

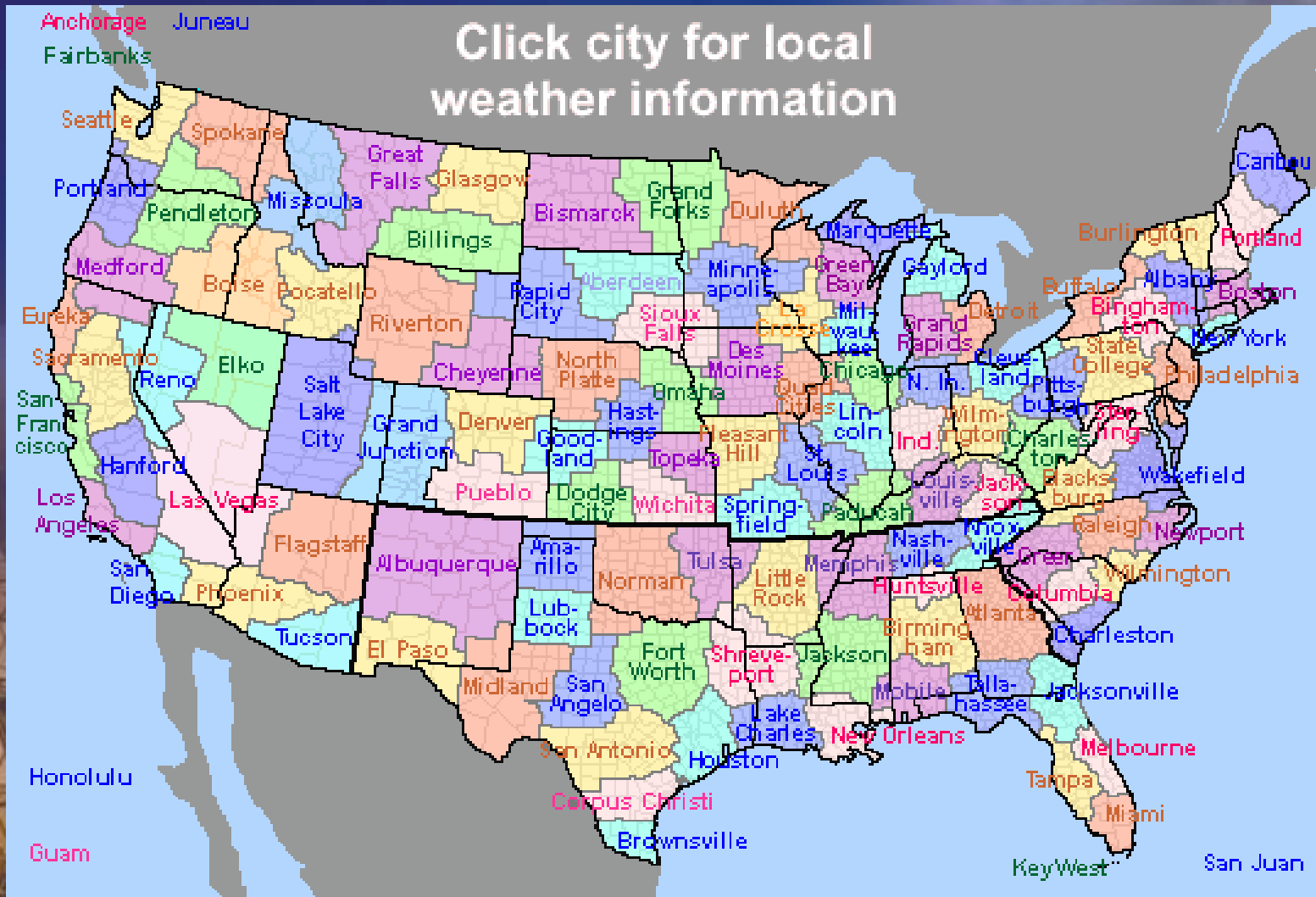
# ***Hurricanes – Inland Flooding***

A satellite image of a hurricane, showing a well-defined eye and spiral cloud bands over the ocean. The eye is a dark, circular center, surrounded by a ring of white clouds. The surrounding cloud bands are dense and spiral outwards, creating a textured, swirling pattern over the dark blue ocean. The horizon of the Earth is visible at the top of the image, showing a thin blue line against the black background of space.

