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Short Cruise Report
RV METEOR M158
Walvis Bay, Namibia – Recife, Brazil
19th September – 26th October 2019
Chief Scientist: Prof. Dr. Peter Brandt
Captain: Detlef Korte

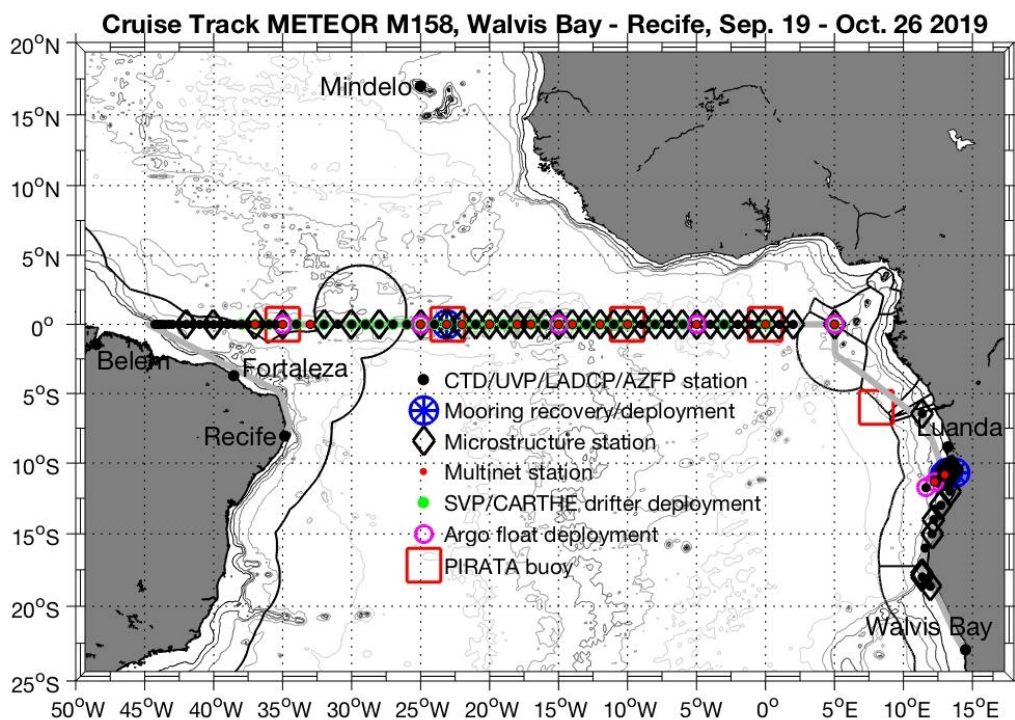


Fig.1: Bathymetric map with cruise track of RV METEOR cruise M158 (gray solid line) including locations of conductivity-temperature-depths (CTD), underwater vision profiler (UVP), lowered acoustic Doppler current profiler (LADCP), acoustic zooplankton fish profiler (AZFP) stations, mooring recoveries/deployments, microstructure stations, multinet stations and SVP/CARTE surface drifter and Argo float releases. Also marked are the EEZ of countries passed and locations of PIRATA buoys along the cruise track.

Objectives

METEOR cruise M158 was an interdisciplinary cruise focusing on upwelling in the tropical Atlantic, its physical forcing, its importance for biological production and plankton communities, associated chemical cycles, as well as on the current system setting the background conditions for the downward export flux. This cruise represents the first physical, chemical, biogeochemical and biological measurement program covering a whole equatorial section from the eastern to the western boundary and from the surface to the bottom. Beside the equatorial Atlantic, another study area was the coastal upwelling off Angola, where the same techniques were applied to better understand the functioning of this tropical upwelling system. A particular focus was on the export flux of carbon to mesopelagic and bathypelagic depths associated with particle flux and diel vertical zooplankton migration. Physical ocean dynamics were studied by deep current measurements and tracer distributions allowing to quantify ventilation and water mass exchange between the western and the eastern boundary. A major component of the measurement program was the section work along 11°S off Angola and along the equator starting at 5°E off São Tomé and Príncipe and ending at 44°45'W on the Brazilian shelf. Observations along the sections included full-depth station work with the CTD system measuring temperature, salinity, pressure, oxygen, nutrients (NO_x), turbidity, fluorescence (i.e. chlorophyll- a and fluorescent dissolved organic matter (fDOM)), current velocity with the lowered acoustic Doppler current profilers (LADCP), particle size classes and plankton composition with an underwater vision profiler (UVP), and backscatter measurements with an acoustic zooplankton and fish profiler (AZFP). Additional station work was carried out with a microstructure profiler measuring turbulent dissipation rates in the upper 100 m, and an Hydrobios Multinet Midi for the collection of zooplankton samples in the upper 1000 m. Water samples were analyzed for numerous variables including salinity, oxygen, tracer, (CFC-12, SF₆), nutrients, N₂O, and colored dissolved organic matter (cDOM). N₂-fixation and primary production rates were determined through incubation of collected seawater. Underway measurements were performed with the two shipboard ADCPs for velocities in the upper 1000 m, the thermosalinograph for near-surface temperature and salinity, and a throughflow system for near-surface fluorescence intensity and phytoplankton physiological state via Fluorescence Induction Relaxation experiment (FIRe) and Picosecond Lifetime Fluorescence (PicoLif) measurements. Depth resolved FIRe and PicoLif measurements were also conducted using water samples from the CTD-Rosette.

Another component of the work program was the recovery and redeployment of 2 moorings. The moorings positioned at the continental slope at 11°S off Angola and at the equator, 23°W are collecting velocity, oxygen, temperature, and salinity time series since several years. Both moorings were successfully recovered and redeployed as planned. The mooring off Angola was delivered to METEOR by our Angolan colleagues as the mooring was recovered early after accidentally surfacing in July 2019. At the equatorial mooring for the first time two UVPs were installed. Additionally, one bottom pressure recorder was deployed at 11°S off Angola. A special focus during M158 was on near-surface velocity. Using two different kinds of surface drifter drifting at 1-m and 15-m depth as well as an X-band radar, near-surface velocity and shear was studied. The measurement program was complemented by the release 8 Argo floats.

