CRUISE REPORT

ORV SAGAR KANYA

Cruise No. 106

29 September to 31 October, 1995

राष्ट्रीय समुद्र विज्ञान संस्थान

NATIONAL INSTITUTE OF OCEANOGRAPHY

ORV SAGAR KANYA

Cruise No. 106

(29 September to 31 October, 1995)

NATIONAL INSTITUTE OF OCEANOGRAPHY

(Council of Scientific and Industrial Research)

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REPORT ON THE 106TH OCEANOGRAPHIC CRUISE OF O.R.V. SAGAR KANYA

CONTENTS

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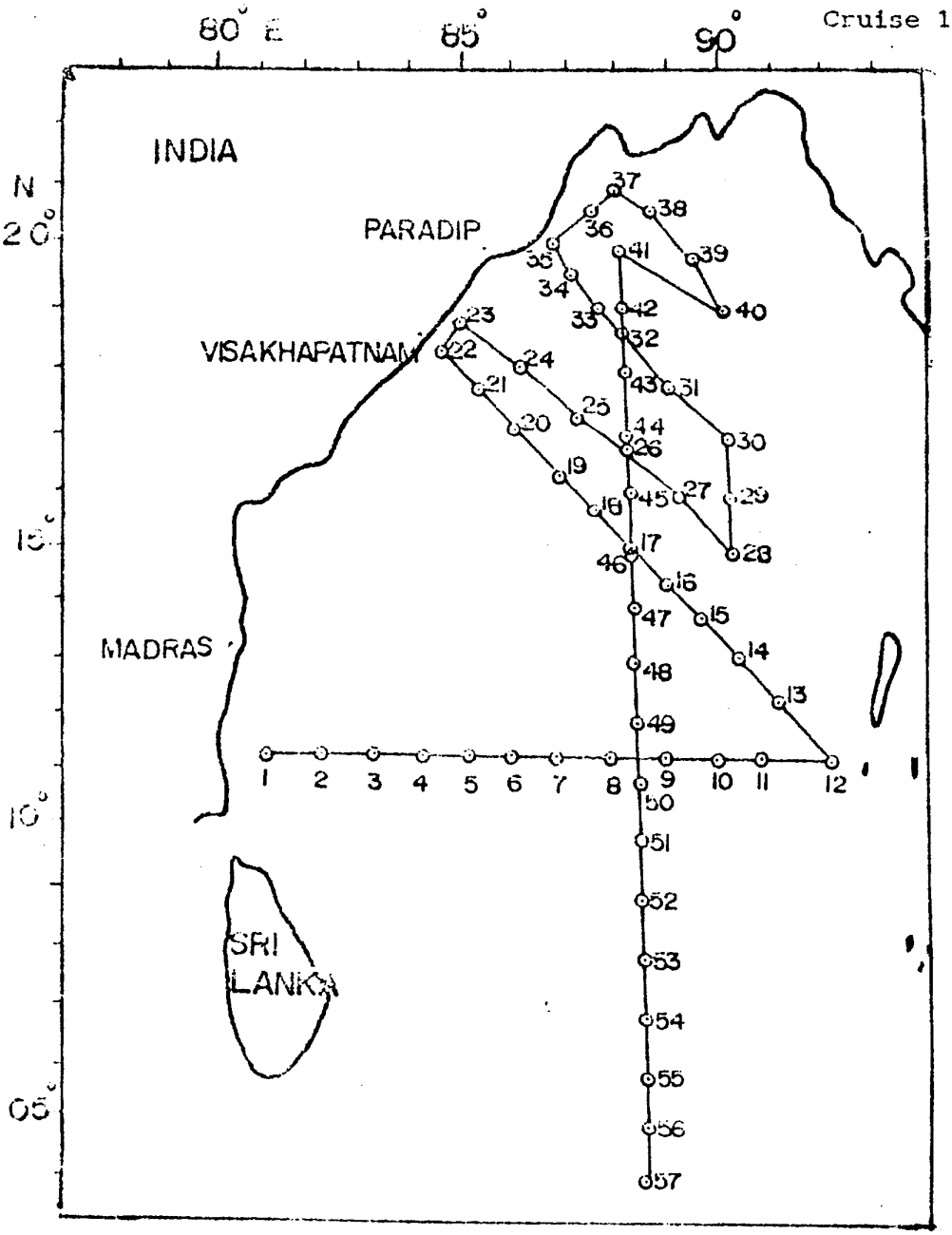
Cruise 106



CRUISE TRACK & STATIONS

2. CRUISE SUMMARY

Cruise 106 of ORV *Sagar Kanya* was organised in the Bay of Bengal to investigate the oceanographic conditions during postmonsoon season. The cruise started from Mormugao harbour on 29 September and terminated at Madras on 31 October, 1995. Fiftyseven hydrographic stations were occupied along the cruise track. Hydrographic data were collected using Sea Bird CTD system (Model SBE-11). Water samples for chemical analysis were collected at selected stations using Rosette sampler to which Niskin samplers of 1.7 l capacity were fixed. Horizontal hauling was carrried out for 15 mts at each station for studying the zooplankton diversity and its chemical composition. Surface meteorological data was collected at 3 hourly intervals.