**Presented by:  
Brian LaMarre**

**Meteorologist-in-Charge  
National Weather Service – Tampa Bay Area**

# The National Weather Service covers the entire country!



# Hurricane Warning Issued

**While most  
people at the  
coast are  
losing their  
heads...**



# *Inland Evacuation*

**...The  
rest are  
heading  
Inland!**

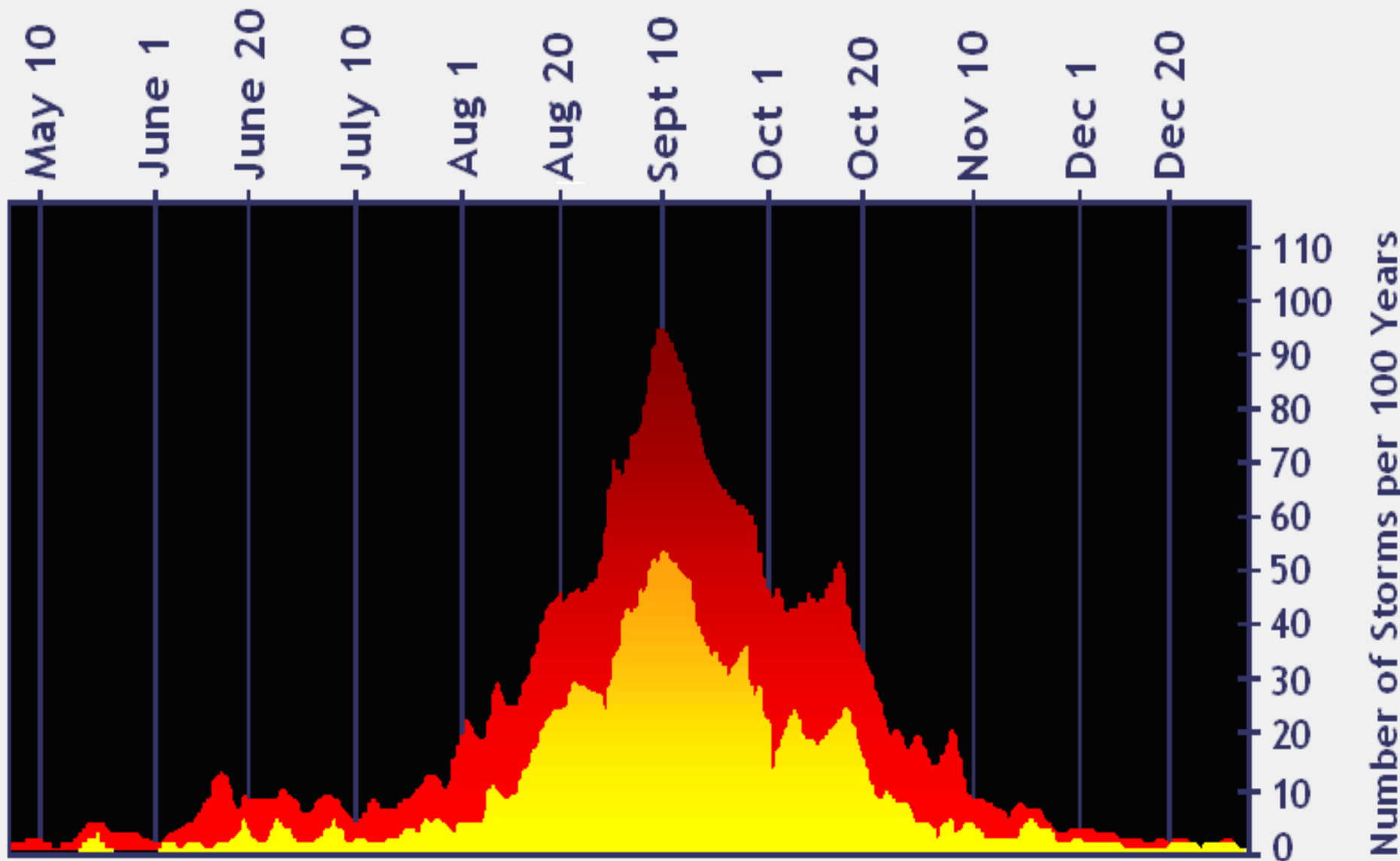


# *Head for higher ground*

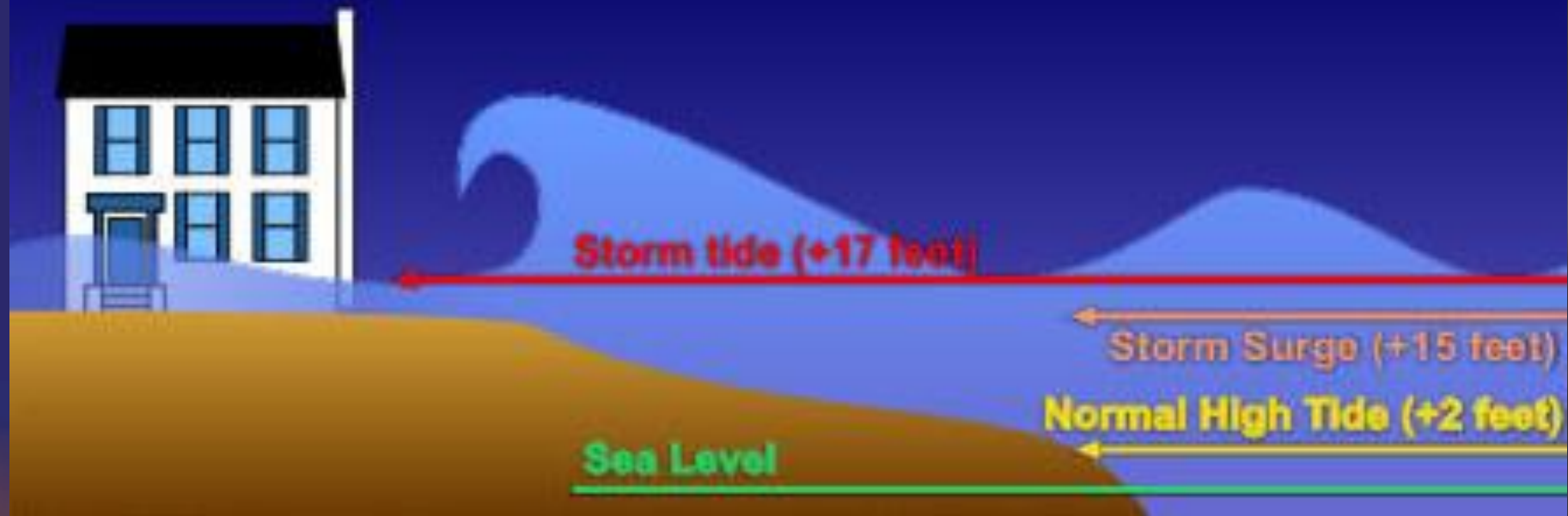


# *Prepare for the worst!*





■ Hurricanes and Tropical Storms  
■ Hurricanes







**Turn  
Around  
Don't  
Drown®**

**BE  
FLOOD  
ALERT**

**NATIONAL  
FLOOD  
INSURANCE  
PROGRAM**

A graphic on a blue background. On the left, there is a white barricade with orange and white diagonal stripes. On top of the barricade is a yellow sign with the text "Turn Around Don't Drown®". To the right of the barricade is a yellow diamond-shaped sign with the text "BE FLOOD ALERT" and a stylized graphic of water waves below it. To the right of the diamond sign is the text "NATIONAL FLOOD INSURANCE PROGRAM" in bold, black, uppercase letters.

# Inland Flooding and Power Outages



happytoast

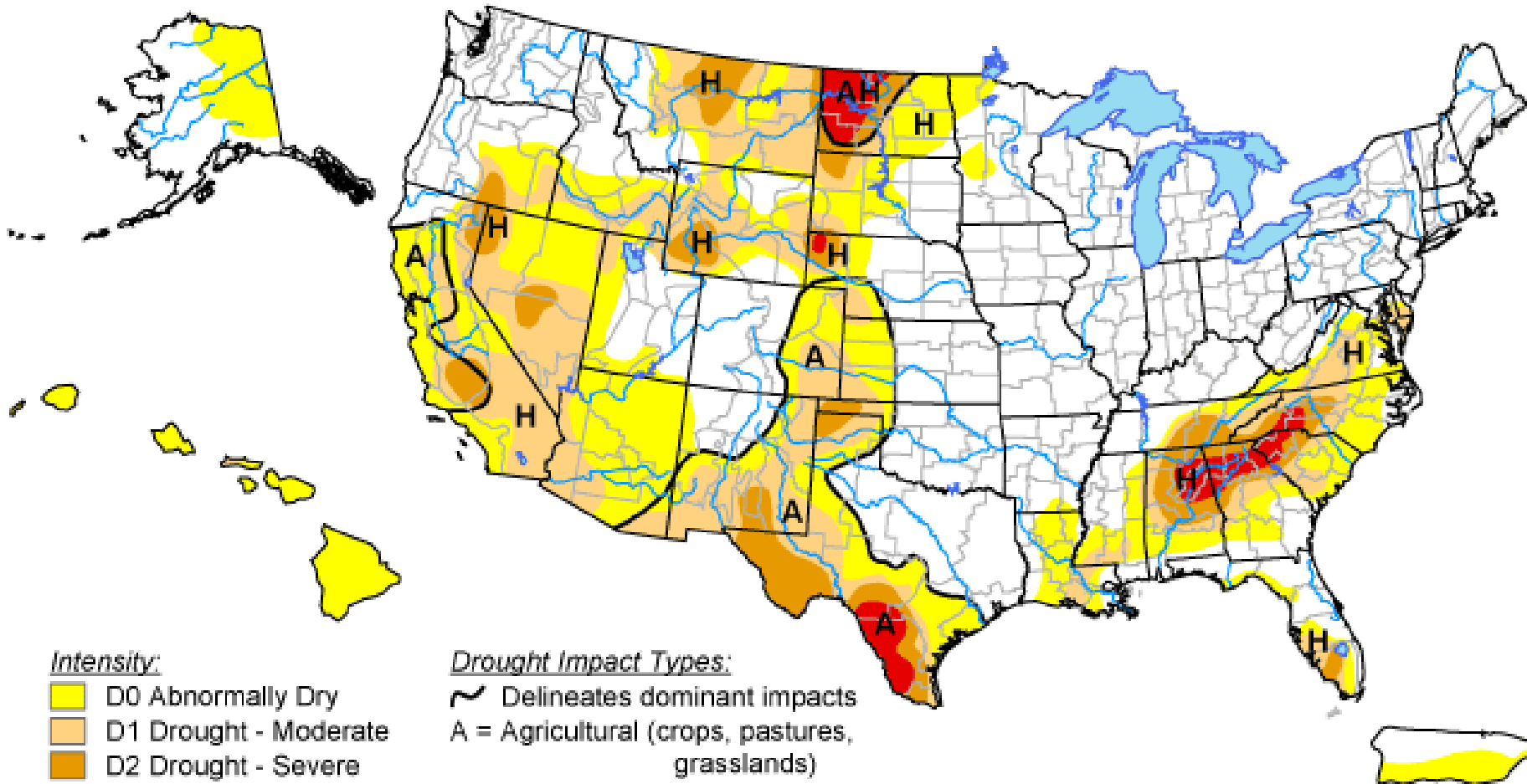
# Key Factors For Inland Flooding

- **Pre-existing soil moisture and stream flow**
- **Rainfall potential**
  - Interaction with established fronts
  - Movement
- **Relationship to river basins**
- **Reservoir conditions**




***Remember:  
No relationship to strength of storm***

# U.S. Drought Monitor


May 6, 2008  
Valid 8 a.m. EDT



## Intensity:

-  D0 Abnormally Dry
-  D1 Drought - Moderate
-  D2 Drought - Severe
-  D3 Drought - Extreme
-  D4 Drought - Exceptional

## Drought Impact Types:

-  Delineates dominant impacts
- A = Agricultural (crops, pastures, grasslands)
- H = Hydrological (water)

The Drought Monitor focuses on broad-scale conditions. Local conditions may vary. See accompanying text summary for forecast statements.

