

Arctic Paleoceanography Cruise



R/V Kronprins Haakon
30.6–11.7.2021
Longyearbyen–Longyearbyen
NORCE/UiB Cruise KH21-234
IMR Cruise 2021707



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Please refer to this cruise report as follows:

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1 Summary

We set sail from Longyearbyen on 30.6.2021 to collect surface sediments, long sediment archives, water and plankton samples. The study area is located north of Svalbard, within the seasonal and permanent sea ice covered Arctic Ocean. We took stations N of Svalbard, near Nordaustlandet, Sophia Basin, Yermak Plateau and on the shelf east of Svalbard. In total, we had 52 stations. We deployed the multicorer at least once at every station and sampled the core tops already onboard. These samples will be included in the Arctic Surface Sediment DNA Database, which we will use to establish new aDNA based sea ice proxies. We recovered gravity cores from 12 stations that can be used to reconstruct the Arctic sea ice history in the Holocene, last glacial and likely also Last Interglacial. We collected ice and water and filtered these for eDNA and biomarkers, and water for tracing the isotope signal of the different water masses in the region (Atlantic Water, Polar Water).



Crew and scientist at 82° N. *Picture courtesy of Andreas Wolden.*



RV Kronprins Haakon, 07.07.2021, Yermak Plateau, Arctic Ocean. *Picture courtesy of Andreas Wolden.*

2 Science team and crew

Science Team. The team of researchers (6 male, 9 female) brings together 9 nationalities from two institutes in Bergen, NORCE and the University of Bergen. The team worked in a day and night shift in a 8-4-4-8 schedule. We had joint meetings at 12:15 and 19:45. The day shift worked from 04:00 to 12:00 and 16:00 to 20:00. The night shift worked from 12:00 to 16:00 and from 20:00 to 04:00.

Name	Nationality	Institute	Position
Stijn De Schepper	Belgium	NORCE	Research professor
Aud Larsen	Norway	NORCE	Research professor
Jessica Louise Ray	USA / Norway	NORCE	Senior researcher
Tristan Cordier	France	NORCE	Senior researcher
Agnes Weiner	Germany	NORCE	Postdoc
Kristine Steinsland	Norway	NORCE	PhD student
Danielle M. Grant	Canada	NORCE	PhD student
Jon Thomassen Hestetun	Norway	NORCE	Senior researcher
Katja Häkli	Finland	NORCE	Senior Engineer
Sigrid Mugu	Estonia	NORCE	Senior Engineer
Tamara Trofimova	Russia	NORCE	Postdoc
Dag Inge Blindheim	Norway	NORCE	Senior Engineer
Stig Monsen	Norway	UiB	Senior Engineer
Allegra Liltved	Norway	UiB	MSc student
Simon Lefeveré	Belgium	UiB	MSc student

DAY shift	NIGHT shift	Main tasks
Aud	Stijn	Planning + reporting
Dag Inge	Stig	Technical support
Tamara	Sigrid	CTD + planktonnet
Simon	Allegra	Water geochemistry
Agnes	Jessica	MC admin and sampling
Danielle	Tristan	MC Sampling
Jon	Katja	MC Sampling
	Kristine	GC admin, logging and sampling

The crew. The captain and crew on RV Kronprins Haakon have been central in reaching our cruise objectives, and in fact, collect material from more locations than originally planned. Equally essential for successfully completing this cruise was the technical personnel of IMR. Our deepest gratitude goes to them.

RV Kronprins Haakon crew. Hallgeir Johansen (captain), Ida Fammestad, Leif Christian Mork, Kay Jørgensen, Mathias Molvik, Leif Bjarne Grutle, Hans Petter Tysnes, Benjamin Farstad Knotten, Åse Lunnøy, Tom Odin Ditlefsen, Anne-Kristine Brandsøy, Kenneth Reece, Svein Are Simonsen, Andreas Wolden, Adiran Simonsen, Silje S. Wollberg, Markus Habbestad.

IMR scientific crew. Hanne Børsheim and Asgeir Steinsland

3 Introduction and scientific objectives

Introduction

The cruise to northern Svalbard/Yermak Plateau is funded through the ERC Consolidator Grant “A Genetic View into Past Sea Ice Variability in the Arctic” (AGENSI, www.agensi.eu). The AGENSI project focuses on developing new methods and tools for reconstructing sea ice on historical to geological time scales. This novel approach involves extracting and analyzing the genetic information (DNA) stored in marine Arctic sediments. This environmental or sedimentary DNA – ancient sedimentary DNA when retrieving it from sediment cores – contains a large amount of untapped genetic information, including information from organisms that normally do not fossilize.

The main objective of AGENSI is to calibrate new proxies in the modern ocean via a surface sediment DNA database and subsequently applying the proxies in the fossil record to get a better understanding of sea ice variability in the Arctic. The major focus of the cruise is to collect surface sediments over a large geographical area in the Arctic Ocean, to capture different sea ice environments (sea ice free, seasonal and permanent sea ice, land-fast ice). We also collect longer sediment cores from key locations to document and interpret sea ice variability around Svalbard over longer time scales. Finally, we collected water samples at different depths and plankton net samples of the upper 50 m to document the biodiversity of the water column. This serves as a contamination control on our recovery of ancient sediments.

During the cruise, we will also take the opportunity to collect water samples and sediments for the NEEDED project (<http://www.iopan.gda.pl/projects/NEEDED/index.html>), a Polish-Norwegian collaboration under the EEA Norway Grants program. The scientific objectives of the NEEDED project align well with AGENSI but focus more on the link between DNA in the water column and in sediments, and on assessing how climate change affected biodiversity in the Nordic Seas over the last ca. 25,000 years.

Finally, water samples will be collected from different water depths for oxygen isotope analyses. The samples will serve as a comparison with earlier collected samples within the Nansen Legacy Project (UiB, Ulysses Ninneman).

Cruise objectives

- 1 - Collecting surface sediments in sea ice covered regions to establish a surface sediment DNA database in the Arctic
- 2 - Collecting sediment archives (cores) to reconstruct Arctic sea ice variability
- 3 - Collecting water samples to assess and document biodiversity in the water column and its relation with the biodiversity recorded in the sediments
- 4 - Collecting water samples to document the water masses in the Arctic Ocean

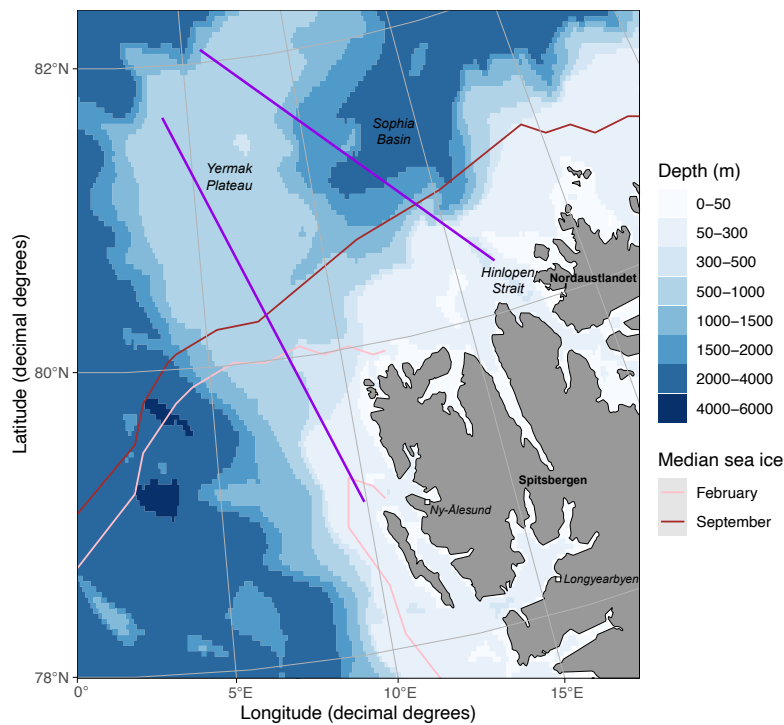
Scientific objectives

The cruise objectives will allow to address the following **scientific objectives**:

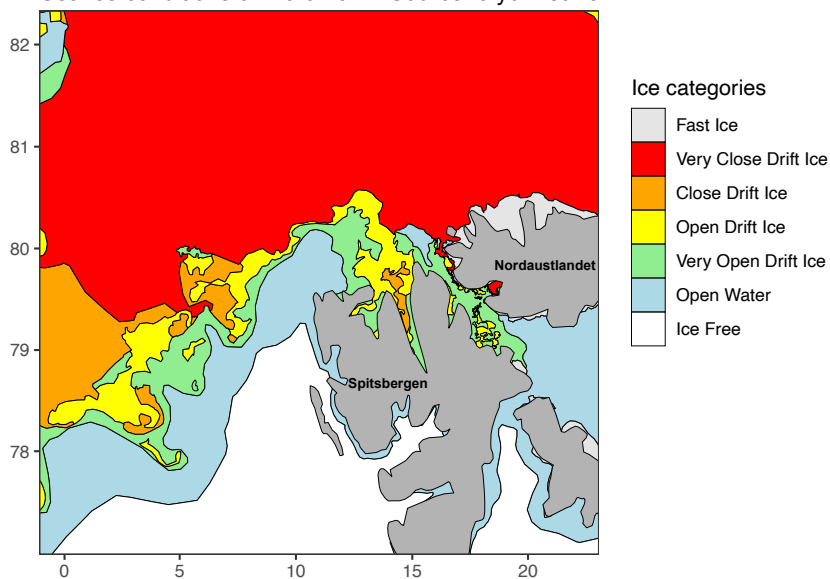
- 1 - Developing new sea ice proxies using genetic information stored in sediments
- 2 - Reconstructing the sea ice history around Svalbard
- 3 - Assessing biodiversity and DNA taxonomy in the water column
- 4 - Assessing how climate impacts biodiversity in the ocean

4 Study area

The target area for this cruise can be summarized as “regions with land-fast, annual, seasonal and no sea ice cover”. We focused on northern Svalbard, mainly on the shelf but also further offshore in the deep Sophia Basin and on the Yermak Plateau. The track was chosen to make two transects: one crossing the median September sea ice boundary from the Hinlopen Strait across the Sophia Basin and onto the Yermak Plateau; and a more westerly transect crossing the median September and February sea ice boundary from the Yermak Plateau south to the NW Svalbard shelf. We also aimed to sample close to NE Nordaustlandet where interpreted satellite images showed sea ice classified as land-fast ice.



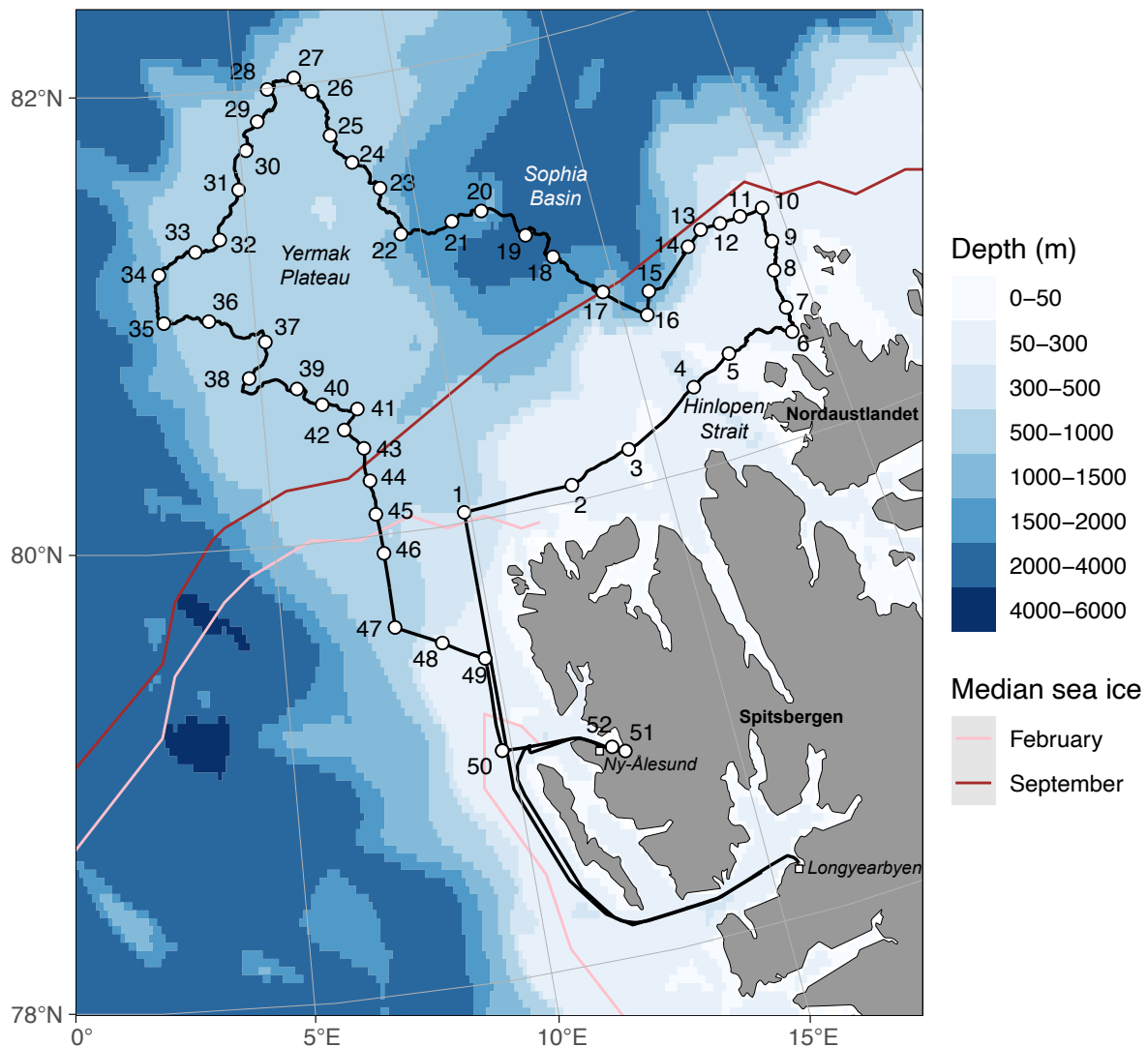
Sea ice conditions on 29.6.2021. Source: cryo.met.no



5 Cruise track

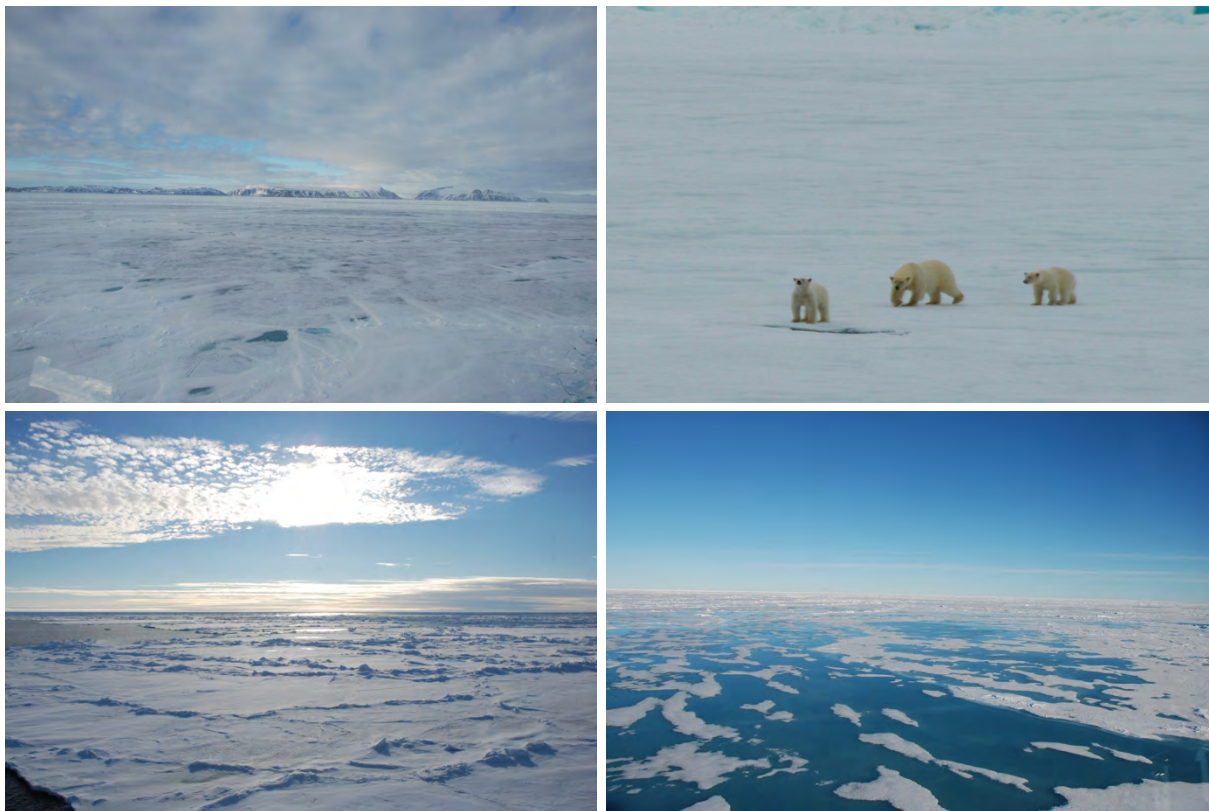
On Wednesday 30 June 2021, at 8:00 we entered RV Kronprins Haakon, which was lying at Bykaaien in Longyearbyen. Our equipment was taken onboard already the day before and stored in the hangar. We familiarized ourselves with the ship and unpacked and installed our equipment in the labs in the morning. The labs were cleaned to a standard acceptable for sampling sediments for environmental and ancient DNA. Our departure was delayed to the afternoon by the late arrival in Longyearbyen of one of the technical IMR personnel and a delivery of fresh food (milk), to replace damaged and rotten supplies.

We set sail from Longyearbyen into Isfjorden, and then northwards along Prins Karls Forland until we reached Station 1, NW of Spitsbergen on Thursday in the early morning of 1 July. We then turned east and took several stations, to reach NW Nordaustlandet (Station 6) in the afternoon of Friday 2 July. This station was close to land and we saw three polar bears (mother and two cubs), who approached the ship. The ice was very heavy in the area, and our original plan to sample near the Sjuøyane had to be abandoned. Instead, we slowly made our way out of the thick, compacted ice, and moved northwards to ca. 81N (Stations 7-9), where we turned west again (stations 10-12). We sailed along the shelf edge in SE direction and had our stations 13 to 15.



At station 15 (Sunday 04 July), we set a northeastern course to the Sophia Basin (>2000 m water depth) taking stations along the way (Station 16 to 22). From here, we sailed northwards making use of the large stretches of open water, in between rather thick sea ice (>1m). At Station 27, on 6 July 2021, we reached 82°N under a blue sky and sunny conditions. From here we went southeast to the western flanks of the Yermak Plateau, while stopping usually in large open water basins to take stations 28 to 33. At Station 34, we reached our westernmost location and continued south. We had to turn east at station 35, since a large stretch of sea ice without open water was blocking a south-southeastern path. We continued south to station 38 and then went straight west. We came into an area (station 40-42) where large blocks of ice, without snow cover, were lying close to one another. They appeared to have been recently broken up. The same type of ice was found on our way south, with openings between the ice blocks becoming larger. Station 45 was the last station with considerable ice around the ship. We sailed south to the stations 46 and 47, and then turned southeast towards Kongfjordsrenna (48, 49, 50). The final two station were in the inner part of Kongsfjorden. After a short visit to Ny Ålesund, we set sail for Longyearbyen where we arrive on Sunday 11.7.2021.

In summary, we collected material from stations in sea ice free waters (n=6), in waters with winter sea ice cover (n = 19) and in year-round sea ice covered waters (n=25). Coordinates and detailed maps of all stations are shown in [Appendices 1a and 1b](#).



Top Left. Nordaustlandet in the distance. **Top right.** Polar bears at Station 6, close to Nordasutlandet.
Bottom. Sunny days in the Arctic Ocean.

6 Equipment

6.1 CTD/rosette

The CTD used on the cruise is the *Seabird 911 plus* from Seabird Scientific. It is deployed from the CTD hanger, on the side of the ship. The CTD has been used for general oceanography and to produce sound velocity profiles to the EM302 multibeam echosounder for bathymetric mapping. The CTD system consists of the Seabird SBE 11 plus deck unit connected to the subsea SBE 9plus CTD. It is equipped with the following sensors: 2 x SBE3 Temperature sensors, 2 x SBE4 Conductivity sensors, 2 x SBE43 oxygen sensors, 1x PSA916 Altimeter, 1 x Wet Labs C-Star beam transmissometer, 1x Wet Labs ECO-AFL/FL Fluorometer, and 1 x Biospherical PAR sensor with Surface PAR added. The CTD measures all these parameters at a rate of 44Hz and stores it on the top-side computer. Datalogging has been done with The Seasave v. 7.26.7, and for postprocessing we have used SBE Data processing v. 7.26.7 (Fig. 4). Both these software packages are from Seabird.

The Rosette has twelve 10L Niskin bottles for collecting water. For water chemistry (isotopes), about 1L of water is used to rinse and fill the glass sample bottles. At specific depths, we collected water for the NEEDED project, which was filtered immediately.



6.2 Plankton net

The plankton net has a diameter of 35 cm and a mesh size of 10 μm . It was mainly deployed to 50 m water depth to capture the main phytoplankton blooms in the upper water column. The net was deployed and hauled at 0,1 m s^{-1} . The net was rinsed with 0.22 μm filtered seawater (Sterivex filtrate) from one of the previous stations. The collected samples were split in two. One half was filtered for biomarker analyses (GF/F filters) and the other one for DNA analysis of biodiversity (PC filters). The filters were stored at -20° .



6.3 Sub-bottom profiler

We have used the Kongsberg SBP300 sub-bottom profiler installed on RV Kronprins Haakon to image the sediment layers. This sub-bottom profiler shares the receiver transducer with the EM302 bathymetric multibeam sonar, but has a separate low frequency transmit transducer. With the transmitter and receiver transducers mounted in a Mills-Cross arrangement this gives a system with very high angular resolution compared to a conventional sub-bottom profiler.

The pulse type used for the cruise is a Linear chirp pulse from 2,5kHz to 7 kHz (LFM). The pulse length has been 30ms. Trace length varying between 300ms to 500ms. The system has been set up with logging of raw data as well as real-time logging of SEG-Y files for postprocessing.

The data were recorded using the hull-mounted Kongsberg SBP300 MK2 and software system version 1.6.6. The maximum depth of penetration is 40-50m over contourite drifts. The vessel is often ice-breaking and problems with duplicate traces is apparent in data affected by the ice. The chirp pulse form is 'linear chirp up' with 30ms sweep length and frequencies between 2.5 and 7 kHz. The ping rate and bottom tracking is done by the SBP itself, and typically, at water depth of 700 m, a ping interval of 5 seconds is expected. Sample interval is 48 kHz (0.02 ms sample rate with a Nyquist of 24 kHz). The acquisition time window is 500 ms. The vessel velocity is varying between 4-5 knots to 10 knots depending on ice conditions.

The sweep function from the signal is removed using a matched filter based on auto-correlation of the Klauder wavelet. A gain correction is applied, with AGC and TVG applied prior to the logging of the processed sequence. The vertical resolution is 0.15m, using a sound velocity of 1500 m/s, typical of sea water and shallow sediments. The acquisition processing sequence applies the envelope function to the processed data (instantaneous amplitude).

6.4 Multicorer

A multicorer (MUC) built by KC Denmark A/S with four transparent plastic core liners (or tubes) of 60 cm length, an 11 cm outer and 10.6 cm inner diameter, was deployed at all stations (Fig. 6). The multicore was attached to a winch rope and lowered through the water column at ca. 1-1.2 m/s, and 0.5 m/s the last 50 m above the seafloor. When the MUC reaches the seafloor, a weight of ~650 kg pushes the cores into the sediments. When retracted from the sediments, arms with spatulas close the bottom of each core. The MUC and sediment cores were immediately heaved at ca. 0.8 m/s in order not to disturb the sediment and/or loose material. The bottom and top of each core was secured with plastic end caps. Cores were cleaned, labelled, and subsampled for DNA, biomarker and microfossil assemblage analysis. When enough cores were recovered, one was kept intact as an archive and stored cool at 4°C.



6.5 Gravity corer

A gravity corer (GC) with a total weight of ~650 kg was used, which consists of a 5 m long steel barrel with an inner diameter of 11.4 cm, a steel-mantled lead weight at the top, and a core head with a core catcher at the bottom. For each deployment, a 5 m plastic liner (pipe) with an 11 cm outer and 10.94 cm inner diameter was inserted into the steel barrel and the core head and catcher was mounted.

The gravity core was deployed from the main hangar, over the side of the ship and also from the moonpool. The gravity core was lowered through the water column at 1 m/s. The speed is increased to 1.5 m/s in the last 50 m, after which its own weight drives the corer into the sediments. The core is then retrieved back to the hangar.

After retrieval, the plastic liner was manually cut into sections, while taking care of the plastic sawdust. A sample of the sediment was taken at the base of each section in order to have easy-accessible samples for dating immediately after the cruise. The section ends were secured with plastic caps and the sections were labelled. Pore water was extracted from selected core sections (see 8.6), and a few corers were split, described and sampled on board. All sections were stored in a cooling container at +4°C.



7 Methods and protocols

7.1 Water chemistry protocol ($\delta^{18}\text{O}$)

Method parameter:	Water chemistry ($\delta^{18}\text{O}$)
Method responsible:	Allegra Liltved, Simon Lefevre, Ulysses Ninnemann (all UiB)
Description of parameter:	collecting water samples to characterize the $\delta^{18}\text{O}$ signature of the different water masses
D18O Geochemistry labelling	CRUISE_STATION_d18O_DEPTH_BOTTLE

Prior to sampling:

- Prepare labelled sample glasses in advance for the Niskins to be sampled.
- Label with permanent marker and tape over the label to secure it from water.
- Label with bottle number and station name.
- Record bottle depths and station info in a common excel file as you sample.
- Communicate depths to CTD operator in the control room prior to reaching the bottom. This normally means bottom sample, sampling key layers in the water column (Arctic deep, Atlantic Water, and higher resolution across the halocline/surface layers)

Sampling:

- Take serum glasses and rubber septa in a box into the CTD room (with silicone tubes if used).
- Attach silicone tubes to the Niskin outlet (or use those already attached by other groups).
- Open Niskin bottle and fill/empty (rinse) glass 1-2 times (water permitting).
- Fill glass nearly full (only small space at top) and cap with septa and place in box. Proceed to next bottle.
- Return to lab and crimp cap the tops (make sure small bubble is present at top so glass is not overfull and seal breaks).
- Dry tops and seal with parafilm
- Store glasse in fridge.
- Complete excel form for the station (location, depth, bottle numbers and depths sampled, any other notes).

7.2 Water filtering eDNA

Method parameter:	Metabarcoding (DNA) of eukaryotes
Method responsible:	Aud Larsen, Tamara Trofimova, Sigrid Mugu
Description of parameter:	cells collected on filter, to be used for DNA isolation. Will result in OTU table of organisms.
Special requirements:	clean area for filtration/ sample handling, -20 °C freezer, Sterivex filters = 0.22 μm , Noise cancelling headset for noisy pumps
Sampling depths:	NEEDED: 5, 100, "deep" (=10 m from bottom) AGENSI: depth integrated 0–50m
eDNA water sample labelling	CRUISE_STATION_CTD1_DEPTH_FILTERNUMBER

Method:

NOTE This method is based on the protocol described in Nansen Legacy protocols document, Chapter 7.15 Metabarcoding (DNA and RNA) of protists and prokaryotes.

IMPORTANT

- Always use lab gloves (also when handling equipment, e.g. washing, storing). Immediately after use, rinse all containers, tubes and filtration equipment with distilled water and leave to dry in clean area.

Prior to sampling:

- Clean work surfaces
- Prepare pump (insert tubing)
- Label 1x 10L and 1x 20L carboy for each depth (5, 100, deep = 10m from bottom)
- Label and number Sterivex filters (KH21-234_Station_CTD1/2_5m/100m/deep_F1/F2/F3/F4/F5).
- Rinse carboys and tubes with Milli-Q/distilled water

CTD on deck:

- Use one tube per depth to drain Niskin bottle in a carboy. Prior to draining an entire bottle, rinse the tube and the carboy with the sampled seawater.
- Collect 25–30L of water from Niskin bottles into 10 and 20L clean carboys (labelled with depth)
- Cover carboys with black plastic bags (or put in dark), and store in a refrigerator until the next step (filtration)

LAB:

- Set the pump speed (300 Rpm) and the pump in forward position
- Rinse tubes with 1L of distilled water
- Negative control (at a start of each station): filter 1 L of distilled water through Sterivex 0.22 μm filter unit.
- Sampling control (at a start of each station). Use the 60 ml syringe to press air through the Sterivex 0.22 μm filter ca. 10 times.
- Rinse the tubes by pumping appr. 1L of sample seawater through them
- Connect the Sterivex 0.22 μm filter unit to the Luer-Lok fittings on the tube
- The filter can be hung in a carboy/bucket
- Filter ca. 5L of seawater through each Sterivex 0.22 μm filter unit. Make sure the connections are tight and that there is no pressure buildup (seen as considerable expansion of tubing and leaks). If a pressure buildup occurred, filtering should be stopped, and time and how many liters have been filtered should be recorded
- Disconnect the Sterivex filter unit from the tube and remove as much of the remaining water as possible using a syringe (e.g. 60 ml) filled with air
- Cap the filter in both ends with the inlet and outlet caps. Transfer to a freezer (-80 °C).
- Measure the volume of filtered water from buckets, using measuring cylinders.
- *When changing to a different depth, always rinse with distilled and sea water of target depth.*

7.3 ICE filtering for eDNA and biomarker analysis

Method parameter:	Metabarcoding (DNA) of eukaryotes
Method responsible:	Aud Larsen
Description of parameter:	Cells collected on filters from sea ice melted at room temperature to be used for geochemical and DNA analysis of biodiversity of sea-ice communities.



Special requirements: clean area for filtration/ sample handling, -20 °C freezer, Noise cancelling headset/earphones
ICE sample labelling [CRUISE_STATION_ICE_METHOD](#)

IMPORTANT

- Always use lab gloves (also when handling equipment, e.g. washing, storing). Immediately after use, rinse all containers, tubes and filtration equipment with distilled water and leave to dry in clean area.

Prior to sampling:

- Clean work surfaces
- Prepare pump (insert filters)
- Label and number 15ml tube for Biomarkers and 0.2/1.0/2.0 ml cryovials for DNA
- Rinse buckets, beakers/cylinders with Milli-Q/distilled water
- Coordinate with crew for aseptic ice collection

Ice on deck:

- Use a clean 10 L bucket/ box for ice collection
- Select random pieces of ice. Taken by crew, using a scoop net.
- Cover the bucket/box with black plastic and let them melt at room temperature

LAB:

- Rinse tubes with 1L of distilled water
- Measure the melted volume of ice and distribute equally between four filters.
- Record the time and volume filtered
- *When changing to a different station, always rinse with 1L of distilled/Milli-Q water.*

7.4 Plankton net sampling protocol

Method parameter: DNA and organic geochemistry (biomarkers)
Method responsible: Jessica Ray (NORCE)
Description of parameter: Collect plankton in the upper water column for geochemical and DNA analysis of biodiversity.
Plankton net sample labelling [CRUISE_STATION_NET_METHOD](#)

Equipment. The plankton net that is onboard KPH with 10 µm mesh size and 5 kg weight was deployed at opportune stations.

Deployment. A single depth-integrated vertical tow from 50 m depth was performed at relevant stations. Maximum ascent speed = 0.1 m/s.

Lab activities.

- The plankton “concentrate” collected by the plankton net was transferred in a glass bottle. The cod end bucket was rinsed with ~100 ml filtered seawater (Sterivex filtrate) to collect remaining sample.
- Any large ctenophores and medusae were manually removed from the plankton concentrate prior to filtration.
- The plankton concentrate was mixed by agitation and divided on to small aliquots (50-100 ml) which were then filtered onto GF/F filters (47 mm diameter) and polycarbonate filters (47 mm, 2.0 µm) using vacuum filtration.

- GF/F filters were aseptically transferred into sterile 15mL tube and stored at -20°C for geochemical analysis (labeled KH21-234_Station_NET_Biomarker)
- The PC filter was aseptically transferred into sterile screw-cap cryogenic storage microtube and stored at -20°C for DNA analysis of biodiversity (labeled KH21-234_Station_NET_DNA).
- The plankton net was thoroughly rinsed between deployments and to drip-dried in a hanging position.

7.5 Multicore sampling

Method parameter: Ancient DNA (aDNA), organic geochemistry (biomarkers) and palynology

Method responsible: Agnes Weiner, Jon Thomassen Hestetun, Danielle Grant, Tristan Cordier, Katja Häkli and Jessica Louise Ray

Description of parameter: Collect samples for aDNA, biomarker, dinocyst analyses.

Multicore labelling [CRUISE_STATION_MULTICORE](#)

Multicore subsample labelling [CRUISE_STATION_MULTICORE_SAMPLEDEPTH_METHOD](#)

Prior to sampling:

Make sure that all equipment is cleaned for aDNA sampling i.e.

- use nitrile gloves when coming in contact with sediment
- soak end-caps and foam blocks in bleach and rinse with fresh water
- clean all working surfaces in the Filter Lab with bleach
- pre-label Falcon tubes and whirlpak bags for subsample collection
- clean plastic spoons with bleach and rinse with MQ as needed
- check that all consumables are correctly labelled according to above labelling scheme

Core on deck:

- retrieve core liner from multicorer and close the top and bottom with endcaps or foam blocks
- clean exterior of core and label with cast and core number (e.g. MC1-A, MC2-B)
- note station number, cast number, time and date in multicore log sheet
- document observations of core characteristics, including core length and project affiliation, in multicore log sheet and take a picture of the core
- failed multicores should always been logged as 'empty' in both the multicore log sheet and the multicore master file
- transport core to laboratory

Core in laboratory:

- siphon off top water from core
- place core on extruder and push it up until the surface can be easily reached
- collect marine snow subsample (if applicable)
- take photo of core surface and make note of any additional observations
- subsample for biomarkers (if applicable) using clean steel spatula
- subsample for palynology (if applicable) using bleach-disinfected plastic spoon
- subsample for aDNA using bleach-disinfected plastic spoon
- remove subsampled core from extruder and place in a plastic bin for cleaning
- repeat subsampling for remaining cores until all cores have been subsampled
- store subsamples in appropriate conditions (freezer or cold room)
- thoroughly clean Filter Lab working surfaces using 5% bleach solution and MQ to rinse
- Set up consumables for next station
- Discard liquid bleach waste in the waste container, NOT down the lab drain



- Post sampling, clean core liners with water on deck and return to hangar for reuse.

Data entry:

- Data for each station should be entered into the ship logs as soon as possible after subsampling
- Enter multicore log sheet notes into multicore log file on ship server
- Enter multicores collected, including archives, into multicore master file on ship server (NB! Does not include failed multicores)
- Enter subsamples collected into multicore sample file on ship server

7.6 Gravity core sampling

Method parameter: Organic geochemistry (biomarkers) and microfossils
Method responsible: Kristine Steinsland
Description of parameter: Collect samples for biomarker, dinocyst and foraminifer analyses.

Gravity core labelling [CRUISE_STATION_GRAVITYCORE_SECTION](#)
Gravity core, split [CRUISE_STATION_GRAVITYCORE_SECTION+HALF](#)
Gravity core sample labelling [CRUISE_STATION_GRAVITYCORE_SECTION+HALF_DEPTH](#)

Prior to sampling:

Make sure that all equipment is cleaned for aDNA sampling i.e.

- use nitril gloves when coming in contact with sediment
- soak end-caps and fish wire in bleach and rinse with fresh water

Core on deck:

- retrieve coreliner from gravity corer
- cut the core liner in 1 – 1.5 m sections
- clean the core liner with bleach
- label the core liner
- describe lithology at top/bottom of core sections
- collect sample at bottom of each section
- add cleaned end caps
- complete log sheet with information on core length, lithology (as observed from core liners) and any other important information (broken tube, etc.)
- transport to lab or to cool storage and log time/date

Core splitting of non-DNA sediment cores:

- Draw lines along the core section, on both sides of the core liner to indicate where to saw
- Use the saw-bench and/or Feintool to cut through the core liner. Try not to disturb the sediment.
- Run a fish wire through the core to split the sediment
- Open the halves
- Label both halves, one as working half, the other as archive half
- Label the end caps

Sediment description and sampling:

- Clean the sections with spatulas, removing the top few mm perpendicular to the core (i.e. not along the core length)



- Photograph the cleaned sections
- Measure the sediment core recovery
- Describe the lithology
- Measure the physical parameters lightness (with the Minolta colour scanner) and magnetic susceptibility (Bartsoft scanner)
- Log the samples in a designated Excel sheet

7.7 Gravity core pore water sampling protocol (for isotope analysis)

Method parameter:	Water chemistry
Method responsible:	Allegra Liltved, Simon Lefevre, Ulysses Ninnemann (UiB)
Description of parameter:	Collecting water samples from gravity cores for pore water analysis

D18O Geochemistry labelling [CRUISE_STATION_CORE NUMBER_CORE SECTION_DEPTH IN CORE](#)

Equipment:

A stable place to put the core (core stand), tape measure, drill and drill bit (size 2.5), 20ml lock syringes, rhizons (5 cm female luer), retainers (article no. 19.21.09.8), glass vials and caps

Prior to sampling:

Place the core in a stable position and note the orientation. Measure the core, by e.g. attaching a tape measure to the core (along the same line as the core liner label) and mark intervals with a permanent marker for sampling. The samples should be taken with higher resolution at the top of the core and lower resolution further down (e.g. 5, 10, 15, 20, 50, 80, 120, 170 cm, etc.).

Prepare labelled sample glasses. Label with permanent marker and tape over the label to secure it from water.

Soak the rhizons in distilled water for a few minutes.

Drill holes with a 2.5 mm drill bit in the core at the marked intervals.

Sampling:

- Insert rhizons with a syringe attached (remember to remove the lock on the rhizon).
- Pull out the syringe and lock with a retainer. There can be quite a lot of pressure so make sure to insert the retainer in a stable position.
- Leave the syringes with the attached retainers until they have at least 5ml of pore water (between 1h – 3h depending on lithology).
- If a syringe is not filling up check that the pressure is maintained. If not pull out rhizon, detach from syringe, redo insertion and lock with the retainer again.
- Once sufficiently full, detach the syringe from the rhizon.
- Fill the labeled sample bottles leaving a small bubble at the top and seal with the cap.
- Cover the cap in parafilm for extra precaution.

After sampling:

- Seal the core by wrapping the drilled parts of the core in tape.
- Record core depth and the section depth where pore water was taken in a spreadsheet.
- Put samples in a box and store in the fridge.

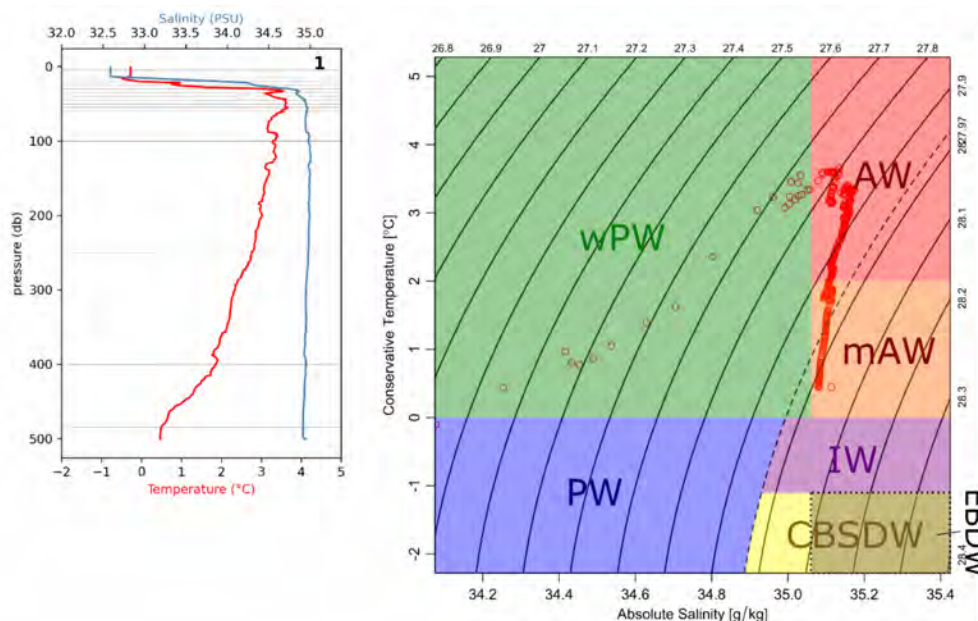
8 Activities on board

8.1 Water chemistry summary (Simon, Allegra)

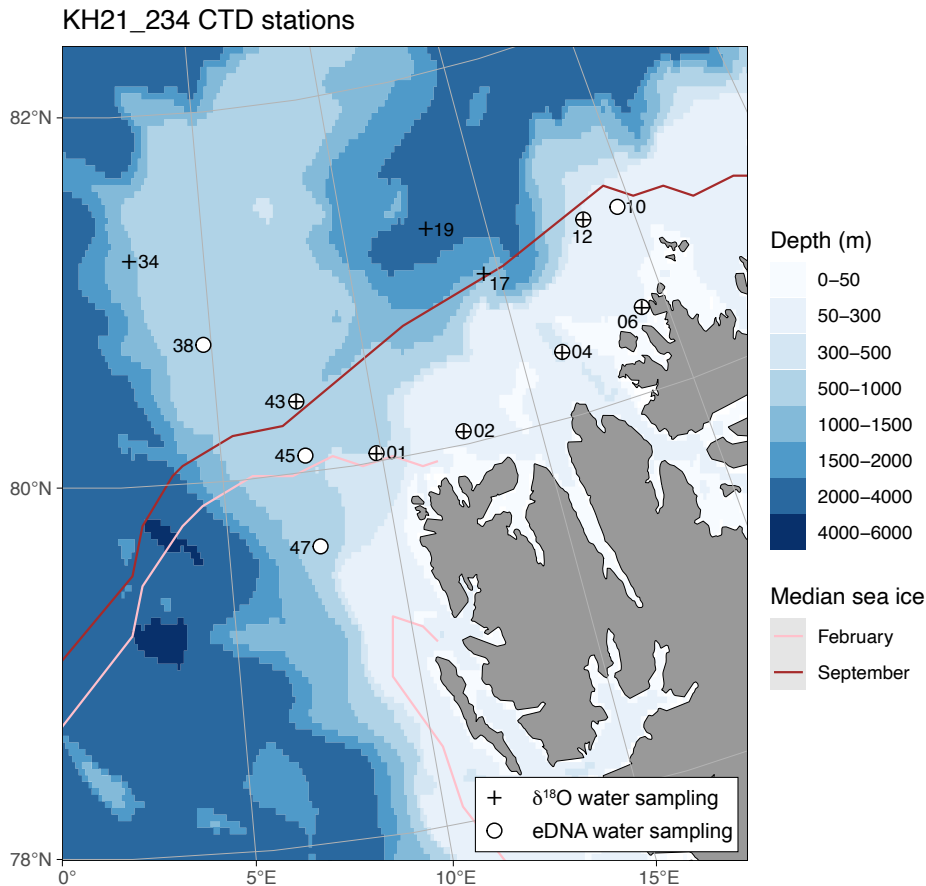
The main interest of the “water program” in this campaign lied in identifying the isotopic signature of the transition between the Atlantic Water and Polar Water masses in this region. This transition occurs in the water column through the halocline, where the relatively fresh and cold water of the surface leaves place for the saltier and warmer subsurface water. Nine stations were selected for water column sampling (Stations 01, 02, 04, 06, 12, 17, 19, 34 & 43, see [Appendix 2](#)).

The selection process involved identifying the main water masses present on site following the definitions of Sundfjord et al. (2020 - Nansen Legacy Report). Subsequently, 5 to 15 depth levels were set for sampling; with at least one sample per water mass present and the rest of the samples distributed around the water mass transitions with a focus on the shallow halocline. For the last two stations investigated (34 & 43), despite the relatively deep-water column, only the subsurface was sampled following a lack of sample bottles.

One to two CTD casts were carried out at each station. The CTD rosette is equipped with 12 remotely closable bottles, which were split between the different teams. This water chemistry sampling required relatively small amounts of water, allowing that water collected could be shared with the other teams. After the CTD rosette was hoisted back up on deck, a clean latex hose was plugged onto the Niskin sample bottle, and thoroughly rinsed with sea water from the bottle. Sample vials used to store the sample water were then also rinsed three times, with the same water, then filled almost to the brim, only leaving a small (<1ml) air gap to allow the vial to be closed. The vials were closed shut with a chrome top, and wrapped with *Parafilm* to ensure they were well sealed. For the last station visited (43), different sample vials were used; the protocol followed was essentially the same with the exception that the vials themselves were larger and the top of the vial is screwed on and not and not clamped. Full details about the protocol, see 7.1.



Example profile from Station KH21-234-01. All profiles are shown in [Appendix 2](#).



8.2 Water and ice eDNA filtering summary (Tamara, Sigrid)

Water samples from 3 different horizons (5m, 100m and 10m above the sea bottom) were collected at dedicated stations with the CTD/Rosette and filtered with Sterivex filters 0.22 μm . Unless the pressure buildup occurred (e.g., due to the filter being “full”), 5 liters of the sampled water were run through each filter. For the details of the methods and procedures, see protocols 7.2 and 7.3, and sampling logs in [Appendix 3](#).

To investigate sea-ice communities, samples of sea ice were collected opportunistically at stations with the sea ice present ([Appendix 4](#)). Most of the samples were collected from the ship (for the details see below), but occasionally some sea-ice samples were collected by means of a small boat operation. These allowed to perform more detailed investigation and select the samples that showed signs of plankton bloom (i.e. darker color).

a. Collection from the ship. The samples of drifted ice were collected on a side of the ship with a net and aseptically transported to containers. They were then left at room temperature for thawing and further filtering following protocol 7.2.

b. Small boat operations. During the sample collection from the boat the priority of the sampling was given to the ice that shows signs of blooming. The samples were collected with a net or directly from the ice using chisel. The samples were aseptically transported to a collection buckets and further treated according to the protocol 7.2.

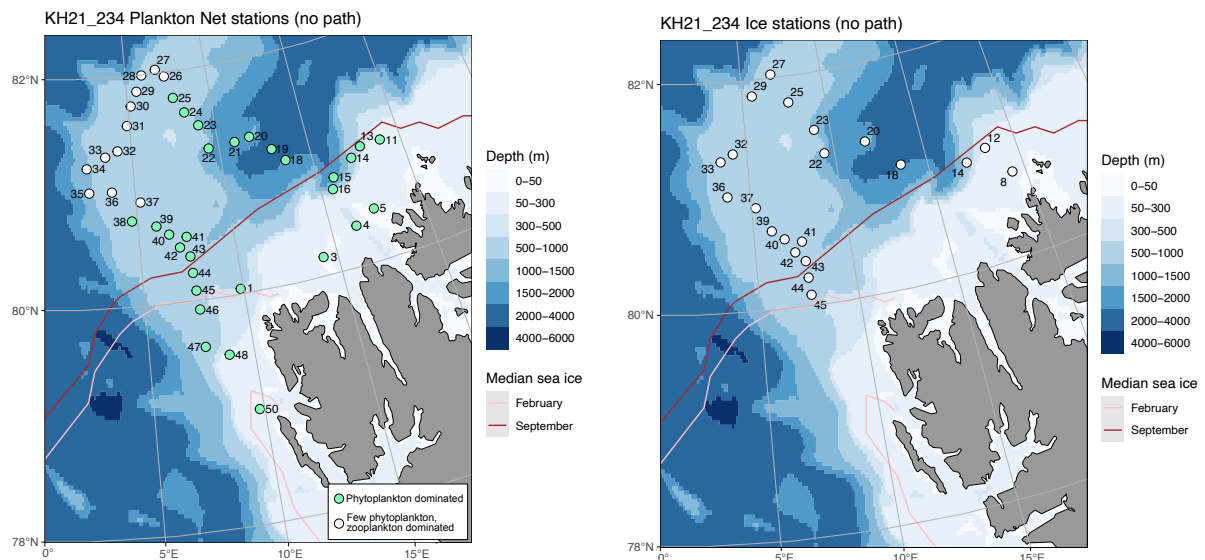
8.3 Plankton net sampling (Tamara, Sigrid)

The plankton net was deployed down to 50m below the surface and then slowly vertically hauled with a speed of roughly 0.1 m/sec. Once back on deck, the net was washed down from the outside with filtered saltwater. The plankton from the cod end bucket was transferred in a glass bottle (filtrate seawater was used to wash off the samples if needed) and water samples were later filtered (for details see 7.4).

The stations 01–25 and 38–50 appears to be dominated by phytoplankton, whereas stations 25–38 showed little phytoplankton concentrations and were dominated by zooplankton. Due to this shift in the community representation, to maximize the size of the plankton sample (not less than 500 ml) a cod end bucket with a mesh window on a side was used for the stations 25–38. No macrofauna was caught by the net.

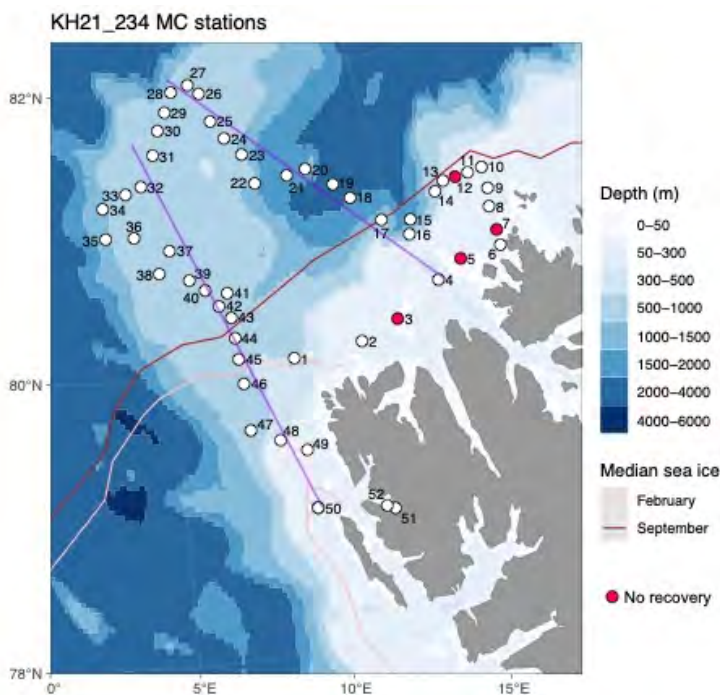
All the collected samples were filtrated according to the protocol for eDNA and biomarker analyses. Community composition (eDNA) will be analysed at NORCE lab/AGENSI lab. The GF/F filters will be analysed for biomarker analyses.

The logs of the plankton net sampling are presented in [Appendix 5](#).



8.4 Multicoring summary (Jess, Agnes)

The multicorer was deployed at all 52 stations for the AGENSI project. Additional multicore deployments were made at 10 of the 52 stations to obtain cores for the NEEDED project. A total of 234 multicores were collected from 52 stations. No sediment was retrieved for 32 individual multicores due to problematic sediment type or sediment falling out of core liner before being brought on board. No multicores were obtained at Stations 03, 05, 07 and 12. A total of 722 individual sediment subsamples were collected for aDNA (384 samples), biomarker (96 samples) and palynological analysis (242 samples). Total length of sediment collected adds up to 78,171 m, with an average of 35 cm (stdev 9.7 cm) sediment per core. All multicore logs are presented in [Appendix 6](#).



When cores came on deck, the corer technicians removed the cores one by one from the multicorer, placing either caps on both ends (archive cores) or foam blocks in the bottoms of cores that were to be subsampled. Caps and foam blocks were cleaned, bleached and rinsed prior to each use. Foam blocks were used instead of bottom caps to facilitate extrusion of the cores without having to remove bottom caps. Archive cores for each multicorer deployment were selected based on core length, surface evenness and overall quality. Cores were transported from the hangar to the Benthos Lab where they were visually assessed and measured to provide a preliminary description of sediment type, core length, surface features, color shifts, etc. Photographs of most cores were taken as a visual record. Core notes were made in the multicore log sheets, one sheet per multicore deployment, including those deployments that failed either partially or completely. The exterior of cores was wiped clean to remove any external sediment or water. Archive cores were labelled, sealed and stored in the benthos lab cold room (4°C). Cleaned cores for subsampling were then transported to the Filter Lab for subsampling in aseptic conditions.

Personal protective equipment (PPE) for subsampling sediments in the Filter Lab consisted of gloves, face masks, safety goggles or face shield, full-body suit, shoe covers and plastic apron.

All working surfaces and utensils were rigorously cleaned with 5% sodium hypochlorite/sodium hydroxide solution (household bleach) and rinsed with MQ water prior to use. Traffic into the Filter Lab was limited to sampling times and to cruise participants working on multicore sampling to minimize contamination risk. Plastic sample bags, sample tubes and glass vials were pre-labelled in the Ecotox Lab, which functioned as an additional clean room for storing consumables. Full PPE was also worn while working in the Ecotox Lab. Pre-labelled consumables were aseptically transferred from the Ecotox Lab to the Filter Lab before sampling.

The Filter Lab was thoroughly cleaned with 5% (v/v) bleach solution (ceiling, walls, ceiling light fixtures, cabinet exterior and interior, walls and floors) at the beginning of the cruise. Immediately prior to each station, all lab benches and working surfaces were again disinfected with freshly-prepared 5% bleach solution to ensure minimal carryover of DNA either from previous subsampling or from ambient contamination. The floor in the Filter Lab was occasionally cleaned with bleach and soap to remove sediment and to keep the lab generally free from excessive contamination. Sampling controls consisting of sterile 1.5 mL tubes containing ca. 500 μ L of MQ water were kept open on the bench in the Filter Lab during subsampling in order to capture any aerosolized contaminants that may affect subsamples collected. These sampling controls were stored in the North Pole freezer and will be processed together with sediment subsamples for aDNA analysis upon return to Bergen.

All stations. Water from the tops of multicores was drained using a section of garden hose as siphon. Residual surface water was removed using a sterile pipette. Drained cores were then placed on the extruder and extruded until the sediment surface was just below the top of the core liner. Observations made during subsampling were noted down in a dedicated lab journal. These observations included: subsampling date, station number, cast and core number, sample type, sample container, geological or biological observations on the surface of the core, etc. Actual subsampling routines varied dependent upon whether the station was taken only for AGENSI or if the station was taken for both AGENSI and NEEDED (see below).

AGENSI stations. Marine snow (flocculent material near the sediment surface) was collected into a 50 mL tube using a sterile pipette for aDNA analysis. Remaining overwater was removed using a sterile pipette and discarded. Photographs were taken of the core surface. For the MC1-A cores, samples for aDNA, biomarkers and palynology were taken from the 0–1 and 1–2 cm layers of the core. Both of these layers were divided approximately equally between the three sample types. Biomarker subsamples were taken using a cleaned metal spatula and placed in a glass vial (no contact with plastic). aDNA (50 mL tubes) and palynology (whirlpak plastic bags) subsamples were taken using bleached plastic spoons. aDNA and biomarker subsamples were stored in the “North Pole” freezer room (-20 °C), while subsamples for palynology were stored in the “Greenland” cold room (4 °C). For the MC1-B cores, plastic spoons were used to sample the 0-1 and 1-2 cm layers equally for aDNA and palynology into whirlpak plastic bags. aDNA subsamples were again stored in the North Pole Freezer while palynology subsamples were stored in the Greenland cold room. At some stations, the MC1-D core was also sampled in a manner identical to the MC1-B core. These are noted in the sample log. All subsamples for each sample type at each station were stored together in small plastic bags to keep related samples together.

NEEDED stations. NEEDED stations were always combined with AGENSI stations for multicoring. At these combined stations, the MC1-D core and all four MC2 cores (A/B/C/D) were subsampled to collect the 0–1 cm surface sediment into 50 mL tubes for aDNA analysis only. At stations where less than five multicores were obtained (due to technical difficulties), replicate subsamples were taken from some multicores in order to achieve the goal of five sediment subsamples per station. This pseudoreplication has been noted in the multicore subsample log for the relevant multicore stations (Station 10 and Station 12). All five sediment subsamples from each station were placed in a small plastic bag to keep samples together, and then stored in a styrofoam box in the "North Pole" freezer (-20 °C).

Post-subsampling. After collection of surface sediment subsamples was completed at each station, remaining sediment in core liners was discarded and the core liners were thoroughly cleaned with seawater (fire pump on deck) for reuse. Core liner caps and foam blocks were also cleaned, bleached and reused.

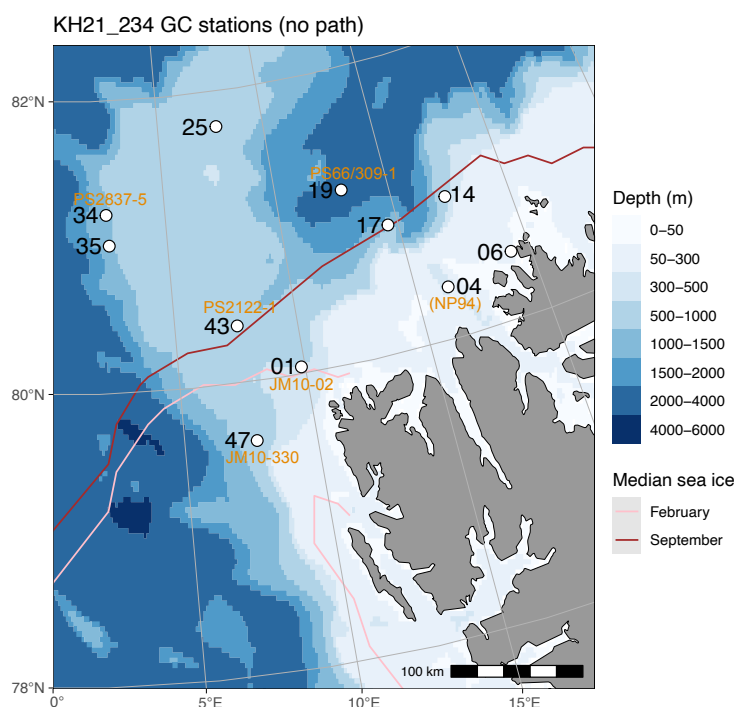
Data entry. Both multicore shifts had responsibility for entering information from the multicore log sheets and a summary of all cores and subsamples collected into the cruise log. Data entry was done at regular intervals during the cruise. GPS coordinates and bottom depth for each multicore deployment was copied directly from the KH21-234_Coordinates.xlsx file (see Logs 11.1) to ensure consistency of metadata.

8.5 Gravity coring summary (Kristine)

A total of 14 gravity cores have been taken from 11 stations on the KH21-234 scientific cruise. At most of the gravity core (GC) stations we collected one GC for aDNA work, while we collected two GC at three stations (04, 06, 19). The gravity corer has a 5 m long core liner and was deployed in a range of water depths between ~200 m and ~2200 m. All gravity core logs are presented in [Appendix 7](#).

When cores came on deck, we first added Oasis to the bottom and top of the core to avoid any voids and disruption of the sediments. **Note that length**

measurements in the log sheets and table below include the added oasis. The core liner was cleaned, bleached, and dried, and then sectioned into 1 to 1.5 m long section. The sections are cut with a pipe cutter, taking care of the saw dust. Once cut, a prebleached fish-wire is run through the sediment immediately. All the sections were sampled at their bottoms with prebleached metal spoons into plastic bags, with the purpose to date these samples soon



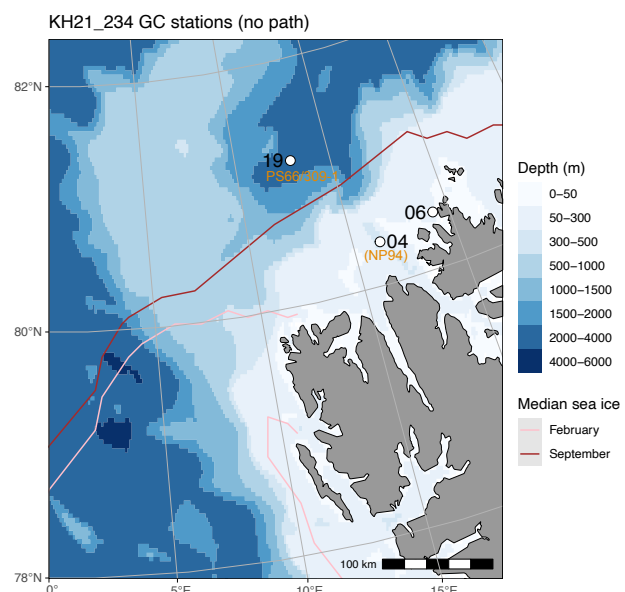
after arrival. Endcaps are prebleached, rinsed with freshwater and stored in a bucket of warm water before adding them on. The core sections are stored in 4°C cooler-rooms. Most of the cores were not split on the boat because of the contamination risk of samples for later DNA analysis.

Cores KH21-234-04-GC1 and KH21-234-19-GC2 were measured for pore water, and consequently split and sampled. These cores were split in the benthos lab into one working half and one archive half. The working half was transported to the wet lab for color scanning, magnetic susceptibility scanning and logging before sampling every cm into plastic bags and storing them in the -21 °C, Lake Vostok freezer. The archive half was stored in 4 °C cooler-rooms. Lithological descriptions and scanning data are presented in [Appendix 8 and 9](#).

Station	GC	Recovery (cm)	KH21-234 estimated maximum age	Cores at or near same location	Recovery previous cores (cm)
01	1	360	MIS5	<i>JM10-02GC</i> (Chauhan et al. 2016)	370
04	1 2 (non DNA)	500 448	Holocene	Nearby <i>NP94-51</i> (Slubowska et al. 2005)	700
06	1 (non DNA) 2	471 498	?		
14	1	315	?		
17	1	398	?		
19	1 2 (non DNA)	201 176	MIS3	<i>PS66/309-1</i> (Winkelmann et al. 2008)	765
25	1	410	?		
34	1	466	Holocene to MIS3	<i>PS2837-5</i> (Müller et al. 2008)	>500
35	1	394	Holocene to MIS3		
43	1	410	MIS1–5	<i>PS2122-1</i> (Vogt et al. 2001)	>500
47	1	500	MIS3/4	<i>JM05-31GC</i> (Rasmussen et al. 2013)	>380 cm

8.6 Gravity core pore water sampling (Allegra, Simon)

During the cruise, pore water samples from three gravity cores were taken in the wet lab onboard RV Kronprins Haakon. The gravity cores we sampled for pore water analysis were: KH21-234-04-GC2, KH21-234-06-GC1 and KH21-234-19-GC2. The method was established in practice on the ship and the protocol was written up afterwards. The pore water extraction was successful and is an efficient way to obtain pore water from cores without causing damage to the core.



The three cores were sampled at higher resolution at the top of the core (e.g. every 5–10cm) and lower resolution further down in the core (e.g. every 50 cm) because the main focus of investigations are the $\delta^{18}\text{O}$ pore water gradients in the sediment. To drill the correct size holes for pore water extraction a 2.5 mm drill bit was needed. For most of the samples at least 5 ml of pore water was obtained. A few samples contain less than 5 ml.

Note regarding sampling depths: When sampling KH21-234-19-GC2, the two holes drilled at the top of the core did not produce any water. It was later discovered, when the core was split, that these holes were drilled into the oasis which filled the top 12 cm of core. The pore water sample depths for this core were therefore changed and given relative to the sediment top. For the other two cores the pore water depths are given relative to the top of the core liner.





9 Stations

9.1 KH21-234-01

Site description and location

We arrived on site on 01.07.2021 around 8:00 CET. Seas were a bit wavy, overcast weather, open waters (no sea ice). Spitsbergen was visible on the horizon between the clouds. We used the sub-bottom profiler to find an optimal site, in the proximity of Station JM10-02GC which recovered ca. 360 cm sediments (ca. 132 ka at base). When in position, we started with one CTD cast until the bottom to collect water from 10m above the bottom (NEEDED) and throughout the water column to map the water masses. We left the station around 13:00 CET.

CTD/Rosette

Water geochemistry, eDNA filtering. We ran 2 CTD casts. There were initial winch problems for CTD cast 1 and plankton net (10 μ m), but these were solved quickly. We collected 4X10L for environmental DNA analyses (NEEDED project) at: 10m over bottom (cast 1), 100m (cast2), 5m (cast2). We collected 1X10L water geochemistry at 400m, 250m 55m, 40m, 35m, 30m, 20m, 15m (all casts).

Plankton net

In between the two CTD casts, we deployed the plankton net to 50m water depth, to recover the phytoplankton bloom (chlorophyl max) observed at ca. 30-35m

Multicoring

After some first station problems with the winch, we deployed 2 multicores. The two casts, each of the 4 tubes recovered 23 to 32 cm soft sediments. The sediment was colored brown in the top 7-10 cm, and darker to black lower down. Worms and worm tubes were observed at the surface and in the upper sediment.

Gravity coring

The gravity corer was deployed from the hangar, over the side of the ship. The core was cut in sections, sampled at the bottom of each section for dating/forams, and stored in cool storage (4deg C). GC1 recovered 360 cm and was archived for aDNA work in our shore-based labs. At the core sections, we observed grey clay. One sample was taken from the bottom of each section for dating.

9.2 KH21-234-02

Site description and location

We arrived on site on 01.07.2021 around 16:00 CET. Overcast weather, small waves, some sea ice. Spitsbergen visible on the horizon between the clouds at arrival (cloudier when we left). We used the sub-bottom profiler to find as good site as possible. When in position, we started with one CTD cast until the bottom to collect water from 10m above the bottom (NEEDED) and throughout the water column to map the water masses. Next was a second CTD cast to collect water at 5 m and 100 m (NEEDED) and more samples for mapping of water



masses. Wide phytoplankton bloom (chlorophyll max) at ca. 10-70m. We left the station ca. 18:50 CET.

CTD/Rosette

Water geochemistry, eDNA filtering. There were two CTD casts, which collected 4X10L 4X10L for environmental DNA analyses (NEEDED project) at: 10m over bottom (cast 1), 100m (cast2), 5m (cast2), and 1X10L additional for water geochemistry at 160m, 140m, 130m, 120m, 110m, 80m, 60m, 50m, 40m, 30m, 20m, 10m (cast 1).

Multicoring

Difficult site with hard surface with stones at the top and soft sediments under. The tubes did not collect more than 10 cm sediment. We ran 3 MC casts: cast MC1 recovered 3 tubes with sediments, MC2 recovered 2 tubes, and MC3 also 2 tubes. Sediment recovery was around 10 cm for each tube. The sediment was soft and brown colored at the top. MC1 did not see any life on the surface, and the sediment color changed to blacker below 4-5 cm, on MC2 and MC3 worm tubes were visible on the surface.

9.3 KH21-234-03

Site description and location

We arrived at the site on 01.07.2021 around 21:15 CET. Overcast, foggy weather, but good visibility. Large pieces of ice visible everywhere, dispersed and in large open, very calm water. The site is very shallow at ca. 42m.

Plankton net

We deployed the plankton net to 30m depth.

Multicoring

We did one cast with the multicorer and could not retrieve any sediment. We left the station immediately.

9.4 KH21-234-04

Site description and location

We arrived at the site in Hinlopenrenna on 02.07.2021 around 01:00 CET. Overcast, foggy conditions. Large pieces of ice visible in the distance, dispersed and in very calm, open water. We left station at 05:00 CET.

Acoustics

We used the sub-bottom profiler to find an optimal site, in the proximity of Station NP94-51. A thick sediment package of > 10m was visible on the sub bottom profiles. Estimated thickness of the sediment package is 11-12 m.

CTD/Rosette

Water geochemistry, eDNA filtering. There were two CTD casts, which collected 4X10L for environmental DNA analyses (NEEDED project) at: 10m over bottom (cast 1), 100m (cast2),

5m (cast2), and 1X10L additional for water geochemistry (AeN) at several depth, with focus on temperature and salinity transitions (cast 1).

Plankton net

We deployed the plankton net to 50m depth, just below the chlorophyll maximum at ca. 40m.

Multicoring

There were two multicore casts. The first MC1 recovered nearly full tubes with soft sediments (45-49 cm). One multicore tube had a starfish at the surface (MC1-D). Before deploying MC2, we moved the boat with 25m. Also the second cast had recovered 46 to 49 cm.

Gravity coring

The gravity corer was deployed from the hangar, over the side of the ship. 2 Gravity cores were taken. GC1 recovered 500 cm sediment and was archived for aDNA work in our onshore labs. GC2 recovered 448 cm. Both cores were cut in sections and stored in cool storage at 4deg C. We sampled GC1 at the bottom of each section for dating/forams. Lithology at core sections was grey clay.

GC2 was sampled for pore water onboard the ship. Eight samples from section 1, and three from both section 2 and 3. In total, 14 samples were collected, with higher resolution near the top of the core. Following, we split the core and recorded the geophysical properties (lightness, magnetic susceptibility), photographed the sections and described the lithology. The working half was sampled every 1 cm, and samples were frozen. The archive half was kept in cool storage.

9.5 [KH21-234-05](#)

Site description and location

We arrived at the station 02.07.2021 around 06:50 CET. Overcast, foggy conditions. Much ice. We used the sub-bottom profiler to find an optimal site. Very hard bottom, not a good site for coring but we tried a multicorer. We left station at 07:25 CET.

CTD/Rosette

Water geochemistry, eDNA filtering. There was one CTD cast, which collected 3X10L for environmental DNA analyses (NEEDED project) at: 10m over bottom, 100m, 5m, and 3X10L additional for water geochemistry at several depths. A minor increase in temperature was observed in the upper 100 m of the water column.

Multicoring

The multicores came up empty.

9.6 [KH21-234-06 \(Tre Isbjørn Stasjon / Three Bear Station\)](#)

Site description and location

We entered quite thick ice between station KH21-234-05 and station KH21-234-06. KH21-234-06 was close to Nordaustlandet, which we could see in the distance, despite the overcast weather. We arrived at the site on 02.07.2021 around 13:00 CET. The low clouds covered the top of the peaks of Nordaustlandet. We wanted to explore water depths up to 280 m, and we



presumed this area would be a natural sediment trap. The surrounding sea was shallow at max 50-60 m, until it started deepening close the coast. In the end we did not manage to get to the deepest parts of the basin because of the thick ice conditions. Three polar bears, one mother and two cubs, passed the boat from a distance, and eventually came looking close to the boat. We left the site around 17:00 CET.

Acoustics

The seismic profiles showed hard surface for most of the route. Approaching the site we could not get a good view of the sub bottom because of the disturbance from the breaking ice. When we could not go any further due to too thick ice, the captain stopped the ship which improved the visibility of the sub bottom profile. This revealed a package of sediment of likely up to 7m thick.

CTD/Rosette

Water geochemistry, eDNA filtering. There was one CTD cast, which collected 3X10L for environmental DNA analyses (NEEDED project) at: 10m over bottom, 100m, 5m, and 3X10L additional for water geochemistry at several depths (AeN).

Multicoring

There were two multicore casts. The first MC1 recovered nearly full tubes with soft sediments (42-44 cm). The color of the sediment was brown at the top and became blacker lower down. Before deploying MC2, we moved the boat a few meters. Also MC2 recovered 43-49 cm of soft sediments.

Gravity coring

The gravity corer was deployed from the hangar, over the side of the ship. Two gravity cores were taken. GC1 recovered 471 cm sediment, GC2 recovered 498 cm. GC2 from this station is assigned as the aDNA core. Both cores were cut in sections and stored in cool storage at 4deg C. The lithology at the core sections was grey clay. We sampled GC1 at the bottom of each section for dating/forams. GC1 was sampled for pore water onboard the ship.

[9.7 KH21-234-07](#)

Site description and location

We arrived at the site at 01:50 on 03.07.2021. Conditions were light overcast, blue skies. Mainland mountains visible above the clouds/fog. The ice was very thick *en route* to this station. It was difficult to get through the several ridges with pushed up sea ice.

Acoustics

The sub-bottom profile did not show promising sediment packages. Most likely, the sea floor consists of hard rock, with a minimal fluff of sediment.

Multicoring

We deployed one multicorer (MC1), but all tubes returned empty. A hint of sediment in suspension in water was observed. Also a smear of mud was seen at the bottom of the MC.



9.8 KH21-234-08

Site description and location

We arrived at the site at 05:45 CET on 03.07.2021. conditions were light overcast. The ice still thick but thinner then on the way to the previous station. Still moving slowly. We left the site at 6:00 CET.

Acoustics

The sub-bottom profile showed promising enough sediment packages to try a MC.

Multicoring

We deployed one multicorer (MC1) through the moonpool recovering 16-22 cm of sediment in three tubes. One tube was empty. Sampling the cores was difficult. The sediment contained quite a bit of gravel.

Opportunistic ice sampling

We collected sea ice (ICE) for melting and filtering for biomarkers and DNA. One sample was collected from the side of the ship; one sample was collected from the moon pool. This sample likely integrates ice from the entire cruise track.

9.9 KH21-234-09

Site description and location

We passed a decent site, stopped, turned around and found it again, arriving at the site at 09:45 CET on 03.07.2021. Conditions were light overcast, foggy. The ice still quite thick with some openings here and there. Still moving slowly.

Acoustics

The sub-bottom profile showed promising enough sediment packages to try a MC.

Multicoring

We deployed one multicorer (MC1) through the moonpool. All 4 tubes recovered approximately 40 cm of sediment.

9.10 KH21-234-10

Site description and location

We arrived at the site at the site shortly before 13:00 CET on 03.07.2021. Conditions were overcast, foggy, but good visibility. The ice was thick, but there were several small and large open patches.

CTD/Rosette

Water geochemistry, eDNA filtering

WE collected one CTD, where we closed 3 bottles at 5, 100 and 10m above seafloor.

Acoustics



The sub-bottom profile showed a small sediment drape, which we sampled with the multicorer.

Multicoring

We deployed multicorer twice (MC1, MC2) through the moonpool. For both casts, only three multicorer contained sediment.

9.11 KH21-234-11

Site description and location

We arrived at the site at the site shortly before 16:00 on 03.07.2021. Conditions were overcast, foggy, but good visibility. The ice was thick, but there were several small and large open patches.

Acoustics

The sub-bottom profile showed a small sediment drape, which we sampled with the multicorer. Undulating sea floor.

Plankton net

We deployed the plankton net to 50m depth.

Multicoring

We deployed multicorer once (MC1) through the moonpool. Three multicorer contained sediment.

9.12 KH21-234-12

Site description and location

We arrived at the station on Saturday 03.07.2021 at ca. 18:00.

Acoustics

At the station, there was a thin sediment package present. But this occurred very locally and due to drift with the sea ice, we moved into an area with more hard grounds.

CTD/Rosette

Water geochemistry, eDNA filtering

We collected one CTD, where we closed 3 bottles at 5, 100 and 10m above seafloor (NEEDED project). In between some water samples were taken for water chemistry (AeN).

Multicoring

We collected three multicores, of which the last one returned with empty and damaged liners. The sea ice made us drift away from the original location and had put us over hard grounds. MC1 recovered 3-4 tubes that were half full. MC2 recovered 2 tubes with some sediment, the other two tubes were empty.

Opportunistic ice sampling

We sampled for sea ice from the side of the ship.



9.13 KH21-234-13

Site description and location

We arrived at the station on Saturday 03.07.2021 around 21:45. There were very large and thick sea ice chunks in the water. Weather was overcast and foggy, limiting the visibility.

Acoustics

En route to our next station, just before we reached the waypoint, we crossed a potential good sediment package on a shoulder of the slope around 300-350 m water depth. WE continued along our track and then came across a ca. 4 m thick sediment package. This is where we placed the station, on the slope towards the deeper Questrenna at ca. 425 m water depth.

Plankton net

We deployed the plankton net to 50m depth. Retrieving the net was challenging due to large ice chunks drifting along the boat, which dragged the cable of the net.

Multicoring

We deployed the multicorer once and recovered 4 tubes with up to xx cm of sediment. Sediment is brown at the top and gets darker to black from ca. 10 cm down in the core.

9.14 KH21-234-14

Site description and location

We arrived at the station on Sunday 04.07.2021 around 00:15. Overcast and foggy weather, but dry. Large blocks of sea ice with small stretches of open water in between. The ship made an opening in the ice with the thrusters. We took a plankton net, collected a chunk of ice, deployed the multicore and gravity corer. We left the station at 3:00. Shortly after we left, we spotted a lone, male polar bear walking on the ice.

Acoustics

Halfway between Station 13 and 14, we encountered a sediment packet on the slope towards Questrenna. We traced this package in a SE direction, along a water depth of ca 500-600 m. Thickness ranges between ca. 8 and 18 m. A very sharp increase in water depth occurred around 80deg 56' N, 17deg 8'E. We turned back a few miles to take a gravity core in this sediment package.

Multicoring

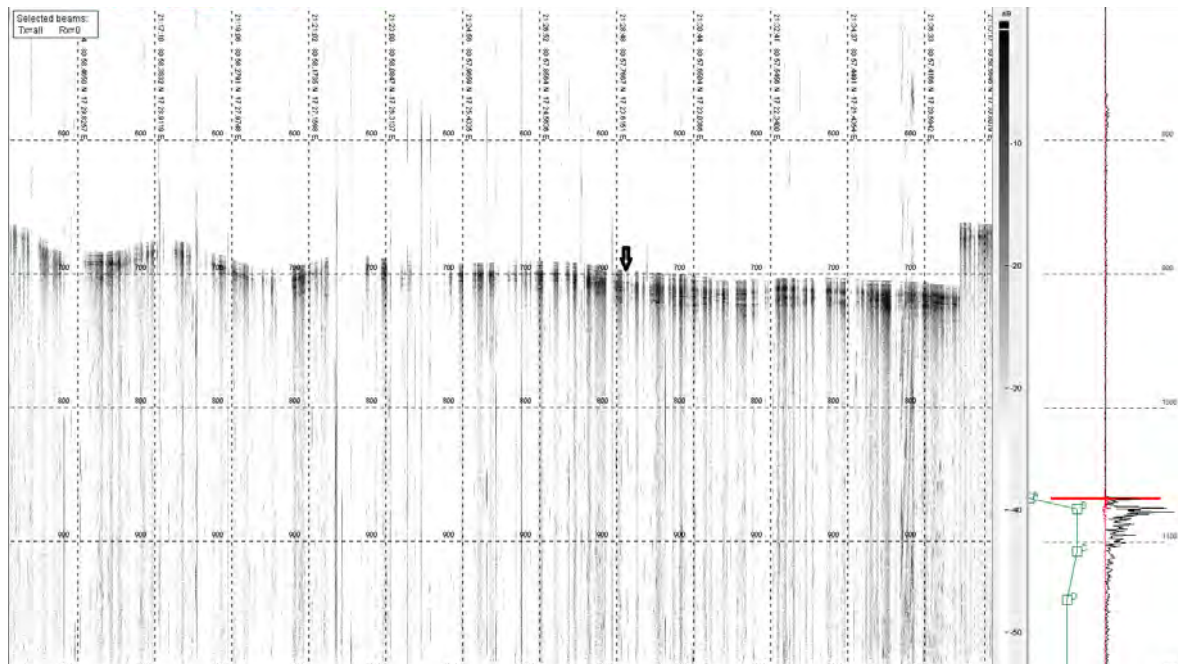
Multicore MC1 recovered four tubes with soft, sticky sediment (clay).

Gravity coring

We deployed the gravity core in a pool of open water, which was cleared by the thrusters of the ship. The large chunks of sea ice were kept away from the side of the ship, where the gravity core was deployed. While the corer appeared to have been into the sediment for the full length of 500 cm, the recovery of soft sediments (silty clay) was 315 cm. A sample has been taken at the bottom of each section for dating. GC1 is kept for aDNA work.

Opportunistic ice sampling

We sampled for sea ice from the side of the ship.



9.15 KH21-234-15

Site description and location

We arrived at the station on Sunday 04.07.2021 06:55. Overcast and foggy weather, but dry. Large blocks of sea ice with small stretches of open water in between. We took a plankton net, deployed the multicore. We left the station at 08:35.

Acoustics

Multibeam showed we were following a track on a slope. We changed our course towards west to get to flat terrain, where we stopped to do a net and a MC

Plankton net sampling

We deployed the plankton net and heaved it from 50 to 0 at 06:55.

Multicoring

Multicore MC1 recovered four tubes with sediments where the top 5-16 cm is brown, which becomes grey lower down. Minimum and maximum recovery was 20 cm and 47 cm, respectively.

9.16 KH21-234-16

Site description and location

We arrived at the station on Sunday 04.07.2021 at 09:50 CET. Overcast and foggy weather, but dry. Blocks of sea ice with longer stretches of open water in between. We took a plankton net, deployed the multicore. We left the station at 10:45 CET.

Acoustics

Within the slope (upwards and sideways).

Plankton net sampling

We deployed the plankton net and heaved it from 50 to 0 m at 09:55. Phaeocystis was very abundant and clogged the filters rapidly.

Multicoring

Multicore MC1 recovered four tubes with 32-33 cm undisturbed greyish brown sediment. The upper 5 cm was bioturbated.

