

# MONTHLY WEATHER REVIEW

Editor, EDGAR W. WOOLARD

VOL. 72, No. 12  
W. B. No. 1429

DECEMBER 1944

CLOSED FEBRUARY 5, 1945  
ISSUED MARCH 5, 1946

## NORTH ATLANTIC HURRICANES AND TROPICAL DISTURBANCES OF 1944

By H. C. SUMNER

[Weather Bureau, Washington, D. C., December 1944]

THE intense Atlantic coast hurricane of September 8-16 and the Florida-Cuba storm of October 13-21, each of which wrought damage in excess of \$100,000,000, carried the hurricane season of 1944 into second position among the most destructive years of record. The historical New England hurricane of September 17-21, 1938, which from the viewpoint of property damage was probably the greatest natural disaster ever to befall the country, placed the season of 1938 at the top of the list. Other seasons have been more costly in the loss of human life, notably that of 1900 during which the great Galveston hurricane caused the death of about 6,000 persons.

Although the number of tropical disturbances detected during the past season was only slightly above the average of 8.6 storms per year for the last decade, the season of 1944 was notable for the high percentage of storms that developed full hurricane winds along the Atlantic coast north of Florida. No tropical disturbances of any consequence struck the Gulf coast of the United States west of Florida, although two hurricanes moved inland on the Mexican east coast and caused considerable damage.

Aircraft reconnaissance which was inaugurated during the 1943 season was extensively used for securing early fixes on tropical disturbances during the past year, and brought the Hurricane Warning Service an excellent new tool for detecting the presence and probable movement of tropical hurricanes.

Below are reviews of the individual hurricanes and tropical disturbances of 1944 taken in the main from station reports. A synopsis of some of the more important features of these storms is given in the tabular listing at the end of this summary; and their tracks numbered I to X, chronologically, are plotted on the accompanying chart.

I. *Tropical disturbance of July 12-19.*—The first tropical storm of the season developed east of the Bahama Islands on the 14th of July from a wave disturbance that had been traced from the eastern Caribbean Sea, where it was first noted near the Grenada Islands on the 11th. It moved through Mona Passage on the evening of the 12th without showing signs of development. The first evidence of increasing intensity was noted as it neared Turks Island on the 13th, and by the 14th a definite circular wind pattern had been established. At this time the Bahama Islands were reporting fairly high ocean swells moving on the coast at the rate of about six per minute.

Moving north-northwestward and increasing slowly in intensity the center reached a position near latitude 31° to 32° N., longitude 76° W., by the evening of the 15th, at which time a slowing of progressive movement was evident and the subsequent recurve toward the northeast began. Bermuda reported winds of approximately 40 miles per hour as the center passed about 250 miles to the northwest of that station. No strong winds were re-

ported from stations along the east coast of the United States. Although no actual observations of hurricane winds are available over ocean areas, it is believed that this storm was of hurricane force from about the time it curved to the northeastward.

II. *Tropical storm—July 24-26.*—On July 24 a small disturbance was noted east of Martinique and Santa Lucia. About 7 p. m.<sup>1</sup> of that date the center passed between those islands and a maximum wind of 55 miles per hour was reported from Fort de France, a town which had been all but destroyed by the disastrous hurricane of August 1891.

The disturbance moved rather rapidly west-northwestward and was located by aircraft reconnaissance near latitude 16° N., longitude 67° W., at 2:30 p. m. on the 25th. After this fix the center was not again definitely located, but there were positive evidences that it was near the coast of Haiti not far south of Port au Prince on the morning of the 26th. A wind of 70 knots was encountered by an airplane near this point (exact location and elevation unknown), and the Port au Prince upper air soundings showed winds aloft of hurricane force, with squalls of 35 miles per hour at the surface. "Considerable damage" was reported from the town of Jacmel on the coast south of Port au Prince. Indications are that the small center struck the high mountains of the Haitian Peninsula and was broken up. It is not believed that winds of hurricane force accompanied this storm at the surface, but that velocities of about 60 miles per hour marked its entire course.

