

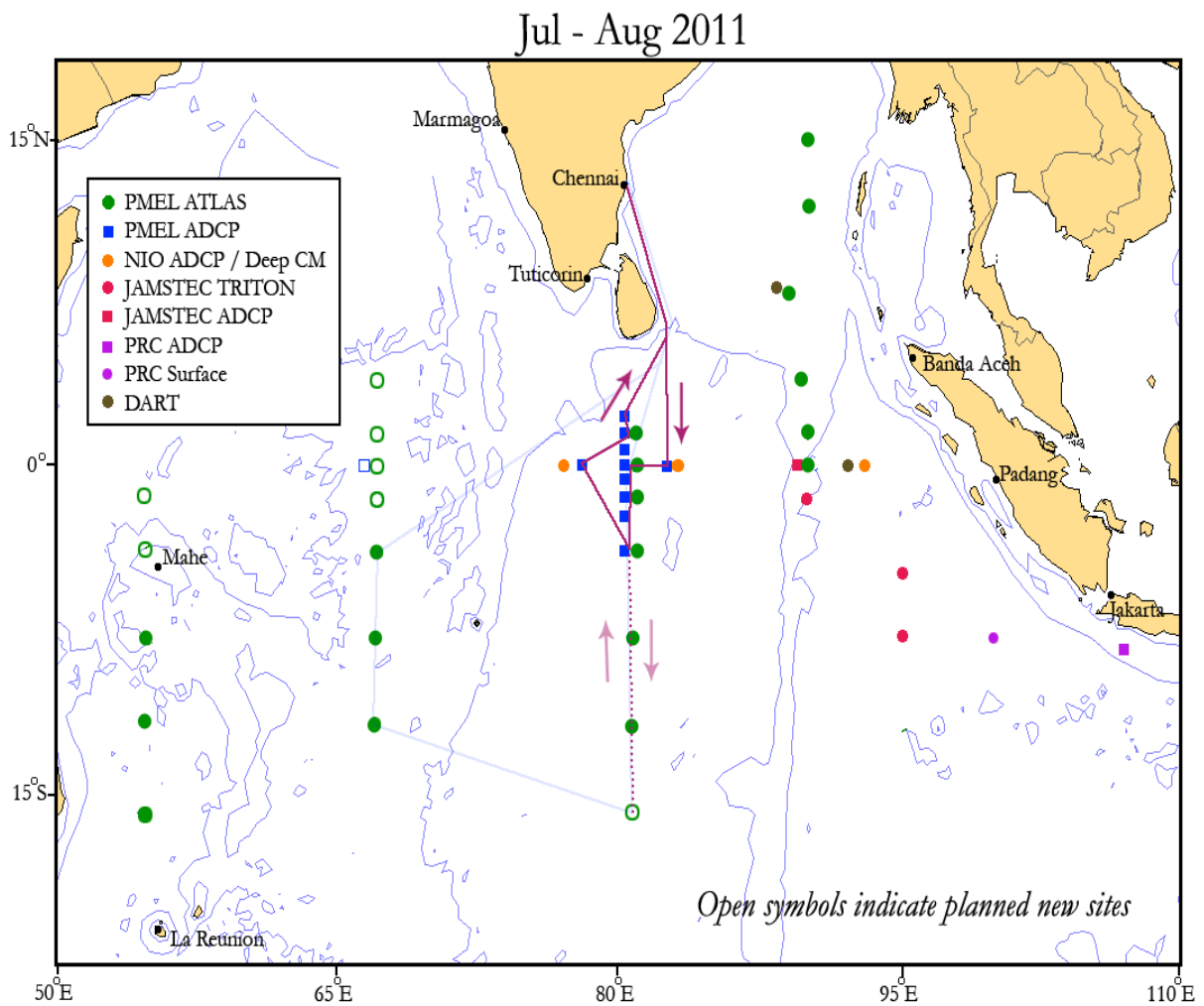
Cruise Report

SK-287 (21 July – 19 August 2011)

Objectives:

Retrieval and Deployment operation of (INCOIS-NOAA, PMEL) RAMA Moorings in the Equatorial Indian Ocean.

