

PRELIMINARY REPORT

HURRICANE BABE 3-8 September, 1977

The formation of Babe came about as the result of the interaction between an African wave which moved into the Atlantic on August 23, reaching the Gulf of Mexico on September 2, and a cold upper low. On September 2, the upper low at 200 mb was centered just south of Apalachicola, Florida. On that day, widespread convective cloudiness covered Florida and the adjacent waters of the Gulf of Mexico and the Atlantic, but there was little evidence of organization in the cloud pattern. By September 3, the 200 mb low had moved southwestward to the middle Gulf of Mexico, and westerly surface winds at data buoy EB44 confirmed that a surface low had formed in the east central Gulf of Mexico. It was evident on September 3 that the system was essentially cold core. Convection was not concentrated near the surface low center, but rather in a band extending from the central Gulf of Mexico north northeastward to the mouth of the Mississippi river, thence eastward just off the coasts of Mississippi, Alabama, and the Florida panhandle. Gale-force winds in this west-east band of convection led to the designation of Babe as a tropical storm, and the posting of gale warnings from Morgan City, Louisiana to Pensacola, Florida at 1600 GMT September 3. This course of action was taken even though the storm had not yet acquired tropical structure, in order not to confuse the public at a time when the threat was immediate.

By the early morning hours of September 4, the west-east band of strong convection had moved inland and weakened, permitting gale warnings from Morgan City to Pensacola to be discontinued. Interest then shifted southwestward into the central Gulf of Mexico, where reconnaissance reports and satellite imagery showed that the strongest winds were drawing in closer to the vortex. Meanwhile, the 200 mb low had continued to move southwestward into the southwestern Gulf of Mexico and the high-level flow over the surface system had become increasingly anticyclonic. The transition from a subtropical to a tropical storm had been completed by midday on September 4.

During the night of September 3-4, the storm had been moving west southwestward about 12 kt, but large 24-hour pressure falls over the southern portions of Louisiana, Mississippi, and Alabama suggested the westward steering would diminish rapidly, and that large 24-hour pressure falls over east Texas coupled with slight rises over Florida would result in a northward drift.

A northward movement was underway by the afternoon of September 4. At 1903 GMT, an Air Force reconnaissance aircraft reported a surface wind of 70 kt some 55 n. mi. southeast of the storm center. It is evident from post analysis that these winds were associated with a narrow band of strong convection well removed from the center, were transitory, and were not representative of the strength of the system. The same report showed the lowest pressure to be 1000 mb, well above that generally believed to be required for sustained winds of hurricane strength with the existing peripheral pressures.

The storm center was only 70 n.mi. from the Louisiana coast by 0000 GMT on September 5. Since some slight strengthening had been indicated by reconnaissance reports and satellite pictures, it was already after dark, and the center of the storm was expected to reach the coast by daybreak, it was decided to take the course of least regret and designate Babe as a hurricane. Hurricane warnings were posted at that time from Vermilion Bay, Louisiana to the mouth of the Mississippi river. Post analysis does not demonstrate that hurricane strength was reached before 0600 GMT on September 5, when Air Force reconnaissance reported a central pressure of 995 mb. Maximum sustained winds over water are not believed to have exceeded 65 kt, and it is doubtful that any hurricane-force winds occurred over land.

The strength of the system decreased rapidly after landfall, and it was reduced to a depression by midafternoon on September 5. Following an initial jog to the left after the center crossed the coast, the depression moved essentially northeastward across southern Mississippi and central Alabama, then east-northeastward across northern Georgia. After reaching northwestern South Carolina on September 8, the low pressure area became elongated to the northeast as a baroclinic development began in an old frontal zone which extended from the Atlantic into southeastern Virginia.

As stated above, no reports from land stations confirmed that Babe was of hurricane strength. Highest wind on land verified to date was the Coast Guard reading of a gust 46 kt at Grand Isle, Louisiana. Next highest gust readings were 38 kt at the New Orleans Lake Front airport, and 34 kt at Morgan City, Louisiana steam plant. Highest sustained wind reported was 40 kt at Boothville, Louisiana. No significant wind damage was reported near the coast except for some scattered tornado damage.

