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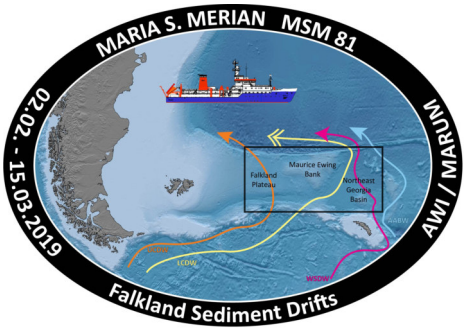
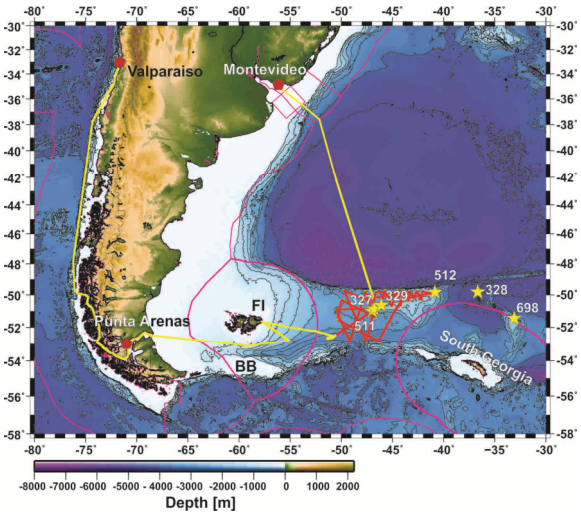
Short Cruise Report
RV Maria S. Merian cruise MSM 81

Valparaiso, Chile – Montevideo, Uruguay
2.2.2019 – 15.3.2019
Chief Scientist: Dr. Gabriele Uenzelmann-Neben
Captain: Ralf Schmidt





Objectives

The overaching goals of the cruise MSM81 Falkland Sediment Drifts were twofold: we intended to 1) study variations in flow paths and intensities of deep and bottom water masses in response to a) tectonic movements, and b) climate variability; this has been the major focus of the cruise, and 2) collect pre-site survey data for IODP proposal 862-Pre.

Objective 1: Reconstruct variations in flow path and intensities of deep and bottom water masses

The deep and bottom water masses flowing within the ACC (Antarctic Bottom Water (AABW), WSDW, SPDW, LCDW, UCDW) are steered by the complex topography of the Drake Passage and the Scotia Sea. Rounding topographic highs the water masses reduce their speed and hence deposit sediment. In gaps and passages their speed is increased leading to erosion and non-deposition. In this way the aforementioned water masses shape sediment drifts, which in their structure document the modifications in the flow paths and intensities of the water masses. The tectonic development of both the Drake Passage and the Scotia Sea during the Cenozoic have led to strong modifications in the flow paths, which, when studying sediment drifts, can be deciphered. Additionally, the ACC fronts are assumed to have been subject to relocations during glacial-interglacial cycles. This again has led to relocations in depocentres, which can be identified via seismic profiles. So far, research here has concentrated on the area south of the Falkland Islands towards South America but the flow of water masses across the plateau has not been studied. Results of DSDP Legs 36 and 71 suggested intensified bottom currents as early as the Eocene, which led to the discussion of an early Tertiary water mass exchange between the Pacific and the Atlantic oceans. Numerical simulations also suggest a weak ACC for the late Cretaceous but no overturning circulation.

To answer those questions we collected a set of high-resolution seismic profiles on the Falkland Ridge between a) the Falkland Islands and the MEB. This set of seismic lines will enable the detection and imaging of sediment drifts shaped by UCDW west of MEB and shaped by LCDW and WSDW east of MEB. The seismic lines further crossed the locations of DSDP Leg 36 Sites 327 and 329 and Leg 71 Sites 511 and 512. Those sites recovered sedimentary rocks going back towards the Jurassic (Site 511), were used for dating regional seismic reflections, and, via the computation of synthetic seismograms, will thus allow to correlate the acquired seismic data with geological information and to develop age-depth models. The new seismic profiles hence will provide information on the depositional regime prior, during, and following the opening of Drake Passage by imaging the sedimentary sequences and structures for those periods. We will be able to reconstruct the effect of the onset of the ACC on sediment deposition and the modifications in ACC pathway and flow intensity due to tectonic movements and climate variability. Sediment drifts located in the Falkland Passage east of MEB are particularly important targets because they should be sensitive recorders of past relocations of the SACCF retroflection and of past changes in both WSDW and LCDW flow.

Objective 2: Pre-site survey for developing a full IODP proposal built on IODP 862-Pre

IODP preliminary proposal 862-Pre (PIs Westerhold and Bohaty) proposes to drill a depth transect of Paleogene sites in the subantarctic South Atlantic Ocean on the eastern Falkland Plateau (Maurice Ewing Bank and Georgia Basin). In the modern ocean, this is a critical area for deep-water mixing and communication between the Pacific and Atlantic oceans across the Drake Passage, with local bathymetry controlling the dispersal and propagation of deep- and bottom-

waters throughout the Atlantic.

Narrative

The final preparations for cruise MSM were carried out on board RV *MARIA S MERIAN*. 18 Scientists embarked in Valparaiso on February 2 and unloaded containers. The set-up of the seismic sources and the recording system began. RV *MARIA S MERIAN* left port on February 3 at appr. 18:40 to head south. Set-up of the seismic equipment continued during February 4 to 8. On February 8 RV *MARIA S MERIAN* arrived in Punta Arenas to bunker. Here, two technicians from Sercel, who had assisted in installing new parts of the seismic recording system, left, while an Argentine coastal state observer was welcomed on board. The vessel left the port on February 9 at 9:00 to head into the working area on the Falkland Plateau. During this transit preparations for the seismic sources to be used during MSM82 started.

RV *MARIA S MERIAN* entered Argentine waters on February 9 at 18:30, and the recording of EM 122 and Parasound started. The transit into working area continued, entering the Argentine EEZ and entering the EEZ of the Falkland Islands on February 10 at 9:55, but was interrupted on February 11, due the emergency disembarkment of one person. We then set course for Port Stanley, Falkland Island. After the person had disembarked we continued our transit into the working area on late evening February 11. We left the EEZ of the Falkland Islands on February 12 at 16:27.

At 22:00 February 12 we reached our area of investigation. We then obtained a sound velocity profile to calibrate both EM 122 and Parasound. Since the weather had severely deteriorated, we had 9 bft and 6 m waves, we postponed the deployment of the seismic gear to the next morning. The wind still was very strong (8-9 bft) but the waves only reached 5 m and deployment was easier in daylight. We continuously collected seismic data. Repairs were carried out on February 21st, March 2nd, and March 6th, which generated short losses in data acquisition. Since we did not stop we could not collect additional sound velocity profiles using the SVP device but employed XSVs instead, which can be used during seismic profiling.

