

**IAEM and your
National Weather Service...
*together, we are saving lives !***

IAEM Region 4 Conference

Huntsville, AL – April 25, 2008

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

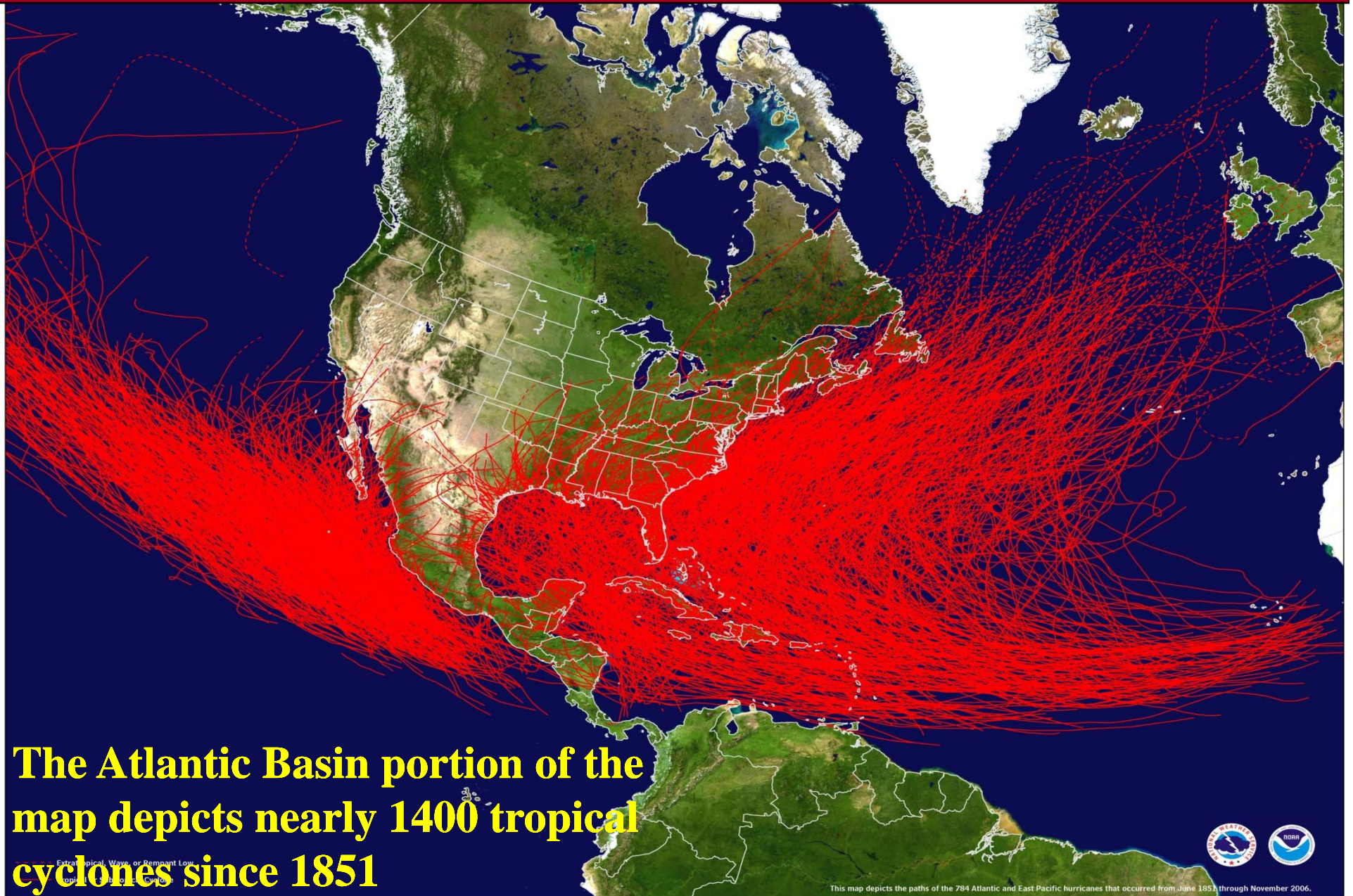
www.SRH.noaa.gov

USA has a severe weather vulnerability

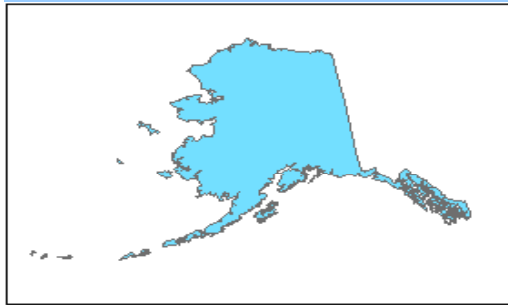
7402 Tornadoes in just 6 years !



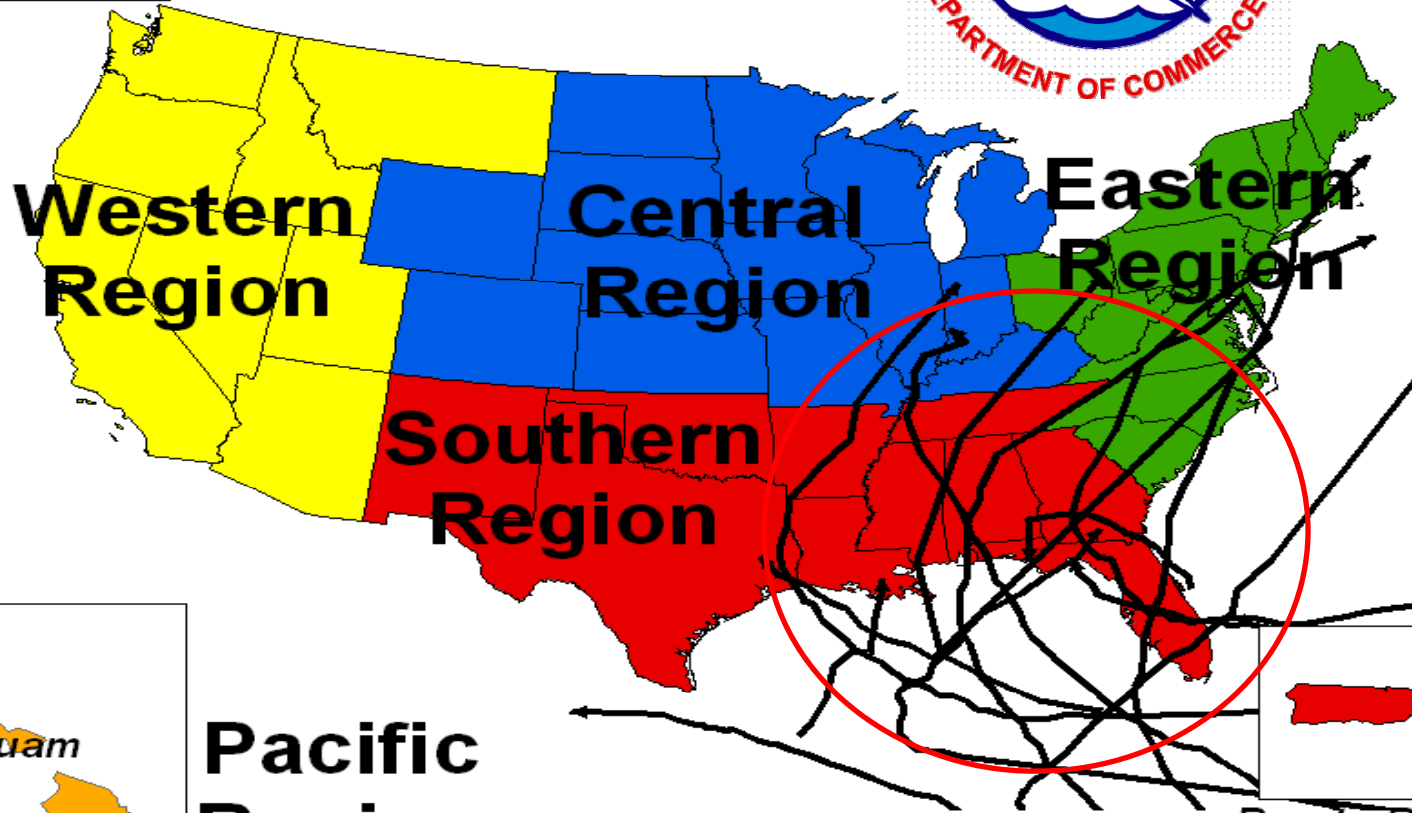
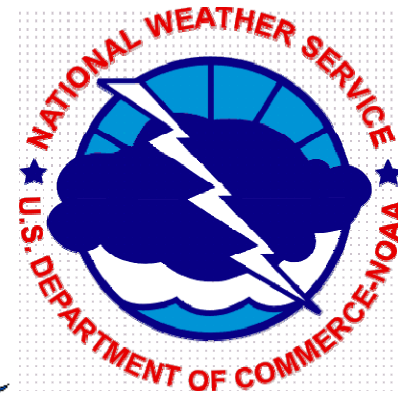
We are a nation with a vulnerability!