3. PARTICIPANTS

3.1 Scientific component

V.V. Sarma, Chief scientist	)	
Y. Sadhuram	)	NIO Regional Centre,
B. Prabhakar Rao	)	Visakhapatnam
M.K. Prem Kumar	)	
T.V.R. Prasad	)	
M.S.S. Sarma	–	NIO, Goa
G. Chanduvale	–	-do-
C. Manjulatha	–	Andhra University
R. Dacosta	)	
N. Jadhav	)	Goa University
J. Rodrigues	)	
J. Coelho	)	
Devendar Singh		India Meteorological Department
M.B. Solomon	–	-do-
A.N. Ramanadhan	–	-do-
R. Datte	–	-do-
A.G. Tamodkar	–	-do-
T.T.A. Raja	–	Indian Navy
S. Joseph	–	-do-

3.2 Ship's complement :

Capt. P.P. Batra	- Master
M.S. Pangtey	- Chief Officerr
H.C. Medha	- A. Ch. Officer
A.K. Tiwari	- A.W.K.O.
V.C. Chandran	- Radio Officer
S. Murty	- Medical officer
R. Saldana	- Purser
S. Janaka	- Ch. Eng. Officer
P.K. Mitra	- 2nd Eng. Officer
R.P. Ghosh	- 3rd Eng. Officer
M.N. Muraleedharan	- 3rd Eng. Officerr
D. Singh	- 4th Eng. Officer
K.P. Mishra	- 5th Eng. Officer
K. Pandey	- Elec. Officer
P.J. Valsan	- Elec. Officer

4. OBJECTIVES

The main objectives of the cruise were to study mass transport and heat fluxes in the scheduled transects of Bay off Bengal with respect to warm pool and to study the variability of chemical parameters, zooplankton diversity and its biochemical composition during the postmonsoon season. A latitudinal section along 11.30° from 81°E to 92°E, four vertical transects covering the central and northern Bay of Bengal and a meridional section of 88°E from 20°N to 4°N were selected for the present study. These studies will be useful to evaluate the dynamics of fresh water input into Bay of Bengal and heat fluxes in addition to have supporting data for TOGA project.

5. CRUISE DETAILS

All the participants boarded the vessel on 28 September, 1995 at Mormugao harbour. The ship sailed off at 14.00 hours on the next day. CTD operations were started after reaching the first station of the survey area on 4 October. Data were collected on temperature and salinity at all the 57 stations occupied during the cruise. Water sampling was done for selected stations (20) by CTD Rosette system. Zooplankton samples were collected at all the stations. Microbiological studies have been made at selected

stations. Surface meteorological data were collected at 3 hourly intervals during the cruise for computation of fluxes. Two drifting buoys were deployed at two locations. After completing the work, the vessel arrived and anchored at Madras outer harbour and berthed at 22.30 hours on 31 October, 1995.

6. SYNOPSIS OF OBSERVATIONS

The following observations were carried out :

1. CTD operations for hydrographic data upto 2000m along the first five transects and upto 2700 m on the meridional section along 88°E.
2. Water sampling with CTD Rosette using 1.7 l Niskin samplers at selected stations and the samples were analysed onboard for dissolved oxygen, nitrite, phosphate and silicate.
3. Zooplankton samples were collected at all the stations by using the plankton net and the samples were preserved separately to study their diversity and chemical composition.
4. Microbiological studies at selected stations wherein water samples at different depths were collected and analysed for the presence of hydrocarbons degradation bacteria.
5. Surface meteorological observations at 3 hourly synoptic interval to study the energy fluxes. Radio scale ascents were taken at 0530 and 1730 hrs. daily. A total of 50 Radio sonde ascents were taken.
6. Two drifting buoys were deployed at two locations, viz., (i) 14°N and 87°E on 21.10.95 and (ii) 12°N and 85°E on 28.10.95.

7. PERFORMANCE OF ONBOARD EQUIPMENT

1. Eventhough the CTD system worked well, during the last phase of the operations sudden excessive noise/stress was noticed on the CTD winchwheel, probably because of damaged ball bearings. This should be repaired before the next operations.
2. The PC available with the CTD system is not working. This should be repaired.
3. Hydrographic winch wire was used only for horizontal hauling of plankton net. Meter wheel is not available, causing inconvenience for other operations.
4. Auto Analyser, INS, Echosounder and Wave recorder worked well.
5. Niskin bottles of 5 lit capacity are less in number onboard. More should be made available for collection of water samples for particulate matter

8. ACKNOWLEDGEMENT

The chief scientist acknowledges the participating scientists, Master, Officers and crew of ORV *Sagar Kanya* for their cooperation in making the cruise a success.

