



**Texas**  
**DEM Training Conference**  
**(03/10/04)**

***YOUR LOCAL NWS OFFICE,  
IN PARTNERSHIP WITH THE EM  
COMMUNITY, SAVES LIVES!***

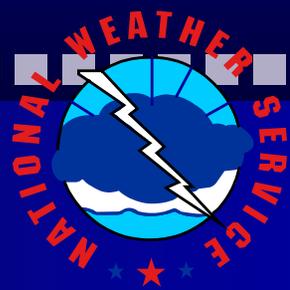
**Bill Proenza**  
**Regional Director**  
**National Weather Service**  
**Southern Region**

# Overview

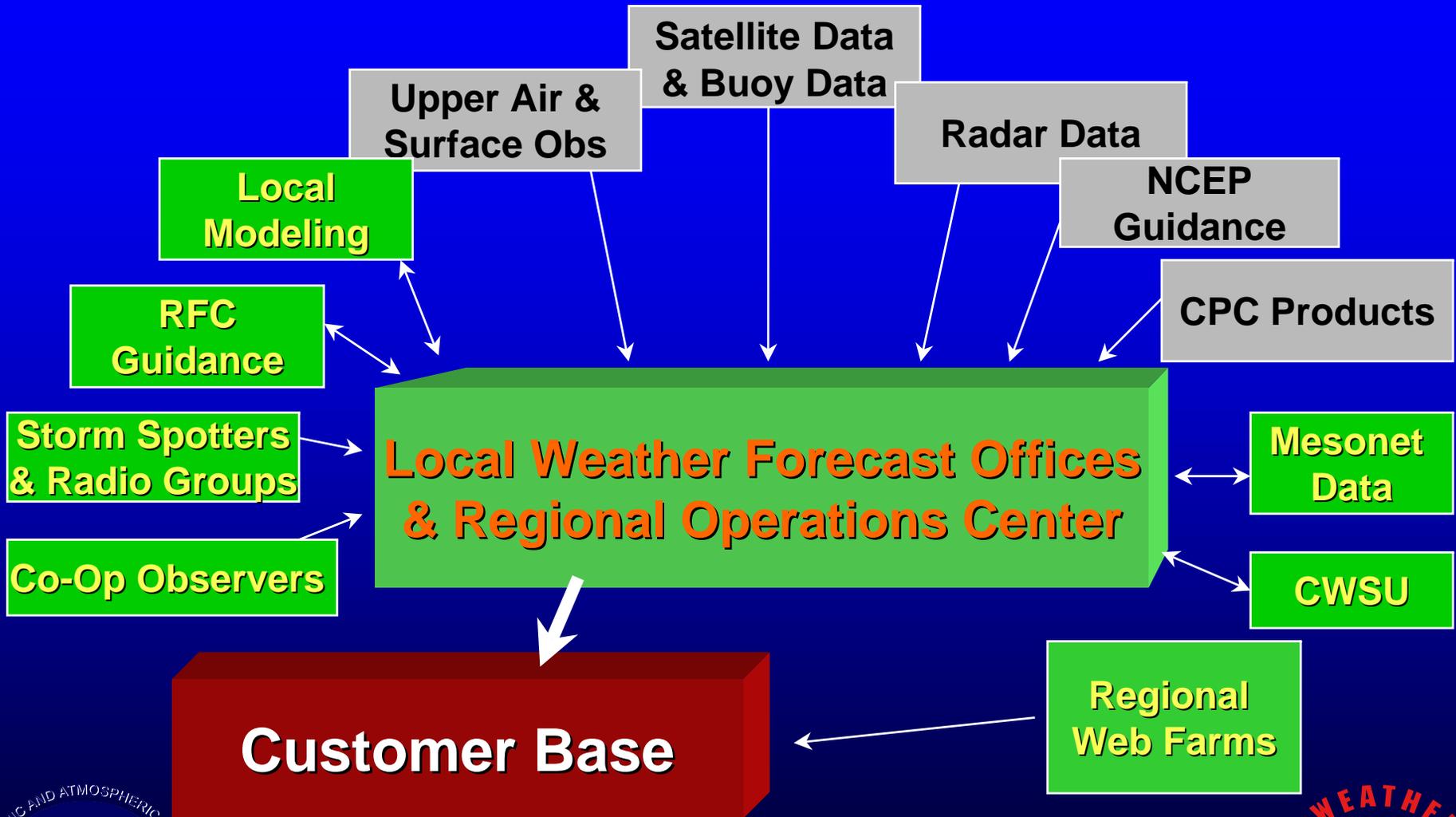
- NWS Network of 122 Local Weather Forecast Offices
- Vital Performance From Your Local Area National Weather Service Forecast Office
- Information Available on the NWS Website
- Texas Weather & Climate
- The Future of the NWS



NWS SOUTHERN REGION  
[www.srh.weather.gov](http://www.srh.weather.gov)



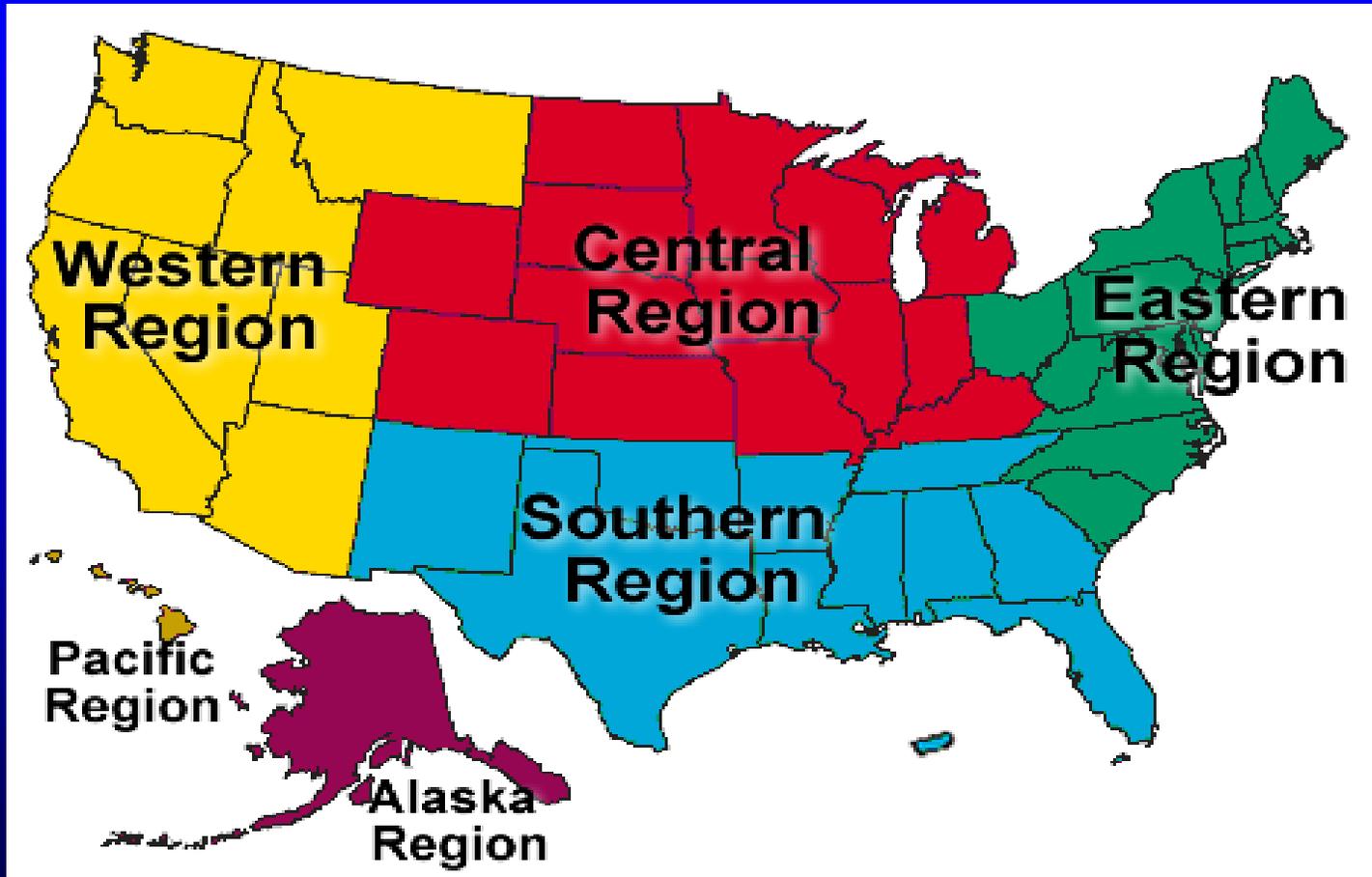
# WFO Information Flow



NWS SOUTHERN REGION  
[www.srh.weather.gov](http://www.srh.weather.gov)



# National Weather Service by Region

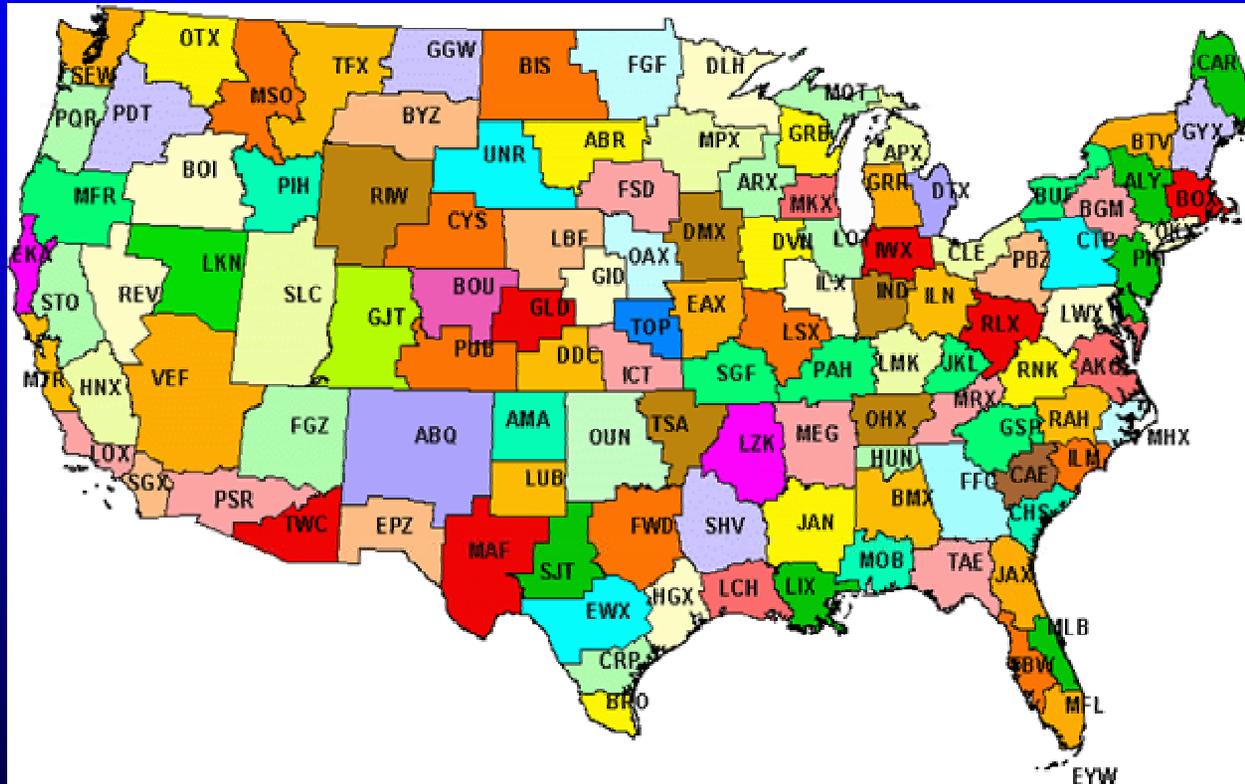


NWS SOUTHERN REGION  
[www.srh.weather.gov](http://www.srh.weather.gov)



# NWS FIELD OFFICES

The Key in Mission Delivery and Partner Support



NWS SOUTHERN REGION  
[www.srh.weather.gov](http://www.srh.weather.gov)



# All Weather is Local

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



NWS SOUTHERN REGION  
[www.srh.weather.gov](http://www.srh.weather.gov)



