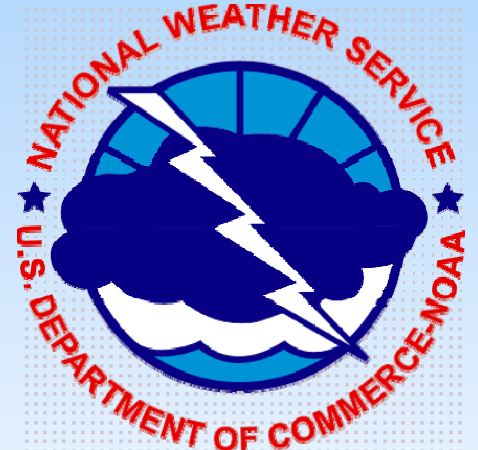


Your National Weather Service with EMs and the Media... **A partnership that saves lives !**



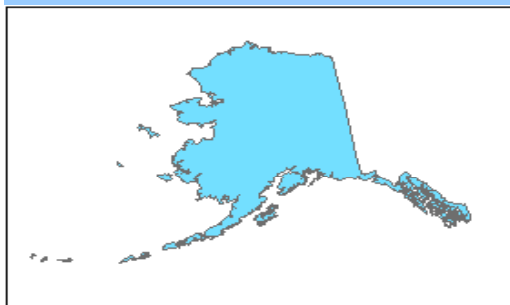
Hurricane Preparedness



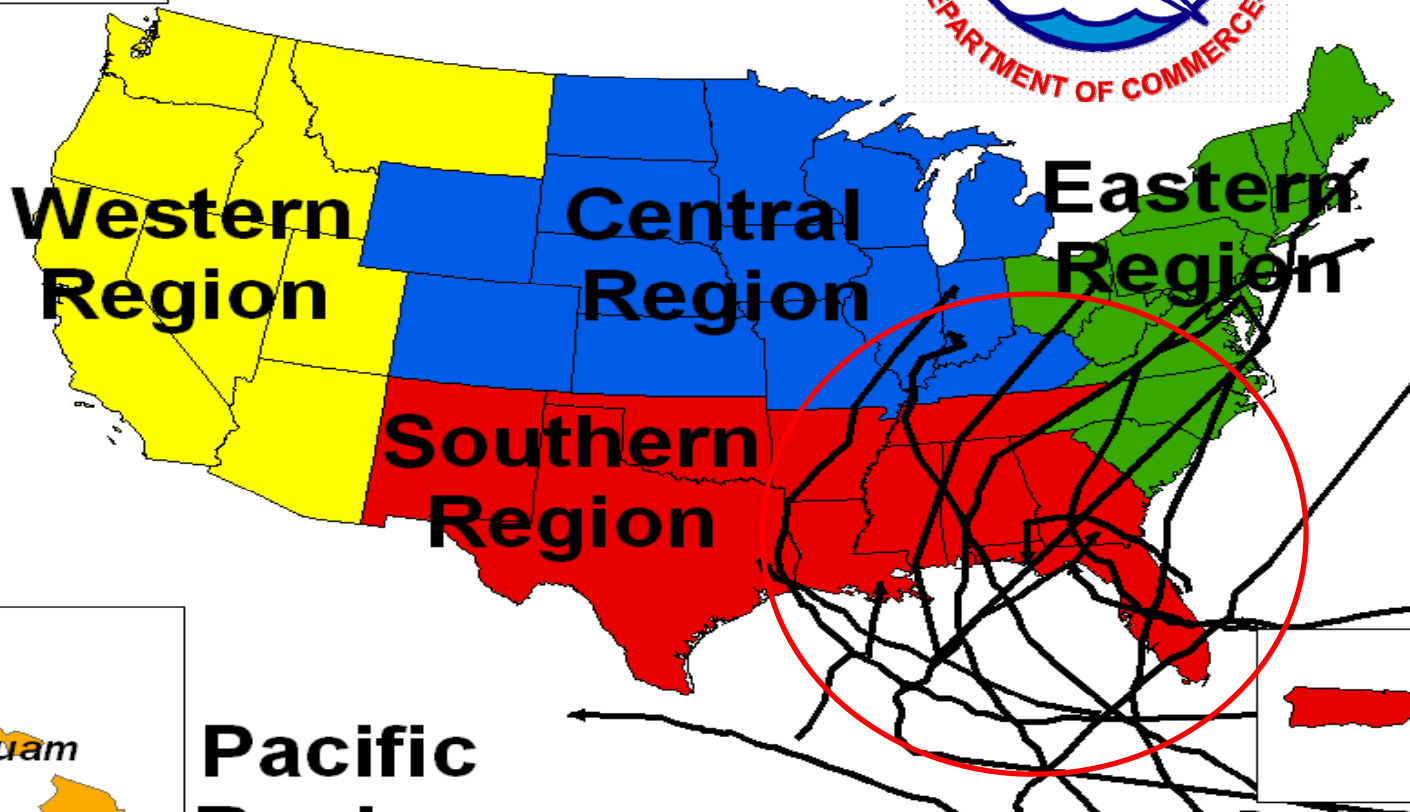
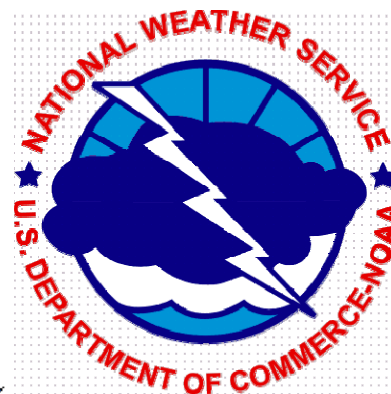
Bill Proenza, Director
National Weather Service – Southern Region
2008 Gulf States Hurricane Awareness Tour
Corpus Christi, Galveston, New Orleans,
Apalachicola, Fort Myers
April 14-18, 2008

