SHORT CRUISE REPORT

RV METEOR: Cruise M62/2

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Ocean Circulation and Climate Dynamics

M62/2 from Fortaleza, Brazil to Recife, Brazil
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Research Program

Cruise M62/2

The measurement program of M62/2 consists of on station hydrographic and current observations with a CTD-O_2 probe and with an Acoustic Doppler Current Profiler (ADCP) attached to the CTD-rosette (lowered ADCP). Of particular importance are underway current measurements with the deep-reaching 38 kHz Ocean Surveyor ADCP. At the 35°W section two sound source moorings that are part of the RAFOS float project will be deployed. One of these moorings includes several instruments that allow the observation of the equatorial circulation. At 11°S the North Brazil Undercurrent moored array will be recovered. During the cruise several profiling APEX floats and acoustically tracked RAFOS floats will be deployed. At 40°W, 35°W, 28°W, and 5°S the CTD/ADCP profiles will be measured down to 1400m, while at 11°S they will be measured down to the bottom.

The tropical-subtropical interaction and its variability will be measured where it is most strongly focussed, i.e. in the entrance zone of South Atlantic warm water transfer toward the equatorial zone. Previous work has shown that the equatorial warm water transport is most confined to the Brazilian continental slope between 5 and 11°S. The box from the 5°S section to the 11°S section (Fig. 1) is designed to investigate the continuity of the shallow western boundary currents near the Brazilian coast. The sections along 40°W, 35°W and 28°W repeat measurements of previous METEOR and SONNE cruises.

The sections along 35°W and 28°W will be measured at high resolution to resolve small-scale current branches. The transports and water mass parameters can be compared with distributions measured during previous German, French and US cruises. These measurement are a good basis for the analysis of float data and results obtained from the mooring at 35°W at the equator.

A central objective of the work is to investigate transport- and water mass changes of the North Brazilian Undercurrent on time scales of months to several years. To record such changes, at 11°S a moored current meter array is maintained since March 2000. The array will be recovered during the cruise and it will not be redeployed. The hydrographic section along 11°S will be carried out by deep CTD/ADCP stations to obtain reference measurements for the deep instruments within the mooring array and a new realization of highly resolved deep circulation. Due to enhanced levels of the intraseasonal variability in the Deep Western Boundary Current, previous ship sections along 11°S are strongly biased toward high transport values. This is evident for both the southward transport of North Atlantic Deep Water and the northward recirculation.

Cruise Narrative

Departure of RV METEOR from Fortaleza was delayed due to the late arrival of a group of 7 scientists as their flights from Lisbon to Fortaleza on August 6 and August 7 had been cancelled. After the group finally had arrived at RV METEOR, the vessel departed Fortaleza on August 8 near midnight, more than half a day later than originally planned. However, some of the instruments (profiling APEX floats) that should have been delivered to METEOR by air freight via DHL/Danzas were still missing at the time of departure. It was decided to ask for permission to take delivery of the instruments when the ship would pass by Recife's outer anchorage on

our way to the mooring array at 11°S. The loss of time necessitated a change in the cruise track. The section along 40°W was cancelled and RV METEOR headed northeast toward the equator at 35°W where the scientific work started outside the 200nm zone of Brazil.

In the morning of August 10 two RAFOS floats were deployed with a short mission of 36h to test float performance. One float transmitted only incomplete messages and the other one never transmitted any data. After contacting the float manufacturer Seascan as well as Service ARGOS it turned out that the incomplete messages were due to an error in the ARGOS system that was easily corrected. In addition, a problem occurred with corroding the float release wire during different tests in the Seascan laboratory. The compressee attachment to the float was changed to fix the release wire problem. This technical problem with the RAFOS floats caused a delayed start of the planned float deployment.

At the equator and 35°W a new microstructure profiler was used for the first time. It measures the turbulence spectrum at vertical scales from millimeters to meters in the upper ocean. The nominal depth range of the profiler is 400 m. However, due to the very strong shear above the Equatorial Undercurrent (EUC) with westward flow at the surface of more than 0.5 m/s and eastward flow of more than 0.5 m/s in the core of the EUC at about 130 m, the profiler descended only to a depth of about 160 m. The CTD test station with the SBE-1 system at the same position showed erroneous conductivity values due to wrong calibration coefficients. The problem was resolved, however, the data of this station cannot be used for scientific analysis.

During the transit of METEOR to the first mooring position at 5°N 35°W, a mooring release test was carried out indicating that all releases performed well and were ready for use. On August 11, 17:30 UTC, there were only very weak winds from the south and after a short drift test the first mooring deployment of the cruise began. The mooring includes a sound source that transmits acoustic signals every 12 hours to be received by the RAFOS floats. The anchor was dropped at 19:20 UTC and the final mooring position is exactly at 5°N 35°W. After mooring deployment, the CTD section southward along 35°W was begun. The measurements along this section concentrate on the upper ocean. Thus the CTD probe was only lowered to a depth of 1300m. The CTD measurements were accompanied by current measurements with an ADCP attached to the CTD rosette as well as by two shipboard ADCPs, the so-called Ocean Surveyors of 38 kHz and 75 kHz, respectively. Both instruments were subjected to frequent failures of the 3D-Ashtech GPS receiver. Thus, we decided to use a new 2D-GPS receiver as primary input for the OS. However, after the first failures of the Ashtech-GPS receiver, the system was quite stable and we were able to compare the accuracy of the 3D-system with the 2D-system, indicating that the 3D-GPS receiver has a higher accuracy. Thus, we decided to use the 3D-GPS receiver whenever available as standard heading input for both ADCPs, and the 2D-GPS receiver during 3D-GPS failure time.

Along the southward cruise track, CTD stations were spaced apart by 30’ of latitude beginning at 5°N, and by 20’ near the equator. On August 12 in the afternoon, the first two RAFOS floats with a one-year mission as well as another test float with a 6-

day mission were deployed. Since then RAFOS floats have been deployed with a horizontal spacing of about 1° of latitude. Including test floats, this resulted in the deployment of 19 RAFOS floats along the 35°W section.

On August 13, after lunch as METEOR approached the equator, a drift test for the second mooring deployment was carried out at 0°08'N. The ship headed into the wind coming from 135°T and a very strong current, the South Equatorial Current, flowing westward at about 2 kn. The chosen speed through the water of 2 kn results into a southward drift of less than 1 kn over ground. At 15:37 UTC the top element of the mooring was deployed, as were all other instruments subsequently. Thanks to a hydrosweep survey on the way northward some days earlier, the topography in the deployment region was known to be fairly even. The mooring position was chosen to be far enough from the PIRATA mooring situated at 0°00.6'N, 35°59.7W. The anchor was dropped at 17:46 UTC and submersion of the top element could be observed at 18:17 UTC. The final mooring position is 0°05.76'N, 35°01.19'W.

Following this mooring deployment, microstructure measurements were taken at the 35°W section at about 0°02'N. Again, due to the very strong shear above the EUC, measurements were only possible down to a depth of 100m. Seven microstructure profiles were obtained during a one hour period. Subsequent to a CTD/LADCP station at the same position, the weight at the microstructure profiler was increased, enabling a drop depth to 120 m. Analysis of the data will show if this change really leads to a larger range of reliable data.

On August 14 and 15 CTD/LADCP stations were taken on the way southward, accompanied by RAFOS float deployment at some of the stations. On the second to last station of the 35°W section, the pump of the CTD system failed at about 300 m water depth during the downcast. We decided to use the pump of the CTD backup system (SBE-2). However, there was no time to repeat the CTD/LADCP station, as METEOR had already been scheduled for Recife's outer anchorage area at 16:00 UTC on August 16 to load the APEX floats onboard. Thus METEOR headed southward onto the shelf off Brazil, taking the last CTD/LADCP station of the 35°W section at 19:30 UTC on August 15. Upon completion of the station, METEOR started its transit to Recife.

