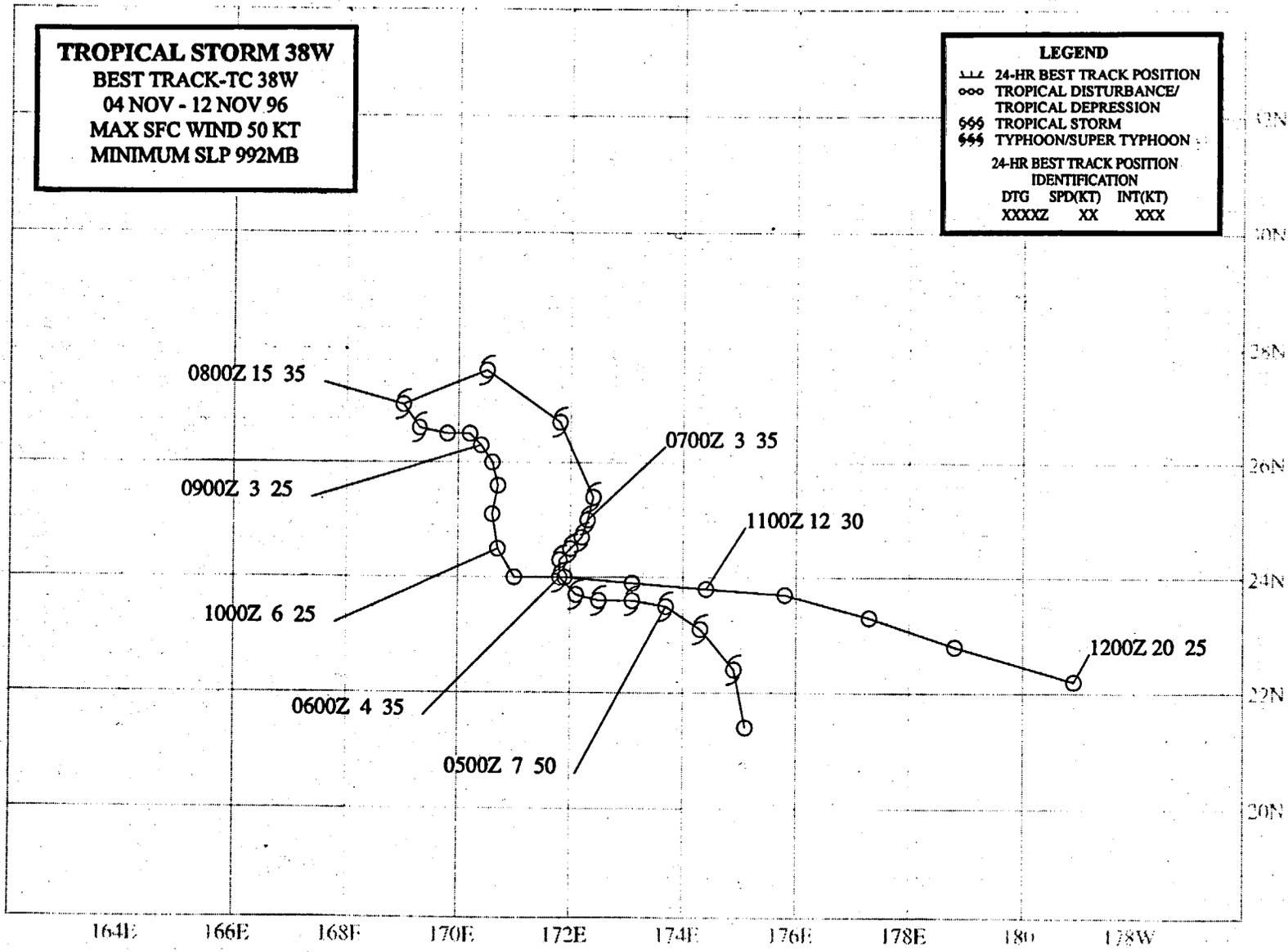


TROPICAL STORM 38W
BEST TRACK-TC 38W
04 NOV - 12 NOV 96
MAX SFC WIND 50 KT
MINIMUM SLP 992MB

LEGEND
 --- 24-HR BEST TRACK POSITION
 ooo TROPICAL DISTURBANCE/
 TROPICAL DEPRESSION
 666 TROPICAL STORM
 666 TYPHOON/SUPER TYPHOON
 24-HR BEST TRACK POSITION
 IDENTIFICATION
 DTG SPD(KT) INT(KT)
 XXXXZ XX XXX



TROPICAL STORM 38W

I. HIGHLIGHTS

Tropical Storm (TS) 38W was the third unnamed WNP TC of 1996 which was considered in real time to have only been a tropical depression, but was determined in postanalysis to have reached tropical storm intensity. TS 38W was unusual in that it developed in association with a very late-in-the-year TUTT cell. During its 8-day life, TS 38W traced a highly erratic 1500 nm (2800 km) track, but it ultimately dissipated only 180 nm (335 km) from where it was first detected.

