क्रुज़ रिपोर्ट / SAGAR KANYA (SK314) CRUISE REPORT

डाटा बोया / ओमनी बोया / सुनामी बोया तैनाती और पुनर्प्राप्ति बंगाल की खाड़ी में

DATA BUOY / OMNI BUOY / TSUNAMI BUOY DEPLOYMENT AND RETRIEVAL IN BAY OF BENGAL

(25th जुने June 2014 to 15th जुल्य July 2014)

समुद्र प्रेक्षण प्रणाली / Ocean Observation Systems

राष्ट्रीय समुद्र प्रौद्योगिकी संस्थान / National Institute of Ocean Technology

(पृथ्वी विज्ञान मंत्रालय, भारत सरकार) / (Ministry of Earth Sciences, Govt. of India)

पल्लीकरणै, चेन्नै – 600 100/ Pallikaranai, Chennai – 600 100

जुल्य / July 2014

पावती / ACKNOWLEDGEMENT

I am highly grateful and thankful to The Director NIOT and Group Head –OOS for his generous support and encouragement to the Ocean Observation Programme.

We are very grateful to Director, NCAOR and Dr. N. Anil Kumar for providing the ship ORV Sagar Kanya at the required time, for the successful completion of cruise.

On behalf of all scientific and student participants, I thank Captain M.S.Pangtey and the ship staff of ORV Sagar Kanya for their help, hospitality and excellent support during SK-314 cruise. We have successfully completed all the operations despite of rough weather during the entire cruise.

I would like to thank Mr.M.M.Subramaniam, NCAOR and ship cell, who took special interest in our scientific requirements and logistic requirements. I would like to thank NORINCO staff for excellent co-operation during the cruise. And finally, I would like to thank all participants including students from CUSAT of this cruise from various support agencies, who with their dedicated hard work and cooperation made this cruise a grand success.

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क्रुज़ लक्ष्य / OBJECTIVES OF THE CRUISE

क्रुज़ लक्ष्य / OBJECTIVES OF THE CRUISE:

- Retrieval and Deployment of three OMNI buoys (BD11, BD10 & BD14)

- Retrieval and Deployment of two Tsunami buoys (TB06 & TB03)

