



# Southern AER

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## Did You Know?

Although it seems much wider, the current channel of a typical lightning bolt is only about the size of a pencil.



Image courtesy of NOAA Photo Library

## Weather: Taking It To The Extreme

One of the National Climatic Data Center's responsibilities is to monitor and assess the national and global climate including extreme weather events. They are responsible for evaluating the impacts of these different weather events. They have recently released a publication entitled "A Climatology of Recent Extreme Weather and Climate Events," which discusses severe weather events that occurred from 1980 to 1999 and possible trends within this group of events.

In this publication, it is reported that from 1980 to 1999, the United States experienced 46 weather events that cost at least \$1 billion each. The total cost of these events were then converted into 1998 dollars to account for inflation. The total cost of the events

after this was done was over \$275 billion. The National Climatic Data Center's Storm Data publication, the National Weather Service, and the Federal Emergency Management Agency were some of the sources used in summarizing these events.

There are many event types listed in this publication including tornadoes, hurricanes, droughts, floods, and Nor'easters. Fourteen of the 46 events were hurricanes and tropical storms. Together they caused 30% of the total damage. Droughts caused the nation the most damage with 43%.

It is suggested in the NCDC report that perhaps the reason there has been so much damage done in the past years is because of societal influences rather than climatic change.

There has been a sudden jump in the number of people living in coastal areas and building in flood plains. Despite this, there is evidence that climate change may influence the frequency of extreme weather events. Whatever the cause, people will continue to cope with disasters as they occur.



Hurricane Carol hit the Northeast U.S. on August 31, 1954, leaving 65 dead.

Image courtesy of NOAA Photo Library

## First Things First: Being Prepared

It is important to be prepared in the case of severe weather. It is important to know what to have a family disaster plan as well as a disaster supply kit ready. Depending on the situation, you will need different things. To find out more

about disaster preparedness, check out these web pages. They have information about floods, hurricanes, volcanoes, wild fires, thunderstorms and others.

The Red Cross has preparation instructions on-line at

<http://www.redcross.org/services/disaster/keepsafe/>

The Federal Emergency Management Agency also has a web page with disaster preparedness information at <http://www.fema.gov/kids/dizarea.htm>

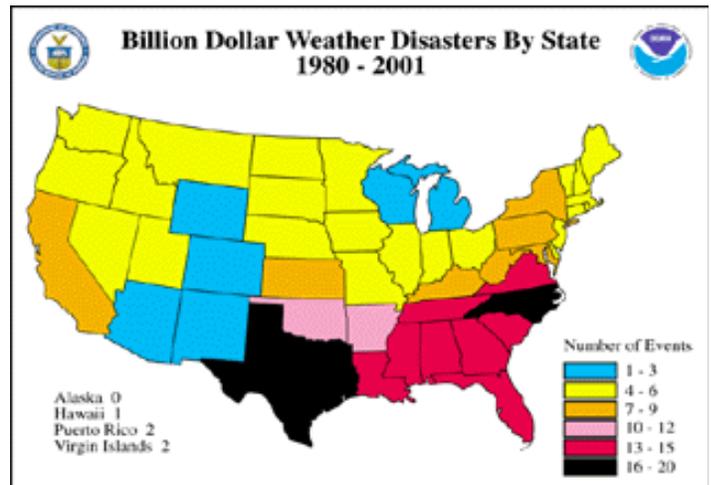
## Billion Dollar U.S. Weather Disasters, 1980 - 2001

The National Climatic Data Center also recently released another publication entitled "Billion Dollar U.S. Weather Disaster, 1980-2001." This publication differs from "A Climatology of Recent Extreme Weather and Climate Events," which is discussed above because of the time period that is being discussed and by the detail of the events. The events are listed chronologically starting in 2001

with Hurricane Allison.

In "Billion Dollar Disasters from 1980-2001" 52 events are discussed totaling more than \$280 billion in 1998 dollars (normalized for inflation). The most events in one year was seven in 1998 although other years had greater monetary losses.

Statistics are periodically updated using updated information when it becomes available.



## Tools of the Trade

The more warning people have that severe weather is coming their way, the more time they have to prepare. Time is of essence in situations of severe weather. Forecasters attempt to give people as much warning as possible that severe weather is coming. In order to do this, they use a number of different tools.

Some of the tools they use are satellites, models, and radar images. Satellites orbit the Earth, keeping up with its rotation, 35, 8000 kilometers above the surface. They provide information to forecasters like cloud cover and water vapor. Modeling uses computers to predict the weather using laws of physics to characterize the

atmosphere mathematically. Developers are trying to improve upon this technology to and improve these models by give them better resolution. Doppler Rader uses reflectivity to indicate rainfall intensity and velocity displays that give information about winds such as their speed and direction.

Timing is essential in saving lives during severe weather events. The more time people have to prepare, the better off they are and the more lives that can be saved. It is very important that forecasters have the tools they need to do their jobs properly. It is essential to ensure our safety.