<http://drought.unl.edu/dm>



Released Thursday, May 8, 2008

Author: Michael James, JAWF/CPC/NOAA

# U.S. Drought Monitor

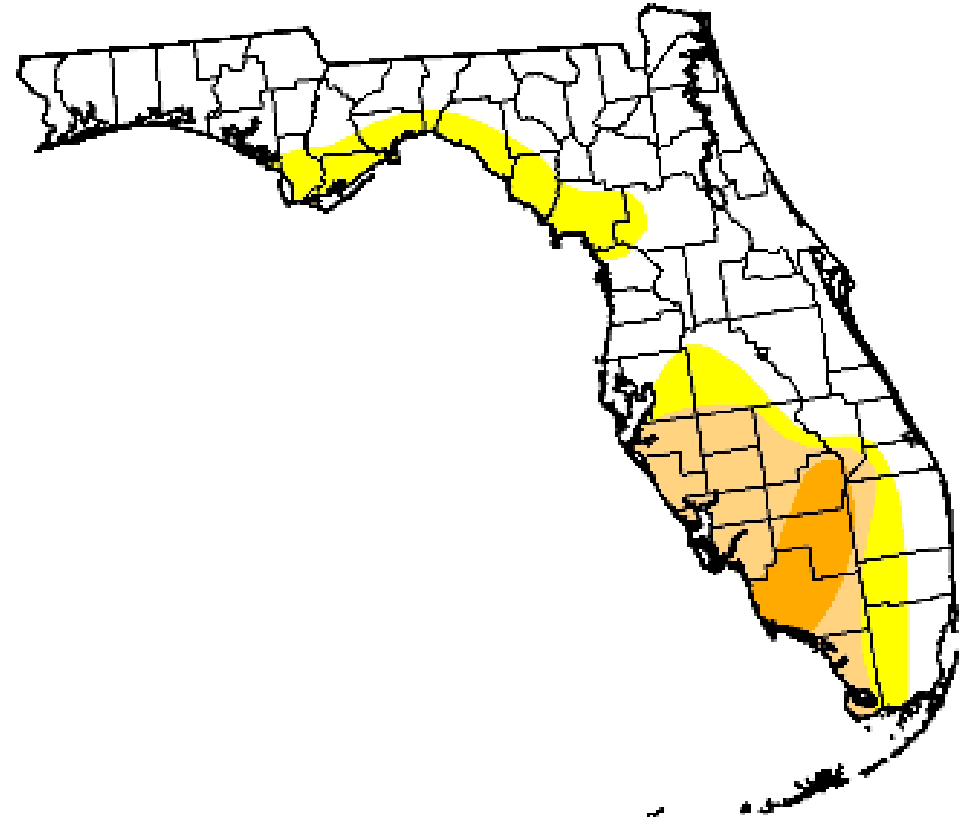
## Florida

May 6, 2008

Valid 7 a.m. EST

*Drought Conditions (Percent Area)*

	None	D0-D4	D1-D4	D2-D4	D3-D4	D4
Current	64.4	35.6	18.8	5.7	0.0	0.0
Last Week (04/29/2008 map)	68.9	31.1	15.6	0.0	0.0	0.0
3 Months Ago (02/12/2008 map)	15.8	84.2	39.0	21.8	3.1	0.0
Start of Calendar Year (01/01/2008 map)	31.8	68.2	33.1	19.7	2.6	0.0
Start of Water Year (10/02/2007 map)	20.8	79.2	44.2	22.0	9.1	0.0
One Year Ago (05/08/2007 map)	0.2	99.8	93.5	63.1	25.2	0.0



Intensity:

- D0 Abnormally Dry
- D1 Drought - Moderate
- D2 Drought - Severe
- D3 Drought - Extreme
- D4 Drought - Exceptional

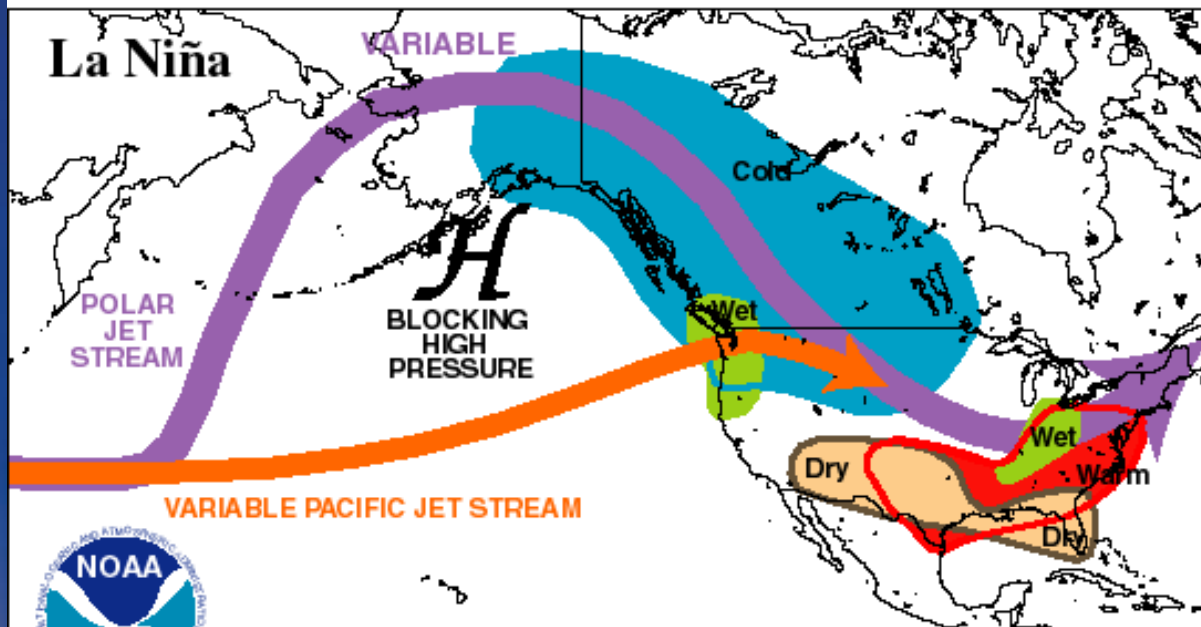
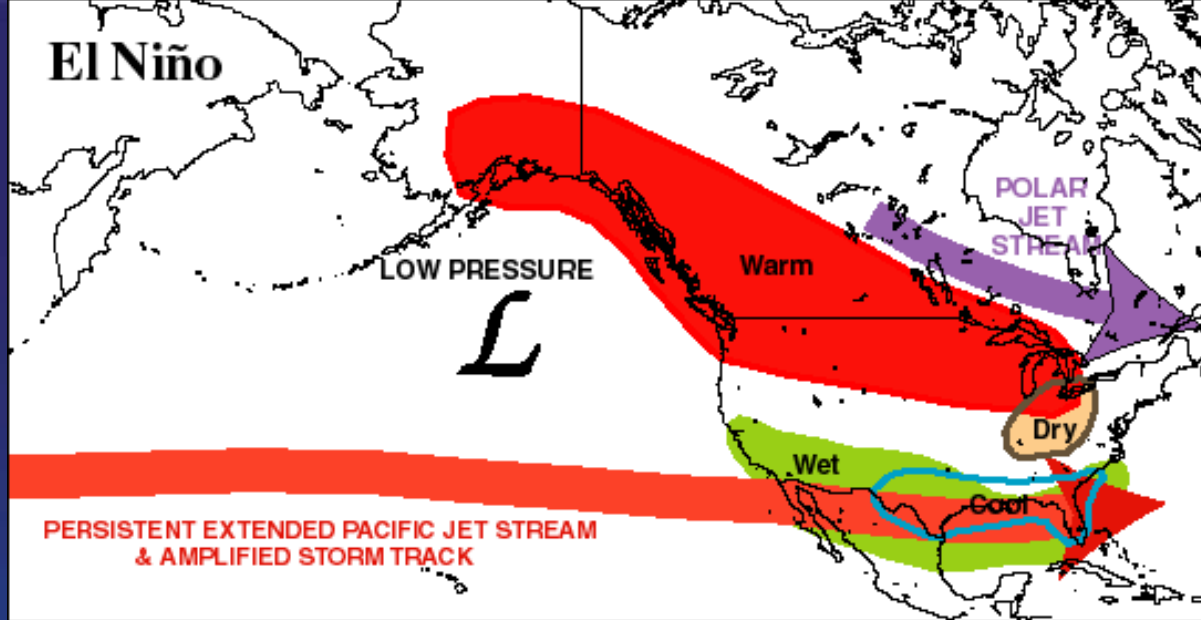
*The Drought Monitor focuses on broad-scale conditions. Local conditions may vary. See accompanying text summary for forecast statements*