At 16:00 on March 10 we reached the end of line AWI-20190030 and stopped the collection of seismic and Parasound data. We retrieved airguns and streamer and set course for Montevideo. We arrived in Montevideo on March 15 2019 at 8:30.

Acknowledgements

We like to thank Captain Ralf Schmidt, his officers and crew of RV Maria S. Merian for their support of our measurement programme and for creating a very friendly atmosphere on board.

The ship time of Merian was provided by the Deutsche Forschungsgemeinschaft within the core program METEOR/MERIAN. We also benefited from financial contributions by the research institutes involved. We gratefully acknowledge all this support.

Cruise participants

1. Uenzelmann-Neben, Gabriele	Fahrtleiter / *Chief Scientist*	AWI
2. Eggers, Thorsten	Seismics	AWI
3. Lensch, Norbert	Seismics	AWI
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5. Beckmann, Regina	Seismics	AWI
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7. Andreas, Pascal	Seismics	AWI
8. Petersen, Ann-Kathrin	Seismics	AWI
9. Geil, Jonah	Bathymetry	AWI
10. Knopp, Lisa	Bathymetry	AWI
11. Andree, Sophie	Bathymetry	AWI
12. Westerhold, Thomas	Parasound	MARUM
13. Ramadan, Abdel-Rahman	Parasound	AWI
14. Reuter, Runa	Parasound	AWI
15. Gatt, Peter	Marine Mammal Observer	SFF
16. Soutar, George	Marine Mammal Observer	SFF
17. Mouchel-Drillot, Mathieu	Seismics	Sercel
18. Neuilly, Alexandre	Seismics	Sercel
19. Principi, Sebastian	Observer coastal state	Argentinien

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Seismic profiles

PROFILE # AWI-…	Start / End	DATE	TIME (UTC)	LATITUDE	LONGITUDE
20190001	start end	13.02.19 15.02.19	16:19:00 12:10:00	-52.44701 -50.63975	-50.4805859 -46.0489889
20190002	start end	15.02.19 16.02.19	12:48:00 23:24:00	-50.63059 -49.72736	-46.094688 -49.76888
20190003	start end	17.02.19 18:02:19	00:17:00 18:58:00	-49.74087 -52.88667	-49.720725 -47.550443
20190004	start end	18.02.19 19.02.19	20:02:48 21:16:00	-52.8561 -50.83898	-47.572691 -46.769813
20190005	start end	19.02.19 21.02.19	22:21:00 03:12:00	-50.87148 -50.90520	-46.783689 -50.55919
20190006	start end	21.02.19 22.02.19	04:09:00 07:20:00	-50.93502 -52.88299	-50.548286 -49.156888
20190007	start end	22.02.19 23.02.19	08:12:00 23:39:19	-47.63156 -46.60909	-49.8157639 -51.3568967
20190008	start end	23.02.19 24.02.19	01:19:47 22:25:00	-49.81576 -51.35689	-47.63156 -46.60909
20190009	start end	24.02.19 26.02.19	22:55:00 02:41:00	-51.38257 -50.31573	-46.654922 -50.008594
20190010	start end	26.02.19 26.02.19	03:16:10 18:00:37	-50.35102 -51.47181	-50.028073 -50.369262
20190011	start end	26.02.19 28.02.19	19:00:00 03:50:00	-51.53559 -52.84153	-50.2948872 -46.340668
20190012	start end	28.03.19 01.03.19	04:47:29 06:13:04	-52.8585 -50.95477	-46.391835 -44.738247
20190013	start end	01.03.19 01.03.19	06:14:08 14:44:42	-50.95339 -50.35810	-44.737031 -44.086398
20970014	start end	01.03.19 02.03.19	15:45:00 13:56:00	-50.33309 -49.90688	-43.981515 -41.258529

PROFILE # AWI-…	Start / End	DATE	TIME (UTC)	LATITUDE	LONGITUDE
20190015	start end	02.03.19 02.03.19	14:35:00 20:00:00	-49.92791 -49.76355	-41.242279 -42.11829
20190016	start end	02.03.19 03.03.19	22:35:00 05:51:00	-49.73892 -50.32800	-42.10850 -42.15269
20190017	start end	03.03.19 03.03.19	06:30:00 14:40:00	-50.33475 -49.73970	-42.11554 -42.64591
20190018	start end	03.03.19 03.03.19	15:20:00 21:38:00	-49.73640 -50.21726	-42.59809 -42.921463
20190019	start end	03.03.19 04.03.19	22:17:00 04:57:00	-50.21237 -49.74798	-42.87825 -43.34370
20190020	start end	04.03.19 04.03.19	05:34:00 13:40:00	-49.74016 -50.40833	-43.30993 -43.44262
20190021	start end	04.03.19 04.03.19	14:17:00 23:46:00	-50.40446 -49.70274	-43.41040 -43.96850
20190022	start end	05.03.19 05.03.19	00:20:00 12:23:00	-49.69599 -50.65957	-43.93575 -44.20467
20190023	start end	05.03.19 06.03.19	13:31:00 02:21:00	- 50.70632 - 49.69969	- 44.17689 - 44.52337
20190024	start end	06.03.19 06.03.19	03:06:00 15:57:48	- 49.69489 - 50.69607	- 44.48473 - 45.06862
20190025	start end	06.03.19 07.03.19	17:29:00 06:49:00	- 50.72354 - 49.73679	- 45.05318 - 45.72112
20190026	start end	07.03.19 08.03.19	07:28:00 02:21:00	-49.70803 -51.10833	-45.67803 -46.72581
20190027	start end	08.03.19 08.03.19	03:00:00 10:00:00	-51.11796 -50.54973	-46.68707 -46.88883
20190028	start end	08.03.19 08.03.19	10:01:00 19:43:00	- 50.54719 - 49.77101	- 46.88968 - 46.59078
20190029	start end	08.03.19 09.03.19	20:41:00 18:39:00	- 49.80205 - 49.89926	- 46.62181 - 43.70832
20190030	start end	09.03.19 10.03.19	19:13:00 19:00:00	-49.87682 -50.16888	-43.69588 -46.60431

