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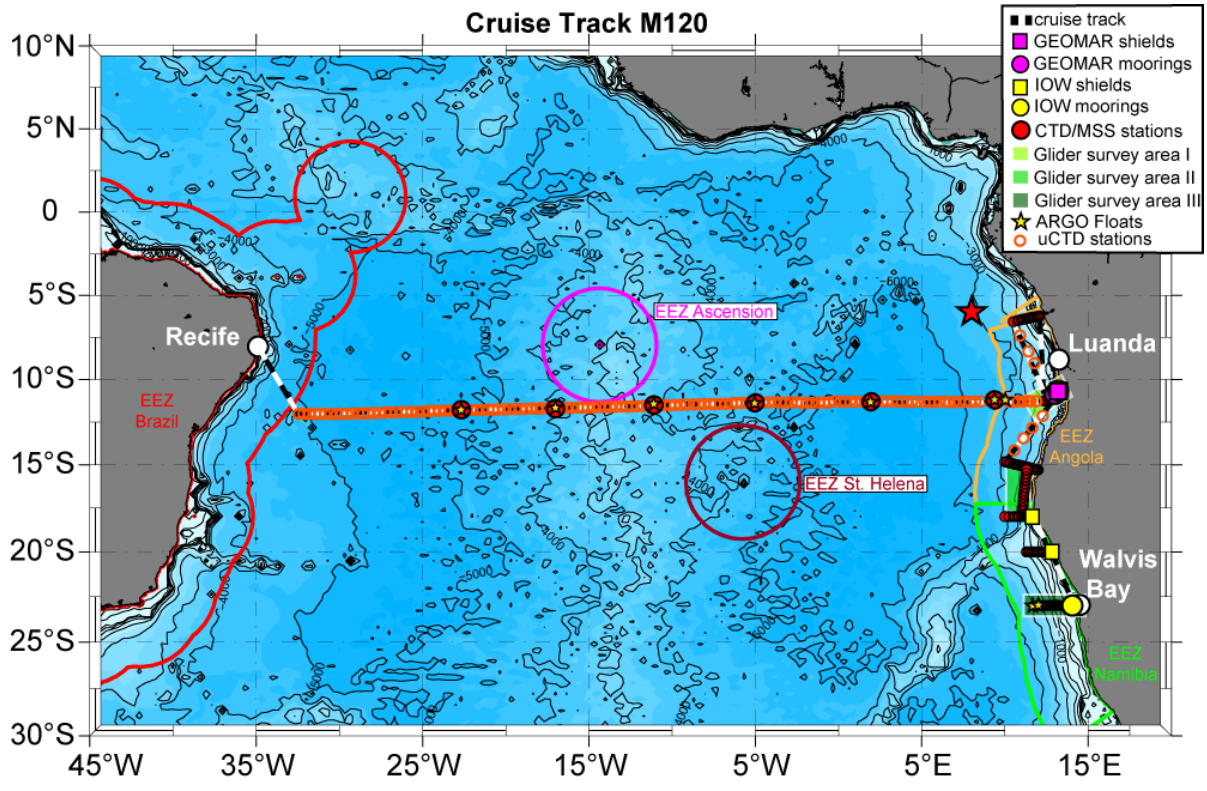
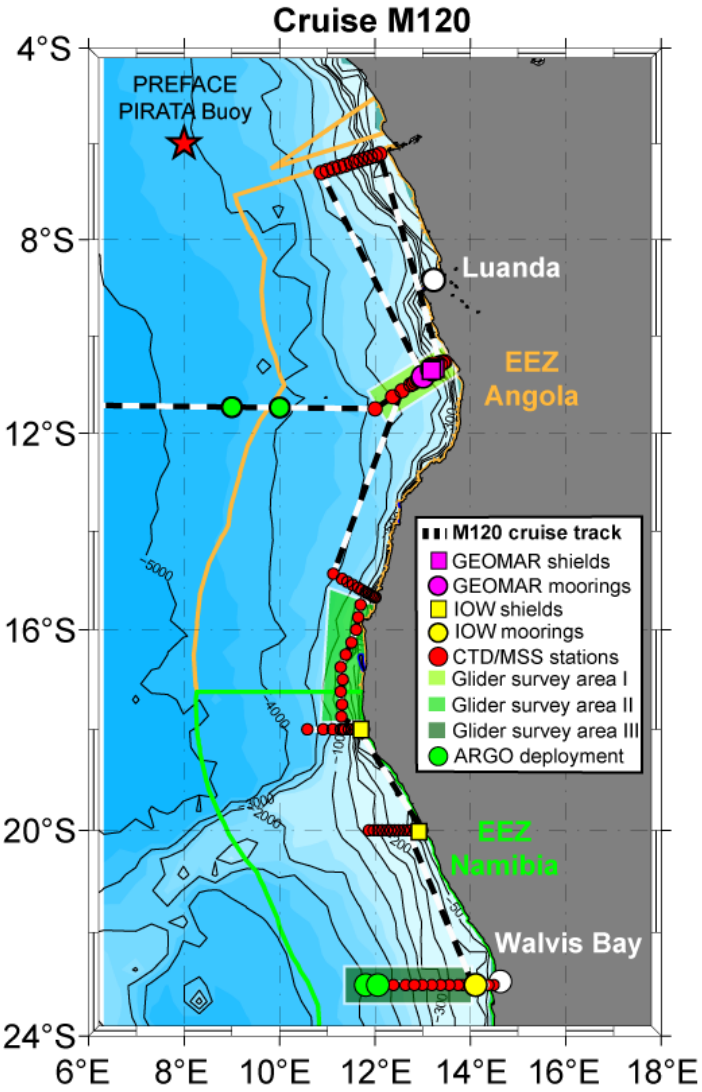
Short Cruise Report
R/V METEOR M120
Recife, Brasil – Walvis Bay, Namibia
17th October – 18th November 2015
Chief Scientist: Dr. Marcus Dengler
Captain: Rainer Hammacher



Figs. 1: Bathymetric map with ship track of R/V METEOR cruise M120 including locations of CTD/LADCP/MSS stations, mooring and bottom shield recoveries and redeployments, glider survey areas, ARGO deployments and underway-CTD profiles. Territorial waters of different countries are marked with coloured solid lines.



Figs. 2: Detailed bathymetric map and M120 cruise track of the Angolan and Namibian survey area. The map includes locations of CTD/LADCP/MSS stations, mooring and bottom shield recoveries and redeployments, as well as glider survey areas and ARGO deployments. Territorial waters of Angola and Namibia are marked with beige and green solid lines, respectively.

Objectives

Cruise M120 was a joint effort of the cooperative project SACUS „Southwest African Coastal Upwelling System and Benguela Niños“ funded by the German Ministry for Education and Research and the EU funded collaborative project PREFACE „Enhancing prediction of tropical Atlantic climate and its impacts“. The research objectives within the SACUS project aim at advancing our understanding of the physical mechanisms of regional climate variability and change and its consequences for the ocean’s biogeochemistry, hypoxia and marine ecosystems in the eastern upwelling region of the South Atlantic. Research within PREFACE focuses on a better understanding of the tropical Atlantic climate system, improved simulation and prediction of tropical Atlantic climate on seasonal and longer time scales and quantification of climate change impacts, including fish stock changes in the eastern upwelling regions of the tropical Atlantic.

M120 contributed to the projects‘ research goals by investigating the variability of eastern boundary current transport, water mass variability, and the propagation of coastal waves in the eastern upwelling regions of the South Atlantic. Additionally, the cruise focused on a quantitative understanding of the physical processes controlling the mixed-layer heat and freshwater budgets. The main tasks of the physical-biogeochemical work program were to recover and redeploy mooring arrays along the continental slope and the shelf of Angola and Namibia and to conduct high-resolution hydrographic and microstructure surveys along several selected sections the eastern boundary current systems. The observational program was complimented by measurements of climate-sensitive trace gas concentrations (CO_2, N_2O, CH_4 and CO_2 isotopes) and measurements of the size distribution of aerosols.

