

Texas
2nd Annual Hurricane Conference
(04/27/04)

***YOUR NWS & EM:
SAVING LIVES WITH
HURRICANCE PREPAREDNESS***

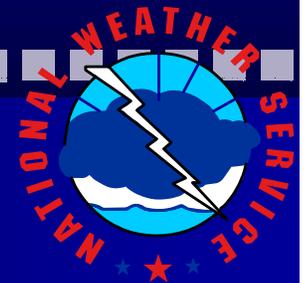
Bill Proenza
Regional Director
National Weather Service
Southern Region

Overview

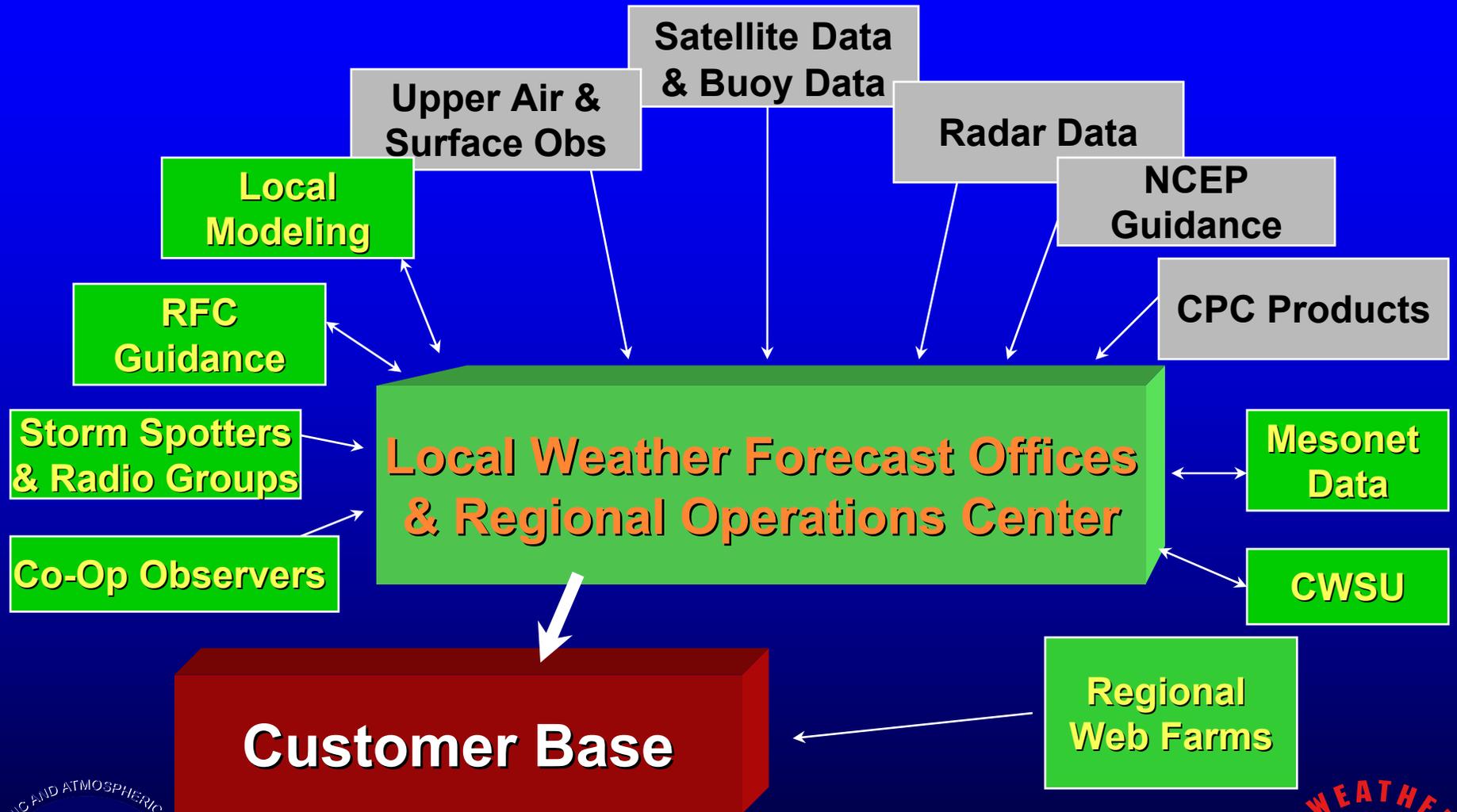
- **Our Nation's Weather and Your Local NWS Forecast Office Performance**
- **Your NWS Information on the Internet**
- **Texas Tropical Storms & Hurricanes**



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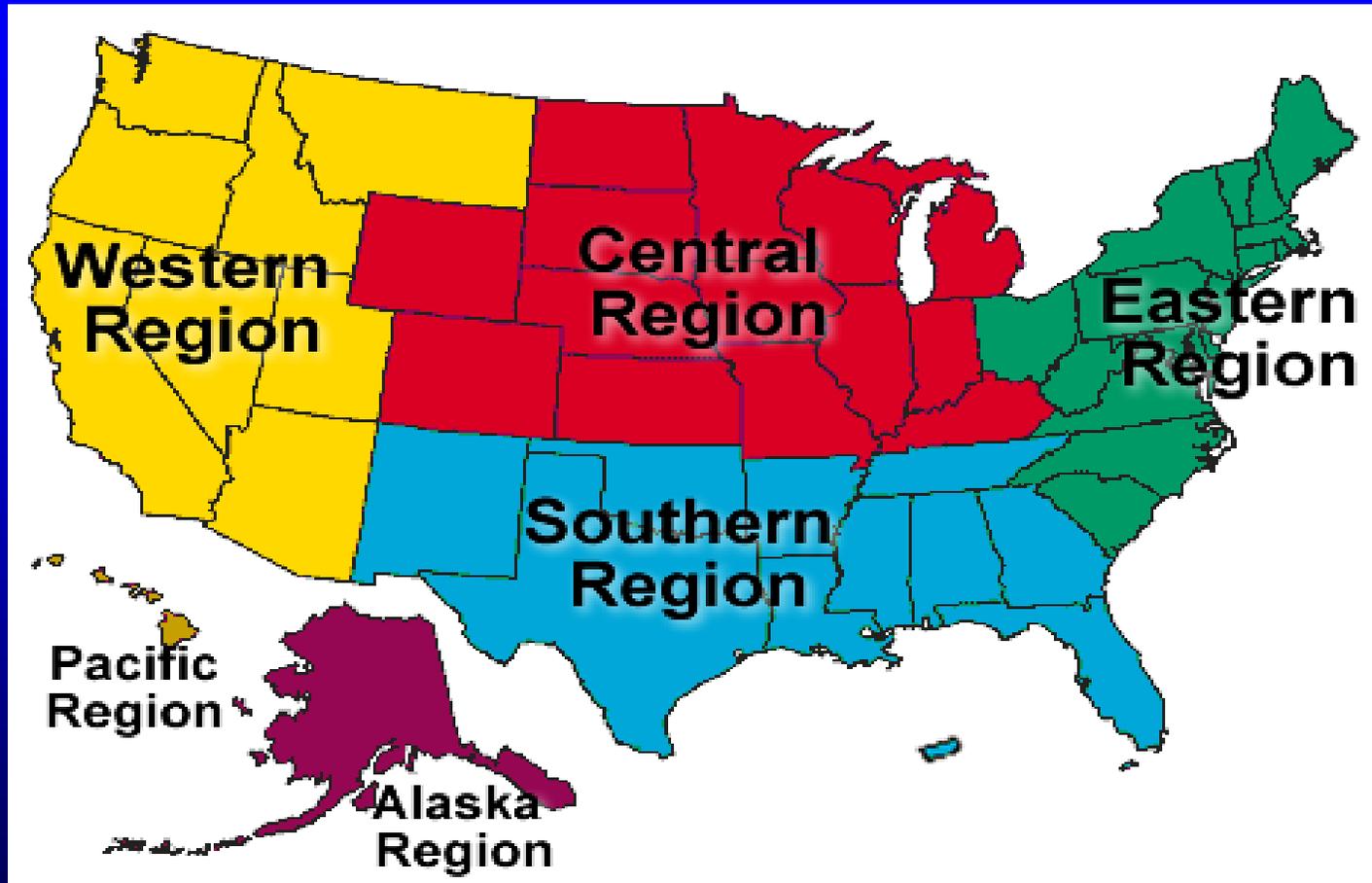
WFO Information Flow



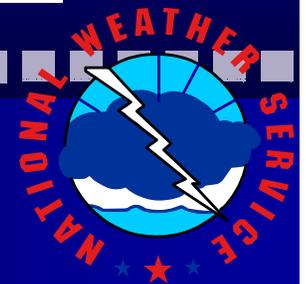
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National Weather Service by Region



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Billion Dollar Climate and Weather Disasters 1980 - 2002



Alaska 0
Hawaii 1
Puerto Rico 2
Virgin Islands 2

Drought Fires

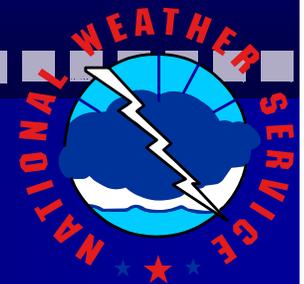
NUMBER OF EVENTS	NUMBER OF STATES	DISASTER	FREQUENCY	2002 EVENTS
1 - 3	15	Tropical Storms/Hurricanes	28%	Widespread drought spring through fall 2002. Moderate to extreme drought over large portions of 30 states; preliminary estimates of over \$10 billion in damages/costs.
4 - 6	12	Non-Tropical Floods	22%	
7 - 9	10	Heatwaves/Droughts	18%	Western fire season spring through fall 2002. Major fires over 11 states due to drought and periodic high winds with over 7.1 million acres burned; over \$2 billion in damages/costs; 21 deaths.
10 - 12	5	Severe Weather	9%	
13 - 15	5	Fires	9%	
16 - 20	2	Freezes	4%	
	2	Blizzards	4%	
	2	Ice Storms	4%	
	1	Noreaster	2%	

Most of these events affected multiple states; for example, 13-15 events shown for a state means that the state was impacted by 13-15 events -- each producing significant damage. The aggregate damages from affected states are totaled and combined and must equal at least \$1 billion to be classified as a "Billion Dollar" event.



NOAA'S NATIONAL CLIMATIC DATA CENTER
ASHEVILLE, NORTH CAROLINA

**World's
Most
Active
Weather!**

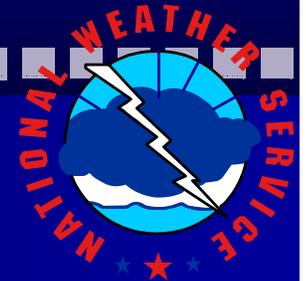


All Weather is Local

- **Vast Majority of Partner/Customers are Local**
 - Local Emergency Managers and Government Officials
 - Local Media
 - General Public



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Local WFO Operations Save Lives!

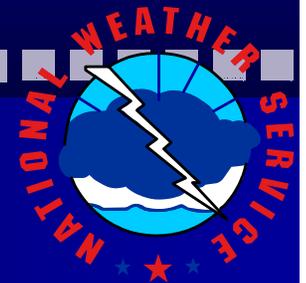
Local Area Expertise For:

- More Accurate Forecasts and Warnings
- Outreach
 - **Public awareness supports our mission delivery**
- Greater Service to Public and Partners
- Better Climate Services
- Homeland Security – Weather Support 24/7

The best weather expertise for your local area!