# Local WFO Operations Save Lives!

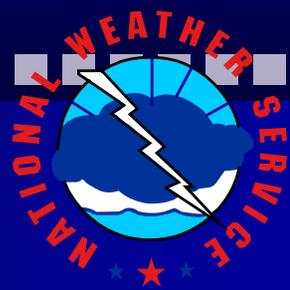
## Local Area Expertise For:

- 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!***

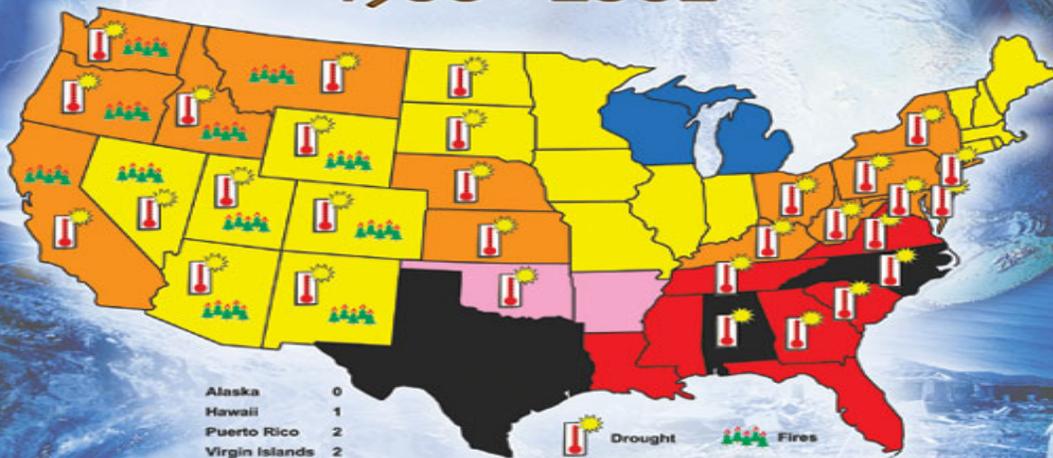


NWS SOUTHERN REGION  
[www.srh.weather.gov](http://www.srh.weather.gov)





# 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.

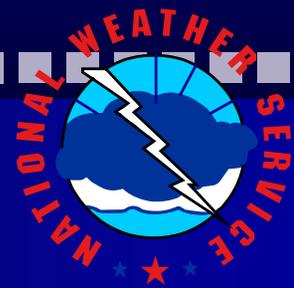


NOAA'S NATIONAL CLIMATIC DATA CENTER  
ASHEVILLE, NORTH CAROLINA

# World's Most Active Weather!



NWS SOUTHERN REGION  
[www.srh.weather.gov](http://www.srh.weather.gov)



# U.S. has the most Tornadoes

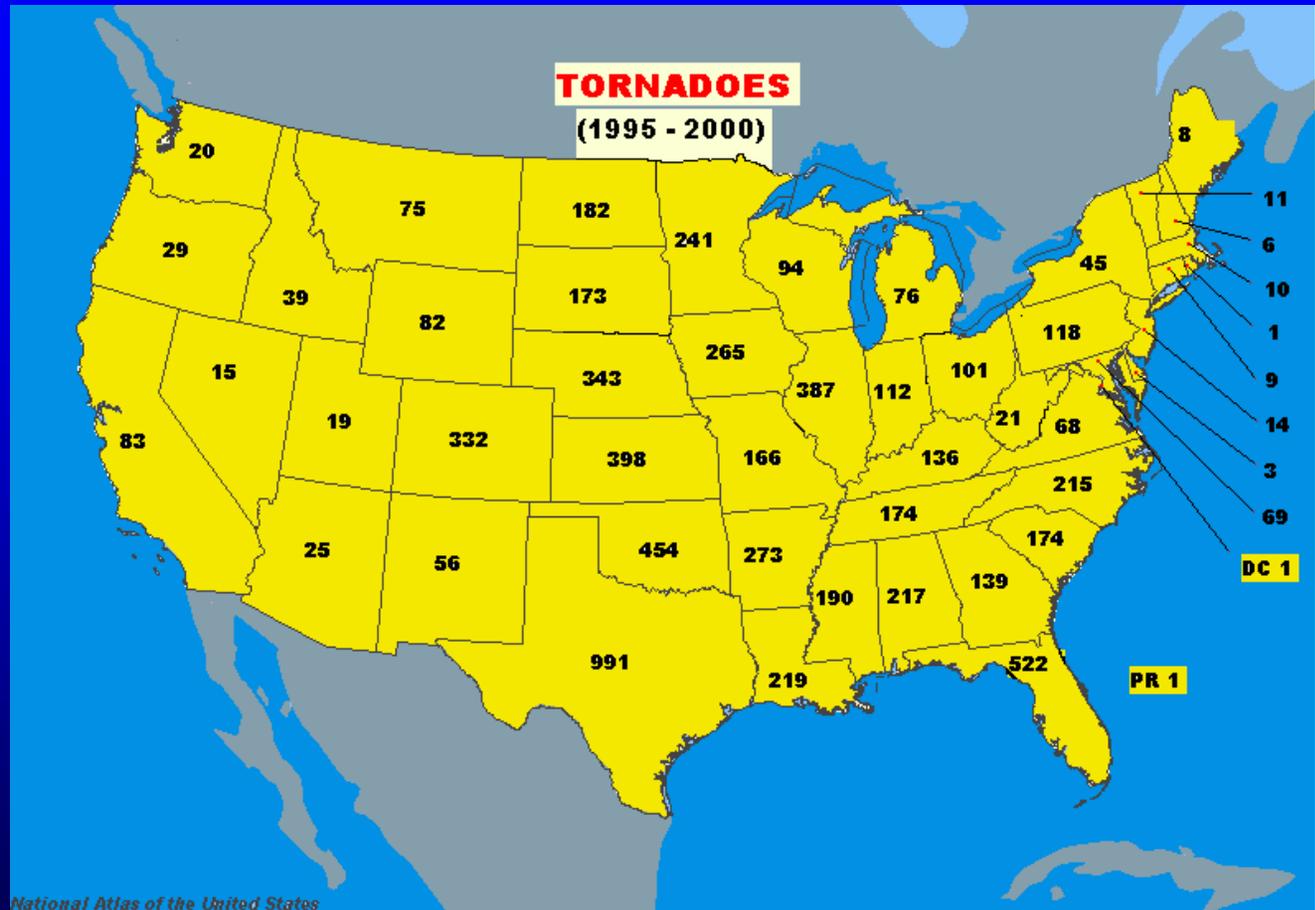
SR 3,236

CR 2,987

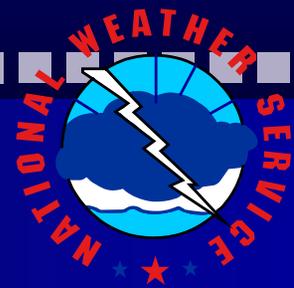
ER 874

WR 305

TOT 7,402



NWS SOUTHERN REGION  
[www.srh.weather.gov](http://www.srh.weather.gov)

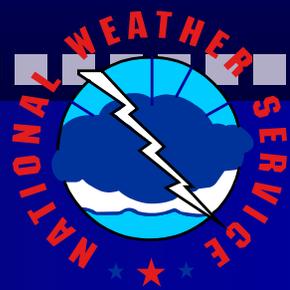


# Regional Operations Center

- Shifts regional resources to events
- Conducts briefings with NWS offices and EM community
- Source for NWS interviews when WFOs are active



NWS SOUTHERN REGION  
[www.srh.weather.gov](http://www.srh.weather.gov)



# WFOs Improve Lead Time

## April 1974 Super Outbreak

- Single largest 24 hour tornado outbreak
- 148 Tornadoes
- 330 Fatalities
- Up to 5 Minute Lead Time

## May 2003 Outbreak

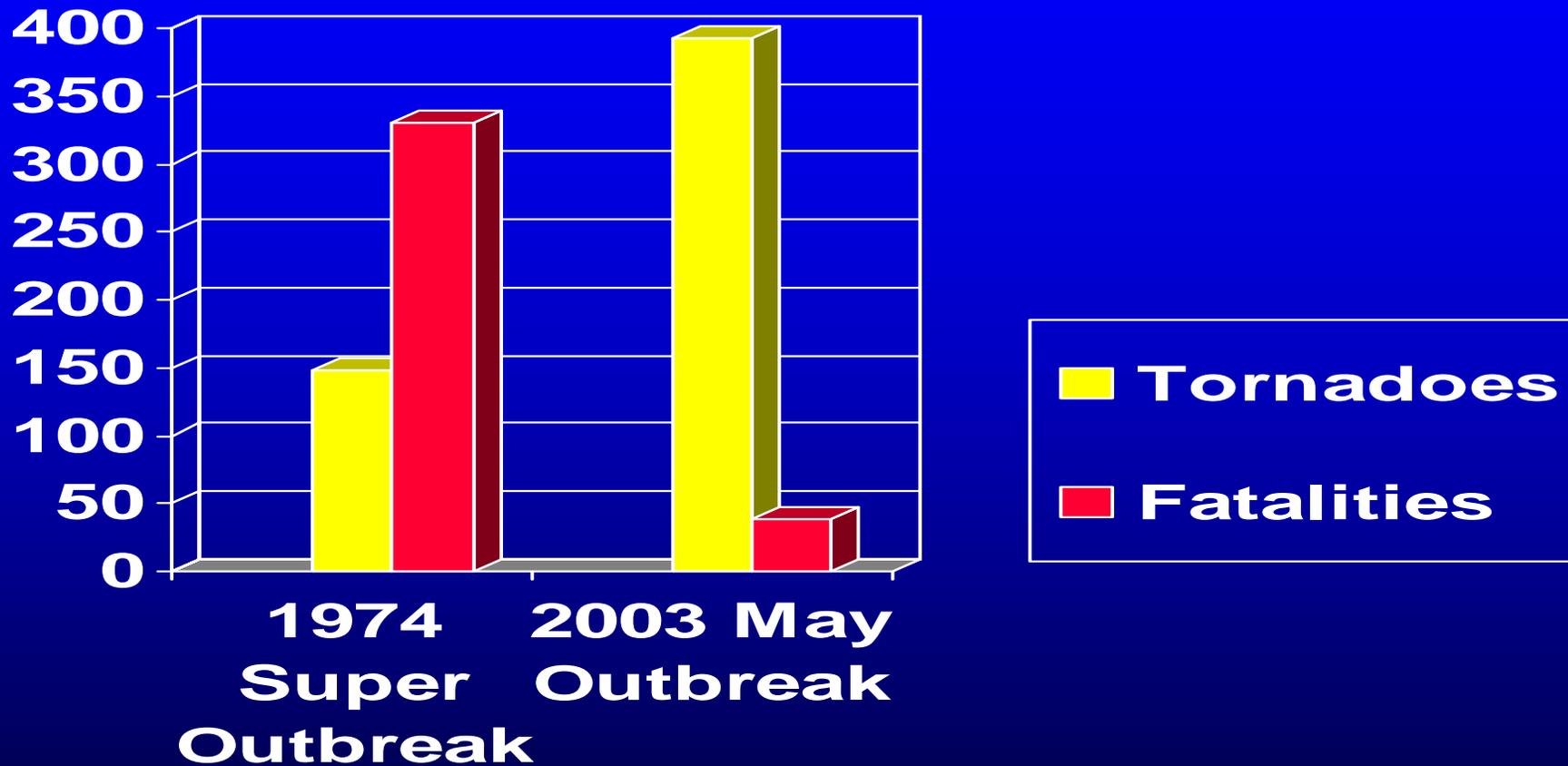
- Unprecedented in size & time (9 days)
- 340 Tornadoes
- 39 Fatalities
- Averaged **19 Minute** Lead Time



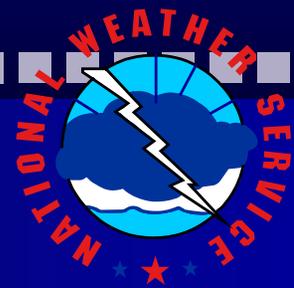
NWS SOUTHERN REGION  
[www.srh.weather.gov](http://www.srh.weather.gov)



