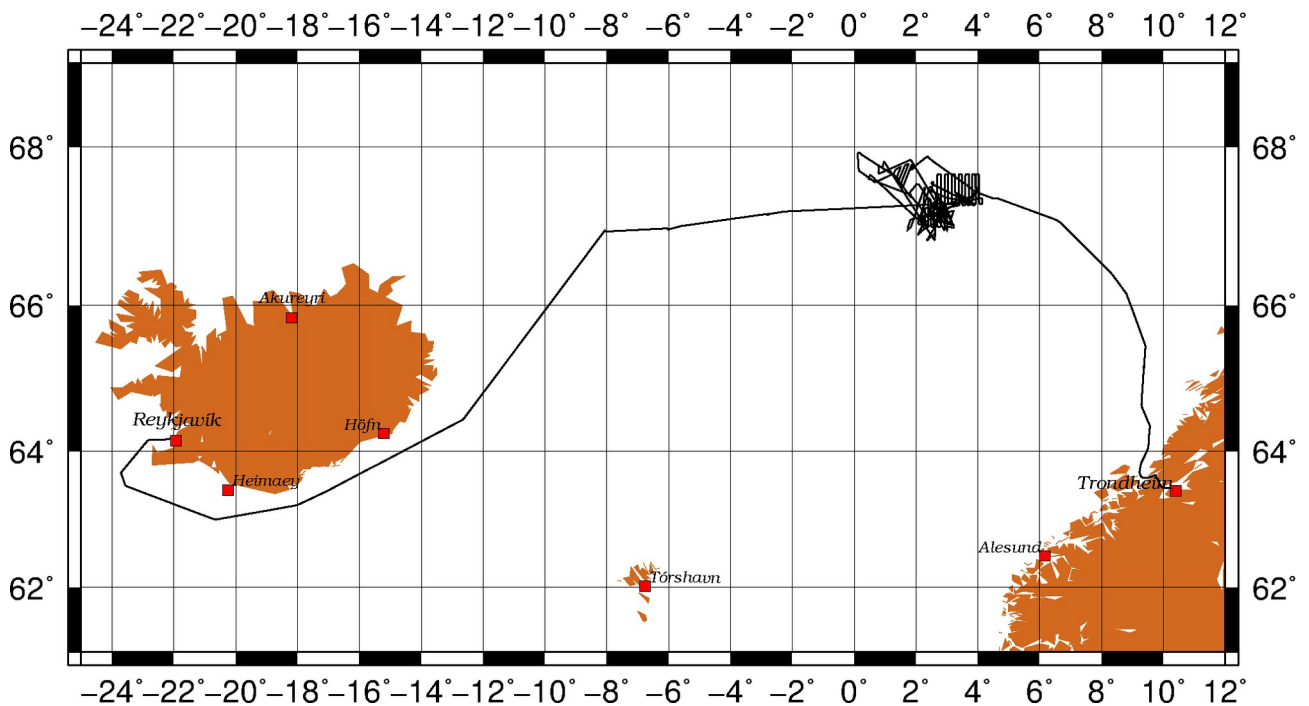


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Short Cruise Report MARIA S. MERIAN cruise MSM140

Reykjavik - Trondheim
September 4, 2025 – October 9, 2025
Chief Scientist: Ingo Klaucke
Captain: Marius Kruse



Objectives

The concentration of CO₂ in the atmosphere has risen by roughly 50% since the beginning of industrialisation, which in turn leads to an increasing greenhouse effect and global rising temperatures. If this change of global climate is to be mitigated and contained within a certain limit (1.5° was fixed by the Paris treaty), model calculations show that reaching zero net CO₂ emissions by 2050 will not be sufficient, and has to be complemented by active carbon capture and storage (CCS). This is currently done by injecting supercritical CO₂ into depleted oil and gas reservoirs, where the CO₂ remains mobile over hundreds to thousands of years. However, only a fraction of these reservoirs is suitable for CCS, they require constant monitoring and their total capacity is insufficient compared to the foreseeable demand.

