

GROUNDHOG 1959 - EAST GREENLAND*

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The mission of Groundhog III (1959) was threefold: (a) to reconnoiter, investigate, and evaluate ice-free land areas on the east coast of Greenland from Scoresby Sund to Germania Land for use as emergency landing or air rescue strips, (2) to accomplish intensive site studies of a proposed emergency airstrip at Saelsø, Germania Land, and (3) to investigate localities suitable for airstrips for the Royal Greenland Trade Department at Kap Tobin, Daneborg, and Danmarkshavn.

Field conditions dictated a continuing revision of the plans. The primary means of transportation for the field party, the icebreaker USS ATKA, was compelled to delay several weeks enroute from Thule to Scoresby Sund due to prior commitments to the Military Sea Transport Service. In addition, heavy pack ice encountered along the east coast from Angmagssalik to Scoresby Sund delayed the ATKA for several days, and damage sustained breaking through the polar pack limited the areas in which the ATKA could operate. After pushing through the polar ice into Kong Oscars Fjord, the ATKA limited its support of the Air Force mission to operations in the inner fjords between Mesters Vig and Hold With Hope. Intensive air reconnaissance previously planned for the area between Hold With Hope and Germania Land was limited to one flight in a Royal Danish Air Force PBY5A and consisted of a medium altitude reconnaissance of the area up to 75 miles south of Germania Land. Bad weather and a soft runway at Mesters Vig prevented the field party from reaching Daneborg and Danmarkshavn by light aircraft or by PBY5A.

Because the ATKA was unable to penetrate to Germania Land, the proposed intensive site study at Saelsø was cancelled and a site study of a favorable area at Storelv, just west of Hold With Hope, was started in its place.

The field season began on 15 August when the first geologic party took off in an HUP-2 helicopter from about 10 miles off the anchorage at the town of Scoresbysund to reconnoiter the area for an airstrip at Kap Tobin. The flight went over the proposed sites at Kap Tobin, which looked moderately poor to poor, past Scoresbysund, and westward toward Kap Hope. A site on the Jaettedal met all the Danish requirements for an emergency strip, except that it was perhaps too far from the settlements. The Jaettedal site is on a higher, dissected outwash terrace about 10 feet above the present stream level, is about 2100 feet long, and is cut only by some small swales.

Four unprepared strips in the Kap Tobin-Scoresbysund area were surveyed and soil tests made to evaluate the suitability of these strips for light aircraft in accordance with the request of the Royal Greenland Trade Department. Kap Tobin #1 is

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Fig. 1. Vertol HUP-2 helicopter piloted by Lt/JG Howard Hoehn of Navy Squadron HU-2 taking off from abandoned outwash plain near Scoresbysund.

720 feet long, with excellent approaches, and moderate bearing strength; it would be useful for short-field aircraft such as the Dornier 27 if the numerous boulders were removed. The field work here was completed on 18 August and included a topographic map, a geologic map, and a soil bearing strength map. Kap Tobin #2 is less than 600 feet long, and in places is much softer; it is less useful than Kap Tobin #1 and will not be further considered.

Hvalrosbugt, an abandoned outwash plain just northwest of Scoresbysund, has two runways that have been previously used by light aircraft; one runway is about 850 feet long, the other is about 1000 feet long. Both are on a firm surface with a few soft spots; the only drawback is that the runways cannot be extended in any direction.

At the Jaettedal site, a topographic map of the runway was prepared, soil tests were made along the sidelines and centerline of the entire runway, and one successful test landing made on the 1550-foot strip. The pilot landed from the north, touched down between the flags on the end of the runway, and rolled to a stop less than 700 feet down the runway. The wheels compacted the ground only slightly, making an indentation only one-half inch deep. He then took off to the south and used little more than 300 feet of the remaining portion of the runway. The runway is suitable at least for the Dornier 27, and can probably be used by larger STOL aircraft like the DeHaviland Caribou.

Helicopter reconnaissance flights were carried out past Nordøst Fjord up the valley of the Schuchert Elv, on the west side of Jameson Land, and over the western part of Jameson Land. At Nordøst Fjord the site is moderately flat, but only about 2300 feet of the proposed area could be used for a runway, due to large rocks at one end and increasing slope at the other. The material, apparently till, is about 99% silt and very fine sand, with a few pebbles, cobbles, and boulders, and has very low bearing strength. To further decrease its value, the surface is covered with great soil mounds 2 to 3 feet in diameter, with bare trenches about 8 to 12 inches deep between the mounds. It does not appear to be suitable as an unprepared strip.

