

NOTIFICATION OF PROPOSED RESEARCH CRUISE

PART A: GENERAL

1. NAME OF RESEARCH SHIP
R/V SkagerakCRUISE NO.
2608
2. DATES OF CRUISE From: 2025-08-01 To: 2025-09-13
3. OPERATING AUTHORITY:
Northern Offshore Services
Saltholmsgatan 44
SE-426 76 Västra Frölunda
Sweden

TELEPHONE:
+46 31-3100200

TELEFAX:

TELEX:
4. OWNER (if different from no. 3)
Department of Marine Sciences
University of Gothenburg (UGOT)
Box 461, SE-405 30 Gothenburg
Sweden
5. PARTICULARS OF SHIP:

Name:	R/V Skagerak
Nationality:	Swedish
Overall length: (in metres)	49,10 m
Maximum draught: (in metres)	3,90 m
Net tonnage:	117
Propulsion e.g. diesel/steam:	Diesel/Electric
Call sign:	SEYD
Registration port and number (if registered fishing vessel)	
6. CREW

Name of master:
Joakim Edvardsson /
Richard Olsson

Number of crew:
7 persons
7. SCIENTIFIC PERSONNEL

Name and address of scientists in charge:
Julie Lattaud
Email: julie.lattaud@aces.su.se

Settergatan 10, 11548 Stockholm

Tel/telex/fax no.: Tel. +463423397

No. of scientists: 9
8. GEOGRAPHICAL AREA IN WHICH SHIP WILL OPERATE (with reference to latitude and longitude)
See maps below. Samples to be taken as close as possible to fjord heads, then follow transect lines away from the head of each fjord.

9. BRIEF DESCRIPTION OF PURPOSE OF CRUISE
Oceanography, and seawater chemistry observations, water and sediment carbon budgets in East Greenland fjords
10. DATES AND NAMES OF INTENDED PORTS OF CALL
We apply for permission to enter Tasiilaq port between 1 august and 13 September
11. ANY SPECIAL REQUIREMENTS AT PORTS OF CALL
None

NOTIFICATION OF PROPOSED RESEARCH CRUISE

1. PART B: DETAILS

1. NAME OF RESEARCH SHIP CRUISE NO.
R/V Skagerak 2608

2. DATES OF CRUISE From: 2025-08-15 To: 2025-08-25
Due to weather, the cruise might take place later the same year, we request permission until 2025-09-25

3. a) PURPOSE OF RESEARCH

In recent decades, Greenland has been at the forefront of unprecedented glacial retreat. Land-derived meltwater, and sea-ice retreat has been proposed to alter the hydrochemistry of fjords, near-shore, and shelf areas with regards to carbon cycling and nutrient. Additionally, the increasing freshwater discharge from the ice sheet is expected to be accompanied by a rise in micronutrients and organic carbon export to the ocean. However, the combined effect of warming waters, sea ice decline, increased freshwater inputs and productivity on the marine carbon cycle has not yet been clarified in Greenland fjords, leading to the main **research questions** of our expedition:

- What is the current state of the carbon budget and how does it relate to physical and biogeochemical processes?
- What are the dominating drivers of the carbon sink and source dynamics in East Greenland fjords?

b) GENERAL OPERATIONAL METHODS (including full description of any fish gear, trawl type, mesh size, etc.)

Vertical CTD profiler including a rosette water sampler for biogeochemical analysis

Ferry box and WEGAS systems that continuously analyses carbon dioxide, methane, salinity, oxygen, and other basic water parameters.

