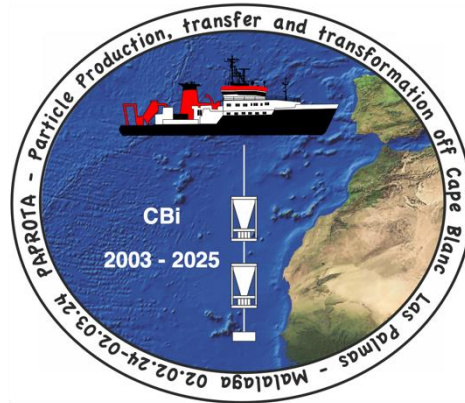


Prof. Dr. K. Zonneveld

MARUM, University of Bremen  
Leobener Straße 8  
D-28359 Bremen  
Germany

Tel.: +49 421 218 65797

email: [kzonneveld@marum.de](mailto:kzonneveld@marum.de)



## Short Cruise Report R/V MARIA S. MERIAN MSM134

Las Palmas - Malaga  
02.02.2025 – 02.03.2025

Chief Scientist: Prof. Dr. Karin Zonneveld

Captain: Klaus Bergmann

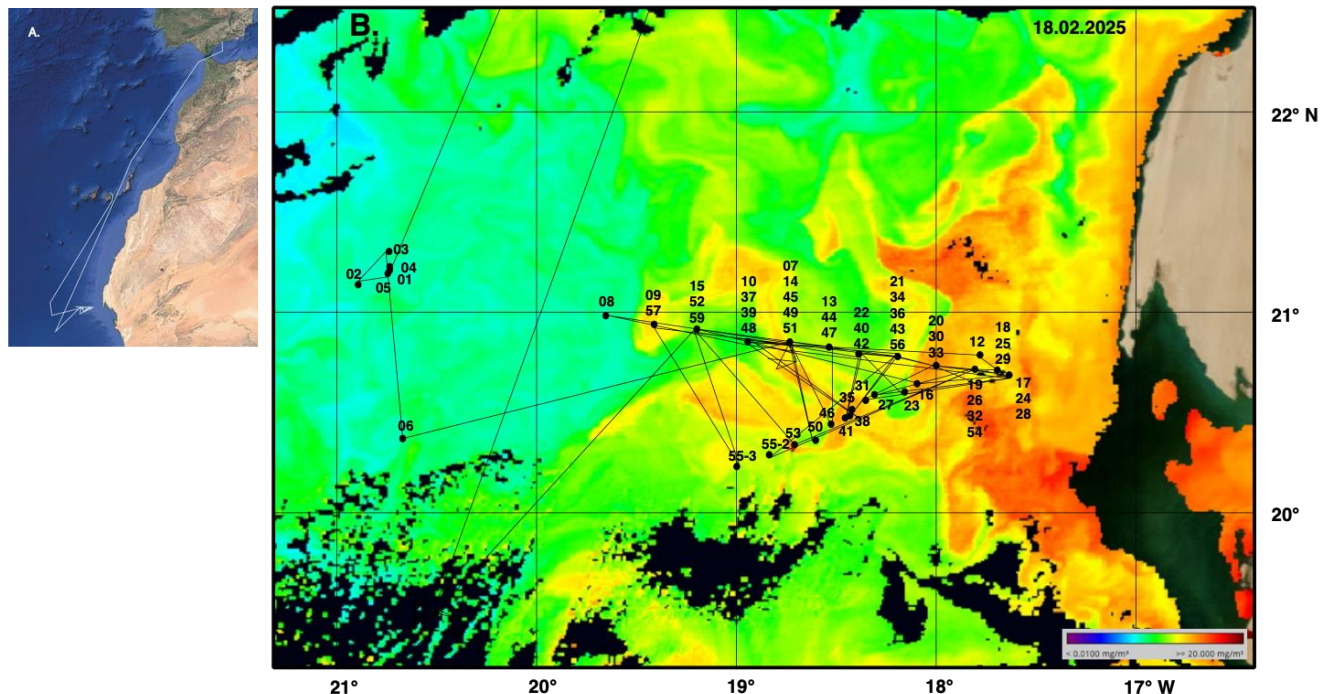


Figure 1. A. Cruise track, B. Detailed map depicting satellite derived sea surface Chlorophyll-a at 18.02.25 depicting cruise track and station positions (Figure established with the courtesy of the NASA: <https://soto.podaac.earthdatacloud.nasa.gov/>)

