NorthGreen2017

– a marine research expedition to NE Greenland onboard ‘R/V *Dana*’

September 11 - October 1, 2017

Cruise report

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Acknowledgements

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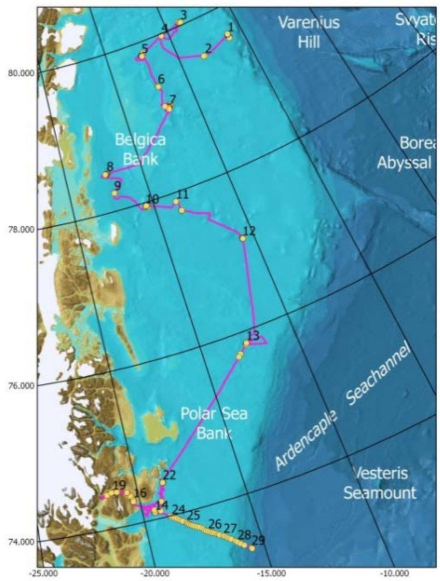

Cruise track for the NorthGreen2017 expedition.

R/V Dana *in Young Sound, NE Greenland. (Photo: Claus Persson, Captain of Dana, DTU-AQUA).*

Logo design by Anders Møller Mathiasen

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Introduction and Aim

From September 11 – October 1, 2017, the research vessel '*Dana*' (Hirtshals, Denmark) served as a platform for a 5576 km long Danish-Greenlandic-Canadian-Italian-Norwegian multi-disciplinary research expedition off Northeast Greenland. The expedition combined research in oceanography/hydrography, bioscience and geoscience. In total, 20 scientists and students from the participating countries partook in the cruise, in addition to 18 crew members. The cruise was funded by the Danish Centre for Marine Research, with co-funding from the Natural Science and Engineering Research Council of Canada.

Cruise objectives

The aim of the expedition was to study past and current changes in Arctic ice shelves, ocean circulation, sea-ice extent, sediment transport and freshwater discharge from the Greenland ice cap as well as the impact on biota, pelagic/benthic ecosystems and microbial processes. For this purpose a range of different data and samples were collected, in particular CTD data, turbulence measurements, water samples, sea ice samples, phyto- and zoo-plankton samples as well as sea-floor sediments and sediment cores from this hitherto little explored region of NE Greenland. The NorthGreen2017 expedition thus provided a unique set of data and material for further study from the north-eastern coastal regions of Greenland.

Scientific rationale

Northeast Greenland is a key region for studying past sea-ice variability and glacier melt-off and their impact on the environment and biota. Nevertheless, the Northeast Greenland shelf has hitherto been very little explored due to its remote location and the normally heavy sea-ice conditions. The present expedition and the exceptionally low late September sea-ice cover this year made it possible to reach areas of the NE Greenland shelf that had hitherto been only little studied, to collect data and material that will help resolve a number of scientific questions in a wide range of subjects, all related to sea ice and climate conditions.

Greenland shelf hydrography. A number of studies exist on the modern water mass distribution in the Fram Strait[1,2]. However, very little is known about the hydrography of the Northeast Greenland shelf itself, with only few studies providing information, mostly on the ice-free regions[3]. Deployment of CTD casts, turbulence measurements and collection of water samples from several depths through the water column in transects across the Greenland shelf as well as deployment of underway CTD (uCTD) for near-continuous measurements of water properties during the expedition, made it possible to identify and separate the various water masses found on the NE Greenland shelf. This study is essential for the understanding and interpretation of all other analyses carried out on material from this cruise.

Palaeoclimate/oceanography, sea-ice cover, glacier melting. In wide areas of the Arctic, rapid warming affects both oceanic and atmospheric conditions. Sea ice has been strongly diminishing for the last >30 years and Greenland glacier melting has increased[4], both phenomena surpassing expectations based on temperature alone[5]. Yet, little is known about the natural variability of sea-ice cover and glacier melting rates at multi-decadal to millennial timescales, and there is a lack of a preindustrial "baseline", although the few available reconstructions of past Arctic sea ice indicate that the recent sea-ice extent is smaller than centennial to millennial averages[6-8]. Hence, a better understanding of the mechanisms that govern sea-ice variability and glacier melting, as well as the potential role of increasing ocean temperatures on glacier melting[9,10] is necessary for improving forecasting. Also, we have little information on the stabilising effect of sea ice on North Greenland glacier ice mélange and ice shelves[11]. Changes in albedo linked to reduced sea-ice cover may cause positive feed-back processes and warming of the Arctic Ocean[12], while increased glacier melting may cause a further freshening of the Arctic ocean surface waters, also affecting the salinity of polar water exported to the North Atlantic[13]. Both mechanisms may thus potentially reduce deep-water formation and the global ocean circulation.

Sea floor land forms, glacier extent and sediment deposition. The reconstruction of glacial advances and retreat on the East Greenland shelf/margin and their links to past climatic fluctuations need to be further constrained by glacial geological mapping[14]. The limited investigations of shelf regions of NE Greenland means that seafloor morphological and Quaternary sediment records, despite some recent progress[15], are scarce due to the lack of acoustic data and cores. This expedition has provided high resolution sub-bottom profiler data that, together with sediment cores also collected during the cruise as well as existing multibeam data[15], informs on geometry, dynamics and chronology of the extension and retreat of ice sheets in this key area and thereby greatly increase our knowledge on the palaeoglaciology of the NE Greenland margin.

Phyto- and Zooplankton. The biogeography of marine waters along much of the Greenland margins is relatively well studied thanks to international efforts[16,17], but data are still limited on the modern living conditions of several of the organisms, such as copepods, planktic foraminifera, dinoflagellates, ciliates, and diatoms, that make out an important part of the biodiversity and are important in palaeo records. Also, the signal of these organisms recorded in the sediment may not always represent the actual conditions in the surface waters due to current transport. Combining data from plankton netting (planktic foraminifera, dinoflagellates, and copepods), CTD water sampling (diatoms, ciliates, dinoflagellates) and surface sediments from Haps/Rumohr cores collected during the cruise, we will be able to compare living communities with the assemblages found at the sea floor. This will not only provide additional information on the living phyto- and zooplankton communities, but will also inform on the sedimentation and preservation potential of plankton.

Geomicrobiology. Northeast Greenland waters are unique in the Atlantic system because the bottom waters are permanently near the freezing point of seawater (ca -1.5°C), and because the currents that enter the area all come from similarly cold regions. This makes the region ideal for the study of the geobiology of cold-adapted benthic prokaryotes without the interference of mesophiles that might prosper in warm seasons or be brought by currents from elsewhere. Sediments collected in such cold regions during the expedition, will thus make it possible to compare microbial communities from such cold sites with those of sites located in areas swept by warmer bottom currents.

Research objectives

The main scientific objectives of the cruise and the post-cruise research are:

1. To characterize present sea and glacial ice, ocean circulation, water mass physical and optical properties and ocean-atmosphere exchanges through hydrographical investigations.
2. To document change in climate and ocean circulation over the last ~100,000 years using a multiproxy approach based on a comprehensive set of marine sediment archives.
3. To reconstruct the history of growth and decay of ice sheets on the NE Greenland continental shelves as well as glacier melting rates through the study of sediment cores, and to document modern glacial sedimentary processes on the NE Greenland shelf.
4. To document morphological and lithological record of glacial and sedimentary processes on the sea floor via high-resolution acoustic measurements.
5. To describe and understand the functioning of the marine ecosystems in sea-ice covered environments and determine the impact of current and near-future changes in the Arctic environment on marine ecosystems and biogeochemical fluxes using plankton net, sea-floor sediments, water samples and hydrographical data.

6. To describe and compare microbial communities using both genetic diversity and traditional taxonomical tools, with those from previously studied locations of the Canadian Arctic in relation to environmental variables.
7. To test if the high rates of microbial activity in the cold seabed is explained by specially adapted microbes or by high numbers.

Practical Information

The three week long NorthGreen2017 expedition was carried out as Leg 2 of a six week cruise of RV *Dana* to NE Greenland. Leg 1 was carried out in the context of a monitoring project by the Government of Greenland. The combination of the two cruise legs, made it possible to save significant transit time for both expeditions.

Cruise track

The scientific party of the NorthGreen2017 expedition embarked in Longyearbyen, Svalbard, Norway and disembarked in Hirtshals, Denmark (home port of RV *Dana*). The total track of the expedition covered 5576 km, thereof 2475 km as research and 3101 km in transit from Longyearbyen to Station 1 and from NE Greenland (St. 29) to Hirtshals. A map with cruise track and sampling sites is given Fig. 1 and detailed lists of samples are shown in Appendices 1-4.

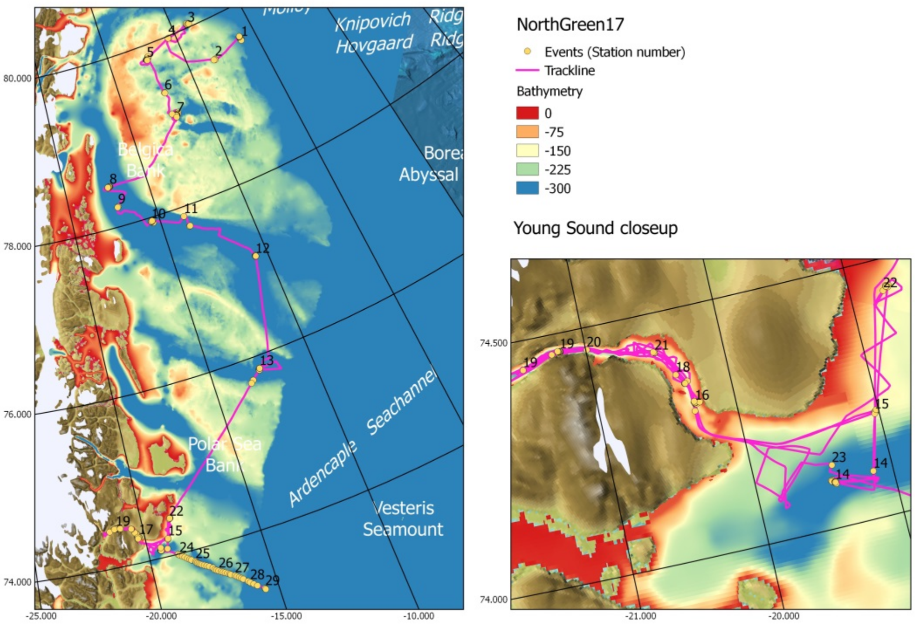

Fig. 1. Cruise track, excl. transits. The purple line shows the transits during which Innomar® shallow seismics, ADCP and echosound data were collected. Yellow dots show the location of stations for collection of CTD, water samples, plankton net and/or sediments. The bathymetrical map is based on GEBCO[18].

Due to strong winds, the stations originally planned on the abyssal plane, slope and outer shelf on the transit towards NE Greenland had to be cancelled, and we continued landward across the shelf in order to reach the calmer waters close to the sea ice. From then on, operations ran smoothly, although the location of sea ice heavily controlled the cruise track and the location of stations until ca. 76°N. Due to exceptionally low sea-ice conditions off NE Greenland during the time of the cruise (see below), it was possible to reach as far north as 80°N. Thus, the expedition spent the first days between 80 and 79 °N, after which the expedition gradually moved southwards, finally reaching the Young Sound region. However, gale-force winds and a weather forecast promising fairly strong storms in the Greenland-Norwegian Seas forced the expedition to depart one day early from the study area in order to circumvent the predicted low pressure area via a somewhat longer route towards Hirtshals. Consequently, the expedition arrived in Hirtshals almost one day earlier than planned.

A second parameter for choosing station locations was a detailed study of the known bathymetry[18,19], in order to increase the chances of finding thick Holocene and late Glacial sediment packages in depressions. Subbottom surveys (Innomar® seismic profiler) were among other used to identify the best possible coring sites within the chosen target areas.

Weather and sea-ice conditions

The cruise was planned for September due to the minimum sea-ice conditions normal for this month. In fact, record low sea-ice cover meant that it was possible to work in a larger area than expected, up to 80°N. Daily ice charts (Fig. 2) kept the expedition abreast of ice conditions, providing the information needed to plan the best possible route for the ship.

The late September timing, however, also meant that the risk of strong winds or even storms was fairly high. Despite relatively high wind speeds west of Svalbard, only 1.5 days of work time was lost to bad weather; 0.5 of these days was used to carry out a more extensive Innomar® and uCTD study of Young Sound. Consequently, only the last day of research time was lost due to weather, as *Dana* had to depart NE Greenland one day early due to an upcoming storm.

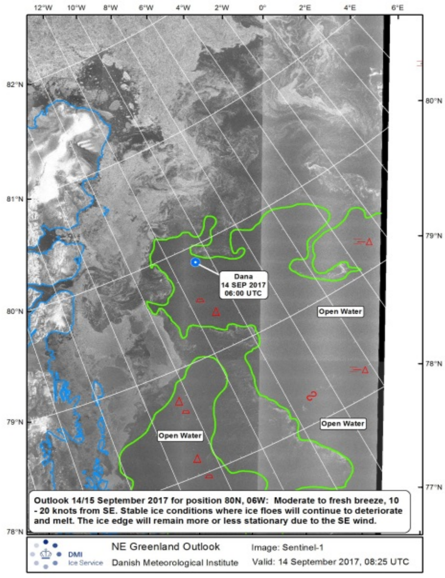

Fig. 2. Example of sea ice chart provided daily by the Danish Meteorological Institute. The green line shows the sea-ice extent on that given day. Source: Danish Meteorological Institute.

RV *Dana* and shipboard equipment

The RV *Dana* (Fig. 3) belongs to the National Institute of Aquatic Resources (DTU-Aqua), Denmark. The ship is 78.43 m long, 14.7 m wide and has a brute tonnage of 2545 GT and accommodates 38 persons (crew and scientists). *Dana* is equipped with a CTD (SBE19+, Seabird), an Innomar SES-2000 Deep Narrow-Beam Parametric Sub-Bottom Profiler system (on loan from GEUS) as well as a 50 µm multinet (four nets available for the cruise), a WP3 net and a Methot Isaac Kidd (MIK) net. In addition, members of the expedition also brought two nets of 20 µm mesh size for the multinet. An underway CTD (uCTD; provided by ClimateLab) was deployed in the Young Sound area and across the shelf, as conditions here were ice free. A micro-scale turbulence profiler (VMP-250) was applied at the CTD-stations (also provided by ClimateLab.

Fig.3. R/V Dana *in Young Sound, NE Greenland. Photo: Claus Persson, Captain of Dana, DTU-AQUA.*

For sediment sampling, a 6-m Gravity corer and a Rumohr lot corer from the Center for Geomicrobiology, AU, were deployed using the ship’s main winch. A backup Gravity coring system from GEUS was also brought on the expedition, but it was never used. A Box corer from GEUS was deployed at the first station, but due to equipment problems, a Haps corer system from DTU-AQUA was deployed at all following sediment stations. Due to the smaller size of the Haps corer; 3 Haps deployments equalled one box corer in surface sediment retrieval.

Daily work schedule

The expedition was carried out as a 24-hour operation. After the first couple of stations the best procedures for use of equipment and collection of data was established, and it became possible to follow a semi-standard work programme for most of the remaining cruise. Except for the last research day, which was solely allocated to establishing a CTD transect across the Greenland shelf (from Young Sound to the foot of the slope), one full station and one or more special stations were carried out each day.

Full station: When possible, stations were sampled with the following program: 2 CTD/rosette, 1 turbulence profile (VMP-250), 2 casts of 50-µm multinets, 1 cast of 20-µm multinet, 3-7 Rumohr cores (also called Rumohr Lot), 1 Gravity core, 3-5 Haps cores. The remainder of the time was allocated Innomar® seismic investigations as well as a MIK net and CTD programme around midnight.

Special station: If the Innomar® seismic survey had identified more than one potentially good coring site, a second site was visited for a sediment coring (2-3 Rumohr cores, 1 Gravity core), if time permitted. In addition, some stations were purely allocated to CTD and water collection.

Typical daily work programme:

04.00 Ship in vicinity of pre-selected station.
Shallow seismic site survey in the area selected for next station.
08.00 Final station location handed to Bridge; selection carried out based on Innomar® investigations.
08.15 At station. Start water and plankton programme:
CTD/rosette (collection of water samples)
Turbulence measurements
CTD/rosette (collection of water samples close to the surface)
Multinet (50 µm) for collection of living copepods and other mesozooplankton
Multinet (50 µm) for collection of living planktonic foraminifera
Multinet (20 µm) for collection of living phytoplankton
12.00 Start sediment programme:
3-7 Rumohr lot (3 for palaeoclimate, 2 for geomicrobiology, 2 for eDNA studies).
1 Gravity core
3-5 Haps cores (for collection of surface samples for a range of analyses).
16.30 Proceed to extra site (special station), if such a site had been identified:
2-3 Rumohr lot
1 Gravity core
19.00-04.00 End of operations; Start Innomar® and transit to next planned station.
19.30 Science talk/seminar by 1-2 expedition participants.
24.00-02.00 CTD and MIK net (during long transits the MIK net and CTD/water stations were omitted)

Expedition participants

Scientific party

The scientific party (Fig. 4) was divided into several work teams, each headed by a senior scientist with students and early-stage researchers rotating among the teams to gain maximum experience.

The shipboard scientific party consisted of twenty scientists and students:

Andersen, Jarl Regner	AU(Bio), Denmark	Responsible for birds and marine mammal monitoring
Andresen, Katrine J.	AU(Geo), Denmark	Responsible for Innomar® seismic programme (days)
Bendtsen, Jørgen	ClimateLab	Responsible for CTD and turbulence programme.
Brice, Camille	UQAM, Canada	MSc student
Ellegaard, Marianne	KU(Bio), Denmark	Co-responsible for eDNA programme
Eriksen, Lasse Nygaard	AU(Geo), DK	MSc student
Gariboldi, Karen	U. Pisa, Italy	Postdoc, responsible for surface sediment sampling
Le Duc, Cynthia	UQAM, Canada	MSc student
Mathiasen, Anders Møller	AU(Geo), DK	MSc student
Nielsen, Tove	GEUS	Responsible for Innomar® seismic programme (nights)
Ofstad, Siri	UiT, Norway	PhD student, responsible for planktic foraminiferal programme
Pearce, Christof	AU(Geo), Denmark	Responsible for sediment collection and treatment
Rasmussen, Tine L.	UiT, Norway	Responsible for preliminary site selection (night).
Ribeiro, Sofia I.	GEUS	Co-responsible for eDNA programme
Rysgaard, Søren	AU(ARC), Denmark	Responsible for water collection programme.
Røy, Hans	AU(Bio), Denmark	Responsible for sediment coring and geomicrobiology programme
Scholze, Caroline	AU(Bio), Denmark	PhD student; co-responsible for geomicrobiology programme
Schultz, Mads	AU & DTU, DK	MSc student; overall responsible for the plankton net programme
Seidenkrantz, Marit-Solveig	AU(Geo), Denmark	Chief scientist
Wangner, David Johannes	GEUS	PhD student

Fig. 4. The scientific party onboard RV Dana at 80°N. (Photo: Christian Petersen; edits: Christof Pearce). Back row, from left to right: Jørgen Bendtsen, Lasse Nygaard Eriksen, Anders Møller Mathiasen, Søren Rysgaard, Hans Røy. Middle row, from left to right: Mads Schultz, David Wangner, Katrine Juul Andresen, Tove Nielsen, Tine Rasmussen, Marianne Ellegaard, Marit-Solveig Seidenkrantz, Sofia Ribeiro, Jarl Regner Andersen. Front row, from left to right: Christof Pearce, Caroline Scholze, Cynthia Le Duc, Camille Brice, Karen Gariboldi, Siri Ofstad.

Dana Crew

Captain of Dana: Claus Persson, DTU-AQUA. *Dana Crew*: Anna Kvalsøe Andersen, Per Christensen, Lars Olen Dybager, Jacob Vangsgaard, Jan Conrad, Jesper Houggaard Hansen, Mikkel Hansen, Anton Juul Jensen, Maj-Brit Sick Jensen, Allan Lilleøre, Michael Markvart, Dan Mikkelsen, Eik Moen, Jette Mortensen, Christian Petersen, Søren Rasmussen, Jesper Thomsen.

Logistic and planning support

Logistic support was provided by: Egon Randa Frandsen (Arctic Research Centre, AU), Peter Hersom Caspersen (DTU-AQUA); Linda Stuhr Christensen (DTU-AQUA), Jesper B. Rasmussen (DTU-AQUA), Kirsten Rosendal (Geoscience, AU), Jarl Hald (Geoscience, AU), Per Trinhammer (Geoscience, AU), Charlotte Rasmussen (Geoscience, AU), John Boserup (GEUS) and Gry Hougaard Svendsen DTU-AQUA. Thank you to all.

Early planning stage consultancy was provided by Guillaume Massé (University of Laval, Canada), Patrick Lajeunesse, (U. Laval, Canada), Philippe Archambault (Université de Québec à Rimouski, Canada).

Additional project participants

Camilla S. Andresen (GEUS, Denmark), P. Archambault (UQAR, Canada), Anne de Vernal (UQAM, Canada), Hui Jiang (ECNU, China), Antoon Kuijpers (GEUS, Denmark), Patrick Lajeunesse (U. Laval, Canada), Guillaume Massé (U. Laval, CNRS, Canada), Caterina Morigi (U. Pisa, Italy), Anders Mosbech (Bioscience, AU), Eva Friis Møller (Bioscience, AU), Torkel Gissel Nielsen (DTU-Aqua, Denmark), Ralph Schneider (Kiel U., Germany), Marie-Alexandrine Sicre (L'Ocean, Paris, France), Kaarina Weckström (U. Helsinki, Finland).

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Natural Science and Engineering Research Council of Canada (grant to Anne de Vernal and co-applicants; 950,000 DKK).

Pre-cruise requirements

All cruise participants underwent a course in "safety-at-sea" (STWC 1.1 certificate) and a health check ("Den Blå Bog" or "the Danish Maritime Authority's Medical certificate for examination of seafarers") prior to the cruise. In addition, the entire ship-board party participated in a 3-hour course in first aid and fire management taught by Jesper B. Rasmussen (DTU-AQUA) in Longyearbyen, Svalbard.

Permits

Permits for this cruise and collection of data were received from the following organisations:

- Ministry of Nature and Environment, Government of Greenland (permit no. C-17-61; permit to enter the National Park).
- Ministry of Industry, Labour and Trade, Government of Greenland (permit no. C-17-61; permit for biological investigations)
- Mineral Licence and Safety Authority, Government of Greenland (permit no: VU-00125; permit for geological investigations).
- Export permit from Mineral Licence and Safety Authority, Government of Greenland (permit no: 129/2017; permit to collect and export sediments).
- Ministry of Foreign Affairs, Government of Denmark (permit to enter the 12 and 3 NM zones off NE Greenland.

Results

Analyses and collection of material and data were carried out at 29 different stations on the NE Greenland shelf from 80°N to 74°N.

Greenland shelf hydrography

by Jørgen Bendtsen and Søren Rysgaard

CTD and rosette water sampling

We used a rosette with 12 bottles to collect water (Fig. 5) at different depths in the water column to be sampled at 1 m, 5 m, 10 m, 20 m, deep chlorophyll maximum, 30 m, 50 m, 100 m, 200 m, 400 m and bottom. A CTD (Seabird 911 system) attached to the rosette measured conductivity, temperature, fluorescence and pressure, to characterize temperature, salinity and chlorophyll conditions at different depths and to identify different water masses. In addition, two oxygen sensors and a light meter were mounted on the rosette. Two CTD/rosette casts were launched at each station. The first collected water from all targeted depths (whenever water depth allowed), whereas the second one collected several bottles from surface water and the maximum chlorophyll water depth.

At every station, we collected the following water samples:

- 3 plastic bottles of 500 ml for micro-plastic analyses at 1 m, 30 m and 100 m.
- 22 vials of 50 ml for carbonate system analyses (dissolved inorganic carbon and total alkalinity) at all depths to which we added 50 µL of HgCl (5% solution).
- 4 plastic bottles of 100 ml for Mg/Ca analyses at 1 m, DCM, 200 m and 400 m to which we added 0,5 ml of HNO_3 (36% solution).
- 11 plastic bottles of 50 ml for nutrients analyses at all depths and frozen for later analysis (silicate, nitrate, phosphorous).
- 11 glass vials of 2 ml for ^{18}O:^{16}O and ^{2}H:^{1}H analyses.
- 3 plastic bottles of 10 L for DNA and microplankton analyses at 1 m, DCM, and 400 m.
- 3 amber bottles of 250 ml for microplankton assemblages at 1 m and DCM to which we added 2 ml of lugol.
- 5-6 plastic bottles of 1 L (whenever possible) for mesoplankton at 1 m, 30 m, DCM, 50 m, 100 m and 200 m.

Fig. 5. Water sampling from CTD rosette. Photo: Anders Møller Mathiasen.

Acoustic Doppler current profiler

A ship-mounted 75 Khz Acoustic doppler current profiler (RD instruments) continuously measured from station 5 (15 September) and until the end of the cruise (station 29). Some interruptions in the data sampling during the first days were necessary for testing for possible interference with some of the other acoustic measurements on board. However, no interference was found. The ADCP measures currents in the water column and will be applied in the analysis of transports of water masses along the shelf.

Fig. 6. Collection of ice for stable isotope and plankton analyses. Photo: Christof Pearce.

Sea ice, icebergs and rivers

Sea ice and icebergs were also sampled (Fig. 6) for analysis of ^{18}O:^{16}O and ^{2}H:^{1}H , nutrients and total alkalinity whenever possible. Small drifting ice pieces were collected with a net from the deck of DANA. Runoff from land was collected in a small creak below its frozen surface in Daneborg (Young Sound) for similar analysis.

Mooring deployment

A hydrographic mooring was deployed (Fig. 7) outside Young Sound to record the annual conditions of temperature, salinity and pressure. The moorings was deployed at GH10 (74°04.880'N, 19°08.855'W). The mooring is recording temperature, salinity and pressure at 25 m depth, 100 m and 200 m depth. The idea behind deploying the moorings is to resolve the seasonal and inter-annual variation in hydrographic conditions in the fjords and the Greenland Sea. At present data on the seasonal and annual variability in fjords connecting the Greenland Ice Sheet and the Greenland Sea is absent. The moorings will replace our moorings from last year and we hope to continue the records in this remote area.

