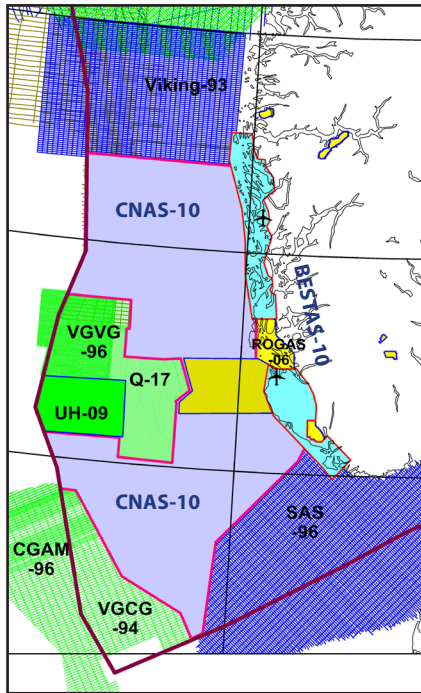


## PROJECT PROPOSAL

# North Sea Coop (Crustal Onshore-Offshore Project)



Outline of the Coop aeromagnetic surveys in the North Sea (CNAS-10) and along the coast of western Norway (BESTAS-10) (light blue polygons). Dark blue lines show previous NGU surveys.

The Geological Survey of Norway (NGU) is carrying out a follow-up on the successful onshore-offshore projects in the Norwegian and Barents Seas. The study area is located in the Norwegian North Sea (see map) and comprises an area of approx. 120.000 km<sup>2</sup>. The project covers the Viking, Stord, Egersund, Norwegian-Danish and Central basins. The project includes acquisition of two airborne surveys. The offshore survey has a profile spacing and a tie line spacing of 1 and 4 km, respectively and a sensor altitude of 100 metres. A combined aeromagnetic and radiometric survey along the coast of western Norway has a line spacing of 250 m and a flying altitude of 60 metres.

NGU will within the frame of the Coop study compile existing aeromagnetic surveys on the mainland and in the North Sea (e.g. VGVG-96, Q17, Viking-93 and SAS-96) and provide a comprehensive and state of the art aeromagnetic grid. High-resolution aeromagnetic surveys are particularly useful for detailed mapping of sand channels, volcanics, igneous bodies, salt diapirs, fault systems, deep weathering and depth to magnetic basement. This information provides a structural overview and is valuable for further survey planning like seismic, gravity and CSEM data acquisition. The products of the planned project includes a basement characterization as well as full 3D crustal and thermal basement models. The new surveys constitutes the final part of an aeromagnetic remapping program of the Norwegian continental shelf. The magnetic conditions are expected to be favourable for aeromagnetic data acquisition for another 12 months.

