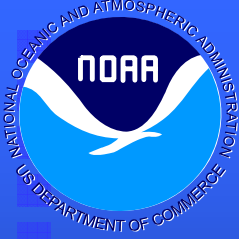


***The National Weather Service  
and its Partners:  
A Collaboration that Saves Lives!***

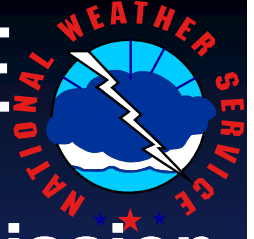
**Alamo Area Council of Governments  
San Antonio, TX**

October 4, 2007

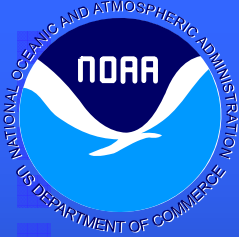
**Bill Proenza, Director  
National Weather Service Southern Region**



# PREPARED and CAPABLE



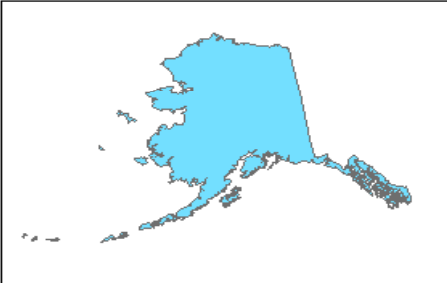
- We are all partners in the most vital mission of all government, **the protection of life.**
- Our nation is a **major severe weather battleground** between continental and tropical air.
- To maintain effectiveness, NWS needs infusion of **science and technology.**
- Our nation's **resiliency to severe weather** and our economic wellbeing depends on it.



# NWS has 4 major contiguous Regions and 2 State Regions

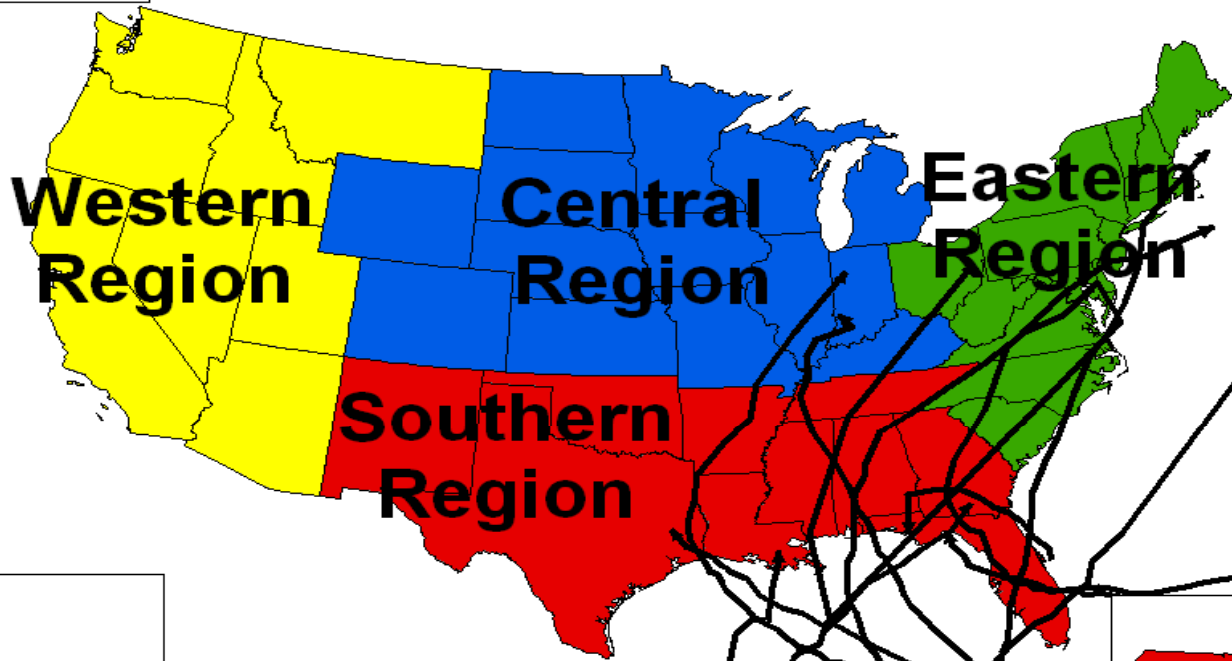


NWS Southern Region



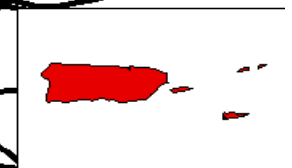
**Alaska Region**

(based on areas with similar meteorological challenges)

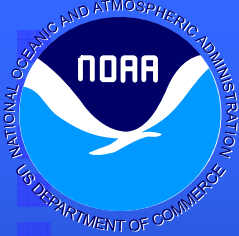


*Hawaii and Guam*

**Pacific Region**

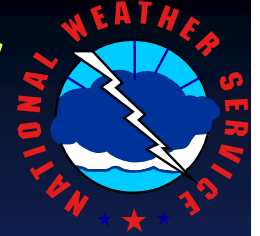


*Puerto Rico and Virgin Islands*



# Regional Operations Center

## 817-978-1100 x147

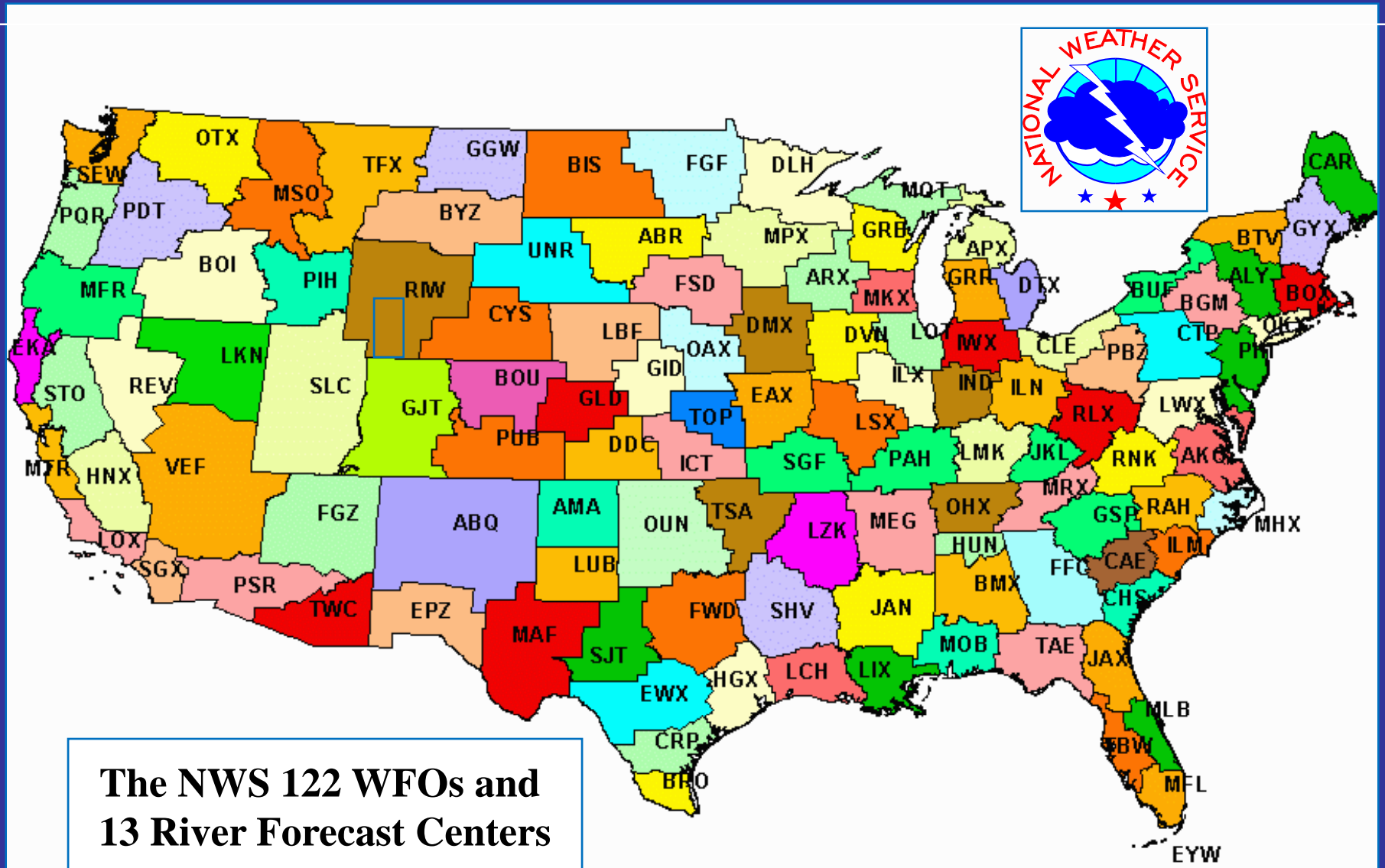


NWS Southern Region

- Local/State/Federal EM briefings
- NWS major weather event coordination
- Strategic NWS staff deployments to your field high impact command centers
- Media briefings & Post-event assessment & reporting



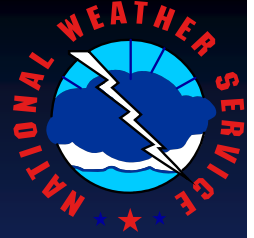
# Your best source for local forecasts and warnings: your *nearby* National Weather Service Office.



The NWS 122 WFOs and  
13 River Forecast Centers



## **Your National Weather Service WFO... ...with vital local weather expertise !**

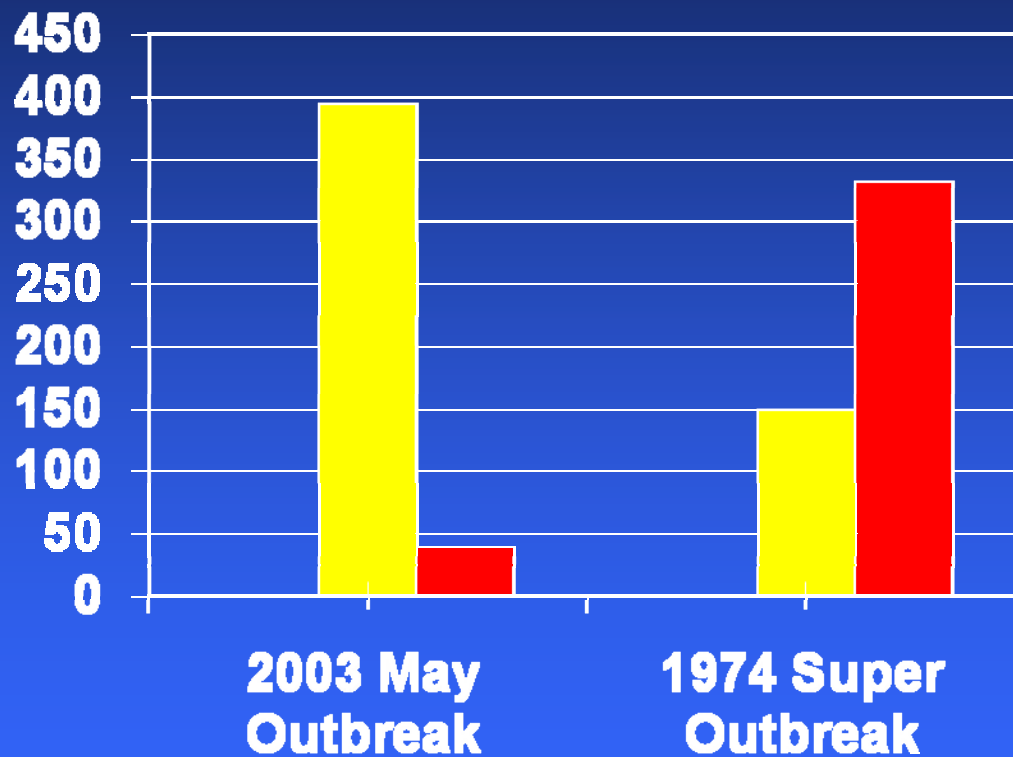


- **...is your 24x7 “Local” weather office – emergency weather decision support** for Homeland Security/EMs, federal/state & local agencies plus climate data & weather statements, forecasts & **timely warnings.**
- **...part of national GIS radar network** – local radar loops showing fine-scale storm movements, critical rainfall rates etc. **ALL, with GIS capability and velocity data on internet.**
- **...the local WFO is YOUR partner in life saving community preparedness !**



NWS Southern Region

Your modernized local National Weather Service Offices in collaboration with you, our partners, are saving lives!



