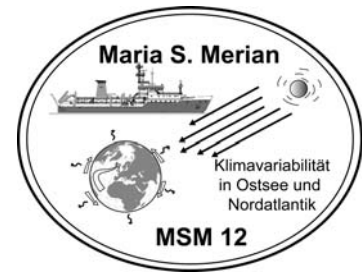


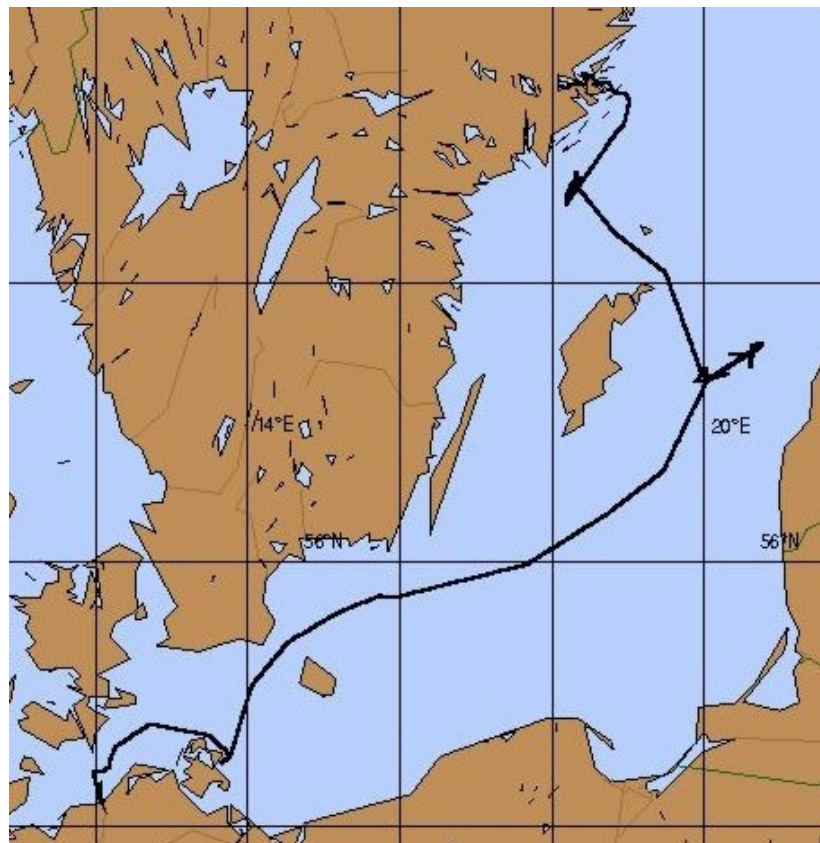
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## Short Cruise Report RV MARIA S. MERIAN Cruise 12-4b

Stockholm-Rostock  
10. – 24. September - 2009

Chief Scientist : Klaus Jürgens  
Captain: Klaus Bergmann



Track of Maria S. Merian  
in the Central Baltic  
working area

## **Scientific objectives of the cruise**

The main goals of this research cruise was to investigate hitherto not well understood aspects and regulating factors of biogeochemical processes and microbial communities in the water column redoxcline of the basins of the central Baltic Sea.

In order to examine the impact of small-scale mixing processes on the biogeochemical processes and microbial activities in the redoxcline, a combination of microstructure profiling and assessment of fine-scale biogeochemical gradients (by pump-CTD) and microbial activities and structures around the oxic-anoxic interface was applied. The contribution of denitrification and Anammox to pelagic nitrogen loss processes were measured by  $^{15}\text{N}$  substrate incubations and the stable isotope pairing technique. We assumed that the interacting processes around the redoxcline are heavily influenced by the distance to the sediment and the sediment quality itself. Therefore, the field work involved investigation of turbulence, redoxcline processes and community structures along transects across the central basins, covering the deep anoxic parts as well as the slopes.

Furthermore, we proceeded with our investigations of chemoautotrophic production within the redox gradients. This included measurements of depth profiles of carbon dioxide fixation, and sampling of the microbial communities for later analysis by DNA- and RNA-based techniques in order to identify and quantify the responsible key organisms. Extensive sampling of the different water layers was also conducted for metagenomic, transcriptomic and proteomic analysis of the microbial communities in order to reveal fundamental properties in their functioning and role in biogeochemical cycles. To improve our understanding of the importance of biotic interactions for the redoxcline communities, experiments with manipulation of viral and protist communities were performed.

Experiments and in situ sampling were also used to investigate the manganese cycle across the oxic-anoxic interface. A combination of chemical analyses, isotope tracer techniques and microbiological measurements should reveal the contribution of biotic and abiotic factors in the oxidation-reduction processes. Geochemical and isotopic studies were also conducted in the upper sediment layers in order to reveal patterns in anaerobic decomposition of organic material and implications for the resulting fluxes of inorganic nutrients and trace metals across the sediment-water interface.

## **Narrative of the cruise**

The research vessel Maria S. Merian left Stockholm in the morning on the 10<sup>th</sup> of September and reached the first station, the Landsort Deep, the deepest spot of the Baltic Sea, already in the afternoon. In the Landsort Deep and the surrounding area we stayed for intensive samplings, experiments and process studies until 16<sup>th</sup> of September. From 17 to 22 September we stayed in the Gotland Basin (Gotland Deep and surrounding area), performing basically the same kind of studies as in the Landsort Deep. This enables a comparison of the principal features of these two basins which is particularly interesting as the Landsort Deep is relatively stable and undisturbed stratified whereas the Gotland Deep is characterized by frequent perturbations due to intrusion of water masses with different physic-chemical characteristics.

Every day several casts for microbiological, chemical and biogeochemical analyses were obtained by normal CTD-Profiles as well as by pump CTD. A comparison of both sampling techniques is planned. Calm weather conditions nearly throughout the cruise were favourable

for the high-resolution sampling of the pelagic redoxcline. The ship stayed extremely stable and allowed microscopy of freshly obtained samples even at wind speeds of about 6 beaufort. In both basins transects from the deepest part along the slopes and to the edges of the basins were sampled and studied by microstructure profiling in order to obtain a spectrum of hydrodynamic situations and to reveal the interaction of turbulent mixing with biogeochemical processes and microbial communities.

Multicorer sampling served sedimentological and biogeochemical investigations. Sediment cores were sectioned on board and sampled for pore water and isotope analyses. Results should provide a better understanding of the sedimentation dynamics and exchange processes (benthic-pelagic coupling).

As expected, the area of the Landsort Deep was characterized by a stable stratification and low disturbance frequency by intrusions or other causes of turbulent mixing. This was an excellent prerequisite to study fundamental processes in redox gradients.

The situation changed when we reached the Gotland Deep in 17<sup>th</sup> September. Here we found a dynamic hydrographic situation with lateral intrusions of oxygen and nitrate-containing waters into the suboxic and anoxic zone, at depths between 100 and 120 m. This was certainly a very interesting scenario for our planned studies on the effects of turbulent mixing on biogeochemical and microbiological parameters.

Similar high-resolution samplings and experimental investigations as in the Landsort Deep were also conducted in the Gotlandbasin, including Mn cycling, particle spectra and sedimentation rates, assessment of chemolithoautotrophic and heterotrophic activities and biogeochemical investigations of upper sediment layers.

First experience was obtained in use of the SCANFISH coupled with a pump CTD for profiling of deeper water layers, particularly for scanning the extension of the suboxic and anoxic layers.

The last station of this leg was performed on Sept., 22 in the Southern Gotland Basin with a CTD cast of the whole water column and several multicorer for sediment sampling. Overall, the whole planned programme could be achieved during this cruise, thanks to good weather and working conditions and generous support of the crew. Maria S. Merian reached Rostock harbour early in the morning on the 24<sup>th</sup> of September where we were expected with a fleet of several ships for the occasion of the day of marine research. This was further celebrated the next two days with public open ship activities and many visitors from politics and science.

## **Acknowledgements**

We would like to thank Captain Klaus Bergmann, the officers and crew of Maria S. Merian for their strong support of our scientific aims and the provision of a cooperative and friendly atmosphere that made us feel at home on the ship.

