



ORV SAGAR KANYA

CRUISE SK - 225

*Sea trials of Hydroacoustic Navigation System (HANS) of Remotely
Operable Submersible ROSUB 60000*

Period : 18th June 2006 to 23rd June 2006

NATIONAL CENTRE FOR ANTARCTIC & OCEAN RESEARCH

Ministry of earth Sciences

(Government of India)

Headland Sadã, Vasco-Da-Gama,

Goa 403804, India

Report on HANS field trials onboard Sagra Kanya during Cruise 225

Objective

- Sea trials of Hydroacoustic Navigation System (HANS) of Remotely Operable Submersible ROSUB 60000

Embarkation: Chennai 18 June 2006

Disembarkation: Chennai 23 June 2006

Area of operation off Chennai

Participants

1. Dr. G.A. Ramadass Chief Scientist
2. Mr. Shijo Zacharia
3. Mr. Ch. Srinivsa Rao

From National Institute of Ocean Technology, Chennai

1. Dr. Alexander Nosov Deputy Chief Scientist
2. Dr. Sergey Sukonkin
3. Mr. Amirogov Alexey
4. Mr. Vladimir Kuznetsov
5. Mr. Konstantin Kuznetsov
6. Mr. Dremuchev Sergey

From EDBOE, Moscow

17 June 2006

- Signed on 1t 1830 hrs
- Ship USBL antenna was kept on the deck and connectivity between antenna & processor was checked

18 June 2006

- Boarded the vessel at 1130 hrs.
- Array was tilted in different angles and tilt sensors were checked
- Array was lowered from Star Board side of the vessel with a crane
- Captain announced his readiness to sail at 1800 hrs.
- Array was showing a tilt of 30 degrees and pitch of 6 degrees.
- Sailing postponed to next day
- GPS array was fixed and the reception of signals checked

19 June 2006

- Video camera was lowered from port side and antenna position was adjusted by tightening appropriate ropes
- Antenna was showing a tilt of 8 degrees & 6 derees
- ROV transponder was lowered and communication was checked
- Vessel sailed at 1630 hrs
- Two stations $80^{\circ} 44' E$ $13^{\circ} N$ & $80^{\circ} 46' E$ $13^{\circ} N$ were recommended to captain for operations

20 June 2006

- Vessel reached location with depth 3000 metres by 0700 hrs
- Weather was rough with a sea state 4 and occasional showers
- With the help of video camera antenna was perfectly fitted
- GPS array ADU5 was fixed on the deck and calibration for obtaining heading, pitch and roll was tried

21 June 2006

- Vessel reached a depth of 1300 metres and allowed to drift
- ROV transponder was launched from starboard side and it went under the hull as ship started moving. By using bow thrusters transponder was retrieved
- Bottom transponder was dropped to the bottom and tracked at the bottom by the USBL antenna of the ship at 1300 m depth. Amplifier settings, TVG settings etc were tuned.
- At 0825 hrs transponder was released by acoustic command for the demonstration of retrieval operations
- Transponder was tracked up to a depth of about 400 metres
- As the transponder approached surface acoustic connection was lost.
- Due to heavy currents transponder drifted fast and could not be traced even after searching by going in circles with increasing radius around the launching point. At night fall search was abandoned. Thus one of the three bottom transducer was lost at sea.
- Port authorities and NIOT were informed about the loss and a loss report was prepared

22 June 2006

- GPS antennae of ADU-5 were fixed at different locations and calibration was attempted. Calibration could be completed by 1800 hours.
- Transponder/responder were dropped with rope from star board and port sides and tracked using the USBL array.

23 June 2006

- CTD was launched along with the water samplers and water samples were collected at every 50 metres at 300 m depth
- Transponder array was removed from the hull
- All the equipment was demobilised
- All the participants signed off after successful completion of the cruise



(Dr. G.A. Ramadass)
CHIEF SCIENTIST

ORV "SAGAR KANYA"