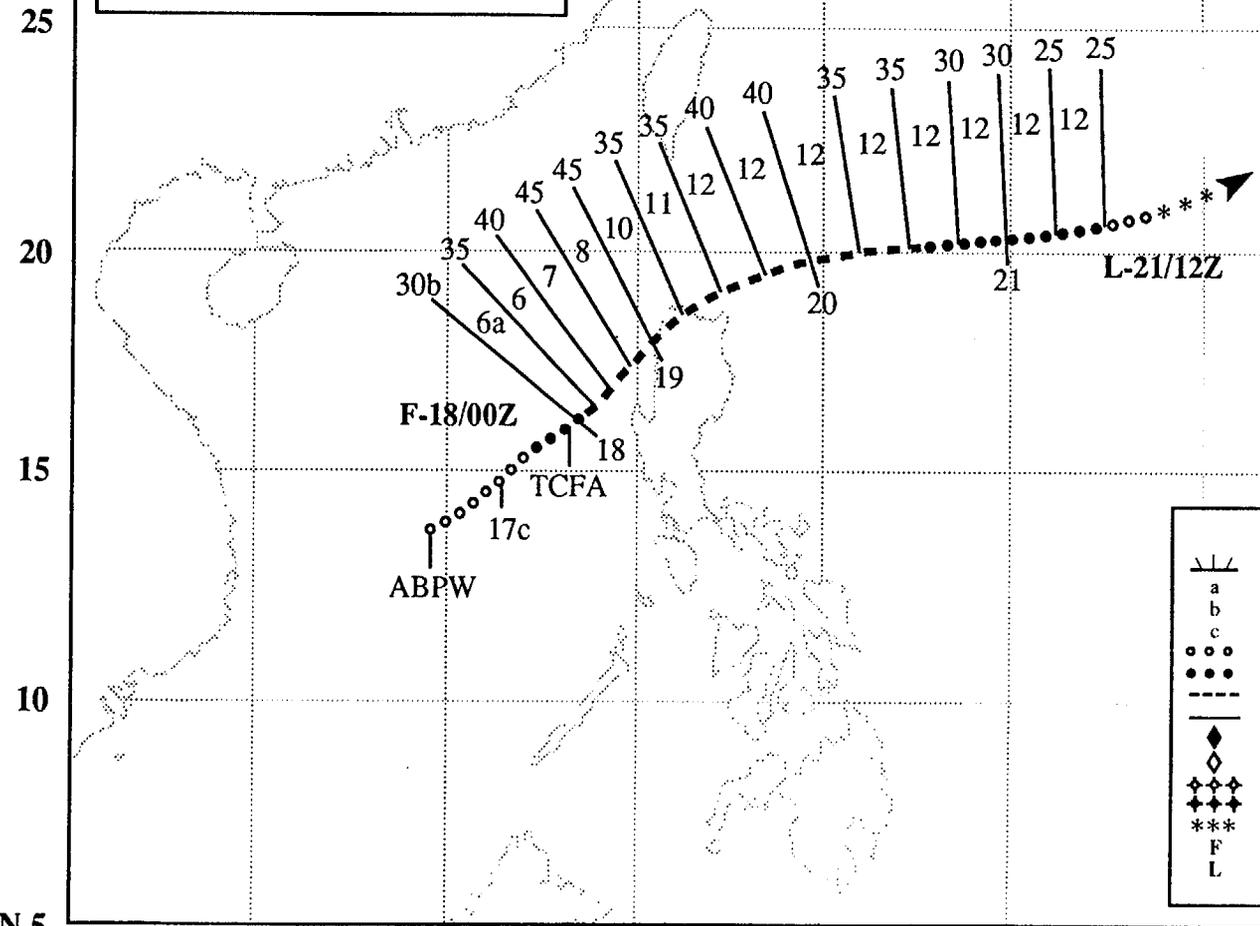


E 105 110 115 120 125 130 135 140 145 E

N 30

TROPICAL STORM YUNYA
 BEST TRACK TC-11W
 16 JUL-21 JUL 94
 MAX SFC WIND 45KT
 MINIMUM SLP 991MB

75



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

N 5

TROPICAL STORM YUNYA(11W)