On August 16 after lunch, METEOR reached the outer anchorage area of Recife. Due to a strong swell of up to 3m it became quite difficult to bring the APEX floats on board METEOR. Once onboard, we started to reset the clocks of the APEX floats with RAFOS modules, as they were incorrectly set by the manufacturer. Meanwhile RV METEOR began an ADCP section across the Brazilian shelf toward 9°S, 33°50'W followed by a section parallel to the shelf toward our outermost mooring K4 at 10°56.4'N, 34°59.6W. On August 17, 13:40 UTC METEOR approached the mooring position. Using the board unit with the hydrophone, we were unable to contact the releases. However at 14:00 UTC the release command was sent and only a few minutes later the top element of the mooring could be observed at the sea surface. The mooring was then recovered without any problems. We obtained a nearly complete data set from all instruments in the mooring. At the mooring position the first deep APEX float was deployed successfully.

Meanwhile, analysis of the last CTD cast of the 35°W section indicated that the density profile was partly unstable as the result of erroneous measurements. After recovery of the mooring K4, during the first CTD cast of the 11°S section, we tried to use pump and conductivity probe from the SBE-2 CTD system. However, salinity and oxygen measurements remained very noisy with partly unstable density profiles. At this point, we decided to use the complete backup system SBE-2 and then switched to the backup board unit, unfortunately without any improvements. The next step was the change the winch from W3 to W2. This made the situation worse with data transmission errors below 180 m water depth. At this point during the night from August 17 to August 18 the electronic technicians checked the resistance of the CTD cable and found a short at W2 and fluctuating resistance values at W3. The W3 cable received a new plug, and about 100 m of cable were cut from W2, and from W3 as well later on, but all without success. However, a resistance check of the W2 cable performed during lowering the cable to a water depth of 150m without the CTD-rosette attached showed that the W2 cable worked properly. We stepped back and used the complete CTD system SBE-1 together with W2 and we obtained the first reliable CTD measurements of the 11°S section at 23:00 UTC on August 18. Although it is not entirely clear what the reason of the malfunction of the CTD probe was, the most likely reason is a combination of malfunction of the SBE-2 CTD pump and CTD cables of both winches. At this point we would like to thank the electronic technicians for their great help.

Despite the laborious and nerve-wrecking attempts to repair the CTD probe, we successfully recovered the two innermost moorings of our array at 11°S. The top element of mooring K2 with an ADCP and an ARGO transmitter, as well as a Microcat, were cut off 3 ½ months ago and have already been recovered by a Brazilian research vessel thanks to the ARGO positioning system. Therefore, there was some apprehension on whether or not the remainder of the mooring was still in place. METEOR approached the mooring position in the morning of August 18, at 9:00 UTC. We obtained contact with the hydrophone and about 15 minutes after the release command the first packet of Benthos came to the surface. It took another 15 minutes until we knew that all instruments were still there, except for those recovered some months ago. The recovery of the instruments was completed before breakfast. After some CTD tests described before, METEOR steamed toward mooring K1. A few minutes after the release command was sent, the top element came to the surface and the other two instruments of this very short mooring, an Argonaut and a Microcat, plus the releases, could be recovered within half an hour. After further CTD tests at the mooring position, we were able to start with the CTD section in the evening of August 18. The spacing between CTD stations near the shelf was less than 10 nm, and increasing farther offshore. Mooring work to recover our last mooring K3 started on August 19, 13:00 UTC. We were able to hear the reply from the releases, but only with one of the three hydrophones in use. After sending the release command, all instruments of the mooring were recovered successfully. Including the two instruments recovered by the Brazilian research vessel, we did not lose a single instrument of the entire mooring array. A first view on the obtained data showed that most of the instruments acquired complete data sets. Thus, the mooring activities of this cruise were completed with great success.

On August 19, 16:00 UTC the CTD section was continued along the boundary current array in south-eastward direction toward 11°30'S, 34°13'W and further in eastward direction toward 31°10'W beginning with 10 nm spacing, increasing to 30 nm and 60 nm.

As only one of two short-mission RAFOS floats that were deployed at 0°20'S, 35°W worked properly, we had decided to deploy another test float with a 6-day mission at 2°20'N. This float had ended its mission correctly and sent all data via satellite communication. Meanwhile, also the second test float that had the release wire problem reached the surface and transmitted its data. It was about one week late, but in the end the release wire must have released the drop weight. A comparison with CTD data at the deployment positions showed that all three floats reached the depths of their ballasted density surface within ±3 m. Analysis of the data from the hydrophone indicates that the deep floats heard acoustic signals from the moored sound sources at 23°W, 0°N and 28°W, 3°14'S. The float with the 6-day mission should also have heard the two new sound sources deployed during this cruise at the 35°W section. However, we found only the signal of the sound source deployed at 35°W, 0°N in the RAFOS float data. A failure of the other sound source deployed at 35°W, 5°N is the most likely reason for the missing signal in the data. The shallow float received only a signal from the mooring at 28°W, 3°14'S and only once out of two cycles indicating that acoustic conditions closer to the surface are not as favorable. Nevertheless, all test floats worked properly, except for the problem with the release wire that was fixed by changing the attachment of the compressee to the float. With the sound source at 35°W, 0°N, the coverage of sound sources in the tropical Atlantic should also be good enough for the shallow drifting floats.

The 11°30'S section was completed on August 22, 11:30 UTC. Following this section, the batteries of the NBADCP attached to the CTD rosette had to be changed. During a visual inspection of the instrument we found a deformed transducer surface at two of the four transducers. After contacting the manufacturer, we decided not to use the NBADCP for the rest of the cruise although it had worked very well during all stations. For the shallow stations we changed to our 300kHz up- and down-looking workhorse ADCPs and later for the deep stations at the 5°S sections to the workhorse ADCPs from the group of Monika Rhein, as these instruments in general show better performance in deep waters. From the end of the 11°30'S section METEOR headed in northeasterly direction with only three shallow CTD/LADCP stations on her way to 5°S, 28°10'W. Deep drifting APEX floats were deployed at these stations. On August 24, 7:00 UTC the meridional section along 28°10'W commenced with a spacing between CTD/LADCP stations of 30 nm, decreasing north of 2°S to 20 nm. There were some minor problems with the CTD system: On August 25, another short at the cable of winch W2 forced us to switch from W2 to W3, and on the same day in the evening the data acquisition PC stopped working during an upcast. However, the computer could be restarted while the CTD stayed at depth, resulting in no data loss.

Since we finally received permission from the Brazilian Ministry for Foreign Affairs to deploy the floats inside the Brazilian 200 nm zone which could not be deployed at

the beginning of the cruise due to their late arrival, we deployed a total of 8 shallow drifting APEX floats, some with oxygen probes or RAFOS systems, along the 28°10'W section. In addition, 22 RAFOS floats were deployed along this section.

On August 24, 11:00 UTC we again took microstructure measurements. During the first deployment, the microstructure profiler had reached only depths of about 100 m due to the very strong shear above the EUC. At the chosen location at 4°30'S, 28°10'W the situation was more favorable: although the SEUC had a subsurface maximum at 200 m water depth of more than 50 cm/s, the shear above was much weaker than during the last profiler deployment. We obtained 6 profiles during which the profiler descended to a depth of more than 350m almost monotonically. After the first three profiles the ship's acoustic instruments (Hydrosweep, Parasound, ADCPs) were switched off as suggested by the manufacturer due to possible interference between acoustic noise and measurements. A first look at the data showed that both shear sensors worked well. However, a detailed analysis of the obtained microstructure data will be carried out in Kiel.

On August 26, 21:00 UTC the 28°10'W section was completed at 2°N and METEOR steamed southward toward the eastern end of the 5°S section at 30°10'W. The zonal section along 5°S commenced on August 28, 12:00 UTC with a shallow CTD/LADCP station down to a depth of 1300m and the deployment of one APEX and two RAFOS floats directly after the CTD rosette was onboard. After some shallow stations and another deployment of one APEX and two RAFOS floats, deep CTD/LADCP measurements down to the bottom were taken starting on August 29, 8:30 UTC at 33°W. As discussed before, along this section we used the two workhorse ADCPs from the Monika Rhein group as the lowered ADCP system. They yielded good data similar to our NBADCP. The spacing between CTD/LADCP stations was 30 nm continuously decreasing toward the shelf where it was about 9 nm. The last two RAFOS floats were deployed in the night of August 29 at 5°30'S and 34°10'W. The 5°S section was completed on August 30 at 14:30 UTC. There was about one hour time for testing again the pump of the SBE-2 CTD system. We performed a test station with the SBE-1 CTD system but with the pump of the SBE-2 CTD system. It could be shown that the SBE-2 pump has a malfunction leading to very noisy conductivity and oxygen data. After the CTD test METEOR steamed toward Recife where it arrived in the morning of August 31.