Stationbook

Activity No	Date / Time UTC	Device	Action	Position Lat	Position Lon	Depth [m]	Comment
MSM81_1-1	2/13/2019 1:07	Sound Velocity Profiler	in the water	52° 32,488' S	050° 42,336' W	3414.9	
MSM81_1-1	2/13/2019 2:04	Sound Velocity Profiler	max depth/on ground	52° 32,588' S	050° 42,384' W	3421.1	
MSM81_1-1	2/13/2019 3:01	Sound Velocity Profiler	on deck	52° 32,958' S	050° 42,394' W	3440.4	
MSM81_2-1	2/13/2019 3:13	Deep-sea Multibeam Echosounder	profile start	52° 32,955' S	050° 42,389' W	3439.9	Variable Kurse und Geschwindigkeiten (mit Parasound)
MSM81_2-1	2/13/2019 11:12	Deep-sea Multibeam Echosounder	profile end	52° 36,958' S	050° 45,608' W	3631.4	
MSM81_3-1	2/13/2019 12:34	Seismic Towed Receiver	information	52° 34,717' S	050° 49,613' W	3526.7	Beginn Ausstecken
MSM81_3-1	2/13/2019 14:33	Seismic Towed Receiver	MCS in water	52° 30,922' S	050° 39,263' W	3473.6	Ausgesteckte Länge:3141m
MSM81_3-2	2/13/2019 14:54	Seismic Source	Gi-gun in water	52° 30,331' S	050° 37,564' W	3890.5	Bb-Array, 2x GI-Guns
MSM81_3-2	2/13/2019 15:05	Seismic Source	information	52° 29,946' S	050° 36,579' W	3361.4	Beginn Soft Start
MSM81_3-2	2/13/2019 15:28	Seismic Source	information	52° 29,001' S	050° 34,257' W	3356.9	Ende Soft Start
MSM81_3-2	2/13/2019 15:28	Seismic Source	profile start	52° 28,993' S	050° 34,239' W	3358	v= 5,5kn; rwk 056°
MSM81_3-2	2/13/2019 16:19	Seismic Source	information	52° 26,795' S	050° 28,762' W	3258.2	Überfahren geplanten Startpunkt
MSM81_4-1	2/14/2019 22:20	Expandedable Sound Velocimeter	in the water	51° 11,681' S	047° 25,697' W	2764.2	Heckmitte zw. Gun u. Streamer
MSM81_4-1	2/14/2019 22:24	Expandedable Sound Velocimeter	station end	51° 11,552' S	047° 25,383' W	2759.8	Sondendraht gekappt
MSM81_3-2	2/15/2019 3:20	Seismic Source	alter course	51° 00,187' S	046° 58,235' W	2584.4	auf rwk 034°
MSM81_3-2	2/15/2019 3:23	Seismic Source	information	51° 00,010' S	046° 58,057' W	2573.4	Überfahren WP DSDP_511 auf Profil
MSM81_3-2	2/15/2019 4:42	Seismic Source	alter course	50° 55,280' S	046° 53,087' W	2626.7	auf rwk 052°
MSM81_3-2	2/15/2019 4:43	Seismic Source	information	50° 55,263' S	046° 53,069' W	2625.5	Überfahren WP DSDP_330 auf Profil

Activity No	Date / Time UTC	Device	Action	Position Lat	Position Lon	Depth [m]	Comment
MSM81_3-2	2/15/2019 5:50	Seismic Source	alter course	50° 52,319' S	046° 47,098' W	2788.7	auf rwk 064°
MSM81_3-2	2/15/2019 5:50	Seismic Source	information	50° 52,316' S	046° 47,091' W	2396.3	Überfahren WP DSDP_327 auf Profil
MSM81_3-2	2/15/2019 11:46	Seismic Source	information	50° 39,214' S	046° 05,491' W	1512.3	Überfahren WP 6
MSM81_3-2	2/15/2019 12:08	Seismic Source	profile end	50° 38,409' S	046° 03,002' W	1493.7	
MSM81_3-1	2/15/2019 12:08	Seismic Towed Receiver	information	50° 38,399' S	046° 02,967' W	1490.9	Profil end
MSM81_5-1	2/15/2019 12:48	Seismic Towed Receiver	information	50° 37,840' S	046° 05,698' W	1519.4	Seismisches Equipment der Station MSM 81-3 noch ausgesteckt
MSM81_5-2	2/15/2019 12:48	Seismic Source	information	50° 37,841' S	046° 05,700' W	1518.6	Seismisches Equipment der Station MSM 81-3 noch ausgesteckt
MSM81_5-2	2/15/2019 12:48	Seismic Source	profile start	50° 37,841' S	046° 05,701' W	1518.6	v=5kn; rwk 250°
MSM81_5-2	2/15/2019 13:05	Seismic Source	alter course	50° 38,404' S	046° 07,895' W	1544.9	auf rwk 291°
MSM81_5-2	2/16/2019 17:32	Seismic Source	information	49° 53,451' S	049° 07,928' W	2958.2	Zugverbindung gebrochen, Streamer hängt nur noch an der Winde
MSM81_5-2	2/16/2019 18:00	Seismic Source	information	49° 52,940' S	049° 09,898' W	2957	Zugverbindung wieder hergestellt
MSM81_5-2	2/16/2019 22:56	Seismic Source	information	49° 44,454' S	049° 43,308' W	2768.9	Überfahren WP Endpunkt Profil 2
MSM81_5-2	2/16/2019 23:24	Seismic Source	profile end	49° 43,648' S	049° 46,117' W	2748.4	
MSM81_5-1	2/16/2019 23:24	Seismic Towed Receiver	information	49° 43,637' S	049° 46,150' W	2747.9	Profil Ende
MSM81_6-1	2/16/2019 23:45	Seismic Towed Receiver	information	49° 42,431' S	049° 46,098' W	2739.3	Seismisches Equipment der Station MSM 81-3 noch ausgesteckt.
MSM81_6-2	2/16/2019 23:45	Seismic Source	information	49° 42,438' S	049° 46,062' W	2738.4	Seismisches Equipment der Station MSM 81-3 noch ausgesteckt.
MSM81_6-2	2/17/2019 0:04	Seismic Source	profile start	49° 43,579' S	049° 43,946' W	2750.8	v=5kn; rwk 157°
MSM81_6-2	2/18/2019 18:36	Seismic Source	information	52° 51,387' S	047° 34,342' W	2640.7	Überfahren WP Endpunkt Profil 3
MSM81_6-2	2/18/2019 19:00	Seismic Source	profile end	52° 53,181' S	047° 33,046' W	2701.2	

