

measurement programme. The main objects of the programme are to delimit the effects of permafrost both laterally and in depth and to study permafrost behaviour under the influence of different environmental factors, e.g. exposure, soil, moisture, plant cover, as well as under varying meteorological conditions. From such measurements it may be possible to detect contemporary climatic changes, either by variations in the level of the permafrost table or in the formation of new permafrost areas.

#### *Reference*

Olesen, O. B. 1968: Ground temperature measurements in West Greenland. *Rapp. Grønlands geol. Unders.* 15, 25-26.

## SAMPLING OF METADOLERITES IN THE AGTO AREA, CENTRAL WEST GREENLAND

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During field work in the Agto area in 1966 to 1969 (see GGU Reports of Activities for these years), a number of metadolerites were mapped and sporadically sampled. In the country around Agto settlement where the metadolerites are apparently most frequent, they have been used in the synthesis of a structural chronology (Sørensen, 1970). A preliminary petrographic analysis of all metadolerite samples collected by the mapping team (Sørensen, 1971), revealed that the metadolerites, which range modally from amphibolite to pyriclasite, offered ideal possibilities for describing and interpreting aspects of the amphibolite to granulite facies transition.

In 1971 during a short stay in the Agto area systematic sampling of metadolerite localities was designed to yield maximum information on the hornblende breakdown reaction suggested by the modal variation of the metadolerites. The material makes it possible to detect to what degree mineralogical variations characterising the amphibolite to granulite facies transition can be described solely as a function of H<sub>2</sub>O activity.

In a few of the original samples garnet exists in the plagioclase-two pyroxene-hornblende paragenesis. The occurrence of garnet – assuming it to be part of an equilibrium paragenesis – could make a pressure evaluation possible following the experimental results of Green & Ringwood (1966). The preliminary examination of the paragenetic and modal relationships of the garnet-bearing phase assemblage indicated that the actual garnet-producing reaction can be hardly anhydrous. The 1971 field work therefore involved sampling of material having a bearing on the garnet-producing reaction.

### References

- Green, D. H. & Ringwood, A. E. 1966: An experimental investigation of the gabbro to eclogite transformation and its petrological applications. *Geochim cosmochim. Acta* **31**, 767-833.
- Sørensen, K. 1970: Some observations on the structural and metamorphic chronology on Agto and surrounding islands, central West Greenland. *Rapp. Grønlands geol. Unders.* **27**, 32 pp.
- Sørensen, K. 1971: Amphibolitfacies-granulitfaciesovergangen i metadoleritter fra Agto-området, Vestgrønland. Unpubl. thesis, Geol. Inst. Univ. Aarhus.

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## FIELD WORK IN THE FISKENÆSSET AREA, SOUTHERN WEST GREENLAND

**Feiko Kalsbeek**

During June to September the systematic mapping of the Fiskenæsset area was continued. Apart from the author the following geologists took part: L. Skov Andersen (Univ. of Copenhagen), C. R. L. Friend, B. J. Walton (Portsmouth Coll. of Tech.), T. O. Frisch (Univ. of Alberta), A. M. Hopgood (Univ. of St. Andrews), D. K. Hutt (Univ. of London), J. S. Myers (GGU), G. A. G. Nunn (Univ. of Liverpool), J. R. Tomas (Geol. Surv. Prague), G. Rivalenti (Univ. of Modena) and R. H. Williams (Univ. of Exeter). A study of the Na<sup>+</sup> activity in natural waters, soils and vegetation was made by J. Bondam (see this report). R. T. Pidgeon (Scott. Res. React. Cent., East Kilbride) collected material in various parts of the area for radiometric dating.

The field parties were served by two helicopters and two motor cutters operating from the base camp Midgård with Ib Olsen (GGU) taking care of most of the practical arrangements.

At the beginning of the summer a tragic accident happened to one helicopter in which the Austrian pilot Peter Gschwend lost his life. It was only through the outstanding efforts of the other pilot, Paul Schmit, during the following weeks in search of the lost helicopter and subsequently as the only pilot, that the expedition was able to operate almost as normal during the first half of the summer.

The field work was again concentrated in the area between Frederikshåbs Isblink and Fiskenæs fjorden. The mapping of most of this area is now complete and the remaining part will be finished next year. Mapping of the region north of Fiskenæs fjorden started in 1971 and will be continued during the coming years. A more comprehensive report on the work in the Fiskenæsset area, with contributions of several of the expedition participants is in preparation.