The National Weather Service and its Partners:

A Collaboration that Saves Lives!

LCRA Boardroom
Austin, TX

October 3, 2007

Bill Proenza, Director
National Weather Service Southern Region

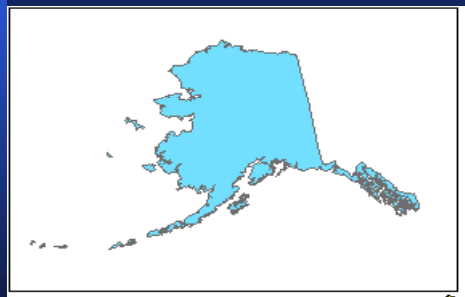
NWS Southern Region

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.**

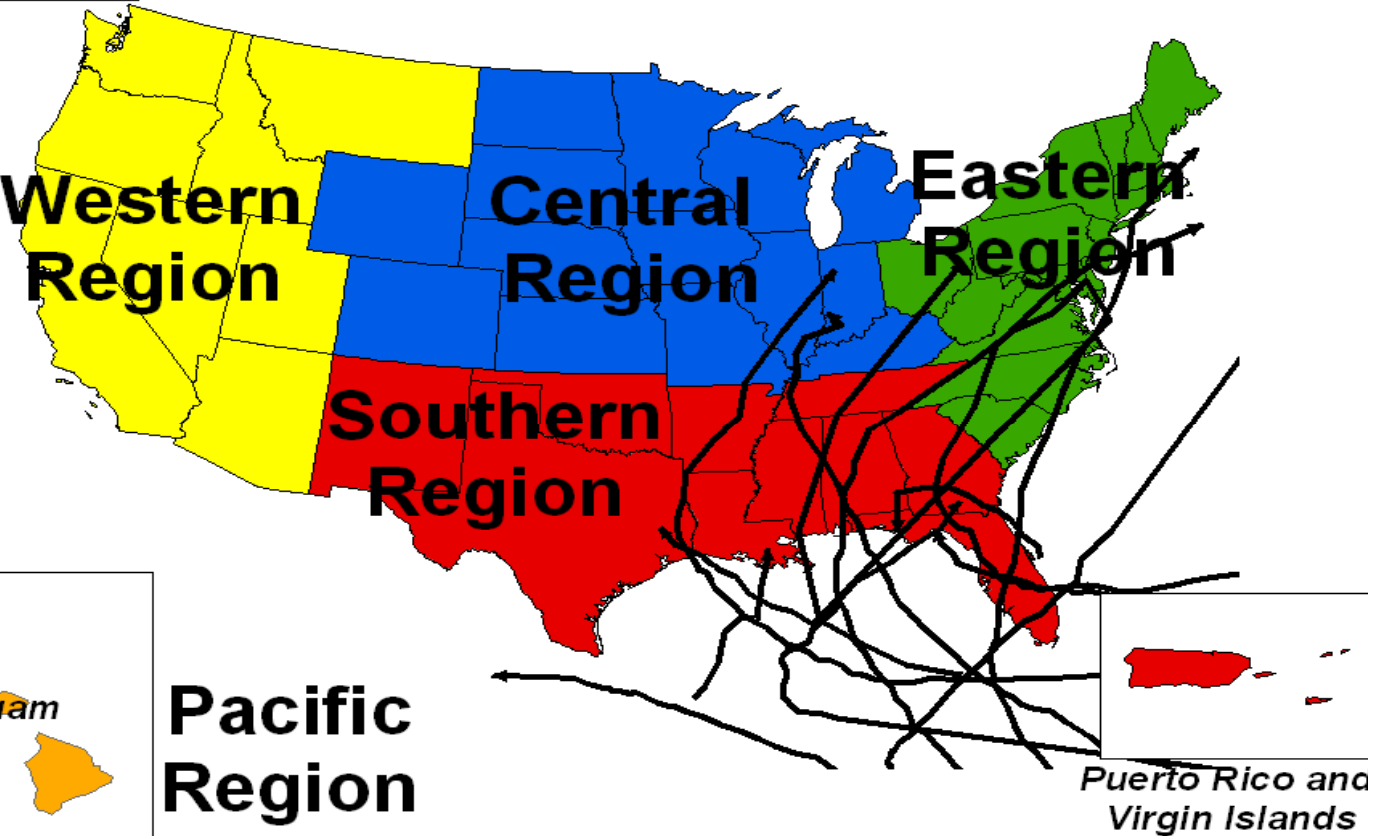
NWS Southern Region

NWS has 4 major contiguous Regions and 2 State Regions



Alaska Region

(based on areas with similar meteorological challenges)