Narrative

Prior to R/V METEOR cruise M120, most of the participating scientists joint the IV Seminar of the Bilateral Cooperation DOCEAN – GEOMAR held at the Federal University of Pernambuco in Recife on October 14th, 2015, a seminar series that was initiated during a visit of R/V METEOR in Recife in 2002 (M53/2). R/V Meteor left the port of Recife on Saturday, October 17th at 7:30 local time. Due to necessary repairs of METEOR’s central hydraulic system on short notice, the departure originally scheduled for October 16th had to be delayed by one day. The observational program started on an underway CTD (uCTD) transect across the Atlantic along 12°S on October 18th at 12:00 UTC just after leaving the exclusive economic zone of Brazil at 32.5°E. All underway sampling systems, including the two METEOR’s ocean surveyor measuring upper ocean currents and continuous sampling of surface water trace gas concentrations were started at this position. The transatlantic uCTD section, during which 230 hydrographic profiles were collected using an hourly sampling rate, was completed heading eastward 10 days and 4 hour later at 11.5°S, 11.7°E. Additionally, six ARGO floats were released and five CTD profiles to a water depth of 2000m were collected on the transect.

R/V METEOR entered Angolan territorial waters on October 28th at 04:00 UTC. For the next 4 days, works focused on retrieving and redeploying a mooring array and sampling of the water column along a cross-slope section at 11°S. During METEOR cruise M98 in July 2013, almost 2 ½ years prior to M120, two moorings, two bottom shields and two bottom pressure sensors were deployed along the 11°S section. Due to several different circumstances, the moored equipment could not be serviced as scheduled in autumn 2014. We were thus relieved to have recovered most of our instruments after the unexpectedly long deployment period. The two most important components of the array, a bottom shield instrumented with an acoustic Doppler current profiler (ADCP) deployed at 500m and a mooring with a long-ranger ADCP attached deployed at 1200m depth as well as the two bottom pressure sensors were recovered. No response was received from the releasers of the not-recovered mooring and bottom shield deployed at 300m and 200m depth, respectively. In an attempt to recover the 300m mooring (KPO 1105) a dredging operation was prepared in the early morning of October 30th by deploying a wire with 8 attached grapnels in a semi-circle around the mooring position and subsequently heaving it back on board. Since the mooring location was known very precisely and it was held up by a lot of net buoyancy in the water, such dredging should cut the thin mooring wire and let the mooring float up to the surface. However, the operation was unsuccessful which leads to the conclusion that the mooring was no longer in its place.

Likewise, attempts to locate the unrecovered bottom shield deployed at 200m (KPO 1104) by acoustic methods failed. The fate of the bottom shield remains unknown.
In between the mooring operations, water column sampling along the 11°S section included hydrographic and oxygen profiles (CTD/O_2) as well as lowered ADCP profiles (lADCP), turbulence measurements using a microstructure probe (MSS) and continuous shipboard velocity profiles by the vessel mounted Ocean Surveyors. Additionally, the water samples from the CTD rosette were analysed for concentrations of salinity, oxygen and nutrients and samples for the analysis of trace gases (N_2O and CH_4) were prepared. Shortly before leaving the 11°S section, a glider with a turbulence probe attached was deployed that continued to sample data along the 11°S section for the next month. The glider will be retrieved on the follow-up METEOR cruise M121.
After completing the measurement program at the 11°S section in the evening of October 31st, we headed north to work on a cross-slope section at 6°S. Unfortunately, a member of the crew was seriously injured and the METEOR's physician determined that he needed to be hospitalized. Captain Hammacher decided to change METEORs course in the morning of November 1st to bring the injured crew member to Luanda. Despite the unavailability of Angola's sea rescue service, we managed to have the crew member being brought to a hospital by the early evening. METEOR returned to the original cruise track 18 hour later and arrived at the 6°S section at 9:45 on November 2nd. Sampling along the 6°S section included 13 CTD/O_2 and lADCP profiles as well as 13 MSS stations on which 2 to 5 profiles were collected. Additionally, water samples from the CTD rosette were analysed for concentrations of salinity and oxygen. The section is a repeat hydrographic section within the EAF Nansen project of the Food and Agriculture Organization (FAO) of the United Nations and is regularly occupied by R/V FRIDTJOF NANSEN in March/April and June/July in cooperation with our Angolan colleagues and partners within EU-PREFACE project from Instituto National de Investigacao Pesqueira in Luanda. Our contribution was to sample the section in austral spring to identify seasonal and interannual variability of water masses and currents. During the station work, the moored instruments recovered at 11°S were prepared for their subsequent redeployment.
On November 3rd at 08:00, we completed the 6°S section and METEOR took a southward course to the mooring deployment positions at 11°S. During the transit uCTD profiles were collected. The two mooring (KPO 1151 and KPO 1153), the bottom shield (KPO 1152) and pressure inverted echo sounder (KPO 1155) were successfully deployed along the 11°S section on the following day. The two mooring deployments were completed smoothly within an hour using the rear gallows. Due to malfunctioning of winch 11, we used winch 2 for the deployment of the bottom shield. This turned out to be a good choice because the release of the bottom shield 1m above the bottom was clearly indicated by the wire tension measurements of winch 2. Additionally, the short term mooring KPO 1168 was recovered after 5 days of deployment. The instruments of the mooring were configured to sample in a very high-resolution mode to fully record internal wave activity in between the recovery and redeployment period of the array. Due to the professionalism of METEOR's deck crew and the technical staff, we were able to successfully complete 5 mooring operations and thereby fully deploy the 11°S mooring array on November 4th. After collecting two more CTD profiles on the 11°S section, METEOR continued southwards to the 15°S section just after midnight, again collecting uCTD profiles during transit.

Along the 15°S section, 12 CTD/O_2 and lADCP were collected and 12 MSS stations were conducted. Similar to the 6°S section, this section is a repeat section of the FAO EAF Nansen project that we sampled during a season in which no data had yet existed. R/V FRIDTJOF NANSEN has sampled this section twice a year on a regular basis since 1994. The section was completed on November 7th at 10:00.

Between 15°S and 18°S, the Angola-Benguela frontal zone is located. It separates warm near-surface waters to the north from cold near-surface waters to the south. Temperature difference across the front ranges from 5°C and 8°C. A CTD/O_2 and shipboard ADCP section complemented with uCTD profiles along the 500m isobaths was collected to advance understanding of the frontal dynamics. Water samples from the CTD rosette were analysed for concentrations of salinity, oxygen and nutrients and samples for the analysis of trace gases were prepared. During the section occupation elevated southward flow of more than 20 cm/s in the upper 50m of the water column resulted to a fascinating southward displacement of warm water that was also reflected in satellite imaginary of sea surface temperature. A strengthening of the trade winds accompanied the southward displacement of the front. To advance our understanding of the variability of the front and associated ocean-atmosphere interactions and ocean feedback processes in the frontal region, two gliders were deployed that will have sampled the frontal region along meridional transect in the following month until recovery during the follow-up cruise M121.

