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CAGE-20-3 Cruise Report

Geochemical and Sedimentological Investigation into Ingøydjupet, Håkon Mosby Mud Volcano and the Sorvestnaget Sand Waves

Kate Alyse Waghorn, Malin Waage, Claudio Argentino
Capt. R/V: John Almestad

DOI:

Key words: Geochemistry, Hill-Hole Pairs, Methane Seepage, Mud Volcanoes, Sand Waves

Contents

Scientific Objectives

The scientific objectives of CAGE20-3 expedition were to 1) explore hill-hole pairs at Ingøydjupet in the Southwestern Barents Sea 2) re-survey the Sørvestagneset sandwaves fields to acquire 'time-lapse' bathymetry and explore changes in current dynamics. Given enough time a third objective was to acquire grab samples at two active vent sites of Håkon Mosby Mud Volcano (HMMV).

Sediment cores, pore water and gas samples from Ingøydjupet hill-hole pairs will be used to ascertain 1) if there was gas hydrate present in the hills or holes during the last glacial maxima, and when said gas hydrate dissociated if present 2) to model sulfate and methane fluxes within the sediment and 3) to investigate gas source. Bathymetry and other geophysical data will be used in conjunction with pre-existing seismic data to analyze fluid migration dynamics and all data will contribute to understanding the role gas hydrate played in ice stream dynamics at this location, and the influence of ice stream dynamics on fluid migration. Grab samples, sediment cores, pore water and gas samples collected on the Håkon Mosby Mud Volcano will be used to identify seafloor faunal assemblages through DNA analysis (UiB) and investigate their relation to biogeochemical processes occurring in the sediment beneath.

Participants

Kate Waghorn	Postdoctoral Researcher
Malin Waage	Postdoctoral Researcher
Claudio Argentino	Postdoctoral Researcher

Truls Holm	Engineer
Stormer Jensen	Engineer
John Almestad	Captain
Emil Inge Øren	First Mate

All participants were on shift either 0800-1400,2000-0200 or 0200-0800,1400-2000 from 28th July at 0900 to 3rd August at 0800.

Study Areas

Ingøydjupet hill-hole pairs

Ingøydjupet is a trough in the southwestern Barents Sea, formed by an ice stream during glacial periods (Fig.1). The area of interest within Ingøydjupet is a series of hill-hole pairs (Winsborrow et al., 2016) identified on seismic data, with gas accumulations close to the seafloor. During CAGE20-2, a multibeam bathymetry line over the hill-hole pairs indicated a flaring pockmark. The hill-hole seabed features are around 200 m in diameter, and there are a number of smaller pockmarks within both the hill and the hole. One hill hole pair in particular (Fig. 2) is the focus during data acquisition as seismic data indicates a significant gas accumulation beneath.

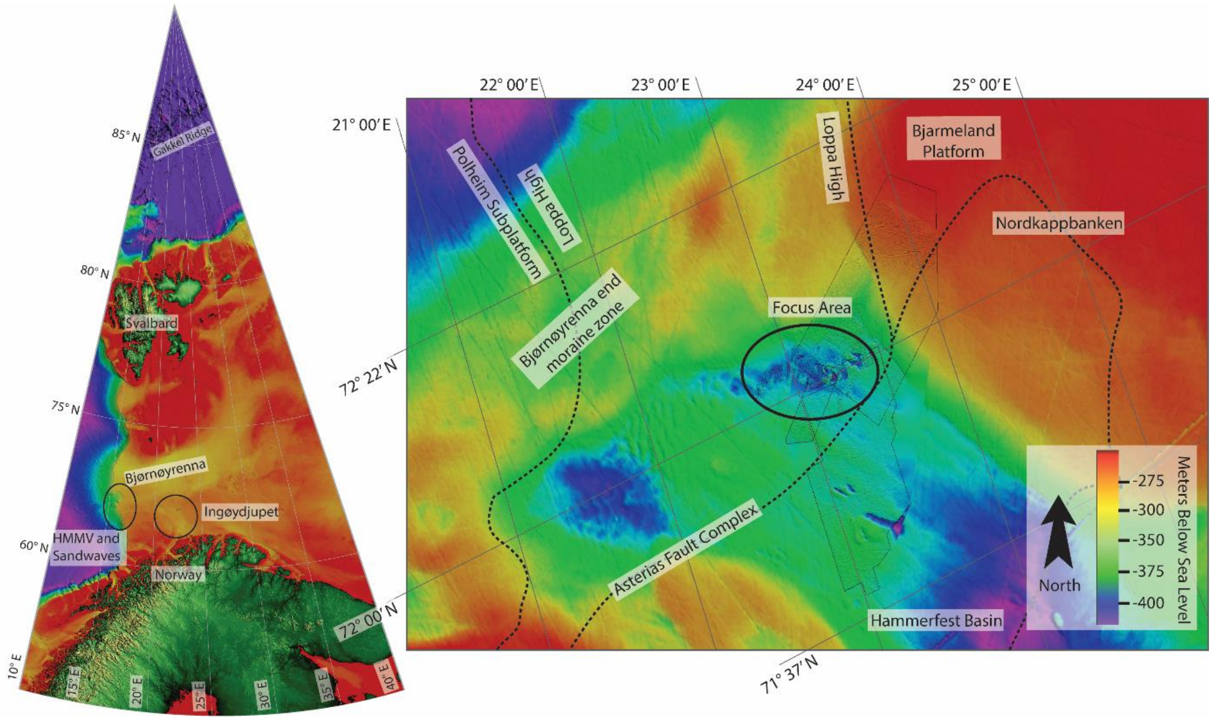

Figure 1. Overview map indicates all study areas; Ingøydjupet, Håkon Mosby Mud Volcano (HMMV) and Sandwaves. Ingøydjupet is at the northern edge of the Ingøydjupet Ice Stream, at the boundary between the Loppa High, Hammerfest Basin and Bjarmeland Platform. The Nordkappbanken Sedimentary wedge bounds the study area to the west (overlying the Bjarmeland Platform and Hammerfest Basin), while the Bjørnøyrenna end moraine zone bounds the focus area to the north. The Asterias Fault Complex separates the study area, and the Loppa High, from the Hammerfest Basin.