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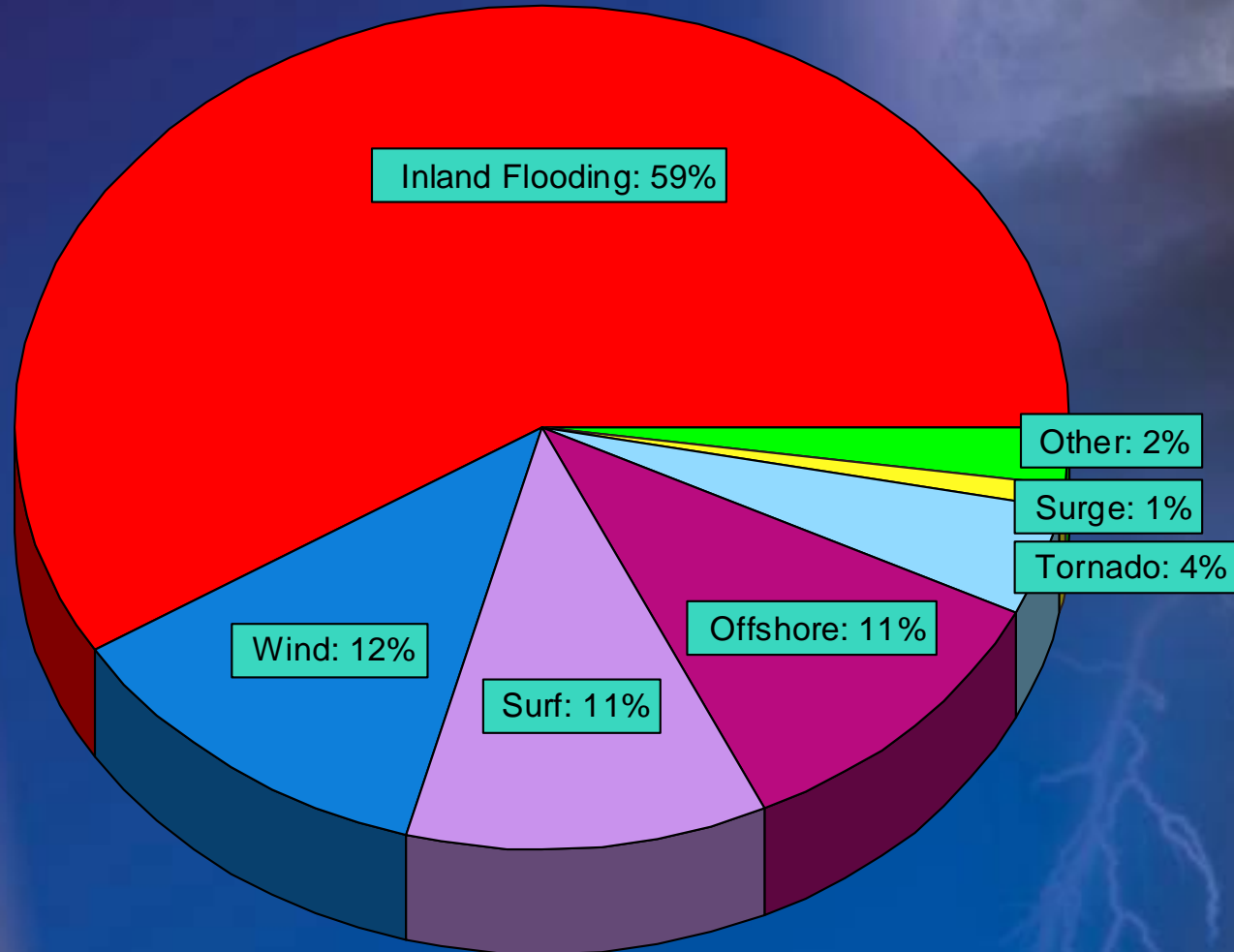


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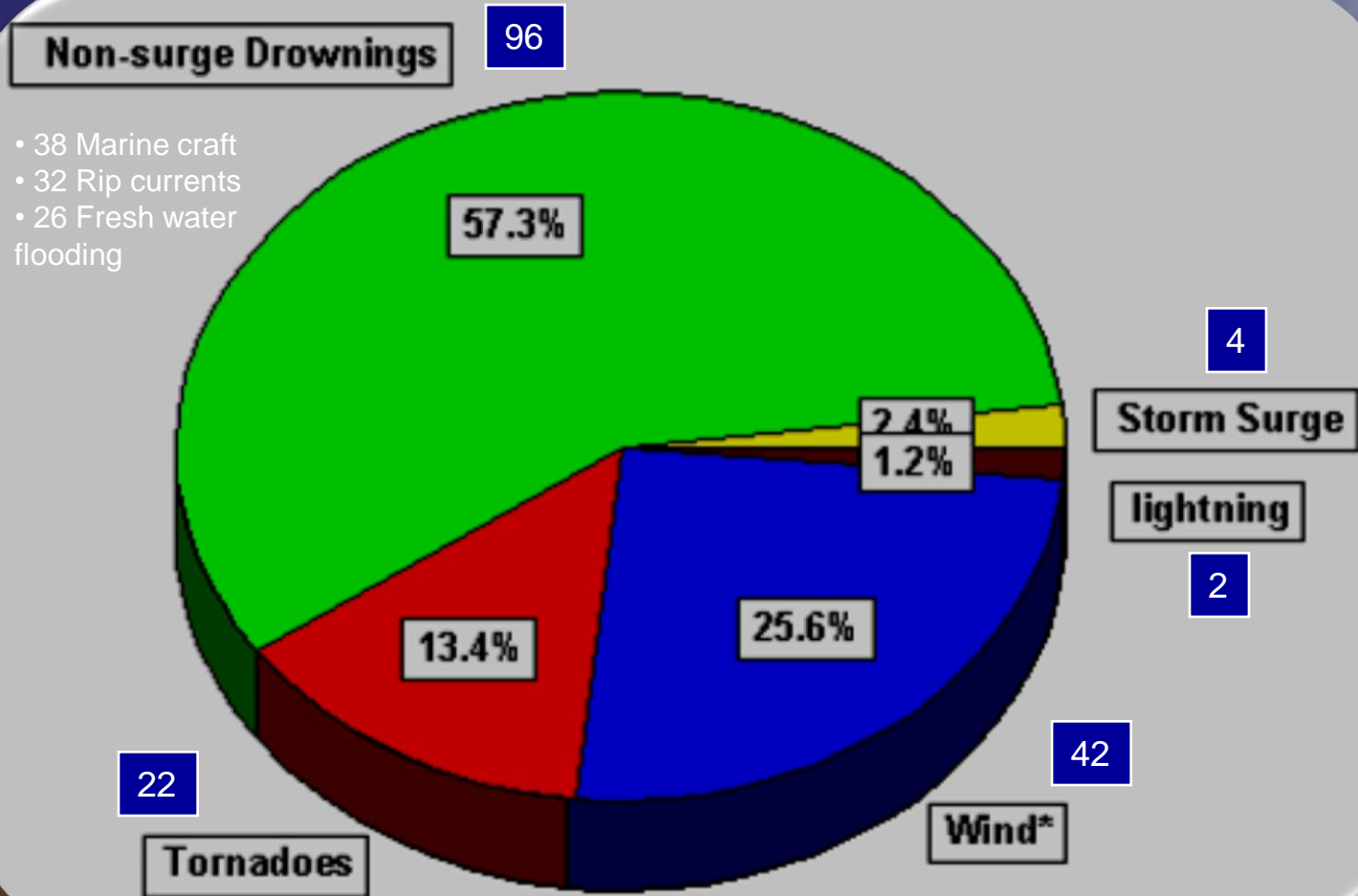