In the afternoon of November 8th, R/V METEOR reached the 18°S section and a bottom shield moored at 125m depth on the shelf was successfully recover. Although the release of the bottom shield malfunctioned, a catch line that was attached to the shield during its deployment by the Namibian Research Vessel MIRABILIS in January 2015 was dredged on a second try using a grapnel attached to the end of the wire. A mooring configured for high-frequency sampling was subsequently deployed at the same position. Altogether, 16 CTD/O_2 and lADCP stations and the same number of MSS stations were conducted along a meridional transect at 18°S. Water samples were again analysed for concentrations of salinity, oxygen and nutrients, while water samples for trace gases analysis were prepared. At noon on November 10th, the mooring sampling at high resolution was recovered and the bottom shield was redeployed at the same position from where it was retrieved. At 14:00 that day, METEOR headed further southward to 20°S.

CTD/O_2 sampling at the meridional 20°S section was started at 04:00 on November 11th. Works on the section were identical to work performed at 18°S. As our arrival was during night time, sampling was started on CTD/O_2 and MSS stations in shallow waters. Moving westward along the section, the position of the bottom shield was reached just after 09:00. This time, the bottom shield was successfully released and retrieved by the vessel. Again, a high-resolution sampling mooring was deployed for the time of bottom shield servicing. The 20°S and 23°S section is surveyed on a regular basis by our Namibian colleagues and partners within EU-PREFACE project from the National Marine Information and Research Center (NatMIRC) in Swakopmund, Namibia. While heading westward along 20°S, 20 CTD/O_2 and lADCP as well as 20 MSS stations were sampled. Analysis of water sampling here included determination of nutrient concentrations at every second CTD station. The bottom shield was redeployed and the mooring was recovered in the morning of November 13th.

In the morning of November 14th, sampling along our final section at 23°S commenced. Due to strong winds reaching 8 Beaufort and swell of more than 3.5m, the recovery of a mooring and a sediment trap as well as the deployment of a glider had to be postponed. However,

CTD/O_2 and MSS stations could still be carried out. Heading towards the west, the 23°S section was sampled and two ARGO floats were released until winds and swell weakened in the evening of November 15th. METEOR then headed back inshore to retrieve the moorings at 130m water depth in the early morning of November 16th. After successful recovery of both moorings, the last glider again with an attached microstructure probe was deployed in a water depth of 300m. Recovery of the instrument package will also occur on the follow-up cruise M121. The CTD/O_2 and MSS section work was continued until the morning November 17th. Redeployment of the two moorings on the shelf at 23°W started at 10:30 that day and finished shortly after midday. R/V METEOR then sailed to the port of Walvis Bay arriving just after 17:00. Unfortunately, due to the unavailability of a berth we could not enter port. Instead, METEOR went on anchorage close to the port. After packing was completed, the scientific crew was picked up by a shuttle at noon on November 18th.

Acknowledgements

We are grateful to Capitan Hammacher und his crew for the excellent collaboration and the pleasant working atmosphere during the cruise. The crew of FS METEOR greatly contributed to the success of the cruise. The ship time of 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 (BMBF) as part of the cooperative project SACUS „Southwest African Coastal Upwelling System and Benguela Niños“(03V01295) and by EU funded collaborative project PREFACE „Enhancing prediction of tropical Atlantic climate and its impacts“ (Grant No 603521).

M120 Participants

No.	Name	Function	Institution
1	Dengler, Marcus Dr.	Chief scientist	GEOMAR
2	Begler, Christian	Moorings, PIES, Glider, CTD	GEOMAR
3	Beier, Sebastian	Moorings, MSS	IOW
4	Boomers, Jonas	Air-sea fluxes, CTD-watch	GEOMAR
5	Cordes, Florian	Nutrients, Trace gases	IOW
6	Dippe, Tina	Salinometer, CTD-watch	GEOMAR
7	Francisco, José Amaro	Observer Angola, CTD-watch	INIP
8	Glockzin, Michael	Trace gases	IOW
9	Heene, Toralf	Moorings, MSS, CTD	IOW
10	Heitmann-Bacza, Carola	Meteorology	DWD
11	Junker, Tim, Dr.	Mooring, MSS	IOW
12	Kanga, Pedro Artur	ADCP, CTD-watch	INIP
13	Klenz, Thilo	U-CTD, MSS, Glider, CTD-watch	GEOMAR
14	Kopte, Robert	CTD, ADCP, Glider	GEOMAR
15	Logemann, Gerd	Aerosols	MPI-HH
16	Lüdke, Jan	LADCP, Glider, CTD-watch	GEOMAR
17	Mohrholz, Volker, Dr.	Senior Scientist, Moorings, MSS	IOW
18	Nielsen, Martina	CTD, Moorings, Micro-Cats	GEOMAR
19	Nielsen, Soren	Glider, CTD-watch	UCPH
20	Ostrowski, Marek, Dr.	Multibeam Echosounder, ADCP,	IMR
21	Pillar, Helen	Air-sea fluxes, CTD watch	UCPH
22	Raeke, Andreas	Meteorology	DWD
23	Seemann, Ann Katrin	O_2, CTD-watch	GEOMAR
24	Werner, Jan	Trace gases, Nutrients	IOW

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IMR Institute of Marine Research, Department Oceanography, Nordnesgaten 50, 5817 Bergen, Norway, http://www.imr.no/en

INIP Instituto National de Investigacao Pesqueira, Rua Mortala Mohamed, Ilha do Cabo, PO Box 260, Luanda, Angola, http://preface.b.uib.no/about/project-partners/inip/

IOW Leibniz-Institut für Ostseeforschung Warnemünde, Seestraße 15, 18119 Rostock, Germany http://www.io-warnemuende.de/

MPI-HH Max-Planck-Institut für Meteorologie, Bundesstraße 53, 20146 Hamburg, Germany, http://www.mpimet.mpg.de/

UCPH Niels Bohr Institutet, Kobenhavns Universitet, Blegdamsvej 17, 2100 København, Denmark, http://www.nbi.ku.dk/

M120 station list

METEOR station	Gear station	Date and Time UTC	Latitude [°]	Longitude [°]	Comments
879-1	uCTD 1	18.10. 12:08 - 20.10. 15:35	11° 59,91' S	032° 26,57' W	**uCTD** transect (400m) 52 profs.
880-1	CTD 1	20.10. 16:05 - 17:24	11° 44,83' S	022° 29,23' W	**CTD** station (2000m)
881-1	ARGO 1	20.11. 17:33	11° 44,83' S	022° 29,12' W	**Float** release (WMO #4901428)
882-1	uCTD 2	20.10. 17:38 - 21.10. 21:40	11° 44,83' S	022° 28,67' W	**uCTD** transect (400m) 28 profs.
883-1	CTD 2	21.10. 22:09 - 23:31	11° 36,41' S	017° 02,17' W	**CTD** station (2000m)
884-1	ARGO 2	21.10. 23:45	11° 35,97' S	017° 01,80' W	**Float** release (WMO #4901429)
885-1	uCTD 3	22.10. 00:08 - 23.10. 09:08	11° 36,10' S	016° 59,46' W	**uCTD** transect (400m) 34 profs.
886-1	CTD 3	23.10. 09:18 - 10:40	11° 27.14' S	011° 00.26' W	**CTD** station (2000m)
887-1	ARGO 3	23.10. 10:52	11° 27.25' S	011° 00.14' W	**Float** release (WMO #4901682)
888-1	uCTD 4	23.10. 11:08 - 24.10. 18:12	11° 27.31' S	010° 58.26' W	**uCTD** transect (400m) 32 profs.
889-1	CTD 4	24.10. 18:20 - 19:50	11° 17.77' S	005° 00.47' W	**CTD** station (2000m)
890-1	ARGO 4	24.10. 20:03	11° 17.84' S	005° 00.45' W	**Float** release (WMO #4901683)
891-1	uCTD 5	24.10. 20:14 - 26.10. 09:10	11° 17.79' S	004° 59.22' W	**uCTD** transect (400m) 38 profs.
892-1	CTD 5	26.10. 09:23 - 10:49	11° 22.47' S	002° 00.38' E	**CTD** station (2000m)
893-1	uCTD 6	26.10. 11:01 - 27.11. 21:26	11° 22.55' S	002° 01.32' E	**uCTD** transect (400m) 34 profs.
894-1	CTD 6	27.10. 22:07 - 23:34	11° 27.74' S	009° 00.17' E	**CTD** station (2000m)
895-1	ARGO 5	27.10. 23:48	11° 27.93' S	009° 00.28' E	**Float** release (WMO #3901089)
896-1	uCTD 7	27.10. 23:58 - 28.10. 04:13	11° 28.28' S	009° 00.79' E	**uCTD** transect (400m) 13 profs.
897-1	ARGO 6	28.10. 04:47	11° 28.36' S	009° 59.96' E	**Float** release (WMO #6902629)
898-1	uCTD 8	28.10. 04:58 - 16:13	11° 28.48' S	010° 00.78' E	**uCTD** transect (400m) 8 profs.
899-1	MSS 1	28.10. 17:50 - 18:35	11° 29.24' S	012° 00.44' E	**MSS** station (500m)
900-1	CTD 7	28.10 18:44 - 20:49	11° 29.84' S	012° 00.11' E	**CTD** station (2602m/bottom)
901-1	MSS 2	28.10. 23:34 - 00:19	11° 14.17' S	012° 23.06' E	**MSS** station (500m)
902-1	CTD 8	29.10. 00:32 - 02:15	11° 15.04' S	012° 22.51' E	**CTD** station (1877m/bottom)