Narrative

On Thursday, September 19, 2019, RV METEOR departed from the harbour of Walvis Bay, Namibia at about noon. The small delay was due to some late delivery of scientific equipment. More importantly, however, was that three members of the scientific team could not join the cruise because of working visa issues. For these colleagues with passports from countries that are not allowed to enter Namibia without a visa, it meant they could not join the expedition. Another colleague from Angola (also acting as second observer) did not receive his visa for Brazil in time. Unfortunately, this also means that some measurements, like e.g. various biogeochemical underway measurements, could not be carried out as planned. Sampling by the underway systems that included sea surface temperature, salinity, fluorescence intensity, upper ocean velocity and X-band radar measurements was started on September 19 at 14:00 UTC. The station work on the Angolan/Namibian shelf began on September 20 with the first CTD and MSS stations. Planned underway measurements of upper ocean temperature and salinity with the RapidCast system could not be performed as planned due to the failure of the communication between the winch and the board unit that could not be fixed during the cruise. The instrument has to be send back to the manufacturer for refurbishment. Instead, we decided to perform measurements approximately along the 500-m depth contour with CTD and MSS on a regular 1° latitude resolution while progressing northward. We arrived at 11°S on September 22 at 14:00 UTC. Along 11°S, we started with CTD and MSS measurements at very high spatial resolution. Since July 2013, we service a long-term mooring located at the continental slope measuring the strength of the southward Angola Current. This mooring had surfaced accidentally in July 2019 and could be recovered by Angolan colleagues from the Regional Centre of the National Fisheries and Aquaculture Inspection Service of Kwanza Sul, Angola. On September 23, Angolan colleagues delivered the recovered mooring to RV METEOR off the port of Porto Amboím close to our measurement area. The main moored instrument, an upward looking ADCP, was still working properly, thus complementing the long-term velocity time series of the Angola Current. After mooring delivery, we continued with CTD and MSS station work along the 11°S section. At the nominal position of the mooring we did our first station with the multinet aimed at collecting zooplankton samples and characterizing zooplankton community. Due to the diurnal vertical migration, we tried as much as possible during the cruise to have day and night stations with the multinet capturing diurnal differences in the zooplankton distribution. At the offshore end of the 11°S section, we deployed three Argo floats in deeper water. The redeployment of the Angola Current mooring started on September 25 at 15:40 and could be finished without problems at 18:00. Additional to the standard tall mooring, we also deployed a pressure inverted echo sounder (PIES) that will be used to measure the variability in the bottom pressure difference between Brazil and Angola thereby delivering the mean geostrophic velocity anomaly across the Atlantic. After finishing the mooring and station work along 11°S, we continued underway measurements along the 500-m depth contour to have the last CTD station at 6°27'S close to the border of the EEZ of Angola. On the way toward the equator, we had to stop with all measurements when entering the EEZ of Equatorial Guinea as we did not receive allowance for measurements by this country. We arrived the equator at 5° E in the EEZ of São Tomé and Príncipe on September 28 at 23:00 UTC. Here, we started the main work along the trans-Atlantic equatorial section. Work at 5°E included double CTD stations to fulfill the extended requirements of all groups for

water samples, MSS measurements and a multinet station. Here we also released an Argo float and we started a series of surface drifter deployments along the equator. We have two different kind of drifters on board, the standard SVP drifters drifting with the water at 15 m depth and CARTHE drifters measuring the velocity in the upper meter. Pairs of drifters were deployed at regular 1° longitude grid between 10°W and 30°W with some lower resolution toward east and west. The combined drifter data will allow to assess the vertical shear of the flow field close to the surface. After a short break due to passing again the EEZ of Equatorial Guinea, we continued station work on September 29 at 20:00 at 2°E. Along the section, we did CTD and MSS stations every 1° longitude and multinet stations every few degrees. All sensors worked continuously without problems. After few stations the CPICS camera system developed a leakage but could be repaired and was in the following only used during shallow 100 m casts. On October 8, we arrived at 18°W, where we deviated from the equatorial section to perform a short meridional section with the shipboard ADCP between 0°45'N/S to identify the latitudinal core location of the Equatorial Undercurrent and equatorial deep jets. On October 11 at 15:00 UTC, we reached the mooring position of the long-term mooring at 23°W. This mooring is operated in cooperation with the French PIRATA project since December 2001. Data of this mooring are used in many publications studying diverse topics such as the equatorial circulation, tropical climate, oxygen distribution and variability, sinking of particles at the equator and downward carbon flux. After having a day-time cast with the multinet, we recovered the mooring without problems. All instruments had worked throughout the mooring period with the moored profiler having a depth range slightly degrading with time. This gives us another excellent dataset to study long-term changes in the equatorial ocean. During the night, we did some CTD, MSS and multinet stations. The deployment of the equatorial mooring began on the next morning at 09:00 UTC and was finished four and a half hours later. We could observe nicely the submerging of the top-element confirming the successful deployment procedure. At the mooring, for the first time, two UVPs were installed continuously measuring particles (100 µm to about 2 cm) at 300 and 800 m depths.

After the mooring work was finished we continued with station work at a resolution of 1° longitude. When approaching the western boundary starting at 37°W, we decreased the distance between stations to 30' longitude and close to the continental slope further up to 5' longitude to capture the very narrow boundary currents. The last CTD station at the equator at 44°15'W was finished on October 22 at 07:30 UTC. We continued the section along the equator until 44°45'W doing particularly underway velocity measurements to capture also the shallow part of the North Brazil Current. After finishing the equatorial section, we turned back to a south-eastward direction heading toward the final destination, the port of Recife, where we arrived on October 26 at 09:00 UTC.

Acknowledgements

We are grateful to Detlef Korte and his crew for the excellent collaboration. The crew of RV METEOR greatly contributed to the success of the cruise. The ship time of RV METEOR was provided by the German Science Foundation (DFG) within the core program METEOR/MERIAN. Financial support was provided by the German Federal Ministry of Education and Research as part of the BANINO (03F0795A) project and by the EU H2020 under grant agreement 817578 TRIATLAS project.

List of Participants

Abbreviations: PO – Physical Oceanography, CO – Chemical Oceanography, BO – Biological Oceanography, ME – Meteorology, ADCP – acoustic Doppler current profiler, CTD – conductivity-temperature-depth measurements and water sampling, LADCP – lowered ADCP, MSS – microstructure sonde, AZFP – acoustic zooplankton fish profiler, DOM/POM – dissolved/particulate organic matter.

	Name, degree	Discipline, function	Institute
1	Brandt, Peter, Prof.	PO, Chief Scientist	GEOMAR
2	Schmidtke, Sunke, Dr.	PO, CTD	GEOMAR
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5	Tuchen, Franz Philip	PO, CTD, moorings, MSS	GEOMAR
6	Begler, Christian	PO, Moorings, logistics	GEOMAR
7	Kisjeloff, Boris	PO, O ₂ logger, salinometer	GEOMAR
8	Martens, Wiebke	PO, CTD technique	GEOMAR
9	Prigent, Arthur	PO, CTD, floats and drifter	GEOMAR
10	Dennert, Peter	PO, Salinometer, CTD, MSS	GEOMAR
11	Heukamp, Finn	PO, CTD, MSS	GEOMAR
12	Hans, Anna Christina	PO, CTD, floats and drifter	GEOMAR
13	Coelho, Paulo	PO, CTD	INIPM
14	Stoeven, Tim, Dr.	CO, Tracer CFC-12, SF6	GEOMAR
15	Schrandt, Julia	CO, Tracer CFC-12, SF6	GEOMAR
16	Kriest, Iris, Dr	CO, Tracer CFC-12, SF6	GEOMAR
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22	Kiko, Rainer, Dr.	BO, Multinet, UVP, zooplankton, NH ₄ , O ₂	GEOMAR
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24	Sarmiento Lezcano, Airam N.	BO, AZFP, zooplankton	ULPGC
25	Filella Lopez de Lamadrid, Alba	BO, DOM, POM	ULPGC/GEOMAR
26	Stelzner, Martin	ME, Weather	DWD
27	Fonseca Figueredo, Adriana	Observer	Brazilian Navy