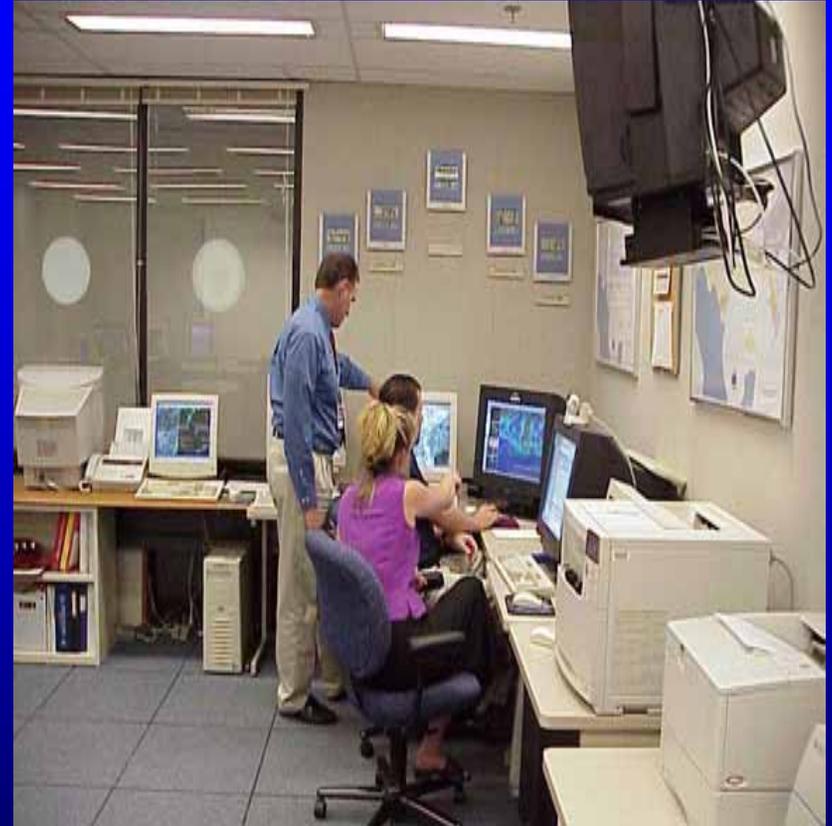


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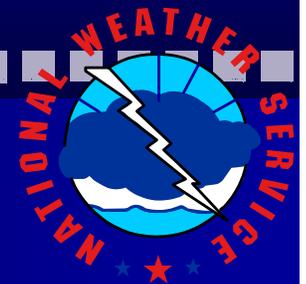


Regional Operations Center

- Shifts regional resources to events
- Coordination with NWS' National Hurricane Center
- Conducts briefings with NWS offices & all levels of EM community
- NWS interview source when WFOs are active

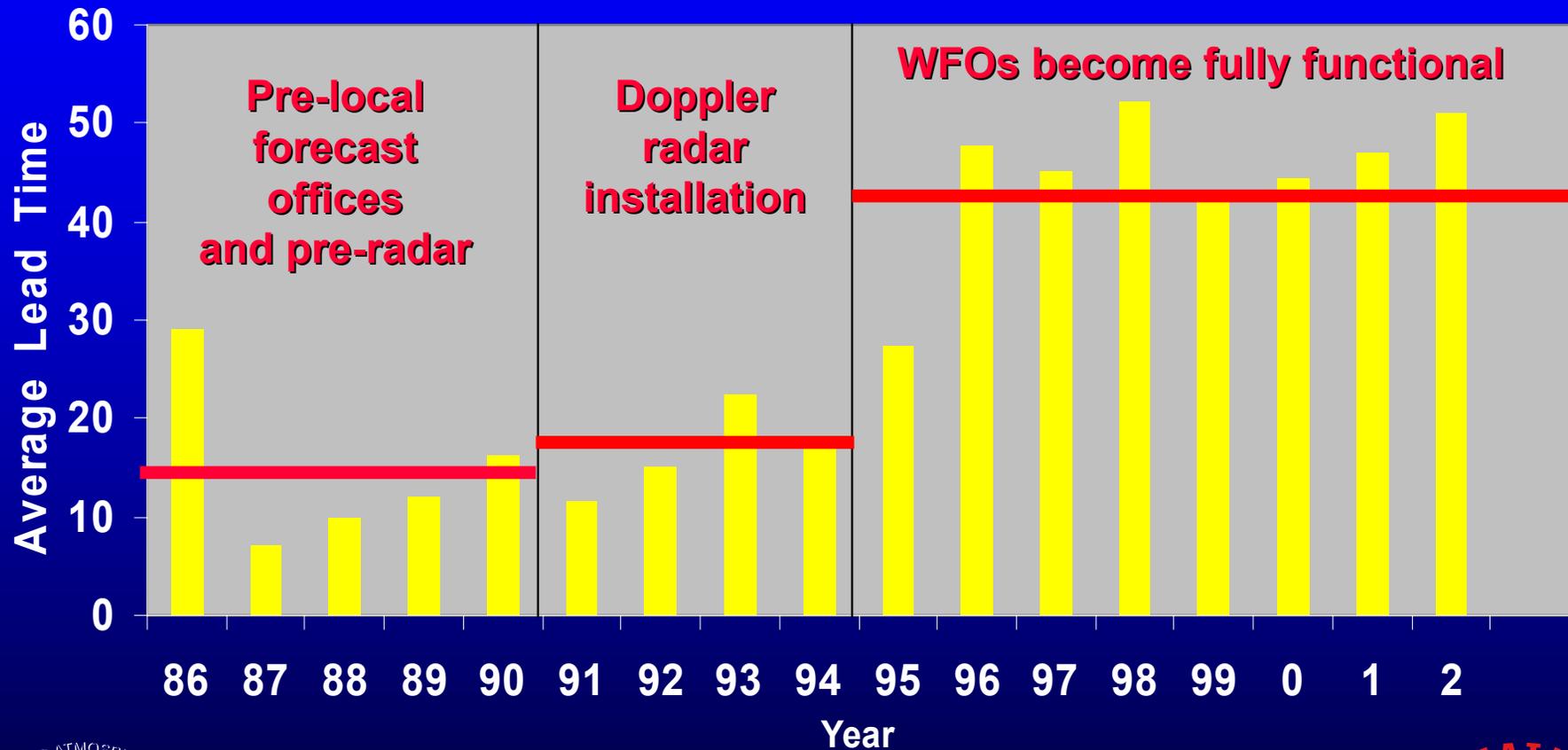


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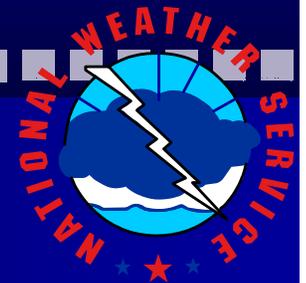


Local WFOs Save Lives

Flash Flood Warning Lead Time



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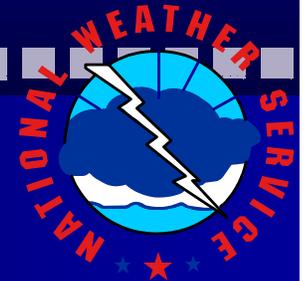
The Future of the NWS

“Forecast improvement will be through mesoscale (*local scale*) decision making.”

- **Digital tropical cyclone forecast improvements and coordination underway at WFOs and NHC**
- With use of local models and expertise, we will be able to meet increasing public and private partner needs for accuracy, especially inland flooding
- Warning Decision Support System 2 (3-5 Yrs)
- Phased Array Radar (6-10 Yrs)



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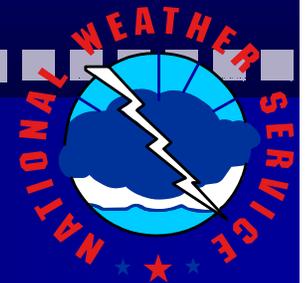


Your Local WFO Internet Site

- Serves as a one-stop source of weather information.
- Developed with the both - partners and general users - in mind
 - *Easy navigation*
 - *Data given in the manner you need it.*
- Increases public visibility of NWS mission and services



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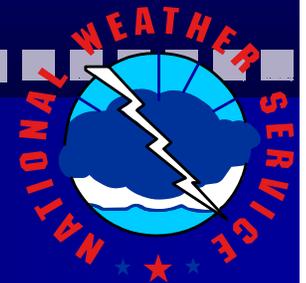
NWS SR Internet Site

www.srh.weather.gov

- Includes **Mirror Site** to NHC
- Forecasts obtained by either **postal zip code, city/state search**, or by **point & click maps**
- Weather Information in clear, concise format
- Emphasizes local weather expertise



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NWS Internet Pinpoint Forecasts

Quick Forecast Information

Current Weather Conditions

Latest Weather Advisories

Quick Forecast Text

Radar and Satellite

Local Climate Services

The screenshot shows the National Weather Service website for Heidenheimer, TX. The page includes a search bar, a 7-day forecast table, a detailed 7-day forecast section, a hazardous weather outlook, current conditions for Fort Hood / Gray U. S. Army Airfield, radar and satellite images, and a list of additional forecasts and information.

TODAY	TONIGHT	TUESDAY	TUESDAY NIGHT	WEDNESDAY	WEDNESDAY NIGHT	THURSDAY	FRIDAY	SATURDAY
Partly Cloudy	Mostly Cloudy	T-storms Possible	T-storms Possible	Chance T-storms				
Hi 78°F Lo 55°F	Hi 82°F Lo 65°F	Hi 85°F Lo 68°F	Hi 82°F Lo 68°F					

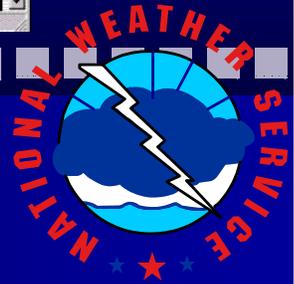
Hazardous Weather Outlook
Today, Partly cloudy. Highs in the upper 70s. East winds 5 to 10 mph.

Current Conditions
Fort Hood / Gray U. S. Army Airfield
Last Update on May 20, 9:55 am CDT
Partly Cloudy
68°F (20°C)
Humidity: 37 %
Wind Speed: SE 9 MPH
Barometer: 30.26 (1024.1 mb)
Dewpoint: 41°F (5°C)
Heat Index: 77°F (25°C)
More Local Wx: 2 Day History

Additional Forecasts & Information
Forecast Discussion
Preparedness
Products/Services Guide
Local Climatology
NOAA Weather Radio
Fire Weather Forecast

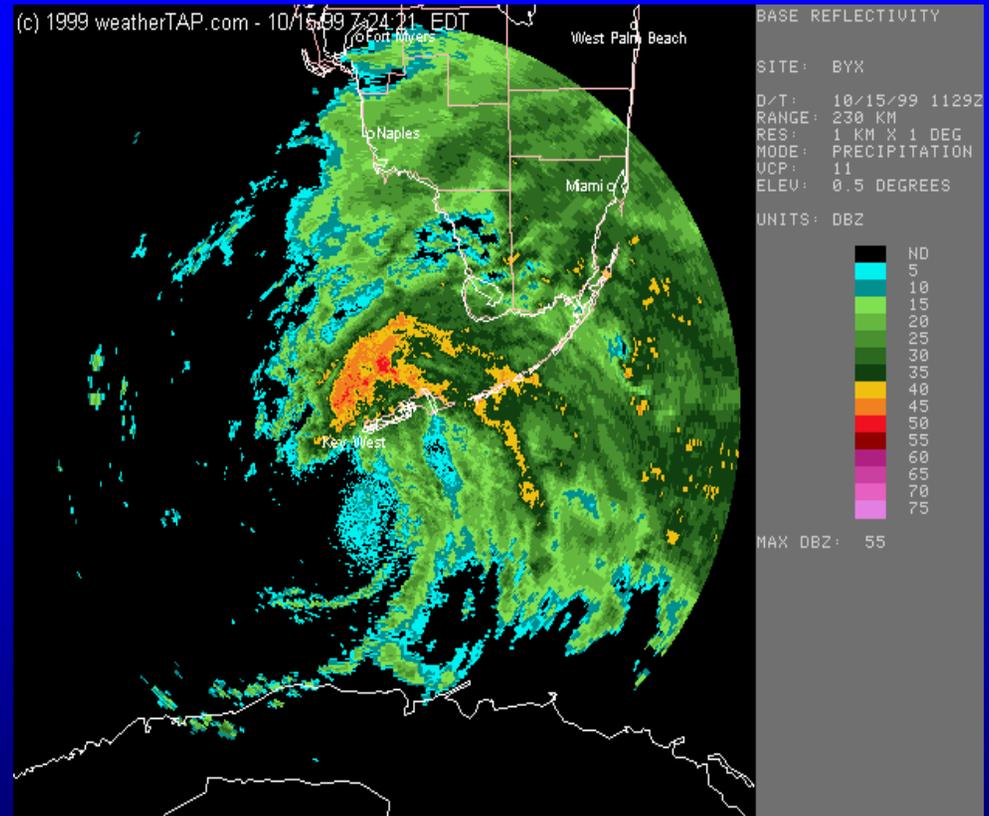


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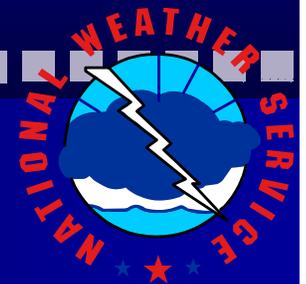


