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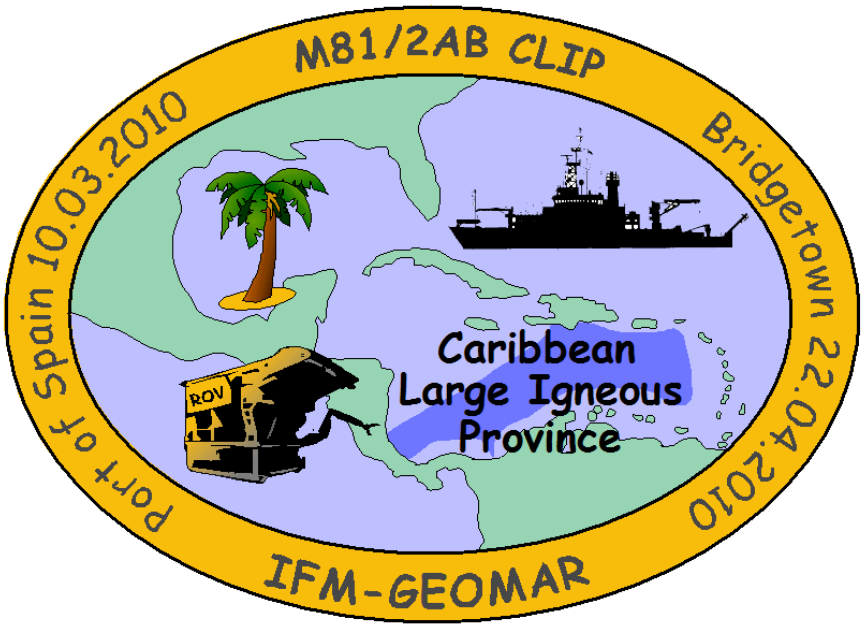
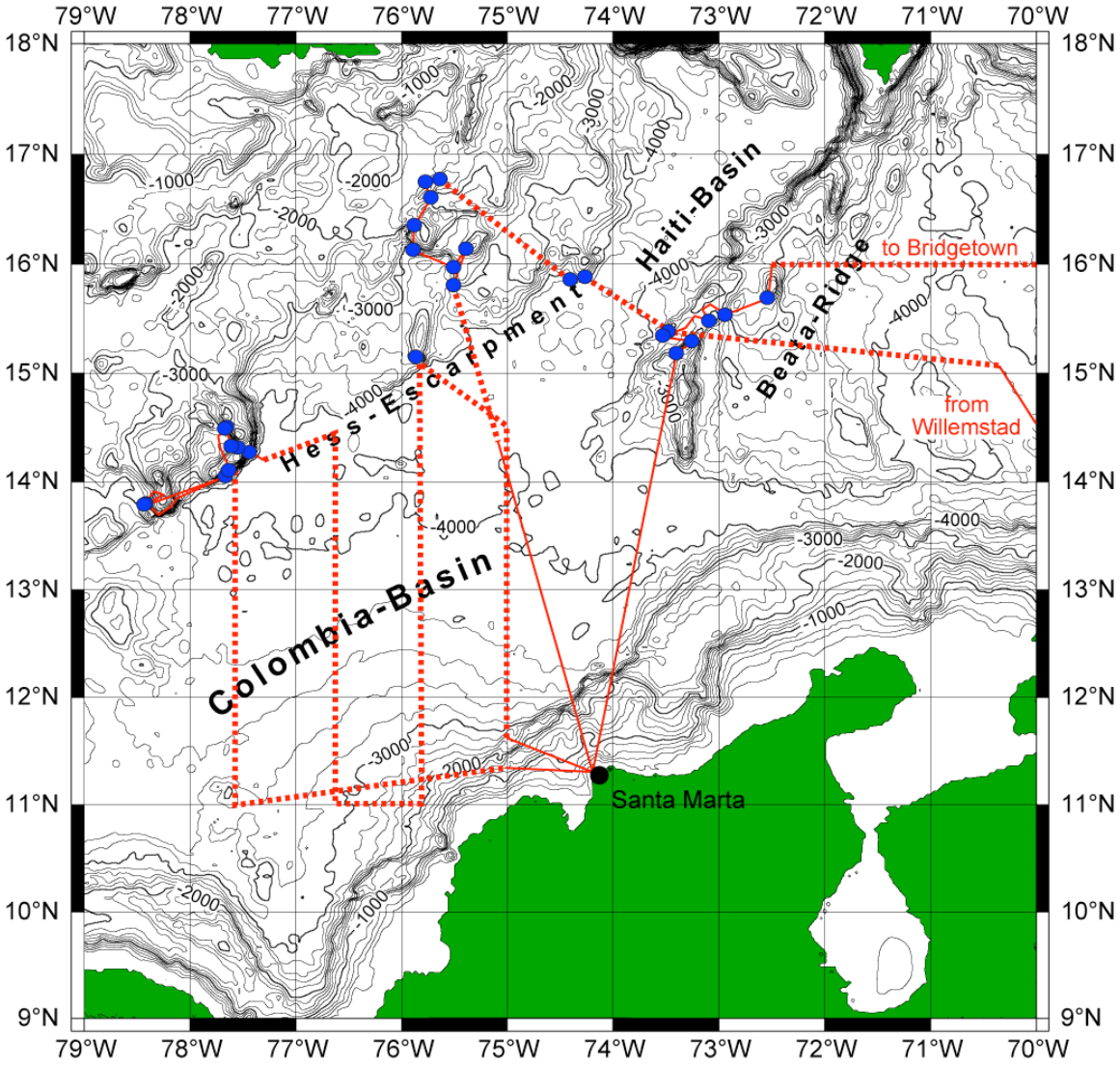
Short Cruise Report
RV Meteor Cruise M81/2B

