

NIO Library Archive

CRUISE REPORT

ORV SAGAR KANYA

Cruise No. 97

(26 - 31 December, 1994)



राष्ट्रीय समुद्र विज्ञान
संस्थान

NATIONAL INSTITUTE
OF
OCEANOGRAPHY

ORV SAGAR KANYA

Cruise No. 97

(26 - 31 December, 1994)

NATIONAL INSTITUTE OF OCEANOGRAPHY

(Council of Scientific and Industrial Research)

Dona Paula - 403 004, GOA

REPORT ON THE 97TH OCEANOGRAPHIC CRUISE OF O.R.V. SAGAR KANYA

CONTENTS

1. Cruise track
2. Cruise summary
3. Participants
 - 3.1 Scientific component
 - 3.2 Ship's complement
4. Objectives
5. Itinerary
6. Instruments and their checking locations
7. Instruments deployed for survey
8. Details of operation/survey
9. Salient features
10. General problems for rectification
11. Acknowledgements

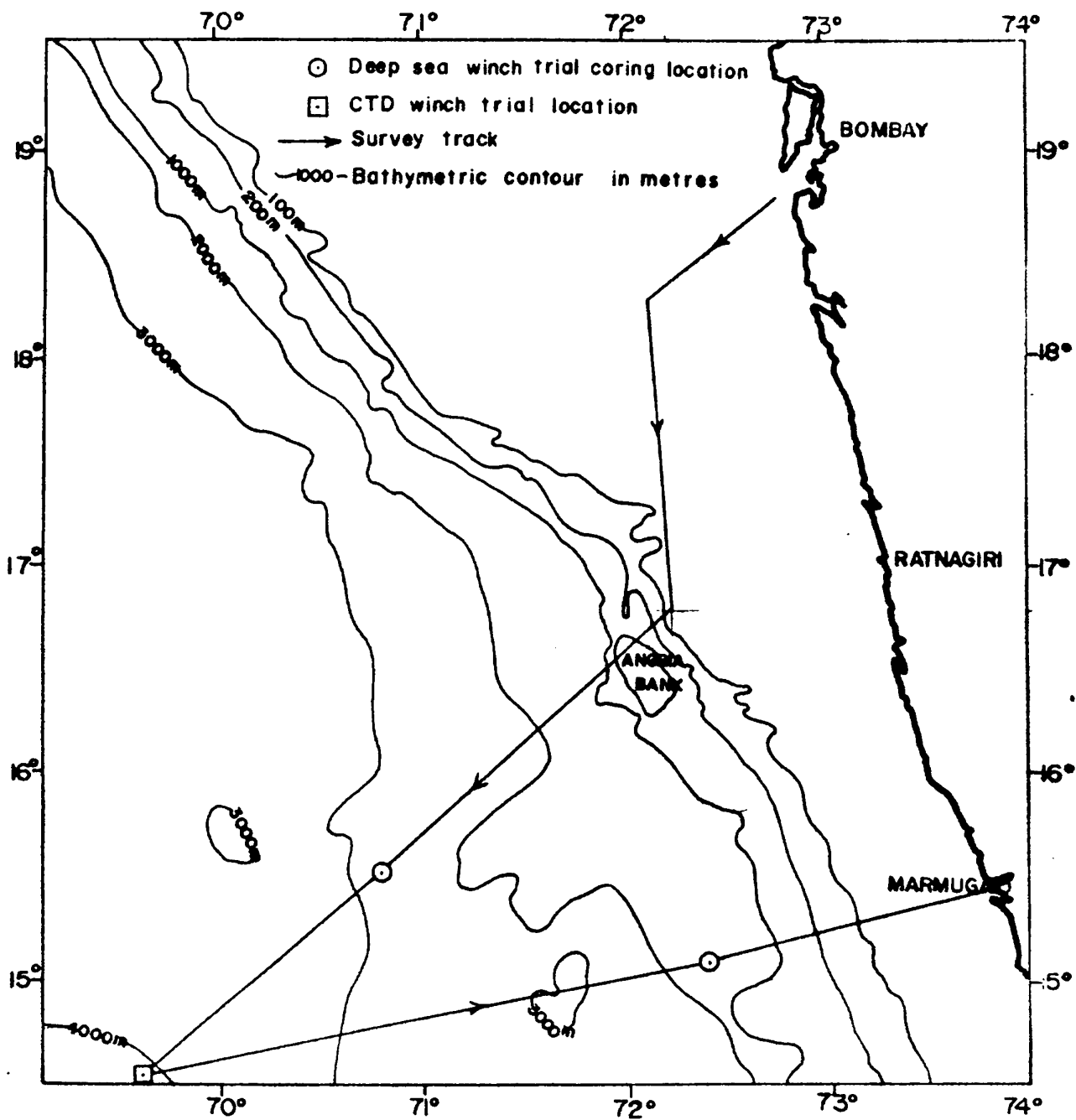


Fig. 1 Checking locations /survey track
ORV Sagar Kanya cruise-97

2. CRUISE SUMMARY

The cruise was intended mainly to check the performance of the ship after drydocking and the general performance of the geological instruments onboard. The cruise started from Bombay on 26.12.1994. Speed checking of the vessel was carried out on the same day in the outer anchorage and then returned to the inner anchorage for bunkering, checking the performance of the instruments and surveys started on 27.12.94. After completion of the cruise, the ship arrived at Mormugao harbour on 31.12.94.

Bathymetric data collected along the section from inner shelf to deeper waters revealed significant topographic rises over the slope and beyond. An isolated topographic rise called as Angria bank with near flat depth of 20 m from 270 m in the north to 2100 m in the south was observed in the slope area off Vijaydurg. A significant gravity high of about 50 mgls was recorded though magnetic anomalies over the bank was of low amplitude with smooth variations. Significant drop in the free-air and magnetic anomalies were observed from shelf to deeper waters.