Cruise Track:



Note: Dotted line indicates additional ship time (6 days) given for recovery of drifting Atlas buoy at 16 S

List of Participants: SK-287

Sl. No.	Name	Institute	Designation	Nationality
1	DINESH KOTHANDARAMAN	INCOIS	Ch. Scientist	Indian
2	RAMESH KRISHNAMOORTHY	NIOT	Scientist	Indian
3	MUTHUKUMAR CHINNASAMY	NIOT	Scientist	Indian
4	JOHN MICHAEL STRICK	NOAA/PMEL	Dy. Scientist	U.S.A
5	WILLIAM LESTER HIGLEY JR	NOAA/PMEL	Scientist	U.S.A
6	DAVID MICHAEL RIVERA	NOAA/PMEL	Scientist	U.S.A
7	SUBRAMANIAN NATESAN	INCOIS	Seaman	Indian
8	SAKTHIVEL DEVARAJ	INCOIS	Seaman	Indian
9	MOHAN VALLATHAN	INCOIS	Seaman	Indian
10	VENKATESAN SELVARAJ	INCOIS	Seaman	Indian
11	VADAKKEMMANAPPURATHU CHANDRASEKHARAN SARATHCHANDRAN	Norinco	Service Engg	Indian
12	RAJAPANDIAN KARTHICKRAJA	Norinco	Service Engg	Indian
13	ELAVARASAN VASANTHARAJA	Norinco	Service Engg	Indian
14	BARRETO RYAN DAMACIANO	Norinco	Service Engg	Indian
15	BIBIN ABRAHAM	NCAOR	Ship Board Asst	Indian

Details of Buoy Deployments:

Sl. No.	Date	Time (IST)	Deployment Location		Remarks
			Latitude	Longitude	
1	26/07/2011	08:30	00 ⁰ 00.61' N	082 ⁰ 58.53' E	Recovery of ADCP
2	26/07/2011	14:56	00 ⁰ 00.74' N	082 ⁰ 58.61' E	Deployment of ADCP
3	27/07/2011	18:00	00 ⁰ 03.50' N	080 ⁰ 43.79' E	Deployment of ADCP
4	28/07/2011	11:20	00 ⁰ 04.96' N	080 ⁰ 32.47' E	Recovery of ATLAS
5	28/07/2011	19:55	00 ⁰ 06.75' N	080 ⁰ 31.84' E	Deployment of ATLAS
6	29/07/2011	12:00	00 ⁰ 02.00' N	080 ⁰ 43.49' E	Recovery of ADCP
7	30/07/2011	08:40	01 ⁰ 30.33' S	080 ⁰ 30.35' E	Deployment of ATLAS
8	30/07/2011	16:15	01 ⁰ 34.27' S	080 ⁰ 25.02' E	Recovery of ADCP
9	31/07/2011	10:45	01 ⁰ 34.15' S	080 ⁰ 24.89' E	Deployment of ADCP
10	01/08/2011	09:30	02 ⁰ 29.73' S	080 ⁰ 29.07' E	Recovery of ADCP
11	01/08/2011	14:23	02 ⁰ 29.11' S	080 ⁰ 28.80' E	Deployment of ADCP
12	02/08/2011	10:25	03 ⁰ 59.50' S	080 ⁰ 25.80' E	Recovery of ADCP
13	02/08/2011	15:05	03 ⁰ 58.97' S	080 ⁰ 26.24' E	Deployment of ADCP
14	03/08/2011	13:25	03 ⁰ 59.02' S	080 ⁰ 30.22' E	Deployment of ATLAS
15	08/08/2011	07:47	14 ⁰ 52.50' S	078 ⁰ 41.22' E	Recovery of ATLAS*
16	13/08/2011	06:00	00 ⁰ 00.02' N	078 ⁰ 00.31' E	Recovery of ADCP
17	13/08/2011	10:30	00 ⁰ 00.85' S	077 ⁰ 59.03' E	Deployment of ADCP
18	14/08/2011	11:40	01 ⁰ 34.42' N	080 ⁰ 30.25' E	Deployment of Cone head
19	15/08/2011	09:00	02 ⁰ 31.36' N	080 ⁰ 30.95' E	Recovery of ADCP
20	15/08/2011	13:30	02 ⁰ 31.46' N	080 ⁰ 30.65' E	Deployment of ADCP