On a later flight to find the location of the Gurreholm site, nothing could be found to justify work on the ground. The area behind the Gurreholm weather station is ground moraine, and consists of alternating swales and swamps and short, discontinuous, en echelon ridges of till. The adjacent northern coastal area of Jameson Land is much dissected by streams, and those smooth areas that appear to be good sites on the aerial photographs are mostly of unconsolidated fine to medium sand of very low bearing strength. Indeed, much of the sand is being actively moved by wind once the cover of vegetation is broken.

Nothing of interest was reported from the northern interior of Jameson Land, nor from the helicopter reconnaissance of southern and central Jameson Land.

Two sites on Milne Land had been picked from aerial photos for reconnaissance. Both sites were found to be on modern active flood plains in front of two glaciers that show signs of recent recession. The outwash is generally of low bearing strength.

By 27 August, the geologic party was about 10 miles northwest of Jameson Land off the mouth of Kong Osgard Fjord. One geologic team took off in the helicopter



Fig. 2. View from about 700 ft altitude looking over the Jaettedal outwash terrace (dark area in center) and the modern glacial stream (right) toward Scoresby Sund.

and headed south toward a proposed site along the coast; it was mostly alluvium with some modern beach ridges. Further south, a high dissected outwash terrace stands transverse to the present stream valley and is very promising looking except for its orientation; that is, the approaches are too close to the valley walls. The geologists then flew westward into the valley of the Pingel Dal, where the pre-selected site proved to be unusable. A short distance to the north, in the valley of Ørsted Dal, two separate localities were investigated. One site was on a sandy, dissected outwash terrace and appeared to be too soft for an unprepared strip. The other was on a very flat and extremely long alluvial plain, not now occupied by any stream. The penetrometer showed that it was too soft, however, as it is composed of a very fine sandy silt that could hold very little weight once the vegetal cover is broken.

A brief aerial survey of the Kap Stewart site from the Dornier 27 indicates that it is not worth further investigation as an unprepared landing site or as a hastily prepared site. The opinion is based on an admittedly inadequate investigation, but is the best available now.

On 29 August, the PBY made a long reconnaissance flight from Mesters Vig to Traill Ø Geographical Society Ø, east of Ymers Ø, over the eastern end of Moskusoksefjord and Loch Fyne, over Eigels Elv on Clavering, past Lindemans Fjord, Fligelys Fjord, over the western edge of Hochstetters Forland, and up to the Haystack just south of Dove Bugt. Here the pilot received word that fog was due to close in on Mesters Vig before the scheduled return and the meteorologists advised an immediate return. On the way back the flight led over Shannon Ø, past Sabine Ø, over Wollaston Forland, back to Moskusoksefjord and Loch Fyne, and back to Mesters Vig.

The U. S. Geological Survey had picked out numerous sites on the large islands in the fjord area from aerial photos, and the geologists took advantage of the journey from Mesters Vig to the Storelv on the ATKA to investigate as many of these as were within helicopter range. The first flight on 30 August left the ship northeast of Ella Ø and went down to Polhems Dal on Lyells Land. The team investigated and photographed a new site at the north end of the valley, looked over the proposed site in the middle of the valley, and flew eastward to Kirschdalen, where another proposed site was located. During the remainder of the day geologists investigated sites on Ymers Ø, on eastern Geographical Society Ø, and at Østersletten. Late in the evening one geologic team reconnoitered the Loch Fyne and Storelv sites by helicopter in preparation for the next day's work. Loch Fyne appeared to be out of the question as an unprepared airfield site. The Storelv site had definite advantages, the greatest of which was the tremendous area of flat, undissected to slightly dissected gravel terrace.

At the northern edge of the Storelv site the geologists did some preliminary penetrometer tests and dug a few test pits in fine to medium wind-blown sand overlying sandy pebble gravel with numerous cobbles. The soil surface is hummocky; the hummocks at the northern end of the area are about 3 to 10 inches high and about 6 to 14 inches in diameter. One helicopter stayed with the party for a day to assist in local reconnaissance flights, to assist in the layout of a proposed centerline for the runway, and to help locate a short runway on which the Dornier 27 could land to pick up the party for evacuation to Mesters Vig at the end of the field season.