# *Hurricanes & Fatalities* *1970-2004*



# Direct Fatalities in FL Tropical Cyclone

1957-2007, 34 Tropical Cyclone Cases with 317 Fatalities





# *Hurricane Rain Effects*



# ***INLAND FLOODING***



# *Hurricane Danger*

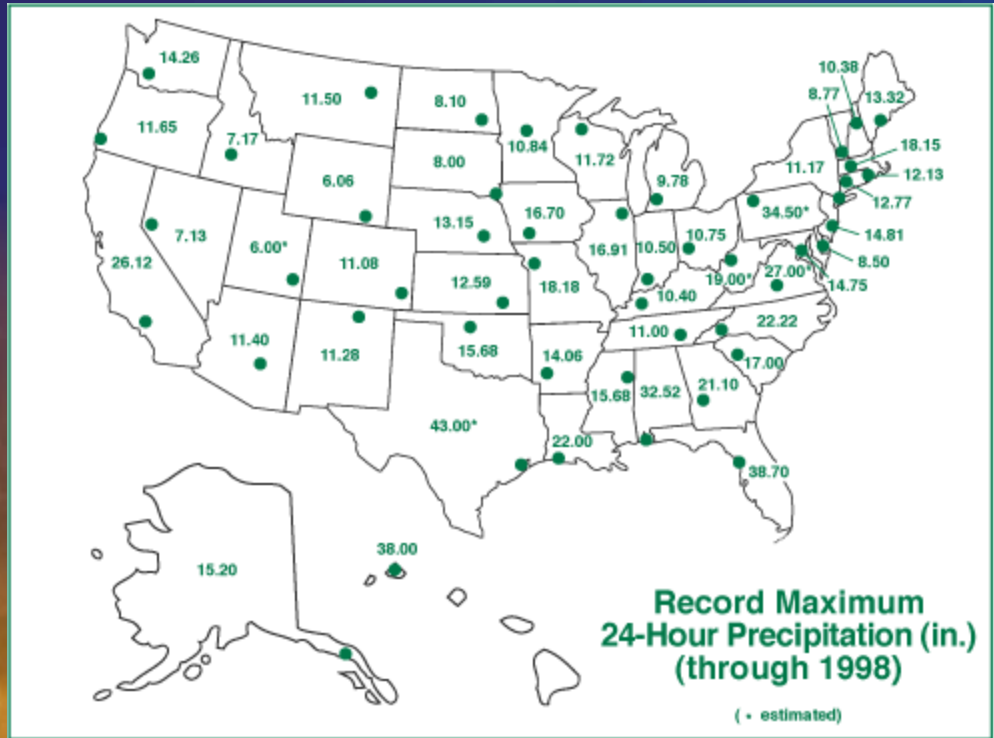
## *Fresh Water Flooding*



Lannis Waters  
The Palm Beach Post

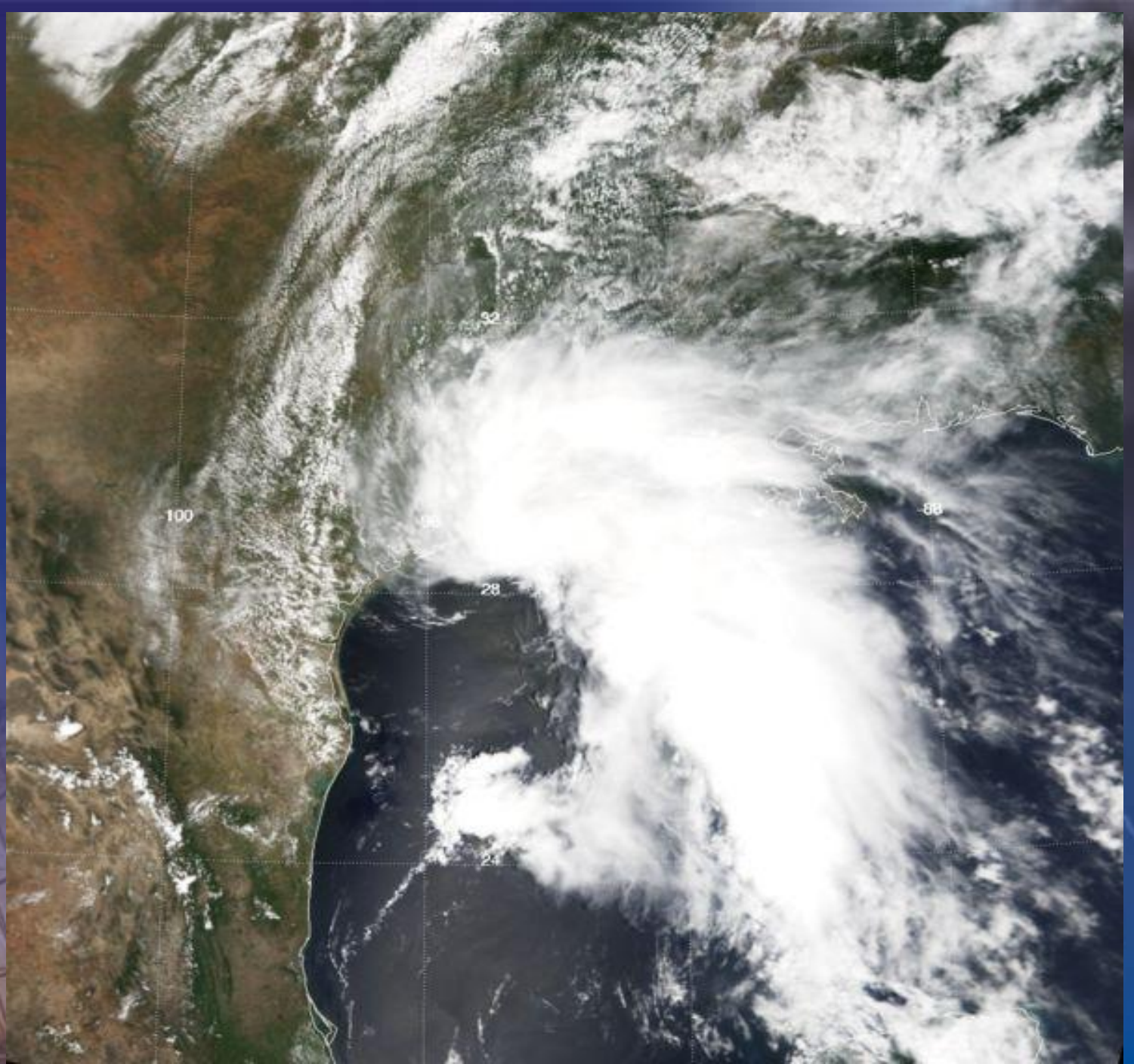
Jerry Padgett Jr. was killed when his car went into the water covered hole in Lake Wales during Charley.

# Florida's Heavy Rain Record



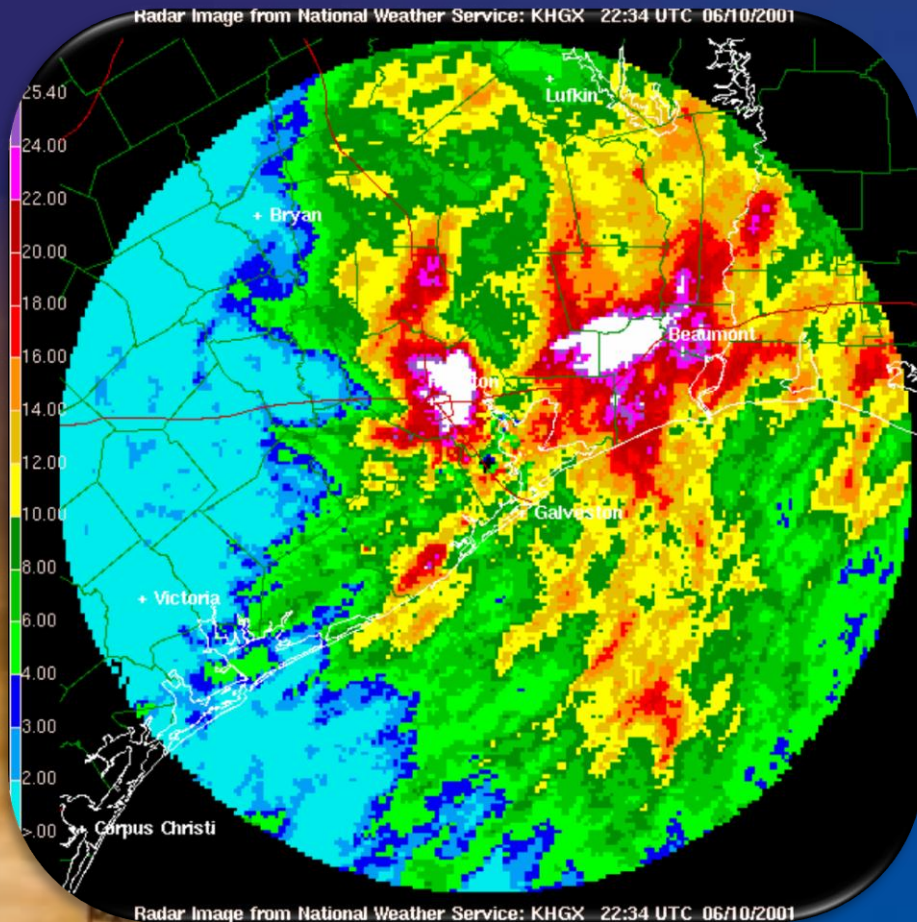
- Florida's record 24-hour rainfall event occurred during Hurricane Easy in 1950.

