NOTES

ASSESSMENT OF GEOSAT DATA

ABSTRACT

The Navy Geodetic Satellite (GEOSAT) mission had produced a dense, global altimetric database. Altimeter onboard the satellite was a microwave sensor. Validation of the measurement capabilities of this sensor will provide an effective and alternate tool for marine data collection. In the present study GEOSAT derived wave height are compared with the results of earlier investigation. The analysis shows that the GEOSAT measures Significant Wave Height with an accuracy of ± 0.5 m.

THE GEOSAT (GEOdetic SATellite) mission was launched in March 1985 with an Altimeter sensor onboard and the operating life span of the satellite was upto January 1990. The Altimeter functions as a 13.5 Ghz nadir looking pulse compression radar with width 102.4 micro-seconds and antenna beamwidth 2.0°. Altimetry data support the requirements in the areas of geodesy, operational measurements of winds, waves, ocean fronts and eddies, surface ocean currents and sea ice topography (Jensen and Wooldridge, 1987; McConathy and Kilgus, 1987). GEOSAT was moved in a 17 day exact repeat orbit with approximately 14.3 revolutions/day.

Significant Wave Height (SWH) is measured onboard as an average 1-second value of 10 per second data (Cheney *et al.*, 1987). GEOSAT measured SWH with an accuracy of 0.5 m or 10% of SWH, whichever is greater (MacArthur *et al.*, 1987).

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Materials and methods

Geophysical Data Record of GEOSAT data have been recorded on a 1600 BPI 9 track tape in ASCII format. Necessary software is developed to extract SWH (Usha Natesan, 1992). In the present study Altimeter data between November 1986 and October 1987 are used to derive SWH.

SWH values deduced from GEOSAT are compared with deep water wave characteristics off Bombay, Cochin, Cape Comorin, Madras, Visakhapatnam and Calcutta published (Anon., 1982) and analysed by Narashima Rao (1983).

Results and discussion

GEOSAT derived wave height when compared with the corresponding Indian Daily Weather Report data yielded a correlation coefficient of 0.49 (Prasad, 1990). Wave heights off Bombay, Cochin, Cape Comorin, Madras, Visakhapatnam and Calcutta have been extracted from GEOSAT and compared with the results reported by Narashima Rao (1983) are presented in Table 1. On 88 % of the occasions, Altimeter measures the Significant Wave Height with an accuracy of ± 0.5 m.

This is consistent with the findings of the other investigators (Dobson *et al.*, 1987). Validation confirms the possibility of relying on GEOSAT parameters.

TABLE 1. *Validation of GEOSAT derived wave height*

Month	Most frequent wave height											
	Madras		Visakhapatnam		Calcutta		Bombay		Cochin		Cape Comorin	
	*	Geosat	*	Geosat	*	Geosat	*	Geosat	*	Geosat	*	Geosat
January	1.3	1.10	1.0	0.55	1.1	0.55	1.0	0.45	1.0	0.55	1.6	1.95
February	1.0	0.55	0.7	0.35	1.6	1.85	0.8	0.65	0.9	0.45	1.1	1.20
March	0.9	0.45	1.3	0.85	1.2	0.65	1.0	0.55	1.0	0.45	1.0	0.45
April	0.8	0.45	1.2	1.15	1.7	1.15	0.8	0.65	0.7	0.35	1.1	1.40
May	1.4	1.15	1.8	1.35	2.9	2.35	1.3	1.10	1.2	0.65	1.5	1.30
June	2.2	1.85	2.4	1.95	2.1	1.55	2.7	2.55	2.3	2.55	1.9	2.05
July	1.4	1.80	2.3	1.85	1.9	1.90	3.6	3.45	2.6	2.15	2.1	1.85
August	1.9	1.95	1.8	1.85	1.8	1.35	2.5	1.95	2.1	1.95	1.5	1.95
September	1.3	1.35	1.6	1.55	1.9	1.45	1.6	1.55	1.0	1.05	1.5	1.55
October	0.9	0.55	1.5	1.05	1.5	1.15	0.8	0.85	1.1	1.05	1.2	1.45
November	1.3	1.05	1.6	1.05	1.3	1.25	1.0	0.95	0.9	0.95	1.2	1.15
December	2.2	1.75	1.5	0.95	1.1	0.55	1.1	1.05	1.0	0.55	1.1	1.35

Seasons	Mean wave height											
	Madras		Visakhapatnam		Calcutta		Bombay		Cochin		Cape Comorin	
	*	Geosat	*	Geosat	*	Geosat	*	Geosat	*	Geosat	*	Geosat
Non monsoon	1.14	0.91	1.24	0.80	1.72	1.17	1.01	0.54	1.01	0.54	1.29	1.17
Southwest	1.71	1.47	2.04	1.59	1.96	1.67	2.63	2.13	2.03	1.80	1.78	1.85
Northeast	1.53	1.17	1.60	1.06	1.33	1.49	1.00	0.80	1.03	0.81	1.22	1.19

* Published data.

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FIRST RECORD OF AN ENDANGERED FINLESS PORPOISE *NEOPHOCAENA PHOCAENOIDES* FROM PORTO NOVO, SOUTHEAST COAST OF INDIA

ABSTRACT

One young male finless porpoise *Neophocaena phocaenoides* was accidentally caught during gillnet operation off Porto Novo (11°29'N, 79°46'E) for the first time. The morphometry and gut content are reported here.

CETACEANS are common in Porto Novo vicinity. Representatives of family Delphinidae *viz. Stenella longirostris* and *Tursiops truncatus aduncus* were reported by Rajaguru and Natarajan (1985) and Natarajan and Rajaguru (1985). Along with these species Kumaran (1989) recorded few specimens of *Sousa chinensis* and one young female *Ziphius cavirostris* belonging to the family Ziphidae. It is for the first time a finless Porpoise *Neophocaena phocaenoides* from the family Phocaenoidae, was collected from porto Novo during an inshore gillnet operation in the early hours of 29th January 1992.

The distribution range of this species has been stated as in coastal waters and estuaries of Indo-Pacific from Iran and Pakistan in the west, throughout the coasts of India, southeast Asia and Indonesia and north to China and northern Japan (Evans, 1984). Leatherwood and Reeves (1983) identified the range of occurrence of this species as the coastal and estuarine regions from Pakistan, along the entire Indian subcontinent, throughout southeast Asia and Indonesia, north to China, Korea and Japan. James and Lal Mohan (1987) listed this species as occurring along the Indian Coast.

The porpoise looked somewhat like a beluga. Its melon was bluff and rounded, but not bulbous. It had no beak as the members of the family Phocoenidae. The mouthline is curved upward towards the eye. There was a slight depression behind the crescentic blowhole, which may be regarded as a neck crease. The blowhole was on top of the head.

Dorsal fin was absent. The animal was slate grey in colour on the dorsal side and more paler on the ventral side. A conspicuous dentriculated area begins ahead of mid back and extends back on the dorsal surface of the peduncle. The skin on this area was dark and covered with small tubercles or horny papillae.