■ **Tornadoes**

340 versus 148

■ **Fatalities**

39 versus 330

Avg 19 minute  
leadtime

Avg 4 minute  
leadtime

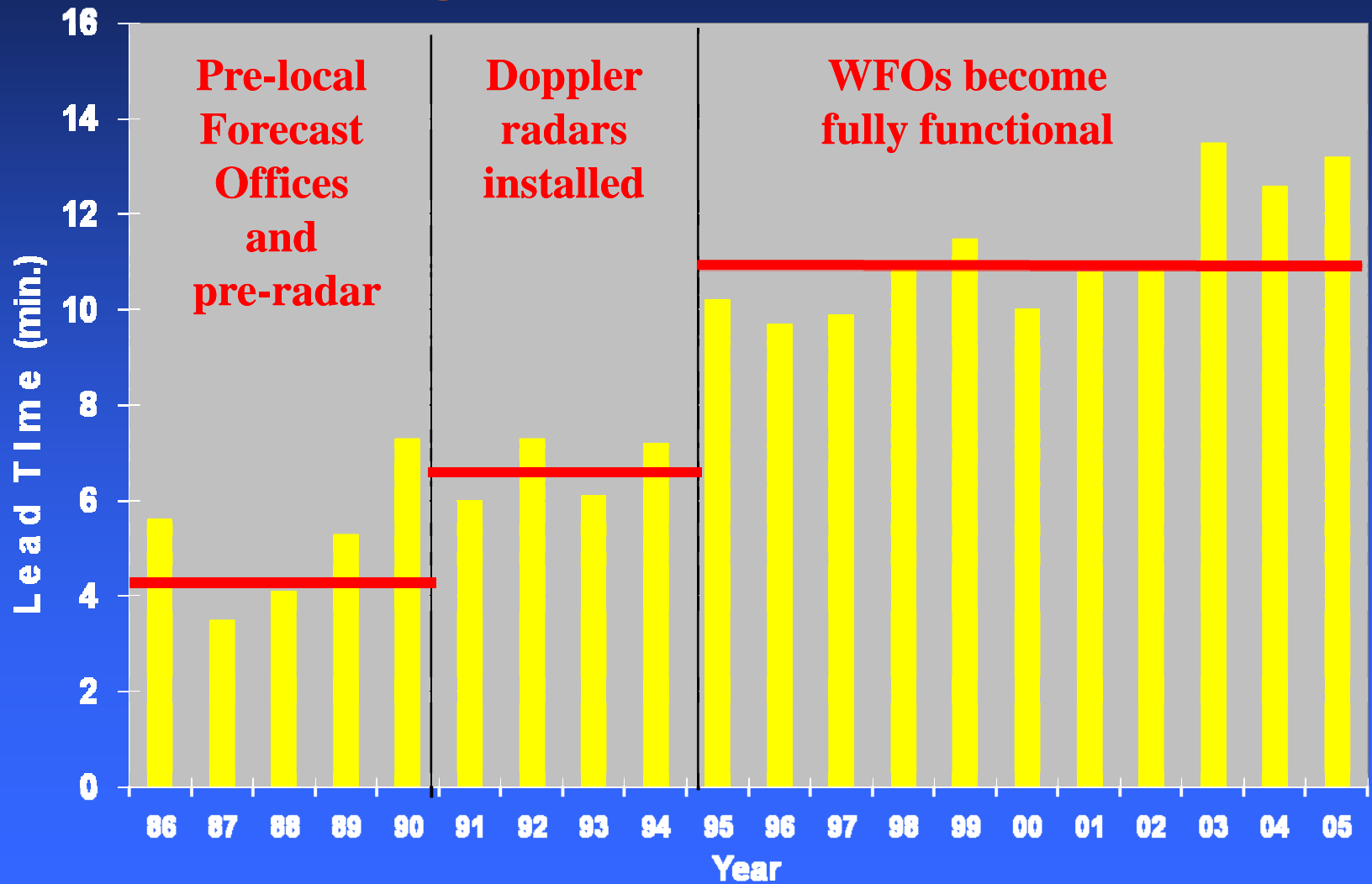




NWS Southern Region

# Modernization of Local Forecast & Warning Services

## Tornado Warning Lead Time



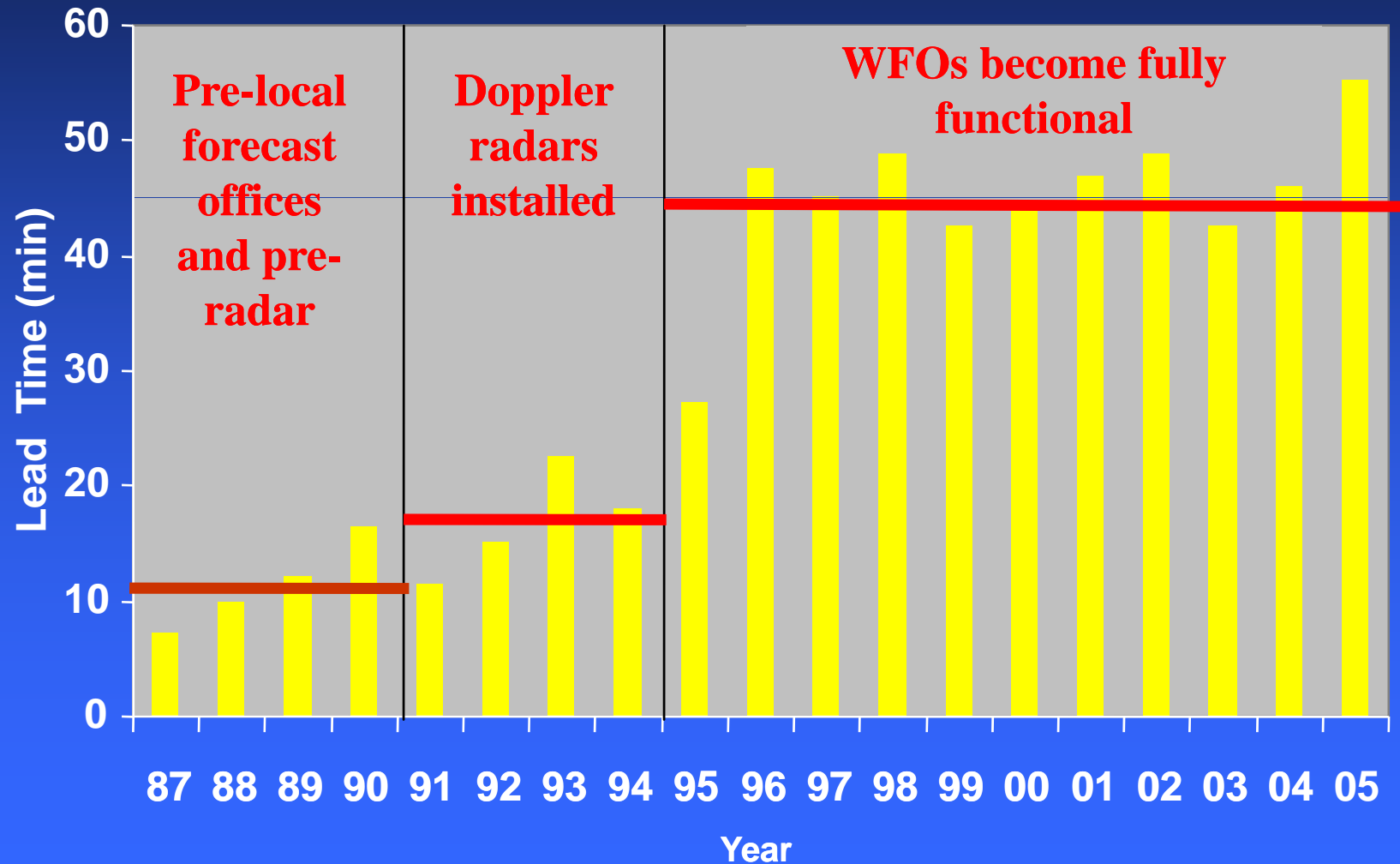




NWS Southern Region

# Modernization of Local Forecast & Warning Services

## Flash Flood Warning Lead Time







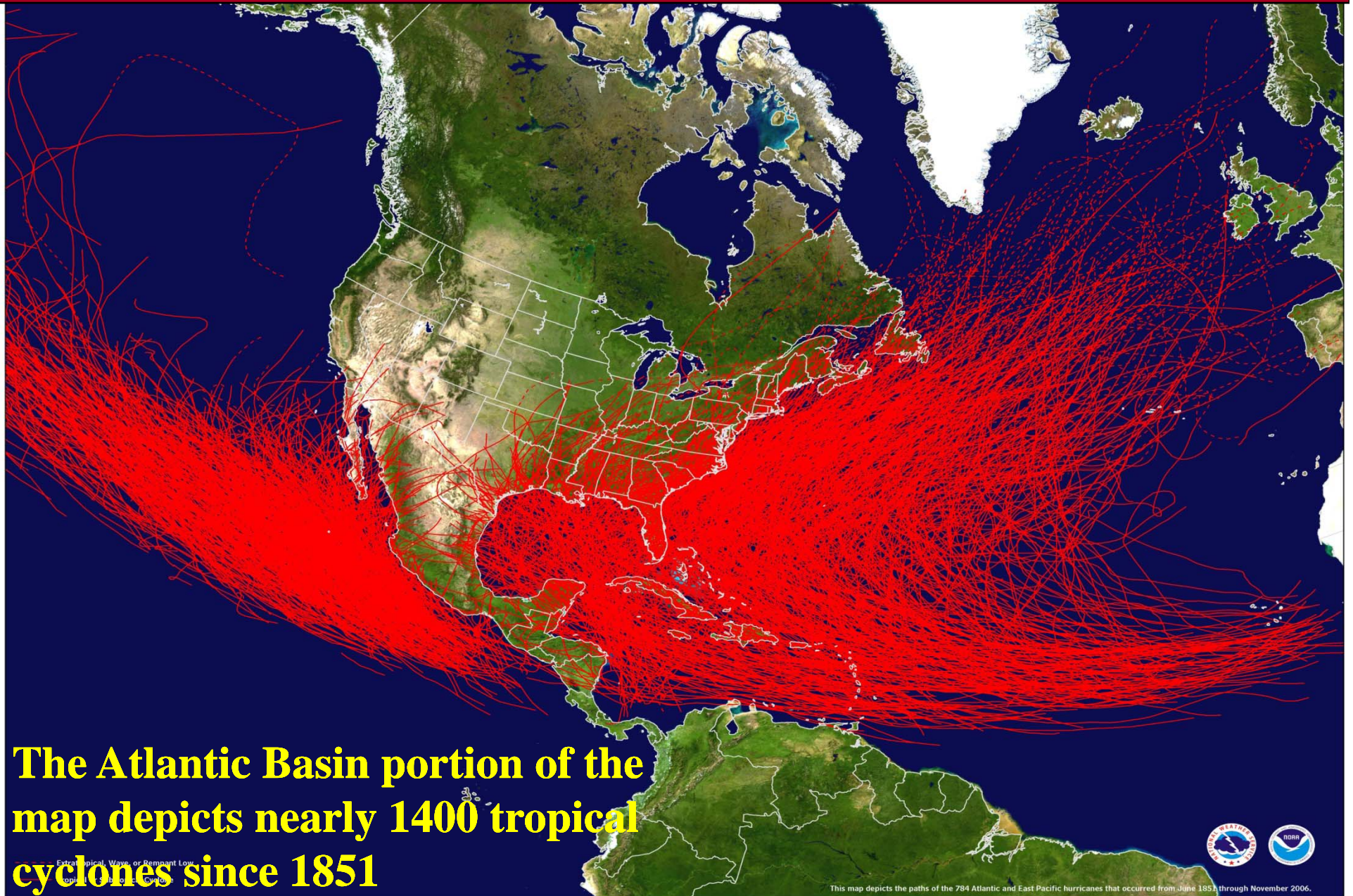
# Texas F5 and/or deadliest Tornadoes since 1900

- May 27, 1997 Jarrell
- May 6, 1973 McLennan Co.
- May 11, 1970 Lubbock
- April 3, 1964 Wichita Falls
- May 11, 1953 Waco (114 deaths)
- June 10, 1938 Callahan Co.
- April 12, 1927 Rocksprings (74 deaths)
- May 14, 1923 Big Spring
- May 18, 1902 Goliad (114 deaths)