Fig. 7. Tube mooring being deployed from Dana *during the NorthGreen2017 expedition. The tubes are collecting data from several water depth levels year round. The design allow for measuring hydrographical conditions in waters with sea ice and icebergs. The tube will slide below moving ice and rise again after its passage. Photo: Cynthia Le Duc).*

Turbulence measurements

Turbulence and micro-structure measurements (Fig. 8) were out at 15 stations by a VMP-250 (Rockland Science) profiler. The turbulence-profiler measures vertical shear, temperature and conductivity at a high sampling rate and in addition it has a regular CTD-sensor. The dissipation rate of turbulent kinetic energy can be calculated from the velocity shear and, thereby, the vertical turbulent fluxes of heat, nutrients, tracers and other dissolved substances can be determined. Microstructure of temperature and salinity provides an independent estimate of turbulence in the water column down to the centimeter scale. Turbulent vertical fluxes will be included in the water mass analysis and the general description of mixing processes in the East Greenland Current System.

Fig. 8. Deployment of VMP-250 turbulence profiler (Photo by Søren Rysgaard)

Underway CTD

We applied an Underway CTD (uCTD; Fig. 9) (Ocean Science) for high-resolution CTD-measurements. The uCTD was applied during three transects in Young Sound, where the instrument was measuring the upper 60 m of the water column. This gave a high spatial resolution of temperature and salinity changes across the pycnocline in the fjord. A high-resolution transect with combined CTD and UCTD-measurements was conducted from Young Sound and across the shelf to the slope. These hydrographic measurements will enable us to analyze mixing between near-coastal water masses and water further out on the shelf. Furthermore, they will be analyzed for calculating currents and transports on the shelf.

Fig. 9. Deployment of Underway CTD from the aft. Photo: Søren Rysgaard.

Mesozooplankton analyses

by Mads Schulz

MIK net

The Methot Isaac Kidd (MIK) net gathers information of the top 100 meters of water column by combining a nightly sampling of zooplankton, with a special focus on krill, with echo sound. The data were collected for Eva Friis Møller (Bioscience, AU), who carried out a more intense survey during the first cruise leg of the Dana NE Greenland expedition.

The MIK net was set to sample in a V-shape, going to a hundred meters water depth and back up again. For each MIK net trawl sampling time was approximately 35 minutes, with a release of the net at 30 m/min and a haul in at 12.5 m/min meanwhile sailing at a speed of 3 knots. As the focus was mainly on krill for this study, the trawls were carried out during night time in anticipation of the vertical migration of the circadian rhythm rates in krill. A total of five MIK net samples were collected. The samples were not further analysed on board, as analyses are planned to be carried out post-cruise at the Department of Bioscience, Aarhus University.

Fig. 10. Deployment of multinet from Dana. *Photo: Christof Pearce.*

Multinet

The temporal and geographical placement of the NE Greenland cruise, both Leg 1 and Leg 2, created an opportunity to describe the abundance and vertical distribution in fixed depths for zooplankton species, with a special focus on copepods and the stages represented in the genus *Calanus*.

A total of 12 successful multinet casts (Fig. 10; Appendix 4) for macro zooplankton analyses were carried out. The depths sampled during the cruise were bottom- 200m, 200-100m, 100-50m and 50m-surface. These depths were chosen as representatives for the surface living copepods expected to be in the Depth for Chlorophyll Maximum (DCM), as well as the deeper intervals in between 50 and 200 meters. The bottom-200m measure is assumed to represent copepods undergoing diapause and the survey aims to test for a possible vertical distribution as diapause was entered. As the life stage of the species is included in this abundance survey, the vertical distribution can show if some stages enter diapause earlier. Samples collected via the Multinet will be analysed as part of an MSc project by Mads Schultz upon returning to Denmark.

Chlorophyll measurements

The measuring of chlorophyll via fluorometer plays a part in the initiation of diapause experiments, as well as contributes to a survey continued from the first cruise leg, during which Mikael Sejr (ARC, AU) carried out the sampling. Chlorophyll was measured from filtering 250 mL onto GF/F and 500 mL onto a 10 µm filter. The depths of these measurements were 1 m, the DCM, 50 m and 100 m.

WP3 net

The WP3 net (8 casts) was used for collecting samples from various depths, ranging from 400 meters to the surface. Samples collected via WP3 nets have been used for three different experimental setups, all focusing on the lipid content of *Calanus hyperboreus* (Fig. 11) and their activity levels.

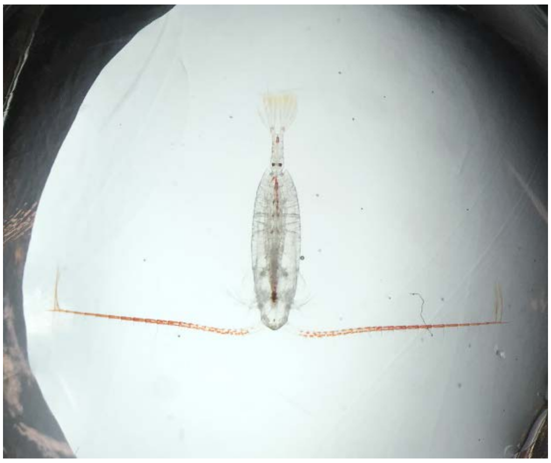

Fig. 11. Calanus hyperboreus. *Photo: Mads Schulz.*

Experiment: Initiation of diapause

Aim: This experiment is conducted to show the activity level of the surface living *C. hyperboreus* as a function of time and geographical distribution (experiment is conducted on both cruise legs), as well as the activity level for the late surface living individuals as a function of life stage, food availability and lipid store. Furthermore, we evaluate if grazing can be induced in individuals that have already left the surface waters. For all stations, lipid store will be compared between surface living and deep (descending or diapausing) copepods. **Method:** Upon selected locations, surface (0-100 m) and deep (200-400 m) sampling of *C. hyperboreus* was conducted. The individuals were sorted and divided into different life stages. During the sorting, at least 10 individuals of each life stage were singularly introduced to 600 mL containers, containing *in situ* water retrieved from the DCM. The containers were mixed every 8th hour, ensuring low amounts of algal sedimentation. For every single individual, fecal count was carried out after a 24-hour period and the C. *hyperboreus* were photographed for size and lipid content determination. **Preliminary results:** The cruise enabled sampling for this experiment at stations 1, 3, 7, 8, 12, 13, 14, 16 and 19. The lipid content will be derived upon the return to Denmark.

Experiment: Termination of diapause

Aim: This experiment was conducted to evaluate the role of lipid content in the beginning of the egg production. **Method:** At selected location, near bottom sampling of *C. hyperboreus* were conducted. The individuals were sorted and only females were kept for the experiment. The females were photographed for lipid content measurements and then introduced to flat 90 mL solo containers with filtered sea water where they were stored at 3 different temperatures, 0°C, 3°C and 5°C. An optical cord was mounted on 3 containers from each temperature level for oxygen measurements (this is purely an indication of oxygen availability and not an experiment on the diapause metabolism). All individuals were examined for egg production every third day. At the first sign of egg production, lipid levels were measured by photographing the given individuals. At the end of the cruise, the specimens were transported to the laboratory location using thermos regulated cooling boxes. The experiment is continued in the laboratory of Aarhus University, Denmark. Beside this, the number of produced eggs were measured and compared to the lipid stores. **Preliminary results:** For each storage temperature (0°C, 3°C and 5°C) 20 copepods sampled from the top 100 meters and 30 sampled from 400-200 meters were kept in separate bottles. At the end of the cruise, egg production had occurred in 1 bottle from 3°C and one bottle from 5°C.

Experiment: Initiation of ascend

Aim: This experiment was designed to show ascending trends, testing the theory that diapausing individuals are not as effective at feeding within the first 12 hours, as ascending individuals are. Temperature differences was added to connect increased metabolism along with the decrease in lipid stores, to the determination of diapause. **Method:** Upon selected location, near bottom sampling of *C. hyperboreus* were conducted. The individuals were sorted and only individuals of stage CIII, CIV and CV are kept for the experiment. The selected specimens were divided into 12 flasks, each containing 30 individuals. For each flask, mean lipid content was measured. The flasks were stored in darkness at 3°C. After termination of the cruise, all samples were brought to the laboratory on land, and kept at 3 different temperatures, 0°C, 3°C and 5°C. Start October, one flask from each temperature will be transferred to a feeding chamber, along with and algae culture. Faecal counts were conducted after 12 hours of possible forage time. This was repeated with one month interval, so experiments were conducted in October, November, December and January. After each feeding experiment, lipid stores were determined and the new mean was connected to the start mean and subsequently compared to temperature and storage time intervals along with faecal count for the 12 hours. **Preliminary results:** The copepods used for this experiment were collected at Station 3 of the second cruise leg.

Planktic Foraminiferal distribution and ecology

By Siri Ofstad

Fig.12. Multinet sampled on the sieve before it is transported to the sample bottle (right), sample bottles from one station (left). Photo: Siri Ofstad.

Plankton net samples were collected at each full station using a Multinet (multi-stratified plankton tow Hydrobios, type Midi) equipped with four 50-µm nets (11 casts; Appendix 4). At each collected station four depth intervals were sampled in one stroke, dividing the water column into the following depths intervals: 300/400-200 m, 200-100 m, 100-50 m, and 50-surface. The contents of each cast were sieved on a 63 um sieves and placed in separate 200 ml bottles using filtered seawater (Fig. 12). Samples were preserved in 96% ethanol solution and buffered with hexamethylenetetramine. Calcifying organisms, including planktic foraminifera, pteropods and bivalves, will be studied from the collected samples. In addition to study the general temporal distribution of planktic foraminiferal species, a particular interest will be given to their shell structure ($CaCO_3$) with regard to the ocean chemistry (e.g. DIC, TA, pH). The small mesh size and coverage of the entire water column allows the analyses of other zooplankton groups (e.g. copepods, dinoflagellates, cladocerans), which provide additional information about water masses dynamics in North East Greenland.

In addition to the multinet samples, surface sediment samples (top 1-2 cm) were taken from the Haps at each station where a multinet was taken. The samples (5-10 ml), were spooned into small ziplock bags and stored in the cooling room. The sediments will be sieved and analysed for planktic foraminifera upon return to land. It is important that we get a full picture of what is happening in the water column with regard to the planktic foraminiferal community, including after their lifecycle comes to an end. Planktic foraminifera found in the surface sediment will be used to establish the flux of organisms from water column to seafloor. Fossilized planktic foraminifera may be used for carbonate system reconstructions, as an attempt to quantify ocean acidification.

Sea-ice proxy development

By Sofia Ribeiro and Marianne Ellegaard

The overall aim of our sampling campaign and studies following this cruise are to refine and develop micro-algal proxies of Arctic sea-ice cover. Microalgae, particularly diatoms and dinoflagellates, are the sources of the most used sediment core proxies for reconstructing past sea-ice cover (i.e. dinoflagellate cysts, diatom valves, and biomarkers such as IP_{25}). However, much is not known about the biology, taxonomy, and complexity of ecological responses of these proxies.

Objectives

1. To establish the biological affinity and habitat (sea ice vs. water) of the different life-cycle stages for unknown or poorly known cyst-forming dinoflagellates and evaluate their potential as sea-ice indicators. Target groups include the autotrophic ice-dwelling species *Polarella glacialis*, and the genera *Protoperidinium/Islandinium/Brigantedinium*.

Samples: Water, plankton, and surface sediments where collected for this purpose (Appendix 1; Fig. 13). Additionally, we obtained chunks of sea ice sampled on-route (by Søren Rysgaard; for oxygen isotope analysis), and the melted water was quantified and sieved through a 10µm mesh for microscopy. Cysts of the ice-algae *Polarella glacialis* were found. A species of *Protoperidinium*, which has not previously been documented to be living in sea-ice, was found in large numbers. We isolated cells to PCR tubes for single DNA sequencing and lugol-fixed part of the samples for later electron microscopy for precise species determination. We will use the plankton-net samples for testing the presence of the species in the water column and fixed water samples (taken before filtration) for quantification.

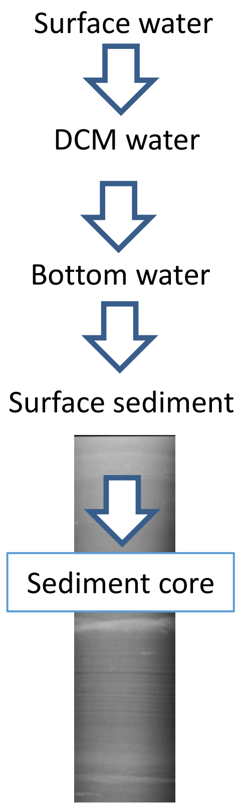

Fig. 13. Samples for testing environmental DNA will be derived from the water column and the sediments. Diagram by Marianne Ellegaard.

2. To test the potential of sedimentary ancient DNA as a new proxy for Arctic sea-ice cover. Samples: This work will be based on several sets of samples:

A. Water sampled during CTD casts at ca. 1 m depth (Surface), the depth of the chlorophyll a maximum (DCM) and near the sediment surface (Bottom) (Fig. 14). At each full sampling station, and from each of these three depths, 10 liters of water were filtered on board through GF/F filters and immediately transferred to cryo-vials and frozen at -80°C.
B. Surface sediment sample from each full sampling station taken with a box-corer or Haps-corer and frozen at -80°C immediately after subsampling.
C. Sediment cores taken with a Rumohr corer and either frozen intact or sub-sampled and frozen on board (Fig. 15); from 5 stations.
D. Multinet plankton samples taken with two 20µm nets (11 casts in total) from respectively near-bottom to 30 meters and 30 meter to the surface (Fig. 16, Appendix 4). Each sample was split in two with one sample frozen at -80°C and the other fixed with lugol iodine; the frozen sample for DNA analysis and the fixed sample for microscopy.

The frozen samples will be processed in collaboration with the Centre for Geogenetics at the University of Copenhagen and used to test the potential for assessing biodiversity in the water and sediment using methodologies for environmental DNA analyses, and to assess the rate of preservation of the DNA signals down through the water column and into the sediment archive (Fig. 13). The fixed samples will be used to compare the DNA sequences with the morphological species present at each depth. For the sediments, archived cores from each station will serve this purpose.

Fig. 14. Left: Water was collected during CTD casts from selected depths (surface, DCM, and bottom) and Right: immediately filtered through GF/F filters (10l per depth). A sub-sample of 250ml of water from each depth was Lugol's fixed for taxonomic determination of the plankton after the cruise. Photos: Marianne Ellegaard (Left) and Karen Gariboldi (Right).

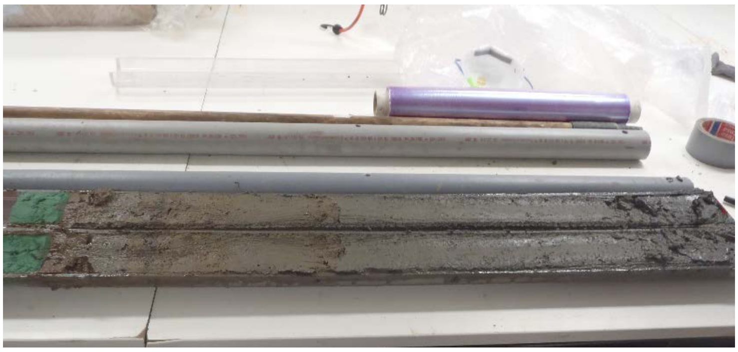

Fig. 15. To investigate the long-term response of indicator species to environmental changes, we have kept 5 Rumohr cores intact and sealed for isolating and germinating living resting cells of diatoms and dinoflagellates from dated sediment layers for time-series experiments. Other Rumohr cores were split and subsampled on board as shown here. Photo: Marianne Ellegaard.

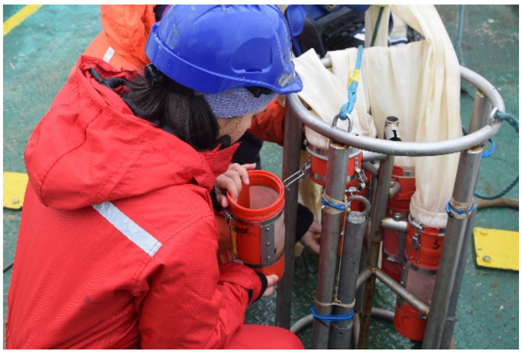

Fig. 16. The plankton multinet could be equipped with nets of 20µm mesh size for phytoplankton sampling. The "Phyto 4" net was kept open from near the bottom to 30m water-depth, and "Phyto 5" was open from 30m depth to the surface. Photo: Christof Pearce.

Sea floor morphology: Shallow seismic acquisition

By Katrine Juul Andresen, Lasse Nygaard Eriksen, Tove Nielsen and Tine L. Rasmussen

Objectives

The shallow seismic investigations on the NorthGreen2017 cruise served two purposes:

1) To investigate the geology of the surveyed area; i.e. map deep reflections, faults and folds, varying seafloor morphologies, sediment packages, mass transport complexes (MTCs) (e.g. slides and slumps), canyons etc.
2) To identify suitable locations for the sediment sampling program (Box/Haps, Rumohr and Gravity coring), i.e. find areas where soft sediments (mud) are present (preferable >5 m in thickness)

The main surveying was done during night time to allow for samples (water, nets and sediments) to be taken during day time.

Instrument

The subbottom profiler (SBP) instrument used for the shallow seismic surveying onboard RV *Dana* is of the type: *Innomar SES-2000 Deep, Narrow-Beam Parametric Sub-Bottom Profiler*. The instrument is hull-mounted centrally on the ship and associated with a motion sensor (MS) for recording the heave, pitch and roll variations (Fig. 17). Unfortunately, the motion sensor did not function for the NorthGreen2017 cruise, so no heave correction has been applied to the recorded data.

The SES-2000 Deep instrument is a parametric subbottom profiler system of the pinger type, with a fixed high-frequency (HF) component of 35 kHz, and a low-frequency (LF) range of 2-7 kHz. As the target area for the cruise was the NE Greenland Shelf (and the Young Sound) the majority of the surveying was carried out at water depths of 100-600 m in which the 4 kHz LF mode gave the best results. The ping-rate is semi-automatically set by the instrument and was typically 0.97-1.70 pps (pings per second) within the 300-600 m water depth range, up to ca. 3.6 pps for water depths around 150-200 m, and up to ca. 8-10 pps in the shallow Young Sound (0-100 m).

Methods

The subbottom profiler system works by transmitting a high-frequency ping (electronic signal) which is reflected from the seafloor and subsurface layer boundaries and received back and recorded at the transducer (Fig. 18). The reflected ping is transformed into images (vertical sections/profiles) of the subsurface by utilizing the difference in arrival time from reflectors at varying depths. The Innomar® instrument records the data in .ses and .raw format (Fig. 19), which is converted to .segy format using the build-in SES-convert software. Both the HF and LF component of the recorded data is converted to .segy. No particular processing of the raw data was carried out onboard RV Dana, and heave-correction could as mentioned not be performed due to malfunctioning of the motion sensor. After conversion, the segy-files were loaded into Kingdom Suite (seismic interpretation software) (Fig. 20) and preliminarily interpreted.

Fig. 17. Permanently installed Innomar SES-2000 Deep subbottom profiler at RV Dana. Left: transceiver unit. Right top: transducer viewed from below. The transducer transmits and receives the signal (ping). Right bottom: view at the hull mounted (moon pool installation) transducer from above (below white deck). The motion sensor (unfortunately not working) recording heave, pitch and roll variations for the SES-200 Deep instrument can be seen on top of the white deck. Photos: Katrine Juul Andresen (left) and Christian Petersen (right, both).

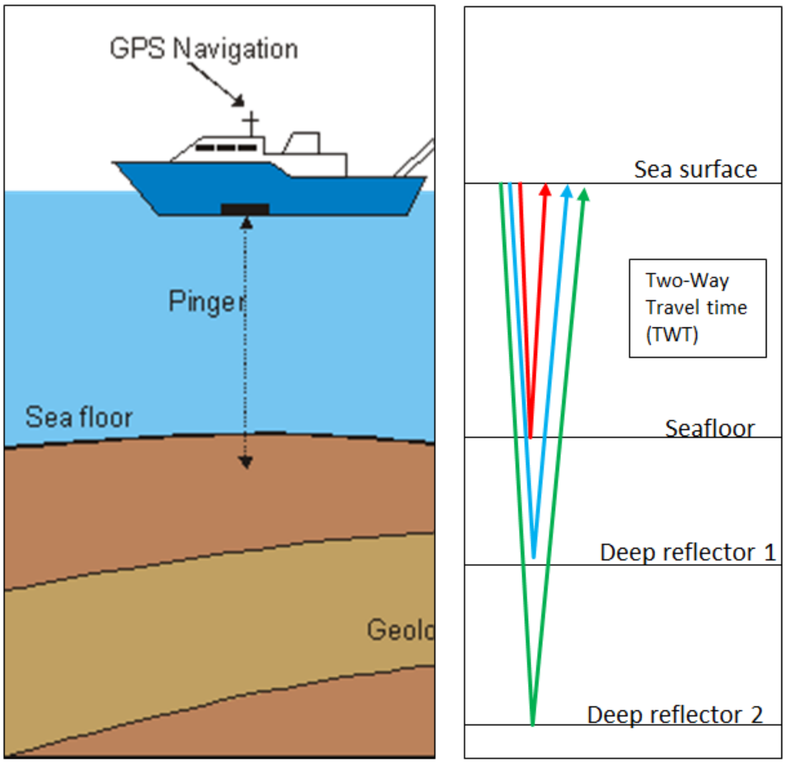

Fig. 18. Principle of seismic reflection used in subbottom profiling. Reflections from the deeper geological layers will arrive later (i.e. longer two-way travel times (TWT)) than reflections from the shallower layers. The difference in arrival time can be processed into images (vertical sections/profiles) of the subsurface. Source: Ref. 20.

Data

The Innomar SES-2000 Deep subbottom profiler delivers ultra high-resolution seismic data optimized for mapping the shallowest subsurface. Depending on the geology of the investigated areas and the water depths, the penetration depth is typically around 15-20 m. In Young Sound the depth of penetration reached ca. 50 m.

Concerning seismic resolution, an average velocity of 2000 m/s for the sediments gives a dominant wavelength of 0.5 m (using a dominant frequency of 4 kHz) which in turn gives a vertical resolution around 25 cm (estimated here as half the dominating wavelength). Hence, we should be able to fully resolve layers that are above 25 cm in thickness. Compared with other types of reflection seismic surveying, this is a very high resolution. For airgun seismics, the typical resolution is around 10-50 m with penetration depths up to ca. 2-4 km (single airgun). For sparker sources the resolution is in the order of ca. 1-5 m with penetrations up to ca. 500 m (depending on the instrument type).

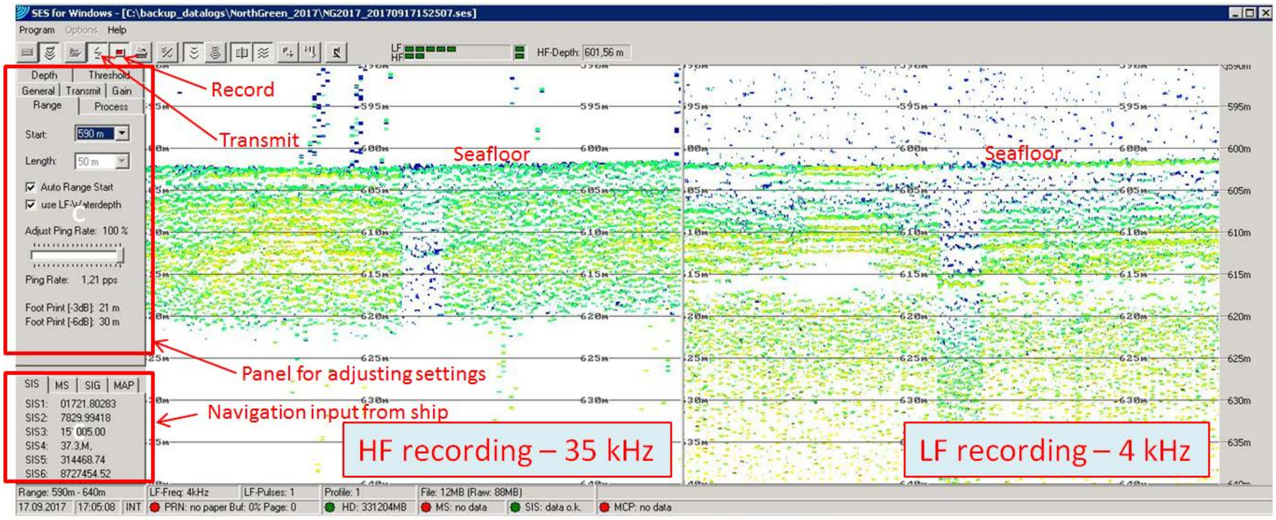

Fig. 19. Example of raw data recording from the SES-2000 Deep instrument at a section from Station 8 gravity core position during the NorthGreen2017 expedition. Settings for the data recording are adjusted in the panel to the left.