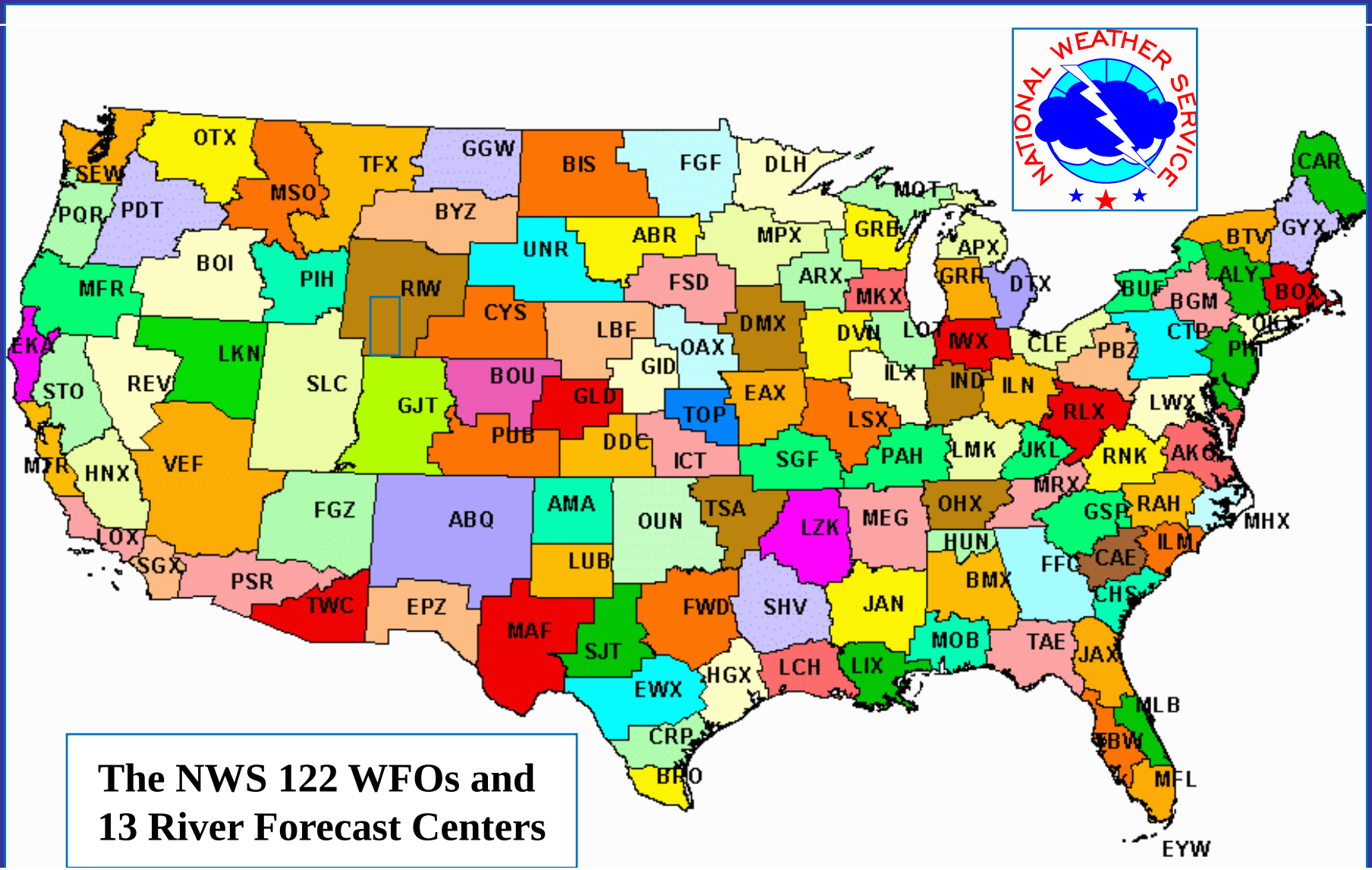
Pacific Region

NWS Southern Region

Regional Operations Center
817-978-1100 x147

- 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

NWS Southern Region

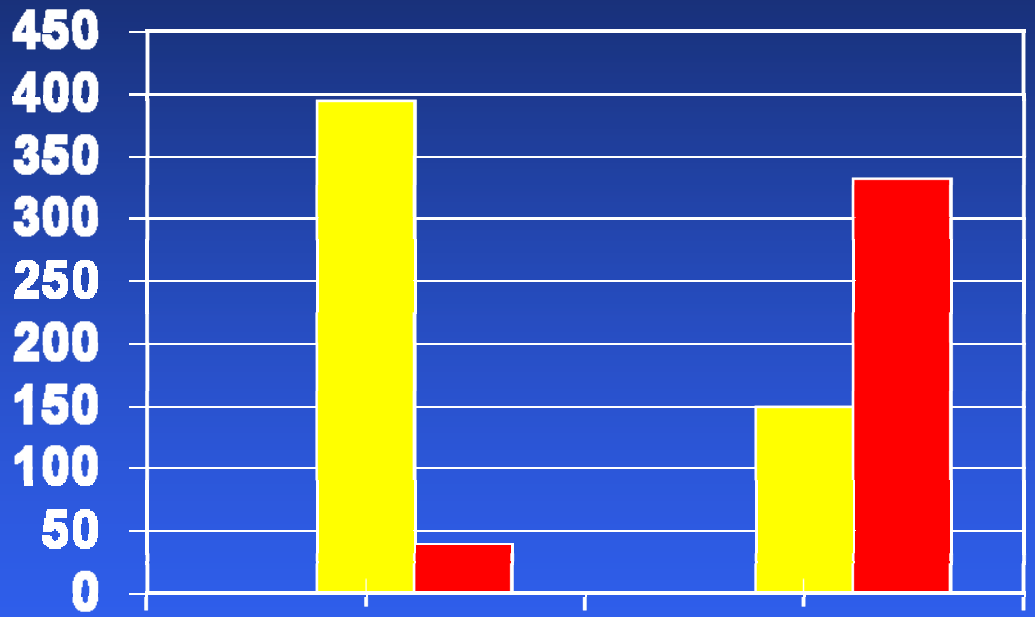
Your **National Weather Service WFO…**

…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!*



Avg 19 minute leadtime	Avg 4 minute leadtime

Tornadoes

340 versus 148

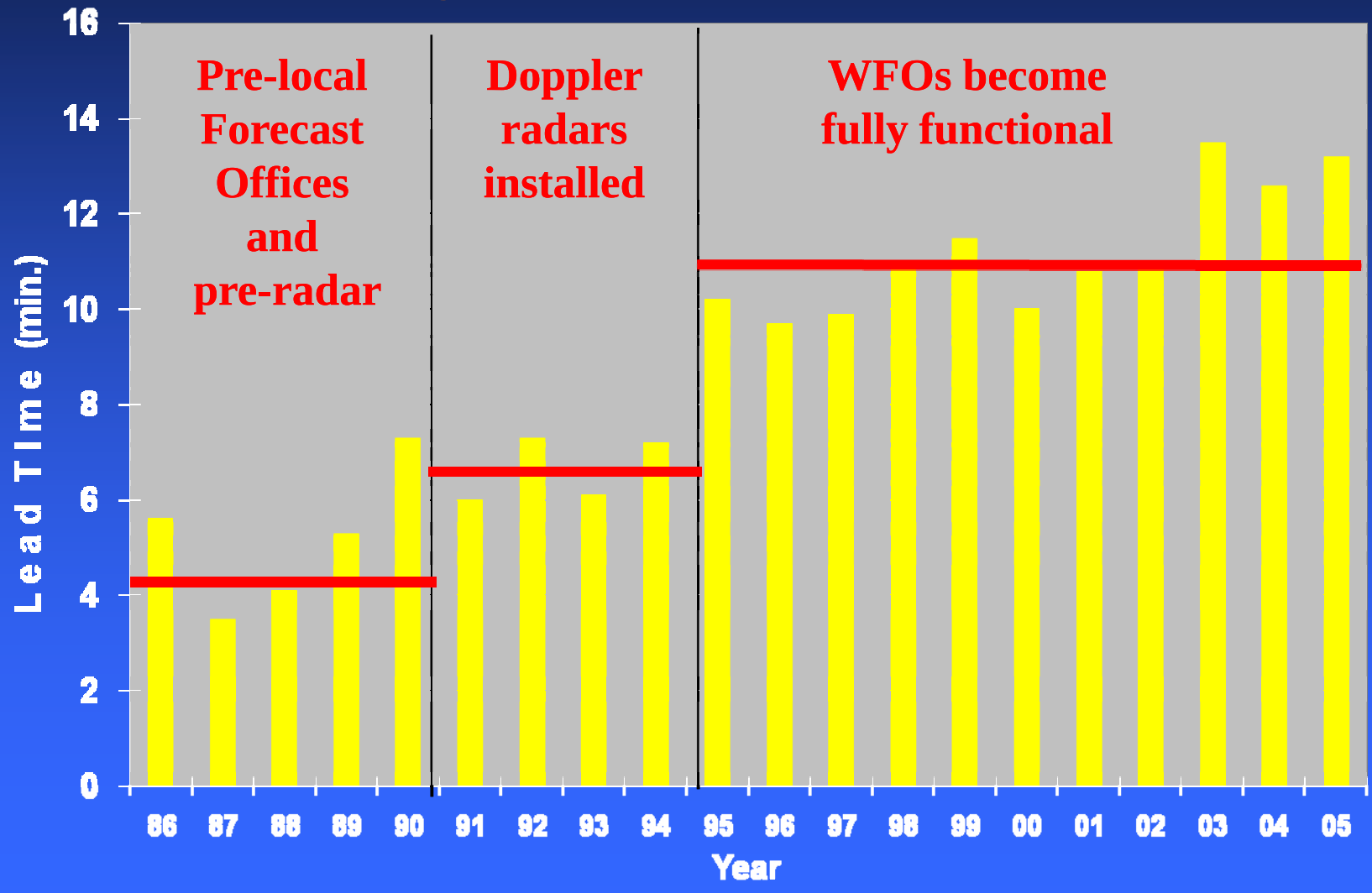
Fatalities

39 versus 330

NWS Southern Region

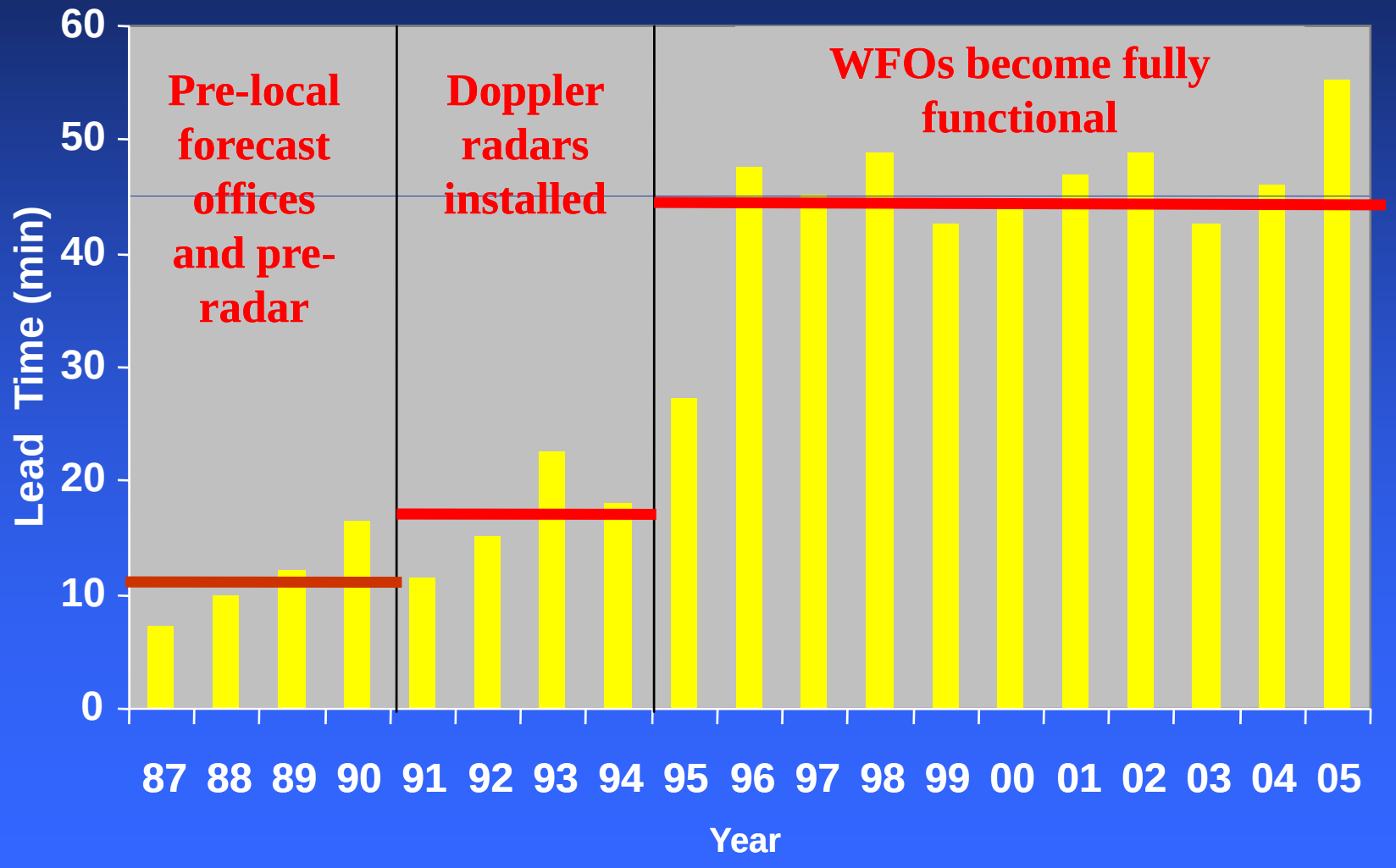
Modernization of Local Forecast & Warning Services

Tornado Warning Lead Time



Modernization of Local Forecast & Warning Services

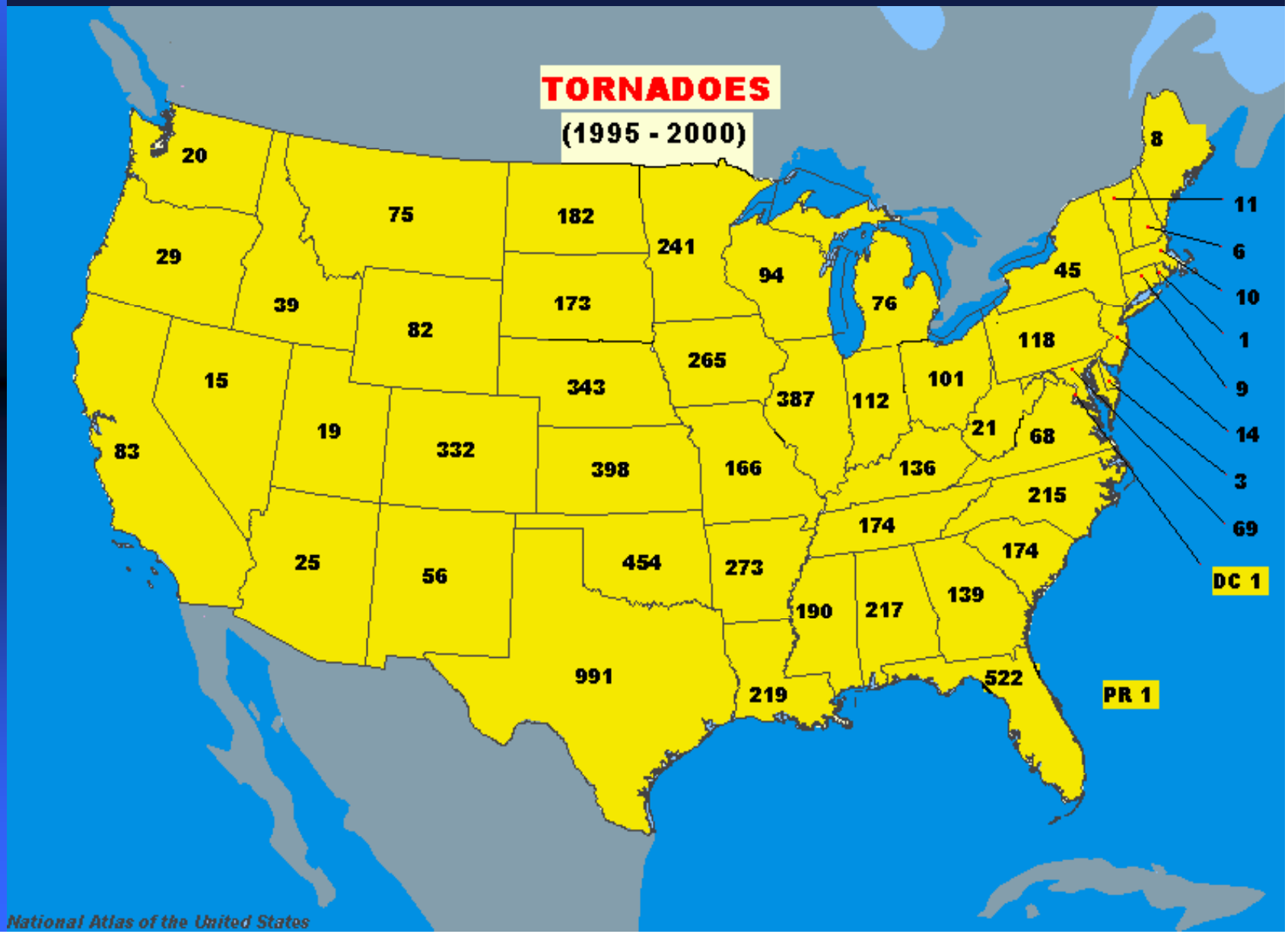
Flash Flood Warning Lead Time



NWS Southern Region

NWS Southern Region

Texas has the most Tornadoes !



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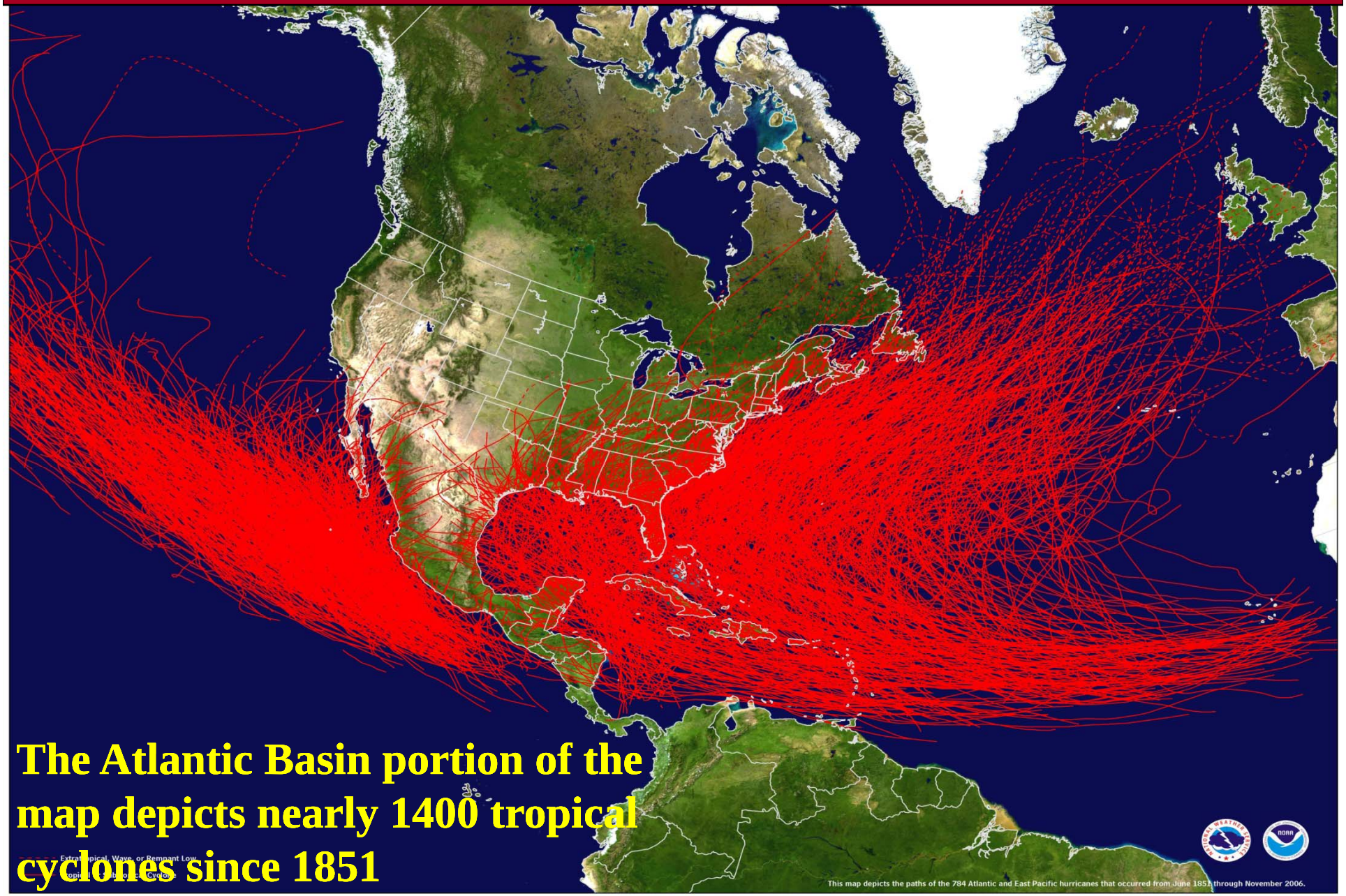
Texas F5 and/or deadliest Tornadoes since 1900

- **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!