NWS has 4 large contiguous Regions and 2 “oconus” Regions



**Alaska
Region**



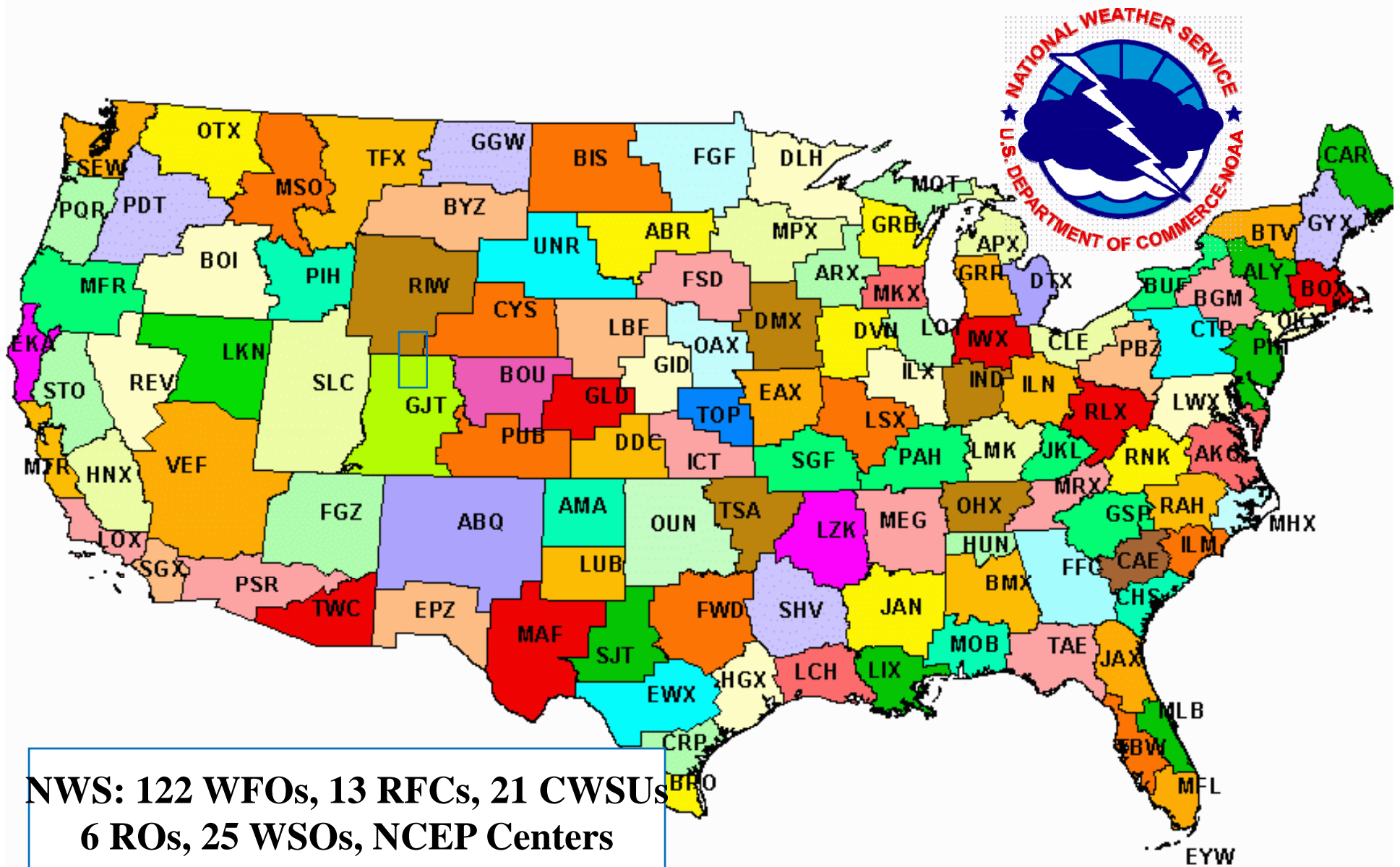
Hawaii and Guam

**Pacific
Region**



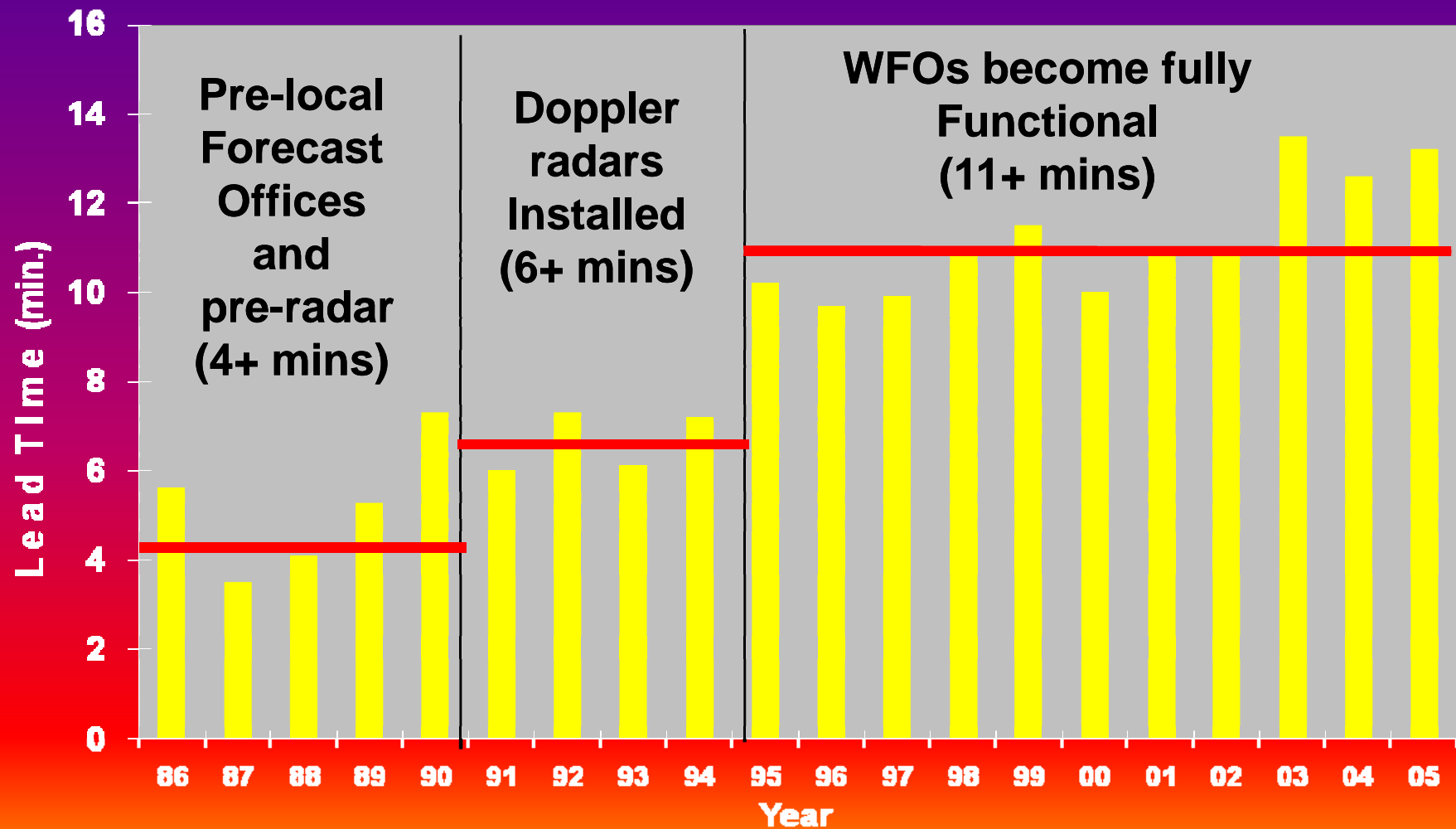
*Puerto Rico and
Virgin Islands*

Your best source for local weather info & warnings: is your *nearby* National Weather Service Office



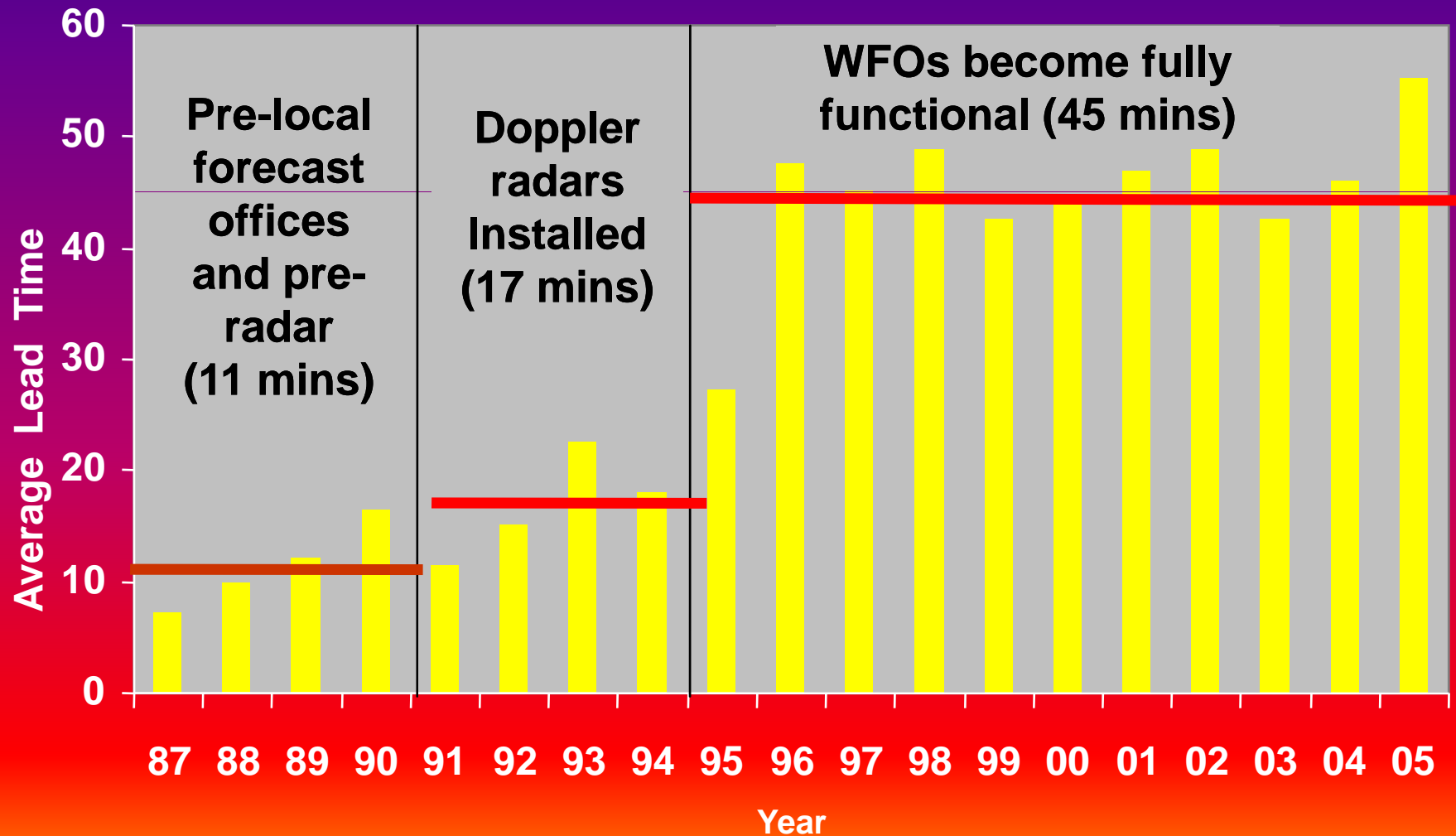
Modernization of Local Forecast & Warning Services

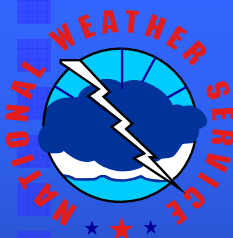
Tornado Warning Lead Time



Modernization of Local Forecast & Warning Services

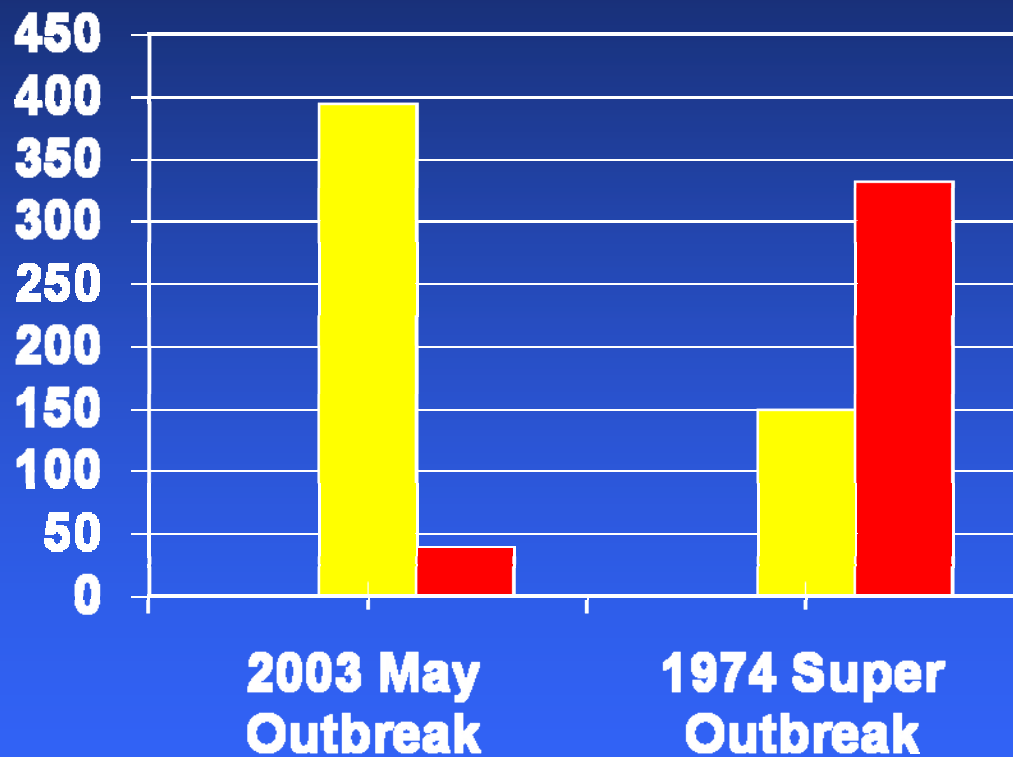
Flash Flood Warning Lead Time





NWS Southern Region

Modernized local National Weather Service Offices in collaboration w/ their EM partners, are indeed saving lives!



