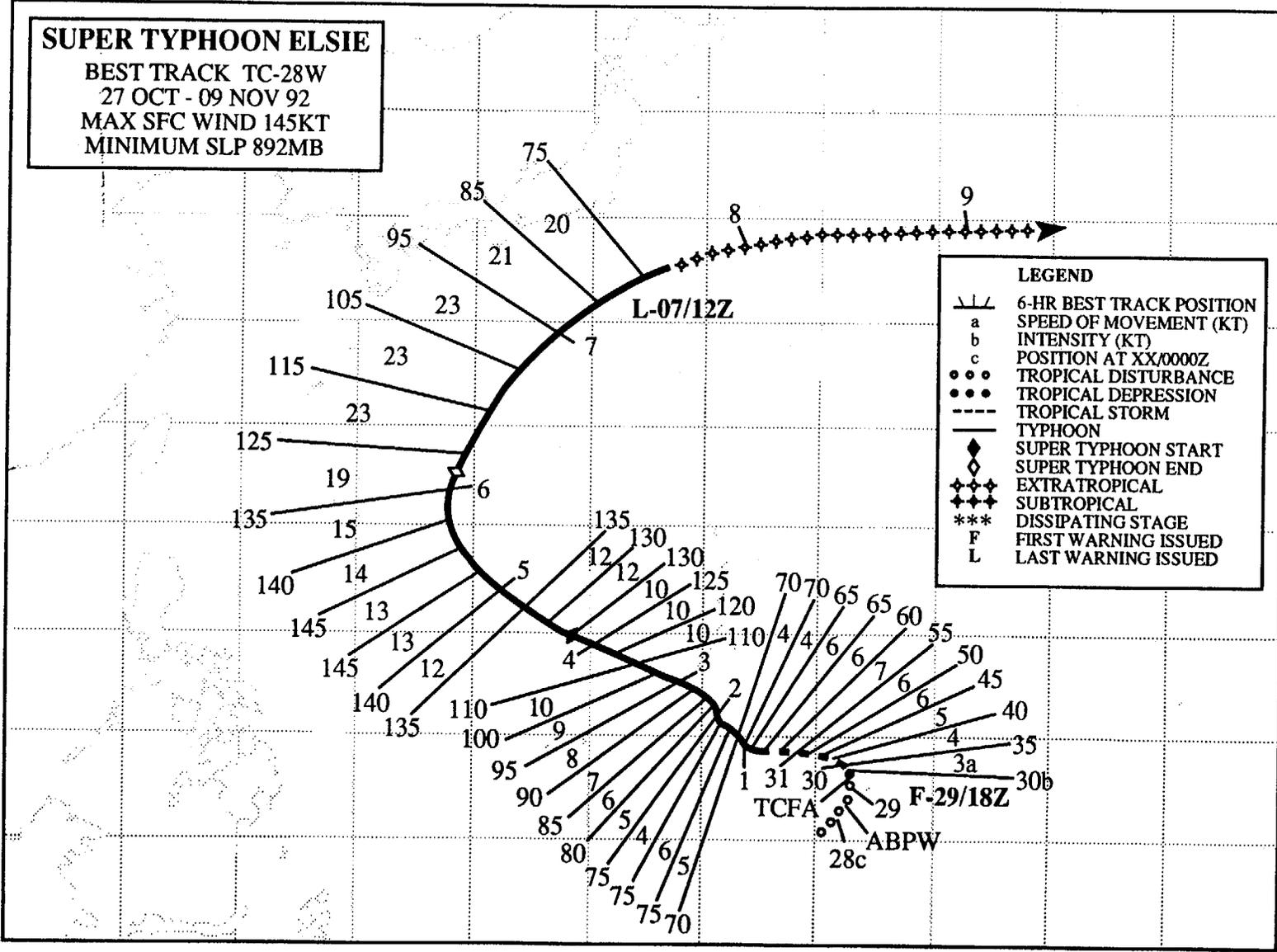


E 115 120 125 130 135 140 145 150 155 160 165 170 E
 N 45

SUPER TYPHOON ELSIE
 BEST TRACK TC-28W
 27 OCT - 09 NOV 92
 MAX SFC WIND 145KT
 MINIMUM SLP 892MB

40
35
30
25
20
15
10
5
EQ



LEGEND

- 6-HR BEST TRACK POSITION
- a SPEED OF MOVEMENT (KT)
- b INTENSITY (KT)
- 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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SUPER TYPHOON ELSIE (28W)