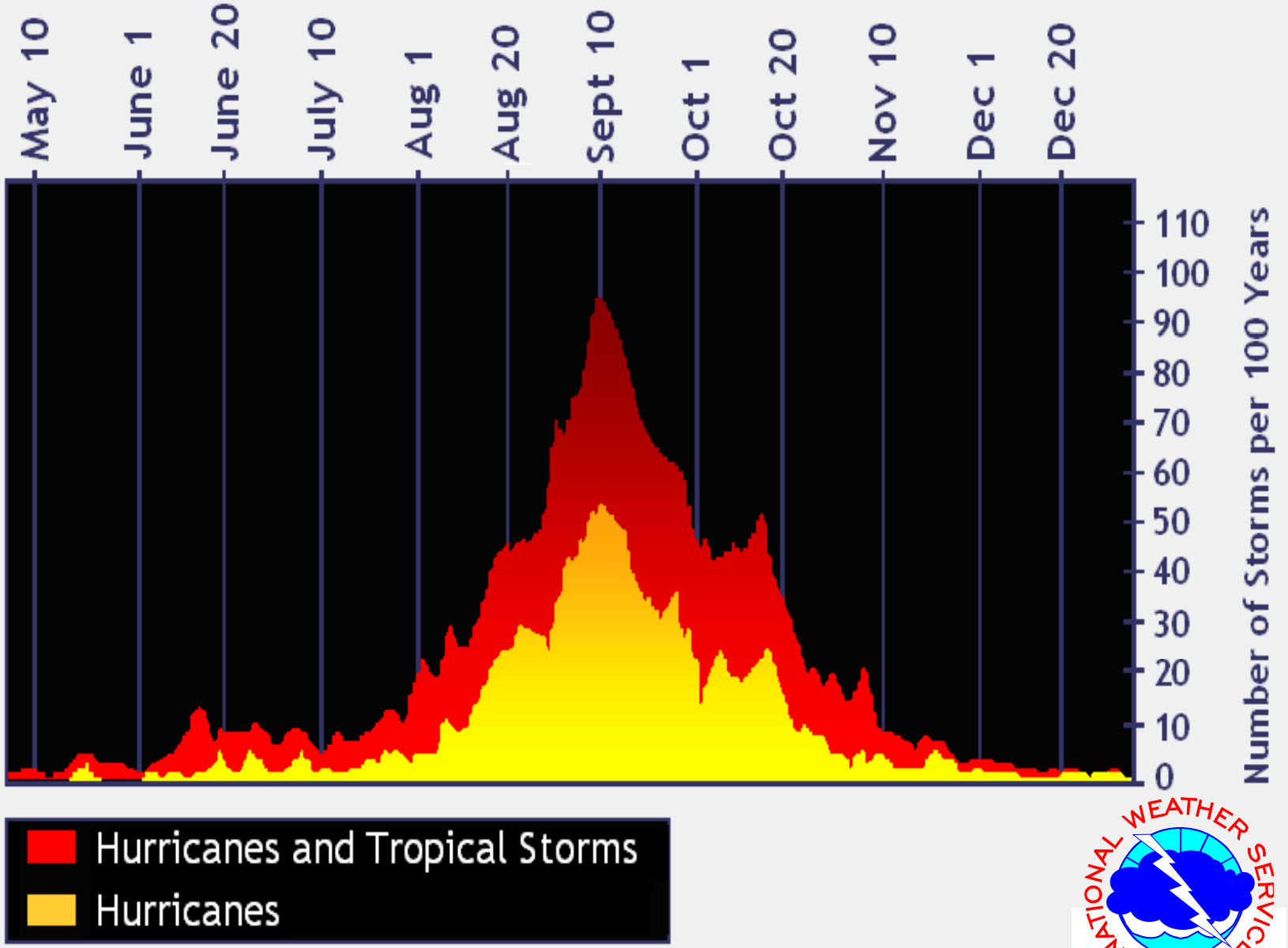
The Atlantic Basin portion of the map depicts nearly 1400 tropical cyclones since 1851

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

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

NWS Southern Region

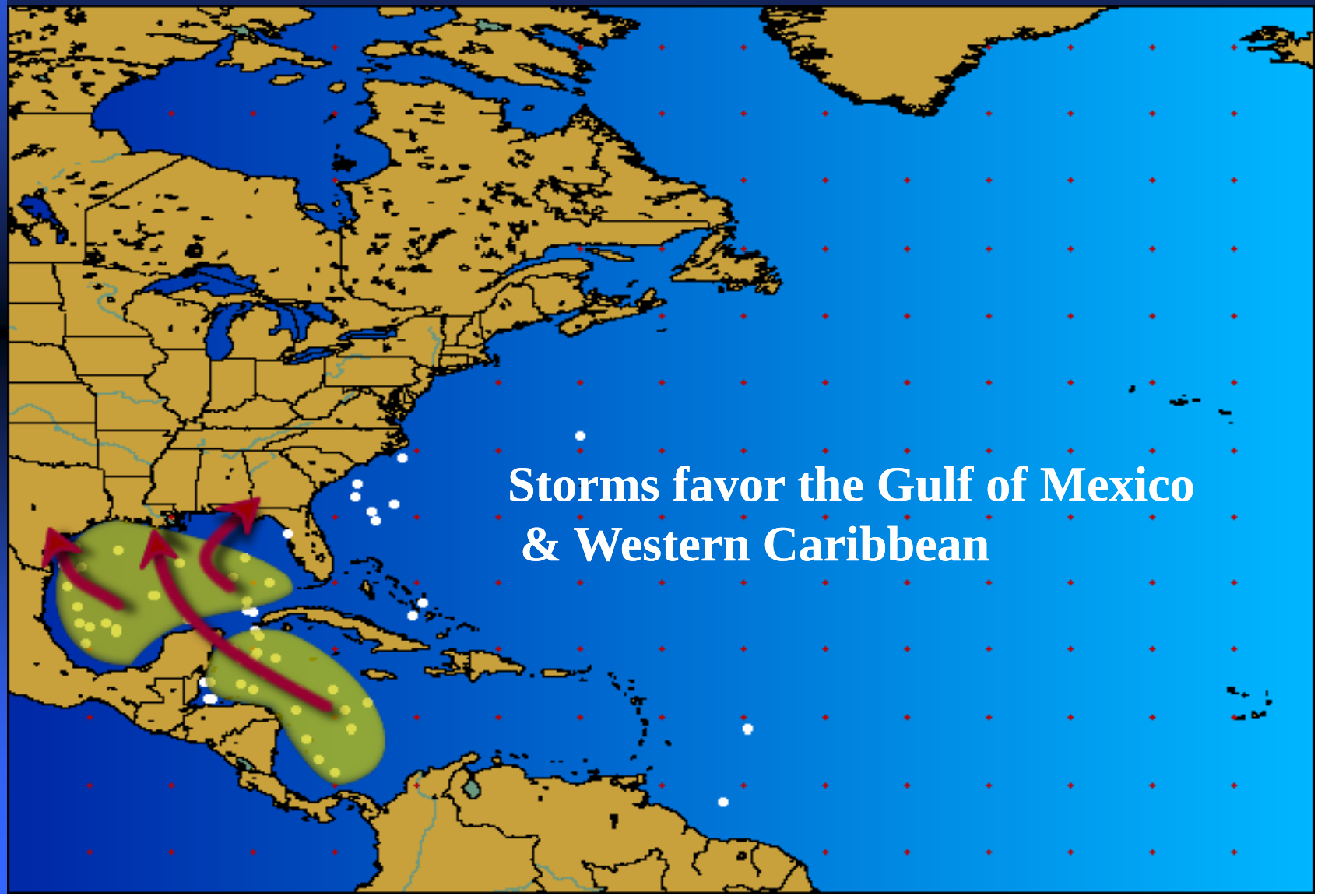
Peak of Tropical Season



NWS Southern Region

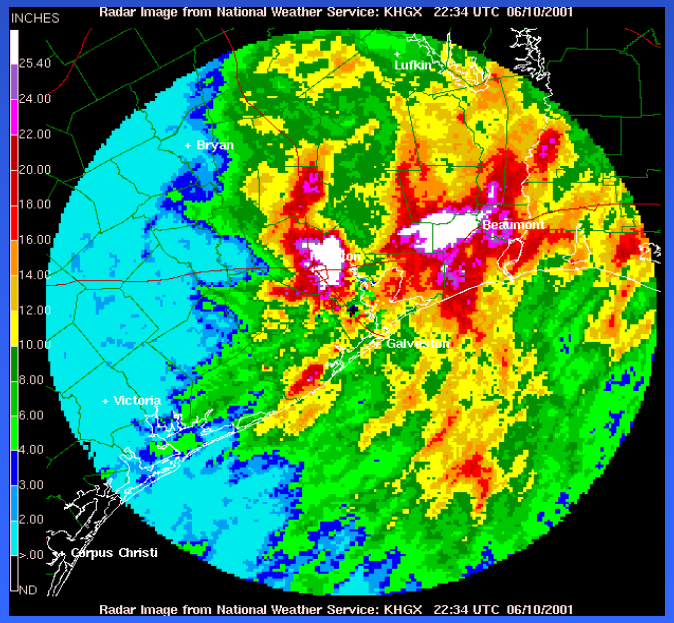
Tropical Climatology

Points of Origin -- June



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.

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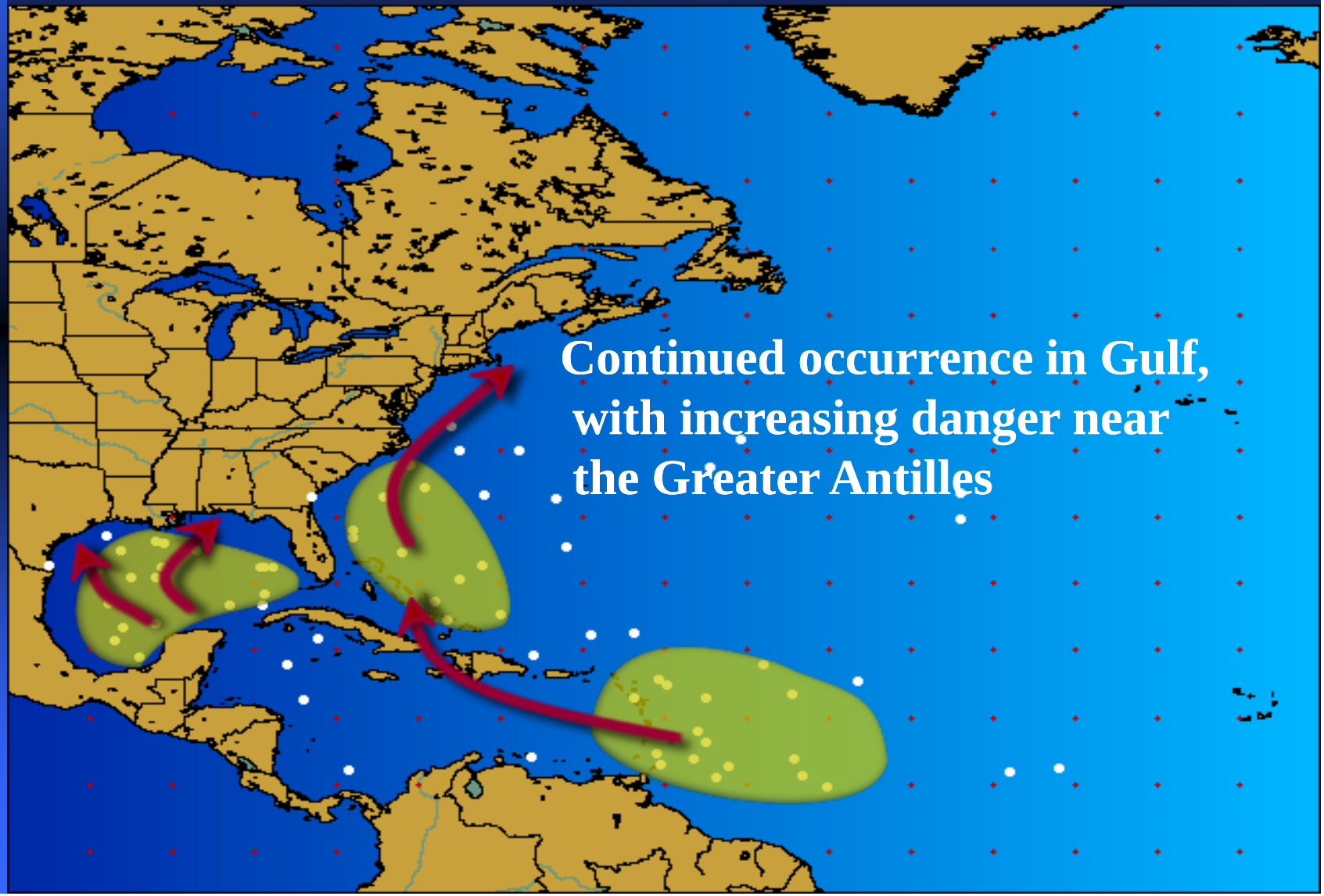
Interstate 10, Looking West, Houston