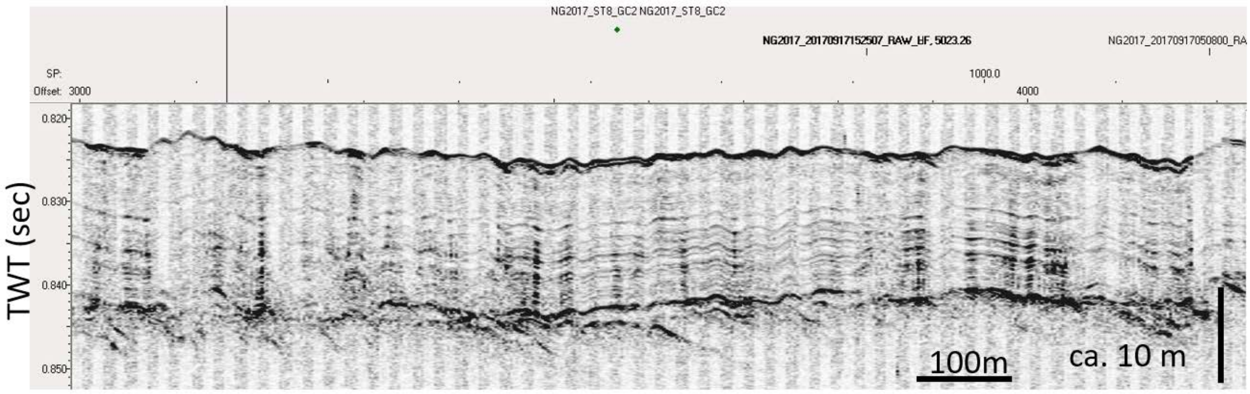

Fig. 20. Corresponding image of the deposits from Figure 19 in Kingdom Suite, where the reflections appear more well-defined. Note differences in vertical and horizontal scale (ca. 10 x vertical exaggeration).

The LF component showed more continuous noise within the water column and sediments (of frequencies between 1.5-5 kHz) than the HF component (see Fig. 19). Several noise-tests were performed to check whether this noise could be reduced. The tests included switching off other acoustic instruments onboard RV *Dana*, such as the single-beam echosounder (scientific echosounder), the sonar, and the ADCP (Acoustic Doppler Current Profiler). No effects were recorded while turning off these devices. The noise-level was furthermore not affected by the speed of the vessel, but may still be related to constant engine noise throughout the cruise. Alternatively, the noise may be generated from poor maintenance and little use of the SES-2000 Deep instrument itself. The subbottom profiler has been installed on RV *Dana* since 2012 but has not been used regularly prior to the NorthGreen2017 cruise. Algae growth (or similar) on the transducer and weakening of the mounting structure may also generate unwanted noise.

Preliminary results

A total of ca. 2200 km of shallow seismic data were acquired during the research cruise. Three dredge positions and 16 stations for sediment sampling were identified from the surveying. The data cover a wide range of different geological provinces across the NE Greenland Shelf but can roughly be subdivided into deep troughs and fjords (formed by glacial erosion), inter-trough areas, and basement highs, which also appear to be affected by glaciers. In nearly all areas, a thin cover (1-3 m) of most likely Holocene mud drapes the varying structures. Larger sedimentary basins (with estimated mud/clay thickness up to 15-20 m, e.g. Fig. 20) were only encountered in a few places on the shelf. Within the Young Sound fjord, the thickest sedimentary packages were observed. Varying seafloor morphologies have been recognized such as blocky (faulted?) seafloor, rugged seafloor (MTCs?), iceberg ploughmarks, basement outcrops and flat seafloor related to sedimentary basins. Similarly, the reflections below the seafloor show varying characteristics such as parallel high-amplitude continuous reflections and low-amplitude discontinuous chaotic reflections.

Further analysis

After the cruise, the seismic data will be processed in order to optimize the imaging of the subsurface. Processing of the raw Innomar® subbottom profiler data, will consist of noise reduction in both LF and HF channels. An attempt will be made to correct for the missing heave, pitch and roll. After processing, the data will be re-loaded in a seismic interpretation software, where further analyses and interpretation of the seismic data will be carried out in order to identify and differentiate varying seafloor morphologies and substrates for the NE Greenland Shelf. The seismic interpretation will utilize standard interpretation methods for structural and stratigraphic interpretation, and the seafloor and deep reflections will be mapped. If possible, seismic amplitude and attribute analysis will be utilized in further analyses.

Because the Innomar® data were recorded mainly during transit, the interpretation of the data will most likely focus on a broader and more general description of the area instead of specific areas. The Young Sound and Tyroler Fjord could represent a potential focus area, since good seismic coverage was obtained here and multibeam data from previous cruises are available. Information from the Gravity and Rumohr cores and the dredging profiles will be integrated with the seismic analyses in order to constrain lithologies and selected morphologies.

Sediments

By Christof Pearce, Karen Gariboldi, Camille Brice, Lasse Nygaard Eriksen, Cynthia LeDuc, Anders Møller Mathiasen and David Wangner

Abbreviations

R: Rumohr
H: Haps
ITRAX: XRF Core scanner (at Dept. of Geoscience, Aarhus University)
MESR: Marianne Ellegaard (KU) and Sofia Ribeiro (GEUS)
AU Geoscience/ AU Geo: Marit-Solveig Seidenkrantz and Christof Pearce
Geomicrobio: Hans Røy and Caroline Scholze

Sediment sampling equipment

Van Veen Grab. The most simple and fast way to retrieve a big sample from the sediment surface is the van Veen Grab (Fig. 21). This device was used at only one station during the cruise. A simple closing mechanism grabs the upper ~30 cm of the surface sediments.

Fig. 21. Van Veen grab full of sediment coming on deck. Photo: Christof Pearce.

Box corer / Haps core. A box corer is capable of taking a relatively large area of undisturbed surface sediments. Box cores comes in all sizes. The large box corer, hereafter the box corer was only deployed at Station 1. The smaller box core, hereafter the Haps corer, was used at all other sediment stations.

The "Haps" is a small box corer meant to sample the very first centimetres (ca. 30 cm) of the sediment column and the water/sediment interface. The Haps corer consists of a metallic cylinder which is deployed in the sea water by means of a wire. The cylinder is installed on a metallic frame and it penetrates the sea bottom thanks to the weight of its structure. As it reaches the sea bottom, the wire loses tension, triggering a blade that close the base of the cylinder, allowing the recovery of the sediments.

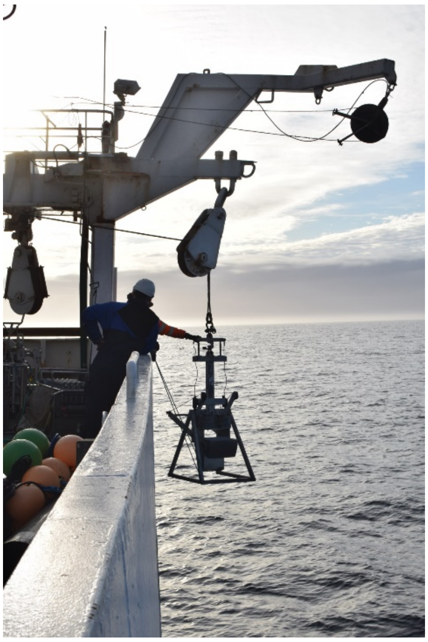

Fig. 22. Deployment of box corer. Photo: Christof Pearce.

The Haps corer was mainly used to sample the first two centimetres (0-2 cm) of the sediments column, which can be used to study different geological and biological aspects of the very recent past. Water from the water/sediment interface was removed by means of syringes; sediments were then collected by means of a spatula. Samples for microplastic analysis were collected by means of a cylinder with a known volume. Three plastic tubes (diameter = 4 cm, length = 25cm) were used as micro liner to subsample the entire sediment column collected by the Haps corer; to facilitate this procedure, a pump was used to create a very low vacuum within the tubes. These tubes will be used to study the living depth of benthic foraminifera. A list of all the samples collected at each station and of the different methods that were used to store them, is given in Table 1, together with the name of the person who required the sample (persons in italics did not attend the cruise).

Normally, three Haps cores were collected at each Station and these were sufficient to recover all sample listed in Table 1. Occasionally extra Haps cores were collected for comparison studies (samples for Christof Pearce) or for microbiologically purposes (sample for Caroline Scholze).

Table 1. Sampling scheme for sub-samples of the Box/Haps cores.

What	Short name	Depth	Sample size type	Container	Storage	Who
Living benthic foraminfera	**TUBE-1**	Tube	3 microtubes	Tube	Freezer, -20	Karen Gariboldi (for Caterina Morigi), Pisa U., Italy
Living benthic foraminfera	**TUBE-2**	Tube	3 microtubes	Tube	Freezer, -20	Karen Gariboldi (for Caterina Morigi), Pisa U., Italy
Living benthic foraminfera	**TUBE-3**	Tube	3 microtubes	Tube	Freezer, -20	Karen Gariboldi (for Caterina Morigi), Pisa U., Italy
Microplastic	**MP**	Top 1 cm	5 cm diameter	Metal tube	Cool room	Karen Gariboldi (for Caterina Morigi), Pisa U., Italy
DNA	**DNA**	Top 2 cm	15 ml	Whirl-pak bag	Freezer, -80	Sofia Ribeiro & Marianne Ellegaard, GEUS
Alkenones	**ALK**	Top 2 cm	5-8 g wet sed.	Whirl-pak bag	Freezer, -20	Ralph Schneider, Kiel U, Germany
IP_{25} and other biomarkers	**IP25**	Top 2 cm	10 ml	Whirl-pak bag	Freezer, -20	Christof Pearce, Geoscience, AU
Metal/Ca	**Mg/Ca**	Top 2 cm	10 ml.	Bag	Cool room	Marit-Solveig Seidenkrantz, Geoscience, AU
C, N, 13Corg, 210 Pb etc	**CN**	Top 2 cm	5 ml	Bag	Cool room	Anne de Vernal, Geotop, UQAM, Canada
Grain size, TOC	**Grain**	Top 2 cm	30 ml	Bag	Cool room	Marit-Solveig Seidenkrantz & Christof Pearce, Geoscience, AU
XRD	**XRD**	Top 2 cm	15 ml	Bag	Cool room	Marit-Solveig Seidenkrantz & Christof Pearce, Geoscience, AU
Rock-Eval	**RE**	Top 2 cm	1 ml	Bag	Cool room	Marit-Solveig Seidenkrantz, Geoscience, AU
Diatoms	**DIA-1**	Top 2 cm	2 ml	Bag	Cool room	Diana Krawczyk, Greenland
Diatoms	**DIA-2**	Top 2 cm	2 ml	Bag	Cool room	Hui Jiang, ECNU, China
Diatoms	**DIA-3**	Top 2 cm	2 ml	Bag	Cool room	Arto Miettinen, NPI, Tromsø, Norway
Diatoms	**DIA-4**	Top 2 cm	2 ml	Bag	Cool room	Nina Lundholm, Natural History Museum of Denmark (SNM)
Dinoflagellates	**DINO-1**	Top 2 cm	15 ml	Bag	Cool room	Anne de Vernal, GEOTOP, UQAM, Canada
Dinoflagellates	**DINO-2**	Very top	15 ml	Bag	Cool room	Sofia Ribeiro & Marianne Ellegaard, GEUS
Benthic foraminferal	**BF**	Top 2 cm	2 ml	Bag	Freezer	Karen Gariboldi (for Caterina Morigi), Pisa U, Italy.
Planktonic foraminfera	**PF**	Top 2 cm	5-10 ml	Bag	Cool room	Siri Ofstad, UiT, Tromsø, Norway
PAH	**PAH**	Top 2 cm	60 gram	Rilsan bag	Cool room	Anders Mosbech, Bioscience, AU
Sediment rest	**REST**	Top 2 cm	Everything left	Bag	Cool room	Marit-Solveig Seidenkrantz & Christof Pearce, Geoscience, AU

Rumohr Corer. A Rumohr core (Fig. 23) is a 1 to 2 meters long, and ~8 cm wide sediment core. Sediments are collected in a PVC liner attached to a gravity device, and kept in the liner by a closing valve on top of the liner, causing reduced pressure. Rumohr cores are often used in association with Gravity cores to complete sediment record as they can preserve the surface. At every station, a core in good condition is closed and preserved as an archive record, for e.g. XRF core scanning. Some of the cores are subsampled onboard at every 0.5 cm for the first 100 cm and every 1 cm onward, for multiples analysis such as DNA, isotopes, metal trace, sedimentology, micro-paleontology, micro-biology, etc.

Fig. 23. Rumohr corer full of sediments. Photo: Christof Pearce.

Gravity Corer. The Gravity corer was set up to collect cores of up to 6 m length (the longest core retrieved during NorthGreen2017 was 5.8 m long); once a 9m core was tested without. Gravity cores are therefore capable of taking samples dating further back than those taken using the Rumohr corer. The Gravity corer consists of a long metal outer tube, with a plate and some weights in the top (Fig. 24a). The plate prevents the top of the corer from penetrating the sediments, thus preventing the loss of surface sediment through the top of the corer. For each deployment the corer was loaded with a plastic liner (PVC tube) that served as sediment container. Furthermore a core-catcher was added to the bottom of the metal casing. (Figure 24b). The core-catcher prevented the collected sediments in the liner from falling out of the tube after sampling. When deployed, the corer was lifted from the deck and over the side of the ship with a regular crane. The corer was then attached to a winch through a pivoting arm, ensuring sufficient spacing between the corer and the ships side. The corer was subsequently lowered through the water until penetrating the seafloor, and afterwards brought back on deck. On deck the core-catcher was detached from the rest of the corer, and the liner containing sediment was cut into sections of 1 m each. Each section was capped and finally stored in a cooling room. The core-catcher is responsible for a major disadvantage of the Gravity corer, as it disturbs and compresses the surface sediment upon penetrating the seafloor. This problem is difficult to avoid, as the core-catcher is a necessary part of the corer. By also taking samples using the Rumohr corer, the problem was minimized as this method preserves the surface sediments much better.

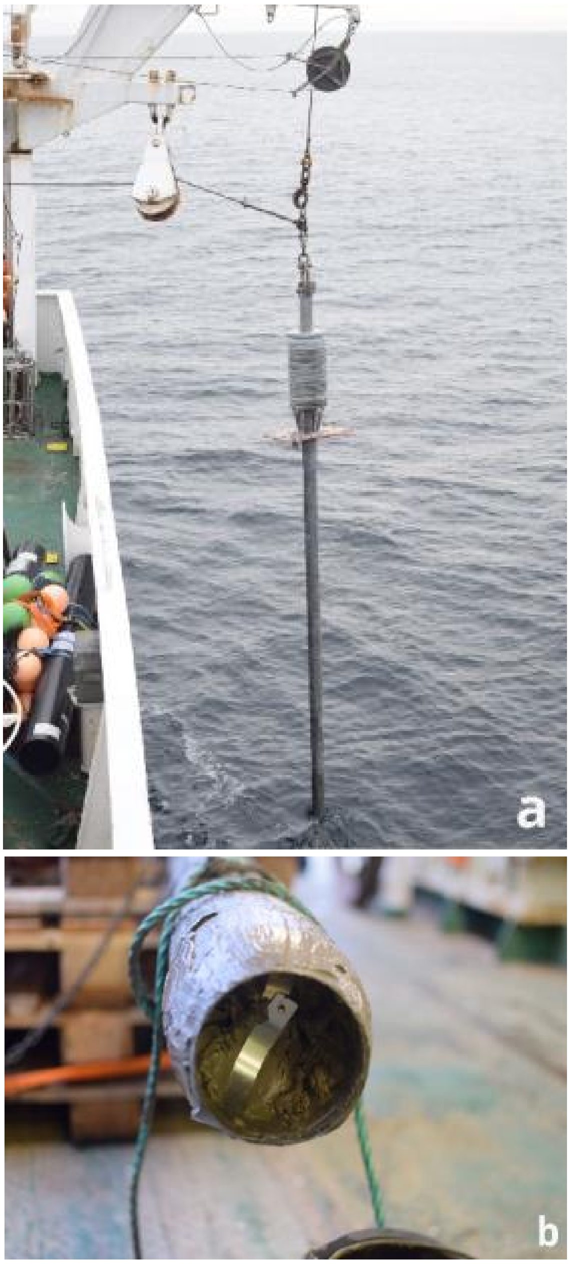

Figure 24. a) The Gravity corer in its full length being deployed. b) The core-catcher right after deployment still containing fresh sediment. Photos: Christof Pearce.

Dredge. To determine local basement rocks and outcrops, samples were recovered with the help of a dredge (Figs. 25, 26). Basement rock can be distinguished from drop stones by sharp edges and the lack of rounding. The determination of the basement helps to precise the origin of icebergs, which are transported southwards along the Greenlandic coast and release sediment while melting.

Fig. 25. The dredge, used on the NorthGreen2017 expedition. Photo by the crew of RV Dana

The dredge consists of a grabbing box with a metal net attached to it and is usually pulled along the seafloor collecting coarse material like drop stones or pieces of outcrops. In case the dredge gets stuck on the seafloor and the main wire rips, an additional safety wire is attached to the back of the net to recover the dredge. Best sample recovery is usually reached, pulling the dredge up a slope. Sample sites were chosen based on previous collected Innomar® data. Besides the morphology of the seafloor, they were expected to have exposed pre-quaternary basement rock exposed on the surface. After the net was emptied on deck, rock samples were selected and stored in sample bags for further analyses.

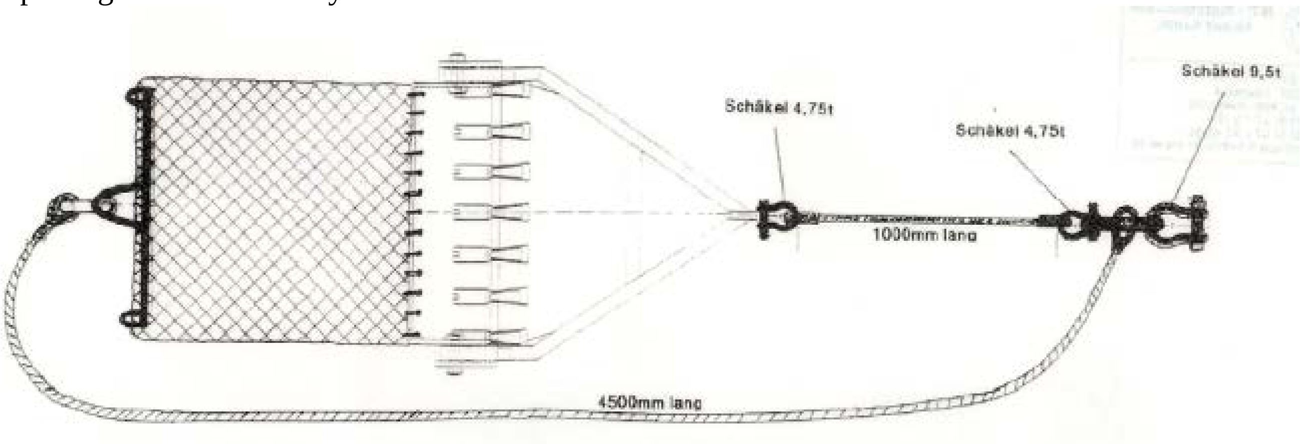

Fig. 26. Drawing of the dredge with the main wire in the front, holding 4.75 t and the safety wire holding 9.5 t attached to the back of the net (©Helmut Kawohl).

Results of sediment sampling – Summary per station

A total of 84 (Rumohr and Gravity, Appendix 2) sediment cores as well as 48 surface sediment and dredge samples (Appendix 3) were collected successfully from 15 different stations (Appendix 2-4). At the remaining stations only CTD measurements, water sampling or plankton net casts were carried out (Appendix 4).

Station 1

Started with 1 box core (Event 9B). The bucket and lid did not fit together, so it did not close well. After a struggle the bucket was released and the sediments were fine. But this was the first and last time we used this device. Hereafter all surface sediments were taken with Haps samplers (smaller box core).

7 Rumohr cores

- 3 for AU Geoscience
  - 10R archive for ITRAX etc
  - 12R
  - 14R sliced in 0.5cm and kept in fridge
- 2 for MESR
  - 11R intact in fridge
  - 15R intact in freezer
- 2 for Geomicrobio (17R and 18R, both consumed)

1 Gravity core (150 cm), cut in 2 sections. Kept intact.

Station 3

7 Rumohr cores

- 3 for AU Geoscience
  - 31R
  - 33R sliced in 0.5cm and kept in fridge
  - 36R archive for ITRAX etc
- 2 for MESR
  - 30R intact in fridge
  - 32R intact in freezer
- 2 for Geomicrobio (consumed)

1 Gravity core 39G (320 cm), cut in 4 sections. Kept intact.

4 Haps cores

- 36H, 40H, 41H sampled for AU geo
- 37H taken for geomicrobio (Caroline)

Station 5

Good surface samples, but nothing more. Started with 3 Haps (48H, 49H, 50H), all sampled for AU Geo.

1 Gravity core (51G). Only 30 cm recovery, saved in 1 short section. Gravel in the core catcher

1 Rumohr (52R). 30 cm recovery and then liner broke. Looks like the same hard gravel layer.

Station 7

7 Rumohr cores

- 3 for AU Geoscience
  - 68R
  - 69R sliced in 0.5cm and kept in fridge

    - 70R archive for ITRAX etc
- 2 for MESR
    - 71R intact in fridge
    - 72R intact in fridge
- 1 for Geomicrobio (79R, consumed)

2 Gravity cores 73G and 80G.
4 Haps cores

- 3 sampled for AU geo (74H, 75H, 77H)
- 1 taken for geomicrobio (76H)

Station 8

This station has 2 sub-stations. Two nice sites were found within close proximity, both with thick packets of sediments.
First one with 3 Rumohr (89R, 90R, 91R), 1 Gravity (92R), 3 Haps (93H, 94H, 95H). Second with 1 gravity (96G), 2 Rumohr (97R, 98R). All for AU Geoscience.

Station 10

Again 2 sub-stations. First with poor recovery, much better at second site.
First with 2 Rumohr (108R, 109R), 1 Gravity (110G) of 70 cm with gravel in the core catcher, 3 Haps (111H, 112H, 113H).
Second site: Seismics indicated thick section of sediment with an additional reflector on top of reflector seen at seismic site #108. 3 Rumohr (116R, 120R, 121R), 1 Gravity (117G). All for AU Geo

Station 12

3 Rumohr (132R, 133R, 134R), 1 Gravity (135G), 4 Haps (136H, 137H, 138H, 139H). All to AU Geo

Station 13

Chosen for big deeper area (ca 400 m) near the shelf break, but the seismics indicated very rough and pointy terrain. Very little sediments in the entire region, but one site was chosen based on a shallow drape of a few meters of sediments.
4 Rumohr (148R, 149R, 150R, 151R), 1 Gravity (152G) and 3 Haps (153H, 154H, 155H). Not more than 2 m recovery.

Station 14

This station was chosen for a mooring to be placed out outside Young Sound.
A seismic survey indicated thick sediments just east of the mooring. That site is chosen for the full station 14.
Surface sediments from this station were much coarser than in the other stations (up to pebbles). Tube worms and worms were frequent.
We took 1 extra Haps (174H) for Christof Pearce here (intercomparison study).
Several Rumohrs failed, but we got 5 good ones. 5 Rumohr cores:

- 3 for AU Geoscience
    - 166R
    - 167R sliced in 0.5cm and kept in fridge
    - 173R archive for ITRAX etc
- 2 for MESR
    - 168R intact in fridge
    - 172R intact in fridge

1 Gravity core 171G (420 cm), cut in 5 sections. Kept intact.

4 Haps cores

- 3 sampled for AU geo (175H, 176H, 177H)
- 1 extra for Christof Pearce – Intercomparison project (174H)

Station 15

Return to station with thick package (identified through Innomar® investigation). Quick station, only sediments and 1 CTD. The aim was to capture sediment sequence from the SIRIUS Polynya. This station is in the very southern part.
180G: 350 cm Gravity core
2 Rumohr cores: 1 sliced in freezer (182R), 1 intact as archive (181R).

Station 16

In Young Sound now, spirits are high. Lot of slicing going on. 4 scientists (Siri, Cynthia, Camille, Mads = birthday) left for a tour to SIRIUS at Daneborg.
Many Rumohr cores taken here, some failed.
2 for AU Geoscience (191R, 201R)
2 for MESR (192R, 193R)
2 for Geomicrobio (195R, 201R)
Longest Rumohr was 185 cm (195R, used for Geomicrobio), but the Gravity core (203G) only retrieved 160 cm.
This station was revisited the day after to take 1 extra Haps that was missing (246H for geomicrobiology).
Rumohr 181 was sliced and bagged, but accidentally labelled as 191R. The bigger bags have corrected labels, but not the small individual samples.

Station 17

Simple short station included to sample mollusks (Christof Pearce).
2 Van Veen Grabs (211B, 212B). Completely sieved for mollusks. Living specimens are saved in ethanol. Dead specimens are dried.

Station 18

Sediment only station. 1 Gravity (213G), 3 Rumohr (214R, 215R, 216R).

Station 19

Full Rumohr core program (MESR, AU Geo, Geomicrobio). Several failed, 6 were good (226R, 227R, 228R, 230R, 231R, 232R). 370 cm Gravity core (235G).

Station 21

Sediment only station. 1 Gravity core 245G (360 cm), 2 Rumohr (243R intact in fridge, 244R sliced and frozen).

Station 22

230 cm Gravity core 252G and 2 Rumohr cores 253R and 256R.

Geomicrobiology

By Caroline Scholze and Hans Røy

Objectives

The purpose of this subproject was to look at temperature adaptation of microbial communities in sediments that have been subject to permanently cold conditions for the last thousands of years and which have not been influenced by any input from warm current during this time. Compared to sites in the Arctic that are influenced by warmer bottom currents as for example the West Coast of Svalbard, permanently cold East Greenland sediments should show a distinctly lower temperature optimum of the *in situ* community. In fact, the temperature optimum of the bacteria living in Young Sound sediments are expected to be the lowest recorded so far.

Methods

Subsamples for geochemical analysis were taken at station 1, 3, 7, 16 and 19. Sediments were subsampled from Haps cores and Rumohr cores. Pore water was extruded from Rumohr cores at 2.5, 5 cm and from 10 cm on downwards every 10 cm until the bottom of the core liner. Solid phase samples were taken from a second Rumohr core at each station directly at the sediment-water interface, at 2.5, 5 cm and from 10 cm on downwards every 10 cm until the bottom of the core liner (see also sampling scheme Table 2).