## Objectives

The research activities of the cruise MSM 134 (PAPROTA) form part of the German Science Foundation financed RECEIVER Unit of the Excellence Cluster "The Ocean Floor- Earths uncharted interface at the MARUM (University of Bremen). The research activities during MSM 134 focused on the export of biogenic particles from the surface to the deep ocean and ocean floor sediments. Furthermore, investigations aimed to understand the lateral transport of carbon from upper waters towards the deep ocean, the dynamic interactions between the pools of particulate and dissolved organic matter and the turnover of specific compound classes, notably of polysaccharides, and their role in particle stabilization. For this groups from the University of Bremen, University of Oldenburg and the Alfred-Wegener-Institute in Bremerhaven performed joint investigations at water, suspended matter and sediment samples.

The laterally and temporally highly dynamic Cape Blanc upwelling region, is one of the most productive regions in the world and is a key player in the global carbon cycle. High production is initiated by the permanent supply of nutrients into the photic zone by means of year round upwelling as well as a regular influx of dust originating from the Sahara desert. Upper water primary production drives the biological pump which is largely controlled by the sinking behavior and lateral transport of marine snow, particle aggregates and fecal pellets. However, today we still largely lack a quantitative understanding about processes that steer production, sinking velocities, lateral transport and transformation of particulate organic matter.

Research activities were being performed in the coastal active upwelling zone and its gradient transition towards the open ocean. Results shall be compared to long-term particle flux records in sediment-trap series. The latter forms the world-wide longest sediment trap monitoring with traps being deployed from 1988 onward.

The specific objectives that were investigated included:

- a) Determine the export production succession during the gradient transition of freshly upwelled water towards the formation of offshore drifting upwelling filament of key organism groups of different trophic levels both on species and molecular level.
- b) Determine the processes that control the resuspension of sediment from the shelf/slope and transport it offshore through intermediate nepheloid and bottom layers.
- c) Determine alteration of organic matter during settling in the water column and early diagenetic processes in surface sediments related to the occurrence of nepheloid layers and differential redox environments.
- d) Determine the C cycling between Particulate Organic Matter (POC), Dissolved Organic Matter (DOC) and Dissolved Inorganic Matter (DIC) in the water column
- e) Determine the role of adsorption and the exchange of organic matter between the dissolved and particulate phases.
- f) Obtain insight into production and degradation pathways of polysaccharides, notably of fucoidan, as well as their interactions with the natural microbial, phytoplankton and zooplankton communities
- g) Determine the long term viability on ecosystem change on decadal and sub-decadal scale.

## Narrative

The R.V. Maria S. Merian left port in the morning of Sunday 02.02.2025 to head south towards the research area off Cape Blanc. In the early Tuesday morning we reached the first station located in the open ocean about 400 km (216 nm) from the coast off Cape Blanc. This location is unique as cold, nutrient rich water that have upwelled near the coast and have travelled offshore in large meandering filaments, reach here their most offshore position before becoming mixed with the warmer, nutrient poor central Atlantic surface ocean waters. The Location is also unique as it is the location of the world's most longest continuous monitoring station where sinking particles are being collected with moored sediment traps. At this location the traps are being deployed since the year 1988.

Our station work started with the deployment of a multi-net, with which plankton was collected at 100m depth intervals. At dawn we started with the recovery of the Mooring CB33 that we had deployed with the Dutch research Vessel RV. Pelagia two years ago. After a successful recovery of CB33 in the afternoon, station work continued in the following days some 10 nm west and northwest from the CB position. Here we successfully collected large amounts of sea water with the Rosette, suspended sediments from the deep ocean with deployments of In-Situ Pump systems as well as ocean floor sediments by both gravity- and multi-coring. These ocean waters and sediments allowed the start of several degradation experiments that study the microorganisms that degrade different complex organic molecules. Furthermore, we investigate what enzymes are being involved in the degradation process, what molecular compounds are being degraded and which compounds are resistant. Focus lies hereby on the degradability of differential polysaccharides (notably fucoidan) and POM consisting of polysaccharide based material such as cysts formed by dinoflagellates. Thursday evening, station work at this location was closed by the deployment of the mooring CB34 that will collect particles for another two years.