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

NWS Southern Region

Tropical Climatology

Points of Origin -- July



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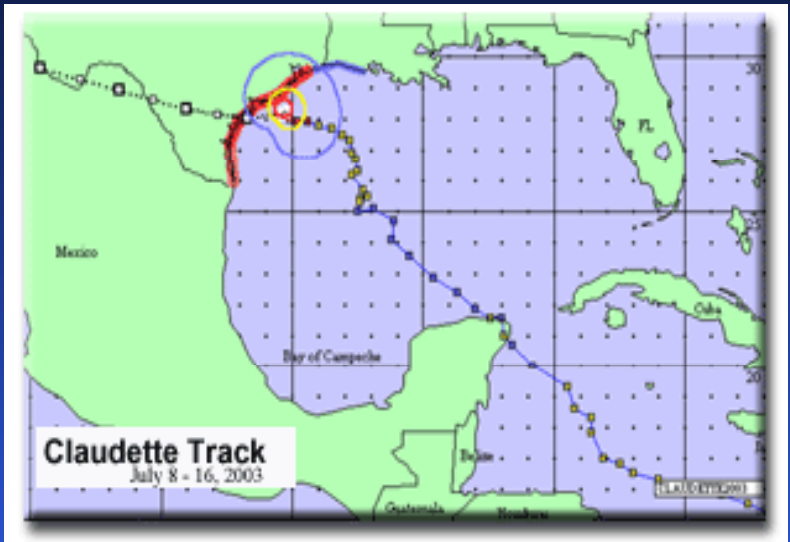
Hurricane Claudette – Jul 15, 2003



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

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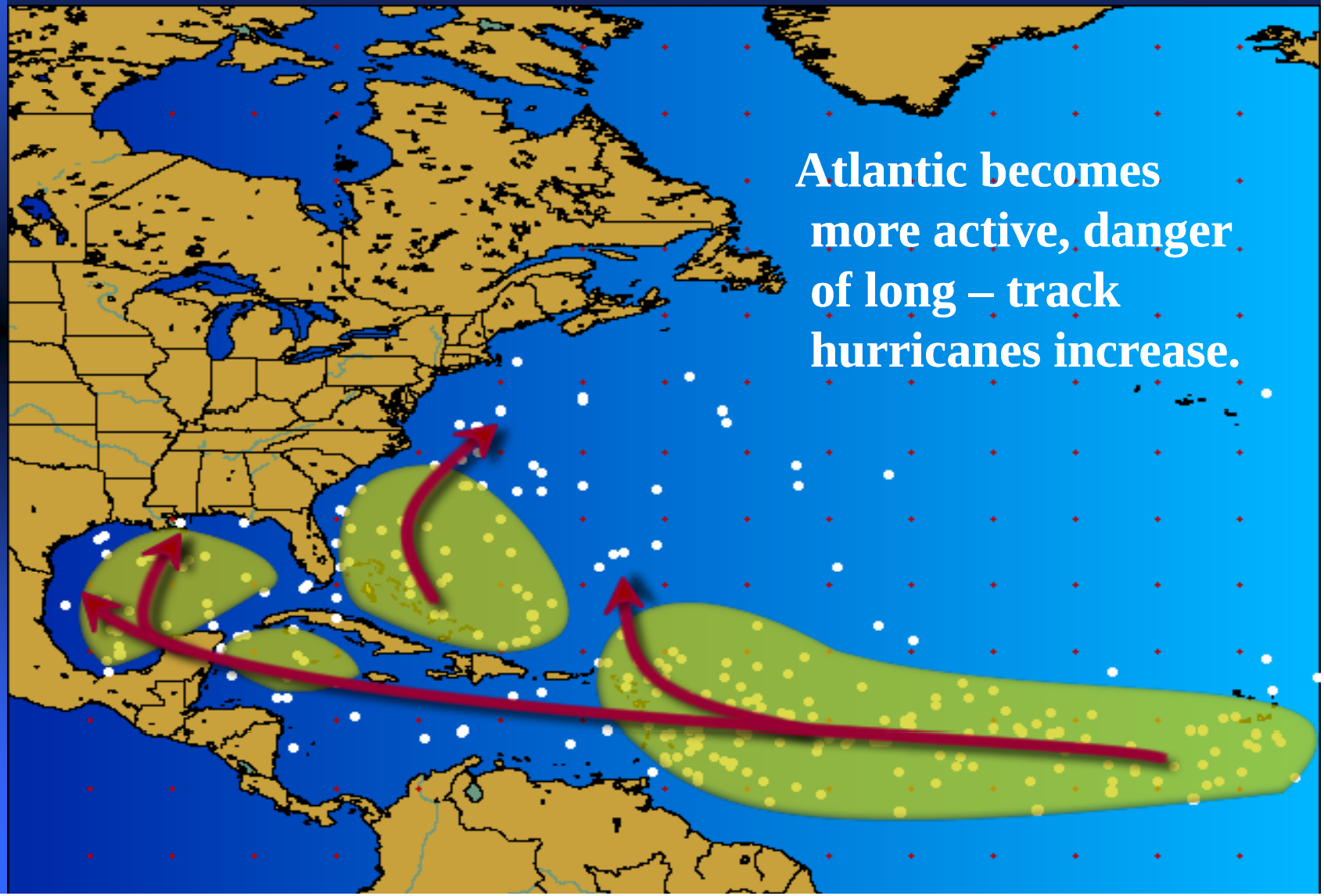
Tropical Climatology

Points of Origin -- August



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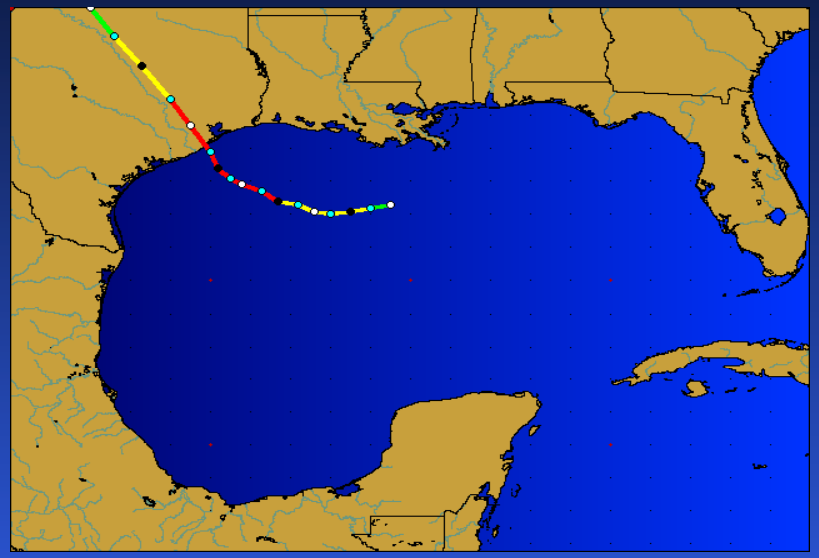
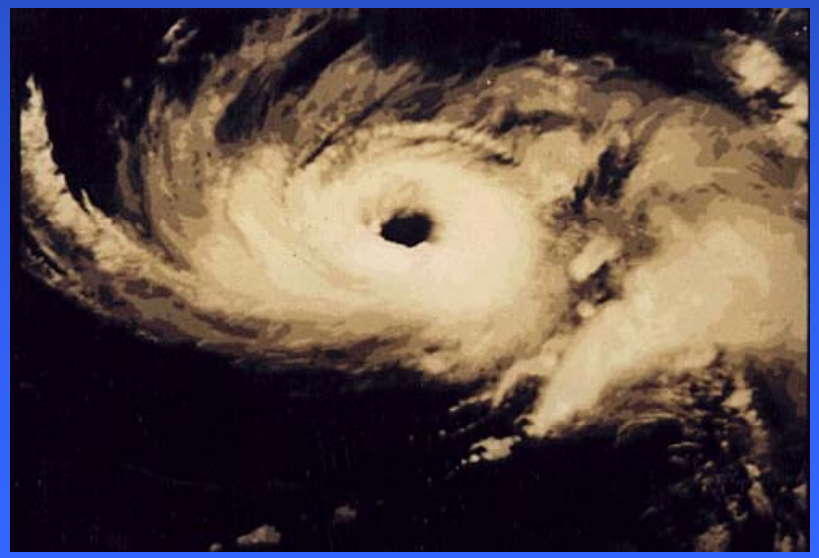
Hurricane Alicia – Aug 18, 1983





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

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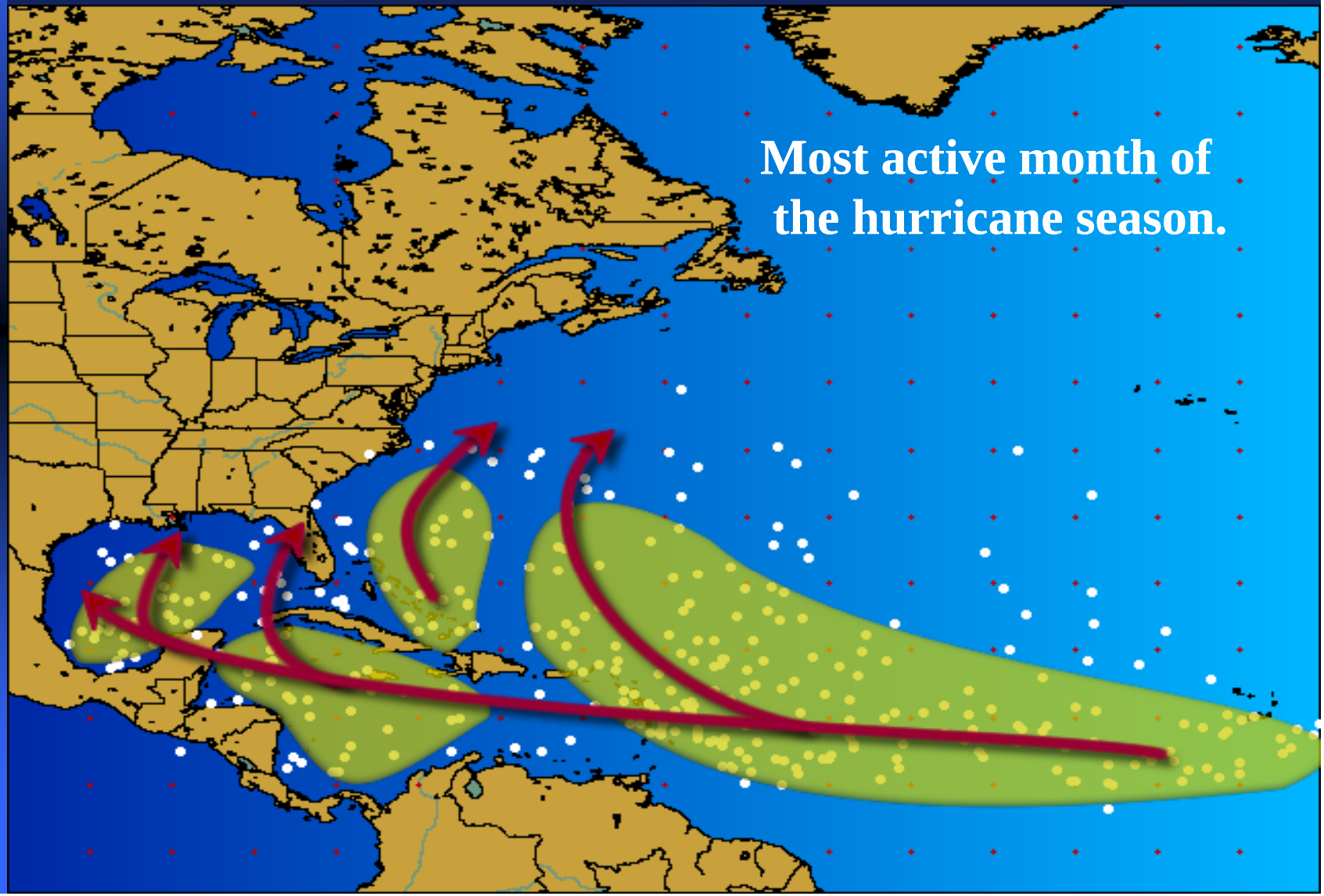
NWS Southern Region