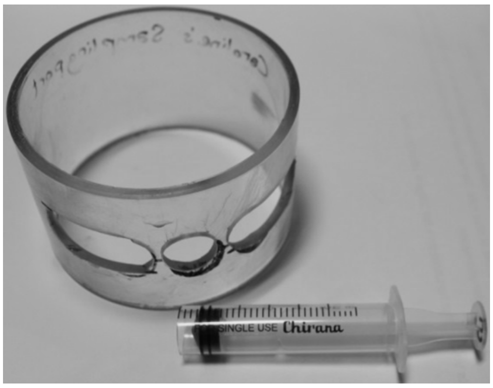

Fig. 27. Sampling port and syringe for subsampling of solid material. The Rumohr lot is extruded into the sampling port and all samples can be taken at the exact same depth. Photo by C. Scholze.

Solid Phase. Sediment was sampled for CH_4 concentrations, sulfate reduction rates (SRR) and density measurements and DNA. CH_4 samples were preserved in saturated saltwater in 20 mL glass vials, shaken and stored upside down at -20°C. In situ sulfate reduction rates are measured with the radio tracer method. Therefore, sediment subsamples were incubated with $^{35}S\text{-}SO_4^{2-}$ for 12 hours at 2°C during the cruise. After the incubation sampled transferred into 5 mL of 20% Zink-acetate to stop all biological activity and preserve the sulfide formed. A known volume of sediment was taken from each sampling depth to determine the density and the porosity of the sediment. DNA samples were subsampled into sterile cut-off syringes (Fig. 27) in duplicate at every sampling depth and been frozen.

Fig. 28. Pore water subsampling from a predrilled Rumohr core into 20 mL syringes through Rhizon filters by applying vacuum. Photo: C. Scholze.

Pore water. Pore water was sampled using Rhizon soil moisture samplers (Rhizosphere Research Products, Wageningen, Netherlands) inserted through 3.8 mm drilled holes in the Rumohr core liner. Samples were prepared for measuring Fe(II), HS^-, SO_4^{2-}, NH^{4+}, DIC and Kation concentrations (Fig. 28).

Samples of 500 µL for Fe(II) analysis were directly transferred into 15 mL Falcon tubes prefilled with 500 µL of 6 M HCl and stored at 4°C. For sulfide concentrations 500 µL were transferred into 15 mL Falcon tubes prefilled with 1 mL of 20% Zink-acetate and stored at -20°C. For SO_4^{2-} and NH^{4+} concentrations 500 µL of sample have been pipetted into one Eppendorf tube each. Sulfate samples were stored at

4°C, while ammonium samples were frozen at -20°C. 2 mL of sample have been pipetted into a 2 mL glass vial and stored at 4°C. The leftover sample has been transferred to a 10 mL glass vial for kation analysis and stored at 4°C.

Temperature Gradient Experiment

Samples have been taken for a laboratory experiment on the influence of temperature exposure. For this purpose, the uppermost 15 cm of Haps cores taken at station 3, 7, 16 and 19 have been subsampled into gastight bags (Fig. 29). Additionally, a deeper sample was taken from the bottom part of Rumohr lots covering at least 10 cm depth intervals at the same stations. All samples have been kept anoxically and at 2°C.

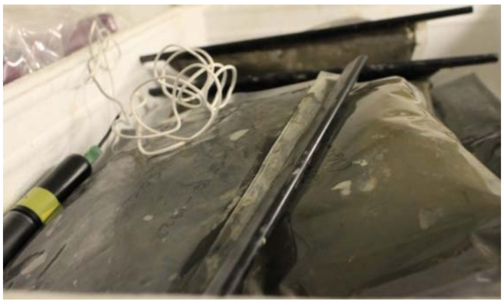

Fig. 29. Subsamples in gastight bags with a temperature logger stored in the cold room. Photo by C. Scholze.

Preliminary Results. Five stations have been sampled for Geomicrobiology. Pore water and solid phase samples have been taken from the first meter of Station 1 and 3. At Station 7, 16 and 19 the uppermost 1.6 m were subsampled for geochemical analysis. From Station 3, 7, 16 and 19 the uppermost 15 cm have been subsampled for temperature gradient experiments in the laboratory in Aarhus. Additionally, 140-150 cm, 150-160 cm and below 160 cm have been subsampled for temperature gradient experiments in the laboratory at station 16 and 19. From Station 1 the uppermost 5 cm, 45-55 cm and 75-85 cm from a Rumohr core have been subsampled for the temperature experiment. All samples have been taken according to the sampling scheme and process described in the method section.

Table 2. Scheme for sampling of geochemical parameters at Stations 1, 3, 7, 16 and 19

DEPTH	SOLID PHASE SAMPLES				POREWATER SAMPLES					
0	2 x DNA	SRR	Porosity		Fe(II)	HS^-	SO_4^{2-}	NH^{4+}	DIC	Kations
2.5	2 x DNA	SRR	Porosity		Fe(II)	HS^-	SO_4^{2-}	NH^{4+}	DIC	Kations
5	2 x DNA	SRR	Porosity		Fe(II)	HS^-	SO_4^{2-}	NH^{4+}	DIC	Kations
10	2 x DNA	SRR	Porosity		Fe(II)	HS^-	SO_4^{2-}	NH^{4+}	DIC	Kations
15	2 x DNA	SRR	Porosity		Fe(II)	HS^-	SO_4^{2-}	NH^{4+}	DIC	Kations
20	2 x DNA	SRR	Porosity	CH4	Fe(II)	HS^-	SO_4^{2-}	NH^{4+}	DIC	Kations
30		SRR	Porosity	CH4	Fe(II)	HS^-	SO_4^{2-}	NH^{4+}	DIC	Kations
40	2 x DNA	SRR	Porosity	CH4	Fe(II)	HS^-	SO_4^{2-}	NH^{4+}	DIC	Kations
50		SRR	Porosity	CH4	Fe(II)	HS^-	SO_4^{2-}	NH^{4+}	DIC	Kations
60	2 x DNA	SRR	Porosity	CH4	Fe(II)	HS^-	SO_4^{2-}	NH^{4+}	DIC	Kations
70		SRR	Porosity	CH4	Fe(II)	HS^-	SO_4^{2-}	NH^{4+}	DIC	Kations
80	2 x DNA	SRR	Porosity	CH4	Fe(II)	HS^-	SO_4^{2-}	NH^{4+}	DIC	Kations
90		SRR	Porosity	CH4	Fe(II)	HS^-	SO_4^{2-}	NH^{4+}	DIC	Kations
100		SRR	Porosity	CH4	Fe(II)	HS^-	SO_4^{2-}	NH^{4+}	DIC	Kations
110		SRR	Porosity	CH4	Fe(II)	HS^-	SO_4^{2-}	NH^{4+}	DIC	Kations
120	2 x DNA	SRR	Porosity	CH4	Fe(II)	HS^-	SO_4^{2-}	NH^{4+}	DIC	Kations
130		SRR	Porosity	CH4	Fe(II)	HS^-	SO_4^{2-}	NH^{4+}	DIC	Kations
140	2 x DNA	SRR	Porosity	CH4	Fe(II)	HS^-	SO_4^{2-}	NH^{4+}	DIC	Kations
150	2 x DNA	SRR	Porosity	CH4	Fe(II)	HS^-	SO_4^{2-}	NH^{4+}	DIC	Kations
160	2 x DNA	SRR	Porosity	CH4						

Microplastics in deep sea sediments

By Caterina Morigi and Karen Gariboldi

Objectives

The main aim of this project is the identification of the microplastic contamination of the Greenland deep sea. For that purpose, surface sediments were sampled during the cruise. Plastic is one of the most distributed and abundant contaminant in the sea and its distribution is almost global. In particular, microplastics (63-500 µm) have already been recorded in polar remote area, both in the water column and in the ice. The Greenland Sea is still one of the most remote and unpolluted areas.

This project aims at testing the presence, the abundance and composition of microplastics in the East Greenland shelf region. Furthermore, investigations on spatial differentiation of abundance and composition with depth will be conducted. The results of this project will help to clarify the contribution of vertical propagation for the general spatio-temporal distribution of marine microplastics.

Methods

To analyse the distribution of microplastic in surface and near-surface sediments, sediments were sampled using the box corer and Haps. At each "sediment station", microplastic was collected from one single Box/Haps corer by means of a hollow metal cylinder. This instrument has a diameter of 5 cm and is marked on its side with a line at 1 cm above its rim. The cylinder was pushed into the surface sediments until this line, allowing the collection of a known volume of sediment. Samples were stored at +4°C. In total, we collected 11 sediment samples for microplastic analysis.

Sample preparation in the laboratory at University of Pisa, Italy, will be conducted through a plastic-preserving enzymatic-oxidative maceration with a subsequent density separation. The separation of the microplastic will be performed with a stereomicroscope and the determination of the type of polymer will be performed using the Raman spectroscopy analysis.

Living and recent benthic foraminifera

By Caterina Morigi and Karen Gariboldi

Objectives and general procedures

The comprehension of one of the least known and most extreme ecosystems in these permanently cold and presumably nutrient-limited marine sediments is a common scientific goal. We will study the response of the benthic meiofaunal communities to this extreme ecosystem. Data on living foraminifera is generally very poor and biodiversity is likely underestimated. Foraminifera are eukaryotic unicellular organisms which, coupled with the study of microbial communities can give us some important information on trophic ecosystem dynamics.

Methods

Three replicate sub-cores (internal diameter of liner 4 cm, 25 cm length) for ecological analyses on benthic foraminifera and one surface sediment sample (0-2 cm of depth, 2ml) for analyses Mg/Ca and (possibly) DNA were collected at every "sediment station" from one/two Box/Haps corers. All these samples were stored at -27°. Tubes were pushed into the sediment with the help of a hand-made-low vacuum-pump made by Hans Røy (Fig. 30).

In total, we collected 11 sediments samples for DNA analysis and 36 tubes for ecological analysis.

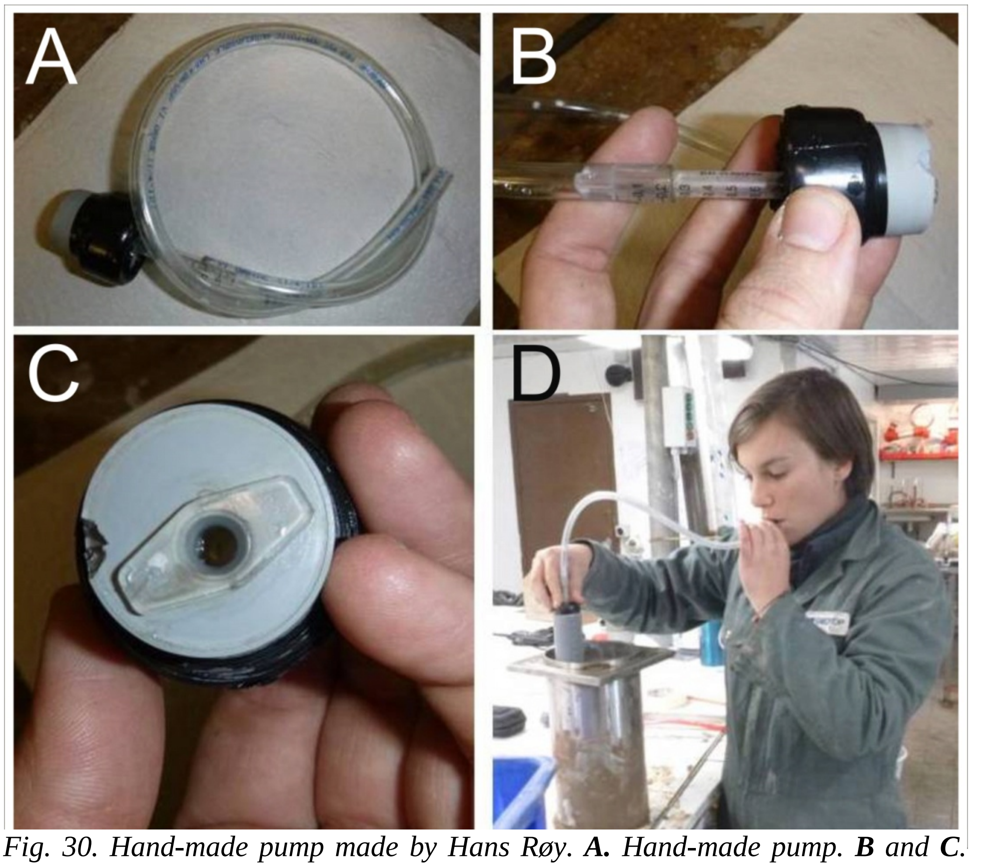

Fig. 30. Hand-made pump made by Hans Røy. ***A.*** *Hand-made pump.* ***B*** *and* ***C****. Details.* ***D.*** *Camille Brice pushing the tubes into the sediment using the hand-made pump. Photos by Karen Gariboldi.*

Content of the analyses

1. ***Faunal analyses*** of living benthic Foraminifera including soft-shelled taxa (i.e., allogromiids *sensu lato*) to estimate their biodiversity and their ecological requirements. Most of the allogromiid taxa are still undescribed and the benthic foraminiferal fauna could represent in this potentially extreme environment a useful tool to evaluate the response of biota to stressed conditions.
2. ***Shell ultrastructure analyses*** on selected species of calcareous foraminifera to evaluate how and if biomineralization is influenced by environmental parameters (i.e., oxygen, T, pH, etc.). ***Analyses on mineral and organic components of the shell:*** Such organic molecular and inorganic geochemical coupling approach is innovative. It will provide a better understanding of the incorporation mechanisms or/and the chemical proxies (trace elements as Mg/Ca and isotopes as $\delta^{18}O$) in the calcite foraminiferal tests. Finally coupling geochemical and biological perspectives on foraminifera will enhance interpretation of the proxies used for environmental and climatic reconstructions and improve future interpretation efforts in paleoclimatology.

Seabird and marine mammal survey in the Greenland Sea

By Jarl Regner Andersen

As part of the NorthGreen2017 expedition, a survey of seabird and marine mammals was undertaken. The Greenland waters are important for many seabird and marine mammal populations and some marine mammal and seabird species are important resources for Greenlanders. However, the knowledge on seabird and marine mammal distribution and abundance in the Greenland Sea is sparse and as oil activities may impact on marine mammals and seabirds, more knowledge is needed for Environmental Impact Assessment (EIA) work and planning.

During the *Dana* cruise, data was systematically collected on abundance and distribution of seabirds and marine mammals according to the *Manual for Seabirds and Marine Mammal Survey on Seismic Vessels in Greenland*, 4th edition, April 2015, Scientific Report from DCE, Danish Centre for Environmental Environment and Energy, Aarhus University.

The following species were observed during the cruise:

- Birds:
    - Fulmar *Fulmarus glacialis*
    - Long-tailed Duck *Clangula hyemalis*
    - Gyrfalcon *Falco rusticolis*
    - Longtailed Skua *Stercorarius longicaudus*
    - Arctic Skua *Stercorarius parasiticus*
    - Pomarine Skua *Stercorarius pomarinus*
    - Glaucous Gull *Larus hyperboreus*
    - Kittiwake *Rissa tridactyla*
    - Ivory Gull *Pagophilia eburnean*
    - Arctic Tern *Sterna paradise*
    - Thick-billed Murre *Uria lomvia*
    - Black guillemot *Cepphus grille*
    - Atlantic Puffin *Fractergula arctica*
    - Little Auk *Alle alle*
    - Raven *Corvus corax*
    - Snow bunting *Plectrophenax nivalis*
- Mammals:
    - Polar Bear *Ursus maritimus*
    - Fin Whale *Balanoptera physalus*
    - Whales not identified to species *Ceteacea sp.*
    - Muskox *Ovibus moshatus*

Examples of future analyses

- The sediment cores collected during the cruise will, among others, be studied for sedimentology (grain size, lithology, trace elements and magnetic susceptibility), micropalaeontology (foraminiferal, dinoflagellate cyst and diatom communities) carried out at the Department of Geoscience, Aarhus University in collaboration with national and international partners.
- Based on the results from solid phase and pore water analysis, carried out in the laboratories in the Center for Geomicrobiology, we will gain insight into the function of the microbial communities buried in Arctic sediments.
- Analyses on surface sediments carried out in the laboratories of the Department of Earth Sciences (Pisa University) will give insights of the pollution of the Greenland Sea by microplastics.
- Hydrological measurements and chemical analyses of water samples will provide information of the source of the surface and subsurface waters along the NE Greenland coast, especially the route of the Atlantic Water and the distribution of local water vs. East Greenland Current Water.
- Phyto and Zooplankton samples will be analysed in detail to provide information on the biota and food web and will provide the background information needed for interpretation of palaeoenvironmental and palaeoclimatic conditions based on the fossil assemblages of the sediment cores.
- Data on biological oceanography and seabirds will contribute to the Strategic Environmental Study Plan for Northeast Greenland.
- Parts of this work will be carried out by MSc and PhD students as part of their thesis projects.

Educational perspective

A total of eight students and early stage researchers from Denmark, Canada and Italy participated in the expedition, thus giving it a very significant educational impact. In addition, four of the students from Aarhus University will continue studying the material from the cruise for their projects. Additional PhD, MSc and BSc are planned based on the material and data collected during the expedition.

Post cruise meeting

The first interdisciplinary post-cruise workshop will take place on March 22, 2018, at the Department of Geoscience, Aarhus University.

R/V Dana *in Young Sound, NE Greenland. (Photo: Claus Persson, Captain of Dana, DTU-AQUA).*

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Appendix 1. Samples collected for sea-ice proxy development

Station	Activity	Date	Source	Instrument	Sample holder	Water depth (m)	Treatment
1	1	13/09/17	Water (10L)	CTD/bottles	Filter in cryotube	bottom (315m)	Frozen -80 °C
1	4	13/09/17	Water (10L)	CTD/bottles	Filter in cryotube	1m	Frozen -80 °C
1	4	13/09/17	Water (10L)	CTD/bottles	Filter in cryotube	DCM (20m)	Frozen -80 °C
1	4	13/09/17	Water (250ml)	CTD/bottles	Amber glass bottle	1m	Fixed w/Lugol's
1	4	13/09/17	Water (250ml)	CTD/bottles	Amber glass bottle	DCM (20m)	Fixed w/Lugol's
1	8	13/09/17	Plankton	Multinet 20μm/ Phyto 4	Transparent flask - black cap	260-30	Fixed w/Lugol's
1	8	13/09/17	Plankton	Multinet 20μm/ Phyto 5	Plastic flask	30-0	Fixed w/Lugol's
1	8	13/09/17	Plankton	Multinet 20μm/ Phyto 4	Tube yellow cap	260-30	Frozen -80 °C
1	8	13/09/17	Plankton	Multinet 20μm/ Phyto 5	Tube yellow cap	30-0	Frozen -80 °C
3	23	14/09/17	Water (10L)	CTD/bottles	Filter in cryotube	bottom (350m)	Frozen -80 °C
3	25	14/09/17	Water (10L)	CTD/bottles	Filter in cryotube	1m	Frozen -80 °C
3	25	14/09/17	Water (10L)	CTD/bottles	Filter in cryotube	DCM (20m)	Frozen -80 °C
3	23	14/09/17	Water (250ml)	CTD/bottles	Amber glass bottle	bottom	Fixed w/Lugol's
3	25	14/09/17	Water (250ml)	CTD/bottles	Amber glass bottle	1m	Fixed w/Lugol's
3	25	14/09/17	Water (250ml)	CTD/bottles	Amber glass bottle	DCM (20m)	Fixed w/Lugol's
3	29	14/09/17	Plankton	Multinet 20μm/ Phyto 4	Transparent flask - black cap	350-30	Fixed w/Lugol's
3	29	14/09/17	Plankton	Multinet 20μm/ Phyto 5	Transparent flask - black cap	30-0	Fixed w/Lugol's
3	29	14/09/17	Plankton	Multinet 20μm/ Phyto 4	Tube yellow cap	350-30	Frozen -80 °C
3	29	14/09/17	Plankton	Multinet 20μm/ Phyto 5	Tube yellow cap	30-0	Frozen -80 °C
5	44	15/09/17	Water (10L)	CTD/bottles	Filter in cryotube	bottom (135m)	Frozen -80 °C
5	46	15/09/17	Water (10L)	CTD/bottles	Filter in cryotube	1m	Frozen -80 °C
5	46	15/09/17	Water (10L)	CTD/bottles	Filter in cryotube	DCM (27m)	Frozen -80 °C
5	46	15/09/17	Water (250ml)	CTD/bottles	Amber glass bottle	1m	Fixed w/Lugol's
5	46	15/09/17	Water (250ml)	CTD/bottles	Amber glass bottle	DCM (27m)	Fixed w/Lugol's
5	44	15/09/17	Water (250ml)	CTD/bottles	Amber glass bottle	bottom (135m)	Fixed w/Lugol's
5b	56	15/09/17	Plankton	Multinet 20μm/ Phyto 4	Transparent flask - black cap	200-30	Fixed w/Lugol's
5b	56	15/09/17	Plankton	Multinet 20μm/ Phyto 5	Plastic flask	30-0	Fixed w/Lugol's
5b	56	15/09/17	Plankton	Multinet 20μm/ Phyto 4	Tube yellow cap	200-30	Frozen -80 °C
5b	56	15/09/17	Plankton	Multinet 20μm/ Phyto 5	Tube yellow cap	30-0	Frozen -80 °C
5b	54	15/09/17	Water (10L)	CTD/bottles	Filter in cryotube	210	Frozen -80 °C

Station	Activity	Date	Source	Instrument	Sample holder	Water depth (m)	Treatment
5b	54	15/09/17	Water (10L)	CTD/bottles	Filter in cryotube	1m	Frozen -80 °C
5b	54	15/09/17	Water (10L)	CTD/bottles	Filter in cryotube	DCM (25m)	Frozen -80 °C
5b	54	15/09/17	Water (250ml)	CTD/bottles	Amber glass bottle	1m	Fixed w/Lugol's
5b	54	15/09/17	Water (250ml)	CTD/bottles	Amber glass bottle	DCM(25m)	Fixed w/Lugol's
5b	54	15/09/17	Water (250ml)	CTD/bottles	Amber glass bottle	bottom (210m)	Fixed w/Lugol's
7	60	16/09/17	Water (10L)	CTD/bottles	Filter in cryotube	bottom (360m)	Frozen -80 °C
7	62	16/09/17	Water (10L)	CTD/bottles	Filter in cryotube	1m	Frozen -80 °C
7	62	16/09/17	Water (10L)	CTD/bottles	Filter in cryotube	DCM (20m)	Frozen -80 °C
7	60	16/09/17	Water (250ml)	CTD/bottles	Amber glass bottle	bottom	Fixed w/Lugol's
7	62	16/09/17	Water (250ml)	CTD/bottles	Amber glass bottle	1m	Fixed w/Lugol's
7	62	16/09/17	Water (250ml)	CTD/bottles	Amber glass bottle	DCM (20m)	Fixed w/Lugol's
7	67	16/09/17	Plankton	Multinet 20µm/ Phyto 4	Transparent flask - black cap	360-30	Fixed w/Lugol's
7	67	16/09/17	Plankton	Multinet 20µm/ Phyto 5	Transparent flask - black cap	30-0	Fixed w/Lugol's
7	67	16/09/17	Plankton	Multinet 20µm/ Phyto 4	Tube yellow cap	360-30	Frozen -80 °C
7	67	16/09/17	Plankton	Multinet 20µm/ Phyto 5	Tube yellow cap	30-0	Frozen -80 °C
8	82	17/09/17	Water (10L)	CTD/bottles	Filter in cryotube	bottom (570m)	Frozen -80 °C
8	84	17/09/17	Water (10L)	CTD/bottles	Filter in cryotube	1m	Frozen -80 °C
8	84	17/09/17	Water (10L)	CTD/bottles	Filter in cryotube	DCM (35m)	Frozen -80 °C
8	82	17/09/17	Water (250ml)	CTD/bottles	Amber glass bottle	bottom (570m)	Fixed w/Lugol's
8	84	17/09/17	Water (250ml)	CTD/bottles	Amber glass bottle	1m	Fixed w/Lugol's
8	84	17/09/17	Water (250ml)	CTD/bottles	Amber glass bottle	DCM (35m)	Fixed w/Lugol's
8	87	17/09/17	Plankton	Multinet 20µm/ Phyto 4	Transparent flask - black cap	500-30	Fixed w/Lugol's
8	87	17/09/17	Plankton	Multinet 20µm/ Phyto 5	Transparent flask - black cap	30-0	Fixed w/Lugol's
8	87	17/09/17	Plankton	Multinet 20µm/ Phyto 4	Tube yellow cap	500-30	Frozen -80 °C
8	87	17/09/17	Plankton	Multinet 20µm/ Phyto 5	Tube yellow cap	30-0	Frozen -80 °C
10	101	18/09/17	Water (10L)	CTD/bottles	Filter in cryotube	bottom (485m)	Frozen -80 °C
10	104	18/09/17	Water (10L)	CTD/bottles	Filter in cryotube	1m	Frozen -80 °C
10	104	18/09/17	Water (10L)	CTD/bottles	Filter in cryotube	DCM (20m)	Frozen -80 °C
10	101	18/09/17	Water (250ml)	CTD/bottles	Amber glass bottle	bottom (485m)	Fixed w/Lugol's
10	104	18/09/17	Water (250ml)	CTD/bottles	Amber glass bottle	1m	Fixed w/Lugol's
10	104	18/09/17	Water (250ml)	CTD/bottles	Amber glass bottle	DCM (20m)	Fixed w/Lugol's
10	107	18/09/17	Plankton	Multinet 20µm/ Phyto 4	Transparent flask - black cap	485-30	Fixed w/Lugol's
10	107	18/09/17	Plankton	Multinet 20µm/ Phyto 5	Transparent flask - black cap	30-0	Fixed w/Lugol's
10	107	18/09/17	Plankton	Multinet 20µm/ Phyto 4	Tube yellow cap	485-30	Frozen -80 °C