Station work was continued in the evening of Tuesday 06.02.2025 at a location 50nm south of the CB-mooring. Here we collected again large amounts of water samples with the Rosette to allow additional experiments on the formation and degradation of polysaccharids and their interaction with the microbial, phyto- and zooplankton community.

The night of Tuesday to Friday was used to cover a transit to the location of a second mooring CBI that was deployed in a more nearshore position just outside the active upwelling area but below the traps of the largest filament of offshore drifting upwelled water at the ocean surface. This mooring was deployed since August 2020. After successful activation of the release system, the releaser signal showed that the mooring moved up in the water column at a low speed. This resulted that the mooring, containing two sediment traps did not surface before sunset. After sunset, the search was stopped to be continued at Saturday 07.02.2025, unfortunately without leading to a positive result. The night hours were used to start profiling the water column at 12 Stations that were positioned along a transect covering the track of offshore drifting upwelling waters from the position of active upwelling towards the open ocean. Special interest was given to the determination of the exact position and offshore extension of nepheloid layers that were present in subsurface-, intermediate- and bottom-water layers.

Additional to profiling of the water column, a drifting trap survey was started at Sunday morning 09.02.2025 by deploying a drifting trap in an active upwelling cell which position was previously determined based on the locally prevailing surface currents and satellite derived information of upper ocean temperature and chlorophyll-a concentrations.

During the night from Sunday to Monday the water column profiling could be completed allowing the now specified collection of water and suspended matter at selected water depths.

Unfortunately the drifting trap had headed shelf-ward which forced us to recover it in the morning hours of Monday 10.02.2025 and redeploy it at a position more to the south-west at the rim of an active upwelling cell. From this location it was quickly trapped in the upwelled waters that moved offshore in form of a large filament. This filament could be traced by satellite imaging in the form of temperatures being lower than surrounding waters and high chlorophyll-a concentrations, as far offshore as about 400 km from the shelf break.

From now on a more or less regular working scheme was introduced starting with the locating of the actual position of the drifting trap in the early hours of the day. This enabled us to recover and re-deploy the trap in the morning hours. Recovering and deploying the trap at the same position in 24 hour intervals allowed us to follow the export flux succession in water masses that move from the rim of active upwelling cells to waters the open ocean.

The afternoons were filled by collecting water column samples as well as by collecting ocean floor sediments by Multicoring and Gravity coring at the locations positioned along the previously profiled transect. The evening and night hours were filled with the characterization of the water column properties by CTD profiling and sampling of water and suspended matter with the Rosette and In-situ pump systems. The schedule was such that sediments were sampled at those stations of which water column characterization and sampling had been executed the night before. This working

schedule was followed until the evening of the 21th of February after which our research focus moved again to a location in open oceanic waters southwest of the research transect.

This location was reached in the morning of Saturday the 22th of February. Here we collected water and sediment samples to execute experiments on the degradability of differential plankton produced sugar molecules to be executed during our transit towards Malaga. Furthermore, surface sediments were collected by multi-coring. The night hours between Saturday and Sunday (22/23.02.2025) were used to determine the best location for start of a new sediment trap monitoring program. In the morning of Sunday 23.02.2025 a Multinet was deployed at the selected Mooring site to collect the zooplankton content of the upper 500m. After this a new mooring containing two traps was being deployed. Station work could be closed with this successful deployment of the sediment trap mooring in the evening of the 23th of February after which the transect to Malaga was started. In the evening hours of the 1th of March 2023, we crossed the street of Gibraltar to reach the port of Malaga in the early hours of 02.03.2025.