903-1	CTD 9	29.10. 06:04 - 07:13	10° 50.98' S	013° 01.06' E	**CTD** station (1213m/bottom)
904-1	KPO 1107	29.10. 07:43 - 09:00	10° 50.00' S	013° 00.00' E	**Mooring** recovery
905-1	KPO 1106	29.10. 10:28 - 12:48	10° 42.57' S	013° 11.13' E	**Mooring** bottom shield recovery
906-1	CTD 10	29.10. 13:10 - 13:37	10° 41.60' S	013° 11.85' E	**CTD** station (432m/bottom)
907-1	KPO 1105	29.10. 13:54 - 14:17	10° 42.10' S	013° 11.85' E	**Mooring** recovery (unsucessful)
908-1	KPO 1104	29.10. 14:53 - 15:16	10° 39.72' S	013° 15.43' E	**Mooring** Bottom shield recovery (unsucessful)
909-1	CTD 11	29.10. 17:36 - 18:09	10° 40.57' S	013° 14.20' E	**CTD** station (295m/bottom)
910-1	MSS 3	29.10. 18:14 - 19:03	10° 40.57' S	013° 14.20' E	**MSS** station (295m/botttom)
911-1	CTD 12	29.10. 19:38 - 20:04	10° 42.32' S	013° 11.39' E	**CTD** station (472m/bottom)
912-1	MSS 4	29.10. 20:08 - 21:17	10° 42.32' S	013° 11.39' E	**MSS** station (471m/bottom)
913-1	CTD 13	29.10. 21:52 - 22:24	10° 43.98' S	013° 09.03' E	**CTD** station (695m/bottom)
914-1	MSS 5	29.10. 22:29 - 23:42	10° 43.99' S	013° 09.03' E	**MSS** station (500m)
915-1	CTD 14	30.10. 00:05 - 00:48	10° 46.00' S	013° 06.01' E	**CTD** station (946m/bottom)
916-1	MSS 6	30.10. 00:53 - 02:00	10° 46.00' S	013° 06.00' E	**MSS** station (500m)
917-1	CTD 15	30.10. 02:26 - 03:18	10° 47.98' S	013° 03.01' E	**CTD** station (906/bottom)
918-1	MSS 7	30.10. 03:33 - 05:00	10° 47.98' S	013° 03.00' E	**MSS** station (500m)
919-1	KPO 1105	30.10. 07:02 - 12:17	10° 41.74' S	013° 11.72' E	**Mooring** dredging (unsuccessful)
920-1	KPO 1154	30.10. 13:04 - 13:10	10° 40.44' S	013° 14.44' E	**Mooring** PIES deployment
921-1	KPO 1168	30.10. 13:31 - 13:44	10° 39.71' S	013° 15.45' E	**Mooring** deployment (2xADCP, 200m)
922-1	CTD 16	30.10. 14:11 - 14:50	10° 39.21' S	013° 16.21' E	**CTD** station (162m/bottom)
923-1	MSS 8	30.10. 14:55 - 15:05	10° 39.22' S	013° 16.19' E	**MSS** station (165m/bottom)
924-1	CTD 17	30.10. 15:33 - 15:56	10° 37.90' S	013° 18.22' E	**CTD** station (121m/bottom)
925-1	MSS 9	30.10. 16:02 - 16:45	10° 37.92' S	013° 18.21' E	**MSS** station (120m/bottom)
926-1	MSS 10	30.10. 17:04 - 17:44	10° 39.20' S	013° 16.21' E	**MSS** station (162m/bottom)
927-1	CTD 18	30.10. 19:48 - 20:58	10° 52.09' S	012° 57.03' E	**CTD** station (1270m/bottom)
928-1	MSS 11	30.10. 21:02 - 22:11	10° 52.09' S	012° 57.03' E	**MSS** station (500m)

929-1	CTD 19	30.10. 22:49 - 23:47	10° 54.02' S	012° 54.04' E	**CTD** station (1349m/bottom)
930-1	MSS 12	30.10. 23:54 - 31.10. 00:45	10° 54.05' S	012° 53.99' E	**MSS** station (500m)
931-1	CTD 20	31.10 01:10 - 02:08	10° 56.04' S	012° 51.00' E	**CTD** station (1376m/bottom)
932-1	MSS 13	31.10. 02:12 - 03:28	10° 56.06' S	012° 50.96' E	**MSS** station (500m)
933-1	CTD 21	31.10. 04:04 - 05:02	10° 58.01' S	012° 48.00' E	**CTD** station (1400m/bottom)
934-1	MSS 14	31.10. 05:08 - 06:09	10° 58.03' S	012° 47.99' E	**MSS** station (500m)
935-1	GLI 1	31.10. 06:51 - 07:58	11° 00.04' S	012° 45.03' E	**Glider** deployment (IFM03)
936-1	CTD 22	31.10. 08:46 - 09:32	11° 00.02' S	012° 45.01' E	**CTD** station (1434m/bottom)
937-1	MSS 15	31.10. 09:38 - 10:30	11° 00.03' S	012° 44.99' E	**MSS** station (500m)
938-1	CTD 23	31.10. 15:01 - 15:16	10° 31.37' S	013° 27.90' E	**CTD** station (55m/bottom)
939-1	MSS 16	31.10. 15:20 - 15:35	10° 31.38' S	013° 27.89' E	**MSS** station (55m/bottom)
940-1	CTD 24	31.10. 15:59 - 16:19	10° 32.89' S	013° 25.70' E	**CTD** station (75m/bottom)
941-1	MSS 17	31.10. 16:23 - 16:44	10° 32.89' S	013° 25.69' E	**MSS** station (78m/bottom)
942-1	CTD 25	31.10. 17:13 - 17:34	10° 35.17' S	013° 22.19' E	**CTD** station (100m/bottom)
943-1	MSS 18	31.10. 17:38 - 18:10	10° 35.18' S	013° 22.17' E	**MSS** station (101m/bottom)
944-1	CTD 26	02.11. 09:46 - 10:00	06° 12.64' S	012° 06.04' E	**CTD** station (36m/bottom)
945-1	MSS 19	02.11. 10:05 - 10:35	06° 12.64' S	012° 06.04' E	**MSS** station (36m/bottom)
946-1	CTD 27	02.11. 11:22 - 11:33	06° 14.91' S	011° 59.98' E	**CTD** station (61m/bottom)
947-1	MSS 20	02.11. 11:39 - 12:11	06° 14.92' S	011° 59.97' E	**MSS** station (61m/bottom)
948-1	CTD 28	02.11. 12:54 - 13:18	06° 16.75' S	011° 54.01' E	**CTD** station (79m/bottom)
949-1	MSS 21	02.11. 13:22 - 13:54	06° 16.75' S	011° 54.00' E	**MSS** station (80m/bottom)
950-1	CTD 29	02.11. 14:33 - 14:49	06° 18.61' S	011° 48.05' E	**CTD** station (102m/bottom)
951-1	MSS 22	02.11. 14:52 - 15:21	06° 18.62' S	011° 48.01' E	**MSS** station (103m/bottom)
952-1	CTD 30	02.11. 15:58 - 16:25	06° 20.38' S	011° 42.03' E	**CTD** station (116m/bottom)
953-1	MSS 23	02.11. 16:25 - 17:03	06° 20.39' S	011° 42.03' E	**MSS** station (116m/bottom)
954-1	CTD 31	02.11. 17:42 - 17:59	06° 22.28' S	011° 35.97' E	**CTD** station (200m/bottom)