www.SRH.noaa.gov

The USA's Landfalling Tropical Cyclones in 2004 and 2005



**Alaska
Region**



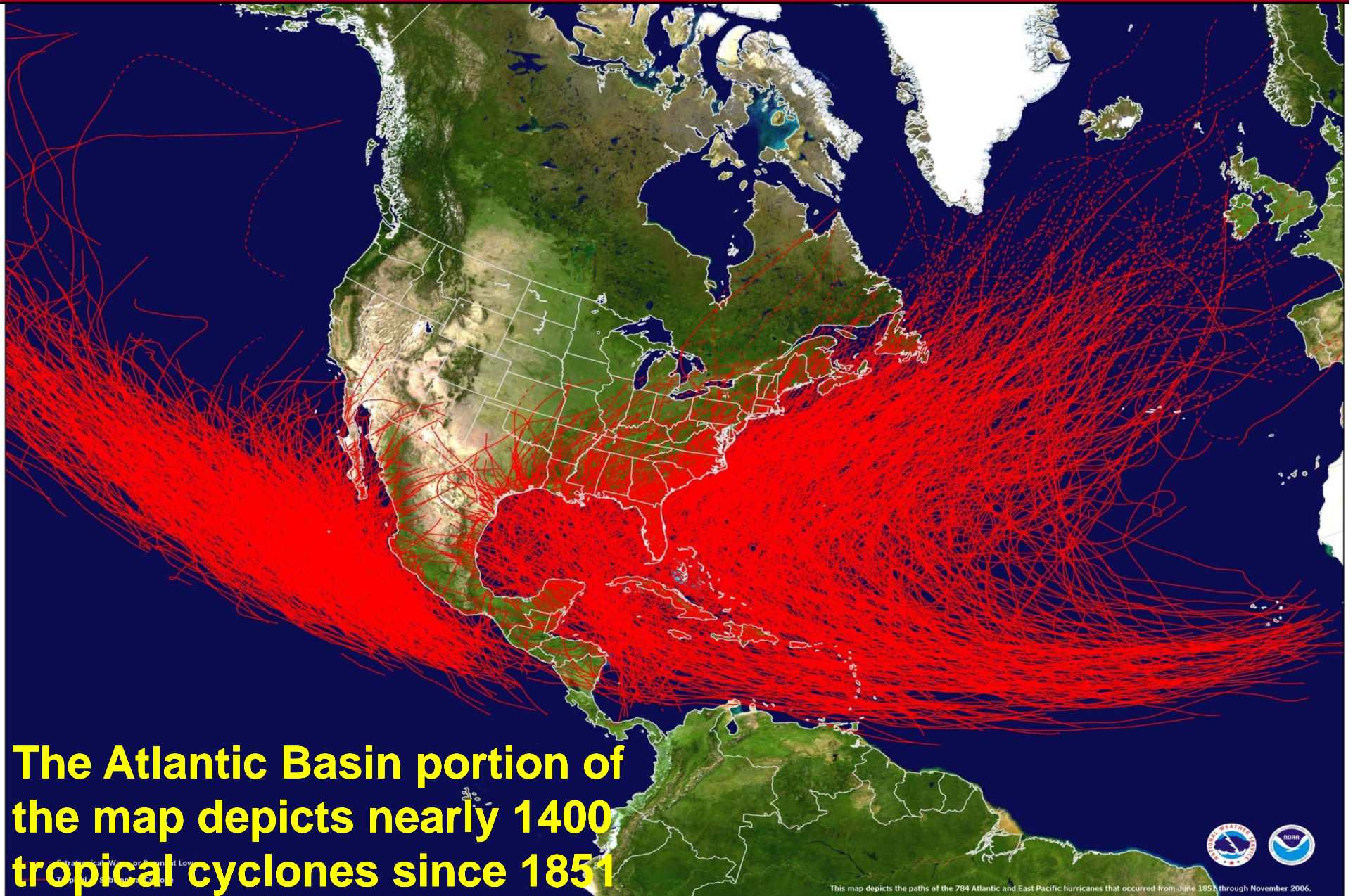
Hawaii and Guam

**Pacific
Region**



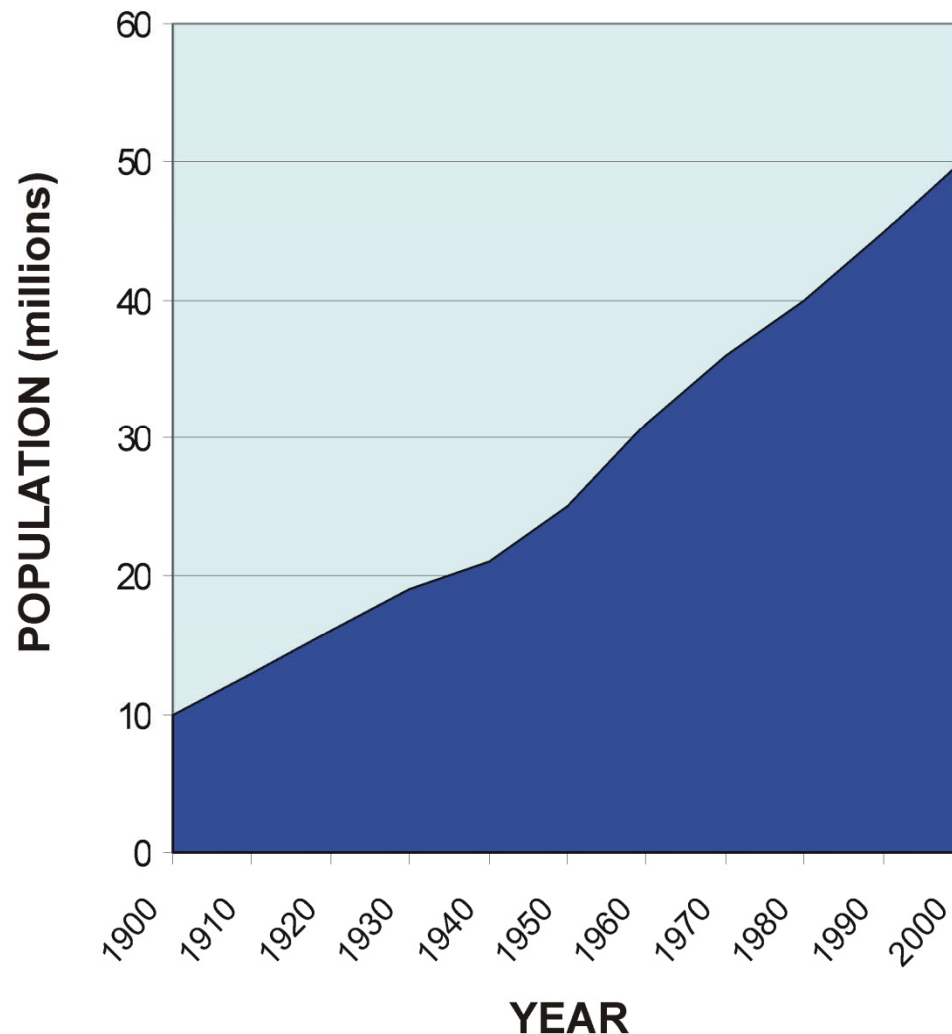
*Puerto Rico and
Virgin Islands*

We are a nation with a vulnerability!



Our U.S. Coastal Population is growing

COASTAL COUNTIES POPULATION



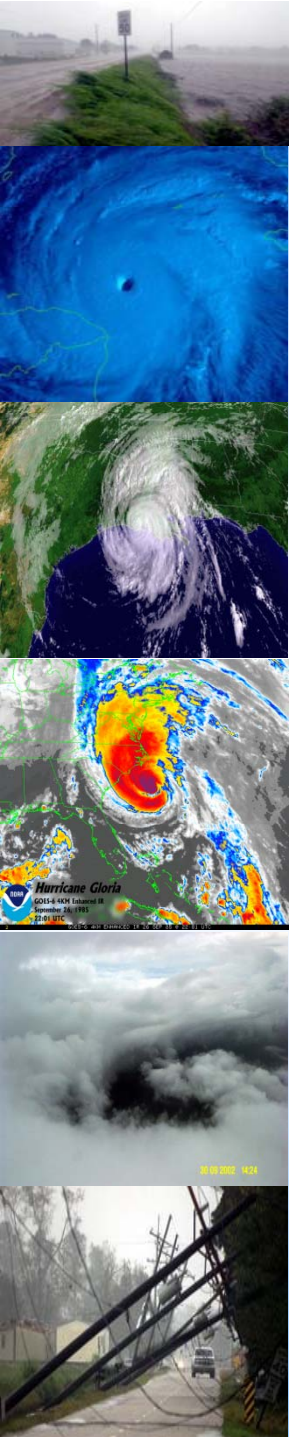
In just one year the U.S. coastal population now grows by up to 7 million. (NOS 2005)

53 percent of the U.S. population lives within 50 miles of the coast (OFCM 2007)

Most coastal residents have little experience with hurricanes. **They need to be ready!**

PREPARED and AWARE!

- A growing majority of coastal residents lack “full” hurricane impact experience
- So, NWS and EM preparedness will not suffice unless the public joins our partnership with a personal commitment to be prepared and aware...
- Only in this way can we improve our National Resiliency ...better protect life & support our Nation’s economic wellbeing.



Hurricane Season Outlooks?

**Whether below or above normal...
tropical cyclones in the Atlantic Basin will
always pose risks & preparedness is a must**

	Average Year	2008 (?)
Named Storms (39+mph)	11	?
Hurricanes (74+mph)	6	?
Major Hrcns (111+mph)	2	?
U.S. Landfalling Hurricanes	2	?

Hurricane Andrew (August, 1992) in SE Florida. A Category 5...155+ mph









Interstate 10, Looking West, Houston

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



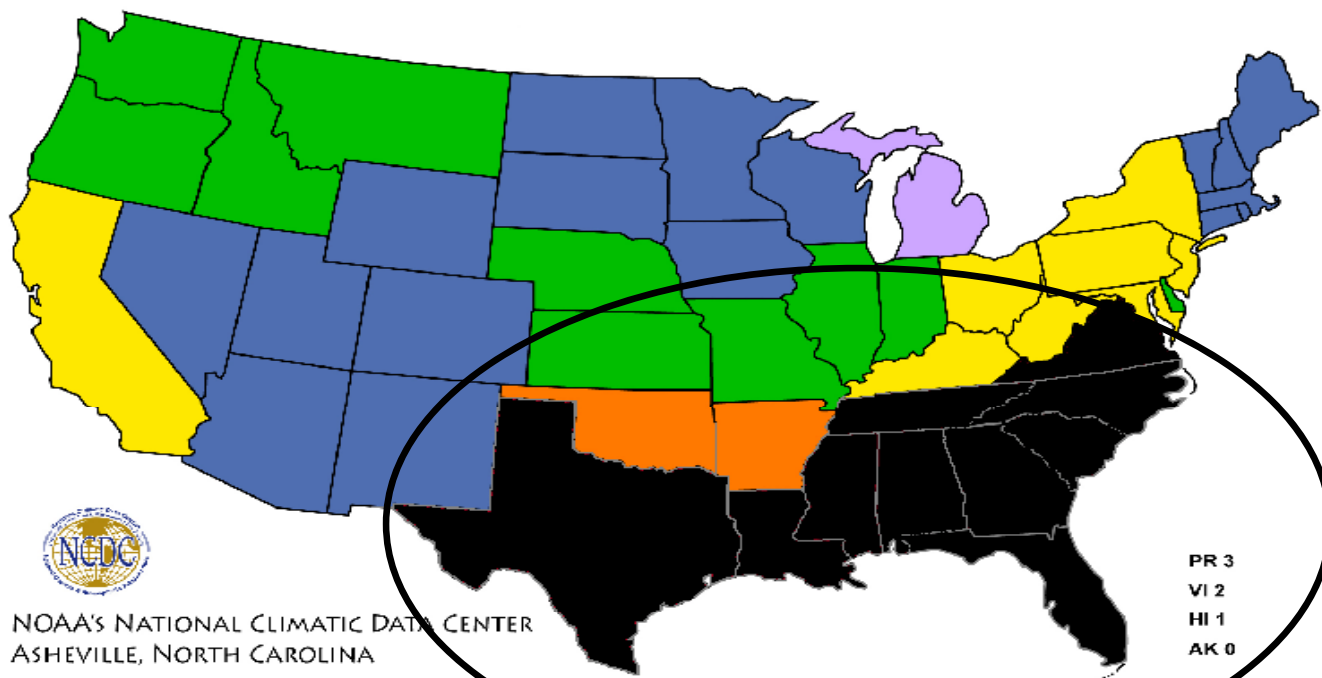
Photo: Houston Chronicle

Interstate 10, Tropical Storm Allison in Houston

It's compelling economic sense !