# Local WFOs Save Lives

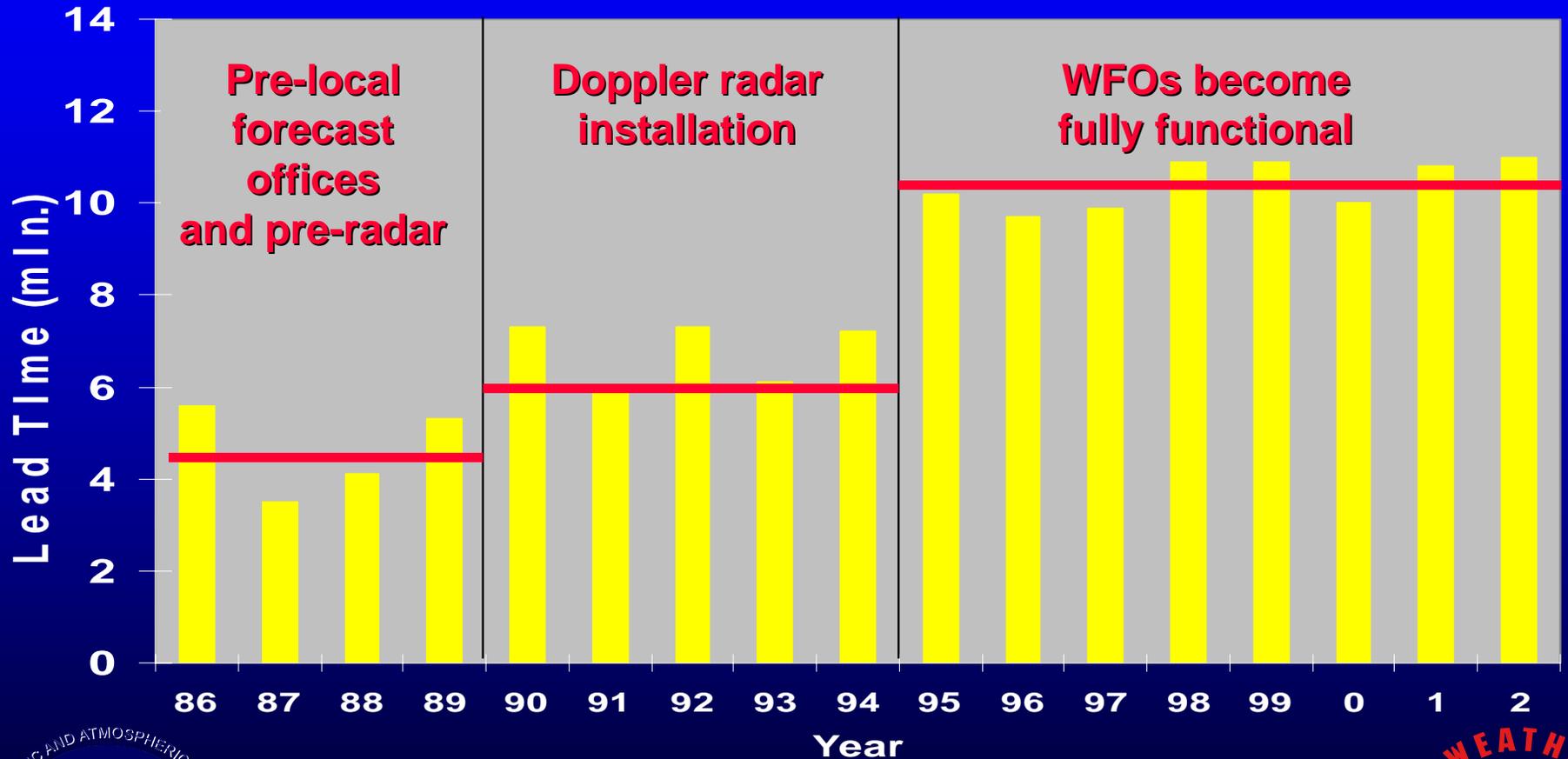


NWS SOUTHERN REGION  
[www.srh.weather.gov](http://www.srh.weather.gov)

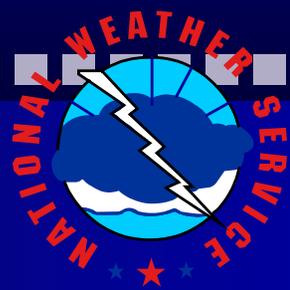


# Local WFOs Save Lives

## Tornado Warning Lead Time

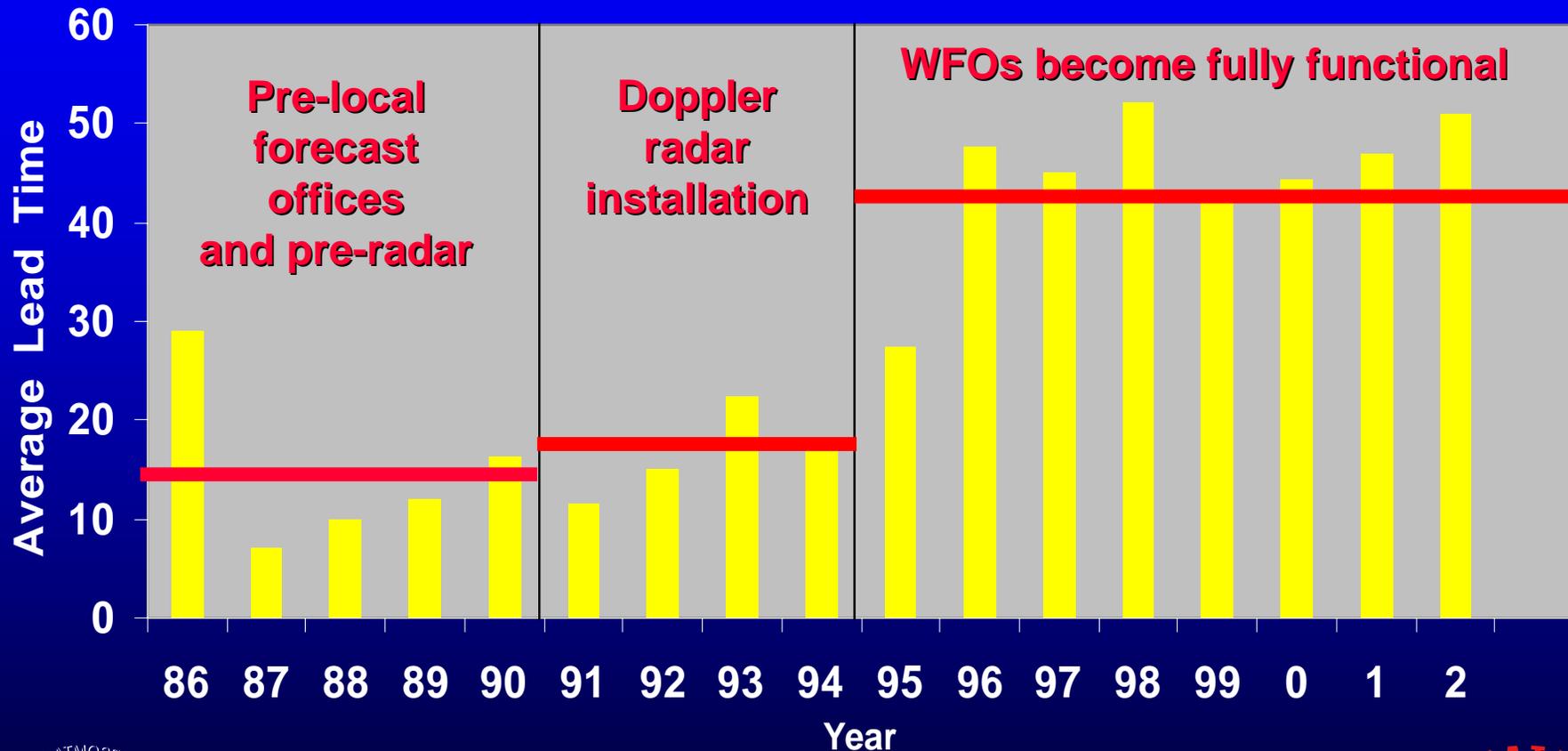


NWS SOUTHERN REGION  
[www.srh.weather.gov](http://www.srh.weather.gov)



# Local WFOs Save Lives

## Flash Flood Warning Lead Time



NWS SOUTHERN REGION  
[www.srh.weather.gov](http://www.srh.weather.gov)



# The Future of the NWS

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

- Watch Decentralization from SPC to the WFOs (in progress)
- With use of local models and expertise, we will be able to meet increasing public and private partner needs for accuracy
- Warning Decision Support System 2 (3-5 Yrs)
- Phased Array Radar (6-10 Yrs)



NWS SOUTHERN REGION  
[www.srh.weather.gov](http://www.srh.weather.gov)

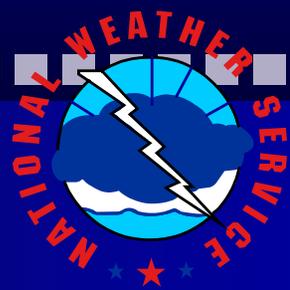


# Your Local WFO Internet Site

- 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



NWS SOUTHERN REGION  
[www.srh.weather.gov](http://www.srh.weather.gov)



# NWS SR Internet Site

[www.srh.weather.gov](http://www.srh.weather.gov)

- 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



NWS SOUTHERN REGION  
[www.srh.weather.gov](http://www.srh.weather.gov)



# 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 Bell, Texas. The page includes a search bar, a 7-day forecast table, a hazardous weather outlook, a detailed 7-day forecast, radar and satellite images, and a section for additional forecasts and information.

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

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

**Fort Hood / Gray U. S. Army Airfield**  
Last Update on May 20, 9:55 am CDT

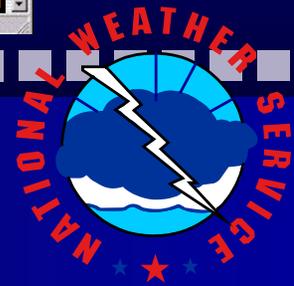
Humidity:	37 %
Wind Speed:	SE 9 MPH
Barometer:	30.26" (1024.1 mb)
Dewpoint:	41°F (5°C)
Heat Index:	77°F (25°C)

**Additional Forecasts & Information**

- Forecast Discussion
- Preparedness
- Products/Services Guide
- Local Climatology
- NOAA Weather Radio
- Fire Weather Forecast



NWS SOUTHERN REGION  
[www.srh.weather.gov](http://www.srh.weather.gov)

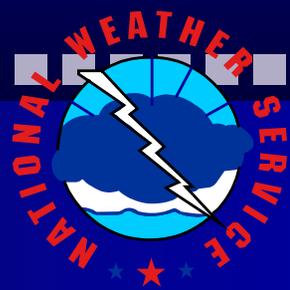


# Radar Images

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



NWS SOUTHERN REGION  
[www.srh.weather.gov](http://www.srh.weather.gov)



# StormReady®

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



NWS SOUTHERN REGION  
[www.srh.weather.gov](http://www.srh.weather.gov)



# 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



[www.srh.weather.gov](http://www.srh.weather.gov)

Click on this logo

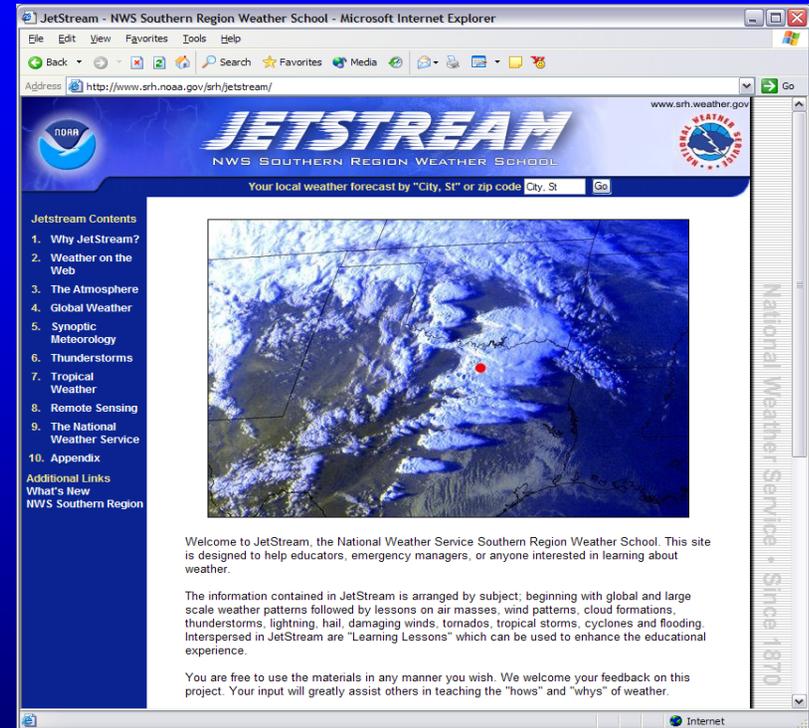


NWS SOUTHERN REGION  
[www.srh.weather.gov](http://www.srh.weather.gov)



# 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](http://www.srh.weather.gov)



Click on the Jetstream logo



NWS SOUTHERN REGION  
[www.srh.weather.gov](http://www.srh.weather.gov)



# 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 return to deeper water. Typically, the wind pushes the water over a sandbar. Eventually, this excess water starts to flow seaward through low areas in the sandbar, "ripping" an opening.