Radar Images

- Available as a time loop for all Weather Service Radars in the U.S.
- Provides real time storm development, movement, and precipitation info



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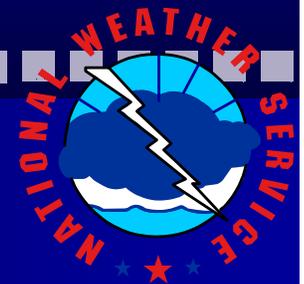


StormReady®

- Grass roots start in Tulsa - 1998
- National expansion in 2000
- **700+** nationwide sites
- Significant factor in improving nation's weather preparedness



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Turn Around Don't Drown™

- Flood and Flash Flood Safety Campaign
- Over 30 partners representing local, regional, and national organizations
- Launched in May 2003 by NWS Southern Region for the Nation



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Click on this logo



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Project Jetstream

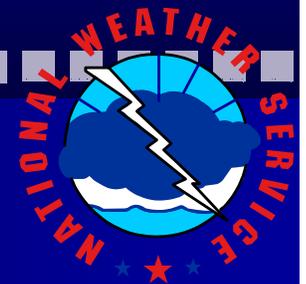
- Designed to educate on weather, it's dangers, preparedness, safety tips, etc.
- Touches on different areas of weather, from thunderstorms to tropical weather
www.srh.weather.gov



Click on the Jetstream logo



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RIP Currents

- Program conceived at WFO Miami
- RIP Current Awareness Campaign Implemented
- Outreach campaign included to warn public of hidden dangers
- Program spread nationwide due to popularity

Rip Currents are killers. How you respond could make the difference between life and death.

How a Rip Current forms

Rip Currents form when water, piled against the shore, begins to retreat to deeper water. Typically, the wind pushes the water onto a sandbar allowing ocean water to collect near the shore. Eventually, this ocean water starts to flow seaward through low areas in the sandbars, "sipping" or seeping.

Rip Currents occur at all reef beaches including those along both coasts, the Gulf of Mexico and the Carol Lakes. Near rip currents feel from a few inches to a few feet, while near permanent ones, associated with groves and jetties, may last days.

Other common names for rip currents: rips, rip holes, and ripsaws.

How to spot a Rip Current

Rip Currents are usually narrow near the beach (30-40 feet wide), increasing as they extend into deeper water. They can be seen from the shore by the color of the water. If the current has recently formed, you will see murky water (as compared to the surrounding water), as a result of sediment mixing. Longer lasting currents, having already eroded a path in the sandbars, will appear darker than the surrounding water.

Rip Current water heights are lower and choppy. Look for signs of it being moving: muddy sand and floating sediment (seaweed, trash) and a breaking of the glass. Also, look for people that are being warning you of the danger.

How to survive a Rip Current

Know how to swim. Always wear your goggles and head the beach patrol.

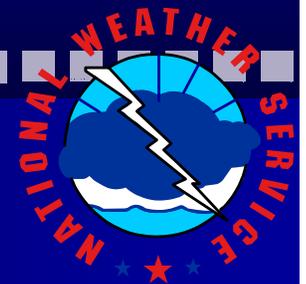
Remain calm and swim parallel to the shore if caught in a rip current. Attempts to swim directly toward shore can be fatal. In fact it has strong eyes for the strongest swimmers. Since rip currents are relatively narrow, you should be able to see the current from a safe distance. If you cannot break free of the current's pull, float until it dissipates. Then swim diagonally toward the shore.

Use a flotation device if you attempt to leave someone from a rip current.

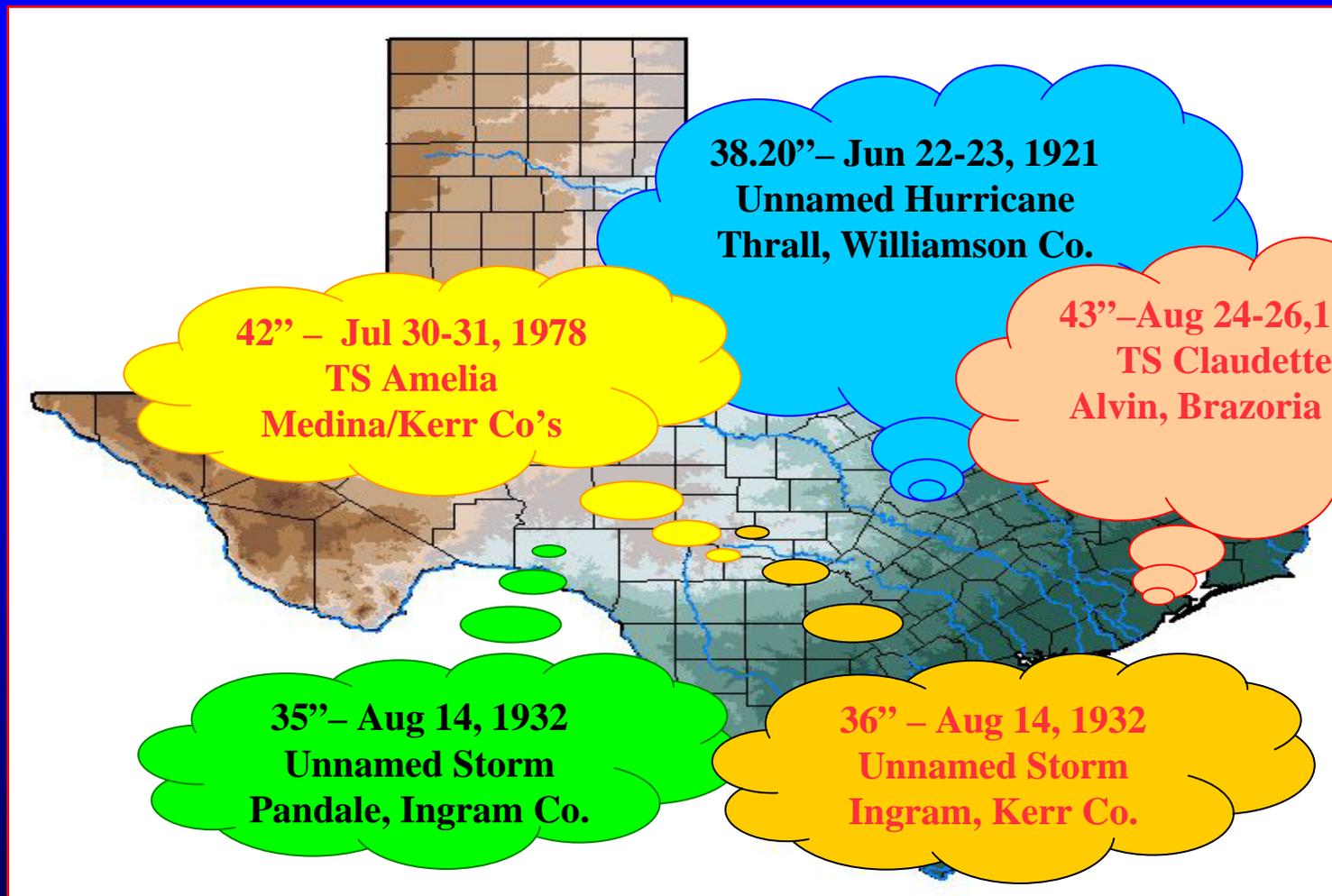
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Texas Torrents - *Top 5 Flood Events*



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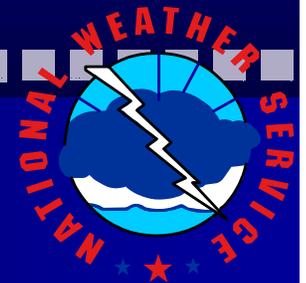
Texas Torrents

Texas Historical Rainfall Events – 48 Hrs or Less

- 43.00” T.S. Claudette . . . Brazoria Co 06/24-26/1979
– 24 hour *U.S. Record!!!*
- 42.00” T.S. Amelia . . . Medina/Kerr Co . . . 07/30-31/1978
– 3 day total of near 50 inches
- 38.20” Hurricane . . . Williamson Co 06/22-23/1921
– 36+ inches in 18 hours – *A World Record!!!*
- 36.00” Unnamed Storm . . . Kerr Co 08/13-14/1932



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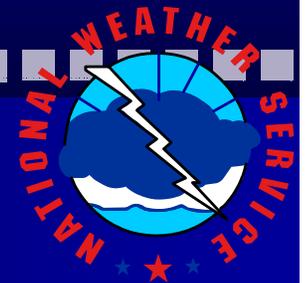
Texas Torrents

Texas Historical Rainfall Events – 48 Hrs or Less

- 35.00" Unnamed Storm - Val Verde Co 1932
- 34.00" Hurricane Beulah - Karnes Co 1967
- 33.00" T.S. Amelia - Shackelford Co 1978
- 30.00" Unnamed Storm - Hays Co 1998
- 28.80" T.S. Allison - Houston Area 2001
- 25.00" Unnamed Storm - San Patricio Co 1984



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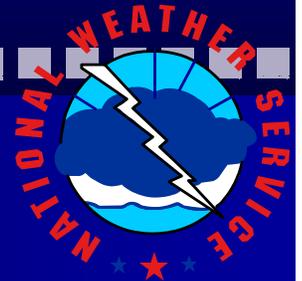


2003 Tropical Season Review

- 16 Name Storms
 - 9 Tropical Storms
 - 7 Hurricanes
- 6 Storms affected U.S.
 - 5 of these in the Gulf of Mexico
 - *3 storms affected Texas!*
 - *Hurricane Claudette*
 - *Hurricane Erika*
 - *Tropical Storm Grace*