Another, more promising sink for CO₂ is basalt and in particular the widespread flood basalts that erupted during several periods in Earth's history. Experiments on Iceland and in the USA have shown that CO₂ injected into basalt reacts with the host rock and forms carbonates within two years, thus permanently binding the CO₂. In Europe, one of the areas, where such flood basalts occur, is offshore Norway in general and the Vøring Plateau in particular. On the Vøring Plateau the basalt is overlain by just a few hundreds of metres of sediment, and ODP and IODP drilling campaigns have been drilled into them, recovering highly porous basalt. Similar basalt layers, however, occur onshore in India, where individual lava flows show massive basalt at the base and vesicular basalt at the top of the flows. In addition, porosity of these older basalts is reduced by various precipitates compared to the young basalts on Iceland and in the USA.

Within this framework RV Maria S. Merian cruise MSM140 tries to answer a certain number of questions that are all related to the general feasibility of permanently storing large amounts of CO₂ in basaltic layers offshore Norway. The drill holes provide insight into the rocks of the Vøring Plateau, but all information is restricted to the direct vicinity of the borehole. Extending the borehole information laterally and determining the spatial variability of thickness, porosity, permeability and electrical conductivity of individual lava flows are the main objectives of cruise MSM140. Reaching these goals requires high-resolution three-dimensional seismic and electromagnetic measurements, whereas hydroacoustic investigations of the seafloor and upper sediments would indicate any past fluid flow out of the seafloor on Vøring Plateau. Tools of choice are the vessel's EM124 multibeam and Parasound sediment echosounders, as well as ocean bottom seismometer (OBS), P-Cable seismic system, and ocean-bottom electromagnetic receivers (OBEM) and active source (CAGEM) – all from GEOMAR. The OBS register reflected and refracted acoustic signals generated by an airgun, and the travel times between source (airgun and receiver (OBS) allows deducing P- and S-wave velocities that depend on the density, porosity and water saturation of the underground. The electromagnetic experiments will use CAGEM, which is 6.5 x 6.5 metres large frame that is towed just a few metres above the seafloor, and that induces two perpendicular dipole currents which are then recorded by the OBEM. The decay of the signal between source and receiver in this case depends on the presence or not of conducting material in the subsurface, such as seawater-saturated porous basalt compared to non-conductive massive basalt. The three-dimensional high-resolution acoustic image of the subsurface provided by the P-cable then allows extrapolating borehole information laterally. This, however, is only possible to certain limits as individual basaltic layer in boreholes are much thinner than what can be resolved seismically, and electro-magnetically.

Narrative

Prior to cruise MSM140 the ship's crew had loaded two containers that arrived in Reykjavik directly from a previous cruise offshore New Zealand, and they had unpacked two additional containers with equipment that came from Kiel, Germany. The participating scientist arrived the following day and immediately started installing the scientific gear on deck and in the labs. Safety instruction occupied part of the afternoon. Following a safety drill, RV Maria S. Merian left the port of Reykjavik on September 4th at 10:30UTC for cruise MSM140. During transit to our working area on the Vøring Plateau offshore Norway we deployed two ARGO floats and tested our acoustic release units. Once on site, we took a sound velocity profile for the hydroacoustic systems and then deployed 12 OBEM in an area called Skoll High. Due to technical issues with the CAGEM source, we also deployed 9 OBS in a cross over IODP drill hole 1571 and eventually acquired 2D seismic data over the OBS, a survey that we extended slightly to allow the necessary repairs of CAGEM. CAGEM was finally ready and we acquired electromagnetic data for the next 24 hours. This was followed by recovery and re-deployment of the OBEM, and then the next 24 hours of CAGEM measurements. We repeated this procedure one more time, and after a final recovery of the OBEM and of the OBS, we finished our work at Skoll High on September 16th. Weather conditions had already deteriorated during the previous days and strong winds and rough sea continued while we transited to our second target site around ODP borehole 642, where we started by deploying 8 OBS. Our hope to start our planned 3D-seismic work the next day was countered by an important northerly swell in which getting our trawl doors safely into the water was not possible. Changing the seismic system to a 2D-configuration allowed acquiring high quality 2D seismic lines for 55 hours in an area between ODP sites 642 and 643 until increasingly strong winds forced us to recover the gear. The next morning, on September 22nd we had an inconclusive test of a new fibre-optic telemetry for the CAGEM, and by 11:30 UTC finally started deploying the P-cable 3D-seismic system. However, around 04:00 UTC the next day the first problems with one dead channel and several data drop-outs appeared, so that recovery of the system was inevitable. Another test of CAGEM and the change to 2D and we continued seismic profiling in an interesting area that we had identified during the previous 2D acquisition. On September 24th we deployed 12 OBEM at ODP site 642 and measured with the "old" CAGEM for roughly 24 hours. We acquired multibeam bathymetry and Parasound data during the night, as we had done during several other nights, but had some instrument loss the next day when during worsening conditions a flash light and a radiosender was damaged during recovery and one OBS ended up underneath the ship's hull resulting in severe damage. For most of September 26th and 27th we had to endure a storm. By the 28th winds and sea had calmed down allowing to recover the remaining OBS and the OBEM, and re-deploying the latter right away. The following CAGEM measurements were slightly delayed due to technical problems, but once a broken circuit board changed and a faulty connector found, the measurements went smoothly until the evening of September 30th immediately followed by the final recovery of the OBEM, eight of which were then transformed into additional OBS. We could deploy 8 OBS on October 1st before increasing winds forced us to stop all operations until the next morning when we could deploy 8 additional OBS. This was followed by the deployment of the 2D-streamer and airgun. One gun was not firing but after quick repairs we acquired two additional crossing seismic lines over the OBS, and at the same time providing signals for the OBS. Back at ODP site 642 we were able to recover 13 of the OBS before deteriorating conditions (wind gusts up to force 11 and up to 6 metres significant wave height) forced us to interrupt recovery for one day and a half. On October 5th the sea had calmed down sufficiently to safely recover the remaining 3 OBS and to acquire two additional 2D seismic lines until the next morning. We finished our work with a test of a different electromagnetic source, and