■ **Tornadoes**

340 versus 148

■ **Fatalities**

39 versus 330

Avg 19 minute
leadtime

Avg 4 minute
leadtime

Results of the Caledonia, MS. Tornado

January 10, 2008

- 2,140 people in school complex and no fatalities or injuries
- Rated F3 with 155 mph winds



Students moved to
interior hallways

ZERO
FATALITIES!

Vocational
Building

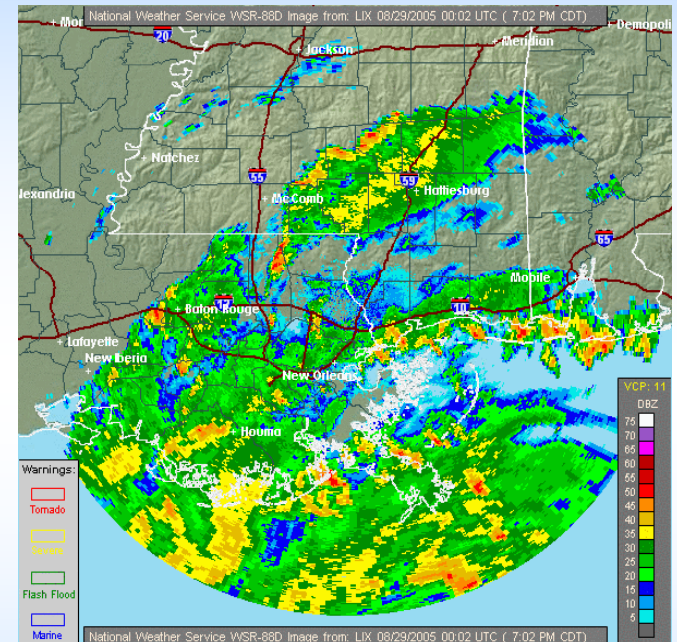
Photo by Brian Peters, Meteorologist, ABC 3340, Birmingham

StormReady “Hero” Success Story

- On January 10, 2008, WFO Jackson issued a Tornado Warning 41 minutes before it impacted and severely damaged the Caledonia, MISS. High School.
- “**Path-Cast**” of WFO issued Tornado Warning and follow-up Statements specifically mentioned Caledonia.
- Based on significant WFO warning lead time and impact specifics relayed by EM Cindy Lawrence, Principal Mike Putnam proactively moved students from designated safe areas of the gym locker room and Vocational Tech building into “safer” interior hallways of the school.

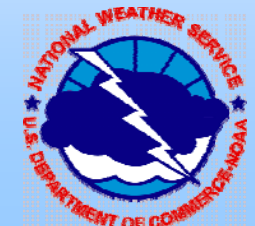
Learn how to maximize the benefits of your GIS-based NWS radar network...its there for you

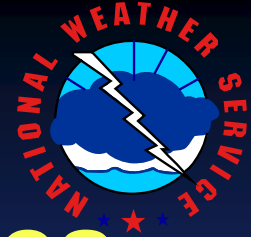
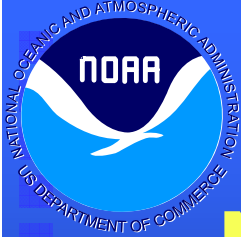
- National Weather Service WFO GIS radar graphics include the latest **watches and storm-based warning boxes** right on the radar loops.
- The NWS GIS radar gives you the distance and direction of approaching weather to any geographic point of interest to you.
- Our data gives you a running tally of **local rainfall amounts**.
- You can superimpose our radar data unto your own GIS EM awareness and response program.



Example of NWS radar & warnings in Google Earth

www.SRH.weather.gov

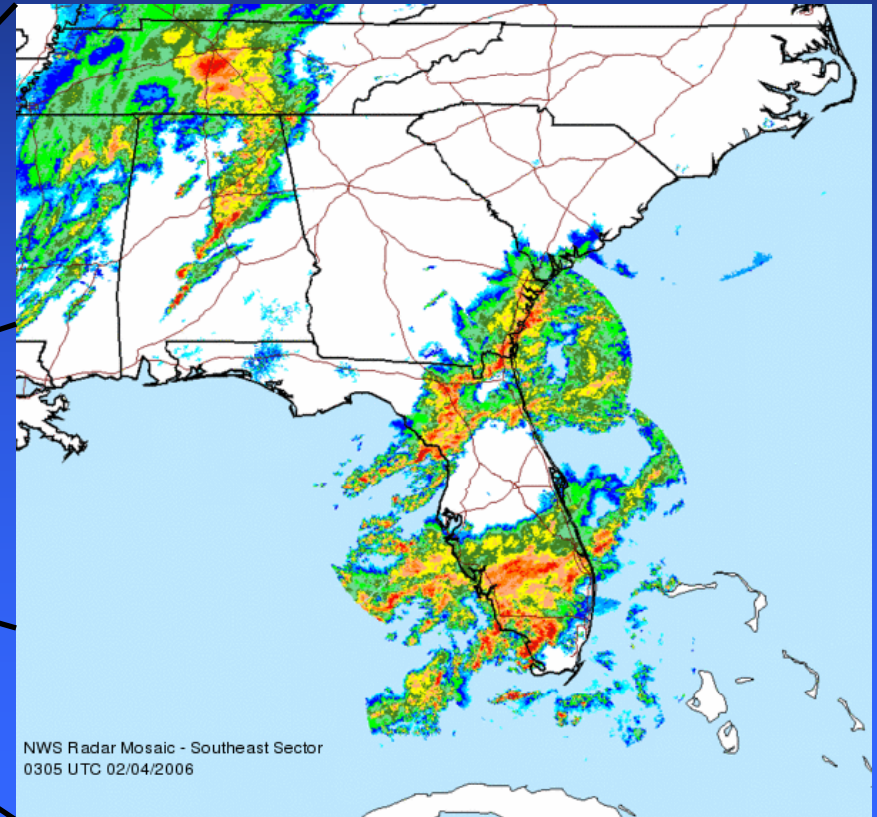
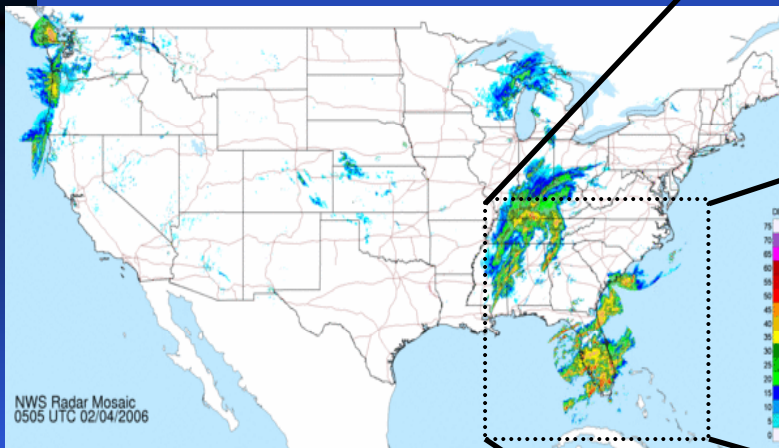




With GIS Radar: Improved National and Regional Mosaics

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

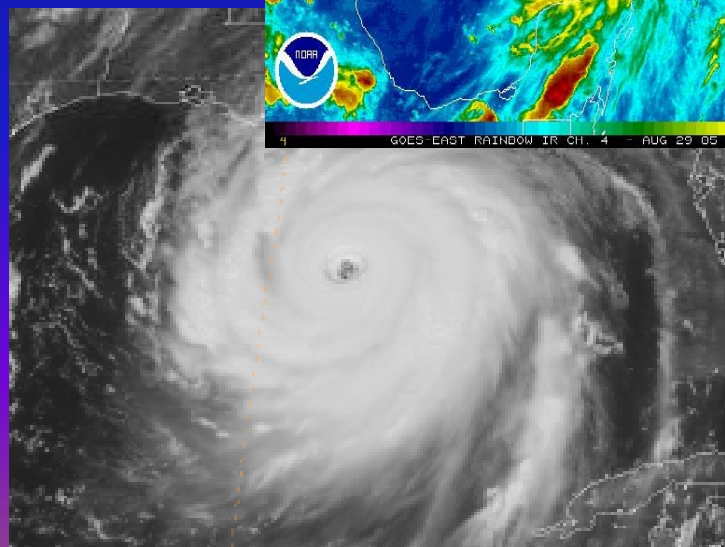
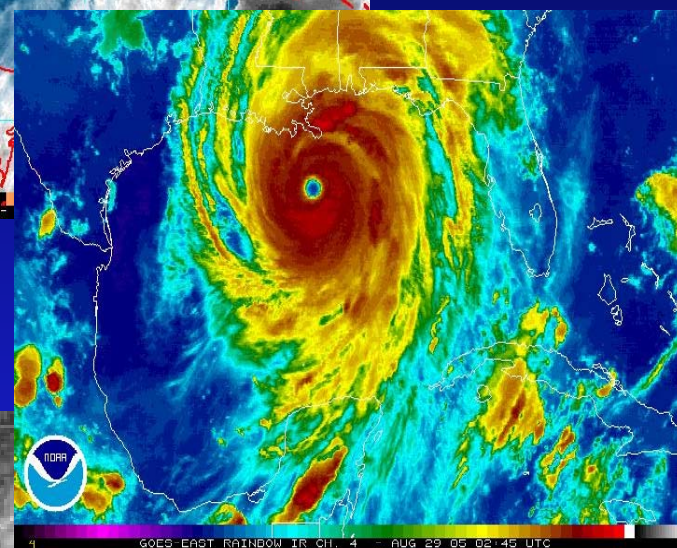
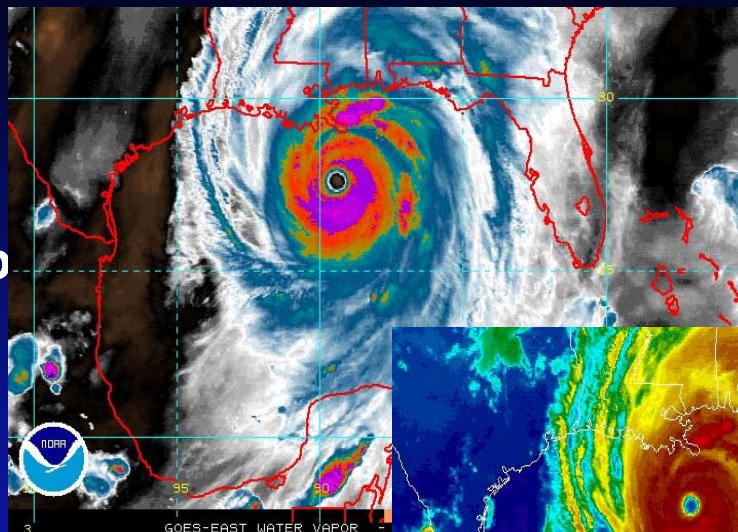
NWS Southern Region