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



# We are a nation with a vulnerability!



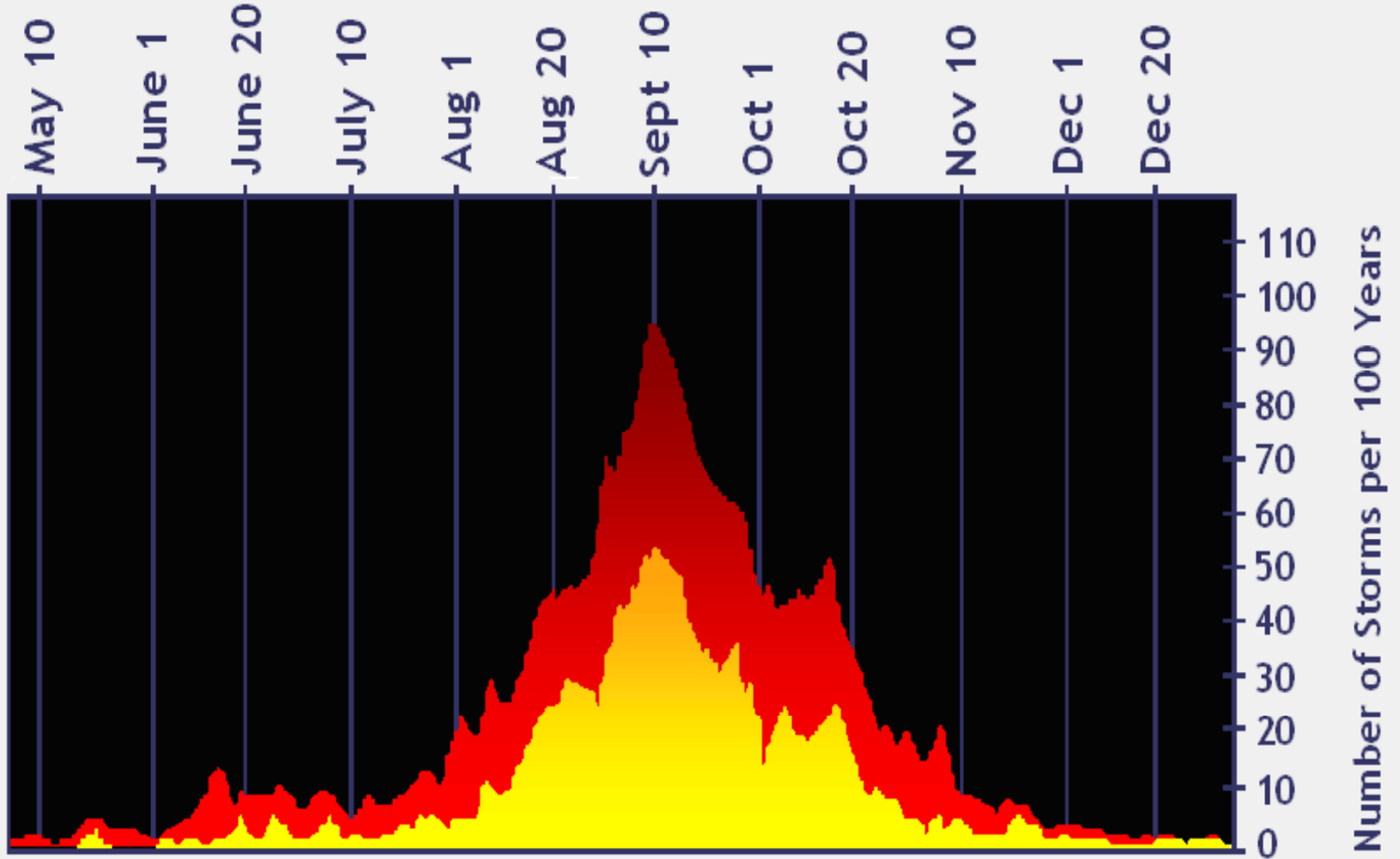
**An average tropical cyclone season (Jun 1-  
Nov 30) is active in the Atlantic Basin...  
The 2007 outlook was to be more active?**

	<b>Average Year</b>	<b>2007 (?)</b>
<b>Named Storms (39+mph)</b>	<b>11</b>	<b>13-17</b>
<b>Hurricanes (74+mph)</b>	<b>6</b>	<b>7-10</b>
<b>Major Hrcns (111+mph)</b>	<b>2</b>	<b>3- 5</b>
<b>U.S. Landfalling Hurricanes</b>	<b>2</b>	<b>~3</b>

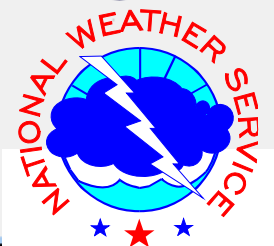


NWS Southern Region

# Peak of Tropical Season



- Hurricanes and Tropical Storms
- Hurricanes



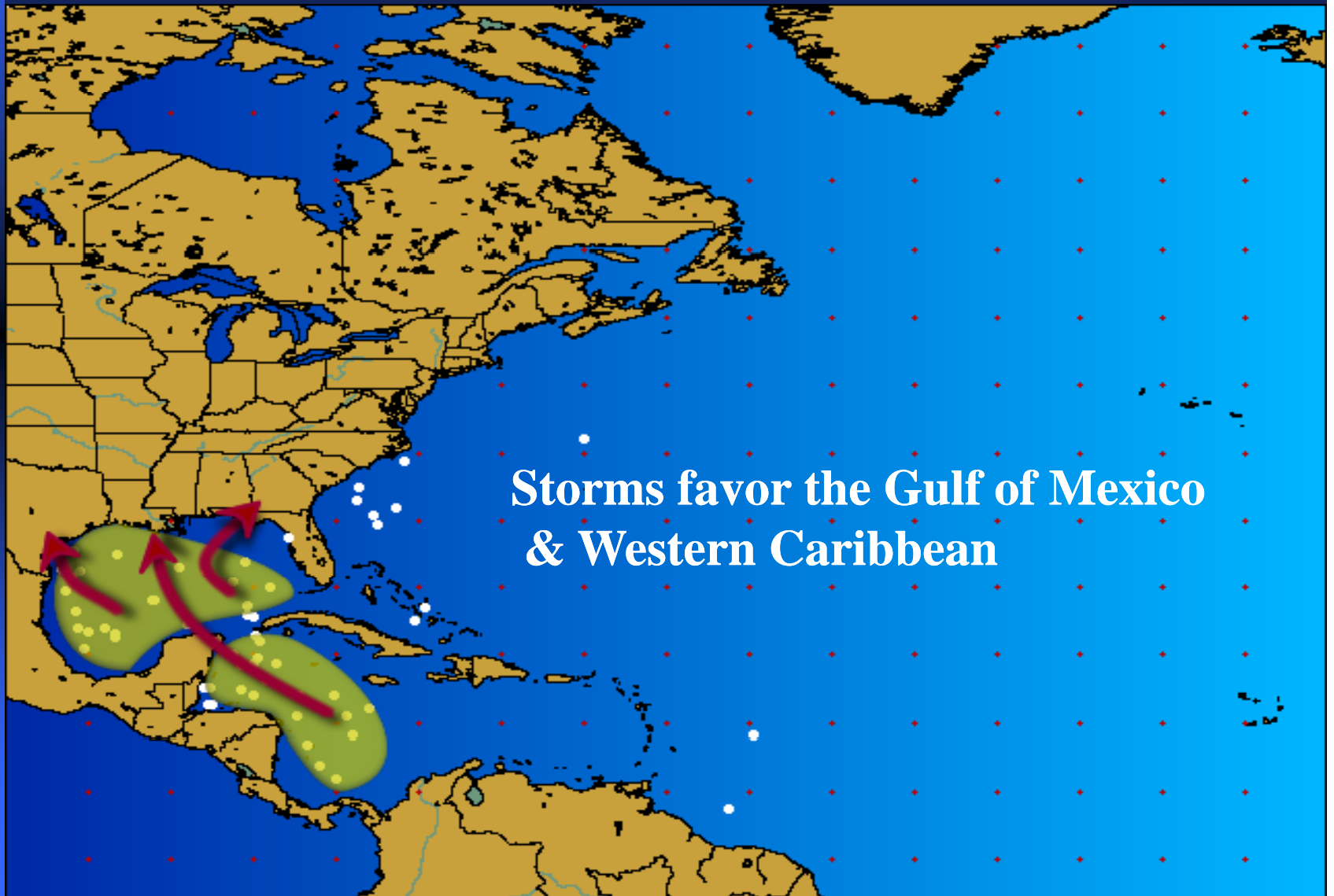




# Tropical Climatology

Points of Origin -- June

NWS Southern Region



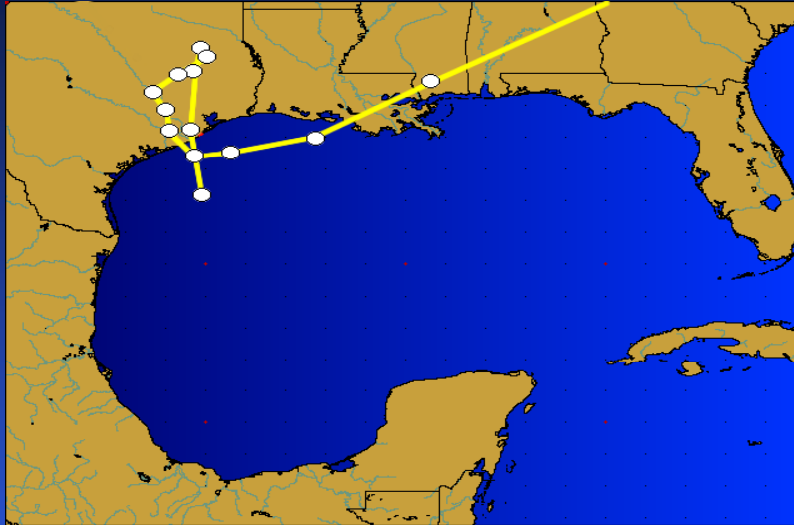
Storms favor the Gulf of Mexico  
& Western Caribbean



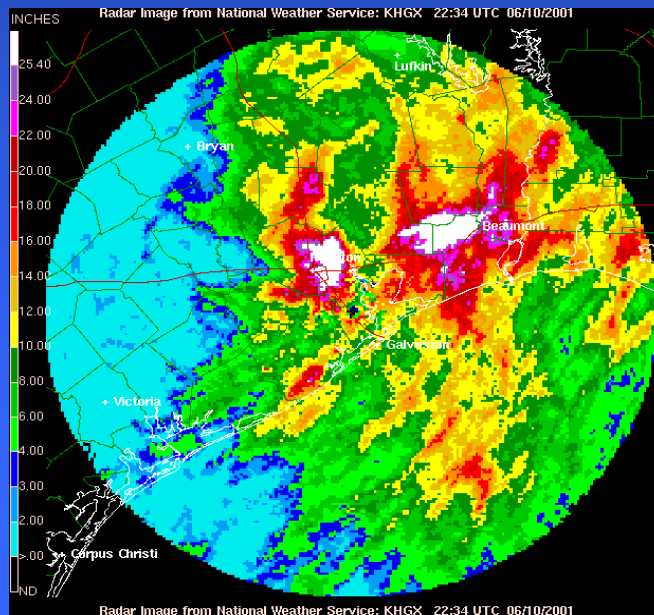


NWS Southern Region

# T.S. Allison – June 5, 2001



- 24 Killed
- \$5 Billion Damage
- Rainfall up to 37 inches were observed
- Landfall near Freeport, TX.



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





Interstate 10, Looking West, Houston



# Tropical Storm Allison (June, 2001) in Houston, Texas with 36 plus inches of rain



Photo: Houston Chronicle

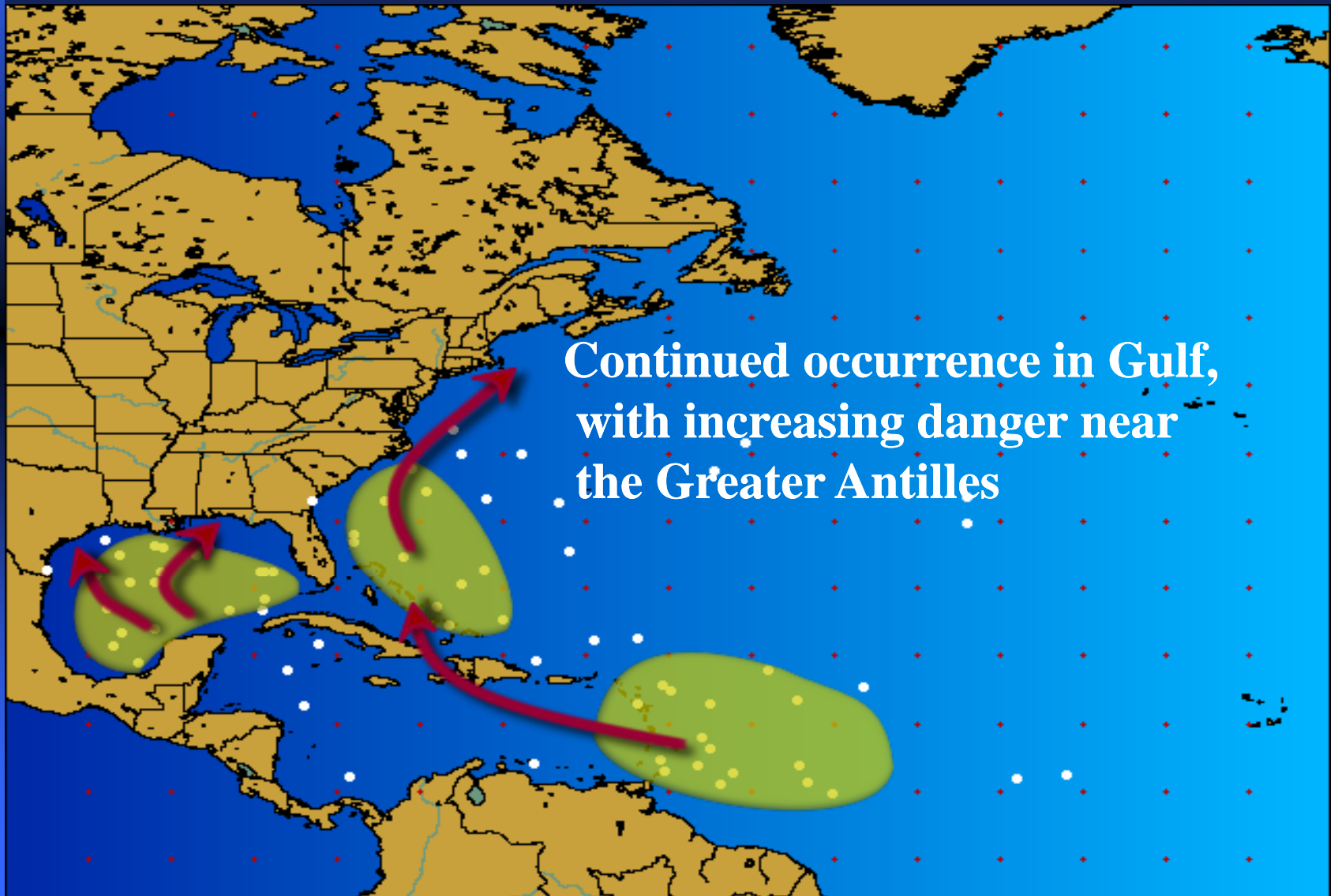
Interstate 10, Tropical Storm Allison, Houston



