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Short Cruise Report
RV METEOR cruise M201

Volcanism in the Vesturdjúp Basin - Flank Igneous System or Intraplate Volcanism Off-Shore Western Iceland

Reykjavik (Iceland) – Praia da Vitoria (Portugal)
09. June – 18. July 2024

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Captain: Detlef Korte

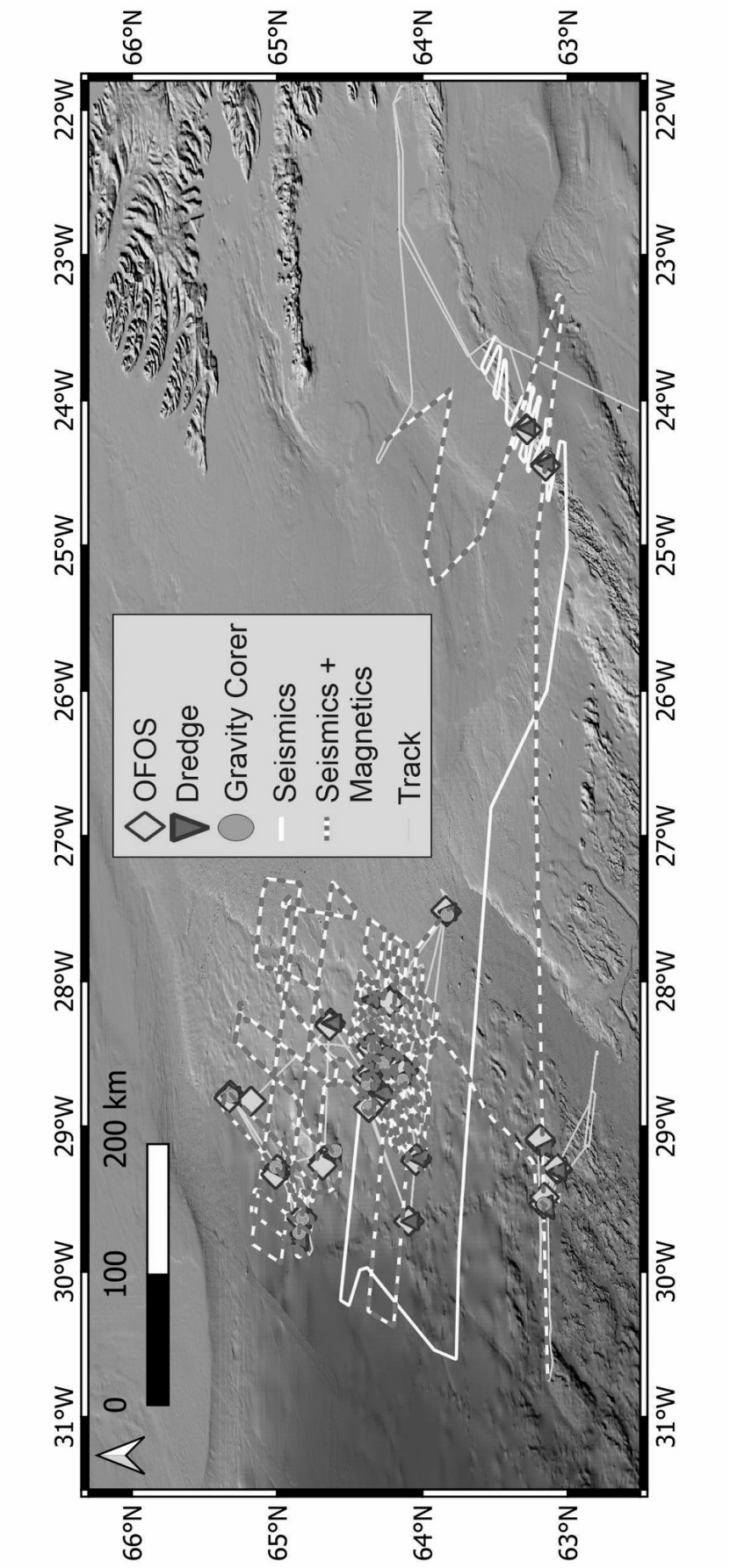

Fig. 1: Overview of the M201 cruise track and sampling areas in the Vesturdjúp Basin and Reykjanes Ridge.

Objectives

The majority of the young (Holocene) volcanic activity on the Iceland Plateau is believed to be confined to the active plate boundary in Ice-land, its volcanic flank zones, and on the sea floor along Kolbeinsey and Reykjanes Ridges. New multibeam bathymetric mapping ~205 km west of Iceland (Vesturdjúp Basin) showed the presence of 16 previously unknown, steep volcanic cones. Due to high radius-to-height ratios (>1.0), steep slopes, and no signs of erosion or tectonic deformation, it is suggested that they are much younger than the surrounding seafloor (overall >15.0 Ma) and are of Holocene age (<10 ka). The VEBVOLC expedition aims to investigate this new volcanic flank zone off-shore Iceland, which has never been sampled or directly observed. The combination of high-resolution multibeam and seismic re-flection mapping, video observations, and rock/sediment sampling will provide a comprehensive dataset to study the age and independence/connectivity of the volcanic system with the nearby Snæfellsnes Flank Zone, fault systems, and Iceland hotspot. The Vesturdjúp Basin volcanic system provides a globally unique opportunity to study how strongly hotspots influence the seafloor around them and what the nature of hotspot interaction with former rift zones