III. *Hurricane—July 30-August 4.*—The first tropical storm of 1944 to reach the coast line of the United States formed east of the Bahamas during the night of July 30-31 from a wave that, during the previous 2 days, had moved from the region northeast of Puerto Rico. The center was definitely located by reconnaissance about 175 miles northeast of Nassau at about 7 a. m. on the 31st. Moving north-northwestward the storm approached the North Carolina coast with slowly increasing intensity and moved inland south of Southport at about 7 p. m. on August 1. The diameter of the storm was small but reports indicate that winds were of hurricane force.

The Coast Guard station on Oak Island reported a wind of 59 miles per hour before the wind indicator failed at 4:30 p. m. Winds increased thereafter and at about 5:50 p. m. were estimated at 70 to 80 miles per hour. The lowest observed pressure 29.22 inches (989.5 millibars) occurred on Oak Island at 6:30 p. m.

The Wilmington Weather Bureau Office, located about 20 miles inland, reported a maximum velocity (maintained for a 5-minute period) of 46 miles per hour, an extreme

<sup>1</sup> All times referred to in this summary are eastern standard.

velocity of 52 miles per hour, and a lowest pressure of 29.43 inches (996.6 millibars).

Damage to property and crops in the Wilmington area has been estimated at about \$2,000,000. On the beaches, particularly at Carolina and Wrightsville, many houses and cottages were destroyed or had their foundations undermined by high tides and extremely high seas. Substantially built structures not subject to undermining by water action went through the storm without damage. A guest at the Ocean Terrace Hotel, Wrightsville Beach, who had retired early, awoke the morning after the storm and found, after a sound night's sleep, that she was the sole occupant of a hotel from which everyone else had been evacuated. Property losses in the city of Wilmington have been reported as totaling about \$60,000, and in Southport the damage figure has been placed at \$10,000. Slight storm damage was reported from the beaches north of Wilmington.

Crop damage was heaviest in the counties of New Hanover, Brunswick, Onslow, and Pender. The county agent of New Hanover County has estimated crop losses for the entire area at \$1,269,000.

More than 10,000 persons were evacuated from beaches and exposed locations in advance of the storm, and as a result no lives were lost and few serious injuries were reported.

Moving north from the Wilmington area the center began a recurve to the northeastward, passed near Richmond and Washington about noon of the 2d, and moved out to sea near Atlantic City where an extreme wind of 38 miles per hour was recorded during the afternoon of the same day. At Washington, 6.15 inches of rain fell during a 24-hour period as the storm center passed east of that city. This amount, the second heaviest 24-hour fall in 71 years of record at that station, is exceeded only by the 7.31 inches that accompanied passage of an earlier hurricane on August 11-12, 1928. There is no indication that the storm regained intensity over the ocean as it skirted the southern New England coast.

IV. *Hurricane of August 16-23.*—This small intense storm was first noted east of Barbados on the 16th. Passing south of Barbados and over the Grenada Islands during the night, it entered the Caribbean not far from St. Vincent about 8:30 a. m. on the 17th.

On the morning of August 18, a vessel, en route from New Orleans to Buenos Aires, was heavily involved in the storm near 15°10' N., 66°40' W. or about 180 miles south of Puerto Rico. The master reported a low barometer reading of 28.74 inches (973.3 millibars) which coincided in time with a 5-to 10-minute calm which accompanied passage of the storm center. A fall in barometric pressure of 40 millibars in 3 hours preceded the low reading and a similar rise in the same space of time followed passage of the center. Winds were estimated at 70 to 90 miles per hour with ceiling and visibility zero. Even with full speed ahead to reduce pounding on the port side it was virtually impossible to keep the vessel of 8,498 gross tons, and a maximum speed of 14 knots, headed into the wind since the ship was swung to-and-fro by the force of the wind and sea.

Following its west-northwest course the hurricane swept inland over the southeast coast of Jamaica, in the Boston Bay area, shortly before noon on the 20th and passed off the western coast near Montego Bay some hours later. The storm lost much of its intensity as it crossed the island, for winds fell from an estimated 100 to 120 miles per hour on the east coast to 80 miles per hour in the vicinity of Montego Bay where damage was not serious.