I. HIGHLIGHTS

Yunya was a very small tropical cyclone that formed along the axis of a reverse-oriented monsoon trough. It was the westernmost of three tropical cyclones along this trough. The other two were Walt (10W) and Zeke (12W). Yunya exhibited unusual eastward motion for its entire track which resulted in a rare west-to-east crossing of Luzon. Weakened by its passage over Luzon, it briefly re-intensified over water in the Philippine Sea before dissipating.

II. TRACK AND INTENSITY

During mid-July, an active reverse-oriented monsoon trough dominated the low-level circulation of the western North Pacific. The cloudiness associated with the southwesterly monsoon flow stretched eastward from Southeast Asia, across the South China Sea and the Philippine islands; then east-northeastward across the Philippine Sea toward sub-tropical latitudes near the international date line. On or about 16 July, the monsoon cloud band evolved into a sequence of several distinct cloud clusters, three of which became named tropical cyclones: Walt (10W), Yunya, and Zeke (12W). By 160000Z, animated satellite imagery and synoptic data indicated that a weak low-level circulation center was associated with a cloud cluster over the South China Sea. This tropical disturbance was first mentioned in the 160600Z July Significant Tropical Weather Advisory. As the low-level circulation center moved toward the east-northeast, the organization of the associated deep convection improved (Figure 3-11-1), and at 172300Z a Tropical Cyclone Formation Alert was issued. The first warning was issued an hour later at 180000Z. The system was upgraded to Tropical Storm Yunya at 181800Z. Post analysis indicated that tropical storm intensity had most probably occurred 12 hours earlier at 180600Z. As Yunya neared landfall on the northwest corner of Luzon, its satellite cloud signature improved (Figure 3-11-2). At the landfall, shortly after 190000Z, its intensity was estimated to be 45 kt (23 m/sec). During the six-hour passage over land, its cloud structure became disorganized, and the best-track intensity was lowered to 35 kt (17 m/sec) at 190600Z. Moving eastward, Yunya was soon over water in the Philippine Sea. A brief period of re-intensification to 40 kt (21 m/sec) took place and persisted for six hours (191800Z to 200000Z). Deep convection then decreased, and the final warning was issued at 211200Z as Yunya moved eastward over water and dissipated.

III. DISCUSSION

a. Unusual motion

Yunya's motion had an eastward component for its entire track. This type of unusual motion is commonly associated with tropical cyclones which are located within a reverse-oriented monsoon trough. For a more thorough discussion of the characteristics of a reverse-oriented monsoon, and of its impacts upon the motion of tropical cyclones, see Walt's (10W) summary.

b. Small Size

Developing from a cloud cluster in the South China Sea, Yunya consolidated into a small core of deep convection to the north of an area of extensive deep convection in the southwesterly monsoon flow. Yunya's small cloud system appeared to be undergoing rapid improvement in organization as it made landfall on northern Luzon (Figure 3-11-2). Brand (1972) noted a preference for very small tropical cyclones to be located in the extreme western Pacific Ocean within a corridor extending from Luzon to Tokyo.