we tried to fill remaining gaps in our bathymetric map while we started packing and securing all gear for a rough transit back to Trondheim during the next storm. Sea state only calmed down once we entered the outer Trondheimsfjord. We met the pilot in the early morning of October 9th and we were finally tied up at pier 10/11 of Trondheim port at 08:00 local time, where our expedition ended. We spent the day loading our scientific equipment onto two trucks, while our OBS stayed on board for Maria S. Merian cruise MSM141.

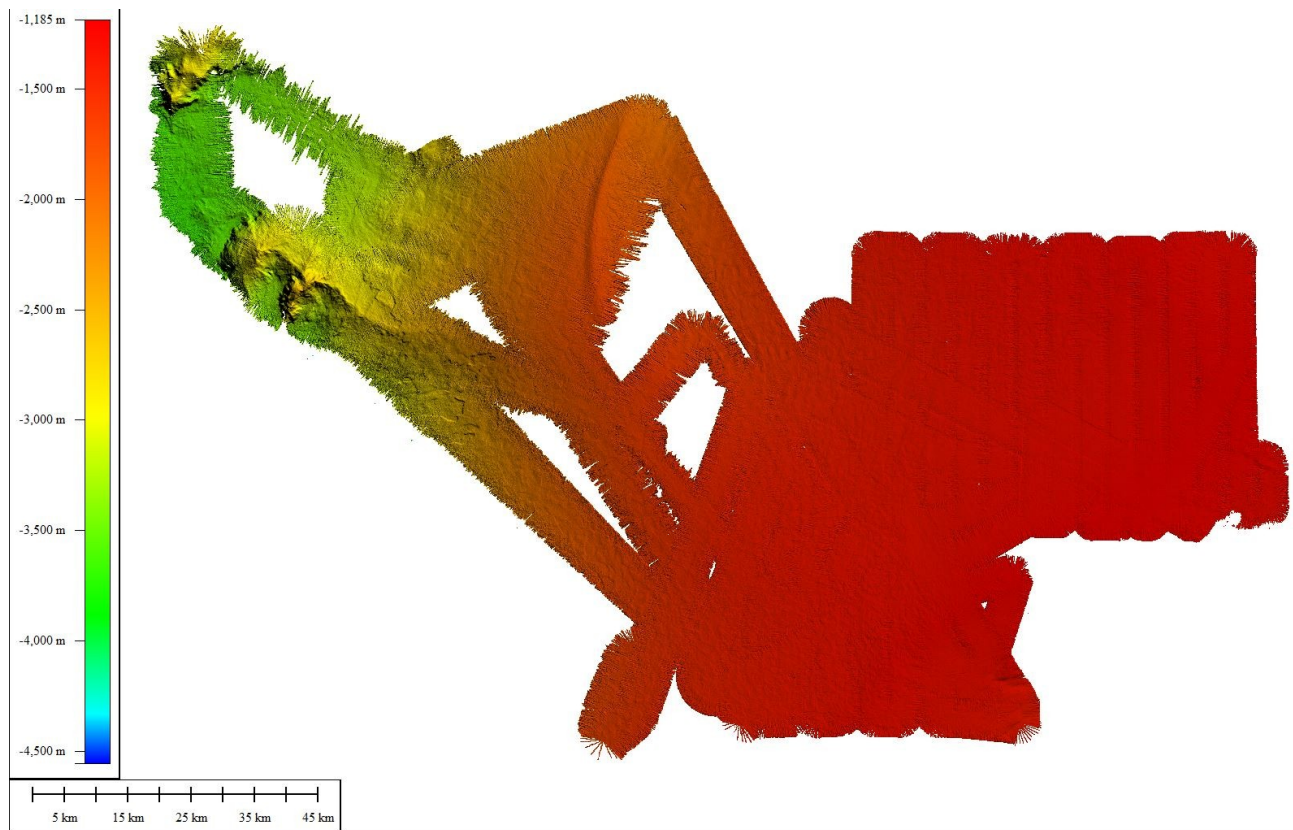


Fig. 1: The complete bathymetric coverage obtained during cruise MSM140.

Acknowledgements

We thank Captain Kruse and his entire crew for the excellent cooperation during the expedition. Leitstelle Deutsche Forschungsschiffe und the German Embassy in Norway are thanked for their help in clarifying the research permit. The EU-Programme ACT and the German Ministry of Economics and Energie (BMWE) are thanked for funding the cruise. Additional financial support was provided by GEOMAR.

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20. Hannah Zimmer	Electromagnetics	GEOMAR

GEOMAR: GEOMAR – Helmholtz-Centre for Ocean Research Kiel
VBER: Volcanic Basin Energy Research

