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HURRICANES OF 1951

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GENERAL SUMMARY

Ten tropical disturbances, eight of them full hurricanes, were charted in the Atlantic during the 1951 season. This is slightly above the normal number, but generally speaking, the season was an average one, and presented no more than the usual tracking and forecasting problems.

No winds of hurricane force occurred on the coast of the United States, and only one disturbance, less than hurricane force, struck the mainland during the season. This storm crossed southern Florida from the Gulf of Mexico on October 2, and gave flooding rains and winds up to 60 m. p. h. in squalls. Damage has been estimated at about \$2,000,000 but there was no loss of life. This is the smallest damage figure for tropical storms in the United States since 1939, but other places were not so fortunate. The Island of Jamaica suffered its worst hurricane disaster of the century on August 17-18 when hurricane "Charlie" caused about \$50,000,000 in property and crop damage, killed 152 persons, injured 2,000 others, and left 25,000 homeless. The same storm did extensive crop damage when it crossed northern Yucatan the night of the 19th. On August 22 it entered Mexico near Tampico where upward of 100 people lost their lives, principally from bursting dams and flooding rivers. Property and crop losses were in the millions of dollars.

The first hurricane of the season developed east of the Florida coast during the night of May 16. This is the earliest date known for a fully developed hurricane in the Atlantic. There are records of several tropical storms in May during past years, but none developed hurricane force. Moore and Davis [1] have discussed the physical and dynamic forces involved in this hurricane and other interesting features surrounding its development.

The next storm was noted on August 2 and thereafter storm activity was brisk until October 20 when the last

hurricane of the season dissipated over the Atlantic southwest of Bermuda.

The Miami Hurricane Central coordinated and dispatched more than 100 reconnaissance aircraft flights into hurricanes during the season, and coordinated and issued a total of 156 advisory bulletins. These indicate the active nature of the season, but the totals are well below the record established in 1950. Total damage in the Caribbean area will probably exceed \$80,000,000 and there were more than 250 fatalities.

This was another season with several instances of two or more storms in progress simultaneously. Referring to the track chart (fig. 1), it will be noted that hurricanes "Dog" and "Easy" were in progress on September 3-5, while a third hurricane "Fox," appeared on September 5 and was a companion of "Easy" until the 10th. Again on October 15-16, hurricanes "Item" and "Jig" were in progress at the same time. This is the second consecutive year with multiple hurricanes, a rather rare occurrence in the Atlantic. An interesting feature of hurricanes "Easy" and "Fox" was their slight counterclockwise movement which took place when the two approached each other in the Atlantic near Bermuda. This apparently caused the great hurricane "Easy" to veer enough to miss Bermuda, which had been threatened with destructive winds before the counterclockwise tendency became apparent on September 8.

INDIVIDUAL HURRICANES

Able.—May 16-24.—The earliest fully developed hurricane of record in the Atlantic developed east of Florida during the night of May 16. At 0700 EST on the 17th, the steamship *R. P. Smith* reported winds of Beaufort force 9 to 10, falling pressure, and waves 25 to 30 feet high near 28.5° N., 79.5° W. This was the first definite