*Recovered Drifting Buoy due to nylon parted above the acoustic release

Details of CTD operations:

SL. No.	Date	Time (IST)	CTD Location		Depth (meter)	Remark
			Latitude	Longitude		
1	26/07/2011	17:00	00° 01.17'S	82° 56.73'E	1000 m	SBE CTD operated up to 1000m without collecting water samples
2	27/07/2011	21:00	00° 01.40'N	80° 42.43'E	1000m	SBE CTD operated up to 1000m without collecting water samples
3	28/07/2011	00:35	00° 06.60'N	80° 34.89'E	1000m	SBE CTD operated up to 1000m without collecting water samples
4	30/07/2011	20:45	01° 28.69'S	80° 28.79'E	1000m	SBE CTD operated up to 1000m without collecting water samples
5	01/08/2011	17:00	02° 26.71'S	80° 28.68'E	1000m	SBE CTD operated up to 1000m without collecting water samples
6	02/08/2011	18:00	03° 58.87'S	80° 28.80'E	1000m	SBE CTD operated up to 1000m without collecting water samples
7	13.08.2011	13:30	00° 01.35 N	78° 01.20' E	1000m	SBE CTD operated up to 1000m without collecting water samples
8	14.08.2011	19:00	01° 34.82 N	80° 28.21 E	1000m	SBE CTD operated up to 1000m without collecting water samples
9	15.08.2011	16:30	02° 29.64 N	80° 28.36 E	1000m	SBE CTD operated up to 1000m without collecting water samples

Diary of Events: SK-287

19-July-2011

15:00 11 participants including Scientists-3, Seamens-4 & Norinco-4 except foreigners were Signed ON.

16:00 All Signed ON participants were on boarded.

20-July-2011

Received cruise materials from Balmer&Lawrie at NIOT on 20Ft & 40Ft containers unpacked both containers and loaded all the materials to eight trucks and sent to Chennai port.

21-July-2011

05:00 Vessel Shifted from JD berth to West Queue Berth for convenient loading of cruise equipments.

07:00 Eight Trucks with cruise materials arrived to berth
(6 Nos – 9ton Trucks, 2 Nos – Open Trucks)

07:30 Started loading of materials to onboard

11:00 PMEL personnel's (3 Foreigners) Signed ON

12:00 Foreigners onboard

14:00 Testing & Welding of NIO's WINTECH Winch has been completed.

16:00 Loading of materials has been completed.

17:30 segregation & lashing of materials has been completed.

18:00 Port call given by captain.

18:30 Ship Started sailing from Chennai Port.

22-July-2011

Vessel sailing towards the first Recovery/Deployment location.

10:00 Safety familiarisation meeting was conducted.

13:30 Operational meeting was conducted.

16:15 Safety drills was conducted in Balloon Deck.

23-July-2011

Vessel sailing towards the first Recovery/Deployment location.

Tested CT sensors, Current meters & Electronic Tubes for ATLAS Buoys.

Tested, Configured & Assembled two ADCP Buoys.

24-July-2011

Vessel sailing towards the first Recovery/Deployment location.

Repaired & Assembled ATLAS Buoy.

Assembled inflatable boat & fixed engine with the boat.

25-July-2011

14:00 Conducted meeting with Norinco Engineers for Multibeam & CTD Operations.

16:00 Deep sea winch cable removed from Jib Boom Crane and connected to A-Frame Crane pulley for retrieval and deployment operation.

19:30 We reached the first Recovery/Deployment location.

20:00 Multibeam Survey started at $00^{\circ} 02.00' N 82^{\circ} 58.5' E$

21:00 Multibeam Survey Completed at $00^{\circ} 02.00' S 82^{\circ} 58.5' E$

After survey vessel drifted in the same location, we planned to do the recovery operation in the morning.