- With more than 60% of our Nation's Gross Domestic Product (GDP) being weather sensitive
- With average annual costs from hurricanes jumping from *\$5 Billion* in pre'95, to *\$10 Billion !*
- With seven of the 10 most expensive hurricanes in US history occurring in the 14 months from Aug 2004 – Oct 2005
 - Charley - \$15.0 billion insured losses
 - Katrina - \$81.0 billion
 - Rita - \$10.6 billion
 - Wilma - \$20.6 billion





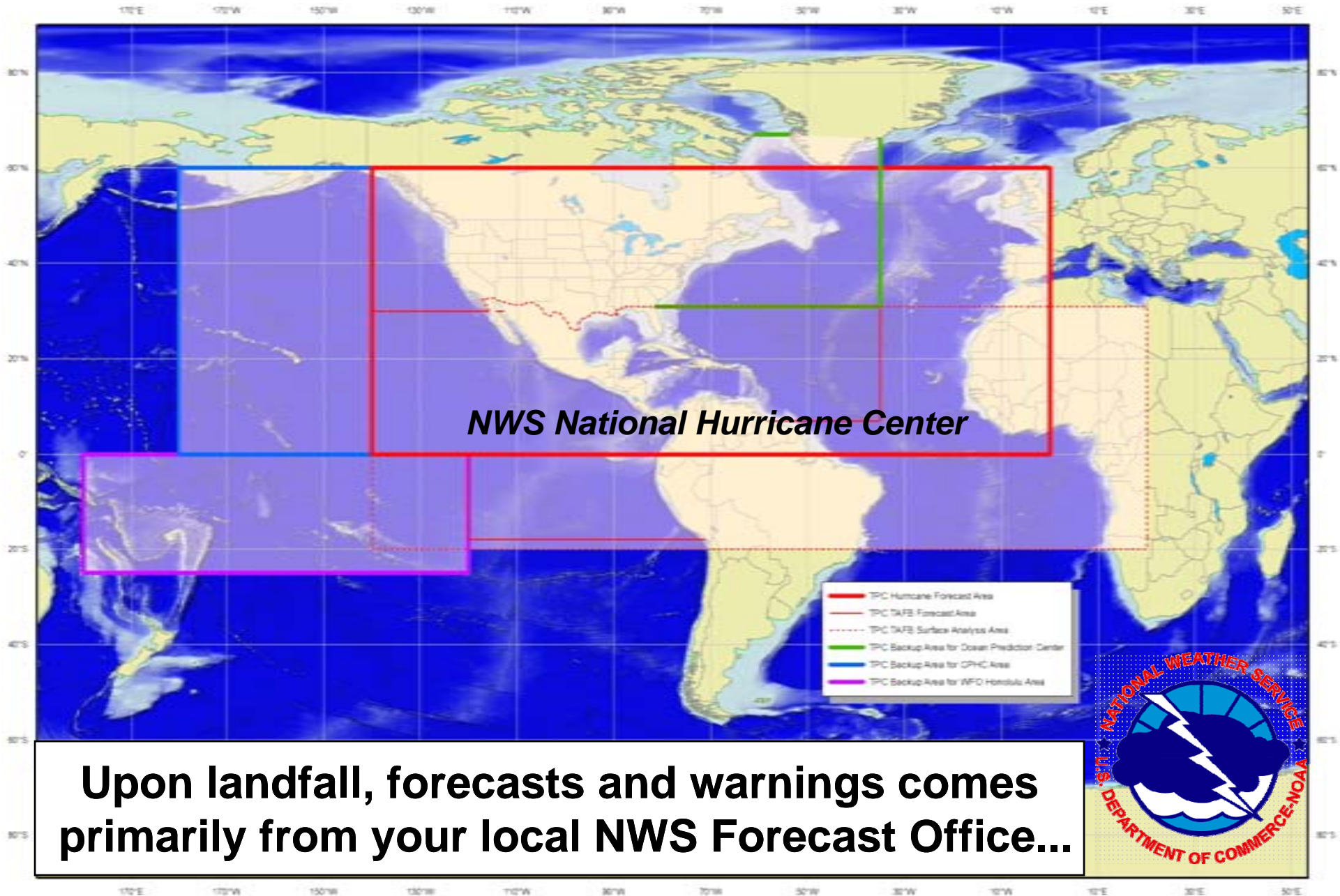
Tropical Cyclones cause nearly 50% of USA Billion dollar weather events since 1980 ! No surprise that our coastal states have the most.

NUMBER OF EVENTS	DISASTER TYPE	NUMBER OF EVENTS	PERCENT FREQUENCY	NORMALIZED DAMAGES (Billions of Dollars)	PERCENT DAMAGE
16 - 25	Tropical Storms/Hurricanes	24	35.8%	269	52.0%
13 - 15	Non-Tropical Floods	12	17.9%	55	10.6%
10 - 12	Heatwaves/Droughts	11	16.4%	145	28.1%
7 - 9	Severe Weather	7	10.4%	13	2.5%
4 - 6	Fires	6	9.0%	13	2.5%
4 - 6	Freezes	2	3.0%	6	1.2%
1 - 3	Blizzards	2	3.0%	9	1.7%
	Ice Storms	2	3.0%	5	-1.0%
	Noreaster	1	1.6%	2	-0.3%
		67		517	

Please note that the national map color-coded by state reflects a summation of billion dollar events, for each state affected--ie, it does not mean that each state shown suffered at least \$1 billion in losses for each event.

Billions of Dollar Weather Events, 1980-2005

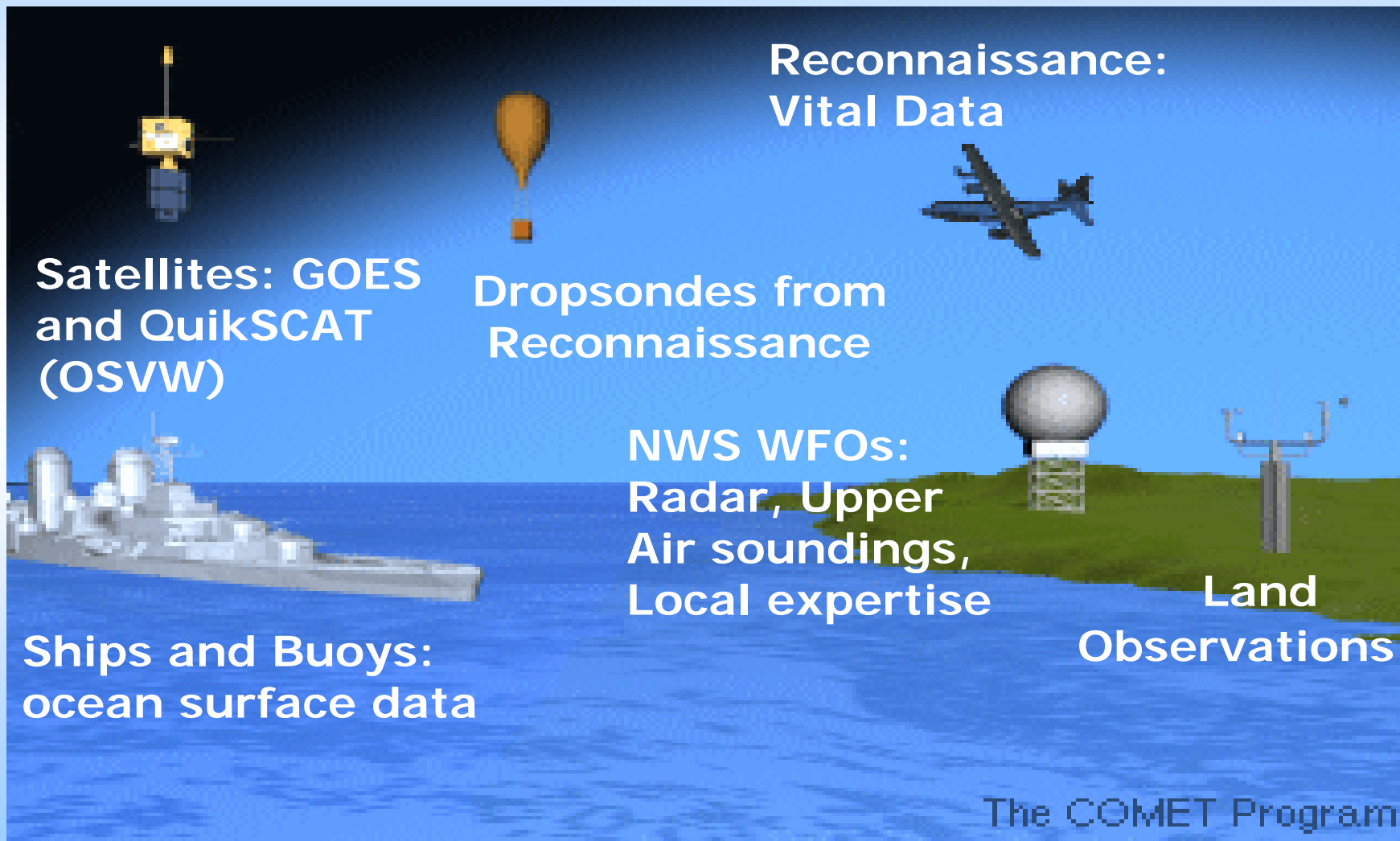
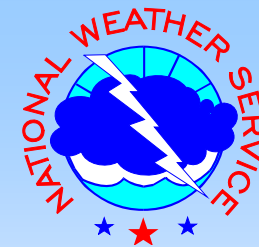
NHC has ocean to coastal TC forecast/warning responsibility...



