

E 125 130 135 140 145 150 155 160 165 170 E

N 50

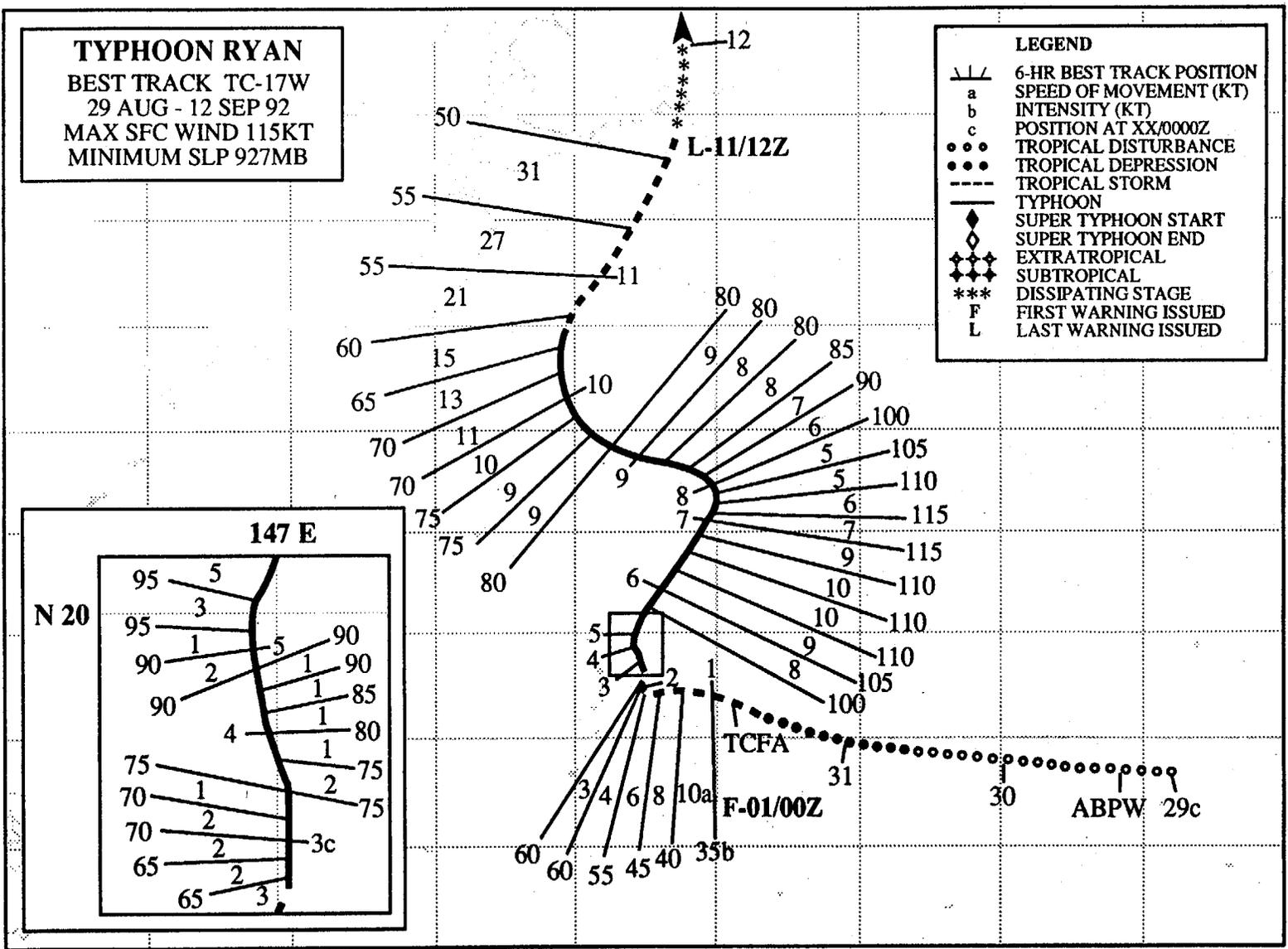
TYPHOON RYAN
 BEST TRACK TC-17W
 29 AUG - 12 SEP 92
 MAX SFC WIND 115KT
 MINIMUM SLP 927MB