I. HIGHLIGHTS

The fourth super typhoon of 1992, Elsie was the third typhoon to pass within 60 nm (100 km) of Guam in less than three months. After initial movement to the northeast in response to a southwest monsoonal surge, a subsequent turn to the west, and then interaction with Typhoon Dan (27W), Elsie settled down on a track to the northwest, recurved, and transitioned into a hurricane-force extratropical low.

II. TRACK AND INTENSITY

The tropical disturbance that became Elsie formed in the monsoon trough near Chuuk in the central Caroline Islands, and was first described on the 280600Z October Significant Tropical Weather Advisory as an area of poorly organized, persistent convection. The combination of increasing deep convection near the cloud system center and falling pressure in excess of 3 mb in 24 hours at Chuuk (WMO 91344) led forecasters at JTWC to issue a Tropical Cyclone Formation Alert at 291200Z. A short time later, the appearance of deep cyclonically curved spiral convective bands around the system center prompted JTWC to issue the first warning for Tropical Depression 28W at 291800Z.

The tropical cyclone initially moved to the northeast in response to a deep southwest monsoonal surge. The northward component of this movement, plus the depression's early intensification, brought the tropical cyclone under the influence of the mid-level steering flow of the subtropical ridge to the north, causing the track to become more westward. As intensification continued at a rate of 1.25 mb/hour, JTWC upgraded Elsie to a tropical storm six hours later on the 300000Z warning, and to a typhoon at 301200Z. Meanwhile, the separation distance between Elsie and Typhoon Dan (27W) was steadily decreasing. During the period 311800Z October through 020600Z November, binary interaction between the two typhoons caused Elsie to slow, undergo erratic motion, and again take a more northward track toward the southern Mariana Islands. At the same time, the outflow from Dan (27W) was causing moderate upper-level shear from the east across Elsie's cloud shield, and retarding intensification. At its closest point of approach to Guam on 2 November, Elsie was located 55 nm (100 km) to the south-southwest of the island. Peak wind gusts to 62 kt (32 m/sec) were recorded at the Naval Air Station, Guam (WMO 91212), but recordings were not available for the southern portion of the island.

After Dan (27W) recurved, ending the binary interaction on 2 November, Elsie resumed development at a rate of 5 kt (3 m/sec) per six hours, reaching super typhoon intensity at 040600Z and a peak of 145 kt (75 m/sec) at 050600Z (Figure 3-28-1). Elsie's intensification kept Guam in gale-force winds for two days after its passage and movement away from the southern Mariana Islands. After Elsie's recurvature at 060000Z, increasing southwesterly winds aloft weakened the super typhoon to typhoon intensity at 060600Z. As Elsie was transitioning into an intense extratropical low with hurricane-force winds, the final warning was issued by JTWC at 071200Z.

III. FORECAST PERFORMANCE

Although Elsie's track is basically one of recurvature, the initial monsoon surge from the southwest, binary interaction, recurvature and the subsequent acceleration into midlatitudes proved difficult to handle. With mean track errors of 110, 250 and 340 nm (205, 465 and 630 km) for the 24-, 48- and 72-hour forecasts, respectively, JTWC's performance overall was below average and tied with CLIPER. The specific forecasting successes were accurately predicting Typhoon Dan's (27W) influ-

ence on Elsie's track change to the north and anticipating Elsie's intensification to a super typhoon. With respect to Guam, JTWC predicted that intensification would take place a little early and that the typhoon would pass 30 nm (55 km) closer than actually occurred. For Okinawa, JTWC forecasts were used to prevent the unnecessary preparations for destructive winds at DOD installations there.

