

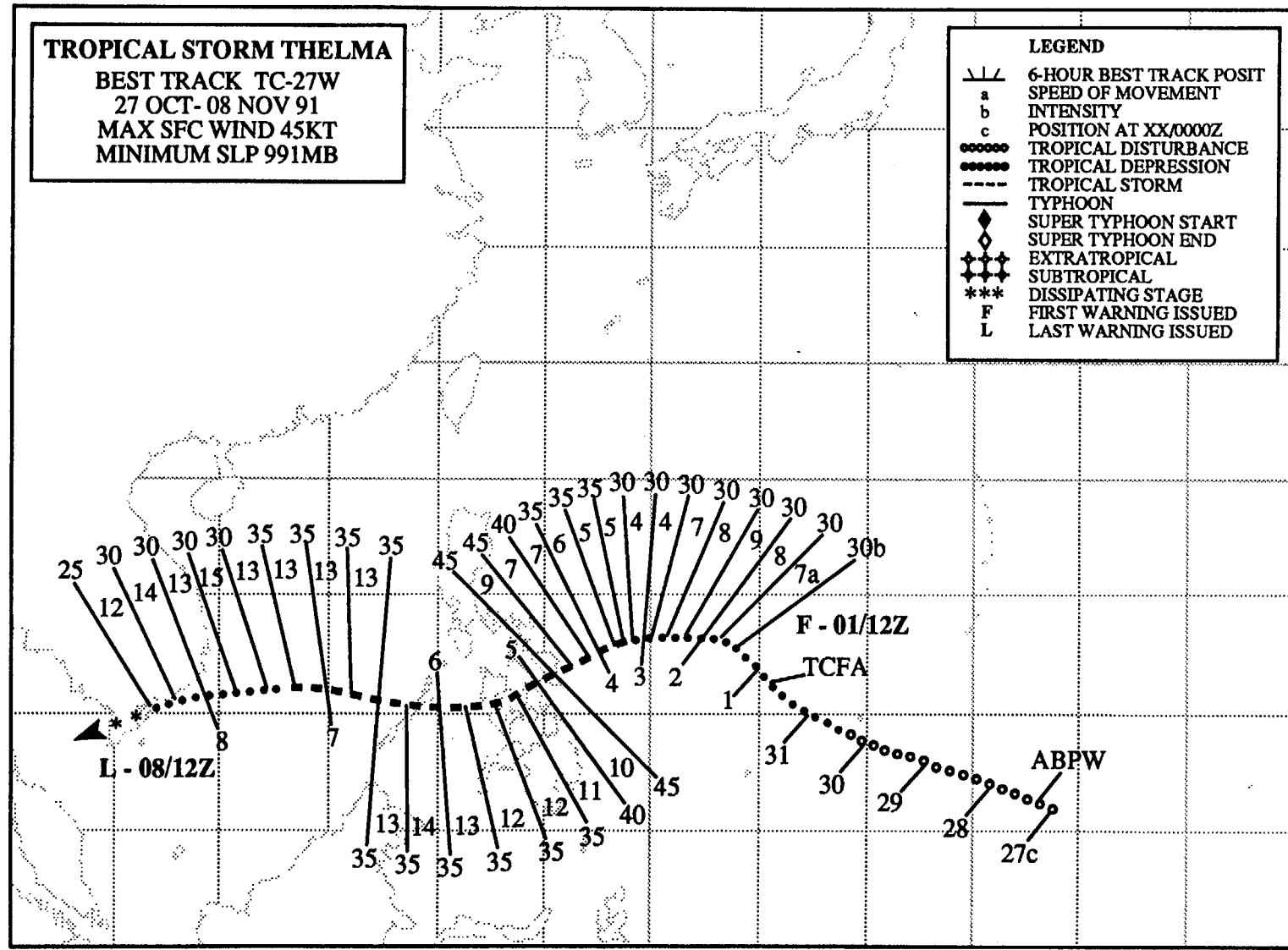
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TROPICAL STORM THELMA
BEST TRACK TC-27W
27 OCT- 08 NOV 91
MAX SFC WIND 45KT
MINIMUM SLP 991MB

LEGEND

- ∖ / ∖ 6-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
- ✧ SUBTROPICAL
- *** DISSIPATING STAGE
- F FIRST WARNING ISSUED
- L LAST WARNING ISSUED



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TYPHOON THELMA (27W)

I. HIGHLIGHTS

The worst loss of life due to a natural disaster in the western North Pacific during 1991 occurred when Tropical Storm Thelma made landfall in the Visayan Islands of the Philippines. News accounts estimated that 6000 people died and 20,000 people were left homeless by catastrophic events resulting from the passage of the tropical storm including the failure of a dam, landslides and extensive flash flooding. The highest casualties occurred at Ormoc on Leyte Island where widespread logging in recent years had stripped the hills above the port city bare of vegetation.

