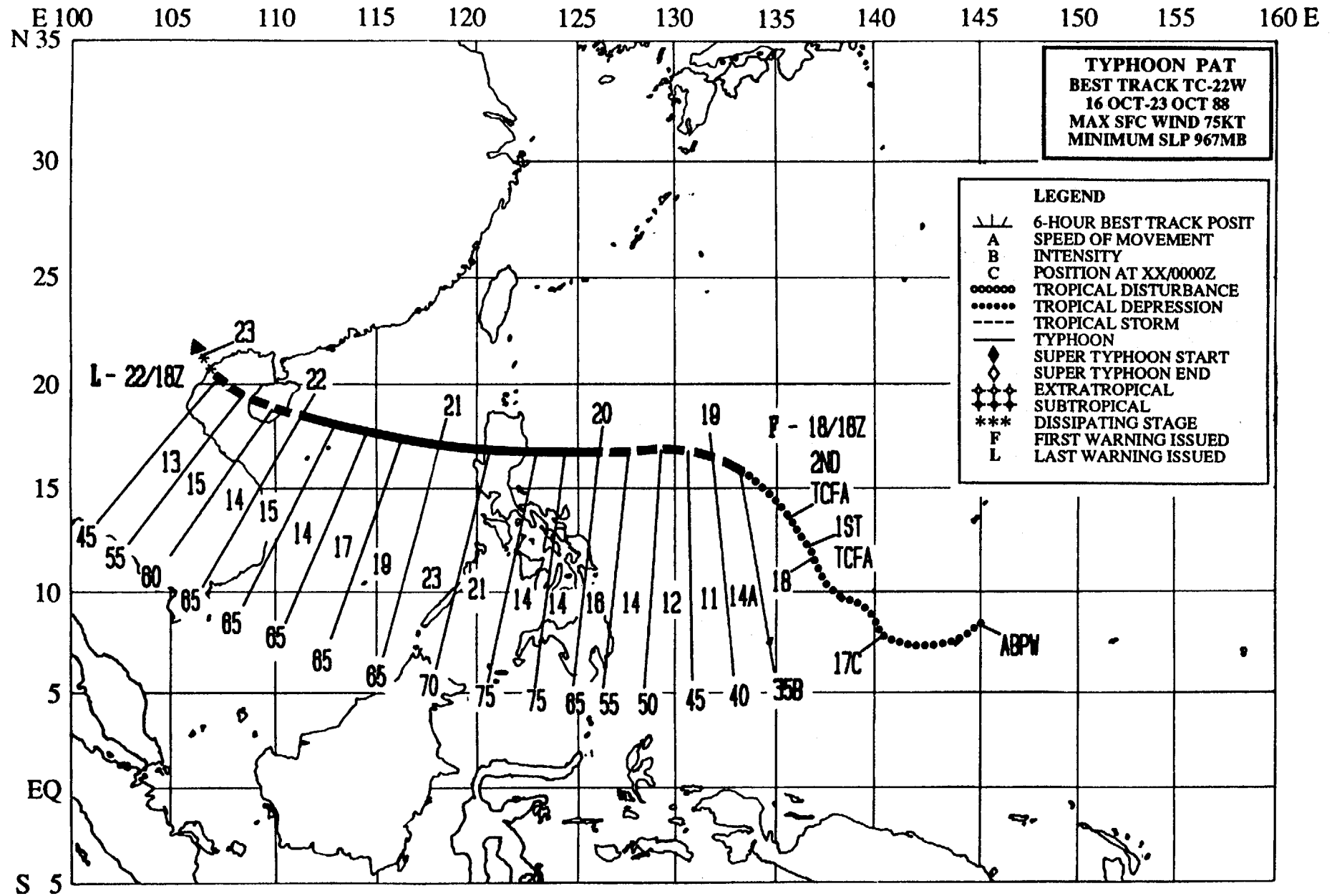
E 100 105 110 115 120 125 130 135 140 145 150 155 160 E
N 35 30 25 20 15 10 5 EQ S 5
122
TYPHOON PAT
BEST TRACK TC-22W
16 OCT-23 OCT 88
MAX SFC WIND 75KT
MINIMUM SLP 967MB
LEGEND
6-HOUR BEST TRACK POSIT
A SPEED OF MOVEMENT
B INTENSITY
C POSITION AT XX/0000Z
TROPICAL DISTURBANCE
TROPICAL DEPRESSION
TROPICAL STORM
TYPHOON
SUPER TYPHOON START
SUPER TYPHOON END
EXTRATROPICAL
SUBTROPICAL
*** DISSIPATING STAGE
F FIRST WARNING ISSUED
L LAST WARNING ISSUED
L - 22/18Z
F - 18/18Z
2ND TCFA
1ST TCFA
ABPW
17C
23 22 21 20 19 18
45 55 60 65 65 65 65 65 70 75 75 65 55 50 45 40 35B
13 15 14 15 14 17 19 23 21 14 14 16 14 12 11 14A