# Tropical Climatology

Points of Origin -- July

NWS Southern Region







NWS Southern Region

# Hurricane Claudette – Jul 15, 2003



- 1 Killed
- \$180 Million Damage
- Cat. 1 at landfall
- Max Wind 85 mph
- Max Storm Surge 5+'
- Landfall near Port O'Connor

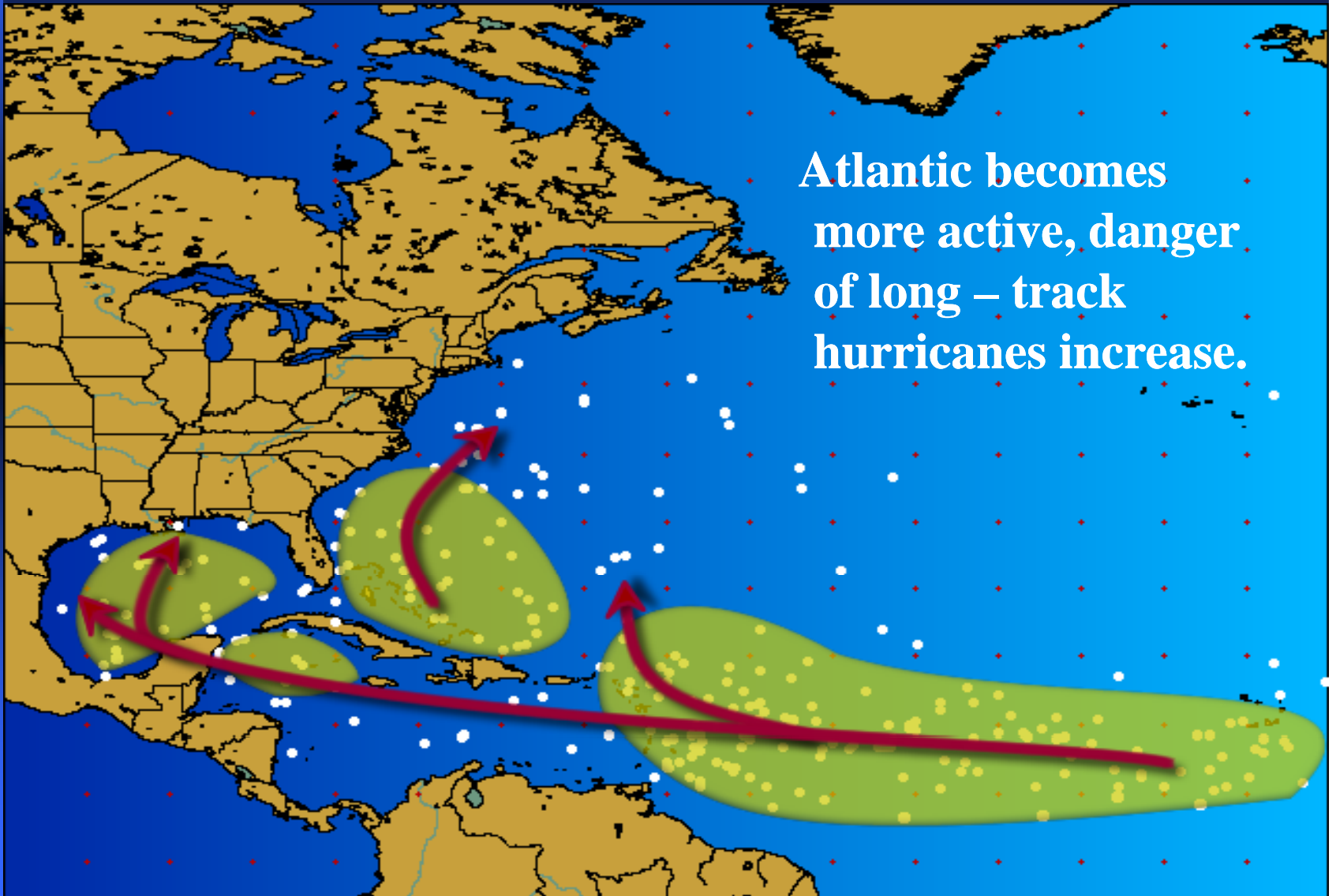
<http://www.srh.weather.gov>



NWS Southern Region

# Tropical Climatology

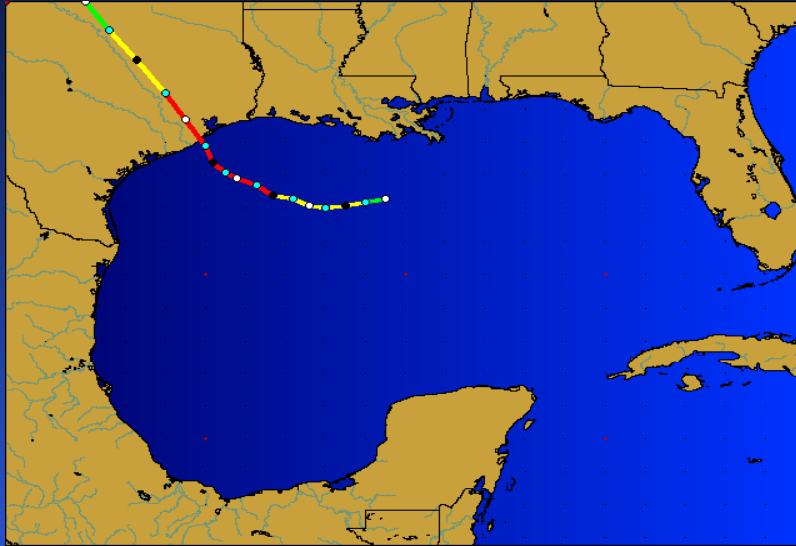
Points of Origin -- August





NWS Southern Region

# Hurricane Alicia – Aug 18, 1983



- 22 Killed
- \$1.8 Billion Damage
- Max Wind 115 mph
- Cat. 3 at landfall
- Landfall Galveston Bay

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

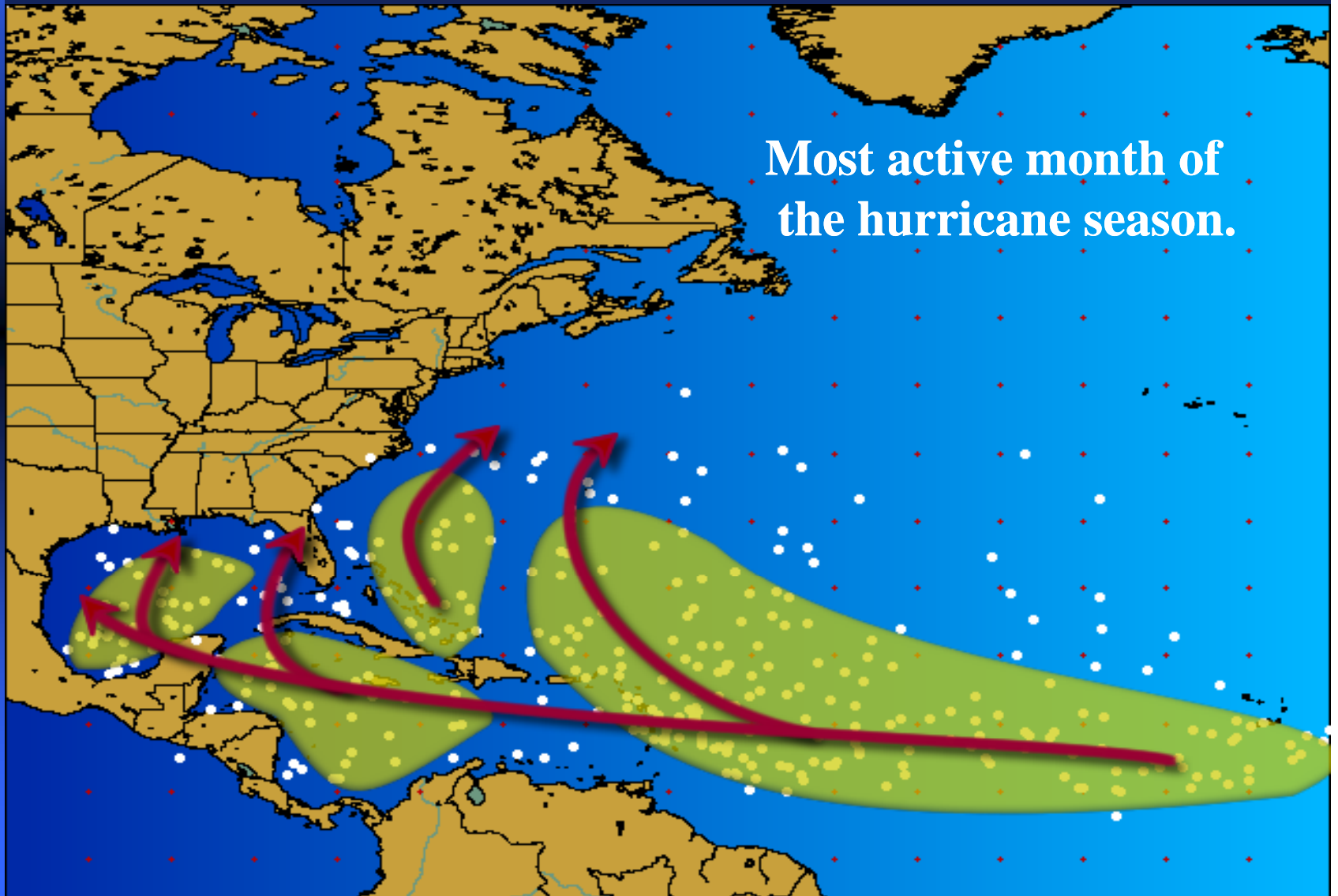




# Tropical Climatology

Points of Origin -- September

NWS Southern Region



Most active month of  
the hurricane season.



NWS Southern Region

# Hurricane of 1900 (Sept 8<sup>th</sup>)



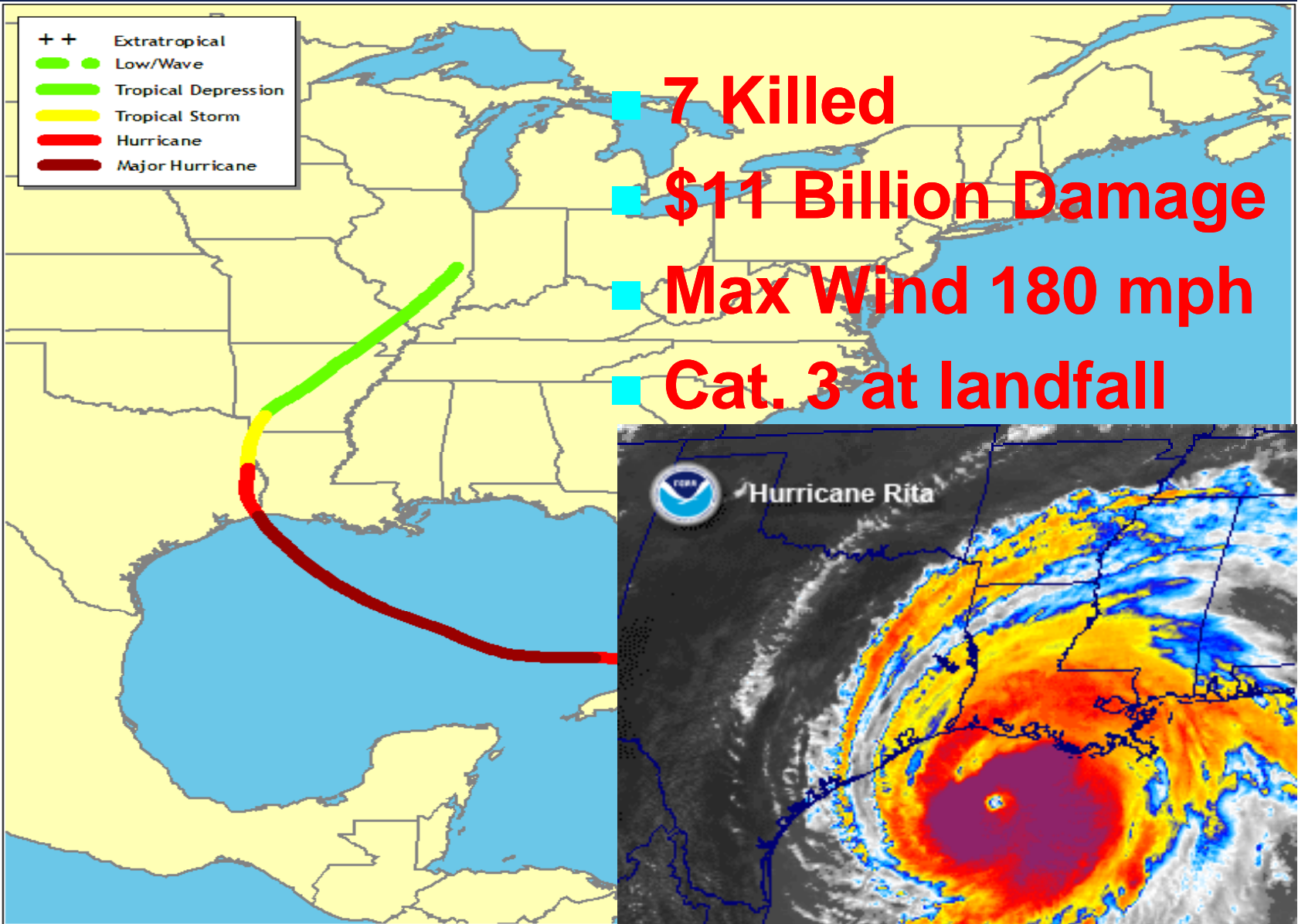
- Greatest weather tragedy in North America
- Estimated **8,000+** dead
- \$30 Million Damage
- Max Wind est. 135 mph (Cat. 4)
- Landfall Galveston