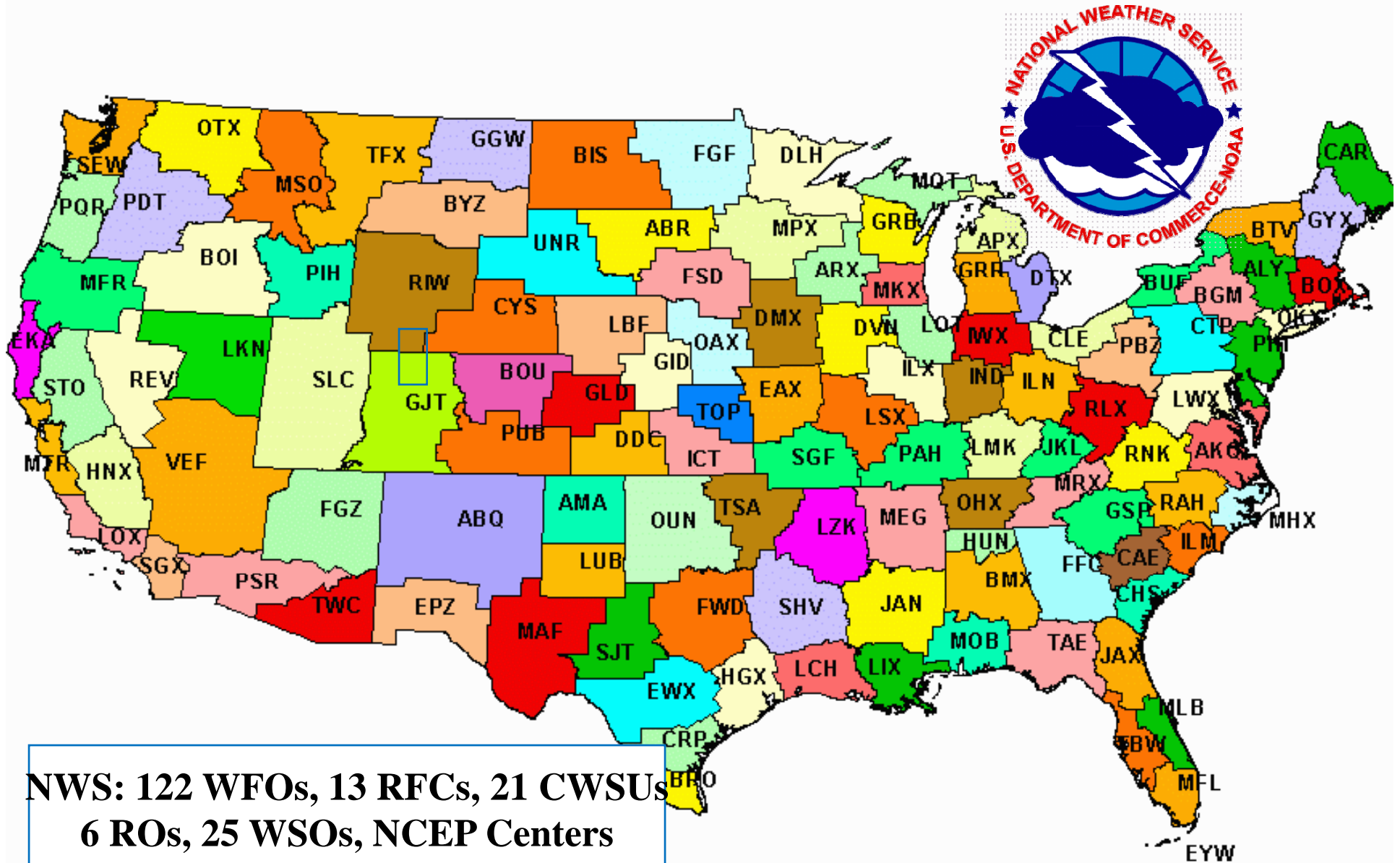


Forecasting Hurricanes

...sparse ocean data

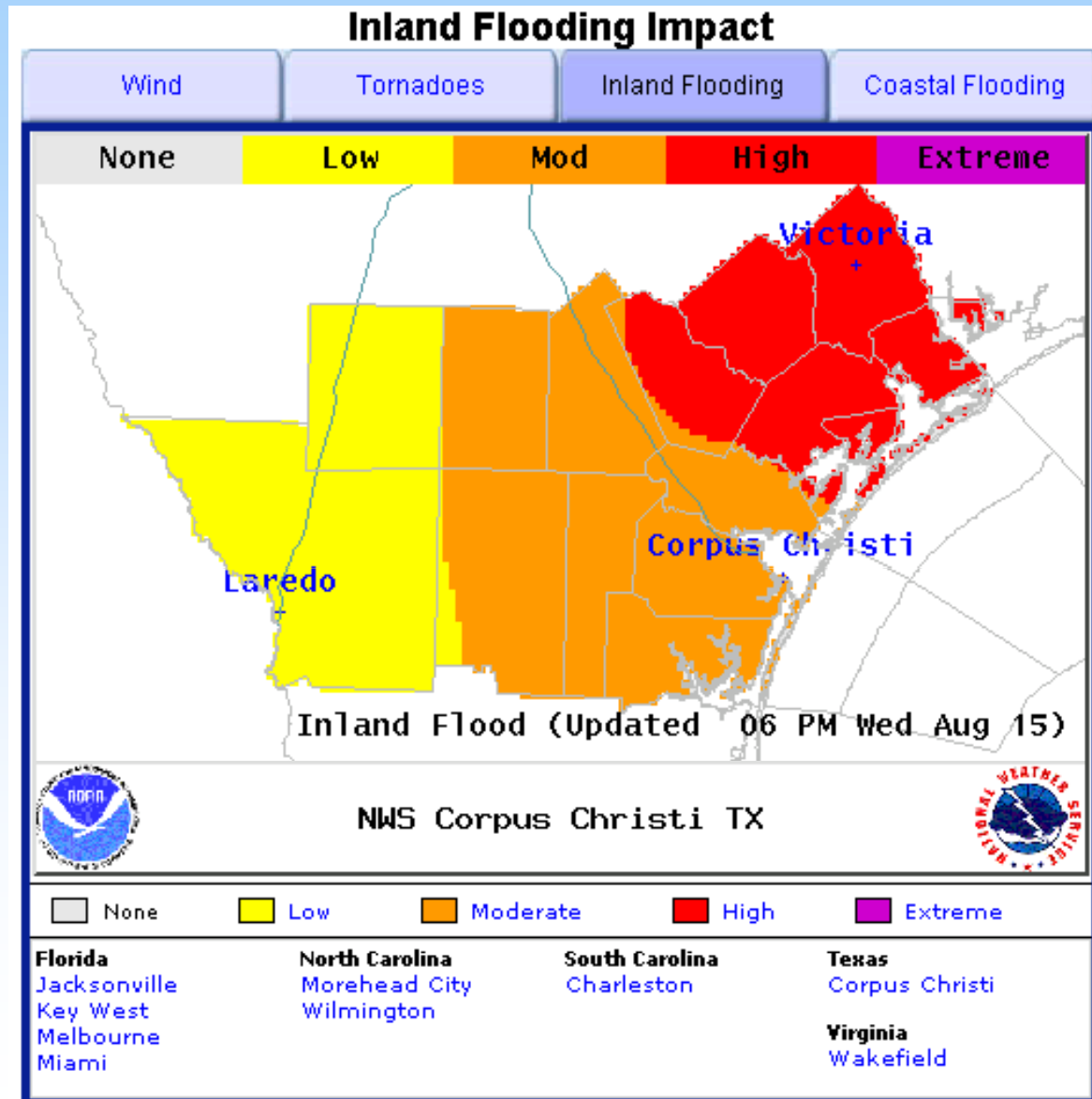
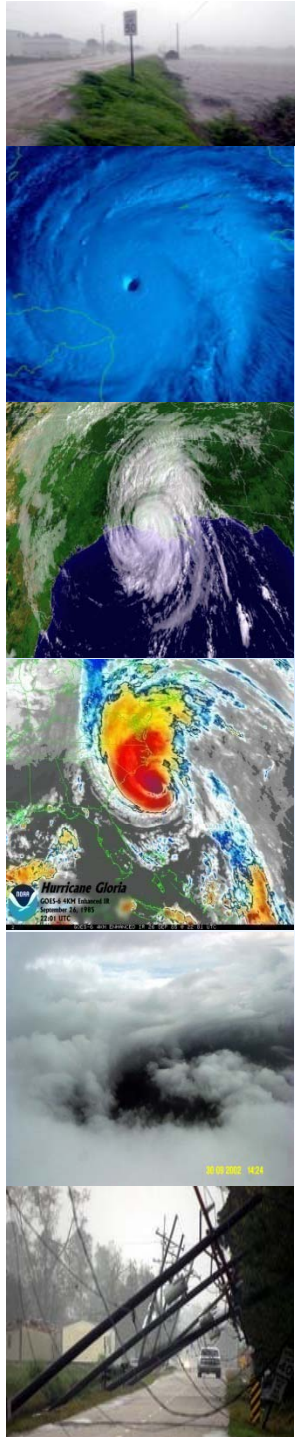