Stationsliste

Station number	Label	Event Time	Comment	Action	Latitude	Longitude
MSM140_1-1	FLOAT	06/09/2025 18:32	AI2600-25DE001	deployed	66° 57,660' N	008° 03,871' W
MSM140_2-1	FLOAT	06/09/2025 23:28	AI2600-25DE002	deployed	66° 58,792' N	006° 01,819' W
MSM140_3-1	RT	07/09/2025 07:22		in the water	67° 10,011' N	002° 46,519' W
MSM140_4-1	CSEM	07/09/2025 10:52		in the water	67° 10,044' N	002° 46,507' W
MSM140_5-1	RT	07/09/2025 12:45		max depth/on ground	67° 10,044' N	002° 46,491' W
MSM140_6-1	SVP	08/09/2025 07:42		max depth/on ground	67° 18,867' N	003° 43,538' E
MSM140_7-1	OBEM	08/09/2025 10:31	OBEM 01	OBEM deployed	67° 18,865' N	003° 43,522' E
MSM140_8-1	OBEM	08/09/2025 11:41	OBEM 02	OBEM deployed	67° 18,714' N	003° 44,374' E
MSM140_9-1	OBEM	08/09/2025 12:40	OBEM 03	OBEM deployed	67° 18,564' N	003° 45,165' E
MSM140_10-1	OBEM	08/09/2025 13:02	OBEM 04	OBEM deployed	67° 18,415' N	003° 45,874' E
MSM140_11-1	OBEM	08/09/2025 13:26	OBEM 05	OBEM deployed	67° 18,181' N	003° 45,544' E
MSM140_12-1	OBEM	08/09/2025 13:59	OBEM 06	OBEM deployed	67° 18,331' N	003° 44,826' E
MSM140_13-1	OBEM	08/09/2025 14:24	OBEM 07	OBEM deployed	67° 18,474' N	003° 44,116' E
MSM140_14-1	OBEM	08/09/2025 14:49	OBEM 08	OBEM deployed	67° 18,625' N	003° 43,405' E
MSM140_15-1	OBEM	08/09/2025 15:11	OBEM 09	OBEM deployed	67° 18,397' N	003° 43,062' E
MSM140_16-1	OBEM	08/09/2025 15:30	OBEM 10	OBEM deployed	67° 18,242' N	003° 43,766' E
MSM140_17-1	OBEM	08/09/2025 15:53	OBEM 11	OBEM deployed	67° 18,092' N	003° 44,529' E
MSM140_18-1	OBEM	08/09/2025 16:18	OBEM 12	OBEM deployed	67° 17,944' N	003° 45,182' E
MSM140_19-2	PS	09/09/2025 09:16		profile end	67° 19,979' N	003° 42,602' E
MSM140_19-2	PS	08/09/2025 16:20		profile start	67° 17,944' N	003° 45,199' E
MSM140_19-1	EM124	09/09/2025 09:16		profile end	67° 19,942' N	003° 42,665' E
MSM140_19-1	EM124	08/09/2025 16:20		profile start	67° 17,944' N	003° 45,199' E
MSM140_20-1	SEISOBR	09/09/2025 09:34	OBS 01	OBS deployed	67° 18,527' N	003° 43,641' E
MSM140_21-1	SEISOBR	09/09/2025 09:45	OBS 02	OBS deployed	67° 18,464' N	003° 43,976' E
MSM140_22-1	SEISOBR	09/09/2025 10:01	OBS 03	OBS deployed	67° 18,403' N	003° 44,281' E
MSM140_23-1	SEISOBR	09/09/2025 10:12	OBS 04	OBS deployed	67° 18,339' N	003° 44,592' E