**Participants Leg MSM 12/4B  
Stockholm-Rostock  
10. -24.September 2009**

1. Jürgens, Klaus	Fahrtleiter / <i>Chief Scientist</i>	IOW
2. Hagenmeier ,Anna	nutrients/oxygen	IOW
3. Schuffenhauer, Ingo	instrumentation/CTD	IOW
4. Krüger, Siegfried	instrumentation/CTD	IOW
5. Thomsen, Sören	instrumentation/CTD	IOW
6. Jost, Günter	microbiology	IOW
7. Bruckner, Christian	microbiology	IOW
8. Feike, Janie	microbiology	IOW
9. Becker, Katja	microbiology	IOW
10. Weber, Felix	microbiology	IOW
11. Anderson, Ruth	microbiology	IOW
12. Güde, Hans	microscopy	IfS
13. Winter, Christian	viruses	UV
14. Hietanen, Susanna	15N experiments	UH
15. Hoffmann, Ralf	microbiology	IOW
16. Köstner, Nicole	microbiology	IOW
17. Kistenich, Sonja	microbiology	IOW
18. Böttcher, Michael	geochemistry	IOW
19. Dellwig, Olaf	geochemistry	IOW
20. Winde, Vera	geochemistry	IOW
21. Schnetger, Bernhard	geochemistry	ICBM
22. Glockzin, Michael	particle dynamics	IOW

IOW - Leibniz-Institut für Ostseeforschung Warnemünde, Seestrasse 15, 18119 Rostock

UV - University of Vienna, Department of Marine Biology, Althanstrasse 14, 1090 Vienna, Austria

IfS- Institut für Seenforschung, Argenweg 50, 88081 Langenargen

ICBM – Institut für Chemie und Biologie des Meeres, Mikrobiogeochemie, Oldenburg University, 26111 Oldenburg

UH - University of Helsinki, Department of Biological and Environmental Sciences, 00014 Helsinki, Finland

## List of operations

Station No.	Date	Time [UTC]	Position Lat	Position Lon	Depth [m]	Gear
MSM12/805-1	10.09.2009	12:00	58° 35,02' N	18° 14,03' E	447,3	CTD/rosette water sampler
MSM12/805-1	10.09.2009	12:28	58° 35,02' N	18° 14,03' E	40,8	CTD/rosette water sampler
MSM12/805-1	10.09.2009	12:40	58° 35,02' N	18° 14,03' E	38	CTD/rosette water sampler
MSM12/805-1	10.09.2009	13:08	58° 35,02' N	18° 14,02' E	452,6	CTD/rosette water sampler
MSM12/805-1	10.09.2009	13:22	58° 35,02' N	18° 14,03' E	452,6	CTD/rosette water sampler
MSM12/805-2	10.09.2009	14:40	58° 35,02' N	18° 14,03' E	452,6	CTD/rosette water sampler
MSM12/805-2	10.09.2009	14:50	58° 35,02' N	18° 14,03' E	452,6	CTD/rosette water sampler
MSM12/805-2	10.09.2009	14:55	58° 35,02' N	18° 14,03' E	452,6	CTD/rosette water sampler
MSM12/805-3	10.09.2009	17:10	58° 35,02' N	18° 14,03' E	452,6	CTD/rosette water sampler
MSM12/805-3	10.09.2009	17:22	58° 35,02' N	18° 14,03' E	452,6	CTD/rosette water sampler
MSM12/805-3	10.09.2009	17:33	58° 35,02' N	18° 14,03' E	452,6	CTD/rosette water sampler
MSM12/805-4	10.09.2009	19:08	58° 35,02' N	18° 14,03' E	452,6	Multi corer
MSM12/805-4	10.09.2009	19:18	58° 35,02' N	18° 14,03' E	452,6	Multi corer
MSM12/805-4	10.09.2009	19:28	58° 35,02' N	18° 14,03' E	452,6	Multi corer
MSM12/805-5	10.09.2009	20:35	58° 34,93' N	18° 13,89' E	453,6	Micro structure probe
MSM12/805-5	10.09.2009	22:59	58° 35,15' N	18° 14,59' E	341,5	Micro structure probe
MSM12/805-6	10.09.2009	23:40	58° 35,19' N	18° 14,67' E	322,6	Micro structure probe
MSM12/805-6	11.09.2009	00:42	58° 35,45' N	18° 14,59' E	371,4	Micro structure probe
MSM12/805-7	11.09.2009	01:07	58° 35,57' N	18° 13,91' E	463,7	Micro structure probe
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MSM12/805-8	11.09.2009	04:40	58° 35,01' N	18° 14,02' E	453,1	CTD/rosette water sampler
MSM12/805-9	11.09.2009	06:16	58° 35,01' N	18° 14,04' E	452,6	IOW Pump-CTD/Rosette
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MSM12/805-9	11.09.2009	06:48	58° 35,01' N	18° 14,04' E	452,6	IOW Pump-CTD/Rosette

MSM12/805-10	11.09.2009	07:13	58° 35,01' N	18° 14,04' E	452,6	IOW Pump-CTD/Rosette
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MSM12/805-11	11.09.2009	09:22	58° 35,01' N	18° 14,04' E	452,6	CTD/rosette water sampler
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MSM12/805-12	11.09.2009	10:13	58° 35,01' N	18° 14,04' E	452,6	IOW Pump-CTD/Rosette
MSM12/805-12	11.09.2009	10:32	58° 35,01' N	18° 14,04' E	452,6	IOW Pump-CTD/Rosette
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MSM12/806-2	11.09.2009	14:14	58° 43,37' N	18° 19,40' E	99,6	IOW Pump-CTD/Rosette
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MSM12/806-3	11.09.2009	14:51	58° 43,36' N	18° 19,39' E	98,7	Multi corer
MSM12/806-3	11.09.2009	14:55	58° 43,37' N	18° 19,39' E	98,4	Multi corer
MSM12/806-4	11.09.2009	15:06	58° 43,36' N	18° 19,41' E	100,6	Micro structure probe
MSM12/806-4	11.09.2009	15:43	58° 43,08' N	18° 19,61' E	104,5	Micro structure probe
MSM12/807-1	11.09.2009	16:37	58° 40,37' N	18° 19,33' E	439,4	CTD/rosette water sampler
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MSM12/807-2	11.09.2009	18:11	58° 40,37' N	18° 19,33' E	439,4	Multi corer
MSM12/807-2	11.09.2009	18:20	58° 40,37' N	18° 19,34' E	439,1	Multi corer
MSM12/807-2	11.09.2009	18:31	58° 40,37' N	18° 19,34' E	439,1	Multi corer
MSM12/807-3	11.09.2009	18:47	58° 40,37' N	18° 19,34' E	439,1	Multi corer
MSM12/807-3	11.09.2009	18:59	58° 40,37' N	18° 19,34' E	439,1	Multi corer