Your *nearby* NWS WFO is the best source for the Hurricane's expected *local* impacts



NWS: 122 WFOs, 13 RFCs, 21 CWSUs,
6 ROs, 25 WSOs, NCEP Centers

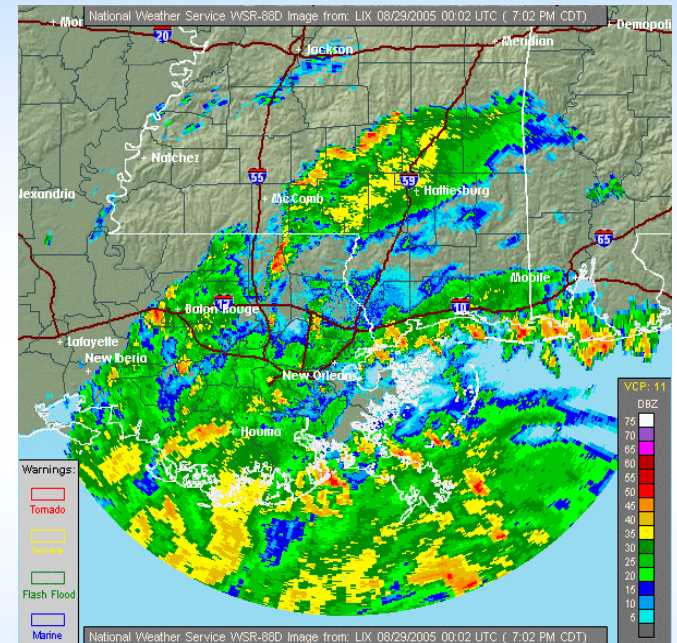
WFO Key Impact Graphics



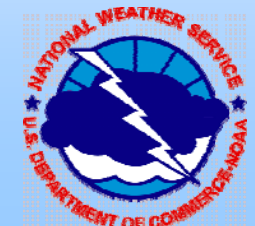
As storms near the coast, your NWS WFOs provide the best GIS radar data

- National Weather Service WFO GIS radar graphics include the latest **watches and storm-based warning boxes** right on the radar loops.
- Our GIS radar depiction gives you from any geographic point, the distance and direction to the edge of approaching weather.
- Our data gives you a running tally on **local rainfall amounts**.
- You can superimpose our radar onto your own GIS awareness and response program e.g. Google Earth.

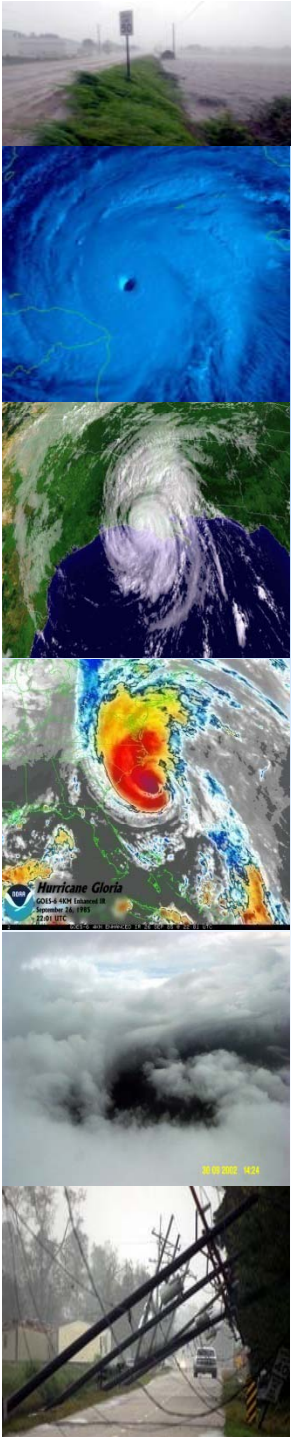
www.SRH.weather.gov



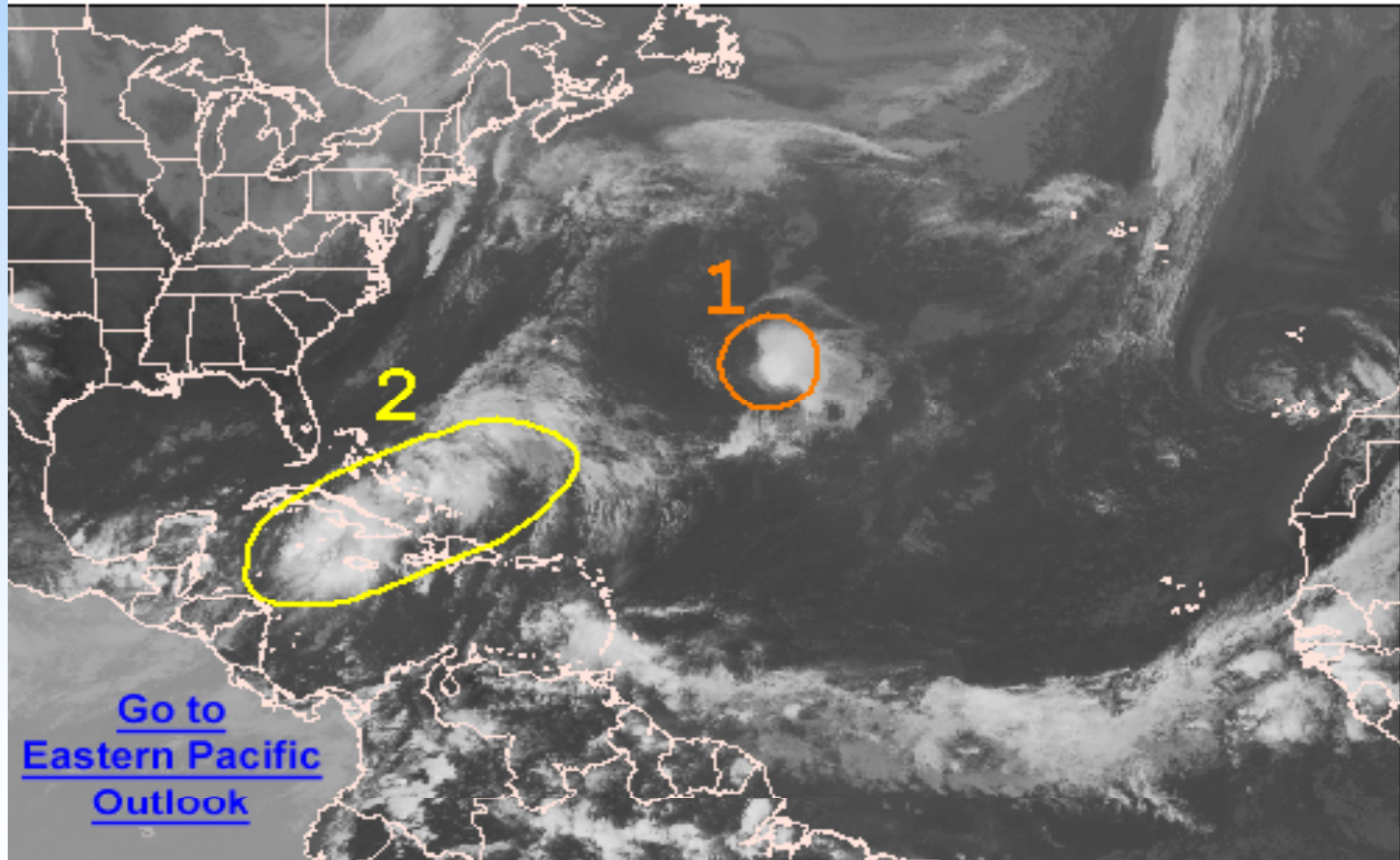
Example of NWS radar & warnings in Google Earth



NWS Graphical Tropical Weather Outlooks – NHC, 4 times daily



Experimental Graphical Tropical Weather Outlook



[Go to
Eastern Pacific
Outlook](#)

200 PM EDT THU OCT 11 2007

Satellite Image: 0322 PM EDT

The highlighted and numbered areas, if any, indicate current locations of weather systems discussed in the Tropical Weather Outlook below.



