-0.187599	-0.000043	0.000161	-0.000642
4.89	0.099500	0.000101	-0.000474	0.001484	-0.187600	-0.000041	0.000155	-0.000620
4.90	0.099501	0.000096	-0.000459	0.001437	-0.187600	-0.000040	0.000148	-0.000598
4.91	0.099502	0.000092	-0.000445	0.001391	-0.187601	-0.000038	0.000143	-0.000577
4.92	0.099503	0.000087	-0.000431	0.001346	-0.187601	-0.000037	0.000137	-0.000556
4.93	0.099504	0.000083	-0.000418	0.001303	-0.187601	-0.000036	0.000131	-0.000537
4.94	0.099505	0.000079	-0.000405	0.001260	-0.187602	-0.000034	0.000126	-0.000518
4.95	0.099505	0.000075	-0.000393	0.001219	-0.187602	-0.000033	0.000121	-0.000500
4.96	0.099506	0.000071	-0.000381	0.001179	-0.187602	-0.000032	0.000116	-0.000482
4.97	0.099507	0.000067	-0.000369	0.001139	-0.187603	-0.000031	0.000111	-0.000465
4.98	0.099508	0.000064	-0.000358	0.001102	-0.187603	-0.000030	0.000107	-0.000448
4.99	0.099508	0.000060	-0.000347	0.001064	-0.187603	-0.000029	0.000102	-0.000432
5.00	0.099509	0.000057	-0.000337	0.001029	-0.187604	-0.000028	0.000098	-0.000416
5.01	0.099509	0.000053	-0.000327	0.000993	-0.187604	-0.000027	0.000094	-0.000402
5.02	0.099510	0.000050	-0.000317	0.000960	-0.187604	-0.000026	0.000090	-0.000387
5.03	0.099510	0.000047	-0.000308	0.000926	-0.187604	-0.000025	0.000086	-0.000373
5.04	0.099511	0.000044	-0.000299	0.000894	-0.187605	-0.000024	0.000083	-0.000359
5.05	0.099511	0.000041	-0.000290	0.000863	-0.187605	-0.000023	0.000079	-0.000347
5.06	0.099512	0.000038	-0.000281	0.000833	-0.187605	-0.000023	0.000076	-0.000334
5.07	0.099512	0.000035	-0.000273	0.000803	-0.187605	-0.000022	0.000073	-0.000322
5.08	0.099512	0.000033	-0.000265	0.000774	-0.187606	-0.000021	0.000069	-0.000310
5.09	0.099513	0.000030	-0.000258	0.000746	-0.187606	-0.000020	0.000066	-0.000299
5.10	0.099513	0.000028	-0.000250	0.000719	-0.187606	-0.000020	0.000063	-0.000287
5.11	0.099513	0.000025	-0.000243	0.000692	-0.187606	-0.000019	0.000061	-0.000277
5.12	0.099513	0.000023	-0.000236	0.000667	-0.187606	-0.000019	0.000058	-0.000267
5.13	0.099514	0.000020	-0.000230	0.000642	-0.187607	-0.000018	0.000055	-0.000257
5.14	0.099514	0.000018	-0.000224	0.000618	-0.187607	-0.000017	0.000053	-0.000247
5.15	0.099514	0.000016	-0.000218	0.000594	-0.187607	-0.000017	0.000050	-0.000239
5.16	0.099514	0.000014	-0.000212	0.000572	-0.187607	-0.000016	0.000048	-0.000229
5.17	0.099514	0.000012	-0.000206	0.000549	-0.187607	-0.000016	0.000046	-0.000221
5.18	0.099514	0.000010	-0.000201	0.000528	-0.187607	-0.000016	0.000043	-0.000213
5.19	0.099514	0.000008	-0.000196	0.000507	-0.187608	-0.000015	0.000041	-0.000205
5.20	0.099515	0.000006	-0.000191	0.000487	-0.187608	-0.000015	0.000039	-0.000197
5.21	0.099515	0.000004	-0.000186	0.000467	-0.187608	-0.000014	0.000038	-0.000190
5.22	0.099515	0.000002	-0.000181	0.000449	-0.187608	-0.000014	0.000036	-0.000183
5.23	0.099515	0.000000	-0.000177	0.000429	-0.187608	-0.000014	0.000034	-0.000177
5.24	0.099515	-0.000002	-0.000173	0.000412	-0.187608	-0.000013	0.000032	-0.000169

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Contrails

η	k_9	k_9'	k_9''	k_9'''	j_9	j_9'	j_9''	j_9'''
0.00	0.000000	0.000000	0.057185	-0.500000	0.000000	0.000000	0.060741	0.000000
0.01	0.000003	0.000547	0.052186	-0.499608	0.000003	0.000607	0.060743	0.000377
0.02	0.000011	0.001044	0.047195	-0.498454	0.000012	0.001215	0.060751	0.001474
0.03	0.000023	0.001491	0.042219	-0.496571	0.000027	0.001822	0.060774	0.003241
0.04	0.000040	0.001888	0.037266	-0.493993	0.000049	0.002430	0.060818	0.005629
0.05	0.000061	0.002236	0.032342	-0.490752	0.000076	0.003039	0.060889	0.008589
0.06	0.000085	0.002535	0.027453	-0.486879	0.000109	0.003648	0.060992	0.012076
0.07	0.000112	0.002785	0.022606	-0.482405	0.000149	0.004259	0.061132	0.016043
0.08	0.000141	0.002987	0.017807	-0.477362	0.000195	0.004871	0.061314	0.020445
0.09	0.000171	0.003142	0.013061	-0.471779	0.000246	0.005485	0.061542	0.025241
0.10	0.000203	0.003249	0.008373	-0.465686	0.000304	0.006102	0.061820	0.030388
0.11	0.000236	0.003309	0.003749	-0.459111	0.000368	0.006722	0.062151	0.035846
0.12	0.000269	0.003324	-0.000808	-0.452083	0.000439	0.007345	0.062538	0.041575
0.13	0.000302	0.003293	-0.005292	-0.444629	0.000515	0.007973	0.062983	0.047538
0.14	0.000335	0.003218	-0.009699	-0.436776	0.000598	0.008605	0.063489	0.053699
0.15	0.000367	0.003100	-0.014026	-0.428551	0.000687	0.009243	0.064058	0.060022
0.16	0.000397	0.002938	-0.018269	-0.419979	0.000783	0.009887	0.064690	0.066474
0.17	0.000425	0.002735	-0.022425	-0.411085	0.000885	0.010537	0.065388	0.073023
0.18	0.000451	0.002490	-0.026490	-0.401893	0.000994	0.011195	0.066151	0.079637
0.19	0.000475	0.002205	-0.030461	-0.392427	0.001109	0.011860	0.066981	0.086287
0.20	0.000495	0.001881	-0.034337	-0.382710	0.001231	0.012534	0.067877	0.092945
0.21	0.000512	0.001519	-0.038115	-0.372764	0.001360	0.013218	0.068839	0.099584
0.22	0.000526	0.001119	-0.041792	-0.362611	0.001495	0.013911	0.069868	0.106178
0.23	0.000535	0.000683	-0.045366	-0.352271	0.001638	0.014615	0.070963	0.112703
0.24	0.000539	0.000212	-0.048837	-0.341766	0.001788	0.015331	0.072122	0.119137
0.25	0.000539	-0.000293	-0.052201	-0.331115	0.001945	0.016058	0.073345	0.125456
0.26	0.000533	-0.000831	-0.055459	-0.320337	0.002109	0.016798	0.074631	0.131642
0.27	0.000522	-0.001402	-0.058608	-0.309450	0.002281	0.017551	0.075977	0.137674
0.28	0.000505	-0.002003	-0.061647	-0.298473	0.002460	0.018318	0.077384	0.143536
0.29	0.000482	-0.002634	-0.064577	-0.287421	0.002647	0.019099	0.078847	0.149209
0.30	0.000452	-0.003294	-0.067396	-0.276313	0.002842	0.019895	0.080367	0.154679
0.31	0.000416	-0.003982	-0.070103	-0.265162	0.003045	0.020706	0.081940	0.159931
0.32	0.000373	-0.004696	-0.072699	-0.253986	0.003256	0.021534	0.083565	0.164951
0.33	0.000322	-0.005436	-0.075183	-0.242799	0.003476	0.022378	0.085239	0.169729
0.34	0.000264	-0.006199	-0.077555	-0.231614	0.003704	0.023239	0.086959	0.174251
0.35	0.000198	-0.006986	-0.079815	-0.220445	0.003941	0.024117	0.088723	0.178509
0.36	0.000124	-0.007795	-0.081964	-0.209305	0.004186	0.025013	0.090528	0.182492
0.37	0.000042	-0.008625	-0.084001	-0.198206	0.004441	0.025928	0.092372	0.186194
0.38	-0.000049	-0.009475	-0.085928	-0.187161	0.004705	0.026861	0.094251	0.189607
0.39	-0.000148	-0.010343	-0.087745	-0.176180	0.004978	0.027813	0.096163	0.192723
0.40	-0.000256	-0.011230	-0.089452	-0.165274	0.005261	0.028784	0.098104	0.195539
0.41	-0.000372	-0.012132	-0.091050	-0.154454	0.005554	0.029775	0.100073	0.198050
0.42	-0.000498	-0.013050	-0.092541	-0.143729	0.005857	0.030786	0.102064	0.200251
0.43	-0.000633	-0.013983	-0.093925	-0.133107	0.006170	0.031816	0.104077	0.202141
0.44	-0.000778	-0.014928	-0.095204	-0.122599	0.006493	0.032867	0.106106	0.203716
0.45	-0.000932	-0.015886	-0.096378	-0.112212	0.006827	0.033939	0.108150	0.204975
0.46	-0.001096	-0.016856	-0.097448	-0.101953	0.007172	0.035030	0.110205	0.205919
0.47	-0.001269	-0.017835	-0.098417	-0.091830	0.007528	0.036143	0.112267	0.206546
0.48	-0.001452	-0.018824	-0.099286	-0.081850	0.007895	0.037276	0.114334	0.206857
0.49	-0.001646	-0.019820	-0.100055	-0.072019	0.008273	0.038429	0.116403	0.206855
0.50	-0.001849	-0.020824	-0.100726	-0.062344	0.008664	0.039604	0.118470	0.206539
0.51	-0.002062	-0.021835	-0.101302	-0.052829	0.009066	0.040799	0.120533	0.205914
0.52	-0.002286	-0.022850	-0.101784	-0.043480	0.009480	0.042014	0.122588	0.204981
0.53	-0.002519	-0.023870	-0.102172	-0.034301	0.009906	0.043251	0.124632	0.203745
0.54	-0.002763	-0.024893	-0.102470	-0.025297	0.010345	0.044507	0.126662	0.202209
0.55	-0.003017	-0.025919	-0.102679	-0.016472	0.010796	0.045784	0.128675	0.200377
0.56	-0.003281	-0.026946	-0.102800	-0.007830	0.011260	0.047080	0.130668	0.198255
0.57	-0.003556	-0.027975	-0.102836	0.000627	0.011738	0.048397	0.132639	0.195847
0.58	-0.003841	-0.029003	-0.102788	0.008894	0.012228	0.049733	0.134584	0.193160
0.59	-0.004136	-0.030030	-0.102659	0.016971	0.012733	0.051089	0.136501	0.190198
0.60	-0.004441	-0.031056	-0.102450	0.024853	0.013250	0.052463	0.138387	0.186969
0.61	-0.004757	-0.032079	-0.102162	0.032540	0.013782	0.053856	0.140240	0.183478
0.62	-0.005083	-0.033099	-0.101799	0.040030	0.014328	0.055268	0.142056	0.179733
0.63	-0.005419	-0.034115	-0.101363	0.047320	0.014887	0.056697	0.143834	0.175741
0.64	-0.005765	-0.035126	-0.100854	0.054410	0.015462	0.058144	0.145570	0.171508
0.65	-0.006122	-0.036132	-0.100275	0.061300	0.016050	0.059608	0.147263	0.167043
0.66	-0.006488	-0.037131	-0.099628	0.067987	0.016654	0.061089	0.148910	0.162353
0.67	-0.006864	-0.038124	-0.098916	0.074472	0.017272	0.062587	0.150509	0.157446
0.68	-0.007250	-0.039109	-0.098140	0.080756	0.017906	0.064099	0.152058	0.152330
0.69	-0.007646	-0.040086	-0.097301	0.086836	0.018554	0.065628	0.153555	0.147013
0.70	-0.008052	-0.041055	-0.096404	0.092715	0.019218	0.067170	0.154998	0.141504
0.71	-0.008467	-0.042014	-0.095448	0.098392	0.019898	0.068727	0.156385	0.135810
0.72	-0.008892	-0.042964	-0.094436	0.103868	0.020593	0.070298	0.157714	0.129940
0.73	-0.009327	-0.043903	-0.093371	0.109143	0.021304	0.071881	0.158983	0.123903
0.74	-0.009770	-0.044831	-0.092254	0.114220	0.022030	0.073477	0.160191	0.117707

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Contrails

η	k_9	k'_9	k''_9	k'''_9	j_9	j'_9	j''_9	j'''_9
0.75	-0.010223	-0.045748	-0.091087	0.119098	0.022773	0.075085	0.161337	0.111361
0.76	-0.010685	-0.046653	-0.089873	0.123779	0.023532	0.076704	0.162418	0.104873
0.77	-0.011156	-0.047545	-0.088613	0.128265	0.024307	0.078333	0.163434	0.098252
0.78	-0.011636	-0.048425	-0.087308	0.132558	0.025099	0.079972	0.164382	0.091507
0.79	-0.012125	-0.049291	-0.085962	0.136658	0.025907	0.081621	0.165263	0.084645
0.80	-0.012622	-0.050144	-0.084576	0.140568	0.026731	0.083277	0.166075	0.077676
0.81	-0.013128	-0.050983	-0.083151	0.144290	0.027572	0.084942	0.166816	0.070609
0.82	-0.013642	-0.051807	-0.081691	0.147826	0.028430	0.086613	0.167487	0.063450
0.83	-0.014164	-0.052616	-0.080195	0.151179	0.029305	0.088291	0.168085	0.056210
0.84	-0.014694	-0.053411	-0.078668	0.154349	0.030196	0.089975	0.168611	0.048896
0.85	-0.015232	-0.054189	-0.077109	0.157340	0.031104	0.091663	0.169063	0.041516
0.86	-0.015778	-0.054953	-0.075521	0.160155	0.032029	0.093356	0.169441	0.034079
0.87	-0.016331	-0.055700	-0.073906	0.162796	0.032971	0.095052	0.169744	0.026593
0.88	-0.016891	-0.056431	-0.072266	0.165265	0.033930	0.096750	0.169973	0.019064
0.89	-0.017459	-0.057145	-0.070602	0.167565	0.034906	0.098451	0.170126	0.011503
0.90	-0.018034	-0.057843	-0.068915	0.169699	0.035899	0.100153	0.170203	0.003915
0.91	-0.018616	-0.058523	-0.067208	0.171670	0.036909	0.101855	0.170204	-0.003692
0.92	-0.019205	-0.059187	-0.065482	0.173481	0.037936	0.103557	0.170129	-0.011309
0.93	-0.019800	-0.059833	-0.063739	0.175135	0.038980	0.105257	0.169978	-0.018930
0.94	-0.020401	-0.060461	-0.061980	0.176634	0.040042	0.106956	0.169750	-0.026548
0.95	-0.021009	-0.061072	-0.060207	0.177981	0.041120	0.108652	0.169447	-0.034155
0.96	-0.021623	-0.061666	-0.058421	0.179180	0.042215	0.110345	0.169067	-0.041746
0.97	-0.022242	-0.062241	-0.056624	0.180234	0.043326	0.112033	0.168612	-0.049312
0.98	-0.022867	-0.062798	-0.054817	0.181146	0.044455	0.113717	0.168081	-0.056848
0.99	-0.023498	-0.063337	-0.053001	0.181918	0.045601	0.115394	0.167475	-0.064347
1.00	-0.024134	-0.063858	-0.051179	0.182555	0.046763	0.117066	0.166794	-0.071803
1.01	-0.024775	-0.064361	-0.049351	0.183059	0.047942	0.118730	0.166039	-0.079210
1.02	-0.025421	-0.064845	-0.047518	0.183433	0.049138	0.120386	0.165210	-0.086562
1.03	-0.026072	-0.065311	-0.045683	0.183681	0.050350	0.122034	0.164308	-0.093853
1.04	-0.026727	-0.065759	-0.043845	0.183805	0.051578	0.123672	0.163333	-0.101079
1.05	-0.027387	-0.066188	-0.042007	0.183809	0.052823	0.125300	0.162287	-0.108233
1.06	-0.028051	-0.066599	-0.040169	0.183697	0.054084	0.126918	0.161169	-0.115310
1.07	-0.028719	-0.066991	-0.038333	0.183470	0.055361	0.128524	0.159981	-0.122305
1.08	-0.029391	-0.067366	-0.036500	0.183133	0.056655	0.130117	0.158723	-0.129214
1.09	-0.030066	-0.067721	-0.034671	0.182688	0.057964	0.131698	0.157397	-0.136032
1.10	-0.030745	-0.068059	-0.032847	0.182139	0.059289	0.133265	0.156003	-0.142754
1.11	-0.031428	-0.068378	-0.031029	0.181488	0.060629	0.134818	0.154542	-0.149376
1.12	-0.032113	-0.068680	-0.029217	0.180740	0.061985	0.136355	0.153016	-0.155894
1.13	-0.032801	-0.068963	-0.027414	0.179896	0.063356	0.137878	0.151425	-0.162304
1.14	-0.033492	-0.069228	-0.025620	0.178960	0.064742	0.139384	0.149770	-0.168602
1.15	-0.034186	-0.069475	-0.023835	0.177935	0.066144	0.140873	0.148053	-0.174784
1.16	-0.034881	-0.069705	-0.022061	0.176824	0.067560	0.142345	0.146275	-0.180847
1.17	-0.035580	-0.069916	-0.020299	0.175630	0.068991	0.143798	0.144436	-0.186789
1.18	-0.036280	-0.070111	-0.018549	0.174355	0.070436	0.145233	0.142539	-0.192604
1.19	-0.036982	-0.070287	-0.016812	0.173004	0.071895	0.146649	0.140585	-0.198292
1.20	-0.037685	-0.070447	-0.015089	0.171578	0.073369	0.148045	0.138574	-0.203848
1.21	-0.038391	-0.070589	-0.013381	0.170081	0.074856	0.149420	0.136508	-0.209271
1.22	-0.039097	-0.070715	-0.011688	0.168515	0.076357	0.150775	0.134389	-0.214558
1.23	-0.039805	-0.070823	-0.010011	0.166883	0.077871	0.152108	0.132217	-0.219706
1.24	-0.040514	-0.070915	-0.008350	0.165188	0.079399	0.153419	0.129995	-0.224713
1.25	-0.041223	-0.070990	-0.006707	0.163433	0.080940	0.154707	0.127724	-0.229578
1.26	-0.041933	-0.071049	-0.005082	0.161620	0.082493	0.155973	0.125404	-0.234298
1.27	-0.042644	-0.071092	-0.003475	0.159752	0.084059	0.157215	0.123038	-0.238872
1.28	-0.043355	-0.071119	-0.001887	0.157831	0.085637	0.158434	0.120627	-0.243299
1.29	-0.044066	-0.071130	-0.000318	0.155860	0.087228	0.159628	0.118173	-0.247576
1.30	-0.044778	-0.071125	0.001230	0.153842	0.088830	0.160797	0.115676	-0.251703
1.31	-0.045489	-0.071105	0.002758	0.151779	0.090444	0.161941	0.113139	-0.255679
1.32	-0.046200	-0.071070	0.004266	0.149673	0.092069	0.163060	0.110563	-0.259502
1.33	-0.046910	-0.071020	0.005752	0.147528	0.093705	0.164152	0.107950	-0.263171
1.34	-0.047620	-0.070955	0.007216	0.145344	0.095351	0.165219	0.105300	-0.266687
1.35	-0.048329	-0.070876	0.008658	0.143125	0.097009	0.166258	0.102616	-0.270048
1.36	-0.049037	-0.070782	0.010078	0.140872	0.098677	0.167271	0.099900	-0.273254
1.37	-0.049745	-0.070674	0.011476	0.138589	0.100354	0.168256	0.097152	-0.276304
1.38	-0.050451	-0.070552	0.012850	0.136277	0.102042	0.169214	0.094374	-0.279199
1.39	-0.051156	-0.070417	0.014201	0.133937	0.103738	0.170143	0.091568	-0.281938
1.40	-0.051859	-0.070268	0.015529	0.131574	0.105444	0.171045	0.088736	-0.284521
1.41	-0.052561	-0.070107	0.016833	0.129187	0.107159	0.171918	0.085879	-0.286949
1.42	-0.053261	-0.069932	0.018112	0.126780	0.108883	0.172762	0.082998	-0.289221
1.43	-0.053960	-0.069744	0.019368	0.124355	0.110614	0.173578	0.080095	-0.291338
1.44	-0.054656	-0.069545	0.020599	0.121912	0.112354	0.174364	0.077171	-0.293301
1.45	-0.055351	-0.069333	0.021806	0.119455	0.114102	0.175121	0.074229	-0.295109
1.46	-0.056043	-0.069109	0.022988	0.116985	0.115856	0.175849	0.071270	-0.296764
1.47	-0.056733	-0.068873	0.024146	0.114503	0.117618	0.176547	0.068294	-0.298267
1.48	-0.057420	-0.068626	0.025279	0.112012	0.119387	0.177215	0.065305	-0.299617
1.49	-0.058105	-0.068367	0.026386	0.109513	0.121163	0.177853	0.062303	-0.300817

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Contrails

η	k_9	k'_9	k''_9	k'''_9	j_9	j'_9	j''_9	j'''_9
1.50	-0.058787	-0.068098	0.027469	0.107007	0.122944	0.178461	0.059289	-0.301867
1.51	-0.059467	-0.067818	0.028526	0.104497	0.124732	0.179038	0.056266	-0.302768
1.52	-0.060144	-0.067528	0.029559	0.101984	0.126525	0.179586	0.053234	-0.303521
1.53	-0.060818	-0.067227	0.030566	0.099470	0.128323	0.180103	0.050196	-0.304128
1.54	-0.061488	-0.066916	0.031548	0.096955	0.130127	0.180590	0.047152	-0.304590
1.55	-0.062156	-0.066596	0.032505	0.094442	0.131935	0.181046	0.044104	-0.304909
1.56	-0.062820	-0.066266	0.033437	0.091932	0.133748	0.181472	0.041054	-0.305085
1.57	-0.063481	-0.065928	0.034344	0.089426	0.135564	0.181867	0.038003	-0.305120
1.58	-0.064139	-0.065580	0.035225	0.086925	0.137385	0.182232	0.034952	-0.305017
1.59	-0.064793	-0.065223	0.036082	0.084431	0.139209	0.182566	0.031903	-0.304776
1.60	-0.065443	-0.064858	0.036914	0.081946	0.141036	0.182870	0.028857	-0.304400
1.61	-0.066090	-0.064485	0.037721	0.079469	0.142866	0.183143	0.025816	-0.303890
1.62	-0.066733	-0.064104	0.038504	0.077003	0.144699	0.183386	0.022780	-0.303248
1.63	-0.067372	-0.063715	0.039261	0.074548	0.146534	0.183599	0.019751	-0.302476
1.64	-0.068007	-0.063319	0.039995	0.072106	0.148371	0.183781	0.016731	-0.301575
1.65	-0.068638	-0.062915	0.040703	0.069677	0.150209	0.183934	0.013720	-0.300549
1.66	-0.069265	-0.062505	0.041388	0.067263	0.152049	0.184056	0.010720	-0.299399
1.67	-0.069888	-0.062087	0.042049	0.064865	0.153890	0.184148	0.007733	-0.298126
1.68	-0.070507	-0.061664	0.042685	0.062483	0.155732	0.184211	0.004758	-0.296734
1.69	-0.071122	-0.061234	0.043298	0.060119	0.157575	0.184243	0.001798	-0.295225
1.70	-0.071732	-0.060798	0.043888	0.057773	0.159417	0.184247	-0.001146	-0.293600
1.71	-0.072338	-0.060356	0.044454	0.055446	0.161259	0.184220	-0.004073	-0.291862
1.72	-0.072939	-0.059909	0.044997	0.053140	0.163101	0.184165	-0.006983	-0.290013
1.73	-0.073536	-0.059456	0.045517	0.050854	0.164943	0.184081	-0.009873	-0.288055
1.74	-0.074128	-0.058999	0.046014	0.048589	0.166783	0.183968	-0.012744	-0.285991
1.75	-0.074716	-0.058536	0.046489	0.046347	0.168622	0.183826	-0.015593	-0.283824
1.76	-0.075299	-0.058069	0.046941	0.044128	0.170459	0.183656	-0.018420	-0.281555
1.77	-0.075877	-0.057597	0.047371	0.041932	0.172295	0.183458	-0.021223	-0.279187
1.78	-0.076451	-0.057121	0.047780	0.039760	0.174128	0.183232	-0.024003	-0.276722
1.79	-0.077019	-0.056642	0.048167	0.037613	0.175959	0.182978	-0.026758	-0.274164
1.80	-0.077583	-0.056158	0.048532	0.035492	0.177788	0.182697	-0.029486	-0.271513
1.81	-0.078143	-0.055671	0.048877	0.033396	0.179613	0.182388	-0.032188	-0.268774
1.82	-0.078697	-0.055181	0.049200	0.031327	0.181435	0.182053	-0.034861	-0.265948
1.83	-0.079246	-0.054687	0.049503	0.029284	0.183254	0.181691	-0.037506	-0.263038
1.84	-0.079791	-0.054191	0.049786	0.027269	0.185069	0.181303	-0.040122	-0.260047
1.85	-0.080330	-0.053692	0.050049	0.025281	0.186880	0.180889	-0.042707	-0.256976
1.86	-0.080864	-0.053190	0.050292	0.023321	0.188687	0.180449	-0.045261	-0.253829
1.87	-0.081394	-0.052686	0.050515	0.021390	0.190489	0.179984	-0.047783	-0.250609
1.88	-0.081918	-0.052180	0.050720	0.019488	0.192286	0.179493	-0.050273	-0.247316
1.89	-0.082437	-0.051671	0.050905	0.017614	0.194079	0.178978	-0.052729	-0.243955
1.90	-0.082952	-0.051162	0.051072	0.015770	0.195866	0.178439	-0.055152	-0.240528
1.91	-0.083461	-0.050650	0.051221	0.013956	0.197648	0.177875	-0.057540	-0.237038
1.92	-0.083965	-0.050137	0.051351	0.012171	0.199423	0.177288	-0.059892	-0.233486
1.93	-0.084463	-0.049623	0.051464	0.010417	0.201193	0.176678	-0.062209	-0.229876
1.94	-0.084957	-0.049108	0.051560	0.008692	0.202957	0.176044	-0.064490	-0.226209
1.95	-0.085446	-0.048592	0.051638	0.006999	0.204714	0.175388	-0.066733	-0.222490
1.96	-0.085929	-0.048075	0.051700	0.005336	0.206465	0.174710	-0.068939	-0.218719
1.97	-0.086407	-0.047558	0.051745	0.003703	0.208208	0.174009	-0.071107	-0.214900
1.98	-0.086880	-0.047040	0.051774	0.002102	0.209945	0.173288	-0.073237	-0.211035
1.99	-0.087348	-0.046523	0.051787	0.000531	0.211674	0.172545	-0.075328	-0.207127
2.00	-0.087810	-0.046005	0.051785	-0.001008	0.213395	0.171781	-0.077380	-0.203178
2.01	-0.088268	-0.045487	0.051767	-0.002516	0.215109	0.170997	-0.079391	-0.199191
2.02	-0.088720	-0.044969	0.051734	-0.003993	0.216815	0.170193	-0.081363	-0.195168
2.03	-0.089167	-0.044452	0.051687	-0.005439	0.218513	0.169370	-0.083295	-0.191111
2.04	-0.089609	-0.043936	0.051626	-0.006854	0.220203	0.168528	-0.085185	-0.187023
2.05	-0.090046	-0.043420	0.051550	-0.008238	0.221884	0.167666	-0.087035	-0.182907
2.06	-0.090478	-0.042905	0.051461	-0.009590	0.223556	0.166787	-0.088843	-0.178765
2.07	-0.090904	-0.042391	0.051358	-0.010912	0.225219	0.165890	-0.090610	-0.174598
2.08	-0.091325	-0.041878	0.051243	-0.012202	0.226874	0.164975	-0.092335	-0.170411
2.09	-0.091742	-0.041366	0.051115	-0.013461	0.228519	0.164043	-0.094018	-0.166204
2.10	-0.092153	-0.040855	0.050974	-0.014690	0.230154	0.163095	-0.095659	-0.161980
2.11	-0.092559	-0.040346	0.050821	-0.015888	0.231781	0.162130	-0.097258	-0.157741
2.12	-0.092960	-0.039839	0.050656	-0.017055	0.233397	0.161150	-0.098814	-0.153490
2.13	-0.093356	-0.039333	0.050480	-0.018191	0.235004	0.160154	-0.100328	-0.149230
2.14	-0.093746	-0.038830	0.050292	-0.019298	0.236600	0.159143	-0.101799	-0.144961
2.15	-0.094132	-0.038328	0.050094	-0.020374	0.238186	0.158118	-0.103227	-0.140686
2.16	-0.094513	-0.037828	0.049885	-0.021420	0.239762	0.157079	-0.104612	-0.136408
2.17	-0.094889	-0.037330	0.049666	-0.022436	0.241328	0.156026	-0.105955	-0.132128
2.18	-0.095260	-0.036834	0.049436	-0.023422	0.242883	0.154960	-0.107255	-0.127849
2.19	-0.095625	-0.036341	0.049197	-0.024379	0.244427	0.153881	-0.108512	-0.123572
2.20	-0.095986	-0.035850	0.048949	-0.025307	0.245960	0.152790	-0.109726	-0.119300
2.21	-0.096342	-0.035362	0.048691	-0.026206	0.247483	0.151687	-0.110898	-0.115035
2.22	-0.096694	-0.034877	0.048425	-0.027075	0.248994	0.150572	-0.112027	-0.110778
2.23	-0.097040	-0.034394	0.048150	-0.027917	0.250494	0.149446	-0.113114	-0.106532
2.24	-0.097382	-0.033914	0.047867	-0.028730	0.251983	0.148310	-0.114158	-0.102298

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Contrails

η	k_9	k'_9	k''_9	k'''_9	j_9	j'_9	j''_9	j'''_9
2.25	-0.097718	-0.033437	0.047575	-0.029515	0.253460	0.147163	-0.115160	-0.098078
2.26	-0.098050	-0.032962	0.047276	-0.030272	0.254926	0.146007	-0.116119	-0.093874
2.27	-0.098378	-0.032491	0.046970	-0.031002	0.256381	0.144841	-0.117037	-0.089688
2.28	-0.098700	-0.032023	0.046656	-0.031704	0.257823	0.143666	-0.117913	-0.085522
2.29	-0.099018	-0.031558	0.046336	-0.032380	0.259254	0.142483	-0.118748	-0.081377
2.30	-0.099331	-0.031096	0.046009	-0.033029	0.260673	0.141291	-0.119541	-0.077254
2.31	-0.099640	-0.030638	0.045676	-0.033651	0.262080	0.140092	-0.120293	-0.073156
2.32	-0.099944	-0.030183	0.045336	-0.034248	0.263475	0.138886	-0.121004	-0.069085
2.33	-0.100244	-0.029731	0.044991	-0.034819	0.264857	0.137672	-0.121675	-0.065040
2.34	-0.100539	-0.029283	0.044640	-0.035364	0.266228	0.136452	-0.122305	-0.061025
2.35	-0.100829	-0.028838	0.044283	-0.035885	0.267586	0.135226	-0.122895	-0.057041
2.36	-0.101115	-0.028397	0.043922	-0.036381	0.268932	0.133995	-0.123446	-0.053089
2.37	-0.101397	-0.027960	0.043556	-0.036852	0.270266	0.132758	-0.123957	-0.049170
2.38	-0.101675	-0.027526	0.043185	-0.037300	0.271588	0.131516	-0.124430	-0.045286
2.39	-0.101948	-0.027096	0.042810	-0.037723	0.272897	0.130269	-0.124863	-0.041438
2.40	-0.102217	-0.026670	0.042431	-0.038124	0.274193	0.129018	-0.125258	-0.037627
2.41	-0.102481	-0.026248	0.042048	-0.038501	0.275477	0.127764	-0.125616	-0.033855
2.42	-0.102742	-0.025829	0.041661	-0.038856	0.276748	0.126506	-0.125936	-0.030123
2.43	-0.102998	-0.025414	0.041271	-0.039189	0.278007	0.125245	-0.126218	-0.026432
2.44	-0.103250	-0.025004	0.040877	-0.039499	0.279253	0.123982	-0.126464	-0.022783
2.45	-0.103498	-0.024597	0.040481	-0.039788	0.280487	0.122716	-0.126674	-0.019177
2.46	-0.103742	-0.024194	0.040081	-0.040056	0.281707	0.121449	-0.126848	-0.015615
2.47	-0.103982	-0.023795	0.039680	-0.040304	0.282916	0.120179	-0.126987	-0.012099
2.48	-0.104218	-0.023400	0.039275	-0.040530	0.284111	0.118909	-0.127090	-0.008628
2.49	-0.104450	-0.023010	0.038869	-0.040737	0.285294	0.117638	-0.127159	-0.005205
2.50	-0.104678	-0.022623	0.038461	-0.040924	0.286464	0.116366	-0.127194	-0.001829
2.51	-0.104902	-0.022240	0.038051	-0.041092	0.287621	0.115094	-0.127196	0.001497
2.52	-0.105123	-0.021862	0.037639	-0.041241	0.288766	0.113822	-0.127165	0.004775
2.53	-0.105340	-0.021488	0.037226	-0.041371	0.289898	0.112551	-0.127101	0.008002
2.54	-0.105553	-0.021118	0.036812	-0.041483	0.291017	0.111280	-0.127005	0.011178
2.55	-0.105762	-0.020751	0.036396	-0.041578	0.292123	0.110011	-0.126877	0.014302
2.56	-0.105968	-0.020390	0.035980	-0.041655	0.293217	0.108743	-0.126719	0.017374
2.57	-0.106170	-0.020032	0.035563	-0.041714	0.294298	0.107477	-0.126530	0.020393
2.58	-0.106368	-0.019678	0.035146	-0.041758	0.295366	0.106212	-0.126311	0.023359
2.59	-0.106563	-0.019329	0.034728	-0.041785	0.296422	0.104950	-0.126063	0.026270
2.60	-0.106755	-0.018984	0.034310	-0.041796	0.297465	0.103691	-0.125786	0.029127
2.61	-0.106943	-0.018643	0.033892	-0.041791	0.298496	0.102435	-0.125481	0.031930
2.62	-0.107128	-0.018306	0.033474	-0.041772	0.299514	0.101182	-0.125148	0.034677
2.63	-0.107309	-0.017973	0.033057	-0.041737	0.300520	0.099932	-0.124787	0.037368
2.64	-0.107487	-0.017645	0.032640	-0.041688	0.301513	0.098686	-0.124400	0.040003
2.65	-0.107662	-0.017320	0.032223	-0.041626	0.302493	0.097444	-0.123988	0.042582
2.66	-0.107834	-0.017000	0.031807	-0.041549	0.303462	0.096206	-0.123549	0.045104
2.67	-0.108002	-0.016684	0.031392	-0.041459	0.304418	0.094973	-0.123086	0.047570
2.68	-0.108167	-0.016372	0.030978	-0.041356	0.305361	0.093745	-0.122598	0.049979
2.69	-0.108329	-0.016065	0.030565	-0.041241	0.306292	0.092521	-0.122086	0.052330
2.70	-0.108489	-0.015761	0.030153	-0.041113	0.307212	0.091303	-0.121551	0.054624
2.71	-0.108645	-0.015462	0.029743	-0.040973	0.308119	0.090090	-0.120994	0.056861
2.72	-0.108798	-0.015166	0.029334	-0.040822	0.309013	0.088883	-0.120414	0.059040
2.73	-0.108948	-0.014875	0.028927	-0.040660	0.309896	0.087682	-0.119813	0.061162
2.74	-0.109095	-0.014588	0.028521	-0.040487	0.310767	0.086487	-0.119191	0.063227
2.75	-0.109240	-0.014305	0.028117	-0.040303	0.311626	0.085298	-0.118549	0.065234
2.76	-0.109381	-0.014025	0.027715	-0.040109	0.312473	0.084116	-0.117887	0.067183
2.77	-0.109520	-0.013750	0.027315	-0.039905	0.313308	0.082941	-0.117206	0.069076
2.78	-0.109656	-0.013479	0.026917	-0.039692	0.314132	0.081772	-0.116506	0.070911
2.79	-0.109790	-0.013212	0.026521	-0.039470	0.314944	0.080611	-0.115787	0.072689
2.80	-0.109921	-0.012949	0.026127	-0.039239	0.315744	0.079456	-0.115052	0.074411
2.81	-0.110049	-0.012689	0.025736	-0.038999	0.316533	0.078310	-0.114299	0.076076
2.82	-0.110175	-0.012434	0.025347	-0.038751	0.317310	0.077170	-0.113531	0.077685
2.83	-0.110298	-0.012182	0.024961	-0.038495	0.318076	0.076039	-0.112746	0.079237
2.84	-0.110418	-0.011935	0.024578	-0.038232	0.318831	0.074916	-0.111946	0.080734
2.85	-0.110536	-0.011691	0.024197	-0.037961	0.319575	0.073800	-0.111131	0.082175
2.86	-0.110652	-0.011451	0.023818	-0.037684	0.320307	0.072693	-0.110303	0.083562
2.87	-0.110765	-0.011214	0.023443	-0.037399	0.321029	0.071594	-0.109460	0.084893
2.88	-0.110876	-0.010982	0.023070	-0.037109	0.321739	0.070504	-0.108605	0.086170
2.89	-0.110985	-0.010753	0.022701	-0.036812	0.322439	0.069422	-0.107737	0.087393
2.90	-0.111091	-0.010528	0.022334	-0.036510	0.323128	0.068349	-0.106857	0.088563
2.91	-0.111196	-0.010306	0.021971	-0.036201	0.323806	0.067285	-0.105966	0.089679
2.92	-0.111298	-0.010088	0.021610	-0.035888	0.324473	0.066230	-0.105064	0.090743
2.93	-0.111397	-0.009874	0.021253	-0.035570	0.325130	0.065184	-0.104151	0.091755
2.94	-0.111495	-0.009663	0.020899	-0.035247	0.325777	0.064147	-0.103229	0.092715
2.95	-0.111591	-0.009456	0.020548	-0.034920	0.326413	0.063119	-0.102297	0.093625
2.96	-0.111684	-0.009252	0.020200	-0.034588	0.327039	0.062101	-0.101357	0.094483
2.97	-0.111776	-0.009052	0.019856	-0.034252	0.327655	0.061092	-0.100408	0.095292
2.98	-0.111865	-0.008855	0.019515	-0.033913	0.328261	0.060093	-0.099451	0.096051
2.99	-0.111953	-0.008662	0.019178	-0.033571	0.328857	0.059103	-0.098487	0.096762

Approved for Public Release

Contrails

η	k_9	k_9'	k_9''	k_9'''	j_9	j_9'	j_9''	j_9'''
3.00	-0.112038	-0.008472	0.018844	-0.033225	0.329443	0.058123	-0.097516	0.097424
3.01	-0.112122	-0.008285	0.018513	-0.032876	0.330020	0.057153	-0.096539	0.098039
3.02	-0.112204	-0.008101	0.018186	-0.032525	0.330586	0.056192	-0.095555	0.098607
3.03	-0.112284	-0.007921	0.017863	-0.032171	0.331144	0.055242	-0.094567	0.099129
3.04	-0.112363	-0.007744	0.017543	-0.031814	0.331691	0.054301	-0.093573	0.099605
3.05	-0.112439	-0.007570	0.017227	-0.031456	0.332230	0.053370	-0.092575	0.100037
3.06	-0.112514	-0.007400	0.016914	-0.031096	0.332759	0.052449	-0.091572	0.100424
3.07	-0.112587	-0.007232	0.016605	-0.030734	0.333279	0.051539	-0.090566	0.100767
3.08	-0.112659	-0.007068	0.016299	-0.030371	0.333790	0.050638	-0.089557	0.101068
3.09	-0.112729	-0.006906	0.015997	-0.030006	0.334292	0.049748	-0.088545	0.101327
3.10	-0.112797	-0.006748	0.015699	-0.029641	0.334785	0.048867	-0.087531	0.101544
3.11	-0.112864	-0.006592	0.015404	-0.029274	0.335269	0.047997	-0.086514	0.101721
3.12	-0.112929	-0.006439	0.015114	-0.028907	0.335745	0.047137	-0.085496	0.101858
3.13	-0.112992	-0.006290	0.014826	-0.028540	0.336212	0.046287	-0.084477	0.101956
3.14	-0.113054	-0.006143	0.014543	-0.028172	0.336670	0.045447	-0.083457	0.102015
3.15	-0.113115	-0.005999	0.014263	-0.027804	0.337121	0.044618	-0.082437	0.102037
3.16	-0.113174	-0.005858	0.013987	-0.027436	0.337563	0.043799	-0.081417	0.102022
3.17	-0.113232	-0.005719	0.013714	-0.027068	0.337997	0.042990	-0.080397	0.101972
3.18	-0.113289	-0.005583	0.013445	-0.026701	0.338423	0.042191	-0.079377	0.101885
3.19	-0.113344	-0.005450	0.013180	-0.026334	0.338841	0.041402	-0.078359	0.101765
3.20	-0.113398	-0.005320	0.012919	-0.025967	0.339251	0.040624	-0.077342	0.101610
3.21	-0.113450	-0.005192	0.012661	-0.025602	0.339653	0.039855	-0.076327	0.101423
3.22	-0.113502	-0.005067	0.012407	-0.025237	0.340048	0.039097	-0.075314	0.101203
3.23	-0.113552	-0.004944	0.012156	-0.024873	0.340435	0.038349	-0.074303	0.100952
3.24	-0.113601	-0.004823	0.011909	-0.024511	0.340815	0.037611	-0.073295	0.100671
3.25	-0.113648	-0.004706	0.011666	-0.024150	0.341187	0.036883	-0.072290	0.100359
3.26	-0.113695	-0.004590	0.011426	-0.023790	0.341552	0.036165	-0.071288	0.100019
3.27	-0.113740	-0.004477	0.011190	-0.023432	0.341911	0.035457	-0.070290	0.099651
3.28	-0.113784	-0.004366	0.010958	-0.023075	0.342262	0.034759	-0.069295	0.099255
3.29	-0.113827	-0.004258	0.010729	-0.022721	0.342606	0.034071	-0.068305	0.098832
3.30	-0.113869	-0.004152	0.010503	-0.022368	0.342943	0.033393	-0.067318	0.098383
3.31	-0.113910	-0.004048	0.010281	-0.022017	0.343274	0.032725	-0.066337	0.097910
3.32	-0.113950	-0.003946	0.010063	-0.021668	0.343598	0.032066	-0.065360	0.097412
3.33	-0.113989	-0.003846	0.009848	-0.021322	0.343915	0.031418	-0.064389	0.096890
3.34	-0.114027	-0.003749	0.009636	-0.020977	0.344226	0.030779	-0.063423	0.096346
3.35	-0.114064	-0.003654	0.009428	-0.020635	0.344531	0.030149	-0.062462	0.095779
3.36	-0.114100	-0.003560	0.009224	-0.020296	0.344829	0.029529	-0.061507	0.095192
3.37	-0.114136	-0.003469	0.009022	-0.019959	0.345121	0.028919	-0.060558	0.094584
3.38	-0.114170	-0.003380	0.008824	-0.019624	0.345407	0.028318	-0.059615	0.093955
3.39	-0.114203	-0.003293	0.008630	-0.019292	0.345688	0.027727	-0.058679	0.093308
3.40	-0.114236	-0.003207	0.008439	-0.018963	0.345962	0.027145	-0.057749	0.092643
3.41	-0.114267	-0.003124	0.008251	-0.018637	0.346231	0.026572	-0.056826	0.091960
3.42	-0.114298	-0.003042	0.008066	-0.018314	0.346493	0.026008	-0.055910	0.091260
3.43	-0.114328	-0.002963	0.007884	-0.017993	0.346751	0.025454	-0.055001	0.090544
3.44	-0.114357	-0.002885	0.007706	-0.017676	0.347003	0.024908	-0.054099	0.089812
3.45	-0.114386	-0.002809	0.007531	-0.017361	0.347249	0.024372	-0.053205	0.089066
3.46	-0.114414	-0.002734	0.007359	-0.017050	0.347490	0.023844	-0.052318	0.088305
3.47	-0.114441	-0.002661	0.007190	-0.016742	0.347726	0.023325	-0.051439	0.087531
3.48	-0.114467	-0.002590	0.007024	-0.016437	0.347957	0.022815	-0.050568	0.086745
3.49	-0.114492	-0.002521	0.006861	-0.016135	0.348182	0.022314	-0.049704	0.085946
3.50	-0.114517	-0.002453	0.006701	-0.015836	0.348403	0.021821	-0.048849	0.085136
3.51	-0.114541	-0.002387	0.006544	-0.015541	0.348619	0.021337	-0.048001	0.084315
3.52	-0.114565	-0.002322	0.006390	-0.015249	0.348830	0.020861	-0.047162	0.083483
3.53	-0.114588	-0.002259	0.006239	-0.014960	0.349036	0.020393	-0.046332	0.082643
3.54	-0.114610	-0.002197	0.006091	-0.014674	0.349238	0.019934	-0.045510	0.081793
3.55	-0.114632	-0.002137	0.005946	-0.014392	0.349435	0.019483	-0.044696	0.080935
3.56	-0.114653	-0.002078	0.005803	-0.014114	0.349627	0.019040	-0.043891	0.080070
3.57	-0.114673	-0.002021	0.005664	-0.013839	0.349815	0.018605	-0.043095	0.079197
3.58	-0.114693	-0.001965	0.005526	-0.013567	0.349999	0.018178	-0.042307	0.078317
3.59	-0.114713	-0.001911	0.005392	-0.013299	0.350179	0.017759	-0.041528	0.077432
3.60	-0.114732	-0.001857	0.005260	-0.013034	0.350355	0.017348	-0.040758	0.076541
3.61	-0.114750	-0.001805	0.005131	-0.012773	0.350526	0.016944	-0.039997	0.075645
3.62	-0.114768	-0.001755	0.005005	-0.012515	0.350693	0.016548	-0.039246	0.074745
3.63	-0.114785	-0.001705	0.004881	-0.012261	0.350857	0.016159	-0.038503	0.073841
3.64	-0.114802	-0.001657	0.004760	-0.012010	0.351017	0.015778	-0.037769	0.072934
3.65	-0.114818	-0.001610	0.004641	-0.011763	0.351173	0.015404	-0.037044	0.072024
3.66	-0.114834	-0.001564	0.004525	-0.011519	0.351325	0.015037	-0.036328	0.071111
3.67	-0.114849	-0.001520	0.004411	-0.011279	0.351473	0.014677	-0.035622	0.070197
3.68	-0.114864	-0.001476	0.004299	-0.011042	0.351618	0.014324	-0.034924	0.069281
3.69	-0.114879	-0.001434	0.004190	-0.010809	0.351760	0.013979	-0.034236	0.068364
3.70	-0.114893	-0.001392	0.004083	-0.010579	0.351898	0.013640	-0.033557	0.067446
3.71	-0.114907	-0.001352	0.003978	-0.010353	0.352033	0.013307	-0.032887	0.066529
3.72	-0.114920	-0.001313	0.003876	-0.010130	0.352164	0.012982	-0.032226	0.065612
3.73	-0.114933	-0.001274	0.003775	-0.009911	0.352292	0.012663	-0.031575	0.064695
3.74	-0.114946	-0.001237	0.003677	-0.009695	0.352417	0.012350	-0.030933	0.063780

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Contrails

η	k_9	k'_9	k''_9	k'''_9	j_9	j'_9	j''_9	j'''_9
3.75	-0.114958	-0.001201	0.003582	-0.009482	0.352539	0.012044	-0.030299	0.062866
3.76	-0.114970	-0.001165	0.003488	-0.009273	0.352658	0.011744	-0.029675	0.061954
3.77	-0.114981	-0.001131	0.003396	-0.009067	0.352774	0.011451	-0.029060	0.061044
3.78	-0.114992	-0.001098	0.003306	-0.008865	0.352887	0.011163	-0.028454	0.060137
3.79	-0.115003	-0.001065	0.003219	-0.008666	0.352998	0.010882	-0.027857	0.059233
3.80	-0.115014	-0.001033	0.003133	-0.008471	0.353105	0.010606	-0.027270	0.058332
3.81	-0.115024	-0.001002	0.003049	-0.008278	0.353210	0.010336	-0.026691	0.057435
3.82	-0.115034	-0.000972	0.002968	-0.008090	0.353312	0.010072	-0.026121	0.056541
3.83	-0.115043	-0.000943	0.002888	-0.007904	0.353411	0.009814	-0.025560	0.055652
3.84	-0.115052	-0.000914	0.002809	-0.007721	0.353508	0.009561	-0.025008	0.054767
3.85	-0.115061	-0.000887	0.002733	-0.007542	0.353602	0.009313	-0.024465	0.053887
3.86	-0.115070	-0.000860	0.002659	-0.007366	0.353694	0.009072	-0.023930	0.053013
3.87	-0.115079	-0.000834	0.002586	-0.007193	0.353784	0.008835	-0.023404	0.052143
3.88	-0.115087	-0.000808	0.002515	-0.007024	0.353871	0.008603	-0.022887	0.051279
3.89	-0.115095	-0.000783	0.002445	-0.006857	0.353956	0.008377	-0.022379	0.050421
3.90	-0.115103	-0.000759	0.002378	-0.006694	0.354039	0.008156	-0.021879	0.049569
3.91	-0.115110	-0.000736	0.002311	-0.006533	0.354119	0.007939	-0.021387	0.048723
3.92	-0.115117	-0.000713	0.002247	-0.006376	0.354197	0.007728	-0.020904	0.047883
3.93	-0.115124	-0.000691	0.002184	-0.006221	0.354274	0.007521	-0.020430	0.047050
3.94	-0.115131	-0.000669	0.002122	-0.006070	0.354348	0.007319	-0.019963	0.046224
3.95	-0.115138	-0.000648	0.002062	-0.005921	0.354420	0.007122	-0.019505	0.045405
3.96	-0.115144	-0.000628	0.002004	-0.005776	0.354490	0.006929	-0.019055	0.044593
3.97	-0.115150	-0.000608	0.001947	-0.005633	0.354559	0.006741	-0.018613	0.043789
3.98	-0.115156	-0.000589	0.001891	-0.005493	0.354625	0.006557	-0.018179	0.042992
3.99	-0.115162	-0.000570	0.001837	-0.005356	0.354690	0.006377	-0.017753	0.042203
4.00	-0.115168	-0.000552	0.001784	-0.005221	0.354753	0.006202	-0.017335	0.041421
4.01	-0.115173	-0.000535	0.001733	-0.005090	0.354814	0.006031	-0.016925	0.040648
4.02	-0.115178	-0.000518	0.001682	-0.004961	0.354873	0.005863	-0.016522	0.039882
4.03	-0.115183	-0.000501	0.001633	-0.004835	0.354931	0.005700	-0.016127	0.039125
4.04	-0.115188	-0.000485	0.001586	-0.004711	0.354987	0.005541	-0.015740	0.038376
4.05	-0.115193	-0.000469	0.001539	-0.004590	0.355042	0.005385	-0.015360	0.037635
4.06	-0.115198	-0.000454	0.001494	-0.004471	0.355095	0.005234	-0.014987	0.036903
4.07	-0.115202	-0.000439	0.001450	-0.004355	0.355147	0.005086	-0.014622	0.036179
4.08	-0.115206	-0.000425	0.001407	-0.004242	0.355197	0.004941	-0.014263	0.035464
4.09	-0.115211	-0.000411	0.001365	-0.004131	0.355245	0.004800	-0.013912	0.034757
4.10	-0.115215	-0.000398	0.001324	-0.004022	0.355293	0.004663	-0.013568	0.034060
4.11	-0.115219	-0.000385	0.001284	-0.003916	0.355339	0.004529	-0.013231	0.033371
4.12	-0.115222	-0.000372	0.001246	-0.003812	0.355383	0.004398	-0.012901	0.032691
4.13	-0.115226	-0.000360	0.001208	-0.003710	0.355427	0.004271	-0.012577	0.032020
4.14	-0.115230	-0.000348	0.001172	-0.003610	0.355469	0.004147	-0.012260	0.031358
4.15	-0.115233	-0.000336	0.001136	-0.003513	0.355510	0.004026	-0.011950	0.030704
4.16	-0.115236	-0.000325	0.001101	-0.003418	0.355549	0.003908	-0.011646	0.030060
4.17	-0.115240	-0.000314	0.001068	-0.003326	0.355588	0.003793	-0.011349	0.029425
4.18	-0.115243	-0.000304	0.001035	-0.003235	0.355625	0.003681	-0.011058	0.028798
4.19	-0.115246	-0.000294	0.001003	-0.003146	0.355661	0.003571	-0.010773	0.028181
4.20	-0.115248	-0.000284	0.000972	-0.003060	0.355697	0.003465	-0.010494	0.027573
4.21	-0.115251	-0.000274	0.000942	-0.002975	0.355731	0.003362	-0.010221	0.026973
4.22	-0.115254	-0.000265	0.000912	-0.002893	0.355764	0.003261	-0.009955	0.026383
4.23	-0.115257	-0.000256	0.000884	-0.002812	0.355796	0.003162	-0.009694	0.025802
4.24	-0.115259	-0.000247	0.000856	-0.002733	0.355827	0.003067	-0.009439	0.025230
4.25	-0.115262	-0.000239	0.000829	-0.002656	0.355857	0.002974	-0.009189	0.024666
4.26	-0.115264	-0.000231	0.000803	-0.002581	0.355887	0.002883	-0.008945	0.024112
4.27	-0.115266	-0.000223	0.000778	-0.002508	0.355915	0.002795	-0.008707	0.023567
4.28	-0.115268	-0.000215	0.000753	-0.002437	0.355943	0.002709	-0.008474	0.023030
4.29	-0.115270	-0.000208	0.000729	-0.002367	0.355969	0.002625	-0.008246	0.022502
4.30	-0.115272	-0.000201	0.000706	-0.002299	0.355995	0.002544	-0.008024	0.021983
4.31	-0.115274	-0.000194	0.000683	-0.002233	0.356020	0.002465	-0.007806	0.021473
4.32	-0.115276	-0.000187	0.000661	-0.002168	0.356044	0.002388	-0.007594	0.020972
4.33	-0.115278	-0.000180	0.000639	-0.002106	0.356068	0.002313	-0.007387	0.020478
4.34	-0.115280	-0.000174	0.000619	-0.002044	0.356091	0.002240	-0.007185	0.019994
4.35	-0.115282	-0.000168	0.000599	-0.001984	0.356113	0.002169	-0.006987	0.019518
4.36	-0.115283	-0.000162	0.000579	-0.001926	0.356134	0.002100	-0.006794	0.019051
4.37	-0.115285	-0.000156	0.000560	-0.001869	0.356155	0.002033	-0.006606	0.018592
4.38	-0.115286	-0.000151	0.000542	-0.001814	0.356175	0.001968	-0.006422	0.018141
4.39	-0.115288	-0.000146	0.000524	-0.001760	0.356194	0.001905	-0.006243	0.017699
4.40	-0.115289	-0.000140	0.000506	-0.001707	0.356213	0.001843	-0.006068	0.017265
4.41	-0.115291	-0.000135	0.000490	-0.001656	0.356231	0.001783	-0.005898	0.016838
4.42	-0.115292	-0.000131	0.000473	-0.001606	0.356248	0.001725	-0.005732	0.016421
4.43	-0.115293	-0.000126	0.000458	-0.001558	0.356265	0.001669	-0.005569	0.016010
4.44	-0.115295	-0.000122	0.000442	-0.001511	0.356282	0.001614	-0.005411	0.015609
4.45	-0.115296	-0.000117	0.000427	-0.001465	0.356298	0.001560	-0.005257	0.015214
4.46	-0.115297	-0.000113	0.000413	-0.001420	0.356313	0.001509	-0.005107	0.014827
4.47	-0.115298	-0.000109	0.000399	-0.001376	0.356328	0.001458	-0.004961	0.014448
4.48	-0.115299	-0.000105	0.000385	-0.001334	0.356342	0.001409	-0.004818	0.014077
4.49	-0.115300	-0.000101	0.000372	-0.001293	0.356356	0.001362	-0.004679	0.013713

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Contrails

η	k_9	k'_9	k''_9	k'''_9	j_9	j'_9	j''_9	j'''_9
4.50	-0.115301	-0.000098	0.000359	-0.001253	0.356369	0.001316	-0.004544	0.013356
4.51	-0.115302	-0.000094	0.000347	-0.001214	0.356382	0.001271	-0.004412	0.013006
4.52	-0.115303	-0.000091	0.000335	-0.001176	0.356395	0.001228	-0.004284	0.012665
4.53	-0.115304	-0.000087	0.000324	-0.001139	0.356407	0.001185	-0.004159	0.012329
4.54	-0.115305	-0.000084	0.000312	-0.001103	0.356419	0.001144	-0.004037	0.012002
4.55	-0.115306	-0.000081	0.000302	-0.001068	0.356430	0.001105	-0.003919	0.011680
4.56	-0.115306	-0.000078	0.000291	-0.001035	0.356441	0.001066	-0.003803	0.011366
4.57	-0.115307	-0.000075	0.000281	-0.001002	0.356451	0.001029	-0.003691	0.011058
4.58	-0.115308	-0.000072	0.000271	-0.000970	0.356461	0.000992	-0.003582	0.010757
4.59	-0.115309	-0.000070	0.000261	-0.000939	0.356471	0.000957	-0.003476	0.010462
4.60	-0.115309	-0.000067	0.000252	-0.000909	0.356480	0.000923	-0.003373	0.010175
4.61	-0.115310	-0.000065	0.000243	-0.000879	0.356489	0.000889	-0.003273	0.009893
4.62	-0.115311	-0.000062	0.000235	-0.000851	0.356498	0.000857	-0.003175	0.009618
4.63	-0.115311	-0.000060	0.000226	-0.000823	0.356507	0.000826	-0.003080	0.009348
4.64	-0.115312	-0.000058	0.000218	-0.000796	0.356515	0.000796	-0.002988	0.009085
4.65	-0.115312	-0.000056	0.000210	-0.000770	0.356523	0.000766	-0.002898	0.008827
4.66	-0.115313	-0.000054	0.000203	-0.000745	0.356530	0.000738	-0.002812	0.008577
4.67	-0.115313	-0.000052	0.000195	-0.000721	0.356537	0.000710	-0.002727	0.008330
4.68	-0.115314	-0.000050	0.000188	-0.000697	0.356544	0.000683	-0.002645	0.008091
4.69	-0.115314	-0.000048	0.000181	-0.000674	0.356551	0.000657	-0.002565	0.007856
4.70	-0.115315	-0.000046	0.000175	-0.000651	0.356557	0.000632	-0.002488	0.007628
4.71	-0.115315	-0.000044	0.000168	-0.000630	0.356564	0.000607	-0.002413	0.007403
4.72	-0.115316	-0.000043	0.000162	-0.000609	0.356570	0.000584	-0.002340	0.007186
4.73	-0.115316	-0.000041	0.000156	-0.000588	0.356575	0.000560	-0.002269	0.006972
4.74	-0.115317	-0.000040	0.000150	-0.000569	0.356581	0.000538	-0.002200	0.006765
4.75	-0.115317	-0.000038	0.000145	-0.000549	0.356586	0.000516	-0.002133	0.006561
4.76	-0.115317	-0.000037	0.000140	-0.000531	0.356591	0.000495	-0.002069	0.006364
4.77	-0.115318	-0.000035	0.000134	-0.000513	0.356596	0.000475	-0.002006	0.006170
4.78	-0.115318	-0.000034	0.000129	-0.000495	0.356601	0.000455	-0.001946	0.005982
4.79	-0.115318	-0.000033	0.000124	-0.000478	0.356605	0.000436	-0.001887	0.005797
4.80	-0.115319	-0.000032	0.000120	-0.000462	0.356609	0.000418	-0.001830	0.005619
4.81	-0.115319	-0.000030	0.000115	-0.000446	0.356613	0.000400	-0.001774	0.005443
4.82	-0.115319	-0.000029	0.000111	-0.000431	0.356617	0.000382	-0.001721	0.005274
4.83	-0.115320	-0.000028	0.000107	-0.000416	0.356621	0.000365	-0.001669	0.005106
4.84	-0.115320	-0.000027	0.000102	-0.000401	0.356625	0.000349	-0.001619	0.004945
4.85	-0.115320	-0.000026	0.000099	-0.000387	0.356628	0.000333	-0.001570	0.004786
4.86	-0.115320	-0.000025	0.000095	-0.000374	0.356631	0.000317	-0.001523	0.004633
4.87	-0.115321	-0.000024	0.000091	-0.000361	0.356634	0.000302	-0.001477	0.004482
4.88	-0.115321	-0.000023	0.000087	-0.000348	0.356637	0.000288	-0.001433	0.004337
4.89	-0.115321	-0.000022	0.000084	-0.000336	0.356640	0.000274	-0.001390	0.004194
4.90	-0.115321	-0.000022	0.000081	-0.000324	0.356643	0.000260	-0.001349	0.004056
4.91	-0.115322	-0.000021	0.000078	-0.000313	0.356645	0.000247	-0.001309	0.003920
4.92	-0.115322	-0.000020	0.000074	-0.000301	0.356648	0.000234	-0.001271	0.003790
4.93	-0.115322	-0.000019	0.000072	-0.000291	0.356650	0.000221	-0.001233	0.003660
4.94	-0.115322	-0.000019	0.000069	-0.000280	0.356652	0.000209	-0.001198	0.003537
4.95	-0.115322	-0.000018	0.000066	-0.000270	0.356654	0.000197	-0.001163	0.003414
4.96	-0.115323	-0.000017	0.000063	-0.000261	0.356656	0.000186	-0.001129	0.003298
4.97	-0.115323	-0.000017	0.000061	-0.000251	0.356658	0.000175	-0.001097	0.003181
4.98	-0.115323	-0.000016	0.000058	-0.000242	0.356660	0.000164	-0.001066	0.003071
4.99	-0.115323	-0.000016	0.000056	-0.000234	0.356661	0.000153	-0.001035	0.002960
5.00	-0.115323	-0.000015	0.000054	-0.000225	0.356663	0.000143	-0.001006	0.002856
5.01	-0.115323	-0.000014	0.000051	-0.000217	0.356664	0.000133	-0.000978	0.002750
5.02	-0.115323	-0.000014	0.000049	-0.000209	0.356665	0.000124	-0.000951	0.002652
5.03	-0.115324	-0.000013	0.000047	-0.000201	0.356666	0.000114	-0.000925	0.002552
5.04	-0.115324	-0.000013	0.000045	-0.000194	0.356668	0.000105	-0.000900	0.002460
5.05	-0.115324	-0.000013	0.000043	-0.000187	0.356669	0.000096	-0.000876	0.002365
5.06	-0.115324	-0.000012	0.000041	-0.000180	0.356670	0.000088	-0.000853	0.002278
5.07	-0.115324	-0.000012	0.000040	-0.000173	0.356670	0.000079	-0.000830	0.002187
5.08	-0.115324	-0.000011	0.000038	-0.000167	0.356671	0.000071	-0.000809	0.002105
5.09	-0.115324	-0.000011	0.000036	-0.000161	0.356672	0.000063	-0.000788	0.002020
5.10	-0.115324	-0.000011	0.000035	-0.000155	0.356672	0.000055	-0.000769	0.001942
5.11	-0.115325	-0.000010	0.000033	-0.000149	0.356673	0.000048	-0.000750	0.001861
5.12	-0.115325	-0.000010	0.000032	-0.000143	0.356673	0.000040	-0.000732	0.001788
5.13	-0.115325	-0.000010	0.000030	-0.000138	0.356674	0.000033	-0.000714	0.001711
5.14	-0.115325	-0.000009	0.000029	-0.000133	0.356674	0.000026	-0.000697	0.001643
5.15	-0.115325	-0.000009	0.000028	-0.000128	0.356674	0.000019	-0.000681	0.001569
5.16	-0.115325	-0.000009	0.000026	-0.000123	0.356674	0.000012	-0.000666	0.001505
5.17	-0.115325	-0.000009	0.000025	-0.000119	0.356674	0.000006	-0.000651	0.001435
5.18	-0.115325	-0.000008	0.000024	-0.000114	0.356674	-0.000001	-0.000637	0.001375
5.19	-0.115325	-0.000008	0.000023	-0.000110	0.356674	-0.000007	-0.000623	0.001308
5.20	-0.115325	-0.000008	0.000022	-0.000105	0.356674	-0.000013	-0.000611	0.001252
5.21	-0.115325	-0.000008	0.000021	-0.000102	0.356674	-0.000019	-0.000598	0.001189
5.22	-0.115325	-0.000007	0.000020	-0.000098	0.356674	-0.000025	-0.000587	0.001136
5.23	-0.115326	-0.000007	0.000019	-0.000094	0.356674	-0.000031	-0.000576	0.001075
5.24	-0.115326	-0.000007	0.000018	-0.000090	0.356673	-0.000037	-0.000566	0.001026

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Contrails

η	q_9	q_9'	q_9''	q_9'''	k_{11}	k_{11}'	k_{11}''	k_{11}'''
0.00	0.000000	0.000000	-0.030787	0.000000	0.000000	0.000000	0.074200	-1.000000
0.01	-0.000002	-0.000308	-0.030787	0.000002	0.000004	0.000692	0.064203	-0.999077
0.02	-0.000006	-0.000616	-0.030786	0.000008	0.000014	0.001284	0.054224	-0.996365
0.03	-0.000014	-0.000924	-0.030786	0.000014	0.000029	0.001777	0.044281	-0.991948
0.04	-0.000025	-0.001231	-0.030786	0.000020	0.000049	0.002170	0.034391	-0.985909
0.05	-0.000038	-0.001539	-0.030786	0.000023	0.000072	0.002465	0.024568	-0.978329
0.06	-0.000055	-0.001847	-0.030786	0.000021	0.000098	0.002662	0.014829	-0.969288
0.07	-0.000075	-0.002155	-0.030786	0.000013	0.000125	0.002762	0.005187	-0.958864
0.08	-0.000099	-0.002463	-0.030786	-0.000003	0.000153	0.002766	-0.004344	-0.947134
0.09	-0.000125	-0.002771	-0.030786	-0.000028	0.000180	0.002675	-0.013751	-0.934174
0.10	-0.000154	-0.003079	-0.030786	-0.000064	0.000206	0.002491	-0.023024	-0.920056
0.11	-0.000186	-0.003386	-0.030787	-0.000112	0.000229	0.002215	-0.032149	-0.904854
0.12	-0.000222	-0.003694	-0.030788	-0.000172	0.000250	0.001849	-0.041117	-0.888636
0.13	-0.000260	-0.004002	-0.030790	-0.000246	0.000266	0.001393	-0.049919	-0.871471
0.14	-0.000302	-0.004310	-0.030793	-0.000336	0.000277	0.000851	-0.058544	-0.853426
0.15	-0.000346	-0.004618	-0.030797	-0.000440	0.000283	0.000223	-0.066984	-0.834566
0.16	-0.000394	-0.004926	-0.030802	-0.000561	0.000282	-0.000488	-0.075233	-0.814954
0.17	-0.000445	-0.005234	-0.030809	-0.000698	0.000273	-0.001281	-0.083281	-0.794652
0.18	-0.000499	-0.005542	-0.030816	-0.000853	0.000256	-0.002153	-0.091123	-0.773718
0.19	-0.000556	-0.005850	-0.030826	-0.001025	0.000229	-0.003103	-0.098754	-0.752211
0.20	-0.000616	-0.006159	-0.030837	-0.001215	0.000193	-0.004127	-0.106166	-0.730186
0.21	-0.000679	-0.006467	-0.030850	-0.001422	0.000147	-0.005225	-0.113356	-0.707698
0.22	-0.000745	-0.006776	-0.030865	-0.001647	0.000089	-0.006394	-0.120319	-0.684799
0.23	-0.000814	-0.007085	-0.030883	-0.001890	0.000019	-0.007631	-0.127051	-0.661539
0.24	-0.000887	-0.007393	-0.030903	-0.002151	-0.000064	-0.008934	-0.133548	-0.637968
0.25	-0.000962	-0.007703	-0.030926	-0.002429	-0.000160	-0.010301	-0.139809	-0.614132
0.26	-0.001041	-0.008012	-0.030952	-0.002723	-0.000270	-0.011729	-0.145830	-0.590077
0.27	-0.001123	-0.008322	-0.030981	-0.003035	-0.000395	-0.013217	-0.151610	-0.565845
0.28	-0.001207	-0.008632	-0.031013	-0.003362	-0.000535	-0.014761	-0.157147	-0.541480
0.29	-0.001295	-0.008942	-0.031048	-0.003705	-0.000691	-0.016359	-0.162439	-0.517021
0.30	-0.001386	-0.009253	-0.031087	-0.004063	-0.000862	-0.018009	-0.167487	-0.492506
0.31	-0.001480	-0.009564	-0.031129	-0.004434	-0.001051	-0.019708	-0.172289	-0.467972
0.32	-0.001577	-0.009875	-0.031175	-0.004819	-0.001257	-0.021454	-0.176846	-0.443455
0.33	-0.001678	-0.010187	-0.031226	-0.005217	-0.001480	-0.023244	-0.181159	-0.418989
0.34	-0.001781	-0.010500	-0.031280	-0.005627	-0.001722	-0.025076	-0.185226	-0.394604
0.35	-0.001888	-0.010813	-0.031338	-0.006047	-0.001982	-0.026948	-0.189051	-0.370332
0.36	-0.001997	-0.011127	-0.031401	-0.006477	-0.002261	-0.028856	-0.192634	-0.346202
0.37	-0.002110	-0.011441	-0.031468	-0.006916	-0.002559	-0.030800	-0.195976	-0.322241
0.38	-0.002226	-0.011756	-0.031539	-0.007362	-0.002877	-0.032775	-0.199079	-0.298475
0.39	-0.002345	-0.012072	-0.031615	-0.007815	-0.003215	-0.034780	-0.201946	-0.274929
0.40	-0.002468	-0.012388	-0.031695	-0.008274	-0.003573	-0.036813	-0.204578	-0.251627
0.41	-0.002593	-0.012706	-0.031781	-0.008738	-0.003951	-0.038871	-0.206979	-0.228589
0.42	-0.002722	-0.013024	-0.031870	-0.009204	-0.004350	-0.040952	-0.209151	-0.205837
0.43	-0.002854	-0.013343	-0.031965	-0.009673	-0.004770	-0.043053	-0.211097	-0.183390
0.44	-0.002989	-0.013663	-0.032064	-0.010143	-0.005211	-0.045173	-0.212820	-0.161266
0.45	-0.003127	-0.013984	-0.032167	-0.010613	-0.005674	-0.047309	-0.214324	-0.139483
0.46	-0.003268	-0.014306	-0.032276	-0.011081	-0.006157	-0.049459	-0.215611	-0.118054
0.47	-0.003413	-0.014630	-0.032389	-0.011547	-0.006663	-0.051621	-0.216686	-0.096996
0.48	-0.003561	-0.014954	-0.032507	-0.012009	-0.007190	-0.053792	-0.217552	-0.076321
0.49	-0.003712	-0.015280	-0.032629	-0.012466	-0.007739	-0.055971	-0.218214	-0.056042
0.50	-0.003867	-0.015607	-0.032756	-0.012917	-0.008309	-0.058156	-0.218674	-0.036171
0.51	-0.004024	-0.015935	-0.032888	-0.013361	-0.008902	-0.060344	-0.218938	-0.016716
0.52	-0.004185	-0.016265	-0.033023	-0.013796	-0.009516	-0.062534	-0.219010	0.002312
0.53	-0.004350	-0.016596	-0.033163	-0.014222	-0.010152	-0.064723	-0.218894	0.020904
0.54	-0.004517	-0.016928	-0.033308	-0.014637	-0.010811	-0.066911	-0.218593	0.039055
0.55	-0.004688	-0.017262	-0.033456	-0.015040	-0.011491	-0.069095	-0.218114	0.056756
0.56	-0.004862	-0.017597	-0.033609	-0.015430	-0.012193	-0.071273	-0.217460	0.074003
0.57	-0.005040	-0.017934	-0.033765	-0.015806	-0.012916	-0.073443	-0.216635	0.090790
0.58	-0.005221	-0.018272	-0.033925	-0.016167	-0.013661	-0.075605	-0.215646	0.107113
0.59	-0.005405	-0.018612	-0.034088	-0.016512	-0.014428	-0.077756	-0.214495	0.122970
0.60	-0.005593	-0.018954	-0.034255	-0.016840	-0.015216	-0.079894	-0.213188	0.138356
0.61	-0.005785	-0.019298	-0.034425	-0.017150	-0.016026	-0.082019	-0.211729	0.153271
0.62	-0.005979	-0.019643	-0.034598	-0.017441	-0.016857	-0.084128	-0.210124	0.167713
0.63	-0.006177	-0.019990	-0.034774	-0.017712	-0.017709	-0.086221	-0.208377	0.181682
0.64	-0.006379	-0.020338	-0.034952	-0.017962	-0.018581	-0.088295	-0.206492	0.195177
0.65	-0.006584	-0.020689	-0.035133	-0.018191	-0.019474	-0.090350	-0.204475	0.208199
0.66	-0.006793	-0.021041	-0.035316	-0.018398	-0.020388	-0.092384	-0.202329	0.220749
0.67	-0.007005	-0.021395	-0.035501	-0.018581	-0.021322	-0.094397	-0.200061	0.232828
0.68	-0.007221	-0.021751	-0.035687	-0.018741	-0.022276	-0.096385	-0.197674	0.244440
0.69	-0.007440	-0.022109	-0.035875	-0.018876	-0.023250	-0.098350	-0.195174	0.255585
0.70	-0.007663	-0.022468	-0.036065	-0.018986	-0.024243	-0.100288	-0.192564	0.266268
0.71	-0.007889	-0.022830	-0.036255	-0.019070	-0.025255	-0.102201	-0.189850	0.276492
0.72	-0.008120	-0.023193	-0.036446	-0.019129	-0.026287	-0.104085	-0.187036	0.286260
0.73	-0.008353	-0.023559	-0.036637	-0.019160	-0.027337	-0 105941	-0.184126	0.295577
0.74	-0.008591	-0.023926	-0.036829	-0.019164	-0.028405	-0.107767	-0.181126	0.304447

Approved for Public Release

Contrails

η	q_9	q_9'	q_9''	q_9'''	k_{11}	k_{11}'	k_{11}''	k_{11}'''
0.75	-0.008832	-0.024295	-0.037021	-0.019141	-0.029492	-0.109563	-0.178039	0.312875
0.76	-0.009077	-0.024667	-0.037212	-0.019090	-0.030597	-0.111328	-0.174870	0.320867
0.77	-0.009325	-0.025040	-0.037402	-0.019010	-0.031719	-0.113060	-0.171623	0.328427
0.78	-0.009577	-0.025415	-0.037592	-0.018902	-0.032858	-0.114760	-0.168303	0.335563
0.79	-0.009833	-0.025791	-0.037780	-0.018765	-0.034014	-0.116426	-0.164913	0.342279
0.80	-0.010093	-0.026170	-0.037967	-0.018599	-0.035186	-0.118058	-0.161459	0.348581
0.81	-0.010357	-0.026551	-0.038152	-0.018403	-0.036375	-0.119655	-0.157943	0.354477
0.82	-0.010624	-0.026933	-0.038335	-0.018178	-0.037579	-0.121217	-0.154370	0.359973
0.83	-0.010896	-0.027318	-0.038516	-0.017923	-0.038799	-0.122742	-0.150745	0.365076
0.84	-0.011171	-0.027704	-0.038693	-0.017639	-0.040034	-0.124231	-0.147070	0.369792
0.85	-0.011450	-0.028091	-0.038868	-0.017325	-0.041283	-0.125684	-0.143350	0.374129
0.86	-0.011732	-0.028481	-0.039040	-0.016982	-0.042547	-0.127098	-0.139589	0.378094
0.87	-0.012019	-0.028872	-0.039208	-0.016609	-0.043825	-0.128475	-0.135790	0.381695
0.88	-0.012310	-0.029265	-0.039372	-0.016207	-0.045117	-0.129814	-0.131956	0.384939
0.89	-0.012605	-0.029660	-0.039532	-0.015775	-0.046421	-0.131114	-0.128092	0.387833
0.90	-0.012903	-0.030056	-0.039687	-0.015314	-0.047739	-0.132376	-0.124201	0.390385
0.91	-0.013206	-0.030453	-0.039838	-0.014824	-0.049069	-0.133598	-0.120285	0.392603
0.92	-0.013512	-0.030852	-0.039984	-0.014306	-0.050411	-0.134781	-0.116350	0.394495
0.93	-0.013823	-0.031253	-0.040124	-0.013759	-0.051764	-0.135925	-0.112397	0.396068
0.94	-0.014137	-0.031655	-0.040259	-0.013184	-0.053129	-0.137029	-0.108429	0.397330
0.95	-0.014456	-0.032058	-0.040388	-0.012581	-0.054505	-0.138094	-0.104451	0.398289
0.96	-0.014778	-0.032463	-0.040510	-0.011951	-0.055891	-0.139118	-0.100464	0.398953
0.97	-0.015105	-0.032868	-0.040627	-0.011293	-0.057287	-0.140103	-0.096473	0.399330
0.98	-0.015436	-0.033275	-0.040736	-0.010609	-0.058693	-0.141048	-0.092479	0.399428
0.99	-0.015771	-0.033683	-0.040839	-0.009899	-0.060108	-0.141953	-0.088485	0.399254
1.00	-0.016109	-0.034092	-0.040934	-0.009163	-0.061532	-0.142817	-0.084495	0.398817
1.01	-0.016452	-0.034502	-0.041022	-0.008401	-0.062964	-0.143642	-0.080510	0.398124
1.02	-0.016800	-0.034912	-0.041102	-0.007615	-0.064404	-0.144428	-0.076533	0.397182
1.03	-0.017151	-0.035324	-0.041174	-0.006805	-0.065852	-0.145173	-0.072567	0.396000
1.04	-0.017506	-0.035736	-0.041238	-0.005972	-0.067308	-0.145879	-0.068614	0.394586
1.05	-0.017865	-0.036148	-0.041293	-0.005115	-0.068770	-0.146545	-0.064676	0.392946
1.06	-0.018229	-0.036562	-0.041340	-0.004236	-0.070239	-0.147173	-0.060755	0.391089
1.07	-0.018597	-0.036975	-0.041378	-0.003335	-0.071713	-0.147761	-0.056855	0.389021
1.08	-0.018968	-0.037389	-0.041407	-0.002413	-0.073194	-0.148310	-0.052976	0.386751
1.09	-0.019344	-0.037803	-0.041426	-0.001470	-0.074679	-0.148820	-0.049120	0.384285
1.10	-0.019725	-0.038218	-0.041436	-0.000508	-0.076170	-0.149292	-0.045291	0.381631
1.11	-0.020109	-0.038632	-0.041436	0.000473	-0.077665	-0.149726	-0.041488	0.378796
1.12	-0.020497	-0.039046	-0.041427	0.001473	-0.079164	-0.150122	-0.037715	0.375787
1.13	-0.020890	-0.039460	-0.041407	0.002490	-0.080667	-0.150481	-0.033973	0.372611
1.14	-0.021286	-0.039874	-0.041377	0.003525	-0.082174	-0.150802	-0.030264	0.369275
1.15	-0.021687	-0.040288	-0.041336	0.004575	-0.083683	-0.151086	-0.026588	0.365785
1.16	-0.022092	-0.040701	-0.041285	0.005641	-0.085195	-0.151334	-0.022948	0.362149
1.17	-0.022501	-0.041114	-0.041223	0.006721	-0.086710	-0.151545	-0.019346	0.358373
1.18	-0.022914	-0.041526	-0.041151	0.007815	-0.088226	-0.151721	-0.015781	0.354463
1.19	-0.023332	-0.041937	-0.041067	0.008923	-0.089744	-0.151861	-0.012257	0.350426
1.20	-0.023753	-0.042347	-0.040972	0.010042	-0.091263	-0.151966	-0.008773	0.346267
1.21	-0.024179	-0.042756	-0.040866	0.011173	-0.092783	-0.152036	-0.005332	0.341994
1.22	-0.024608	-0.043164	-0.040749	0.012315	-0.094304	-0.152073	-0.001934	0.337613
1.23	-0.025042	-0.043571	-0.040620	0.013466	-0.095825	-0.152075	0.001420	0.333128
1.24	-0.025480	-0.043976	-0.040479	0.014627	-0.097345	-0.152044	0.004728	0.328546
1.25	-0.025921	-0.044381	-0.040327	0.015796	-0.098865	-0.151981	0.007991	0.323873
1.26	-0.026367	-0.044783	-0.040163	0.016972	-0.100385	-0.151885	0.011206	0.319113
1.27	-0.026817	-0.045184	-0.039988	0.018155	-0.101903	-0.151757	0.014373	0.314274
1.28	-0.027271	-0.045583	-0.039800	0.019343	-0.103420	-0.151597	0.017491	0.309359
1.29	-0.027729	-0.045980	-0.039601	0.020537	-0.104935	-0.151407	0.020560	0.304375
1.30	-0.028191	-0.046375	-0.039390	0.021734	-0.106448	-0.151186	0.023578	0.299326
1.31	-0.028656	-0.046767	-0.039166	0.022935	-0.107958	-0.150936	0.026546	0.294217
1.32	-0.029126	-0.047158	-0.038931	0.024139	-0.109466	-0.150656	0.029462	0.289053
1.33	-0.029599	-0.047546	-0.038683	0.025344	-0.110971	-0.150347	0.032327	0.283839
1.34	-0.030077	-0.047932	-0.038424	0.026549	-0.112473	-0.150009	0.035139	0.278580
1.35	-0.030558	-0.048315	-0.038152	0.027755	-0.113972	-0.149644	0.037898	0.273280
1.36	-0.031043	-0.048695	-0.037869	0.028961	-0.115466	-0.149252	0.040604	0.267943
1.37	-0.031532	-0.049072	-0.037573	0.030164	-0.116956	-0.148832	0.043257	0.262574
1.38	-0.032024	-0.049446	-0.037266	0.031366	-0.118443	-0.148387	0.045856	0.257178
1.39	-0.032521	-0.049817	-0.036946	0.032564	-0.119924	-0.147915	0.048400	0.251757
1.40	-0.033021	-0.050185	-0.036614	0.033758	-0.121401	-0.147419	0.050891	0.246316
1.41	-0.033525	-0.050549	-0.036271	0.034948	-0.122872	-0.146898	0.053327	0.240860
1.42	-0.034032	-0.050910	-0.035915	0.036132	-0.124339	-0.146352	0.055708	0.235391
1.43	-0.034543	-0.051268	-0.035548	0.037310	-0.125799	-0.145784	0.058034	0.229913
1.44	-0.035057	-0.051621	-0.035169	0.038481	-0.127254	-0.145192	0.060306	0.224430
1.45	-0.035575	-0.051971	-0.034779	0.039645	-0.128703	-0.144578	0.062523	0.218946
1.46	-0.036097	-0.052317	-0.034376	0.040800	-0.130146	-0.143942	0.064685	0.213463
1.47	-0.036621	-0.052658	-0.033963	0.041946	-0.131582	-0.143284	0.066792	0.207985
1.48	-0.037150	-0.052996	-0.033537	0.043082	-0.133011	-0.142606	0.068845	0.202514
1.49	-0.037681	-0.053329	-0.033101	0.044207	-0.134434	-0.141907	0.070843	0.197055

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Contrails

η	q_9	q_9'	q_9''	q_9'''	k_{11}	k_{11}'	k_{11}''	k_{11}'''
1.50	-0.038216	-0.053658	-0.032653	0.045322	-0.135849	-0.141189	0.072786	0.191610
1.51	-0.038754	-0.053982	-0.032195	0.046424	-0.137258	-0.140452	0.074675	0.186181
1.52	-0.039296	-0.054302	-0.031725	0.047514	-0.138658	-0.139696	0.076510	0.180772
1.53	-0.039840	-0.054617	-0.031244	0.048591	-0.140052	-0.138922	0.078290	0.175385
1.54	-0.040388	-0.054927	-0.030753	0.049654	-0.141437	-0.138130	0.080017	0.170023
1.55	-0.040939	-0.055232	-0.030251	0.050702	-0.142814	-0.137322	0.081691	0.164687
1.56	-0.041493	-0.055532	-0.029739	0.051735	-0.144183	-0.136497	0.083311	0.159381
1.57	-0.042050	-0.055826	-0.029217	0.052753	-0.145544	-0.135656	0.084879	0.154107
1.58	-0.042609	-0.056116	-0.028684	0.053754	-0.146896	-0.134799	0.086394	0.148867
1.59	-0.043172	-0.056400	-0.028142	0.054738	-0.148240	-0.133928	0.087856	0.143662
1.60	-0.043737	-0.056679	-0.027589	0.055705	-0.149575	-0.133042	0.089267	0.138496
1.61	-0.044305	-0.056952	-0.027028	0.056654	-0.150901	-0.132143	0.090626	0.133370
1.62	-0.044876	-0.057219	-0.026456	0.057585	-0.152218	-0.131230	0.091934	0.128285
1.63	-0.045450	-0.057481	-0.025876	0.058496	-0.153525	-0.130304	0.093192	0.123244
1.64	-0.046026	-0.057737	-0.025287	0.059388	-0.154824	-0.129366	0.094400	0.118248
1.65	-0.046605	-0.057987	-0.024688	0.060260	-0.156113	-0.128417	0.095557	0.113299
1.66	-0.047186	-0.058231	-0.024081	0.061111	-0.157392	-0.127455	0.096666	0.108398
1.67	-0.047769	-0.058468	-0.023466	0.061941	-0.158662	-0.126483	0.097725	0.103547
1.68	-0.048355	-0.058700	-0.022843	0.062750	-0.159922	-0.125501	0.098737	0.098748
1.69	-0.048943	-0.058925	-0.022211	0.063537	-0.161172	-0.124509	0.099700	0.094001
1.70	-0.049533	-0.059144	-0.021572	0.064302	-0.162412	-0.123507	0.100617	0.089307
1.71	-0.050126	-0.059357	-0.020925	0.065044	-0.163642	-0.122497	0.101487	0.084669
1.72	-0.050721	-0.059562	-0.020271	0.065762	-0.164862	-0.121478	0.102311	0.080087
1.73	-0.051317	-0.059762	-0.019610	0.066458	-0.166071	-0.120451	0.103089	0.075562
1.74	-0.051916	-0.059955	-0.018942	0.067130	-0.167271	-0.119416	0.103822	0.071096
1.75	-0.052516	-0.060141	-0.018268	0.067777	-0.168460	-0.118374	0.104511	0.066688
1.76	-0.053119	-0.060320	-0.017587	0.068400	-0.169638	-0.117326	0.105156	0.062341
1.77	-0.053723	-0.060492	-0.016900	0.068998	-0.170806	-0.116271	0.105758	0.058054
1.78	-0.054328	-0.060658	-0.016207	0.069571	-0.171963	-0.115211	0.106317	0.053829
1.79	-0.054936	-0.060817	-0.015508	0.070119	-0.173110	-0.114145	0.106835	0.049666
1.80	-0.055545	-0.060968	-0.014805	0.070641	-0.174246	-0.113074	0.107311	0.045566
1.81	-0.056155	-0.061113	-0.014096	0.071138	-0.175372	-0.111999	0.107746	0.041530
1.82	-0.056767	-0.061250	-0.013382	0.071608	-0.176486	-0.110920	0.108142	0.037557
1.83	-0.057380	-0.061380	-0.012664	0.072052	-0.177590	-0.109836	0.108498	0.033650
1.84	-0.057995	-0.061503	-0.011941	0.072469	-0.178683	-0.108750	0.108815	0.029807
1.85	-0.058610	-0.061619	-0.011214	0.072860	-0.179765	-0.107660	0.109094	0.026029
1.86	-0.059227	-0.061728	-0.010484	0.073224	-0.180836	-0.106568	0.109336	0.022318
1.87	-0.059845	-0.061829	-0.009750	0.073561	-0.181896	-0.105474	0.109540	0.018672
1.88	-0.060463	-0.061923	-0.009013	0.073871	-0.182946	-0.104377	0.109709	0.015092
1.89	-0.061083	-0.062009	-0.008273	0.074153	-0.183984	-0.103279	0.109843	0.011579
1.90	-0.061704	-0.062088	-0.007530	0.074408	-0.185011	-0.102181	0.109941	0.008133
1.91	-0.062325	-0.062160	-0.006784	0.074636	-0.186028	-0.101081	0.110005	0.004754
1.92	-0.062947	-0.062224	-0.006037	0.074836	-0.187033	-0.099981	0.110036	0.001441
1.93	-0.063569	-0.062280	-0.005288	0.075009	-0.188027	-0.098880	0.110034	-0.001805
1.94	-0.064192	-0.062329	-0.004537	0.075154	-0.189011	-0.097780	0.110000	-0.004983
1.95	-0.064816	-0.062371	-0.003785	0.075271	-0.189983	-0.096680	0.109935	-0.008095
1.96	-0.065440	-0.062405	-0.003032	0.075361	-0.190944	-0.095581	0.109839	-0.011140
1.97	-0.066064	-0.062432	-0.002278	0.075423	-0.191894	-0.094484	0.109712	-0.014118
1.98	-0.066688	-0.062451	-0.001523	0.075457	-0.192834	-0.093387	0.109557	-0.017030
1.99	-0.067313	-0.062462	-0.000769	0.075464	-0.193762	-0.092293	0.109372	-0.019875
2.00	-0.067938	-0.062466	-0.000014	0.075444	-0.194680	-0.091200	0.109159	-0.022654
2.01	-0.068562	-0.062462	0.000740	0.075396	-0.195586	-0.090109	0.108919	-0.025366
2.02	-0.069187	-0.062451	0.001494	0.075321	-0.196482	-0.089022	0.108652	-0.028013
2.03	-0.069811	-0.062433	0.002246	0.075218	-0.197367	-0.087936	0.108359	-0.030594
2.04	-0.070435	-0.062406	0.002998	0.075088	-0.198241	-0.086854	0.108041	-0.033110
2.05	-0.071059	-0.062373	0.003748	0.074932	-0.199104	-0.085776	0.107697	-0.035561
2.06	-0.071683	-0.062331	0.004497	0.074748	-0.199956	-0.084701	0.107330	-0.037948
2.07	-0.072306	-0.062283	0.005243	0.074538	-0.200798	-0.083629	0.106938	-0.040270
2.08	-0.072928	-0.062227	0.005987	0.074301	-0.201629	-0.082562	0.106524	-0.042528
2.09	-0.073550	-0.062163	0.006729	0.074038	-0.202449	-0.081499	0.106088	-0.044723
2.10	-0.074172	-0.062092	0.007468	0.073749	-0.203259	-0.080440	0.105630	-0.046855
2.11	-0.074792	-0.062014	0.008204	0.073434	-0.204058	-0.079386	0.105151	-0.048925
2.12	-0.075412	-0.061928	0.008936	0.073093	-0.204846	-0.078337	0.104652	-0.050932
2.13	-0.076031	-0.061835	0.009666	0.072726	-0.205625	-0.077293	0.104133	-0.052878
2.14	-0.076649	-0.061735	0.010391	0.072335	-0.206392	-0.076255	0.103594	-0.054764
2.15	-0.077265	-0.061627	0.011112	0.071918	-0.207150	-0.075221	0.103038	-0.056588
2.16	-0.077881	-0.061512	0.011829	0.071477	-0.207897	-0.074194	0.102463	-0.058353
2.17	-0.078496	-0.061390	0.012542	0.071012	-0.208634	-0.073172	0.101871	-0.060059
2.18	-0.079109	-0.061262	0.013249	0.070522	-0.209360	-0.072157	0.101262	-0.061706
2.19	-0.079721	-0.061126	0.013952	0.070009	-0.210077	-0.071147	0.100637	-0.063295
2.20	-0.080331	-0.060983	0.014649	0.069472	-0.210783	-0.070144	0.099996	-0.064826
2.21	-0.080941	-0.060833	0.015341	0.068912	-0.211480	-0.069147	0.099341	-0.066301
2.22	-0.081548	-0.060676	0.016028	0.068330	-0.212166	-0.068157	0.098670	-0.067719
2.23	-0.082154	-0.060512	0.016708	0.067725	-0.212843	-0.067174	0.097986	-0.069082
2.24	-0.082758	-0.060342	0.017382	0.067098	-0.213510	-0.066197	0.097289	-0.070390

