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A NEW STATION FOR GROUND TEMPERATURE MEASUREMENTS AT CHRISTIANSHÅB, CENTRAL WEST GREENLAND

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In July a further station for ground temperature measurements was established at Christianshåb. This station is the eighth erected in West Greenland as part of the Danish contribution to the UNESCO International Hydrological Decade programme (IHD). The first station was set up at Holsteinsborg in 1964, followed by a second there in 1967, two in Søndre Strømfjord in 1967, and single stations at Jakobshavn 1968, Godhavn 1968 and Egedesminde 1970. Apart from one station in Søndre Strømfjord which was closed in the autumn of 1970, all are in operation.

Two types of station have been constructed, both consisting of a small prefabricated wooden hut in which the measuring apparatus, a wheatstone bridge, is situated (see Olesen, 1968). The stations at Holsteinsborg, Søndre Strømfjord, Jakobshavn and Godhavn are constructed as main stations at the corners of a quadrangle of approximately 250×125 km. Apart from at Holsteinsborg where the shallow depth to bedrock only allows 18 thermistores to be installed, the main stations have 21 thermistores permanently embedded at different levels in the ground near the hut. The remainder are only equipped with 12 thermistores and are referred to as small stations. They are situated within the quadrangle outlined by the main stations. The thermistores are composed of platinum wire of resistivity type, mounted in pertinax tubes for protection: each tube holding three thermistores at different levels. Measurement of the thermistores is made every day around midday by local personnel.

It is intended that the main stations remain at the chosen sites throughout the IHD programme while the smaller ones will be moved periodically so that a maximum number of vegetational environments can be included in the

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.

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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_2O 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.