Satellite Imagery

- **Vapor Imagery**
 - For viewing upper level atmospheric systems and flow patterns
- **Infrared Imagery**
 - For viewing night and day features
 - For improved view of system intensity
- **Visible Imagery**
 - High resolution daytime viewing

www.SRH.noaa.gov



National GIS-based Precipitation Analysis Tool

Images

Download

About NWS
Precip Analysis

Other Useful
Information

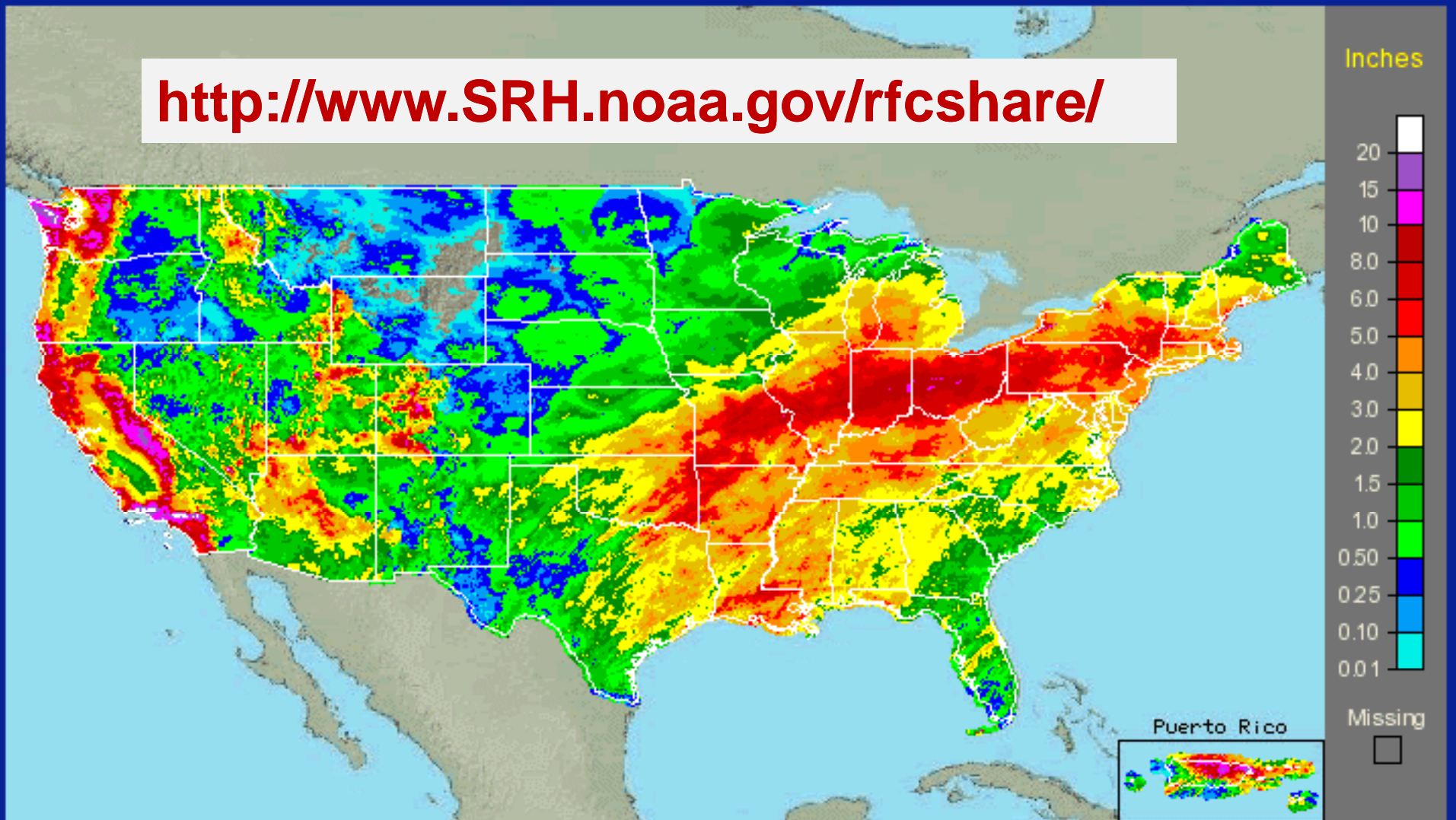
Survey &
Feedback

Original
Precip Analysis

Continental United States
January, 2005 Monthly Observed Precipitation

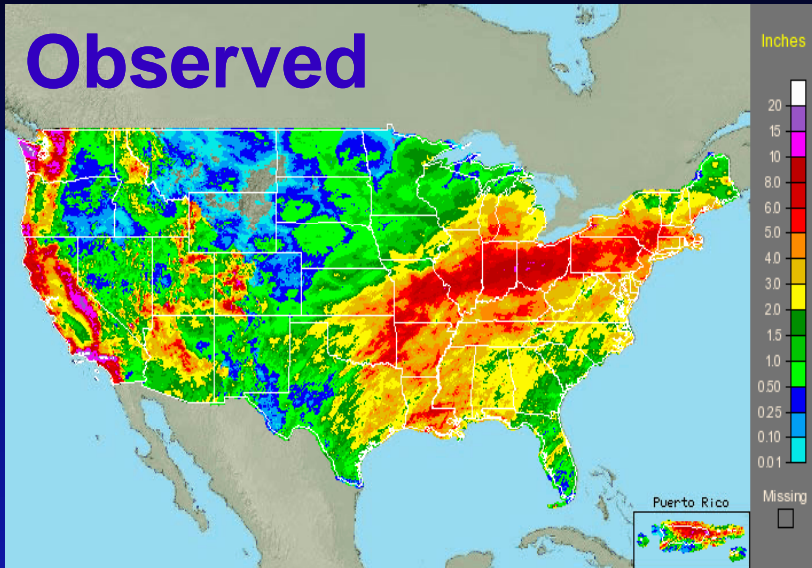
*Click on the image to zoom in
Click on "States" to zoom out*

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



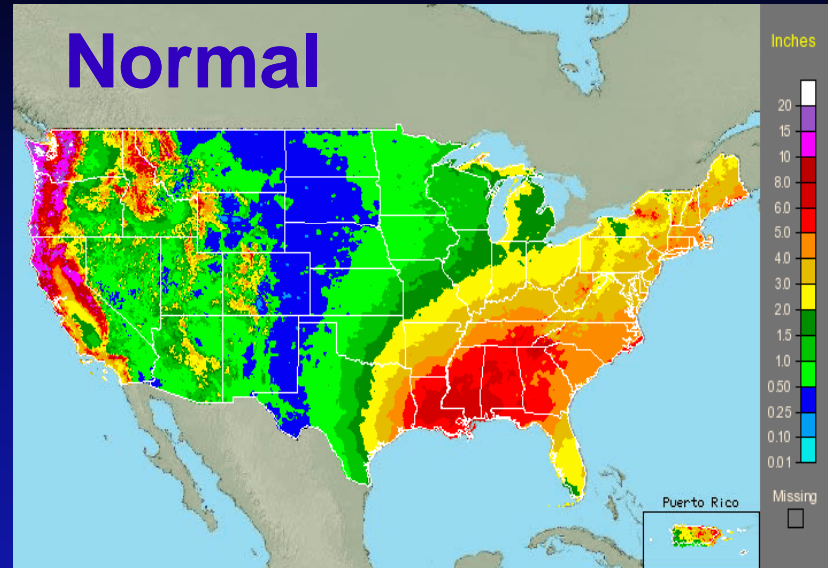
Our GIS national precip analysis...

Observed



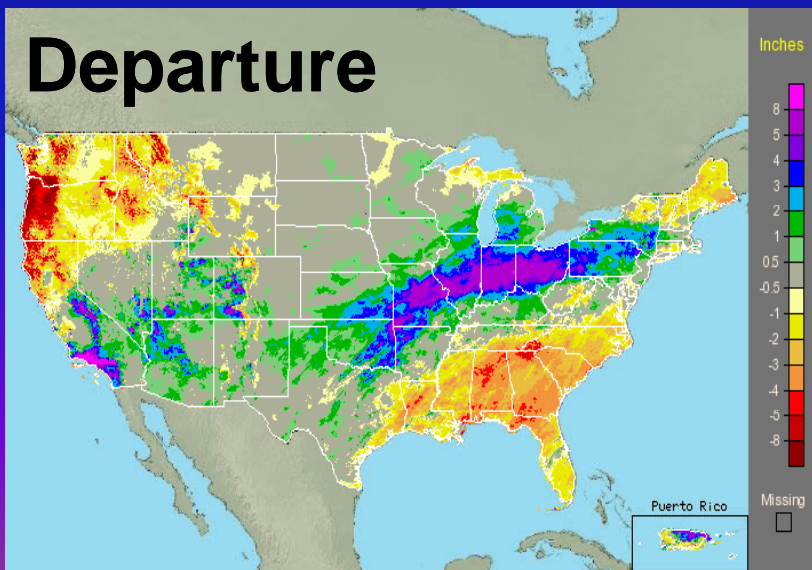
Continental United States
January, 2005 Monthly Observed Precipitation

Normal



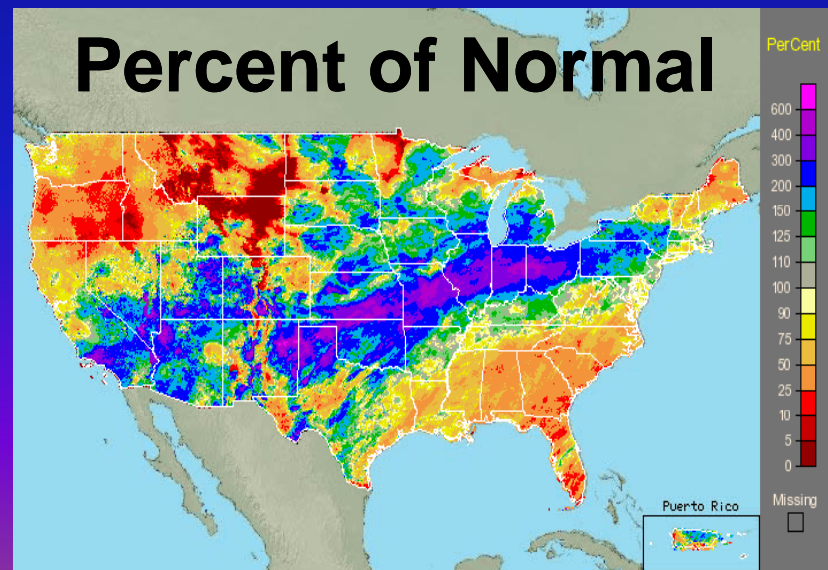
Continental United States
January, 2005 Monthly Normal Precipitation