Approved for Public Release

Contrails

η	q_9	q_9'	q_9''	q_9'''	k_{11}	k_{11}'	k_{11}''	k_{11}'''
2.25	-0.083361	-0.060164	0.018050	0.066450	-0.214167	-0.065228	0.096579	-0.071644
2.26	-0.083962	-0.059981	0.018711	0.065780	-0.214814	-0.064266	0.095856	-0.072844
2.27	-0.084560	-0.059790	0.019365	0.065090	-0.215452	-0.063311	0.095122	-0.073992
2.28	-0.085157	-0.059593	0.020013	0.064379	-0.216081	-0.062364	0.094377	-0.075087
2.29	-0.085752	-0.059390	0.020653	0.063648	-0.216699	-0.061424	0.093620	-0.076131
2.30	-0.086345	-0.059180	0.021286	0.062898	-0.217309	-0.060491	0.092854	-0.077125
2.31	-0.086936	-0.058964	0.021911	0.062128	-0.217909	-0.059566	0.092078	-0.078069
2.32	-0.087524	-0.058742	0.022528	0.061340	-0.218500	-0.058650	0.091293	-0.078963
2.33	-0.088111	-0.058514	0.023137	0.060534	-0.219082	-0.057741	0.090499	-0.079809
2.34	-0.088695	-0.058279	0.023739	0.059710	-0.219655	-0.056840	0.089697	-0.080608
2.35	-0.089276	-0.058039	0.024332	0.058869	-0.220219	-0.055947	0.088887	-0.081359
2.36	-0.089855	-0.057793	0.024916	0.058011	-0.220774	-0.055062	0.088070	-0.082064
2.37	-0.090432	-0.057541	0.025492	0.057137	-0.221320	-0.054185	0.087246	-0.082724
2.38	-0.091006	-0.057283	0.026059	0.056247	-0.221858	-0.053317	0.086416	-0.083340
2.39	-0.091578	-0.057020	0.026617	0.055341	-0.222387	-0.052457	0.085579	-0.083911
2.40	-0.092147	-0.056751	0.027165	0.054421	-0.222907	-0.051606	0.084737	-0.084440
2.41	-0.092713	-0.056476	0.027705	0.053486	-0.223419	-0.050762	0.083891	-0.084926
2.42	-0.093276	-0.056197	0.028235	0.052538	-0.223922	-0.049928	0.083039	-0.085371
2.43	-0.093837	-0.055912	0.028756	0 051577	-0.224417	-0.049102	0.082183	-0.085775
2.44	-0.094394	-0.055621	0.029267	0.050603	-0.224904	-0.048284	0.081324	-0.086139
2.45	-0.094949	-0.055326	0.029768	0.049616	-0.225383	-0.047475	0.080461	-0.086463
2.46	-0.095501	-0.055026	0.030259	0.048618	-0.225854	-0.046675	0.079595	-0.086750
2.47	-0.096050	-0.054721	0.030740	0.047609	-0.226317	-0.045883	0.078726	-0.086999
2.48	-0.096595	-0.054411	0.031211	0.046589	-0.226772	-0.045100	0.077855	-0.087211
2.49	-0.097138	-0.054097	0.031672	0.045559	-0.227219	-0.044326	0.076982	-0.087386
2.50	-0.097677	-0.053778	0.032122	0.044520	-0.227658	-0.043561	0.076107	-0.087527
2.51	-0.098213	-0.053455	0.032562	0.043471	-0.228090	-0.042804	0.075231	-0.087633
2.52	-0.098746	-0.053127	0.032992	0.042414	-0.228514	-0.042056	0.074355	-0.087706
2.53	-0.099276	-0.052795	0.033410	0.041350	-0.228931	-0.041317	0.073477	-0.087745
2.54	-0.099802	-0.052459	0.033819	0.040278	-0.229341	-0.040587	0.072600	-0.087752
2.55	-0.100325	-0.052118	0.034216	0.039199	-0.229743	-0.039865	0.071722	-0.087728
2.56	-0.100844	-0.051774	0.034603	0.038114	-0.230138	-0.039152	0.070845	-0.087673
2.57	-0.101360	-0.051426	0.034978	0.037023	-0.230526	-0.038448	0.069969	-0.087588
2.58	-0.101873	-0.051075	0.035343	0.035927	-0.230907	-0.037753	0.069094	-0.087474
2.59	-0.102382	-0.050720	0.035697	0.034827	-0.231281	-0.037066	0.068220	-0.087332
2.60	-0.102887	-0.050361	0.036040	0.033722	-0.231648	-0.036388	0.067347	-0.087162
2.61	-0.103389	-0.049999	0.036371	0.032614	-0.232009	-0.035719	0.066476	-0.086965
2.62	-0.103887	-0.049634	0.036692	0.031503	-0.232363	-0.035059	0.065608	-0.086742
2.63	-0.104382	-0.049265	0.037001	0.030390	-0.232710	-0.034407	0.064742	-0.086493
2.64	-0.104873	-0.048894	0.037300	0.029275	-0.233051	-0.033764	0.063878	-0.086220
2.65	-0.105360	-0.048519	0.037587	0.028158	-0.233385	-0.033129	0.063017	-0.085922
2.66	-0.105843	-0.048142	0.037863	0.027040	-0.233714	-0.032504	0.062160	-0.085601
2.67	-0.106322	-0.047762	0.038128	0.025922	-0.234035	-0.031886	0.061305	-0.085258
2.68	-0.106798	-0.047379	0.038381	0.024805	-0.234351	-0.031277	0.060455	-0.084893
2.69	-0.107270	-0.046994	0.038624	0.023688	-0.234661	-0.030677	0.059608	-0.084506
2.70	-0.107738	-0.046607	0.038855	0.022572	-0.234965	-0.030085	0.058765	-0.084099
2.71	-0.108202	-0.046217	0.039075	0.021458	-0.235263	-0.029502	0.057926	-0.083672
2.72	-0.108662	-0.045825	0.039284	0.020346	-0.235555	-0.028927	0.057091	-0.083226
2.73	-0.109118	-0.045482	0.039482	0.019237	-0.235841	-0.028360	0.056261	-0.082761
2.74	-0.109571	-0.045036	0.039669	0.018131	-0.236122	-0.027802	0.055436	-0.082279
2.75	-0.110019	-0.044638	0.039845	0.017029	-0.236397	-0.027251	0.054616	-0.081779
2.76	-0.110464	-0.044239	0.040010	0.015932	-0.236667	-0.026709	0.053801	-0.081263
2.77	-0.110904	-0.043838	0.040163	0.014838	-0.236932	-0.026175	0.052991	-0.080730
2.78	-0.111341	-0.043436	0.040306	0.013750	-0.237191	-0.025649	0.052186	-0.080183
2.79	-0.111773	-0.043032	0.040438	0.012668	-0.237445	-0.025132	0.051387	-0.079621
2.80	-0.112201	-0.042627	0.040560	0.011591	-0.237693	-0.024622	0.050594	-0.079044
2.81	-0.112625	-0.042221	0.040670	0.010521	-0.237937	-0.024120	0.049806	-0.078454
2.82	-0.113046	-0.041814	0.040770	0.009458	-0.238176	-0.023625	0.049025	-0.077851
2.83	-0.113462	-0.041405	0.040859	0.008402	-0.238410	-0.023139	0.048249	-0.077236
2.84	-0.113874	-0.040996	0.040938	0.007354	-0.238639	-0.022660	0.047480	-0.076609
2.85	-0.114282	-0.040587	0.041006	0.006314	-0.238863	-0.022189	0.046717	-0.075971
2.86	-0.114685	-0.040176	0.041064	0.005282	-0.239082	-0.021726	0.045961	-0.075322
2.87	-0.115085	-0.039765	0.041112	0.004260	-0.239297	-0.021270	0.045211	-0.074663
2.88	-0.115481	-0.039354	0.041150	0.003247	-0.239508	-0.020822	0.044467	-0.073994
2.89	-0.115872	-0.038943	0.041177	0.002243	-0.239714	-0.020381	0.043731	-0.073317
2.90	-0.116260	-0.038531	0.041195	0.001250	-0.239915	-0.019947	0.043001	-0.072631
2.91	-0.116643	-0.038119	0.041202	0.000267	-0.240113	-0.019521	0.042278	-0.071936
2.92	-0.117022	-0.037707	0.041200	-0.000706	-0.240306	-0.019102	0.041562	-0.071237
2.93	-0.117397	-0.037295	0.041188	-0.001667	-0.240495	-0.018690	0.040853	-0.070531
2.94	-0.117768	-0.036883	0.041167	-0.002617	-0.240680	-0.018285	0.040152	-0.069813
2.95	-0.118135	-0.036471	0.041136	-0.003555	-0.240861	-0.017887	0.039457	-0.069090
2.96	-0.118497	-0.036060	0.041096	-0.004481	-0.241038	-0.017495	0.038770	-0.068364
2.97	-0.118856	-0.035650	0.041046	-0.005395	-0.241211	-0.017111	0.038090	-0.067632
2.98	-0.119210	-0.035239	0.040988	-0.006296	-0.241380	-0.016734	0.037417	-0.066895
2.99	-0.119561	-0.034830	0.040920	-0.007184	-0.241545	-0.016363	0.036752	-0.066154

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Contrails

η	q_9	q_9'	q_9''	q_9'''	k_{11}	k_{11}'	k_{11}''	k_{11}'''
3.00	-0.119907	-0.034421	0.040844	-0.008060	-0.241707	-0.015998	0.036094	-0.065409
3.01	-0.120249	-0.034013	0.040759	-0.008921	-0.241865	-0.015641	0.035444	-0.064661
3.02	-0.120587	-0.033606	0.040666	-0.009770	-0.242020	-0.015290	0.034801	-0.063910
3.03	-0.120921	-0.033200	0.040564	-0.010604	-0.242171	-0.014945	0.034166	-0.063157
3.04	-0.121251	-0.032795	0.040454	-0.011424	-0.242319	-0.014606	0.033538	-0.062401
3.05	-0.121577	-0.032391	0.040335	-0.012230	-0.242463	-0.014274	0.032918	-0.061643
3.06	-0.121899	-0.031988	0.040209	-0.013022	-0.242604	-0.013948	0.032305	-0.060884
3.07	-0.122217	-0.031586	0.040075	-0.013799	-0.242742	-0.013628	0.031700	-0.060123
3.08	-0.122531	-0.031186	0.039933	-0.014561	-0.242877	-0.013314	0.031103	-0.059362
3.09	-0.122841	-0.030788	0.039784	-0.015308	-0.243008	-0.013006	0.030513	-0.058601
3.10	-0.123146	-0.030391	0.039627	-0.016040	-0.243137	-0.012704	0.029931	-0.057839
3.11	-0.123448	-0.029995	0.039463	-0.016757	-0.243263	-0.012407	0.029356	-0.057078
3.12	-0.123746	-0.029602	0.039292	-0.017458	-0.243385	-0.012116	0.028789	-0.056317
3.13	-0.124040	-0.029209	0.039114	-0.018144	-0.243505	-0.011831	0.028230	-0.055557
3.14	-0.124331	-0.028819	0.038929	-0.018814	-0.243622	-0.011552	0.027678	-0.054798
3.15	-0.124617	-0.028431	0.038738	-0.019469	-0.243736	-0.011278	0.027134	-0.054041
3.16	-0.124899	-0.028045	0.038540	-0.020107	-0.243847	-0.011009	0.026597	-0.053286
3.17	-0.125178	-0.027660	0.038336	-0.020730	-0.243956	-0.010746	0.026068	-0.052532
3.18	-0.125452	-0.027278	0.038125	-0.021337	-0.244062	-0.010488	0.025546	-0.051781
3.19	-0.125723	-0.026898	0.037909	-0.021927	-0.244166	-0.010235	0.025032	-0.051032
3.20	-0.125990	-0.026520	0.037687	-0.022502	-0.244267	-0.009987	0.024526	-0.050287
3.21	-0.126254	-0.026144	0.037459	-0.023060	-0.244366	-0.009744	0.024027	-0.049544
3.22	-0.126513	-0.025770	0.037226	-0.023602	-0.244462	-0.009506	0.023535	-0.048804
3.23	-0.126769	-0.025399	0.036987	-0.024128	-0.244556	-0.009274	0.023051	-0.048068
3.24	-0.127021	-0.025031	0.036743	-0.024638	-0.244647	-0.009045	0.022574	-0.047336
3.25	-0.127270	-0.024665	0.036494	-0.025132	-0.244737	-0.008822	0.022104	-0.046608
3.26	-0.127515	-0.024301	0.036241	-0.025609	-0.244824	-0.008603	0.021641	-0.045883
3.27	-0.127756	-0.023940	0.035982	-0.026071	-0.244909	-0.008389	0.021186	-0.045163
3.28	-0.127993	-0.023581	0.035719	-0.026516	-0.244992	-0.008180	0.020738	-0.044448
3.29	-0.128227	-0.023225	0.035452	-0.026945	-0.245072	-0.007974	0.020297	-0.043737
3.30	-0.128458	-0.022872	0.035180	-0.027358	-0.245151	-0.007774	0.019863	-0.043031
3.31	-0.128685	-0.022522	0.034905	-0.027755	-0.245228	-0.007577	0.019437	-0.042330
3.32	-0.128908	-0.022174	0.034625	-0.028136	-0.245303	-0.007385	0.019017	-0.041635
3.33	-0.129128	-0.021829	0.034342	-0.028501	-0.245376	-0.007197	0.018604	-0.040944
3.34	-0.129345	-0.021487	0.034055	-0.028851	-0.245447	-0.007013	0.018198	-0.040259
3.35	-0.129558	-0.021148	0.033765	-0.029184	-0.245516	-0.006833	0.017799	-0.039580
3.36	-0.129768	-0.020812	0.033472	-0.029503	-0.245583	-0.006657	0.017406	-0.038907
3.37	-0.129974	-0.020479	0.033175	-0.029805	-0.245649	-0.006485	0.017020	-0.038239
3.38	-0.130177	-0.020149	0.032876	-0.030092	-0.245713	-0.006316	0.016641	-0.037577
3.39	-0.130377	-0.019821	0.032573	-0.030364	-0.245775	-0.006152	0.016269	-0.036922
3.40	-0.130574	-0.019497	0.032268	-0.030621	-0.245836	-0.005991	0.015903	-0.036272
3.41	-0.130767	-0.019176	0.031961	-0.030863	-0.245895	-0.005834	0.015543	-0.035629
3.42	-0.130957	-0.018858	0.031651	-0.031090	-0.245953	-0.005680	0.015190	-0.034992
3.43	-0.131144	-0.018543	0.031339	-0.031302	-0.246009	-0.005530	0.014844	-0.034362
3.44	-0.131328	-0.018231	0.031025	-0.031500	-0.246063	-0.005383	0.014503	-0.033738
3.45	-0.131509	-0.017922	0.030709	-0.031683	-0.246117	-0.005240	0.014169	-0.033121
3.46	-0.131687	-0.017617	0.030392	-0.031852	-0.246168	-0.005100	0.013841	-0.032510
3.47	-0.131861	-0.017315	0.030072	-0.032007	-0.246219	-0.004963	0.013519	-0.031907
3.48	-0.132033	-0.017015	0.029752	-0.032148	-0.246267	-0.004829	0.013202	-0.031310
3.49	-0.132202	-0.016720	0.029429	-0.032275	-0.246315	-0.004699	0.012892	-0.030720
3.50	-0.132367	-0.016427	0.029106	-0.032388	-0.246361	-0.004572	0.012588	-0.030137
3.51	-0.132530	-0.016137	0.028782	-0.032489	-0.246407	-0.004447	0.012290	-0.029560
3.52	-0.132690	-0.015851	0.028456	-0.032576	-0.246450	-0.004326	0.011997	-0.028991
3.53	-0.132847	-0.015568	0.028130	-0.032650	-0.246493	-0.004207	0.011710	-0.028429
3.54	-0.133002	-0.015289	0.027803	-0.032711	-0.246535	-0.004091	0.011428	-0.027874
3.55	-0.133153	-0.015012	0.027476	-0.032759	-0.246575	-0.003979	0.011152	-0.027326
3.56	-0.133302	-0.014739	0.027148	-0.032796	-0.246614	-0.003868	0.010882	-0.026785
3.57	-0.133448	-0.014469	0.026820	-0.032820	-0.246652	-0.003761	0.010616	-0.026251
3.58	-0.133591	-0.014203	0.026492	-0.032832	-0.246689	-0.003656	0.010357	-0.025725
3.59	-0.133732	-0.013939	0.026164	-0.032832	-0.246725	-0.003554	0.010102	-0.025205
3.60	-0.133870	-0.013679	0.025835	-0.032821	-0.246760	-0.003454	0.009852	-0.024693
3.61	-0.134006	-0.013423	0.025507	-0.032798	-0.246795	-0.003357	0.009608	-0.024188
3.62	-0.134138	-0.013169	0.025179	-0.032765	-0.246828	-0.003262	0.009369	-0.023690
3.63	-0.134269	-0.012919	0.024852	-0.032720	-0.246860	-0.003169	0.009134	-0.023199
3.64	-0.134397	-0.012672	0.024525	-0.032665	-0.246891	-0.003079	0.008905	-0.022715
3.65	-0.134522	-0.012429	0.024199	-0.032600	-0.246921	-0.002991	0.008680	-0.022239
3.66	-0.134645	-0.012188	0.023873	-0.032524	-0.246951	-0.002906	0.008460	-0.021769
3.67	-0.134766	-0.011951	0.023548	-0.032439	-0.246979	-0.002822	0.008245	-0.021307
3.68	-0.134885	-0.011717	0.023224	-0.032343	-0.247007	-0.002741	0.008034	-0.020851
3.69	-0.135001	-0.011487	0.022901	-0.032239	-0.247034	-0.002661	0.007827	-0.020403
3.70	-0.135114	-0.011259	0.022580	-0.032125	-0.247061	-0.002584	0.007626	-0.019962
3.71	-0.135226	-0.011035	0.022259	-0.032002	-0.247086	-0.002509	0.007428	-0.019527
3.72	-0.135335	-0.010814	0.021940	-0.031870	-0.247111	-0.002435	0.007235	-0.019100
3.73	-0.135442	-0.010596	0.021622	-0.031730	-0.247135	-0.002364	0.007046	-0.018680
3.74	-0.135547	-0.010382	0.021305	-0.031582	-0.247158	-0.002295	0.006861	-0.018266

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Contrails

η	q_9	q_9'	q_9''	q_9'''	k_{11}	k_{11}'	k_{11}''	k_{11}'''
3.75	-0.135650	-0.010170	0.020990	-0.031425	-0.247181	-0.002227	0.006681	-0.017859
3.76	-0.135750	-0.009962	0.020676	-0.031261	-0.247203	-0.002161	0.006504	-0.017459
3.77	-0.135849	-0.009757	0.020365	-0.031089	-0.247224	-0.002097	0.006332	-0.017066
3.78	-0.135945	-0.009555	0.020055	-0.030910	-0.247244	-0.002034	0.006163	-0.016680
3.79	-0.136040	-0.009356	0.019747	-0.030724	-0.247264	-0.001973	0.005998	-0.016300
3.80	-0.136133	-0.009160	0.019440	-0.030531	-0.247284	-0.001914	0.005837	-0.015927
3.81	-0.136223	-0.008967	0.019136	-0.030331	-0.247303	-0.001857	0.005679	-0.015560
3.82	-0.136312	-0.008777	0.018834	-0.030125	-0.247321	-0.001801	0.005526	-0.015200
3.83	-0.136399	-0.008590	0.018533	-0.029913	-0.247339	-0.001746	0.005375	-0.014846
3.84	-0.136484	-0.008406	0.018235	-0.029695	-0.247356	-0.001693	0.005229	-0.014499
3.85	-0.136567	-0.008225	0.017940	-0.029471	-0.247373	-0.001642	0.005085	-0.014158
3.86	-0.136648	-0.008047	0.017646	-0.029242	-0.247389	-0.001591	0.004946	-0.013823
3.87	-0.136728	-0.007872	0.017355	-0.029007	-0.247405	-0.001543	0.004809	-0.013494
3.88	-0.136806	-0.007700	0.017066	-0.028768	-0.247420	-0.001495	0.004676	-0.013172
3.89	-0.136882	-0.007531	0.016779	-0.028523	-0.247434	-0.001449	0.004546	-0.012856
3.90	-0.136956	-0.007365	0.016495	-0.028274	-0.247449	-0.001404	0.004419	-0.012545
3.91	-0.137029	-0.007201	0.016214	-0.028021	-0.247463	-0.001361	0.004295	-0.012241
3.92	-0.137100	-0.007040	0.015935	-0.027764	-0.247476	-0.001318	0.004174	-0.011943
3.93	-0.137170	-0.006883	0.015659	-0.027502	-0.247489	-0.001277	0.004056	-0.011650
3.94	-0.137238	-0.006727	0.015385	-0.027237	-0.247501	-0.001237	0.003941	-0.011363
3.95	-0.137305	-0.006575	0.015114	-0.026969	-0.247514	-0.001198	0.003828	-0.011082
3.96	-0.137370	-0.006425	0.014846	-0.026697	-0.247525	-0.001161	0.003719	-0.010806
3.97	-0.137433	-0.006278	0.014580	-0.026422	-0.247537	-0.001124	0.003612	-0.010536
3.98	-0.137495	-0.006133	0.014317	-0.026144	-0.247548	-0.001088	0.003508	-0.010272
3.99	-0.137556	-0.005992	0.014057	-0.025863	-0.247559	-0.001054	0.003407	-0.010013
4.00	-0.137615	-0.005852	0.013800	-0.025580	-0.247569	-0.001020	0.003308	-0.009759
4.01	-0.137673	-0.005716	0.013546	-0.025295	-0.247579	-0.000988	0.003212	-0.009510
4.02	-0.137729	-0.005581	0.013294	-0.025007	-0.247589	-0.000956	0.003118	-0.009267
4.03	-0.137784	-0.005450	0.013045	-0.024718	-0.247598	-0.000925	0.003026	-0.009029
4.04	-0.137838	-0.005320	0.012800	-0.024426	-0.247607	-0.000896	0.002937	-0.008795
4.05	-0.137891	-0.005194	0.012557	-0.024133	-0.247616	-0.000867	0.002850	-0.008567
4.06	-0.137942	-0.005069	0.012317	-0.023839	-0.247625	-0.000839	0.002766	-0.008344
4.07	-0.137992	-0.004947	0.012080	-0.023543	-0.247633	-0.000811	0.002683	-0.008126
4.08	-0.138041	-0.004828	0.011846	-0.023246	-0.247641	-0.000785	0.002603	-0.007912
4.09	-0.138089	-0.004710	0.011615	-0.022949	-0.247649	-0.000759	0.002525	-0.007703
4.10	-0.138135	-0.004595	0.011387	-0.022650	-0.247656	-0.000734	0.002449	-0.007498
4.11	-0.138181	-0.004483	0.011162	-0.022351	-0.247663	-0 000710	0.002375	-0.007299
4.12	-0.138225	-0.004372	0.010940	-0.022052	-0.247670	-0.000687	0.002303	-0.007103
4.13	-0.138268	-0.004264	0.010721	-0.021752	-0.247677	-0.000664	0.002233	-0.006912
4.14	-0.138310	-0.004158	0.010505	-0.021452	-0.247684	-0.000642	0.002165	-0.006726
4.15	-0.138351	-0.004054	0.010292	-0.021152	-0.247690	-0.000621	0.002099	-0.006543
4.16	-0.138391	-0.003952	0.010082	-0.020852	-0.247696	-0.000600	0.002034	-0.006365
4.17	-0.138430	-0.003852	0.009875	-0.020552	-0.247702	-0.000580	0.001971	-0.006191
4.18	-0.138468	-0.003754	0.009671	-0.020253	-0.247708	-0.000561	0.001910	-0.006021
4.19	-0.138505	-0.003659	0.009470	-0.019954	-0.247713	-0.000542	0.001851	-0.005855
4.20	-0.138542	-0.003565	0.009272	-0.019656	-0.247718	-0.000524	0.001793	-0.005693
4.21	-0.138577	-0.003473	0.009077	-0.019359	-0.247724	-0.000506	0.001737	-0.005534
4.22	-0.138611	-0.003383	0.008885	-0.019062	-0.247729	-0.000489	0.001682	-0.005380
4.23	-0.138644	-0.003295	0.008696	-0.018766	-0.247733	-0.000472	0.001629	-0.005229
4.24	-0.138677	-0.003209	0.008509	-0.018472	-0.247738	-0.000456	0.001578	-0.005082
4.25	-0.138709	-0.003125	0.008326	-0.018179	-0.247742	-0.000441	0.001528	-0.004938
4.26	-0.138739	-0.003043	0.008146	-0.017886	-0.247747	-0.000426	0.001479	-0.004798
4.27	-0.138769	-0.002962	0.007969	-0.017596	-0.247751	-0.000411	0.001432	-0.004661
4.28	-0.138799	-0.002883	0.007794	-0.017307	-0.247755	-0.000397	0.001386	-0.004528
4.29	-0.138827	-0.002806	0.007622	-0.017019	-0.247759	-0.000384	0.001341	-0.004398
4.30	-0.138855	-0.002731	0.007454	-0.016733	-0.247763	-0.000370	0.001298	-0.004271
4.31	-0.138882	-0.002657	0.007288	-0.016449	-0.247766	-0.000358	0.001256	-0.004148
4.32	-0.138908	-0.002585	0.007125	-0.016167	-0.247770	-0.000345	0.001215	-0.004027
4.33	-0.138934	-0.002515	0.006964	-0.015887	-0.247773	-0.000333	0.001175	-0.003910
4.34	-0.138958	-0.002446	0.006807	-0.015608	-0.247776	-0.000322	0.001137	-0.003795
4.35	-0.138982	-0.002379	0.006652	-0.015332	-0.247780	-0.000311	0.001099	-0.003684
4.36	-0.139006	-0.002313	0.006500	-0.015058	-0.247783	-0.000300	0.001063	-0.003575
4.37	-0.139029	-0.002249	0.006351	-0.014786	-0.247786	-0 000289	0.001028	-0.003469
4.38	-0.139051	-0.002186	0.006204	-0.014516	-0.247788	-0.000279	0.000994	-0.003366
4.39	-0.139072	-0.002125	0.006061	-0.014249	-0.247791	-0.000269	0.000960	-0.003266
4.40	-0.139093	-0.002065	0.005919	-0.013984	-0.247794	-0.000260	0.000928	-0.003168
4.41	-0.139114	-0.002006	0.005781	-0.013722	-0.247796	-0.000251	0.000897	-0.003073
4.42	-0.139133	-0.001949	0.005645	-0.013461	-0.247799	-0.000242	0.000867	-0.002981
4.43	-0.139153	-0.001893	0.005512	-0.013204	-0.247801	-0.000234	0.000837	-0.002891
4.44	-0.139171	-0.001839	0.005381	-0.012949	-0.247804	-0.000225	0.000809	-0.002803
4.45	-0.139189	-0.001786	0.005253	-0.012697	-0.247806	-0.000217	0.000781	-0.002718
4.46	-0.139207	-0.001734	0.005127	-0.012447	-0.247808	-0.000210	0.000755	-0.002634
4.47	-0.139224	-0.001683	0.005004	-0.012200	-0.247810	-0.000202	0.000729	-0.002554
4.48	-0.139241	-0.001634	0.004883	-0.011955	-0.247812	-0.000195	0.000704	-0.002475
4.49	-0.139257	-0.001585	0.004765	-0.011714	-0.247814	-0.000188	0.000679	-0.002399

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Contrails

η	q_9	q_9'	q_9''	q_9'''	k_{11}	k_{11}'	k_{11}''	k_{11}'''
4.50	-0.139272	-0.001538	0.004649	-0.011475	-0.247816	-0.000181	0.000656	-0.002324
4.51	-0.139288	-0.001492	0.004535	-0.011240	-0.247818	-0.000175	0.000633	-0.002252
4.52	-0.139302	-0.001448	0.004424	-0.011006	-0.247819	-0.000169	0.000611	-0.002182
4.53	-0.139317	-0.001404	0.004315	-0.010776	-0.247821	-0.000163	0.000589	-0.002114
4.54	-0.139330	-0.001361	0.004208	-0.010548	-0.247822	-0.000157	0.000568	-0.002048
4.55	-0.139344	-0.001320	0.004104	-0.010324	-0.247824	-0.000151	0.000548	-0.001983
4.56	-0.139357	-0.001279	0.004002	-0.010102	-0.247826	-0.000146	0.000529	-0.001921
4.57	-0.139369	-0.001240	0.003902	-0.009884	-0.247827	-0.000141	0.000510	-0.001860
4.58	-0.139382	-0.001201	0.003804	-0.009668	-0.247828	-0.000136	0.000491	-0.001801
4.59	-0.139393	-0.001164	0.003709	-0.009456	-0.247830	-0.000131	0.000474	-0.001744
4.60	-0.139405	-0.001127	0.003615	-0.009245	-0.247831	-0.000126	0.000456	-0.001688
4.61	-0.139416	-0.001091	0.003524	-0.009039	-0.247832	-0.000122	0.000440	-0.001634
4.62	-0.139427	-0.001057	0.003434	-0.008835	-0.247833	-0.000118	0.000424	-0.001581
4.63	-0.139437	-0.001023	0.003347	-0.008634	-0.247835	-0.000113	0.000408	-0.001531
4.64	-0.139447	-0.000990	0.003262	-0.008436	-0.247836	-0.000109	0.000393	-0.001481
4.65	-0.139457	-0.000957	0.003178	-0.008241	-0.247837	-0.000106	0.000379	-0.001433
4.66	-0.139466	-0.000926	0.003097	-0.008048	-0.247838	-0.000102	0.000365	-0.001387
4.67	-0.139475	-0.000895	0.003017	-0.007860	-0.247839	-0.000098	0.000351	-0.001342
4.68	-0.139484	-0.000866	0.002940	-0.007673	-0.247840	-0.000095	0.000338	-0.001298
4.69	-0.139493	-0.000837	0.002864	-0.007490	-0.247841	-0.000092	0.000325	-0.001256
4.70	-0.139501	-0.000808	0.002790	-0.007309	-0.247842	-0.000088	0.000313	-0.001214
4.71	-0.139509	-0.000781	0.002718	-0.007132	-0.247842	-0.000085	0.000301	-0.001175
4.72	-0.139517	-0.000754	0.002647	-0.006957	-0.247843	-0.000082	0.000289	-0.001136
4.73	-0.139524	-0.000728	0.002578	-0.006786	-0.247844	-0.000080	0.000278	-0.001099
4.74	-0.139531	-0.000702	0.002511	-0.006616	-0.247845	-0.000077	0.000267	-0.001062
4.75	-0.139538	-0.000678	0.002446	-0.006451	-0.247846	-0.000074	0.000257	-0.001027
4.76	-0.139545	-0.000654	0.002382	-0.006287	-0.247846	-0.000072	0.000247	-0.000993
4.77	-0.139551	-0.000630	0.002320	-0.006127	-0.247847	-0.000069	0.000237	-0.000960
4.78	-0.139557	-0.000607	0.002260	-0.005968	-0.247848	-0.000067	0.000227	-0.000928
4.79	-0.139563	-0.000585	0.002201	-0.005814	-0.247848	-0.000065	0.000218	-0.000897
4.80	-0.139569	-0.000563	0.002144	-0.005661	-0.247849	-0.000063	0.000209	-0.000867
4.81	-0.139574	-0.000542	0.002088	-0.005513	-0.247850	-0.000060	0.000201	-0.000838
4.82	-0.139580	-0.000521	0.002033	-0.005364	-0.247850	-0.000059	0.000193	-0.000810
4.83	-0.139585	-0.000501	0.001980	-0.005222	-0.247851	-0.000057	0.000185	-0.000783
4.84	-0.139590	-0.000482	0.001929	-0.005079	-0.247851	-0.000055	0.000177	-0.000756
4.85	-0.139595	-0.000463	0.001879	-0.004941	-0.247852	-0.000053	0.000170	-0.000731
4.86	-0.139599	-0.000444	0.001830	-0.004803	-0.247852	-0.000051	0.000162	-0.000706
4.87	-0.139603	-0.000426	0.001783	-0.004671	-0.247853	-0.000050	0.000155	-0.000683
4.88	-0.139608	-0.000408	0.001737	-0.004538	-0.247853	-0.000048	0.000149	-0.000659
4.89	-0.139612	-0.000391	0.001692	-0.004411	-0.247854	-0.000047	0.000142	-0.000638
4.90	-0.139615	-0.000375	0.001648	-0.004283	-0.247854	-0.000045	0.000136	-0.000616
4.91	-0.139619	-0.000358	0.001606	-0.004160	-0.247855	-0.000044	0.000130	-0.000595
4.92	-0.139623	-0.000342	0.001565	-0.004037	-0.247855	-0.000043	0.000124	-0.000575
4.93	-0.139626	-0.000327	0.001526	-0.003920	-0.247856	-0.000042	0.000118	-0.000556
4.94	-0.139629	-0.000312	0.001487	-0.003801	-0.247856	-0.000041	0.000113	-0.000537
4.95	-0.139632	-0.000297	0.001450	-0.003689	-0.247856	-0.000039	0.000108	-0.000519
4.96	-0.139635	-0.000283	0.001413	-0.003574	-0.247857	-0.000038	0.000103	-0.000501
4.97	-0.139638	-0.000269	0.001378	-0.003466	-0.247857	-0.000037	0.000098	-0.000485
4.98	-0.139640	-0.000255	0.001344	-0.003356	-0.247858	-0.000036	0.000093	-0.000468
4.99	-0.139643	-0.000242	0.001311	-0.003253	-0.247858	-0.000036	0.000088	-0.000453
5.00	-0.139645	-0.000229	0.001279	-0.003147	-0.247858	-0.000035	0.000084	-0.000437
5.01	-0.139648	-0.000217	0.001248	-0.003048	-0.247859	-0.000034	0.000080	-0.000423
5.02	-0.139650	-0.000204	0.001218	-0.002947	-0.247859	-0.000033	0.000075	-0.000408
5.03	-0.139652	-0.000192	0.001189	-0.002852	-0.247859	-0.000032	0.000071	-0.000396
5.04	-0.139654	-0.000180	0.001161	-0.002754	-0.247860	-0.000032	0.000067	-0.000382
5.05	-0.139655	-0.000169	0.001134	-0.002663	-0.247860	-0.000031	0.000064	-0.000370
5.06	-0 139657	-0.000158	0.001107	-0.002569	-0.247860	-0.000030	0.000060	-0.000357
5.07	-0.139658	-0.000147	0.001082	-0.002483	-0.247861	-0.000030	0.000057	-0.000346
5.08	-0.139660	-0.000136	0.001058	-0.002392	-0.247861	-0.000029	0.000053	-0.000334
5.09	-0.139661	-0.000126	0.001035	-0.002310	-0.247861	-0.000029	0.000050	-0.000324
5.10	-0.139662	-0.000115	0.001012	-0.002223	-0.247861	-0.000028	0.000047	-0.000312
5.11	-0.139663	-0.000105	0.000990	-0.002144	-0.247862	-0.000028	0.000044	-0.000303
5.12	-0.139664	-0.000096	0.000969	-0.002060	-0.247862	-0.000027	0.000041	-0.000292
5.13	-0.139665	-0.000086	0.000949	-0.001985	-0.247862	-0.000027	0.000038	-0.000284
5.14	-0.139666	-0.000077	0.000929	-0.001904	-0.247863	-0.000027	0.000035	-0.000274
5.15	-0.139667	-0.000067	0.000911	-0.001833	-0.247863	-0.000026	0.000032	-0.000267
5.16	-0.139668	-0.000058	0.000892	-0.001755	-0.247863	-0.000026	0.000030	-0.000257
5.17	-0.139668	-0.000050	0.000876	-0.001687	-0.247863	-0.000026	0.000027	-0.000250
5.18	-0.139669	-0.000041	0.000859	-0.001612	-0.247864	-0.000025	0.000025	-0.000242
5.19	-0.139669	-0.000032	0.000843	-0.001547	-0.247864	-0.000025	0.000022	-0.000235
5.20	-0.139669	-0.000024	0.000828	-0.001475	-0.247864	-0.000025	0.000020	-0.000227
5.21	-0.139669	-0.000016	0.000814	-0.001414	-0.247864	-0.000025	0.000018	-0.000222
5.22	-0.139669	-0.000008	0.000800	-0.001344	-0.247865	-0.000025	0.000015	-0.000214
5.23	-0.139670	0.000000	0.000787	-0.001285	-0.247865	-0.000024	0.000014	-0.000209
5.24	-0.139669	0.000008	0.000774	-0.001218	-0.247865	-0.000024	0.000011	-0.000201

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Contrails

η	j_{11}	j'_{11}	j''_{11}	j'''_{11}	q_{11}	q'_{11}	q''_{11}	q'''_{11}
0.00	0.000000	0.000000	0.080554	0.000000	0.000000	0.000000	0.116361	0.000000
0.01	0.000004	0.000806	0.080555	0.000435	0.000006	0.001164	0.116363	0.000437
0.02	0.000016	0.001611	0.080565	0.001696	0.000023	0.002327	0.116373	0.001703
0.03	0.000036	0.002417	0.080592	0.003721	0.000052	0.003491	0.116400	0.003736
0.04	0.000064	0.003223	0.080642	0.006449	0.000093	0.004655	0.116450	0.006473
0.05	0.000101	0.004030	0.080723	0.009819	0.000145	0 005820	0.116531	0.009853
0.06	0.000145	0.004838	0.080840	0.013773	0.000210	0.006986	0.116649	0.013817
0.07	0.000197	0.005647	0.081000	0.018255	0.000285	0.008153	0.116809	0.018307
0.08	0.000258	0.006458	0.081207	0.023209	0.000373	0.009322	0.117017	0.023269
0.09	0.000327	0.007271	0.081465	0.028583	0.000472	0.010494	0.117276	0.028647
0.10	0.000403	0.008087	0.081780	0.034324	0.000582	0.011668	0.117591	0.034391
0.11	0.000488	0.008907	0.082153	0.040384	0.000705	0.012846	0.117965	0.040449
0.12	0.000582	0.009731	0.082588	0.046715	0.000839	0.014028	0.118401	0.046773
0.13	0.000683	0.010559	0.083088	0.053270	0.000986	0.015214	0.118901	0.053317
0.14	0.000793	0.011393	0.083654	0.060007	0.001144	0.016406	0.119468	0.060036
0.15	0.000911	0.012232	0.084289	0.066881	0.001314	0.017604	0.120102	0.066887
0.16	0.001037	0.013079	0.084992	0.073854	0.001496	0.018808	0.120806	0.073829
0.17	0.001172	0.013932	0.085766	0.080887	0.001690	0.020020	0.121579	0.080824
0.18	0.001316	0.014794	0.086610	0.087943	0.001896	0.021240	0.122422	0.087834
0.19	0.001468	0.015665	0.087525	0.094988	0.002115	0.022469	0.123336	0.094823
0.20	0.001629	0.016545	0.088510	0.101989	0.002346	0.023707	0.124319	0.101759
0.21	0.001799	0.017435	0.089564	0.108915	0.002589	0.024955	0.125370	0.108609
0.22	0.001978	0.018336	0.090688	0.115737	0.002845	0.026215	0.126490	0.115344
0.23	0.002166	0.019249	0.091879	0.122427	0.003113	0.027485	0.127677	0.121936
0.24	0.002363	0.020174	0.093136	0.128960	0.003395	0.028768	0.128928	0.128358
0.25	0.002570	0.021112	0.094457	0.135312	0.003689	0.030064	0.130243	0.134587
0.26	0.002785	0.022063	0.095841	0.141460	0.003996	0.031373	0.131619	0.140598
0.27	0.003011	0.023029	0.097286	0.147384	0.004316	0.032697	0.133055	0.146372
0.28	0.003246	0.024009	0.098788	0.153066	0.004650	0.034035	0.134546	0.151887
0.29	0.003491	0.025005	0.100346	0.158486	0.004997	0.035388	0.136091	0.157127
0.30	0.003746	0.026016	0.101957	0.163631	0.005358	0.036757	0.137688	0.162075
0.31	0.004012	0.027044	0.103618	0.168485	0.005732	0.038142	0.139332	0.166716
0.32	0.004287	0.028089	0.105326	0.173035	0.006121	0.039543	0.141021	0.171036
0.33	0.004573	0.029151	0.107077	0.177269	0.006523	0.040962	0.142751	0.175024
0.34	0.004870	0.030231	0.108870	0.181179	0.006940	0.042399	0.144520	0.178668
0.35	0.005178	0.031328	0.110700	0.184754	0.007371	0.043853	0.146324	0.181961
0.36	0.005497	0.032445	0.112564	0.187987	0.007817	0.045325	0.148158	0.184892
0.37	0.005827	0.033580	0.114458	0.190871	0.008278	0.046816	0.150020	0.187457
0.38	0.006169	0.034734	0.116380	0.193402	0.008753	0.048326	0.151906	0.189648
0.39	0.006522	0.035908	0.118325	0.195576	0.009244	0.049854	0.153812	0.191463
0.40	0.006887	0.037101	0.120290	0.197388	0.009750	0.051402	0.155734	0.192897
0.41	0.007264	0.038313	0.122272	0.198838	0.010272	0.052969	0.157669	0.193949
0.42	0.007653	0.039546	0.124266	0.199924	0.010810	0.054555	0.159612	0.194616
0.43	0.008055	0.040799	0.126269	0.200646	0.011363	0.056161	0.161560	0.194900
0.44	0.008469	0.042071	0.128278	0.201005	0.011933	0.057787	0.163509	0.194800
0.45	0.008896	0.043364	0.130288	0.201003	0.012519	0.059431	0.165454	0.194319
0.46	0.009337	0.044677	0.132297	0.200641	0.013122	0.061096	0.167394	0.193458
0.47	0.009790	0.046010	0.134300	0.199924	0.013741	0.062779	0.169322	0.192222
0.48	0.010257	0.047363	0.136294	0.198855	0.014378	0.064482	0.171237	0.190614
0.49	0.010737	0.048736	0.138276	0.197439	0.015031	0.066204	0.173133	0.188638
0.50	0.011232	0.050129	0.140241	0.195681	0.015702	0.067945	0.175008	0.186301
0.51	0.011740	0.051541	0.142188	0.193586	0.016390	0.069704	0.176858	0.183608
0.52	0.012262	0.052972	0.144112	0.191161	0.017096	0.071482	0.178679	0.180566
0.53	0.012799	0.054423	0.146010	0.188414	0.017820	0.073277	0.180468	0.177182
0.54	0.013351	0.055892	0.147879	0.185351	0.018561	0.075091	0.182222	0.173464
0.55	0.013917	0.057380	0.149716	0.181979	0.019321	0.076922	0.183937	0.169420
0.56	0.014499	0.058887	0.151518	0.178308	0.020100	0.078770	0.185609	0.165058
0.57	0.015095	0.060411	0.153281	0.174346	0.020897	0.080634	0.187237	0.160389
0.58	0.015707	0.061952	0.155004	0.170101	0.021713	0.082514	0.188816	0.155420
0.59	0.016334	0.063511	0.156683	0.165583	0.022547	0.084410	0.190344	0.150162
0.60	0.016977	0.065086	0.158315	0.160801	0.023401	0.086321	0.191818	0.144624
0.61	0.017636	0.066677	0.159898	0.155765	0.024274	0.088246	0.193236	0.138818
0.62	0.018311	0.068283	0.161429	0.150484	0.025166	0.090185	0.194594	0.132753
0.63	0.019002	0.069905	0.162907	0.144969	0.026077	0.092138	0.195890	0.126441
0.64	0.019709	0.071541	0.164328	0.139230	0.027009	0.094103	0.197122	0.119892
0.65	0.020433	0.073192	0.165690	0.133277	0.027960	0.096080	0.198287	0.113117
0.66	0.021173	0.074855	0.166993	0.127121	0.028930	0.098068	0.199383	0.106128
0.67	0.021930	0.076531	0.168232	0.120771	0.029921	0.100067	0.200409	0.098935
0.68	0.022703	0.078219	0.169407	0.114239	0.030932	0.102076	0.201362	0.091551
0.69	0.023494	0.079919	0.170516	0.107535	0.031963	0.104094	0.202239	0.083986
0.70	0.024302	0.081630	0.171558	0.100670	0.033014	0.106121	0.203041	0.076253
0.71	0.025127	0.083350	0.172529	0.093654	0.034085	0.108155	0.203764	0.068361
0.72	0.025969	0.085080	0.173430	0.086497	0.035177	0.110196	0.204407	0.060324
0.73	0.026828	0.086818	0.174259	0.079211	0.036289	0.112243	0.204970	0.052152
0.74	0.027705	0.088565	0.175014	0.071805	0.037422	0.114295	0.205450	0.043856

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Contrails

η	j_{II}	j'_{II}	j''_{II}	j'''_{II}	q_{II}	q'_{II}	q''_{II}	q'''_{II}
0.75	0.028600	0.090318	0.175695	0.064290	0.038575	0.116352	0.205847	0.035449
0.76	0.029512	0.092078	0.176300	0.056676	0.039749	0.118412	0.206159	0.026941
0.77	0.030441	0.093844	0.176828	0.048973	0.040943	0.120474	0.206385	0.018343
0.78	0.031389	0.095615	0.177279	0.041191	0.042158	0.122539	0.206525	0.009666
0.79	0.032354	0.097389	0.177651	0.033341	0.043394	0.124605	0.206578	0.000921
0.80	0.033336	0.099168	0.177945	0.025431	0.044650	0.126670	0.206544	-0.007881
0.81	0.034337	0.100948	0.178160	0.017472	0.045927	0.128735	0.206421	-0.016729
0.82	0.035355	0.102730	0.178295	0.009472	0.047225	0.130798	0.206209	-0.025614
0.83	0.036392	0.104514	0.178349	0.001441	0.048543	0.132859	0.205908	-0.034525
0.84	0.037446	0.106297	0.178323	-0.006611	0.049882	0.134916	0.205518	-0.043452
0.85	0.038518	0.108080	0.178217	-0.014677	0.051242	0.136969	0.205039	-0.052386
0.86	0.039607	0.109861	0.178030	-0.022747	0.052621	0.139017	0.204471	-0.061315
0.87	0.040715	0.111640	0.177762	-0.030813	0.054022	0.141058	0.203813	-0.070233
0.88	0.041840	0.113416	0.177414	-0.038867	0.055443	0.143093	0.203066	-0.079128
0.89	0.042983	0.115188	0.176985	-0.046900	0.056884	0.145119	0.202230	-0.087992
0.90	0.044144	0.116956	0.176476	-0.054905	0.058345	0.147137	0.201306	-0.096817
0.91	0.045322	0.118718	0.175887	-0.062875	0.059826	0.149145	0.200294	-0.105593
0.92	0.046518	0.120473	0.175218	-0.070801	0.061328	0.151143	0.199195	-0.114313
0.93	0.047732	0.122222	0.174471	-0.078677	0.062849	0.153129	0.198008	-0.122969
0.94	0.048963	0.123962	0.173645	-0.086496	0.064390	0.155103	0.196736	-0.131552
0.95	0.050211	0.125694	0.172741	-0.094250	0.065951	0.157063	0.195377	-0.140056
0.96	0.051476	0.127417	0.171760	-0.101934	0.067532	0.159010	0.193935	-0.148473
0.97	0.052759	0.129129	0.170703	-0.109542	0.069131	0.160942	0.192408	-0.156796
0.98	0.054059	0.130831	0.169570	-0.117067	0.070750	0.162858	0.190799	-0.165018
0.99	0.055376	0.132520	0.168362	-0.124503	0.072388	0.164757	0.189108	-0.173133
1.00	0.056709	0.134198	0.167080	-0.131845	0.074045	0.166640	0.187337	-0.181135
1.01	0.058060	0.135862	0.165725	-0.139087	0.075721	0.168504	0.185486	-0.189017
1.02	0.059426	0.137512	0.164299	-0.146225	0.077415	0.170349	0.183557	-0.196775
1.03	0.060810	0.139147	0.162801	-0.153254	0.079128	0.172175	0.181551	-0.204401
1.04	0.062209	0.140768	0.161234	-0.160168	0.080859	0.173980	0.179469	-0.211892
1.05	0.063625	0.142372	0.159598	-0.166964	0.082608	0.175764	0.177314	-0.219242
1.06	0.065057	0.143959	0.157895	-0.173637	0.084374	0.177526	0.175085	-0.226447
1.07	0.066504	0.145530	0.156126	-0.180184	0.086158	0.179265	0.172785	-0.233501
1.08	0.067967	0.147082	0.154292	-0.186600	0.087959	0.180981	0.170415	-0.240402
1.09	0.069446	0.148615	0.152394	-0.192882	0.089778	0.182673	0.167978	-0.247144
1.10	0.070940	0.150129	0.150435	-0.199026	0.091613	0.184341	0.165473	-0.253724
1.11	0.072448	0.151624	0.148414	-0.205030	0.093464	0.185983	0.162904	-0.260139
1.12	0.073972	0.153097	0.146334	-0.210891	0.095332	0.187599	0.160271	-0.266385
1.13	0.075510	0.154550	0.144197	-0.216605	0.097216	0.189188	0.157577	-0.272460
1.14	0.077063	0.155981	0.142003	-0.222170	0.099116	0.190750	0.154822	-0.278360
1.15	0.078630	0.157390	0.139754	-0.227585	0.101031	0.192284	0.152010	-0.284083
1.16	0.080211	0.158776	0.137452	-0.232846	0.102962	0.193790	0.149141	-0.289626
1.17	0.081805	0.160139	0.135098	-0.237952	0.104907	0.195267	0.146218	-0.294988
1.18	0.083413	0.161478	0.132693	-0.242900	0.106867	0.196714	0.143242	-0.300166
1.19	0.085035	0.162793	0.130240	-0.247690	0.108841	0.198131	0.140215	-0.305160
1.20	0.086669	0.164083	0.127740	-0.252320	0.110829	0.199518	0.137139	-0.309966
1.21	0.088316	0.165347	0.125194	-0.256789	0.112831	0.200874	0.134017	-0.314584
1.22	0.089976	0.166586	0.122605	-0.261095	0.114847	0.202198	0.130848	-0.319012
1.23	0.091648	0.167799	0.119973	-0.265237	0.116875	0.203491	0.127637	-0.323251
1.24	0.093332	0.168986	0.117300	-0.269216	0.118916	0.204751	0.124384	-0.327298
1.25	0.095027	0.170145	0.114589	-0.273029	0.120970	0.205978	0.121092	-0.331154
1.26	0.096735	0.171277	0.111840	-0.276677	0.123036	0.207173	0.117762	-0.334818
1.27	0.098453	0.172382	0.109056	-0.280159	0.125113	0.208334	0.114396	-0.338290
1.28	0.100182	0.173458	0.106238	-0.283476	0.127202	0.209461	0.110996	-0.341569
1.29	0.101922	0.174506	0.103387	-0.286626	0.129303	0.210553	0.107565	-0.344656
1.30	0.103672	0.175526	0.100506	-0.289611	0.131413	0.211612	0.104104	-0.347552
1.31	0.105432	0.176516	0.097595	-0.292430	0.133535	0.212635	0.100615	-0.350255
1.32	0.107202	0.177478	0.094658	-0.295083	0.135666	0.213624	0.097100	-0.352768
1.33	0.108982	0.178410	0.091694	-0.297571	0.137807	0.214577	0.093560	-0.355090
1.34	0.110771	0.179312	0.088707	-0.299895	0.139957	0.215495	0.089998	-0.357222
1.35	0.112568	0.180184	0.085697	-0.302056	0.142117	0.216377	0.086416	-0.359166
1.36	0.114374	0.181025	0.082666	-0.304053	0.144285	0.217223	0.082816	-0.360923
1.37	0.116188	0.181837	0.079616	-0.305889	0.146461	0.218033	0.079198	-0.362493
1.38	0.118011	0.182618	0.076549	-0.307563	0.148645	0.218807	0.075566	-0.363879
1.39	0.119841	0.183368	0.073466	-0.309077	0.150837	0.219545	0.071921	-0.365080
1.40	0.121678	0.184087	0.070368	-0.310433	0.153036	0.220246	0.068265	-0.366100
1.41	0.123522	0.184775	0.067258	-0.311630	0.155242	0.220910	0.064600	-0.366940
1.42	0.125373	0.185432	0.064136	-0.312672	0.157454	0.221538	0.060927	-0.367601
1.43	0.127231	0.186058	0.061005	-0.313559	0.159673	0.222128	0.057249	-0.368085
1.44	0.129094	0.186652	0.057865	-0.314292	0.161897	0.222683	0.053566	-0.368395
1.45	0.130964	0.187215	0.054719	-0.314874	0.164126	0.223200	0.049881	-0.368531
1.46	0.132839	0.187746	0.051568	-0.315306	0.166361	0.223680	0.046196	-0.368498
1.47	0.134719	0.188246	0.048414	-0.315590	0.168600	0.224124	0.042512	-0.368296
1.48	0.136603	0.188715	0.045257	-0.315727	0.170843	0.224530	0.038831	-0.367927
1.49	0.138493	0.189152	0.042100	-0.315719	0.173090	0.224900	0.035154	-0.367396

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Contrails

η	j_{11}	j'_{11}	j''_{11}	j'''_{11}	q_{11}	q'_{11}	q''_{11}	q'''_{11}
1.50	0.140386	0.189557	0.038943	-0.315569	0.175341	0.225234	0.031483	-0.366702
1.51	0.142284	0.189930	0.035789	-0.315278	0.177595	0.225530	0.027820	-0.365850
1.52	0.144185	0.190273	0.032638	-0.314848	0.179851	0.225790	0.024167	-0.364842
1.53	0.146089	0.190583	0.029492	-0.314282	0.182110	0.226013	0.020524	-0.363680
1.54	0.147996	0.190862	0.026353	-0.313581	0.184371	0.226200	0.016894	-0.362367
1.55	0.149906	0.191110	0.023221	-0.312748	0.186634	0.226351	0.013277	-0.360906
1.56	0.151819	0.191327	0.020098	-0.311785	0.188898	0.226466	0.009676	-0.359299
1.57	0.153733	0.191512	0.016986	-0.310694	0.191163	0.226545	0.006092	-0.357549
1.58	0.155649	0.191667	0.013885	-0.309477	0.193429	0.226588	0.002526	-0.355660
1.59	0.157566	0.191790	0.010797	-0.308137	0.195695	0.226595	-0.001021	-0.353634
1.60	0.159484	0.191883	0.007722	-0.306676	0.197961	0.226568	-0.004547	-0.351473
1.61	0.161404	0.191945	0.004664	-0.305097	0.200226	0.226505	-0.008050	-0.349182
1.62	0.163323	0.191976	0.001621	-0.303402	0.202491	0.226407	-0.011530	-0.346762
1.63	0.165243	0.191977	-0.001404	-0.301593	0.204754	0.226274	-0.014985	-0.344218
1.64	0.167163	0.191948	-0.004411	-0.299672	0.207016	0.226107	-0.018414	-0.341551
1.65	0.169082	0.191889	-0.007397	-0.297644	0.209276	0.225906	-0.021816	-0.338765
1.66	0.171000	0.191800	-0.010363	-0.295509	0.211534	0.225671	-0.025189	-0.335864
1.67	0.172918	0.191682	-0.013307	-0.293270	0.213790	0.225402	-0.028532	-0.332849
1.68	0.174834	0.191534	-0.016228	-0.290931	0.216042	0.225100	-0.031845	-0.329725
1.69	0.176748	0.191357	-0.019125	-0.288493	0.218291	0.224765	-0.035127	-0.326494
1.70	0.178661	0.191152	-0.021998	-0.285959	0.220537	0.224398	-0.038375	-0.323160
1.71	0.180571	0.190917	-0.024844	-0.283332	0.222779	0.223998	-0.041589	-0.319725
1.72	0.182479	0.190655	-0.027664	-0.280614	0.225017	0.223566	-0.044769	-0.316194
1.73	0.184384	0.190364	-0.030456	-0.277807	0.227251	0.223103	-0.047913	-0.312568
1.74	0.186286	0.190046	-0.033220	-0.274916	0.229479	0.222608	-0.051020	-0.308851
1.75	0.188185	0.189700	-0.035954	-0.271941	0.231703	0.222083	-0.054090	-0.305046
1.76	0.190080	0.189327	-0.038658	-0.268886	0.233921	0.221526	-0.057121	-0.301157
1.77	0.191971	0.188927	-0.041332	-0.265753	0.236133	0.220940	-0.060113	-0.297186
1.78	0.193859	0.188500	-0.043973	-0.262545	0.238339	0.220324	-0.063064	-0.293137
1.79	0.195741	0.188047	-0.046582	-0.259264	0.240539	0.219679	-0.065975	-0.289013
1.80	0.197620	0.187569	-0.049158	-0.255914	0.242733	0.219005	-0.068844	-0.284816
1.81	0.199493	0.187064	-0.051700	-0.252496	0.244919	0.218302	-0.071671	-0.280550
1.82	0.201361	0.186535	-0.054208	-0.249013	0.247099	0.217572	-0.074455	-0.276218
1.83	0.203223	0.185980	-0.056680	-0.245468	0.249271	0.216813	-0.077195	-0.271824
1.84	0.205080	0.185401	-0.059117	-0.241864	0.251435	0.216028	-0.079891	-0.267369
1.85	0.206931	0.184798	-0.061517	-0.238202	0.253591	0.215216	-0.082542	-0.262857
1.86	0.208776	0.184171	-0.063881	-0.234486	0.255739	0.214377	-0.085148	-0.258292
1.87	0.210615	0.183521	-0.066207	-0.230718	0.257879	0.213513	-0.087708	-0.253675
1.88	0.212446	0.182847	-0.068495	-0.226900	0.260009	0.212623	-0.090222	-0.249011
1.89	0.214271	0.182151	-0.070745	-0.223035	0.262131	0.211709	-0.092688	-0.244302
1.90	0.216089	0.181432	-0.072956	-0.219126	0.264244	0.210770	-0.095108	-0.239550
1.91	0.217900	0.180692	-0.075127	-0.215175	0.266346	0.209807	-0.097479	-0.234760
1.92	0.219703	0.179930	-0.077259	-0.211184	0.268440	0.208820	-0.099803	-0.229932
1.93	0.221499	0.179147	-0.079351	-0.207156	0.270523	0.207811	-0.102078	-0.225072
1.94	0.223286	0.178343	-0.081402	-0.203093	0.272596	0.206779	-0.104304	-0.220180
1.95	0.225065	0.177519	-0.083413	-0.198998	0.274658	0.205725	-0.106481	-0.215261
1.96	0.226836	0.176675	-0.085382	-0.194873	0.276710	0.204649	-0.108609	-0.210317
1.97	0.228599	0.175811	-0.087310	-0.190721	0.278751	0.203553	-0.110687	-0.205349
1.98	0.230352	0.174929	-0.089196	-0.186543	0.280781	0.202436	-0.112716	-0.200363
1.99	0.232097	0.174028	-0.091041	-0.182342	0.282800	0.201299	-0.114695	-0.195358
2.00	0.233833	0.173108	-0.092843	-0.178120	0.284807	0.200142	-0.116623	-0.190340
2.01	0.235559	0.172171	-0.094603	-0.173880	0.286803	0.198966	-0.118501	-0.185309
2.02	0.237276	0.171216	-0.096321	-0.169624	0.288786	0.197772	-0.120329	-0.180268
2.03	0.238984	0.170245	-0.097995	-0.165353	0.290758	0.196560	-0.122107	-0.175221
2.04	0.240681	0.169256	-0.099628	-0.161071	0.292717	0.195330	-0.123834	-0.170169
2.05	0.242369	0.168252	-0.101217	-0.156779	0.294665	0.194083	-0.125510	-0.165115
2.06	0.244046	0.167232	-0.102763	-0.152479	0.296599	0.192820	-0.127136	-0.160061
2.07	0.245713	0.166197	-0.104266	-0.148173	0.298521	0.191541	-0.128711	-0.155010
2.08	0.247370	0.165147	-0.105727	-0.143865	0.300430	0.190246	-0.130236	-0.149963
2.09	0.249016	0.164083	-0.107144	-0.139554	0.302326	0.188936	-0.131711	-0.144924
2.10	0.250652	0.163004	-0.108518	-0.135245	0.304208	0.187612	-0.133135	-0.139894
2.11	0.252276	0.161912	-0.109849	-0.130937	0.306078	0.186274	-0.134509	-0.134876
2.12	0.253890	0.160808	-0.111136	-0.126635	0.307934	0.184922	-0.135832	-0.129871
2.13	0.255492	0.159690	-0.112381	-0.122338	0.309776	0.183557	-0.137106	-0.124882
2.14	0.257084	0.158560	-0.113583	-0.118050	0.311605	0.182180	-0.138330	-0.119911
2.15	0.258664	0.157418	-0.114742	-0.113771	0.313420	0.180791	-0.139504	-0.114959
2.16	0.260232	0.156265	-0.115859	-0.109505	0.315221	0.179390	-0.140629	-0.110030
2.17	0.261789	0.155101	-0.116932	-0.105252	0.317008	0.177978	-0.141705	-0.105124
2.18	0.263334	0.153927	-0.117964	-0.101014	0.318780	0.176556	-0.142732	-0.100244
2.19	0.264867	0.152742	-0.118953	-0.096793	0.320539	0.175124	-0.143710	-0.095391
2.20	0.266389	0.151548	-0.119900	-0.092591	0.322283	0.173682	-0.144640	-0.090567
2.21	0.267898	0.150344	-0.120805	-0.088410	0.324012	0.172231	-0.145521	-0.085774
2.22	0.269396	0.149132	-0.121668	-0.084250	0.325727	0.170772	-0.146355	-0.081014
2.23	0.270881	0.147911	-0.122490	-0.080113	0.327428	0.169304	-0.147142	-0.076289
2.24	0.272354	0.146682	-0.123270	-0.076002	0.329113	0.167829	-0.147881	-0.071599

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Contrails

η	j_{II}	j'_{II}	j''_{II}	j'''_{II}	q_{II}	q'_{II}	q''_{II}	q'''_{II}
2.25	0.273814	0.145446	-0.124010	-0.071917	0.330784	0.166347	-0.148574	-0.068947
2.26	0.275263	0.144202	-0.124709	-0.067860	0.332440	0.164858	-0.149220	-0.062334
2.27	0.276698	0.142952	-0.125367	-0.063832	0.334081	0.163363	-0.149821	-0.057761
2.28	0.278122	0.141695	-0.125986	-0.059835	0.335708	0.161862	-0.150376	-0.053231
2.29	0.279532	0.140432	-0.126564	-0.055870	0.337319	0.160355	-0.150885	-0.048743
2.30	0.280930	0.139164	-0.127103	-0.051938	0.338915	0.158844	-0.151351	-0.044301
2.31	0.282316	0.137890	-0.127603	-0.048041	0.340496	0.157328	-0.151772	-0.039904
2.32	0.283688	0.136612	-0.128064	-0.044179	0.342061	0.155809	-0.152149	-0.035555
2.33	0.285048	0.135329	-0.128487	-0.040355	0.343612	0.154286	-0.152483	-0.031254
2.34	0.286395	0.134042	-0.128871	-0.036568	0.345147	0.152759	-0.152774	-0.027002
2.35	0.287729	0.132752	-0.129218	-0.032821	0.346667	0.151230	-0.153023	-0.022802
2.36	0.289050	0.131458	-0.129528	-0.029114	0.348172	0.149699	-0.153230	-0.018653
2.37	0.290358	0.130161	-0.129801	-0.025449	0.349661	0.148166	-0.153396	-0.014558
2.38	0.291653	0.128862	-0.130037	-0.021826	0.351135	0.146631	-0.153522	-0.010516
2.39	0.292935	0.127561	-0.130237	-0.018246	0.352593	0.145096	-0.153607	-0.006529
2.40	0.294204	0.126258	-0.130402	-0.014711	0.354037	0.143559	-0.153652	-0.002597
2.41	0.295460	0.124953	-0.130532	-0.011221	0.355465	0.142023	-0.153659	0.001277
2.42	0.296703	0.123647	-0.130627	-0.007777	0.356877	0.140486	-0.153627	0.005095
2.43	0.297933	0.122340	-0.130687	-0.004380	0.358274	0.138950	-0.153557	0.008854
2.44	0.299150	0.121033	-0.130714	-0.001030	0.359656	0.137415	-0.153450	0.012554
2.45	0.300354	0.119726	-0.130708	0.002271	0.361023	0.135881	-0.153306	0.016195
2.46	0.301545	0.118419	-0.130669	0.005523	0.362374	0.134349	-0.153126	0.019775
2.47	0.302722	0.117113	-0.130598	0.008726	0.363710	0.132819	-0.152911	0.023294
2.48	0.303887	0.115808	-0.130495	0.011878	0.365030	0.131291	-0.152661	0.026752
2.49	0.305038	0.114503	-0.130360	0.014978	0.366336	0.129766	-0.152376	0.030148
2.50	0.306177	0.113200	-0.130195	0.018028	0.367626	0.128244	-0.152058	0.033482
2.51	0.307302	0.111899	-0.130000	0.021025	0.368900	0.126725	-0.151707	0.036752
2.52	0.308415	0.110601	-0.129775	0.023969	0.370160	0.125210	-0.151323	0.039960
2.53	0.309514	0.109304	-0.129521	0.026861	0.371405	0.123698	-0.150908	0.043103
2.54	0.310601	0.108010	-0.129238	0.029699	0.372634	0.122192	-0.150461	0.046182
2.55	0.311675	0.106719	-0.128927	0.032483	0.373848	0.120689	-0.149984	0.049197
2.56	0.312735	0.105432	-0.128588	0.035213	0.375048	0.119192	-0.149478	0.052148
2.57	0.313783	0.104148	-0.128223	0.037888	0.376232	0.117700	-0.148942	0.055034
2.58	0.314818	0.102867	-0.127831	0.040508	0.377402	0.116213	-0.148377	0.057854
2.59	0.315841	0.101591	-0.127413	0.043073	0.378557	0.114732	-0.147785	0.060610
2.60	0.316850	0.100319	-0.126970	0.045582	0.379697	0.113258	-0.147165	0.063300
2.61	0.317847	0.099052	-0.126501	0.048037	0.380822	0.111789	-0.146519	0.065925
2.62	0.318831	0.097789	-0.126009	0.050435	0.381932	0.110327	-0.145847	0.068484
2.63	0.319803	0.096532	-0.125493	0.052777	0.383028	0.108872	-0.145150	0.070978
2.64	0.320762	0.095279	-0.124954	0.055063	0.384110	0.107424	-0.144428	0.073406
2.65	0.321708	0.094033	-0.124392	0.057294	0.385177	0.105984	-0.143682	0.075770
2.66	0.322643	0.092792	-0.123808	0.059468	0.386230	0.104551	-0.142912	0.078068
2.67	0.323564	0.091557	-0.123203	0.061586	0.387268	0.103126	-0.142120	0.080300
2.68	0.324474	0.090328	-0.122576	0.063648	0.388292	0.101709	-0.141307	0.082468
2.69	0.325371	0.089105	-0.121930	0.065653	0.389302	0.100300	-0.140471	0.084571
2.70	0.326256	0.087889	-0.121264	0.067603	0.390298	0.098899	-0.139615	0.086610
2.71	0.327129	0.086680	-0.120578	0.069497	0.391280	0.097507	-0.138739	0.088584
2.72	0.327989	0.085478	-0.119874	0.071335	0.392248	0.096124	-0.137844	0.090494
2.73	0.328838	0.084283	-0.119152	0.073117	0.393203	0.094751	-0.136930	0.092340
2.74	0.329675	0.083095	-0.118412	0.074844	0.394143	0.093386	-0.135997	0.094122
2.75	0.330500	0.081914	-0.117655	0.076515	0.395070	0.092031	-0.135047	0.095842
2.76	0.331313	0.080742	-0.116882	0.078132	0.395984	0.090685	-0.134081	0.097499
2.77	0.332115	0.079577	-0.116092	0.079694	0.396884	0.089349	-0.133098	0.099093
2.78	0.332905	0.078420	-0.115288	0.081201	0.397771	0.088023	-0.132099	0.100625
2.79	0.333683	0.077271	-0.114469	0.082654	0.398645	0.086707	-0.131085	0.102096
2.80	0.334450	0.076131	-0.113635	0.084053	0.399505	0.085401	-0.130057	0.103506
2.81	0.335206	0.074998	-0.112788	0.085398	0.400353	0.084106	-0.129015	0.104855
2.82	0.335950	0.073875	-0.111927	0.086690	0.401187	0.082821	-0.127960	0.106145
2.83	0.336684	0.072760	-0.111054	0.087930	0.402009	0.081547	-0.126893	0.107375
2.84	0.337406	0.071654	-0.110169	0.089116	0.402818	0.080283	-0.125813	0.108545
2.85	0.338117	0.070557	-0.109272	0.090251	0.403615	0.079031	-0.124722	0.109658
2.86	0.338817	0.069468	-0.108364	0.091335	0.404399	0.077789	-0.123620	0.110713
2.87	0.339506	0.068389	-0.107445	0.092367	0.405171	0.076558	-0.122508	0.111710
2.88	0.340185	0.067320	-0.106517	0.093349	0.405930	0.075339	-0.121386	0.112651
2.89	0.340853	0.066259	-0.105579	0.094280	0.406677	0.074131	-0.120255	0.113536
2.90	0.341510	0.065208	-0.104631	0.095162	0.407413	0.072934	-0.119116	0.114366
2.91	0.342157	0.064166	-0.103675	0.095995	0.408136	0.071748	-0.117968	0.115142
2.92	0.342793	0.063135	-0.102712	0.096779	0.408848	0.070574	-0.116813	0.115863
2.93	0.343419	0.062112	-0.101740	0.097515	0.409548	0.069412	-0.115651	0.116532
2.94	0.344036	0.061100	-0.100761	0.098204	0.410236	0.068261	-0.114482	0.117148
2.95	0.344641	0.060097	-0.099776	0.098847	0.410913	0.067122	-0.113308	0.117712
2.96	0.345237	0.059104	-0.098785	0.099442	0.411579	0.065995	-0.112128	0.118225
2.97	0.345824	0.058121	-0.097787	0.099993	0.412233	0.064880	-0.110944	0.118688
2.98	0.346400	0.057149	-0.096785	0.100498	0.412876	0.063776	-0.109755	0.119102
2.99	0.346967	0.056186	-0.095778	0.100959	0.413508	0.062685	-0.108562	0.119468

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Contrails

η	j_{11}	j'_{11}	j''_{11}	j'''_{11}	q_{11}	q'_{11}	q''_{11}	q'''_{11}
3.00	0.347524	0.055233	-0.094766	0.101377	0.414130	0.061605	-0.107366	0.119785
3.01	0.348071	0.054290	-0.093750	0.101751	0.414741	0.060538	-0.106166	0.120055
3.02	0.348610	0.053358	-0.092731	0.102083	0.415341	0.059482	-0.104965	0.120279
3.03	0.349138	0.052436	-0.091709	0.102373	0.415930	0.058438	-0.103761	0.120458
3.04	0.349658	0.051524	-0.090684	0.102623	0.416510	0.057407	-0.102556	0.120592
3.05	0.350169	0.050622	-0.089656	0.102832	0.417078	0.056387	-0.101349	0.120683
3.06	0.350671	0.049731	-0.088627	0.103001	0.417637	0.055380	-0.100142	0.120730
3.07	0.351164	0.048850	-0.087596	0.103132	0.418186	0.054384	-0.098935	0.120736
3.08	0.351648	0.047979	-0.086565	0.103224	0.418725	0.053401	-0.097728	0.120700
3.09	0.352123	0.047118	-0.085532	0.103279	0.419254	0.052430	-0.096521	0.120624
3.10	0.352590	0.046268	-0.084499	0.103298	0.419774	0.051471	-0.095315	0.120508
3.11	0.353049	0.045428	-0.083466	0.103280	0.420284	0.050523	-0.094111	0.120353
3.12	0.353499	0.044599	-0.082434	0.103227	0.420784	0.049588	-0.092908	0.120161
3.13	0.353941	0.043780	-0.081402	0.103140	0.421275	0.048665	-0.091708	0.119932
3.14	0.354374	0.042971	-0.080371	0.103019	0.421757	0.047754	-0.090510	0.119667
3.15	0.354800	0.042172	-0.079342	0.102865	0.422231	0.046855	-0.089315	0.119367
3.16	0.355218	0.041384	-0.078314	0.102678	0.422695	0.045968	-0.088123	0.119032
3.17	0.355628	0.040606	-0.077288	0.102460	0.423150	0.045093	-0.086934	0.118663
3.18	0.356030	0.039838	-0.076265	0.102212	0.423597	0.044229	-0.085749	0.118263
3.19	0.356425	0.039081	-0.075244	0.101933	0.424035	0.043378	-0.084569	0.117830
3.20	0.356812	0.038333	-0.074226	0.101625	0.424464	0.042538	-0.083393	0.117366
3.21	0.357191	0.037596	-0.073212	0.101289	0.424885	0.041710	-0.082222	0.116873
3.22	0.357564	0.036869	-0.072201	0.100924	0.425298	0.040893	-0.081056	0.116350
3.23	0.357929	0.036152	-0.071193	0.100533	0.425703	0.040089	-0.079895	0.115799
3.24	0.358287	0.035445	-0.070190	0.100116	0.426100	0.039295	-0.078740	0.115220
3.25	0.358638	0.034748	-0.069191	0.099673	0.426489	0.038514	-0.077590	0.114615
3.26	0.358982	0.034061	-0.068197	0.099205	0.426870	0.037744	-0.076447	0.113984
3.27	0.359319	0.033384	-0.067207	0.098713	0.427244	0.036985	-0.075311	0.113328
3.28	0.359649	0.032717	-0.066222	0.098198	0.427610	0.036237	-0.074181	0.112648
3.29	0.359973	0.032060	-0.065243	0.097660	0.427969	0.035501	-0.073058	0.111944
3.30	0.360291	0.031412	-0.064269	0.097101	0.428320	0.034776	-0.071942	0.111218
3.31	0.360602	0.030774	-0.063301	0.096520	0.428664	0.034062	-0.070834	0.110471
3.32	0.360906	0.030146	-0.062339	0.095919	0.429002	0.033359	-0.069733	0.109702
3.33	0.361205	0.029528	-0.061383	0.095298	0.429332	0.032668	-0.068640	0.108914
3.34	0.361497	0.028919	-0.060433	0.094659	0.429655	0.031987	-0.067555	0.108106
3.35	0.361783	0.028319	-0.059490	0.094001	0.429971	0.031316	-0.066478	0.107279
3.36	0.362063	0.027729	-0.058553	0.093325	0.430281	0.030657	-0.065409	0.106435
3.37	0.362338	0.027148	-0.057623	0.092633	0.430585	0.030008	-0.064349	0.105574
3.38	0.362606	0.026576	-0.056700	0.091924	0.430882	0.029370	-0.063298	0.104697
3.39	0.362869	0.026014	-0.055785	0.091200	0.431172	0.028742	-0.062255	0.103804
3.40	0.363126	0.025461	-0.054876	0.090462	0.431456	0.028125	-0.061222	0.102897
3.41	0.363378	0.024916	-0.053976	0.089709	0.431735	0.027518	-0.060197	0.101976
3.42	0.363625	0.024381	-0.053082	0.088942	0.432007	0.026921	-0.059182	0.101041
3.43	0.363866	0.023855	-0.052197	0.088163	0.432273	0.026334	-0.058176	0.100094
3.44	0.364102	0.023337	-0.051319	0.087371	0.432533	0.025757	-0.057180	0.099135
3.45	0.364333	0.022828	-0.050449	0.086568	0.432788	0.025191	-0.056194	0.098165
3.46	0.364559	0.022328	-0.049588	0.085754	0.433037	0.024633	-0.055217	0.097185
3.47	0.364779	0.021836	-0.048734	0.084929	0.433281	0.024086	-0.054250	0.096194
3.48	0.364995	0.021353	-0.047889	0.084095	0.433519	0.023548	-0.053293	0.095195
3.49	0.365206	0.020879	-0.047053	0.083252	0.433752	0.023020	-0.052346	0.094187
3.50	0.365413	0.020412	-0.046224	0.082400	0.433980	0.022501	-0.051409	0.093172
3.51	0.365615	0.019954	-0.045405	0.081540	0.434202	0.021992	-0.050483	0.092149
3.52	0.365812	0.019504	-0.044594	0.080672	0.434419	0.021492	-0.049567	0.091119
3.53	0.366005	0.019062	-0.043791	0.079798	0.434632	0.021001	-0.048660	0.090084
3.54	0.366193	0.018628	-0.042998	0.078918	0.434839	0.020519	-0.047765	0.089043
3.55	0.366377	0.018202	-0.042213	0.078032	0.435042	0.020045	-0.046880	0.087997
3.56	0.366557	0.017784	-0.041437	0.077140	0.435240	0.019581	-0.046005	0.086948
3.57	0.366733	0.017373	-0.040670	0.076244	0.435434	0.019125	-0.045141	0.085894
3.58	0.366905	0.016971	-0.039912	0.075344	0.435623	0.018678	-0.044287	0.084838
3.59	0.367073	0.016575	-0.039163	0.074440	0.435807	0.018239	-0.043444	0.083779
3.60	0.367236	0.016187	-0.038423	0.073533	0.435988	0.017809	-0.042611	0.082717
3.61	0.367396	0.015807	-0.037693	0.072623	0.436164	0.017387	-0.041790	0.081655
3.62	0.367553	0.015433	-0.036971	0.071710	0.436335	0.016973	-0.040978	0.080591
3.63	0.367705	0.015067	-0.036258	0.070796	0.436503	0.016568	-0.040178	0.079527
3.64	0.367854	0.014708	-0.035555	0.069881	0.436667	0.016170	-0.039388	0.078462
3.65	0.367999	0.014356	-0.034861	0.068965	0.436827	0.015780	-0.038609	0.077398
3.66	0.368141	0.014011	-0.034176	0.068048	0.436982	0.015398	-0.037840	0.076335
3.67	0.368279	0.013673	-0.033500	0.067131	0.437135	0.015023	-0.037082	0.075273
3.68	0.368415	0.013341	-0.032833	0.066215	0.437283	0.014656	-0.036334	0.074213
3.69	0.368546	0.013016	-0.032175	0.065299	0.437428	0.014296	-0.035598	0.073155
3.70	0.368675	0.012697	-0.031527	0.064384	0.437569	0.013944	-0.034871	0.072100
3.71	0.368800	0.012385	-0.030888	0.063471	0.437707	0.013599	-0.034156	0.071047
3.72	0.368923	0.012080	-0.030258	0.062560	0.437841	0.013261	-0.033450	0.069998
3.73	0.369042	0.011780	-0.029637	0.061651	0.437972	0.012930	-0.032756	0.068952
3.74	0.369158	0.011487	-0.029025	0.060745	0.438100	0.012606	-0.032071	0.067911

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Contrails

η	j_{II}	j'_{II}	j''_{II}	j'''_{II}	q_{II}	q'_{II}	q''_{II}	q'''_{II}
3.75	0.369272	0.011200	-0.028422	0.059841	0.438224	0.012288	-0.031397	0.066874
3.76	0.369382	0.010918	-0.027828	0.058941	0.438345	0.011978	-0.030734	0.065841
3.77	0.369490	0.010643	-0.027243	0.058044	0.438464	0.011674	-0.030081	0.064814
3.78	0.369595	0.010373	-0.026667	0.057151	0.438579	0.011376	-0.029438	0.063792
3.79	0.369698	0.010110	-0.026100	0.056262	0.438691	0.011085	-0.028805	0.062776
3.80	0.369797	0.009851	-0.025542	0.055377	0.438801	0.010800	-0.028182	0.061765
3.81	0.369895	0.009599	-0.024992	0.054497	0.438907	0.010521	-0.027569	0.060761
3.82	0.369989	0.009352	-0.024452	0.053623	0.439011	0.010248	-0.026967	0.059764
3.83	0.370082	0.009110	-0.023920	0.052753	0.439112	0.009982	-0.026374	0.058773
3.84	0.370172	0.008873	-0.023397	0.051889	0.439211	0.009721	-0.025791	0.057789
3.85	0.370259	0.008642	-0.022882	0.051030	0.439307	0.009466	-0.025218	0.056812
3.86	0.370344	0.008415	-0.022376	0.050177	0.439400	0.009216	-0.024655	0.055843
3.87	0.370427	0.008194	-0.021878	0.049331	0.439491	0.008973	-0.024101	0.054882
3.88	0.370508	0.007978	-0.021389	0.048490	0.439579	0.008734	-0.023557	0.053928
3.89	0.370587	0.007766	-0.020909	0.047656	0.439666	0.008502	-0.023023	0.052983
3.90	0.370664	0.007560	-0.020436	0.046830	0.439749	0.008274	-0.022498	0.052046
3.91	0.370738	0.007358	-0.019972	0.046009	0.439831	0.008052	-0.021982	0.051117
3.92	0.370811	0.007160	-0.019516	0.045196	0.439911	0.007834	-0.021475	0.050197
3.93	0.370881	0.006967	-0.019068	0.044390	0.439988	0.007622	-0.020978	0.049286
3.94	0.370950	0.006779	-0.018628	0.043592	0.440063	0.007415	-0.020490	0.048383
3.95	0.371017	0.006595	-0.018196	0.042800	0.440136	0.007212	-0.020010	0.047490
3.96	0.371082	0.006415	-0.017772	0.042017	0.440207	0.007014	-0.019540	0.046606
3.97	0.371145	0.006239	-0.017356	0.041241	0.440276	0.006821	-0.019078	0.045731
3.98	0.371207	0.006068	-0.016947	0.040474	0.440344	0.006633	-0.018625	0.044866
3.99	0.371267	0.005900	-0.016546	0.039714	0.440409	0.006449	-0.018181	0.044010
4.00	0.371325	0.005737	-0.016153	0.038962	0.440473	0.006269	-0.017745	0.043165
4.01	0.371381	0.005577	-0.015767	0.038219	0.440534	0.006094	-0.017317	0.042328
4.02	0.371436	0.005421	-0.015389	0.037484	0.440595	0.005923	-0.016898	0.041502
4.03	0.371490	0.005269	-0.015017	0.036757	0.440653	0.005756	-0.016487	0.040685
4.04	0.371542	0.005121	-0.014653	0.036039	0.440710	0.005593	-0.016084	0.039879
4.05	0.371592	0.004976	-0.014297	0.035329	0.440765	0.005434	-0.015690	0.039082
4.06	0.371641	0.004835	-0.013947	0.034628	0.440818	0.005279	-0.015303	0.038296
4.07	0.371689	0.004697	-0.013604	0.033935	0.440870	0.005128	-0.014924	0.037519
4.08	0.371735	0.004563	-0.013268	0.033252	0.440921	0.004981	-0.014552	0.036753
4.09	0.371780	0.004432	-0.012939	0.032577	0.440970	0.004837	-0.014189	0.035997
4.10	0.371824	0.004304	-0.012616	0.031911	0.441018	0.004697	-0.013832	0.035251
4.11	0.371866	0.004180	-0.012301	0.031253	0.441064	0.004560	-0.013484	0.034516
4.12	0.371908	0.004058	-0.011991	0.030605	0.441109	0.004427	-0.013142	0.033791
4.13	0.371948	0.003940	-0.011688	0.029965	0.441153	0.004297	-0.012808	0.033075
4.14	0.371986	0.003824	-0.011392	0.029334	0.441195	0.004171	-0.012481	0.032371
4.15	0.372024	0.003712	-0.011102	0.028712	0.441236	0.004048	-0.012160	0.031676
4.16	0.372061	0.003602	-0.010818	0.028099	0.441276	0.003928	-0.011847	0.030992
4.17	0.372096	0.003496	-0.010540	0.027495	0.441315	0.003811	-0.011540	0.030318
4.18	0.372131	0.003391	-0.010268	0.026900	0.441352	0.003697	-0.011241	0.029655
4.19	0.372164	0.003290	-0.010002	0.026313	0.441389	0.003586	-0.010947	0.029001
4.20	0.372196	0.003191	-0.009742	0.025736	0.441424	0.003478	-0.010661	0.028358
4.21	0.372228	0.003095	-0.009487	0.025167	0.441458	0.003373	-0.010380	0.027724
4.22	0.372258	0.003002	-0.009238	0.024608	0.441491	0.003270	-0.010106	0.027101
4.23	0.372288	0.002910	-0.008995	0.024057	0.441524	0.003171	-0.009838	0.026488
4.24	0.372316	0.002822	-0.008757	0.023515	0.441555	0.003074	-0.009576	0.025885
4.25	0.372344	0.002735	-0.008524	0.022981	0.441585	0.002979	-0.009320	0.025292
4.26	0.372371	0.002651	-0.008297	0.022457	0.441614	0.002887	-0.009070	0.024709
4.27	0.372397	0.002569	-0.008075	0.021940	0.441643	0.002798	-0.008826	0.024135
4.28	0.372423	0.002490	-0.007858	0.021433	0.441670	0.002711	-0.008588	0.023572
4.29	0.372447	0.002412	-0.007647	0.020934	0.441697	0.002626	-0.008355	0.023018
4.30	0.372471	0.002337	-0.007440	0.020444	0.441723	0.002544	-0.008127	0.022474
4.31	0.372494	0.002263	-0.007238	0.019961	0.441748	0.002463	-0.007905	0.021939
4.32	0.372516	0.002192	-0.007041	0.019488	0.441772	0.002385	-0.007688	0.021414
4.33	0.372538	0.002123	-0.006848	0.019022	0.441796	0.002310	-0.007477	0.020898
4.34	0.372559	0.002055	-0.006660	0.018566	0.441818	0.002236	-0.007270	0.020392
4.35	0.372579	0.001989	-0.006477	0.018116	0.441840	0.002164	-0.007069	0.019895
4.36	0.372598	0.001925	-0.006298	0.017676	0.441862	0.002094	-0.006872	0.019408
4.37	0.372617	0.001863	-0.006123	0.017243	0.441882	0.002027	-0.006681	0.018928
4.38	0.372636	0.001803	-0.005953	0.016819	0.441902	0.001961	-0.006494	0.018459
4.39	0.372653	0.001744	-0.005787	0.016402	0.441921	0.001897	-0.006312	0.017998
4.40	0.372671	0.001687	-0.005625	0.015994	0.441940	0.001835	-0.006134	0.017546
4.41	0.372687	0.001632	-0.005467	0.015592	0.441958	0.001774	-0.005961	0.017102
4.42	0.372703	0.001578	-0.005313	0.015199	0.441976	0.001715	-0.005792	0.016668
4.43	0.372719	0.001526	-0.005163	0.014813	0.441992	0.001658	-0.005627	0.016242
4.44	0.372734	0.001475	-0.005017	0.014435	0.442009	0.001603	-0.005467	0.015825
4.45	0.372748	0.001425	-0.004874	0.014064	0.442024	0.001549	-0.005311	0.015415
4.46	0.372762	0.001377	-0.004735	0.013701	0.442040	0.001497	-0.005159	0.015014
4.47	0.372776	0.001330	-0.004600	0.013344	0.442054	0.001446	-0.005010	0.014621
4.48	0.372789	0.001285	-0.004468	0.012996	0.442069	0.001396	-0.004866	0.014236
4.49	0.372801	0.001241	-0.004340	0.012653	0.442082	0.001348	-0.004726	0.013859