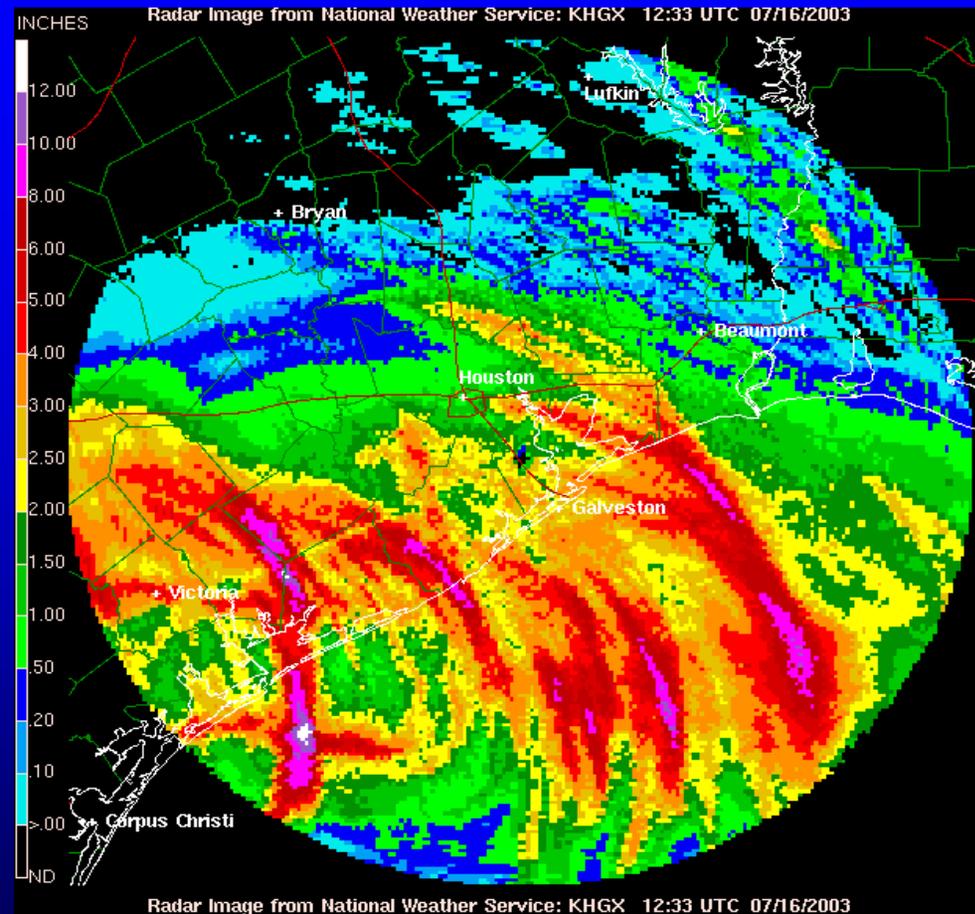


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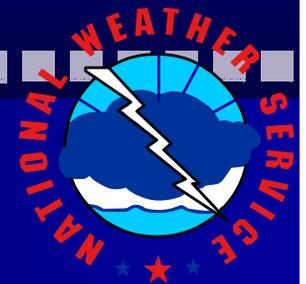


Hurricane Claudette - Rainfall

- Storm Total Radar estimate of **8"** rain amounts in bands over land
- Storm Total Radar estimate of **12+"** rain amounts in bands over water
- **6.5"** rain amount from rain gage report - SSE of Tilden, TX

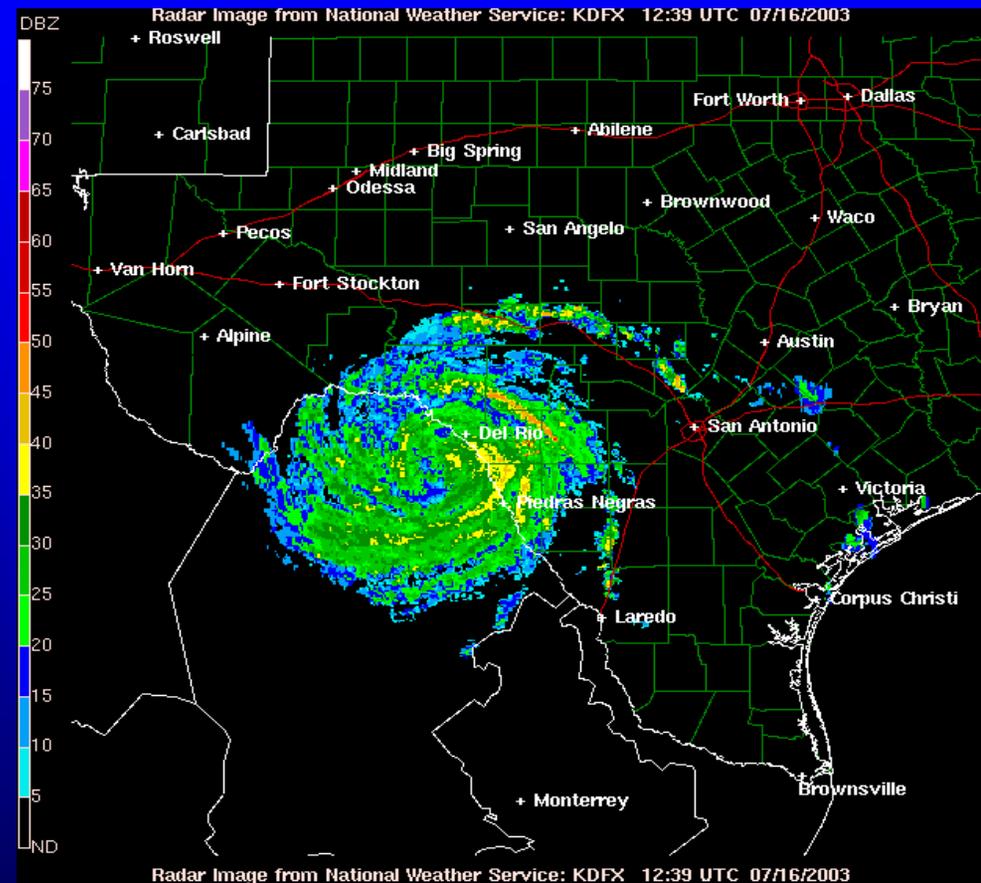


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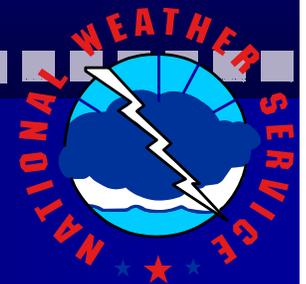


Hurricane Claudette – July 16, 2003

- Maintained tropical shape well inland
- Posed a flash flood threat well into Big Bend area
- Best handled by expertise of your local WFO.

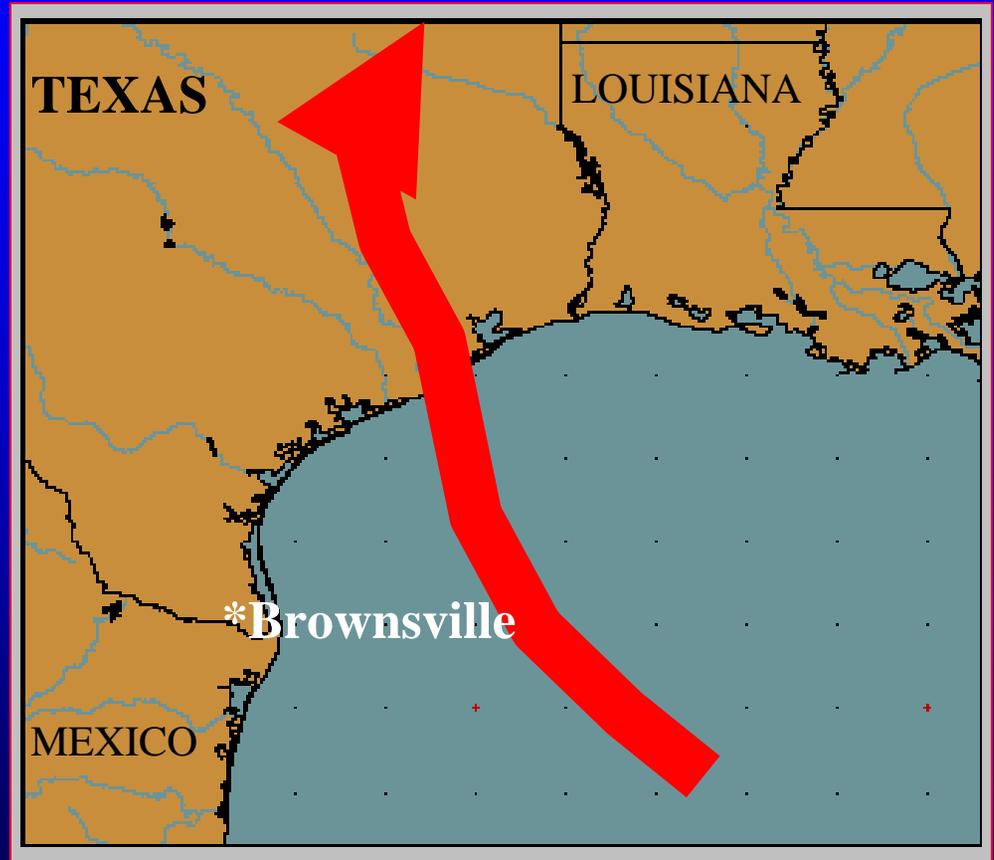


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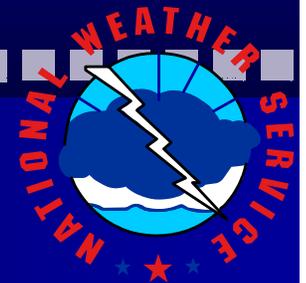


Tropical Storm Grace

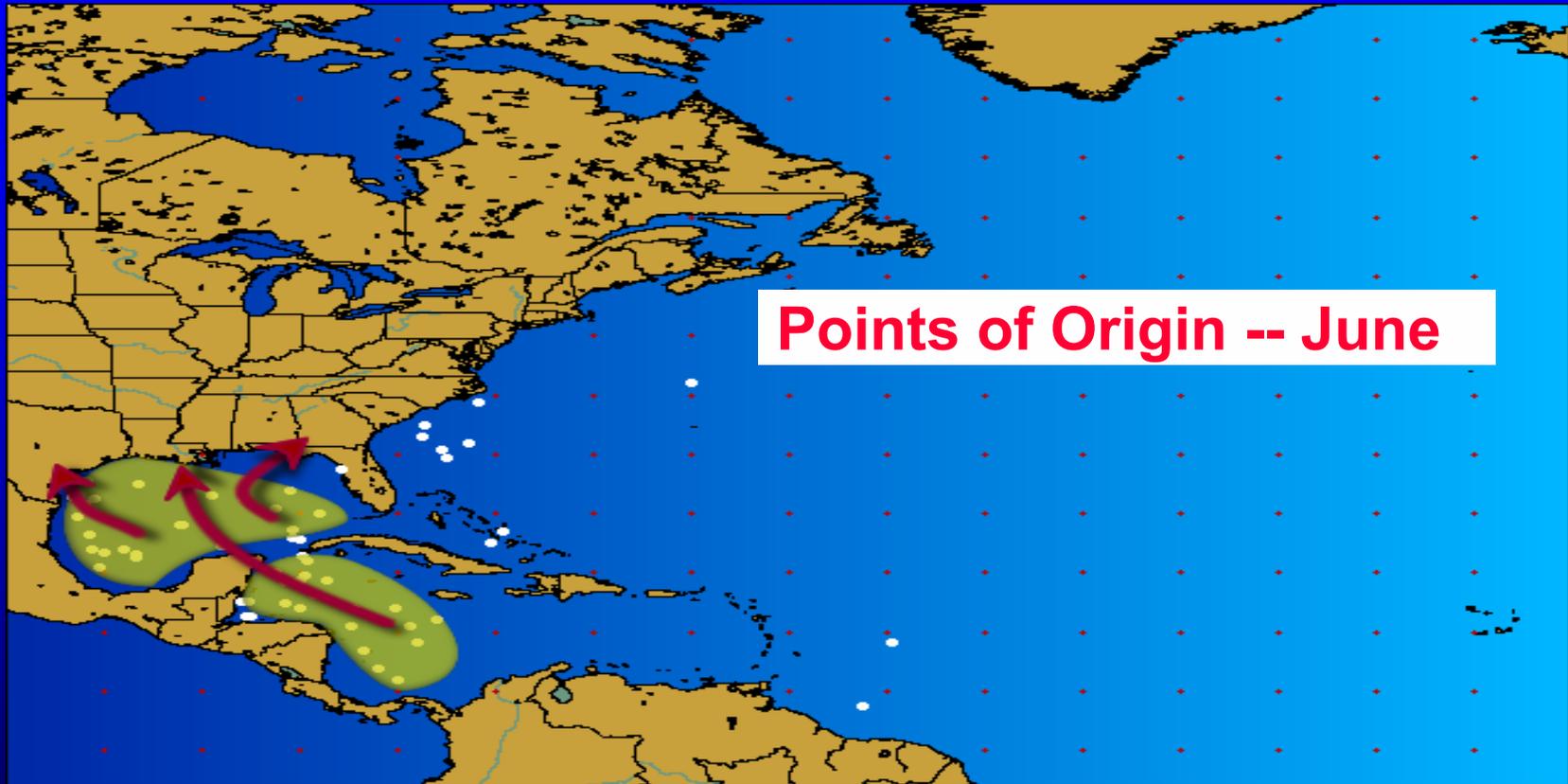
- Aug 30 – Sep 02, 2003
- No Fatalities
- Minor Damage
- 3" – 5" Rainfall
- Max sustained wind - 40 mph