**Rip Currents** occur at all surf beaches including those along both coasts, the Gulf of Mexico and the Great Lakes. Some rip currents last from a few minutes to a few hours, while more permanent ones, associated with groins and jetties, may last days.

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

**How to spot a Rip Current**

**Rip Currents** are usually narrow near the beach (30 - 60 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 scoured a path in the sandbar, will appear darker than the surrounding water.

**Rip Current** wave heights are lower and chopper. Look for objects or foam moving directly seaward. Warnings and survival sunglasses can aid in locating the currents by cutting through. Also, look for posted flags or signs warning you of the danger.

**How to survive a Rip Current**

**Know how to swim.** Always swim at guarded beaches and heed 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. Its force is too strong even for the strongest swimmers. Since rip currents are relatively narrow, you should be able to swim across them quickly. 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 rescue someone from a rip current.

[www.srh.noaa.gov](http://www.srh.noaa.gov)

**How to spot a Rip Current**

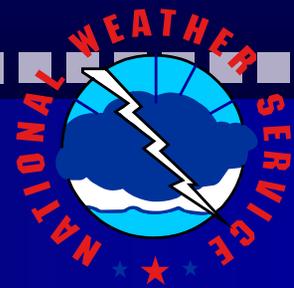
The weight of the water piled near the shore will rip its way in the shallowest water to reach seaward.

**How to survive a Rip Current**

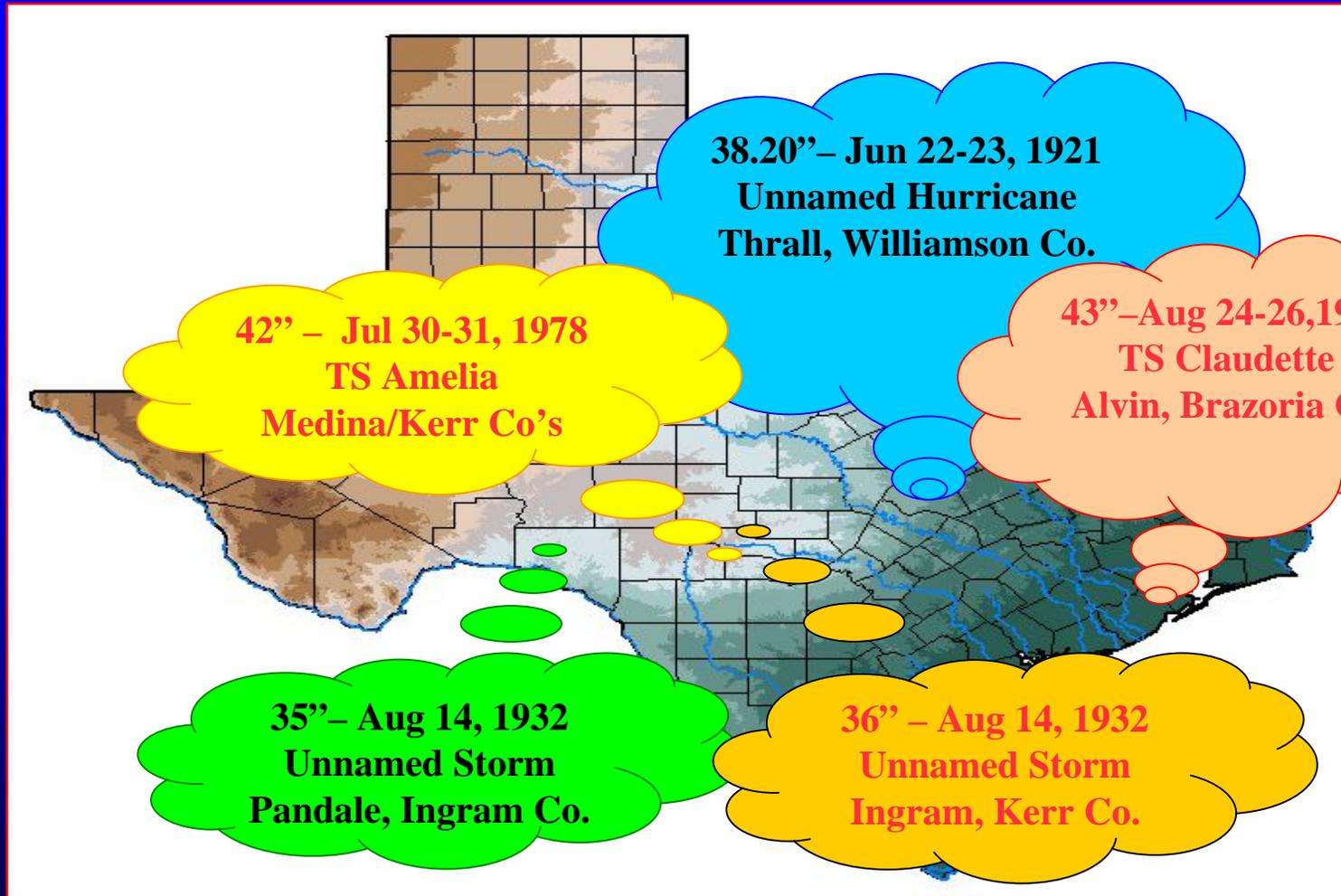
If caught in a rip current, swim parallel to the shore to escape the flow of water, then diagonally toward the shore.



NWS SOUTHERN REGION  
[www.srh.weather.gov](http://www.srh.weather.gov)



# Texas Torrents - *Top 5 Flood Events*



NWS SOUTHERN REGION  
[www.srh.weather.gov](http://www.srh.weather.gov)



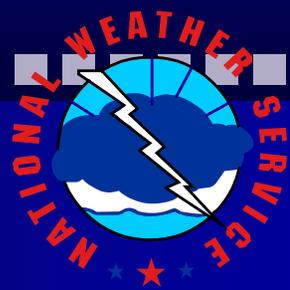
# Texas Torrents

## 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



NWS SOUTHERN REGION  
[www.srh.weather.gov](http://www.srh.weather.gov)



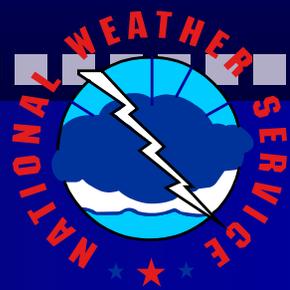
# Texas Torrents

## 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



NWS SOUTHERN REGION  
[www.srh.weather.gov](http://www.srh.weather.gov)



# Texas Torrents

## Texas Historical Rainfall Events – 48 Hrs or Less

- 24.00” Unnamed Storm - Liberty Co 1994
  - 22.00” Unnamed Storm - Medina Co 1935
  - 19.47” Unnamed Storm - Bandera Co 1997
  - 19.00” Hurricane Carla - Hardin Co 1961
  - 10.00” Unnamed Storm - Comal Co 1972
- ***Texas One Hour Rainfall Record!!!***

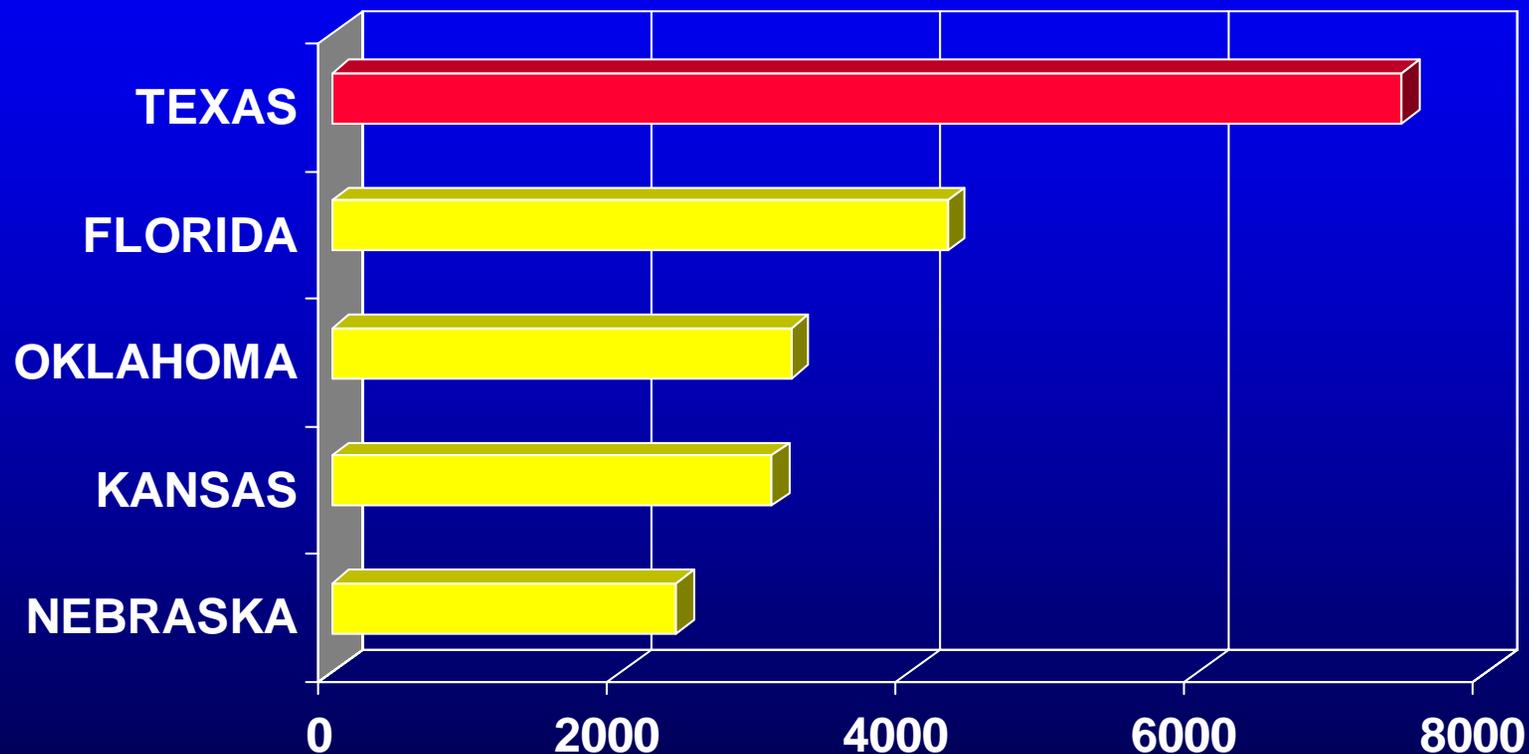


NWS SOUTHERN REGION  
[www.srh.weather.gov](http://www.srh.weather.gov)



# Texas Tornadoes

State Rankings (1950-2003)

