

Letter to the Editor

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METEOROLOGICAL CONDITIONS OVER THE ARABIAN SEA DURING NOVEMBER 1962

1. Meteorological observations of atmospheric pressure, temperature of the air over sea, sea surface temperature, wind, cloud amount, humidity etc. were taken over the Arabian Sea by scientists on *INS Kistna*. This was organised by the Indian National Committee on Oceanic Research, as a part of the International Indian Ocean Expedition. There were two cruises by *INS Kistna* (II and III). The first cruise (II) commenced on 3 November 1962 and ended on 14 November 1962, while the second (III) one commenced on 21 November 1962 and ended on 6 December 1962. The track on both these cruises is shown in Fig. 1.

2. The meteorological programme at sea consisted of measurements of (1) Barometric pressure; (2) Air temperature and Dew Point; (3) Sea surface temperature; (4) Cloud amount, type, height; (5) Weather, past and present; (6) Wind speed and direction; (7) Precipitation; (8) Visibility; (9) Sea waves and swell (visual observation) and (10) Ice.

Measurements of total solar radiation and radiation reflected from sea surface, and upper air observations were also made from ships at stipulated hours of observation.

3. Weather observations on board a ship at sea involve difficulties which are not encountered by observers at land stations. Some of these difficulties are as follows.

(1) The atmosphere near a vessel at sea may be unrepresentative of the free air over the ocean. (2) The motion of a ship creates eddies and currents which make instrumental observations of wind and rainfall unreliable. (3) The structure of the ship is such that it is extremely difficult to find suitable exposures for meteorological instruments.

4. *Method of analysis* — Diurnal cycles of meteorological elements were observed at 12°, 10° and 8° latitudes respectively. The observations were taken daily at intervals of three hours (00, 03, 06, 09, 12, 15, 18, 21 GMT) and the mean values

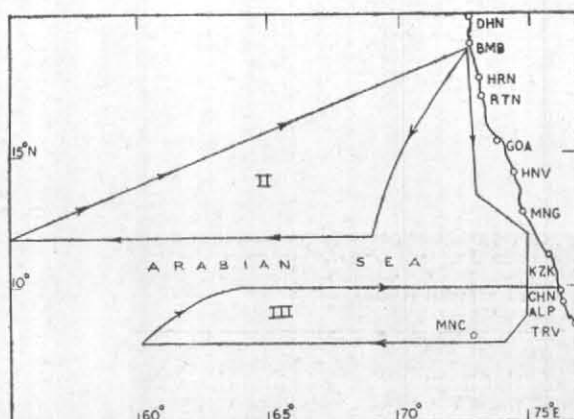


Fig. 1. Cruise Track

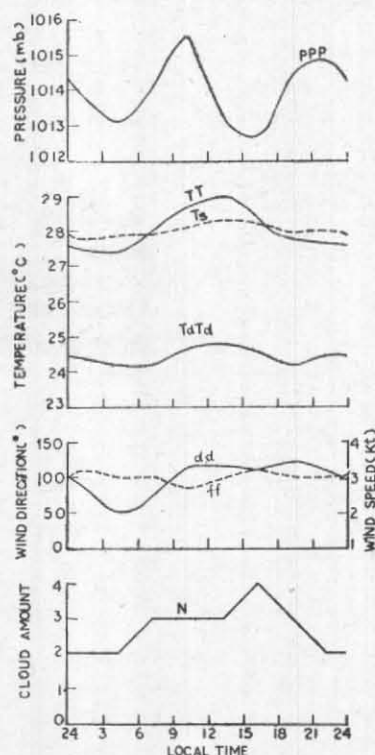


Fig. 2. Diurnal variations of met. parameters over the Arabian Sea during Nov-Dec 1962

TABLE 1
Average values of the meteorological parameters at 3-hour interval

Parameter	Local Time at Long. 65°E (hrs)							
	0430	0730	1030	1330	1630	1920	2230	0130
Pressure (mb)	1013.14	1013.98	1015.46	1013.30	1012.71	1014.43	1014.85	1013.87
Temperature of air over sea (°C)	27.4	28.0	28.7	29.0	28.3	27.8	27.7	27.5
Temperature of sea surface (°C)	27.9	27.9	28.1	28.3	28.2	27.9	28.0	27.8
Dew point temperature (°C)	24.2	24.2	24.7	24.8	24.6	24.2	24.5	24.4
Wind speed (kt)	3.1	3.0	2.7	3.1	3.2	3.0	3.0	3.2
Wind direction (degrees)	48	75	114	114	111	122	109	90
Cloud amount (Okta)	2	3	3	3	4	3	2	2

of the parameters at the three latitudes were evaluated. The variations in local time at different places of observation is very small and is ignored. The mean values of each parameter are taken at the average local time (local time at Long. 65°E) and are shown in Table 1 and graphically in Fig. 2.

5. Diurnal variation

(a) Pressure—The semi-diurnal cycle of pressure is the main feature of pressure variation, the maxima occurred at about 10.00 A.M. and 10.00 P.M., while a minimum occurred at 4.00 A.M. and 4.00 P.M. The range of variation was about 2.5 mb.

(b) Temperature—The dry bulb temperature showed a maximum at about 1.00 P.M. The night temperatures were low and generally steady. The diurnal range of temperature was 1.5°C. The sea surface temperature showed similar variations, but the amplitude of the variation was very small and of the order of 0.5°C. The air temperature was higher than the sea temperature during

day time, but lower than sea temperature at night. The day's average temperature of air, as well as the sea surface, was about 28°C. The dew point temperature closely followed the sea surface temperature. The difference in surface water temperature and dew point temperature was about 3.5°C.

(c) Wind—The wind speed was approximately constant (3 kt) throughout the day, but the direction changed during late night and early morning hours. From 10.00 A.M. to 9.00 P.M. the prevailing wind direction was 120° and afterwards it backed until 4.00 A.M. to 050°, then rapidly veered during the morning.

(d) Cloud—The diurnal variation of cloud amount was very small and it varied between 2 and 4 oktas. More clouds were observed during the day than at night.

6. The author wishes to record his grateful thanks to the Indian National Committee on Oceanic Research and the India Meteorological Department.

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