Tropical Climatology

Points of Origin -- September



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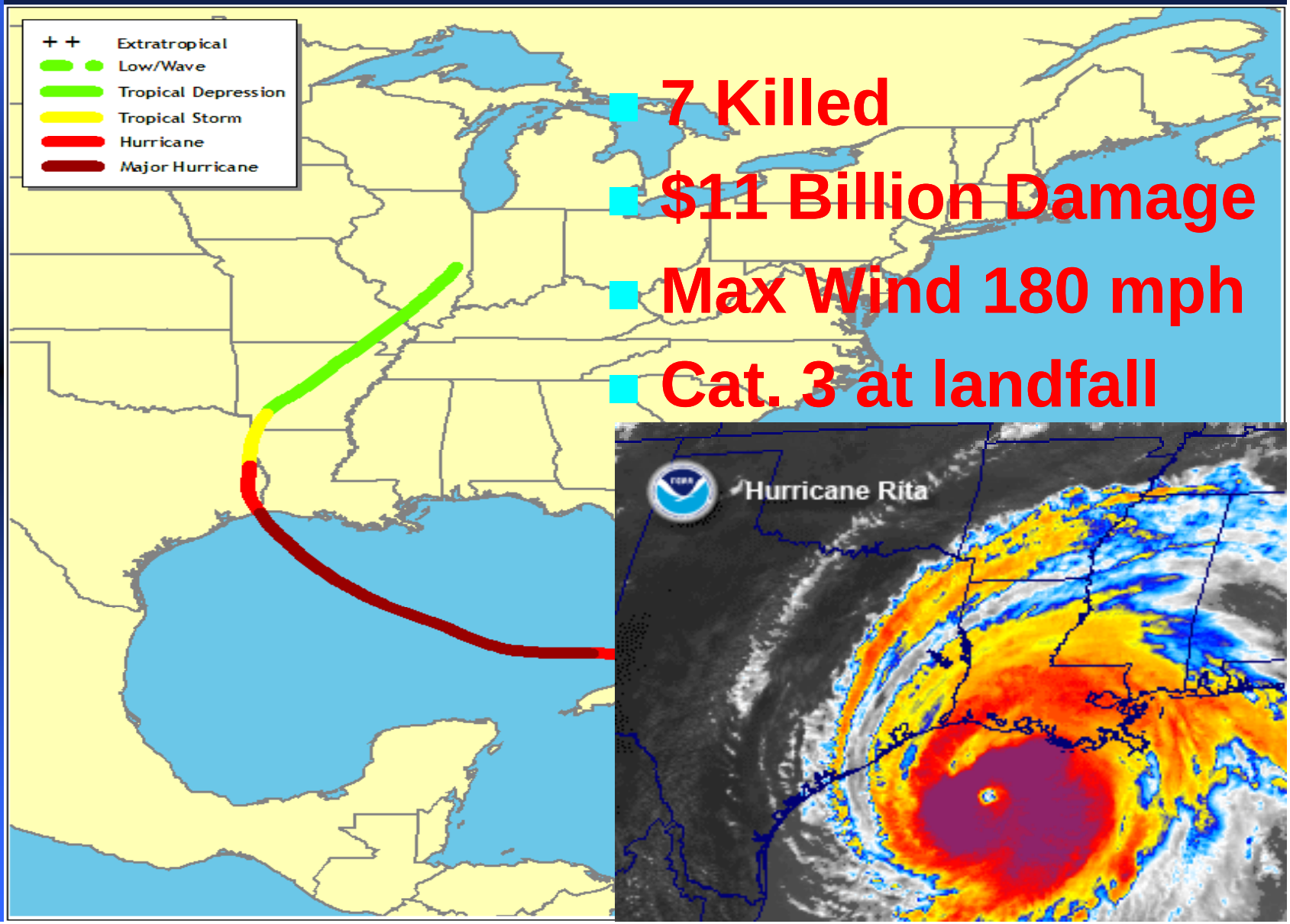
Hurricane of 1900 (Sept 8th)

- 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

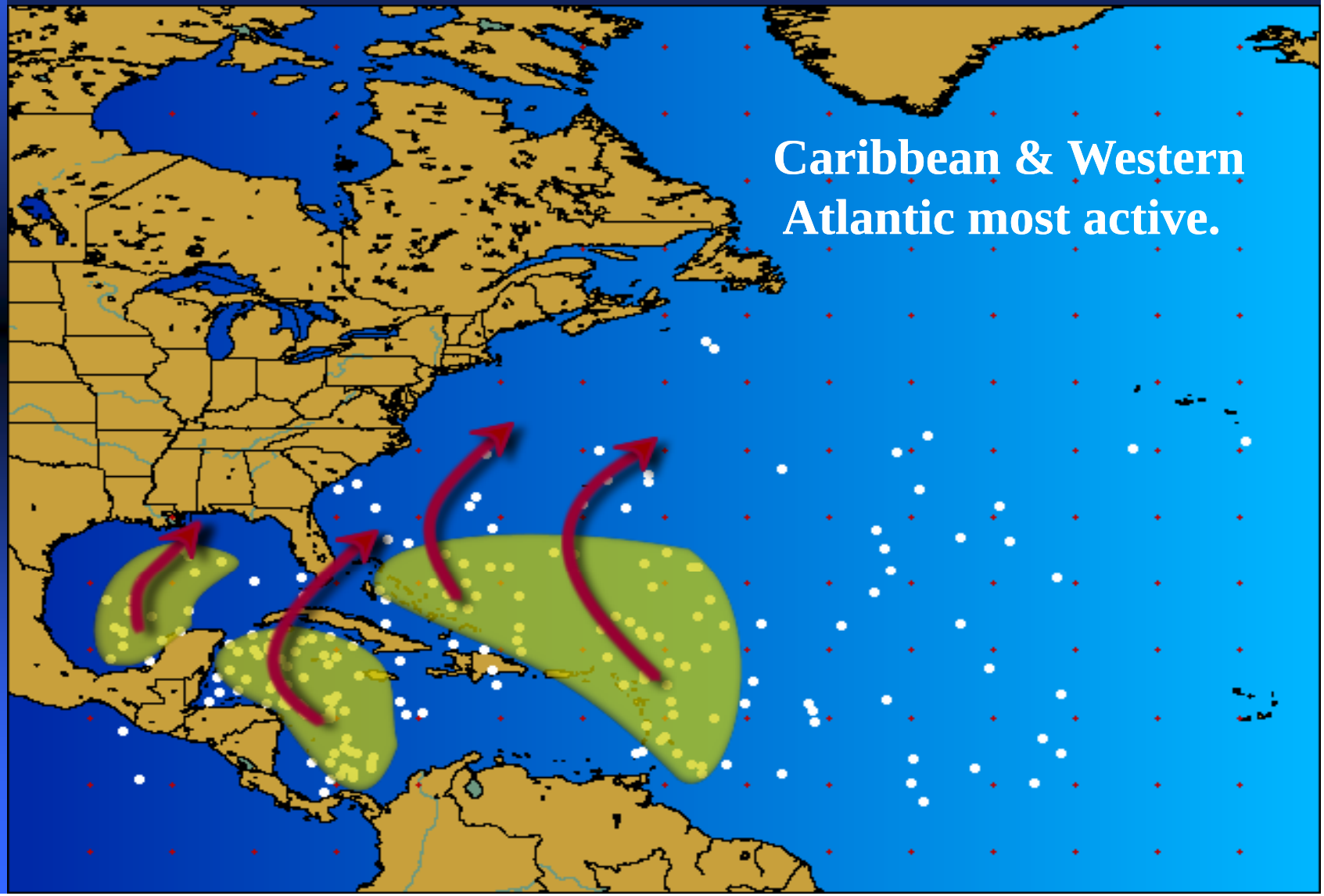


- 7 Killed
- $11 Billion Damage
- Max Wind 180 mph
- Cat. 3 at landfall

NWS Southern Region

Tropical Climatology

Points of Origin -- October



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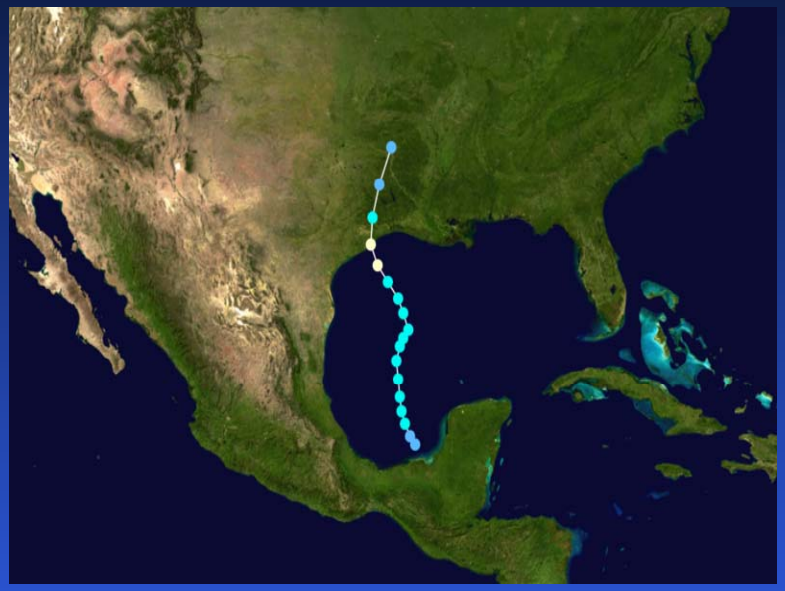
Hurricane Jerry – Oct 15, 1989



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

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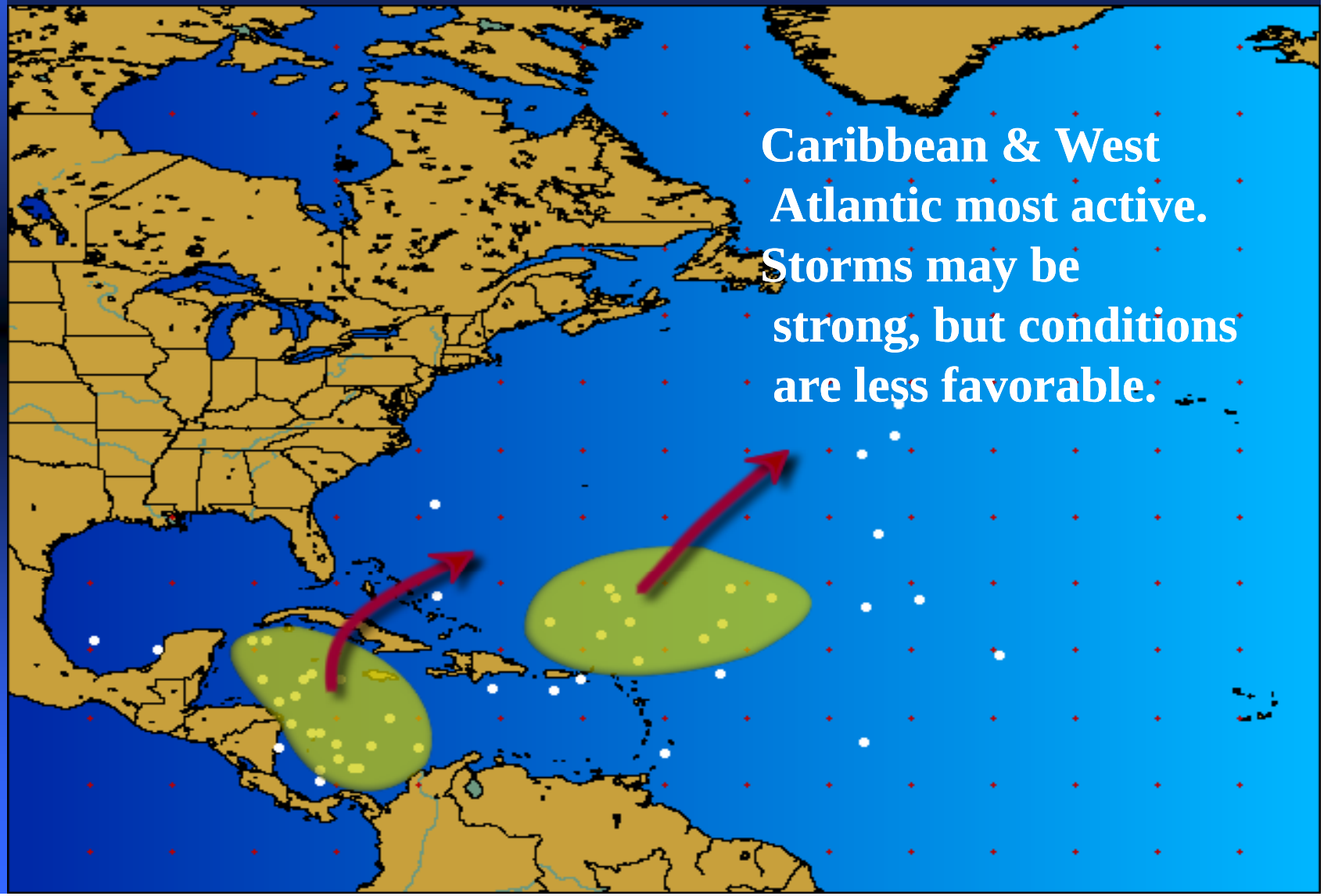
NWS Southern Region