The overarching goals of expedition M201 VEBVOLC are to decipher the volcanic history of the western part of the Iceland Plateau, determine the age and spatial extent of the new igneous system, its potential connection to the Snæfellsnes Volcanic Flank Zone and the Icelandic hotspot. The VEBVOLC project aims to test the following hypotheses:

1) The Volcanoes of the Vesturdjúp field are of the Holocene age. This hypothesis is based on the question of when Vesturdjúp field volcanoes emerged. Vesturdjúp sea mounts appear as very steep, unfaulted, and with little slope erosion that stands out above the surrounding seafloor. This implies they are much younger than the ocean floor they occupy. A low degree of erosion of all seamounts implies that they formed at relatively similar times. Direct sampling of rocks and sediments may provide material for age determinations. Based on the hypothesis that volcanic flank zones in Iceland have more alkali compositions, they should be enriched with K, making them suitable for Ar/Ar dating. Sediment sequences lying on lava can be used to extract material for radiocarbon dating. Seismic reflection data will allow for the stratigraphic interpretation of the onlap-termination of volcaniclastic sediments and for determining a relative chronostratigraphy, which requires seismic profiles that link the individual cones. In case the volcanoes are of Holocene age, it is expected that the volcanoes will be covered by only thin layers of hemipelagic sediments, which OFOS videos will also investigate.

2) The Vesturdjúp field volcanoes emerge above shallow NE-SW striking faults, possibly where transfer faults intersect. This hypothesis builds on the question of what controls the evolution and spatial extent of the Vesturdjúp volcanic field system. The overall poorly studied regions beyond the Iceland Plateau strongly limit our knowledge of the full extent of interaction between the Iceland hotspot, plate tectonics, and igneous activity. Due to the lack of high-resolution seismic data, there is no information about shallow faults that may act as conduits to magmatic activity. Detailed seismic and hydroacoustic mapping can detect small surficial and sub-surface volcanic or igneous features around Iceland. We need to know the full extent and structural context of the Vesturdjúp system to evaluate the importance of this region in comparison to other active and flank volcanic systems in Iceland and to completely understand its role in the thermal budget of Iceland, its impact on the geochemical heterogeneity of the local oceanic crust and volcanic history associated with multiple rift relocations. Additionally, the indicated presence of two rift zones within the Vesturdjúp Basin, separated by a transform zone, opens the question of whether the northern and southern volcanoes belong to one or two separate volcanic systems. We will address this question with seismic reflection profiles across and between the volcanic cones.

3) The Vesturdjúp volcanic field is disconnected from the Snæfellsnes Volcanic Flank Zone, possibly due to a rift jump. Currently, a gap in geophysical data exists between Vesturdjúp

Basin and the Snæfellsnes Volcanic Flank Zone on Snæfellsnes, and it remains unknown whether the Vesturdjúp volcanic field is isolated from the Snæfellsnes Volcanic Flank Zone. The combination of seismic reflection profiling and bathymetric profiling will elucidate local igneous and tectonic activity. The presence or absence of shallow faults will corroborate or rule out the idea that the shift in igneous activity resulted from rift jumps and that Vesturdjúp volcanoes are an intraplate phenomenon.
4) The Vesturdjúp magma plumbing system leaks from the Snæfellsnes Volcanic Flank Zone. Geochemical signatures of the dredged rock samples will allow a better understanding of the magma source of these edifices. Icelandic volcanic flank zones produce alkali basalts as a reflection of isotopically and chemically enriched components of the Icelandic mantle source. Hence, volcanoes erupting on thick oceanic crusts should show higher incompatible element concentrations. If the Vesturdjúp magma plumbing system leaks from the nearby SVFZ, we would expect an alkali composition of rocks like those that erupted from the Snæfellsjökull volcanic systems rather than of oceanic tholeiite series. Answering this question will help us determine if the Snæfells and Vesturdjúp systems are fed from one magma source or system of deep reservoirs. If that is not the case, it would mean that the Vesturdjúp system is a new and independent intraplate volcanic system. As the composition of volcanoes on land in Iceland changes with the distance from the Iceland hotspot, it remains unknown if and how far this change continues offshore western Iceland. It is also unclear if the volcanoes from Vesturdjúp are of MORB or OIB composition. Only sampling with rock dredge and post-cruise geochemical analyses of individual edifices will allow us to constrain the overall character of the Vesturdjúp volcanic field.