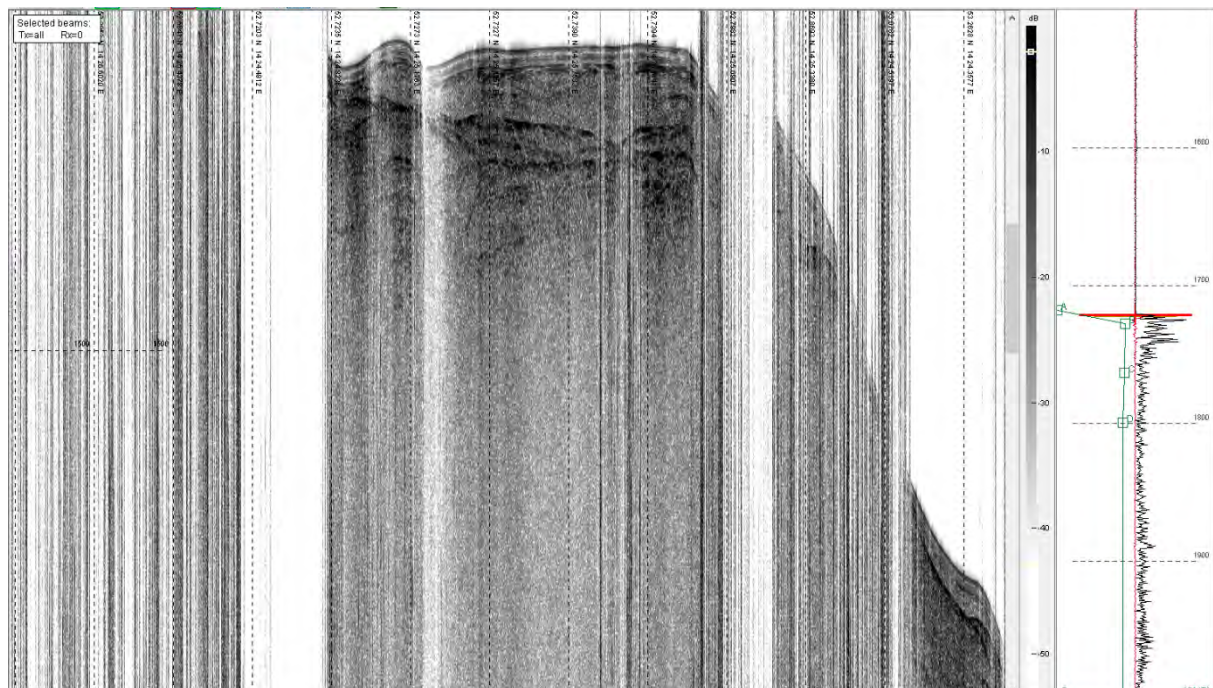
9.17 KH21-234-17

Site description and location

We arrived at the site at 15:30 CET on 04.07.2021. Foggy conditions and low hanging clouds, no rain or snow. Ice was very thick and hard. By using the thrusters, large blocks of ice were moved to create a pool of water to deploy the CTD, GC and MC. We drifted with the ice in SE direction with a speed of 0.8 knot. Left the station at 19:00 CET.

Acoustics

We were following a thin, 2-3 m sediment drape on our way to Station 17. The seafloor dropped rapidly, formed a shoulder, and dropped further down to >1500 m water depth. We went back to ca. 1240 m water depth.





CTD/Rosette

Water geochemistry

We collected one CTD, where we closed 1 bottle at 10, 20, 30, 40, 60, 70, 85, 100, 150, 500, 900, 1224 for water chemistry (AeN).

Gravity coring

We had drifted considerably from the original station but nevertheless decided to deploy the GC1 from side of the ship. Even though we drifted, the same sediment layers and reflectors compared to where we deployed the CTD, were visible on the sub bottom profile. We recovered a nice core of 394 cm, which is kept for aDNA work. Lithology at core sections was grey clay. One sample was taken at the bottom of each section.

Multicoring

MC1 was deployed from the side of the ship (ca 18:00-18:50). We recovered four tubes with ca. 35-40 cm brown-grey sediment.

9.18 KH21-234-18

Site description and location

We arrived at the site at 22:30 CET on 04.07.2021. We stopped the ship in a large open pool of water. The sea ice in this area is thick, but is good to sail through because of the large patches of open water. Weather was foggy. The sun tried to break through the low hanging cloud cover, but conditions turned foggier during the time on station. No wind, no rain. At ca. 2040 m, this was the deepest site we collected sediment from in the cruise (so far). We left the site at 24:00 CET, and headed northwestwards into the Sophia Deep.

Acoustics

We traced sediments all the way from Station 17 in a NNW direction. A sediment package covered the entire sea floor, which was gently sloping in northward direction. We stopped in an open stretch of water, above what appears to be the base of the slope. We estimate there to be ca. 3 m of sediment, sufficient for a successful multicore cast.

Plankton net sampling

We deployed the plankton net and heaved it from 50 to 0 m.

Multicoring

MC1 was deployed from the side of the ship and recovered 4 tubes with soft brown sediment (41-45 cm), and clear water on top. MC1-D is sampled/archived for deep sequencing. (Tristan)

Opportunistic ice sampling

We sampled for sea ice from the side of the ship.

9.19 KH21-234-19

Site description and location

We arrived at the site at 03:30 CET on 05.07.2021. We stopped the ship in a large open pool of water. Water depth was 2194 m. The sea ice in this area is thick, but large patches of open

water. Weather was foggy. No wind, no rain. We leave the station and move north – north west at 09:50 CET.

Acoustics

Station 19 had a thick sediment package. We stopped in an open stretch of water. We estimate there to be ca. 40 m of sediment, sufficient for a successful multicore cast and a gravity core.

Plankton net sampling

We deployed the plankton net and heaved it from 50 to 0 m. A quick look at the sample revealed that *Phaeocystis* is dominating a bloom but diatoms (*Chaetoceros* spp, *Thalassiosira* spp) also present + a few flagellates (crypto, dino).

CTD/Rosette

Water geochemistry

We collected one CTD, where we closed 1 bottle at 10, 25, 35, 50, 60, 80, 100, 150, 350, 600, 1200, 1223 for water chemistry (AeN).

Multicoring

MC1 was deployed from the side of the ship and recovered 4 tubes with 50 cm sediment, and clear water on top. One tube with cucumber (type sea).

Gravity coring

We deployed the gravity corer from the from side of the ship. GC1 recovered a core of 201 cm, and this GC1 is kept for aDNA work. We decided to take another one at approx. same place, with higher speed, to try to recover a longer one. GC2 recovered less than 176 cm, and this core was sampled on board.

GC2 was sampled at every core section, and the lithology showed to be grey clay. GC2 was also sampled for pore water onboard the ship, with higher resolution near the top of the core. Eight samples from section 1, and five from section 2 were taken. Following, we split the core and recorded the geophysical properties (lightness, magnetic susceptibility), photographed the sections and described the lithology. The working half was sampled every 1 cm, and samples were frozen. The archive half was kept in cool storage.

[9.20 KH21-234-20](#)

Site description and location

We arrived at the site at 12:30 CET on 05.07.2021. There are large stretches of open water in this area, and we found a good location in between thick sea ice. Water depth was ca. 1400 m, and not > 2000m as the bathymetric charts suggested. Weather was foggy. No wind, no rain. Sun peeked through the low hanging clouds.

Acoustics

On our way to the station, we crossed a topographic high. We sailed eastwards and climbed the slope from the Sophia Deep. We passed a topographic high and on the downslope from this high (eastern direction), we placed our station. We detected a ca. 10 m sediment package.



Plankton net sampling

We deployed the plankton net and heaved it from 50 to 0 m.

Multicoring

MC1 was deployed from the side of the ship and recovered 4 tubes with 39 cm sediment, and clear water on top.

Opportunistic ice sampling

We sampled for sea ice from the side of the ship.

9.21 KH21-234-21

Site description and location

We arrived at the site at 15:15 CET on 05.07.2021. Still large stretches of open water in the area, and we found a good location in between thick sea ice. Water depth was ca. 1765. No wind, no rain. Sun peeked through the low hanging clouds.

Left station ca 17:00 CET – going further west.

Acoustics

A sediment package of ca. 27 m thick is observed on the sub-bottom profile.

Plankton net sampling

We deployed the plankton net and heaved it from 50 to 0 m.

Multicoring

MC1 was deployed from the side of the ship and recovered 4 tubes with ca. 43 cm sediment. A dark brown layer was observed around 28 cm.

9.22 KH21-234-22

Site description and location

We arrived at the site at 18:50 CET on 05.07.2021. Still large stretches of open water in the area. Then, we positioned next to large blocks of thick sea ice, for opportunistic sea ice sampling. Water depth was ca. 1345 m. No wind, no rain. Sun tried to peek through the low hanging clouds. We left station ca. 20:30 CET and sailed north.

Acoustics

A sediment package of ca. 70 m thick is observed on the sub-bottom profile.

Plankton net sampling

We deployed the plankton net and heaved it from 50 to 0 m.

Multicoring

MC1 was deployed from the moonpool and recovered 4 tubes with ca. 40 cm sediment. Very loose, fine silty sediment, brownish grey colour.

Opportunistic ice sampling

We sampled for sea ice from the side of the ship.

9.23 KH21-234-23

Site description and location

We arrived at the site at 23:00 CET on 05.07.2021. We stopped in a large stretch of open water. We moved to the ice edge to collect chunks of sea ice. We left the site on 06.07.2021 at 00:20 CET.

Acoustics

A sediment package of ca. 70 m thick was observed on the sub-bottom profile at station 22. We sailed northwards and traced this package, which became gradually thinner for the entire transect to Station 23. At shallower depth compared to station 22, the sediment package at station 23 was still 40 m.

Plankton net sampling

We deployed the plankton net twice (NET1, NET2) and heaved it from 50 to 0 m. On both deployments, the net came back empty.

Multicoring

MC1 was deployed from the moonpool and recovered 4 tubes with ca. 40 cm soft, silty brown sediment. Forams present.

Opportunistic ice sampling

We sampled for sea ice from the side of the ship, after moving close to the sea ice at the edges of the open water.

9.24 KH21-234-24

Site description and location

We arrived at the site at 02:50 on 06.07.2021. We had sailed north in open water in between thick sea ice. We had blue skies with few clouds, sunny and cold conditions. We saw polar bear tracks in the snow. We left the site at 3:30 CET.

Acoustics

Shortly before the station, we crossed “kupert terreng” on the sea floor. We followed the slope upwards, crossed an uneven sea floor and arrived in a little basin at ca. 850m. A sediment package of ca. 17 m (23 ms) was detected on the seafloor. The first reflector indicating hard ground is at ca. 4m depth (6 ms).

Plankton net sampling

We deployed the plankton net and heaved it from 50 to 0 m. The net came back empty. Very little to no productivity in the water.



Multicoring

MC1 was deployed from the moonpool and recovered 4 tubes with ca. 40 cm sediment. Very fine sediment, brown at the top and transitioning to grey-brown at ca 10 cm.

9.25 KH21-234-25

Site description and location

To quote Lou Reed: *"It's such a perfect day..."*. We sailed north from station 24 in open water in between thick sea ice. We arrived at the site at 05:55 CET on 06.07.2021 (1.5 nautical miles before planned point – but there was a nice stretch of open water in between the ice). The water is very clear, the multicore is visible down to 30-35m below sea surface and the propellor video is crystal clear. We passed a lot of brown ice (production mainly in the ice?). We had blue skies with few clouds, sunny and cold conditions. Polar bear tracks observed. We left the site at 09:00 CET.

Acoustics

We are still in "kupert terreng" on the sea floor station at ca. 820m. A sediment package of ca. 20m (26 ms) was detected on the seafloor.

Plankton net sampling

We deployed the plankton net twice (NET1, NET2) and heaved them from 50 to 0 m. Very limited productivity in the water.

Multicoring

MC1 was deployed from the moonpool and recovered 4 tubes with ca. 40 cm of brown very homogenous sediment.

Gravity coring

GC1 deployed from the moonpool. We recovered a core of approx. 4,1 m. The core liner for this core was made by taping two (leftover) pieces of core liner together. The top 5 cm have been lost for aDNA work. GC1 is kept for aDNA work. Samples were collected from the bottom of every section. Section 2 showed brown clay, sections 3 and 4 showed grey/brown clay.

Opportunistic ice sampling

We sampled for sea ice from the side of the ship (ICE1) and from a small boat across the open water (ICE2).

9.26 KH21-234-26

Site description and location

We arrived in an open stretch of water from the SE at 12:15 CET on 06.07.2021. Sunny, lightly overcast, no wind. We left the site 13:15 CET.

Acoustics



Just SE of the station, we crossed an iceberg plough mark at ca. 750 m depth on the seafloor, which was visible on the multibeam. The ploughmark showed as a “kupert terreng” on the SBP. The sediment layers continued on both sides of the ploughmark.

CTD

We deployed the CTD to check the water temperature, salinity and fluorescence. There was a classic temperature profile, with warmer, saltier water underlying a cool, fresher surface. Only a very minor increase in chlorophyll was observed in the upper 50m.

Plankton net sampling

We deployed the plankton net (NET1) and heaved them from 50 to 0 m. There was only a minor amount of chlorophyll detected in the upper 50m with the CTD.

Multicoring

We deployed MC1 from the moonpool and recovered 4 tubes with ca. 39 cm sediment. Sediment is brown very fine silt. Transition event of brown-to-rust at 37-39 cm downcore.

9.27 KH21-234-27

Site description and location

We arrived at the station at 82°N from the west at 16:00 CET on 06.07.2021 and took group photos before sampling. We left site 16:55 CET. Sunny, no clouds, no wind.

Acoustics

Passed several plough marks that are oriented NNE-SSW.

Opportunistic ice sampling

We sampled for sea ice, visibly brown, from the side of the ship.

Plankton net sampling

We deployed the plankton net and heaved it from 50 to 0 m.

Multicoring

We deployed MC1 from the moonpool and recovered 4 tubes with ca. 35 cm sediment.

9.28 KH21-234-28

Site description and location

We arrived at the station at from the west at 18:55 CET on 06.07.2021. We left site at 19:15 CET. Sunny, no clouds, no wind.

Plankton net sampling

We deployed the plankton net and heaved it from 50 to 0 m.

Multicoring

We deployed MC1 from the moonpool and recovered 4 tubes with ca. 40 cm of very fine brown sediment, which transitions to grey at ca. 25 cm downcore.



9.29 KH21-234-29

Site description and location

We arrived at the station after having some trouble getting through thick ice. All four engines were necessary to break through to the next stretch of open water. We started the station at 22:30 CET on 06.07.2021 with sampling the ice, followed by a plankton net and a multicorer. Conditions were sunny, no clouds, no wind. The ice around the open water started melting from above, leaving large shallow pools of the bluest water on top. We left site at 00:15 CET on 07/07/2021.

Plankton net sampling

We deployed the plankton net and heaved it from 50 to 0 m.

Opportunistic ice sampling

We sampled for sea ice, visibly brown, from the side of the ship.

Multicoring

We deployed MC1 from the moonpool and recovered 4 tubes with ca. 40-44 cm of very loose sediment with brown mottling from surface down to ca 15 cm and a dark line which marks the transition to greyish brown sediment in the lower part of the cores.

9.30 KH21-234-30

Site description and location

We arrived at the station at 03:05 on 07.07.2021. We took a plankton net and a multicore. Conditions were sunny, no clouds, no wind. We left site at 03:50.

Acoustics

The sub bottom profiler indicates a ca. 7.5 m thick, soft sediment package on the sea floor.

Plankton net sampling

We deployed the plankton net and heaved it from 50 to 0 m.

Multicoring

We deployed MC1 from the moonpool and recovered 4 tubes with ca. 40-41 cm of brown fine silty sediment. Dark transition layer at 39-40 cm.

9.31 KH21-234-31

Site description and location

We arrived at the station at 06:10 CET on 07.07.2021. We took a plankton net and a multicore. Conditions were sunny, no clouds, no wind. We left site at 07:10 CET.

Acoustics

The sub bottom profiler indicates a ca. 5 m thick, soft sediment package on the sea floor.



Plankton net sampling

We deployed the plankton net and heaved it from 50 to 0 m.

Multicoring

We deployed MC1 from the moonpool and recovered 4 tubes with ca. 35-39 cm brown, fine and homogenous sediment. A change to a more reddish color is observed near the bottom.

9.32 KH21-234-32

Site description and location

We arrived at the station at 10:00 CET on 07.07.2021. We took ice sample, a plankton net and a multicore. Conditions were sunny, no clouds, no wind. We left site at 11:05 CET.

Acoustics

The sub bottom profiler indicates a ca. 7.5 m thick, soft sediment package on the sea floor.

Plankton net sampling

We deployed the plankton net and heaved it from 50 to 0 m.

Opportunistic ice sampling

We sampled for sea ice, visibly brown some places but not as much as before, from the side of the ship.

Multicoring

We deployed MC1 from the moonpool and recovered 4 tubes with ca. 40 cm homogenous brown-grey sediment. A red rusty layer is seen near bottom. Forams on the top.

9.33 KH21-234-33

Site description and location

We arrived at the station at 13:00 CET on 07.07.2021. The sea ice appears more sluggish and wet in this area. We took ice sample, a plankton net and a multicore. Light cloud cover, great visibility, little wind. We left site at 14:00 CET.

Acoustics

The sub bottom profiler indicates a ca. 10 m thick, soft sediment package on the sea floor.

Plankton net sampling

We deployed the plankton net and heaved it from 50 to 0 m.

Opportunistic ice sampling

We sampled for sea ice from the side of the ship.

Multicoring

We deployed MC1 from the moonpool and recovered 4 tubes with ca. 40 cm sediment. Sediment is brown at the top, and turns grey from ca. 30 cm.



9.34 KH21-234-34

Site description and location

We arrived at the station at 16:35 CET on 07.07.2021. We found a spot close to the coordinates of PS2837-5 (ca 800m). The sub bottom profile showed a good sediment package and we started with GC1, from a location where drifting ice would not be affecting the position of the ship. After the GC, we moved 50m and did a plankton net, a CTD for water and a multicorer. Light cloud cover, great visibility, little wind. We left site at 19:05 CET.

Acoustics

The sub bottom profiler indicates approx. a 50 m thick, soft sediment package on the sea floor.

Plankton net sampling

We deployed the plankton net and heaved it from 50 to 0 m.

CTD/Rosette

Water geochemistry

We deployed the CTD to check the water temperature, salinity and fluorescence. Cold water (from -1,75°C top layer) on top of saltier warmer Atlantic water (2,5°C and 34,9 PSU at 100 m). Only a very minor increase in chlorophyll was observed in the upper 50m. Seven bottles were closed at different depths in the upper 250 m for water chemistry (AeN).

Multicoring

We deployed MC1 from the moonpool and recovered 4 tubes with ca. 42-45 cm brown very fine sediment. A brown-reddish layer appears at ca 7 cm depth.

Gravity coring

We deployed GC1 from the moonpool and recovered a core of approximate 4,66 m. This should have recovered the LGM, which is observed at ca. 4 m in PS2837-5. Samples were taken at every core section, which showed grey/brown clay. GC1 is kept for aDNA work.

9.35 KH21-234-35

Site description and location

We arrived at the station at 21:15 CET on 07.07.2021. We found a large stretch of open water where the sub bottom profile showed a good sediment package of > 40m. We did a plankton net and multicorer (MC1) and then moved the ship 50 m to do a gravity core. Light cloud cover, ok visibility, no wind. We left site at 23:30 CET.

Acoustics

The sub bottom profiler indicates > 40 m thick soft sediment package on the sea floor.

Plankton net sampling

We deployed the plankton net and heaved it from 50 to 0 m.



Multicoring

We deployed MC1 from the side of the ship and recovered 4 tubes with ca. 43-45 cm sediment. The color changes from brown in the upper part to grey in the lower part of the sediment.

Gravity coring

We deployed GC1 from the side of the ship and recovered a core of approximate 394cm. Samples were taken at every core section, which showed grey/brown clay. The core liner for this core was made by taping two (leftover) pieces of core liner together. GC1 is kept for aDNA work.

9.36 KH21-234-36

Site description and location

From Station 35, we turned east to avoid a large block of ice that was blocking a south-southeastern course. We arrived at Station 36 in the largest open space of water at 02:45 CET on Thursday 08.07.2021.

Plankton net sampling

We deployed the plankton net and heaved it from 50 to 0 m.

Acoustics

The sub bottom profiler indicates thinner sediment layer (ca. 12 m) compared to previous stations.

Multicoring

We deployed MC1 from the side of the ship and recovered 4 tubes with ca. 42 cm sediment. Fine silty brown sediment at the top, which transition to darker brown (ca. 6 cm) and further down (ca. 10 cm) to grey.

Opportunistic ice sampling

We moved the ship to the ice edge and sampled for sea ice from the side of the ship.

9.37 KH21-234-37

Site description and location

From Station 36, we continued east and arrived at Station 37 in open space of water at 08:00 CET on Thursday 08.07.2021.

Plankton net sampling

We deployed the plankton net and heaved it from 50 to 0 m.

Opportunistic ice sampling

We moved the ship to the ice edge and went out with small boats for ice sampling.

Drone under the ice



From the stop sampling for ice we also deployed an under ice drone for filming underneath the ice. Productivity was considerably higher in the open stretches of water, as well as under the ice. Inspection of the underside of the ice showed algae in the water and brown color at the underside of the ice, indicating high concentration of algae.

Multicoring

We deployed MC1 from the side of the ship and recovered 4 tubes with ca. 36-39.5 cm brown grey fine sediment.

9.38 KH21-234-38

Site description and location

We went south-southwest from station 37 and arrived at Station 38 at 12:00 CET on Thursday 08.07.2021. Conditions were foggy, no wind and dry. The patches of open water are becoming larger, and the ice is more dispersed. There are nevertheless large blocks of ice in the area, that we need to circumnavigate.

Acoustics

The sub bottom profiler indicates a thin sediment layer.

Plankton net sampling

We deployed the plankton net and heaved it from 50 to 0 m. The MC1 was taken before the plankton net (NET1 and NET2), which resulted in sediment being captured in the net. We ran NET3 after both MC casts, after moving the boat away from the MC locations. The water contains many more organisms than a few days ago (more northern sites).

CTD/Rosette

We deployed the CTD and collected water at 5m, 100m and 10m above bottom for eDNA (NEEDED project).

Multicoring

We deployed MC1 and MC2 from the side of the ship and recovered 8 tubes with ca. 37-40 cm sediment. The sediment was greyish-brown at the top and transitioned into grey towards the middle of the tubes. In between casts, we moved the boat ca. 25 m.

9.39 KH21-234-39

Site description and location

Because of ice conditions we had to turn a bit north before getting back on track westwards. Arrived at Station 39 at 18:05 CET on Thursday 08.07.2021. Less fog/more visibility, no wind and dry. The patches of open water are still becoming larger, and the ice is more dispersed. There are nevertheless large blocks of ice in the area, that we need to circumnavigate. Left the station at 18:45 CET.

Acoustics

The sub bottom profiler indicates sufficient sediment layer.



Plankton net sampling

We deployed the plankton net and heaved it from 50 to 0 m.

Opportunistic ice sampling

We collected sea ice from the side of the ship.

Multicoring

We deployed MC1 from the side of the ship and recovered 4 tubes with ca. 35-40 cm fine homogenous brown sediment. Forams at the top.

9.40 KH21-234-40 (Rainbow Station)

Site description and location

On our way to the next station, we arrived on Thursday 08.07.2021 around 20:45 CET in an area with large flat blocks of sea ice without a snow cover, that were broken up, possibly recently as the blocks were lying close to one another. In front of the bow, a rainbow formed when the sun (in the west) shone on a low hanging, very thin fog. Sunny conditions, faintest fog in the distance. We left the site at 21:40 CET.

Acoustics

The sub bottom profiler indicates a ca. 12 m sediment layer.

Plankton net sampling

We deployed the plankton net and heaved it from 50 to 0 m.

Opportunistic ice sampling

We collected sea ice from the side of the ship.

Multicoring

We deployed MC1 from the side of the ship and recovered 4 tubes with ca. 40-42 cm soft, brown sediment. Sediment transitions into grey color near the bottom.

9.41 KH21-234-41

Site description and location

We arrived at site at 23:30 CET on 08.07.2021. We saw the same ice type as the previous station: large flat blocks of sea ice, that were broken up Sunny conditions, few clouds, great visibility and calm waters. We took the workboat out to reach and collect sea ice.

Acoustics

The sub bottom profiler indicates a ca. 6 m thick sediment layer.

Opportunistic ice sampling

We stopped in a large stretch of open water. We took the working boat out and collected ice from the nearest patch of sea ice.

Plankton net sampling



We deployed the plankton net and heaved it from 50 to 0 m.

Multicoring

We deployed MC1 from the side of the ship and recovered 4 tubes with ca. 41 cm fine brown sediment. Worm tubes and forams at surface, giant centipede/polychaete? (kept on ethanol).

9.42 KH21-234-42

Site description and location

We arrived at site at 2:50 CET on 09.07.2021. We saw the same ice type as the previous station: large flat blocks of sea ice, that were broken up. Overcast conditions, but great visibility and calm waters. The ice was drifting slowly along the boat when we were on station.

Acoustics

The sub bottom profiler indicates a ca. 10 m thick sediment layer.

Plankton net sampling

We deployed the plankton net and heaved it from 50 to 0 m.

Opportunistic ice sampling

We collected sea ice from the side of the ship.

Multicoring

We deployed MC1 from the side of the ship and recovered 4 tubes with ca. 40 cm of brown soft sediment, which transitions to grey at 5 cm.

9.43 KH21-234-43

Site description and location

We arrived at the station at 05:10 CET on 09.07.2021. We found a spot very close to the coordinates of PS2122-1 (ca 100m). We started with ICE-sampling, NET-hawl and CTD for water (chemistry and eDNA). We had drifted a bit and repositioned before coring. Left station at 08:50 CET.

Acoustics

The sub bottom profiler indicates approx. a 13m thick, soft sediment package on the sea floor.

Plankton net sampling

We deployed the plankton net and heaved it from 50 to 0 m.

CTD/Rosette

We deployed the CTD to check the water temperature, salinity and fluorescence. A distinct Chl-max at ca 35m (fluorescence ca 10). Cold, less saline water on top of Atlantic water. Collected water at 5m, 100m and 10m above bottom for eDNA (NEEDED project) and additional bottles for chemistry. In total, 5 bottles were collected for AeN at 5, 20, 25, 30 and 100 m.



Opportunistic ice sampling

We collected sea ice from the side of the ship.

Multicoring

We deployed MC1 and MC2 from the moonpool and recovered 8 tubes with ca. 43-45 cm of sediment. Sediment is red-brown at the top, the grey-brown and transitions to grey at ca. 20 cm.

Gravity coring

We deployed GC1 from the moonpool and recovered a core of approximate 4,1 m.

9.44 KH21-234-44

Site description and location

We arrived at the station at 10:40 CET on 09/07/2021 and left at 11:30 CET.

Acoustics

The sub bottom profiler indicates approx. a 4 m sediment package on the sea floor.

Plankton net sampling

We deployed the plankton net and heaved it from 50 to 0 m.

Opportunistic ice sampling

We collected sea ice from the side of the ship.

Multicoring

We deployed MC1 from the moonpool and recovered 4 tubes with ca. 40 cm of sediment. Sediment is soft, loose and brown and becomes grey below 18 cm.

9.45 KH21-234-45

Site description and location

We arrived at the station at 13:30 CET on 09.07.2021. Conditions were grim, overcast, mild wind and drizzle. Visibility was ok. There was some drift of the ice and the boat had to drift with it. For MC2, we moved into a nearby open water basin, to have better control on the drift.

Acoustics

The sub bottom profiler indicates thin sediment drape on the sea floor (ca. 3 m).

CTD/Rosette

We deployed the CTD and collected water at 5m, 100m and 10m above bottom for eDNA (NEEDED project).

Plankton net sampling

We deployed the plankton net and heaved it from 50 to 0 m.



Opportunistic ice sampling

We collected sea ice from the side of the ship.

Multicoring

We deployed MC1 from the moonpool and recovered 4 tubes with ca. 35-38 cm of sediment. Brown silty sediment at the top, which transitions to grey sediment from ca. 15 cm downcore. We deployed MC2 from the side of the ship, to have better sight on the drift of the ship and the multicorer we deploy. From MC2 we recovered 4 tubes with ca. 34-36 cm of sediment. Brown sediment at the top, below 5 cm sediment is grey.

9.46 KH21-234-46

Site description and location

We arrived at the station at 18:15 CET on 09.07.2021. Open water. Conditions were grim, overcast, mild wind and drizzle. Visibility was rather poor. Left station at 19:10.

Acoustics

The sub bottom profiler indicates good sediment layer of approx. 28m.

Plankton net sampling

We deployed the plankton net and heaved it from 50 to 0 m.

Multicoring

We deployed MC1 from the side of the ship. No good, decided to do another one, MC2. MC2 recovered brown fine silty sediment that transitions to grey at ca. 5 cm.

9.47 KH21-234-47

Site description and location

We arrived at the station at 22:45 CET on 09.07.2021. Open water and mild conditions, but overcast with clear skies in the distance. Visibility was OK. Small waves We conducted a small subbottom profile survey (4 shaped path) prior to picking and position above the station. The station is close to JM05-31GC which recovered a high-resolution D-O cycle record. We left the station at 02:00 on 10.07.2021.

Acoustics

The sub bottom profiler indicates good sediment layer of at least 12 m.

Plankton net sampling

We deployed the plankton net first and heaved it from 50 to 0 m.

CTD/Rosette

We ran 1 CTD cast. The chlorophyll maximum was found between ca. 20 and 100 m depth. We collected 4X10L for environmental DNA analyses (NEEDED project) at: 10 m over bottom, 100 m and 5 m.

Multicoring

We deployed the multicorer twice (MC1 and MC2) from the side of the ship. In MC1, we recovered dark brown sediment at the surface, which transitioned to grey color at ca 5 cm.



We moved the boat a few tens of m. in MC2, gravel lies at the surface, including a huge rock (10 cm Ø) in one of the tubes.

Gravity coring

We moved the ship another few tens of meters and deployed GC1 from the side of the ship and recovered a core of approximate 405 m. The lithology at the core sections was grey sticky clay, and we took a sample at each bottom.

9.48 KH21-234-48

Site description and location

We arrived at the station at 03:40 CET on 10.07.2021. Overcast conditions, open ocean. Left station at 04:20 CET.

Plankton net sampling

We deployed the plankton net first and heaved it from 50 to 0 m.

Multicoring

We deployed the multicorer (MC1) from the side of the ship. We recovered approximately 20 cm of sediment, which contained a lot of gravel in the upper 5 cm gravel and living organisms on the surface.

9.49 KH21-234-49

Site description and location

We arrived at the station at ca. 05:30 CET on 10.07.2021. Overcast conditions, open ocean. Left station at 06:05 CET.

Multicoring

We deployed the multicorer (MC1) from the side of the ship. We recovered approximately 10 cm of sediment in 2 tubes (the other 2 not good). The cores contained considerable amount of rocks and sand.

9.50 KH21-234-50

Site description and location

We arrived at the station at 08:45 CET on 10.07.2021. Overcast conditions, open ocean. Left station at 09:20 CET.

Plankton net sampling

We deployed the plankton net first and heaved it from 50 to 0 m.

Multicoring

We deployed the multicorer (MC1) from the side of the ship. We recovered approximately 20 cm of sediment in all four tubes. Top of the sediment contains rocks and consists of brown sediment.

A camera was mounted on MC (depth at station: 222m) – video shared (will be) in our Videofolder.



9.51 KH21-234-51 (in Kongsfjorden)

Site description and location

We arrived at the station at 17:00 CET on 10.07.2021. Overcast conditions, open fjord. The station is very close to a calving glacier in Kongsfjorden. We left the station at 17:45 CET.

Multicoring

We deployed the multicorer (MC1) from the side of the ship. We recovered two tubes with respectively 13 and 5.8 cm of sediment. The reddish sediment is very loose, and two tubes did not contain any sediment.

9.52 KH21-234-52 (in Kongsfjorden)

Site description and location

We arrived at the station at 18:15 CET on 10.07.2021, still in the inner part of Kongsfjorden. Overcast conditions, open ocean. Left station at 19:00 CET and set sail for Longyearbyen.

Multicoring

We deployed the multicorer (MC1) for the last time this cruise from the side of the ship. We recovered approximately 15, 23 and 45 cm of sediment. Sediment was murky brown with darker spots throughout.

10 Appendices

Appendix 1a. Station coordinates

Appendix 1b. Station maps

Appendix 2. CTD profiles and d18O samples

Appendix 3. CTD eDNA sample log sheets

Appendix 4. Ice sampling log sheets

Appendix 5. Plankton net sample log sheets

Appendix 6. Multicore log sheets

Appendix 7. Gravity core log sheets

Appendix 8. Lithological description of the split cores KH21-234-04GC2 and KH21-234-19GC2

Appendix 9. Geophysical properties gravity cores KH21-234-04GC2 and KH21-234-19GC2



11 Logs

11.1 Site locations

Summary file: File [KH21-234_Coordinates.xlsx](#) in Folder [01-CRUISELOGS](#)
Source files: File [KH21-234_CruiseLogs.csv](#) in Folder [01-CRUISELOGS](#)
Daily reference files ([refxx-xx-2021.csv](#)) in [01-CRUISELOGS/RAWDATA](#)

11.2 CTD data

Source files: [All files](#) in Folder [02-CTD](#)

11.3 Water filtering sample list

Logsheet: [KH21-234_CTD-eDNA_LogSheet.xlsx](#) in Folder [03-eDNA-FILTERING](#)
Samples: [KH21-234_CTD-eDNA_MASTER](#) in Folder [03-eDNA-FILTERING](#)

11.4 Water chemistry (d18O) sample list

Samples: [KH21-234_CTD-d18O_MASTER](#) in Folder [04-H2OCHEMISTRY](#)

11.5 Plankton net

Logsheet: [KH21-234_Planktonnet_Logsheet.xlsx](#) in Folder [05-PLANKTONNET](#)
Samples: [KH21-234_PLANKTONNET_MASTER.xlsx](#) in Folder [05-PLANKTONNET](#)

11.6 Ice samples for eDNA and biomarkers

Logsheet: [KH21-234_ICE_surface_LogSheet.xlsx](#) in Folder [06-ICE](#)
Samples: [KH21-234_ICE_SURFACE_MASTER.xlsx](#) in Folder [06-ICE](#)

11.7 Multicores

Log sheet: [KH21-234_Multicore_Logsheet_Template.xlsx](#) in Folder [07-MULTICORER](#)
Cores: [KH21-234_MULTICORE_Master.xlsx](#) in Folder [07-MULTICORER](#)
Samples: [KH21-234_MULTICORE-SAMPLES_Master.xlsx](#) in Folder [07-MULTICORER](#)
Photos: Folder [07-MULTICORER/MC_photos](#)

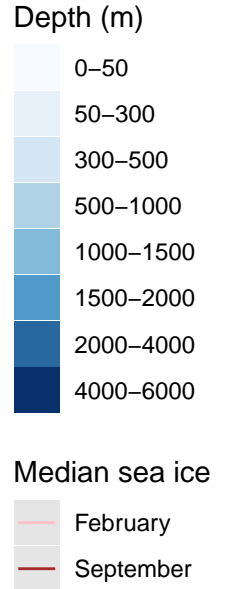
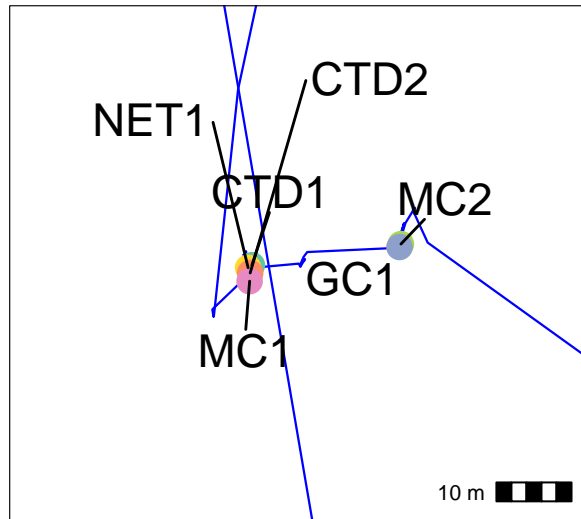
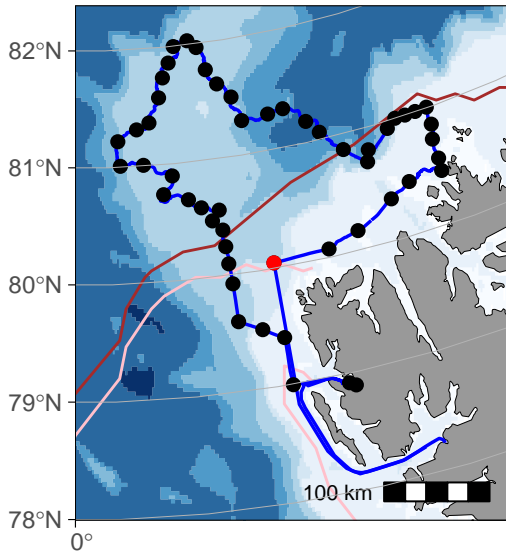
11.8 Gravity cores

Log sheet: [KH21-234_Gravitycore_Logsheet.xlsx](#) in Folder [08-GRAVITYCORER](#)
Cores: [KH21-234_GRAVITYCORE_Master.xlsx](#) in Folder [08-GRAVITYCORER](#)
Samples: [KH21-234_GRAVITYCORE-SAMPLES_Master.xlsx](#) in Folder [08-GRAVITYCORER](#)
Porewater: [KH21-234_Pore_water-d18O_MASTER.xlsx](#)
in Folder [08-GRAVITYCORES/POREWATER](#)

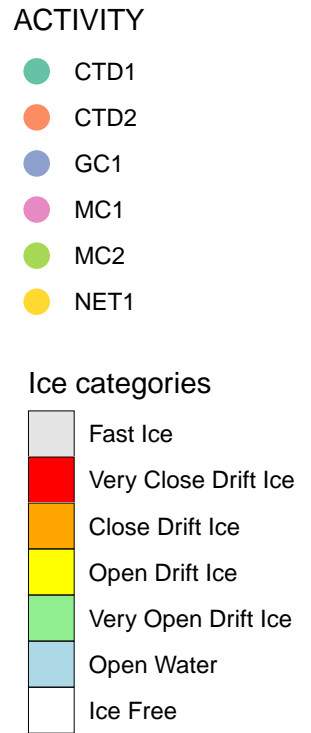
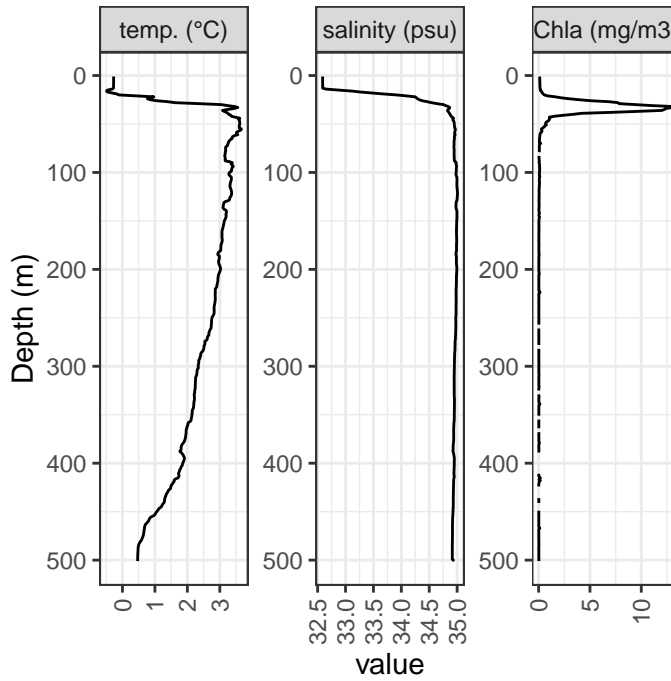
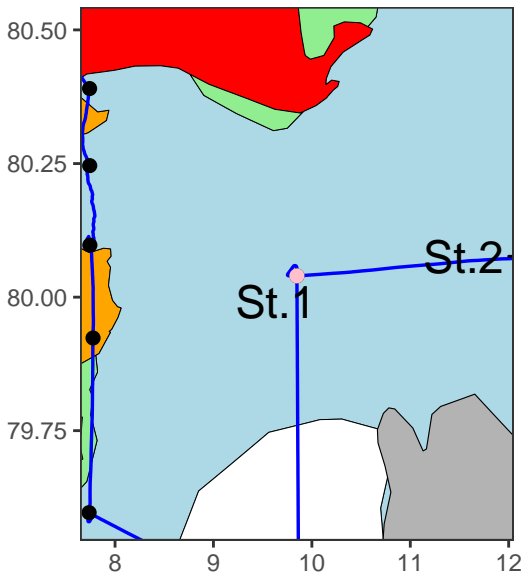
CRUISE	STATION	ACTIVITY	Water depth (m)	Latitude (°N)	Longitude (°E)	Start activity		End activity		Activity	IMR #	KPH Activity #
						Day	Time (UTC)	Day	endTime (UTC)			
KH21-234	01	CTD1	505	80.0472664	9.8479970	01/07/2021	06:44:41	01/07/2021	07:25:23	CTD med vannhenter over skuteside	271	1045
KH21-234	01	NET1	505	80.0472641	9.8479681	01/07/2021	07:26:28	01/07/2021	07:53:57	Algehåv Ø35 10my	256	1046
KH21-234	01	CTD2	505	80.0472575	9.8479759	01/07/2021	07:57:23	01/07/2021	08:10:18	CTD med vannhenter over skuteside	272	1047
KH21-234	01	MC1	505	80.0472479	9.8479625	01/07/2021	08:27:16	01/07/2021	08:59:06	Multicorer	61	1049
KH21-234	01	MC2	505	80.0472608	9.8490395	01/07/2021	09:15:36	01/07/2021	09:49:35	Multicorer	62	1050
KH21-234	01	GC1	505	80.0472575	9.8490260	01/07/2021	10:06:51	01/07/2021	10:43:49	Gravity Core	1	1051
KH21-234	02	CTD1	192	80.0719605	12.6502491	01/07/2021	14:26:25	01/07/2021	15:00:34	CTD med vannhenter	273	1052
KH21-234	02	CTD2	192	80.0719569	12.6502854	01/07/2021	15:15:23	01/07/2021	15:28:43	CTD med vannhenter	274	1053
KH21-234	02	MC1	192	80.0719557	12.6502775	01/07/2021	15:30:30	01/07/2021	15:48:28	Multicorer	63	1054
KH21-234	02	MC2	192	80.0719390	12.6500282	01/07/2021	16:05:25	01/07/2021	16:17:27	Multicorer	64	1055
KH21-234	02	MC3	192	80.0719224	12.6472169	01/07/2021	16:31:30	01/07/2021	16:46:05	Multicorer	65	1056
KH21-234	03	NET1	41	80.1664877	14.2647571	01/07/2021	19:28:12	01/07/2021	19:39:23	Algehåv Ø35 10my	257	1057
KH21-234	03	MC1	41	80.1664888	14.2647539	01/07/2021	19:44:10	01/07/2021	19:51:36	Multicorer	66	1058
KH21-234	04	CTD1	394	80.3531603	16.3079796	01/07/2021	23:11:19	01/07/2021	23:41:02	CTD med vannhenter over skuteside	275	1059
KH21-234	04	NET1	394	80.3531483	16.3079885	01/07/2021	23:41:11	01/07/2021	23:54:14	Algehåv Ø35 10my	258	1060
KH21-234	04	CTD2	394	80.3531485	16.3079870	01/07/2021	23:59:52	02/07/2021	00:07:25	CTD med vannhenter over skuteside	276	1061
KH21-234	04	MC1	394	80.3531481	16.3079774	02/07/2021	00:10:53	02/07/2021	00:27:24	Multicorer	67	1062
KH21-234	04	MC2	394	80.3529489	16.3082274	02/07/2021	00:39:37	02/07/2021	00:58:56	Multicorer	68	1063
KH21-234	04	GC1	393	80.3529409	16.3081483	02/07/2021	01:15:13	02/07/2021	01:36:52	Gravity corer	2	1064
KH21-234	04	GC2	394	80.3530546	16.3075456	02/07/2021	02:25:36	02/07/2021	02:52:25	Gravity corer	3	1065
KH21-234	05	NET1	55	80.4520276	17.4359963	02/07/2021	04:58:18	02/07/2021	05:11:57	Algehåv Ø35 10my	259	1067
KH21-234	05	MC1	60	80.4491341	17.4445103	02/07/2021	05:15:47	02/07/2021	05:23:26	Multicorer	69	1068
KH21-234	06	CTD1	217	80.4529917	19.2059632	02/07/2021	13:22:51	02/07/2021	13:42:12	CTD med vannhenter over skuteside	277	1069
KH21-234	06	MC1	217	80.4531472	19.2058834	02/07/2021	13:42:12	02/07/2021	14:17:34	Multicorer	70	1070
KH21-234	06	MC2	217	80.4531888	19.2058519	02/07/2021	14:31:21	02/07/2021	14:49:28	Multicorer	71	1071
KH21-234	06	GC1	217	80.4531827	19.2038194	02/07/2021	15:09:54	02/07/2021	15:25:08	Gravity corer	4	1073
KH21-234	06	GC2	218	80.4531884	19.2069401	02/07/2021	16:30:40	02/07/2021	16:53:45	Gravity corer	5	1074
KH21-234	07	MC1	108	80.5618327	19.2660733	02/07/2021	23:00:00	02/07/2021	23:30:00	Multicorer	72	1075
KH21-234	08	ICE1	108	80.7321414	19.2883863	03/07/2021	03:45:25	03/07/2021	03:45:25	Ice fra skuteside	37	1077
KH21-234	08	ICE2	108	80.7321413	19.2883876	03/07/2021	03:45:38	03/07/2021	03:45:38	Ice fra moonpool	38	1078
KH21-234	08	MC1	102	80.7321425	19.2884173	03/07/2021	03:49:21	03/07/2021	04:06:31	Multicorer	73	1076
KH21-234	09	MC1	169	80.8554669	19.4975835	03/07/2021	07:45:19	03/07/2021	08:06:51	Multicorer	74	1079
KH21-234	10	CTD1	147	81.0068501	19.5447215	03/07/2021	11:06:08	03/07/2021	11:16:07	CTD med vannhenter over skuteside	278	1080
KH21-234	10	MC1	148	81.0065195	19.5488452	03/07/2021	11:23:29	03/07/2021	11:37:01	Multicorer	75	1081
KH21-234	10	MC2	146	81.0067133	19.5555038	03/07/2021	11:57:47	03/07/2021	12:07:22	Multicorer	76	1082
KH21-234	11	NET1	162	81.0036020	18.8917214	03/07/2021	14:04:20	03/07/2021	14:21:28	Algehåv Ø35 10my	260	1084
KH21-234	11	MC1	233	81.0033547	18.8884824	03/07/2021	14:22:53	03/07/2021	14:38:53	Multicorer	77	1085
KH21-234	12	CTD1	205	81.0019430	18.2884300	03/07/2021	16:29:16	03/07/2021	16:46:54	CTD med vannhenter over skuteside	279	1086
KH21-234	12	ICE1	205	81.0019032	18.2927109	03/07/2021	16:46:55	03/07/2021	16:46:55	Isprøve fra overflate	39	1087
KH21-234	12	MC1	214	81.0018657	18.2967247	03/07/2021	16:48:50	03/07/2021	17:03:23	Multicorer	78	1088
KH21-234	12	MC2	209	81.0017058	18.3077191	03/07/2021	17:16:18	03/07/2021	17:31:42	Multicorer	79	1089
KH21-234	12	MC3	202	81.0017534	18.3155459	03/07/2021	17:42:21	03/07/2021	17:56:24	Multicorer	80	1090
KH21-234	13	NET1	425	81.0023428	17.7266606	03/07/2021	20:03:02	03/07/2021	20:13:59	Algehåv Ø35 10my	261	1091
KH21-234	13	MC1	425	81.0024091	17.7268202	03/07/2021	20:17:47	03/07/2021	20:40:13	Multicorer	81	1092
KH21-234	14	NET1	779	80.9287408	17.0818531	03/07/2021	22:31:53	03/07/2021	22:35:41	Algehåv Ø35 10my	262	1093
KH21-234	14	ICE1	778	80.9287408	17.0818531	03/07/2021	22:38:00	03/07/2021	22:39:00	Isprøve fra overflate	n/a	n/a
KH21-234	14	MC1	538	80.9478594	17.2510880	03/07/2021	23:27:00	03/07/2021	23:56:08	Multicorer	82	1094
KH21-234	14	GC1	537	80.9502381	17.2696116	04/07/2021	00:23:13	04/07/2021	00:48:56	Gravity Core	6	1095
KH21-234	15	NET1	1621	80.8103617	15.8587737	04/07/2021	04:53:33	04/07/2021	05:17:09	Algehåv Ø35 10my	263	1096
KH21-234	15	MC1	1614	80.8103686	15.8659777	04/07/2021	05:30:19	04/07/2021	06:32:40	Multicorer	83	1097
KH21-234	16	NET1	835	80.7127746	15.6528266	04/07/2021	07:58:15	04/07/2021	08:11:54	Algehåv Ø35 10my	264	1098
KH21-234	16	MC1	835	80.7126117	15.6515202	04/07/2021	08:08:03	04/07/2021	08:44:38	Multicorer	84	1099
KH21-234	17	CTD1	1213	80.8748152	14.5032508	04/07/2021	13:38:08	04/07/2021	14:47:55	CTD med vannhenter over skuteside	280	1100
KH21-234	17	GC1	1164	80.8698655	14.5686630	04/07/2021	14:48:02	04/07/2021	15:25:15	Gravity Core	7	1101
KH21-234	17	MC1	1082	80.8595851	14.6436837	04/07/2021	16:00:10	04/07/2021	16:53:47	Multicorer	85	1102
KH21-234	18	NET1	2041	81.0604197	13.5377748	04/07/2021	20:19:30	04/07/2021	20:28:56	Algehåv Ø35 10my	265	1103
KH21-234	18	MC1	2041	81.0616152	13.5349430	04/07/2021	20:29:01	04/07/2021	21:51:02	Multicorer	86	1104
KH21-234	18	ICE1	2045	81.0628697	13.5322539	04/07/2021	21:52:00	04/07/2021	21:52:00	Isprøve fra overflate	40	1105
KH21-234	19	CTD1	2194	81.1809275	12.9170909	05/07/2021	01:51:24	05/07/2021	03:18:00	CTD med vannhenter over skuteside	281	1106
KH21-234	19	NET1	2194	81.1809396	12.9168434	05/07/2021	03:18:07	05/07/2021	03:28:51	Algehåv Ø35 10my	266	1107
KH21-234	19	MC1	2195	81.1807107	12.9199317	05/07/2021	03:29:18	05/07/2021	05:07:36	Multicorer	87	1108
KH21-234	19	GC1	2195	81.1780933	12.9424952	05/07/2021	05:15:26	05/07/2021	06:16:23	Gravity Core	8	1109
KH21-234	19	GC2	2192	81.1696567	12.9846416	05/07/2021	06:43:15	05/07/2021	07:37:27	Gravity Core	9	1110
KH21-234	20	NET1	1424	81.3260798	11.8203316	05/07/2021	09:58:56	05/07/2021	10:12:41	Algehåv Ø35 10my	267	1111
KH21-234	20	MC1	1423	81.3262531	11.8266884	05/07/2021	10:10:18	05/07/2021	11:02:33	Multicorer	88	1112
KH21-234	20	ICE1	1420	81.3264523	11.8374648	05/07/2021	11:08:36	05/07/2021	11:08:36	Isprøve fra overflate	41	1113
KH21-234	21	NET1	1765	81.3069528	10.9340835	05/07/2021	13:12:05	05/07/2021	13:23:33	Algehåv Ø35 10my	268	1114
KH21-234	21	MC1	1764	81.3069416	10.9337818	05/07/2021	13:29:16	05/07/2021	14:46:58	Multicorer	89	1115
KH21-234	22	NET1	1343	81.2916847	9.4104439	05/07/2021	17:01:35	05/07/2021	17:23:15	Algehåv Ø35 10my	269	1116
KH21-234	22	MC1	1350	81.2904615	9.4285399	05/07/2021	17:31:01	05/07/2021	17:31:01	Multicorer	90	1117
KH21-234	22	ICE1	1348	81.2914858	9.4220399	05/07/2021	17:22:04	05/07/2021	18:24:21	Isprøve fra overflate	42	1118
KH21-234	23	NET1	1136	81.5044828	9.0346471	05/07/2021	21:10:06	05/07/2021	21:21:09	Algehåv Ø35 10my	270	1119
KH21-234	23	MC1	1136	81.5044838	9.0346471	05/07/2021	21:21:39	05/07/2021	22:02:09	Multicorer	91	1120
KH21-234	23	NET2	1136	81.5044848	9.0346649	05/07/2021	21:26:40	05/07/2021	21:36:40	Algehåv Ø35 10my	271	1121
KH21-234	23	ICE1	1136	81.5051001	9.0543385	05/07/2021	22:10:33	05/07/2021	22:10:33	Isprøve fra overflate	43	1122
KH21-234	24	MC1	850	81.6334757	8.3261060	06/07/2021	00:49:16	06/07/2021	01:24:38	Multicorer	92	1123
KH21-234	24	NET1	850	81.6340921	8.3272203	06/07/2021	00:51:40	06/07/2021	01:00:34	Algehåv Ø35 10my	272	1124
KH21-234	25	ICE1	820	81.7734494	7.7762371	06/07/2021	04:04:29	06/07/2021	04:04:29	Isprøve fra overflate	44	1125
KH21-234	25	NET1	823	81.7714385	7.7762481	06/07/2021	04:12:26	06/07/2021	04:33:28	Algehåv Ø35 10my	273	1126
KH21-234	25											

CRUISE	STATION	ACTIVITY	Water depth (m)	Latitude (°N)	Longitude (°E)	Start activity		End activity		Activity	IMR #	KPH Activity #
						Day	Time (UTC)	Day	endTime (UTC)			
KH21-234	30	MC1	771	81.7394580	5.1832187	07/07/2021	01:15:24	07/07/2021	01:47:17	Multicorer	98	1143
KH21-234	31	NET1	744	81.5724407	4.8523648	07/07/2021	04:15:17	07/07/2021	04:33:36	Algehåv Ø35 10my	280	1144
KH21-234	31	MC1	744	81.5717743	4.8578792	07/07/2021	04:18:24	07/07/2021	05:07:30	Multicorer	99	1145
KH21-234	32	ICE1	736	81.3744551	4.1873585	07/07/2021	08:09:31	07/07/2021	08:09:31	Isprøve fra overflate	48	1146
KH21-234	32	NET1	735	81.3599420	4.1888047	07/07/2021	08:24:17	07/07/2021	08:36:03	Algehåv Ø35 10my	281	1147
KH21-234	32	MC1	735	81.3599422	4.1887926	07/07/2021	08:26:22	07/07/2021	08:56:47	Multicorer	100	1148
KH21-234	33	ICE1	748	81.3132573	3.4569171	07/07/2021	11:40:02	07/07/2021	11:40:02	Isprøve fra overflate	49	1151
KH21-234	33	NET1	749	81.3127854	3.4591114	07/07/2021	10:56:23	07/07/2021	11:06:38	Algehåv Ø35 10my	282	1149
KH21-234	33	MC1	749	81.3121756	3.4588619	07/07/2021	11:00:32	07/07/2021	11:29:07	Multicorer	101	1150
KH21-234	34	GC1	1011	81.2199280	2.3710955	07/07/2021	14:42:29	07/07/2021	15:18:41	Gravity Core	11	1152
KH21-234	34	NET1	1011	81.2198867	2.3715265	07/07/2021	14:56:52	07/07/2021	15:10:59	Algehåv Ø35 10my	283	1153
KH21-234	34	CTD1	1011	81.2199403	2.3756003	07/07/2021	15:27:19	07/07/2021	15:27:19	CTD med vannhenter over skuteside	283	1154
KH21-234	34	MC1	1011	81.2199414	2.3775545	07/07/2021	16:14:09	07/07/2021	16:56:38	Multicorer	102	1155
KH21-234	35	NET1	1023	81.0089405	2.4582378	07/07/2021	19:22:21	07/07/2021	19:33:50	Algehåv Ø35 10my	284	1156
KH21-234	35	MC1	1023	81.0089405	2.4582442	07/07/2021	19:32:50	07/07/2021	20:14:27	Multicorer	103	1157
KH21-234	35	GC1	1023	81.0092392	2.4561095	07/07/2021	20:41:47	07/07/2021	21:09:47	Gravity Core	12	1158
KH21-234	36	NET1	733	81.0072037	3.7175234	08/07/2021	00:50:44	08/07/2021	01:03:45	Algehåv Ø35 10my	285	1159
KH21-234	36	MC1	733	81.0072035	3.7175455	08/07/2021	00:51:17	08/07/2021	01:25:05	Multicorer	104	1160
KH21-234	36	ICE1	733	81.0064136	3.7215142	08/07/2021	01:40:12	08/07/2021	01:40:12	Isprøve fra overflate	50	1161
KH21-234	37	NET1	703	80.9022991	5.2402664	08/07/2021	06:05:01	08/07/2021	06:16:37	Algehåv Ø35 10my	286	1162
KH21-234	37	MC1	704	80.8989120	5.2382090	08/07/2021	06:20:45	08/07/2021	06:56:17	Multicorer	105	1163
KH21-234	37	ICE1	702	80.8940625	5.2315247	08/07/2021	07:09:20	08/07/2021	07:09:20	Isprøve fra overflate	51	1164
KH21-234	37	DRONE	702	80.8937553	5.2310985	08/07/2021	07:10:55	08/07/2021	07:10:55	Drone under is	52	1165
KH21-234	38	CTD1	658	80.7480586	4.7219610	08/07/2021	09:55:09	08/07/2021	10:27:23	CTD med vannhenter over skuteside	284	1166
KH21-234	38	MC1	658	80.7465195	4.7092135	08/07/2021	10:24:20	08/07/2021	10:57:00	Multicorer	106	1167
KH21-234	38	NET1	657	80.7447897	4.6946224	08/07/2021	10:53:33	08/07/2021	11:06:38	Algehåv Ø35 10my	287	1168
KH21-234	38	NET2	657	80.7432963	4.6806309	08/07/2021	11:11:57	08/07/2021	11:25:43	Algehåv Ø35 10my	288	1169
KH21-234	38	MC2	659	80.7424930	4.6730441	08/07/2021	11:14:18	08/07/2021	11:47:27	Multicorer	107	1170
KH21-234	38	NET3	664	80.7405453	4.6458940	08/07/2021	11:58:15	08/07/2021	12:08:32	Algehåv Ø35 10my	289	1171
KH21-234	39	NET1	744	80.6818486	5.9732522	08/07/2021	16:03:29	08/07/2021	16:15:15	Algehåv Ø35 10my	290	1172
KH21-234	39	MC1	743	80.6815377	5.9716636	08/07/2021	16:06:38	08/07/2021	16:38:49	Multicorer	108	1173
KH21-234	39	ICE1	742	80.6812946	5.9696059	08/07/2021	16:38:54	08/07/2021	16:38:54	Isprøve fra overflate	53	1174
KH21-234	40	ICE1	703	80.6005895	6.6023594	08/07/2021	18:50:34	08/07/2021	18:50:34	Isprøve fra overflate	54	1175
KH21-234	40	NET1	703	80.6005896	6.6017216	08/07/2021	18:55:09	08/07/2021	19:06:04	Algehåv Ø35 10my	291	1176
KH21-234	40	MC1	702	80.6010098	6.5980728	08/07/2021	19:02:22	08/07/2021	19:31:49	Multicorer	109	1177
KH21-234	41	ICE1	753	80.5625248	7.5004161	08/07/2021	21:43:19	08/07/2021	22:03:29	Isprøve fra overflate - workboat	55	1178
KH21-234	41	NET1	755	80.5628076	7.5051878	08/07/2021	22:12:30	08/07/2021	22:25:42	Algehåv Ø35 10my	292	1179
KH21-234	41	MC1	758	80.5636275	7.5136253	08/07/2021	22:26:47	08/07/2021	22:56:59	Multicorer	110	1180
KH21-234	42	NET1	673	80.4776395	7.0782721	09/07/2021	00:53:59	09/07/2021	01:05:15	Algehåv Ø35 10my	293	1181
KH21-234	42	MC1	674	80.4783982	7.0867494	09/07/2021	01:00:49	09/07/2021	01:30:07	Multicorer	111	1182
KH21-234	42	ICE1	674	80.4798334	7.1003181	09/07/2021	01:39:13	09/07/2021	01:39:13	Isprøve fra overflate	56	1183
KH21-234	43	NET1	688	80.3901684	7.5677462	09/07/2021	03:20:52	09/07/2021	03:38:23	Algehåv Ø35 10my	294	1185
KH21-234	43	ICE1	689	80.3905994	7.5619310	09/07/2021	03:22:37	09/07/2021	03:22:37	Isprøve fra overflate	57	1184
KH21-234	43	CTD1	688	80.3887997	7.5792754	09/07/2021	03:39:13	09/07/2021	04:15:22	CTD med vannhenter over skuteside	285	1186
KH21-234	43	MC1	685	80.3897585	7.5496536	09/07/2021	04:29:35	09/07/2021	05:00:16	Multicorer	112	1187
KH21-234	43	MC2	685	80.3895874	7.5490094	09/07/2021	05:16:20	09/07/2021	05:44:39	Multicorer	113	1188
KH21-234	43	GC1	686	80.3898514	7.5497986	09/07/2021	06:12:09	09/07/2021	06:35:45	Gravity Core	13	1189
KH21-234	44	NET1	591	80.2458548	7.5968346	09/07/2021	08:44:31	09/07/2021	08:59:24	Algehåv Ø35 10my	295	1190
KH21-234	44	MC1	595	80.2459767	7.5898102	09/07/2021	09:00:25	09/07/2021	09:25:55	Multicorer	114	1191
KH21-234	44	ICE1	591	80.2457814	7.5956994	09/07/2021	09:10:28	09/07/2021	09:10:28	Isprøve fra overflate	58	1192
KH21-234	45	NET1	524	80.0902640	7.6425614	09/07/2021	11:39:41	09/07/2021	11:52:01	Algehåv Ø35 10my	296	1194
KH21-234	45	CTD1	525	80.0928166	7.6386288	09/07/2021	11:53:15	09/07/2021	12:17:05	CTD med vannhenter	286	1196
KH21-234	45	MC1	525	80.0973137	7.6293506	09/07/2021	12:17:16	09/07/2021	12:40:56	Multicorer	115	1197
KH21-234	45	ICE1	526	80.0959157	7.6311419	09/07/2021	12:22:57	09/07/2021	12:22:57	Isprøve fra overflate	59	1198
KH21-234	45	MC2	533	80.1105327	7.6057700	09/07/2021	13:33:17	09/07/2021	14:04:10	Multicorer	116	1199
KH21-234	46	NET1	601	79.9240317	7.7003038	09/07/2021	16:26:44	09/07/2021	16:36:33	Algehåv Ø35 10my	297	1200
KH21-234	46	MC1	601	79.9238257	7.7010992	09/07/2021	16:38:37	09/07/2021	17:11:54	Multicorer	117	1201
KH21-234	46	MC2	601	79.9240241	7.7005094	09/07/2021	17:25:37	09/07/2021	17:57:00	Multicorer	118	1202
KH21-234	47	NET1	769	79.5970249	7.7264433	09/07/2021	20:53:23	09/07/2021	21:06:18	Algehåv Ø35 10my	298	1203
KH21-234	47	CTD1	769	79.5970107	7.7264744	09/07/2021	21:06:23	09/07/2021	21:36:57	CTD med vannhenter	287	1204
KH21-234	47	MC1	769	79.5970078	7.7264679	09/07/2021	21:40:08	09/07/2021	22:15:04	Multicorer	119	1205
KH21-234	47	MC2	769	79.5969410	7.7278791	09/07/2021	22:33:19	09/07/2021	23:09:33	Multicorer	120	1206
KH21-234	47	GC1	769	79.5968827	7.7291191	09/07/2021	23:30:30	10/07/2021	00:00:36	Geologi	14	1207
KH21-234	48	NET1	190	79.5003065	8.7986877	10/07/2021	01:40:44	10/07/2021	01:49:27	Algehåv Ø35 10my	299	1208
KH21-234	48	MC1	190	79.5002438	8.7985735	10/07/2021	01:54:54	10/07/2021	02:11:32	Multicorer	121	1209
KH21-234	49	MC1	123	79.4037981	9.7442488	10/07/2021	03:47:20	10/07/2021	04:02:34	Multicorer	122	1210
KH21-234	50	NET1	222	78.9952162	9.7724353	10/07/2021	06:45:20	10/07/2021	06:55:13	Algehåv Ø35 10my	300	1211
KH21-234	50	MC1	222	78.9952228	9.7724343	10/07/2021	06:57:25	10/07/2021	07:20:25	Multicorer	123	1212
KH21-234	51	MC1	65	78.8900487	12.5135887	10/07/2021	15:11:03	10/07/2021	15:21:41	Multicorer	124	1213
KH21-234	52	MC1	112	78.9199899	12.2405126	10/07/2021	16:22:55	10/07/2021	16:38:04	Multicorer	125	1214

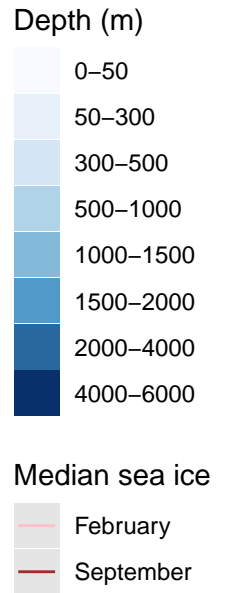
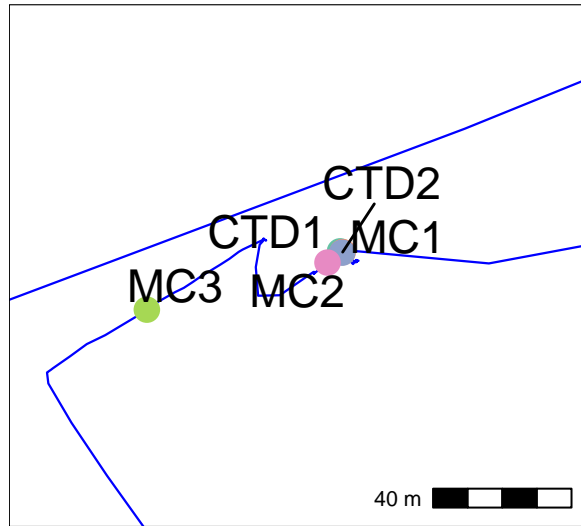
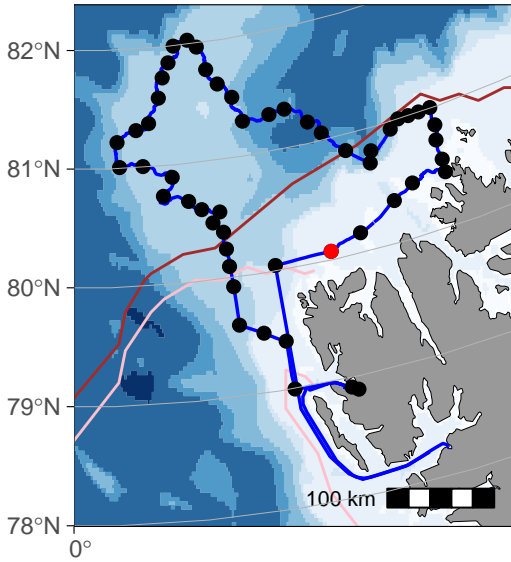
KH2021_234 – Station 1 – 01/07/2021 – depth: 505m



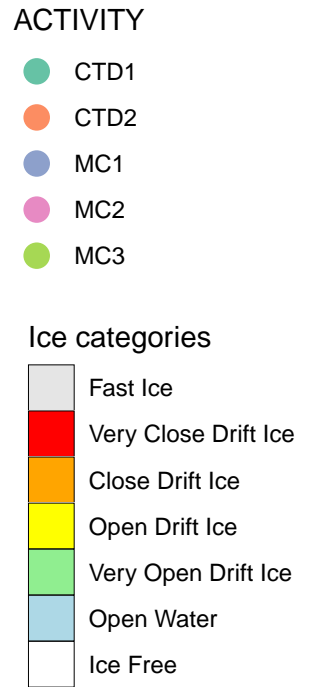
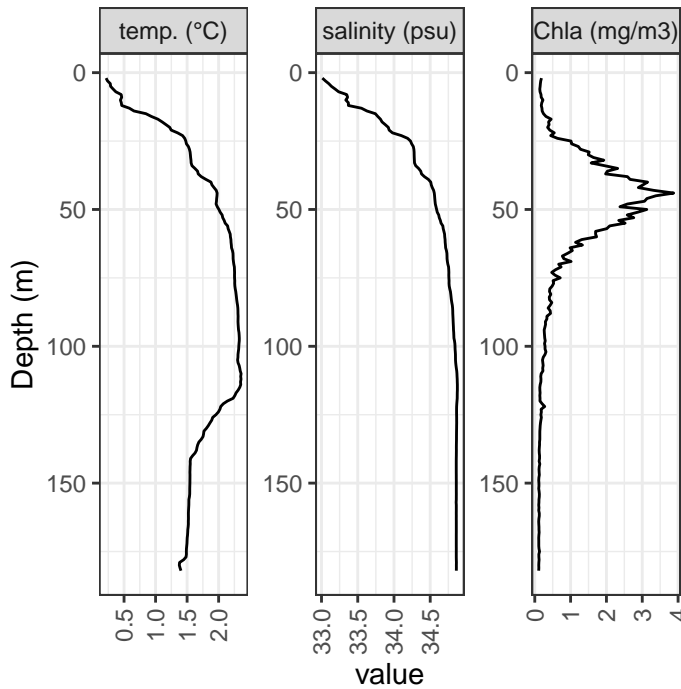
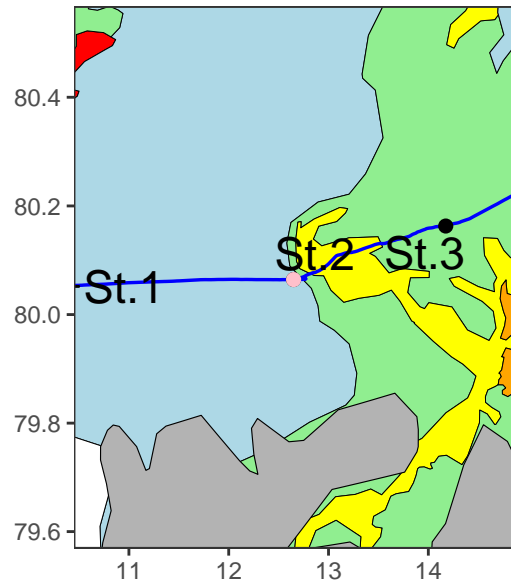
Sea ice as of 2021-07-01



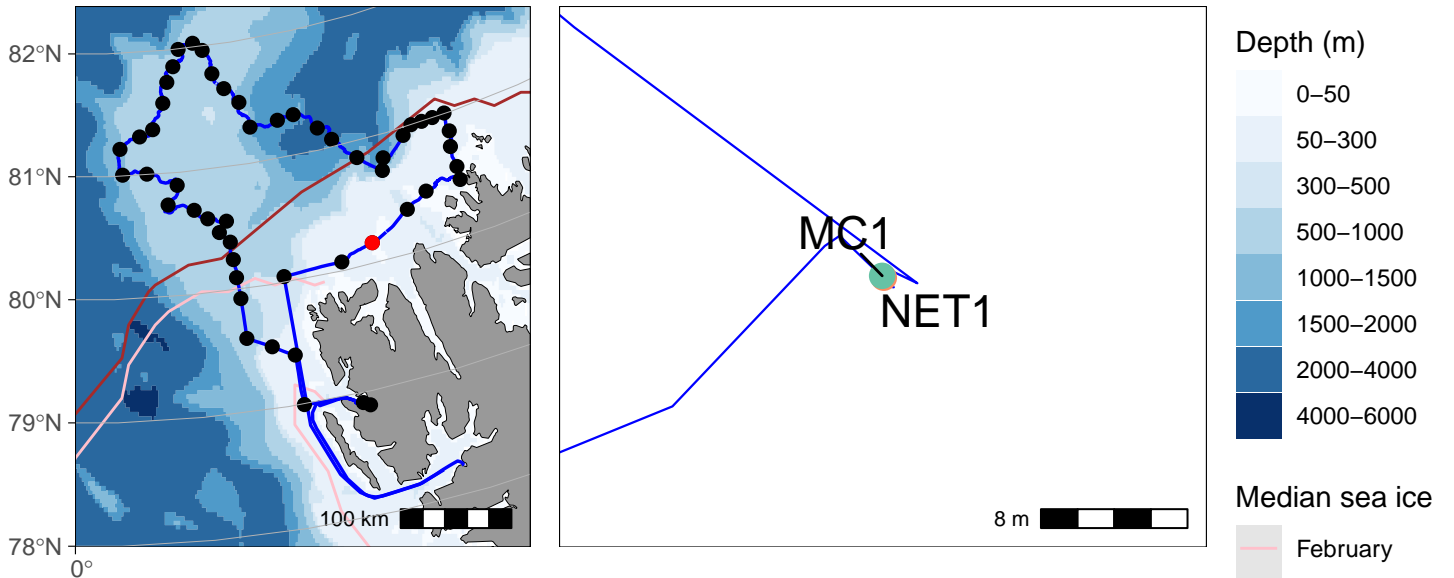
KH2021_234 – Station 2 – 01/07/2021 – depth: 192m



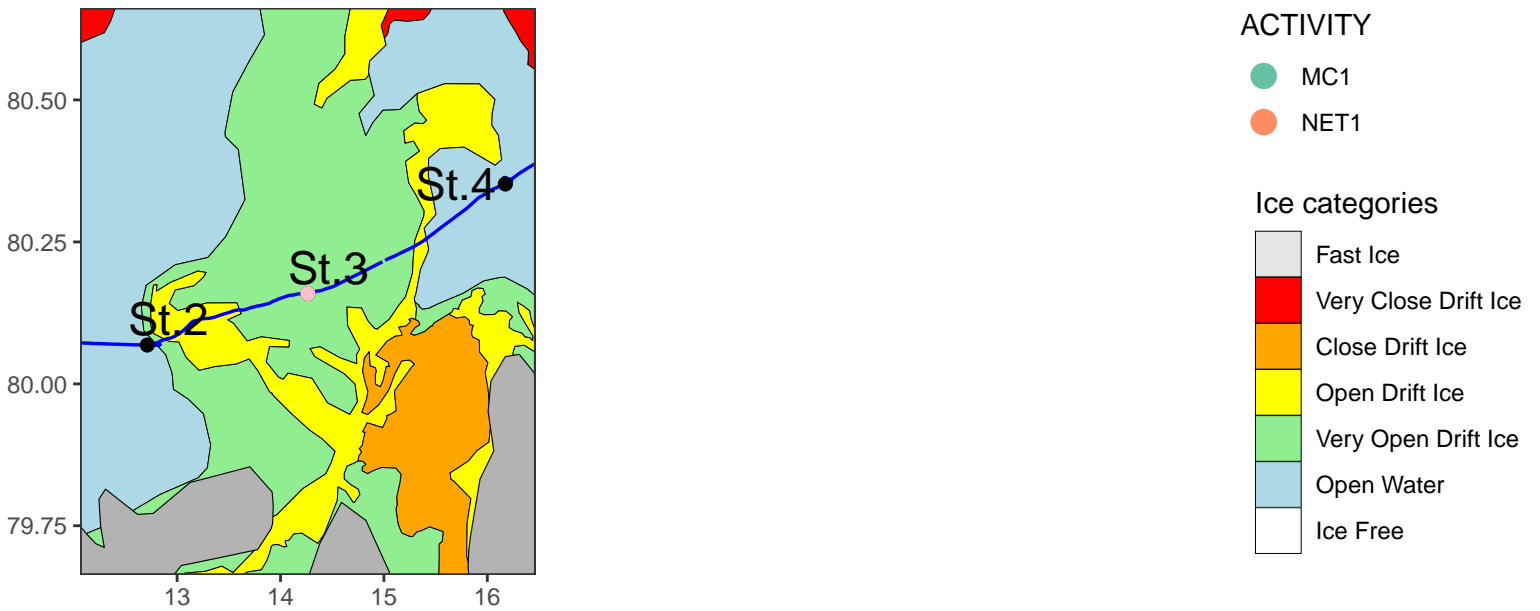
Sea ice as of 2021-07-01



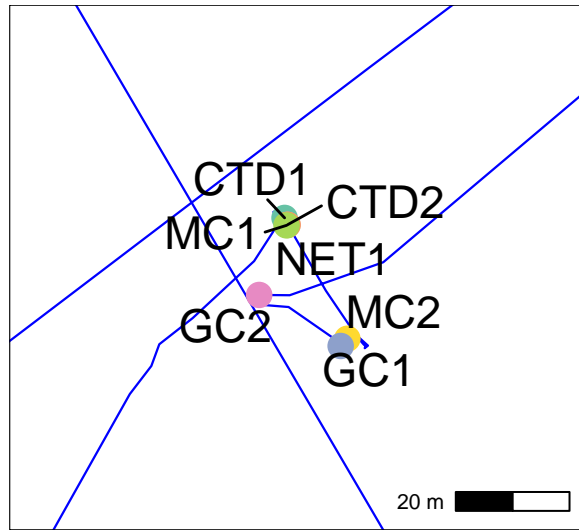
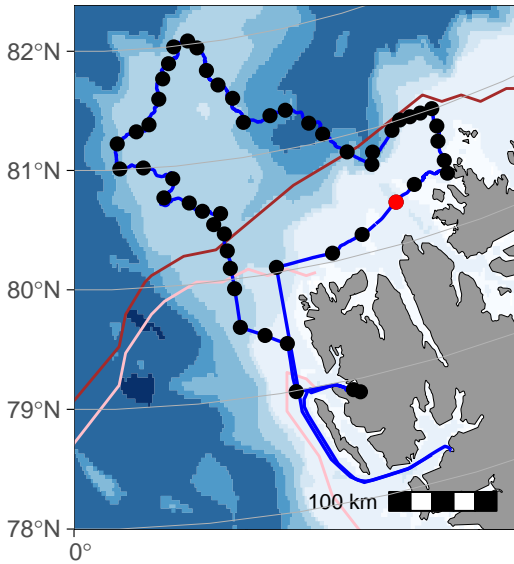
KH2021_234 – Station 3 – 01/07/2021 – depth: 41m



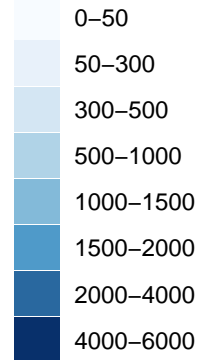
Sea ice as of 2021-07-01



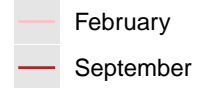
KH2021_234 – Station 4 – 01/07/2021 – depth: 393.86m



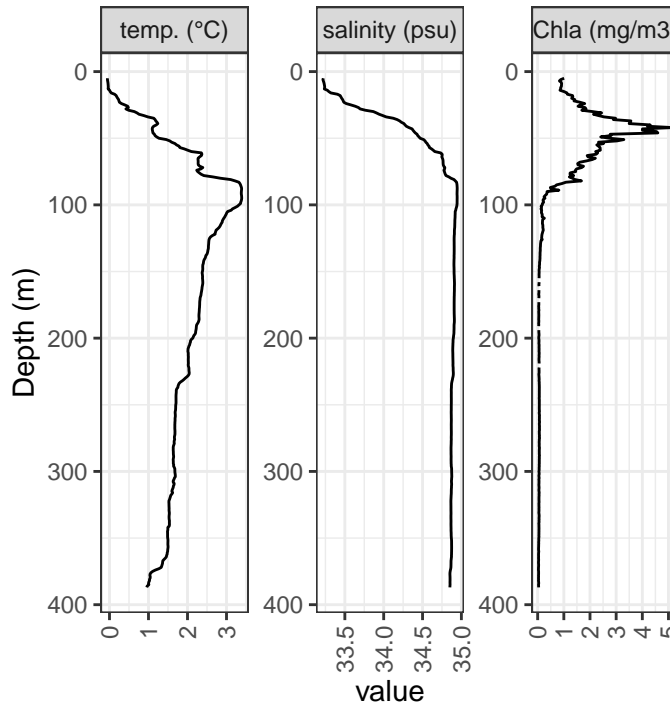
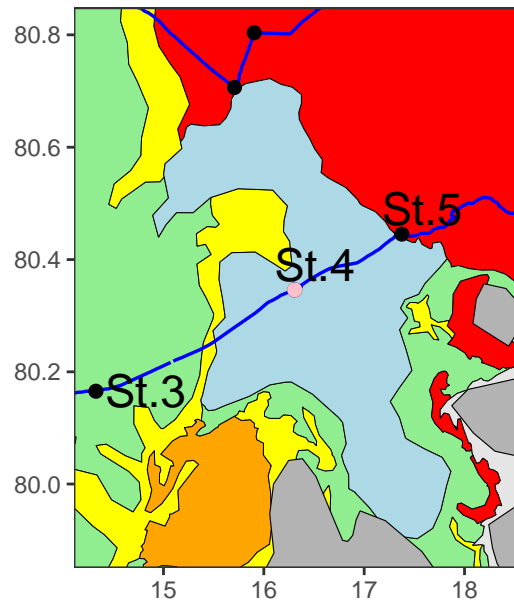
Depth (m)



