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welcomes you to the

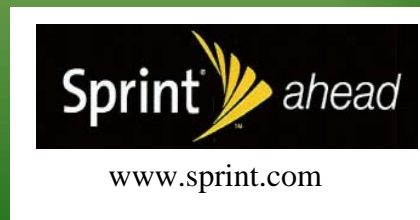
**2009 CERT / VOAD**

# **HURRICANE CONFERENCE**

**May 1 - 2, 2009**

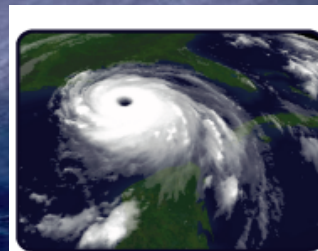
**St. Petersburg College, Seminole Campus  
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# Does it take a Category 5?

Does a hurricane have to be a monster to cause major damage?

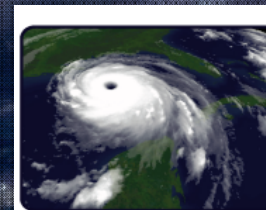


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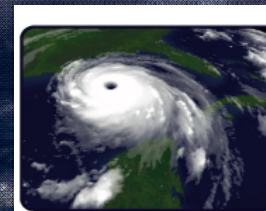
# For Basic Hurricane Information

- Pinellas County's Hurricane Guide
- [www.pinellascounty.org/emergency](http://www.pinellascounty.org/emergency)
- Emergency Management: (727) 464-3800
- Front of your telephone yellow pages
- [www.fema.gov](http://www.fema.gov)
- [www.floridadisaster.org](http://www.floridadisaster.org)
- [www.flash.org](http://www.flash.org)



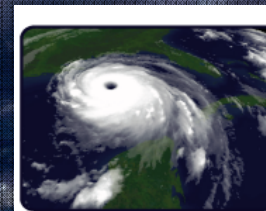
# What is the Saffir-Simpson Scale of Hurricane Intensity?

- **Created by:**
  - Herbert Saffir – Coastal Engineer
  - Dr. Bob Simpson – NHC Director
- **Created in 1969**
  - Contracted by the United Nations
- **Unveiled to public in 1975 season**



# What is the Saffir-Simpson Scale of Hurricane Intensity?

- **Categories of storm**
  - Tropical Storm – 39 – 73 mph
  - Category 1 – 74 – 95 mph
  - Category 2 – 96 – 110 mph
  - Category 3 – 111 – 130 mph
  - Category 4 – 131 – 155 mph
  - Category 5 – 156 + mph

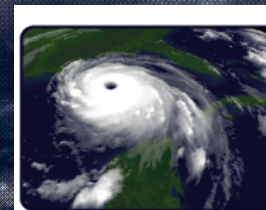


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# What the S-S Scale does...

- Provides a way to roughly measure hurricane intensity
- Gives a fair estimate of storm surge values across a variety of areas
- Serves as a reference to measure past storms against



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# What the S-S Scale doesn't do...

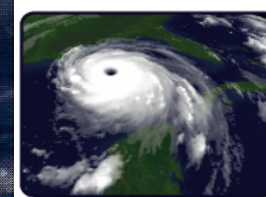
- Give an exact, detailed prediction of storm effects
  - Storm surge
  - Tornado potential
  - Rainfall totals
- Encourage residents to react appropriately to lower intensity storms



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# So, does it take a Category 5?

- Let's look at
  - Examples of all storm categories and their damage
  - Storms that have been retired by the World Meteorological Organization

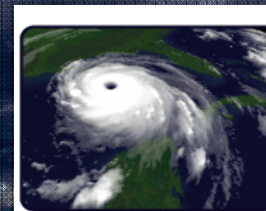


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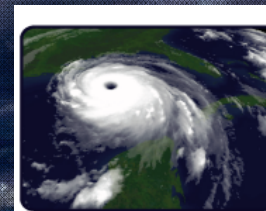
# Tropical Storm: 39 – 73 mph

- **Example – Tropical Storm Allison**
  - June 4 – 18, 2001
  - Landfall - Houston/Galveston, TX area
  - 60 mph winds
  - 15 + inches of rain
  - 41 lives lost
  - \$6.7 Billion in damages