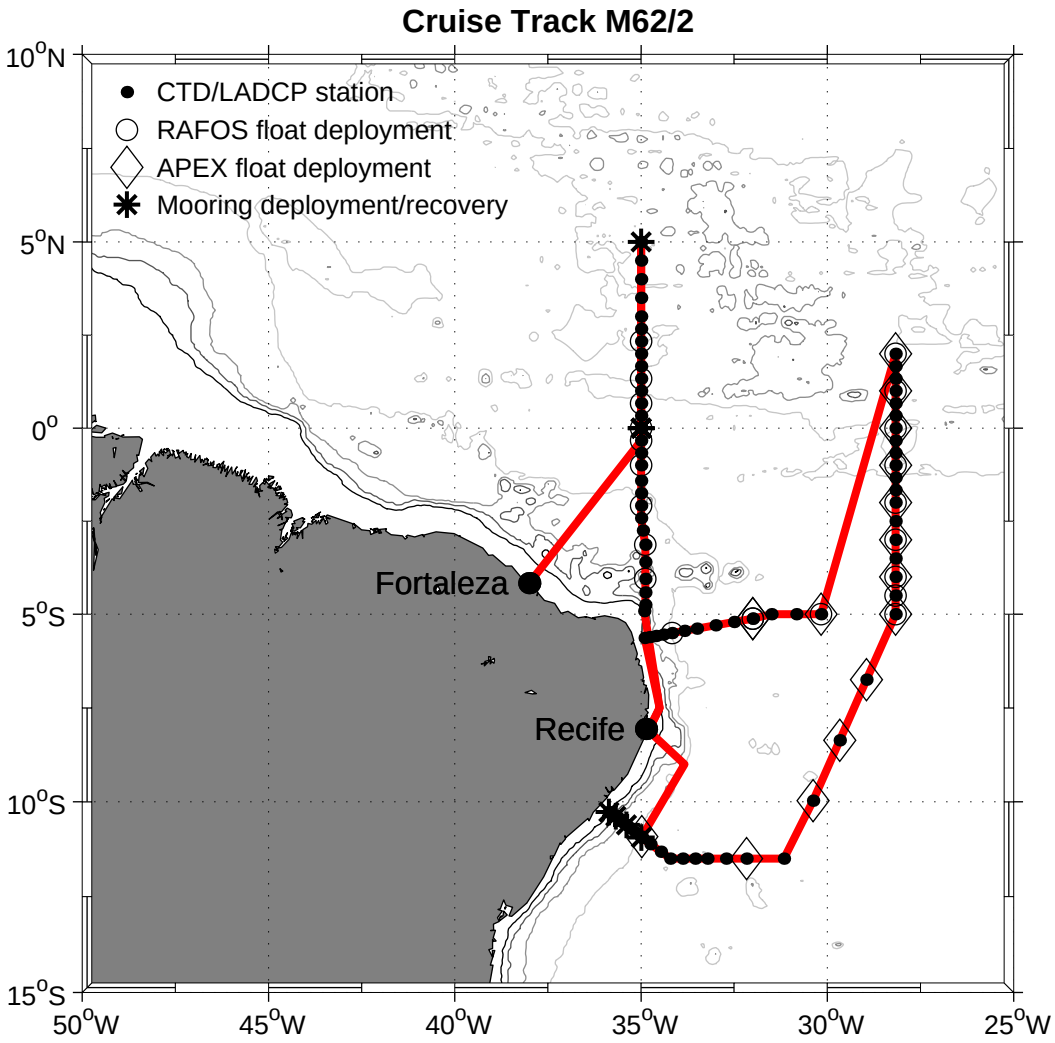

Fig.1: Cruise track M62/2 with CTD/LADCP stations, positions of float deployments and mooring work.

Table 1: METEOR M62/2 CTD/LADCP stations

R/V METEOR cruise M62/2 CTD-stations

SHIP	Station	Profile	DATE	UTC		POSTION						Uncorr.	MAX	NO. OF	
EXPOCODE	No.	No.	Mmddyy	TIME	CODE	LATITUDE			LONGITUDE			DEPTH	PRESS	BOTTLES	PAR.
06ME62/2	788	1	081104	1941	BE	04	58,78	N	34	59,78	W	3797	CTD		
06ME62/2	788	1	081104	20 11	BO	04	58,43	N	34	59,57	W	3781	1299	8	1,2
06ME62/2	788	1	081104	2038	EN	04	58,33	N	34	59.37	W	3910			
06ME62/2	789	2	081104	2315	BE	04	29,82	N	35	00,25	W	3866			
06ME52/2	789	2	081104	2348	BO	04	29,60	N	34	59,78	W	3854	1303	8	1,2
06ME62/2	789	2	081204	0312	EN	04	29,41	N	34	59,45	W	3832			
06ME62/2	790	3	081204	0338	BE	03	59,86	N	34	59,95	W	3505			
06ME62/2	790	3	081204	0424	BO	03	59,46	N	34	59,92	W	3525	1303	6	1,2
06ME62/2	790	3	081204	0323	EN	03	59,27	N	34	59,92	W	3546			
06ME62/2	791	4	081204	0717	BE	03	29,94	N	35	00,00	W	3976			
06ME62/2	791	4	081204	0747	BO	03	29,85	N	34	59,96	W	3970	1298	0	
06ME62/2	791	4	081204	0814	EN	03	29,90	N	34	59,96	W	3972			
06ME62/2	792	5	081204	1108	BE	03	00,14	N	35	00,20	W	3818			
06ME62/2	792	5	081204	1140	BO	03	00,27	N	35	00,10	W	3824	1301	8	1,2
06ME62/2	792	5	081204	1208	EN	03	00,26	N	35	00,04	W	3824			
06ME62/2	793	6	081204	1415	BE	02	40,12	N	35	00,27	W	3988			
06ME62/2	793	6	081204	1446	BO	02	40,11	N	35	00,16	W	3997	1298	8	1,2
06ME62/2	793	6	081204	1513	EN	02	40,21	N	35	00,11	W	3997			
06ME62/2	794	7	081204	1727	BE	02	20,21	N	35	00,32	W	4150			
06ME62/2	794	7	081204	1757	BO	02	20,13	N	35	00,14	W	4152	1298	8	1,2
06ME62/2	794	7	081204	1825	EN	02	55,55	N	35	00,00	W	4152			
06ME62/2	795	8	081204	2043	BE	02	00,07	N	35	00,07	W	4186			
06ME62/2	795	8	081204	2113	BO	02	00,09	N	34	59,97	W		1300	8	1,2
06ME62/2	795	8	081204	2139	EN	02	00,06	N	34	59,88	W	4156			
06ME62/2	796	9	081204	2346	BE	01	40,13	N	35	00,28	W	4052			
06ME62/2	796	9	081304	0016	BO	01	40,08	N	35	00,23	W	4059	1301	8	1,2
06ME62/2	796	9	081304	0044	EN	01	40,10	N	35	00,05	W	4052			
06ME62/2	797	10	081304	0306	BE	01	20,30	N	35	00,27	W	4141			
06ME62/2	797	10	081304	0337	BO	01	20,32	N	35	00,08	W	4141	1299	8	1,2
06ME62/2	797	10	081304	0403	EN	01	20,30	N	34	59,96	W	4158			
06ME62/2	798	11	081304	0625	BE	01	00,01	N	35	00,19	W	3588			
06ME62/2	798	11	081304	0656	BO	01	00,02	N	35	00,08	W	3597	1300	8	1,2
06ME62/2	798	11	081304	0722	EN	01	00,05	N	35	00,02	W	3602			
06ME62/2	799	12	081304	0930	BE	00	40,01	N	35	00,11	W	4635			
06ME62/2	799	12	081305	1001	BO	00	40,00	N	35	00,03	W	4635	1321	8	1,2
06ME62/2	799	12	081304	1028	EN	00	40,09	N	34	59,95	W	4635			
06ME62/2	800	13	081304	1246	BE	00	19,95	N	35	00,03	W	4551			
06ME62/2	800	13	081304	1319	BO	00	20,05	N	34	59,86	W	4543	1300	8	1,2
06ME62/2	800	13	081304	1347	EN	00	20,12	N	34	59,09	W	4546			