Median sea ice



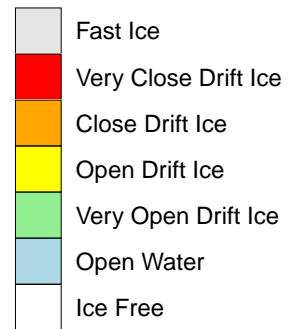
Sea ice as of 2021-07-01



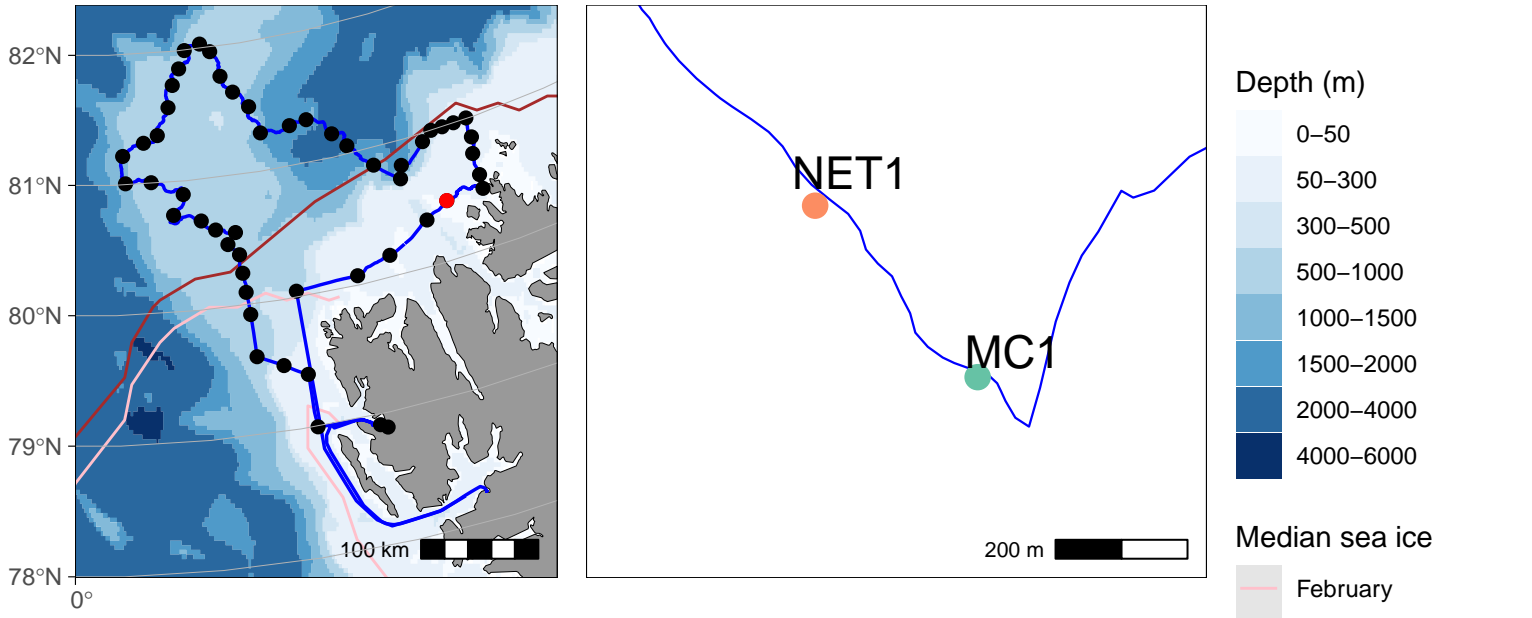
ACTIVITY



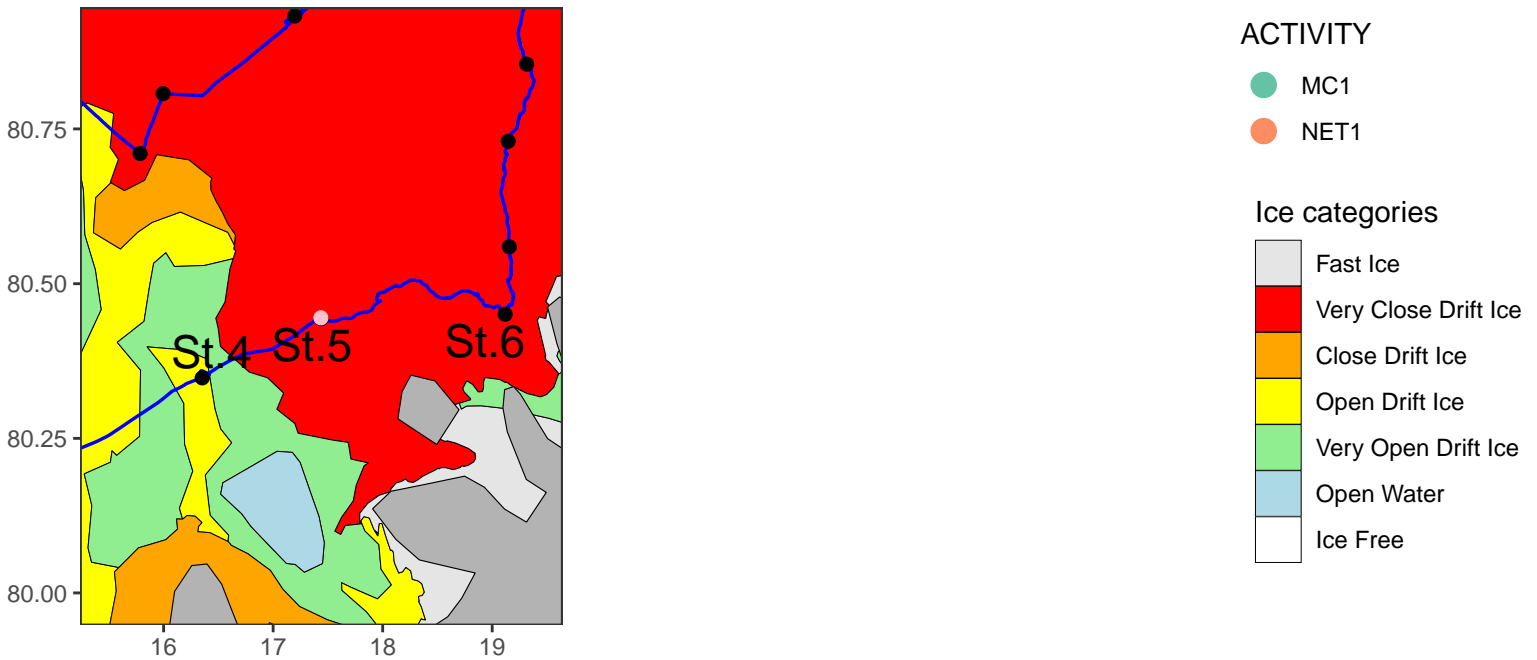
Ice categories



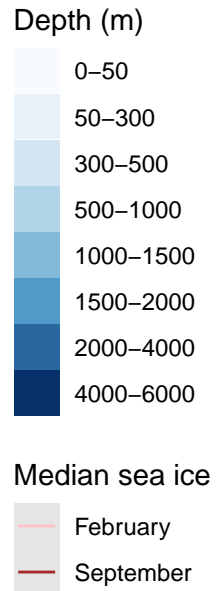
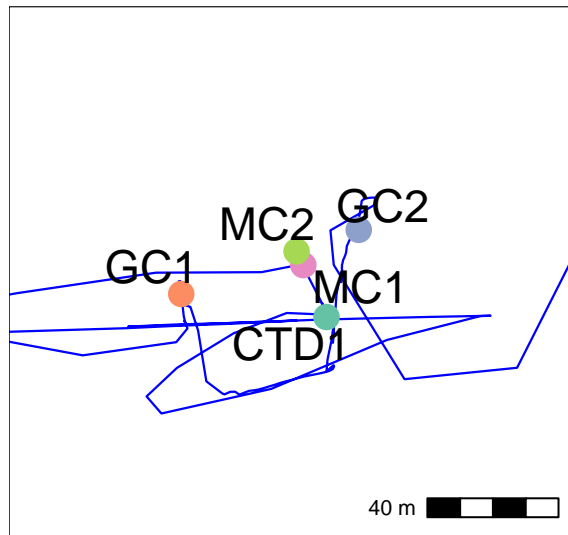
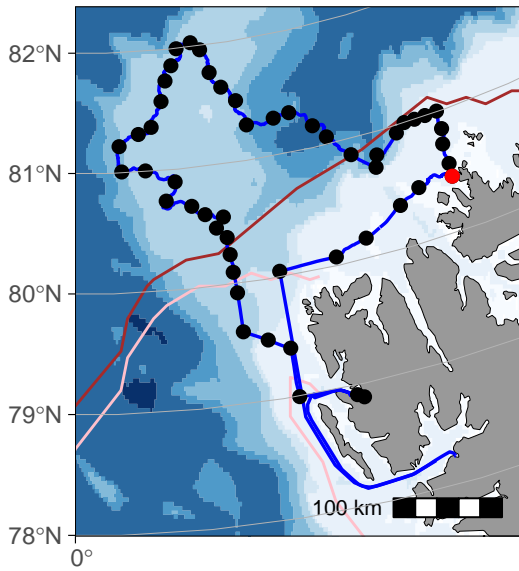
KH2021_234 – Station 5 – 02/07/2021 – depth: 57.5m



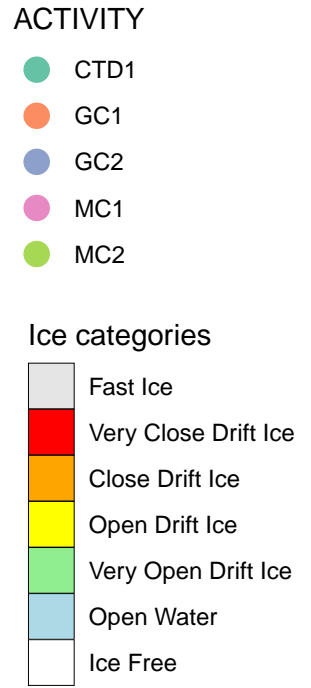
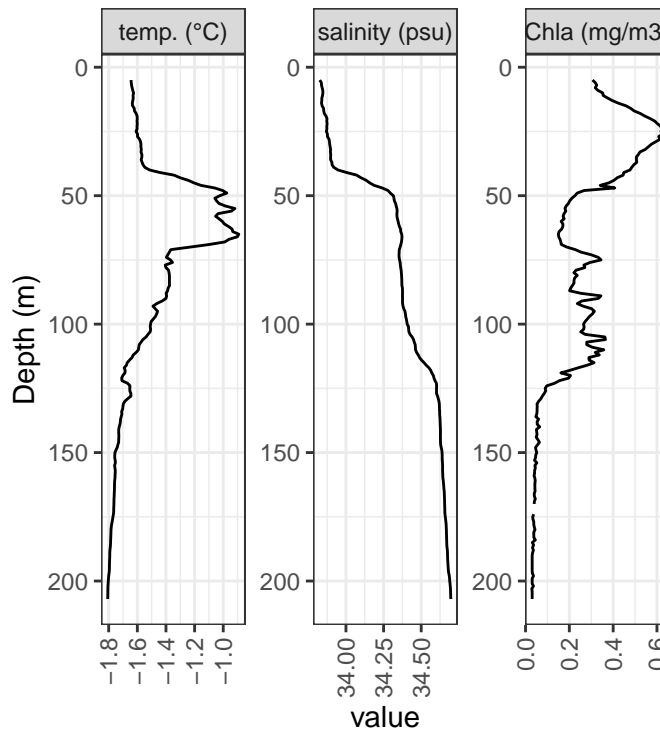
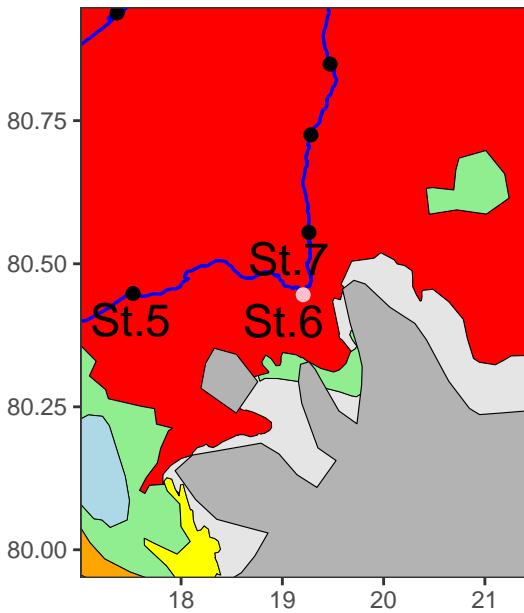
Sea ice as of 2021-07-02



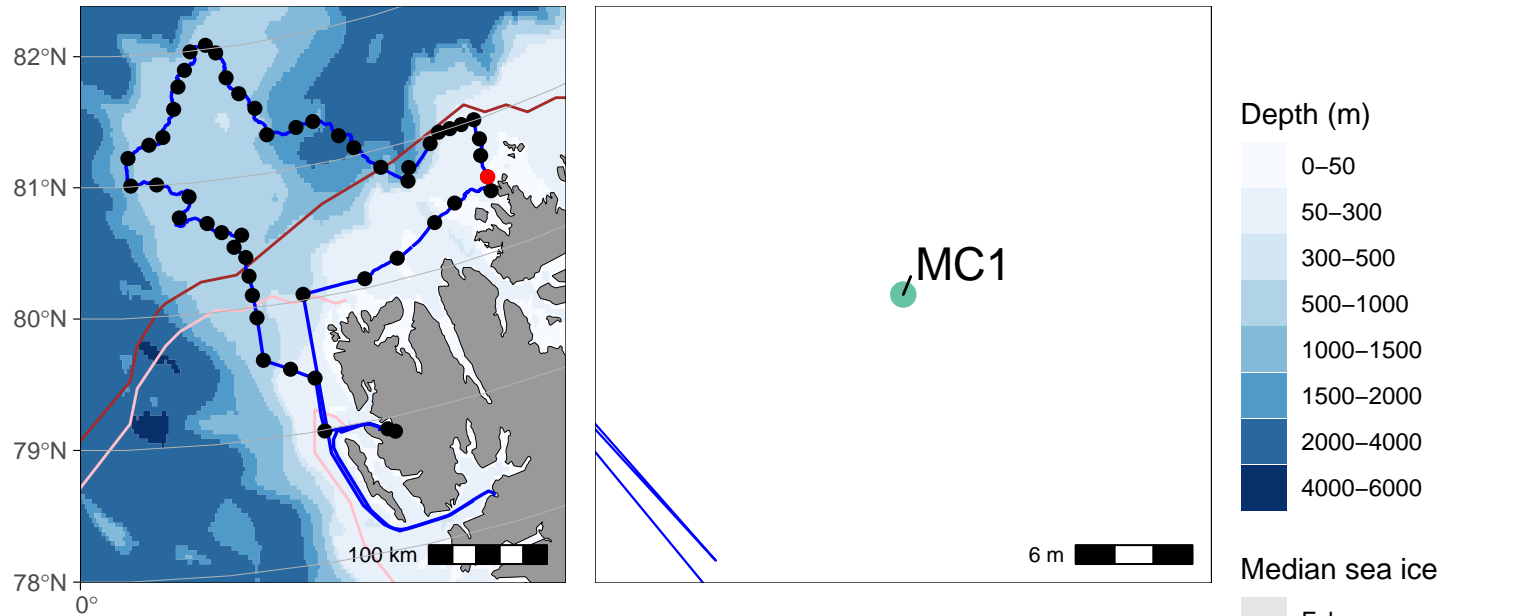
KH2021_234 – Station 6 – 02/07/2021 – depth: 217.2m



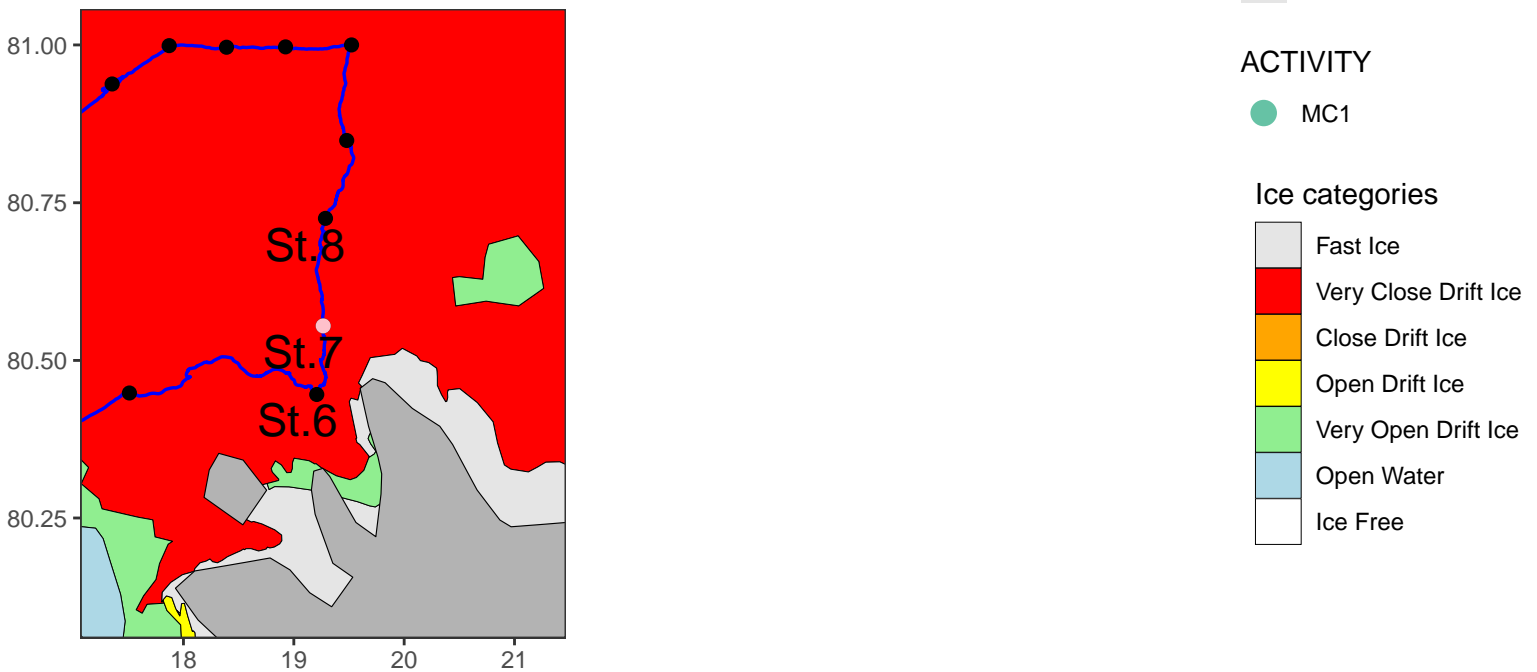
Sea ice as of 2021-07-02



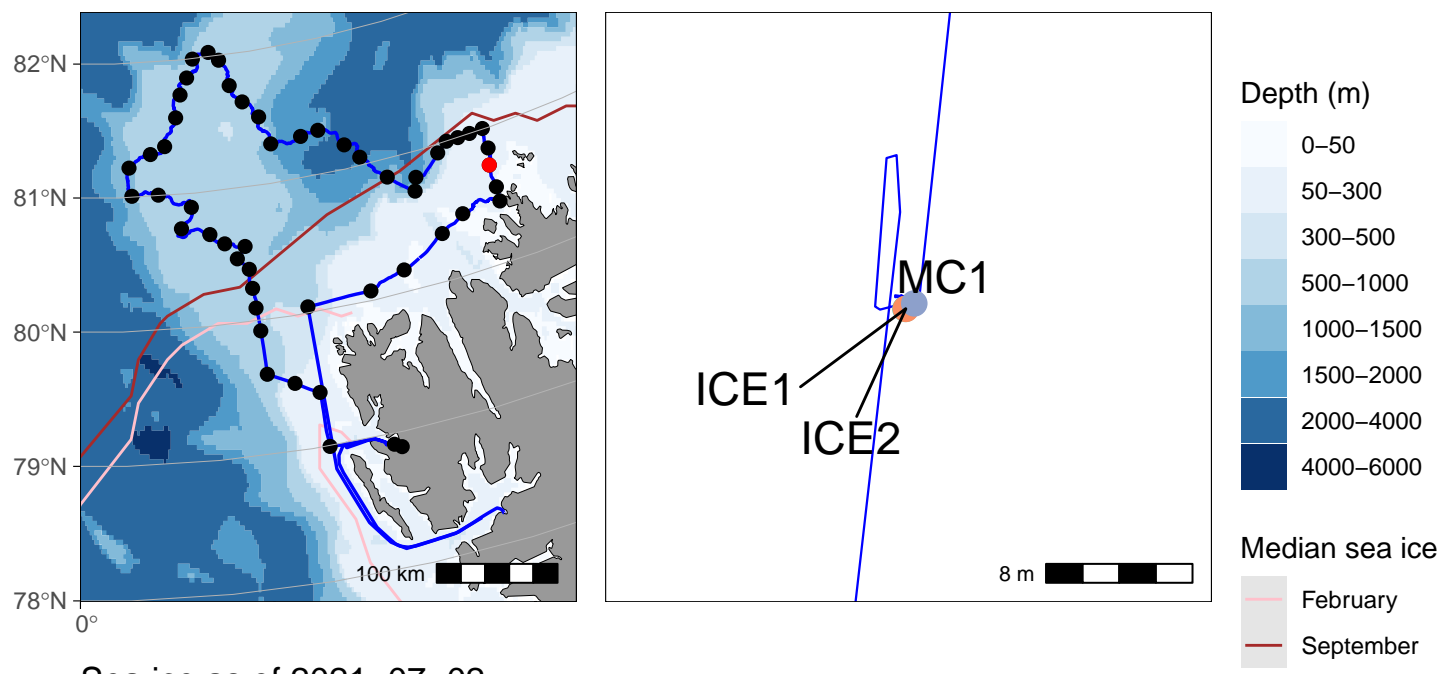
KH2021_234 – Station 7 – 02/07/2021 – depth: 108m



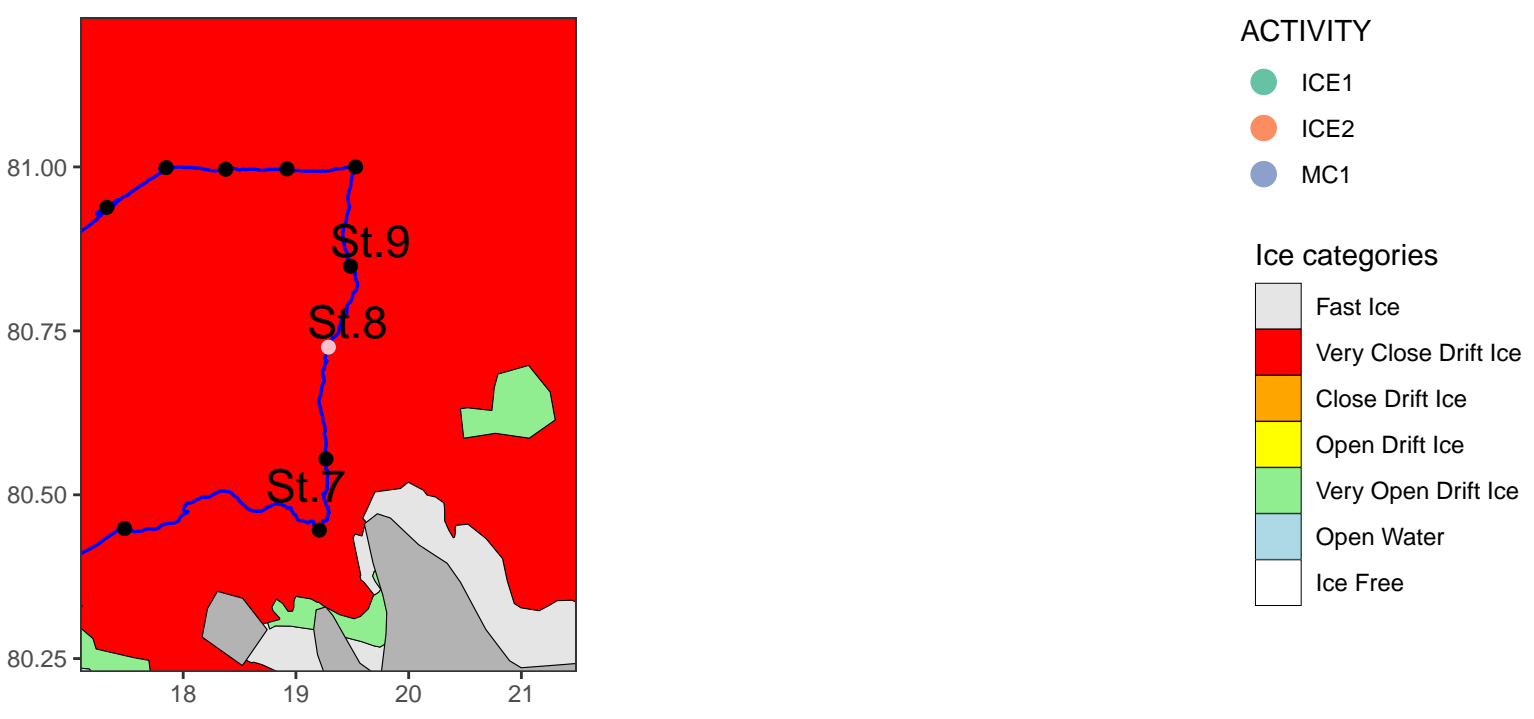
Sea ice as of 2021-07-02



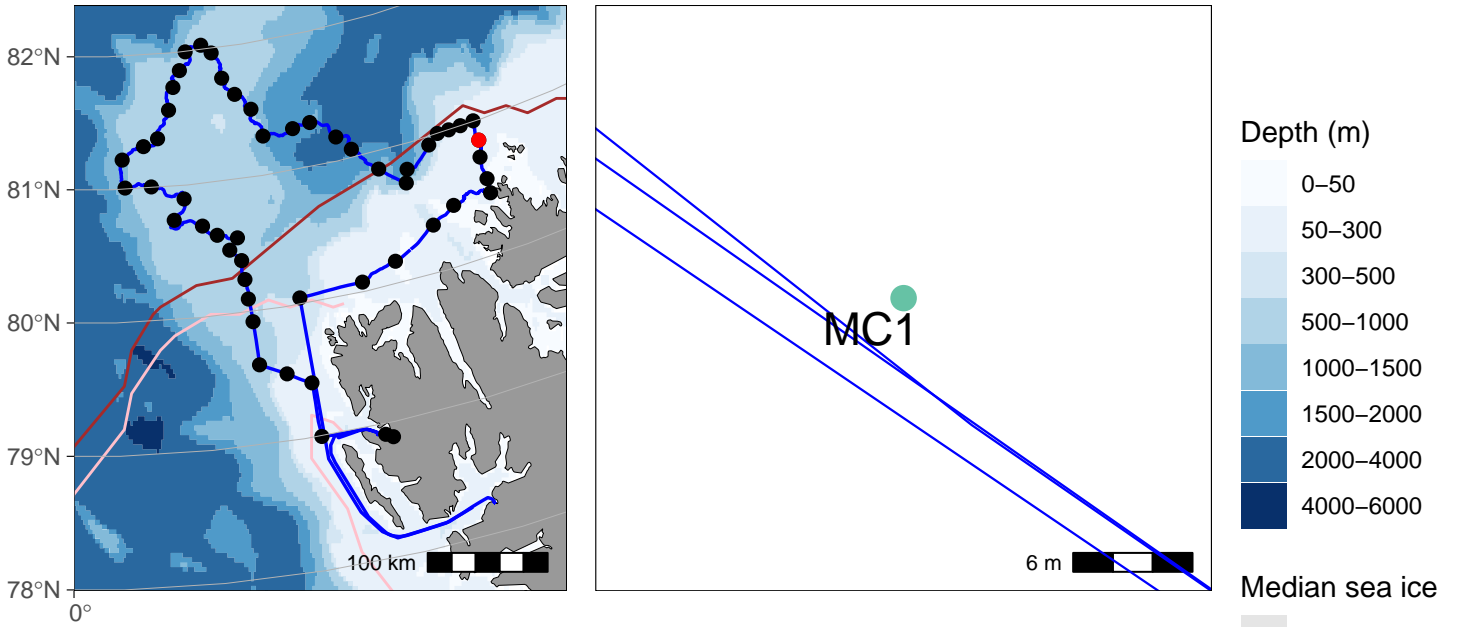
KH2021_234 – Station 8 – 03/07/2021 – depth: 106m



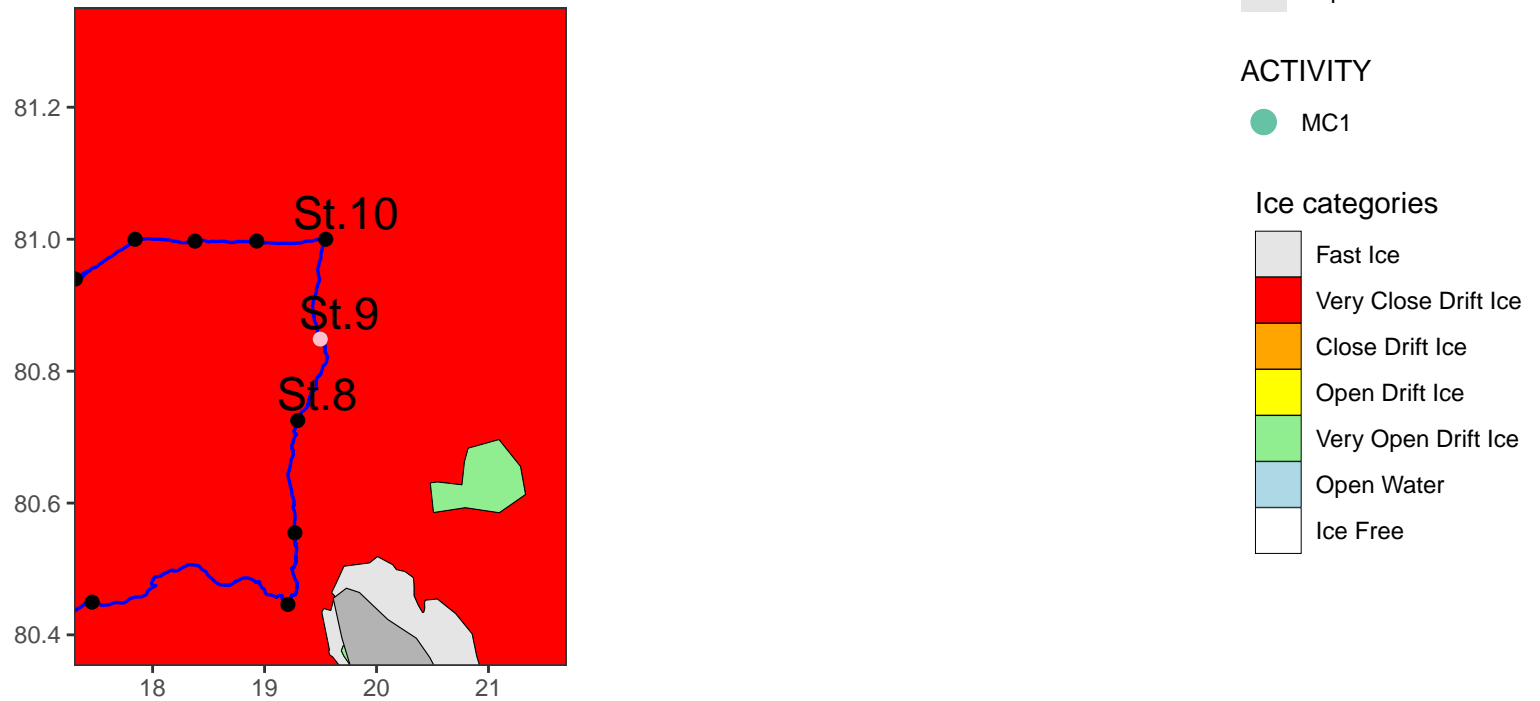
Sea ice as of 2021-07-02



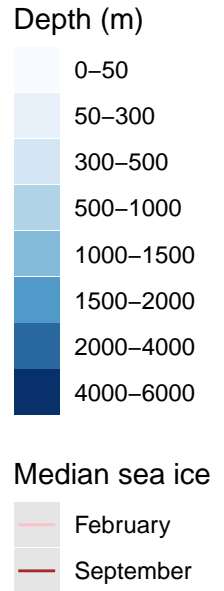
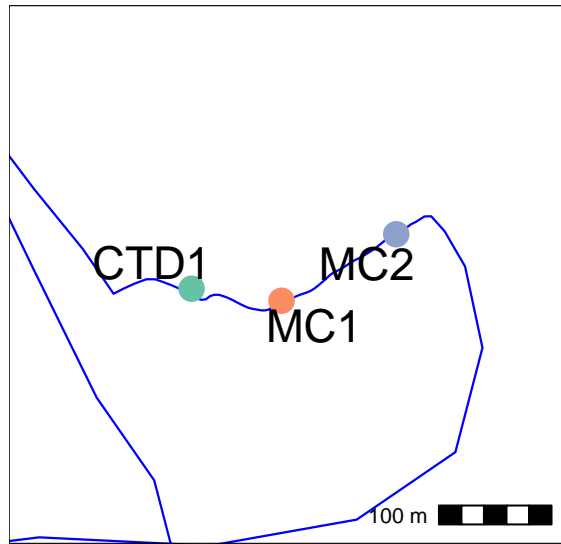
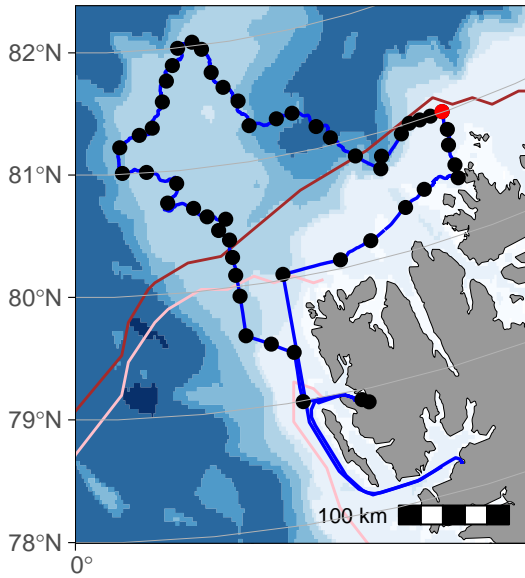
KH2021_234 – Station 9 – 03/07/2021 – depth: 169m



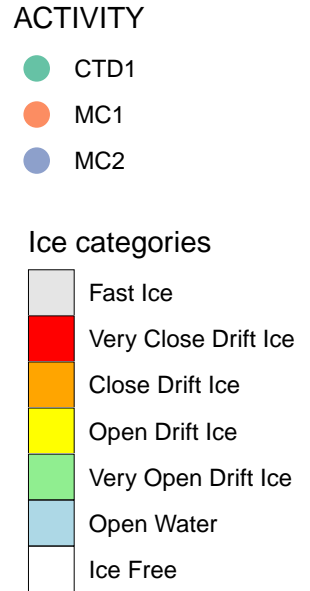
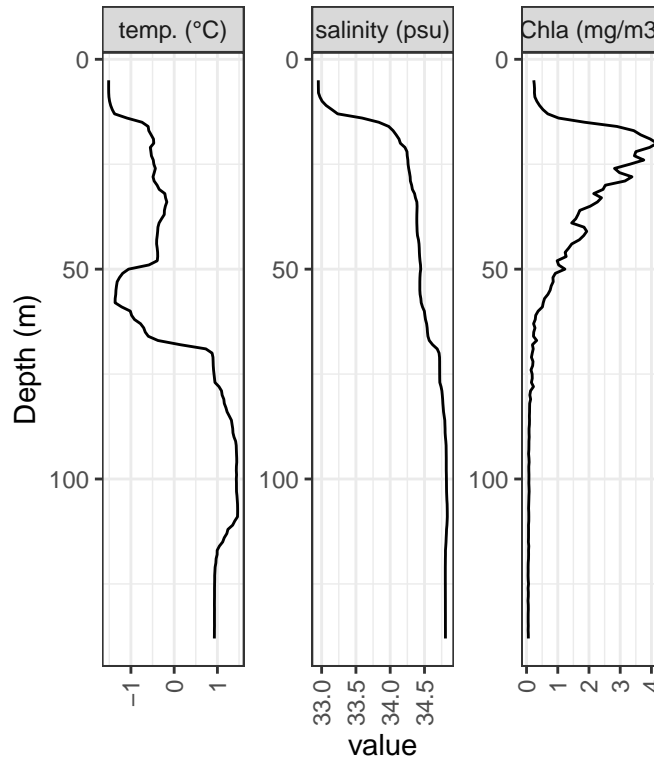
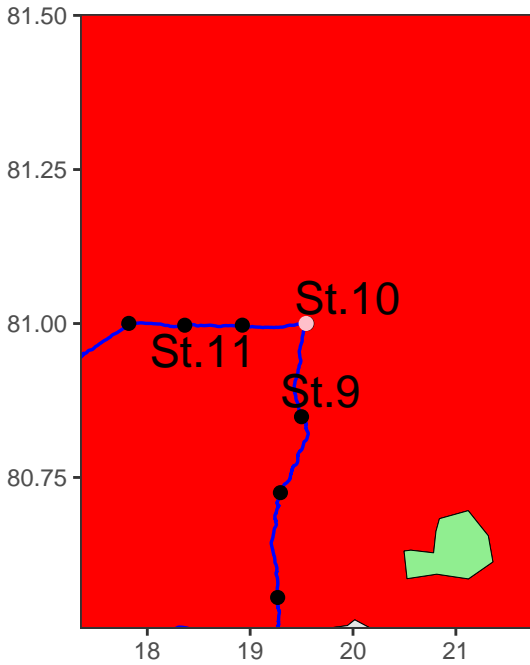
Sea ice as of 2021-07-02



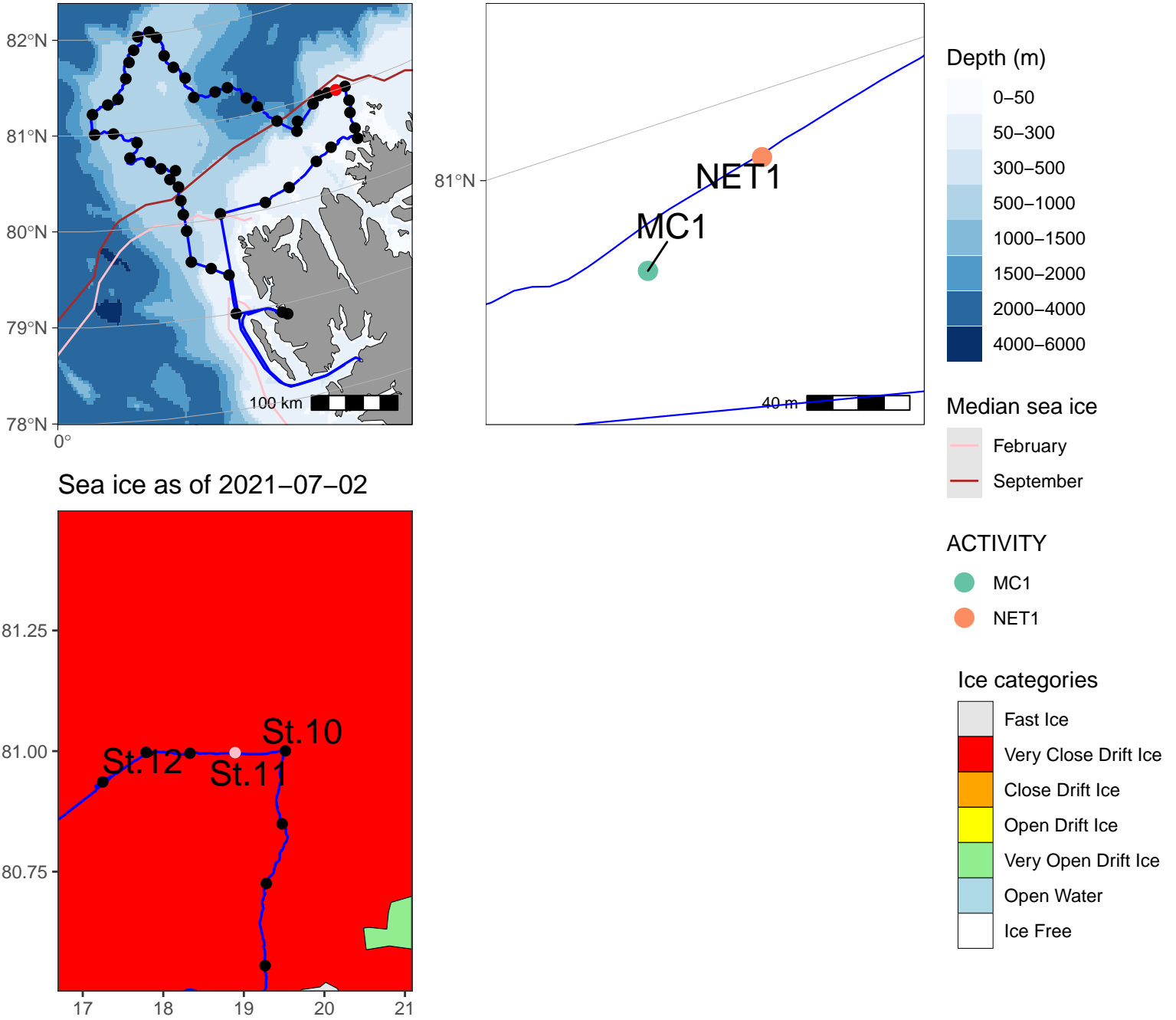
KH2021_234 – Station 10 – 03/07/2021 – depth: 147m



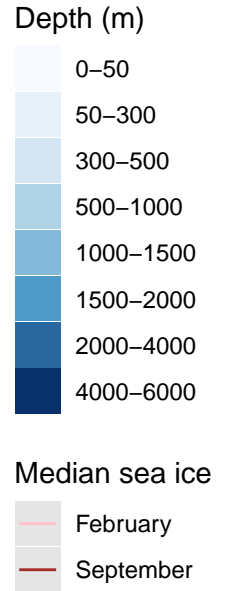
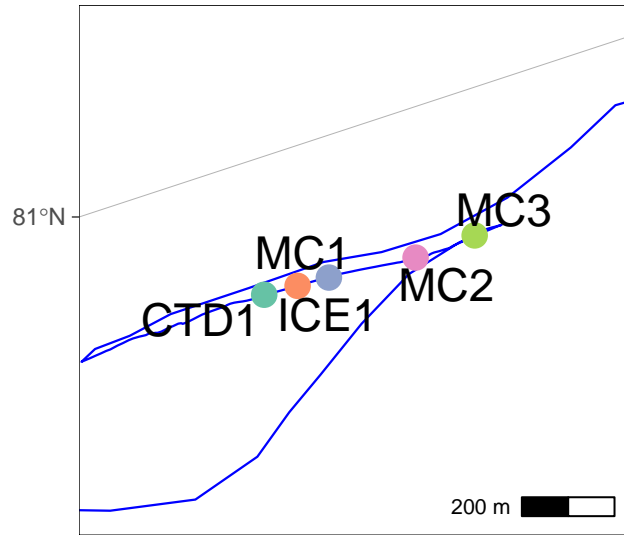
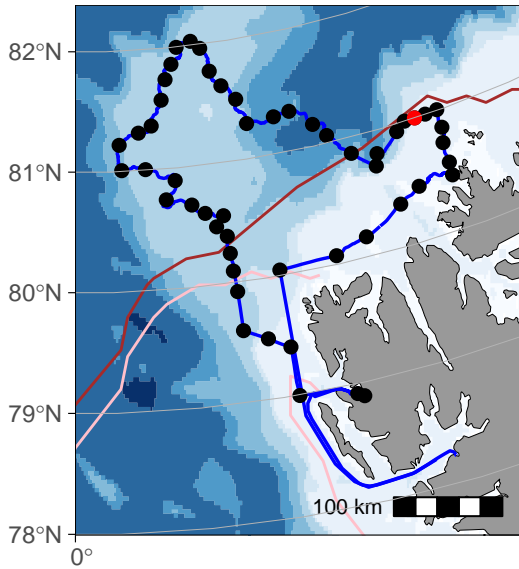
Sea ice as of 2021-07-02



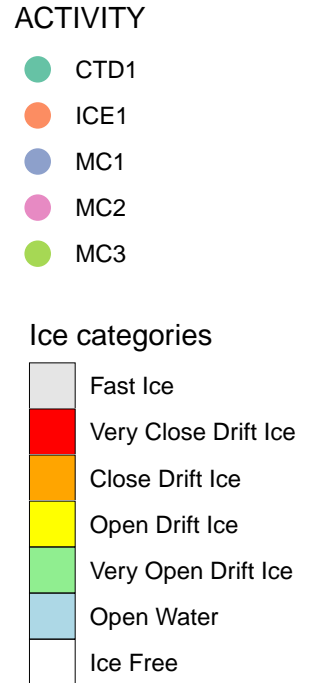
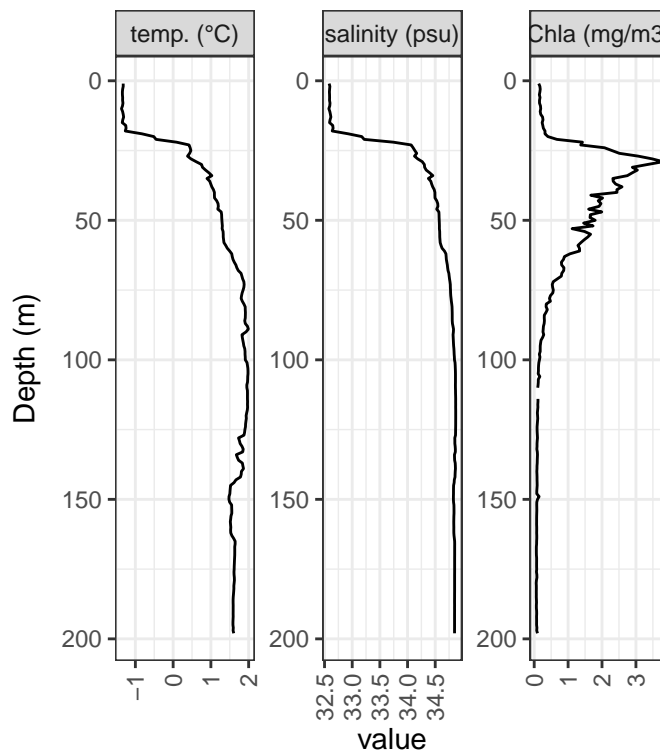
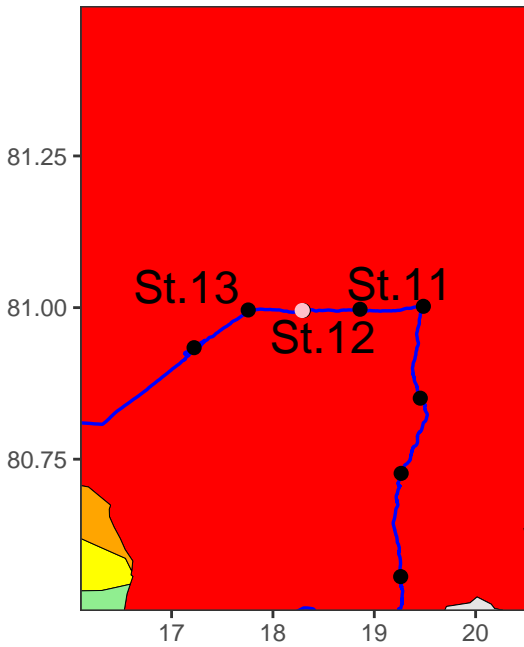
KH2021_234 – Station 11 – 03/07/2021 – depth: 197.5m



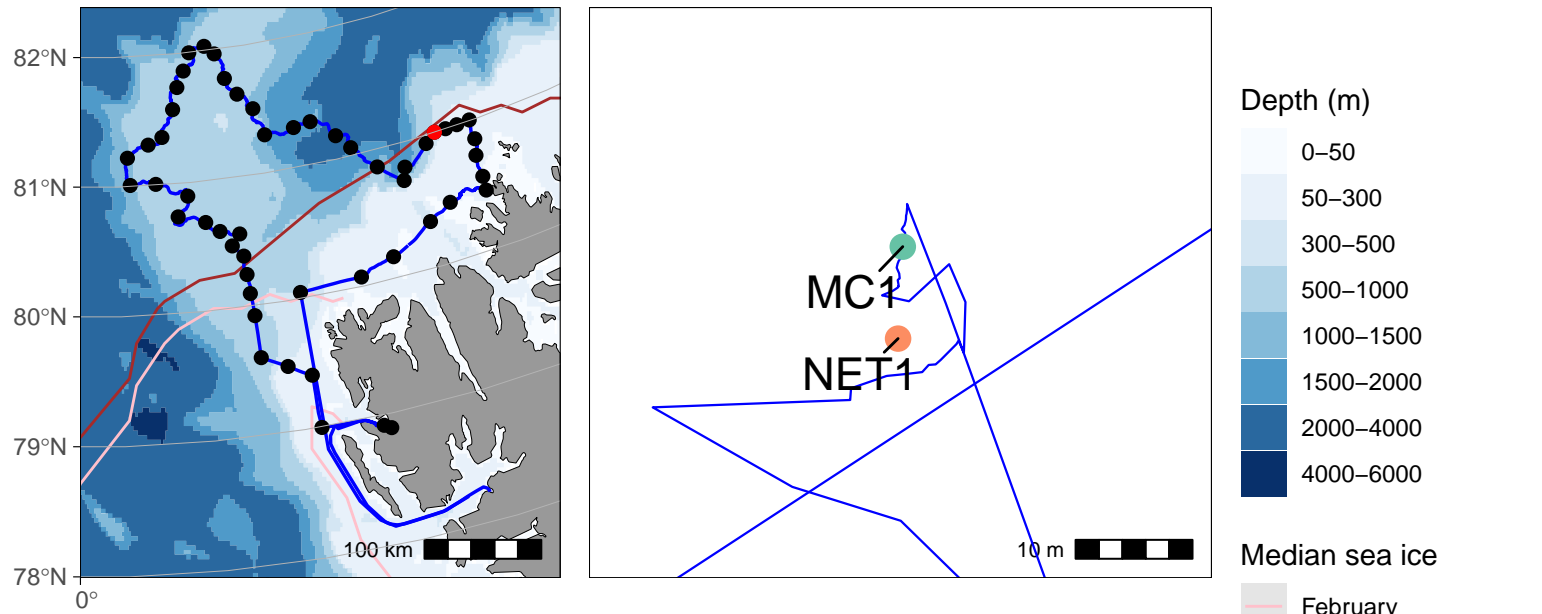
KH2021_234 – Station 12 – 03/07/2021 – depth: 207m



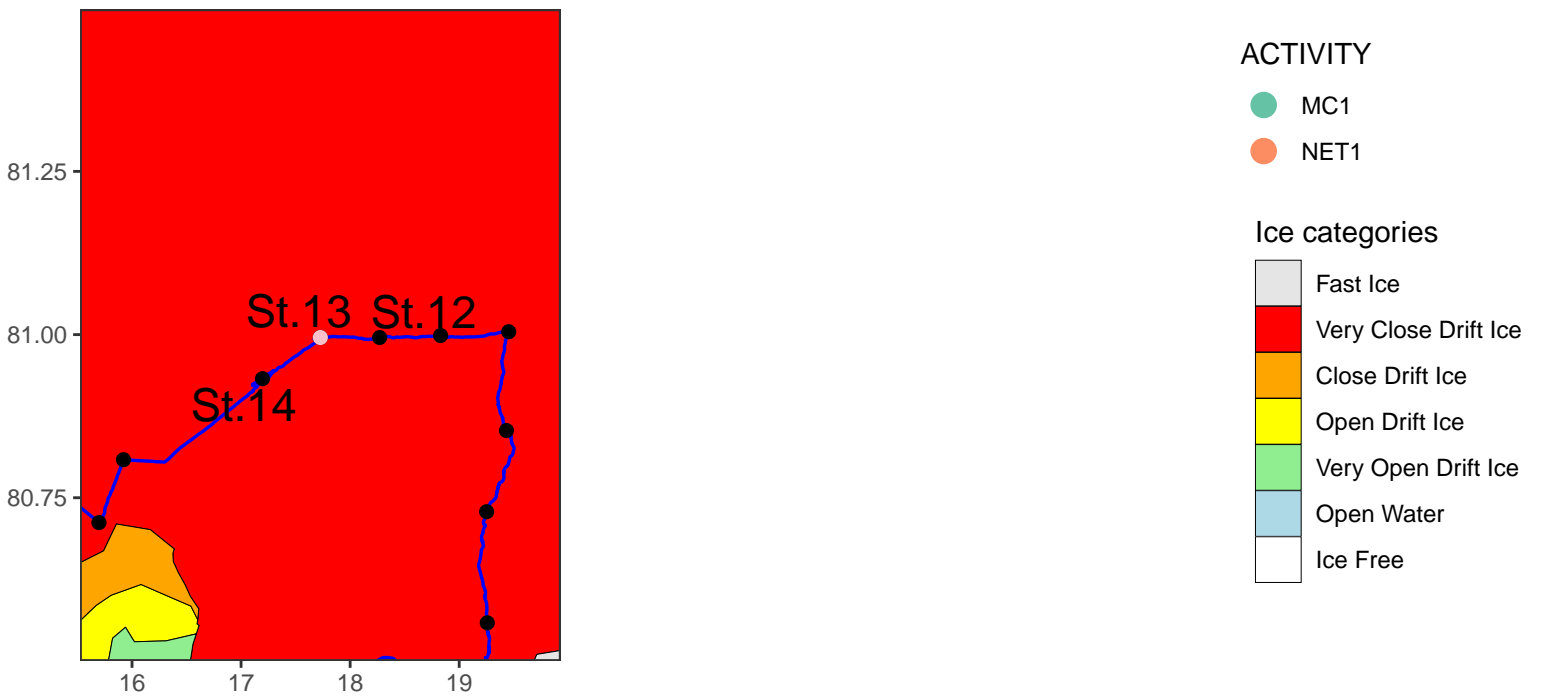
Sea ice as of 2021-07-02



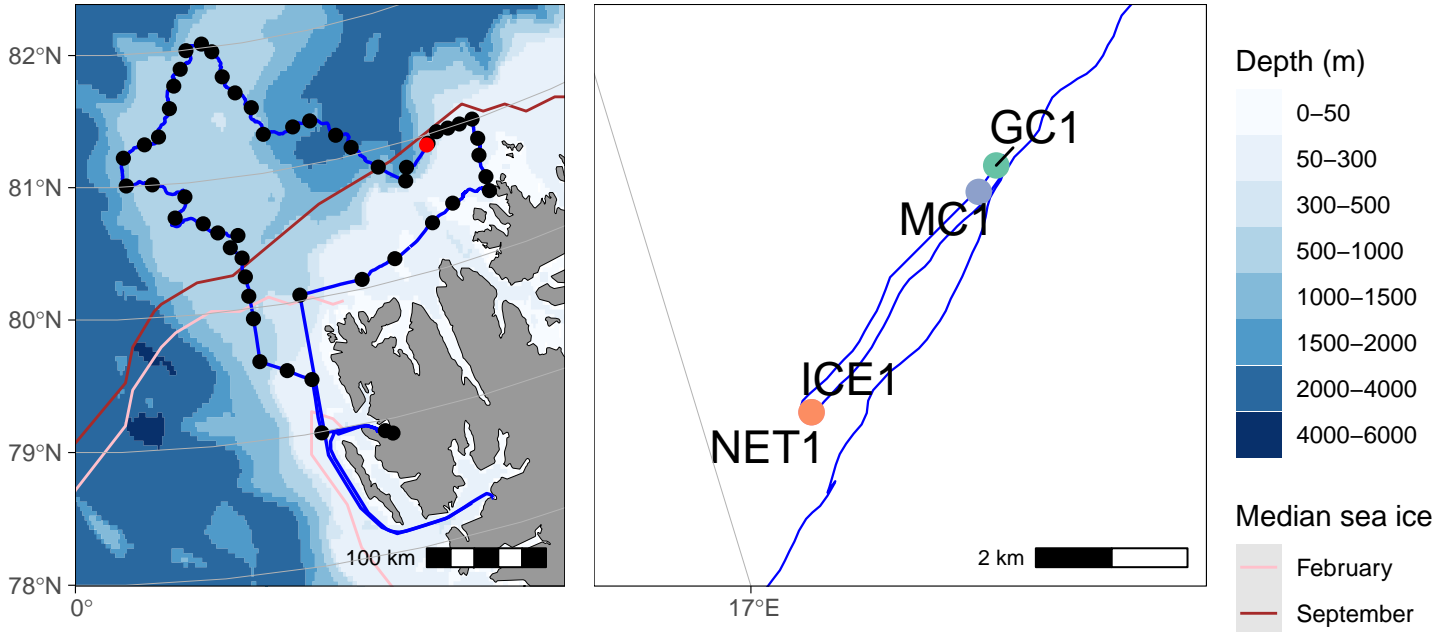
KH2021_234 – Station 13 – 03/07/2021 – depth: 425m



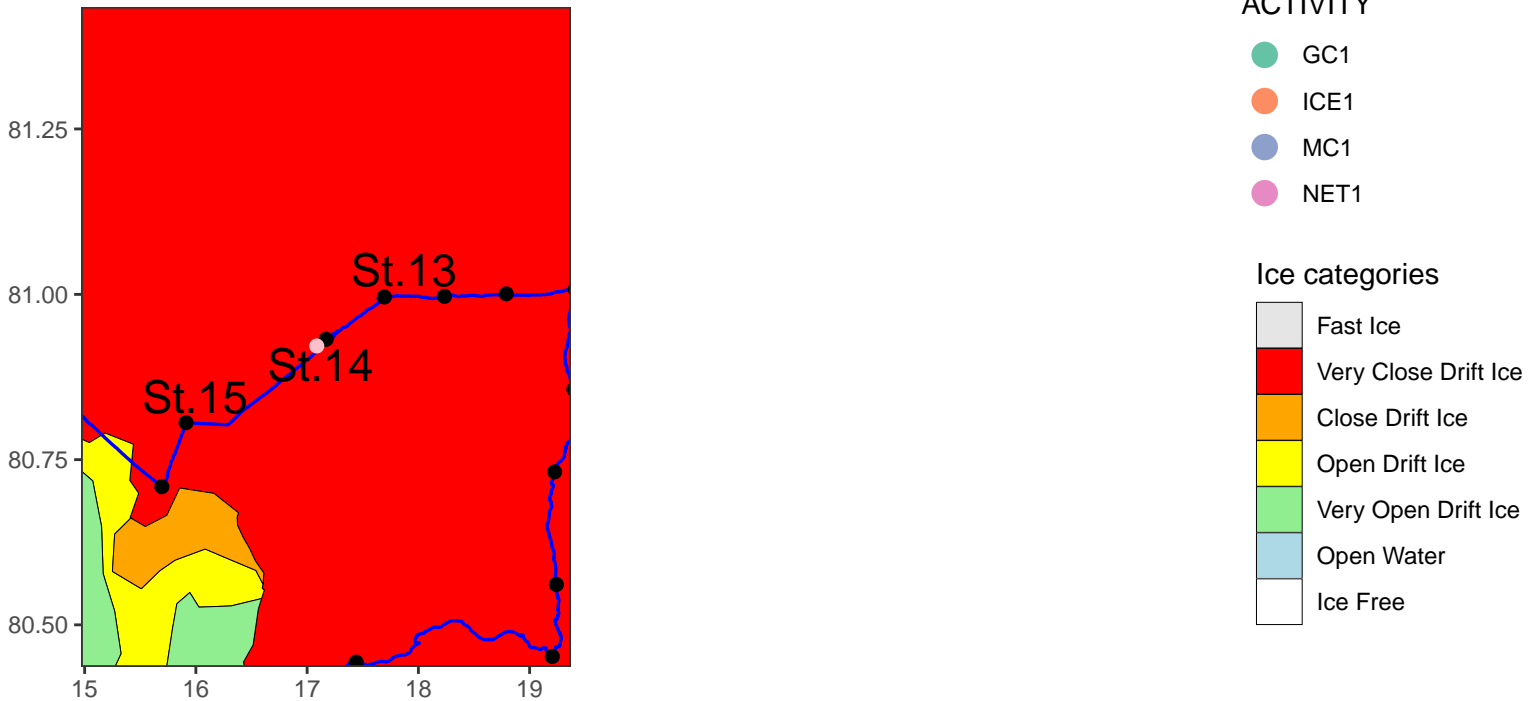
Sea ice as of 2021-07-02



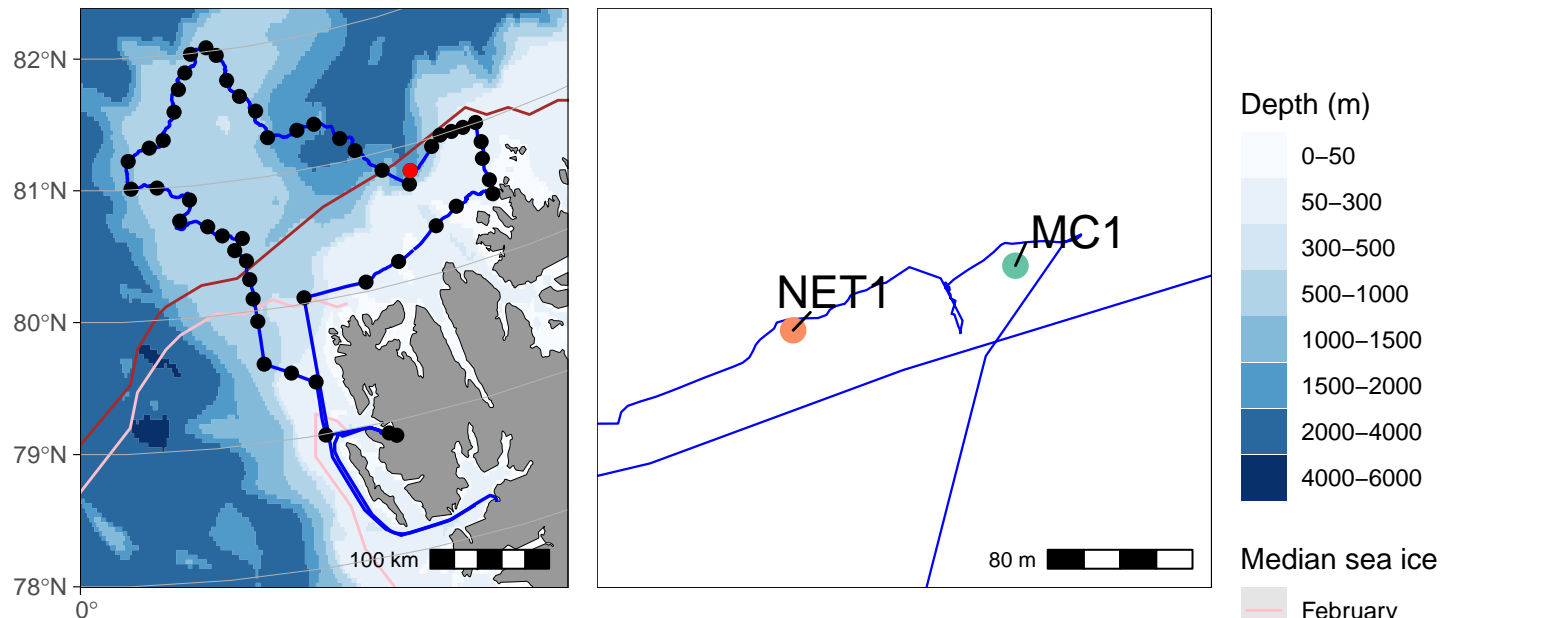
KH2021_234 – Station 14 – 03/07/2021 – depth: 658m



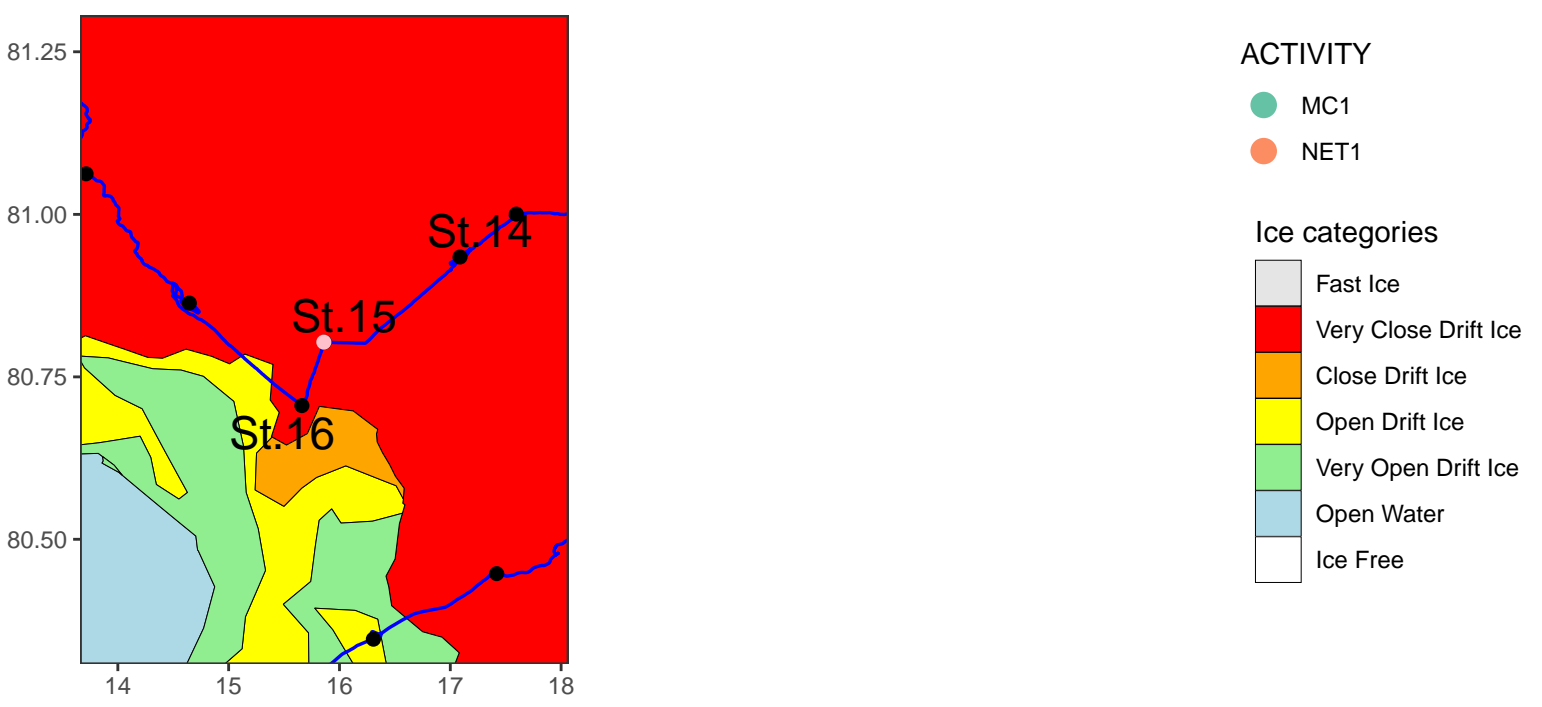
Sea ice as of 2021-07-02



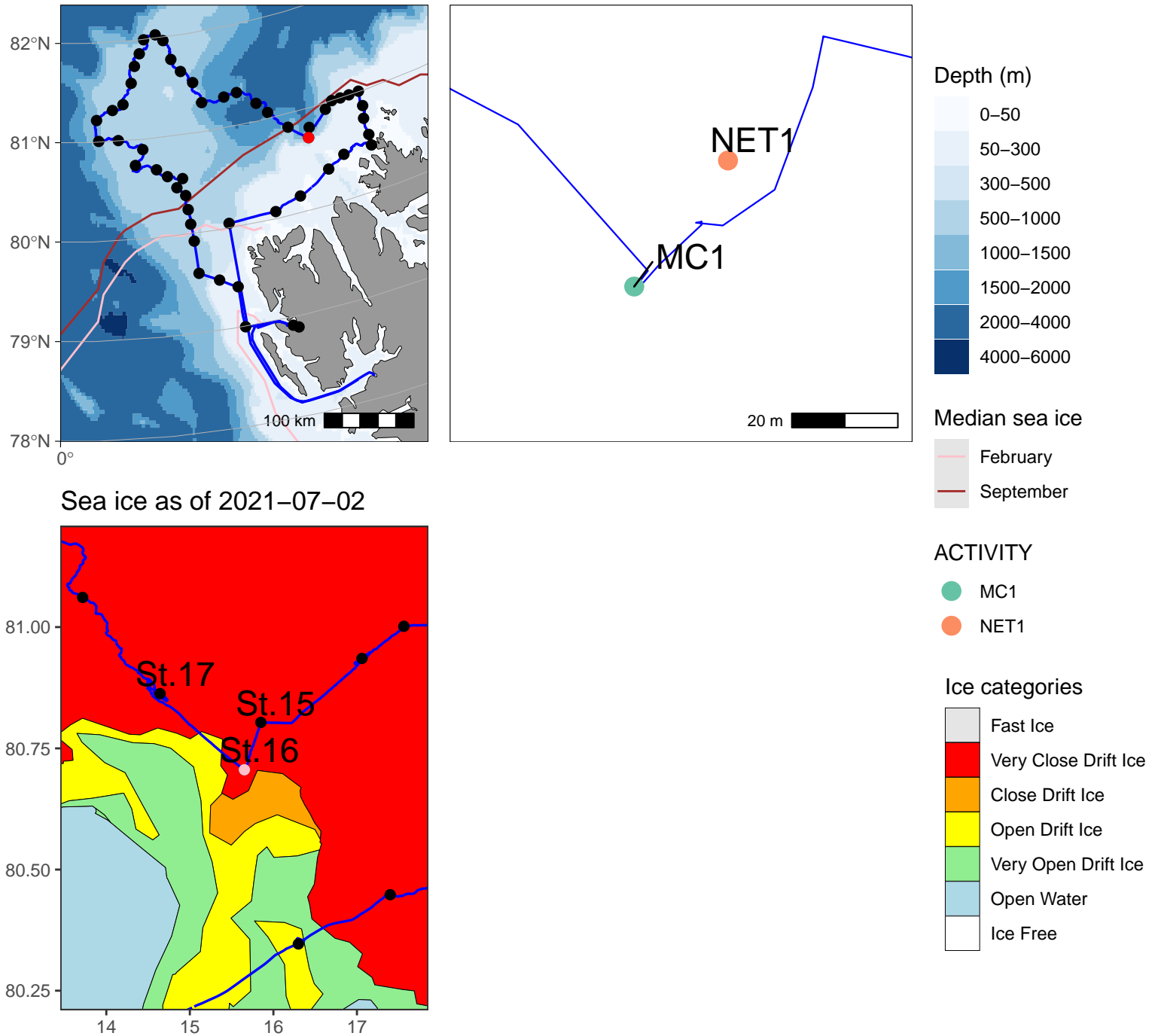
KH2021_234 – Station 15 – 04/07/2021 – depth: 1617.5m



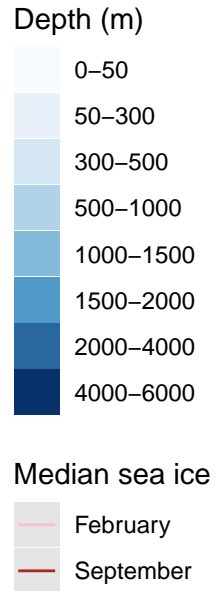
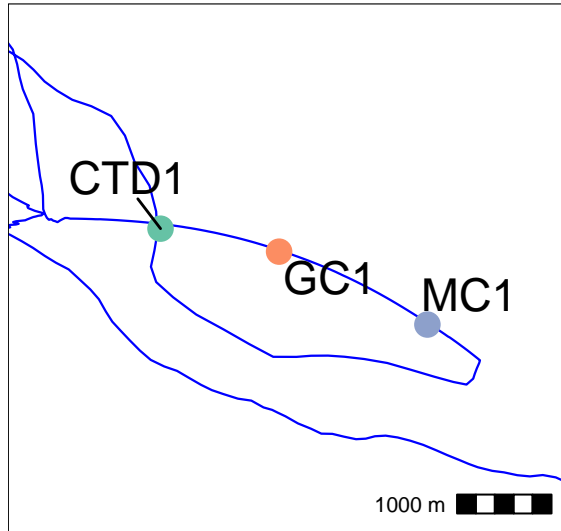
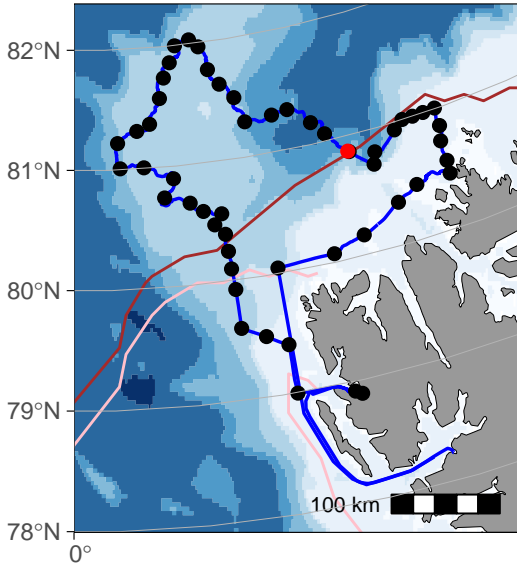
Sea ice as of 2021-07-02



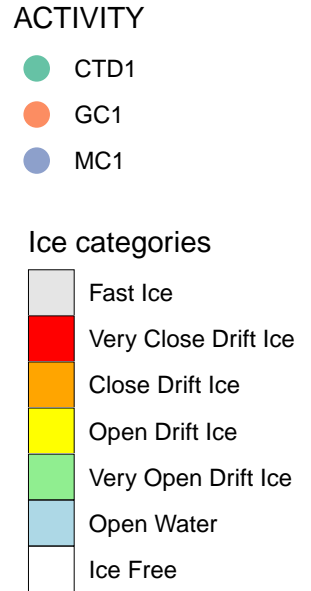
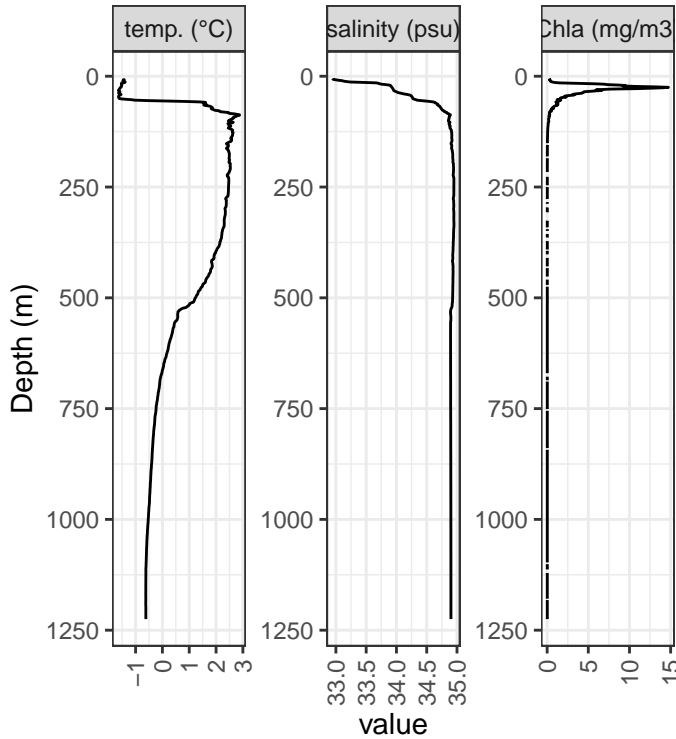
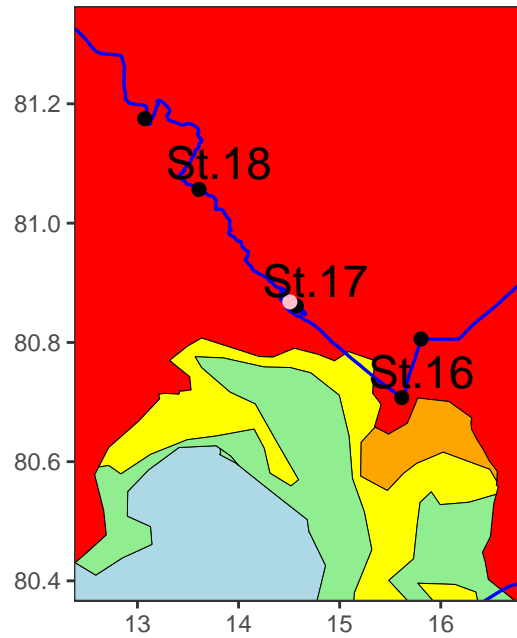
KH2021_234 – Station 16 – 04/07/2021 – depth: 835m



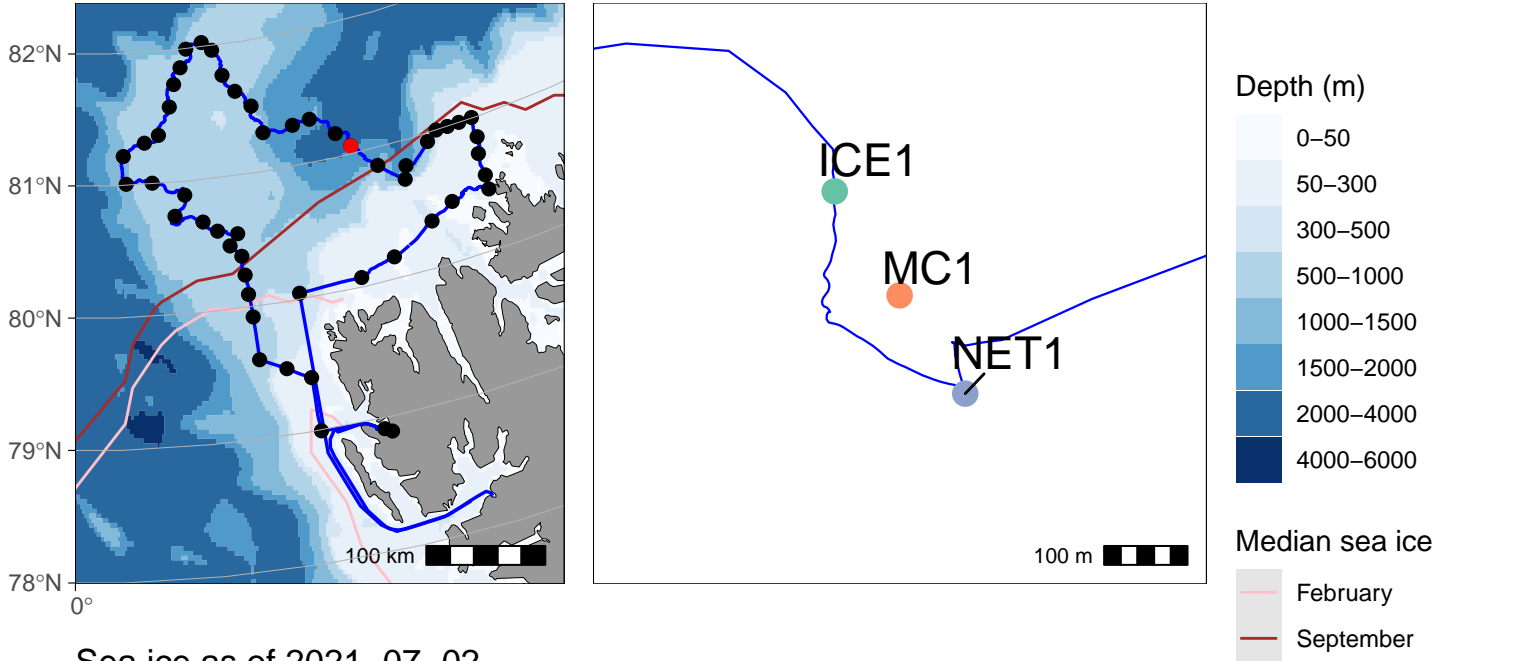
KH2021_234 – Station 17 – 04/07/2021 – depth: 1153m