Departure



Continental United States
January, 2005 Monthly Departure from Normal Precipitation

Percent of Normal



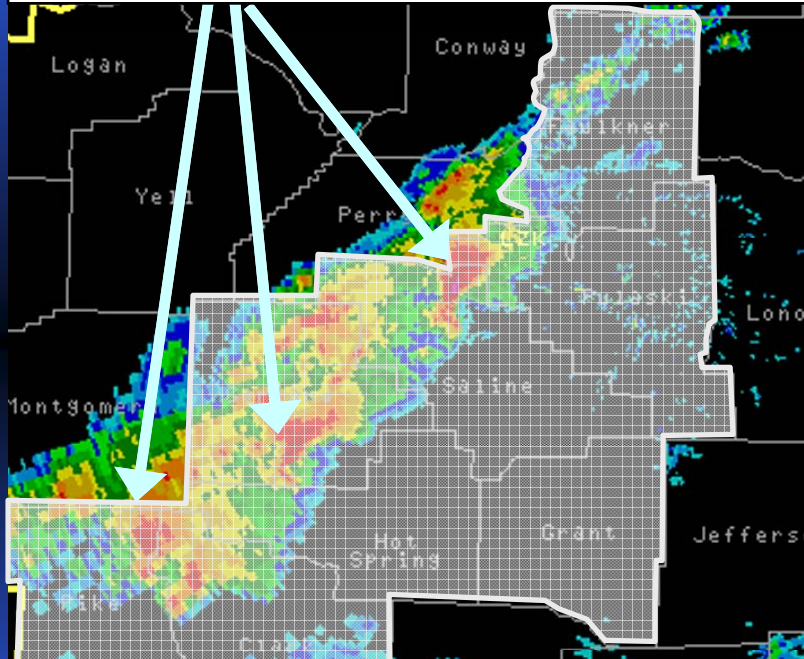
Continental United States
January, 2005 Monthly Percent of Normal Precipitation



NWS Southern Region

Current radar enhancements allow us to move from County-Based to Storm-Based Warnings

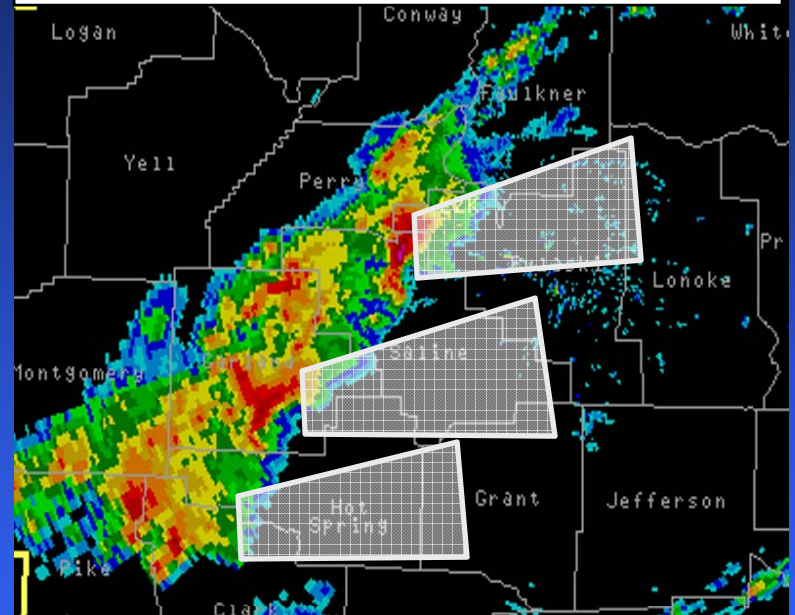
Three simultaneous tornadoes within line of severe thunderstorms



County-Based Tornado Warnings

8 counties under warning
Almost 1 million people warned

- More specific
- Increased clarity
- Supports new dissemination technology

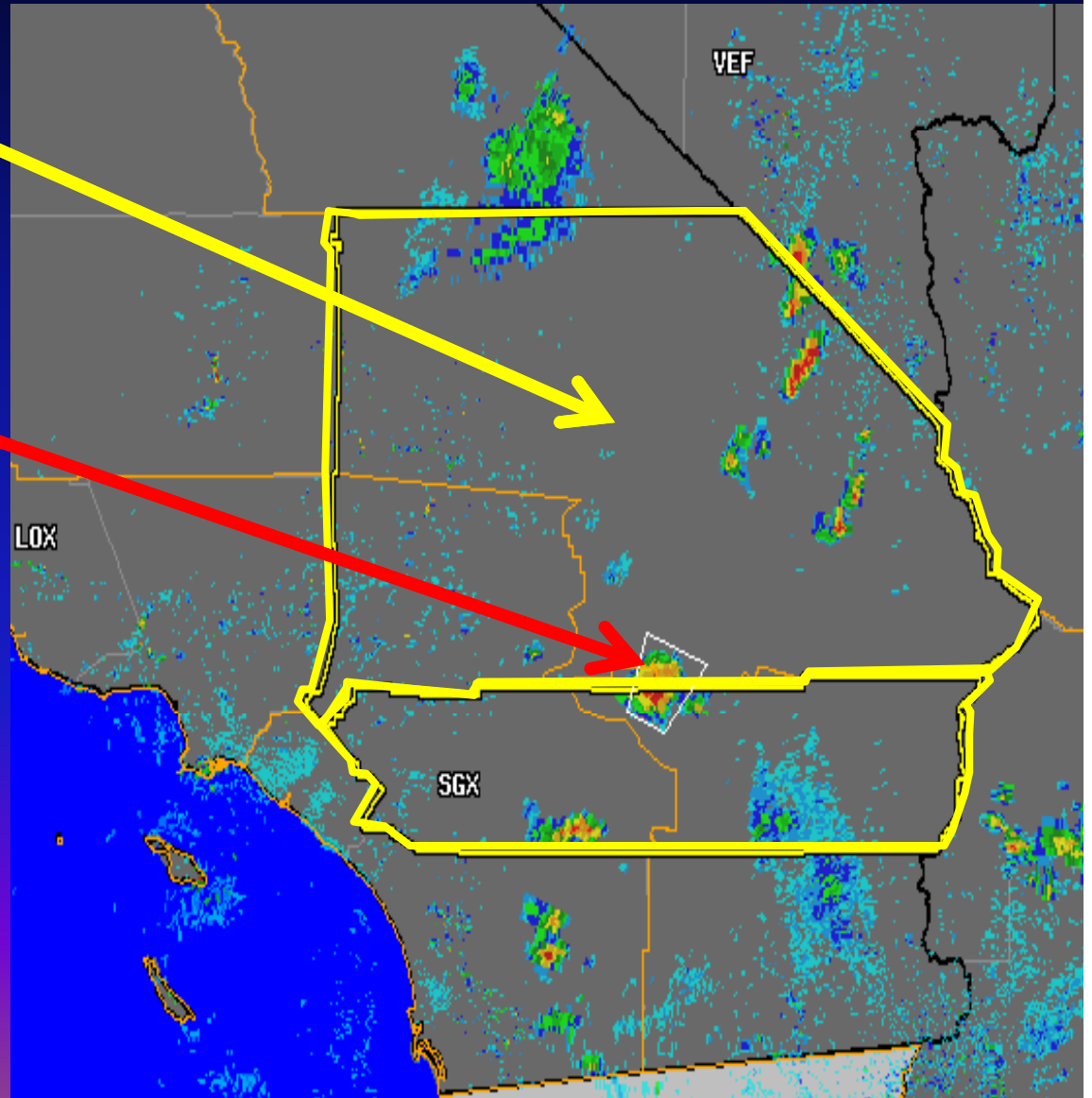


Storm-Based Tornado Warnings

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

A strong example of storm based warnings' benefits

- Severe Thunderstorm Warning (SVR) for San Bernardino & Riverside County CA
 - 3.5 million people
 - 27,000 sq miles
- Threatened Area
 - < 2000 people
 - 750 sq miles
- SBW significantly reduces size of warned area



Graphiccasts – New!

- **Your NWS Weather Forecast Office is progressing to graphical hazard depictions of hydro-meteorological events.**
- **Graphics can help better depict areas and timing of hazards and/or threats.**
- **Severe, Tropical, Marine, Fire Weather hazards, etc., are currently being developed or are in experimental mode.**