TYPHOON PAT (22W)

Pat was the third of four typhoons to develop during October. Unlike most of the western North Pacific tropical cyclones in 1988 that preceded, it formed equatorward of 10 degrees North latitude.

The tropical cyclone was first detected on satellite imagery and the Significant Tropical Weather Advisory was reissued at 160630Z to include the low-level cyclonic circulation, which was located 300 nm (556 km) south of Guam. Initially, synoptic and satellite data comparison indicated the maximum convection was in a convergent zone south of the low-level circulation. From 16 to 18 October, Pat slowly developed over the warm Philippine Sea and moved through an area of relatively low vertical wind shear. By 18 October the convection had organized and the first Tropical Cyclone Formation Alert was issued at 180300Z. Surface synoptic data indicated a minimum sea-level pressure (MSLP) of about 1002 mb and winds of 25 to 30 kt (13 to 15 m/sec). Satellite imagery continued to show an uneven distribution of deep convection with significantly more convection in the system's eastern semicircle. Pat's slow development required a second Alert at 181530Z. Improving upper-level outflow and increasing central convection prompted the first warning at 181800Z.

Then Pat (Figure 3-22-1) assumed a more westerward course along the edge of the

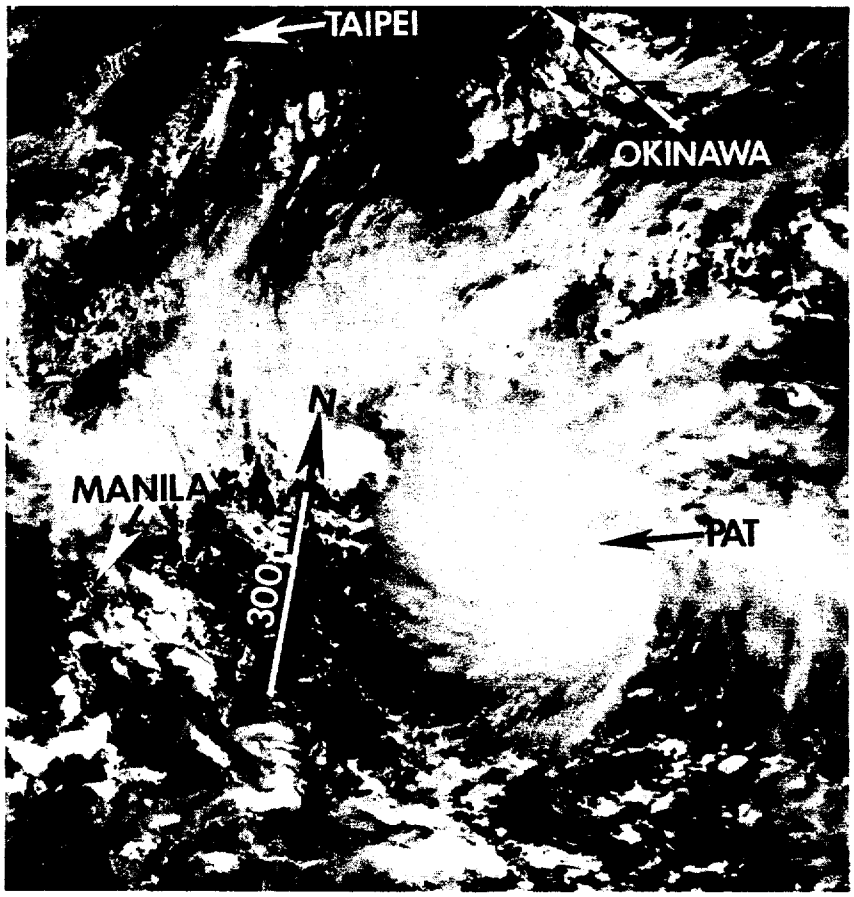

Figure 3-22-1. Pat crossing the Philippine Sea (190514Z October NOAA visual imagery).

modifying polar high to the north. The tropical cyclone's convection and organization increased again, which required an upgrade to typhoon intensity at 200000Z. Shortly before making landfall on the island of Luzon, Pat reached its peak intensity of 75 kt (39 m/sec). Maintaining typhoon intensity as it crossed central Luzon, the system (Figure 3-22-2) passed 75 nm (139 km) north of Clark Air Base at 201800Z . The base, due to the sheltering effect of the nearby mountain ranges, only recorded peak gusts of 21 kt (11 m/sec).