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Contrails

η	j_{II}	j'_{II}	j''_{II}	j'''_{II}	q_{II}	q'_{II}	q''_{II}	q'''_{II}
4.50	0.372814	0.001198	-0.004215	0.012319	0.442096	0.001302	-0.004589	0.013490
4.51	0.372825	0.001157	-0.004094	0.011990	0.442108	0.001257	-0.004456	0.013128
4.52	0.372837	0.001116	-0.003975	0.011670	0.442121	0.001213	-0.004326	0.012775
4.53	0.372848	0.001077	-0.003860	0.011354	0.442133	0.001170	-0.004200	0.012428
4.54	0.372858	0.001039	-0.003748	0.011047	0.442144	0.001129	-0.004078	0.012090
4.55	0.372869	0.001002	-0.003639	0.010745	0.442155	0.001089	-0.003958	0.011757
4.56	0.372878	0.000966	-0.003533	0.010451	0.442166	0.001050	-0.003843	0.011434
4.57	0.372888	0.000932	-0.003430	0.010161	0.442176	0.001012	-0.003730	0.011115
4.58	0.372897	0.000898	-0.003330	0.009880	0.442186	0.000975	-0.003620	0.010806
4.59	0.372906	0.000865	-0.003233	0.009603	0.442196	0.000939	-0.003514	0.010501
4.60	0.372914	0.000833	-0.003138	0.009334	0.442205	0.000905	-0.003410	0.010205
4.61	0.372922	0.000802	-0.003046	0.009068	0.442214	0.000871	-0.003309	0.009914
4.62	0.372930	0.000772	-0.002957	0.008811	0.442222	0.000838	-0.003212	0.009631
4.63	0.372938	0.000743	-0.002870	0.008557	0.442231	0.000807	-0.003117	0.009353
4.64	0.372945	0.000715	-0.002786	0.008312	0.442239	0.000776	-0.003025	0.009083
4.65	0.372952	0.000687	-0.002703	0.008069	0.442246	0.000746	-0.002935	0.008817
4.66	0.372959	0.000661	-0.002624	0.007835	0.442253	0.000717	-0.002848	0.008560
4.67	0.372965	0.000635	-0.002547	0.007603	0.442260	0.000689	-0.002764	0.008305
4.68	0.372972	0.000610	-0.002472	0.007379	0.442267	0.000662	-0.002682	0.008060
4.69	0.372978	0.000585	-0.002399	0.007158	0.442274	0.000636	-0.002603	0.007817
4.70	0.372983	0.000562	-0.002329	0.006945	0.442280	0.000610	-0.002526	0.007584
4.71	0.372989	0.000539	-0.002260	0.006733	0.442286	0.000585	-0.002451	0.007352
4.72	0.372994	0.000517	-0.002194	0.006530	0.442292	0.000561	-0.002379	0.007130
4.73	0.372999	0.000495	-0.002130	0.006328	0.442297	0.000538	-0.002308	0.006909
4.74	0.373004	0.000474	-0.002068	0.006135	0.442302	0.000515	-0.002241	0.006697
4.75	0.373009	0.000454	-0.002007	0.005943	0.442307	0.000493	-0.002175	0.006486
4.76	0.373013	0.000434	-0.001949	0.005759	0.442312	0.000471	-0.002111	0.006285
4.77	0.373017	0.000415	-0.001892	0.005575	0.442317	0.000451	-0.002049	0.006084
4.78	0.373021	0.000396	-0.001837	0.005400	0.442321	0.000430	-0.001989	0.005892
4.79	0.373025	0.000378	-0.001784	0.005225	0.442325	0.000411	-0.001931	0.005701
4.80	0.373029	0.000360	-0.001733	0.005059	0.442329	0.000392	-0.001875	0.005519
4.81	0.373033	0.000343	-0.001683	0.004892	0.442333	0.000373	-0.001821	0.005336
4.82	0.373036	0.000327	-0.001635	0.004734	0.442337	0.000355	-0.001768	0.005164
4.83	0.373039	0.000311	-0.001588	0.004574	0.442340	0.000338	-0.001717	0.004990
4.84	0.373042	0.000295	-0.001543	0.004425	0.442344	0.000321	-0.001669	0.004826
4.85	0.373045	0.000280	-0.001499	0.004273	0.442347	0.000304	-0.001621	0.004660
4.86	0.373048	0.000265	-0.001458	0.004131	0.442350	0.000289	-0.001575	0.004505
4.87	0.373050	0.000250	-0.001417	0.003986	0.442353	0.000273	-0.001531	0.004347
4.88	0.373053	0.000237	-0.001378	0.003851	0.442355	0.000258	-0.001488	0.004200
4.89	0.373055	0.000223	-0.001340	0.003714	0.442358	0.000243	-0.001447	0.004050
4.90	0.373057	0.000210	-0.001304	0.003586	0.442360	0.000229	-0.001407	0.003910
4.91	0.373059	0.000197	-0.001268	0.003454	0.442362	0.000215	-0.001369	0.003767
4.92	0.373061	0.000184	-0.001235	0.003333	0.442364	0.000202	-0.001332	0.003635
4.93	0.373063	0.000172	-0.001201	0.003208	0.442366	0.000188	-0.001296	0.003499
4.94	0.373065	0.000160	-0.001170	0.003094	0.442368	0.000176	-0.001262	0.003374
4.95	0.373066	0.000149	-0.001140	0.002975	0.442370	0.000163	-0.001228	0.003244
4.96	0.373067	0.000138	-0.001111	0.002866	0.442371	0.000151	-0.001197	0.003126
4.97	0.373069	0.000127	-0.001082	0.002753	0.442373	0.000139	-0.001166	0.003002
4.98	0.373070	0.000116	-0.001056	0.002650	0.442374	0.000128	-0.001137	0.002890
4.99	0.373071	0.000105	-0.001029	0.002542	0.442375	0.000116	-0.001108	0.002772
5.00	0.373072	0.000095	-0.001005	0.002445	0.442377	0.000106	-0.001081	0.002667
5.01	0.373073	0.000085	-0.000980	0.002342	0.442378	0.000095	-0.001055	0.002554
5.02	0.373074	0.000076	-0.000958	0.002250	0.442378	0.000084	-0.001030	0.002455
5.03	0.373075	0.000066	-0.000935	0.002152	0.442379	0.000074	-0.001006	0.002348
5.04	0.373075	0.000057	-0.000915	0.002066	0.442380	0.000064	-0.000983	0.002254
5.05	0.373076	0.000048	-0.000894	0.001971	0.442381	0.000055	-0.000961	0.002151
5.06	0.373076	0.000039	-0.000875	0.001890	0.442381	0.000045	-0.000940	0.002063
5.07	0.373076	0.000030	-0.000856	0.001800	0.442381	0.000036	-0.000920	0.001965
5.08	0.373077	0.000022	-0.000839	0.001724	0.442382	0.000027	-0.000901	0.001882
5.09	0.373077	0.000014	-0.000822	0.001637	0.442382	0.000018	-0.000882	0.001788
5.10	0.373077	0.000005	-0.000807	0.001565	0.442382	0.000009	-0.000865	0.001710
5.11	0.373077	-0.000003	-0.000791	0.001482	0.442382	0.000000	-0.000848	0.001620
5.12	0.373077	-0.000010	-0.000777	0.001415	0.442382	-0.000008	-0.000833	0.001547
5.13	0.373077	-0.000018	-0.000762	0.001336	0.442382	-0.000016	-0.000817	0.001461
5.14	0.373077	-0.000026	-0.000750	0.001273	0.442382	-0.000024	-0.000803	0.001392
5.15	0.373076	-0.000033	-0.000737	0.001196	0.442382	-0.000032	-0.000789	0.001309
5.16	0.373076	-0.000040	-0.000726	0.001137	0.442381	-0.000040	-0.000777	0.001245
5.17	0.373075	-0.000048	-0.000714	0.001063	0.442381	-0.000048	-0.000764	0.001165
5.18	0.373075	-0.000055	-0.000705	0.001008	0.442380	-0.000055	-0.000754	0.001105
5.19	0.373074	-0.000062	-0.000697	0.000937	0.442380	-0.000063	-0.000742	0.001028
5.20	0.373074	-0.000069	-0.000677	0.000885	0.442379	-0.000070	-0.000733	0.000972
5.21	0.373073	-0.000075	-0.000655	0.000818	0.442378	-0.000078	-0.000723	0.000898
5.22	0.373072	-0.000082	-0.000651	0.000773	0.442377	-0.000085	-0.000715	0.000845
5.23	0.373071	-0.000088	-0.000642	0.000719	0.442377	-0.000092	-0.000708	0.000774
5.24	0.373070	-0.000095	-0.000636	0.000621	0.442376	-0.000099	-0.000700	0.000725

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Contrails

η	m_{II}	m'_{II}	m''_{II}	m'''_{II}	n_{II}	n'_{II}	n''_{II}	n'''_{II}
0.00	0.000000	0.000000	-0.179648	0.000000	0.000000	0.000000	0.051561	0.000000
0.01	-0.000009	-0.001796	-0.179648	0.000017	0.000003	0.000516	0.051561	-0.000004
0.02	-0.000036	-0.003593	-0.179647	0.000061	0.000010	0.001031	0.051561	-0.000017
0.03	-0.000081	-0.005389	-0.179646	0.000122	0.000023	0.001547	0.051560	-0.000037
0.04	-0.000144	-0.007186	-0.179645	0.000189	0.000041	0.002062	0.051560	-0.000065
0.05	-0.000225	-0.008982	-0.179643	0.000252	0.000064	0.002578	0.051559	-0.000100
0.06	-0.000323	-0.010779	-0.179640	0.000302	0.000093	0.003094	0.051558	-0.000141
0.07	-0.000440	-0.012575	-0.179637	0.000332	0.000126	0.003609	0.051556	-0.000190
0.08	-0.000575	-0.014371	-0.179633	0.000333	0.000165	0.004125	0.051554	-0.000244
0.09	-0.000728	-0.016168	-0.179630	0.000298	0.000209	0.004640	0.051551	-0.000304
0.10	-0.000898	-0.017964	-0.179627	0.000221	0.000258	0.005156	0.051548	-0.000369
0.11	-0.001087	-0.019760	-0.179626	0.000095	0.000312	0.005671	0.051544	-0.000439
0.12	-0.001293	-0.021557	-0.179626	-0.000084	0.000371	0.006187	0.051539	-0.000513
0.13	-0.001518	-0.023353	-0.179628	-0.000322	0.000436	0.006702	0.051534	-0.000592
0.14	-0.001760	-0.025149	-0.179632	-0.000621	0.000505	0.007217	0.051527	-0.000675
0.15	-0.002021	-0.026945	-0.179640	-0.000986	0.000580	0.007733	0.051520	-0.000761
0.16	-0.002299	-0.028742	-0.179652	-0.001419	0.000660	0.008248	0.051512	-0.000850
0.17	-0.002596	-0.030539	-0.179669	-0.001922	0.000745	0.008763	0.051503	-0.000942
0.18	-0.002910	-0.032335	-0.179691	-0.002497	0.000835	0.009278	0.051493	-0.001037
0.19	-0.003243	-0.034132	-0.179719	-0.003144	0.000931	0.009793	0.051482	-0.001133
0.20	-0.003593	-0.035930	-0.179754	-0.003865	0.001031	0.010307	0.051471	-0.001231
0.21	-0.003961	-0.037727	-0.179797	-0.004659	0.001137	0.010822	0.051458	-0.001331
0.22	-0.004347	-0.039526	-0.179847	-0.005525	0.001247	0.011337	0.051444	-0.001432
0.23	-0.004752	-0.041324	-0.179907	-0.006463	0.001363	0.011851	0.051429	-0.001534
0.24	-0.005174	-0.043124	-0.179977	-0.007470	0.001484	0.012365	0.051413	-0.001636
0.25	-0.005614	-0.044924	-0.180057	-0.008544	0.001611	0.012879	0.051396	-0.001738
0.26	-0.006072	-0.046725	-0.180148	-0.009684	0.001742	0.013393	0.051379	-0.001841
0.27	-0.006549	-0.048527	-0.180251	-0.010886	0.001879	0.013907	0.051360	-0.001943
0.28	-0.007043	-0.050330	-0.180366	-0.012146	0.002020	0.014420	0.051340	-0.002045
0.29	-0.007555	-0.052134	-0.180494	-0.013462	0.002167	0.014934	0.051319	-0.002146
0.30	-0.008086	-0.053940	-0.180635	-0.014830	0.002319	0.015447	0.051297	-0.002246
0.31	-0.008634	-0.055747	-0.180791	-0.016244	0.002476	0.015959	0.051274	-0.002345
0.32	-0.009201	-0.057556	-0.180960	-0.017702	0.002638	0.016472	0.051250	-0.002443
0.33	-0.009785	-0.059366	-0.181145	-0.019197	0.002805	0.016984	0.051225	-0.002539
0.34	-0.010388	-0.061179	-0.181344	-0.020725	0.002978	0.017497	0.051199	-0.002634
0.35	-0.011009	-0.062993	-0.181559	-0.022281	0.003155	0.018008	0.051172	-0.002727
0.36	-0.011648	-0.064810	-0.181790	-0.023859	0.003338	0.018520	0.051145	-0.002819
0.37	-0.012305	-0.066629	-0.182037	-0.025454	0.003526	0.019031	0.051116	-0.002909
0.38	-0.012980	-0.068451	-0.182299	-0.027061	0.003719	0.019542	0.051086	-0.002996
0.39	-0.013674	-0.070275	-0.182578	-0.028673	0.003917	0.020053	0.051056	-0.003082
0.40	-0.014386	-0.072102	-0.182873	-0.030285	0.004120	0.020563	0.051025	-0.003166
0.41	-0.015116	-0.073933	-0.183184	-0.031890	0.004328	0.021074	0.050993	-0.003248
0.42	-0.015865	-0.075766	-0.183510	-0.033484	0.004541	0.021583	0.050960	-0.003329
0.43	-0.016631	-0.077603	-0.183853	-0.035060	0.004759	0.022093	0.050926	-0.003407
0.44	-0.017417	-0.079443	-0.184212	-0.036612	0.004983	0.022602	0.050892	-0.003484
0.45	-0.018220	-0.081287	-0.184585	-0.038134	0.005211	0.023111	0.050856	-0.003559
0.46	-0.019042	-0.083135	-0.184974	-0.039621	0.005445	0.023619	0.050820	-0.003632
0.47	-0.019883	-0.084987	-0.185378	-0.041066	0.005684	0.024127	0.050784	-0.003704
0.48	-0.020742	-0.086843	-0.185795	-0.042464	0.005928	0.024635	0.050746	-0.003774
0.49	-0.021620	-0.088703	-0.186227	-0.043810	0.006177	0.025142	0.050708	-0.003844
0.50	-0.022516	-0.090567	-0.186671	-0.045097	0.006431	0.025649	0.050670	-0.003912
0.51	-0.023431	-0.092436	-0.187128	-0.046321	0.006690	0.026155	0.050630	-0.003979
0.52	-0.024365	-0.094310	-0.187598	-0.047475	0.006954	0.026661	0.050590	-0.004046
0.53	-0.025317	-0.096188	-0.188078	-0.048556	0.007223	0.027167	0.050549	-0.004113
0.54	-0.026289	-0.098071	-0.188568	-0.049557	0.007497	0.027672	0.050508	-0.004179
0.55	-0.027279	-0.099960	-0.189069	-0.050475	0.007776	0.028177	0.050466	-0.004245
0.56	-0.028288	-0.101853	-0.189578	-0.051304	0.008060	0.028682	0.050423	-0.004312
0.57	-0.029316	-0.103751	-0.190094	-0.052040	0.008350	0.029186	0.050379	-0.004379
0.58	-0.030363	-0.105655	-0.190618	-0.052679	0.008644	0.029689	0.050335	-0.004447
0.59	-0.031429	-0.107564	-0.191148	-0.053216	0.008944	0.030192	0.050290	-0.004516
0.60	-0.032514	-0.109478	-0.191682	-0.053649	0.009248	0.030695	0.050245	-0.004586
0.61	-0.033619	-0.111397	-0.192220	-0.053973	0.009558	0.031197	0.050199	-0.004659
0.62	-0.034742	-0.113322	-0.192761	-0.054184	0.009872	0.031699	0.050152	-0.004733
0.63	-0.035885	-0.115252	-0.193304	-0.054280	0.010192	0.032200	0.050104	-0.004810
0.64	-0.037047	-0.117188	-0.193846	-0.054258	0.010516	0.032701	0.050056	-0.004889
0.65	-0.038229	-0.119129	-0.194388	-0.054115	0.010846	0.033201	0.050006	-0.004971
0.66	-0.039430	-0.121076	-0.194928	-0.053848	0.011180	0.033701	0.049956	-0.005057
0.67	-0.040650	-0.123028	-0.195465	-0.053455	0.011520	0.034201	0.049905	-0.005146
0.68	-0.041890	-0.124985	-0.195997	-0.052935	0.011864	0.034699	0.049853	-0.005239
0.69	-0.043150	-0.126948	-0.196523	-0.052284	0.012214	0.035198	0.049800	-0.005337
0.70	-0.044429	-0.128916	-0.197042	-0.051502	0.012568	0.035695	0.049746	-0.005439
0.71	-0.045728	-0.130889	-0.197553	-0.050588	0.012927	0.036193	0.049691	-0.005546
0.72	-0.047047	-0.132867	-0.198053	-0.049540	0.013292	0.036689	0.049635	-0.005658
0.73	-0.048386	-0.134850	-0.198543	-0.048357	0.013661	0.037185	0.049578	-0.005776
0.74	-0.049744	-0.136838	-0.199020	-0.047039	0.014036	0.037681	0.049520	-0.005900

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η	m_{II}	m'_{II}	m''_{II}	m'''_{II}	n_{II}	n'_{II}	n''_{II}	n'''_{II}
0.75	-0.051123	-0.138830	-0.199483	-0.045585	0.014415	0.038176	0.049460	-0.006031
0.76	-0.052521	-0.140827	-0.199931	-0.043995	0.014799	0.038670	0.049399	-0.006167
0.77	-0.053939	-0.142829	-0.200363	-0.042270	0.015188	0.039164	0.049337	-0.006311
0.78	-0.055377	-0.144834	-0.200776	-0.040408	0.015582	0.039657	0.049273	-0.006462
0.79	-0.056836	-0.146844	-0.201171	-0.038412	0.015981	0.040149	0.049208	-0.006621
0.80	-0.058314	-0.148858	-0.201544	-0.036280	0.016385	0.040641	0.049141	-0.006787
0.81	-0.059813	-0.150875	-0.201896	-0.034015	0.016794	0.041132	0.049072	-0.006961
0.82	-0.061332	-0.152896	-0.202224	-0.031618	0.017208	0.041622	0.049001	-0.007144
0.83	-0.062871	-0.154919	-0.202528	-0.029089	0.017627	0.042112	0.048929	-0.007335
0.84	-0.064430	-0.156946	-0.202805	-0.026430	0.018050	0.042601	0.048855	-0.007535
0.85	-0.066010	-0.158975	-0.203056	-0.023642	0.018479	0.043089	0.048778	-0.007744
0.86	-0.067610	-0.161007	-0.203278	-0.020728	0.018912	0.043576	0.048700	-0.007962
0.87	-0.069230	-0.163041	-0.203470	-0.017689	0.019350	0.044063	0.048619	-0.008190
0.88	-0.070871	-0.165076	-0.203631	-0.014527	0.019793	0.044549	0.048536	-0.008427
0.89	-0.072532	-0.167113	-0.203760	-0.011245	0.020241	0.045034	0.048450	-0.008675
0.90	-0.074213	-0.169151	-0.203856	-0.007845	0.020694	0.045518	0.048362	-0.008932
0.91	-0.075915	-0.171190	-0.203917	-0.004330	0.021151	0.046001	0.048272	-0.009200
0.92	-0.077637	-0.173230	-0.203942	-0.000702	0.021614	0.046483	0.048178	-0.009478
0.93	-0.079379	-0.175269	-0.203930	0.003036	0.022081	0.046965	0.048082	-0.009766
0.94	-0.081142	-0.177308	-0.203881	0.006881	0.022553	0.047445	0.047983	-0.010066
0.95	-0.082925	-0.179347	-0.203792	0.010829	0.023030	0.047924	0.047881	-0.010376
0.96	-0.084729	-0.181384	-0.203664	0.014879	0.023512	0.048402	0.047775	-0.010696
0.97	-0.086553	-0.183420	-0.203494	0.019026	0.023998	0.048880	0.047667	-0.011028
0.98	-0.088397	-0.185454	-0.203283	0.023266	0.024489	0.049356	0.047555	-0.011371
0.99	-0.090262	-0.187485	-0.203029	0.027598	0.024985	0.049831	0.047439	-0.011725
1.00	-0.092147	-0.189514	-0.202731	0.032016	0.025486	0.050305	0.047320	-0.012089
1.01	-0.094052	-0.191540	-0.202388	0.036518	0.025991	0.050777	0.047198	-0.012465
1.02	-0.095978	-0.193562	-0.202000	0.041099	0.026501	0.051248	0.047071	-0.012852
1.03	-0.097924	-0.195579	-0.201566	0.045757	0.027016	0.051719	0.046940	-0.013250
1.04	-0.099889	-0.197593	-0.201085	0.050487	0.027536	0.052187	0.046806	-0.013660
1.05	-0.101875	-0.199601	-0.200556	0.055284	0.028060	0.052655	0.046667	-0.014080
1.06	-0.103881	-0.201604	-0.199979	0.060147	0.028589	0.053121	0.046524	-0.014511
1.07	-0.105907	-0.203600	-0.199353	0.065069	0.029122	0.053585	0.046377	-0.014953
1.08	-0.107953	-0.205591	-0.198677	0.070048	0.029661	0.054048	0.046225	-0.015406
1.09	-0.110019	-0.207574	-0.197952	0.075080	0.030203	0.054510	0.046069	-0.015870
1.10	-0.112105	-0.209549	-0.197175	0.080160	0.030751	0.054969	0.045908	-0.016344
1.11	-0.114210	-0.211517	-0.196348	0.085284	0.031303	0.055428	0.045742	-0.016829
1.12	-0.116335	-0.213476	-0.195470	0.090448	0.031859	0.055884	0.045571	-0.017324
1.13	-0.118480	-0.215426	-0.194539	0.095648	0.032420	0.056339	0.045395	-0.017830
1.14	-0.120644	-0.217367	-0.193557	0.100881	0.032986	0.056792	0.045215	-0.018345
1.15	-0.122827	-0.219297	-0.192522	0.106141	0.033556	0.057243	0.045028	-0.018871
1.16	-0.125030	-0.221217	-0.191434	0.111425	0.034131	0.057693	0.044837	-0.019406
1.17	-0.127251	-0.223126	-0.190293	0.116729	0.034710	0.058140	0.044640	-0.019951
1.18	-0.129492	-0.225023	-0.189099	0.122049	0.035294	0.058586	0.044438	-0.020506
1.19	-0.131752	-0.226908	-0.187852	0.127380	0.035882	0.059029	0.044230	-0.021069
1.20	-0.134030	-0.228780	-0.186551	0.132719	0.036474	0.059470	0.044017	-0.021642
1.21	-0.136327	-0.230638	-0.185198	0.138062	0.037071	0.059909	0.043797	-0.022223
1.22	-0.138643	-0.232483	-0.183790	0.143404	0.037672	0.060346	0.043572	-0.022812
1.23	-0.140977	-0.234314	-0.182329	0.148742	0.038278	0.060781	0.043341	-0.023410
1.24	-0.143329	-0.236130	-0.180815	0.154073	0.038888	0.061213	0.043104	-0.024016
1.25	-0.145699	-0.237930	-0.179248	0.159391	0.039502	0.061643	0.042861	-0.024630
1.26	-0.148088	-0.239715	-0.177628	0.164693	0.040121	0.062070	0.042611	-0.025251
1.27	-0.150494	-0.241483	-0.175954	0.169976	0.040744	0.062495	0.042356	-0.025879
1.28	-0.152917	-0.243234	-0.174228	0.175236	0.041371	0.062917	0.042094	-0.026514
1.29	-0.155358	-0.244967	-0.172450	0.180469	0.042002	0.063337	0.041825	-0.027155
1.30	-0.157817	-0.246682	-0.170619	0.185672	0.042638	0.063754	0.041551	-0.027803
1.31	-0.160292	-0.248379	-0.168736	0.190840	0.043277	0.064168	0.041269	-0.028457
1.32	-0.162784	-0.250057	-0.166802	0.195971	0.043921	0.064579	0.040981	-0.029116
1.33	-0.165293	-0.251715	-0.164817	0.201061	0.044569	0.064987	0.040687	-0.029781
1.34	-0.167818	-0.253353	-0.162781	0.206107	0.045221	0.065393	0.040386	-0.030451
1.35	-0.170360	-0.254971	-0.160695	0.211105	0.045877	0.065795	0.040078	-0.031125
1.36	-0.172918	-0.256567	-0.158559	0.216053	0.046537	0.066194	0.039763	-0.031804
1.37	-0.175491	-0.258142	-0.156374	0.220946	0.047200	0.066590	0.039442	-0.032487
1.38	-0.178080	-0.259694	-0.154140	0.225783	0.047868	0.066983	0.039113	-0.033174
1.39	-0.180685	-0.261224	-0.151859	0.230559	0.048540	0.067373	0.038778	-0.033864
1.40	-0.183305	-0.262731	-0.149530	0.235272	0.049216	0.067759	0.038436	-0.034556
1.41	-0.185940	-0.264215	-0.147154	0.239919	0.049895	0.068141	0.038087	-0.035252
1.42	-0.188589	-0.265674	-0.144731	0.244498	0.050579	0.068520	0.037731	-0.035950
1.43	-0.191253	-0.267109	-0.142264	0.249005	0.051266	0.068896	0.037368	-0.036650
1.44	-0.193931	-0.268519	-0.139752	0.253438	0.051956	0.069268	0.036998	-0.037351
1.45	-0.196623	-0.269904	-0.137195	0.257794	0.052651	0.069636	0.036621	-0.038054
1.46	-0.199329	-0.271263	-0.134596	0.262070	0.053349	0.070000	0.036237	-0.038758
1.47	-0.202048	-0.272596	-0.131954	0.266265	0.054051	0.070360	0.035846	-0.039462
1.48	-0.204781	-0.273902	-0.129271	0.270377	0.054756	0.070717	0.035448	-0.040166
1.49	-0.207526	-0.275181	-0.126547	0.274401	0.055465	0.071069	0.035043	-0.040871

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Contrails

η	m_{II}	m'_{II}	m''_{II}	m'''_{II}	n_{II}	n'_{II}	n''_{II}	n'''_{II}
1.50	-0.210284	-0.276433	-0.123783	0.278337	0.056178	0.071418	0.034630	-0.041575
1.51	-0.213055	-0.277657	-0.120980	0.282183	0.056894	0.071762	0.034211	-0.042277
1.52	-0.215837	-0.278852	-0.118140	0.285936	0.057613	0.072102	0.033785	-0.042979
1.53	-0.218632	-0.280019	-0.115262	0.289594	0.058336	0.072438	0.033352	-0.043679
1.54	-0.221438	-0.281157	-0.112348	0.293155	0.059062	0.072769	0.032911	-0.044378
1.55	-0.224255	-0.282266	-0.109399	0.296619	0.059791	0.073096	0.032464	-0.045074
1.56	-0.227083	-0.283345	-0.106416	0.299982	0.060524	0.073418	0.032010	-0.045767
1.57	-0.229922	-0.284394	-0.103400	0.303243	0.061259	0.073736	0.031549	-0.046458
1.58	-0.232771	-0.285413	-0.100352	0.306401	0.061998	0.074049	0.031081	-0.047145
1.59	-0.235630	-0.286401	-0.097272	0.309454	0.062740	0.074358	0.030606	-0.047829
1.60	-0.238499	-0.287358	-0.094163	0.312401	0.063485	0.074661	0.030124	-0.048509
1.61	-0.241377	-0.288284	-0.091025	0.315240	0.064234	0.074960	0.029636	-0.049184
1.62	-0.244264	-0.289179	-0.087859	0.317970	0.064985	0.075254	0.029140	-0.049855
1.63	-0.247160	-0.290041	-0.084666	0.320590	0.065739	0.075543	0.028639	-0.050521
1.64	-0.250065	-0.290872	-0.081447	0.323099	0.066495	0.075827	0.028130	-0.051181
1.65	-0.252978	-0.291670	-0.078204	0.325496	0.067255	0.076105	0.027615	-0.051836
1.66	-0.255898	-0.292436	-0.074938	0.327779	0.068018	0.076379	0.027093	-0.052485
1.67	-0.258826	-0.293169	-0.071649	0.329949	0.068783	0.076647	0.026565	-0.053128
1.68	-0.261762	-0.293869	-0.068339	0.332003	0.069550	0.076910	0.026031	-0.053764
1.69	-0.264704	-0.294536	-0.065009	0.333941	0.070321	0.077168	0.025490	-0.054394
1.70	-0.267652	-0.295169	-0.061661	0.335763	0.071094	0.077420	0.024943	-0.055016
1.71	-0.270607	-0.295769	-0.058294	0.337468	0.071869	0.077667	0.024390	-0.055631
1.72	-0.273567	-0.296335	-0.054912	0.339056	0.072647	0.077908	0.023830	-0.056237
1.73	-0.276533	-0.296867	-0.051514	0.340525	0.073427	0.078143	0.023265	-0.056836
1.74	-0.279505	-0.297365	-0.048101	0.341876	0.074210	0.078373	0.022694	-0.057427
1.75	-0.282481	-0.297829	-0.044676	0.343108	0.074995	0.078597	0.022116	-0.058008
1.76	-0.285461	-0.298259	-0.041240	0.344221	0.075782	0.078815	0.021534	-0.058581
1.77	-0.288446	-0.298654	-0.037792	0.345214	0.076571	0.079028	0.020945	-0.059144
1.78	-0.291434	-0.299014	-0.034336	0.346089	0.077362	0.079234	0.020351	-0.059698
1.79	-0.294426	-0.299341	-0.030871	0.346843	0.078156	0.079435	0.019751	-0.060242
1.80	-0.297421	-0.299632	-0.027399	0.347479	0.078951	0.079629	0.019146	-0.060776
1.81	-0.300418	-0.299888	-0.023922	0.347994	0.079748	0.079818	0.018535	-0.061299
1.82	-0.303418	-0.300110	-0.020440	0.348391	0.080547	0.080000	0.017920	-0.061812
1.83	-0.306421	-0.300297	-0.016954	0.348668	0.081348	0.080176	0.017299	-0.062314
1.84	-0.309424	-0.300449	-0.013467	0.348826	0.082151	0.080346	0.016674	-0.062805
1.85	-0.312429	-0.300567	-0.009978	0.348866	0.082955	0.080510	0.016043	-0.063284
1.86	-0.315435	-0.300649	-0.006490	0.348787	0.083761	0.080667	0.015408	-0.063752
1.87	-0.318442	-0.300696	-0.003003	0.348591	0.084569	0.080818	0.014768	-0.064208
1.88	-0.321449	-0.300709	0.000481	0.348277	0.085377	0.080962	0.014124	-0.064651
1.89	-0.324456	-0.300687	0.003962	0.347846	0.086188	0.081100	0.013475	-0.065082
1.90	-0.327463	-0.300630	0.007438	0.347299	0.086999	0.081232	0.012822	-0.065501
1.91	-0.330469	-0.300538	0.010908	0.346636	0.087812	0.081357	0.012165	-0.065906
1.92	-0.333474	-0.300412	0.014370	0.345859	0.088627	0.081475	0.011504	-0.066299
1.93	-0.336477	-0.300251	0.017825	0.344967	0.089442	0.081587	0.010839	-0.066678
1.94	-0.339478	-0.300055	0.021269	0.343962	0.090258	0.081692	0.010171	-0.067043
1.95	-0.342478	-0.299825	0.024703	0.342844	0.091076	0.081790	0.009498	-0.067395
1.96	-0.345475	-0.299561	0.028126	0.341615	0.091894	0.081882	0.008823	-0.067733
1.97	-0.348469	-0.299263	0.031535	0.340275	0.092713	0.081967	0.008144	-0.068056
1.98	-0.351460	-0.298931	0.034931	0.338825	0.093533	0.082045	0.007462	-0.068365
1.99	-0.354447	-0.298564	0.038311	0.337267	0.094354	0.082116	0.006777	-0.068660
2.00	-0.357431	-0.298164	0.041676	0.335601	0.095176	0.082180	0.006089	-0.068940
2.01	-0.360411	-0.297731	0.045023	0.333829	0.095998	0.082237	0.005398	-0.069204
2.02	-0.363386	-0.297264	0.048352	0.331952	0.096820	0.082288	0.004705	-0.069454
2.03	-0.366356	-0.296764	0.051662	0.329970	0.097643	0.082332	0.004009	-0.069688
2.04	-0.369321	-0.296231	0.054951	0.327886	0.098467	0.082368	0.003311	-0.069907
2.05	-0.372280	-0.295665	0.058219	0.325701	0.099291	0.082398	0.002611	-0.070110
2.06	-0.375234	-0.295066	0.061465	0.323416	0.100115	0.082420	0.001909	-0.070297
2.07	-0.378182	-0.294436	0.064687	0.321032	0.100939	0.082436	0.001205	-0.070468
2.08	-0.381123	-0.293773	0.067885	0.318551	0.101764	0.082444	0.000499	-0.070622
2.09	-0.384057	-0.293078	0.071058	0.315974	0.102588	0.082446	-0.000207	-0.070761
2.10	-0.386984	-0.292352	0.074204	0.313304	0.103413	0.082440	-0.000916	-0.070883
2.11	-0.389904	-0.291594	0.077324	0.310540	0.104237	0.082428	-0.001625	-0.070988
2.12	-0.392816	-0.290805	0.080415	0.307686	0.105061	0.082408	-0.002335	-0.071077
2.13	-0.395720	-0.289986	0.083477	0.304742	0.105885	0.082381	-0.003047	-0.071148
2.14	-0.398615	-0.289136	0.086509	0.301711	0.106709	0.082347	-0.003758	-0.071203
2.15	-0.401502	-0.288256	0.089511	0.298593	0.107532	0.082306	-0.004471	-0.071240
2.16	-0.404380	-0.287346	0.092481	0.295391	0.108355	0.082257	-0.005183	-0.071261
2.17	-0.407249	-0.286406	0.095419	0.292107	0.109177	0.082202	-0.005896	-0.071263
2.18	-0.410109	-0.285438	0.098323	0.288742	0.109999	0.082140	-0.006608	-0.071249
2.19	-0.412958	-0.284440	0.101193	0.285298	0.110820	0.082070	-0.007321	-0.071217
2.20	-0.415797	-0.283414	0.104029	0.281777	0.111640	0.081993	-0.008033	-0.071167
2.21	-0.418626	-0.282359	0.106828	0.278181	0.112460	0.081909	-0.008744	-0.071099
2.22	-0.421444	-0.281277	0.109592	0.274511	0.113278	0.081818	-0.009455	-0.071014
2.23	-0.424252	-0.280168	0.112318	0.270770	0.114096	0.081720	-0.010164	-0.070911
2.24	-0.427048	-0.279031	0.115007	0.266960	0.114913	0.081615	-0.010873	-0.070790

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Contrails

η	m_{11}	m'_{11}	m''_{11}	m'''_{11}	n_{11}	n'_{11}	n''_{11}	n'''_{11}
2.25	-0.429832	-0.277868	0.117657	0.263082	0.115728	0.081503	-0.011580	-0.070651
2.26	-0.432605	-0.276678	0.120269	0.259138	0.116543	0.081383	-0.012286	-0.070494
2.27	-0.435366	-0.275462	0.122840	0.255131	0.117356	0.081257	-0.012990	-0.070319
2.28	-0.438114	-0.274221	0.125371	0.251063	0.118168	0.081124	-0.013692	-0.070125
2.29	-0.440850	-0.272955	0.127861	0.246935	0.118978	0.080983	-0.014392	-0.069914
2.30	-0.443573	-0.271664	0.130309	0.242750	0.119787	0.080836	-0.015090	-0.069685
2.31	-0.446283	-0.270349	0.132716	0.238509	0.120595	0.080681	-0.015786	-0.069437
2.32	-0.448980	-0.269010	0.135079	0.234215	0.121401	0.080520	-0.016479	-0.069171
2.33	-0.451663	-0.267648	0.137400	0.229870	0.122205	0.080352	-0.017169	-0.068887
2.34	-0.454333	-0.266262	0.139677	0.225476	0.123008	0.080177	-0.017857	-0.068585
2.35	-0.456988	-0.264854	0.141909	0.221036	0.123809	0.079995	-0.018541	-0.068265
2.36	-0.459630	-0.263424	0.144097	0.216550	0.124608	0.079806	-0.019222	-0.067927
2.37	-0.462257	-0.261973	0.146240	0.212022	0.125405	0.079610	-0.019899	-0.067570
2.38	-0.464869	-0.260500	0.148338	0.207453	0.126200	0.079408	-0.020573	-0.067196
2.39	-0.467467	-0.259006	0.150389	0.202846	0.126993	0.079199	-0.021243	-0.066804
2.40	-0.470049	-0.257492	0.152394	0.198204	0.127784	0.078983	-0.021909	-0.066394
2.41	-0.472617	-0.255958	0.154353	0.193527	0.128573	0.078761	-0.022571	-0.065966
2.42	-0.475168	-0.254405	0.156265	0.188818	0.129359	0.078532	-0.023228	-0.065520
2.43	-0.477705	-0.252833	0.158129	0.184080	0.130143	0.078296	-0.023881	-0.065057
2.44	-0.480225	-0.251243	0.159946	0.179314	0.130925	0.078054	-0.024529	-0.064576
2.45	-0.482729	-0.249634	0.161716	0.174523	0.131704	0.077806	-0.025173	-0.064077
2.46	-0.485218	-0.248008	0.163437	0.169709	0.132481	0.077551	-0.025811	-0.063562
2.47	-0.487689	-0.246366	0.165110	0.164875	0.133255	0.077289	-0.026444	-0.063029
2.48	-0.490145	-0.244706	0.166734	0.160021	0.134027	0.077022	-0.027071	-0.062479
2.49	-0.492584	-0.243031	0.168310	0.155151	0.134796	0.076748	-0.027693	-0.061912
2.50	-0.495005	-0.241340	0.169837	0.150266	0.135562	0.076468	-0.028310	-0.061329
2.51	-0.497410	-0.239635	0.171315	0.145369	0.136325	0.076182	-0.028920	-0.060729
2.52	-0.499798	-0.237914	0.172744	0.140462	0.137086	0.075890	-0.029524	-0.060112
2.53	-0.502169	-0.236180	0.174125	0.135547	0.137843	0.075591	-0.030122	-0.059479
2.54	-0.504522	-0.234432	0.175455	0.130626	0.138597	0.075287	-0.030714	-0.058830
2.55	-0.506857	-0.232671	0.176737	0.125702	0.139349	0.074977	-0.031299	-0.058165
2.56	-0.509175	-0.230897	0.177969	0.120775	0.140097	0.074661	-0.031877	-0.057485
2.57	-0.511475	-0.229112	0.179153	0.115849	0.140842	0.074340	-0.032448	-0.056789
2.58	-0.513757	-0.227314	0.180286	0.110925	0.141584	0.074012	-0.033013	-0.056077
2.59	-0.516021	-0.225506	0.181371	0.106006	0.142322	0.073679	-0.033570	-0.055351
2.60	-0.518267	-0.223687	0.182407	0.101094	0.143057	0.073341	-0.034120	-0.054610
2.61	-0.520495	-0.221858	0.183393	0.096190	0.143789	0.072997	-0.034662	-0.053854
2.62	-0.522704	-0.220020	0.184330	0.091296	0.144517	0.072648	-0.035197	-0.053085
2.63	-0.524895	-0.218172	0.185219	0.086415	0.145242	0.072293	-0.035724	-0.052301
2.64	-0.527068	-0.216315	0.186059	0.081548	0.145963	0.071933	-0.036243	-0.051503
2.65	-0.529222	-0.214451	0.186850	0.076698	0.146681	0.071568	-0.036754	-0.050692
2.66	-0.531357	-0.212578	0.187593	0.071866	0.147394	0.071198	-0.037256	-0.049868
2.67	-0.533473	-0.210699	0.188287	0.067054	0.148104	0.070823	-0.037751	-0.049031
2.68	-0.535571	-0.208813	0.188934	0.062264	0.148811	0.070443	-0.038237	-0.048181
2.69	-0.537649	-0.206921	0.189533	0.057498	0.149513	0.070058	-0.038715	-0.047319
2.70	-0.539709	-0.205022	0.190084	0.052757	0.150212	0.069669	-0.039183	-0.046445
2.71	-0.541750	-0.203119	0.190588	0.048044	0.150907	0.069275	-0.039643	-0.045559
2.72	-0.543772	-0.201211	0.191045	0.043360	0.151597	0.068876	-0.040094	-0.044663
2.73	-0.545774	-0.199298	0.191455	0.038706	0.152284	0.068473	-0.040537	-0.043755
2.74	-0.547757	-0.197382	0.191819	0.034086	0.152967	0.068065	-0.040970	-0.042837
2.75	-0.549722	-0.195462	0.192137	0.029499	0.153645	0.067654	-0.041393	-0.041908
2.76	-0.551667	-0.193539	0.192409	0.024948	0.154320	0.067238	-0.041808	-0.040970
2.77	-0.553592	-0.191614	0.192636	0.020435	0.154990	0.066817	-0.042213	-0.040022
2.78	-0.555499	-0.189687	0.192818	0.015960	0.155656	0.066393	-0.042608	-0.039065
2.79	-0.557386	-0.187758	0.192955	0.011526	0.156318	0.065965	-0.042994	-0.038099
2.80	-0.559254	-0.185828	0.193049	0.007134	0.156976	0.065533	-0.043370	-0.037124
2.81	-0.561103	-0.183897	0.193098	0.002785	0.157629	0.065098	-0.043736	-0.036142
2.82	-0.562932	-0.181966	0.193105	-0.001520	0.158278	0.064659	-0.044093	-0.035152
2.83	-0.564742	-0.180035	0.193068	-0.005778	0.158922	0.064216	-0.044439	-0.034155
2.84	-0.566533	-0.178105	0.192989	-0.009988	0.159562	0.063770	-0.044776	-0.033152
2.85	-0.568304	-0.176175	0.192868	-0.014150	0.160197	0.063321	-0.045102	-0.032141
2.86	-0.570056	-0.174247	0.192706	-0.018262	0.160828	0.062868	-0.045419	-0.031125
2.87	-0.571789	-0.172321	0.192503	-0.022322	0.161455	0.062412	-0.045725	-0.030104
2.88	-0.573503	-0.170398	0.192260	-0.026331	0.162076	0.061954	-0.046021	-0.029077
2.89	-0.575197	-0.168476	0.191977	-0.030285	0.162694	0.061492	-0.046306	-0.028045
2.90	-0.576872	-0.166558	0.191655	-0.034185	0.163306	0.061027	-0.046582	-0.027009
2.91	-0.578528	-0.164643	0.191293	-0.038029	0.163914	0.060560	-0.046847	-0.025969
2.92	-0.580165	-0.162732	0.190894	-0.041817	0.164517	0.060091	-0.047101	-0.024926
2.93	-0.581783	-0.160826	0.190457	-0.045546	0.165116	0.059618	-0.047345	-0.023880
2.94	-0.583382	-0.158923	0.189983	-0.049217	0.165710	0.059144	-0.047579	-0.022831
2.95	-0.584961	-0.157026	0.189473	-0.052829	0.166299	0.058667	-0.047802	-0.021780
2.96	-0.586522	-0.155134	0.188927	-0.056379	0.166883	0.058188	-0.048014	-0.020727
2.97	-0.588064	-0.153248	0.188346	-0.059869	0.167463	0.057707	-0.048216	-0.019673
2.98	-0.589587	-0.151367	0.187730	-0.063297	0.168037	0.057223	-0.048408	-0.018618
2.99	-0.591091	-0.149493	0.187080	-0.066662	0.168607	0.056738	-0.048589	-0.017563

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Contrails

η	m_{11}	m'_{11}	m''_{11}	m'''_{11}	n_{11}	n'_{11}	n''_{11}	n'''_{11}
3.00	-0.592577	-0.147626	0.186397	-0.069963	0.169172	0.056252	-0.048759	-0.016508
3.01	-0.594044	-0.145765	0.185681	-0.073200	0.169732	0.055763	-0.048919	-0.015453
3.02	-0.595492	-0.143912	0.184933	-0.076373	0.170287	0.055273	-0.049068	-0.014399
3.03	-0.596922	-0.142067	0.184154	-0.079480	0.170838	0.054782	-0.049207	-0.013347
3.04	-0.598334	-0.140229	0.183344	-0.082521	0.171383	0.054289	-0.049335	-0.012296
3.05	-0.599727	-0.138400	0.182504	-0.085496	0.171923	0.053795	-0.049453	-0.011247
3.06	-0.601102	-0.136579	0.181634	-0.088404	0.172459	0.053300	-0.049560	-0.010201
3.07	-0.602458	-0.134767	0.180736	-0.091245	0.172989	0.052804	-0.049657	-0.009158
3.08	-0.603797	-0.132965	0.179809	-0.094019	0.173515	0.052307	-0.049743	-0.008119
3.09	-0.605118	-0.131171	0.178856	-0.096724	0.174036	0.051809	-0.049819	-0.007083
3.10	-0.606421	-0.129388	0.177875	-0.099362	0.174551	0.051311	-0.049885	-0.006052
3.11	-0.607706	-0.127614	0.176869	-0.101931	0.175062	0.050812	-0.049940	-0.005025
3.12	-0.608973	-0.125850	0.175837	-0.104431	0.175567	0.050312	-0.049985	-0.004003
3.13	-0.610223	-0.124097	0.174780	-0.106863	0.176068	0.049812	-0.050020	-0.002987
3.14	-0.611455	-0.122355	0.173700	-0.109226	0.176564	0.049312	-0.050045	-0.001977
3.15	-0.612670	-0.120623	0.172596	-0.111519	0.177054	0.048811	-0.050060	-0.000973
3.16	-0.613867	-0.118903	0.171469	-0.113744	0.177540	0.048310	-0.050065	0.000024
3.17	-0.615048	-0.117194	0.170321	-0.115900	0.178020	0.047810	-0.050059	0.001014
3.18	-0.616211	-0.115497	0.169152	-0.117986	0.178496	0.047309	-0.050044	0.001996
3.19	-0.617358	-0.113811	0.167962	-0.120004	0.178967	0.046809	-0.050019	0.002971
3.20	-0.618488	-0.112137	0.166752	-0.121953	0.179432	0.046309	-0.049985	0.003938
3.21	-0.619601	-0.110476	0.165523	-0.123833	0.179893	0.045809	-0.049941	0.004896
3.22	-0.620697	-0.108827	0.164275	-0.125645	0.180348	0.045310	-0.049887	0.005845
3.23	-0.621777	-0.107191	0.163010	-0.127388	0.180799	0.044812	-0.049824	0.006785
3.24	-0.622841	-0.105567	0.161728	-0.129063	0.181245	0.044314	-0.049751	0.007715
3.25	-0.623889	-0.103956	0.160429	-0.130670	0.181685	0.043817	-0.049670	0.008635
3.26	-0.624920	-0.102358	0.159115	-0.132210	0.182121	0.043320	-0.049579	0.009546
3.27	-0.625936	-0.100774	0.157785	-0.133682	0.182552	0.042825	-0.049479	0.010445
3.28	-0.626936	-0.099203	0.156441	-0.135088	0.182977	0.042331	-0.049370	0.011334
3.29	-0.627920	-0.097645	0.155084	-0.136427	0.183398	0.041838	-0.049252	0.012211
3.30	-0.628889	-0.096101	0.153713	-0.137700	0.183814	0.041346	-0.049126	0.013077
3.31	-0.629842	-0.094571	0.152330	-0.138908	0.184225	0.040855	-0.048991	0.013931
3.32	-0.630780	-0.093055	0.150935	-0.140050	0.184631	0.040366	-0.048847	0.014774
3.33	-0.631703	-0.091552	0.149529	-0.141128	0.185033	0.039878	-0.048695	0.015603
3.34	-0.632611	-0.090064	0.148113	-0.142142	0.185429	0.039392	-0.048535	0.016421
3.35	-0.633504	-0.088590	0.146686	-0.143093	0.185820	0.038908	-0.048367	0.017225
3.36	-0.634383	-0.087130	0.145251	-0.143980	0.186207	0.038425	-0.048191	0.018017
3.37	-0.635247	-0.085685	0.143807	-0.144806	0.186589	0.037944	-0.048006	0.018795
3.38	-0.636097	-0.084254	0.142355	-0.145569	0.186966	0.037465	-0.047815	0.019559
3.39	-0.636932	-0.082838	0.140896	-0.146272	0.187338	0.036988	-0.047615	0.020310
3.40	-0.637754	-0.081436	0.139430	-0.146915	0.187706	0.036512	-0.047409	0.021047
3.41	-0.638561	-0.080049	0.137958	-0.147498	0.188068	0.036039	-0.047194	0.021770
3.42	-0.639355	-0.078677	0.136480	-0.148022	0.188426	0.035569	-0.046973	0.022479
3.43	-0.640135	-0.077320	0.134998	-0.148488	0.188780	0.035100	-0.046745	0.023173
3.44	-0.640901	-0.075977	0.133511	-0.148897	0.189128	0.034634	-0.046510	0.023852
3.45	-0.641654	-0.074650	0.132020	-0.149250	0.189472	0.034170	-0.046268	0.024517
3.46	-0.642394	-0.073337	0.130526	-0.149547	0.189812	0.033708	-0.046020	0.025166
3.47	-0.643121	-0.072039	0.129029	-0.149789	0.190147	0.033249	-0.045765	0.025801
3.48	-0.643835	-0.070756	0.127530	-0.149976	0.190477	0.032793	-0.045504	0.026420
3.49	-0.644536	-0.069488	0.126030	-0.150111	0.190803	0.032339	-0.045236	0.027024
3.50	-0.645225	-0.068236	0.124528	-0.150193	0.191124	0.031888	-0.044963	0.027613
3.51	-0.645901	-0.066998	0.123026	-0.150225	0.191440	0.031440	-0.044684	0.028186
3.52	-0.646565	-0.065775	0.121524	-0.150205	0.191752	0.030995	-0.044399	0.028743
3.53	-0.647216	-0.064567	0.120022	-0.150136	0.192060	0.030552	-0.044109	0.029285
3.54	-0.647856	-0.063375	0.118521	-0.150018	0.192364	0.030113	-0.043814	0.029811
3.55	-0.648484	-0.062197	0.117022	-0.149853	0.192662	0.029676	-0.043513	0.030321
3.56	-0.649100	-0.061034	0.115524	-0.149640	0.192957	0.029242	-0.043207	0.030815
3.57	-0.649705	-0.059886	0.114029	-0.149382	0.193247	0.028812	-0.042897	0.031294
3.58	-0.650298	-0.058754	0.112537	-0.149079	0.193533	0.028384	-0.042582	0.031756
3.59	-0.650880	-0.057636	0.111048	-0.148732	0.193815	0.027960	-0.042262	0.032202
3.60	-0.651451	-0.056533	0.109562	-0.148342	0.194093	0.027539	-0.041938	0.032633
3.61	-0.652011	-0.055444	0.108081	-0.147910	0.194366	0.027121	-0.041609	0.033047
3.62	-0.652560	-0.054371	0.106604	-0.147436	0.194635	0.026707	-0.041277	0.033446
3.63	-0.653098	-0.053312	0.105132	-0.146923	0.194900	0.026296	-0.040940	0.033828
3.64	-0.653626	-0.052268	0.103666	-0.146371	0.195161	0.025888	-0.040600	0.034195
3.65	-0.654143	-0.051239	0.102205	-0.145781	0.195418	0.025484	-0.040256	0.034546
3.66	-0.654651	-0.050224	0.100750	-0.145153	0.195671	0.025083	-0.039909	0.034881
3.67	-0.655148	-0.049224	0.099302	-0.144490	0.195919	0.024686	-0.039559	0.035200
3.68	-0.655635	-0.048238	0.097861	-0.143792	0.196164	0.024292	-0.039205	0.035503
3.69	-0.656113	-0.047267	0.096427	-0.143059	0.196405	0.023902	-0.038849	0.035791
3.70	-0.656581	-0.046310	0.095000	-0.142293	0.196642	0.023515	-0.038490	0.036063
3.71	-0.657039	-0.045367	0.093581	-0.141496	0.196876	0.023132	-0.038128	0.036320
3.72	-0.657488	-0.044438	0.092170	-0.140667	0.197105	0.022752	-0.037763	0.036561
3.73	-0.657928	-0.043523	0.090768	-0.139808	0.197331	0.022377	-0.037397	0.036787
3.74	-0.658359	-0.042623	0.089374	-0.138920	0.197553	0.022004	-0.037028	0.036998

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η	m_{II}	m'_{II}	m''_{II}	m'''_{II}	n_{II}	n'_{II}	n''_{II}	n'''_{II}
3.75	-0.658780	-0.041736	0.087989	-0.138004	0.197771	0.021636	-0.036657	0.037193
3.76	-0.659193	-0.040863	0.086614	-0.137060	0.197985	0.021271	-0.036284	0.037374
3.77	-0.659598	-0.040003	0.085248	-0.136091	0.198196	0.020910	-0.035909	0.037540
3.78	-0.659993	-0.039158	0.083892	-0.135096	0.198403	0.020553	-0.035533	0.037691
3.79	-0.660381	-0.038326	0.082546	-0.134077	0.198607	0.020200	-0.035155	0.037827
3.80	-0.660760	-0.037507	0.081211	-0.133034	0.198807	0.019850	-0.034777	0.037949
3.81	-0.661131	-0.036701	0.079886	-0.131970	0.199004	0.019504	-0.034397	0.038057
3.82	-0.661494	-0.035909	0.078571	-0.130883	0.199198	0.019162	-0.034015	0.038151
3.83	-0.661849	-0.035130	0.077268	-0.129777	0.199388	0.018824	-0.033634	0.038231
3.84	-0.662197	-0.034364	0.075976	-0.128651	0.199574	0.018489	-0.033251	0.038297
3.85	-0.662537	-0.033610	0.074695	-0.127506	0.199757	0.018159	-0.032868	0.038349
3.86	-0.662869	-0.032870	0.073426	-0.126343	0.199937	0.017832	-0.032484	0.038389
3.87	-0.663194	-0.032142	0.072168	-0.125164	0.200114	0.017509	-0.032100	0.038414
3.88	-0.663512	-0.031426	0.070923	-0.123968	0.200287	0.017190	-0.031716	0.038427
3.89	-0.663823	-0.030723	0.069689	-0.122758	0.200458	0.016875	-0.031331	0.038427
3.90	-0.664126	-0.030033	0.068467	-0.121533	0.200625	0.016563	-0.030947	0.038415
3.91	-0.664423	-0.029354	0.067258	-0.120295	0.200789	0.016256	-0.030563	0.038390
3.92	-0.664713	-0.028687	0.066062	-0.119044	0.200950	0.015952	-0.030179	0.038353
3.93	-0.664997	-0.028033	0.064878	-0.117782	0.201108	0.015652	-0.029796	0.038303
3.94	-0.665274	-0.027390	0.063706	-0.116508	0.201263	0.015356	-0.029413	0.038242
3.95	-0.665545	-0.026758	0.062547	-0.115225	0.201415	0.015064	-0.029031	0.038170
3.96	-0.665809	-0.026139	0.061402	-0.113932	0.201564	0.014776	-0.028650	0.038086
3.97	-0.666068	-0.025530	0.060269	-0.112632	0.201711	0.014491	-0.028270	0.037991
3.98	-0.666320	-0.024933	0.059149	-0.111322	0.201854	0.014210	-0.027890	0.037885
3.99	-0.666566	-0.024347	0.058042	-0.110007	0.201995	0.013933	-0.027512	0.037768
4.00	-0.666807	-0.023772	0.056949	-0.108684	0.202133	0.013660	-0.027135	0.037641
4.01	-0.667042	-0.023208	0.055869	-0.107357	0.202268	0.013391	-0.026759	0.037504
4.02	-0.667271	-0.022655	0.054802	-0.106024	0.202401	0.013125	-0.026385	0.037357
4.03	-0.667495	-0.022112	0.053748	-0.104688	0.202531	0.012863	-0.026012	0.037199
4.04	-0.667713	-0.021580	0.052708	-0.103347	0.202658	0.012605	-0.025641	0.037033
4.05	-0.667927	-0.021058	0.051681	-0.102005	0.202783	0.012350	-0.025271	0.036857
4.06	-0.668135	-0.020546	0.050668	-0.100659	0.202905	0.012099	-0.024904	0.036673
4.07	-0.668338	-0.020045	0.049668	-0.099314	0.203025	0.011852	-0.024538	0.036479
4.08	-0.668536	-0.019553	0.048682	-0.097966	0.203142	0.011608	-0.024174	0.036277
4.09	-0.668729	-0.019071	0.047709	-0.096619	0.203257	0.011368	-0.023813	0.036067
4.10	-0.668917	-0.018599	0.046749	-0.095271	0.203370	0.011132	-0.023453	0.035849
4.11	-0.669101	-0.018136	0.045803	-0.093926	0.203480	0.010899	-0.023096	0.035622
4.12	-0.669280	-0.017683	0.044871	-0.092580	0.203588	0.010670	-0.022741	0.035389
4.13	-0.669454	-0.017238	0.043952	-0.091238	0.203693	0.010445	-0.022388	0.035147
4.14	-0.669625	-0.016803	0.043046	-0.089897	0.203796	0.010222	-0.022038	0.034899
4.15	-0.669790	-0.016378	0.042154	-0.088561	0.203898	0.010004	-0.021690	0.034644
4.16	-0.669952	-0.015960	0.041275	-0.087227	0.203997	0.009789	-0.021345	0.034383
4.17	-0.670110	-0.015552	0.040409	-0.085898	0.204093	0.009577	-0.021002	0.034114
4.18	-0.670263	-0.015152	0.039557	-0.084572	0.204188	0.009369	-0.020663	0.033841
4.19	-0.670413	-0.014761	0.038718	-0.083254	0.204281	0.009164	-0.020325	0.033560
4.20	-0.670558	-0.014378	0.037892	-0.081939	0.204371	0.008962	-0.019991	0.033275
4.21	-0.670700	-0.014003	0.037079	-0.080631	0.204460	0.008764	-0.019660	0.032983
4.22	-0.670839	-0.013636	0.036279	-0.079328	0.204547	0.008569	-0.019332	0.032687
4.23	-0.670973	-0.013277	0.035492	-0.078034	0.204631	0.008377	-0.019006	0.032385
4.24	-0.671104	-0.012926	0.034718	-0.076745	0.204714	0.008189	-0.018684	0.032080
4.25	-0.671232	-0.012583	0.033957	-0.075465	0.204795	0.008003	-0.018365	0.031769
4.26	-0.671356	-0.012247	0.033209	-0.074191	0.204874	0.007821	-0.018049	0.031455
4.27	-0.671477	-0.011919	0.032474	-0.072928	0.204952	0.007642	-0.017736	0.031135
4.28	-0.671594	-0.011598	0.031750	-0.071671	0.205027	0.007467	-0.017426	0.030813
4.29	-0.671709	-0.011284	0.031040	-0.070425	0.205101	0.007294	-0.017119	0.030486
4.30	-0.671820	-0.010977	0.030342	-0.069185	0.205173	0.007124	-0.016816	0.030157
4.31	-0.671928	-0.010677	0.029656	-0.067958	0.205243	0.006958	-0.016516	0.029823
4.32	-0.672033	-0.010384	0.028983	-0.066738	0.205312	0.006794	-0.016220	0.029488
4.33	-0.672136	-0.010097	0.028322	-0.065530	0.205379	0.006633	-0.015926	0.029148
4.34	-0.672235	-0.009817	0.027672	-0.064330	0.205445	0.006475	-0.015637	0.028807
4.35	-0.672332	-0.009544	0.027035	-0.063144	0.205509	0.006320	-0.015350	0.028462
4.36	-0.672426	-0.009276	0.026409	-0.061964	0.205571	0.006168	-0.015068	0.028117
4.37	-0.672518	-0.009015	0.025796	-0.060800	0.205632	0.006019	-0.014788	0.027768
4.38	-0.672607	-0.008760	0.025193	-0.059642	0.205692	0.005873	-0.014512	0.027419
4.39	-0.672693	-0.008511	0.024603	-0.058500	0.205750	0.005729	-0.014240	0.027067
4.40	-0.672777	-0.008268	0.024023	-0.057365	0.205806	0.005588	-0.013971	0.026715
4.41	-0.672858	-0.008031	0.023455	-0.056246	0.205861	0.005449	-0.013705	0.026359
4.42	-0.672938	-0.007799	0.022898	-0.055134	0.205915	0.005314	-0.013444	0.026005
4.43	-0.673014	-0.007573	0.022353	-0.054040	0.205968	0.005181	-0.013185	0.025647
4.44	-0.673089	-0.007352	0.021817	-0.052952	0.206019	0.005050	-0.012931	0.025291
4.45	-0.673161	-0.007137	0.021293	-0.051881	0.206069	0.004922	-0.012679	0.024932
4.46	-0.673232	-0.006926	0.020780	-0.050818	0.206117	0.004796	-0.012432	0.024575
4.47	-0.673300	-0.006721	0.020277	-0.049772	0.206165	0.004673	-0.012188	0.024215
4.48	-0.673366	-0.006521	0.019784	-0.048733	0.206211	0.004553	-0.011948	0.023858
4.49	-0.673430	-0.006325	0.019302	-0.047713	0.206256	0.004434	-0.011711	0.023497

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Contrails

η	m_{II}	m'_{II}	m''_{II}	m'''_{II}	n_{II}	n'_{II}	n''_{II}	n'''_{II}
4.50	-0.673493	-0.006134	0.018830	-0.046699	0.206299	0.004318	-0.011478	0.023141
4.51	-0.673553	-0.005949	0.018368	-0.045704	0.206342	0.004205	-0.011248	0.022780
4.52	-0.673612	-0.005767	0.017916	-0.044715	0.206384	0.004093	-0.011022	0.022424
4.53	-0.673668	-0.005590	0.017474	-0.043746	0.206424	0.003984	-0.010800	0.022065
4.54	-0.673724	-0.005418	0.017041	-0.042783	0.206463	0.003877	-0.010581	0.021710
4.55	-0.673777	-0.005249	0.016618	-0.041840	0.206502	0.003773	-0.010365	0.021352
4.56	-0.673829	-0.005085	0.016204	-0.040902	0.206539	0.003670	-0.010154	0.021000
4.57	-0.673879	-0.004925	0.015800	-0.039985	0.206575	0.003570	-0.009945	0.020643
4.58	-0.673927	-0.004769	0.015404	-0.039072	0.206610	0.003471	-0.009741	0.020293
4.59	-0.673974	-0.004617	0.015019	-0.038182	0.206644	0.003375	-0.009540	0.019939
4.60	-0.674019	-0.004469	0.014641	-0.037294	0.206678	0.003280	-0.009342	0.019591
4.61	-0.674063	-0.004324	0.014273	-0.036429	0.206710	0.003188	-0.009148	0.019240
4.62	-0.674106	-0.004183	0.013912	-0.035567	0.206741	0.003097	-0.008957	0.018896
4.63	-0.674147	-0.004046	0.013561	-0.034728	0.206772	0.003009	-0.008770	0.018547
4.64	-0.674187	-0.003912	0.013218	-0.033892	0.206802	0.002922	-0.008586	0.018207
4.65	-0.674225	-0.003782	0.012883	-0.033078	0.206830	0.002837	-0.008406	0.017861
4.66	-0.674262	-0.003654	0.012556	-0.032266	0.206858	0.002754	-0.008229	0.017525
4.67	-0.674298	-0.003530	0.012238	-0.031479	0.206885	0.002672	-0.008055	0.017183
4.68	-0.674333	-0.003410	0.011926	-0.030691	0.206912	0.002593	-0.007885	0.016851
4.69	-0.674367	-0.003292	0.011624	-0.029929	0.206937	0.002515	-0.007718	0.016513
4.70	-0.674399	-0.003177	0.011328	-0.029166	0.206962	0.002438	-0.007555	0.016185
4.71	-0.674430	-0.003065	0.011041	-0.028428	0.206986	0.002364	-0.007395	0.015852
4.72	-0.674460	-0.002956	0.010759	-0.027689	0.207009	0.002290	-0.007238	0.015529
4.73	-0.674489	-0.002850	0.010487	-0.026977	0.207032	0.002219	-0.007084	0.015200
4.74	-0.674517	-0.002746	0.010220	-0.026261	0.207054	0.002149	-0.006934	0.014882
4.75	-0.674544	-0.002646	0.009961	-0.025573	0.207075	0.002080	-0.006786	0.014558
4.76	-0.674570	-0.002547	0.009708	-0.024880	0.207095	0.002013	-0.006643	0.014246
4.77	-0.674595	-0.002451	0.009464	-0.024216	0.207115	0.001947	-0.006501	0.013926
4.78	-0.674619	-0.002358	0.009224	-0.023546	0.207134	0.001883	-0.006364	0.013619
4.79	-0.674642	-0.002267	0.008993	-0.022905	0.207153	0.001820	-0.006229	0.013304
4.80	-0.674665	-0.002178	0.008766	-0.022257	0.207171	0.001758	-0.006098	0.013003
4.81	-0.674686	-0.002092	0.008547	-0.021640	0.207188	0.001698	-0.005969	0.012693
4.82	-0.674706	-0.002007	0.008333	-0.021013	0.207205	0.001639	-0.005844	0.012398
4.83	-0.674726	-0.001925	0.008127	-0.020419	0.207221	0.001581	-0.005721	0.012093
4.84	-0.674745	-0.001845	0.007925	-0.019813	0.207236	0.001525	-0.005602	0.011804
4.85	-0.674763	-0.001766	0.007731	-0.019241	0.207251	0.001469	-0.005485	0.011504
4.86	-0.674780	-0.001690	0.007540	-0.018655	0.207266	0.001415	-0.005372	0.011221
4.87	-0.674797	-0.001616	0.007357	-0.018105	0.207280	0.001362	-0.005261	0.010926
4.88	-0.674813	-0.001543	0.007178	-0.017539	0.207293	0.001310	-0.005154	0.010650
4.89	-0.674828	-0.001472	0.007007	-0.017010	0.207306	0.001259	-0.005048	0.010360
4.90	-0.674842	-0.001403	0.006838	-0.016463	0.207318	0.001209	-0.004946	0.010089
4.91	-0.674856	-0.001335	0.006677	-0.015955	0.207330	0.001160	-0.004846	0.009805
4.92	-0.674869	-0.001269	0.006519	-0.015427	0.207341	0.001112	-0.004750	0.009541
4.93	-0.674881	-0.001205	0.006369	-0.014939	0.207352	0.001065	-0.004655	0.009261
4.94	-0.674893	-0.001142	0.006220	-0.014428	0.207363	0.001019	-0.004565	0.009003
4.95	-0.674904	-0.001080	0.006080	-0.013960	0.207373	0.000973	-0.004475	0.008729
4.96	-0.674914	-0.001020	0.005941	-0.013467	0.207382	0.000929	-0.004390	0.008478
4.97	-0.674924	-0.000962	0.005810	-0.013018	0.207391	0.000885	-0.004306	0.008208
4.98	-0.674934	-0.000904	0.005681	-0.012540	0.207400	0.000843	-0.004226	0.007963
4.99	-0.674942	-0.000848	0.005559	-0.012110	0.207408	0.000801	-0.004147	0.007698
5.00	-0.674951	-0.000793	0.005439	-0.011649	0.207416	0.000760	-0.004072	0.007459
5.01	-0.674958	-0.000739	0.005326	-0.011237	0.207423	0.000720	-0.003997	0.007199
5.02	-0.674965	-0.000686	0.005214	-0.010790	0.207430	0.000680	-0.003928	0.006967
5.03	-0.674972	-0.000635	0.005110	-0.010396	0.207437	0.000641	-0.003858	0.006711
5.04	-0.674978	-0.000584	0.005006	-0.009963	0.207443	0.000603	-0.003793	0.006485
5.05	-0.674984	-0.000535	0.004911	-0.009586	0.207449	0.000565	-0.003729	0.006233
5.06	-0.674989	-0.000486	0.004815	-0.009167	0.207454	0.000528	-0.003669	0.006014
5.07	-0.674993	-0.000438	0.004727	-0.008807	0.207459	0.000492	-0.003608	0.005766
5.08	-0.674998	-0.000391	0.004639	-0.008400	0.207464	0.000456	-0.003553	0.005554
5.09	-0.675001	-0.000345	0.004559	-0.008057	0.207469	0.000421	-0.003497	0.005309
5.10	-0.675004	-0.000300	0.004478	-0.007662	0.207473	0.000386	-0.003447	0.005103
5.11	-0.675007	-0.000256	0.004406	-0.007334	0.207476	0.000352	-0.003395	0.004862
5.12	-0.675010	-0.000212	0.004331	-0.006950	0.207480	0.000318	-0.003350	0.004663
5.13	-0.675011	-0.000169	0.004266	-0.006637	0.207483	0.000285	-0.003302	0.004425
5.14	-0.675013	-0.000127	0.004199	-0.006264	0.207485	0.000252	-0.003261	0.004232
5.15	-0.675014	-0.000085	0.004141	-0.005966	0.207488	0.000220	-0.003218	0.003997
5.16	-0.675015	-0.000044	0.004080	-0.005603	0.207490	0.000188	-0.003181	0.003810
5.17	-0.675015	-0.000004	0.004028	-0.005319	0.207491	0.000156	-0.003142	0.003577
5.18	-0.675015	0.000037	0.003973	-0.004964	0.207493	0.000125	-0.003109	0.003397
5.19	-0.675014	0.000076	0.003929	-0.004695	0.207494	0.000094	-0.003074	0.003167
5.20	-0.675013	0.000115	0.003880	-0.004348	0.207495	0.000063	-0.003046	0.002993
5.21	-0.675012	0.000154	0.003842	-0.004093	0.207495	0.000033	-0.003014	0.002764
5.22	-0.675010	0.000192	0.003798	-0.003752	0.207495	0.000003	-0.002990	0.002596
5.23	-0.675008	0.000230	0.003766	-0.003511	0.207495	-0.000027	-0.002963	0.002369
5.24	-0.675006	0.000267	0.003728	-0.003177	0.207495	-0.000056	-0.002942	0.002208

Approved for Public Release

Contrails

η	g_9	g_9'	g_9''	g_9'''	g_{11}	g_{11}'	g_{11}''	g_{11}'''
0.00	0.000000	0.000000	0.539932	-1.000000	0.000000	0.000000	0.509986	-1.000000
0.01	0.000026	0.005349	0.529933	-0.999671	0.000025	0.005049	0.499987	-0.999627
0.02	0.000106	0.010598	0.519941	-0.998699	0.000100	0.009999	0.489996	-0.998528
0.03	0.000238	0.015748	0.509961	-0.997109	0.000224	0.014849	0.480019	-0.996731
0.04	0.000421	0.020797	0.500000	-0.994921	0.000397	0.019600	0.470063	-0.994262
0.05	0.000654	0.025748	0.490065	-0.992160	0.000616	0.024251	0.460136	-0.991150
0.06	0.000935	0.030599	0.480159	-0.988846	0.000882	0.028803	0.450242	-0.987420
0.07	0.001265	0.035351	0.470289	-0.985002	0.001192	0.033256	0.440389	-0.983099
0.08	0.001642	0.040005	0.460461	-0.980649	0.001546	0.037611	0.430582	-0.978213
0.09	0.002065	0.044560	0.450678	-0.975809	0.001944	0.041868	0.420827	-0.972788
0.10	0.002533	0.049019	0.440946	-0.970502	0.002383	0.046027	0.411128	-0.966849
0.11	0.003045	0.053380	0.431270	-0.964749	0.002864	0.050090	0.401491	-0.960420
0.12	0.003600	0.057644	0.421653	-0.958570	0.003385	0.054057	0.391921	-0.953526
0.13	0.004198	0.061813	0.412099	-0.951986	0.003945	0.057929	0.382422	-0.946190
0.14	0.004836	0.065886	0.402614	-0.945014	0.004543	0.061706	0.372999	-0.938436
0.15	0.005515	0.069865	0.393200	-0.937676	0.005179	0.065389	0.363655	-0.930286
0.16	0.006233	0.073751	0.383862	-0.929988	0.005851	0.068979	0.354394	-0.921763
0.17	0.006990	0.077543	0.374602	-0.921971	0.006558	0.072477	0.345221	-0.912888
0.18	0.007784	0.081243	0.365423	-0.913640	0.007300	0.075884	0.336138	-0.903683
0.19	0.008614	0.084852	0.356330	-0.905015	0.008075	0.079201	0.327148	-0.894168
0.20	0.009481	0.088370	0.347324	-0.896111	0.008884	0.082427	0.318255	-0.884364
0.21	0.010381	0.091798	0.338409	-0.886946	0.009724	0.085566	0.309462	-0.874289
0.22	0.011316	0.095138	0.329586	-0.877536	0.010595	0.088617	0.300770	-0.863963
0.23	0.012284	0.098391	0.320859	-0.867897	0.011496	0.091582	0.292183	-0.853405
0.24	0.013284	0.101556	0.312229	-0.858044	0.012426	0.094461	0.283703	-0.842633
0.25	0.014315	0.104635	0.303698	-0.847992	0.013385	0.097256	0.275331	-0.831663
0.26	0.015376	0.107630	0.295269	-0.837757	0.014371	0.099968	0.267070	-0.820513
0.27	0.016467	0.110541	0.286944	-0.827351	0.015384	0.102598	0.258922	-0.809200
0.28	0.017587	0.113369	0.278723	-0.816789	0.016423	0.105147	0.250887	-0.797738
0.29	0.018734	0.116116	0.270608	-0.806084	0.017486	0.107616	0.242967	-0.786144
0.30	0.019909	0.118782	0.262602	-0.795249	0.018575	0.110007	0.235164	-0.774433
0.31	0.021110	0.121368	0.254704	-0.784297	0.019686	0.112320	0.227479	-0.762617
0.32	0.022336	0.123876	0.246916	-0.773240	0.020821	0.114557	0.219912	-0.750713
0.33	0.023587	0.126307	0.239239	-0.762090	0.021977	0.116718	0.212465	-0.738731
0.34	0.024862	0.128662	0.231675	-0.750858	0.023155	0.118806	0.205138	-0.726686
0.35	0.026160	0.130941	0.224222	-0.739555	0.024353	0.120822	0.197931	-0.714590
0.36	0.027480	0.133146	0.216884	-0.728192	0.025571	0.122765	0.190846	-0.702455
0.37	0.028823	0.135279	0.209659	-0.716779	0.026808	0.124639	0.183882	-0.690291
0.38	0.030186	0.137340	0.202548	-0.705325	0.028064	0.126443	0.177040	-0.678110
0.39	0.031569	0.139330	0.195552	-0.693842	0.029337	0.128180	0.170320	-0.665922
0.40	0.032972	0.141251	0.188671	-0.682336	0.030627	0.129850	0.163722	-0.653737
0.41	0.034394	0.143104	0.181906	-0.670819	0.031934	0.131455	0.157245	-0.641564
0.42	0.035834	0.144890	0.175255	-0.659297	0.033256	0.132996	0.150891	-0.629414
0.43	0.037292	0.146610	0.168720	-0.647779	0.034593	0.134473	0.144657	-0.617294
0.44	0.038766	0.148265	0.162299	-0.636273	0.035945	0.135889	0.138545	-0.605212
0.45	0.040257	0.149856	0.155994	-0.624786	0.037311	0.137245	0.132553	-0.593177
0.46	0.041763	0.151385	0.149804	-0.613326	0.038690	0.138541	0.126681	-0.581196
0.47	0.043284	0.152853	0.143727	-0.601899	0.040082	0.139779	0.120929	-0.569277
0.48	0.044820	0.154260	0.137765	-0.590512	0.041485	0.140960	0.115295	-0.557425
0.49	0.046369	0.155608	0.131917	-0.579171	0.042901	0.142085	0.109780	-0.545647
0.50	0.047932	0.156899	0.126182	-0.567882	0.044327	0.143156	0.104382	-0.533950
0.51	0.049507	0.158132	0.120559	-0.556650	0.045764	0.144173	0.099100	-0.522339
0.52	0.051094	0.159310	0.115049	-0.545482	0.047210	0.145138	0.093935	-0.510818
0.53	0.052693	0.160434	0.109649	-0.534382	0.048666	0.146052	0.088884	-0.499394
0.54	0.054303	0.161504	0.104361	-0.523354	0.050131	0.146916	0.083947	-0.488071
0.55	0.055923	0.162521	0.099182	-0.512405	0.051604	0.147731	0.079122	-0.476854
0.56	0.057553	0.163488	0.094112	-0.501537	0.053085	0.148499	0.074409	-0.465746
0.57	0.059193	0.164404	0.089151	-0.490755	0.054574	0.149220	0.069807	-0.454751
0.58	0.060841	0.165271	0.084297	-0.480063	0.056070	0.149895	0.065314	-0.443873
0.59	0.062498	0.166090	0.079549	-0.469464	0.057572	0.150527	0.060929	-0.433115
0.60	0.064163	0.166862	0.074907	-0.458963	0.059080	0.151114	0.056651	-0.422481
0.61	0.065835	0.167589	0.070370	-0.448561	0.060594	0.151660	0.052479	-0.411972
0.62	0.067514	0.168270	0.065936	-0.438263	0.062113	0.152164	0.048411	-0.401592
0.63	0.069200	0.168908	0.061604	-0.428071	0.063637	0.152628	0.044446	-0.391343
0.64	0.070892	0.169503	0.057374	-0.417987	0.065166	0.153054	0.040584	-0.381227
0.65	0.072590	0.170056	0.053244	-0.408013	0.066698	0.153440	0.036821	-0.371245
0.66	0.074293	0.170568	0.049213	-0.398153	0.068234	0.153790	0.033158	-0.361401
0.67	0.076001	0.171040	0.045281	-0.388408	0.069774	0.154104	0.029593	-0.351694
0.68	0.077714	0.171474	0.041445	-0.378780	0.071316	0.154382	0.026124	-0.342126
0.69	0.079431	0.171869	0.037705	-0.369270	0.072861	0.154627	0.022750	-0.332699
0.70	0.081151	0.172228	0.034059	-0.359881	0.074409	0.154838	0.019470	-0.323413
0.71	0.082875	0.172551	0.030507	-0.350613	0.075958	0.155016	0.016281	-0.314270
0.72	0.084602	0.172839	0.027046	-0.341468	0.077509	0.155164	0.013184	-0.305269
0.73	0.086332	0.173092	0.023677	-0.332447	0.079061	0.155280	0.010175	-0.296412
0.74	0.088064	0.173312	0.020397	-0.323551	0.080615	0.155368	0.007255	-0.287698

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Contrails

η	g_9	g_9'	g_9''	g_9'''	g_{11}	g_{11}'	g_{11}''	g_{11}'''
0.75	0.089798	0.173500	0.017205	-0.314780	0.082169	0.155426	0.004421	-0.279128
0.76	0.091534	0.173657	0.014101	-0.306136	0.083723	0.155456	0.001672	-0.270702
0.77	0.093271	0.173783	0.011082	-0.297619	0.085278	0.155460	-0.000993	-0.262420
0.78	0.095009	0.173879	0.008148	-0.289229	0.086832	0.155437	-0.003576	-0.254281
0.79	0.096748	0.173946	0.005297	-0.280967	0.088386	0.155388	-0.006079	-0.246286
0.80	0.098488	0.173985	0.002528	-0.272833	0.089940	0.155315	-0.008502	-0.238434
0.81	0.100228	0.173997	-0.000159	-0.264828	0.091492	0.155219	-0.010848	-0.230725
0.82	0.101968	0.173982	-0.002768	-0.256950	0.093044	0.155099	-0.013117	-0.223158
0.83	0.103708	0.173942	-0.005298	-0.249201	0.094594	0.154956	-0.015312	-0.215731
0.84	0.105447	0.173876	-0.007752	-0.241580	0.096143	0.154793	-0.017432	-0.208446
0.85	0.107185	0.173787	-0.010130	-0.234087	0.097690	0.154608	-0.019481	-0.201300
0.86	0.108922	0.173674	-0.012434	-0.226721	0.099235	0.154403	-0.021459	-0.194293
0.87	0.110659	0.173538	-0.014665	-0.219482	0.100778	0.154179	-0.023367	-0.187424
0.88	0.112393	0.173381	-0.016824	-0.212371	0.102319	0.153936	-0.025208	-0.180692
0.89	0.114126	0.173202	-0.018913	-0.205385	0.103857	0.153675	-0.026982	-0.174096
0.90	0.115857	0.173003	-0.020933	-0.198525	0.105392	0.153397	-0.028690	-0.167634
0.91	0.117586	0.172784	-0.022884	-0.191790	0.106925	0.153102	-0.030335	-0.161305
0.92	0.119313	0.172545	-0.024769	-0.185180	0.108454	0.152790	-0.031917	-0.155109
0.93	0.121037	0.172289	-0.026588	-0.178693	0.109980	0.152463	-0.033437	-0.149043
0.94	0.122758	0.172014	-0.028343	-0.172328	0.111503	0.152122	-0.034898	-0.143108
0.95	0.124477	0.171722	-0.030035	-0.166086	0.113023	0.151766	-0.036300	-0.137300
0.96	0.126193	0.171413	-0.031665	-0.159965	0.114539	0.151396	-0.037644	-0.131618
0.97	0.127905	0.171089	-0.033235	-0.153964	0.116051	0.151013	-0.038933	-0.126063
0.98	0.129615	0.170749	-0.034745	-0.148081	0.117559	0.150617	-0.040166	-0.120630
0.99	0.131320	0.170394	-0.036197	-0.142317	0.119063	0.150210	-0.041346	-0.115321
1.00	0.133022	0.170025	-0.037592	-0.136670	0.120563	0.149791	-0.042473	-0.110132
1.01	0.134721	0.169642	-0.038931	-0.131139	0.122059	0.149360	-0.043549	-0.105062
1.02	0.136415	0.169247	-0.040215	-0.125723	0.123550	0.148920	-0.044575	-0.100109
1.03	0.138106	0.168838	-0.041445	-0.120420	0.125037	0.148469	-0.045551	-0.095273
1.04	0.139792	0.168418	-0.042624	-0.115230	0.126520	0.148009	-0.046480	-0.090552
1.05	0.141474	0.167986	-0.043750	-0.110151	0.127997	0.147540	-0.047363	-0.085943
1.06	0.143152	0.167543	-0.044827	-0.105182	0.129470	0.147062	-0.048200	-0.081445
1.07	0.144825	0.167090	-0.045854	-0.100322	0.130939	0.146576	-0.048992	-0.077058
1.08	0.146493	0.166626	-0.046834	-0.095570	0.132402	0.146082	-0.049741	-0.072778
1.09	0.148157	0.166153	-0.047766	-0.090924	0.133860	0.145581	-0.050448	-0.068604
1.10	0.149816	0.165671	-0.048653	-0.086382	0.135314	0.145073	-0.051114	-0.064535
1.11	0.151471	0.165180	-0.049494	-0.081945	0.136762	0.144559	-0.051739	-0.060570
1.12	0.153120	0.164681	-0.050292	-0.077610	0.138205	0.144039	-0.052325	-0.056706
1.13	0.154764	0.164174	-0.051047	-0.073376	0.139642	0.143513	-0.052874	-0.052941
1.14	0.156404	0.163660	-0.051760	-0.069242	0.141075	0.142981	-0.053385	-0.049275
1.15	0.158038	0.163139	-0.052432	-0.065206	0.142502	0.142445	-0.053859	-0.045706
1.16	0.159666	0.162612	-0.053064	-0.061267	0.143924	0.141904	-0.054299	-0.042231
1.17	0.161290	0.162078	-0.053658	-0.057424	0.145340	0.141359	-0.054704	-0.038850
1.18	0.162908	0.161539	-0.054213	-0.053675	0.146751	0.140810	-0.055076	-0.035561
1.19	0.164521	0.160994	-0.054731	-0.050020	0.148156	0.140258	-0.055416	-0.032361
1.20	0.166128	0.160444	-0.055214	-0.046456	0.149556	0.139702	-0.055724	-0.029251
1.21	0.167729	0.159890	-0.055661	-0.042982	0.150950	0.139143	-0.056001	-0.026227
1.22	0.169326	0.159331	-0.056074	-0.039597	0.152339	0.138582	-0.056249	-0.023289
1.23	0.170916	0.158768	-0.056453	-0.036300	0.153722	0.138018	-0.056467	-0.020434
1.24	0.172501	0.158202	-0.056800	-0.033089	0.155099	0.137453	-0.056658	-0.017662
1.25	0.174080	0.157633	-0.057115	-0.029963	0.156471	0.136885	-0.056821	-0.014971
1.26	0.175654	0.157060	-0.057399	-0.026920	0.157837	0.136316	-0.056957	-0.012359
1.27	0.177221	0.156485	-0.057654	-0.023960	0.159197	0.135746	-0.057068	-0.009825
1.28	0.178783	0.155907	-0.057879	-0.021080	0.160552	0.135175	-0.057154	-0.007367
1.29	0.180339	0.155327	-0.058076	-0.018280	0.161901	0.134603	-0.057216	-0.004984
1.30	0.181890	0.154746	-0.058245	-0.015559	0.163244	0.134031	-0.057254	-0.002675
1.31	0.183434	0.154162	-0.058387	-0.012914	0.164582	0.133458	-0.057270	-0.000437
1.32	0.184973	0.153578	-0.058503	-0.010345	0.165913	0.132886	-0.057263	0.001729
1.33	0.186506	0.152992	-0.058594	-0.007850	0.167239	0.132313	-0.057235	0.003827
1.34	0.188033	0.152406	-0.058661	-0.005428	0.168560	0.131741	-0.057187	0.005857
1.35	0.189554	0.151819	-0.058703	-0.003078	0.169874	0.131169	-0.057118	0.007821
1.36	0.191069	0.151232	-0.058722	-0.000798	0.171183	0.130599	-0.057030	0.009720
1.37	0.192579	0.150645	-0.058719	0.001412	0.172486	0.130029	-0.056924	0.011555
1.38	0.194082	0.150058	-0.058694	0.003554	0.173784	0.129460	-0.056800	0.013327
1.39	0.195580	0.149471	-0.058648	0.005630	0.175075	0.128893	-0.056658	0.015039
1.40	0.197072	0.148885	-0.058582	0.007640	0.176361	0.128327	-0.056499	0.016691
1.41	0.198558	0.148299	-0.058496	0.009586	0.177642	0.127763	-0.056324	0.018284
1.42	0.200038	0.147715	-0.058390	0.011469	0.178917	0.127201	-0.056133	0.019821
1.43	0.201512	0.147132	-0.058267	0.013291	0.180186	0.126640	-0.055928	0.021301
1.44	0.202980	0.146550	-0.058125	0.015051	0.181450	0.126082	-0.055708	0.022726
1.45	0.204443	0.145969	-0.057966	0.016752	0.182708	0.125526	-0.055473	0.024097
1.46	0.205900	0.145390	-0.057790	0.018394	0.183960	0.124973	-0.055226	0.025417
1.47	0.207351	0.144813	-0.057598	0.019980	0.185207	0.124422	-0.054965	0.026685
1.48	0.208796	0.144239	-0.057391	0.021509	0.186449	0.123873	-0.054692	0.027902
1.49	0.210236	0.143666	-0.057168	0.022983	0.187685	0.123328	-0.054407	0.029071

Approved for Public Release

Contrails

η	g_0	g_0'	g_0''	g_0'''	g_{11}	g_{11}'	g_{11}''	g_{11}'''
1.50	0.211669	0.143095	-0.056931	0.024404	0.188915	0.122785	-0.054111	0.030192
1.51	0.213097	0.142527	-0.056680	0.025771	0.190140	0.122246	-0.053804	0.031266
1.52	0.214520	0.141962	-0.056416	0.027087	0.191360	0.121709	-0.053486	0.032294
1.53	0.215937	0.141399	-0.056139	0.028352	0.192574	0.121176	-0.053158	0.033278
1.54	0.217348	0.140839	-0.055849	0.029568	0.193784	0.120646	-0.052820	0.034217
1.55	0.218753	0.140282	-0.055547	0.030735	0.194987	0.120120	-0.052474	0.035115
1.56	0.220154	0.139728	-0.055234	0.031855	0.196186	0.119597	-0.052118	0.035970
1.57	0.221548	0.139177	-0.054910	0.032928	0.197379	0.119077	-0.051754	0.036785
1.58	0.222937	0.138630	-0.054576	0.033956	0.198568	0.118562	-0.051383	0.037560
1.59	0.224321	0.138086	-0.054231	0.034939	0.199751	0.118050	-0.051003	0.038297
1.60	0.225699	0.137545	-0.053877	0.035879	0.200929	0.117542	-0.050617	0.038996
1.61	0.227072	0.137008	-0.053514	0.036776	0.202101	0.117037	-0.050224	0.039658
1.62	0.228439	0.136475	-0.053142	0.037331	0.203269	0.116537	-0.049824	0.040284
1.63	0.229801	0.135945	-0.052762	0.038446	0.204432	0.116041	-0.049418	0.040874
1.64	0.231158	0.135420	-0.052373	0.039221	0.205590	0.115549	-0.049006	0.041431
1.65	0.232510	0.134898	-0.051977	0.039957	0.206743	0.115061	-0.048589	0.041954
1.66	0.233856	0.134380	-0.051574	0.040656	0.207891	0.114577	-0.048167	0.042445
1.67	0.235197	0.133866	-0.051164	0.041317	0.209035	0.114097	-0.047741	0.042905
1.68	0.236533	0.133357	-0.050748	0.041942	0.210173	0.113622	-0.047309	0.043333
1.69	0.237864	0.132852	-0.050325	0.042532	0.211307	0.113151	-0.046874	0.043731
1.70	0.239190	0.132350	-0.049897	0.043087	0.212436	0.112685	-0.046435	0.044101
1.71	0.240511	0.131854	-0.049464	0.043608	0.213561	0.112222	-0.045992	0.044441
1.72	0.241827	0.131361	-0.049025	0.044097	0.214681	0.111765	-0.045546	0.044754
1.73	0.243139	0.130873	-0.048582	0.044554	0.215796	0.111312	-0.045097	0.045040
1.74	0.244445	0.130389	-0.048134	0.044979	0.216907	0.110863	-0.044645	0.045300
1.75	0.245746	0.129910	-0.047683	0.045374	0.218014	0.110419	-0.044191	0.045534
1.76	0.247043	0.129436	-0.047227	0.045739	0.219116	0.109979	-0.043735	0.045744
1.77	0.248335	0.128966	-0.046768	0.046076	0.220213	0.109544	-0.043276	0.045929
1.78	0.249622	0.128500	-0.046305	0.046384	0.221306	0.109113	-0.042816	0.046091
1.79	0.250905	0.128040	-0.045840	0.046665	0.222395	0.108688	-0.042355	0.046230
1.80	0.252183	0.127584	-0.045372	0.046919	0.223480	0.108266	-0.041892	0.046347
1.81	0.253457	0.127132	-0.044902	0.047147	0.224561	0.107850	-0.041428	0.046442
1.82	0.254726	0.126686	-0.044429	0.047350	0.225637	0.107438	-0.040963	0.046517
1.83	0.255991	0.126244	-0.043955	0.047528	0.226710	0.107031	-0.040498	0.046571
1.84	0.257251	0.125807	-0.043479	0.047682	0.227778	0.106628	-0.040032	0.046606
1.85	0.258507	0.125374	-0.043001	0.047813	0.228842	0.106230	-0.039566	0.046622
1.86	0.259758	0.124946	-0.042523	0.047921	0.229903	0.105837	-0.039099	0.046619
1.87	0.261006	0.124524	-0.042043	0.048007	0.230959	0.105448	-0.038633	0.046598
1.88	0.262249	0.124106	-0.041563	0.048072	0.232012	0.105064	-0.038167	0.046560
1.89	0.263488	0.123692	-0.041082	0.048117	0.233060	0.104685	-0.037702	0.046505
1.90	0.264723	0.123284	-0.040600	0.048141	0.234105	0.104310	-0.037237	0.046434
1.91	0.265954	0.122880	-0.040119	0.048145	0.235146	0.103940	-0.036773	0.046348
1.92	0.267180	0.122482	-0.039638	0.048131	0.236184	0.103574	-0.036310	0.046246
1.93	0.268403	0.122088	-0.039156	0.048098	0.237218	0.103214	-0.035848	0.046129
1.94	0.269622	0.121698	-0.038676	0.048048	0.238248	0.102857	-0.035388	0.045999
1.95	0.270837	0.121314	-0.038195	0.047980	0.239275	0.102506	-0.034929	0.045854
1.96	0.272048	0.120935	-0.037716	0.047896	0.240298	0.102159	-0.034471	0.045697
1.97	0.273256	0.120560	-0.037238	0.047796	0.241318	0.101816	-0.034015	0.045526
1.98	0.274460	0.120190	-0.036760	0.047680	0.242335	0.101478	-0.033560	0.045343
1.99	0.275660	0.119825	-0.036284	0.047549	0.243348	0.101145	-0.033108	0.045149
2.00	0.276856	0.119464	-0.035809	0.047403	0.244358	0.100816	-0.032657	0.044943
2.01	0.278049	0.119108	-0.035336	0.047243	0.245364	0.100492	-0.032209	0.044726
2.02	0.279238	0.118757	-0.034864	0.047070	0.246368	0.100172	-0.031763	0.044498
2.03	0.280424	0.118411	-0.034395	0.046883	0.247368	0.099857	-0.031319	0.044261
2.04	0.281607	0.118069	-0.033927	0.046684	0.248365	0.099546	-0.030878	0.044013
2.05	0.282786	0.117732	-0.033461	0.046473	0.249359	0.099239	-0.030439	0.043757
2.06	0.283961	0.117400	-0.032997	0.046250	0.250350	0.098937	-0.030003	0.043491
2.07	0.285134	0.117073	-0.032536	0.046016	0.251337	0.098639	-0.029569	0.043217
2.08	0.286303	0.116749	-0.032077	0.045771	0.252322	0.098345	-0.029138	0.042934
2.09	0.287469	0.116431	-0.031621	0.045515	0.253304	0.098056	-0.028710	0.042644
2.10	0.288631	0.116117	-0.031167	0.045250	0.254284	0.097771	-0.028285	0.042346
2.11	0.289791	0.115808	-0.030716	0.044975	0.255260	0.097491	-0.027863	0.042041
2.12	0.290948	0.115503	-0.030267	0.044690	0.256233	0.097214	-0.027445	0.041729
2.13	0.292101	0.115202	-0.029822	0.044397	0.257204	0.096942	-0.027029	0.041411
2.14	0.293252	0.114906	-0.029379	0.044096	0.258172	0.096673	-0.026616	0.041086
2.15	0.294399	0.114615	-0.028940	0.043787	0.259138	0.096409	-0.026207	0.040756
2.16	0.295544	0.114327	-0.028504	0.043470	0.260100	0.096149	-0.025801	0.040420
2.17	0.296686	0.114045	-0.028071	0.043145	0.261061	0.095893	-0.025399	0.040079
2.18	0.297825	0.113766	-0.027641	0.042814	0.262018	0.095641	-0.025000	0.039733
2.19	0.298961	0.113492	-0.027214	0.042476	0.262974	0.095393	-0.024604	0.039382
2.20	0.300095	0.113222	-0.026791	0.042132	0.263926	0.095149	-0.024212	0.039027
2.21	0.301226	0.112956	-0.026372	0.041782	0.264877	0.094909	-0.023824	0.038668
2.22	0.302354	0.112694	-0.025956	0.041426	0.265824	0.094673	-0.023439	0.038306
2.23	0.303480	0.112437	-0.025543	0.041065	0.266770	0.094440	-0.023057	0.037938
2.24	0.304603	0.112183	-0.025134	0.040699	0.267713	0.094211	-0.022680	0.037569