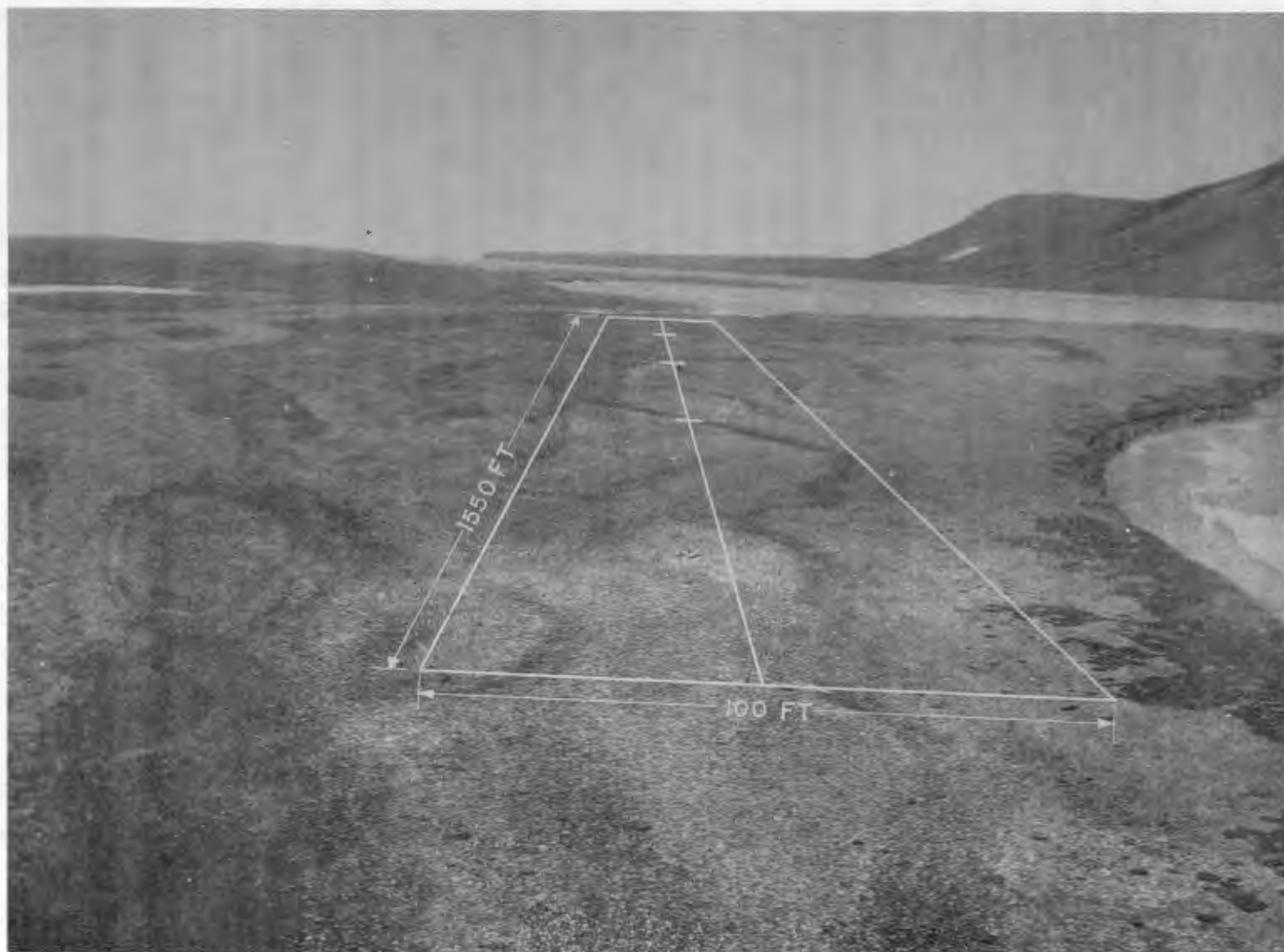


Fig. 3. Dimensions of the unprepared runway at the Jaettedal site from about 50 ft altitude, looking south.

The centerline of the proposed runway was laid out with a northwest-southeast orientation, bypassing several shallow blowouts with standing water. This preliminary centerline was then surveyed, and some soil tests made along its entire length. A geologic reconnaissance of the immediate area by Stoertz gave a genetic background on which to base further geologic and engineering studies.

In summary, the proposed air reconnaissance was successfully carried out from Kap Tobin, at the entrance to Scoresby Sund, to Hold With Hope. Within this area, twenty-four sites previously selected by the U. S. Geological Survey from air photo and map interpretation were visited by helicopters launched from the ATKA. Many of these sites were hastily investigated on the ground if the area seemed promising enough.

Four likely areas were investigated to indicate their suitability as strips for light aircraft. Kap Tobin #1 was found to be suitable for light aircraft with minimum construction effort. The Jaettedal strip is suitable for aircraft without construction effort. The Hvalrosbugt area can be used now and is the unofficial landing strip for Scoresbysund.

In place of a study of Germania Land, plans were made for a complete study of the Storelv site, but the onset of winter curtailed the field plans. However, a topographic map of a proposed runway was completed, some soil tests were carried out, and a few hydrologic observations made.