Kingston in the right-hand semicircle of lesser winds reported a maximum of 60 miles per hour from the west-southwest and a low pressure of 29.50 inches (999.0 millibars). Heaviest damage occurred in the main banana and coconut belt, two crops which are among the most important on the Island. Press photos show that on some of the large coconut plantations, in the more seriously affected areas, not a tree was left standing.

The hurricane center passed near Grand Cayman Island on the 21st with winds of 80 to 90 miles per hour, in gusts, and more than 20 gusts over 80 miles per hour reported. No damage reports have been received from Grand Cayman.

On the morning of the 22d the center moved inland on the west coast of Yucatan a short distance south of Cozumel Island, and while it lost force in passing over the Peninsula, it emerged into the Gulf of Mexico intact and moved westward into Mexico a short distance south of Tuxpan. According to press reports at least 12 deaths were caused inland in Mexico as a result of floods that accompanied dissipation of the storm.

A conservative estimate of fatalities resulting from this hurricane, taken from incomplete statistics, places loss of life at 216. Marine casualties include a British sailing vessel which disappeared near the Grenada Islands with 74 persons aboard, all of whom are presumed lost; and the 110-foot motorship *Island Trader*, out of Miami for Belize, which was reported lost off Yucatan without details of loss of life and cargo being given. In addition various degrees of damage have been reported from other ships.

Estimates of property damage are incomplete but will total several million dollars. Extremely heavy crop losses were suffered on Jamaica, where a crippling blow was dealt growers, exporters, and industrialists dependent upon the highly important banana and coconut yields. The most authoritative estimate of the number of coconut trees destroyed on the whole Island is 41 percent, while banana trees which were concentrated in the stricken zone, were about 90 percent destroyed. Damage figures for other areas affected by the hurricane are not available.

V. *Minor tropical disturbance of August 20-22.*—Development of a circulation and an increase in intensity was noted north of the Yucatan Peninsula, in an isallobaric wave that for some time had been moving westward through the Caribbean. The disturbance continued a westward or west-northwestward movement and crossed the Mexican coast south of Brownsville about noon of the 22d. Highest winds observed at coastal stations were 34 miles per hour at Fort Isabel and 32 miles per hour at Brownsville. The disturbance did not develop winds of more than moderate gale force.

VI. *The intense New England hurricane of September 8-16.*—The second most destructive hurricane in the history of the country struck inland over Long Island on September 14, took a toll of 390 lives (including marine casualties), and wrought property damage of over \$100,000,000.

A complete report of this hurricane, in which listings of lowest pressures, highest winds, tides, fatalities, and property damage are tabulated and compared with like figures for the great New England hurricane of September 1938, can be found in the MONTHLY WEATHER REVIEW, September 1944; 72: 187-189.

VII. *Tropical disturbance of September 8-10.*—A partial wind circulation, evident early in the afternoon of September 7, developed and within the next 36 hours isobars with cyclonic curvature covered the entire west Gulf, and suggested a complete wind circulation with center near

latitude 23° N., longitude 94° W. First moving northward and turning to the northeastward during the 9th it reached the vicinity of Mobile late on the 10th, accompanied by heavy washing rains that continued for about 18 hours, and moderate to fresh, occasionally gusty, easterly winds.

At Mobile a low pressure of 29.63 inches (1,003.4 millibars) was reached at 2:45 p. m. on the 10th. At approximately the same time, the wind reached a maximum velocity of 18 miles per hour from the south with a few gusts reaching 30 miles per hour. Pensacola Naval Air Station reported a maximum wind velocity of 54 miles per hour.

High tides and heavy rains were responsible for practically all of the damage reported. High tide in the Mobile River, reached shortly before the computed time of low tide, was 3.8 feet above sea level, the highest tide since September 1, 1932. The heaviest 24-hour rainfall since 1937, 7.04 inches, was registered at Mobile. Other excessive 24-hour falls included 9.50 inches at Springhill, 10.15 inches at River Falls, and 11 inches at Bellingrath Gardens about 25 miles south of Mobile.