MSM12/807-3	11.09.2009	19:10	58° 40,37' N	18° 19,34' E	439,1	Multi corer
MSM12/807-4	11.09.2009	19:32	58° 40,37' N	18° 19,34' E	439,1	Multi corer
MSM12/807-4	11.09.2009	19:42	58° 40,37' N	18° 19,34' E	439,2	Multi corer
MSM12/807-4	11.09.2009	19:52	58° 40,37' N	18° 19,34' E	439,1	Multi corer
MSM12/808-1	12.09.2009	04:15	58° 35,02' N	18° 14,04' E	453	CTD/rosette water sampler
MSM12/808-1	12.09.2009	04:33	58° 35,02' N	18° 14,04' E	453	CTD/rosette water sampler
MSM12/808-1	12.09.2009	05:06	58° 35,02' N	18° 14,04' E	453	CTD/rosette water sampler
MSM12/808-2	12.09.2009	06:28	58° 35,02' N	18° 14,04' E	453	CTD/rosette water sampler
MSM12/808-2	12.09.2009	06:40	58° 35,02' N	18° 14,04' E	453	CTD/rosette water sampler
MSM12/808-2	12.09.2009	06:50	58° 35,02' N	18° 14,04' E	453	CTD/rosette water sampler
MSM12/808-3	12.09.2009	07:05	58° 35,02' N	18° 14,04' E	453	IOW Pump-CTD/Rosette
MSM12/808-3	12.09.2009	07:25	58° 35,02' N	18° 14,04' E	453	IOW Pump-CTD/Rosette
MSM12/808-3	12.09.2009	07:38	58° 35,02' N	18° 14,04' E	453	IOW Pump-CTD/Rosette
MSM12/809-1	12.09.2009	09:02	58° 40,37' N	18° 19,32' E	439,6	CTD/rosette water sampler
MSM12/809-1	12.09.2009	09:14	58° 40,37' N	18° 19,32' E	439,4	CTD/rosette water sampler
MSM12/809-1	12.09.2009	09:36	58° 40,37' N	18° 19,32' E	439,6	CTD/rosette water sampler
MSM12/809-2	12.09.2009	09:58	58° 40,37' N	18° 19,33' E	439,6	IOW Pump-CTD/Rosette
MSM12/809-2	12.09.2009	10:35	58° 40,36' N	18° 19,32' E	439,9	IOW Pump-CTD/Rosette
MSM12/809-2	12.09.2009	10:37	58° 40,36' N	18° 19,32' E	439,6	IOW Pump-CTD/Rosette
MSM12/809-3	12.09.2009	10:43	58° 40,36' N	18° 19,32' E	439,6	Micro structure probe
MSM12/809-3	12.09.2009	11:26	58° 40,22' N	18° 18,80' E	447,3	Micro structure probe
MSM12/809-4	12.09.2009	11:46	58° 40,37' N	18° 19,33' E	439,4	IOW Pump-CTD/Rosette
MSM12/809-4	12.09.2009	11:57	58° 40,36' N	18° 19,33' E	439,1	IOW Pump-CTD/Rosette
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MSM12/810-1	12.09.2009	12:30	58° 41,45' N	18° 19,36' E	336,9	CTD/rosette water sampler
MSM12/810-1	12.09.2009	12:53	58° 41,46' N	18° 19,37' E	333,8	CTD/rosette water sampler
MSM12/810-1	12.09.2009	13:00	58° 41,46' N	18° 19,37' E	334,6	CTD/rosette water sampler
MSM12/810-1	12.09.2009	13:22	58° 41,46' N	18° 19,37' E	334,1	CTD/rosette water sampler
MSM12/810-1	12.09.2009	13:30	58° 41,46' N	18° 19,37' E	333,6	CTD/rosette water sampler
MSM12/810-2	12.09.2009	13:55	58° 41,46' N	18° 19,37' E	333,6	IOW Pump-CTD/Rosette

MSM12/810-2	12.09.2009	14:28	58° 41,46' N	18° 19,37' E	334,1	IOW Pump-CTD/Rosette
MSM12/810-2	12.09.2009	14:31	58° 41,46' N	18° 19,37' E	333,8	IOW Pump-CTD/Rosette
MSM12/810-3	12.09.2009	14:38	58° 41,46' N	18° 19,37' E	334,6	Micro structure probe
MSM12/810-3	12.09.2009	15:19	58° 41,15' N	18° 19,38' E	405,8	Micro structure probe
MSM12/811-1	12.09.2009	15:49	58° 42,10' N	18° 19,45' E	267,8	CTD/rosette water sampler
MSM12/811-1	12.09.2009	16:03	58° 42,09' N	18° 19,47' E	274,5	CTD/rosette water sampler
MSM12/811-1	12.09.2009	16:16	58° 42,09' N	18° 19,47' E	274,7	CTD/rosette water sampler
MSM12/811-1	12.09.2009	16:23	58° 42,09' N	18° 19,47' E	274,5	CTD/rosette water sampler
MSM12/811-2	12.09.2009	16:31	58° 42,09' N	18° 19,47' E	274,7	IOW Pump-CTD/Rosette
MSM12/811-2	12.09.2009	16:57	58° 42,09' N	18° 19,47' E	274,5	IOW Pump-CTD/Rosette
MSM12/811-2	12.09.2009	17:08	58° 42,09' N	18° 19,47' E	274,5	IOW Pump-CTD/Rosette
MSM12/811-3	12.09.2009	17:13	58° 42,09' N	18° 19,48' E	275,7	Micro structure probe
MSM12/811-3	12.09.2009	17:56	58° 41,92' N	18° 19,14' E	273,5	Micro structure probe
MSM12/812-1	12.09.2009	18:32	58° 42,65' N	18° 19,61' E	133,2	CTD/rosette water sampler
MSM12/812-1	12.09.2009	18:45	58° 42,65' N	18° 19,61' E	133,2	CTD/rosette water sampler
MSM12/812-1	12.09.2009	19:04	58° 42,65' N	18° 19,61' E	133,5	CTD/rosette water sampler
MSM12/812-2	12.09.2009	19:09	58° 42,65' N	18° 19,61' E	133,5	IOW Pump-CTD/Rosette
MSM12/812-2	12.09.2009	19:33	58° 42,65' N	18° 19,61' E	133,2	IOW Pump-CTD/Rosette
MSM12/812-2	12.09.2009	19:40	58° 42,65' N	18° 19,61' E	133,5	IOW Pump-CTD/Rosette
MSM12/812-3	12.09.2009	19:44	58° 42,65' N	18° 19,61' E	135,2	Micro structure probe
MSM12/812-3	12.09.2009	20:28	58° 42,57' N	18° 19,24' E	116,2	Micro structure probe
MSM12/813-1	12.09.2009	20:56	58° 43,34' N	18° 19,82' E	113	CTD/rosette water sampler
MSM12/813-1	12.09.2009	21:10	58° 43,34' N	18° 19,82' E	113	CTD/rosette water sampler
MSM12/813-1	12.09.2009	21:24	58° 43,34' N	18° 19,82' E	113	CTD/rosette water sampler
MSM12/813-2	12.09.2009	21:27	58° 43,34' N	18° 19,82' E	113	IOW Pump-CTD/Rosette
MSM12/813-2	12.09.2009	21:47	58° 43,34' N	18° 19,82' E	113	IOW Pump-CTD/Rosette
MSM12/813-2	12.09.2009	21:54	58° 43,34' N	18° 19,82' E	112,8	IOW Pump-CTD/Rosette
MSM12/813-3	12.09.2009	21:59	58° 43,34' N	18° 19,81' E	114,5	Micro structure probe
MSM12/813-3	12.09.2009	22:34	58° 43,31' N	18° 19,46' E	104,3	Micro structure probe
MSM12/814-1	12.09.2009	22:57	58° 44,10' N	18° 19,96' E	112,1	CTD/rosette water sampler



