

NOTIFICATION OF PROPOSED RESEARCH CRUISE

Part A: GENERAL

1. **Name of research ship:** Oden **Cruise no.:** EAGER 2011

2. **Cruise dates:** 17.08.2011 (departure Longyearbyen, Svalbard) –
09.09.2011 (arrival Longyearbyen, Svalbard)
NB: provisional dates!

- 3a. **Operating authority:** Swedish Maritime Administration (Sjöfartsverket), SE601
78 Norrkøping, Sweden (+46 11 19 10 00)

4. **Owner:** Swedish Maritime Administration (Sjöfartsverket), SE601
78 Norrkøping, Sweden (+46 11 19 10 00)

5. **Particulars of ship:**

Name:	Oden
Nationality:	Swedish
Overall length:	107.8 meters
Maximum draught:	8.5 meters
nett tonnage:	9 438 NRT
propulsion:	diesel (24.500 hp)
call sign:	SMLQ

6. **Crew:**

name of master:	Mattias Peterson
number of crew:	24

7. **Scientific personnel:** Scientists in charge:

name:	Christian Marcussen
address:	Geological Survey of Denmark and Greenland(GEUS), Øster Voldgade 10, DK-1350 Copenhagen K, Denmark
telephone:	+45 38 14 25 09 / +45 20 47 59 64
telefax:	+45 38 14 20 50
e-mail address:	cma@geus.dk
No. of scientists:	approx 30

8. **Geographical area in which the ship will operate:**
(with reference in latitude and longitude)

(78°N, 10°W); (75°N, 12°W); (73°N, 2°E); (74°30'N, 4°30'E)

9. **Brief description of purpose of cruise:**

The EAGER 2011 (**E**ast **G**reenland **R**idge) cruise with the Swedish icebreaker *Oden* will acquire multibeam bathymetry, subbottom profiler and seismic reflection and refraction profiles and gravity data. In addition to geophysical mapping, geological coring and oceanographic sampling will be carried out. These activities are part of the Continental Shelf Project of the Kingdom of Denmark (www.a76.dk).

10. Names and dates of intended ports of call: None

11. Any special logistic requirements at ports of call: None

Part B: DETAILS

- 1. Name of research ship:** Oden **Cruise no.:** EAGER 2011
- 2. Cruise dates:** 17.08.2011 (departure Longyearbyen, Svalbard) – 09.09.2011 (arrival Longyearbyen, Svalbard)

3. Purpose of research and general operational methods:

The EAGER 2011 (**E**ast **G**reenland **R**idge) cruise with the Swedish icebreaker *Oden* will acquire multibeam bathymetry, subbottom profiler and seismic reflection and refraction profiles and gravity data. In addition to geophysical mapping, geological coring and oceanographic sampling will be carried out. These mapping activities are all part of the Continental Shelf Project of the Kingdom of Denmark (www.a76.dk). The cruise is a cooperation with the Swedish Polar Secretariat (www.polar.se).

According to the present plan, the EAGER 2011 cruise will start in Longyearbyen on Svalbard on August 17, 2011 and end in Longyearbyen on Svalbard September 09, 2011. The mentioned dates may vary slightly due to logistical considerations. A map showing the present cruise plan is enclosed (see Appendix 1).

The multibeam bathymetric data acquisition will focus on the mapping of the East Greenland Ridge and the continental slope of the North-East Greenland continental margin south of the ridge.

Multibeam bathymetry will be collected continuously during EAGER 2011 with the SIMRAD EM 122 multibeam echo sounder installed in the *Oden* icebreaker in order to study bottom processes and seafloor morphology. This multibeam system operates with a frequency of 12 kHz and collects depth information over a swath width approximately five times the operating water depth. In addition, subbottom profiling will be carried out continuously to characterise the upper approximately 50 -200 m seafloor sediment stratigraphy using *Oden's* hull mounted 2-8 kHz chirp sonar system SBP 120.

The seismic data acquisition will investigate how the East Greenland Ridge is attached to the North-East Greenland shelf. Refraction seismic investigations will use both ocean bottom seismometers (OBS) and sonobuoys. Reflection seismic data will be acquired using a short streamer (approx 250 meters). The total length of the seismic profiles is about 280 nautical miles, with approx 25 nautical miles in Norwegian waters.

The seismic source consists of four G-gun's each with a chamber size of 520 cubic inch (total volume 2080 cubic inch). The four guns are arranged as two parallel clusters with one gun in each corner. The distance between each gun is approx 90 cm. The towing depth of the gun array will be from 6 meter to 20 meter below water surface. During refraction seismic measurements the airguns will be fired at a pressure of 3000 PSI every 60 sec., whereas only two airguns (total volume 1040 cubic inch) are used during reflection seismic measurements and fired every 10 sec. To minimize impacts on any marine mammals in the area, a soft start procedure will be utilized whenever the airgun array is started.

No sediment coring will take place in Norwegian waters.

Oceanographic sampling, including CTD and water collection, will be carried out at dedicated hydrographic stations. Gravity data will be acquired during the entire EAGER 2011 cruise.

