

TYPHOON ZOLA (14W)

I. HIGHLIGHTS

In the wake of Typhoon Yancy (13W), a surge in the southwesterly monsoon flow developed and Zola formed west of Guam in the monsoon trough. The depression initially tracked northeastward with the movement of the monsoon surge and slowly intensified. Then, Zola broke away from the monsoon trough and intensified into a typhoon. The typhoon recurved over western Honshu into the Sea of Japan and accelerated to the east-northeastward.

II. CHRONOLOGY OF EVENTS

- 150600Z - First mentioned on the Significant Tropical Weather Advisory as a persistent area of convection which extended eastward from Tropical Storm Yancy (13w). The estimated minimum sea-level pressure was 1000 mb.
- 162200Z - Tropical Cyclone Formation Alert based on a transient band of convection wrapping around the low-level circulation center.
- 170600Z - First Tropical Depression Warning prompted by the persistence of deep convection associated with a surge in the monsoonal flow just to the south of the circulation center.
- 180600Z - Upgraded to a tropical storm after receipt of a ship report of 55 kt (27 m/sec) and a 998 mb sea-level pressure indicating increased periphery winds and a tightened pressure gradient to the south and east.
- 200000Z - Upgraded to typhoon based on the appearance of a 25 nm (45 km) diameter ragged eye and the first CI 4.0.
- 210600Z - Peak intensity - 100 kt (51 m/sec) - followed an increase in organization, outflow, and intensity estimate of CI 5.5.
- 221800Z - Downgraded to tropical storm due to increased vertical wind shear and the start of extratropical transition.
- 230600Z - Final warning - extratropical - issued as Zola transitioned into a mid-latitude low due to strong vertical shear associated with the mid-latitude westerlies.

III. TRACK AND MOTION

After briefly tracking eastward during its formative stages, Typhoon Zola tracked north-northeastward just west of the Northern Mariana Islands along the western side of the subtropical high to the northeast. The tropical cyclone continued to track towards the north-northeast for the next three days as a short wave trough tracked slowly eastward, north of the system. Once the shortwave passed, the subtropical high built westward and combined with a dynamic high that moved off the coast of China to Japan reestablishing the subtropical ridge over Japan (Figure 3-14-1 through Figure 3-14-3). As this happened, Zola turned sharply and started tracking northwestward around the ridge. It recurved over southern Honshu and accelerated northeastward into the Sea of Japan.

IV. INTENSITY

Starting in the monsoon trough, Zola spun up as a result of a surge in the southwest monsoon associated with Typhoon Yancy (13W). For the first several days, the tropical cyclone developed slowly, remaining a tropical depression, primarily due to vertical wind shear. As Zola continued to track northeastward, the system intensified to 55 kt (28 m/sec) as it moved into an area of upper-level divergence southeast of a Tropical Upper Tropospheric Trough (TUTT) low. However, it remained a tropical storm until breaking away from the monsoon trough (Figure 3-14-4). Once separated from the monsoon trough, Zola intensified as it developed an outflow channel to the south. Intensification continued due to enhanced outflow to the north associated with a TUTT low to the northwest. The tropical cyclone reached a peak intensity of 100 kt (51 m/sec) on 21 August (Figure 3-14-5). At