Willemstad/Curacao – Bridgetown/Barbados
March 30 – April 21, 2010
Chief Scientist: Reinhard Werner
Captain: Walter Baschek



Station Map



Ship track of RV METEOR cruise M81/2B (thin red line) with locations of dredge stations (blue dots). Simrad EM120 and Parasound surveys were carried out on all ship tracks within the EEZ of the Dominican Republic, Haiti, and Jamaica and on most tracks within the EEZ of Colombia. Magnetic profiles are marked by the dashed red line.

1. Objectives

Members of the IFM-GEOMAR Leibniz-Institut für Meereswissenschaften, Institut für Geographie und Geologie der Ernst-Moritz-Arndt Universität Greifswald, the Bundesanstalt für Geowissenschaften und Rohstoffe and the University of Lausanne jointly carried out RV METEOR cruise M81/2B. Observers of Haiti and Colombia also participated in the cruise.

The main goals of the cruise were to combine geological and geophysical research methods in order to gain new insights into the origin, evolution and

composition of the Caribbean Large Igneous Province (CLIP), a giant submarine plateau of lava, and the geodynamic evolution of the Central Caribbean. Cruise M81/2B is part of an international strategy to improve our understanding of submarine flood basalt provinces.

Combined use of multi-beam mapping (SIMRAD EM120) and sediment echosounding (ATLAS PARASOUND), dredge sampling, and magnetic surveying using a modern magnetometer array, with the results of M81/2A and subsequent shorebased sample analyses and data processing shall (1) reconstruct the sources and causes of magmatism that formed the CLIP; (2) determine the origin of the CLIP (Pacific or Inter-American?); (3) identify the causes of long-lived volcanism within a flood basalt province that is commonly thought to have formed over a relatively short time scale; (4) gather information on the internal structure and succession of magmatic events in the Caribbean Large Igneous Province and (5) characterize internal deformation processes that occurred after flood basalt formation. Through integration of these results we expect not only new information on the geodynamic evolution of the Caribbean, but also to significantly contribute to a better understanding on the formation of large igneous provinces and the causes of intraplate volcanism („Great Plume Debate“)

2. Narrative

RV METEOR sailed from Willemstad, Curacao, on March 31 at 02:00 pm with course towards the Beata Ridge, a submarine ridge located south of Haiti and the Dominican Republic. Directly after reaching the exclusive economic zone of the Dominican Republic in the late morning of April 01, the scientific investigations of M81/2B started with magnetic, multi-beam- and sediment echosounding surveys. In the early morning of 02.04., RV METEOR reached the Beata Ridge, where the first dredge track of this cruise recovered lavas, intrusive rocks (gabbros), volcanic breccias, Mn-oxides, carbonates and shales.

After a profile track (magnetic sensors, EM120, Parasound) crossing the Haiti basin, RV METEOR reached the main target area of M81/2B for hard rock sampling, the Hess Escarpment, in the late morning of April 02. Two dredge tracks at the eastern termination of the escarpment yielded nearly exclusively lavas. However, a limestone fragment with Late Cretaceous microfossils was also found. In the morning of the April 03, the next magnetic profile led to an area characterized by seamounts and NNE-SSW or NNW-SSE trending ridge structures north of the Hess Escarpment that were already mapped during M81/2A. Sedimentary rocks, soft sediments, and thick Mn-oxides, and in particular basaltic lavas were recovered in this area at several dredge tracks.