MSM12/814-1	12.09.2009	23:09	58° 44,10' N	18° 19,96' E	111,6	CTD/rosette water sampler
MSM12/814-1	12.09.2009	23:27	58° 44,10' N	18° 19,96' E	111,3	CTD/rosette water sampler
MSM12/814-2	12.09.2009	23:31	58° 44,10' N	18° 19,97' E	110,1	IOW Pump-CTD/Rosette
MSM12/814-2	12.09.2009	23:49	58° 44,10' N	18° 19,97' E	110,1	IOW Pump-CTD/Rosette
MSM12/814-2	12.09.2009	23:56	58° 44,10' N	18° 19,97' E	110,1	IOW Pump-CTD/Rosette
MSM12/814-3	12.09.2009	23:59	58° 44,10' N	18° 19,97' E	110,6	Micro structure probe
MSM12/814-3	13.09.2009	00:32	58° 44,18' N	18° 19,52' E	88,4	Micro structure probe
MSM12/815-1	13.09.2009	04:40	58° 35,02' N	18° 14,02' E	453	CTD/rosette water sampler
MSM12/815-1	13.09.2009	04:52	58° 35,02' N	18° 14,02' E	453	CTD/rosette water sampler
MSM12/815-1	13.09.2009	05:13	58° 35,02' N	18° 14,02' E	452,7	CTD/rosette water sampler
MSM12/815-2	13.09.2009	06:40	58° 35,02' N	18° 14,03' E	452,7	CTD/rosette water sampler
MSM12/815-2	13.09.2009	06:52	58° 35,02' N	18° 14,03' E	452,7	CTD/rosette water sampler
MSM12/815-2	13.09.2009	07:13	58° 35,02' N	18° 14,03' E	452,7	CTD/rosette water sampler
MSM12/815-3	13.09.2009	08:21	58° 35,02' N	18° 14,03' E	452,5	CTD/rosette water sampler
MSM12/815-3	13.09.2009	08:33	58° 35,02' N	18° 14,02' E	452,5	CTD/rosette water sampler
MSM12/815-3	13.09.2009	08:44	58° 35,02' N	18° 14,03' E	452,5	CTD/rosette water sampler
MSM12/815-4	13.09.2009	09:26	58° 35,02' N	18° 14,03' E	452,7	CTD/rosette water sampler
MSM12/815-4	13.09.2009	09:36	58° 35,02' N	18° 14,03' E	452,7	CTD/rosette water sampler
MSM12/815-4	13.09.2009	09:48	58° 35,02' N	18° 14,03' E	452,7	CTD/rosette water sampler
MSM12/815-5	13.09.2009	13:48	58° 35,02' N	18° 14,02' E	453	IOW Pump-CTD/Rosette
MSM12/815-5	13.09.2009	14:12	58° 35,02' N	18° 14,02' E	453	IOW Pump-CTD/Rosette
MSM12/815-5	13.09.2009	14:17	58° 35,02' N	18° 14,02' E	453	IOW Pump-CTD/Rosette
MSM12/815-6	13.09.2009	18:11	58° 35,02' N	18° 14,03' E	452,7	IOW Pump-CTD/Rosette
MSM12/815-6	13.09.2009	18:32	58° 35,02' N	18° 14,03' E	452,7	IOW Pump-CTD/Rosette
MSM12/815-6	13.09.2009	18:42	58° 35,02' N	18° 14,02' E	453	IOW Pump-CTD/Rosette
MSM12/815-7	13.09.2009	21:00	58° 35,01' N	18° 13,91' E	454	Micro structure probe
MSM12/815-7	13.09.2009	21:48	58° 35,22' N	18° 14,72' E	317,1	Micro structure probe
MSM12/815-8	13.09.2009	22:25	58° 35,23' N	18° 14,68' E	322,6	IOW Pump-CTD/Rosette
MSM12/815-8	13.09.2009	22:53	58° 35,23' N	18° 14,68' E	322,1	IOW Pump-CTD/Rosette
MSM12/815-8	13.09.2009	22:57	58° 35,23' N	18° 14,68' E	322,1	IOW Pump-CTD/Rosette

MSM12/815-9	13.09.2009	23:17	58° 35,03' N	18° 14,05' E	452,5	Micro structure probe
MSM12/815-9	14.09.2009	00:01	58° 35,21' N	18° 14,43' E	387	Micro structure probe
MSM12/815-10	14.09.2009	00:16	58° 35,01' N	18° 14,03' E	452,5	Micro structure probe
MSM12/815-10	14.09.2009	01:04	58° 35,19' N	18° 14,74' E	310,4	Micro structure probe
MSM12/815-11	14.09.2009	01:07	58° 35,19' N	18° 14,75' E	308,7	CTD/rosette water sampler
MSM12/815-11	14.09.2009	01:32	58° 35,20' N	18° 14,74' E	310,8	CTD/rosette water sampler
MSM12/815-11	14.09.2009	01:38	58° 35,20' N	18° 14,74' E	310,6	CTD/rosette water sampler
MSM12/815-12	14.09.2009	01:53	58° 35,02' N	18° 14,07' E	452,2	Micro structure probe
MSM12/815-12	14.09.2009	02:37	58° 35,20' N	18° 14,61' E	334,6	Micro structure probe
MSM12/815-13	14.09.2009	02:48	58° 35,01' N	18° 14,04' E	452,2	Micro structure probe
MSM12/815-13	14.09.2009	03:32	58° 35,25' N	18° 14,76' E	316,8	Micro structure probe
MSM12/815-14	14.09.2009	03:36	58° 35,26' N	18° 14,78' E	320,7	IOW Pump-CTD/Rosette
MSM12/815-14	14.09.2009	04:01	58° 35,26' N	18° 14,77' E	319,9	IOW Pump-CTD/Rosette
MSM12/815-14	14.09.2009	04:04	58° 35,26' N	18° 14,78' E	319,7	IOW Pump-CTD/Rosette
MSM12/815-15	14.09.2009	04:26	58° 35,02' N	18° 14,03' E	452,7	CTD/rosette water sampler
MSM12/815-15	14.09.2009	04:41	58° 35,02' N	18° 14,03' E	452,7	CTD/rosette water sampler
MSM12/815-15	14.09.2009	04:43	58° 35,02' N	18° 14,03' E	452,7	CTD/rosette water sampler
MSM12/815-16	14.09.2009	06:34	58° 35,02' N	18° 14,02' E	453,2	CTD/rosette water sampler
MSM12/815-16	14.09.2009	06:46	58° 35,02' N	18° 14,03' E	452,7	CTD/rosette water sampler
MSM12/815-16	14.09.2009	07:03	58° 35,02' N	18° 14,03' E	452,7	CTD/rosette water sampler
MSM12/815-17	14.09.2009	08:39	58° 35,02' N	18° 14,03' E	452,7	IOW Pump-CTD/Rosette
MSM12/815-17	14.09.2009	09:16	58° 35,02' N	18° 14,03' E	452,7	IOW Pump-CTD/Rosette
MSM12/815-17	14.09.2009	10:02	58° 35,02' N	18° 14,03' E	452,7	IOW Pump-CTD/Rosette
MSM12/815-18	14.09.2009	10:28	58° 35,02' N	18° 14,03' E	452,7	CTD/rosette water sampler
MSM12/815-18	14.09.2009	10:37	58° 35,02' N	18° 14,03' E	452,7	CTD/rosette water sampler
MSM12/815-18	14.09.2009	10:48	58° 35,02' N	18° 14,03' E	452,7	CTD/rosette water sampler
MSM12/816-1	14.09.2009	12:04	58° 32,74' N	18° 11,39' E	137,1	Scan-Fish
MSM12/816-1	14.09.2009	12:56	58° 37,71' N	18° 13,07' E	115,2	Scan-Fish
MSM12/816-1	14.09.2009	13:02	58° 38,35' N	18° 13,28' E	123,5	Scan-Fish
MSM12/816-1	14.09.2009	13:13	58° 39,40' N	18° 14,24' E	148,3	Scan-Fish

