AEM Greenland 1998 (1) - Washington Land and Daugaard Land

Description of an airborne combined electromagnetic and magnetic survey in Greenland 1998 (1)

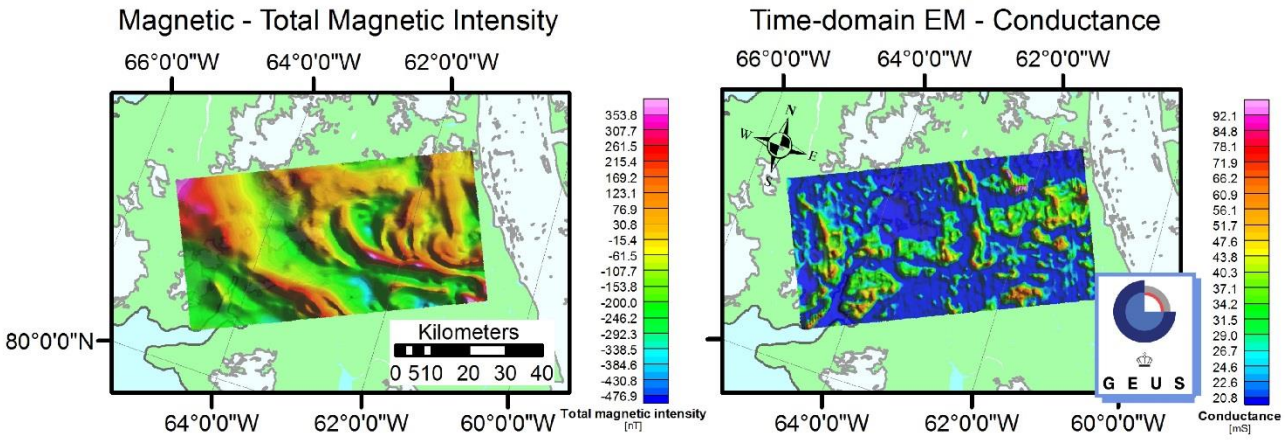
The AEM Greenland 1998 (1) survey was conducted in Washington Land and Daugaard-Jensen Land in western North Greenland. Measurements included acquisition of controlled source electromagnetic data (GEOTEM - time domain EM) and total field magnetic data. The survey (size of 3220 km^2) was flown by Geoterrex-Dighem Ltd. and financed by the Government of Greenland. Two surveys were acquired. The main survey was flown with a flight line spacing of 400 metres between lines with a heading of NW23.5^o and tie-lines at a direction of NE66.5^o spaced 4 km apart. Within this area, a smaller survey in the eastern part directly over the mineralised sites was measured at 200 m line spacing (NE66.5^o).

The AEM Greenland 1998 project also included a second survey area, J.C. Christensen Land in eastern North Greenland and some reconnaissance lines in eastern Peary Land - click here to see AEM Greenland 1998 (2).

During a GEUS geological reconnaissance campaign in eastern Washington Land in 1997, a Zn-Pb-Ag mineralisation was discovered in dolomitic boulders in the area. The discovery led to the selection of Washington Land and Daugaard-Jensen Land as one of the target areas in North Greenland for a combined airborne electromagnetic (GEOTEM) and magnetic survey.

Lower Palaeozoic sedimentary deposits dominate the geology of Washington Land and Daugaard-Jensen Land. The sediments were deposited in the Franklinian Basin that has an extension of approximately 2000 km across North Greenland and Canada. Approximately 8 km of Lower Palaeozoic strata are exposed within the North Greenland part of the basin. In Washington Land and Daugaard-Jensen Land the depositional environment of the basin is reflected in shelf sediments located to the south and deep-water sequences further to the north. Exposed rocks in the survey area consist mainly of carbonates deposited on the former shelf with subordinate siliciclastic sediments and evaporites.

The Zn-Pg-Ag mineralisation is found within the evaporite-rich part of the Lower Ordovician platform sediments.



Total magnetic intensity map (left) and conductance map (right) from the AEM Greenland 1998 (1) survey in Washington Land and Daugaard-Jensen Land (western North Greenland). The conductance is determined from the complete waveform of both the x-coil and z-coil of the GEOTEM system.

Data compilations can be directly downloaded from Greenland Portal by entering ”Geophysics – individual surveys” and selecting this survey. To order hardcopies of map sheets, please contact Geus by email bhm@geus.dk.

Selected references:

- Rasmussen, T.M. 1999: Airborne electromagnetic and magnetic survey in Washington Land and Daugaard-Jensen Land, western North Greenland. Geological Survey of Denmark and Greenland Report **1999/10**, 20 p.
- Rasmussen, T.M. & Thorning, L. 1999: Airborne geophysical surveys in Greenland 1998. Geology of Greenland Survey Bulletin **183**, 34-38.