During the night from April 04 to 05, RV METEOR left the Hess Escarpment with course to the Colombian port Santa Marta. There, a Columbian observer embarked who accompanied us during our work in the Columbian exclusive economic zone. Subsequently we started a magnetic profile of 1,000 nm which covered four N-S profiles crossing the Columbia Basin. This profile was interrupted on April 07 in the afternoon to sample a seamount at the Hess

Escarpment when the first N-S profile was completed. A dredge haul at the western flank of the seamount recovered mainly pillow lava and some breccias.

In the evening of April 07, the magnetic sensors were again deployed and we started the next N-S profiles crossing the Colombia Basin. On April 11 at noon RV METEOR arrived again the Hess Escarpment. Our mutli-beam surveys performed during M81/2A and sea floor maps based on satellite altimetry indicate at this location an area of about 100 x 70 km extent with a notably rough morphology. Our main target in that area, to sample the magmatic basement of two large seamounts, was difficult to reach because the seamounts are largely covered with carbonate rocks. Nevertheless, we were successful in dredging mostly aphyric lavas and volcanic breccias from both seamounts. Most dredges, however, recovered exclusively in carbonatic rocks, among them massive blocks with corals, spherules and crusts of red algae and a large number of nummulites, discocyclines and large foraminifera.

In the afternoon of April 13, RV METEOR left the Hess Escarpment to complete the magnetic survey in the Colombia Basin. On April 14 we arrived again at Santa Marta. There, our Colombian observer was picked up by a pilot boat. After only one hour stop, RV METEOR sailed again towards the Beata Ridge. In addition to the dredge track of the beginning of the cruise and to the ROV sampling dives of M81/2A, four ridge-like structures were sampled and mapped where not already done during M81/2A. Several dredge tracks resulted in a great variety and amount of mostly aphyric fine to coarse grained basalts as well as mafic and more evolved gabbros and dolerites. Aside we found some breccias with sedimentary matrix. In the early morning of April 18, the sampling work of M81/2B was terminated at a long stretched, N-S trending seamount in the eastern part of the Beata Ridge with the 28th dredge track of this cruise. This dredge haul again yielded aphyric basalts and microgabbros as well as soft, nearly white shales.

Directly after the end of dredging, RV METEOR sailed toward east to measure an about 250 nm long magnetic profile from the Beata Ridge to the exclusive economic zone of Puerto Rico/U.S.A. On April 19 at noon, the scientific work of M81/2B was finished and RV METEOR started the about 550 nm long transit to Bridgetown/Barbados. The last days at sea will be filled with a first evaluation of the data, cleaning and wrapping the equipment and, finally, the obligatory cleaning of the laboratories. In the afternoon of April 20, R/V METEOR passed the Antilles arc between the islands St. Lucia and St. Vincent. In the morning of April 21 we reached Bridgetown (Barbados).

R/V Meteor cruise M81/2B has achieved its major goals, which were bathymetric mapping and the first representative sampling along the Hess Escarpment, sampling at the southern Beata Ridge as well as magnetic and sediment echosounding profiling in the Colombia and Haiti basins. Complementing 2.160 nm of SIMRAD EM120 and Parasound profiling (including 1.709 nm of magnetic profiling), a total of 28 dredges were carried out in an average water depth of 2,400 m during 17 working days on M81/2B. Of these deployments, 15 recovered magmatic rocks, 4 volcaniclastics, 17 sedimentary rock, and 3 Mn-Fe oxides. . No dredges were lost or seriously damaged.

3. Acknowledgements

We would especially like to thank Capitain Baschek and the crew of RV METEOR. Their hard work, professionalism, high level of experience, and willingness to help, as well as the pleasant working atmosphere on board, contributed directly to the success of the M81/2B CLIP expedition.

We are also grateful to the German Science Foundation (DFG) for funding this project within their core program METEOR/MERIAN and the German Federal Ministry of Education and Research (BMBF) for their continuing support of the marine research. We would also like to thank the research institutes and universities involved in this project for additional support.

We thank the Governments of Haiti, Jamaica, Colombia, and of the Dominican republic for granting permission to work within their territorial waters. We also gratefully acknowledge the support he German Foreign Office and the German Embassys in this matter.