Activity No	Date / Time UTC	Device	Action	Position Lat	Position Lon	Depth [m]	Comment
MSM81_6-1	2/18/2019 19:01	Seismic Towed Receiver	information	52° 53,250' S	047° 33,000' W	2715.2	Profil Ende
MSM81_7-1	2/18/2019 19:38	Seismic Towed Receiver	information	52° 53,163' S	047° 35,314' W	2733.3	Seismisches Equipment der Station MSM 81-3 noch ausgesteckt
MSM81_7-2	2/18/2019 19:38	Seismic Source	information	52° 53,118' S	047° 35,286' W	2721.1	Seismisches Equipment der Station MSM 81-3 noch ausgesteckt.
MSM81_7-2	2/18/2019 19:38	Seismic Source	profile start	52° 53,110' S	047° 35,280' W	2721.1	v=5,0kn; rwk 014°
MSM81_7-2	2/19/2019 20:52	Seismic Source	information	50° 52,276' S	046° 46,995' W	2397.2	Überfahren WP Endpunkt Profil 4
MSM81_7-2	2/19/2019 21:16	Seismic Source	profile end	50° 50,333' S	046° 46,199' W	2341.4	
MSM81_7-1	2/19/2019 21:16	Seismic Towed Receiver	information	50° 50,302' S	046° 46,186' W	2341.9	profile end
MSM81_8-1	2/19/2019 21:54	Seismic Towed Receiver	information	50° 51,910' S	046° 43,973' W	2338.5	Seismisches Equipment der Station MSM 81-3 noch ausgesteckt
MSM81_8-2	2/19/2019 21:54	Seismic Source	information	50° 51,910' S	046° 43,973' W	2338.5	Seismisches Equipment der Station MSM 81-3 noch ausgesteckt
MSM81_8-2	2/19/2019 21:55	Seismic Source	profile start	50° 51,911' S	046° 43,975' W	2338.5	v=5kn; rwk 269°
MSM81_8-2	2/21/2019 3:04	Seismic Source	information	50° 54,278' S	050° 30,381' W	2544.2	Überfahren WP Profil 5
MSM81_8-2	2/21/2019 3:29	Seismic Source	profile end	50° 54,311' S	050° 33,574' W	2537	
MSM81_8-1	2/21/2019 3:29	Seismic Towed Receiver	information	50° 54,310' S	050° 33,606' W	2533.4	profile end
MSM81_9-1	2/21/2019 4:09	Seismic Towed Receiver	information	50° 56,107' S	050° 32,859' W	2515.1	Seismisches Equipment der Station MSM 81-3 noch ausgesteckt
MSM81_9-2	2/21/2019 4:09	Seismic Source	information	50° 56,107' S	050° 32,851' W	2515.1	Seismisches Equipment der Station MSM 81-3 noch ausgesteckt
MSM81_9-2	2/21/2019 4:09	Seismic Source	profile start	50° 56,107' S	050° 32,849' W	2500.8	v=5,0kn; rwk 157°
MSM81_9-2	2/21/2019 21:20	Seismic Source	information	52° 09,964' S	049° 39,201' W	2576.8	GI-Guns deaktiviert, Profilunterbrechung
MSM81_9-2	2/21/2019 21:32	Seismic Source	information	52° 10,784' S	049° 38,645' W	2593.3	Gi-Guns an Deck für Wartung und Austausch Schleppdraht

Activity No	Date / Time UTC	Device	Action	Position Lat	Position Lon	Depth [m]	Comment
MSM81_9-2	2/21/2019 23:15	Seismic Source	information	52° 17,984' S	049° 33,690' W	2906	Beginn Soft Start
MSM81_9-2	2/21/2019 23:38	Seismic Source	information	52° 19,600' S	049° 32,575' W	3113.1	Ende Soft Start
MSM81_9-2	2/21/2019 23:39	Seismic Source	information	52° 19,658' S	049° 32,545' W	3116.3	Profil Fortsetzung v=5kn; rwk 157°
MSM81_9-2	2/22/2019 6:55	Seismic Source	information	52° 51,120' S	049° 10,699' W	2965.9	Überfahren WP Ende Profil 6
MSM81_9-1	2/22/2019 7:20	Seismic Towed Receiver	information	52° 52,959' S	049° 09,449' W	3002.6	Profil end
MSM81_9-2	2/22/2019 7:20	Seismic Source	profile end	52° 52,966' S	049° 09,444' W	3013.9	
MSM81_10-2	2/22/2019 7:58	Seismic Source	information	52° 52,411' S	049° 11,531' W	2971.3	Seismisches Equipment der Station MSM 81-9 noch ausgesteckt
MSM81_10-2	2/22/2019 7:58	Seismic Source	profile start	52° 52,409' S	049° 11,531' W	2971.3	v=5,0kn; rwk 018°
MSM81_10-1	2/22/2019 7:58	Seismic Towed Receiver	information	52° 52,346' S	049° 11,503' W	2977.3	Seismisches Equipment der Station MSM 81-3 noch ausgesteckt
MSM81_10-3	2/22/2019 23:57	Expandedable Sound Velocimeter	in the water	51° 36,988' S	048° 32,197' W	2407.9	
MSM81_10-3	2/23/2019 0:05	Expandedable Sound Velocimeter	station end	51° 36,374' S	048° 31,864' W	2429	
MSM81_10-2	2/23/2019 23:13	Seismic Source	information	49° 48,948' S	047° 37,898' W	2420.5	Überfahren WP auf dem Profil
MSM81_11-1	2/23/2019 23:35	Seismic Towed Receiver	information	49° 47,331' S	047° 37,097' W	2429.3	Seismisches Equipment der Station MSM 81-3 noch ausgesteckt
MSM81_10-1	2/23/2019 23:40	Seismic Towed Receiver	information	49° 47,008' S	047° 36,950' W	2429	Profil end
MSM81_10-2	2/23/2019 23:40	Seismic Source	profile end	49° 46,978' S	047° 36,934' W	2430.7	
MSM81_11-2	2/23/2019 23:47	Seismic Source	information	49° 46,403' S	047° 36,701' W	2431.4	GI-Guns vorgehievt und drucklos
MSM81_11-2	2/24/2019 0:05	Seismic Source	information	49° 45,258' S	047° 37,375' W	2447.7	GI-Guns ausgesteckt und unter Druck
MSM81_11-2	2/24/2019 0:39	Seismic Source	information	49° 46,125' S	047° 40,825' W	2451.1	Beginn Soft Start
MSM81_11-2	2/24/2019 0:59	Seismic Source	information	49° 47,471' S	047° 38,999' W	2453.5	Ende Soft Start
MSM81_11-2	2/24/2019 1:00	Seismic Source	profile start	49° 47,534' S	047° 38,923' W	2456.7	v=5kn; rwk 161°