DWD Deutscher Wetterdienst, Hamburg, Germany

GEOMAR Helmholtz-Zentrum für Ozeanforschung Kiel, Kiel,

UVIGO Universidade de Vigo, Vigo, Spain

INIPM Instituto Nacional de Investigação Pesqueira e Marinha, Luanda, Angola

LDEO Lamont Doherty Earth Observatory at Columbia University, Palisades, NY, USA

ULPGC University of Las Palmas de Gran Canaria, Las Palmas, Spain

RUTGERS Rutgers University, New Brunswick, NJ, USA

Station No.		Date	Gear	Time	Latitude	Longitude	Water Depth	Remarks
METEOR (M158)	GEOMAR	2019		[UTC]	[°]	[°]	[m]	
1-1	CTD 1	20.09.	CTD	12:40-12:55	18°38.13'S	011°56.73'W	122	CTD test station (to bottom)
2-1	MSS 1	20.09.	MSS	13:30-13:45	18°38.13'S	011°56.73'W	123	MSS station
3-1	CTD 2	20.09.	CTD	18:10-18:40	18°00.00'S	011°22.00'W	550	CTD station (to bottom)
4-1	MSS 2	20.09.	MSS	18:50-19:30	18°00.00'S	011°22.00'W	550	MSS station
5-1	MSS 3	20.09.	MSS	21:10-21:30	17°45.64'S	011°19.54'W	580	MSS station
6-1	MSS 4	20.09.	MSS	23:11-23:15	17°30.04'S	011°17.63'W	580	MSS station (no profile)
7-1	MSS 5	21.09.	MSS	01:10	17°12.00'S	011°15.80'W	650	MSS station (no profile)
8-1	CTD 3	21.09.	CTD	02:30-03:00	17°00.00'S	011°16.00'W	690	CTD station (to bottom)
9-1	CTD 4	21.09.	CTD	08:40-09:20	16°00.00'S	011°34.00'E	860	CTD station (to bottom)
10-1	CTD 5	21.09.	CTD	15:15-15:40	15°00.00'S	012°04.00'W	430	CTD station (to bottom)
11-1	MSS 6	21.09.	MSS	16:00	15°00.00'S	012°04.00'W	420	MSS station (no profile)
12-1	MSS 7	21.09.	MSS	21:25-21:45	14°00.00'S	012°12.00'W	500	MSS station
13-1	CTD 6	21.09.	CTD	21:55-22:20	14°00.00'S	012°12.00'W	450	CTD station (to bottom)
14-1	MSS 8	21.09.	MSS	22:30-23:05	14°00.00'S	012°12.00'W	450	MSS station
15-1	MSS 9	22.09.	MSS	05:20-05:50	13°00.00'S	012°43.00'W	950	MSS station
16-1	CTD 7	22.09.	CTD	05:55-06:35	13°00.00'S	012°43.00'W	940	CTD station (to bottom)
17-1	MSS 10	22.09.	MSS	13:15-13:45	12°00.00'S	013°23.00'W	550	MSS station
18-1	CTD 8	22.09.	CTD	13:50-14:25	12°00.00'S	013°23.00'W	550	CTD station (to bottom)
19-1	CTD 9	22.09.	CTD	21:22-21:37	10°38.00'S	013°18.00'E	130	CTD station (to bottom)
20-1	MSS 11	22.09.	MSS	21:46-22:26	10°38.00'S	013°18.00'E	130	MSS station
21-1	CTD 10	22.09.	CTD	23:10-23:30	10°40.00'S	013°15.00'E	230	CTD station (to bottom)
22-1	MSS 12	22.09.	MSS	23:30-00:30	10°40.00'S	013°15.00'E	250	MSS station
23-1	CTD 11	23.09.	CTD	01:05-01:30	10°42.00'S	013°12.00'E	440	CTD station (to bottom)
24-1	MSS 13	23.09.	MSS	01:35-02:40	10°42.00'S	013°12.00'E	440	MSS station
25-1	CTD 12	23.09.	CTD	04:15-04:30	10°44.00'S	013°09.00'E	700	CTD station (to bottom)
26-1	KPO1200	23.09.	Mooring	10:30-10:50	10°42.11'S	013°43.13'E	30	Mooring delivery
27-1	CTD 13	23.09.	CTD	13:25-13:35	10°30.00'S	013°30.00'E	50	CTD station (to bottom)
28-1	MSS 14	23.09.	MSS	13:45-14:15	10°30.00'S	013°30.00'E	50	MSS station
29-1	CTD 14	23.09.	CTD	14:55-15:05	10°32.00'S	013°27.00'E	65	CTD station (to bottom)
30-1	MSS 15	23.09.	MSS	15:15-15:50	10°32.00'S	013°27.00'E	65	MSS station
31-1	CTD 15	23.09.	CTD	16:30-16:40	10°34.00'S	013°24.00'E	95	CTD station (to bottom)
32-1	MSS 16	23.09.	MSS	16:45-17:20	10°34.00'S	013°24.00'E	95	MSS station
33-1	CTD 16	23.09.	CTD	17:55-18:05	10°36.00'S	013°21.00'E	112	CTD station (to bottom)
34-1	MSS 17	23.09.	MSS	18:15-18:40	10°36.00'S	013°21.00'E	112	MSS station
35-1	KPO1154	23.09.	Mooring	19:50-20:45	10°40.44'S	013°14.44'E	290	PIES search (not successful)
36-1	KPO1155	23.09.	Mooring	21:30-22:05	10°42.68'S	013°11.08'E	490	PIES search (not successful)
37-1	CTD 17	23.09.	CTD	22:55-23:40	10°46.00'S	013°06.00'E	945	CTD station (to bottom)
38-1	MSS 18	23.09.	MSS	23:50-00:40	10°46.00'S	013°06.00'E	945	MSS station