II. TRACK AND INTENSITY

Thelma began as a tropical disturbance in the eastern Caroline Islands, and was first mentioned on the 270600Z October Significant Tropical Weather Advisory. After persisting for 4 days, its convection rapidly increased, the system center reorganized, and JTWC forecasters issued a Tropical Cyclone Formation Alert at 311900Z. A satellite-derived intensity estimate of 25 kt (13 m/sec) prompted issuance of the first warning at 011200Z November. A week after being first detected, Thelma developed into a tropical storm at 031200Z, and headed west-southwestward for the Philippine island of Samar. Torrential rains dumped an estimated 6 inches (150 mm) of water in 24 hours on the central Philippines before Thelma moved into the South China Sea. The cloud system was unable to reintensify over water due to vertical wind shear (Figure 3-27-1). The final warning was issued at 081200Z as Thelma made landfall over Vietnam's Mekong River Delta.

III. FORECAST PERFORMANCE

Initial track forecasts erroneously predicted recurvature into the westerlies north of the axis of the subtropical ridge (Figure 3-27-2). Objective forecast guidance available at the time when it was most needed to support the warning was split between recurvature and non-recurvature forecasts. In retrospect, the beta advection models showed limited skill in an early prognosis of the west-southwestward motion that occurred from 2 through 6 November.

VI. IMPACT

Thelma was the major catastrophe for the Philippine Islands for 1991 in terms of lost lives, surpassing the Mount Pinatubo eruption. Approximately 6000 people died and 20,000 were left homeless.

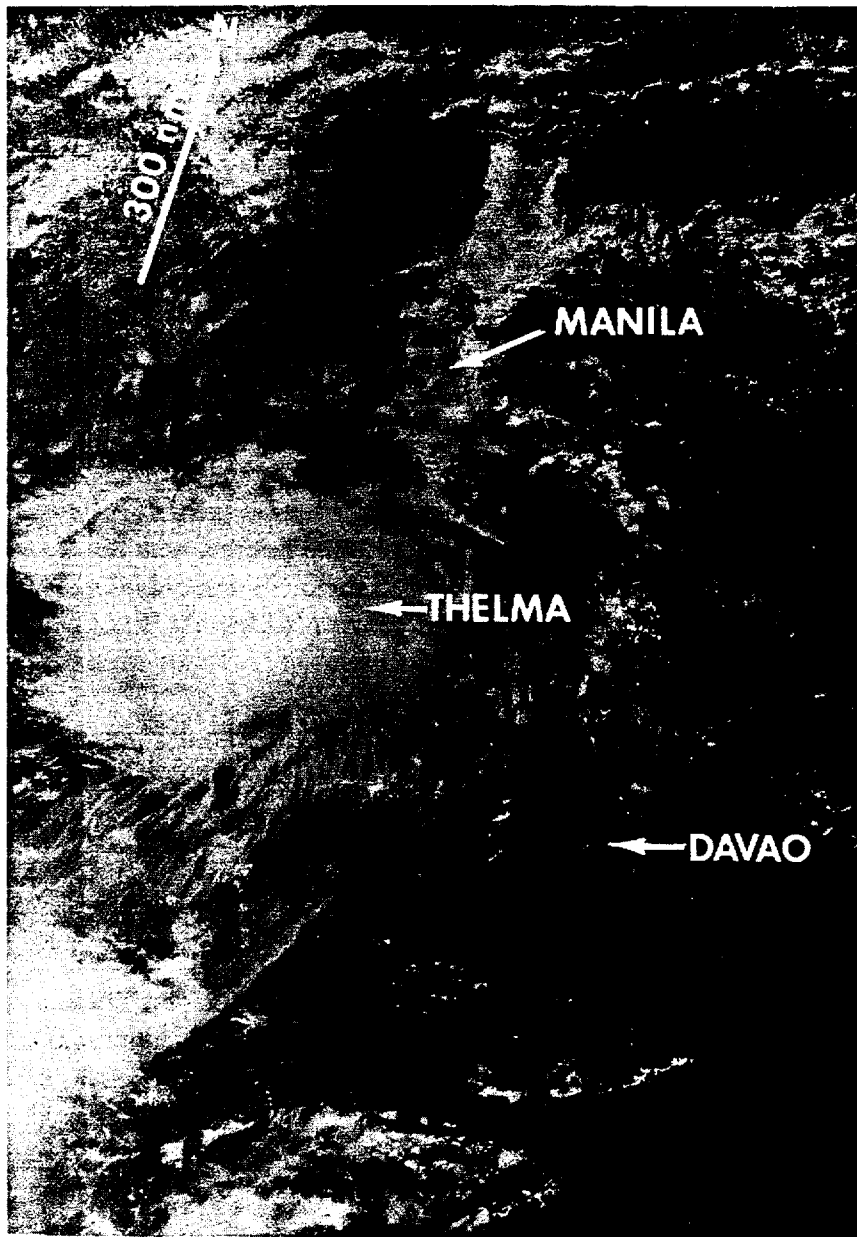


Figure 3-27-1. Thelma enters the South China Sea, but vertical wind shear prevents reintensification (060028Z November DMSP visual imagery).

