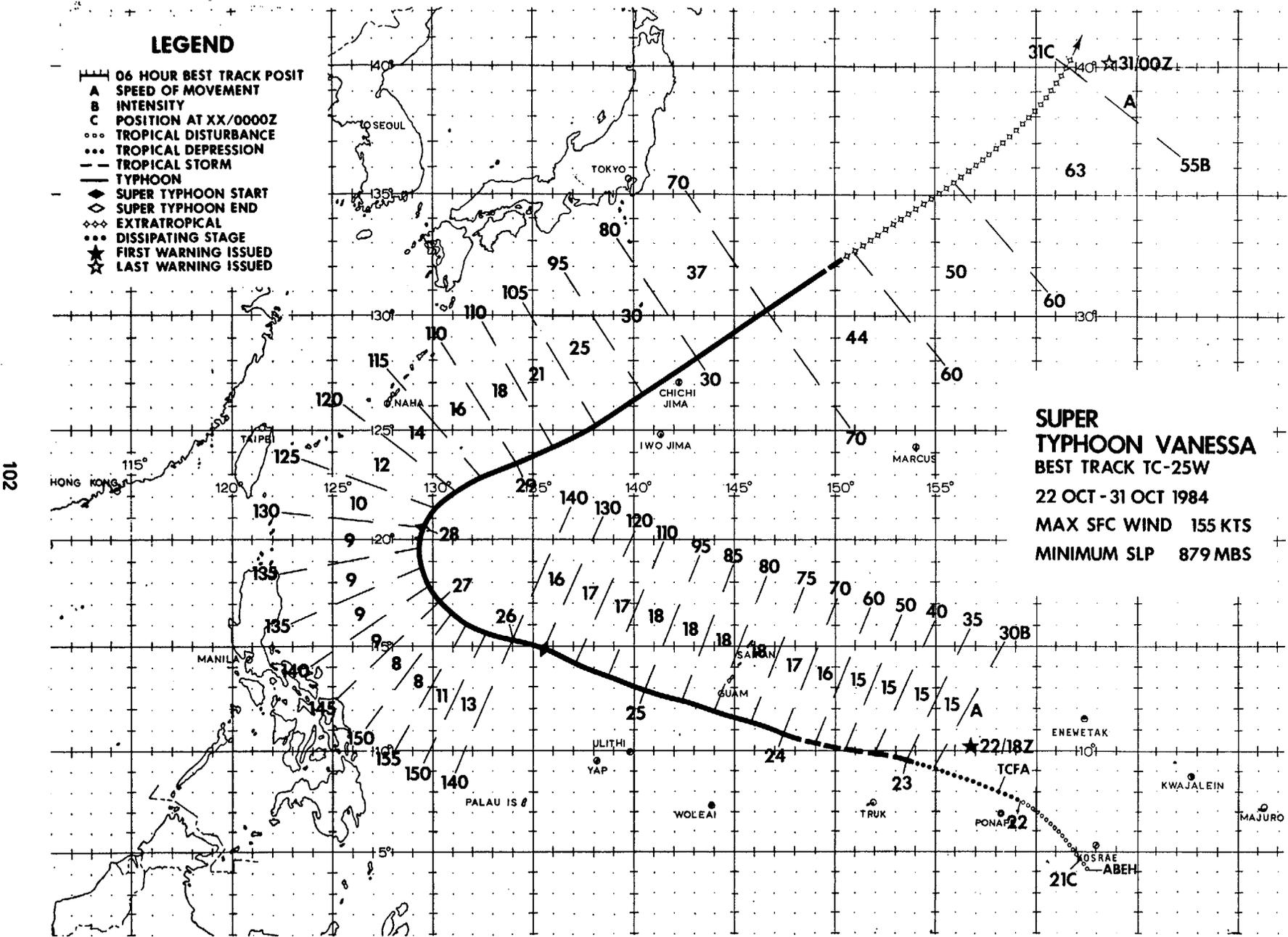


**LEGEND**

- 06 HOUR BEST TRACK POSIT
- ▲ SPEED OF MOVEMENT
- INTENSITY
- 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



**SUPER TYPHOON VANESSA**  
**BEST TRACK TC-25W**  
**22 OCT - 31 OCT 1984**  
**MAX SFC WIND 155 KTS**  
**MINIMUM SLP 879 MBS**

SUPER TYPHOON VANESSA (25W)

Super Typhoon Vanessa, the first super typhoon of the 1984 season, also developed into the most intense storm of the year. At peak intensity Vanessa had an MSLP of 879 mb, only 9 mb above the record 870 mb observed in Super Typhoon Tip (1979). Except for a brief period when the storm brushed Guam, Vanessa remained clear of land and generally posed a threat only to shipping.