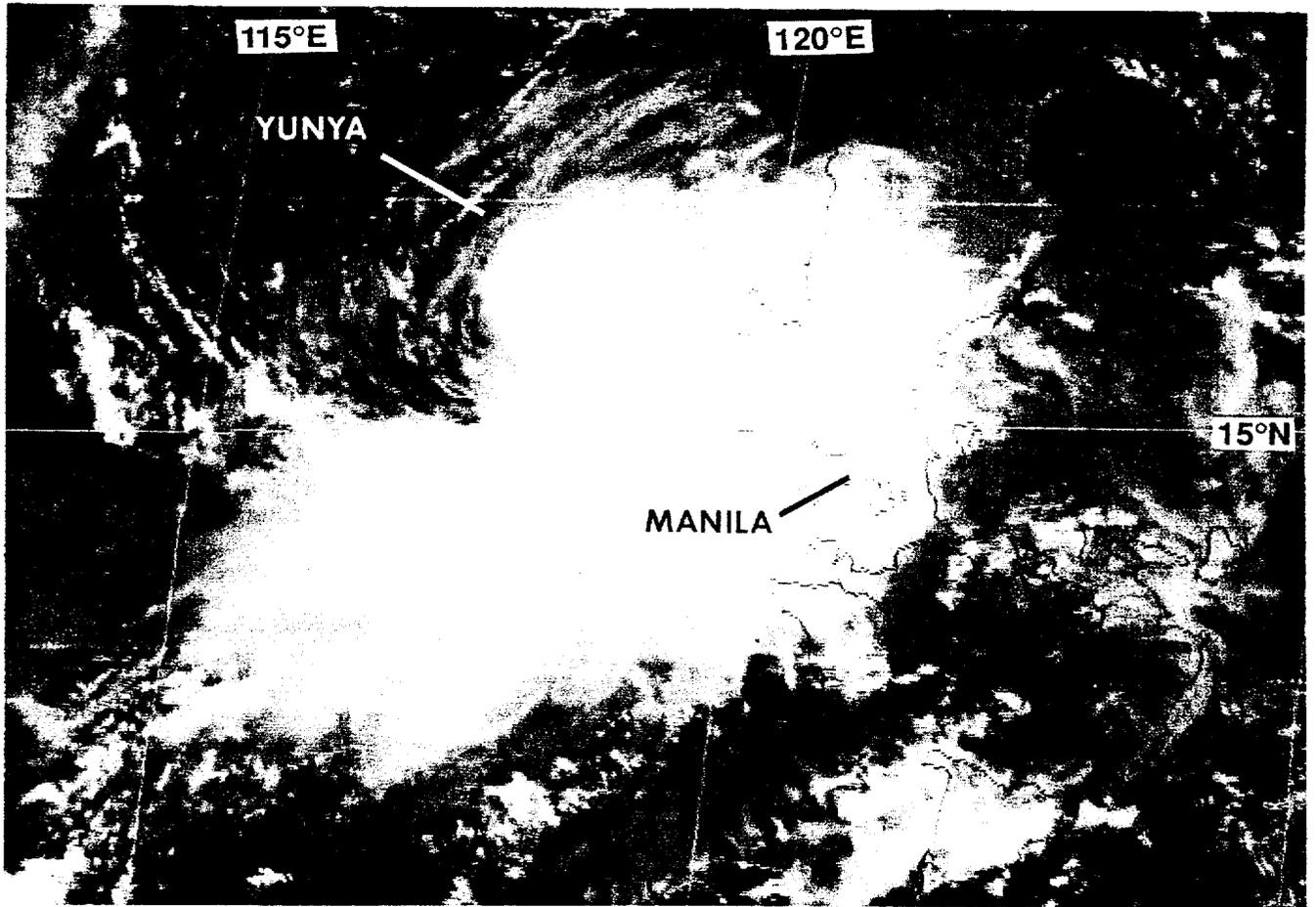


Figure 3-11-1 Curving low-level cloud lines, and organization of the deep convection into a curved band prompted the the first warning on Yunya. (180131Z July visible GMS imagery).

IV. IMPACT

Heavy rains from Yunya triggered landslides of volcanic debris from Mount Pinatubo. Monsoon flow to the south of Yunya had gusts in excess of 60 kt (31 m/sec) across the central plains of Luzon. No reports of serious damage were received. One man reportedly died of a heart attack in central Luzon after seeing his house swept away by floodwaters.