26-July-2011

06:00 Started recovery operation of ADCP Buoy at $00^{\circ} 00.61' N, 82^{\circ} 58.53' E$

06:30 Slant ranging of Acoustic Release

07:10 Release command given to Acoustic Release

07:15 ADCP Buoy Popped up to the surface

08:30 ADCP Buoy on Deck

12:15 Successfully recovered the ADCP Buoy, Acoustic Release on Deck

Note: Found that the ADCP Frame & ADCP instrument was damaged in the recovered buoy, the instrument seems to be flooded

14:00 Started deployment of ADCP at $00^{\circ} 00.74' N, 82^{\circ} 58.61' E$.

14:56 ADCP Deployed & started paying out the mooring line.

17:00 completed paying out of mooring line.

17:05 Anchor dropped at $00^{\circ} 00.74' N, 82^{\circ} 58.61' E$, Depth was noted 4376m from multibeam on the anchor drop position.

17:15 Vessel started streaming to go 2 nm away from the anchor drop position for CTD Operation

18:00 Started CTD casting for 1000 m depth

18:35 CTD cast Completed

27-July-2011

11:45 Started searching the ADCP buoy by lowering the transducer at many Positions but we couldn't find the buoy position.
17:45 Finally Ch.Scientist advised to do the ADCP deployment within sunlight and search the buoy after ADCP Deployment.
18:00 Started deployment of ADCP Buoy at 00° 03.50'N& 80° 43.79'E
18:05 Buoy lowered on water.
18:15 Started paying out the mooring line
20:00 paying out of mooring line completed.
20:10 Successfully deployed the ADCP Buoy, Anchor dropped at 00° 03.50'N& 80° 43.79'E. Depth at Anchor drop position 4619m.
21:15 Vessel started streaming to go 2 nm away from the anchor drop position for CTD Operation
21:00 Started CTD casting for 1000 m depth
21:40 CTD cast Completed

28-July-2011

09:30 Started recovery of ATLAS Buoy at 00° 04.96'N, 80° 32.47'E
09:50 Started ranging with acoustic release by lowering the transducer
11:20 ATLAS Buoy on board
13:54 Mooring line connected to the winch and started heaving
15:50 Spooling of mooring line completed
15:55 Acoustic Release on Deck
16:00 Successfully completed ATLAS Recovery

19:45 Started Deployment of ATLAS at 00° 06.75'N, 80° 31.84'E
19:55 Buoy on water
20:00 Started paying out the mooring line
23:15 Completed paying out the mooring line
23:30 Anchor Dropped at 00° 06.75'N, 80° 31.84'E Depth 4620m
23:45 Vessel started streaming to go 2 nm away from the anchor drop position for CTD Operation
00:35 Started CTD casting for 1000 m depth
01:10 CTD cast Completed

29-July-2011

09:00 Started searching the Anchor position of ADCP buoy by lowering the transducer
09:30 Got reply from Acoustic release at 00° 02.00'N, 80° 43.49'E
09:35 We tried to release the bottom acoustic release but we didn't get any reply from that finally we gave blind release command but it was not released
11:00 We decide that Bottom acoustic release was failed & we have given release command to the top acoustic release
11:05 ADCP Buoy popped up to the surface
12:00 Recovered Buoy on deck
12:10 started heaving the mooring line

14:30 completed heaving the mooring line
14:30 ADCP Recovery completed, Acoustic release on deck
14:40 Proceeding to the deployed atlas buoy position at 00° 06.75'N, 80° 31.84'E to check the sensors and for getting the flyby position
15:45 Reached the ATLAS buoy position
16:00 Boat lowered on water David & William went on boat to check the function of all sensors connected to the buoy
16:20 Boat on deck, noted ATLAS buoy flyby position 00° 06.57'N, 80° 31.11'E
16:30 Vessel streaming to the next deployment position 1.5 S, 80.5 E

30-July-2011

08:00 Started Deployment of ATLAS at 01° 30.75'N, 80° 31.84'E
08:40 Buoy on water
08:45 Started paying out the mooring line
12:40 Completed paying out the mooring line
12:45 Anchor Dropped at 01° 30.33'S, 80° 30.35'E Depth 4820m