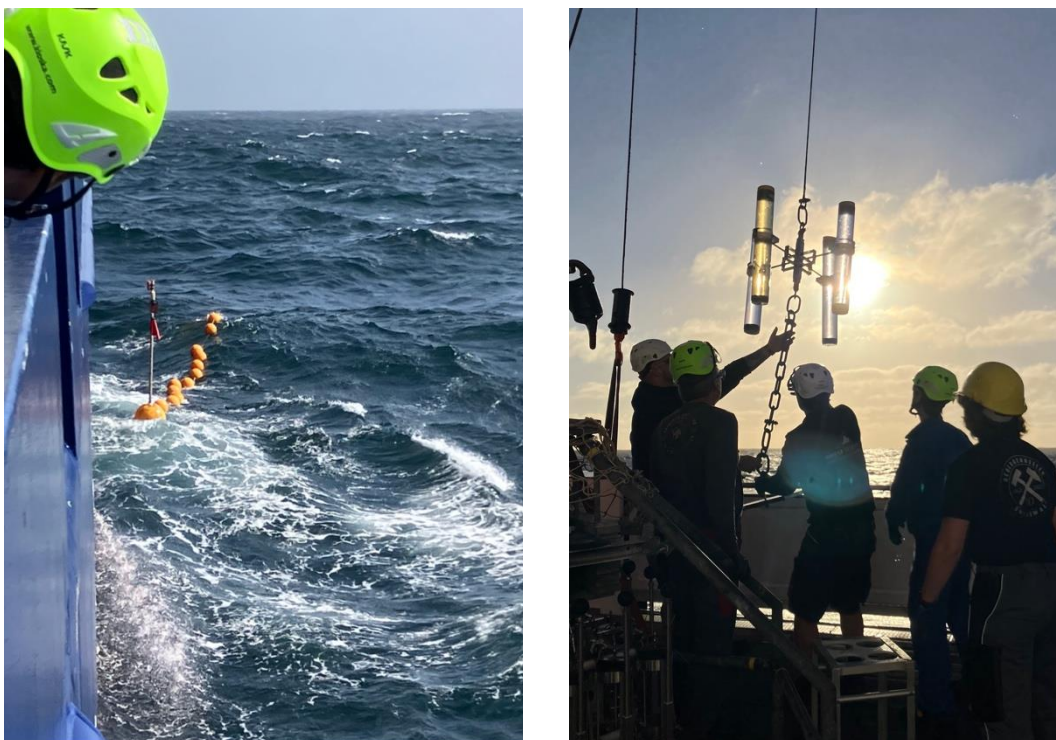


Figure: Recovery of the drifting traps (photo: K. Zonneveld)

## Acknowledgements

The scientific crew of cruise MSM134 thanks Captain Klaus and his crew for their great flexibility, their excellent technical assistance and by creating a very pleasant working atmosphere that substantially contributed to the success of this cruise. The cooperation between deck crew, bridge and the MARUM deck team as well as the support from the WT, engine and gally teams was excellent.

We furthermore greatly appreciate the support and cooperation of the employees of the Begutachtungspanel Forschungsschiffe (Deutsche Forschungsgemeinschaft), die German Research Fleet Control Centre (LDF) and Briese Research Forschungsschiffahrt that provided us the possibility to execute this research cruise MSM134.

## Teilnehmerliste

1. Karin Zonneveld	Fahrtleiter / <i>Chief Scientist</i>	MARUM
2. Karl-Heinz Baumann	Nanoplankton	Univ. Bremen
3. Ella Case	Glycobiochemistry	MARUM
4. Lukas Dirksen	Organic Geochemistry	MARUM
5. Johan Faust	Micropalaeontology	MARUM
6. Christopher Jung-Hua Fitzgerald	Glycobiochemistry	MARUM
7. Hendrik Grotheer	DOC/POC	AWI
8. Bowei Gu	Glycobiochemistry	MARUM
9. Malte Höhn	DOC/POC	AWI
10. Marco Klann	Mooring/Logistic	MARUM
11. Jasmin Kirchner	Marine Palynology	Univ. Oldenburg
12. Julia Krah	Mooring/Logistic	MARUM
13. Jana Chiara Maßing	Glycobiochemistry	MARUM
14. Ricarda Meineke	DOC/POC	Univ. Oldenburg
15. Denise Otto	Mooring/Drifting Trap	MARUM
16. Clemens Röttgen	Organic Geochemistry	MARUM
17. Michael Georg Siccha Rojas	Micropaleontology	MARUM
18. Daniel Smrzka	Geochemistry	Univ. Bremen

\* palynology/microplastic

## Institute

Univ. Bremen: University of Bremen. Faculty of Earth Sciences

AWI: Alfred-Wegener-Institute, Helmholtz-Zentrum für Polar- und Meeresforschung

MARUM: Research Faculty University of Bremen, Center for Marine Environmental Sciences

Univ. Oldenburg: Carl von Ossietzky University of Oldenburg. Institute of marine biology and chemistry.

