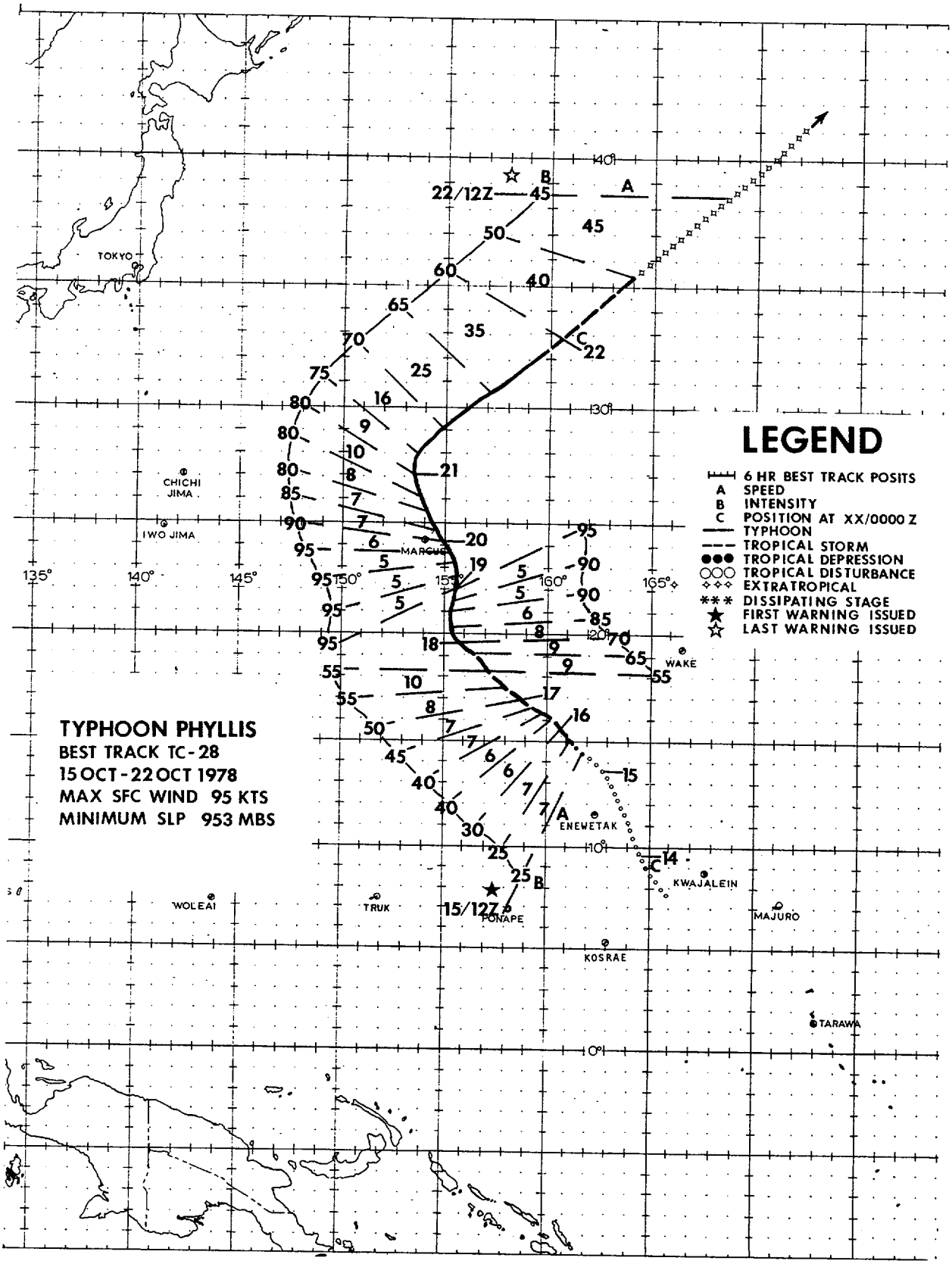
TYPHOON PHYLLIS
BEST TRACK TC-28
15 OCT - 22 OCT 1978
MAX SFC WIND 95 KTS
MINIMUM SLP 953 MBS
LEGEND
6 HR BEST TRACK POSITS
A SPEED
B INTENSITY
C POSITION AT XX/0000 Z
TYPHOON
TROPICAL STORM
TROPICAL DEPRESSION
TROPICAL DISTURBANCE
EXTRATROPICAL
DISSIPATING STAGE
FIRST WARNING ISSUED
LAST WARNING ISSUED
22/12Z
15/12Z
TOKYO
CHICHI JIMA
IWO JIMA
MARCUS
WAKE
ENEWETAK
KWAJALEIN
MAJURO
WOLEAI
TRUK
PONAPE
KOSRAE
TARAWA
135°
140°
145°
150°
155°
160°
165°
40°
30°
20°
10°
0°

The tropical disturbance that eventually developed into Typhoon Phyllis formed in a well established, near-equatorial trough lying over the southern Marshall Islands on 13 October 1978. By 1200Z on the 14th, the disturbance had moved north-northwest and under moderate upper level divergence which existed south of a TUTT. Increased organization of the disturbance was observed on satellite imagery at 142108Z and a Tropical Cyclone Formation Alert (TCFA) was issued at 142235Z for an area 100 to 350 nm (185-556 km) north and north-northwest of Enewetak.