Narrative

RV METEOR arrived in Reykjavik late Wednesday, 05 June, and was visited on Friday, 07 June, by the German ambassador in Iceland, Clarissa Duvigneau, and embassy delegates to inform them about the science program and the ship. A few Icelandic scientists visited the vessel one day later for more informal science chats with the PI's of M201. The scientific team - 26 scientists from 9 different nations and 9 institutes and universities - boarded RV METEOR Friday morning, 08 June, and we immediately started preparing the labs and setting up the scientific equipment. Expedition M201 started Sunday, 09 June, to investigate the cause and age of volcanism in the Vesturdjup Basin, East of Iceland. RV Meteor headed towards the working area, where the first deployment of the seismic equipment and data collection began late Sunday. Together with the multi-channel seismics, we collected magnetic data, Parasound sub-bottom profiles, and multibeam echosounder data to achieve a comprehensive dataset from diverse instruments along the same profile. The profile was designed to give us a first impression of the large-scale geology in the area and lead us over prominent structures on the Icelandic shelf, the Reykjanes Ridge (which is the current spreading center between the American and Eurasian plates), westwards into the Vesturdjup Basin – our main working area. The profile was 348 nautical miles (645 km) long, and we arrived at the final waypoint on Wednesday afternoon, June 12. After the seismic profile, we calibrated the multibeam echosounder and deployed a seafloor observations camera system (OFOS) to capture the first seafloor images. The camera system performed flawlessly, revealing outcropping volcanic rocks, relatively coarse sediments, and a rich diversity of deep-sea creatures, including fish, corals, sponges, and anemones. After three OFOS deployments at different volcanic structures, we conducted short dredge tows on the same targets to recover rock samples. Two gravity core stations were planned in the same area in addition to the rock sampling to sample the near-surface sediments. The seafloor observation and sampling program ended in the early morning hours of Saturday, June 15. Before we started the next seismic survey, we needed to calibrate the USBL underwater navigation system. This included dropping off a transponder to the seafloor and some

maneuvering patterns of the ship, and it was finished by the afternoon. A long seismic survey started on 15 June and ended six days later on Friday morning, 21 June. During this survey, we recorded reflection seismic data along an S-N profile over the volcanic cones of the Vesturdjup Basin. Also, we covered the northern Basin in several long E-W and N-S lines to understand the hidden volcanic, sedimentary, and basement structures. Seafloor sampling in the northernmost area of the Vesturdjup basin began Friday morning after the reflection seismics equipment was recovered. Although the weather picked up during the night from Friday to Saturday with strong winds and waves of up to 4 m, we effectively performed six dredge tows and five sediment coring stations. The third seismic block that began on Sunday evening, 23 June. This third survey of Expedition M201 continued until late Wednesday evening, capturing seismic reflection data over the central part of the research area, where the largest and most significant volcanic cones of the Vesturdjup Basin are found. The improving weather conditions allowed us to gather high-quality data with N-S and E-W lines over the area. After a short transit, we started an intensive OFOS program on Thursday morning, 27 June, with almost perfect sea conditions. Until Saturday afternoon, 29 June, we did 11 successful OFOS casts, with the longest cast having 4 hours of bottom time. Seafloor sampling started again on Saturday evening, after transit to the central volcanoes, with three dredge tows, followed by five gravity core stations. The fourth seismic profile, designed to densify the seismic and magnetic data in the central area of the Vesturdjup volcanic field, started Monday morning, July 1. After the seismic gear was recovered late on Thursday, July 4, the seafloor sampling and observations started again. We had four more successful dredge tows, two gravity cores, and 4 OFOS dives at the Vesturdjup volcanic cones. Preparations for the last seismic Leg of M201 began late Sunday, July 7. It went from the Vesturdjúp Basin to the Reykjanes Ridge and lasted until Wednesday, 10 July, at noon. After the seismic gear was collected back on board and the digital streamer was rinsed and disassembled, we had the rest of the day to conduct two short OFOS dives and collect volcanic samples with two dredge tows at the Reykjanes Ridge. RV Meteor anchored off the harbor entrance of Reykjavik by the early morning of July 8, and two expedition members were taken ashore by a pilot boat for medical treatment. One person remained ashore for precautionary observation, which required a change in the chief scientist position. The other patient returned on board shortly after 5 p.m. after successful treatment. Shortly afterward, we began our transit towards Praia da Vitoria on the Azores, where RV Meteor arrived on July 18 and expedition M201 ended.

Fig. 2: RV Meteor in the port of Reykjavik.

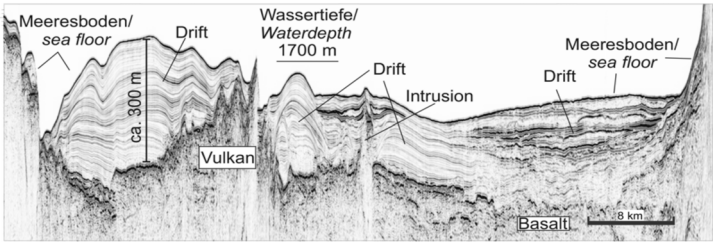

Fig. 3: Seismik Profile showing the volcanic basement and sediment drifts in the Vesturjúp Basin.

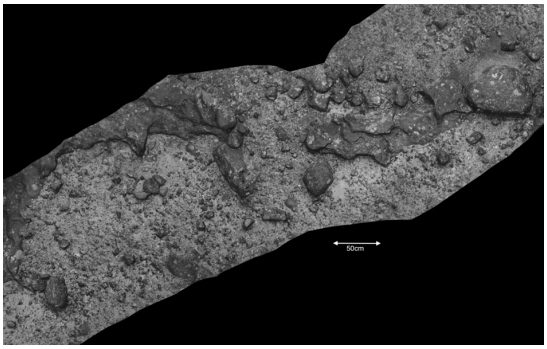

Fig. 4: 3D mosaic of the seafloor based on OFOS photo and video data.