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

147 E

N 20



92

N 5

TYPHOON RYAN (17W)

I. HIGHLIGHTS

The first of five significant tropical cyclones to form in September, Ryan became part of a three storm outbreak east of 150° E longitude along with Typhoons Omar (15W) and Sibyl (18W). Although Ryan initially took a west-northwestward course similar to the two preceding tropical cyclones, it later stalled, and then changed to a north-orientated track. Two days after transitioning to an extratropical low east of Hokkaido, the remnants of Ryan could still be identified, as an occluded low continuing northward over Siberia, north of the Sea of Okhotsk.

II. TRACK and INTENSITY

On 29 August, one day after Typhoon Omar (15W) roared across Guam knocking the Joint Typhoon Warning Center out of commission, the Alternate JTWC (AJTWC) noticed a persistent area of convection east of the Mariana Islands and included it on the 290600Z Significant Tropical Weather Advisory. As this persistent area of convection at the extreme eastern end of the monsoon trough moved west-northwestward, the tropical disturbance steadily increased in convective organization, prompting AJTWC to issue a Tropical Cyclone Formation Alert at 312100Z, and the first warning shortly afterward at 010000Z September.

Instead of continuing along the axis of the monsoon trough to the west-northwest, as Omar (15W) and Polly (16W) had done, Ryan stalled on 2 September, and abruptly changed course in response to a weakening of the subtropical ridge to the north caused by the passage of a deep mid-level trough. As the tropical cyclone drifted northward in a weak steering environment, it gradually intensified and became a typhoon at 021200Z.

On 5 September, a second mid-level trough began to deepen near Honshu and effect the subtropical ridge. As a consequence, the typhoon (Figure 3-17-1) changed to a north-northeast track, and reached a peak intensity of 115 kt (59 m/sec) at 070000Z. When the ridge reestablished itself after the trough's passage on 8 September, the typhoon began to move northwestward. Then, on 10 September, the cyclone turned east of north again, and began to accelerate ahead of a third mid-latitude trough. At 111200Z, Ryan transitioned into an extratropical low east of Hokkaido and JTWC, which had resumed primary warning responsibility on 8 September, released a final warning. The extratropical remnants of Ryan continued northward across the Sea of Okhotsk and was still evident as a large occluded low over Siberia two days later.

III. FORECAST PERFORMANCE

Ryan's first 28 warnings were issued by AJTWC and the last 15 by JTWC. Early track forecasts predicted that Ryan would be a straight-runner to the west, however, after it became apparent that the track would become north-oriented, the errors were noticeably reduced. Overall mean JTWC track forecast errors were 97, 238 and 360 nm (180, 445, and 665 km) for 24, 48 and 72 hours, respectively. Although the mean errors at 48 and 72 hours were larger than average, JTWC and AJTWC did show skill by bettering CLIPER by 70% on this harder-than-average typhoon. However, for 72-hour forecasts, the best overall guidance was provided by OTCM, which in the mean, was considerably better than JTWC/AJTWC by 139 nm (255 km). With regard to intensity, the short range forecasts verified well. Nevertheless, for the 36-hour period beginning at 021800Z, the 72-hour intensity forecasts were low by 20 to 50 kt (10 to 26 m/sec) due to anticipated weakening that did not occur.