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Contrails

η	g_9	g_9'	g_9''	g_9'''	g_{11}	g_{11}'	g_{11}''	g_{11}'''
2.25	0.305723	0.111934	-0.024729	0.040329	0.268654	0.093987	-0.022306	0.037196
2.26	0.306841	0.111689	-0.024328	0.039954	0.269593	0.093765	-0.021936	0.036820
2.27	0.307957	0.111447	-0.023930	0.039575	0.270530	0.093548	-0.021570	0.036442
2.28	0.309070	0.111210	-0.023536	0.039192	0.271464	0.093334	-0.021207	0.036061
2.29	0.310181	0.110977	-0.023146	0.038805	0.272396	0.093124	-0.020848	0.035678
2.30	0.311290	0.110747	-0.022760	0.038415	0.273326	0.092917	-0.020494	0.035294
2.31	0.312396	0.110521	-0.022378	0.038023	0.274255	0.092714	-0.020143	0.034907
2.32	0.313500	0.110300	-0.022000	0.037627	0.275181	0.092514	-0.019795	0.034519
2.33	0.314602	0.110081	-0.021625	0.037229	0.276105	0.092318	-0.019452	0.034130
2.34	0.315702	0.109867	-0.021255	0.036829	0.277027	0.092125	-0.019113	0.033740
2.35	0.316800	0.109656	-0.020889	0.036427	0.277947	0.091936	-0.018777	0.033349
2.36	0.317895	0.109449	-0.020527	0.036022	0.278866	0.091749	-0.018446	0.032957
2.37	0.318989	0.109246	-0.020168	0.035617	0.279782	0.091567	-0.018118	0.032564
2.38	0.320080	0.109046	-0.019814	0.035210	0.280697	0.091387	-0.017795	0.032172
2.39	0.321170	0.108849	-0.019464	0.034801	0.281610	0.091211	-0.017475	0.031779
2.40	0.322257	0.108657	-0.019118	0.034392	0.282521	0.091037	-0.017159	0.031386
2.41	0.323343	0.108467	-0.018776	0.033982	0.283431	0.090867	-0.016847	0.030993
2.42	0.324426	0.108281	-0.018439	0.033572	0.284339	0.090701	-0.016539	0.030600
2.43	0.325508	0.108098	-0.018105	0.033161	0.285245	0.090537	-0.016235	0.030208
2.44	0.326588	0.107919	-0.017775	0.032750	0.286150	0.090376	-0.015935	0.029817
2.45	0.327667	0.107743	-0.017450	0.032339	0.287053	0.090218	-0.015639	0.029426
2.46	0.328743	0.107570	-0.017129	0.031928	0.287954	0.090063	-0.015346	0.029036
2.47	0.329818	0.107400	-0.016811	0.031517	0.288854	0.089911	-0.015058	0.028647
2.48	0.330891	0.107234	-0.016498	0.031107	0.289752	0.089762	-0.014773	0.028259
2.49	0.331963	0.107070	-0.016189	0.030698	0.290649	0.089615	-0.014493	0.027873
2.50	0.333033	0.106910	-0.015884	0.030289	0.291545	0.089472	-0.014216	0.027488
2.51	0.334101	0.106752	-0.015583	0.029882	0.292439	0.089331	-0.013943	0.027104
2.52	0.335168	0.106598	-0.015287	0.029475	0.293331	0.089193	-0.013674	0.026722
2.53	0.336233	0.106447	-0.014994	0.029070	0.294222	0.089058	-0.013409	0.026341
2.54	0.337297	0.106298	-0.014705	0.028666	0.295112	0.088925	-0.013147	0.025963
2.55	0.338359	0.106153	-0.014421	0.028263	0.296001	0.088795	-0.012889	0.025586
2.56	0.339420	0.106010	-0.014140	0.027862	0.296888	0.088667	-0.012635	0.025212
2.57	0.340479	0.105870	-0.013863	0.027463	0.297774	0.088542	-0.012385	0.024839
2.58	0.341537	0.105732	-0.013591	0.027066	0.298659	0.088419	-0.012139	0.024469
2.59	0.342594	0.105598	-0.013322	0.026670	0.299543	0.088299	-0.011896	0.024100
2.60	0.343649	0.105466	-0.013057	0.026277	0.300425	0.088181	-0.011656	0.023735
2.61	0.344703	0.105337	-0.012796	0.025886	0.301306	0.088066	-0.011421	0.023371
2.62	0.345756	0.105210	-0.012539	0.025497	0.302186	0.087953	-0.011189	0.023011
2.63	0.346808	0.105086	-0.012286	0.025110	0.303065	0.087842	-0.010961	0.022652
2.64	0.347858	0.104964	-0.012037	0.024726	0.303943	0.087734	-0.010736	0.022297
2.65	0.348907	0.104845	-0.011792	0.024345	0.304820	0.087627	-0.010515	0.021944
2.66	0.349955	0.104728	-0.011550	0.023966	0.305696	0.087523	-0.010297	0.021594
2.67	0.351001	0.104614	-0.011313	0.023589	0.306571	0.087421	-0.010083	0.021246
2.68	0.352047	0.104502	-0.011078	0.023216	0.307444	0.087322	-0.009872	0.020902
2.69	0.353091	0.104393	-0.010848	0.022845	0.308317	0.087224	-0.009665	0.020560
2.70	0.354135	0.104285	-0.010622	0.022477	0.309189	0.087128	-0.009461	0.020222
2.71	0.355177	0.104180	-0.010399	0.022113	0.310060	0.087035	-0.009260	0.019886
2.72	0.356218	0.104077	-0.010179	0.021751	0.310930	0.086943	-0.009063	0.019554
2.73	0.357259	0.103976	-0.009964	0.021392	0.311799	0.086853	-0.008869	0.019225
2.74	0.358298	0.103878	-0.009751	0.021037	0.312667	0.086766	-0.008679	0.018899
2.75	0.359336	0.103781	-0.009543	0.020685	0.313534	0.086680	-0.008491	0.018576
2.76	0.360374	0.103687	-0.009338	0.020335	0.314400	0.086596	-0.008307	0.018256
2.77	0.361410	0.103595	-0.009136	0.019990	0.315266	0.086514	-0.008126	0.017940
2.78	0.362446	0.103504	-0.008938	0.019647	0.316131	0.086433	-0.007948	0.017627
2.79	0.363480	0.103416	-0.008743	0.019308	0.316994	0.086355	-0.007774	0.017317
2.80	0.364514	0.103329	-0.008552	0.018973	0.317858	0.086278	-0.007602	0.017010
2.81	0.365547	0.103245	-0.008364	0.018641	0.318720	0.086203	-0.007433	0.016707
2.82	0.366579	0.103162	-0.008179	0.018312	0.319582	0.086129	-0.007268	0.016408
2.83	0.367610	0.103081	-0.007997	0.017987	0.320443	0.086057	-0.007105	0.016111
2.84	0.368640	0.103002	-0.007819	0.017665	0.321303	0.085987	-0.006946	0.015818
2.85	0.369670	0.102925	-0.007644	0.017347	0.322162	0.085918	-0.006789	0.015529
2.86	0.370699	0.102849	-0.007472	0.017033	0.323021	0.085851	-0.006635	0.015243
2.87	0.371727	0.102775	-0.007303	0.016722	0.323879	0.085786	-0.006484	0.014961
2.88	0.372755	0.102703	-0.007138	0.016415	0.324737	0.085722	-0.006336	0.014682
2.89	0.373781	0.102633	-0.006975	0.016111	0.325594	0.085659	-0.006190	0.014406
2.90	0.374807	0.102564	-0.006815	0.015811	0.326450	0.085598	-0.006048	0.014134
2.91	0.375832	0.102496	-0.006659	0.015515	0.327306	0.085538	-0.005908	0.013865
2.92	0.376857	0.102430	-0.006505	0.015223	0.328161	0.085480	-0.005770	0.013600
2.93	0.377881	0.102366	-0.006354	0.014934	0.329015	0.085423	-0.005636	0.013338
2.94	0.378904	0.102303	-0.006206	0.014649	0.329869	0.085367	-0.005503	0.013080
2.95	0.379927	0.102242	-0.006061	0.014367	0.330723	0.085312	-0.005374	0.012826
2.96	0.380949	0.102182	-0.005919	0.014089	0.331576	0.085259	-0.005247	0.012574
2.97	0.381971	0.102124	-0.005780	0.013815	0.332428	0.085208	-0.005122	0.012327
2.98	0.382992	0.102066	-0.005643	0.013545	0.333280	0.085157	-0.005000	0.012082
2.99	0.384012	0.102011	-0.005509	0.013278	0.334131	0.085107	-0.004881	0.011842

Approved for Public Release

Contrails

η	g_9	g_9'	g_9''	g_9'''	g_{11}	g_{11}'	g_{11}''	g_{11}'''
3.00	0.385032	0.101956	-0.005377	0.013015	0.334982	0.085059	-0.004763	0.011604
3.01	0.386051	0.101903	-0.005248	0.012756	0.335832	0.085012	-0.004649	0.011370
3.02	0.387070	0.101851	-0.005122	0.012500	0.336682	0.084966	-0.004536	0.011140
3.03	0.388088	0.101801	-0.004998	0.012248	0.337532	0.084921	-0.004426	0.010913
3.04	0.389106	0.101751	-0.004877	0.012000	0.338381	0.084878	-0.004318	0.010689
3.05	0.390123	0.101703	-0.004758	0.011755	0.339229	0.084835	-0.004212	0.010469
3.06	0.391140	0.101656	-0.004642	0.011514	0.340077	0.084793	-0.004108	0.010251
3.07	0.392157	0.101610	-0.004528	0.011277	0.340925	0.084753	-0.004007	0.010038
3.08	0.393172	0.101566	-0.004416	0.011043	0.341772	0.084713	-0.003908	0.009827
3.09	0.394188	0.101522	-0.004307	0.010813	0.342619	0.084675	-0.003810	0.009620
3.10	0.395203	0.101479	-0.004200	0.010586	0.343466	0.084637	-0.003715	0.009417
3.11	0.396217	0.101438	-0.004095	0.010363	0.344312	0.084600	-0.003622	0.009216
3.12	0.397232	0.101397	-0.003993	0.010143	0.345158	0.084565	-0.003531	0.009019
3.13	0.398245	0.101358	-0.003892	0.009927	0.346004	0.084530	-0.003442	0.008825
3.14	0.399259	0.101320	-0.003794	0.009714	0.346849	0.084496	-0.003354	0.008634
3.15	0.400272	0.101282	-0.003698	0.009505	0.347693	0.084463	-0.003269	0.008446
3.16	0.401284	0.101246	-0.003604	0.009299	0.348538	0.084430	-0.003185	0.008262
3.17	0.402297	0.101210	-0.003512	0.009097	0.349382	0.084399	-0.003104	0.008080
3.18	0.403309	0.101175	-0.003422	0.008898	0.350226	0.084368	-0.003024	0.007902
3.19	0.404320	0.101142	-0.003334	0.008702	0.351069	0.084338	-0.002946	0.007727
3.20	0.405332	0.101109	-0.003248	0.008510	0.351913	0.084309	-0.002869	0.007554
3.21	0.406342	0.101077	-0.003164	0.008321	0.352756	0.084281	-0.002794	0.007385
3.22	0.407353	0.101045	-0.003082	0.008135	0.353598	0.084253	-0.002721	0.007219
3.23	0.408363	0.101015	-0.003001	0.007952	0.354441	0.084227	-0.002650	0.007056
3.24	0.409373	0.100985	-0.002923	0.007773	0.355283	0.084200	-0.002580	0.006895
3.25	0.410383	0.100956	-0.002846	0.007597	0.356125	0.084175	-0.002512	0.006738
3.26	0.411393	0.100928	-0.002771	0.007424	0.356966	0.084150	-0.002446	0.006583
3.27	0.412402	0.100901	-0.002697	0.007254	0.357808	0.084126	-0.002380	0.006431
3.28	0.413411	0.100874	-0.002626	0.007087	0.358649	0.084103	-0.002317	0.006282
3.29	0.414419	0.100849	-0.002555	0.006923	0.359490	0.084080	-0.002255	0.006136
3.30	0.415428	0.100823	-0.002487	0.006763	0.360331	0.084057	-0.002194	0.005993
3.31	0.416436	0.100799	-0.002420	0.006605	0.361171	0.084036	-0.002135	0.005852
3.32	0.417444	0.100775	-0.002355	0.006450	0.362011	0.084015	-0.002077	0.005714
3.33	0.418451	0.100752	-0.002291	0.006298	0.362851	0.083994	-0.002021	0.005578
3.34	0.419459	0.100729	-0.002229	0.006149	0.363691	0.083974	-0.001966	0.005445
3.35	0.420466	0.100707	-0.002168	0.006003	0.364531	0.083955	-0.001912	0.005315
3.36	0.421473	0.100686	-0.002109	0.005860	0.365370	0.083936	-0.001859	0.005187
3.37	0.422480	0.100665	-0.002051	0.005719	0.366210	0.083918	-0.001808	0.005062
3.38	0.423486	0.100645	-0.001994	0.005581	0.367049	0.083900	-0.001758	0.004939
3.39	0.424492	0.100625	-0.001939	0.005446	0.367888	0.083883	-0.001709	0.004819
3.40	0.425499	0.100606	-0.001886	0.005314	0.368726	0.083866	-0.001662	0.004701
3.41	0.426505	0.100587	-0.001833	0.005184	0.369565	0.083849	-0.001615	0.004585
3.42	0.427510	0.100569	-0.001782	0.005057	0.370403	0.083833	-0.001570	0.004472
3.43	0.428516	0.100552	-0.001732	0.004932	0.371242	0.083818	-0.001526	0.004361
3.44	0.429521	0.100535	-0.001683	0.004810	0.372080	0.083803	-0.001483	0.004253
3.45	0.430527	0.100518	-0.001636	0.004690	0.372918	0.083788	-0.001441	0.004146
3.46	0.431532	0.100502	-0.001589	0.004573	0.373755	0.083774	-0.001400	0.004042
3.47	0.432537	0.100486	-0.001544	0.004459	0.374593	0.083760	-0.001360	0.003940
3.48	0.433541	0.100471	-0.001500	0.004346	0.375431	0.083747	-0.001321	0.003841
3.49	0.434546	0.100456	-0.001457	0.004236	0.376268	0.083734	-0.001283	0.003743
3.50	0.435551	0.100442	-0.001415	0.004129	0.377105	0.083721	-0.001246	0.003647
3.51	0.436555	0.100428	-0.001375	0.004023	0.377942	0.083709	-0.001210	0.003554
3.52	0.437559	0.100414	-0.001335	0.003920	0.378780	0.083697	-0.001175	0.003462
3.53	0.438563	0.100401	-0.001296	0.003820	0.379616	0.083685	-0.001141	0.003373
3.54	0.439567	0.100388	-0.001259	0.003721	0.380453	0.083674	-0.001107	0.003285
3.55	0.440571	0.100376	-0.001222	0.003624	0.381290	0.083663	-0.001075	0.003200
3.56	0.441575	0.100364	-0.001186	0.003530	0.382127	0.083653	-0.001043	0.003116
3.57	0.442578	0.100352	-0.001151	0.003438	0.382963	0.083642	-0.001013	0.003034
3.58	0.443582	0.100341	-0.001117	0.003347	0.383799	0.083632	-0.000983	0.002954
3.59	0.444585	0.100330	-0.001084	0.003259	0.384636	0.083623	-0.000954	0.002876
3.60	0.445588	0.100319	-0.001052	0.003173	0.385472	0.083613	-0.000925	0.002799
3.61	0.446592	0.100309	-0.001021	0.003088	0.386308	0.083604	-0.000898	0.002724
3.62	0.447595	0.100299	-0.000990	0.003006	0.387144	0.083595	-0.000871	0.002651
3.63	0.448598	0.100289	-0.000961	0.002926	0.387980	0.083587	-0.000844	0.002580
3.64	0.449600	0.100279	-0.000932	0.002847	0.388816	0.083578	-0.000819	0.002510
3.65	0.450603	0.100270	-0.000904	0.002770	0.389651	0.083570	-0.000794	0.002442
3.66	0.451606	0.100261	-0.000876	0.002695	0.390487	0.083562	-0.000770	0.002375
3.67	0.452608	0.100253	-0.000850	0.002621	0.391323	0.083555	-0.000747	0.002311
3.68	0.453611	0.100244	-0.000824	0.002550	0.392158	0.083548	-0.000724	0.002247
3.69	0.454613	0.100236	-0.000799	0.002480	0.392994	0.083540	-0.000702	0.002185
3.70	0.455616	0.100228	-0.000774	0.002411	0.393829	0.083534	-0.000680	0.002125
3.71	0.456618	0.100221	-0.000750	0.002345	0.394664	0.083527	-0.000659	0.002066
3.72	0.457620	0.100213	-0.000727	0.002280	0.395500	0.083520	-0.000639	0.002008
3.73	0.458622	0.100206	-0.000705	0.002216	0.396335	0.083514	-0.000619	0.001952
3.74	0.459624	0.100199	-0.000683	0.002154	0.397170	0.083508	-0.000600	0.001897

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Contrails

η	g_9	g_9'	g_9''	g_9'''	g_{11}	g_{11}'	g_{11}''	g_{11}'''
3.75	0.460628	0.100193	-0.000662	0.002094	0.398005	0.083502	-0.000581	0.001844
3.76	0.461628	0.100186	-0.000641	0.002035	0.398840	0.083496	-0.000563	0.001792
3.77	0.462630	0.100180	-0.000621	0.001977	0.399675	0.083491	-0.000545	0.001741
3.78	0.463632	0.100174	-0.000602	0.001921	0.400510	0.083485	-0.000528	0.001691
3.79	0.464633	0.100168	-0.000583	0.001867	0.401345	0.083480	-0.000511	0.001643
3.80	0.465635	0.100162	-0.000564	0.001813	0.402179	0.083475	-0.000495	0.001596
3.81	0.466637	0.100156	-0.000546	0.001761	0.403014	0.083470	-0.000480	0.001550
3.82	0.467638	0.100151	-0.000529	0.001710	0.403849	0.083466	-0.000464	0.001505
3.83	0.468640	0.100146	-0.000512	0.001661	0.404683	0.083461	-0.000449	0.001461
3.84	0.469641	0.100141	-0.000496	0.001613	0.405518	0.083457	-0.000435	0.001419
3.85	0.470642	0.100136	-0.000480	0.001566	0.406353	0.083452	-0.000421	0.001377
3.86	0.471644	0.100131	-0.000464	0.001520	0.407187	0.083448	-0.000407	0.001337
3.87	0.472645	0.100127	-0.000449	0.001476	0.408022	0.083444	-0.000394	0.001298
3.88	0.473646	0.100122	-0.000435	0.001432	0.408856	0.083440	-0.000381	0.001259
3.89	0.474648	0.100118	-0.000421	0.001390	0.409690	0.083436	-0.000369	0.001222
3.90	0.475649	0.100114	-0.000407	0.001348	0.410525	0.083433	-0.000357	0.001185
3.91	0.476650	0.100110	-0.000394	0.001309	0.411359	0.083429	-0.000345	0.001150
3.92	0.477651	0.100106	-0.000381	0.001269	0.412193	0.083426	-0.000334	0.001116
3.93	0.478652	0.100102	-0.000368	0.001231	0.413028	0.083423	-0.000323	0.001082
3.94	0.479653	0.100098	-0.000356	0.001194	0.413862	0.083419	-0.000312	0.001049
3.95	0.480654	0.100095	-0.000345	0.001158	0.414696	0.083416	-0.000302	0.001018
3.96	0.481655	0.100091	-0.000333	0.001123	0.415530	0.083413	-0.000292	0.000987
3.97	0.482656	0.100088	-0.000322	0.001089	0.416364	0.083410	-0.000282	0.000957
3.98	0.483657	0.100085	-0.000311	0.001056	0.417198	0.083408	-0.000273	0.000927
3.99	0.484657	0.100082	-0.000301	0.001024	0.418032	0.083405	-0.000264	0.000899
4.00	0.485658	0.100079	-0.000291	0.000992	0.418866	0.083402	-0.000255	0.000871
4.01	0.486659	0.100076	-0.000281	0.000962	0.419700	0.083400	-0.000246	0.000845
4.02	0.487660	0.100073	-0.000272	0.000932	0.420534	0.083397	-0.000238	0.000818
4.03	0.488661	0.100071	-0.000262	0.000903	0.421368	0.083395	-0.000230	0.000793
4.04	0.489661	0.100068	-0.000253	0.000875	0.422202	0.083393	-0.000222	0.000768
4.05	0.490662	0.100066	-0.000245	0.000848	0.423036	0.083391	-0.000214	0.000744
4.06	0.491663	0.100063	-0.000237	0.000821	0.423870	0.083389	-0.000207	0.000721
4.07	0.492663	0.100061	-0.000228	0.000795	0.424704	0.083387	-0.000200	0.000698
4.08	0.493664	0.100059	-0.000221	0.000770	0.425538	0.083385	-0.000193	0.000676
4.09	0.494664	0.100056	-0.000213	0.000746	0.426372	0.083383	-0.000187	0.000655
4.10	0.495665	0.100054	-0.000206	0.000722	0.427206	0.083381	-0.000180	0.000634
4.11	0.496665	0.100052	-0.000199	0.000699	0.428039	0.083379	-0.000174	0.000614
4.12	0.497666	0.100050	-0.000192	0.000677	0.428873	0.083377	-0.000168	0.000594
4.13	0.498666	0.100049	-0.000185	0.000655	0.429707	0.083376	-0.000162	0.000575
4.14	0.499667	0.100047	-0.000179	0.000634	0.430541	0.083374	-0.000156	0.000556
4.15	0.500667	0.100045	-0.000172	0.000614	0.431374	0.083373	-0.000151	0.000539
4.16	0.501668	0.100043	-0.000166	0.000594	0.432208	0.083371	-0.000145	0.000521
4.17	0.502668	0.100042	-0.000160	0.000575	0.433042	0.083370	-0.000140	0.000504
4.18	0.503669	0.100040	-0.000155	0.000556	0.433876	0.083368	-0.000135	0.000487
4.19	0.504669	0.100038	-0.000149	0.000538	0.434709	0.083367	-0.000131	0.000472
4.20	0.505669	0.100037	-0.000144	0.000520	0.435543	0.083366	-0.000126	0.000456
4.21	0.506670	0.100036	-0.000139	0.000503	0.436377	0.083364	-0.000122	0.000441
4.22	0.507670	0.100034	-0.000134	0.000486	0.437210	0.083363	-0.000117	0.000426
4.23	0.508671	0.100033	-0.000129	0.000471	0.438044	0.083362	-0.000113	0.000413
4.24	0.509671	0.100032	-0.000124	0.000454	0.438877	0.083361	-0.000109	0.000398
4.25	0.510671	0.100030	-0.000120	0.000440	0.439711	0.083360	-0.000105	0.000385
4.26	0.511671	0.100029	-0.000116	0.000425	0.440545	0.083359	-0.000101	0.000372
4.27	0.512672	0.100028	-0.000112	0.000411	0.441378	0.083358	-0.000098	0.000360
4.28	0.513672	0.100027	-0.000107	0.000397	0.442212	0.083357	-0.000094	0.000347
4.29	0.514672	0.100026	-0.000104	0.000384	0.443045	0.083356	-0.000091	0.000336
4.30	0.515673	0.100025	-0.000100	0.000370	0.443879	0.083355	-0.000087	0.000324
4.31	0.516673	0.100024	-0.000096	0.000358	0.444712	0.083354	-0.000084	0.000314
4.32	0.517673	0.100023	-0.000093	0.000345	0.445546	0.083353	-0.000081	0.000303
4.33	0.518673	0.100022	-0.000089	0.000334	0.446380	0.083353	-0.000078	0.000293
4.34	0.519674	0.100021	-0.000086	0.000322	0.447213	0.083352	-0.000075	0.000282
4.35	0.520674	0.100020	-0.000083	0.000312	0.448047	0.083351	-0.000072	0.000273
4.36	0.521674	0.100019	-0.000080	0.000300	0.448880	0.083350	-0.000070	0.000263
4.37	0.522674	0.100019	-0.000077	0.000291	0.449714	0.083350	-0.000067	0.000255
4.38	0.523674	0.100018	-0.000074	0.000280	0.450547	0.083349	-0.000064	0.000245
4.39	0.524675	0.100017	-0.000071	0.000271	0.451381	0.083348	-0.000062	0.000237
4.40	0.525675	0.100017	-0.000068	0.000261	0.452214	0.083348	-0.000060	0.000228
4.41	0.526675	0.100016	-0.000066	0.000252	0.453048	0.083347	-0.000058	0.000221
4.42	0.527675	0.100015	-0.000063	0.000243	0.453881	0.083347	-0.000055	0.000212
4.43	0.528675	0.100015	-0.000061	0.000235	0.454715	0.083346	-0.000053	0.000206
4.44	0.529675	0.100014	-0.000059	0.000226	0.455548	0.083345	-0.000051	0.000198
4.45	0.530675	0.100013	-0.000057	0.000219	0.456381	0.083345	-0.000049	0.000191
4.46	0.531676	0.100013	-0.000054	0.000210	0.457215	0.083344	-0.000047	0.000184
4.47	0.532676	0.100012	-0.000052	0.000203	0.458048	0.083344	-0.000046	0.000178
4.48	0.533676	0.100012	-0.000050	0.000195	0.458882	0.083344	-0.000044	0.000171
4.49	0.534676	0.100011	-0.000048	0.000189	0.459715	0.083343	-0.000042	0.000166

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Contrails

η	g_0	g_0'	g_0''	g_0'''	g_{11}	g_{11}'	g_{11}''	g_{11}'''
4.50	0.535676	0.100011	-0.000046	0.000182	0.460549	0.083343	-0.000040	0.000159
4.51	0.536676	0.100010	-0.000045	0.000176	0.461382	0.083342	-0.000039	0.000154
4.52	0.537676	0.100010	-0.000043	0.000169	0.462215	0.083342	-0.000037	0.000147
4.53	0.538676	0.100009	-0.000041	0.000163	0.463049	0.083342	-0.000036	0.000143
4.54	0.539676	0.100009	-0.000040	0.000157	0.463882	0.083341	-0.000035	0.000137
4.55	0.540677	0.100009	-0.000038	0.000152	0.464716	0.083341	-0.000033	0.000133
4.56	0.541677	0.100008	-0.000037	0.000145	0.465549	0.083340	-0.000032	0.000127
4.57	0.542677	0.100008	-0.000035	0.000141	0.466383	0.083340	-0.000031	0.000123
4.58	0.543677	0.100008	-0.000034	0.000135	0.467216	0.083340	-0.000029	0.000118
4.59	0.544677	0.100007	-0.000033	0.000131	0.468049	0.083340	-0.000028	0.000114
4.60	0.545677	0.100007	-0.000031	0.000125	0.468883	0.083339	-0.000027	0.000109
4.61	0.546677	0.100007	-0.000030	0.000121	0.469716	0.083339	-0.000026	0.000106
4.62	0.547677	0.100006	-0.000029	0.000116	0.470550	0.083339	-0.000025	0.000101
4.63	0.548677	0.100006	-0.000028	0.000112	0.471383	0.083339	-0.000024	0.000098
4.64	0.549677	0.100006	-0.000026	0.000107	0.472216	0.083338	-0.000023	0.000093
4.65	0.550677	0.100005	-0.000026	0.000104	0.473050	0.083338	-0.000022	0.000091
4.66	0.551677	0.100005	-0.000024	0.000099	0.473883	0.083338	-0.000021	0.000086
4.67	0.552677	0.100005	-0.000024	0.000096	0.474716	0.083338	-0.000021	0.000084
4.68	0.553678	0.100005	-0.000022	0.000092	0.475550	0.083337	-0.000019	0.000080
4.69	0.554678	0.100005	-0.000022	0.000089	0.476383	0.083337	-0.000019	0.000078
4.70	0.555678	0.100004	-0.000021	0.000085	0.477217	0.083337	-0.000018	0.000074
4.71	0.556678	0.100004	-0.000020	0.000083	0.478050	0.083337	-0.000017	0.000072
4.72	0.557678	0.100004	-0.000019	0.000078	0.478883	0.083337	-0.000016	0.000068
4.73	0.558678	0.100004	-0.000018	0.000077	0.479717	0.083337	-0.000016	0.000067
4.74	0.559678	0.100003	-0.000017	0.000072	0.480550	0.083336	-0.000015	0.000063
4.75	0.560678	0.100003	-0.000017	0.000071	0.481383	0.083336	-0.000015	0.000062
4.76	0.561678	0.100003	-0.000016	0.000067	0.482217	0.083336	-0.000014	0.000058
4.77	0.562678	0.100003	-0.000016	0.000065	0.483050	0.083336	-0.000014	0.000057
4.78	0.563678	0.100003	-0.000015	0.000062	0.483884	0.083336	-0.000013	0.000053
4.79	0.564678	0.100003	-0.000014	0.000060	0.484717	0.083336	-0.000012	0.000053
4.80	0.565678	0.100003	-0.000014	0.000057	0.485550	0.083335	-0.000012	0.000049
4.81	0.566678	0.100002	-0.000013	0.000056	0.486384	0.083335	-0.000011	0.000049
4.82	0.567678	0.100002	-0.000012	0.000052	0.487217	0.083335	-0.000011	0.000045
4.83	0.568678	0.100002	-0.000012	0.000052	0.488050	0.083335	-0.000011	0.000045
4.84	0.569678	0.100002	-0.000011	0.000048	0.488884	0.083335	-0.000010	0.000042
4.85	0.570678	0.100002	-0.000011	0.000048	0.489717	0.083335	-0.000010	0.000042
4.86	0.571678	0.100002	-0.000010	0.000044	0.490550	0.083335	-0.000009	0.000038
4.87	0.572678	0.100002	-0.000010	0.000044	0.491384	0.083335	-0.000009	0.000039
4.88	0.573678	0.100002	-0.000010	0.000041	0.492217	0.083335	-0.000008	0.000035
4.89	0.574678	0.100001	-0.000009	0.000041	0.493050	0.083335	-0.000008	0.000036
4.90	0.575678	0.100001	-0.000009	0.000037	0.493884	0.083334	-0.000008	0.000032
4.91	0.576678	0.100001	-0.000009	0.000037	0.494717	0.083334	-0.000008	0.000033
4.92	0.577678	0.100001	-0.000008	0.000034	0.495551	0.083334	-0.000007	0.000029
4.93	0.578678	0.100001	-0.000008	0.000035	0.496384	0.083334	-0.000007	0.000030
4.94	0.579678	0.100001	-0.000007	0.000031	0.497217	0.083334	-0.000006	0.000027
4.95	0.580678	0.100001	-0.000007	0.000032	0.498051	0.083334	-0.000006	0.000028
4.96	0.581678	0.100001	-0.000007	0.000028	0.498884	0.083334	-0.000006	0.000024
4.97	0.582678	0.100001	-0.000007	0.000029	0.499717	0.083334	-0.000006	0.000026
4.98	0.583678	0.100001	-0.000006	0.000026	0.500551	0.083334	-0.000006	0.000022
4.99	0.584678	0.100001	-0.000006	0.000027	0.501384	0.083334	-0.000005	0.000024
5.00	0.585678	0.100001	-0.000006	0.000024	0.502217	0.083334	-0.000005	0.000020
5.01	0.586678	0.100001	-0.000006	0.000025	0.503051	0.083334	-0.000005	0.000022
5.02	0.587678	0.100000	-0.000005	0.000022	0.503884	0.083334	-0.000004	0.000018
5.03	0.588678	0.100000	-0.000005	0.000023	0.504717	0.083334	-0.000005	0.000020
5.04	0.589678	0.100000	-0.000005	0.000020	0.505551	0.083334	-0.000004	0.000016
5.05	0.590678	0.100000	-0.000005	0.000021	0.506384	0.083334	-0.000004	0.000019
5.06	0.591678	0.100000	-0.000004	0.000018	0.507217	0.083333	-0.000004	0.000015
5.07	0.592678	0.100000	-0.000004	0.000019	0.508051	0.083334	-0.000004	0.000017
5.08	0.593678	0.100000	-0.000004	0.000016	0.508884	0.083333	-0.000003	0.000013
5.09	0.594678	0.100000	-0.000004	0.000018	0.509717	0.083333	-0.000004	0.000016
5.10	0.595678	0.100000	-0.000003	0.000014	0.510551	0.083333	-0.000003	0.000012
5.11	0.596678	0.100000	-0.000004	0.000017	0.511384	0.083333	-0.000003	0.000015
5.12	0.597678	0.100000	-0.000003	0.000013	0.512217	0.083333	-0.000003	0.000011
5.13	0.598678	0.100000	-0.000003	0.000015	0.513051	0.083333	-0.000003	0.000014
5.14	0.599678	0.100000	-0.000003	0.000012	0.513884	0.083333	-0.000002	0.000009
5.15	0.600678	0.100000	-0.000003	0.000014	0.514717	0.083333	-0.000003	0.000013
5.16	0.601678	0.100000	-0.000003	0.000010	0.515551	0.083333	-0.000002	0.000008
5.17	0.602678	0.100000	-0.000003	0.000013	0.516384	0.083333	-0.000003	0.000012
5.18	0.603678	0.100000	-0.000002	0.000009	0.517217	0.083333	-0.000002	0.000007
5.19	0.604678	0.100000	-0.000003	0.000012	0.518051	0.083333	-0.000002	0.000011
5.20	0.605679	0.100000	-0.000002	0.000008	0.518884	0.083333	-0.000002	0.000006
5.21	0.606678	0.100000	-0.000003	0.000011	0.519717	0.083333	-0.000002	0.000010
5.22	0.607679	0.100000	-0.000002	0.000007	0.520551	0.083333	-0.000002	0.000005
5.23	0.608678	0.100000	-0.000002	0.000010	0.521384	0.083333	-0.000002	0.000009
5.24	0.609679	0.100000	-0.000002	0.000006	0.522217	0.083333	-0.000001	0.000004

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Contrails

η	h_{11}	h'_{11}	h''_{11}	h'''_{11}
0.00	0.000000	0.000000	0.132290	-1.000000
0.01	0.000006	0.001272	0.122293	-0.999133
0.02	0.000025	0.002445	0.112313	-0.996587
0.03	0.000055	0.003519	0.102366	-0.992442
0.04	0.000095	0.004493	0.092469	-0.986776
0.05	0.000144	0.005368	0.082635	-0.979668
0.06	0.000202	0.006146	0.072880	-0.971192
0.07	0.000267	0.006826	0.063216	-0.961424
0.08	0.000338	0.007411	0.053656	-0.950437
0.09	0.000415	0.007900	0.044211	-0.938302
0.10	0.000496	0.008295	0.034893	-0.925090
0.11	0.000580	0.008598	0.025713	-0.910868
0.12	0.000667	0.008810	0.016679	-0.895705
0.13	0.000756	0.008932	0.007801	-0.879664
0.14	0.000846	0.008967	-0.000911	-0.862809
0.15	0.000935	0.008915	-0.009451	-0.845202
0.16	0.001024	0.008778	-0.017812	-0.826902
0.17	0.001110	0.008559	-0.025987	-0.807968
0.18	0.001195	0.008259	-0.033970	-0.788455
0.19	0.001275	0.007880	-0.041755	-0.768419
0.20	0.001352	0.007425	-0.049337	-0.747911
0.21	0.001424	0.006894	-0.056711	-0.726983
0.22	0.001490	0.006291	-0.063875	-0.705684
0.23	0.001549	0.005617	-0.070824	-0.684061
0.24	0.001602	0.004875	-0.077555	-0.662161
0.25	0.001647	0.004067	-0.084066	-0.640025
0.26	0.001683	0.003195	-0.090355	-0.617698
0.27	0.001710	0.002261	-0.096420	-0.595219
0.28	0.001728	0.001267	-0.102259	-0.572626
0.29	0.001735	0.000216	-0.107872	-0.549958
0.30	0.001732	-0.000889	-0.113258	-0.527249
0.31	0.001717	-0.002047	-0.118417	-0.504533
0.32	0.001691	-0.003256	-0.123349	-0.481843
0.33	0.001652	-0.004513	-0.128054	-0.459209
0.34	0.001601	-0.005817	-0.132534	-0.436660
0.35	0.001536	-0.007163	-0.136788	-0.414224
0.36	0.001457	-0.008552	-0.140818	-0.391926
0.37	0.001364	-0.009979	-0.144627	-0.369793
0.38	0.001257	-0.011443	-0.148215	-0.347847
0.39	0.001135	-0.012943	-0.151585	-0.326110
0.40	0.000998	-0.014474	-0.154738	-0.304602
0.41	0.000846	-0.016037	-0.157677	-0.283344
0.42	0.000678	-0.017627	-0.160406	-0.262353
0.43	0.000493	-0.019244	-0.162925	-0.241647
0.44	0.000293	-0.020885	-0.165240	-0.221240
0.45	0.000075	-0.022548	-0.167351	-0.201148
0.46	-0.000157	-0.024231	-0.169264	-0.181384
0.47	-0.000408	-0.025933	-0.170980	-0.161960
0.48	-0.000676	-0.027650	-0.172504	-0.142889
0.49	-0.000961	-0.029382	-0.173839	-0.124179
0.50	-0.001264	-0.031127	-0.174989	-0.105841
0.51	-0.001584	-0.032882	-0.175957	-0.087883
0.52	-0.001922	-0.034645	-0.176748	-0.070313
0.53	-0.002277	-0.036416	-0.177365	-0.053137
0.54	-0.002650	-0.038192	-0.177812	-0.036361
0.55	-0.003041	-0.039972	-0.178093	-0.019991
0.56	-0.003449	-0.041753	-0.178213	-0.004030
0.57	-0.003876	-0.043535	-0.178175	0.011517
0.58	-0.004320	-0.045316	-0.177984	0.026648
0.59	-0.004782	-0.047095	-0.177644	0.041361
0.60	-0.005262	-0.048869	-0.177158	0.055654
0.61	-0.005759	-0.050637	-0.176532	0.069526
0.62	-0.006275	-0.052399	-0.175769	0.082976
0.63	-0.006807	-0.054152	-0.174874	0.096005
0.64	-0.007358	-0.055896	-0.173851	0.108613
0.65	-0.007925	-0.057629	-0.172703	0.120802
0.66	-0.008510	-0.059350	-0.171436	0.132572
0.67	-0.009112	-0.061057	-0.170053	0.143927
0.68	-0.009731	-0.062750	-0.168559	0.154868
0.69	-0.010367	-0.064428	-0.166957	0.165398
0.70	-0.011020	-0.066089	-0.165252	0.175521
0.71	-0.011689	-0.067733	-0.163448	0.185240
0.72	-0.012374	-0.069358	-0.161549	0.194559
0.73	-0.013076	-0.070963	-0.159558	0.203482
0.74	-0.013794	-0.072549	-0.157480	0.212014

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Contrails

η	h_{11}	h'_{11}	h''_{11}	h'''_{11}
0.75	-0.014527	-0.074113	-0.155319	0.220159
0.76	-0.015276	-0.075655	-0.153078	0.227922
0.77	-0.016040	-0.077174	-0.150762	0.235309
0.78	-0.016819	-0.078670	-0.148373	0.242324
0.79	-0.017613	-0.080141	-0.145917	0.248974
0.80	-0.018422	-0.081588	-0.143395	0.255264
0.81	-0.019245	-0.083009	-0.140813	0.261201
0.82	-0.020082	-0.084404	-0.138172	0.266789
0.83	-0.020933	-0.085772	-0.135478	0.272036
0.84	-0.021797	-0.087113	-0.132733	0.276947
0.85	-0.022675	-0.088427	-0.129940	0.281529
0.86	-0.023566	-0.089712	-0.127103	0.285789
0.87	-0.024469	-0.090969	-0.124225	0.289733
0.88	-0.025385	-0.092196	-0.121310	0.293367
0.89	-0.026313	-0.093395	-0.118359	0.296698
0.90	-0.027253	-0.094564	-0.115377	0.299734
0.91	-0.028204	-0.095702	-0.112365	0.302480
0.92	-0.029167	-0.096811	-0.109328	0.304944
0.93	-0.030141	-0.097889	-0.106267	0.307132
0.94	-0.031125	-0.098936	-0.103186	0.309050
0.95	-0.032119	-0.099952	-0.100087	0.310707
0.96	-0.033124	-0.100938	-0.096973	0.312108
0.97	-0.034138	-0.101892	-0.093846	0.313260
0.98	-0.035161	-0.102815	-0.090708	0.314170
0.99	-0.036194	-0.103706	-0.087563	0.314845
1.00	-0.037235	-0.104566	-0.084412	0.315291
1.01	-0.038285	-0.105394	-0.081258	0.315515
1.02	-0.039343	-0.106191	-0.078103	0.315524
1.03	-0.040409	-0.106956	-0.074948	0.315323
1.04	-0.041482	-0.107690	-0.071797	0.314920
1.05	-0.042563	-0.108392	-0.068651	0.314320
1.06	-0.043650	-0.109063	-0.065511	0.313531
1.07	-0.044744	-0.109703	-0.062381	0.312557
1.08	-0.045844	-0.110311	-0.059261	0.311407
1.09	-0.046950	-0.110888	-0.056153	0.310084
1.10	-0.048062	-0.111434	-0.053059	0.308597
1.11	-0.049179	-0.111949	-0.049982	0.306949
1.12	-0.050300	-0.112434	-0.046921	0.305148
1.13	-0.051427	-0.112888	-0.043879	0.303199
1.14	-0.052558	-0.113311	-0.040857	0.301108
1.15	-0.053693	-0.113705	-0.037857	0.298881
1.16	-0.054832	-0.114068	-0.034880	0.296522
1.17	-0.055975	-0.114402	-0.031927	0.294037
1.18	-0.057120	-0.114707	-0.029000	0.291432
1.19	-0.058269	-0.114983	-0.026099	0.288712
1.20	-0.059420	-0.115229	-0.023226	0.285881
1.21	-0.060573	-0.115447	-0.020382	0.282946
1.22	-0.061729	-0.115637	-0.017567	0.279910
1.23	-0.062886	-0.115799	-0.014784	0.276779
1.24	-0.064044	-0.115933	-0.012032	0.273558
1.25	-0.065204	-0.116039	-0.009313	0.270251
1.26	-0.066365	-0.116119	-0.006627	0.266862
1.27	-0.067527	-0.116172	-0.003976	0.263396
1.28	-0.068689	-0.116199	-0.001360	0.259858
1.29	-0.069851	-0.116199	0.001220	0.256251
1.30	-0.071012	-0.116174	0.003764	0.252581
1.31	-0.072174	-0.116124	0.006271	0.248850
1.32	-0.073335	-0.116049	0.008741	0.245063
1.33	-0.074495	-0.115950	0.011172	0.241224
1.34	-0.075654	-0.115826	0.013565	0.237337
1.35	-0.076811	-0.115678	0.015919	0.233405
1.36	-0.077967	-0.115508	0.018233	0.229431
1.37	-0.079121	-0.115314	0.020508	0.225420
1.38	-0.080273	-0.115098	0.022742	0.221375
1.39	-0.081423	-0.114859	0.024935	0.217300
1.40	-0.082571	-0.114599	0.027088	0.213196
1.41	-0.083715	-0.114317	0.029199	0.209069
1.42	-0.084857	-0.114015	0.031269	0.204919
1.43	-0.085995	-0.113692	0.033297	0.200752
1.44	-0.087131	-0.113349	0.035284	0.196569
1.45	-0.088262	-0.112987	0.037229	0.192374
1.46	-0.089390	-0.112605	0.039131	0.188169
1.47	-0.090514	-0.112204	0.040992	0.183957
1.48	-0.091634	-0.111785	0.042810	0.179740
1.49	-0.092750	-0.111348	0.044587	0.175521

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Contrails

η	h_{II}	h'_{II}	h''_{II}	h'''_{II}
1.50	-0.093861	-0.110894	0.046321	0.171302
1.51	-0.094968	-0.110422	0.048013	0.167087
1.52	-0.096070	-0.109933	0.049663	0.162876
1.53	-0.097167	-0.109429	0.051270	0.158673
1.54	-0.098258	-0.108908	0.052836	0.154479
1.55	-0.099345	-0.108372	0.054360	0.150296
1.56	-0.100426	-0.107821	0.055842	0.146127
1.57	-0.101501	-0.107255	0.057283	0.141974
1.58	-0.102571	-0.106676	0.058682	0.137838
1.59	-0.103634	-0.106082	0.060039	0.133721
1.60	-0.104692	-0.105475	0.061356	0.129625
1.61	-0.105744	-0.104855	0.062632	0.125551
1.62	-0.106789	-0.104222	0.063867	0.121502
1.63	-0.107828	-0.103578	0.065062	0.117479
1.64	-0.108861	-0.102921	0.066217	0.113482
1.65	-0.109887	-0.102253	0.067332	0.109515
1.66	-0.110906	-0.101575	0.068407	0.105577
1.67	-0.111918	-0.100885	0.069444	0.101671
1.68	-0.112924	-0.100186	0.070441	0.097798
1.69	-0.113922	-0.099477	0.071400	0.093958
1.70	-0.114913	-0.098758	0.072320	0.090154
1.71	-0.115897	-0.098030	0.073203	0.086385
1.72	-0.116874	-0.097294	0.074048	0.082654
1.73	-0.117843	-0.096550	0.074856	0.078962
1.74	-0.118805	-0.095797	0.075627	0.075308
1.75	-0.119759	-0.095037	0.076362	0.071695
1.76	-0.120705	-0.094270	0.077061	0.068122
1.77	-0.121644	-0.093496	0.077725	0.064592
1.78	-0.122575	-0.092716	0.078353	0.061104
1.79	-0.123499	-0.091929	0.078947	0.057659
1.80	-0.124414	-0.091137	0.079507	0.054259
1.81	-0.125321	-0.090339	0.080032	0.050903
1.82	-0.126221	-0.089536	0.080525	0.047593
1.83	-0.127112	-0.088729	0.080985	0.044329
1.84	-0.127995	-0.087917	0.081412	0.041111
1.85	-0.128870	-0.087101	0.081807	0.037940
1.86	-0.129737	-0.086281	0.082171	0.034816
1.87	-0.130596	-0.085457	0.082503	0.031740
1.88	-0.131446	-0.084631	0.082806	0.028713
1.89	-0.132289	-0.083801	0.083078	0.025734
1.90	-0.133122	-0.082969	0.083320	0.022804
1.91	-0.133948	-0.082135	0.083534	0.019923
1.92	-0.134765	-0.081299	0.083719	0.017091
1.93	-0.135574	-0.080461	0.083876	0.014310
1.94	-0.136374	-0.079621	0.084005	0.011577
1.95	-0.137166	-0.078781	0.084108	0.008896
1.96	-0.137950	-0.077939	0.084184	0.006264
1.97	-0.138725	-0.077097	0.084233	0.003682
1.98	-0.139492	-0.076254	0.084257	0.001151
1.99	-0.140250	-0.075412	0.084256	-0.001329
2.00	-0.141000	-0.074569	0.084231	-0.003759
2.01	-0.141742	-0.073727	0.084181	-0.006139
2.02	-0.142475	-0.072886	0.084108	-0.008469
2.03	-0.143199	-0.072045	0.084012	-0.010748
2.04	-0.143916	-0.071206	0.083894	-0.012978
2.05	-0.144623	-0.070367	0.083753	-0.015156
2.06	-0.145323	-0.069531	0.083591	-0.017285
2.07	-0.146014	-0.068696	0.083407	-0.019364
2.08	-0.146697	-0.067863	0.083203	-0.021394
2.09	-0.147371	-0.067032	0.082980	-0.023374
2.10	-0.148038	-0.066203	0.082736	-0.025304
2.11	-0.148696	-0.065377	0.082474	-0.027185
2.12	-0.149345	-0.064554	0.082193	-0.029018
2.13	-0.149987	-0.063733	0.081893	-0.030802
2.14	-0.150620	-0.062916	0.081577	-0.032537
2.15	-0.151245	-0.062102	0.081243	-0.034225
2.16	-0.151862	-0.061291	0.080892	-0.035865
2.17	-0.152471	-0.060484	0.080526	-0.037457
2.18	-0.153072	-0.059681	0.080143	-0.039002
2.19	-0.153664	-0.058881	0.079746	-0.040501
2.20	-0.154249	-0.058086	0.079333	-0.041953
2.21	-0.154826	-0.057294	0.078907	-0.043360
2.22	-0.155395	-0.056508	0.078466	-0.044721
2.23	-0.155956	-0.055725	0.078013	-0.046036
2.24	-0.156510	-0.054947	0.077546	-0.047307

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Contrails

η	h_{11}	h'_{11}	h''_{11}	h'''_{11}
2.25	-0.157055	-0.054174	0.077067	-0.048534
2.26	-0.157593	-0.053406	0.076575	-0.049717
2.27	-0.158123	-0.052643	0.076072	-0.050856
2.28	-0.158646	-0.051885	0.075558	-0.051953
2.29	-0.159161	-0.051132	0.075033	-0.053007
2.30	-0.159669	-0.050384	0.074498	-0.054019
2.31	-0.160169	-0.049642	0.073953	-0.054989
2.32	-0.160662	-0.048905	0.073399	-0.055919
2.33	-0.161147	-0.048174	0.072835	-0.056808
2.34	-0.161625	-0.047448	0.072263	-0.057658
2.35	-0.162096	-0.046729	0.071682	-0.058468
2.36	-0.162560	-0.046015	0.071093	-0.059239
2.37	-0.163016	-0.045307	0.070497	-0.059971
2.38	-0.163466	-0.044605	0.069894	-0.060667
2.39	-0.163908	-0.043909	0.069284	-0.061324
2.40	-0.164344	-0.043219	0.068668	-0.061945
2.41	-0.164773	-0.042535	0.068045	-0.062530
2.42	-0.165195	-0.041858	0.067417	-0.063080
2.43	-0.165610	-0.041187	0.066784	-0.063594
2.44	-0.166019	-0.040522	0.066145	-0.064074
2.45	-0.166420	-0.039864	0.065502	-0.064520
2.46	-0.166816	-0.039212	0.064855	-0.064933
2.47	-0.167205	-0.038567	0.064204	-0.065313
2.48	-0.167587	-0.037928	0.063549	-0.065661
2.49	-0.167963	-0.037296	0.062891	-0.065978
2.50	-0.168333	-0.036671	0.062229	-0.066264
2.51	-0.168697	-0.036052	0.061565	-0.066519
2.52	-0.169054	-0.035439	0.060899	-0.066745
2.53	-0.169406	-0.034834	0.060231	-0.066941
2.54	-0.169751	-0.034235	0.059560	-0.067109
2.55	-0.170090	-0.033642	0.058889	-0.067248
2.56	-0.170424	-0.033057	0.058216	-0.067361
2.57	-0.170752	-0.032478	0.057541	-0.067447
2.58	-0.171073	-0.031906	0.056867	-0.067507
2.59	-0.171390	-0.031341	0.056191	-0.067540
2.60	-0.171700	-0.030782	0.055516	-0.067549
2.61	-0.172005	-0.030230	0.054840	-0.067533
2.62	-0.172305	-0.029685	0.054165	-0.067494
2.63	-0.172599	-0.029147	0.053491	-0.067431
2.64	-0.172888	-0.028616	0.052817	-0.067346
2.65	-0.173171	-0.028091	0.052144	-0.067237
2.66	-0.173450	-0.027573	0.051472	-0.067109
2.67	-0.173723	-0.027061	0.050802	-0.066958
2.68	-0.173991	-0.026557	0.050133	-0.066788
2.69	-0.174254	-0.026059	0.049466	-0.066596
2.70	-0.174512	-0.025567	0.048801	-0.066387
2.71	-0.174765	-0.025083	0.048138	-0.066158
2.72	-0.175014	-0.024604	0.047478	-0.065911
2.73	-0.175258	-0.024133	0.046820	-0.065646
2.74	-0.175497	-0.023668	0.046165	-0.065365
2.75	-0.175731	-0.023210	0.045513	-0.065066
2.76	-0.175961	-0.022758	0.044864	-0.064752
2.77	-0.176186	-0.022312	0.044218	-0.064422
2.78	-0.176407	-0.021873	0.043575	-0.064077
2.79	-0.176624	-0.021441	0.042936	-0.063717
2.80	-0.176836	-0.021015	0.042301	-0.063344
2.81	-0.177044	-0.020595	0.041670	-0.062957
2.82	-0.177248	-0.020181	0.041042	-0.062558
2.83	-0.177448	-0.019774	0.040418	-0.062144
2.84	-0.177643	-0.019373	0.039799	-0.061721
2.85	-0.177835	-0.018978	0.039184	-0.061284
2.86	-0.178023	-0.018589	0.038574	-0.060838
2.87	-0.178207	-0.018206	0.037967	-0.060379
2.88	-0.178387	-0.017830	0.037366	-0.059912
2.89	-0.178564	-0.017459	0.036769	-0.059434
2.90	-0.178736	-0.017094	0.036177	-0.058948
2.91	-0.178905	-0.016735	0.035590	-0.058452
2.92	-0.179071	-0.016382	0.035008	-0.057949
2.93	-0.179233	-0.016035	0.034431	-0.057436
2.94	-0.179392	-0.015694	0.033860	-0.056918
2.95	-0.179547	-0.015358	0.033293	-0.056391
2.96	-0.179699	-0.015028	0.032732	-0.055859
2.97	-0.179848	-0.014703	0.032176	-0.055319
2.98	-0.179993	-0.014384	0.031625	-0.054774
2.99	-0.180135	-0.014071	0.031080	-0.054223

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Contrails

η	h_{11}	h'_{11}	h''_{11}	h'''_{11}
3.00	-0.180275	-0.013763	0.030541	-0.053668
3.01	-0.180411	-0.013460	0.030007	-0.053107
3.02	-0.180544	-0.013163	0.029479	-0.052543
3.03	-0.180674	-0.012870	0.028956	-0.051973
3.04	-0.180801	-0.012583	0.028439	-0.051402
3.05	-0.180926	-0.012302	0.027928	-0.050825
3.06	-0.181047	-0.012025	0.027423	-0.050247
3.07	-0.181166	-0.011753	0.026923	-0.049664
3.08	-0.181282	-0.011486	0.026430	-0.049082
3.09	-0.181396	-0.011224	0.025941	-0.048495
3.10	-0.181507	-0.010968	0.025460	-0.047908
3.11	-0.181615	-0.010715	0.024983	-0.047318
3.12	-0.181721	-0.010468	0.024513	-0.046729
3.13	-0.181825	-0.010225	0.024049	-0.046137
3.14	-0.181926	-0.009987	0.023590	-0.045547
3.15	-0.182024	-0.009753	0.023138	-0.044954
3.16	-0.182121	-0.009524	0.022691	-0.044364
3.17	-0.182215	-0.009299	0.022250	-0.043771
3.18	-0.182307	-0.009079	0.021816	-0.043181
3.19	-0.182397	-0.008863	0.021387	-0.042589
3.20	-0.182484	-0.008651	0.020964	-0.042001
3.21	-0.182570	-0.008444	0.020547	-0.041412
3.22	-0.182653	-0.008240	0.020136	-0.040827
3.23	-0.182734	-0.008041	0.019730	-0.040240
3.24	-0.182814	-0.007846	0.019331	-0.039658
3.25	-0.182891	-0.007654	0.018937	-0.039075
3.26	-0.182967	-0.007467	0.018549	-0.038498
3.27	-0.183041	-0.007283	0.018167	-0.037920
3.28	-0.183113	-0.007103	0.017791	-0.037348
3.29	-0.183183	-0.006927	0.017420	-0.036775
3.30	-0.183251	-0.006755	0.017056	-0.036208
3.31	-0.183318	-0.006586	0.016696	-0.035642
3.32	-0.183383	-0.006421	0.016343	-0.035082
3.33	-0.183446	-0.006259	0.015994	-0.034522
3.34	-0.183508	-0.006101	0.015652	-0.033969
3.35	-0.183568	-0.005946	0.015315	-0.033416
3.36	-0.183627	-0.005795	0.014984	-0.032871
3.37	-0.183684	-0.005647	0.014658	-0.032325
3.38	-0.183740	-0.005502	0.014337	-0.031788
3.39	-0.183794	-0.005360	0.014022	-0.031251
3.40	-0.183847	-0.005221	0.013712	-0.030723
3.41	-0.183899	-0.005086	0.013407	-0.030195
3.42	-0.183949	-0.004953	0.013108	-0.029676
3.43	-0.183998	-0.004823	0.012814	-0.029156
3.44	-0.184045	-0.004697	0.012525	-0.028647
3.45	-0.184092	-0.004573	0.012241	-0.028137
3.46	-0.184137	-0.004452	0.011962	-0.027637
3.47	-0.184181	-0.004334	0.011688	-0.027137
3.48	-0.184224	-0.004218	0.011420	-0.026647
3.49	-0.184265	-0.004105	0.011155	-0.026157
3.50	-0.184306	-0.003995	0.010896	-0.025678
3.51	-0.184345	-0.003887	0.010642	-0.025198
3.52	-0.184384	-0.003782	0.010392	-0.024729
3.53	-0.184421	-0.003679	0.010147	-0.024260
3.54	-0.184457	-0.003579	0.009907	-0.023802
3.55	-0.184492	-0.003481	0.009671	-0.023344
3.56	-0.184527	-0.003386	0.009440	-0.022897
3.57	-0.184560	-0.003292	0.009213	-0.022449
3.58	-0.184593	-0.003201	0.008991	-0.022013
3.59	-0.184624	-0.003112	0.008773	-0.021577
3.60	-0.184655	-0.003026	0.008560	-0.021152
3.61	-0.184685	-0.002941	0.008350	-0.020726
3.62	-0.184714	-0.002859	0.008145	-0.020313
3.63	-0.184742	-0.002778	0.007943	-0.019899
3.64	-0.184769	-0.002700	0.007747	-0.019497
3.65	-0.184796	-0.002623	0.007553	-0.019093
3.66	-0.184822	-0.002549	0.007365	-0.018703
3.67	-0.184847	-0.002476	0.007179	-0.018310
3.68	-0.184871	-0.002405	0.006999	-0.017931
3.69	-0.184895	-0.002336	0.006821	-0.017550
3.70	-0.184918	-0.002269	0.006648	-0.017182
3.71	-0.184940	-0.002203	0.006477	-0.016811
3.72	-0.184962	-0.002139	0.006311	-0.016455
3.73	-0.184983	-0.002077	0.006148	-0.016095
3.74	-0.185004	-0.002016	0.005989	-0.015750

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Contrails

η	h_{11}	h'_{11}	h''_{11}	h'''_{11}
3.75	-0.185024	-0.001957	0.005833	-0.015402
3.76	-0.185043	-0.001900	0.005681	-0.015068
3.77	-0.185062	-0.001843	0.005532	-0.014730
3.78	-0.185080	-0.001789	0.005387	-0.014407
3.79	-0.185097	-0.001736	0.005244	-0.014080
3.80	-0.185115	-0.001684	0.005105	-0.013768
3.81	-0.185131	-0.001634	0.004968	-0.013451
3.82	-0.185147	-0.001585	0.004836	-0.013151
3.83	-0.185163	-0.001537	0.004705	-0.012844
3.84	-0.185178	-0.001491	0.004579	-0.012554
3.85	-0.185193	-0.001445	0.004454	-0.012258
3.86	-0.185207	-0.001401	0.004334	-0.011978
3.87	-0.185221	-0.001359	0.004215	-0.011692
3.88	-0.185234	-0.001317	0.004100	-0.011423
3.89	-0.185247	-0.001277	0.003986	-0.011147
3.90	-0.185260	-0.001237	0.003877	-0.010888
3.91	-0.185272	-0.001199	0.003768	-0.010621
3.92	-0.185284	-0.001162	0.003664	-0.010372
3.93	-0.185295	-0.001126	0.003561	-0.010115
3.94	-0.185306	-0.001091	0.003462	-0.009876
3.95	-0.185317	-0.001056	0.003363	-0.009628
3.96	-0.185327	-0.001023	0.003269	-0.009399
3.97	-0.185337	-0.000991	0.003176	-0.009159
3.98	-0.185347	-0.000960	0.003086	-0.008940
3.99	-0.185357	-0.000929	0.002997	-0.008709
4.00	-0.185366	-0.000900	0.002912	-0.008499
4.01	-0.185375	-0.000871	0.002827	-0.008277
4.02	-0.185383	-0.000843	0.002746	-0.008076
4.03	-0.185391	-0.000816	0.002665	-0.007862
4.04	-0.185399	-0.000790	0.002589	-0.007670
4.05	-0.185407	-0.000764	0.002512	-0.007464
4.06	-0.185415	-0.000740	0.002440	-0.007281
4.07	-0.185422	-0.000716	0.002366	-0.007083
4.08	-0.185429	-0.000692	0.002298	-0.006908
4.09	-0.185436	-0.000670	0.002228	-0.006718
4.10	-0.185442	-0.000648	0.002163	-0.006551
4.11	-0.185449	-0.000626	0.002097	-0.006368
4.12	-0.185455	-0.000606	0.002036	-0.006209
4.13	-0.185461	-0.000586	0.001973	-0.006033
4.14	-0.185467	-0.000566	0.001915	-0.005883
4.15	-0.185472	-0.000547	0.001856	-0.005713
4.16	-0.185478	-0.000529	0.001801	-0.005570
4.17	-0.185483	-0.000511	0.001744	-0.005407
4.18	-0.185488	-0.000494	0.001692	-0.005272
4.19	-0.185493	-0.000477	0.001639	-0.005115
4.20	-0.185498	-0.000462	0.001590	-0.004987
4.21	-0.185502	-0.000446	0.001539	-0.004837
4.22	-0.185506	-0.000431	0.001493	-0.004715
4.23	-0.185511	-0.000416	0.001445	-0.004571
4.24	-0.185515	-0.000402	0.001402	-0.004456
4.25	-0.185519	-0.000388	0.001356	-0.004317
4.26	-0.185523	-0.000375	0.001315	-0.004210
4.27	-0.185526	-0.000361	0.001272	-0.004075
4.28	-0.185530	-0.000349	0.001234	-0.003974
4.29	-0.185533	-0.000337	0.001192	-0.003845
4.30	-0.185537	-0.000325	0.001157	-0.003751
4.31	-0.185540	-0.000314	0.001117	-0.003626
4.32	-0.185543	-0.000303	0.001084	-0.003538
4.33	-0.185546	-0.000292	0.001047	-0.003418
4.34	-0.185549	-0.000282	0.001015	-0.003336
4.35	-0.185551	-0.000272	0.000980	-0.003220
4.36	-0.185554	-0.000262	0.000951	-0.003143
4.37	-0.185557	-0.000253	0.000917	-0.003032
4.38	-0.185559	-0.000244	0.000890	-0.002961
4.39	-0.185562	-0.000235	0.000858	-0.002853
4.40	-0.185564	-0.000227	0.000833	-0.002788
4.41	-0.185566	-0.000218	0.000803	-0.002683
4.42	-0.185568	-0.000211	0.000779	-0.002623
4.43	-0.185570	-0.000203	0.000750	-0.002522
4.44	-0.185572	-0.000196	0.000728	-0.002468
4.45	-0.185574	-0.000188	0.000701	-0.002370
4.46	-0.185576	-0.000182	0.000681	-0.002320
4.47	-0.185578	-0.000174	0.000655	-0.002225
4.48	-0.185580	-0.000168	0.000636	-0.002180
4.49	-0.185581	-0.000162	0.000611	-0.002088

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Contrails

η	h_{11}	h'_{11}	h''_{11}	h'''_{11}
4.50	-0.185583	-0.000156	0.000594	-0.002048
4.51	-0.185584	-0.000150	0.000571	-0.001958
4.52	-0.185586	-0.000145	0.000555	-0.001923
4.53	-0.185587	-0.000139	0.000532	-0.001836
4.54	-0.185589	-0.000134	0.000518	-0.001805
4.55	-0.185590	-0.000128	0.000496	-0.001719
4.56	-0.185591	-0.000124	0.000483	-0.001693
4.57	-0.185593	-0.000119	0.000463	-0.001610
4.58	-0.185594	-0.000115	0.000451	-0.001588
4.59	-0.185595	-0.000110	0.000431	-0.001506
4.60	-0.185596	-0.000106	0.000420	-0.001489
4.61	-0.185597	-0.000101	0.000402	-0.001408
4.62	-0.185598	-0.000098	0.000392	-0.001395
4.63	-0.185599	-0.000094	0.000374	-0.001315
4.64	-0.185600	-0.000091	0.000366	-0.001307
4.65	-0.185601	-0.000086	0.000348	-0.001228
4.66	-0.185601	-0.000084	0.000341	-0.001224
4.67	-0.185602	-0.000079	0.000324	-0.001145
4.68	-0.185603	-0.000077	0.000317	-0.001145
4.69	-0.185604	-0.000073	0.000301	-0.001067
4.70	-0.185605	-0.000071	0.000296	-0.001072
4.71	-0.185605	-0.000067	0.000280	-0.000994
4.72	-0.185606	-0.000065	0.000276	-0.001002
4.73	-0.185607	-0.000062	0.000260	-0.000925
4.74	-0.185607	-0.000060	0.000257	-0.000937
4.75	-0.185608	-0.000057	0.000242	-0.000860
4.76	-0.185608	-0.000055	0.000239	-0.000876
4.77	-0.185609	-0.000052	0.000225	-0.000798
4.78	-0.185609	-0.000051	0.000223	-0.000819
4.79	-0.185610	-0.000047	0.000209	-0.000741
4.80	-0.185610	-0.000046	0.000208	-0.000765
4.81	-0.185611	-0.000043	0.000194	-0.000686
4.82	-0.185611	-0.000042	0.000194	-0.000715
4.83	-0.185612	-0.000039	0.000180	-0.000635
4.84	-0.185612	-0.000039	0.000181	-0.000668
4.85	-0.185613	-0.000036	0.000167	-0.000587
4.86	-0.185613	-0.000035	0.000168	-0.000624
4.87	-0.185613	-0.000033	0.000155	-0.000541
4.88	-0.185613	-0.000032	0.000157	-0.000583
4.89	-0.185614	-0.000029	0.000143	-0.000498
4.90	-0.185614	-0.000029	0.000147	-0.000545
4.91	-0.185615	-0.000027	0.000133	-0.000458
4.92	-0.185615	-0.000027	0.000137	-0.000509
4.93	-0.185615	-0.000024	0.000123	-0.000420
4.94	-0.185615	-0.000024	0.000128	-0.000476
4.95	-0.185616	-0.000021	0.000114	-0.000384
4.96	-0.185616	-0.000022	0.000120	-0.000445
4.97	-0.185616	-0.000019	0.000106	-0.000350
4.98	-0.185616	-0.000019	0.000112	-0.000416
4.99	-0.185616	-0.000017	0.000098	-0.000319
5.00	-0.185616	-0.000017	0.000105	-0.000389
5.01	-0.185617	-0.000015	0.000091	-0.000289
5.02	-0.185617	-0.000016	0.000099	-0.000364
5.03	-0.185617	-0.000013	0.000084	-0.000260
5.04	-0.185617	-0.000014	0.000093	-0.000341
5.05	-0.185617	-0.000011	0.000078	-0.000234
5.06	-0.185617	-0.000012	0.000088	-0.000320
5.07	-0.185618	-0.000009	0.000072	-0.000208
5.08	-0.185617	-0.000011	0.000083	-0.000300
5.09	-0.185618	-0.000008	0.000067	-0.000185
5.10	-0.185618	-0.000009	0.000078	-0.000282
5.11	-0.185618	-0.000006	0.000062	-0.000162
5.12	-0.185618	-0.000008	0.000074	-0.000266
5.13	-0.185618	-0.000005	0.000058	-0.000140
5.14	-0.185618	-0.000006	0.000071	-0.000251
5.15	-0.185618	-0.000004	0.000054	-0.000120
5.16	-0.185618	-0.000005	0.000067	-0.000237
5.17	-0.185618	-0.000002	0.000050	-0.000100
5.18	-0.185618	-0.000004	0.000064	-0.000225
5.19	-0.185618	-0.000001	0.000046	-0.000082
5.20	-0.185618	-0.000003	0.000062	-0.000213
5.21	-0.185618	-0.000000	0.000043	-0.000064
5.22	-0.185618	-0.000002	0.000059	-0.000203
5.23	-0.185618	0.000000	0.000040	-0.000047
5.24	-0.185618	-0.000001	0.000057	-0.000194

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Contrails

APPENDIX B

THE UNIVERSAL THERMAL BOUNDARY LAYER FUNCTIONS FOR A PRANDTL NUMBER OF ONE FOR AN ISOTHERMAL SURFACE IN SYMMETRICAL FLOW

(Reproduced from Progress Report No. 23, Contract No. AF 33(038)-9461, The Harvard University Computation Laboratory, (1953))

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Contrails

η	ϕ_1	ϕ_1'	ϕ_1''	ϕ_3	ϕ_3'	ϕ_3''
0.00	-1.000000	0.570466	0.000000	-1.000000	1.091492	0.000000
0.01	-0.994295	0.570466	-0.000035	-0.989085	1.091491	-0.000185
0.02	-0.988590	0.570465	-0.000139	-0.978170	1.091487	-0.000740
0.03	-0.982886	0.570463	-0.000313	-0.967255	1.091475	-0.001659
0.04	-0.977181	0.570459	-0.000556	-0.956340	1.091453	-0.002937
0.05	-0.971476	0.570451	-0.000867	-0.945426	1.091415	-0.004569
0.06	-0.965772	0.570441	-0.001245	-0.934512	1.091360	-0.006550
0.07	-0.960068	0.570426	-0.001690	-0.923599	1.091283	-0.008876
0.08	-0.954363	0.570407	-0.002201	-0.912686	1.091181	-0.011542
0.09	-0.948659	0.570382	-0.002778	-0.901775	1.091051	-0.014543
0.10	-0.942956	0.570351	-0.003420	-0.890865	1.090889	-0.017873
0.11	-0.937252	0.570313	-0.004126	-0.879957	1.090693	-0.021527
0.12	-0.931549	0.570268	-0.004896	-0.869052	1.090458	-0.025502
0.13	-0.925847	0.570215	-0.005730	-0.858148	1.090182	-0.029791
0.14	-0.920145	0.570154	-0.006626	-0.847248	1.089861	-0.034389
0.15	-0.914444	0.570083	-0.007584	-0.836351	1.089493	-0.039292
0.16	-0.908744	0.570002	-0.008604	-0.825459	1.089074	-0.044493
0.17	-0.903044	0.569910	-0.009684	-0.814570	1.088602	-0.049988
0.18	-0.897345	0.569808	-0.010825	-0.803687	1.088073	-0.055771
0.19	-0.891648	0.569694	-0.012025	-0.792809	1.087485	-0.061838
0.20	-0.885952	0.569567	-0.013283	-0.781937	1.086836	-0.068181
0.21	-0.880257	0.569428	-0.014600	-0.771072	1.086121	-0.074796
0.22	-0.874563	0.569275	-0.015973	-0.760215	1.085339	-0.081678
0.23	-0.868871	0.569108	-0.017404	-0.749366	1.084486	-0.088820
0.24	-0.863181	0.568927	-0.018890	-0.738525	1.083562	-0.096217
0.25	-0.857493	0.568730	-0.020432	-0.727695	1.082561	-0.103862
0.26	-0.851806	0.568518	-0.022027	-0.716874	1.081483	-0.111751
0.27	-0.846122	0.568289	-0.023677	-0.706065	1.080325	-0.119877
0.28	-0.840441	0.568044	-0.025379	-0.695268	1.079085	-0.128234
0.29	-0.834761	0.567782	-0.027134	-0.684484	1.077760	-0.136817
0.30	-0.829085	0.567501	-0.028939	-0.673713	1.076348	-0.145618
0.31	-0.823411	0.567203	-0.030795	-0.662957	1.074847	-0.154631
0.32	-0.817741	0.566885	-0.032701	-0.652217	1.073255	-0.163852
0.33	-0.812074	0.566548	-0.034655	-0.641492	1.071569	-0.173272
0.34	-0.806410	0.566192	-0.036658	-0.630786	1.069789	-0.182886
0.35	-0.800750	0.565815	-0.038707	-0.620097	1.067911	-0.192687
0.36	-0.795094	0.565418	-0.040803	-0.609428	1.065934	-0.202668
0.37	-0.789442	0.564999	-0.042944	-0.598779	1.063857	-0.212824
0.38	-0.783794	0.564559	-0.045129	-0.588151	1.061677	-0.223146
0.39	-0.778151	0.564096	-0.047358	-0.577545	1.059393	-0.233630
0.40	-0.772512	0.563611	-0.049629	-0.566963	1.057004	-0.244267
0.41	-0.766878	0.563103	-0.051942	-0.556406	1.054508	-0.255051
0.42	-0.761250	0.562572	-0.054296	-0.545874	1.051903	-0.265974
0.43	-0.755627	0.562017	-0.056689	-0.535368	1.049188	-0.277031
0.44	-0.750010	0.561438	-0.059120	-0.524890	1.046362	-0.288214
0.45	-0.744398	0.560835	-0.061590	-0.514441	1.043423	-0.299516
0.46	-0.738793	0.560206	-0.064096	-0.504022	1.040371	-0.310930
0.47	-0.733194	0.559553	-0.066637	-0.493634	1.037204	-0.322448
0.48	-0.727602	0.558874	-0.069213	-0.483278	1.033922	-0.334064
0.49	-0.722017	0.558168	-0.071823	-0.472956	1.030522	-0.345770

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Contrails

η	ϕ_1	ϕ_1'	ϕ_1''	ϕ_3	ϕ_3'	ϕ_3''
0.50	-0.716439	0.557437	-0.074465	-0.462668	1.027006	-0.357559
0.51	-0.710868	0.556679	-0.077138	-0.452416	1.023371	-0.369424
0.52	-0.705305	0.555894	-0.079842	-0.442201	1.019617	-0.381357
0.53	-0.699751	0.555082	-0.082575	-0.432024	1.015744	-0.393351
0.54	-0.694204	0.554242	-0.085336	-0.421887	1.011750	-0.405399
0.55	-0.688666	0.553375	-0.088123	-0.411790	1.007636	-0.417493
0.56	-0.683136	0.552480	-0.090937	-0.401734	1.003400	-0.429626
0.57	-0.677616	0.551556	-0.093775	-0.391722	0.999043	-0.441790
0.58	-0.672105	0.550604	-0.096637	-0.381754	0.994564	-0.453978
0.59	-0.666604	0.549624	-0.099521	-0.371831	0.989963	-0.466183
0.60	-0.661113	0.548614	-0.102426	-0.361955	0.985240	-0.478397
0.61	-0.655632	0.547575	-0.105352	-0.352127	0.980395	-0.490612
0.62	-0.650162	0.546507	-0.108296	-0.342348	0.975428	-0.502822
0.63	-0.644702	0.545409	-0.111257	-0.332619	0.970339	-0.515019
0.64	-0.639254	0.544282	-0.114235	-0.322941	0.965128	-0.527195
0.65	-0.633816	0.543124	-0.117229	-0.313316	0.959795	-0.539343
0.66	-0.628391	0.541937	-0.120236	-0.303746	0.954341	-0.551456
0.67	-0.622978	0.540719	-0.123256	-0.294230	0.948766	-0.563527
0.68	-0.617577	0.539472	-0.126288	-0.284771	0.943071	-0.575547
0.69	-0.612188	0.538194	-0.129330	-0.275369	0.937255	-0.587511
0.70	-0.606813	0.536885	-0.132381	-0.266026	0.931321	-0.599411
0.71	-0.601451	0.535546	-0.135440	-0.256743	0.925267	-0.611239
0.72	-0.596102	0.534176	-0.138505	-0.247521	0.919096	-0.622988
0.73	-0.590767	0.532776	-0.141576	-0.238361	0.912808	-0.634652
0.74	-0.585447	0.531345	-0.144651	-0.229265	0.906403	-0.646224
0.75	-0.580141	0.529883	-0.147729	-0.220234	0.899884	-0.657696
0.76	-0.574849	0.528390	-0.150809	-0.211268	0.893250	-0.669062
0.77	-0.569573	0.526867	-0.153889	-0.202369	0.886503	-0.680315
0.78	-0.564312	0.525312	-0.156968	-0.193538	0.879644	-0.691448
0.79	-0.559067	0.523727	-0.160045	-0.184777	0.872674	-0.702454
0.80	-0.553838	0.522111	-0.163119	-0.176085	0.865595	-0.713328
0.81	-0.548625	0.520465	-0.166189	-0.167465	0.858408	-0.724063
0.82	-0.543428	0.518788	-0.169252	-0.158917	0.851115	-0.734651
0.83	-0.538249	0.517080	-0.172308	-0.150443	0.843716	-0.745088
0.84	-0.533087	0.515341	-0.175357	-0.142043	0.836213	-0.755367
0.85	-0.527942	0.513573	-0.178395	-0.133719	0.828609	-0.765482
0.86	-0.522815	0.511774	-0.181423	-0.125472	0.820904	-0.775426
0.87	-0.517707	0.509944	-0.184439	-0.117301	0.813101	-0.785195
0.88	-0.512617	0.508085	-0.187442	-0.109210	0.805201	-0.794782
0.89	-0.507545	0.506195	-0.190431	-0.101198	0.797206	-0.804182
0.90	-0.502493	0.504276	-0.193404	-0.093266	0.789118	-0.813390
0.91	-0.497460	0.502327	-0.196361	-0.085416	0.780939	-0.822400
0.92	-0.492446	0.500349	-0.199300	-0.077648	0.772671	-0.831206
0.93	-0.487453	0.498341	-0.202219	-0.069963	0.764315	-0.839805
0.94	-0.482480	0.496305	-0.205119	-0.062361	0.755875	-0.848190
0.95	-0.477527	0.494239	-0.207997	-0.054845	0.747352	-0.856358
0.96	-0.472595	0.492145	-0.210853	-0.047415	0.738749	-0.864303
0.97	-0.467684	0.490022	-0.213685	-0.040071	0.730067	-0.872021
0.98	-0.462795	0.487871	-0.216493	-0.032814	0.721309	-0.879508
0.99	-0.457927	0.485692	-0.219274	-0.025645	0.712478	-0.886760

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Contrails

η	ϕ_1	ϕ_1'	ϕ_1''	ϕ_3	ϕ_3'	ϕ_3''
1.00	-0.453081	0.483486	-0.222029	-0.018564	0.703575	-0.893772
1.01	-0.448257	0.481252	-0.224757	-0.011573	0.694603	-0.900541
1.02	-0.443456	0.478991	-0.227455	-0.004672	0.685565	-0.907063
1.03	-0.438677	0.476703	-0.230123	0.002137	0.676462	-0.913334
1.04	-0.433922	0.474388	-0.232760	0.008856	0.667299	-0.919352
1.05	-0.429190	0.472048	-0.235366	0.015483	0.658076	-0.925113
1.06	-0.424481	0.469681	-0.237938	0.022017	0.648797	-0.930613
1.07	-0.419796	0.467289	-0.240476	0.028458	0.639465	-0.935850
1.08	-0.415135	0.464872	-0.242980	0.034806	0.630081	-0.940822
1.09	-0.410499	0.462430	-0.245447	0.041060	0.620649	-0.945526
1.10	-0.405887	0.459963	-0.247878	0.047219	0.611172	-0.949959
1.11	-0.401300	0.457472	-0.250272	0.053283	0.601651	-0.954120
1.12	-0.396737	0.454958	-0.252626	0.059252	0.592090	-0.958006
1.13	-0.392200	0.452420	-0.254942	0.065125	0.582492	-0.961615
1.14	-0.387689	0.449859	-0.257217	0.070902	0.572859	-0.964946
1.15	-0.383203	0.447276	-0.259452	0.076582	0.563194	-0.967998
1.16	-0.378744	0.444670	-0.261644	0.082165	0.553500	-0.970769
1.17	-0.374310	0.442043	-0.263794	0.087652	0.543779	-0.973258
1.18	-0.369903	0.439394	-0.265901	0.093041	0.534036	-0.975464
1.19	-0.365522	0.436725	-0.267964	0.098332	0.524271	-0.977386
1.20	-0.361168	0.434035	-0.269982	0.103526	0.514489	-0.979025
1.21	-0.356842	0.431325	-0.271955	0.108622	0.504691	-0.980379
1.22	-0.352542	0.428596	-0.273881	0.113620	0.494882	-0.981448
1.23	-0.348270	0.425848	-0.275761	0.118520	0.485063	-0.982232
1.24	-0.344025	0.423081	-0.277594	0.123321	0.475238	-0.982732
1.25	-0.339808	0.420296	-0.279379	0.128025	0.465410	-0.982947
1.26	-0.335619	0.417494	-0.281115	0.132630	0.455580	-0.982879
1.27	-0.331458	0.414674	-0.282803	0.137136	0.445753	-0.982527
1.28	-0.327326	0.411838	-0.284441	0.141545	0.435931	-0.981893
1.29	-0.323222	0.408985	-0.286029	0.145855	0.426116	-0.980978
1.30	-0.319146	0.406117	-0.287567	0.150067	0.416312	-0.979783
1.31	-0.315099	0.403234	-0.289054	0.154181	0.406521	-0.978309
1.32	-0.311081	0.400336	-0.290490	0.158197	0.396747	-0.976558
1.33	-0.307093	0.397425	-0.291874	0.162116	0.386991	-0.974531
1.34	-0.303133	0.394499	-0.293206	0.165937	0.377257	-0.972230
1.35	-0.299203	0.391561	-0.294486	0.169661	0.367547	-0.969658
1.36	-0.295302	0.388610	-0.295713	0.173288	0.357865	-0.966816
1.37	-0.291430	0.385647	-0.296888	0.176819	0.348212	-0.963707
1.38	-0.287589	0.382672	-0.298009	0.180253	0.338592	-0.960333
1.39	-0.283777	0.379687	-0.299077	0.183591	0.329006	-0.956697
1.40	-0.279995	0.376691	-0.300091	0.186833	0.319459	-0.952801
1.41	-0.276243	0.373685	-0.301052	0.189980	0.309951	-0.948648
1.42	-0.272521	0.370670	-0.301959	0.193032	0.300486	-0.944242
1.43	-0.268830	0.367646	-0.302811	0.195990	0.291067	-0.939586
1.44	-0.265169	0.364614	-0.303610	0.198854	0.281696	-0.934682
1.45	-0.261538	0.361574	-0.304354	0.201624	0.272374	-0.929535
1.46	-0.257937	0.358527	-0.305044	0.204301	0.263106	-0.924147
1.47	-0.254367	0.355473	-0.305680	0.206886	0.253892	-0.918523
1.48	-0.250828	0.352413	-0.306262	0.209379	0.244736	-0.912667
1.49	-0.247319	0.349348	-0.306789	0.211781	0.235639	-0.906581

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Contrails

η	ϕ_1	ϕ_1'	ϕ_1''	ϕ_3	ϕ_3'	ϕ_3''
1.50	-0.243841	0.346278	-0.307262	0.214092	0.226605	-0.900271
1.51	-0.240393	0.343203	-0.307681	0.216314	0.217635	-0.893740
1.52	-0.236977	0.340124	-0.308046	0.218445	0.208731	-0.886992
1.53	-0.233591	0.337042	-0.308357	0.220488	0.199896	-0.880032
1.54	-0.230236	0.333957	-0.308615	0.222444	0.191131	-0.872865
1.55	-0.226912	0.330870	-0.308818	0.224311	0.182439	-0.865495
1.56	-0.223618	0.327781	-0.308969	0.226093	0.173822	-0.857925
1.57	-0.220356	0.324691	-0.309066	0.227788	0.165281	-0.850162
1.58	-0.217125	0.321600	-0.309110	0.229398	0.156819	-0.842210
1.59	-0.213924	0.318509	-0.309101	0.230925	0.148438	-0.834074
1.60	-0.210754	0.315418	-0.309040	0.232367	0.140138	-0.825758
1.61	-0.207616	0.312328	-0.308927	0.233728	0.131923	-0.817268
1.62	-0.204508	0.309240	-0.308762	0.235006	0.123793	-0.808608
1.63	-0.201431	0.306153	-0.308546	0.236204	0.115751	-0.799784
1.64	-0.198385	0.303069	-0.308278	0.237322	0.107798	-0.790801
1.65	-0.195369	0.299988	-0.307960	0.238360	0.099936	-0.781665
1.66	-0.192385	0.296910	-0.307592	0.239321	0.092165	-0.772379
1.67	-0.189431	0.293836	-0.307173	0.240204	0.084489	-0.762951
1.68	-0.186508	0.290767	-0.306705	0.241011	0.076907	-0.753384
1.69	-0.183616	0.287702	-0.306189	0.241742	0.069421	-0.743685
1.70	-0.180754	0.284643	-0.305623	0.242399	0.062034	-0.733858
1.71	-0.177923	0.281590	-0.305010	0.242983	0.054745	-0.723910
1.72	-0.175122	0.278543	-0.304349	0.243495	0.047556	-0.713845
1.73	-0.172352	0.275503	-0.303641	0.243935	0.040468	-0.703670
1.74	-0.169612	0.272470	-0.302887	0.244304	0.033483	-0.693389
1.75	-0.166903	0.269445	-0.302087	0.244605	0.026601	-0.683008
1.76	-0.164223	0.266429	-0.301241	0.244837	0.019823	-0.672533
1.77	-0.161574	0.263421	-0.300351	0.245002	0.013150	-0.661969
1.78	-0.158955	0.260422	-0.299417	0.245100	0.006584	-0.651321
1.79	-0.156366	0.257432	-0.298440	0.245134	0.000124	-0.640596
1.80	-0.153806	0.254453	-0.297419	0.245103	-0.006227	-0.629798
1.81	-0.151276	0.251484	-0.296356	0.245009	-0.012471	-0.618933
1.82	-0.148776	0.248526	-0.295252	0.244854	-0.018605	-0.608007
1.83	-0.146306	0.245579	-0.294107	0.244638	-0.024631	-0.597025
1.84	-0.143865	0.242644	-0.292922	0.244362	-0.030546	-0.585992
1.85	-0.141453	0.239721	-0.291697	0.244027	-0.036350	-0.574913
1.86	-0.139070	0.236810	-0.290433	0.243635	-0.042044	-0.563795
1.87	-0.136717	0.233912	-0.289132	0.243187	-0.047626	-0.552642
1.88	-0.134392	0.231028	-0.287793	0.242683	-0.053097	-0.541459
1.89	-0.132096	0.228157	-0.286417	0.242125	-0.058455	-0.530252
1.90	-0.129829	0.225300	-0.285006	0.241514	-0.063702	-0.519027
1.91	-0.127590	0.222457	-0.283559	0.240851	-0.068836	-0.507787
1.92	-0.125380	0.219628	-0.282078	0.240138	-0.073857	-0.496539
1.93	-0.123197	0.216815	-0.280563	0.239375	-0.078766	-0.485286
1.94	-0.121043	0.214017	-0.279016	0.238563	-0.083563	-0.474035
1.95	-0.118917	0.211235	-0.277436	0.237704	-0.088247	-0.462791
1.96	-0.116818	0.208469	-0.275825	0.236798	-0.092819	-0.451557
1.97	-0.114748	0.205719	-0.274184	0.235848	-0.097278	-0.440338
1.98	-0.112704	0.202985	-0.272512	0.234853	-0.101626	-0.429141
1.99	-0.110688	0.200268	-0.270812	0.233816	-0.105861	-0.417968

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Contrails

η	ϕ_1	ϕ_1'	ϕ_1''	ϕ_3	ϕ_3'	ϕ_3''
2.00	-0.108699	0.197569	-0.269084	0.232736	-0.109985	-0.406825
2.01	-0.106736	0.194887	-0.267328	0.231616	-0.113998	-0.395716
2.02	-0.104801	0.192222	-0.265546	0.230457	-0.117900	-0.384646
2.03	-0.102892	0.189576	-0.263738	0.229259	-0.121691	-0.373619
2.04	-0.101009	0.186948	-0.261905	0.228023	-0.125372	-0.362639
2.05	-0.099153	0.184338	-0.260048	0.226751	-0.128944	-0.351710
2.06	-0.097322	0.181747	-0.258168	0.225445	-0.132407	-0.340837
2.07	-0.095518	0.179175	-0.256265	0.224104	-0.135761	-0.330023
2.08	-0.093739	0.176622	-0.254341	0.222730	-0.139007	-0.319273
2.09	-0.091985	0.174088	-0.252395	0.221324	-0.142147	-0.308589
2.10	-0.090257	0.171574	-0.250430	0.219887	-0.145179	-0.297977
2.11	-0.088554	0.169079	-0.248445	0.218421	-0.148106	-0.287440
2.12	-0.086875	0.166605	-0.246441	0.216925	-0.150928	-0.276981
2.13	-0.085222	0.164151	-0.244420	0.215402	-0.153646	-0.266603
2.14	-0.083592	0.161717	-0.242382	0.213853	-0.156261	-0.256311
2.15	-0.081987	0.159303	-0.240328	0.212278	-0.158773	-0.246106
2.16	-0.080406	0.156910	-0.238259	0.210678	-0.161183	-0.235994
2.17	-0.078849	0.154538	-0.236175	0.209054	-0.163493	-0.225975
2.18	-0.077315	0.152187	-0.234077	0.207408	-0.165703	-0.216055
2.19	-0.075805	0.149856	-0.231967	0.205740	-0.167814	-0.206235
2.20	-0.074318	0.147547	-0.229844	0.204052	-0.169828	-0.196518
2.21	-0.072854	0.145260	-0.227709	0.202344	-0.171745	-0.186907
2.22	-0.071413	0.142993	-0.225564	0.200618	-0.173567	-0.177404
2.23	-0.069994	0.140748	-0.223409	0.198873	-0.175294	-0.168012
2.24	-0.068598	0.138525	-0.221245	0.197112	-0.176927	-0.158734
2.25	-0.067223	0.136323	-0.219072	0.195335	-0.178469	-0.149572
2.26	-0.065871	0.134144	-0.216892	0.193543	-0.179919	-0.140527
2.27	-0.064541	0.131986	-0.214705	0.191737	-0.181280	-0.131602
2.28	-0.063231	0.129849	-0.212511	0.189918	-0.182552	-0.122799
2.29	-0.061943	0.127735	-0.210312	0.188086	-0.183736	-0.114119
2.30	-0.060677	0.125643	-0.208108	0.186243	-0.184834	-0.105566
2.31	-0.059431	0.123573	-0.205900	0.184390	-0.185848	-0.097139
2.32	-0.058205	0.121525	-0.203689	0.182526	-0.186778	-0.088842
2.33	-0.057000	0.119499	-0.201474	0.180654	-0.187625	-0.080674
2.34	-0.055815	0.117496	-0.199258	0.178774	-0.188391	-0.072638
2.35	-0.054650	0.115514	-0.197040	0.176887	-0.189078	-0.064736
2.36	-0.053505	0.113555	-0.194821	0.174993	-0.189687	-0.056967
2.37	-0.052379	0.111618	-0.192602	0.173093	-0.190218	-0.049334
2.38	-0.051272	0.109703	-0.190384	0.171189	-0.190674	-0.041837
2.39	-0.050185	0.107810	-0.188167	0.169280	-0.191055	-0.034477
2.40	-0.049116	0.105940	-0.185951	0.167368	-0.191364	-0.027255
2.41	-0.048066	0.104091	-0.183738	0.165453	-0.191601	-0.020172
2.42	-0.047034	0.102265	-0.181527	0.163536	-0.191768	-0.013228
2.43	-0.046020	0.100460	-0.179321	0.161618	-0.191866	-0.006424
2.44	-0.045025	0.098678	-0.177118	0.159699	-0.191897	0.000238
2.45	-0.044047	0.096918	-0.174919	0.157780	-0.191862	0.006761
2.46	-0.043086	0.095180	-0.172726	0.155862	-0.191762	0.013142
2.47	-0.042143	0.093464	-0.170539	0.153945	-0.191599	0.019383
2.48	-0.041217	0.091769	-0.168358	0.152030	-0.191375	0.025482
2.49	-0.040308	0.090096	-0.166183	0.150118	-0.191090	0.031440

