LEGEND

⊢⊢⊣	06 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
•••	DISSIPATING STAGE
★	FIRST WARNING ISSUED
☆	LAST WARNING ISSUED

TROPICAL STORM GERALD
BEST TRACK TC-10W

16 AUG - 21 AUG 1984

MAX SFC WIND   55 KTS

MINIMUM SLP   979 MBS

☆ 21/18Z

B25
30
35
40
45
45
45
45
50

A
14
14
9
8
8
8
7
6
3
4

21C
20 18
19

10

40B

A ★ 16/00Z

16 — TCFA

ABEH

15C

55
55 55 55 55   55

4 4 6 8 6
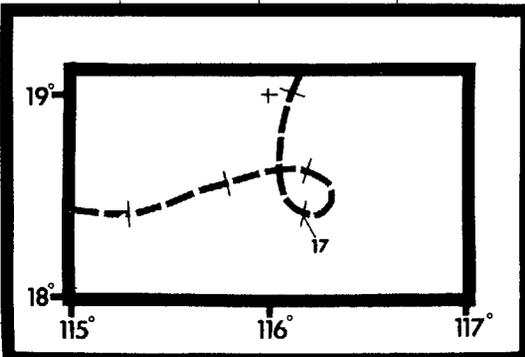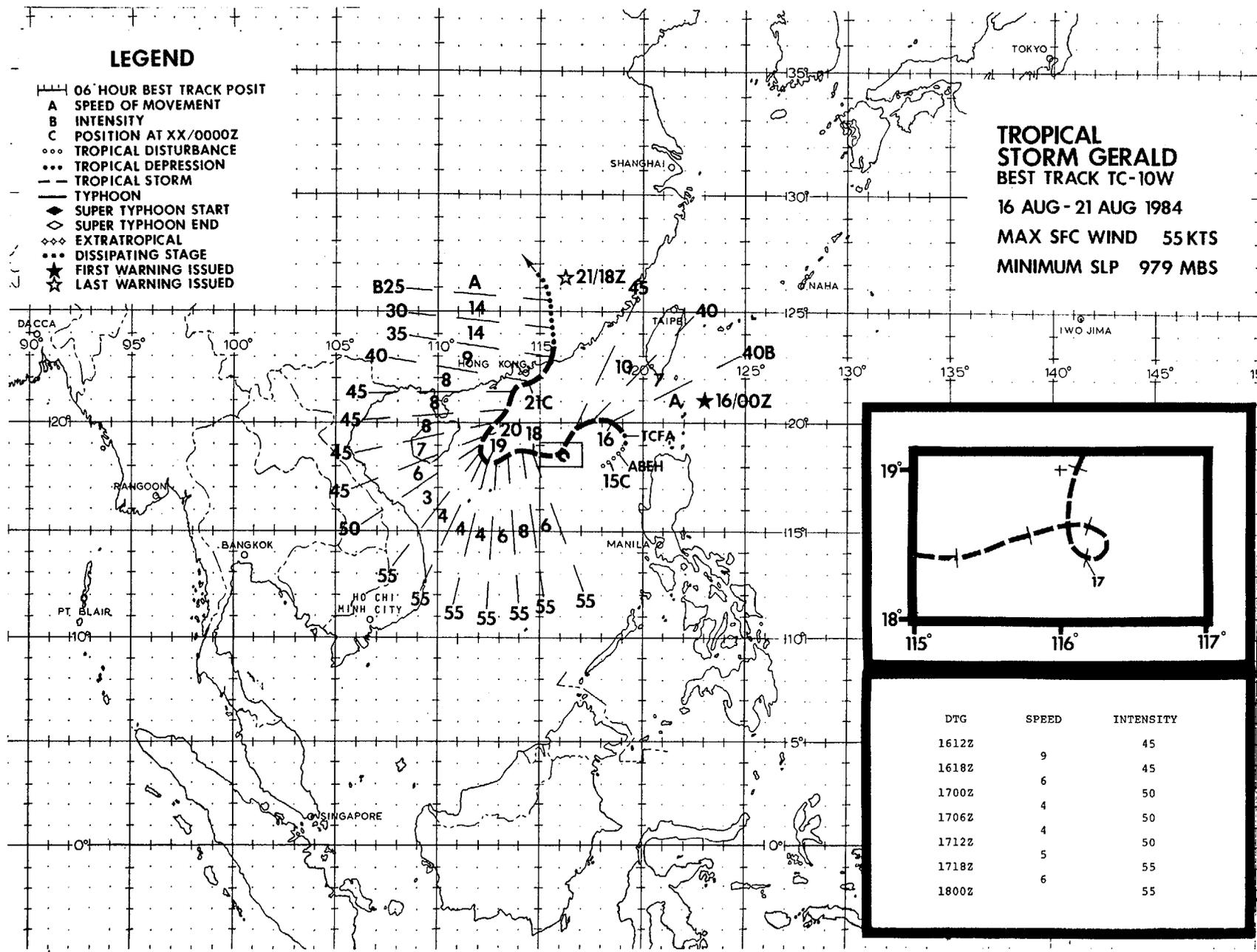
DTG	SPEED	INTENSITY
1612Z		45
	9	
1618Z		45
	6	
1700Z		50
	4	
1706Z		50
	4	
1712Z		50
	5	
1718Z		55
	6	
1800Z		55