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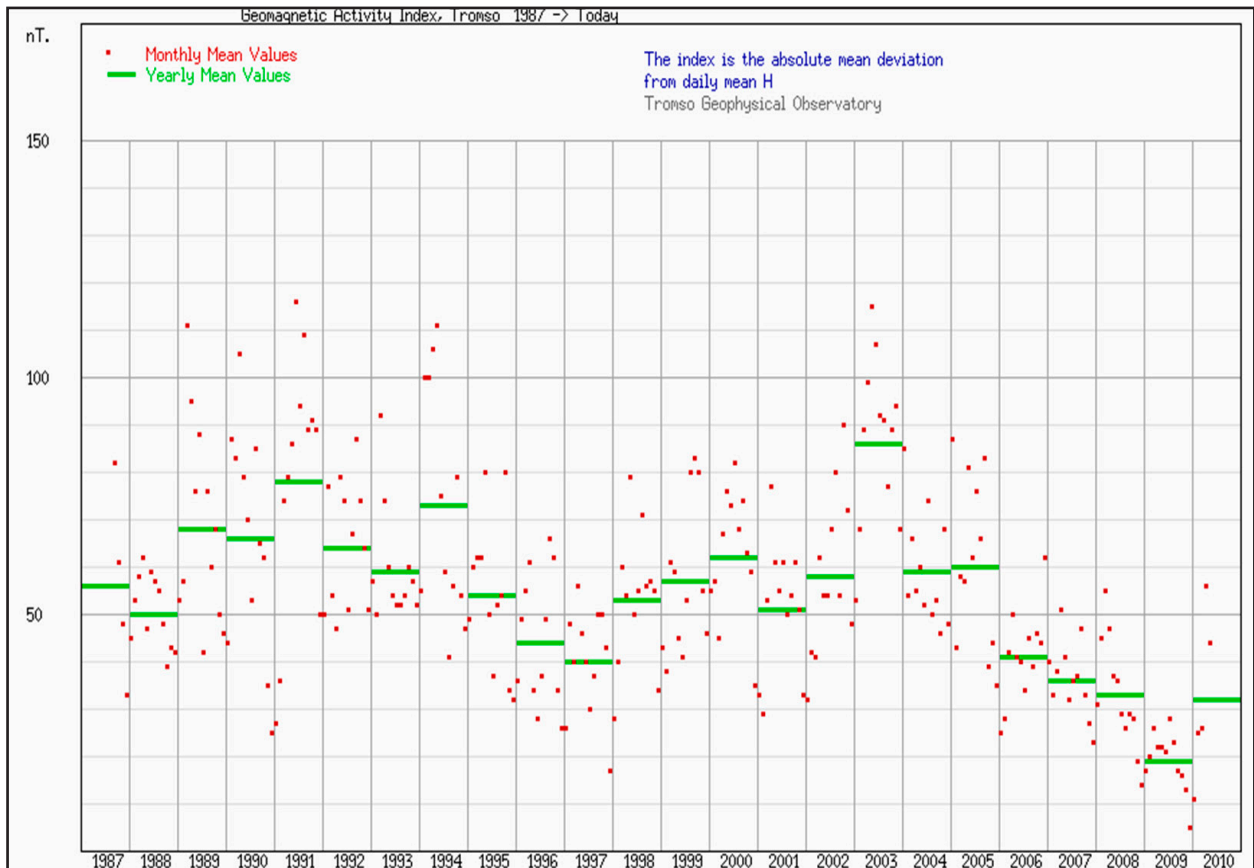
[www.ngu.no/continental\\_shelf\\_geophysics](http://www.ngu.no/continental_shelf_geophysics)

### MAIN OBJECTIVES

- Basement characterization
  - Lithology and age
  - Deep weathering
  - Heat production
- Depth to basement
- Fault zones (onshore-offshore)
- Dyke swarms
- 2D & 3D crustal modelling
- 3D thermal modelling
- Geodynamic and tectonic interpretations
- Subcrop mapping
- Quaternary sand channels

**ORDERING:**

**1.92 million NOK**



Magnetic disturbances recorded by the Tromsø Geophysical Observatory (<http://www.tgo.uit.no/aix>) during the time period 1987-2010. The activity is presently low which is expected to prevail for another 6 months. The conditions are therefore ideal for aeromagnetic data acquisition.

## DELIVERABLES

### Maps

- Aeromagnetic total field data-sets
- Free air, Bouguer and isostatic gravity maps
- Filtered magnetic and gravity maps
- Depth to magnetic sources
- Combined interpretation maps (incl. basement lithology and potential weathering)
- Gravity and magnetic modelling along key transects
- Combined interpretation with seismic data
- 3D crustal model
- 3D thermal model
- Geodynamic and tectonic interpretations

### Reports

- Processing reports
- Interpretation report

### OFFSHORE SURVEY SPECIFICATIONS

Line/tie-line spacing	1 km / 4 km
Sensor elevation:	approx. 100 m
Area coverage:	65.000 km <sup>2</sup>
Total flying distance:	81.000 km
Aeroplane:	Piper Chieftain
Magnetometer:	Scintrex Cesium Vapour MEP410
Noise envelope:	±0.1 nT
Sensor:	CS-3 mounted in towed bird
Navigation:	Real time differential GPS
Navigation accuracy:	< 5 m
Base of operation:	Sola and Flesland
Base magnetometers:	Karmøy and Solund

Project completion: 30 June 2012