MSM140_24-1	SEISOBR	09/09/2025 10:38	OBS 05	OBS deployed	67° 18,279' N	003° 44,893' E
MSM140_25-1	SEISOBR	09/09/2025 11:06	OBS 06	OBS deployed	67° 18,214' N	003° 45,202' E
MSM140_26-1	SEISOBR	09/09/2025 11:44	OBS 07	OBS deployed	67° 18,637' N	003° 44,610' E
MSM140_27-1	SEISOBR	09/09/2025 11:57	OBS 08	OBS deployed	67° 18,524' N	003° 44,441' E
MSM140_28-1	SEISOBR	09/09/2025 12:13	OBS 09	OBS deployed	67° 18,281' N	003° 44,108' E
MSM140_30-2	PS	10/09/2025 08:26		profile end	67° 29,960' N	003° 58,827' E
MSM140_30-2	PS	09/09/2025 16:13		profile start	67° 20,261' N	003° 35,693' E
MSM140_30-1	EM124	10/09/2025 08:26		recording end	67° 29,960' N	003° 58,861' E
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MSM140_31-1	SEISSRC	11/09/2025 04:57		profile end	67° 22,943' N	002° 56,004' E
MSM140_31-1	SEISSRC	10/09/2025 09:59	2D	profile start	67° 26,968' N	003° 56,504' E
MSM140_32-1	CSEM	12/09/2025 17:51		profile end	67° 18,312' N	003° 42,654' E
MSM140_32-1	CSEM	11/09/2025 13:05		profile start	67° 19,247' N	003° 43,131' E
MSM140_33-1	OBEM	13/09/2025 01:52	OBEM 19	OBEM deployed	67° 19,184' N	003° 40,492' E
MSM140_34-1	OBEM	13/09/2025 02:20	OBEM 20	OBEM deployed	67° 19,261' N	003° 40,108' E
MSM140_35-1	OBEM	13/09/2025 02:43	OBEM 21	OBEM deployed	67° 19,345' N	003° 39,726' E
MSM140_36-1	OBEM	13/09/2025 03:03	OBEM 22	OBEM deployed	67° 19,449' N	003° 39,342' E
MSM140_37-1	OBEM	13/09/2025 03:23	OBEM 23	OBEM deployed	67° 19,514' N	003° 38,977' E
MSM140_38-1	OBEM	13/09/2025 04:21	OBEM 24	OBEM deployed	67° 19,598' N	003° 38,563' E
MSM140_39-1	OBEM	13/09/2025 10:13	OBEM 13	OBEM deployed	67° 18,703' N	003° 42,810' E
MSM140_40-1	OBEM	13/09/2025 10:30	OBEM 14	OBEM deployed	67° 18,788' N	003° 42,428' E
MSM140_41-1	OBEM	13/09/2025 11:19	OBEM 15	OBEM deployed	67° 18,866' N	003° 42,039' E
MSM140_42-1	OBEM	13/09/2025 11:39	OBEM 16	OBEM deployed	67° 18,944' N	003° 41,652' E
MSM140_43-1	OBEM	13/09/2025 11:57	OBEM 17	OBEM deployed	67° 19,028' N	003° 41,272' E
MSM140_44-1	OBEM	13/09/2025 12:14	OBEM 18	OBEM deployed	67° 19,104' N	003° 40,877' E
MSM140_45-1	CSEM	13/09/2025 22:27		profile end	67° 18,564' N	003° 43,541' E
MSM140_45-1	CSEM	13/09/2025 18:18		profile start	67° 19,742' N	003° 37,848' E