A number of tornadoes occurred after the storm moved inland. On September 5, six were reported in southeastern Louisiana and three in southern Mississippi. One or possibly more tornadoes occurred on September 6 near Tuscaloosa, Alabama, as the depression approached that area, and there was a report of a possible tornado in northwestern Georgia on the afternoon of September 7.

Damage caused by Babe-spawned tornadoes consisted of an unroofed school, several unroofed houses and destroyed barns, and a number of uprooted trees.

Highest tides were up to 6 ft above mean sea level or 4 to 5 ft above normal, in southeastern Louisiana and up to 3 feet above normal as far east as Mobile, Alabama. There was flooding of streets and highways in southeastern Louisiana, causing some property damage.

Flash floods created by heavy rains accompanied the remnants of Babe through the southeastern states, beginning in southeastern Louisiana and southern Mississippi on September 5 and 6, spreading into northern and central Alabama and east Tennessee on September 6 and 7, and into the mountains of the Carolinas and southwestern Virginia on September 7 and 8. As much as six to 7 inches of rain fell during a 24-hour period in the area of flash flooding mountains of east Tennessee and the Carolina mountains, and up to 4 inches elsewhere in the area of flash flooding.

Preliminary estimates of damage caused by Babe are about 10 million dollars, mostly in southern Louisiana. Most of the property damage was the result of coastal flooding. There was some damage to crops, principally sugarcane, in southern Louisiana caused by heavy rain and wind. No serious injuries or fatalities were reported as a result of the storm.

State and local civil defense and law enforcement officials report that 275,000 people evacuated the low-lying areas of coastal Louisiana.

JRH

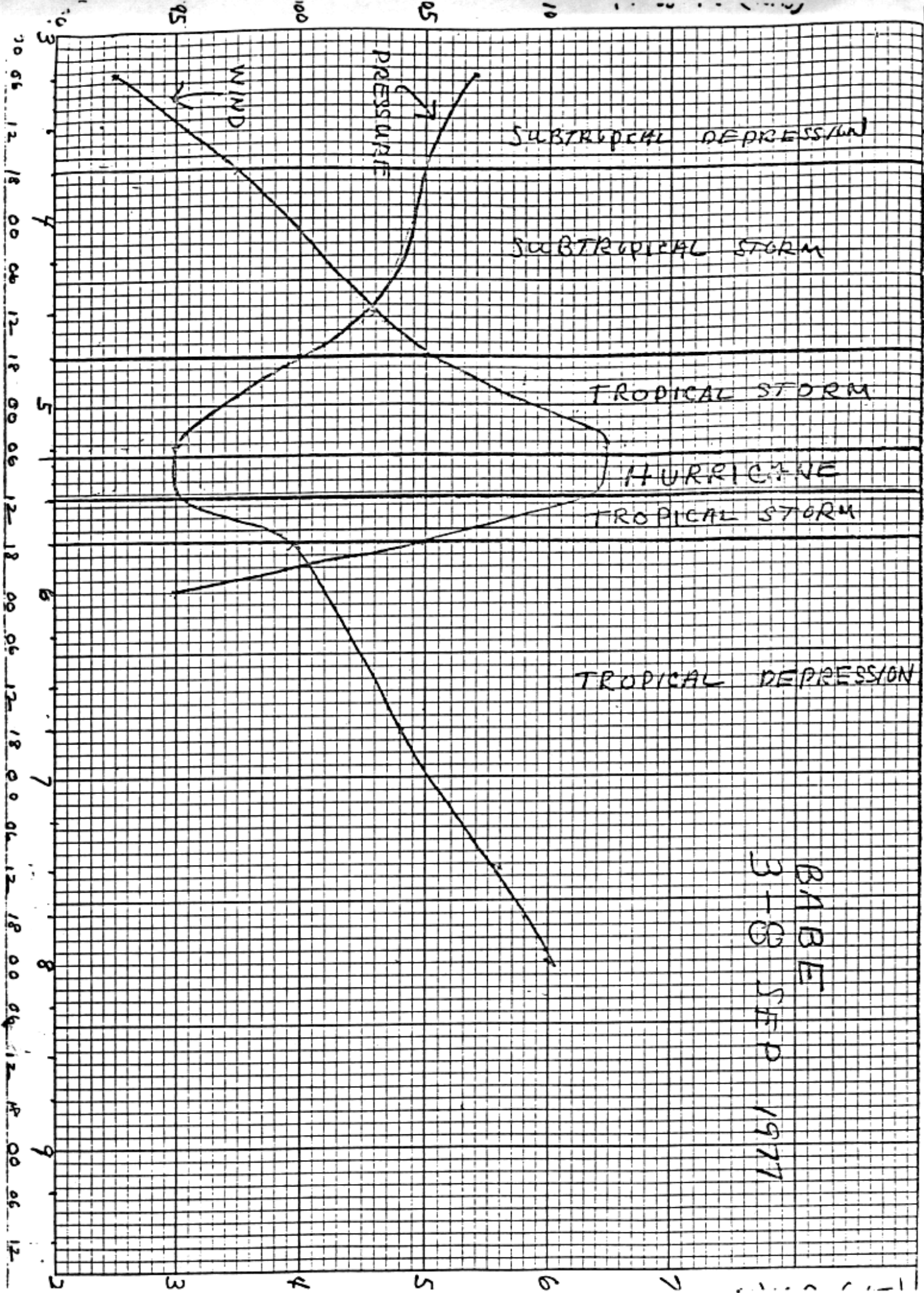
an order of magnitude too high!