## FunFacts!

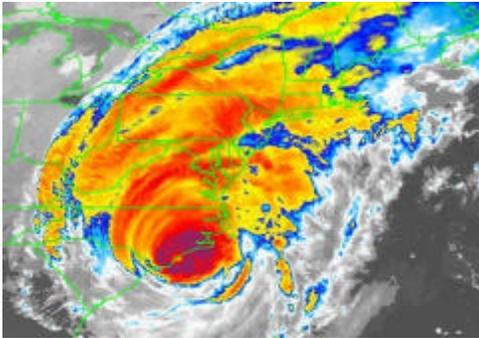
- Large hailstones can fall at rates as high as 90 mph and weigh over a pound. The largest known hailstone, which fell from the sky on April 14, 1986 in Bangladesh, weighed a record 2 1/4 pounds.
- According to the Worldwatch Institute, severe weather in 1998 caused more than 30,000 deaths and close to \$90 billion in damage across the globe.
- What part of the world sees more thunderstorms than any other? The Island of Java, in Indonesia, has thunderstorms occurring an average of 322 days a year.
- The National Weather Service issues a wind advisory when sustained wind speeds of 30 mph or higher or gusts of 40 mph or higher are expected or occurring.



## Activities and Games

Hurricanes and tropical storms account for much of the damage done by severe weather events. They disrupt lives, destroy homes, and can cause whole cities to be shut down for weeks. Not all hurricanes and tropical storms cause damage like this, but the ones that do, cause such devastation to so many people, that they are not soon forgotten.

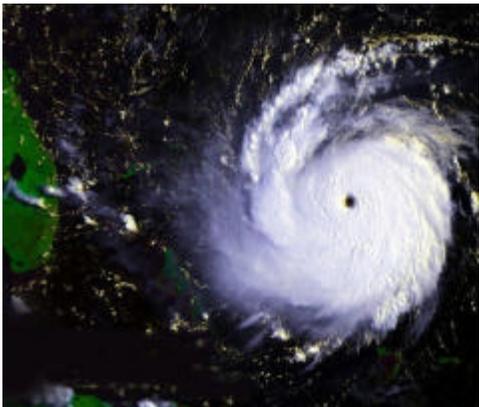
In this activity, see if you can match the hurricane images with the correct storm. Draw a line to connect the picture to the correct storm name. You can find an interactive version of this game with clues on-line at:  
[http://www.sercc.com/education/hurricane\\_name/hurricane\\_name.html](http://www.sercc.com/education/hurricane_name/hurricane_name.html)



Georges



Andrew

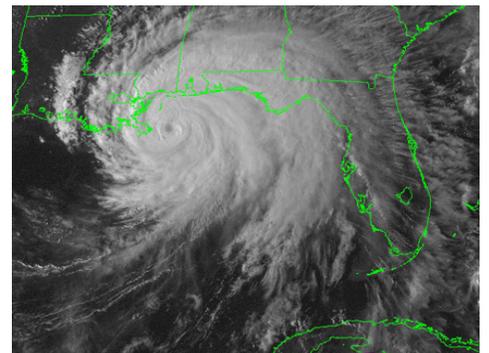
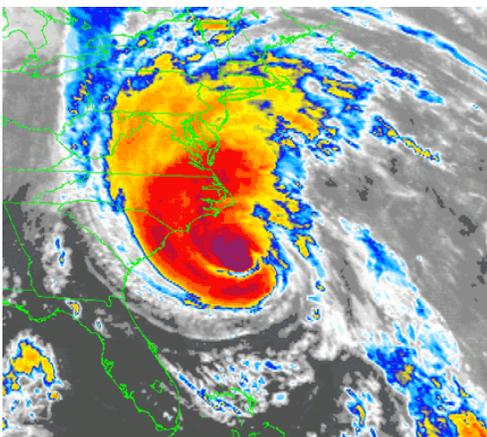
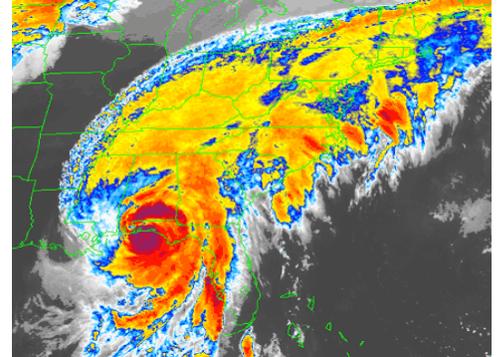


Hugo

Gloria

Opal

Floyd



## Quick Quiz

1. What is one of the National Climatic Data Center's goals?
2. From 1980 to 1999 the U.S. experienced 46 extreme weather events. How much did these events cost total, in 1998 dollars?
3. What are two things you can do to prepare for an extreme weather event?
4. What state leads the nation with the most billion dollar weather disasters from 1980 to 2001?
5. What is one tool that forecasters use to predict severe weather?

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## Learn More About It

Now that you've learned about NCDC publications and the impacts that severe weather can have, here are some links that will help you learn more about how to prepare and the impacts of extreme weather events.

Below are some web sites that will help you be prepared:

The Red Cross has information about how to prepare for floods, earthquakes, hurricanes, tornadoes, and other extreme weather events:

<http://www.redcross.org/services/disaster/beprepared/>

The Federal Emergency Management Agency has information about extreme weather preparedness, how to become a Disaster Action Kid as well as a fact versus fiction section.

<http://www.fema.gov/kids/dizarea.htm>

The National Severe Storms Laboratory has weather lessons, information on weather careers as well as the what, where, whys, and how of severe weather.

<http://www.nssl.noaa.gov/edu/>

The National Climatic Data Center's Extreme Weather page has information about billion dollar weather events, hurricanes, and local storm reports:

<http://www.ncdc.noaa.gov/oa/climate/severeweather/extremes.html>

**Also, be sure to check out our website for more educational and climate data resources:**

<http://www.sercc.com>



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