4. M81/2A Cruise Participants

Werner, Reinhard	Chief Scientist	IFM-GEOMAR
Hauff, Folkmar	Shift Leader	IFM-GEOMAR
Maicher, Doris	Shift Leader	IFM-GEOMAR
Loose, Philipp	Petrology	IFM-GEOMAR
Conrad, Sarah	Petrology	IFM-GEOMAR
Seidel, Elisabeth	Petrology	IFM-GEOMAR
Krueger, Uwe	Petrology	IFM-GEOMAR
Meschede, Martin	Head of Structural Geology Group	Univ. Greifswald
Hueneke, Heiko	Structural Geology	Univ. Greifswald
Bratsch, Carolin	Structural Geology	Univ. Greifswald
Sperl, Daniel	Structural Geology	Univ. Greifswald
Barckhausen, Udo	Head of Magnetics	BGR
Zeibig, Michael	Magnetics	BGR
Deppe, Joachim	Magnetics	BGR
Borchert, Wolfgang	Bathymetrie	Borchert HH
Baumgartner, Peter	Gast	Univ. Lausanne
Pulido, Diego Armando	Observer Colombia	Col. Navy
Lancivette, Wilner	Observer Haiti	SEMANAH
Rentsch, Harald	Meteorology	DWD
Truscheit, Thorsten	Meteorology	DWD

5. Institutions

IFM-GEOMAR	Leibniz-Institut für Meereswissenschaften, Kiel, Germany
Univ. Greifswald	Institut für Geographie und Geologie, Ernst-Moritz-Arndt Universität Greifswald, Greifswald, Germany
BGR	Bundesanstalt für Geowissenschaften und Rohstoffe, Hannover, Germany
Borchert HH	Borchert-Hamburg GBR, Hamburg, Germany

Univ. Laussane	Institut de Géologie et Paléontologie, Université de Lausanne, Lausanne, Switzerland
Col. Navy	Centro de Investigaciones Oceanográficas e Hidrográficas de la Dirección General Marítima, Ministerio de Defensa Nacional, Cartagena, Colombia
SEMANAH	Service Maritime et de Navigation d'Haïti, Marine Environment Protection Direction, Haiti
DWD	Deutscher Wetterdienst, Hamburg, Germany

6. Dredge tracks

Type	Stat.	Location	total volume	Rock summary	on bottom lat °N	on bottom long °E	off bottom lat °N	off bottom long °E	depth (m) max	depth (m) min
DR	M81-234	Southern Beata Ridge	1/6 full	lava, volcaniclastics, sedimentary rocks, manganese	15,397	73,485	15,402	73,478	2866	2457
DR	M81-237	Hess Escarpment East	1/6 full	lava	15,901	74,268	15,909	74,266	4166	3808
DR	M81-238	Hess Escarpment East	few rocks	lava, sedimentary rocks	15,877	74,411	15,873	74,404	3998	3665
DR	M81-241	Hess Escarpment North	2/3 full	lava, volcaniclastics, sedimentary rocks	16,805	75,642	16,802	75,635	1705	1111
DR	M81-242	Hess Escarpment North	1/4 full	lava, volcaniclastics, sedimentary rocks	16,779	75,779	16,772	75,657	1692	1351
DR	M81-243	Hess Escarpment North	1/4 full	manganese	16,636	75,727	16,645	75,726	1408	1000
DR	M81-245	Hess Escarpment North	1/4 full	sedimentary rocks, manganese	16,379	75,886	16,381	75,881	927	632
DR	M81-247	Hess Escarpment North	1/4 full	lava, sedimentary rocks	16,151	75,897	16,157	75,891	2402	1840
DR	M81-249	Hess Escarpment North	1/4 full	sedimentary rocks	15,990	75,514	15,997	75,506	3159	2645
DR	M81-251	Hess Escarpment North	few rocks	lava, sedimentary rocks	16,159	75,395	16,152	75,392	1998	1724
DR	M81-253	Hess Escarpment North	one pebble	sedimentary rocks	15,825	75,512	15,828	75,506	2101	1676
DR	M81-258	Hess Escarp. Middle	few rocks	lava	15,161	75,872	15,158	75,869	2499	2245
DR	M81-261	Hess Escarpment SW	1/6 full	lava, volcaniclastics, sedimentary rocks	14,279	77,444	14,287	77,443	4146	2987
DR	M81-262	Hess Escarpment SW	empty		14,322	77,555	14,326	77,554	1124	954
DR	M81-263	Hess Escarpment SW	few rocks	sedimentary rocks	14,336	77,616	14,336	77,615	1196	1025
DR	M81-265	Hess Escarpment SW	few rocks	sedimentary rocks	14,505	77,665	14,505	77,652	1125	699
DR	M81-266	Hess Escarpment SW	few rocks	sedimentary rocks	14,515	77,656	14,516	77,653	1143	629
DR	M81-267	Hess Escarpment SW	empty		14,497	77,676	14,494	77,673	1800	1439
DR	M81-269	Hess Escarpment SW	1/4 full	lava, sedimentary rocks	13,804	78,422	13,801	78,415	1981	1573
DR	M81-270	Hess Escarpment SW	one pebble	sedimentary rocks	13,796	78,440	13,792	78,434	2115	1869
DR	M81-272	Hess Escarpment SW	empty	(rock pebbles in sediment traps)	14,057	77,670	14,064	77,667	3467	3171
DR	M81-273	Hess Escarpment SW	empty		14,112	77,640	14,121	77,639	2856	2490
DR	M81-276	Southern Beata Ridge	1/2 full	lava, gabbroic rocks, volcaniclastics	15,196	73,406	15,193	73,397	3074	2397
DR	M81-277	Southern Beata Ridge	1/5 full	lava	15,305	73,262	15,300	73,258	2687	2235
DR	M81-278	Southern Beata Ridge	empty		15,399	73,511	15,395	73,508	3648	3279
DR	M81-279	Southern Beata Ridge	one pebble	lava	15,494	73,098	15,390	73,091	2876	2549
DR	M81-281	Southern Beata Ridge	1/5 full	lava, gabbroic rocks	15,548	72,946	15,554	72,940	2580	2207
DR	M81-283	Southern Beata Ridge	few rocks	lava, gabbroic rocks, sedimentary rocks	15,706	72,545	15,707	72,538	1943	1641