अध्ययन / CHAPTER 2

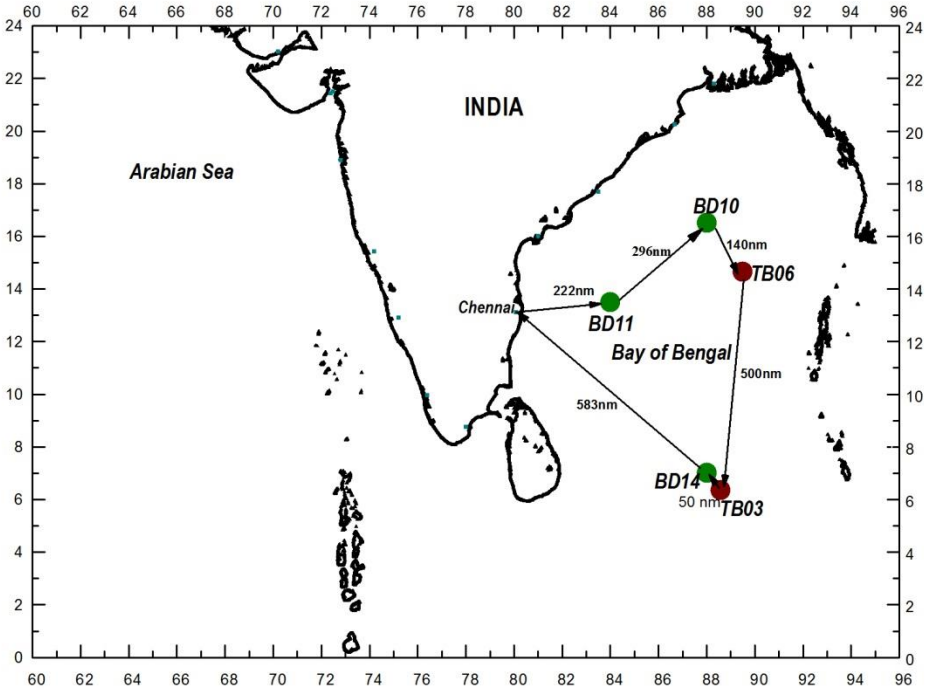
क्रुज़ टीम / CRUISE TEAM

क्रम सं. / S. No.	नाम / Name	संगठन / Organization	Rank
1.	Mr.R.SUNDAR	NIOT, Chennai.	Chief Scientist
2.	Mr.D.GOWTHAMAN	NIOT, Chennai	Deputy Chief Scientist
3.	Mr.T.GNANADHAS	NIOT, Chennai	Scientific Assistant
4.	Mr.P.RAMESH	NIOT, Chennai	Scientific Assistant
5.	Mr.G.SUDHARSHAN	M/s Elektronik lab, Chennai	Field Engineer
6.	Mr.V.SIVARAJ	M/s Elektronik lab, Chennai	Field Engineer
7.	Mr.R.SRINIVASAN	M/s Norinco (P) Ltd,Chennai	Field Engineer
8.	Mr.V.BABU	M/s Norinco (P) Ltd,Chennai	Field Engineer
9.	Mr.N.KIRUBAKARAN	M/s Tradex Shipping Co PLtd, Chennai	Deployment Assistant
10.	Mr.N.SUMRAMANIAN	M/s Tradex Shipping Co PLtd, Chennai	Deployment Assistant
11.	Mr.U.KARTHIK	M/s Tradex Shipping Co PLtd, Chennai	Deployment Assistant
12.	Mr.R.RAJPART	M/s Tradex Shipping Co PLtd, Chennai	Deployment Assistant
13.	Mr.N.MAGESHKUMAR	M/s Tradex Shipping Co PLtd, Chennai	Deployment Assistant
14.	Mr.S.THIVAKAR	M/s Tradex Shipping Co PLtd, Chennai	Deployment Assistant

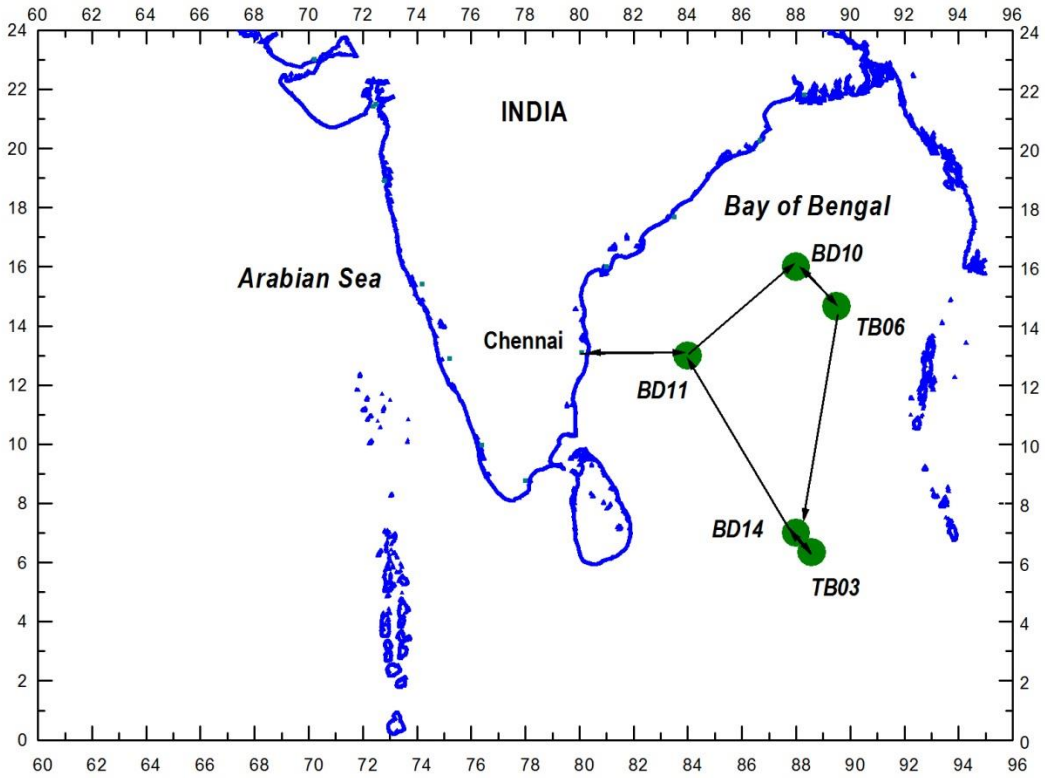
अध्ययन / CHAPTER 3

क्रुज़ ट्रैक / CRUISE TRACK

3.1 Proposed Cruise Track:



3.2 Actual Cruise Track:



अध्ययन / CHAPTER 4

दैनिक गतिविधियों का विवरण / DETAILS OF DAY BY DAY ACTIVITIES

Dairy of Events:

Date & Time	Description	Remarks
25-06-2014 12:00 Hrs	Sign on process was completed on for all scientists Chief Scientist briefed about the operation with Master Capstan Winch welded	
20:00 Hrs	Ship sailed out to BD11 location	
26-06-2014 10:00 Hrs	Boat engine tested	
11:00 Hrs	Power provided and Winch tested working satisfactorily	
27-06-2014 05:00 Hrs	Ship reached the BD11 buoy position	
07:00 Hrs – 14:30 Hrs	BD11 buoy sighted at location Buoy retrieved successfully CTD operation carried-out Synthetic Foam test was carried-out at 3000m @ 30 minutes. It is observed that the synthetic foam size and shape is remaining same.	
17:00 Hrs	Ship sailing towards the BD10 location	
28-06-2014 09:00 – 17:00 Hrs	Re arranged the on-board item. Data downloaded the buoy, CTD sensor and DVS sensors. ADCP data could not download from the sensor because ADCP couldn't communicate. But Battery voltage checked it is nominal voltage 48V	
29-06-2014 06:00 Hrs	BD10 buoy sighted at the location	
07:00 Hrs	Due to bad weather ship waited for fair weather to lower the boat.	
08:30 Hrs	Boat lowered for retrieval of buoy	
09:30 Hrs - 11:30 Hrs	BD10 buoy retrieved from the location successfully	
12:00 Hrs	CTD operation carried-out	
12:30 Hrs	Ship sailing towards TB06 location	
14:30 -18:30 Hrs	Buoy data, CTD data, DVS and ADCP data retrieved the buoy and sensors	
30-06-2014 10:00 Hrs	TB06 buoy location reached and buoy sighted at 14.734N/89.563E location.	
11:00 Hrs	Due to bad weather TB06 retrieval operation postponed and its decided to ship move to BD10 location for deployment	
12:00	BD10 testing started	
01-07-2014 10:00 Hrs	BD10 location reached the ship	
11:00 Hrs	Bathymetry survey started	
12:00 Hrs	BD10 Assembly work stared for deployment	
01:00 Hrs - 16:00 Hrs	Waited for fair weather for deployment due heavy rain and wind	
16:30 -18:00 Hrs	BD10 buoy successfully deployed in location	
19:00 Hrs	Tb06 and TB03 Tsunami buoy testing started	
02-07-2014 14:00 Hrs	TB06 tsunami buoy location reached and buoy assembled for swapping	
15:00 Hrs	Using deep-sea winch old Tsunami buoy retrieved from the location	
16:50 Hrs	New Tsunami buoy swapped	
17:30	Old tsunami buoy power off	
18:00	Ship sailing towards to BD14 location	