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



NWS Southern Region

# Hurricane Rita – Sep 24, 2005

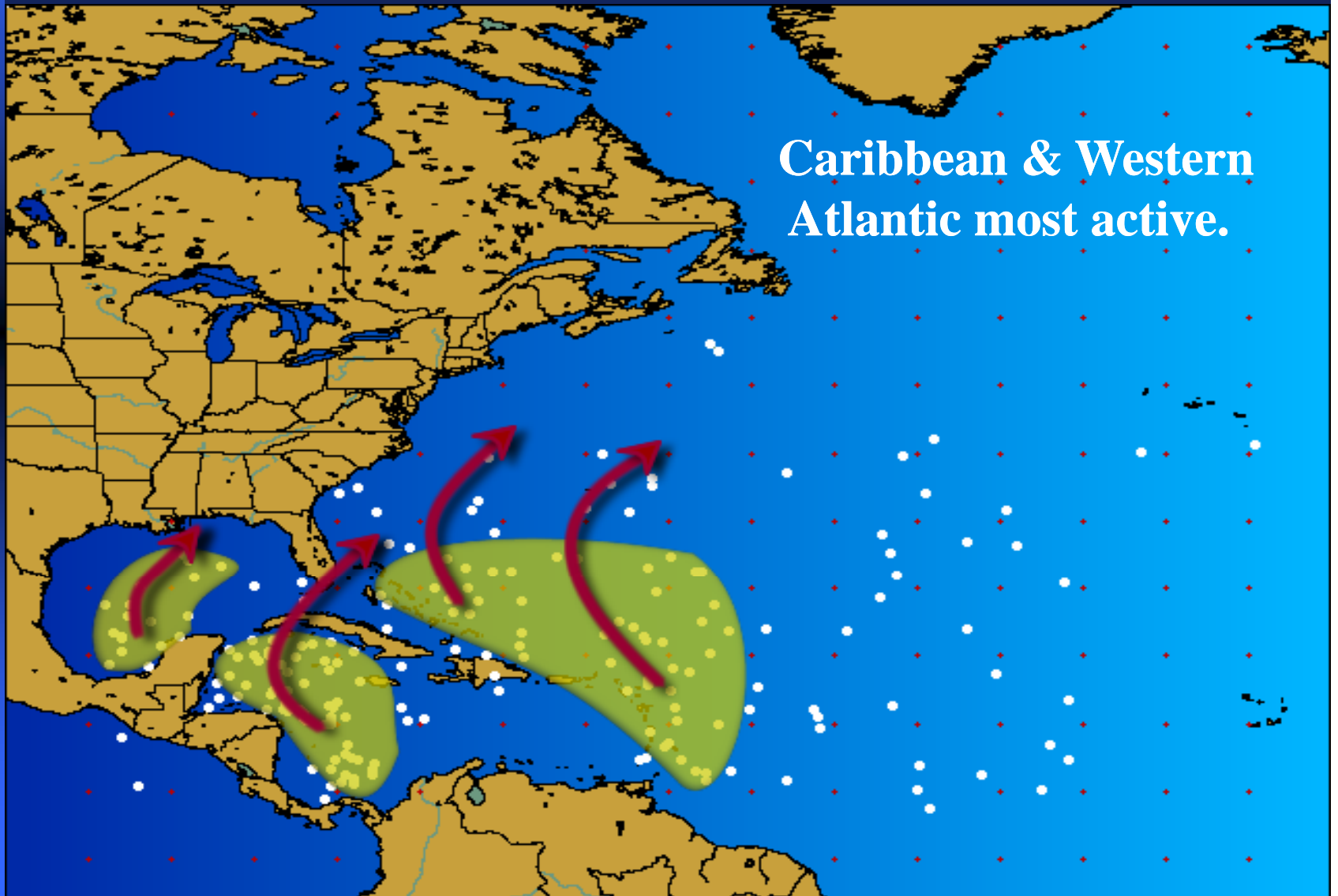




# Tropical Climatology

Points of Origin -- October

NWS Southern Region



Caribbean & Western Atlantic most active.





NWS Southern Region

# Hurricane Jerry – Oct 15, 1989



- 3 Killed
- \$70 Million Damage
- Max Wind 75 mph
- Cat. 1 at landfall
- Landfall Galveston Island

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



# Tropical Climatology

Points of Origin -- November

NWS Southern Region



Caribbean & West Atlantic most active. Storms may be strong, but conditions are less favorable.



NWS Southern Region

# NWS SR Internet Site

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

- One-stop source of weather information.
- Developed for both partners & public.
  - ◆ Easy navigation
  - ◆ Data given in the manner you need it.
- Increases public awareness & response to vital NWS 24 x 7 products and services.





# 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 and click maps**
- Weather Information in clear, concise format
- Emphasizes local weather expertise

NWS Southern Region Home - Microsoft Internet Explorer

Address: <http://www.srh.noaa.gov/>

National Weather Service  
Southern Region Headquarters

Site Map News Organization Search Enter Search Here Go

You are at: NWS Home » SRH Home

Local weather forecast by "City, ST" or zip code  
City, St  Go

Welcome from the  
Southern Region  
Organization

Weather Hazards  
Nationwide

Doppler Radars  
Nationwide

Weather Links

Partners

Contact Us  
susan.beckwith  
@noaa.gov

Click city for local weather information

Additional SR pages: [SRH Home](#) | [SRH Meteorology](#) | [SRH Watch](#) | [NWS/FAA Academy](#)

ARE YOU StormReady?  
Click to discover!

National Weather Service  
Southern Region Headquarters  
Page last modified: September 23, 2003

Disclaimer Privacy Notice

Internet

NWS Southern Region



NWS Southern Region

# NWS Internet Point Forecasts

Quick Forecast Information

Current Weather Conditions

Warnings/Advisories

Quick Forecast Text

Radar and Satellite

Local Climate Services

The screenshot shows the NWS website for Heidenheimer, TX. Annotations include:

- A yellow arrow pointing to the "Forecast at a Glance" section, which contains a table of daily forecasts.
- A pink arrow pointing to the "Current Conditions" section, which shows a temperature of 68°F (20°C) and a "Partly Cloudy" status.
- A green arrow pointing to a "Hazardous Weather Outlook" box.
- A white arrow pointing to the "Detailed 7-day Forecast" section.
- A cyan arrow pointing to the "Radar and Satellite" section, which displays two images.
- An orange arrow pointing to the "Additional Forecasts & Information" section at the bottom.

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 Lo 65°F	Partly Cloudy Lo 65°F	Partly Cloudy Hi 85°F	Mostly Cloudy Lo 68°F	T-storms Possible Hi 85°F Lo 68°F	T-storms Possible Hi 85°F Lo 68°F	Chance T-storms Hi 82°F Lo 68°F

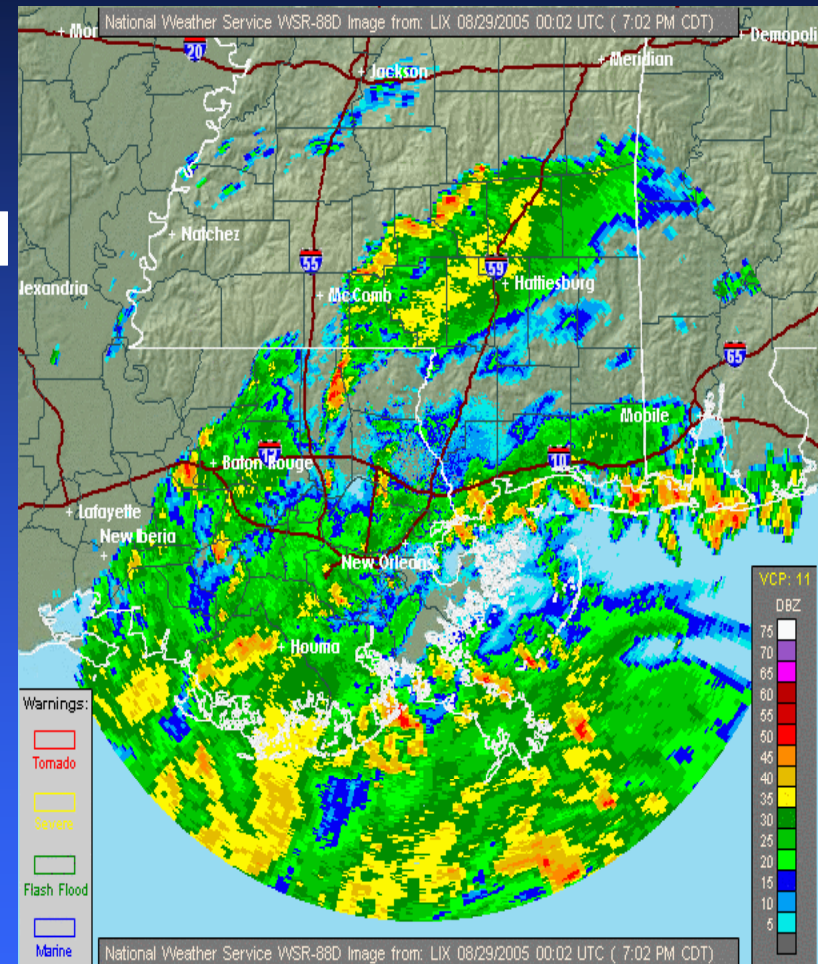


# NWS GIS Radar Webpages

GIS Radar images with **storm based warning (SBW) polygons** are displayed, time looped and can be downloaded onto your GIS software

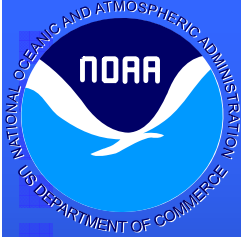
- Calculates distance from any storm point, "Lat" & "Long" and direction
- For the first time, has **velocity** data!