Fig: 5: Two King Crabs at the top of a seamount in the Vesturdjup basin (OFOS image).

Acknowledgments

We are very grateful to the German Research Foundation (DFG), the German Research Fleet Coordination Centre at the Universität Hamburg, the shipping company BRIESE Research, and LPL Projects + Logistics GmbH for their support of both science and ship logistics. The captain, officers, and crew of the RV METEOR are also thanked for their tremendous support, which has made a significant contribution to the cruise's success.

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UG	University of Gdansk, Poland
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CAU	Christian-Albrechts-University of Kiel, Germany
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MRFI	Marine and Freshwater Research Institute, Hafnarfjörður, Iceland
CEOAS	Oregon State University, USA
DWD	German National Meteorological Service, Germany
ME	Ocean Ecology - Marine Surveys, Analyses & Consultancy, Gloucester, UK

Station List

Methods abbreviations: MCS = Multi-Channel Seismics, OFOS = Ocean Floor Observation System (towed camera, GEOMAR), MB = shipboard multibeam echosounder EM122/EM710, PS = Parasound sub-bottom echosounder, DR = dredge, CG = Gravity Corer, SVP = Sound Velocity Probe.

Station	Method	Waypoint	Date	Time (UTC)	Location	Latitude (°N)	Longitude (°E)	Depth	Samples/ Description
M201-01	**MCS**	Start	09.06	15:38	x	64°05.161	24°02.421	310	x
		End	12.06	15:51		63°06.209	30°38.221	2160	
M201-02	**OFOS**	start	13.06	12:10	Hnjótur	63°09.749	29°32.159	1437	Partially rocky (drop stones?) and sedimented terrain – variable fauna
		On bottom		13:01		63°09.750	29°32.157	1444	
		Off bottom		16:09		63°09.471	29°29.261	2095	
		end		16:52		63°09.473	29°29.264	2104	
M201-03	**OFOS**	start	13.06	18:47	Skorpukeila	63°04.157	29°17.881	1790	Mostly sedimented, occasional boulders – diverse fauna
		On bottom		19:20		63°04.152	29°17.883	1788	
		Off bottom		21:09		63°04.383	29°17.264	1919	
		end		21:46		63°04.379	29°17.263	1913	
M201-04	**OFOS**	start	13.06	23:22	Grettir	63°11.086	29°06.387	1711	Five outcrops, some sediment, diverse fauna
		On bottom		23:51		63°11.082	29°06.3?4	1690	
		Off bottom	14.06	01:40		63°11.355	29°05.219	1713	
		end		02:15		63°11.355	29°05.224	1711	
M201-05	**MB/PS**	start	14.06	02:58	x	63°12.309	29°01.528	1754	x
		end		07:48		63°10.866	29°59.226	1992	
M201-06	**DR**	start	14.06	09:57	Hnjótur	63°09.777	29°32.529	1491	Upper flank W to E. 6 rock samples: basalt, diorite, metagranite, schist. Most likely all drop stones.
		On bottom		10:25		63°09.779	29°32.528	1483	
		Off bottom		11:09		63°09.817	29°32.084	1424	
		End		11:35		63°09.815	29°32.086	1423	
M201-07	**DR**	start	14.06	12:53	Hnjótur	63°09.292	29°34.693	1927	Slope of lower flat-top. 7 samples: basalt, metagranite and gneiss dropstones. 2 original basalt (?) + Mn crust fragments.
		On bottom		13:30		63°09.292	29°34.684	1928	
		Off bottom		14:30		63°09.282	29°34.025	1707	
		End		14:59		63°09.282	29°34.025	1706	
M201-08	**DR**	start	14.06	16:14	Skorpukeila	63°04.292	29°18.892	2099	Steep flank of the c-shaped cone. 6 samples: Mn crust, basalt, granite, andesite drop stones. Four reserve
		On bottom		17:00		63°04.292	29°18.892	2106	