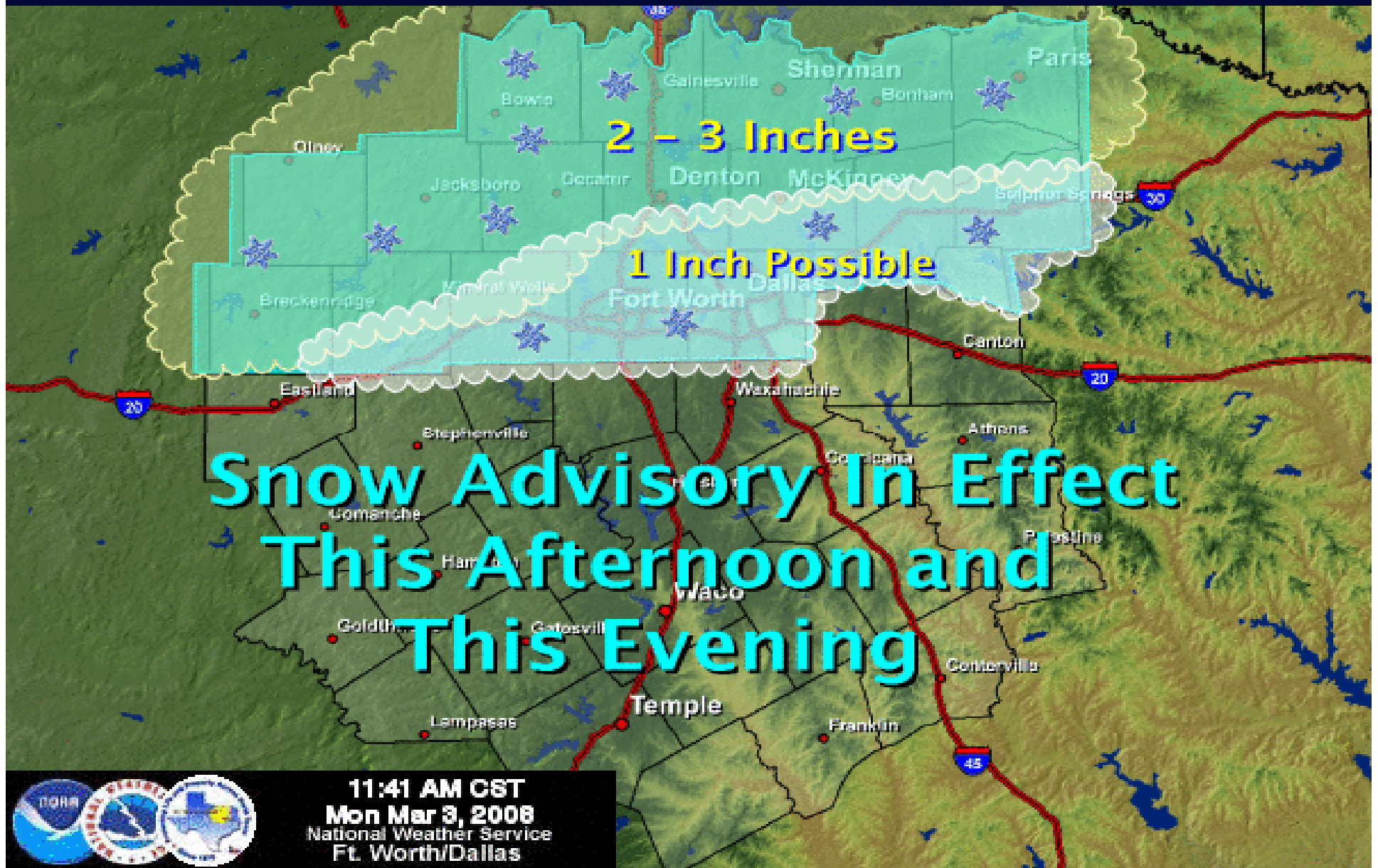
Graphiccast Example

COLD...CHANCE OF RAIN...SNOW...AND MIX



Graphiccast Wed Nov 21 1:47PM CST
Norman Forecast Office

Graphiccast Example



Graphiccast Example

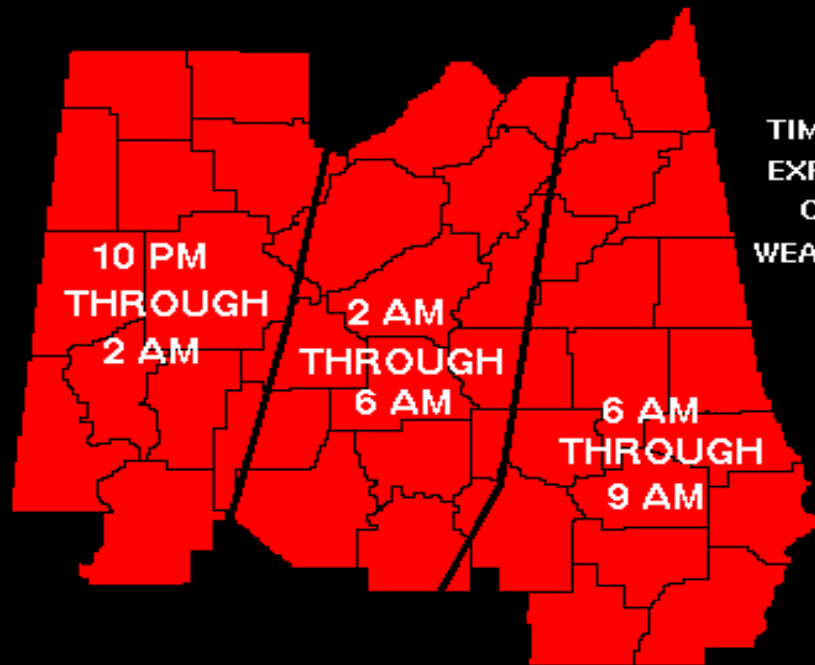
HAZARDOUS WEATHER OUTLOOK DAY ONE MAP

ISSUED: 12:24 PM MON MAR 03 2008

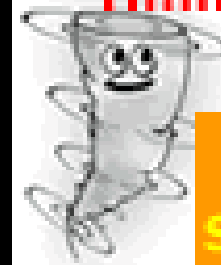
EXPIRES: 6:30 AM TUESDAY

POTENTIAL THREAT

High Fire Danger
Tornadoic Tstms
Severe Tstms
Strong Tstms
Winter Weather
Flooding
Heat/Cold
High Wind
Dense Fog
No Hazardous Weather



TIMES INDICATE
EXPECTED PEAK
OF SEVERE
WEATHER THREAT



Timmy the Twister
says

**Moderate Risk
of
Severe Weather**

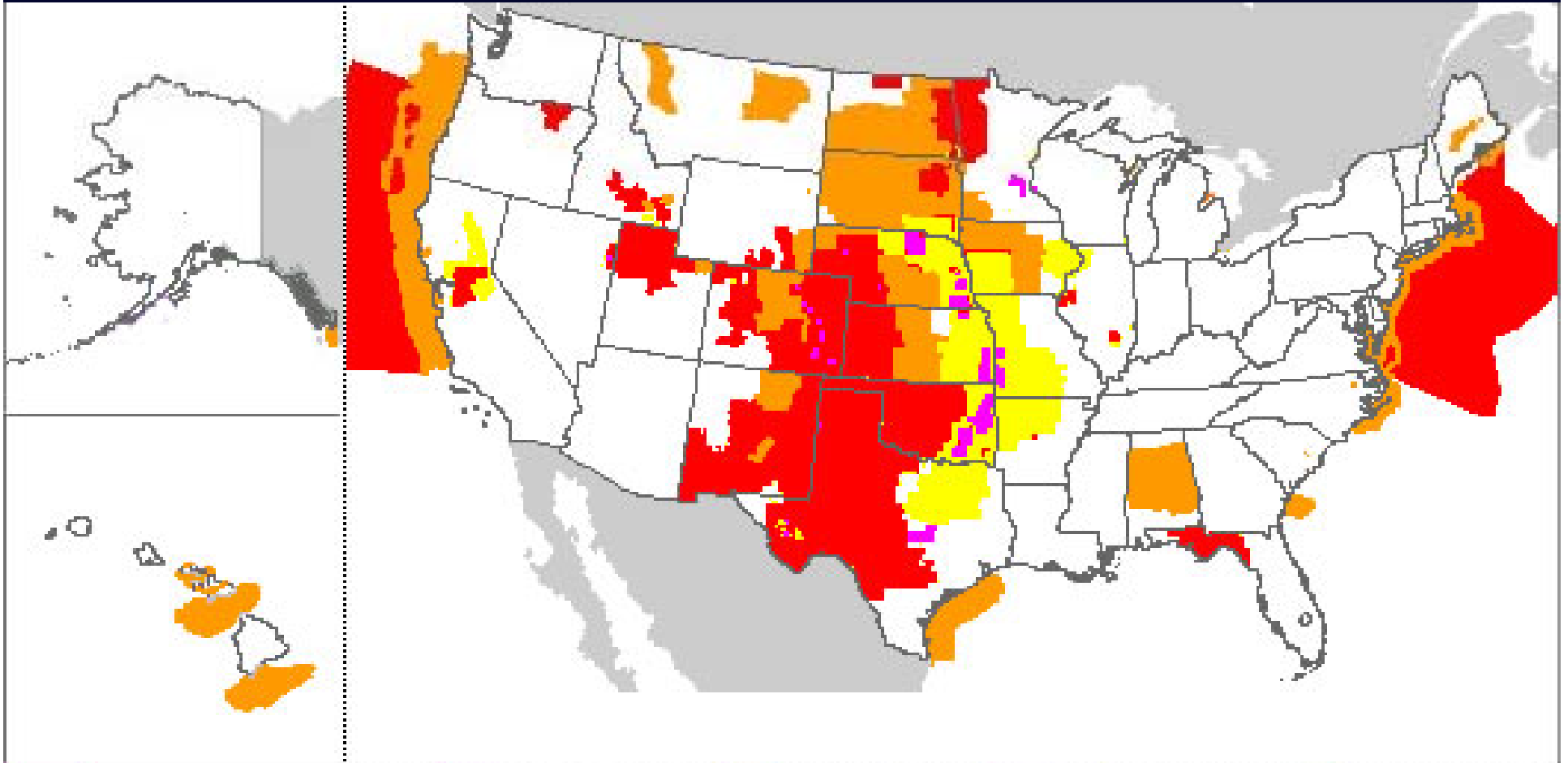
DAYS TWO THROUGH SEVEN

Tuesday	Wednesday	Thursday	Friday	Saturday	Sunday
2 EARLY			1		

CONFIDENCE LEVEL:

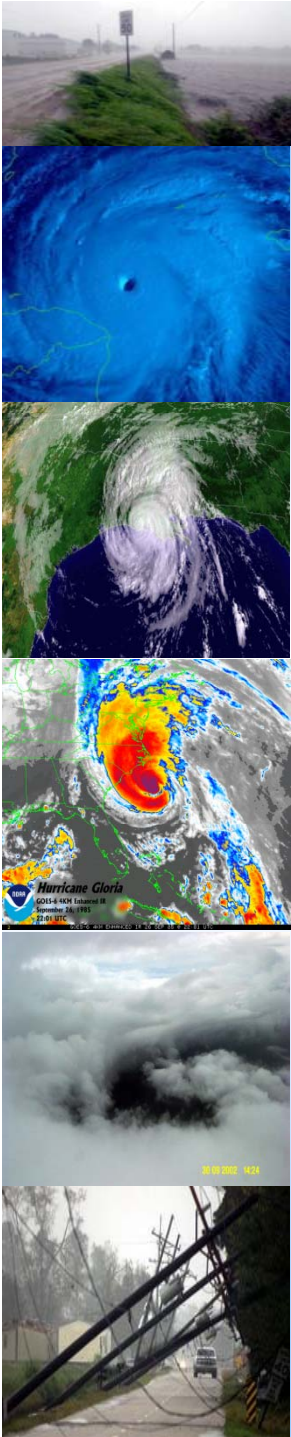
1 2 3 4 5
Lo ---> Hi

Graphical Threat Map – Coming Soon!