## Stationsliste

Station GeoB No.	Station Ship No.	Date	Device	Time [UTC] seafloor / maximum wire length	Latitude [N]	Longitude [W]	Water depth [m]	Notes
GeoB 26501-1	MSM134_1-1	04.02.2025	MN	06:57:00	21°13.381	20°47.187	4135	Notes to 500m
GeoB 26502-1	MSM134_2-1	04.05.2025	Mooring CB	14:36:00	21°12.071	20°52.946	4156	CB recovery
GeoB 26503-1	MSM134_3-1	04.02.2025	CTD	19:43:27	21°23.601	20°52.374	4205	
GeoB 26503-1	MSM134_3-2	04.02.2025	CTD	22:31:26	21°23.601	20°52.375	4197	
GeoB 26503-3	MSM134_3-3	04.02.2025	ISP	23:55:56	21°23.597	20°52.380	4196	
GeoB 26503-4	MSM134_3-4	05.02.2025	GC	09:24:27	21°23.609	20°52.366	4198	
GeoB 26503-5	MSM134_3-5	05.02.2025	MUC	12:11:36	21°23.609	20°52.365	4210	
GeoB 26504-1	MSM134_4-1	05.02.2025	CTD	17:44:05	21°23.522	20°43.966	4176	
GeoB 26504-2	MSM134_4-2	05.02.2025	ISP	20:46:23	21°23.521	20°43.970	4160	
GeoB 26505-1	MSM134_5-1	06.02.2025	Mooring CB	10:22:14	21°13.494	20°54.643	4193	CB deployment
GeoB 26506-1	MSM134_06-1	06.02.2025	CTD	16:52:35	20°24.003	20°41.005	3873	
GeoB 26506-2	MSM134_06-2	06.02.2025	CTD	19:28:16	20°24.002	20°41.005	3869	
GeoB 26507-1	MSM134_07-1	07.02.2025	Mooring CBI	08:13:10	20°50.001	18°44.647	2639	
GeoB 26507-1	MSM134_07-1	08.02.2025	Mooring CBI	18:26:25	20°48.433	18°42.811		end of search
GeoB 26508-1	MSM134_08-1	07.02.2025	CTD	21:35:15	20°55.861	19°42.510	3644	
GeoB 26509-1	MsM134_09-1	08.02.2025	CTD	01:46:34	20°53.737	19°23.789	3433	
GeoB 26510-1	MSM134_10-1	08.02.2025	CTD	20:57:55	20°51.092	18°56.628	3122	
GeoB 26511-1	MSM134_11-1	08.02.2025	Parasound	22:46:55	20°50.616	18°50.154	2930	start
GeoB 26511-1	MSM134_11-1	09.02.2025	Parasound	07:04:37	20°42.030	17°38.586	128	end
GeoB 26512-1	MSM134_12-1	09.02.2025	CTD	09:07:08	20°46.004	17°54.051	944	
GeoB 26512-2	MSM134_12-2	09.02.2025	DT	10:28:25	20°46.065	17°54.117	952	deployment DT1
GeoB 26512-2	MSM134_12-2	10.02.2025	DT	08:52:14	20°45.054	17°51.649	806	recovery DT1
GeoB 26512-3	MSM134_12-3	10.02.2025	CTD	09:14:53	20°45.064	17°51.664	807	
GeoB 26513-1	MSM134_13-1	09.02.2025	CTD	15:13:03	20°48.522	18°33.889	2202	
GeoB 26514-1	MSM134_14-1	09.02.2025	CTD	18:01:19	20°50.511	18°44.090	2689	
GeoB 26515-1	MSM134_15-1	09.02.2025	CTD	22:30:49	20°52.209	19°09.488	3293	
GeoB 26516-1	MSM134_16-1	10.02.2025	CTD	11:38:27	20°38.957	18°07.060	1038	
GeoB 26516-2	MSM134_16-2	10.02.2025	DT	12:29:58	20°38.889	18°07.137	1036	deployment DT2
GeoB 26516-2	MSM134_16-2	11.02.2025	DT	08:43:08	20°37.188	18°11.134	1082	recovery DT2
GeoB 26517-1	MSM134_17-1	10.02.2025	CTD	15:50:00	20°41.971	17°38:346	113	
GeoB 26518-1	MSM134_18-1	10.02.2025	CTD	16:41:07	20°42.411	17°41.480	390	