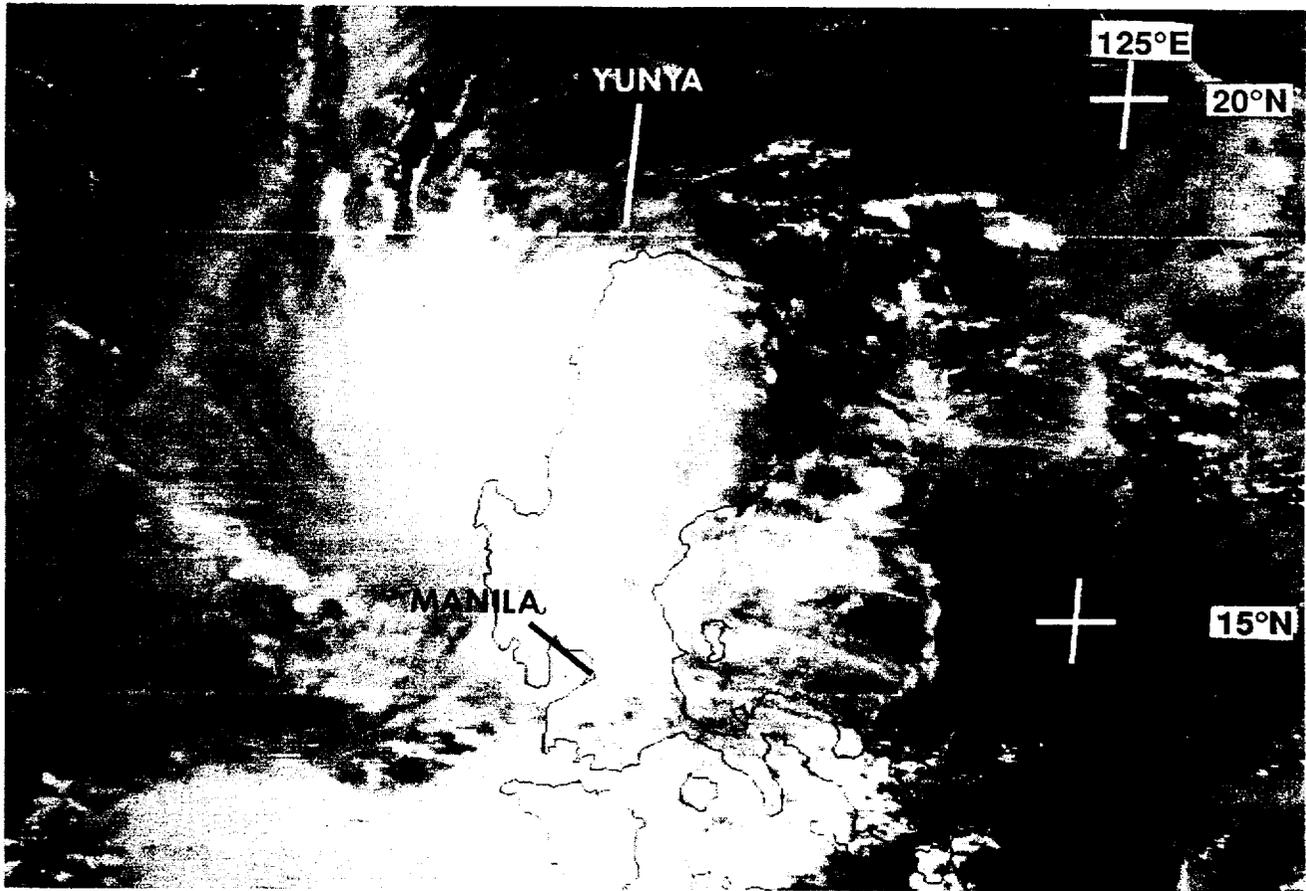


Figure 3-11-2 Yunya reaches its peak intensity of 45 kt (23 m/sec) as it makes landfall on the northwestern corner of Luzon. (182331Z July visible GMS imagery).