

AEM Greenland 1997

Description of an airborne combined electromagnetic and magnetic survey in Greenland 1997

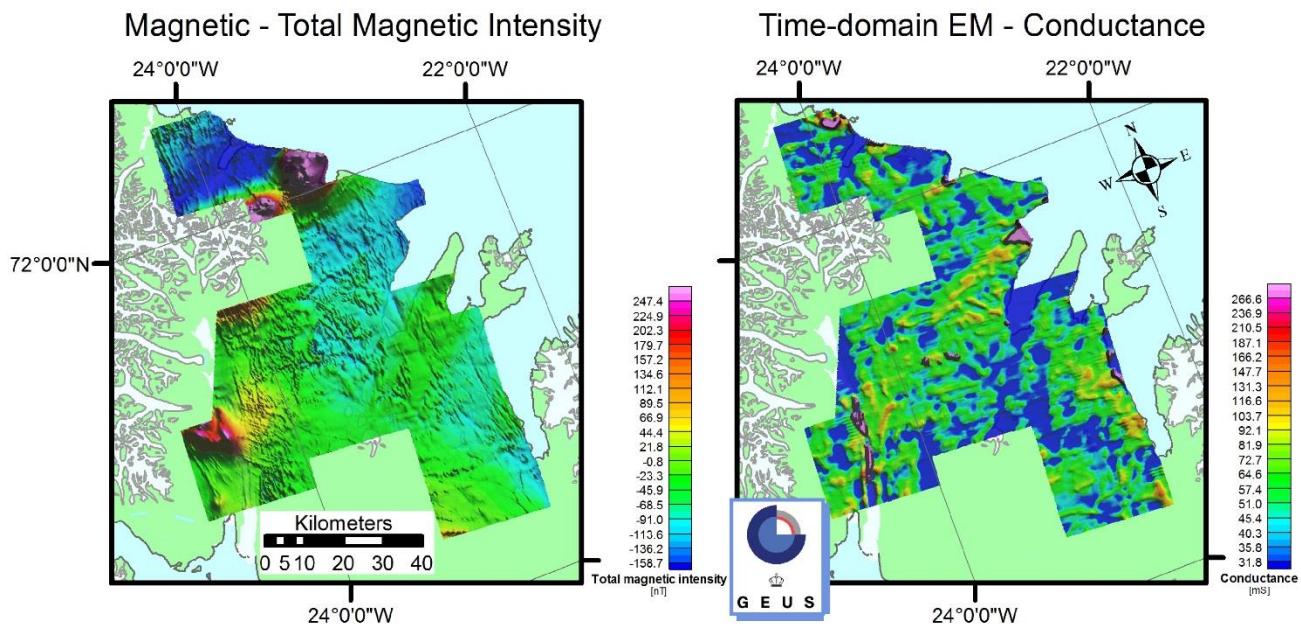
The survey area (size: 5194 km²) covers the northern portion of the Jameson Land basin which is a thick sequence (up to 17 km) of Palaeozoic and Mesozoic continental and marine sediments invaded by a variety of Tertiary sills, dykes and intrusions. Measurements included acquisition of controlled source electromagnetic data (GEOTEM - time domain EM) and total field magnetic data. The survey was collected by Geoterrex-Dighem Ltd. and financed by the Government of Greenland. Survey lines were oriented east-west at 400 metres interval with north-south directed tie-lines spaced at four kilometres interval.

The region has a history of both hydrocarbon and mineral exploration, the latter being the focus of this study. The Blyklippen lead-zinc deposit was commercially mined between 1956-1962 by Nordisk Mineselskab A/S and, although small, is one of the few operating mines in Greenland's history. It is situated within the survey area in the Mesters Vig region.

Many other mineral occurrences are known. The Malmbjerg porphyry molybdenum deposit is probably the best known prospect in the area is associated with a Tertiary intrusion and is situated west of the geophysical survey block.

Two long reconnaissance lines were flown north of the main survey area to gather some geophysical information for future planning.

In 1998 selected anomalies were visited in a follow-up study by GEUS, which concluded that most electromagnetic anomalies are found in relation to thick Tertiary sills intruded into black Jurassic shales and are probably caused by a combination of contact-metamorphosed, graphite-bearing black shales and massive to semi-massive contact-skarn sulphide/magnetite layers found in these sediments.



Total magnetic intensity map (left) and conductance map (right) from the AEM Greenland 1997 survey in Jameson Land (East Greenland). The conductance is determined from the complete waveform of the 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:

- Stemp, R.W. 1998: Airborne electromagnetic and magnetic survey of the northern Jameson Land Area, central East Greenland. Results from Project AEM Greenland 1997. Geological Survey of Denmark and Greenland Report **1998/18**, 30 pp.
- Pedersen, M. & Stendal, H. 1999: Ground check of airborne geophysical anomalies in northern Jameson Land, central East Greenland. Geological Survey of Denmark and Greenland Report **1999/38**, 76 p.
- Nielsen, B.M. 2000: Ørsted Dal jernskarn. En petrografisk, geokemisk og genetisk beskrivelse, 152 pp. Unpublished cand. scient. thesis, Aarhus University, Denmark.