3. PARTICIPANTS

3.1 Scientific Component

| | |
|----------------------------------|----------------------|
| T.V. Subba Raju, Chief Scientist |) |
| M.V. Ramana |) |
| V. Subrahmanyam |) |
| K. Srinivas |) |
| G.M. Phadte |) |
| V.D. Khedekar |) NIO, Goa |
| Sardar Areef |) |
| G.P. Naik |) |
| V. Rajaraman |) |
| R. Venkatesan |) |
| A.M. Almeida |) |
| Ganesh Chandwale | - Shipboard Trainees |
| U.B. Pramod Kumar | - -do- |
| Rajesh Patil | - CMC Engineer |

3.2 Ship's Complement

| | |
|--------------------|---------------------|
| Capt. Chidanda Pal | Master |
| C.P. Girilal | Chief Officer |
| Sam Abraham | Second Officer |
| M. Thangamani | NWKO |
| T.J. Tojan | Radio Officer |
| Sudhir R. Garge | Purser |
| Dinesh Kumar Tyagi | Medical Officer |
| Kamal Kumar Dutta | Chief Engineer |
| S. Janaka | 2nd Engineer |
| M.N. Murleedharan | 3rd Engineer |
| Sukanta Datta | Act. 3rd Engineer |
| Dharikshan Singh | 4th Engineer |
| Subrata Biswas | 5th Engineer |
| M.F.M. Louis | Electrical Officer |
| K. Pandey | -do- |
| R.M. Fernandes | Catg. Officer |
| C.A. Gomes | Asst. Catg. Officer |

4. OBJECTIVES

The cruise was intended mainly to check the performance of the ship after drydocking and the general performance of the gravitometer, magnetometer and multichannel seismic systems available onboard.

5. ITINERARY

- (i) Participants boarded the vessel on 26/12/94 at Bombay.
- (ii) Vessel sailed to outer anchorage on the same day for speed checking and returned back to inner anchorage for bunkering.
- (iii) Checking of the instruments and survey started on 27.12.94.
- (iv) Vessel reached Mormugao harbour on 31.12.94 after completion of the cruise.