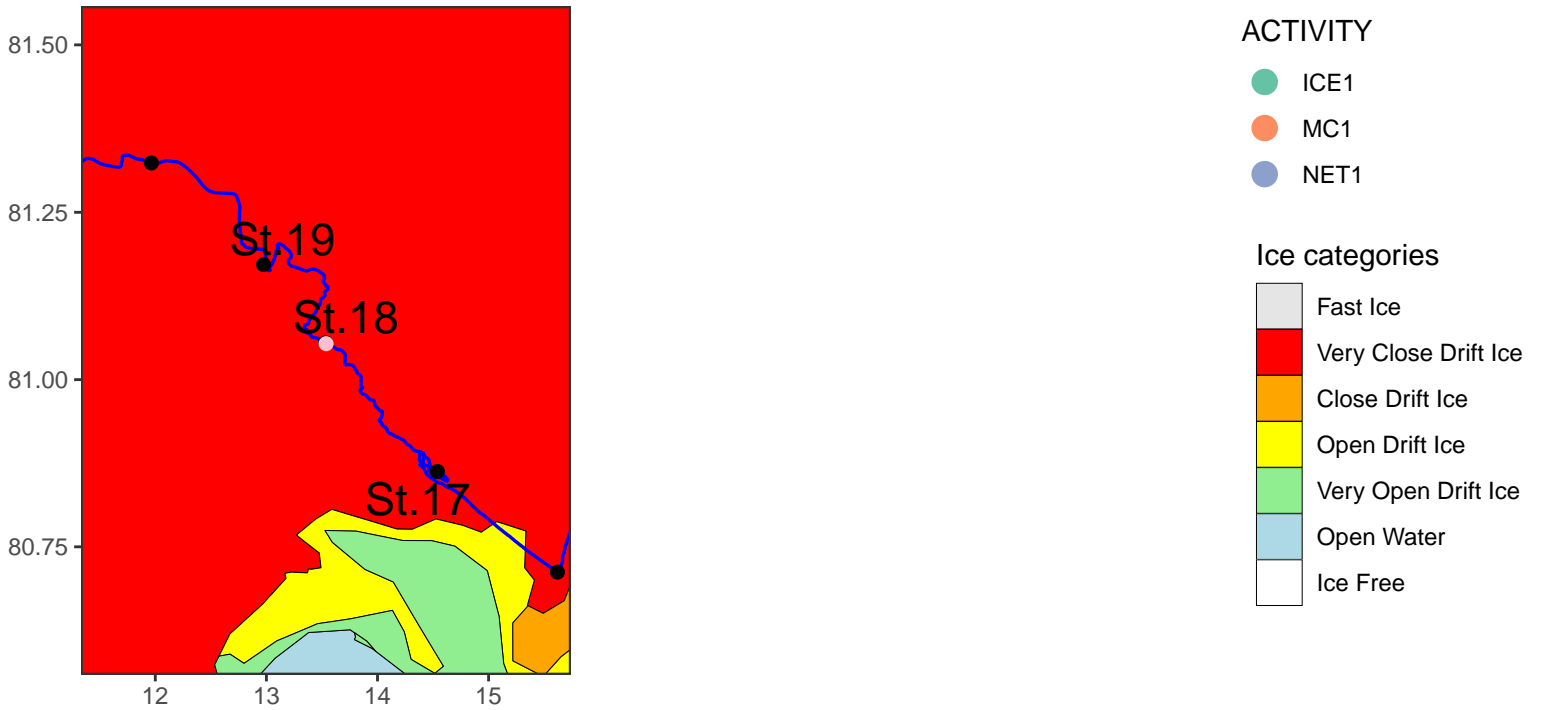
Sea ice as of 2021-07-02



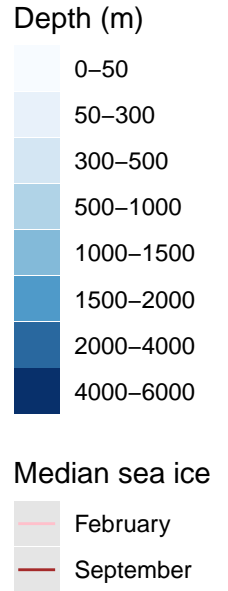
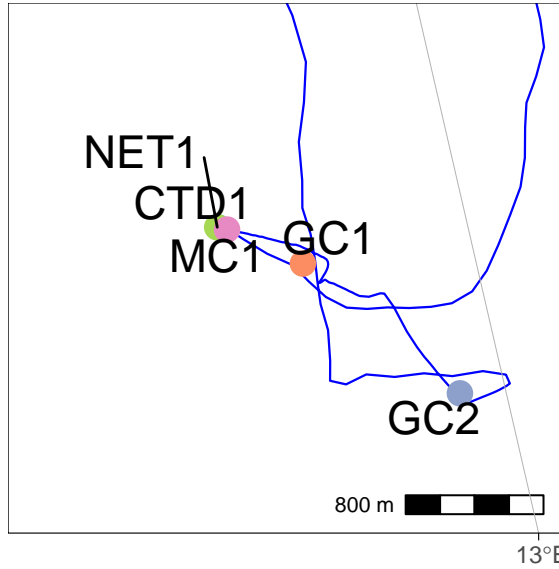
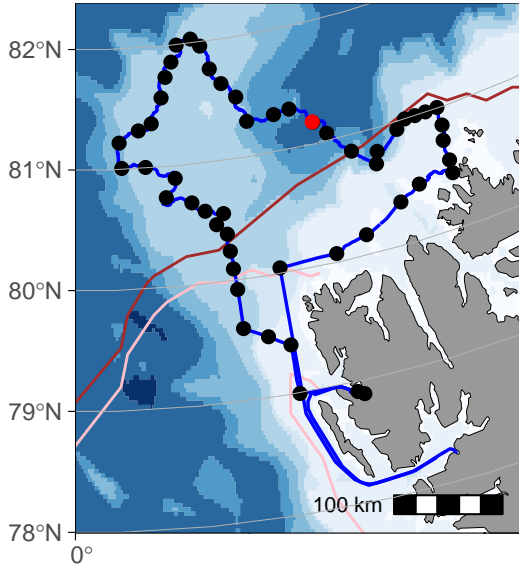
KH2021_234 – Station 18 – 04/07/2021 – depth: 2042.33m



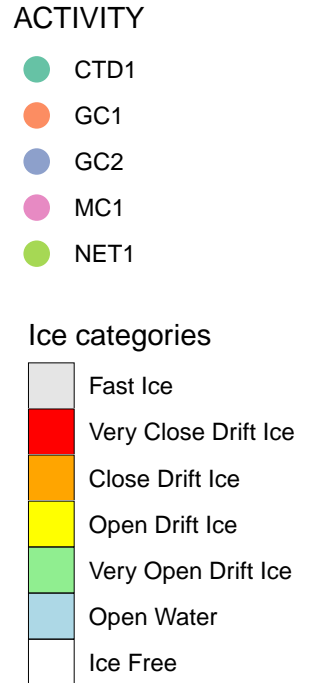
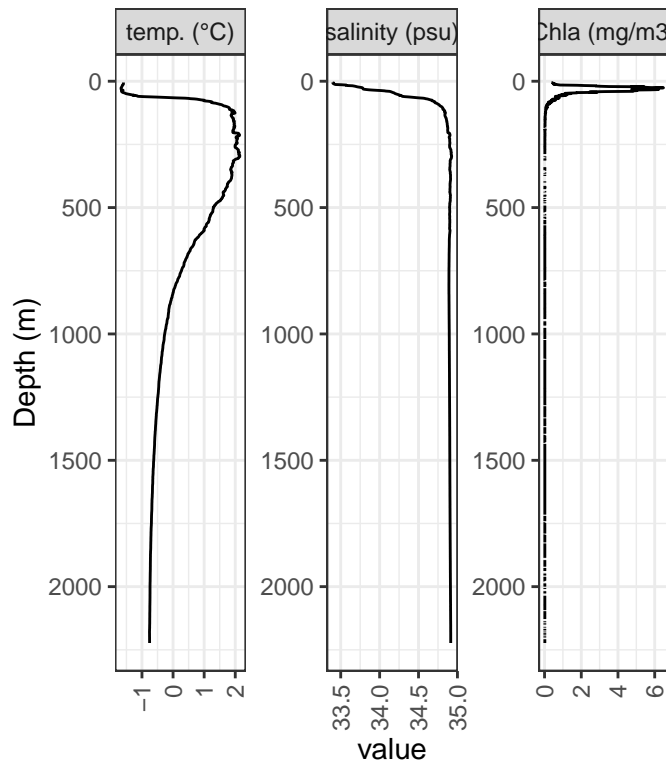
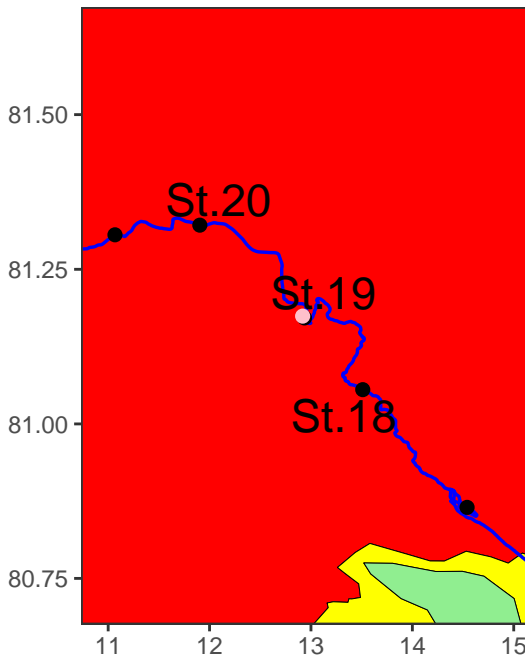
Sea ice as of 2021-07-02



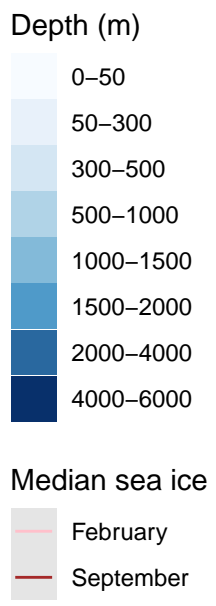
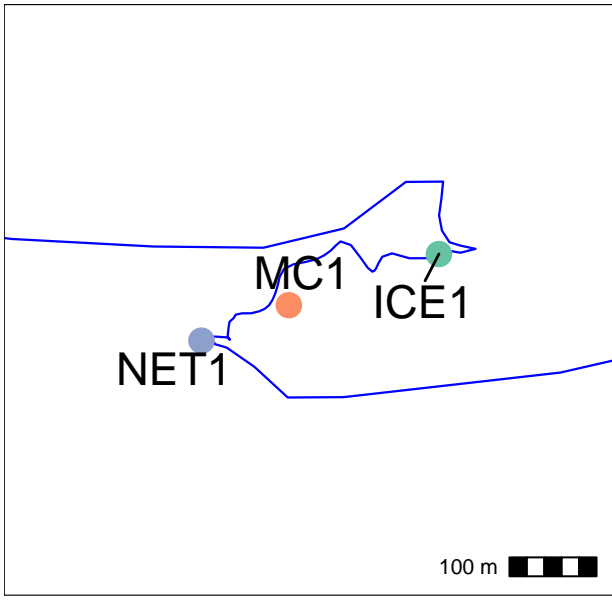
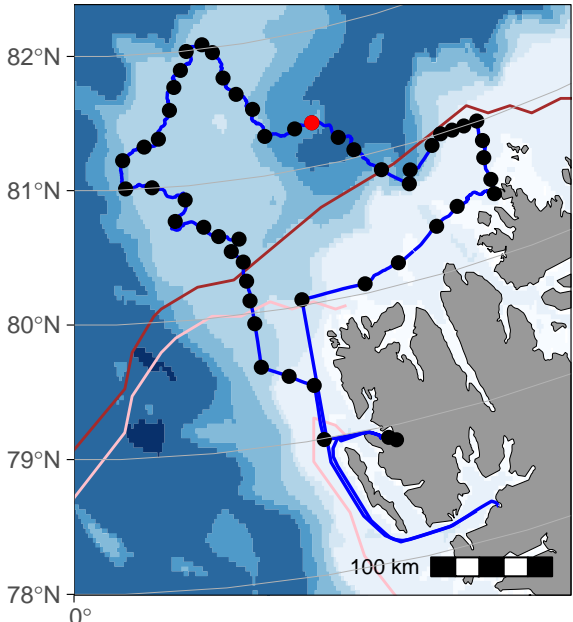
KH2021_234 – Station 19 – 05/07/2021 – depth: 2194m



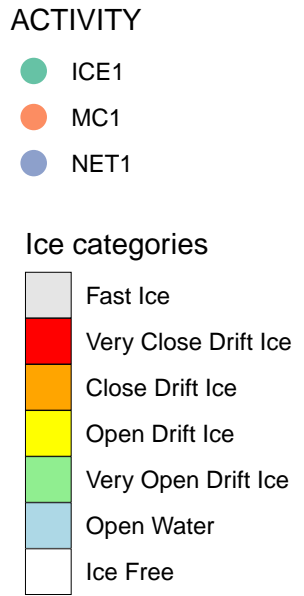
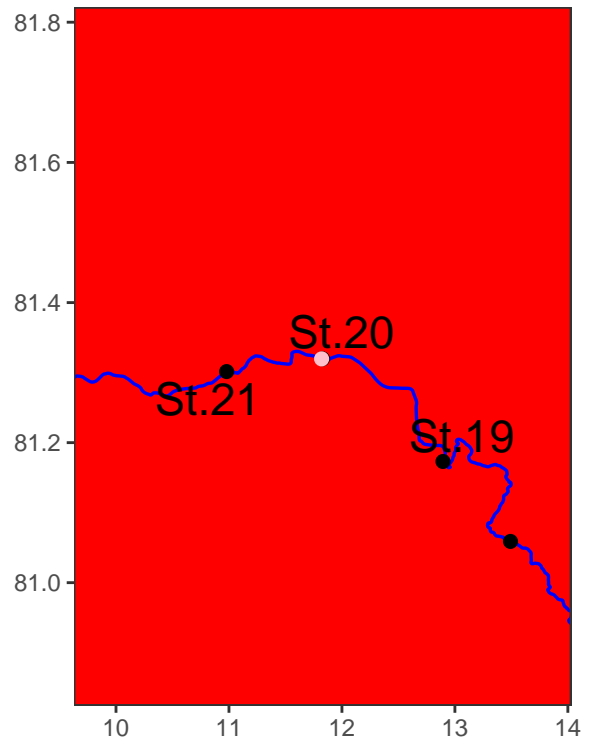
Sea ice as of 2021-07-02



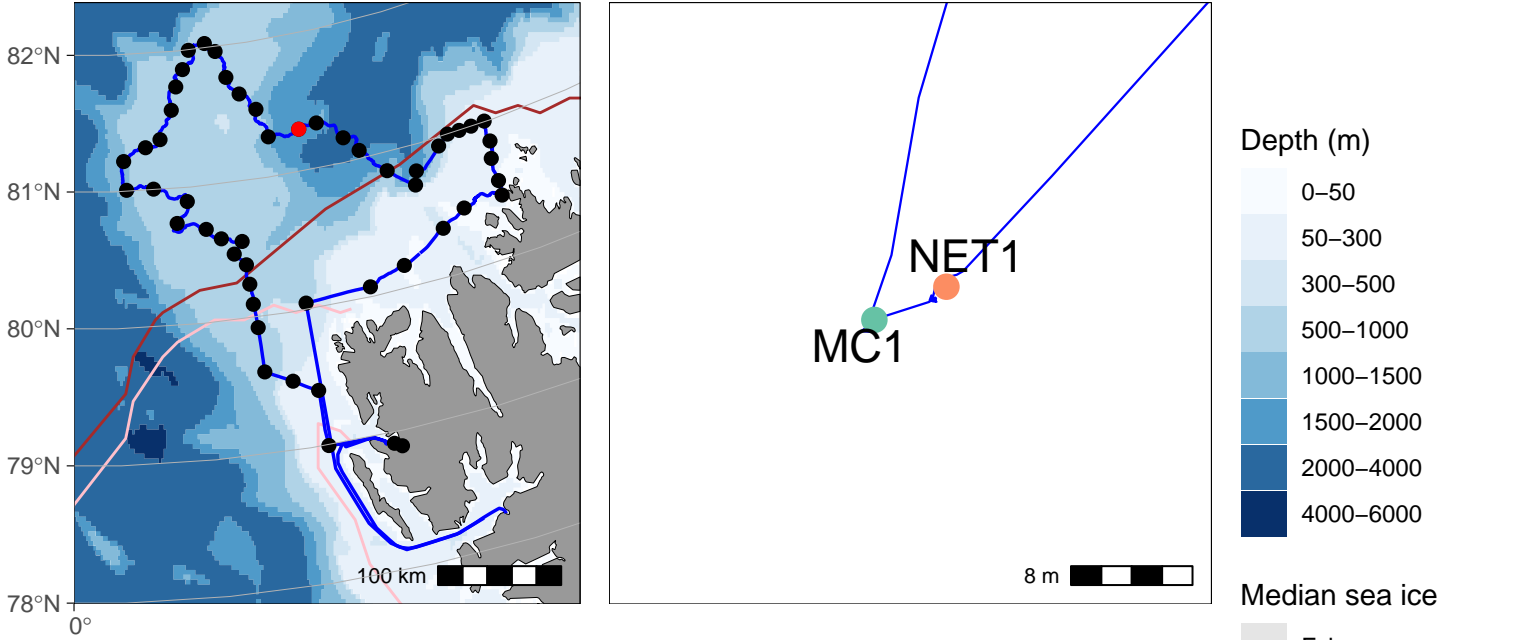
KH2021_234 – Station 20 – 05/07/2021 – depth: 1422.33m



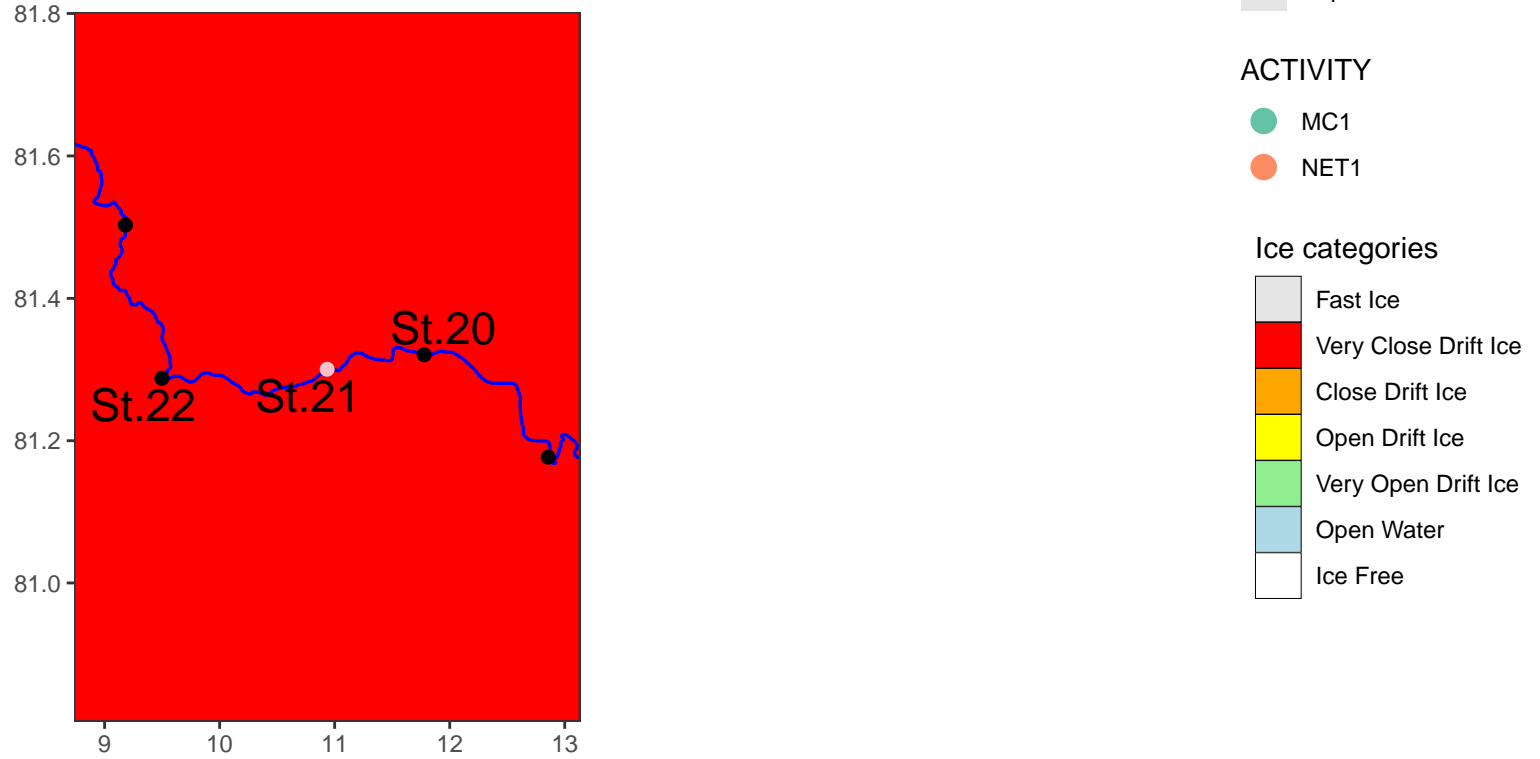
Sea ice as of 2021-07-02



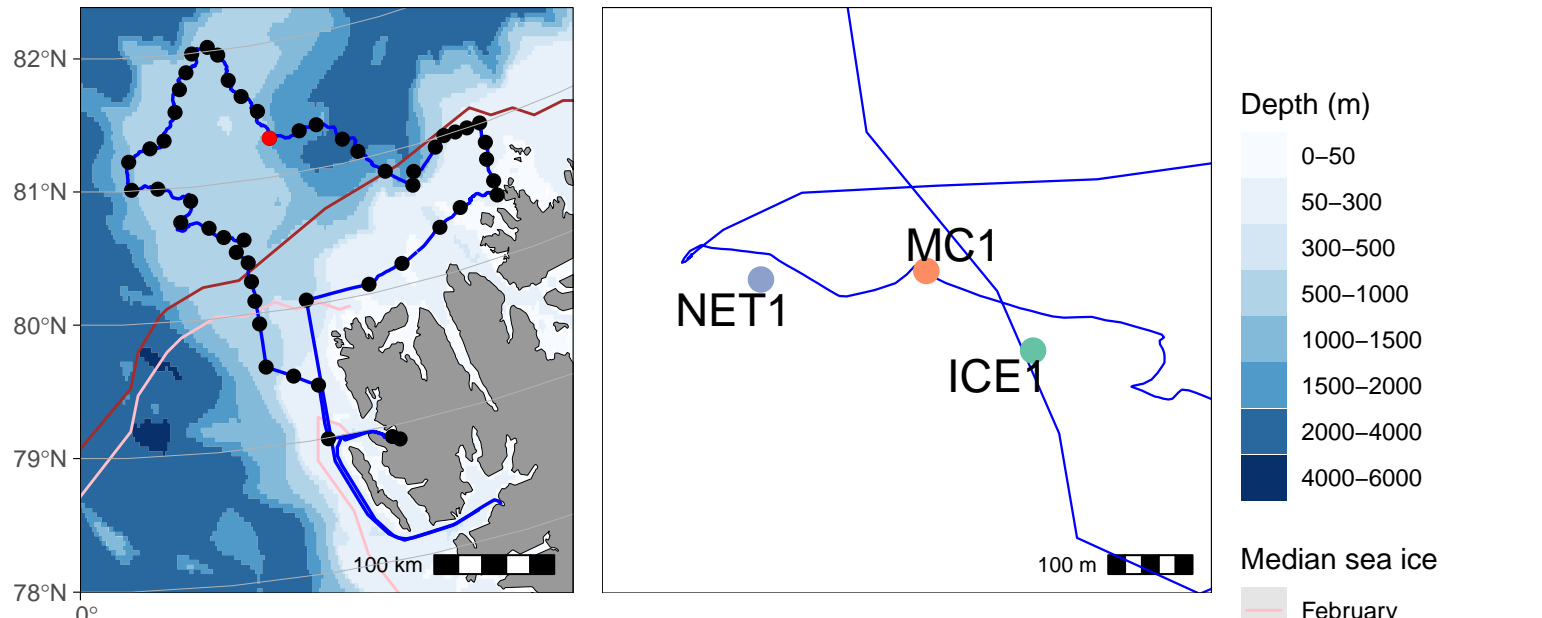
KH2021_234 – Station 21 – 05/07/2021 – depth: 1764.5m



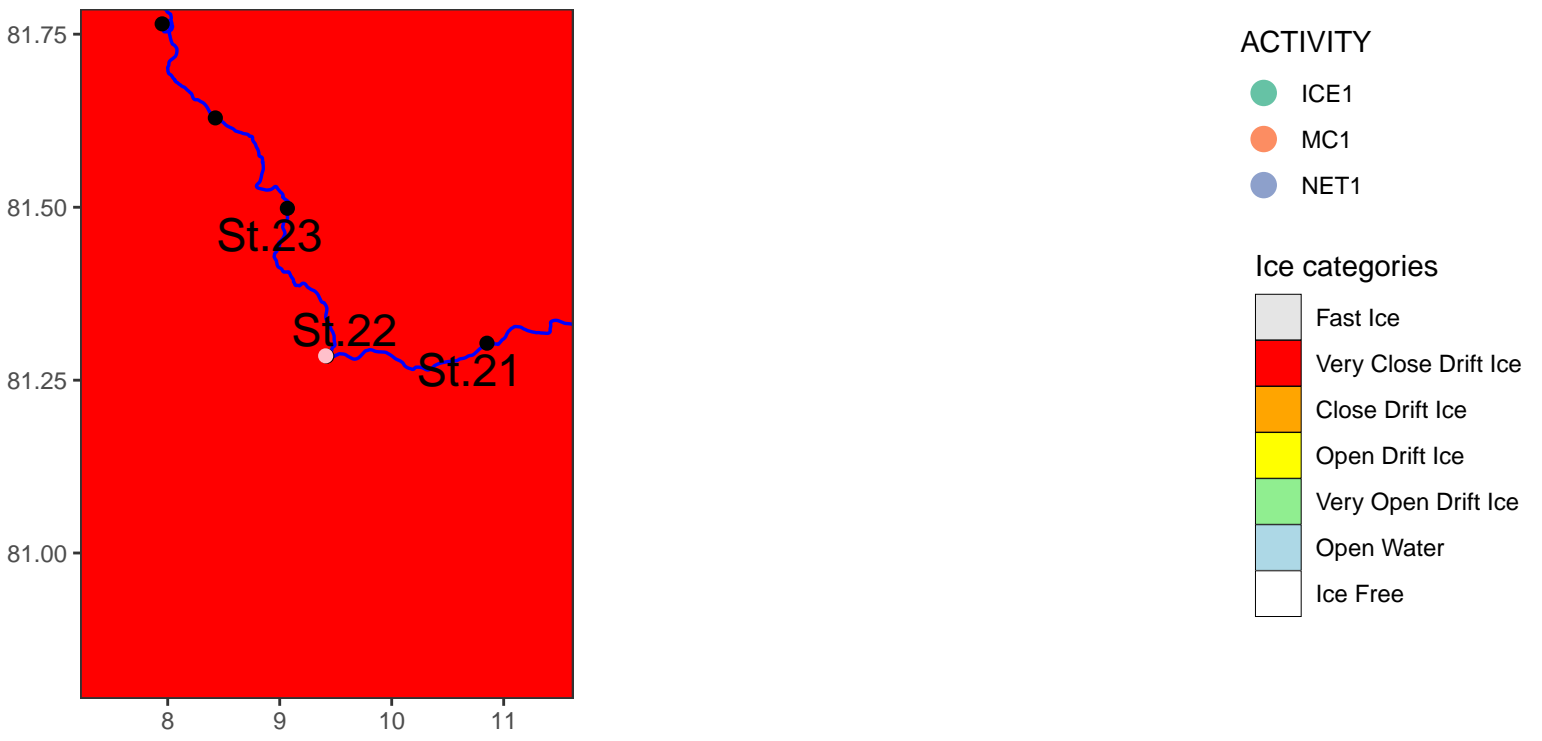
Sea ice as of 2021-07-02



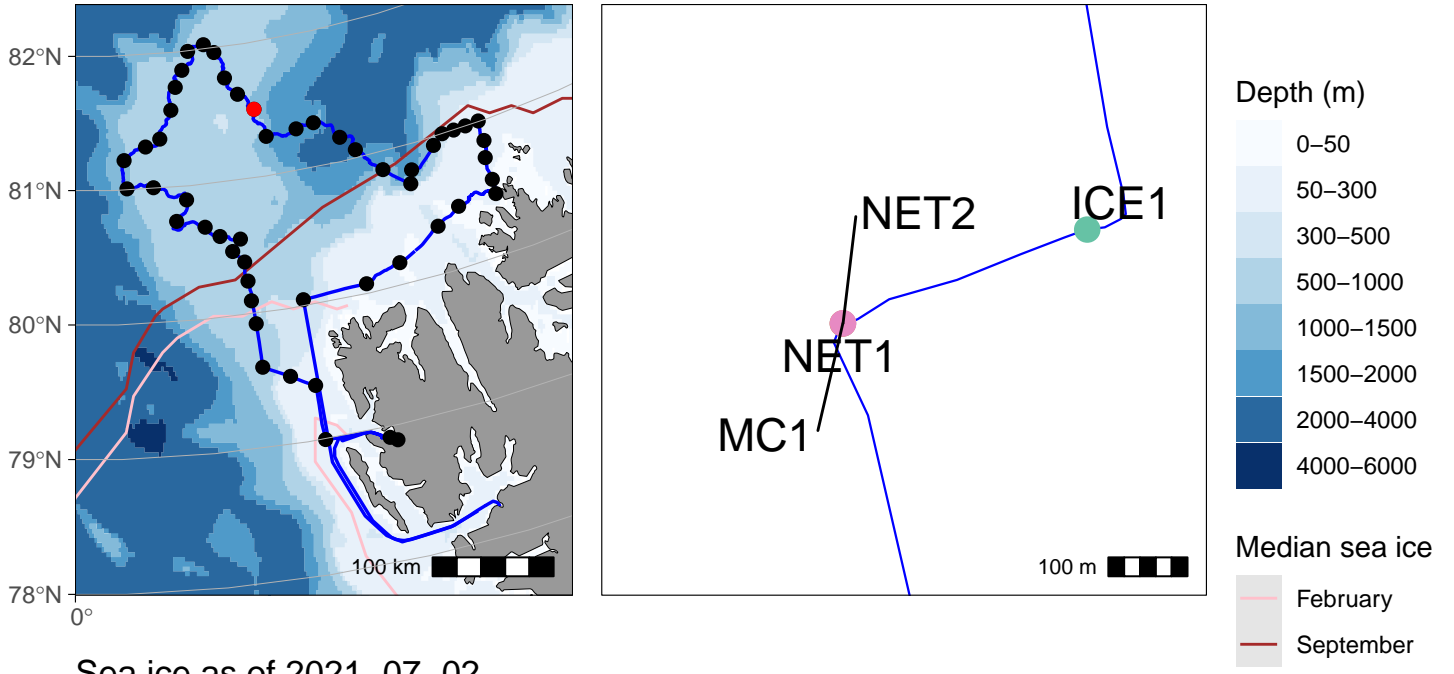
KH2021_234 – Station 22 – 05/07/2021 – depth: 1347m



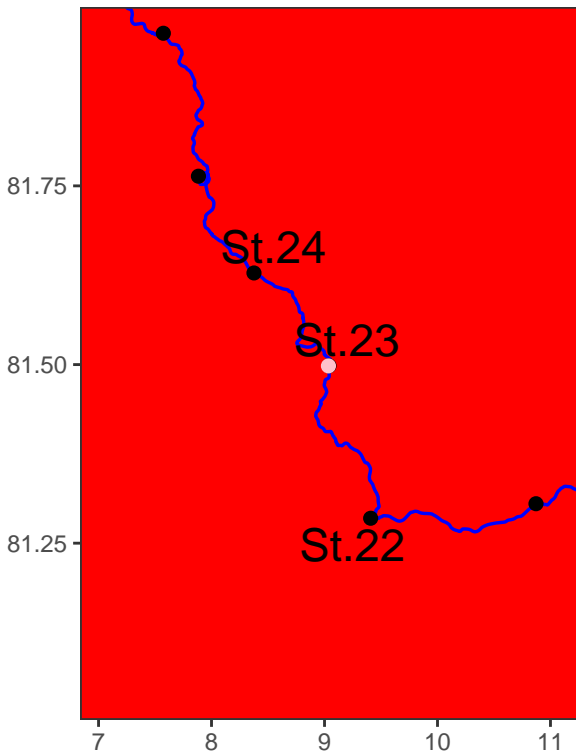
Sea ice as of 2021-07-02



KH2021_234 – Station 23 – 05/07/2021 – depth: 1136m



Sea ice as of 2021-07-02



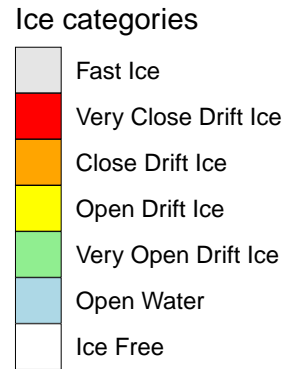
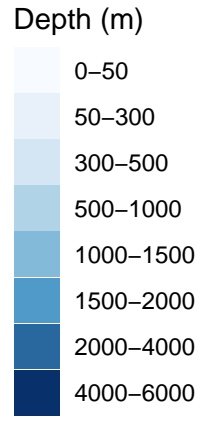
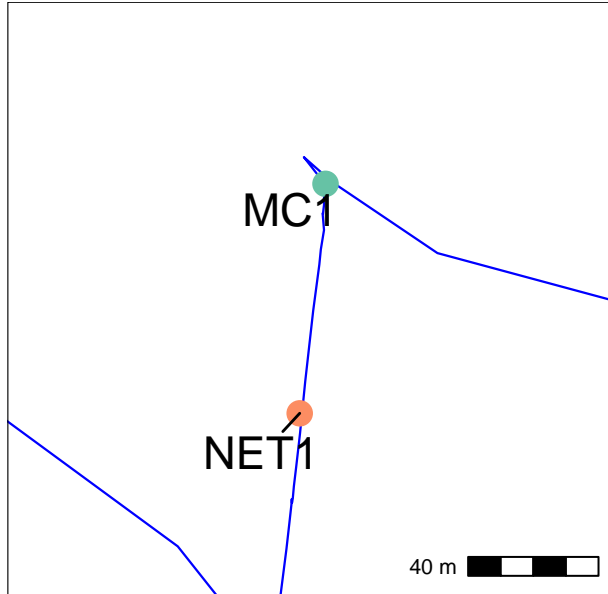
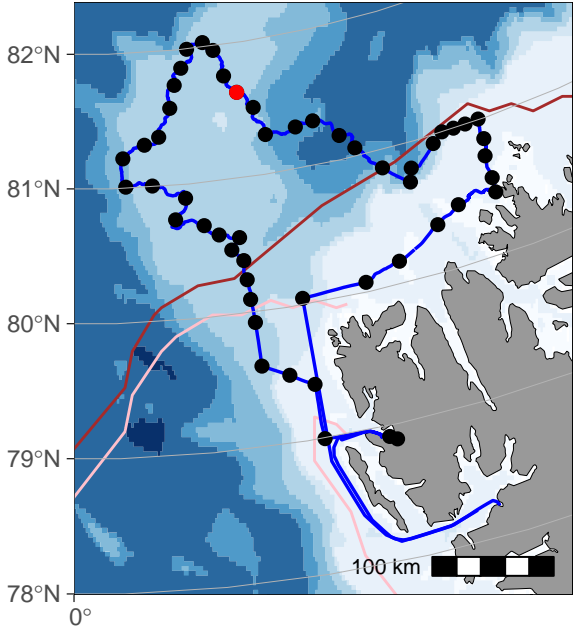
ACTIVITY

- ICE1
- MC1
- NET1
- NET2

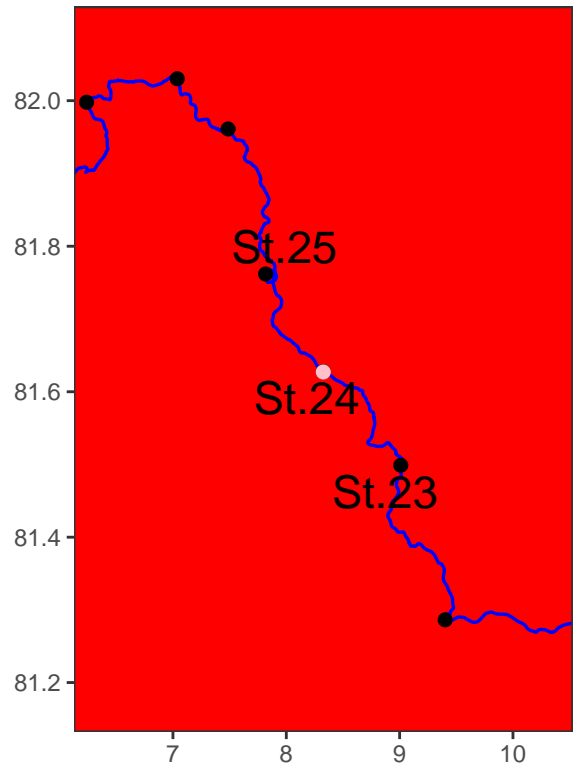
Ice categories

- Fast Ice
- Very Close Drift Ice
- Close Drift Ice
- Open Drift Ice
- Very Open Drift Ice
- Open Water
- Ice Free

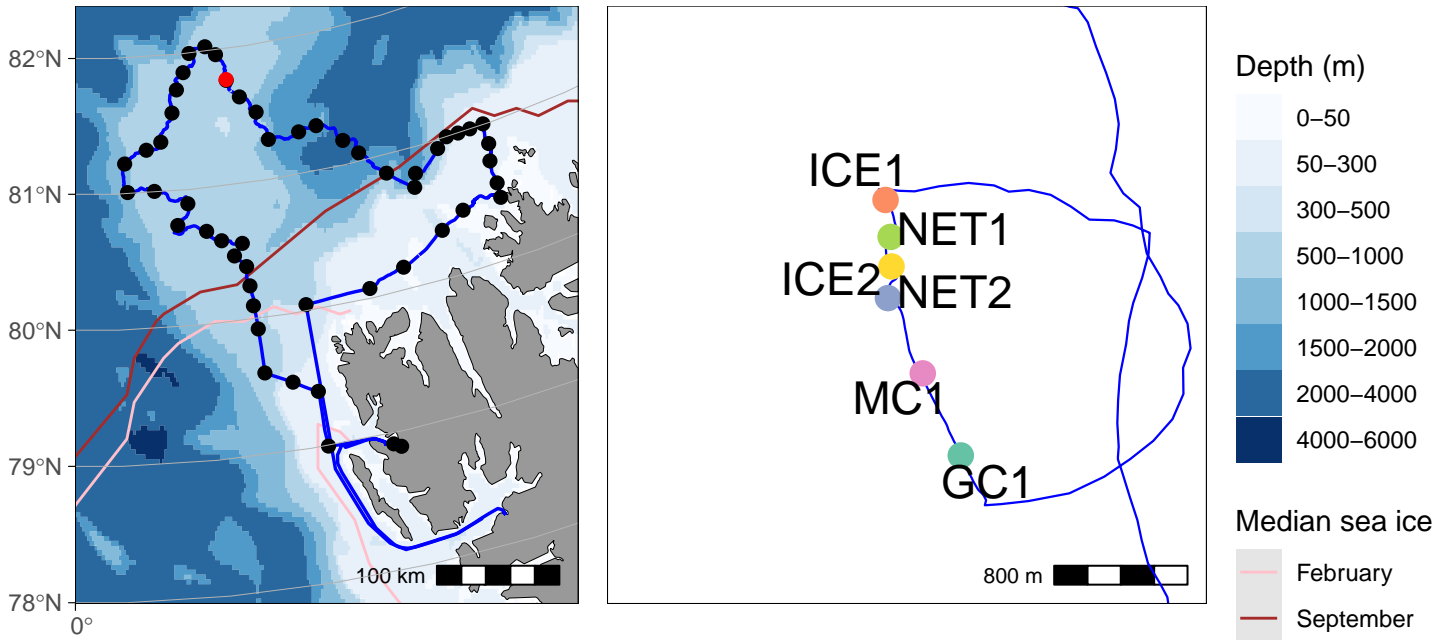
KH2021_234 – Station 24 – 06/07/2021 – depth: 850m



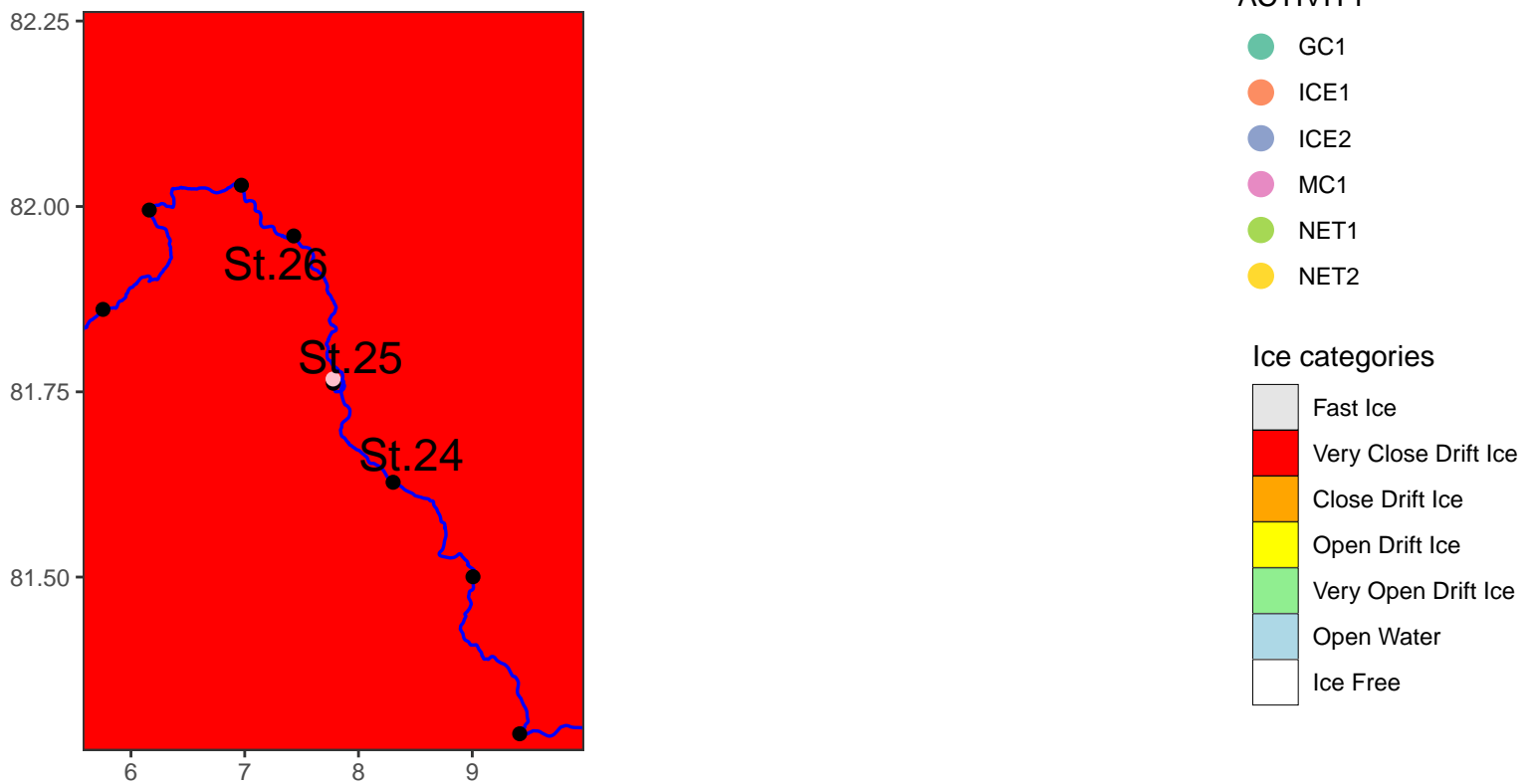
Sea ice as of 2021-07-02



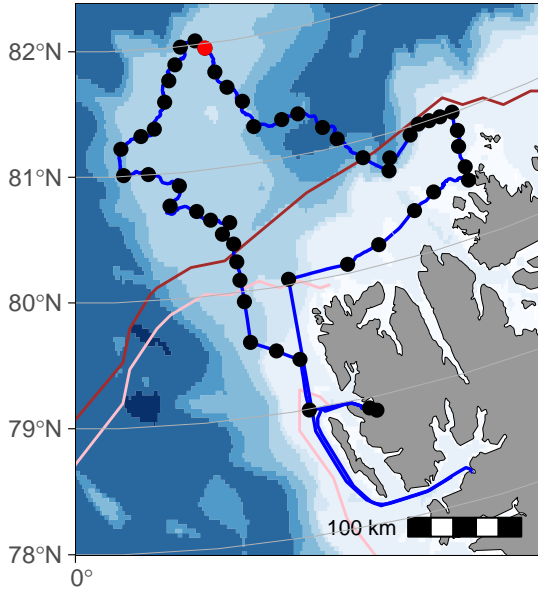
KH2021_234 – Station 25 – 06/07/2021 – depth: 819.33m



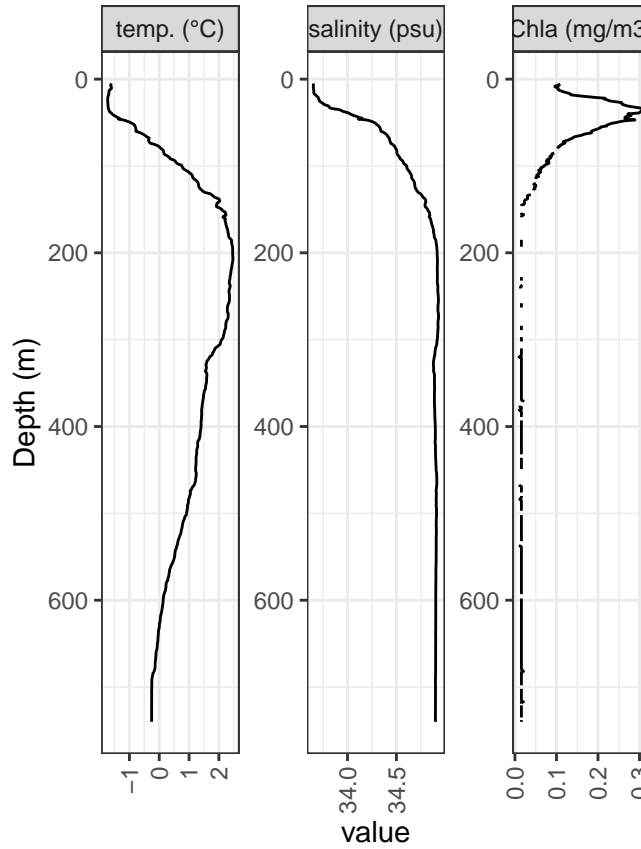
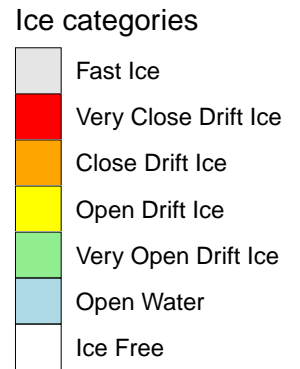
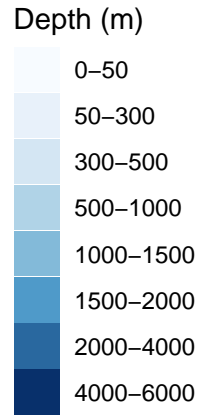
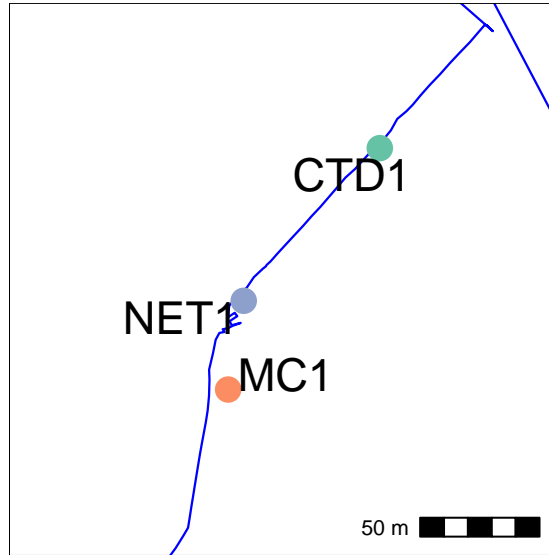
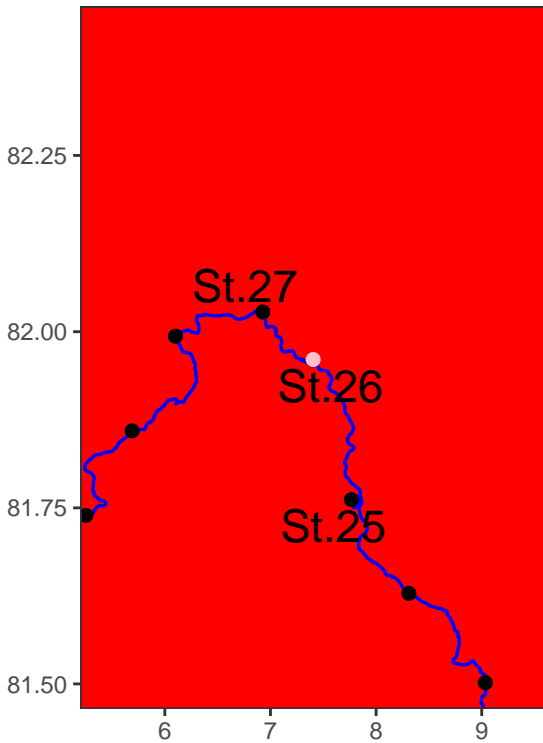
Sea ice as of 2021-07-02



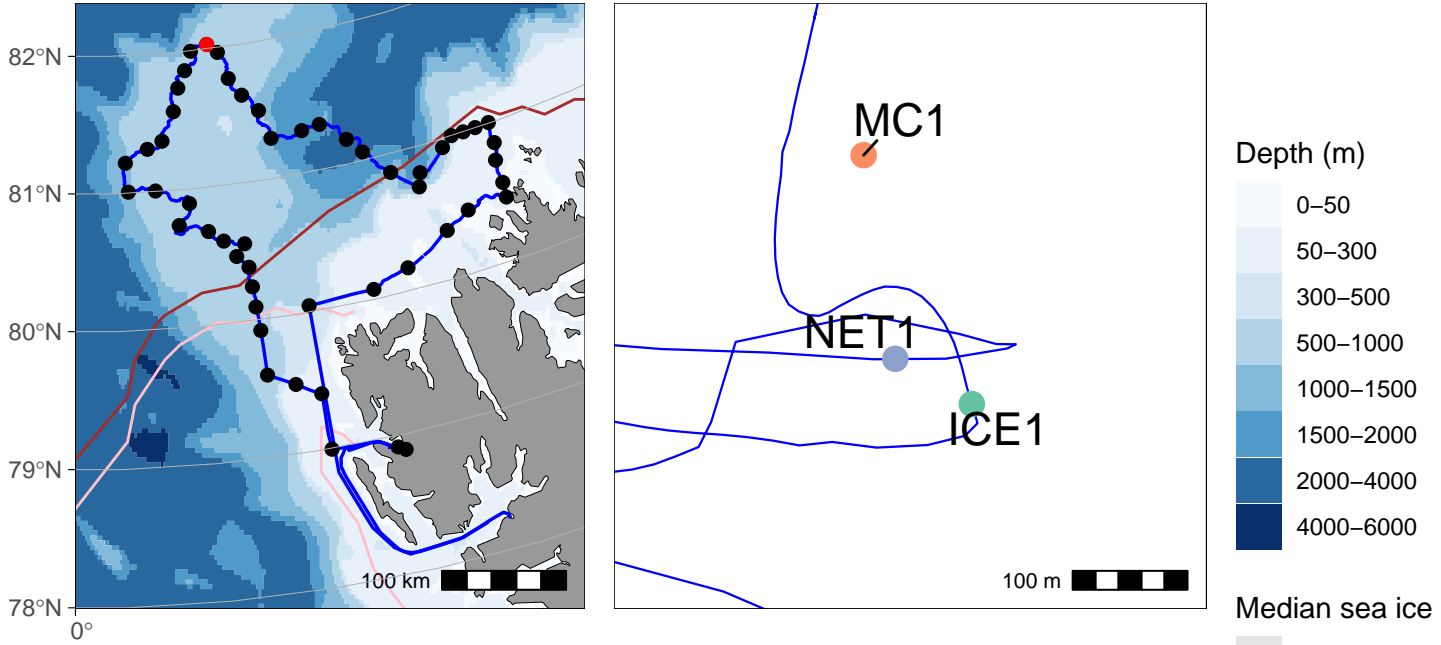
KH2021_234 – Station 26 – 06/07/2021 – depth: 742.67m



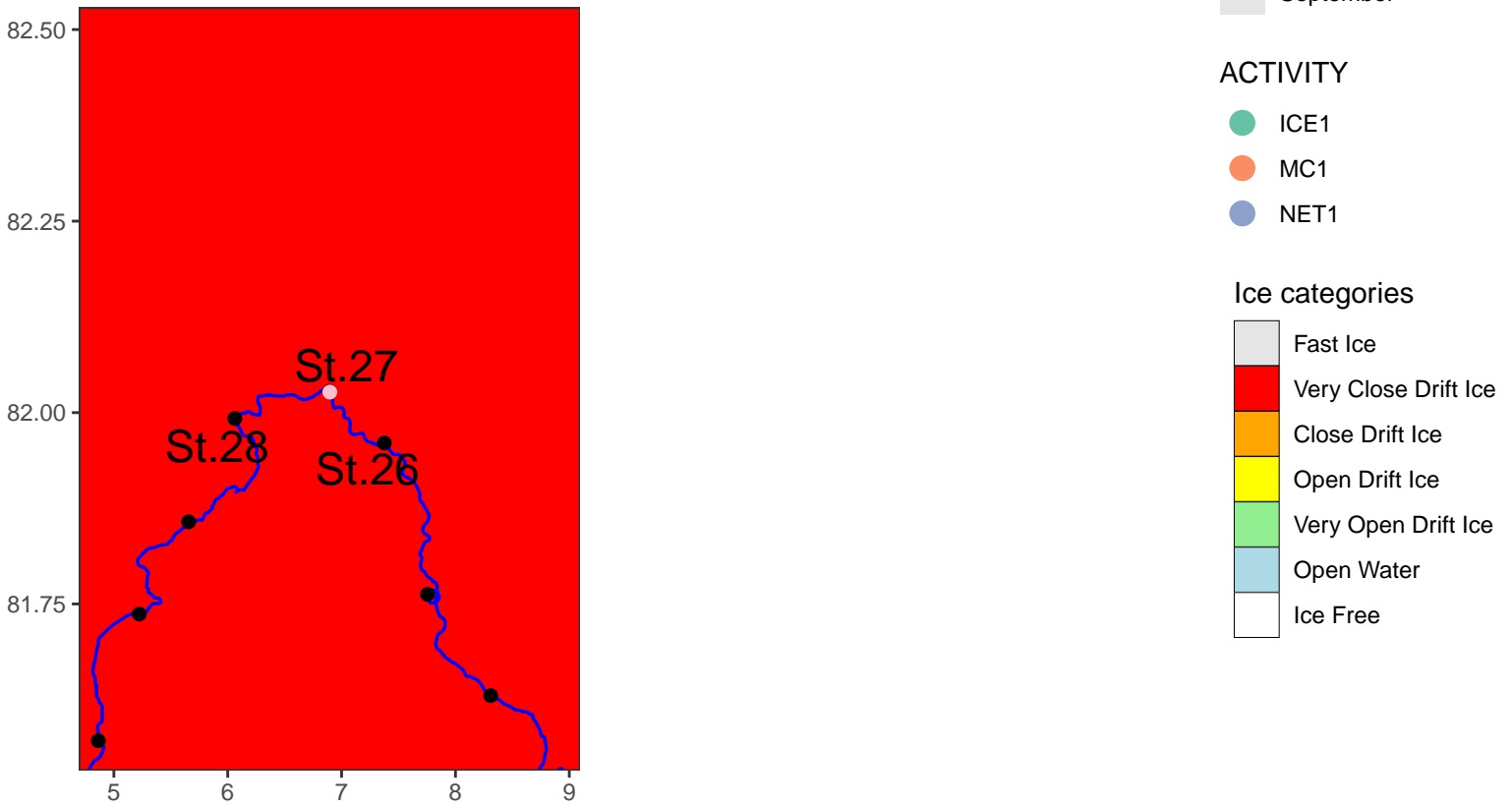
Sea ice as of 2021-07-02



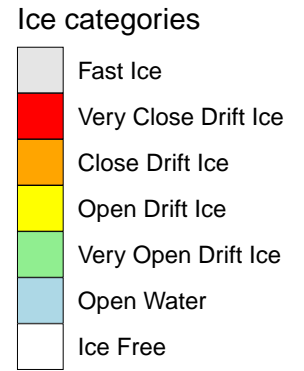
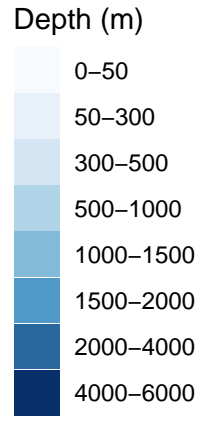
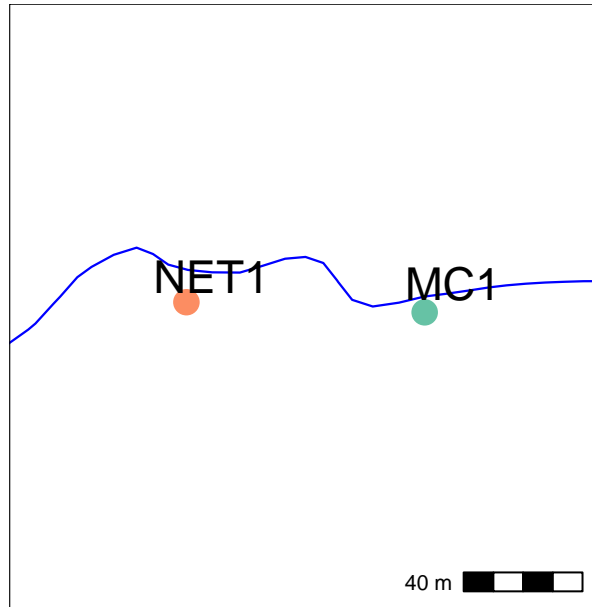
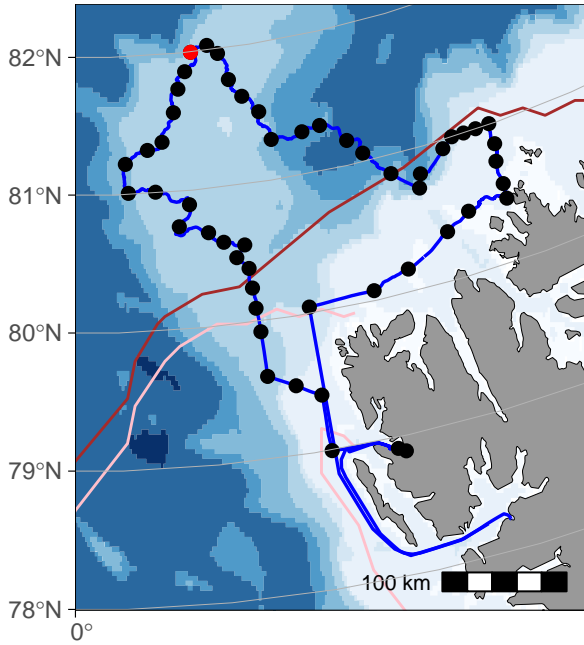
KH2021_234 – Station 27 – 06/07/2021 – depth: 734.67m



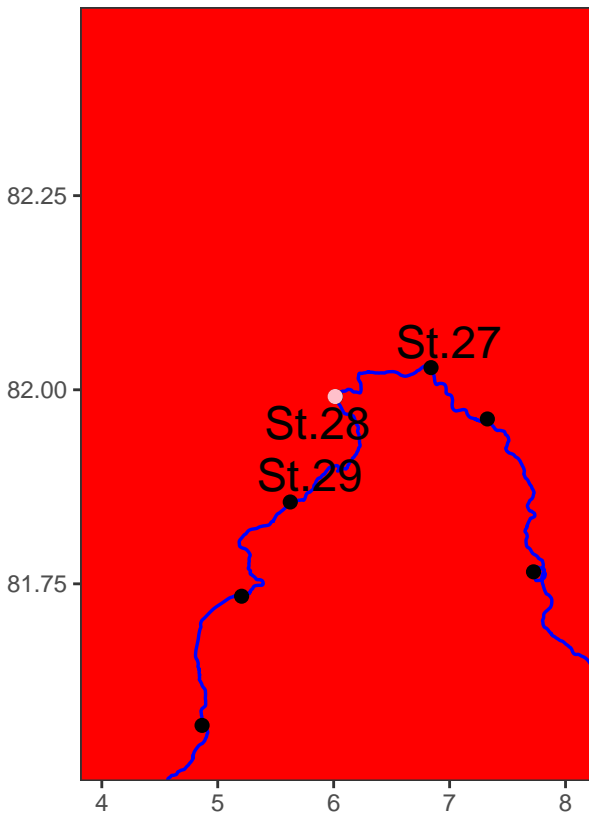
Sea ice as of 2021-07-02



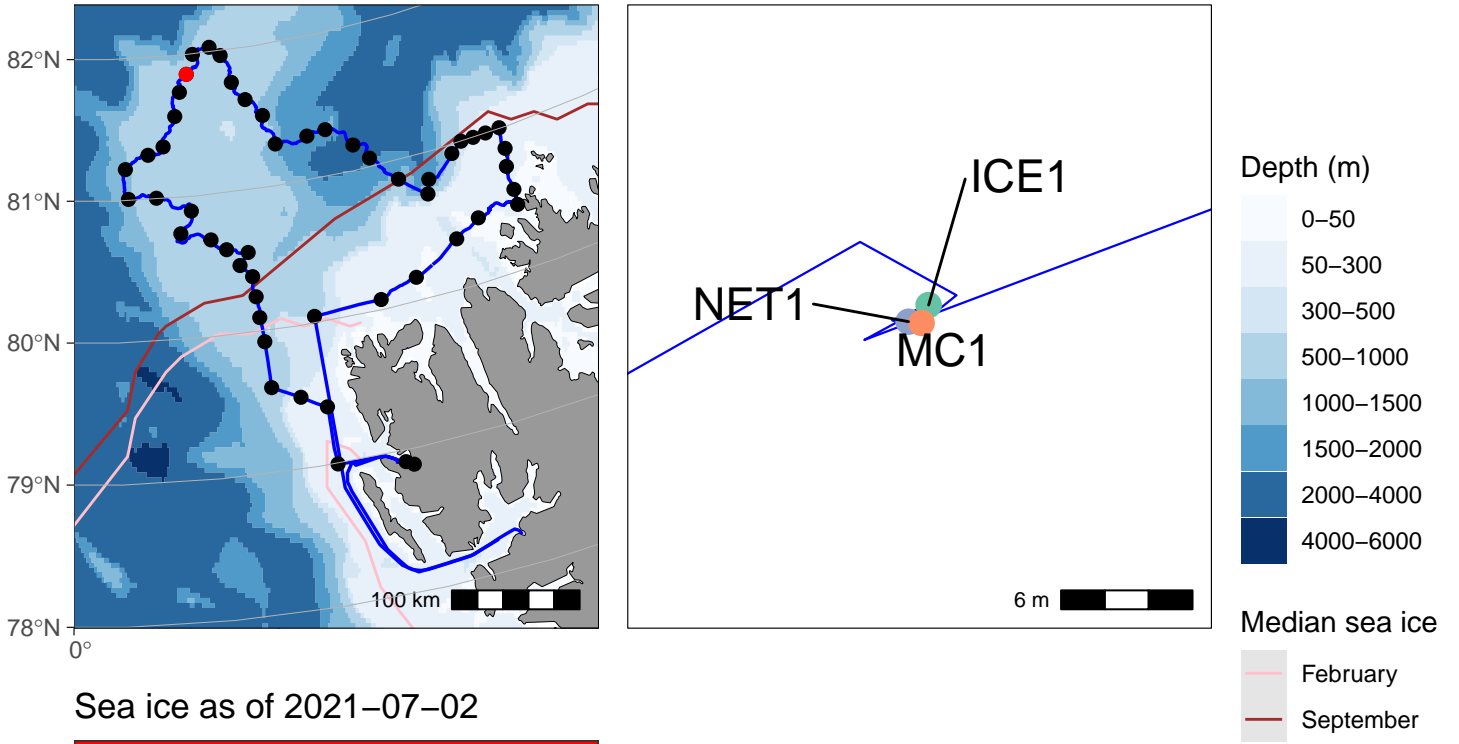
KH2021_234 – Station 28 – 06/07/2021 – depth: 850m



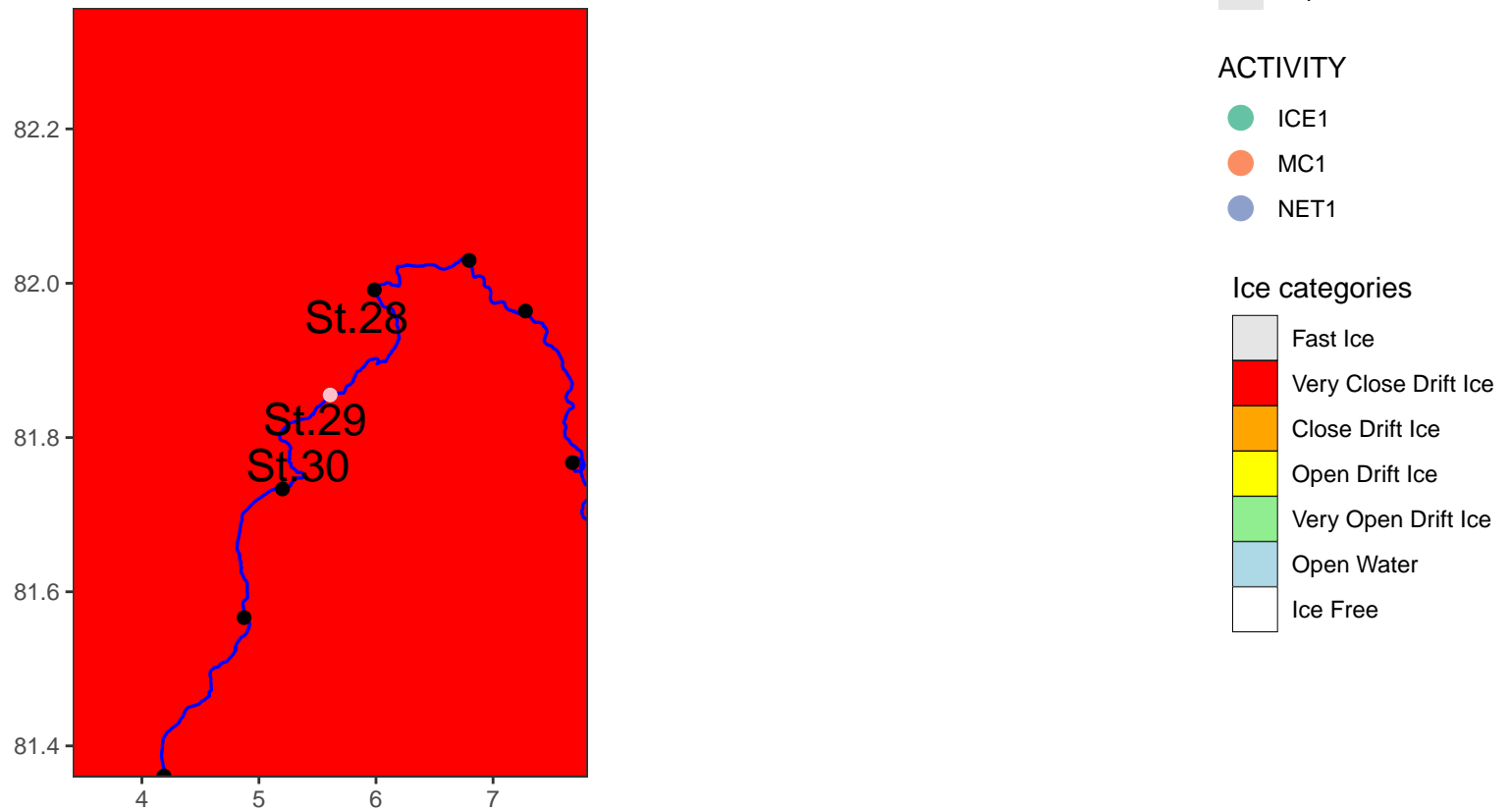
Sea ice as of 2021-07-02



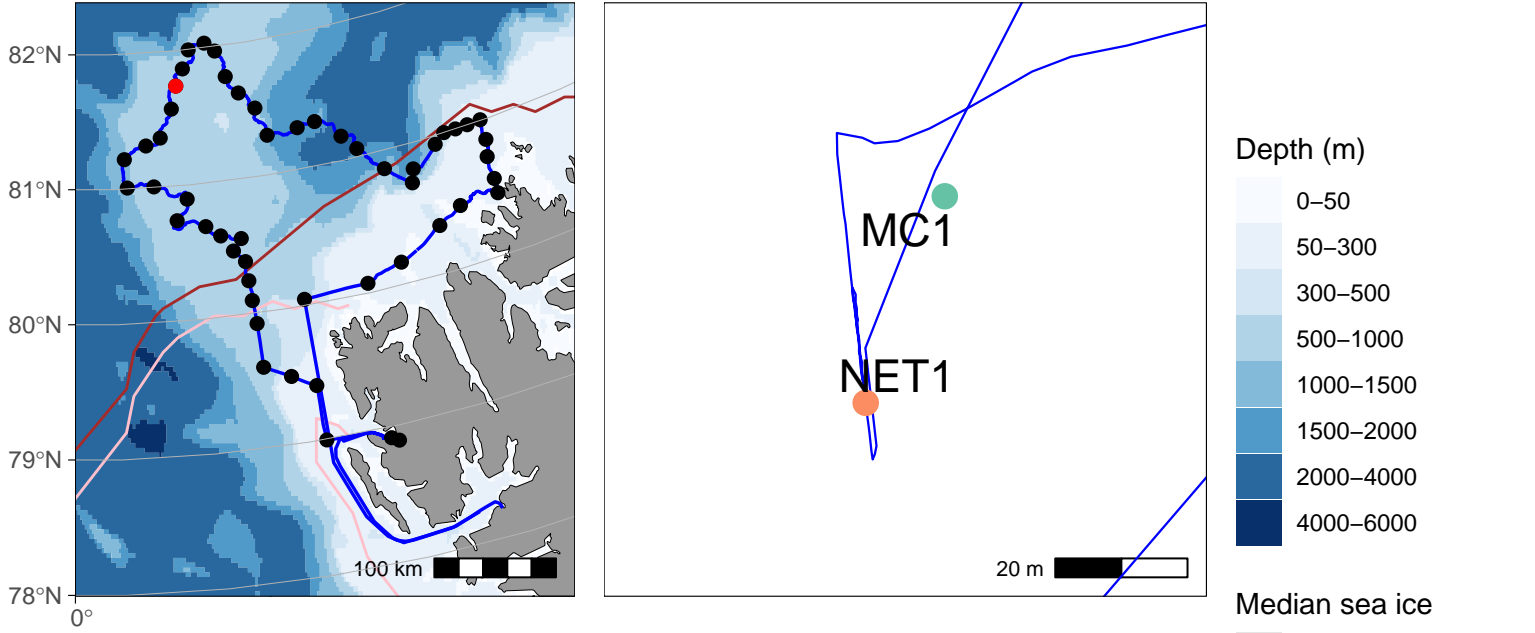
KH2021_234 – Station 29 – 06/07/2021 – depth: 811m



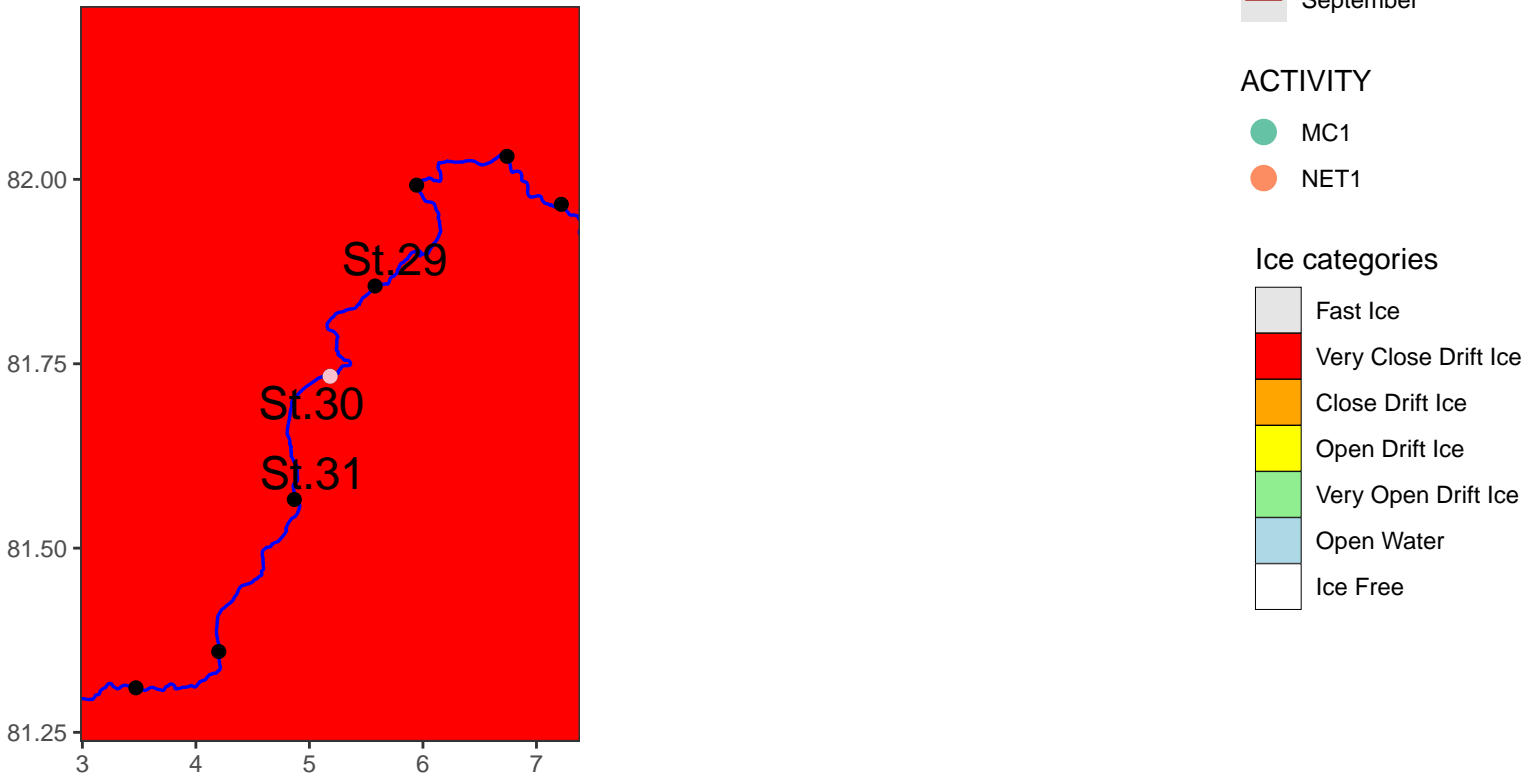
Sea ice as of 2021-07-02



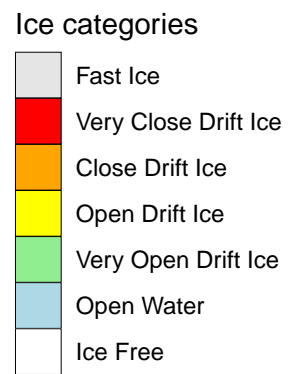
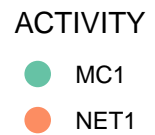
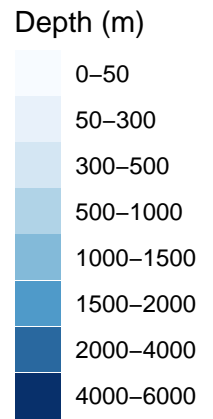
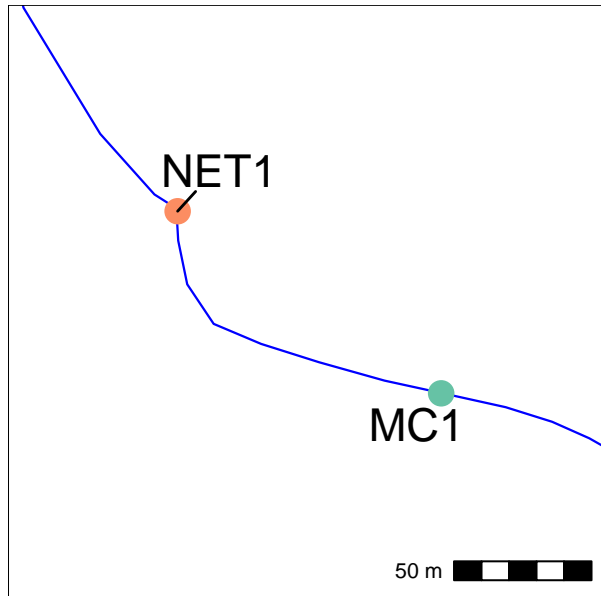
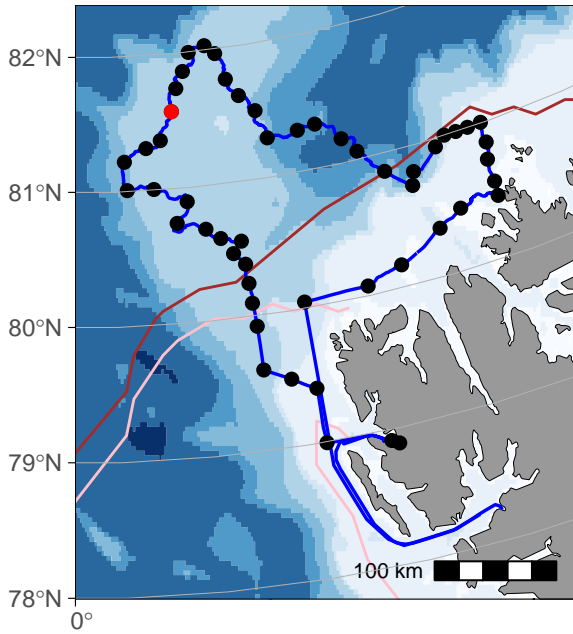
KH2021_234 – Station 30 – 07/07/2021 – depth: 771m



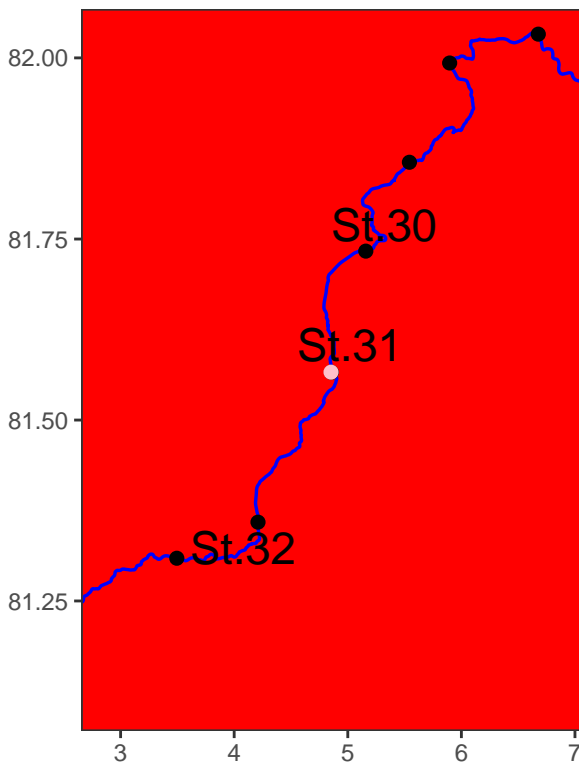
Sea ice as of 2021-07-02



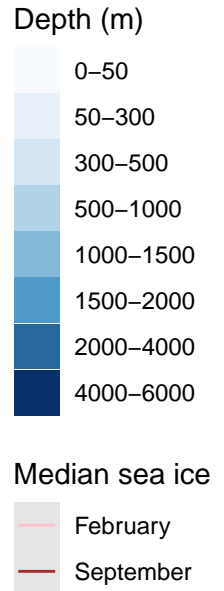
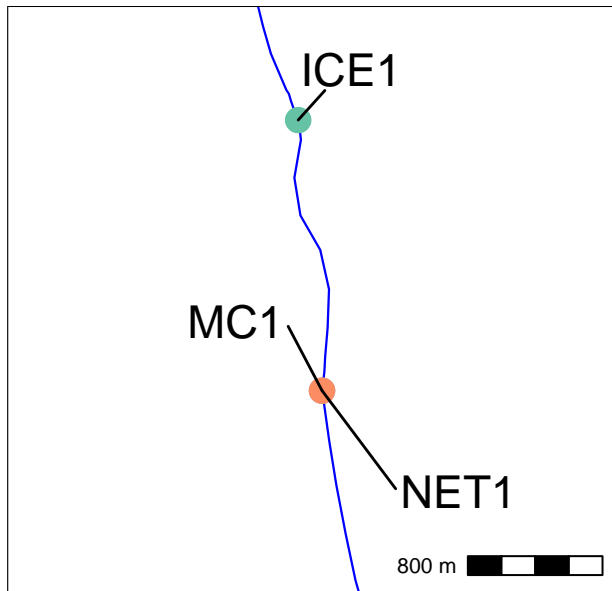
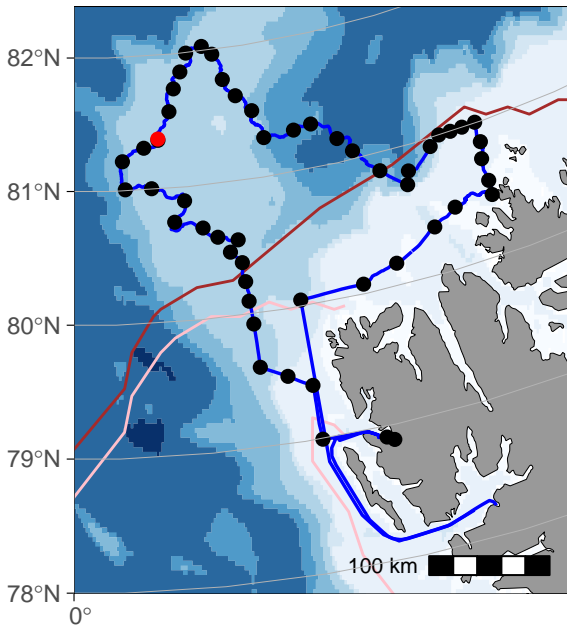
KH2021_234 – Station 31 – 07/07/2021 – depth: 744m