After entering the South China Sea, Pat (Figure 3-22-3) pressed on to the west-northwest and sustained minimal typhoon intensity. It crossed the South China Sea and was downgraded to a tropical storm, as interaction with Hainan Dao occurred. Once across the island, the weakening system moved into the Gulf of Tonkin and entered northern Vietnam. It passed 30 nm (56 km) northeast of Hanoi and dissipated inland.

Figure 3-22-2. Typhoon Pat entering the South China Sea (202152Z October DMSP infrared imagery).

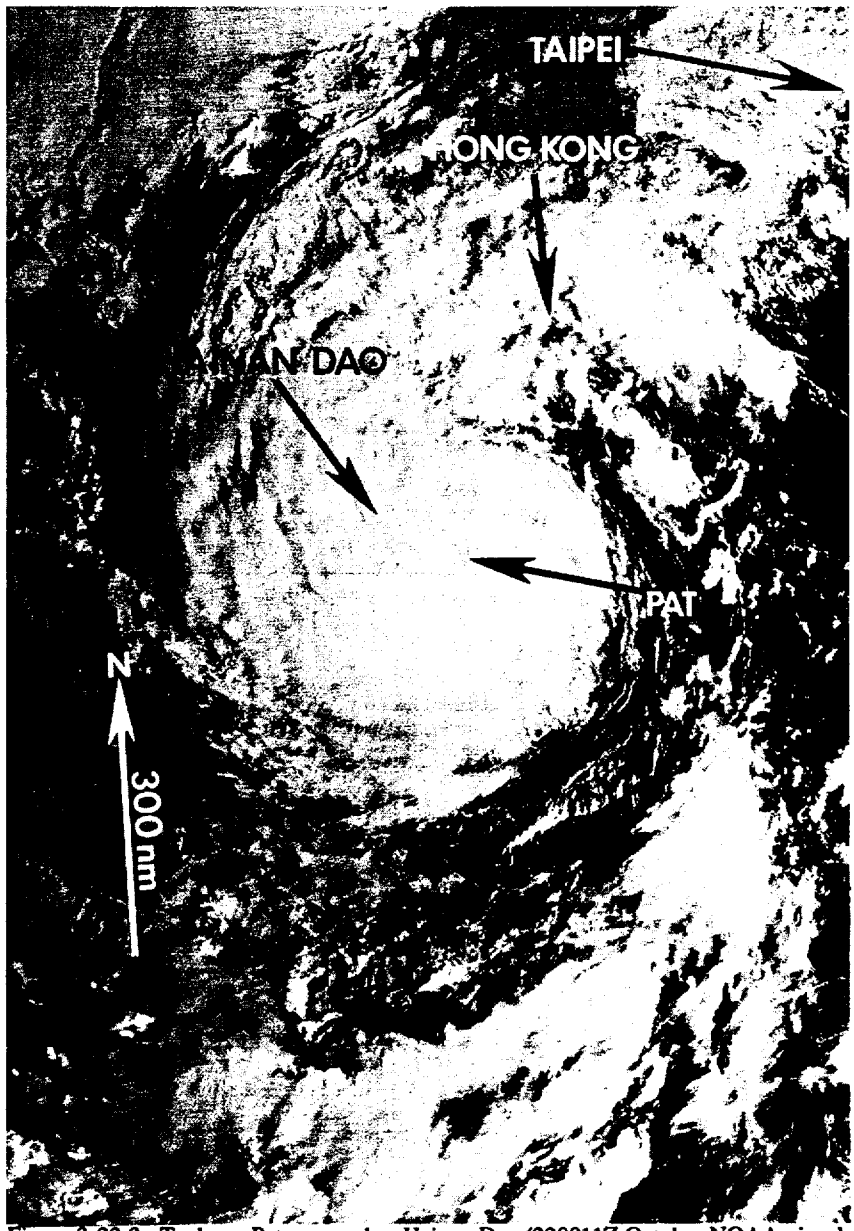

Figure 3-22-3. Typhoon Pat approaches Hainan Dao (220011Z October NOAA visual imagery).