MSM12/816-1	14.09.2009	13:19	58° 39,95' N	18° 14,77' E	100,9	Scan-Fish
MSM12/816-1	14.09.2009	13:24	58° 40,42' N	18° 15,23' E	106,9	Scan-Fish
MSM12/816-1	14.09.2009	13:35	58° 41,30' N	18° 16,60' E	101,6	Scan-Fish
MSM12/816-1	14.09.2009	13:45	58° 42,10' N	18° 17,84' E	91,1	Scan-Fish
MSM12/816-1	14.09.2009	14:15	58° 43,11' N	18° 20,30' E	105,5	Scan-Fish
MSM12/816-1	14.09.2009	15:29	58° 40,09' N	18° 16,19' E	303,2	Scan-Fish
MSM12/816-1	14.09.2009	15:32	58° 40,34' N	18° 16,59' E	294,6	Scan-Fish
MSM12/816-1	14.09.2009	16:30	58° 42,60' N	18° 21,32' E	372,9	Scan-Fish
MSM12/816-1	14.09.2009	18:05	58° 35,70' N	18° 12,45' E	95	Scan-Fish
MSM12/816-1	14.09.2009	18:29	58° 38,41' N	18° 13,34' E	128,1	Scan-Fish
MSM12/816-1	14.09.2009	18:47	58° 40,38' N	18° 15,20' E	116,4	Scan-Fish
MSM12/816-1	14.09.2009	19:10	58° 42,51' N	18° 18,64' E	103,3	Scan-Fish
MSM12/816-1	14.09.2009	19:46	58° 40,82' N	18° 18,25' E	328,1	Scan-Fish
MSM12/817-1	15.09.2009	06:28	58° 40,37' N	18° 19,32' E	439,9	CTD/rosette water sampler
MSM12/817-1	15.09.2009	06:55	58° 40,37' N	18° 19,32' E	439,1	CTD/rosette water sampler
MSM12/817-1	15.09.2009	07:16	58° 40,37' N	18° 19,32' E	440,1	CTD/rosette water sampler
MSM12/817-2	15.09.2009	08:48	58° 40,37' N	18° 19,32' E	440,4	CTD/rosette water sampler
MSM12/817-2	15.09.2009	09:00	58° 40,37' N	18° 19,32' E	440,1	CTD/rosette water sampler
MSM12/817-2	15.09.2009	09:14	58° 40,37' N	18° 19,32' E	440,1	CTD/rosette water sampler
MSM12/817-3	15.09.2009	11:31	58° 40,37' N	18° 19,32' E	440,1	IOW Pump-CTD/Rosette
MSM12/817-3	15.09.2009	15:25	58° 40,37' N	18° 19,32' E	440,1	IOW Pump-CTD/Rosette
MSM12/817-3	15.09.2009	15:30	58° 40,37' N	18° 19,32' E	440,1	IOW Pump-CTD/Rosette
MSM12/818-1	15.09.2009	19:00	58° 43,36' N	18° 19,83' E	106,7	IOW Pump-CTD/Rosette
MSM12/818-1	15.09.2009	19:28	58° 43,35' N	18° 19,83' E	108,4	IOW Pump-CTD/Rosette
MSM12/818-1	15.09.2009	20:09	58° 43,35' N	18° 19,83' E	110,4	IOW Pump-CTD/Rosette
MSM12/818-2	15.09.2009	20:15	58° 43,35' N	18° 19,82' E	111,8	Micro structure probe
MSM12/818-2	15.09.2009	21:04	58° 43,14' N	18° 19,57' E	107,2	Micro structure probe
MSM12/819-1	15.09.2009	21:31	58° 44,11' N	18° 19,95' E	110,8	IOW Pump-CTD/Rosette
MSM12/819-1	15.09.2009	21:47	58° 44,11' N	18° 19,95' E	108,2	IOW Pump-CTD/Rosette
MSM12/819-1	15.09.2009	22:00	58° 44,11' N	18° 19,95' E	108,9	IOW Pump-CTD/Rosette

MSM12/819-2	15.09.2009	22:02	58° 44,11' N	18° 19,95' E	110,1	Micro structure probe
MSM12/819-2	15.09.2009	22:43	58° 43,90' N	18° 19,25' E	85	Micro structure probe
MSM12/820-1	15.09.2009	23:11	58° 44,77' N	18° 20,08' E	104	IOW Pump-CTD/Rosette
MSM12/820-1	15.09.2009	23:31	58° 44,77' N	18° 20,08' E	103,3	IOW Pump-CTD/Rosette
MSM12/820-1	15.09.2009	23:34	58° 44,77' N	18° 20,08' E	103	IOW Pump-CTD/Rosette
MSM12/820-2	15.09.2009	23:39	58° 44,77' N	18° 20,06' E	102,6	Micro structure probe
MSM12/820-2	16.09.2009	00:10	58° 44,67' N	18° 19,66' E	85,5	Micro structure probe
MSM12/821-1	16.09.2009	04:16	58° 40,37' N	18° 19,32' E	440,9	CTD/rosette water sampler
MSM12/821-1	16.09.2009	04:29	58° 40,37' N	18° 19,32' E	440,9	CTD/rosette water sampler
MSM12/821-1	16.09.2009	04:45	58° 40,37' N	18° 19,32' E	440,9	CTD/rosette water sampler
MSM12/821-1	16.09.2009	04:57	58° 40,37' N	18° 19,32' E	440,7	CTD/rosette water sampler
MSM12/821-2	16.09.2009	06:52	58° 40,36' N	18° 19,32' E	439,9	CTD/rosette water sampler
MSM12/821-2	16.09.2009	07:04	58° 40,37' N	18° 19,32' E	440,1	CTD/rosette water sampler
MSM12/821-2	16.09.2009	07:08	58° 40,37' N	18° 19,32' E	440,4	CTD/rosette water sampler
MSM12/821-3	16.09.2009	08:02	58° 40,36' N	18° 19,31' E	440,4	IOW Pump-CTD/Rosette
MSM12/821-3	16.09.2009	09:40	58° 40,37' N	18° 19,32' E	440,4	IOW Pump-CTD/Rosette
MSM12/821-3	16.09.2009	10:16	58° 40,37' N	18° 19,32' E	440,7	IOW Pump-CTD/Rosette
MSM12/821-3	16.09.2009	10:41	58° 40,37' N	18° 19,33' E	438,3	IOW Pump-CTD/Rosette
MSM12/821-3	16.09.2009	11:04	58° 40,37' N	18° 19,32' E	440,4	IOW Pump-CTD/Rosette
MSM12/821-3	16.09.2009	11:31	58° 40,37' N	18° 19,33' E	440,4	IOW Pump-CTD/Rosette
MSM12/821-3	16.09.2009	11:41	58° 40,37' N	18° 19,32' E	440,9	IOW Pump-CTD/Rosette
MSM12/821-3	16.09.2009	11:52	58° 40,37' N	18° 19,32' E	440,7	IOW Pump-CTD/Rosette
MSM12/821-3	16.09.2009	12:20	58° 40,37' N	18° 19,32' E	440,4	IOW Pump-CTD/Rosette
MSM12/821-3	16.09.2009	12:41	58° 40,37' N	18° 19,32' E	440,4	IOW Pump-CTD/Rosette
MSM12/821-3	16.09.2009	12:51	58° 40,37' N	18° 19,32' E	440,7	IOW Pump-CTD/Rosette
MSM12/821-3	16.09.2009	13:11	58° 40,37' N	18° 19,32' E	440,9	IOW Pump-CTD/Rosette
MSM12/821-3	16.09.2009	13:48	58° 40,37' N	18° 19,32' E	440,9	IOW Pump-CTD/Rosette
MSM12/821-3	16.09.2009	16:13	58° 40,37' N	18° 19,32' E	441,4	IOW Pump-CTD/Rosette
MSM12/821-4	16.09.2009	17:07	58° 40,37' N	18° 19,32' E	441,7	Trap, sediment
MSM12/821-4	16.09.2009	17:14	58° 40,37' N	18° 19,32' E	441,7	Trap, sediment