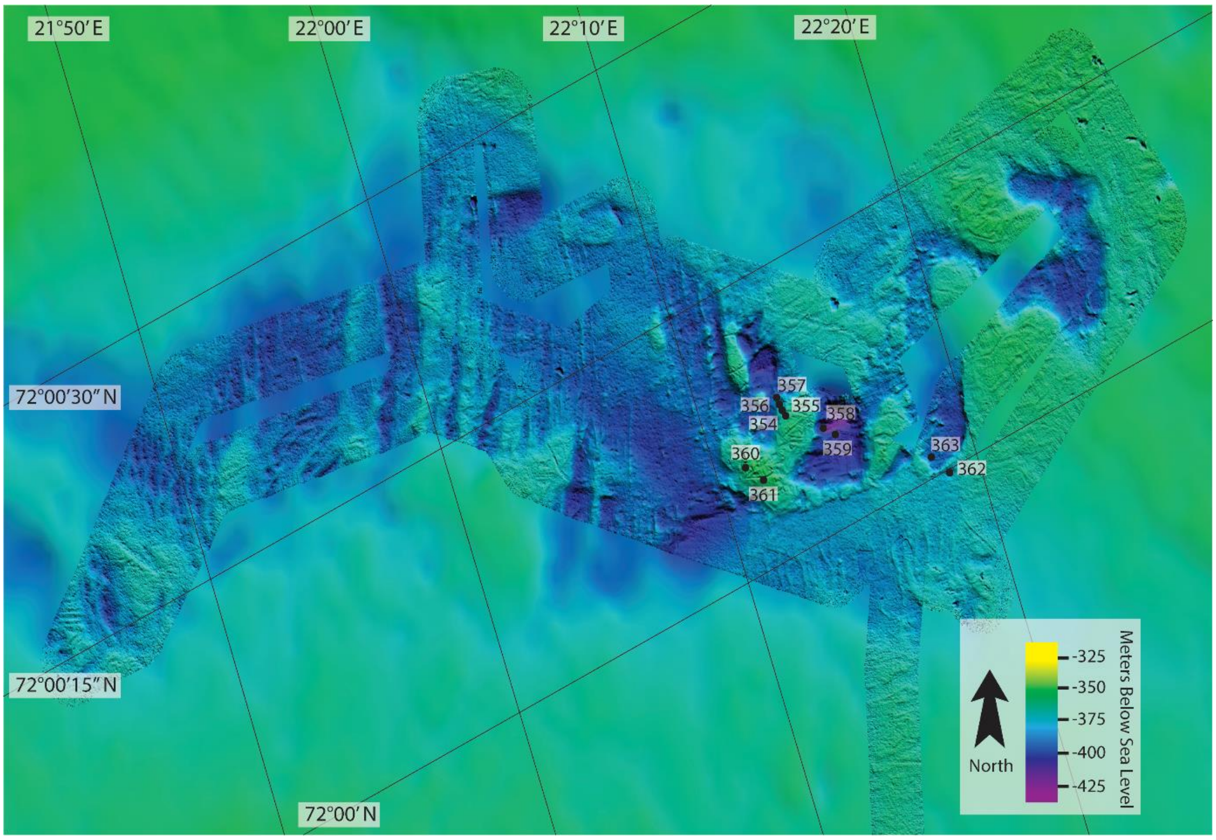

Figure 2. At the Ingøydjupet Hill Hole Pair area, we focused sampling operations around one hill-hole pair, however obtained bathymetry over a wider area, to complement existing datasets. Here, we collected 10 cores, stations 354-363.

Håkon Mosby mud volcano

Mud volcanos are constructional features, which typically form in areas of increasing pressure; either due to rapid sedimentation or due to compressional tectonic stress regimes. Mud and fluid from reservoirs at depth are remobilized and evacuated to the seafloor (Mazzini and Etiope, 2017). The Håkon Mosby mud volcano (HMMV) is located in the Bjørnøyrenna trough mouth fan area – an area characterized by rapid sedimentation (172 cm/ka) during the late Pliocene-Pleistocene (Fiedler and Faleide, 1996). HMMV is approximately 1.4 km in diameter and covers 1.2 square km, with a ~15 m high relief above the seafloor (Milkov et al., 2004). During CAGE20-3 we focus on two sites (Fig. 3) that have been actively seeping methane during prior research by UiB.

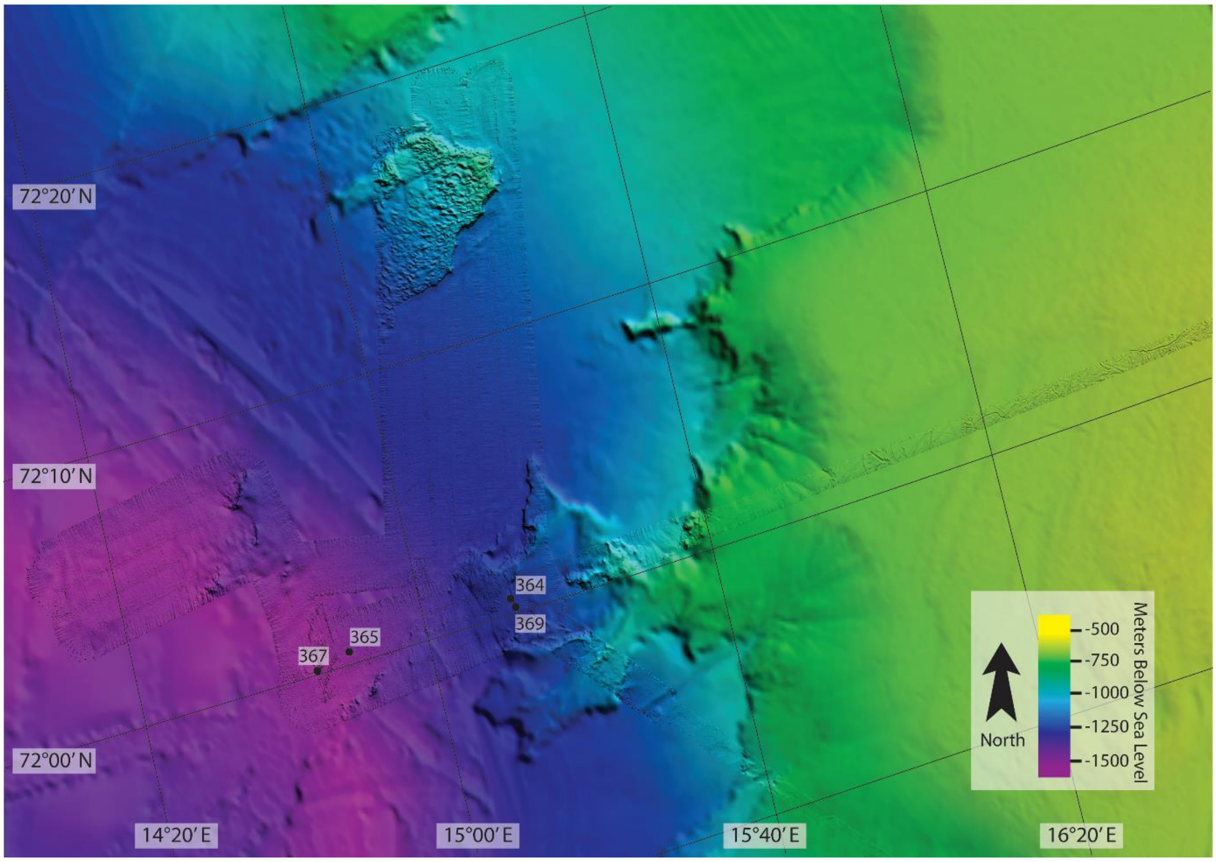

Figure 3. Håkon Mosby Mud Volcano, located on the shelf break of the Norwegian Continental Shelf (see figure 1). Here, we sampled at 2 vent sites, each using a grab (stations 364, 365) and a gravity core (367, 369).