*Another Southern Region initiative, now National since Feb 21, 2006*



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

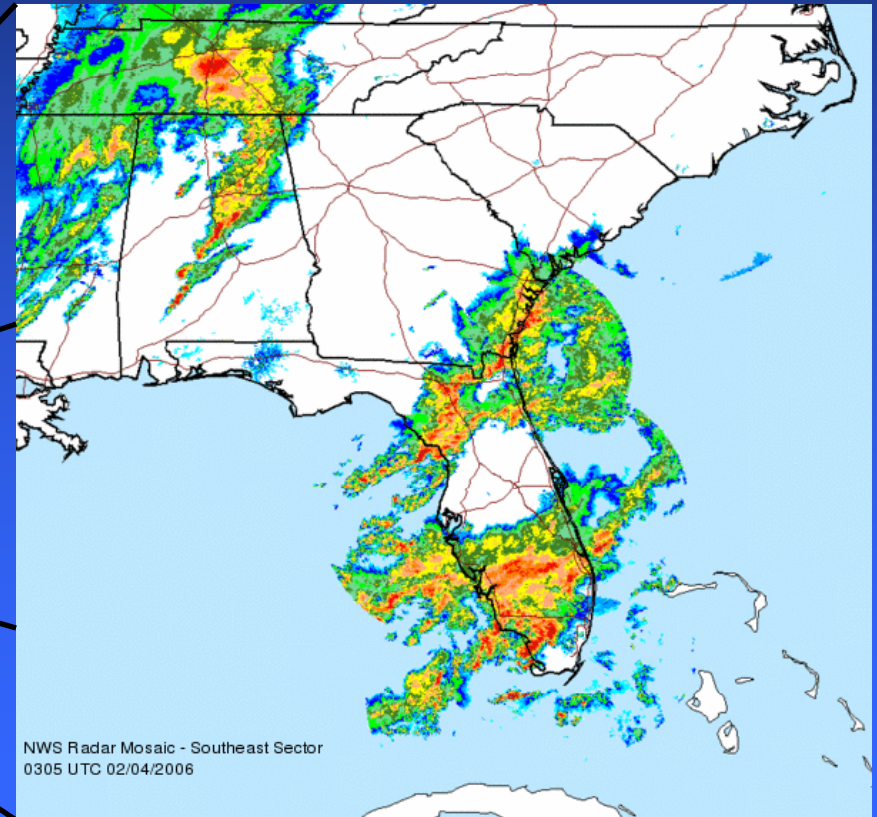
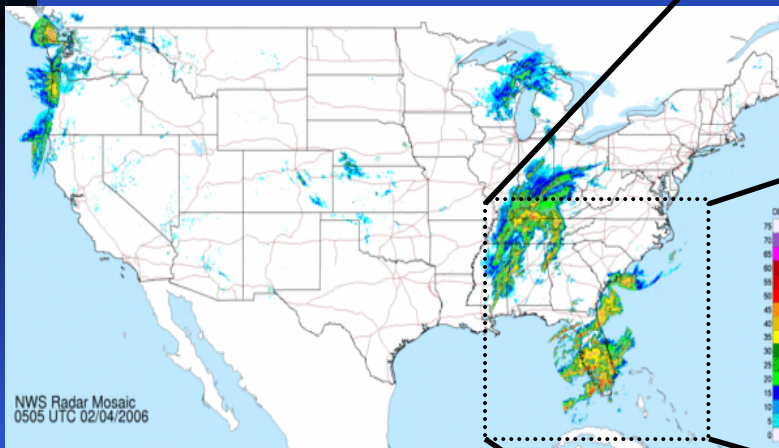




# With GIS Radar: Improved National and Regional Mosaics

<http://www.srh.noaa.gov/ridge>

NWS Southern Region





# NWS Southern Region Develops/Hosts Nat'l GIS Precipitation Analysis Tool

<http://www.srh.noaa.gov/rfcshare/>

NWS Southern Region

Images

Download

About NWS  
Precip Analysis

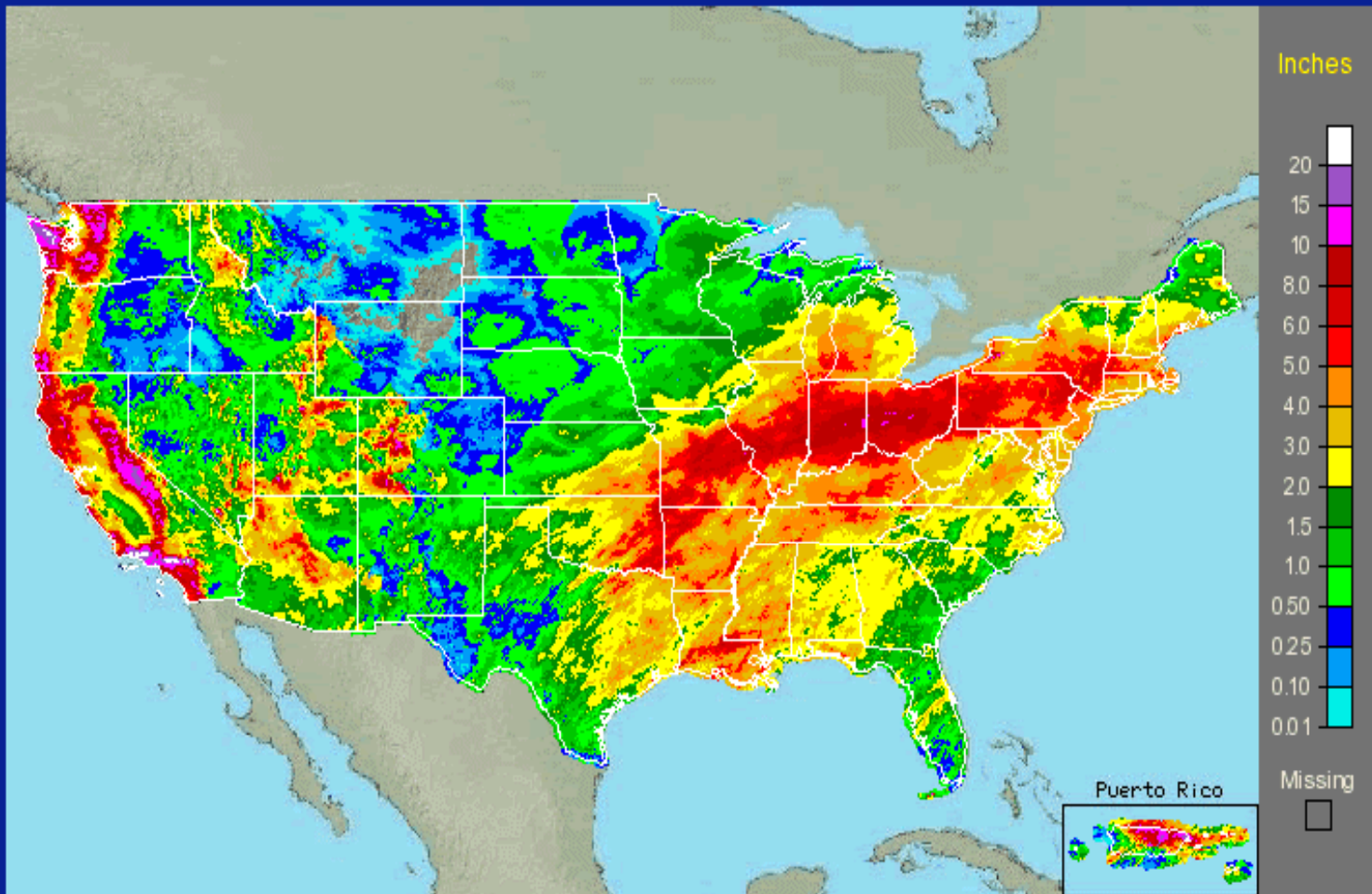
Other Useful  
Information

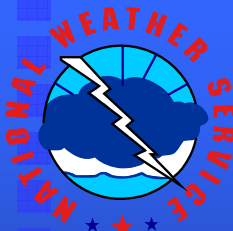
Survey &  
Feedback

Original  
Precip Analysis

Continental United States  
January, 2005 Monthly Observed Precipitation

*Click on the image to zoom in  
Click on "States" to zoom out*

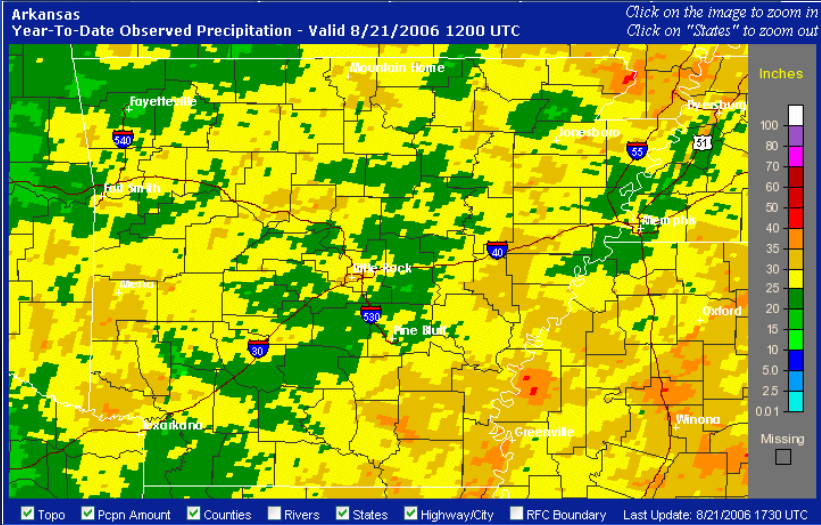




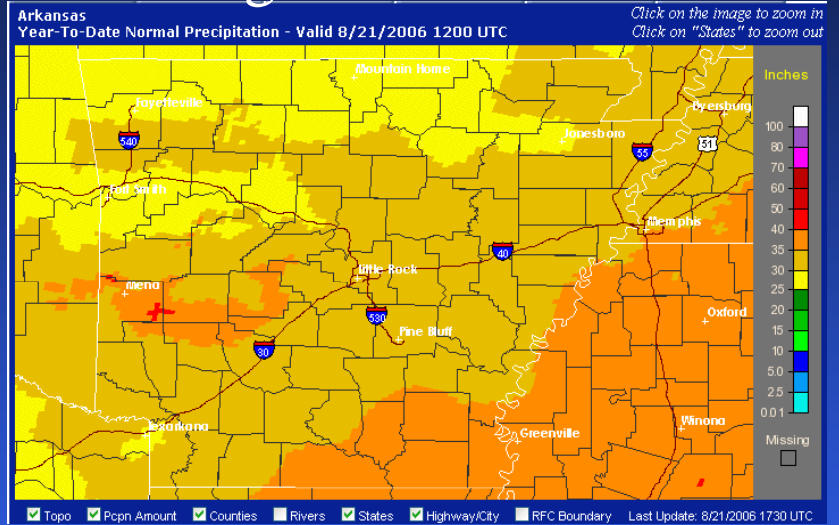
NWS Southern Region

# NWS National GIS Precipitation Analysis Tool

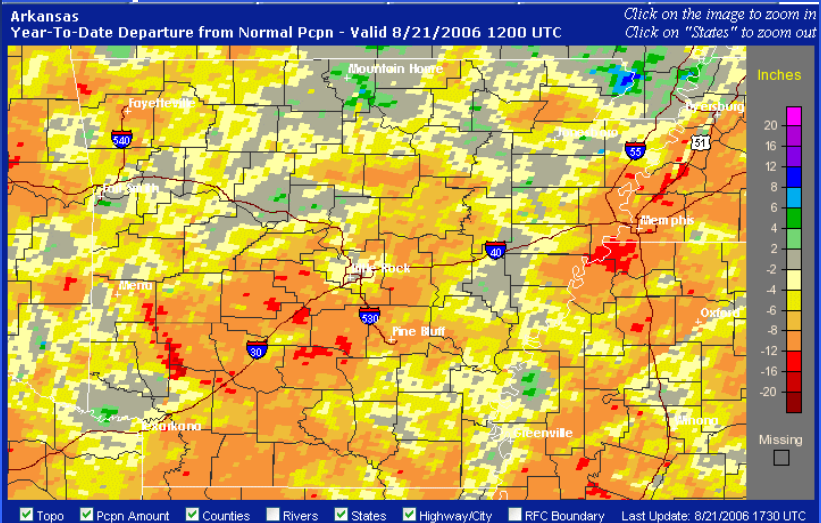
## Observed/Estimated



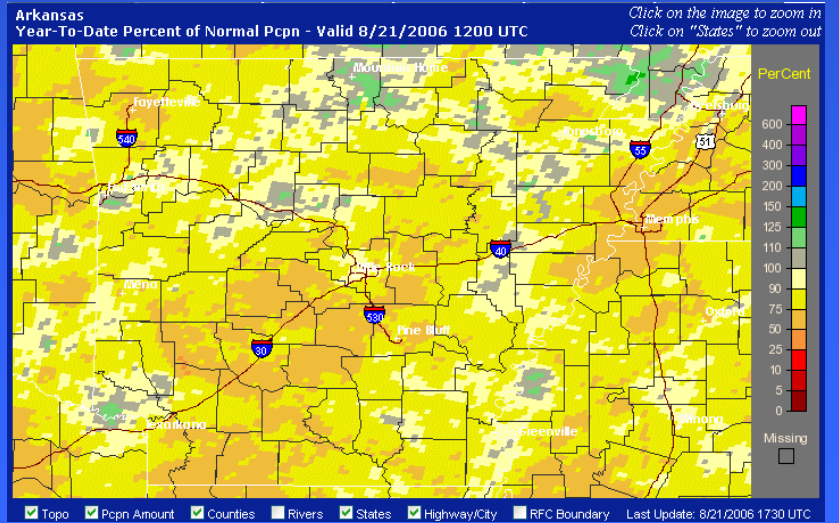
## Average



## Departure



## Percent





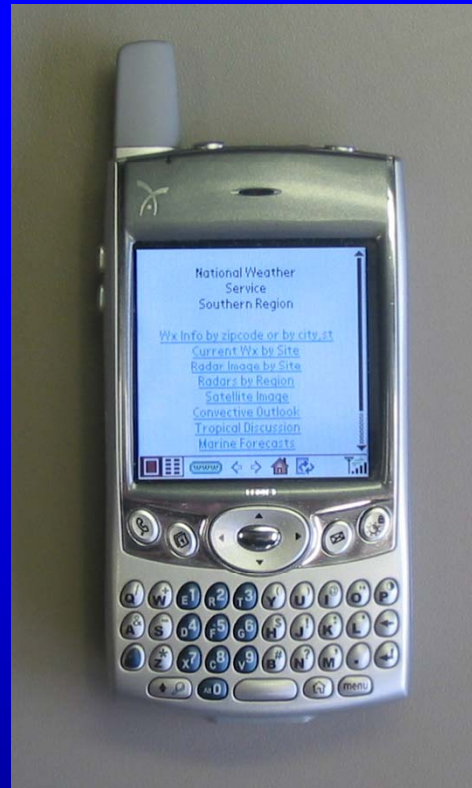
# Mobile Weather

All the weather info  
you need is now  
available on mobile  
devices!