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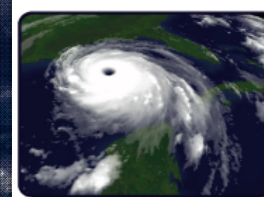
# Tropical Storm Allison



# Tropical Storm Allison



Buffalo Bayou, Downtown Tunnel Flooded, 6/9/01

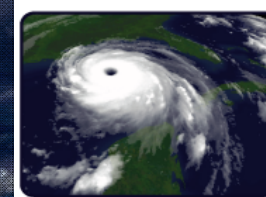


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# Other Notable Tropical Storms

- 2001 TS Gabrielle
- 1996 TS Josephine
- 1979 TS Claudette

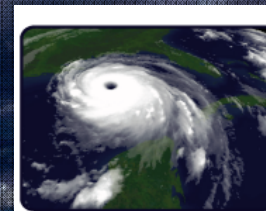


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# Category 1: 74 – 95 mph

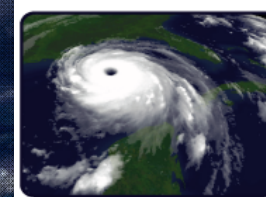
- **Example – Hurricane Agnes**
  - June 14 – 25, 1972
  - Landfall – Florida panhandle
  - 75 mph winds at landfall
  - 35 + inches of rain
  - 128 lives lost
  - \$10.8 Billion in damages



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# Hurricane Agnes



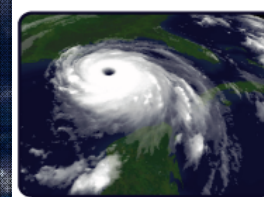
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# Hurricane Agnes



Homes that just could not withstand the tremendous force of the water at the beginning of Charles Street, Wilkes-Barre.

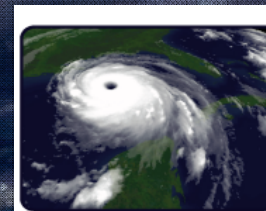


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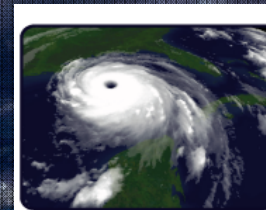
# Other Notable Category 1 Storms

- Hurricane Noel, 2007
- Hurricane Humberto, 2007
- Hurricane Stan, 2005
  - Category 1 at landfall



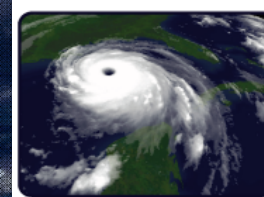
# Category 2: 96 – 110 mph

- **Example – Hurricane Ike**
  - September 1 - 16, 2008
  - Landfall – Houston/Galveston, TX area
  - 110 mph winds at landfall
  - 12 – 16 foot storm surge
  - 195 lives lost – 34 missing
  - \$28.2 Billion in damages



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# Hurricane Ike



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# Hurricane Ike

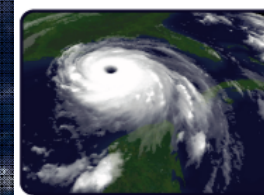
September 9, 2008



September 15, 2008



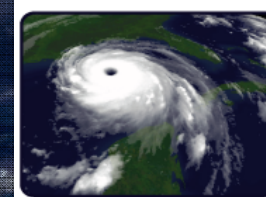
USGS



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# Other Notable Category 2 Storms

- Hurricane Frances, 2004
- Hurricane Georges, 1998
- Hurricane David, 1979
- Category 2 at landfall