955-1	MSS 24	02.11.2015 18:02 - 18:34	06° 22.28' S	011° 35.99' E	**MSS** station (201m/bottom)
956-1	CTD 32	02.11. 19:13 - 19:51	06° 24.14' S	011° 30.13' E	**CTD** station (351m/bottom)
957-1	MSS 25	02.11. 19:54 - 20:36	06° 24.15' S	011° 30.12' E	**MSS** station (347m/bottom)
958-1	CTD 33	02.11. 21:29 - 22:15	06° 26.60' S	011° 22.55' E	**CTD** station (541m/bottom)
959-1	MSS 26	02.11. 22:18 - 23:02	06° 26.61' S	011° 22.55' E	**MSS** station (500m)
960-1	CTD 34	02.11. 23:48 - 03.11. 00:29	06° 29.09' S	011° 15.03' E	**CTD** station (845m/bottom)
961-1	MSS 27	03.11. 00:35 - 01:21	06° 29.12' S	011° 15.02' E	**MSS** station (500m)
962-1	CTD 35	03.11. 02:09 - 03:20	06° 31.51' S	011° 07.49' E	**CTD** station (1136m/bottom)
963-1	MSS 28	03.11. 03:23 - 03:47	06° 31.52' S	011° 07.48' E	**MSS** station (500m)
964-1	CTD 36	03.11. 04:33 - 05:42	06° 33.93' S	011° 00.01' E	**CTD** station (1453m/bottom)
965-1	CTD 37	03.11. 06:33 - 07:47	06° 36.40' S	010° 52.51' E	**CTD** station (1905/bottom)
966-1	uCTD 9	03.11. 10:07 - 04.11. 06:11	07° 00.78' S	011° 04.71' E	**uCTD** Transect (400m) 12 profs.
967-1	KPO 1153	04.11. 08:50 - 09:57	10° 50. 01' S	013° 00.00' E	**Mooring** deployment (LR-ADCP, 1230m)
968-1	KPO 1151	04.11. 11:57 - 12:52	10° 42.13' S	013° 11.83' E	**Mooring** deployment (T, S, P, O2 logger, 444m)
969-1	KPO 1168	04.11. 13:24 - 13:43	10° 39.71' S	013° 15.45' E	**Mooring** recovery (2xADCP, 200m)
970-1	KPO 1110	04.11. 13:58 - 14:46	10° 40.22' S	013° 14.64' E	**Mooring** bottom pressure recovery (308m)
971-1	CTD 38	04.11. 15:21 - 16:02	10° 42.57' S	013° 11.13' E	**CTD** station (491m/bottom)
972-1	KPO 1152	04.11.2015 16:18 - 17:23	10° 42.57' S	013° 11.13' E	**Mooring** bottom shield deployment (500m)
973-1	KPO 1155	04.11. 17:32 - 17:39	10° 42.68' S	013° 11.08' E	**Mooring** PIES deployment (500m)
974-1	MSS 29	04.11. 17:41 - 18:37	10° 42.74' S	013° 11.01' E	**MSS** station(493m/bottom)
975-1	CTD 39	04.11. 22:49 - 23:53	11° 07.42' S	012° 33.83' E	**CTD** station (1500m/bottom)
976-1	uCTD 10	05.11. 01:01 - 19:10	11° 18.83' S	012° 29.29' E	**uCTD** transect (400m)
977-1	CTD 40	05.11. 20:14 - 22:27	14° 52.46' S	011° 07.44' E	**CTD** station (3029/bottom)
978-1	MSS 30	05.11. 22:38 - 23:20	14° 52.46' S	011° 07.55' E	**MSS** station (500m)
979-1	CTD 41	06.11. 00:32 - 02:17	14° 58.29' S	011° 18.36' E	**CTD** station (2792m/bottom)
980-1	MSS 31	06.11. 02:23 - 03:05	14° 58.34' S	011° 18.36' E	**MSS** station (500m)

981-1	CTD 42	06.11. 03:51 - 05:40	15° 01.96' S	011° 25.22' E	**CTD** station (2585m/bottom)
982-1	MSS 32	06.11. 05:44 - 06:28	15° 01.96' S	011° 25.21' E	**MSS** station (500m)
983-1	CTD 43	06.11. 07:19 - 08:46	15° 05.58' S	011° 32.03' E	**CTD** station (1796m/bottom)
984-1	MSS 33	06.11. 08:50 - 09:34	15° 05.60' S	011° 32.01' E	**MSS** station (500m)
985-1	CTD 44	06.11. 10:28 - 11:43	15° 09.25' S	011° 38.89' E	**CTD** station (1778m/bottom)
986-1	MSS 34	06.11. 11:48 - 12:28	15° 09.31' S	011° 38.86' E	**MSS** station (500m)
987-1	CTD 45	06.11. 13:10 - 14:22	15° 11.73' S	011° 43.45' E	**CTD** station (1478m/bottom)
988-1	MSS 35	06.11. 14:24 - 15:05	15° 11.73' S	011° 43.45' E	**MSS** station (500m)
989-1	CTD 46	06.11. 16:06 - 16:56	15° 16.63' S	011° 52.57' E	**CTD** station (600m/bottom)
990-1	MSS 36	06.11. 17:00 - 17:37	15° 16.65' S	011° 52.55' E	**MSS** station (500m)
991-1	CTD 47	06.11. 17:58 - 18:38	15° 15.38' S	011° 50.20' E	**CTD** station (953m/bottom)
992-1	MSS 37	06.11. 18:42 - 19:48	15° 15.39' S	011° 50.18' E	**MSS** station (500m)
993-1	CTD 48	06.11. 20:15 - 21:02	15° 14.23' S	011° 47.99' E	**CTD** station (1079m/bottom)
994-1	MSS 38	06.11. 21:07 - 22:07	15° 14.24' S	011° 47.99' E	**MSS** station (500m)
995-1	CTD 49	06.11. 23:37 - 07.11. 00:31	15° 30.01' S	011° 42.00' E	**CTD** station (600m/bottom)
996-1	MSS 39	07.11. 00:36 - 01:32	15° 30.09' S	011° 41.99' E	**MSS** station (500m)
997-1	CTD 50	07.11. 04:04 - 04:56	15° 17.85' S	011° 54.84' E	**CTD** station (635m/bottom)
998-1	MSS 40	07.11. 05:01 - 05:58	15° 17.85' S	011° 54.81' E	**MSS** station (500m)
999-1	CTD 51	07.11. 06:28 - 06:54	15° 19.06' S	011° 57.12' E	**CTD** station (458m/bottom)
1000-1	MSS 41	07.11. 06:58 - 07:57	15° 19.11' S	011° 57.14' E	**MSS** station (466m/bottom)
1001-1	CTD 52	07.11. 08:21 - 08:43	15° 20.27' S	011° 59.43' E	**CTD** station (83m/bottom)
1002-1	MSS 42	07.11. 08:47 - 09:12	15° 20.27' S	011° 59.42' E	**MSS** station (83m/bottom)
1003-1	CTD 53	07.11. 09:37 - 09:53	15° 20.87' S	012° 00.55' E	**CTD** station (54m/bottom)
1004-1	MSS 43	07.11. 09:55 - 10:09	15° 20.88' S	012° 00.55' E	**MSS** station (54m/bottom)
1005-1	GLI 2	07.11. 13:10 - 13:46	15° 44.96' S	011° 39.00' E	**Glide**r deployment (IFM13)
1006-1	CTD 54	07.11. 13:59 - 14:59	15° 44.97' S	011° 39.00' E	**CTD** station (853m/bottom)