MSM12/821-4	16.09.2009	23:17	58° 40,36' N	18° 19,32' E	441,2	Trap, sediment
MSM12/822-1	17.09.2009	06:36	57° 19,20' N	20° 3,00' E	239,7	CTD/rosette water sampler
MSM12/822-1	17.09.2009	06:59	57° 19,20' N	20° 3,00' E	259,8	CTD/rosette water sampler
MSM12/822-1	17.09.2009	07:23	57° 19,20' N	20° 3,00' E	258,6	CTD/rosette water sampler
MSM12/822-2	17.09.2009	08:28	57° 19,20' N	20° 3,00' E	249,3	CTD/rosette water sampler
MSM12/822-2	17.09.2009	08:48	57° 19,20' N	20° 3,00' E	251,5	CTD/rosette water sampler
MSM12/822-2	17.09.2009	08:55	57° 19,20' N	20° 3,00' E	256,6	CTD/rosette water sampler
MSM12/822-3	17.09.2009	10:25	57° 19,20' N	20° 3,00' E	250,4	CTD/rosette water sampler
MSM12/822-3	17.09.2009	10:39	57° 19,20' N	20° 3,00' E	251,9	CTD/rosette water sampler
MSM12/822-3	17.09.2009	10:55	57° 19,20' N	20° 3,00' E	250,6	CTD/rosette water sampler
MSM12/822-4	17.09.2009	10:59	57° 19,20' N	20° 3,00' E	249,2	Multi corer
MSM12/822-4	17.09.2009	11:07	57° 19,20' N	20° 3,00' E	251,5	Multi corer
MSM12/822-4	17.09.2009	11:16	57° 19,20' N	20° 3,00' E	258,9	Multi corer
MSM12/823-1	17.09.2009	12:47	57° 21,99' N	20° 19,99' E	233,6	CTD/rosette water sampler
MSM12/823-1	17.09.2009	13:21	57° 21,99' N	20° 20,00' E	240,2	CTD/rosette water sampler
MSM12/823-1	17.09.2009	13:51	57° 21,99' N	20° 19,99' E	235,4	CTD/rosette water sampler
MSM12/823-2	17.09.2009	14:24	57° 21,99' N	20° 19,99' E	234,9	Multi corer
MSM12/823-2	17.09.2009	14:29	57° 21,99' N	20° 20,00' E	231,2	Multi corer
MSM12/823-2	17.09.2009	14:34	57° 21,99' N	20° 20,00' E	232,7	Multi corer
MSM12/824-1	17.09.2009	16:08	57° 19,19' N	20° 3,00' E	256,3	IOW Pump-CTD/Rosette
MSM12/824-1	17.09.2009	16:35	57° 19,19' N	20° 3,00' E	248	IOW Pump-CTD/Rosette
MSM12/824-1	17.09.2009	17:14	57° 19,19' N	20° 2,99' E	248,7	IOW Pump-CTD/Rosette
MSM12/824-1	17.09.2009	17:40	57° 19,19' N	20° 2,99' E	241,4	IOW Pump-CTD/Rosette
MSM12/824-2	17.09.2009	17:51	57° 19,19' N	20° 2,99' E	255,5	CTD/rosette water sampler
MSM12/824-2	17.09.2009	18:16	57° 19,19' N	20° 2,99' E	248	CTD/rosette water sampler
MSM12/824-2	17.09.2009	18:23	57° 19,19' N	20° 2,99' E	254,3	CTD/rosette water sampler
MSM12/824-3	17.09.2009	18:40	57° 19,19' N	20° 2,98' E	248,1	Micro structure probe
MSM12/824-3	17.09.2009	19:28	57° 18,66' N	20° 2,08' E	250,5	Micro structure probe
MSM12/824-4	17.09.2009	19:58	57° 19,20' N	20° 3,02' E	247,4	Micro structure probe
MSM12/824-4	17.09.2009	20:43	57° 19,42' N	20° 2,90' E	247,6	Micro structure probe

MSM12/824-5	17.09.2009	20:46	57° 19,42' N	20° 2,90' E	247,5	IOW Pump-CTD/Rosette
MSM12/824-5	17.09.2009	21:44	57° 19,42' N	20° 2,90' E	255,8	IOW Pump-CTD/Rosette
MSM12/824-5	17.09.2009	21:56	57° 19,42' N	20° 2,90' E	247,9	IOW Pump-CTD/Rosette
MSM12/824-6	17.09.2009	21:59	57° 19,42' N	20° 2,90' E	255,9	Micro structure probe
MSM12/824-6	17.09.2009	22:41	57° 19,68' N	20° 2,66' E	245,6	Micro structure probe
MSM12/824-7	17.09.2009	23:00	57° 19,20' N	20° 2,99' E	239,1	Micro structure probe
MSM12/824-7	17.09.2009	23:18	57° 19,30' N	20° 2,93' E	247,4	Micro structure probe
MSM12/824-8	17.09.2009	23:25	57° 19,31' N	20° 2,93' E	242,6	IOW Pump-CTD/Rosette
MSM12/824-8	18.09.2009	00:41	57° 19,31' N	20° 2,93' E	241,8	IOW Pump-CTD/Rosette
MSM12/824-8	18.09.2009	00:44	57° 19,31' N	20° 2,93' E	247,9	IOW Pump-CTD/Rosette
MSM12/825-1	18.09.2009	04:04	57° 19,20' N	20° 3,00' E	244,7	CTD/rosette water sampler
MSM12/825-1	18.09.2009	04:21	57° 19,20' N	20° 3,00' E	247,9	CTD/rosette water sampler
MSM12/825-1	18.09.2009	04:37	57° 19,20' N	20° 3,00' E	247,5	CTD/rosette water sampler
MSM12/825-1	18.09.2009	04:42	57° 19,20' N	20° 3,00' E	239,4	CTD/rosette water sampler
MSM12/825-2	18.09.2009	06:29	57° 19,20' N	20° 3,00' E	244,5	CTD/rosette water sampler
MSM12/825-2	18.09.2009	06:43	57° 19,20' N	20° 3,00' E	241,5	CTD/rosette water sampler
MSM12/825-2	18.09.2009	06:51	57° 19,20' N	20° 3,00' E	247,9	CTD/rosette water sampler
MSM12/825-3	18.09.2009	09:18	57° 19,20' N	20° 3,00' E	244,3	IOW Pump-CTD/Rosette
MSM12/825-4	18.09.2009	09:21	57° 19,20' N	20° 3,00' E	248	CTD/rosette water sampler
MSM12/825-4	18.09.2009	09:31	57° 19,20' N	20° 3,00' E	247,5	CTD/rosette water sampler
MSM12/825-3	18.09.2009	09:37	57° 19,20' N	20° 3,00' E	246,8	IOW Pump-CTD/Rosette
MSM12/825-4	18.09.2009	09:38	57° 19,20' N	20° 3,00' E	241,3	CTD/rosette water sampler
MSM12/825-3	18.09.2009	10:01	57° 19,20' N	20° 3,00' E	255,7	IOW Pump-CTD/Rosette
MSM12/825-5	18.09.2009	11:33	57° 19,20' N	20° 3,00' E	249	CTD/rosette water sampler
MSM12/825-5	18.09.2009	11:50	57° 19,20' N	20° 3,00' E	247,7	CTD/rosette water sampler
MSM12/825-5	18.09.2009	12:20	57° 19,20' N	20° 3,00' E	254,6	CTD/rosette water sampler
MSM12/825-6	18.09.2009	14:09	57° 19,20' N	20° 3,00' E	248,4	IOW Pump-CTD/Rosette
MSM12/825-6	18.09.2009	14:26	57° 19,20' N	20° 3,00' E	252,7	IOW Pump-CTD/Rosette
MSM12/825-6	18.09.2009	15:27	57° 19,20' N	20° 3,00' E	259	IOW Pump-CTD/Rosette
MSM12/825-7	18.09.2009	17:10	57° 19,20' N	20° 3,00' E	255,6	IOW Pump-CTD/Rosette