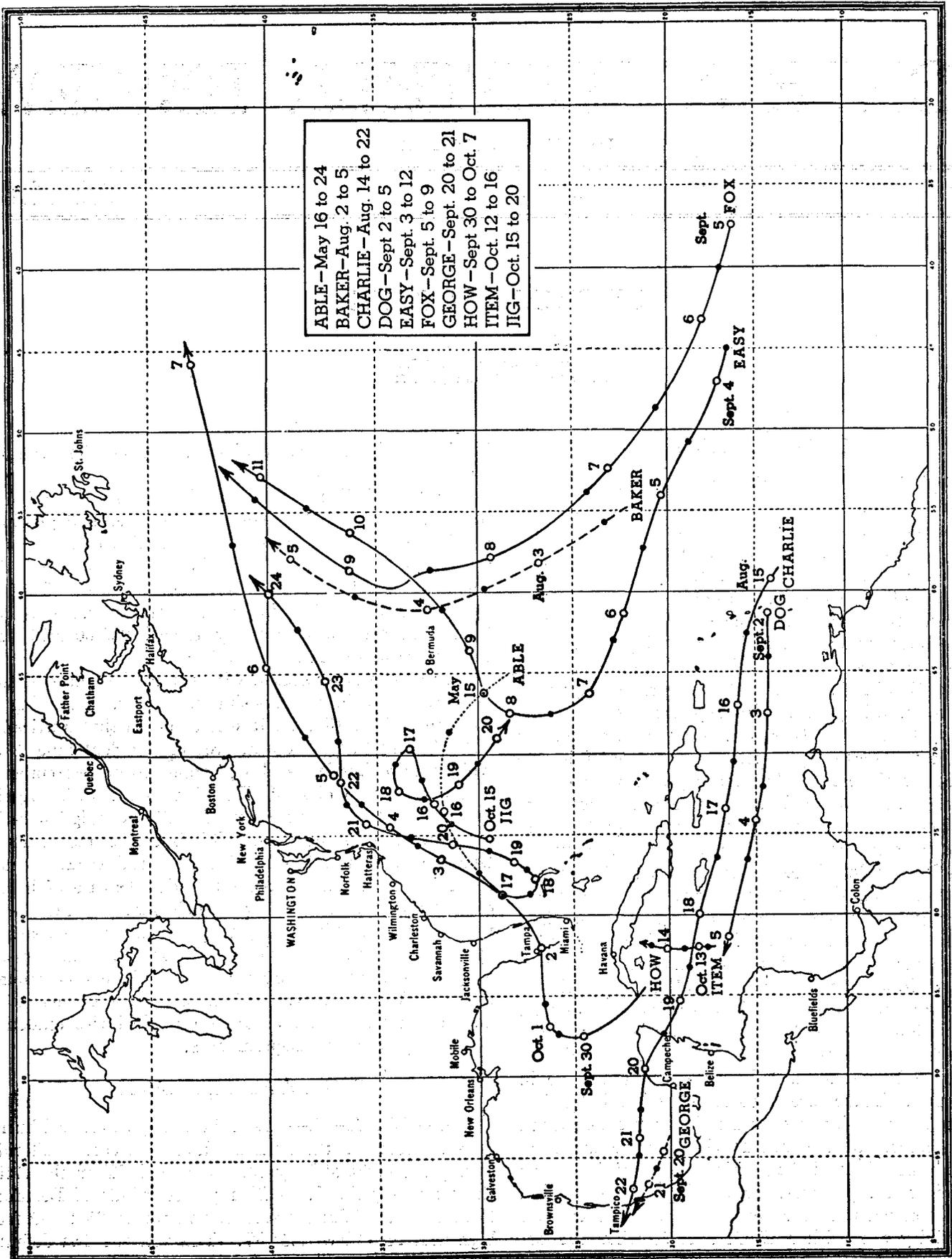


FIGURE 1.—Chart showing tracks of hurricanes observed during the 1951 season. Open circles on tracks indicate position of center at 7 a. m., EST., solid circles, position at 7 p. m. Solid tracks indicate full hurricane winds, dashed lines less than full hurricane winds. Dotted tracks represent probable course during incipient stage.

information that a severe storm had formed. The Navy reconnaissance squadron had just arrived at Miami for servicing prior to the beginning of the season and was ordered out immediately to get full reports. During the 17th they reported a storm of full hurricane strength moving southward. It was later determined that the hurricane was moving on a broad curving loop which brought it over the Little Bahama Banks during the night of the 17th and on the 18th. Walker's Cay on these banks reported 90 to 95 m. p. h. winds for 5 hours during the night of the 17-18th, and Grand Bahama and Little Abaco islands both reported about the lower limits of hurricane force. The completion of the loop turned the hurricane northeastward over the Atlantic and it passed 70 miles east of Cape Hatteras on the 21st. Thereafter it turned toward the east-northeast and dissipated over the Atlantic near 40° N., 60° W. on May 24. The strongest winds were estimated by aircraft at 100 knots (115 m. p. h.) on the 21st. The central "eye" was well formed and about 20 miles in diameter during much of the storm's life and the central pressure was well below 29 inches. (Moore and Davis [1] have investigated this hurricane more fully.)