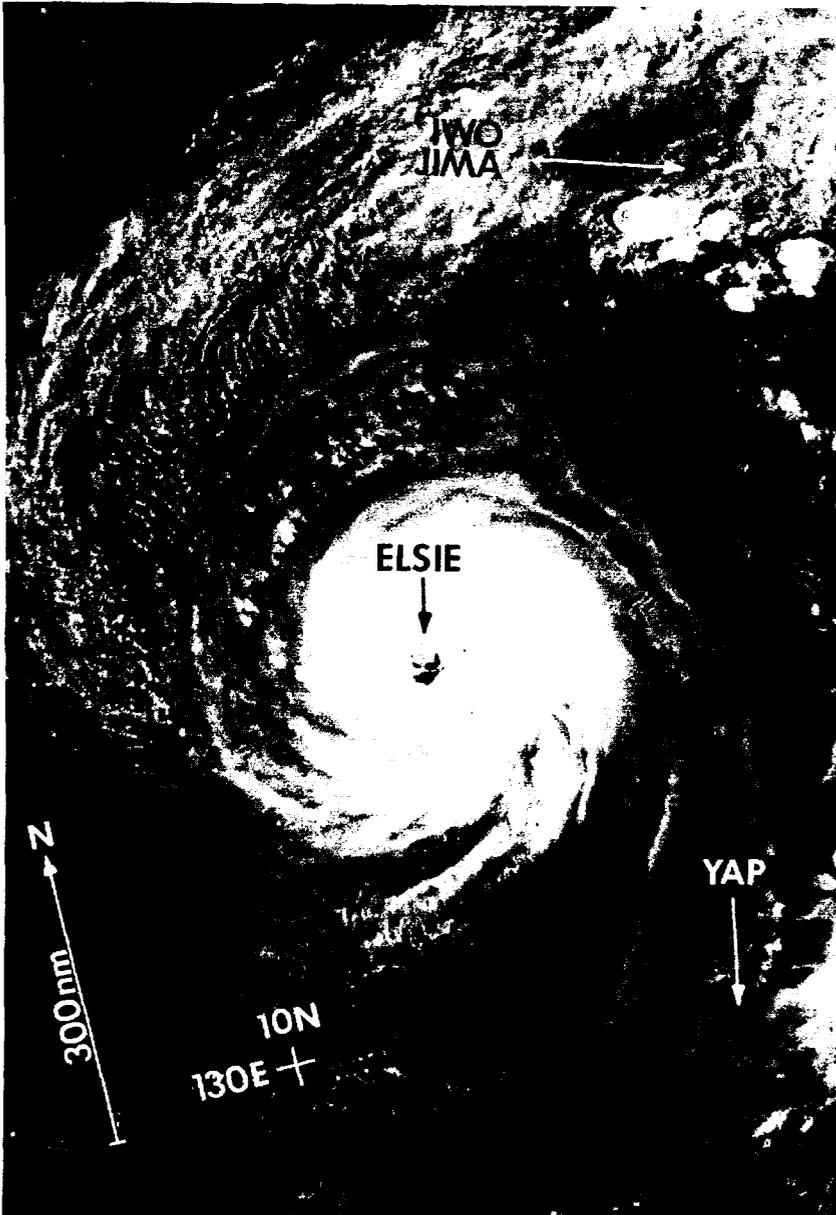


Figure 3-28-1. Elsie at super typhoon intensity in the central Philippine Sea (042342Z November DMSP visual imagery).

IV. IMPACT

On Guam, no deaths, injuries, or significant property damage occurred. As a precaution, military aircraft from the Navy's VQ-1, VQ-5 and VRC-50 squadrons were temporarily relocated from Guam to Japan, and all ships in port at Guam were sent to sea. Residents of Guam and Rota spent a day in typhoon Condition of Readiness 1, and the Guam general election had to be postponed for the first time in its history.

Later on, as Elsie moved northward in the Philippine Sea, the repositioning of some support units for the military exercise, ANNUAL-EX 92, had to be delayed.