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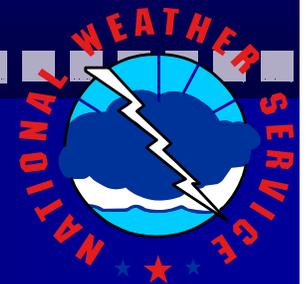
Tropical Climatology



- Storms favor the Gulf of Mexico & Western Caribbean



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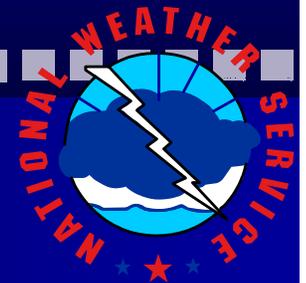


Texas Tropical Storm Allison

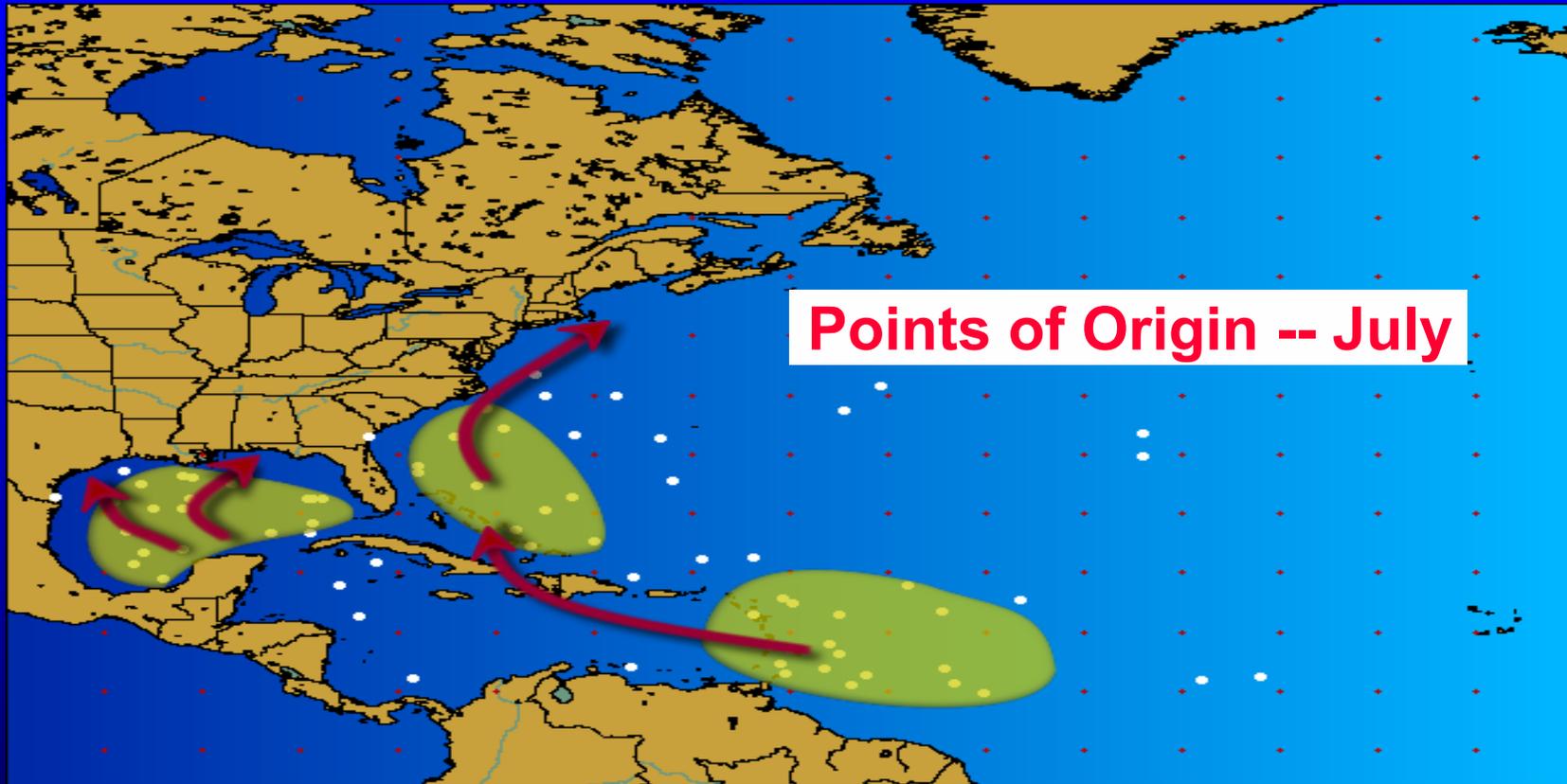
- Jun 5-10, 2001
- 41 killed
- \$5.0B damage
- Max 60 mph



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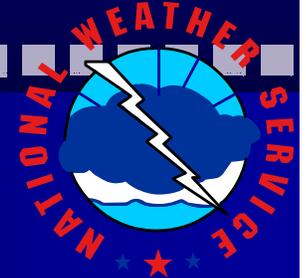
Tropical Climatology



- Continued Gulf activity, increasing danger - Greater Antilles

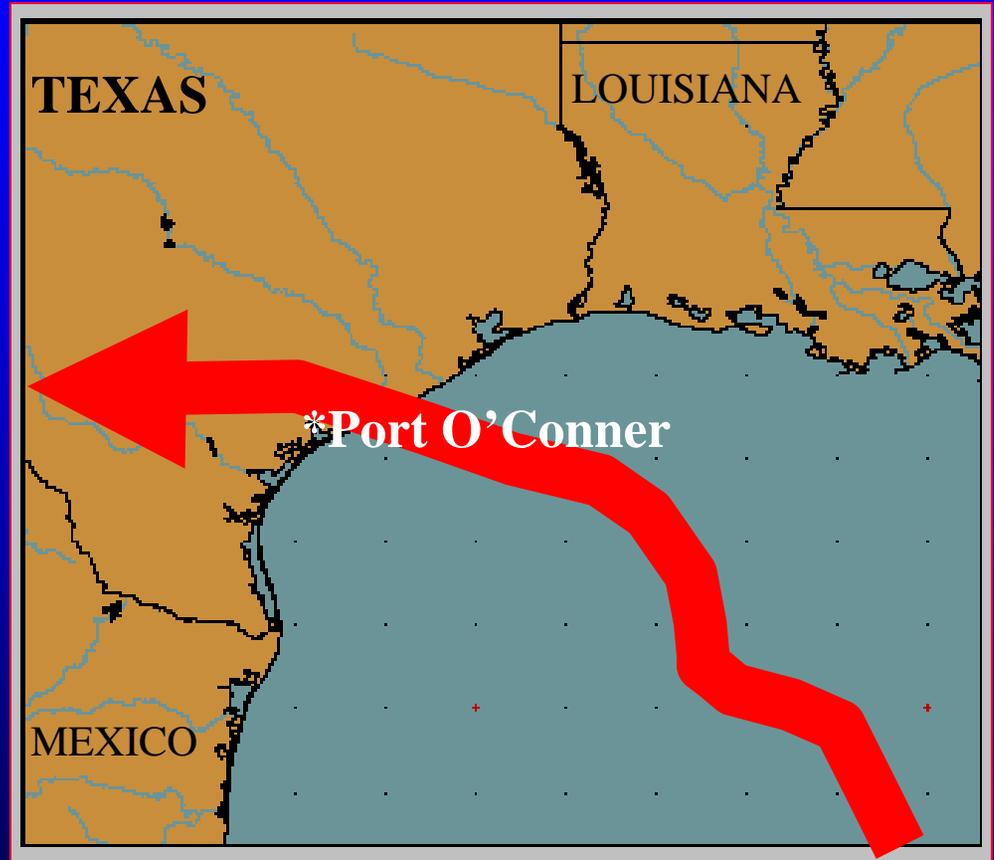


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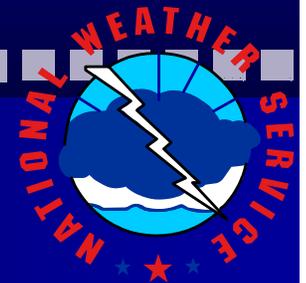


Hurricane Claudette

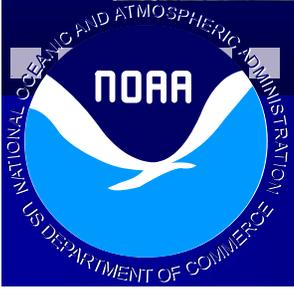
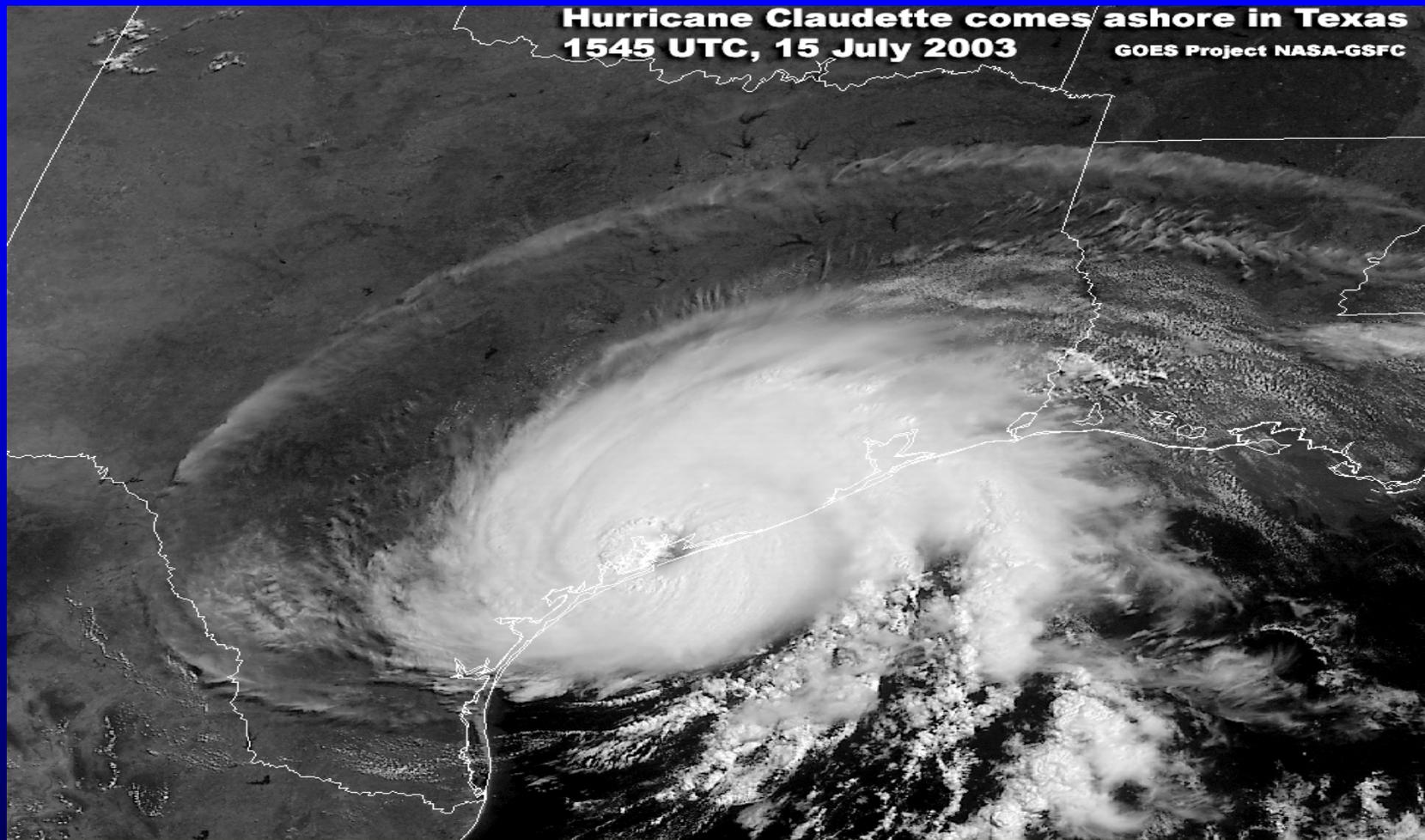
- Jul 14 – 17, 2003
- 1 killed
- \$180M damage
- Cat 1
- Max sustained wind - 92 mph



