DEPLOYMENT OF
DATA BUOYS IN ARABIAN SEA

ORV SAGAR KANYA SK-210
SEPTEMBER 27 to OCTOBER 3, 2004
Goa to Karwar

NATIONAL DATA BUOY PROGRAMME
NATIONAL INSTITUTE OF OCEAN TECHNOLOGY
CHENNAI
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1. **CRUISE SUMMARY**

The ORV Sagarkanya cruise SK-210 was taken up to reinstate the buoy network in Arabian Sea by deploying three data buoys. This cruise was combined with Deep Sea Technology and Mining group of NIOT.

2. **OBJECTIVES OF THE CRUISE**

*The main objectives of the cruise are:*

- Deployment of one deep water buoys at DS1.
- Deployment of two shallow water buoys at Ennore at SW2 and SW3 location.
- Taking core samples (mining group)
- Conducting Hydro sweep survey (mining group)
3. **LIST OF PARTICIPANTS**

*NIOT, Chennai*

1. Mr. P. Selvakumar  
2. Mr. G. Senthilkumar  
3. Mr. M. Saravanan  
4. Mr. M. Rajavel  
5. Mr. M. Athiyaman  
6. Mr. P. Ramesh  
7. Mr. Unnikrishnan  
8. Mr. Chandran  
9. Mr. Jayakumar  
10. Mr. Vishvanath  
11. Mr. Suresh  
12. Mr. Gopalakrishnan

*SEAMEN CHARTED FROM M/s. SEAPOL LOGISTICS, CHENNAI*

1. Mr. D. Kalyana Sundaram  
2. Mr. Raghunath
Proposed NDBP buoy deployment schedule in September 2004 (Goa to Karwar)

<table>
<thead>
<tr>
<th>Buoy ID</th>
<th>Lat</th>
<th>Long</th>
<th>Depth(m)</th>
</tr>
</thead>
<tbody>
<tr>
<td>SW3</td>
<td>15° 24' 25&quot;</td>
<td>73° 44' 46&quot;</td>
<td>0012</td>
</tr>
<tr>
<td>SW2</td>
<td>17° 01' 01&quot;</td>
<td>72° 29' 15&quot;</td>
<td>0085</td>
</tr>
<tr>
<td>DS1</td>
<td>15° 30' 13&quot;</td>
<td>69° 16' 34&quot;</td>
<td>3770</td>
</tr>
</tbody>
</table>

Total Distance: 610 nm
Cruising time: ~3 days (@ 8 nm/h)
Working time: ~1½ days (¼ day for deployment)
Buffer: ¼ day
Total: 5 days.

* Distance calculated based on the tentative deployment location.
### 4. DIARY OF EVENTS