Station	Activity	Date	Source	Instrument	Sample holder	Water depth (m)	Treatment
10	107	18/09/17	Plankton	Multinet 20µm/ Phyto 5	Tube yellow cap	30-0	Frozen -80 °C
12	125	19/09/17	Water (10L)	CTD/bottles	Filter in cryotube	bottom (485m)	Frozen -80 °C
12	127	19/09/17	Water (10L)	CTD/bottles	Filter in cryotube	1m	Frozen -80 °C
12	127	19/09/17	Water (10L)	CTD/bottles	Filter in cryotube	DCM (30m)	Frozen -80 °C
12	125	19/09/17	Water (250ml)	CTD/bottles	Amber glass bottle	bottom (485m)	Fixed w/Lugol's
12	127	19/09/17	Water (250ml)	CTD/bottles	Amber glass bottle	1m	Fixed w/Lugol's
12	127	19/09/17	Water (250ml)	CTD/bottles	Amber glass bottle	DCM (30m)	Fixed w/Lugol's
12	131	19/09/17	Plankton	Multinet 20µm/ Phyto 4	Transparent flask - black cap	485-30	Fixed w/Lugol's
12	131	19/09/17	Plankton	Multinet 20µm/ Phyto 5	Transparent flask - black cap	30-0	Fixed w/Lugol's
12	131	19/09/17	Plankton	Multinet 20µm/ Phyto 4	Tube yellow cap	485-30	Frozen -80 °C
12	131	19/09/17	Plankton	Multinet 20µm/ Phyto 5	Tube yellow cap	30-0	Frozen -80 °C
13	140	20/09/17	Water (10L)	CTD/bottles	Filter in cryotube	bottom (380m)	Frozen -80 °C
13	142	20/09/17	Water (10L)	CTD/bottles	Filter in cryotube	1m	Frozen -80 °C
13	142	20/09/17	Water (10L)	CTD/bottles	Filter in cryotube	DCM (23m)	Frozen -80 °C
13	140	20/09/17	Water (250ml)	CTD/bottles	Amber glass bottle	bottom (380m)	Fixed w/Lugol's
13	142	20/09/17	Water (250ml)	CTD/bottles	Amber glass bottle	1m	Fixed w/Lugol's
13	142	20/09/17	Water (250ml)	CTD/bottles	Amber glass bottle	DCM (23m)	Fixed w/Lugol's
13	147	20/09/17	Plankton	Multinet 20µm/ Phyto 4	Transparent flask - black cap	360-30	Fixed w/Lugol's
13	147	20/09/17	Plankton	Multinet 20µm/ Phyto 5	Transparent flask - black cap	30-0	Fixed w/Lugol's
13	147	20/09/17	Plankton	Multinet 20µm/ Phyto 4	Tube yellow cap	360-30	Frozen -80 °C
13	147	20/09/17	Plankton	Multinet 20µm/ Phyto 5	Tube yellow cap	30-0	Frozen -80 °C
14	158	21/09/17	Water (10L)	CTD/bottles	Filter in cryotube	bottom (330m)	Frozen -80 °C
14	160	21/09/17	Water (10L)	CTD/bottles	Filter in cryotube	1m	Frozen -80 °C
14	160	21/09/17	Water (10L)	CTD/bottles	Filter in cryotube	DCM (50m)	Frozen -80 °C
14	158	21/09/17	Water (250ml)	CTD/bottles	Amber glass bottle	bottom (330m)	Fixed w/Lugol's
14	160	21/09/17	Water (250ml)	CTD/bottles	Amber glass bottle	1m	Fixed w/Lugol's
14	160	21/09/17	Water (250ml)	CTD/bottles	Amber glass bottle	DCM (50m)	Fixed w/Lugol's
14	164	21/09/17	Plankton	Multinet 20µm/ Phyto 4	Transparent flask - black cap	300-30	Fixed w/Lugol's
14	164	21/09/17	Plankton	Multinet 20µm/ Phyto 5	Transparent flask - black cap	30-0	Fixed w/Lugol's
14	164	21/09/17	Plankton	Multinet 20µm/ Phyto 4	Tube yellow cap	300-30	Frozen -80 °C
14	164	21/09/17	Plankton	Multinet 20µm/ Phyto 5	Tube yellow cap	30-0	Frozen -80 °C
16	184	22/09/17	Water (10L)	CTD/bottles	Filter in cryotube	bottom (155m)	Frozen -80 °C
16	186	22/09/17	Water (10L)	CTD/bottles	Filter in cryotube	1m	Frozen -80 °C

Station	Activity	Date	Source	Instrument	Sample holder	Water depth (m)	Treatment
16	186	22/09/17	Water (10L)	CTD/bottles	Filter in cryotube	DCM (15m)	Frozen -80 °C
16	184	22/09/17	Water (250ml)	CTD/bottles	Amber glass bottle	bottom (155m)	Fixed w/Lugol’s
16	186	22/09/17	Water (250ml)	CTD/bottles	Amber glass bottle	1m	Fixed w/Lugol’s
16	186	22/09/17	Water (250ml)	CTD/bottles	Amber glass bottle	DCM (15m)	Fixed w/Lugol’s
16	190	22/09/17	Plankton	Multinet 20µm/ Phyto 4	Transparent flask - black cap	130-30	Fixed w/Lugol’s
16	190	22/09/17	Plankton	Multinet 20µm/ Phyto 5	Transparent flask - black cap	30-0	Fixed w/Lugol’s
16	190	22/09/17	Plankton	Multinet 20µm/ Phyto 4	Tube yellow cap	130-30	Frozen -80 °C
16	190	22/09/17	Plankton	Multinet 20µm/ Phyto 5	Tube yellow cap	30-0	Frozen -80 °C
19	219	22/09/17	Water (10L)	CTD/bottles	Filter in cryotube	bottom (326m)	Frozen -80 °C
19	221	22/09/17	Water (10L)	CTD/bottles	Filter in cryotube	1m	Frozen -80 °C
19	221	22/09/17	Water (10L)	CTD/bottles	Filter in cryotube	DCM (20m)	Frozen -80 °C
19	219	22/09/17	Water (250ml)	CTD/bottles	Amber glass bottle	bottom (326m)	Fixed w/Lugol’s
19	221	22/09/17	Water (250ml)	CTD/bottles	Amber glass bottle	1m	Fixed w/Lugol’s
19	221	22/09/17	Water (250ml)	CTD/bottles	Amber glass bottle	DCM (20m)	Fixed w/Lugol’s
19	225	22/09/17	Plankton	Multinet 20µm/ Phyto 4	Transparent flask - black cap	300-30	Fixed w/Lugol’s
19	225	22/09/17	Plankton	Multinet 20µm/ Phyto 5	Transparent flask - black cap	30-0	Fixed w/Lugol’s
19	225	22/09/17	Plankton	Multinet 20µm/ Phyto 4	Tube yellow cap	300-30	Frozen -80 °C
19	225	22/09/17	Plankton	Multinet 20µm/ Phyto 5	Tube yellow cap	30-0	Frozen -80 °C

Appendix 2. Sediment cores – deployment and recovery

Station	Event	Gear	Latitude (dec; North)	Longitude (dec, West)	Water depth (m)	Date	Time (UTC)	Success /Fail	Core name	Recovery (cm)
1	10	Rumohr	79.62973333	-6.070416667	319.6	2017-09-13	14:45:07	S	DA17-NG-ST1-10R	92.6
	11	Rumohr	79.62903333	-6.075766667	321.5	2017-09-13	15:00:50	S	DA17-NG-ST1-11R	69.5
	12	Rumohr	79.62945	-6.049466667	325.3	2017-09-13	15:22:36	S	DA17-NG-ST1-12R	84
	13	Rumohr	79.63	-6.05815	325.2	2017-09-13	16:10:18	F	FAIL	-
	14	Rumohr	79.62988333	-6.061616667	323.3	2017-09-13	16:24:57	S	DA17-NG-ST1-14R	83.7
	15	Rumohr	79.62961667	-6.062066667	322.5	2017-09-13	16:40:57	S	DA17-NG-ST1-15R	59.7
	16	Rumohr	79.63018333	-6.064733333	320.5	2017-09-13	16:55:55	F	FAIL	-
	17	Rumohr	79.63121667	-6.063566667	324.5	2017-09-13	17:12:31	S	DA17-NG-ST1-17R	85
	18	Rumohr	79.63265	-6.061483333	324	2017-09-13	17:28:42	S	DA17-NG-ST1-18R	82
	19	Gravity	79.63378333	-6.051166667	322.5	2017-09-13	18:04:16	S	DA17-NG-ST1-19G	150
3	30	Rumohr	80.03531667	-8.962466667	382.3	2017-09-14	16:07:02	S	DA17-NG-ST3-30R	86.6
	31	Rumohr	80.03905	-8.965783333	377.9	2017-09-14	16:29:52	S	DA17-NG-ST3-31R	89.3
	32	Rumohr	80.04263333	-8.9677	376.6	2017-09-14	16:47:47	S	DA17-NG-ST3-32R	91.4
	33	Rumohr	80.04115	-8.96885	377.5	2017-09-14	17:06:02	S	DA17-NG-ST3-33R	90.3
	34	Rumohr	80.04103333	-8.972783333	375.3	2017-09-14	17:22:24	S	DA17-NG-ST3-34R	91
	35	Rumohr	80.04086667	-8.97585	374.4	2017-09-14	17:38:49	S	DA17-NG-ST3-35R	93
	36	Rumohr	80.04075	-8.975233333	374.4	2017-09-14	17:55:28	S	DA17-NG-ST3-36R	156.5
	39	Gravity	80.03716667	-8.923183333	390.6	2017-09-14	20:58:05	S	DA17-NG-ST3-39G	320
5	51	Gravity	79.82486667	-12.47615	220.4	2017-09-15	13:38:52	S	DA17-NG-ST5-51G	30
	52	Rumohr	79.82398333	-12.46863333	225.9	2017-09-15	14:06:26	S	DA17-NG-ST5-52R	30.2
7	68	Rumohr	79.07068333	-11.90788333	383	2017-09-16	11:29:57	S	DA17-NG-ST7-68R	97.5
	69	Rumohr	79.07151667	-11.90021667	384.5	2017-09-16	11:47:08	S	DA17-NG-ST7-69R	148
	70	Rumohr	79.07171667	-11.89855	385.1	2017-09-16	12:07:04	S	DA17-NG-ST7-70R	188
	71	Rumohr	79.0718	-11.89268333	386	2017-09-16	12:23:47	S	DA17-NG-ST7-71R	93
	72	Rumohr	79.07215	-11.8881	384.6	2017-09-16	12:39:30	S	DA17-NG-ST7-72R	88
	73	Gravity	79.06833333	-11.90318333	385	2017-09-16	13:46:13	S	DA17-NG-ST7-73G	410
	79	Rumohr	79.06615	-11.93745	372.4	2017-09-16	15:35:37	S	DA17-NG-ST7-79R	179
	80	Gravity	79.10085	-12.16405	309.5	2017-09-16	16:48:36	S	DA17-NG-ST7-80G	350
8	89	Rumohr	78.50088333	-17.29008333	587.4	2017-09-17	11:24:13	S	DA17-NG-ST8-89R	94
	90	Rumohr	78.50001667	-17.30718333	594.9	2017-09-17	11:48:52	S	DA17-NG-ST8-90R	125

Station	Event	Gear	Latitude (dec; North)	Longitude (dec, West)	Water depth (m)	Date	Time (UTC)	Success /Fail	Core name	Recovery (cm)
	91	Rumohr	78.4999	-17.31943333	599.6	2017-09-17	12:13:21	S	DA17-NG-ST8-91R	120
	92	Gravity	78.5009	-17.27851667	582.9	2017-09-17	12:53:06	S	DA17-NG-ST8-92G	585
	96	Gravity	78.50011667	-17.35878333	602	2017-09-17	14:52:15	S	DA17-NG-ST8-96G	530
	97	Rumohr	78.49815	-17.3919	597.3	2017-09-17	15:30:54	S	DA17-NG-ST8-97R	91
	98	Rumohr	78.49625	-17.40426667	594.9	2017-09-17	15:56:17	S	DA17-NG-ST8-98R	99
10	108	Rumohr	77.95045	-15.5064	504	2017-09-18	10:44:54	S	DA17-NG-ST10-108R	92.5
	109	Rumohr	77.94966667	-15.49391667	503.8	2017-09-18	11:08:33	S	DA17-NG-ST10-109R	142
	110	Gravity	77.95008333	-15.50853333	503.9	2017-09-18	11:52:30	S	DA17-NG-ST10-110G	70
	114	Rumohr	77.95096667	-15.51881667	503.2	2017-09-18	13:37:29	F	FAIL	-
	115	Rumohr	77.95095	-15.51305	503	2017-09-18	13:56:47	F	FAIL	-
	116	Rumohr	77.95146667	-15.50555	503.4	2017-09-18	14:16:02	S	DA17-NG-ST10-116R	155
	117	Gravity	77.95861667	-15.44943333	497.2	2017-09-18	14:56:49	S	DA17-NG-ST10-117G	410
	118	Rumohr	77.95861667	-15.42611667	493.6	2017-09-18	15:25:53	F	FAIL	-
	119	Rumohr	77.95951667	-15.42198333	495.4	2017-09-18	15:37:50	F	FAIL	-
	120	Rumohr	77.96095	-15.41756667	496.8	2017-09-18	15:49:59	S	DA17-NG-ST10-120R	86
	121	Rumohr	77.95753333	-15.45415	499.1	2017-09-18	16:21:07	S	DA17-NG-ST10-121R	50
12	132	Rumohr	77.1271	-10.6802	501.1	2017-09-19	13:05:39	S	DA17-NG-ST12-132R	88
	133	Rumohr	77.12615	-10.67251667	500.9	2017-09-19	13:28:16	S	DA17-NG-ST12-133R	107
	134	Rumohr	77.12505	-10.6632	500.5	2017-09-19	13:51:28	S	DA17-NG-ST12-134R	146
	135	Gravity	77.12746667	-10.67565	500.9	2017-09-19	14:49:54	S	DA17-NG-ST12-135G	270
13	148	Rumohr	75.84815	-12.5931	397.1	2017-09-20	11:45:05	S	DA17-NG-ST13-148R	78
	149	Rumohr	75.84826667	-12.594	398	2017-09-20	12:01:33	S	DA17-NG-ST13-149R	80
	150	Rumohr	75.84846667	-12.59526667	398.5	2017-09-20	12:18:32	S	DA17-NG-ST13-150R	90
	151	Rumohr	75.84851667	-12.5967	398.7	2017-09-20	12:35:08	S	DA17-NG-ST13-151R	120
	152	Gravity	75.84765	-12.59205	397.2	2017-09-20	13:10:16	S	DA17-NG-ST13-152G	190
14	165	Rumohr	74.09138333	-19.42856667	340.1	2017-09-21	10:34:31	F	FAIL	-
	166	Rumohr	74.09105	-19.43291667	342.4	2017-09-21	10:51:29	S	DA17-NG-ST14-166R	85
	167	Rumohr	74.09115	-19.43305	342.6	2017-09-21	11:06:55	S	DA17-NG-ST14-167R	80
	168	Rumohr	74.09088333	-19.43168333	341.6	2017-09-21	11:21:44	S	DA17-NG-ST14-168R	89
	169	Rumohr	74.09048333	-19.43295	341.5	2017-09-21	11:37:23	F	FAIL	-
	170	Rumohr	74.09023333	-19.43225	341.3	2017-09-21	11:51:11	F	FAIL	-
	171	Gravity	74.09021667	-19.43103333	341.2	2017-09-21	12:20:14	S	DA17-NG-ST14-171G	420
	172	Rumohr	74.0901	-19.43035	341.4	2017-09-21	12:42:51	S	DA17-NG-ST14-172R	84
	173	Rumohr	74.09066667	-19.43261667	341.8	2017-09-21	12:59:10	S	DA17-NG-ST14-173R	140

Station	Event	Gear	Latitude (dec; North)	Longitude (dec, West)	Water depth (m)	Date	Time (UTC)	Success /Fail	Core name	Recovery (cm)
15	180	Gravity	74.20775	-19.03245	143.8	2017-09-21	17:02:02	S	DA17-NG-ST15-180G	350
	181	Rumohr	74.20593333	-19.032	143.8	2017-09-21	17:20:34	S	DA17-NG-ST15-181R	90
	182	Rumohr	74.20403333	-19.03418333	149.4	2017-09-21	17:39:50	S	DA17-NG-ST15-182R	72
15	261	Rumohr	74.21098333	-19.0168	146.8	2017-09-24	10:57:43	F	FAIL	-
16	191	Rumohr	74.30868333	-20.29331667	157.4	2017-09-22	10:24:11	S	DA17-NG-ST16-191R	91
	192	Rumohr	74.3084	-20.29453333	158.7	2017-09-22	10:32:10	S	DA17-NG-ST16-192R	91
	193	Rumohr	74.30915	-20.29303333	154.9	2017-09-22	10:40:07	S	DA17-NG-ST16-193R	91
	194	Rumohr	74.3086	-20.29506667	158.9	2017-09-22	10:49:26	F	FAIL	-
	195	Rumohr	74.30888333	-20.29511667	158.8	2017-09-22	10:57:45	S	DA17-NG-ST16-195R	185
	196	Rumohr	74.30851667	-20.29663333	159	2017-09-22	11:07:44	F	FAIL	-
	197	Rumohr	74.30886667	-20.29665	159.2	2017-09-22	11:17:18	F	FAIL	-
	198	Rumohr	74.309	-20.29936667	159	2017-09-22	11:23:51	F	FAIL	-
	199	Rumohr	74.30923333	-20.30006667	159.7	2017-09-22	12:03:48	F	FAIL	-
	200	Rumohr	74.30906667	-20.30106667	159.2	2017-09-22	12:05:32	S	DA17-NG-ST16-200R	90
	201	Rumohr	74.30911667	-20.3022	158.9	2017-09-22	12:13:22	S	DA17-NG-ST16-201R	190
	202	Rumohr	74.3092	-20.29746667	159.4	2017-09-22	12:24:27	S	DA17-NG-ST16-202R	146
	203	Gravity	74.30846667	-20.2921	157.8	2017-09-22	12:54:27	S	DA17-NG-ST16-203G	160
	208	Rumohr	74.30866667	-20.29505	159.6	2017-09-22	14:23:53	F	FAIL	-
	209	Rumohr	74.30798333	-20.30045	158.1	2017-09-22	14:32:23	F	FAIL	-
	210	Gravity	74.30758333	-20.29603333	158.9	2017-09-22	15:30:26	S	DA17-NG-ST16-210G	170
18	213	Gravity	74.34908333	-20.33831667	168.1	2017-09-22	17:23:14	S	DA17-NG-ST18-213G	310
	214	Rumohr	74.34928333	-20.34	167.5	2017-09-22	17:35:52	S	DA17-NG-ST18-214R	90
	215	Rumohr	74.3488	-20.33715	168.2	2017-09-22	17:55:55	S	DA17-NG-ST18-215R	90
	216	Rumohr	74.34918333	-20.33536667	168.3	2017-09-22	18:05:12	S	DA17-NG-ST18-216R	88
19	226	Rumohr	74.46308333	-21.18826667	332.2	2017-09-23	10:20:53	S	DA17-NG-ST19-226R	91
	227	Rumohr	74.46291667	-21.1887	332.3	2017-09-23	10:31:51	S	DA17-NG-ST19-227R	
	228	Rumohr	74.46356667	-21.19156667	332.4	2017-09-23	10:46:00	S	DA17-NG-ST19-228R	92
	229	Rumohr	74.46335	-21.19031667	332.5	2017-09-23	11:00:45	F	FAIL	
	230	Rumohr	74.46303333	-21.19026667	332.6	2017-09-23	11:17:14	S	DA17-NG-ST19-230R	
	231	Rumohr	74.4632	-21.18976667	332.7	2017-09-23	11:37:27	S	DA17-NG-ST19-231R	
	232	Rumohr	74.46303333	-21.19125	332.8	2017-09-23	11:52:27	S	DA17-NG-ST19-232R	159
	233	Rumohr	74.46321667	-21.19551667	332.9	2017-09-23	12:07:11	F	FAIL	-
	234	Rumohr	74.46295	-21.1951	333	2017-09-23	12:19:03	F	FAIL	-
	235	Gravity	74.46313333	-21.19083333	333.1	2017-09-23	12:49:28	S	DA17-NG-ST19-235G	370
21	243	Rumohr	74.42143333	-20.50561667	146.5	2017-09-23	18:40:17	S	DA17-NG-ST21-243R	92

Station	Event	Gear	Latitude (dec; North)	Longitude (dec, West)	Water depth (m)	Date	Time (UTC)	Success /Fail	Core name	Recovery (cm)
	244	Rumohr	74.42213333	-20.50746667	150.2	2017-09-23	18:48:03	S	DA17-NG-ST21-244R	
	245	Gravity	74.42346667	-20.51488333	156.5	2017-09-23	19:10:31	S	DA17-NG-ST21-245G	360
22	252	Gravity	74.44291667	-18.71883333	147.1	2017-09-24	06:54:11	S	DA17-NG-ST22-252G	230
	253	Rumohr	74.44376667	-18.72195	146.8	2017-09-24	07:20:13	S	DA17-NG-ST22-253R	71
	254	Rumohr	74.442	-18.71453333	144.6	2017-09-24	07:37:47	F	FAIL	-
	255	Rumohr	74.44583333	-18.72883333	145	2017-09-24	07:51:28	F	FAIL	-
	256	Rumohr	74.44451667	-18.7224	146.2	2017-09-24	07:59:47	S	DA17-NG-ST22-256R	97

Appendix 3. Surface sediment recovery

Station	Event	Gear	Latitude (dec; North)	Longitude (dec, West)	Water depth (m)	Date	Time (UTC)	Success /Fail	Core name
1	9	Box corer	79.63112	-06.05978	324.6	2017-09-13	13:54:15	S	DA17-NG-ST1-009BC
3	37	Haps	80.04538	-08.96988	377.3	2017-09-14	18:18:13	S	DA17-NG-ST03-037HAPS
	38	Haps	80.05100	-08.96907	367.7	2017-09-14	18:38:32	S	DA17-NG-ST03-038HAPS
	40	Haps	80.03832	-08.84595	346.1	2017-09-14	21:35:50	S	DA17-NG-ST03-040HAPS
	41	Haps	80.03832	-08.81522	307.9	2017-09-14	22:03:04	S	DA17-NG-ST03-041HAPS
4	42	Dredge	79.97473	-10.52147	124.3	2017-09-15	03:18:58	S	DA17-NG-ST04-042DRGE
5	48	Haps	79.82748	-12.50123	205.4	2017-09-15	12:48:09	S	DA17-NG-ST05-048HAPS
	49	Haps	79.82702	-12.49468	206.7	2017-09-15	13:00:07	S	DA17-NG-ST05-049HAPS
	50	Haps	79.82660	-12.48978	211.8	2017-09-15	13:11:19	S	DA17-NG-ST05-045HAPS
7	74	Haps	79.06965	-11.90626	384.6	2017-09-16	14:12:15	S	DA17-NG-ST7-074HAPS
	75	Haps	79.07008	-11.90750	382.9	2017-09-16	14:28:28	S	DA17-NG-ST7-075HAPS
	76	Haps	79.06932	-11.91028	384.4	2017-09-16	14:44:1	S	DA17-NG-ST7-076HAPS
	77	Haps	79.06910	-11.91590	382.2	2017-09-16	15:00:03	S	DA17-NG-ST7-077HAPS
	78	Haps	79.06875	-11.92265	377.3	2017-09-16	15:16:24	S	DA17-NG-ST7-078HAPS
	81	Dredge	79.04735	-11.95310	344.6	2017-09-16	17:56:12	S	DA17-NG-ST07-081DRGE
8	93	Haps	78.49935	-17.29195	589.8	2017-09-17	13:26:08	S	DA17-NG-ST08-093HAPS
	94	Haps	78.49987	-17.30272	593.8	2017-09-17	13:48:58	S	DA17-NG-ST08-094HAPS
	95	Haps	78.50242	-17.31390	593.8	2017-09-17	14:12:00	S	DA17-NG-ST08-095HAPS
10	111	Haps	77.95088	-15.50773	504	2017-09-18	12:24:34	S	DA17-NG-ST10-111HAPS
	112	Haps	77.95065	-15.50752	504	2017-09-18	12:45:27	S	DA17-NG-ST10-112HAPS
	113	Haps	77.95150	-15.49898	504.5	2017-09-18	13:06:14	S	DA17-NG-ST10-113HAPS
11	122	Dredge	77.88683	-13.6282	349.2	2017-09-18	20:51:49	F	DA17-NG-ST11-122DRGE
12	136	Haps	77.12798	-10.67650	500.6	2017-09-19	14:53:44	S	DA17-NG-ST12-136HAPS
	137	Haps	77.12810	-10.67268	498.7	2017-09-19	15:13:32	S	DA17-NG-ST12-137HAPS
	138	Haps	77.12797	-10.66585	500.4	2017-09-19	15:33:25	S	DA17-NG-ST12-138HAPS
	139	Haps	77.12777	-10.66072	500.7	2017-09-19	15:52:52	S	DA17-NG-ST12-139HAPS
13	153	Haps	75.84782	-12.59382	397.5	2017-09-20	13:28:58	S	DA17-NG-ST13-153HAPS
	154	Haps	75.84705	-12.59233	397.6	2017-09-20	13:44:59	S	DA17-NG-ST13-154HAPS
	155	Haps	75.84753	-12.58878	396.2	2017-09-20	14:01:12	S	DA17-NG-ST13-155HAPS
14	174	Haps	74.09867	-19.43258	342	2017-09-21	13:15:54	S	DA17-NG-ST14-174HAPS