7. M81/2B Station List

Station	Date	Time UTC	Lat.	Lon.	Depth [m]	Gear	Action
ME813/232-1	01.04.2010	16:00	15° 0.40' N	71° 13.67' W	4144,4	Multibeam-Parasound-Profile	Begin Profile
ME813/233-1	01.04.2010	16:48	15° 4.39' N	71° 16.63' W	4140,1	Magnetic profile	begin of profile
ME813/233-1	02.04.2010	4:24	15° 21.87' N	73° 22.95' W	3368,4	Magnetic profile	end of profile
ME813/232-1	02.04.2010	5:40	15° 23.68' N	73° 29.43' W	3290,4	Multibeam-Parasound-Profile	end of profile
ME813/234-1	02.04.2010	5:44	15° 23.68' N	73° 29.43' W	3290,9	Dredge, chain bag	surface
ME813/234-1	02.04.2010	9:10	15° 24.15' N	73° 28.68' W	2716,6	Dredge, chain bag	on deck
ME813/235-1	02.04.2010	9:40	15° 24.03' N	73° 28.94' W	2948,7	Multibeam-Parasound-Profile	Begin Profile
ME813/236-1	02.04.2010	10:18	15° 25.99' N	73° 32.54' W	3927,9	Magnetic profile	begin of profile
ME813/236-1	02.04.2010	14:21	15° 50.03' N	74° 13.77' W	4228	Magnetic profile	end of profile
ME813/235-1	02.04.2010	15:01	15° 53.57' N	74° 15.87' W	4218	Multibeam-Parasound-Profile	end of profile
ME813/237-1	02.04.2010	15:10	15° 54.06' N	74° 16.15' W	4185,5	Dredge, chain bag	surface
ME813/237-1	02.04.2010	19:22	15° 54.51' N	74° 15.96' W	3763,2	Dredge, chain bag	on deck
ME813/238-1	02.04.2010	20:34	15° 52.75' N	74° 24.89' W	4073,7	Dredge, chain bag	surface
ME813/238-1	03.04.2010	0:06	15° 52.40' N	74° 24.26' W	3668,4	Dredge, chain bag	on deck
ME813/239-1	03.04.2010	0:15	15° 52.39' N	74° 24.24' W	3647,4	Multibeam-Parasound-Profile	Begin Profile
ME813/240-1	03.04.2010	0:55	15° 54.41' N	74° 26.97' W	4193,2	Magnetic profile	begin of profile
ME813/240-1	03.04.2010	8:20	16° 43.63' N	75° 32.14' W	1449	Magnetic profile	end of profile
ME813/239-1	03.04.2010	9:18	16° 47.77' N	75° 37.91' W	1185,1	Multibeam-Parasound-Profile	end of profile
ME813/241-1	03.04.2010	9:31	16° 48.28' N	75° 38.47' W	1646,8	Dredge, chain bag	surface
ME813/241-1	03.04.2010	11:57	16° 48.14' N	75° 37.95' W	1140,6	Dredge, chain bag	on deck
ME813/242-1	03.04.2010	12:51	16° 46.65' N	75° 39.64' W	1653,2	Dredge, chain bag	surface
ME813/242-1	03.04.2010	15:42	16° 46.17' N	75° 39.44' W	1138,3	Dredge, chain bag	on deck
ME813/243-1	03.04.2010	18:00	16° 38.20' N	75° 43.66' W	1381,6	Dredge, chain bag	surface
ME813/243-1	03.04.2010	20:46	16° 38.72' N	75° 43.54' W	1003,1	Dredge, chain bag	on deck
ME813/244-1	03.04.2010	21:06	16° 38.66' N	75° 43.55' W	1005,4	Multibeam-Parasound-Profile	Begin Profile