Sørvestagneset sandwave fields

Large sandwave fields occur on the seafloor of the upper-middle continental slope of the Southwestern Barents Sea, in the Sørvestagneset area (Bøe et al., 2015; King et al., 2014). The sandwave fields are typically 1-3 km wide and stretch ~100km along the slope. The individual sandwaves show waveheights and wavelengths in a typical range of 1-6m and 50-200m respectively. North Atlantic surface current (NAC) is regarded as the main contributor for sand migration, however ocean currents related to internal waves and tidal currents is evident to modify the seafloor current conditions in the area (Skarðhamar et al., 2015).

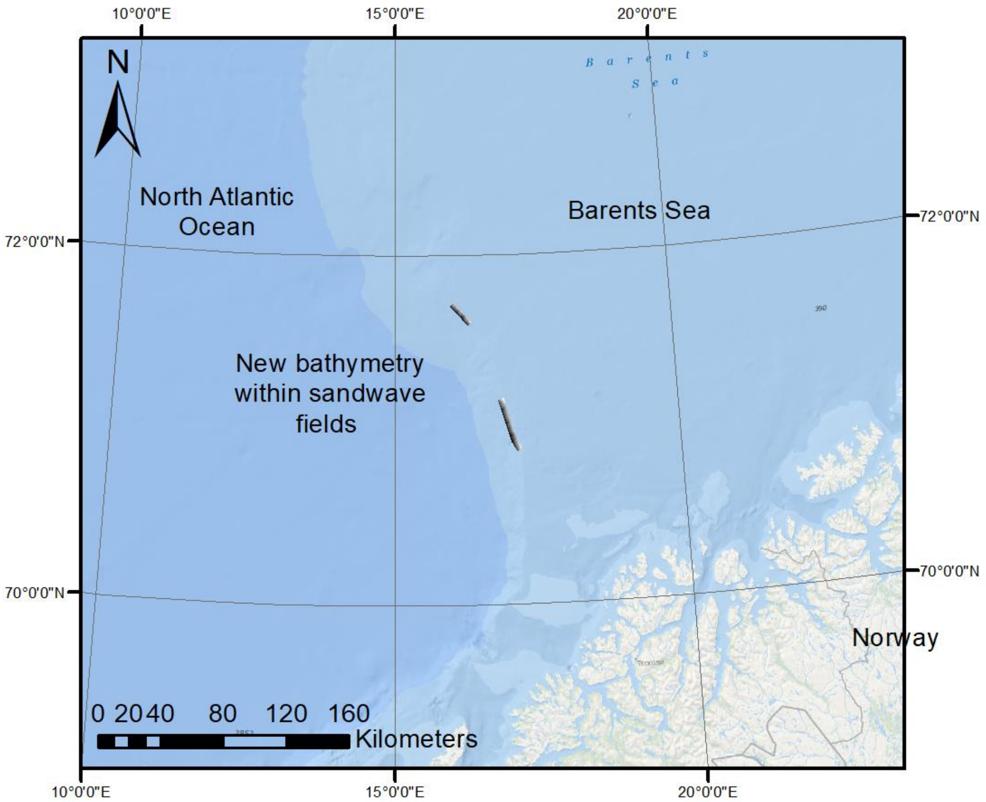

Figure 4. The location of the acquired multibeam bathymetry data covering sandwave fields on the SW Barents Sea margin is the two grey shaded areas.

Methods and Equipment

Gravity Core

We collected a total of 12 sediment cores using a 6-m long gravity corer. Prior to coring operations, 4 plastic liners were drilled using 3 mm and 1,5 cm drill bits for pore water and bulk sediment sampling (for headspace gas analysis), respectively. We maintained a 10 cm sampling resolution, keeping 5 cm between the 3 mm holes and 1,5 cm holes. Pre-drilled liners were employed for cores CAGE20-3-HH-354GC, CAGE20-3-HH-355GC, CAGE20-3-HH-356GC and CAGE20-3-HH-357GC. The remaining cores were sampled for pore water every 10 to 20 cm and for headspace gas analysis at the bottom of each core section. Sediment in the core-catcher was collected for every core and placed into plastic bags. After retrieval of gravity-cores, the plastic liners were cut into 1 m-sections, covered with plastic caps, taped, labelled and stored at 4˚C.

Pore water and gas in the sediment

Pore water was extracted by pressure filtration through 0.2 µm cellulose acetate filters. Rhizons with 10 mL syringes attached were inserted into the 3 mm holes and spacers were utilized to create a vacuum inside the syringes. A total of 106 pore water samples were collected and split into 2 aliquots: 1) subsamples for DIC analysis (1 ml) were transferred to 1.5 ml micro tubes with screw caps and added 10 µl of $HgCl_2$ to stop microbial activity. 2) Subsamples for sulfate analysis (> 1 ml) were transferred to 5 ml Eppendorf tubes. Subsamples for DIC analysis were stored at 4˚C, whereas subsamples for sulfate analysis were kept frozen at -20˚C.

Bulk sediment samples were collected using 5 ml syringes without the luer tip. Sediment was transferred into a 20 mL serum vial containing two glass beads and added 5 mL of 1M NaOH to stop microbial activity. The vial was immediately closed with a rubber septum, sealed with an aluminum crimp cap and shaken. A total of 84 sediment samples for headspace gas analysis were collected. Bulk sediment samples were stored at 4˚C. For porosity measurement, we collected 5 ml of bulk sediment using a 5 ml cut-off syringe from core 354GC from the top of section #1 and bottom of sections #1 and #2 and transferred to Eppendorf tubes.

Grab Sampling

A Van Veen grab sampler was used to acquire 2 surface sediment samples in the HMMV area (Fig. 5), aiming to collect material for micro and macro fauna investigations. Around 100 cm^3 of sediment was passed through 0.5 mm- and 0.25 mm-mesh sieves. The two aliquots were transferred into separate plastic jars and fixed in 96% ethanol for DNA analysis. After 24 h, we replaced the ethanol in the jars with new ethanol. 2 pore water samples and 3 sediment samples were also collected from sample CAGE20-3-HH-365-Grab.