16:00 Started recovery of ADCP Buoy at 01° 34.27'S, 80° 25.02'E
16:05 Buoy popped up to the surface
16:30 boat lowered on water
16:50 Working line passed to the buoy
17:00 ADCP Buoy on deck
17:05 started heaving the mooring line
18:50 completed heaving the mooring line
18:55 ADCP Recovery completed, Acoustic release on deck
19:00 Proceeding to the deployed atlas buoy position at 01° 30.75'N, 80° 31.84'E for getting the flyby position
20:00 Reached the ATLAS buoy position noted flyby position 01° 30.50'N, 80° 30.08'E
20:45 Vessel streamed 2 nm miles away from ATLAS Buoy position, CTD cast started
22:00 CTD cast for 1000m completed

31-July-2011

10:00 Started deployment of ADCP Buoy at 01° 34.15'S & 80° 24.89'E
10:45 Buoy lowered on water.
10:50 Started paying out the mooring line
12:50 paying out of mooring line completed.
13:00 Successfully deployed the ADCP Buoy, Anchor dropped at 01° 34.15'S & 80° 24.89'E.
13:00 Vessel started streaming to the next deployment location 2.5 S 80.5 E

01-August-2011

09:00 Started recovery of ADCP Buoy at 02° 29.73'S, 80° 29.07'E
09:20 Started ranging with acoustic release by lowering the transducer
09:23 ADCP Buoy Released
09:27 Buoy popped up to the surface
10:00 ADCP Buoy on deck
10:08 Working line passed to the buoy
10:15 started heaving the mooring line
12:15 completed heaving the mooring line
12:20 ADCP Recovery completed, Acoustic release on deck

14:00 Started deployment of ADCP Buoy at 02° 29.11'S & 80° 28.80'E
14:23 Buoy lowered on water.
14:25 Started paying out the mooring line
16:10 paying out of mooring line completed.
16:30 Successfully deployed the ADCP Buoy, Anchor dropped at
02° 29.11'S & 80° 28.80'E Depth noted from multibeam 4866 m.
17:00 Vessel streamed 2 nm miles away from ADCP Buoy position, CTD cast
started
17:45 CTD cast for 1000m completed
17:45 Vessel started streaming to the next deployment location 4 S 80.5 E

02-August-2011

10:00 Started recovery of ADCP Buoy at 03° 59.92'S, 80° 25.96'E
10:15 Started ranging with acoustic release by lowering the transducer
10:22 ADCP Buoy Released
10:25 Buoy popped up to the surface
10:45 ADCP Buoy on deck
10:50 Working line passed to the buoy
10:55 started heaving the mooring line
12:55 completed heaving the mooring line
13:00 ADCP Recovery completed, Acoustic release on deck

15:00 Started deployment of ADCP Buoy at 03° 57.03'S & 80° 23.77'E
15:05 Buoy lowered on water.
15:10 Started paying out the mooring line
17:10 paying out of mooring line completed.
17:14 Successfully deployed the ADCP Buoy, Anchor dropped at
03° 58.97'S & 80° 26.24'E Depth noted from multibeam 4998 m.
18:00 Vessel streamed 2 nm miles away from ADCP Buoy position, CTD cast
started
19:00 CTD cast for 1000m completed

03-August-2011

13:00 Started Deployment of ATLAS at 03° 57.13'S, 80° 28.70'E
13:25 Buoy on water
13:30 Started paying out the mooring line
17:00 Completed paying out the mooring line
17:02 Anchor Dropped at 03° 59.02'S, 80° 30.22'E Depth 4994m

Note: Rain gauge damaged while deploying the buoy, this has been replaced with new rain gauge using the boat

18:00 vessel proceeding to the next location 15 S to recover the drifting ATLAS

04-August-2011 to 06-August-2011

Vessel sailing towards the next Recovery location 15 S 80 E

07-August-2011

15:30 Vessel reached the ATLAS Buoy position, due to rough weather recovery postponed to next day morning