Activity No	Date / Time UTC	Device	Action	Position Lat	Position Lon	Depth [m]	Comment
MSM81_11-2	2/24/2019 17:06	Seismic Source	alter course	51° 00,081' S	046° 58,441' W	2582.3	auf rwk 147°
MSM81_11-2	2/24/2019 17:08	Seismic Source	information	51° 00,248' S	046° 58,338' W	2583.6	Überfahren Wegpunkt DSDP_511
MSM81_12-1	2/24/2019 17:11	Expandedable Sound Velocimeter	in the water	51° 00,506' S	046° 58,119' W	2589.6	
MSM81_12-1	2/24/2019 17:19	Expandedable Sound Velocimeter	station end	51° 01,035' S	046° 57,569' W	2585.6	Ende Messung
MSM81_11-2	2/24/2019 22:24	Seismic Source	profile end	51° 21,452' S	046° 36,520' W	2759.8	
MSM81_11-1	2/24/2019 22:25	Seismic Towed Receiver	information	51° 21,480' S	046° 36,498' W	2761.7	Profil end
MSM81_13-1	2/24/2019 22:55	Seismic Towed Receiver	information	51° 22,993' S	046° 39,189' W	2764.5	Seismisches Equipment der Station MSM 81-3 noch ausgesteckt
MSM81_13-2	2/24/2019 22:55	Seismic Source	information	51° 22,992' S	046° 39,194' W	2764.5	Seismisches Equipment der Station MSM 81-11 noch ausgesteckt
MSM81_13-2	2/24/2019 22:55	Seismic Source	profile start	51° 22,989' S	046° 39,200' W	2764.5	v= 5kn; rwk 297°
MSM81_13-2	2/26/2019 2:39	Seismic Source	information	50° 18,996' S	050° 00,365' W	2536.5	Überfahren WP auf Profil
MSM81_13-2	2/26/2019 2:40	Seismic Source	profile end	50° 18,977' S	050° 00,431' W	2537.1	
MSM81_13-1	2/26/2019 2:42	Seismic Towed Receiver	information	50° 18,898' S	050° 00,701' W	2608.1	Profil Ende
MSM81_14-1	2/26/2019 2:42	Seismic Towed Receiver	information	50° 18,881' S	050° 00,772' W	2536.8	Seismisches Equipment der Station MSM 81-3 noch ausgesteckt
MSM81_14-2	2/26/2019 2:43	Seismic Source	information	50° 18,851' S	050° 00,939' W	2532.9	Seismisches Equipment der Station MSM 81-11 noch ausgesteckt
MSM81_14-2	2/26/2019 3:05	Seismic Source	profile start	50° 20,192' S	050° 02,048' W	2500.5	v=5kn; rwk 191°
MSM81_14-2	2/26/2019 4:45	Seismic Source	information	50° 28,578' S	050° 03,344' W	2480.7	Profil unterbrochen wegen techn. Probleme Kompressoren
MSM81_14-2	2/26/2019 5:38	Seismic Source	information	50° 33,089' S	050° 04,771' W	2489.4	Auftriebsblasen der GI-Guns abgerissen.
MSM81_14-2	2/26/2019 6:39	Seismic Source	Gi-gun on deck	50° 38,098' S	050° 06,295' W	2509.4	Gi-Guns zur Wartung an Deck

Activity No	Date / Time UTC	Device	Action	Position Lat	Position Lon	Depth [m]	Comment
MSM81_14-2	2/26/2019 7:35	Seismic Source	Gi-gun in water	50° 41,780' S	050° 07,465' W	2507.9	GI-Guns nach Wartung wieder zu Wasser
MSM81_14-2	2/26/2019 7:39	Seismic Source	information	50° 42,015' S	050° 07,504' W	2782.3	Beginn Soft-Start.
MSM81_14-2	2/26/2019 8:00	Seismic Source	information	50° 43,425' S	050° 07,982' W	2502.6	Ende Soft-Start, Fortsetzung Profil v=5kn; rwk 191°
MSM81_14-2	2/26/2019 8:50	Seismic Source	information	50° 47,160' S	050° 09,183' W	2515.7	Auftriebsblasen abgerissen, Profilunterbrechung, Stop der GI-Guns, Beginn Pre-Watch.
MSM81_14-2	2/26/2019 9:08	Seismic Source	Gi-gun on deck	50° 48,341' S	050° 09,517' W	2513.7	
MSM81_14-2	2/26/2019 9:50	Seismic Source	Gi-gun in water	50° 51,041' S	050° 10,350' W	2511.1	
MSM81_14-2	2/26/2019 9:56	Seismic Source	information	50° 51,357' S	050° 10,462' W	2516.7	Beginnn Soft-Start
MSM81_14-2	2/26/2019 10:17	Seismic Source	information	50° 52,698' S	050° 10,908' W	2521.7	Ende Soft-Start, Fortsetzung Profil v=5kn; rwk 191°
MSM81_14-3	2/26/2019 12:00	Expandedable Sound Velocimeter	in the water	51° 00,347' S	050° 13,337' W	2569.3	
MSM81_14-3	2/26/2019 12:03	Expandedable Sound Velocimeter	station end	51° 00,520' S	050° 13,378' W	2563.4	Ende Messung
MSM81_14-2	2/26/2019 18:00	Seismic Source	information	51° 28,304' S	050° 22,163' W	2315.8	Ende Profil
MSM81_14-1	2/26/2019 18:00	Seismic Towed Receiver	information	51° 28,321' S	050° 22,169' W	2310.8	Ende Profil
MSM81_15-1	2/26/2019 18:07	Seismic Towed Receiver	information	51° 28,916' S	050° 22,071' W	2322.1	Seismisches Equipment der Station MSM 81-3 noch ausgesteckt
MSM81_15-2	2/26/2019 18:08	Seismic Source	Gi-gun on deck	51° 29,051' S	050° 21,946' W	2315.5	GI-Guns an Deck
MSM81_15-2	2/26/2019 18:35	Seismic Source	Gi-gun in water	51° 30,660' S	050° 19,652' W	2320.5	
MSM81_15-2	2/26/2019 19:00	Seismic Source	information	51° 32,126' S	050° 17,712' W	2319.1	Beginn Soft-Start
MSM81_15-2	2/26/2019 19:00	Seismic Source	information	51° 32,132' S	050° 17,705' W	2319.1	Ende Soft-Start
MSM81_15-2	2/26/2019 19:20	Seismic Source	profile start	51° 33,431' S	050° 16,082' W	2329.4	v=5kn; rwk 118°
MSM81_15-2	2/28/2019 4:00	Seismic Source	profile end	52° 50,210' S	046° 21,084' W	2652.8	
MSM81_15-1	2/28/2019 4:00	Seismic Towed Receiver	information	52° 50,218' S	046° 21,058' W	2651.9	Profil Ende

