

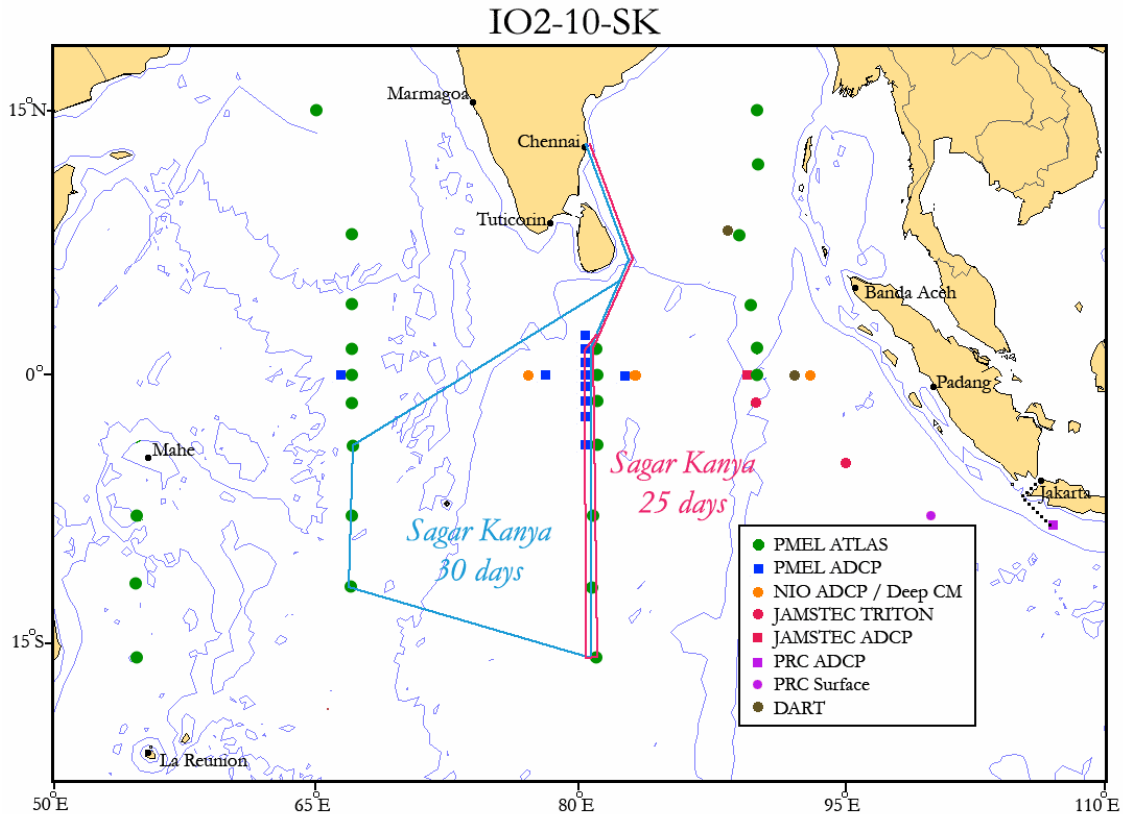
Cruise Report

SK-272 (03 May – 28 May 2010)

Objectives:

1. Retrieval and Deployment operation of RAMA Moorings (INCOIS-PMEL-NOAA) in the Equatorial Indian Ocean at ten locations (1.5N-80.30E to 12S-80.30E).
2. Collecting marine meteorological parameters along the ship routes and CTD operation after every Buoy deployment.
3. Operation of sensors available onboard (Thermosalinograph, Echo Sounder- Single Beam, ADCP) throughout the cruise period.
4. Launching of XBT probes at every 1 degree Latitude/Longitude position along the en route of cruise

Cruise Track:



Note: The Red Colour was the Cruise Track of ORV-Sagar Kanya SK-272

List of Participants: SK-272

Sl. No.	Name	Institute	Designation	Nationality
1	Suresh Kumar Neelakandan	INCOIS	Ch. Scientist	Indian
2	Steven Paul Kunze	NOAA/PMEL	Dy. Scientist	U.S.A
3	Patrick Lawrence Berk	NOAA/PMEL	Scientist	U.S.A
4	William Lester Higley Jr. (Bill)	NOAA/PMEL	Scientist	U.S.A
5	Dinesh Kothandaraman	INCOIS	Sci-Asst.	Indian
6	Aridass Gopalsamy	INCOIS	Seaman	Indian
7	Selvaraj Emayavaramban	INCOIS	Seaman	Indian
8	Raja Segar Arumugam	INCOIS	Seaman	Indian
9	Rajapart Ramalingam	INCOIS	Seaman	Indian
10	Mithun Gawas	NIO-GOA	Research Fellow	Indian
11	Swapnil Yadre	Goa University	M. Sc. Student	Indian
12	Veloisa John Mascarenhas	Goa University	M. Sc. Student	Indian
13	Vicelda Melinda D'Souza	Goa University	M. Sc. Student	Indian
14	Vilashini Alias Sonam S. Tanawade	Goa University	M. Sc. Student	Indian
15	Kausar F. M. Bepari	Goa University	M. Sc. Student	Indian
16	Svetlana Quera Fernandes	Goa University	M. Sc. Student	Indian
17	Nazira Begum	Goa University	M. Sc. Student	Indian
18	Neha R. Kudalkar	Goa University	M. Sc. Student	Indian
19	Biju Vikraman Nair	Norinco	Service Engg	Indian
20	Pallikkara Paul Raigon	Norinco	Service Engg	Indian
21	Thalakappil Thattayath Prasanth	Norinco	Service Engg	Indian
22	Tachezhath Baiju	Norinco	Service Engg	Indian

Details of Buoy Deployments:

Sl. No.	Date	Time (IST)	Deployment Location		Remarks
			Latitude	Longitude	
1	07/05/2010	14:02	02 ⁰ 00.14' N	080 ⁰ 30.62' E	Deployment of ARGO
2	08/05/2010	22:52	01 ⁰ 35.414' N	080 ⁰ 41.875' E	Recovery & Deployment of ADCP
3	09/05/2010	14:03	01 ⁰ 35.7' N	080 ⁰ 32.7' E	Deployment of CONE HEAD BUOY
4	10/05/2010	10:53	00 ⁰ 00.13' N	080 ⁰ 30.33' E	Deployment of ARGO
5	10/05/2010	10:55	00 ⁰ 00.93' N	080 ⁰ 36.40' E	Deployment of surface drifter
6	10/05/2010	18:55	00 ⁰ 46.15' S	080 ⁰ 33.10' E	Recovery & Deployment of ADCP
7	12/05/2010	16:07	04 ⁰ 04.468' S	080 ⁰ 42.215' E	Recovery & Deployment of ATLAS
8	13/05/2010	01:45	04 ⁰ 12.23' S	080 ⁰ 34.82' E	Deployment of ARGO
9	13/05/2010	07:20	05 ⁰ 00.49' S	080 ⁰ 29.96' E	Deployment of ARGO
10	13/05/2010	17:42	06 ⁰ 00.49' S	080 ⁰ 29.36' E	Deployment of ARGO
11	14/05/2010	12:00	07 ⁰ 59.19' S	080 ⁰ 28.20' E	Deployment & Recovery of ATLAS
12	17/05/2010	09:40	11 ⁰ 59.60' S	080 ⁰ 30.212' E	Deployment of ATLAS
13	17/05/2010	13:53	12 ⁰ 00.2' S	080 ⁰ 30.089' E	Deployment of surface drifter
14	17/05/2010	13:59	12 ⁰ 00.19' S	080 ⁰ 30.089' E	Deployment of ARGO
15	18/05/2010	23:30	07 ⁰ 53.02' S	080 ⁰ 21.36' E	Recovery of ATLAS
16	21/05/2010	09:30	01 ⁰ 31.4' S	080 ⁰ 30.6' E	Recovery & Deployment of CONE HEAD BUOY
17	22/05/2010	10:30	00 ⁰ 04.6' N	080 ⁰ 32.4' E	Recovery & Deployment of ATLAS
18	23/05/2010	10:00	00 ⁰ 43.48' N	080 ⁰ 28.73' E	Recovery & Deployment of ADCP
19	27/05/2010	22:00	12 ⁰ 22.15 N	080 ⁰ 35.60 E	Sea Bottom Coring operation carried out