GeoB 26519-1	MSM134_19-1	10.02.2025	CTD	18:05:15	20°43.457	17°49.897	673	
GeoB 26520-1	MSM134_20-1	10.02.2025	CTD	20:07:59	20°44.560	18°01.629	1151	
GeoB 26521-1	MSM134_21-1	10.02.2025	CTD	22:27:35	20°46.089	18°13.740	1704	
GeoB 26522-1	MSM134_22-1	11.02.2025	CTD	01:00:33	20°47.413	18°25.506	1883	
GeoB 26522-2	MSM134_22-2	11.02.2025	ISP	02:52:01	20°47.411	18°25.506	1878	
GeoB 26523-1	MSM134_23-1	11.02.2025	CTD	09:43:48	20°37.266	18°11.231	1086	
GeoB 26523-2	MSM134_23-2	11.02.2025	DT	10:56:42	20°37.296	18°11.325	1086	deployment DT3
GeoB 26523-2	MSM134_23-2	12.02.2025	DT	08:23:10	20°34.796	18°17.665	1200	recovery DT3
GeoB 26524-1	MSM134_24-1	11.02.2025	CTD	14:39:00	20°41.979	17°38.346	112	
GeoB 26524-2	MSM134_24-2	11.02.2025	ISP	15:07:15	20°41.981	17°38.347	112	
GeoB 26525-1	MSM134_25-1	11.02.2025	CTD	18:36:52	20°42.407	17°41.476	391	
GeoB 26525-2	MSM134_25-2	11.02.2025	ISP	19:10:28	20°42.409	17°41.476	391	
GeoB 26526-1	MSM134_26-1	11.02.2025	CTD	23:49:30	20°43.369	17°49.797	669	
GeoB 26526-2	MSM134_26-2	12.02.2025	ISP	00:40:01	20°43.456	17°49.895	671	
GeoB 26527-1	MSM134_27-1	12.02.2025	CTD	09:12:49	20°34.864	18°17.857	1194	
GeoB 26527-2	MSM134_27-2	12.02.2025	DT	07:44:30	20°34.917	18°17.963	1195	deployment DT4
GeoB 26527-2	MSM134_27-2	13.02.2025	DT	08:33:07	20°31.895	18°23.246	1313	recovery DT4
GeoB 26528-1	MSM134_28-1	12.02.2025	MUC	14:33:21	20°41.981	17°38.345	112	no recovery
GeoB 26529-1	MSM134_29-1	12.02.2025	MUC	15:46:44	20°42.411	17°41.476	389	no recovery
GeoB 26529-2	MSM134_29-2	12.02.2025	MUC	16:22:43	20°42.412	17°41.476	390	no recovery
GeoB 26530-1	MSM134_30-1	12.02.2025	CTD	19:12:41	20°44.561	18°01.620	1149	
GeoB 26530-2	MSM134_30-2	12.02.2025	ISP	20:27:25	20°44.561	18°01.620	1149	
GeoB 26530-3	MSM134_30-3	13.02.2025	ISP	00:08:53	20°44.561	18°01.620	1148	
GeoB 26531-1	MSM134_31-1	13.02.2025	CTD	09:12:39	20°31.940	18°23.430	1313	
GeoB 26531-2	MSM134_31-2	13.02.2025	DT	10:17:39	20°31.967	18°23.533	1319	Deployment DT5
GeoB 26531-2	MSM134_31-2	14.02.2025	DT	08:57:33	20°30.125	18°25.829	1409	recovery DT5
GeoB 26532-1	MSM134_32-1	13.02.2025	MUC	14:14:48	20°43.450	17°49.896	671	25 cm
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GeoB 25434-4	MSM134_34-4	14.02.2025	ISP	04:13:52	20°46.120	18°13.716	1707	
GeoB 26535-1	MSM134_35-1	14.02.2025	CTD	14:02:20	20°30.167	18°25.951	1416	
GeoB 26532-2	MSM134_35-2	14.02.2025	DT	10:49:56	20°30.195	18°26.041	1414	Deployment DT6
GeoB 26535-2	MSM134_35-2	15.02.2025	DT	09:24:14	20°28.546	18°26.238	1467	recovery DT6
GeoB 26536-1	MSM134_36-1	14.02.2025	MUC	13:35:33	20°46.129	18°13.716	1702	
GeoB 26537-1	MSM134_37-1	14.02.2025	CTD	20:07:48	20°51.085	18°56.650	3126	