Tropical Climatology

Points of Origin -- November



NWS Southern Region

NWS SR Internet Site

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

- 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

NWS Internet Point Forecasts

NWS Southern Region

Quick Forecast Information

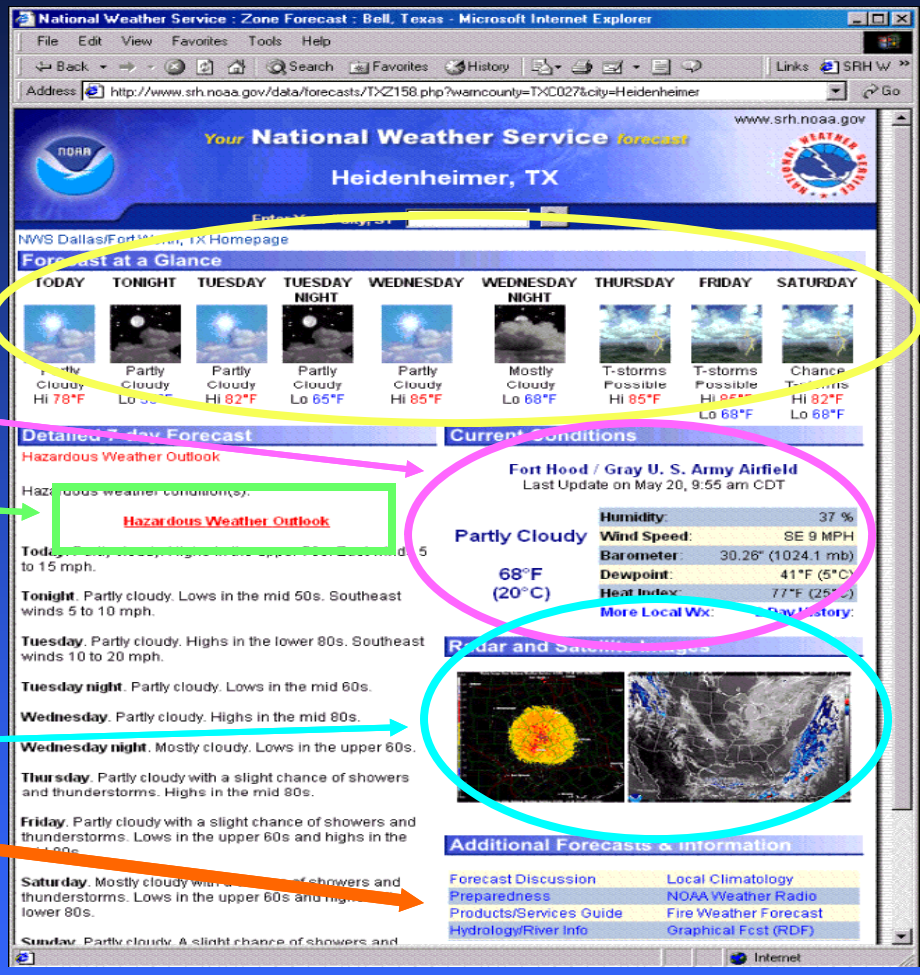
Current Weather Conditions

Warnings/Advisories

Quick Forecast Text

Radar and Satellite

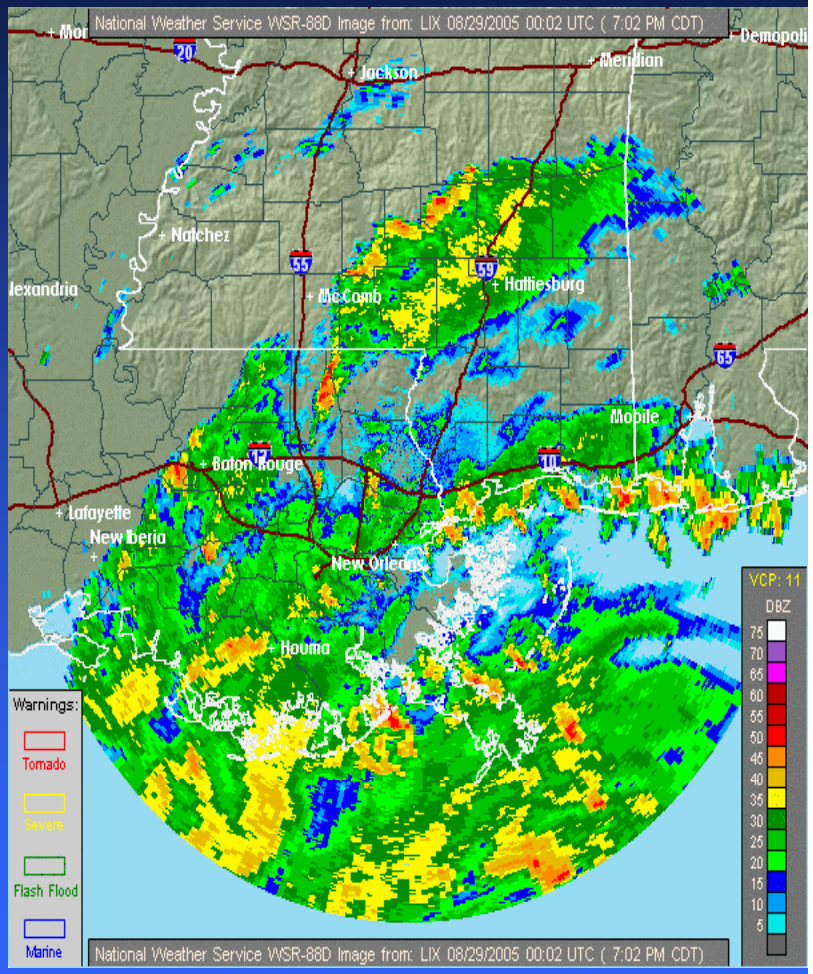
Local Climate Services



NWS GIS Radar Webpages

NWS Southern Region

- 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!



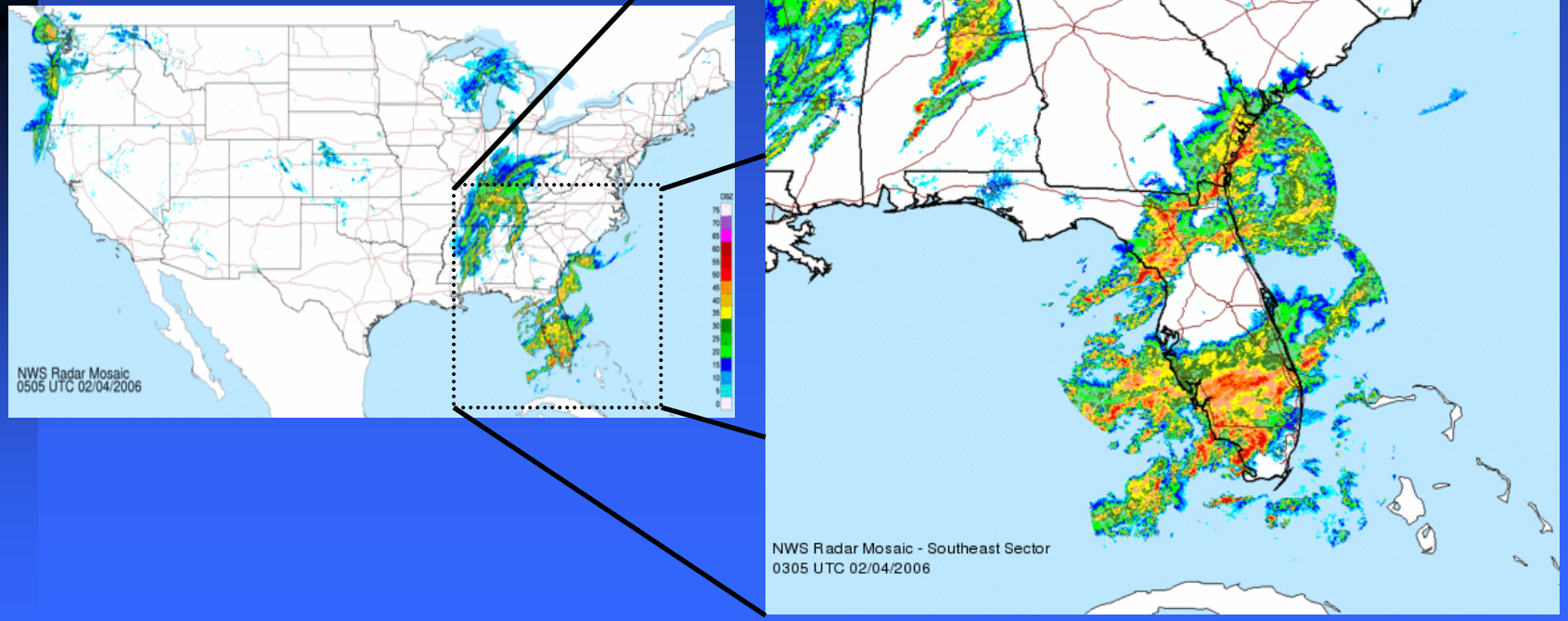
Another Southern Region initiative, now National since Feb 21, 2006