Figure 5. Grab sample CAGE-20-3-HH-365-grab (left picture). White arrow indicates a cluster of siboglinid tubeworms; grey arrow indicates an ophiuroid. Equipment used for sieving (right picture).

The same grab sampler was used in the Sørvestagneset sandwave field to map the sediment characteristics over various sandwave types and sizes, and to investigate the extent of the sandy material on the seafloor. 14 seafloor sediments were in total sampled over 2 sites. The currents made it challenging to sometimes hit the target, which is why we re-sampled some locations.

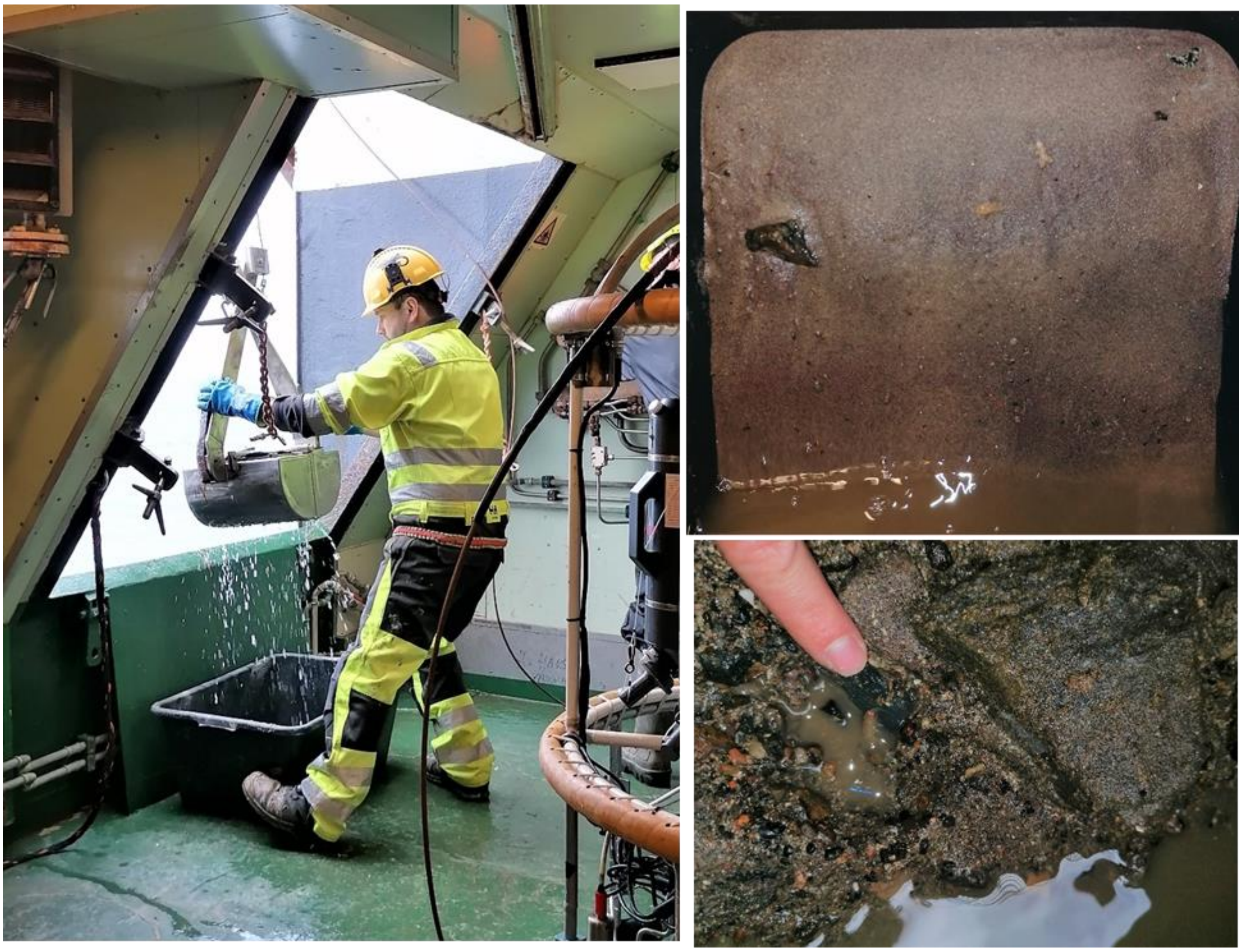

Figure 6. Picture of one of the crew handling the grab sampler (left picture). On the right are pictures of sediment samples at two localities, showing different sediment characteristics.

Multibeam Bathymetry

A Kongsberg Simrad EM302 multibeam echosounder is mounted on the R.V Helmer Hanssen. The EM302 has 432/432 beams which can be adjusted based on need to cover a set range in either m (across the seafloor) or degrees (angle of the outermost beam towards the seafloor). Beams are transmitted from the ship and reflect off the seafloor back towards the ship. The EM302 uses water velocity profiles collected from the CTD and the time it takes beams to reflect off the seafloor and back to the EM302, in order to calculate the depth of the seafloor per beam per ping. Additionally, the EM302 is capable of recording water column data across the width of the swath, allowing for gas in the water column to be recorded. During both the Ingøydjupet and Håkon Mosby Mud Volcano surveys, the beams were set to record equidistantly (no weighting to the middle or end of the swath), at a coverage angle of 60°/60°. During the Sørvestagneset Sandwave Fields surveys, the settings were 45°/45° and spacing of lines reduced to 600-700m to achieve high-resolution.

The multibeam data was processed using an automatic CUBE filtering approach in the QPS-suite software package (either Qimera or Fledermaus) to remove spikes and other inconsistencies in the data.