		Off bottom		18:04		63°04.300	29°18.360	1860	samples.
		End		18:40		63°04.299	29°18.362	1845	
M201-09	**DR**	start	14.06	19:45	Grettir	63°09.694	29°09.684	1807	Rubbly slope on steep W-side. 9 samples: metabasalt, andesite, gneiss, and schist drop stones. Mn crust and reserve samples.
		On bottom		20:23		63°09.687	29°09.622	1884	
		Off bottom		21:23		63°09.687	29°09.005	1712	
		End		21:57		63°09.687	29°09.003	1724	
M201-10	**GC**	Start	15.06	00:12	Hnjótur	63°09.200	29°32.181	1644	Flat-top. 2 segments: 1st is the lower most, 2nd is the upper most and almost empty.
		On bottom		00:50		63°09.200	29°32.180	1643	
		End		01:23		63°09.203	29°32.205	1642	
M201-11	**GC**	Start	15.06	02:23	Stóri-Slútur	63°09.774	29°32.150	1423	Empty.
		On bottom		02:53		63°09.771	29°32.127	1422	
		End		03:21		63°09.774	29°32.162	1424	
M201-12	**SVP**	Start	15.06	05:08	x	63°06.925	29°11.952	1923	x
		End		14:51		63°07.265	29°12.281	0	
M201-13	**MCS**	Start	15.06	15:38	x	63°07.231	29°22.387	0	x
		End	21.06	08:55		64°49.590	29°23.109	1871	
M201-14	**DR**	start	21.06	10:28	T-ridge	64°59.483	29°18.299	1441	uppermost flat plateau → top. 43 samples: basalts, volcanoclastic breccias and drop stones of basalts, granitoids, gabbro, shists, pyroxenite and conglomerates
		On bottom		10:55		64°59.491	29°18.254	1434	
		Off bottom		12:26		64°59.896	29°17.847	1228	
		End		12:49		64°59.804	29°17.987	1255	
M201-15	**DR**	start	21.06	15:57	Norðurfell	65°18.938	28°47.200	1185	full slope from SW. 44 samples: Basalts, volcanoclastic breccias and drop stones of basalts, sandstone and granitoids
		On bottom		16:22		65°18.944	28°47.192	1183	
		Off bottom		17:39		65°19.522	28°47.527	944	
		End		18:00		65°19.253	28°47.200	965	
M201-16	**GC**	Start	21.06	18:41	Norðurfell	65°19.323	28°46.827	984	1 Seg.: recovery length 36 cm
		On bottom		19:01		65°19.323	28°46.824	984	
		End		19:25		65°19.323	28°46.825	984	
M201-17	**GC**	Start	21.06	20:20	Norðurfell (alt.)	65°18.856	28°47.371	1222	1 Seg.: recovery length 64 cm
		On bottom		20:46		65°18.858	28°47.373	1223	
		End		21:11		65°18.858	28°47.372	1222	
M201-18	**GC**	Start	22.06	00:37	T-Ridge	65°00.541	29°16.841	1346	1 Seg.: recovery length 80 cm
		On bottom		01:05		65°00.548	29°16.777	1343	
		End		01:34		65°00.556	29°16.793	1362	
M201-19	**GC**	Start	22.06	05:08	Mardöll	64°36.060	29°10.104	1281	3 Seg.: Seg. 1 lowermost, recovery length 254 cm

		On bottom		05:34		64°36.062	29°10.101	1283	
		End		06:03		64°36.061	29°10.101	1283	
M201-20	**DR**	Start	22.06	07:46	Mardöll	64°37.394	29°12.275	1481	steep slope from SW. 46 samples: Basalts, volcanoclastic breccias and drop stones of basalts, gneiss, metasedimentary, greenstone, sandstone, claystone, rhyolite and granitoids
		On bottom		08:14		64°37.417	29°12.287	1472	
		Off bottom		10:19		64°37.657	29°10.965	1178	
		End		10:43		64°37.712	29°11.031	1192	
M201-21	**DR**	Start	22.06	13:37	M&Ms, most eastern	64°49.548	29°38.023	1993	From SW to top. 3 samples: andesite drop stone, volcanoclastic breccia and basalt
		On bottom		14:15		64°49.551	29°38.020	1993	
		Off bottom		15:04		64°49.760	29°38.597	1850	
		End		15:38		64°49.781	29°37.627	1894	
M201-22	**DR**	Start	22.06	16:51	M&Ms, one of the twin peaks	64°50.840	29°44.865	2055	From SW to top. 11 samples: basalts, pyroclastics, shist and dropstones of basalts and andesites
		On bottom		17:26		64°50.840	29°44.864	2055	
		Off bottom		18:22		64°51.068	29°44.281	1937	
		End		18:56		64°51.067	29°44.280	1964	
M201-23	**DR**	Start	22.06	20:00	M&Ms most western cone	64°51.045	29°47.866	2070	From SW to top. 3 samples: dropstone of basalt, limestone and volcanoclastic breccia
		On bottom		20:35		64°51.049	29°47.861	2072	
		Off bottom		21:26		64°51.233	29°47.415	1953	
		End		22:15		64°51.235	29°47.421	1957	
M201-24	**GC**	Start	22.06	22:57	M&Ms	64°50.864	29°44.086	1967	1 Seg: recovery length ~ 50cm
		On bottom		23:34		64°50.887	29°43.962	1979	
		End	23.06	00:13		64°50.925	29°44.016	1952	
M201-25	**GC**	Start	23.06	01:11	M&M – western	64°49.697	29°37.608	1829	Empty
		On bottom		01:44		64°49.697	29°37.552	1825	
		End		02:26		64°49.743	29°37.600	1839	
M201-26	**GC**	Start	23.06	02:57	M&M – western (alt.)	64°49.515	29°38.143	1997	3 Seg.: Seg. 1 lowermost, recovery length 224 cm
		On bottom		03:36		64°49.523	29°38.125	1993	
		End		04:18		64°49.445	29°38.285	1991	
M201-27	**MB/PS**	Start	23.06	06:00	x	64°50.958	29°45.899	2068	x
		End		15:15		64°46.797	29°35.002	1905	
M201-28	**MCS**	Start	23.06	16:03	x	64°48.960	29°45.969	2017	x
		End	26.06	23:31		64°02.001	27°54.236	1202	
M201-29	**OFOS**	Start	27.06	02:02	Stóri-Slútur	64°21.579	28°07.510	763	Big, shallow seamount . Mostly sediment with occasional boulders – lots of sponges
		On bottom		02:21		64.21593	28°07.530	755	
		Off bottom		04:27		64.22133	28°08.756	1016	