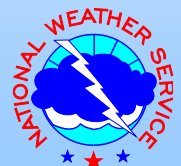
Last update: 04.06.06 - Thu - 07:54:40 PM (EST)

New Watch, Warning, Advisory map with "Threat" View



QuikSCAT (ocean surface winds)

- *A key tool for weather analysis over the oceans*
- *Aging (9 years old) and on its backup transmitter*
- *NOAA (NESDIS) & NASA (JPL) are doing “proof of concept” work for a solution*
- *Solution: a greatly improved next-generation satellite instrument (also supported by NRC Decadal Survey, Federal Coordinator for Meteorology, NOAA '06 requirements, Nat'l Weather Association etc.)*
- *Meanwhile NOAA committed to mitigate potential QuikSCAT loss (ref: NOAA Administrator, Lautenbacher, Federal Times 3/10/08)*





New Radar Technology

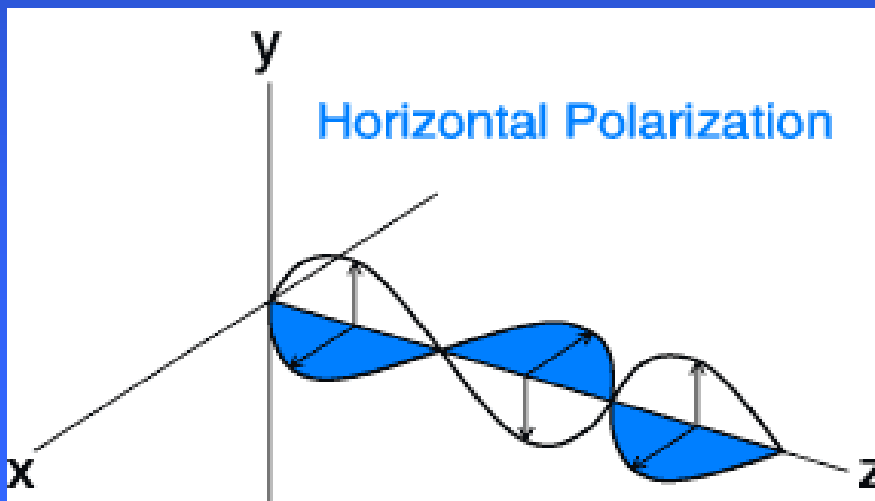
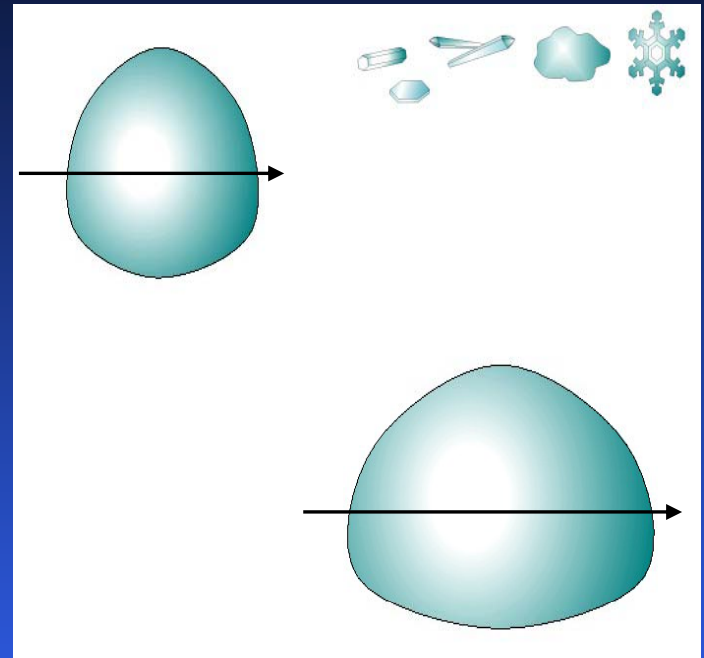
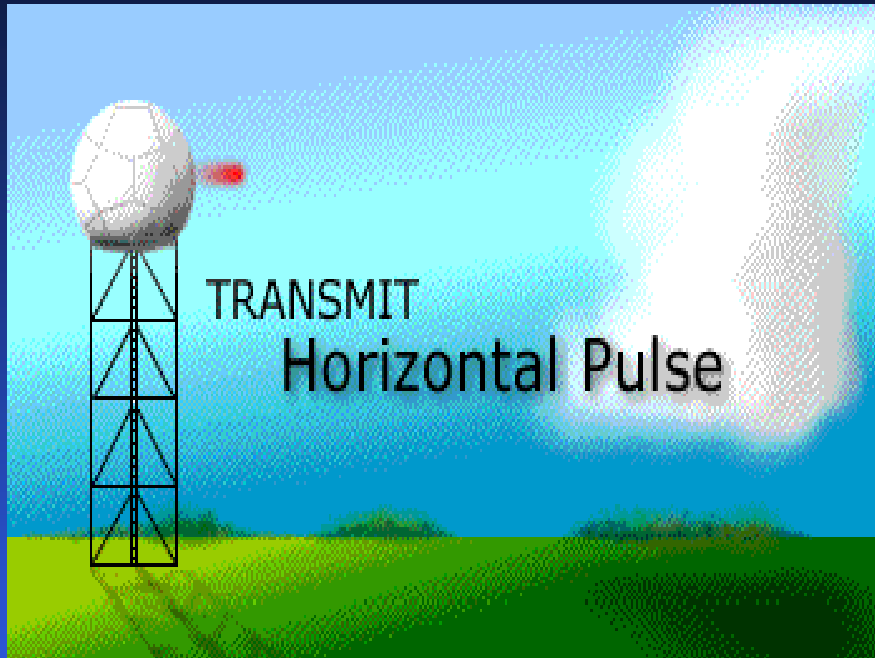
- **Current Radar Enhancements**
 - ◆ Improved elevation scans
 - ◆ Faster scans (from 6 to 4 mins)
- **Dual-Pol Radar (2-4 yrs)**
 - ◆ Improved resolution, storm structure imaging & velocity data
 - ◆ Longer severe weather leadtimes
 - ◆ Improved precipitation detection and flood warning lead-times
- **Phased Array Doppler (10+ yrs)**
 - ◆ Less than a minute scans adds 4 mins to tornado lead-times.
 - ◆ better resolution and much more!





NWS Southern Region

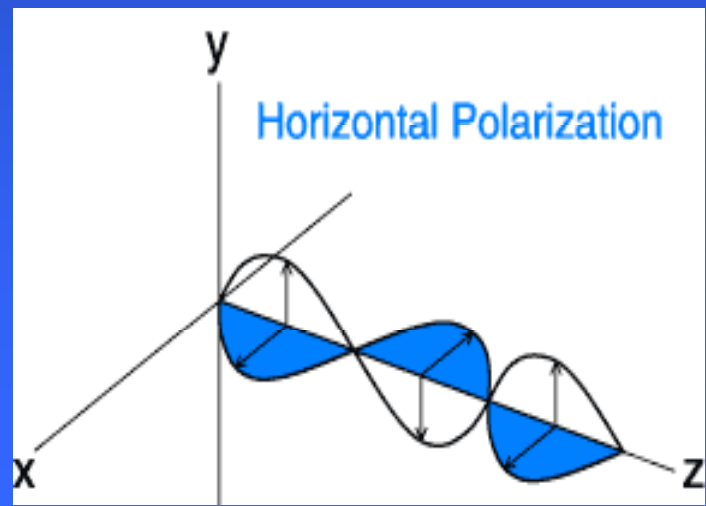
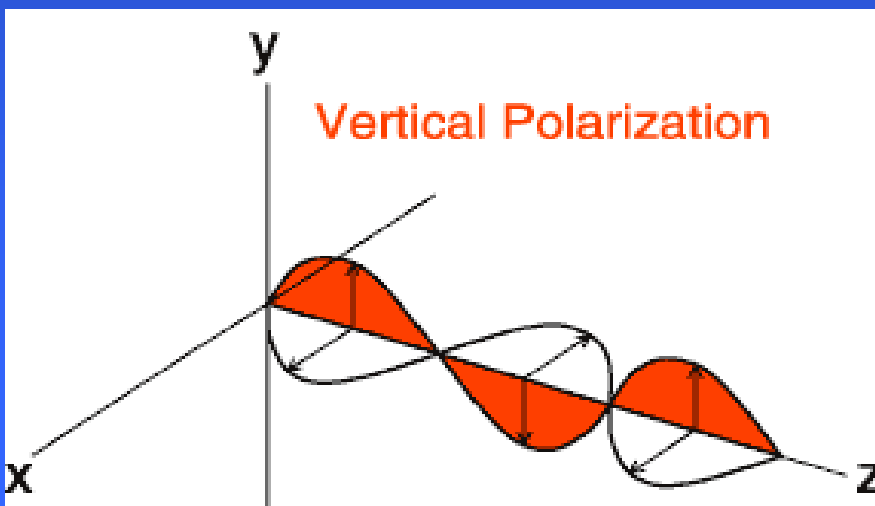
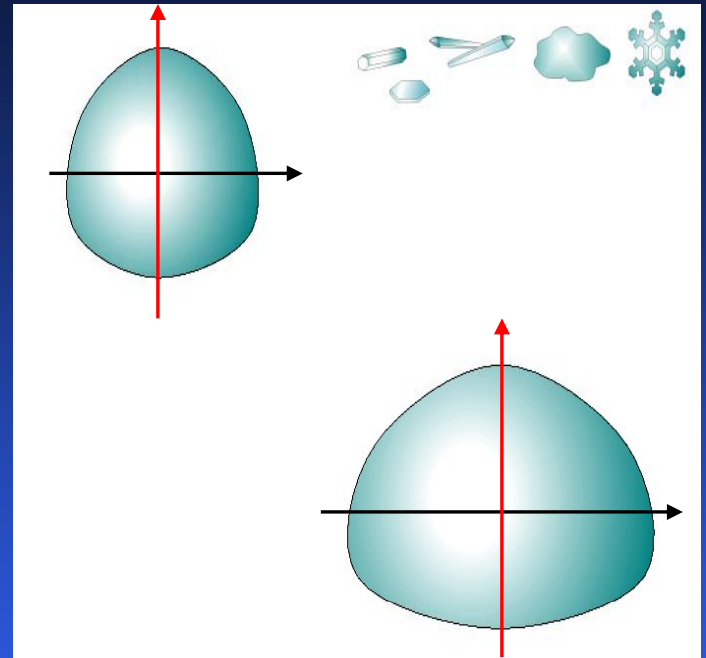
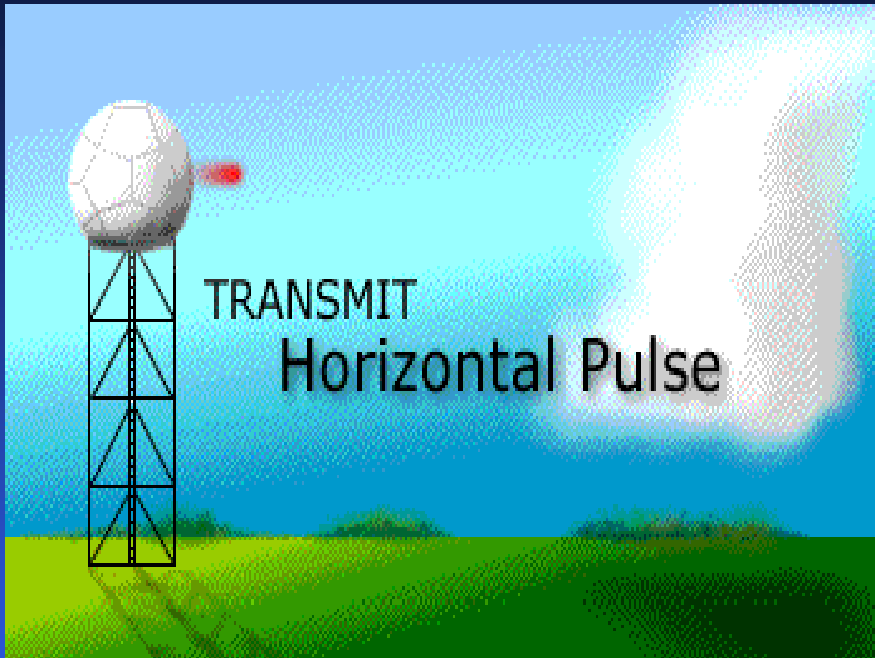
Current WSR-88D Radar