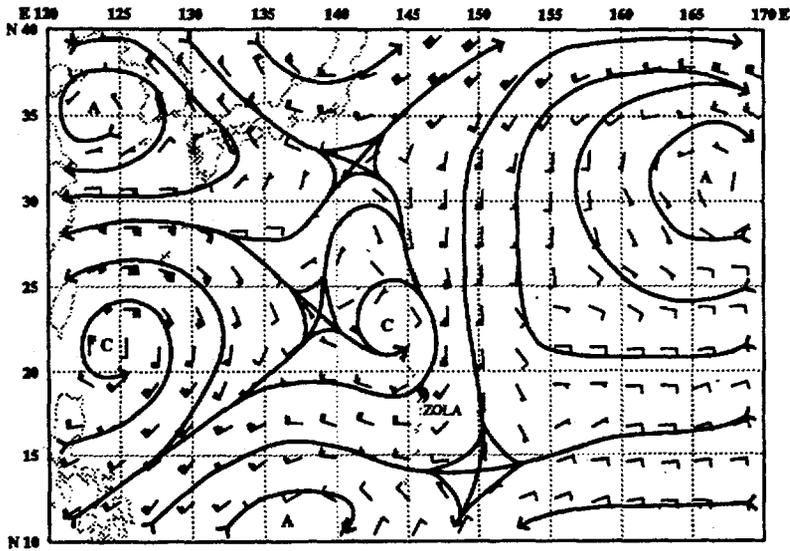


Figure 3-14-1. The 180000Z August NOGAPS deep layer mean analysis shows Zola's surface position, the subtropical high to the northeast, the mid-latitude trough to the north-northwest, and the dynamic high over the Yellow Sea. At this time, Zola was moving north-northeastward along the southwest side of the subtropical high.

Figure 3-14-2. The 190000Z August NOGAPS deep layer mean circulation analysis depicts the mid-latitude trough in a position north-northeast of Zola. The dynamic high has moved to a location over southern Japan.

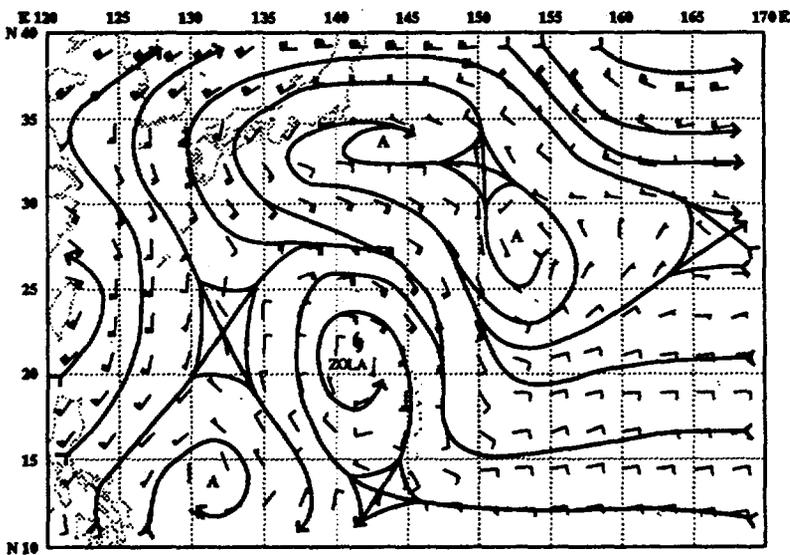
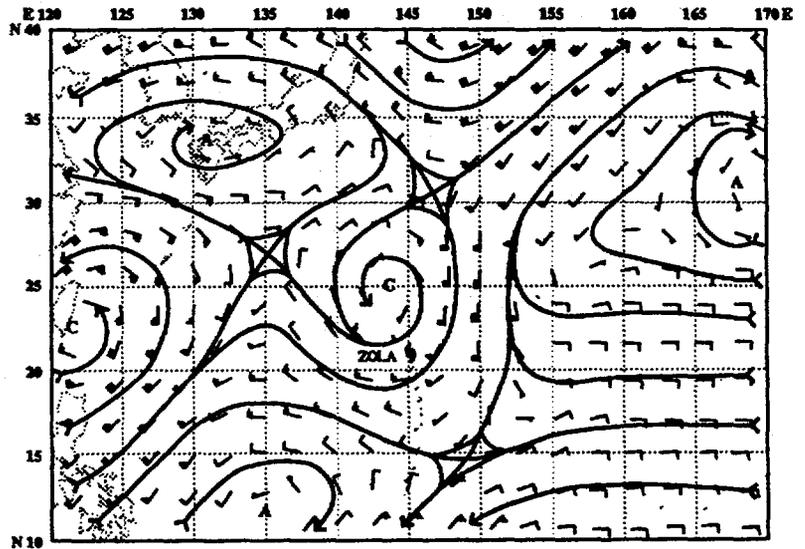


Figure 3-14-3. The 200000Z August NOGAPS deep layer mean circulation analysis shows the dynamic high and the subtropical high merging north of Zola.

