

**CRUISE SK – 229 A**

**PROJECT** : **Remotely operated vehicle ROSUB – PMN – ROSUB Project.**

**Objective** : **Testing of ROV at Shallow waters off Goa.**

**Location** : **Off Goa – Mangalore**

**PARTICIPANTS:-**

1. Shri. G. Janaki Raman - **Chief Scientist**
2. Dr. G. A. Ramadass
3. Dr. Sergey Sukonkin - **Dy. Chief Scientist**
4. Shri. Amiragov Alexy
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7. Dr. S. Ramesh
8. Shri. Joseph Selvakumar
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12. Shri. Zacharia S.
13. Shri. S. Rao
14. Shri. Sahoo Ramakrushna
15. Shri. C. Jyothi
16. Shri. Delvan Thibursian
17. Shri. D. Parthiban
18. Shri. A. HSA Sidick
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20. Shri. V. K. Jayakumar
21. Shri. D. Muthukumaran
22. Shri. M. Murugesan
23. Norinco Engineers

07.10.2006 All the items – 6 trucks arrived at NCAOR, Goa except one truck with umbilical cable

08.10.2006 Vessel berthed for 8 hours. All loading of items & unloading of items of NIO Goa completed. Installation of items started. Vessel shifted to anchorage by 22.00 hrs.

09.10.2006 All scientists signed on since the truck with umbilical could not come to Goa Port, the vessel sailed to Karwar by 18.30 hrs. with the permission of Director, NCAOR. Installation of items in progress as per plan.

10.10.2006 Arrived Karwar informed by Agent that crane cannot reach Karwar to load the winch onto vessel. Vessel did not enter port vessel was diverted to Mangalore to pick up winch. Winch was sent to Mangalore.

11.10.2006 Vessel arrived Mangalore and berthed. Winch arrival by 1430 hrs. Winch was loaded and secured by 1830 hrs.. Integrated testing was carried out on TMS. Problem on TMS was attended too. Problem identified as to the ramp characteristics of supply to TMS.

12.10.2006 Vessel sailed out again for Shallow water trials anchored at 25 m water depth. Carried out

1. Dry testing of TMS
2. Dry testing of ROV
3. Balancing of ROV in water
4. ADU 5 calibration
5. Hipap testing and integration of screen at ROV control container.
6. Combined umbilical + TMS + ROV + Ship supply testing – Total integrated dry testing

All the combined testing completed by 10.00 p.m.  
Launching ROV & trials planned for daylight tomorrow

13.10.2006 Mechanical terminations, umbilical terminations and all electrical systems were thoroughly checked. TMS & ROV were mated for the first time.  
ROV – TMS latch did not work properly.

The TMS had to be lifted and the bottom clearance was reduced by 1" by removing rubber cushions. Mating tried again and turned to be in perfect fit.

DIVE I

Director NIOT, Dr. Kathiroli boarded the vessel in a fishing launch. Rov – TMS covered in 15 water. Trials were taken for about 5 hrs. Following problems were noticed.

1. EMI filter getting heated up.
2. Power supply tripping
3. Low insulation on the Vacon Panel.

Rest of the TMS – ROV systems functioned very well.

Due to a sudden squall & thunder showers, testing could not be continued.

ROV – TMS lifted out of water to attend to above problems. Director NIOT left for shore.

Achieved what was planned for the day.

14.10.2006

DIVE 2

Power problems were attended & cause identified to an oil filled cable having carbon particles creating a short path to create Low insulation & power problems. ROV – TMS disassembled to clean the cable to remove the same oil was drained out and pure oil filled. Found all the Power problems solved.

DIVE - 2 Started - depth : 30 m/s

DIVE – 2 Went - Smooth as silk

ROV outperformed our expectations. All the controls and systems worked beautifully. Director NIOT boarded the vessel again and was witness to the success. The team tasted the success after toiling for nearly 2 years with design, testing & trials. A memorable day for MoES & NIOT. A fully functional ROV has been commissioned. We missed Dr. Atmanand who was a guiding force behind the systems & integration for the team. Evening secretary called to convey his happiness and wished to the team. Vessel was moved to deeper waters to continue the testing in deeper water.

15.10.2006

Vessel was positioned at 300 m water depth DIVE 3 was started.

DIVE 3 ROV dived upto 78 m and the depth display started final functioning. Since ROV was unsafe without depth indication, ROV was handed up for rectifying depth display fault found to a interface card. Interface removed and data given to phins directly.

DIVE 4 Was started at the same depth. ROV dived up to 305 m water entry alarm sounded. Dive was aborted and picked up. ROV on examination found water inside pressure case. Suspected hard O-Ring and one stud bolt in flang having different tongue for machinery seal same rectified. DTS connectors removed & checked thoroughly.

16.10.2006 Dive 5 started very smooth dive. Dived upto 205 m checked all functionalities of ROV Due to limited cable Tether, 205 m could not be exceeded. After satisfactory running, same was hauled up. A very satisfying dive.

All systems qualified & ROV commissioned. I have great pleasure in recording my appreciation of the TEAM ROV – NIOT. They worked like a single force & achieved what was a dream for two years ago.

Master & Officers co-operated very well.

Cruise ended on 16.10.2006 Made Port, Mangalore on 16.10.2006 night.

With the 229 – A comes to a very satisfying end

**( G. Janaki Raman - NIOT)**  
**Chief Scientist**  
**ORV Sagar Kanya**