6. INSTRUMENTS AND THEIR CHECKING LOCATIONS

- (i) Gravitometer & magnetometer : from inner shelf to deeper waters between Bombay and Goa.
- (ii) DFS V seismic system: on board
- (iii) Storage and deep sea winches and coring operations: at the depths of 3000 m & 1850 m
- (iv) Seismic streamer winch, airgun & compressors: on board
- (v) Hydrographic/CTD winch: at the depths of 4000 m.

7. INSTRUMENTS DEPLOYED FOR SURVEY

- (i) Elac Deep Sea Echosounder
- (ii) EG & G Geometrics Marine Magnetometer
- (iii) KSS-30 Sea Gravitometer and
- (iv) INS/GPS Navigation System

8. DETAILS OF OPERATION/SURVEY

A trial run of the vessel was undertaken on 26th evening to check the performance of speed by sailing upto the outer anchorage. Vessel sailed after bunkering on 27th for checking the performance of the instruments. Gravitometer operations started from the beginning of the cruise while the magnetometer operations began from the required depth of nearly = 2.5 m. Data were collected on the tracks with SW-NE, N-S directions passing over the Angria Bank. Magnetometer was hauled up later for smooth checkup of seismic winch and streamer operations.

Coring winch was tested with 800 kg weights. In the process, it was found that the oil pump was building up insufficient/less tension while the winch was in retrieval condition. Hydrographic/CTD winch checked with 250 kg dummy weights after rectifying the minor problems like the leakage of hydraulic oil from the winch, etc.

Entire seismic streamer was lowered for checking the smooth operation of the seismic winch. The newly acquired lead-in-cable was mated with seismic streamer

array. Air guns were testfired on board. The DFS V analogue and control nodules were also tested.

9. SALIENT FEATURES

Operations

- (i) Gravimeter performance found OK
- (ii) Magnetometer performance found OK except some digits in the magnetic value were not recorded properly on the magnetic tape
- (iii) Performance of the Deep Sea Echosounder was satisfactory but no data recorded on INS system
- (iv) Performance of streamer and coring winches and their allied systems (i.e. storage winch & Deep Sea Winch) OK
- (v) Performance of hydrographic winch satisfactory
- (vi) DFS V analogue and control modules found faulty and had to be rectified at ONGC, Bombay since the necessary repairing apparatus was available there. Seismic system as a whole could not be operated due to this faulty nature
- (vii) Airgun performance found OK
- (viii) Maximum vessel speed achieved was 11.4 knots
- (ix) Neither the ship's engines nor power break-downs were observed during this cruise, as they were occasional in some of the previous cruises.

Study area

- (i) Bathymetric data along the section from inner shelf to deeper waters revealed significant topographic rises over the slope and beyond. An isolated topographic rise called as Angria bank with near flat depths of 20 m from 270 m in the north to 2100 m in the south is observed in the slope area off Vijaydurg.
- (ii) A significant gravity high of about 50 mgls was recorded though magnetic anomalies over the bank was of low amplitude with smooth variations. Seafloor-type magnetic anomalies were not encountered in the survey area. Significant drop in the free-air and magnetic anomalies were observed from shelf to deeper waters.

10. GENERAL PROBLEMS FOR RECTIFICATION

- (i) Water leakage from the bulk hold
- (ii) Removed cupboards & panelling have to be replaced and monitors including that of the hydrosweep room have to be fixed back
- (iii) Flooring to be done in wet lab (starboard)
- (iv) Freezer to be arranged back
- (v) CCTV monitors to be replaced in winch control room
- (vi) TV & associated instruments to be secured to their original positions in E/S room
- (vii) Vacuum system should be repaired in the 2nd deck

- (viii) Gravity sensor room to be kept clean
- (ix) HP multipurpose computer in chart and drawing room is to be replaced with 486 PCs for better and efficient performance as the computer has become old and obsolete.

11. ACKNOWLEDGEMENTS

The Chief Scientist and his team members are grateful to the Master, Officers and the crew of *Sagar Kanya* for the excellent cooperation rendered by them.