		End		04:50		64°22.133	28°08.757	1027	
M201-30	**OFOS**	Start	27.06	06:14	Fiskafell	64°20.938	28°26.580	982	Lots of boulders, cobbles and fish
		On bottom		06:37		64°20.922	28°26.608	998	
		Off bottom		08:16		64.35246	28.45667	1293	
		End		08:50		64°21.231	28°27.628	1298	
M201-31	**OFOS**	Start	27.06	10:23	Kóralgarður	64°16.170	28°29.918	1034	Lots of sediment with occasional boulders – lots of fish
		On bottom		11:25		64°16.136	28°29.537	923	
		Off bottom		13:35		64°16.550	28°31.062	1358	
		End		13:59		64°16.559	28°31.040	1358	
M201-32	**OFOS**	Start	27.06	15:39	Hófsvampur	64°07.556	28°36.764	1175	Mostly gravely sediment with occasional boulders – lots of sponges
		On bottom		16:05		64°07.560	28°36.797	1169	
		Off bottom		18:03		64°08.128	28°37.672	1425	
		End		18:33		64°08.131	28°37.668	1390	
M201-33	**OFOS**	Start	27.06	19:53	Tvítindur	64°17.592	28°46.353	1190	Gravely sediment that becomes sandier – lots of sponges, slimes and anemones
		On bottom		20:20		64°17.594	28°46.352	1186	
		Off bottom		22:22		64°18.065	28°47.621	1505	
		End		22:53		64°18.067	28°47.623	1511	
M201-34	**OFOS**	Start	28.06	00:15	Krabbakeila	64°22.440	28°38.748	1111	Sediment that coarses dominantly gravely – lots of sponges crinoids and anemones
		On bottom		00:41		64°22.389	28°38.747	1121	
		Off bottom		01:54		64°22.651	28°39.467	1392	
		End		02:24		64°22.640	28°39.492	1389	
M201-35	**OFOS**	Start	28.06	10:09	Marbúi	64°37.913	28°17.260	892	Sediment that coarses, many cobbles and boulders – lots of sponges, fish and slime
		On bottom		10:28		64°37.914	28°17.259	892	
		Off bottom		12:17		64°38.340	28°18.385	1094	
		End		12:39		64°38.340	28°18.387	1094	
M201-36	**OFOS**	Start	28.06	15:28	Mardöll	64°40.474	29°14.074	1096	At first sedimented then more rocky, plenty of cobbles and boulders – lots of fish and sponges
		On bottom		15:50		64°40.472	29°14.099	1098	
		Off bottom		18:53		64°41.218	29°16.100	1473	
		End		19:22		64°41.219	29°16.102	1474	
M201-37	**OFOS**	Start	28.06	21:04	M&Ms	64°49.622	29°37.495	1907	Very gravely and pebbly, some cobbles – some corals, sponges, anemones and starfish
		On bottom		21:41		64°49.693	29°37.648	1830	
		Off bottom		22:27		64°49.877	29°38.147	2059	
		End		23:04		64°49.877	29°28.148	1224	
M201-38	**OFOS**	Start	29.06	00:45	T-Ridge	64°59.867	29°17.713	1224	Sedimented to gravely - lots of sponges and crabs, some

