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Democracy Dies in Darkness

CAPITAL WEATHER GANG

When storms were a surprise: a history of hurricane warnings

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We've grown so used to warnings three or four more days ahead of time that a hurricane is headed our way that it's hard to imagine a time when hurricanes hit with no warning whatsoever before the arrival of the first rain bands with gusty wind and riving rain.

August 21 is the 140th anniversary of the first U.S. hurricane warning when the U.S. Army Signal Corps, warned of a hurricane threat on Aug. 21, 1873 to the East Coast from Cape May, N.J. to New London, Conn., by displaying signal flags along the coast. This storm missed the U.S. but hit Newfoundland, Canada on Aug. 26. It killed at least 223 people, mostly on ships at sea.

(The U.S. Army's Signal Corps handled U.S. weather forecasting from the foundation of a U.S. weather service in 1870 until the U.S. Weather Bureau was formed in 1890. It became the National Weather Service in 1970.)

The 1840s invention of the electric telegraph made weather forecasting possible. The basic idea at the beginning was that since middle latitude storms move generally west to east information about a storm to the west could alert places to the east.

Meteorologists learned how to prepare maps showing air pressures, among other weather elements, based on reports from stations around the country and how to use these to make forecasts. The basic idea was to forecast areas of low and high pressure to continue moving in the same directions without gaining or losing strength. Since weather systems often change directions and gain and lose strength forecasts often failed; still they were better than nothing.

Forecasts for weather systems moving from west to east across the country where weather stations reported what was happening were far better than those for hurricanes, which approach from the ocean where no observations were available.

By the 1890s, however, underwater cables were giving the Weather Bureau telegraphic links to a few Caribbean Islands and to Nassau in the Bahamas, which was a perfect outpost to watch for hurricanes that hit the U.S. East Coast.

Reports from the Bahamas helped the Weather Bureau forecast the hurricane that hit New York City on Aug. 24, 1893. This storm did extensive damage around the city, sinking ships and boats offshore. In fact after 1893 no storm caused more damage to New York City until Sandy last year. Nevertheless, these forecasts had major shortcomings.

Two days after the 1893 storm hit the City, the Weather Bureau warned that another hurricane, which had passed north of Nassau, The Bahamas, would hit somewhere on the East Coast somewhere south of New York City within three days.

Three days later a Category 3 (maybe a Category 4) storm came ashore over Savannah with its right semicircle with the strongest winds over the sea islands of Beaufort County, S.C. The 16-foot storm surge in the middle of the night killed from 1,000 to 2,000 people. A warning for the entire coast south of New York would have been useless if anyone had thought of doing something to respond to the possibility of a hurricane hitting them. At that time hurricanes were mostly seen as acts of god.

These two storms were the first of five hurricanes to hit the U.S. in 1893. The other extremely deadly storm swept across low-lying islands south of New Orleans on Oct. 2, killing an estimated 2,000 people. No warning was issued for this storm and the Weather Bureau said that it had formed close to shore only two days before. Later research showed it had formed five days before in the Caribbean, crossed the Yucatan Peninsula and moved on to Louisiana.

The 131 mph (Category 4 by today's standards) hurricane that hit Galveston, Texas, on Sept. 8, 1900 killed between 6,000 and 12,000 people (the official figure is 8,000) is the worst natural disaster in U.S. history. Weather Bureau headquarters in Washington, D.C., which handled all warnings at the time, had issued "storm warnings" from Pensacola, Fla., to Galveston, Texas, on Sept. 7 after a tropical storm that was growing into a hurricane moved into the Gulf of Mexico west of Key West, Fla.

At the time the Weather Bureau did not use the word "hurricane" in its bulletins. Some officials feared mentioning either "hurricane" or "tornado" would cause panic. As far as we know, few in Galveston were worried by the Sept. 7 "storm" warning. Concern grew during the afternoon of Sept. 8 when winds were steadily increasing and water of what would eventually be a 15-foot storm surge began flooding the city. By then it was too late to escape.

By 1935 the Weather Bureau was receiving observations from more weather stations in around the Caribbean Sea and in the Bahamas and also regular observation from ships via radio. As the Labor Day 1935 long holiday weekend began no one in the Weather Bureau or in the Florida Keys had any reason to worry about the weather.

Unknown to them, a tropical storm in the southern Bahamas, between reporting stations in Nassau and Cuba was quickly growing into a major hurricane. By Monday, the Weather Bureau's Jacksonville, Fla. office, which handled hurricane forecasting, was receiving reports from ships as well as weather stations in the Bahamas and Florida that led forecasters to send out a bulletin that a weak hurricane was approaching the Keys. That evening the strongest hurricane ever to hit the United States swept across the Keys roughly halfway between Key West and Miami with 185 mph winds and a central pressure of 26.34 inches of mercury.

It's one of the three Category 5 storms to hit the U.S. The others were Camille, which hit Mississippi in 1969, and Andrew, which hit Dade County, Fla. in 1992.

The last major hurricane to hit the U.S. with no warning was the storm that slammed into Long Island and southern New England the afternoon of Sept. 21, 1938 with winds up to 150 mph and a central pressure of 27.94 inches of mercury. In addition to wrecking beach communities on Long Island, and in Connecticut, Rhode Island, and southwestern Massachusetts, the hurricane blew down thousands of trees in the White and Green mountains and brought flooding rain to most of New England. It killed at least 600 people and did \$400 million damage in 1938 dollars.