GeoB 26537-2	MSM234_37-2	14.02.2025	ISP	22:31:14	20°51.090	18°56.647	3124	
GeoB 26537-3	MSM134_37-3	15.02.2025	ISP	02:43:03	20°51.086	18°56.650	3126	
GeoB 26538-1	MSM134_38-1	15.02.2025	CTD	10:06:24	20°28.542	18°26.306	1473	Deployment DT7 recovery DT7
GeoB 26538-2	MSM134_38-2	15.02.2025	DT	10:55:10	20°28.534	18°26.404	1477	
GeoB 26538-2	MSM134_38-2	16.02.2025	DT	09:13:07	20°27.365	18°28.209	1603	
GeoB 26539-1	MSM134_39-1	15.02.2025	ISP	15:24:06	20°51.113	18°56.626	3123	
GeoB 26540-1	MSM134_40-1	15.02.2025	CTD	22:11:02	20°47.401	18°25.520	1889	
GeoB 26540-2	MSM134_40-2	15.02.2025	ISP	23:41:40	20°47.400	18°25.558	1889	
GeoB 26540-3	MSM134_40-3	16.02.2025	ISP	03:51:46	20°47.402	18°25.556	1893	
GeoB 26541-1	MSM134_41-1	16.02.2025	CTD	09:52:46	20°27.411	18°28.317	1607	Deployment DT8 recovery DT8
GeoB 26541-2	MSM134_41-2	16.02.2025	DT	10:51:20	20°27.470	18°28.428	1610	
GeoB 26541-2	MSM134_41-2	17.02.2025	DT	10:40:29	20°25.253	18°32.259	2021	
GeoB 26542-1	MSM134_42-1	16.02.2025	MUC	13:38:25	20°47.411	18°25.504	1885	
GeoB 26543-1	MSM134_43-1	16.02.2025	SL	17:06:26	20°46.124	18°13.706	1703	
GeoB 26544-1	MSM134_44-1	16.02.2025	CTD	20:42:52	20°48.597	18°36.127	2326	
GeoB 26544-2	MSM134_44-2	16.02.2025	ISP	22:25:36	20°48.693	18°36.664	2372	
GeoB 26545-1	MSM134_45-1	17.02.2025	CTD	02:48:06	20°50.511	18°44.076	2688	
GeoB 26545-2	MSM134_45-2	17.02.2025	ISP	04:42:28	20°50.507	18°44.080	2692	
GeoB 26546-1	MSM134_46-1	17.02.2025	CTD	11:28:11	20°25.331	18°32.444	2047	Deployment DT9 recovery DT9
GeoB 26546-2	MSM134_46-2	17.02.2025	DT	12:16:28	20°25.365	18°32.583	2078	
GeoB 26546-2	MSM134_46-2	18.02.2025	DT	09:45:24	20°21.997	18°37.159	2552	
GeoB 26547-1	MSM134_47-1	17.02.2025	MUC	15:38:48	20°48.537	18°35.896	2323	
GeoB 26548-1	MSM134_48-1	17.02.2025	MUC	19:40:54	20°51.110	18°58.621	3119	
GeoB 26549-1	MSM134_49-1	17.02.2025	CTD	23:09:18	20°50.506	18°44.078	2688	
GeoB 26549-2	MSM134_49-2	18.02.2025	ISP	01:13:48	20°50.507	18°44.079	2686	
GeoB 26549-3	MSM134_49-3	18.02.2025	ISP	04:22:51	20°50.506	18°44.080	2690	
GeoB 26550-1	MSM134_50-1	18.02.2025	CTD	10:24:14	20°22.040	18°37.274	2547	deployment DT10 recovery DT10
GeoB 26550-2	MSM134_50-2	18.02.2025	CTD	11:01:20	20°22.040	18°37.273	2555	
GeoB 26550-3	MSM134_50-3	18.02.2025	DT	11:49:52	20°22.078	18°37.423	2561	
GeoB 26550-3	MSM134_50-3	19.02.2025	DT	00:08:16	20°18.990	18°43.908	2761	
GeoB 26551-1	MSM134_51-1	18.02.2025	SL	15:47:51	20°50.512	18°44.082	2683	
GeoB 26551-2	MSM134_51-2	18.02.2025	MUC	17:52:21	20°50.471	18°44.165	2694	
GeoB 26552-1	MSM134_52-1	18.02.2025	CTD	22:17:21	20°52.245	19°09.465	3290	
GeoB 26552-2	MSM134_52-2	19.02.2025	ISP	00:35:20	20°5.243	19°09.486	3281	
GeoB 26553-1	MSM134_53-1	19.02.2025	CTD	08:56:55	20°19.049	18°43.908	2763	Deployment DT11 Recovery DT11
GeoB 26553-2	MSM134_53-2	19.02.2025	DT	09:41:56	20°19.120	18°44.106	2769	
GeoB 26553-2	MSM134_53-2	20.02.2025	DT	08:23:42	20°16.209	18°52.209	2928	
GeoB 26554-1	MSM134_54-1	19.02.2025	SL	15:48:36	20°43.449	17°49.896	670	
GeoB 26554-2	MSM134_54-2	19.02.2025	MUC	16:26:10	20°43.439	17°49.900	669	