Super Typhoon Vanessa originated in the Near Equatorial Trough southeast of Ponape (WMO 91348) three days after Typhoon Thad formed some 700 nm (1296 km) further to the west. The disturbance was initially detected on 20 October as an area of convection near 4N 163E. Its rapid development resulted in the Significant Tropical Weather Advisory (ABEH PGTW) being reissued at 201900Z to include this area of convection as a suspect disturbance.

During the 21st and into the 22nd, the area of convection slowly increased in organization as the disturbance moved northwest to just north of Ponape. The persistent improvement in organization during this period resulted in the issuance of a TCFA at 220500Z. Sparse synoptic data at the time of the TCFA was only able to confirm the presence of a 10 to 15 kt (5 to 8 m/s) surface circulation. By now an upper-level anticyclone had developed, providing good outflow to all but the northwest quadrant which was still feeling some effects from the outflow of Typhoon Thad. The first warning on Vanessa was issued at 221800Z when analysis of satellite imagery resulted in an estimate that the disturbance now supported surface winds of 35 kt (18 m/s).

From beginning to end, Vanessa followed a very climatological track becoming one of the "great-recurver" storms of 1984. From the time it attained depression strength until it began to recurve, it moved almost due west-northwest. After recurving south of Okinawa, Vanessa underwent a complex transition into an extratropical low east of Japan.

Vanessa's intensity came very close to equalling the records established by Super Typhoon Tip in 1979. Figure 3-25-1 shows the MSLP versus time for Vanessa as obtained by reconnaissance aircraft. The pressure dropped 100 mb in a 48 hour period to reach a minimum of 879 mb at 261114Z. This is only 9 mb higher than the 870 mb recorded in Tip. (These pressures convert to 155 kt (80 m/s) and approximately 165 kt (85 m/s) for Vanessa and Tip, respectively, using the Atkinson and Holliday (1977) pressure-wind relationship).

The initial warning forecast Vanessa to move west-northwest and pass over Guam within 48 hours as a 65 kt (33 m/s) typhoon. The accuracy of the first forecasts gave the military and civilian communities on Guam sufficient time to properly prepare. Consequently there was little structural damage on the island and no personal injuries when Vanessa did approach as an 80 kt (41 m/s) typhoon. Vanessa's closest point of approach to Guam was 90 nm (167 km) to the south-southwest at 241100Z. Sustained winds above 30 kt (15 m/s) were recorded at numerous locations on the island with a peak gust of 59 kt (30 m/s) recorded at the Naval Oceanography Command Center (NAVOCEANCOMCEN) building on Nimitz Hill.

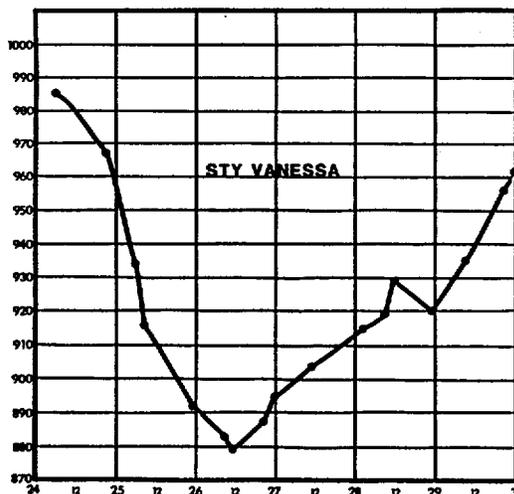


Figure 3-25-1. Time cross-section of Vanessa's minimum sea-level pressure as measured by reconnaissance aircraft. The pressure dropped 100 mb in a 48 hour period reaching a low of 879 mb at 261114Z. This is only 9 mb higher than the record 870 mb observed in Super Typhoon Tip in 1979.