New NWS Radar Technology

- **Current Radar Enhancements**
 - ◆ Improved elevation scans
 - ◆ Faster scans (from 6 to 4 mins)
- **Dual-Pol Radar (1-4 yrs)**
 - ◆ Improved resolution, TC structure imaging and velocity data
 - ◆ Better severe weather lead-times
 - ◆ 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!

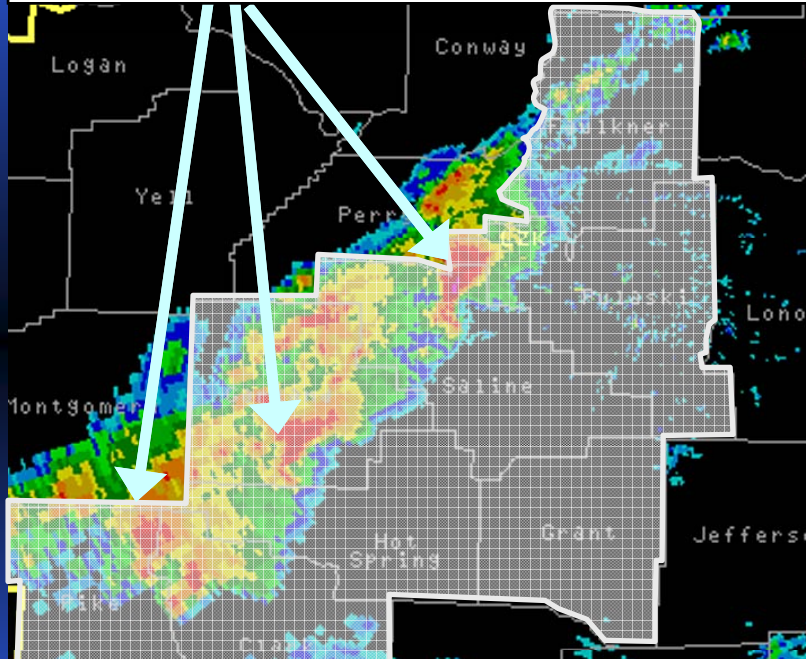




NWS Southern Region

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

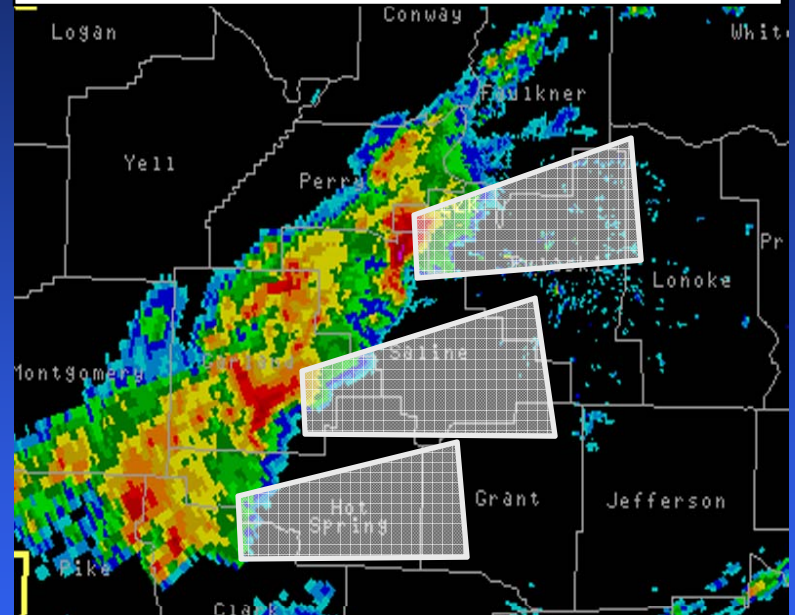
Three simultaneous tornadoes within line of severe thunderstorms



County-Based Tornado Warnings

8 counties under warning
Almost 1 million people warned

- More specific
- Increased clarity
- Supports new dissemination technology



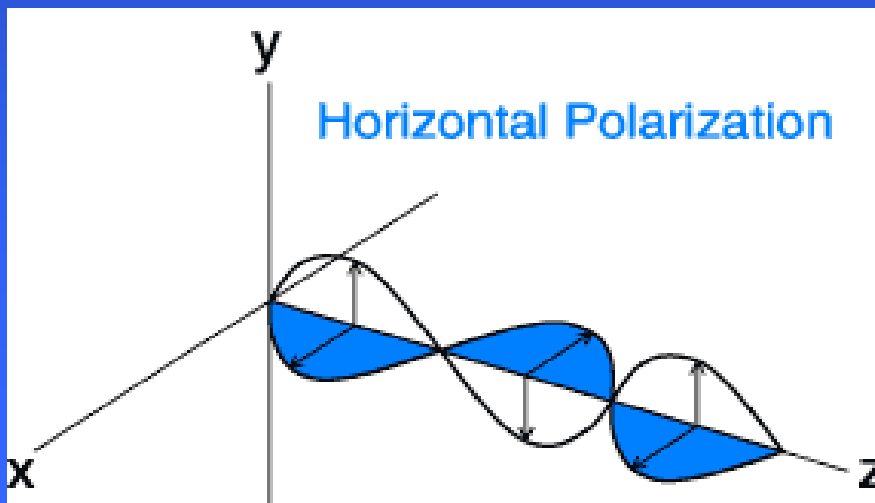
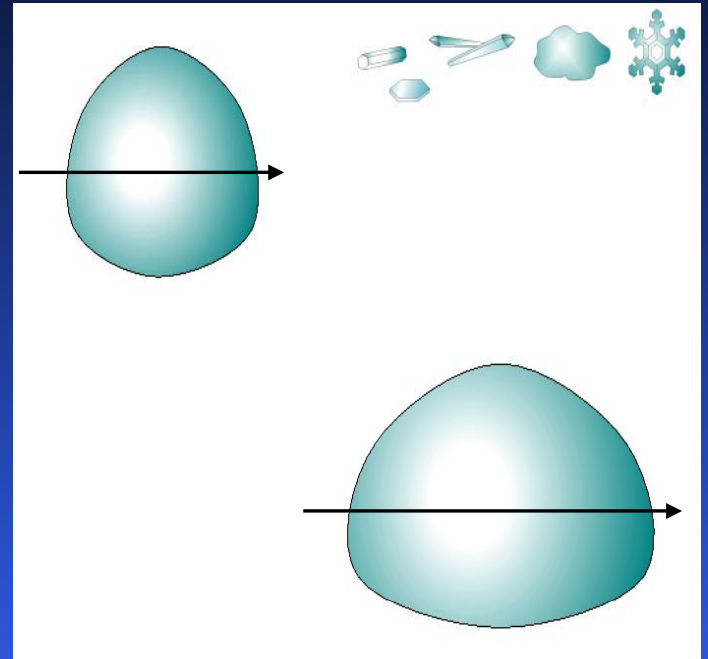
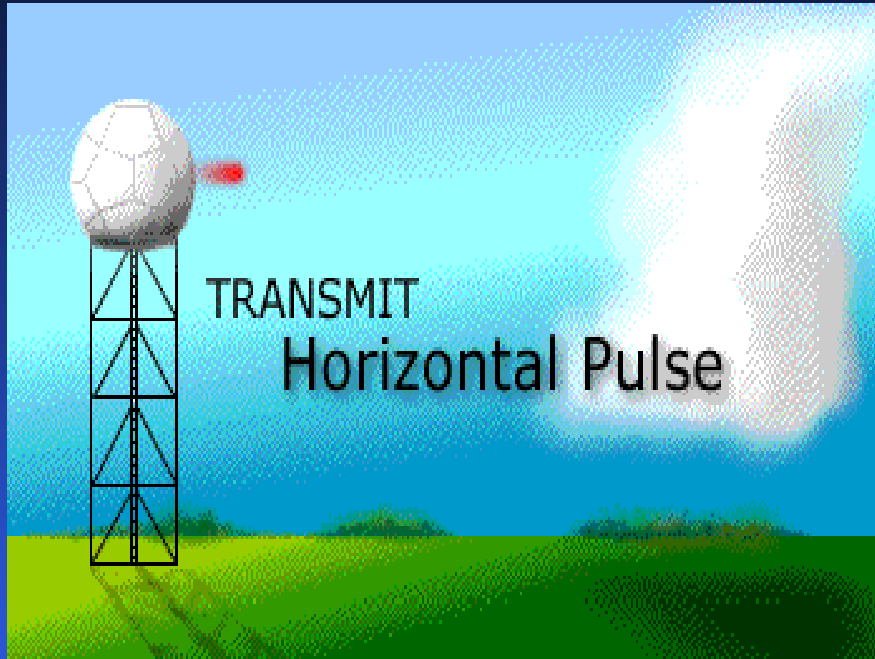
Storm-Based Tornado Warnings