Station	Event	Gear	Latitude	Longitude	Water	Date	Time	Success	Core name
	175	Haps	74.09105	-19.43088	341.6	2017-09-21	13:39:45	S	DA17-NG-ST14-175HAPS
	176	Haps	74.09088	-19.42832	340.5	2017-09-21	13:54:34	S	DA17-NG-ST14-176HAPS
	177	Haps	74.08993	-19.43000	340.8	2017-09-21	14:08:55	S	DA17-NG-ST14-177HAPS
16	204	Haps	74.30905	-20.29192	156.7	2017-09-22	13:38:29	S	DA17-NG-ST14-204HAPS
	205	Haps	74.30862	-20.29037	154.8	2017-09-22	13:46:36	S	DA17-NG-ST14-205HAPS
	206	Haps	74.30778	-20.29087	157.2	2017-09-22	13:55:49	S	DA17-NG-ST14-206HAPS
	207	Haps	74.30757	-20.29562	159	2017-09-22	14:04:47	S	DA17-NG-ST14-207HAPS
	246	Haps	74.31047	-20.29928	158.8	2017-09-23	20:15:29	S	DA17-NG-ST16-246HAPS
17	211	VanVeen Grab	74.30768	-20.25600	38.5	2017-09-22	16:20:35	S	DA17-NG-ST17-211VV
	212	VanVeen Grab	74.30683	-20.26085	46.5	2017-09-22	16:33:11	S	DA17-NG-ST17-212VV
19	236	Haps	74.46387	-21.19098	333	2017-09-23	13:28:20	S	DA17-NG-ST19-236HAPS
	237	Haps	74.46407	-21.19455	333.1	2017-09-23	13:48:22	S	DA17-NG-ST19-237HAPS
	238	Haps	74.46395	-21.33356	333.1	2017-09-23	14:02:10	S	DA17-NG-ST19-238HAPS
	239	Haps	74.46415	-21.20368	333.2	2017-09-23	14:15:25	S	DA17-NG-ST19-239HAPS
	240	Haps	74.46482	-21.20643	333	2017-09-23	14:29:02	S	DA17-NG-ST19-240HAPS
22	257	Haps	74.44443	-18.72207	147.1	2017-09-24	08:13:53	S	DA17-NG-ST22-257HAPS
	258	Haps	74.44438	-18.72567	146.8	2017-09-24	08:21:55	S	DA17-NG-ST22-258HAPS
	259	Haps	74.44365	-18.72722	144.6	2017-09-24	08:31:41	S	DA17-NG-ST22-259HAPS

Appendix 4. Detailed lists of all casts deployed during the NorthGreen2017 Expedition

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Deployment no.	Statiopn no.	Name	Instrument	Status	Time Start deployment (UTC)	Latitude Start	Longitude Start	Water depth Start	timeStop (UTC)	Latitude Stop	Longitude Stop	Water depth Stop	Wind Speed
1	Station 01	DA17-NG-ST01-001CTD	SEA (CTD)	Success	2017-09-13T08:14:01	79.37.236 N	006.03.535 W	320.9	2017-09-13T08:59:14	79.37.011 N	006.02.853 W	322.8	7.08
2	Station 01	DA17-NG-ST01-002TURB	Turbulence	Success	2017-09-13T09:11:23	79.36.944 N	006.03.370 W	319.9	2017-09-13T09:17:20	79.36.964 N	006.03.240 W	320.9	6.48
3	Station 01	DA17-NG-ST01-003MN	MULTI Net	Success	2017-09-13T09:43:22	79.36.724 N	006.03.100 W	323.2	2017-09-13T10:07:17	79.36.548 N	006.03.656 W	319.6	5.8
4	Station 01	DA17-NG-ST01-004CTD	SEA (CTD)	Success	2017-09-13T10:22:24	79.36.449 N	006.04.209 W	315.3	2017-09-13T10:33:25	79.36.322 N	006.03.836 W	317	5.53
5	Station 01	DA17-NG-ST01-005MN	MULTI Net	Fail	2017-09-13T10:49:35	79.36.107 N	006.03.231 W	316.4	2017-09-13T11:01:05	79.35.961 N	006.03.276 W	325.2	5.54
6	Station 01	DA17-NG-ST01-006MN	MULTI Net	Success	2017-09-13T11:40:39	79.35.628 N	006.01.252 W	324	2017-09-13T11:59:20	79.35.439 N	006.01.171 W	322.3	6.1
7	Station 01	DA17-NG-ST01-007WP3	WP3 Net	Success	2017-09-13T12:13:16	79.35.236 N	006.02.236 W	322.4	2017-09-13T12:27:36	79.35.057 N	006.02.165 W	318.7	6.5
8	Station 01	DA17-NG-ST01-008MN	MULTI Net 20my	Success	2017-09-13T12:40:14	79.34.895 N	006.02.666 W	311.9	2017-09-13T12:56:43	79.34.739 N	006.02.705 W	320.6	5.97
9	Station 01	DA17-NG-ST01-009BC	BOX corer	Success	2017-09-13T13:54:15	79.37.867 N	006.03.587 W	324.6	2017-09-13T14:08:31	79.37.788 N	006.03.558 W	325	6.75
10	Station 01	DA17-NG-ST01-010R	Rumohr lot	Success	2017-09-13T14:45:07	79.37.784 N	006.04.225 W	319.6	2017-09-13T14:54:29	79.37.760 N	006.04.386 W	319.4	5.78
11	Station 01	DA17-NG-ST01-011R	Rumohr lot	Success	2017-09-13T15:00:50	79.37.742 N	006.04.546 W	321.5	2017-09-13T15:11:30	79.37.746 N	006.04.849 W	320	5.07
12	Station 01	DA17-NG-ST01-012R	Rumohr lot	Success	2017-09-13T15:22:36	79.37.767 N	006.02.968 W	325.3	2017-09-13T15:32:55	79.37.724 N	006.03.174 W	325	4.57
13	Station 01	DA17-NG-ST01-013R	Rumohr lot	Fail	2017-09-13T16:10:18	79.37.800 N	006.03.489 W	325.2	2017-09-13T16:21:14	79.37.795 N	006.03.585 W	324.4	4.77
14	Station 01	DA17-NG-ST01-014R	Rumohr lot	Success	2017-09-13T16:24:57	79.37.793 N	006.03.697 W	323.3	2017-09-13T16:35:14	79.37.781 N	006.03.770 W	322.6	4.21
15	Station 01	DA17-NG-ST01-015R	Rumohr lot	Success	2017-09-13T16:40:57	79.37.777 N	006.03.724 W	322.5	2017-09-13T16:51:12	79.37.790 N	006.03.740 W	323.3	5.24
16	Station 01	DA17-NG-ST01-016R	Rumohr lot	Fail	2017-09-13T16:55:55	79.37.811 N	006.03.884 W	320.5	2017-09-13T17:06:18	79.37.847 N	006.03.855 W	324.3	5.2
17	Station 01	DA17-NG-ST01-017R	Rumohr lot	Success	2017-09-13T17:12:31	79.37.873 N	006.03.814 W	324.5	2017-09-13T17:23:07	79.37.930 N	006.03.757 W	325.4	4.65
18	Station 01	DA17-NG-ST01-018R	Rumohr lot	Success	2017-09-13T17:28:42	79.37.959 N	006.03.689 W	324	2017-09-13T17:38:59	79.38.015 N	006.03.586 W	322.8	4.66
19	Station 01	DA17-NG-ST01-016G	Gravity corer	Success	2017-09-13T18:04:16	79.38.027 N	006.03.070 W	322.5	2017-09-13T18:25:18	79.38.085 N	006.02.418 W	320.8	3.27
20	Station 02	DA17-NG-ST02-020CTD	SEA (CTD)	Success	2017-09-13T22:24:00	79.30.909 N	008.10.446 W	211.7	2017-09-13T23:00:10	79.30.466 N	008.10.662 W	209.7	4.47
21	Station 02	DA17-NG-ST02-021TURB	Turbulence	Success	2017-09-13T23:10:01	79.30.369 N	008.11.232 W	212.2	2017-09-13T23:17:13	79.30.325 N	008.11.544 W	212.2	3.46
22	Station 02	DA17-NG-ST02-022MIK	MIK Net	Success	2017-09-13T23:38:34	79.30.681 N	008.16.019 W	213.9	2017-09-14T00:27:16	79.31.823 N	008.27.265 W	228.3	3.46
23	Station 03	DA17-NG-ST03-023CTD	SEA (CTD)	Success	2017-09-14T10:25:27	80.02.651 N	008.57.293 W	376.1	2017-09-14T11:11:37	80.02.258 N	008.54.558 W	389.5	5.77
24	Station 03	DA17-NG-ST03-024TURB	Turbulence	Success	2017-09-14T11:30:10	80.02.064 N	008.53.579 W	380.2	2017-09-14T11:37:46	80.01.926 N	008.53.365 W	373.5	4.18
25	Station 03	DA17-NG-ST03-025CTD	SEA (CTD)	Success	2017-09-14T12:00:44	80.02.734 N	008.52.578 W	381.3	2017-09-14T12:10:02	80.02.584 N	008.52.448 W	379.6	4.79
26	Station 03	DA17-NG-ST03-026MN	MULTI Net	Success	2017-09-14T12:22:29	80.02.407 N	008.52.341 W	379.6	2017-09-14T12:41:41	80.02.294 N	008.52.966 W	376.8	4.54
27	Station 03	DA17-NG-ST03-027MN	MULTI Net	Success	2017-09-14T13:10:15	80.02.383 N	008.52.999 W	383.9	2017-09-14T13:31:43	80.02.115 N	008.53.816 W	381.8	4.87
28	Station 03	DA17-NG-ST03-028WP3	WP3 Net	Success	2017-09-14T14:03:52	80.01.922 N	008.53.659 W	375.4	2017-09-14T14:31:12	80.01.750 N	008.54.031 W	376.5	6.17
29	Station 03	DA17-NG-ST03-029MN	MULTI Net 20my	Success	2017-09-14T14:44:24	80.01.726 N	008.54.813 W	385.9	2017-09-14T15:08:33	80.01.739 N	008.55.536 W	384.9	6.73
30	Station 03	DA17-NG-ST03-030R	Rumohr lot	Success	2017-09-14T16:07:02	80.02.119 N	008.57.748 W	382.3	2017-09-14T16:25:03	80.02.291 N	008.57.910 W	377.5	6.11
31	Station 03	DA17-NG-ST03-031R	Rumohr lot	Success	2017-09-14T16:29:52	80.02.343 N	008.57.947 W	377.9	2017-09-14T16:44:29	80.02.511 N	008.57.972 W	376.3	7.04
32	Station 03	DA17-NG-ST03-032R	Rumohr lot	Success	2017-09-14T16:47:47	80.02.558 N	008.58.062 W	376.6	2017-09-14T17:00:26	80.02.567 N	008.58.249 W	376.4	7.11
33	Station 03	DA17-NG-ST03-033R	Rumohr lot	Success	2017-09-14T17:06:02	80.02.469 N	008.58.131 W	377.5	2017-09-14T17:18:18	80.02.454 N	008.58.285 W	375.5	6.73
34	Station 03	DA17-NG-ST03-034R	Rumohr lot	Success	2017-09-14T17:22:24	80.02.462 N	008.58.367 W	375.3	2017-09-14T17:34:56	80.02.457 N	008.58.552 W	374.3	6.8
35	Station 03	DA17-NG-ST03-035R	Rumohr lot	Success	2017-09-14T17:38:49	80.02.452 N	008.58.551 W	374.4	2017-09-14T17:51:04	80.02.458 N	008.58.575 W	374.1	6.96
36	Station 03	DA17-NG-ST03-036R	Rumohr lot	Success	2017-09-14T17:55:28	80.02.445 N	008.58.514 W	374.4	2017-09-14T18:07:43	80.02.500 N	008.58.328 W	374.7	6.9
37	Station 03	DA17-NG-ST03-037HAPS	HAPS corer	Success	2017-09-14T18:18:13	80.02.723 N	008.58.193 W	377.3	2017-09-14T18:30:44	80.02.868 N	008.57.990 W	376	6.38
38	Station 03	DA17-NG-ST03-038HAPS	HAPS corer	Success	2017-09-14T18:38:32	80.03.060 N	008.58.144 W	367.7	2017-09-14T18:50:45	80.03.176 N	008.57.755 W	365.6	7.09
39	Station 03	DA17-NG-ST03-039G	Gravity corer	Success	2017-09-14T20:58:05	80.02.230 N	008.55.391 W	390.6	2017-09-14T21:16:09	80.02.309 N	008.53.140 W	385.1	9.62
40	Station 03	DA17-NG-ST03-040HAPS	HAPS corer	Success	2017-09-14T21:35:50	80.02.299 N	008.50.757 W	346.1	2017-09-14T21:47:25	80.02.322 N	008.49.903 W	334.2	7.85
41	Station 03	DA17-NG-ST03-041HAPS	HAPS corer	Success	2017-09-14T22:03:04	80.02.295 N	008.48.913 W	307.9	2017-09-14T22:13:50	80.02.257 N	008.48.173 W	285.8	8.92
42	Station 04	DA17-NG-ST04-042DRGE	Dredge	Success	2017-09-15T03:18:58	79.58.484 N	010.31.288 W	124.3	2017-09-15T03:19:05	79.58.487 N	010.31.295 W	123.8	5.11
43	Station 04	DA17-NG-ST04-043CTD	SEA (CTD)	Success	2017-09-15T03:42:40	79.58.487 N	010.32.324 W	125.9	2017-09-15T04:17:28	79.58.650 N	010.34.858 W	126.9	8.1
44	Station 05	DA17-NG-ST05-044CTD	SEA (CTD)	Success	2017-09-15T07:52:31	79.50.660 N	012.20.310 W	156.2	2017-09-15T08:26:53	79.50.979 N	012.20.822 W	158.5	6.03
45	Station 05	DA17-NG-ST05-045TURB	Turbulence	Success	2017-09-15T08:37:11	79.51.205 N	012.20.768 W	164.4	2017-09-15T08:44:22	79.51.357 N	012.20.486 W	162.1	5.44
46	Station 05	DA17-NG-ST05-46CTD	SEA (CTD)	Success	2017-09-15T09:07:10	79.51.201 N	012.18.325 W	173.2	2017-09-15T09:18:53	79.51.311 N	012.18.045 W	175.5	5.49
47	Station 05	DA17-NG-ST05-47MN	MULTI Net	Success	2017-09-15T09:32:01	79.51.439 N	012.17.751 W	173.4	2017-09-15T09:41:55	79.51.493 N	012.17.540 W	171.7	6.19
48	Station 05	DA17-NG-ST05-048HAPS	HAPS corer	Success	2017-09-15T12:41:27	79.49.649 N	012.30.074 W	205.4	2017-09-15T12:48:09	79.49.626 N	012.29.842 W	207.2	1.66
49	Station 05	DA17-NG-ST05-049HAPS	HAPS corer	Success	2017-09-15T12:53:20	79.49.621 N	012.29.681 W	206.7	2017-09-15T13:00:07	79.49.593 N	012.29.478 W	209.3	1.16

Deployment no.	Statiopn no.	Name	Instrument	Status	Time Start deployment (UTC)	Latitude Start	Longitude Start	Water depth Start	timeStop (UTC)	Latitude Stop	Longitude Stop	Water depth Stop	Wind Speed
50	Station 05	DA17-NG-ST05-050HAPS	HAPS corer	Success	2017-09-15T13:04:17	79.49.596 N	012.29.351 W	211.8	2017-09-15T13:11:19	79.49.583 N	012.29.175 W	214.5	0.7
51	Station 05	DA17-NG-ST05-051G	Gravity corer	Success	2017-09-15T13:38:52	79.49.492 N	012.28.569 W	220.4	2017-09-15T13:44:12	79.49.471 N	012.28.523 W	222.9	1.31
52	Station 05	DA17-NG-ST05-052R	Rumohr lot	Success	2017-09-15T14:06:26	79.49.439 N	012.28.118 W	225.9	2017-09-15T14:23:03	79.49.386 N	012.27.872 W	232.6	4.74
53	Station 05	DA17-NG-ST05-053TURB	Turbulence	Success	2017-09-15T14:26:20	79.49.392 N	012.27.767 W	233.4	2017-09-15T14:29:26	79.49.410 N	012.27.732 W	230.8	4.61
54	Station 05	DA17-NG-ST05-053CTD	SEA (CTD)	Success	2017-09-15T14:35:55	79.49.383 N	012.27.756 W	233.8	2017-09-15T15:10:07	79.49.320 N	012.27.241 W	234.4	6.63
55	Station 05	DA17-NG-ST05-055MN	MULTI Net	Success	2017-09-15T15:19:50	79.49.270 N	012.26.895 W	236.1	2017-09-15T15:30:44	79.49.256 N	012.26.964 W	236.7	7.23
56	Station 05	DA17-NG-ST05-056MN	MULTI Net 20my	Success	2017-09-15T15:46:49	79.49.158 N	012.26.678 W	238.4	2017-09-15T15:57:20	79.49.149 N	012.26.627 W	236.3	0.12
57	Station 05	DA17-NG-ST05-057CTD	SEA (CTD)	Success	2017-09-15T21:16:31	79.22.545 N	012.07.538 W	128.1	2017-09-15T21:37:13	79.22.617 N	012.07.301 W	129	0.09
58	Station 06	DA17-NG-ST06-058TURB	Turbulence	Success	2017-09-15T21:44:33	79.22.603 N	012.07.061 W	136.8	2017-09-15T21:52:49	79.22.625 N	012.06.655 W	132	0.14
59	Station 06	DA17-NG-ST06-059MIK	MIK Net	Success	2017-09-15T22:04:59	79.22.287 N	012.06.594 W	140.8	2017-09-15T22:46:23	79.20.158 N	012.03.632 W	179.9	1.81
60	Station 07	DA17-NG-ST07-060CTD	SEA (CTD)	Success	2017-09-16T06:17:57	79.04.361 N	011.55.196 W	380.5	2017-09-16T07:15:18	79.04.617 N	011.53.220 W	374.6	5.92
61	Station 07	DA17-NG-ST07-061TURB	Turbulence	Success	2017-09-16T07:23:30	79.04.758 N	011.52.516 W	368.1	2017-09-16T07:31:21	79.04.859 N	011.51.760 W	358.6	5.01
62	Station 07	DA17-NG-ST07-062CTD	SEA (CTD)	Success	2017-09-16T07:53:13	79.05.347 N	011.49.431 W	332.8	2017-09-16T08:02:47	79.05.417 N	011.48.766 W	322.9	4.39
63	Station 07	DA17-NG-ST07-063MN	MULTI Net	Fail	2017-09-16T08:14:55	79.05.542 N	011.47.792 W	306.5	2017-09-16T08:21:06	79.05.583 N	011.47.385 W	303.1	4.21
64	Station 07	DA17-NG-ST07-064MN	MULTI Net	Success	2017-09-16T09:04:58	79.05.675 N	011.45.477 W	298.3	2017-09-16T09:20:50	79.05.672 N	011.44.855 W	295.6	5.04
65	Station 07	DA17-NG-ST07-065MN	MULTI Net	Success	2017-09-16T09:43:46	79.04.780 N	011.50.365 W	355.8	2017-09-16T10:05:49	79.04.706 N	011.49.001 W	356.7	0.48
66	Station 07	DA17-NG-ST07-066WP3	WP3 Net	Success	2017-09-16T10:14:07	79.04.572 N	011.48.399 W	356.9	2017-09-16T10:34:35	79.04.501 N	011.47.200 W	349.3	0.29
67	Station 07	DA17-NG-ST07-067MN	MULTI Net 20my	Success	2017-09-16T10:52:07	79.04.103 N	011.53.583 W	387.4	2017-09-16T11:12:34	79.04.107 N	011.52.369 W	388.6	0.25
68	Station 07	DA17-NG-ST07-068R	Rumohr lot	Success	2017-09-16T11:29:57	79.04.241 N	011.54.473 W	383	2017-09-16T11:42:20	79.04.293 N	011.54.138 W	384.4	0.19
69	Station 07	DA17-NG-ST07-069R	Rumohr lot	Success	2017-09-16T11:47:08	79.04.291 N	011.54.013 W	384.5	2017-09-16T11:59:40	79.04.315 N	011.53.955 W	384.6	0.06
70	Station 07	DA17-NG-ST07-070R	Rumohr lot	Success	2017-09-16T12:07:04	79.04.303 N	011.53.913 W	385.1	2017-09-16T12:17:49	79.04.326 N	011.53.728 W	386	0.11
71	Station 07	DA17-NG-ST07-071R	Rumohr lot	Success	2017-09-16T12:23:47	79.04.308 N	011.53.561 W	386	2017-09-16T12:36:08	79.04.335 N	011.53.322 W	386	0.14
72	Station 07	DA17-NG-ST07-072R	Rumohr lot	Success	2017-09-16T12:39:30	79.04.329 N	011.53.286 W	384.6	2017-09-16T12:52:30	79.04.351 N	011.52.992 W	383.6	0.28
73	Station 07	DA17-NG-ST07-073G	Gravity corer	Success	2017-09-16T13:46:13	79.04.100 N	011.54.191 W	385	2017-09-16T13:58:06	79.04.174 N	011.54.252 W	385.5	0.39
74	Station 07	DA17-NG-ST07-074HAPS	HAPS corer	Success	2017-09-16T14:12:15	79.04.179 N	011.54.376 W	384.6	2017-09-16T14:25:13	79.04.209 N	011.54.436 W	382.8	0.11
75	Station 07	DA17-NG-ST07-075HAPS	HAPS corer	Success	2017-09-16T14:28:28	79.04.205 N	011.54.450 W	382.9	2017-09-16T14:41:06	79.04.171 N	011.54.564 W	384.6	0.15
76	Station 07	DA17-NG-ST07-076HAPS	HAPS corer	Success	2017-09-16T14:44:13	79.04.159 N	011.54.617 W	384.4	2017-09-16T14:57:10	79.04.127 N	011.54.927 W	382.1	0.34
77	Station 07	DA17-NG-ST07-077HAPS	HAPS corer	Success	2017-09-16T15:00:03	79.04.146 N	011.54.954 W	382.2	2017-09-16T15:12:40	79.04.139 N	011.55.212 W	378.9	0.31
78	Station 07	DA17-NG-ST07-078HAPS	HAPS corer	Success	2017-09-16T15:16:24	79.04.125 N	011.55.359 W	377.3	2017-09-16T15:28:58	79.04.039 N	011.55.896 W	373.5	0.42
79	Station 07	DA17-NG-ST07-079R	Rumohr lot	Success	2017-09-16T15:35:37	79.03.969 N	011.56.247 W	372.4	2017-09-16T15:48:03	79.03.948 N	011.56.451 W	371.4	0.08
80	Station 07	DA17-NG-ST07-080G	Gravity corer	Success	2017-09-16T16:48:36	79.06.051 N	012.09.843 W	309.5	2017-09-16T16:57:51	79.05.960 N	012.10.095 W	306	0.52
81	Station 07	DA17-NG-ST07-081DRGE	Dredge	Success	2017-09-16T17:56:12	79.02.841 N	011.57.186 W	344.6	2017-09-16T18:23:27	79.02.632 N	011.57.699 W	318	0.17
82	Station 07	DA17-NG-ST07-082CTD	SEA (CTD)	Success	2017-09-17T06:11:04	78.29.973 N	017.17.851 W	592.7	2017-09-17T07:18:00	78.29.681 N	017.20.428 W	598.4	0.37
83	Station 08	DA17-NG-ST08-083TURB	Turbulence	Success	2017-09-17T07:24:31	78.29.645 N	017.20.686 W	599.3	2017-09-17T07:33:04	78.29.662 N	017.21.010 W	598.7	0.12
84	Station 08	DA17-NG-ST08-084CTD	SEA (CTD)	Success	2017-09-17T07:45:50	78.29.616 N	017.21.609 W	595.1	2017-09-17T07:58:02	78.29.529 N	017.22.203 W	597.2	0.46
85	Station 08	DA17-NG-ST08-085MN	MULTI Net	Success	2017-09-17T08:08:47	78.29.540 N	017.22.744 W	595.7	2017-09-17T08:50:45	78.29.346 N	017.24.785 W	587.9	0.34
86	Station 08	DA17-NG-ST08-086MN	MULTI Net	Success	2017-09-17T09:11:04	78.29.694 N	017.20.838 W	599.8	2017-09-17T09:41:32	78.29.514 N	017.22.428 W	595.8	7.3
87	Station 08	DA17-NG-ST08-087WP3	WP3 Net	Success	2017-09-17T10:06:46	78.29.390 N	017.23.790 W	599.5	2017-09-17T10:15:38	78.29.390 N	017.24.279 W	593.8	7.33
88	Station 08	DA17-NG-ST08-088MN	MULTI Net 20my	Success	2017-09-17T10:26:42	78.29.368 N	017.24.911 W	588.4	2017-09-17T10:55:49	78.29.261 N	017.26.441 W	606.9	7.93
89	Station 08	DA17-NG-ST08-089R	Rumohr lot	Success	2017-09-17T11:24:13	78.30.053 N	017.17.405 W	587.4	2017-09-17T11:44:35	78.30.080 N	017.18.436 W	594.2	6.97
90	Station 08	DA17-NG-ST08-090R	Rumohr lot	Success	2017-09-17T11:48:52	78.30.001 N	017.18.431 W	594.9	2017-09-17T12:08:38	78.30.005 N	017.19.079 W	599.2	6.62
91	Station 08	DA17-NG-ST08-091R	Rumohr lot	Success	2017-09-17T12:13:21	78.29.994 N	017.19.166 W	599.6	2017-09-17T12:33:17	78.30.044 N	017.19.661 W	601.5	8.18
92	Station 08	DA17-NG-ST08-092G	Gravity corer	Success	2017-09-17T12:53:06	78.30.054 N	017.16.711 W	582.9	2017-09-17T13:10:52	78.30.031 N	017.17.238 W	587.3	8.61
93	Station 08	DA17-NG-ST08-093HAPS	HAPS corer	Success	2017-09-17T13:26:08	78.29.961 N	017.17.517 W	589.8	2017-09-17T13:45:49	78.29.968 N	017.18.017 W	593.7	8.12
94	Station 08	DA17-NG-ST08-094HAPS	HAPS corer	Success	2017-09-17T13:48:58	78.29.992 N	017.18.127 W	593.8	2017-09-17T14:08:57	78.30.129 N	017.18.755 W	594.4	5.42
95	Station 08	DA17-NG-ST08-095HAPS	HAPS corer	Success	2017-09-17T14:12:00	78.30.145 N	017.18.834 W	593.8	2017-09-17T14:31:46	78.30.165 N	017.19.405 W	598.3	8.66
96	Station 08	DA17-NG-ST08-096G	Gravity corer	Success	2017-09-17T14:52:15	78.30.007 N	017.21.527 W	602	2017-09-17T15:13:26	78.29.984 N	017.21.874 W	601.4	7.13
97	Station 08	DA17-NG-ST08-097R	Rumohr lot	Success	2017-09-17T15:30:54	78.29.889 N	017.23.514 W	597.3	2017-09-17T15:50:51	78.29.770 N	017.24.061 W	596.3	9.51
98	Station 08	DA17-NG-ST08-098R	Rumohr lot	Success	2017-09-17T15:56:17	78.29.775 N	017.24.256 W	594.9	2017-09-17T16:16:15	78.29.764 N	017.25.037 W	596.1	9.49
99	Station 09	DA17-NG-ST09-099CTD	SEA (CTD)	Success	2017-09-17T21:45:23	78.14.327 N	017.07.263 W	590.2	2017-09-17T22:45:38	78.14.461 N	017.08.775 W	594.8	9.46
100	Station 09	DA17-NG-ST09-100MIK	MIK Net	Success	2017-09-17T22:58:34	78.13.976 N	017.09.785 W	602.4	2017-09-17T23:28:30	78.12.574 N	017.11.835 W	599.6	9.89
101	Station 10	DA17-NG-ST10-102CTD	SEA (CTD)	Success	2017-09-18T06:19:55	77.56.788 N	015.29.627 W	499.1	2017-09-18T07:12:44	77.56.566 N	015.27.890 W	497.7	6.53

