

Tropical Cyclone Hazards

Presentation

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Tropical Cyclone Hazards

The Four Primary Weapons of a Tropical Cyclone are:

- 1. Wind**
- 2. Storm Surge**
- 3. Rain/Freshwater Flooding**
- 4. Tornadoes / Downburst**

1. WIND

Tropical Depressions have maximum sustained winds of 38mph or less.

Tropical Storms maximum sustained winds are 39-73mph.

Hurricanes maximum sustained winds are 74mph or greater.

Tropical Storm force winds can be felt hundreds of miles from the Eye of a Hurricane, and can cause significant damage to trees and roofs.

Wind can cause damage to power lines and are the primary cause Of power outages and interruptions as a storm approaches.

The Saffir-Simpson Hurricane Wind Scale

| Category | Wind (mph) | Damage Poteneential |
|-----------------|-------------------|--|
| 1 | 74-95 | Very dangerous winds will provide some damage |
| 2 | 96-110 | Extremely dangerous winds / extensive damage |
| 3 | 111-130 | Devastating damage will occur |
| 4 | 131-155 | Catastrophic damage will occur |
| 5 | > 155 | Catatstrophic damage will occur |

2. Storm Surge

An abnormal rise in sea level accompanying a [hurricane](#) or other intense storm, and whose height is the difference between the observed level of the sea surface and the level that would have occurred in the absence of the cyclone.

Storm surge can cause coastline and inland flooding as well as Significant damage to homes and businesses.

Large Tropical Storms or Hurricanes in the Gulf of Mexico can meander for several days in the Gulf before proceeding to make landfall. They have the ability to significantly increase Storm Surge by the inherent design of The Gulf of Mexico.

Storm Surge

Unlike the Atlantic, which allows Storm Surge to also disapeate further down the coast line. The Gulf of Mexico focuses more Storm Surge into affected areas.

Storm Surge is also responsible for an increase in dangerous rip tides. Making coastal waters extremely dangerous for swimmers.

Other areas outside the immediate coastal area can be affected by Storm Surge, as the water can travel up rivers and tributaries as well and affect areas upstream.

3. Rain/ Freshwater Flooding

Rain and Freshwater Flooding can accumulate extremely fast in a slow moving storm. TS Allison in June 2001 dropped 38.6 inches of rain in the Houston area over a 6 day period. TS Allison killed 41 people, 27 of which drowned.

Although TS Allison is mostly remembered for the widespread flooding and devastation it brought to Houston, Areas of LA, MS, and GA experienced rainfall amounts of 10+ inches and extensive flood damage as well.

Remember a Tropical Storm or a Hurricane is NOT just a point on a map.

4. Tornadoes / Downburst

Tornadoes / Downburst of wind are often spawned by Tropical Cyclones. Even a tropical depression, can bring high gusty winds, and possibly Tornaodes.

Tornadoes can form far away from the eye of a Tropical Storm or a Hurricane. Always, pay close attention to how far tropical storm winds extend, from the center or the eye of approaching Tropical Storm or Hurricane.

4.Tornadoes/ Downburst

Downburst are caused by divergence aloft and a column of sinking air, that once it impacts the ground, can send out straight line winds that exceed 165mph.

Often times the damage caused by Downburst can resemble damage caused by Tornadoes.

**Downburst are much more frequent than Tornadoes.
For every 1 Tornado there are 10 Downburst damage reports.**

**Always pay close attention to Local Weather Reports.
Doppler radars are able to look inside the thunderstorm, and see the movement of air, giving the Meteorologist indications of Vorticity of Tornadoes as well as possibility of downburst, allowing them to issue warnings.**

Summary- Know the Enemy

Make no mistake about it Tropical Storm and Hurricanes are Your Enemy.

They have an arsenal of weapons; (Hazards)

Wind

Storm Surge

Rain/Freshwater Flooding

Tornadoes/Downburst

Understand these Hazards and what they are capable of doing.

Develop a good plan to mitigate the damage, and protect Your family.

Be Prepared so You wont be caught off guard, when Tropical Cyclones strike.

Weather Related Links

<http://www.weather.gov/>

<http://www.nhc.noaa.gov/>

<http://flhurricane.com/>

<http://www.ezweather.com/>

<http://www.stormpulse.com/>

**The list of links above are what I use as my Primary links.
There are literally hundreds of excellent weather related links online.**