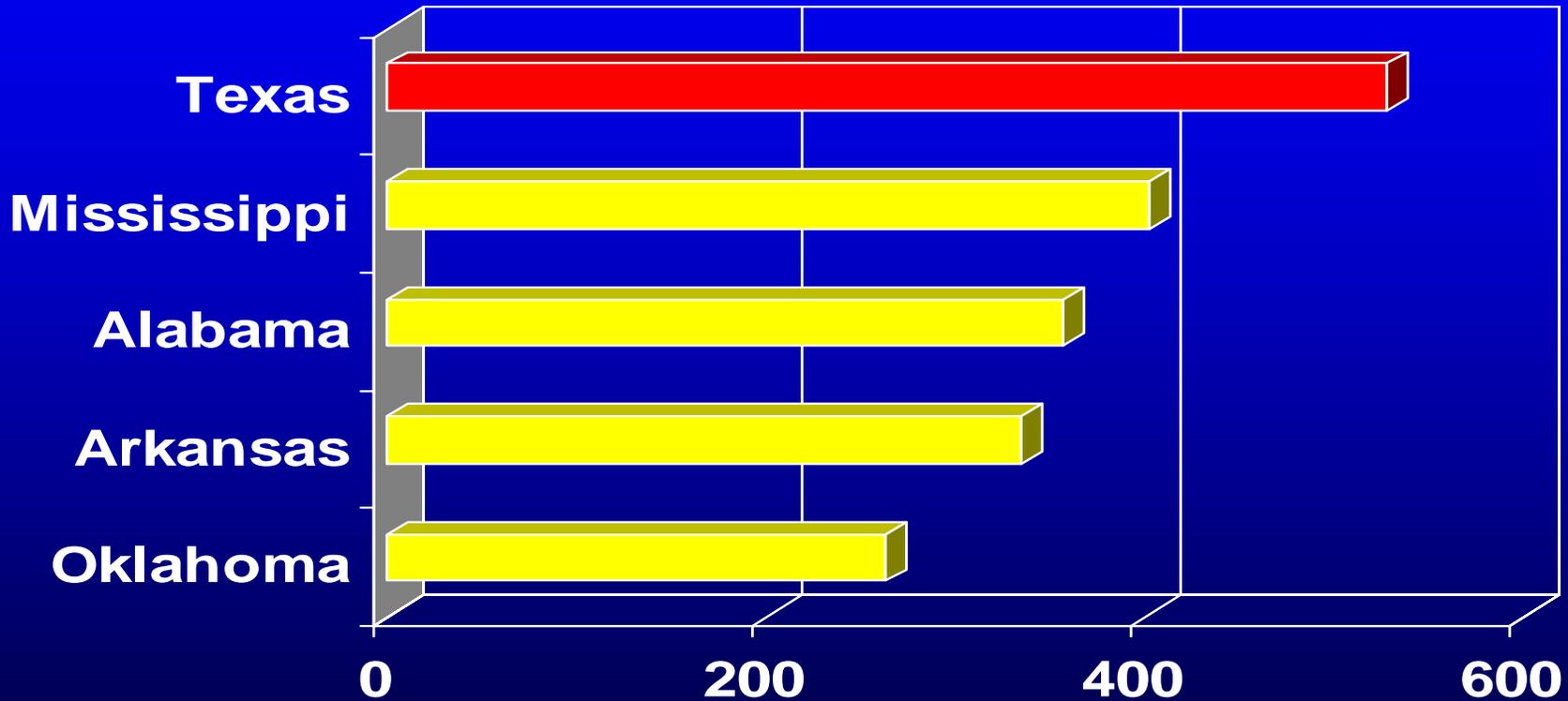


NWS SOUTHERN REGION  
[www.srh.weather.gov](http://www.srh.weather.gov)



# Texas Tornadoes

Fatalities Ranked by State (1950 –2003)

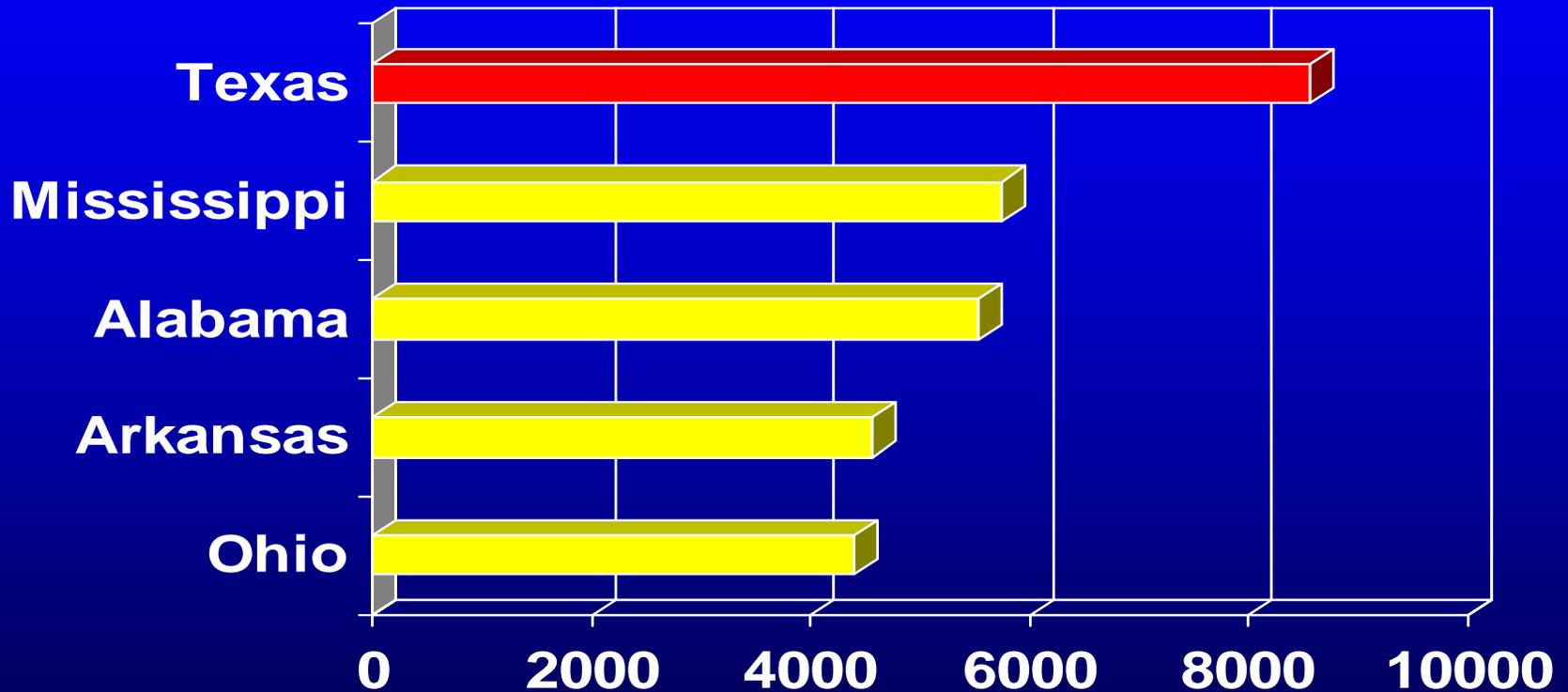


NWS SOUTHERN REGION  
[www.srh.weather.gov](http://www.srh.weather.gov)



# Texas Tornadoes

Injuries Ranked by State (1950-2003)

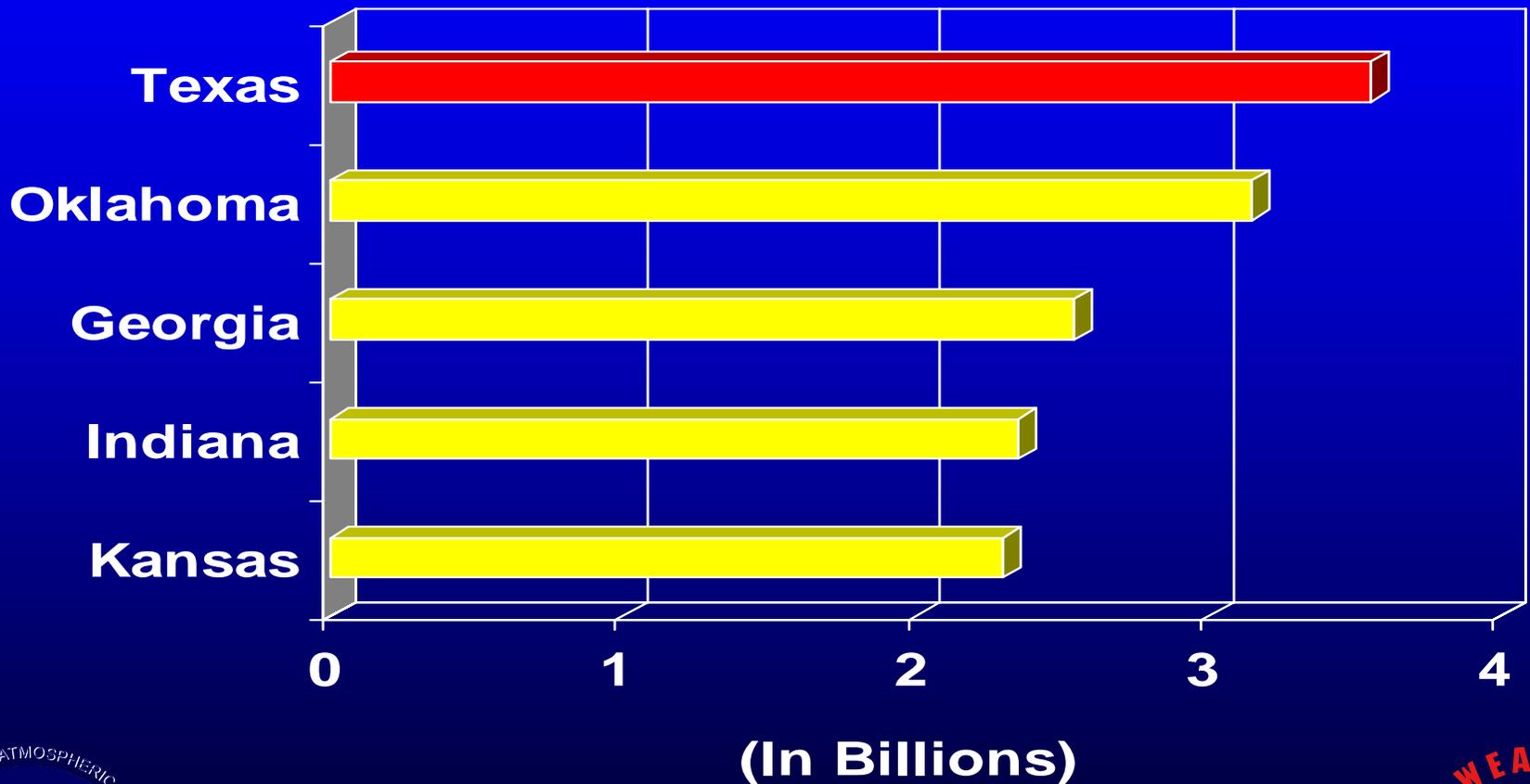


NWS SOUTHERN REGION  
[www.srh.weather.gov](http://www.srh.weather.gov)



# Texas Tornadoes

Damage Ranked by State (1950-2003)