ADCP that measures currents

Multibeam sonar (pinger) to map the seafloor

Sediment corer

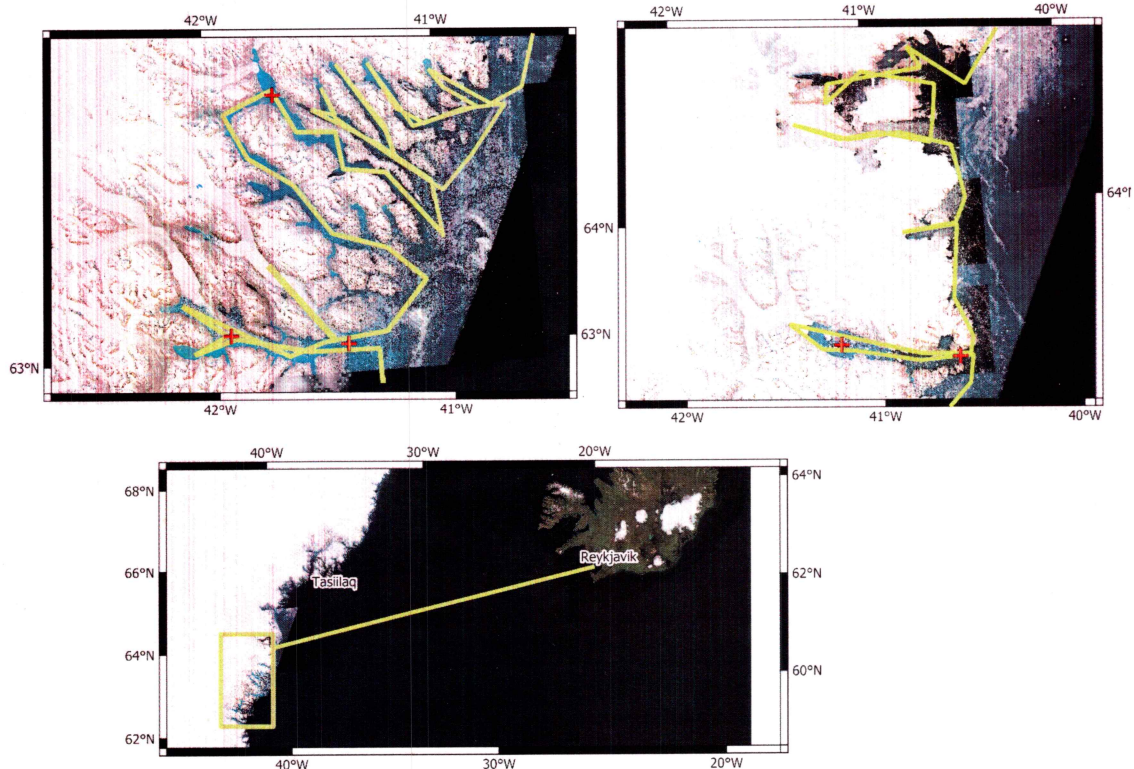
Mooring with sensors to measure a 10 day oceanic inflow into one fjord

Plankton net (mesh size 53 and 100 µm)

4. ATTACH CHART showing (on an appropriate scale) the geographical area of intended work, positions of intended stations, tracks of survey lines, positions of moored/seabed equipment, areas to be fished

The chart shows the tentative track line (in yellow) in the East Greenland fjords as well as the tentative location of the temporary mooring (red crosses, only one mooring will be done). The cruise will depart from Reykjavik, Iceland.

We will first leave a mooring (set at a depth of 500 m fitted with a temperature and pCO₂ sensors, an ADCP current profiler and acoustic high frequency systems (>38 kHz, it has no effect on marine life)) at the entrance of the fjord, then perform subbottom profiling while crossing the fjords until the glacier front. Then we will sample water and sediment on transects away from the glacier front towards the fjord mouth. The first sample will be collected as close as safely and logistically possible to the glacier front. We will then sample every 1-2 km away from the glacier front. The exact location will be determined based on real time observations of turbidity, salinity and temperature during the research cruise. As we leave the fjord we will recover the mooring so that the mooring will stay a maximum of 10 days at location.



5. a) TYPES OF SAMPLES REQUIRED (e.g., geological/water/plankton/fish/radionuclide)
 - Plankton (foraminifera, diatom, copepod)
 - Seawater (continuous surface)
 - Sediment samples (up to 400 cm penetration into sediments).
 - Water samples in the full water column also for natural geochemical tracers, chlorophyll, nutrients, carbon, and heavy metals.
 - Pore-water from sediment for geochemical analysis.
 - Sensor data from temporary (4 days) moorings.
 - Subbottom profiles to assess sediment coring locations.
- b) METHODS OF OBTAINING SAMPLES (e.g., dredging/coring/drilling/fishing, etc. When using fishing gear, indicate fish stocks being worked, quantity of each species required, and quantity of fish to be retained on board).
 - Water sampling using a CTD-Rosette sampler and pumps available on the vessel including the engine cooling pump.
 - Sediment sampling using box-corer and/or Gemini corer.
 - Porewater sampling from sediment cores extracted with rhizon samplers.
 - ADCP to quantify currents.
 - A pinger will be used to obtain subbottom profiles, it needs to be towed by the vessel.
6. DETAILS OF MOORED EQUIPMENT (dates are preliminary, only one mooring will be placed and will remain for 10 days, below are five tentative locations)

Please note that mooring positions are not exact and will be within a radius of 1 nautical mile from the positions below.