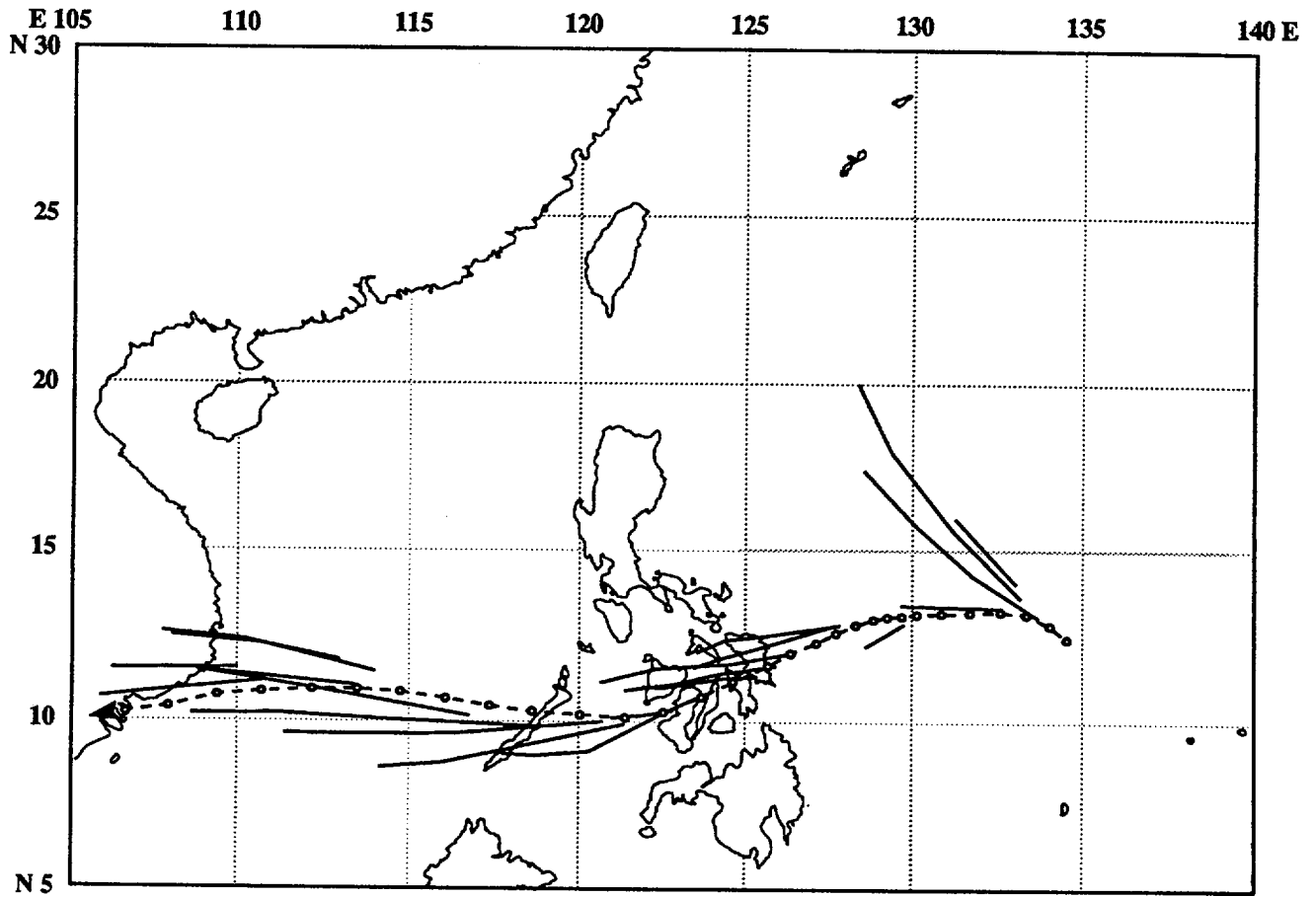


Figure 3-27-2. Comparison of the JTWC official forecasts to the final best track.