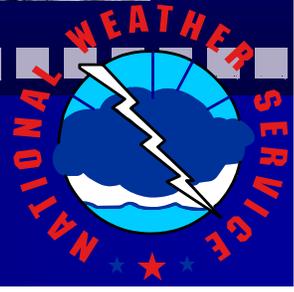
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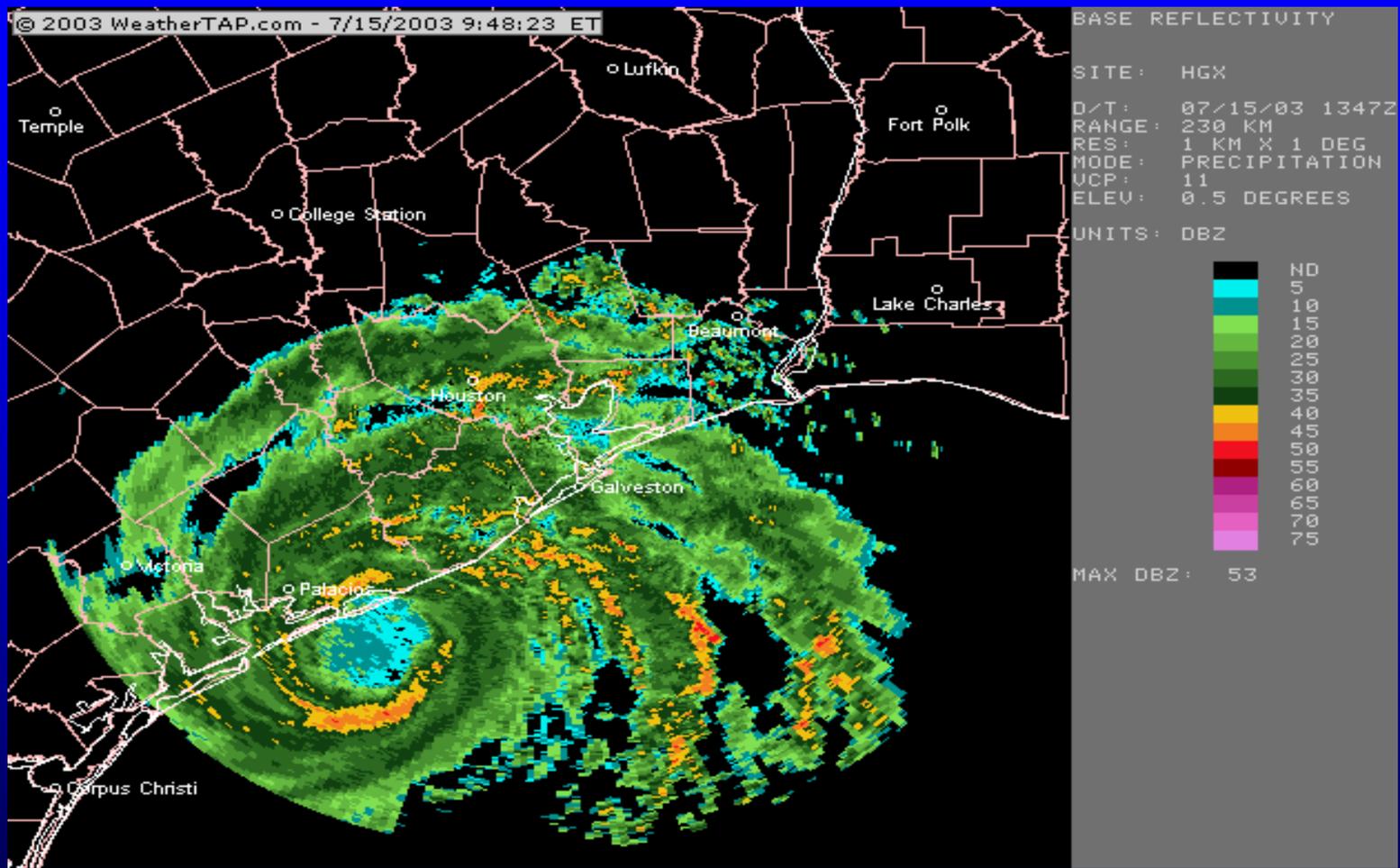
Hurricane Claudette - July 15, 2003



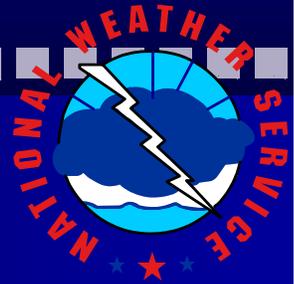
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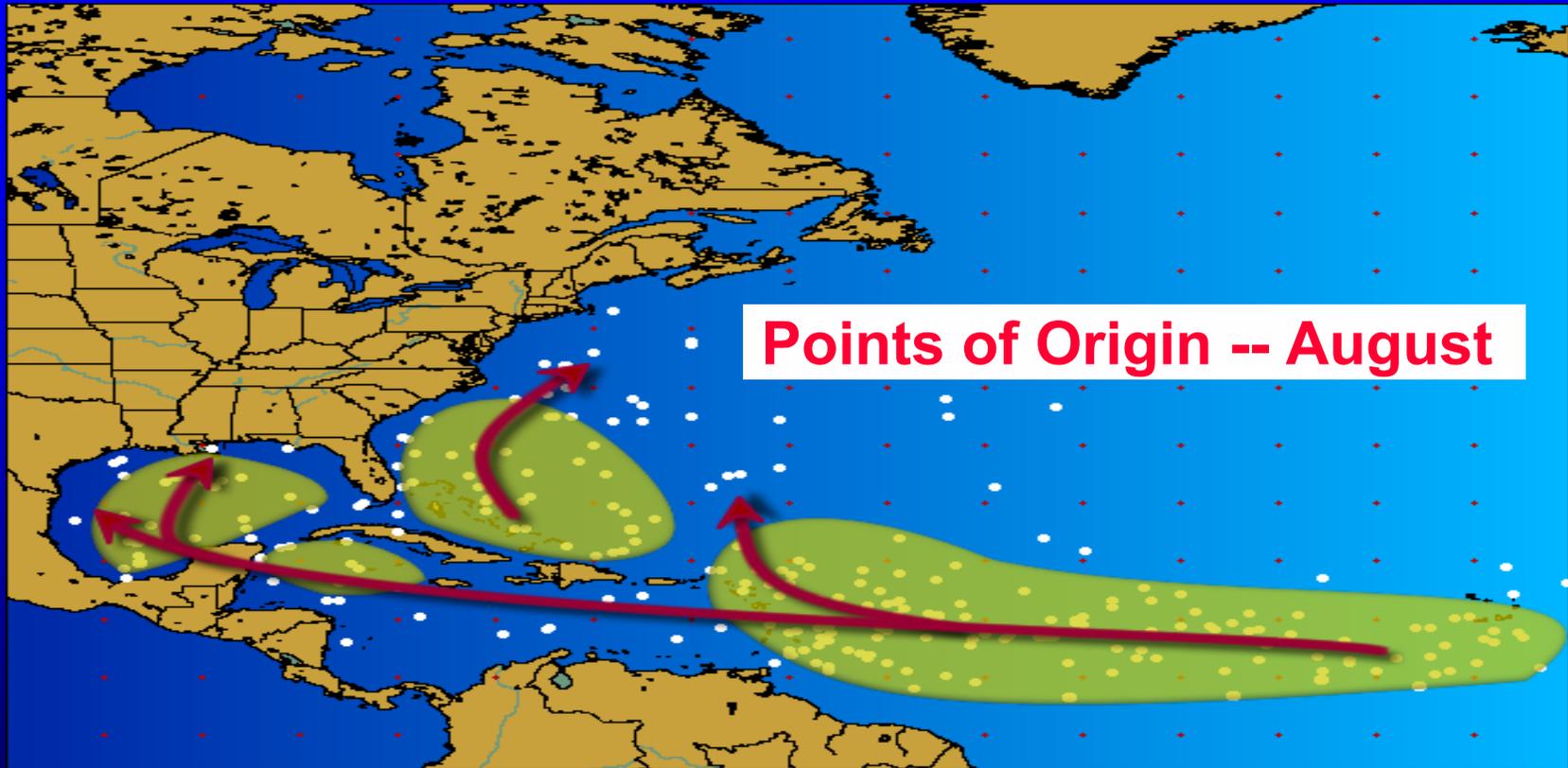
Hurricane Claudette - July 15, 2003



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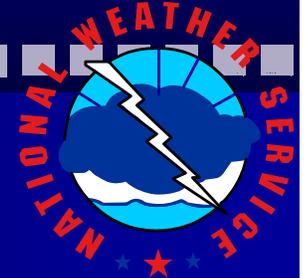
Tropical Climatology



- **Atlantic more active, long-track hurricane danger increases.**

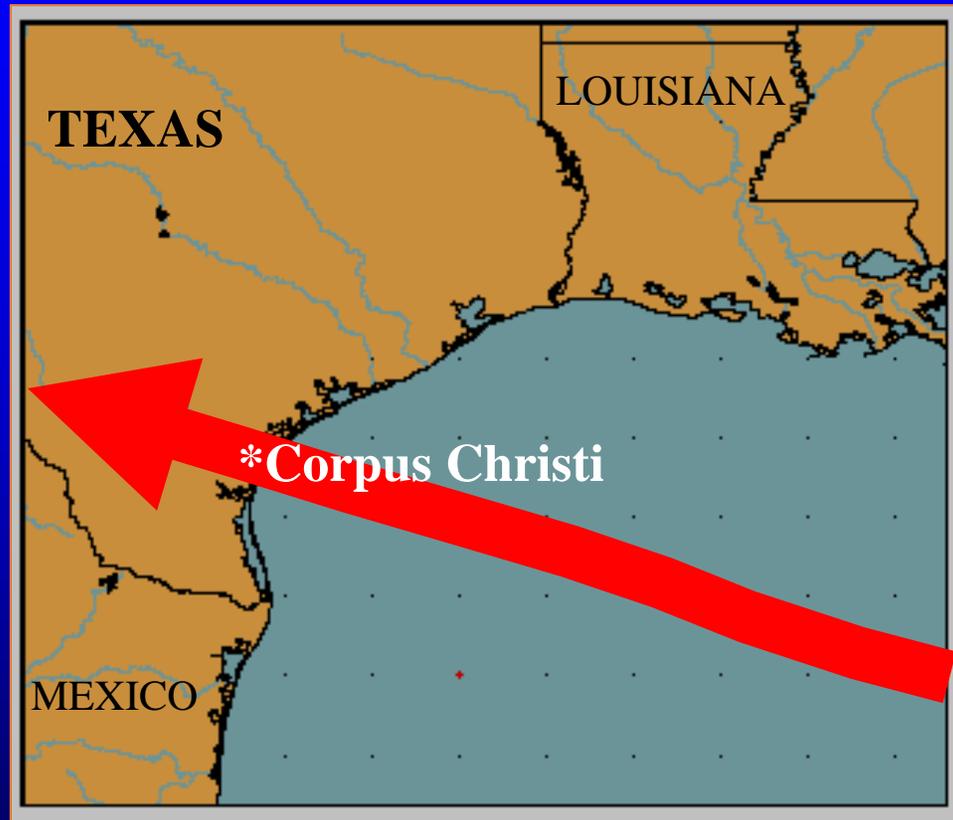


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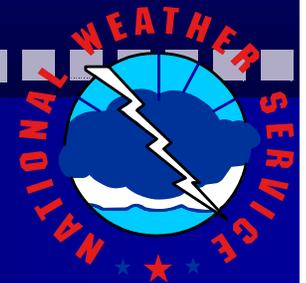