		On bottom		01:24		64°59.861	29°17.726	1224	anemones and sea pens
		Off bottom		04:30		65°00.620	29°19.868	1491	
		End		05:08		65°00.620	29°19.869	1491	
M201-39	**OFOS**	Start	29.06	07:53	Norðurfell	65°19.327	28°47.113	1010	Gravely to sedimented, some cobbles and boulders – lots of sponges, anemones and corals
		On bottom		08:15		65°19.329	28°47.103	1006	
		Off bottom		10:30		65°19.897	28°48.330	1338	
		End		10:58		65°19.898	28°48.327	1345	
M201-40	**OFOS**	Start	29.06	12:17	Background site	65°10.849	28°49.572	1296	No visibility due to currents.
		On bottom		12:44		65°10.837	28°49.575	1297	
		Off bottom		13:09		65°10.739	28°49.576	1297	
		End		13:36		65°10.750	28°49.564	1297	
M201-41	**DR**	Start	29.06	17:28	Marbúi	64°38.240	28°17.354	1043	From NNW half slope to top. 41 samples: basalt, breccias/conglomerates, lapilli-tuff, sandstone and drop stones of basalts, shists, andesite, gneiss, greenstone, rhyolite and granite.
		On bottom		17:49		64°38.216	28°17.319	1016	
		Off bottom		18:56		64°37.864	28°17.203	900	
		End		19:14		64°37.864	28°17.204	898	
M201-42	**DR**	Start	29.06	21:56	Fiskafell	64°21.265	28°26.996	1238	From NNW half slope to top. 44 samples: basalts, meta-basalts, meta-sediment, meta-gabbro, meta-granite, breccias/conglomerates, lapilli-tuff, limestones and drop stones of basalts, gneiss, granitoids and granite.
		On bottom		22:19		64°21.244	28°26.982	1222	
		Off bottom		23:13		64°20.940	28°26.885	1031	
		End		23:32		64°20.941	28°26.886	1029	
M201-43	**DR**	Start	30.06	00:55	Stóri-Slútur	64°21.939	28°07.672	835	From NNW half slope to top. 31 samples: basalts, sandstone, breccias/conglomerates and drop stones of: basalts, shist, gneiss, granite.
		On bottom		01:13		64°21.939	28°07.670	836	
		Off bottom		02:29		64°21.527	28°07.552	771	
		End		02:36		64°21.530	28°07.555	771	
M201-44	**GC**	Start	30.06	03:46	Fiskafell	64°21.125	28°13.692	1270	3 Seg.: Seg. 1 lowermost, recovery length 300 cm
		On bottom		04:11		64°21.108	28°13.690	1279	
		End		04:39		64°21.106	28°13.683	1270	
M201-45	**GC**	Start	30.06	05:51	Marbúi	64°20.173	28°27.310	1278	3 Seg.: Seg. 1 lowermost, recovery length 282 cm
		On bottom		06:15		64°20.172	28°27.310	1281	
		End		06:43		64°20.172	28°27.311	1278	
M201-46	**GC**	Start	30.06	07:37	Krabbakeila	64°16.310	28°33.721	1470	3 Seg.: Seg. 1 lowermost, recovery length 300 cm
		On bottom		08:04		64°16.304	28°33.682	1469	
		End		08:35		64°16.303	28°33.683	1470	
M201-47	**GC**	Start	30.06	09:54	Stóri-Slútur	64°08.123	28°41.004	1524	2 Seg.: Seg. 1 lowermost, recovery length 200 cm
		On bottom		10:22		64°08.123	28°40.996	1524	

		End		10:53		64°08.123	28°40.997	1526	
M201-48	**GC**	Start	30.06	13:01	Tvítindur	64°22.599	28°42.473	1406	3 Seg.: Seg. 1 lowermost, recovery length 300 cm
		On bottom		13:26		64°22.576	28°42.425	1406	
		End		13:57		64°22.582	28°42.396	1407	
M201-49	**DR**	Start	30.06	15:10	Krabbakeila	64°22.653	28°38.925	1309	From NNW half slope to top. 39 samples: basalts, sandstone, breccias/conglomerates, lapilli-tuff and drop stones of basalt, shist, gneiss, diorite, greenstone and granitoid
		On bottom		15:35		64°22.653	28°38.923	1314	
		Off bottom		16:37		64°22.371	28°38.755	1134	
		End		16:59		64°22.370	28°38.758	1135	
M201-50	**DR**	Start	30.06	18:16	Krabbakeila	64°20.843	28°42.278	1145	From W half slope to top. 39 samples: basalts, sandstone, meta-sediment, breccias/conglomerates, lapilli-tuff, mudstone, quartzite and drop stones of basalts, gneiss, diorite, greenstone, granitoid and granite
		On bottom		18:36		64°20.846	28°42.294	1148	
		Off bottom		19:29		64°20.831	28°41.660	1033	
		End		19:48		64°20.830	28°41.658	1046	
M201-51	**DR**	Start	30.06	21:06	Tvítindur	64°17.813	28°46.295	1328	From NW half slope to top. 30 samples: basalts, limestone, sandstone, breccias/conglomerates and drop stones of basalt, gneiss and diorite
		On bottom		21:32		64°17.810	28°46.304	1333	
		Off bottom		22:24		64°17.567	28°46.160	1173	
		End		22:46		64°17.567	28°46.162	1180	
M201-52	**DR**	Start	01.07	00:30	Kóralgarður	64°16.435	28°29.659	1143	From NNW half slope to top. 40 samples: basalts, limestones, sandstone, breccias/conglomerates, mudstone, volcoclastic breccia and drop stones of basalts, shists, gneiss, diorite and granite
		On bottom		00:53		64°16.429	28°29.657	1139	
		Off bottom		01:52		64°16.146	28°29.548	927	
		End		02:15		64°16.193	28°29.466	971	
M201-53	**MCS**	Start	01.07	08:10	x	64°38.676	28°29.065	1182	x
		End	04.07	20:23		63°52.078	27°22.272	1206	
M201-54	**GC**	Start	04.07	21:28	Rósatindur	63°49.705	27°32.638	1298	Empty.
		On bottom		21:53		63°49.738	27°32.605	1300	
		End		22:20		63°49.732	27°32.595	1302	
M201-55	**GC**	Start	04.07	22:33	Rósatindur (alt.)	63°49.741	27°32.644	1298	Empty.
		On bottom		22:58		63°49.738	27°32.632	1299	
		End		23:25		63°49.741	27°32.662	1297	
M201-56	**DR**	Start	05.07	00:06	Rósatindur	63°49.691	27°31.373	1205	From S 2/3 of slope to top. Shallow SE youngest seamount. 45 samples: basalts, felsics, sandstone, meta-basalts, breccias/conglomerates, mudstone and drop stones of basalts, shists, gneiss, greenstone, gabbro, rhylolite, granitoid and meta-carbonates
		On bottom		00:31		63°49.697	27°31.369	1193	
		Off bottom		01:18		63°49.933	27°31.345	959	
		End		01:37		63°49.932	27°31.389	966	
M201-57	**DR**	Start	05.07	06:05	Hófsvampur	64°07.425	28°39.453	1508	From S to top. Small ridge on western flank. Full of sponges and mud sediment. No rock samples.
		On bottom		06:32		64°07.428	28°39.463	1503	