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Contrails

η	ϕ_1	ϕ_1'	ϕ_1''	ϕ_3	ϕ_3'	ϕ_3''
2.50	-0.039415	0.088445	-0.164016	0.148209	-0.190746	0.037256
2.51	-0.038539	0.086816	-0.161857	0.146303	-0.190345	0.042931
2.52	-0.037678	0.085208	-0.159705	0.144402	-0.189888	0.048465
2.53	-0.036834	0.083622	-0.157563	0.142505	-0.189377	0.053858
2.54	-0.036006	0.082057	-0.155429	0.140614	-0.188812	0.059110
2.55	-0.035193	0.080513	-0.153305	0.138729	-0.188195	0.064223
2.56	-0.034396	0.078991	-0.151191	0.136851	-0.187528	0.069196
2.57	-0.033613	0.077489	-0.149088	0.134979	-0.186811	0.074030
2.58	-0.032846	0.076009	-0.146995	0.133115	-0.186047	0.078726
2.59	-0.032093	0.074549	-0.144914	0.131258	-0.185237	0.083284
2.60	-0.031355	0.073111	-0.142844	0.129410	-0.184382	0.087705
2.61	-0.030631	0.071692	-0.140787	0.127571	-0.183484	0.091990
2.62	-0.029921	0.070295	-0.138742	0.125741	-0.182543	0.096140
2.63	-0.029225	0.068918	-0.136709	0.123920	-0.181561	0.100155
2.64	-0.028542	0.067561	-0.134690	0.122109	-0.180540	0.104037
2.65	-0.027873	0.066224	-0.132684	0.120309	-0.179481	0.107787
2.66	-0.027218	0.064907	-0.130691	0.118520	-0.178385	0.111406
2.67	-0.026575	0.063610	-0.128713	0.116742	-0.177253	0.114894
2.68	-0.025945	0.062333	-0.126749	0.114975	-0.176087	0.118254
2.69	-0.025328	0.061075	-0.124800	0.113220	-0.174889	0.121486
2.70	-0.024724	0.059836	-0.122865	0.111477	-0.173658	0.124592
2.71	-0.024132	0.058617	-0.120946	0.109747	-0.172397	0.127573
2.72	-0.023551	0.057418	-0.119042	0.108029	-0.171107	0.130430
2.73	-0.022983	0.056237	-0.117154	0.106325	-0.169789	0.133165
2.74	-0.022427	0.055074	-0.115282	0.104634	-0.168444	0.135779
2.75	-0.021882	0.053931	-0.113426	0.102956	-0.167074	0.138274
2.76	-0.021348	0.052806	-0.111586	0.101292	-0.165679	0.140651
2.77	-0.020825	0.051699	-0.109762	0.099643	-0.164261	0.142912
2.78	-0.020314	0.050610	-0.107956	0.098007	-0.162821	0.145059
2.79	-0.019813	0.049540	-0.106166	0.096386	-0.161360	0.147093
2.80	-0.019323	0.048487	-0.104393	0.094780	-0.159880	0.149015
2.81	-0.018843	0.047452	-0.102638	0.093189	-0.158380	0.150827
2.82	-0.018374	0.046434	-0.100899	0.091612	-0.156863	0.152532
2.83	-0.017915	0.045434	-0.099179	0.090051	-0.155330	0.154131
2.84	-0.017465	0.044451	-0.097476	0.088506	-0.153781	0.155625
2.85	-0.017026	0.043484	-0.095790	0.086976	-0.152218	0.157016
2.86	-0.016595	0.042535	-0.094123	0.085462	-0.150641	0.158306
2.87	-0.016175	0.041602	-0.092473	0.083963	-0.149052	0.159498
2.88	-0.015763	0.040685	-0.090842	0.082481	-0.147452	0.160592
2.89	-0.015361	0.039785	-0.089229	0.081014	-0.145841	0.161590
2.90	-0.014968	0.038901	-0.087634	0.079564	-0.144220	0.162495
2.91	-0.014583	0.038032	-0.086057	0.078130	-0.142591	0.163308
2.92	-0.014207	0.037179	-0.084498	0.076712	-0.140954	0.164031
2.93	-0.013839	0.036342	-0.082958	0.075311	-0.139311	0.164666
2.94	-0.013480	0.035520	-0.081436	0.073926	-0.137661	0.165215
2.95	-0.013129	0.034713	-0.079933	0.072557	-0.136007	0.165679
2.96	-0.012786	0.033921	-0.078448	0.071206	-0.134348	0.166061
2.97	-0.012450	0.033144	-0.076982	0.069870	-0.132686	0.166363
2.98	-0.012123	0.032382	-0.075534	0.068552	-0.131021	0.166586
2.99	-0.011803	0.031634	-0.074104	0.067250	-0.129354	0.166732

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Contrails

η	ϕ_1	ϕ_1'	ϕ_1''	ϕ_3	ϕ_3'	ϕ_3''
3.00	-0.011490	0.030900	-0.072694	0.065965	-0.127686	0.166803
3.01	-0.011185	0.030180	-0.071301	0.064696	-0.126018	0.166801
3.02	-0.010886	0.029473	-0.069927	0.063444	-0.124351	0.166728
3.03	-0.010595	0.028781	-0.068572	0.062209	-0.122684	0.166585
3.04	-0.010311	0.028102	-0.067235	0.060991	-0.121019	0.166376
3.05	-0.010033	0.027436	-0.065916	0.059789	-0.119357	0.166100
3.06	-0.009762	0.026784	-0.064615	0.058604	-0.117697	0.165761
3.07	-0.009497	0.026144	-0.063333	0.057435	-0.116042	0.165360
3.08	-0.009239	0.025517	-0.062069	0.056283	-0.114390	0.164899
3.09	-0.008987	0.024902	-0.060823	0.055147	-0.112744	0.164379
3.10	-0.008741	0.024300	-0.059595	0.054028	-0.111103	0.163803
3.11	-0.008501	0.023710	-0.058385	0.052925	-0.109468	0.163173
3.12	-0.008267	0.023133	-0.057194	0.051838	-0.107840	0.162489
3.13	-0.008038	0.022566	-0.056019	0.050768	-0.106218	0.161754
3.14	-0.007815	0.022012	-0.054863	0.049714	-0.104605	0.160970
3.15	-0.007598	0.021469	-0.053724	0.048676	-0.102999	0.160138
3.16	-0.007386	0.020937	-0.052603	0.047654	-0.101402	0.159261
3.17	-0.007179	0.020417	-0.051500	0.046648	-0.099814	0.158338
3.18	-0.006977	0.019907	-0.050413	0.045658	-0.098235	0.157374
3.19	-0.006781	0.019409	-0.049344	0.044683	-0.096667	0.156368
3.20	-0.006589	0.018920	-0.048292	0.043724	-0.095108	0.155323
3.21	-0.006402	0.018443	-0.047257	0.042781	-0.093560	0.154240
3.22	-0.006220	0.017975	-0.046239	0.041853	-0.092023	0.153121
3.23	-0.006043	0.017518	-0.045237	0.040941	-0.090498	0.151968
3.24	-0.005870	0.017070	-0.044252	0.040043	-0.088984	0.150781
3.25	-0.005701	0.016633	-0.043284	0.039161	-0.087482	0.149563
3.26	-0.005537	0.016205	-0.042332	0.038293	-0.085993	0.148315
3.27	-0.005377	0.015786	-0.041396	0.037441	-0.084516	0.147038
3.28	-0.005221	0.015377	-0.040477	0.036603	-0.083052	0.145735
3.29	-0.005070	0.014976	-0.039573	0.035780	-0.081602	0.144405
3.30	-0.004922	0.014585	-0.038685	0.034971	-0.080164	0.143052
3.31	-0.004778	0.014203	-0.037812	0.034176	-0.078741	0.141675
3.32	-0.004638	0.013829	-0.036955	0.033396	-0.077331	0.140277
3.33	-0.004501	0.013464	-0.036113	0.032630	-0.075935	0.138859
3.34	-0.004368	0.013107	-0.035287	0.031877	-0.074554	0.137422
3.35	-0.004239	0.012758	-0.034475	0.031139	-0.073187	0.135968
3.36	-0.004113	0.012417	-0.033679	0.030414	-0.071834	0.134497
3.37	-0.003991	0.012084	-0.032897	0.029702	-0.070497	0.133011
3.38	-0.003872	0.011759	-0.032129	0.029004	-0.069174	0.131510
3.39	-0.003756	0.011442	-0.031376	0.028318	-0.067867	0.129998
3.40	-0.003643	0.011131	-0.030637	0.027646	-0.066574	0.128473
3.41	-0.003533	0.010829	-0.029912	0.026987	-0.065297	0.126939
3.42	-0.003426	0.010533	-0.029201	0.026340	-0.064036	0.125394
3.43	-0.003322	0.010245	-0.028503	0.025706	-0.062789	0.123842
3.44	-0.003221	0.009963	-0.027820	0.025084	-0.061559	0.122282
3.45	-0.003123	0.009688	-0.027149	0.024475	-0.060344	0.120716
3.46	-0.003027	0.009420	-0.026492	0.023877	-0.059144	0.119145
3.47	-0.002934	0.009158	-0.025847	0.023292	-0.057961	0.117569
3.48	-0.002844	0.008903	-0.025216	0.022718	-0.056793	0.115991
3.49	-0.002756	0.008654	-0.024597	0.022156	-0.055641	0.114409

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Contrails

η	ϕ_1	ϕ_1'	ϕ_1''	ϕ_3	ϕ_3'	ϕ_3''
3.50	-0.002671	0.008411	-0.023991	0.021605	-0.054505	0.112826
3.51	-0.002588	0.008174	-0.023397	0.021066	-0.053385	0.111243
3.52	-0.002508	0.007943	-0.022815	0.020537	-0.052280	0.109660
3.53	-0.002429	0.007718	-0.022245	0.020020	-0.051191	0.108077
3.54	-0.002353	0.007498	-0.021687	0.019514	-0.050118	0.106497
3.55	-0.002279	0.007284	-0.021140	0.019018	-0.049061	0.104919
3.56	-0.002207	0.007075	-0.020605	0.018532	-0.048020	0.103344
3.57	-0.002138	0.006872	-0.020081	0.018057	-0.046994	0.101773
3.58	-0.002070	0.006674	-0.019569	0.017592	-0.045985	0.100207
3.59	-0.002004	0.006480	-0.019067	0.017137	-0.044990	0.098646
3.60	-0.001940	0.006292	-0.018576	0.016692	-0.044012	0.097091
3.61	-0.001878	0.006109	-0.018096	0.016257	-0.043048	0.095543
3.62	-0.001818	0.005930	-0.017626	0.015831	-0.042101	0.094002
3.63	-0.001760	0.005756	-0.017167	0.015415	-0.041168	0.092468
3.64	-0.001703	0.005587	-0.016718	0.015008	-0.040251	0.090944
3.65	-0.001648	0.005422	-0.016278	0.014610	-0.039349	0.089427
3.66	-0.001595	0.005261	-0.015849	0.014221	-0.038463	0.087921
3.67	-0.001543	0.005105	-0.015429	0.013841	-0.037591	0.086424
3.68	-0.001492	0.004953	-0.015018	0.013469	-0.036734	0.084937
3.69	-0.001444	0.004804	-0.014617	0.013106	-0.035892	0.083461
3.70	-0.001396	0.004660	-0.014225	0.012751	-0.035065	0.081997
3.71	-0.001350	0.004520	-0.013842	0.012405	-0.034252	0.080544
3.72	-0.001306	0.004383	-0.013467	0.012066	-0.033454	0.079102
3.73	-0.001263	0.004251	-0.013102	0.011735	-0.032670	0.077674
3.74	-0.001221	0.004121	-0.012745	0.011413	-0.031900	0.076257
3.75	-0.001180	0.003996	-0.012396	0.011097	-0.031145	0.074854
3.76	-0.001141	0.003873	-0.012055	0.010790	-0.030403	0.073464
3.77	-0.001103	0.003754	-0.011723	0.010489	-0.029676	0.072088
3.78	-0.001066	0.003639	-0.011398	0.010196	-0.028962	0.070726
3.79	-0.001030	0.003526	-0.011082	0.009910	-0.028261	0.069377
3.80	-0.000995	0.003417	-0.010772	0.009631	-0.027574	0.068044
3.81	-0.000962	0.003311	-0.010471	0.009358	-0.026900	0.066724
3.82	-0.000929	0.003208	-0.010176	0.009093	-0.026239	0.065420
3.83	-0.000897	0.003107	-0.009889	0.008834	-0.025592	0.064130
3.84	-0.000867	0.003010	-0.009609	0.008581	-0.024957	0.062856
3.85	-0.000837	0.002915	-0.009336	0.008334	-0.024334	0.061597
3.86	-0.000809	0.002823	-0.009069	0.008094	-0.023725	0.060353
3.87	-0.000781	0.002734	-0.008810	0.007860	-0.023127	0.059125
3.88	-0.000754	0.002647	-0.008556	0.007631	-0.022542	0.057913
3.89	-0.000728	0.002563	-0.008309	0.007409	-0.021969	0.056716
3.90	-0.000703	0.002481	-0.008069	0.007192	-0.021408	0.055536
3.91	-0.000678	0.002401	-0.007834	0.006981	-0.020858	0.054371
3.92	-0.000655	0.002324	-0.007606	0.006775	-0.020320	0.053222
3.93	-0.000632	0.002249	-0.007383	0.006574	-0.019794	0.052090
3.94	-0.000610	0.002176	-0.007166	0.006379	-0.019278	0.050974
3.95	-0.000588	0.002106	-0.006954	0.006189	-0.018774	0.049873
3.96	-0.000567	0.002037	-0.006749	0.006003	-0.018281	0.048789
3.97	-0.000547	0.001971	-0.006548	0.005823	-0.017798	0.047722
3.98	-0.000528	0.001906	-0.006353	0.005647	-0.017326	0.046670
3.99	-0.000509	0.001844	-0.006163	0.005476	-0.016865	0.045635

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Contrails

η	ϕ_1	ϕ_1'	ϕ_1''	ϕ_3	ϕ_3'	ϕ_3''
4.00	-0.000491	0.001783	-0.005978	0.005310	-0.016414	0.044616
4.01	-0.000474	0.001724	-0.005798	0.005148	-0.015973	0.043613
4.02	-0.000457	0.001667	-0.005622	0.004991	-0.015541	0.042626
4.03	-0.000440	0.001612	-0.005452	0.004837	-0.015120	0.041655
4.04	-0.000424	0.001558	-0.005286	0.004688	-0.014708	0.040700
4.05	-0.000409	0.001506	-0.005124	0.004543	-0.014306	0.039761
4.06	-0.000394	0.001455	-0.004967	0.004402	-0.013913	0.038838
4.07	-0.000380	0.001406	-0.004814	0.004265	-0.013529	0.037931
4.08	-0.000366	0.001359	-0.004666	0.004131	-0.013154	0.037039
4.09	-0.000353	0.001313	-0.004521	0.004002	-0.012788	0.036163
4.10	-0.000340	0.001269	-0.004381	0.003876	-0.012431	0.035303
4.11	-0.000327	0.001225	-0.004244	0.003753	-0.012082	0.034458
4.12	-0.000315	0.001184	-0.004111	0.003634	-0.011742	0.033628
4.13	-0.000304	0.001143	-0.003982	0.003518	-0.011409	0.032814
4.14	-0.000292	0.001104	-0.003857	0.003406	-0.011085	0.032014
4.15	-0.000282	0.001066	-0.003735	0.003296	-0.010769	0.031230
4.16	-0.000271	0.001029	-0.003616	0.003190	-0.010461	0.030461
4.17	-0.000261	0.000994	-0.003501	0.003087	-0.010160	0.029706
4.18	-0.000251	0.000959	-0.003390	0.002987	-0.009866	0.028965
4.19	-0.000242	0.000926	-0.003281	0.002890	-0.009580	0.028240
4.20	-0.000233	0.000894	-0.003176	0.002795	-0.009302	0.027528
4.21	-0.000224	0.000862	-0.003073	0.002704	-0.009030	0.026830
4.22	-0.000215	0.000832	-0.002974	0.002615	-0.008765	0.026147
4.23	-0.000207	0.000803	-0.002877	0.002528	-0.008507	0.025477
4.24	-0.000199	0.000775	-0.002784	0.002445	-0.008255	0.024821
4.25	-0.000192	0.000747	-0.002693	0.002363	-0.008010	0.024179
4.26	-0.000184	0.000721	-0.002605	0.002284	-0.007772	0.023549
4.27	-0.000177	0.000695	-0.002519	0.002208	-0.007539	0.022933
4.28	-0.000170	0.000670	-0.002436	0.002133	-0.007313	0.022330
4.29	-0.000164	0.000646	-0.002355	0.002061	-0.007093	0.021740
4.30	-0.000157	0.000623	-0.002277	0.001992	-0.006878	0.021163
4.31	-0.000151	0.000601	-0.002202	0.001924	-0.006669	0.020598
4.32	-0.000145	0.000579	-0.002128	0.001858	-0.006466	0.020045
4.33	-0.000140	0.000558	-0.002057	0.001794	-0.006268	0.019504
4.34	-0.000134	0.000538	-0.001988	0.001733	-0.006076	0.018976
4.35	-0.000129	0.000518	-0.001921	0.001673	-0.005889	0.018459
4.36	-0.000124	0.000500	-0.001856	0.001615	-0.005707	0.017954
4.37	-0.000119	0.000481	-0.001793	0.001559	-0.005530	0.017460
4.38	-0.000114	0.000464	-0.001732	0.001504	-0.005358	0.016978
4.39	-0.000110	0.000447	-0.001673	0.001452	-0.005190	0.016506
4.40	-0.000105	0.000430	-0.001616	0.001401	-0.005027	0.016046
4.41	-0.000101	0.000414	-0.001560	0.001351	-0.004869	0.015596
4.42	-0.000097	0.000399	-0.001506	0.001303	-0.004715	0.015157
4.43	-0.000093	0.000384	-0.001454	0.001257	-0.004566	0.014728
4.44	-0.000089	0.000370	-0.001404	0.001212	-0.004421	0.014310
4.45	-0.000086	0.000356	-0.001355	0.001168	-0.004280	0.013901
4.46	-0.000082	0.000343	-0.001308	0.001126	-0.004143	0.013502
4.47	-0.000079	0.000330	-0.001262	0.001085	-0.004010	0.013114
4.48	-0.000076	0.000318	-0.001218	0.001046	-0.003880	0.012734
4.49	-0.000072	0.000306	-0.001175	0.001008	-0.003755	0.012364

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Contrails

η	ϕ_1	ϕ_1'	ϕ_1''	ϕ_3	ϕ_3'	ϕ_3''
4.50	-0.000069	0.000294	-0.001134	0.000971	-0.003633	0.012003
4.51	-0.000067	0.000283	-0.001094	0.000935	-0.003515	0.011651
4.52	-0.000064	0.000272	-0.001055	0.000900	-0.003400	0.011308
4.53	-0.000061	0.000262	-0.001018	0.000867	-0.003289	0.010973
4.54	-0.000059	0.000252	-0.000981	0.000835	-0.003181	0.010647
4.55	-0.000056	0.000242	-0.000946	0.000803	-0.003076	0.010330
4.56	-0.000054	0.000233	-0.000912	0.000773	-0.002974	0.010020
4.57	-0.000051	0.000224	-0.000879	0.000744	-0.002875	0.009719
4.58	-0.000049	0.000215	-0.000848	0.000716	-0.002780	0.009425
4.59	-0.000047	0.000207	-0.000817	0.000688	-0.002687	0.009139
4.60	-0.000045	0.000199	-0.000787	0.000662	-0.002597	0.008861
4.61	-0.000043	0.000191	-0.000759	0.000636	-0.002509	0.008590
4.62	-0.000041	0.000184	-0.000731	0.000612	-0.002425	0.008326
4.63	-0.000039	0.000176	-0.000704	0.000588	-0.002343	0.008069
4.64	-0.000038	0.000170	-0.000678	0.000565	-0.002263	0.007819
4.65	-0.000036	0.000163	-0.000653	0.000543	-0.002187	0.007576
4.66	-0.000034	0.000156	-0.000629	0.000521	-0.002112	0.007339
4.67	-0.000033	0.000150	-0.000606	0.000500	-0.002040	0.007109
4.68	-0.000031	0.000144	-0.000584	0.000480	-0.001970	0.006886
4.69	-0.000030	0.000139	-0.000562	0.000461	-0.001902	0.006668
4.70	-0.000029	0.000133	-0.000541	0.000442	-0.001836	0.006457
4.71	-0.000027	0.000128	-0.000521	0.000424	-0.001773	0.006251
4.72	-0.000026	0.000123	-0.000501	0.000407	-0.001711	0.006051
4.73	-0.000025	0.000118	-0.000482	0.000390	-0.001652	0.005857
4.74	-0.000024	0.000113	-0.000464	0.000374	-0.001594	0.005668
4.75	-0.000023	0.000108	-0.000446	0.000358	-0.001538	0.005485
4.76	-0.000022	0.000104	-0.000430	0.000343	-0.001484	0.005307
4.77	-0.000020	0.000100	-0.000413	0.000328	-0.001432	0.005134
4.78	-0.000020	0.000096	-0.000397	0.000314	-0.001382	0.004966
4.79	-0.000019	0.000092	-0.000382	0.000301	-0.001333	0.004803
4.80	-0.000018	0.000088	-0.000368	0.000288	-0.001286	0.004645
4.81	-0.000017	0.000085	-0.000353	0.000275	-0.001240	0.004491
4.82	-0.000016	0.000081	-0.000340	0.000263	-0.001196	0.004342
4.83	-0.000015	0.000078	-0.000327	0.000251	-0.001153	0.004198
4.84	-0.000014	0.000075	-0.000314	0.000240	-0.001112	0.004057
4.85	-0.000014	0.000071	-0.000302	0.000229	-0.001072	0.003921
4.86	-0.000013	0.000068	-0.000290	0.000218	-0.001033	0.003789
4.87	-0.000012	0.000066	-0.000279	0.000208	-0.000996	0.003661
4.88	-0.000012	0.000063	-0.000268	0.000198	-0.000960	0.003537
4.89	-0.000011	0.000060	-0.000257	0.000189	-0.000925	0.003416
4.90	-0.000010	0.000058	-0.000247	0.000180	-0.000892	0.003300
4.91	-0.000010	0.000055	-0.000237	0.000171	-0.000859	0.003187
4.92	-0.000009	0.000053	-0.000228	0.000163	-0.000828	0.003077
4.93	-0.000009	0.000051	-0.000219	0.000154	-0.000798	0.002971
4.94	-0.000008	0.000049	-0.000210	0.000147	-0.000768	0.002868
4.95	-0.000008	0.000047	-0.000202	0.000139	-0.000740	0.002768
4.96	-0.000007	0.000045	-0.000194	0.000132	-0.000713	0.002671
4.97	-0.000007	0.000043	-0.000186	0.000125	-0.000687	0.002578
4.98	-0.000006	0.000041	-0.000178	0.000118	-0.000662	0.002487
4.99	-0.000006	0.000039	-0.000171	0.000112	-0.000637	0.002400

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Contrails

η	ϕ_1	ϕ_1'	ϕ_1''	ϕ_3	ϕ_3'	ϕ_3''
5.00	-0.000006	0.000037	-0.000164	0.000105	-0.000614	0.002315
5.01	-0.000005	0.000036	-0.000158	0.000099	-0.000591	0.002233
5.02	-0.000005	0.000034	-0.000151	0.000093	-0.000569	0.002153
5.03	-0.000005	0.000033	-0.000145	0.000088	-0.000548	0.002076
5.04	-0.000004	0.000031	-0.000139	0.000082	-0.000527	0.002002
5.05	-0.000004	0.000030	-0.000133	0.000077	-0.000508	0.001930
5.06	-0.000004	0.000029	-0.000128	0.000072	-0.000489	0.001860
5.07	-0.000003	0.000027	-0.000123	0.000068	-0.000470	0.001793
5.08	-0.000003	0.000026	-0.000118	0.000063	-0.000453	0.001727
5.09	-0.000003	0.000025	-0.000113	0.000058	-0.000436	0.001665
5.10	-0.000003	0.000024	-0.000108	0.000054	-0.000420	0.001603
5.11	-0.000002	0.000023	-0.000104	0.000050	-0.000404	0.001545
5.12	-0.000002	0.000022	-0.000099	0.000046	-0.000389	0.001488
5.13	-0.000002	0.000021	-0.000095	0.000042	-0.000374	0.001433
5.14	-0.000002	0.000020	-0.000091	0.000039	-0.000360	0.001380
5.15	-0.000002	0.000019	-0.000087	0.000035	-0.000346	0.001329
5.16	-0.000001	0.000018	-0.000084	0.000032	-0.000333	0.001279
5.17	-0.000001	0.000017	-0.000080	0.000028	-0.000321	0.001231
5.18	-0.000001	0.000017	-0.000077	0.000025	-0.000309	0.001185
5.19	-0.000001	0.000016	-0.000073	0.000022	-0.000297	0.001140
5.20	-0.000001	0.000015	-0.000070	0.000019	-0.000286	0.001097
5.21	-0.000000	0.000014	-0.000067	0.000016	-0.000275	0.001056
5.22	-0.000000	0.000014	-0.000064	0.000014	-0.000265	0.001015
5.23	-0.000000	0.000013	-0.000062	0.000011	-0.000255	0.000977
5.24	-0.000000	0.000012	-0.000059	0.000009	-0.000245	0.000939
5.25	-0.000000	0.000012	-0.000056	0.000006	-0.000236	0.000903
5.26	-0.000000	0.000011	-0.000054	0.000004	-0.000227	0.000868
5.27	-0.000000	0.000011	-0.000052	0.000002	-0.000219	0.000835
5.28	-0.000000	0.000010	-0.000049	0.000000	-0.000210	0.000802

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Contrails

η	b_5	b_5'	b_5''	d_5	d_5'	d_5''
0.00	-1.000000	1.257365	0.000000	0.000000	0.294784	0.000000
0.01	-0.987426	1.257364	-0.000280	0.002947	0.294783	-0.000274
0.02	-0.974852	1.257358	-0.001114	0.005895	0.294777	-0.001090
0.03	-0.962279	1.257340	-0.002491	0.008843	0.294759	-0.002440
0.04	-0.949705	1.257306	-0.004402	0.011790	0.294726	-0.004315
0.05	-0.937133	1.257250	-0.006837	0.014737	0.294671	-0.006704
0.06	-0.924561	1.257168	-0.009785	0.017684	0.294590	-0.009599
0.07	-0.911989	1.257053	-0.013235	0.020629	0.294478	-0.012991
0.08	-0.899420	1.256901	-0.017179	0.023573	0.294329	-0.016871
0.09	-0.886851	1.256708	-0.021605	0.026515	0.294139	-0.021228
0.10	-0.874286	1.256468	-0.026504	0.029456	0.293903	-0.026053
0.11	-0.861722	1.256176	-0.031865	0.032393	0.293616	-0.031337
0.12	-0.849162	1.255829	-0.037678	0.035328	0.293274	-0.037070
0.13	-0.836606	1.255421	-0.043933	0.038259	0.292873	-0.043242
0.14	-0.824054	1.254949	-0.050620	0.041185	0.292408	-0.049842
0.15	-0.811507	1.254407	-0.057728	0.044107	0.291875	-0.056861
0.16	-0.798966	1.253793	-0.065246	0.047022	0.291270	-0.064288
0.17	-0.786432	1.253101	-0.073166	0.049932	0.290588	-0.072112
0.18	-0.773904	1.252328	-0.081476	0.052834	0.289826	-0.080323
0.19	-0.761385	1.251470	-0.090166	0.055728	0.288980	-0.088909
0.20	-0.748875	1.250524	-0.099226	0.058613	0.288047	-0.097861
0.21	-0.736375	1.249485	-0.108646	0.061489	0.287022	-0.107165
0.22	-0.723886	1.248350	-0.118414	0.064353	0.285902	-0.116812
0.23	-0.711408	1.247115	-0.128521	0.067206	0.284684	-0.126789
0.24	-0.698944	1.245778	-0.138955	0.070047	0.283365	-0.137084
0.25	-0.686493	1.244335	-0.149708	0.072873	0.281942	-0.147686
0.26	-0.674058	1.242783	-0.160768	0.075685	0.280411	-0.158581
0.27	-0.661638	1.241119	-0.172124	0.078481	0.278769	-0.169759
0.28	-0.649236	1.239339	-0.183767	0.081260	0.277015	-0.181206
0.29	-0.636851	1.237442	-0.195686	0.084021	0.275144	-0.192910
0.30	-0.624487	1.235425	-0.207869	0.086763	0.273156	-0.204857
0.31	-0.612143	1.233284	-0.220308	0.089484	0.271046	-0.217035
0.32	-0.599822	1.231018	-0.232991	0.092183	0.268814	-0.229430
0.33	-0.587523	1.228624	-0.245907	0.094860	0.266457	-0.242029
0.34	-0.575250	1.226099	-0.259047	0.097512	0.263973	-0.254819
0.35	-0.563002	1.223442	-0.272399	0.100139	0.261360	-0.267785
0.36	-0.550781	1.220650	-0.285953	0.102739	0.258617	-0.280915
0.37	-0.538589	1.217722	-0.299699	0.105311	0.255741	-0.294193
0.38	-0.526427	1.214656	-0.313625	0.107853	0.252732	-0.307606
0.39	-0.514297	1.211449	-0.327723	0.110365	0.249589	-0.321140
0.40	-0.502199	1.208101	-0.341980	0.112844	0.246309	-0.334780
0.41	-0.490135	1.204609	-0.356386	0.115291	0.242893	-0.348512
0.42	-0.478107	1.200972	-0.370932	0.117702	0.239339	-0.362322
0.43	-0.466116	1.197190	-0.385605	0.120077	0.235646	-0.376194
0.44	-0.454164	1.193260	-0.400397	0.122414	0.231815	-0.390115
0.45	-0.442251	1.189182	-0.415296	0.124713	0.227844	-0.404069
0.46	-0.430381	1.184954	-0.430293	0.126971	0.223733	-0.418042
0.47	-0.418553	1.180575	-0.445376	0.129187	0.219483	-0.432018
0.48	-0.406770	1.176046	-0.460536	0.131360	0.215093	-0.445984
0.49	-0.395032	1.171364	-0.475761	0.133488	0.210563	-0.459925

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Contrails

η	b_5	b'_5	b''_5	d_5	d'_5	d''_5
0.50	-0.383343	1.166530	-0.491042	0.135571	0.205894	-0.473825
0.51	-0.371702	1.161543	-0.506369	0.137606	0.201087	-0.487669
0.52	-0.360112	1.156403	-0.521732	0.139592	0.196141	-0.501443
0.53	-0.348575	1.151109	-0.537119	0.141528	0.191058	-0.515133
0.54	-0.337091	1.145661	-0.552521	0.143413	0.185839	-0.528723
0.55	-0.325662	1.140058	-0.567929	0.145245	0.180484	-0.542198
0.56	-0.314290	1.134302	-0.583332	0.147022	0.174995	-0.555545
0.57	-0.302977	1.128392	-0.598719	0.148744	0.169374	-0.568748
0.58	-0.291723	1.122328	-0.614082	0.150409	0.163621	-0.581794
0.59	-0.280531	1.116110	-0.629411	0.152016	0.157739	-0.594668
0.60	-0.269401	1.109740	-0.644695	0.153563	0.151728	-0.607355
0.61	-0.258336	1.103216	-0.659926	0.155050	0.145592	-0.619843
0.62	-0.247337	1.096541	-0.675094	0.156475	0.139332	-0.632116
0.63	-0.236406	1.089715	-0.690188	0.157836	0.132950	-0.644162
0.64	-0.225543	1.082738	-0.705201	0.159134	0.126450	-0.655967
0.65	-0.214752	1.075611	-0.720122	0.160365	0.119832	-0.667517
0.66	-0.204032	1.068336	-0.734943	0.161530	0.113100	-0.678800
0.67	-0.193385	1.060913	-0.749654	0.162627	0.106257	-0.689802
0.68	-0.182814	1.053343	-0.764247	0.163655	0.099305	-0.700512
0.69	-0.172319	1.045628	-0.778713	0.164612	0.092248	-0.710916
0.70	-0.161902	1.037769	-0.793042	0.165499	0.085088	-0.721002
0.71	-0.151564	1.029768	-0.807227	0.166314	0.077829	-0.730759
0.72	-0.141307	1.021625	-0.821259	0.167055	0.070474	-0.740175
0.73	-0.131132	1.013343	-0.835129	0.167723	0.063026	-0.749239
0.74	-0.121041	1.004923	-0.848830	0.168316	0.055490	-0.757939
0.75	-0.111034	0.996367	-0.862353	0.168833	0.047869	-0.766266
0.76	-0.101114	0.987677	-0.875690	0.169273	0.040166	-0.774209
0.77	-0.091281	0.978854	-0.888835	0.169636	0.032386	-0.781757
0.78	-0.081537	0.969901	-0.901778	0.169920	0.024532	-0.788902
0.79	-0.071883	0.960819	-0.914513	0.170126	0.016609	-0.795633
0.80	-0.062321	0.951611	-0.927032	0.170252	0.008621	-0.801943
0.81	-0.052852	0.942279	-0.939328	0.170298	0.000572	-0.807823
0.82	-0.043476	0.932825	-0.951394	0.170264	-0.007533	-0.813263
0.83	-0.034195	0.923252	-0.963223	0.170147	-0.015691	-0.818258
0.84	-0.025011	0.913562	-0.974809	0.169950	-0.023897	-0.822799
0.85	-0.015925	0.903757	-0.986145	0.169669	-0.032145	-0.826880
0.86	-0.006936	0.893840	-0.997225	0.169306	-0.040433	-0.830493
0.87	0.001951	0.883813	-1.008043	0.168861	-0.048754	-0.833634
0.88	0.010738	0.873680	-1.018592	0.168331	-0.057104	-0.836296
0.89	0.019424	0.863442	-1.028867	0.167718	-0.065478	-0.838474
0.90	0.028007	0.853103	-1.038863	0.167022	-0.073872	-0.840164
0.91	0.036486	0.842666	-1.048573	0.166241	-0.082280	-0.841361
0.92	0.044860	0.832133	-1.057994	0.165376	-0.090697	-0.842061
0.93	0.053128	0.821507	-1.067119	0.164427	-0.099119	-0.842262
0.94	0.061290	0.810791	-1.075945	0.163394	-0.107541	-0.841959
0.95	0.069344	0.799989	-1.084466	0.162276	-0.115957	-0.841152
0.96	0.077289	0.789103	-1.092678	0.161075	-0.124362	-0.839837
0.97	0.085126	0.778136	-1.100576	0.159789	-0.132752	-0.838013
0.98	0.092852	0.767092	-1.108158	0.158420	-0.141121	-0.835680
0.99	0.100467	0.755974	-1.115419	0.156967	-0.149464	-0.832836

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Contrails

η	b_5	b'_5	b''_5	d_5	d'_5	d''_5
1.00	0.107971	0.744785	-1.122356	0.155430	-0.157776	-0.829482
1.01	0.115363	0.733528	-1.128965	0.153811	-0.166052	-0.825619
1.02	0.122641	0.722207	-1.135243	0.152109	-0.174286	-0.821246
1.03	0.129807	0.710824	-1.141187	0.150326	-0.182475	-0.816365
1.04	0.136858	0.699384	-1.146795	0.148460	-0.190612	-0.810978
1.05	0.143794	0.687890	-1.152064	0.146514	-0.198693	-0.805088
1.06	0.150615	0.676344	-1.156991	0.144486	-0.206712	-0.798697
1.07	0.157321	0.664751	-1.161576	0.142380	-0.214665	-0.791808
1.08	0.163910	0.653114	-1.165815	0.140193	-0.222547	-0.784425
1.09	0.170383	0.641436	-1.169707	0.137929	-0.230352	-0.776552
1.10	0.176739	0.629721	-1.173251	0.135587	-0.238076	-0.768194
1.11	0.182977	0.617972	-1.176446	0.133168	-0.245714	-0.759355
1.12	0.189098	0.606193	-1.179290	0.130673	-0.253262	-0.750042
1.13	0.195101	0.594387	-1.181784	0.128103	-0.260713	-0.740259
1.14	0.200986	0.582559	-1.183925	0.125459	-0.268065	-0.730013
1.15	0.206752	0.570710	-1.185715	0.122742	-0.275312	-0.719312
1.16	0.212400	0.558845	-1.187152	0.119953	-0.282450	-0.708161
1.17	0.217929	0.546968	-1.188238	0.117093	-0.289474	-0.696569
1.18	0.223339	0.535082	-1.188971	0.114164	-0.296380	-0.684543
1.19	0.228631	0.523190	-1.189354	0.111166	-0.303163	-0.672092
1.20	0.233803	0.511296	-1.189386	0.108101	-0.309820	-0.659224
1.21	0.238857	0.499403	-1.189068	0.104970	-0.316347	-0.645949
1.22	0.243791	0.487516	-1.188402	0.101774	-0.322738	-0.632276
1.23	0.248607	0.475636	-1.187389	0.098516	-0.328991	-0.618213
1.24	0.253304	0.463769	-1.186031	0.095195	-0.335101	-0.603773
1.25	0.257882	0.451917	-1.184328	0.091814	-0.341065	-0.588964
1.26	0.262342	0.440084	-1.182284	0.088374	-0.346879	-0.573798
1.27	0.266684	0.428272	-1.179900	0.084877	-0.352540	-0.558285
1.28	0.270908	0.416487	-1.177178	0.081324	-0.358044	-0.542437
1.29	0.275014	0.404730	-1.174122	0.077717	-0.363388	-0.526265
1.30	0.279003	0.393005	-1.170733	0.074057	-0.368568	-0.509782
1.31	0.282874	0.381316	-1.167014	0.070346	-0.373582	-0.492998
1.32	0.286629	0.369666	-1.162970	0.066586	-0.378427	-0.475927
1.33	0.290268	0.358058	-1.158602	0.062778	-0.383100	-0.458581
1.34	0.293791	0.346495	-1.153914	0.058924	-0.387598	-0.440973
1.35	0.297198	0.334981	-1.148910	0.055026	-0.391918	-0.423115
1.36	0.300490	0.323518	-1.143594	0.051086	-0.396059	-0.405020
1.37	0.303668	0.312110	-1.137969	0.047106	-0.400018	-0.386703
1.38	0.306733	0.300760	-1.132040	0.043087	-0.403793	-0.368176
1.39	0.309684	0.289470	-1.125810	0.039031	-0.407381	-0.349452
1.40	0.312522	0.278244	-1.119284	0.034940	-0.410781	-0.330546
1.41	0.315249	0.267085	-1.112466	0.030816	-0.413991	-0.311471
1.42	0.317864	0.255996	-1.105362	0.026660	-0.417010	-0.292242
1.43	0.320369	0.244979	-1.097975	0.022476	-0.419836	-0.272871
1.44	0.322764	0.234037	-1.090312	0.018264	-0.422467	-0.253374
1.45	0.325050	0.223174	-1.082376	0.014027	-0.424903	-0.233764
1.46	0.327228	0.212391	-1.074173	0.009767	-0.427142	-0.214055
1.47	0.329298	0.201691	-1.065708	0.005485	-0.429184	-0.194262
1.48	0.331262	0.191077	-1.056987	0.001184	-0.431027	-0.174399
1.49	0.333120	0.180552	-1.048015	-0.003134	-0.432672	-0.154480

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Contrails

η	b_5	b_5'	b_5''	d_5	d_5'	d_5''
1.50	0.334873	0.170118	-1.038797	-0.007468	-0.434117	-0.134518
1.51	0.336523	0.159777	-1.029340	-0.011815	-0.435362	-0.114529
1.52	0.338069	0.149532	-1.019649	-0.016174	-0.436407	-0.094526
1.53	0.339514	0.139385	-1.009731	-0.020543	-0.437252	-0.074524
1.54	0.340857	0.129338	-0.999590	-0.024919	-0.437898	-0.054536
1.55	0.342101	0.119394	-0.989233	-0.029300	-0.438343	-0.034576
1.56	0.343246	0.109554	-0.978667	-0.033685	-0.438589	-0.014658
1.57	0.344292	0.099821	-0.967897	-0.038071	-0.438637	0.005203
1.58	0.345242	0.090197	-0.956929	-0.042457	-0.438485	0.024996
1.59	0.346097	0.080683	-0.945771	-0.046840	-0.438137	0.044706
1.60	0.346856	0.071282	-0.934428	-0.051219	-0.437592	0.064320
1.61	0.347523	0.061995	-0.922907	-0.055592	-0.436851	0.083824
1.62	0.348097	0.052824	-0.911214	-0.059956	-0.435916	0.103207
1.63	0.348580	0.043771	-0.899356	-0.064309	-0.434787	0.122454
1.64	0.348972	0.034838	-0.887340	-0.068651	-0.433467	0.141554
1.65	0.349277	0.026025	-0.875171	-0.072978	-0.431957	0.160494
1.66	0.349493	0.017335	-0.862857	-0.077289	-0.430258	0.179261
1.67	0.349624	0.008768	-0.850404	-0.081583	-0.428372	0.197845
1.68	0.349669	0.000327	-0.837819	-0.085856	-0.426301	0.216232
1.69	0.349631	-0.007987	-0.825109	-0.090108	-0.424048	0.234411
1.70	0.349510	-0.016174	-0.812280	-0.094336	-0.421614	0.252372
1.71	0.349308	-0.024232	-0.799339	-0.098540	-0.419001	0.270103
1.72	0.349026	-0.032160	-0.786293	-0.102716	-0.416213	0.287593
1.73	0.348665	-0.039957	-0.773148	-0.106863	-0.413250	0.304832
1.74	0.348227	-0.047623	-0.759911	-0.110980	-0.410117	0.321810
1.75	0.347713	-0.055155	-0.746588	-0.115065	-0.406815	0.338516
1.76	0.347124	-0.062554	-0.733187	-0.119116	-0.403347	0.354941
1.77	0.346462	-0.069819	-0.719714	-0.123132	-0.399717	0.371076
1.78	0.345728	-0.076948	-0.706175	-0.127110	-0.395927	0.386912
1.79	0.344924	-0.083942	-0.692577	-0.131050	-0.391980	0.402440
1.80	0.344050	-0.090800	-0.678927	-0.134949	-0.387879	0.417651
1.81	0.343108	-0.097521	-0.665231	-0.138807	-0.383628	0.432538
1.82	0.342100	-0.104104	-0.651495	-0.142621	-0.379229	0.447092
1.83	0.341027	-0.110550	-0.637726	-0.146391	-0.374687	0.461307
1.84	0.339889	-0.116859	-0.623931	-0.150114	-0.370004	0.475175
1.85	0.338690	-0.123029	-0.610114	-0.153790	-0.365185	0.488689
1.86	0.337429	-0.129061	-0.596284	-0.157418	-0.360232	0.501844
1.87	0.336109	-0.134955	-0.582445	-0.160995	-0.355149	0.514632
1.88	0.334731	-0.140710	-0.568604	-0.164520	-0.349940	0.527048
1.89	0.333295	-0.146327	-0.554767	-0.167993	-0.344609	0.539088
1.90	0.331805	-0.151805	-0.540940	-0.171412	-0.339160	0.550745
1.91	0.330260	-0.157145	-0.527129	-0.174776	-0.333596	0.562015
1.92	0.328662	-0.162348	-0.513339	-0.178084	-0.327921	0.572894
1.93	0.327013	-0.167412	-0.499577	-0.181334	-0.322139	0.583378
1.94	0.325314	-0.172339	-0.485847	-0.184526	-0.316255	0.593463
1.95	0.323567	-0.177129	-0.472156	-0.187659	-0.310271	0.603146
1.96	0.321772	-0.181783	-0.458509	-0.190731	-0.304193	0.612423
1.97	0.319932	-0.186300	-0.444911	-0.193742	-0.298024	0.621294
1.98	0.318047	-0.190681	-0.431368	-0.196691	-0.291769	0.629754
1.99	0.316118	-0.194927	-0.417884	-0.199577	-0.285431	0.637802

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Contrails

η	b_5	b_5'	b_5''	d_5	d_5'	d_5''
2.00	0.314149	-0.199039	-0.404466	-0.202400	-0.279014	0.645437
2.01	0.312138	-0.203017	-0.391116	-0.205157	-0.272523	0.652658
2.02	0.310089	-0.206862	-0.377842	-0.207850	-0.265962	0.659463
2.03	0.308001	-0.210574	-0.364647	-0.210476	-0.259335	0.665852
2.04	0.305878	-0.214155	-0.351536	-0.213036	-0.252647	0.671825
2.05	0.303719	-0.217605	-0.338513	-0.215529	-0.245900	0.677381
2.06	0.301526	-0.220925	-0.325584	-0.217954	-0.239100	0.682523
2.07	0.299301	-0.224117	-0.312751	-0.220311	-0.232251	0.687249
2.08	0.297044	-0.227181	-0.300021	-0.222599	-0.225357	0.691562
2.09	0.294757	-0.230118	-0.287396	-0.224818	-0.218421	0.695462
2.10	0.292442	-0.232929	-0.274880	-0.226967	-0.211449	0.698951
2.11	0.290099	-0.235616	-0.262478	-0.229047	-0.204444	0.702032
2.12	0.287730	-0.238179	-0.250194	-0.231056	-0.197410	0.704706
2.13	0.285336	-0.240620	-0.238030	-0.232995	-0.190351	0.706977
2.14	0.282918	-0.242940	-0.225990	-0.234863	-0.183271	0.708846
2.15	0.280478	-0.245140	-0.214078	-0.236660	-0.176175	0.710318
2.16	0.278016	-0.247222	-0.202298	-0.238387	-0.169066	0.711395
2.17	0.275534	-0.249187	-0.190651	-0.240042	-0.161949	0.712082
2.18	0.273032	-0.251036	-0.179142	-0.241626	-0.154826	0.712381
2.19	0.270513	-0.252770	-0.167772	-0.243138	-0.147702	0.712298
2.20	0.267977	-0.254392	-0.156546	-0.244580	-0.140581	0.711837
2.21	0.265426	-0.255902	-0.145465	-0.245950	-0.133467	0.711002
2.22	0.262860	-0.257301	-0.134533	-0.247249	-0.126362	0.709798
2.23	0.260280	-0.258593	-0.123750	-0.248477	-0.119272	0.708231
2.24	0.257688	-0.259777	-0.113121	-0.249635	-0.112199	0.706305
2.25	0.255085	-0.260856	-0.102647	-0.250721	-0.105147	0.704027
2.26	0.252471	-0.261830	-0.092330	-0.251738	-0.098120	0.701402
2.27	0.249849	-0.262703	-0.082171	-0.252684	-0.091120	0.698436
2.28	0.247218	-0.263474	-0.072174	-0.253560	-0.084152	0.695135
2.29	0.244579	-0.264147	-0.062339	-0.254367	-0.077218	0.691505
2.30	0.241935	-0.264722	-0.052669	-0.255105	-0.070323	0.687552
2.31	0.239285	-0.265201	-0.043164	-0.255774	-0.063468	0.683285
2.32	0.236631	-0.265586	-0.033826	-0.256374	-0.056658	0.678708
2.33	0.233974	-0.265878	-0.024656	-0.256907	-0.049895	0.673829
2.34	0.231314	-0.266079	-0.015655	-0.257372	-0.043183	0.668655
2.35	0.228653	-0.266192	-0.006825	-0.257771	-0.036523	0.663194
2.36	0.225990	-0.266216	0.001832	-0.258103	-0.029920	0.657452
2.37	0.223329	-0.266155	0.010319	-0.258369	-0.023375	0.651437
2.38	0.220668	-0.266011	0.018632	-0.258571	-0.016892	0.645156
2.39	0.218009	-0.265783	0.026773	-0.258707	-0.010473	0.638617
2.40	0.215352	-0.265476	0.034739	-0.258780	-0.004120	0.631828
2.41	0.212699	-0.265089	0.042532	-0.258790	0.002162	0.624797
2.42	0.210051	-0.264626	0.050149	-0.258737	0.008374	0.617530
2.43	0.207407	-0.264087	0.057592	-0.258623	0.014512	0.610037
2.44	0.204769	-0.263474	0.064861	-0.258447	0.020574	0.602325
2.45	0.202138	-0.262790	0.071954	-0.258212	0.026558	0.594401
2.46	0.199514	-0.262036	0.078873	-0.257916	0.032461	0.586275
2.47	0.196897	-0.261213	0.085618	-0.257563	0.038283	0.577954
2.48	0.194290	-0.260324	0.092188	-0.257151	0.044020	0.569447
2.49	0.191691	-0.259370	0.098585	-0.256682	0.049671	0.560760

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Contrails

η	b_5	b'_5	b''_5	d_5	d'_5	d''_5
2.50	0.189102	-0.258353	0.104809	-0.256158	0.055234	0.551904
2.51	0.186524	-0.257274	0.110859	-0.255578	0.060708	0.542884
2.52	0.183957	-0.256136	0.116738	-0.254944	0.066092	0.533711
2.53	0.181402	-0.254940	0.122446	-0.254257	0.071382	0.524391
2.54	0.178858	-0.253688	0.127983	-0.253517	0.076579	0.514933
2.55	0.176328	-0.252381	0.133351	-0.252725	0.081680	0.505345
2.56	0.173811	-0.251021	0.138550	-0.251883	0.086685	0.495635
2.57	0.171308	-0.249611	0.143581	-0.250992	0.091593	0.485811
2.58	0.168819	-0.248150	0.148446	-0.250052	0.096401	0.475881
2.59	0.166345	-0.246642	0.153146	-0.249064	0.101110	0.465853
2.60	0.163886	-0.245088	0.157682	-0.248030	0.105718	0.455734
2.61	0.161443	-0.243489	0.162055	-0.246950	0.110224	0.445533
2.62	0.159017	-0.241847	0.166267	-0.245826	0.114629	0.435257
2.63	0.156606	-0.240164	0.170319	-0.244658	0.118929	0.424914
2.64	0.154213	-0.238442	0.174212	-0.243448	0.123127	0.414511
2.65	0.151838	-0.236681	0.177949	-0.242196	0.127219	0.404056
2.66	0.149480	-0.234883	0.181531	-0.240903	0.131208	0.393556
2.67	0.147140	-0.233050	0.184960	-0.239572	0.135090	0.383019
2.68	0.144819	-0.231184	0.188236	-0.238202	0.138868	0.372452
2.69	0.142517	-0.229286	0.191363	-0.236795	0.142539	0.361861
2.70	0.140233	-0.227358	0.194341	-0.235352	0.146105	0.351254
2.71	0.137970	-0.225400	0.197173	-0.233873	0.149565	0.340638
2.72	0.135725	-0.223415	0.199861	-0.232361	0.152918	0.330020
2.73	0.133501	-0.221403	0.202406	-0.230815	0.156165	0.319405
2.74	0.131297	-0.219367	0.204811	-0.229238	0.159306	0.308801
2.75	0.129114	-0.217307	0.207077	-0.227629	0.162341	0.298215
2.76	0.126951	-0.215226	0.209206	-0.225991	0.165270	0.287652
2.77	0.124810	-0.213124	0.211202	-0.224324	0.168094	0.277118
2.78	0.122689	-0.211002	0.213065	-0.222630	0.170813	0.266620
2.79	0.120590	-0.208863	0.214798	-0.220908	0.173427	0.256163
2.80	0.118512	-0.206707	0.216403	-0.219161	0.175936	0.245754
2.81	0.116455	-0.204535	0.217882	-0.217390	0.178342	0.235397
2.82	0.114421	-0.202349	0.219238	-0.215595	0.180644	0.225098
2.83	0.112409	-0.200151	0.220472	-0.213777	0.182844	0.214864
2.84	0.110418	-0.197940	0.221587	-0.211938	0.184942	0.204697
2.85	0.108450	-0.195719	0.222586	-0.210079	0.186938	0.194605
2.86	0.106504	-0.193489	0.223470	-0.208200	0.188834	0.184592
2.87	0.104580	-0.191250	0.224241	-0.206303	0.190630	0.174661
2.88	0.102679	-0.189005	0.224903	-0.204388	0.192328	0.164819
2.89	0.100800	-0.186753	0.225457	-0.202456	0.193927	0.155069
2.90	0.098944	-0.184496	0.225905	-0.200509	0.195430	0.145416
2.91	0.097110	-0.182235	0.226251	-0.198548	0.196836	0.135864
2.92	0.095299	-0.179971	0.226496	-0.196573	0.198147	0.126416
2.93	0.093511	-0.177705	0.226642	-0.194585	0.199365	0.117077
2.94	0.091745	-0.175439	0.226692	-0.192586	0.200489	0.107850
2.95	0.090002	-0.173172	0.226649	-0.190576	0.201522	0.098739
2.96	0.088281	-0.170906	0.226514	-0.188556	0.202464	0.089747
2.97	0.086584	-0.168642	0.226291	-0.186527	0.203317	0.080877
2.98	0.084909	-0.166380	0.225980	-0.184490	0.204082	0.072133
2.99	0.083256	-0.164122	0.225585	-0.182446	0.204760	0.063516

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Contrails

η	b_5	b_5'	b_5''	d_5	d_5'	d_5''
3.00	0.081626	-0.161869	0.225107	-0.180395	0.205353	0.055031
3.01	0.080019	-0.159621	0.224550	-0.178339	0.205861	0.046680
3.02	0.078434	-0.157378	0.223915	-0.176278	0.206287	0.038464
3.03	0.076871	-0.155143	0.223205	-0.174213	0.206631	0.030386
3.04	0.075331	-0.152914	0.222422	-0.172146	0.206895	0.022449
3.05	0.073813	-0.150694	0.221568	-0.170076	0.207081	0.014655
3.06	0.072317	-0.148483	0.220646	-0.168004	0.207189	0.007004
3.07	0.070843	-0.146282	0.219657	-0.165932	0.207221	-0.000499
3.08	0.069391	-0.144090	0.218603	-0.163860	0.207179	-0.007855
3.09	0.067961	-0.141910	0.217488	-0.161789	0.207065	-0.015063
3.10	0.066553	-0.139741	0.216313	-0.159719	0.206879	-0.022120
3.11	0.065166	-0.137584	0.215080	-0.157651	0.206623	-0.029026
3.12	0.063801	-0.135439	0.213791	-0.155587	0.206299	-0.035780
3.13	0.062457	-0.133308	0.212449	-0.153526	0.205908	-0.042380
3.14	0.061135	-0.131190	0.211055	-0.151469	0.205452	-0.048826
3.15	0.059834	-0.129087	0.209612	-0.149417	0.204932	-0.055117
3.16	0.058553	-0.126998	0.208121	-0.147370	0.204350	-0.061253
3.17	0.057294	-0.124925	0.206585	-0.145330	0.203707	-0.067233
3.18	0.056055	-0.122867	0.205006	-0.143296	0.203006	-0.073057
3.19	0.054836	-0.120825	0.203385	-0.141270	0.202246	-0.078725
3.20	0.053638	-0.118799	0.201724	-0.139252	0.201432	-0.084237
3.21	0.052460	-0.116790	0.200026	-0.137242	0.200562	-0.089593
3.22	0.051302	-0.114799	0.198291	-0.135241	0.199640	-0.094793
3.23	0.050164	-0.112825	0.196523	-0.133249	0.198667	-0.099837
3.24	0.049046	-0.110868	0.194723	-0.131267	0.197644	-0.104727
3.25	0.047947	-0.108930	0.192892	-0.129296	0.196573	-0.109461
3.26	0.046867	-0.107011	0.191032	-0.127336	0.195455	-0.114042
3.27	0.045806	-0.105110	0.189145	-0.125387	0.194293	-0.118469
3.28	0.044765	-0.103228	0.187233	-0.123450	0.193086	-0.122743
3.29	0.043742	-0.101365	0.185297	-0.121526	0.191838	-0.126866
3.30	0.042737	-0.099522	0.183339	-0.119614	0.190550	-0.130838
3.31	0.041751	-0.097698	0.181360	-0.117715	0.189222	-0.134660
3.32	0.040783	-0.095895	0.179363	-0.115829	0.187857	-0.138334
3.33	0.039833	-0.094111	0.177348	-0.113958	0.186456	-0.141860
3.34	0.038901	-0.092348	0.175317	-0.112100	0.185020	-0.145241
3.35	0.037986	-0.090605	0.173272	-0.110257	0.183551	-0.148476
3.36	0.037089	-0.088882	0.171213	-0.108429	0.182051	-0.151569
3.37	0.036208	-0.087181	0.169143	-0.106617	0.180520	-0.154519
3.38	0.035345	-0.085500	0.167063	-0.104819	0.178961	-0.157330
3.39	0.034498	-0.083839	0.164973	-0.103037	0.177374	-0.160001
3.40	0.033668	-0.082200	0.162876	-0.101272	0.175762	-0.162537
3.41	0.032854	-0.080582	0.160773	-0.099522	0.174124	-0.164936
3.42	0.032056	-0.078985	0.158664	-0.097789	0.172463	-0.167203
3.43	0.031275	-0.077409	0.156552	-0.096073	0.170780	-0.169337
3.44	0.030508	-0.075854	0.154436	-0.094374	0.169077	-0.171343
3.45	0.029757	-0.074320	0.152319	-0.092692	0.167354	-0.173220
3.46	0.029022	-0.072807	0.150201	-0.091027	0.165613	-0.174972
3.47	0.028301	-0.071316	0.148084	-0.089379	0.163855	-0.176600
3.48	0.027595	-0.069846	0.145968	-0.087750	0.162081	-0.178106
3.49	0.026904	-0.068397	0.143855	-0.086138	0.160293	-0.179493

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Contrails

η	b_5	b'_5	b''_5	d_5	d'_5	d''_5
3.50	0.026227	-0.066968	0.141746	-0.084544	0.158492	-0.180763
3.51	0.025565	-0.065562	0.139641	-0.082968	0.156678	-0.181916
3.52	0.024916	-0.064176	0.137541	-0.081410	0.154854	-0.182958
3.53	0.024281	-0.062811	0.135447	-0.079871	0.153019	-0.183888
3.54	0.023660	-0.061467	0.133361	-0.078350	0.151176	-0.184710
3.55	0.023052	-0.060143	0.131283	-0.076847	0.149326	-0.185424
3.56	0.022457	-0.058841	0.129213	-0.075363	0.147468	-0.186036
3.57	0.021875	-0.057559	0.127153	-0.073898	0.145605	-0.186544
3.58	0.021306	-0.056298	0.125103	-0.072451	0.143738	-0.186954
3.59	0.020749	-0.055057	0.123064	-0.071023	0.141866	-0.187266
3.60	0.020204	-0.053837	0.121037	-0.069614	0.139993	-0.187483
3.61	0.019672	-0.052636	0.119022	-0.068223	0.138117	-0.187607
3.62	0.019151	-0.051456	0.117020	-0.066852	0.136241	-0.187642
3.63	0.018643	-0.050296	0.115032	-0.065499	0.134365	-0.187587
3.64	0.018145	-0.049155	0.113058	-0.064164	0.132489	-0.187448
3.65	0.017660	-0.048035	0.111098	-0.062849	0.130616	-0.187224
3.66	0.017185	-0.046933	0.109154	-0.061552	0.128745	-0.186921
3.67	0.016721	-0.045851	0.107225	-0.060274	0.126878	-0.186537
3.68	0.016268	-0.044789	0.105313	-0.059014	0.125015	-0.186078
3.69	0.015825	-0.043745	0.103417	-0.057774	0.123156	-0.185544
3.70	0.015393	-0.042720	0.101538	-0.056551	0.121304	-0.184939
3.71	0.014970	-0.041714	0.099677	-0.055347	0.119458	-0.184263
3.72	0.014558	-0.040727	0.097834	-0.054162	0.117619	-0.183521
3.73	0.014156	-0.039758	0.096009	-0.052995	0.115788	-0.182713
3.74	0.013763	-0.038806	0.094203	-0.051846	0.113965	-0.181842
3.75	0.013380	-0.037873	0.092415	-0.050716	0.112151	-0.180911
3.76	0.013006	-0.036958	0.090646	-0.049603	0.110347	-0.179921
3.77	0.012640	-0.036060	0.088897	-0.048509	0.108553	-0.178874
3.78	0.012284	-0.035180	0.087167	-0.047432	0.106770	-0.177775
3.79	0.011937	-0.034317	0.085458	-0.046373	0.104997	-0.176621
3.80	0.011598	-0.033471	0.083769	-0.045332	0.103237	-0.175420
3.81	0.011267	-0.032642	0.082100	-0.044308	0.101489	-0.174169
3.82	0.010945	-0.031829	0.080452	-0.043302	0.099754	-0.172873
3.83	0.010631	-0.031032	0.078823	-0.042313	0.098032	-0.171532
3.84	0.010324	-0.030252	0.077216	-0.041342	0.096324	-0.170151
3.85	0.010026	-0.029488	0.075630	-0.040387	0.094629	-0.168729
3.86	0.009734	-0.028740	0.074065	-0.039449	0.092949	-0.167270
3.87	0.009451	-0.028007	0.072521	-0.038528	0.091284	-0.165774
3.88	0.009174	-0.027289	0.070998	-0.037623	0.089634	-0.164245
3.89	0.008905	-0.026587	0.069497	-0.036735	0.087999	-0.162683
3.90	0.008642	-0.025899	0.068017	-0.035863	0.086380	-0.161091
3.91	0.008387	-0.025226	0.066558	-0.035007	0.084777	-0.159469
3.92	0.008138	-0.024568	0.065121	-0.034168	0.083191	-0.157822
3.93	0.007895	-0.023924	0.063705	-0.033343	0.081621	-0.156149
3.94	0.007659	-0.023294	0.062310	-0.032535	0.080068	-0.154453
3.95	0.007429	-0.022677	0.060938	-0.031742	0.078532	-0.152734
3.96	0.007206	-0.022075	0.059585	-0.030964	0.077013	-0.150997
3.97	0.006988	-0.021486	0.058255	-0.030202	0.075512	-0.149239
3.98	0.006776	-0.020910	0.056946	-0.029454	0.074029	-0.147466
3.99	0.006570	-0.020347	0.055658	-0.028721	0.072563	-0.145675

Approved for Public Release

Contrails

η	b_5	b_5'	b_5''	d_5	d_5'	d_5''
4.00	0.006369	-0.019796	0.054391	-0.028003	0.071115	-0.143873
4.01	0.006174	-0.019259	0.053145	-0.027299	0.069685	-0.142055
4.02	0.005984	-0.018733	0.051920	-0.026609	0.068274	-0.140229
4.03	0.005799	-0.018220	0.050716	-0.025933	0.066881	-0.138391
4.04	0.005619	-0.017719	0.049532	-0.025271	0.065506	-0.136546
4.05	0.005445	-0.017230	0.048369	-0.024623	0.064150	-0.134693
4.06	0.005275	-0.016752	0.047227	-0.023988	0.062812	-0.132835
4.07	0.005109	-0.016285	0.046104	-0.023367	0.061493	-0.130971
4.08	0.004949	-0.015829	0.045002	-0.022758	0.060193	-0.129105
4.09	0.004793	-0.015385	0.043921	-0.022163	0.058911	-0.127235
4.10	0.004641	-0.014951	0.042858	-0.021580	0.057648	-0.125366
4.11	0.004494	-0.014528	0.041816	-0.021010	0.056404	-0.123495
4.12	0.004351	-0.014114	0.040793	-0.020452	0.055178	-0.121627
4.13	0.004211	-0.013712	0.039790	-0.019906	0.053971	-0.119759
4.14	0.004076	-0.013319	0.038806	-0.019372	0.052783	-0.117896
4.15	0.003945	-0.012935	0.037841	-0.018850	0.051613	-0.116035
4.16	0.003818	-0.012562	0.036894	-0.018340	0.050462	-0.114181
4.17	0.003694	-0.012197	0.035967	-0.017841	0.049330	-0.112331
4.18	0.003574	-0.011842	0.035057	-0.017353	0.048216	-0.110489
4.19	0.003457	-0.011496	0.034166	-0.016877	0.047120	-0.108653
4.20	0.003344	-0.011159	0.033293	-0.016411	0.046043	-0.106828
4.21	0.003234	-0.010830	0.032438	-0.015956	0.044983	-0.105010
4.22	0.003127	-0.010510	0.031600	-0.015511	0.043942	-0.103203
4.23	0.003023	-0.010198	0.030780	-0.015077	0.042919	-0.101405
4.24	0.002923	-0.009894	0.029976	-0.014653	0.041914	-0.099621
4.25	0.002825	-0.009599	0.029190	-0.014238	0.040927	-0.097846
4.26	0.002731	-0.009311	0.028420	-0.013834	0.039957	-0.096086
4.27	0.002639	-0.009030	0.027668	-0.013439	0.039005	-0.094336
4.28	0.002550	-0.008757	0.026931	-0.013054	0.038070	-0.092603
4.29	0.002464	-0.008492	0.026210	-0.012678	0.037153	-0.090882
4.30	0.002380	-0.008233	0.025505	-0.012311	0.036253	-0.089178
4.31	0.002299	-0.007981	0.024816	-0.011953	0.035369	-0.087486
4.32	0.002221	-0.007737	0.024142	-0.011603	0.034503	-0.085813
4.33	0.002145	-0.007499	0.023483	-0.011262	0.033653	-0.084153
4.34	0.002071	-0.007267	0.022839	-0.010930	0.032820	-0.082512
4.35	0.001999	-0.007042	0.022210	-0.010606	0.032003	-0.080885
4.36	0.001930	-0.006823	0.021595	-0.010290	0.031202	-0.079279
4.37	0.001863	-0.006610	0.020995	-0.009982	0.030417	-0.077687
4.38	0.001798	-0.006403	0.020408	-0.009682	0.029648	-0.076116
4.39	0.001735	-0.006201	0.019835	-0.009389	0.028895	-0.074559
4.40	0.001674	-0.006006	0.019275	-0.009104	0.028157	-0.073025
4.41	0.001615	-0.005816	0.018730	-0.008826	0.027434	-0.071506
4.42	0.001557	-0.005631	0.018196	-0.008555	0.026727	-0.070009
4.43	0.001502	-0.005452	0.017676	-0.008291	0.026034	-0.068528
4.44	0.001448	-0.005278	0.017168	-0.008034	0.025356	-0.067070
4.45	0.001396	-0.005109	0.016673	-0.007784	0.024692	-0.065627
4.46	0.001346	-0.004944	0.016190	-0.007540	0.024043	-0.064208
4.47	0.001297	-0.004785	0.015719	-0.007303	0.023408	-0.062804
4.48	0.001250	-0.004630	0.015259	-0.007072	0.022787	-0.061424
4.49	0.001205	-0.004479	0.014811	-0.006847	0.022180	-0.060060

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Contrails

η	b_5	b_5'	b_5''	d_5	d_5'	d_5''
4.50	0.001161	-0.004333	0.014374	-0.006628	0.021586	-0.058720
4.51	0.001118	-0.004192	0.013949	-0.006415	0.021005	-0.057396
4.52	0.001077	-0.004054	0.013534	-0.006208	0.020438	-0.056097
4.53	0.001037	-0.003921	0.013130	-0.006007	0.019883	-0.054813
4.54	0.000998	-0.003792	0.012736	-0.005811	0.019342	-0.053553
4.55	0.000961	-0.003666	0.012352	-0.005620	0.018812	-0.052310
4.56	0.000925	-0.003545	0.011978	-0.005434	0.018295	-0.051090
4.57	0.000890	-0.003427	0.011615	-0.005254	0.017790	-0.049887
4.58	0.000856	-0.003312	0.011260	-0.005078	0.017297	-0.048707
4.59	0.000824	-0.003202	0.010916	-0.004908	0.016816	-0.047544
4.60	0.000792	-0.003094	0.010579	-0.004742	0.016347	-0.046404
4.61	0.000762	-0.002990	0.010253	-0.004581	0.015888	-0.045280
4.62	0.000733	-0.002889	0.009935	-0.004424	0.015441	-0.044181
4.63	0.000704	-0.002791	0.009626	-0.004272	0.015004	-0.043096
4.64	0.000677	-0.002696	0.009325	-0.004124	0.014579	-0.042036
4.65	0.000650	-0.002605	0.009033	-0.003980	0.014163	-0.040989
4.66	0.000625	-0.002516	0.008747	-0.003841	0.013759	-0.039968
4.67	0.000600	-0.002430	0.008471	-0.003705	0.013364	-0.038960
4.68	0.000576	-0.002346	0.008202	-0.003574	0.012980	-0.037977
4.69	0.000553	-0.002266	0.007941	-0.003445	0.012604	-0.037007
4.70	0.000531	-0.002187	0.007686	-0.003321	0.012239	-0.036062
4.71	0.000509	-0.002112	0.007440	-0.003201	0.011883	-0.035129
4.72	0.000488	-0.002039	0.007199	-0.003084	0.011537	-0.034221
4.73	0.000468	-0.001968	0.006967	-0.002970	0.011198	-0.033325
4.74	0.000449	-0.001899	0.006739	-0.002860	0.010870	-0.032453
4.75	0.000430	-0.001833	0.006520	-0.002752	0.010549	-0.031592
4.76	0.000412	-0.001769	0.006306	-0.002649	0.010238	-0.030756
4.77	0.000395	-0.001707	0.006099	-0.002548	0.009934	-0.029931
4.78	0.000378	-0.001647	0.005897	-0.002450	0.009639	-0.029129
4.79	0.000362	-0.001589	0.005703	-0.002355	0.009352	-0.028338
4.80	0.000346	-0.001533	0.005512	-0.002263	0.009073	-0.027571
4.81	0.000331	-0.001479	0.005329	-0.002173	0.008800	-0.026813
4.82	0.000317	-0.001426	0.005149	-0.002087	0.008536	-0.026079
4.83	0.000303	-0.001376	0.004977	-0.002003	0.008279	-0.025354
4.84	0.000289	-0.001326	0.004808	-0.001921	0.008029	-0.024652
4.85	0.000276	-0.001279	0.004646	-0.001842	0.007785	-0.023958
4.86	0.000264	-0.001234	0.004487	-0.001765	0.007550	-0.023288
4.87	0.000252	-0.001190	0.004335	-0.001691	0.007320	-0.022625
4.88	0.000240	-0.001147	0.004186	-0.001619	0.007097	-0.021985
4.89	0.000229	-0.001106	0.004043	-0.001549	0.006880	-0.021353
4.90	0.000218	-0.001066	0.003902	-0.001481	0.006670	-0.020743
4.91	0.000207	-0.001028	0.003768	-0.001416	0.006465	-0.020139
4.92	0.000197	-0.000991	0.003636	-0.001352	0.006267	-0.019557
4.93	0.000188	-0.000955	0.003510	-0.001290	0.006074	-0.018981
4.94	0.000178	-0.000920	0.003386	-0.001231	0.005888	-0.018428
4.95	0.000169	-0.000887	0.003268	-0.001172	0.005705	-0.017879
4.96	0.000160	-0.000855	0.003152	-0.001116	0.005530	-0.017353
4.97	0.000152	-0.000824	0.003041	-0.001062	0.005358	-0.016830
4.98	0.000144	-0.000794	0.002932	-0.001009	0.005193	-0.016330
4.99	0.000136	-0.000766	0.002829	-0.000958	0.005032	-0.015832

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Contrails

η	b_5	b'_5	b''_5	d_5	d'_5	d''_5
5.00	0.000129	-0.000738	0.002726	-0.000909	0.004876	-0.015357
5.01	0.000121	-0.000711	0.002629	-0.000860	0.004724	-0.014884
5.02	0.000114	-0.000685	0.002533	-0.000814	0.004579	-0.014433
5.03	0.000108	-0.000660	0.002443	-0.000769	0.004436	-0.013983
5.04	0.000101	-0.000636	0.002353	-0.000725	0.004299	-0.013555
5.05	0.000095	-0.000613	0.002268	-0.000683	0.004165	-0.013128
5.06	0.000089	-0.000591	0.002184	-0.000642	0.004036	-0.012723
5.07	0.000083	-0.000570	0.002105	-0.000602	0.003910	-0.012317
5.08	0.000077	-0.000549	0.002026	-0.000564	0.003790	-0.011933
5.09	0.000072	-0.000529	0.001953	-0.000526	0.003672	-0.011548
5.10	0.000067	-0.000510	0.001879	-0.000490	0.003559	-0.011185
5.11	0.000062	-0.000491	0.001810	-0.000455	0.003448	-0.010820
5.12	0.000057	-0.000473	0.001741	-0.000421	0.003342	-0.010477
5.13	0.000052	-0.000457	0.001677	-0.000388	0.003238	-0.010131
5.14	0.000048	-0.000440	0.001613	-0.000356	0.003140	-0.009807
5.15	0.000044	-0.000424	0.001553	-0.000325	0.003042	-0.009479
5.16	0.000039	-0.000409	0.001493	-0.000296	0.002950	-0.009174
5.17	0.000035	-0.000394	0.001437	-0.000266	0.002859	-0.008863
5.18	0.000031	-0.000380	0.001381	-0.000238	0.002773	-0.008575
5.19	0.000028	-0.000367	0.001329	-0.000211	0.002687	-0.008281
5.20	0.000024	-0.000353	0.001276	-0.000185	0.002607	-0.008010
5.21	0.000021	-0.000341	0.001229	-0.000159	0.002527	-0.007731
5.22	0.000017	-0.000329	0.001179	-0.000134	0.002452	-0.007476
5.23	0.000014	-0.000318	0.001135	-0.000110	0.002378	-0.007213
5.24	0.000011	-0.000306	0.001089	-0.000086	0.002308	-0.006973
5.25	0.000008	-0.000296	0.001048	-0.000063	0.002238	-0.006724
5.26	0.000005	-0.000285	0.001005	-0.000042	0.002173	-0.006498
5.27	0.000002	-0.000276	0.000967	-0.000020	0.002108	-0.006263
5.28	0.000000	-0.000266	0.000926	-0.000000	0.002048	-0.006052

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Contrails

η	r_7	r_7'	r_7''	S_7	S_7'	S_7''
0.00	-1.000000	1.398942	0.000000	0.000000	0.573680	0.000000
0.01	-0.986010	1.398941	-0.000395	0.005736	0.573678	-0.000717
0.02	-0.972021	1.398931	-0.001570	0.011473	0.573661	-0.002850
0.03	-0.958031	1.398907	-0.003505	0.017209	0.573616	-0.006370
0.04	-0.944043	1.398859	-0.006182	0.022945	0.573529	-0.011248
0.05	-0.930054	1.398781	-0.009583	0.028680	0.573387	-0.017456
0.06	-0.916067	1.398665	-0.013689	0.034413	0.573176	-0.024964
0.07	-0.902081	1.398505	-0.018482	0.040143	0.572883	-0.033743
0.08	-0.888097	1.398293	-0.023944	0.045870	0.572497	-0.043764
0.09	-0.874116	1.398023	-0.030057	0.051593	0.572004	-0.054997
0.10	-0.860137	1.397690	-0.036802	0.057310	0.571393	-0.067412
0.11	-0.846162	1.397285	-0.044161	0.063020	0.570652	-0.080980
0.12	-0.832191	1.396804	-0.052117	0.068722	0.569770	-0.095669
0.13	-0.818226	1.396241	-0.060652	0.074415	0.568735	-0.111450
0.14	-0.804267	1.395590	-0.069746	0.080097	0.567537	-0.128292
0.15	-0.790315	1.394844	-0.079384	0.085765	0.566166	-0.146163
0.16	-0.776370	1.394000	-0.089547	0.091419	0.564611	-0.165031
0.17	-0.762435	1.393052	-0.100217	0.097057	0.562862	-0.184866
0.18	-0.748510	1.391994	-0.111377	0.102676	0.560910	-0.205635
0.19	-0.734596	1.390823	-0.123010	0.108274	0.558746	-0.227305
0.20	-0.720694	1.389532	-0.135099	0.113850	0.556361	-0.249843
0.21	-0.706805	1.388119	-0.147625	0.119401	0.553746	-0.273217
0.22	-0.692932	1.386578	-0.160573	0.124924	0.550894	-0.297393
0.23	-0.679074	1.384906	-0.173925	0.130418	0.547796	-0.322337
0.24	-0.665234	1.383099	-0.187665	0.135879	0.544445	-0.348015
0.25	-0.651413	1.381152	-0.201775	0.141306	0.540833	-0.374392
0.26	-0.637611	1.379062	-0.216240	0.146695	0.536955	-0.401434
0.27	-0.623832	1.376826	-0.231042	0.152044	0.532803	-0.429106
0.28	-0.610075	1.374440	-0.246166	0.157350	0.528371	-0.457373
0.29	-0.596344	1.371901	-0.261594	0.162611	0.523653	-0.486198
0.30	-0.582638	1.369207	-0.277313	0.167822	0.518645	-0.515546
0.31	-0.568960	1.366354	-0.293304	0.172982	0.513341	-0.545381
0.32	-0.555311	1.363340	-0.309553	0.178088	0.507736	-0.575667
0.33	-0.541694	1.360162	-0.326044	0.183136	0.501826	-0.606366
0.34	-0.528109	1.356819	-0.342761	0.188124	0.495607	-0.637443
0.35	-0.514558	1.353307	-0.359690	0.193047	0.489076	-0.668859
0.36	-0.501043	1.349624	-0.376814	0.197904	0.482229	-0.700579
0.37	-0.487566	1.345770	-0.394119	0.202691	0.475064	-0.732564
0.38	-0.474128	1.341741	-0.411590	0.207404	0.467577	-0.764778
0.39	-0.460732	1.337537	-0.429213	0.212041	0.459767	-0.797183
0.40	-0.447378	1.333156	-0.446971	0.216599	0.451633	-0.829741
0.41	-0.434069	1.328597	-0.464853	0.221073	0.443172	-0.862415
0.42	-0.420807	1.323859	-0.482842	0.225461	0.434384	-0.895167
0.43	-0.407593	1.318940	-0.500924	0.229759	0.425269	-0.927960
0.44	-0.394428	1.313840	-0.519087	0.233965	0.415825	-0.960757
0.45	-0.381316	1.308558	-0.537316	0.238075	0.406054	-0.993519
0.46	-0.368258	1.303094	-0.555597	0.242085	0.395955	-1.026209
0.47	-0.355255	1.297446	-0.573917	0.245993	0.385530	-1.058791
0.48	-0.342310	1.291615	-0.592262	0.249795	0.374780	-1.091226
0.49	-0.329423	1.285601	-0.610620	0.253487	0.363706	-1.123479

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Contrails

η	r_7	r_7'	r_7''	S_7	S_7'	S_7''
0.50	-0.316598	1.279403	-0.628978	0.257068	0.352311	-1.155512
0.51	-0.303836	1.273021	-0.647322	0.260533	0.340596	-1.187289
0.52	-0.291138	1.266457	-0.665640	0.263879	0.328566	-1.218774
0.53	-0.278507	1.259709	-0.683920	0.267103	0.316222	-1.249930
0.54	-0.265945	1.252778	-0.702149	0.270202	0.303568	-1.280723
0.55	-0.253452	1.245666	-0.720316	0.273173	0.290609	-1.311117
0.56	-0.241032	1.238372	-0.738408	0.276013	0.277348	-1.341077
0.57	-0.228686	1.230898	-0.756413	0.278719	0.263789	-1.370569
0.58	-0.216415	1.223244	-0.774321	0.281288	0.249938	-1.399559
0.59	-0.204221	1.215412	-0.792119	0.283717	0.235800	-1.428013
0.60	-0.192107	1.207402	-0.809797	0.286003	0.221379	-1.455898
0.61	-0.180074	1.199217	-0.827343	0.288144	0.206684	-1.483183
0.62	-0.168123	1.190856	-0.844748	0.290136	0.191718	-1.509835
0.63	-0.156257	1.182322	-0.861999	0.291977	0.176489	-1.535823
0.64	-0.144477	1.173617	-0.879087	0.293665	0.161004	-1.561116
0.65	-0.132785	1.164741	-0.896002	0.295196	0.145269	-1.585685
0.66	-0.121183	1.155697	-0.912733	0.296569	0.129293	-1.609500
0.67	-0.109672	1.146487	-0.929271	0.297782	0.113082	-1.632533
0.68	-0.098254	1.137112	-0.945606	0.298830	0.096645	-1.654755
0.69	-0.086930	1.127575	-0.961729	0.299714	0.079989	-1.676141
0.70	-0.075703	1.117878	-0.977630	0.300429	0.063125	-1.696663
0.71	-0.064573	1.108024	-0.993301	0.300976	0.046059	-1.716296
0.72	-0.053543	1.098013	-1.008733	0.301350	0.028802	-1.735016
0.73	-0.042613	1.087850	-1.023917	0.301551	0.011362	-1.752798
0.74	-0.031786	1.077536	-1.038845	0.301577	-0.006250	-1.769621
0.75	-0.021063	1.067074	-1.053508	0.301425	-0.024026	-1.785462
0.76	-0.010445	1.056466	-1.067900	0.301096	-0.041956	-1.800300
0.77	0.000065	1.045717	-1.082011	0.300586	-0.060029	-1.814115
0.78	0.010467	1.034827	-1.095835	0.299895	-0.078235	-1.826888
0.79	0.020761	1.023801	-1.109364	0.299021	-0.096563	-1.838601
0.80	0.030943	1.012641	-1.122592	0.297963	-0.115003	-1.849237
0.81	0.041013	1.001350	-1.135511	0.296720	-0.133544	-1.858780
0.82	0.050970	0.989932	-1.148116	0.295292	-0.152175	-1.867214
0.83	0.060811	0.978389	-1.160398	0.293677	-0.170885	-1.874526
0.84	0.070537	0.966725	-1.172354	0.291874	-0.189662	-1.880703
0.85	0.080145	0.954943	-1.183975	0.289883	-0.208495	-1.885733
0.86	0.089635	0.943046	-1.195258	0.287704	-0.227373	-1.889606
0.87	0.099006	0.931039	-1.206196	0.285336	-0.246283	-1.892311
0.88	0.108256	0.918924	-1.216784	0.282778	-0.265215	-1.893840
0.89	0.117384	0.906704	-1.227018	0.280031	-0.284156	-1.894185
0.90	0.126390	0.894385	-1.236892	0.277095	-0.303095	-1.893341
0.91	0.135272	0.881968	-1.246402	0.273969	-0.322019	-1.891301
0.92	0.144029	0.869458	-1.255544	0.270655	-0.340917	-1.888063
0.93	0.152660	0.856858	-1.264314	0.267151	-0.359776	-1.883622
0.94	0.161166	0.844173	-1.272708	0.263459	-0.378585	-1.877977
0.95	0.169544	0.831405	-1.280722	0.259580	-0.397332	-1.871128
0.96	0.177793	0.818559	-1.288353	0.255513	-0.416004	-1.863074
0.97	0.185915	0.805639	-1.295598	0.251260	-0.434589	-1.853817
0.98	0.193906	0.792649	-1.302455	0.246821	-0.453076	-1.843360
0.99	0.201767	0.779592	-1.308920	0.242199	-0.471452	-1.831707

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Contrails

η	r_7	r_7'	r_7''	S_7	S_7'	S_7''
1.00	0.209498	0.766472	-1.314992	0.237393	-0.489706	-1.818862
1.01	0.217097	0.753293	-1.320668	0.232405	-0.507826	-1.804831
1.02	0.224563	0.740060	-1.325946	0.227237	-0.525799	-1.789622
1.03	0.231898	0.726775	-1.330824	0.221889	-0.543614	-1.773242
1.04	0.239099	0.713444	-1.335302	0.216365	-0.561260	-1.755701
1.05	0.246166	0.700071	-1.339378	0.210665	-0.578724	-1.737009
1.06	0.253100	0.686658	-1.343052	0.204791	-0.595996	-1.717177
1.07	0.259899	0.673211	-1.346321	0.198746	-0.613064	-1.696217
1.08	0.266564	0.659733	-1.349187	0.192531	-0.629917	-1.674144
1.09	0.273094	0.646229	-1.351649	0.186148	-0.646543	-1.650970
1.10	0.279489	0.632702	-1.353706	0.179600	-0.662933	-1.626713
1.11	0.285748	0.619156	-1.355359	0.172890	-0.679074	-1.601387
1.12	0.291872	0.605596	-1.356609	0.166020	-0.694957	-1.575010
1.13	0.297860	0.592025	-1.357456	0.158992	-0.710571	-1.547600
1.14	0.303712	0.578448	-1.357901	0.151809	-0.725906	-1.519177
1.15	0.309429	0.564868	-1.357945	0.144475	-0.740951	-1.489761
1.16	0.315010	0.551290	-1.357590	0.136991	-0.755698	-1.459371
1.17	0.320455	0.537718	-1.356837	0.129362	-0.770135	-1.428030
1.18	0.325764	0.524155	-1.355687	0.121590	-0.784255	-1.395761
1.19	0.330938	0.510605	-1.354144	0.113678	-0.798048	-1.362586
1.20	0.335976	0.497073	-1.352209	0.105630	-0.811504	-1.328529
1.21	0.340879	0.483563	-1.349884	0.097449	-0.824615	-1.293616
1.22	0.345648	0.470077	-1.347172	0.089139	-0.837373	-1.257872
1.23	0.350281	0.456620	-1.344076	0.080703	-0.849770	-1.221323
1.24	0.354780	0.443197	-1.340600	0.072144	-0.861797	-1.183995
1.25	0.359145	0.429810	-1.336745	0.063468	-0.873448	-1.145917
1.26	0.363376	0.416463	-1.332516	0.054677	-0.884713	-1.107116
1.27	0.367474	0.403161	-1.327916	0.045775	-0.895588	-1.067620
1.28	0.371440	0.389906	-1.322949	0.036766	-0.906063	-1.027460
1.29	0.375273	0.376703	-1.317618	0.027655	-0.916135	-0.986664
1.30	0.378974	0.363555	-1.311929	0.018445	-0.925795	-0.945263
1.31	0.382544	0.350465	-1.305885	0.009140	-0.935038	-0.903287
1.32	0.385984	0.337438	-1.299491	-0.000253	-0.943859	-0.860767
1.33	0.389293	0.324477	-1.292751	-0.009734	-0.952252	-0.817735
1.34	0.392473	0.311584	-1.285671	-0.019297	-0.960212	-0.774221
1.35	0.395525	0.298764	-1.278255	-0.028937	-0.967735	-0.730259
1.36	0.398449	0.286020	-1.270508	-0.038650	-0.974816	-0.685880
1.37	0.401246	0.273355	-1.262436	-0.048432	-0.981451	-0.641117
1.38	0.403916	0.260773	-1.254043	-0.058278	-0.987637	-0.596002
1.39	0.406461	0.248275	-1.245337	-0.068183	-0.993370	-0.550569
1.40	0.408882	0.235867	-1.236321	-0.078144	-0.998647	-0.504851
1.41	0.411179	0.223550	-1.227002	-0.088155	-1.003466	-0.458880
1.42	0.413353	0.211328	-1.217387	-0.098211	-1.007824	-0.412690
1.43	0.415406	0.199203	-1.207480	-0.108310	-1.011719	-0.366314
1.44	0.417338	0.187179	-1.197289	-0.118444	-1.015150	-0.319786
1.45	0.419150	0.175258	-1.186819	-0.128611	-1.018115	-0.273138
1.46	0.420843	0.163444	-1.176077	-0.138805	-1.020612	-0.226405
1.47	0.422419	0.151738	-1.165070	-0.149022	-1.022643	-0.179619
1.48	0.423878	0.140143	-1.153803	-0.159256	-1.024205	-0.132813
1.49	0.425222	0.128662	-1.142285	-0.169504	-1.025299	-0.086021

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Contrails

η	r_7	r_7'	r_7''	S_7	S_7'	S_7''
1.50	0.426452	0.117298	-1.130520	-0.179761	-1.025925	-0.039275
1.51	0.427569	0.106053	-1.118517	-0.190021	-1.026085	0.007392
1.52	0.428574	0.094929	-1.106282	-0.200281	-1.025778	0.053949
1.53	0.429468	0.083928	-1.093822	-0.210535	-1.025006	0.100363
1.54	0.430253	0.073053	-1.081145	-0.220779	-1.023771	0.146601
1.55	0.430929	0.062306	-1.068257	-0.231009	-1.022075	0.192634
1.56	0.431499	0.051688	-1.055166	-0.241219	-1.019919	0.238428
1.57	0.431963	0.041203	-1.041878	-0.251406	-1.017307	0.283955
1.58	0.432324	0.030851	-1.028402	-0.261564	-1.014241	0.329183
1.59	0.432581	0.020636	-1.014743	-0.271689	-1.010725	0.374082
1.60	0.432737	0.010557	-1.000911	-0.281777	-1.006761	0.418623
1.61	0.432793	0.000618	-0.986912	-0.291823	-1.002353	0.462777
1.62	0.432750	-0.009180	-0.972753	-0.301823	-0.997506	0.506514
1.63	0.432609	-0.018836	-0.958443	-0.311772	-0.992225	0.549809
1.64	0.432373	-0.028348	-0.943988	-0.321666	-0.986512	0.592631
1.65	0.432043	-0.037715	-0.929395	-0.331501	-0.980374	0.634956
1.66	0.431620	-0.046935	-0.914673	-0.341272	-0.973815	0.676755
1.67	0.431105	-0.056008	-0.899829	-0.350975	-0.966840	0.718005
1.68	0.430500	-0.064932	-0.884870	-0.360607	-0.959456	0.758678
1.69	0.429807	-0.073705	-0.869804	-0.370163	-0.951669	0.798752
1.70	0.429026	-0.082327	-0.854638	-0.379639	-0.943483	0.838201
1.71	0.428161	-0.090798	-0.839379	-0.389032	-0.934907	0.877003
1.72	0.427211	-0.099115	-0.824036	-0.398336	-0.925946	0.915135
1.73	0.426179	-0.107278	-0.808614	-0.407549	-0.916606	0.952577
1.74	0.425066	-0.115287	-0.793123	-0.416667	-0.906896	0.989305
1.75	0.423874	-0.123140	-0.777568	-0.425686	-0.896823	1.025300
1.76	0.422604	-0.130838	-0.761957	-0.434602	-0.886393	1.060543
1.77	0.421257	-0.138379	-0.746298	-0.443413	-0.875614	1.095014
1.78	0.419836	-0.145764	-0.730597	-0.452114	-0.864495	1.128695
1.79	0.418343	-0.152991	-0.714862	-0.460702	-0.853043	1.161570
1.80	0.416777	-0.160061	-0.699100	-0.469173	-0.841267	1.193621
1.81	0.415142	-0.166973	-0.683317	-0.477526	-0.829174	1.224833
1.82	0.413438	-0.173727	-0.667521	-0.485756	-0.816773	1.255190
1.83	0.411668	-0.180323	-0.651718	-0.493860	-0.804073	1.284679
1.84	0.409832	-0.186762	-0.635915	-0.501836	-0.791082	1.313286
1.85	0.407933	-0.193042	-0.620119	-0.509681	-0.777810	1.340999
1.86	0.405972	-0.199164	-0.604337	-0.517392	-0.764265	1.367805
1.87	0.403950	-0.205129	-0.588575	-0.524965	-0.750457	1.393695
1.88	0.401870	-0.210936	-0.572839	-0.532400	-0.736394	1.418657
1.89	0.399732	-0.216585	-0.557136	-0.539693	-0.722087	1.442683
1.90	0.397539	-0.222078	-0.541473	-0.546841	-0.707544	1.465763
1.91	0.395291	-0.227415	-0.525854	-0.553843	-0.692775	1.487891
1.92	0.392991	-0.232596	-0.510287	-0.560696	-0.677789	1.509059
1.93	0.390640	-0.237621	-0.494777	-0.567398	-0.662597	1.529262
1.94	0.388239	-0.242492	-0.479331	-0.573947	-0.647207	1.548494
1.95	0.385790	-0.247208	-0.463953	-0.580341	-0.631630	1.566751
1.96	0.383295	-0.251771	-0.448650	-0.586579	-0.615875	1.584029
1.97	0.380755	-0.256181	-0.433427	-0.592658	-0.599953	1.600325
1.98	0.378172	-0.260440	-0.418290	-0.598577	-0.583872	1.615637
1.99	0.375547	-0.264547	-0.403243	-0.604335	-0.567643	1.629965