Activity No	Date / Time UTC	Device	Action	Position Lat	Position Lon	Depth [m]	Comment
MSM81_16-1	2/28/2019 4:39	Seismic Towed Receiver	information	52° 52,028' S	046° 22,784' W	2645.8	Seismisches Equipment der Station MSM 81-3 noch ausgesteckt
MSM81_16-2	2/28/2019 4:39	Seismic Source	information	52° 52,025' S	046° 22,795' W	2649.7	Seismisches Equipment der Station MSM 81-15 noch ausgesteckt
MSM81_16-2	2/28/2019 4:40	Seismic Source	profile start	52° 51,981' S	046° 22,910' W	2652.2	v=5,0kn; rwk 028°
MSM81_16-2	2/28/2019 5:09	Seismic Source	information	52° 49,726' S	046° 22,354' W	2733.3	Überfahren WP Start Profil 12
MSM81_16-1	3/1/2019 6:13	Seismic Towed Receiver	information	50° 57,246' S	044° 44,270' W	2092.5	Ende Profil
MSM81_16-2	3/1/2019 6:13	Seismic Source	profile end	50° 57,223' S	044° 44,250' W	2056.3	
MSM81_17-1	3/1/2019 6:13	Seismic Towed Receiver	information	50° 57,220' S	044° 44,247' W	2056.3	Seismisches Equipment der Station MSM 81-3 noch ausgesteckt
MSM81_17-2	3/1/2019 6:14	Seismic Source	information	50° 57,144' S	044° 44,183' W	2168.2	Seismisches Equipment der Station MSM 81-15 noch ausgesteckt
MSM81_17-2	3/1/2019 6:14	Seismic Source	profile start	50° 57,143' S	044° 44,182' W	2168.2	v=5,0kn; rwk 035°
MSM81_17-2	3/1/2019 14:44	Seismic Source	profile end	50° 21,468' S	044° 05,170' W	1531	
MSM81_17-1	3/1/2019 14:45	Seismic Towed Receiver	information	50° 21,435' S	044° 05,136' W	1651.1	Ende Profil
MSM81_18-1	3/1/2019 14:49	Seismic Towed Receiver	information	50° 21,229' S	044° 04,831' W	1540.2	Seismisches Equipment der Station MSM 81-3 noch ausgesteckt
MSM81_18-2	3/1/2019 14:58	Seismic Source	Gi-gun on deck	50° 21,060' S	044° 03,924' W	1544.7	
MSM81_18-2	3/1/2019 15:20	Seismic Source	Gi-gun in water	50° 20,667' S	044° 01,831' W	1705.9	
MSM81_18-2	3/1/2019 15:45	Seismic Source	information	50° 19,972' S	043° 58,819' W	1573.3	Beginn Soft-Start
MSM81_18-2	3/1/2019 16:05	Seismic Source	information	50° 19,350' S	043° 56,211' W	1580.3	Ende Soft Start
MSM81_18-2	3/1/2019 16:05	Seismic Source	profile start	50° 19,349' S	043° 56,202' W	1580.3	v=5,0kn; rwk=070°
MSM81_18-2	3/1/2019 20:41	Seismic Source	alter course	50° 11,589' S	043° 23,712' W	1729.7	rwk 076°; Schiff überfährt WP auf Profil
MSM81_18-2	3/2/2019 2:56	Seismic Source	alter course	50° 04,009' S	042° 37,543' W	1579.2	rwk 077°; Überfahren WP auf dem Profil

Activity No	Date / Time UTC	Device	Action	Position Lat	Position Lon	Depth [m]	Comment
MSM81_18-2	3/2/2019 6:32	Seismic Source	alter course	50° 00,122' S	042° 10,892' W	1687.8	rwk 081°; Schiff überfährt WP auf Profil
MSM81_18-2	3/2/2019 13:32	Seismic Source	information	49° 54,724' S	041° 18,546' W	1684.3	Überfahren WP auf dem Profil
MSM81_18-2	3/2/2019 13:56	Seismic Source	profile end	49° 54,417' S	041° 15,554' W	1690	
MSM81_18-1	3/2/2019 13:57	Seismic Towed Receiver	information	49° 54,400' S	041° 15,396' W	1693.5	Ende Profil
MSM81_19-2	3/2/2019 14:36	Seismic Source	information	49° 55,644' S	041° 14,752' W	1675.4	Seismisches Equipment der Station MSM 81-18 noch ausgesteckt
MSM81_19-2	3/2/2019 14:36	Seismic Source	profile start	49° 55,643' S	041° 14,756' W	1675.4	v=5,0kn; rwk=286°
MSM81_19-1	3/2/2019 14:36	Seismic Towed Receiver	information	49° 55,638' S	041° 14,780' W	1675.8	Seismisches Equipment der Station MSM 81-3 noch ausgesteckt
MSM81_19-2	3/2/2019 15:06	Seismic Source	information	49° 54,693' S	041° 18,542' W	1683	Überfahren WP auf dem Profil
MSM81_19-2	3/2/2019 18:16	Seismic Source	information	49° 50,330' S	041° 42,086' W	1693.3	Überfahren WP auf dem Profil
MSM81_19-2	3/2/2019 20:01	Seismic Source	information	49° 47,975' S	041° 55,134' W	1773.5	Profilunterbrechung, GI-Guns zur Reperatur an Deck
MSM81_19-2	3/2/2019 20:14	Seismic Source	Gi-gun on deck	49° 47,735' S	041° 56,465' W	1778.9	
MSM81_19-1	3/2/2019 20:14	Seismic Towed Receiver	information	49° 47,729' S	041° 56,498' W	1777.2	Profile end
MSM81_20-1	3/2/2019 21:53	Seismic Towed Receiver	information	49° 45,792' S	042° 07,268' W	1957.6	
MSM81_20-2	3/2/2019 21:53	Seismic Source	Gi-gun in water	49° 45,782' S	042° 07,327' W	1960	
MSM81_20-2	3/2/2019 22:03	Seismic Source	information	49° 45,478' S	042° 08,581' W	1984.8	Beginn Soft-Start
MSM81_20-2	3/2/2019 22:23	Seismic Source	information	49° 44,188' S	042° 08,072' W	1996.5	Ende Soft-Start
MSM81_20-2	3/2/2019 22:23	Seismic Source	profile start	49° 44,185' S	042° 08,035' W	1994.6	v=5kn; rwk 183°
MSM81_20-2	3/3/2019 5:26	Seismic Source	information	50° 17,778' S	042° 09,019' W	1311.1	Überfahren WP Profil
MSM81_20-2	3/3/2019 5:51	Seismic Source	profile end	50° 19,796' S	042° 09,200' W	1342.4	
MSM81_20-1	3/3/2019 5:51	Seismic Towed Receiver	information	50° 19,808' S	042° 09,201' W	1341.5	Profil Ende
MSM81_21-1	3/3/2019 5:53	Seismic Towed Receiver	information	50° 19,963' S	042° 09,251' W	1341.7	Seismisches Equipment der Station MSM 81-3 noch ausgesteckt

