

TROPICAL DEPRESSION 01
BEST TRACK TC-01
20 MAR-24 MAR 1980
MAX SFC WIND 30 KTS
MINIMUM SLP 1000 MBS

LEGEND

- 06 HOUR BEST TRACK POSIT
- A SPEED OF MOVEMENT
- B INTENSITY
- C POSITION AT XX/0000Z
- ... TROPICAL DISTURBANCE
- ... TROPICAL DEPRESSION
- TROPICAL STORM
- TYPHOON
- ◆ SUPER TYPHOON START
- ◇ SUPER TYPHOON END
- ◇◇ EXTRATROPICAL
- ◇◇◇ DISSIPATING STAGE
- ★ FIRST WARNING ISSUED
- ★ LAST WARNING ISSUED

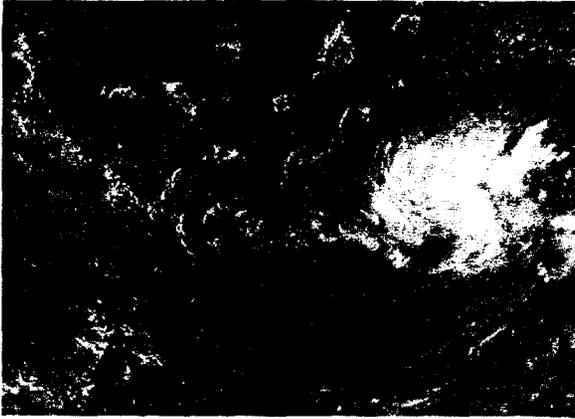


FIGURE 3-01-1. TD 01 at 15-20 kt (8-10 m/sec) intensity about 500 nm (926 km) south-southwest of Guam, 18 March 1980, 0120Z. (DMSF imagery)

TD 01 was first detected as an area of increased convective activity about 500 nm (926 km) south-southeast of Guam on 16 March. During the early part of the year, intense convective activity is usually located south of the equator. March is the start of the transition period when the equatorial trough begins to migrate slowly northward. During this period, the equatorial trough can occasionally extend into the Northern Hemisphere. This extension, however, is normally short-lived because the southwest monsoon has yet to become fully established. Post-analysis indicates that TD 01 developed from a temporary extension of the equatorial trough into the Northern Hemisphere.

The first aircraft reconnaissance mission into TD 01 on the morning of 18 March reported 15-20 kt (8-10 m/sec) surface winds, primarily in the northern semicircle, and a minimum sea-level pressure of 1005 mb. Based on this information and satellite imagery which showed improved upper-level outflow in the southeast quadrant (Fig. 3-01-1), a Tropical Cyclone Formation Alert (TCFA) was issued at 180300Z.

The tropical disturbance was monitored closely for the next 48 hours. The first reconnaissance mission also reported a 60 nm (111 km) displacement between the surface center and the 1500 ft (457 m) center. Subsequent missions discovered a similar displacement between the surface and 700 mb centers. This was consistent with the synoptic data which showed that strong mid- to upper-level southeasterlies were causing TD 01 to tilt with height toward the northwest.

By the 20th, surface winds in the southern semicircle had increased to 20 kt (10 m/sec), while 30 kt (15 m/sec) winds were observed in the northern semicircle. The circulation was better defined on satellite imagery, and the MSLP had decreased to 1000.7 mb. Continued development was expected and the first warning on TD 01 was issued at 200600Z.

Taking into consideration the strong vertical wind shear and the fact that March is historically a month of minimum typhoon development, TD 01 was never forecast to reach more than minimal tropical storm strength of 40 kt (21 m/sec).

From 20 through 24 March, TD 01 followed a climatological west-northwest track toward Luzon, occasionally showing speed changes as it responded to a series of mid-level short-wave troughs moving eastward across the Pacific from the Asian mainland.

As TD 01 approached southeastern Luzon, it began to interact both with a shear line extending toward it from the northeast and a building high pressure ridge between Taiwan and Luzon (Fig. 3-01-2). The net result was a flare-up in the convective activity and an increase in surface wind speed north of the surface center. Although two land stations reported 40 kt (21 m/sec) winds during landfall on Luzon, the sea-level pressures were not observed below 1007 mb. Considering the effects of topography, 30 kt (15 m/sec) appears to be the best estimate of TD 01's intensity at that time. Figure 3-01-2 shows that northeasterly winds of 25-40 kt (13-21 m/sec) were present north of TD 01 to the vicinity of Taiwan. These strong winds were being enhanced by TD 01, but were more the result of the building high pressure ridge off the Asian mainland. Therefore, an extratropical wind warning was issued for the area by NAVOCEANCOMCEN Guam.

After making landfall, TD 01 tracked slowly westward south of Manila into the South China Sea. A TCFA was issued for the remnants of TD 01 at 260615Z when improved organization of the cloud pattern (Fig. 3-01-3) suggested that regeneration might occur. The disturbance was watched for three more days, but ship reports showed nothing more than a weak wave in the east-northeasterly flow, and the system dissipated rapidly after moving ashore on the Vietnam coast near Ho Chi Minh City.

