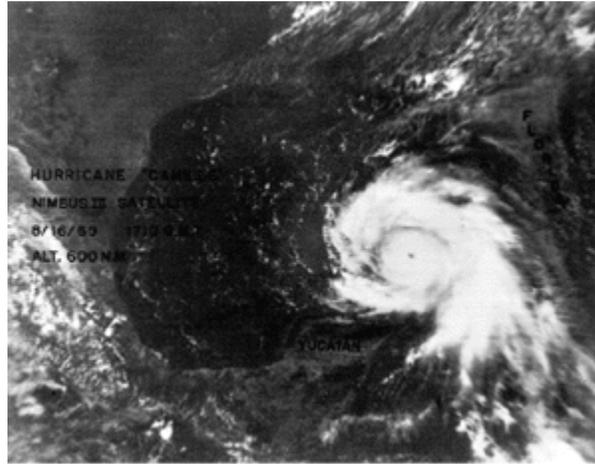


Climate-Watch, August 1999

National Climatic Data Center - September 15, 1999



**Hurricane Camille in the Gulf of Mexico
August 16th, 1969- 30 years ago.**

Review

This month in the "Climate Watch" report we look back 30 years ago to Hurricane Camille, which ravaged the Mississippi coastline on the night of August 17, 1969 with winds of 190 mph and a storm surge of 24.2 feet. Camille changed the way we perceived hurricanes and led to the development of the [Saffir-Simpson Hurricane Scale](#). The storm was a Category 5 hurricane which caused 256 deaths: 144 in Mississippi and Louisiana and another 112 in Virginia, where up to 27 inches of rain fell within about 8 hours. Total damage was a staggering 6.1 billion dollars (adjusted to 1996 dollars); 1.42 billion dollars (unadjusted). Return periods for the peak winds on the Mississippi Coast were estimated to be over 400 years, and the return period for the maximum Virginia rainfall was estimated to be well in excess of 1000 years. Camille was only the second category 5 storm to make landfall in the U.S. this century. The only other storm was the Labor Day Hurricane of September 2, 1935 in the Florida Keys. The season has been quiet so far, but Atlantic tropical cyclones are almost exclusively a late warm-season event as implied by an old mariner's poem (*Inwards* 1898).

June	--	too soon.
July	--	stand by.
August	--	look out you must.
September	--	remember.
October	--	all over.

The last line may be more ambiguous than helpful, but the official hurricane season as defined by NOAA's National Hurricane Center (NHC) runs from June through November.

Hurricane Bret

During the afternoon of August 22, [Hurricane Bret](#) made landfall on Padre Island in sparsely

populated Kenedy County (population under 500 people, about 60,000 cattle!), about half-way between Brownsville and Corpus Christi. Bret was only the 16th category 4 storm to ever hit the United States and the fourth category 4 storm to ever hit the Texas coast. The last category 4 storm to hit the Texas coast was Hurricane Carla which passed over the Matagorda/Port O'Conner region in September 1961. Bret drifted westward dumping copious rainfall over south Texas, with over 20 inches estimated by NEXRAD radar over a portion of Kenedy County. The heavy rains were blamed for a vehicle crash that took the lives of four people. Note that the official rain gauge reports (below) were not able to confirm the radar estimates due to the lack of reporting stations in the area. Numerous tornadoes were reported and extensive wind damage was noted, especially to the immediate north of landfall. This region had been spared a land-falling hurricane in recent years, as the last hurricane to hit the Texas coast was Jerry in October 1989.

