



MSM67 - SEGMENT

Structure and evolution of the NE Greenland continental margin in relation to the conjugate margin

(Reykjavik – Longyearbyen, 31.08.-04.10.2017)

Weekly report #2

Since the beginning of last week we acquired seismic refraction data on a 260-km-long EW transect crossing the Jan Mayen microcontinent. The line extends from oceanic crust in the Norway Basin, across the microcontinent, into oceanic crust that formed at the presently active mid-oceanic Kolbeinsey Ridge. The rifting of the eastern continental margin of the Jan Mayen microcontinent was accompanied by abundant magmatism while the western margin developed magma-poor. This western margin is conjugate to East Greenland, which is our main study area. The seismic crustal transect will also contribute to the question of how far the Jan Mayen microcontinent extends to the west.

During night time from Saturday to Sunday, September 3rd, we deployed the airgun system. To ensure that no whales and dolphins are present, a passive acoustic monitoring system was used before the operation was initiated with a soft start. From there on we sailed along the line and produced seismic signals every minute. Our two marine biologists from Seiche Ltd. conducted the marine mammal observations just before and during the seismic data acquisition but detected no marine mammals in the area. After finishing data acquisition we retrieved the airgun system and started picking up the 30 ocean-bottom seismometers (OBS) from GEUS and GEOMAR. On Wednesday, September 6th, all but one instrument were recovered.

Medical circumstances required to drop the chief scientist in the port of Akureyri/Iceland, before the research cruise continued toward the most remote areas of east Greenlandic waters. During the transit, the airguns were maintained and the seismic refraction data were evaluated.

One of the OBS did not raise to the surface and thus we went back to the position of this instrument for the time of the automatic backup release set to September 9th at 7:00 am. However, all our efforts did not succeed and this instrument could not be retrieved. We are nevertheless confident that this will not hinder data analysis due to the close spacing of the instruments. A first inspection of the data reveals promising quality, with signals reaching as far as 60-80 kilometers imaging the Earth's crust and uppermost mantle.

After a short transit towards Greenland, we deployed all reflection seismic equipment next to the magnetometers and the passive acoustic marine mammal monitoring hydrophone (PAM). This operation was finished on Sunday morning, September 10th and from there on we will acquire geophysical data across the NE Greenland shelf.

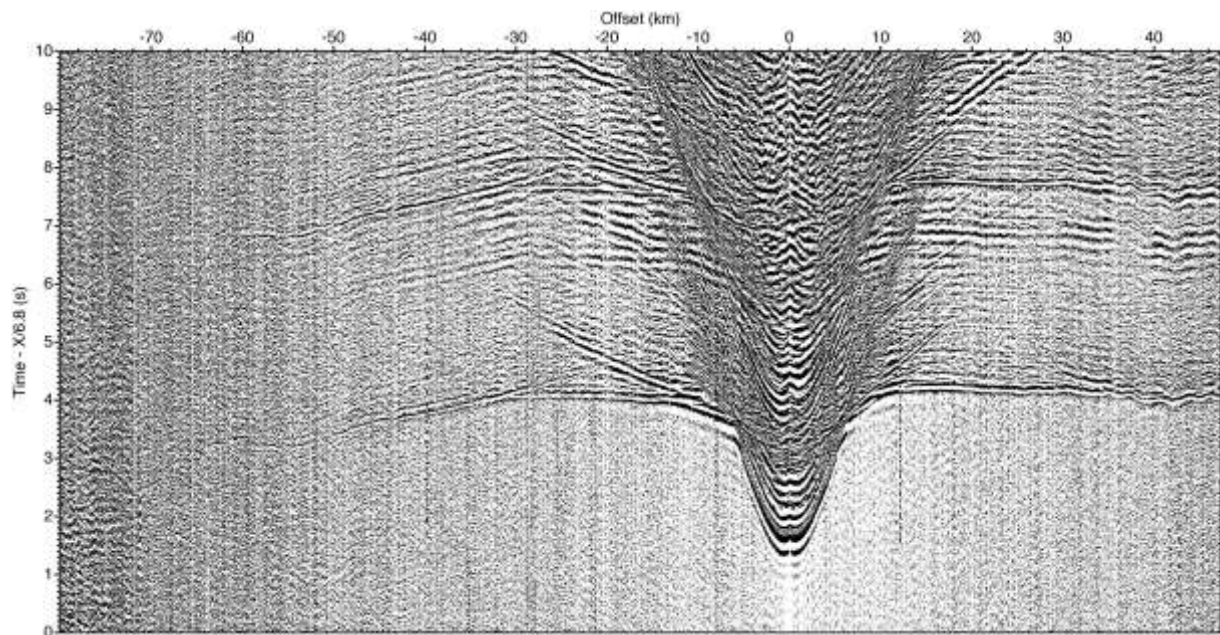
On behalf of the 19 members of the scientific crew with kind regards from R/V MARIA S. MERIAN

Dieter Franke
Chief Scientist



The seismic sources are retrieved

Foto Boris Hahn



Data example of an OBS located in the Norway Basin