SUMMARY OF OBSERVATIONS

SERIAL NO.	STATION	DATE	TIME (IST)	LAT °N	LONG °E	CTD Hydro cast	NISKIN Samples	NET Horizontal
1.	SK10601	4.10.95	1040	11 30	81 00	*	*	*
2.	SK10602	4.10.95	1920	11 30	82 00	*		*
3.	SK10603	5.10.95	0500	11 30	83 00	*		*
4.	SK10604	5.10.95	1410	11 30	84 00	*	*	*
5.	SK10605	5.10.95	2230	11 30	85 00	*		*
6.	SK10606	6.10.95	0700	11 30	86 00	*		*
7.	SK10607	6.10.95	1530	11 30	87 00	*	*	*
8.	SK10608	7.10.95	0040	11 30	88 00	*		*
9.	SK10609	7.10.95	0830	11 30	89 00	*		*
10.	SK10610	7.10.95	1715	11 30	90 00	*	*	*
11.	SK10611	8.10.95	0100	11 30	91 00	*		*
12.	SK10612	8.10.95	0930	11 30	92 00	*		*
13.	SK10613	8.10.95	1915	12 20	91 00	*		*
14.	SK10614	9.10.95	0645	13 10	90 00	*		*
15.	SK10615	9.10.95	1730	14 00	89 00	*	*	*
16.	SK10616	10.10.95	0510	14 47	88 00	*		*
17.	SK10617	10.10.95	1440	15 36	87 00	*		*
18.	SK10618	11.10.95	0110	16 24	86 00	*		*
19.	SK10619	11.10.95	0645	16 40	85 30	*	*	*
20.	SK10620	11.10.95	1330	17 12	85 00	*		*
21.	SK10621	11.10.95	2000	17 36	84 30	*		*
22.	SK10622	12.10.95	0210	18 00	84 00	*	*	*
23.	SK10623	12.10.95	1240	18 37	84 47	*	*	*
24.	SK10624	12.10.95	2330	17 47	86 00	*		*
25.	SK10625	13.10.95	0900	17 06	87 00	*		*
26.	SK10626	13.10.95	1630	16 24	88 00	*	*	*
27.	SK10627	14.10.95	0330	15 42	89 00	*		*
28.	SK10628	14.10.95	1310	15 00	90 00	*		*
29.	SK10629	14.10.95	2200	16 00	90 00	*		*
30.	SK10630	15.10.95	0500	17 00	90 00	*	*	*
31.	SK10631	15.10.95	1430	17 48	89 00	*		*
32.	SK10632	15.10.95	2330	18 35	88 00	*	*	*
33.	SK10633	16.10.95	0530	19 00	87 30	*		*
34.	SK10634	16.10.95	1120	19 24	87 30	*		*
35.	SK10635	16.10.95	1710	19 48	86 30	*	*	*
36.	SK10636	17.10.95	0030	20 15	87 14	*		*
37.	SK10637	17.10.95	0715	20 44	88 00	*		*
38.	SK10638	17.10.95	1315	20 11	88 38	*		*
39.	SK10639	17.10.95	2000	19 36	88 18	*		*
40.	SK10640	18.10.95	0300	19 00	90 00	*		*
41.	SK10641	18.10.95	1800	20 00	88 00	*	*	*
42.	SK10642	19.10.95	0010	19 00	88 00	*		*
43.	SK10643	19.10.95	0900	18 00	88 00	*		*
44.	SK10644	19.10.95	1900	17 00	88 00	*	*	*

SERIAL NO.	STATION	DATE	TIME (IST)	LAT °N	LONG °E	CTD Hydro cast	NISKIN Samples	NET Horizontal
45.	SK10645	20.10.95	0500	16 00	88 00	*		*
46.	SK10646	20.10.95	1530	15 00	88 00	*		*
47.	SK10647	21.10.95	0115	14 00	88 00	*	*	*
48.	SK10648	21.10.95	1815	13 00	88 00	*		*
49.	SK10649	22.10.95	0500	12 00	88 00	*		*
50.	SK10650	22.10.95	1515	11 00	88 00	*	*	*
51.	SK10651	23.10.95	0200	10 00	88 00	*		*
52.	SK10652	23.10.95	2030	9 00	88 00	*		*
53.	SK10653	24.10.95	0630	8 00	88 00	*	*	*
54.	SK10654	24.10.96	1730	7 00	88 00	*		*
55.	SK10655	25.10.95	0400	6 00	88 00	*		*
56.	SK10656	25.10.95	1920	5 00	88 00	*		*
57.	SK10657	26.10.95	0710	4 00	88 00	*		*

* Indicates observations taken.