II. TRACK AND INTENSITY

While Dale (36W) and Ernie (37W) were developing east of the Philippines on 04 November, the tropical disturbance which became TS 38W was first detected as a circulation which formed in direct association with an unusually late-in-the-year TUTT cell. This disturbance was first mentioned on the 040600Z November Significant Tropical Weather Advisory. As cloud organization continued to improve, a TCFA was issued valid at 050600Z. The first warning on Tropical Depression 38W, valid at 060600Z, was prompted by the detection on the ERS-2 scatterometry data of 30-kt (15-m/sec) winds in association with a well-defined LLCC (Figure 3-38-1). In postanalysis, a reassessment of ship, microwave, scatterometer, and conventional visible and infrared satellite data revealed the need to upgrade the peak intensity of the tropical depression to an unnamed tropical storm (see the Discussion). The final warning was issued, valid at 080600Z, when all the deep convection sheared away to the northeast leaving the LLCC completely exposed.

Tropical Storm 38W exhibited a highly erratic track during its life over open water at relatively high latitude near the international date line. The erratic motion featured initial northwestward motion, followed by a counterclockwise loop, and finally (as the system dissipated) a two day period of eastward motion. The end result of the erratic motion was 1500 nm (2800 km) of total distance covered, but an end point only 180 nm (335 km) removed from the place of origin.

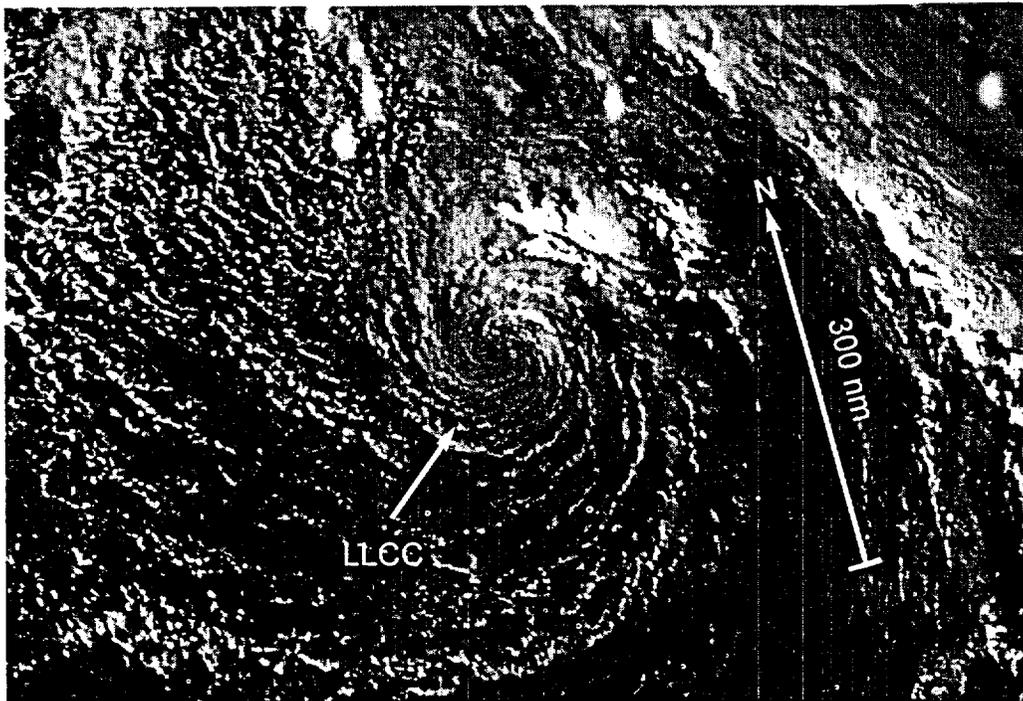


Figure 3-38-1
Tightly wound low-level cloud lines describe the well defined LLCC of TS 38W (060426Z November visible GMS imagery).

III. DISCUSSION

Postanalysis upgrade from tropical depression to tropical storm

Because of an unconventional structure for a TC (a large well-defined LLCC with most of the deep convection displaced a few hundred kilometers to the northeast — a structure common to many TUTT cell-related TCs, and also to subtropical cyclones) (Figure 3-38-1), the real-time satellite intensity estimates for TS 38W were only 25-30 kt (12-15 m/sec). A ship report at 050000Z with a pressure of 997 mb and a 50-kt (26-m/sec) north-northwesterly wind was considered suspect in real time. In postanalysis however, scatterometer data, microwave and visible satellite imagery were reassessed and judged to be supportive of an upgrade of TD 38W to a tropical storm. At 041200Z and 081200Z, ERS-2 scatterometer data showed a maximum wind speed of 35 kt (18 m/sec) near the LLCC of the system. The SSM/I at 050700Z (Figure 3-38-2) and visible satellite data at 060426Z (Figure 3-38-1) both confirmed that the TC possessed a very well organized and tightly wound LLCC that made plausible the 50-kt (26-m/sec) ship report. Additional features on the satellite imagery, including the "herringbone" pattern of the low-level cumulus extending outward from the LLCC on the northern semicircle indicated near-gale force winds in that area, also supported an increased intensity estimate. Hence TD 38W became TS 38W in postanalysis — the third such occurrence during 1996. Use of new satellite technologies (e.g., scatterometry and microwave imagery) and new understanding of TC structure have made such upgrades more common than in the past. The hope is to refine satellite applications to the point where more accurate assessments can be made in real time.

IV. IMPACT

No reports of damage or injuries were received at the JTWC.



Figure 3-38-2 A mosaic of successive passes of 85-GHz horizontally polarized microwave imager data showing the circulations of Dale (36W) and TS 38W. Note the tight wrap of the low and middle cloud associated with TS 38W (Mosaics of 85-GHz horizontally polarized microwave DMSP imagery - the easternmost pass over TS 38W was dated 050715Z November).