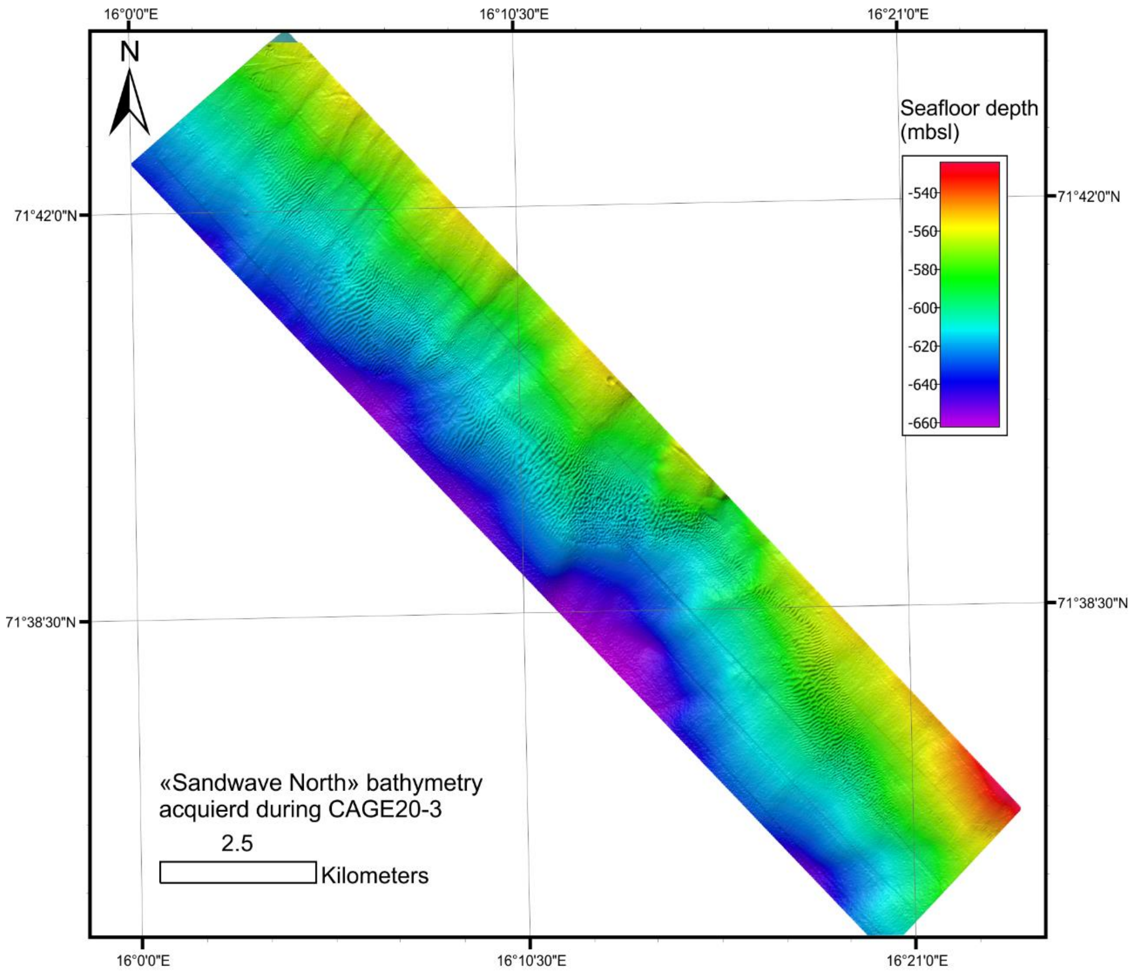

Figure 7. Processed multibeam bathymetry data acquired in the "northern sandwave field" during this cruise.

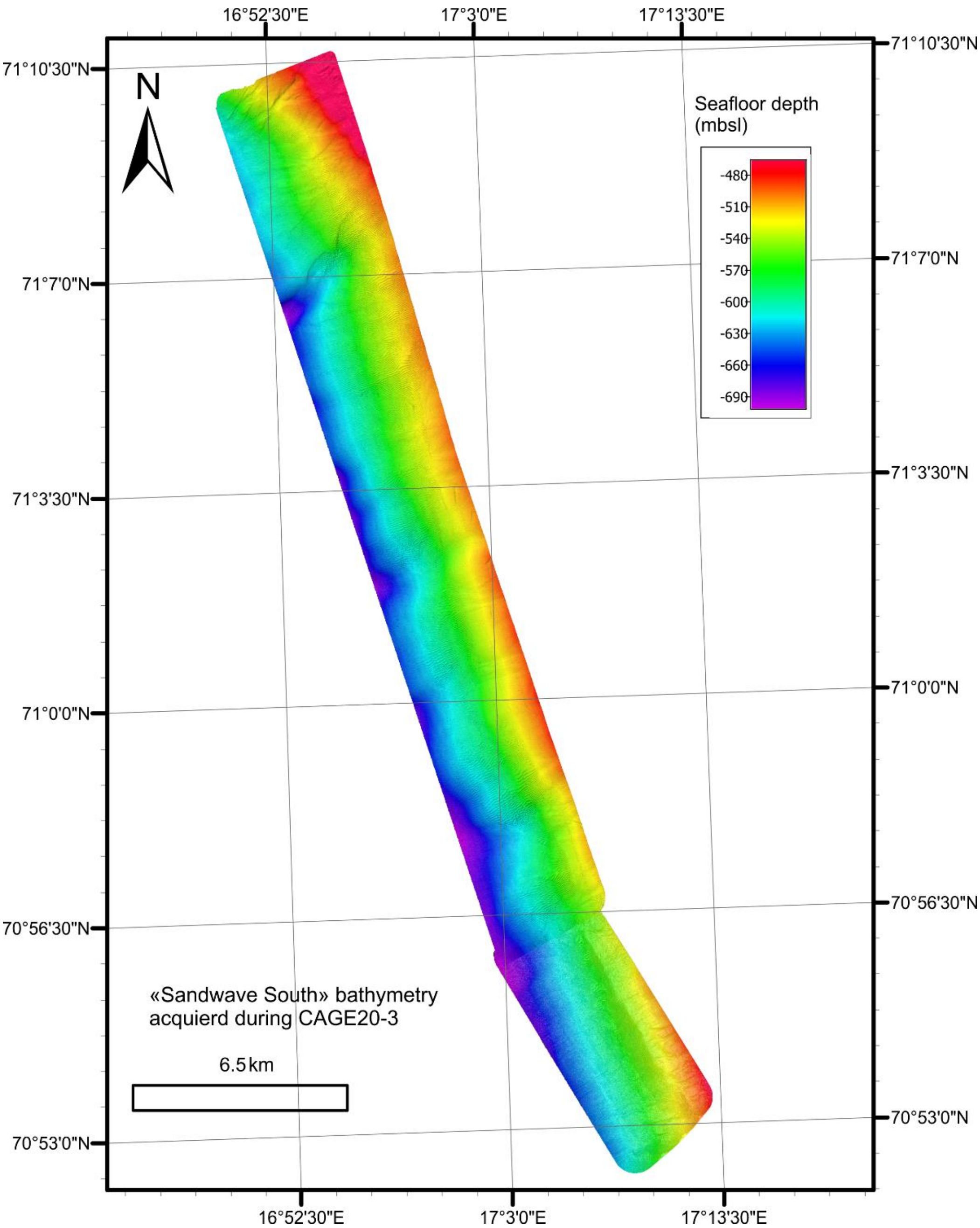

Figure 8. Processed multibeam bathymetry data acquired in the "southern sandwave field" during this cruise.

