551.513.1 : 551.515(267)

SYNOPTIC CONDITIONS OVER THE ARABIAN SEA SOUTH OF LATITUDE 15°N DURING 23-27 MAY 1973

Godbole and Ghosh (1975) have discussed the structure of the Inter-tropical Convergence Zone (ITCZ) and equatorial westerlies for the period 23 to 27 May 1973 on the basis of observations of the Russian vessels along the meridian 55°E and 65°E between the latitudes 22°N and 4°S. They have stated that the ITCZ was located near 10°N with on equatorward inclination with height and that it extended from the surface to about 300 mb. They have assumed that, although the observations obtained during the ships cruises were not of the same synoptic hours, the atmosphere remained quasi-stationery in the meridional direction during the period of observations. They have further stated, with reference to the satellite photographs for the period in question, that an active portion of the ITCZ was located near 10°S although there was an indication of zonal propagation of disturbance activity along 10°N.

2. On an examination of the synoptic charts for the period it was found that a cyclonic circulation in the lower and middle troposphere moved into Lakshadweep area from southwest Bay across the Peninsula and under its influence a trough of low pressure developed in east Arabian

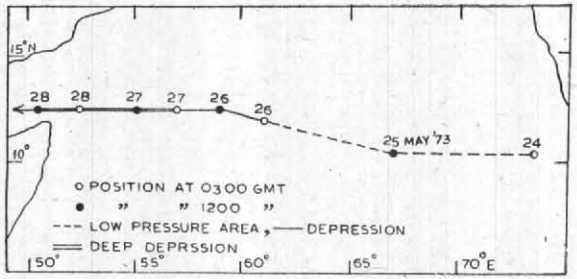

Fig. 1. Track of depression in Arabian Sea during 26–28 May 1973

Sea along off Kerala-Karnataka coasts on the 23rd. With the temporary advancement of the southern hemisphere air the trough developed into a well marked low pressure area by the 24th evening. It rapidly moved westwards and concentrated into a depression on the 26th morning. It further intensified into a deep depression by the 27th morning and was centred near 12·5°N, 56·5°E. Moving westwards it weakened into a low pressure area over the Gulf of Aden on the 29h morning. The track of the disturbance is given in Fig. 1.

3. Taking data along 65°E and 55°E over a period of 6 days to discuss the structure of the ITCZ would not appear justified, particularly when the westward moving disturbance mentioned above was present. Godbole and Ghosh have stated

that the ITCZ extended upto 300 mb. In this connection it may be mentioned that even in July, when active monsoon conditions prevail, the depth of the westerly current over the east Arabian Sea does not extend beyond 400 mb level, the depth being still lower over the west Arabian Sea. Easterlies are normally found at 500 and 300 mb level even at the equator. During 1973, the monsoon had established over the Kerala coast only after 3rd June, the extension during the last week of May was purely temporary and had receded immediately after the system moved westwards. Thus the extension of the ITCZ upto 300 mb in the last week of May, even to a higher level than in July, when the monsoon is fully established, was only due to the presence of the disturbance.

4. They have also found that the equatorial westerlies are drier than the westerlies to their north and to the south of the ITCZ or the easterlies to the south of the southern hemisphere equatorial trough and on this basis they have concluded that the moisture to the north of the equatorial westerlies does not come from the southern hemisphere, atleast, not directly from across the southern hemisphere trough and its source lies in the equatorial westerlies in the northern hemisphere being due to either evaporation from the ocean or advection from west of longitude 55°E or both. The ships observations during MONEX 1973 period near 45°E just to the south of the equator, showed very high humidity (more than 80 per cent) in the middle and upper troposphere (Desai *et al.* 1976). As such the westerlies to the north of about 5°N, which are in continuation of the southerlies crossing equator would also have high humidity, although the air which crosses the equator will pick up some moisture from the sea surface while moving northeastwards over warmer latitudes in the Arabian Sea. ITCZ by definition is the covergence zone between the airmasses from the southern and northern hemispheres and if one is to accept Godbole and Ghosh's argument that the moist westerlies have their origin in the northern hemisphere itself one cannot describe the boundary between such westerlies and the easterlies as ITCZ. Thus the conclusions of Godbole and Ghosh on the structure of the ITCZ during the last week of May are only with reference to the westward moving disturbance and as such cannot be generalised. Their conclusions on the origin of equatorial westeries and its role on monsoon activity are also not acceptable.

5. I wish to express my sincere gratitude to Dr. B. N. Desai for his valuable suggestions.

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