Baker.—August 2-5.—An "easterly wave" developed into a tropical storm far to the northeast of the Leeward Islands on August 2, near 23° N., 56° W. It moved on a broad curving path to the northwest and north and passed about 275 miles east of Bermuda on August 4 and thereafter turned northeastward over the Atlantic. This storm did not develop hurricane force; the strongest winds reported were only 60 m. p. h.

Charlie.—August 14-22.—A partially developed "easterly wave" appeared east of the Lesser Antilles on August 14 and moved northwestward through the islands early on the 15th, without causing damage. Aircraft reported squalls of 90 knots east of Martinique on the afternoon of the 14th, but the island weather stations did not report winds stronger than 35 m. p. h. There is some evidence that a small center of strong winds passed between Dominica and Guadeloupe during the morning of the 15th. At any rate, there was regeneration to full hurricane force again during the next 24 hours. The center skirted the south coast of Jamaica during the night of the 17th and the entire island had destructive winds, which caused the worst hurricane disaster of the century on Jamaica. Property and crop damage was estimated at \$50,000,000, 152 persons were killed, and 2,000 others injured, and about 25,000 made homeless. The strongest wind at Kingston was estimated at over 110 m. p. h.; lowest pressure, 28.74 inches (973 mb.); and rainfall, 17 inches. The center passed several miles south of the city.

After the hurricane left Jamaica, Grand Cayman experienced 92 m. p. h. winds in gusts, but the next land area seriously affected was the Yucatan Peninsula, which the hurricane crossed during the night of the 19th. Reports indicate heavy crop losses running to 70 percent,

but no loss of life in the Yucatan area. The storm entered the Gulf near Merida and Progreso on the morning of the 20th considerably reduced in force, but it regained its former force before entering Mexico near Tampico on August 22. Tampico was near the southern edge of the "eye" and reported winds of 110 m. p. h. but winds were doubtless stronger to the north of the calm center. Property damage was estimated at \$1,160,000 in the city of Tampico and 4 persons were killed; torrential rains flooded rivers and burst dams in the country west and northwest of the city and caused more than 100 deaths by drowning, according to final press reports.

The exact number of casualties could not be ascertained since many bodies were evidently not recovered in the flood area. Property damage was in the millions of dollars, but actual estimates are not available. The strongest winds reported in this hurricane were about 130 m. p. h. (by aircraft) just before it entered Yucatan, and again in the Gulf off Tampico. The pressure at Tampico dropped to 28.81 inches (975.7 mb.). The total loss of life in this hurricane was almost certainly over 250, while property and crop damage will probably reach a total of \$75,000,000.

Dog.—September 1-5.—Reconnaissance planes located a disturbance several hundred miles east of Barbados on September 1, and on the morning of the 2d it was found to be a partially developed wave, with squalls of hurricane force in its northeastern quadrant, a short distance east of Martinique. Winds on the southern side were weak. On September 2, it moved through the Lesser Antilles between Santa Lucia and Martinique. Both islands suffered considerable damage. On Martinique 1,000 homes were reported destroyed and many others unroofed; 5 persons lost their lives by drowning; trees which were uprooted blocked roads and tore down telephone and power lines; 90 percent of the banana crop, and 30 percent of the sugarcane crop were lost; damage was about \$3,000,000. On Santa Lucia, two persons lost their lives by drowning, and one sailing vessel was destroyed and two others damaged; flooding and high winds destroyed 70 percent of the banana crop in the northern part of the island. The strongest wind reported in the islands was 100 knots (115 m. p. h.) at Fort-De-France Airport on September 2. Total damage was well over \$3,000,000 and seven people were killed.

After the hurricane entered the Caribbean Sea, it began losing force and by the time its westward course brought it to a position some 200 miles southeast of Swan Island on the 5th, it had dissipated into moderate squalls and thereafter disappeared entirely.