46

Tropical Storm Gerald led a rather uneventful life. Developing in the northern South China Sea, Gerald remained embedded in the monsoon trough for five days. Its proximity to Typhoon Holly affected both its track and intensity. By the time it made landfall, it had weakened to a minimal tropical storm causing little, if any, damage.

By mid-August, the southwest monsoon had returned to its climatological position. The associated monsoon trough now extended from northern Vietnam across the northern South China Sea and then southeast to just south of Guam. As Tropical Depression 09W developed east of the Luzon Straits, the trough deepened. By the 12th of August, synoptic data indicated a closed surface circulation had formed in the northern South China Sea near 18N 117E with an MSLP near 1001 mb. The circulation continued to develop and at 131200Z the MSLP had decreased to 998 mb with winds near the center of 10 to 20 kt (5 to 10 m/s); 20 to 30 kt (10 to 15 m/s) winds were located south of the circulation center associated with the southwest monsoon.

By 141800Z the convection associated with remnants of Tropical Depression 09W near Taiwan, had nearly dissipated. Up to this point there was very little significant convection in the northern South China Sea. The convection that was present showed no real organization. Between 141800Z and 150000Z, the convection in the northern South China Sea increased considerably. Surface pressures had now decreased to 997 mb. However, winds near the center were light - only 5 to 15 kt (3 to 8 m/s), while the 20 to 30 kt (10 to 15 m/s) winds still persisted further south - a classic monsoon depression.

The entire monsoon trough had been discussed on the Significant Tropical Weather Advisory (ABEH PGTW) since 130600Z. However, with improved convective organization and lower pressures being observed in the northern South China Sea, this disturbance finally warranted inclusion on its own merits in the 150600Z ABEH.

Synoptic data at 151200Z indicated a broad circulation still persisted, but now 15 to 30 kt (8 to 15 m/s) winds were being reported much closer to the center. This prompted the issuance of a TCFA at 151327Z. Less than 12 hours later the first aircraft reconnaissance mission found the system had deepened to 991 mb and was supporting 40 kt (21 m/s) winds near the center. The first warning on Gerald, valid at 160000Z, followed shortly.

During the next three days, Gerald moved erratically on a generally westward course, remaining embedded in the monsoon trough. Gerald continued to intensify reaching its maximum intensity of 55 kt (28 m/s) at 171800Z. Gerald then maintained this intensity for the next two days. The inability of Gerald to intensify beyond 55 kt (28 m/s) was due to a strong shear over the storm primarily from the outflow of Typhoon Holly which had developed east of Taiwan on 16 August and persisted throughout most of Gerald's life. This shearing occasionally resulted in the low-level circulation being exposed east of the convection (Figure 3-10-1).
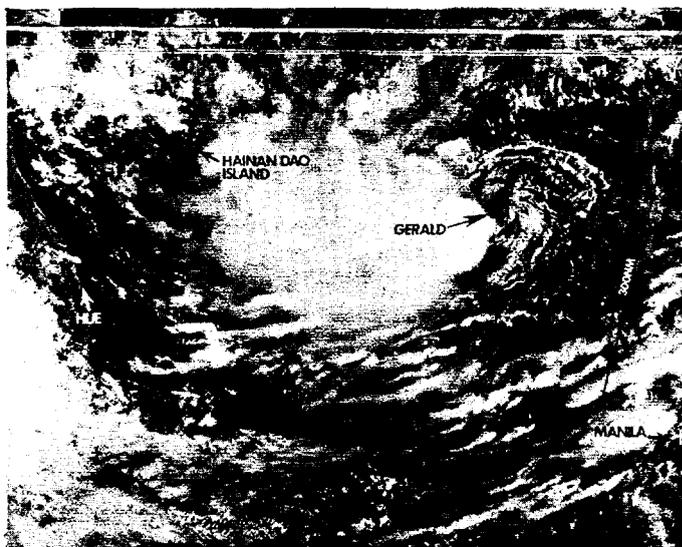