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



NWS Southern Region

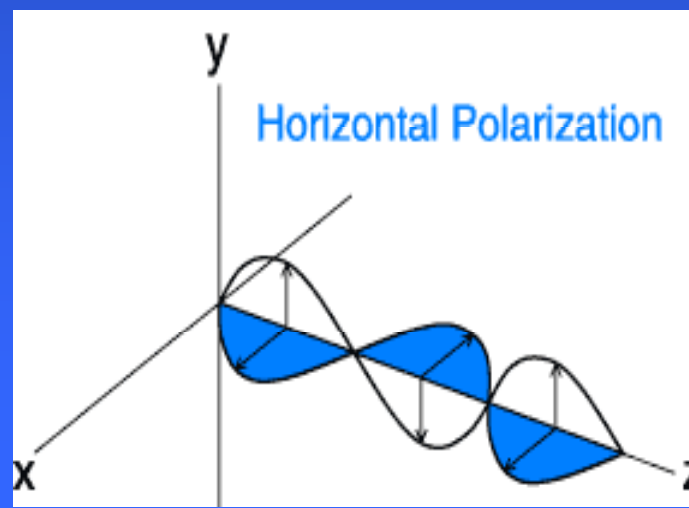
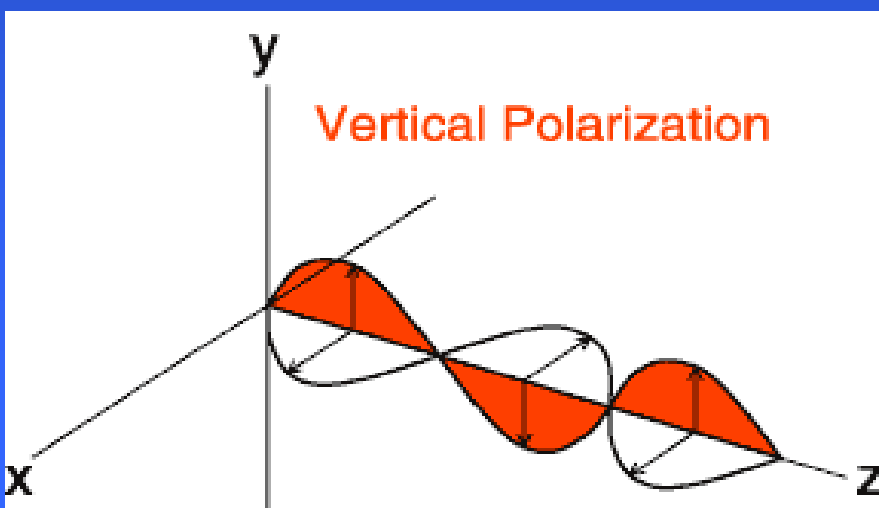
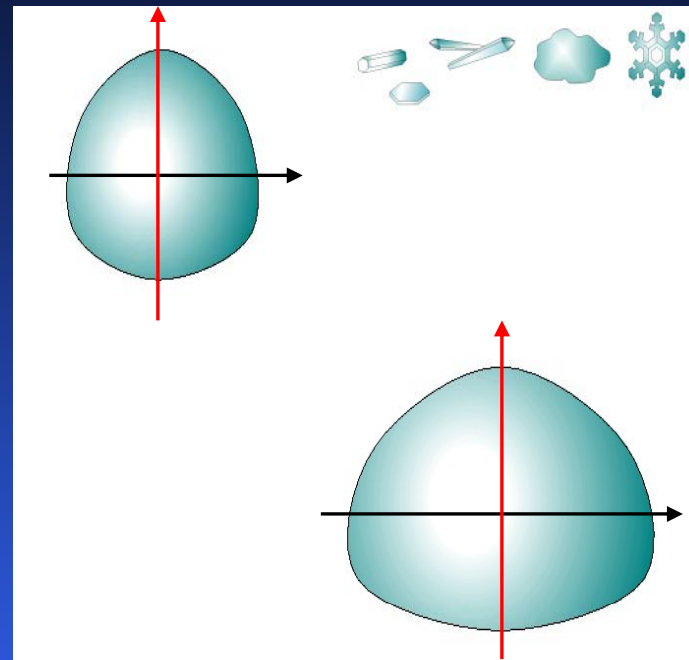
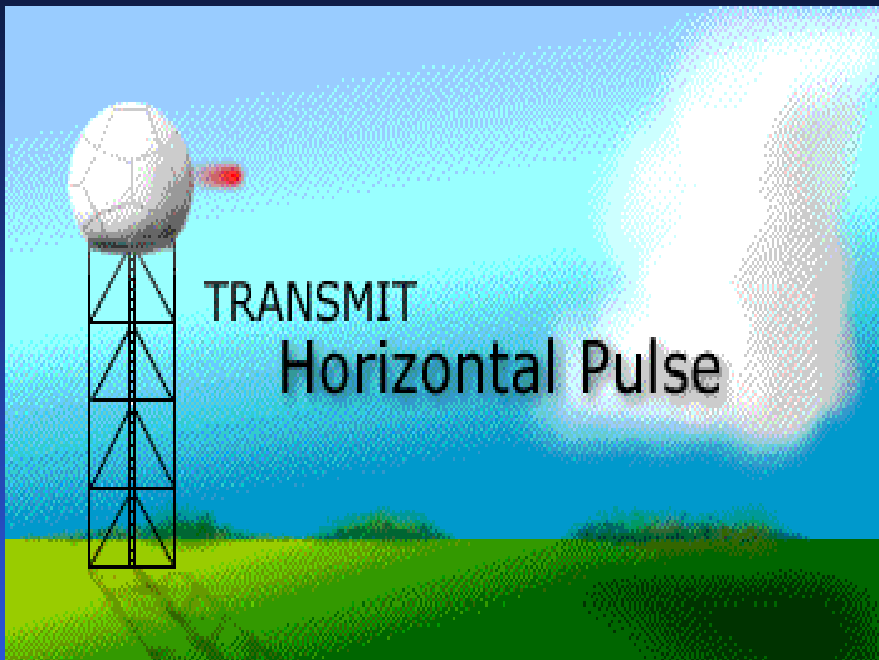
Current WSR-88D Radar

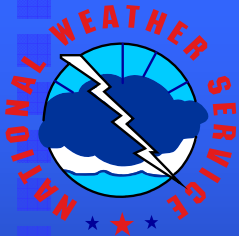




NWS Southern Region

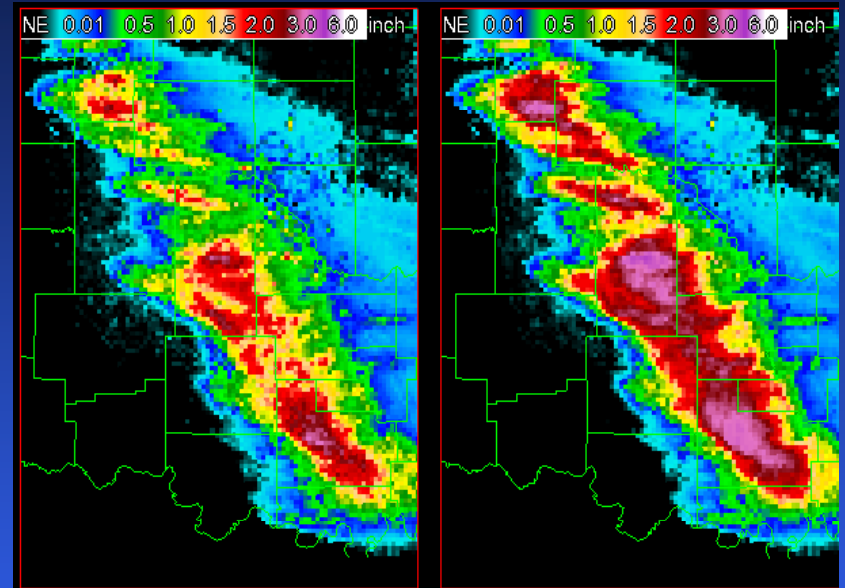
Dual-polarization Radar





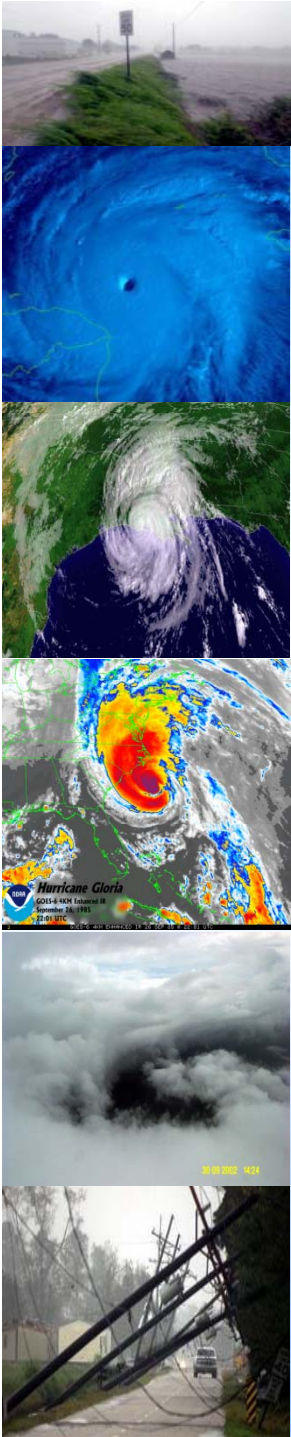
Dual Polarized Doppler Radar

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



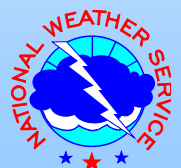
Dual-Pol WSR-88D 1-hr rainfall est. (left) vs. legacy WSR-88D estimate (right).