Details of CTD operations:

SL. No.	Date	Time (IST)	CTD Location		Depth (meter)	Remark
			Latitude	Longitude		
1	09/05/2010	21:34	01° 34.578'N	80° 33.016'E	1000 m	
2	15/05/2010	03:23	07° 58.071'S	80° 28.080'E	2000 m	Operation repeated due to communication error
3	17/05/2010	01:15	12° 00.009'S	80° 31.088'E	2000 m	
4	19/05/2010	03:18	07° 58.924'S	80° 25.053'E	2000 m	
5	20/05/2010	11:58	04° 00.054'S	80° 29.687'E	2000 m	Cast repeated due to technical defect in PAR sensor (at a depth of 600m)
6	21/05/2010	23:00	01°29.090'S	80° 31.027' E	1000 m	
7	23/05/2010	00:44	00° 04.283'N	80° 35.516' E	2000 m	
8	23/05/2010	20:17	00° 42.012'N	80° 29.419' E	2000 m	

Details of XBT deployments:

XBT probes were launched at every degree Latitude during the cruise track from Chennai to 12°S) by Mr. Mithun Gawas (NIO, Goa).

Sr. No.	Latitude	Longitude	Date	Time	File Name
1	11° 56 00' N	80° 47 00' E	04.05.2010	10:08	T7_00001
2	10° 57 00' N	81° 12 00' E	04.05.2010	16:58	T7_00002
3	9° 57 00' N	81° 34 00' E	04.05.2010	23:38	T7_00004
4	9° 00 00' N	82° 01 00' E	05.05.2010	06:10	T7_00005
5	7° 58 00' N	82° 25 00' E	05.05.2010	13:08	T7_00006
6	7° 00 00' N	82° 48 00' E	05.05.2010	20:04	T7_00007
7	6° 00 00' N	82° 39 00' E	06.05.2010	03:55	T7_00008
8	5° 04 00' N	82° 13 00' E	06.05.2010	10:42	T7_00009
9	4° 03 00' N	81° 46 00' E	06.05.2010	18:21	T7_00010
10	3° 00 00' N	81° 18 00' E	07.05.2010	02:52	T7_00011
11	2° 03 00' N	80° 49 00' E	07.05.2010	10:36	T7_00013
12	0° 10 00' N	80° 30 00' E	10.05.2010	11:10	T7_00014
13	0° 20 00' N	80° 30 00' E	10.05.2010	11:22	T7_00015
14	1° 02 00' S	80° 34 00' E	11.05.2010	08:00	T7_00016
15	2° 00 00' S	80° 35 00' E	11.05.2010	13:54	T7_00017
16	3° 00 00' S	80° 30 00' E	11.05.2010	21:48	T7_00018
17	4° 00 00' S	80° 30 00' E	11.05.2010	06:48	T7_00019
19	5° 00 00' S	80° 30 00' E	13.05.2010	08:06	T7_00020
20	6° 00 00' S	80° 30 00' E	13.05.2010	17:24	T7_00021
21	7° 00 00' S	80° 31 00' E	14.05.2010	02:01	T7_00024
22	8°00 00' S	80° 29 00' E	14.05.2010	09:45	T7_00026
23	9°00 00' S	80° 27 00' E	15.05.2010	13:35	T7_00028
24	10°00 00' S	80° 29 00' E	15.05.2010	22:05	T7_00030
25	11°00 00' S	80° 29 00' E	16.05.2010	07:00	T7_00032
26	12°00 00' S	80° 28 00' E	16.05.2010	13:05	T7_00033

Diary of Events: SK-272

30-Mar-2010

16:00 All the Participants of ORV-Sagar Kanya cruise (SK- 272) were together in the Chennai Port Gate # 7, later then we went to immigration office for clearing the Port Formalities

18:00 The Scientist from NOAA/PMEL name Mr. Patrick and Mr. William had some registration problem in their VISA, so the CH/Sc and Deputy Scientist and those two are not Signed ON that day remaining people were boarded Sagar Kanya in late evening

01-May-2010

12:30 loading the NOAA/PMEL equipments from 9- Trucks to the ship at Chennai harbour.