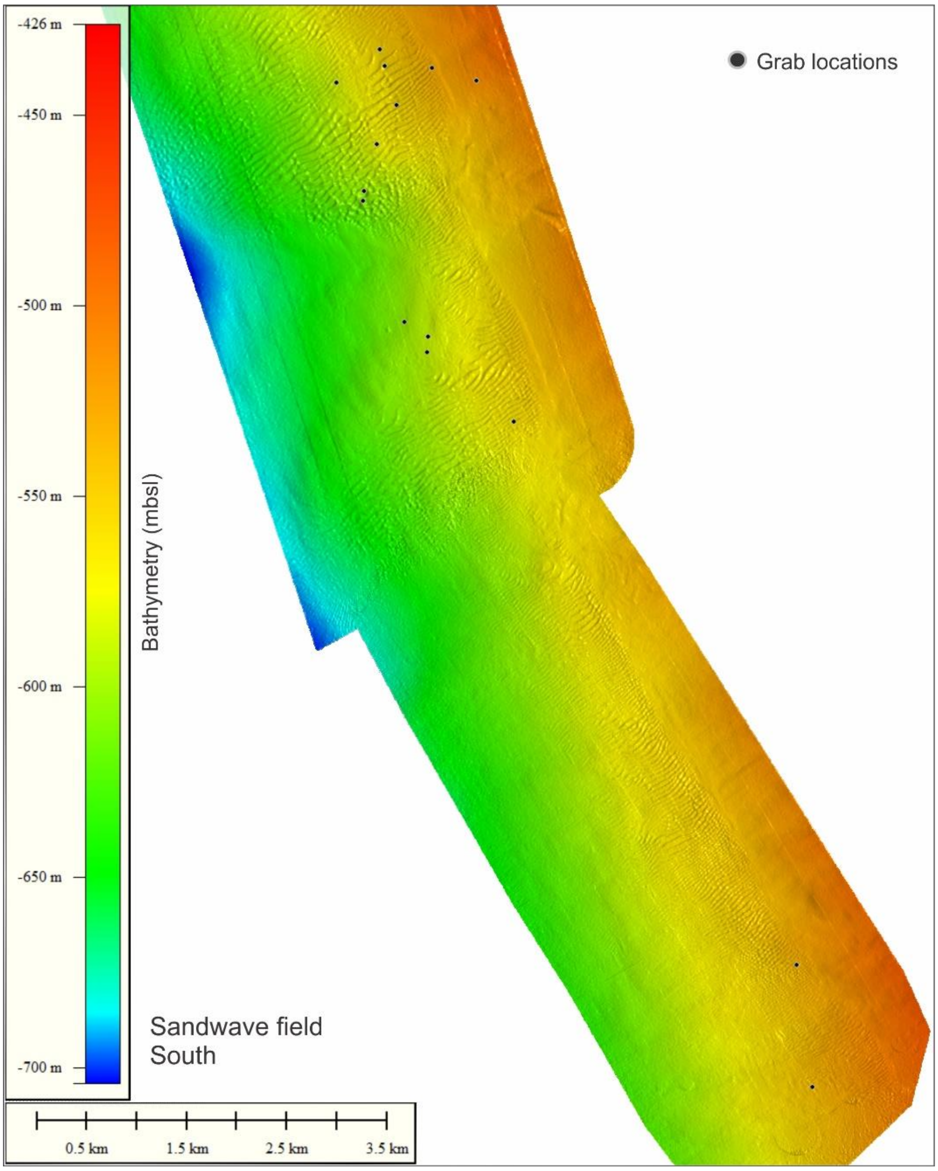

Figure 9. Grab sample locations in the southern sandwave field.

Other

CTD

The CTD (Conductivity, Temperature, Depth) measures the physical properties of seawater, including the velocity of sound through the water column. The R.V. Helmer Hanssen uses a SBE 911plus CTD for acquiring vertical profiles of water column properties. Typically, niskin bottles are deployed along with the CTD to attain water samples for further analysis; however, on this particular expedition we used the CTD for the sole purpose of calculating a velocity profile of the water column for the EM302 to accurately calculate depth of the seafloor.

Chirp

'Chirp' is an x-star full spectrum sub bottom profiler, which generates super shallow subsurface reflection profiles. The chirp aboard the R.V. Helmer Hanssen is a hull mounted 4x4 transducer array which generates a signal beginning at 1.5 kHz and ending at 9 kHz. Penetration depth is highly dependent on the geologic conditions at the seafloor – these frequencies work best in softer, unconsolidated sediments and fail in rock. During this cruise we used Chirp sporadically, in particular we acquired some chirp lines across areas of core collection in order to tie 3D seismic data with the cores.

Cruise Narrative

All dates and times are local time (UTC+2 hrs). Weather was very good for the entire duration of the trip

Day 1 28th July
All participants on board by 8:45 ready for departure at 9 am. First mate performed safety briefing and we began transit to the first study area, Ingøydjupet. We arrived at Ingøydjupet somewhat ahead of anticipated point of arrival and spent the first hours conducting a multibeam survey

Day 2 29th July
Throughout the night we explored the area with multibeam. Seemingly the most interesting area is that which we had already identified. We began coring at Ingøydjupet after breakfast. After completing operations at Ingøydjupet ahead of schedule we proceeded to HMMV.

Day 3 30th July
We arrived at HMMV around 10 am and started with 2 grab samples. Afterwards we spent time conducting a multibeam survey

Day 4 31st July
We finished operations (~4 pm) at HMMV by obtaining 2 gravity cores, one of which contained hydrates. We then proceeded to the last study area, the Sand Waves – specifically the northern field. After a CTD for multibeam calibration, we conducted a multibeam survey through the night

Day 5 1st August
We arrived at the southern Sand Wave field at around 5 am, and repeated the operations of the Northern field, a CTD followed by a multibeam survey.

Day 6 2nd July
After finishing operations earlier than expected at the Sand Wave sites, we decided to obtain grab samples across the sandwave field (south) for sedimentological analysis.

Day 7 3rd July
All participants arrived safely in Tromsø around 8 am and left the ship.