MSM12/825-7	18.09.2009	17:30	57° 19,20' N	20° 3,00' E	242,3	IOW Pump-CTD/Rosette
MSM12/825-7	18.09.2009	18:30	57° 19,20' N	20° 3,00' E	247,9	IOW Pump-CTD/Rosette
MSM12/826-1	18.09.2009	19:18	57° 24,25' N	20° 0,74' E	223,4	Multi corer
MSM12/826-1	18.09.2009	19:23	57° 24,25' N	20° 0,74' E	224,5	Multi corer
MSM12/826-1	18.09.2009	19:30	57° 24,25' N	20° 0,74' E	213	Multi corer
MSM12/827-1	18.09.2009	20:34	57° 19,19' N	20° 3,02' E	255	Micro structure probe
MSM12/827-1	18.09.2009	21:22	57° 19,22' N	20° 2,67' E	239	Micro structure probe
MSM12/827-2	18.09.2009	21:46	57° 19,22' N	20° 2,66' E	251,6	Micro structure probe
MSM12/827-2	18.09.2009	22:41	57° 19,22' N	20° 2,16' E	251,6	Micro structure probe
MSM12/827-3	18.09.2009	22:48	57° 19,22' N	20° 2,14' E	249	IOW Pump-CTD/Rosette
MSM12/827-3	18.09.2009	23:20	57° 19,22' N	20° 2,14' E	247,9	IOW Pump-CTD/Rosette
MSM12/827-3	18.09.2009	23:26	57° 19,22' N	20° 2,14' E	255	IOW Pump-CTD/Rosette
MSM12/828-1	19.09.2009	04:25	57° 19,20' N	20° 3,00' E	249,8	CTD/rosette water sampler
MSM12/828-1	19.09.2009	04:41	57° 19,20' N	20° 3,00' E	254,3	CTD/rosette water sampler
MSM12/828-1	19.09.2009	05:07	57° 19,20' N	20° 3,01' E	256,1	CTD/rosette water sampler
MSM12/828-2	19.09.2009	06:15	57° 19,20' N	20° 3,00' E	255,2	CTD/rosette water sampler
MSM12/828-2	19.09.2009	06:45	57° 19,20' N	20° 3,00' E	254,9	CTD/rosette water sampler
MSM12/828-2	19.09.2009	07:04	57° 19,20' N	20° 3,00' E	248	CTD/rosette water sampler
MSM12/828-3	19.09.2009	08:30	57° 19,20' N	20° 3,00' E	248,1	CTD/rosette water sampler
MSM12/828-3	19.09.2009	08:49	57° 19,20' N	20° 3,00' E	259,5	CTD/rosette water sampler
MSM12/828-3	19.09.2009	09:03	57° 19,20' N	20° 3,00' E	248	CTD/rosette water sampler
MSM12/829-1	19.09.2009	11:37	57° 30,85' N	20° 37,16' E	89,8	CTD/rosette water sampler
MSM12/829-1	19.09.2009	11:50	57° 30,85' N	20° 37,16' E	90,6	CTD/rosette water sampler
MSM12/829-1	19.09.2009	12:06	57° 30,85' N	20° 37,16' E	89,2	CTD/rosette water sampler
MSM12/829-2	19.09.2009	12:09	57° 30,84' N	20° 37,16' E	90,1	Micro structure probe
MSM12/829-2	19.09.2009	12:39	57° 30,60' N	20° 36,12' E	112,8	Micro structure probe
MSM12/830-1	19.09.2009	12:46	57° 30,59' N	20° 35,97' E	120,7	CTD/rosette water sampler
MSM12/830-1	19.09.2009	12:59	57° 30,59' N	20° 35,97' E	121	CTD/rosette water sampler
MSM12/830-1	19.09.2009	13:18	57° 30,59' N	20° 35,97' E	120,6	CTD/rosette water sampler
MSM12/830-2	19.09.2009	13:22	57° 30,59' N	20° 35,97' E	120,6	Micro structure probe

MSM12/830-2	19.09.2009	14:15	57° 30,34' N	20° 34,89' E	127,4	Micro structure probe
MSM12/831-1	19.09.2009	14:25	57° 30,31' N	20° 34,79' E	128,8	CTD/rosette water sampler
MSM12/831-1	19.09.2009	14:39	57° 30,31' N	20° 34,79' E	129,3	CTD/rosette water sampler
MSM12/831-1	19.09.2009	14:53	57° 30,31' N	20° 34,79' E	129,1	CTD/rosette water sampler
MSM12/831-1	19.09.2009	14:59	57° 30,31' N	20° 34,79' E	129,4	CTD/rosette water sampler
MSM12/831-2	19.09.2009	15:01	57° 30,32' N	20° 34,77' E	131,4	Micro structure probe
MSM12/831-2	19.09.2009	15:57	57° 30,02' N	20° 33,56' E	149,2	Micro structure probe
MSM12/831-3	19.09.2009	16:12	57° 30,04' N	20° 33,58' E	152,8	CTD/rosette water sampler
MSM12/831-3	19.09.2009	16:28	57° 30,04' N	20° 33,58' E	153,1	CTD/rosette water sampler
MSM12/831-3	19.09.2009	16:41	57° 30,04' N	20° 33,58' E	153,1	CTD/rosette water sampler
MSM12/831-3	19.09.2009	16:45	57° 30,04' N	20° 33,58' E	153,1	CTD/rosette water sampler
MSM12/831-4	19.09.2009	16:51	57° 30,04' N	20° 33,57' E	153,8	Micro structure probe
MSM12/831-4	19.09.2009	18:07	57° 29,81' N	20° 32,56' E	171,8	Micro structure probe
MSM12/831-5	19.09.2009	18:15	57° 29,74' N	20° 32,34' E	174,2	CTD/rosette water sampler
MSM12/831-5	19.09.2009	18:31	57° 29,75' N	20° 32,35' E	175,6	CTD/rosette water sampler
MSM12/831-5	19.09.2009	18:44	57° 29,75' N	20° 32,34' E	178,6	CTD/rosette water sampler
MSM12/831-5	19.09.2009	18:49	57° 29,75' N	20° 32,35' E	174,4	CTD/rosette water sampler
MSM12/832-1	19.09.2009	19:41	57° 30,00' N	20° 20,02' E	197,8	CTD/rosette water sampler
MSM12/832-1	19.09.2009	19:57	57° 30,00' N	20° 20,02' E	200,4	CTD/rosette water sampler
MSM12/832-1	19.09.2009	20:10	57° 30,00' N	20° 20,02' E	201,2	CTD/rosette water sampler
MSM12/832-1	19.09.2009	20:17	57° 30,00' N	20° 20,02' E	209	CTD/rosette water sampler
MSM12/833-1	19.09.2009	21:16	57° 30,05' N	20° 33,58' E	154,4	Video camera
MSM12/833-1	19.09.2009	21:36	57° 30,04' N	20° 33,59' E	152,7	Video camera
MSM12/833-1	20.09.2009	00:45	57° 30,04' N	20° 33,59' E	157,4	Video camera
MSM12/833-1	20.09.2009	01:02	57° 30,04' N	20° 33,59' E	153,2	Video camera
MSM12/834-1	20.09.2009	04:08	57° 19,20' N	20° 3,02' E	241,3	CTD/rosette water sampler
MSM12/834-1	20.09.2009	04:26	57° 19,20' N	20° 3,02' E	255,8	CTD/rosette water sampler
MSM12/834-1	20.09.2009	04:43	57° 19,20' N	20° 3,02' E	242	CTD/rosette water sampler
MSM12/834-1	20.09.2009	04:49	57° 19,20' N	20° 3,02' E	241,7	CTD/rosette water sampler
MSM12/834-2	20.09.2009	06:19	57° 19,20' N	20° 3,03' E	248,7	CTD/rosette water sampler



