

PICTURE OF THE MONTH

Twin Tropical Disturbances over the Indian Ocean

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The value of environmental satellites for the surveillance of tropical disturbances over the data-sparse regions of the ocean is well documented. Studies by Hubert and Timchalk (1969), Dvorak (1973, 1975) and Fett and Brand (1975) demonstrated the utility of satellite images for estimating the intensity, central pressure and winds in tropical storms. Results of these studies are used extensively by several National Meteorological Services.

This short note discusses twin tropical disturbances over the Indian Ocean that were observed by the TIROS N satellite on 5 May 1979. Kuettner

and Soules (1967) have shown similar twin vortices over the Indian Ocean. They suggested that the vortices may be associated with downstream upper level divergence created by easterly flow over the high-mountain barrier of Sumatra.

Cox and Jager (1969) disagreed with the hypothesis of Kuettner and Soules. They showed well-organized twin tropical storms in the western Pacific and east of the Indonesian Islands.

The twin tropical disturbances shown in the TIROS N visible image (Fig. 1) are west of Sumatra (one at 8°N, 88°E, the other at 5°S, 80°E). The

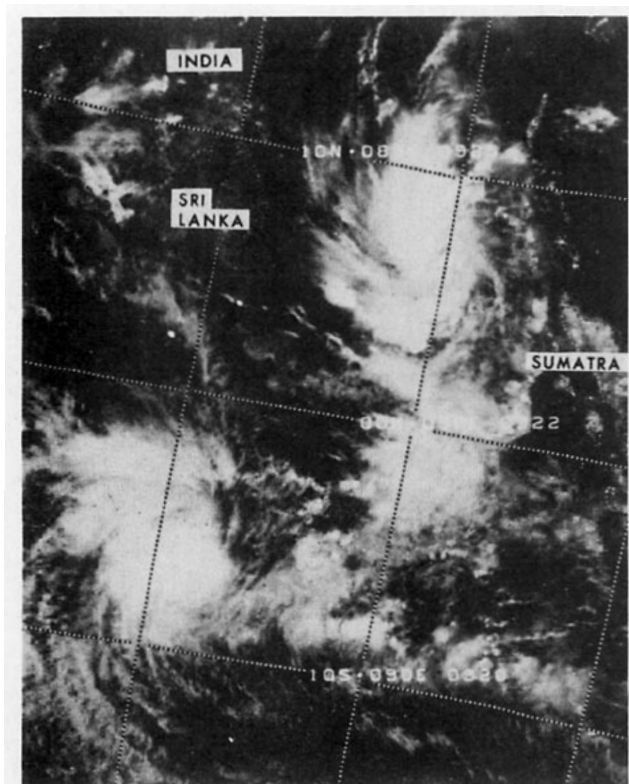


FIG. 1. TIROS N visible image, 5 May 1979.

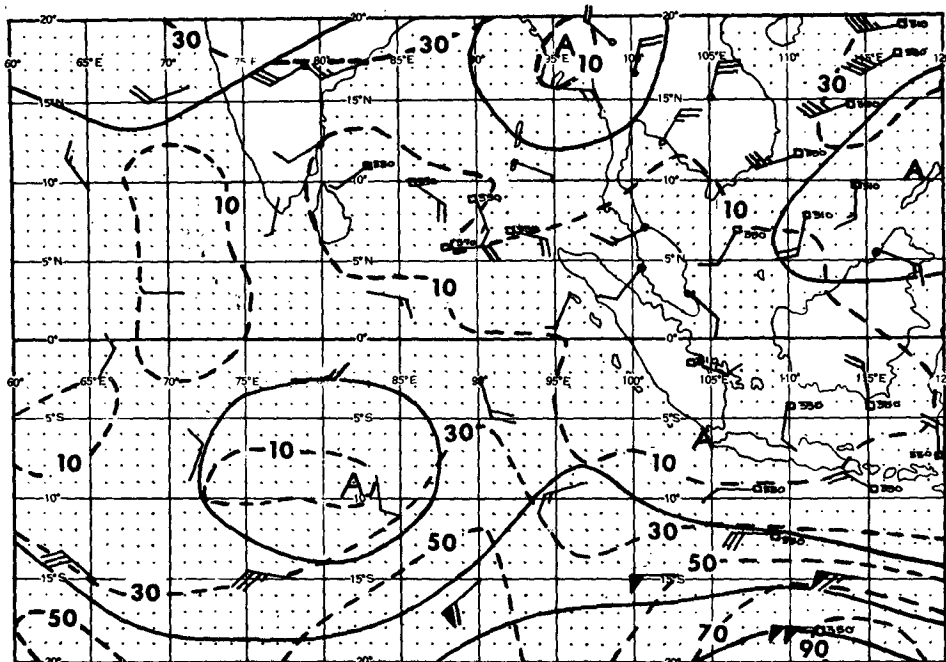


FIG. 2. 250 mb tropical wind analysis, 1200 GMT 5 May 1979.

boundaries of Sumatra, Sri Lanka and the South Indian Peninsula are visible in the image. The disturbance in the Northern Hemisphere appears more organized than the one in the Southern Hemisphere. Using Dvorak's technique, the satellite operations division estimated the central pressure at 1003 mb and the winds at 15 m s^{-1} for the northern vortex.

The corresponding upper air flow at 250 mb at 1200 GMT 5 May 1979 over the region is shown in Fig. 2. There are two upper level anticyclones, one north and the other south of the equator. The disturbances displayed in Fig. 1 are below the region of upper level divergence associated with the anticyclones. The disturbance located north of the equator developed into a tropical cyclone and crossed the east coast of India on 12 May 1979. The southern vortex dissipated over the Indian Ocean.

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