06ME62/2	801	14	081304	2029	BE	00	03,06	N	35	01,69	W	4539			
06ME62/2	801	14	081304	2101	BO	00	03,61	N	35	01,57	W	4543	1299	8	1,2
06ME62/2	801	14	081304	2127	EN	00	03,71	N	35	01,41	W	4542			
06ME62/2	802	15	081404	0031	BE	00	20,00	S	35	00,19	W	4483			
06ME62/2	802	15	081404	0103	BO	00	19,87	S	35	00,03	W	4482	1302	8	1,2
06ME62/2	802	15	081404	0130	EN	00	19,80	S	35	00,86	W	4482			
06ME62/2	803	16	081404	0351	BE	00	39,98	S	35	00,06	W	4422			
06ME62/2	803	16	081404	0422	BO	00	39,90	S	34	59,84	W	4422	1298	8	1,2
06ME62/2	803	16	081404	0448	EN	00	39,84	S	34	59,63	W	4424			
06ME62/2	804	17	081404	0705	BE	00	59,97	S	35	00,11	W	4326			
06ME62/2	804	17	081404	0738	BO	00	59,83	S	34	59,98	W	4290	1301	8	1,2
06ME62/2	804	17	081404	0804	EN	00	59,75	S	34	59,77	W	4272			
06ME62/2	805	18	081404	1048	BE	01	25,02	S	35	00,09	W	4293			
06ME62/2	805	18	081404	1118	BO	01	25,06	S	34	59,96	W	4292	1300	6	1,2
06ME62/2	805	18	081404	1146	EN	01	25,03	S	34	59,91	W	4294			
06ME62/2	806	19	081404	1358	BE	01	45,13	S	34	59,92	W	4034			
06ME62/2	806	19	081404	1431	BO	01	45,24	S	34	59,80	W	4037	1300	6	1,2
06ME62/2	806	19	081404	1458	EN	01	45,16	S	34	59,88	W	4037			
06ME62/2	807	20	081404	1710	BE	02	05,19	S	35	00,23	W	3948			
06ME62/2	807	20	081404	1742	BO	02	05,07	S	34	59,98	W	3960	1301	8	1,2
06ME62/2	807	20	081404	1807	EN	02	04,98	S	34	59,95	W	3962			
06ME62/2	808	21	081404	2024	BE	02	24,92	S	35	00,09	W	3828			
06ME62/2	808	21	081404	2056	BO	02	24,88	S	35	00,02	W	3829	1299	8	1,2
06ME62/2	808	21	081404	2120	EN	02	24,88	S	34	59,96	W	3829			
06ME62/2	809	22	081404	2331	BE	02	45,19	S	34	57,11	W	3762			
06ME62/2	809	22	081504	0003	BO	02	45,14	S	34	57,03	W	3761	1303	8	1,2
06ME62/2	809	22	081504	0033	EN	02	45,12	S	34	57,07	W	3762			
06ME62/2	810	23	081504	0302	BE	03	08,01	S	34	52,96	W	3737			
06ME62/2	810	23	081504	0331	BO	03	08,09	S	34	52,85	W	3736	1301	8	1,2
06ME62/2	810	23	081504	0357	EN	03	08,07	S	34	52,65	W	3738			
06ME62/2	811	24	081504	0657	BE	03	35,98	S	34	53,24	W	3106			
06ME62/2	811	24	081504	0742	BO	03	36,03	S	34	53,16	W	3213	1300	8	1,2
06ME62/2	811	24	081504	0806	EN	03	36,02	S	34	53,06	W	3170			
06ME62/2	812	25	081504	1055	BE	04	03,02	S	34	53,18	W	3466			
06ME62/2	812	25	081504	1135	BO	04	02,87	S	34	53,22	W	3465	1301	6	1,2
06ME62/2	812	25	081504	1159	EN	04	02,82	S	34	53,25	W	3456			
06ME62/2	813	26	081504	1436	BE	04	24,98	S	34	52,99	W	3266			
06ME62/2	813	26	081504	1516	BO	04	24,38	S	34	53,17	W	3467	1304	7	1,2
06ME62/2	813	26	081504	1541	EN	04	24,06	S	34	53,32	W	3501			
06ME62/2	814	27	081504	1811	BE	04	45,15	S	34	53,00	W	1405			
06ME62/2	814	27	081504	1833	EN	04	44,45	S	34	53,34	W	1496	278	Crash at 278 m	
06ME62/2	815	28	081504	1918	BE	04	48,63	S	34	53,73	W	901			
06ME62/2	815	28	081504	1942	BO	04	47,98	S	34	53,97	W	909	858	0, bad data	

06ME62/2	815	28	081504	1959	EN	04	47,51	S	34	54,12	W	926			
06ME62/2	816	29	081704	1658	BE	10	56,36	S	34	59,94	W	4172			
06ME62/2	816	29	081704	1809	BO	10	56,42	S	34	59,73	W	4165		Unusable	
06ME62/2	816	29	081704	1909	EN	10	56,45	S	34	59,45	W	4116			
06ME62/2	818	30	081704	2030	BE	10	49,13	S	35	09,01	W	3956			
06ME62/2	818	30	081704	2152	BO	10	49,11	S	35	08,67	W	3952		Unusable	
06ME62/2	818	30	081704	2302	EN	10	49,05	S	35	08,24	W	3961			
06ME62/2	819	31	081804	0059	BE	10	41,91	S	35	16,87	W	3721		Unusable	
06ME62/2	819	31	081804	0230	EN	10	41,91	S	35	16,94	W	3724			
06ME62/2	820	32	081804	0528	BE	10	29,06	S	35	33,73	W	2984			
06ME62/2	820	32	081804	0631	BO	10	28,92	S	35	33,25	W	2993		Unusable	
06ME62/2	820	32	081804	0741	EN	10	28,70	S	35	33,04	W	2999			
06ME62/2	822	34	081804	1043	BE	10	22,84	S	35	40,72	W	2337			
06ME62/2	822	34	081804	1131	BO	10	22,33	S	35	40,00	W	2351		Unusable	
06ME62/2	822	34	081804	1212	EN	10	21,99	S	35	39,55	W	2392			
06ME62/2	823	35	081804	2217	BE	10	14,60	S	35	50,54	W	830			
06ME62/2	823	35	081804	2242	BO	10	14,37	S	35	50,33	W	884	777	5	1
06ME62/2	823	35	081804	2259	EN	10	14,16	S	35	50,20	W	894			
06ME62/2	824	36	081804	2352	BE	10	19,96	S	35	47,29	W	1685			
06ME62/2	824	36	081904	0033	BO	10	19,40	S	35	46,93	W	1627	1668	8	1,2
06ME62/2	824	36	081904	0104	EN	10	18,97	S	35	46,55	W	1658			
06ME62/2	825	37	081904	0159	BE	10	23,06	S	35	40,92	W	2327			
06ME62/2	825	37	081904	0251	BO	10	22,37	S	35	40,44	W	2320	2307	8	1,2
06ME62/2	825	37	081904	0334	EN	10	21,92	S	35	39,94	W	2361			
06ME62/2	826	38	081904	0418	BE	10	26,77	S	35	38,53	W	2653			
06ME62/2	826	38	081904	0522	BO	10	26,21	S	35	37,94	W	2677	2664	8	1,2
06ME62/2	826	38	081904	0612	EN	10	25,86	S	35	37,63	W	2678			
06ME62/2	827	39	081904	0701	BE	10	29,56	S	35	34,52	W	2967			
06ME62/2	827	39	081904	0805	BO	10	28,85	S	35	33,96	W	2967	2958	8	1,2
06ME62/2	827	39	081904	0901	EN	10	28,40	S	35	33,57	W	2985			
06ME62/2	828	40	081904	0953	BE	10	33,62	S	35	29,35	W	3314			
06ME62/2	828	40	081904	1102	BO	10	33,06	S	35	29,01	W	3292	3287	7	1,2
06ME62/2	828	40	081904	1201	EN	10	32,64	S	35	28,79	W	3273			
06ME62/2	829	41	081904	1622	BE	10	37,25	S	35	24,31	W	3484			
06ME62/2	829	41	081904	1738	BO	10	36,68	S	35	23,71	W	3525	3519	8	1,2
06ME62/2	829	41	081904	1841	EN	10	36,52	S	35	23,61	W	3534			
06ME62/2	830	42	081904	1944	BE	10	42,39	S	35	17,28	W	3714			
06ME62/2	830	42	081904	2100	BO	10	42,12	S	35	16,96	W	3718	3729	8	1,2
06ME62/2	830	42	081904	2205	EN	10	41,96	S	35	16,68	W	3728			
06ME62/2	831	43	081904	2317	BE	10	49,39	S	35	09,85	W	3947			
06ME62/2	831	43	082004	0041	BO	10	49,07	S	35	09,28	W	3947	3972	7	1,2
06ME62/2	831	43	082004	0155	EN	10	48,93	S	35	08,97	W	3953			
06ME62/2	832	44	082004	0319	BE	10	56,66	S	34	59,87	W	4095			