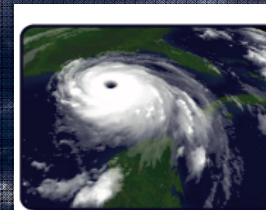


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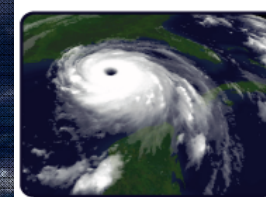
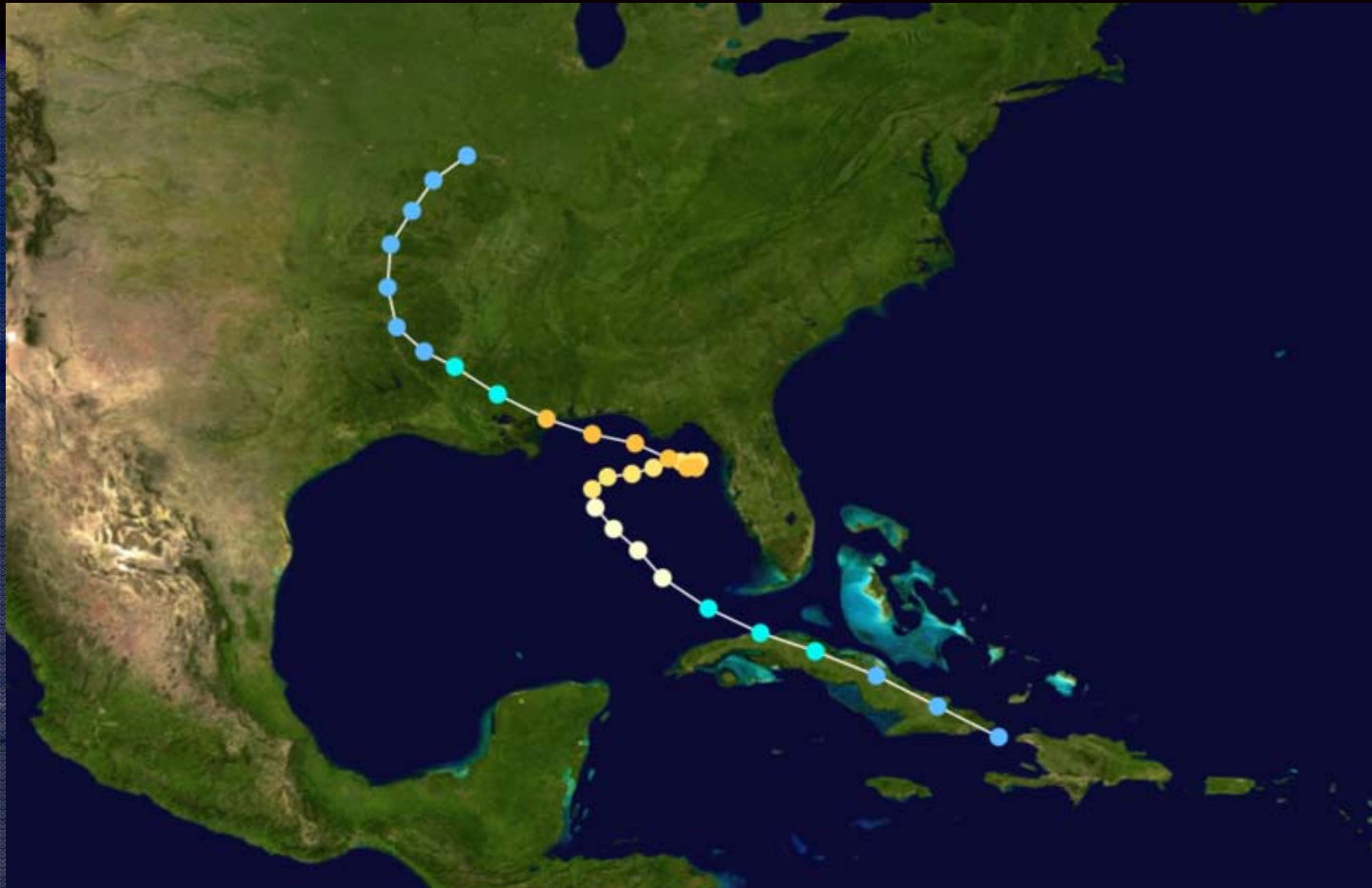
# Category 3: 111 – 130 mph

- **Example – Hurricane Elena**
  - August 24 – September 4, 1985
  - Landfall – Coastal MS
  - 115 mph winds at landfall
  - 537,000 evacuees in shelters
  - 4 lives lost
  - \$2.5 Billion in damages



