

Review of the Survey's activities in 1987

Martin Ghisler

Director

Over the past few years many functions of the Ministry for Greenland have been transferred to the Greenland Home Rule Administration. Following the reorganisation of the government after the general election in September 1987 the Ministry for Greenland was abolished and its remaining functions transferred to other ministries. The Geological Survey of Greenland, together with the Greenland Mineral Resources Administration and the Greenland Environment Research Institute were transferred to the Danish Ministry of Energy. The Minister of Energy, Svend Erik Hovmand, visited GGU in October.

The systematic geological investigation of Greenland and its mineral deposits and petroleum potential continued throughout 1987 – GGU's work comprised geological mapping and reconnaissance surveys combined with more detailed studies in selected areas with emphasis on economic geology.

The scientific and technical staff of 114 continues to be based in Copenhagen. A total of 92 participants were engaged in the field work in Greenland and carried out programmes in both East and West Greenland.

East Greenland

Substantial helicopter-supported field activity continued in two areas in East Greenland involving 40 participants. One group, operating out from a base camp in Hudson Land 200 km to the north of Mesters Vig, studied the geology of the Mesozoic sedimentary basin between Geographical Society Ø and Hochstetter Forland, with special emphasis on an assessment of the hydrocarbon potential. To the south of Mesters Vig a research team financially supported by British Petroleum made detailed stratigraphic studies on selected profiles of the Permo-Triassic sequence in Jameson Land.

The other main group in East Greenland undertook regional geological investigations from a base camp near Skjoldungen 300 km south of Ammassalik (Angmagssalik), which was shared with a team from the Danish Geodetic Institute. This group completed the

1:500 000 geological mapping programme of South-East Greenland (map sheet 14), together with a reconnaissance of the area's economic mineral potential.

West Greenland

In West Greenland the systematic geological mapping of the 1:100 000 Fiskefjord sheet (64 V.1 N) was completed. The programme included sampling throughout the area of heavy mineral concentrates from streams, and a detailed study of the scheelite mineralisation at Ivisartoq in the inner part of Godthåbsfjord.

A reconnaissance of the mineral potential of the area north of Jakobshavn, principally in the Precambrian supracrustal rocks was undertaken with special emphasis on sulphides and gold, including the collection of heavy mineral concentrates.

On Disko and Nûgssuaq the investigation of the Tertiary basalts and the associated underlying sediments was continued with emphasis on a regional understanding of the evolution of the area.

Near Jakobshavn, where glaciological investigations have been carried out in connection with the development of hydropower, the topography of the base of the margin of the Inland Ice was mapped with radar-sounding techniques, and the thickness of the ice measured in eight drill holes made by a hot water drill developed in the Survey. The annual mass balance measurements in the area were also carried out.

In addition glaciological and hydrological data were collected from GGU's two field stations near Godthåb and Søndre Strømfjord.

South Greenland

As a continuation of the reconnaissance for noble and base metals in the Precambrian supracrustal sequences in South Greenland, the sulphide mineralisation associated with gold and silver in the Kobberminebugt area was investigated and brought to completion.

The niobium-tantalum deposits associated with syenites around Motzfeldt Sø near Narsarsuaq that were