Texas Hurricanes – Celia

- Aug 3-4, 1970
- 15 killed
- \$453M damage
- Cat 3
- Max 125 mph

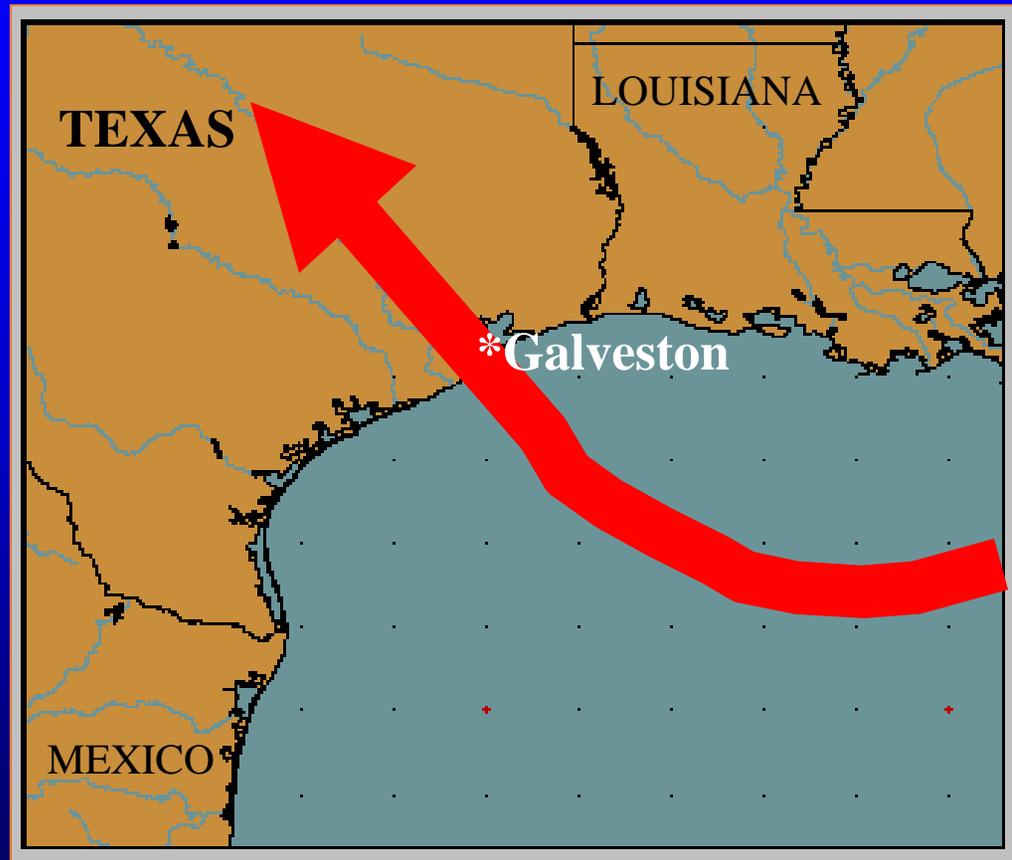


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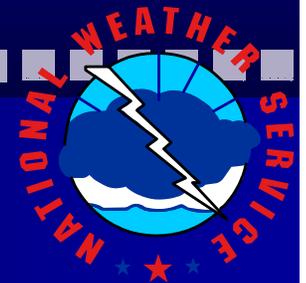


Texas Hurricanes – Alicia

- Aug 17-18, 1983
- 21 killed
- \$1.8B damage
- Cat 3
- Max 115 mph

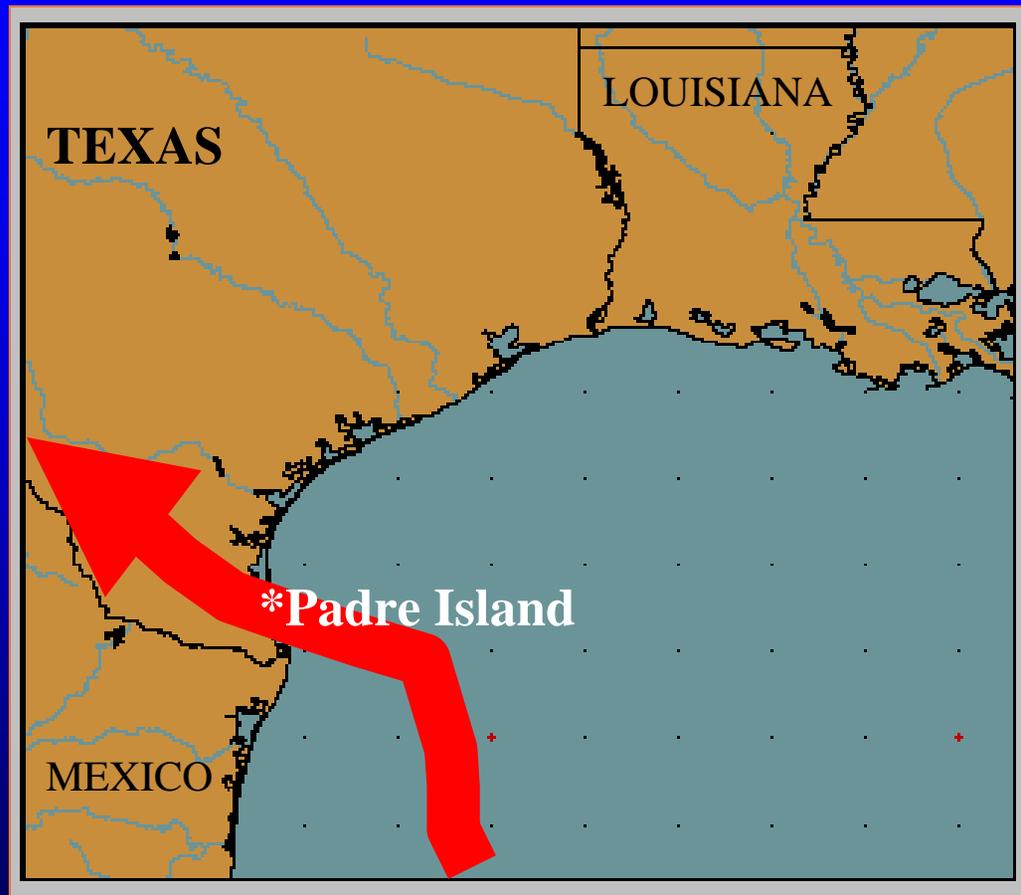


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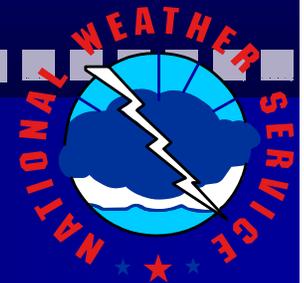


Texas Hurricanes - Bret

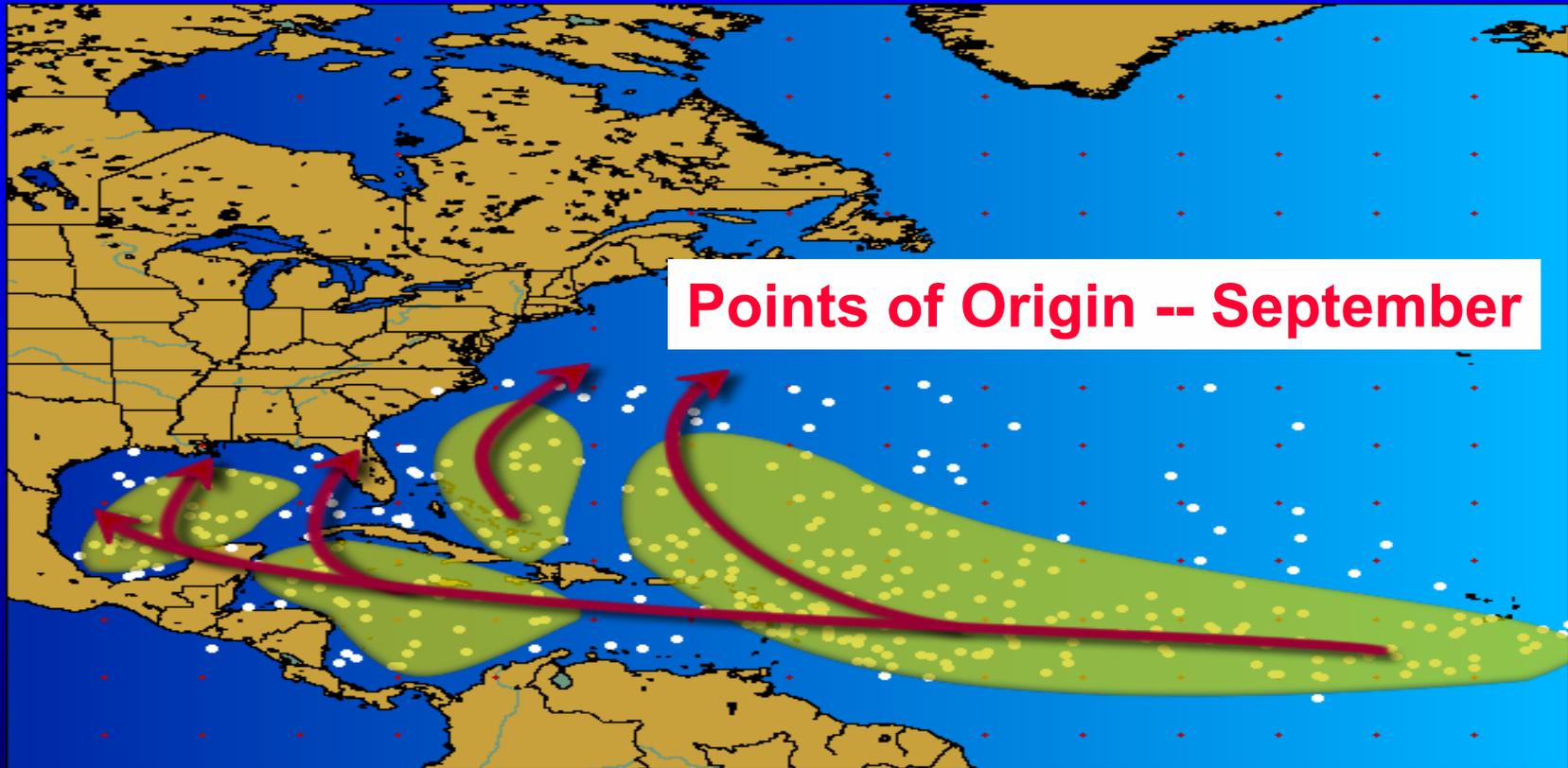
- Aug 22-23, 1999
- Surge 2 – 4'
- Cat 3
- Max 115 mph



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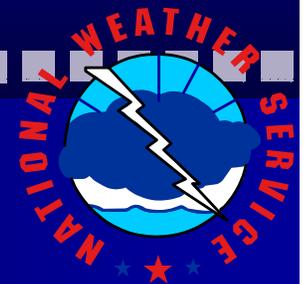
Tropical Climatology



- Most active month of the hurricane season.



