

AEM Greenland 1996

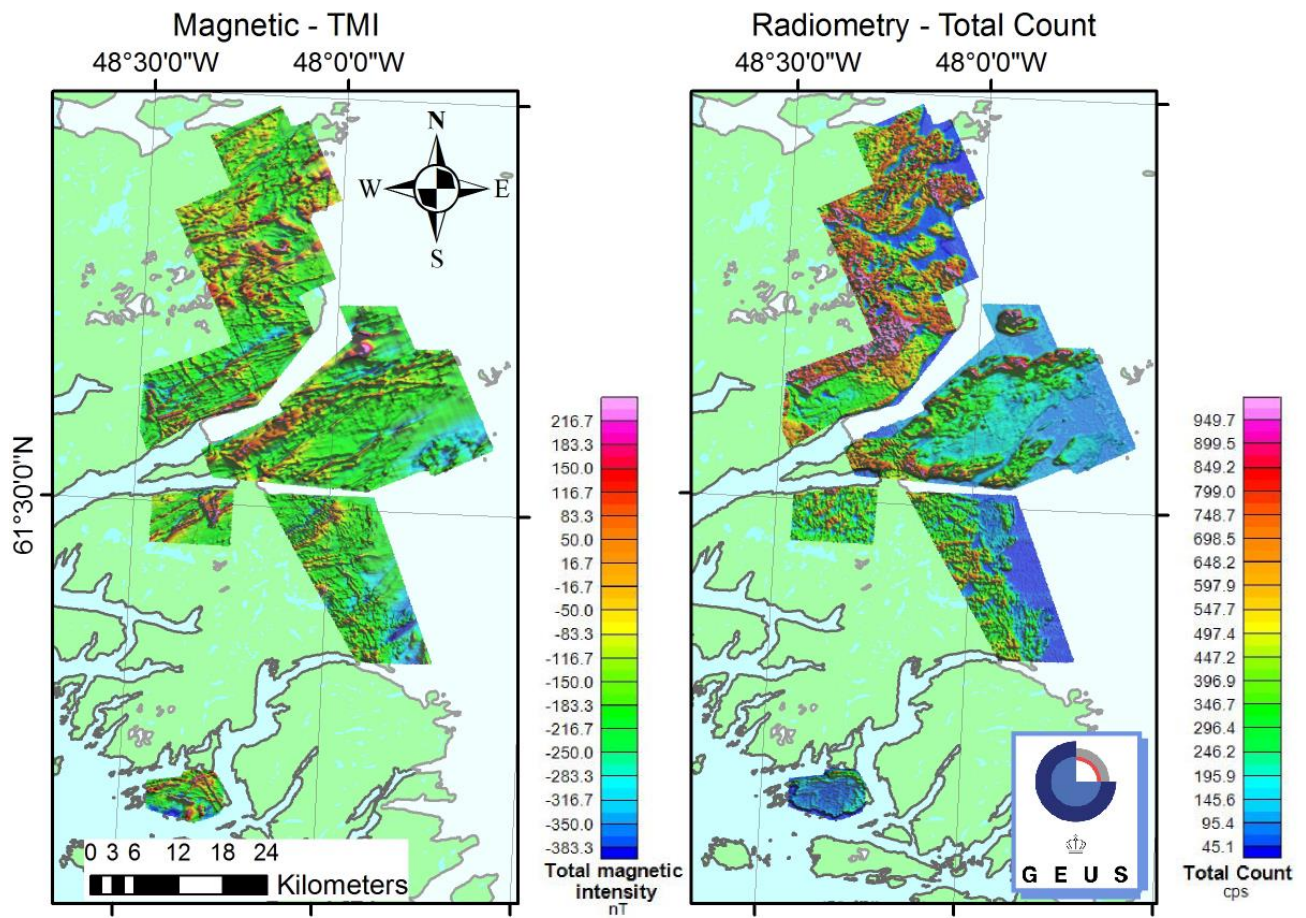
Description of an airborne combined electromagnetic, radiometric and magnetic survey in Greenland 1996

The survey area is located in the Grønnedal region, South-West Greenland. Five separate blocks were surveyed, primarily covering the Ketilidian (early Proterozoic) and Tartoq (Archean) supracrustal belts. The multi-sensor, helicopter geophysical survey system including multi-frequency HEM system, magnetometer and VLF-EM sensors were placed in two birds below the helicopter, but the gamma ray spectrometer was mounted on the helicopter platform. The survey (extent of total area: 1560 km²) was performed by Aerodat Inc. and financed by the Government of Greenland. It was flown at a mean helicopter terrain clearance of 60 metres with survey lines spaced at 200 metres and orthogonal tie-lines at 2000 metres.