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Contrails

η	r_7	r_7'	r_7''	S_7	S_7'	S_7''
2.00	0.372882	-0.268505	-0.388293	-0.609930	-0.551276	1.643307
2.01	0.370178	-0.272313	-0.373444	-0.615360	-0.534780	1.655664
2.02	0.367436	-0.275974	-0.358701	-0.620625	-0.518166	1.667037
2.03	0.364659	-0.279488	-0.344069	-0.625723	-0.501443	1.677427
2.04	0.361847	-0.282856	-0.329552	-0.630654	-0.484621	1.686838
2.05	0.359002	-0.286079	-0.315156	-0.635415	-0.467709	1.695272
2.06	0.356126	-0.289159	-0.300884	-0.640008	-0.450719	1.702734
2.07	0.353219	-0.292097	-0.286742	-0.644430	-0.433658	1.709228
2.08	0.350284	-0.294895	-0.272732	-0.648681	-0.416537	1.714759
2.09	0.347322	-0.297553	-0.258860	-0.652760	-0.399366	1.719334
2.10	0.344333	-0.300072	-0.245129	-0.656668	-0.382154	1.722959
2.11	0.341321	-0.302456	-0.231544	-0.660403	-0.364910	1.725642
2.12	0.338285	-0.304704	-0.218106	-0.663966	-0.347644	1.727390
2.13	0.335227	-0.306818	-0.204822	-0.667356	-0.330365	1.728213
2.14	0.332149	-0.308801	-0.191692	-0.670573	-0.313083	1.728120
2.15	0.329051	-0.310653	-0.178722	-0.673618	-0.295806	1.727120
2.16	0.325936	-0.312376	-0.165914	-0.676489	-0.278543	1.725223
2.17	0.322804	-0.313972	-0.153271	-0.679189	-0.261304	1.722441
2.18	0.319657	-0.315442	-0.140796	-0.681716	-0.244097	1.718785
2.19	0.316496	-0.316788	-0.128491	-0.684071	-0.226931	1.714268
2.20	0.313322	-0.318012	-0.116360	-0.686254	-0.209815	1.708901
2.21	0.310136	-0.319116	-0.104405	-0.688267	-0.192756	1.702699
2.22	0.306940	-0.320101	-0.092628	-0.690110	-0.175764	1.695673
2.23	0.303734	-0.320969	-0.081031	-0.691783	-0.158845	1.687839
2.24	0.300521	-0.321722	-0.069617	-0.693287	-0.142009	1.679210
2.25	0.297300	-0.322362	-0.058387	-0.694623	-0.125264	1.669802
2.26	0.294074	-0.322890	-0.047343	-0.695793	-0.108616	1.659629
2.27	0.290843	-0.323309	-0.036488	-0.696796	-0.092074	1.648708
2.28	0.287608	-0.323621	-0.025821	-0.697634	-0.075644	1.637053
2.29	0.284371	-0.323827	-0.015346	-0.698309	-0.059335	1.624683
2.30	0.281132	-0.323928	-0.005063	-0.698822	-0.043153	1.611612
2.31	0.277893	-0.323928	0.005026	-0.699173	-0.027105	1.597858
2.32	0.274654	-0.323829	0.014921	-0.699364	-0.011198	1.583438
2.33	0.271416	-0.323631	0.024620	-0.699397	0.004561	1.568370
2.34	0.268181	-0.323337	0.034124	-0.699273	0.020166	1.552670
2.35	0.264950	-0.322949	0.043430	-0.698994	0.035612	1.536359
2.36	0.261723	-0.322469	0.052539	-0.698562	0.050892	1.519453
2.37	0.258501	-0.321899	0.061450	-0.697977	0.065999	1.501970
2.38	0.255285	-0.321240	0.070162	-0.697242	0.080929	1.483930
2.39	0.252076	-0.320496	0.078676	-0.696359	0.095676	1.465351
2.40	0.248875	-0.319668	0.086990	-0.695329	0.110234	1.446251
2.41	0.245683	-0.318757	0.095107	-0.694155	0.124599	1.426651
2.42	0.242501	-0.317766	0.103024	-0.692838	0.138766	1.406568
2.43	0.239328	-0.316697	0.110743	-0.691380	0.152729	1.386022
2.44	0.236167	-0.315552	0.118264	-0.689784	0.166485	1.365032
2.45	0.233017	-0.314333	0.125586	-0.688051	0.180028	1.343618
2.46	0.229880	-0.313041	0.132712	-0.686184	0.193356	1.321797
2.47	0.226757	-0.311679	0.139641	-0.684185	0.206463	1.299592
2.48	0.223647	-0.310249	0.146373	-0.682056	0.219346	1.277018
2.49	0.220552	-0.308752	0.152911	-0.679799	0.232002	1.254098

Approved for Public Release

Contrails

η	r_7	r_7'	r_7''	S_7	S_7'	S_7''
2.50	0.217472	-0.307191	0.159253	-0.677417	0.244427	1.230849
2.51	0.214408	-0.305568	0.165403	-0.674911	0.256618	1.207291
2.52	0.211361	-0.303884	0.171360	-0.672285	0.268572	1.183443
2.53	0.208331	-0.302141	0.177126	-0.669540	0.280286	1.159324
2.54	0.205318	-0.300342	0.182701	-0.666680	0.291758	1.134952
2.55	0.202324	-0.298488	0.188088	-0.663706	0.302984	1.110348
2.56	0.199349	-0.296581	0.193288	-0.660621	0.313964	1.085529
2.57	0.196393	-0.294623	0.198301	-0.657428	0.324694	1.060514
2.58	0.193457	-0.292615	0.203130	-0.654128	0.335174	1.035321
2.59	0.190541	-0.290561	0.207776	-0.650725	0.345400	1.009970
2.60	0.187645	-0.288460	0.212241	-0.647221	0.355373	0.984477
2.61	0.184772	-0.286316	0.216527	-0.643618	0.365089	0.958861
2.62	0.181919	-0.284130	0.220634	-0.639920	0.374550	0.933138
2.63	0.179089	-0.281904	0.224566	-0.636128	0.383752	0.907329
2.64	0.176281	-0.279640	0.228324	-0.632246	0.392696	0.881447
2.65	0.173496	-0.277338	0.231910	-0.628275	0.401381	0.855513
2.66	0.170735	-0.275002	0.235325	-0.624219	0.409806	0.829540
2.67	0.167996	-0.272632	0.238573	-0.620080	0.417971	0.803548
2.68	0.165282	-0.270231	0.241655	-0.615860	0.425877	0.777551
2.69	0.162592	-0.267800	0.244574	-0.611563	0.433522	0.751566
2.70	0.159926	-0.265340	0.247330	-0.607191	0.440908	0.725608
2.71	0.157285	-0.262854	0.249928	-0.602746	0.448035	0.699693
2.72	0.154669	-0.260342	0 252369	-0.598231	0.454903	0.673836
2.73	0.152078	-0.257807	0.254655	-0.593649	0.461512	0.648052
2.74	0.149513	-0.255249	0.256789	-0.589002	0.467864	0.622354
2.75	0.146973	-0.252672	0.258773	-0.584292	0.473959	0.596759
2.76	0.144460	-0.250074	0.260609	-0.579523	0.479799	0.571278
2.77	0.141972	-0.247460	0.262301	-0.574697	0.485385	0.545927
2.78	0.139511	-0.244829	0.263850	-0.569816	0.490718	0.520717
2.79	0.137075	-0.242183	0.265259	-0.564884	0.495800	0.495663
2.80	0.134667	-0.239524	0.266530	-0.559901	0.500632	0.470775
2.81	0.132285	-0.236853	0.267667	-0.554872	0.505216	0.446069
2.82	0.129930	-0.234171	0.268671	-0.549798	0.509554	0.421552
2.83	0.127602	-0.231480	0.269545	-0.544681	0.513648	0.397240
2.84	0.125300	-0.228781	0.270292	-0.539526	0.517500	0.373140
2.85	0.123026	-0.226075	0.270915	-0.534332	0.521111	0.349267
2.86	0.120779	-0.223363	0.271415	-0.529104	0.524486	0.325627
2.87	0.118559	-0.220647	0.271797	-0.523843	0.527625	0.302234
2.88	0.116366	-0.217927	0.272061	-0.518552	0.530531	0.279094
2.89	0.114200	-0.215206	0.272211	-0.513233	0.533208	0.256220
2.90	0.112062	-0.212483	0.272250	-0.507889	0.535657	0.233618
2.91	0.109951	-0.209761	0.272180	-0.502521	0.537881	0.211299
2.92	0.107867	-0.207040	0.272004	-0.497132	0.539884	0.189269
2.93	0.105810	-0.204321	0.271724	-0.491724	0.541667	0.167538
2.94	0.103780	-0.201606	0.271343	-0.486299	0.543235	0.146110
2.95	0.101778	-0.198895	0.270864	-0.480860	0.544591	0.124997
2.96	0.099802	-0.196189	0.270289	-0.475408	0.545736	0.104200
2.97	0.097854	-0.193489	0.269622	-0.469946	0.546676	0.083732
2.98	0.095932	-0.190797	0.268863	-0.464475	0.547412	0.063593
2.99	0.094038	-0.188112	0.268017	-0.458998	0.547949	0.043793

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Contrails

η	r_7	r_7'	r_7''	S_7	S_7'	S_7''
3.00	0.092170	-0.185437	0.267085	-0.453517	0.548289	0.024334
3.01	0.090329	-0.182771	0.266071	-0.448033	0.548437	0.005224
3.02	0.088515	-0.180116	0.264976	-0.442549	0.548395	-0.013535
3.03	0.086727	-0.177472	0.263804	-0.437066	0.548167	-0.031935
3.04	0.084965	-0.174840	0.262556	-0.431586	0.547757	-0.049978
3.05	0.083230	-0.172221	0.261236	-0.426111	0.547169	-0.067655
3.06	0.081521	-0.169615	0.259845	-0.420643	0.546405	-0.084966
3.07	0.079837	-0.167024	0.258387	-0.415184	0.545471	-0.101905
3.08	0.078180	-0.164448	0.256863	-0.409735	0.544369	-0.118473
3.09	0.076548	-0.161887	0 255276	-0.404297	0.543102	-0.134664
3.10	0.074942	-0.159343	0.253628	-0.398873	0.541677	-0.150480
3.11	0.073361	-0.156815	0.251923	-0.393464	0.540094	-0.165914
3.12	0.071806	-0.154304	0.250161	-0.388072	0.538360	-0.180971
3.13	0.070275	-0.151812	0.248346	-0.382697	0.536476	-0.195644
3.14	0.068770	-0.149337	0.246479	-0.377343	0.534448	-0.209937
3.15	0.067289	-0.146882	0.244564	-0.372009	0.532278	-0.223845
3.16	0.065832	-0.144446	0.242601	-0.366698	0.529972	-0.237373
3.17	0.064400	-0.142030	0.240594	-0.361410	0.527532	-0.250515
3.18	0.062991	-0.139635	0.238543	-0.356147	0.524963	-0.263277
3.19	0.061607	-0.137260	0.236453	-0.350911	0.522268	-0.275655
3.20	0.060246	-0.134906	0.234324	-0.345702	0.519451	-0.287654
3.21	0.058909	-0.132573	0.232159	-0.340522	0.516516	-0.299270
3.22	0.057594	-0.130263	0.229959	-0.335372	0.513467	-0.310511
3.23	0.056303	-0.127974	0.227727	-0.330253	0.510307	-0.321371
3.24	0.055035	-0.125708	0.225465	-0.325167	0.507041	-0.331860
3.25	0.053789	-0.123465	0.223174	-0.320113	0.503671	-0.341971
3.26	0.052565	-0.121245	0.220856	-0.315093	0.500203	-0.351715
3.27	0.051364	-0.119048	0.218514	-0.310109	0.496638	-0.361087
3.28	0.050184	-0.116875	0.216149	-0.305161	0.492982	-0.370096
3.29	0.049026	-0.114725	0.213763	-0.300250	0.489237	-0.378738
3.30	0.047890	-0.112599	0.211356	-0.295377	0.485409	-0.387024
3.31	0.046774	-0.110498	0.208933	-0.290542	0.481498	-0.394949
3.32	0.045680	-0.108421	0.206493	-0.285747	0.477511	-0.402524
3.33	0.044606	-0.106368	0.204039	-0.280992	0.473449	-0.409746
3.34	0.043552	-0.104340	0.201572	-0.276278	0.469317	-0.416625
3.35	0.042519	-0.102337	0.199094	-0.271606	0.465118	-0.423157
3.36	0.041505	-0.100358	0.196606	-0.266976	0.460855	-0.429355
3.37	0.040512	-0.098405	0.194110	-0.262389	0.456532	-0.435215
3.38	0.039537	-0.096476	0.191606	-0.257845	0.452152	-0.440749
3.39	0.038582	-0.094572	0.189098	-0.253346	0.447718	-0.445954
3.40	0.037646	-0.092694	0.186585	-0.248891	0.443234	-0.450841
3.41	0.036728	-0.090841	0.184070	-0.244481	0.438702	-0.455408
3.42	0.035829	-0.089013	0.181553	-0.240117	0.434127	-0.459667
3.43	0.034948	-0.087210	0.179036	-0.235799	0.429510	-0.463616
3.44	0.034085	-0.085432	0.176520	-0.231527	0.424855	-0.467267
3.45	0.033239	-0.083679	0.174007	-0.227302	0.420165	-0.470617
3.46	0.032411	-0.081952	0.171496	-0.223124	0.415444	-0.473680
3.47	0.031600	-0.080249	0.168991	-0.218993	0.410693	-0.476451
3.48	0.030806	-0.078572	0.166490	-0.214910	0.405916	-0.478947
3.49	0.030028	-0.076919	0.163998	-0.210875	0.401115	-0.481162

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Contrails

η	r_7	r_7'	r_7''	S_7	S_7'	S_7''
3.50	0.029267	-0.075292	0.161512	-0.206888	0.396293	-0.483111
3.51	0.028522	-0.073689	0.159035	-0.202949	0.391453	-0.484791
3.52	0.027793	-0.072111	0.156568	-0.199059	0.386598	-0.486216
3.53	0.027080	-0.070558	0.154111	-0.195217	0.381730	-0.487382
3.54	0.026382	-0.069029	0.151666	-0.191424	0.376852	-0.488305
3.55	0.025699	-0.067524	0.149233	-0.187680	0.371964	-0.488981
3.56	0.025032	-0.066044	0.146813	-0.183985	0.367073	-0.489424
3.57	0.024378	-0.064588	0.144408	-0.180339	0.362177	-0.489631
3.58	0.023740	-0.063156	0.142016	-0.176742	0.357281	-0.489617
3.59	0.023115	-0.061748	0.139641	-0.173193	0.352385	-0.489378
3.60	0.022505	-0.060363	0.137281	-0.169694	0.347494	-0.488930
3.61	0.021908	-0.059002	0.134939	-0.166243	0.342607	-0.488268
3.62	0.021325	-0.057664	0.132613	-0.162842	0.337729	-0.487408
3.63	0.020755	-0.056350	0.130306	-0.159489	0.332860	-0.486345
3.64	0.020197	-0.055058	0.128017	-0.156184	0.328003	-0.485097
3.65	0.019653	-0.053789	0.125748	-0.152929	0.323158	-0.483656
3.66	0.019122	-0.052543	0.123497	-0.149721	0.318330	-0.482042
3.67	0.018602	-0.051319	0.121268	-0.146562	0.313518	-0.480246
3.68	0.018095	-0.050118	0.119059	-0.143451	0.308726	-0.478287
3.69	0.017600	-0.048938	0.116871	-0.140387	0.303953	-0.476158
3.70	0.017116	-0.047780	0.114704	-0.137372	0.299203	-0.473878
3.71	0.016644	-0.046644	0.112560	-0.134403	0.294476	-0.471438
3.72	0.016183	-0.045529	0.110437	-0.131482	0.289775	-0.468857
3.73	0.015734	-0.044435	0.108338	-0.128608	0.285099	-0.466128
3.74	0.015295	-0.043362	0.106260	-0.125780	0.280453	-0.463269
3.75	0.014866	-0.042310	0.104207	-0.122998	0.275834	-0.460271
3.76	0.014448	-0.041278	0.102176	-0.120263	0.271248	-0.457155
3.77	0.014041	-0.040266	0.100170	-0.117573	0.266692	-0.453909
3.78	0.013643	-0.039274	0.098187	-0.114929	0.262170	-0.450556
3.79	0.013255	-0.038302	0.096230	-0.112330	0.257681	-0.447084
3.80	0.012877	-0.037350	0.094295	-0.109775	0.253229	-0.443515
3.81	0.012508	-0.036416	0.092386	-0.107265	0.248811	-0.439836
3.82	0.012148	-0.035502	0.090501	-0.104799	0.244432	-0.436069
3.83	0.011798	-0.034606	0.088642	-0.102376	0.240090	-0.432202
3.84	0.011456	-0.033729	0.086806	-0.099997	0.235789	-0.428258
3.85	0.011123	-0.032870	0.084996	-0.097660	0.231525	-0.424222
3.86	0.010799	-0.032029	0.083211	-0.095366	0.227304	-0.420118
3.87	0.010483	-0.031206	0.081452	-0.093114	0.223123	-0.415932
3.88	0.010175	-0.030400	0.079716	-0.090904	0.218986	-0.411686
3.89	0.009875	-0.029611	0.078008	-0.088734	0.214890	-0.407367
3.90	0.009582	-0.028839	0.076323	-0.086606	0.210839	-0.402997
3.91	0.009298	-0.028085	0.074664	-0.084517	0.206830	-0.398561
3.92	0.009020	-0.027346	0.073030	-0.082469	0.202868	-0.394084
3.93	0.008751	-0.026624	0.071422	-0.080460	0.198948	-0.389549
3.94	0.008488	-0.025918	0.069837	-0.078490	0.195077	-0.384980
3.95	0.008232	-0.025227	0.068280	-0.076558	0.191249	-0.380360
3.96	0.007983	-0.024552	0.066745	-0.074665	0.187470	-0.375714
3.97	0.007741	-0.023892	0.065237	-0.072809	0.183735	-0.371025
3.98	0.007505	-0.023247	0.063753	-0.070990	0.180049	-0.366318
3.99	0.007276	-0.022617	0.062294	-0.069207	0.176409	-0.361574

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Contrails

η	r_7	r_7'	r_7''	S_7	S_7'	S_7''
4.00	0.007053	-0.022001	0.060859	-0.067462	0.172818	-0.356819
4.01	0.006836	-0.021400	0.059450	-0.065751	0.169272	-0.352033
4.02	0.006625	-0.020812	0.058063	-0.064076	0.165777	-0.347243
4.03	0.006420	-0.020238	0.056702	-0.062435	0.162327	-0.342429
4.04	0.006220	-0.019678	0.055364	-0.060829	0.158928	-0.337617
4.05	0.006026	-0.019131	0.054051	-0.059257	0.155575	-0.332786
4.06	0.005837	-0.018597	0.052759	-0.057718	0.152273	-0.327964
4.07	0.005654	-0.018076	0.051494	-0.056211	0.149016	-0.323128
4.08	0.005476	-0.017567	0.050249	-0.054737	0.145810	-0.318307
4.09	0.005303	-0.017071	0.049030	-0.053295	0.142650	-0.313477
4.10	0.005134	-0.016586	0.047831	-0.051884	0.139540	-0.308668
4.11	0.004971	-0.016114	0.046658	-0.050504	0.136476	-0.303854
4.12	0.004812	-0.015653	0.045504	-0.049154	0.133463	-0.299066
4.13	0.004658	-0.015204	0.044375	-0.047834	0.130495	-0.294277
4.14	0.004508	-0.014765	0.043266	-0.046544	0.127578	-0.289520
4.15	0.004363	-0.014338	0.042181	-0.045282	0.124705	-0.284766
4.16	0.004221	-0.013922	0.041115	-0.044050	0.121882	-0.280048
4.17	0.004084	-0.013516	0.040073	-0.042845	0.119104	-0.275336
4.18	0.003951	-0.013120	0.039050	-0.041668	0.116375	-0.270665
4.19	0.003822	-0.012735	0.038049	-0.040517	0.113690	-0.266004
4.20	0.003696	-0.012359	0.037068	-0.039394	0.111055	-0.261387
4.21	0.003574	-0.011993	0.036108	-0.038296	0.108463	-0.256783
4.22	0.003456	-0.011637	0.035167	-0.037224	0.105919	-0.252227
4.23	0.003342	-0.011290	0.034247	-0.036177	0.103418	-0.247686
4.24	0.003230	-0.010952	0.033345	-0.035156	0.100965	-0.243198
4.25	0.003123	-0.010623	0.032464	-0.034158	0.098554	-0.238727
4.26	0.003018	-0.010302	0.031600	-0.033184	0.096191	-0.234311
4.27	0.002916	-0.009991	0.030757	-0.032234	0.093868	-0.229914
4.28	0.002818	-0.009687	0.029931	-0.031307	0.091592	-0.225577
4.29	0.002723	-0.009392	0.029125	-0.030402	0.089356	-0.221259
4.30	0.002630	-0.009105	0.028334	-0.029520	0.087167	-0.217004
4.31	0.002541	-0.008825	0.027563	-0.028658	0.085016	-0.212770
4.32	0.002454	-0.008553	0.026808	-0.027819	0.082911	-0.208601
4.33	0.002369	-0.008289	0.026072	-0.027000	0.080844	-0.204455
4.34	0.002288	-0.008032	0.025351	-0.026202	0.078822	-0.200376
4.35	0.002209	-0.007782	0.024648	-0.025423	0.076836	-0.196320
4.36	0.002132	-0.007539	0.023959	-0.024665	0.074895	-0.192334
4.37	0.002058	-0.007303	0.023290	-0.023925	0.072989	-0.188372
4.38	0.001986	-0.007073	0.022633	-0.023205	0.071127	-0.184481
4.39	0.001916	-0.006850	0.021994	-0.022503	0.069300	-0.180614
4.40	0.001849	-0.006633	0.021368	-0.021819	0.067515	-0.176821
4.41	0.001784	-0.006423	0.020760	-0.021152	0.065763	-0.173052
4.42	0.001721	-0.006218	0.020163	-0.020504	0.064053	-0.169359
4.43	0.001659	-0.006019	0.019584	-0.019871	0.062376	-0.165690
4.44	0.001600	-0.005826	0.019016	-0.019256	0.060739	-0.162097
4.45	0.001543	-0.005639	0.018466	-0.018656	0.059134	-0.158528
4.46	0.001487	-0.005457	0.017925	-0.018073	0.057569	-0.155038
4.47	0.001434	-0.005280	0.017402	-0.017505	0.056033	-0.151570
4.48	0.001382	-0.005109	0.016888	-0.016952	0.054537	-0.148182
4.49	0.001331	-0.004943	0.016390	-0.016414	0.053069	-0.144817

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Contrails

η	r_7	r'_7	r''_7	S_7	S'_7	S''_7
4.50	0.001283	-0.004781	0.015902	-0.015891	0.051640	-0.141532
4.51	0.001236	-0.004624	0.015430	-0.015381	0.050239	-0.138269
4.52	0.001190	-0.004472	0.014966	-0.014886	0.048875	-0.135088
4.53	0.001146	-0.004325	0.014518	-0.014403	0.047537	-0.131926
4.54	0.001104	-0.004182	0.014077	-0.013935	0.046236	-0.128848
4.55	0.001063	-0.004043	0.013652	-0.013479	0.044960	-0.125789
4.56	0.001023	-0.003909	0.013235	-0.013036	0.043720	-0.122814
4.57	0.000984	-0.003779	0.012832	-0.012604	0.042503	-0.119855
4.58	0.000947	-0.003652	0.012436	-0.012186	0.041322	-0.116982
4.59	0.000911	-0.003530	0.012055	-0.011778	0.040164	-0.114125
4.60	0.000877	-0.003411	0.011679	-0.011382	0.039039	-0.111353
4.61	0.000843	-0.003296	0.011318	-0.010997	0.037937	-0.108594
4.62	0.000811	-0.003184	0.010963	-0.010623	0.036867	-0.105923
4.63	0.000779	-0.003077	0.010622	-0.010259	0.035818	-0.103263
4.64	0.000749	-0.002972	0.010285	-0.009907	0.034802	-0.100690
4.65	0.000720	-0.002871	0.009962	-0.009563	0.033804	-0.098127
4.66	0.000692	-0.002773	0.009644	-0.009231	0.032839	-0.095652
4.67	0.000665	-0.002678	0.009339	-0.008906	0.031891	-0.093184
4.68	0.000638	-0.002586	0.009038	-0.008593	0.030975	-0.090806
4.69	0.000613	-0.002497	0.008750	-0.008287	0.030075	-0.088431
4.70	0.000588	-0.002411	0.008466	-0.007991	0.029206	-0.086147
4.71	0.000565	-0.002328	0.008194	-0.007703	0.028352	-0.083865
4.72	0.000542	-0.002247	0.007926	-0.007424	0.027528	-0.081673
4.73	0.000520	-0.002170	0.007670	-0.007152	0.026719	-0.079481
4.74	0.000498	-0.002094	0.007416	-0.006889	0.025938	-0.077380
4.75	0.000478	-0.002021	0.007175	-0.006633	0.025171	-0.075276
4.76	0.000458	-0.001950	0.006935	-0.006386	0.024433	-0.073263
4.77	0.000439	-0.001882	0.006708	-0.006144	0.023706	-0.071245
4.78	0.000420	-0.001816	0.006482	-0.005912	0.023007	-0.069320
4.79	0.000402	-0.001753	0.006269	-0.005684	0.022320	-0.067385
4.80	0.000385	-0.001691	0.006055	-0.005465	0.021659	-0.065544
4.81	0.000369	-0.001632	0.005855	-0.005251	0.021009	-0.063691
4.82	0.000352	-0.001573	0.005654	-0.005045	0.020385	-0.061932
4.83	0.000337	-0.001518	0.005465	-0.004843	0.019770	-0.060158
4.84	0.000322	-0.001464	0.005276	-0.004649	0.019182	-0.058480
4.85	0.000308	-0.001413	0.005099	-0.004460	0.018601	-0.056783
4.86	0.000294	-0.001362	0.004920	-0.004277	0.018046	-0.055183
4.87	0.000280	-0.001314	0.004754	-0.004099	0.017497	-0.053560
4.88	0.000267	-0.001267	0.004586	-0.003927	0.016974	-0.052036
4.89	0.000255	-0.001223	0.004431	-0.003759	0.016456	-0.050485
4.90	0.000243	-0.001178	0.004273	-0.003598	0.015964	-0.049034
4.91	0.000231	-0.001137	0.004127	-0.003440	0.015476	-0.047553
4.92	0.000220	-0.001096	0.003978	-0.003288	0.015013	-0.046173
4.93	0.000210	-0.001057	0.003842	-0.003140	0.014552	-0.044760
4.94	0.000199	-0.001019	0.003702	-0.002997	0.014117	-0.043449
4.95	0.000189	-0.000983	0.003574	-0.002857	0.013684	-0.042100
4.96	0.000179	-0.000948	0.003442	-0.002724	0.013275	-0.040856
4.97	0.000170	-0.000915	0.003323	-0.002592	0.012867	-0.039570
4.98	0.000161	-0.000881	0.003199	-0.002466	0.012483	-0.038389
4.99	0.000153	-0.000850	0.003088	-0.002342	0.012099	-0.037164

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Contrails

η	r_7	r_7'	r_7''	S_7	S_7'	S_7''
5.00	0.000144	-0.000819	0.002972	-0.002224	0.011739	-0.036046
5.01	0.000136	-0.000791	0.002868	-0.002107	0.011378	-0.034878
5.02	0.000128	-0.000762	0.002759	-0.001996	0.011041	-0.033819
5.03	0.000121	-0.000736	0.002662	-0.001886	0.010702	-0.032707
5.04	0.000113	-0.000709	0.002559	-0.001782	0.010387	-0.031706
5.05	0.000107	-0.000685	0.002469	-0.001679	0.010068	-0.030647
5.06	0.000100	-0.000659	0.002372	-0.001581	0.009773	-0.029702
5.07	0.000093	-0.000637	0.002289	-0.001483	0.009474	-0.028694
5.08	0.000087	-0.000614	0.002198	-0.001391	0.009199	-0.027802
5.09	0.000081	-0.000593	0.002120	-0.001299	0.008918	-0.026842
5.10	0.000075	-0.000571	0.002035	-0.001213	0.008662	-0.026002
5.11	0.000070	-0.000552	0.001963	-0.001126	0.008399	-0.025089
5.12	0.000064	-0.000532	0.001883	-0.001045	0.008160	-0.024297
5.13	0.000059	-0.000515	0.001816	-0.000963	0.007913	-0.023429
5.14	0.000054	-0.000496	0.001740	-0.000886	0.007691	-0.022685
5.15	0.000049	-0.000480	0.001679	-0.000809	0.007460	-0.021859
5.16	0.000044	-0.000462	0.001608	-0.000737	0.007253	-0.021160
5.17	0.000040	-0.000447	0.001551	-0.000664	0.007037	-0.020375
5.18	0.000035	-0.000431	0.001484	-0.000596	0.006845	-0.019719
5.19	0.000031	-0.000418	0.001431	-0.000527	0.006643	-0.018972
5.20	0.000027	-0.000403	0.001369	-0.000463	0.006465	-0.018358
5.21	0.000023	-0.000390	0.001320	-0.000398	0.006276	-0.017647
5.22	0.000019	-0.000376	0.001261	-0.000338	0.006112	-0.017074
5.23	0.000016	-0.000365	0.001216	-0.000276	0.005935	-0.016397
5.24	0.000012	-0.000352	0.001161	-0.000219	0.005783	-0.015862
5.25	0.000009	-0.000342	0.001120	-0.000160	0.005618	-0.015217
5.26	0.000005	-0.000330	0.001068	-0.000106	0.005478	-0.014719
5.27	0.000002	-0.000320	0.001030	-0.000051	0.005324	-0.014105
5.28	0.000000	-0.000309	0.000981	-0.000000	0.005196	-0.013642

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Contrails

η	T_7	T_7'	T_7''	d_9	d_9'	d_9''
0.00	0.000000	0.021991	0.000000	0.000000	0.549617	0.000000
0.01	0.000219	0.021991	-0.000149	0.005496	0.549614	-0.000918
0.02	0.000439	0.021987	-0.000592	0.010992	0.549592	-0.003644
0.03	0.000659	0.021978	-0.001322	0.016487	0.549535	-0.008130
0.04	0.000879	0.021960	-0.002332	0.021982	0.549424	-0.014330
0.05	0.001098	0.021930	-0.003613	0.027476	0.549243	-0.022198
0.06	0.001317	0.021887	-0.005160	0.032967	0.548975	-0.031686
0.07	0.001536	0.021826	-0.006964	0.038455	0.548604	-0.042750
0.08	0.001754	0.021747	-0.009017	0.043939	0.548114	-0.055342
0.09	0.001971	0.021645	-0.011313	0.049417	0.547492	-0.069416
0.10	0.002187	0.021520	-0.013843	0.054888	0.546721	-0.084925
0.11	0.002401	0.021368	-0.016599	0.060351	0.545789	-0.101821
0.12	0.002614	0.021187	-0.019572	0.065803	0.544680	-0.120060
0.13	0.002825	0.020975	-0.022756	0.071244	0.543383	-0.139592
0.14	0.003033	0.020731	-0.026140	0.076670	0.541884	-0.160373
0.15	0.003239	0.020452	-0.029716	0.082081	0.540172	-0.182353
0.16	0.003442	0.020136	-0.033475	0.087473	0.538233	-0.205487
0.17	0.003642	0.019782	-0.037408	0.092844	0.536058	-0.229728
0.18	0.003838	0.019387	-0.041506	0.098193	0.533635	-0.255027
0.19	0.004030	0.018951	-0.045759	0.103516	0.530954	-0.281337
0.20	0.004217	0.018472	-0.050157	0.108811	0.528005	-0.308612
0.21	0.004399	0.017948	-0.054690	0.114075	0.524779	-0.336804
0.22	0.004576	0.017378	-0.059349	0.119306	0.521266	-0.365865
0.23	0.004746	0.016760	-0.064121	0.124500	0.517459	-0.395748
0.24	0.004911	0.016095	-0.068998	0.129654	0.513349	-0.426405
0.25	0.005068	0.015380	-0.073968	0.134766	0.508928	-0.457790
0.26	0.005218	0.014615	-0.079020	0.139832	0.504191	-0.489854
0.27	0.005360	0.013799	-0.084142	0.144849	0.499129	-0.522550
0.28	0.005494	0.012932	-0.089325	0.149813	0.493738	-0.555831
0.29	0.005619	0.012013	-0.094555	0.154722	0.488011	-0.589650
0.30	0.005734	0.011041	-0.099822	0.159572	0.481943	-0.623959
0.31	0.005839	0.010016	-0.105113	0.164360	0.475530	-0.658711
0.32	0.005934	0.008938	-0.110418	0.169082	0.468768	-0.693860
0.33	0.006018	0.007808	-0.115722	0.173734	0.461652	-0.729357
0.34	0.006090	0.006624	-0.121015	0.178314	0.454179	-0.765158
0.35	0.006150	0.005388	-0.126284	0.182816	0.446348	-0.801214
0.36	0.006198	0.004099	-0.131517	0.187239	0.438154	-0.837481
0.37	0.006232	0.002757	-0.136702	0.191578	0.429598	-0.873911
0.38	0.006253	0.001365	-0.141825	0.195830	0.420676	-0.910459
0.39	0.006259	-0.000078	-0.146874	0.199991	0.411388	-0.947079
0.40	0.006251	-0.001572	-0.151838	0.204057	0.401734	-0.983726
0.41	0.006228	-0.003114	-0.156703	0.208024	0.391714	-1.020356
0.42	0.006188	-0.004705	-0.161457	0.211890	0.381327	-1.056922
0.43	0.006133	-0.006343	-0.166087	0.215649	0.370576	-1.093382
0.44	0.006061	-0.008027	-0.170582	0.219300	0.359460	-1.129691
0.45	0.005973	-0.009754	-0.174928	0.222837	0.347982	-1.165806
0.46	0.005866	-0.011525	-0.179114	0.226258	0.336145	-1.201684
0.47	0.005742	-0.013336	-0.183127	0.229559	0.323950	-1.237282
0.48	0.005599	-0.015187	-0.186957	0.232736	0.311400	-1.272559
0.49	0.005438	-0.017074	-0.190589	0.235786	0.298500	-1.307472

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Contrails

η	T_7	T_7'	T_7''	d_9	d_9'	d_9''
0.50	0.005258	-0.018998	-0.194014	0.238705	0.285252	-1.341981
0.51	0.005058	-0.020954	-0.197220	0.241490	0.271662	-1.376045
0.52	0.004839	-0.022941	-0.200195	0.244137	0.257733	-1.409625
0.53	0.004599	-0.024957	-0.202928	0.246644	0.243471	-1.442681
0.54	0.004339	-0.026999	-0.205410	0.249006	0.228881	-1.475175
0.55	0.004059	-0.029064	-0.207628	0.251220	0.213969	-1.507070
0.56	0.003758	-0.031151	-0.209574	0.253284	0.198742	-1.538327
0.57	0.003436	-0.033255	-0.211236	0.255194	0.183205	-1.568912
0.58	0.003093	-0.035374	-0.212606	0.256947	0.167366	-1.598787
0.59	0.002728	-0.037506	-0.213675	0.258540	0.151232	-1.627918
0.60	0.002343	-0.039647	-0.214434	0.259971	0.134810	-1.656272
0.61	0.001935	-0.041794	-0.214873	0.261236	0.118109	-1.683815
0.62	0.001507	-0.043943	-0.214986	0.262332	0.101137	-1.710514
0.63	0.001057	-0.046092	-0.214763	0.263257	0.083902	-1.736339
0.64	0.000585	-0.048237	-0.214200	0.264009	0.066413	-1.761258
0.65	0.000092	-0.050375	-0.213287	0.264585	0.048680	-1.785243
0.66	-0.000422	-0.052502	-0.212020	0.264982	0.030711	-1.808264
0.67	-0.000957	-0.054614	-0.210392	0.265198	0.012518	-1.830294
0.68	-0.001514	-0.056709	-0.208399	0.265232	-0.005890	-1.851305
0.69	-0.002091	-0.058781	-0.206034	0.265080	-0.024504	-1.871274
0.70	-0.002689	-0.060828	-0.203294	0.264741	-0.043312	-1.890174
0.71	-0.003308	-0.062846	-0.200176	0.264213	-0.062304	-1.907982
0.72	-0.003946	-0.064830	-0.196675	0.263494	-0.081468	-1.924675
0.73	-0.004604	-0.066778	-0.192789	0.262583	-0.100794	-1.940233
0.74	-0.005282	-0.068685	-0.188516	0.261478	-0.120269	-1.954634
0.75	-0.005978	-0.070547	-0.183855	0.260177	-0.139882	-1.967860
0.76	-0.006692	-0.072361	-0.178804	0.258680	-0.159622	-1.979892
0.77	-0.007425	-0.074122	-0.173363	0.256984	-0.179476	-1.990714
0.78	-0.008175	-0.075827	-0.167532	0.255090	-0.199432	-2.000309
0.79	-0.008941	-0.077471	-0.161312	0.252995	-0.219478	-2.008662
0.80	-0.009724	-0.079052	-0.154704	0.250700	-0.239601	-2.015762
0.81	-0.010522	-0.080564	-0.147710	0.248203	-0.259789	-2.021594
0.82	-0.011335	-0.082004	-0.140333	0.245504	-0.280029	-2.026148
0.83	-0.012162	-0.083369	-0.132575	0.242602	-0.300308	-2.029414
0.84	-0.013002	-0.084655	-0.124441	0.239498	-0.320613	-2.031383
0.85	-0.013855	-0.085857	-0.115935	0.236190	-0.340931	-2.032048
0.86	-0.014719	-0.086972	-0.107061	0.232679	-0.361250	-2.031402
0.87	-0.015594	-0.087997	-0.097826	0.228965	-0.381555	-2.029441
0.88	-0.016479	-0.088928	-0.088235	0.225048	-0.401834	-2.026159
0.89	-0.017372	-0.089761	-0.078295	0.220929	-0.422074	-2.021556
0.90	-0.018273	-0.090492	-0.068013	0.216607	-0.442261	-2.015629
0.91	-0.019182	-0.091120	-0.057397	0.212084	-0.462382	-2.008377
0.92	-0.020095	-0.091639	-0.046456	0.207359	-0.482424	-1.999803
0.93	-0.021014	-0.092048	-0.035197	0.202435	-0.502374	-1.989907
0.94	-0.021936	-0.092342	-0.023632	0.197312	-0.522218	-1.978694
0.95	-0.022860	-0.092519	-0.011770	0.191991	-0.541943	-1.966168
0.96	-0.023786	-0.092577	0.000379	0.186474	-0.561537	-1.952335
0.97	-0.024712	-0.092511	0.012803	0.180761	-0.580986	-1.937201
0.98	-0.025636	-0.092320	0.025492	0.174855	-0.600276	-1.920775
0.99	-0.026558	-0.092000	0.038433	0.168756	-0.619397	-1.903065

Approved for Public Release

Contrails

η	T_7	T_7'	T_7''	d_9	d_9'	d_9''
1.00	-0.027475	-0.091550	0.051613	0.162467	-0.638334	-1.884083
1.01	-0.028388	-0.090967	0.065020	0.155990	-0.657074	-1.863839
1.02	-0.029294	-0.090249	0.078640	0.149327	-0.675606	-1.842347
1.03	-0.030193	-0.089394	0.092460	0.142479	-0.693917	-1.819620
1.04	-0.031082	-0.088399	0.106465	0.135449	-0.711995	-1.795672
1.05	-0.031960	-0.087264	0.120640	0.128240	-0.729826	-1.770520
1.06	-0.032827	-0.085986	0.134972	0.120853	-0.747401	-1.744181
1.07	-0.033679	-0.084564	0.149443	0.113293	-0.764706	-1.716671
1.08	-0.034517	-0.082997	0.164040	0.105560	-0.781731	-1.688011
1.09	-0.035339	-0.081283	0.178746	0.097659	-0.798463	-1.658220
1.10	-0.036143	-0.079421	0.193544	0.089592	-0.814891	-1.627319
1.11	-0.036927	-0.077412	0.208419	0.081362	-0.831005	-1.595329
1.12	-0.037690	-0.075253	0.223354	0.072973	-0.846794	-1.562275
1.13	-0.038431	-0.072944	0.238331	0.064427	-0.862247	-1.528178
1.14	-0.039149	-0.070486	0.253334	0.055729	-0.877354	-1.493063
1.15	-0.039841	-0.067878	0.268345	0.046881	-0.892105	-1.456956
1.16	-0.040506	-0.065119	0.283348	0.037888	-0.906490	-1.419884
1.17	-0.041143	-0.062211	0.298324	0.028753	-0.920500	-1.381871
1.18	-0.041749	-0.059153	0.313256	0.019479	-0.934125	-1.342948
1.19	-0.042325	-0.055946	0.328127	0.010072	-0.947356	-1.303140
1.20	-0.042868	-0.052591	0.342917	0.000534	-0.960185	-1.262479
1.21	-0.043376	-0.049088	0.357611	-0.009130	-0.972603	-1.220993
1.22	-0.043849	-0.045439	0.372190	-0.018916	-0.984602	-1.178713
1.23	-0.044285	-0.041644	0.386636	-0.028820	-0.996175	-1.135669
1.24	-0.044682	-0.037706	0.400932	-0.038838	-1.007313	-1.091894
1.25	-0.045038	-0.033626	0.415060	-0.048965	-1.018010	-1.047418
1.26	-0.045354	-0.029406	0.429003	-0.059197	-1.028259	-1.002276
1.27	-0.045626	-0.025047	0.442743	-0.069529	-1.038054	-0.956499
1.28	-0.045854	-0.020552	0.456263	-0.079956	-1.047387	-0.910122
1.29	-0.046037	-0.015922	0.469546	-0.090475	-1.056254	-0.863178
1.30	-0.046172	-0.011162	0.482575	-0.101080	-1.064649	-0.815701
1.31	-0.046259	-0.006272	0.495333	-0.111766	-1.072566	-0.767727
1.32	-0.046297	-0.001256	0.507805	-0.122530	-1.080002	-0.719289
1.33	-0.046284	0.003882	0.519973	-0.133365	-1.086951	-0.670423
1.34	-0.046219	0.009141	0.531822	-0.144267	-1.093409	-0.621164
1.35	-0.046101	0.014518	0.543338	-0.155231	-1.099373	-0.571548
1.36	-0.045928	0.020007	0.554503	-0.166253	-1.104839	-0.521612
1.37	-0.045700	0.025606	0.565304	-0.177326	-1.109804	-0.471389
1.38	-0.045416	0.031312	0.575725	-0.188447	-1.114266	-0.420918
1.39	-0.045074	0.037120	0.585754	-0.199610	-1.118222	-0.370232
1.40	-0.044673	0.043026	0.595375	-0.210810	-1.121670	-0.319370
1.41	-0.044213	0.049026	0.604577	-0.222042	-1.124609	-0.268366
1.42	-0.043692	0.055116	0.613345	-0.233300	-1.127037	-0.217258
1.43	-0.043110	0.061291	0.621668	-0.244581	-1.128954	-0.166080
1.44	-0.042466	0.067548	0.629534	-0.255878	-1.130358	-0.114868
1.45	-0.041759	0.073880	0.636930	-0.267186	-1.131251	-0.063659
1.46	-0.040988	0.080285	0.643848	-0.278501	-1.131632	-0.012488
1.47	-0.040153	0.086756	0.650275	-0.289817	-1.131501	0.038608
1.48	-0.039253	0.093288	0.656202	-0.301130	-1.130860	0.089597
1.49	-0.038287	0.099878	0.661620	-0.312433	-1.129710	0.140443

Approved for Public Release

Contrails

η	T_7	T_7'	T_7''	d_9	d_9'	d_9''
1.50	-0.037255	0.106519	0.666520	-0.323722	-1.128052	0.191111
1.51	-0.036157	0.113207	0.670893	-0.334992	-1.125888	0.241567
1.52	-0.034991	0.119935	0.674733	-0.346238	-1.123221	0.291776
1.53	-0.033758	0.126699	0.678032	-0.357455	-1.120054	0.341706
1.54	-0.032457	0.133494	0.680784	-0.368638	-1.116388	0.391323
1.55	-0.031088	0.140313	0.682983	-0.379781	-1.112228	0.440594
1.56	-0.029651	0.147152	0.684623	-0.390880	-1.107577	0.489487
1.57	-0.028145	0.154004	0.685701	-0.401931	-1.102440	0.537972
1.58	-0.026571	0.160864	0.686211	-0.412928	-1.096819	0.586015
1.59	-0.024928	0.167726	0.686152	-0.423866	-1.090721	0.633587
1.60	-0.023216	0.174585	0.685519	-0.434741	-1.084149	0.680656
1.61	-0.021436	0.181435	0.684312	-0.445547	-1.077110	0.727195
1.62	-0.019587	0.188269	0.682528	-0.456281	-1.069607	0.773174
1.63	-0.017671	0.195083	0.680166	-0.466938	-1.061648	0.818564
1.64	-0.015686	0.201871	0.677227	-0.477513	-1.053238	0.863338
1.65	-0.013633	0.208626	0.673712	-0.488001	-1.044384	0.907469
1.66	-0.011513	0.215343	0.669620	-0.498399	-1.035091	0.950929
1.67	-0.009327	0.222017	0.664954	-0.508702	-1.025367	0.993695
1.68	-0.007073	0.228640	0.659716	-0.518905	-1.015219	1.035741
1.69	-0.004754	0.235209	0.653909	-0.529005	-1.004655	1.077043
1.70	-0.002369	0.241717	0.647537	-0.538997	-0.993681	1.117576
1.71	0.000079	0.248158	0.640603	-0.548877	-0.982306	1.157320
1.72	0.002593	0.254527	0.633113	-0.558641	-0.970537	1.196251
1.73	0.005170	0.260813	0.625072	-0.568286	-0.958384	1.234350
1.74	0.007809	0.267026	0.616486	-0.577808	-0.945853	1.271594
1.75	0.010510	0.273146	0.607361	-0.587202	-0.932955	1.307966
1.76	0.013271	0.279172	0.597705	-0.596466	-0.919697	1.343446
1.77	0.016093	0.285099	0.587525	-0.605595	-0.906089	1.378017
1.78	0.018973	0.290921	0.576829	-0.614586	-0.892140	1.411661
1.79	0.021911	0.296633	0.565627	-0.623437	-0.877859	1.444364
1.80	0.024905	0.302232	0.553927	-0.632142	-0.863256	1.476108
1.81	0.027955	0.307710	0.541739	-0.640701	-0.848340	1.506882
1.82	0.031059	0.313065	0.529074	-0.649108	-0.833121	1.536669
1.83	0.034216	0.318290	0.515942	-0.657362	-0.817610	1.565460
1.84	0.037425	0.323382	0.502354	-0.665460	-0.801815	1.593239
1.85	0.040683	0.328336	0.488323	-0.673398	-0.785748	1.620000
1.86	0.043991	0.333147	0.473861	-0.681174	-0.769419	1.645728
1.87	0.047346	0.337812	0.458979	-0.688785	-0.752837	1.670419
1.88	0.050747	0.342325	0.443691	-0.696230	-0.736014	1.694060
1.89	0.054192	0.346684	0.428010	-0.703505	-0.718960	1.716648
1.90	0.057680	0.350884	0.411950	-0.710608	-0.701685	1.738173
1.91	0.061209	0.354922	0.395525	-0.717538	-0.684200	1.758632
1.92	0.064778	0.358794	0.378750	-0.724291	-0.666515	1.778018
1.93	0.068384	0.362496	0.361639	-0.730867	-0.648643	1.796330
1.94	0.072027	0.366025	0.344206	-0.737264	-0.630592	1.813562
1.95	0.075704	0.369379	0.326469	-0.743479	-0.612375	1.829715
1.96	0.079414	0.372554	0.308441	-0.749511	-0.594002	1.844784
1.97	0.083155	0.375547	0.290140	-0.755358	-0.575483	1.858772
1.98	0.086924	0.378356	0.271580	-0.761020	-0.556830	1.871677
1.99	0.090721	0.380978	0.252779	-0.766494	-0.538053	1.883502

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Contrails

η	T_7	T_7'	T_7''	d_9	d_9'	d_9''
2.00	0.094543	0.383411	0.233752	-0.771781	-0.519163	1.894247
2.01	0.098389	0.385652	0.214516	-0.776877	-0.500172	1.903917
2.02	0.102256	0.387700	0.195083	-0.781784	-0.481089	1.912513
2.03	0.106142	0.389553	0.175486	-0.786499	-0.461925	1.920043
2.04	0.110046	0.391210	0.155724	-0.791022	-0.442691	1.926508
2.05	0.113966	0.392667	0.135822	-0.795352	-0.423398	1.931917
2.06	0.117899	0.393926	0.115796	-0.799490	-0.404057	1.936274
2.07	0.121843	0.394983	0.095663	-0.803434	-0.384676	1.939590
2.08	0.125798	0.395839	0.075441	-0.807183	-0.365268	1.941869
2.09	0.129760	0.396491	0.055146	-0.810739	-0.345842	1.943123
2.10	0.133727	0.396941	0.034796	-0.814100	-0.326409	1.943358
2.11	0.137698	0.397187	0.014408	-0.817267	-0.306979	1.942588
2.12	0.141670	0.397229	-0.006000	-0.820240	-0.287561	1.940820
2.13	0.145642	0.397067	-0.026412	-0.823018	-0.268166	1.938069
2.14	0.149611	0.396701	-0.046812	-0.825603	-0.248802	1.934343
2.15	0.153575	0.396131	-0.067180	-0.827995	-0.229482	1.929658
2.16	0.157533	0.395358	-0.087503	-0.830193	-0.210212	1.924024
2.17	0.161481	0.394381	-0.107761	-0.832199	-0.191004	1.917458
2.18	0.165420	0.393203	-0.127940	-0.834013	-0.171866	1.909971
2.19	0.169345	0.391823	-0.148022	-0.835637	-0.152808	1.901581
2.20	0.173255	0.390243	-0.167992	-0.837070	-0.133838	1.892299
2.21	0.177149	0.388463	-0.187833	-0.838314	-0.114965	1.882145
2.22	0.181024	0.386486	-0.207530	-0.839369	-0.096198	1.871132
2.23	0.184878	0.384313	-0.227068	-0.840238	-0.077545	1.859278
2.24	0.188710	0.381946	-0.246431	-0.840921	-0.059015	1.846600
2.25	0.192516	0.379385	-0.265603	-0.841419	-0.040616	1.833116
2.26	0.196297	0.376634	-0.284572	-0.841734	-0.022355	1.818841
2.27	0.200049	0.373695	-0.303322	-0.841866	-0.004242	1.803797
2.28	0.203770	0.370569	-0.321839	-0.841819	0.013717	1.787999
2.29	0.207459	0.367259	-0.340108	-0.841593	0.031515	1.771469
2.30	0.211115	0.363767	-0.358118	-0.841189	0.049144	1.754222
2.31	0.214734	0.360097	-0.375855	-0.840610	0.066597	1.736282
2.32	0.218316	0.356251	-0.393305	-0.839858	0.083868	1.717665
2.33	0.221858	0.352232	-0.410457	-0.838934	0.100948	1.698395
2.34	0.225360	0.348043	-0.427299	-0.837839	0.117833	1.678486
2.35	0.228819	0.343687	-0.443818	-0.836578	0.134516	1.657965
2.36	0.232233	0.339168	-0.460004	-0.835150	0.150991	1.636846
2.37	0.235602	0.334488	-0.475845	-0.833558	0.167251	1.615155
2.38	0.238922	0.329652	-0.491332	-0.831806	0.183292	1.592909
2.39	0.242194	0.324663	-0.506453	-0.829893	0.199107	1.570133
2.40	0.245415	0.319524	-0.521201	-0.827824	0.214693	1.546842
2.41	0.248584	0.314240	-0.535564	-0.825600	0.230043	1.523064
2.42	0.251700	0.308814	-0.549535	-0.823224	0.245153	1.498813
2.43	0.254760	0.303251	-0.563105	-0.820698	0.260017	1.474117
2.44	0.257764	0.297554	-0.576266	-0.818025	0.274634	1.448992
2.45	0.260711	0.291727	-0.589011	-0.815206	0.288996	1.423462
2.46	0.263598	0.285775	-0.601333	-0.812245	0.303102	1.397546
2.47	0.266426	0.279701	-0.613224	-0.809145	0.316946	1.371269
2.48	0.269192	0.273512	-0.624679	-0.805907	0.330526	1.344647
2.49	0.271896	0.267209	-0.635693	-0.802535	0.343838	1.317706

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Contrails

η	T_7	T_7'	T_7''	d_9	d_9'	d_9''
2.50	0.274536	0.260799	-0.646259	-0.799032	0.356879	1.290463
2.51	0.277111	0.254286	-0.656373	-0.795399	0.369646	1.262942
2.52	0.279621	0.247673	-0.666032	-0.791640	0.382137	1.235160
2.53	0.282064	0.240967	-0.675230	-0.787757	0.394348	1.207143
2.54	0.284440	0.234170	-0.683965	-0.783754	0.406279	1.178905
2.55	0.286748	0.227289	-0 692233	-0.779632	0.417926	1.150473
2.56	0.288986	0.220327	-0.700032	-0.775396	0.429288	1.121861
2.57	0.291154	0.213290	-0.707360	-0.771047	0.440363	1.093095
2.58	0.293251	0.206182	-0.714215	-0.766590	0.451149	1.064189
2.59	0.295277	0.199007	-0.720595	-0.762025	0.461646	1.035168
2.60	0.297231	0.191771	-0.726502	-0.757358	0.471852	1.006045
2.61	0.299113	0.184479	-0.731932	-0.752589	0.481767	0.976847
2.62	0.300921	0.177134	-0.736888	-0.747723	0.491389	0.947585
2.63	0.302655	0.169742	-0.741369	-0.742762	0.500718	0.918284
2.64	0.304315	0.162308	-0.745376	-0.737710	0.509755	0.888957
2.65	0.305901	0.154836	-0.748911	-0.732568	0.518497	0.859627
2.66	0.307412	0.147332	-0.751975	-0.727341	0.526947	0.830307
2.67	0.308848	0.139798	-0.754570	-0.722030	0.535104	0.801020
2.68	0.310208	0.132242	-0.756700	-0.716640	0.542968	0.771777
2.69	0.311492	0.124666	-0.758365	-0.711172	0.550539	0.742600
2.70	0.312701	0.117076	-0.759571	-0.705630	0.557820	0.713501
2.71	0.313834	0.109476	-0.760320	-0.700017	0.564810	0.684502
2.72	0.314891	0.101871	-0.760618	-0.694335	0.571511	0.655612
2.73	0.315871	0.094265	-0.760466	-0.688587	0.577922	0.626853
2.74	0.316776	0.086663	-0.759872	-0.682777	0.584048	0.598233
2.75	0.317605	0.079069	-0.758838	-0.676907	0.589888	0.569775
2.76	0.318357	0.071488	-0.757373	-0.670980	0.595444	0.541485
2.77	0.319035	0.063923	-0.755478	-0.664999	0.600718	0.513385
2.78	0.319636	0.056380	-0.753163	-0.658967	0.605712	0.485481
2.79	0.320162	0.048861	-0.750432	-0.652886	0.610428	0.457794
2.80	0.320613	0.041372	-0.747293	-0.646759	0.614869	0.430329
2.81	0.320990	0.033917	-0.743750	-0.640590	0.619036	0.403106
2.82	0.321292	0.026499	-0.739814	-0.634380	0.622932	0.376130
2.83	0.321520	0.019122	-0.735488	-0.628132	0.626559	0.349420
2.84	0.321674	0.011790	-0.730783	-0.621849	0.629921	0.322980
2.85	0.321756	0.004507	-0.725704	-0.615534	0.633020	0.296828
2.86	0.321765	-0.002722	-0.720263	-0.609190	0.635859	0.270966
2.87	0.321702	-0.009896	-0.714463	-0.602818	0.638440	0.245414
2.88	0.321567	-0.017010	-0.708316	-0.596422	0.640768	0.220173
2.89	0.321362	-0.024061	-0.701829	-0.590003	0.642845	0.195260
2.90	0.321086	-0.031045	-0.695012	-0.583566	0.644675	0.170675
2.91	0.320741	-0.037960	-0.687872	-0.577111	0.646259	0.146436
2.92	0.320327	-0.044802	-0.680420	-0.570641	0.647604	0.122542
2.93	0.319845	-0.051567	-0.672663	-0.564159	0.648711	0.099009
2.94	0.319296	-0.058254	-0.664613	-0.557668	0.649586	0.075837
2.95	0.318680	-0.064859	-0.656277	-0.551168	0.650229	0.053041
2.96	0.317999	-0.071379	-0.647666	-0.544664	0.650648	0.030617
2.97	0.317253	-0.077811	-0.638789	-0.538156	0.650843	0.008583
2.98	0.316443	-0.084154	-0.629656	-0.531648	0.650821	-0.013066
2.99	0.315570	-0.090404	-0.620276	-0.525140	0.650583	-0.034315

Approved for Public Release

Contrails

η	T_7	T_7'	T_7''	d_9	d_9'	d_9''
3.00	0.314635	-0.096558	-0.610661	-0.518637	0.650136	-0.055170
3.01	0.313639	-0.102616	-0.600818	-0.512138	0.649481	-0.075615
3.02	0.312583	-0.108574	-0.590760	-0.505648	0.648625	-0.095656
3.03	0.311468	-0.114431	-0.580493	-0.499167	0.647569	-0.115280
3.04	0.310295	-0.120183	-0.570032	-0.492697	0.646321	-0.134493
3.05	0.309065	-0.125831	-0.559382	-0.486241	0.644881	-0.153280
3.06	0.307779	-0.131370	-0.548557	-0.479800	0.643256	-0.171652
3.07	0.306438	-0.136801	-0.537564	-0.473376	0.641449	-0.189593
3.08	0.305043	-0.142121	-0.526417	-0.466972	0.639466	-0.207114
3.09	0.303596	-0.147329	-0.515120	-0.460588	0.637308	-0.224201
3.10	0.302097	-0.152423	-0.503690	-0.454226	0.634983	-0.240864
3.11	0.300548	-0.157402	-0.492130	-0.447888	0.632493	-0.257091
3.12	0.298949	-0.162265	-0.480456	-0.441577	0.629843	-0.272892
3.13	0.297303	-0.167011	-0.468672	-0.435292	0.627036	-0.288255
3.14	0.295609	-0.171638	-0.456793	-0.429036	0.624079	-0.303193
3.15	0.293870	-0.176147	-0.444824	-0.422811	0.620974	-0.317692
3.16	0.292087	-0.180535	-0.432780	-0.416617	0.617727	-0.331767
3.17	0.290260	-0.184802	-0.420664	-0.410457	0.614340	-0.345405
3.18	0.288391	-0.188948	-0.408492	-0.404331	0.610820	-0.358620
3.19	0.286482	-0.192972	-0.396266	-0.398241	0.607169	-0.371400
3.20	0.284532	-0.196873	-0.384003	-0.392188	0.603393	-0.383761
3.21	0.282545	-0.200652	-0.371704	-0.386173	0.599495	-0.395689
3.22	0.280520	-0.204307	-0.359386	-0.380199	0.595481	-0.407203
3.23	0.278459	-0.207839	-0.347050	-0.374264	0.591352	-0.418289
3.24	0.276363	-0.211248	-0.334712	-0.368372	0.587117	-0.428965
3.25	0.274234	-0.214534	-0.322374	-0.362522	0.582775	-0.439218
3.26	0.272073	-0.217695	-0.310049	-0.356717	0.578334	-0.449068
3.27	0.269881	-0.220735	-0.297742	-0.350956	0.573795	-0.458501
3.28	0.267659	-0.223650	-0.285464	-0.345241	0.569165	-0.467538
3.29	0.265408	-0.226444	-0.273219	-0.339573	0.564445	-0.476165
3.30	0.263130	-0.229115	-0.261020	-0.333952	0.559643	-0.484403
3.31	0.260826	-0.231665	-0.248867	-0.328380	0.554758	-0.492238
3.32	0.258497	-0.234092	-0.236776	-0.322858	0.549799	-0.499694
3.33	0.256145	-0.236400	-0.224747	-0.317384	0.544766	-0.506756
3.34	0.253770	-0.238588	-0.212793	-0.311962	0.539665	-0.513447
3.35	0.251373	-0.240656	-0.200914	-0.306591	0.534498	-0.519753
3.36	0.248957	-0.242606	-0.189124	-0.301273	0.529272	-0.525698
3.37	0.246522	-0.244439	-0.177422	-0.296006	0.523985	-0.531267
3.38	0.244068	-0.246155	-0.165822	-0.290793	0.518647	-0.536487
3.39	0.241599	-0.247756	-0.154321	-0.285633	0.513257	-0.541341
3.40	0.239114	-0.249242	-0.142935	-0.280528	0.507822	-0.545856
3.41	0.236614	-0.250615	-0.131660	-0.275477	0.502341	-0.550015
3.42	0.234102	-0.251876	-0.120510	-0.270481	0.496822	-0.553847
3.43	0.231577	-0.253026	-0.109481	-0.265541	0.491265	-0.557335
3.44	0.229042	-0.254066	-0.098588	-0.260656	0.485677	-0.560507
3.45	0.226496	-0.254998	-0.087827	-0.255827	0.480056	-0.563346
3.46	0.223942	-0.255823	-0.077210	-0.251055	0.474411	-0.565882
3.47	0.221380	-0.256543	-0.066734	-0.246339	0.468740	-0.568097
3.48	0.218812	-0.257158	-0.056412	-0.241680	0.463050	-0.570020
3.49	0.216237	-0.257671	-0.046238	-0.237078	0.457340	-0.571634

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Contrails

η	T_7	T'_7	T''_7	d_9	d'_9	d''_9
3.50	0.213658	-0.258083	-0.036226	-0.232534	0.451618	-0.572970
3.51	0.211076	-0.258396	-0.026369	-0.228046	0.445882	-0.574008
3.52	0.208491	-0.258611	-0.016682	-0.223616	0.440139	-0.574782
3.53	0.205904	-0.258731	-0.007156	-0.219243	0.434387	-0.575270
3.54	0.203317	-0.258755	0.002193	-0.214928	0.428634	-0.575506
3.55	0.200729	-0.258687	0.011375	-0.210670	0.422878	-0.575468
3.56	0.198143	-0.258528	0.020376	-0.206471	0.417126	-0.575193
3.57	0.195559	-0.258280	0.029205	-0.202328	0.411375	-0.574655
3.58	0.192978	-0.257944	0.037848	-0.198243	0.405633	-0.573893
3.59	0.190400	-0.257524	0.046314	-0.194215	0.399898	-0.572882
3.60	0.187828	-0.257019	0.054590	-0.190245	0.394176	-0.571660
3.61	0.185260	-0.256433	0.062686	-0.186332	0.388465	-0.570200
3.62	0.182699	-0.255766	0.070589	-0.182476	0.382773	-0.568542
3.63	0.180145	-0.255022	0.078309	-0.178676	0.377095	-0.566660
3.64	0.177599	-0.254200	0.085833	-0.174934	0.371440	-0.564592
3.65	0.175061	-0.253305	0.093173	-0.171247	0.365804	-0.562312
3.66	0.172533	-0.252337	0.100314	-0.167618	0.360195	-0.559860
3.67	0.170015	-0.251300	0.107270	-0.164043	0.354608	-0.557208
3.68	0.167507	-0.250193	0.114026	-0.160525	0.349051	-0.554396
3.69	0.165011	-0.249020	0.120596	-0.157062	0.343520	-0.551395
3.70	0.162527	-0.247781	0.126966	-0.153655	0.338024	-0.548249
3.71	0.160056	-0.246481	0.133150	-0.150302	0.332556	-0.544925
3.72	0.157598	-0.245119	0.139133	-0.147004	0.327126	-0.541468
3.73	0.155154	-0.243699	0.144932	-0.143759	0.321727	-0.537844
3.74	0.152724	-0.242221	0.150530	-0.140569	0.316369	-0.534100
3.75	0.150309	-0.240689	0.155944	-0.137431	0.311046	-0.530201
3.76	0.147910	-0.239103	0.161160	-0.134348	0.305765	-0.526193
3.77	0.145528	-0.237467	0.166193	-0.131316	0.300522	-0.522040
3.78	0.143161	-0.235780	0.171029	-0.128337	0.295325	-0.517792
3.79	0.140812	-0.234047	0.175685	-0.125409	0.290167	-0.513409
3.80	0.138480	-0.232267	0.180146	-0.122534	0.285057	-0.508941
3.81	0.136167	-0.230444	0.184430	-0.119708	0.279988	-0.504349
3.82	0.133872	-0.228579	0.188521	-0.116934	0.274970	-0.499684
3.83	0.131595	-0.226674	0.192439	-0.114209	0.269995	-0.494904
3.84	0.129338	-0.224730	0.196167	-0.111534	0.265072	-0.490063
3.85	0.127101	-0.222752	0.199725	-0.108907	0.260194	-0.485116
3.86	0.124883	-0.220736	0.203096	-0.106330	0.255370	-0.480119
3.87	0.122686	-0.218690	0.206301	-0.103799	0.250592	-0.475024
3.88	0.120510	-0.216611	0.209323	-0.101318	0.245870	-0.469890
3.89	0.118354	-0.214504	0.212185	-0.098882	0.241195	-0.464667
3.90	0.116220	-0.212368	0.214867	-0.096493	0.236577	-0.459415
3.91	0.114107	-0.210207	0.217393	-0.094150	0.232007	-0.454082
3.92	0.112016	-0.208021	0.219743	-0.091853	0.227495	-0.448730
3.93	0.109946	-0.205813	0.221943	-0.089600	0.223032	-0.443304
3.94	0.107899	-0.203582	0.223972	-0.087392	0.218629	-0.437869
3.95	0.105875	-0.201334	0.225856	-0.085227	0.214275	-0.432369
3.96	0.103873	-0.199066	0.227573	-0.083107	0.209982	-0.426867
3.97	0.101894	-0.196783	0.229151	-0.081027	0.205738	-0.421307
3.98	0.099937	-0.194483	0.230568	-0.078992	0.201555	-0.415755
3.99	0.098004	-0.192172	0.231851	-0.076996	0.197423	-0.410151

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Contrails

η	T_7	T_7'	T_7''	G_9	d_9'	d_9''
4.00	0.096094	-0.189847	0.232977	-0.075043	0.193352	-0.404563
4.01	0.094207	-0.187513	0.233976	-0.073129	0.189332	-0.398929
4.02	0.092343	-0.185168	0.234824	-0.071256	0.185374	-0.393320
4.03	0.090504	-0.182817	0.235551	-0.069421	0.181466	-0.387670
4.04	0.088687	-0.180457	0.236131	-0.067627	0.177620	-0.382054
4.05	0.086895	-0.178095	0.236597	-0.065869	0.173825	-0.376401
4.06	0.085125	-0.175726	0.236922	-0.064150	0.170092	-0.370789
4.07	0.083380	-0.173357	0.237139	-0.062467	0.166409	-0.365145
4.08	0.081658	-0.170983	0.237220	-0.060821	0.162789	-0.359549
4.09	0.079960	-0.168613	0.237200	-0.059211	0.159218	-0.353926
4.10	0.078286	-0.166240	0.237049	-0.057637	0.155710	-0.348358
4.11	0.076636	-0.163872	0.236804	-0.056096	0.152251	-0.342767
4.12	0.075008	-0.161504	0.236434	-0.054592	0.148855	-0.337237
4.13	0.073405	-0.159143	0.235977	-0.053119	0.145506	-0.331687
4.14	0.071826	-0.156785	0.235399	-0.051681	0.142221	-0.326205
4.15	0.070270	-0.154436	0.234740	-0.050275	0.138982	-0.320706
4.16	0.068737	-0.152091	0.233967	-0.048901	0.135806	-0.315281
4.17	0.067228	-0.149757	0.233120	-0.047558	0.132677	-0.309840
4.18	0.065742	-0.147429	0.232163	-0.046248	0.129609	-0.304480
4.19	0.064279	-0.145114	0.231139	-0.044966	0.126587	-0.299107
4.20	0.062839	-0.142806	0.230010	-0.043716	0.123627	-0.293820
4.21	0.061423	-0.140514	0.228821	-0.042493	0.120711	-0.288521
4.22	0.060029	-0.138230	0.227533	-0.041301	0.117856	-0.283313
4.23	0.058658	-0.135963	0.226190	-0.040136	0.115045	-0.278095
4.24	0.057310	-0.133707	0.224753	-0.039000	0.112294	-0.272973
4.25	0.055984	-0.131468	0.223269	-0.037890	0.109585	-0.267842
4.26	0.054680	-0.129241	0.221695	-0.036808	0.106936	-0.262812
4.27	0.053399	-0.127034	0.220080	-0.035751	0.104329	-0.257773
4.28	0.052140	-0.124840	0.218380	-0.034721	0.101781	-0.252839
4.29	0.050902	-0.122667	0.216646	-0.033715	0.099272	-0.247897
4.30	0.049686	-0.120508	0.214831	-0.032736	0.096822	-0.243065
4.31	0.048492	-0.118370	0.212987	-0.031779	0.094411	-0.238223
4.32	0.047319	-0.116248	0.211068	-0.030847	0.092057	-0.233496
4.33	0.046167	-0.114149	0.209126	-0.029937	0.089741	-0.228760
4.34	0.045036	-0.112066	0.207112	-0.029052	0.087482	-0.224142
4.35	0.043926	-0.110007	0.205082	-0.028188	0.085258	-0.219513
4.36	0.042835	-0.107964	0.202984	-0.027347	0.083091	-0.215007
4.37	0.041766	-0.105947	0.200875	-0.026526	0.080958	-0.210488
4.38	0.040716	-0.103947	0.198702	-0.025728	0.078881	-0.206096
4.39	0.039687	-0.101973	0.196525	-0.024948	0.076836	-0.201691
4.40	0.038677	-0.100017	0.194286	-0.024191	0.074847	-0.197415
4.41	0.037687	-0.098087	0.192050	-0.023451	0.072888	-0.193123
4.42	0.036715	-0.096176	0.189754	-0.022733	0.070984	-0.188965
4.43	0.035763	-0.094292	0.187467	-0.022031	0.069109	-0.184790
4.44	0.034829	-0.092427	0.185124	-0.021350	0.067287	-0.180751
4.45	0.033915	-0.090590	0.182793	-0.020685	0.065494	-0.176692
4.46	0.033017	-0.088771	0.180410	-0.020040	0.063753	-0.172773
4.47	0.032139	-0.086981	0.178046	-0.019410	0.062038	-0.168831
4.48	0.031278	-0.085210	0.175630	-0.018799	0.060376	-0.165033
4.49	0.030435	-0.083469	0.173239	-0.018202	0.058738	-0.161209

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Contrails

η	T_7	T_7'	T_7''	d_9	d_9'	d_9''
4.50	0.029608	-0.081746	0.170799	-0.017624	0.057151	-0.157531
4.51	0.028800	-0.080053	0.168388	-0.017059	0.055587	-0.153824
4.52	0.028007	-0.078378	0.165930	-0.016513	0.054074	-0.150266
4.53	0.027232	-0.076734	0.163507	-0.015978	0.052582	-0.146676
4.54	0.026472	-0.075108	0.161038	-0.015461	0.051140	-0.143239
4.55	0.025730	-0.073513	0.158609	-0.014955	0.049717	-0.139764
4.56	0.025002	-0.071936	0.156136	-0.014466	0.048344	-0.136447
4.57	0.024291	-0.070390	0.153706	-0.013988	0.046989	-0.133087
4.58	0.023594	-0.068862	0.151234	-0.013526	0.045682	-0.129888
4.59	0.022914	-0.067365	0.148810	-0.013074	0.044391	-0.126643
4.60	0.022247	-0.065886	0.146345	-0.012638	0.043149	-0.123561
4.61	0.021596	-0.064438	0.143932	-0.012211	0.041920	-0.120428
4.62	0.020958	-0.063008	0.141478	-0.011800	0.040740	-0.117462
4.63	0.020335	-0.061608	0.139082	-0.011396	0.039571	-0.114439
4.64	0.019726	-0.060226	0.136645	-0.011008	0.038450	-0.111588
4.65	0.019131	-0.058875	0.134270	-0.010627	0.037339	-0.108674
4.66	0.018548	-0.057541	0.131853	-0.010261	0.036276	-0.105935
4.67	0.017980	-0.056238	0.129503	-0.009902	0.035221	-0.103129
4.68	0.017423	-0.054951	0.127112	-0.009557	0.034213	-0.100501
4.69	0.016881	-0.053695	0.124791	-0.009218	0.033211	-0.097799
4.70	0.016349	-0.052455	0.122428	-0.008892	0.032256	-0.095280
4.71	0.015832	-0.051247	0.120141	-0.008572	0.031306	-0.092680
4.72	0.015324	-0.050052	0.117810	-0.008266	0.030402	-0.090268
4.73	0.014830	-0.048890	0.115558	-0.007964	0.029501	-0.087769
4.74	0.014346	-0.047741	0.113263	-0.007676	0.028646	-0.085461
4.75	0.013875	-0.046625	0.111051	-0.007391	0.027792	-0.083059
4.76	0.013414	-0.045521	0.108793	-0.007120	0.026984	-0.080853
4.77	0.012965	-0.044448	0.106623	-0.006852	0.026175	-0.078547
4.78	0.012525	-0.043388	0.104405	-0.006596	0.025412	-0.076441
4.79	0.012097	-0.042360	0.102279	-0.006343	0.024647	-0.074227
4.80	0.011678	-0.041343	0.100105	-0.006103	0.023927	-0.072218
4.81	0.011270	-0.040358	0.098025	-0.005865	0.023203	-0.070093
4.82	0.010870	-0.039383	0.095895	-0.005639	0.022525	-0.068180
4.83	0.010482	-0.038439	0.093864	-0.005414	0.021840	-0.066142
4.84	0.010102	-0.037505	0.091780	-0.005202	0.021201	-0.064321
4.85	0.009732	-0.036603	0.089799	-0.004990	0.020554	-0.062367
4.86	0.009370	-0.035710	0.087762	-0.004790	0.019953	-0.060636
4.87	0.009018	-0.034848	0.085832	-0.004591	0.019342	-0.058763
4.88	0.008673	-0.033993	0.083844	-0.004403	0.018777	-0.057119
4.89	0.008338	-0.033170	0.081967	-0.004216	0.018200	-0.055325
4.90	0.008009	-0.032354	0.080028	-0.004039	0.017669	-0.053766
4.91	0.007691	-0.031569	0.078205	-0.003863	0.017125	-0.052047
4.92	0.007378	-0.030790	0.076316	-0.003697	0.016628	-0.050570
4.93	0.007075	-0.030043	0.074547	-0.003530	0.016114	-0.048925
4.94	0.006777	-0.029300	0.072708	-0.003374	0.015648	-0.047527
4.95	0.006489	-0.028588	0.070994	-0.003217	0.015164	-0.045951
4.96	0.006205	-0.027880	0.069207	-0.003071	0.014728	-0.044631
4.97	0.005931	-0.027204	0.067548	-0.002923	0.014272	-0.043122
4.98	0.005661	-0.026529	0.065811	-0.002785	0.013865	-0.041876
4.99	0.005400	-0.025887	0.064208	-0.002645	0.013435	-0.040431

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Contrails

η	T_7	T_7'	T_7''	d_9	d_9'	d_9''
5.00	0.005143	-0.025245	0.062522	-0.002516	0.013055	-0.039258
5.01	0.004895	-0.024636	0.060974	-0.002384	0.012651	-0.037874
5.02	0.004650	-0.024026	0.059339	-0.002263	0.012297	-0.036770
5.03	0.004414	-0.023449	0.057847	-0.002138	0.011916	-0.035445
5.04	0.004181	-0.022870	0.056262	-0.002025	0.011587	-0.034409
5.05	0.003957	-0.022323	0.054826	-0.001907	0.011229	-0.033139
5.06	0.003735	-0.021773	0.053291	-0.001800	0.010923	-0.032169
5.07	0.003521	-0.021256	0.051909	-0.001688	0.010587	-0.030952
5.08	0.003310	-0.020736	0.050423	-0.001588	0.010303	-0.030044
5.09	0.003107	-0.020247	0.049095	-0.001482	0.009987	-0.028878
5.10	0.002905	-0.019754	0.047658	-0.001388	0.009724	-0.028030
5.11	0.002711	-0.019294	0.046385	-0.001288	0.009427	-0.026912
5.12	0.002519	-0.018827	0.044995	-0.001199	0.009185	-0.026123
5.13	0.002335	-0.018393	0.043775	-0.001105	0.008905	-0.025050
5.14	0.002151	-0.017952	0.042432	-0.001021	0.008683	-0.024318
5.15	0.001976	-0.017544	0.041265	-0.000931	0.008420	-0.023286
5.16	0.001800	-0.017127	0.039967	-0.000852	0.008216	-0.022609
5.17	0.001633	-0.016744	0.038852	-0.000767	0.007969	-0.021618
5.18	0.001466	-0.016350	0.037599	-0.000693	0.007782	-0.020994
5.19	0.001306	-0.015991	0.036534	-0.000611	0.007550	-0.020039
5.20	0.001146	-0.015620	0.035325	-0.000541	0.007380	-0.019466
5.21	0.000993	-0.015284	0.034311	-0.000464	0.007162	-0.018547
5.22	0.000840	-0.014934	0.033143	-0.000398	0.007008	-0.018023
5.23	0.000694	-0.014621	0.032178	-0.000324	0.006803	-0.017136
5.24	0.000548	-0.014291	0.031051	-0.000262	0.006663	-0.016660
5.25	0.000408	-0.013999	0.030135	-0.000191	0.006471	-0.015804
5.26	0.000268	-0.013689	0.029048	-0.000132	0.006346	-0.015373
5.27	0.000135	-0.013417	0.028179	-0.000064	0.006165	-0.014545
5.28	0.000000	-0.013126	0.027129	-0.000009	0.006053	-0.014159

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Contrails

η	r_9	r'_9	r''_9	S_9	S'_9	S''_9
0.00	0.000000	0.230640	0.000000	0.000000	0.237898	0.000000
0.01	0.002306	0.230638	-0.000420	0.002378	0.237896	-0.000580
0.02	0.004612	0.230629	-0.001669	0.004757	0.237882	-0.002299
0.03	0.006918	0.230602	-0.003730	0.007136	0.237846	-0.005125
0.04	0.009224	0.230551	-0.006587	0.009514	0.237776	-0.009027
0.05	0.011529	0.230468	-0.010222	0.011891	0.237662	-0.013972
0.06	0.013833	0.230344	-0.014618	0.014267	0.237493	-0.019928
0.07	0.016136	0.230173	-0.019757	0.016641	0.237260	-0.026861
0.08	0.018437	0.229947	-0.025622	0.019012	0.236953	-0.034740
0.09	0.020735	0.229658	-0.032196	0.021380	0.236562	-0.043529
0.10	0.023030	0.229300	-0.039461	0.023743	0.236080	-0.053195
0.11	0.025321	0.228867	-0.047398	0.026101	0.235496	-0.063703
0.12	0.027607	0.228350	-0.055990	0.028453	0.234803	-0.075018
0.13	0.029887	0.227745	-0.065217	0.030797	0.233993	-0.087104
0.14	0.032161	0.227044	-0.075062	0.033132	0.233058	-0.099925
0.15	0.034428	0.226242	-0.085504	0.035458	0.231992	-0.113444
0.16	0.036686	0.225332	-0.096525	0.037772	0.230787	-0.127623
0.17	0.038934	0.224309	-0.108105	0.040073	0.229437	-0.142423
0.18	0.041172	0.223168	-0.120225	0.042360	0.227937	-0.157807
0.19	0.043397	0.221903	-0.132864	0.044631	0.226279	-0.173734
0.20	0.045609	0.220509	-0.146002	0.046885	0.224460	-0.190164
0.21	0.047807	0.218981	-0.159618	0.049120	0.222475	-0.207057
0.22	0.049988	0.217315	-0.173692	0.051334	0.220318	-0.224371
0.23	0.052153	0.215506	-0.188203	0.053526	0.217986	-0.242065
0.24	0.054298	0.213550	-0.203129	0.055693	0.215475	-0.260095
0.25	0.056423	0.211442	-0.218449	0.057834	0.212783	-0.278420
0.26	0.058526	0.209179	-0.234140	0.059948	0.209906	-0.296995
0.27	0.060606	0.206758	-0.250182	0.062032	0.206842	-0.315776
0.28	0.062661	0.204175	-0.266551	0.064084	0.203590	-0.334720
0.29	0.064689	0.201426	-0.283226	0.066103	0.200148	-0.353781
0.30	0.066689	0.198509	-0.300183	0.068087	0.196514	-0.372914
0.31	0.068659	0.195422	-0.317401	0.070033	0.192689	-0.392074
0.32	0.070597	0.192160	-0.334856	0.071940	0.188673	-0.411216
0.33	0.072501	0.188724	-0.352524	0.073806	0.184465	-0.430294
0.34	0.074371	0.185109	-0.370384	0.075628	0.180067	-0.449261
0.35	0.076203	0.181315	-0.388412	0.077406	0.175480	-0.468072
0.36	0.077996	0.177341	-0.406585	0.079137	0.170706	-0.486681
0.37	0.079749	0.173183	-0.424878	0.080820	0.165748	-0.505042
0.38	0.081460	0.168843	-0.443269	0.082452	0.160607	-0.523108
0.39	0.083126	0.164318	-0.461735	0.084031	0.155287	-0.540834
0.40	0.084745	0.159608	-0.480251	0.085557	0.149791	-0.558176
0.41	0.086317	0.154713	-0.498795	0.087027	0.144124	-0.575086
0.42	0.087839	0.149632	-0.517343	0.088439	0.138291	-0.591521
0.43	0.089309	0.144366	-0.535871	0.089792	0.132296	-0.607435
0.44	0.090726	0.138915	-0.554356	0.091084	0.126144	-0.622786
0.45	0.092087	0.133279	-0.572776	0.092314	0.119842	-0.637529
0.46	0.093391	0.127459	-0.591107	0.093481	0.113396	-0.651622
0.47	0.094635	0.121457	-0.609326	0.094582	0.106812	-0.665022
0.48	0.095819	0.115273	-0.627410	0.095616	0.100098	-0.677689
0.49	0.096940	0.108909	-0.645337	0.096583	0.093261	-0.689581

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Contrails

η	r_9	r'_9	r''_9	S_9	S'_9	S''_9
0.50	0.097997	0.102367	-0.663084	0.097481	0.086309	-0.700660
0.51	0.098987	0.095648	-0.680629	0.098309	0.079250	-0.710886
0.52	0.099909	0.088755	-0.697951	0.099066	0.072094	-0.720221
0.53	0.100762	0.081690	-0.715027	0.099751	0.064849	-0.728630
0.54	0.101542	0.074456	-0.731836	0.100363	0.057525	-0.736076
0.55	0.102250	0.067054	-0.748358	0.100901	0.050131	-0.742526
0.56	0.102883	0.059490	-0.764571	0.101365	0.042678	-0.747946
0.57	0.103439	0.051764	-0.780454	0.101754	0.035175	-0.752305
0.58	0.103918	0.043882	-0.795989	0.102069	0.027635	-0.755573
0.59	0.104317	0.035846	-0.811155	0.102307	0.020068	-0.757721
0.60	0.104634	0.027660	-0.825932	0.102470	0.012485	-0.758722
0.61	0.104869	0.019328	-0.840303	0.102557	0.004897	-0.758550
0.62	0.105020	0.010855	-0.854249	0.102568	-0.002682	-0.757181
0.63	0.105086	0.002245	-0.867751	0.102503	-0.010241	-0.754593
0.64	0.105065	-0.006497	-0.880793	0.102363	-0.017769	-0.750765
0.65	0.104956	-0.015369	-0.893357	0.102148	-0.025253	-0.745679
0.66	0.104757	-0.024363	-0.905428	0.101858	-0.032679	-0.739317
0.67	0.104468	-0.033475	-0.916988	0.101495	-0.040035	-0.731663
0.68	0.104087	-0.042701	-0.928022	0.101058	-0.047308	-0.722705
0.69	0.103613	-0.052034	-0.938516	0.100549	-0.054484	-0.712432
0.70	0.103046	-0.061469	-0.948456	0.099968	-0.061552	-0.700833
0.71	0.102384	-0.071001	-0.957827	0.099318	-0.068497	-0.687901
0.72	0.101626	-0.080624	-0.966617	0.098599	-0.075305	-0.673631
0.73	0.100771	-0.090332	-0.974813	0.097812	-0.081965	-0.658018
0.74	0.099819	-0.100118	-0.982403	0.096960	-0.088461	-0.641063
0.75	0.098768	-0.109978	-0.989375	0.096044	-0.094781	-0.622764
0.76	0.097619	-0.119904	-0.995720	0.095065	-0.100912	-0.603126
0.77	0.096370	-0.129890	-1.001428	0.094026	-0.106840	-0.582151
0.78	0.095021	-0.139930	-1.006488	0.092929	-0.112551	-0.559848
0.79	0.093571	-0.150018	-1.010892	0.091776	-0.118032	-0.536225
0.80	0.092021	-0.160146	-1.014632	0.090569	-0.123271	-0.511294
0.81	0.090368	-0.170308	-1.017701	0.089311	-0.128254	-0.485066
0.82	0.088614	-0.180497	-1.020092	0.088005	-0.132968	-0.457557
0.83	0.086758	-0.190708	-1.021798	0.086653	-0.137401	-0.428785
0.84	0.084800	-0.200931	-1.022816	0.085258	-0.141539	-0.398769
0.85	0.082740	-0.211162	-1.023140	0.083823	-0.145372	-0.367529
0.86	0.080577	-0.221392	-1.022766	0.082352	-0.148886	-0.335090
0.87	0.078312	-0.231615	-1.021691	0.080847	-0.152070	-0.301476
0.88	0.075945	-0.241823	-1.019912	0.079311	-0.154912	-0.266714
0.89	0.073475	-0.252010	-1.017428	0.077750	-0.157400	-0.230834
0.90	0.070904	-0.262169	-1.014237	0.076165	-0.159525	-0.193867
0.91	0.068232	-0.272293	-1.010339	0.074560	-0.161274	-0.155845
0.92	0.065459	-0.282374	-1.005734	0.072940	-0.162638	-0.116804
0.93	0.062585	-0.292405	-1.000423	0.071309	-0.163607	-0.076780
0.94	0.059611	-0.302380	-0.994408	0.069670	-0.164171	-0.035810
0.95	0.056537	-0.312291	-0.987690	0.068027	-0.164320	0.006064
0.96	0.053365	-0.322131	-0.980273	0.066385	-0.164047	0.048802
0.97	0.050095	-0.331894	-0.972161	0.064747	-0.163341	0.092361
0.98	0.046728	-0.341572	-0.963357	0.063119	-0.162197	0.136695
0.99	0.043264	-0.351159	-0.953867	0.061505	-0.160605	0.181759

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Contrails

η	r_9	r'_9	r''_9	S_9	S'_9	S''_9
1.00	0.039705	-0.360647	-0.943697	0.059909	-0.158559	0.227506
1.01	0.036051	-0.370031	-0.932851	0.058335	-0.156053	0.273886
1.02	0.032304	-0.379302	-0.921338	0.056789	-0.153080	0.320849
1.03	0.028466	-0.388455	-0.909164	0.055275	-0.149634	0.368345
1.04	0.024536	-0.397483	-0.896338	0.053798	-0.145711	0.416319
1.05	0.020516	-0.406380	-0.882869	0.052363	-0.141306	0.464720
1.06	0.016409	-0.415139	-0.868765	0.050973	-0.136415	0.513492
1.07	0.012214	-0.423753	-0.854037	0.049636	-0.131035	0.562580
1.08	0.007934	-0.432217	-0.838695	0.048354	-0.125163	0.611927
1.09	0.003570	-0.440525	-0.822749	0.047134	-0.118796	0.661477
1.10	-0.000875	-0.448670	-0.806212	0.045980	-0.111933	0.711172
1.11	-0.005402	-0.456647	-0.789095	0.044897	-0.104572	0.760953
1.12	-0.010007	-0.464450	-0.771411	0.043890	-0.096714	0.810762
1.13	-0.014690	-0.472074	-0.753173	0.042965	-0.088357	0.860538
1.14	-0.019448	-0.479512	-0.734394	0.042125	-0.079503	0.910223
1.15	-0.024280	-0.486760	-0.715089	0.041376	-0.070153	0.959757
1.16	-0.029183	-0.493812	-0.695271	0.040723	-0.060309	1.009078
1.17	-0.034155	-0.500664	-0.674956	0.040172	-0.049973	1.058127
1.18	-0.039195	-0.507310	-0.654158	0.039726	-0.039147	1.106843
1.19	-0.044301	-0.513745	-0.632894	0.039390	-0.027837	1.155167
1.20	-0.049470	-0.519966	-0.611179	0.039170	-0.016046	1.203036
1.21	-0.054699	-0.525967	-0.589030	0.039071	-0.003778	1.250393
1.22	-0.059988	-0.531745	-0.566464	0.039096	0.008959	1.297176
1.23	-0.065334	-0.537295	-0.543496	0.039252	0.022162	1.343328
1.24	-0.070733	-0.542614	-0.520146	0.039541	0.035824	1.388787
1.25	-0.076185	-0.547697	-0.496430	0.039970	0.049936	1.433498
1.26	-0.081686	-0.552541	-0.472367	0.040541	0.064491	1.477400
1.27	-0.087235	-0.557143	-0.447974	0.041261	0.079481	1.520439
1.28	-0.092829	-0.561500	-0.423269	0.042132	0.094897	1.562556
1.29	-0.098464	-0.565608	-0.398273	0.043160	0.110729	1.603698
1.30	-0.104140	-0.569464	-0.373002	0.044348	0.126967	1.643808
1.31	-0.109853	-0.573067	-0.347476	0.045701	0.143601	1.682834
1.32	-0.115600	-0.576413	-0.321715	0.047222	0.160620	1.720723
1.33	-0.121380	-0.579501	-0.295737	0.048915	0.178012	1.757425
1.34	-0.127189	-0.582327	-0.269563	0.050783	0.195764	1.792888
1.35	-0.133026	-0.584891	-0.243210	0.052831	0.213865	1.827065
1.36	-0.138886	-0.587191	-0.216699	0.055062	0.232301	1.859906
1.37	-0.144769	-0.589225	-0.190049	0.057478	0.251059	1.891367
1.38	-0.150670	-0.590991	-0.163281	0.060084	0.270124	1.921403
1.39	-0.156588	-0.592490	-0.136412	0.062882	0.289482	1.949971
1.40	-0.162519	-0.593719	-0.109464	0.065874	0.309118	1.977028
1.41	-0.168461	-0.594679	-0.082456	0.069065	0.329017	2.002536
1.42	-0.174412	-0.595368	-0.055407	0.072456	0.349164	2.026455
1.43	-0.180368	-0.595787	-0.028337	0.076049	0.369541	2.048750
1.44	-0.186326	-0.595935	-0.001265	0.079847	0.390133	2.069385
1.45	-0.192285	-0.595813	0.025788	0.083852	0.410923	2.088329
1.46	-0.198242	-0.595420	0.052805	0.088066	0.431894	2.105549
1.47	-0.204193	-0.594757	0.079766	0.092491	0.453028	2.121017
1.48	-0.210136	-0.593824	0.106653	0.097127	0.474308	2.134704
1.49	-0.216069	-0.592624	0.133446	-0.101977	0.495716	2.146588