<table>
<thead>
<tr>
<th>Date</th>
<th>Time</th>
<th>Event</th>
</tr>
</thead>
<tbody>
<tr>
<td>27-09-04</td>
<td>12.30 Hrs</td>
<td>One trailer and one truck have not reached Goa, and the ship was sent to anchorage. Getting the berth again for loading is ruled out. So it was decided to divert the ship to Karwar, accordingly the trucks were also diverted to Karwar.</td>
</tr>
<tr>
<td></td>
<td>15.30 Hrs</td>
<td>Boarded the vessel in anchorage thru’ boat and immediately sailed out to karwar.</td>
</tr>
<tr>
<td></td>
<td>22.00</td>
<td>Anchored at karwar</td>
</tr>
<tr>
<td>28.09.04</td>
<td>10.00 – 11.00 Hrs</td>
<td>Sea trial of hydro sweep</td>
</tr>
<tr>
<td></td>
<td>12.30 Hrs</td>
<td>Started loading of material from truck and trailer</td>
</tr>
<tr>
<td></td>
<td>16.00 Hrs</td>
<td>Sailed out from Karwar port to DS1</td>
</tr>
<tr>
<td></td>
<td>19.00 Hrs</td>
<td>Assembled and started testing of one WS buoy Sent mail to NCAOR for extension of cruise time</td>
</tr>
<tr>
<td>29.09.04</td>
<td>10.00 Hrs</td>
<td>Started preparing the mooring system for DS1</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Received mailed from NCAOR stating that cruise time is extended up to 3rd Oct. AM. And we are advised not to keep the ship idle for day break and do the operation as soon as reaches the location.</td>
</tr>
<tr>
<td>30.09.04</td>
<td>02.40 Hrs</td>
<td>Reached Ds1 location, started deploying the buoy under heavy rain.</td>
</tr>
<tr>
<td></td>
<td>04.40 Hrs</td>
<td>Anchor dropped at N 15°28.75’ and E 69°14.3’ at 3770 m of water depth. Started sailing towards Aungria bank for doing mining group’s operations</td>
</tr>
<tr>
<td>Date</td>
<td>Time</td>
<td>Activity</td>
</tr>
<tr>
<td>------------</td>
<td>---------------</td>
<td>-----------------------------------------------</td>
</tr>
<tr>
<td>01-10-04</td>
<td>01.30 - 14.00</td>
<td>Coring samples taken at 11 locations</td>
</tr>
<tr>
<td></td>
<td>02.30 - 23.00 Hrs</td>
<td>Hydro sweep survey</td>
</tr>
<tr>
<td>01-10-04</td>
<td>23.00 - 06.00 Hrs</td>
<td>Coring samples taken at another six locations.</td>
</tr>
<tr>
<td>And 02-10-04</td>
<td>11.15 Hrs</td>
<td>SW2 location reached</td>
</tr>
<tr>
<td></td>
<td>11.30 Hrs</td>
<td>SW2 buoy deployed at N 17º1.23' and E 72º29.1' at 82 m of water depth. Started sailing towards SW3</td>
</tr>
<tr>
<td>03-10-04</td>
<td>04.00 Hrs</td>
<td>Reached Sw3 location, when we are about to deploy the buoy captain of the ship refused to deploy and aborted the operation. When we asked for the reason he said winds are heavy and the data buoy location is close to the marker buoy so he will run over the marker buoy. And he ordered the ship to sail to karwar.</td>
</tr>
<tr>
<td></td>
<td>04.15 - 05.15 Hrs</td>
<td>Communicated situation to Mr. Tata sudhakar and Mr. MM subramaniyam. Mr. MMS discussed with captain over mobile phone and advised us to talk again to captain. Again we talked to captain and he agreed to deploy the buoy little further away from the marker buoy. And he ordered the vessel to turn back and sail to SW3 location.</td>
</tr>
<tr>
<td></td>
<td>13.00 Hrs</td>
<td>Reached Karwar</td>
</tr>
<tr>
<td></td>
<td>19.00 Hrs</td>
<td>Signed off.</td>
</tr>
</tbody>
</table>
Mooring Configuration For Data Buoy At- DS1
SW2
Deployed on: 2-10-04
Lat : 17° 01.23' N
Long : 72° 29.10' E
Time : 11.30 am
Depth : **82M**
Ship: ORV SAGARKANYA
Cruise no: SK 210

Float 640kg buoyancy

INFRA

2x10m, 18mm combi rope

4 orange floats

1m chain

Pear ring, swivel and shackle

100m, 18mm Combi-rope

4 nos pink floats

280x5 Dead weight

4M chain

280kg Dead weight

Depth 82m
LAT: 15°24.1' N  
LONG: 73°45.0' E  
DEPTH: 12 M  
Deployed on: 3-10-04  
Time: 6.30am  
Ship: ORV SAGARKANYA  
Cruise no: SK 210

**Diagram:**
- Combination Rope: 8 M Long; 18 mm Dia
- Orange Floats - 2 nos
- Pink Floats - 5 nos
- Combination Rope: 12 M Long; 18 mm Dia
- 5/3" Chain: 4 M long
- 5/8" Chain: 4 M long
- Anchor 280 kg
- Sinker Weight - 1400 Kg
- SEA BED 12 M
**GENERAL**