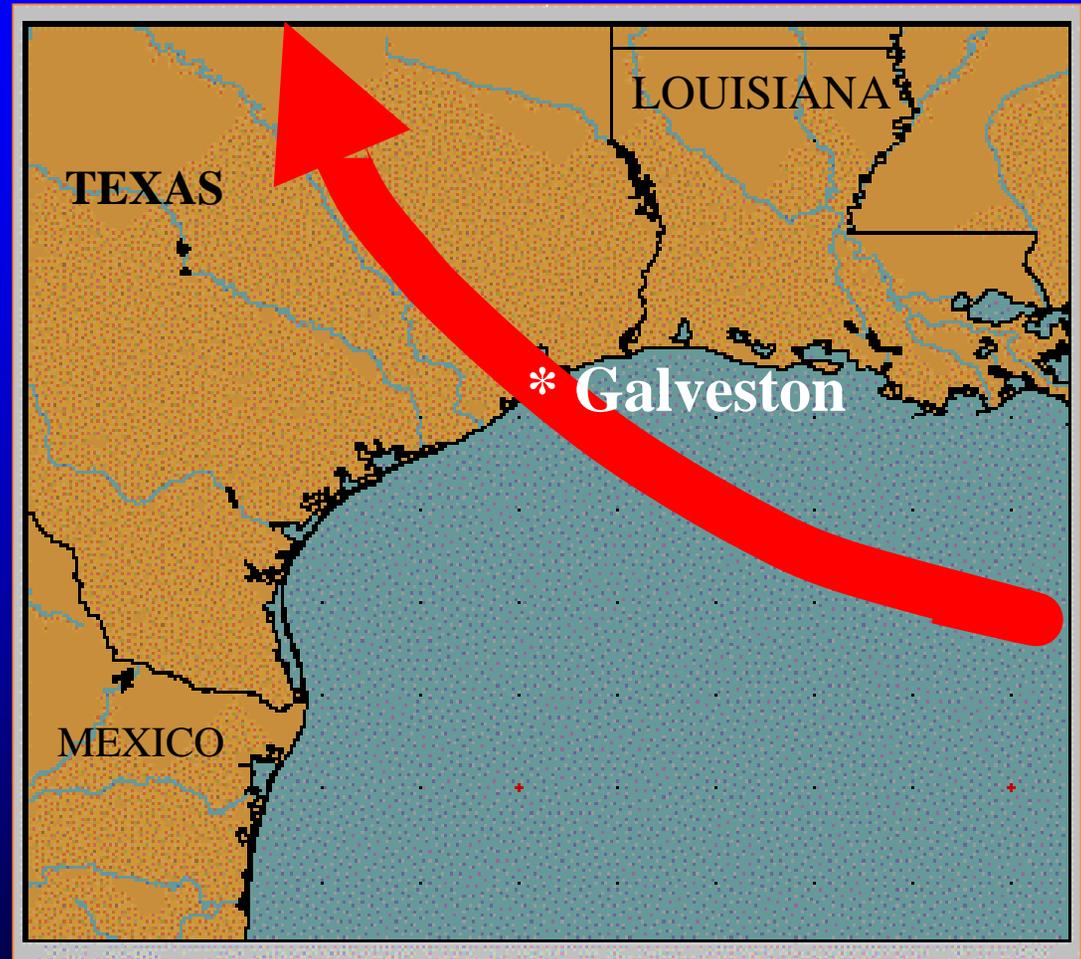


NWS SOUTHERN REGION  
[www.srh.weather.gov](http://www.srh.weather.gov)



# Texas Hurricanes - Galveston

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



NWS SOUTHERN REGION  
[www.srh.weather.gov](http://www.srh.weather.gov)



# Texas Hurricanes – Coastal Bend

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

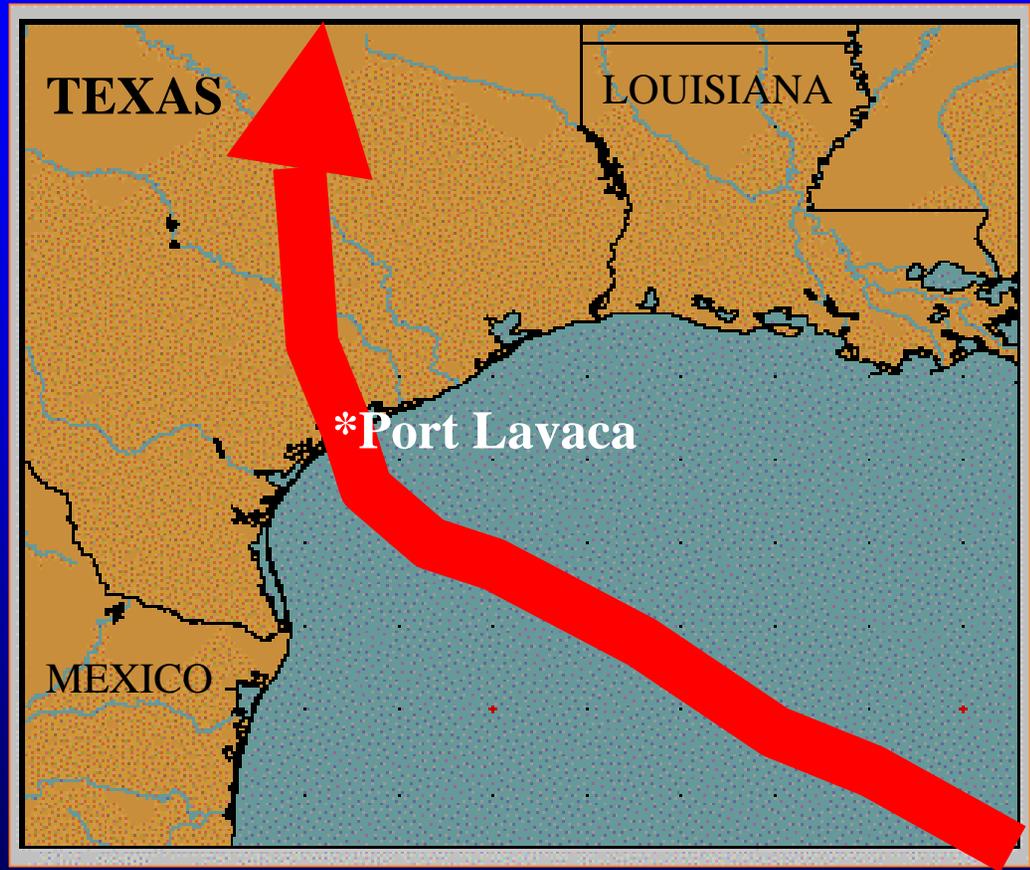


NWS SOUTHERN REGION  
[www.srh.weather.gov](http://www.srh.weather.gov)



# Texas Hurricanes - Carla

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



NWS SOUTHERN REGION  
[www.srh.weather.gov](http://www.srh.weather.gov)

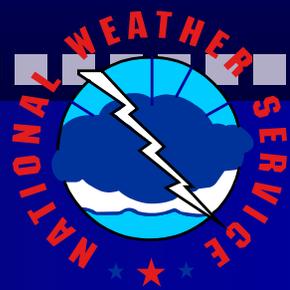


# Texas Hurricanes - Beulah

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

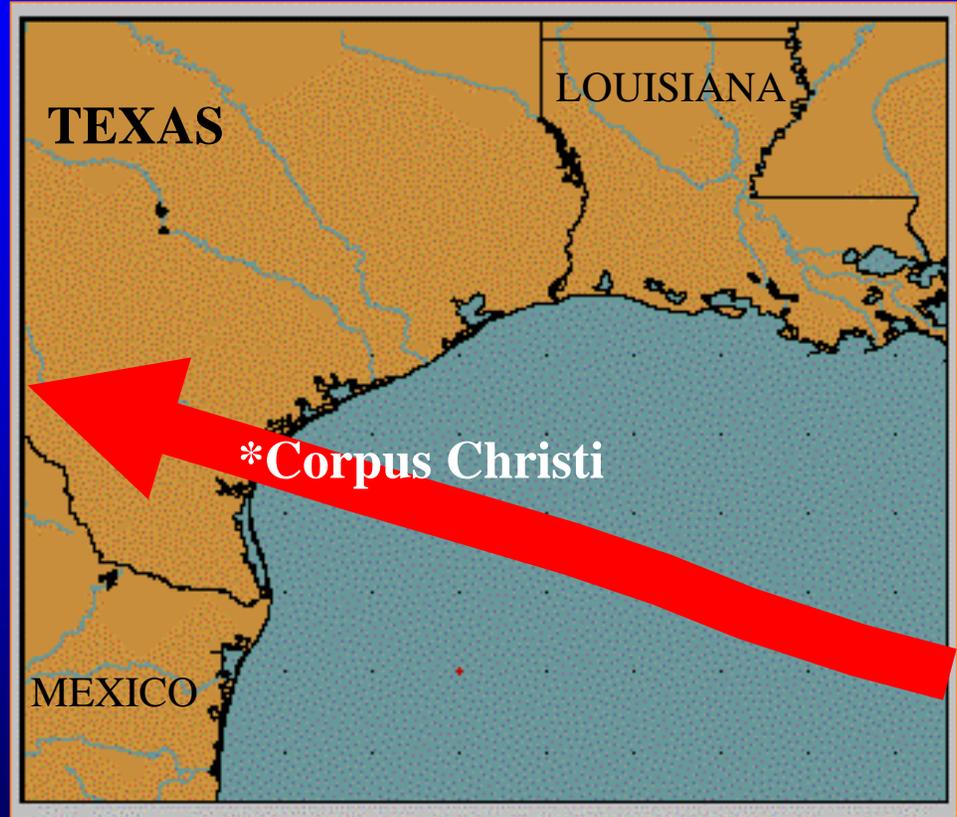


NWS SOUTHERN REGION  
[www.srh.weather.gov](http://www.srh.weather.gov)

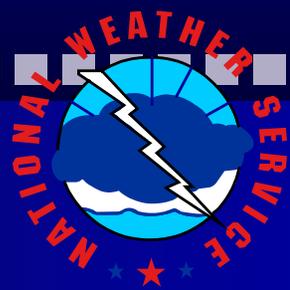


# Texas Hurricanes – Celia

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



NWS SOUTHERN REGION  
[www.srh.weather.gov](http://www.srh.weather.gov)



# Texas Hurricanes – Alicia

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

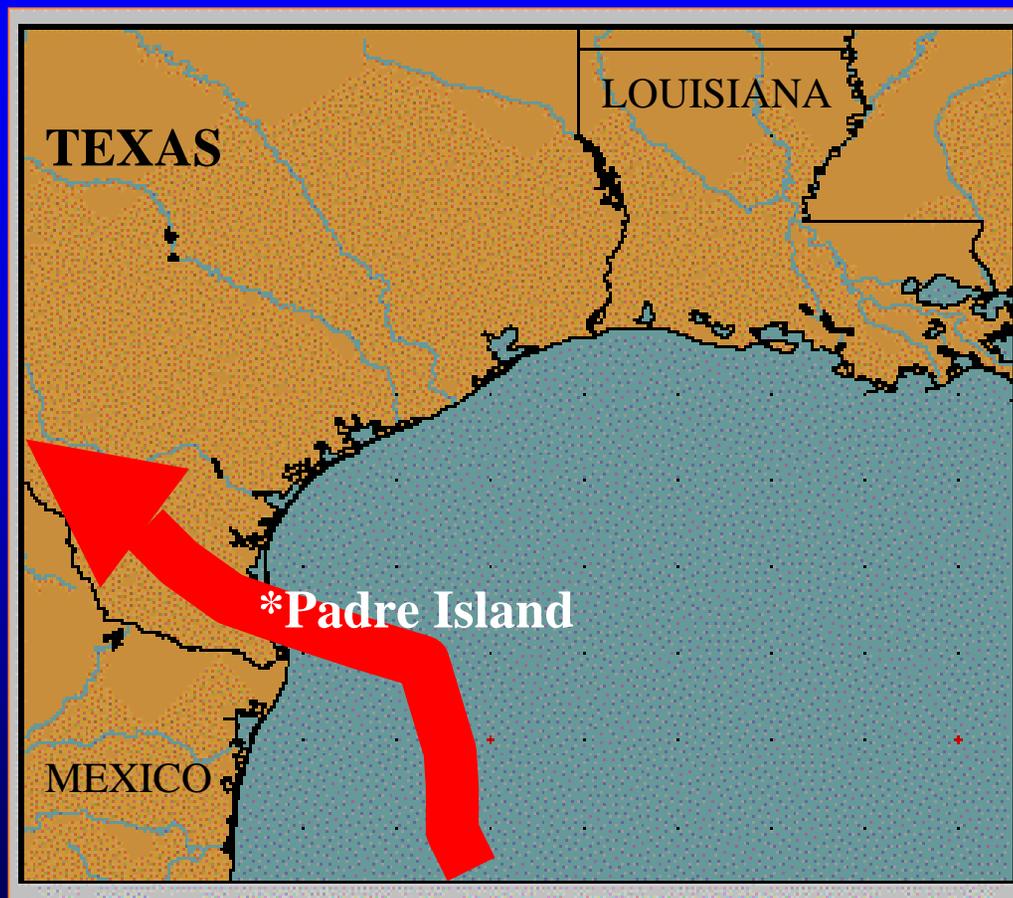


NWS SOUTHERN REGION  
[www.srh.weather.gov](http://www.srh.weather.gov)