39-1	CTD 18	24.09.	CTD	01:15-02:05	10°48.00'S	013°03.00'E	1160	CTD station (to bottom)
40-1	MSN 1	24.09.	MSN	02:50-04:00	10°50.00'S	013°00.00'E	1230	Multinet station
41-1	CTD 19	24.09.	CTD	04:15-05:05	10°50.00'S	013°00.00'E	1230	CTD station (to bottom)
42-1	MSS 19	24.09.	MSS	05:15-05:45	10°50.00'S	013°00.00'E	1230	MSS station
43-1	CTD 20	24.09.	CTD	06:40-07:35	10°53.03'S	012°55.00'E	1285	CTD station (to bottom)
44-1	MSS 20	24.09.	MSS	07:45-08:50	10°53.03'S	012°55.00'E	1285	MSS station
45-1	CTD 21	24.09.	CTD	09:40-10:40	10°56.07'S	012°50.00'E	1382	CTD station (to bottom)
46-1	MSS 21	24.09.	MSS	10:55-11:35	10°56.07'S	012°50.00'E	1382	MSS station
47-1	CTD 22	24.09.	CTD	12:45-14:30	11°00.00'S	012°45.00'E	1430	CTD station (to bottom);
48-1	MSS 22	24.09.	MSS	14:35-15:10	11°00.00'S	012°45.00'E	1430	MSS station
49-1	CTD 23	24.09.	CTD	18:35-20:15	11°20.00'S	012°15.00'E	2295	CTD station (to bottom)
50-1	ARGO 1	24.09.	Float	20:25	11°20.00'S	012°15.00'E	2295	Argo float deployment
51-1	MSN 2	24.09.	MSN	20:35-21:30	11°20.00'S	012°15.00'E	2295	Multinet station
52-1	CTD 24	25.09.	CTD	01:40-04:30	11°45.00'S	011°38.00'E	3460	CTD station (to bottom)
53-1	ARGO 2	25.09.	Float	04:35	11°45.00'S	011°38.00'E	3460	Argo float deployment
53-2	ARGO 3	25.09.	Float	04:40	11°45.00'S	011°38.00'E	3460	Argo float deployment
54-1	CTD 25	25.09.	CTD	12:55-13:45	10°50.00'S	013°00.00'E	1230	CTD station (to bottom)
55-1	MSN 3	25.09.	MSN	13:55-14:55	10°50.00'S	013°00.00'E	1230	Multinet station
56-1	KPO1215	25.09.	Mooring	15:40-17:40	10°50.00'S	013°00.00'E	1230	Mooring deployment
57-1	KPO1219	25.09.	Mooring	18:00	10°49.50'S	012°59.70'E	1230	PIES deployment
58-1	CTD 26	26.09.	CTD	19:25-20:15	06°27.00'S	011°22.00'E	530	CTD station (to bottom)
59-1	MSS 23	26.09.	MSS	20:20-21:05	06°27.00'S	011°22.00'E	530	MSS station
60-1	CTD 27	28.09.	CTD	22:25-22:50	00°00.00'S	005°00.00'E	3815	CTD station (200m)
61-1	MSN 4	28.09.	MSN	23:00-00:10	00°00.00'S	005°00.00'E	3815	Multinet station
62-1	CTD 28	29.09.	CTD	00:25-02:45	00°00.00'S	005°00.00'E	3815	CTD station (to bottom)
63-1	SVP 1	29.09.	Drifter	03:05	00°00.00'S	005°00.00'E	3815	SVP Drifter deployment
64-1	ARGO 4	29.09.	Float	03:10	00°00.00'S	005°00.00'E	3815	Argo float deployment
65-1	MSS 24	29.09.	MSS	03:15-03:55	00°00.00'S	005°00.00'E	3815	MSS station
66-1	CTD 29	29.09.	CTD	20:05-20:19	00°00.00'S	002°00.00'E	4612	CTD station (100m)
67-1	CTD 30	29.09.	CTD	20:50-23:45	00°00.00'S	002°00.00'E	4612	CTD station (to bottom)
68-1	MSS 24	29.09.	MSS	23:55-00:20	00°00.00'S	002°00.00'E	4612	MSS station
69-1	CTD 31	30.09.	CTD	05:45-08:55	00°00.00'S	001°00.00'E	4832	CTD station (to bottom)
70-1	MSS 25	30.09.	MSS	09:00-09:30	00°00.00'S	001°00.00'E	4832	MSS station
71-1	CTD 32	30.09.	CTD	16:05-16:35	00°00.00'S	000°00.00'E	4935	CTD station (200m)
72-1	MSN 5	30.09.	MSN	16:35-17:30	00°00.00'S	000°00.00'E	4935	Multinet station
73-1	CTD 33	30.09.	CTD	17:40-20:50	00°00.00'S	000°00.00'E	4935	CTD station (to bottom)
74-1	MSN 6	30.09.	MSN	21:00-22:00	00°00.00'S	000°00.00'E	4935	Multinet station
75-1	SVP 2	30.09.	Drifter	22:10	00°00.00'S	000°00.00'E	4935	SVP Drifter deployment
76-1	CARTHE 1	30.09.	Drifter	22:15	00°00.00'S	000°00.00'E	4935	CARTHE Drifter deployment
77-1	MSS 26	30.09.	MSS	22:20-22:55	00°00.00'S	000°00.00'E	4935	MSS station
78-1	CTD 34	01.10.	CTD	04:15-07:45	00°00.00'S	001°00.00'W	4998	CTD station (to bottom)
79-1	MSS 27	01.10.	MSS	07:55-08:25	00°00.00'S	001°00.00'W	4998	MSS station
80-1	CTD 35	01.10.	CTD	13:45-17:05	00°00.00'S	002°00.00'W	5055	CTD station (to bottom)
81-1	MSS 28	01.10.	MSS	17:15-17:50	00°00.00'S	002°00.00'W	5055	MSS station