		Off bottom		07:09		64°07.582	28°39.497	1413	
		End		07:35		64°07.580	28°39.494	1417	
M201-58	**DR**	Start	05.07	10:16	Sæliljufell	64°02.032	29°13.326	1575	From S to top. 39 samples: basalts, limestone, sandstone, breccias/conglomerates, volcanoclastic breccias and drop stones of basalts, shist, gneiss, greenstone, gabbro and granitoid
		On bottom		10:43		64°02.055	29°13.293	1547	
		Off bottom		11:42		64°02.337	29°13.287	1282	
		End		12:05		64°02.403	29°13.820	1509	
M201-59	**DR**	Start	05.07	13:58	Grýti	64°05.030	29°39.243	1841	From S to top. 31 samples: basalts, sandstone, meta-sediment, breccias/conglomerates, hyaloclastite and drop stones of basalts, andesite, gneiss, rhyolite, granite, meta-carbonate and marble
		On bottom		14:31		64°05.033	29°39.210	1779	
		Off bottom		15:35		64°05.331	29°39.239	1609	
		End		16:05		64°05.332	29°39.234	1609	
M201-60	**PS/MB**	Start	05.07	19:44	GF site	64°21.835	28°55.099	1471	Selection of spot for coring
		End		20:58		64°22.067	28°52.191	1488	
M201-61	**GC**	Start	05.07	20:59	GF site	64°22.068	28°52.219	1507	3 Seg.: Seg. 1 lowermost, recovery length 300 cm
		On bottom		21:25		64°22.073	28°52.435	1488	
		End		21:56		64°22.074	28°52.437	1250	
M201-62	**OFOS**	Start	06.07	03:53	Rósatindur	63°49.965	27°31.352	940	Very sedimented and gravely with some boulders. Lots of anemones and sponges.
		On bottom		04:19		63°49.967	27°31.352	944	
		Off bottom		05:50		63°50.331	27°30.774	1387	
		End		06:20		63°50.331	27°30.774	1269	
M201-63	**OFOS**	Start	06.07	11:36	Sæliljufell	64°02.314	29°13.207	1275	Very sedimented and gravely, more cobbles in between than boulders. An outcrop. Lots of sponges, crinoids and anemones, some corals and fish.
		On bottom		12:02		64°02.318	29°13.212	1278	
		Off bottom		13:48		64°02.743	29°14.185	1747	
		End		14:20		64°02.744	29°14.183	1608	
M201-64	**OFOS**	Start	06.07	15:41	Grýti	64°05.349	29°39.194	1608	Sedimented to rocky with several outcrops, lots of gravel and cobbles. Corals, slime, fish and sponges.
		On bottom		16:12		64°05.339	29°39.214	1617	
		Off bottom		17:33		64°05.709	29°39.211	1963	
		End		18:10		64°05.709	29°39.209	1963	
M201-65	**OFOS**	Start	06.07	21:02	GF site	64°21.931	28°52.104	1483	Sponge mounds, sea stars and sea cucumbers
		On bottom		21:35		64°21.941	28°52.294	1484	
		Off bottom		22:31		64°22.209	28°52.030	1488	
		End		22:58		64°22.212	28°52.026	1488	
M201-66	**MCS**	Start	06.07	00:20	x	64°21.226	28°36.531	1333	x
		End	10.07	09:42		63°23.930	23°28.121	212	
M201-67	**OFOS**	Start	10.07	12:39	Thriburar	63°09.210	24°26.539	236	Very rocky with lots of outcrops, lots of corals and fish

		On bottom		12:57		63°09.210	24°26.539	236	
		Off bottom		14:28		63°09.057	24°27.198	292	
		End		14:39		63°09.067	24°27.149	285	
M201-68	**OFOS**	Start	10.07	16:19	Nyey	63°16.976	24°11.590	45	Full of cobbles, fish and seagrass.
		On bottom		16:32		63°16.964	24°11.641	45	
		Off bottom		17:30		63°16.685	24°12.164	42	
		End		17:37		63°16.683	24°12.167	43	
M201-69	**DR**	Start	10.07	18:59	Thriburar	63°09.377	24°25.824	234	From NE over slight elevation on top. 10 basalt samples.
		On bottom		19:06		63°09.375	24°25.824	235	
		Off bottom		19:46		63°09.193	24°26.115	196	
		End		19:53		63°09.193	24°26.116	196	
M201-70	**DR**	Start	10.07	21:39	Nyey	63°17.152	24°11.379	92	From NE dredge over plateau. 3 basalt samples
		On bottom		21:43		63°17.153	24°11.379	93	
		Off bottom		22:04		63°17.079	24°11.502	42	
		End		22:06		63°17.078	24°11.501	41	