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MSM140_48-1	OBEM	14/09/2025 06:47	OBEM 27	OBEM deployed	67° 20,028' N	003° 37,807' E
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MSM140_51-1	OBEM	14/09/2025 07:39	OBEM 30	OBEM deployed	67° 19,807' N	003° 37,472' E
MSM140_52-1	OBEM	14/09/2025 14:55	OBEM 31	OBEM deployed	67° 19,957' N	003° 36,751' E
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MSM140_55-1	OBEM	14/09/2025 16:24	OBEM 34	OBEM deployed	67° 19,688' N	003° 36,393' E
MSM140_56-1	OBEM	14/09/2025 16:36	OBEM 35	OBEM deployed	67° 19,555' N	003° 37,117' E
MSM140_57-1	OBEM	14/09/2025 16:49	OBEM 36	OBEM deployed	67° 19,416' N	003° 37,836' E
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MSM140_58-1	CSEM	14/09/2025 18:27		profile start	67° 20,058' N	003° 39,201' E
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MSM140_59-2	PS	15/09/2025 19:17		profile start	67° 17,969' N	003° 55,472' E
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MSM140_60-2	PS	17/09/2025 08:25		profile end	67° 18,185' N	002° 55,209' E
MSM140_60-2	PS	16/09/2025 18:31		profile start	67° 25,862' N	003° 17,128' E
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MSM140_63-1	SEISOBR	17/09/2025 10:21	OBS 103	OBS deployed	67° 13,435' N	002° 55,440' E
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MSM140_65-1	SEISOBR	17/09/2025 11:12	OBS 105	OBS deployed	67° 12,963' N	002° 56,138' E
MSM140_66-1	SEISOBR	17/09/2025 11:38	OBS 106	OBS deployed	67° 12,736' N	002° 56,505' E
MSM140_67-1	SEISOBR	17/09/2025 11:59	OBS 107	OBS deployed	67° 13,060' N	002° 55,196' E
MSM140_68-1	SEISOBR	17/09/2025 12:37	OBS 108	OBS deployed	67° 13,338' N	002° 56,393' E
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MSM140_69-1	EM124	18/09/2025 07:01		station end	67° 00,522' N	003° 01,610' E
MSM140_69-2	PS	17/09/2025 13:27		profile start	67° 17,699' N	002° 48,082' E
MSM140_69-1	EM124	17/09/2025 13:27		profile start	67° 17,700' N	002° 48,082' E
MSM140_70-1	SEISSRC	20/09/2025 17:26		profile end	67° 45,489' N	000° 51,302' E
MSM140_70-1	SEISSRC	18/09/2025 08:58		profile start	67° 02,889' N	003° 11,268' E
MSM140_71-1	CSEM	22/09/2025 10:04		on deck	67° 04,333' N	002° 57,768' E
MSM140_71-1	CSEM	22/09/2025 09:57	Gerätetest	in the water	67° 04,333' N	002° 57,769' E
MSM140_72-1	SEISSRC	23/09/2025 06:52		profile end	67° 13,929' N	002° 54,778' E
MSM140_72-1	SEISSRC	22/09/2025 14:15	3D	profile start	67° 10,515' N	002° 57,531' E
MSM140_73-1	CSEM	23/09/2025 11:30		on deck	67° 17,736' N	002° 55,916' E
MSM140_73-1	CSEM	23/09/2025 10:17		in the water	67° 17,729' N	002° 55,879' E
MSM140_74-1	SEISSRC	24/09/2025 07:06		profile end	67° 16,496' N	002° 32,121' E
MSM140_74-1	SEISSRC	23/09/2025 15:00		profile start	67° 03,877' N	003° 03,966' E
MSM140_75-1	OBEM	24/09/2025 09:05	OBEM 37	OBEM deployed	67° 14,162' N	002° 54,501' E
MSM140_76-1	OBEM	24/09/2025 09:39	OBEM 38	OBEM deployed	67° 14,005' N	002° 55,245' E
MSM140_77-1	OBEM	24/09/2025 10:18	OBEM 39	OBEM deployed	67° 13,856' N	002° 55,987' E
MSM140_78-1	OBEM	24/09/2025 10:44	OBEM 40	OBEM deployed	67° 13,697' N	002° 56,723' E
MSM140_79-1	OBEM	24/09/2025 11:04	OBEM 41	OBEM deployed	67° 13,549' N	002° 57,453' E
MSM140_80-1	OBEM	24/09/2025 11:27	OBEM 42	OBEM deployed	67° 13,395' N	002° 58,197' E
MSM140_81-1	OBEM	24/09/2025 12:20	OBEM 43	OBEM deployed	67° 13,109' N	002° 57,800' E
MSM140_82-1	OBEM	24/09/2025 12:52	OBEM 44	OBEM deployed	67° 13,263' N	002° 57,061' E
MSM140_83-1	OBEM	24/09/2025 13:21	OBEM 45	OBEM deployed	67° 13,416' N	002° 56,326' E
MSM140_84-1	OBEM	24/09/2025 14:16	OBEM 46	OBEM deployed	67° 13,561' N	002° 55,605' E
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MSM140_86-1	OBEM	24/09/2025 15:09	OBEM 48	OBEM deployed	67° 13,872' N	002° 54,105' E