[Rainfall Map of the Affected Area for 48 hours Ending at 7AM, August 24](#)
[Table of Rainfall Amounts for 48 Hours Ending at 7AM, August 24](#)

Hurricane Dennis

The coastal areas of North Carolina had their fourth tropical storm scare in as many years during August 29th and 30th. Hurricane Dennis developed over the eastern Bahamas on the 26th and drifted northward parallel to the southeast U.S. coast from the 26th through the 30th. Dennis became an immediate threat to southeastern North Carolina on the 29th. The center approached to within 60 miles of the coast early on the 30th as a strong category two hurricane with highest sustained winds of 105 miles per hour. Due to the fact that the hurricane never made landfall, damage was only moderate. Rainfall amounts approached ten inches in coastal southeastern North Carolina and beach erosion was substantial. This area is no stranger to hurricane activity. Category two hurricane [Bertha](#) and category three hurricane [Fran](#) hit Brunswick County in 1996 and [Hurricane Bonnie](#) (category 2) followed nearly the same path in 1998. Prior to 1996, the area had been spared from the direct impact of a hurricane since Charlie (category 1) hit Carteret County in 1986.

Dennis made a return visit in September as a tropical storm, moving west-northwest through eastern and central North Carolina. The main impact this time was flooding due to heavy rains, with the maximum preliminary report being 13.82 inches in Allisonia, VA. However, due to the storm lingering just off the coast for several days, beach erosion and damage to coastal highways was significant. Residents of Hatteras and Ocracoke Islands were stranded for several days due to severe damage to Highway 12.

[Table of Rainfall Amounts for 11 Days Ending at 8AM, September 8](#)

Satellite Images and Movies of Hurricanes Bret and Dennis

[Hurricane Bret -MPEG Movie # 1 \(~4.6 MB\)](#)

[Hurricane Bret -MPEG Movie # 2 - closer view of Bret making landfall \(~5.0 MB\)](#)

[Hurricane Bret - nice color image of Brett near Texas coastline](#)

[Hurricane Bret - nice close-up color image of Brett near Texas coastline](#)

[Hurricane Bret - early morning before landfall - visible](#)

[Hurricane Dennis over Bahamas - multispectral color - August 27, 1999](#)

[Hurricanes Dennis and Cindy GOES visible image - August 28, 1999](#)

Additional images of Bret , Dennis and other hurricanes, typhoons and tropical systems for 1999 can be found at [satellite images](#).

Looking at other extreme events in the U.S., as of early August, the governors of three states (Maryland, Pennsylvania, and New Jersey) had declared drought emergencies, with eleven localities in Virginia seeking federal disaster assistance. The Department of Agriculture now estimates at least \$1 billion in agricultural losses for the eastern U.S. as a result of this year's drought. The [NDVI \(vegetation index\) as compared to last year](#) is quite interesting. Information on the NDVI index as well as other periods are available [1999 Vegetation Condition](#). In addition to the drought, the hot weather in the U.S. since mid-July is blamed for at least 256 deaths mainly in the midwest and northeast. Further details of the drought can be found on the NCDC [Drought in the U.S.](#) page.

Additional drought information is also available at the following:

[NOAA's Drought Information Center](#)

[Latest NOAA U.S. Palmer Drought Index Map](#)

[Latest NOAA Crop Moisture Index Map](#)

Around the rest of the world, flooding along the Yangtze river in China has killed 725 people and displaced 1.7 million people. Heavy rains and floods hit portions of eastern India and Bangladesh, Korea, southeast Asia and northern Sudan. Drought is causing problems in Uganda and Kenya.

Other global highlights for August 1999 can be found at [NOAA/OGP Special Global Summary for August 1999](#).

Selected U.S. City and State Extremes

The [Selected U.S. City and State Extremes](#) gives a listing of new records that were set across the U.S. during August 1999.

Additional Resources

[Hurricanes of 1999](#)

[NOAA National Hurricane Center \(NHC\) Forecasts and Advisories](#)

[NCDC Hurricane Track Maps and Special Reports](#)

[NCDC Climatic Extremes and Weather Events](#)

[NCDC Images/Movies of Hurricanes and Special Events \(hundreds of satellite images- including additional Camille images\)](#)

[USDA/NASS Vegetation Condition Page](#)

[NCDC Storm Event Database](#)

Citing the Article

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