82-1	CTD 36	01.10.	CTD	23:15-02:55	00°00.00'S	003°00.00'W	5125	CTD station (to bottom)
83-1	CARTHE 2	02.10.	Drifter	03:10	00°00.00'S	003°00.00'W	5125	CARTHE Drifter deployment
84-1	SVP 3	02.10.	Drifter	03:10	00°00.00'S	003°00.00'W	5125	SVP Drifter deployment
85-1	MSS 29	02.10.	MSS	03:15-03:55	00°00.00'S	003°00.00'W	5125	MSS station
86-1	CTD 37	02.10.	CTD	09:15-12:25	00°00.00'S	004°00.00'W	5141	CTD station (to bottom)
87-1	MSS 30	02.10.	MSS	12:35-13:15	00°00.00'S	004°00.00'W	5141	MSS station
88-1	CTD 38	02.10.	CTD	18:25-18:50	00°00.00'S	005°00.00'W	5157	CTD station (200m)
89-1	MSN 7	02.10.	MSN	18:55-20:10	00°00.00'S	005°00.00'W	5157	Multinet station
90-1	CTD 39	02.10.	CTD	20:20-23:25	00°00.00'S	005°00.00'W	5157	CTD station (to bottom)
91-1	ARGO 5	02.10.	Float	23:40	00°00.00'S	005°00.00'W	5157	Argo float deployment
92-1	MSS 31	03.10.	MSS	00:05-00:45	00°00.00'S	005°00.00'W	5157	MSS station
93-1	CTD 40	03.10.	CTD	06:00-09:15	00°00.00'S	006°00.00'W	5081	CTD station (to bottom)
94-1	CARTHE 3	03.10.	Drifter	09:25	00°00.00'S	006°00.00'W	5081	CARTHE Drifter deployment
95-1	SVP 4	03.10.	Drifter	09:30	00°00.00'S	006°00.00'W	5081	SVP Drifter deployment
96-1	MSS 32	03.10.	MSS	09:30-10:05	00°00.00'S	006°00.00'W	5081	MSS station
97-1	CTD 41	03.10.	CTD	15:30-18:40	00°00.00'S	007°00.00'W	5141	CTD station (to bottom)
98-1	CPICS 1	03.10.	CTD	18:50-19:05	00°00.00'S	007°00.00'W	5141	CPICS station
99-1	MSS 33	03.10.	MSS	19:10-19:45	00°00.00'S	007°00.00'W	5141	MSS station
100-1	CTD 42	04.10.	CTD	01:15-04:35	00°00.00'S	008°00.00'W	5198	CTD station (to bottom)
101-1	CPICS 2	04.10.	CTD	04:40-04:55	00°00.00'S	008°00.00'W	5198	CPICS station
102-1	CARTHE 4	04.10.	Drifter	05:10	00°00.00'S	008°00.00'W	5198	CARTHE Drifter deployment
103-1	SVP 5	04.10.	Drifter	05:15	00°00.00'S	008°00.00'W	5198	SVP Drifter deployment
104-1	MSS 34	04.10.	MSS	05:15-05:55	00°00.00'S	008°00.00'W	5198	MSS station
105-1	CPICS 3	04.10.	CTD	11:35-11:45	00°00.00'S	009°00.00'W	4462	CPICS station
106-1	CTD 43	04.10.	CTD	11:50:14:40	00°00.00'S	009°00.00'W	4462	CTD station (to bottom)
107-1	MSS 35	04.10.	MSS	14:45-15:15	00°00.00'S	009°00.00'W	4462	MSS station
108-1	CPICS 4	04.10.	CTD	22:15-22:25	00°00.00'S	010°00.00'W	4761	CPICS station
109-1	CTD 44	04.10.	CTD	22:35-22:50	00°00.00'S	010°00.00'W	4761	CTD station (200m)
110-1	MSN 8	04.10.	MSN	23:00-00:05	00°00.00'S	010°00.00'W	4761	Multinet station
111-1	CTD 45	05.10.	CTD	00:10-03:05	00°00.00'S	010°00.00'W	4761	CTD station (to bottom)
112-1	MSN 9	05.10.	MSN	03:15-04:25	00°00.00'S	010°00.00'W	4761	Multinet station
113-1	CARTHE 5	05.10.	Drifter	04:30	00°00.00'S	010°00.00'W	4761	CARTHE Drifter deployment
114-1	SVP 6	05.10.	Drifter	04:35	00°00.00'S	010°00.00'W	4761	SVP Drifter deployment
115-1	MSN 10	05.10.	MSN	04:40-05:35	00°00.00'S	010°00.00'W	4761	Multinet station
116-1	MSS 36	05.10.	MSS	05:40-06:15	00°00.00'S	010°00.00'W	4761	MSS station
117-1	CPICS 5	05.10.	CTD	12:05-12:20	00°00.00'S	011°00.00'W	3855	CPICS station
118-1	CTD 46	05.10.	CTD	12:30-14:55	00°00.00'S	011°00.00'W	3855	CTD station (to bottom)
119-1	CARTHE 6	05.10.	Drifter	15:05	00°00.00'S	011°00.00'W	3855	CARTHE Drifter deployment
120-1	SVP 7	05.10.	Drifter	15:10	00°00.00'S	011°00.00'W	3855	SVP Drifter deployment
121-1	MSS 37	05.10.	MSS	15:15-15:55	00°00.00'S	011°00.00'W	3855	MSS station
122-1	CTD 47	05.10.	CTD	21:40-00:15	00°00.00'S	012°00.00'W	3982	CTD station (to bottom)
123-1	CPICS 6	06.10.	CTD	00:20-00:35	00°00.00'S	012°00.00'W	3982	CPICS station
124-1	MSN 11	06.10.	MSN	00:40-01:50	00°00.00'S	012°00.00'W	3982	Multinet station
125-1	CARTHE 7	06.10.	Drifter	02:00	00°00.00'S	012°00.00'W	3982	CARTHE Drifter deployment