18:00 all loading works has been completed

03-May-2010

20:00 Signed ON for three foreign scientist (NOAA) and Chief Scientist (INCOIS) after cleared the Port Immigration process.

21:00 Inspection of areas for XBT and XCTD launch and collection of water samples by Mr. Mithun (NIO) A list of coordinates for his measurements and launches given to wheel house so that they can be informed whenever a station arrives.

22:00 Verification of stock and equipments by INCOIS, NIO, and NOAA scientists On demand of NOAA scientists, 40 litres of Gasoline was purchased and handed over to them before sailing start.

23:00 Ship started sailing from Chennai port (Lat – 13°0 05.878' N, Lon – 080°17.996' E)

04-May-2010

10:30 Meeting onboard at the Dinning saloon with Captain and other officers and crew members to discuss the safety measures onboard and the scientific requirements during the cruise. Major discussions were made for the deployment of first buoy and duty of Crew Officers and Scientists at the time of Recovery and Deployment of buoy. To avoid any injury or damage of

any equipment, it was decided to start and complete the operation within sunlight.

11:00 Installation of computers, data logger systems in respective labs on the Main deck of ship by NOAA, INCOIS scientists

13:00 Meeting of INCOIS scientists with NORINCO Technical Staff to discuss the operation of various instruments installed onboard such as Thermosalinograph, CTD, ADCP, Bathymetry, AWS etc. It was decided to run all the instruments available onboard during entire cruise period. Multibeam Echo sounder to be operated at each Buoy location for Bathymetry survey, while the Single Beam Echo sounder was decided to run all the time during the cruise

16:30 Safety drills were carried out in muster station (Balloon Deck)

05-May-2010

09:00 Vessel heading towards to first station 2 N – 80.30 E

11:00 NOAA Winch (WINTeCH) was setup and fixed in Main Deck also arranged 3-Phase Power supply

14:00 NOAA rescue Boat set up by PMEL Scientist and Seaman's

06-May-2010

10:00 Deep sea winch cable removed from Jib Boom Crane and connected to A-Frame Crane for retrieval and deployment operation

07-May-2010

09:30 Pre - cruise meeting with scientist and ship officers and Norinco team

14:00 Arrival at the first station (2N, 80.30E)

14:20 we deployed our first NOAA-ARGO Floats

19:30 we lost the Acoustic Transducer (Deck Set) when we doing the ADCP recovery operation this incident happens because the unit got grabbed heavily by ship Propeller or rudder

20:00 then later we used our second transducer unit to continue the remaining operation and off course that one is the lost unit we have onboard

21:00 we just fixed the ADCP location by using Angulated Software by getting the three slant Range distance with GPS from the ADCP Acoustic releases

08-May-2010

10:00 In the morning vessel approach the site (01°35.41 N – 080°41.87 E) again and started the recovery of single ball ADCP

14:00 we have deployed the first ADCP in the same site and proceed to next spot.

09-May-2010

13:30 we started to deploy Cone Head Buoy (Surface Buoy) the previous buoy in this location is ADRIFT due to fishing vandalism
21:00 followed by buoy deployment we did the CTD cost depth up to 1000 meter

10-May-2010

04:00 approached the site 0°45.795-080°28.52E
10:00 deployed ARGO float and surface drifter from NIO-Goa
17:00 schedule for recovery the ADCP
18:00 while recovery the 50 meters nylon rope got struck / entangle in the ship propeller and the Buoy were recover after long time and with plenty of scratches
21:00 everybody aboard roaming in main deck just seen the rope got under the ship hull, trying to release rope
22:00 the engine room control the ship propeller and turn the gear in to opposite direction suddenly the rope got released from screws and the same time we missed two valuable Acoustic releases
22:30 later we have successfully deployed the new ADCP in the region
24:00 CTS operation were cancelled due to Bad weather