Activity No	Date / Time UTC	Device	Action	Position Lat	Position Lon	Depth [m]	Comment
MSM81_21-2	3/3/2019 5:54	Seismic Source	information	50° 20,018' S	042° 09,282' W	1342.4	Seismisches Equipment der Station MSM 81-20 noch ausgesteckt
MSM81_21-2	3/3/2019 6:30	Seismic Source	profile start	50° 20,058' S	042° 06,976' W	1342.9	v=5,0kn; rwk=330°
MSM81_21-2	3/3/2019 7:00	Seismic Source	information	50° 17,759' S	042° 08,988' W	1311	Überfahren WP auf Profil
MSM81_21-3	3/3/2019 10:34	Expandedable Sound Velocimeter	in the water	50° 02,008' S	042° 23,054' W	1655.4	
MSM81_21-3	3/3/2019 10:37	Expandedable Sound Velocimeter	station end	50° 01,799' S	042° 23,231' W	1662.4	
MSM81_21-1	3/3/2019 14:41	Seismic Towed Receiver	information	49° 44,286' S	042° 38,855' W	1997.1	Ende Profil
MSM81_21-2	3/3/2019 14:41	Seismic Source	profile end	49° 44,223' S	042° 38,906' W	1999.3	
MSM81_22-1	3/3/2019 14:46	Seismic Towed Receiver	information	49° 43,878' S	042° 39,026' W	2003.2	Seismisches Equipment der Station MSM 81-3 noch ausgesteckt
MSM81_22-2	3/3/2019 14:47	Seismic Source	information	49° 43,772' S	042° 39,010' W	2005.5	Seismisches Equipment der Station MSM 81-20 noch ausgesteckt
MSM81_22-2	3/3/2019 15:20	Seismic Source	profile start	49° 44,267' S	042° 35,901' W	2060.8	v=5kn; rwk 210°
MSM81_22-2	3/3/2019 17:35	Seismic Source	information	49° 54,159' S	042° 44,384' W	1789	Überfahren WP auf dem Profil; ä/K auf rwK 200°
MSM81_22-1	3/3/2019 21:38	Seismic Towed Receiver	information	50° 13,084' S	042° 55,330' W	1580.9	Profile end
MSM81_22-2	3/3/2019 21:38	Seismic Source	profile end	50° 13,107' S	042° 55,342' W	1580	
MSM81_23-1	3/3/2019 22:17	Seismic Towed Receiver	information	50° 12,758' S	042° 52,700' W	1560.7	Seismisches Equipment der Station MSM 81-3 noch ausgesteckt
MSM81_23-2	3/3/2019 22:17	Seismic Source	information	50° 12,758' S	042° 52,700' W	1560.7	Seismisches Equipment der Station MSM 81-20 noch ausgesteckt
MSM81_23-2	3/3/2019 22:17	Seismic Source	profile start	50° 12,756' S	042° 52,701' W	1560.7	v=5kn; rwK 327°
MSM81_23-2	3/4/2019 4:57	Seismic Source	profile end	49° 44,780' S	043° 20,732' W	2198.5	
MSM81_23-1	3/4/2019 4:57	Seismic Towed Receiver	information	49° 44,760' S	043° 20,752' W	2195.1	Profil Ende

Activity No	Date / Time UTC	Device	Action	Position Lat	Position Lon	Depth [m]	Comment
MSM81_24-1	3/4/2019 4:58	Seismic Towed Receiver	information	49° 44,707' S	043° 20,806' W	2195.1	Seismisches Equipment der Station MSM 81-3 noch ausgesteckt
MSM81_24-2	3/4/2019 4:59	Seismic Source	information	49° 44,658' S	043° 20,853' W	2196	Seismisches Equipment der Station MSM 81-20 noch ausgesteckt
MSM81_24-2	3/4/2019 5:35	Seismic Source	profile start	49° 44,469' S	043° 18,623' W	2144.8	v=5kn; rwk 178°
MSM81_24-2	3/4/2019 11:03	Seismic Source	information	50° 11,595' S	043° 23,603' W	1731.1	Überfahren WP 20_1 auf dem Profil
MSM81_24-1	3/4/2019 13:41	Seismic Towed Receiver	information	50° 24,610' S	043° 26,591' W	1439.6	Ende Profil
MSM81_24-2	3/4/2019 13:41	Seismic Source	profile end	50° 24,656' S	043° 26,603' W	1439.8	
MSM81_25-1	3/4/2019 13:46	Seismic Towed Receiver	information	50° 25,060' S	043° 26,572' W	1431.7	Seismisches Equipment der Station MSM 81-3 noch ausgesteckt
MSM81_25-2	3/4/2019 13:47	Seismic Source	information	50° 25,104' S	043° 26,547' W	1428.9	Seismisches Equipment der Station MSM 81-20 noch ausgesteckt
MSM81_25-2	3/4/2019 14:17	Seismic Source	profile start	50° 24,216' S	043° 24,673' W	1445.9	v=5kn; rwk 330°
MSM81_25-1	3/4/2019 23:47	Seismic Towed Receiver	information	49° 42,106' S	043° 58,170' W	3018.8	Ende Profil
MSM81_25-2	3/4/2019 23:47	Seismic Source	profile end	49° 42,052' S	043° 58,217' W	3014.9	
MSM81_26-1	3/4/2019 23:51	Seismic Towed Receiver	information	49° 41,812' S	043° 58,354' W	3007	Seismisches Equipment der Station MSM 81-3 noch ausgesteckt
MSM81_26-2	3/4/2019 23:52	Seismic Source	information	49° 41,723' S	043° 58,371' W	3001.7	Seismisches Equipment der Station MSM 81-20 noch ausgesteckt
MSM81_26-2	3/5/2019 0:21	Seismic Source	profile start	49° 41,814' S	043° 56,179' W	3011.9	v=5kn; rwk 190°
MSM81_26-2	3/5/2019 12:10	Seismic Source	profile end	50° 39,880' S	044° 12,360' W	1489.6	
MSM81_26-1	3/5/2019 12:10	Seismic Towed Receiver	information	50° 39,901' S	044° 12,367' W	1492.9	Ende Profil
MSM81_27-1	3/5/2019 13:02	Seismic Towed Receiver	information	50° 43,201' S	044° 08,679' W	1553	Seismisches Equipment der Station MSM 81-3 noch ausgesteckt
MSM81_27-2	3/5/2019 13:03	Seismic Source	information	50° 43,243' S	044° 08,748' W	1552.7	Seismisches Equipment der Station MSM 81-20 noch ausgesteckt

Activity No	Date / Time UTC	Device	Action	Position Lat	Position Lon	Depth [m]	Comment
MSM81_27-2	3/5/2019 13:30	Seismic Source	information	50° 42,414' S	044° 10,619' W	1542	Beginn Soft Start
MSM81_27-2	3/5/2019 13:51	Seismic Source	information	50° 41,016' S	044° 10,662' W	1503.4	Ende Soft Start
MSM81_27-2	3/5/2019 14:02	Seismic Source	profile start	50° 40,204' S	044° 10,845' W	1497.7	v=5kn; rwk 347°
MSM81_27-1	3/6/2019 2:29	Seismic Towed Receiver	information	49° 41,859' S	044° 31,482' W	3163.4	Ende Profil
MSM81_27-2	3/6/2019 2:29	Seismic Source	profile end	49° 41,839' S	044° 31,493' W	3161.9	
MSM81_28-1	3/6/2019 2:30	Seismic Towed Receiver	information	49° 41,724' S	044° 31,543' W	3166.2	Seismisches Equipment der Station MSM 81-3 noch ausgesteckt
MSM81_28-2	3/6/2019 2:31	Seismic Source	information	49° 41,675' S	044° 31,557' W	3169.1	Seismisches Equipment der Station MSM 81-20 noch ausgesteckt
MSM81_28-2	3/6/2019 3:07	Seismic Source	profile start	49° 41,813' S	044° 29,194' W	3141.2	v=5kn; rwk 200°
MSM81_28-2	3/6/2019 15:58	Seismic Source	profile end	50° 41,853' S	045° 04,175' W	1571.6	
MSM81_28-1	3/6/2019 15:58	Seismic Towed Receiver	information	50° 41,864' S	045° 04,182' W	1573	Prifile end
MSM81_29-1	3/6/2019 16:04	Seismic Towed Receiver	information	50° 42,238' S	045° 04,408' W	1573.8	Seismisches Equipment der Station MSM 81-3 noch ausgesteckt
MSM81_29-2	3/6/2019 16:16	Seismic Source	Gi-gun on deck	50° 42,875' S	045° 04,789' W	1583.7	Guns zur Wartung an Deck
MSM81_29-2	3/6/2019 17:27	Seismic Source	Gi-gun in water	50° 43,492' S	045° 03,144' W	1590.1	
MSM81_29-2	3/6/2019 17:29	Seismic Source	information	50° 43,371' S	045° 03,218' W	1593	Beginn Soft-Start
MSM81_29-2	3/6/2019 17:49	Seismic Source	information	50° 41,817' S	045° 04,151' W	1577.2	End Soft-Start
MSM81_29-2	3/6/2019 17:50	Seismic Source	profile start	50° 41,760' S	045° 04,184' W	1570.8	v=5kn: rwk 336°
MSM81_29-2	3/7/2019 6:50	Seismic Source	profile end	49° 44,113' S	045° 43,327' W	3482.9	
MSM81_29-1	3/7/2019 6:50	Seismic Towed Receiver	information	49° 44,096' S	045° 43,339' W	3483.5	Profil Ende
MSM81_30-1	3/7/2019 6:50	Seismic Towed Receiver	information	49° 44,047' S	045° 43,372' W	3488.5	Seismisches Equipment der Station MSM 81-3 noch ausgesteckt
MSM81_30-2	3/7/2019 6:51	Seismic Source	information	49° 43,994' S	045° 43,407' W	3491.1	Seismisches Equipment der Station MSM 81-29 noch ausgesteckt