211800Z, the typhoon started to weaken due to increasing vertical wind shear associated with the mid-latitude westerlies and land interaction with Japan. After recurving Zola quickly transitioned into an extratropical system.

V. FORECASTING PERFORMANCE

Overall JTWC forecast performance is shown in Figure 3-14-6. The initial warnings did not forecast Zola's sharp turn and track to the northwest. The NOGAPS prognostic series did not indicate a dynamic high moving off the coast of eastern Asia and combining with the subtropical high, reestablishing the ridge further to the west. JTWC also forecast Zola to recurve further to the east. The recurvature farther to the west may have been caused by the advection of warm, moist air from the tropics which strengthened the subtropical high to the tropical cyclone's northeast.

VI. IMPACT

No information received.

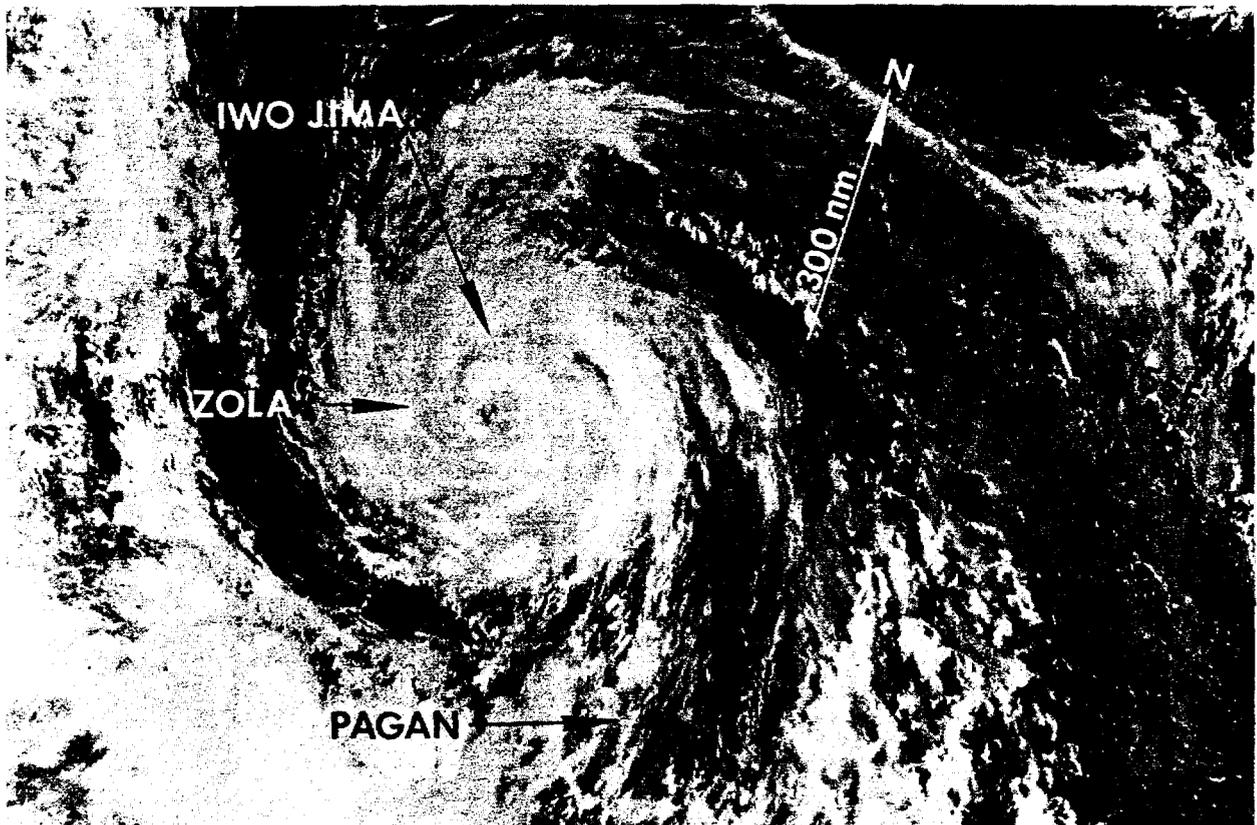


Figure 3-14-4. Zola just after breaking away from the monsoon trough. A distinct separation can be seen between Zola and the cloud mass to its south (192322Z August DMSP visual imagery).

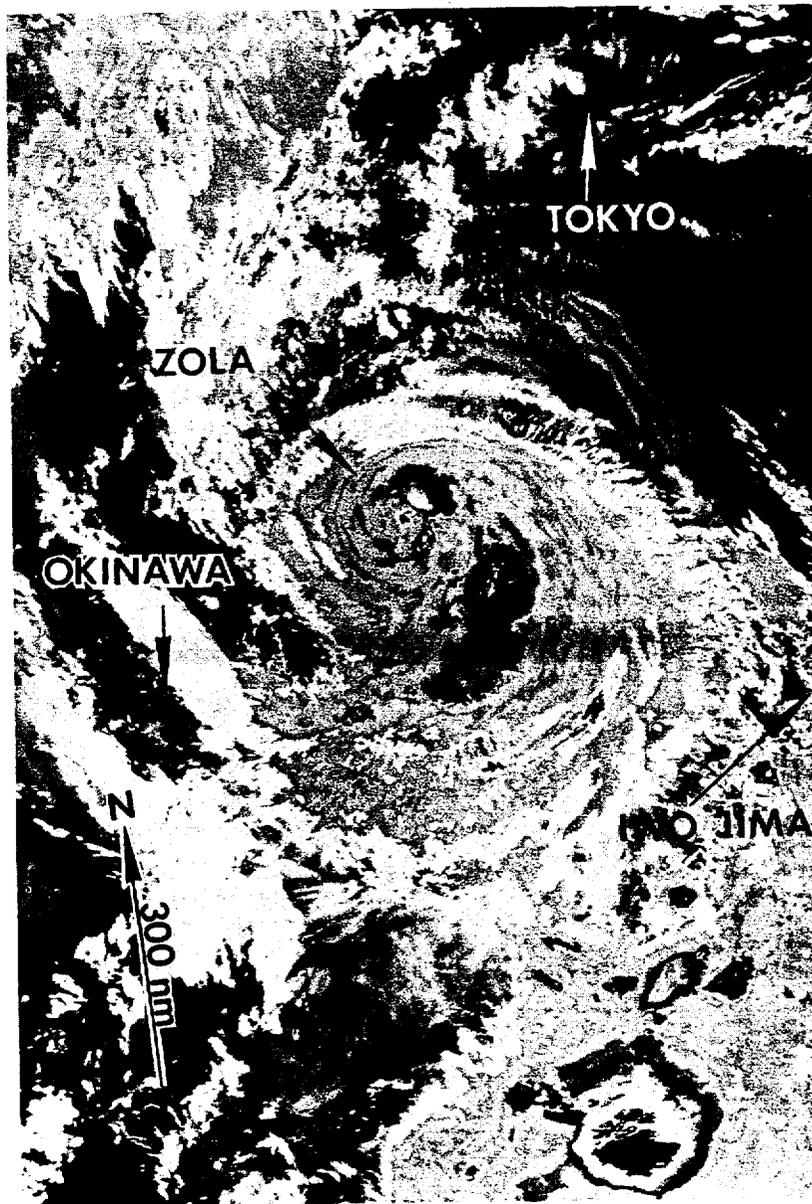


Figure 3-14-5. Zola, with a small eye and at maximum intensity, is moving northwestward towards southern Japan (210933Z August DMSP enhanced infrared imagery).