06ME62/2	832	44	082004	0445	BO	10	56,50	S	34	59,74	W	4107	4129	8	1,2
06ME62/2	832	44	082004	0602	EN	10	56,43	S	34	59,65	W	4116			
06ME62/2	833	45	082004	0800	BE	11	07,10	S	34	45,01	W	4259			
06ME62/2	833	45	082004	0926	BO	11	07,43	S	34	44,73	W	4261	4294	8	1,2
06ME62/2	833	45	082004	1042	EN	11	07,59	S	34	44,44	W				
06ME62/2	834	46	082004	1245	BE	11	18,88	S	34	28,13	W	4641			
06ME62/2	834	46	082004	1415	BO	11	19,02	S	34	27,96	W	4644	4694	8	1,2
06ME62/2	834	46	082004	1536	EN	11	18,98	S	34	27,96	W	4643			
06ME62/2	835	47	082004	1740	BE	11	30,04	S	34	13,07	W	4582			
06ME62/2	835	47	082004	1917	BO	11	29,96	S	34	13,01	W	4584	4622	0	
06ME62/2	835	47	082004	2030	EN	11	29,76	S	34	12,96	W	4585			
06ME62/2	836	48	082104	0104	BE	11	29,97	S	33	53,00	W	4625			
06ME62/2	836	48	082104	0240	BO	11	29,98	S	33	52,98	W	4625	4671	8	1,2
06ME62/2	836	48	082104	0406	EN	11	29,91	S	33	53,06	W	4622			
06ME62/2	837	49	082104	0650	BE	11	29,97	S	33	33,10	W	4959			
06ME62/2	837	49	082104	0842	BO	11	29,96	S	33	33,02	W	4957	5034	8	1,2
06ME62/2	837	49	082104	1015	EN	11	29,93	S	33	33,03	W	4952			
06ME62/2	838	50	082104	1237	BE	11	30,08	S	33	13,03	W	4280			
06ME62/2	838	50	082104	1400	BO	11	30,01	S	33	12,95	W	4287	4326	7	1,2
06ME62/2	838	50	082104	1519	EN	11	29,99	S	33	12,96	W	4281			
06ME62/2	839	51	082104	1856	BE	11	30,01	S	32	43,01	W	4412			
06ME62/2	839	51	082104	2030	BO	11	30,04	S	32	42,93	W	4443	4476	8	1,2
06ME62/2	839	51	082104	2145	EN	11	29,99	S	32	42,85	W	4469			
06ME62/2	840	52	082204	0148	BE	11	30,01	S	32	10,17	W	5052			
06ME62/2	840	52	082204	0334	BO	11	30,01	S	32	09,98	W	5046	4996	8	1,2
06ME62/2	840	52	082204	0504	EN	11	30,03	S	32	10,09	W	5045			
06ME62/2	841	53	082204	1154	BE	11	30,04	S	31	09,95	W	5292			
06ME62/2	841	53	082204	1224	BO	11	29,93	S	31	09,83	W	5288	1299	8	1,2
06ME62/2	841	53	082204	1250	EN	11	29,86	S	31	09,69	W	5289			
06ME62/2	842	54	082204	2233	BE	09	57,99	S	30	23,03	W	5310			
06ME62/2	842	54	082204	2303	BO	09	57,96	S	30	22,89	W	5312	1298	8	1,2
06ME62/2	842	54	082204	2326	EN	09	57,85	S	30	22,76	W	5315			
06ME62/2	843	55	082304	0855	BE	08	21,99	S	29	39,96	W	5425			
06ME62/2	843	55	082304	0924	BO	08	21,97	S	29	39,82	W	5427	1299	8	1,2
06ME62/2	843	55	082304	0950	EN	08	21,93	S	29	39,66	W	5426			
06ME62/2	844	56	082304	1936	BE	06	44,99	S	28	57,07	W	5172			
06ME62/2	844	56	082304	2008	BO	06	44,90	S	28	56,99	W	5167	1300	8	1,2
06ME62/2	844	56	082304	2032	EN	06	44,85	S	28	56,88	W	5167			
06ME62/2	845	57	082404	0659	BE	04	59,89	S	28	09,96	W	5429			
06ME62/2	845	57	082404	0730	BO	05	00,00	S	28	09,88	W	5422	1300	7	1,2
06ME62/2	845	57	082404	0755	EN	04	59,97	S	28	09,81	W	5424			
06ME62/2	846	58	082404	1055	BE	04	29,93	S	28	10,06	W	5357			
06ME62/2	846	58	082404	1125	BO	04	29,98	S	28	09,99	W	5357	1300	7	1,2