ME813/244-1	03.04.2010	22:41	16° 30.29' N	75° 51.50' W	1326,7	Multibeam-Parasound-Profile	end of profile
ME813/245-1	03.04.2010	23:36	16° 22.70' N	75° 53.21' W	932,1	Dredge, chain bag	surface
ME813/245-1	04.04.2010	1:30	16° 22.80' N	75° 52.84' W	634,5	Dredge, chain bag	on deck
ME813/246-1	04.04.2010	1:46	16° 22.36' N	75° 52.76' W	793	Multibeam-Parasound-Profile	Begin Profile
ME813/246-1	04.04.2010	3:04	16° 9.86' N	75° 52.80' W	1515	Multibeam-Parasound-Profile	end of profile
ME813/247-1	04.04.2010	3:21	16° 9.07' N	75° 53.88' W	2462,2	Dredge, chain bag	surface
ME813/247-1	04.04.2010	6:22	16° 9.43' N	75° 53.44' W	1846,7	Dredge, chain bag	on deck
ME813/248-1	04.04.2010	6:32	16° 9.41' N	75° 53.44' W	1853,3	Multibeam-Parasound-Profile	Begin Profile
ME813/248-1	04.04.2010	9:30	15° 59.50' N	75° 31.37' W	3103,2	Multibeam-Parasound-Profile	end of profile
ME813/249-1	04.04.2010	9:40	15° 59.48' N	75° 30.83' W	3148,2	Dredge, chain bag	surface
ME813/249-1	04.04.2010	12:52	15° 59.83' N	75° 30.38' W	2632	Dredge, chain bag	on deck
ME813/250-1	04.04.2010	13:00	15° 59.99' N	75° 30.38' W	2615,2	Multibeam-Parasound-Profile	Begin Profile
ME813/250-1	04.04.2010	17:28	16° 9.61' N	75° 23.83' W	2042,2	Multibeam-Parasound-Profile	end of profile
ME813/251-1	04.04.2010	17:38	16° 9.69' N	75° 23.68' W	1926,6	Dredge, chain bag	surface
ME813/251-1	04.04.2010	20:16	16° 9.08' N	75° 23.50' W	7,7	Dredge, chain bag	on deck
ME813/252-1	04.04.2010	20:24	16° 9.05' N	75° 23.48' W	1716,2	Multibeam-Parasound-Profile	Begin Profile
ME813/252-1	04.04.2010	22:43	15° 51.15' N	75° 26.59' W	2054,6	Multibeam-Parasound-Profile	end of profile
ME813/253-1	04.04.2010	23:14	15° 49.58' N	75° 30.68' W	2030,2	Dredge, chain bag	surface
ME813/253-1	05.04.2010	2:00	15° 49.71' N	75° 30.37' W	1685,9	Dredge, chain bag	on deck
ME813/254-1	05.04.2010	2:08	15° 49.65' N	75° 30.44' W	1785,4	Multibeam-Parasound-Profile	Begin Profile
ME813/255-1	05.04.2010	2:40	15° 46.76' N	75° 30.13' W	2758,4	Magnetic profile	begin of profile
ME813/255-1	05.04.2010	10:32	14° 42.62' N	75° 12.43' W	4131	Magnetic profile	end of profile
ME813/254-1	05.04.2010	11:16	14° 38.81' N	75° 11.35' W	4127,8	Multibeam-Parasound-Profile	end of profile
ME813/256-1	06.04.2010	16:00	11° 26.21' N	74° 34.96' W	1043,4	Multibeam-Parasound-Profile	Begin Profile
ME813/257-1	06.04.2010	19:43	11° 44.56' N	75° 0.00' W	3188	Magnetic profile	begin of profile