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# Hurricane Elena



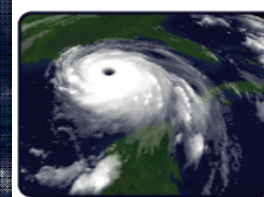
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# Hurricane Elena



Photos courtesy of the  
St. Petersburg Times

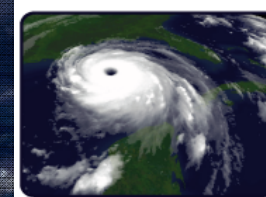


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# Other Notable Category 3 Storms

- Hurricane Katrina, 2005
- Hurricane Jeanne, 2004
- Hurricane Opal, 1995
  - Category 3 at landfall

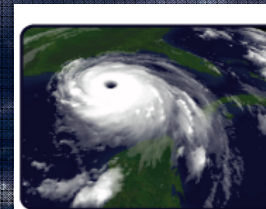


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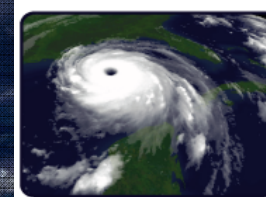
# Category 4: 131 – 155 mph

- **Example – Hurricane Hugo**
  - September 9 - 25, 1989
  - Landfall – Charleston, SC area
  - 140 mph winds at landfall
  - 20 foot storm surge in South Carolina
  - 107 lives lost
  - \$17.4 Billion in damages



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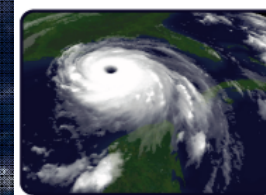
# Hurricane Hugo



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# Hurricane Hugo



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# Other Notable Category 4 Storms

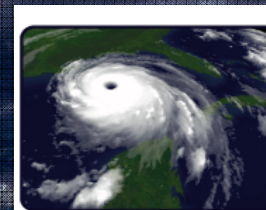
- Hurricane Charley, 2004
- Hurricane Frederic, 1979
- Hurricane Donna, 1960
  - Category 4 at landfall

# So, why not just worry about big storms?

- **1851 – 2006 Hurricane Strikes on Mainland United States (279 strikes)**

- *Rappaport et. al., NHC*

- **Category 1 – 110 (39.4%)**
- **Category 2 – 73 (26.2%)**
- **Category 3 – 75 (26.9%)**
- **Category 4 – 18 (6.5%)**
- **Category 5 – 3 (1.0%)**

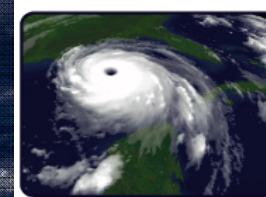


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# Deadliest US Landfalling Hurricanes

1. Galveston (1900) 8,000 – 12,000 (Cat 4)
2. Lake Okeechobee (1928) 2,500 – 4,000 (Cat 4)
3. Katrina (2005) 1,836 (Cat 3)
4. Louisiana (1893) 1,100 – 1,400 (Cat 4)
5. Sea Islands (1893) 1,000 – 2,000 (Cat 3)



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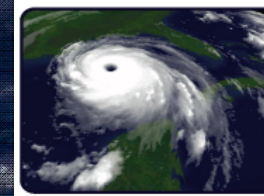
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# Costliest US Landfalling Hurricanes

1. Katrina (2005) \$81.2 Billion (Cat 3)
2. Andrew (1992) \$40.7 Billion (Cat 5)
3. Ike (2008) \$31.5 Billion (Cat 2)
4. Wilma (2004) \$22.7 Billion (Cat 3)
5. Charley (2004) \$18.6 Billion (Cat 4)