Streets in Mobile were flooded to depths ranging from 6 to 18 inches, and rain water backed into the lower floors of some homes in the southern section of the city. In this area small boats were used on some streets between 10 a. m. and 3 p. m. on the 10th. The bridge causeway was closed part of the afternoon when water to a depth of 1 foot washed over it. No fatalities or injuries resulting from the storm have been reported.

Reduction of various crops in Mobile and Baldwin counties as a result of flooding have been estimated as follows: corn 15 percent, soy beans 10 percent, hay 40 percent, peanut hay 30 percent, and fall potatoes 40 percent.

VIII. *Hurricane of September 19-21.*—Forming from a wave in the Caribbean Sea near the Yucatan Channel, this storm quickly developed a small center with winds of about hurricane force and moved into northern Yucatan on the 20th. Curving toward the southwest and

passing south of Merida, it entered the Gulf of Mexico at Campeche about midnight of the 20th-21st. Traversing a small extent of the Gulf the center reentered Mexico between Coatzacoalcos and Ciudad del Carmen in the late afternoon of the 21st. Reports received from Yucatan and from aircraft indicate a very small center with winds of 75 miles per hour throughout the life of this storm.

Although no figured estimates of total damage in Mexico are available, it is known that floods and resultant landslides did extensive damage to transport and communication systems.

Press reports indicate that 200-300 persons drowned in floods that occurred in the Isthmus of Tehuanepec, and 2 or 3 crew members were lost in the sinking of a Mexican schooner of 150 tons off the coast of Campeche.

IX *Slight tropical disturbance of October 1-2.*—Developing from disturbed and squally conditions that had been noted east of the Lesser Antilles, during the several days previous, this disturbance moved northward near the 60th meridian into a strong trough that existed east of Bermuda. The storm did not develop hurricane winds and no reports of damage to shipping have been received.

X *The severe Florida-Cuba hurricane of October 13-21.*—A detailed report on this storm, which took a toll of over 300 lives and resulted in total property damage exceeding \$100,000,000, is contained in the MONTHLY WEATHER REVIEW, November 1944; 72: 221-223.

*Storm.*—On November 2 at about 5:30 a. m. a vessel, involved in a storm near latitude 11° N., longitude 82° 36' W., sent a report of a 60 knot wind from the west, pressure 29.60 inches (1,002.4 millibars), seas mountainous, and vessel laboring heavily. Similar conditions were reported for about 3 hours, during which time the vessel called for assistance. The storm dissipated or moved inland a short time later as aircraft reconnaissance early on the following day failed to locate any disturbance. Since it is impossible to trace a movement, from available reports, or to determine whether the ship was involved in a small hurricane or a very severe squall, this storm is carried as a matter of record, and it is not listed as a tropical disturbance of the past season.