Station	Date	Time UTC	Lat.	Lon.	Depth [m]	Gear	Action
ME813/257-1	07.04.2010	20:54	15° 4.30' N	75° 42.51' W	4122,7	Magnetic profile	end of profile
ME813/256-1	07.04.2010	21:50	15° 8.24' N	75° 49.69' W	1640,4	Multibeam-Parasound-Profile	end of profile
ME813/258-1	07.04.2010	22:09	15° 9.74' N	75° 52.48' W	2537	Dredge, chain bag	surface
ME813/258-1	08.04.2010	0:39	15° 9.48' N	75° 52.19' W	2249,2	Dredge, chain bag	on deck
ME813/259-1	08.04.2010	1:04	15° 9.38' N	75° 52.55' W	2400,6	Multibeam-Parasound-Profile	Begin Profile
ME813/260-1	08.04.2010	1:40	15° 7.26' N	75° 52.12' W	2263,7	Magnetic profile	begin of profile
ME813/260-1	10.04.2010	14:59	14° 12.29' N	77° 18.53' W	4041,3	Magnetic profile	end of profile
ME813/259-1	10.04.2010	16:28	14° 16.62' N	77° 26.74' W	2889,1	Multibeam-Parasound-Profile	end of profile
ME813/261-1	10.04.2010	16:30	14° 16.62' N	77° 26.75' W	2866,5	Dredge, chain bag	surface
ME813/261-1	10.04.2010	20:02	14° 17.26' N	77° 26.54' W	2450,1	Dredge, chain bag	on deck
ME813/262-1	10.04.2010	21:10	14° 19.25' N	77° 33.45' W	1147,7	Dredge, chain bag	surface
ME813/262-1	10.04.2010	22:52	14° 19.54' N	77° 33.19' W	952,9	Dredge, chain bag	on deck
ME813/263-1	10.04.2010	23:30	14° 20.06' N	77° 37.11' W	1373,4	Dredge, chain bag	surface
ME813/263-1	11.04.2010	2:10	14° 20.01' N	77° 37.05' W	1375,2	Dredge, chain bag	on deck
ME813/264-1	11.04.2010	2:38	14° 19.25' N	77° 37.18' W	1573,5	Multibeam-Parasound-Profile	Begin Profile
ME813/264-1	11.04.2010	4:54	14° 30.26' N	77° 39.35' W	1217,6	Multibeam-Parasound-Profile	end of profile
ME813/265-1	11.04.2010	4:58	14° 30.27' N	77° 39.34' W	1213,9	Dredge, chain bag	surface
ME813/265-1	11.04.2010	6:40	14° 30.27' N	77° 39.10' W	704,3	Dredge, chain bag	on deck
ME813/266-1	11.04.2010	7:16	14° 30.88' N	77° 39.37' W	1175,2	Dredge, chain bag	surface
ME813/266-1	11.04.2010	9:08	14° 30.92' N	77° 39.15' W	629,8	Dredge, chain bag	on deck
ME813/267-1	11.04.2010	9:35	14° 29.69' N	77° 40.65' W	1745,3	Dredge, chain bag	surface
ME813/267-1	11.04.2010	11:40	14° 29.63' N	77° 40.34' W	1443,4	Dredge, chain bag	on deck
ME813/268-1	11.04.2010	11:54	14° 29.46' N	77° 40.42' W	1491,6	Multibeam-Parasound-Profile	Begin Profile
ME813/268-1	11.04.2010	22:50	13° 47.89' N	78° 23.25' W	1482,7	Multibeam-Parasound-Profile	end of profile
ME813/269-1	11.04.2010	23:10	13° 48.16' N	78° 25.39' W	1953,2	Dredge, chain bag	surface
ME813/269-1	12.04.2010	2:00	13° 48.04' N	78° 24.79' W	1569,7	Dredge, chain bag	on deck
ME813/270-1	12.04.2010	2:38	13° 47.70' N	78° 26.45' W	2139,1	Dredge, chain bag	surface
ME813/270-1	12.04.2010	5:08	13° 47.54' N	78° 26.05' W	1912	Dredge, chain bag	on deck
ME813/271-1	12.04.2010	5:16	13° 47.53' N	78° 26.06' W	1868,1	Multibeam-Parasound-Profile	Begin Profile