# Texas Hurricanes - Bret

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

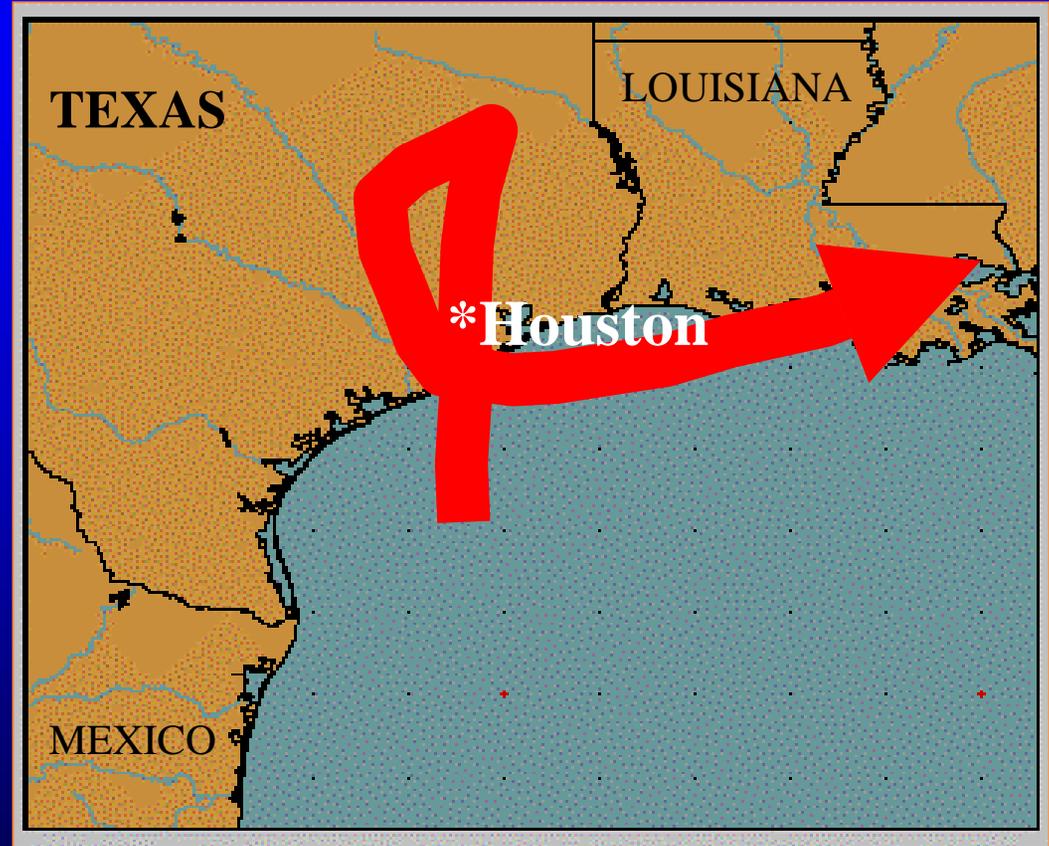


NWS SOUTHERN REGION  
[www.srh.weather.gov](http://www.srh.weather.gov)



# Texas Tropical Storm Allison

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



NWS SOUTHERN REGION  
[www.srh.weather.gov](http://www.srh.weather.gov)



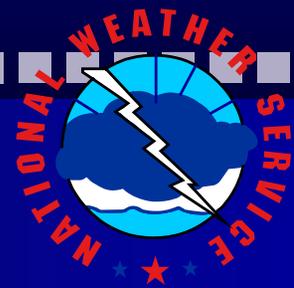
# Tropical Climatology



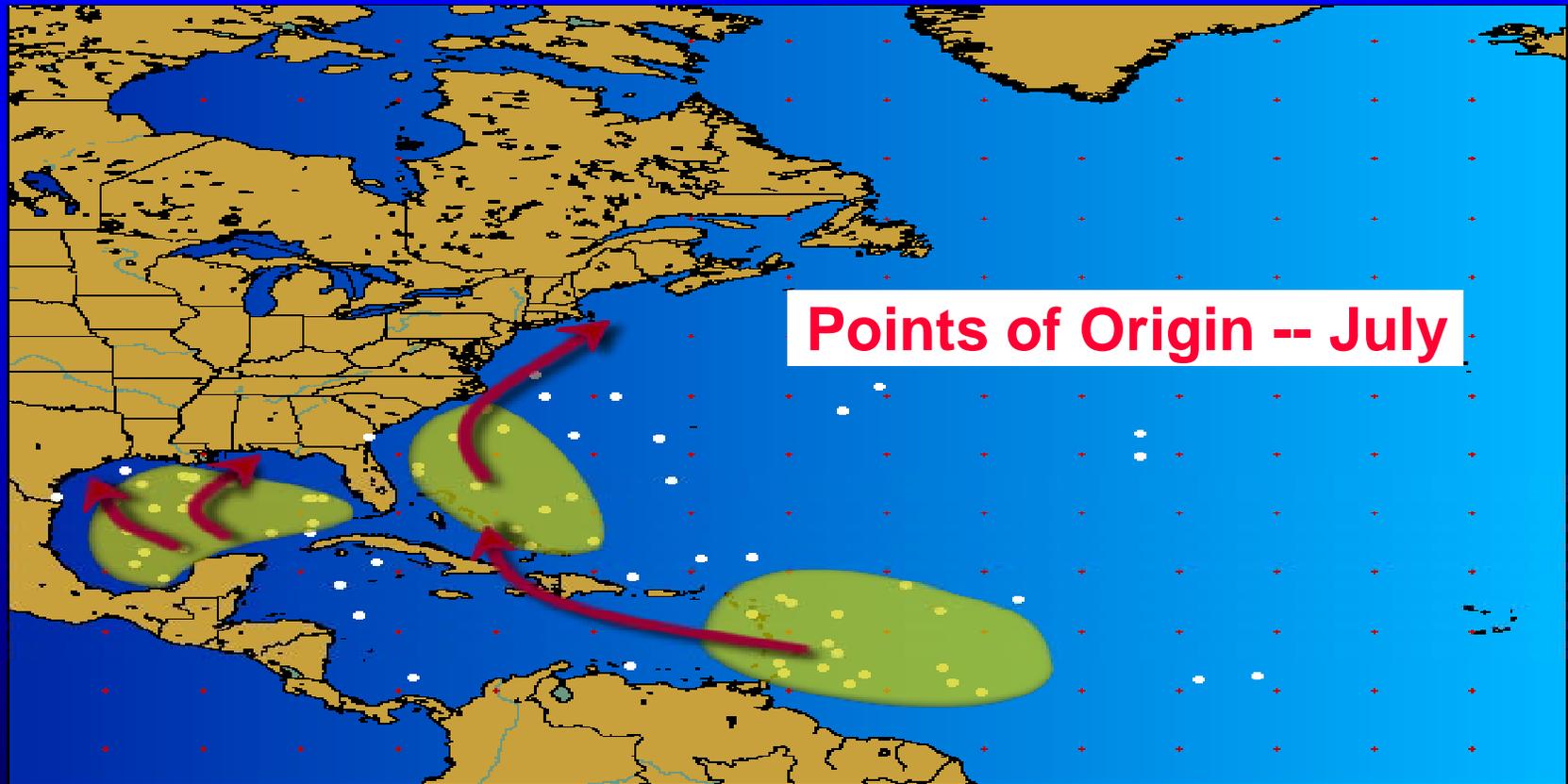
- Storms favor the Gulf of Mexico & Western Caribbean



NWS SOUTHERN REGION  
[www.srh.weather.gov](http://www.srh.weather.gov)



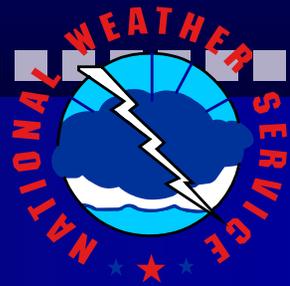
# Tropical Climatology



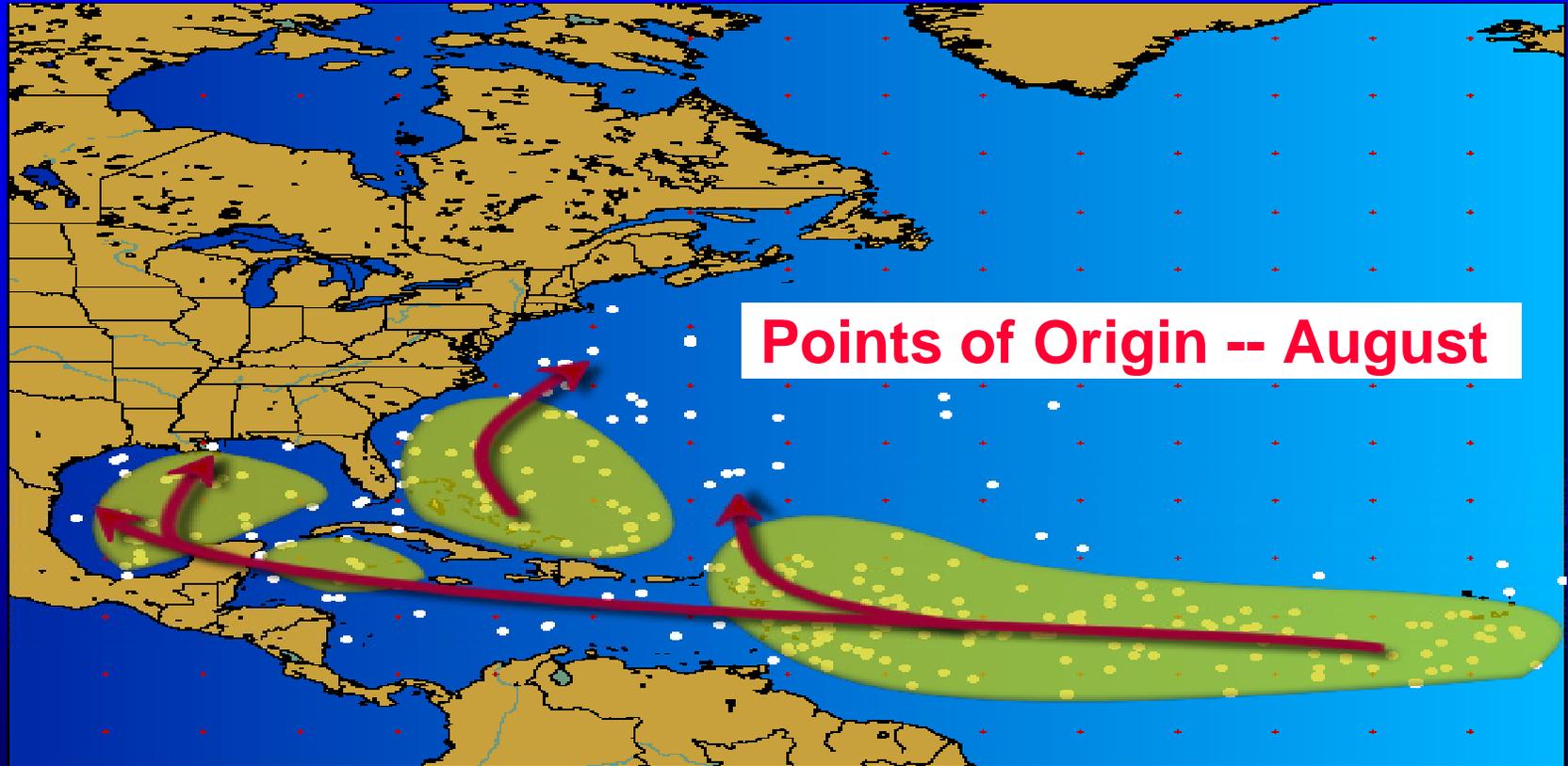
- Continued Gulf activity, increasing danger - Greater Antilles



NWS SOUTHERN REGION  
[www.srh.weather.gov](http://www.srh.weather.gov)