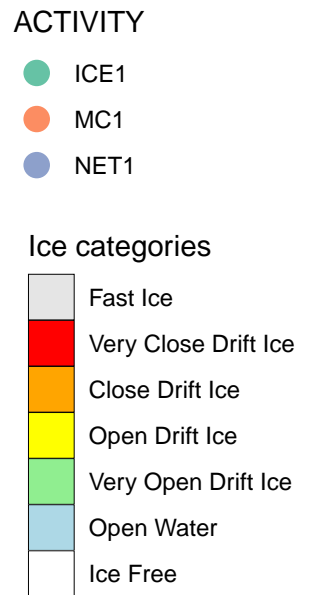
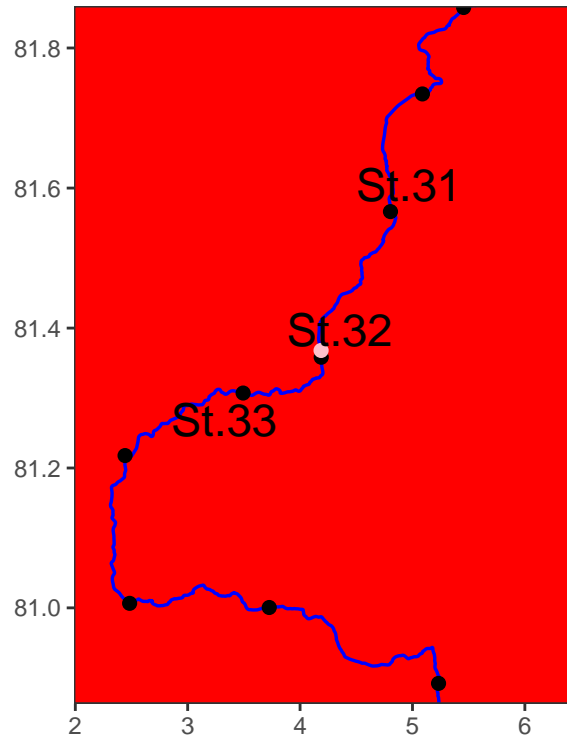
Sea ice as of 2021-07-02



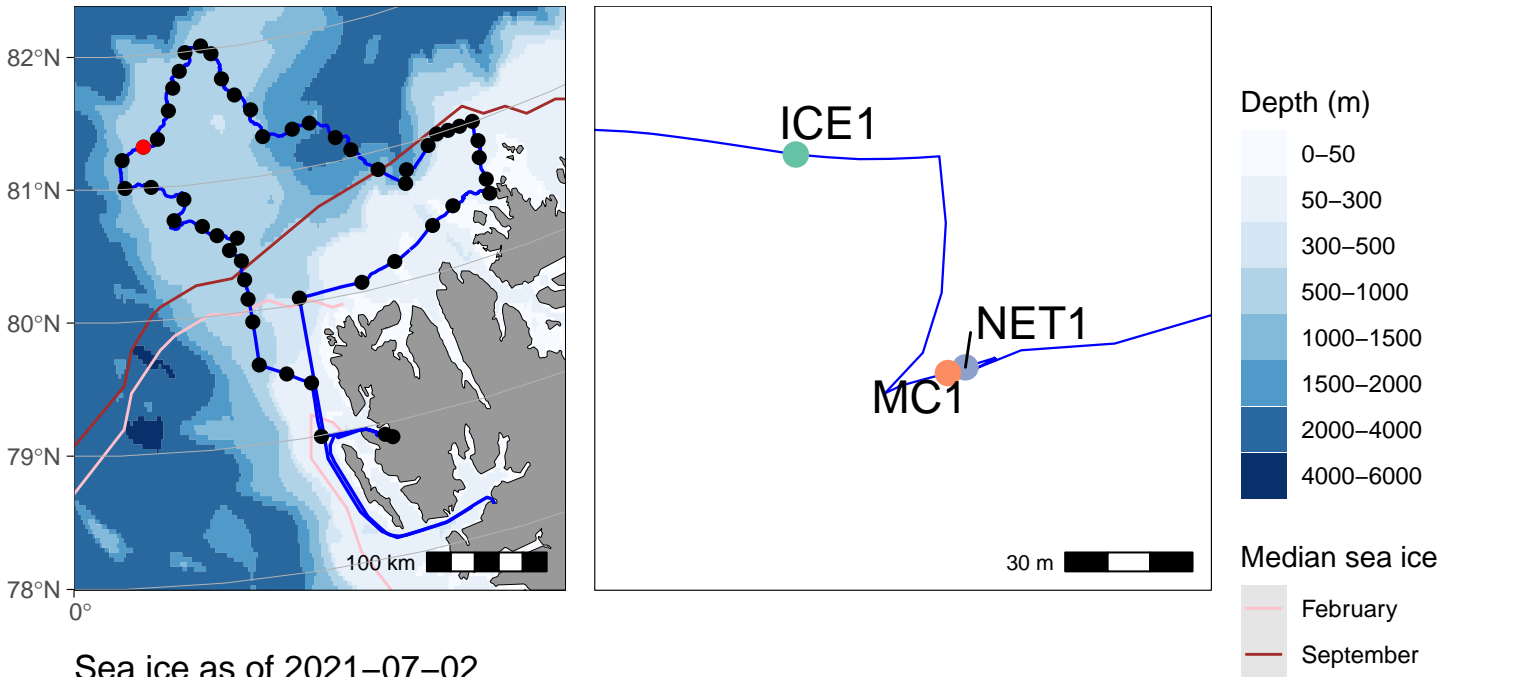
KH2021_234 – Station 32 – 07/07/2021 – depth: 735.33m



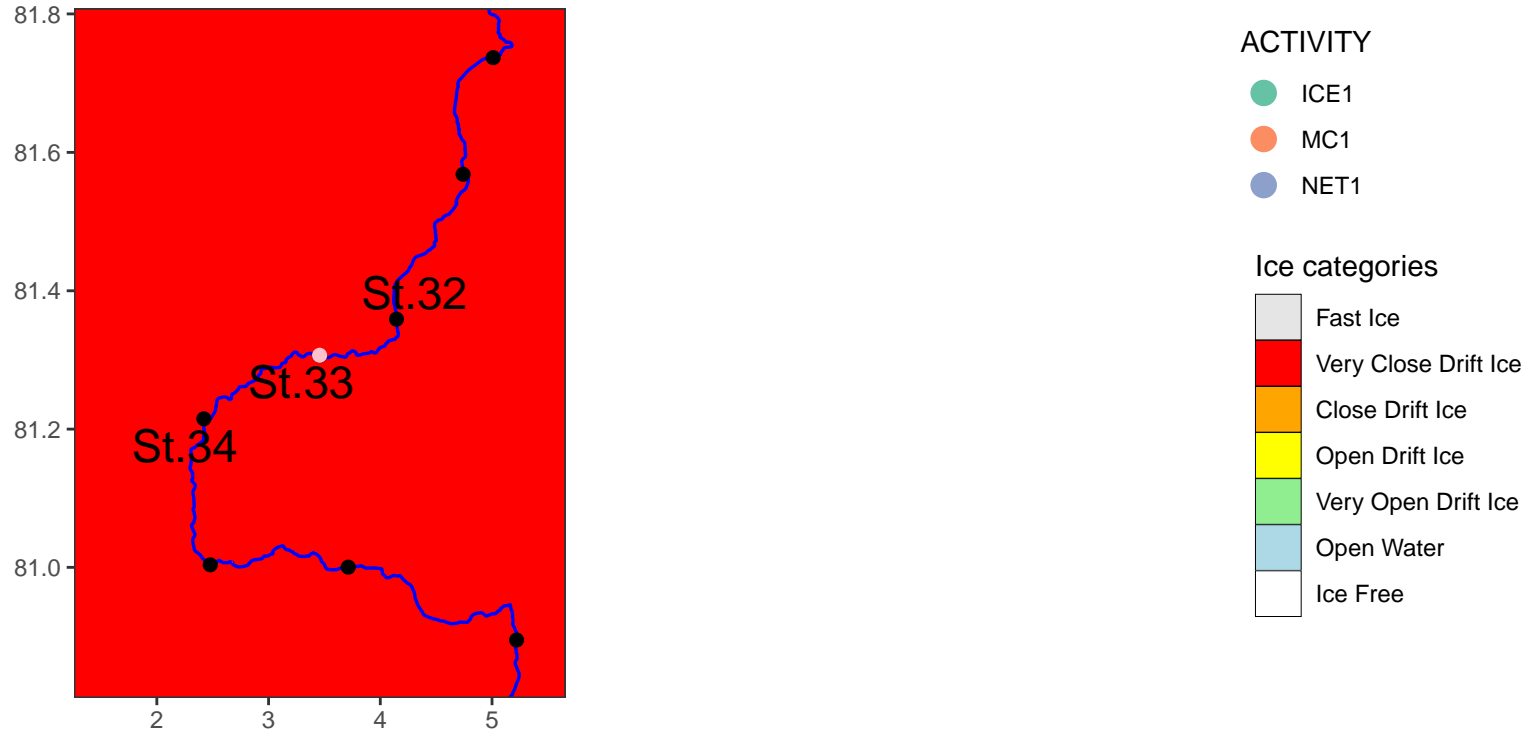
Sea ice as of 2021-07-02



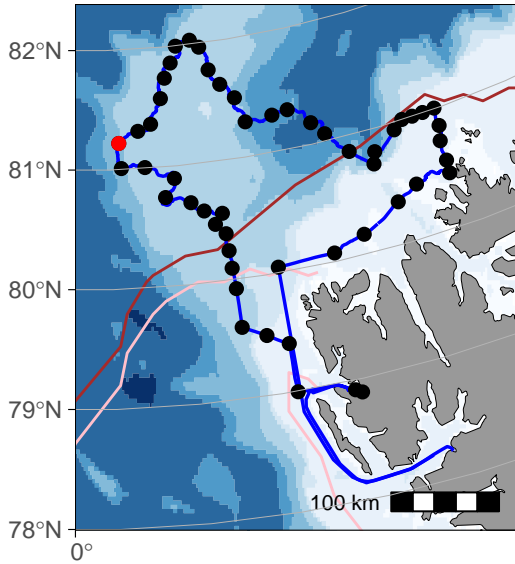
KH2021_234 – Station 33 – 07/07/2021 – depth: 748.67m



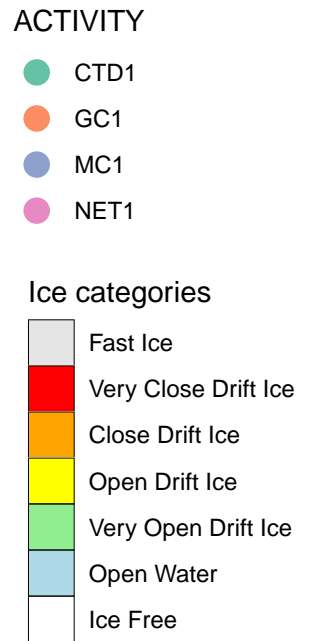
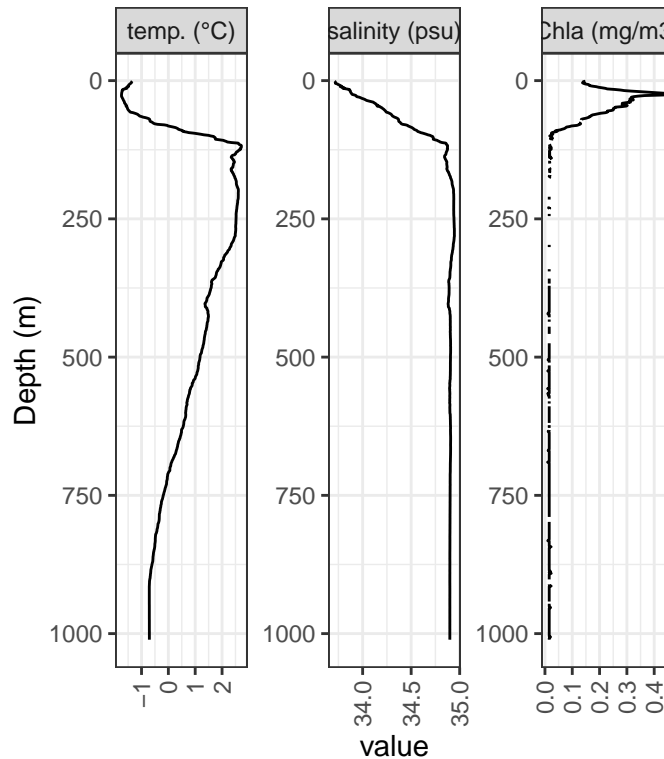
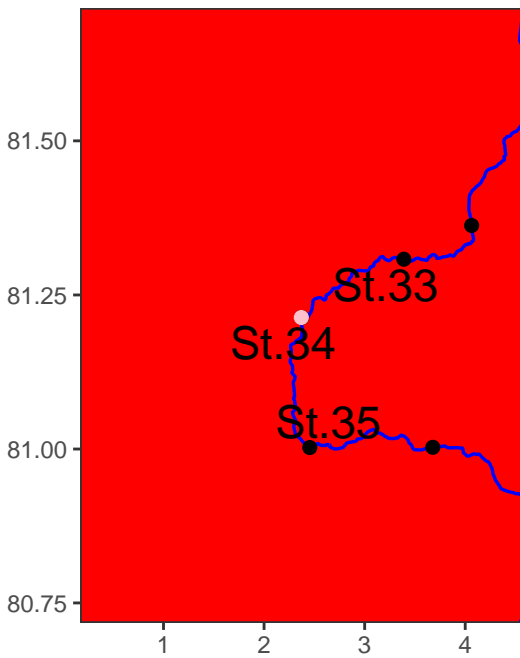
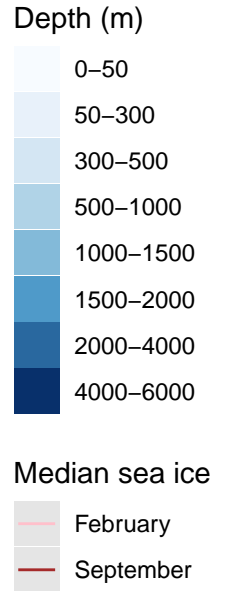
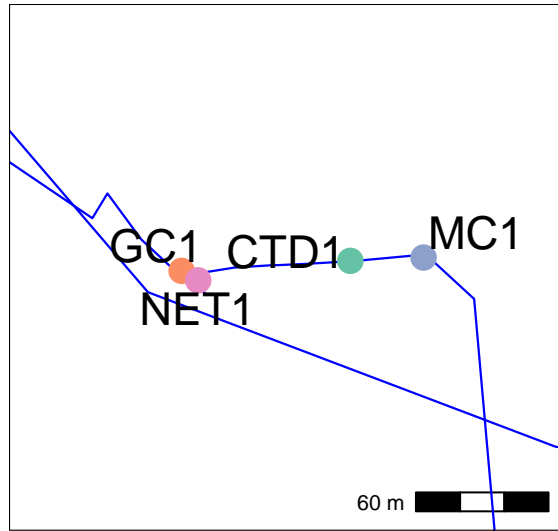
Sea ice as of 2021-07-02



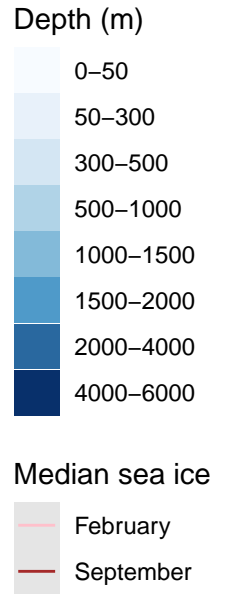
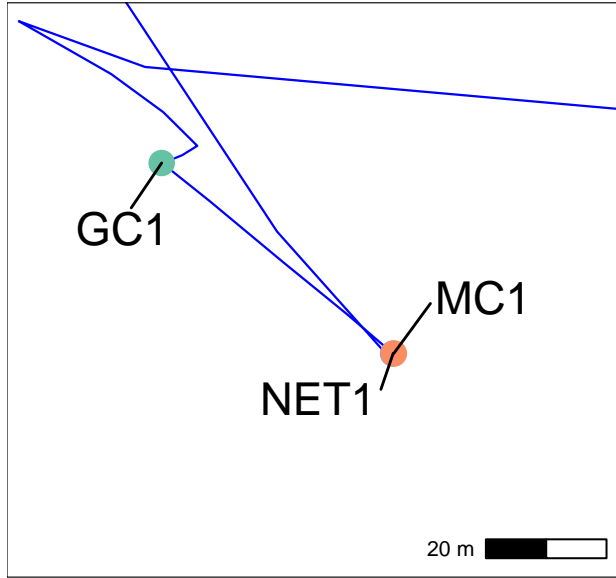
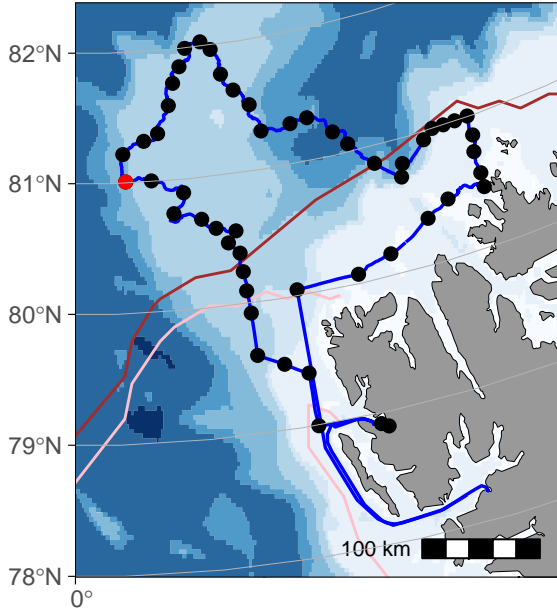
KH2021_234 – Station 34 – 07/07/2021 – depth: 1011m



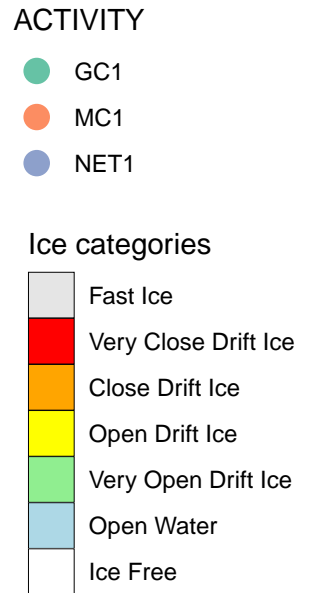
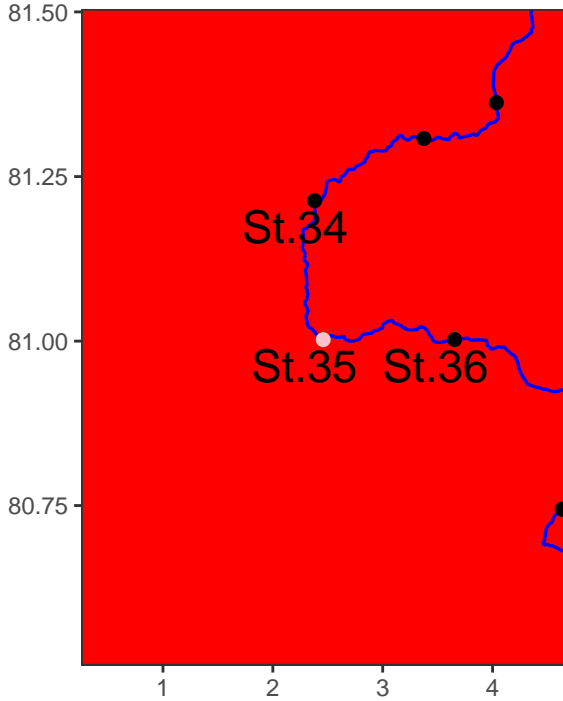
Sea ice as of 2021-07-02



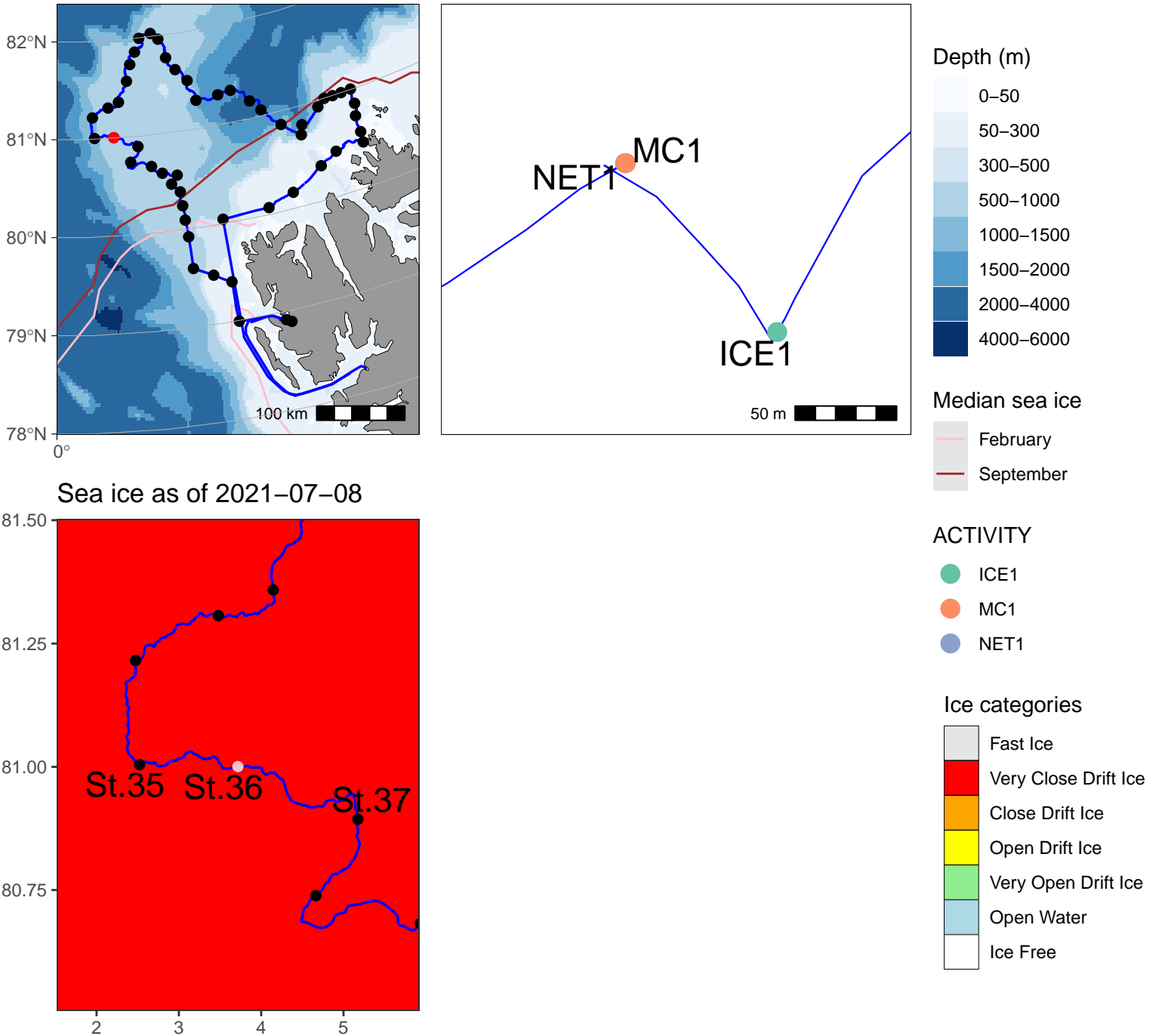
KH2021_234 – Station 35 – 07/07/2021 – depth: 1023m



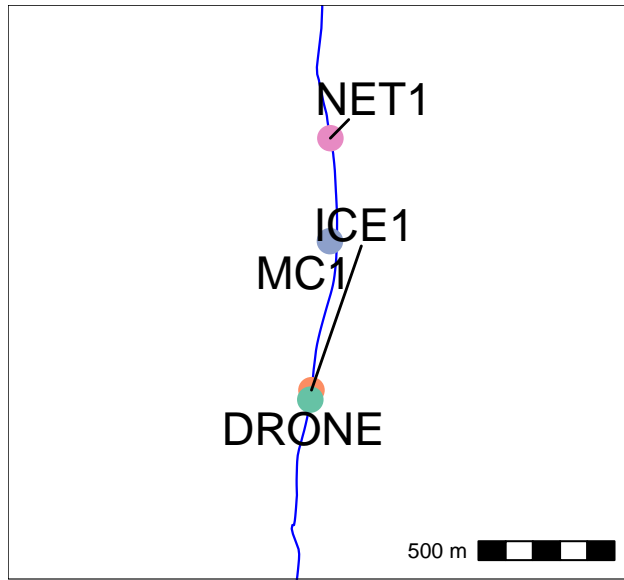
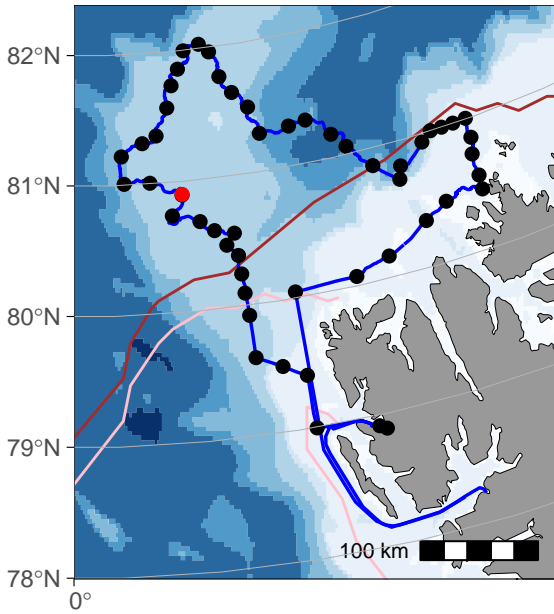
Sea ice as of 2021-07-02



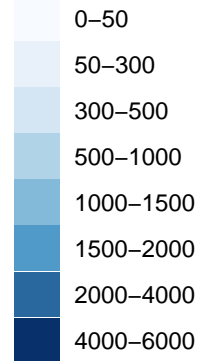
KH2021_234 – Station 36 – 08/07/2021 – depth: 733m



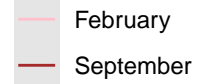
KH2021_234 – Station 37 – 08/07/2021 – depth: 702.75m



Depth (m)



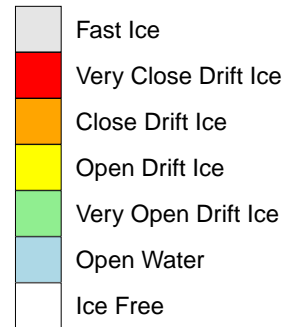
Median sea ice



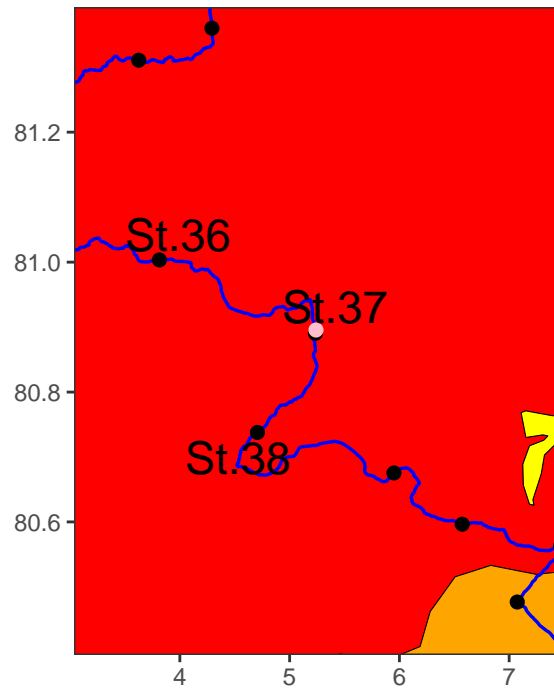
ACTIVITY



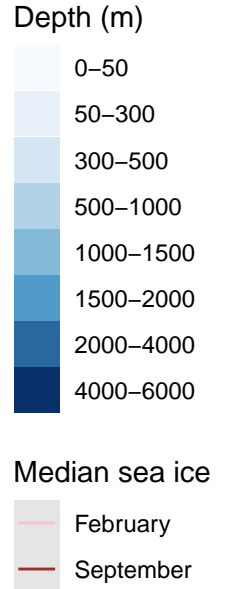
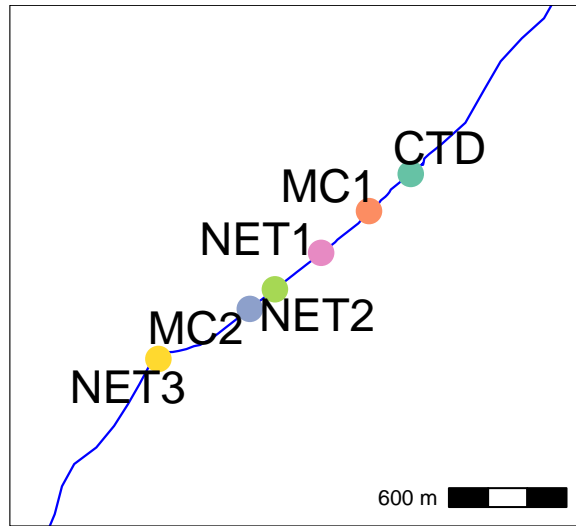
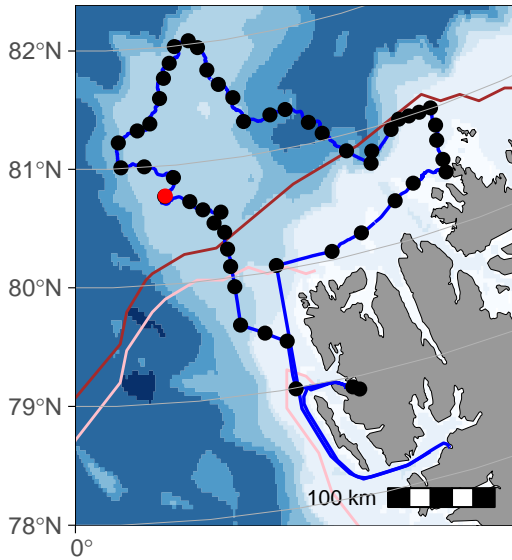
Ice categories



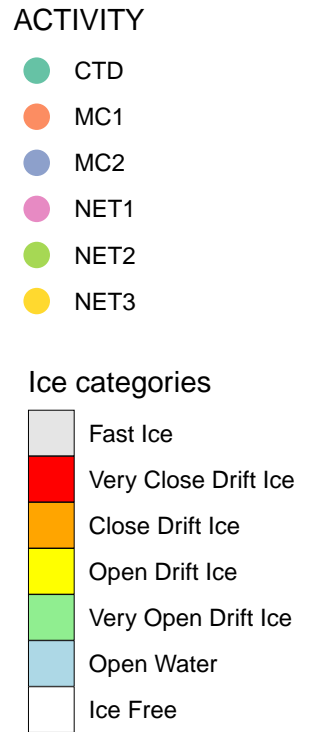
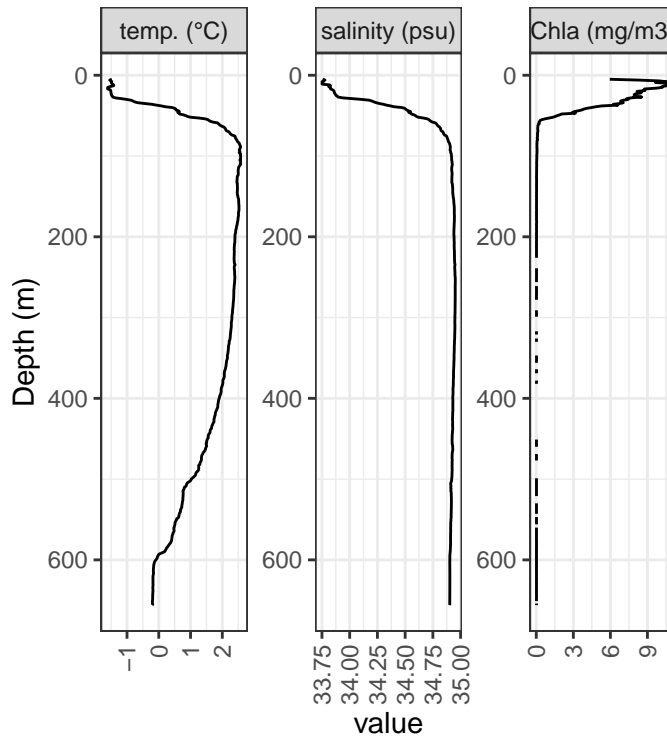
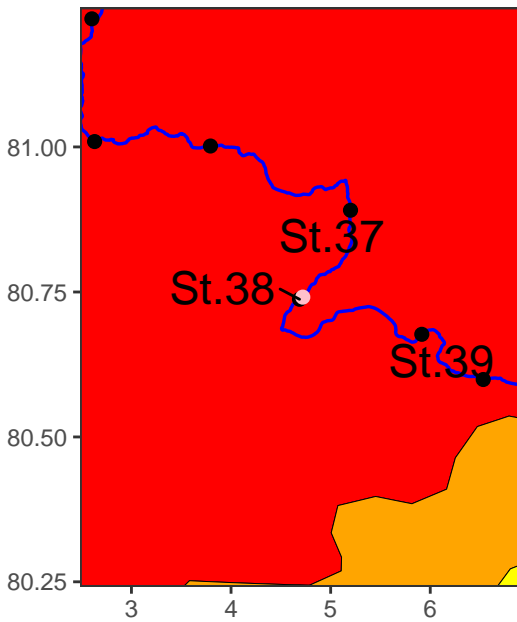
Sea ice as of 2021-07-08



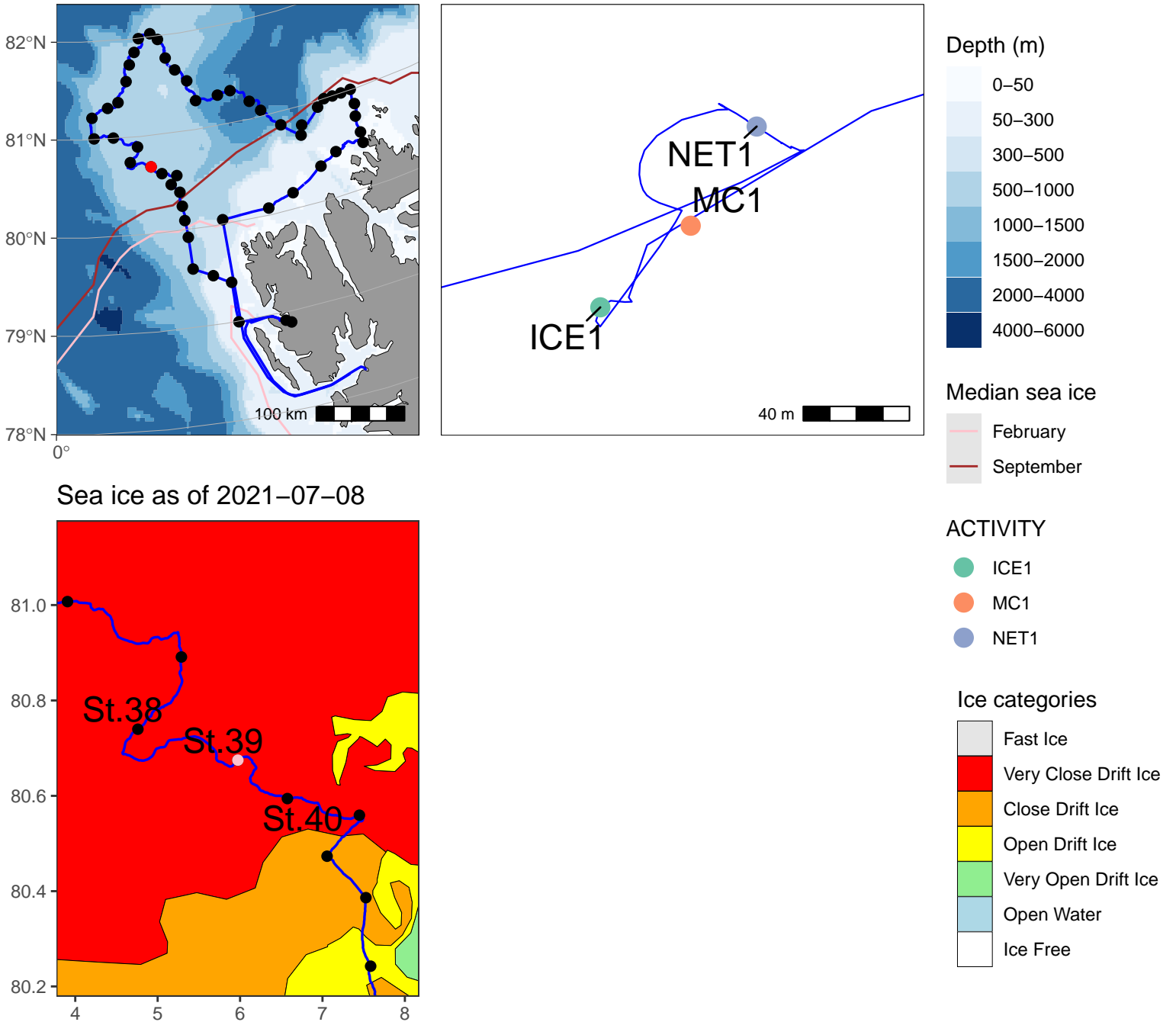
KH2021_234 – Station 38 – 08/07/2021 – depth: 658.83m



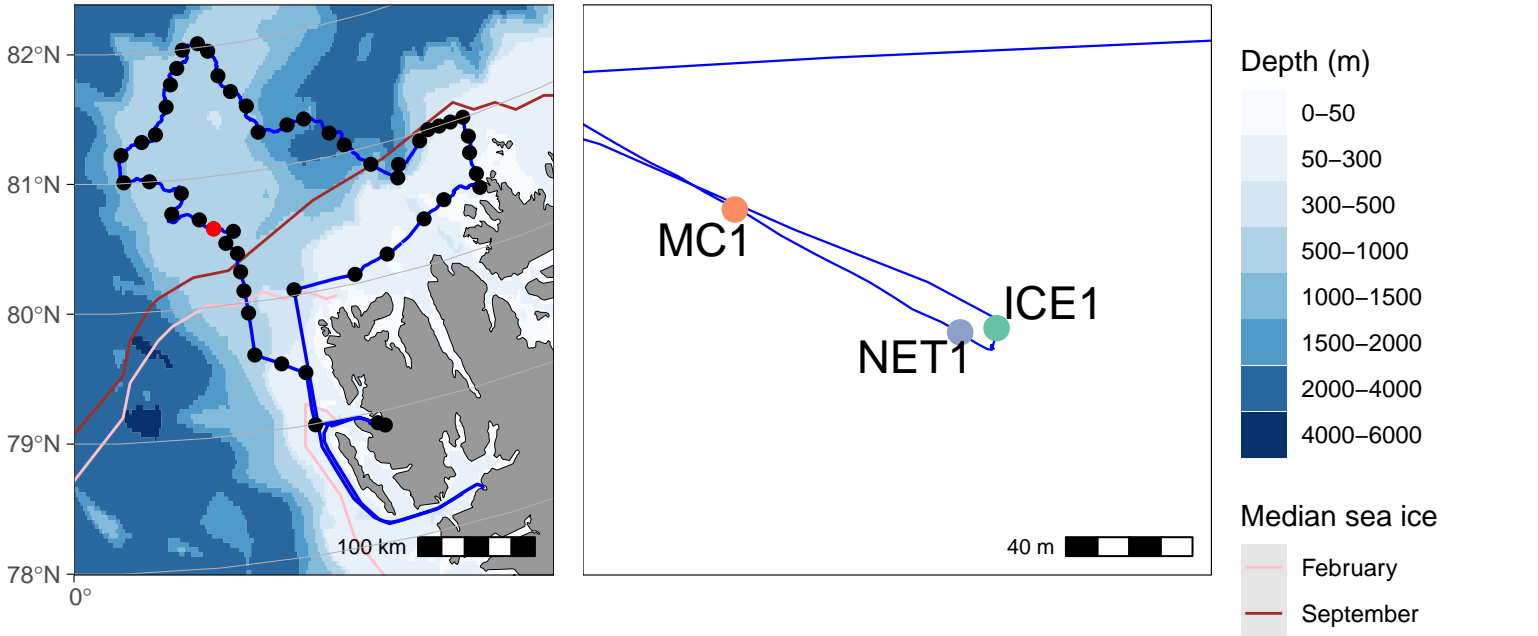
Sea ice as of 2021-07-08



KH2021_234 – Station 39 – 08/07/2021 – depth: 743m



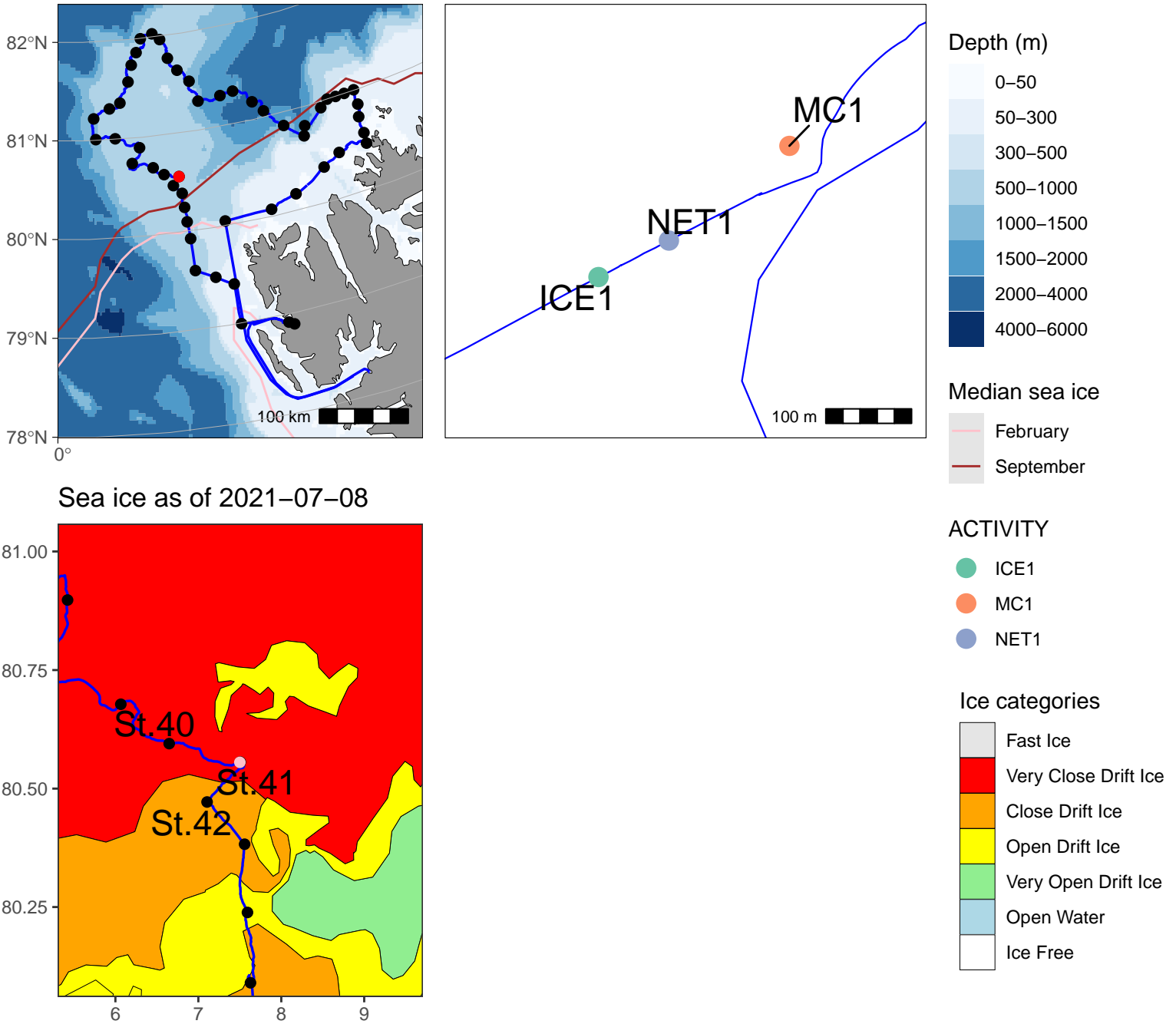
KH2021_234 – Station 40 – 08/07/2021 – depth: 702.67m



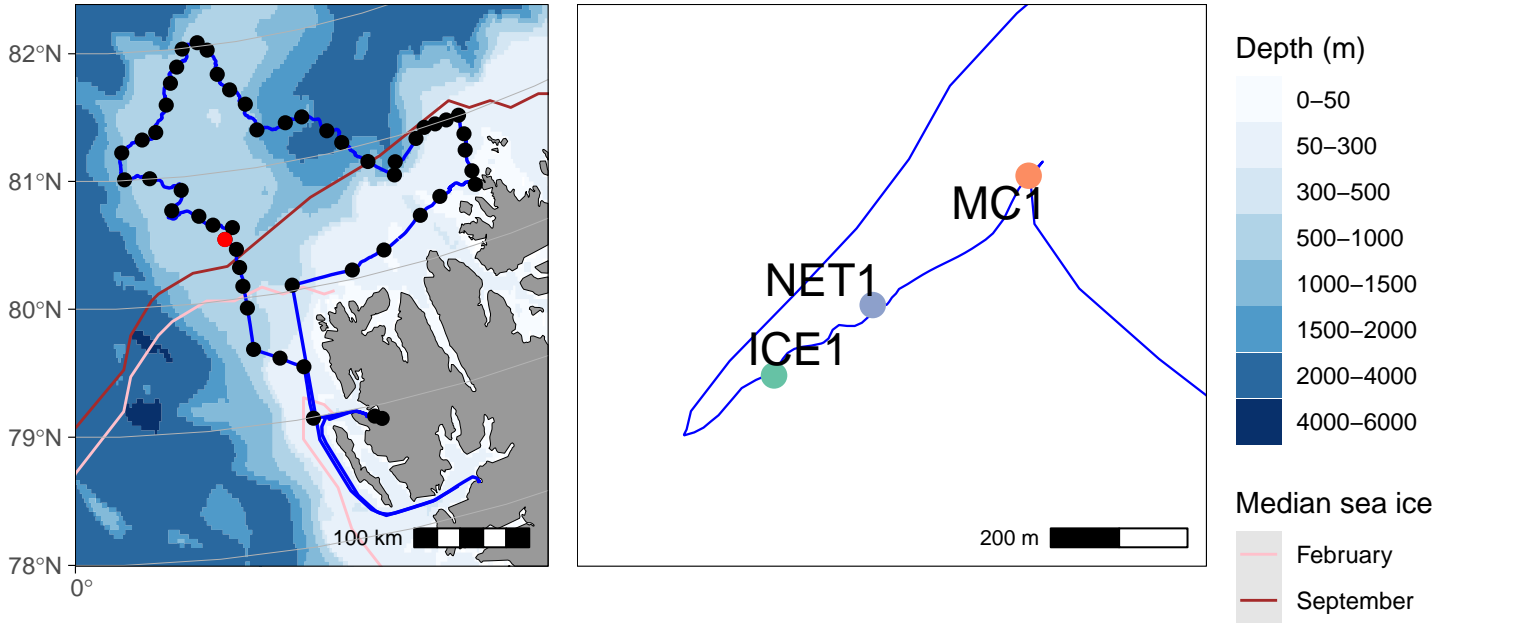
Sea ice as of 2021-07-08



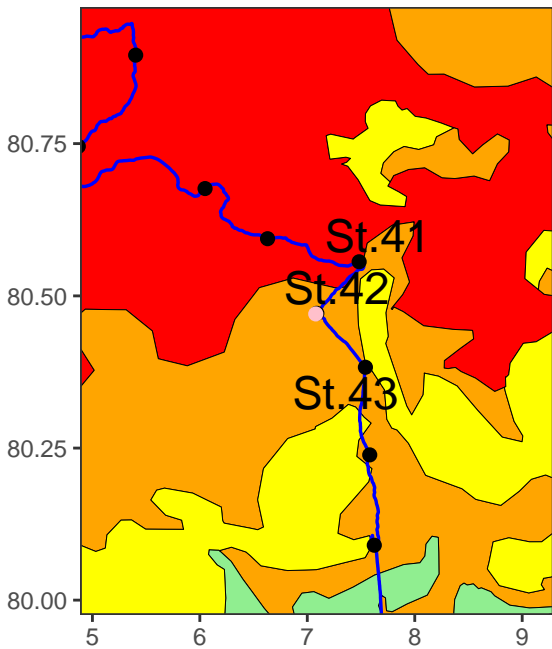
KH2021_234 – Station 41 – 08/07/2021 – depth: 755.33m



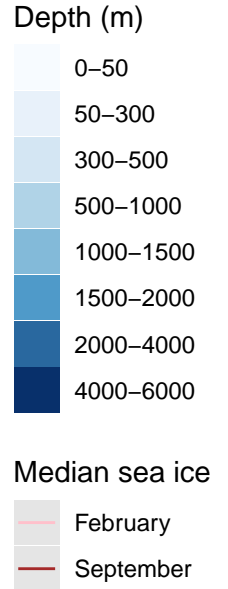
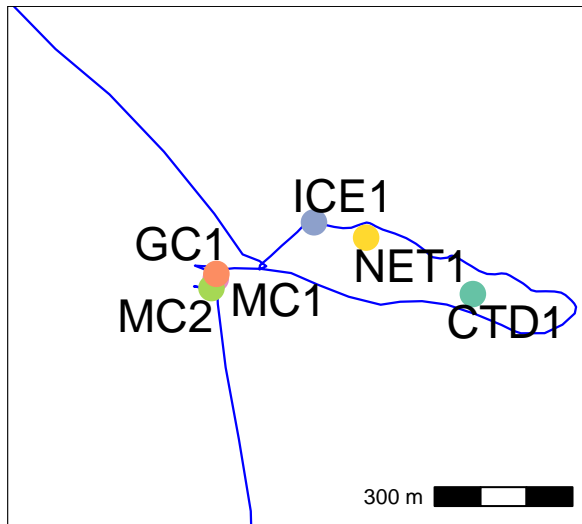
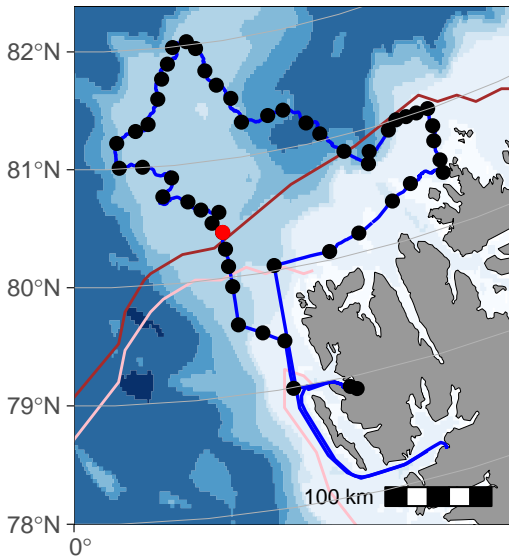
KH2021_234 – Station 42 – 09/07/2021 – depth: 673.67m



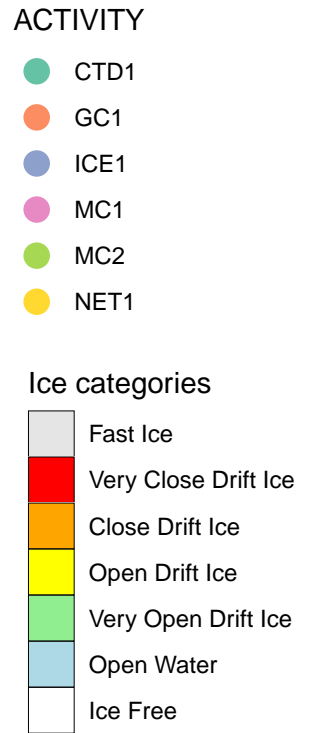
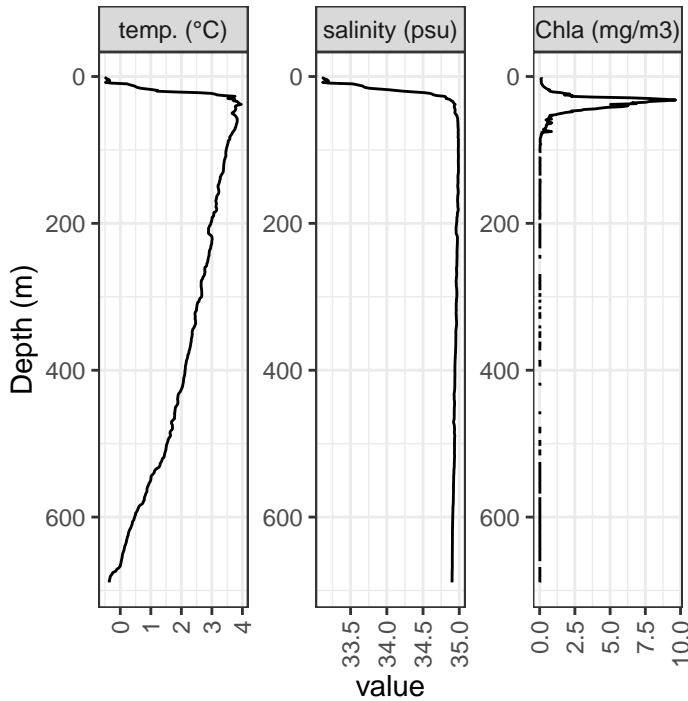
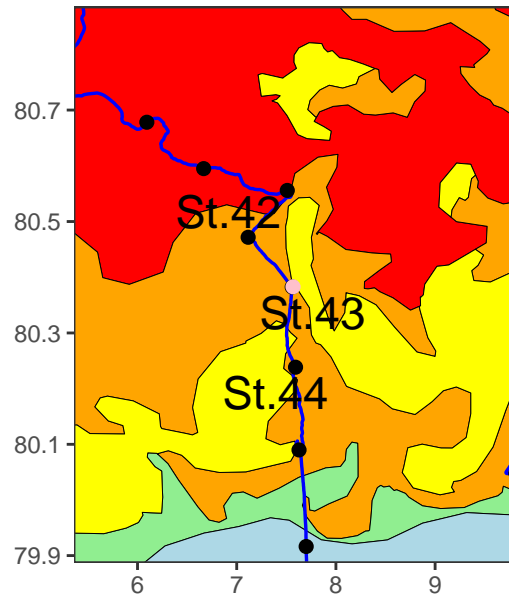
Sea ice as of 2021-07-09



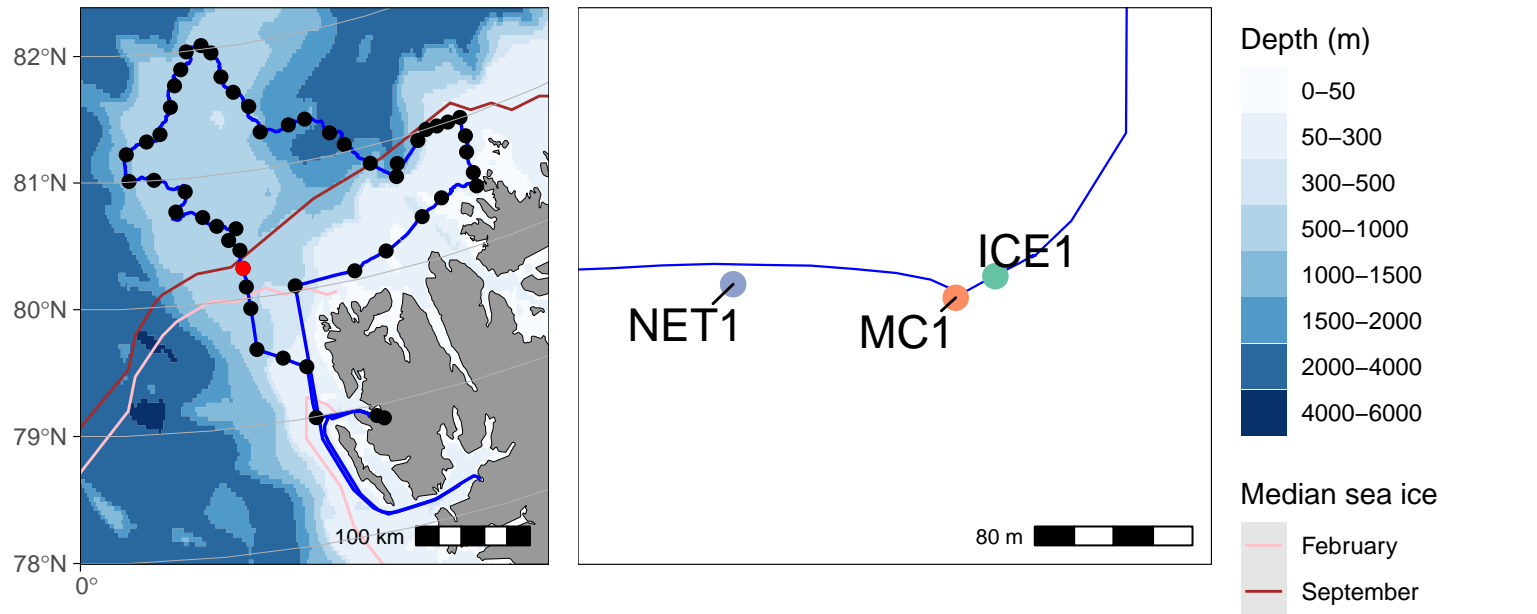
KH2021_234 – Station 43 – 09/07/2021 – depth: 686.83m



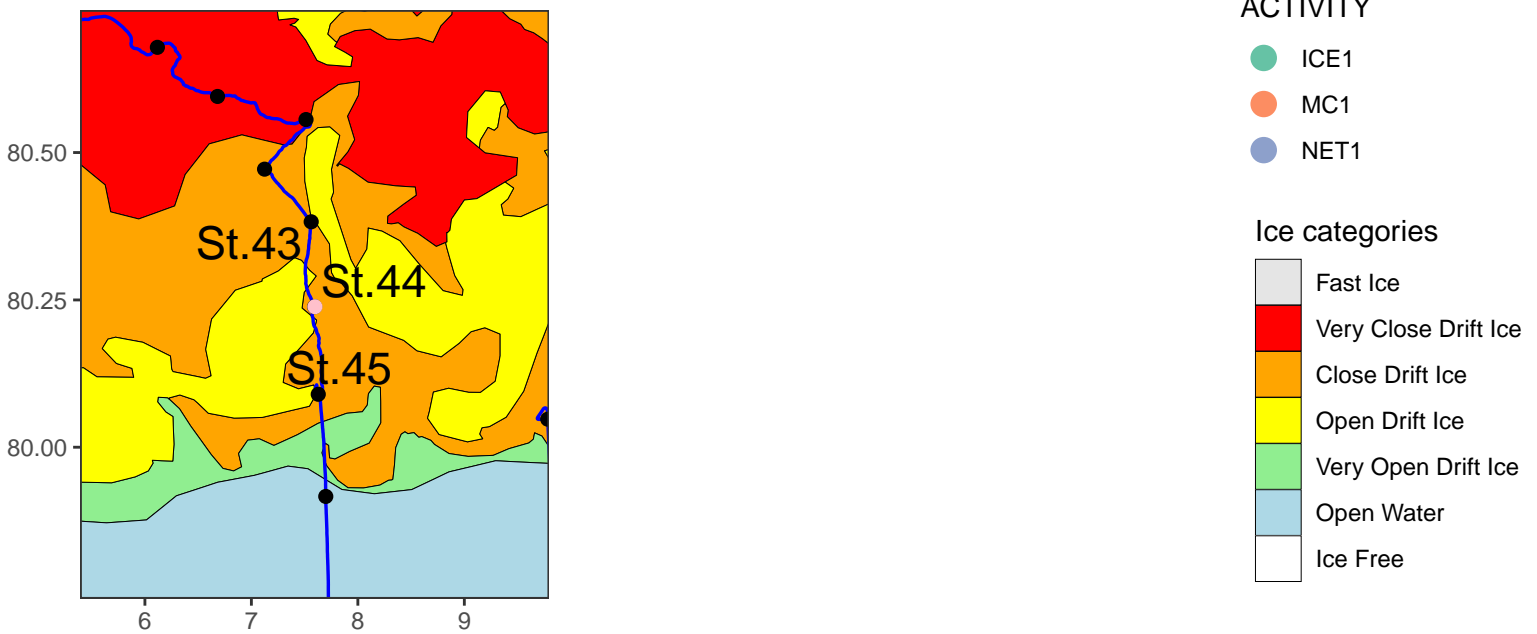
Sea ice as of 2021-07-09



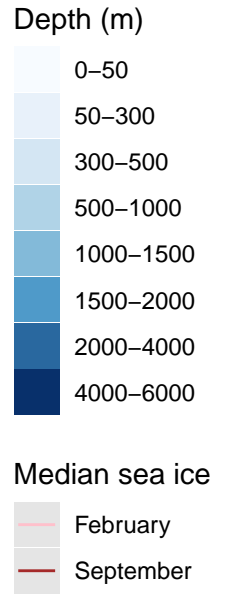
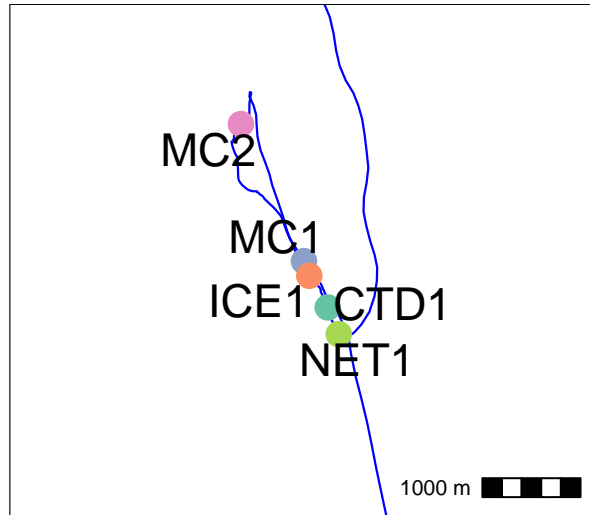
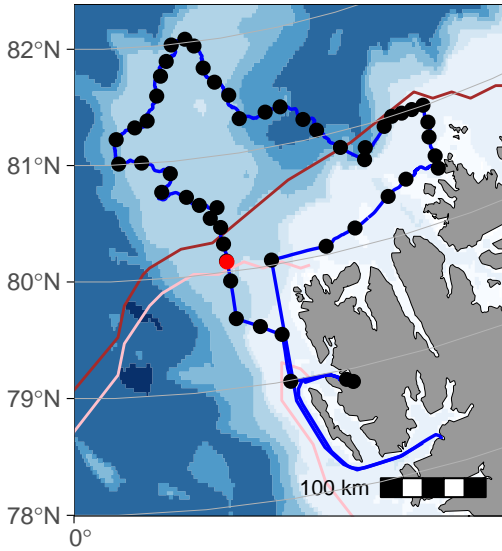
KH2021_234 – Station 44 – 09/07/2021 – depth: 592.33m



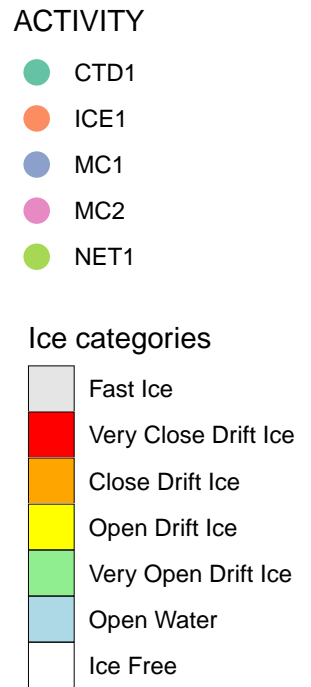
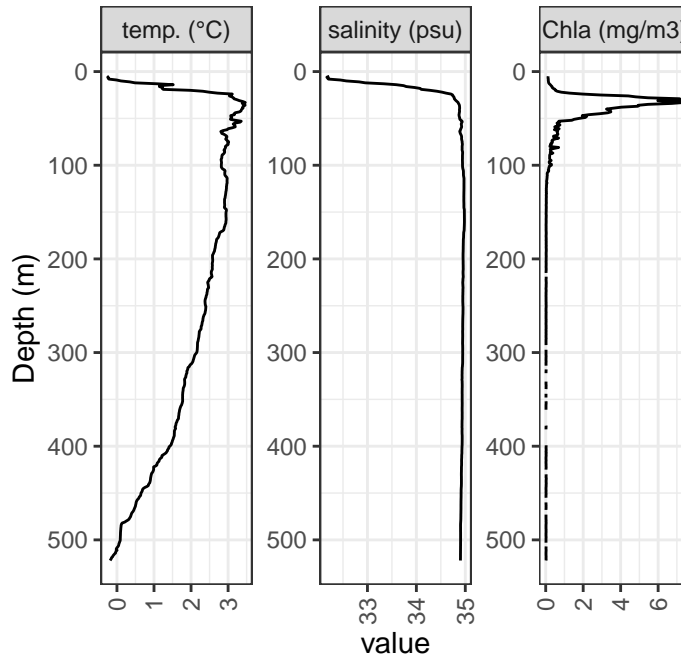
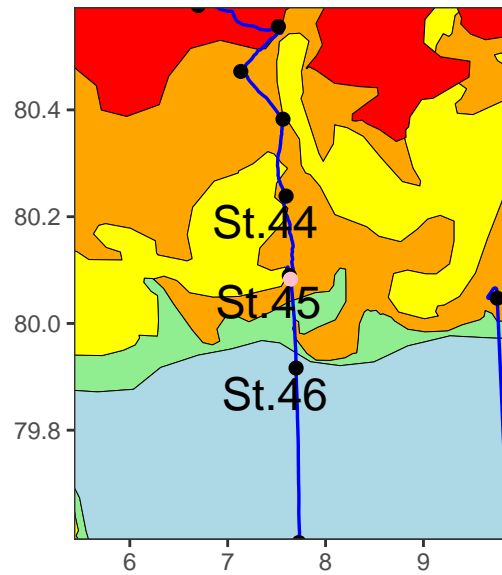
Sea ice as of 2021-07-09



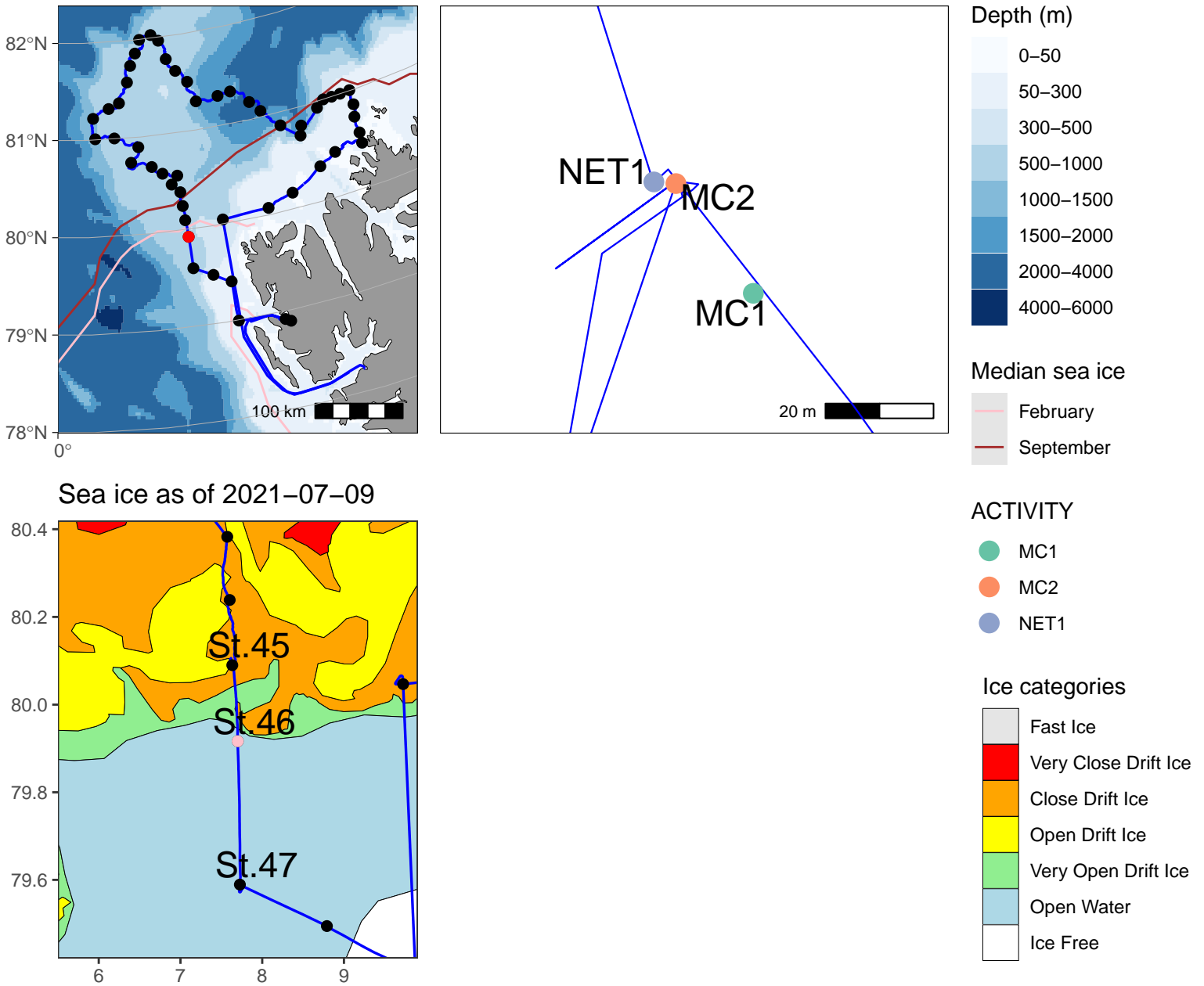
KH2021_234 – Station 45 – 09/07/2021 – depth: 526.6m



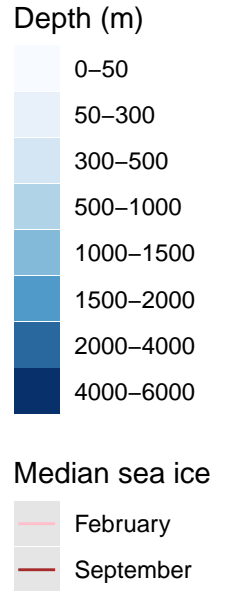
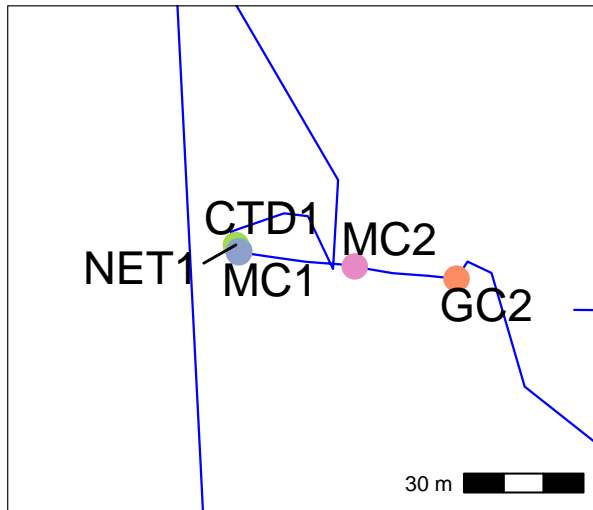
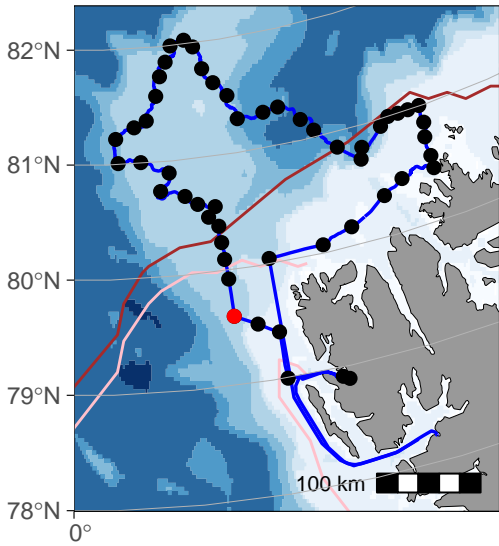
Sea ice as of 2021-07-09



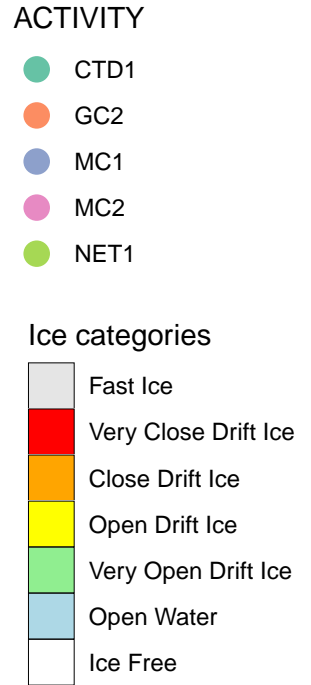
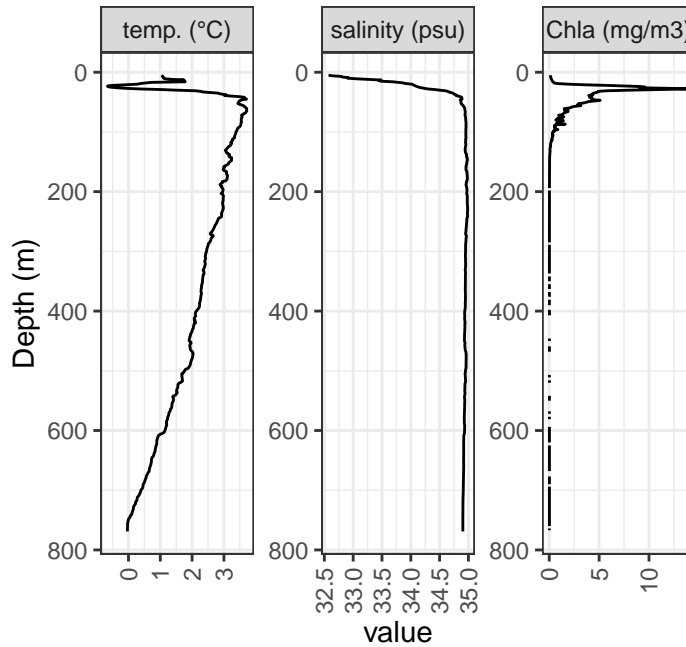
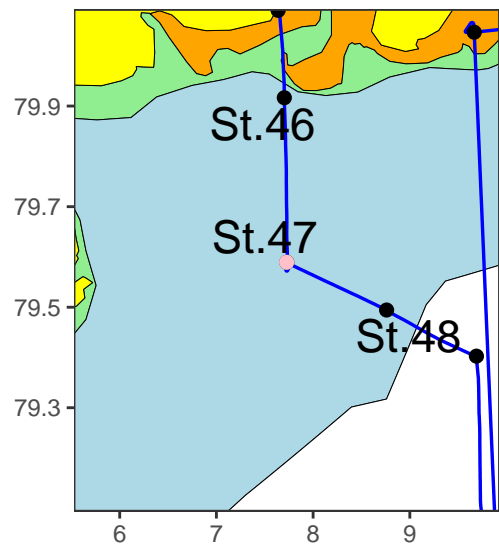
KH2021_234 – Station 46 – 09/07/2021 – depth: 601m



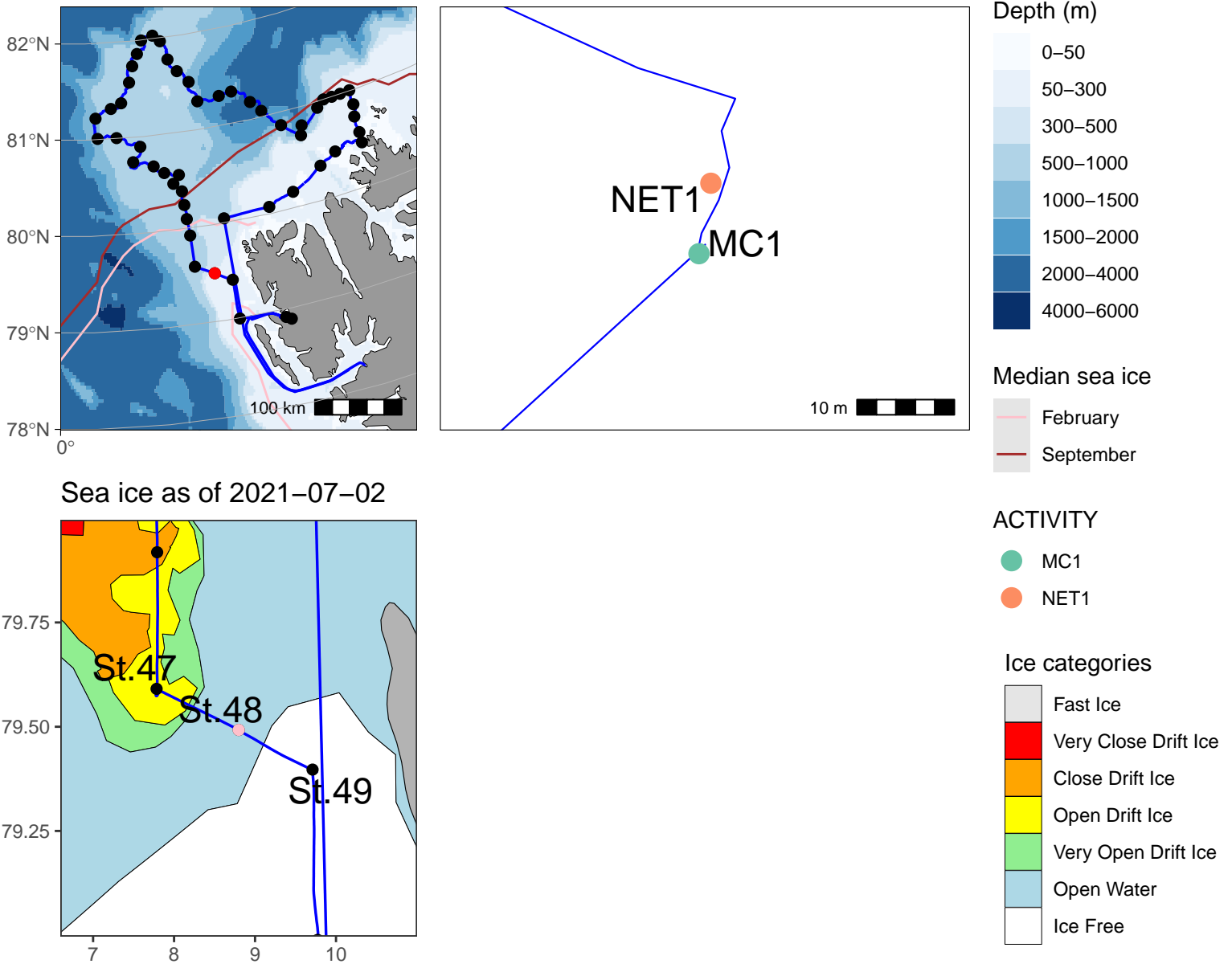
KH2021_234 – Station 47 – 09/07/2021 – depth: 769m