03-07-2014 09:00 Hrs – 17:00 Hrs	Dismantled and cleaned the TB06 Buoy. BD11 new battery installed in buoy.	
04-07-2014 09:00 Hrs – 17:00 Hrs	Robo-fish assembly work started	
05-07-2014 13:00 Hrs	Vessel reached the BD14 location	
13:30- 16:30 Hrs	BD14 OMNI buoy retrieved	
16:30-17:30	CTD operation and Synthetic foam tested at 3000m for 60 mins	
06-07-2014 05:00 Hrs	Reached TB03 tsunami buoy location. Buoy sighted at location	
08:30 Hrs	Due to bad weather retrieval operation postponed and proceeded to new tsunami buoy location which is 5 nm away from the existing tsunami buoy location.	
10:00 Hrs	Bathymetry surveys carried out and proceed for deployment of tsunami buoy.	
13:00 Hrs	New Tsunami buoy deployed successfully. Deployed location: 06 Deg 25.087 Min N/088 deg 31.754 min E and depth :3900 m	
15:00 – 21:30 Hrs	BPR 1101 deployed successfully. BPR dropped position : 6 deg 25' 08" N/88 deg 31' 66 " E depth; 3900 meter	
07-07-2014 07:00 Hrs – 17:30 Hrs	TB03 old BPR health checked using the dunker. Find the BPR position with slant range of 3950 meter and BPR depth is 3900 meter. Due to bad weather decided to wait for one more day	
08-07-2014 07:00 Hrs – 17:30 Hrs	BPR turn off with 70% of BPR battery consumed. Proceed to retrieve the TB03 surface buoy.	
11:30 Hrs	Surface Buoy retrieved successfully but mooring not released.	
13:15 Hrs	Mooring ,IXSEA Release and 4 Glass floats are left in anchor position	
09-07-2014 05:00 Hrs	BD14 location reached and prepared for BD14 OMNI buoy deployment.	
10:30 Hrs	BD14 OMNI buoy deployed in location. Anchor drop position: 07 deg 01.188'N /088 deg 01.375'E at 3770 meter depth	
21:30	CT profile given default value and tried to rectify through UHF communication but could not resolve the issue and proceed to BD11 location.	
10-07-2014 09:00 -17:30 Hrs	Buoy tested and CT Induction cables tested for deployment	
11-07-2014 09:00 -17:30 Hrs	Buoy test continued	
12-07-2014 09:00 -17:30 Hrs	Buoy assembled for deployment. Free fall BPR mechanical fixtures assembled.	
13-07-2014 05:00 -12:30 Hrs	BD11 location reached and buoy successfully deployed at 09:00 AM @ 3260 meter	
12:30 Hrs	Vessel proceed to Chennai for disembarkation and ETA will be 15th July 2014 09:00 Hrs.	
15:00 -20:30	Robofish assembled	
14-07-2014 09:00-12:30	Material packed for unloading from ship	

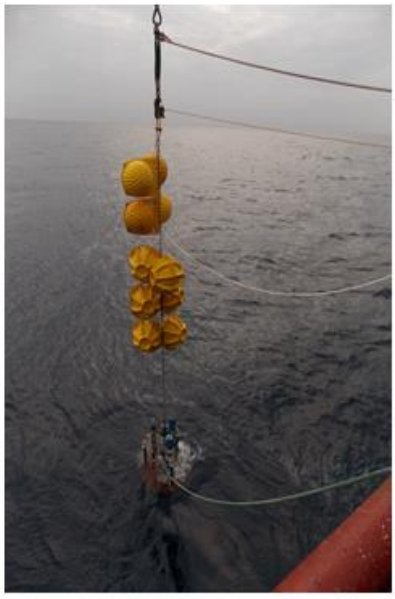
15-07-2014 07:00 Hrs	Vessel reached near to Chennai at 50m depth	
08:00 Hrs	Free fall BPR tested at 50 m depth in Bay of Bengal	
09:00 Hrs	Robo-fish tested at 50m depth in Bay of Bengal	

Free fall BPR mechanical assembly deployment and retrieval

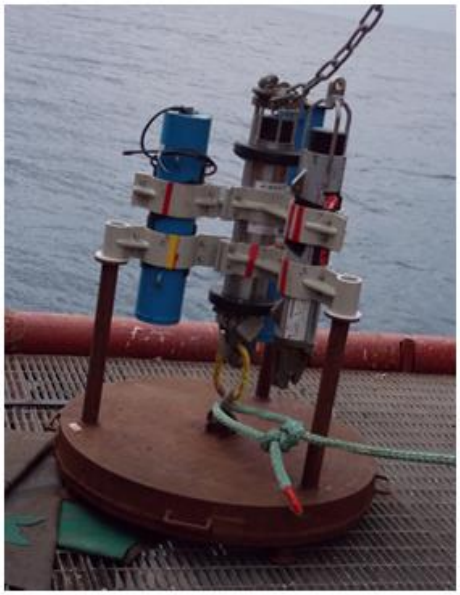
Before deployment

After Release command the Glass float floating on surface

Retrieval of Deadweight



Retrieval of Release with Glass floats



Assembly of BPR

RoboFish Tested at BoB