<table>
<thead>
<tr>
<th>Station &amp; ID</th>
<th>Off Goa &amp; DS1</th>
</tr>
</thead>
<tbody>
<tr>
<td>Position</td>
<td>Latitude 15Deg 28.75° N, Longitude 09 Deg 14.30° E</td>
</tr>
<tr>
<td>Deployment Date</td>
<td>30-09-04</td>
</tr>
<tr>
<td>Time (IST)</td>
<td>02.40 AM</td>
</tr>
<tr>
<td>Station Depth (m)</td>
<td>3.770 Mts.</td>
</tr>
<tr>
<td>Mooring length (m)</td>
<td>3.975 Mts.</td>
</tr>
<tr>
<td>Flash Light Characteristics</td>
<td>1 Flash / 4 sec.</td>
</tr>
<tr>
<td>CPU Type</td>
<td>GENI 2000, S. No: 098</td>
</tr>
<tr>
<td>Satellite used (Please tick the appropriate column)</td>
<td>INMARSAT (T&amp;T), INSAT</td>
</tr>
<tr>
<td>Transceiver ID</td>
<td>456499650 (T&amp;T)</td>
</tr>
<tr>
<td>Software Version</td>
<td>1.31 Ver.</td>
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<tr>
<td>Buoy Type (Please tick the appropriate column)</td>
<td>Spar, Discus, Imported Hull, Indigenous Hull</td>
</tr>
<tr>
<td>Vessel Name and Cruise Reference ID</td>
<td>ORV- SAGAR KANYA &amp; SK 210</td>
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</tbody>
</table>

**INSTRUMENT FIT**

<table>
<thead>
<tr>
<th>Meteorological</th>
<th>Oceanographic</th>
<th>Water Quality</th>
</tr>
</thead>
<tbody>
<tr>
<td>Air Pressure-1</td>
<td>X0510012</td>
<td>MRU</td>
</tr>
<tr>
<td>UCM</td>
<td>6042</td>
<td>Beacon Lamp</td>
</tr>
<tr>
<td>Air Temperature</td>
<td>Yes</td>
<td>UCM Cable</td>
</tr>
<tr>
<td>Wind-1</td>
<td>7010490006</td>
<td>Battery</td>
</tr>
<tr>
<td>Wind-2</td>
<td></td>
<td>Antenna-INMARSAT</td>
</tr>
<tr>
<td>Solar Panel</td>
<td>TATABP-</td>
<td>Power Box with Ab and Charger Module</td>
</tr>
<tr>
<td></td>
<td>TBP 1220</td>
<td></td>
</tr>
<tr>
<td>Solar Panel Cable</td>
<td>Indigenous,</td>
<td>Mast Cable</td>
</tr>
<tr>
<td></td>
<td>IL 2M</td>
<td></td>
</tr>
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</table>

**Field Team Remarks**

**Shore Station Remarks**

Signature: Instrumentation

Signature: Mechanical

Signature: Chief Scientist

Date: 5/7/04
**GENERAL**

<table>
<thead>
<tr>
<th>Station &amp; ID</th>
<th>Off Ratnagiri &amp; SW2</th>
</tr>
</thead>
<tbody>
<tr>
<td>Position</td>
<td></td>
</tr>
<tr>
<td>Deployment Date</td>
<td>02-10-04</td>
</tr>
<tr>
<td>Station Depth (m)</td>
<td>82 Mts.</td>
</tr>
<tr>
<td>Moving length (m)</td>
<td>100 Mts.</td>
</tr>
<tr>
<td>Flash Light Characteristics</td>
<td>2 Flashes / 4 sec.</td>
</tr>
<tr>
<td>CPU Type</td>
<td>GENI 2000, S. No: 012</td>
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<tr>
<td>Satellite used</td>
<td>INMARSAT</td>
</tr>
<tr>
<td>Transceiver ID</td>
<td>456499627, SLNo: 0200015308</td>
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<tr>
<td>Software Version</td>
<td>1. 31 Ver.</td>
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<tr>
<td>Buoy Type</td>
<td>Spar, Discuss, Imported Hull, Indigenous Hull</td>
</tr>
<tr>
<td>Vessel Name and Cruise Reference ID</td>
<td>ORV- SAGAR KANYA &amp; SK 210</td>
</tr>
</tbody>
</table>