Upper-air data at 150000Z suggested a weakness in the subtropical ridge (STR) axis near 155E. As the tropical disturbance tracked northwestward toward the weakness, increasing vertical organization between low-level inflow and upper-level outflow continued. The disturbance was upgraded to tropical depression (TD) status and numbered warnings on TD-28 began at 151200Z. Phyllis remained a tropical depression for 18 hours and was upgraded to a tropical storm based on aircraft reconnaissance information which indicated Phyllis to be a small compact storm with small wind radii and therefore virtually invisible from synoptic reports alone.

By the 16th, the break in the STR axis was well established. The dominant high pressure center was northeast of Wake Island and the secondary center was southwest of Iwo Jima. The dominant high slowly strengthened causing Phyllis to accelerate northwestward from 6-10 kt (11-19 km/hr). Simultaneously, the TUTT moved northward allowing Phyllis to continue to have excellent outflow aloft. In this regime, Phyllis gradually intensified to typhoon strength by the 17th at 1800Z.

When Phyllis finally reached the break in the STR on the 18th, the dominant high weakened leaving a large col area causing Phyllis to drift slowly for a day. Then on the 19th, the high pressure system east of Phyllis began building to the west which eventually caused Phyllis to slowly accelerate northwestward and delayed recurvature for two more days. Cooler waters and reduced, upper-level outflow weakened Phyllis as she recurved northeastward. Then, north of the STR, Phyllis rapidly accelerated under stronger-than-expected steering currents. Phyllis accelerated from 9 kt (17 km/hr) at the ridge axis to 45 kt (83 km/hr) in less than 30 hours.

Increased vertical shear caused Phyllis to weaken to tropical storm intensity by 0000Z on the 22nd. Thereafter, the pressure gradient between a major surface low moving eastward off Japan and the strong surface ridge east of Phyllis helped maintain storm force winds around Phyllis as she became extratropical.

The STR built westward as Phyllis began her track toward recurvature (Fig. 3-26). After recurvature, Phyllis' foward speed increased dramatically; extratropical transition was complete after 220600Z.

Phyllis remained a typhoon for four days during which her closest approach to land was 40 nm (74 km) northeast of Marcus Island. Her compactness and over-open water track resulted in no major reported damage.

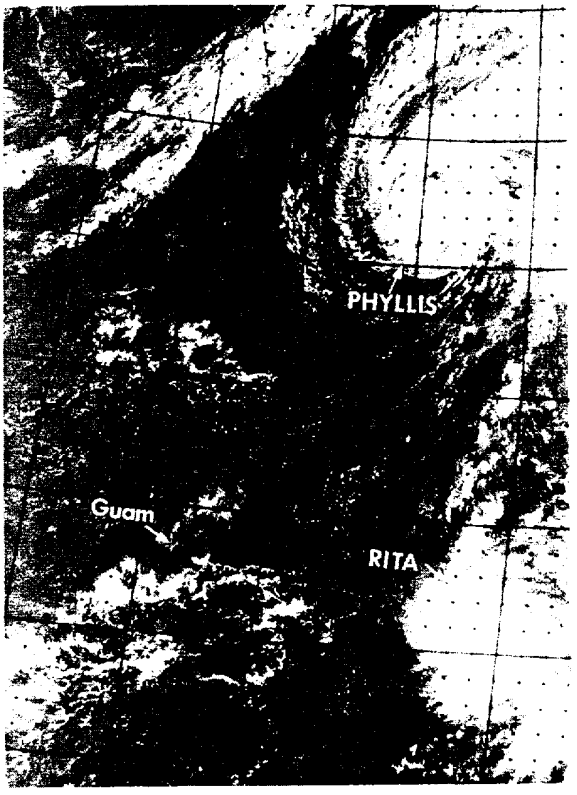

FIGURE 3-26. Typhoon Phyllis at her recurvature point, Typhoon Rita on a track toward Guam and the STR builds in between them as noted by the weakness in the band of showers connecting the two compact typhoons, 21 October 1978, 0106Z. (DMSP imagery)