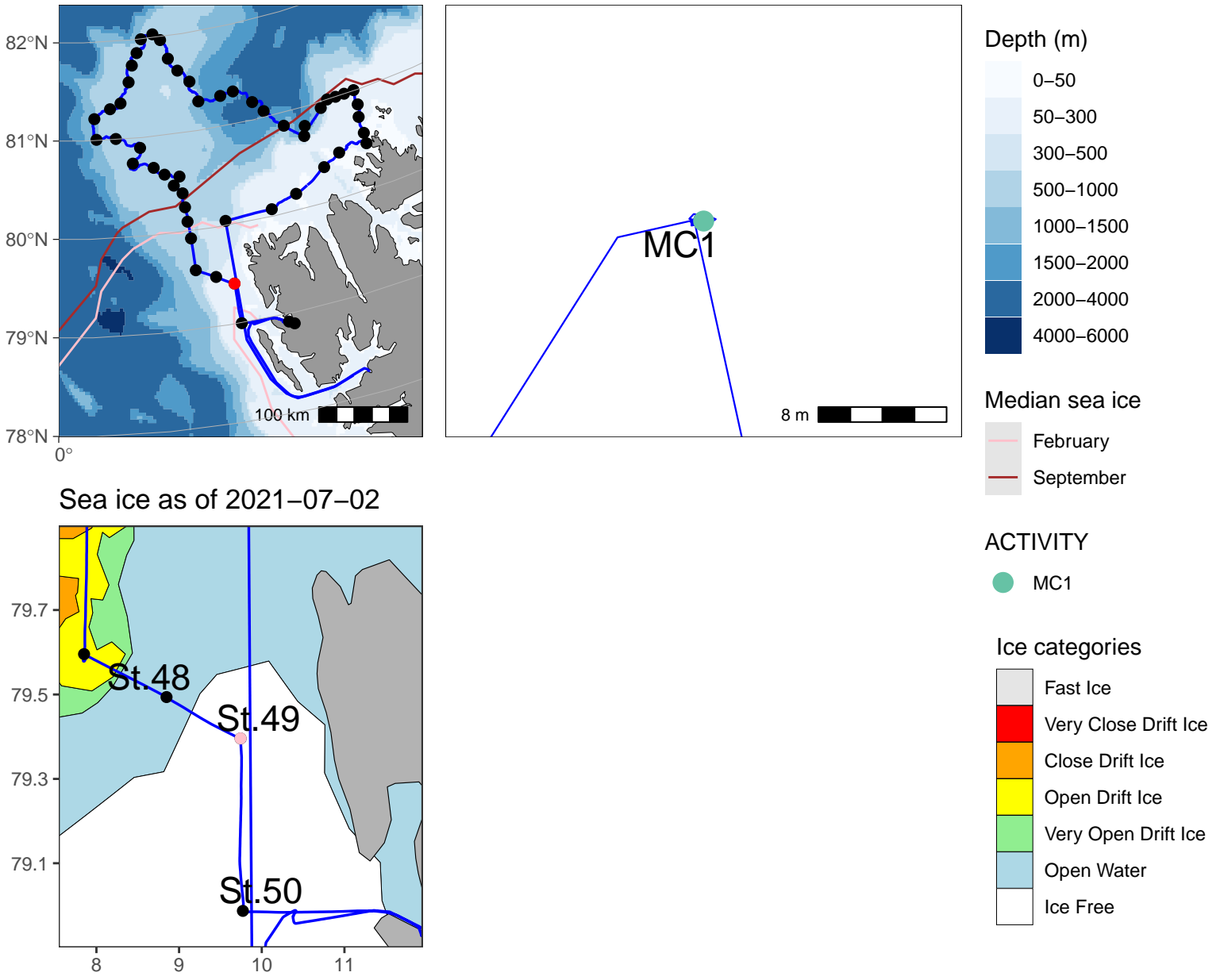
Sea ice as of 2021-07-09



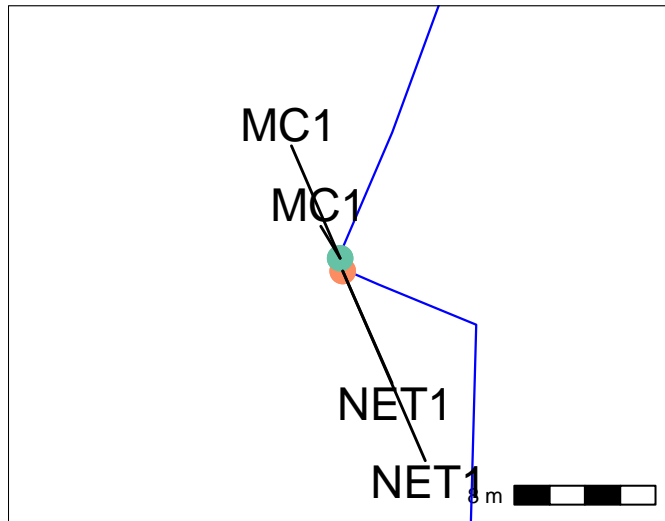
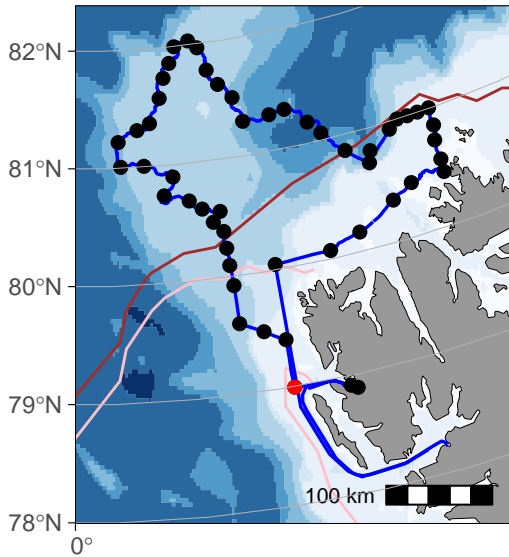
KH2021_234 – Station 48 – 10/07/2021 – depth: 190m



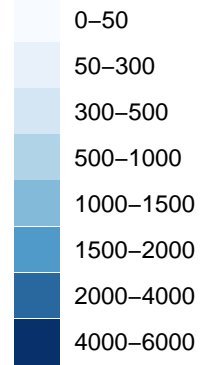
KH2021_234 – Station 49 – 10/07/2021 – depth: 123m



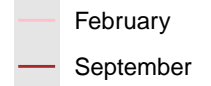
KH2021_234 – Station 50 – 10/07/2021 – depth: 222m



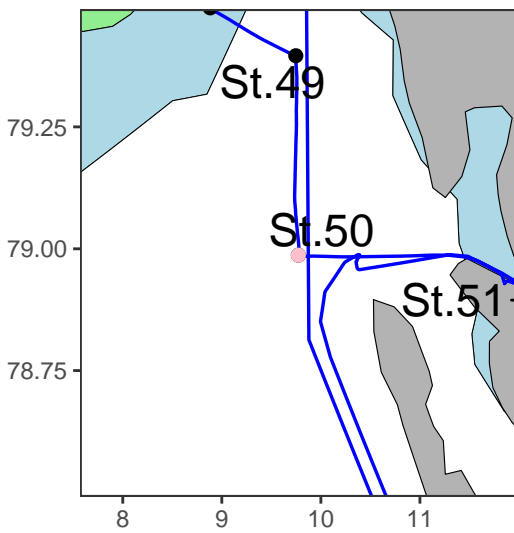
Depth (m)



Median sea ice



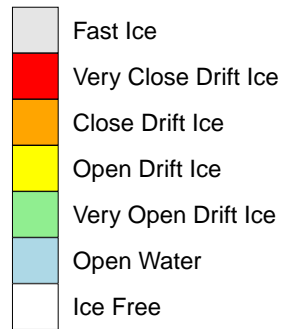
Sea ice as of 2021-07-02



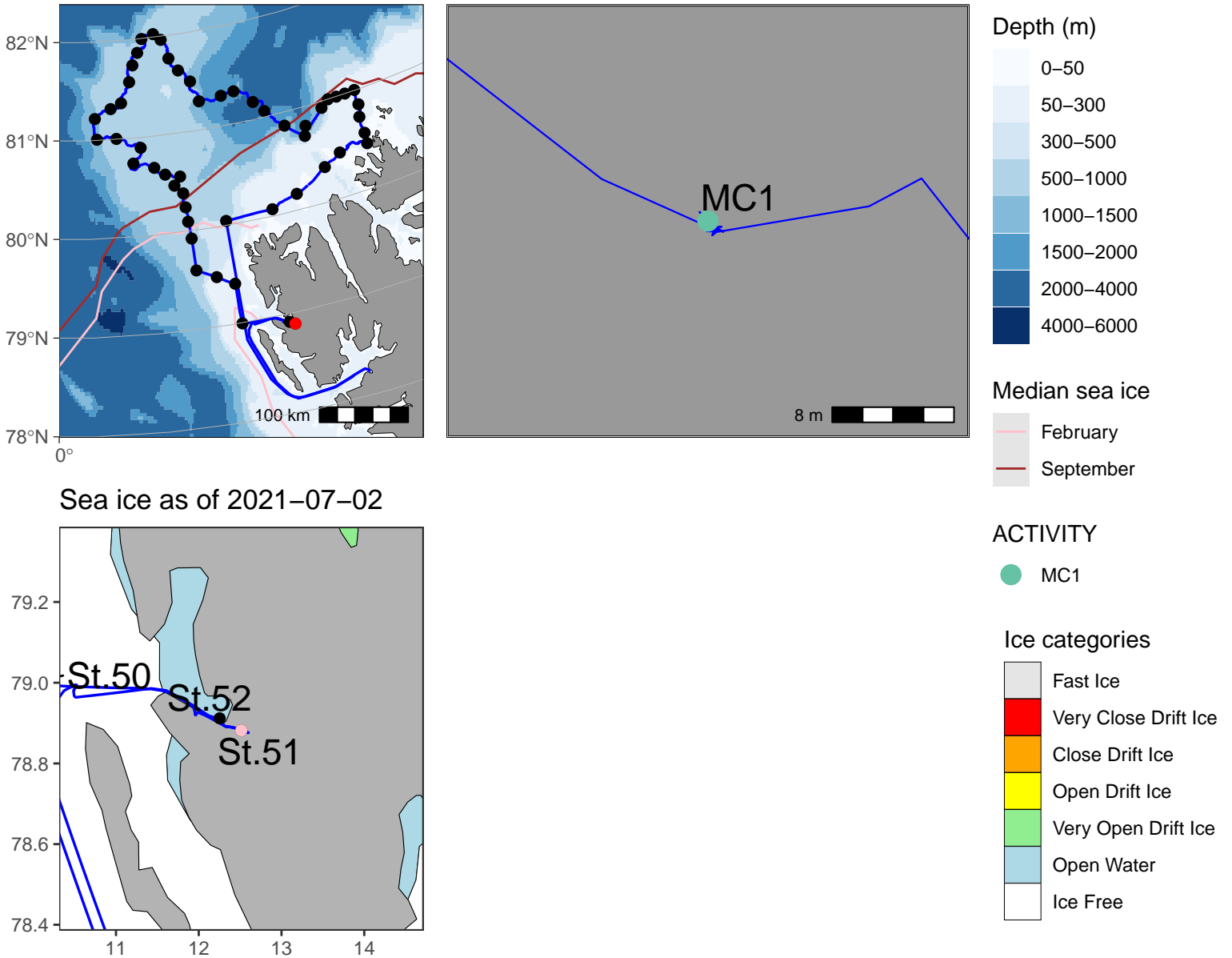
ACTIVITY



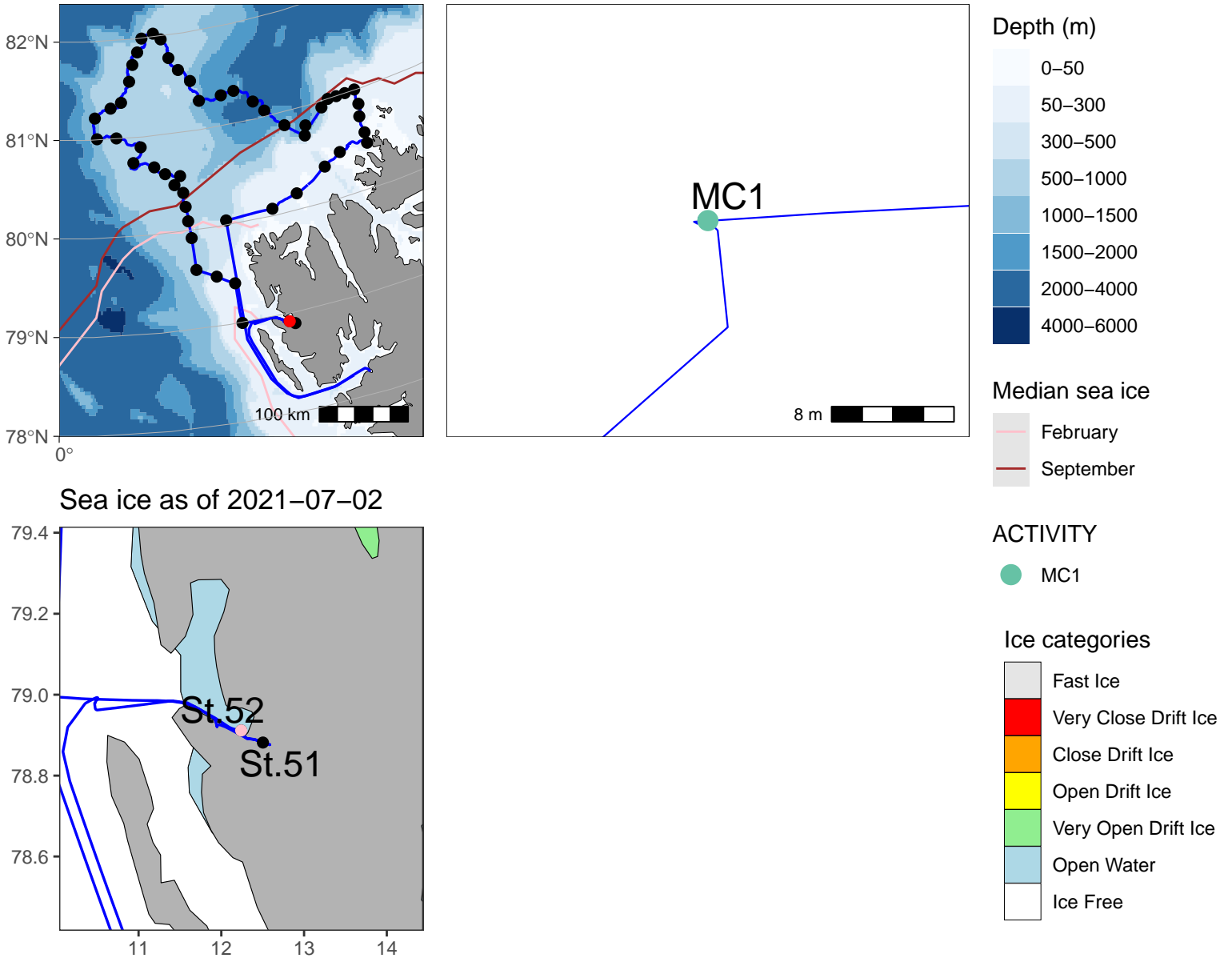
Ice categories



KH2021_234 – Station 51 – 10/07/2021 – depth: 65m



KH2021_234 – Station 52 – 10/07/2021 – depth: 112m



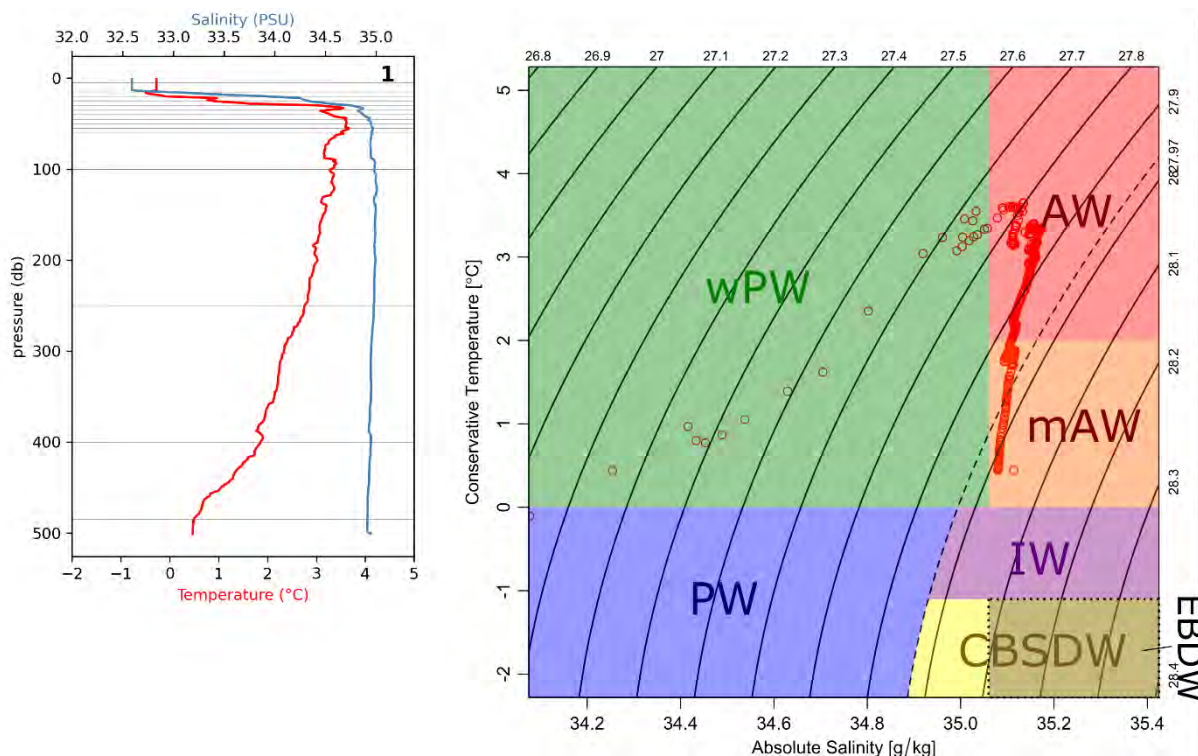
Appendix 2: CTD profiles and $\delta^{18}\text{O}$ samples

Figure 1. (left) Temperature and salinity profiles on KH21-234-01. The horizontal grey lines mark depths where samples were taken. (right) T-S diagram with water definitions of Sunfjord et al. (2020) following the TEOS-10 convention.

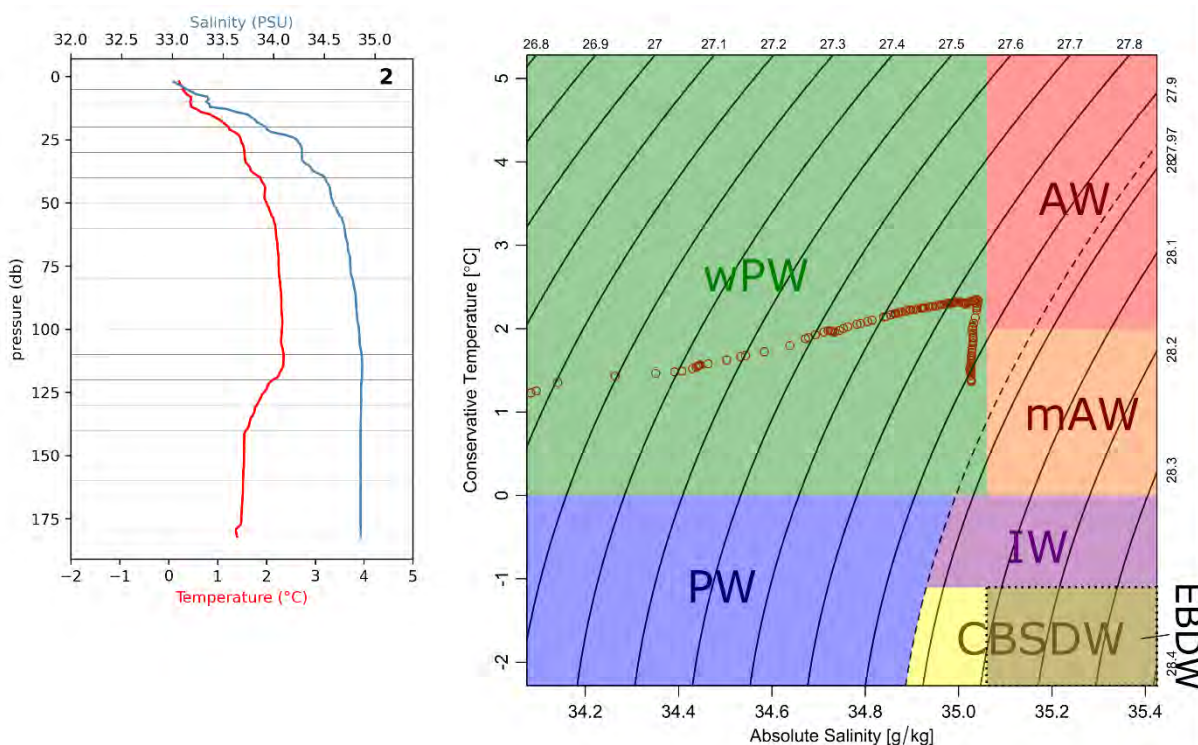


Figure 2. (left) Temperature and salinity profiles on KH21-234-02. The horizontal grey lines mark depths where samples were taken. (right) T-S diagram with water definitions of Sunfjord et al. (2020) following the TEOS-10 convention.

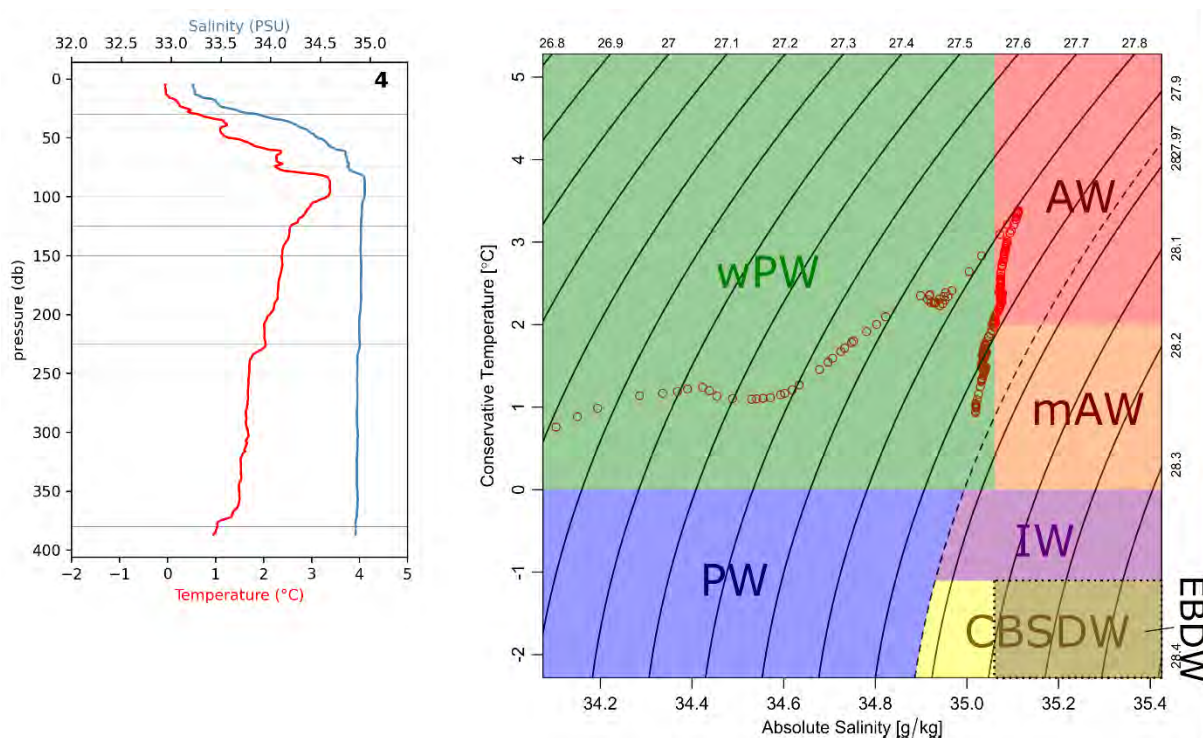


Figure 3. (left) Temperature and salinity profiles on KH21-234-04. The horizontal grey lines mark depths where samples were taken. (right) T-S diagram with water definitions of Sunfjord et al. (2020) following the TEOS-10 convention.

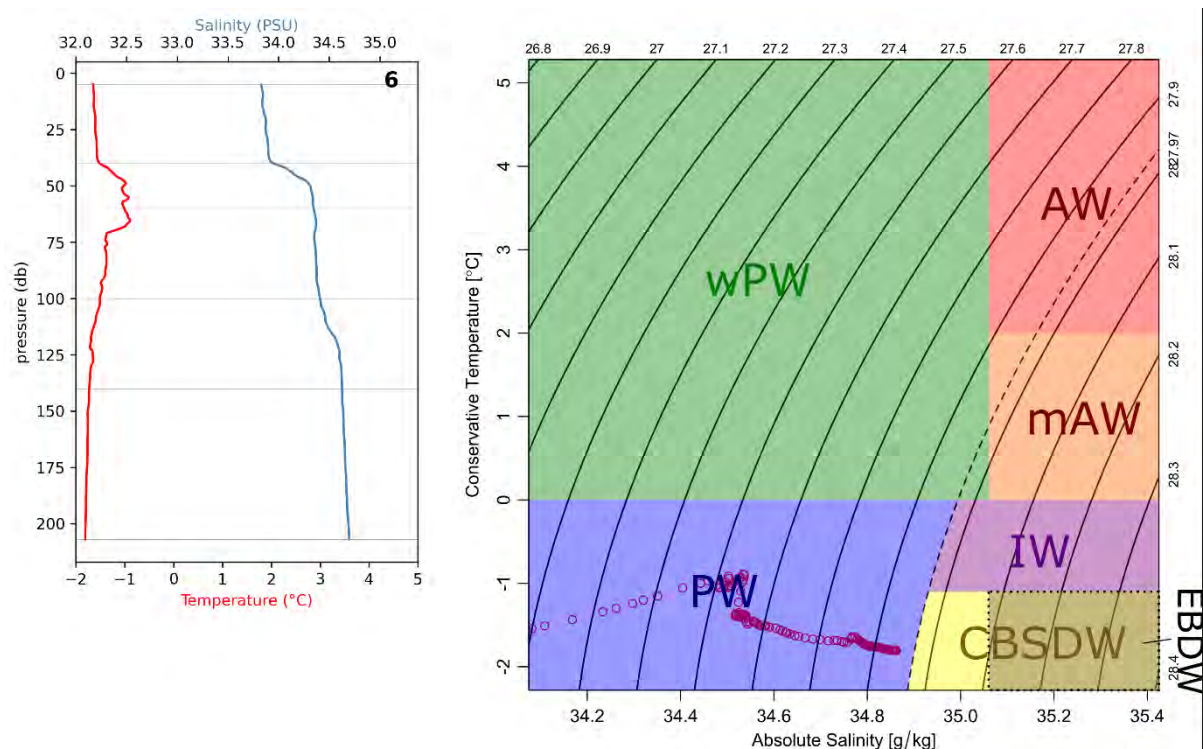


Figure 4. (left) Temperature and salinity profiles on KH21-234-06. The horizontal grey lines mark depths where samples were taken. (right) T-S diagram with water definitions of Sunfjord et al. (2020) following the TEOS-10 convention.

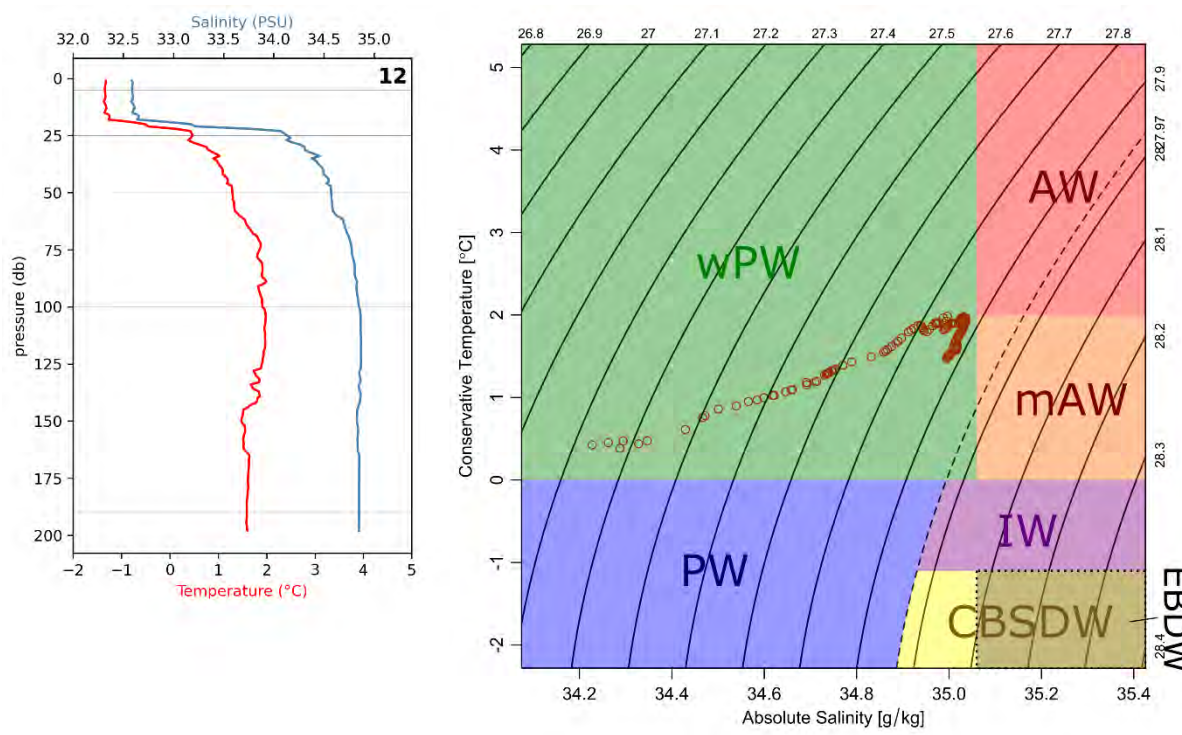


Figure 5. (left) Temperature and salinity profiles on KH21-234-12. The horizontal grey lines mark depths where samples were taken. (right) T-S diagram with water definitions of Sunfjord et al. (2020) following the TEOS-10 convention.

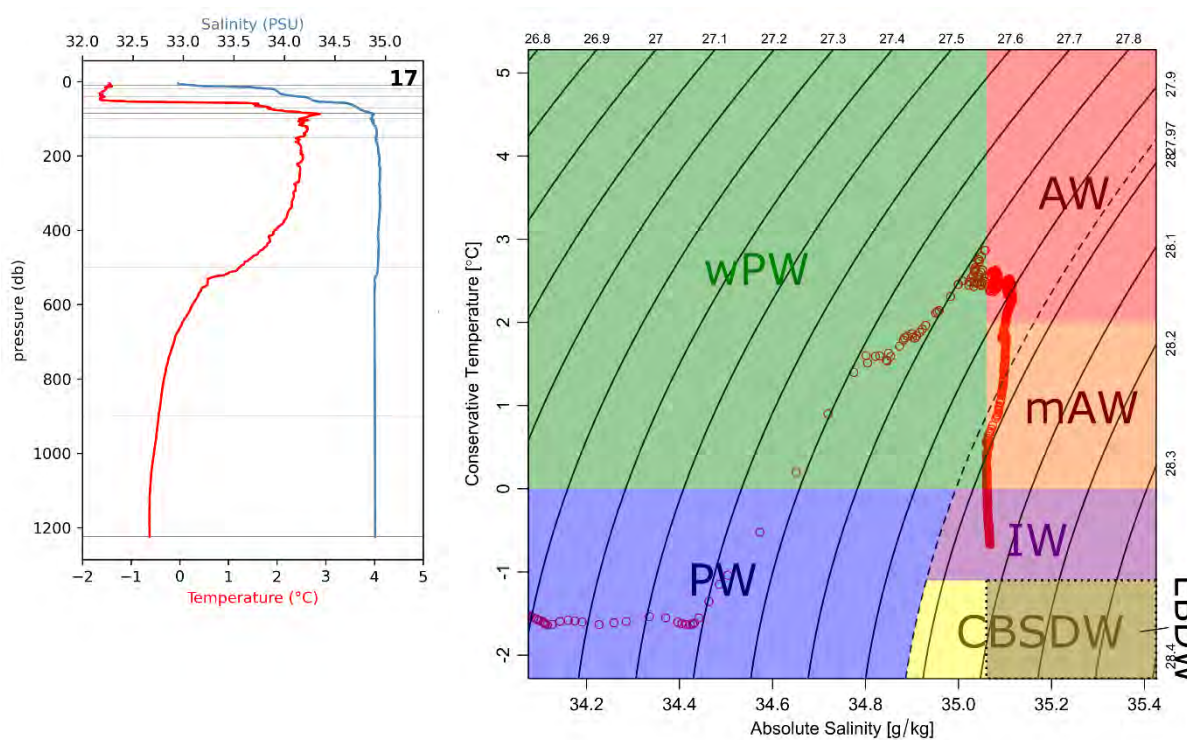


Figure 6. (left) Temperature and salinity profiles on station KH21-234-17. The horizontal grey lines mark depths where samples were taken. (right) T-S diagram with water definitions of Sunfjord et al. (2020) following the TEOS-10 convention.

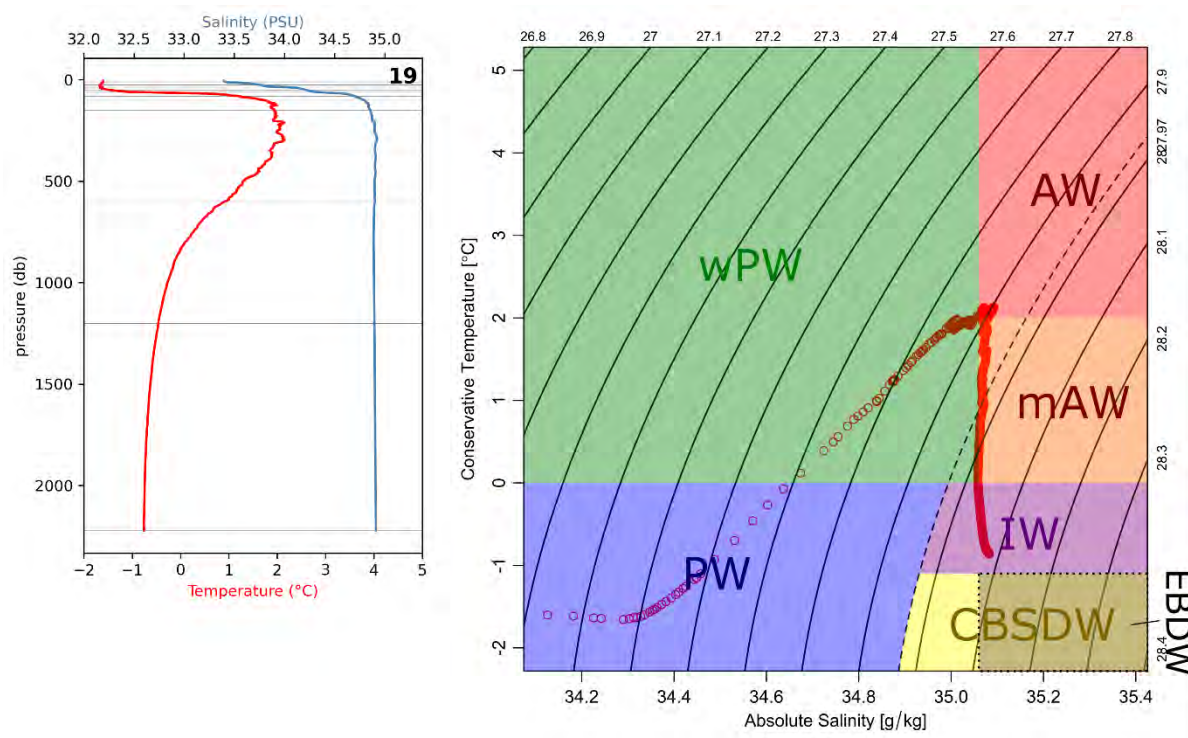


Figure 7. (left) Temperature and salinity profiles on KH21-234-19. The horizontal grey lines mark depths where samples were taken. (right) T-S diagram with water definitions of Sunfjord et al. (2020) following the TEOS-10 convention.

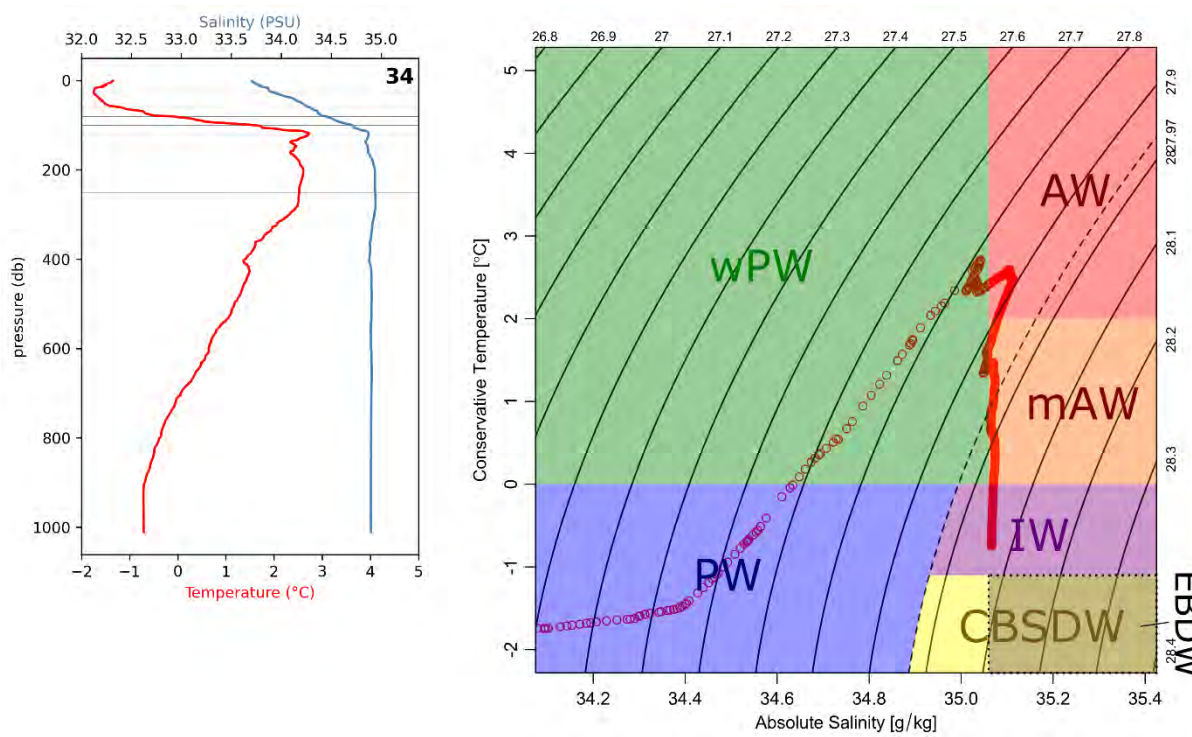


Figure 8. (left) Temperature and salinity profiles on KH21-234-34. The horizontal grey lines mark depths where samples were taken. (right) T-S diagram with water definitions of Sunfjord et al. (2020) following the TEOS-10 convention.

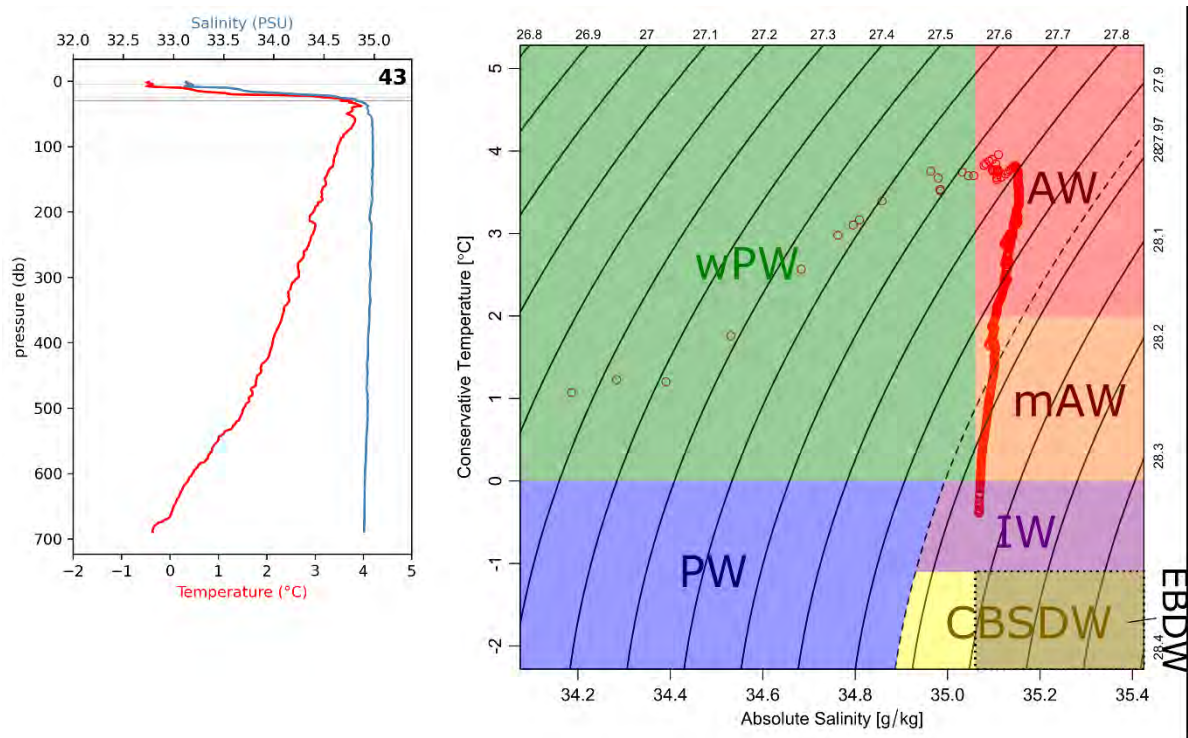


Figure 9. (left) Temperature and salinity profiles on KH21-234-43. The horizontal grey lines mark depths where samples were taken. (right) T-S diagram with water definitions of Sunfjord et al. (2020) following the TEOS-10 convention.



CTD log per station	
CRUISE	KH21-234
STATION	01
CTD	CTD1 og CTD2
TIME (UTC) and DATE	07:25:23:44 og 08:10:18, 01/07/2021
LONGITUDE (N)	9,84799695
LATITUDE (E)	80,046638
WATER DEPTH (m)	505
NOTES	sterivex filters, 0.22um

RESEARCHER(S)
Sigrid Mugu
Tamara
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PRIOR to filtering: RINSED pipes with 1L distilled water

Water depth (m)	Date	Time (hh:mm)	Researcher	Water collected (L)	Filter label	Water filtered (L)	Time filtering (mm:ss)	Notes
CON	01/07/2021	10:30	SM	/	KH21-234_01_CON	1L	10:00	CONTROL = 1L Distilled water
10m above bottom	01/07/2021	11:00	SM	30	KH21-234_01_CTD1_deep_F1	1.91	60:00	D=10m above bottom
10m above bottom	01/07/2021	11:00	SM	30	KH21-234_01_CTD1_deep_F2	2.35	60:00	
10m above bottom	01/07/2021	12:50	SM	30	KH21-234_01_CTD1_deep_F3	2.40	35:00	
10m above bottom	01/07/2021	12:50	SM	30	KH21-234_01_CTD1_deep_F4	1.25	15:00	leakage
10m above bottom	01/07/2021	12:50	SM	30	KH21-234_01_CTD1_deep_F5	2.55	35:00	leakage, stopped the pump, changed tubing, continued
air control	01/07/2021	11:00	SM	30	KH21-234_01_air		60:00	
100	01/07/2021	14:10	SM	30	KH21-234_01_CTD2_100m_F1	5.000	50:00	rpm300
100	01/07/2021	14:10	SM	30	KH21-234_01_CTD2_100m_F2	3.460	50:00	rpm300
100	01/07/2021	14:10	SM	30	KH21-234_01_CTD2_100m_F3	5.000	50:00	rpm300
100	01/07/2021	15:10	SM	30	KH21-234_01_CTD2_100m_F4	2.430	42:00	rpm300
100	01/07/2021	15:10	SM	30	KH21-234_01_CTD2_100m_F5	3.610	42:00	rpm300
5	01/07/2021	15:32	TT	30	KH21-234_01_CTD2_5m_F1	3.000	60:00	pump 300
5	01/07/2021	16:32	TT	30	KH21-234_01_CTD2_5m_F2	2.920	60:00	bursting tubings (stopped filtering)
5	01/07/2021	19:03	TT	30	KH21-234_01_CTD2_5m_F3	5.000	44:00	
5	01/07/2021	19:00	TT	30	KH21-234_01_CTD2_5m_F4	2.480	20:00	stopped pumping , due to leakage (almost bursted)
5	01/07/2021	19:22	TT	30	KH21-234_01_CTD2_5m_F5	5.000	60:00	

NOTE: all filters are stored immediately in freezer at -80 degC



CTD log per station	
CRUISE	KH21-234
STATION	02
CTD	CTD1, CTD2
TIME (UTC) and DATE	15:00:34 og 15:28:43, 01/07/2021
LONGITUDE (N)	12.65024907
LATITUDE (E)	80.07196046
WATER DEPTH (m)	191.605
NOTES	sterivex filter 0.22um

RESEARCHER(S)
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Tamara
Aud Larsen

PRIOR to filtering: RINSED pipes with 1L distilled water

Water depth (m)	Date	Time (hh:mm)	Researcher	Water collected (L)	Filter label	Water filtered (L)	Time filtering (mm:ss)	Notes
CON	01/07/2021	21:20	SM	/	KH21-234_02_CON	1L	10:00	CONTROL = 1L Distilled water
air control	01/07/2021	21:10	SM	30	KH21-234_02_air			pushed air through the syringe 10X (instead of using pump)
10m above bottom	01/07/2021	22:00	SM	30	KH21-234_02_CTD1_deep_F1	5.00	47:00	deep=10m above bottom
10m above bottom	01/07/2021	22:00	SM	30	KH21-234_02_CTD1_deep_F2	5.00	45:00	
10m above bottom	01/07/2021	22:00	SM	30	KH21-234_02_CTD1_deep_F3	5.00	45:00	
10m above bottom	01/07/2021	23:03	SM	30	KH21-234_02_CTD1_deep_F4	4.44	46:00	
10m above bottom	01/07/2021	23:03	SM	30	KH21-234_02_CTD1_deep_F5	5.00	45:00	very easy to empty the filter with syringe
100	02/07/2021	00:50	SM	30	KH21-234_02_CTD2_100m_F1	5.00	47:00	paused after 3L because new station
100	02/07/2021	00:50	SM	30	KH21-234_02_CTD2_100m_F2	5.00	46:00	paused after 3L because new station
100	02/07/2021	02:43	SM	30	KH21-234_02_CTD2_100m_F3	3.630	40:00	stoppe because of leakage
100	02/07/2021	02:43	SM	30	KH21-234_02_CTD2_100m_F4	5.00	47:00	
100	02/07/2021	02:43	SM	30	KH21-234_02_CTD2_100m_F5	5.00	44:00	
5	02/07/2021	04:11	TT	30	KH21-234_02_CTD2_5m_F1	5.000	44:00	
5	02/07/2021	04:11	TT	30	KH21-234_02_CTD2_5m_F2	3.250	19:00	
5	02/07/2021	04:11	TT	30	KH21-234_02_CTD2_5m_F3	5.000	42:00	
5	02/07/2021	05:00	TT	30	KH21-234_02_CTD2_5m_F4	5.000	34:00	
5	02/07/2021	05:00	TT	30	KH21-234_02_CTD2_5m_F5	5.000	42:00	

NOTE: all filters are stored immediately in freezer at -80 degC



CTD log per station	
CRUISE	KH21-234
STATION	04
CTD	CTD1, CTD2
TIME (UTC) and DATE	CTD1-23:41:02 01/07/2021, CTD2-00:27:05 02/07/21
LONGITUDE (N)	16.30797963
LATITUDE (E)	80.35316031
WATER DEPTH (m)	393.8
NOTES	sterivex filter 0.22um

RESEARCHER(S)
Sigrud Mugu
Tamara
Aud Larsen

PRIOR to filtering: RINSED pipes with 1L distilled water

Water depth (m)	Date	Time (hh:mm)	Researcher	Water collected (L)	Filter label	Water filtered (L)	Time filtering (mm:ss)	Notes
CON	02/07/2021	07:30	TT	/	KH21-234_04_CON	1L	10:00	CONTROL = 1L Distilled water
air control	02/07/2021	08:00	TT	27	KH21-234_04_air	na	na	pushed air through the syringe 10X (instead of using pump)
10m above bottom	02/07/2021	08:27	TT	30	KH21-234_04_CTD1_deep_F1	5.00	46:00	
10m above bottom	02/07/2021	08:27	TT	30	KH21-234_04_CTD1_deep_F2	5.00	46:00	
10m above bottom	02/07/2021	08:27	TT	30	KH21-234_04_CTD1_deep_F3	3.80	24:00	clogged, stopped due to leakage
10m above bottom	02/07/2021	09:23	TT	30	KH21-234_04_CTD1_deep_F4	4.00	40:00	
10m above bottom	02/07/2021	09:23	TT	30	KH21-234_04_CTD1_deep_F5	5.00	49:00	
100	02/07/2021	11:17	TT	30	KH21-234_04_CTD2_100m_F1	5.00	47:00	
100	02/07/2021	11:17	TT	30	KH21-234_04_CTD2_100m_F2	5.00	43:00	
100	02/07/2021	11:14	TT	30	KH21-234_04_CTD2_100m_F3	3.550	35:00	stopped because??
100	02/07/2021	12:55	SM	30	KH21-234_04_CTD2_100m_F4	5.00	44:00	
100	02/07/2021	12:55	SM	30	KH21-234_04_CTD2_100m_F5	5.00	45:00	
5	02/07/2021	14:14	SM	30	KH21-234_04_CTD2_5m_F1	5.000	47:00	
5	02/07/2021	14:14	SM	30	KH21-234_04_CTD2_5m_F2	4.300	50:00	
5	02/07/2021	14:14	SM	30	KH21-234_04_CTD2_5m_F3	4.290	50:00	
5	02/07/2021	15:00	SM	30	KH21-234_04_CTD2_5m_F4	2.120	28:00	Broke the syringe tip into the filter + clogged
5	02/07/2021	15:04	SM	30	KH21-234_04_CTD2_5m_F5	2.750	1.42	clogged

NOTE: all filters are stored immediately in freezer at -80 degC



CTD log per station	
CRUISE	KH21-234
STATION	06
CTD	CTD1
TIME (UTC) and DATE	13:22:51-13:42:12
LONGITUDE (N)	19.20596323
LATITUDE (E)	80.4529917
WATER DEPTH (m)	217
NOTES	sterivex filter 0.22um

RESEARCHER(S)
Sigrud Mugu
Tamara
Aud Larsen

PRIOR to filtering: RINSED pipes with 1L distilled water

Water depth (m)	Date	Time (hh:mm)	Researcher	Water collected (L)	Filter label	Water filtered (L)	Time filtering (mm:ss)	Notes
CON	02/07/2021	16:55	TT		KH21-234_6_CON	1L	10:00	CONTROL = 1L Distilled water
air control	02/07/2021	16:55	TT	26	KH21-234_06_air	na	na	10Xwith syringe
10m above bottom	02/07/2021	16:42	TT	26	KH21-234_06_CTD1_deep_F1	3.40	35:00	
10m above bottom	02/07/2021	16:42	TT	26	KH21-234_06_CTD1_deep_F2	5.00	51:00	
10m above bottom	02/07/2021	16:50	TT	26	KH21-234_06_CTD1_deep_F3	2.90	38:00	
10m above bottom	02/07/2021	17:19	TT	26	KH21-234_06_CTD1_deep_F4	5.00	46:00	
10m above bottom	02/07/2021	17:21	TT	26	KH21-234_06_CTD1_deep_F5	2.30	22:00	
100	02/07/2021	18:28	TT	26	KH21-234_06_CTD1_100m_F1	2.90	30:00	
100	02/07/2021	18:28	TT	26	KH21-234_06_CTD1_100m_F2	1.50	18:00	
100	02/07/2021	18:34	TT	26	KH21-234_06_CTD1_100m_F3	5.000	47:00	
100	02/07/2021	18:46	TT	26	KH21-234_06_CTD1_100m_F4	1.65	18:00	
100	02/07/2021	18:34	TT	26	KH21-234_06_CTD1_100m_F5	3.20	24:00	
5	02/07/2021	20:30	SM	26	KH21-234_06_CTD1_5m_F1	2.210	30:00	
5	02/07/2021	20:30	SM	26	KH21-234_06_CTD1_5m_F2	4.820	54:00	
5	02/07/2021	20:30	SM	26	KH21-234_06_CTD1_5m_F3	3.400	38:00	
5	02/07/2021	21:01	SM	26	KH21-234_06_CTD1_5m_F4	1.200	10:00	clogged
5	02/07/2021	21:08	SM	26	KH21-234_06_CTD1_5m_F5	2.260	22:00	leakage

NOTE: all filters are stored immediately in freezer at -80 degC



CTD log per station	
CRUISE	KH21-234
STATION	10
CTD	CTD1
TIME (UTC) and DATE	11:06-11:16
LONGITUDE (N)	19.54472145
LATITUDE (E)	81.0068501
WATER DEPTH (m)	146.525
NOTES	sterivex filter 0.22um

RESEARCHER(S)
Sigrid Mugu
Tamara
Aud Larsen

PRIOR to filtering: RINSED pipes with 1L distilled water

Water depth (m)	Date	Time (hh:mm)	Researcher	Water collected (L)	Filter label	Water filtered (L)	Time filtering (mm:ss)	Notes
CON	03/07/2021	13:52	SM		KH21-234_10_CON		08:00	
air control	03/07/2021	13:52	SM	30	KH21-234_10_air	na	na	10Xwith syringe
10m above bottom	03/07/2021	14:20	SM	30	KH21-234_10_CTD1_deep_F1	1.79	24:00	
10m above bottom	03/07/2021	14:20	SM	30	KH21-234_10_CTD1_deep_F2	2.23	27:00	
10m above bottom	03/07/2021	14:20	SM	30	KH21-234_10_CTD1_deep_F3	3.05	24:00	
10m above bottom	03/07/2021	14:59	SM	30	KH21-234_10_CTD1_deep_F4	3.82	33:00	
10m above bottom	03/07/2021	14:59	SM	30	KH21-234_10_CTD1_deep_F5	2.98	24:00	
100	03/07/2021	16:51	TT	30	KH21-234_10_CTD2_100m_F1	4.70	48:00	
100	03/07/2021	16:51	TT	30	KH21-234_10_CTD2_100m_F2	5.00	44:00	
100	03/07/2021	16:51	TT	30	KH21-234_10_CTD2_100m_F3	5.00	42:00	
100	03/07/2021	19:15	TT	30	KH21-234_10_CTD2_100m_F4	5.00	38:00	
100	03/07/2021	19:15	TT	30	KH21-234_10_CTD2_100m_F5	5.00	44:00	
5	03/07/2021	22:32	SM	30	KH21-234_10_CTD2_5m_F1	5.00	46:00	
5	03/07/2021	22:32	SM	30	KH21-234_10_CTD2_5m_F2	5.00	45:00	
5	03/07/2021	22:32	SM	30	KH21-234_10_CTD2_5m_F3	2.680	18:00	leakage
5	03/07/2021		SM	30	KH21-234_10_CTD2_5m_F4	5.000	45:00	
5	03/07/2021		SM	30	KH21-234_10_CTD2_5m_F5	5.000	45:00	

NOTE: all filters are stored immediately in freezer at -80 degC



CTD log per station	
CRUISE	KH21-234
STATION	12
CTD	CTD1
TIME (UTC) and DATE	16:29-16:46
LONGITUDE (N)	18.28842997
LATITUDE (E)	81.00194297
WATER DEPTH (m)	205.4
NOTES	sterivex filter 0.22um

RESEARCHER(S)
Sigrud Mugu
Tamara
Aud Larsen

PRIOR to filtering: RINSED pipes with 1L distilled water

Water depth (m)	Date	Time (hh:mm)	Researcher	Water collected (L)	Filter label	Water filtered (L)	Time filtering (mm:ss)	Notes
CON	04/07/2021	01:24	SM		KH21-234_12_CON		08:00	
air control	04/07/2021	01:24	SM	30	KH21-234_12_air	na	na	10Xwith syringe
10m above bottom	04/07/2021	01:48	SM	30	KH21-234_12_CTD1_deep_F1	4.00	35:00	
10m above bottom	04/07/2021	01:48	SM	30	KH21-234_12_CTD1_deep_F2	1.70	17:00	
10m above bottom	04/07/2021	01:48	SM	30	KH21-234_12_CTD1_deep_F3	3.90	38:00	
10m above bottom	04/07/2021	03:05	SM	30	KH21-234_12_CTD1_deep_F4	4.10	42:00	
10m above bottom	04/07/2021	03:05	SM	30	KH21-234_12_CTD1_deep_F5	4.59	47:00	
100	04/07/2021	04:26	TT	30	KH21-234_12_CTD2_100m_F1	5.00	42:00	
100	04/07/2021	04:26	TT	30	KH21-234_12_CTD2_100m_F2	2.22	23:00	
100	04/07/2021	04:26	TT	30	KH21-234_12_CTD2_100m_F3	5.00	48:00	
100	04/07/2021	04:50	TT	30	KH21-234_12_CTD2_100m_F4	1.60	16:00	
100	04/07/2021	05:08	TT	30	KH21-234_12_CTD2_100m_F5	1.80	21:00	
5	04/07/2021	05:51	TT	30	KH21-234_12_CTD2_5m_F1	4.60	47:00	
5	04/07/2021	05:51	TT	30	KH21-234_12_CTD2_5m_F2	2.60	32:00	
5	04/07/2021	05:51	TT	30	KH21-234_12_CTD2_5m_F3	1.100	31:00	
5	04/07/2021	06:41	TT	30	KH21-234_12_CTD2_5m_F4	4.500	40:00	
5	04/07/2021	08:18	TT	30	KH21-234_12_CTD2_5m_F5	3.500	39:00	

NOTE: all filters are stored immediately in freezer at -80 degC



CTD log per station	
CRUISE	KH21-234
STATION	38
CTD	CTD1
TIME (UTC) and DATE	09:55, 08.07.21
LONGITUDE (N)	4.721961042
LATITUDE (E)	80.74805862
WATER DEPTH (m)	658.3
NOTES	sterivex filter 0.22um

RESEARCHER(S)
Sigrud Mugu
Tamara
Aud Larsen

PRIOR to filtering: RINSED pipes with 1L distilled water

Water depth (m)	Date	Time (hh:mm)	Researcher	Water collected (L)	Filter label	Water filtered (L)	Time filtering (mm:ss)	Notes
CON	08/07/2021	14:15	SM		KH21-234_38_CON	1.0	08:00	
air control	08/07/2021	14:15	SM	30	KH21-234_38_air	na	na	10Xwith syringe
10m above bottom	08/07/2021	14:30	SM	30	KH21-234_38_CTD1_deep_F1	5.0	40:00	deep = bottom
10m above bottom	08/07/2021	14:30	SM	30	KH21-234_38_CTD1_deep_F2	5.0	35:00	deep = bottom
10m above bottom	08/07/2021	14:30	SM	30	KH21-234_38_CTD1_deep_F3	5.0	40:00	deep = bottom
10m above bottom	08/07/2021	15:44	SM	30	KH21-234_38_CTD1_deep_F4	5.1	47:00	deep = bottom
10m above bottom	08/07/2021	15:44	SM	30	KH21-234_38_CTD1_deep_F5	5.1	37:00	deep = bottom
100	08/07/2021	17:27	TT	30	KH21-234_38_CTD2_100m_F1	5.0	47:00	
100	08/07/2021	17:27	TT	30	KH21-234_38_CTD2_100m_F2	5.0	51:00	
100	08/07/2021	17:27	TT	30	KH21-234_38_CTD2_100m_F3	5.0	53:00	
100	08/07/2021	19:11	TT	30	KH21-234_38_CTD2_100m_F4	5.0	52:00	
100	08/07/2021	19:11	TT	30	KH21-234_38_CTD2_100m_F5	5.0	48:00	
5	08/07/2021	21:43	SM	30	KH21-234_38_CTD2_5m_F1	2.3	20:00	clogged
5	08/07/2021	21:43	SM	30	KH21-234_38_CTD2_5m_F2	1.79	20:00	clogged
5	08/07/2021	21:43	SM	30	KH21-234_38_CTD2_5m_F3	1.6	18:00	clogged
5	08/07/2021	22:10	SM	30	KH21-234_38_CTD2_5m_F4	1.3	18:00	clogged
5	08/07/2021	22:10	SM	30	KH21-234_38_CTD2_5m_F5	1.8	25:00	clogged

NOTE: all filters are stored immediately in freezer at -80 degC



CTD log per station	
CRUISE	KH21-234
STATION	43
CTD	CTD1
TIME (UTC) and DATE	03:39, 09.07.21
LONGITUDE (N)	7.579275408
LATITUDE (E)	80.38879969
WATER DEPTH (m)	687.94
NOTES	sterivex filter 0.22um
	RESEARCHER(S)
	Sigrid Mugu
	Tamara
	Aud Larsen

PRIOR to filtering: RINSED pipes with 1L distilled water

Water depth (m)	Date	Time (hh:mm)	Researcher	Water collected (L)	Filter label	Water filtered (L)	Time filtering (mm:ss)	Notes
CON	09/07/2021	07:58	TT		KH21-234_43_CON	1.0	06:00	
air control	09/07/2021	07:58	TT	30	KH21-234_43_air	na	na	10Xwith syringe
5	09/07/2021	07:58	TT	30	KH21-234_43_CTD1_5_F1	2.8	31:00	
5	09/07/2021	07:58	TT	30	KH21-234_43_CTD1_5_F2	5.0	42:00	
5	09/07/2021	08:20	TT	30	KH21-234_43_CTD1_5_F3	3.52	52:00	
5	09/07/2021	08:58	TT	30	KH21-234_43_CTD1_5_F4	5.0	43:00	
5	09/07/2021	09:07	TT	30	KH21-234_43_CTD1_5_F5	5.0	36:00	
100	09/07/2021	10:14	TT	30	KH21-234_43_CTD2_100m_F1	5.0	41:00	
100	09/07/2021	10:14	TT	30	KH21-234_43_CTD2_100m_F2	5.0	41:00	
100	09/07/2021	10:14	TT	30	KH21-234_43_CTD2_100m_F3	5.0	41:00	
100	09/07/2021	10:28	SM	30	KH21-234_43_CTD2_100m_F4	5.0	42:00	
100	09/07/2021	10:28	SM	30	KH21-234_43_CTD2_100m_F5	4.85	50:00	filter clogging, dropping from tubing
10 above bottom	09/07/2021	15:20	SM	30	KH21-234_43_CTD1_deep_F1	2.47	32:00	deep = 10 m above bottom
10 above bottom	09/07/2021	15:20	SM	30	KH21-234_43_CTD1_deep_F2	5.0	40:00	deep = 10 m above bottom, filter clogging, dropping from tubing
10 above bottom	09/07/2021	15:20	SM	30	KH21-234_43_CTD1_deep_F3	2.690	32:00	deep = 10 m above bottom
10 above bottom	09/07/2021	16:05	SM	30	KH21-234_43_CTD1_deep_F4	1.5	17:00	deep = 10 m above bottom, filter clogging, dropping from tubing
10 above bottom	09/07/2021	16:07	SM	30	KH21-234_43_CTD1_deep_F5	3.35	41:00	deep = 10 m above bottom

NOTE: all filters are stored immediately in freezer at -80 degC



CTD log per station	
CRUISE	KH21-234
STATION	45
CTD	CTD1
TIME (UTC) and DATE	11:53, 09.07.21
LONGITUDE (N)	7.638628842
LATITUDE (E)	80.09281665
WATER DEPTH (m)	524.91
NOTES	sterivex filter 0.22um
	RESEARCHER(S)
	Sigrid Mugu
	Tamara
	Aud Larsen

PRIOR to filtering: RINSED pipes with 1L distilled water

Water depth (m)	Date	Time (hh:mm)	Researcher	Water collected (L)	Filter label	Water filtered (L)	Time filtering (mm:ss)	Notes
CON	09/07/2021	16:40	TT		KH21-234_45_CON	1.0	06:00	
air control	09/07/2021	16:50	TT	30	KH21-234_45_air	na	na	10Xwith syringe
5	09/07/2021	17:03	TT	30	KH21-234_45_CTD1_5_F1	5.00	41:00	
5	09/07/2021	17:03	TT	30	KH21-234_45_CTD1_5_F2	5.2	49:00	
5	09/07/2021	17:03	TT	30	KH21-234_45_CTD1_5_F3	2.3	23:00	
5	09/07/2021	17:26	TT	30	KH21-234_45_CTD1_5_F4	3.0	3:00	
5	09/07/2021	19:00	TT	30	KH21-234_45_CTD1_5_F5	5.0	45:00	
100	09/07/2021	23:24	SM	30	KH21-234_45_CTD2_100m_F1	5.0	39:00	
100	09/07/2021	23:24	SM	30	KH21-234_45_CTD2_100m_F2	5.0	44:00	
100	09/07/2021	23:24	SM	30	KH21-234_45_CTD2_100m_F3	5.0	40:00	
100	09/07/2021	00:50	SM	30	KH21-234_45_CTD2_100m_F4	5.0	44:00	
100	09/07/2021	00:50	SM	30	KH21-234_45_CTD2_100m_F5	3.69	39:00	dropping filter on bench
10 above bottom	09/07/2021	20:22	SM	30	KH21-234_45_CTD1_deep_F1	5.0	43:00	deep = 10 m above bottom
10 above bottom	09/07/2021	20:22	SM	30	KH21-234_45_CTD1_deep_F2	3.48	38:00	deep = 10 m above bottom, dropping (= dropping filter on bench)
10 above bottom	09/07/2021	20:22	SM	30	KH21-234_45_CTD1_deep_F3	5.0	49:00	deep = 10 m above bottom
10 above bottom	09/07/2021	21:22	SM	30	KH21-234_45_CTD1_deep_F4	4.3	43:00	deep = 10 m above bottom, dropping (= dropping filter on bench)
10 above bottom	09/07/2021	21:22	SM	30	KH21-234_45_CTD1_deep_F5	5.0	41:00	deep = 10 m above bottom

NOTE: all filters are stored immediately in freezer at -80 degC



Opportunistic ice sampling Log Sheet	
CRUISE	KH21-234
STATION	8
surface ICE	eDNA and BIOMARKER
TIME (UTC) and DATE	03:45, 03.07.21
LONGITUDE (E)	19.28838625
LATITUDE (N)	80.73214137
WATER DEPTH (m)	108
NOTES	Opportunistic ice sampling. Note that the long time between sampling and filtering is due to thawing time of the ice

RESEARCHER(S)
Sigrid Mugu
Tamara Trofimova
Aud Larsen

Water depth (m)	Date (when filtered)	Time (hh:mm) (when filtered)	Researcher	Water collected (L)	Filter label	Water filtered (L)	Time filtering (mm:ss)	Notes
0	03/07/2021	17:00	TT	8.4	KH21_234_08_BIO_ICE_B	2.5		GF/F filter, frozen at -20, , B= replicate bucket ice from outside of ship
0	03/07/2021	17:00	TT	8.4	KH21_234_08_DNA_ICE_B_0.2M	2.1		PC filter, frozen at -20, , B= replicate bucket ice from outside of ship, 0.2M= PC filter 0.2my
0	03/07/2021	17:00	TT	8.4	KH21_234_08_DNA_ICE_B_1.0M	0.8		PC filter, frozen at -20, B= replicate bucket ice from outside of ship, 1.0M= PC filter 1.0my
0	03/07/2021	17:00	TT	8.4	KH21_234_08_DNA_ICE_B_2.0M	3		PC filter, frozen at -20, , B= replicate bucket ice from outside of ship, 2.0 M= PC filter 2.0my
0	03/07/2021	18:00	TT	5.15	KH21_234_08_BIO_ICE_C	1.45		GF/F filter, frozen at -20, C= replicate bucket ice from moonpool
0	03/07/2021	18:00	TT	5.15	KH21_234_08_DNA_ICE_C_0.2M	0.8		PC filter, frozen at -20, C= replicate bucket ice from moonpool, 0.2M= PC filter 0.2my
0	03/07/2021	18:00	TT	5.15	KH21_234_08_DNA_ICE_C_1.0M	1.45		PC filter, frozen at -20, C= replicate bucket ice from moonpool, 0.2M= PC filter 1.0my
0	03/07/2021	18:00	TT	5.15	KH21_234_08_DNA_ICE_C_2.0M	1.45		PC filter, frozen at -20, C= replicate bucket ice from moonpool, 0.2M= PC filter 2.0my
0	04/07/2021	20:30	SM	12.1	KH21_234_08_BIO_ICE_A	3.25	15:00	GF/F filter, frozen at -20, A= replicate bucket ice from outside of ship
0	04/07/2021	20:30	SM	12.1	KH21_234_08_DNA_ICE_A_0.2M		55:00	PC filter, frozen at -20, A= replicate bucket ice from outside of ship, 0.2M= PC filter 0.2my
0	04/07/2021	20:30	SM	12.1	KH21_234_08_DNA_ICE_A_1.0M	3.25	20:00	PC filter, frozen at -20, A= replicate bucket ice from outside of ship, 1.0M= PC filter 1.0my
0	04/07/2021	20:30	SM	12.1	KH21_234_08_DNA_ICE_A_2.0M	3.25	15:00	PC filter, frozen at -20, A= replicate bucket ice from outside of ship, 2.0 M= PC filter 2.0my

NOTE: all filters are stored immediately in freezer at -20 degC



Opportunistic ice sampling Log Sheet	
CRUISE	KH21-234
STATION	18
surface ICE	eDNA and BIOMARKER
TIME (UTC) and DATE	21:52, 04.07.21
LONGITUDE (E)	13.5322539
LATITUDE (N)	81.06286972
WATER DEPTH (m)	2045
NOTES	Opportunistic ice sampling. Note that the long time between sampling and filtering is due to thawing time of the ice

RESEARCHER(S)
Sigrid Mugu
Tamara Trofimova
Aud Larsen

Water depth (m)	Date (when filtered)	Time (hh:mm) (when filtered) (CET)	Researcher	Water collected (L)	Filter label	Water filtered (L)	Time filtering (mm:ss)	Notes
0	06/07/2021	08:10	TT	4.3	KH21_234_18_ICE_BIOMARKER	1.1	05:00	GF/F filter, frozen at -20, bucket ice from outside of ship
0	06/07/2021	08:10	TT	4.3	KH21_234_18_ICE_DNA_0.2M	1.1	05:00	PC filter, frozen at -20, bucket ice from outside of ship
0	06/07/2021	08:10	TT	4.3	KH21_234_18_ICE_DNA_1.0M	1.1	04:00	PC filter, frozen at -20, bucket ice from outside of ship

NOTE: all filters are stored immediately in freezer at -20 degC



Opportunistic ice sampling Log Sheet	
CRUISE	KH21-234
STATION	20
surface ICE	eDNA and BIOMARKER
TIME (UTC) and DATE	09:58, 05.07.21
LONGITUDE (E)	11.82033162
LATITUDE (N)	81.32607978
WATER DEPTH (m)	1424
NOTES	Opportunistic ice sampling. Note that the long time between sampling and filtering is due to thawing time of the ice

RESEARCHER(S)
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Tamara Trofimova
Aud Larsen

Water depth (m)	Date (when filtered)	Time (hh:mm) (when filtered) (CET)	Researcher	Water collected (L)	Filter label	Water filtered (L)	Time filtering (mm:ss)	Notes
0	06/07/2021	08:10	TT	4.3	KH21_234_20_ICE_BIOMARKER	1.5	05:00	GF/F filter, frozen at -20, bucket ice from outside of ship
0	06/07/2021	08:10	TT	4.3	KH21_234_20_ICE_DNA_1.0M	1.5	05:00	PC filter, frozen at -20, bucket ice from outside of ship
0	06/07/2021	08:10	TT	4.3	KH21_234_20_ICE_DNA_0.2M	1.5	20:00	PC filter, frozen at -20, bucket ice from outside of ship

NOTE: all filters are stored immediately in freezer at -20 degC



Opportunistic ice sampling Log Sheet	
CRUISE	KH21-234
STATION	22
surface ICE	eDNA and BIOMARKER
TIME (UTC) and DATE	17:01, 05.07.21
LONGITUDE (E)	9.4104439
LATITUDE (N)	81.29168472
WATER DEPTH (m)	1343
NOTES	Opportunistic ice sampling. Note that the long time between sampling and filtering is due to thawing time of the ice

RESEARCHER(S)
Sigrid Mugu
Tamara Trofimova
Aud Larsen

Water depth (m)	Date (when filtered)	Time (hh:mm) (when filtered) (CET)	Researcher	Water collected (L)	Filter label	Water filtered (L)	Time filtering (mm:ss)	Notes
0	06/07/2021	14:15	SM	4.6	KH21_234_22_ICE_BIOMARKER	0.115	05:00	bucket ice from outside of ship
0	06/07/2021	14:15	SM	4.6	KH21_234_22_ICE_DNA_0.2M	0.115	15:00	bucket ice from outside of ship
0	06/07/2021	14:15	SM	4.6	KH21_234_22_ICE_DNA_1.0M	0.115	05:00	bucket ice from outside of ship
0	06/07/2021	14:15	SM	4.6	KH21_234_22_ICE_DNA_2.0M	0.115	05:00	bucket ice from outside of ship

NOTE: all filters are stored immediately in freezer at -20 degC



Opportunistic ice sampling Log Sheet	
CRUISE	KH21-234
STATION	23
surface ICE	eDNA and BIOMARKER
TIME (UTC) and DATE	22:10, 05.07.21
LONGITUDE (E)	9.4104439
LATITUDE (N)	81.29168472
WATER DEPTH (m)	1136
NOTES	Opportunistic ice sampling. Note that the long time between sampling and filtering is due to thawing time of the ice

RESEARCHER(S)
Sigrid Mugu
Tamara Trofimova
Aud Larsen

Water depth (m)	Date (when filtered)	Time (hh:mm) (when filtered) (CET)	Researcher	Water collected (L)	Filter label	Water filtered (L)	Time filtering (mm:ss)	Notes
0	06/07/2021	22:20	SM	5.8	KH21_234_23_ICE_BIOMARKER	1.45	05:00	bucket ice from outside of ship, brown coloured filters
0	06/07/2021	22:20	SM	5.8	KH21_234_23_ICE_DNA_0.2M	0.7	60:00	bucket ice from outside of ship, brown coloured filters
0	06/07/2021	22:20	SM	5.8	KH21_234_23_ICE_DNA_1.0M	1.45	20:00	bucket ice from outside of ship, brown coloured filters
0	06/07/2021	22:20	SM	5.8	KH21_234_23_ICE_DNA_2.0M	1.45	10:00	bucket ice from outside of ship, brown coloured filters

NOTE: all filters are stored immediately in freezer at -20 degC



Opportunistic ice sampling Log Sheet	
CRUISE	KH21-234
STATION	25
surface ICE	eDNA and BIOMARKER
TIME (UTC) and DATE	04:04, 06.07.21
LONGITUDE (E)	7,77623706666666
LATITUDE (N)	81.77344942
WATER DEPTH (m)	820
NOTES	Opportunistic ice sampling. Note that the long time between sampling and filtering is due to thawing time of the ice

RESEARCHER(S)
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Tamara Trofimova
Aud Larsen

Water depth (m)	Date (when filtered)	Time (hh:mm) (when filtered) (CET)	Researcher	Water collected (L)	Filter label	Water filtered (L)	Time filtering (mm:ss)	Notes
0	07/07/2021	07:10	TT	5.0	KH21_234_25_ICE_A_BIOMARKER	1.5	30:00	Bucket ice (>5 L after thawing - the over 5L thrown away) from outside of ship (=A=1) sampled from outside side of ship
0	07/07/2021	07:10	TT	5.0	KH21_234_25_ICE_DNA_A_0.2M	0.8	60:00	Bucket ice (>5 L after thawing - the over 5L thrown away) from outside of ship (=A=1) sampled from outside side of ship
0	07/07/2021	07:10	TT	5.0	KH21_234_25_ICE_DNA_A_1.0M	1	40:00	Bucket ice (>5 L after thawing - the over 5L thrown away) from outside of ship (=A=1) sampled from outside side of ship
0	07/07/2021	07:10	TT	5.0	KH21_234_25_ICE_DNA_A_2.0M	1	60:00	Bucket ice (>5 L after thawing - the over 5L thrown away) from outside of ship (=A=1) sampled from outside side of ship
0	07/07/2021	07:10	TT	5.0	KH21_234_25_ICE_DNA_A_5.0M	1.5	40:00	Bucket ice (>5 L after thawing - the over 5L thrown away) from outside of ship (=A=1) sampled from outside side of ship

NOTE: all filters are stored immediately in freezer at -20 degC



Opportunistic ice sampling Log Sheet			
CRUISE	KH21-234		
STATION	25		
surface ICE	eDNA and BIOMARKER		
TIME (UTC) and DATE	05:03, 06.07.21		
LONGITUDE (E)	7.772114267		
LATITUDE (N)	81.76818273		
WATER DEPTH (m)	815		
NOTES	Opportunistic ice sampling. Note that the long time between sampling and filtering is due to thawing time of the ice		

RESEARCHER(S)
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Aud Larsen

Water depth (m)	Date (when filtered)	Time (hh:mm) (when filtered) (CET)	Researcher	Water collected (L)	Filter label	Water filtered (L)	Time filtering (mm:ss)	Notes
0	07/07/2021	08:52	TT	5.0	KH21_234_25_ICE_B_BIOMARKER	0.9	60:00	Bucket ice (>5 L after thawing - the over 5L thrown away) from outside of ship (=B=2) sampled from outside side of ship
0	07/07/2021	08:52	TT	5.0	KH21_234_25_ICE_DNA_B_0.2M	0.45	60:00	Bucket ice (>5 L after thawing - the over 5L thrown away) from outside of ship (=B=2) sampled from outside side of ship
0	07/07/2021	08:52	TT	5.0	KH21_234_25_ICE_DNA_B_1.0M	0.75	60:00	Bucket ice (>5 L after thawing - the over 5L thrown away) from outside of ship (=B=2) sampled from outside side of ship
0	07/07/2021	08:52	TT	5.0	KH21_234_25_ICE_DNA_B_2.0M	0.6	60:00	Bucket ice (>5 L after thawing - the over 5L thrown away) from outside of ship (=B=2) sampled from outside side of ship
0	07/07/2021	08:52	TT	5.0	KH21_234_25_ICE_DNA_B_5.0M	0.7	60:00	Bucket ice (>5 L after thawing - the over 5L thrown away) from outside of ship (=B=2) sampled from outside side of ship

NOTE: all filters are stored immediately in freezer at -20 degC



Opportunistic ice sampling Log Sheet	
CRUISE	KH21-234
STATION	27
surface ICE	eDNA and BIOMARKER
TIME (UTC) and DATE	14:16, 06.07.21
LONGITUDE (E)	6.896973317
LATITUDE (N)	82.03276253
WATER DEPTH (m)	735
NOTES	Opportunistic ice sampling. Note that the long time between sampling and filtering is due to thawing time of the ice

RESEARCHER(S)
Sigrid Mugu
Tamara Trofimova
Aud Larsen

Water depth (m)	Date (when filtered)	Time (hh:mm) (when filtered) (CET)	Researcher	Water collected (L)	Filter label	Water filtered (L)	Time filtering (mm:ss)	Notes
0	07/07/2021	21:05	SM	7.2	KH21_234_27_ICE_BIOMARKER	2.5	47:00	Bucket ice from outside of ship, sampled by crew without supervision, lots on filter
0	07/07/2021	21:05	SM	7.2	KH21_234_27_ICE_DNA_0.2M	0.6	60:00	Bucket ice from outside of ship, sampled by crew without supervision, lots on filter
0	07/07/2021	21:05	SM	7.2	KH21_234_27_ICE_DNA_1.0M	1.5	50:00	Bucket ice from outside of ship, sampled by crew without supervision, lots on filter
0	07/07/2021	21:05	SM	7.2	KH21_234_27_ICE_DNA_2.0M	1.5	45:00	Bucket ice from outside of ship, sampled by crew without supervision, lots on filter

NOTE: all filters are stored immediately in freezer at -20 degC



Opportunistic ice sampling Log Sheet	
CRUISE	KH21-234
STATION	29
surface ICE	eDNA and BIOMARKER
TIME (UTC) and DATE	21:30, 06.07.21
LONGITUDE (E)	5.608363283
LATITUDE (N)	81.86133587
WATER DEPTH (m)	811
NOTES	Opportunistic ice sampling. Note that the long time between sampling and filtering is due to thawing time of the ice

RESEARCHER(S)
Sigrid Mugu
Tamara Trofimova
Aud Larsen

Water depth (m)	Date (when filtered)	Time (hh:mm) (when filtered) (CET)	Researcher	Water collected (L)	Filter label	Water filtered (L)	Time filtering (mm:ss)	Notes
0	07/07/2021	22:45	SM	4.6	KH21_234_29_ICE_BIOMARKER	1.16	2:00	Bucket ice from outside of ship
0	07/07/2021	22:45	SM	4.6	KH21_234_29_ICE_DNA_0.2M_A	0.46	15:00	Bucket ice from outside of ship
0	07/07/2021	22:45	SM	4.6	KH21_234_29_ICE_DNA_0.2M_B	0.7	29:00	Bucket ice from outside of ship
0	07/07/2021	22:45	SM	4.6	KH21_234_29_ICE_DNA_1.0M	1.16	5:00	Bucket ice from outside of ship
0	07/07/2021	23:03	SM	4.6	KH21_234_29_ICE_DNA_2.0M	1.16	12:00	Bucket ice from outside of ship

NOTE: all filters are stored immediately in freezer at -20 degC



Opportunistic ice sampling Log Sheet	
CRUISE	KH21-234
STATION	32
surface ICE	eDNA and BIOMARKER
TIME (UTC) and DATE	08:09, 07.07.21
LONGITUDE (E)	4.187358467
LATITUDE (N)	81.37445505
WATER DEPTH (m)	736
NOTES	Opportunistic ice sampling. Note that the long time between sampling and filtering is due to thawing time of the ice

RESEARCHER(S)
Sigrid Mugu
Tamara Trofimova
Aud Larsen

Water depth (m)	Date (when filtered)	Time (hh:mm) (when filtered) (CET)	Researcher	Water collected (L)	Filter label	Water filtered (L)	Time filtering (mm:ss)	Notes
0	08/07/2021	11:14	TT	2.5	KH21_234_32_ICE_BIOMARKER	1.0	04:00	Bucket ice from outside of ship
0	08/07/2021	11:14	TT	2.5	KH21_234_32_ICE_DNA_0.2M_A	1.0	07:00	Bucket ice from outside of ship
0	08/07/2021	11:14	TT	2.5	KH21_234_32_ICE_DNA_0.2M_B	1.0	06:00	Bucket ice from outside of ship
0	08/07/2021	11:14	TT	2.5	KH21_234_32_ICE_DNA_1.0M	1.5	04:00	Bucket ice from outside of ship
0	08/07/2021	11:20	TT	2.5	KH21_234_32_ICE_DNA_2.0M	0.5	01:00	Bucket ice from outside of ship, strange white flakes on filter

NOTE: all filters are stored immediately in freezer at -20 degC



Opportunistic ice sampling Log Sheet	
CRUISE	KH21-234
STATION	33
surface ICE	ICE - eDNA and BIOMARKER
TIME (UTC) and DATE	11:40, 07.07.21
LONGITUDE (E)	3.4569171
LATITUDE (N)	81.31325727
WATER DEPTH (m)	748.17
NOTES	Opportunistic ice sampling. Note that the long time between sampling and filtering is due to thawing time of the ice

RESEARCHER(S)
Sigrid Mugu
Tamara Trofimova
Aud Larsen

Water depth (m)	Date (when filtered)	Time (hh:mm) (when filtered) (CET)	Researcher	Water collected (L)	Filter label	Water filtered (L)	Time filtering (mm:ss)	Notes
0	08/07/2021	11:12	TT	4.5	KH21_234_33_ICE_BIOMARKER	2.0	05:00	Bucket ice from outside of ship
0	08/07/2021	11:12	TT	4.5	KH21_234_33_ICE_DNA_0,2M	1.0	28:00	Bucket ice from outside of ship, something strange happened to the filter
0	08/07/2021	11:12	TT	4.5	KH21_234_33_ICE_DNA_1,0	1.5	16:00	Bucket ice from outside of ship
0	08/07/2021	11:12	TT	4.5	KH21_234_33_ICE_DNA_2,0M	2.0	07:00	Bucket ice from outside of ship
0	08/07/2021	11:12	TT	4.5	KH21_234_33_ICE_DNA_5,0M	2.0	05:00	Bucket ice from outside of ship

NOTE: all filters are stored immediately in freezer at -20 degC



Opportunistic ice sampling Log Sheet	
CRUISE	KH21-234
STATION	36
surface ICE	ICE - eDNA and BIOMARKER
TIME (UTC) and DATE	01:40, 08.07.21
LONGITUDE (E)	3.721514217
LATITUDE (N)	81.00641355
WATER DEPTH (m)	733.29
NOTES	Opportunistic ice sampling. Note that the long time between sampling and filtering is due to thawing time of the ice

RESEARCHER(S)
Sigrid Mugu
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Aud Larsen

Water depth (m)	Date (when filtered)	Time (hh:mm) (when filtered) (CET)	Researcher	Water collected (L)	Filter label	Water filtered (L)	Time filtering (mm:ss)	Notes
0	09/07/2021	03:50	SM	7.0	KH21_234_36_ICE_BIOMARKER	2.0	08:00	Bucket ice from outside of ship
0	09/07/2021	03:50	SM	7.0	KH21_234_36_ICE_DNA_0,2M	1.0	32:00	Bucket ice from outside of ship, something strange happened to the filter
0	09/07/2021	03:50	SM	7.0	KH21_234_36_ICE_DNA_1,0	2.0	19:00	Bucket ice from outside of ship
0	09/07/2021	03:50	SM	7.0	KH21_234_36_ICE_DNA_2,0M	2.0	12:00	Bucket ice from outside of ship

NOTE: all filters are stored immediately in freezer at -20 degC



Opportunistic ice sampling Log Sheet	
CRUISE	KH21-234
STATION	37
surface ICE	ICE - eDNA and BIOMARKER
TIME (UTC) and DATE	07:09, 08.07.21
LONGITUDE (E)	5.23152465
LATITUDE (N)	80.89406247
WATER DEPTH (m)	702.2
NOTES	Opportunistic ice sampling. Note that the long time between sampling and filtering is due to thawing time of the ice

RESEARCHER(S)
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Aud Larsen

Water depth (m)	Date (when filtered)	Time (hh:mm) (when filtered) (CET)	Researcher	Water collected (L)	Filter label	Water filtered (L)	Time filtering (mm:ss)	Notes
0	09/07/2021	01:25	SM	8.0	KH21_234_37_ICE_BIOMARKER	1.5	08:00	Ice was picked from outside ship , in a bucket just covered with plastic bag. Very brown filters.
0	09/07/2021	01:25	SM	8.0	KH21_234_37_ICE_DNA_0,2M	0.48	32:00	Ice was picked from outside ship , in a bucket just covered with plastic bag. Very brown filters.
0	09/07/2021	01:25	SM	8.0	KH21_234_37_ICE_DNA_1,0	0.975	19:00	Ice was picked from outside ship , in a bucket just covered with plastic bag. Very brown filters.
0	09/07/2021	01:25	SM	8.0	KH21_234_37_ICE_DNA_2,0M	1.0	12:00	Ice was picked from outside ship , in a bucket just covered with plastic bag. Very brown filters.