Approved for Public Release

Contrails

η	r_9	r_9'	r_9''	S_9	S_9'	S_9''
1.50	-0.221988	-0.591156	0.160126	0.107042	0.517234	2.156642
1.51	-0.227891	-0.589422	0.186676	0.112322	0.538843	2.164848
1.52	-0.233775	-0.587423	0.213076	0.117819	0.560525	2.171184
1.53	-0.239638	-0.585161	0.239310	0.123533	0.582260	2.175635
1.54	-0.245478	-0.582637	0.265359	0.129464	0.604031	2.178185
1.55	-0.251290	-0.579854	0.291206	0.135614	0.625818	2.178823
1.56	-0.257074	-0.576814	0.316833	0.141981	0.647601	2.177535
1.57	-0.262826	-0.573518	0.342224	0.148566	0.669362	2.174314
1.58	-0.268543	-0.569970	0.367362	0.155368	0.691081	2.169154
1.59	-0.274224	-0.566172	0.392230	0.162387	0.712739	2.162050
1.60	-0.279866	-0.562127	0.416813	0.169622	0.734316	2.152999
1.61	-0.285466	-0.557837	0.441096	0.177073	0.755792	2.142003
1.62	-0.291022	-0.553306	0.465061	0.184738	0.777149	2.129062
1.63	-0.296531	-0.548537	0.488695	0.192616	0.798367	2.114182
1.64	-0.301992	-0.543533	0.511983	0.200705	0.819426	2.097367
1.65	-0.307401	-0.538298	0.534912	0.209003	0.840308	2.078628
1.66	-0.312757	-0.532836	0.557465	0.217510	0.860993	2.057973
1.67	-0.318057	-0.527150	0.579632	0.226223	0.881461	2.035416
1.68	-0.323299	-0.521245	0.601397	0.235139	0.901695	2.010971
1.69	-0.328481	-0.515124	0.622750	0.244256	0.921674	1.984657
1.70	-0.333601	-0.508791	0.643677	0.253571	0.941382	1.956488
1.71	-0.338657	-0.502251	0.664167	0.263082	0.960798	1.926490
1.72	-0.343646	-0.495509	0.684208	0.272786	0.979905	1.894681
1.73	-0.348566	-0.488569	0.703789	0.282679	0.998686	1.861089
1.74	-0.353416	-0.481435	0.722901	0.292759	1.017121	1.825737
1.75	-0.358194	-0.474112	0.741533	0.303021	1.035195	1.788658
1.76	-0.362898	-0.466606	0.759675	0.313461	1.052889	1.749877
1.77	-0.367526	-0.458921	0.777319	0.324077	1.070186	1.709429
1.78	-0.372076	-0.451061	0.794456	0.334864	1.087072	1.667345
1.79	-0.376546	-0.443033	0.811077	0.345817	1.103528	1.623664
1.80	-0.380936	-0.434841	0.827175	0.356933	1.119540	1.578419
1.81	-0.385243	-0.426491	0.842744	0.368206	1.135091	1.531651
1.82	-0.389465	-0.417988	0.857775	0.379633	1.150168	1.483398
1.83	-0.393602	-0.409338	0.872263	0.391208	1.164755	1.433704
1.84	-0.397652	-0.400545	0.886202	0.402926	1.178837	1.382608
1.85	-0.401612	-0.391616	0.899587	0.414783	1.192402	1.330159
1.86	-0.405483	-0.382555	0.912413	0.426773	1.205436	1.276398
1.87	-0.409263	-0.373369	0.924675	0.438890	1.217926	1.221375
1.88	-0.412950	-0.364063	0.936370	0.451129	1.229860	1.165135
1.89	-0.416544	-0.354644	0.947495	0.463485	1.241225	1.107731
1.90	-0.420043	-0.345115	0.958046	0.475952	1.252011	1.049209
1.91	-0.423446	-0.335485	0.968022	0.488524	1.262205	0.989624
1.92	-0.426752	-0.325757	0.977419	0.501194	1.271800	0.929024
1.93	-0.429961	-0.315938	0.986237	0.513958	1.280783	0.867467
1.94	-0.433071	-0.306034	0.994474	0.526808	1.289146	0.805001
1.95	-0.436081	-0.296051	1.002130	0.539738	1.296880	0.741687
1.96	-0.438992	-0.285993	1.009205	0.552743	1.303977	0.677574
1.97	-0.441801	-0.275868	1.015700	0.565816	1.310429	0.612724
1.98	-0.444509	-0.265681	1.021614	0.578950	1.316229	0.547188
1.99	-0.447114	-0.255438	1.026949	0.592138	1.321371	0.481027

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Contrails

η	r_9	r_9'	r_9''	S_9	S_9'	S_9''
2.00	-0.449617	-0.245144	1.031706	0.605375	1.325848	0.414295
2.01	-0.452017	-0.234806	1.035889	0.618653	1.329655	0.347054
2.02	-0.454313	-0.224428	1.039499	0.631966	1.332788	0.279357
2.03	-0.456506	-0.214018	1.042539	0.645306	1.335241	0.211268
2.04	-0.458594	-0.203579	1.045011	0.658668	1.337012	0.142839
2.05	-0.460577	-0.193119	1.046922	0.672044	1.338097	0.074135
2.06	-0.462456	-0.182643	1.048273	0.685428	1.338494	0.005209
2.07	-0.464230	-0.172156	1.049069	0.698812	1.338200	-0.063875
2.08	-0.465899	-0.161663	1.049316	0.712190	1.337216	-0.133065
2.09	-0.467463	-0.151171	1.049019	0.725554	1.335539	-0.202296
2.10	-0.468923	-0.140685	1.048182	0.738898	1.333170	-0.271516
2.11	-0.470277	-0.130209	1.046812	0.752215	1.330109	-0.340661
2.12	-0.471527	-0.119750	1.044915	0.765498	1.326357	-0.409680
2.13	-0.472672	-0.109313	1.042499	0.778740	1.321916	-0.478510
2.14	-0.473713	-0.098902	1.039568	0.791934	1.316788	-0.547100
2.15	-0.474650	-0.088523	1.036131	0.805073	1.310975	-0.615388
2.16	-0.475484	-0.078181	1.032195	0.818151	1.304481	-0.683325
2.17	-0.476214	-0.067881	1.027768	0.831161	1.297310	-0.750849
2.18	-0.476841	-0.057627	1.022858	0.844095	1.289466	-0.817912
2.19	-0.477367	-0.047425	1.017473	0.856948	1.280953	-0.884455
2.20	-0.477790	-0.037279	1.011621	0.869712	1.271779	-0.950432
2.21	-0.478113	-0.027194	1.005312	0.882381	1.261947	-1.015784
2.22	-0.478334	-0.017175	0.998554	0.894949	1.251465	-1.080466
2.23	-0.478456	-0.007225	0.991357	0.907408	1.240340	-1.144422
2.24	-0.478479	0.002650	0.983730	0.919754	1.228579	-1.207610
2.25	-0.478403	0.012447	0.975683	0.931978	1.216190	-1.269975
2.26	-0.478230	0.022162	0.967225	0.944075	1.203183	-1.331476
2.27	-0.477961	0.031791	0.958368	0.956040	1.189564	-1.392061
2.28	-0.477595	0.041329	0.949119	0.967865	1.175344	-1.451693
2.29	-0.477134	0.050772	0.939492	0.979544	1.160533	-1.510320
2.30	-0.476580	0.060117	0.929494	0.991073	1.145142	-1.567908
2.31	-0.475932	0.069361	0.919139	1.002445	1.129179	-1.624407
2.32	-0.475193	0.078499	0.908434	1.013655	1.112657	-1.679786
2.33	-0.474363	0.087528	0.897394	1.024697	1.095587	-1.733999
2.34	-0.473443	0.096446	0.886026	1.035565	1.077981	-1.787016
2.35	-0.472434	0.105248	0.874344	1.046255	1.059851	-1.838793
2.36	-0.471338	0.113931	0.862358	1.056760	1.041209	-1.889305
2.37	-0.470156	0.122494	0.850079	1.067077	1.022069	-1.938509
2.38	-0.468889	0.130932	0.837519	1.077200	1.002444	-1.986384
2.39	-0.467538	0.139243	0.824689	1.087124	0.982346	-2.032889
2.40	-0.466104	0.147425	0.811599	1.096845	0.961791	-2.078007
2.41	-0.464590	0.155474	0.798263	1.106359	0.940790	-2.121699
2.42	-0.462995	0.163390	0.784691	1.115660	0.919361	-2.163951
2.43	-0.461322	0.171167	0.770894	1.124745	0.897516	-2.204728
2.44	-0.459572	0.178807	0.756884	1.133609	0.875272	-2.244017
2.45	-0.457747	0.186305	0.742673	1.142249	0.852641	-2.281788
2.46	-0.455847	0.193660	0.728271	1.150660	0.829641	-2.318031
2.47	-0.453874	0.200869	0.713691	1.158840	0.806286	-2.352718
2.48	-0.451830	0.207933	0.698943	1.166785	0.782592	-2.385843
2.49	-0.449716	0.214848	0.684040	1.174491	0.758574	-2.417380

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Contrails

η	r_9	r'_9	r''_9	S_9	S'_9	S''_9
2.50	-0.447533	0.221613	0.668990	1.181956	0.734250	-2.447328
2.51	-0.445284	0.228227	0.653808	1.189175	0.709633	-2.475663
2.52	-0.442969	0.234689	0.638502	1.196147	0.684742	-2.502386
2.53	-0.440591	0.240997	0.623085	1.202869	0.659590	-2.527476
2.54	-0.438150	0.247150	0.607567	1.209338	0.634198	-2.550940
2.55	-0.435648	0.253148	0.591960	1.215552	0.608577	-2.572757
2.56	-0.433087	0.258989	0.576273	1.221509	0.582748	-2.592939
2.57	-0.430469	0.264673	0.560518	1.227207	0.556724	-2.611467
2.58	-0.427794	0.270199	0.544705	1.232643	0.530524	-2.628355
2.59	-0.425065	0.275567	0.528845	1.237817	0.504162	-2.643590
2.60	-0.422284	0.280776	0.512946	1.242726	0.477658	-2.657186
2.61	-0.419450	0.285826	0.497022	1.247369	0.451024	-2.669133
2.62	-0.416568	0.290717	0.481080	1.251746	0.424280	-2.679450
2.63	-0.413637	0.295447	0.465131	1.255855	0.397440	-2.688128
2.64	-0.410659	0.300019	0.449183	1.259695	0.370523	-2.695189
2.65	-0.407637	0.304431	0.433249	1.263265	0.343542	-2.700626
2.66	-0.404571	0.308684	0.417335	1.266565	0.316516	-2.704466
2.67	-0.401464	0.312778	0.401453	1.269595	0.289458	-2.706703
2.68	-0.398316	0.316713	0.385608	1.272354	0.262387	-2.707366
2.69	-0.395130	0.320490	0.369814	1.274843	0.235316	-2.706453
2.70	-0.391907	0.324110	0.354075	1.277061	0.208263	-2.703995
2.71	-0.388648	0.327572	0.338403	1.279008	0.181241	-2.699991
2.72	-0.385356	0.330878	0.322804	1.280686	0.154268	-2.694476
2.73	-0.382031	0.334028	0.307288	1.282094	0.127357	-2.687450
2.74	-0.378676	0.337024	0.291860	1.283233	0.100524	-2.678952
2.75	-0.375291	0.339866	0.276532	1.284105	0.073783	-2.668982
2.76	-0.371879	0.342555	0.261306	1.284709	0.047150	-2.657582
2.77	-0.368440	0.345092	0.246195	1.285048	0.020636	-2.644754
2.78	-0.364978	0.347480	0.231202	1.285122	-0.005740	-2.630543
2.79	-0.361491	0.349717	0.216337	1.284934	-0.031969	-2.614951
2.80	-0.357984	0.351807	0.201602	1.284484	-0.058035	-2.598025
2.81	-0.354456	0.353749	0.187010	1.283774	-0.083926	-2.579771
2.82	-0.350909	0.355547	0.172561	1.282806	-0.109626	-2.560235
2.83	-0.347345	0.357201	0.158265	1.281582	-0.135126	-2.539425
2.84	-0.343766	0.358713	0.144125	1.280104	-0.160410	-2.517390
2.85	-0.340171	0.360084	0.130151	1.278374	-0.185470	-2.494138
2.86	-0.336564	0.361317	0.116343	1.276395	-0.210289	-2.469721
2.87	-0.332946	0.362412	0.102710	1.274169	-0.234860	-2.444145
2.88	-0.329317	0.363372	0.089254	1.271699	-0.259168	-2.417466
2.89	-0.325679	0.364197	0.075984	1.268987	-0.283206	-2.389690
2.90	-0.322033	0.364892	0.062899	1.266036	-0.306959	-2.360876
2.91	-0.318381	0.365456	0.050009	1.262849	-0.330420	-2.331029
2.92	-0.314724	0.365893	0.037313	1.259428	-0.353576	-2.300208
2.93	-0.311064	0.366203	0.024819	1.255778	-0.376421	-2.268420
2.94	-0.307401	0.366390	0.012527	1.251901	-0.398941	-2.235726
2.95	-0.303736	0.366454	0.000445	1.247801	-0.421133	-2.202132
2.96	-0.300072	0.366399	-0.011429	1.243479	-0.442981	-2.167701
2.97	-0.296409	0.366226	-0.023087	1.238942	-0.464484	-2.132437
2.98	-0.292748	0.365938	-0.034532	1.234191	-0.485627	-2.096405
2.99	-0.289090	0.365537	-0.045755	1.229231	-0.506409	-2.059610

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Contrails

η	r_9	r_9'	r_9''	S_9	S_9'	S_9''
3.00	-0.285437	0.365024	-0.056760	1.224064	-0.526817	-2.022118
3.01	-0.281790	0.364402	-0.067538	1.218696	-0.546849	-1.983931
3.02	-0.278150	0.363674	-0.078094	1.213128	-0.566494	-1.945118
3.03	-0.274517	0.362841	-0.088419	1.207367	-0.585750	-1.905680
3.04	-0.270893	0.361906	-0.098518	1.201415	-0.604606	-1.865686
3.05	-0.267279	0.360871	-0.108384	1.195276	-0.623062	-1.825137
3.06	-0.263676	0.359739	-0.118021	1.188955	-0.641107	-1.784102
3.07	-0.260085	0.358512	-0.127422	1.182455	-0.658742	-1.742582
3.08	-0.256506	0.357192	-0.136593	1.175781	-0.675957	-1.700646
3.09	-0.252941	0.355781	-0.145526	1.168938	-0.692754	-1.658293
3.10	-0.249391	0.354282	-0.154228	1.161928	-0.709122	-1.615594
3.11	-0.245856	0.352697	-0.162692	1.154757	-0.725064	-1.572546
3.12	-0.242337	0.351029	-0.170923	1.147428	-0.740572	-1.529221
3.13	-0.238835	0.349279	-0.178916	1.139947	-0.755648	-1.485613
3.14	-0.235352	0.347451	-0.186677	1.132316	-0.770283	-1.441796
3.15	-0.231887	0.345546	-0.194199	1.124542	-0.784483	-1.397761
3.16	-0.228441	0.343568	-0.201491	1.116628	-0.798238	-1.353584
3.17	-0.225016	0.341517	-0.208546	1.108579	-0.811554	-1.309253
3.18	-0.221611	0.339398	-0.215371	1.100399	-0.824423	-1.264844
3.19	-0.218228	0.337211	-0.221961	1.092092	-0.836851	-1.220343
3.20	-0.214867	0.334960	-0.228323	1.083663	-0.848830	-1.175828
3.21	-0.211529	0.332645	-0.234451	1.075117	-0.860367	-1.131282
3.22	-0.208214	0.330271	-0.240356	1.066457	-0.871456	-1.086783
3.23	-0.204924	0.327839	-0.246029	1.057689	-0.882103	-1.042311
3.24	-0.201658	0.325351	-0.251480	1.048817	-0.892302	-0.997944
3.25	-0.198417	0.322810	-0.256704	1.039845	-0.902062	-0.953662
3.26	-0.195202	0.320218	-0.261710	1.030777	-0.911376	-0.909542
3.27	-0.192013	0.317576	-0.266492	1.021619	-0.920253	-0.865560
3.28	-0.188850	0.314889	-0.271060	1.012373	-0.928688	-0.821795
3.29	-0.185715	0.312156	-0.275408	1.003046	-0.936690	-0.778220
3.30	-0.182607	0.309381	-0.279546	0.993641	-0.944253	-0.734915
3.31	-0.179527	0.306566	-0.283469	0.984163	-0.951389	-0.691847
3.32	-0.176476	0.303713	-0.287188	0.974614	-0.958091	-0.649101
3.33	-0.173453	0.300823	-0.290695	0.965002	-0.964372	-0.606638
3.34	-0.170460	0.297899	-0.294004	0.955328	-0.970225	-0.564543
3.35	-0.167495	0.294943	-0.297106	0.945599	-0.975664	-0.522775
3.36	-0.164561	0.291958	-0.300016	0.935817	-0.980682	-0.481420
3.37	-0.161656	0.288944	-0.302724	0.925987	-0.985294	-0.440434
3.38	-0.158782	0.285904	-0.305246	0.916112	-0.989492	-0.399902
3.39	-0.155938	0.282839	-0.307572	0.906198	-0.993293	-0.359776
3.40	-0.153125	0.279753	-0.309717	0.896248	-0.996689	-0.320145
3.41	-0.150343	0.276646	-0.311672	0.886266	-0.999697	-0.280955
3.42	-0.147593	0.273520	-0.313454	0.876255	-1.002310	-0.242295
3.43	-0.144873	0.270377	-0.315051	0.866221	-1.004545	-0.204109
3.44	-0.142185	0.267220	-0.316481	0.856165	-1.006394	-0.166487
3.45	-0.139529	0.264048	-0.317734	0.846094	-1.007876	-0.129368
3.46	-0.136904	0.260866	-0.318825	0.836009	-1.008984	-0.092845
3.47	-0.134311	0.257672	-0.319746	0.825916	-1.009735	-0.056850
3.48	-0.131751	0.254471	-0.320513	0.815815	-1.010123	-0.021479
3.49	-0.129222	0.251262	-0.321115	0.805714	-1.010166	0.013338

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Contrails

η	r_9	r'_9	r''_9	S_9	S'_9	S''_9
3.50	-0.126725	0.248050	-0.321570	0.795613	-1.009858	0.047507
3.51	-0.124261	0.244832	-0.321868	0.785518	-1.009218	0.081103
3.52	-0.121829	0.241613	-0.322025	0.775430	-1.008238	0.114028
3.53	-0.119429	0.238392	-0.322032	0.765355	-1.006940	0.146361
3.54	-0.117061	0.235172	-0.321905	0.755292	-1.005313	0.178003
3.55	-0.114725	0.231954	-0.321635	0.745249	-1.003382	0.209039
3.56	-0.112422	0.228740	-0.321238	0.735226	-1.001135	0.239365
3.57	-0.110150	0.225530	-0.320704	0.725228	-0.998596	0.269074
3.58	-0.107911	0.222326	-0.320052	0.715255	-0.995756	0.298059
3.59	-0.105704	0.219129	-0.319269	0.705313	-0.992637	0.326416
3.60	-0.103529	0.215941	-0.318375	0.695403	-0.989230	0.354036
3.61	-0.101385	0.212762	-0.317356	0.685530	-0.985559	0.381023
3.62	-0.099273	0.209595	-0.316234	0.675693	-0.981612	0.407263
3.63	-0.097193	0.206438	-0.314993	0.665898	-0.977415	0.432865
3.64	-0.095145	0.203295	-0.313657	0.656145	-0.972957	0.457714
3.65	-0.093127	0.200165	-0.312209	0.646440	-0.968263	0.481920
3.66	-0.091141	0.197051	-0.310671	0.636781	-0.963321	0.505368
3.67	-0.089186	0.193952	-0.309029	0.627174	-0.958158	0.528177
3.68	-0.087262	0.190871	-0.307304	0.617619	-0.952761	0.550223
3.69	-0.085368	0.187806	-0.305481	0.608120	-0.947156	0.571632
3.70	-0.083506	0.184761	-0.303582	0.598676	-0.941330	0.592278
3.71	-0.081673	0.181735	-0.301591	0.589294	-0.935312	0.612292
3.72	-0.079871	0.178730	-0.299532	0.579971	-0.929087	0.631543
3.73	-0.078099	0.175744	-0.297386	0.570712	-0.922683	0.650170
3.74	-0.076356	0.172782	-0.295179	0.561518	-0.916086	0.668037
3.75	-0.074643	0.169841	-0.292891	0.552391	-0.909325	0.685289
3.76	-0.072959	0.166925	-0.290548	0.543332	-0.902383	0.701784
3.77	-0.071304	0.164030	-0.288130	0.534344	-0.895291	0.717676
3.78	-0.069678	0.161162	-0.285664	0.525426	-0.888032	0.732818
3.79	-0.068081	0.158317	-0.283128	0.516584	-0.880637	0.747370
3.80	-0.066512	0.155500	-0.280550	0.507814	-0.873087	0.761178
3.81	-0.064971	0.152706	-0.277909	0.499123	-0.865415	0.774411
3.82	-0.063458	0.149942	-0.275231	0.490506	-0.857601	0.786910
3.83	-0.061972	0.147202	-0.272494	0.481971	-0.849679	0.798849
3.84	-0.060514	0.144492	-0.269728	0.473513	-0.841627	0.810064
3.85	-0.059082	0.141808	-0.266907	0.465139	-0.833479	0.820738
3.86	-0.057677	0.139154	-0.264063	0.456844	-0.825214	0.830698
3.87	-0.056299	0.136526	-0.261169	0.448635	-0.816867	0.840136
3.88	-0.054947	0.133931	-0.258257	0.440507	-0.808414	0.848873
3.89	-0.053620	0.131361	-0.255300	0.432467	-0.799891	0.857108
3.90	-0.052319	0.128825	-0.252331	0.424509	-0.791274	0.864656
3.91	-0.051043	0.126315	-0.249321	0.416641	-0.782599	0.871723
3.92	-0.049793	0.123838	-0.246303	0.408858	-0.773842	0.878116
3.93	-0.048567	0.121389	-0.243249	0.401165	-0.765039	0.884051
3.94	-0.047365	0.118973	-0.240192	0.393557	-0.756163	0.889326
3.95	-0.046187	0.116585	-0.237103	0.386041	-0.747253	0.894168
3.96	-0.045033	0.114231	-0.234017	0.378612	-0.738282	0.898365
3.97	-0.043902	0.111905	-0.230901	0.371276	-0.729288	0.902152
3.98	-0.042795	0.109613	-0.227793	0.364027	-0.720241	0.905310
3.99	-0.041710	0.107349	-0.224659	0.356871	-0.711183	0.908084

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Contrails

η	r_9	r_9'	r_9''	S_9	S_9'	S_9''
4.00	-0.040648	0.105120	-0.221537	0.349803	-0.702081	0.910245
4.01	-0.039607	0.102919	-0.218392	0.342829	-0.692979	0.912047
4.02	-0.038589	0.100752	-0.215264	0.335944	-0.683842	0.913251
4.03	-0.037592	0.098613	-0.212116	0.329153	-0.674715	0.914124
4.04	-0.036617	0.096510	-0.208988	0.322449	-0.665562	0.914415
4.05	-0.035662	0.094434	-0.205843	0.315841	-0.656428	0.914402
4.06	-0.034728	0.092393	-0.202723	0.309321	-0.647276	0.913823
4.07	-0.033814	0.090379	-0.199588	0.302896	-0.638152	0.912967
4.08	-0.032921	0.088401	-0.196481	0.296558	-0.629018	0.911562
4.09	-0.032046	0.086450	-0.193363	0.290315	-0.619922	0.909907
4.10	-0.031191	0.084533	-0.190275	0.284160	-0.610822	0.907719
4.11	-0.030355	0.082644	-0.187178	0.278099	-0.601768	0.905309
4.12	-0.029538	0.080790	-0.184116	0.272124	-0.592717	0.902381
4.13	-0.028739	0.078962	-0.181045	0.266244	-0.583721	0.899260
4.14	-0.027959	0.077169	-0.178013	0.260450	-0.574734	0.895636
4.15	-0.027196	0.075402	-0.174974	0.254749	-0.565809	0.891849
4.16	-0.026451	0.073669	-0.171976	0.249133	-0.556899	0.887572
4.17	-0.025722	0.071962	-0.168973	0.243611	-0.548058	0.883160
4.18	-0.025012	0.070289	-0.166014	0.238172	-0.539237	0.878273
4.19	-0.024316	0.068642	-0.163052	0.232826	-0.530492	0.873280
4.20	-0.023639	0.067028	-0.160136	0.227562	-0.521773	0.867826
4.21	-0.022976	0.065439	-0.157217	0.222390	-0.513136	0.862294
4.22	-0.022330	0.063884	-0.154347	0.217299	-0.504529	0.856313
4.23	-0.021698	0.062352	-0.151476	0.212299	-0.496010	0.850284
4.24	-0.021082	0.060854	-0.148656	0.207379	-0.487524	0.843818
4.25	-0.020481	0.059379	-0.145835	0.202548	-0.479134	0.837333
4.26	-0.019895	0.057937	-0.143068	0.197796	-0.470779	0.830421
4.27	-0.019322	0.056518	-0.140299	0.193133	-0.462525	0.823519
4.28	-0.018764	0.055131	-0.137588	0.188546	-0.454310	0.816202
4.29	-0.018219	0.053766	-0.134875	0.184046	-0.446201	0.808922
4.30	-0.017689	0.052433	-0.132221	0.179622	-0.438133	0.801236
4.31	-0.017171	0.051122	-0.129565	0.175283	-0.430176	0.793616
4.32	-0.016666	0.049842	-0.126971	0.171018	-0.422262	0.785599
4.33	-0.016174	0.048582	-0.124375	0.166837	-0.414464	0.777676
4.34	-0.015695	0.047354	-0.121842	0.162728	-0.406710	0.769363
4.35	-0.015227	0.046145	-0.119306	0.158703	-0.399076	0.761173
4.36	-0.014772	0.044967	-0.116836	0.154747	-0.391488	0.752598
4.37	-0.014327	0.043809	-0.114363	0.150873	-0.384023	0.744175
4.38	-0.013895	0.042680	-0.111957	0.147066	-0.376606	0.735372
4.39	-0.013473	0.041569	-0.109547	0.143340	-0.369315	0.726749
4.40	-0.013064	0.040489	-0.107206	0.139680	-0.362072	0.717750
4.41	-0.012664	0.039425	-0.104860	0.136098	-0.354960	0.708958
4.42	-0.012275	0.038391	-0.102585	0.132580	-0.347894	0.699794
4.43	-0.011896	0.037374	-0.100304	0.129140	-0.340963	0.690864
4.44	-0.011528	0.036385	-0.098095	0.125761	-0.334078	0.681564
4.45	-0.011168	0.035412	-0.095879	0.122458	-0.327331	0.672525
4.46	-0.010819	0.034467	-0.093737	0.119214	-0.320629	0.663116
4.47	-0.010479	0.033537	-0.091586	0.116045	-0.314067	0.653997
4.48	-0.010148	0.032635	-0.089510	0.112933	-0.307550	0.644505
4.49	-0.009826	0.031747	-0.087424	0.109893	-0.301176	0.635332

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Contrails

η	r_9	r'_9	r''_9	S_9	S'_9	S''_9
4.50	-0.009513	0.030886	-0.085416	0.106909	-0.294845	0.625783
4.51	-0.009208	0.030039	-0.083395	0.103996	-0.288659	0.616579
4.52	-0.008912	0.029218	-0.081453	0.101136	-0.282515	0.606997
4.53	-0.008624	0.028410	-0.079497	0.098345	-0.276518	0.597788
4.54	-0.008344	0.027628	-0.077621	0.095605	-0.270560	0.588194
4.55	-0.008071	0.026857	-0.075729	0.092933	-0.264753	0.579001
4.56	-0.007807	0.026113	-0.073919	0.090310	-0.258981	0.569417
4.57	-0.007549	0.025379	-0.072091	0.087753	-0.253363	0.560261
4.58	-0.007299	0.024671	-0.070346	0.085243	-0.247778	0.550706
4.59	-0.007055	0.023972	-0.068581	0.082797	-0.242347	0.541606
4.60	-0.006820	0.023299	-0.066901	0.080395	-0.236947	0.532098
4.61	-0.006589	0.022634	-0.065197	0.078058	-0.231703	0.523074
4.62	-0.006367	0.021995	-0.063581	0.075761	-0.226487	0.513630
4.63	-0.006149	0.021363	-0.061938	0.073527	-0.221429	0.504697
4.64	-0.005940	0.020756	-0.060385	0.071333	-0.216395	0.495332
4.65	-0.005734	0.020155	-0.058802	0.069199	-0.211520	0.486507
4.66	-0.005536	0.019579	-0.057310	0.067102	-0.206666	0.477235
4.67	-0.005343	0.019009	-0.055786	0.065065	-0.201974	0.468532
4.68	-0.005156	0.018463	-0.054355	0.063063	-0.197297	0.459366
4.69	-0.004973	0.017922	-0.052889	0.061118	-0.192784	0.450799
4.70	-0.004798	0.017405	-0.051517	0.059207	-0.188283	0.441751
4.71	-0.004625	0.016892	-0.050107	0.057352	-0.183947	0.433331
4.72	-0.004460	0.016403	-0.048794	0.055528	-0.179618	0.424412
4.73	-0.004297	0.015916	-0.047439	0.053759	-0.175457	0.416150
4.74	-0.004141	0.015454	-0.046183	0.052019	-0.171297	0.407368
4.75	-0.003988	0.014992	-0.044881	0.050333	-0.167307	0.399276
4.76	-0.003841	0.014556	-0.043681	0.048673	-0.163313	0.390640
4.77	-0.003697	0.014119	-0.042431	0.047066	-0.159491	0.382724
4.78	-0.003559	0.013707	-0.041285	0.045483	-0.155661	0.374242
4.79	-0.003423	0.013293	-0.040086	0.043952	-0.152004	0.366512
4.80	-0.003293	0.012905	-0.038993	0.042443	-0.148332	0.358188
4.81	-0.003165	0.012514	-0.037844	0.040985	-0.144837	0.350651
4.82	-0.003043	0.012147	-0.036802	0.039546	-0.141322	0.342492
4.83	-0.002922	0.011778	-0.035700	0.038158	-0.137985	0.335153
4.84	-0.002807	0.011433	-0.034709	0.036786	-0.134621	0.327162
4.85	-0.002693	0.011084	-0.033653	0.035465	-0.131439	0.320027
4.86	-0.002585	0.010759	-0.032711	0.034158	-0.128223	0.312209
4.87	-0.002478	0.010430	-0.031699	0.032900	-0.125191	0.305282
4.88	-0.002376	0.010125	-0.030804	0.031654	-0.122120	0.297638
4.89	-0.002275	0.009814	-0.029835	0.030457	-0.119235	0.290923
4.90	-0.002180	0.009528	-0.028987	0.029270	-0.116304	0.283456
4.91	-0.002085	0.009235	-0.028059	0.028130	-0.113563	0.276956
4.92	-0.001995	0.008966	-0.027255	0.026998	-0.110767	0.269665
4.93	-0.001905	0.008690	-0.026367	0.025914	-0.108166	0.263383
4.94	-0.001821	0.008438	-0.025606	0.024835	-0.105503	0.256269
4.95	-0.001737	0.008178	-0.024756	0.023803	-0.103037	0.250206
4.96	-0.001658	0.007943	-0.024037	0.022775	-0.100502	0.243269
4.97	-0.001578	0.007698	-0.023224	0.021793	-0.098168	0.237426
4.98	-0.001504	0.007478	-0.022545	0.020812	-0.095756	0.230665
4.99	-0.001428	0.007247	-0.021767	0.019877	-0.093550	0.225043

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Contrails

η	r_9	r'_9	r''_9	S_9	S'_9	S''_9
5.00	-0.001359	0.007042	-0.021127	0.018941	-0.091259	0.218455
5.01	-0.001288	0.006825	-0.020383	0.018051	-0.089177	0.213054
5.02	-0.001222	0.006634	-0.019780	0.017158	-0.087001	0.206639
5.03	-0.001155	0.006430	-0.019068	0.016310	-0.085040	0.201458
5.04	-0.001093	0.006252	-0.018502	0.015457	-0.082976	0.195211
5.05	-0.001030	0.006060	-0.017820	0.014650	-0.081131	0.190251
5.06	-0.000972	0.005895	-0.017289	0.013835	-0.079175	0.184169
5.07	-0.000912	0.005715	-0.016636	0.013066	-0.077443	0.179428
5.08	-0.000858	0.005562	-0.016140	0.012287	-0.075591	0.173508
5.09	-0.000801	0.005392	-0.015514	0.011553	-0.073968	0.168984
5.10	-0.000750	0.005251	-0.015050	0.010808	-0.072215	0.163222
5.11	-0.000696	0.005092	-0.014451	0.010108	-0.070698	0.158914
5.12	-0.000648	0.004961	-0.014018	0.009394	-0.069042	0.153304
5.13	-0.000597	0.004812	-0.013443	0.008726	-0.067627	0.149210
5.14	-0.000551	0.004692	-0.013041	0.008042	-0.066062	0.143749
5.15	-0.000503	0.004552	-0.012490	0.007404	-0.064746	0.139867
5.16	-0.000460	0.004441	-0.012117	0.006748	-0.063270	0.134549
5.17	-0.000414	0.004310	-0.011587	0.006138	-0.062050	0.130876
5.18	-0.000374	0.004209	-0.011243	0.005507	-0.060658	0.125695
5.19	-0.000330	0.004086	-0.010734	0.004924	-0.059530	0.122230
5.20	-0.000292	0.003994	-0.010417	0.004317	-0.058219	0.117180
5.21	-0.000250	0.003878	-0.009927	0.003759	-0.057180	0.113920
5.22	-0.000214	0.003794	-0.009636	0.003174	-0.055946	0.108995
5.23	-0.000174	0.003686	-0.009164	0.002639	-0.054993	0.105937
5.24	-0.000141	0.003610	-0.008899	0.002075	-0.053834	0.101131
5.25	-0.000102	0.003508	-0.008444	0.001561	-0.052964	0.098273
5.26	-0.000070	0.003441	-0.008202	0.001017	-0.051875	0.093580
5.27	-0.000034	0.003345	-0.007763	0.000523	-0.051085	0.090918
5.28	-0.000003	0.003285	-0.007546	-0.000003	-0.050063	0.086331

Approved for Public Release

Contrails

η	T_9	T_9'	T_9''	r_{11}	r_{11}'	r_{11}''
0.00	0.000000	-0.124511	0.000000	0.000000	0.348039	0.000000
0.01	-0.001245	-0.124511	0.000002	0.003480	0.348036	-0.000985
0.02	-0.002490	-0.124511	0.000011	0.006960	0.348013	-0.003913
0.03	-0.003735	-0.124511	0.000027	0.010440	0.347951	-0.008738
0.04	-0.004980	-0.124511	0.000051	0.013919	0.347832	-0.015415
0.05	-0.006225	-0.124510	0.000083	0.017396	0.347637	-0.023900
0.06	-0.007470	-0.124509	0.000125	0.020871	0.347348	-0.034148
0.07	-0.008715	-0.124507	0.000177	0.024343	0.346948	-0.046112
0.08	-0.009960	-0.124505	0.000242	0.027810	0.346420	-0.059748
0.09	-0.011205	-0.124503	0.000319	0.031271	0.345748	-0.075008
0.10	-0.012450	-0.124499	0.000410	0.034724	0.344915	-0.091847
0.11	-0.013695	-0.124494	0.000517	0.038169	0.343906	-0.110216
0.12	-0.014940	-0.124488	0.000641	0.041602	0.342706	-0.130069
0.13	-0.016185	-0.124481	0.000784	0.045022	0.341300	-0.151356
0.14	-0.017430	-0.124473	0.000948	0.048427	0.339674	-0.174031
0.15	-0.018675	-0.124462	0.001134	0.051815	0.337815	-0.198042
0.16	-0.019919	-0.124450	0.001344	0.055183	0.335709	-0.223341
0.17	-0.021164	-0.124435	0.001580	0.058528	0.333344	-0.249877
0.18	-0.022408	-0.124418	0.001845	0.061849	0.330707	-0.277600
0.19	-0.023652	-0.124398	0.002142	0.065141	0.327788	-0.306458
0.20	-0.024896	-0.124375	0.002471	0.068403	0.324574	-0.336399
0.21	-0.026139	-0.124349	0.002837	0.071632	0.321056	-0.367371
0.22	-0.027383	-0.124318	0.003242	0.074824	0.317224	-0.399322
0.23	-0.028626	-0.124284	0.003688	0.077975	0.313067	-0.432198
0.24	-0.029868	-0.124245	0.004178	0.081084	0.308577	-0.465945
0.25	-0.031111	-0.124200	0.004716	0.084146	0.303745	-0.500510
0.26	-0.032352	-0.124150	0.005303	0.087158	0.298564	-0.535838
0.27	-0.033594	-0.124094	0.005945	0.090116	0.293026	-0.571875
0.28	-0.034834	-0.124031	0.006643	0.093017	0.287124	-0.608565
0.29	-0.036074	-0.123961	0.007401	0.095857	0.280853	-0.645853
0.30	-0.037314	-0.123883	0.008221	0.098633	0.274206	-0.683685
0.31	-0.038552	-0.123796	0.009109	0.101340	0.267177	-0.722003
0.32	-0.039789	-0.123700	0.010065	0.103975	0.259764	-0.760753
0.33	-0.041026	-0.123595	0.011095	0.106534	0.251961	-0.799878
0.34	-0.042261	-0.123478	0.012201	0.109013	0.243765	-0.839324
0.35	-0.043495	-0.123350	0.013386	0.111408	0.235174	-0.879032
0.36	-0.044728	-0.123210	0.014654	0.113715	0.226184	-0.918949
0.37	-0.045960	-0.123057	0.016007	0.115930	0.216794	-0.959018
0.38	-0.047189	-0.122890	0.017450	0.118050	0.207003	-0.999184
0.39	-0.048417	-0.122708	0.018984	0.120069	0.196810	-1.039390
0.40	-0.049643	-0.122510	0.020613	0.121984	0.186216	-1.079583
0.41	-0.050868	-0.122295	0.022340	0.123792	0.175219	-1.119707
0.42	-0.052089	-0.122063	0.024167	0.125487	0.163822	-1.159707
0.43	-0.053309	-0.121811	0.026097	0.127067	0.152025	-1.199530
0.44	-0.054526	-0.121540	0.028132	0.128527	0.139832	-1.239122
0.45	-0.055739	-0.121248	0.030274	0.129862	0.127244	-1.278429
0.46	-0.056950	-0.120934	0.032526	0.131070	0.114265	-1.317399
0.47	-0.058158	-0.120597	0.034889	0.132146	0.100897	-1.355979
0.48	-0.059362	-0.120236	0.037365	0.133087	0.087146	-1.394120
0.49	-0.060563	-0.119850	0.039955	0.133888	0.073017	-1.431768

Approved for Public Release

Contrails

η	T_9	T_9'	T_9''	r_{11}	r_{11}'	r_{11}''
0.50	-0.061759	-0.119437	0.042661	0.134546	0.058513	-1.468875
0.51	-0.062951	-0.118996	0.045482	0.135057	0.043641	-1.505392
0.52	-0.064139	-0.118527	0.048421	0.135418	0.028407	-1.541269
0.53	-0.065322	-0.118027	0.051477	0.135624	0.012818	-1.576459
0.54	-0.066499	-0.117497	0.054650	0.135673	-0.003119	-1.610917
0.55	-0.067672	-0.116934	0.057940	0.135561	-0.019397	-1.644595
0.56	-0.068838	-0.116338	0.061346	0.135284	-0.036008	-1.677449
0.57	-0.069998	-0.115707	0.064868	0.134839	-0.052943	-1.709436
0.58	-0.071152	-0.115040	0.068505	0.134224	-0.070193	-1.740513
0.59	-0.072299	-0.114336	0.072255	0.133434	-0.087750	-1.770639
0.60	-0.073439	-0.113594	0.076115	0.132468	-0.105603	-1.799772
0.61	-0.074571	-0.112813	0.080084	0.131321	-0.123742	-1.827875
0.62	-0.075695	-0.111992	0.084160	0.129992	-0.142157	-1.854909
0.63	-0.076810	-0.111130	0.088339	0.128477	-0.160837	-1.880837
0.64	-0.077917	-0.110225	0.092617	0.126775	-0.179770	-1.905625
0.65	-0.079015	-0.109277	0.096992	0.124881	-0.198945	-1.929237
0.66	-0.080103	-0.108285	0.101459	0.122795	-0.218351	-1.951642
0.67	-0.081180	-0.107248	0.106014	0.120513	-0.237974	-1.972807
0.68	-0.082248	-0.106164	0.110652	0.118035	-0.257803	-1.992703
0.69	-0.083304	-0.105034	0.115368	0.115357	-0.277824	-2.011302
0.70	-0.084348	-0.103857	0.120157	0.112478	-0.298024	-2.028576
0.71	-0.085381	-0.102631	0.125011	0.109396	-0.318391	-2.044499
0.72	-0.086401	-0.101356	0.129926	0.106109	-0.338910	-2.059047
0.73	-0.087408	-0.100032	0.134895	0.102617	-0.359567	-2.072198
0.74	-0.088401	-0.098658	0.139910	0.098918	-0.380349	-2.083931
0.75	-0.089381	-0.097234	0.144965	0.095010	-0.401241	-2.094225
0.76	-0.090346	-0.095759	0.150052	0.090892	-0.422228	-2.103062
0.77	-0.091296	-0.094233	0.155162	0.086565	-0.443297	-2.110426
0.78	-0.092230	-0.092656	0.160288	0.082026	-0.464432	-2.116303
0.79	-0.093148	-0.091027	0.165421	0.077276	-0.485618	-2.120677
0.80	-0.094050	-0.089347	0.170552	0.072314	-0.506841	-2.123538
0.81	-0.094935	-0.087616	0.175672	0.067139	-0.528084	-2.124874
0.82	-0.095803	-0.085834	0.180771	0.061752	-0.549333	-2.124678
0.83	-0.096652	-0.084001	0.185840	0.056152	-0.570572	-2.122941
0.84	-0.097482	-0.082117	0.190869	0.050341	-0.591787	-2.119659
0.85	-0.098294	-0.080183	0.195848	0.044317	-0.612960	-2.114826
0.86	-0.099086	-0.078200	0.200767	0.038082	-0.634078	-2.108441
0.87	-0.099858	-0.076168	0.205614	0.031636	-0.655124	-2.100502
0.88	-0.100609	-0.074088	0.210380	0.024979	-0.676083	-2.091010
0.89	-0.101339	-0.071961	0.215053	0.018114	-0.696939	-2.079967
0.90	-0.102048	-0.069788	0.219623	0.011041	-0.717677	-2.067377
0.91	-0.102735	-0.067569	0.224078	0.003761	-0.738281	-2.053243
0.92	-0.103399	-0.065306	0.228407	-0.003723	-0.758737	-2.037574
0.93	-0.104041	-0.063001	0.232599	-0.011412	-0.779028	-2.020377
0.94	-0.104659	-0.060655	0.236643	-0.019303	-0.799139	-2.001662
0.95	-0.105254	-0.058269	0.240527	-0.027394	-0.819056	-1.981439
0.96	-0.105825	-0.055845	0.244240	-0.035684	-0.838763	-1.959722
0.97	-0.106371	-0.053385	0.247771	-0.044169	-0.858246	-1.936523
0.98	-0.106892	-0.050890	0.251108	-0.052848	-0.877489	-1.911858
0.99	-0.107388	-0.048363	0.254241	-0.061718	-0.896478	-1.885743

Approved for Public Release

Contrails

η	T_9	T_9'	T_9''	r_{11}	r_{11}'	r_{11}''
1.00	-0.107859	-0.045806	0.257158	-0.070776	-0.915199	-1.858198
1.01	-0.108305	-0.043221	0.259849	-0.080021	-0.933637	-1.829239
1.02	-0.108724	-0.040610	0.262301	-0.089448	-0.951779	-1.798888
1.03	-0.109117	-0.037976	0.264506	-0.099055	-0.969610	-1.767167
1.04	-0.109483	-0.035321	0.266452	-0.108839	-0.987118	-1.734099
1.05	-0.109823	-0.032647	0.268129	-0.118797	-1.004288	-1.699707
1.06	-0.110136	-0.029959	0.269527	-0.128924	-1.021108	-1.664018
1.07	-0.110422	-0.027258	0.270636	-0.139218	-1.037564	-1.627057
1.08	-0.110681	-0.024547	0.271447	-0.149674	-1.053645	-1.588852
1.09	-0.110913	-0.021830	0.271950	-0.160289	-1.069337	-1.549432
1.10	-0.111118	-0.019109	0.272137	-0.171059	-1.084629	-1.508826
1.11	-0.111295	-0.016388	0.272000	-0.181980	-1.099510	-1.467065
1.12	-0.111446	-0.013670	0.271529	-0.193048	-1.113967	-1.424181
1.13	-0.111569	-0.010959	0.270717	-0.204258	-1.127990	-1.380205
1.14	-0.111665	-0.008257	0.269557	-0.215606	-1.141567	-1.335172
1.15	-0.111734	-0.005569	0.268042	-0.227088	-1.154690	-1.289115
1.16	-0.111776	-0.002897	0.266166	-0.238699	-1.167346	-1.242071
1.17	-0.111792	-0.000247	0.263921	-0.250433	-1.179528	-1.194073
1.18	-0.111781	0.002379	0.261304	-0.262288	-1.191225	-1.145161
1.19	-0.111744	0.004977	0.258308	-0.274256	-1.202428	-1.095369
1.20	-0.111682	0.007544	0.254930	-0.286335	-1.213129	-1.044737
1.21	-0.111594	0.010074	0.251165	-0.298517	-1.223320	-0.993302
1.22	-0.111480	0.012566	0.247010	-0.310799	-1.232993	-0.941104
1.23	-0.111343	0.015013	0.242462	-0.323175	-1.242140	-0.888183
1.24	-0.111180	0.017414	0.237518	-0.335640	-1.250754	-0.834579
1.25	-0.110994	0.019762	0.232178	-0.348189	-1.258830	-0.780331
1.26	-0.110785	0.022056	0.226439	-0.360815	-1.266359	-0.725483
1.27	-0.110553	0.024290	0.220302	-0.373514	-1.273337	-0.670073
1.28	-0.110300	0.026461	0.213766	-0.386280	-1.279759	-0.614145
1.29	-0.110024	0.028564	0.206832	-0.399107	-1.285619	-0.557739
1.30	-0.109729	0.030596	0.199502	-0.411990	-1.290912	-0.500899
1.31	-0.109413	0.032553	0.191777	-0.424924	-1.295635	-0.443666
1.32	-0.109078	0.034430	0.183660	-0.437901	-1.299784	-0.386084
1.33	-0.108724	0.036225	0.175155	-0.450917	-1.303356	-0.328194
1.34	-0.108354	0.037932	0.166264	-0.463966	-1.306347	-0.270041
1.35	-0.107966	0.039549	0.156994	-0.477042	-1.308756	-0.211664
1.36	-0.107563	0.041071	0.147348	-0.490140	-1.310580	-0.153110
1.37	-0.107145	0.042494	0.137332	-0.503252	-1.311818	-0.094418
1.38	-0.106713	0.043816	0.126954	-0.516374	-1.312468	-0.035633
1.39	-0.106269	0.045032	0.116220	-0.529499	-1.312530	0.023202
1.40	-0.105813	0.046139	0.105138	-0.542623	-1.312004	0.082047
1.41	-0.105347	0.047134	0.093716	-0.555738	-1.310889	0.140860
1.42	-0.104871	0.048013	0.081964	-0.568839	-1.309187	0.199596
1.43	-0.104387	0.048772	0.069890	-0.581919	-1.306898	0.258217
1.44	-0.103896	0.049409	0.057505	-0.594975	-1.304023	0.316678
1.45	-0.103399	0.049921	0.044819	-0.607998	-1.300565	0.374942
1.46	-0.102898	0.050305	0.031844	-0.620984	-1.296525	0.432965
1.47	-0.102393	0.050557	0.018592	-0.633927	-1.291907	0.490710
1.48	-0.101887	0.050676	0.005075	-0.646820	-1.286712	0.548134
1.49	-0.101380	0.050658	-0.008692	-0.659659	-1.280945	0.605200

Approved for Public Release

Contrails

η	T_9	T_9'	T_9''	r_{11}	r_{11}'	r_{11}''
1.50	-0.100874	0.050501	-0.022700	-0.672437	-1.274609	0.661868
1.51	-0.100371	0.050203	-0.036931	-0.685149	-1.267709	0.718102
1.52	-0.099871	0.049762	-0.051373	-0.697789	-1.260249	0.773861
1.53	-0.099376	0.049175	-0.066010	-0.710352	-1.252234	0.829112
1.54	-0.098888	0.048441	-0.080826	-0.722832	-1.243668	0.883814
1.55	-0.098408	0.047558	-0.095807	-0.735224	-1.234559	0.937936
1.56	-0.097937	0.046524	-0.110935	-0.747522	-1.224912	0.991440
1.57	-0.097478	0.045339	-0.126195	-0.759720	-1.214733	1.044293
1.58	-0.097031	0.044000	-0.141569	-0.771815	-1.204028	1.096460
1.59	-0.096598	0.042507	-0.157040	-0.783799	-1.192806	1.147911
1.60	-0.096181	0.040859	-0.172591	-0.795669	-1.181072	1.198610
1.61	-0.095781	0.039055	-0.188203	-0.807419	-1.168836	1.248530
1.62	-0.095401	0.037095	-0.203858	-0.819044	-1.156105	1.297637
1.63	-0.095040	0.034978	-0.219539	-0.830539	-1.142886	1.345905
1.64	-0.094702	0.032704	-0.235226	-0.841900	-1.129189	1.393301
1.65	-0.094387	0.030273	-0.250901	-0.853122	-1.115023	1.439802
1.66	-0.094097	0.027686	-0.266545	-0.864199	-1.100396	1.485377
1.67	-0.093833	0.024942	-0.282138	-0.875128	-1.085319	1.530004
1.68	-0.093598	0.022043	-0.297662	-0.885904	-1.069800	1.573654
1.69	-0.093393	0.018990	-0.313097	-0.896523	-1.053849	1.616307
1.70	-0.093219	0.015782	-0.328424	-0.906980	-1.037477	1.657936
1.71	-0.093078	0.012421	-0.343624	-0.917271	-1.020694	1.698522
1.72	-0.092971	0.008910	-0.358677	-0.927392	-1.003510	1.738041
1.73	-0.092900	0.005248	-0.373564	-0.937340	-0.985937	1.776476
1.74	-0.092867	0.001439	-0.388265	-0.947110	-0.967984	1.813804
1.75	-0.092872	-0.002515	-0.402762	-0.956698	-0.949664	1.850011
1.76	-0.092917	-0.006614	-0.417036	-0.966102	-0.930988	1.885077
1.77	-0.093005	-0.010855	-0.431067	-0.975317	-0.911967	1.918988
1.78	-0.093135	-0.015235	-0.444837	-0.984340	-0.892612	1.951726
1.79	-0.093310	-0.019751	-0.458328	-0.993168	-0.872936	1.983280
1.80	-0.093530	-0.024400	-0.471520	-1.001798	-0.852950	2.013635
1.81	-0.093798	-0.029180	-0.484396	-1.010226	-0.832667	2.042780
1.82	-0.094114	-0.034087	-0.496939	-1.018450	-0.812099	2.070703
1.83	-0.094480	-0.039118	-0.509129	-1.026467	-0.791257	2.097396
1.84	-0.094897	-0.044269	-0.520952	-1.034274	-0.770155	2.122848
1.85	-0.095366	-0.049536	-0.532388	-1.041869	-0.748804	2.147053
1.86	-0.095888	-0.054915	-0.543423	-1.049250	-0.727218	2.170001
1.87	-0.096465	-0.060403	-0.554040	-1.056413	-0.705409	2.191691
1.88	-0.097097	-0.065994	-0.564223	-1.063357	-0.683388	2.212113
1.89	-0.097785	-0.071686	-0.573958	-1.070080	-0.661171	2.231267
1.90	-0.098531	-0.077472	-0.583229	-1.076580	-0.638767	2.249148
1.91	-0.099335	-0.083349	-0.592022	-1.082855	-0.616192	2.265756
1.92	-0.100198	-0.089311	-0.600324	-1.088903	-0.593456	2.281088
1.93	-0.101121	-0.095353	-0.608120	-1.094724	-0.570574	2.295146
1.94	-0.102105	-0.101471	-0.615400	-1.100314	-0.547558	2.307929
1.95	-0.103151	-0.107660	-0.622150	-1.105674	-0.524420	2.319443
1.96	-0.104259	-0.113913	-0.628360	-1.110802	-0.501173	2.329685
1.97	-0.105429	-0.120225	-0.634017	-1.115698	-0.477830	2.338666
1.98	-0.106663	-0.126591	-0.639112	-1.120359	-0.454404	2.346383
1.99	-0.107961	-0.133005	-0.643635	-1.124785	-0.430907	2.352849

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Contrails

η	T_9	T_9'	T_9''	r_{11}	r_{11}'	r_{11}''
2.00	-0.109324	-0.139462	-0.647578	-1.128977	-0.407351	2.358065
2.01	-0.110751	-0.145955	-0.650930	-1.132932	-0.383750	2.362043
2.02	-0.112243	-0.152479	-0.653686	-1.136652	-0.360114	2.364787
2.03	-0.113800	-0.159027	-0.655838	-1.140134	-0.336458	2.366310
2.04	-0.115424	-0.165593	-0.657380	-1.143381	-0.312792	2.366618
2.05	-0.117112	-0.172172	-0.658305	-1.146390	-0.289130	2.365727
2.06	-0.118867	-0.178757	-0.658609	-1.149163	-0.265482	2.363642
2.07	-0.120687	-0.185342	-0.658288	-1.151700	-0.241861	2.360382
2.08	-0.122574	-0.191921	-0.657338	-1.154001	-0.218278	2.355954
2.09	-0.124526	-0.198487	-0.655756	-1.156066	-0.194746	2.350378
2.10	-0.126544	-0.205034	-0.653541	-1.157896	-0.171274	2.343662
2.11	-0.128626	-0.211556	-0.650691	-1.159492	-0.147876	2.335827
2.12	-0.130775	-0.218046	-0.647205	-1.160854	-0.124561	2.326883
2.13	-0.132987	-0.224498	-0.643083	-1.161983	-0.101342	2.316852
2.14	-0.135264	-0.230905	-0.638327	-1.162881	-0.078228	2.305746
2.15	-0.137605	-0.237262	-0.632937	-1.163548	-0.055231	2.293588
2.16	-0.140009	-0.243562	-0.626916	-1.163986	-0.032359	2.280391
2.17	-0.142476	-0.249798	-0.620267	-1.164196	-0.009626	2.266179
2.18	-0.145005	-0.255965	-0.612995	-1.164179	0.012960	2.250965
2.19	-0.147595	-0.262056	-0.605101	-1.163937	0.035389	2.234777
2.20	-0.150246	-0.268065	-0.596595	-1.163472	0.057652	2.217626
2.21	-0.152956	-0.273986	-0.587478	-1.162785	0.079738	2.199542
2.22	-0.155725	-0.279813	-0.577760	-1.161878	0.101640	2.180537
2.23	-0.158552	-0.285539	-0.567446	-1.160752	0.123346	2.160642
2.24	-0.161436	-0.291160	-0.556546	-1.159411	0.144850	2.139870
2.25	-0.164375	-0.296668	-0.545066	-1.157856	0.166141	2.118251
2.26	-0.167369	-0.302059	-0.533018	-1.156089	0.187212	2.095802
2.27	-0.170416	-0.307327	-0.520409	-1.154113	0.208054	2.072551
2.28	-0.173515	-0.312466	-0.507252	-1.151929	0.228660	2.048515
2.29	-0.176665	-0.317470	-0.493556	-1.149540	0.249022	2.023726
2.30	-0.179864	-0.322335	-0.479335	-1.146949	0.269133	1.998199
2.31	-0.183111	-0.327055	-0.464598	-1.144158	0.288984	1.971966
2.32	-0.186405	-0.331625	-0.449362	-1.141171	0.308570	1.945044
2.33	-0.189743	-0.336041	-0.433636	-1.137988	0.327882	1.917465
2.34	-0.193125	-0.340296	-0.417437	-1.134614	0.346917	1.889246
2.35	-0.196548	-0.344388	-0.400778	-1.131051	0.365665	1.860419
2.36	-0.200012	-0.348310	-0.383675	-1.127301	0.384123	1.831001
2.37	-0.203514	-0.352060	-0.366141	-1.123369	0.402283	1.801026
2.38	-0.207053	-0.355632	-0.348195	-1.119257	0.420142	1.770510
2.39	-0.210626	-0.359023	-0.329850	-1.114967	0.437692	1.739487
2.40	-0.214233	-0.362228	-0.311126	-1.110504	0.454930	1.707972
2.41	-0.217870	-0.365244	-0.292037	-1.105870	0.471850	1.676001
2.42	-0.221537	-0.368067	-0.272603	-1.101068	0.488449	1.643589
2.43	-0.225231	-0.370695	-0.252839	-1.096102	0.504720	1.610771
2.44	-0.228950	-0.373123	-0.232767	-1.090975	0.520663	1.577561
2.45	-0.232693	-0.375349	-0.212400	-1.085690	0.536270	1.543995
2.46	-0.236456	-0.377370	-0.191762	-1.080250	0.551541	1.510088
2.47	-0.240239	-0.379184	-0.170868	-1.074660	0.566471	1.475874
2.48	-0.244039	-0.380787	-0.149741	-1.068922	0.581058	1.441367
2.49	-0.247854	-0.382178	-0.128396	-1.063040	0.595298	1.406604

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Contrails

η	T_9	T_9'	T_9''	r_{11}	r_{11}'	r_{11}''
2.50	-0.251682	-0.383354	-0.106856	-1.057017	0.609189	1.371596
2.51	-0.255521	-0.384314	-0.085138	-1.050857	0.622729	1.336380
2.52	-0.259368	-0.385056	-0.063265	-1.044564	0.635916	1.300968
2.53	-0.263221	-0.385579	-0.041252	-1.038140	0.648748	1.265395
2.54	-0.267079	-0.385881	-0.019126	-1.031590	0.661224	1.229672
2.55	-0.270938	-0.385961	0.003099	-1.024917	0.673341	1.193836
2.56	-0.274797	-0.385819	0.025399	-1.018125	0.685100	1.157896
2.57	-0.278654	-0.385453	0.047758	-1.011216	0.696498	1.121888
2.58	-0.282505	-0.384863	0.070151	-1.004196	0.707538	1.085821
2.59	-0.286350	-0.384050	0.092562	-0.997067	0.718215	1.049730
2.60	-0.290186	-0.383012	0.114967	-0.989833	0.728532	1.013625
2.61	-0.294010	-0.381751	0.137351	-0.982497	0.738487	0.977539
2.62	-0.297820	-0.380265	0.159688	-0.975064	0.748083	0.941481
2.63	-0.301614	-0.378557	0.181964	-0.967537	0.757317	0.905484
2.64	-0.305390	-0.376626	0.204155	-0.959919	0.766193	0.869555
2.65	-0.309146	-0.374474	0.226246	-0.952214	0.774709	0.833729
2.66	-0.312879	-0.372102	0.248212	-0.944426	0.782868	0.798010
2.67	-0.316587	-0.369511	0.270039	-0.936558	0.790669	0.762432
2.68	-0.320269	-0.366702	0.291705	-0.928614	0.798117	0.726999
2.69	-0.323921	-0.363677	0.313194	-0.920597	0.805210	0.691745
2.70	-0.327541	-0.360438	0.334484	-0.912511	0.811953	0.656672
2.71	-0.331129	-0.356988	0.355563	-0.904359	0.818344	0.621813
2.72	-0.334681	-0.353328	0.376405	-0.896145	0.824390	0.587170
2.73	-0.338195	-0.349461	0.397001	-0.887872	0.830088	0.552775
2.74	-0.341669	-0.345389	0.417327	-0.879544	0.835446	0.518628
2.75	-0.345102	-0.341115	0.437373	-0.871164	0.840462	0.484762
2.76	-0.348491	-0.336642	0.457115	-0.862736	0.845142	0.451174
2.77	-0.351834	-0.331974	0.476545	-0.854263	0.849486	0.417898
2.78	-0.355130	-0.327112	0.495639	-0.845748	0.853501	0.384929
2.79	-0.358376	-0.322062	0.514391	-0.837194	0.857186	0.352300
2.80	-0.361570	-0.316826	0.532778	-0.828605	0.860548	0.320005
2.81	-0.364711	-0.311408	0.550793	-0.819984	0.863587	0.288077
2.82	-0.367798	-0.305811	0.568415	-0.811334	0.866311	0.256509
2.83	-0.370827	-0.300041	0.585638	-0.802659	0.868719	0.225331
2.84	-0.373798	-0.294100	0.602442	-0.793961	0.870819	0.194537
2.85	-0.376709	-0.287994	0.618822	-0.785243	0.872611	0.164157
2.86	-0.379557	-0.281725	0.634758	-0.776510	0.874103	0.134182
2.87	-0.382343	-0.275300	0.650248	-0.767762	0.875296	0.104641
2.88	-0.385063	-0.268722	0.665271	-0.759005	0.876198	0.075524
2.89	-0.387717	-0.261996	0.679827	-0.750239	0.876808	0.046862
2.90	-0.390302	-0.255127	0.693897	-0.741469	0.877136	0.018641
2.91	-0.392819	-0.248120	0.707481	-0.732697	0.877182	-0.009108
2.92	-0.395264	-0.240979	0.720560	-0.723927	0.876956	-0.036401
2.93	-0.397638	-0.233710	0.733136	-0.715159	0.876456	-0.063207
2.94	-0.399938	-0.226318	0.745192	-0.706398	0.875693	-0.089542
2.95	-0.402164	-0.218808	0.756731	-0.697646	0.874667	-0.115377
2.96	-0.404314	-0.211185	0.767736	-0.688906	0.873387	-0.140729
2.97	-0.406387	-0.203455	0.778211	-0.680179	0.871854	-0.165569
2.98	-0.408383	-0.195622	0.788142	-0.671470	0.870077	-0.189917
2.99	-0.410299	-0.187694	0.797533	-0.662778	0.868057	-0.213742

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Contrails

η	T_9	T_9'	T_9''	r_{11}	r_{11}'	r_{11}''
3.00	-0.412136	-0.179674	0.806369	-0.654109	0.865804	-0.237067
3.01	-0.413892	-0.171568	0.814659	-0.645463	0.863318	-0.259861
3.02	-0.415567	-0.163382	0.822387	-0.636844	0.860609	-0.282148
3.03	-0.417160	-0.155123	0.829564	-0.628252	0.857677	-0.303897
3.04	-0.418670	-0.146793	0.836173	-0.619691	0.854532	-0.325135
3.05	-0.420095	-0.138401	0.842228	-0.611162	0.851176	-0.345830
3.06	-0.421437	-0.129950	0.847714	-0.602668	0.847617	-0.366010
3.07	-0.422694	-0.121448	0.852644	-0.594210	0.843857	-0.385645
3.08	-0.423866	-0.112899	0.857004	-0.585791	0.839906	-0.404763
3.09	-0.424952	-0.104310	0.860809	-0.577413	0.835764	-0.423333
3.10	-0.425952	-0.095685	0.864047	-0.569077	0.831441	-0.441387
3.11	-0.426866	-0.087031	0.866734	-0.560784	0.826938	-0.458892
3.12	-0.427693	-0.078352	0.868856	-0.552538	0.822265	-0.475883
3.13	-0.428433	-0.069656	0.870432	-0.544340	0.817422	-0.492326
3.14	-0.429086	-0.060945	0.871450	-0.536191	0.812420	-0.508258
3.15	-0.429652	-0.052229	0.871930	-0.528092	0.807259	-0.523644
3.16	-0.430130	-0.043509	0.871858	-0.520046	0.801949	-0.538522
3.17	-0.430522	-0.034793	0.871257	-0.512053	0.796490	-0.552859
3.18	-0.430826	-0.026085	0.870115	-0.504117	0.790894	-0.566694
3.19	-0.431044	-0.017393	0.868454	-0.496236	0.785158	-0.579992
3.20	-0.431174	-0.008718	0.866264	-0.488414	0.779295	-0.592795
3.21	-0.431218	-0.000069	0.863568	-0.480650	0.773304	-0.605067
3.22	-0.431176	0.008551	0.860354	-0.472948	0.767196	-0.616851
3.23	-0.431047	0.017135	0.856650	-0.465307	0.760969	-0.628112
3.24	-0.430833	0.025682	0.852442	-0.457729	0.754635	-0.638894
3.25	-0.430534	0.034183	0.847760	-0.450214	0.748192	-0.649160
3.26	-0.430150	0.042636	0.842590	-0.442766	0.741653	-0.658957
3.27	-0.429681	0.051033	0.836963	-0.435382	0.735015	-0.668247
3.28	-0.429129	0.059373	0.830866	-0.428065	0.728290	-0.677080
3.29	-0.428494	0.067649	0.824331	-0.420816	0.721475	-0.685415
3.30	-0.427776	0.075858	0.817343	-0.413636	0.714583	-0.693305
3.31	-0.426977	0.083994	0.809938	-0.406525	0.707611	-0.700707
3.32	-0.426097	0.092056	0.802099	-0.399484	0.700570	-0.707676
3.33	-0.425136	0.100035	0.793864	-0.392514	0.693459	-0.714170
3.34	-0.424096	0.107932	0.785216	-0.385615	0.686288	-0.720244
3.35	-0.422978	0.115738	0.776194	-0.378788	0.679055	-0.725853
3.36	-0.421782	0.123454	0.766781	-0.372034	0.671773	-0.731057
3.37	-0.420509	0.131073	0.757019	-0.365353	0.664436	-0.735809
3.38	-0.419161	0.138593	0.746883	-0.358746	0.657058	-0.740170
3.39	-0.417737	0.146009	0.736422	-0.352212	0.649634	-0.744092
3.40	-0.416241	0.153321	0.725614	-0.345753	0.642177	-0.747637
3.41	-0.414671	0.160520	0.714504	-0.339368	0.634682	-0.750758
3.42	-0.413031	0.167610	0.703070	-0.333060	0.627163	-0.753517
3.43	-0.411320	0.174581	0.691359	-0.326825	0.619613	-0.755864
3.44	-0.409540	0.181436	0.679348	-0.320667	0.612047	-0.757867
3.45	-0.407691	0.188167	0.667086	-0.314584	0.604457	-0.759471
3.46	-0.405777	0.194777	0.654546	-0.308578	0.596859	-0.760747
3.47	-0.403796	0.201257	0.641782	-0.302647	0.589244	-0.761640
3.48	-0.401752	0.207612	0.628765	-0.296793	0.581627	-0.762219
3.49	-0.399644	0.213832	0.615549	-0.291015	0.574001	-0.762430

Approved for Public Release

Contrails

η	T_9	T_9'	T_9''	r_{11}	r_{11}'	r_{11}''
3.50	-0.397476	0.219922	0.602104	-0.285313	0.566379	-0.762345
3.51	-0.395246	0.225873	0.588487	-0.279687	0.558755	-0.761906
3.52	-0.392959	0.231691	0.574665	-0.274138	0.551142	-0.761187
3.53	-0.390613	0.237366	0.560696	-0.268664	0.543532	-0.760129
3.54	-0.388212	0.242904	0.546548	-0.263267	0.535940	-0.758808
3.55	-0.385755	0.248297	0.532278	-0.257945	0.528357	-0.757162
3.56	-0.383246	0.253549	0.517852	-0.252700	0.520798	-0.755271
3.57	-0.380685	0.258653	0.503331	-0.247529	0.513253	-0.753068
3.58	-0.378074	0.263615	0.488678	-0.242435	0.505737	-0.750638
3.59	-0.375413	0.268427	0.473954	-0.237414	0.498241	-0.747911
3.60	-0.372706	0.273094	0.459122	-0.232470	0.490780	-0.744973
3.61	-0.369952	0.277609	0.444244	-0.227599	0.483342	-0.741753
3.62	-0.367154	0.281979	0.429280	-0.222803	0.475945	-0.738338
3.63	-0.364313	0.286195	0.414296	-0.218080	0.468577	-0.734655
3.64	-0.361431	0.290264	0.399247	-0.213431	0.461253	-0.730795
3.65	-0.358508	0.294180	0.384203	-0.208855	0.453961	-0.726680
3.66	-0.355547	0.297948	0.369115	-0.204352	0.446720	-0.722405
3.67	-0.352549	0.301562	0.354055	-0.199920	0.439514	-0.717887
3.68	-0.349517	0.305029	0.338972	-0.195562	0.432363	-0.713227
3.69	-0.346449	0.308342	0.323941	-0.191273	0.425250	-0.708337
3.70	-0.343350	0.311508	0.308905	-0.187056	0.418196	-0.703321
3.71	-0.340220	0.314520	0.293943	-0.182909	0.411185	-0.698088
3.72	-0.337060	0.317387	0.278997	-0.178832	0.404235	-0.692745
3.73	-0.333872	0.320100	0.264145	-0.174824	0.397331	-0.687197
3.74	-0.330659	0.322670	0.249327	-0.170886	0.390491	-0.681555
3.75	-0.327420	0.325087	0.234625	-0.167014	0.383700	-0.675721
3.76	-0.324158	0.327363	0.219972	-0.163211	0.376977	-0.669808
3.77	-0.320873	0.329487	0.205456	-0.159474	0.370304	-0.663713
3.78	-0.317568	0.331472	0.191005	-0.155805	0.363703	-0.657555
3.79	-0.314244	0.333308	0.176710	-0.152200	0.357154	-0.651297
3.80	-0.310903	0.335007	0.162494	-0.148662	0.350678	-0.644851
3.81	-0.307544	0.336558	0.148452	-0.145186	0.344257	-0.638315
3.82	-0.304172	0.337976	0.134505	-0.141776	0.337912	-0.631746
3.83	-0.300785	0.339249	0.120748	-0.138428	0.331623	-0.625026
3.84	-0.297387	0.340391	0.107097	-0.135144	0.325412	-0.618287
3.85	-0.293978	0.341392	0.093653	-0.131919	0.319258	-0.611408
3.86	-0.290560	0.342265	0.080328	-0.128758	0.313184	-0.604524
3.87	-0.287133	0.342999	0.067225	-0.125655	0.307168	-0.597508
3.88	-0.283700	0.343610	0.054249	-0.122614	0.301233	-0.590501
3.89	-0.280261	0.344085	0.041511	-0.119630	0.295358	-0.583370
3.90	-0.276819	0.344440	0.028910	-0.116707	0.289566	-0.576262
3.91	-0.273373	0.344664	0.016560	-0.113839	0.283833	-0.569037
3.92	-0.269926	0.344772	0.004354	-0.111030	0.278185	-0.561848
3.93	-0.266478	0.344752	-0.007588	-0.108275	0.272597	-0.554550
3.94	-0.263031	0.344621	-0.019379	-0.105578	0.267094	-0.547299
3.95	-0.259586	0.344365	-0.030895	-0.102933	0.261651	-0.539947
3.96	-0.256144	0.344003	-0.042255	-0.100344	0.256295	-0.532654
3.97	-0.252706	0.343521	-0.053329	-0.097807	0.250998	-0.525266
3.98	-0.249274	0.342937	-0.064241	-0.095324	0.245789	-0.517948
3.99	-0.245848	0.342237	-0.074859	-0.092891	0.240640	-0.510541

Approved for Public Release

Contrails

η	T_9	T_9'	T_9''	r_{11}	r_{11}'	r_{11}''
4.00	-0.242430	0.341441	-0.085312	-0.090511	0.235578	-0.503216
4.01	-0.239019	0.340532	-0.095461	-0.088179	0.230576	-0.495806
4.02	-0.235620	0.339532	-0.105443	-0.085899	0.225662	-0.488490
4.03	-0.232229	0.338424	-0.115114	-0.083666	0.220806	-0.481092
4.04	-0.228851	0.337230	-0.124617	-0.081483	0.216039	-0.473800
4.05	-0.225485	0.335933	-0.133800	-0.079345	0.211330	-0.466429
4.06	-0.222133	0.334555	-0.142817	-0.077256	0.206710	-0.459175
4.07	-0.218794	0.333077	-0.151508	-0.075210	0.202147	-0.451845
4.08	-0.215472	0.331525	-0.160033	-0.073213	0.197673	-0.444641
4.09	-0.212164	0.329878	-0.168226	-0.071257	0.193255	-0.437364
4.10	-0.208874	0.328161	-0.176257	-0.069347	0.188925	-0.430223
4.11	-0.205601	0.326354	-0.183950	-0.067478	0.184650	-0.423011
4.12	-0.202347	0.324483	-0.191484	-0.065654	0.180465	-0.415945
4.13	-0.199111	0.322525	-0.198677	-0.063868	0.176332	-0.408809
4.14	-0.195897	0.320510	-0.205715	-0.062127	0.172288	-0.401828
4.15	-0.192702	0.318412	-0.212407	-0.060422	0.168295	-0.394777
4.16	-0.189529	0.316262	-0.218951	-0.058761	0.164392	-0.387891
4.17	-0.186377	0.314034	-0.225145	-0.057134	0.160538	-0.380935
4.18	-0.183249	0.311759	-0.231198	-0.055550	0.156772	-0.374153
4.19	-0.180142	0.309412	-0.236899	-0.053999	0.153055	-0.367300
4.20	-0.177060	0.307022	-0.242464	-0.052488	0.149426	-0.360630
4.21	-0.174001	0.304564	-0.247676	-0.051010	0.145843	-0.353888
4.22	-0.170969	0.302069	-0.252762	-0.049571	0.142347	-0.347337
4.23	-0.167960	0.299509	-0.257491	-0.048163	0.138896	-0.340712
4.24	-0.164979	0.296919	-0.262104	-0.046793	0.135532	-0.334287
4.25	-0.162022	0.294269	-0.266359	-0.045452	0.132211	-0.327785
4.26	-0.159094	0.291592	-0.270506	-0.044149	0.128976	-0.321492
4.27	-0.156190	0.288860	-0.274295	-0.042873	0.125781	-0.315119
4.28	-0.153317	0.286107	-0.277988	-0.041633	0.122673	-0.308963
4.29	-0.150468	0.283301	-0.281321	-0.040419	0.119602	-0.302724
4.30	-0.147651	0.280481	-0.284569	-0.039240	0.116618	-0.296709
4.31	-0.144859	0.277611	-0.287457	-0.038086	0.113668	-0.290607
4.32	-0.142099	0.274732	-0.290272	-0.036967	0.110805	-0.284737
4.33	-0.139364	0.271807	-0.292726	-0.035870	0.107974	-0.278776
4.34	-0.136662	0.268877	-0.295121	-0.034807	0.105228	-0.273055
4.35	-0.133987	0.265906	-0.297153	-0.033766	0.102513	-0.267238
4.36	-0.131344	0.262934	-0.299141	-0.032756	0.099883	-0.261669
4.37	-0.128728	0.259924	-0.300764	-0.031768	0.097280	-0.255997
4.38	-0.126146	0.256919	-0.302358	-0.030810	0.094762	-0.250582
4.39	-0.123590	0.253878	-0.303587	-0.029873	0.092269	-0.245057
4.40	-0.121068	0.250847	-0.304802	-0.028965	0.089860	-0.239797
4.41	-0.118573	0.247783	-0.305651	-0.028075	0.087473	-0.234421
4.42	-0.116112	0.244734	-0.306501	-0.027215	0.085170	-0.229318
4.43	-0.113679	0.241654	-0.306984	-0.026372	0.082887	-0.224092
4.44	-0.111279	0.238595	-0.307485	-0.025557	0.080688	-0.219146
4.45	-0.108907	0.235506	-0.307616	-0.024758	0.078505	-0.214069
4.46	-0.106569	0.232442	-0.307784	-0.023987	0.076405	-0.209281
4.47	-0.104258	0.229352	-0.307580	-0.023230	0.074320	-0.204354
4.48	-0.101982	0.226290	-0.307429	-0.022500	0.072317	-0.199724
4.49	-0.099732	0.223204	-0.306905	-0.021783	0.070326	-0.194945

Approved for Public Release

Contrails

η	T_9	T_9'	T_9''	r_{11}	r_{11}'	r_{11}''
4.50	-0.097518	0.220152	-0.306453	-0.021093	0.068417	-0.190473
4.51	-0.095329	0.217077	-0.305624	-0.020415	0.066517	-0.185842
4.52	-0.093176	0.214039	-0.304886	-0.019762	0.064699	-0.181526
4.53	-0.091049	0.210980	-0.303768	-0.019121	0.062887	-0.177041
4.54	-0.088956	0.207963	-0.302761	-0.018504	0.061157	-0.172882
4.55	-0.086890	0.204926	-0.301370	-0.017898	0.059430	-0.168542
4.56	-0.084858	0.201935	-0.300109	-0.017316	0.057785	-0.164537
4.57	-0.082851	0.198925	-0.298461	-0.016742	0.056140	-0.160099
4.58	-0.080879	0.195966	-0.296963	-0.016192	0.054577	-0.156488
4.59	-0.078932	0.192987	-0.295072	-0.015651	0.053011	-0.152432
4.60	-0.077019	0.190064	-0.293354	-0.015132	0.051527	-0.148730
4.61	-0.075130	0.187122	-0.291236	-0.014620	0.050037	-0.144813
4.62	-0.073276	0.184238	-0.289312	-0.014131	0.048630	-0.141261
4.63	-0.071446	0.181337	-0.286983	-0.013647	0.047213	-0.137479
4.64	-0.069649	0.178498	-0.284870	-0.013186	0.045879	-0.134073
4.65	-0.067876	0.175641	-0.282343	-0.012730	0.044532	-0.130440
4.66	-0.066136	0.172850	-0.280057	-0.012295	0.043269	-0.127163
4.67	-0.064419	0.170041	-0.277347	-0.011865	0.041989	-0.123645
4.68	-0.062735	0.167302	-0.274902	-0.011455	0.040794	-0.120525
4.69	-0.061073	0.164545	-0.272025	-0.011049	0.039580	-0.117134
4.70	-0.059444	0.161861	-0.269436	-0.010663	0.038450	-0.114153
4.71	-0.057836	0.159158	-0.266404	-0.010280	0.037298	-0.110886
4.72	-0.056261	0.156531	-0.263686	-0.009917	0.036231	-0.108041
4.73	-0.054705	0.153885	-0.260513	-0.009555	0.035138	-0.104894
4.74	-0.053183	0.151320	-0.257679	-0.009214	0.034132	-0.102183
4.75	-0.051679	0.148733	-0.254378	-0.008873	0.033096	-0.099152
4.76	-0.050208	0.146231	-0.251443	-0.008552	0.032147	-0.096572
4.77	-0.048754	0.143706	-0.248027	-0.008230	0.031165	-0.093654
4.78	-0.047333	0.141269	-0.245003	-0.007928	0.030272	-0.091201
4.79	-0.045929	0.138808	-0.241483	-0.007625	0.029343	-0.088392
4.80	-0.044557	0.136438	-0.238385	-0.007341	0.028503	-0.086064
4.81	-0.043200	0.134042	-0.234772	-0.007055	0.027623	-0.083361
4.82	-0.041876	0.131741	-0.231611	-0.006788	0.026834	-0.081154
4.83	-0.040566	0.129412	-0.227917	-0.006518	0.026001	-0.078552
4.84	-0.039287	0.127181	-0.224704	-0.006268	0.025261	-0.076464
4.85	-0.038022	0.124919	-0.220940	-0.006013	0.024473	-0.073960
4.86	-0.036788	0.122760	-0.217688	-0.005778	0.023780	-0.071987
4.87	-0.035567	0.120568	-0.213863	-0.005538	0.023035	-0.069576
4.88	-0.034377	0.118481	-0.210582	-0.005317	0.022387	-0.067716
4.89	-0.033197	0.116358	-0.206705	-0.005090	0.021682	-0.065395
4.90	-0.032049	0.114345	-0.203406	-0.004883	0.021077	-0.063644
4.91	-0.030911	0.112292	-0.199487	-0.004669	0.020411	-0.061409
4.92	-0.029803	0.110353	-0.196179	-0.004475	0.019846	-0.059764
4.93	-0.028704	0.108371	-0.192225	-0.004272	0.019218	-0.057611
4.94	-0.027635	0.106506	-0.188918	-0.004090	0.018692	-0.056069
4.95	-0.026574	0.104595	-0.184938	-0.003898	0.018098	-0.053995
4.96	-0.025543	0.102805	-0.181641	-0.003728	0.017610	-0.052553
4.97	-0.024518	0.100965	-0.177640	-0.003546	0.017049	-0.050553
4.98	-0.023523	0.099250	-0.174362	-0.003386	0.016597	-0.049209
4.99	-0.022533	0.097480	-0.170348	-0.003215	0.016067	-0.047278

Approved for Public Release

Contrails

η	T_9	T_9'	T_9''	r_{11}	r_{11}'	r_{11}''
5.00	-0.021573	0.095840	-0.167096	-0.003065	0.015649	-0.046029
5.01	-0.020616	0.094141	-0.163075	-0.002902	0.015148	-0.044165
5.02	-0.019690	0.092576	-0.159857	-0.002761	0.014763	-0.043008
5.03	-0.018765	0.090946	-0.155834	-0.002607	0.014291	-0.041207
5.04	-0.017870	0.089456	-0.152658	-0.002475	0.013936	-0.040139
5.05	-0.016976	0.087896	-0.148638	-0.002329	0.013490	-0.038396
5.06	-0.016112	0.086480	-0.145509	-0.002205	0.013165	-0.037415
5.07	-0.015247	0.084989	-0.141496	-0.002066	0.012744	-0.035727
5.08	-0.014412	0.083647	-0.138421	-0.001950	0.012448	-0.034830
5.09	-0.013574	0.082224	-0.134419	-0.001817	0.012050	-0.033194
5.10	-0.012767	0.080955	-0.131404	-0.001708	0.011781	-0.032379
5.11	-0.011955	0.079599	-0.127416	-0.001582	0.011405	-0.030791
5.12	-0.011174	0.078403	-0.124467	-0.001480	0.011162	-0.030056
5.13	-0.010387	0.077114	-0.120496	-0.001359	0.010807	-0.028511
5.14	-0.009631	0.075989	-0.117617	-0.001263	0.010589	-0.027853
5.15	-0.008868	0.074765	-0.113665	-0.001147	0.010253	-0.026349
5.16	-0.008135	0.073712	-0.110861	-0.001057	0.010059	-0.025767
5.17	-0.007394	0.072552	-0.106931	-0.000947	0.009741	-0.024299
5.18	-0.006684	0.071569	-0.104206	-0.000862	0.009569	-0.023791
5.19	-0.005963	0.070472	-0.100298	-0.000756	0.009268	-0.022356
5.20	-0.005274	0.069558	-0.097657	-0.000676	0.009119	-0.021921
5.21	-0.004572	0.068523	-0.093771	-0.000574	0.008833	-0.020515
5.22	-0.003903	0.067678	-0.091218	-0.000499	0.008705	-0.020150
5.23	-0.003219	0.066703	-0.087356	-0.000400	0.008434	-0.018770
5.24	-0.002568	0.065926	-0.084894	-0.000330	0.008326	-0.018474
5.25	-0.001901	0.065010	-0.081055	-0.000234	0.008068	-0.017117
5.26	-0.001267	0.064300	-0.078687	-0.000168	0.007979	-0.016888
5.27	-0.000616	0.063442	-0.074871	-0.000075	0.007734	-0.015551
5.28	0.000002	0.062797	-0.072600	-0.000012	0.007664	-0.015388

Approved for Public Release

Contrails

η	S_{11}	S'_{11}	S''_{11}	T_{11}	T'_{11}	T''_{11}
0.00	0.000000	0.388420	0.000000	0.000000	0.547273	0.000000
0.01	0.003884	0.388417	-0.000724	0.005472	0.547270	-0.000742
0.02	0.007768	0.388400	-0.002864	0.010945	0.547253	-0.002940
0.03	0.011652	0.388355	-0.006374	0.016417	0.547207	-0.006550
0.04	0.015535	0.388268	-0.011204	0.021889	0.547118	-0.011531
0.05	0.019417	0.388127	-0.017308	0.027359	0.546972	-0.017837
0.06	0.023297	0.387918	-0.024638	0.032828	0.546757	-0.025426
0.07	0.027175	0.387630	-0.033144	0.038294	0.546459	-0.034253
0.08	0.031049	0.387251	-0.042779	0.043757	0.546067	-0.044273
0.09	0.034920	0.386771	-0.053493	0.049215	0.545570	-0.055441
0.10	0.038784	0.386178	-0.065237	0.054668	0.544955	-0.067712
0.11	0.042643	0.385463	-0.077963	0.060114	0.544212	-0.081037
0.12	0.046493	0.384616	-0.091619	0.065552	0.543331	-0.095371
0.13	0.050335	0.383628	-0.106157	0.070980	0.542301	-0.110665
0.14	0.054165	0.382490	-0.121524	0.076397	0.541114	-0.126871
0.15	0.057984	0.381195	-0.137671	0.081802	0.539761	-0.143939
0.16	0.061789	0.379734	-0.154545	0.087192	0.538233	-0.161819
0.17	0.065578	0.378101	-0.172097	0.092566	0.536522	-0.180460
0.18	0.069350	0.376290	-0.190272	0.097922	0.534621	-0.199810
0.19	0.073103	0.374294	-0.209020	0.103258	0.532524	-0.219818
0.20	0.076835	0.372108	-0.228287	0.108572	0.530223	-0.240431
0.21	0.080545	0.369727	-0.248020	0.113861	0.527713	-0.261594
0.22	0.084229	0.367146	-0.268168	0.119125	0.524989	-0.283254
0.23	0.087887	0.364362	-0.288675	0.124360	0.522047	-0.305355
0.24	0.091516	0.361372	-0.309489	0.129565	0.518881	-0.327844
0.25	0.095114	0.358172	-0.330556	0.134737	0.515489	-0.350662
0.26	0.098679	0.354760	-0.351823	0.139874	0.511867	-0.373755
0.27	0.102208	0.351135	-0.373234	0.144974	0.508013	-0.397066
0.28	0.105701	0.347295	-0.394737	0.150034	0.503925	-0.420538
0.29	0.109153	0.343240	-0.416277	0.155052	0.499602	-0.444112
0.30	0.112565	0.338969	-0.437802	0.160025	0.495043	-0.467733
0.31	0.115932	0.334484	-0.459256	0.164952	0.490247	-0.491342
0.32	0.119254	0.329785	-0.480586	0.169829	0.485216	-0.514882
0.33	0.122527	0.324873	-0.501740	0.174655	0.479950	-0.538294
0.34	0.125750	0.319751	-0.522665	0.179427	0.474451	-0.561522
0.35	0.128921	0.314420	-0.543306	0.184144	0.468720	-0.584507
0.36	0.132038	0.308885	-0.563613	0.188801	0.462762	-0.607193
0.37	0.135098	0.303149	-0.583534	0.193398	0.456578	-0.629523
0.38	0.138100	0.297216	-0.603017	0.197932	0.450172	-0.651439
0.39	0.141042	0.291091	-0.622011	0.202401	0.443550	-0.672887
0.40	0.143922	0.284778	-0.640467	0.206802	0.436716	-0.693810
0.41	0.146737	0.278283	-0.658335	0.211134	0.429676	-0.714153
0.42	0.149487	0.271613	-0.675568	0.215395	0.422436	-0.733863
0.43	0.152169	0.264774	-0.692116	0.219583	0.415001	-0.752886
0.44	0.154782	0.257773	-0.707933	0.223695	0.407380	-0.771170
0.45	0.157324	0.250618	-0.722974	0.227730	0.399580	-0.788662
0.46	0.159794	0.243317	-0.737195	0.231686	0.391610	-0.805313
0.47	0.162190	0.235877	-0.750550	0.235561	0.383477	-0.821074
0.48	0.164511	0.228309	-0.762998	0.239355	0.375191	-0.835896
0.49	0.166755	0.220620	-0.774497	0.243065	0.366762	-0.849733

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Contrails

η	S_{11}	S'_{11}	S''_{11}	T_{11}	T'_{11}	T''_{11}
0.50	0.168923	0.212822	-0.785008	0.246689	0.358200	-0.862539
0.51	0.171012	0.204924	-0.794492	0.250228	0.349515	-0.874269
0.52	0.173021	0.196936	-0.802912	0.253679	0.340719	-0.884883
0.53	0.174950	0.188869	-0.810232	0.257042	0.331821	-0.894339
0.54	0.176798	0.180735	-0.816419	0.260316	0.322836	-0.902598
0.55	0.178565	0.172544	-0.821438	0.263499	0.313774	-0.909622
0.56	0.180249	0.164310	-0.825261	0.266591	0.304648	-0.915376
0.57	0.181851	0.156043	-0.827857	0.269591	0.295470	-0.919826
0.58	0.183370	0.147757	-0.829198	0.272500	0.286255	-0.922941
0.59	0.184806	0.139464	-0.829260	0.275317	0.277016	-0.924690
0.60	0.186159	0.131176	-0.828019	0.278040	0.267766	-0.925047
0.61	0.187429	0.122908	-0.825451	0.280672	0.258520	-0.923984
0.62	0.188617	0.114672	-0.821538	0.283211	0.249291	-0.921480
0.63	0.189723	0.106481	-0.816262	0.285658	0.240095	-0.917512
0.64	0.190747	0.098351	-0.809606	0.288013	0.230946	-0.912061
0.65	0.191690	0.090294	-0.801555	0.290277	0.221859	-0.905112
0.66	0.192553	0.082325	-0.792100	0.292450	0.212849	-0.896649
0.67	0.193337	0.074457	-0.781228	0.294534	0.203931	-0.886660
0.68	0.194043	0.066705	-0.768934	0.296529	0.195121	-0.875136
0.69	0.194672	0.059083	-0.755210	0.298437	0.186433	-0.862069
0.70	0.195225	0.051605	-0.740053	0.300259	0.177885	-0.847455
0.71	0.195704	0.044286	-0.723463	0.301995	0.169490	-0.831291
0.72	0.196111	0.037141	-0.705440	0.303649	0.161264	-0.813577
0.73	0.196448	0.030182	-0.685987	0.305221	0.153223	-0.794315
0.74	0.196716	0.023426	-0.665109	0.306714	0.145383	-0.773511
0.75	0.196917	0.016885	-0.642814	0.308130	0.137758	-0.751172
0.76	0.197054	0.010574	-0.619112	0.309470	0.130364	-0.727309
0.77	0.197129	0.004507	-0.594014	0.310738	0.123217	-0.701932
0.78	0.197145	-0.001301	-0.567535	0.311935	0.116331	-0.675058
0.79	0.197104	-0.006838	-0.539690	0.313065	0.109721	-0.646702
0.80	0.197009	-0.012090	-0.510499	0.314131	0.103402	-0.616887
0.81	0.196863	-0.017043	-0.479980	0.315134	0.097388	-0.585632
0.82	0.196669	-0.021685	-0.448159	0.316079	0.091694	-0.552963
0.83	0.196431	-0.026002	-0.415058	0.316969	0.086333	-0.518906
0.84	0.196151	-0.029982	-0.380705	0.317807	0.081320	-0.483492
0.85	0.195832	-0.033612	-0.345129	0.318597	0.076668	-0.446750
0.86	0.195479	-0.036881	-0.308361	0.319342	0.072389	-0.408715
0.87	0.195096	-0.039776	-0.270434	0.320046	0.068498	-0.369422
0.88	0.194685	-0.042286	-0.231382	0.320713	0.065005	-0.328910
0.89	0.194251	-0.044400	-0.191242	0.321347	0.061923	-0.287219
0.90	0.193799	-0.046107	-0.150053	0.321953	0.059264	-0.244390
0.91	0.193331	-0.047397	-0.107855	0.322534	0.057039	-0.200468
0.92	0.192852	-0.048261	-0.064690	0.323095	0.055258	-0.155499
0.93	0.192367	-0.048688	-0.020602	0.323641	0.053932	-0.109530
0.94	0.191880	-0.048670	0.024361	0.324176	0.053071	-0.062612
0.95	0.191395	-0.048198	0.070157	0.324704	0.052683	-0.014795
0.96	0.190917	-0.047264	0.116734	0.325231	0.052778	0.033865
0.97	0.190451	-0.045861	0.164043	0.325761	0.053363	0.083317
0.98	0.190002	-0.043981	0.212032	0.326300	0.054447	0.133503
0.99	0.189573	-0.041618	0.260649	0.326852	0.056035	0.184367