126-1	SVP 8	06.10.	Drifter	02:05	00°00.00'S	012°00.00'W	3982	SVP Drifter deployment
127-1	MSS 38	06.10.	MSS	02:05-02:40	00°00.00'S	012°00.00'W	3982	MSS station
128-1	CPICS 7	06.10.	CTD	08:10-08:25	00°00.00'S	013°00.00'W	4392	CPICS station
129-1	CTD 48	06.10.	CTD	08:35-11:20	00°00.00'S	013°00.00'W	4392	CTD station (to bottom)
130-1	CARTHE 8	06.10.	Drifter	11:35	00°00.00'S	013°00.00'W	4392	CARTHE Drifter deployment
131-1	SVP 9	06.10.	Drifter	11:35	00°00.00'S	013°00.00'W	4392	SVP Drifter deployment
132-1	MSS 39	06.10.	MSS	11:40-12:20	00°00.00'S	013°00.00'W	4392	MSS station
133-1	MSN 12	06.10.	MSN	17:40-18:30	00°00.00'S	014°00.00'W	3865	Multinet station
134-1	CPICS 8	06.10.	CTD	17:35-18:50	00°00.00'S	014°00.00'W	3865	CPICS station
135-1	CTD 49	06.10.	CTD	18:55-21:25	00°00.00'S	014°00.00'W	3865	CTD station (to bottom)
136-1	MSN 13	06.10.	MSN	21:30-22:30	00°00.00'S	014°00.00'W	3865	Multinet station
137-1	CARTHE 9	06.10.	Drifter	22:40	00°00.00'S	014°00.00'W	3865	CARTHE Drifter deployment
138-1	SVP 10	06.10.	Drifter	22:40	00°00.00'S	014°00.00'W	3865	SVP Drifter deployment
139-1	MSS 40	06.10.	MSS	22:45-23:25	00°00.00'S	014°00.00'W	3865	MSS station
140-1	MSN 14	07.10.	MSN	05:00-05:55	00°00.00'S	015°00.00'W	3778	Multinet station
141-1	CTD 50	07.10.	CTD	06:00-07:05	00°00.00'S	015°00.00'W	3780	CTD station (to 600m)
142-1	CPICS 9	07.10.	CTD	07:10-07:55	00°00.00'S	015°00.00'W	3780	CPICS yoyo-station
143-1	CTD 51	07.10.	CTD	08:10-10:30	00°00.00'S	015°00.00'W	3780	CTD station (to bottom)
144-1	MSN 15	07.10.	MSN	10:40-11:40	00°00.00'S	015°00.00'W	3780	Multinet station
145-1	ARGO 6	07.10.	Float	11:50	00°00.00'S	015°00.00'W	3780	Argo float deployment
146-1	CARTHE 10	07.10.	Drifter	11:55	00°00.00'S	015°00.00'W	3780	CARTHE Drifter deployment
147-1	SVP 11	07.10.	Drifter	11:55	00°00.00'S	015°00.00'W	3780	SVP Drifter deployment
148-1	MSS 41	07.10.	MSS	12:00-12:35	00°00.00'S	015°00.00'W	3780	MSS station
149-1	CPICS 10	07.10.	CTD	18:25-18:40	00°00.00'S	016°00.00'W	3302	CPICS station
150-1	CTD 52	07.10.	CTD	18:45-20:45	00°00.00'S	016°00.00'W	3302	CTD station (to bottom)
151-1	CARTHE 11	07.10.	Drifter	21:00	00°00.00'S	016°00.00'W	3302	CARTHE Drifter deployment
152-1	SVP 12	07.10.	Drifter	21:00	00°00.00'S	016°00.00'W	3302	SVP Drifter deployment
153-1	MSS 42	07.10.	MSS	21:05-21:45	00°00.00'S	016°00.00'W	3302	MSS station
154-1	MSN 16	08.10.	MSN	03:20-04:25	00°00.00'S	017°00.00'W	5100	Multinet station
155-1	CTD 53	08.10.	CTD	05:00-08:05	00°00.00'S	017°00.00'W	5100	CTD station (to bottom)
156-1	MSS 43	08.10.	MSS	08:15-08:45	00°00.00'S	017°00.00'W	5100	MSS station
157-1	CARTHE 12	08.10.	Drifter	08:50	00°00.00'S	017°00.00'W	5100	CARTHE Drifter deployment
158-1	SVP 13	08.10.	Drifter	08:50	00°00.00'S	017°00.00'W	5100	SVP Drifter deployment
159-1	MSN 17	08.10.	MSN	09:00-10:00	00°00.00'S	017°00.00'W	5100	Multinet station
160-1	CTD 54	08.10.	CTD	13:00-16:30	00°00.00'S	017°30.00'W	5660	CTD station (to bottom)
		08.10.		16:30	00°45.00'N- 00°45.00'S	018°00.00'W	6588	ADCP measurements
161-1	MSN 18	09.10.	MSN	11:50-12:55	00°00.00'S	018°00.00'W	6588	Multinet station
162-1	CPICS 11	09.10.	CTD	13:00-13:15	00°00.00'S	018°00.00'W	6588	CPICS station
163-1	CTD 55	09.10.	CTD	13:30-17:30	00°00.00'S	018°00.00'W	6588	CTD station (to 6000m)
164-1	CARTHE 13	09.10.	Drifter	17:40	00°00.00'S	018°00.00'W	6588	CARTHE Drifter deployment
165-1	SVP 14	09.10.	Drifter	17:45	00°00.00'S	018°00.00'W	6588	SVP Drifter deployment
166-1	MSS 44	09.10.	MSS	17:45-18:15	00°00.00'S	018°00.00'W	6588	MSS station

167-1	CTD 56	09.10.	CTD	00:05-02:50	00°00.00'S	019°00.00'W	4420	CTD station (to bottom)
168-1	CARTHE 14	10.10.	Drifter	03:20	00°00.00'S	019°00.00'W	4420	CARTHE Drifter deployment
169-1	SVP 15	10.10.	Drifter	03:20	00°00.00'S	019°00.00'W	4420	SVP Drifter deployment
170-1	MSS 45	10.10.	MSS	03:30-04:10	00°00.00'S	019°00.00'W	4420	MSS station
171-1	CTD 57	10.10.	CTD	09:40-10:00	00°00.00'S	020°00.00'W	2540	CTD station (to 200m)
172-1	MSN 19	10.10.	MSN	10:15-11:15	00°00.00'S	020°00.00'W	2540	Multinet station
173-1	CTD 58	10.10.	CTD	11:15-13:05	00°00.00'S	020°00.00'W	2540	CTD station (to bottom)
174-1	CARTHE 15	10.10.	Drifter	13:15	00°00.00'S	020°00.00'W	2540	CARTHE Drifter deployment
175-1	SVP 16	10.10.	Drifter	13:15	00°00.00'S	020°00.00'W	2540	SVP Drifter deployment
176-1	MSS 46	10.10.	MSS	13:20-14:00	00°00.00'S	020°00.00'W	2540	MSS station
177-1	CTD 59	10.10.	CTD	19:15-22:20	00°00.00'S	021°00.00'W	5127	CTD station (to bottom)
178-1	CARTHE 16	10.10.	Drifter	22:35	00°00.00'S	021°00.00'W	5127	CARTHE Drifter deployment
179-1	SVP 17	10.10.	Drifter	22:35	00°00.00'S	021°00.00'W	5127	SVP Drifter deployment
180-1	MSS 47	10.10.	MSS	22:40-23:20	00°00.00'S	021°00.00'W	5127	MSS station
181-1	MSN 20	11.10.	MSN	04:40-05:40	00°00.00'S	022°00.00'W	4119	Multinet station
182-1	CTD 60	11.10.	CTD	05:45-08:15	00°00.00'S	022°00.00'W	4119	CTD station (10 m above the bottom)
183-1	CARTHE 17	11.10.	Drifter	08:25	00°00.00'S	022°00.00'W	4119	CARTHE Drifter deployment
184-1	SVP 18	11.10.	Drifter	08:25	00°00.00'S	022°00.00'W	4119	SVP Drifter deployment
185-1	MSS 48	11.10.	MSS	08:30-09:05	00°00.00'S	022°00.00'W	4119	MSS station
186-1	MSN 21	11.10.	MSN	14:50-16:00	00°00.00'S	023°06.80'W	3930	Multinet station
187-1	KPO1201	11.10.	Mooring	16:40-20:10	00°00.00'N	023°06.80'W	3930	Mooring recovery
188-1	CARTHE 18	11.10.	Drifter	20:25	00°00.00'S	023°06.80'W	3930	CARTHE Drifter deployment
189-1	SVP 19	11.10.	Drifter	20:25	00°00.00'S	023°06.80'W	3930	SVP Drifter deployment
190-1	MSS 49	11.10.	MSS	20:35-20:55	00°00.00'S	023°06.80'W	3930	MSS station
191-1	CPICS 12	11.10.	CTD	21:25-22:15	00°00.00'S	023°06.80'W	3930	CPICS yoyo station
192-1	CTD 61	11.10.	CTD	22:35-22:55	00°00.00'S	023°06.80'W	3930	CTD station (to 200m)
193-1	MSN 22	11.10.	MSN	23:00-00:05	00°00.00'S	023°06.80'W	3930	Multinet station
194-1	CTD 62	12.10.	CTD	00:20-02:45	00°00.00'S	023°06.80'W	3930	CTD station (to bottom)
195-1	MSN 23	12.10.	MSN	02:55-04:00	00°00.00'S	023°06.80'W	3930	Multinet station
196-1	MSS 50	12.10.	MSS	04:05-04:55	00°00.00'S	023°06.80'W	3930	MSS station
197-1	CTD 63	12.10.	CTD	05:05-05:25	00°00.00'S	023°06.80'W	3930	CTD station (to 200m)
198-1	CPICS 12	11.10.	CTD	05:40-06:50	00°00.00'S	023°06.80'W	3930	CPICS yoyo station
199-1	KPO1210	12.10.	Mooring	09:10-13:45	00°00.00'S	023°06.80'W	3930	Mooring deployment
200-1	CTD 64	12.10.	CTD	18:30-21:00	00°00.00'S	024°00.00'W	3262	CTD station (10 m above the bottom)
201-1	CARTHE 19	12.10.	Drifter	21:05	00°00.00'S	024°00.00'W	3262	CARTHE Drifter deployment
202-1	SVP 20	12.10.	Drifter	21:05	00°00.00'S	024°00.00'W	3262	SVP Drifter deployment
203-1	CTD 65	13.10.	CTD	02:25-02:45	00°00.00'S	025°00.00'W	3204	CTD station (to 200m)
204-1	MSN 24	13.10.	MSN	02:55-05:05	00°00.00'S	025°00.00'W	3204	Multinet station
205-1	CTD 66	13.10.	CTD	05:15-07:15	00°00.00'S	025°00.00'W	3204	CTD station (to bottom)
206-1	ARGO 7	13.10.	Float	07:25	00°00.00'S	025°00.00'W	3204	Argo float deployment