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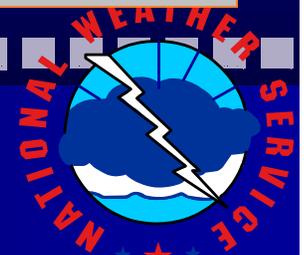


Texas Hurricanes - Galveston

- Sep 8-9, 1900
- 8000+ killed
- \$30M damage
- 20' surge
- Max 135 mph
- Cat 4



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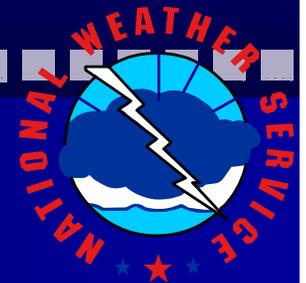


Texas Hurricanes – Coastal Bend

- Sep 14, 1919
- South of Corpus
- \$20M damage
- Max 140 mph
- Cat 4



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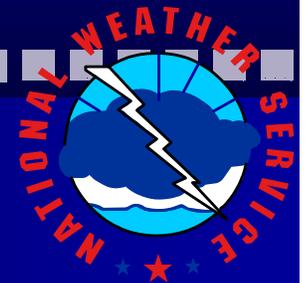


Texas Hurricanes - Carla

- Sep 11-12, 1961
- 46 killed
- \$408M damage
- Cat 4 at landfall
- Cat 5 over water



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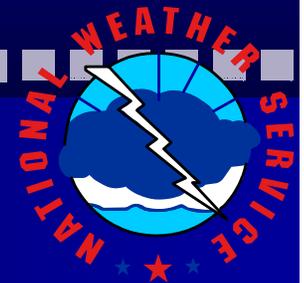


Texas Hurricanes - Beulah

- Sep 20-21, 1967
- 10 killed
- \$200M damage
- Cat 4 (landfall)
- Max 165 mph



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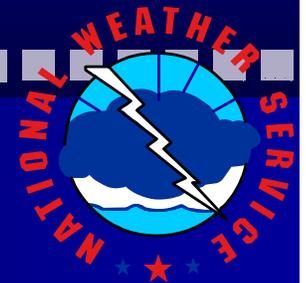


Hurricane Erika

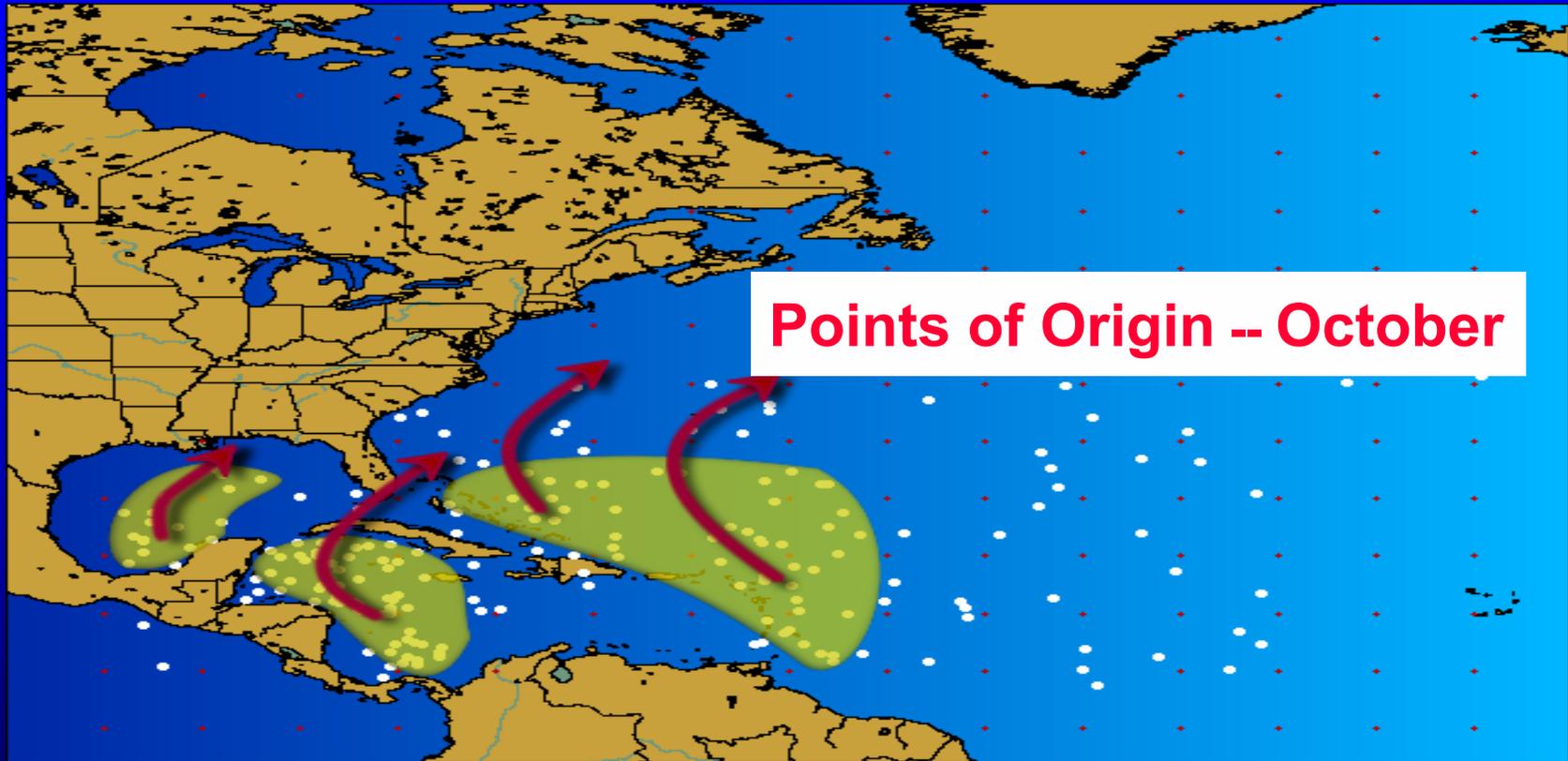
- Aug 15 – 17, 2003
- **2** killed (Mexico)
- Minor damage
- Cat 1
- Max sustained wind - 75 mph
- Sustained TS wind in Brownsville



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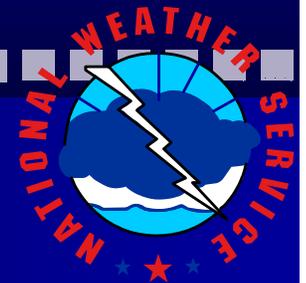
Tropical Climatology



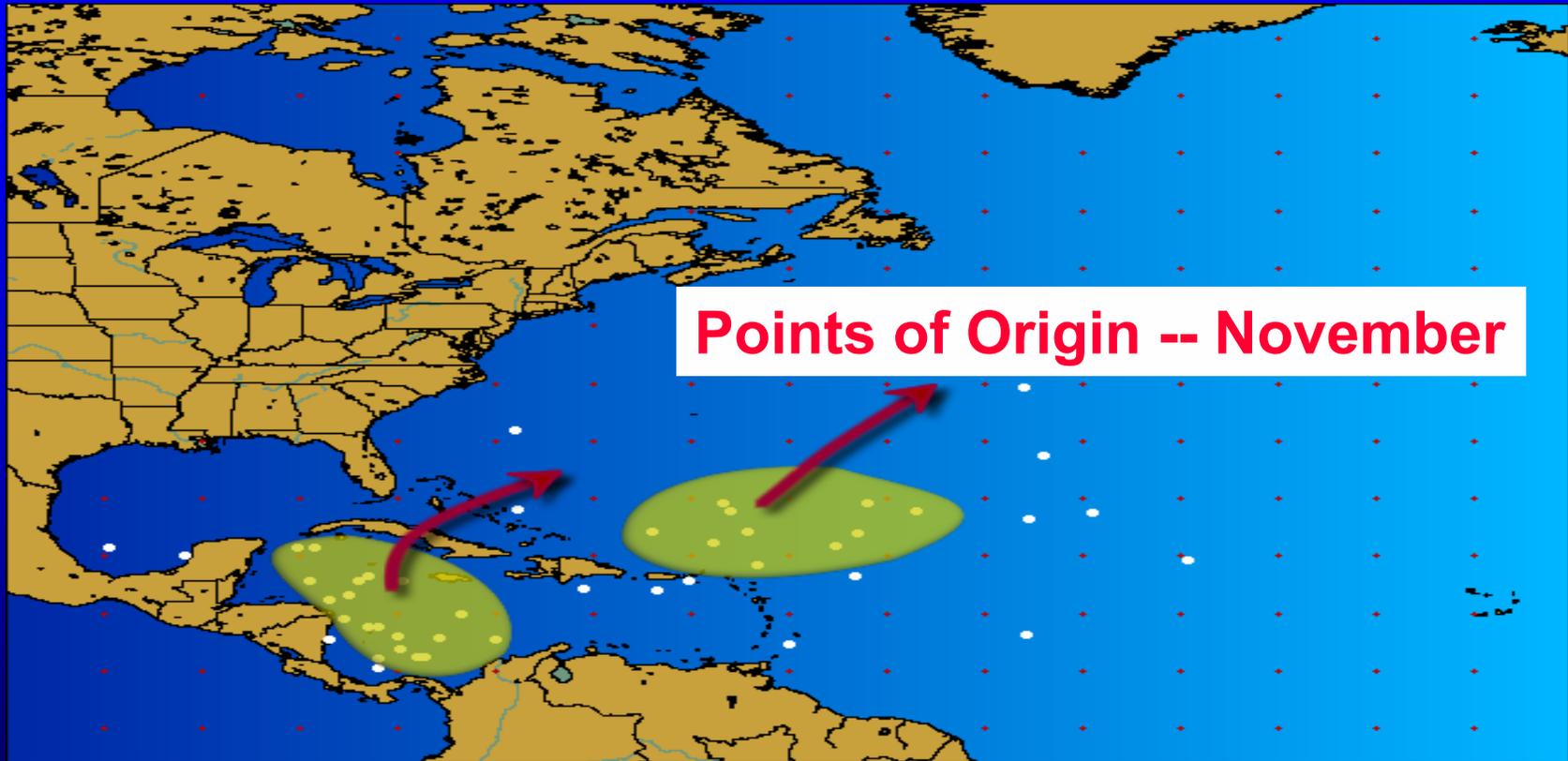
- Caribbean and Western Atlantic is most active.



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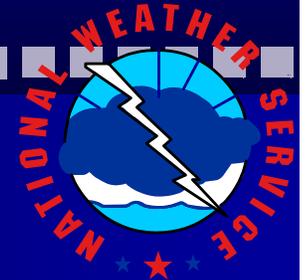
Tropical Climatology



- Caribbean & Western Atlantic most active. Elsewhere, storms can be strong, although conditions are less favorable.



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“...government closest to the people, governs best.”

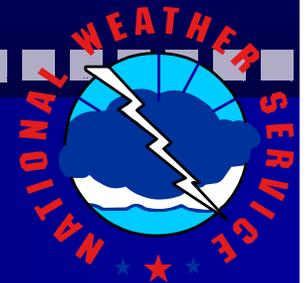
- President George W. Bush

The National Weather Service performance epitomizes this concept of local services:

Government closest to the people, serves best



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Questions?

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