Logs

Table A1 - Stations

Location	**Station Id**	**Date**	**Time (UTC)**	**Lat. [N] Long. [E]**	**Bottles fired [#]**	**Water Depth [m]**	**Notes**

Ingøydjupet	CAGE20-3-HH-353-CTD	28/07	10:56	71°59.503' 22°15.748'		370	Water Velocity CTD
Ingøydjupet	CAGE20-3-HH-354-GC	29/07	06:49	72°01.237' 22°13.359'	243	370	Hill Pockmark Transect
Ingøydjupet	CAGE20-3-HH-355-GC	29/07	07:57	72°01.302' 22°13.244'	206	378	Hill Pockmark Transect
Ingøydjupet	CAGE20-3-HH-356-GC	29/07	09:08	72°01.358' 22°13.178'	247	380	Hill Pockmark Transect
Ingøydjupet	CAGE20-3-HH-357-GC	29/07	10:08	72°01.420' 22°13.198'	70	381	Hill Pockmark Transect
Ingøydjupet	CAGE20-3-HH-358-GC	29/07	11:05	72°00.931' 22°14.627'	306	414	Hole Brightspot
Ingøydjupet	CAGE20-3-HH-359-GC	29/07	12:35	72°00.834' 22°15.003'	329	409	Hole Pockmark
Ingøydjupet	CAGE20-3-HH-360-GC	29/07	16:43	72°00.982' 22°11.267'	222	363	Till Core
Ingøydjupet	CAGE20-3-HH-361-GC	29/07	17:35	72°00.805' 22°11.760'	272	365	Till Core (for Vårin)
Ingøydjupet	CAGE20-3-HH-362-GC	29/07	18:41	71°59.987' 22°18.751'	293	378	Southern Pockmark
Ingøydjupet	CAGE20-3-HH-363-GC	29/07	19:30	72°00.204' 22°18.275'	293	383	Southern Hole
Håkon Mosby Mud Volcano	CAGE20-3-HH-364-Grab	30/07	08:16	72°00.563' 15°12.123'		966	Full Recovery
Håkon Mosby Mud Volcano	CAGE20-3-HH-365-Grab	30/07	10:11	72°00.566' 14°49.080'		1246	Full Recovery
Håkon Mosby Mud Volcano	CAGE20-3-HH-366-CTD	30/07	11:00	72°00.848' 14°45.610'		1280	Water Velocity CTD
Håkon Mosby Mud Volcano	CAGE20-3-HH-367-GC	31/07	11:06	72°00.141' 14°44.322'	278	1263	Gas hydrate ridden core - not sure how much sediment vs hydrate…
Håkon Mosby Mud Volcano	CAGE20-3-HH-369-GC	31/07	14:00	72°00.296' 15°12.229'	364	963	Maybe gas hydrate --> cores cold to the touch in some places. Some smell. Core 368 had no recovery
Sand Waves	CAGE20-3-HH-370-CTD	31/07	17:10	71°43.272' 16°04.116'		571	Water Velocity CTD
Sand Waves	CAGE20-3-HH-371-CTD	01/08	03:32	71°09.857' 16°50.850'		570	Water Velocity CTD
Sand Waves	CAGE20-3-HH-372-Grab	02/08	06:40	70°58.798' 17°04.989'		523	

Sand Waves	CAGE20-3-HH-373-Grab	02/08	07:02	70°58.909' 17°04.143'		545	
Sand Waves	CAGE20-3-HH-374-Grab	02/08	07:23	70°58.605' 17°04.385'		549	
Sand Waves	CAGE20-3-HH-375-Grab	02/08	07:49	70°58.737' 17°03.408'		583	
Sand Waves	CAGE20-3-HH-376-Grab	02/08	08:20	70°58.143' 17°03.797'		594	
Sand Waves	CAGE20-3-HH-377-Grab	02/08	09:11	70°57.262' 17°04.747'		585	
Sand Waves	CAGE20-3-HH-378-Grab	02/08	09:23	70°57.345' 17°04.766'		582	
Sand Waves	CAGE20-3-HH-379-Grab	02/08	10:02	70°56.871' 17°06.136'		554	
Sand Waves	CAGE20-3-HH-380-Grab	02/08	10:33	70°58.721' 17°05.708'		508	
Sand Waves	CAGE20-3-HH-381-Grab	02/08	10:53	70°58.821' 17°04.205'		547	
Sand Waves	CAGE20-3-HH-382-Grab	02/08	11:15	70°58.396' 17°04.030'		570	
Sand Waves	CAGE20-3-HH-383-Grab	02/08	11:50	70°58.094' 17°03.775'		598	
Sand Waves	CAGE20-3-HH-384-Grab	02/08	12:40	70°57.431' 17°04.385'		593	
Sand Waves	CAGE20-3-HH-385-Grab	02/08	13:12	70°53.873' 17°10.459'		532	
Sand Waves	CAGE20-3-HH-386-Grab	02/08	13:48	70°53.210' 17°10.642'		536	

Table A2 - Acoustic lines

Location	**Line ID**	**Date**	**Time (UTC) START**	**Lat. [N] Long. [E] START**	**Time (UTC) STOP**	**Lat. [N] Long. [E] STOP**	**Shot Rate (HZ)**	**Ship Speed (kn)**
Ingøydjupet	CAGE20-3-HH-001-CHIRP	29.06	02:12	72.013382 N 22.285486 E	02:31	72.037674 N 22.16754 E	2-6kHz	4-6
Ingøydjupet	CAGE20-3-HH-002-CHIRP	29.06	02:32	72.037674 N 22.167547 E	02:40	72.046297 N 22.15155 E	2-6kHz	4-6

Ingøydjupet	CAGE20-3-HH-003-CHIRP	29.06	13:11	71.980096 N 22.313403 E	13:29	72.014825 N 22.164846 E	2-6kHz	4-6
Ingøydjupet	CAGE20-3-HH-004-CHIRP	29.06	13:39	72.0148258 N 22.164846 E	13:50	72.050805 N 22.005577 E	2-6kHz	4-6
Ingøydjupet	CAGE20-3-HH-005-CHIRP	29.06	13:57	72.050805 N 22.005577 E	14:25	72.040733 N 22.121926 E	2-6kHz	4-6
Ingøydjupet	CAGE20-3-HH-006-CHIRP	29.06	14:25	72.040733 N 22.121926 E	14:41	72.00559 N 22.2780163 E	2-6kHz	4-6
Ingøydjupet	CAGE20-3-HH-007-CHIRP	29.06	14:44	72.005590 N 22.278016 E	15:20	72.019468 N 22.262761 E	2-6kHz	4-6
Ingøydjupet	CAGE20-3-HH-008-CHIRP	29.06	15:21	72.019468 N 22.262761 E	15:55	72.055856 N 22.103931 E	2-6kHz	4-6
Ingøydjupet	CAGE20-3-HH-009-CHIRP	29.06	15:59	72.055856 N 22.103931 E	16:15	72.024508 N 22.137316 E	2-6kHz	4-6
Ingøydjupet	CAGE20-3-HH-010-CHIRP	29.06	16:19	72.024508 N 22.137316 E	17:15	72.016495 N 22.187696 E	2-6kHz	4-6
Ingøydjupet	CAGE20-3-HH-011-CHIRP	29.06	17:15	72.012602 N 22.175533 E	17:45	71.985462 N 22.172346 E	2-6kHz	4-6
Ingøydjupet	CAGE20-3-HH-012-CHIRP	29.06	17:45	72.015422 N 22.192070 E	18:14	72.003057 N 22.265709 E	2-6kHz	4-6
Ingøydjupet	CAGE20-3-HH-013-CHIRP	29.06	18:14	72.003057 N 22.265709 E	20:05	71.999458 N 22.308420 E	2-6kHz	4-6
Ingøydjupet	CAGE20-3-HH-014-CHIRP	29.06	20:08	72.004771 N 22.248365 E	20:40	72.018495 N 21.98153 E	2-6kHz	4-6
Ingøydjupet	CAGE20-3-HH-015-CHIRP	29.06	20:45	72.018495 N 21.981536 E	21:00	72.032592 N 21.715143 E	2-6kHz	4-6