Deployment no.	Statiopn no.	Name	Instrument	Status	Time Start deployment (UTC)	Latitude Start	Longitude Start	Water depth Start	timeStop (UTC)	Latitude Stop	Longitude Stop	Water depth Stop	Wind Speed
102	Station 10	DA17-NG-ST10-xxxTURB	Turbulence	Fail	2017-09-18T07:18:23	77.56.508 N	015.27.598 W	497.5	2017-09-18T07:24:09	77.56.441 N	015.27.205 W	495.4	4.12
103	Station 10	DA17-NG-ST10-103TURB	Turbulence	Success	2017-09-18T07:28:50	77.56.357 N	015.27.180 W	497.7	2017-09-18T07:36:45	77.56.284 N	015.27.095 W	493.3	5.5
104	Station 10	DA17-NG-ST10-104CTD	SEA (CTD)	Success	2017-09-18T07:49:45	77.56.070 N	015.26.086 W	489.1	2017-09-18T08:05:40	77.55.987 N	015.25.428 W	488.9	6.98
105	Station 10	DA17-NG-ST10-105MN	MULTI Net	Success	2017-09-18T08:15:08	77.55.910 N	015.24.848 W	489.6	2017-09-18T08:49:27	77.55.727 N	015.24.345 W	489.7	9.51
106	Station 10	DA17-NG-ST10-106MN	MULTI Net	Success	2017-09-18T09:14:01	77.56.857 N	015.30.317 W	502.2	2017-09-18T09:44:10	77.56.827 N	015.29.046 W	504.2	11.78
107	Station 10	DA17-NG-ST10-107MN	MULTI Net 20my	Success	2017-09-18T10:02:23	77.56.884 N	015.28.883 W	503.9	2017-09-18T10:28:27	77.56.902 N	015.27.866 W	504.9	12.49
108	Station 10	DA17-NG-ST10-108R	Rumohr lot	Success	2017-09-18T10:44:54	77.57.027 N	015.30.384 W	504	2017-09-18T11:01:46	77.56.991 N	015.29.885 W	503.8	13.47
109	Station 10	DA17-NG-ST10-109R	Rumohr lot	Success	2017-09-18T11:08:33	77.56.980 N	015.29.635 W	503.8	2017-09-18T11:25:32	77.56.971 N	015.29.097 W	504	16.51
110	Station 10	DA17-NG-ST10-110G	Gravity corer	Success	2017-09-18T11:52:30	77.57.005 N	015.30.512 W	503.9	2017-09-18T12:07:44	77.57.026 N	015.30.335 W	503.7	12.21
111	Station 10	DA17-NG-ST10-111HAPS	HAPS corer	Success	2017-09-18T12:24:34	77.57.053 N	015.30.464 W	504	2017-09-18T12:41:29	77.57.052 N	015.30.376 W	504.2	11.14
112	Station 10	DA17-NG-ST10-112HAPS	HAPS corer	Success	2017-09-18T12:45:27	77.57.039 N	015.30.451 W	504	2017-09-18T13:02:55	77.57.079 N	015.29.995 W	504.6	10.6
113	Station 10	DA17-NG-ST10-113HAPS	HAPS corer	Success	2017-09-18T13:06:14	77.57.090 N	015.29.939 W	504.5	2017-09-18T13:23:50	77.57.114 N	015.29.752 W	502.9	9.15
114	Station 10	DA17-NG-ST01-114G	Rumohr lot	Fail	2017-09-18T13:37:29	77.57.058 N	015.31.129 W	503.2	2017-09-18T13:56:07	77.57.055 N	015.30.790 W	503.5	9.06
115	Station 10	DA17-NG-ST10-115R	Rumohr lot	Fail	2017-09-18T13:56:47	77.57.057 N	015.30.783 W	503	2017-09-18T14:14:33	77.57.090 N	015.30.403 W	503.5	8.08
116	Station 10	DA17-NG-ST10-116R	Rumohr lot	Success	2017-09-18T14:16:02	77.57.088 N	015.30.333 W	503.4	2017-09-18T14:33:39	77.57.099 N	015.29.902 W	503.8	8.67
117	Station 10	DA17-NG-ST10-117G	Gravity corer	Success	2017-09-18T14:56:49	77.57.517 N	015.26.966 W	497.2	2017-09-18T15:12:04	77.57.527 N	015.26.504 W	498.5	9.46
118	Station 10	DA17-NG-ST10-118R	Rumohr lot	Fail	2017-09-18T15:25:53	77.57.517 N	015.25.567 W	493.6	2017-09-18T15:36:21	77.57.558 N	015.25.252 W	495.1	8.58
119	Station 10	DA17-NG-ST10-119R	Rumohr lot	Fail	2017-09-18T15:37:50	77.57.571 N	015.25.319 W	495.4	2017-09-18T15:47:55	77.57.646 N	015.25.109 W	495.2	12.03
120	Station 10	DA17-NG-ST10-120R	Rumohr lot	Success	2017-09-18T15:49:59	77.57.657 N	015.25.054 W	496.8	2017-09-18T16:07:07	77.57.769 N	015.24.680 W	499.6	11.82
121	Station 10	DA17-NG-ST10-121R	Rumohr lot	Success	2017-09-18T16:21:07	77.57.452 N	015.27.249 W	499.1	2017-09-18T16:39:05	77.57.646 N	015.26.193 W	495.1	10.79
122	Station 11	DA17-NG-ST11-122DRGE	Dredge3	Fail	2017-09-18T20:51:49	77.53.210 N	013.37.692 W	349.2	2017-09-18T21:29:40	77.53.949 N	013.32.156 W	203.7	11.67
123	Station 12	DA17-NG-ST12-123CTD	SEA (CTD)	Success	2017-09-18T23:09:36	77.45.150 N	013.30.167 W	364.9	2017-09-18T23:59:58	77.45.337 N	013.28.826 W	365.9	11.3
124	Station 12	DA17-NG-ST12-124TURB	Turbulence	Success	2017-09-19T00:07:57	77.45.266 N	013.27.967 W	359.6	2017-09-19T00:14:47	77.45.207 N	013.27.421 W	356.7	10.82
125	Station 12	DA17-NG-ST12-125CTD	SEA (CTD)	Success	2017-09-19T08:27:34	77.08.074 N	010.40.051 W	499.2	2017-09-19T09:25:51	77.07.942 N	010.40.750 W	498.6	8.66
126	Station 12	DA17-NG-ST12-126TURB	Turbulence	Success	2017-09-19T09:35:13	77.07.893 N	010.40.679 W	499.8	2017-09-19T09:44:19	77.07.769 N	010.40.525 W	500.5	7.25
127	Station 12	DA17-NG-ST12-127CTD	SEA (CTD)	Success	2017-09-19T10:01:20	77.07.782 N	010.40.544 W	500.3	2017-09-19T10:11:23	77.07.743 N	010.40.447 W	499.8	7.55
128	Station 12	DA17-NG-ST12-128MN	MULTI Net	Success	2017-09-19T10:19:08	77.07.688 N	010.40.369 W	499.3	2017-09-19T10:44:51	77.07.628 N	010.40.527 W	501.8	6.66
129	Station 12	DA17-NG-ST12-129MN	MULTI Net	Success	2017-09-19T11:07:55	77.08.205 N	010.40.133 W	499.2	2017-09-19T11:30:41	77.08.230 N	010.40.273 W	500.4	6.1
130	Station 12	DA17-NG-ST12-130WP3	WP3 Net	Success	2017-09-19T11:38:59	77.08.211 N	010.40.215 W	499.6	2017-09-19T12:09:37	77.08.135 N	010.39.846 W	498.6	6.73
131	Station 12	DA17-NG-ST12-131MN	MULTI Net 20my	Success	2017-09-19T12:21:01	77.08.118 N	010.39.696 W	498.8	2017-09-19T12:46:21	77.08.112 N	010.39.412 W	499.6	5.65
132	Station 12	DA17-NG-ST12-132R	Rumohr lot	Success	2017-09-19T13:05:39	77.07.626 N	010.40.812 W	501.1	2017-09-19T13:27:37	77.07.571 N	010.40.362 W	500.1	4.77
133	Station 12	DA17-NG-ST12-133R	Rumohr lot	Success	2017-09-19T13:28:16	77.07.569 N	010.40.351 W	500.9	2017-09-19T13:47:01	77.07.536 N	010.39.945 W	500.5	4.16
134	Station 12	DA17-NG-ST12-134R	Rumohr lot	Success	2017-09-19T13:51:28	77.07.503 N	010.39.792 W	500.5	2017-09-19T14:08:38	77.07.498 N	010.39.564 W	500.6	3.75
135	Station 12	DA17-NG-ST12-135G	Gravity corer	Success	2017-09-19T14:49:54	77.07.648 N	010.40.539 W	500.9	2017-09-19T14:49:55	77.07.650 N	010.40.540 W	500.9	4.37
136	Station 12	DA17-NG-ST12-136HAPS	HAPS corer	Success	2017-09-19T14:53:44	77.07.679 N	010.40.579 W	500.6	2017-09-19T15:10:17	77.07.696 N	010.40.423 W	499	3.3
137	Station 12	DA17-NG-ST12-137HAPS	HAPS corer	Success	2017-09-19T15:13:32	77.07.686 N	010.40.361 W	498.7	2017-09-19T15:30:09	77.07.641 N	010.39.981 W	500.3	3.51
138	Station 12	DA17-NG-ST12-138HAPS	HAPS corer	Success	2017-09-19T15:33:25	77.07.678 N	010.39.951 W	500.4	2017-09-19T15:50:08	77.07.647 N	010.39.702 W	501	3.18
139	Station 12	DA17-NG-ST12-139HAPS	HAPS corer	Success	2017-09-19T15:52:52	77.07.630 N	010.39.643 W	500.7	2017-09-19T18:46:21	76.38.458 N	011.12.363 W	319	3.94
140	Station 13	DA17-NG-ST13-140CTD	SEA (CTD)	Success	2017-09-20T06:34:03	75.50.873 N	012.35.530 W	395.9	2017-09-20T07:23:28	75.50.742 N	012.36.105 W	399	7.25
141	Station 13	DA17-NG-ST13-141TURB	Turbulence	Success	2017-09-20T07:32:55	75.50.672 N	012.36.562 W	398.7	2017-09-20T07:41:11	75.50.597 N	012.37.099 W	392.8	7.21
142	Station 13	DA17-NG-ST13-142CTD	SEA (CTD)	Success	2017-09-20T07:50:30	75.50.509 N	012.37.511 W	388.4	2017-09-20T08:00:58	75.50.454 N	012.37.379 W	391.6	9.19
143	Station 13	DA17-NG-ST13-143MN	MULTI Net	Fail	2017-09-20T08:15:54	75.50.436 N	012.36.896 W	394.4	2017-09-20T08:17:24	75.50.442 N	012.36.910 W	394.4	8.68
144	Station 13	DA17-NG-ST13-144MN	MULTI Net	Success	2017-09-20T09:01:56	75.50.193 N	012.37.689 W	388.5	2017-09-20T09:26:32	75.50.107 N	012.37.888 W	388.3	8.48
145	Station 13	DA17-NG-ST13-145MN	MULTI Net	Success	2017-09-20T09:53:37	75.49.980 N	012.38.053 W	389.6	2017-09-20T10:13:12	75.49.892 N	012.38.146 W	396.5	8.93
146	Station 13	DA17-NG-ST13-146WP3	WP3 Net	Success	2017-09-20T10:20:30	75.49.850 N	012.38.220 W	395.6	2017-09-20T10:47:36	75.49.746 N	012.38.173 W	393.3	8.21
147	Station 13	DA17-NG-ST13-147MN	MULTI Net 20my	Success	2017-09-20T10:58:49	75.49.751 N	012.37.975 W	394.5	2017-09-20T11:16:37	75.49.696 N	012.38.066 W	393.2	7.7
148	Station 13	DA17-NG-ST13-148R	Rumohr lot	Success	2017-09-20T11:45:05	75.50.889 N	012.35.586 W	397.1	2017-09-20T11:58:06	75.50.919 N	012.35.580 W	398	9.2
149	Station 13	DA17-NG-ST13-149R	Rumohr lot	Success	2017-09-20T12:01:33	75.50.896 N	012.35.640 W	398	2017-09-20T12:14:52	75.50.925 N	012.35.668 W	398	8.78
150	Station 13	DA17-NG-ST13-150R	Rumohr lot	Success	2017-09-20T12:18:32	75.50.908 N	012.35.716 W	398.5	2017-09-20T12:31:40	75.50.928 N	012.35.739 W	399	8.65
151	Station 13	DA17-NG-ST13-151R	Rumohr lot	Success	2017-09-20T12:35:08	75.50.911 N	012.35.802 W	398.7	2017-09-20T12:48:50	75.50.878 N	012.35.604 W	397.9	9.1
152	Station 13	DA17-NG-ST13-152G	Gravity corer	Success	2017-09-20T13:10:16	75.50.859 N	012.35.523 W	397.2	2017-09-20T13:15:37	75.50.859 N	012.35.482 W	396.9	9.11
153	Station 13	DA17-NG-ST13-153HAPS	HAPS corer	Success	2017-09-20T13:28:58	75.50.869 N	012.35.629 W	397.5	2017-09-20T13:42:04	75.50.826 N	012.35.583 W	398.1	10.65

Deployment no.	Statiopn no.	Name	Instrument	Status	Time Start deployment (UTC)	Latitude Start	Longitude Start	Water depth Start	timeStop (UTC)	Latitude Stop	Longitude Stop	Water depth Stop	Wind Speed
154	Station 13	DA17-NG-ST13-154HAPS	HAPS corer	Success	2017-09-20T13:44:59	75.50.823 N	012.35.540 W	397.6	2017-09-20T13:58:13	75.50.852 N	012.35.395 W	396.6	8.38
155	Station 13	DA17-NG-ST13-155HAPS	HAPS corer	Success	2017-09-20T14:01:12	75.50.852 N	012.35.327 W	396.2	2017-09-20T14:14:31	75.50.879 N	012.35.113 W	395.3	10.13
156	Station 13	DA17-NG-ST13-156uCTD	uCTD	Success	2017-09-20T15:10:57	75.44.345 N	013.04.925 W	252	2017-09-20T15:18:29	75.43.354 N	013.09.580 W	252.1	5.15
157	Station 13	DA17-NG-ST13-157uCTD	uCTD	Success	2017-09-20T15:23:45	75.42.666 N	013.12.862 W	256.3	2017-09-20T15:30:30	75.41.796 N	013.17.051 W	250.3	9.31
158	Station 14	DA17-NG-ST14-158 CTD	SEA (CTD)	Success	2017-09-21T06:23:25	74.05.498 N	019.25.855 W	340.4	2017-09-21T07:08:17	74.05.775 N	019.26.716 W	341.8	9.9
159	Station 14	DA17-NG-ST14-159TURB	Turbulence	Success	2017-09-21T07:18:08	74.05.739 N	019.26.971 W	341	2017-09-21T07:25:48	74.05.706 N	019.27.346 W	341.3	7.62
160	Station 14	DA17-NG-ST14-160CTD	SEA (CTD)	Success	2017-09-21T07:33:23	74.05.692 N	019.27.389 W	341.9	2017-09-21T07:47:13	74.05.652 N	019.27.205 W	342.2	6.45
161	Station 14	DA17-NG-ST14-161MN	MULTI Net	Success	2017-09-21T07:54:59	74.05.603 N	019.27.192 W	341.7	2017-09-21T08:13:14	74.05.539 N	019.27.129 W	341.6	6.08
162	Station 14	DA17-NG-ST14-162MN	MULTI Net	Success	2017-09-21T08:30:43	74.05.472 N	019.25.708 W	339.3	2017-09-21T08:47:56	74.05.507 N	019.25.702 W	340.4	9.1
163	Station 14	DA17-NG-ST14-163WP3	WP3 Net	Success	2017-09-21T09:30:30	74.05.341 N	019.25.936 W	340.3	2017-09-21T09:50:24	74.05.282 N	019.25.690 W	340.5	7.66
164	Station 14	DA17-NG-ST14-164MN	MULTI Net 20my	Success	2017-09-21T10:05:38	74.05.226 N	019.25.568 W	338.2	2017-09-21T10:21:40	74.05.238 N	019.25.377 W	337.5	7.59
165	Station 14	DA17-NG-ST14-165R	Rumohr lot	Success	2017-09-21T10:34:31	74.05.483 N	019.25.714 W	340.1	2017-09-21T10:45:01	74.05.464 N	019.25.751 W	340.4	8.18
166	Station 14	DA17-NG-ST14-166R	Rumohr lot	Success	2017-09-21T10:51:29	74.05.463 N	019.25.975 W	342.4	2017-09-21T11:02:48	74.05.465 N	019.25.970 W	342	4.78
167	Station 14	DA17-NG-ST14-167R	Rumohr lot	Success	2017-09-21T11:06:55	74.05.469 N	019.25.983 W	342.6	2017-09-21T11:18:01	74.05.466 N	019.25.916 W	341.7	5.14
168	Station 14	DA17-NG-ST14-168R	Rumohr lot	Success	2017-09-21T11:21:44	74.05.453 N	019.25.901 W	341.6	2017-09-21T11:33:19	74.05.449 N	019.25.959 W	341.4	7.59
169	Station 14	DA17-NG-ST14-169R	Rumohr lot	Fail	2017-09-21T11:37:23	74.05.429 N	019.25.977 W	341.5	2017-09-21T11:50:47	74.05.415 N	019.25.928 W	341.1	9.11
170	Station 14	DA17-NG-ST14-170R	Rumohr lot	Success	2017-09-21T11:51:11	74.05.414 N	019.25.935 W	341.3	2017-09-21T12:02:16	74.05.429 N	019.26.070 W	342	8.42
171	Station 14	DA17-NG-ST14-171G	Gravity corer	Success	2017-09-21T12:20:14	74.05.413 N	019.25.862 W	341.2	2017-09-21T12:32:24	74.05.417 N	019.25.860 W	341.3	6.13
172	Station 14	DA17-NG-ST14-172R	Rumohr lot	Success	2017-09-21T12:42:51	74.05.406 N	019.25.821 W	341.4	2017-09-21T12:54:02	74.05.447 N	019.25.908 W	341.5	7.8
173	Station 14	DA17-NG-ST14-173R	Rumohr lot	Success	2017-09-21T12:59:10	74.05.440 N	019.25.957 W	341.8	2017-09-21T13:09:20	74.05.450 N	019.25.968 W	342.4	8.6
174	Station 14	DA17-NG-ST14-174HAPS	HAPS corer	Success	2017-09-21T13:15:54	74.05.452 N	019.25.955 W	342	2017-09-21T13:27:10	74.05.449 N	019.25.947 W	342.3	8.24
175	Station 14	DA17-NG-ST14-175HAPS	HAPS corer	Success	2017-09-21T13:39:45	74.05.463 N	019.25.853 W	341.6	2017-09-21T13:51:10	74.05.445 N	019.25.783 W	340.4	8.59
176	Station 14	DA17-NG-ST14-176HAPS	HAPS corer	Success	2017-09-21T13:54:34	74.05.453 N	019.25.699 W	340.5	2017-09-21T14:05:57	74.05.409 N	019.25.773 W	341.5	8.63
177	Station 14	DA17-NG-ST14-177HAPS	HAPS corer	Success	2017-09-21T14:08:55	74.05.396 N	019.25.800 W	340.8	2017-09-21T14:20:06	74.05.348 N	019.25.925 W	341.3	8.7
178	Station 14	DA17-NG-ST14-178MO	Mooring	Success	2017-09-21T15:35:48	74.05.634 N	019.08.632 W	273.2	2017-09-21T15:35:51	74.05.648 N	019.08.618 W	271.9	11.27
179	Station 15	DA17-NG-ST15-179CTD	SEA (CTD)	Success	2017-09-21T16:26:46	74.12.386 N	019.01.592 W	145.5	2017-09-21T16:46:00	74.12.162 N	019.01.520 W	145.8	8.95
180	Station 15	DA17-NG-ST15-180G	Gravity corer	Success	2017-09-21T17:02:02	74.12.465 N	019.01.947 W	143.8	2017-09-21T17:06:36	74.12.427 N	019.01.938 W	145	9.63
181	Station 15	DA17-NG-ST15-181R	Rumohr lot	Success	2017-09-21T17:20:34	74.12.356 N	019.01.920 W	143.8	2017-09-21T17:30:22	74.12.309 N	019.02.028 W	146.7	9.73
182	Station 15	DA17-NG-ST15-182R	Rumohr lot	Success	2017-09-21T17:39:50	74.12.242 N	019.02.051 W	149.4	2017-09-21T17:39:52	74.12.242 N	019.02.051 W	149.4	11.1
183	Station 16	DA17-NG-ST16-183MIK	MIK Net	Success	2017-09-22T05:33:14	74.21.166 N	020.18.925 W	168.7	2017-09-22T05:57:04	74.20.019 N	020.18.340 W	166.1	7.04
184	Station 16	DA17-NG-ST16-184CTD	SEA (CTD)	Success	2017-09-22T06:29:54	74.18.468 N	020.17.765 W	157.9	2017-09-22T07:03:25	74.18.468 N	020.17.810 W	157.5	8.46
185	Station 16	DA17-NG-ST16-185TURB	Turbulence	Success	2017-09-22T07:14:20	74.18.351 N	020.17.881 W	154	2017-09-22T07:20:51	74.18.247 N	020.17.854 W	153.7	6.5
186	Station 16	DA17-NG-ST16-186CTD	SEA (CTD)	Success	2017-09-22T07:34:14	74.18.357 N	020.17.777 W	156.9	2017-09-22T07:43:07	74.18.327 N	020.17.633 W	157.3	9.04
187	Station 16	DA17-NG-ST16-187MN	MULTI Net	Success	2017-09-22T07:51:51	74.18.263 N	020.17.311 W	148.3	2017-09-22T07:59:13	74.18.291 N	020.17.311 W	145.2	11.15
188	Station 16	DA17-NG-ST16-188MN	MULTI Net	Success	2017-09-22T08:17:37	74.18.462 N	020.17.747 W	157.7	2017-09-22T08:26:35	74.18.404 N	020.17.873 W	157	5.84
189	Station 16	DA17-NG-ST16-189WP3	WP3 Net	Success	2017-09-22T08:40:58	74.18.422 N	020.17.788 W	157.6	2017-09-22T08:55:19	74.18.439 N	020.17.380 W	152.7	4.29
190	Station 16	DA17-NG-ST16-190MN	MULTI Net 20my	Success	2017-09-22T09:03:45	74.18.450 N	020.17.195 W	147.5	2017-09-22T09:11:41	74.18.496 N	020.17.065 W	133	4.27
191	Station 16	DA17-NG-ST16-191R	Rumohr lot	Success	2017-09-22T10:24:11	74.18.521 N	020.17.599 W	157.4	2017-09-22T10:29:32	74.18.493 N	020.17.700 W	158.5	12.12
192	Station 16	DA17-NG-ST16-192R	Rumohr lot	Success	2017-09-22T10:32:10	74.18.504 N	020.17.672 W	158.7	2017-09-22T10:37:32	74.18.537 N	020.17.625 W	156.3	10.63
193	Station 16	DA17-NG-ST16-193R	Rumohr lot	Success	2017-09-22T10:40:07	74.18.549 N	020.17.582 W	154.9	2017-09-22T10:45:34	74.18.552 N	020.17.617 W	155.7	14.5
194	Station 16	DA17-NG-ST16-194R	Rumohr lot	Success	2017-09-22T10:49:26	74.18.516 N	020.17.704 W	158.9	2017-09-22T10:54:47	74.18.516 N	020.17.742 W	158.6	11.02
195	Station 16	DA17-NG-ST16-195R	Rumohr lot	Success	2017-09-22T10:57:45	74.18.533 N	020.17.707 W	158.8	2017-09-22T11:03:07	74.18.539 N	020.17.707 W	158.8	12.05
196	Station 16	DA17-NG-ST16-196R	Rumohr lot	Success	2017-09-22T11:07:44	74.18.511 N	020.17.798 W	159	2017-09-22T11:13:01	74.18.520 N	020.17.714 W	159	10.22
197	Station 16	DA17-NG-ST16-197R	Rumohr lot	Success	2017-09-22T11:17:18	74.18.532 N	020.17.799 W	159.2	2017-09-22T11:22:43	74.18.528 N	020.17.955 W	159	13.28
198	Station 16	DA17-NG-ST16-198R	Rumohr lot	Success	2017-09-22T11:23:51	74.18.540 N	020.17.962 W	159	2017-09-22T11:31:38	74.18.578 N	020.17.946 W	159.4	11.1
199	Station 16	DA17-NG-ST16-199R	Rumohr lot	Fail	2017-09-22T12:03:48	74.18.554 N	020.18.004 W	159.7	2017-09-22T12:03:57	74.18.554 N	020.18.009 W	159.7	11.48
200	Station 16	DA17-NG-ST16-200R	Rumohr lot	Success	2017-09-22T12:05:32	74.18.544 N	020.18.064 W	159.2	2017-09-22T12:10:55	74.18.542 N	020.18.166 W	158.8	8.56
201	Station 16	DA17-NG-ST16-201R	Rumohr lot	Success	2017-09-22T12:13:22	74.18.547 N	020.18.132 W	158.9	2017-09-22T12:20:07	74.18.550 N	020.17.958 W	159.6	10.07
202	Station 16	DA17-NG-ST16-202R	Rumohr lot	Success	2017-09-22T12:24:27	74.18.552 N	020.17.848 W	159.4	2017-09-22T12:29:42	74.18.559 N	020.17.780 W	159.6	6.19
203	Station 16	DA17-NG-ST16-203G	Gravity corer	Success	2017-09-22T12:54:27	74.18.508 N	020.17.526 W	157.8	2017-09-22T12:59:35	74.18.524 N	020.17.482 W	156.8	8.04
204	Station 16	DA17-NG-ST16-204HAPS	HAPS corer	Success	2017-09-22T13:38:29	74.18.543 N	020.17.515 W	156.7	2017-09-22T13:44:51	74.18.545 N	020.17.425 W	153.4	12.96
205	Station 16	DA17-NG-ST16-205HAPS	HAPS corer	Success	2017-09-22T13:46:36	74.18.517 N	020.17.422 W	154.8	2017-09-22T13:53:11	74.18.491 N	020.17.403 W	156.2	10.66