<u>Dates</u>	<u>Recovery</u>	<u>Description</u>	<u>Depth</u>	<u>Latitude</u>	<u>Longitude</u>
<u>Laying</u> 26/8/26	04/8/26	Single mooring line with sensors for temperature, current (ACDP) and echosounder		63.4990,	-41.7098

26/8/26	04/8/26	Single mooring line with sensors for temperature, current (ACDP) and echosounder	63.0113,	-41.4610
26/8/26	04/8/26	Single mooring line with sensors for temperature, current (ACDP) and echosounder	63.6496,	-40.5715
26/8/26	04/8/26	Single mooring line with sensors for temperature, current (ACDP) and echosounder	63.6984,	-41.1380
26/8/26	04/8/26	Single mooring line with sensors for temperature, current (ACDP) and echosounder	63.0309,	-41.9677

7. ANY HAZARDOUS MATERIALS (chemicals/explosives/gases/radioactives, etc.)
(Use separate sheet if necessary)

a) Type and trade name

Chemicals will be used:

Acid: hydrochloric acid

Base: potassium hydroxide

Other: Lugol iodine solution, Ethanol 96%, formaline

Gases: Nitrogen (N₂)

b) Chemical content (and formula)

Acid: hydrochloric acid (HCl 37%),

Base: potassium hydroxide (KOH solid form),

Gases (nitrogen, N₂)

Ethanol 96%

Formaline (50% formaldehyde in water)

c) IMO IMDG code (reference and UN no.)

KOH: 1823

HCl: 1789

Ethanol 96% 1170

Lugol Iodine solution: 12298-68-9 (CAS)

Formaline: 2209

d) Quantity and method of storage on board

Storage will be done at room temperature in chemical cabinets inside the laboratory for all chemicals and in secure location for the pressurized gas bottles.

Volume: HCl 1L

KOH (solid) 500 g

Ethanol 96% 4L

Lugol Iodine solution 1L

Formaline: 1L

e) If explosives give dates of detonation

- Method of detonation
- Position of detonation
- Position of detonation
- Frequency of detonation
- Depth of detonation
- Size of explosive charge in kg.

8. DETAIL AND REFERENCE OF

a) Any relevant previous/future cruises

Atka 2024 and 2025, genetic resource permit G24-042 and G25-050

b) Any previously published research data relating to the proposed cruise

Vermassen et al., (submitted)

9. NAMES AND ADDRESSES OF SCIENTISTS OF THE COASTAL STATE(S) IN WHOSE WATERS THE PROPOSED CRUISE TAKES PLACE WITH WHOM PREVIOUS CONTACT HAS BEEN MADE

None

10. STATE

Greenland

Iceland

a) Whether visits to the ship in port by scientists of the coastal state concerned will be acceptable

(Yes/No)

Yes, we accept any visits from scientists from the coastal state if required.

b) Participation of an observer from the coastal state for any part of the cruise together with the dates and the ports for embarkation and disembarkation

We accept any visits from observers if required.

c) When research data from the intended cruise are likely to be made available to the coastal state and by what means

All data recorded during the cruise will be made available either immediately (CTD, water column sensors) or after publication (water column concentration of nutrients, carbon, isotopes of carbon, chlorophyll concentration, sediment properties) on the open access database hosted by the Bolin Center (respecting the FAIR principles).

PART C. SCIENTIFIC EQUIPMENT

Complete the following table
using a separate page for
each coastal state

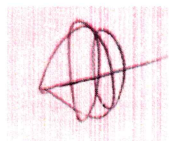
Coastal state: Greenland

Port of call: Tasiilaq

Dates: 01/08/26-13/09/26

Indicate "YES" or "NO"

				DISTANCE FROM COAST		
<u>List scientific work by function</u> e.g.	Water column including sediment sampling of the seabed	Fisheries research within fishing limits	Research concerning the natural resources of the continental shelf or its physical characteristics	Within 3 nm	Between 3-12 nm	Between 12-200 nm
Magnetometry	NO	NO	NO	NO	NO	NO
Gravity	NO	NO	NO	NO	NO	NO
Diving	NO	NO	NO	NO	NO	NO
Seismics	NO	NO	NO	NO	NO	NO
Seabed sampling	YES	NO	YES	YES	YES	NO
Bathymetry	YES	NO	YES	YES	YES	NO
Trawling	NO	NO	NO	NO	NO	NO
Echo sounding	YES	NO	YES	YES	YES	NO
Water sampling	YES	NO	NO	YES	YES	NO
U/W TV	NO	NO	NO	NO	NO	NO
Moored instr.	YES	NO	YES	YES	NO	NO
Towed instr.	NO	NO	NO	YES	NO	NO



(On behalf of the Principal Scientist)

Dated 09/12/2025

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