Ingøydjupet	CAGE20-3-HH-016-CHIRP	29.06	21:04	72.032592 N 21.715143 E	21:30	72.046775 N 21.447375 E	2-6kHz	4-6
Håkon Mosby Mud Volcano	CAGE20-3-HH-017-CHIRP	30.06	11:49	72.015418 N 15.012810 E	12:04	72.012772 N 14.793865 E	2-6kHz	4-6
Håkon Mosby Mud Volcano	CAGE20-3-HH-018-CHIRP	30.06	13:06	72.014140 N 15.27712 E	13:40	71.991392 N 15.141649 E	2-6kHz	4-6
Håkon Mosby Mud Volcano	CAGE20-3-HH-019-CHIRP	30.06	13:43	71.991392 N 15.141649 E	14:21	71.985981 N 14.860138 E	2-6kHz	4-6
Håkon Mosby Mud Volcano	CAGE20-3-HH-020-CHIRP	30.06	14:21	71.985981 N 14.86013 E	14:58	71.998112 N 14.766988 E	2-6kHz	4-6
Håkon Mosby Mud Volcano	CAGE20-3-HH-021-CHIRP	30.06	14:58	71.998112 N 14.766988 E	15:35	72.002500 N 15.036847 E	2-6kHz	4-6
Håkon Mosby Mud Volcano	CAGE20-3-HH-022-CHIRP	30.06	15:35	72.002500 N 15.036847 E	16:13	72.018896 N 15.261964 E	2-6kHz	4-6
Håkon Mosby Mud Volcano	CAGE20-3-HH-023-CHIRP	30.06	16:13	72.018896 N 15.261964 E	16:50	72.110887 N 15.314787 E	2-6kHz	4-6
Håkon Mosby Mud Volcano	CAGE20-3-HH-024-CHIRP	30.06	16:50	72.110887 N 15.314787 E	17:27	72.204903 N 15.371898 E	2-6kHz	4-6
Håkon Mosby Mud Volcano	CAGE20-3-HH-025-CHIRP	30.06	17:27	72.204903 N 15.371898 E	18:05	72.314636 N 15.401296 E	2-6kHz	4-6
Håkon Mosby Mud Volcano	CAGE20-3-HH-026-CHIRP	30.06	18:05	72.242960 N 15.35094 E	19:08	72.203410 N 15.325797 E	2-6kHz	4-6
Håkon Mosby Mud Volcano	CAGE20-3-HH-027-CHIRP	30.06	19:08	72.203410 N 15.32579 E	20:04	72.137621 N 15.284246 E	2-6kHz	4-6
Håkon Mosby Mud Volcano	CAGE20-3-HH-028-CHIRP	30.06	20:04	72.137621 N 15.284246 E	20:32	72.072396 N 15.243375 E	2-6kHz	4-6

Håkon Mosby Mud Volcano	CAGE20-3-HH-029-CHIRP	30.06	20:32	72.072396 N 15.24337 E	21:00	72.039025 N 15.159174 E	2-6kHz	4-6
Håkon Mosby Mud Volcano	CAGE20-3-HH-030-CHIRP	30.06	21:00	72.039025 N 15.15917 E	21:28	72.109042 N 15.203427 E	2-6kHz	4-6
Håkon Mosby Mud Volcano	CAGE20-3-HH-031-CHIRP	30.06	21:28	72.109042 N 15.2034274 E	21:56	72.177593 N 15.245740 E	2-6kHz	4-6
Håkon Mosby Mud Volcano	CAGE20-3-HH-032-CHIRP	30.06	21:56	72.177593 N 15.24574 E	22:24	72.245930 N 15.288482 E	2-6kHz	4-6
Håkon Mosby Mud Volcano	CAGE20-3-HH-033-CHIRP	30.06	22:24	72.245930 N 15.288482 E	22:52	72.319448 N 15.278795 E	2-6kHz	4-6
Håkon Mosby Mud Volcano	CAGE20-3-HH-034-CHIRP	30.06	22:52	72.319448 N 15.278795 E	23:20	72.256680 N 15.235752 E	2-6kHz	4-6
Håkon Mosby Mud Volcano	CAGE20-3-HH-035-CHIRP	30.06	23:20	72.256680 N 15.235752 E	23:48	72.190227 N 15.192443 E	2-6kHz	4-6
Håkon Mosby Mud Volcano	CAGE20-3-HH-036-CHIRP	30.06	23:48	72.190227 N 15.192443 E	00:16	72.121305 N 15.147937 E	2-6kHz	4-6
Håkon Mosby Mud Volcano	CAGE20-3-HH-037-CHIRP	31.06.2020	00:16	72.121305 N 15.147937 E	00:44	72.077663 N 15.119995 E	2-6kHz	4-6
Håkon Mosby Mud Volcano	CAGE20-3-HH-038-CHIRP	31.06.2020	00:44	72.077663 N 15.11999 E	01:12	72.058069 N 15.063262 E	2-6kHz	4-6
Håkon Mosby Mud Volcano	CAGE20-3-HH-039-CHIRP	31.06.2020	01:12	72.058069 N 15.063262 E	01:40	72.128118 N 15.105849 E	2-6kHz	4-6
Håkon Mosby Mud Volcano	CAGE20-3-HH-040-CHIRP	31.06.2020	01:40	72.128118 N 15.105849 E	02:08	72.196308 N 15.149151 E	2-6kHz	4-6
Håkon Mosby Mud Volcano	CAGE20-3-HH-041-CHIRP	31.06.2020	02:08	72.196308 N 15.149151 E	02:33	72.257129 N 15.187929 E	2-6kHz	4-6

Håkon Mosby Mud Volcano	CAGE20-3-HH-042-CHIRP	31.06.2020	02:33	72.257129 N 15.187929 E	02:52	72.289443 N 15.159963 E	2-6kHz	4-6
Håkon Mosby Mud Volcano	CAGE20-3-HH-043-CHIRP	31.06.2020	02:52	72.288152 N 15.159159 E	03:19	72.242155 N 15.127950 E	2-6kHz	4-6

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