1007-1	MSS 44	07.11. 15:03 - 16:02	15° 44.98' S	011° 38.98' E	**MSS** station (500m)
1008-1	uCTD 11	07.11. 16:38 - 17:00	15° 52.17' S	011° 36.97' E	**uCTD** Profile (400m)
1009-1	CTD 55	07.11. 17:23 - 18:01	15° 59.97' S	011° 36.16' E	**CTD** station (420m/bottom)
1010-1	MSS 45	07.11. 18:06 - 18:44	15° 59.99' S	011° 36.15' E	**MSS** station (500m)
1011-1	uCTD 12	07.11. 19:26 - 19:42	16° 07.81' S	011° 33.26' E	**uCTD** Profile (400m)
1012-1	CTD 56	07.11. 20:19 - 20:48	16° 15.26' S	011° 30.49' E	**CTD** station (316m/bottom)
1013-1	MSS 46	07.11. 20:52 - 21:22	16° 15.30' S	011° 30.48' E	**MSS** station (330m/bottom)
1014-1	uCTD 13	07.11.2015 22:01 - 22:18	16° 22.05' S	011° 27.38' E	**uCTD** Profile (400m)
1015-1	CTD 57	07.11. 23:13 - 23:53	16° 30.00' S	011° 23.43' E	**CTD** station (401m/bottom)
1016-1	MSS 47	07.11. 23:57 - 08.11. 00:32	16° 30.04' S	011° 23.42' E	**MSS** station (405m/bottom)
1017-1	uCTD 14	08.11. 01:17 - 01:24	16° 38.29' S	011° 20.17' E	**uCTD** Profile (300m)
1018-1	CTD 58	08.11. 02:06 - 02:41	16° 45.00' S	011° 17.30' E	**CTD** station (453m/bottom)
1019-1	MSS 48	08.11. 02:44 - 03.23	16° 45.20' S	011° 17.32' E	**MSS** station (443m/bottom)
1020-1	uCTD 15	08.11. 04:03 - 04:11	16° 52.66' S	011° 18.35' E	**uCTD** Profile (300m)
1021-1	CTD 59	08.11. 04:50 - 05:18	17° 00.11' S	011° 19.12' E	**CTD** station (590m/bottom)
1022-1	MSS 49	08.11. 05:19 - 05:55	17° 00.12' S	011° 18.95' E	**MSS** station (480m/bottom)
1023-1	uCTD 16	08.11. 06:47 - 06:57	17° 09.39' S	011° 17.92' E	**uCTD** Profile (400m)
1024-1	CTD 60	08.11. 07:29 - 08:03	17° 14.93' S	011° 17.27' E	**CTD** station (652m/bottom)
1025-1	MSS 50	08.11. 08:07 - 08:51	17° 14.94' S	011° 17.27' E	**MSS** station (498m/bottom)
1026-1	uCTD 17	08.11. 09:44 - 10:00	17° 24.14' S	011° 18.01' E	**uCTD** Profile (400m)
1027-1	CTD 61	08.11. 10:25 - 10:52	17° 29.94' S	011° 18.35' E	**CTD** station (700m/bottom)
1028-1	MSS 51	08.11. 10:56 - 11:22	17° 29.95' S	011° 18.35' E	**MSS** station (500m)
1029-1	uCTD 18	08.11. 12:33 - 14:32	17° 40.56' S	011° 25.40' E	**uCTD** Transect (400m) 3 profs.
1030-1	LTKC	08.11. 14:47 - 17:50	18° 00.00' S	011° 39.00' E	**Mooring** bottom shield recovery (LTKC, 125m)
1031-1	CTD 62	08.11. 18:39 - 18;50	17° 59.96' S	011° 45.99' E	**CTD** station (50m/bottom)
1032-1	MSS 52	08.11. 18:55 - 19:10	18° 00.00' S	011° 46.00' E	**MSS** station (51m/bottom)

1033-1	CTD 63	08.11. 19:52 - 20:11	18° 00.00' S	011° 42.88' E	**CTD** station (89m/bottom)
1034-1	MSS 53	08.11. 20:15 - 20:38	18° 00.01' S	011° 42.88' E	**MSS** station (88m/bottom)
1035-1	CTD 64	08.11. 21:33 - 21:50	17° 59.93' S	011° 37.98' E	**CTD** station (126m/bottom)
1036-1	MSS 54	08.11. 21:54 - 22:23	17° 59.96' S	011° 37.98' E	**MSS** station (126m/bottom)
1037-1	CTD 65	08.11. 23:03 - 23:20	17° 59.98' S	011° 34.97' E	**CTD** station (182m/bottom)
1038-1	MSS 55	08.11. 23:24 - 09.11. 00:04	18° 00.01' S	011° 34.97' E	**MSS** station (182m/bottom)
1039-1	CTD 66	09.11. 00:35 - 00:53	17° 59.97' S	011° 30.99' E	**CTD** station (231m/bottom)
1040-1	MSS 56	09.11. 00:57 - 01:40	17° 59.99' S	011° 30.99' E	**MSS** station (230m/bottom)
1041-1	CTD 67	09.11. 02:10 - 02:39	17° 59.99' S	011° 26.97' E	**CTD** station (274m/bottom)
1042-1	MSS 57	09.11. 02:45 - 03:23	18° 00.02' S	011° 26.98' E	**MSS** station (275m/bottom)
1043-1	CTD 68	09.11. 03:58 - 04:39	17° 59.95' S	011° 21.95' E	**CTD** station (550m/bottom)
1044-1	MSS 58	09.11. 04:43 - 05:23	17° 59.95' S	011° 21.95' E	**MSS** station (500m)
1045-1	HRKC	09.11. 07:18 - 07:23	17° 59.60' S	011° 38.84' E	**Mooring** deployment (HRKC, 125m)
1046-1	GLI 3	09.11. 10:10 - 10:21	17° 44.84' S	011° 17.73' E	**Glider** deployment (failed)
1047-1	CTD 69	09.11. 10:33 - 11:23	17° 44.82' S	011° 17.68' E	**CTD** station (778m/bottom)
1048-1	GLI 4	09.11. 11:32 - 12:23	17° 44.83' S	011° 17.63' E	**Glider** deployment (IFM02)
1049-1	MSS 59	09.11. 12:30 - 13:14	17° 44.90' S	011° 17.26' E	**MSS** station (500m)
1050-1	CTD 70	09.11. 17:00 - 19:36	17° 59.98' S	010° 34.97' E	**CTD** station (3492m/bottom)
1051-1	MSS 60	09.11. 19:41 - 20:30	18° 00.00' S	010° 34.97' E	**MSS** station (500m)
1052-1	CTD 71	09.11. 22:32 - 10.11. 00:41	17° 59.91' S	010° 55.01' E	**CTD** station ((2790m/bottom)
1053-1	MSS 61	10.11. 00:44 - 01:28	17° 59.92' S	010° 55.01' E	**MSS** station (500m)
1054-1	CTD 72	10.11. 02:48 - 04:27	17° 59.98' S	011° 06.98' E	**CTD** station (1971m/bottom)
1055-1	MSS 62	10.11. 04:32 - 05:11	18° 00.01' S	011° 06.99' E	**MSS** station (500m)
1056-1	CTD 73	10.11. 06:18 - 07:21	17° 59.96' S	011° 16.96' E	**CTD** station (1014m/bottom)
1057-1	MSS 63	10.11. 07:52 - 08:33	18° 00.54' S	011° 17.28' E	**MSS** station (500m)
1058-1	CTD 74	10.11. 09:06 - 09:43	17° 59.85' S	011° 19.51' E	**CTD** station (761m/bottom)