06ME62/2	846	58	082404	1150	EN	04	29,96	S	28	09,87	W	5358			
06ME62/2	847	59	082404	1719	BE	03	59,95	S	28	09,99	W	5218			
06ME62/2	847	59	082404	1750	BO	03	59,95	S	28	09,87	W	5218	1301	8	1,2
06ME62/2	847	59	082404	1815	EN	04	00,01	S	28	09,78	W	5210			
06ME62/2	848	60	082404	2106	BE	03	29,90	S	28	10,01	W	5179			
06ME62/2	848	60	082404	2137	BO	03	29,94	S	28	09,78	W	5180	1299	8	1,2
06ME62/2	848	60	082404	2201	EN	03	29,95	S	28	09,63	W	5176			
06ME62/2	849	61	082504	0042	BE	02	59,96	S	28	10,09	W	5070			
06ME62/2	849	61	082504	0115	BO	02	59,89	S	28	09,90	W	5073	1298	8	1,2
06ME62/2	849	61	082504	0140	EN	02	59,93	S	28	09,83	W	5067			
06ME62/2	850	62	082504	0436	BE	02	30,01	S	28	10,00	W	5004			
06ME62/2	850	62	082504	0511	BO	02	30,08	S	28	09,66	W	5001	1310	7	1,2
06ME62/2	850	62	082504	0542	EN	02	30,31	S	28	09,40	W	5003			
06ME62/2	851	63	082504	0836	BE	01	59,95	S	28	10,02	W	4883			
06ME62/2	851	63	082504	0905	BO	02	00,07	S	28	09,91	W	4918	1298	8	1,2
06ME62/2	851	63	082504	0929	EN	02	00,14	S	28	09,80	W	4953			
06ME62/2	852	64	082504	1137	BE	01	39,99	S	28	10,01	W	5060			
06ME62/2	852	64	082504	1207	BO	01	40,04	S	28	09,95	W	5066	1300	8	1,2
06ME62/2	852	64	082504	1233	EN	01	39,99	S	28	09,83	W	5059			
06ME62/2	853	65	082504	1508	BE	01	19,87	S	28	10,10	W	4070			
06ME62/2	853	65	082504	1539	BO	01	19,96	S	28	09,97	W	4094	1311	8	1,2
06ME62/2	853	65	082504	1603	EN	01	19,88	S	28	09,84	W	4113			
06ME62/2	854	66	082504	1753	BE	01	00,04	S	28	09,97	W	3517			
06ME62/2	854	66	082504	1827	BO	00	59,92	S	28	09,88	W	3486	1311	8	1,2
06ME62/2	854	66	082504	1854	EN	00	59,89	S	28	09,78	W	3482			
06ME62/2	855	67	082504	2055	BE	00	39,77	S	28	10,00	W	4128			
06ME62/2	855	67	082504	2126	BO	00	39,86	S	28	09,88	W	4127	1307	7	1,2
06ME62/2	855	67	082504	2151	EN	00	39,83	S	28	09,64	W	4125			
06ME62/2	856	68	082504	2346	BE	00	20,03	S	28	10,05	W	3827			
06ME62/2	856	68	082604	0016	BO	00	20,08	S	28	09,84	W	3823	1296	8	1,2
06ME62/2	856	68	082604	0041	EN	00	20,00	S	28	09,74	W	3819			
06ME62/2	857	69	082604	0241	BE	00	00,10	S	28	10,04	W	4141			
06ME62/2	857	69	082604	0312	BO	00	00,13	S	28	09,82	W	4140	1299	8	1,2
06ME62/2	857	69	082604	0344	EN	00	00,02	S	28	09,67	W				
06ME62/2	858	70	082604	0556	BE	00	19,99	N	28	10,27	W	3119			
06ME62/2	858	70	082604	0625	BO	00	20,02	N	28	10,08	W	3095	1319	7	1,2
06ME62/2	858	70	082604	0651	EN	00	20,04	N	28	09,98	W	3066			
06ME62/2	859	71	082604	0844	BE	00	40,01	N	28	10,16	W	3029			
06ME62/2	859	71	082604	0912	BO	00	40,01	N	28	10,05	W	2990	1298	8	1,2
06ME62/2	859	71	082604	0936	EN	00	40,08	N	28	09,97	W	3050			
06ME62/2	860	72	082604	1131	BE	01	00,07	N	28	10,21	W	4147			
06ME62/2	860	72	082604	1200	BO	00	59,96	N	28	10,10	W	4099	1300	6	1,2
06ME62/2	860	72	082604	1226	EN	00	59,97	N	28	10,11	W	4090			

06ME62/2	861	73	082604	1422	BE	01	20,05	N	28	10,01	W	1742			
06ME62/2	861	73	082604	1450	BO	01	20,04	N	28	10,00	W	1738	1303	7	1,2
06ME62/2	861	73	082604	1517	EN	01	20,11	N	28	10,00	W	1738			
06ME62/2	862	74	082604	1710	BE	01	40,07	N	28	10,03	W	3360			
06ME62/2	862	74	082604	1740	BO	01	40,05	N	28	10,01	W	3359	1311	8	1,2
06ME62/2	862	74	082604	1807	EN						W	3350			
06ME62/2	863	75	082604	1958	BE	02	00,07	N	28	10,04	W	3438			
06ME62/2	863	75	082604	2027	BO	02	00,15	N	28	09,91	W	3429	1299	8	1,2
06ME62/2	863	75	082604	2052	EN	02	00,22	N	28	09,96	W	3429			
06ME62/2	864	76	082804	1209	BE	05	00,14	S	30	10,22	W	4982			
06ME62/2	864	76	082804	1237	BO	05	00,13	S	30	10,23	W	4975	1299	8	1,2
06ME62/2	864	76	082804	1302	EN	05	00,10	S	30	10,10	W	4977			
06ME62/2	865	77	082804	1638	BE	05	00,03	S	30	49,99	W	4900			
06ME62/2	865	77	082804	1709	BO	05	00,01	S	30	49,99	W	4897	1299	8	1,2
06ME62/2	865	77	082804	1735	EN	04	59,97	S	30	50,07	W	4898			
06ME62/2	866	78	082804	2102	BE	04	59,98	S	31	30,08	W	4699			
06ME62/2	866	78	082804	2132	BO	05	00,01	S	31	30,02	W	4704	1299	8	1,2
06ME62/2	866	78	082804	2157	EN	05	00,03	S	31	29,93	W	4707			
06ME62/2	867	79	082904	0047	BE	05	07,01	S	32	00,01	W	4610			
06ME62/2	867	79	082904	0118	BO	05	06,98	S	31	59,98	W	4615	1302	8	1,2
06ME62/2	867	79	082904	0141	EN	05	06,96	S	31	59,98	W	4614			
06ME62/2	868	80	082904	0435	BE	05	12,23	S	32	30,13	W	4603			
06ME62/2	868	80	082904	0506	BO	05	12,20	S	32	29,88	W	4604	1310	8	1,2
06ME62/2	868	80	082904	0533	EN	05	12,08	S	32	29,79	W	4606			
06ME62/2	869	81	082904	0814	BE	05	17,68	S	33	00,07	W	4565			
06ME62/2	869	81	082904	0939	BO	05	17,66	S	33	00,00	W	4564	4610	7	1,2
06ME62/2	869	81	082904	1056	EN	05	17,63	S	32	59,94	W	4565			
06ME62/2	870	82	082904	1342	BE	05	23,05	S	33	29,99	W	4456			
06ME62/2	870	82	082904	1508	BO	05	22,92	S	33	30,00	W	4459	4497	7	1,2
06ME62/2	870	82	082904	1630	EN	05	22,94	S	33	29,96	W	4461			
06ME62/2	871	83	082904	1823	BE	05	26,60	S	33	50,21	W	4325			
06ME62/2	871	83	082904	1955	BO	05	26,50	S	33	50,07	W	4314	4356	7	1,2
06ME62/2	871	83	082904	2107	EN	05	26,57	S	33	50,04	W	4334			
06ME62/2	872	84	082904	2259	BE	05	30,16	S	34	10,10	W	4123			
06ME62/2	872	84	083004	0021	BO	05	30,19	S	34	09,98	W	4125	4159	8	1,2
06ME62/2	872	84	083004	0128	EN	05	30,10	S	34	09,97	W	4126			
06ME62/2	873	85	083004	0258	BE	05	32,67	S	34	23,98	W	3783			
06ME62/2	873	85	083004	0416	BO	05	32,17	S	34	24,16	W	3785	3797	0	
06ME62/2	873	85	083004	0525	EN	05	32,00	S	34	24,27	W	3785			
06ME62/2	874	86	083004	0640	BE	05	34,96	S	34	36,15	W	3360			
06ME62/2	874	86	083004	0751	BO	05	34,14	S	34	36,11	W	3404	3418	0	
06ME62/2	874	86	083004	0853	EN	05	33,58	S	34	36,03	W	3463			
06ME62/2	875	87	083004	1001	BE	05	36,90	S	34	46,04	W	2776			

06ME62/2	875	87	083004	1057	BO	05	36,23	S	34	46,00	W	2788	2655	0
06ME62/2	875	87	083004	1144	EN	05	35,66	S	34	45,92	W	2872		
06ME62/2	876	88	083004	1241	BE	05	37,94	S	34	54,14	W	1436		
06ME62/2	876	88	083004	1328	BO	05	37,82	S	34	54,23	W	1446	1498	0
06ME62/2	876	88	083004	1356	EN	05	37,13	S	34	54,37	W			

Code: BE = begin, BO = bottom, EN = end
Parameters (Par.): 1= salinity, 2 = oxygen