207-1	CARTHE 20	13.10.	Drifter	07:25	00°00.00'S	025°00.00'W	3204	CARTHE Drifter deployment
208-1	SVP 21	13.10.	Drifter	07:25	00°00.00'S	025°00.00'W	3204	SVP Drifter deployment
209-1	MSS 51	13.10.	MSS	07:30-08:00	00°00.00'S	025°00.00'W	3204	MSS station
210-1	MSN 25	13.10.	MSN	08:05-09:05	00°00.00'S	025°00.00'W	3204	Multinet station
211-1	CTD 67	13.10.	CTD	14:20-16:40	00°00.00'S	026°00.00'W	3700	CTD station (10 m above the bottom)
212-1	CPICS 13	13.10.	CTD	16:50-17:05	00°00.00'S	026°00.00'W	3700	CPICS station (110 m)
213-1	CARTHE 21	13.10.	Drifter	17:10	00°00.00'S	026°00.00'W	3700	CARTHE Drifter deployment
214-1	SVP 22	13.10.	Drifter	17:10	00°00.00'S	026°00.00'W	3700	SVP Drifter deployment
215-1	CTD 68	13.10.	CTD	22:40-00:45	00°00.00'S	027°00.00'W	3329	CTD station (10 m above the bottom)
216-1	CARTHE 22	14.10.	Drifter	00:50	00°00.00'S	027°00.00'W	3329	CARTHE Drifter deployment
217-1	SVP 23	14.10.	Drifter	00:50	00°00.00'S	027°00.00'W	3329	SVP Drifter deployment
218-1	CTD 69	14.10.	CTD	06:20-08:45	00°00.00'S	028°00.00'W	3950	CTD station (10 m above the bottom)
219-1	CPICS 14	14.10.	CTD	08:50-09:00	00°00.00'S	028°00.00'W	3950	CPICS station (110 m)
220-1	CARTHE 23	14.10.	Drifter	09:10	00°00.00'S	028°00.00'W	3950	CARTHE Drifter deployment
221-1	SVP 24	14.10.	Drifter	09:10	00°00.00'S	028°00.00'W	3950	SVP Drifter deployment
222-1	MSS 52	14.10.	MSS	09:15-09:50	00°00.00'S	028°00.00'W	3950	MSS station
223-1	CTD 70	14.10.	CTD	15:25-18:05	00°00.00'S	029°00.00'W	3536	CTD station (10 m above the bottom)
224-1	CARTHE 24	14.10.	Drifter	18:10	00°00.00'S	029°00.00'W	3536	CARTHE Drifter deployment
225-1	SVP 25	14.10.	Drifter	18:15	00°00.00'S	029°00.00'W	3536	SVP Drifter deployment
226-1	CTD 71	15.10.	CTD	00:00-02:35	00°00.00'S	030°00.00'W	3849	CTD station (10 m above the bottom)
227-1	CPICS 15	15.10.	CTD	02:45-03:00	00°00.00'S	030°00.00'W	3849	CPICS station (110 m)
228-1	CARTHE 25	15.10.	Drifter	03:10	00°00.00'S	030°00.00'W	3849	CARTHE Drifter deployment
229-1	SVP 26	15.10.	Drifter	03:10	00°00.00'S	030°00.00'W	3849	SVP Drifter deployment
230-1	MSS 53	15.10.	MSS	03:10-03:45	00°00.00'S	030°00.00'W	3849	MSS station
231-1	CTD 72	15.10.	CTD	08:50-11:30	00°00.00'S	031°00.00'W	4325	CTD station (10 m above the bottom)
232-1	CTD 73	15.10.	CTD	16:45-19:30	00°00.00'S	032°00.00'W	4437	CTD station (10 m above the bottom)
233-1	CPICS 16	15.10.	CTD	19:35-19:50	00°00.00'S	032°00.00'W	4437	CPICS station (110 m)
234-1	CARTHE 26	15.10.	Drifter	19:50	00°00.00'S	032°00.00'W	4437	CARTHE Drifter deployment
235-1	SVP 27	15.10.	Drifter	19:50	00°00.00'S	032°00.00'W	4437	SVP Drifter deployment
236-1	MSS 54	15.10.	MSS	19:55-20:30	00°00.00'S	032°00.00'W	4437	MSS station
237-1	CTD 74	16.10.	CTD	01:45-04:45	00°00.00'S	033°00.00'W	4551	CTD station (10 m above the bottom)
238-1	MSN 25	16.10.	MSN	04:55-06:00	00°00.00'S	033°00.00'W	4551	Multinet station
239-1	CTD 75	16.10.	CTD	11:00-13:55	00°00.00'S	034°00.00'W	4564	CTD station (10 m above the bottom)
240-1	CARTHE 27	16.10.	Drifter	14:00	00°00.00'S	034°00.00'W	4564	CARTHE Drifter deployment
241-1	SVP 28	16.10.	Drifter	14:00	00°00.00'S	034°00.00'W	4564	SVP Drifter deployment
242-1	CTD 76	16.10.	CTD	20:10-20:35	00°00.00'S	035°00.00'W	4546	CTD station (to 200m)