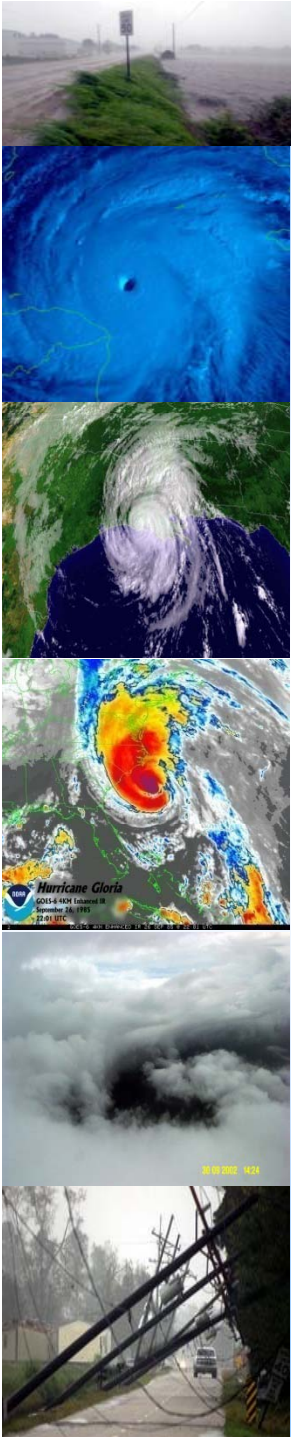
The right-hand image was a significant overestimate but the Dual-Pol product provided a much better estimate.



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)*

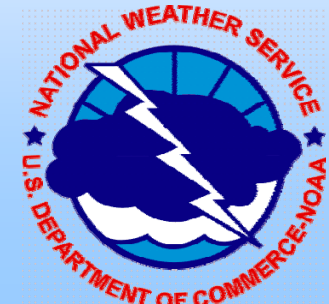




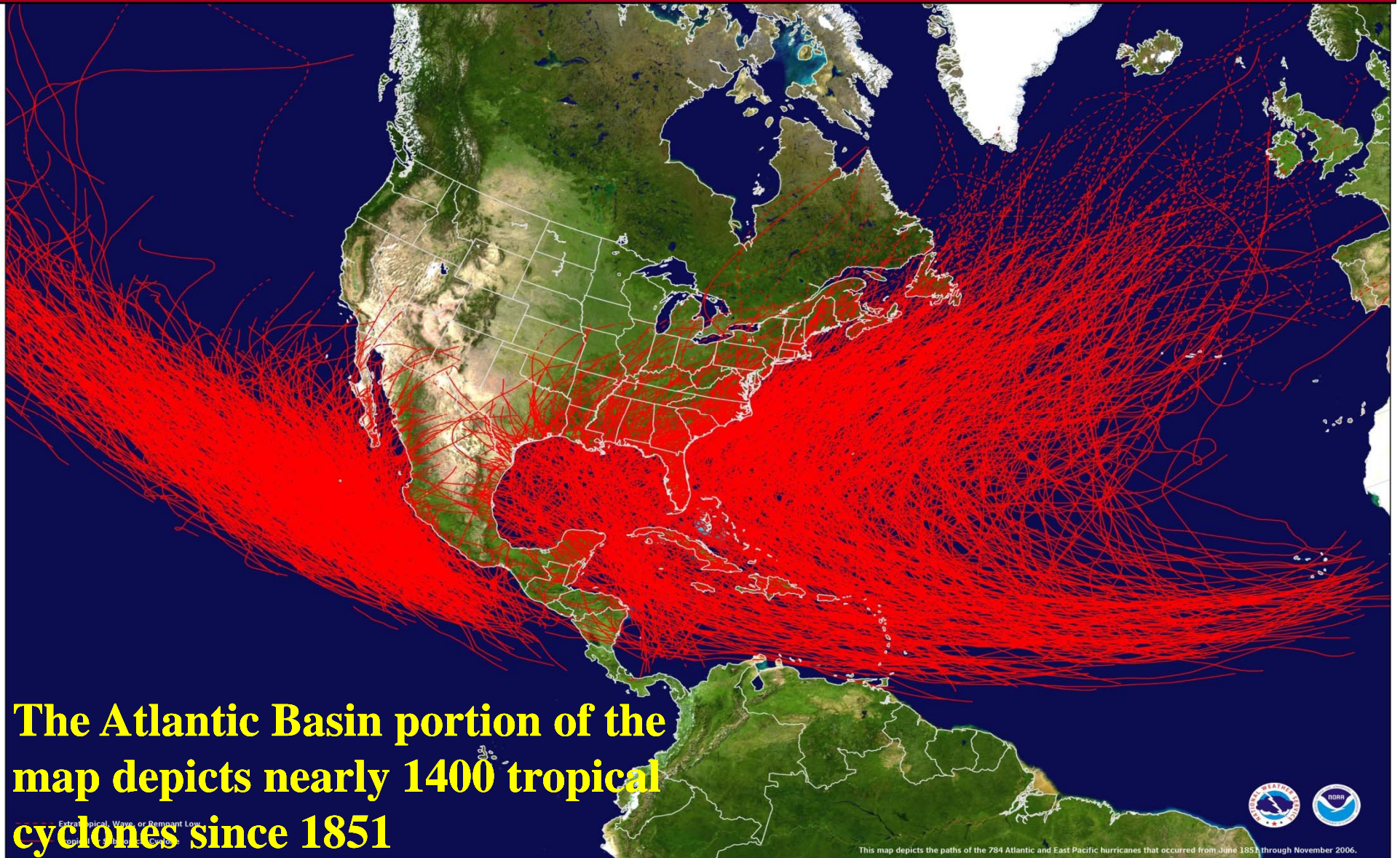
***Your National Weather Service
Forecast Offices and its NHC are
your best source for latest hurricane
info in partnership with media & EM.***

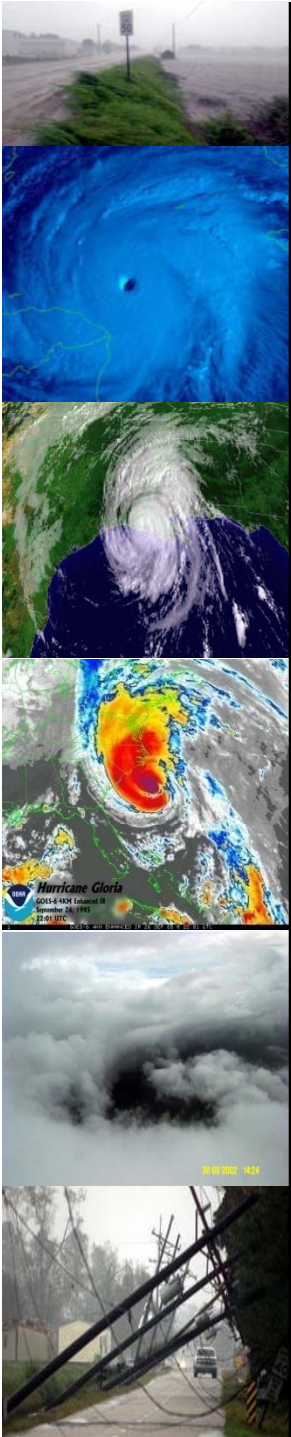
***Our many timely and vital services are
a product of all of NOAA and your
nearby NWS office epitomizes the
concept:***

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



*Vulnerable? Yes, but with NAT'L commitment
more RESILIENT than ever !*





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

*Bill Proenza, Director
National Weather Service Southern Region*

www.SRH.noaa.gov

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

Click under presentations:

“Gulf States Hurricane Awareness Tour – 04/14-18/08”