**INSTRUMENT FIT**

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<thead>
<tr>
<th>Meteorological</th>
<th>Oceanographic</th>
<th>Water Quality</th>
</tr>
</thead>
<tbody>
<tr>
<td>Air Pressure-1</td>
<td>X 0440009</td>
<td>MRU</td>
</tr>
<tr>
<td>Falimouth-CM</td>
<td>1752-15Jul04</td>
<td>Beacon Lamp</td>
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<tr>
<td>Air Temperature</td>
<td>Yes</td>
<td>CM Cable</td>
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<tr>
<td>Wind-1</td>
<td>710183.0903</td>
<td>Battery</td>
</tr>
<tr>
<td>Wind-2</td>
<td>-</td>
<td>Antenna- INMARSAT</td>
</tr>
<tr>
<td>Solar Panel</td>
<td>TATABP-TBP 1220</td>
<td>Power Box with Ab and Charger Module</td>
</tr>
<tr>
<td>Solar Panel Cable</td>
<td>Indigenous, IL 2M</td>
<td>Mast Cable</td>
</tr>
</tbody>
</table>

**Field Team Remarks**

As an SS cylinder at NDBP stores was reserved for indigenous buoy (CPU) deployment, new aluminum hull was used.

**Shore Station Remarks**

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Signature Instrumentation

Signature Mechanical

Signature Chief Scientist

Date: 2/10/04
## DEPLOYMENT SHEET

### GENERAL

- **Station & ID:** Mormugao Port & SW3.
- **Position:**
  - Latitude: 15 Deg 24.1' N
  - Longitude: 73 Deg 45.0' E
- **Deployment Date:** 03-04
- **Time (IST):** 06.45 AM
- **Station Depth (m):** 12 Mts.
- **Mooring Length (m):** 16 Mts.
- **Flash Light Characteristics:** 2 Flashes / 6 Sec.
- **CPU Type:** GENI 2000. S.No: 013.
- **Satellite used (Please tick the appropriate column):**
  - INMARSAT
  - INSAT
- **Transceiver ID:** S. No: 0200011930
- **Software Version:** 1.31 Ver.
- **Buoy Type (Please tick the appropriate column):**
  - Spar
  - Discus
  - Imported Hull
  - Indigenous Hull
- **Vessel Name and Cruise Reference ID:** ORV- SAGARKANYA & SK- 210.

### INSTRUMENT FIT

<table>
<thead>
<tr>
<th>Meteorological</th>
<th>Oceanographic</th>
<th>Water Quality</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Sensor</strong></td>
<td><strong>Serial No.</strong></td>
<td><strong>Sensor</strong></td>
</tr>
<tr>
<td>Air Pressure-1</td>
<td>W 0420026.</td>
<td>MRU</td>
</tr>
<tr>
<td>Air Pressure-2</td>
<td>-</td>
<td>Falmouth CM.</td>
</tr>
<tr>
<td>Air Temperature</td>
<td>Yes.</td>
<td>Falmouth CT</td>
</tr>
<tr>
<td>Wind-1</td>
<td>701049.0012</td>
<td>Battery</td>
</tr>
<tr>
<td>Wind-2</td>
<td>-</td>
<td>Anticoma- INMARSAT</td>
</tr>
<tr>
<td>Solar Panel</td>
<td>SOLAREX-MSX10</td>
<td>Power Box with Ah and Charger Module</td>
</tr>
<tr>
<td>Solar Panel Cable</td>
<td>Imported, MCIL 2M</td>
<td>Mast Cable</td>
</tr>
</tbody>
</table>

### Field Team Remarks

### Shore Station Remarks

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**Signature:**
- Instrumentation
- Mechanical
- Chief Scientist

**Date:** 8/10/04