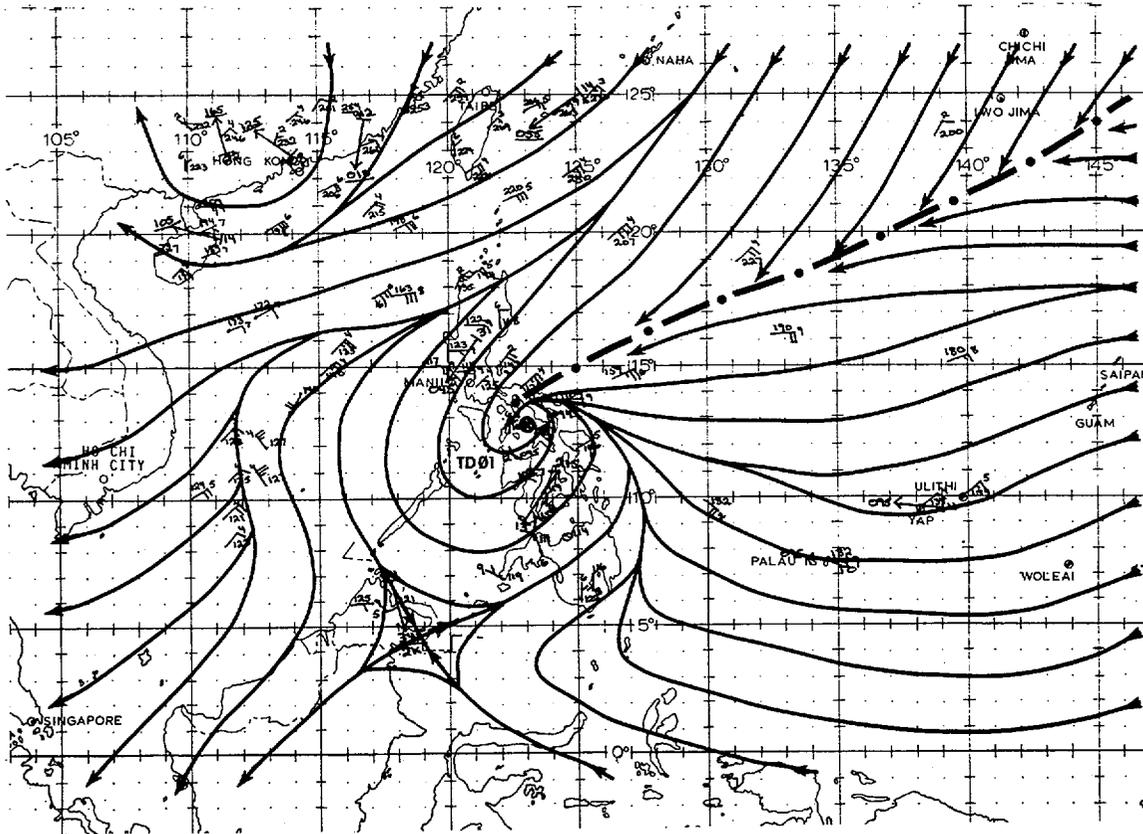


FIGURE 3-01-2. The 240000Z March 1980 surface (---) / gradient-level (ddd ← ff) wind data and streamline analysis. Wind speeds are in knots.

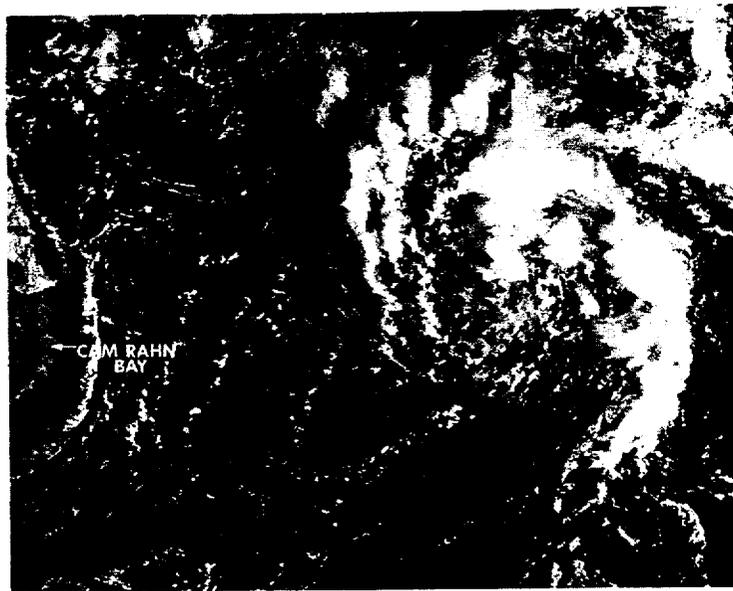


FIGURE 3-01-3. The remnants of TD 01 in the South China Sea showing signs of regeneration, 26 March 1980, 0206Z. (DMSP imagery)