# So, does it really take a Cat 5?

Hurricane Katrina  
Gulfport, Mississippi  
August 29th, 2005



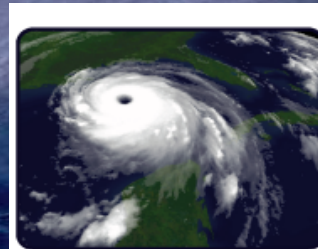
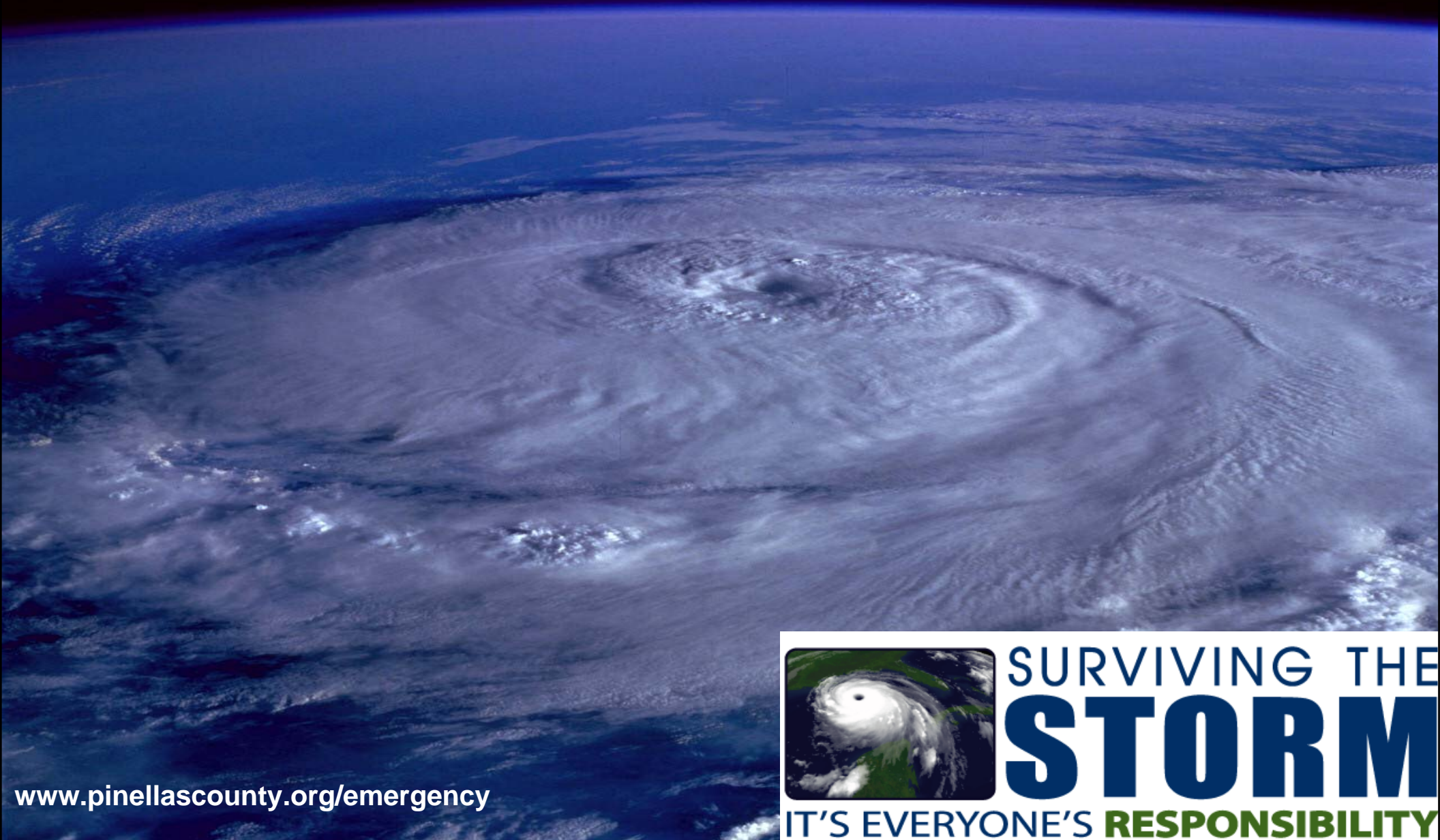
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# Get Ready for Hurricane Season

- Know your evacuation level and evacuate when ordered
- Build your hurricane survival kit
- Prepare your home to withstand high winds
- Monitor the weather daily through the hurricane season

# Does it take a Category 5?



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[www.pinellascounty.org/emergency](http://www.pinellascounty.org/emergency)