1059-1	MSS 64	10.11. 09:48 - 10:36	17° 59.86' S	011° 19.51' E	**MSS** station (500m)
1060-1	HRKC	10.11. 12:41 - 13:15	17° 59.60' S	011° 38.84' E	**Mooring** recovery (HRKC, 125m)
1061-1	LTKC	10.11. 13:42 - 14:03	18° 00.00' S	011° 39.00' E	**Mooring** bottom shield deployment (LTKC,125m)
1062-1	CTD 75	11.11. 04:00 - 04:12	19° 59.98' S	012° 59.55' E	**CTD** station (32m/bottom)
1063-1	MSS 65	11.11. 04:15 - 04:36	20° 00.01' S	012° 59.54' E	**MSS** station (32m/bottom)
1064-1	CTD 76	11.11. 04:56 - 05:11	19° 59.97' S	012° 57.08' E	**CTD** station (53m/bottom)
1065-1	MSS 66	11.11. 05:15 - 05:35	19° 59.99' S	012° 57.07' E	**MSS** station (55m/bottom)
1066-1	CTD 77	11.11. 06:11 - 06:28	20° 00.01' S	012° 50.95' E	**CTD** station (98m/bottom)
1067-1	MSS 67	11.11. 06:31 - 06:58	20° 00.03' S	012° 50.94' E	**MSS** station (99m/bottom)
1068-1	CTD 78	11.11. 07:40 - 08:20	19° 59.98' S	012° 44.96' E	**CTD** station (119m/bottom)
1069-1	MSS 68	11.11. 08:23 - 08:47	19° 59.99' S	012° 44.96' E	**MSS** station (117m/bottom)
1070-1	LTTB	11.11. 09:15 - 09:47	19° 59.97' S	012° 44.98' E	**Mooring** bottom shield recovery (LTTB, 125m)
1071-1	HRTB	11.11. 10:09 - 10:21	19° 59.91' S	012° 44.96' E	**Mooring** deployment (HRTB, 125m)
1072-1	CTD 79	11.11. 10:57 - 11:25	19° 59.94' S	012° 40.96' E	**CTD** station (125m/bottom)
1073-1	MSS 69	11.11. 11:30 - 11:59	19° 59.99' S	012° 40.95' E	**MSS** station (126m/bottom)
1074-1	CTD 80	11.11. 12:39 - 13:02	20° 00.00' S	012° 35.53' E	**CTD** station (135m/bottom)
1075-1	MSS 70	11.11. 13:08 - 13:45	20° 00.05' S	012° 35.52' E	**MSS** station (135m/bottom)
1076-1	CTD 81	11.11. 14:19 - 14:42	19° 59.99' S	012° 30.01' E	**CTD** station (151m/bottom)
1077-1	MSS 71	11.11. 14:45 - 15:20	20° 00.02' S	012° 30.01' E	**MSS** station (151m/bottom)
1078-1	CTD 82	11.11. 15:52 - 16:13	19° 59.97' S	012° 25.02' E	**CTD** station (196m/bottom)
1079-1	MSS 72	11.11. 16:15 - 16:49	19° 59.97' S	012° 25.02' E	**MSS** station (196m/bottom)
1080-1	CTD 83	11.11. 17:23 - 17:42	19° 59.98' S	012° 20.02' E	**CTD** station (213m/bottom)
1081-1	MSS 73	11.11. 17:46 - 18:16	19° 59.99' S	012° 20.02' E	**MSS** station (213m/bottom)
1082-1	CTD 84	11.11. 18:48 - 19:03	19° 59.99' S	012° 14.97' E	**CTD** station (247m/bottom)
1083-1	MSS 74	11.11. 19:08 - 19:41	20° 00.00' S	012° 14.97' E	**MSS** station (248m/bottom)
1084-1	CTD 85	11.11. 20:27 - 20:51	19° 59.97' S	012° 08.89' E	**CTD** station (283m/bottom)

1085-1	MSS 75	11.11. 20:55 - 21:34	19° 59.98' S	012° 08.89' E	**MSS** station (283m/bottom)
1086-1	CTD 86	11.11. 22:16 - 22:43	19° 59.84' S	012° 03.84' E	**CTD** station (312m/bottom)
1087-1	MSS 76	11.11. 22:46 - 23:28	19° 59.86' S	012° 03.84' E	**MSS** station (312m/bottom)
1088-1	CTD 87	12.11. 00:09 - 00:37	19° 59.98' S	011° 58.36' E	**CTD** station (348m/bottom)
1089-1	MSS 77	12.11. 00:41 - 01:26	20° 00.01' S	011° 58.35' E	**MSS** station (347m/bottom)
1090-1	CTD 88	12.11. 02:04 - 02:29	19° 59.99' S	011° 52.58' E	**CTD** station (388m/bottom)
1091-1	MSS 78	12.11. 02:31 - 03:07	19° 59.99' S	011° 52.56' E	**MSS** station (386m/bottom)
1092-1	CTD 89	12.11. 03:42 - 04:12	20° 00.00' S	011° 46.74' E	**CTD** station (453m/bottom)
1093-1	MSS 79	12.11. 04:14 - 04:58	20° 00.02' S	011° 46.80' E	**MSS** station (453m/bottom)
1094-1	CTD 90	12.11. 05:28 - 05:41	19° 59.99' S	011° 41.94' E	**CTD** station (545m/bottom)
1095-1	MSS 80	12.11. 05:58 - 06:37	20° 00.00' S	011° 41.94' E	**MSS** station (500m)
1096-1	CTD 91	12.11. 07:11 - 07:56	19° 59.96' S	011° 36.94' E	**CTD** station (639m/bottom)
1097-1	MSS 81	12.11. 08:00 - 08:45	19° 59.99' S	011° 36.95' E	**MSS** station (500m)
1098-1	CTD 92	12.11. 09:53 - 10:38	20° 00.00' S	011° 26.26' E	**CTD** station (686m/bottom)
1099-1	MSS 82	12.11. 10:40 - 11:45	20° 00.00' S	011° 26.25' E	**MSS** station (500m)
1100-1	CTD 93	12.11. 123:49 - 13:49	20° 00.00' S	011° 14.99' E	**CTD** station (1050m/bottom)
1101-1	MSS 83	12.11. 13:52 - 14:31	20° 00.04' S	011° 14.98' E	**MSS** station (500m)
1102-1	CTD 94	12.11. 15:51 - 16:44	19° 59.97' S	010° 59.99' E	**CTD** station (1272m/bottom)
1103-1	MSS 84	12.11. 16:48 - 17:29	19° 59.99' S	010° 59.98' E	**MSS** station (500m)
1104-1	MSS 85	13.11. 03:33 - 06:32	20° 00.11' S	012° 44.92' E	**MSS** station (120m/bottom)
1105-1	HRTB	13.11. 06:52 - 07:47	19° 59.91' S	012° 44.96' E	**Mooring** recovery (HRTB, 125m)
1106-1	LRTB	13.11. 08:08 - 08:39	19° 59.97' S	012° 44.98' E	**Mooring** bottom shield deployment (LTTB,125m)
1107-1	CTD 95	14.11. 09:52 - 10:03	22° 59.65' S	014° 02.19' E	**CTD** station (134m/bottom)
1108-1	HRMB	14.11. 10:16 - 10:28	22° 59.98' S	014° 02.27' E	**Mooring** deployment (HRMB, 132m)
1109-1	CTD 96	14.11. 12:42 - 12:53	22° 59.99' S	014° 22.00' E	**CTD** station (40m/bottom)
1110-1	MSS 86	14.11. 13:00 - 13:27	23° 00.03' S	014° 21.99' E	**MSS** station (41m/bottom)