4. Attach chart showing the geographical area of the intended work, positions of intended stations/hydrographic sections:

5a. Type of samples required:

Geological samples as gravity cores (not in Norwegian waters)

5b. Methods by which samples will be obtained (including dredge/core/drill techniques):

Gravity corer

6. Details of moored equipment: N/A

7. Any hazardous materials (chemical/explosives/gases/radioactives, etc.) (use separate sheet if necessary)

N/A

8. Detail and reference of:

a. Any relevant previous/future cruises: N/A

b. Any previous published research data relating to the proposed cruise: (Attach separate sheet if necessary) N/A

9. Names and addresses of scientists of the coastal state in whose waters the proposed cruise takes place with whom previous contact has been made:

10. State:

a. Whether visits to the ship in port by scientist of the coastal state concerned will be acceptable: Yes

b. Whether it will be acceptable to carry on board an observer from the coastal state for any part of the cruise and dates and ports of embarkation/-disembarkation: No

c. When research data from intended cruise is likely to be made available to the coastal state and if so, by what means:

After 2 years as cruise reports

Part C: SCIENTIFIC EQUIPMENT

11. Complete the following table - include a separate copy for each coastal state (indicate "Yes" or "No" if applicable)

A. Within Norwegian 200NM zone

Marine scientific equipment used	water depth (m)	fisheries research	distance of research to coast in nautical miles			
				< 3	3-12	12-50
		NO				
Magnetometry			NO	NO	NO	NO
Gravity			NO	NO	NO	YES
Diving			NO	NO	NO	NO
Seismics			NO	NO	NO	YES
Seabed sampling			NO	NO	NO	NO
Bathymetry			NO	NO	NO	YES
Trawling			NO	NO	NO	NO
Echo sounding			NO	NO	NO	NO
Water sampling			NO	NO	NO	YES
U/W TV			NO	NO	NO	NO
Moored instruments			NO	NO	NO	NO

List of intended sampling stations during cruise:

N/A

References:

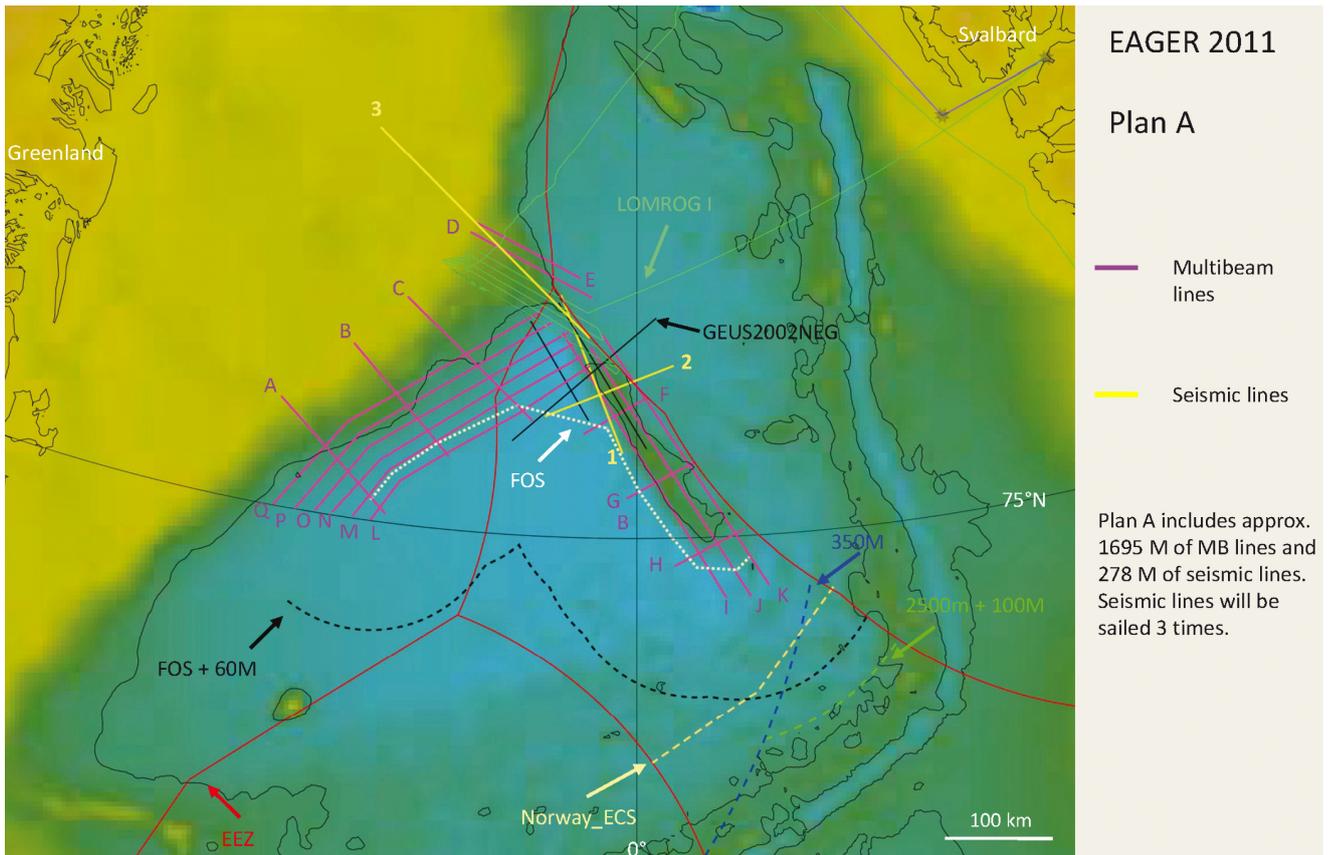


Dated: March 31, 2011

(On behalf of the Principal Scientist)

NB: If any details are materially changed regarding dates/area of operation after this form has been submitted, the coastal state authorities must be notified immediately

Appendix 1: Proposed plan for EAGER 2011 cruise



Proposed plan for EAGER 2011 cruise:

Yellow: seismic profiles (only minor parts of the profiles will be in Norwegian waters)
Purple: multibeam bathymetric profiles