PRELIMINARY REPORT

HURRICANE BABE

3 - 8 September 1977

| <u>DATE</u> | <u>TIME</u> <u>(GMT)</u> | <u>NORTH</u> <u>LAT.</u> | <u>WEST</u> <u>LONG.</u> | <u>PRESSURE</u> <u>(MB)</u> | <u>WIND</u> <u>(KNOTS)</u> | <u>STAGE</u> |
|-------------|-----------------------------|-----------------------------|-----------------------------|--------------------------------|-------------------------------|--|
| 9/3 | 0600 | 26.8 | 86.3 | 1007 | 25 | Subtropical depression. |
| | 1200 | 27.4 | 87.3 | | | |
| | 1800 | 27.6 | 88.5 | 1005 | 35 | Subtropical depression <i>STORM</i> |
| 9/4 | 0000 | 27.4 | 89.7 | | | |
| | 0600 | 26.6 | 90.5 | | | |
| | 1200 | 26.8 | 91.7 | 1003 | | |
| 9/5 | 1800 | 27.5 | 91.7 | 1000 | 50 | Tropical storm. |
| | 0000 | 28.0 | 91.6 | | | |
| | 0600 | 28.7 | 91.4 | 995 | 65 | Hurricane. |
| 9/6 | 1200 | 29.5 | 91.2 | | | |
| | 1800 | 29.8 | 91.6 | 1000 | 50 | Tropical storm. |
| | 0000 | 30.2 | 91.3 | | 30 | Tropical depression. |
| 9/7 | 0600 | 30.6 | 90.7 | | -- | |
| | 1200 | 31.1 | 90.0 | | -- | |
| | 1800 | 31.7 | 89.4 | 1004 | | |
| 9/8 | 0000 | 32.4 | 88.8 | | | |
| | 0600 | 33.2 | 88.0 | | | |
| | 1200 | 33.8 | 87.1 | 1008 | | |
| 9/9 | 1800 | 34.3 | 85.8 | | | |
| | 0000 | 34.5 | 84.8 | 1010 | | |
| | 0600 | 34.6 | 83.9 | | | |
| 9/9 | 1200 | 34.7 | 82.6 | | | |
| | 1800 | 34.8 | 81.3 | | | |
| | 0000 | 34.8 | 80.2 | 1012 | | |



BABE
3-8 SEP 1977