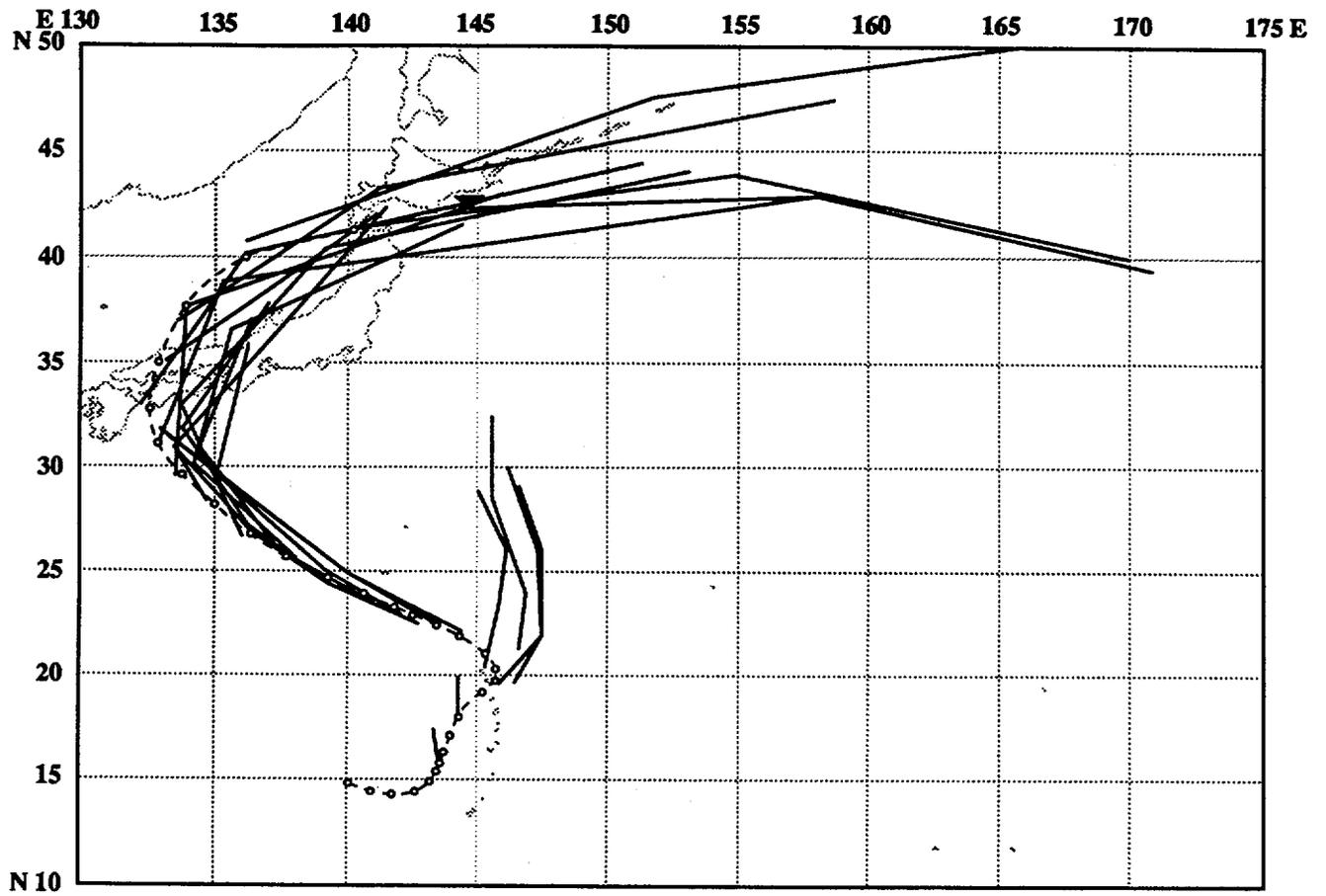


Figure 3-14-6. Summary of JTWC forecasts (solid lines) for Zola is superimposed on the final best track (dashed line).