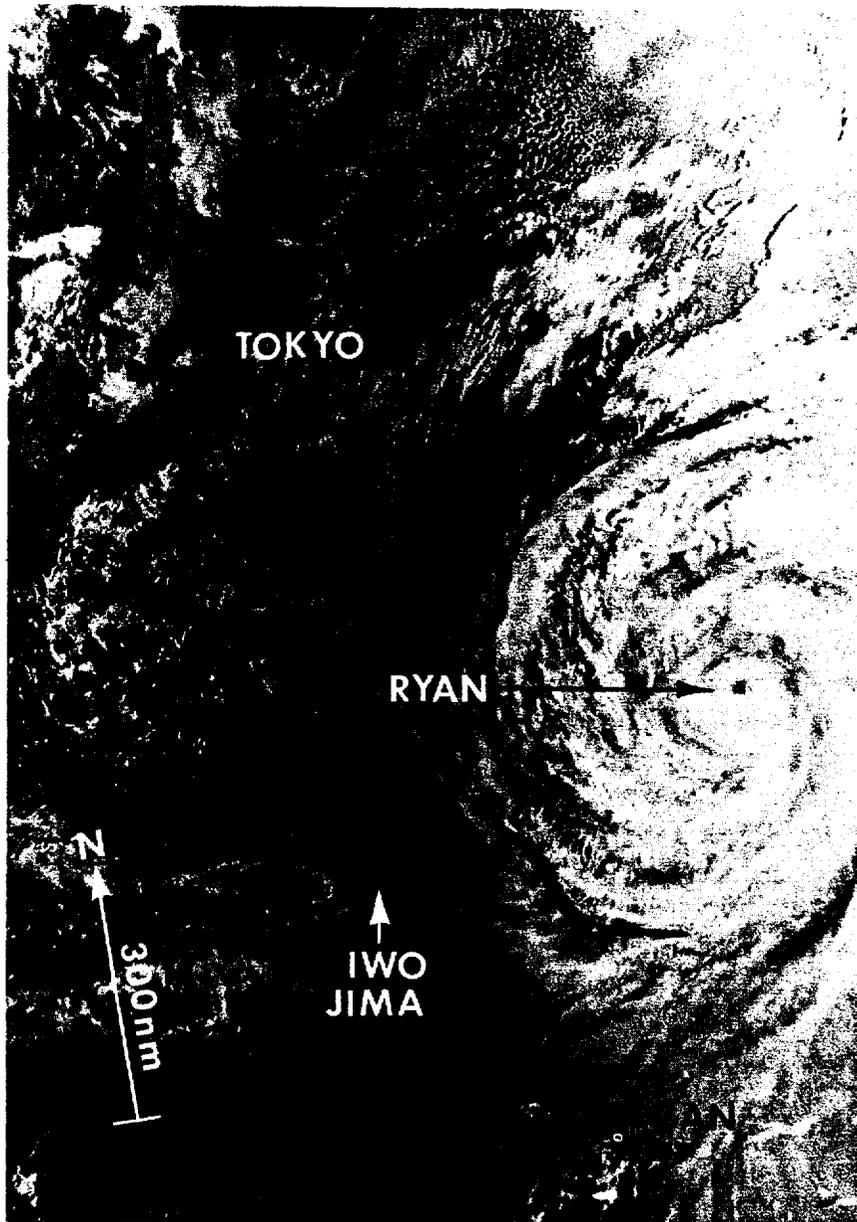


Figure 3-17-1. Just after reaching its peak intensity, Typhoon Ryan is located southeast of Tokyo (072238Z September NOAA visual imagery).

IV. IMPACT

Typhoon Ryan remained over open ocean and no reports of property damage or loss of life were received. While Ryan was developing northeast of Saipan, and moving erratically, it threatened the sparsely populated islands of Pagan and Agrihan which were in Condition of Readiness One for nearly two days. The system also enhanced the southwest monsoon between Guam and Saipan, delaying the arrival of barges carrying bucket trucks and line crews from Saipan to help restore power on Guam.

This was the first time in recent history that the AJTWC had to activate in the middle of the western North Pacific tropical cyclone season for JTWC and keep the Pacific Command's warning system running for a long period, 11 days. AJTWC rose to the challenge and the excellent statistics bear this out.