NOTE: all filters are stored immediately in freezer at -20 degC



Opportunistic ice sampling Log Sheet	
CRUISE	KH21-234
STATION	39
surface ICE	ICE - eDNA and BIOMARKER
TIME (UTC) and DATE	16:38, 08.07.21
LONGITUDE (E)	5.969605933
LATITUDE (N)	80.6812946
WATER DEPTH (m)	741.96
NOTES	Opportunistic ice sampling. Note that the long time between sampling and filtering is due to thawing time of the ice

RESEARCHER(S)
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Tamara Trofimova
Aud Larsen

Water depth (m)	Date (when filtered)	Time (hh:mm) (when filtered) (CET)	Researcher	Water collected (L)	Filter label	Water filtered (L)	Time filtering (mm:ss)	Notes
0	09/07/2021	20:35	SM	4.07	KH21_234_39_ICE_BIOMARKER	1.0	03:00	Ice was picked from outside ship
0	09/07/2021	20:35	SM	4.07	KH21_234_39_ICE_DNA_0,2M	1.0	15:00	Ice was picked from outside ship
0	09/07/2021	20:35	SM	4.07	KH21_234_39_ICE_DNA_1,0	1.0	03:00	Ice was picked from outside ship
0	09/07/2021	20:35	SM	4.07	KH21_234_39_ICE_DNA_2,0M	1.0	02:00	Ice was picked from outside ship

NOTE: all filters are stored immediately in freezer at -20 degC



Opportunistic ice sampling Log Sheet	
CRUISE	KH21-234
STATION	40
surface ICE	ICE - eDNA and BIOMARKER
TIME (UTC) and DATE	18:50, 08.07.21
LONGITUDE (E)	6.602359417
LATITUDE (N)	80.6005895
WATER DEPTH (m)	702.52
NOTES	Opportunistic ice sampling. Note that the long time between sampling and filtering is due to thawing time of the ice

RESEARCHER(S)
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Aud Larsen

Water depth (m)	Date (when filtered)	Time (hh:mm) (when filtered) (CET)	Researcher	Water collected (L)	Filter label	Water filtered (L)	Time filtering (mm:ss)	Notes
0	10/07/2021	03:20	SM	6.6	KH21_234_39_ICE_BIOMARKER	1.9	06:00	Ice was picked from outside ship
0	10/07/2021	03:20	SM	6.6	KH21_234_39_ICE_DNA_0,2M	1.9	55:00	Ice was picked from outside ship
0	10/07/2021	03:20	SM	6.6	KH21_234_39_ICE_DNA_1,0	1.9	06:00	Ice was picked from outside ship
0	10/07/2021	03:20	SM	6.6	KH21_234_39_ICE_DNA_2,0M	1.9	05:00	Ice was picked from outside ship

NOTE: all filters are stored immediately in freezer at -20 degC



Opportunistic ice sampling Log Sheet	
CRUISE	KH21-234
STATION	41
surface ICE	ICE - eDNA and BIOMARKER
TIME (UTC) and DATE	21:43, 08.07.21
LONGITUDE (E)	7.500416092
LATITUDE (N)	80.56252477
WATER DEPTH (m)	752.91
NOTES	Opportunistic ice sampling. Note that the long time between sampling and filtering is due to thawing time of the ice

RESEARCHER(S)
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Tamara Trofimova
Aud Larsen

Water depth (m)	Date (when filtered)	Time (hh:mm) (when filtered) (CET)	Researcher	Water collected (L)	Filter label	Water filtered (L)	Time filtering (mm:ss)	Notes
0	09/07/2021	15:45	SM	4.56	KH21_234_41_ICE_BIOMARKER	1.14	05:00	Ice was picked from small boat
0	09/07/2021	15:45	SM	4.56	KH21_234_41_ICE_DNA_0,2M	1.14	32:00	Ice was picked from small boat
0	09/07/2021	15:45	SM	4.56	KH21_234_41_ICE_DNA_1,0	1.14	06:00	Ice was picked from small boat
0	09/07/2021	15:45	SM	4.56	KH21_234_41_ICE_DNA_2,0M	1.14	05:00	Ice was picked from small boat
0	10/07/2021	00:16	SM	6.04	KH21_234_41_B_ICE_BIOMARKER	1.5	05:00	Ice was picked from small boat, B= a second melting unit
0	10/07/2021	00:16	SM	6.04	KH21_234_41_B_ICE_DNA_0,2M	1.5	51:00	Ice was picked from small boat, B= a second melting unit
0	10/07/2021	00:16	SM	6.04	KH21_234_41_B_ICE_DNA_1,0	1.5	11:00	Ice was picked from small boat, B= a second melting unit
0	10/07/2021	00:16	SM	6.04	KH21_234_41_B_ICE_DNA_2,0M	1.5	05:00	Ice was picked from small boat, B= a second melting unit

NOTE: all filters are stored immediately in freezer at -20 degC



Opportunistic ice sampling Log Sheet	
CRUISE	KH21-234
STATION	42
surface ICE	ICE - eDNA and BIOMARKER
TIME (UTC) and DATE	01:39, 09.07.21
LONGITUDE (E)	7.100318083
LATITUDE (N)	80.47983343
WATER DEPTH (m)	674.22
NOTES	Opportunistic ice sampling. Note that the long time between sampling and filtering is due to thawing time of the ice

RESEARCHER(S)
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Water depth (m)	Date (when filtered)	Time (hh:mm) (when filtered) (CET)	Researcher	Water collected (L)	Filter label	Water filtered (L)	Time filtering (mm:ss)	Notes
0	10/07/2021	07:04	TT	5.8	KH21_234_42_ICE_BIOMARKER	1.7	07:00	Ice picket outside ship
0	10/07/2021	07:04	TT	5.8	KH21_234_42_ICE_DNA_0,2M	1.7	07:00	Ice picket outside ship
0	10/07/2021	07:04	TT	5.8	KH21_234_42_ICE_DNA_1,0	0.7	20:00	Ice picket outside ship
0	10/07/2021	07:04	TT	5.8	KH21_234_42_ICE_DNA_2,0M	1.7	08:00	Ice picket outside ship

NOTE: all filters are stored immediately in freezer at -20 degC



plankton net log per station	
CRUISE	KH21-234
STATION	43
surface ICE	ICE - eDNA and BIOMARKER
TIME (UTC) and DATE	03:22, 09.07.21
LONGITUDE (E)	7.561931033
LATITUDE (N)	80.39059938
WATER DEPTH (m)	688.54
NOTES	Opportunistic ice sampling. Note that the long time between sampling and filtering is due to thawing time of the ice

RESEARCHER(S)
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Water depth (m)	Date (when filtered)	Time (hh:mm) (when filtered) (CET)	Researcher	Water collected (L)	Filter label	Water filtered (L)	Time filtering (mm:ss)	Notes
0	10/07/2021	15:16	TT	5.25	KH21_234_43_ICE_BIOMARKER	1.5	03:00	Ice picket outside ship
0	10/07/2021	15:16	TT	5.25	KH21_234_43_ICE_DNA_0,2M	1.0	06:00	Ice picket outside ship
0	10/07/2021	15:16	TT	5.25	KH21_234_43_ICE_DNA_1,0	1.25	03:00	Ice picket outside ship
0	10/07/2021	15:16	TT	5.25	KH21_234_43_ICE_DNA_2,0M	1.5	07:00	Ice picket outside ship

NOTE: all filters are stored immediately in freezer at -20 degC



Opportunistic ice sampling Log Sheet	
CRUISE	KH21-234
STATION	44
surface ICE	ICE - eDNA and BIOMARKER
TIME (UTC) and DATE	09:10, 09.07.21
LONGITUDE (E)	7.561931033
LATITUDE (N)	80.39059938
WATER DEPTH (m)	688.54
NOTES	Opportunistic ice sampling. Note that the long time between sampling and filtering is due to thawing time of the ice

RESEARCHER(S)
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Aud Larsen

Water depth (m)	Date (when filtered)	Time (hh:mm) (when filtered) (CET)	Researcher	Water collected (L)	Filter label	Water filtered (L)	Time filtering (mm:ss)	Notes
0	10/07/2021	17:15	TT	3.5	KH21_234_44_ICE_BIOMARKER	1.5	03:00	Ice picket outside ship
0	10/07/2021	17:15	TT	3.5	KH21_234_44_ICE_DNA_0,2M	0.5	04:00	Ice picket outside ship
0	10/07/2021	17:15	TT	3.5	KH21_234_44_ICE_DNA_1,0	0.5	01:00	Ice picket outside ship
0	10/07/2021	17:15	TT	3.5	KH21_234_44_ICE_DNA_2,0M	1.0	03:00	Ice picket outside ship

NOTE: all filters are stored immediately in freezer at -20 degC



Opportunistic ice sampling Log Sheet	
CRUISE	KH21-234
STATION	45
surface ICE	ICE - eDNA and BIOMARKER
TIME (UTC) and DATE	12:22, 09.07.21
LONGITUDE (E)	7.638628842
LATITUDE (N)	80.09281665
WATER DEPTH (m)	524.91
NOTES	opportunistic ice sampling. NB! It is correct that long time between sampling and filtering - due to tawing time

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Water depth (m)	Date (when filtered)	Time (hh:mm) (when filtered) (CET)	Researcher	Water collected (L)	Filter label	Water filtered (L)	Time filtering (mm:ss)	Notes
0	10/07/2021	11:00	TT	4.71	KH21_234_45_ICE_BIOMARKER	1.0	02:00	Ice picket outside the ship
0	10/07/2021	11:00	TT	4.71	KH21_234_45_ICE_DNA_0,2M	0.7	09:00	Ice picket outside the ship
0	10/07/2021	11:00	TT	4.71	KH21_234_45_ICE_DNA_1,0	1.0	04:00	Ice picket outside the ship
0	10/07/2021	11:00	TT	4.71	KH21_234_45_ICE_DNA_2,0M	1.0	02:00	Ice picket outside the ship
0	10/07/2021	11:00	TT	4.71	KH21_234_45_ICE_DNA_5,0M	1.0	03:00	Ice picket outside the ship

NOTE: all filters are stored immediately in freezer at -20 degC

plankton net log per station	
CRUISE	KH21-234
STATION	1
plankton net	NET
TIME (UTC) and DATE	07:53:57 01.07.2021
LATITUDE (E)	9.847968117
LONGITUDE (N)	80.04726407
WATER DEPTH (m)	505.205
NOTES	Algehåv Ø35 10my, vertical hawl

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Water depth (m)	Date	Time (hh:mm)	Researcher	Water collected (L)	Filter label	Water filtered (L)	Time filtering (mm:ss)	Notes
50-0	01/07/2021		TT	0.5	KH21_234_01_NET_BIOMARKER	0.250		GF/F filter, frozen at -20, plankton net washed with SW from hose
50-0	01/07/2021		TT	0.5	KH21_234_01_NET_DNA	0.250		PC 2,0 my, frozen at -20, plankton net washed with SW from hose

NOTE: all filters are stored immediately in freezer at -20 degC

^^ all tmies are CET ^^

plankton net log per station	
CRUISE	KH21-234
STATION	3
plankton net	NET
TIME (UTC) and DATE	01.07.2021, 19:39:23
LATITUDE (E)	14.26475705
LONGITUDE (N)	80.16648775
WATER DEPTH (m)	41.2
NOTES	Algehåv Ø35 10my, vertical hawl

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Water depth (m)	Date	Time (hh:mm)	Researcher	Water collected (L)	Filter label	Water filtered (L)	Time filtering (mm:ss)	Notes
50-0	02/07/2021	22:00	SM	0.5	KH21_234_03_NET_BIOMARKER	0.250		GF/F filter, frozen at -20, plankton net washed with SW from hose
50-0	02/07/2021	22:00	SM	0.5	KH21_234_03_NET_DNA	0.045		PC 2,0 my, frozen at -20, clogged at the very beinning, plankton net washed with SW from hose
50-0	02/07/2021	22:00	SM	0.5	KH21_234_03_NET_DNA_II	0.045		PC 2,0 my, frozen at -20, clogged at the very beinning, plankton net washed with SW from hose

NOTE: all filters are stored immediately in freezer at -20 degC

^^ all tmies are CET ^^

plankton net log per station	
CRUISE	KH21-234
STATION	4
plankton net	NET
TIME (UTC) and DATE	01.07.2021, 23:54:14
LATITUDE €	16.30798849
LONGITUDE (N)	80.35314833
WATER DEPTH (m)	393.735
NOTES	Algehåv Ø35 10my, vertical hawl

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Water depth (m)	Date	Time (hh:mm)	Researcher	Water collected (L)	Filter label	Water filtered (L)	Time filtering (mm:ss)	Notes
50	02/07/2021		SM/TT	0.5	KH21_234_04_NET_BIOMAF	0.250		GF/F filter, frozen at -20, plankton net washed with SW from hose, nethawl taken 01.07.21 filtered 02.07.21
50	02/07/2021		SM/TT	0.5	KH21_234_04_NET_DNA	0.250		PC 2,0 my, frozen at -20, plankton net washed with SW from hose, nethawl taken 01.07.21 filtered 02.07.21

NOTE: all filters are stored immediately in freezer at -20 degC

^^ all tmies are CET ^^

plankton net log per station	
CRUISE	KH21-234
STATION	5
plankton net	NET
TIME (UTC) and DATE	05:11:57 02.07.2021
BIOMARKER	17.43599634
DNA	80.4520276
WATER DEPTH (m)	55.48
NOTES	Algehåv Ø35 10my, vertical hawl

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Water depth (m)	Date	Time (hh:mm)	Researcher	Water collected (L)	Filter label	Water filtered (L)	Time filtering (mm:ss)	Notes
50	02/07/2021		TT	0.2	KH21_234_05_NET_BIOMARKER	0.100		GF/F filter, frozen at -20, plankton net washed with 0.22my filtrered sewate from previous station
50	02/07/2021		TT	0.2	KH21_234_05_NET_DNA	0.100		PC 2,0 my, frozen at -20, plankton net washed with 0.22my filtrered sewate from previous station

NOTE: all filters are stored immediately in freezer at -20 degC

^^ all tmies are CET ^^

plankton net log per station	
CRUISE	KH21-234
STATION	11
plankton net	NET
TIME (UTC) and DATE	14:04, 03.07.21
LATITUDE (E)	18.89172139
LONGITUDE (N)	81.00360196
WATER DEPTH (m)	162.3
NOTES	Algehåv Ø35 10my, vertical hawl

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Water depth (m)	Date	Time (hh:mm)	Researcher	Water collected (L)	Filter label	Water filtered (L)	Time filtering (mm:ss)	Notes
50-0	03/07/2021	20:53	SM	0.45	KH21_234_11_NET_BIOMARKER	0.225	10:00	GF/F filter, frozen at -20, plankton net washed with 0.22my filtrered sewate from previous station
50-0	03/07/2021	20:53	SM	0.45	KH21_234_11_NET_DNA	0.115	10:00	PC 2,0 my, frozen at -20, plankton net washed with 0.22my filtrered sewate from previous station
50-0	03/07/2021	20:53	SM	0.45	KH21_234_11_NET_DNA_II	0.100	06:00	PC 2,0 my, frozen at -20, II = replicate, plankton net washed with 0.22my filtrered sewate from previous station,

NOTE: all filters are stored immediately in freezer at -20 degC

^^ all tmies are CET ^^

plankton net log per station	
CRUISE	KH21-234
STATION	13
plankton net	NET
TIME (UTC) and DATE	20:03 , 03:07
LATITUDE (E)	17.72666057
LONGITUDE (N)	81.00234284
WATER DEPTH (m)	425
NOTES	Algehåv Ø35 10my, vertical hawl

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Water depth (m)	Date	Time (hh:mm)	Researcher	Water collected (L)	Filter label	Water filtered (L)	Time filtering (mm:ss)	Notes
50-0	03/07/2021	22:24	SM	0.48	KH21_234_13_NET_BIOMARKER	0.240	10:00	GF/F filter, frozen at -20, plankton net washed with 0.22my filtrered sewate from previous station
50-0	03/07/2021	22:24	SM	0.48	KH21_234_13_NET_DNA	0.140	29:00	PC 2,0 my, frozen at -20, plankton net washed with 0.22my filtrered sewate from previous station
50-0	03/07/2021	22:24	SM	0.48	KH21_234_13_NET_DNA_II	0.100	10:00	PC 2,0 my, frozen at -20, II = replicate, plankton net washed with 0.22my filtrered sewate from previous station

NOTE: all filters are stored immediately in freezer at -20 degC

^^ all tmies are CET ^^

plankton net log per station	
CRUISE	KH21-234
STATION	14
plankton net	NET
TIME (UTC) and DATE	22:31, 03.07.21
LATITUDE (E)	17.08185313
LONGITUDE (N)	80.92874081
WATER DEPTH (m)	778
NOTES	Algehåv Ø35 10my, vertical hawl

RESEARCHER(S)
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Water depth (m)	Date	Time (hh:mm)	Researcher	Water collected (L)	Filter label	Water filtered (L)	Time filtering (mm:ss)	Notes
50-0	04/07/2021	03:11	SM	0.47	KH21_234_14_NET_BIOMARKER	0.195	17:00	GF/F filter, frozen at -20, plankton net washed with 0.22my filtrered sewate from previous station
50-0	04/07/2021	03:33	SM	0.47	KH21_234_14_NET_DNA	0.100	19:00	PC 2,0 my, frozen at -20, plankton net washed with 0.22my filtrered sewate from previous station
50-0	04/07/2021	03:33	SM	0.47	KH21_234_14_NET_DNA_II	0.125	10:00	PC 2,0 my, frozen at -20, II = replicate, plankton net washed with 0.22my filtrered sewate from previous station, dropped filter on the table

NOTE: all filters are stored immediately in freezer at -20 degC

^^ all tmies are CET ^^

plankton net log per station	
CRUISE	KH21-234
STATION	15
plankton net	NET
TIME (UTC) and DATE	04:53, 04.07.21 (hawl taken)
LATITUDE (E)	15.85877369
LONGITUDE (N)	80.8103617
WATER DEPTH (m)	1621.255
NOTES	Algehåv Ø35 10my, vertical hawl

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Water depth (m)	Date	Time (hh:mm) (when filtered)	Researcher	Water collected (L)	Filter label	Water filtered (L)	Time filtering (mm:ss)	Notes
0-50	04/07/2021	14:35	SM	0.53	KH21_234_15_NET_BIOMARKER	0.250	40:00	GF/F filter, frozen at -20, plankton net washed with 0.22my filtrered sewate from previous station
0-50	04/07/2021	14:35	SM	0.53	KH21_234_15_NET_DNA_A	0.118	60:00	PC 2,0 my, frozen at -20, plankton net washed with 0.22my filtrered sewate from previous station, A and B are replicate filters
0-50	04/07/2021	14:35	SM	0.53	KH21_234_15_NET_DNA_B	0.118	60:00	PC 2,0 my, frozen at -20, plankton net washed with 0.22my filtrered sewate from previous station, A and B are replicate filters

NOTE: all filters are stored immediately in freezer at -20 degC

^^ all tmies are CET ^^

plankton net log per station	
CRUISE	KH21-234
STATION	16
plankton net	NET
TIME (UTC) and DATE (sample taken)	07:58, 04.07.21
LATITUDE (E)	15.65282662
LONGITUDE (N)	80.71277462
WATER DEPTH (m)	835.21
NOTES	Algehåv Ø35 10my, vertical hawl

RESEARCHER(S)
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Water depth (m)	Date	Time (hh:mm) (when filtered)	Researcher	Water collected (L)	Filter label	Water filtered (L)	Time filtering (mm:ss)	Notes
0-50	04/07/2021	12:50	SM	0.54	KH21_234_16_NET_BIOMARKER_A	0.150	40:00	GF/F filter, frozen at -20, plankton net washed with 0.22my filtrered sewate from previous station, A and B are replicates
0-50	04/07/2021	12:50	SM	0.54	KH21_234_16_NET_BIOMARKER_B	0.150	40:00	PC 2,0 my, frozen at -20, plankton net washed with 0.22my filtrered sewate from previous station, A and B are replicates
0-50	04/07/2021	12:50	SM	0.54	KH21_234_16_NET_DNA_2_A	0.050	50:00	PC 2,0 my, frozen at -20, plankton net washed with 0.22my filtrered sewate from previous station, A and B are replicates
0-50	04/07/2021	13:40	SM	0.54	KH21_234_16_NET_DNA_2_B	0.050	35:00	PC 2,0 my, frozen at -20, plankton net washed with 0.22my filtrered sewate from previous station, A and B are replicates
0-50	04/07/2021	13:20	SM	0.54	KH21_234_16_NET_DNA_5_A	0.100	30:00	PC 5,0 my, frozen at -20, plankton net washed with 0.22my filtrered sewate from previous station, A and B are replicates
0-50	04/07/2021	13:40	SM	0.54	KH21_234_16_NET_DNA_5_B	0.040	5:00	PC 5,0 my, frozen at -20, plankton net washed with 0.22my filtrered sewate from previous station, A and B are replicates

NOTE: all filters are stored immediately in freezer at -20 degC

^^ all tmies are CET ^^

plankton net log per station	
CRUISE	KH21-234
STATION	18
plankton net	NET
TIME (UTC) and DATE (sample taken)	20:19, 04.07.21
LATITUDE €	13.53777477
LONGITUDE (N)	81.06041965
WATER DEPTH (m)	2040, 5
NOTES	Algehåv Ø35 10my, vertical hawl

RESEARCHER(S)
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Water depth (m)	0.235	Time (hh:mm) (when filtered)	Researcher	Water collected (L)	Filter label	Water filtered (L)	Time filtering (mm:ss)	Notes
0-50	05/07/2021	00:10	SM	0.47	KH21_234_18_NET_BIOMARKER	0.235	42:00	GF/F filter, frozen at -20, plankton net washed with 0.22my filtered sewage from previous station, A and B are replicates
0-50	05/07/2021	00:10	SM	0.47	KH21_234_18_NET_DNA_2	0.083	60:00	PC 2,0 my, frozen at -20, plankton net washed with 0.22my filtered sewage from previous station
0-50	05/07/2021	00:10	SM	0.47	KH21_234_18_NET_DNA_5	0.117	35:00	PC 5,0 my, frozen at -20, plankton net washed with 0.22my filtered sewage from previous station

NOTE: all filters are stored immediately in freezer at -20 degC

^^ all times are CET ^^

plankton net log per station	
CRUISE	KH21-234
STATION	19
plankton net	NET
TIME (UTC) and DATE (sample taken)	03:18, 05.07.21
LATITUDE €	12.91684337
LONGITUDE (N)	81.18093962
WATER DEPTH (m)	2194.335
NOTES	Algehåv Ø35 10my, vertical hawl

RESEARCHER(S)
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Water depth (m)	date (when filtered)	Time (hh:mm) (when filtered)	Researcher	Water collected (L)	Filter label	Water filtered (L)	Time filtering (mm:ss)	Notes
0-50	05/07/2021	05:50	TT	0.5	KH21_234_19_NET_BIO_I	0.100		GF/F filter, frozen at -20, plankton net washed with 0.22my filtrered sewate from previous station, BIO=BIOMARKER, I and II are replicates
0-50	05/07/2021	05:50	TT	0.5	KH21_234_19_NET_BIO_II	0.100		GF/F filter, frozen at -20, plankton net washed with 0.22my filtrered sewate from previous station, BIO=BIOMARKER, I and II are replicates
0-50	05/07/2021	05:50	TT	0.5	KH21_234_19_NET_DNA_I	0.100		PC 2,0 my, frozen at -20, plankton net washed with 0.22my filtrered sewer from previous station, I, II, III are replicates
0-50	05/07/2021	05:50	TT	0.5	KH21_234_19_NET_DNA_II	0.100		PC 2,0 my, frozen at -20, plankton net washed with 0.22my filtrered sewer from previous station, I, II, III are replicates
0-50	05/07/2021	05:50	TT	0.5	KH21_234_19_NET_DNA_III	0.100		PC 2,0 my, frozen at -20, plankton net washed with 0.22my filtrered sewer from previous station, I, II, III are replicates
0-50	05/07/2021	05:50	TT	0.5	KH21_234_19_NET_DNA_1M	0.075		PC 1,0 my, frozen at -20, plankton net washed with 0.22my filtrered sewer from previous station,

NOTE: all filters are stored immediately in freezer at -20 degC

^^ all tmies are CET ^^

plankton net log per station	
CRUISE	KH21-234
STATION	20
plankton net	NET
TIME (UTC) and DATE (sample taken)	09:58, 05.07.21
LATITUDE (E)	11.82033162
LONGITUDE (N)	81.32607978
WATER DEPTH (m)	1424
NOTES	Algehåv Ø35 10my, vertical hawl

RESEARCHER(S)
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Water depth (m)	date (when filtered)	Time (hh:mm) (when filtered)	Researcher	Water collected (L)	Filter label	Water filtered (L)	Time filtering (mm:ss)	Notes
0-50	05/07/2021	13:30	SM	0.49	KH21_234_20_NET_BIOMARKER	0.200	50:00	GF/F filter, frozen at -20, plankton net washed with 0.22my filtrered sewate from previous station
0-50	05/07/2021	13:30	SM	0.49	KH21_234_20_NET_DNA_2.0M	0.108	60:00	PC 2.0, frozen at -20, plankton net washed with 0.22my filtrered sewate from previous station
0-50	05/07/2021	13:30	SM	0.49	KH21_234_20_NET_DNA_5.0M	0.130	60:00	PC 5,0 my, frozen at -20, plankton net washed with 0.22my filtrered sewer from previous station

NOTE: all filters are stored immediately in freezer at -20 degC

^^ all tmies are CET ^^

plankton net log per station	
CRUISE	KH21-234
STATION	21
plankton net	NET
TIME (UTC) and DATE (sample taken)	13:12, 05.07.21
LATITUDE (E)	10.93408346
LONGITUDE (N)	81.30695283
WATER DEPTH (m)	1765
NOTES	Algehåv Ø35 10my, vertical hawl

RESEARCHER(S)
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Water depth (m)	date (when filtered)	Time (hh:mm) (when filtered)	Researcher	Water collected (L)	Filter label	Water filtered (L)	Time filtering (mm:ss)	Notes
0-50	05/07/2021	16:24	TT	0.5	KH21_234_21_NET_BIOMARKER	0.100	8:00	GF/F filter, frozen at -20, plankton net washed with 0.22my filtrered sewate from previous station
0-50	05/07/2021	16:24	TT	0.5	KH21_234_21_NET_DNA_0.2M	0.100	18:00	PC 0.2, frozen at -20, plankton net washed with 0.22my filtrered sewate from previous station
0-50	05/07/2021	16:24	TT	0.5	KH21_234_21_NET_DNA_2.0M	0.100	3:00	PC 2,0 my, frozen at -20, plankton net washed with 0.22my filtrered sewater from previous station
0-50	05/07/2021	16:24	TT	0.5	KH21_234_21_NET_DNA_5.0M	0.100	2:00	PC 5,0 my, frozen at -20, plankton net washed with 0.22my filtrered sewater from previous station
0-50	05/07/2021	16:24	TT	0.5	KH21_234_21_NET_DNA_1.0M	0.100	1:00	PC 1,0 my, frozen at -20, plankton net washed with 0.22my filtrered sewater from previous station
The FOUR different fractions done by mistake - normally only 2.0 and 5.0								
NOTE: all filters are stored immediately in freezer at -20 degC								

^^ all tmies are CET ^^

plankton net log per station	
CRUISE	KH21-234
STATION	22
plankton net	NET
TIME (UTC) and DATE (sample taken)	17:01, 05.07.21
LATITUDE (E)	9.4104439
LONGITUDE (N)	81.29168472
WATER DEPTH (m)	1343.335
NOTES	Algehåv Ø35 10my, vertical hawl

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Aud Larsen

Water depth (m)	date (when filtered)	Time (hh:mm) (when filtered)	Researcher	Water collected (L)	Filter label	Water filtered (L)	Time filtering (mm:ss)	Notes
0-50	05/07/2021	00:05	SM	0.08	KH21_234_22_NET_BIOMARKER	0.040	01:00	GF/F filter, frozen at -20, plankton net washed with 0.22my filtrered sewate from previous station, no volume in net-cup, volume from the washing with filtered seawater,
0-50	05/07/2021	00:05	SM	0.08	KH21_234_22_NET_DNA	0.040	01:00	PC 2.0, frozen at -20, plankton net washed with 0.22my filtrered sewate from previous station, no volume in net-cup, volume from the washing with filtered seawater

NOTE: all filters are stored immediately in freezer at -20 degC

^^ all tmies are CET ^^

plankton net log per station	
CRUISE	KH21-234
STATION	23
plankton net	NET
TIME (UTC) and DATE (sample taken)	21:10, 05.07.21
LATITUDE (E)	9.034647058
LONGITUDE (N)	81.50448282
WATER DEPTH (m)	1136
NOTES	Algehåv Ø35 10my, vertical hawl

RESEARCHER(S)
Sigrid Mugu
Tamara Trofimova
Aud Larsen

Water depth (m)	date (when filtered)	Time (hh:mm) (when filtered)	Researcher	Water collected (L)	Filter label	Water filtered (L)	Time filtering (mm:ss)	Notes
0-50	05/07/2021	00:05	SM	0.04	KH21_234_23_NET2_BIOMARKER	0.02	01:00	GF/F filter, frozen at -20, plankton net washed with 0.22my filtered seawater from previous station, no volume in net-cup, volume from the washing with filtered seawater, (copepods picked off filters had full stomachs), 2 hauls but only the second one was filtered
0-50	05/07/2021	00:05	SM	0.04	KH21_234_23_NET2_DNA	0.02	01:00	PC 2.0, frozen at -20, plankton net washed with 0.22my filtered seawater from previous station, no volume in net-cup, volume from the washing with filtered seawater, (copepods picked off filters had full stomachs), 2 hauls but only the second one was filtered

NOTE: all filters are stored immediately in freezer at -20 degC

^^ all times are CET ^^

plankton net log per station	
CRUISE	KH21-234
STATION	24
plankton net	NET
TIME (UTC) and DATE (sample taken)	21:10, 05.07.21
LATITUDE (E)	8.326105958
LONGITUDE (N)	81.63347573
WATER DEPTH (m)	1136
NOTES	Algehåv Ø35 10my, vertical hawl

RESEARCHER(S)
Sigrid Mugu
Tamara Trofimova
Aud Larsen

Water depth (m)	date (when filtered)	Time (hh:mm) (when filtered)	Researcher	Water collected (L)	Filter label	Water filtered (L)	Time filtering (mm:ss)	Notes
0-50	06/07/2021	00:49	SM	0.025	KH21_234_24_NET_BIOMARKER	0.012	01:00	GF/F filter, frozen at -20, plankton net washed with 0.22my filtered seawater from previous station, no volume in net-cup, volume from the washing with filtered seawater, mange copepoder på filter (plukket bort)
0-50	06/07/2021	00:49	SM	0.025	KH21_234_24_NET_DNA	0.012	01:00	PC 2.0, frozen at -20, plankton net washed with 0.22my filtered seawater from previous station, no volume in net-cup, volume from the washing with filtered seawater, mange kopepoder på filter (plukket bort)

NOTE: all filters are stored immediately in freezer at -20 degC

^^ all times are CET ^^

plankton net log per station	
CRUISE	KH21-234
STATION	25
plankton net	NET 1; NET2
TIME (UTC) and DATE (sample taken)	Net 1: 04:12; NET2 04:51; 06.07.21
LATITUDE (E)	Net1:7,7762 ; Net 2: 7,775076
LONGITUDE (N)	Net 1: 81,7714; Net 2: 81,76985
WATER DEPTH (m)	NET1: 823; NET2: 819
NOTES	Algehåv Ø35 10my, vertical hawl

RESEARCHER(S)
Sigrid Mugu
Tamara Trofimova
Aud Larsen

Water depth (m)	date (when filtered)	Time (hh:mm) (when filtered)	Researcher	Water collected (L)	Filter label	Water filtered (L)	Time filtering (mm:ss)	Notes
0-50	06/07/2021	10:30	TT	0.05	KH21_234_25_NET_BIOMARKER-A	0.025	02:00	GF/F filter, frozen at -20, plankton net washed with 0.22my filtered seawater from previous station, no volume in net-cup, volume from the washing with filtered seawater, _A= 1= cups with mesh at bottom, B= 2= cup with mesh on sides
0-50	06/07/2021	10:30	TT	0.05	KH21_234_25_NET_DNA-A	0.025	02:00	PC 2.0, frozen at -20, plankton net washed with 0.22my filtered seawater from previous station, no volume in net-cup, volume from the washing with filtered seawater, _A= cups with mesh at bottom, B= cup with mesh on sides
0-50	06/07/2021	10:40	TT	0.4	KH21_234_25_NET_BIOMARKER-B	0.2	03:00	GF/F filter, frozen at -20, plankton net washed with 0.22my filtered seawater from previous station, no volume in net-cup, volume from the washing with filtered seawater, _A= cups with mesh at bottom, B= cup with mesh on sides
0-50	06/07/2021	10:40	TT	0.4	KH21_234_25_NET_DNA-B	0.2	03:00	PC 2.0, frozen at -20, plankton net washed with 0.22my filtered seawater from previous station, no volume in net-cup, volume from the washing with filtered seawater, _A= cups with mesh at bottom, B= cup with mesh on sides

NOTE: all filters are stored immediately in freezer at -20 degC

^^ all times are CET ^^

plankton net log per station	
CRUISE	KH21-234
STATION	26
plankton net	NET1
TIME (UTC) and DATE (sample taken)	10:55, 06.07.21
LATITUDE (E)	7.399588042
LONGITUDE (N)	81.96599933
WATER DEPTH (m)	743
NOTES	Algehåv Ø35 10my, vertical hawl

RESEARCHER(S)
Sigrid Mugu
Tamara Trofimova
Aud Larsen

Water depth (m)	date (when filtered)	Time (hh:mm) (when filtered)	Researcher	Water collected (L)	Filter label	Water filtered (L)	Time filtering (mm:ss)	Notes
0-50	06/07/2021	00:49	SM	0.03	KH21_234_26_NET_BIOMARKER	0.015	01:00	GF/F filter, frozen at -20, plankton net washed with 0.22my filtrered sewate from previous station, no volume in net-cup, volume from the washing with filtered seawater,
0-50	06/07/2021	00:49	SM	0.03	KH21_234_26_NET_DNA	0.015	01:00	PC 2.0, frozen at -20, plankton net washed with 0.22my filtrered sewate from previous station, no volume in net-cup, volume from the washing with filtered seawater,

NOTE: all filters are stored immediately in freezer at -20 degC

^^ all tmies are CET ^^

plankton net log per station	
CRUISE	KH21-234
STATION	27
plankton net	NET1
TIME (UTC) and DATE (sample taken)	14:16, 06.07.21
LATITUDE (E)	6.892987225
LONGITUDE (N)	82.03318563
WATER DEPTH (m)	734
NOTES	Algehåv Ø35 10my, vertical hawl

RESEARCHER(S)
Sigrid Mugu
Tamara Trofimova
Aud Larsen

Water depth (m)	date (when filtered)	Time (hh:mm) (when filtered)	Researcher	Water collected (L)	Filter label	Water filtered (L)	Time filtering (mm:ss)	Notes
0-50	06/07/2021	16:40	TT	0.05	KH21_234_27_NET_BIOMARKER	0.025	01:00	GF/F filter, frozen at -20, plankton net washed with 0.22my filtrered sewate from previous station, no volume in net-cup, volume from the washing with filtered seawater,
0-50	06/07/2021	16:40	TT	0.05	KH21_234_27_NET_DNA	0.025	01:00	PC 2.0, frozen at -20, plankton net washed with 0.22my filtrered sewate from previous station, no volume in net-cup, volume from the washing with filtered seawater,

NOTE: all filters are stored immediately in freezer at -20 degC

^^ all tmies are CET ^^

plankton net log per station	
CRUISE	KH21-234
STATION	28
plankton net	NET1
TIME (UTC) and DATE (sample taken)	16:59, 06.07.21
LATITUDE (E)	6.012904908
LONGITUDE (N)	81.99730932
WATER DEPTH (m)	851.205
NOTES	Algehåv Ø35 10my, vertical hawl

RESEARCHER(S)
Sigrid Mugu
Tamara Trofimova
Aud Larsen

Water depth (m)	date (when filtered)	Time (hh:mm) (when filtered)	Researcher	Water collected (L)	Filter label	Water filtered (L)	Time filtering (mm:ss)	Notes
0-50	06/07/2021	19:10	TT	0.05	KH21_234_28_NET_BIOMARKER	0.012	01:00	GF/F filter, frozen at -20, plankton net washed with 0.22my filtered seawater from previous station, no volume in net-cup, volume from the washing with filtered seawater,
0-50	06/07/2021	19:10	TT	0.05	KH21_234_28_NET_DNA	0.012	01:00	PC 2.0, frozen at -20, plankton net washed with 0.22my filtered seawater from previous station, no volume in net-cup, volume from the washing with filtered seawater,

NOTE: all filters are stored immediately in freezer at -20 degC

^^ all times are CET ^^

plankton net log per station	
CRUISE	KH21-234
STATION	29
plankton net	NET1
TIME (UTC) and DATE (sample taken)	21:31, 06.07.21
LATITUDE (E)	5.608300633
LONGITUDE (N)	81.86132988
WATER DEPTH (m)	810.84
NOTES	Algehåv Ø35 10my, vertical hawl

RESEARCHER(S)
Sigrid Mugu
Tamara Trofimova
Aud Larsen

Water depth (m)	date (when filtered)	Time (hh:mm) (when filtered)	Researcher	Water collected (L)	Filter label	Water filtered (L)	Time filtering (mm:ss)	Notes
0-50	06/07/2021	23:50	SM	0.32	KH21_234_29_NET_BIOMARKER	0.16	01:00	Plankton net washed with 0.22my filtered seawater from previous station, volume from the washing with filtered seawater, used a new cup from this station (mesh on sides instead of bottom)
0-50	06/07/2021	23:50	SM	0.32	KH21_234_29_NET_DNA	0.16	01:00	Plankton net washed with 0.22my filtered seawater from previous station, volume from the washing with filtered seawater, used a new cup from this station (mesh on sides instead of bottom)

NOTE: all filters are stored immediately in freezer at -20 degC

^^ all times are CET ^^

plankton net log per station	
CRUISE	KH21-234
STATION	30
plankton net	NET1
TIME (UTC) and DATE (sample taken)	01:12, 07.07.21
LATITUDE (E)	5.1822967
LONGITUDE (N)	81.73918784
WATER DEPTH (m)	771.29
NOTES	Algehåv Ø35 10my, vertical hawl

RESEARCHER(S)
Sigrid Mugu
Tamara Trofimova
Aud Larsen

Water depth (m)	date (when filtered)	Time (hh:mm) (when filtered)	Researcher	Water collected (L)	Filter label	Water filtered (L)	Time filtering (mm:ss)	Notes
0-50	07/07/2021	03:35	SM	0.37	KH21_234_30_NET_BIOMARKER	0.185	01:00	Plankton net washed with 0.22my filtered seawater from previous station, cup with mesh on sides
0-50	07/07/2021	03:35	SM	0.37	KH21_234_30_NET_DNA	0.185	01:00	Plankton net washed with 0.22my filtered seawater from previous station, cup with mesh on sides

NOTE: all filters are stored immediately in freezer at -20 degC

^^ all times are CET ^^

plankton net log per station	
CRUISE	KH21-234
STATION	31
plankton net	NET1
TIME (UTC) and DATE (sample taken)	04:15, 07.07.21
LATITUDE (E)	4.852364783
LONGITUDE (N)	81.57244075
WATER DEPTH (m)	744.24
NOTES	Algehåv Ø35 10my, vertical hawl

RESEARCHER(S)
Sigrid Mugu
Tamara Trofimova
Aud Larsen

Water depth (m)	date (when filtered)	Time (hh:mm) (when filtered)	Researcher	Water collected (L)	Filter label	Water filtered (L)	Time filtering (mm:ss)	Notes
0-50	07/07/2021	06:40	TT	0.36	KH21_234_31_NET_BIOMARKER	0.180	01:00	Plankton net washed with 0.22my filtered seawater from previous station, cup with mesh on sides
0-50	07/07/2021	06:40	TT	0.36	KH21_234_31_NET_DNA	0.180	01:00	Plankton net washed with 0.22my filtered seawater from previous station, cup with mesh on sides

NOTE: all filters are stored immediately in freezer at -20 degC

^^ all times are CET ^^

plankton net log per station	
CRUISE	KH21-234
STATION	33
plankton net	NET1
TIME (UTC) and DATE (sample taken)	08:09, 07.07.21
LATITUDE (E)	3.459111358
LONGITUDE (N)	81.31278542
WATER DEPTH (m)	748.665
NOTES	Algehåv Ø35 10my, vertical hawl

RESEARCHER(S)
Sigrid Mugu
Tamara Trofimova
Aud Larsen

Water depth (m)	date (when filtered)	Time (hh:mm) (when filtered)	Researcher	Water collected (L)	Filter label	Water filtered (L)	Time filtering (mm:ss)	Notes
0-50	07/07/2021	11:05	TT	0.4	KH21_234_32_NET_BIOMARKER	0.2	01:00	Plankton net washed with 0.22my filtered seawater from previous station, cup with mesh on sides
0-50	07/07/2021	11:05	TT	0.4	KH21_234_32_NET_DNA	0.2	01:00	Plankton net washed with 0.22my filtered seawater from previous station, cup with mesh on sides

NOTE: all filters are stored immediately in freezer at -20 degC

^^ all times are CET ^^

plankton net log per station

CRUISE	KH21-234	<table border="1" style="width: 100%;"> <tr> <td>RESEARCHER(S)</td> </tr> <tr> <td>Sigrid Mugu</td> </tr> <tr> <td>Tamara Trofimova</td> </tr> <tr> <td>Aud Larsen</td> </tr> </table>	RESEARCHER(S)	Sigrid Mugu	Tamara Trofimova	Aud Larsen
RESEARCHER(S)						
Sigrid Mugu						
Tamara Trofimova						
Aud Larsen						
STATION	33					
plankton net	NET1					
TIME (UTC) and DATE (sample taken)	10:56, 07.07.21					
LATITUDE (E)	3.459111358					
LONGITUDE (N)	81.31278542					
WATER DEPTH (m)	748.665					
NOTES	Algehåv Ø35 10my, vertical hawl					

Water depth (m)	date (when filtered)	Time (hh:mm)	Researcher	Water collected (L)	Filter label	Water filtered (L)	Time filtering	Notes
0-50	07/07/2021	14:00	SM	0.35	KH21_234_33_NET_BIOMARKER	0.175	01:00	Plankton net washed with 0.22my filtered sewage from previous station, cup with mesh on sides
0-50	07/07/2021	14:00	SM	0.35	KH21_234_33_NET_DNA	0.175	01:00	Plankton net washed with 0.22my filtered sewage from previous station, cup with mesh on sides

NOTE: all filters are stored immediately in freezer at -20 degC

^^ all times are CET ^^

plankton net log per station	
CRUISE	KH21-234
STATION	34
plankton net	NET1
TIME (UTC) and DATE (sample taken)	14:56, 07.07.21
LATITUDE (E)	2.371526475
LONGITUDE (N)	81.21988666
WATER DEPTH (m)	1010.82
NOTES	Algehåv Ø35 10my, vertical hawl

RESEARCHER(S)
Sigrid Mugu
Tamara Trofimova
Aud Larsen

Water depth (m)	date (when filtered)	Time (hh:mm) (when filtered)	Researcher	Water collected (L)	Filter label	Water filtered (L)	Time filtering (mm:ss)	Notes
0-50	07/07/2021	17:25	TT	0.45	KH21_234_34_NET_BIOMARKER	0.225	01:00	Plankton net washed with 0.22my filtered seawater from previous station, cup with mesh on sides
0-50	07/07/2021	17:25	TT	0.45	KH21_234_34_NET_DNA	0.225	01:00	Plankton net washed with 0.22my filtered seawater from previous station, cup with mesh on sides

NOTE: all filters are stored immediately in freezer at -20 degC

^^ all times are CET ^^

plankton net log per station	
CRUISE	KH21-234
STATION	35
plankton net	NET1
TIME (UTC) and DATE (sample taken)	19:22, 07.07.21
LATITUDE (E)	2.45823775
LONGITUDE (N)	81.00894046
WATER DEPTH (m)	1022.52
NOTES	Algehåv Ø35 10my, vertical hawl

RESEARCHER(S)
Sigrid Mugu
Tamara Trofimova
Aud Larsen

Water depth (m)	date (when filtered)	Time (hh:mm) (when filtered)	Researcher	Water collected (L)	Filter label	Water filtered (L)	Time filtering (mm:ss)	Notes
0-50	07/07/2021	23:35	SM	0.46	KH21_234_35_NET_BIOMARKER	0.23	02:00	Plankton net washed with 0.22my filtered seawater from previous station, cup with mesh on sides. Filters visibly green
0-50	07/07/2021	23:35	SM	0.46	KH21_234_35_NET_DNA	0.23	03:00	Plankton net washed with 0.22my filtered seawater from previous station, cup with mesh on sides. Filters visibly green

NOTE: all filters are stored immediately in freezer at -20 degC

^^ all times are CET ^^

plankton net log per station	
CRUISE	KH21-234
STATION	36
plankton net	NET1
TIME (UTC) and DATE (sample taken)	00:50, 08.07.21
LATITUDE (E)	3.717523425
LONGITUDE (N)	81.00720373
WATER DEPTH (m)	733.47
NOTES	Algehåv Ø35 10my, vertical hawl

RESEARCHER(S)
Sigrid Mugu
Tamara Trofimova
Aud Larsen

Water depth (m)	date (when filtered)	Time (hh:mm) (when filtered)	Researcher	Water collected (L)	Filter label	Water filtered (L)	Time filtering (mm:ss)	Notes
0-50	08/07/2021	03:12	SM	0.38	KH21_234_36_NET_BIOMARKER	0.19	01:00	Plankton net washed with 0.22my filtered seawater from previous station, cup with mesh on sides. Filters visibly green
0-50	08/07/2021	03:12	SM	0.38	KH21_234_36_NET_DNA	0.19	01:00	Plankton net washed with 0.22my filtered seawater from previous station, cup with mesh on sides. Filters visibly green

NOTE: all filters are stored immediately in freezer at -20 degC

^^ all times are CET ^^

plankton net log per station	
CRUISE	KH21-234
STATION	37
plankton net	NET1
TIME (UTC) and DATE (sample taken)	06:05, 08.07.21
LATITUDE (E)	5.240266442
LONGITUDE (N)	80.90229907
WATER DEPTH (m)	703.005
NOTES	Algehåv Ø35 10my, vertical hawl

RESEARCHER(S)
Sigrid Mugu
Tamara Trofimova
Aud Larsen

Water depth (m)	date (when filtered)	Time (hh:mm) (when filtered)	Researcher	Water collected (L)	Filter label	Water filtered (L)	Time filtering (mm:ss)	Notes
0-50	08/07/2021	10:10	TT	0.63	KH21_234_37_NET_BIOMARKER	0.245	10:00	Plankton net washed with 0.22my filtered seawater from previous station, cup with mesh on sides.
0-50	08/07/2021	10:10	TT	0.63	KH21_234_37_NET_DNA_5.0M	0.160	04:00	Plankton net washed with 0.22my filtered seawater from previous station, cup with mesh on sides.
0-50	08/07/2021	10:10	TT	0.63	KH21_234_37_NET_DNA_2.0M	0.175	25:00	Plankton net washed with 0.22my filtered seawater from previous station, cup with mesh on sides.

NOTE: all filters are stored immediately in freezer at -20 degC

^^ all times are CET ^^

plankton net log per station	
CRUISE	KH21-234
STATION	38
plankton net	NET3
TIME (UTC) and DATE (sample taken)	11:58, 08.07.21
LATITUDE (E)	4.645893958
LONGITUDE (N)	80.74054528
WATER DEPTH (m)	664.405
NOTES	Algehåv Ø35 10my, vertical hawl

RESEARCHER(S)
Sigrid Mugu
Tamara Trofimova
Aud Larsen

Water depth (m)	date (when filtered)	Time (hh:mm) (when filtered)	Researcher	Water collected (L)	Filter label	Water filtered (L)	Time filtering (mm:ss)	Notes
0-50	08/07/2021	14:55	SM	0.43	KH21_234_38_NET_B_BIOMARKER	0.215	45:00	NET1 and NET2 discarded because mud in the water from MC. Plankton net washed with 0.22my filtered sewage from previous station, cup with mesh at bottom.
0-50	08/07/2021	14:55	SM	0.43	KH21_234_38_NET_DNA_2.0M	0.125	60:00	NET1 and NET2 discarded because mud in the water from MC. Plankton net washed with 0.22my filtered sewage from previous station, cup with mesh at bottom.

NOTE: all filters are stored immediately in freezer at -20 degC

^^ all times are CET ^^

plankton net log per station	
CRUISE	KH21-234
STATION	39
plankton net	NET1
TIME (UTC) and DATE (sample taken)	16:03, 08.07.21
LATITUDE (E)	5.973252167
LONGITUDE (N)	80.68184862
WATER DEPTH (m)	743.545
NOTES	Algehåv Ø35 10my, vertical hawl

RESEARCHER(S)
Sigrid Mugu
Tamara Trofimova
Aud Larsen

Water depth (m)	date (when filtered)	Time (hh:mm) (when filtered)	Researcher	Water collected (L)	Filter label	Water filtered (L)	Time filtering (mm:ss)	Notes
0-50	08/07/2021	21:55	SM	0.46	KH21_234_39_NET_B_BIOMARKER	0.23	24:00	Plankton net washed with 0.22my filtrered sewate from previous station, cup with mesh at bottom.
0-50	08/07/2021	21:55	SM	0.46	KH21_234_39_NET_DNA_2.0M	0.15	48:00	Plankton net washed with 0.22my filtrered sewate from previous station, cup with mesh at bottom.

NOTE: all filters are stored immediately in freezer at -20 degC

^^ all tmies are CET ^^

plankton net log per station	
CRUISE	KH21-234
STATION	40
plankton net	NET1
TIME (UTC) and DATE (sample taken)	18:55, 08.07.21
LATITUDE (E)	6.601721558
LONGITUDE (N)	80.60058963
WATER DEPTH (m)	702.61
NOTES	Algehåv Ø35 10my, vertical hawl

RESEARCHER(S)
Sigrid Mugu
Tamara Trofimova
Aud Larsen

Water depth (m)	date (when filtered)	Time (hh:mm) (when filtered)	Researcher	Water collected (L)	Filter label	Water filtered (L)	Time filtering (mm:ss)	Notes
0-50	09/07/2021	04:34	TT	0.50	KH21_234_40_NET_B_BIOMARKER	0.200	30:00	Plankton net washed with 0.22my filtrered sewate from previous station, cup with mesh at bottom.
0-50	09/07/2021	04:34	TT	0.50	KH21_234_40_NET_DNA_2.0M	0.130	50:00	Plankton net washed with 0.22my filtrered sewate from previous station, cup with mesh at bottom.
0-50	09/07/2021	04:34	TT	0.50	KH21_234_40_NET_DNA_5.0M	0.100	01:00	Plankton net washed with 0.22my filtrered sewate from previous station, cup with mesh at bottom.

NOTE: all filters are stored immediately in freezer at -20 degC

^^ all tmies are CET ^^

plankton net log per station	
CRUISE	KH21-234
STATION	41
plankton net	NET1
TIME (UTC) and DATE (sample taken)	22:12, 08.07.21
LATITUDE (E)	7.505187775
LONGITUDE (N)	80.56280762
WATER DEPTH (m)	754.535
NOTES	Algehåv Ø35 10my, vertical hawl

RESEARCHER(S)
Sigrid Mugu
Tamara Trofimova
Aud Larsen

Water depth (m)	date (when filtered)	Time (hh:mm) (when filtered)	Researcher	Water collected (L)	Filter label	Water filtered (L)	Time filtering (mm:ss)	Notes
0-50	09/07/2021	00:30	SM	0.04	KH21_234_41_NET_B_BIOMARKER	0.02	01:00	Plankton net washed with 0.22my filtered seawater from previous station, cup with mesh at bottom. The sample was left for a (short, but unknown period) before filtered.
0-50	09/07/2021	00:30	SM	0.04	KH21_234_41_NET_DNA_2.0M	0.02	01:00	Plankton net washed with 0.22my filtered seawater from previous station, cup with mesh at bottom. The sample was left for a (short, but unknown period) before filtered.

NOTE: all filters are stored immediately in freezer at -20 degC

^^ all times are CET ^^

plankton net log per station	
CRUISE	KH21-234
STATION	42
plankton net	NET1
TIME (UTC) and DATE (sample taken)	01:00, 09.07.21
LATITUDE (E)	7.086749375
LONGITUDE (N)	80.4783982
WATER DEPTH (m)	673.99
NOTES	Algehåv Ø35 10my, vertical hawl

RESEARCHER(S)
Sigrid Mugu
Tamara Trofimova
Aud Larsen

Water depth (m)	date (when filtered)	Time (hh:mm) (when filtered)	Researcher	Water collected (L)	Filter label	Water filtered (L)	Time filtering (mm:ss)	Notes
0-50	09/07/2021	04:53	TT	0.50	KH21_234_42_NET_B_BIOMARKER	0.20	12:00	Plankton net washed with 0.22my filtrered sewate from previous station, cup with mesh at bottom.
0-50	09/07/2021	04:53	TT	0.50	KH21_234_42_NET_DNA_5.0M	0.13	10:00	Plankton net washed with 0.22my filtrered sewate from previous station, cup with mesh at bottom.
0-50	09/07/2021	04:53	TT	0.50	KH21_234_42_NET_DNA_2.0M	0.20	13:00	Plankton net washed with 0.22my filtrered sewate from previous station, cup with mesh at bottom.

NOTE: all filters are stored immediately in freezer at -20 degC

^^ all tmies are CET ^^

plankton net log per station	
CRUISE	KH21-234
STATION	43
plankton net	NET1
TIME (UTC) and DATE (sample taken)	03:20, 09.07.21
LATITUDE (E)	7.567746167
LONGITUDE (N)	80.39016835
WATER DEPTH (m)	688.31
NOTES	Algehåv Ø35 10my, vertical hawl

RESEARCHER(S)
Sigrid Mugu
Tamara Trofimova
Aud Larsen

Water depth (m)	date (when filtered)	Time (hh:mm) (when filtered)	Researcher	Water collected (L)	Filter label	Water filtered (L)	Time filtering (mm:ss)	Notes
0-50	09/07/2021	08:54	TT	0.50	KH21_234_43_NET_B_BIOMARKER	0.30	06:00	Plankton net washed with 0.22my filtrered sewate from previous station, cup with mesh at bottom.
0-50	09/07/2021	08:54	TT	0.50	KH21_234_43_NET_DNA_2.0M	0.20	36:00	Plankton net washed with 0.22my filtrered sewate from previous station, cup with mesh at bottom.

NOTE: all filters are stored immediately in freezer at -20 degC

^^ all tmies are CET ^^

plankton net log per station	
CRUISE	KH21-234
STATION	44
plankton net	NET1
TIME (UTC) and DATE (sample taken)	09:00, 09.07.21
LATITUDE (E)	7.596834625
LONGITUDE (N)	80.24585478
WATER DEPTH (m)	591.13
NOTES	Algehåv Ø35 10my, vertical hawl

RESEARCHER(S)
Sigrid Mugu
Tamara Trofimova
Aud Larsen

Water depth (m)	date (when filtered)	Time (hh:mm) (when filtered)	Researcher	Water collected (L)	Filter label	Water filtered (L)	Time filtering (mm:ss)	Notes
0-50	09/07/2021	11:27	TT	0.50	KH21_234_44_NET_B_BIOMARKER	0.30	21:00	Plankton net washed with 0.22my filtrered sewate from previous station, cup with mesh at bottom.
0-50	09/07/2021	11:27	TT	0.50	KH21_234_44_NET_DNA_2.0M	0.20	63:00	Plankton net washed with 0.22my filtrered sewate from previous station, cup with mesh at bottom.

NOTE: all filters are stored immediately in freezer at -20 degC

^^ all tmies are CET ^^

plankton net log per station	
CRUISE	KH21-234
STATION	45
plankton net	NET1
TIME (UTC) and DATE (sample taken)	11:39, 09.07.21
LATITUDE (E)	7.596834625
LONGITUDE (N)	80.24585478
WATER DEPTH (m)	523.62
NOTES	Algehåv Ø35 10my, vertical hawl

RESEARCHER(S)
Sigrid Mugu
Tamara Trofimova
Aud Larsen

Water depth (m)	date (when filtered)	Time (hh:mm) (when filtered)	Researcher	Water collected (L)	Filter label	Water filtered (L)	Time filtering (mm:ss)	Notes
0-50	09/07/2021	18:05	TT	0.50	KH21_234_45_NET_B_BIOMARKER	0.30	22:00	Plankton net washed with 0.22my filtrered sewate from previous station, cup with mesh at bottom.
0-50	09/07/2021	18:05	TT	0.50	KH21_234_45_NET_DNA_2.0M	0.20	59:00	Plankton net washed with 0.22my filtrered sewate from previous station, cup with mesh at bottom.

NOTE: all filters are stored immediately in freezer at -20 degC

^^ all tmies are CET ^^

plankton net log per station	
CRUISE	KH21-234
STATION	46
plankton net	NET1
TIME (UTC) and DATE (sample taken)	16:26, 09.07.21
LATITUDE (E)	7.700303817
LONGITUDE (N)	79.92403166
WATER DEPTH (m)	600.535
NOTES	Algehåv Ø35 10my, vertical hawl

RESEARCHER(S)
Sigrid Mugu
Tamara Trofimova
Aud Larsen

Water depth (m)	date (when filtered)	Time (hh:mm) (when filtered)	Researcher	Water collected (L)	Filter label	Water filtered (L)	Time filtering (mm:ss)	Notes
0-50	09/07/2021	21:50	SM	0.26	KH21_234_46_NET_B_BIOMARKER	0.13	01:00	Plankton net washed with 0.22my filtrered sewate from previous station, cup with mesh at bottom.
0-50	09/07/2021	21:50	SM	0.26	KH21_234_46_NET_DNA_2.0M	0.13	01:00	Plankton net washed with 0.22my filtrered sewate from previous station, cup with mesh at bottom.

NOTE: all filters are stored immediately in freezer at -20 degC

^^ all tmies are CET ^^

plankton net log per station	
CRUISE	KH21-234
STATION	47
plankton net	NET1
TIME (UTC) and DATE (sample taken)	20:53, 09.07.21
LATITUDE (E)	7.726443333
LONGITUDE (N)	79.59702493
WATER DEPTH (m)	768.655
NOTES	Algehåv Ø35 10my, vertical hawl

RESEARCHER(S)
Sigrid Mugu
Tamara Trofimova
Aud Larsen

Water depth (m)	date (when filtered)	Time (hh:mm) (when filtered)	Researcher	Water collected (L)	Filter label	Water filtered (L)	Time filtering (mm:ss)	Notes
0-50	10/07/2021	00:17	SM	0.46	KH21_234_47_NET_B_BIOMARKER	0.23	02:00	Plankton net washed with 0.22my filtrered sewate from previous station, cup with mesh at bottom.
0-50	10/07/2021	00:17	SM	0.46	KH21_234_47_NET_DNA_2.0M	0.23	05:00	Plankton net washed with 0.22my filtrered sewate from previous station, cup with mesh at bottom.

NOTE: all filters are stored immediately in freezer at -20 degC

^^ all tmies are CET ^^

plankton net log per station	
CRUISE	KH21-234
STATION	48
plankton net	NET1
TIME (UTC) and DATE (sample taken)	01:40, 10.07.21
LATITUDE (E)	7.726443333
LONGITUDE (N)	79.59702493
WATER DEPTH (m)	768.655
NOTES	Algehåv Ø35 10my, vertical hawl

RESEARCHER(S)
Sigrid Mugu
Tamara Trofimova
Aud Larsen

Water depth (m)	date (when filtered)	Time (hh:mm) (when filtered)	Researcher	Water collected (L)	Filter label	Water filtered (L)	Time filtering (mm:ss)	Notes
0-50	10/07/2021	00:17	SM	0.46	KH21_234_48_NET_B_BIOMARKER	0.23	02:00	Plankton net washed with 0.22my filtrered sewate from previous station, cup with mesh at bottom.
0-50	10/07/2021	00:17	SM	0.46	KH21_234_48_NET_DNA_2.0M	0.23	05:00	Plankton net washed with 0.22my filtrered sewate from previous station, cup with mesh at bottom.

NOTE: all filters are stored immediately in freezer at -20 degC

^^ all tmies are CET ^^

plankton net log per station	
CRUISE	KH21-234
STATION	50
plankton net	NET1
TIME (UTC) and DATE (sample taken)	06:45, 10.07.21
LATITUDE (E)	9.772435308
LONGITUDE (N)	78.99521618
WATER DEPTH (m)	221.83
NOTES	Algehåv Ø35 10my, vertical hawl

RESEARCHER(S)
Sigrid Mugu
Tamara Trofimova
Aud Larsen

Water depth (m)	date (when filtered)	Time (hh:mm) (when filtered)	Researcher	Water collected (L)	Filter label	Water filtered (L)	Time filtering (mm:ss)	Notes
0-50	10/07/2021	09:35	TT	0.50	KH21_234_50_NET_B_BIOMARKER	0.30	04:00	Plankton net washed with 0.22my filtrered sewate from previous station, cup with mesh at bottom.
0-50	10/07/2021	09:35	TT	0.50	KH21_234_50_NET_DNA_2.0M	0.10	09:00	Plankton net washed with 0.22my filtrered sewate from previous station, cup with mesh at bottom.
0-50	10/07/2021	09:35	TT	0.50	KH21_234_50_NET_DNA_5.0M	0.100	07:00	Plankton net washed with 0.22my filtrered sewate from previous station, cup with mesh at bottom.

NOTE: all filters are stored immediately in freezer at -20 degC

Multicorer Logs per station

CRUISE	KH21-234
STATION	01
MULTICORE	MC1
TIME and DATE	01.07.2021, finished 08:59:06 UTC
LONGITUDE (N)	80.04724789
LATITUDE (E)	9.847962517
WATER DEPTH (m)	505



RESEARCHER(S) Dag Inge Blindheim
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Danielle Grant
Jon Thomassen Hestetun

Cores	Visual sediment description	Core length (cm)	Project	Notes
A	Even surface. Polychaete tubes. Change in sediment colour from brown to black at 8 cm downcore. Soft sediment.	28.5	AGENSI	
B	Even surface with a lot of flocculant stuff that settled on the surface. Polychaete tubes. Change in sediment colour from brown to black at 9 cm downcore. Soft sediment	26	AGENSI	
C	Smooth surface with polychaetes sticking out. Soft sediment. Change in sediment colour from brown to black at 9 cm downcore	28.5	AGENSI	Archive
D	Slightly uneven surface. Change in sediment colour from brown to black at 7 cm downcore. Soft sediment. Surface approx. 5 cm worm tubes.	23.5	NEEDED 1	

Multicorer Logs per station

CRUISE	KH21-234
STATION	01
MULTICORE	MC2
TIME and DATE	01.07.2021, finished 09:49:35 UTC
LONGITUDE (N)	80.04726076
LATITUDE (E)	9.849039517
WATER DEPTH (m)	505



RESEARCHER(S)
Katja Häkli
Tristan Cordier
Jessica Louise Ray

Cores	Visual sediment description	Core length (cm)	Project	Notes
A	Change in sediment colour from brown to black at 10 cm downcore. Tube worms and small gelatinous blob (medusa?). Even surface.	26	NEEDED 2	
B	Even surface. Multiple tubeworms. Colour change from brown to black at 10 cm downcore. Long jellyfish at 1-2 cm?	24.5	NEEDED 3	
C	Living polychaete at surface. Colour change from brown to black at 9 cm. Soft sediment.	27.5	NEEDED 4	
D	Even surface. Tube worm and small jellyfish (?). Colour change from brown to black at 9 cm.	25	NEEDED 5	

Multicorer Logs per station	
CRUISE	KH21-234
STATION	02
MULTICORE	MC1
TIME and DATE	01.07.2021, finished: 15:48:28 UTC
LONGITUDE (N)	80.07195575
LATITUDE (E)	12.6502775
WATER DEPTH (m)	192



RESEARCHER(S) Dag Inge Blindheim
Agnes Weiner
Danielle Grant
Jon Thomassen Hestetun

Cores	Visual sediment description	Core length (cm)	Project	Notes
A	soft sediment, change from brown to black at 4 cm from top, smooth, even surface, nothing visible on surface	10 cm	AGENSI	
B	soft sediment, change from brown to black at 4 cm from top, smooth, even surface, nothing visible on surface	10.2 cm	AGENSI	
C	soft sediment, change from brown to black at 5 cm from top, smooth, even surface, nothing visible on surface	10.5 cm	AGENSI	Archive
D	EMPTY			slope on shelf edge, difficult to sample

Multicorer Logs per station	
CRUISE	KH21-234
STATION	02
MULTICORE	MC2
TIME and DATE	01.07.2021, finished 16:17:27 UTC
LONGITUDE (N)	80.07193905
LATITUDE (E)	12.65002818
WATER DEPTH (m)	192



RESEARCHER(S) Dag Inge Blindheim
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Jon Thomassen Hestetun

Cores	Visual sediment description	Core length (cm)	Project	Notes
A	dark brown, soft sediment, smooth even surface, large polychaete tunnel	10.5	NEEDED 1	water drained very fast trough cores when they came on board and ran trough sediment, surface probably disturbed
B	dark brown, soft sediment, uneven surface, large polychaete tunnel	9-11	NEEDED 2	water drained very fast trough cores when they came on board and ran trough sediment, surface probably disturbed
C	EMPTY			slope on shelf edge, difficult to sample
D	EMPTY			slope on shelf edge, difficult to sample



Multicorer Logs per station	
CRUISE	KH21-234
STATION	03
MULTICORE	MC1
TIME and DATE	01.07.2021, finished 19:51:36 UTC
LONGITUDE (N)	80.16648883
LATITUDE (E)	14.26475391
WATER DEPTH (m)	41

RESEARCHER(S) Stig Monsen
Katja Häkli
Tristan Cordier
Jessica Louise Ray

Cores	Visual sediment description	Core length (cm)	Project	Notes
A	Empty			
B	Empty			
C	Empty			
D	Empty			

Multicorer Logs per station	
CRUISE	KH21-234
STATION	04
MULTICORE	MC1
TIME and DATE	02.07.2021, finished 00:27:24 UTC
LONGITUDE (N)	80.35314805
LATITUDE (E)	16.30797742
WATER DEPTH (m)	394



RESEARCHER(S) Stig Monsen
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Jessica Louise Ray

Cores	Visual sediment description	Core length (cm)	Project	Notes
A	sediment had soft, silty appearance. One krill in overwater. Tubeworms or polychaetes present. Brown to grey transition at 3 cm downcore	45	AGENSI	
B	sediment had soft, silty appearance. Tubeworms or polychaetes present. Brown to grey transition at 3 cm downcore. Black smeary patch at 10 cm downcore.	46	AGENSI	
C	tube worm. Brown to grey transition at 3 cm downcore. Black smear stripes along the entire length of the downcore	49	AGENSI	Archive
D	Brittle star on surface (we picked it out and threw it back into the ocean). Soft, silty appearance	45	NEEDED 1	

Multicorer Logs per station	
CRUISE	KH21-234
STATION	04
MULTICORE	MC2
TIME and DATE	02.07.2021, finished 00:58:56 UTC
LONGITUDE (N)	80.3529489
LATITUDE (E)	16.30822745
WATER DEPTH (m)	394



RESEARCHER(S) Stig Monsen
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Jessica Louise Ray

Cores	Visual sediment description	Core length	Project	Notes
A	Black patches and stripes after 5 and 10 cm downcore. Small shrimp	48	NEEDED 2	
B	Similar to MC2-C multicore. Black patches and stripes, particularly after 20 cm. Thin tube worms.	46	NEEDED 3	
C	Mostly brown mud with a few thin black stripes after 8 cm, other black patches throughout. Thin tubeworm and small shrimp	49	NEEDED 4	
D	Many black stripes after 10 cm downcore, and even more after 20 cm. Tube worms and one medium-sized shrimp	47	NEEDED 5	

Multicorer Logs per station

CRUISE	KH21-234
STATION	05
MULTICORE	MC1
TIME and DATE	02.07.2021, finished 05:23:26 UTC
LONGITUDE (N)	80.4491341
LATITUDE (E)	17.44451028
WATER DEPTH (m)	60



RESEARCHER(S) Dag Inge Blindheim
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Jon Thomassen Hestetun

Cores	Visual sediment description	Core length (cm)	Project	Notes
A	Empty			
B	Empty			
C	Empty			
D	Empty			

Multicorer Logs per station	
CRUISE	KH21-234
STATION	06
MULTICORE	MC1
TIME and DATE	02.07.2021, finished 14:17:34 UTC
LONGITUDE (N)	80.45314723
LATITUDE (E)	19.2058834
WATER DEPTH (m)	217



RESEARCHER(S) Dag Inge Blindheim
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Jon Thomassen Hestetun

Cores	Visual sediment description	Core length (cm)	Project	Notes
A	brown soft sediment, black smear, bottom 10 cm black sediment, polychaete tubes sticking out, even surface	42	AGENSI	Ice station
B	brown soft sediment, black smear, worm tubes downcore, very smooth even surface	42	AGENSI	Ice station
C	brown soft sediment, black smear, worm tubes downcore, smooth inclined surface	44	AGENSI	Ice station, Archive
D	brown soft sediment, black smear, bottom 10 cm black sediment, many polychaete tubes inside and on top of core, even surface, shrimp in water	44	NEEDED 1	Ice station

Multicorer Logs per station	
CRUISE	KH21-234
STATION	06
MULTICORE	MC2
TIME and DATE	02.07.2021, finished 14:49:28 UTC
LONGITUDE (N)	80.45318885
LATITUDE (E)	19.20585192
WATER DEPTH (m)	217



RESEARCHER(S) Dag Inge Blindheim
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Cores	Visual sediment description	Core length (cm)	Project	Notes
A	brown soft sediment, black smear, bottom 10 cm black sediment, polychaete tubes sticking out, even surface	48.5	NEEDED 2	
B	brown soft sediment, black smear, bottom 10 cm black sediment, polychaete tubes sticking out, even surface, many worm tunnels down core	43	NEEDED 3	
C	brown soft sediment, black smear, bottom 10 cm black sediment, polychaete tubes sticking out, even surface, lots of flockulent stuff on top	49	NEEDED 4	
D	brown soft sediment, black smear, bottom 10 cm black sediment, polychaete tubes sticking out, even surface, lots of flockulent stuff on top, shrimp in water	47	NEEDED 5	

Multicorer Logs per station

CRUISE	KH21-234
STATION	07
MULTICORE	MC1
TIME and DATE	02.07.2021, finished 23:30 UTC
LONGITUDE (N)	80.5618327
LATITUDE (E)	19.26607331
WATER DEPTH (m)	108



RESEARCHER(S)	Stig Monsen
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	Jessica Louise Ray

Cores	Visual sediment description	Core length (cm)	Project	Notes
A	empty			core filled with water which ran out very quickly
B	empty			core filled with water which ran out very quickly
C	empty			core filled with water which ran out very quickly
D	empty			core filled with water which ran out very quickly

Multicorer Logs per station

CRUISE	KH21-234
STATION	08
MULTICORE	MC1
TIME and DATE	03.07.2021, finished 04:06 UTC
LONGITUDE (N)	80.73214248
LATITUDE (E)	19.28841725
WATER DEPTH (m)	102



RESEARCHER(S) Dag Inge Blindheim
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Danielle Grant
Jon Thomassen Hestetun

Cores	Visual sediment description	Core length (cm)	Project	Notes
A	brown, soft, very sticky sediment, black smear halfway down the core, fluffy layer on top, many rocks (with Bryozoa and other animals) and agglutinated tubes on top	22	AGENSI	ice station, sampled from moon pool
B	brown, soft, very sticky sediment, black smear halfway down the core, fluffy layer on top, many rocks and agglutinated tubes on top, large tube sticking out	16	AGENSI	ice station, sampled from moon pool
C	brown sediment, changing to black 5 cm down the core, soft sticky sediment, smooth even surface	19	AGENSI	ice station, sampled from moon pool, Archive , top of tube was broken, but it will be cut off anyway for longterm storage
D	empty			sediment fell out when MC came on board, bc it was not closed correctly

Multicorer Logs per station

CRUISE	KH21-234
STATION	09
MULTICORE	MC1
TIME and DATE	03.07.2021, finished 08:06 UTC
LONGITUDE (N)	80.85546692
LATITUDE (E)	19.49758348
WATER DEPTH (m)	169



RESEARCHER(S) Dag Inge Blindheim
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Danielle Grant
Jon Thomassen Hestetun

Cores	Visual sediment description	Core length (cm)	Project	Notes
A	brown, sticky sediment, black smear, black sediment towards bottom, smooth, even surface, wormtubes downcore and on top	42.5	AGENSI	ice station, sampled from moon pool
B	brown, sticky sediment, black smear, black sediment towards bottom, inclined, uneven surface, wormtubes downcore and on top	42.5	AGENSI	ice station, sampled from moon pool
C	brown, sticky sediment, black smear, black sediment towards bottom, even surface, wormtubes downcore and on top	42	AGENSI	ice station, sampled from moon pool, Archive
D	brown, sticky sediment, black smear, black sediment towards bottom, even surface, fluffy surface, wormtubes downcore and on top, big worm tunnel	38	AGENSI	ice station, sampled from moon pool, Archive

Multicorer Logs per station	
CRUISE	KH21-234
STATION	10
MULTICORE	MC1
TIME and DATE	03.07.2021, finished: 11:37 UTC
LONGITUDE (N)	81.00651945
LATITUDE (E)	19.54884517
WATER DEPTH (m)	148.5



RESEARCHER(S)	Stig Monsen
	Katja Häkli
	Tristan Cordier
	Jessica Louise Ray

Cores	Visual sediment description	Core length (cm)	Project	Notes
A	Sediment column depth 18-24 cm due to very uneven surface and bioturbation. Loosely packed silt-clay. Small brittle start digging into core along core liner which created a big depression in the surface. Shift from brown to grey colour around 9 cm downcore. Sea cucumber on surface, attached to piece of wood (?)	18-24	AGENSI	
B	Water ran immediately out of core liner while still mounted on multicorer, so that only sediment remained (no overwater). Same soft silty appearance as A. Marked bioturbation from active brittle star.	16	AGENSI	
ab.	Loose brown silt/clay, brown in colour down to approx 5 cm, grey below. Tube worms. Depression in surface near core liner - unknown if this is due to bioturbation or agitation of the core during transport from the hangar to the lab.	20.4	AGENSI	archive
D	empty			

Multicorer Logs per station	
CRUISE	KH21-234
STATION	10
MULTICORE	MC2
TIME and DATE	03.07.2021, finished: 12:07 UTC
LONGITUDE (N)	81.00671333
LATITUDE (E)	19.55550383
WATER DEPTH (m)	146



RESEARCHER(S)	Stig Monsen
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Cores	Visual sediment description	Core length (cm)	Project	Notes
A	Loose silty sediment. Tube worms, brittle starts (Ophiuridae?). Brown to grey transition at 8 cm downcore	25	NEEDED	
B	Brown to grey transition at 8 cm downcore. Soft silty sediment, easily disturbed. Many animals, strong bioturbation.	19	NEEDED	
C	Loose silty sediment. Tube worms, brittle starts (Ophiuridae?). Brown to grey transition at 10 cm downcore	25.5	NEEDED	
D	empty			

Multicorer Logs per station

CRUISE	KH21-234
STATION	11
MULTICORE	MC1
TIME and DATE	03.07.2021, finished: 14:38 UTC
LONGITUDE (N)	81.00335473
LATITUDE (E)	18.8884824
WATER DEPTH (m)	233



RESEARCHER(S) Dag Inge Blindheim
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Jon Thomassen Hestetun

Cores	Visual sediment description	Core length (cm)	Project	Notes
A	brown, greyish sediment, flockulent layer, wormtubes sticking out, even surface, smooth homogenous sediment	20	AGENSI	
B	brown, greyish sediment, black smear, flockulent layer, wormtubes sticking out, even surface	19	AGENSI	
C	brown, greyish sediment, flockulent layer, wormtubes sticking out, even	17.5	AGENSI	Archive
D	EMPTY			water flushed trough and drained a big hole in it so that it became useless