www.srh.weather.gov

NWS Southern Region

With GIS Radar: Improved National and Regional Mosaics

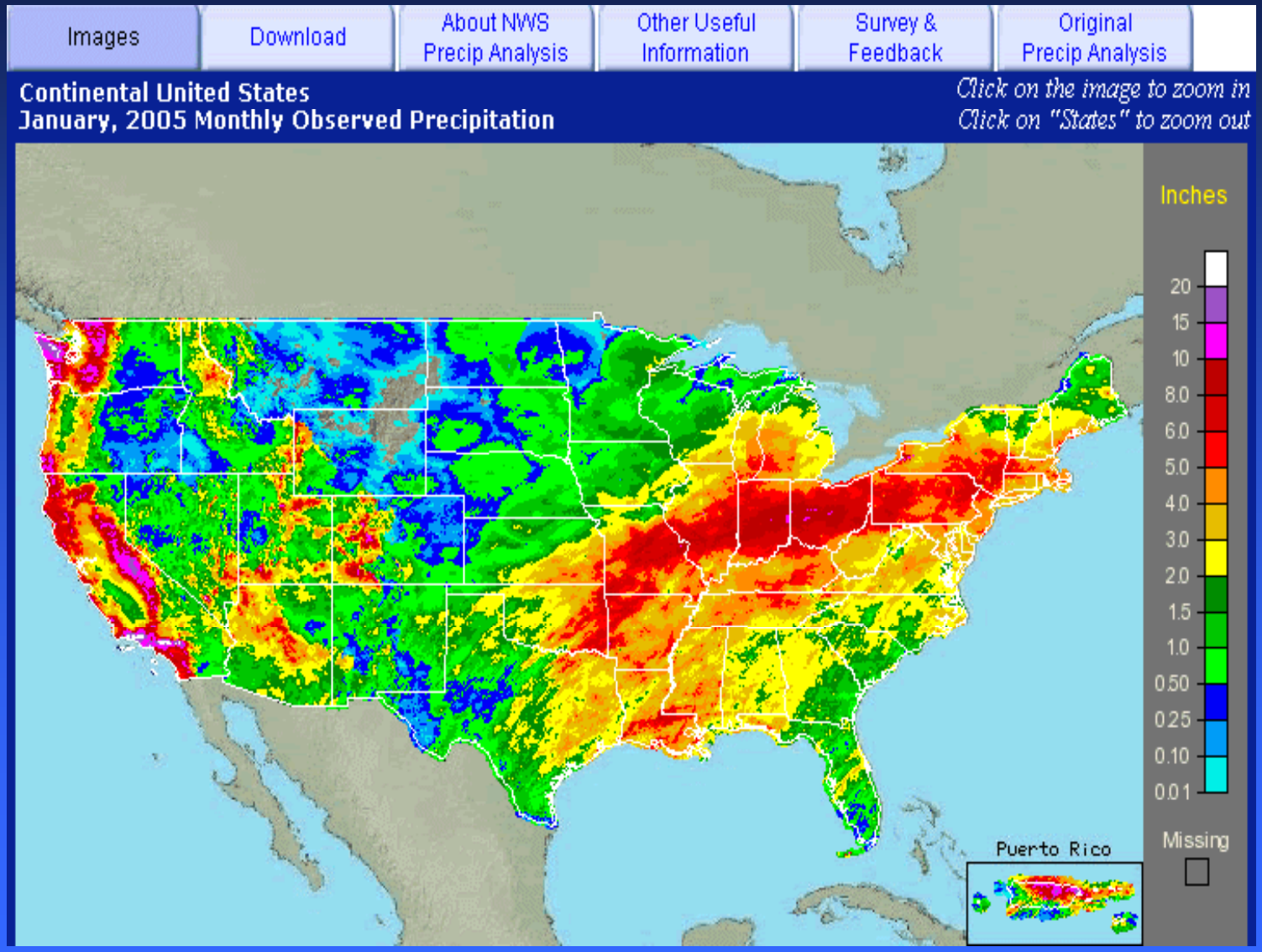
http://www.srh.noaa.gov/ridge



NWS Southern Region

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

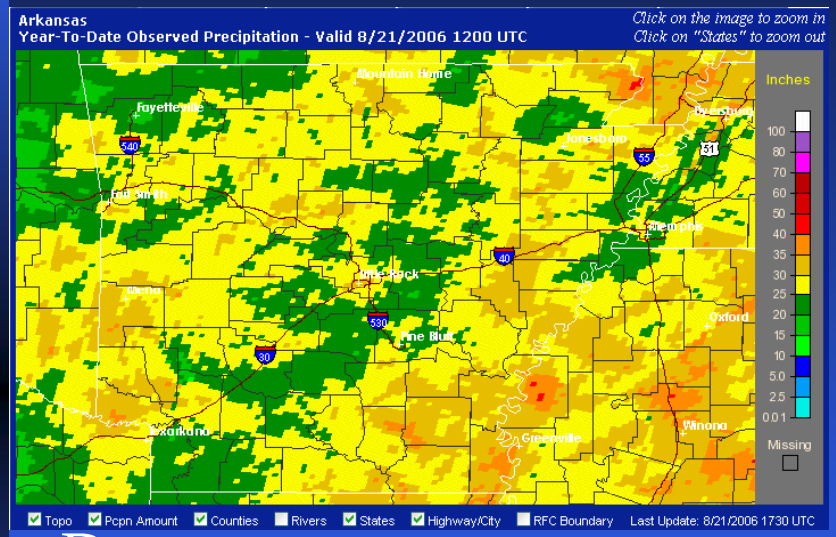
http://www.srh.noaa.gov/rfcshare/



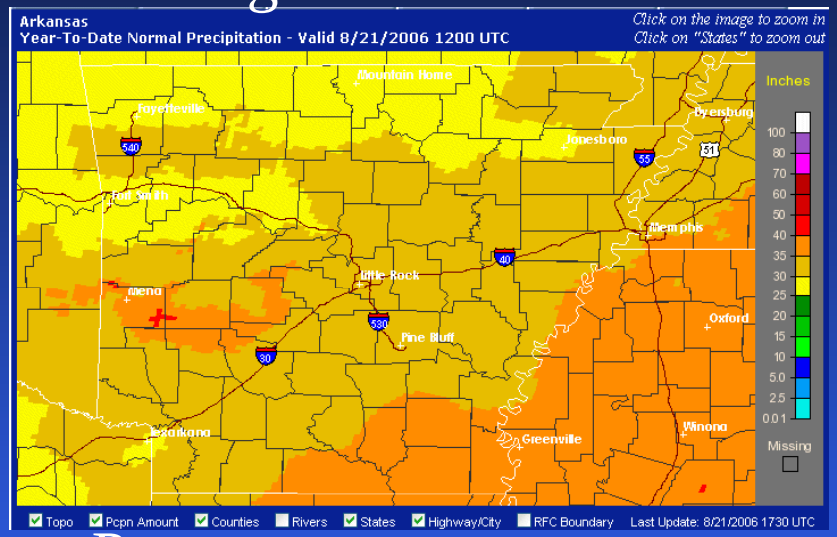
NWS Southern Region

NWS National GIS Precipitation Analysis Tool

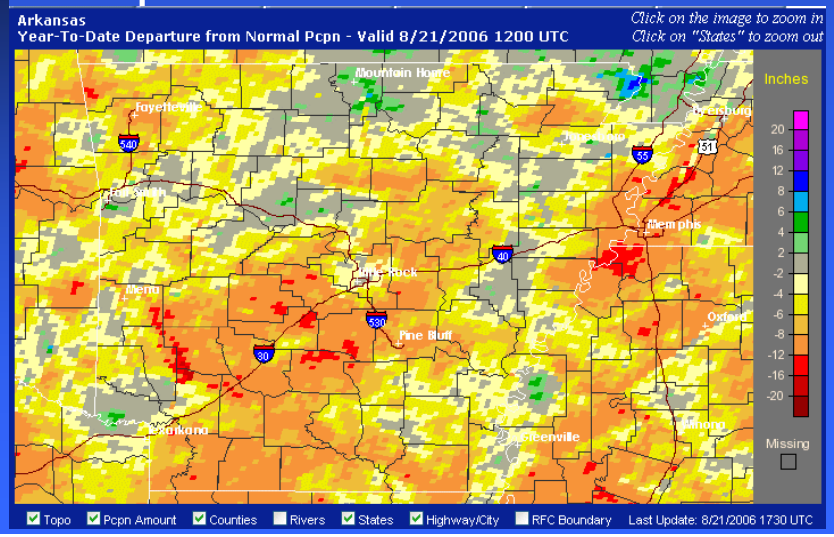
Observed/Estimated



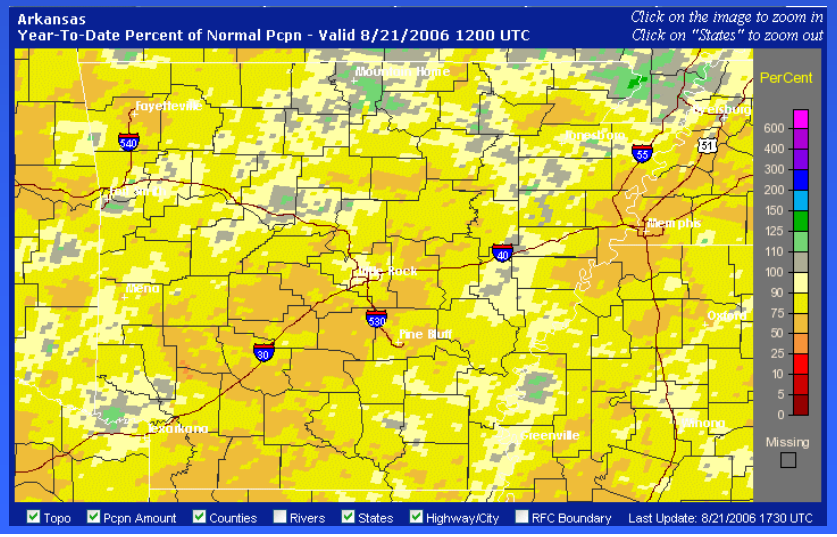
Average



Departure



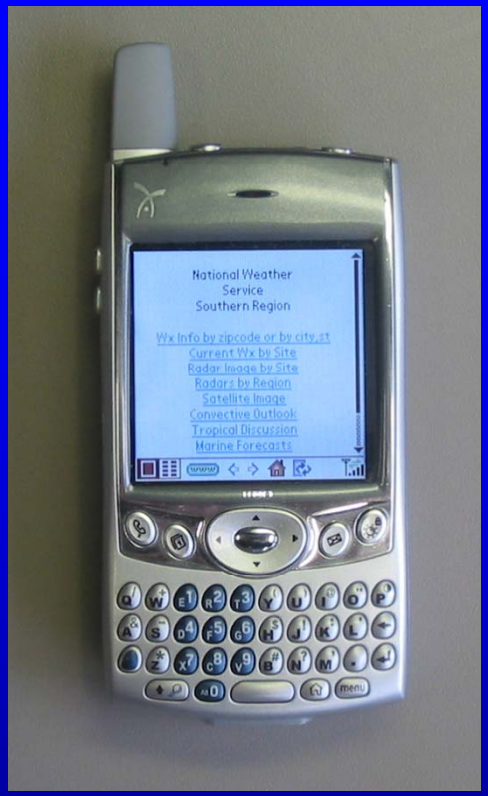
Percent



Mobile Weather

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

Another Southern Region Initiative!



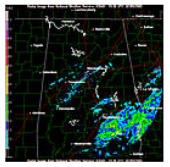
National Weather
Service
Southern Region

GOES Eastern US IR

Loop Satellite Images
For Wide Page Mode

National Weather
Service
Southern Region

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



Hi Res Radar Image
Hi Res Storm Totals
For Wide Page Mode

cell phone: www.srh.weather.gov/wml

PDA: mobile.srh.noaa.gov

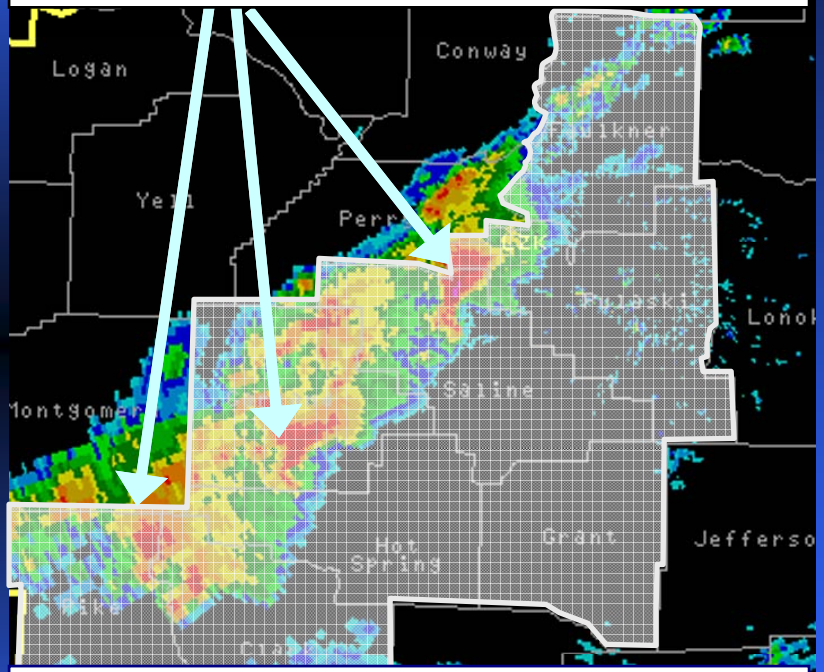
NWS SOUTHERN REGION

www.srh.weather.gov

From County-Based Warnings to Storm-Based Warnings

NWS Southern Region

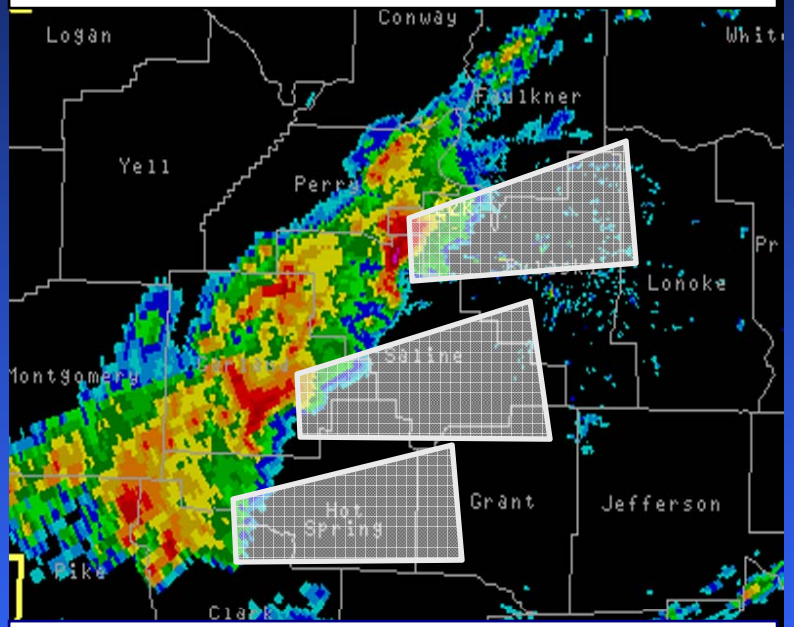
Three simultaneous tornadoes within line of severe thunderstorms



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

NWS Southern Region

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 !*

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www.srh.weather.gov

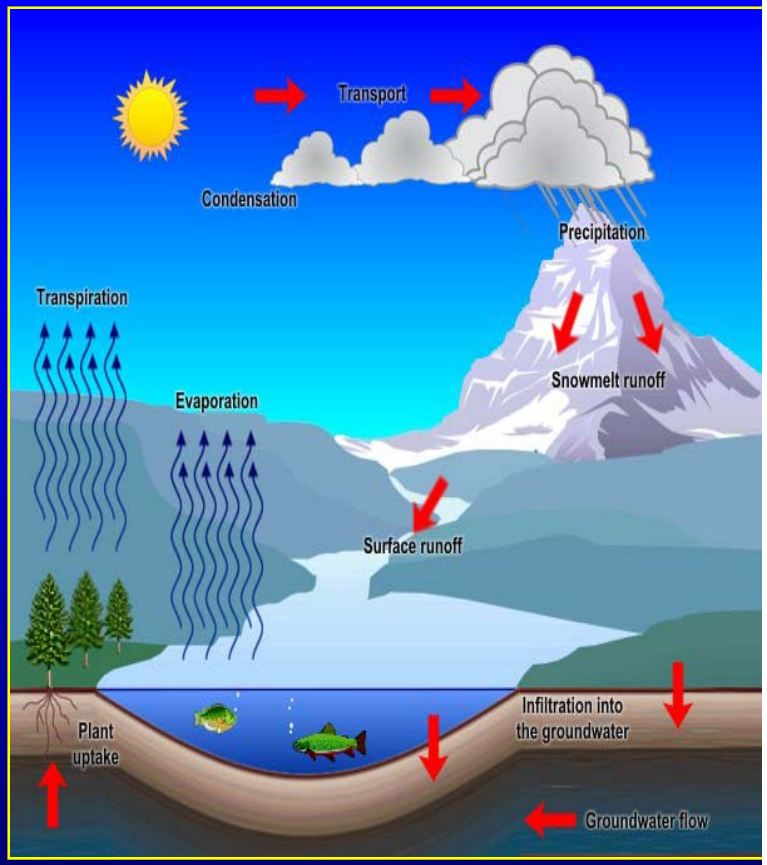
NWS Southern Region

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 !*



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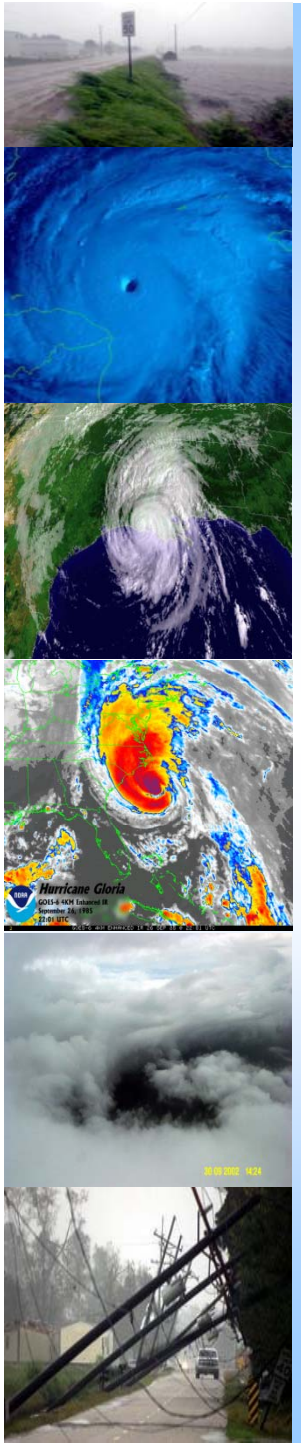
NWS Southern Region

