

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

TYPHOON ANDY
 BEST TRACK TC-10
 22 JUL - 30 JUL 1982
 MAX SFC WIND 120KTS
 MINIMUM SLP 920 MBS

TYPHOON ANDY (10)

Andy formed on the northern edge of a zone of maximum cloudiness associated with the monsoon trough south of Guam. Prior to 22 July, the low-level westerlies were well established along 10N and extended eastward to the dateline. Satellite imagery on 20 July showed this maximum cloud zone had begun to segment. Within 24 hours the cloudiness consolidated into three distinct masses centered near 132E, 148E and 168E. Each cloud mass was poorly defined but had rudimentary banding features. The cloud system centers near 148E and 168E drifted westward, intensified, and became Typhoon Andy and Super Typhoon Bess (11) respectively. The cloud mass near 132E drifted westward and was disrupted by the combined effects of the rugged terrain over the Philippines and vertical wind shear from a tropical upper-tropospheric trough (TUTT).

A Tropical Cyclone Formation Alert (TCFA) was issued for the area south of Guam

at 211900Z due to significant pressure falls (to below 1004 mb), increased convection, and convective organization. Aircraft reconnaissance at 220229Z located a small, tight circulation center with a minimum sea level pressure of 995 mb. These data, along with observed winds of 35 to 40 kt (18 to 21 m/sec) prompted the issuance of the first warning. Although intensification was evident from 20 to 24 July on satellite imagery, the cloud pattern remained poorly defined and the circulation center was difficult to position -- except for a brief period on 23 July, when the low-level center was visible on the satellite imagery. Aircraft reconnaissance was an invaluable asset during this period; no other reconnaissance platform was capable of following the low-level wind center, particularly since there was considerable interest on Guam as the fix data received implied an anticyclonic loop 35 nm (65 km) in diameter just 90 nm (167 km) south of the island.

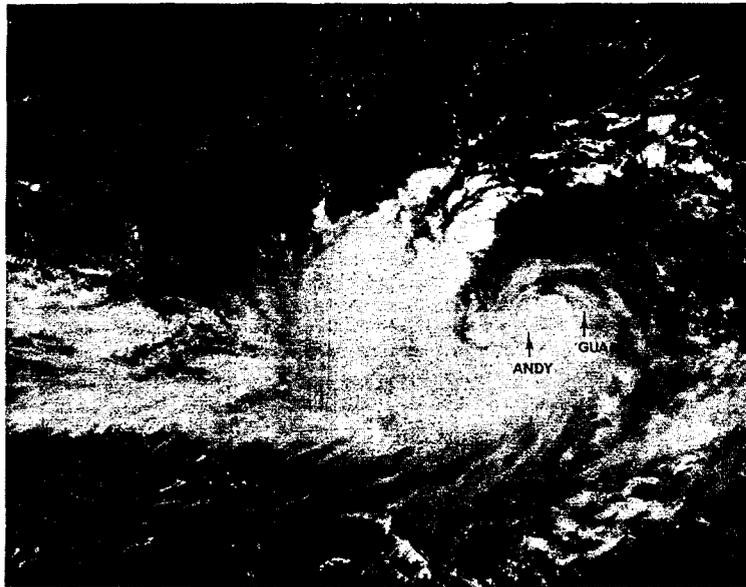


Figure 3-10-1. At 240530Z July Andy, shortly after reaching typhoon strength, is shown 125 nm (232 km) west of Guam (see arrow). During this time the strong south-westerly fetch south of Typhoon Andy brought phenomenal surf to Guam. (NOAA 7 visual imagery)

While Andy was undergoing the loop south of Guam, several meteorological factors were influencing the synoptic situation. Rawinsonde observations from Chichi Jima (WMO 47971) at 221200Z and 230000Z revealed 500 mb height falls of 10 to 20 meters. These falls indicated a weakening of the subtropical ridge north of Andy as well as a lessening of the steering current, factors probably accounting for Andy's lack of forward movement. In addition, reconnaissance aircraft consistently reported Andy's 700 mb center 10 to 20 nm (19 to 37 km) south of the surface center. This tilt, half of the diameter of the loop, suggests that Andy's

actual movement during this period might have been virtually nil, and may have been more related to the fix accuracies and the internal dynamics of the developing tropical cyclone. However, for best track purposes, this period is described well by the loop.

After completing the loop, Andy accelerated to the northwest and intensified. In Andy's wake, Guam experienced phenomenal surf on exposed southern and western beaches as a strong southwesterly fetch was brought to bear on the island on 24 July (See Figure 3-10-1). Andy's northwestward track turned abruptly toward the west as the cyclone

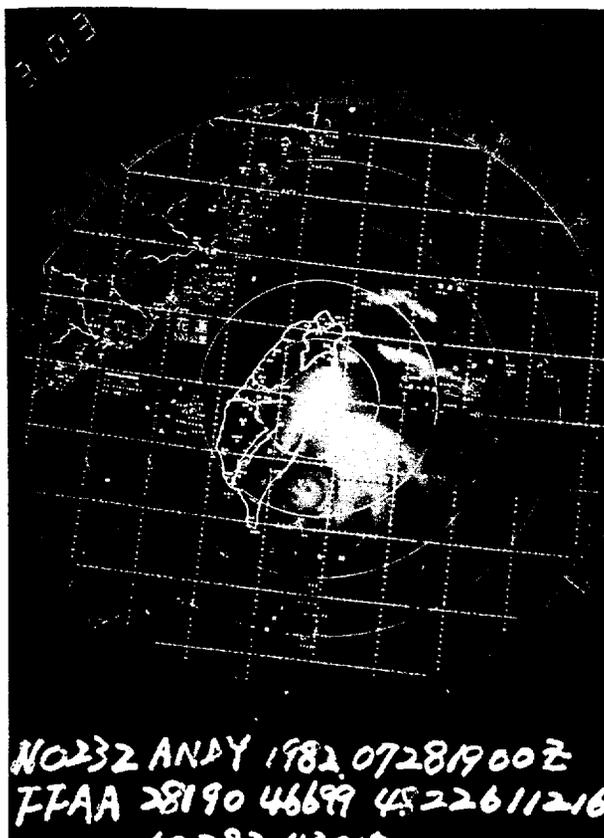


Figure 3-10-2. Typhoon Andy as seen by radar from Hua Lien (WMO 46699) at 281900Z July (Photograph courtesy of Central Weather Bureau, Taipei, Taiwan)

reached 18N on 25 July. This track change occurred while reported 500 mb heights rose at Chichi Jima, to the northeast of Andy. From this point onward, Andy remained equatorward of and paralleled the subtropical ridge axis.

While Andy was tracking westward, upper-level outflow channels to the east (south of the TUTT axis) and to the southwest (return flow from the monsoon over southeast Asia) provided a favorable environment for intensification. At 271800Z, Andy reached

a maximum intensity of 120 kt (62 m/sec). Until making landfall upon the southern portion of Taiwan on 29 July (See Figure 3-10-2), Andy's intensity remained over 100 kt (51 m/sec). Taiwan experienced torrential rains from the typhoon's passage; especially hard hit was the eastern coastal area, where considerable damage from flooding was reported. Weakened from Taiwan's rugged terrain, Andy continued westward, across the Formosa Strait, and dissipated in the mountainous area of southeastern China on 30 July.