Easy.—September 3-12.—The steamship *Barn* sent three special reports on the morning of September 3 which indicated the existence of a circulation, probably of hurricane force, near 16.5° N., 42.5° W. It was followed thereafter by aircraft which reported it to be of hurricane force and increasing as it moved on a west-northwestward

course. By the time it began curving northward on the 7th near 25° N., 67° W., aircraft reported it to be too severe for penetration. The wind reached an estimated 140 knots at deepest penetration on the south side when the plane had to turn back. This indicated that a possible wind of between 160 and 200 m. p. h. was prevailing near the center and on the stronger northern side. This was by far the most severe hurricane of the 1951 season. It curved sharply and passed a short distance southeast of Bermuda on the 9th and continued northeastward and was well off Newfoundland by the 12th. This great hurricane did not strike any land area, but a few ships were involved more or less and suffered damage to their superstructures. There was no loss of life. Lowest pressure reported as 28.26 in. (957.0 mb.) on the 6th.

Fox.—September 5-9.—This hurricane was first suspected when the steamship *Janecke Naess* encountered 45-knot south winds at 15° N., 35° W. on September 5. This wind report indicated that a small hurricane center was located a short distance northwest of the ship's position. It later proved to be a small, fast-moving hurricane which moved on a northwestward course and passed some 350 miles east of Bermuda on September 8. Thereafter it turned northeastward and continued its rapid movement over the Atlantic. It passed well to the east of Newfoundland on the 10th. It will be noted that this hurricane's entire life was co-existent with the great hurricane "Easy." When the two were nearest Bermuda on the 8th, they exerted the usual counterclockwise torque on each other, which probably prevented "Easy" from striking the island. The strongest winds reported by aircraft for "Fox" were 115 to 120 m. p. h. A few ships were involved to some extent but no damage reports have been received.

George.—September 20-21.—A tropical storm of less than hurricane force developed in the Gulf of Campeche on September 20 and moved into Mexico a short distance south of Tampico on the 21st. The strongest wind reported was about 60 m. p. h. (by aircraft) during the afternoon on the 20th. No damage has been reported in connection with this storm.

How.—October 1-7.—An easterly wave moved into the Gulf of Mexico through the Yucatan Channel the last 2 days of September, and on October 1 reconnaissance planes located a center of circulation near 26.0° N., 87.5° W. attended by squally winds of about 40 m. p. h. This center turned sharply eastward and crossed Florida from about Punta Gorda to Vero Beach on October 2. The strong winds associated with the disturbance while

passing over Florida were confined to squalls along the Keys and on the east coast up to Palm Beach far to the southeast of the center; they reached 50 to 60 m. p. h. The center was not strongly organized at this time and was not attended by damaging wind, but it was attended by a belt of torrential rains along its path, which caused extensive flooding of farm and pasture lands, including much of the rich farm land around Lake Okeechobee. A considerable number of cattle were drowned and some that could not be moved from flooded ranges to high ground died of starvation. Wind damage was confined to canvas awnings, a few glass windows, and sinking or damage to some small craft along the Keys and lower east coast. In all, damage was estimated at about \$2,000,000; no loss of life or injuries occurred.

After leaving Florida the storm increased to hurricane force as it moved northeastward in the Atlantic. It passed a short distance offshore from Cape Hatteras on October 4, without damaging winds on land, and continued northeastward and then east-northeastward and passed several hundred miles south of Nova Scotia and Newfoundland on the 6th and 7th. The strongest winds reported were about 110 m. p. h.

Item.—October 12-16.—A very small hurricane developed in the northwestern Caribbean Sea on October 12 near 18° N., 82° W. It moved slowly northward to a position 60 to 80 miles east-southeast of the Isle of Pines where it became stationary, or made a small loop, and slowly dissipated on the 15th and 16th. Strongest winds reported by aircraft were around 80 m. p. h. maintained from the 13th to 15th. No damage resulted from this hurricane. Lowest central pressure reported was 29.45 in. (997.3 mb.).

Jig.—October 15-20.—The last hurricane of the season developed off the south Atlantic coast on October 15 near 30° N., 75° W. A semicircular area of hurricane force winds of around 75 to 80 m. p. h. developed north of the center and persisted for a couple of days as it moved slowly northeastward. On the 17th and 18th, the center described a loop westward and then southward between Bermuda and Cape Hatteras and lost force. It finally died out several hundred miles southwest of Bermuda on October 20. Several ships were involved in the storm, but no reports of damage have been received.

REFERENCE

1. Paul L. Moore and Walter R. Davis, "A Preseason Hurricane of Subtropical Origin," *Monthly Weather Review*, vol. 79, No. 10, October 1951, pp. 189-195.