243-1	MSN 26	16.10.	MSN	20:40-21:35	00°00.00'S	035°00.00'W	4546	Multinet station
244-1	CTD 77	16.10.	CTD	21:45-00:40	00°00.00'S	035°00.00'W	4546	CTD station (10 m above the bottom)
245-1	MSN 27	17.10.	MSN	01:00-02:05	00°00.00'S	035°00.00'W	4546	Multinet station
246-1	CPICS 17	17.10.	CTD	02:10-02:25	00°00.00'S	035°00.00'W	4546	CPICS station (110 m)
247-1	ARGO 8	17.10.	Float	02:30	00°00.00'S	035°00.00'W	4546	Argo float deployment
248-1	MSS 55	17.10.	MSS	02:35-03:10	00°00.00'S	035°00.00'W	4546	MSS station
249-1	CTD 78	17.10.	CTD	05:50-08:35	00°00.00'S	035°30.00'W	4537	CTD station (10 m above the bottom)
250-1	CTD 79	17.10.	CTD	11:25-14:20	00°00.00'S	036°00.00'W	4537	CTD station (10 m above the bottom)
251-1		17.10.		14:25-15:25	00°00.00'S	036°00.00'W	4537	ADCP pressure test
252-1	SVP 29	17.10.	Drifter	15:35	00°00.00'S	036°00.00'W	4537	SVP Drifter deployment
253-1	CTD 80	17.10.	CTD	18:15-21:40	00°00.00'S	036°30.00'W	4522	CTD station (10 m above the bottom)
254-1	CTD 81	17.10.	CTD	00:45-03:55	00°00.00'S	037°00.00'W	4514	CTD station (10 m above the bottom)
255-1	MSN 28	18.10.	MSN	04:05-05:10	00°00.00'S	037°00.00'W	4514	Multinet station
256-1	CPICS 18	18.10.	CTD	05:15-05:25	00°00.00'S	037°00.00'W	4514	CPICS station (110 m)
257-1	SVP 30	18.10.	Drifter	05:35	00°00.00'S	037°00.00'W	4514	SVP Drifter deployment
258-1	MSS 55	18.10.	MSS	05:40-06:20	00°00.00'S	037°00.00'W	4514	MSS station
259-1	CTD 82	18.10.	CTD	09:25-12:25	00°00.00'S	037°30.00'W	4490	CTD station (10 m above the bottom)
260-1	CTD 83	18.10.	CTD	15:05-18:00	00°00.00'S	038°00.00'W	4450	CTD station (10 m above the bottom)
261-1	SVP 31	18.10.	Drifter	18:05	00°00.00'S	038°00.00'W	4450	SVP Drifter deployment
262-1	CTD 84	18.10.	CTD	20:50-23:40	00°00.00'S	038°30.00'W	4379	CTD station (10 m above the bottom)
263-1	CTD 85	19.10.	CTD	02:40-05:20	00°00.00'S	039°00.00'W	4317	CTD station (10 m above the bottom)
264-1	CTD 86	19.10.	CTD	08:15-11:00	00°00.00'S	039°30.00'W	4191	CTD station (10 m above the bottom)
265-1	CTD 87	19.10.	CTD	13:55-14:15	00°00.00'S	040°00.00'W	3450	CTD station (to 200m)
266-1/2	CPICS 19	19.10.	CTD	14:20-15:15	00°00.00'S	040°00.00'W	3450	CPICS station (110 m) yoyo 45 min
267-1	CTD 88	19.10.	CTD	15:30-17:35	00°00.00'S	040°00.00'W	3450	CTD station (10 m above the bottom)
268-1	MSS 56	19.10.	MSS	17:40-18:50	00°00.00'S	040°00.00'W	3450	MSS station
269-1	CTD 89	19.10.	CTD	21:10-23:45	00°00.00'S	040°30.00'W	3905	CTD station (10 m above the bottom)
270-1	CTD 90	20.10.	CTD	02:35-05:00	00°00.00'S	041°00.00'W	3820	CTD station (10 m above the bottom)
271-1	CTD 91	20.10.	CTD	07:45-10:05	00°00.00'S	041°30.00'W	3901	CTD station (10 m above the bottom)
272-1	CTD 92	20.10.	CTD	12:50-15:15	00°00.00'S	042°00.00'W	3865	CTD station (10 m above the bottom)
273-1	CPICS 20	20.10.	CTD	15:20-16:00	00°00.00'S	042°00.00'W	3865	CPICS station (110 m) yoyo 45 min
273-2				16:15-16:35	00°00.00'S	042°00.00'W	3865	ADCP test
274-1	MSS 57	20.10.	MSS	16:45-17:50	00°00.00'S	042°00.00'W	3865	MSS station
275-1	CTD 93	20.10.	CTD	20:25-22:40	00°00.00'S	042°30.00'W	3688	CTD station (10 m above the bottom)
276-1	CTD 94	21.10.	CTD	01:25-03:25	00°00.00'S	043°00.00'W	3362	CTD station (10 m above the bottom)
277-1	CPICS 21	21.10.	CTD	03:35-04:25	00°00.00'S	043°00.00'W	3362	CPICS station (110 m) yoyo 45 min
278-1	CTD 95	21.10.	CTD	05:55-08:05	00°00.00'S	043°15.00'W	3501	CTD station (10 m above the bottom)

279-1	CTD 96	21.10.	CTD	09:40-11:50	00°00.00'S	043°30.00'W	3468	CTD station (10 m above the bottom)
280-1	CTD 97	21.10.	CTD	13:15-15:20	00°00.00'S	043°45.00'W	3252	CTD station (10 m above the bottom)
281-1	CTD 98	21.10.	CTD	16:20-19:00	00°00.00'S	043°55.00'W	3109	CTD station (10 m above the bottom)
282-1	CPICS 22	21.10.	CTD	19:45-20:35	00°00.00'S	044°00.00'W	3049	CPICS station (110 m) yoyo 45 min
283-1	CTD 99	21.10.	CTD	20:50-22:50	00°00.00'S	044°00.00'W	3049	CTD station (10 m above the bottom)
284-1	CTD 100	21.10.	CTD	23:50-02:10	00°00.00'S	044°05.00'W	2730	CTD station (10 m above the bottom)
285-1	CTD 101	22.10.	CTD	02:55-04:50	00°00.00'S	044°10.00'W	1904	CTD station (10 m above the bottom)
286-1	CTD 102	22.10.	CTD	05:30-06:30	00°00.00'S	044°15.00'W	1245	CTD station (500 m)
287-1	CPICS 23	22.10.	CTD	06:40-07:35	00°00.00'S	044°15.00'W	1245	CPICS station (110 m) yoyo 45 min