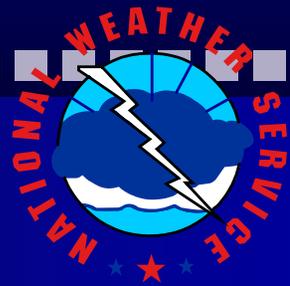
# Tropical Climatology



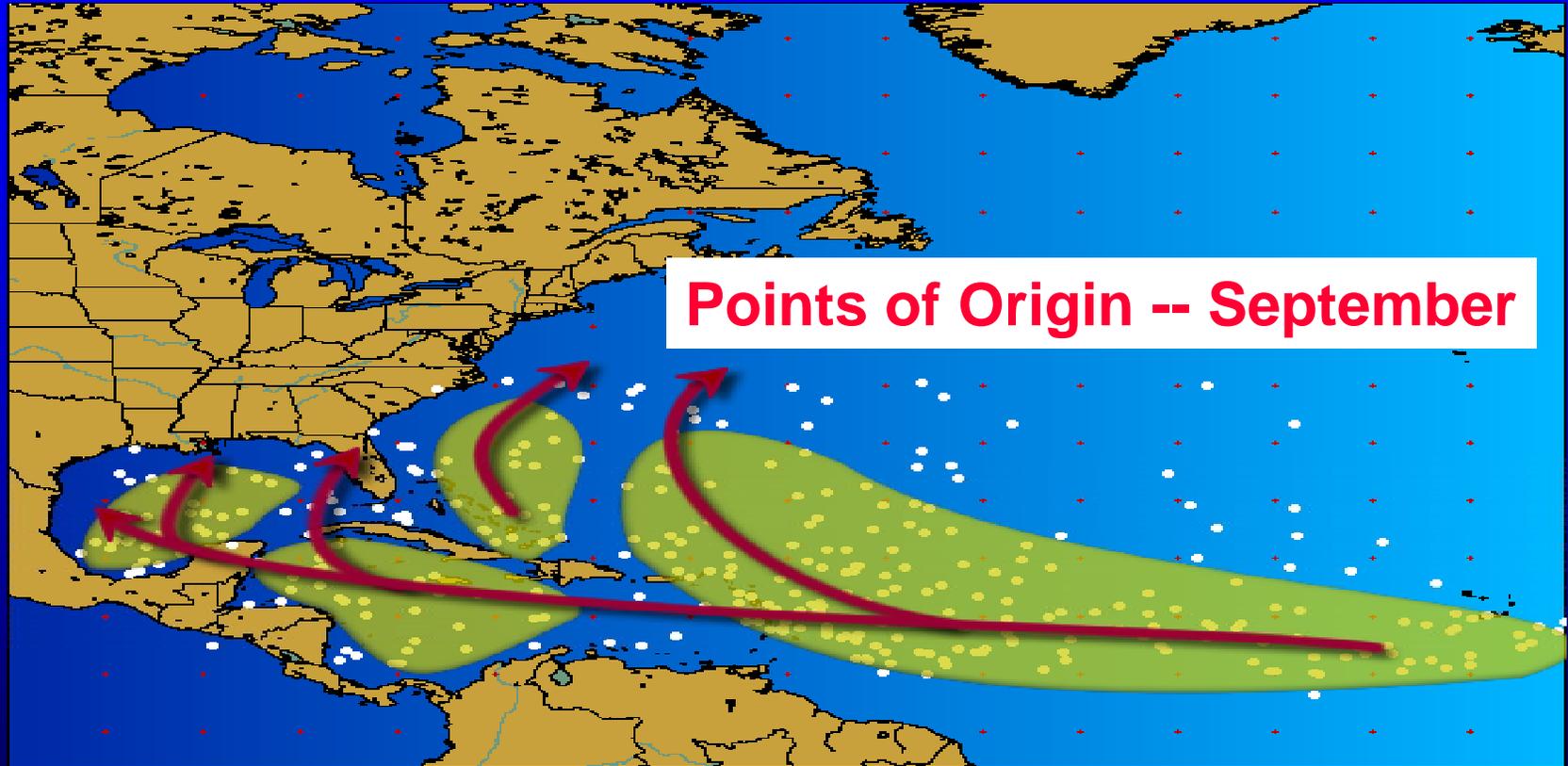
- Atlantic more active, long-track hurricane danger increases.



NWS SOUTHERN REGION  
[www.srh.weather.gov](http://www.srh.weather.gov)



# Tropical Climatology



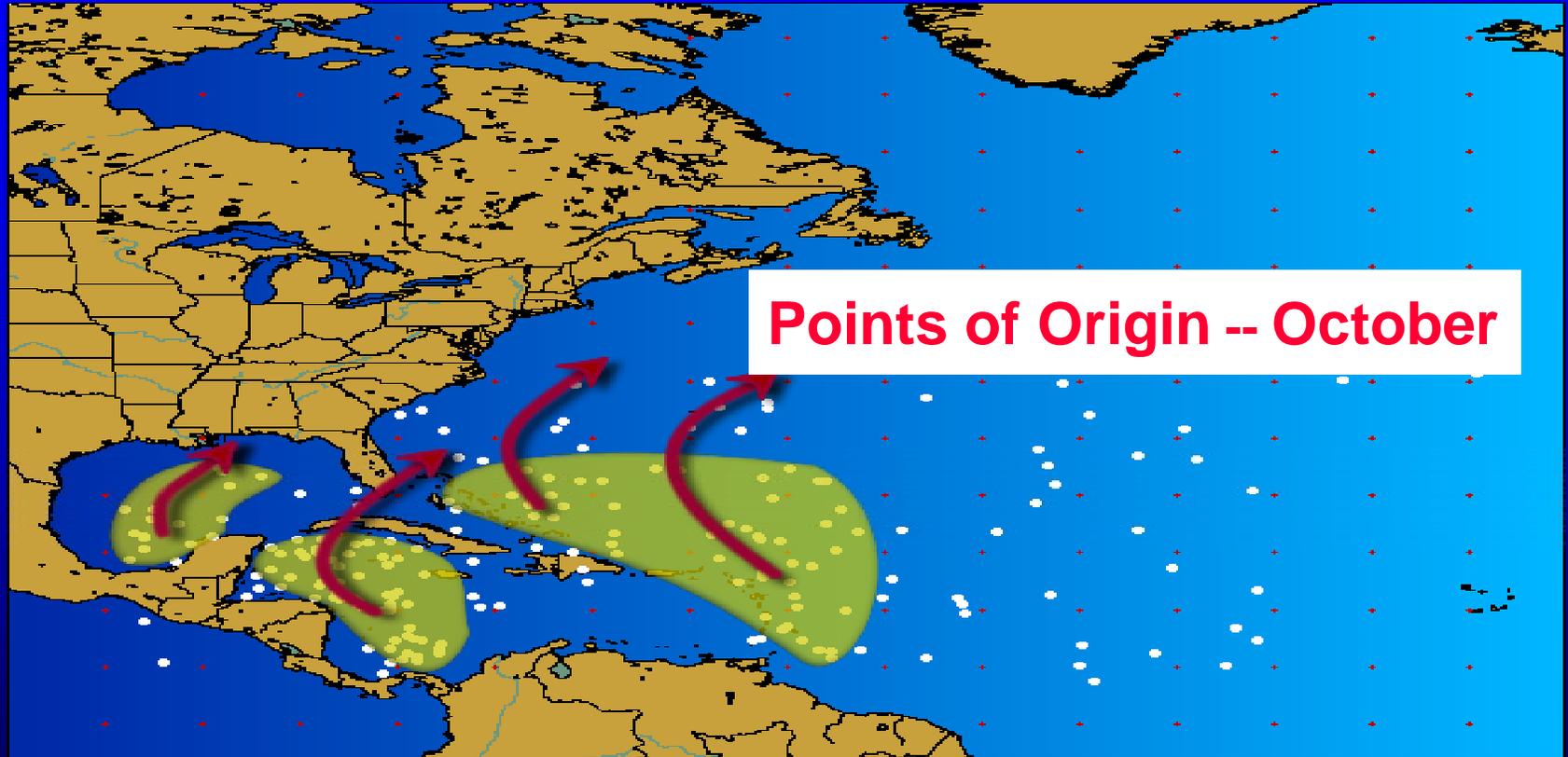
- Most active month of the hurricane season.



NWS SOUTHERN REGION  
[www.srh.weather.gov](http://www.srh.weather.gov)



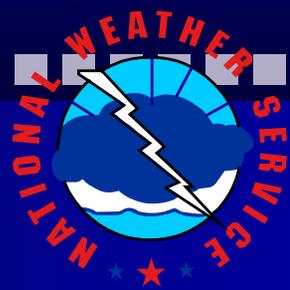
# Tropical Climatology



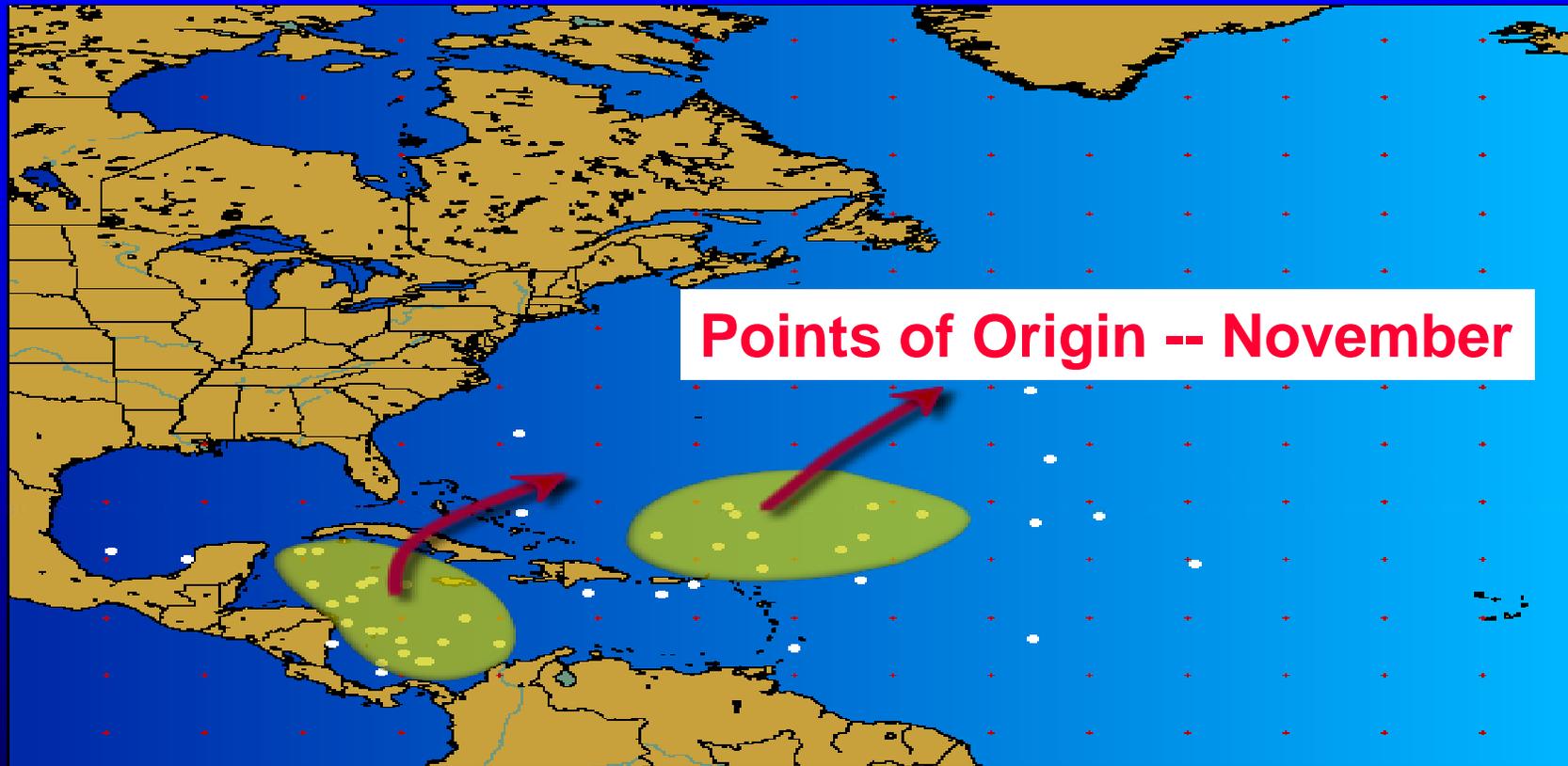
- Caribbean and Western Atlantic is most active.



NWS SOUTHERN REGION  
[www.srh.weather.gov](http://www.srh.weather.gov)



# Tropical Climatology



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



NWS SOUTHERN REGION  
[www.srh.weather.gov](http://www.srh.weather.gov)