- 38.70 inches





# Texas Sized Rainfall



- **Tropical Storm Allison over 30 inches of rain**
- **The Port of Houston, Texas had 36.99 inches, and Houston Heights in Harris County reporting 19.58 inches in a 24-hour period.**
- **Deadliest (41 killed) and Costliest (\$5 Billion) Tropical Storm in history.**
- **Only tropical storm to have name “retired” without ever reaching hurricane strength.**





# Tropical Storm Allison Flooding Houston, TX





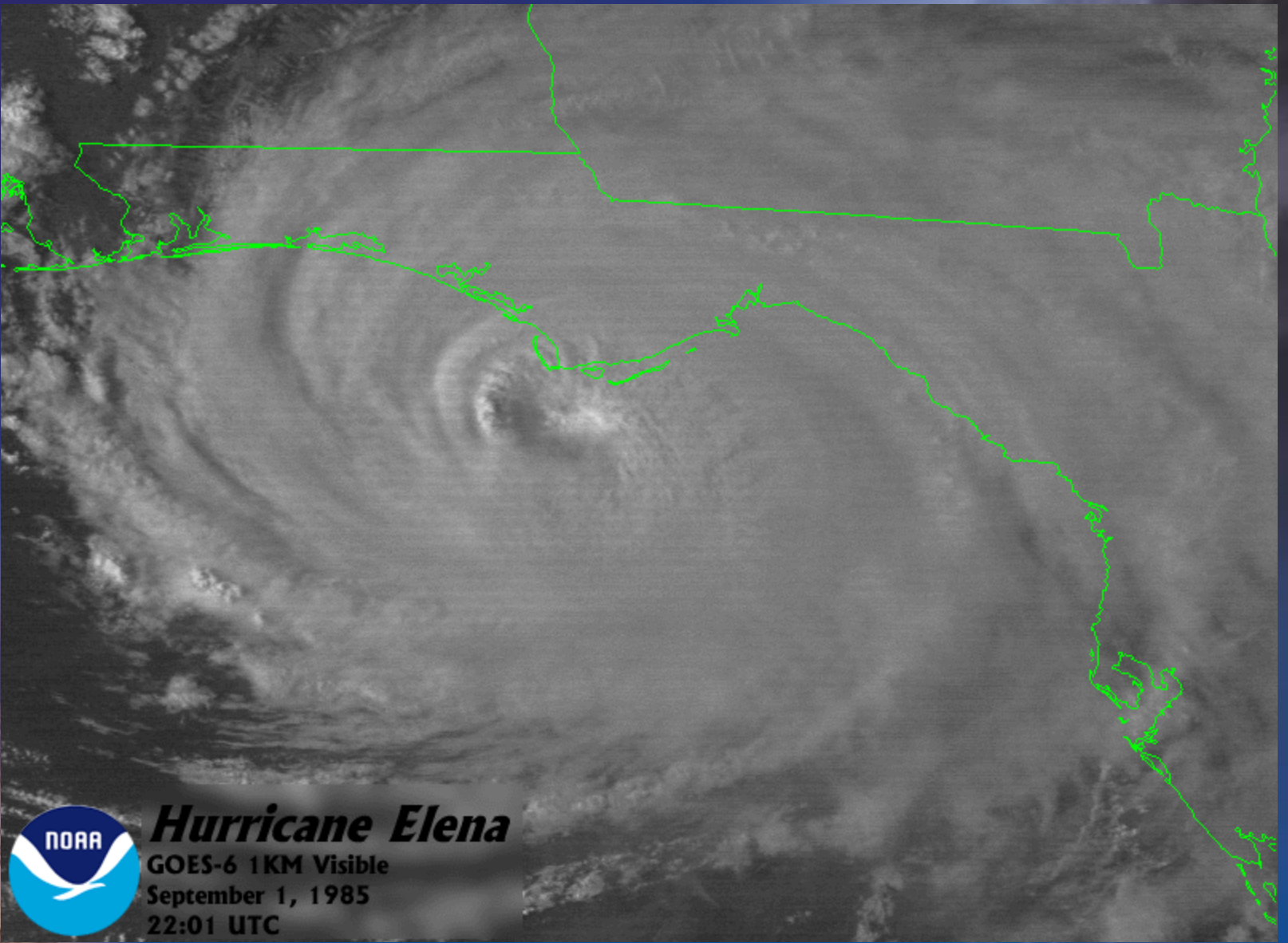
Buffalo Bayou, Looking upstream from Main St., 6/9/01





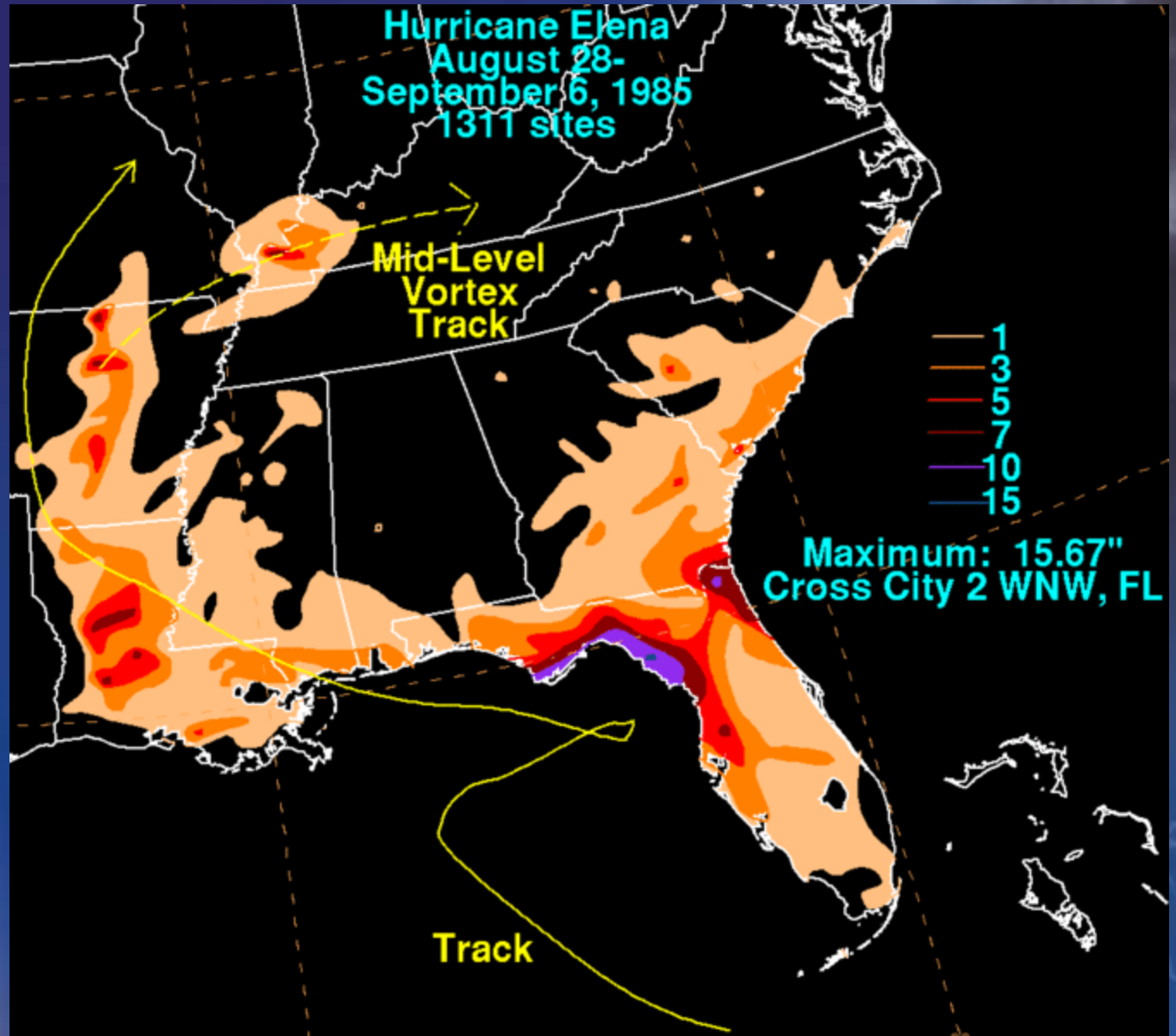
**Buffalo Bayou, White Oak Bayou Confluence and Main St.,  
6/9/01 am**