ME813/271-1	12.04.2010	11:16	14° 3.11' N	77° 40.89' W	3629,8	Multibeam-Parasound-Profile	end of profile
ME813/272-1	12.04.2010	11:25	14° 3.32' N	77° 40.33' W	3496,8	Dredge, chain bag	surface
ME813/272-1	12.04.2010	14:45	14° 3.95' N	77° 39.94' W	3190,2	Dredge, chain bag	on deck
ME813/273-1	12.04.2010	15:28	14° 6.66' N	77° 38.49' W	2834,2	Dredge, chain bag	surface
ME813/273-1	12.04.2010	18:22	14° 7.29' N	77° 38.22' W	2506,3	Dredge, chain bag	on deck
ME813/274-1	12.04.2010	18:30	14° 7.30' N	77° 38.18' W	2819,8	Multibeam-Parasound-Profile	Begin Profile
ME813/275-1	12.04.2010	19:06	14° 5.46' N	77° 35.71' W	4030	Magnetic profile	begin of profile
ME813/275-1	14.04.2010	7:22	11° 16.88' N	75° 2.87' W	1384,8	Magnetic profile	end of profile
ME813/274-1	14.04.2010	8:00	11° 17.53' N	74° 59.80' W	1357	Multibeam-Parasound-Profile	end of profile
ME813/276-1	15.04.2010	14:06	15° 11.75' N	73° 24.38' W	3066,2	Dredge, chain bag	surface
ME813/276-1	15.04.2010	17:42	15° 11.59' N	73° 23.78' W	2376,9	Dredge, chain bag	on deck
ME813/277-1	15.04.2010	19:30	15° 18.35' N	73° 15.78' W	2691,7	Dredge, chain bag	surface
ME813/277-1	15.04.2010	22:32	15° 17.98' N	73° 15.51' W	2238,5	Dredge, chain bag	on deck
ME813/278-1	16.04.2010	0:15	15° 23.95' N	73° 30.76' W	3694,8	Dredge, chain bag	surface
ME813/278-1	16.04.2010	3:43	15° 23.71' N	73° 30.50' W	3318,8	Dredge, chain bag	on deck
ME813/279-1	16.04.2010	7:17	15° 29.59' N	73° 6.02' W	2889,8	Dredge, chain bag	surface
ME813/279-1	16.04.2010	10:20	15° 29.40' N	73° 5.55' W	2607,3	Dredge, chain bag	on deck
ME813/280-1	16.04.2010	10:34	15° 29.25' N	73° 5.85' W	2750,9	Multibeam-Parasound-Profile	Begin Profile
ME813/280-1	16.04.2010	18:32	15° 32.86' N	72° 56.81' W	2649,3	Multibeam-Parasound-Profile	end of profile
ME813/281-1	16.04.2010	18:36	15° 32.87' N	72° 56.82' W	2691	Dredge, chain bag	surface
ME813/281-1	16.04.2010	21:51	15° 33.23' N	72° 56.39' W	2214,1	Dredge, chain bag	on deck
ME813/282-1	17.04.2010	1:39	15° 40.45' N	72° 35.01' W	2446,4	Multibeam-Profil	Begin profile
ME813/282-1	17.04.2010	5:20	15° 42.31' N	72° 32.87' W	1897,8	Multibeam-Profil	End profile
ME813/283-1	17.04.2010	5:22	15° 42.31' N	72° 32.86' W	1892,5	Dredge, chain bag	surface

Station	Date	Time UTC	Lat.	Lon.	Depth [m]	Gear	Action
ME813/283-1	17.04.2010	7:54	15° 42.46' N	72° 32.21' W	1644,8	Dredge, chain bag	on deck
ME813/284-1	17.04.2010	8:16	15° 42.61' N	72° 32.14' W	1607,7	Multibeam-Parasound-Profile	Begin Profile
ME813/285-1	17.04.2010	9:00	15° 47.29' N	72° 32.77' W	2153,3	Magnetic profile	begin of profile
ME813/285-1	18.04.2010	15:13	15° 59.81' N	68° 33.83' W	4165,8	Magnetic profile	end of profile
ME813/284-1	18.04.2010	15:24	15° 59.60' N	68° 33.20' W	4167,8	Multibeam-Parasound-Profile	end of profile