*Another Southern  
Region Initiative!*

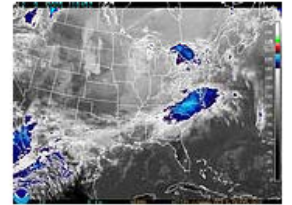
cell phone: [www.srh.weather.gov/wml](http://www.srh.weather.gov/wml)

PDA: [mobile.srh.noaa.gov](http://mobile.srh.noaa.gov)



National Weather  
Service  
Southern Region

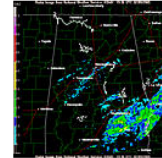
GOES Eastern US IR



[Loop Satellite Images](#)  
For Wide Page Mode

National Weather  
Service  
Southern Region

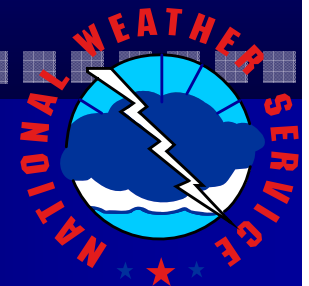
Radar: kbm  
Birmingham, AL  
01:36 PM CST Wed Feb 09 2005



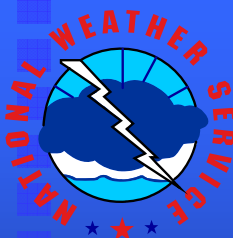
[Hi Res Radar Image](#)  
[Hi Res Storm Totals](#)  
For Wide Page Mode



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



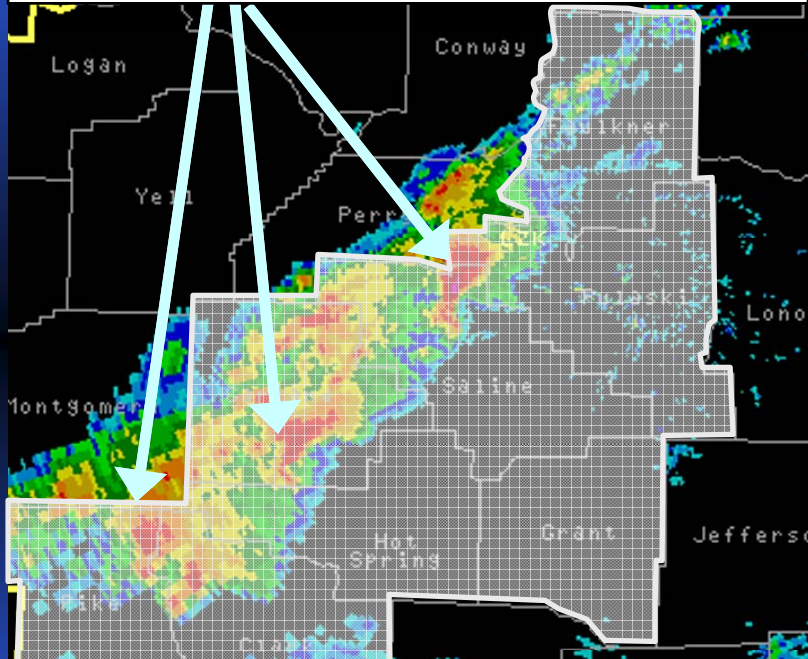




NWS Southern Region

# From County-Based Warnings to Storm-Based Warnings

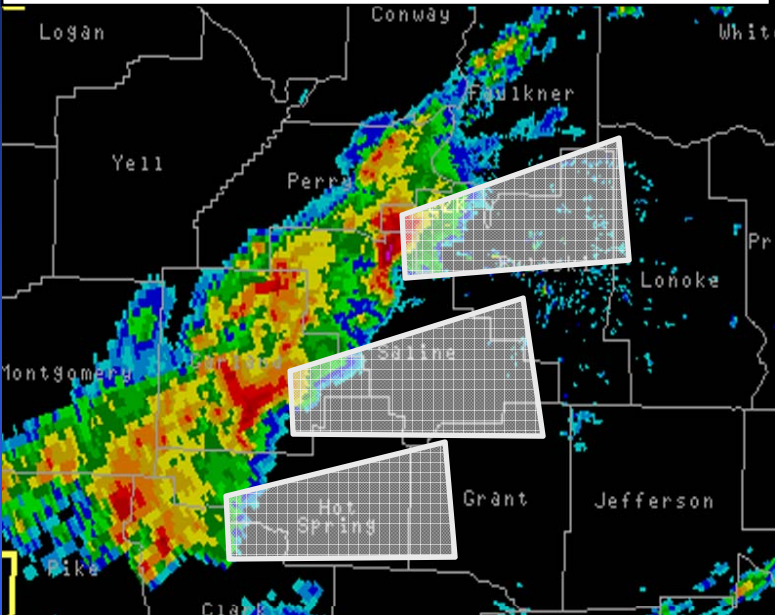
Three simultaneous tornadoes within line of severe thunderstorms



**County-Based Tornado Warnings**

8 counties under warning  
Almost 1 million people warned

- More specific
- Increased clarity
- Supports new dissemination technology



**Storm-Based Tornado Warnings**

70% less area covered  
~600,000 fewer people warned



# Text Product Enhancements

- **SPECIAL WEATHER STATEMENT (SPS)**
  - ◆ elevates public awareness & response when needed for strong thunderstorms that remain below severe criteria.
    - ◆ **WINDS - 40 to 57 mph (sustained or gusts)**
    - ◆ **HAIL – Less than ¾ inch**
    - ◆ **LIGHTNING - Frequent to continuous**
    - ◆ **FUNNEL CLOUDS – rotating funnels**
  - ◆ reduces over warning and false alarms. Praised by EMs and media.



NWS Southern Region

# Turn Around Don't Drown™

- Flood and Flash Flood Safety Campaign
- Over 30 partners representing local, regional, and national organizations
- Launched in May 2003  
*Another Southern Region initiative that is now National !*

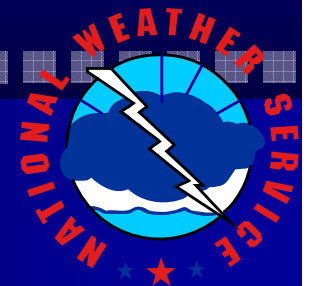


# StormReady®

- Started in Tulsa – 1998
- 1253 nationwide sites
- Significantly factor improving our nation's community weather preparedness
- *Another Southern Region initiative, now National !*



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





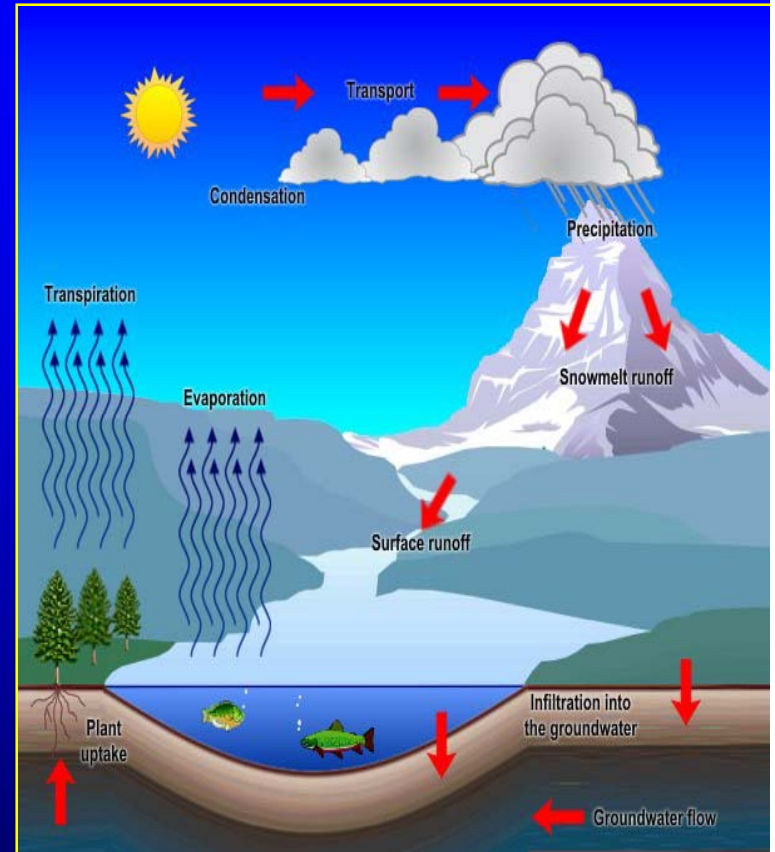


# StormReady® “Supporters”

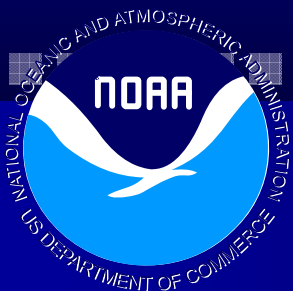
- Expands StormReady concept to businesses, schools, hospitals, etc.
- Improves storm readiness within community entities.
- Opportunity to enhance and expand partner and customer relationships.
- Voluntary NWS program became effective October 1, 2004.

# Project JETSTREAM

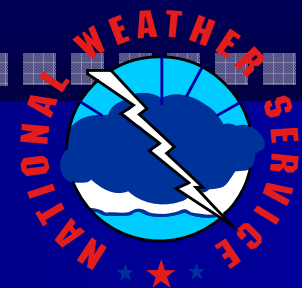
- A weather learning tool for EMs, media, teachers, students, public, aviation and marine communities.
- Includes weather preparedness & safety tips.
- Includes all weather from thunderstorms to winter storms.
- *Another Southern Region initiative, now National !*

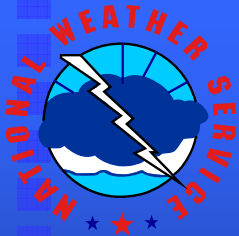


[www.srh.weather.gov](http://www.srh.weather.gov)



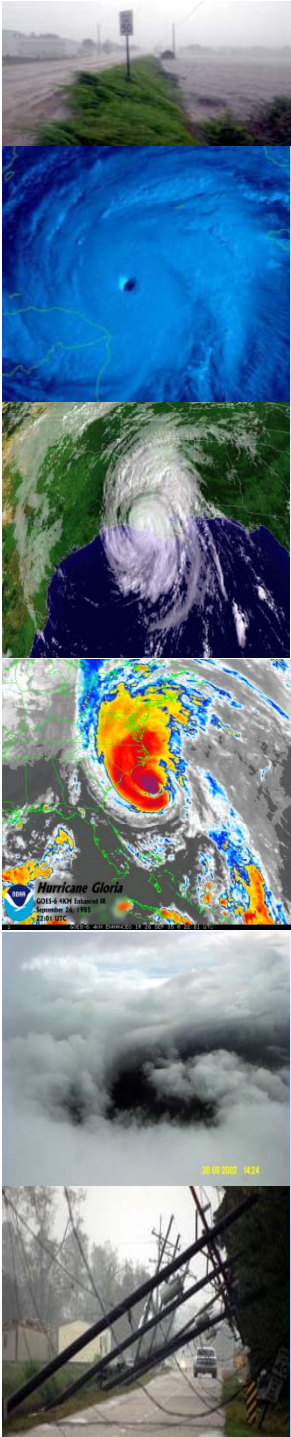
NWS SOUTHERN REGION  
[www.srh.weather.gov](http://www.srh.weather.gov)





# Key Steps in NWS Future

- Science and tech infusion will enable NWS to provide critical decision support information for partners.
- For example:
  - ◆ New generation Ocean Surface Vector Winds satellite replaces aging “QuikSCAT” (4-6 yrs)
  - ◆ GOES-N Satellite (1-3 yrs)
  - ◆ Dual Polarized Doppler Radar (2-4 Yrs)
  - ◆ Phased Array Radar (10-15 Yrs)



# QuikSCAT on borrowed time

- *8 years old with a 3 year life expectancy...on its only backup transmitter*
- *Key to boating, high seas, offshore waters and tropical cyclone forecasts and warnings*
- *Provides wide swath (1800km / 1100m) of ocean wind speed and direction for 90% of the oceans*
- *Loss of QuikSCAT potentially degrades hurricane analysis and forecasts.*
- ***Solution:*** an improved next-generation satellite instrument (as called by NRC Decadal Survey, NOAA OFCM, Hurricane-'07 OSVW Workshop-'06).
- ***Hopeful news*** NOAA (NESDIS) & NASA (JPL) *have begun talks on a proof of concept design.*
- *Meanwhile NWS will partially mitigate potential QuikSCAT loss with ASCAT.*