1111-1	CTD 97	14.11. 13:54 - 14:09	22° 59.98' S	014° 19.02' E	**CTD** station (70m/bottom)
1112-1	MSS 87	14.11. 14:12 - 14:44	22° 59.99' S	014° 19.02' E	**MSS** station (72m/bottom)
1113-1	CTD 98	14.11. 15:22 - 15:37	22° 59.96' S	014° 13.00' E	**CTD** station (109m/bottom)
1114-1	MSS 88	14.11. 15:40 - 16:16	22° 59.98' S	014° 13.00' E	**MSS** station (109m/bottom)
1115-1	CTD 99	14.11. 16:48 - 17:00	22° 59.95' S	014° 07.95' E	**CTD** station (136m/bottom)
1116-1	MSS 89	14.11. 17:04 - 17:36	22° 59.94' S	014° 07.91' E	**MSS** station (135m/bottom)
1117-1	CTD 100	14.11. 18:07 - 18:23	22° 59.98' S	014° 03.49' E	**CTD** station (132m/bottom)
1118-1	MSS 90	14.11. 18:27 - 19:01	22° 59.99' S	014° 03.49' E	**MSS** station (130m/bottom)
1119-1	CTD 101	14.11. 19:48 - 20.00	22° 59.94' S	013° 57.49' E	**CTD** station (140m/bottom)
1120-1	MSS 91	14.11. 20:03 - 20:31	22° 59.95' S	013° 57.49' E	**MSS** station (140m/bottom)
1121-1	CTD 102	14.11. 21:18 - 21:34	22° 59.95' S	013° 51.97' E	**CTD** station (144m/bottom)
1122-1	MSS 92	14.11. 21:37 - 22:09	22° 59.96' S	013° 51.97' E	**MSS** station (145m/bottom)
1123-1	CTD 103	14.11. 22:52 - 23:09	22° 59.92' S	013° 46.46' E	**CTD** station (146m/bottom)
1124-1	MSS 93	14.11. 23:12 - 23:49	22° 59.93' S	013° 46.46' E	**MSS** station (145m/bottom)
1125-1	CTD 104	15.11. 10:05 12:15	22° 59.94' S	011° 44.92' E	**CTD** station (3000m/bottom)
1126-1	MSS 94	15.11. 12:18 - 12:57	22° 59.96' S	011° 44.92' E	**MSS** station (500m)
1127-1	ARGO 7	15.11. 13:02 - 13:08	23° 00.35' S	011° 44.98' E	**Float** release (WMO # 6902630)
1128-1	CTD 105	15.11. 14:39 - 16:43	22° 59.99' S	011° 59.96' E	**CTD** station (2715m/bottom)
1129-1	MSS 95	15.11. 16:47 - 17:28	23° 00.01' S	011° 59.96' E	**MSS** station (500m)
1130-1	ARGO 8	15.11. 17:23 - 17:29	23° 00.74' S	012° 00.05' E	**Float** release (WMO #6902631)
1131-1	CTD 106	15.11. 19:29 - 21:02	22° 59.96' S	012° 20.02' E	**CTD** station (2070m/bottom)
1132-1	MSS 96	15.11. 21:07 - 21:55	22° 59.98' S	012° 20.02' E	**MSS** station (500m)
1133-1	CTD 107	15.11. 23:27 - 23:57	23° 00.00' S	012° 35.02' E	**CTD** station (1433m/bottom)
1134-1	MSS 97	16.11. 00:47 - 01:31	23° 00.01' S	012° 35.02' E	**MSS** station (500m)
1135-1	LTMB	16.11. 08:42 - 09:37	23° 01.00' S	014° 02.20' E	**Mooring** sediment trap recovery (LRMB, 132m)
1136-1	LTMB	16.11. 10:04 - 11:02	22° 59.81' S	014° 02.36' E	**Mooring** recovery (LTMB, 132m)

1137-1	CTD 108	16.11. 13:01 - 13:26	22° 59.98' S	013° 41.02' E	**CTD** station (150m/bottom)
1138-1	CTD 109	16.11. 14:30 - 14:57	22° 59.96' S	013° 29.88' E	**CTD** station (289m/bottom)
1139-1	GLI 5	16.11. 15:59 - 16:29	22° 59.94' S	013° 19.00' E	**Glider** deployment (IFM09)
1140-1	CTD 110	16.11. 16:46 - 17:17	23° 00.00' S	013° 18.99' E	**CTD** station (360m/bottom)
1141-1	MSS 98	16.11. 17:19 - 17:51	23° 00.01' S	013° 18.99' E	**MSS** station (358m/bottom)
1142-1	CTD 111	16.11. 18:51 - 19:20	22° 59.99' S	013° 07.98' E	**CTD** station (319m/bottom)
1143-1	MSS 99	16.11. 19:25 - 20:11	23° 00.05' S	013° 07.98' E	**MSS** station (318m/bottom)
1144-1	CTD 112	16.11. 21:20 - 22:05	23° 00.00' S	012° 56.82' E	**CTD** station (728m/bottom)
1145-1	MSS 100	16.11. 22:06 - 22:51	23° 00.00' S	012° 56.82' E	**MSS** station (500m)
1146-1	CTD 113	16.11. 23:51 - 17.11. 00:57	23° 00.01' S	012° 46.01' E	**CTD** station (985m/bottom)
1147-1	MSS 101	17.11. 00:59 - 01:44	23° 00.01' S	012° 46.01' E	**MSS** station (500m)
1148-1	MSS 102	17.11. 05:30 - 06:05	23° 00.05' S	013° 30.03' E	**MSS** station (237m/bottom)
1149-1	CTD 114	17.11. 06:42 - 06:54	22° 59.97' S	013° 35.49' E	**CTD** station (148m/bottom)
1150-1	MSS 103	17.11. 07:00 - 07:31	23° 00.01' S	013° 35.49' E	**MSS** station (149m/bottom)
1151-1	MSS 104	17.11. 08:10 - 08:41	22° 59.97' S	013° 41.02' E	**MSS** station (151m/bottom)
1152-1	LTMB	17.11. 10:35 - 10:50	22° 59.81' S	014° 02.36' E	**Mooring** deployment (LTMB, 132m)
1153-1	HRMB	17.11. 11:02 - 11:48	22° 59.98' S	014° 02.27' E	**Mooring** recovery (HRMB, 132m)
1154-1	LTMB	17.11. 12:00 - 12:12	23° 01.00' S	014° 02.20' E	**Mooring** sediment trap deployment (LTMB)