NWS Southern Region

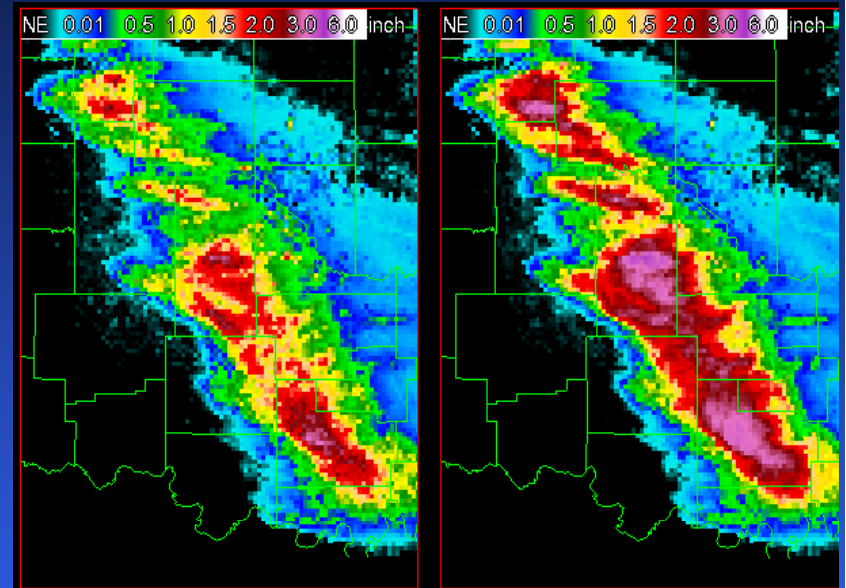
Dual-polarization Radar





Dual Polarized Doppler Radar

- **Dual- Pol results demonstrate much improvement** (*NSSL documented reports*):
 - ◆ **Finer Imaging** (see images)
 - ◆ **Data Quality**
 - ◆ **Rainfall Estimation**
 - ◆ **Pinpoint tornado location**
 - ◆ **Much more...**

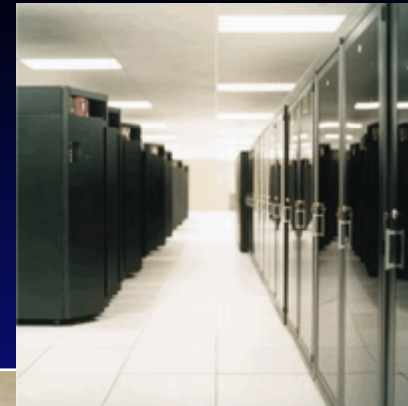


Dual-Pol WSR-88D 1-hr rainfall est. (left) vs. legacy WSR-88D estimate (right).

The right-hand image was a significant overestimate but the Dual-Pol product provided a much better estimate.

<Name here>

An NWS Southern Region Initiative



Background

- The nation's EM Decision makers are facing more high impact events everyday
- EMs need “on-hand” interpretive weather services
- Examples
 - Tornado outbreak of May, 2003
 - Hurricanes of '04 & '05
 - Texas-OK Fires of '05, '06, '08
 - High-impact exercises



<Name here>

An NWS Southern Region Initiative

...a Southern Region concept of focused weather support from NWS WFOs, RFCs and their regional headquarters, for local, state and federal emergency managers before, during and after high impact events in order to most effectively anticipate and mitigate the impact of those events...

The collage illustrates various weather support initiatives:

- Product request:** A form titled "BOEM SPOT FORECAST REQUEST" with fields for "Product & Area" and "Requesting Office".
- Web Briefing:** A screenshot of a "Skywarn/EM Weather Briefing" page with the text "SIGNIFICANT FLOODING REMAINS POSSIBLE THIS MORNING AND AFTERNOON WITH RAIN RATES NEAR 2 INCHES".
- Recorded Briefing:** A screenshot of a "San Angelo, TX" "Experimental Daily Multi-media Weather Briefing" page.
- Live Virtual Briefing:** A screenshot of a "Scattered Showers and T-storms Moving Southeast" weather map.
- IC Center On-site:** A photograph of a control room with multiple computer monitors displaying weather data.
- IC Incident On-site:** A photograph of emergency responders in a field setting.

<Name here>

An NWS Southern Region Initiative

What is Southern Region doing so far?

- Prototyping these services at various Weather Forecast Offices where resources allow
- Focus on a spectrum of services supported regionally
- Given Weather Forecast Offices the flexibility to determine the type of services provided



Web Briefing

Recorded Briefing



Live Virtual Briefing



IC Center On-site



IC Incident On-site

Bottom Line – We want to be as close to the decision makers (EMs) as NWS resources and technology allows !

<Name here>

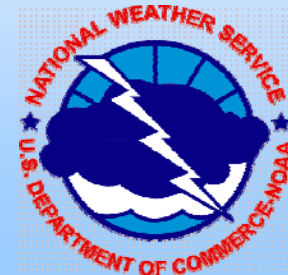
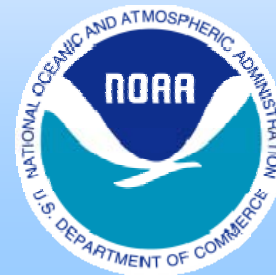
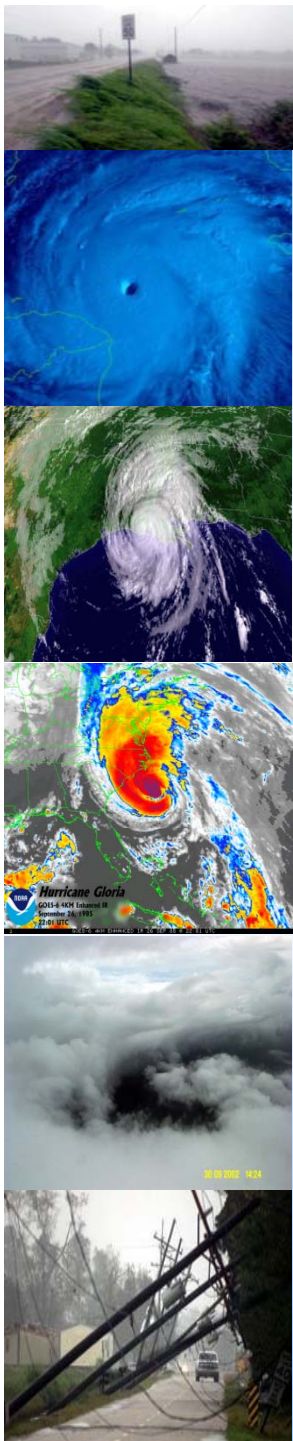
An NWS Southern Region Initiative

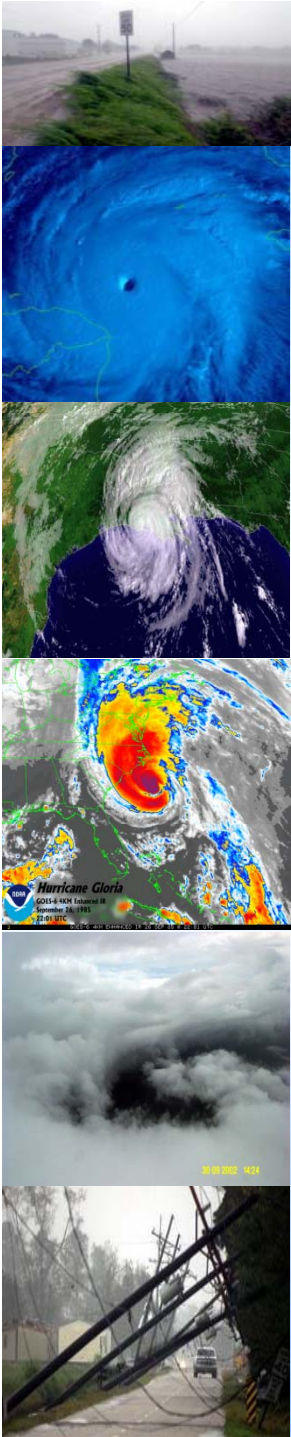
What holds us back?

- Lack of Resources
 - Need for a dedicated 3 person forecast team at a each WFO to provide on-site services and “back-office” support
 - Technological gaps
 - Communications capacity (both in and away from the office)
 - Hardware/Software infrastructure(laptops, GIS, Web support, etc)
 - Training
 - Briefing skills
 - Technological knowledge
 - On-site fiscal support (e.g., per diem pool)
- Better understanding of your evolving requirements!

The way ahead...

- NWS SR Director briefs NWS Director and union president.
- Corporate Board briefing this June
- Engaged partners interested in our yearly budget allocations,
involving...
- expanded WFO/RO staffs *plus* infusion of science and technology,
only then will we yield the ...
- national resiliency we seek against loss of life and costly economic impact.

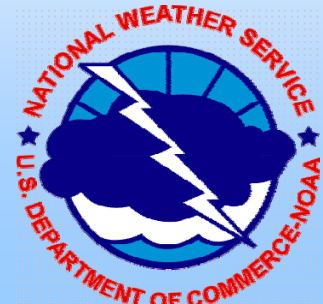


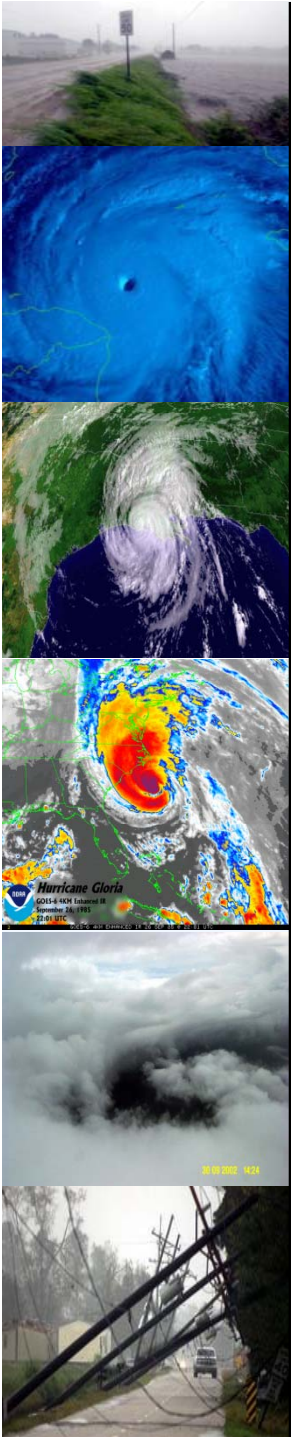


***The National Weather Service is the...
EM's main source for weather info
and warnings.***

**However, the full benefits of critical
weather services will only be realized
*with expanded weather services in
an active partnership w/EMs, first
responders, and others.* In this way
the NWS epitomizes the concept:**

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





***“A nation committed to understanding
severe weather & being prepared
avoids having to learn through tragedy”***

Bill Proenza, Regional Director
National Weather Service, Southern Region

www.SRH.noaa.gov

Click: **“Welcome from the Director”**

Click under presentations:

“IAEM Region 4 Conference – 04/25/08”