Multicorer Logs per station	
CRUISE	KH21-234
STATION	12
MULTICORE	MC1
TIME and DATE	03.07.2021, finished: 17:03 UTC
LONGITUDE (N)	81.00186566
LATITUDE (E)	18.29672468
WATER DEPTH (m)	214



RESEARCHER(S) Dag Inge Blindheim
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Danielle Grant
Jon Thomassen Hestetun

Cores	Visual sediment description	Core length (cm)	Project	Notes
A	brown, greyish sediment, sandy patches, worms on top, uneven surface with lots of wormtubes	26	AGENSI	
B	brown, greyish sediment, sandy patches, worms on top, very uneven surface with lots of wormtubes, other animals and rocks	28	AGENSI	
C	brown, greyish sediment, sandy patches, worms on top, even surface	28	AGENSI	Archive
D	brown, greyish sediment, sandy patches, big rock on top, uneven surface with lots of animals (brittle star, worms, bryozoa, polychaetes)	23	NEEDED 1	

Multicorer Logs per station	
CRUISE	KH21-234
STATION	12
MULTICORE	MC2
TIME and DATE	03.07.2021, finished: 17:31 UTC
LONGITUDE (N)	81.00170577
LATITUDE (E)	18.30771912
WATER DEPTH (m)	209



RESEARCHER(S) Dag Inge Blindheim
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Cores	Visual sediment description	Core length (cm)	Project	Notes
A	very uneven surface, brown, greyish sediment, sandy, lots of animals and rocks on surface	11-15	NEEDED 2	
B	very uneven surface, brown, greyish sediment, sandy, lots of animals and rocks on surface	11-16	NEEDED 3	
C	EMPTY			only water in tubes
D	EMPTY			only water in tubes

Multicorer Logs per station

CRUISE	KH21-234
STATION	12
MULTICORE	MC3
TIME and DATE	03.07.2021, finished: 17:56 UTC
LONGITUDE (N)	81.00175336
LATITUDE (E)	18.31554589
WATER DEPTH (m)	202



RESEARCHER(S) Dag Inge Blindheim

Agnes Weiner

Danielle Grant

Jon Thomassen Hestetun

Cores	Visual sediment description	Core length (cm)	Project	Notes
A	EMPTY			only water in tubes
B	EMPTY			only water in tubes
C	EMPTY			only water in tubes, tube bent
D	EMPTY			only water in tubes, tube lost completely

Multicorer Logs per station	
CRUISE	KH21-234
STATION	13
MULTICORE	MC1
TIME and DATE	03.07.2021, finished: 20:40 UTC
LONGITUDE (N)	81.0024091
LATITUDE (E)	17.72682022
WATER DEPTH (m)	425



RESEARCHER(S)	Stig Monsen
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	Tristan Cordier
	Jessica Louise Ray

Cores	Visual sediment description	Core length (cm)	Project	Notes
A	Beautiful soft sediment. Coil at 15 cm downcore, thick black layer at 11 cm downcore.	28	AGENSI	
B	IDEM (?). Some aggregates.	23	AGENSI	
C	Not large animals, tubeworms. Brown to grey color shift at 15 cm downcore, back to brown again at 20 cm downcore	38-39	AGENSI	Archive
D	Uneven surface, very few and small animals including one small "blob". Brown to grey transition at 15 cm downcore. Back to grey at 22 cm downcore.	40-43	AGENSI	Archive

Multicorer Logs per station

CRUISE	KH21-234
STATION	14
MULTICORE	MC1
TIME and DATE	03.07.2021, finished: 23:56 UTC
LONGITUDE (N)	80.94785943
LATITUDE (E)	17.25108804
WATER DEPTH (m)	538



RESEARCHER(S) Stig Monsen
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Cores	Visual sediment description	Core length	Project	Notes
A	brown to grey change at 8 cm (barely distinct), uneven surface, rock, small and large tubeworms	32-36	AGENSI	
B	brown to grey (diffuse) at 3 cm	29-30	AGENSI	
C	brown to grey change at 9cm, beautiful soft sediment, tubeworms, small detritus	34	AGENSI	Archive
D	uneven surface, no clear transition, tubeworm, small crustacean	35-38	AGENSI	Archive

Multicorer Logs per station

CRUISE	KH21-234
STATION	15
MULTICORE	MC1
TIME and DATE	04.07.2021, finished: 06:32 UTC
LONGITUDE (N)	80.81036857
LATITUDE (E)	15.86597768
WATER DEPTH (m)	1614



RESEARCHER(S) Dag Inge Blindheim
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Cores	Visual sediment description	Core length	Project	Notes
A	even top and good sediment retrieval, brown sediment with change to grey at 5.5 cm	28	AGENSI	lost some sediment on the way up
B	inclined top, change from brown to grey at about 7 cm	20	AGENSI	lost some sediment on the way up
C	brittle star at surface, transition from brown to grey at about 16 cm, very even surface	47	AGENSI	Archive
D	transition brown to grey at about 13 cm, small crack in sediment at about 17 cm, even surface	39.5	AGENSI	Archive

Multicorer Logs per station

CRUISE	KH21-234
STATION	16
MULTICORE	MC1
TIME and DATE	04.07.2021, finished: 08:44 UTC
LONGITUDE (N)	80.71261165
LATITUDE (E)	15.65152018
WATER DEPTH (m)	835



RESEARCHER(S) Dag Inge Blindheim
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Cores	Visual sediment description	Core length	Project	Notes
A	greyish, brown sediment, even surface, flocculent material, darker on top (6 cm) then change to lighter grey for next 5 cm, then more brownish, surface 5 cm a bit reworked by animals, rocks and animals on top	33	AGENSI	
B	greyish, brown sediment, very uneven surface, flocculent material, darker on top (6 cm) then change to lighter grey for next 5 cm, then more brownish, surface 5 cm a bit reworked by animals, rocks and animals on top	32	AGENSI	
C	greyish, brown sediment, even surface, flocculent material, darker on top (6 cm) then change to lighter grey for next 5 cm, then more brownish, surface 5 cm a bit reworked by animals	33	AGENSI	Archive
D	greyish, brown sediment, even surface, flocculent material, darker on top (6 cm) then change to lighter grey for next 5 cm, then more brownish, surface 5 cm a bit reworked by animals, tubeworms sticking out	33	AGENSI	Archive

Multicorer Logs per station

CRUISE	KH21-234
STATION	17
MULTICORE	MC1
TIME and DATE	04.07.2021, finished: 16:53:47
LONGITUDE (N)	80.85958506
LATITUDE (E)	14.64368368
WATER DEPTH (m)	1082



RESEARCHER(S) Dag Inge Blindheim
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Jon Thomassen Hestetun

Cores	Visual sediment description	Core length (cm)	Project	Notes
A	Brown-grey sediment. Change in color at 16,5 cm downcore. Brown smear in grey bottom area. Even surface. Flocculent material and tube worms.	35	AGENSI	
B	Brown-grey sediment. Change in color at 16 cm downcore. Brown smear in grey area. Even surface. Worm tubes sticking out. Flocculent material.	37	AGENSI	
C	Brown-grey sediment. Change in colour from brown to grey at 15 cm downcore. Very smooth and even sediment with flocculent material and worm tubes.	40	AGENSI	Archive
D	Similar to MC1-C. Change in color from brown to grey at 17 cm. Even surface with flocculent material and worm tubes. Brown smear in grey area.	37.5	AGENSI	Archive

Multicorer Logs per station	
CRUISE	KH21-234
STATION	18
MULTICORE	MC1
TIME and DATE	04.07.2021, finished: 21:51 UTC
LONGITUDE (N)	81.06161523
LATITUDE (E)	13.53494303
WATER DEPTH (m)	2041



RESEARCHER(S)	Stig Monsen
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Cores	Visual sediment description	Core length (cm)	Project	Notes
A	Depression on surface; brown sediment throughout entire downcore; high clay content? No visible color transition, no signs of animal activity on surface	42-45 cm	AGENSI	
B	Some large aggregates at surface; no visible color transition; soft brown sediment throughout	45 cm	AGENSI	
C	One tubeworm; even surface; beautiful soft brown sediment; brown patches in area 5-16 cm downcore	41 cm	AGENSI	Archive
D	Small aggregates at surface; soft brown sediment (clay?) throughout downcore; no visible colour shifts	45 cm	DSEA	

Multicorer Logs per station

CRUISE	KH21-234
STATION	19
MULTICORE	MC1
TIME and DATE	05.07.2021, finished: 05:07 UTC
LONGITUDE (N)	81.18071073
LATITUDE (E)	12.91993173
WATER DEPTH (m)	2195



RESEARCHER(S) Dag Inge Blindheim
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Cores	Visual sediment description	Core length	Project	Notes
A	brown, homogenous sediment, no changes in color, even surface, no reworking, no visible tubes, sea pig on top	41	AGENSI	rest of core as archive
B	brown, homogenous sediment, no changes in color, uneven surface with big depression from surface down to 5 cm, lots of holes and tunnels	40	AGENSI	
C	brown, homogenous sediment, no changes in color, even surface, no reworking, no visible tubes	41	AGENSI	Archive
D	brown, homogenous sediment, no changes in color, uneven surface with big depression from surface down to 5 cm, lots of holes and tunnels	42	DSEA	

Multicorer Logs per station

CRUISE	KH21-234
STATION	20
MULTICORE	MC1
TIME and DATE	05.07.2021, finished: 11:02 UTC
LONGITUDE (N)	81.32625308
LATITUDE (E)	11.82668835
WATER DEPTH (m)	1423



RESEARCHER(S) Stig Monsen
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Cores	Visual sediment description	Core length	Project	Notes
A	Soft brown-grey sediment. Strong rust-colored layer from 30-31,5 cm downcore. Grey with some brown mottling below the rusty layer. Some aggregates at the surface and a few small worm tubes.	39	AGENSI	
B	Rusty layer at 31-32 cm downcore. Otherwise identical to A core. Some small white flecks in surface sediment (forams?)	39	AGENSI	
C	Rusty layer at 30-31 cm downcore. One shell of shellfish (probably empty). Small worm tubes, otherwise identical to A core.	39	AGENSI	Archive
D	Rusty layer at 30-31 cm downcore. Polychaete at surface. Otherwise identical to A core.	39	AGENSI	Archive

Multicorer Logs per station

CRUISE	KH21-234
STATION	21
MULTICORE	MC1
TIME and DATE	05.07.2021, finished: 14:46 UTC
LONGITUDE (N)	81.30694165
LATITUDE (E)	10.93378175
WATER DEPTH (m)	1764



RESEARCHER(S) Dag Inge Blindheim
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Cores	Visual sediment description	Core length	Project	Notes
A	brown-greyish sediment, dark brown layer at 28 cm, even smooth surface, some tunnels in upper 5 cm	43	AGENSI	rest of core as archive
B	brown-greyish sediment, dark brown layer at 28 cm, even smooth surface	42.5	AGENSI	
C	brown-greyish sediment, dark brown layer at 28 cm, even smooth surface, sea cucumber on top	43.5	AGENSI	Archive
D	brown-greyish sediment, dark brown layer at 26 cm, even smooth surface, tunnels in upper 5 cm	42	DSEA	surface 0-1 cm sampled, rest as archive

Multicorer Logs per station

CRUISE	KH21-234
STATION	22
MULTICORE	MC1
TIME and DATE	05.07.2021, finished: 18:24:21 UTC
LONGITUDE (N)	81.29148583
LATITUDE (E)	9.422039917
WATER DEPTH (m)	1348



RESEARCHER(S)	Stig Monsen
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	Jessica Louise Ray

Cores	Visual sediment description	Core length (cm)	Project	Notes
A	Uneven, very loose surface. Even brown color throughout downcore. Small aggregates and possibly some worm tubes at surface.	39-42	AGENSI	
B	One small tubeworm visible at surface. Uneven, very loose surface. Even brown color throughout downcore. Small aggregates and possibly some worm tubes at surface.	39-41	AGENSI	
C	Loose, very thin silty soft sediment. Greyish-brown in color. Possible signs of bioturbation downcore. Small aggregates visible at surface. Uneven surface.	40-42	AGENSI	Archive
D	Uneven surface. Small aggregates visible at surface. Very loose, silty sediment at surface. Brownish-grey color throughout downcore.	43	AGENSI	Archive

Multicorer Logs per station

CRUISE	KH21-234
STATION	23
MULTICORE	MC1
TIME and DATE	05.07.2021, finished: 22:02:09 UTC
LONGITUDE (N)	81.50448378
LATITUDE (E)	9.034647083
WATER DEPTH (m)	1136



RESEARCHER(S)	Stig Monsen
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	Jessica Louise Ray

Cores	Visual sediment description	Core length (cm)	Project	Notes
A	Soft, silty brown sediment, loose at surface. More or less even brown coloring throughout downcore. Possible some small aggregates or detritus on surface. No visible signs of animal activity. Possibly a few planktonic forams or milionids (sp?) as at St. 22	42	AGENSI	
B	Soft, silty brown sediment, loose at surface. More or less even brown coloring throughout downcore. Possible some small aggregates or detritus on surface. No visible signs of animal activity. Possibly a few planktonic forams or milionids (sp?) as at St. 22	40-41	AGENSI	
C	Soft, silty brown sediment, loose at surface. More or less even brown coloring throughout downcore. Possible some small aggregates or detritus on surface. No visible signs of animal activity. Possibly a few planktonic forams or milionids (sp?) as at St. 22	39	AGENSI	Archive
D	Soft, silty brown sediment, loose at surface. More or less even brown coloring throughout downcore. Possible some small aggregates or detritus on surface. No visible signs of animal activity, although there is one apparently empty shell. Possibly a few planktonic forams or milionids (sp?) as at St. 22	40.5	AGENSI	Archive

Multicorer Logs per station

CRUISE	KH21-234
STATION	24
MULTICORE	MC1
TIME and DATE	06.07.2021, finished: 01:00:34 UTC
LONGITUDE (N)	81.63409211
LATITUDE (E)	8.3272203
WATER DEPTH (m)	850



RESEARCHER(S)	Stig Monsen
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	Jessica Louise Ray

Cores	Visual sediment description	Core length (cm)	Project	Notes
A	small tubeworms, loose brown very fine sediment, brown to grey/brown transition at 10 cm	39	AGENSI	
B	large tubeworm sticking out 7 cm above surface, 2 mm wide, sediment as core A	40	AGENSI	
C	identical to D, also a color transition	39.5	AGENSI	Archive
D	change from brown to grey/brown at 10 cm	40	AGENSI	Archive

Multicorer Logs per station

CRUISE	KH21-234
STATION	25
MULTICORE	MC1
TIME and DATE	06.07.2021, finished: 06:13:31 UTC
LONGITUDE (N)	81.76390619
LATITUDE (E)	7.781273458
WATER DEPTH (m)	818



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Cores	Visual sediment description	Core length (cm)	Project	Notes
A	same as Core D, smooth even surface, brittle stars on top > picked them out during sampling	38	AGENSI	
B	same as Core D, brittle stars on top > picked them out during sampling	39	AGENSI	
C	same as core D, tiny starfish on top > picked it out when draining water	39.5	AGENSI	Archive
D	brown, very homogeneous sediment, no apparent changes in color, even surface, forams on top	39.5	AGENSI	Archive

Multicorer Logs per station

CRUISE	KH21-234
STATION	26
MULTICORE	MC1
TIME and DATE	06.07.2021, finished: 11:26:30 UTC
LONGITUDE (N)	81.9656753
LATITUDE (E)	7.398864333
WATER DEPTH (m)	743



RESEARCHER(S)	Stig Monsen
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	Jessica Louise Ray

Cores	Visual sediment description	Core length (cm)	Project	Notes
A	Brown very fine silt. Transition to rusty brown color at 33-35 cm. Some aggregates, small worm tube.	38	AGENSI	
B	Brown-colored fine silty sediment. Brown-to-rust transition at 37-39 cm downcore. Small sponge at surface (?). White flecks at surface (forams?)	39	AGENSI	
C	Brown-to-rust transition at 34-35 cm downcore. Empty worm tube lying on surface. Some aggregates. Fine brown silty sediment.	39.5	AGENSI	
D	Fine silty sediment. Some aggregates at surface, some tube worms, many white flecks (shells?). Brown-to-rust transition at 35 cm downcore.	39.5	AGENSI	

Multicorer Logs per station

CRUISE	KH21-234
STATION	27
MULTICORE	MC1
TIME and DATE	06.07.2021, finished: 14:47:45 UTC
LONGITUDE (N)	82.03479839
LATITUDE (E)	6.892594175
WATER DEPTH (m)	735



RESEARCHER(S) Dag Inge Blindheim
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Cores	Visual sediment description	Core length (cm)	Project	Notes
A	Same as C-core. Even surface, tubes on top. Bottom 8 cm of core were back to grey color.	32	AGENSI	
B	Same as C-core. Crack in downcore at 7 cm. Large polychaete burrow. Bottom 8 cm of core were back to grey in color. Tubes sticking out at surface. Flocculent layer looks red-ish.	32	AGENSI	
C	Top 5 cm homogeneous fine grey sediment then very obvious layer and change in color to brownish-grey (almost red-ish). Even surface. Tubes and forams at surface. Return to grey color for bottom 3 cm of core.	32	AGENSI	Archive
D	Same as C.	32.2	AGENSI	Archive

Multicorer Logs per station

CRUISE	KH21-234
STATION	28
MULTICORE	MC1
TIME and DATE	06.07.2021, finished: 17:36:45
LONGITUDE (N)	81.99720327
LATITUDE (E)	6.01803365
WATER DEPTH (m)	849



RESEARCHER(S)	Stig Monsen
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Cores	Visual sediment description	Core length (cm)	Project	Notes
A	Uneven surface. Very fine, brown, silty sediment. Some worm tubes. Transition from brown to grey at 25 cm downcore.'	38-39 cm	AGENSI	
B	Uneven surface. Very fine, brown, silty sediment. Some worm tubes. Transition from brown to grey at 28 cm downcore.	38-40 cm	AGENSI	
C	Uneven surface. Very fine, brown, silty sediment. Some worm tubes. Transition from brown to grey at 25 cm downcore.	40-41 cm	AGENSI	Archive
D	Uneven surface. Very fine, brown, silty sediment. Some worm tubes. Transition from brown to grey at 25 cm downcore.	40-42 cm	AGENSI	Archive

Multicorer Logs per station

CRUISE	KH21-234
STATION	29
MULTICORE	MC1
TIME and DATE	06.07.2021, finished: 22:07:29
LONGITUDE (N)	81.86132882
LATITUDE (E)	5.608338
WATER DEPTH (m)	811



RESEARCHER(S)	Stig Monsen
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Cores	Visual sediment description	Core length (cm)	Project	Notes
A	Very loose sediment. Small sponges on surface, possibly some aggregates. Brown mottling from surface down to 14 cm downcore. Dark transition line at 39 cm, after which there is greyish-brown very fine sediment.	41	AGENSI	
B	Very loose sediment. Small sponges on surface. Even surface. Brown mottling from surface down to 16 cm. Dark transition line at 36 cm downcore, after which sediment was greyish-brown.	43	AGENSI	
C	Very loose sediment. Even surface.. Brown mottling from surface down to 13 cm. Dark transition line probably hidden by bottom core cap.	44	AGENSI	Archive
D	Very loose sediment with brown mottling from surface down to 14 cm. Dark transition line likely hidden by bottom core cap.	40	AGENSI	Archive

Multicorer Logs per station

CRUISE	KH21-234
STATION	30
MULTICORE	MC1
TIME and DATE	07.07.2021, finished: 01:47:17
LONGITUDE (N)	81,739457975
LATITUDE (E)	5,1832187
WATER DEPTH (m)	771



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Cores	Visual sediment description	Core length (cm)	Project	Notes
A	dark transition layer at 39-40 cm, fine brown silty sediment, even surface, no visible animals	41	AGENSI	
B	dark transition layer at 39 cm, fine brown silty sediment, something red at surface (worm?), white flecks	41	AGENSI	
C	dark transition layer hidden by endcap, worm tube, some aggregates, fine brown sediment	40	AGENSI	Archive
D	some white flecks and aggregates at surface, brown fine silty sediment, dark transition layer hidden by endcap	40	AGENSI	Archive

Multicorer Logs per station

CRUISE	KH21-234
STATION	31
MULTICORE	MC1
TIME and DATE	07.07.2021, finished: 05:07:30
LONGITUDE (N)	81.57177435
LATITUDE (E)	4.85787925
WATER DEPTH (m)	744



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Cores	Visual sediment description	Core length (cm)	Project	Notes
A	same as core C, smooth even surface, reddish layer at bottom 2 cm	35	AGENSI	
B	same as core C, reddish layer at bottom 2 cm, smooth even surface, tubes sticking out	38	AGENSI	
C	very homogeneous brown fine sediment, fluffy layer at top 1 cm, smooth even surface, change in color to more reddish at bottom 3 cm, brittle star in sediment at 5 cm	39	AGENSI	Archive
D	same as core C, change in color at bottom 2 cm, fluffy layer at top	37	AGENSI	Archive

Multicorer Logs per station

CRUISE	KH21-234
STATION	32
MULTICORE	MC1
TIME and DATE	Wednesday 07.07.2021, finished: 08:56:47 UTC
LONGITUDE (N)	81.35994224
LATITUDE (E)	4.188792633
WATER DEPTH (m)	735



RESEARCHER(S) Dag Inge Blindheim
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Cores	Visual sediment description	Core length (cm)	Project	Notes
A	Same as core B. Just some forams on top. Red rusty layer at bottom.	40.5	AGENSI	
B	Homogeneous brown/greyish sediment, rusty red layer at 32 cm, below which color is a bit more grey. Burrows at about 10 cm. Even surface with tubes and forams on top.	41	AGENSI	
C	Same as core B. Forams on top. Red rusty layer at bottom.	40	AGENSI	Archive
D	Same as core B, lots of forams on top. Some small burrows	41	AGENSI	Archive

Multicorer Logs per station	
CRUISE	KH21-234
STATION	33
MULTICORE	MC1
TIME and DATE	Wednesday 07.07.2021, finished: 11:29:07 UTC
LONGITUDE (N)	81.31277557
LATITUDE (E)	3.458861867
WATER DEPTH (m)	749



RESEARCHER(S)	Stig Monsen
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Cores	Visual sediment description	Core length (cm)	Project	Notes
A	Several color shifts throughout the downcore. Surface brown, loose, silty sediment with some sponges (palm tree forams?) and worm tubes. Darker layer at 8 cm downcore, then 1/2 cm brown, then black mottling around 10 cm downcore. Brownish-grey to grey transition at 30-31 cm downcore.	41	AGENSI	
B	Brown, loose, silty sediment at surface and down to 8 cm downcore. Two uneven black layers/smudges from 8 - 10,5 cm downcore. Brown-black mottling which could be due to smudging along the core liner. Grey color from 30 cm downcore.	40	AGENSI	
C	Brown, loose, silty sediment at surface and down to 8 cm downcore. Brown-black mottling from 8-9 cm downcore. Brown again from 9-11,5 cm. Smudge of black below. Transition from greyish-brown to grey at 30-31 cm. A few small sponges (palm tree forams?) on surface.	41	AGENSI	Archive
D	Brown, silty surface sediment with two sponges (palm tree forams?) at surface. Brown-black mottling from 8-13 cm downcore. Dark greyish-brown below 13 cm. Grey from 30 cm downcore. Brown-black mottling possibly consists of multiple smudged layers.	40	AGENSI	Archive

Multicorer Logs per station

CRUISE	KH21-234
STATION	34
MULTICORE	MC1
TIME and DATE	Wednesday 07.07.2021, finished: 16:56:38
LONGITUDE (N)	81.21994137
LATITUDE (E)	2.37755455
WATER DEPTH (m)	1011



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Cores	Visual sediment description	Core length (cm)	Project	Notes
A	Same as C. Reddish-brown layer at 8 cm downcore. Tubes and forams on surface.	43	AGENSI	
B	Same as C. Tubes and forams on surface. Brown/reddish layer at 7 cm downcore.	42	AGENSI	
C	Surface consists of brown very fine sediment. Dark brown/reddish layer at 7 cm downcore. Grey sediment below that. Even surface with a few tubes and forams.	45	AGENSI	Archive
D	Same as C. Darker layer at 8 cm. Forams at surface.	45	AGENSI	Archive

Multicorer Logs per station

CRUISE	KH21-234
STATION	35
MULTICORE	MC1
TIME and DATE	Wednesday 07.07.2021, finished: 20:14:27
LONGITUDE (N)	81.00894055
LATITUDE (E)	2.458244233
WATER DEPTH (m)	1023



RESEARCHER(S)	Stig Monsen
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Cores	Visual sediment description	Core length (cm)	Project	Notes
A	Greyish-brown sediment, soft and silty in appearance. Some worm tube at surface. Grey to brown color at 1-5 cm downcore. Dark brown smudges starting at 5 cm downcore. Brown sediment down to 24 cm. Grey sediment from 24 cm down to bottom of core.	43.5-44.5	AGENSI	
B	Grey to brown transition at 9 cm downcore. Below 9 cm is brown with grey stripes.	45	AGENSI	
C	Brown patches down to 8 cm downcore. Large gap on one side of downcore from 15-17 cm. Brown stripes down to 30 cm, then grey from 30 cm to bottom of core.	45	AGENSI	Archive
D	Brown patches down to 9 cm. Brown stripes from 9-23 cm. From 23 cm downward a transition to grey color.	45	AGENSI	

Multicorer Logs per station

CRUISE	KH21-234
STATION	36
MULTICORE	MC1
TIME and DATE	Wednesday 08.07.2021, finished: 01:25:05
LONGITUDE (N)	81.00720353
LATITUDE (E)	3.717545483
WATER DEPTH (m)	733.47



RESEARCHER(S) Stig Monsen
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Cores	Visual sediment description	Core length (cm)	Project	Notes
A	clear transition at 6 cm to darker brown, next transition at 8-9 cm to grey all the way to the bottom, some aggregates, fine silty brown sediment at surface	42	AGENSI	
B	transition 6-7 cm to darker brown, transition to grey at 9-10 cm, nothing special on surface	42	AGENSI	
C	transition to dark brown at 5-6 cm, transition to grey at 7 cm, grey from 7 cm to bottom, nothing special on surface	42	AGENSI	Archive
D	giant tubeworm at surface, transition at 5-6 cm, to darker brown, transition to grey at 9 cm all the way to bottom	42	AGENSI	

Multicorer Logs per station

CRUISE	KH21-234
STATION	37
MULTICORE	MC1
TIME and DATE	Wednesday 08.07.2021, finished: 06:56:17
LONGITUDE (N)	80.89891198
LATITUDE (E)	5.238209008
WATER DEPTH (m)	703.54



RESEARCHER(S) Dag Inge Blindheim
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Cores	Visual sediment description	Core length (cm)	Project	Notes
A	same as core C, very pronounced layers at 32 cm, dark brown/rusty red layer, more even surface than other cores, forams and tubes on top	36	AGENSI	
B	same as core C, color change at 17 cm (higher than in other cores!), inclined surface, many forams on top, grey sediment below 17 cm, reddish streaks at bottom, crack at 7 cm	38	AGENSI	
C	brown/greyish fine sediment, dark brown/rusty layer at about 25 cm, slightly inclined surface, thick fluffy layer at top with many forams	39.5	AGENSI	Archive
D	same as core C, inclined surface with thick fluffy layer and many forams, dark layer at 25 cm	37	AGENSI	Archive

Multicorer Logs per station	
CRUISE	KH21-234
STATION	38
MULTICORE	MC1
TIME and DATE	Thursday 08.07.2021, finished: 10:57:00 UTC
LONGITUDE (N)	80.74651951
LATITUDE (E)	4.709213517
WATER DEPTH (m)	658



RESEARCHER(S)	Stig Monsen
	Katja Häkli
	Tristan Cordier
	Jessica Louise Ray

Cores	Visual sediment description	Core length (cm)	Project	Notes
A	uneven surface, part of surface collapsed, small crustacean (shrimp-like) swimming at surface, some aggregates, greyish brown down to 8 cm, grey with brown streaks down to about 20 cm, grey below	37-38	AGENSI	
B	large polychaete on surface (tube worm), burrowing by unknown organism (centipede?), greyish/brown down to 6-7 cm, then grey with brown stripes down to 21 cm, grey below	37	AGENSI	
C	greyish-brown surface sediment down to 8 cm, grey with brown streaks 8-21 cm, grey below 21 cm, worm tubes and palm tree forams at surface, loose silty sediment	41.5	AGENSI	Archive
D	greyish/brown at surface down to 8-9 cm, grey with brown stripes down to 22 cm, grey below, worm tubes at surface	39	NEEDED	

Multicorer Logs per station	
CRUISE	KH21-234
STATION	38
MULTICORE	MC2
TIME and DATE	Thursday 08.07.2021, finished: 11:47:27 UTC
LONGITUDE (N)	80.74249304
LATITUDE (E)	4.673044117
WATER DEPTH (m)	659



RESEARCHER(S)	Stig Monsen
	Katja Häkli
	Tristan Cordier
	Jessica Louise Ray

Cores	Visual sediment description	Core length (cm)	Project	Notes
A	brown at surface, transition to grey at 7 cm, darker layer to 13-14 cm (black patches), below grey, loose silt at surface, some small sponges	39	NEEDED	
B	brown at surface and down to 13 cm, 13-15 cm, grey with black patches, below 15 cm grey, some cold coral, small shrimp, tube worm at surface	38	NEEDED	
C	brown at surface, transition to grey-black at 12-14 cm, then grey below, white flecks, tiny sponge at surface	23	NEEDED	
D	brown at surface, transition to grey-black from 7 to 10-11 cm, below that grey, loose silty sediment at surface, one dead tube worm and some tiny sponges	38	NEEDED	

Multicorer Logs per station

CRUISE	KH21-234
STATION	39
MULTICORE	MC1
TIME and DATE	Thursday 08.07.2021, finished: 16:38:49 UTC
LONGITUDE (N)	80.68153771
LATITUDE (E)	5.971663558
WATER DEPTH (m)	743



RESEARCHER(S) Dag Inge Blindheim
Agnes Weiner
Danielle Grant
Jon Thomassen Hestetun

Cores	Visual sediment description	Core length (cm)	Project	Notes
A	fine brown homogeneous sediment, slight color changes in the bottom third, many tubes and forams on top	41.5	AGENSI	cores A and C were similar and B and D, B and D were much shorter
B	mostly fine brown-greyish homogenous sediment, color changes towards bottom and orange rusty layer at very bottom, even surface with forams	27.5	AGENSI	
C	brown homogenous sediment down to 28.5 cm, then bright orange, rusty layer, below that grey sediment, slightly inclined surface with many forams	39.5	AGENSI	Archive, super nice core!!!
D	like core B, even surface with many forams, burrow at 5.5 cm, rusty layer at very bottom	28.5	AGENSI	Archive

Multicorer Logs per station	
CRUISE	KH21-234
STATION	40
MULTICORE	MC1
TIME and DATE	Thursday 08.07.2021, finished: 19:06:04
LONGITUDE (N)	80.60058963
LATITUDE (E)	6.601721558
WATER DEPTH (m)	702.61



RESEARCHER(S)	Stig Monsen
	Katja Häkli
	Tristan Cordier
	Jessica Louise Ray

Cores	Visual sediment description	Core length	Project	Notes
A	Soft, rich brown sediment at surface and down to 20 cm. Then brown streaks transitioning into pure grey color to the bottom. Forams and worm tubes on surface. Rich colors, very beautiful core.	40	AGENSI	
B	Same as A. Soft, rich brown sediment at surface and down to 20 cm. Then brown streaks transitioning into pure grey color to the bottom. Forams, worm tubes and a shell on surface. Rich colors, very beautiful core.	41	AGENSI	
C	Same as A. Soft, rich brown sediment at surface and down to 20 cm. Then brown streaks transitioning into pure grey color to the bottom. Forams, worm tubes and a shell on surface. Rich colors, very beautiful core.	42	AGENSI	Archive
D	Same as A. OBS! Core slipped and fell over during capping on deck. Lost most of the overwater and the surface sediments were quite disturbed. Kept this core as archive just in case. Not sure if it can be used because of the surface disturbance.	42	AGENSI	Archive?

Multicorer Logs per station

CRUISE	KH21-234
STATION	41
MULTICORE	MC1
TIME and DATE	Thursday 08.07.2021, finished: 22:56:59 UTC
LONGITUDE (N)	80.56362752
LATITUDE (E)	7.513625308
WATER DEPTH (m)	758



RESEARCHER(S)	Stig Monsen
	Katja Häkli
	Tristan Cordier
	Jessica Louise Ray

Cores	Visual sediment description	Core length (cm)	Project	Notes
A	Brown fine sediment throughout downcore. Giant centipede? Polychaete?	41	AGENSI	
B	Fine brown, silty sediment. Thin black layer at 30 cm downcore. Worm tubes and forams at surface.	41	AGENSI	
C	Solid brown color with some grey stripes and some burrows along core liner. White flecks at surface. One very tiny brittle star on surface as well. Worm tubes and forams.	42	AGENSI	Archive
D	Brown fine sediment with transition to solid grey at 37 cm. OBS! White styrofoam plug at the bottom of this archive core!	41	AGENSI	Archive - OBS! White styrofoam plug at bottom of core underneath bottom cap

Multicorer Logs per station

CRUISE	KH21-234
STATION	42
MULTICORE	MC1
TIME and DATE	Thursday 09.07.2021, finished: 01:39:13 UTC
LONGITUDE (N)	80.47983343
LATITUDE (E)	7.100318083
WATER DEPTH (m)	674



RESEARCHER(S) Stig Monsen
Katja Häkli
Tristan Cordier
Jessica Louise Ray

Cores	Visual sediment description	Core length (cm)	Project	Notes
A	brown soft sediment, tube worms and forams on top, turns grey at 5 cm downcore	40	AGENSI	
B	brown sediment, transition to grey at 5 cm, white fleck	41	AGENSI	
C	same as above, transition at 5 cm		AGENSI	Archive
D	same as above, transition at 5 cm	41	AGENSI	Archive

Multicorer Logs per station	
CRUISE	KH21-234
STATION	43
MULTICORE	MC1
TIME and DATE	Thursday 09.07.2021, finished: UTC
LONGITUDE (N)	80.38975847
LATITUDE (E)	7.549653575
WATER DEPTH (m)	685



RESEARCHER(S) Dag Inge Blindheim
Agnes Weiner
Danielle Grant
Jon Thomassen Hestetun

Cores	Visual sediment description	Core length (cm)	Project	Notes
A	0-5.5 cm red-brown sediment then transition to grey-brown, at 21 cm transition to a solid grey, uniform surface	43	AGENSI	
B	0-5 cm red-brown sediment, then change to grey-brown and then grey, even surface, 1 cm crack between 7-8 cm, small fluffy creature and forams on top	43.5	AGENSI	
C	0-5 cm red-brown sediment then transition to grey-brown, at 21 cm transition to a solid grey, uniform surface	43	AGENSI	Archive
D	same as core C, even surface, forams	43	NEEDED	

Multicorer Logs per station	
CRUISE	KH21-234
STATION	43
MULTICORE	MC2
TIME and DATE	Thursday 09.07.2021, finished: UTC
LONGITUDE (N)	80.38958739
LATITUDE (E)	7.549009442
WATER DEPTH (m)	685



RESEARCHER(S) Dag Inge Blindheim
Agnes Weiner
Danielle Grant
Jon Thomassen Hestetun

Cores	Visual sediment description	Core length (cm)	Project	Notes
A	brown sediment on top, turns grey at 6 cm with brown streaks down to 22 cm, very fine homogenous sediment, even surface with forams and some tubes	44	NEEDED	
B	same as core A, same color changes, even surface with tubes sticking out, fishing rod shaped organism on top	45.5	NEEDED	
C	same as core A, same color changes, even surface with some forams and some bush-like organisms	42.5	NEEDED	
D	same as core A, same color changes, burrows at 7 cm, even surface with	43.5	NEEDED	

Multicorer Logs per station

CRUISE	KH21-234
STATION	44
MULTICORE	MC1
TIME and DATE	Friday 09.07.2021, finished
LONGITUDE (N)	80.24578142
LATITUDE (E)	7.5956994
WATER DEPTH (m)	591



RESEARCHER(S) Dag Inge Blindheim
Tristan Cordier, Jon Thomassen Hestetun
Katja Häkli, Danielle Grant
Jessica Louise Ray, Agnes Weiner

Cores	Visual sediment description	Core length (cm)	Project	Notes
A	Soft, loose brown sediment at surface. Slightly uneven surface with tubes and forams. Transition to grey with brown streaks from 5-18 cm. Below 18 cm entirely grey.	39.5	AGENSI	
B	Soft, loose brown sediment down to 4 cm. Even surface with worm tubes and forams. From 4-18 cm transition to grey with brown streaks. Grey below 18 cm.	26	AGENSI	Bottom 10 cm fell out of core liner when brought on board, hence a shorter core.
C	Brown, fine sediment down to 5 cm, then transition to grey 5-18 cm, same brown streaks. Bottom of core from 18 cm and down only grey. Smooth surface with lots of worm tubes and forams.	41	AGENSI	
D	Soft, loose brown sediment at surface. Even surface with tubes and forams. Transition to grey with brown streaks from 5-18 cm. Below 18 cm entirely grey. White, pinnate cnidarian on surface.	40	AGENSI	

Multicorer Logs per station	
CRUISE	KH21-234
STATION	45
MULTICORE	MC1
TIME and DATE	Friday 09.07.2021, finished: 12:40:56 UTC
LONGITUDE (N)	80.09731368
LATITUDE (E)	7.629350642
WATER DEPTH (m)	525.495



RESEARCHER(S)	Dag Inge Blindheim
	Katja Häkli
	Tristan Cordier
	Jessica Louise Ray

Cores	Visual sediment description	Core length (cm)	Project	Notes
A	Slightly uneven surface. Brown silty sediment down to 5 cm. Worm tubes and forams at surface. Transition to grey with brown streaks from 5-15 cm. Grey below 15 cm.	37-38 cm	AGENSI	Manually removed some tubes from surface to facilitate sampling with spoon.
B	Silty brown sediment at surface. Transition to grey with brown streaks at 13-14 cm downcore. Worm tubes, forams, white flecks and a small brittle star at surface. Unknown pinkish-orange tubes (in all cores). Grey below 14 cm.	35 cm	AGENSI	Manually removed some tubes from surface to facilitate sampling with spoon.
C	Same as A. Brown silty sediment at surface. Transition to grey with brown streaks at 12-13 cm downcore. Pinkish-orange tubes, forams, white flecks on surface.	37 cm	AGENSI	Archive
D	Same as A. Transition from brown to grey around 13 cm downcore. Horizontal 'cracks' on one side of the core from 21-22 cm. Bubbling at surface when core bumped or agitated - possibly air pockets in 'cracks'? Non-descript blob at surface.	37 cm	NEEDED	

Multicorer Logs per station	
CRUISE	KH21-234
STATION	45
MULTICORE	MC2
TIME and DATE	Friday 09.07.2021, finished: 14:04:10 UTC
LONGITUDE (N)	80.11053266
LATITUDE (E)	7.605770033
WATER DEPTH (m)	533



RESEARCHER(S)	Stig Monsen
	Agnes Weiner
	Jon Thomassen Hestetun
	Danielle Grant

Cores	Visual sediment description	Core length (cm)	Project	Notes
A	Upper 4 cm brown, below that grey. Surface covered with worm tubes and fluffy stuff.	34,5 cm	NEEDED	
B	Same as core A. Tubes and fluffy stuff at surface.	34 cm	NEEDED	
C	Same as core A. Tubes and fluffy stuff at surface.	36,5 cm	NEEDED	
D	Same as core A. Lots of tubes and fluffy stuff on top.	34 cm	NEEDED	

Multicorer Logs per station	
CRUISE	KH21-234
STATION	46
MULTICORE	MC1
TIME and DATE	Friday 09.07.2021, finished: 17:11:54 UTC
LONGITUDE (N)	79.92382571
LATITUDE (E)	7.701099167
WATER DEPTH (m)	601



RESEARCHER(S) Dag Inge Blindheim
Agnes Weiner
Danielle Grant
Jon Thomassen Hestetun

Cores	Visual sediment description	Core length (cm)	Project	Notes
A	empty			
B	empty			
C	empty			
D	empty			

Multicorer Logs per station	
CRUISE	KH21-234
STATION	46
MULTICORE	MC2
TIME and DATE	Friday 09.07.2021, finished: 17:57:00 UTC
LONGITUDE (N)	79.92402405
LATITUDE (E)	7.700509417
WATER DEPTH (m)	601



RESEARCHER(S) Dag Inge Blindheim
Katja Häkli
Tristan Cordier
Jessica Louise Ray

Cores	Visual sediment description	Core length (cm)	Project	Notes
A	Brown, fine, silty sediment. Bioturbation down to 4-5 cm. Some worm tubes and forams at surface. No visible transition zone. Slightly uneven surface. Some resuspended sediment material in in overwater (i.e. maybe not marine snow). Some white flecks and small shrimps at surface.	30 cm	AGENSI	
B	Brown at top with some resuspended sediment. Very fine and silty. Transition at 3-5 cm to grey with black streaks. Worm tubes and bioturbation at surface.	33 cm	AGENSI	
C	Uneven surface. Brown silty sediment at surface and until 3-5 cm then transition to grey. Grey patch approx 5 cm x 5 cm at surface as well.	31-33 cm	AGENSI	Archive
D	empty			rocks blocked core liner - unable to hold on to sediment

Multicorer Logs per station				
CRUISE	KH21-234			
STATION	47			
MULTICORE	MC1			
TIME and DATE	Saturday 10.07.2021, finished: 22:15:04 UTC			
LONGITUDE (N)	79.59700778			
LATITUDE (E)	7.726467933			
WATER DEPTH (m)	769			
Cores	Visual sediment description	Core length	Project	Notes
A	Dark brown surface sediment. Transition to grey color at 5 cm downcore. Fluffy and turbid surface with white flecks. Worm tubes, very porous, signs of bioturbation. Uneven color transition	33-34	AGENSI	Surface covered with rocks and gravel
B	Dark brown surface sediment. Transition to grey color at 3-6 cm. Very porous, light sediment. Very uneven surface. Many animals including brittle star and deep water coral (?).	34	AGENSI	Surface covered with rocks and gravel. Removed one huge rock that took up the entire area of the multicore.
C	More even surface but very porous. Some rocks visible. Transition from dark brown to grey at 5-6 cm downcore. Small rocks and white flecks at surface.	34-35	AGENSI	Archive
D	Very unstable, uneven surface. Porous. White flecks and rocks in dark brown surface sediments. Transition to grey color at 5-6 cm downcore. No visible animals.	30-34	NEEDED	



RESEARCHER(S) Stig Monsen
Katja Häkli
Tristan Cordier
Jessica Louise Ray

Multicorer Logs per station				
CRUISE	KH21-234			
STATION	47			
MULTICORE	MC2			
TIME and DATE	Saturday 10.07.2021, finished: 23:09:33 UTC			
LONGITUDE (N)	79.59694101			
LATITUDE (E)	7.72787915			
WATER DEPTH (m)	769			
Cores	Visual sediment description	Core length	Project	Notes
A	Dark brown sediment, gravel at surface. Transition from grey to brown at 5 cm downcore. Obvious disturbances in the downcore, probably from rocks, less likely from bioturbation. Some rocks and creatures at surface. White flecks on surface. Relatively even surface. Huge rock with coral.	35 cm	NEEDED	Removed large rocks and some gravel before sampling.
B	Same as A but without huge rock. Even surface. Soft-bodied pink creature on surface (nudibranch?).	35 cm	NEEDED	Removed large rocks and some gravel before sampling.
C	Same as A but without a huge rock.	34 cm	NEEDED	Removed large rocks and some gravel before sampling.
D	Same as A but without a huge rock.	33-34 cm	NEEDED	Removed large rocks and some gravel before sampling.



RESEARCHER(S) Stig Monsen
Katja Häkli
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Jessica Louise Ray

Multicorer Logs per station

CRUISE	KH21-234
STATION	48
MULTICORE	MC1
TIME and DATE	Saturday 10.07.2021, finished: 02:11:32 UTC
LONGITUDE (N)	79.50024378
LATITUDE (E)	8.7985735
WATER DEPTH (m)	190



RESEARCHER(S) Dag Inge Blindheim
Agnes Weiner
Danielle Grant
Jon Thomassen Hestetun

Cores	Visual sediment description	Core length	Project	Notes
A	same as core D, gravel down to 5 cm, uneven surface, lots of animals (coral?!) big shrimp	20	AGENSI	foto labelled as core D!!
B	same as core D, brittle stars, 2 white ball-shaped organisms	21.5	AGENSI	
C	same as core D, very uneven surface with lots of burrows and animals	23	AGENSI	no archive from this station, area is already really well studied
D	very gravelly surface with brown and red pebbles and lots of animals (brittle star, spider), sandy brown sediment between 3-6 cm, below that fine grey sediment	20	NEEDED	foto labelled as core A!!

Multicorer Logs per station

CRUISE	KH21-234
STATION	49
MULTICORE	MC1
TIME and DATE	Saturday 10.07.2021, finished: 04:02:34 UTC
LONGITUDE (N)	79.50024378
LATITUDE (E)	8.7985735
WATER DEPTH (m)	190



RESEARCHER(S) Dag Inge Blindheim
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Danielle Grant
Jon Thomassen Hestetun

Cores	Visual sediment description	Core length (cm)	Project	Notes
A	gravely surface with many rocks, followed by deep brown sediment, sandy layer from 0-2.5 cm	9.8	AGENSI	large rock at surface, and several smaller ones, not much sediment to sample
B	top very gravely with large rocks and many animals, below that a bit sandy, then dark brown sediment with black streaks	9.5	AGENSI	
C	empty			
D	empty			

Multicorer Logs per station

CRUISE	KH21-234
STATION	50
MULTICORE	MC1
TIME and DATE	Saturday 10.07.2021, finished: 07:20:25 UTC
LONGITUDE (N)	78.99522283
LATITUDE (E)	9.772434308
WATER DEPTH (m)	222



RESEARCHER(S) Dag Inge Blindheim
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Danielle Grant
Jon Thomassen Hestetun

Cores	Visual sediment description	Core length	Project	Notes
A	very gravely/rocky surface, lots of rocks on top and animals, below upper 2 cm brown sediment with black streaks, animal burrowing down to 8 cm	19	AGENSI	
B	same as Core A, lots of animals and rocks on top, water drained through core a bit	20	AGENSI	
C	more soft surface, but also big rocks, upper 6 cm of sediment brown, be	21	AGENSI	Archive
D	softer surface with lots of tubes, some rocks, fluffy stuff, brown sediment down to 8 cm, below grey with black streaks	20.5	AGENSI	

Multicorer Logs per station

CRUISE	KH21-234
STATION	51
MULTICORE	MC1
TIME and DATE	Saturday, 10.07.2021, finished: 15:21:41 UTC
LONGITUDE (N)	78.89004867
LATITUDE (E)	12.51358874
WATER DEPTH (m)	65



RESEARCHER(S) Dag Inge Blindheim, Stig Monse
Tristan Cordier
Danielle Grant
Jon Thomassen Hestetun

Cores	Visual sediment description	Core length (cm)	Project	Notes
A	Disturbed water column, overwater very murky and red. Sediment is 'runny' and red brown all the way through	13	AGENSI	Some drainage. Let core settle for approx 45 min before subsampling
B	Same as A core	5,8	AGENSI	Some drainage
C	emptied during collecton			
D	emptied during collecton			

Multicorer Logs per station

CRUISE	KH21-234
STATION	52
MULTICORE	MC1
TIME and DATE	Saturday 10.07.2021, finished: 16:38:04 UTC
LONGITUDE (N)	78.91998993
LATITUDE (E)	12.24051264
WATER DEPTH (m)	112



RESEARCHER(S) Dag Inge Blindheim, Stig Monse
Tristan Cordier
Danielle Grant
Jon Thomassen Hestetun

Cores	Visual sediment description	Core length (cm)	Project	Notes
A	Disturbed water column. Murky brown sediment with darker spots throughout	42	AGENSI	
B	Disturbed water column. Core slid in core liner. Murky brown sediment with darker spots throughout.	23	AGENSI	
C	Disturbed water column. Little sediment. Core slid in core liner. Will check but might be too disturbed for sampling. Murky brown.	< 15	AGENSI	Liner taped at sediment surface so unable to measure accurately and visually assess. Significant drainage and sedimen tracks on inside of core liner
D	emptied during collection			

Gravity Core Log



CRUISE	KH21-234	
STATION	01	
GRAVITY CORE	1	
START TIME + DATE (UTC)	01/07/2021	10:06:51
LONGITUDE (N)	9.849026025	
LATITUDE (E)	80.04725749	
WATER DEPTH (m)	505	

Core for DNA

RESEARCHER(S)
Kristine
Allegra

Section from top	Length (cm)	Top section depth (cm)	Bottom section depth (cm)	Lithology at section top	Note
01	60	0	60	grey clay	Sample taken at bottom
02	150	60	210	grey clay	Sample taken at bottom
03	150	210	360	grey clay	Sample taken at bottom

Gravity Core Log



RESEARCHER(S)
Kristine
Simon

CRUISE	KH21-234	
STATION	04	
GRAVITY CORE	1	
START TIME + DATE (UTC)	02/07/2021	01:15:13
LONGITUDE (N)	16.30814828	
LATITUDE (E)	80.3529409	
WATER DEPTH (m)	393	

Core for DNA

Section from top	Length (cm)	Top section depth (cm)	Bottom section depth (cm)	Lithology at section top	Note
01	125	0	125	grey clay	Sample taken at bottom
02	125	125	250	grey clay	Sample taken at bottom
03	125	250	375	grey clay	Sample taken at bottom
04	125	375	500	grey clay	Sample taken at bottom

Gravity Core Log



CRUISE	KH21-234	
STATION	04	
GRAVITY CORE	2	
START TIME + DATE (UTC)	02/07/2021	02:25:36
LONGITUDE (N)	16.30754556	
LATITUDE (E)	80.35305455	
WATER DEPTH (m)	394	

Core for splitting in ship

RESEARCHER(S)
Kristine
Simon
Danielle

Section from top	Length (cm)	Top section depth (cm)	Bottom section depth (cm)	Lithology at section top	Note
01	148	0	148	grey clay	
02	150	148	298	grey clay	
03	150	298	448	grey clay	

Gravity Core Log



CRUISE	KH21-234	
STATION	06	
GRAVITY CORE	1	
START TIME + DATE (UTC)	02/07/2021	15:09:54
LONGITUDE (N)	19.20381938	
LATITUDE (E)	80.45318267	
WATER DEPTH (m)	217	

Not for DNA

RESEARCHER(S)
Kristine
Simon

Section from top	Length (cm)	Top section depth (cm)	Bottom section depth (cm)	Lithology at section top	Note
01	113	0	113	grey clay	Bottom sampled
02	120	113	233	grey clay	Bottom sampled - mollusk shell in the sample
03	120	233	353	grey clay	Bottom sampled
04	120	353	473	grey clay	Bottom sampled

Gravity Core Log

CRUISE	KH21-234	
STATION	06	
GRAVITY CORE	2	
START TIME + DATE (UTC)	02/07/2021	16:30:40
LONGITUDE (N)	19.20694013	
LATITUDE (E)	80.45318839	
WATER DEPTH (m)	217.5	

Core for DNA



RESEARCHER(S)
Kristine
Simon

Section from top	Length (cm)	Top section depth (cm)	Bottom section depth (cm)	Lithology at section top	Note
01	123	0	123	grey clay	
02	125	123	248	grey clay	
03	125	248	373	grey clay	
04	125	373	498	grey clay	

Gravity Core Log



CRUISE	KH21-234	
STATION	14	
GRAVITY CORE	1	
START TIME + DATE (UTC)	04/07/2021	00:23:13
LONGITUDE (N)	17.26961158	
LATITUDE (E)	80.95023811	
WATER DEPTH (m)	537	

Core for DNA

RESEARCHER(S)
Allegra
Stig

Section from top	Length (cm)	Top section depth (cm)	Bottom section depth (cm)	Lithology at section top	Note
01	105	0	105	silty clay	Sample taken at bottom
02	105	105	210	silty clay	Sample taken at bottom
03	105	210	315	silty clay	Sample taken at bottom

Gravity Core Log

CRUISE	KH21-234	
STATION	17	
GRAVITY CORE	1	
START TIME + DATE (UTC)	04/07/2021	14:48:02
LONGITUDE (N)	14.56866299	
LATITUDE (E)	80.86986553	
WATER DEPTH (m)	1164	

Core for DNA



RESEARCHER(S)
Kristine
Simon

Section from top	Length (cm)	Top section depth (cm)	Bottom section depth (cm)	Lithology at section top	Note
01	94	0	94	grey clay	Sample taken at bottom
02	150	94	244	grey clay	Sample taken at bottom
03	150	244	394	grey clay	Sample taken at bottom

Gravity Core Log

CRUISE	KH21-234	
STATION	19	
GRAVITY CORE	1	
START TIME + DATE (UTC)	05/07/2021	05:15:26
LONGITUDE (N)	81.17809326	
LATITUDE (E)	12.94249523	
WATER DEPTH (m)	2195	

Core for DNA



RESEARCHER(S)
Kristine
Simon

Section from top	Length (cm)	Top section depth (cm)	Bottom section depth (cm)	Lithology at section top	Note
01	100	0	100	grey clay	
02	101	100	201	grey clay	

Gravity Core Log

CRUISE	KH21-234		
STATION	19		
GRAVITY CORE	2		
START TIME + DATE (UTC)	05/07/2021		05:15:26
LONGITUDE (N)	81.16965665		
LATITUDE (E)	12.98464158		
WATER DEPTH (m)	2192		



RESEARCHER(S)
Kristine
Simon

Core not for DNA

Section from top	Length (cm)	Top section depth (cm)	Bottom section depth (cm)	Lithology at section top	Note
01	76	0	76	grey clay	Section bottom sampled
02	100	76	176	grey clay	Section bottom sampled

Gravity Core Log



CRUISE	KH21-234	
STATION	25	
GRAVITY CORE	1	
START TIME + DATE (UTC)	06/07/2021	06:28:37
LONGITUDE (N)	81.75923906	
LATITUDE (E)	7.791261533	
WATER DEPTH (m)	821	

Core for DNA

RESEARCHER(S)
Kristine
Simon

Section from top	Length (cm)	Top section depth (cm)	Bottom section depth (cm)	Lithology at section top	Note
01	5	0	5	brown clay	Section bottom sampled (This core was precut and therefore the top section unfortunately became very small and impossible to)
02	106	5	111	brown clay	Section bottom sampled
03	149.5	111	260,5	grey/brown clay	Section bottom sampled
04	150	260,5	410,5	grey/brown clay	Section bottom sampled

Gravity Core Log



CRUISE	KH21-234	
STATION	34	
GRAVITY CORE	1	
START TIME + DATE (UTC)	07/07/2021	14:42:29
LONGITUDE (N)	81.21992801	
LATITUDE (E)	2.371095542	
WATER DEPTH (m)	1011	

Core for DNA

RESEARCHER(S)
Kristine
Simon

Section from top	Length (cm)	Top section depth (cm)	Bottom section depth (cm)	Lithology at section top	Note
01	76	0	76	grey/ brown clay	Section bottom sampled
02	130	76	206	grey/brown clay	Section bottom sampled
03	130	206	336	grey/brown clay	Section bottom sampled
04	130	336	466	grey/brown clay	Section bottom sampled

Gravity Core Log



CRUISE	KH21-234	
STATION	35	
GRAVITY CORE	1	
START TIME + DATE (UTC)	07/07/2021	20:41:47
LONGITUDE (N)	81.00923919	
LATITUDE (E)	2.456109492	
WATER DEPTH (m)	1023	

Core for DNA

RESEARCHER(S)
Allegra
Stig

Section from top	Length (cm)	Top section depth (cm)	Bottom section depth (cm)	Lithology at section top	Note
01	93,5	0	93,5	grey/ brown clay	Section bottom sampled
02	150	93,5	243,5	grey/brown clay	Section bottom sampled
03	150	243,5	393,5	grey/brown clay	Section bottom sampled
04					

Gravity Core Log

CRUISE	KH21-234	
STATION	43	
GRAVITY CORE	1	
START TIME + DATE (UTC)	09/07/2021	06:12:09
LONGITUDE (N)	7.5497986	
LATITUDE (E)	80.38985141	
WATER DEPTH (m)	686	

Core for DNA



RESEARCHER(S)
Kristine
Simon

Section from top	Length (cm)	Top section depth (cm)	Bottom section depth (cm)	Lithology at section top	Note
01	112	0	112	grey/ brown clay	Section bottom sampled
02	150	112	262	grey/brown clay	Section bottom sampled
03	150	262	412	grey/brown clay	Section bottom sampled

Gravity Core Log



CRUISE	KH21-234	
STATION	47	
GRAVITY CORE	1	
START TIME + DATE (UTC)	09/07/2021	23:30:30
LONGITUDE (N)	7.729119117	
LATITUDE (E)	79.59688268	
WATER DEPTH (m)	769	

Core for DNA

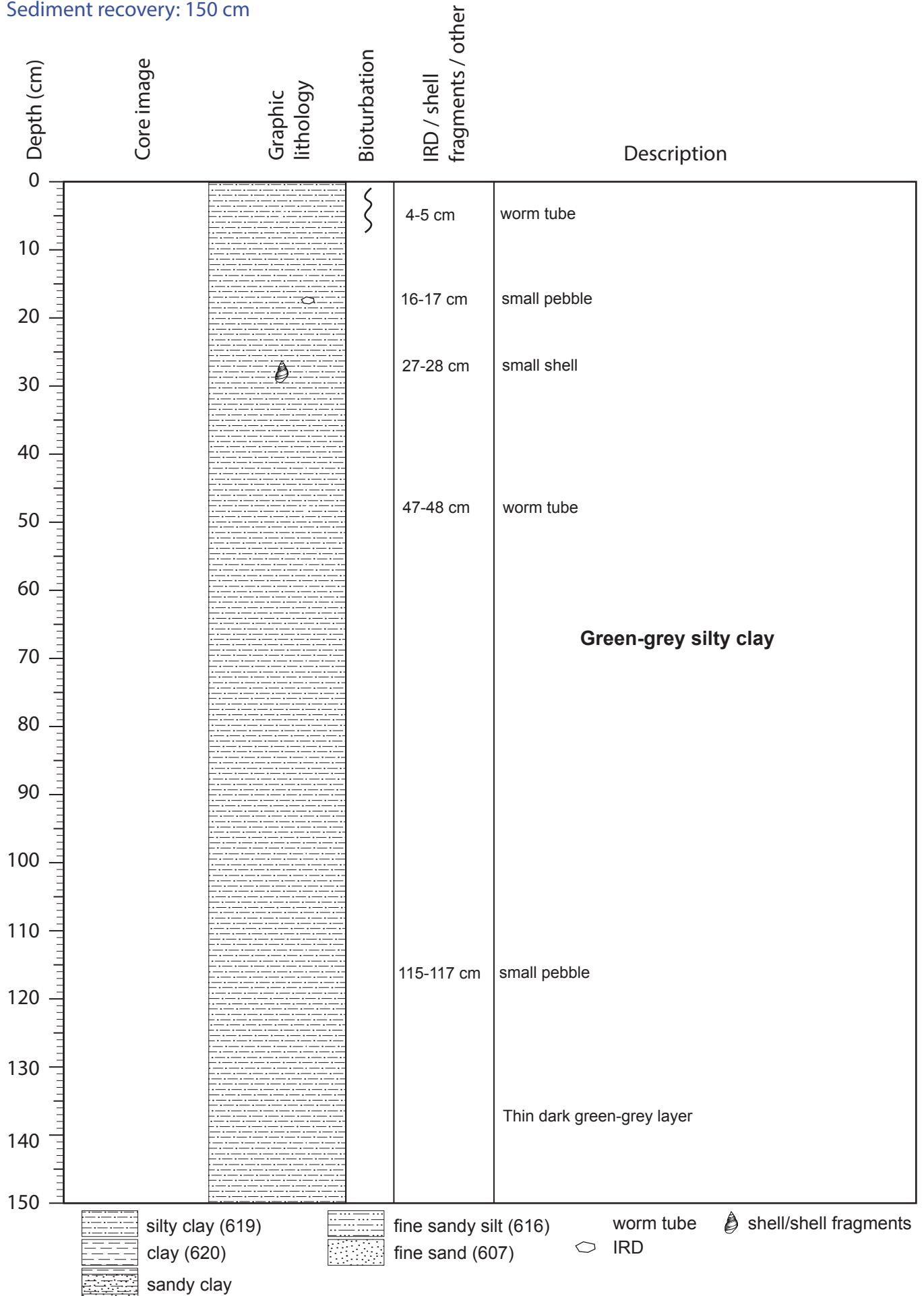
RESEARCHER(S)
Kristine
Simon

Section from top	Length (cm)	Top section depth (cm)	Bottom section depth (cm)	Lithology at section top	Note
01	135	0	135	grey sticky clay	Section bottom sampled
02	135	135	270	grey sticky clay	Section bottom sampled
03	135	270	405	grey sticky clay	Section bottom sampled

Cruise+Station KH21-234-04
 Core GC2 | Section 1W

Date: 03.07.2021
 Person: Allegra
 Project: on board KH

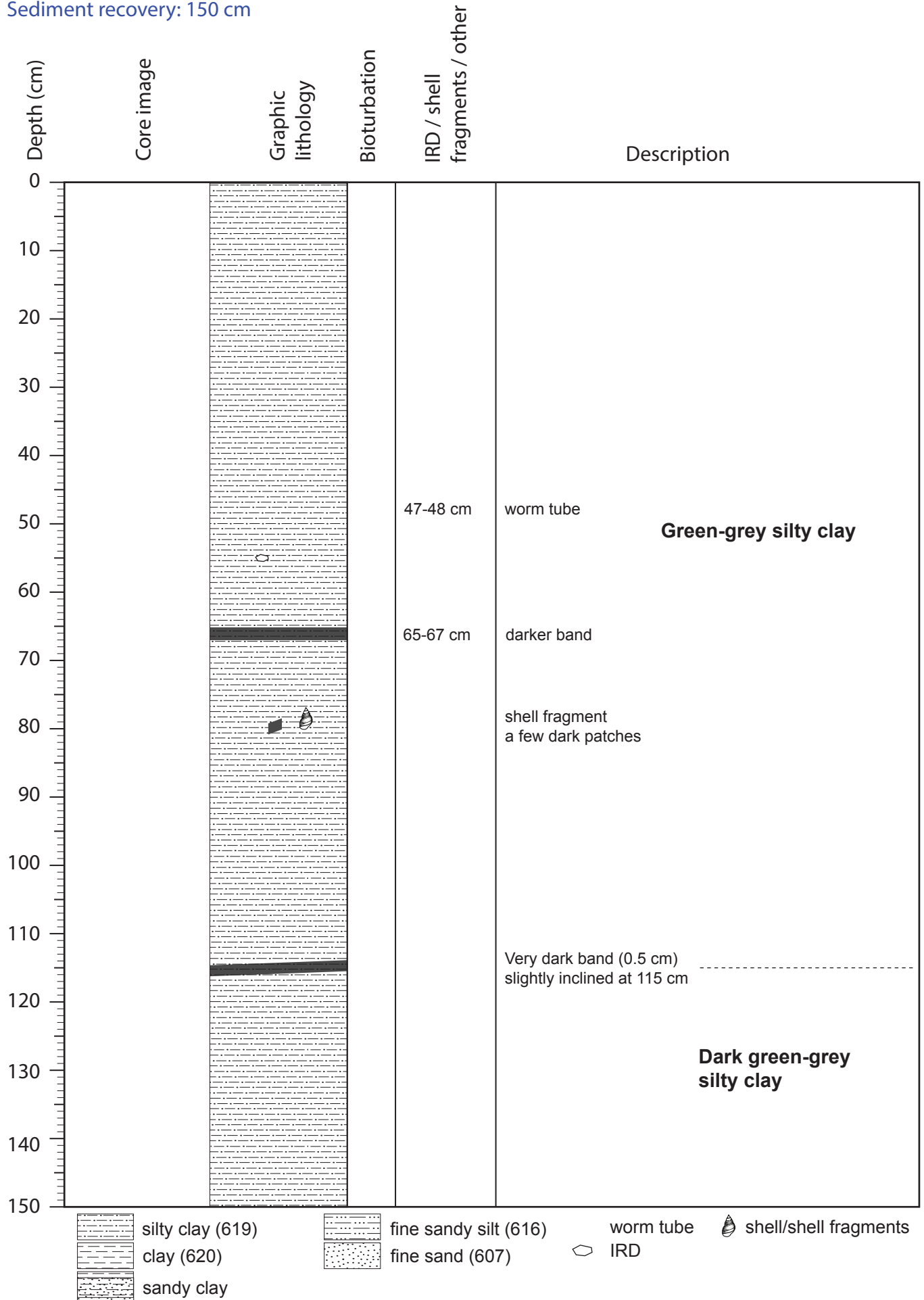
Sediment recovery: 150 cm



Cruise+Station KH21-234-04
 Core GC2 | Section 2W

Date: 04.07.2021
 Person: Allegra
 Project: on board KH

Sediment recovery: 150 cm

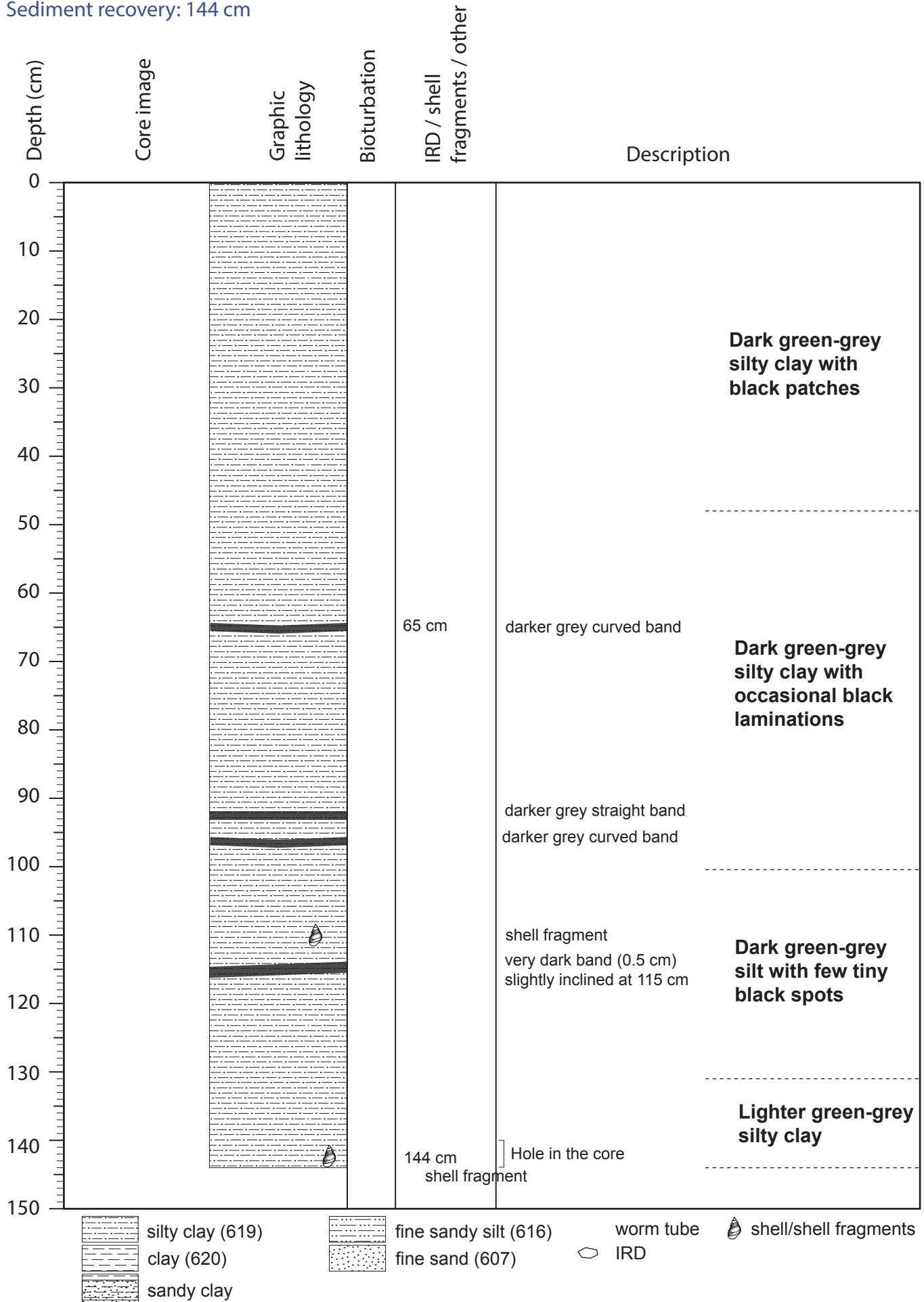


- [Silty clay pattern] silty clay (619)
- [Clay pattern] clay (620)
- [Sandy clay pattern] sandy clay
- [Fine sandy silt pattern] fine sandy silt (616)
- [Fine sand pattern] fine sand (607)
- [Worm tube symbol] worm tube
- [Shell symbol] shell/shell fragments
- [IRD symbol] IRD

Cruise+Station KH21-234-04
 Core GC2 | Section 3W

Date: 06.07.2021
 Person: Allegra
 Project: on board KH

Sediment recovery: 144 cm

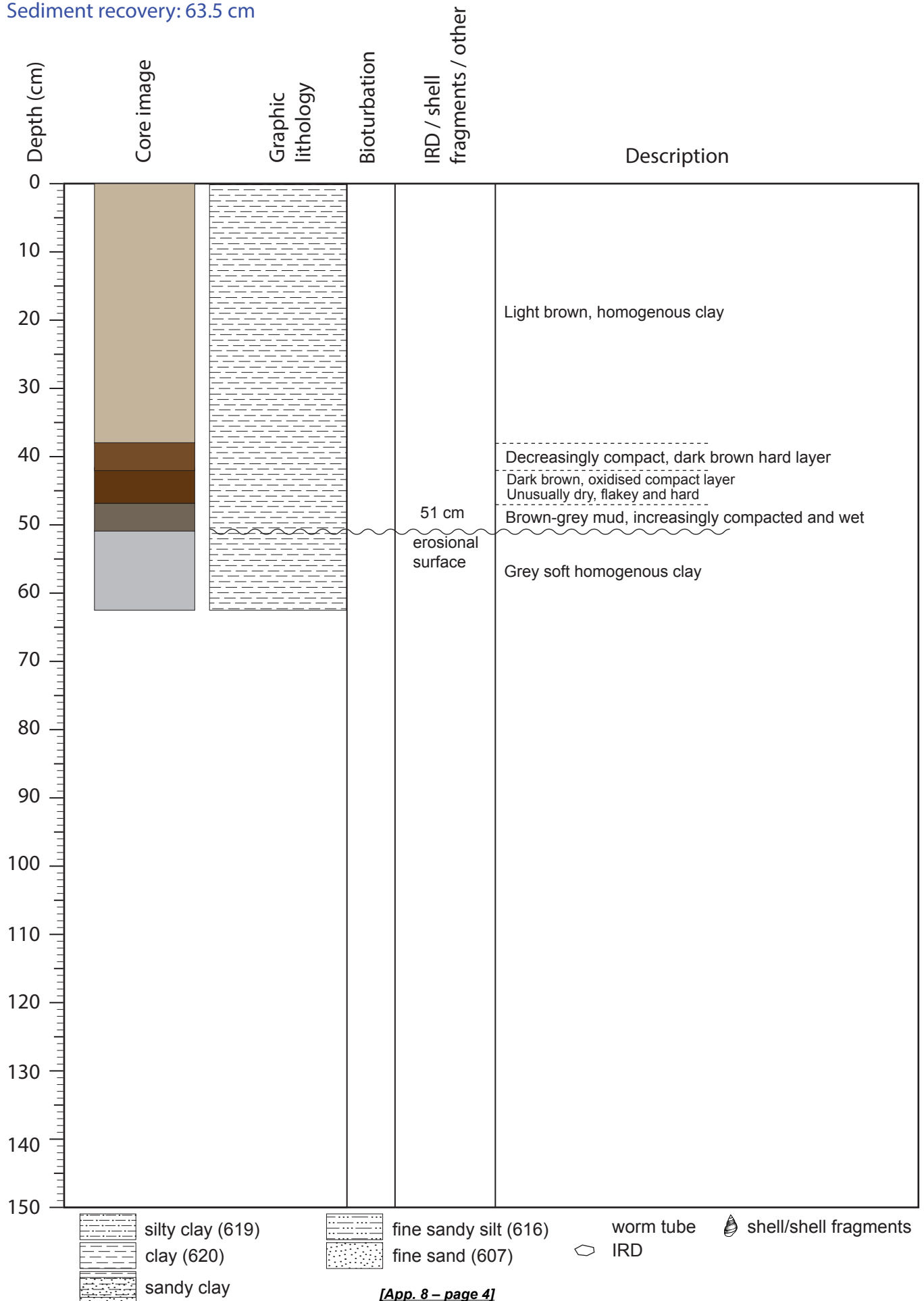


- [Pattern] silty clay (619)
- [Pattern] clay (620)
- [Pattern] sandy clay
- [Pattern] fine sandy silt (616)
- [Pattern] fine sand (607)
- [Symbol] worm tube
- [Symbol] IRD
- [Symbol] shell/shell fragments

Cruise+Station KH21-234-19
 Core GC2 | Section 1W

Date: .07.2021
 Person: Kristine, Simon
 Project: on board KH

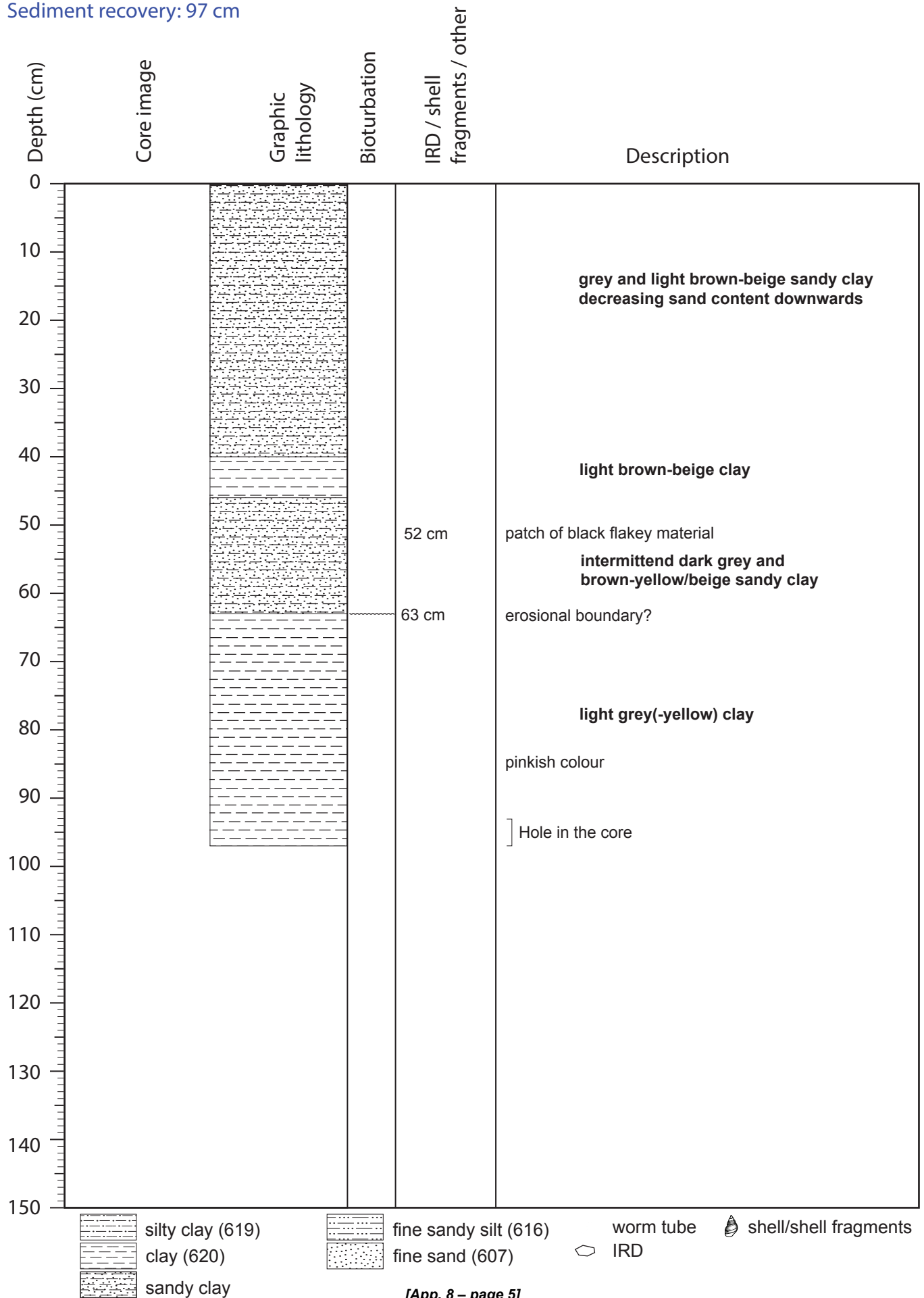
Sediment recovery: 63.5 cm



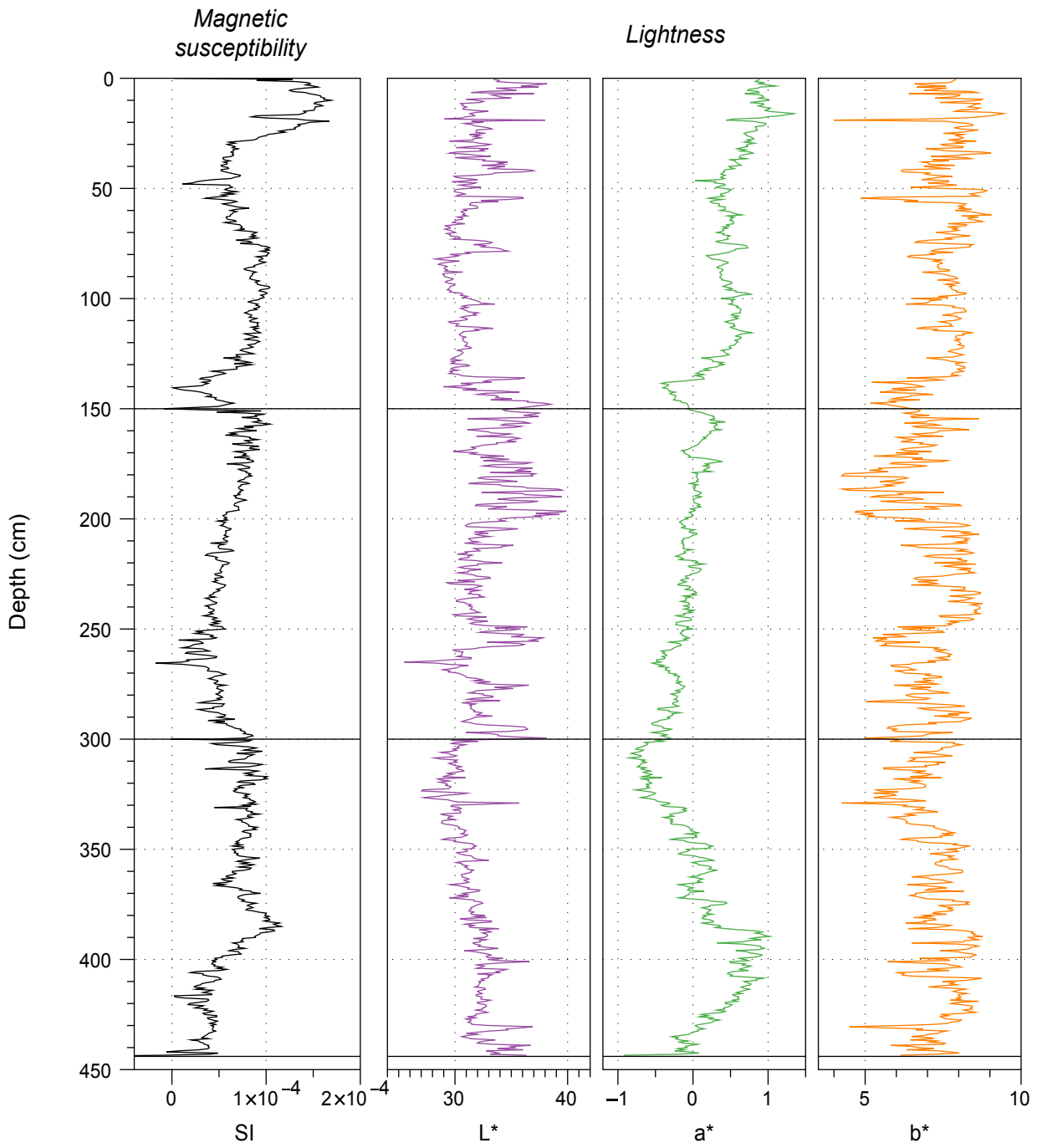
Cruise+Station KH21-234-19
 Core GC2 | Section 2W

Date: .07.2021
 Person: Kristine, Simon
 Project: on board KH

Sediment recovery: 97 cm



KH21-234-04-GC2



KH21-234-19-GC2