MSM140_87-1	CSEM	25/09/2025 14:11		profile end	67° 13,759' N	002° 58,220' E
MSM140_87-1	CSEM	24/09/2025 17:06		profile start	67° 14,439' N	002° 54,894' E
MSM140_88-2	PS	26/09/2025 08:09		profile end	67° 14,584' N	002° 17,888' E
MSM140_88-2	PS	25/09/2025 15:24		profile start	67° 12,256' N	002° 58,112' E
MSM140_88-1	EM124	26/09/2025 08:09		profile end	67° 14,600' N	002° 17,888' E
MSM140_88-1	EM124	25/09/2025 15:24		profile start	67° 12,280' N	002° 58,068' E
MSM140_89-1	SVP	27/09/2025 12:35		max depth/on ground	67° 02,401' N	002° 13,287' E
MSM140_90-1	EM124	28/09/2025 03:59		profile end	67° 05,547' N	001° 48,526' E
MSM140_90-2	PS	28/09/2025 03:59		profile end	67° 05,537' N	001° 48,514' E
MSM140_90-2	PS	27/09/2025 13:40		profile start	67° 00,657' N	002° 12,569' E
MSM140_90-1	EM124	27/09/2025 13:40		profile start	67° 00,657' N	002° 12,569' E
MSM140_91-1	OBEM	28/09/2025 16:15	OBEM 49	OBEM deployed	67° 13,591' N	002° 53,725' E
MSM140_92-1	OBEM	28/09/2025 16:31	OBEM 50	OBEM deployed	67° 13,493' N	002° 54,416' E
MSM140_93-1	OBEM	28/09/2025 16:48	OBEM 51	OBEM deployed	67° 13,325' N	002° 55,234' E
MSM140_94-1	OBEM	28/09/2025 17:02	OBEM 52	OBEM deployed	67° 13,141' N	002° 55,921' E
MSM140_95-1	OBEM	28/09/2025 17:20	OBEM 53	OBEM deployed	67° 13,037' N	002° 56,692' E
MSM140_96-1	OBEM	28/09/2025 17:42	OBEM 54	OBEM deployed	67° 12,850' N	002° 57,420' E
MSM140_97-1	OBEM	28/09/2025 23:37	OBEM 55	OBEM deployed	67° 12,538' N	002° 57,025' E
MSM140_98-1	OBEM	29/09/2025 00:03	OBEM 56	OBEM deployed	67° 12,697' N	002° 56,290' E
MSM140_99-1	OBEM	29/09/2025 01:29	OBEM 57	OBEM deployed	67° 12,846' N	002° 55,552' E
MSM140_100-1	OBEM	29/09/2025 01:59	OBEM 58	OBEM deployed	67° 13,001' N	002° 54,809' E
MSM140_101-1	OBEM	29/09/2025 02:24	OBEM 59	OBEM deployed	67° 13,151' N	002° 54,046' E
MSM140_102-1	OBEM	29/09/2025 02:49	OBEM 60	OBEM deployed	67° 13,304' N	002° 53,338' E
MSM140_103-1	CSEM	30/09/2025 20:43		profile end	67° 12,258' N	002° 56,627' E
MSM140_103-1	CSEM	29/09/2025 14:17		profile start	67° 14,023' N	002° 53,364' E