Activity No	Date / Time UTC	Device	Action	Position Lat	Position Lon	Depth [m]	Comment
MSM81_30-2	3/7/2019 7:28	Seismic Source	profile start	49° 42,418' S	045° 40,820' W	3679.3	v=5,0kn; rwk=206°
MSM81_30-1	3/8/2019 2:22	Seismic Towed Receiver	information	51° 06,645' S	046° 43,672' W	2573.3	Ende Profil
MSM81_30-2	3/8/2019 2:22	Seismic Source	profile end	51° 06,678' S	046° 43,700' W	2573.8	
MSM81_31-1	3/8/2019 2:26	Seismic Towed Receiver	information	51° 07,010' S	046° 43,846' W	2587.6	Seismisches Equipment der Station MSM 81-3 noch ausgesteckt
MSM81_31-2	3/8/2019 2:27	Seismic Source	information	51° 07,049' S	046° 43,853' W	2587.6	Seismisches Equipment der Station MSM 81-29 noch ausgesteckt
MSM81_31-2	3/8/2019 3:01	Seismic Source	profile start	51° 07,010' S	046° 41,252' W	2575.4	v=5,0kn; rwk=346°
MSM81_31-2	3/8/2019 6:02	Seismic Source	alter course	50° 52,256' S	046° 47,020' W	2396	Neuer Kurs rwk=348°, Überfahren WP DSDP_327
MSM81_31-2	3/8/2019 9:59	Seismic Source	profile end	50° 32,949' S	046° 53,343' W	2512.8	
MSM81_31-1	3/8/2019 9:59	Seismic Towed Receiver	information	50° 32,938' S	046° 53,346' W	2514.7	Profil end
MSM81_32-1	3/8/2019 9:59	Seismic Towed Receiver	information	50° 32,925' S	046° 53,350' W	2514	Seismisches Equipment der Station MSM 81-3 noch ausgesteckt
MSM81_32-2	3/8/2019 9:59	Seismic Source	information	50° 32,925' S	046° 53,350' W	2514	Seismisches Equipment der Station MSM 81-29 noch ausgesteckt
MSM81_32-2	3/8/2019 9:59	Seismic Source	profile start	50° 32,924' S	046° 53,351' W	2514	v=5kn; rwk 014°
MSM81_32-2	3/8/2019 19:43	Seismic Source	profile end	49° 46,271' S	046° 35,455' W	2846.7	
MSM81_32-1	3/8/2019 19:43	Seismic Towed Receiver	information	49° 46,243' S	046° 35,447' W	2845	Profile end
MSM81_33-1	3/8/2019 20:22	Seismic Towed Receiver	information	49° 46,943' S	046° 38,586' W	2836.1	Seismisches Equipment der Station MSM 81-3 noch ausgesteckt
MSM81_33-2	3/8/2019 20:22	Seismic Source	information	49° 46,945' S	046° 38,587' W	2836.1	Seismisches Equipment der Station MSM 81-29 noch ausgesteckt
MSM81_33-2	3/8/2019 20:22	Seismic Source	profile start	49° 46,946' S	046° 38,588' W	2836.1	v=5kn; rwk 093°
MSM81_33-2	3/9/2019 18:34	Seismic Source	profile end	49° 53,968' S	043° 42,362' W	2696.2	

Activity No	Date / Time UTC	Device	Action	Position Lat	Position Lon	Depth [m]	Comment
MSM81_33-1	3/9/2019 18:34	Seismic Towed Receiver	information	49° 53,971' S	043° 42,311' W	2696.2	Profile end
MSM81_34-1	3/9/2019 19:12	Seismic Towed Receiver	information	49° 52,601' S	043° 41,744' W	2698.3	Seismisches Equipment der Station MSM 81-3 noch ausgesteckt
MSM81_34-2	3/9/2019 19:12	Seismic Source	information	49° 52,602' S	043° 41,745' W	2698.3	Seismisches Equipment der Station MSM 81-29 noch ausgesteckt
MSM81_34-2	3/9/2019 19:12	Seismic Source	profile start	49° 52,604' S	043° 41,749' W	2698.3	v=5kn rwk 262°
MSM81_34-2	3/10/2019 19:00	Seismic Source	profile end	50° 10,137' S	046° 36,375' W	2642.1	
MSM81_34-1	3/10/2019 19:00	Seismic Towed Receiver	information	50° 10,138' S	046° 36,384' W	2642.1	Profile end
MSM81_34-1	3/10/2019 19:05	Seismic Towed Receiver	information	50° 10,215' S	046° 36,750' W	2642.1	Beginn Einholen Streamer
MSM81_34-2	3/10/2019 19:15	Seismic Source	Gi-gun on deck	50° 10,399' S	046° 37,453' W	2631	
MSM81_34-1	3/10/2019 21:57	Seismic Towed Receiver	MCS on deck	50° 13,122' S	046° 51,095' W	2753	
MSM81_35-1	3/10/2019 22:06	Sound Velocity Profiler	in the water	50° 13,146' S	046° 51,216' W	2750.1	
MSM81_35-1	3/10/2019 22:51	Sound Velocity Profiler	max depth/on ground	50° 13,147' S	046° 51,215' W	2751.3	
MSM81_35-1	3/10/2019 23:35	Sound Velocity Profiler	on deck	50° 13,146' S	046° 51,215' W	2750.1	