# Radar Technology

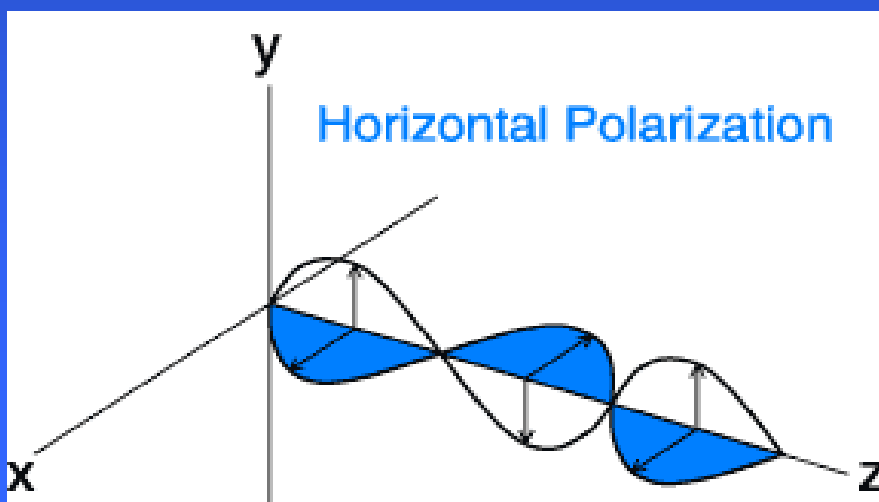
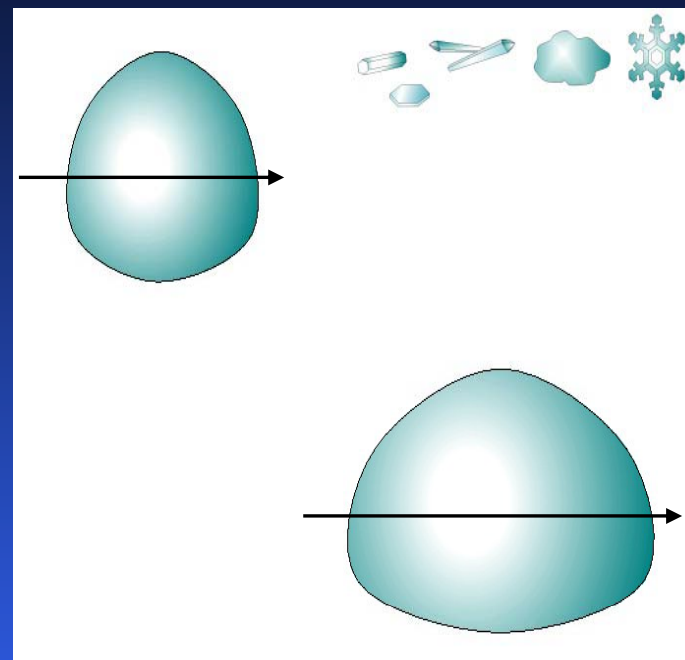
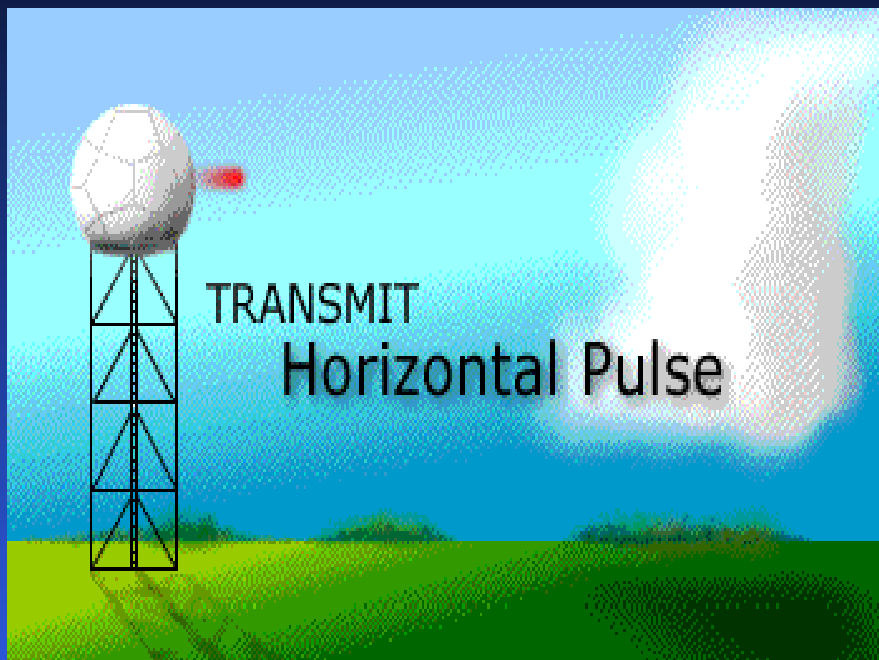
- **Current Radar Enhancements**
  - ◆ Improved elevation scans
  - ◆ Faster scans (from 6 to 4 mins)
- **Dual Polarized Doppler Radar**
  - ◆ Improved severe weather detection
  - ◆ Improved precipitation detection and accumulation estimation
- **Phased Array Doppler (10+ yrs)**
  - ◆ 1 minute scans will add 3-4 mins to warning lead-times.
  - ◆ better resolution and much more





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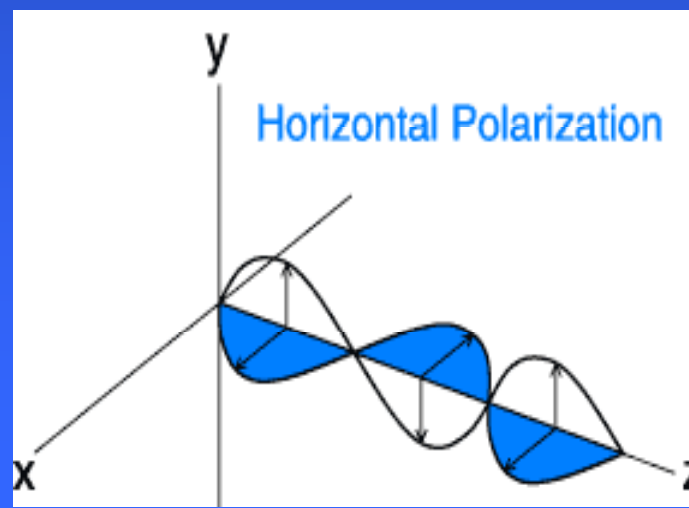
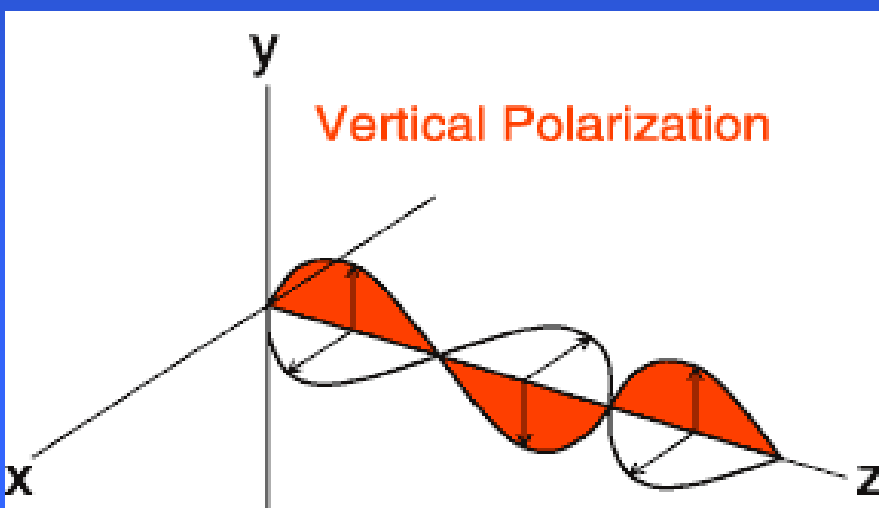
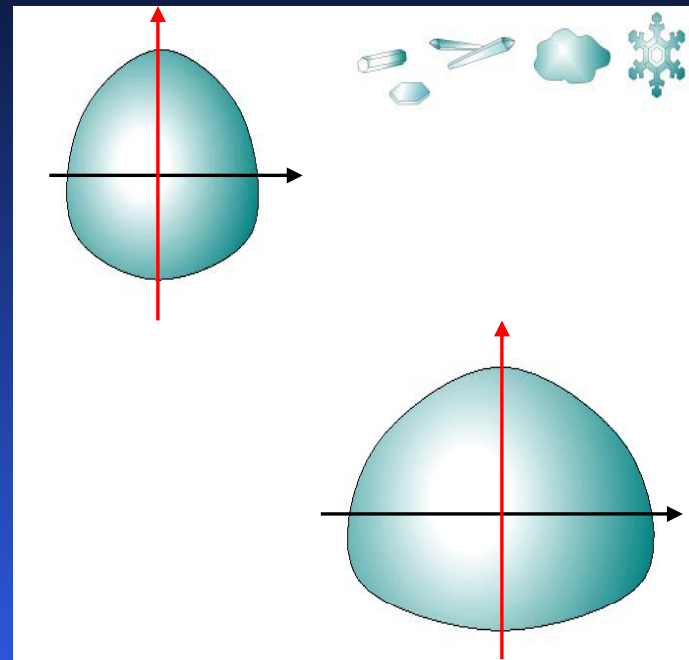
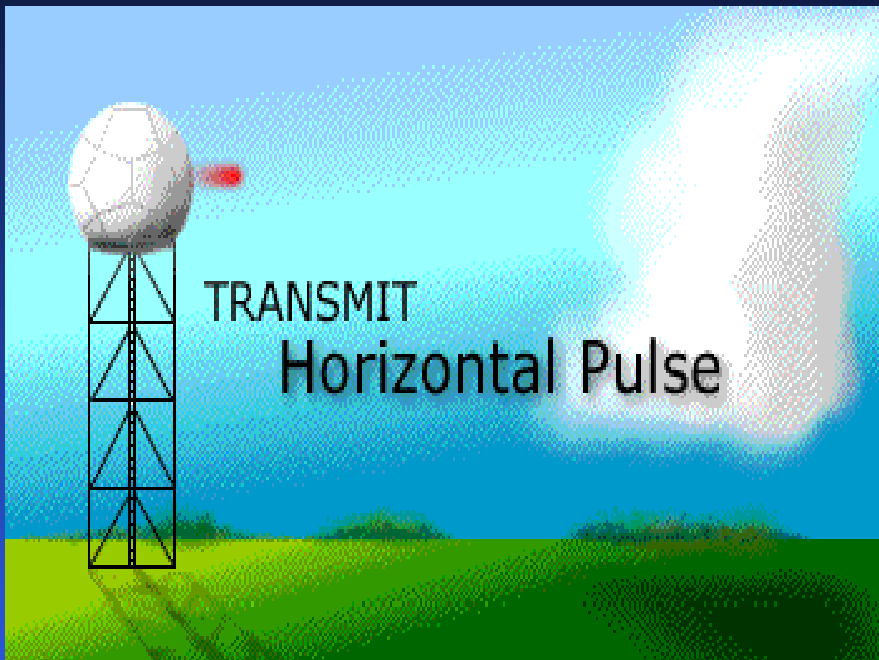
# Current WSR-88D Radar





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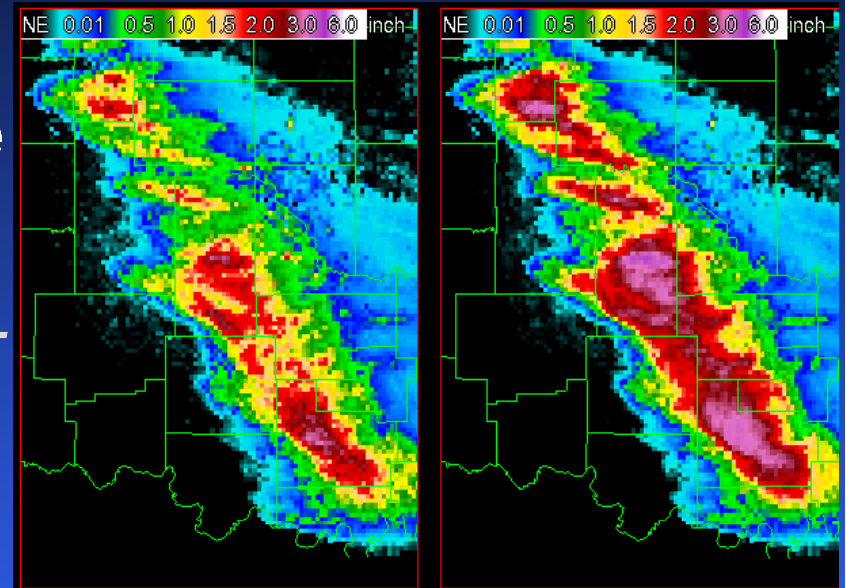
# Dual-polarization Radar





# Dual Polarized Doppler Radar

- **Dual Polarization Results Demonstrate Significant Improvements** (*NSSL documented reports*):
  - ◆ **Data Quality**
  - ◆ **Rainfall Estimation**
  - ◆ **Hail Detection**
  - ◆ **Rain/Snow Discrimination**
  - ◆ **Pinpoint tornado location**



Dual Pol WSR-88D 1-hr rainfall est. left) vs. legacy WSR-88D estimate (right).

The right-hand image was a significant overestimate due to hail contamination; the Dual Pol product provided a much better estimate.





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**Proven results points the way ahead !**

*The successful National Weather Service modernization was based on science and technology infusion and a mesoscale (local) mission delivery.*

*The resulting improvements in our local office warning lead-times epitomizes and reinforces the concept:*

**...government closest to the people,**  
**serves best!**



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# Comments or Questions?

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presentation