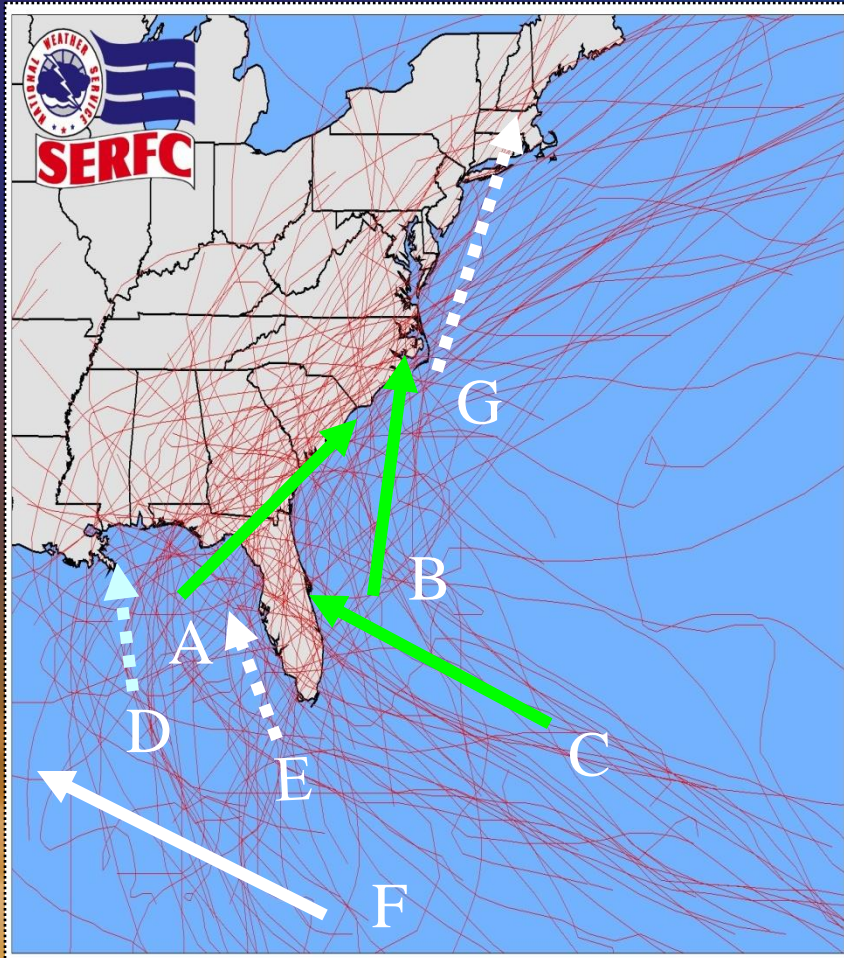


***Hurricane Elena***

GOES-6 1KM Visible  
September 1, 1985  
22:01 UTC



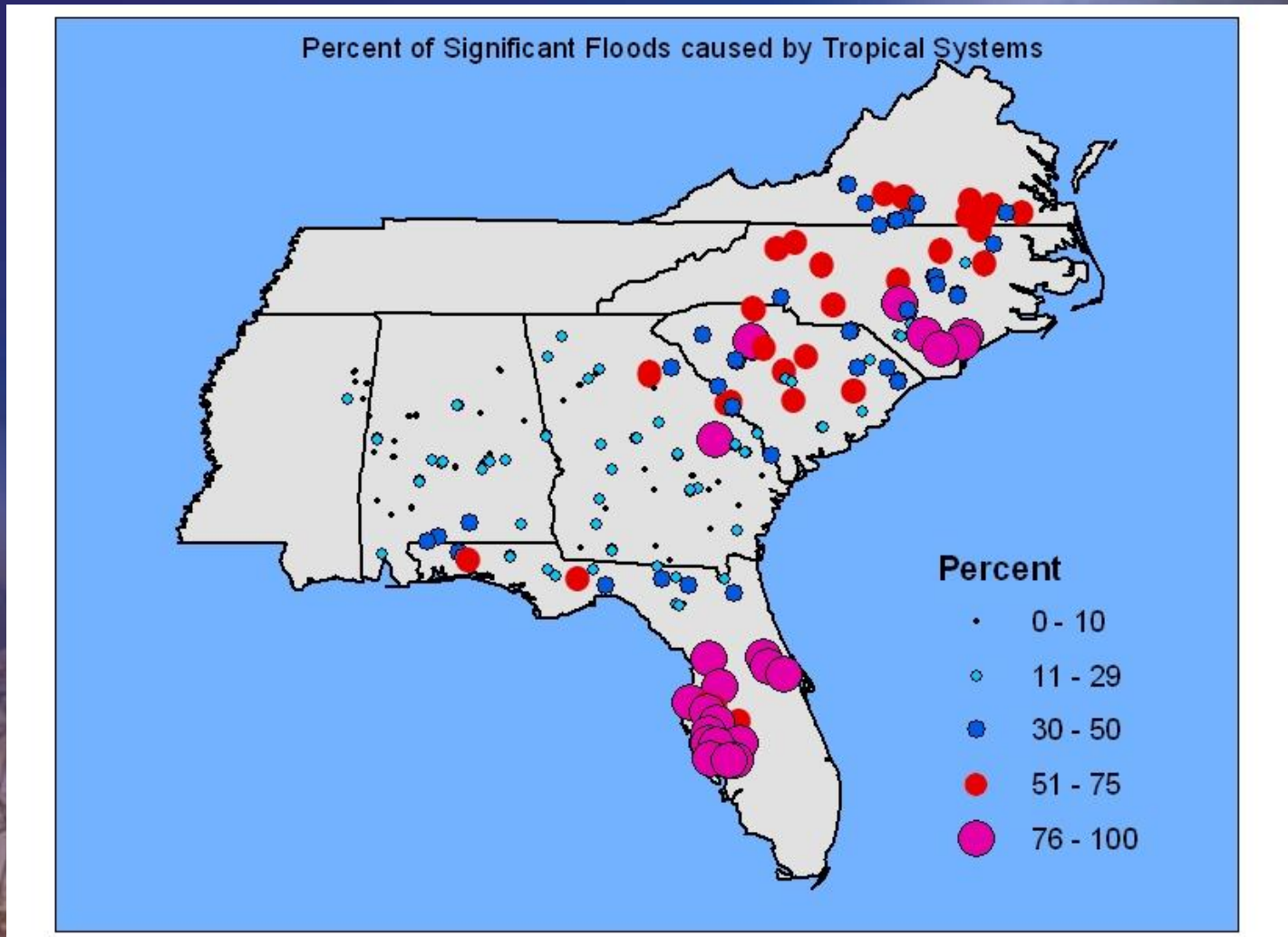
# Traditional Tropical Cyclone Flood Producing Tracks



- A – NW Florida (primary)
- B – Carolina (primary)
- C – Central Florida (secondary)
- D – Central Gulf Coast (secondary)
- E – Eastern Gulf (secondary)
- F – Western Gulf (primary)
- G – New England (secondary)

**Tracks of Inland Moving  
Tropical Cyclones Associated  
With Significant Floods**

# Percent Significant Floods by TC





**National Weather Service**  
***National Hurricane Center***



**nhc.noaa.gov**



# National Weather Service National Hurricane Center



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Local forecast by "City, St" or "ZIP"  Go

Top News of the Day.....[view past news](#)

Last update Tue, 22 Apr 2008 18:05:24 UTC

- [Take a Virtual Tour of the National Hurricane Center](#)
- [NHC announces changes to the Tropical Weather Outlook and enhancements to the Experimental Graphical Tropical Weather Outlook...view summary \(pdf\)](#)

Eastern Pacific

Atlantic



48-hour formation potential is displayed June 1 to November 30

Choose your Focus: [Tropical Cyclone Activity](#) | [Marine Forecasts](#)

## Atlantic - Caribbean Sea - Gulf of Mexico

[Tropical Weather Outlook - en Español\\*](#) - [Experimental Graphical Outlook](#)  
[TAFB Tropical Weather Discussion - Forecasts and Analyses](#)

There are no tropical cyclones at this time.

## Eastern Pacific (out to 140°W)

[Tropical Weather Outlook - Experimental Graphical Outlook](#)  
[TAFB Tropical Weather Discussion - Forecasts and Analyses](#)

There are no tropical cyclones at this time.

