

# Hazards Caucus Alliance Fact Sheet

[www.hazardscaucus.org](http://www.hazardscaucus.org)

## HURRICANES

NASA Visible Earth: Hurricane Andrew ripped through south Florida as a Category 5 storm, with winds of 165 mph. It resulted in \$25 billion in damages and 60 deaths. This image from Aug. 25, 1992, shows the path of the storm in the form of churned up, reddish brown ocean sediments, residual cloud cover and coastal flooding.



The impact of hurricanes in the United States is an average of 20 deaths and \$5.1 billion per year (excluding the 2005 season). On average, ten tropical storms form during the Atlantic hurricane season, with 6 becoming hurricanes and 2-3 becoming major hurricanes. However, tropical cyclone activity in the Atlantic is cyclical, with a time period of multiple decades. Since the mid-1990s, activity increased sharply and this period of heightened activity could last until the 2020s or longer.

In 2005, the U.S. experienced a record-breaking hurricane season, which included the costliest storm in history. Hurricane Katrina, a category 3 storm when it made landfall near New Orleans, caused about \$81 billion in damage, displaced about 770,000 people, shut down New Orleans and killed an estimated 1833 people. Most died from subsequent flooding rather than directly from storm surge or high winds.

### Hurricane Facts

▲ Storm surge—a dome of ocean water that can be over 20 feet at its peak and 50 to 100 miles wide—is caused by storm winds blowing ocean water towards the coast. Nine out of 10 hurricane fatalities are attributable to the storm surge.

▲ Over 8000 people were killed in the Galveston Hurricane of 1900, most by storm surge.

▲ 5% of deaths in the U.S. associated with hurricanes are a result of tornadoes.

▲ Since 1900, tropical storms in the Gulf Coast have caused more than \$100 billion in damages (adjusted to 2004 dollars; excluding Katrina).

▲ Over the past 30 years coastal population growth has quadrupled; more than 69 million people now reside along the hurricane prone coastlines.

**Hurricanes** are tropical cyclones with winds that exceed 64 knots (74 miles per hour) and circulate counter-clockwise about their centers in the northern hemisphere. Hurricanes form from complexes of thunderstorms whose surface winds tap and concentrate the moisture available from a warm ocean (warmer than 81° F). Weak wind shear also allows a hurricane to remain concentrated and strong. As a hurricane nears land, it can bring storm surges, torrential rains, high winds, and tornadoes. Hurricanes occur in coastal states, though flooding and tornadoes can occur inland.

### What You Can Do To Protect Yourself, Your Family, and Your Property

**Know your risk.** FEMA provides guides to protecting your property from hurricanes at: <http://www.fema.gov/plan/prevent/howto/index.shtm>.

Additionally, local officials and the Red Cross are good sources for additional information regarding hurricane risks and planning.

**Buy National Flood Insurance Program (NFIP) flood insurance** if your home or business is prone to flooding. To learn how, contact your insurance agent or call FEMA NFIP at 1-888-379-9531, or visit the NFIP website at [www.floodsmart.gov](http://www.floodsmart.gov).

**Have an evacuation plan.** Always evacuate immediately if the police or other officials issue a warning. Discuss with your family what to do if a hurricane watch or warning is issued and plan safe escape routes. Plan ahead where you would go and take the phone numbers of these places with you. Take a road map in case the weather forces you onto unfamiliar roads. Do not drive over standing water, as floods may have damaged the roads. Remember your pets when planning an evacuation. The American Red Cross gives tips for preparing for hurricanes on their Preparedness Fast Facts site- [www.redcross.org](http://www.redcross.org).

**Have a hurricane kit.** A first aid kit and necessary medications. Make an emergency contact list and give this list to every family member. Canned food and an opener, plenty of water. (At least, three gallons of water per person to last three days), flashlights, a battery powered radio, extra batteries, raingear, sleeping bags, and protective clothing.

**Clear debris from gutters, storm drains, ditches and culverts.** Property owners are responsible for clearing ditches to help prevent flooding. If you see that debris or trees are blocking a bridge or culvert, notify your city engineer or other community official so that they can perform necessary maintenance.

**Pay attention to National Weather Service and emergency broadcasts.** Heed warnings, be prepared and ready to evacuate the area if requested to do so.