Deployment no.	Statiopn no.	Name	Instrument	Status	Time Start deployment (UTC)	Latitude Start	Longitude Start	Water depth Start	timeStop (UTC)	Latitude Stop	Longitude Stop	Water depth Stop	Wind Speed
206	Station 16	DA17-NG-ST16-206HAPS	HAPS corer	Success	2017-09-22T13:55:49	74.18.467 N	020.17.452 W	157.2	2017-09-22T14:04:03	74.18.457 N	020.17.702 W	158.9	11.95
207	Station 16	DA17-NG-ST16-207HAPS	HAPS corer	Success	2017-09-22T14:04:47	74.18.454 N	020.17.737 W	159	2017-09-22T14:12:24	74.18.426 N	020.18.057 W	154.4	11.35
208A	Station 16	FAILED	Rumohr lot	Fail	2017-09-22T14:23:53	74.18.520 N	020.17.703 W	159.6	2017-09-22T14:31:34	74.18.482 N	020.17.990 W	158.1	11.36
208B	Station 16	DA17-NG-ST16-208R	Rumohr lot	Fail	2017-09-22T14:xx:xx	74.18.520 N	020.17.703 W	159.6	2017-09-22T14:xx:xx	74.18.482 N	020.17.990 W	158.1	-
209	Station 16	DA17-NG-ST16-209R	Rumohr lot	Fail	2017-09-22T14:32:23	74.18.479 N	020.18.027 W	158.1	2017-09-22T14:36:47	74.18.469 N	020.18.142 W	156.8	10.61
210	Station 16	DA17-NG-ST16-210GC	Gravity corer	Success	2017-09-22T15:30:26	74.18.455 N	020.17.762 W	158.9	2017-09-22T15:56:30	74.18.403 N	020.15.713 W	47.7	12.15
211	Station 17	DA17-NG-ST17-211VV	Van Veen Grab	Success	2017-09-22T16:20:35	74.18.461 N	020.15.360 W	38.5	2017-09-22T16:23:01	74.18.449 N	020.15.299 W	35.6	11.48
212	Station 17	DA17-NG-ST17-212VV	Van Veen Grab	Success	2017-09-22T16:33:11	74.18.410 N	020.15.651 W	46.5	2017-09-22T16:36:39	74.18.393 N	020.15.423 W	40.8	13.2
213	Station 18	DA17-NG-ST18-213 G	Gravity corer	Success	2017-09-22T17:23:14	74.20.945 N	020.20.299 W	168.1	2017-09-22T17:23:20	74.20.944 N	020.20.298 W	168.1	12.11
214	Station 18	DA17-NG-ST18-214 R	Rumohr lot	Success	2017-09-22T17:35:52	74.20.957 N	020.20.400 W	167.5	2017-09-22T17:52:23	74.20.945 N	020.20.270 W	168	12.04
215	Station 18	DA17-NG-ST18-215R	Rumohr lot	Success	2017-09-22T17:55:55	74.20.928 N	020.20.229 W	168.2	2017-09-22T18:01:22	74.20.910 N	020.20.143 W	168.2	14.21
216	Station 18	DA17-NG-ST18-216R	Rumohr lot	Success	2017-09-22T18:05:12	74.20.951 N	020.20.122 W	168.3	2017-09-22T18:10:55	74.20.931 N	020.20.153 W	168.2	11.36
217	Station 18	DA17-NG-ST18-217uCTD	uCTD	Success	2017-09-22T18:36:04	74.22.187 N	020.23.319 W	94	2017-09-22T22:10:50	74.25.079 N	021.39.711 W	149.6	3.12
218	Station 19	DA17-NG-ST19-218MIK	MIK Net	Success	2017-09-23T05:03:56	74.26.514 N	021.29.105 W	288.6	2017-09-23T05:38:24	74.27.013 N	021.23.858 W	330.4	11.48
219	Station 19	DA17-NG-ST19-219CTD	SEA (CTD)	Success	2017-09-23T06:13:11	74.27.856 N	021.11.314 W	332	2017-09-23T06:57:53	74.27.798 N	021.11.633 W	332	5.87
220	Station 19	DA17-NG-ST19-220TURB	Turbulence	Success	2017-09-23T07:05:51	74.27.780 N	021.11.811 W	331.9	2017-09-23T07:13:53	74.27.807 N	021.12.101 W	331.9	5.93
221	Station 19	DA17-NG-ST19-221CTD	SEA (CTD)	Success	2017-09-23T07:30:24	74.27.753 N	021.12.107 W	331.7	2017-09-23T07:39:40	74.27.718 N	021.12.170 W	331.3	7.21
222	Station 19	DA17-NG-ST19-222MN	MULTI Net	Success	2017-09-23T07:50:02	74.27.733 N	021.12.241 W	331.5	2017-09-23T08:08:09	74.27.752 N	021.12.418 W	331.5	7.56
223	Station 19	DA17-NG-ST19-223MN	MULTI Net	Success	2017-09-23T08:27:08	74.27.836 N	021.11.531 W	331.8	2017-09-23T08:43:39	74.27.803 N	021.11.558 W	331.9	6.67
224	Station 19	DA17-NG-ST19-224WP3	WP3 Net	Success	2017-09-23T08:55:53	74.27.757 N	021.11.581 W	332	2017-09-23T09:07:26	74.27.727 N	021.11.675 W	331.9	6.08
225	Station 19	DA17-NG-ST19-225MN	MULTI Net 20my	Success	2017-09-23T09:18:28	74.27.687 N	021.11.491 W	328.3	2017-09-23T09:34:31	74.27.641 N	021.11.350 W	315.7	6.76
226	Station 19	DA17-NG-ST19-226R	Rumohr lot	Success	2017-09-23T10:20:53	74.27.785 N	021.11.296 W	332.2	2017-09-23T10:28:22	74.27.778 N	021.11.355 W	332.3	5.78
227	Station 19	DA17-NG-ST19-227R	Rumohr lot	Success	2017-09-23T10:31:51	74.27.775 N	021.11.322 W	332.3	2017-09-23T10:42:54	74.27.809 N	021.11.415 W	332.4	6.6
228	Station 19	DA17-NG-ST19-228R	Rumohr lot	Success	2017-09-23T10:46:00	74.27.814 N	021.11.494 W	332.4	2017-09-23T10:56:44	74.27.806 N	021.11.419 W	332.4	5.76
229	Station 19	DA17-NG-ST19-229R	Rumohr lot	Success	2017-09-23T11:00:45	74.27.801 N	021.11.419 W	332.5	2017-09-23T11:11:39	74.27.788 N	021.11.555 W	332.6	3.76
230	Station 19	DA17-NG-ST19-230R	Rumohr lot	Success	2017-09-23T11:17:14	74.27.782 N	021.11.416 W	332.6	2017-09-23T11:32:06	74.27.793 N	021.11.386 W	332.7	4.24
231	Station 19	DA17-NG-ST19-231R	Rumohr lot	Success	2017-09-23T11:37:27	74.27.792 N	021.11.386 W	332.7	2017-09-23T11:48:19	74.27.793 N	021.11.511 W	332.8	4.18
232	Station 19	DA17-NG-ST19-232R	Rumohr lot	Success	2017-09-23T11:52:27	74.27.782 N	021.11.475 W	332.8	2017-09-23T12:03:51	74.27.785 N	021.11.641 W	332.9	3.59
233	Station 19	DA17-NG-ST19-233R	Rumohr lot	Success	2017-09-23T12:07:11	74.27.793 N	021.11.731 W	332.9	2017-09-23T12:18:05	74.27.779 N	021.11.703 W	333	3.35
234	Station 19	DA17-NG-ST19-234R	Rumohr lot	Success	2017-09-23T12:19:03	74.27.777 N	021.11.706 W	333	2017-09-23T12:29:55	74.27.752 N	021.11.677 W	333	2.28
235	Station 19	DA17-NG-ST19-235G	Gravity corer	Success	2017-09-23T12:49:28	74.27.788 N	021.11.450 W	333.1	2017-09-23T12:59:37	74.27.772 N	021.11.401 W	333.1	3.77
236	Station 19	DA17-NG-ST19-236HAPS	HAPS corer	Success	2017-09-23T13:28:20	74.27.832 N	021.11.459 W	333	2017-09-23T13:39:24	74.27.846 N	021.11.590 W	333	4.22
237	Station 19	DA17-NG-ST19-237HAPS	HAPS corer	Success	2017-09-23T13:48:22	74.27.844 N	021.11.673 W	333.1	2017-09-23T13:59:29	74.27.837 N	021.11.908 W	333.1	3.04
238	Station 19	DA17-NG-ST19-238HAPS	HAPS corer	Success	2017-09-23T14:02:10	74.27.837 N	021.12.008 W	333.1	2017-09-23T14:13:03	74.27.843 N	021.12.152 W	333.2	3.18
239	Station 19	DA17-NG-ST19-239HAPS	HAPS corer	Success	2017-09-23T14:15:25	74.27.849 N	021.12.221 W	333.2	2017-09-23T14:26:35	74.27.879 N	021.12.279 W	333.1	2.56
240	Station 19	DA17-NG-ST19-240HAPS	HAPS corer	Success	2017-09-23T14:29:02	74.27.889 N	021.12.386 W	333	2017-09-23T14:40:08	74.27.894 N	021.12.388 W	333	3.77
241	Station 19	DA17-NG-ST19-241uCTD	uCTD	Success	2017-09-23T14:49:22	74.27.638 N	021.15.239 W	305.7	2017-09-23T15:46:07	74.26.247 N	021.42.709 W	151	5
242	Station 20	DA17-NG-ST20-242CTD	SEA (CTD)	Success	2017-09-23T17:19:08	74.27.364 N	020.59.566 W	279.7	2017-09-23T17:45:13	74.27.317 N	020.59.756 W	287	2.79
243	Station 21	DA17-NG-ST21-243R	Rumohr lot	Success	2017-09-23T18:40:17	74.25.286 N	020.30.337 W	146.5	2017-09-23T18:45:06	74.25.311 N	020.30.384 W	147.5	6.71
244	Station 21	DA17-NG-ST21-244R	Rumohr lot	Success	2017-09-23T18:48:03	74.25.328 N	020.30.448 W	150.2	2017-09-23T18:53:24	74.25.343 N	020.30.574 W	154.2	7.08
245	Station 21	DA17-NG-ST21-245G	Gravity corer	Success	2017-09-23T19:10:31	74.25.408 N	020.30.893 W	156.5	2017-09-23T19:10:42	74.25.409 N	020.30.899 W	156.5	7.56
246	Station 16	DA17-NG-ST16-246HAPS	HAPS corer	Success	2017-09-23T20:10:36	74.18.628 N	020.17.957 W	158.8	2017-09-23T20:15:29	74.18.604 N	020.17.982 W	158.9	2.72
247	Station 22	DA17-NG-ST22-241uCTD	uCTD	Success	2017-09-23T20:31:07	74.17.489 N	020.18.514 W	88.1	2017-09-23T21:25:57	74.12.457 N	019.59.256 W	179.9	4.43
248	Station 22	DA17-NG-ST22-248MIK	MIK Net	Success	2017-09-24T04:11:53	74.26.219 N	018.45.228 W	128.4	2017-09-24T04:52:12	74.24.854 N	018.50.518 W	145	7.11
249	Station 22	DA17-NG-ST22-249CTD	SEA (CTD)	Success	2017-09-24T05:19:56	74.26.672 N	018.43.009 W	143.9	2017-09-24T05:49:21	74.26.602 N	018.42.594 W	142	8.48
250	Station 22	DA17-NG-ST22-250TURB	Turbulence	Success	2017-09-24T06:01:57	74.26.686 N	018.42.348 W	136.8	2017-09-24T06:08:44	74.26.613 N	018.42.683 W	139.7	9.03
251	Station 22	DA17-NG-ST22-251CTD	SEA (CTD)	Success	2017-09-24T06:15:26	74.26.589 N	018.43.162 W	147	2017-09-24T06:23:46	74.26.534 N	018.43.146 W	145.7	10.03
252	Station 22	DA17-NG-ST22-252G	Gravity corer	Success	2017-09-24T06:54:11	74.26.575 N	018.43.130 W	147.1	2017-09-24T06:54:17	74.26.574 N	018.43.125 W	145.6	13.35
253	Station 22	DA17-NG-ST22-253R	Rumohr lot	Success	2017-09-24T07:20:13	74.26.626 N	018.43.317 W	146.8	2017-09-24T07:33:46	74.26.560 N	018.43.006 W	143.8	12.9
254	Station 22	DA17-NG-ST22-254R	Rumohr lot	Success	2017-09-24T07:37:47	74.26.520 N	018.42.872 W	144.6	2017-09-24T07:43:07	74.26.504 N	018.42.788 W	145.8	12.3
255	Station 22	DA17-NG-ST22-255R	Rumohr lot	Fail	2017-09-24T07:51:28	74.26.750 N	018.43.730 W	145	2017-09-24T07:56:45	74.26.697 N	018.43.497 W	147.7	10.9
256	Station 22	DA17-NG-ST22-256R	Rumohr lot	Success	2017-09-24T07:59:47	74.26.671 N	018.43.344 W	146.2	2017-09-24T08:05:04	74.26.670 N	018.43.272 W	145.9	14.1

Deployment no.	Statiopn no.	Name	Instrument	Status	Time Start deployment (UTC)	Latitude Start	Longitude Start	Water depth Start	timeStop (UTC)	Latitude Stop	Longitude Stop	Water depth Stop	Wind Speed
257	Station 22	DA17-NG-ST22-257HAPS	HAPS corer	Success	2017-09-24T08:13:53	74.26.666 N	018.43.324 W	146.2	2017-09-24T08:19:05	74.26.677 N	018.43.435 W	147.1	11.44
258	Station 22	DA17-NG-ST22-258HAPS	HAPS corer	Success	2017-09-24T08:21:55	74.26.663 N	018.43.540 W	146.9	2017-09-24T08:27:15	74.26.666 N	018.43.643 W	147.1	16.4
259	Station 22	DA17-NG-ST22-259HAPS	HAPS corer	Success	2017-09-24T08:31:41	74.26.619 N	018.43.633 W	145.6	2017-09-24T08:36:39	74.26.624 N	018.43.593 W	146.3	13.61
260	Station 22	DA17-NG-ST22-260MN	MULTI Net	Success	2017-09-24T09:00:40	74.26.626 N	018.43.585 W	146.6	2017-09-24T09:08:41	74.26.622 N	018.43.667 W	146.4	13.65
261	Station 15	DA17-NG-ST15-261R	Rumohr lot	Fail	2017-09-24T10:57:43	74.12.659 N	019.01.008 W	146.8	2017-09-24T11:09:50	74.12.626 N	019.01.230 W	146.3	21.72
262	Station 23	DA17-NG-ST23-262CTD	SEA (CTD)	Success	2017-09-25T06:05:00	74.07.488 N	019.25.553 W	300.1	2017-09-25T06:47:46	74.06.809 N	019.27.137 W	313.1	8.65
263	Station 24	DA17-NG-ST24-263CTD	SEA (CTD)	Success	2017-09-25T08:26:04	73.59.854 N	018.45.345 W	374.3	2017-09-25T09:12:15	73.59.770 N	018.46.227 W	281.2	12.65
264	Station 24	DA17-NG-ST24-260uCTD	uCTD	Success	2017-09-25T09:24:34	73.59.008 N	018.42.199 W	257.4	2017-09-25T09:29:47	73.58.520 N	018.39.573 W	285.9	9.1
265	Station 24	DA17-NG-ST24-265uCTD	uCTD	Success	2017-09-25T09:37:17	73.57.814 N	018.35.835 W	328.1	2017-09-25T09:43:39	73.57.197 N	018.32.700 W	333.6	11.79
266	Station 24	DA17-NG-ST24-266uCTD	uCTD	Success	2017-09-25T09:48:56	73.56.677 N	018.30.226 W	335.3	2017-09-25T09:55:58	73.55.969 N	018.26.943 W	344.5	12.89
267	Station 24	DA17-NG-ST24-267uCTD	uCTD	Success	2017-09-25T10:01:41	73.55.412 N	018.24.311 W	349	2017-09-25T10:08:49	73.54.753 N	018.20.947 W	351.1	11.86
268	Station 24	DA17-NG-ST24-268uCTD	uCTD	Success	2017-09-25T10:14:13	73.54.369 N	018.19.131 W	349.6	2017-09-25T10:20:44	73.53.954 N	018.17.144 W	346.5	11.37
269	Station 24	DA17-NG-ST24-269uCTD	uCTD	Success	2017-09-25T10:26:55	73.53.550 N	018.15.280 W	345.6	2017-09-25T10:32:53	73.53.149 N	018.13.484 W	356.4	9.46
270	Station 25	DA17-NG-ST25-270CTD	SEA (CTD)	Success	2017-09-25T11:04:37	73.51.806 N	018.06.068 W	339.7	2017-09-25T11:48:54	73.51.502 N	018.07.591 W	327.2	6.9
271	Station 25	DA17-NG-ST25-271uCTD	uCTD	Success	2017-09-25T12:05:10	73.50.893 N	018.04.868 W	319.2	2017-09-25T12:10:36	73.50.582 N	018.03.694 W	315	7.42
272	Station 25	DA17-NG-ST25-272uCTD	uCTD	Success	2017-09-25T12:15:06	73.50.297 N	018.02.394 W	312.4	2017-09-25T12:21:24	73.49.898 N	018.00.368 W	311.5	7.13
273	Station 25	DA17-NG-ST25-273uCTD	uCTD	Success	2017-09-25T12:25:48	73.49.618 N	017.59.002 W	309.2	2017-09-25T12:31:45	73.49.243 N	017.57.065 W	319.8	7.82
274	Station 25	DA17-NG-ST25-274uCTD	uCTD	Success	2017-09-25T12:36:53	73.48.960 N	017.55.524 W	304.5	2017-09-25T12:42:32	73.48.655 N	017.53.871 W	300.2	7.83
275	Station 25	DA17-NG-ST25-275uCTD	uCTD	Success	2017-09-25T12:48:07	73.48.329 N	017.52.070 W	304.5	2017-09-25T12:54:49	73.47.805 N	017.48.791 W	289.4	9.16
276	Station 25	DA17-NG-ST25-276uCTD	uCTD	Success	2017-09-25T12:58:58	73.47.493 N	017.46.812 W	293.5	2017-09-25T13:06:22	73.46.935 N	017.43.213 W	286.8	7.86
277	Station 25	DA17-NG-ST25-277uCTD	uCTD	Success	2017-09-25T13:10:35	73.46.600 N	017.41.087 W	284.4	2017-09-25T13:17:35	73.46.056 N	017.37.661 W	942.2	7.43
278	Station 25	DA17-NG-ST25-278uCTD	uCTD	Success	2017-09-25T13:22:35	73.45.674 N	017.35.199 W	277.2	2017-09-25T13:28:54	73.45.212 N	017.32.189 W	281.9	7.8
279	Station 26	DA17-NG-ST26-279-CTD	SEA (CTD)	Success	2017-09-25T13:45:41	73.44.049 N	017.27.222 W	283.7	2017-09-25T14:22:05	73.43.855 N	017.29.219 W	270.4	0.61
280	Station 26	DA17-NG-ST26-280uCTD	uCTD	Success	2017-09-25T14:41:21	73.42.487 N	017.23.770 W	266.7	2017-09-25T14:47:15	73.41.983 N	017.21.414 W	268.9	4.11
281	Station 26	DA17-NG-ST26-281uCTD	uCTD	Success	2017-09-25T14:51:13	73.41.669 N	017.19.729 W	268.4	2017-09-25T14:57:21	73.41.184 N	017.17.040 W	275.6	4.82
282	Station 26	DA17-NG-ST26-282uCTD	uCTD	Success	2017-09-25T15:01:51	73.40.821 N	017.15.007 W	2053.2	2017-09-25T15:08:20	73.40.307 N	017.12.110 W	2414.8	4.63
283	Station 26	DA17-NG-ST26-283uCTD	uCTD	Success	2017-09-25T15:14:12	73.39.856 N	017.09.489 W	2043.9	2017-09-25T15:20:05	73.39.414 N	017.06.862 W	2079.5	4.51
284	Station 26	DA17-NG-ST26-284uCTD	uCTD	Success	2017-09-25T15:24:19	73.39.104 N	017.04.961 W	273	2017-09-25T15:30:05	73.38.669 N	017.02.326 W	2144.5	4.94
285	Station 26	DA17-NG-ST26-285uCTD	uCTD	Success	2017-09-25T15:34:14	73.38.344 N	017.00.332 W	266.4	2017-09-25T15:40:58	73.37.799 N	016.57.081 W	2321.4	5.03
286	Station 26	DA17-NG-ST26-286uCTD	uCTD	Success	2017-09-25T15:45:21	73.37.441 N	016.54.901 W	2471.8	2017-09-25T15:51:37	73.36.917 N	016.51.950 W	2454.9	4.92
287	Station 26	DA17-NG-ST26-287uCTD	uCTD	Success	2017-09-25T15:56:08	73.36.538 N	016.50.001 W	2156.1	2017-09-25T16:02:04	73.35.924 N	016.47.950 W	2332.2	4.02
288	Station 27	DA17-NG-ST27-288CTD	SEA (CTD)	Success	2017-09-25T16:08:14	73.35.830 N	016.47.979 W	271.6	2017-09-25T16:42:42	73.36.134 N	016.47.181 W	271.5	5.61
289	Station 27	DA17-NG-ST27-289uCTD	uCTD	Success	2017-09-25T17:11:11	73.34.320 N	016.38.298 W	2440.6	2017-09-25T17:17:32	73.33.725 N	016.35.740 W	2089.2	10.66
290	Station 27	DA17-NG-ST27-290uCTD	uCTD	Success	2017-09-25T17:21:27	73.33.361 N	016.34.136 W	2107.2	2017-09-25T17:29:16	73.32.620 N	016.30.969 W	1946.7	10.93
291	Station 27	DA17-NG-ST27-291uCTD	uCTD	Success	2017-09-25T17:33:23	73.32.240 N	016.29.340 W	2089.5	2017-09-25T17:40:12	73.31.600 N	016.26.601 W	2187	14.71
292	Station 27	DA17-NG-ST27-292uCTD	uCTD	Success	2017-09-25T17:44:52	73.31.171 N	016.24.770 W	1997.3	2017-09-25T17:51:02	73.30.615 N	016.22.405 W	2362.3	13.04
293	Station 27	DA17-NG-ST27-293uCTD	uCTD	Success	2017-09-25T17:55:42	73.30.178 N	016.20.568 W	2251.9	2017-09-25T18:01:48	73.29.601 N	016.18.166 W	262	14.06
294	Station 28	DA17-NG-ST28-294CTD	SEA (CTD)	Success	2017-09-25T18:43:55	73.27.631 N	016.10.445 W	607.1	2017-09-25T19:42:27	73.27.644 N	016.10.740 W	2327.2	8.99
295	Station 28	DA17-NG-ST28-295uCTD	uCTD	Success	2017-09-25T20:00:07	73.26.382 N	016.06.219 W	2325.4	2017-09-25T20:11:21	73.25.193 N	016.01.342 W	2041.6	11.73
296	Station 28	DA17-NG-ST28-296uCTD	uCTD	Success	2017-09-25T20:16:51	73.24.607 N	015.58.972 W	2449	2017-09-25T20:29:57	73.23.235 N	015.53.317 W	1900.1	13.93
297	Station 28	DA17-NG-ST28-297uCTD	uCTD	Success	2017-09-25T20:34:51	73.22.721 N	015.51.220 W	2401.9	2017-09-25T20:46:26	73.21.644 N	015.45.937 W	1841.1	13.59
298	Station 29	DA17-NG-ST29-298CTD	SEA (CTD)	Fail	2017-09-25T21:19:51	73.19.113 N	015.34.288 W	1801.6	2017-09-25T21:39:26	73.19.100 N	015.34.869 W	1796.3	8.2
299	Station 29	DA17-NG-ST29-299WP3	WP3 Net	Success	2017-09-25T21:47:45	73.19.109 N	015.35.093 W	2112.3	2017-09-25T22:31:34	73.19.011 N	015.36.397 W	1792.7	7.02
300	Station 29	DA17-NG-ST29-300CTD	SEA (CTD)	Success	2017-09-25T23:19:06	73.18.450 N	015.33.789 W	1836.4	2017-09-25T23:43:27	73.18.529 N	015.34.630 W	1907.2	7.77