Figure 3-10-1. Example of the partially exposed low-level circulation of Tropical Storm Gerald which was observed periodically during the storm's lifetime. Note the strong easterly flow aloft shearing the convection to the west. This shear was caused by the outflow of Typhoon Holly located far to the northeast (170200Z August DMSP visual imagery).
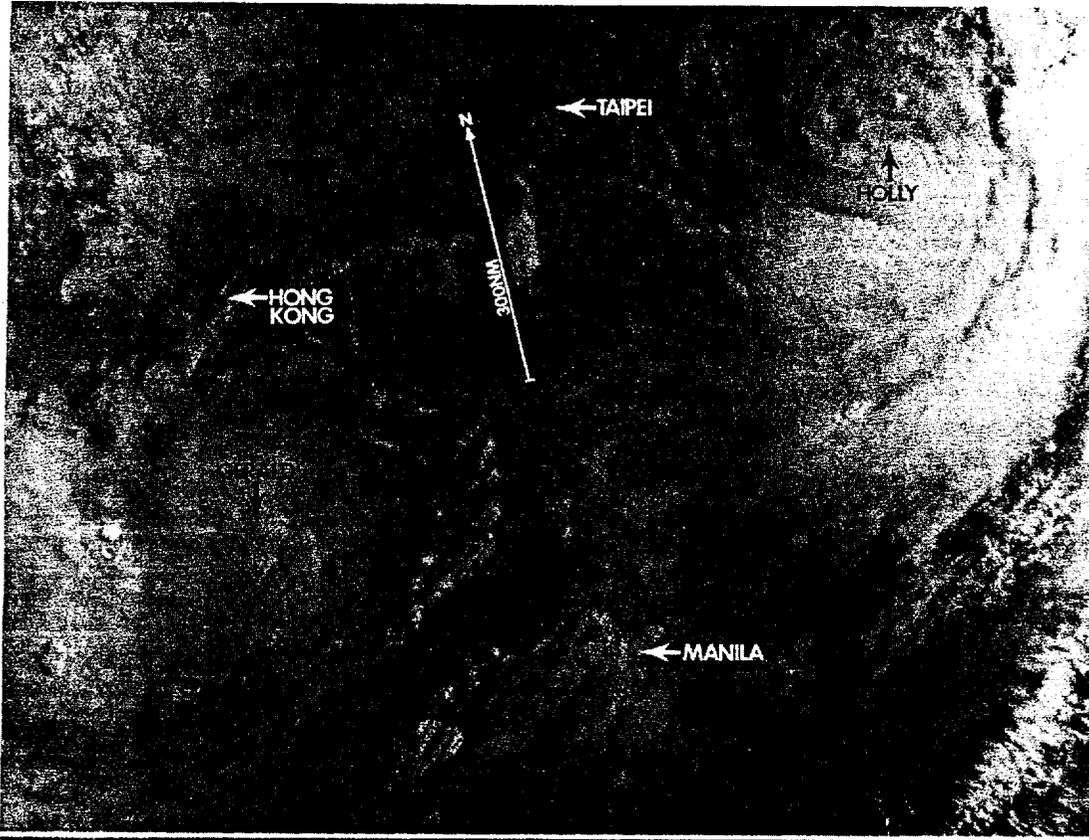
Figure 3-10-2. Tropical Storm Gerald and the
developing Typhoon Holly near the time of their
closest point of approach. At this time they were
approximately 800 nm (1482 km) apart (172327Z August
NOAA visual imagery).

Forecasting Gerald's movement proved to be difficult. Initially most forecast aids and JTWC's official forecast aid called for the storm to move northwest and make landfall over China. However, as Holly intensified and moved west Gerald slowed its westward movement, doing a small cyclonic loop early on the 17th. When Gerald slowed and moved to the south, the forecast scenario changed and called for Gerald to remain quasi-stationary for twelve to twenty-four hours, and then move slowly northeast under the influence of the inflow pattern of the developing Typhoon Holly. Figure 3-10-2 shows Tropical Storm Gerald and the developing Typhoon Holly near their closest point of approach. However, after completing its loop, Gerald once again resumed its westward course as Holly turned to the northwest.

Starting at 191800Z, Gerald turned to the northeast as the very large mid-level circulation of Typhoon Holly, now located in the East China Sea, again affected Gerald. Accompanying this turn to the northeast was a decrease in the convection as the shearing increased. This began a weakening trend which continued until dissipation.

Gerald accelerated to the northeast and weakened making landfall at 210400Z approximately 50 nm (93 km) east-northeast of Hong Kong (WMO 45005). The closest point of approach to Hong Kong was at 210100Z when Gerald passed 30 nm (56 km) to the southeast.

After making landfall, Gerald turned to the north and weakened rapidly as Holly's influence decreased. Reports from the coastal stations along southern China indicated winds of 20 to 30 kt (10 to 15 m/s) accompanied Gerald as it made landfall. There were no reports of damages as Gerald moved inland over China and dissipated.