GeoB 26554-3	MSM134_54-3	19.02.2025	SL	17:20:44	20°43.434	17°49.906	670	
GeoB 26555-1	MSM134_55-1	20.02.2025	CTD	09:04:16	20°16.309	18°52.298	2924	Deployment DT12 recovery DT12
GeoB 26555-2	MSM134_55-2	20.02.2025	DT	09:55:27	20°16.491	18°52.487	2937	
GeoB 26555-2	MSM134_55-2	21.02.2025	DT	10:53:23	20°14.260	19°00.476	3021	
GeoB 26556-1	MSM134_56-1	20.02.2025	SL	15:19:45	20°46.123	18°13.716	1701	
GeoB 26557-1	MSM134_57-1	21.02.2025	CTD	00:13:59	20°53.613	19°25.406	3476	
GeoB 26557-2	MSM134_57-2	21.02.2025	ISP	02:32:33	20°53.613	19°25.408	3468	
GeoB 26558-1	MSM134_58-1	21.02.2025	CTD	11:34:46	20°14.316	19°00.574	3016	Position DT12
GeoB 26559-1	MSM134_59-1	21.02.2025	MUC	17:08:10	20°52.244	19°09.472	3289	
GeoB 26560-1	MSM134_60-1	22.02.2025	CTD	09:04:19	19°29.006	20°29.491	3446	
GeoB 26560-2	MSM134_60-2	22.02.2025	MN	10:39:00	19°29.041	20°29.568	3454	
GeoB 26561-1	MSM134_61-1	22.02.2025	MUC	12:49:37	19°28.801	20°24.840	3442	
GeoB 26562-1	MSM134_62-1	23.02.2025	MN	08:30:15	19°27.604	20°31.136	3456	
GeoB 26562-2	MSM134_62-2	23.05.2025	Mooring CBs	11:03:04	19°29.692	20°29.919	3444	

CTD = temperature – conductivity – oxygen – turbidity profiling + Rosette Water sampling

DT = Drifting trap

ISP = In-situ Pump

MN = Multinet

MUC = Multi coring

SL = Gravity coring