MSM140_104-1	SEISOBR	01/10/2025 09:43	OBS 201	OBS deployed	67° 14,042' N	002° 54,596' E
MSM140_105-1	SEISOBR	01/10/2025 09:57	OBS 202	OBS deployed	67° 13,790' N	002° 54,906' E
MSM140_106-1	SEISOBR	01/10/2025 10:07	OBS 203	OBS deployed	67° 13,540' N	002° 55,288' E
MSM140_107-1	SEISOBR	01/10/2025 10:18	OBS 204	OBS deployed	67° 13,448' N	002° 55,455' E
MSM140_108-1	SEISOBR	01/10/2025 10:40	OBS 205	OBS deployed	67° 13,317' N	002° 55,625' E
MSM140_109-1	SEISOBR	01/10/2025 11:11	OBS 206	OBS deployed	67° 13,211' N	002° 55,806' E
MSM140_110-1	SEISOBR	01/10/2025 11:37	OBS 207	OBS deployed	67° 13,086' N	002° 55,990' E
MSM140_111-1	SEISOBR	01/10/2025 11:49	OBS 208	OBS deployed	67° 12,969' N	002° 56,138' E
MSM140_112-1	SEISOBR	02/10/2025 05:26	OBS 209	OBS deployed	67° 12,858' N	002° 56,348' E
MSM140_113-1	SEISOBR	02/10/2025 05:41	OBS 210	OBS deployed	67° 12,619' N	002° 56,692' E
MSM140_114-1	SEISOBR	02/10/2025 05:55	OBS 211	OBS deployed	67° 13,169' N	002° 55,501' E
MSM140_115-1	SEISOBR	02/10/2025 06:13	OBS 212	OBS deployed	67° 12,996' N	002° 54,933' E
MSM140_116-1	SEISOBR	02/10/2025 06:31	OBS 213	OBS deployed	67° 12,934' N	002° 54,631' E
MSM140_117-1	SEISOBR	02/10/2025 06:48	OBS 214	OBS deployed	67° 13,295' N	002° 56,172' E
MSM140_118-1	SEISOBR	02/10/2025 07:08	OBS 215	OBS deployed	67° 13,406' N	002° 56,719' E
MSM140_119-1	SEISOBR	02/10/2025 07:20	OBS 216	OBS deployed	67° 13,471' N	002° 57,013' E
MSM140_120-1	SEISSRC	03/10/2025 00:28		profile end	67° 18,905' N	003° 21,156' E
MSM140_120-1	SEISSRC	02/10/2025 12:02		profile start	67° 21,219' N	002° 43,634' E
MSM140_121-1	SEISSRC	06/10/2025 08:06		profile end	67° 24,813' N	001° 48,970' E
MSM140_121-1	SEISSRC	05/10/2025 13:57		profile start	67° 01,563' N	002° 16,131' E
MSM140_122-1	CSEM	06/10/2025 13:32		max depth/on ground	67° 23,179' N	001° 50,079' E
MSM140_122-2	CSEM	06/10/2025 15:06		max depth/on ground	67° 23,180' N	001° 50,083' E
MSM140_123-1	EM124	06/10/2025 19:22		profile start	67° 40,670' N	001° 16,681' E
MSM140_123-1	EM124	07/10/2025 07:47		profile end	67° 44,349' N	001° 54,990' E