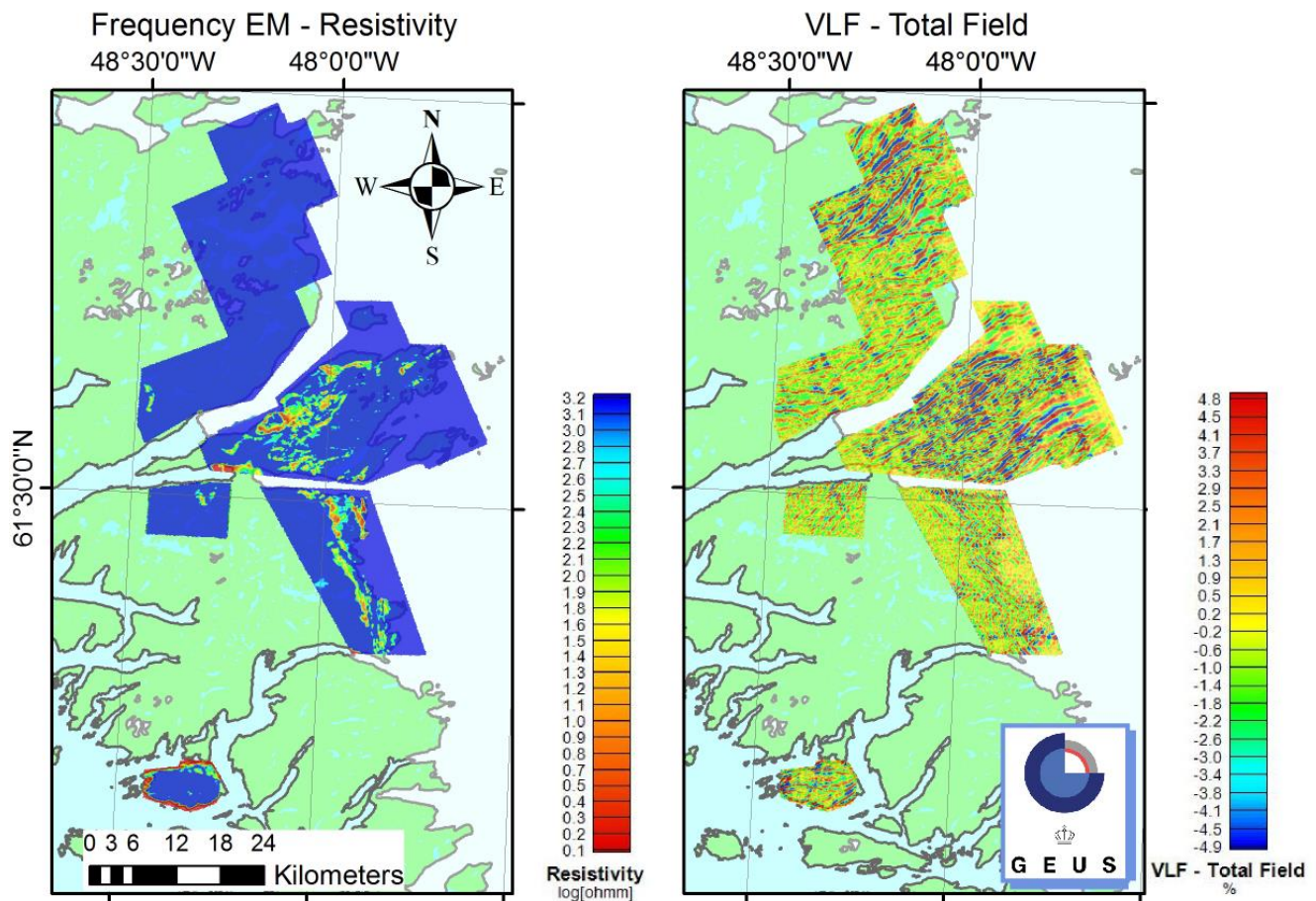
The Archean is dominated by 2.7 to 2.9 Ga old gneisses, but contains the older Tartoq Group supracrustals consisting of mafic to ultramafic metavolcanic units with subordinate felsic metavolcanic or metasedimentary rocks intruded by a granitoid dated at c. 2.944 Ga. The Archean basement is unconformably overlain by Ketilidian supracrustal rocks and is intruded by Ketilidian dolerite dykes and granites. The supracrustal rocks are almost unmetamorphosed at Midternæs, while the metamorphic grade increases to amphibolite facies in southern Grænseland and Arsuk Ø.

The survey blocks are situated near the southern Archean boundary of West Greenland and were initially selected to cover both Proterozoic and Archean supracrustal belts with a potential for economic base metal or precious metal mineralisation.

The multi-frequency EM survey mapped a large number of bedrock conductors, particularly within the Ketilidian rocks of Midternæs and Grænseland.



Total magnetic intensity map (left) and radiometric total count gamma maps (right) from the AEM Greenland 1996 survey the Grønndal region, South-West Greenland.



Apparent resistivity map from a frequency-domain EM system (left) and total field map from a VLF-EM system (right). Apparent resistivity is calculated from the 4175 Hz horizontal coplanar coil pair of a frequency-domain EM 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 reference:

- Stemp, R.W. 1997: Helicopter-borne geophysical surveys in the Grønnedal region, South-West Greenland. Results from project AEM Greenland 1996. Geological Survey of Denmark and Greenland Report **1997/12**, 29 pp.