11-May-2010

No operation vessel streaming to next site

12-May-2010

07:00 located the ATLAS buoy at 4S-80.3E
09:00 Recovery started
16:30 Buoy successfully recovered
23:00 we have successfully deployed ATLAS Buoy
While at deployment some unknown Vessel came very near and started to chasing us everybody onboard got weird and scarred so much, we left the site without taking CTD operation

13-May-2010

No operation just vessel streaming and scientist got ready for next operation

14-May-2010

Actual plan to head towards 12 south but unfortunately the weather in 8 South was so good and very com, we skip further heading and start the recovery operation of ATLAS buoy deployed in 2008 last

10:00 started recovery of ATLAS buoy
17:00 buoy recovered successfully and we visited another ATLAS buoy existing in this same site 10miles away from the previous buoy position

19:00 started the new deployment of ATLAS and finished around 1 o'clock in the midnight

15-May-2010

No operation vessel heading towards to 12 South program and we discussed and finalised that we skipping the 16 South operation because we running behind our schedule and very tough to maintain the ETA on 29th in Chennai

16-May-2010

13:00 we approached the site and immediately start to survey the sea bottom by Multi beam system this site doesn't have any bottom records (New Site)
24:00 we complete the Survey and start the CTD costing up-to 2000 meter depth

17-May-2010

12:30 we successfully deployed the New ATLAS with Vaisala Met-Sensor in the tower
13:30 deployed ARGO and Surface drifter
14:00 vessel heading towards to south direction

18-May-2010

16:00 located the Buoy at 8S-80.30E and we visit the Buoy deployed early then lowered small boat in water and made some physical correction in the sensor over the buoy tower
17:00 we started the recovery operation of ATLAS buoy without Tower that system has only toroid buoy and module under the nilspin rope
23:00 we recovered the system bring back onboard

19-May-2010

01:00 started CTD cost up-to 2000 mtr depth
05:30 left the site precede to 4 South

20-May-2010

10:00 sited the 4 south buoy and check physically of the Buoy and CTD followed by visit
Note: while doing CTD when the system crossed 600 meter depth suddenly the communication has interrupted and we pull it back the system on deck and NORINCO try out then removed the PAR sensor and started the mission again

21-May-2010

09:30 located the site 1.30 S-80.30 E
10:00 started the recovery / deployment operation of ADCP
Later by evening we did the CTD up-to 1000 meter depth

22-May-2010

10:30 located the buoy at 0°04.6 N – 080°32.4 E and started the recovery operation of ATLAS Buoy
22:00 finished both retrieval and deployment of ATLAS successfully
22:30 CTD cost up-to 2000 meter depth were done

23-May-2010

10:00 the last operation recovery / deployment of ADCP at 0°41 N / 080°30 E
18:00 we finished deployment of ADCP
19:00 CTD cost up-to 2000 meter depth

24-May-2010

07:00 visited the Cone Head Buoy we deployed at 1°31 N - 080°30 E
10:00 small boat lowered in to water and scientific team visit the buoy and fix it the round cap in the buoy and came back aboard
11:00 Sagar Kanya Safety Meeting in Officers recreation room
16:30 Safety and fire drill were practised

25-May-2010

09:00 Packing of instruments, boxes and cables, boat etc. started.
14:00 Help in packing for NOAA scientists
19:00 Sent email request for Custom Clearance, Ship Birthing, permission to keep equipments and other material at NIOT campus.

26-May-2010

No scientific operation some shifting arrangement has done n

27-May-2010

22:00 we did sample coring operation demonstration for the students came from Goa University and ... completed at 12°22.15 N – 080°35.60 E

28-May-2010

09:30 vessel got permission to alongside in to BD-II piers (Docks)
10:00 Pilot onboard
10:30 vessel has successfully berthed in Docks
16:00 All 22 scientific teams have went immigration office at gate # 5 to clear the Port formalities
19:00 All people were Signed Off and got out of the port
22:00 Off-Loading of equipments and other materials started

29-May-2010

05:00 all loading works has completed successfully

06:00 ORV-Sagar Kanya- Cruise SK-272 has completed finally

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-272.

Date: 29-May-2010

**Suresh Kumar N
Chief Scientist, SK-272**

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