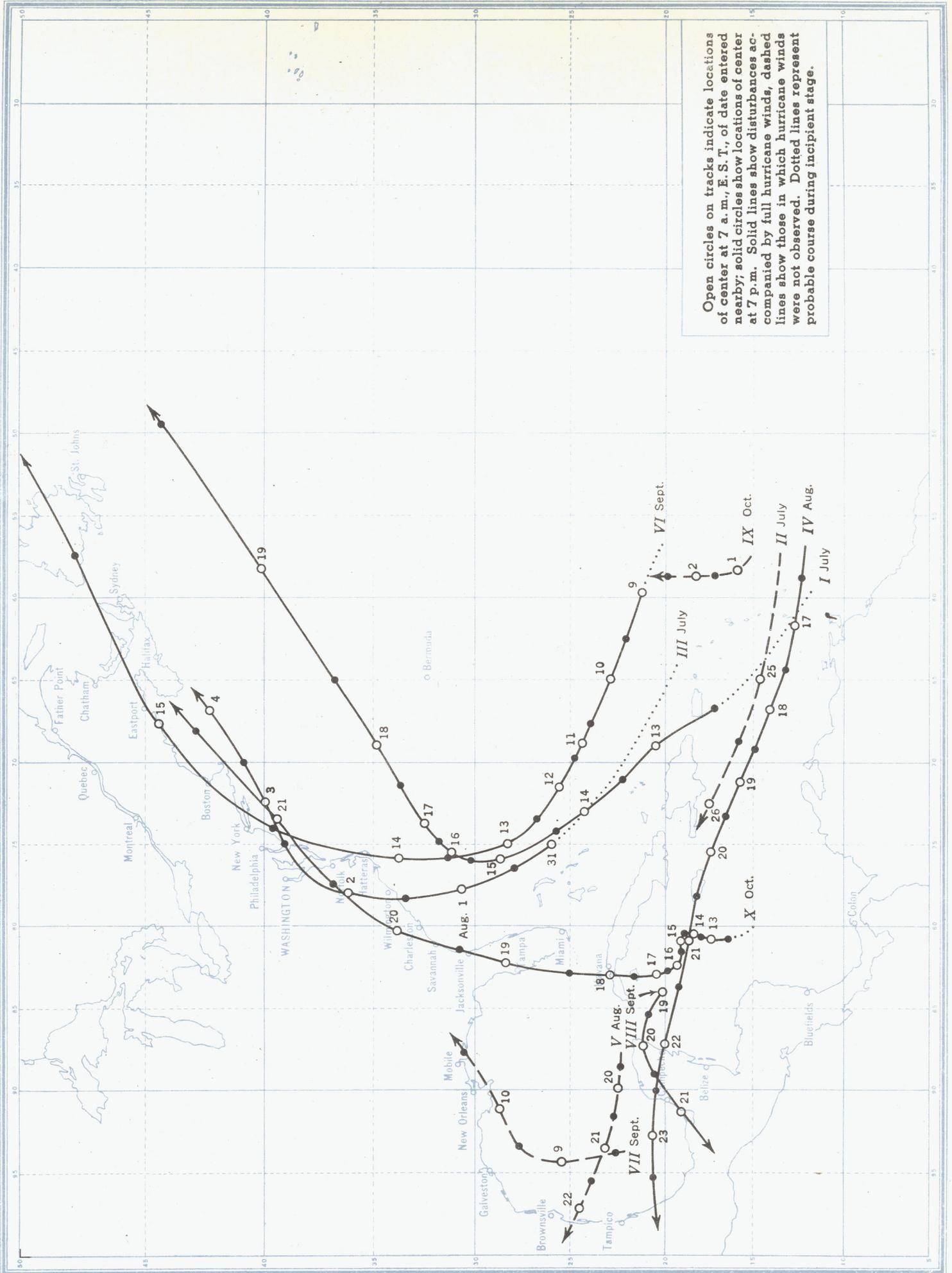
TABLE I.—North Atlantic hurricanes and tropical disturbances of 1944

[Number of storm in table corresponds to number of path on accompanying chart]