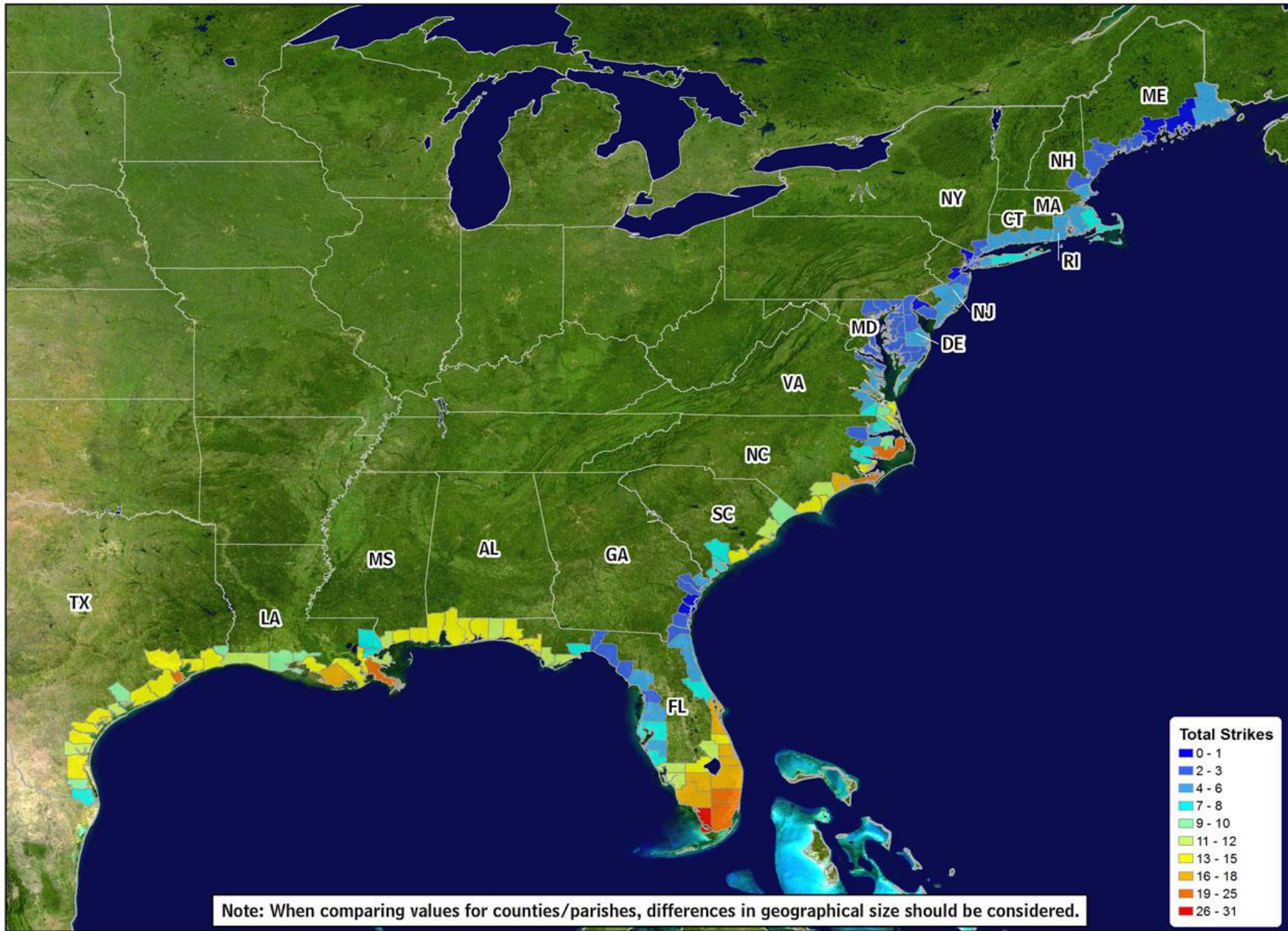
National Weather Service • Since 1870

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  - Be Prepared | Learn
  - Frequent Questions
  - AOML Research
  - Hurricane Hunters
  - Saffir-Simpson Scale
  - Forecasting Models
  - Eyewall Wind Profiles
  - Glossary/Acronyms
  - Storm Names
  - Breakpoints
- Hurricane History
  - Seasons Archive

### Climatology

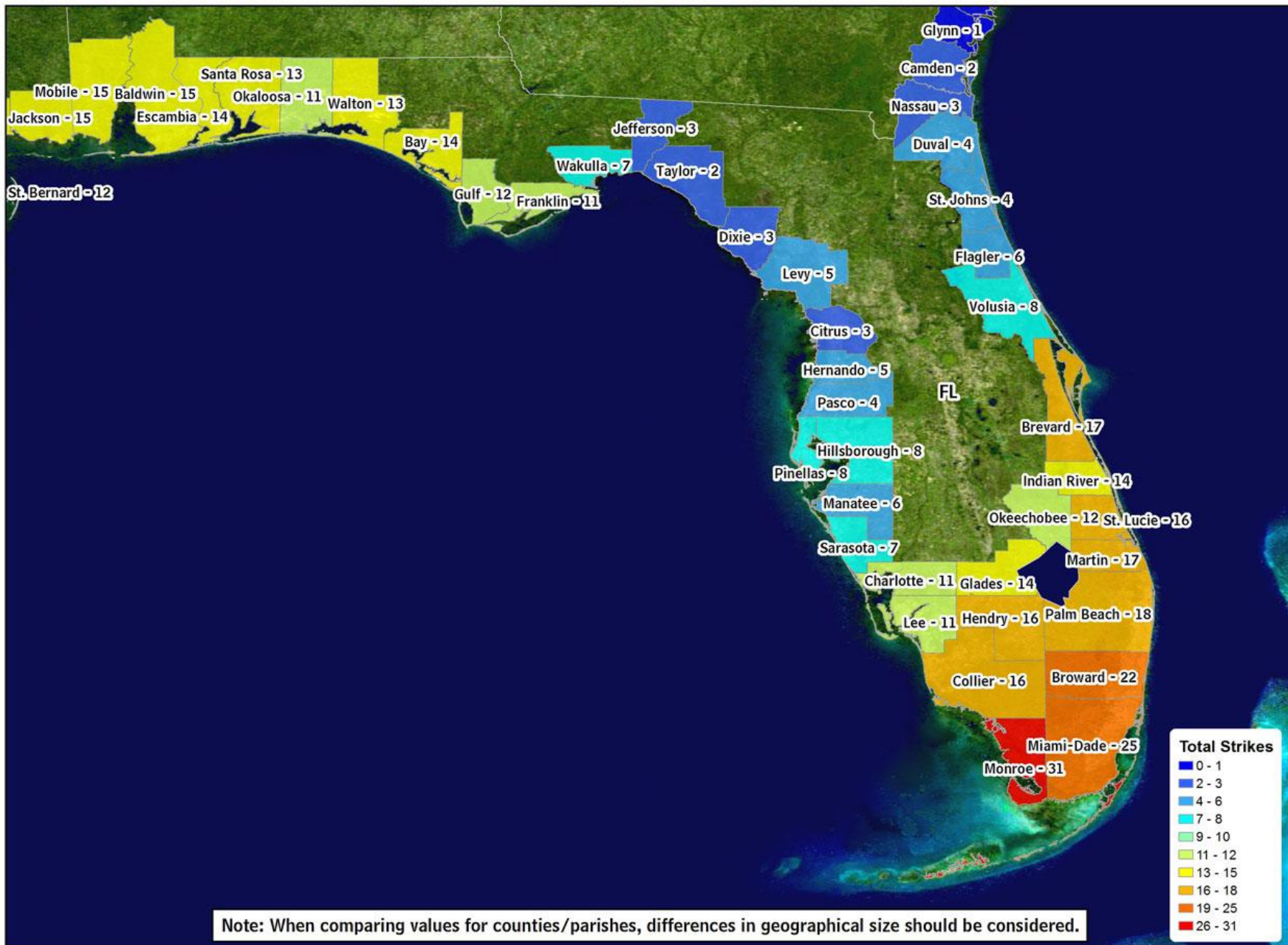
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## Total number of hurricane strikes by counties/parishes, 1900-2007

Data from NWS NHC 46: Hurricane Experience Levels of Coastal County Populations from Texas to Maine. Jerry D. Jarrell, Paul J. Hebert, and Max Mayfield. August, 1992, with updates.



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Media

Emergency  
Management

*The Future  
of NWS Services  
and  
Local Collaboration*

Government

Academia



*The bigger the  
challenge ...*

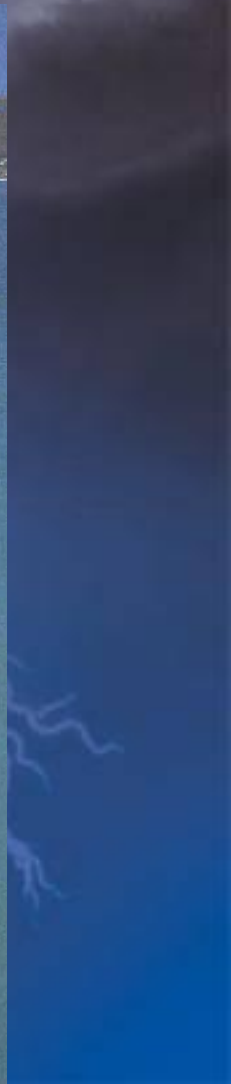


*... the greater the  
opportunity!*

# Increase **Awareness** and Be **Prepared!**

I should have checked  
the NWS Flood Forecast!

Sitting in a 3.8-metre sea  
kayak and watching  
a four-metre great  
white approach you is  
a fairly tense experience



**Thank You**  
for attending!



**Email: [brian.lamarre@noaa.gov](mailto:brian.lamarre@noaa.gov)**







