

The Skjoldungen map sheet: completion of the 1:500 000 geological mapping of South-East Greenland

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The publication of the 1:500 000 Skjoldungen map sheet (Escher, 1990; Fig. 1) marks the completion of the Geological Survey of Greenland's (GGU's) reconnaissance mapping activities in South-East Greenland. A descriptive text to the map is under preparation.

All of South-East Greenland between Kap Farvel (59° 00'N) and Mesters Vig (72° 00'N) is now covered by sheets of the 1:500 000 geological map series of Greenland. Five sheets in the series (nos 5, 6, 9, 10 and 11) remain to be published (Fig. 1); the Thule map sheet (sheet 5) will be printed in the course of 1991, and sheet 10 is under compilation.

The presentation of the Skjoldungen map is somewhat different from that of the other 1:500 000 maps in the series. In addition to traditional lithological information, an effort has been made to show the tectonic/metamorphic development of the region during the Archaean and Proterozoic.

Fieldwork

The main mapping of the region was undertaken by GGU during the summers of 1986 and 1987. During 1986, the northern half of the sheet area was mapped and an impression of the economic mineral potential of the region was obtained. Twelve geologists took part in the expedition, with local transport supplied by two helicopters and rubber boats. The region around Ammassalik was mapped in detail, while further to the north and south mapping was based mainly on helicopter reconnaissance with occasional groundstops. The first year of the expedition was led by Feiko Kalsbeek, who also edited a volume of papers by the participating geologists describing the geology of the region (Kalsbeek, 1989).

During 1987 the southern half of the map sheet area was mapped, again with some emphasis on assessing the economic mineral potential of the region. Ten geologists took part during that summer, supported by helicopter and rubber boats as in 1986. Most attention was given to the Skjoldungen region which is characterised by a Late Archaean intrusive complex (Nielsen & Rosing, 1990).

The second year of the expedition was led by Troels Nielsen.

Outline of the geology

The map sheet area is mainly composed of Archaean and Proterozoic rocks (Fig. 2). Three distinct Archaean terrains can be recognised:

- (1) A northern Archaean terrain of mainly granulite facies gneisses.
- (2) A central Archaean terrain of mainly amphibolite facies gneisses.
- (3) A southern Archaean terrain of mainly agmatitic gneisses in amphibolite and granulite facies.

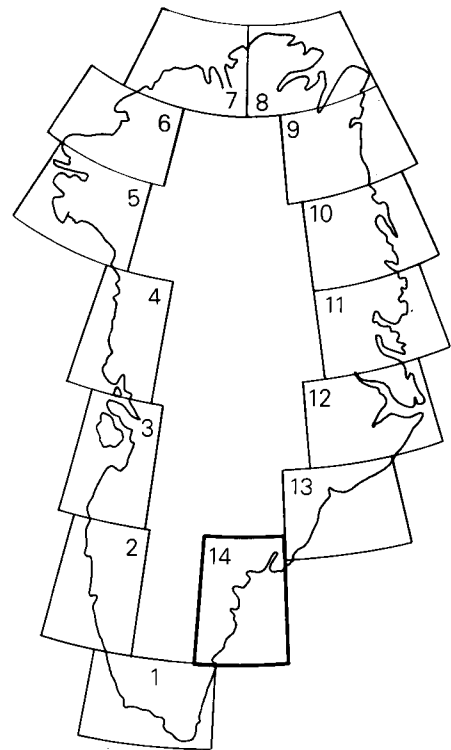


Fig. 1. Index to the 1:500 000 geological map sheet series of Greenland published by GGU. Sheet 14 is the Skjoldungen map sheet.

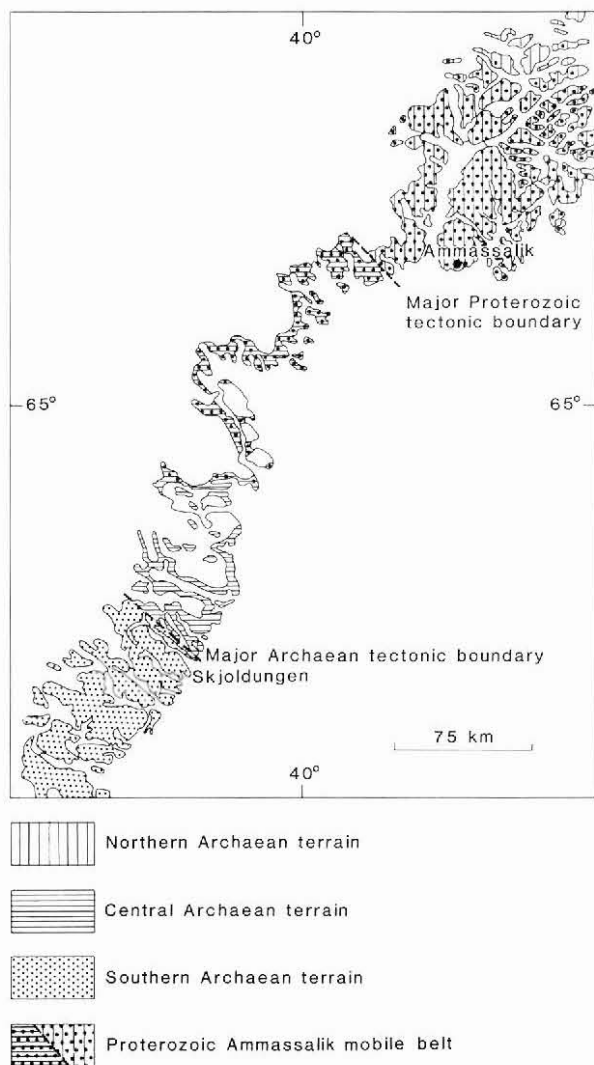


Fig. 2. Distribution of the Archaean terrains and the Proterozoic Ammassalik mobile belt.

Nielsen (1990) proposed that a late Archaean suture may be present in the Skjoldungen region between terrains 2 and 3 (Fig. 2). This suggestion is mainly based on the presence of metasediments and the Late Archaean late-tectonic intrusive complex in the Skjoldungen re-

gion, and on the occurrence of a narrow belt of mylonitic rocks just north of Skjoldungen.

At the beginning of the Early Proterozoic a swarm of dolerites intruded the gneisses of the map sheet area. On the basis of field evidence and isotopic data, Kalsbeek & Taylor (1989) suggested the presence of an Early Proterozoic suture in the Ammassalik region between terrains 1 and 2 (Fig. 2). During the proposed collision of the two terrains an approximately 350 km wide belt of gneisses with dykes, comprising part of terrains 1 and 2, was thoroughly reworked under amphibolite facies conditions. This belt is also characterised by the presence of major units of high-grade Proterozoic sediments. Late and post-tectonic igneous rocks, of calc-alkaline affinity, were emplaced in the Ammassalik region. In recent literature, this belt of reworked rocks together with the metasediments and intrusive rocks, is referred to as the 'Ammassalik mobile belt' (Kalsbeek, 1989).

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