Table 2: METEOR M62/2 microstructure stations

Station	Profile	MSS-Profil	Date	Time	Position		Code	Depth
No.	No.	No.	mmddyy	UTC	Latitude S/N	Longitude W		m
782	1	1	081004	0935	0°N 0.01	35°W 00.31	BE	
782	1	1	081004	0944	0°N 0.04	35°W 00.37	EN	20
782	1	2	081004	0942	0° N0.04	35°W 00.52	BE	
782	1	2	081004	0948	0°N 0.07	35°W 00.67	EN	100
782	1	3	081004	0952	0°N 0.09	35°W 00.77	BE	
782	1	3	081004	0957	0°N 0.11	35°W 00.90	EN	114
782	1	4	081004	1010	0°N 0.16	35°W 01.23	BE	
782	1	4	081004	1014	0°N 0.17	35°W 01.34	EN	160
782	1	5	081004	1020	0°N 0.19	35°W 01.48	BE	
782	1	5	081004	1024	0°N 0.20	35°W 01.59	EN	154
782	1	6	081004	1029	0°N 0.22	35°W 01.71	BE	
782	1	6	081004	1033	0°N 0.24	35°W 01.81	EN	155
802	14	1	081304	1856	0°N 2.73	35°W 00.28	BE	
802	14	1	081304	1900	0°N 2.80	35°W 00.38	EN	101
802	14	2	081304	1904	0° N2.85	35°W 00.47	BE	
802	14	2	081304	1908	0°N 2.91	35°W 00.57	EN	97
802	14	3	081304	1911	0°N 2.96	35°W 00.67	BE	
802	14	3	081304	1915	0°N 3.02	35°W 00.77	EN	103
802	14	4	081304	1919	0°N 3.08	35°W 00.88	BE	
802	14	4	081304	1923	0°N 3.12	35°W 00.97	EN	98
802	14	5	081304	1926	0°N 3.16	35°W 01.05	BE	
802	14	5	081304	1930	0°N 3.22	35°W 01.15	EN	102
802	14	6	081304	1933	0°N 3.28	35°W 01.24	BE	
802	14	6	081304	1937	0°N 3.32	35°W 01.33	EN	97
802	14	7	081304	1940	0°N 3.37	35°W 01.43	BE	
802	14	7	081304	1944	0°N 3.44	35°W 01.54	EN	96
802	14	8	081304	1948	0°N 3.49	35°W 01.64	BE	
802	14	8	081304	1951	0°N 3.54	35°W 01.73	EN	105
802	14	9	081304	1955	0°N 3.60	35°W 01.83	BE	
802	14	9	081304	2000	0°N 3.67	35°W 01.94	EN	96
802	14	10	081304	2004	0°N 3.73	35°W 02.06	BE	
802	14	10	081304	2008	0°N 3.79	35°W 02.17	EN	103
802	14	11	081304	2132	0°N 3.77	35°W 01.47	BE	
802	14	11	081304	2135	0°N 3.82	35°W 01.55	EN	122
802	14	12	081304	2140	0°N 03.89	35°W 01.65	BE	
802	14	12	081304	2143	0°N 03.94	35°W 01.73	EN	112

846	58	1	082404	1200	4°S 29.92	28°W 09.84	BE	
846	58	1	082404	1210	4°S 29.71	28°W10.01	EN	358
846	58	2	082404	1219	4°S 29.58	28°W 10.09	BE	
846	58	2	082404	1229	4°S 29.43	28°W 10.22	EN	347
846	58	3	082404	1238	4°S 29.30	28°W 10.34	BE	
846	58	3	082404	1248	4°S 29.16	28°W 10.47	EN	342
846	58	4	082404	1257	4°S 29.03	28°W 10.58	BE	
846	58	4	082404	1307	4°S 28.88	28°W 10.72	EN	355
846	58	5	082404	1316	4°S 28.76	28°W10.82	BE	
846	58	5	082404	1326	4°S 28.61	28°W 10.94	EN	359
846	58	6	082404	1335	4°S 28.46	28°W11.07	BE	
846	58	6	082404	1346	4°S 29.29	28°W 11.22	EN	354

BE= Begin

EN=End

Table 3: METEOR M62/2 APEX float deployments

Float S/N	*WMO*	*ID (DEC)*	*Date / Time*	*Longitude*	*Latitude*	*Sensors T,C,P,O2, RAF*	Park/ Profile depth
1642	3900274	53247	08.28.04 13:10 UTC	30° 09.88 W	5° 00.07' S	T,C,P,O2	200/2000
1643	3900275	53248	08.25.04 01:58 UTC	28° 09.77' W	2° 59.84' S	T,C,P,O2	200/2000
1644	3900276	53249	29.08.04 01:50 UTC	31° 59.80' W	5° 7.10' S	T,C,P,RAF	200/2000
1645	3900277	53250	08.24.04 18:20 UTC	28° 09.63' W	4° 00.02' S	T,C,P,RAF	200/2000
1646	3900278	53251	08.26.04 21:02 UTC	28° 09.77' W	2° 00.24' N	T,C,P,RAF	200/2000
1647	3900279	53252	08.06.04 03:56 UTC	28° 09.51' W	0° 00.22' N	T,C,P,RAF	200/2000
1648	3900280	53253	08.25.04 09:43 UTC	28° 09.41' W	2° 00.21' S	T,C,P,RAF	200/2000
1649	3900281	53254	08.25.04 19:02 UTC	28° 09.62' W	0° 59.88' S	T,C,P,O2	200/2000
1650	3900282	53255	08.26.04 12:34 UTC	28° 10.00' W	0° 59.90' N	T,C,P	200/2000
1651	3900283	53256	08.24.04 08:09 UTC	28° 09.57' W	5° 00.03' S	T,C,P	1500/2000
1652	3900284	53257	08.23.04 20:40 UTC	28° 56.81' W	6° 44.82' S	T,C,P	1500/2000
1653	3900285	53258	08.23.04 09:58 UTC	29° 39.47' W	8° 22.00' S	T,C,P	1500/2000
1654	3900286	53259	08.22.04 23:36 UTC	30° 22.60' W	9° 57.67' S	T,C,P	1500/2000
1655	3900287	53260	08.22.04 01:44 UTC	32° 10.25' W	11° 29.99' S	T,C,P	1500/2000
1656	3900288	53261	08.17.04 19:17 UTC	34° 59.39' W	10° 56.43' S	T,C,P	1500/2000