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

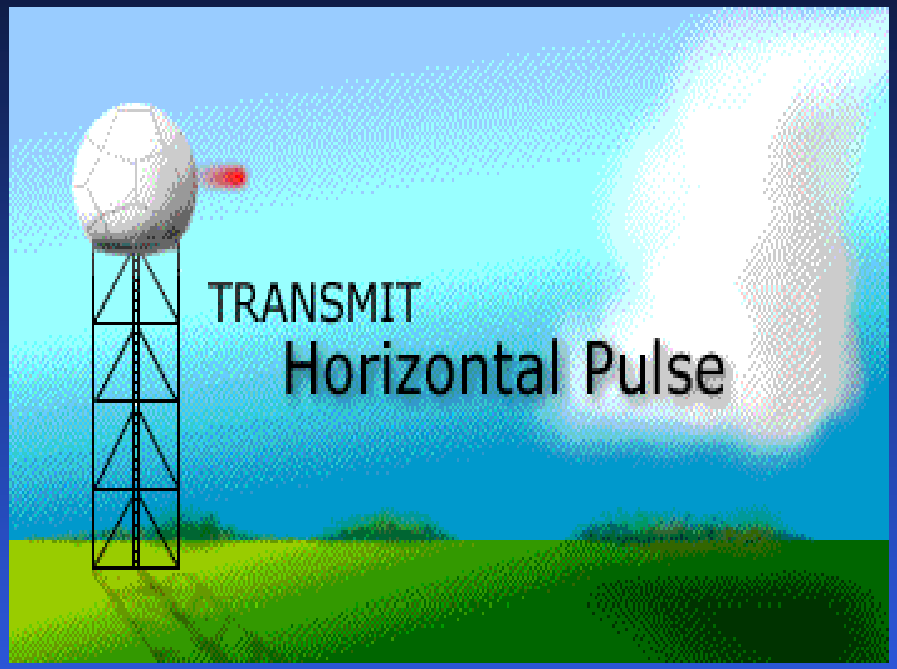
- ***8 years old with a 3 year life expectancy…on its only backup transmitter***
- ***Key to boating, high seas, offshore waters and tropical cyclone forecasts and warnings***
- ***Provides wide swath (1800km / 1100m) of ocean wind speed and direction for 90% of the oceans***
- Loss of QuikSCAT potentially 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.***

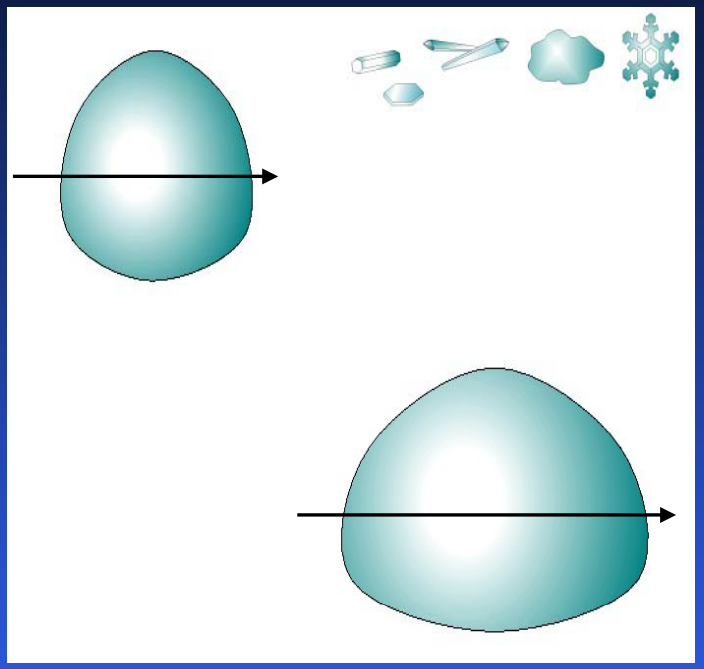
NWS Southern Region

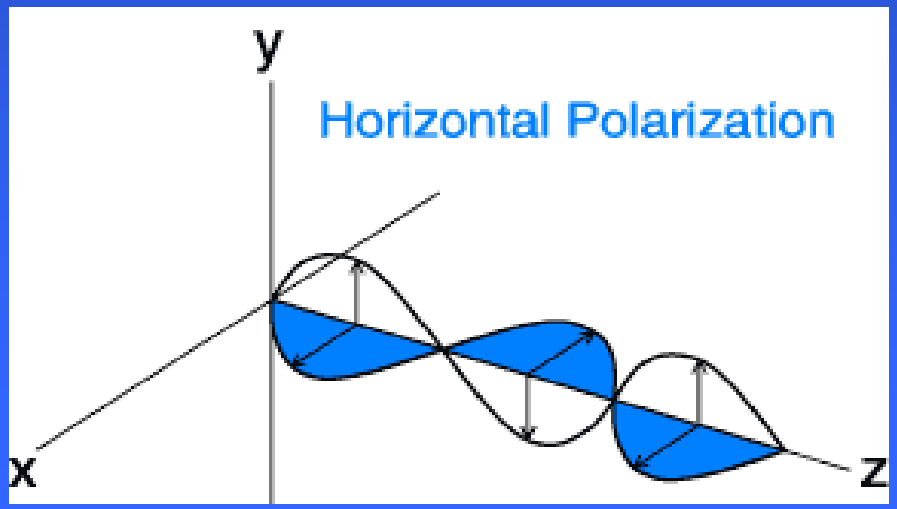
Radar Technology

- **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**

Current WSR-88D Radar







NWS Southern Region

Dual-polarization Radar

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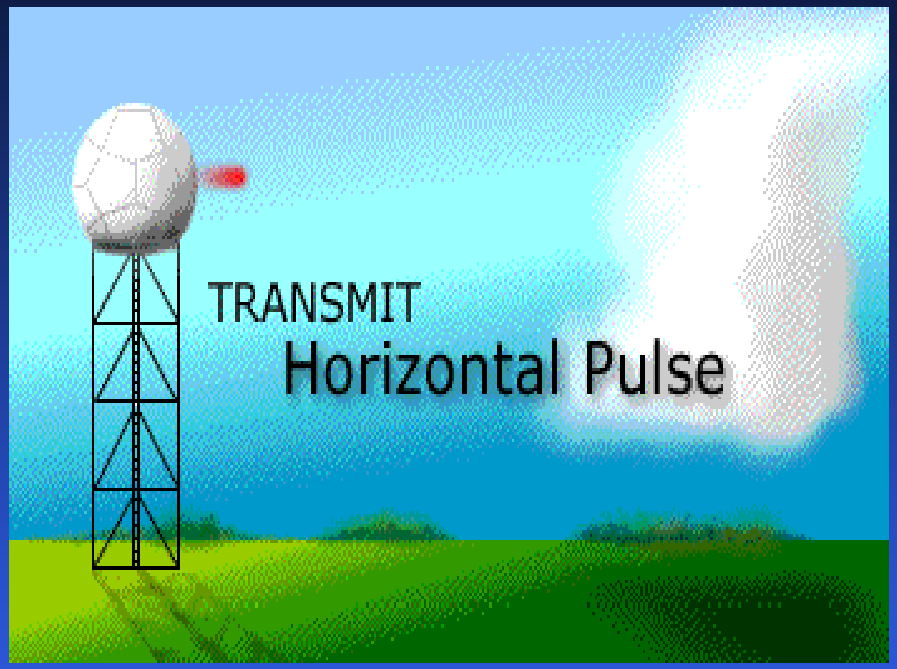

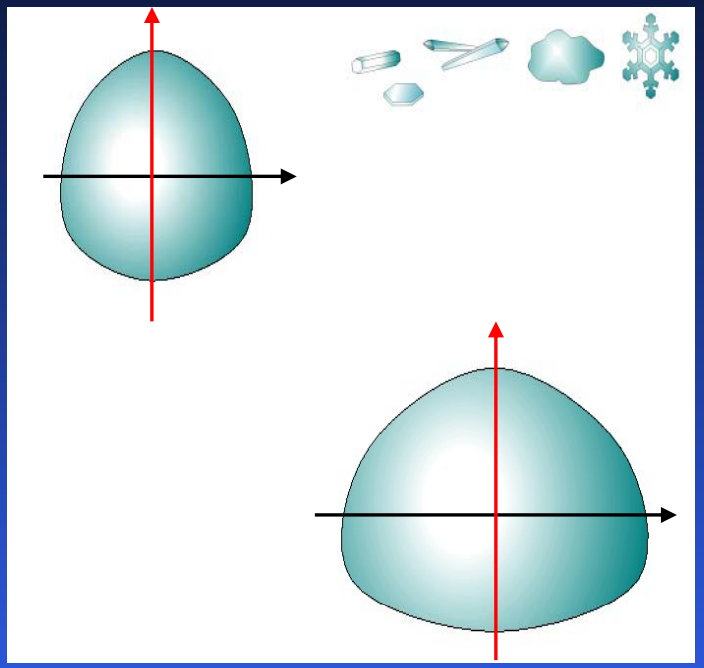

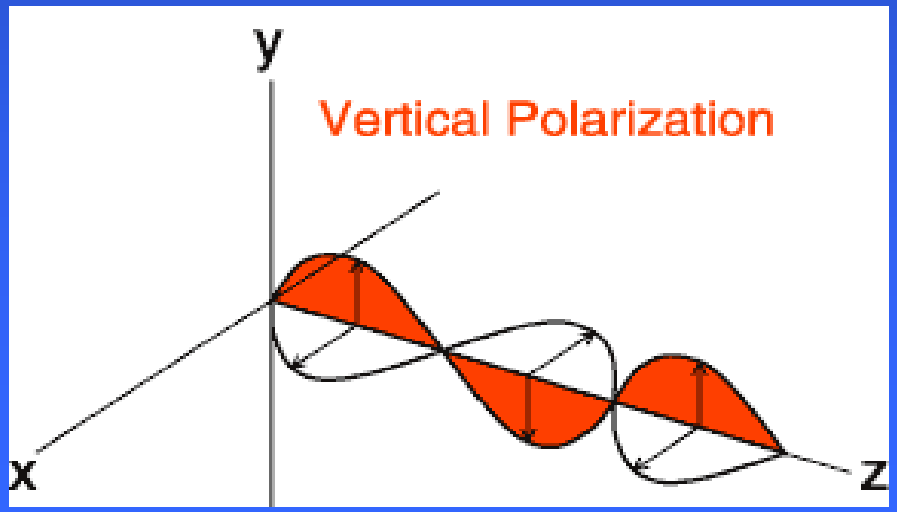

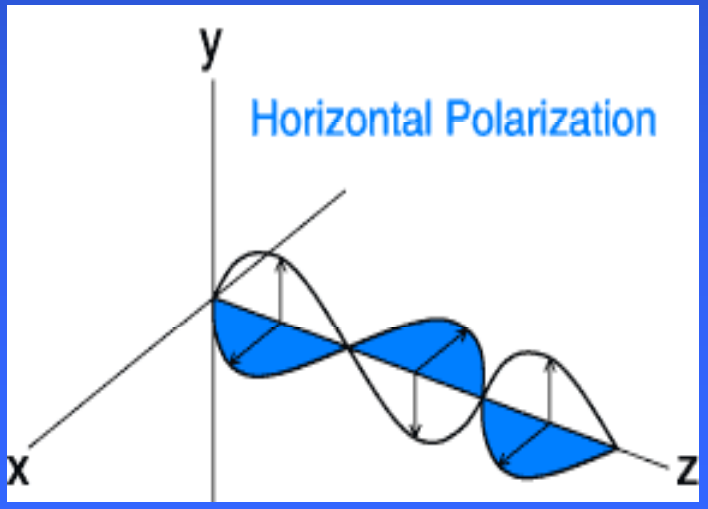

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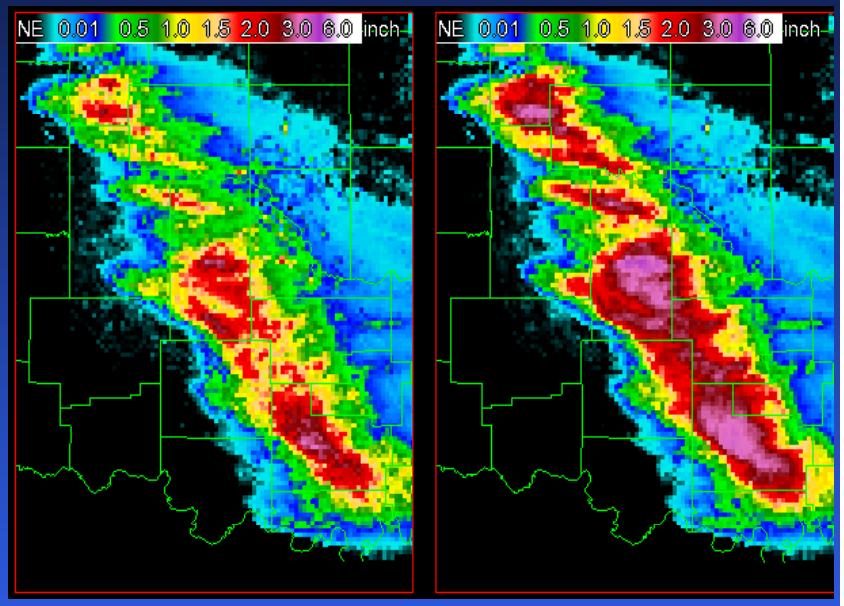
Dual Polarized Doppler Radar

- **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!

NWS Southern Region

Comments or Questions?

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Find this National Weather Service Presentation next week on:

www.SRH.weather.gov

Click on: **"Welcome from the Director"**
Click on his "Austin, TX, 10/03/07" presentation