08-August-2011

06:30 Started recovery of ATLAS Buoy at 14° 52.50'S, 78° 41.22'E
07:00 Boat lowered on water Mr.David & Mr.William went on boat to remove all sensors from the buoy
07:25 Rope passed to the buoy
07:30 Boat on board
08:16 Started heaving the mooring line
10:10 Found Nylon rope was parted so we couldn't recover the acoustic release unit
10:15 Vessel Streaming towards next location 0 N & 78 E

09-August-2011 to 11-August-2011

Vessel streaming towards the next location 0 N & 78 E

11-August-2011

10:30 Assembled conehead Buoy
16:15 Safety Drill was conducted on ballon deck

12-August-2011

20:40 vessel reached the recovery/Deployment location
20:47 Started multibeam Survey
21:28 Completed Multibeam Survey
21:45 Started acoustic release ranging
23:16 Received signal from acoustic release at 00° 00.02'N, 78° 00.31'E

13-August-2011

06:00 Started recovery of ADCP Buoy at 00° 00.02'N, 78° 00.31'E
06:54 Started ranging with acoustic release by lowering the transducer
06:58 ADCP Buoy Released
07:01 Buoy popped up to the surface
07:21 ADCP Buoy on deck
07:30 started heaving the mooring line
09:30 completed heaving the mooring line
09:35 ADCP Recovery completed, Acoustic release on deck

10:30 Started deployment of ADCP Buoy at 00° 02.50'N & 78° 01.75'E
10:33 Buoy lowered on water.
10:35 Started paying out the mooring line
12:30 paying out of mooring line completed.
12:40 Acoustic Release on water
12:50 Successfully deployed the ADCP Buoy, Anchor dropped at
00° 00.85'S & 77° 59.03'E Depth noted from multibeam 4747 m.
13:00 Vessel streamed 2 nm miles away from ADCP Buoy position,
13:30 CTD cast started
14:00 CTD cast for 1000m completed
14:06 Proceeding to next way point 1.5 N 80.5 E

14-August-2011

11:40 vessel reached the recovery/Deployment location 1.5 N 80.5 E
11:48 Started multibeam Survey
12:48 Completed Multibeam Survey
13:40 Buoy on water
13:50 Started paying out the mooring line
17:00 Completed paying out the mooring line
17:20 Anchor Dropped at 01° 34.42'N, 80° 30.25'E Depth 4514m
18:15 Vessel streamed 2 nm miles away from Cone Buoy position
18:58 CTD cast started
19:32 CTD cast for 1000m completed
19:38 Proceeding to next way point 2.5 N 80.5 E

15-August-2011

06:00 Started acoustic release ranging
06:10 Received signal from acoustic release at 02° 31.36'N, 80° 30.95'E
09:00 Started recovery of ADCP Buoy at 02° 31.36'N, 80° 30.95'E
09:15 Started ranging with acoustic release by lowering the transducer
09:30 ADCP Buoy Released
09:35 Buoy popped up to the surface
09:55 ADCP Buoy on deck
10:00 started heaving the mooring line
11:50 completed heaving the mooring line
11:55 ADCP Recovery completed, Acoustic release on deck

13:30 Started deployment of ADCP Buoy at 02° 33.13'N & 80° 34.21'E
13:48 Buoy lowered on water.
13:50 Started paying out the mooring line
13:55 paying out of mooring line completed.
15:55 Acoustic Release on water
16:00 Successfully deployed the ADCP Buoy, Anchor dropped at
02° 31.46'N & 80° 30.65'E Depth noted from multibeam 4531 m.
16:02 Vessel streamed 2 nm miles away from ADCP Buoy position,
16:33 CTD cast started
17:08 CTD cast for 1000m completed
17:15 All operations of SK-287 completed Proceeding to Chennai Port

19-August-2011

Vessel Reached Chennai port, All participants were Signed Off.

We gratefully thank to the VMC-NCAOR, Goa for their immense support all the way through the cruise. We are also thankful to the Captain, Officers and Crew Members of 'ORV-Sagar Kanya' for making a Successful completion of this Cruise SN-287.

Date: 29-SEP-2011

K .Dinesh
Chief Scientist, SK-287

=====

=====