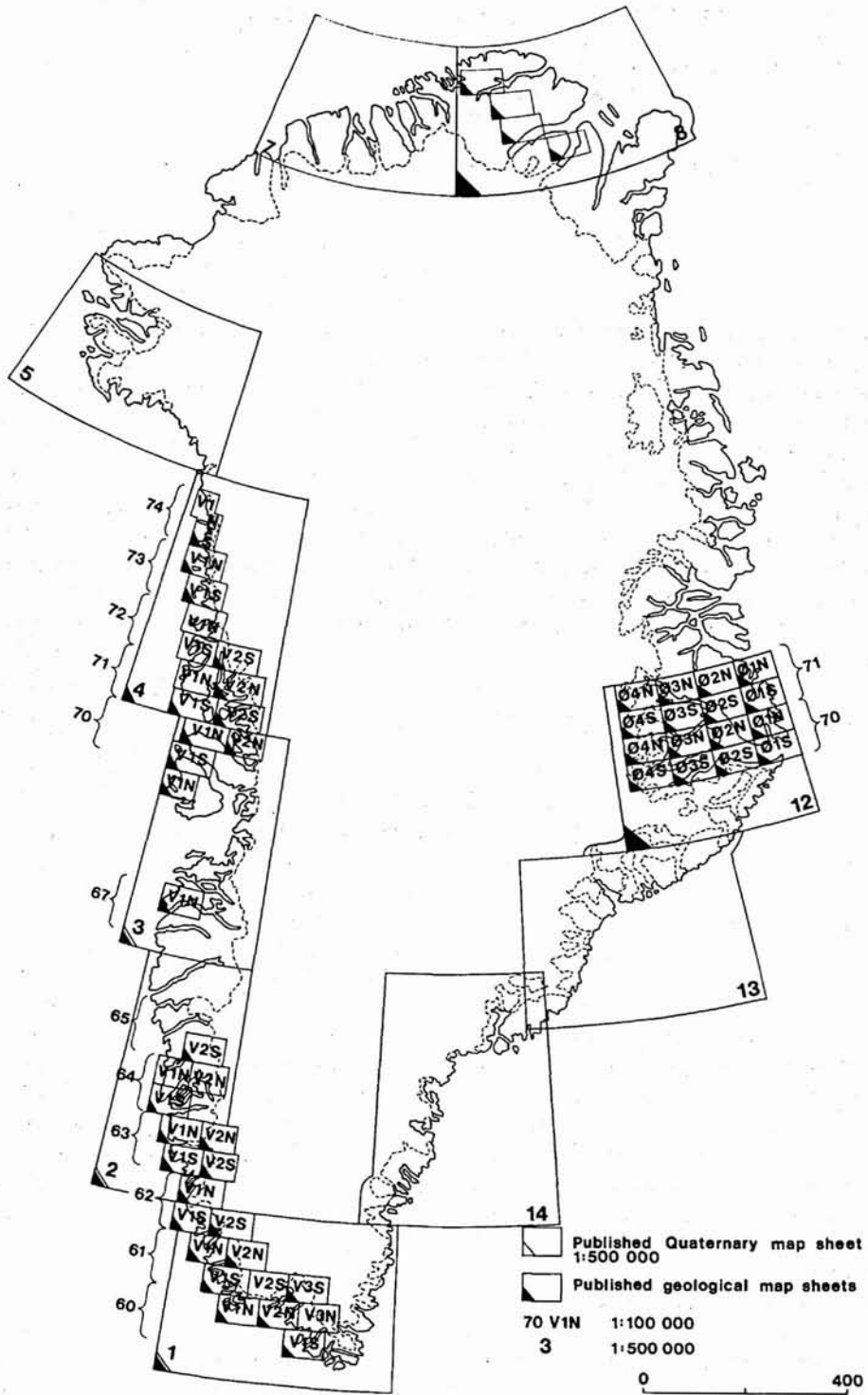


Fig. 2. Map sheets published and in preparation by the Survey (see inside back cover).

identified some years ago were studied in detail. An airborne radiometric survey was followed by a detailed sampling programme over the areas of pyrochlore mineralisation. More than 1000 chip samples were systematically collected from the 1400 m high steep mountain faces by mountaineers. The project was financed by a special grant from the Mineral Resources Administration.

General

GGU inspected the mineral exploration activities of concessionaires at Disko-Nûgssuaq, Ivigtut, Narsaq, Kangerdluarssuk and Nanortalik in West and South Greenland, and at Kangerdlugssuaq and Jameson Land in East Greenland, as well as followed the activities at the Sorte Engel mine at Mârmorilik. The mining activity at Ivigtut was stopped in December 1987. The pit is now filled with sea water and all cryolite from the stock piles has been shipped to Copenhagen. Assistance was also provided to the Mineral Resources Administration in negotiations with applicants for concessions and in the evaluation of concessionaires' reports.

Aeromagnetic measurements, essentially covering the eastern and western part of the Inland Ice south of 66°N, were continued in co-operation with the Geological Survey of Canada and the National Aeronautical Establishment of Canada.

The 'Nordolie' programme funded by the Danish Ministry of Energy since 1984 was completed by the end of the year. The final project report, giving an evaluation of the hydrocarbon potential of central North Greenland, will be published by the Survey.

During the year the 1:500 000 Quaternary map sheet covering South Greenland was printed as well as three geological maps at 1:100 000 from West Greenland (Agpat 70 V.2 N; Mellemfjord 69 V.1 N; Isukasia 65 V.2 S). A special Quaternary map at a scale of 1:125 000 along the coastal area of Jameson Land (East Greenland) was printed as well as a detailed (1:7500) map of the scheelite-bearing rocks at Store Malene near Nuuk. Four Reports, two Bulletins and a Map Sheet Description (Mârmorilik, Nûgâtsiaq, Pangnertôq) were published. As a result of GGU activities 36 contributions appeared in international scientific journals in 1987.

Introduction of new computing facilities at the Geological Survey of Greenland

Leif Thorning

From a cautious start in the use of computers in the early 1970s, the Geological Survey of Greenland has developed complex and varied uses of modern computer facilities for both scientific and administrative tasks. GGU's first computer installation, a noisy TTY connected to the Computing Centre of Copenhagen University by a 110 baud telephone modem, was a self-service facility which was not easy to use. Over the years, first with use of a PDP-10 with just one Tektronix 4014 graphic terminal and later a succession of increasingly powerful PDP-11s with many terminals, GGU's in-house facilities just kept ahead of the ever increasing demand for computer services. At the same time a number of programs for special tasks were developed on external facilities, because they required larger computers or special facilities. In the 1980s the demands on the computer facilities requiring many different types of programs, including word processing, had grown so large that GGU's in-house system could no longer handle them satisfactorily. A major reorganisation was re-

quired, and consequently activities were divided between personal computers (PCs; mainly administrative) and a new central computer (mainly scientific). This development took place in late 1986 with the purchase of 17 new personal computers and a new central computer with accessory peripheral equipment. This has allowed an increasing integration of computer methods into GGU's activities. A brief summary is given below.

Hardware

The new central computer facility brought into use in January 1987 is a VAX-8200 system in a Digital network (ethernet with Decservers). Two tape stations and three disk drives are attached to the system. Most terminals are of the VT200 series, but there are also graphic terminals (see below). Several printers, among them two laser printers and a high quality plotter (CalComp 1044GT), provide all necessary types of output. The system includes an interface (PSI, X25) for communi-