**Keep copies of insurance policies and other important documents in a safe place.**

**Before the next hurricane...Mitigate!** If your home has been damaged by a hurricane, consider some of the various mitigation and disaster assistance programs available through federal and state agencies to protect your family and property from future hurricanes.

The **Congressional Hazards Caucus** is co-chaired by Senators Mary Landrieu (LA), Ben Nelson (NE), and Lisa Murkowski (AK) and Representatives Dennis Moore (KS), Jo Bonner (AL) and Zoe Lofgren (CA). The Caucus helps individuals, businesses, and communities better prepare for and mitigate the costs of disasters. The Caucus seeks to foster dialogue on steps that government and citizens can take to lessen the severity of these disasters. To learn more about the Caucus, visit [www.hazardscaucus.org](http://www.hazardscaucus.org).

## WHAT IS MITIGATION?

**Hurricane Mitigation** may include such activities as:

- Adopting and enforcing wind- and flood-resistant building codes;
- Elevating structures to allow storm surge to pass underneath;
- Use of storm shutters over exposed glass, and the addition of hurricane straps to hold the roof of a structure to its walls and foundation;
- Checking for weaknesses in doors, windows, the roof and garage doors;
- Providing flood protection through such structural measures as channel improvements or levees and dams.
- Identifying coastal erosion problems and avoiding infrastructure development in these areas.

## MITIGATION ASSISTANCE

**FEMA Mitigation Grants** – Working with states, FEMA provides grants to communities after disasters to help mitigate losses. Many communities buy damaged homes to clear hurricane-prone areas; others help homeowners elevate homes above predicted storm surge and flood levels. Some communities use the grants to flood- and wind-proof public buildings. Local and state emergency management agencies can provide information on how communities can benefit from FEMA's mitigation grants.

**U.S. Department of Housing and Urban Development (HUD) Community and Mitigation Grants** – In coordination with states, HUD administers numerous grant programs. Some programs provide grants that can be used to reduce flood damage, especially in low-income areas. Local housing agencies can provide information on how communities can participate in, and benefit from, HUD grant programs.



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## HOW FEDERAL AGENCIES ARE WORKING TO REDUCE THE HURRICANE PERIL

**Army Corps of Engineers** – In addition to being the only federal agency for structural flood control projects, the Corps has a number of non-structural programs that provide technical assistance to communities and property owners. Learn more at [www.usace.army.mil](http://www.usace.army.mil).

**FEMA's Map Modernization Plan** – FEMA is upgrading its 100,000 flood maps by developing up-to-date flood hazard data for all floodprone areas nationwide and by converting all the maps to a digital format. A key component is to increase state and local involvement in, and ownership of, the flood mapping process through the Cooperating Technical Partner (CTP) initiative. Learn more at [http://www.fema.gov/plan/prevent/fhm/mm\\_main.shtm#1](http://www.fema.gov/plan/prevent/fhm/mm_main.shtm#1).

**National Weather Service (NWS)** – An ongoing major modernization program is offering more timely and precise severe weather and flood warnings for the nation. Components include new Doppler radar technology, a new generation of satellites, and advanced computing resources. Learn more at [www.nws.noaa.gov](http://www.nws.noaa.gov).

**U.S. Geological Survey (USGS) Coastal and Marine Geology Program** – Investigates the extent and causes of coastal impacts of hurricanes and extreme storms on the coasts of the U. S. The objective is to improve the capability to predict coastal change that results from severe tropical and extra-tropical storms. Such a capability will facilitate locating buildings and infrastructure away from coastal change hazards. <http://marine.usgs.gov>

**Research** – Our ability to understand and forecast hurricanes is advancing through scientific research on how the Earth, the oceans, and the atmosphere interact. Improving models requires diverse types of data, including radar and satellite observations, high-resolution topographic maps, and information about historical climate conditions and historical hurricanes. Key agencies include NSF ([www.nsf.gov](http://www.nsf.gov)), NASA ([www.nasa.gov](http://www.nasa.gov)), USGS ([www.usgs.gov](http://www.usgs.gov)) and NOAA ([www.noaa.gov](http://www.noaa.gov)).

Foreground: Older home not built to code  
Background: Newer home built to code