

### Hurricane Fern September 3-13

The track of Fern, including its depression stage, was most unusual. It is also rare for a depression to move inland over continental United States (except over peninsular Florida), then move back over the water and acquire storm or hurricane intensity. During its life, Fern abruptly changed heading by 90 degrees or more three times.

Fern originated from a tropical wave which moved northwestward out of the Caribbean Sea on September 1. A closed circulation in the middle troposphere moved over south Florida on September 2. The next day it became a depression as the circulation extended throughout the troposphere. Continuing northwestward, it moved inland over southern Louisiana on September 4, bringing rains up to seven inches in the New Orleans area. On September 6 and 7, responding to increased circulation in a ridge over the central U.S., the depression moved southwestward gaining strength slowly over the warm waters of the western Gulf of Mexico. It reached storm intensity late on September 7, and became a hurricane on the following day with sustained winds near 80 kt. About 150 n.mi. southeast of Galveston with the approach of a mid latitude trough Fern became almost stationary for nearly twelve hours. Then responding to the trough Fern turned northwestward toward Galveston. However, as the trough proceeded eastward at higher latitudes, pressures began to rise over Texas and Fern, after remaining stationary off Galveston for several hours, turned slowly southwestward paralleling the Texas coast.

The center, which had become elongated, edged inland on the morning of September 10 on the Texas coast between Freeport and

Matagorda and by mid-morning Fern was no longer of hurricane strength. However, since a portion of its elongated center remained over the Gulf waters, weakening was very slow. During the night of September 10-11, Fern passed over Corpus Christi, after which it turned toward the west-southwest, and finally was reduced to depression strength as it crossed the Rio Grande into Mexico. A summary of meteorological data associated with Fern in Texas is shown in table 4.

Most of the damage resulted from destructive floods caused by heavy rains. Accumulations ranging from 15 to 26 inches were reported in Bee, Refugio, and San Patricio counties, while totals of 10 to 15 inches fell over Calhoun, Aransas, Matagorda, Goliad, and Dural counties. From Galveston to Rockport amounts ranged from 5 to 12 in. More than 8 in. was measured as far inland as Laredo.

Numerous towns in Texas were isolated or seriously flooded. Major flooding occurred along the lower Nueces River, and along portions of the Frio, Lavaca, Navidad, San Antonio, Guadalupe, Mission, and Aransas Rivers.

Highest sustained winds at Corpus Christi were 57 kt and at Port O'Connor 75 kt. Gusts of 50 kt or higher were reported from Galveston to south of Corpus Christi. Five tornadoes observed in Texas were associated with Fern.

Storm tides of 5-6 feet above normal occurred in the Galveston-Freeport area.

Total damage caused by Fern is estimated at \$30.23 million mostly to property in Texas. Two persons were drowned.