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Contrails

η	S_{11}	S'_{11}	S''_{11}	T_{11}	T'_{11}	T''_{11}
1.00	0.189171	-0.038766	0.309839	0.327422	0.058136	0.235848
1.01	0.188800	-0.035420	0.359548	0.328016	0.060754	0.287887
1.02	0.188464	-0.031574	0.409719	0.328639	0.063895	0.340422
1.03	0.188170	-0.027224	0.460295	0.329296	0.067564	0.393391
1.04	0.187921	-0.022367	0.511216	0.329992	0.071765	0.446730
1.05	0.187724	-0.016999	0.562426	0.330733	0.076500	0.500376
1.06	0.187583	-0.011117	0.613862	0.331524	0.081773	0.554262
1.07	0.187503	-0.004721	0.665466	0.332370	0.087586	0.608324
1.08	0.187490	0.002191	0.717174	0.333277	0.093940	0.662493
1.09	0.187549	0.009622	0.768927	0.334251	0.100836	0.716704
1.10	0.187685	0.017570	0.820660	0.335296	0.108274	0.770888
1.11	0.187902	0.026035	0.872312	0.336418	0.116253	0.824978
1.12	0.188207	0.035015	0.923818	0.337623	0.124773	0.878905
1.13	0.188604	0.044510	0.975118	0.338915	0.133830	0.932601
1.14	0.189099	0.054517	1.026145	0.340301	0.143424	0.985997
1.15	0.189696	0.065032	1.076839	0.341786	0.153549	1.039026
1.16	0.190401	0.076052	1.127134	0.343374	0.164203	1.091618
1.17	0.191219	0.087573	1.176968	0.345071	0.175380	1.143706
1.18	0.192154	0.099590	1.226277	0.346883	0.187075	1.195220
1.19	0.193212	0.112097	1.275000	0.348815	0.199282	1.246096
1.20	0.194398	0.125088	1.323072	0.350871	0.211995	1.296264
1.21	0.195716	0.138556	1.370434	0.353056	0.225205	1.345660
1.22	0.197171	0.152494	1.417022	0.355376	0.238905	1.394215
1.23	0.198767	0.166894	1.462778	0.357836	0.253086	1.441868
1.24	0.200510	0.181747	1.507640	0.360440	0.267739	1.488551
1.25	0.202404	0.197043	1.551550	0.363192	0.282854	1.534204
1.26	0.204452	0.212774	1.594447	0.366098	0.298420	1.578762
1.27	0.206661	0.228929	1.636278	0.369162	0.314425	1.622167
1.28	0.209032	0.245496	1.676982	0.372388	0.330859	1.664355
1.29	0.211572	0.262464	1.716508	0.375781	0.347708	1.705272
1.30	0.214283	0.279822	1.754798	0.379344	0.364960	1.744857
1.31	0.217170	0.297556	1.791803	0.383081	0.382601	1.783056
1.32	0.220235	0.315654	1.827468	0.386997	0.400616	1.819813
1.33	0.223484	0.334101	1.861746	0.391095	0.418992	1.855077
1.34	0.226918	0.352884	1.894584	0.395378	0.437713	1.888795
1.35	0.230543	0.371988	1.925940	0.399850	0.456762	1.920919
1.36	0.234359	0.391397	1.955764	0.404514	0.476126	1.951399
1.37	0.238371	0.411098	1.984015	0.409374	0.495785	1.980191
1.38	0.242582	0.431072	2.010648	0.414431	0.515724	2.007250
1.39	0.246994	0.451305	2.035625	0.419689	0.535924	2.032534
1.40	0.251609	0.471779	2.058905	0.425150	0.556368	2.056002
1.41	0.256430	0.492477	2.080453	0.430817	0.577038	2.077618
1.42	0.261459	0.513382	2.100232	0.436692	0.597914	2.097342
1.43	0.266698	0.534476	2.118211	0.442776	0.618978	2.115145
1.44	0.272149	0.555741	2.134356	0.449072	0.640211	2.130990
1.45	0.277814	0.577157	2.148642	0.455581	0.661591	2.144852
1.46	0.283693	0.598707	2.161037	0.462304	0.683101	2.156699
1.47	0.289788	0.620371	2.171520	0.469243	0.704719	2.166510
1.48	0.296101	0.642131	2.180064	0.476399	0.726424	2.174258
1.49	0.302631	0.663966	2.186653	0.483772	0.748197	2.179927

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η	S_{11}	S'_{11}	S''_{11}	T_{11}	T'_{11}	T''_{11}
1.50	0.309380	0.685858	2.191264	0.491363	0.770016	2.183495
1.51	0.316348	0.707785	2.193884	0.499172	0.791860	2.184949
1.52	0.323536	0.729728	2.194495	0.507200	0.813708	2.184272
1.53	0.330943	0.751668	2.193089	0.515446	0.835538	2.181458
1.54	0.338569	0.773584	2.189652	0.523911	0.857330	2.176492
1.55	0.346415	0.795454	2.184180	0.532593	0.879061	2.169374
1.56	0.354478	0.817260	2.176665	0.541492	0.900710	2.160094
1.57	0.362759	0.838981	2.167106	0.550607	0.922255	2.148657
1.58	0.371257	0.860596	2.155500	0.559936	0.943676	2.135057
1.59	0.379971	0.882084	2.141850	0.569480	0.964949	2.119304
1.60	0.388899	0.903426	2.126157	0.579235	0.986055	2.101397
1.61	0.398039	0.924600	2.108431	0.589200	1.006970	2.081350
1.62	0.407390	0.945588	2.088675	0.599374	1.027675	2.059169
1.63	0.416950	0.966367	2.066905	0.609753	1.048147	2.034871
1.64	0.426717	0.986919	2.043126	0.620336	1.068365	2.008466
1.65	0.436688	1.007223	2.017360	0.631119	1.088309	1.979976
1.66	0.446860	1.027260	1.989617	0.642101	1.107958	1.949417
1.67	0.457232	1.047009	1.959922	0.653277	1.127290	1.916814
1.68	0.467799	1.066452	1.928290	0.664646	1.146287	1.882187
1.69	0.478560	1.085568	1.894750	0.676202	1.164928	1.845568
1.70	0.489510	1.104340	1.859320	0.687943	1.183192	1.806978
1.71	0.500645	1.122749	1.822034	0.699864	1.201061	1.766455
1.72	0.511963	1.140775	1.782914	0.711963	1.218515	1.724024
1.73	0.523460	1.158401	1.741997	0.724233	1.235535	1.679727
1.74	0.535130	1.175609	1.699311	0.736672	1.252103	1.633594
1.75	0.546970	1.192381	1.654894	0.749274	1.268201	1.585668
1.76	0.558976	1.208701	1.608778	0.762034	1.283811	1.535985
1.77	0.571143	1.224551	1.561008	0.774948	1.298915	1.484592
1.78	0.583465	1.239916	1.511615	0.788011	1.313497	1.431526
1.79	0.595939	1.254778	1.460648	0.801217	1.327540	1.376840
1.80	0.608559	1.269124	1.408143	0.814560	1.341029	1.320574
1.81	0.621320	1.282936	1.354152	0.828035	1.353946	1.262784
1.82	0.634216	1.296202	1.298713	0.841637	1.366279	1.203511
1.83	0.647242	1.308906	1.241882	0.855359	1.378012	1.142817
1.84	0.660392	1.321035	1.183698	0.869195	1.389131	1.080744
1.85	0.673661	1.332576	1.124220	0.883139	1.399622	1.017357
1.86	0.687042	1.343516	1.063492	0.897185	1.409474	0.952702
1.87	0.700529	1.353841	1.001573	0.911327	1.418672	0.886843
1.88	0.714117	1.363543	0.938509	0.925557	1.427207	0.819832
1.89	0.727798	1.372608	0.874363	0.939869	1.435066	0.751734
1.90	0.741567	1.381027	0.809182	0.954256	1.442238	0.682601
1.91	0.755416	1.388788	0.743031	0.968711	1.448714	0.612503
1.92	0.769340	1.395885	0.675958	0.983228	1.454485	0.541491
1.93	0.783332	1.402305	0.608030	0.997798	1.459541	0.469639
1.94	0.797384	1.408042	0.539298	1.012416	1.463876	0.396998
1.95	0.811490	1.413088	0.469829	1.027073	1.467479	0.323642
1.96	0.825644	1.417437	0.399674	1.041763	1.470346	0.249626
1.97	0.839837	1.421080	0.328904	1.056478	1.472470	0.175024
1.98	0.854063	1.424013	0.257569	1.071210	1.473845	0.099891
1.99	0.868315	1.426229	0.185740	1.085952	1.474466	0.024302

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η	S_{11}	S'_{11}	S''_{11}	T_{11}	T'_{11}	T''_{11}
2.00	0.882585	1.427726	0.113470	1.100697	1.474330	-0.051686
2.01	0.896867	1.428498	0.040830	1.115436	1.473431	-0.128000
2.02	0.911153	1.428542	-0.032128	1.130163	1.471769	-0.204583
2.03	0.925435	1.427854	-0.105332	1.144869	1.469339	-0.281358
2.04	0.939707	1.426435	-0.178730	1.159547	1.466141	-0.358272
2.05	0.953961	1.424279	-0.252250	1.174189	1.462173	-0.435246
2.06	0.968190	1.421389	-0.325841	1.188788	1.457436	-0.512228
2.07	0.982387	1.417762	-0.399429	1.203336	1.451929	-0.589139
2.08	0.996543	1.413401	-0.472965	1.217824	1.445654	-0.665928
2.09	1.010652	1.408304	-0.546375	1.232246	1.438611	-0.742517
2.10	1.024707	1.402474	-0.619611	1.246594	1.430804	-0.818856
2.11	1.038699	1.395912	-0.692601	1.260860	1.422235	-0.894867
2.12	1.052623	1.388623	-0.765296	1.275036	1.412908	-0.970501
2.13	1.066469	1.380607	-0.837625	1.289115	1.402826	-1.045683
2.14	1.080232	1.371872	-0.909541	1.303090	1.391996	-1.120364
2.15	1.093905	1.362418	-0.980975	1.316953	1.380421	-1.194469
2.16	1.107478	1.352254	-1.051881	1.330696	1.368109	-1.267954
2.17	1.120947	1.341383	-1.122190	1.344313	1.355064	-1.340744
2.18	1.134304	1.329812	-1.191859	1.357795	1.341296	-1.412797
2.19	1.147541	1.317548	-1.260820	1.371136	1.326811	-1.484040
2.20	1.160652	1.304598	-1.329034	1.384329	1.311618	-1.554432
2.21	1.173631	1.290970	-1.396432	1.397366	1.295725	-1.623903
2.22	1.186470	1.276673	-1.462978	1.410241	1.279144	-1.692415
2.23	1.199162	1.261713	-1.528606	1.422947	1.261880	-1.759899
2.24	1.211702	1.246104	-1.593281	1.435476	1.243949	-1.826320
2.25	1.224082	1.229851	-1.656940	1.447824	1.225358	-1.891612
2.26	1.236297	1.212968	-1.719552	1.459981	1.206121	-1.955742
2.27	1.248339	1.195464	-1.781053	1.471944	1.186247	-2.018647
2.28	1.260204	1.177351	-1.841416	1.483704	1.165752	-2.080298
2.29	1.271884	1.158639	-1.900581	1.495257	1.144645	-2.140632
2.30	1.283375	1.139344	-1.958523	1.506595	1.122944	-2.199625
2.31	1.294669	1.119473	-2.015183	1.517714	1.100658	-2.257216
2.32	1.305762	1.099044	-2.070541	1.528606	1.077804	-2.313385
2.33	1.316648	1.078067	-2.124540	1.539268	1.054395	-2.368074
2.34	1.327322	1.056558	-2.177163	1.549693	1.030448	-2.421265
2.35	1.337778	1.034528	-2.228355	1.559875	1.005975	-2.472904
2.36	1.348011	1.011996	-2.278104	1.569810	0.980995	-2.522977
2.37	1.358016	0.988971	-2.326358	1.579493	0.955520	-2.571432
2.38	1.367789	0.965474	-2.373107	1.588919	0.929572	-2.618260
2.39	1.377324	0.941514	-2.418301	1.598083	0.903161	-2.663410
2.40	1.386617	0.917113	-2.461935	1.606981	0.876309	-2.706879
2.41	1.395665	0.892281	-2.503962	1.615608	0.849029	-2.748617
2.42	1.404462	0.867039	-2.544380	1.623960	0.821342	-2.788626
2.43	1.413004	0.841399	-2.583145	1.632034	0.793262	-2.826859
2.44	1.421288	0.815381	-2.620259	1.639824	0.764811	-2.863321
2.45	1.429311	0.788999	-2.655680	1.647329	0.736002	-2.897969
2.46	1.437067	0.762273	-2.689415	1.654543	0.706858	-2.930813
2.47	1.444555	0.735217	-2.721424	1.661465	0.677392	-2.961810
2.48	1.451771	0.707851	-2.751718	1.668090	0.647628	-2.990977
2.49	1.458711	0.680188	-2.780259	1.674416	0.617579	-3.018273

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Contrails

η	S_{11}	S'_{11}	S''_{11}	T_{11}	T'_{11}	T''_{11}
2.50	1.465374	0.652251	-2.807062	1.680441	0.587268	-3.043717
2.51	1.471755	0.624053	-2.832093	1.686161	0.556711	-3.067273
2.52	1.477854	0.595615	-2.855371	1.691574	0.525929	-3.088965
2.53	1.483667	0.566951	-2.876863	1.696679	0.494938	-3.108758
2.54	1.489192	0.538084	-2.896593	1.701472	0.463760	-3.126680
2.55	1.494428	0.509026	-2.914529	1.705954	0.432410	-3.142699
2.56	1.499372	0.479799	-2.930700	1.710120	0.400912	-3.156847
2.57	1.504024	0.450417	-2.945077	1.713971	0.369280	-3.169095
2.58	1.508380	0.420903	-2.957692	1.717505	0.337537	-3.179480
2.59	1.512441	0.391270	-2.968518	1.720722	0.305696	-3.187973
2.60	1.516205	0.361539	-2.977592	1.723619	0.273783	-3.194616
2.61	1.519672	0.331724	-2.984888	1.726197	0.241810	-3.199383
2.62	1.522839	0.301847	-2.990448	1.728455	0.209802	-3.202320
2.63	1.525708	0.271921	-2.994248	1.730393	0.177770	-3.203402
2.64	1.528278	0.241968	-2.996332	1.732010	0.145740	-3.202679
2.65	1.530548	0.212000	-2.996678	1.733308	0.113723	-3.200128
2.66	1.532518	0.182040	-2.995336	1.734285	0.081743	-3.195804
2.67	1.534189	0.152099	-2.992284	1.734943	0.049813	-3.189686
2.68	1.535560	0.122200	-2.987576	1.735282	0.017955	-3.181831
2.69	1.536633	0.092353	-2.981191	1.735302	-0.013817	-3.172219
2.70	1.537407	0.062581	-2.973188	1.735006	-0.045483	-3.160914
2.71	1.537885	0.032894	-2.963546	1.734393	-0.077030	-3.147894
2.72	1.538065	0.003315	-2.952328	1.733465	-0.108435	-3.133229
2.73	1.537951	-0.026146	-2.939514	1.732225	-0.139689	-3.116897
2.74	1.537543	-0.055469	-2.925170	1.730672	-0.170768	-3.098971
2.75	1.536843	-0.084644	-2.909277	1.728810	-0.201663	-3.079432
2.76	1.535851	-0.113649	-2.891905	1.726640	-0.232351	-3.058354
2.77	1.534570	-0.142477	-2.873036	1.724164	-0.262825	-3.035720
2.78	1.533002	-0.171105	-2.852743	1.721384	-0.293061	-3.011608
2.79	1.531149	-0.199527	-2.831008	1.718304	-0.323052	-2.986000
2.80	1.529012	-0.227721	-2.807907	1.714924	-0.352776	-2.958978
2.81	1.526595	-0.255681	-2.783422	1.711249	-0.382227	-2.930523
2.82	1.523899	-0.283385	-2.757633	1.707280	-0.411382	-2.900723
2.83	1.520928	-0.310829	-2.730522	1.703022	-0.440237	-2.869557
2.84	1.517684	-0.337991	-2.702172	1.698477	-0.468769	-2.837115
2.85	1.514169	-0.364868	-2.672564	1.693648	-0.496975	-2.803378
2.86	1.510387	-0.391439	-2.641784	1.688538	-0.524832	-2.768439
2.87	1.506342	-0.417700	-2.609813	1.683152	-0.552339	-2.732277
2.88	1.502034	-0.443631	-2.576742	1.677493	-0.579474	-2.694988
2.89	1.497470	-0.469231	-2.542547	1.671564	-0.606235	-2.656550
2.90	1.492651	-0.494479	-2.507324	1.665369	-0.632602	-2.617064
2.91	1.487582	-0.519374	-2.471048	1.658913	-0.658573	-2.576504
2.92	1.482265	-0.543897	-2.433818	1.652199	-0.684129	-2.534976
2.93	1.476705	-0.568047	-2.395607	1.645232	-0.709269	-2.492452
2.94	1.470905	-0.591806	-2.356517	1.638015	-0.733975	-2.449040
2.95	1.464870	-0.615174	-2.316520	1.630554	-0.758247	-2.404711
2.96	1.458603	-0.638134	-2.275720	1.622852	-0.782066	-2.359577
2.97	1.452109	-0.660686	-2.234088	1.614914	-0.805436	-2.313604
2.98	1.445390	-0.682813	-2.191729	1.606745	-0.828336	-2.266908
2.99	1.438454	-0.704518	-2.148613	1.598349	-0.850771	-2.219453

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Contrails

η	S_{11}	S'_{11}	S''_{11}	T_{11}	T'_{11}	T''_{11}
3.00	1.431302	-0.725783	-2.104848	1.589731	-0.872723	-2.171358
3.01	1.423940	-0.746613	-2.060400	1.580896	-0.894196	-2.122585
3.02	1.416371	-0.766989	-2.015382	1.571849	-0.915173	-2.073255
3.03	1.408601	-0.786918	-1.969755	1.562595	-0.935659	-2.023326
3.04	1.400634	-0.806383	-1.923636	1.553137	-0.955638	-1.972922
3.05	1.392475	-0.825389	-1.876983	1.543483	-0.975116	-1.921998
3.06	1.384128	-0.843921	-1.829915	1.533636	-0.994076	-1.870682
3.07	1.375598	-0.861986	-1.782387	1.523604	-1.012528	-1.818925
3.08	1.366890	-0.879568	-1.734521	1.513388	-1.030454	-1.766856
3.09	1.358009	-0.896675	-1.686267	1.502996	-1.047864	-1.714424
3.10	1.348958	-0.913292	-1.637751	1.492432	-1.064742	-1.661761
3.11	1.339744	-0.929429	-1.588919	1.481703	-1.081098	-1.608809
3.12	1.330371	-0.945070	-1.539900	1.470812	-1.096917	-1.555706
3.13	1.320845	-0.960226	-1.490636	1.459766	-1.112212	-1.502389
3.14	1.311168	-0.974882	-1.441257	1.448569	-1.126965	-1.448998
3.15	1.301349	-0.989051	-1.391702	1.437229	-1.141191	-1.395464
3.16	1.291389	-1.002716	-1.342105	1.425747	-1.154874	-1.341933
3.17	1.281296	-1.015893	-1.292398	1.414133	-1.168030	-1.288330
3.18	1.271072	-1.028564	-1.242719	1.402389	-1.180641	-1.234802
3.19	1.260726	-1.040747	-1.192994	1.390522	-1.192726	-1.181271
3.20	1.250259	-1.052424	-1.143366	1.378536	-1.204267	-1.127887
3.21	1.239679	-1.063614	-1.093755	1.366439	-1.215284	-1.074565
3.22	1.228989	-1.074300	-1.044307	1.354232	-1.225759	-1.021460
3.23	1.218195	-1.084501	-0.994936	1.341925	-1.235713	-0.968479
3.24	1.207300	-1.094200	-0.945791	1.329520	-1.245129	-0.915782
3.25	1.196312	-1.103417	-0.896781	1.317024	-1.254030	-0.863269
3.26	1.185233	-1.112136	-0.848059	1.304441	-1.262396	-0.811104
3.27	1.174071	-1.120379	-0.799526	1.291778	-1.270253	-0.759181
3.28	1.162828	-1.128128	-0.751340	1.279037	-1.277581	-0.707666
3.29	1.151510	-1.135406	-0.703396	1.266228	-1.284407	-0.656448
3.30	1.140121	-1.142197	-0.655854	1.253351	-1.290712	-0.605698
3.31	1.128668	-1.148525	-0.608603	1.240415	-1.296522	-0.555294
3.32	1.117152	-1.154371	-0.561808	1.227422	-1.301819	-0.505413
3.33	1.105582	-1.159762	-0.515350	1.214381	-1.306632	-0.455927
3.34	1.093958	-1.164679	-0.469399	1.201291	-1.310940	-0.407017
3.35	1.082290	-1.169151	-0.423828	1.188163	-1.314773	-0.358545
3.36	1.070577	-1.173158	-0.378812	1.174998	-1.318113	-0.310699
3.37	1.058828	-1.176729	-0.334215	1.161803	-1.320989	-0.263332
3.38	1.047044	-1.179844	-0.290218	1.148579	-1.323382	-0.216637
3.39	1.035233	-1.182535	-0.246677	1.135337	-1.325323	-0.170459
3.40	1.023395	-1.184780	-0.203778	1.122074	-1.326793	-0.124996
3.41	1.011538	-1.186612	-0.161368	1.108802	-1.327825	-0.080085
3.42	0.999664	-1.188010	-0.119639	1.095519	-1.328397	-0.035927
3.43	0.987780	-1.189006	-0.078430	1.082236	-1.328546	0.007647
3.44	0.975885	-1.189581	-0.037937	1.068950	-1.328247	0.050431
3.45	0.963989	-1.189767	0.002008	1.055672	-1.327539	0.092605
3.46	0.952091	-1.189543	0.041204	1.042401	-1.326398	0.133955
3.47	0.940200	-1.188945	0.079830	1.029145	-1.324862	0.174672
3.48	0.928314	-1.187949	0.117677	1.015905	-1.322907	0.214533
3.49	0.916442	-1.186593	0.154933	1.002688	-1.320573	0.253742

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η	S_{11}	S'_{11}	S''_{11}	T_{11}	T'_{11}	T''_{11}
3.50	0.904583	-1.184853	0.191381	0.989495	-1.317835	0.292067
3.51	0.892746	-1.182767	0.227222	0.976333	-1.314734	0.329723
3.52	0.880929	-1.180311	0.262232	0.963201	-1.311244	0.366472
3.53	0.869141	-1.177525	0.296620	0.950109	-1.307407	0.402537
3.54	0.857380	-1.174382	0.330155	0.937054	-1.303196	0.437674
3.55	0.845654	-1.170924	0.363058	0.924046	-1.298656	0.472118
3.56	0.833962	-1.167124	0.395088	0.911082	-1.293757	0.505614
3.57	0.822313	-1.163024	0.426479	0.898172	-1.288546	0.538411
3.58	0.810703	-1.158597	0.456981	0.885313	-1.282992	0.570244
3.59	0.799142	-1.153887	0.486839	0.872513	-1.277143	0.601374
3.60	0.787626	-1.148863	0.515794	0.859771	-1.270968	0.631527
3.61	0.776165	-1.143573	0.544103	0.847095	-1.264515	0.660977
3.62	0.764756	-1.137984	0.571498	0.834482	-1.257752	0.689440
3.63	0.753406	-1.132145	0.598249	0.821941	-1.250729	0.717201
3.64	0.742114	-1.126022	0.624077	0.809468	-1.243411	0.743967
3.65	0.730887	-1.119666	0.649264	0.797073	-1.235852	0.770038
3.66	0.719721	-1.113040	0.673521	0.784752	-1.228013	0.795108
3.67	0.708627	-1.106197	0.697145	0.772514	-1.219952	0.819491
3.68	0.697598	-1.099100	0.719833	0.760354	-1.211627	0.842869
3.69	0.686645	-1.091803	0.741897	0.748282	-1.203097	0.865571
3.70	0.675763	-1.084265	0.763024	0.736293	-1.194319	0.887266
3.71	0.664961	-1.076544	0.783539	0.724396	-1.185353	0.908300
3.72	0.654233	-1.068598	0.803114	0.712586	-1.176156	0.928328
3.73	0.643589	-1.060484	0.822092	0.700874	-1.166789	0.947710
3.74	0.633024	-1.052159	0.840132	0.689251	-1.157206	0.966088
3.75	0.622547	-1.043683	0.857591	0.677730	-1.147469	0.983839
3.76	0.612151	-1.035010	0.874114	0.666302	-1.137532	1.000591
3.77	0.601847	-1.026203	0.890075	0.654980	-1.127459	1.016736
3.78	0.591627	-1.017212	0.905103	0.643754	-1.117201	1.031887
3.79	0.581503	-1.008102	0.919513	0.632636	-1.106824	1.046345
3.80	0.571466	-0.998823	0.933152	0.621618	-1.096275	1.060034
3.81	0.561527	-0.989441	0.946194	0.610711	-1.085625	1.073057
3.82	0.551677	-0.979903	0.958315	0.599906	-1.074817	1.085099
3.83	0.541929	-0.970276	0.969943	0.589215	-1.063925	1.096612
3.84	0.532272	-0.960507	0.980658	0.578628	-1.052888	1.107152
3.85	0.522719	-0.950665	0.990906	0.568157	-1.041783	1.117192
3.86	0.513260	-0.940692	1.000249	0.557793	-1.030547	1.126271
3.87	0.503905	-0.930661	1.009153	0.547547	-1.019259	1.134879
3.88	0.494647	-0.920512	1.017160	0.537408	-1.007853	1.142536
3.89	0.485495	-0.910319	1.024759	0.527390	-0.996410	1.149755
3.90	0.476441	-0.900019	1.031471	0.517480	-0.984861	1.156034
3.91	0.467495	-0.889691	1.037805	0.507693	-0.973291	1.161910
3.92	0.458647	-0.879266	1.043263	0.498015	-0.961626	1.166857
3.93	0.449910	-0.868827	1.048376	0.488460	-0.949955	1.171436
3.94	0.441271	-0.858302	1.052622	0.479016	-0.938200	1.175098
3.95	0.432744	-0.847775	1.056557	0.469696	-0.926454	1.178428
3.96	0.424316	-0.837173	1.059636	0.460487	-0.914635	1.180854
3.97	0.416000	-0.826584	1.062439	0.451403	-0.902837	1.182986
3.98	0.407784	-0.815928	1.064396	0.442430	-0.890978	1.184225
3.99	0.399682	-0.805296	1.066114	0.433584	-0.879154	1.185209

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Contrails

η	S_{11}	S'_{11}	S''_{11}	T_{11}	T'_{11}	T''_{11}
4.00	0.391678	-0.794608	1.066996	0.424847	-0.867277	1.185313
4.01	0.383789	-0.783957	1.067676	0.416238	-0.855448	1.185201
4.02	0.375999	-0.773257	1.067531	0.407739	-0.843576	1.184221
4.03	0.368324	-0.762607	1.067222	0.399366	-0.831764	1.183066
4.04	0.360747	-0.751916	1.066097	0.391103	-0.819917	1.181054
4.05	0.353285	-0.741285	1.064847	0.382967	-0.808144	1.178908
4.06	0.345922	-0.730621	1.062791	0.374941	-0.796342	1.175917
4.07	0.338673	-0.720030	1.060649	0.367040	-0.784625	1.172835
4.08	0.331521	-0.709411	1.057711	0.359248	-0.772888	1.168916
4.09	0.324484	-0.698876	1.054797	0.351582	-0.761247	1.164950
4.10	0.317544	-0.688319	1.050955	0.344023	-0.749592	1.160157
4.11	0.310718	-0.677857	1.047178	0.336590	-0.738044	1.155360
4.12	0.303987	-0.667378	1.042620	0.329262	-0.726488	1.149746
4.13	0.297370	-0.657004	1.038100	0.322060	-0.715049	1.144171
4.14	0.290847	-0.646619	1.032804	0.314961	-0.703607	1.137786
4.15	0.284437	-0.636348	1.027588	0.307987	-0.692293	1.131487
4.16	0.278120	-0.626070	1.021603	0.301116	-0.680980	1.124383
4.17	0.271915	-0.615915	1.015741	0.294367	-0.669805	1.117410
4.18	0.265801	-0.605758	1.009112	0.287719	-0.658635	1.109638
4.19	0.259799	-0.595732	1.002651	0.281194	-0.647611	1.102043
4.20	0.253887	-0.585707	0.995426	0.274767	-0.636596	1.093652
4.21	0.248085	-0.575823	0.988413	0.268462	-0.625737	1.085485
4.22	0.242370	-0.565942	0.980637	0.262252	-0.614889	1.076524
4.23	0.236765	-0.556209	0.973117	0.256163	-0.604206	1.067835
4.24	0.231246	-0.546482	0.964835	0.250168	-0.593536	1.058352
4.25	0.225835	-0.536911	0.956854	0.244292	-0.583038	1.049188
4.26	0.220508	-0.527347	0.948108	0.238507	-0.572554	1.039230
4.27	0.215288	-0.517948	0.939710	0.232840	-0.562252	1.029639
4.28	0.210149	-0.508556	0.930544	0.227262	-0.551964	1.019250
4.29	0.205116	-0.499336	0.921772	0.221800	-0.541865	1.009277
4.30	0.200162	-0.490123	0.912225	0.216425	-0.531782	0.998502
4.31	0.195313	-0.481090	0.903120	0.211164	-0.521894	0.988192
4.32	0.190540	-0.472063	0.893234	0.205987	-0.512021	0.977073
4.33	0.185871	-0.463223	0.883837	0.200923	-0.502350	0.966468
4.34	0.181276	-0.454389	0.873649	0.195940	-0.492694	0.955046
4.35	0.176783	-0.445748	0.863998	0.191068	-0.483247	0.944188
4.36	0.172361	-0.437112	0.853546	0.186275	-0.473813	0.932502
4.37	0.168040	-0.428675	0.843680	0.181591	-0.464595	0.921432
4.38	0.163787	-0.420241	0.832998	0.176983	-0.455387	0.909520
4.39	0.159634	-0.412013	0.822952	0.172483	-0.446402	0.898274
4.40	0.155547	-0.403785	0.812075	0.168055	-0.437425	0.886172
4.41	0.151558	-0.395769	0.801884	0.163734	-0.428676	0.874789
4.42	0.147632	-0.387751	0.790845	0.159481	-0.419932	0.862532
4.43	0.143802	-0.379950	0.780541	0.155334	-0.411423	0.851046
4.44	0.140033	-0.372143	0.769370	0.151253	-0.402914	0.838665
4.45	0.136358	-0.364559	0.758987	0.147275	-0.394647	0.827110
4.46	0.132741	-0.356966	0.747713	0.143360	-0.386375	0.814638
4.47	0.129218	-0.349602	0.737280	0.139547	-0.378351	0.803045
4.48	0.125749	-0.342224	0.725930	0.135793	-0.370318	0.790510
4.49	0.122373	-0.335080	0.715476	0.132139	-0.362537	0.778910

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η	S_{11}	S'_{11}	S''_{11}	T_{11}	T'_{11}	T''_{11}
4.50	0.119048	-0.327918	0.704078	0.128542	-0.354743	0.766340
4.51	0.115814	-0.320996	0.693629	0.125044	-0.347207	0.754762
4.52	0.112628	-0.314048	0.682207	0.121598	-0.339651	0.742182
4.53	0.109532	-0.307348	0.671790	0.118250	-0.332360	0.730652
4.54	0.106481	-0.300616	0.660365	0.114951	-0.325042	0.718087
4.55	0.103519	-0.294137	0.650004	0.111748	-0.317994	0.706632
4.56	0.100599	-0.287620	0.638599	0.108591	-0.310913	0.694103
4.57	0.097766	-0.281361	0.628317	0.105529	-0.304108	0.682745
4.58	0.094972	-0.275057	0.616951	0.102509	-0.297262	0.670275
4.59	0.092264	-0.269018	0.606768	0.099583	-0.290698	0.659036
4.60	0.089591	-0.262926	0.595459	0.096695	-0.284085	0.646642
4.61	0.087004	-0.257104	0.585396	0.093900	-0.277761	0.635544
4.62	0.084449	-0.251222	0.574162	0.091140	-0.271379	0.623245
4.63	0.081979	-0.245616	0.564236	0.088471	-0.265291	0.612307
4.64	0.079537	-0.239941	0.553091	0.085835	-0.259137	0.600117
4.65	0.077179	-0.234550	0.543321	0.083288	-0.253284	0.589356
4.66	0.074847	-0.229079	0.532279	0.080769	-0.247354	0.577291
4.67	0.072597	-0.223899	0.522680	0.078340	-0.241733	0.566724
4.68	0.070369	-0.218631	0.511752	0.075935	-0.236025	0.554795
4.69	0.068223	-0.213659	0.502339	0.073618	-0.230631	0.544437
4.70	0.066096	-0.208589	0.491537	0.071323	-0.225141	0.532657
4.71	0.064050	-0.203822	0.482323	0.069114	-0.219972	0.522522
4.72	0.062020	-0.198947	0.471657	0.066924	-0.214696	0.510899
4.73	0.060070	-0.194383	0.462654	0.064819	-0.209748	0.500999
4.74	0.058133	-0.189700	0.452132	0.062729	-0.204681	0.489543
4.75	0.056275	-0.185335	0.443350	0.060724	-0.199951	0.479889
4.76	0.054426	-0.180838	0.432980	0.058730	-0.195089	0.468608
4.77	0.052657	-0.176669	0.424430	0.056821	-0.190572	0.459210
4.78	0.050894	-0.172355	0.414216	0.054919	-0.185911	0.448108
4.79	0.049209	-0.168378	0.405908	0.053102	-0.181603	0.438975
4.80	0.047526	-0.164243	0.395855	0.051288	-0.177138	0.428057
4.81	0.045923	-0.160454	0.387795	0.049558	-0.173035	0.419198
4.82	0.044318	-0.156494	0.377907	0.047828	-0.168760	0.408468
4.83	0.042792	-0.152888	0.370104	0.046182	-0.164858	0.399889
4.84	0.041261	-0.149099	0.360383	0.044531	-0.160769	0.389349
4.85	0.039809	-0.145673	0.352842	0.042965	-0.157063	0.381057
4.86	0.038348	-0.142049	0.343290	0.041391	-0.153156	0.370708
4.87	0.036966	-0.138799	0.336017	0.039900	-0.149641	0.362708
4.88	0.035573	-0.135336	0.326634	0.038399	-0.145909	0.352550
4.89	0.034258	-0.132258	0.319634	0.036981	-0.142581	0.344846
4.90	0.032928	-0.128951	0.310419	0.035548	-0.139020	0.334879
4.91	0.031678	-0.126041	0.303695	0.034199	-0.135875	0.327474
4.92	0.030408	-0.122885	0.294648	0.032831	-0.132479	0.317696
4.93	0.029219	-0.120139	0.288204	0.031548	-0.129511	0.310595
4.94	0.028006	-0.117130	0.279321	0.030242	-0.126276	0.301003
4.95	0.026875	-0.114543	0.273159	0.029021	-0.123481	0.294207
4.96	0.025716	-0.111676	0.264439	0.027773	-0.120401	0.284797
4.97	0.024640	-0.109244	0.258562	0.026612	-0.117775	0.278308
4.98	0.023533	-0.106514	0.249999	0.025418	-0.114844	0.269077
4.99	0.022508	-0.104233	0.244409	0.024313	-0.112383	0.262897

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η	S_{11}	S'_{11}	S''_{11}	T_{11}	T'_{11}	T''_{11}
5.00	0.021449	-0.101636	0.235999	0.023172	-0.109597	0.253839
5.01	0.020474	-0.099502	0.230698	0.022120	-0.107295	0.247968
5.02	0.019460	-0.097032	0.222435	0.021027	-0.104648	0.239077
5.03	0.018532	-0.095042	0.217423	0.020025	-0.102501	0.233517
5.04	0.017560	-0.092695	0.209303	0.018978	-0.099989	0.224787
5.05	0.016676	-0.090844	0.204580	0.018023	-0.097993	0.219537
5.06	0.015745	-0.088615	0.196595	0.017020	-0.095610	0.210961
5.07	0.014902	-0.086900	0.192163	0.016109	-0.093761	0.206021
5.08	0.014008	-0.084784	0.184306	0.015146	-0.091502	0.197591
5.09	0.013205	-0.083201	0.180165	0.014278	-0.089796	0.192961
5.10	0.012345	-0.081193	0.172428	0.013351	-0.087656	0.184668
5.11	0.011579	-0.079738	0.168577	0.012522	-0.086089	0.180347
5.12	0.010752	-0.077835	0.160952	0.011631	-0.084062	0.172184
5.13	0.010020	-0.076505	0.157392	0.010839	-0.082631	0.168171
5.14	0.009224	-0.074701	0.149870	0.009980	-0.080713	0.160127
5.15	0.008524	-0.073492	0.146601	0.009223	-0.079413	0.156423
5.16	0.007755	-0.071784	0.139173	0.008394	-0.077600	0.148488
5.17	0.007087	-0.070693	0.136194	0.007669	-0.076427	0.145091
5.18	0.006343	-0.069075	0.128850	0.006867	-0.074713	0.137255
5.19	0.005703	-0.068100	0.126161	0.006172	-0.073665	0.134165
5.20	0.004983	-0.066568	0.118891	0.005395	-0.072047	0.126417
5.21	0.004369	-0.065705	0.116492	0.004729	-0.071119	0.123633
5.22	0.003671	-0.064255	0.109285	0.003975	-0.069591	0.115962
5.23	0.003082	-0.063501	0.107177	0.003335	-0.068782	0.113483
5.24	0.002403	-0.062130	0.100021	0.002601	-0.067340	0.105877
5.25	0.001837	-0.061482	0.098204	0.001986	-0.066645	0.103703
5.26	0.001176	-0.060184	0.091089	0.001271	-0.065285	0.096151
5.27	0.000631	-0.059640	0.089563	0.000677	-0.064702	0.094281
5.28	-0.000014	-0.058413	0.082476	-0.000021	-0.063420	0.086768

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η	O_{11}	O'_{11}	O''_{11}	Z_{11}	Z'_{11}	Z''_{11}
0.00	0.000000	-0.878301	0.000000	0.000000	0.260767	0.000000
0.01	-0.008782	-0.878301	0.000054	0.002607	0.260767	-0.000023
0.02	-0.017566	-0.878299	0.000219	0.005215	0.260766	-0.000092
0.03	-0.026349	-0.878296	0.000495	0.007822	0.260765	-0.000206
0.04	-0.035131	-0.878289	0.000884	0.010430	0.260762	-0.000362
0.05	-0.043914	-0.878278	0.001388	0.013038	0.260757	-0.000558
0.06	-0.052697	-0.878261	0.002007	0.015645	0.260750	-0.000794
0.07	-0.061479	-0.878237	0.002745	0.018253	0.260741	-0.001067
0.08	-0.070262	-0.878206	0.003605	0.020860	0.260729	-0.001376
0.09	-0.079044	-0.878165	0.004588	0.023467	0.260714	-0.001719
0.10	-0.087825	-0.878113	0.005700	0.026074	0.260695	-0.002094
0.11	-0.096606	-0.878050	0.006944	0.028681	0.260672	-0.002499
0.12	-0.105386	-0.877974	0.008325	0.031288	0.260644	-0.002934
0.13	-0.114165	-0.877883	0.009849	0.033894	0.260613	-0.003396
0.14	-0.122944	-0.877777	0.011521	0.036500	0.260576	-0.003884
0.15	-0.131721	-0.877652	0.013348	0.039106	0.260535	-0.004395
0.16	-0.140497	-0.877509	0.015337	0.041711	0.260488	-0.004929
0.17	-0.149271	-0.877345	0.017496	0.044315	0.260436	-0.005484
0.18	-0.158043	-0.877159	0.019834	0.046919	0.260379	-0.006058
0.19	-0.166814	-0.876948	0.022359	0.049523	0.260315	-0.006650
0.20	-0.175582	-0.876711	0.025081	0.052126	0.260246	-0.007257
0.21	-0.184348	-0.876445	0.028009	0.054728	0.260170	-0.007880
0.22	-0.193111	-0.876150	0.031156	0.057329	0.260088	-0.008516
0.23	-0.201871	-0.875822	0.034531	0.059930	0.260000	-0.009163
0.24	-0.210627	-0.875458	0.038146	0.062529	0.259905	-0.009821
0.25	-0.219380	-0.875058	0.042014	0.065128	0.259803	-0.010488
0.26	-0.228128	-0.874617	0.046146	0.067725	0.259695	-0.011164
0.27	-0.236872	-0.874134	0.050556	0.070322	0.259580	-0.011846
0.28	-0.245611	-0.873605	0.055255	0.072917	0.259458	-0.012534
0.29	-0.254344	-0.873028	0.060258	0.075511	0.259329	-0.013227
0.30	-0.263071	-0.872399	0.065577	0.078103	0.259193	-0.013923
0.31	-0.271792	-0.871715	0.071226	0.080695	0.259051	-0.014623
0.32	-0.280506	-0.870973	0.077219	0.083284	0.258901	-0.015325
0.33	-0.289211	-0.870170	0.083568	0.085873	0.258744	-0.016028
0.34	-0.297909	-0.869301	0.090287	0.088459	0.258580	-0.016733
0.35	-0.306597	-0.868363	0.097390	0.091044	0.258409	-0.017438
0.36	-0.315276	-0.867351	0.104888	0.093627	0.258232	-0.018143
0.37	-0.323944	-0.866263	0.112796	0.096209	0.258047	-0.018849
0.38	-0.332601	-0.865094	0.121124	0.098788	0.257855	-0.019554
0.39	-0.341245	-0.863839	0.129885	0.101366	0.257655	-0.020259
0.40	-0.349877	-0.862495	0.139090	0.103941	0.257449	-0.020964
0.41	-0.358495	-0.861056	0.148750	0.106515	0.257236	-0.021670
0.42	-0.367098	-0.859518	0.158875	0.109086	0.257016	-0.022376
0.43	-0.375685	-0.857877	0.169475	0.111655	0.256789	-0.023083
0.44	-0.384255	-0.856127	0.180558	0.114222	0.256554	-0.023793
0.45	-0.392807	-0.854264	0.192131	0.116786	0.256313	-0.024505
0.46	-0.401340	-0.852283	0.204203	0.119348	0.256064	-0.025220
0.47	-0.409853	-0.850179	0.216778	0.121907	0.255808	-0.025941
0.48	-0.418343	-0.847946	0.229862	0.124464	0.255545	-0.026667
0.49	-0.426811	-0.845580	0.243458	0.127018	0.255275	-0.027401

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η	O_{11}	O'_{11}	O''_{11}	Z_{11}	Z'_{11}	Z''_{11}
0.50	-0.435254	-0.843075	0.257569	0.129570	0.254997	-0.028144
0.51	-0.443672	-0.840426	0.272197	0.132118	0.254712	-0.028897
0.52	-0.452062	-0.837629	0.287341	0.134664	0.254419	-0.029663
0.53	-0.460424	-0.834678	0.303001	0.137207	0.254119	-0.030443
0.54	-0.468756	-0.831567	0.319174	0.139746	0.253810	-0.031240
0.55	-0.477055	-0.828293	0.335855	0.142283	0.253494	-0.032055
0.56	-0.485321	-0.824849	0.353041	0.144816	0.253169	-0.032891
0.57	-0.493551	-0.821230	0.370723	0.147346	0.252836	-0.033751
0.58	-0.501745	-0.817433	0.388893	0.149873	0.252494	-0.034636
0.59	-0.509899	-0.813451	0.407542	0.152396	0.252143	-0.035551
0.60	-0.518013	-0.809280	0.426658	0.154916	0.251783	-0.036497
0.61	-0.526084	-0.804916	0.446228	0.157432	0.251413	-0.037478
0.62	-0.534111	-0.800354	0.466237	0.159944	0.251033	-0.038496
0.63	-0.542091	-0.795590	0.486669	0.162452	0.250643	-0.039555
0.64	-0.550022	-0.790619	0.507506	0.164957	0.250242	-0.040658
0.65	-0.557902	-0.785438	0.528729	0.167457	0.249830	-0.041808
0.66	-0.565730	-0.780044	0.550316	0.169953	0.249406	-0.043009
0.67	-0.573503	-0.774431	0.572245	0.172445	0.248969	-0.044264
0.68	-0.581218	-0.768598	0.594490	0.174933	0.248520	-0.045576
0.69	-0.588874	-0.762540	0.617027	0.177416	0.248058	-0.046949
0.70	-0.596468	-0.756256	0.639827	0.179894	0.247581	-0.048387
0.71	-0.603998	-0.749743	0.662861	0.182367	0.247090	-0.049892
0.72	-0.611462	-0.742998	0.686098	0.184836	0.246583	-0.051469
0.73	-0.618857	-0.736020	0.709507	0.187299	0.246060	-0.053121
0.74	-0.626182	-0.728808	0.733053	0.189757	0.245520	-0.054852
0.75	-0.633433	-0.721359	0.756701	0.192209	0.244963	-0.056664
0.76	-0.640608	-0.713673	0.780415	0.194656	0.244387	-0.058562
0.77	-0.647705	-0.705751	0.804158	0.197097	0.243791	-0.060549
0.78	-0.654722	-0.697590	0.827888	0.199532	0.243175	-0.062628
0.79	-0.661657	-0.689193	0.851568	0.201960	0.242538	-0.064802
0.80	-0.668505	-0.680559	0.875154	0.204382	0.241879	-0.067074
0.81	-0.675267	-0.671690	0.898605	0.206798	0.241196	-0.069448
0.82	-0.681939	-0.662588	0.921876	0.209206	0.240490	-0.071925
0.83	-0.688518	-0.653254	0.944924	0.211607	0.239757	-0.074510
0.84	-0.695003	-0.643690	0.967701	0.214001	0.238999	-0.077203
0.85	-0.701391	-0.633901	0.990164	0.216387	0.238213	-0.080009
0.86	-0.707680	-0.623888	1.012264	0.218765	0.237398	-0.082928
0.87	-0.713868	-0.613657	1.033954	0.221135	0.236554	-0.085963
0.88	-0.719953	-0.603210	1.055185	0.223496	0.235679	-0.089115
0.89	-0.725932	-0.592555	1.075910	0.225849	0.234771	-0.092387
0.90	-0.731803	-0.581694	1.096079	0.228192	0.233831	-0.095779
0.91	-0.737565	-0.570635	1.115643	0.230525	0.232855	-0.099293
0.92	-0.743215	-0.559383	1.134552	0.232849	0.231844	-0.102928
0.93	-0.748752	-0.547946	1.152758	0.235162	0.230796	-0.106687
0.94	-0.754173	-0.536331	1.170210	0.237465	0.229710	-0.110568
0.95	-0.759478	-0.524545	1.186860	0.239756	0.228585	-0.114572
0.96	-0.764664	-0.512596	1.202658	0.242036	0.227418	-0.118699
0.97	-0.769729	-0.500495	1.217556	0.244304	0.226210	-0.122947
0.98	-0.774673	-0.488248	1.231505	0.246560	0.224959	-0.127316
0.99	-0.779494	-0.475868	1.244459	0.248803	0.223663	-0.131805

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Contrails

η	O_{11}	O'_{11}	O''_{11}	Z_{11}	Z'_{11}	Z''_{11}
1.00	-0.784190	-0.463363	1.256369	0.251033	0.222322	-0.136410
1.01	-0.788761	-0.450744	1.267189	0.253250	0.220935	-0.141132
1.02	-0.793205	-0.438023	1.276874	0.255452	0.219499	-0.145966
1.03	-0.797521	-0.425210	1.285381	0.257640	0.218015	-0.150911
1.04	-0.801709	-0.412319	1.292663	0.259812	0.216481	-0.155963
1.05	-0.805767	-0.399361	1.298681	0.261969	0.214896	-0.161118
1.06	-0.809696	-0.386350	1.303393	0.264110	0.213258	-0.166373
1.07	-0.813494	-0.373298	1.306759	0.266234	0.211568	-0.171724
1.08	-0.817162	-0.360219	1.308740	0.268341	0.209823	-0.177165
1.09	-0.820698	-0.347128	1.309302	0.270430	0.208024	-0.182692
1.10	-0.824104	-0.334038	1.308407	0.272501	0.206169	-0.188300
1.11	-0.827379	-0.320965	1.306024	0.274553	0.204258	-0.193982
1.12	-0.830524	-0.307923	1.302120	0.276586	0.202289	-0.199733
1.13	-0.833538	-0.294928	1.296666	0.278599	0.200263	-0.205545
1.14	-0.836422	-0.281995	1.289635	0.280591	0.198178	-0.211413
1.15	-0.839178	-0.269140	1.281001	0.282562	0.196035	-0.217328
1.16	-0.841805	-0.256380	1.270740	0.284512	0.193832	-0.223283
1.17	-0.844306	-0.243731	1.258833	0.286439	0.191569	-0.229271
1.18	-0.846680	-0.231209	1.245259	0.288343	0.189246	-0.235283
1.19	-0.848931	-0.218831	1.230002	0.290224	0.186863	-0.241310
1.20	-0.851058	-0.206615	1.213048	0.292080	0.184420	-0.247344
1.21	-0.853063	-0.194576	1.194386	0.293912	0.181916	-0.253374
1.22	-0.854950	-0.182733	1.174005	0.295718	0.179352	-0.259393
1.23	-0.856719	-0.171102	1.151901	0.297499	0.176728	-0.265390
1.24	-0.858373	-0.159700	1.128067	0.299253	0.174045	-0.271354
1.25	-0.859914	-0.148546	1.102505	0.300979	0.171301	-0.277276
1.26	-0.861344	-0.137656	1.075213	0.302678	0.168499	-0.283145
1.27	-0.862668	-0.127048	1.046198	0.304349	0.165639	-0.288950
1.28	-0.863886	-0.116738	1.015464	0.305991	0.162721	-0.294680
1.29	-0.865004	-0.106744	0.983023	0.307603	0.159745	-0.300325
1.30	-0.866022	-0.097083	0.948885	0.309186	0.156714	-0.305872
1.31	-0.866946	-0.087772	0.913067	0.310738	0.153628	-0.311310
1.32	-0.867779	-0.078827	0.875585	0.312258	0.150489	-0.316628
1.33	-0.868524	-0.070266	0.836462	0.313747	0.147296	-0.321814
1.34	-0.869186	-0.062103	0.795718	0.315204	0.144053	-0.326856
1.35	-0.869768	-0.054356	0.753382	0.316628	0.140760	-0.331742
1.36	-0.870274	-0.047041	0.709480	0.318019	0.137418	-0.336461
1.37	-0.870710	-0.040172	0.664048	0.319376	0.134031	-0.340999
1.38	-0.871079	-0.033765	0.617115	0.320699	0.130599	-0.345347
1.39	-0.871387	-0.027835	0.568723	0.321988	0.127125	-0.349490
1.40	-0.871638	-0.022395	0.518907	0.323242	0.123610	-0.353418
1.41	-0.871836	-0.017461	0.467713	0.324460	0.120057	-0.357119
1.42	-0.871989	-0.013045	0.415183	0.325643	0.116468	-0.360582
1.43	-0.872099	-0.009162	0.361366	0.326789	0.112846	-0.363793
1.44	-0.872174	-0.005822	0.306311	0.327900	0.109193	-0.366743
1.45	-0.872217	-0.003039	0.250071	0.328973	0.105512	-0.369419
1.46	-0.872236	-0.000824	0.192699	0.330010	0.101806	-0.371811
1.47	-0.872236	0.000810	0.134254	0.331009	0.098077	-0.373908
1.48	-0.872222	0.001856	0.074792	0.331971	0.094329	-0.375699
1.49	-0.872201	0.002303	0.014377	0.332896	0.090564	-0.377173

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Contrails

η	O_{11}	O'_{11}	O''_{11}	Z_{11}	Z'_{11}	Z''_{11}
1.50	-0.872178	0.002141	-0.046929	0.333783	0.086786	-0.378322
1.51	-0.872160	0.001361	-0.109061	0.334632	0.082999	-0.379134
1.52	-0.872153	-0.000042	-0.171953	0.335443	0.079205	-0.379601
1.53	-0.872163	-0.002079	-0.235533	0.336216	0.075408	-0.379713
1.54	-0.872197	-0.004755	-0.299735	0.336951	0.071612	-0.379462
1.55	-0.872260	-0.008075	-0.364482	0.337648	0.067820	-0.378839
1.56	-0.872360	-0.012046	-0.429705	0.338307	0.064036	-0.377837
1.57	-0.872503	-0.016671	-0.495324	0.338929	0.060265	-0.376447
1.58	-0.872696	-0.021953	-0.561267	0.339513	0.056509	-0.374664
1.59	-0.872945	-0.027897	-0.627453	0.340059	0.052773	-0.372480
1.60	-0.873256	-0.034503	-0.693806	0.340568	0.049060	-0.369890
1.61	-0.873637	-0.041773	-0.760243	0.341040	0.045376	-0.366887
1.62	-0.874094	-0.049708	-0.826687	0.341476	0.041724	-0.363468
1.63	-0.874633	-0.058307	-0.893052	0.341875	0.038108	-0.359627
1.64	-0.875262	-0.067569	-0.959262	0.342238	0.034533	-0.355361
1.65	-0.875987	-0.077491	-1.025228	0.342566	0.031002	-0.350667
1.66	-0.876814	-0.088072	-1.090872	0.342858	0.027521	-0.345542
1.67	-0.877750	-0.099307	-1.156106	0.343116	0.024093	-0.339983
1.68	-0.878802	-0.111193	-1.220852	0.343340	0.020723	-0.333990
1.69	-0.879976	-0.123723	-1.285021	0.343531	0.017415	-0.327562
1.70	-0.881279	-0.136891	-1.348534	0.343689	0.014173	-0.320698
1.71	-0.882716	-0.150691	-1.411302	0.343815	0.011002	-0.313399
1.72	-0.884295	-0.165114	-1.473249	0.343909	0.007906	-0.305667
1.73	-0.886021	-0.180153	-1.534285	0.343973	0.004890	-0.297503
1.74	-0.887900	-0.195796	-1.594334	0.344007	0.001958	-0.288909
1.75	-0.889939	-0.212036	-1.653308	0.344013	-0.000886	-0.279889
1.76	-0.892143	-0.228859	-1.711134	0.343990	-0.003638	-0.270448
1.77	-0.894518	-0.246254	-1.767724	0.343940	-0.006293	-0.260588
1.78	-0.897070	-0.264209	-1.823006	0.343864	-0.008848	-0.250316
1.79	-0.899804	-0.282710	-1.876895	0.343763	-0.011298	-0.239637
1.80	-0.902726	-0.301742	-1.929322	0.343639	-0.013639	-0.228559
1.81	-0.905840	-0.321291	-1.980205	0.343491	-0.015868	-0.217088
1.82	-0.909153	-0.341341	-2.029477	0.343322	-0.017980	-0.205232
1.83	-0.912669	-0.361875	-2.077057	0.343132	-0.019971	-0.193001
1.84	-0.916392	-0.382876	-2.122883	0.342923	-0.021839	-0.180403
1.85	-0.920328	-0.404327	-2.166878	0.342695	-0.023578	-0.167448
1.86	-0.924480	-0.426207	-2.208984	0.342452	-0.025187	-0.154148
1.87	-0.928853	-0.448500	-2.249125	0.342192	-0.026660	-0.140513
1.88	-0.933451	-0.471183	-2.287249	0.341919	-0.027996	-0.126556
1.89	-0.938278	-0.494238	-2.323284	0.341633	-0.029190	-0.112288
1.90	-0.943337	-0.517642	-2.357182	0.341335	-0.030241	-0.097724
1.91	-0.948632	-0.541374	-2.388877	0.341028	-0.031144	-0.082876
1.92	-0.954166	-0.565412	-2.418323	0.340713	-0.031897	-0.067759
1.93	-0.959941	-0.589733	-2.445459	0.340391	-0.032498	-0.052389
1.94	-0.965961	-0.614313	-2.470247	0.340064	-0.032944	-0.036780
1.95	-0.972228	-0.639130	-2.492629	0.339733	-0.033233	-0.020949
1.96	-0.978745	-0.664158	-2.512572	0.339399	-0.033362	-0.004912
1.97	-0.985512	-0.689373	-2.530025	0.339066	-0.033331	0.011313
1.98	-0.992533	-0.714750	-2.544959	0.338733	-0.033136	0.027711
1.99	-0.999808	-0.740264	-2.557328	0.338404	-0.032776	0.044262

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Contrails

η	O_{II}	O'_{II}	O''_{II}	Z_{II}	Z'_{II}	Z''_{II}
2.00	-1.007338	-0.765888	-2.567111	0.338078	-0.032250	0.060948
2.01	-1.015126	-0.791597	-2.574267	0.337759	-0.031557	0.077752
2.02	-1.023171	-0.817364	-2.578780	0.337448	-0.030695	0.094652
2.03	-1.031473	-0.843164	-2.580616	0.337146	-0.029663	0.111630
2.04	-1.040034	-0.868968	-2.579764	0.336855	-0.028462	0.128666
2.05	-1.048852	-0.894750	-2.576197	0.336577	-0.027090	0.145741
2.06	-1.057929	-0.920482	-2.569911	0.336314	-0.025547	0.162833
2.07	-1.067262	-0.946139	-2.560883	0.336067	-0.023833	0.179923
2.08	-1.076851	-0.971691	-2.549118	0.335838	-0.021948	0.196988
2.09	-1.086695	-0.997112	-2.534596	0.335628	-0.019893	0.214009
2.10	-1.096793	-1.022374	-2.517332	0.335440	-0.017668	0.230964
2.11	-1.107142	-1.047450	-2.497310	0.335276	-0.015274	0.247832
2.12	-1.117741	-1.072311	-2.474551	0.335136	-0.012712	0.264591
2.13	-1.128588	-1.096932	-2.449048	0.335022	-0.009983	0.281220
2.14	-1.139679	-1.121283	-2.420826	0.334936	-0.007088	0.297697
2.15	-1.151012	-1.145339	-2.389883	0.334881	-0.004030	0.314002
2.16	-1.162585	-1.169071	-2.356254	0.334856	-0.000809	0.330111
2.17	-1.174392	-1.192455	-2.319942	0.334865	0.002571	0.346006
2.18	-1.186432	-1.215462	-2.280987	0.334908	0.006109	0.361662
2.19	-1.198700	-1.238066	-2.239398	0.334988	0.009803	0.377060
2.20	-1.211192	-1.260241	-2.195222	0.335105	0.013650	0.392178
2.21	-1.223904	-1.281962	-2.148474	0.335261	0.017646	0.406996
2.22	-1.236830	-1.303202	-2.099207	0.335458	0.021789	0.421491
2.23	-1.249966	-1.323938	-2.047440	0.335698	0.026074	0.435647
2.24	-1.263307	-1.344143	-1.993235	0.335980	0.030500	0.449439
2.25	-1.276847	-1.363795	-1.936614	0.336308	0.035062	0.462850
2.26	-1.290581	-1.382867	-1.877645	0.336682	0.039756	0.475859
2.27	-1.304502	-1.401340	-1.816357	0.337104	0.044578	0.488448
2.28	-1.318606	-1.419187	-1.752821	0.337574	0.049523	0.500597
2.29	-1.332884	-1.436389	-1.687071	0.338094	0.054588	0.512289
2.30	-1.347331	-1.452921	-1.619186	0.338666	0.059768	0.523504
2.31	-1.361940	-1.468766	-1.549202	0.339290	0.065057	0.534227
2.32	-1.376704	-1.483898	-1.477204	0.339968	0.070451	0.544439
2.33	-1.391616	-1.498303	-1.403232	0.340699	0.075944	0.554125
2.34	-1.406668	-1.511957	-1.327376	0.341487	0.081531	0.563267
2.35	-1.421852	-1.524844	-1.249679	0.342330	0.087207	0.571853
2.36	-1.437162	-1.536945	-1.170236	0.343231	0.092966	0.579864
2.37	-1.452589	-1.548244	-1.089094	0.344190	0.098803	0.587291
2.38	-1.468124	-1.558721	-1.006352	0.345208	0.104710	0.594114
2.39	-1.483760	-1.568365	-0.922058	0.346284	0.110683	0.600327
2.40	-1.499489	-1.577157	-0.836319	0.347421	0.116715	0.605913
2.41	-1.515300	-1.585087	-0.749182	0.348619	0.122799	0.610864
2.42	-1.531188	-1.592137	-0.660758	0.349878	0.128930	0.615165
2.43	-1.547140	-1.598298	-0.571097	0.351198	0.135100	0.618811
2.44	-1.563150	-1.603555	-0.480313	0.352580	0.141304	0.621787
2.45	-1.579208	-1.607901	-0.388457	0.354024	0.147534	0.624091
2.46	-1.595305	-1.611321	-0.295648	0.355530	0.153783	0.625710
2.47	-1.611432	-1.613811	-0.201936	0.357100	0.160046	0.626642
2.48	-1.627578	-1.615357	-0.107443	0.358731	0.166314	0.626874
2.49	-1.643736	-1.615957	-0.012219	0.360426	0.172581	0.626409

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Contrails

η	O_{II}	O'_{II}	O''_{II}	Z_{II}	Z'_{II}	Z''_{II}
2.50	-1.659894	-1.615600	0.083609	0.362183	0.178840	0.625235
2.51	-1.676044	-1.614283	0.179994	0.364003	0.185083	0.623355
2.52	-1.692177	-1.611998	0.276807	0.365885	0.191304	0.620760
2.53	-1.708281	-1.608746	0.374000	0.367829	0.197496	0.617454
2.54	-1.724349	-1.604517	0.471442	0.369834	0.203651	0.613430
2.55	-1.740368	-1.599316	0.569087	0.371901	0.209762	0.608694
2.56	-1.756332	-1.593135	0.666803	0.374029	0.215823	0.603240
2.57	-1.772228	-1.585980	0.764544	0.376218	0.221825	0.597077
2.58	-1.788048	-1.577845	0.862178	0.378466	0.227762	0.590199
2.59	-1.803781	-1.568737	0.959661	0.380773	0.233626	0.582617
2.60	-1.819419	-1.558653	1.056859	0.383138	0.239412	0.574328
2.61	-1.834951	-1.547601	1.153734	0.385561	0.245110	0.565344
2.62	-1.850368	-1.535579	1.250148	0.388040	0.250716	0.555663
2.63	-1.865660	-1.522600	1.346067	0.390575	0.256221	0.545301
2.64	-1.880817	-1.508660	1.441353	0.393164	0.261620	0.534254
2.65	-1.895830	-1.493775	1.535976	0.395807	0.266904	0.522542
2.66	-1.910689	-1.477943	1.629798	0.398502	0.272069	0.510163
2.67	-1.925386	-1.461182	1.722792	0.401248	0.277105	0.497138
2.68	-1.939910	-1.443491	1.814821	0.404043	0.282009	0.483465
2.69	-1.954252	-1.424888	1.905863	0.406887	0.286773	0.469168
2.70	-1.968405	-1.405377	1.995780	0.409778	0.291391	0.454248
2.71	-1.982357	-1.384977	2.084557	0.412715	0.295856	0.438729
2.72	-1.996101	-1.363690	2.172056	0.415695	0.300163	0.422612
2.73	-2.009628	-1.341540	2.258266	0.418717	0.304306	0.405924
2.74	-2.022929	-1.318530	2.343051	0.421780	0.308280	0.388668
2.75	-2.035996	-1.294683	2.426407	0.424882	0.312078	0.370871
2.76	-2.048820	-1.270007	2.508196	0.428021	0.315695	0.352538
2.77	-2.061393	-1.244525	2.588423	0.431196	0.319127	0.333699
2.78	-2.073708	-1.218244	2.666950	0.434403	0.322368	0.314356
2.79	-2.085755	-1.191191	2.743789	0.437642	0.325412	0.294543
2.80	-2.097529	-1.163374	2.818803	0.440911	0.328257	0.274264
2.81	-2.109021	-1.134821	2.892010	0.444207	0.330896	0.253552
2.82	-2.120223	-1.105541	2.963276	0.447528	0.333327	0.232413
2.83	-2.131129	-1.075562	3.032627	0.450873	0.335543	0.210881
2.84	-2.141732	-1.044895	3.099927	0.454238	0.337543	0.188962
2.85	-2.152025	-1.013570	3.165213	0.457623	0.339321	0.166693
2.86	-2.162002	-0.981598	3.228349	0.461024	0.340876	0.144079
2.87	-2.171655	-0.949010	3.289379	0.464440	0.342202	0.121158
2.88	-2.180980	-0.915818	3.348169	0.467867	0.343298	0.097936
2.89	-2.189969	-0.882054	3.404773	0.471305	0.344160	0.074452
2.90	-2.198619	-0.847730	3.459056	0.474750	0.344786	0.050711
2.91	-2.206922	-0.812881	3.511082	0.478200	0.345173	0.026756
2.92	-2.214875	-0.777516	3.560716	0.481652	0.345321	0.002589
2.93	-2.222471	-0.741674	3.608032	0.485105	0.345224	-0.021744
2.94	-2.229707	-0.705364	3.652896	0.488556	0.344885	-0.046242
2.95	-2.236577	-0.668624	3.695389	0.492002	0.344299	-0.070860
2.96	-2.243078	-0.631464	3.735379	0.495441	0.343468	-0.095596
2.97	-2.249205	-0.593924	3.772959	0.498871	0.342387	-0.120403
2.98	-2.254955	-0.556014	3.807994	0.502288	0.341059	-0.145280
2.99	-2.260324	-0.517773	3.840588	0.505691	0.339481	-0.170179

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η	O_{11}	O'_{11}	O''_{11}	Z_{11}	Z'_{11}	Z''_{11}
3.00	-2.265310	-0.479210	3.870605	0.509077	0.337656	-0.195102
3.01	-2.269907	-0.440369	3.898162	0.512443	0.335579	-0.219997
3.02	-2.274116	-0.401256	3.923120	0.515788	0.333256	-0.244869
3.03	-2.277931	-0.361915	3.945607	0.519108	0.330682	-0.269665
3.04	-2.281354	-0.322352	3.965484	0.522401	0.327863	-0.294390
3.05	-2.284378	-0.282613	3.982890	0.525664	0.324795	-0.318993
3.06	-2.287005	-0.242703	3.997683	0.528896	0.321483	-0.343478
3.07	-2.289232	-0.202668	4.010014	0.532093	0.317926	-0.367793
3.08	-2.291058	-0.162512	4.019741	0.535253	0.314128	-0.391945
3.09	-2.292482	-0.122281	4.027024	0.538375	0.310088	-0.415880
3.10	-2.293504	-0.081980	4.031718	0.541454	0.305811	-0.439610
3.11	-2.294121	-0.041655	4.033997	0.544490	0.301296	-0.463076
3.12	-2.294337	-0.001308	4.033713	0.547480	0.296550	-0.486294
3.13	-2.294147	0.039011	4.031051	0.550420	0.291571	-0.509205
3.14	-2.293557	0.079303	4.025860	0.553310	0.286367	-0.531826
3.15	-2.292561	0.119520	4.018336	0.556147	0.280936	-0.554098
3.16	-2.291166	0.159662	4.008325	0.558928	0.275286	-0.576041
3.17	-2.289369	0.199679	3.996036	0.561652	0.269416	-0.597593
3.18	-2.287173	0.239574	3.981308	0.564316	0.263335	-0.618778
3.19	-2.284578	0.279298	3.964366	0.566918	0.257042	-0.639534
3.20	-2.281588	0.318854	3.945041	0.569456	0.250546	-0.659887
3.21	-2.278201	0.358192	3.923572	0.571928	0.243846	-0.679774
3.22	-2.274425	0.397317	3.899785	0.574332	0.236952	-0.699224
3.23	-2.270256	0.436180	3.873929	0.576667	0.229863	-0.718174
3.24	-2.265702	0.474788	3.845826	0.578929	0.222590	-0.736656
3.25	-2.260761	0.513090	3.815739	0.581118	0.215132	-0.754605
3.26	-2.255441	0.551096	3.783479	0.583231	0.207500	-0.772057
3.27	-2.249740	0.588754	3.749326	0.585267	0.199693	-0.788946
3.28	-2.243667	0.626075	3.713081	0.587224	0.191723	-0.805313
3.29	-2.237220	0.663009	3.675039	0.589101	0.183588	-0.821089
3.30	-2.230408	0.699569	3.634992	0.590896	0.175303	-0.836319
3.31	-2.223230	0.735704	3.593248	0.592607	0.166864	-0.850933
3.32	-2.215695	0.771428	3.549590	0.594232	0.158286	-0.864980
3.33	-2.207803	0.806690	3.504341	0.595772	0.149567	-0.878389
3.34	-2.199563	0.841509	3.457273	0.597223	0.140720	-0.891214
3.35	-2.190975	0.875831	3.408722	0.598586	0.131744	-0.903380
3.36	-2.182048	0.909678	3.358451	0.599858	0.122654	-0.914947
3.37	-2.172783	0.942995	3.306812	0.601039	0.113448	-0.925839
3.38	-2.163190	0.975808	3.253551	0.602127	0.104140	-0.936120
3.39	-2.153269	1.008062	3.199040	0.603121	0.094728	-0.945708
3.40	-2.143030	1.039784	3.143011	0.604021	0.085227	-0.954681
3.41	-2.132475	1.070918	3.085850	0.604825	0.075636	-0.962948
3.42	-2.121614	1.101496	3.027275	0.605533	0.065970	-0.970594
3.43	-2.110447	1.131461	2.967691	0.606145	0.056227	-0.977523
3.44	-2.098986	1.160846	2.906798	0.606658	0.046422	-0.983829
3.45	-2.087232	1.189594	2.845019	0.607073	0.036553	-0.989412
3.46	-2.075197	1.217742	2.782038	0.607389	0.026636	-0.994373
3.47	-2.062879	1.245232	2.718296	0.607605	0.016668	-0.998606
3.48	-2.050294	1.272104	2.653457	0.607722	0.006666	-1.002219
3.49	-2.037440	1.298299	2.587982	0.607739	-0.003373	-1.005104

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η	O_{11}	O'_{11}	O''_{11}	Z_{11}	Z'_{11}	Z''_{11}
3.50	-2.024330	1.323861	2.521518	0.607654	-0.013433	-1.007375
3.51	-2.010965	1.348728	2.454542	0.607470	-0.023518	-1.008919
3.52	-1.997358	1.372949	2.386681	0.607184	-0.033610	-1.009858
3.53	-1.983508	1.396460	2.318435	0.606798	-0.043713	-1.010072
3.54	-1.969431	1.419315	2.249407	0.606310	-0.053809	-1.009693
3.55	-1.955124	1.441447	2.180119	0.605721	-0.063905	-1.008596
3.56	-1.940604	1.462915	2.110151	0.605032	-0.073979	-1.006920
3.57	-1.925868	1.483650	2.040046	0.604242	-0.084041	-1.004534
3.58	-1.910933	1.503714	1.969362	0.603351	-0.094068	-1.001585
3.59	-1.895795	1.523037	1.898662	0.602361	-0.104070	-0.997936
3.60	-1.880475	1.541685	1.827480	0.601270	-0.114025	-0.993745
3.61	-1.864965	1.559587	1.756403	0.600080	-0.123943	-0.988865
3.62	-1.849285	1.576812	1.684937	0.598791	-0.133800	-0.983464
3.63	-1.833431	1.593287	1.613697	0.597404	-0.143610	-0.977388
3.64	-1.817422	1.609085	1.542156	0.595919	-0.153347	-0.970815
3.65	-1.801252	1.624131	1.470957	0.594338	-0.163024	-0.963584
3.66	-1.784941	1.638503	1.399545	0.592659	-0.172617	-0.955881
3.67	-1.768485	1.652124	1.328589	0.590886	-0.182139	-0.947537
3.68	-1.751901	1.665075	1.257501	0.589016	-0.191566	-0.938750
3.69	-1.735186	1.677276	1.186980	0.587054	-0.200912	-0.929339
3.70	-1.718358	1.688814	1.116405	0.584998	-0.210151	-0.919516
3.71	-1.701412	1.699606	1.046506	0.582852	-0.219300	-0.909089
3.72	-1.684368	1.709744	0.976625	0.580613	-0.228332	-0.898281
3.73	-1.667219	1.719141	0.907525	0.578285	-0.237264	-0.886891
3.74	-1.649987	1.727895	0.838511	0.575868	-0.246069	-0.875152
3.75	-1.632664	1.735914	0.770379	0.573364	-0.254765	-0.862853
3.76	-1.615271	1.743303	0.702395	0.570773	-0.263325	-0.850240
3.77	-1.597800	1.749966	0.635392	0.568098	-0.271768	-0.837089
3.78	-1.580274	1.756011	0.568595	0.565338	-0.280066	-0.823661
3.79	-1.562683	1.761341	0.503048	0.562497	-0.288240	-0.809771
3.80	-1.545049	1.766070	0.437406	0.559574	-0.296259	-0.795536
3.81	-1.527363	1.770093	0.373106	0.556573	-0.304149	-0.780861
3.82	-1.509649	1.773533	0.309109	0.553491	-0.311876	-0.765985
3.83	-1.491895	1.776280	0.246364	0.550336	-0.319467	-0.750641
3.84	-1.474125	1.778461	0.183961	0.547103	-0.326888	-0.735135
3.85	-1.456328	1.779963	0.122895	0.543798	-0.334168	-0.719185
3.86	-1.438528	1.780920	0.062204	0.540420	-0.341271	-0.703113
3.87	-1.420712	1.781212	0.002929	0.536973	-0.348229	-0.686620
3.88	-1.402905	1.780980	-0.055942	0.533456	-0.355004	-0.670046
3.89	-1.385095	1.780098	-0.113322	0.529874	-0.361629	-0.653074
3.90	-1.367305	1.778715	-0.170277	0.526224	-0.368065	-0.636063
3.91	-1.349522	1.776698	-0.225669	0.522513	-0.374349	-0.618677
3.92	-1.331773	1.774203	-0.280621	0.518738	-0.380438	-0.601293
3.93	-1.314040	1.771091	-0.333941	0.514905	-0.386373	-0.583556
3.94	-1.296352	1.767526	-0.386812	0.511011	-0.392110	-0.565865
3.95	-1.278692	1.763361	-0.437986	0.507063	-0.397689	-0.547841
3.96	-1.261086	1.758767	-0.488708	0.503058	-0.403067	-0.529905
3.97	-1.243518	1.753593	-0.537672	0.499002	-0.408286	-0.511658
3.98	-1.226016	1.748015	-0.586187	0.494893	-0.413301	-0.493541
3.99	-1.208560	1.741875	-0.632885	0.490737	-0.418156	-0.475131

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η	O_{11}	O'_{11}	O''_{11}	Z_{11}	Z'_{11}	Z''_{11}
4.00	-1.191180	1.735359	-0.679146	0.486530	-0.422804	-0.456894
4.01	-1.173855	1.728298	-0.723532	0.482281	-0.427293	-0.438383
4.02	-1.156615	1.720889	-0.767499	0.477985	-0.431572	-0.420088
4.03	-1.139438	1.712955	-0.809538	0.473650	-0.435694	-0.401535
4.04	-1.122357	1.704700	-0.851179	0.469272	-0.439604	-0.383241
4.05	-1.105346	1.695938	-0.890842	0.464859	-0.443358	-0.364703
4.06	-1.088439	1.686884	-0.930137	0.460405	-0.446899	-0.346467
4.07	-1.071610	1.677342	-0.967406	0.455921	-0.450287	-0.328000
4.08	-1.054893	1.667537	-1.004341	0.451400	-0.453460	-0.309879
4.09	-1.038261	1.657262	-1.039204	0.446852	-0.456483	-0.291538
4.10	-1.021749	1.646754	-1.073775	0.442271	-0.459292	-0.273585
4.11	-1.005327	1.635794	-1.106228	0.437667	-0.461954	-0.255421
4.12	-0.989033	1.624630	-1.138438	0.433033	-0.464402	-0.237687
4.13	-0.972836	1.613033	-1.168487	0.428379	-0.466707	-0.219750
4.14	-0.956773	1.601261	-1.198345	0.423700	-0.468799	-0.202286
4.15	-0.940812	1.589073	-1.226001	0.419004	-0.470752	-0.184622
4.16	-0.924992	1.576741	-1.253525	0.414285	-0.472493	-0.167474
4.17	-0.909279	1.564010	-1.278806	0.409554	-0.474101	-0.150129
4.18	-0.893712	1.551165	-1.304021	0.404804	-0.475498	-0.133342
4.19	-0.878257	1.537938	-1.326952	0.400045	-0.476767	-0.116358
4.20	-0.862954	1.524626	-1.349888	0.395269	-0.477827	-0.099973
4.21	-0.847765	1.510948	-1.370499	0.390489	-0.478766	-0.083389
4.22	-0.832735	1.497215	-1.391193	0.385695	-0.479497	-0.067445
4.23	-0.817822	1.483132	-1.409521	0.380899	-0.480114	-0.051299
4.24	-0.803073	1.469024	-1.428014	0.376093	-0.480525	-0.035833
4.25	-0.788443	1.454580	-1.444101	0.371289	-0.480830	-0.020157
4.26	-0.773981	1.440141	-1.460441	0.366477	-0.480931	-0.005205
4.27	-0.759641	1.425380	-1.474333	0.361671	-0.480933	0.009969
4.28	-0.745473	1.410653	-1.488572	0.356859	-0.480734	0.024378
4.29	-0.731429	1.395617	-1.500319	0.352056	-0.480445	0.039022
4.30	-0.717561	1.380645	-1.512512	0.347251	-0.479956	0.052860
4.31	-0.703817	1.365375	-1.522170	0.342457	-0.479387	0.066948
4.32	-0.690253	1.350199	-1.532378	0.337664	-0.478620	0.080188
4.33	-0.676814	1.334736	-1.540003	0.332885	-0.477782	0.093699
4.34	-0.663558	1.319397	-1.548290	0.328109	-0.476749	0.106318
4.35	-0.650427	1.303780	-1.553945	0.323351	-0.475655	0.119231
4.36	-0.637482	1.288315	-1.560377	0.318596	-0.474368	0.131210
4.37	-0.624662	1.272581	-1.564125	0.313863	-0.473029	0.143507
4.38	-0.612029	1.257029	-1.568772	0.309136	-0.471501	0.154828
4.39	-0.599522	1.241215	-1.570680	0.304433	-0.469931	0.166496
4.40	-0.587204	1.225612	-1.573613	0.299738	-0.468175	0.177143
4.41	-0.575011	1.209753	-1.573748	0.295070	-0.466387	0.188170
4.42	-0.563008	1.194133	-1.575042	0.290411	-0.464415	0.198132
4.43	-0.551129	1.178262	-1.573475	0.285782	-0.462423	0.208510
4.44	-0.539442	1.162658	-1.573205	0.281163	-0.460249	0.217776
4.45	-0.527877	1.146808	-1.570005	0.276577	-0.458066	0.227496
4.46	-0.516505	1.131253	-1.568248	0.272003	-0.455703	0.236059
4.47	-0.505252	1.115453	-1.563489	0.267463	-0.453343	0.245119
4.48	-0.494195	1.099978	-1.560321	0.262936	-0.450804	0.252973
4.49	-0.483254	1.084257	-1.554074	0.258447	-0.448281	0.261371

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η	O_{11}	O'_{11}	O''_{11}	Z_{11}	Z'_{11}	Z''_{11}
4.50	-0.472509	1.068890	-1.549576	0.253971	-0.445581	0.268513
4.51	-0.461877	1.053277	-1.541913	0.249535	-0.442909	0.276250
4.52	-0.451442	1.038045	-1.536162	0.245114	-0.440061	0.282679
4.53	-0.441116	1.022565	-1.527156	0.240734	-0.437253	0.289757
4.54	-0.430989	1.007494	-1.520231	0.236369	-0.434270	0.295473
4.55	-0.420967	0.992172	-1.509954	0.232048	-0.431341	0.301897
4.56	-0.411144	0.977287	-1.501933	0.227743	-0.428237	0.306904
4.57	-0.401422	0.962145	-1.490456	0.223483	-0.425200	0.312681
4.58	-0.391900	0.947469	-1.481418	0.219239	-0.421989	0.316983
4.59	-0.382474	0.932529	-1.468812	0.215043	-0.418858	0.322121
4.60	-0.373248	0.918084	-1.458833	0.210863	-0.415552	0.325724
4.61	-0.364113	0.903366	-1.445166	0.206732	-0.412340	0.330234
4.62	-0.355178	0.889170	-1.434324	0.202617	-0.408953	0.333145
4.63	-0.346331	0.874692	-1.419664	0.198552	-0.405673	0.337040
4.64	-0.337683	0.860766	-1.408034	0.194504	-0.402218	0.339268
4.65	-0.329116	0.846546	-1.392447	0.190507	-0.398884	0.342560
4.66	-0.320750	0.832906	-1.380103	0.186527	-0.395372	0.344115
4.67	-0.312459	0.818958	-1.363653	0.182599	-0.391998	0.346819
4.68	-0.304369	0.805621	-1.350667	0.178687	-0.388442	0.347713
4.69	-0.296348	0.791959	-1.333417	0.174830	-0.385039	0.349846
4.70	-0.288527	0.778939	-1.319861	0.170987	-0.381452	0.350090
4.71	-0.280770	0.765578	-1.301871	0.167200	-0.378033	0.351669
4.72	-0.273214	0.752888	-1.287813	0.163427	-0.374426	0.351276
4.73	-0.265714	0.739838	-1.269141	0.159711	-0.371002	0.352320
4.74	-0.258414	0.727491	-1.254650	0.156008	-0.367386	0.351304
4.75	-0.251165	0.714761	-1.235350	0.152363	-0.363970	0.351832
4.76	-0.244117	0.702768	-1.220491	0.148729	-0.360357	0.350207
4.77	-0.237111	0.690369	-1.200617	0.145155	-0.356960	0.350240
4.78	-0.230307	0.678739	-1.185453	0.141590	-0.353360	0.348020
4.79	-0.223538	0.666678	-1.165055	0.138087	-0.349994	0.347578
4.80	-0.216971	0.655420	-1.149649	0.134591	-0.346417	0.344780
4.81	-0.210431	0.643705	-1.128773	0.131158	-0.343091	0.343884
4.82	-0.204094	0.632826	-1.113185	0.127730	-0.339548	0.340522
4.83	-0.197776	0.621461	-1.091877	0.124366	-0.336274	0.339195
4.84	-0.191662	0.610969	-1.076162	0.121005	-0.332773	0.335284
4.85	-0.185558	0.599959	-1.054463	0.117710	-0.329560	0.333549
4.86	-0.179659	0.589859	-1.038679	0.114415	-0.326111	0.329105
4.87	-0.173763	0.579207	-1.016628	0.111186	-0.322970	0.326984
4.88	-0.168072	0.569504	-1.000826	0.107956	-0.319582	0.322022
4.89	-0.162375	0.559214	-0.978459	0.104794	-0.316521	0.319539
4.90	-0.156884	0.549912	-0.962690	0.101627	-0.313201	0.314075
4.91	-0.151379	0.539984	-0.940040	0.098528	-0.310230	0.311252
4.92	-0.146081	0.531086	-0.924354	0.095423	-0.306987	0.305300
4.93	-0.140759	0.521523	-0.901449	0.092387	-0.304114	0.302162
4.94	-0.135647	0.513032	-0.885893	0.089342	-0.300956	0.295735
4.95	-0.130501	0.503831	-0.862761	0.086367	-0.298189	0.292306
4.96	-0.125567	0.495749	-0.847378	0.083379	-0.295122	0.285419
4.97	-0.120588	0.486912	-0.824044	0.080463	-0.292469	0.281721
4.98	-0.115825	0.479239	-0.808877	0.077531	-0.289500	0.274388
4.99	-0.111006	0.470764	-0.785360	0.074672	-0.286969	0.270446

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η	O_{II}	O'_{II}	O''_{II}	Z_{II}	Z'_{II}	Z''_{II}
5.00	-0.106405	0.463502	-0.770451	0.071792	-0.284104	0.262678
5.01	-0.101739	0.455386	-0.746768	0.068988	-0.281703	0.258515
5.02	-0.097294	0.448534	-0.732155	0.066159	-0.278948	0.250325
5.03	-0.092771	0.440775	-0.708322	0.063407	-0.276683	0.245963
5.04	-0.088474	0.434334	-0.694042	0.060627	-0.274044	0.237362
5.05	-0.084088	0.426928	-0.670071	0.057925	-0.271921	0.232826
5.06	-0.079930	0.420897	-0.656159	0.055190	-0.269403	0.223823
5.07	-0.075673	0.413841	-0.632057	0.052535	-0.267430	0.219135
5.08	-0.071649	0.408219	-0.618548	0.049843	-0.265037	0.209740
5.09	-0.067513	0.401508	-0.594321	0.047232	-0.263219	0.204923
5.10	-0.063614	0.396293	-0.581247	0.044580	-0.260956	0.195144
5.11	-0.059591	0.389923	-0.556898	0.042011	-0.259298	0.190221
5.12	-0.055810	0.385114	-0.544290	0.039395	-0.257170	0.180064
5.13	-0.051892	0.379079	-0.519819	0.036866	-0.255679	0.175057
5.14	-0.048223	0.374674	-0.507705	0.034283	-0.253688	0.164529
5.15	-0.044403	0.368969	-0.483109	0.031790	-0.252369	0.159460
5.16	-0.040838	0.364965	-0.471520	0.029238	-0.250520	0.148565
5.17	-0.037109	0.359585	-0.446793	0.026777	-0.249377	0.143456
5.18	-0.033640	0.355981	-0.435754	0.024252	-0.247672	0.132198
5.19	-0.029994	0.350919	-0.410888	0.021821	-0.246712	0.127069
5.20	-0.026616	0.347713	-0.400426	0.019320	-0.245154	0.115450
5.21	-0.023045	0.342962	-0.375409	0.016915	-0.244380	0.110324
5.22	-0.019750	0.340151	-0.365551	0.014434	-0.242972	0.098344
5.23	-0.016247	0.335705	-0.340369	0.012053	-0.242388	0.093242
5.24	-0.013029	0.333287	-0.331139	0.009589	-0.241132	0.080899
5.25	-0.009587	0.329139	-0.305775	0.007227	-0.240745	0.075844
5.26	-0.006439	0.327112	-0.297199	0.004776	-0.239643	0.063139
5.27	-0.003051	0.323256	-0.271633	0.002431	-0.239455	0.058147
5.28	0.000032	0.321617	-0.263734	-0.000009	-0.238508	0.045076

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APPENDIX C

RELATIONSHIPS BETWEEN SOME OF THE UNIVERSAL THERMAL FUNCTIONS OF SECTIONS I AND II

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In Section II the dimensionless temperature ratio used is

$$\theta_{II} = (T/T_t) - 1. \tag{C-1}$$

Eq. (C-1) is readily rearranged to read as Eq. (C-2).

$$\begin{aligned}\theta_{II} &= \left[(T-T_1)/(T_1-T_w)\right]\left[(T_1-T_w)/T_t\right] - u_1^2/2c_pJT_t \\ &= \left[(T-T_1)/(T_1-T_w)\right]\left[(T_t-T_w)/T_t\right] - (u_1^2/2c_pJT_t)\left[1 + (T-T_1)/(T_1-T_w)\right]\end{aligned} \tag{C-2}$$

Since the temperature ratio, $(T-T_1)/(T_1-T_w)$, is identically the definition of θ used in Section I, Eq. (C-2) may be rewritten for isothermal surfaces, neglecting viscous heating effects, as

$$\theta_{II} = \theta_I(T_t-T_w)/T_t = -\alpha_o\theta_I \tag{C-3}$$

Eq. (C-3) relates the universal thermal functions of Section II applicable to an isothermal surface to the universal thermal functions of Section I. The relationships may be extracted by comparing terms when both sides of the equation are written as power series in x.

Using Eq. (II-3), the subsequent functional transformations of Section II, and the fact that $\alpha_1 = \alpha_2 = \alpha_3 = \cdots = 0$ in the case of an isothermal surface; the left-hand side of Eq. (C-3) may be written as

$$\begin{aligned}\theta_{II} = {} & \alpha_oA_o + (\alpha_o\beta_3/\beta_1)D_2x^2 + \left[(\alpha_o\beta_3^2/\beta_1^2)E_4 + (\alpha_o\beta_5/\beta_1)K_4\right]x^4 \\ & + \left[(\alpha_o\beta_3^3/\beta_1^3)L_6 + (\alpha_o\beta_3\beta_5/\beta_1)M_6 + (\alpha_o\beta_7/\beta_1)N_6\right]x^6 \\ & + \left[(\alpha_o\beta_3^4/\beta_1^4)P_8 + (\alpha_o\beta_3^2\beta_5/\beta_1^3)Q_8 + (\alpha_o\beta_3\beta_7/\beta_1^2)R_8\right. \\ & \left. + (\alpha_o\beta_5^2/\beta_1^2)S_8 + (\alpha_o\beta_9/\beta_1)T_8\right]x^8 + \cdots\end{aligned} \tag{C-4}$$

Similarly using Eqs. (3), (37), and the subsequent functional transformations of Section I, the right-hand side of Eq. (C-3) may be

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written as

$$-\alpha_o\theta_I = -\alpha_o\Big\{\beta_1\phi_1 x + \beta_3\phi_3 x^3 + \Big[\beta_5 b_5 + (\beta_3^2/\beta_1)d_5\Big]x^5 + \Big[\beta_7 r_7 + (\beta_3\beta_5/\beta_1)S_7 + (\beta_3^3/\beta_1^2)T_7\Big]x^7 + \Big[\beta_9 b_9 + (\beta_3\beta_7/\beta_1)d_9 + (\beta_5^2/\beta_1)r_9 + (\beta_3^2\beta_5/\beta_1^2)S_9 + (\beta_3^4/\beta_1^3)T_9\Big]x^9 + \cdots\Big\} / (\beta_1 x + \beta_3 x^3 + \beta_5 x^5 + \beta_7 x^7 + \beta_9 x^9 + \cdots) \qquad (C\text{-}5)$$

Multiplying throughout by u_1, i.e., multiplying Eqs. (C-4) and (C-5) by the denominator of Eq. (C-5), and equating the coefficients of the same power of x on both sides of the equation, we obtain

$$\alpha_o\beta_1 A_o = -\alpha_o\beta_1\phi_1;\quad \alpha_o\beta_3(D_2 + A_o) = -\alpha_o\beta_3\phi_3;$$

$$\alpha_o\beta_5(K_4 + A_o) + \alpha_o(\beta_3^2/\beta_1)(E_4 + D_2) = -\alpha_o\beta_5 b_5 - \alpha_o(\beta_3^2/\beta_1)d_5;$$

$$\alpha_o\beta_7(N_6 + A_o) + \alpha_o(\beta_3\beta_5/\beta_1)(M_6 + K_4 + D_2) + \alpha_o(\beta_3^3/\beta_1^2)(L_6 + E_4) = -\alpha_o\beta_7 r_7 - \alpha_o(\beta_3\beta_5/\beta_1)S_7 - \alpha_o(\beta_3^3/\beta_1^2)T_7;$$

$$\alpha_o\beta_9(T_8 + A_o) + \alpha_o(\beta_3\beta_7/\beta_1)(R_8 + N_6 + D_2) + \alpha_o(\beta_3^2\beta_5/\beta_1^2)(Q_8 + M_6 + E_4) + \alpha_o(\beta_5^2/\beta_1)(S_8 + K_4) + \alpha_o(\beta_3^4/\beta_1^3)(P_8 + L_6) = -\alpha_o\beta_9 b_9 - \alpha_o(\beta_3\beta_7/\beta_1)d_9 - \alpha_o(\beta_3^2\beta_5/\beta_1^2)S_9 - \alpha_o(\beta_5^2/\beta_1)r_9 - \alpha_o(\beta_3^4/\beta_1^3)T_9.$$

Eqs. (C-6) - (C-17) then follow.

$$A_o = -\phi_1; \qquad (C\text{-}6)$$

$$D_2 = -(\phi_3 - \phi_1); \qquad (C\text{-}7)$$

$$K_4 = -(b_5 - \phi_1); \qquad (C\text{-}8)$$

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$$E_4 = -(d_5 - \phi_3 + \phi_1); \tag{C-9}$$

$$N_6 = -(r_7 - \phi_1); \tag{C-10}$$

$$M_6 = -(S_7 - \phi_3 + 2\phi_1 - b_5); \tag{C-11}$$

$$L_6 = -(T_7 - d_5 + \phi_3 - \phi_1); \tag{C-12}$$

$$T_8 = -(b_9 - \phi_1); \tag{C-13}$$

$$R_8 = -(d_9 - r_7 + 2\phi_1 - \phi_3); \tag{C-14}$$

$$Q_8 = -(S_9 - S_7 + 2\phi_3 - 3\phi_1 + b_5 - d_5); \tag{C-15}$$

$$S_8 = -(r_9 - b_5 + \phi_1); \tag{C-16}$$

$$P_8 = -(T_9 - T_7 + d_5 - \phi_3 + \phi_1). \tag{C-17}$$

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