Storm	Date	Place where first reported	Coast lines crossed	Maximum wind velocity reported <sup>1</sup>	Lowest pressure reported <sup>2</sup>	Place of dissipation	Intensity	Remarks
I	July 12-19.....	Near the Grenada Islands.	None.....	40 miles per hour reported at Bermuda.	No data <sup>3</sup> .....	North Atlantic southeast of Newfoundland.	Likely of hurricane intensity.	Presented a serious threat to the Atlantic coast until recurve to the northeastward began on the 16th. No strong winds occurred at any coastal station of the United States.
II	July 24-26.....	East of Martinique and Santa Lucia.	.....do.....	55 miles per hour at Fort de France, Martinique.	.....do.....	Western Haiti.....	Not of hurricane intensity.	Velocities probably about 60 miles per hour throughout the course of this storm. Considerable damage reported from the town of Jacmel on the south coast of Haiti.
III	July 30-Aug. 4..	About 175 miles northeast of Nassau.	North Carolina, Virginia, Delaware, and New Jersey.	Estimated 70 to 80 miles per hour at the Oak Island Coast Guard Station, N. C.	989.5 millibars (29.22 inches) at Oak Island Coast Guard Station.	North Atlantic south of Nova Scotia.	Full hurricane..	Damage in the Wilmington area estimated at \$2,000,000. Several persons injured but no deaths reported.
IV	Aug. 16-23.....	East of Barbados, Windward Islands.	Jamaica, Yucatan and Veracruz, Mexico.	Estimated 100 to 120 mile gusts at Boston Bay, Jamaica.	973.3 millibars (28.74 inches) a ship at 15° 10' N., 66° 40' W.	East coast of Mexico south of Tuxpan.	.....do.....	Property damage estimated at several million dollars. Loss of life probably exceeded the 116 fatalities reported.
V	Aug. 20-22.....	North of Yucatan Peninsula.	Mexico.....	34 miles per hour at Port Isabel, Tex.	No data near center.	Northeast coast of Mexico a short distance south of Brownsville.	Not of hurricane intensity.	No damage or loss of life reported.
VI	Sept. 8-16.....	Near latitude 21° N., longitude 60° W.	New York, Connecticut, Rhode Island, Massachusetts, and Maine.	Estimated 90 miles per hour from the west at Hatteras, N. C.	947.2 millibars (27.97 inches) at Hatteras, N. C.	Merged with extratropical low in the North Atlantic Ocean southeast of Greenland.	Full hurricane..	Listed as the second most destructive hurricane to reach the coast of the United States. Damage estimated in excess of \$100,000,000. In the disastrous September hurricane of 1938 damage was placed at \$250,000,000 to \$350,000,000.
VII	Sept. 8-10.....	Southwest Gulf of Mexico.	Louisiana and Alabama.	54 miles per hour at Pensacola Naval Air Station.	1003.4 millibars (29.63 inches) at Mobile, Ala.	East of Mobile.....	Not of hurricane intensity.	Damage in the city of Mobile estimated at \$10,000, mostly from high tides and heavy rains. No loss of life or injuries reported.
VIII	Sept. 19-21.....	Northwest Caribbean Sea.	Mexico.....	75 miles per hour at Campeche.	1,001 millibars (29.56 inches) at Campeche.	Isthmus of Tehuantepec.	Hurricane intensity.	Press reports list 200-300 persons drowned in the floods of the Isthmus of Tehuantepec.
IX	Oct. 1-2.....	Northeast of Barbados.	None.....	Beaufort force 7 (32-38 miles per hour) from the south, a ship.	1,004 millibars (29.65 inches), a ship.	Atlantic Ocean northeast of Leeward Islands.	Not of hurricane intensity.	No damage to shipping has been reported.
X	Oct. 13-21.....	About 100 miles east of Swan Island.	Cuba, Florida, Georgia, Virginia, Maryland, and Delaware.	120 miles per hour from the east at Dry Tortugas. <sup>4</sup>	948.9 millibars (28.02 inches) at Dry Tortugas.	Merged with the Icelandic low east of Greenland.	Full hurricane..	Great destruction in Florida and Cuban area. Loss of life has been estimated at 318 and property damage at approximately \$100,000,000.

<sup>1</sup> Velocities maintained for a period of 5 minutes, except when reported as gusts.<sup>2</sup> Reduced to sea level.<sup>3</sup> Restriction of radio reports has resulted in a scarcity of material on storms that expended their energy over water surfaces.<sup>4</sup> Anemometer blown down by wind maintaining 120 miles per hour velocity.

Chart I. Tracks of North Atlantic Hurricanes and Tropical Disturbances of 1944



DEPARTMENT OF COMMERCE, WEATHER BUREAU  
 MEAN VALUES OF RELATIVE HUMIDITY, WHICH EXIST AT VARIOUS TEMPERATURES, WHEN ELECTRIC  
 HYGROMETER IS BELOW ITS OPERATING RANGE.

(For Radiosondes of 340,000 & 400,000 Series)  
 Also applicable for radiosondes of 500,000 to 550,000 series