MSM12/834-2	20.09.2009	06:32	57° 19,20' N	20° 3,02' E	248,1	CTD/rosette water sampler
MSM12/834-2	20.09.2009	06:49	57° 19,20' N	20° 3,02' E	257,7	CTD/rosette water sampler
MSM12/834-2	20.09.2009	06:54	57° 19,20' N	20° 3,02' E	247,9	CTD/rosette water sampler
MSM12/834-3	20.09.2009	08:02	57° 19,20' N	20° 3,03' E	255	IOW Pump-CTD/Rosette
MSM12/834-3	20.09.2009	08:58	57° 19,20' N	20° 3,02' E	254,7	IOW Pump-CTD/Rosette
MSM12/834-3	20.09.2009	09:57	57° 19,20' N	20° 3,01' E	248,7	IOW Pump-CTD/Rosette
MSM12/834-3	20.09.2009	11:14	57° 19,20' N	20° 3,01' E	241,3	IOW Pump-CTD/Rosette
MSM12/835-1	20.09.2009	11:56	57° 24,23' N	20° 0,67' E	221,2	IOW Pump-CTD/Rosette
MSM12/835-1	20.09.2009	12:40	57° 24,23' N	20° 0,67' E	220,5	IOW Pump-CTD/Rosette
MSM12/835-1	20.09.2009	13:22	57° 24,23' N	20° 0,66' E	221,2	IOW Pump-CTD/Rosette
MSM12/836-1	20.09.2009	14:13	57° 18,23' N	19° 54,07' E	224,6	IOW Pump-CTD/Rosette
MSM12/836-1	20.09.2009	14:51	57° 18,23' N	19° 54,07' E	224,9	IOW Pump-CTD/Rosette
MSM12/836-1	20.09.2009	15:33	57° 18,23' N	19° 54,07' E	225,9	IOW Pump-CTD/Rosette
MSM12/836-2	20.09.2009	16:06	57° 18,23' N	19° 54,08' E	226,1	Multi corer
MSM12/836-2	20.09.2009	16:10	57° 18,23' N	19° 54,08' E	225,1	Multi corer
MSM12/836-2	20.09.2009	16:16	57° 18,23' N	19° 54,08' E	224,6	Multi corer
MSM12/837-1	20.09.2009	18:49	57° 19,20' N	20° 3,01' E	239,9	Micro structure probe
MSM12/837-1	20.09.2009	19:38	57° 18,92' N	20° 2,87' E	255,3	Micro structure probe
MSM12/837-2	20.09.2009	19:57	57° 19,24' N	20° 3,05' E	248,5	Micro structure probe
MSM12/837-2	20.09.2009	21:33	57° 18,45' N	20° 2,39' E	241	Micro structure probe
MSM12/838-1	20.09.2009	22:07	57° 19,20' N	20° 3,01' E	239,2	Trap, sediment
MSM12/838-1	20.09.2009	22:14	57° 19,20' N	20° 3,01' E	252,1	Trap, sediment
MSM12/838-1	21.09.2009	06:06	57° 19,20' N	20° 3,02' E	240,5	Trap, sediment
MSM12/838-2	21.09.2009	06:20	57° 19,20' N	20° 3,02' E	241,6	CTD/rosette water sampler
MSM12/838-2	21.09.2009	06:45	57° 19,20' N	20° 3,02' E	247,6	CTD/rosette water sampler
MSM12/838-2	21.09.2009	07:10	57° 19,20' N	20° 3,02' E	254,6	CTD/rosette water sampler
MSM12/838-3	21.09.2009	08:37	57° 19,20' N	20° 3,01' E	241,2	CTD/rosette water sampler
MSM12/838-3	21.09.2009	08:53	57° 19,20' N	20° 3,02' E	248,3	CTD/rosette water sampler
MSM12/838-3	21.09.2009	09:02	57° 19,20' N	20° 3,01' E	242,1	CTD/rosette water sampler
MSM12/838-4	21.09.2009	09:08	57° 19,20' N	20° 3,02' E	252,9	Multi corer

MSM12/838-4	21.09.2009	09:13	57° 19,20' N	20° 3,02' E	254,8	Multi corer
MSM12/838-4	21.09.2009	09:20	57° 19,20' N	20° 3,02' E	245,8	Multi corer
MSM12/839-1	21.09.2009	11:45	57° 32,75' N	20° 38,66' E	82,4	Scan-Fish
MSM12/839-1	21.09.2009	12:08	57° 31,06' N	20° 38,81' E	72,2	Scan-Fish
MSM12/839-1	21.09.2009	12:17	57° 30,36' N	20° 38,41' E	71,1	Scan-Fish
MSM12/839-2	21.09.2009	13:03	57° 30,26' N	20° 37,68' E	76,5	Scan-Fish
MSM12/839-2	21.09.2009	13:41	57° 32,35' N	20° 39,06' E	72	Scan-Fish
MSM12/839-2	21.09.2009	14:02	57° 30,14' N	20° 38,50' E	65,8	Scan-Fish
MSM12/839-2	21.09.2009	14:07	57° 29,61' N	20° 38,32' E	57,8	Scan-Fish
MSM12/839-2	21.09.2009	14:17	57° 28,53' N	20° 37,99' E	65,1	Scan-Fish
MSM12/839-2	21.09.2009	14:37	57° 26,35' N	20° 37,22' E	68,7	Scan-Fish
MSM12/839-2	21.09.2009	15:16	57° 26,69' N	20° 35,91' E	93,9	Scan-Fish
MSM12/839-2	21.09.2009	16:16	57° 32,86' N	20° 36,91' E	127,7	Scan-Fish
MSM12/840-1	21.09.2009	17:17	57° 31,19' N	20° 38,88' E	72,6	CTD/rosette water sampler
MSM12/840-1	21.09.2009	17:28	57° 31,19' N	20° 38,88' E	72,9	CTD/rosette water sampler
MSM12/840-1	21.09.2009	17:36	57° 31,19' N	20° 38,88' E	72,5	CTD/rosette water sampler
MSM12/841-1	21.09.2009	17:50	57° 30,95' N	20° 37,84' E	80,5	CTD/rosette water sampler
MSM12/841-1	21.09.2009	17:58	57° 30,95' N	20° 37,84' E	80,4	CTD/rosette water sampler
MSM12/841-1	21.09.2009	18:04	57° 30,95' N	20° 37,84' E	81	CTD/rosette water sampler
MSM12/842-1	21.09.2009	18:19	57° 30,87' N	20° 37,37' E	86,2	CTD/rosette water sampler
MSM12/842-1	21.09.2009	18:29	57° 30,87' N	20° 37,37' E	86,9	CTD/rosette water sampler
MSM12/842-1	21.09.2009	18:38	57° 30,87' N	20° 37,37' E	85,9	CTD/rosette water sampler
MSM12/843-1	21.09.2009	19:18	57° 30,06' N	20° 33,62' E	152,1	CTD/rosette water sampler
MSM12/843-1	21.09.2009	19:29	57° 30,06' N	20° 33,62' E	152,1	CTD/rosette water sampler
MSM12/843-1	21.09.2009	19:42	57° 30,06' N	20° 33,63' E	151,5	CTD/rosette water sampler
MSM12/843-1	21.09.2009	19:47	57° 30,07' N	20° 33,63' E	149,1	CTD/rosette water sampler
MSM12/843-2	21.09.2009	20:14	57° 30,06' N	20° 33,63' E	151,7	Video camera
MSM12/843-2	21.09.2009	20:28	57° 30,06' N	20° 33,63' E	151,6	Video camera
MSM12/843-2	21.09.2009	23:35	57° 30,06' N	20° 33,63' E	152,6	Video camera
MSM12/843-2	21.09.2009	23:51	57° 30,06' N	20° 33,63' E	153,8	Video camera

MSM12/844-1	22.09.2009	06:27	57° 19,19' N	20° 3,02' E	278,1	CTD/rosette water sampler
MSM12/844-1	22.09.2009	06:47	57° 19,19' N	20° 3,02' E	241,9	CTD/rosette water sampler
MSM12/844-1	22.09.2009	07:05	57° 19,19' N	20° 3,02' E	238,8	CTD/rosette water sampler
MSM12/844-2	22.09.2009	07:46	57° 19,19' N	20° 3,02' E	254,6	CTD/rosette water sampler
MSM12/844-2	22.09.2009	08:02	57° 19,19' N	20° 3,01' E	253,8	CTD/rosette water sampler
MSM12/844-2	22.09.2009	08:18	57° 19,19' N	20° 3,02' E	247,9	CTD/rosette water sampler
MSM12/844-2	22.09.2009	08:24	57° 19,19' N	20° 3,02' E	247,2	CTD/rosette water sampler
MSM12/844-3	22.09.2009	09:18	57° 19,19' N	20° 3,03' E	255,2	CTD/rosette water sampler
MSM12/844-3	22.09.2009	09:37	57° 19,19' N	20° 3,02' E	245,8	CTD/rosette water sampler
MSM12/844-3	22.09.2009	09:46	57° 19,19' N	20° 3,01' E	249,6	CTD/rosette water sampler
MSM12/845-1	22.09.2009	11:41	57° 5,00' N	19° 50,02' E	210,9	CTD/rosette water sampler
MSM12/845-1	22.09.2009	12:02	57° 5,00' N	19° 50,01' E	222,1	CTD/rosette water sampler
MSM12/845-1	22.09.2009	12:31	57° 5,00' N	19° 50,01' E	210,4	CTD/rosette water sampler
MSM12/845-2	22.09.2009	12:55	57° 4,99' N	19° 50,01' E	211,1	Multi corer
MSM12/845-2	22.09.2009	12:59	57° 5,00' N	19° 50,02' E	210,7	Multi corer
MSM12/845-2	22.09.2009	13:10	57° 5,00' N	19° 50,01' E	210,4	Multi corer