Table 4: METEOR M62/2 RAFOS float deployments

Float S/N	Latitude	Longitude	Deployment UTC	End of Mission	Density Surface σ_θ [kg/m³]
611	S 0°20.054'	W 35°00.023'	10-08-04 07:27	11-08-04 12:00	26.8
612	S 0°20.095'	W 35°00.006'	10-08-04 07:30	11-08-04 12:00	25.7
599	N 2°19.96'	W 35°00.02'	12-08-04 18:38	22-08-05 00:00	26.8
598	N 2°19.96'	W 35°00.08'	12-08-04 18:41	22-08-05 00:00	25.7
613	N 2°19.98'	W 34°59.99'	12-08-04 18:36	18-08-04 00:00	26.8
596	N 1°20.30'	W 34°59.96'	13-08-04 04:11	24-08-05 00:00	25.7
597	N 1°20.31'	W 34°59.99'	13-08-04 04:14	24-08-05 00:00	26.8
600	N 0°40.05'	W 34°59.98'	13-08-04 10:35	24-08-05 00:00	25.7
601	N 0°40.01'	W 35°00.04'	13-08-04 10:37	24-08-05 00:00	26.8
604	N 0°04.06'	W 35°01.81'	13-08-04 21:52	24-08-05 00:00	25.7
605	N 0°04.02'	W 35°01.81'	13-08-04 21:55	24-08-05 00:00	26.8
608	S 0°59.86'	W 34°59.697'	14-08-04 08:10	25-08-05 00:00	25.7
609	S 0°59.92'	W 34°59.71'	14-08-04 08:13	25-08-05 00:00	26.8
606	S 2°05.05'	W 34°59.91'	14-08-04 18:17	25-08-05 00:00	25.7
607	S 2°05.08'	W 34°59.93'	14-08-04 18:18	25-08-05 00:00	26.8
602	S 3°08.14'	W 34°52.63'	15-08-04 04:06	26-08-05 00:00	25.7
603	S 3°08.18'	W 34°52.70'	15-08-04 04:08	26-08-05 00:00	26.8
610	S 4°02.83'	W 34°53.23'	15-08-04 12:09	26-08-05 00:00	25.7
615	S 4°02.87'	W 34°53.23'	15-08-04 12:11	26-08-05 00:00	26.8
616	S 4°59.99'	W 28°09.76'	24-08-04 08:01	03-09-05 00:00	25.7
617	S 4°59.99'	W 28°09.70'	24-08-04 08:05	03-09-05 00:00	26.8
614	S 4°28.40'	W 28°11.13'	24-08-04 13:40	03-09-05 00:00	25.7
493	S 4°00.02'	W 28°09.62'	24-08-04 18:26	03-09-05 00:00	isobaric 200m
620	S 4°00.03'	W 28°09.66'	24-08-04 18:22	03-09-05 00:00	25.7
621	S 4°00.02'	W 28°09.64'	24-08-04 18:24	03-09-05 00:00	26.8
624	S 2°59.97'	W 28°09.82'	25-08-04 01:49	04-09-05 00:00	25.7
625	S 2°59.93'	W 28°09.80'	25-08-04 01:51	04-09-05 00:00	26.8
628	S 2°00.21'	W 28°09.67'	25-08-04 09:35	04-09-05 00:00	25.7
629	S 2°00.23'	W 28°09.51'	25-08-04 09:40	04-09-05 00:00	26.8
630	S 0°59.90'	W 28°09.72'	25-08-04 18:58	04-09-05 00:00	25.7
631	S 0°59.89'	W 28°09.69'	25-08-04 19:00	04-09-05 00:00	26.8
618	N 0°00.14'	W 28°09.61'	26-08-04 03:50	05-09-05 00:00	25.7
619	N 0°00.14'	W 28°09.58'	26-08-04 03:52	05-09-05 00:00	26.8
622	N 0°59.94'	W 28°10.06'	26-08-04 12:31	05-09-05 00:00	25.7
623	N 0°59.92'	W 28°10.09'	26-08-04 12:34	05-09-05 00:00	26.8
634	N 2°00.19'	W 28°09.86'	26-08-04 20:58	06-09-05 00:00	25.7
635	N 2°00.22'	W 28°09.82'	26-08-04 21:00	06-09-05 00:00	26.8
626	S 5°00.09’	W 30°09.98’	28-08-04 13:08	07-09-05 00:00	25.7
627	S 5°00.08’	W 30°09.93’	28-08-04 13:11	07-09-05 00:00	26.8

636	S 5°07.00’	W 31°59.90’	29-08-04 01:46	08-09-05 00:00	25.7
637	S 5°07.06’	W 31°59.86’	29-08-04 01:49	08-09-05 00:00	26.8
632	S 5°30.07’	W 34°09.90’	30-08-04 01:34	09-09-05 00:00	25.7
633	S 5°30.03’	W 34°09.87’	30-08-04 01:36	09-09-05 00:00	26.8

Table 5: METEOR M62/2 mooring recoveries

Clivar Array Mooring K1_3					**Notes**	
Latitude		10	16.00 S			
Longitude		35	51.70 W			
Water depth		900 m				
Deployment	10-May-2003		10:14			
Recovery	18-Aug-2004		17:56			
I.D.		Depth	Instr.	s/n	Notes	Parameter
K1_301		450	ADCP LR	2290	good data	T U V W
K1_302		455	Microcat	53	good data	T C
K1_303		622	Argonaut	141	good data	T U V W

Clivar Array Mooring K2_4					**Notes**	
Latitude		10	22.80 S		top float (ADCP) and Microcat separated	
Longitude		35	40.80 W		on May 6, 2004; retrieved by Brazilian	
Water depth		2320 m			research vessel	
Deployment	10-May-2003		17:04			
Recovery	18-Aug-2004		09:03			
I.D.		Depth	Instr.	s/n	Notes	Parameter
K2_401		444	ADCP LR	2395	recovered by Brazilian research vessel	T U V W
K2_402		447	Microcat	2245	recovered by Brazilian research vessel	T C
K2_403		601	FSI	1354	no data	no data
K2_404		601	Mini-TD	34	good data	T P
K2_405		753	Microcat	2246	good data	T C
K2_406		909	RCM-8	6122	no speed 1/17/04-8/15/04	T U V P
K2_407		1407	FSI	1355	good data	T U V W
K2_408		1693	Seacat	941	spikes, questionable values	no data
K2_409		1899	Argonaut	145	good data	T U V W

Clivar Array Mooring K3_3				**Notes**	
Latitude	10	36.50 S			
Longitude	35	23.60 W			
Water depth	3520 m				
Deployment	11-May-2003	13:56			
Recovery	19-Aug-2004	13:15			
I.D.	Depth	Instr.	S/n	Notes	Parameter
K3_301	309	ADCP	270	good data	T U V W
K3_302	309	Mini-TD	3	good data	T P
K3_303	311	Microcat	2247	good data	T C
K3_304	506	RCM-8	9930	good data	T U V P
K3_305	648	Seacat	1307	good data	T C
K3_306	903	Argonaut	183	questionable data, mostly noise	no data
K3_307	1400	RCM-8	9933	good data	T U V P
K3_308	1653	Seacat	1531	questionable data, 50 days of noise	T C
K3_309	1900	FSI	1374	good data	T U V W
K3_310	2142	Microcat	2248	good data	T C
K3_311	2438	RCM-8	12782	good data	T U V P
K3_312	2936	Argonaut	179	good data	T U V W

Clivar Array Mooring K4_4				**Notes**	
Latitude	10	56.40 S			
Longitude	34	59.60 W			
Water depth	4115 m				
Deployment	11-May-2003	21:14			
Recovery	17-Aug-2004	14:40			
I.D.	Depth	Instr.	s/n	Notes	Parameter
K4_401	115	Mini-TD	10	good data, dead battery, 1 mo short	T P
K4_402	122	Microcat	2250	good data	T C
K4_403	123	Argonaut	38	good data	T U V W
K4_404	309	Seacat	1532	good data	T C
K4_405	310	FSI	1378	good data	T U V W
K4_406	515	RCM-8	12783	good data	T U V P
K4_407	919	Argonaut	182	good data	T U V W
K4_408	1416	Argonaut	184	good data	T U V W
K4_409	1668	Seacat	1533	good data	T C
K4_410	1913	RCM-8	9349	good data	T U V P
K4_411	2410	FSI	1377	good data	T U V W
K4_412	3402	Argonaut	151	good data	T U V W

Table 6: METEOR M62/2 mooring deployments

Mooring KR3

Deployment: 11-Aug-2004, 16:58 UTC Top: Radio (27.045 MHz), Flashlight
Position: 05°00.0'N, 35°00.0'W Magnetic deviation: -19° (W)
Depth: 3753 m

Depth (m)	Instrument Type	Serial No.	Record. interval (min)	Parameter
804	RAFOS	23	**12h / 01:00 UTC**	
1422	Mors - Release	103	--	--

Mooring KR4

Deployment: 13-Aug-2004, 15:10 UTC Top: Radio (27.050 MHz), Flashlight
Position: 00°05.76'N, 35°01.19'W Magnetic deviation: -19.5° (W)
Depth: 4540 m

Depth (m)	Instrument Type	Serial No.	Record. interval (min)	Parameter
196	Mini TD	41	60	P,T
196	RDI – SC 150	267	120	**U,V,T**
199	MicroCat	2249	30	T,C
201	RDI – SC 150	393	120	**U,V,T**
344	MicroCat	2251	30	T,C
549	Argonaut	D294	120	***T,U,V,W***
700	Mini TD	42	60	P,T
702	Argonaut	D299	120	***T,U,V,W***
800	RAFOS	22	**12h / 01:40 UTC**	
859	Argonaut	D304	120	***T,U,V,W***
1012	MicroCat	3144	30	T,C
1157	Argonaut	D329	120	***T,U,V,W***
1535	Mors - Release	107	--	--
1535	Mors - Release	271	--	--