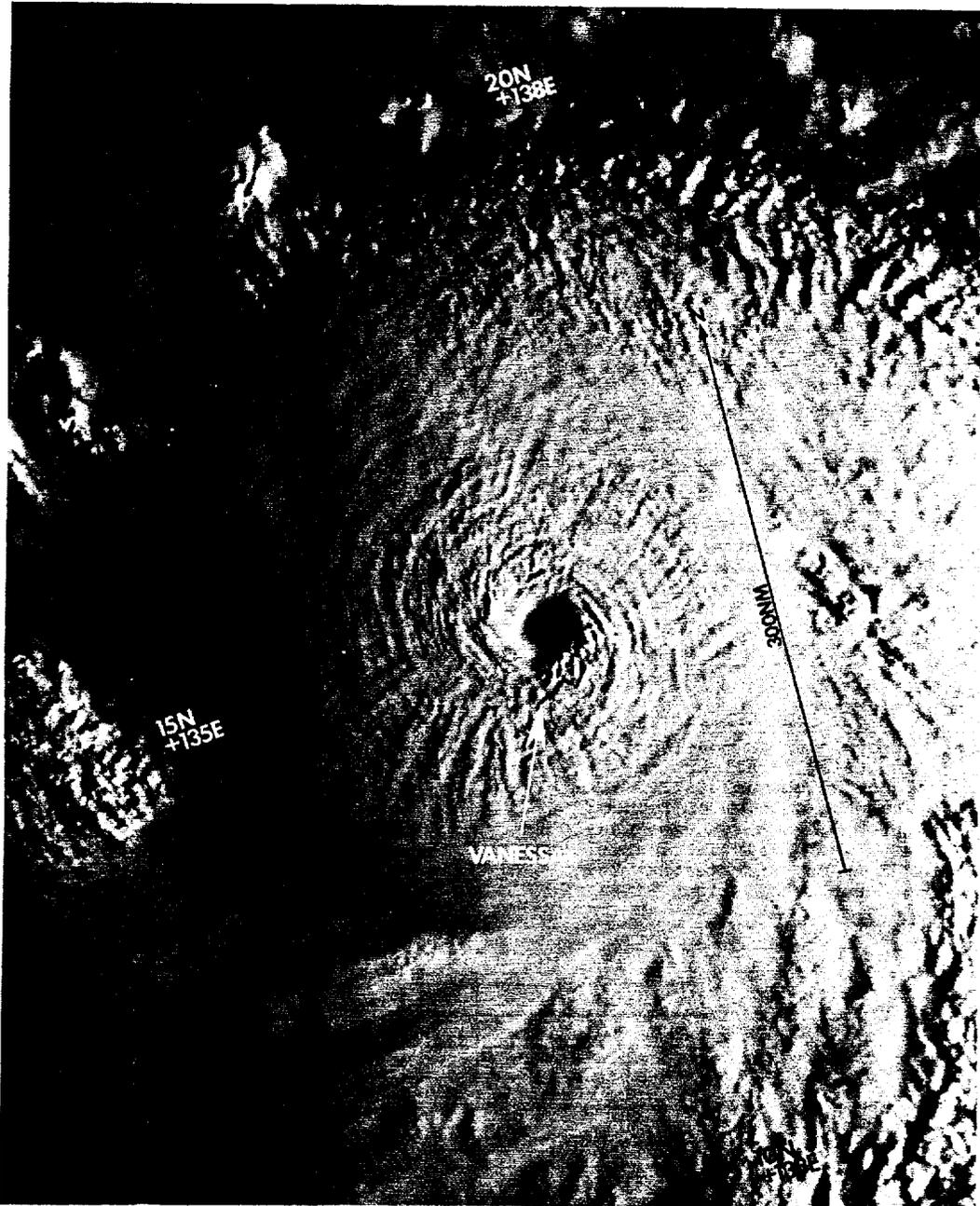


Figure 3-25-2. Super Typhoon Vanessa near maximum intensity (252233Z October NOAA visual imagery).

The only significant damage on Guam occurred to vegetation. An estimated 1.7 million dollars worth of crops were lost, principally bananas. Flooding was also reported in the southern coastal areas of the island.

Vanessa continued to intensify and move west-northwest after it passed south of Guam. The dominant synoptic feature was the subtropical ridge north of Vanessa which redeveloped in the wake of Typhoon Thad. Vanessa moved along the southern side of the ridge for nearly five days before recurving. It was just prior to recurvature, at 261200Z that a peak intensity of 155 kt (80 m/s) was attained (Figure 3-25-2). The ARWO flying the 261114Z fix mission that observed the 879 mb MSLP, described the 10 nm (19 km) circular eye as exhibiting a "fishbowl effect" with the convection in the eyewall spiralling vertically to the point of resembling corkscrews. During this flight, at a 700 mb height of 2022 m, the 700 mb temperature within the eye was an exceptionally high 30°C. Vanessa remained a super typhoon from 251800Z to 280000Z.

The recurvature which eventually took place on the 27th and 28th was initially

forecast on the 250000Z warning. A frontal system over eastern China was identified as the mechanism for recurvature. Vanessa was forecast to recurve at 21N to 22N, but actually turned to the northeast at 20N as the frontal system moved slightly faster than predicted. At no point during this period was Typhoon Warren in the South China Sea considered to be a factor in Vanessa's movement since Vanessa was the dominant storm both in size and strength.

The final phase of Vanessa's life was a complex transition to an extratropical low. Interaction with the front began shortly after recurvature. The 282330Z aircraft reconnaissance mission indicated the transition was underway with strato-cumulus undercast present throughout much of the storm. Vanessa continued to weaken until the transition was complete.

Post-analysis indicates that extratropical transition was completed by 301200Z as satellite imagery showed no convection was present. Vanessa transitioned to a storm force low along the front and rapidly moved off to the northeast. The final warning was issued at 310000Z.