



National Weather Service
West Gulf River Forecast Center

An Overview of Operations and Decision Support Services at West Gulf River Forecast Center

Gregory Waller – Service Coordination Hydrologist

NWS - West Gulf River Forecast Center



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



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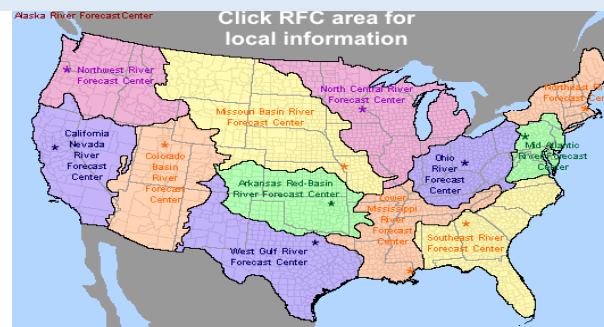
Department of Commerce

National Oceanic and
Atmospheric
Association

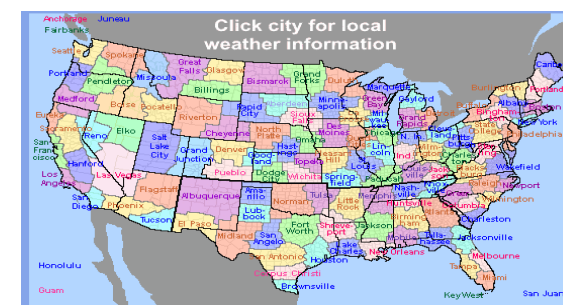
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WGRFC (13 RFC's)

Weather Forecast Offices (120+)



Click RFC area for
local information



Click city for local
weather information



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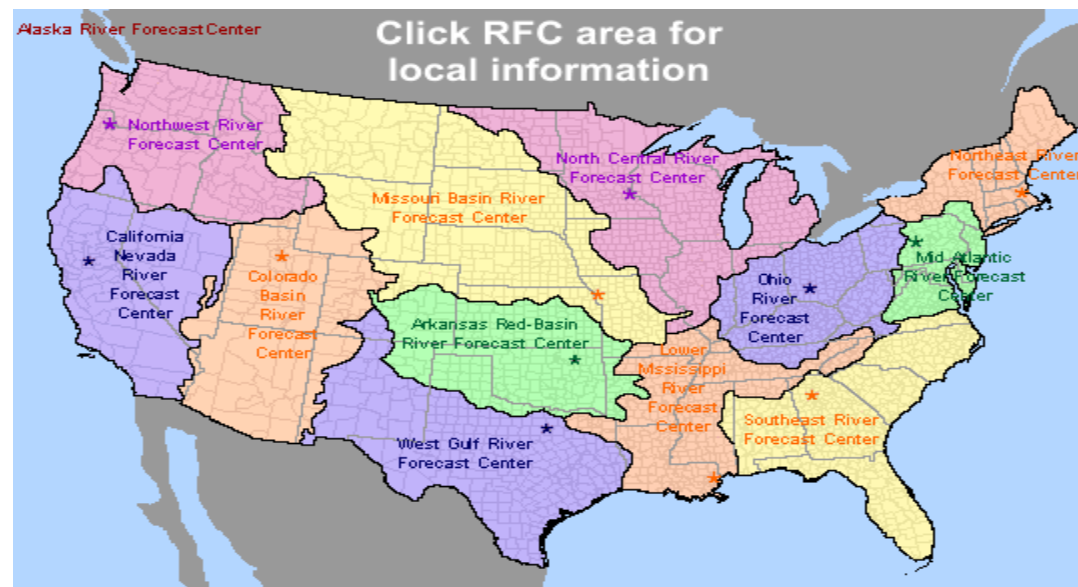


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- 13 Offices (12 CONUS + 1 Alaska/Pacific)
- Hydro-geologic boundaries
 - Some modeling of headwaters in Canada/Mexico (no forecast services)
- Daily Operations
 - Data collection and quality control
 - Precipitation and Hydrologic Forecasts
- Research Activities
 - New technologies
 - New products



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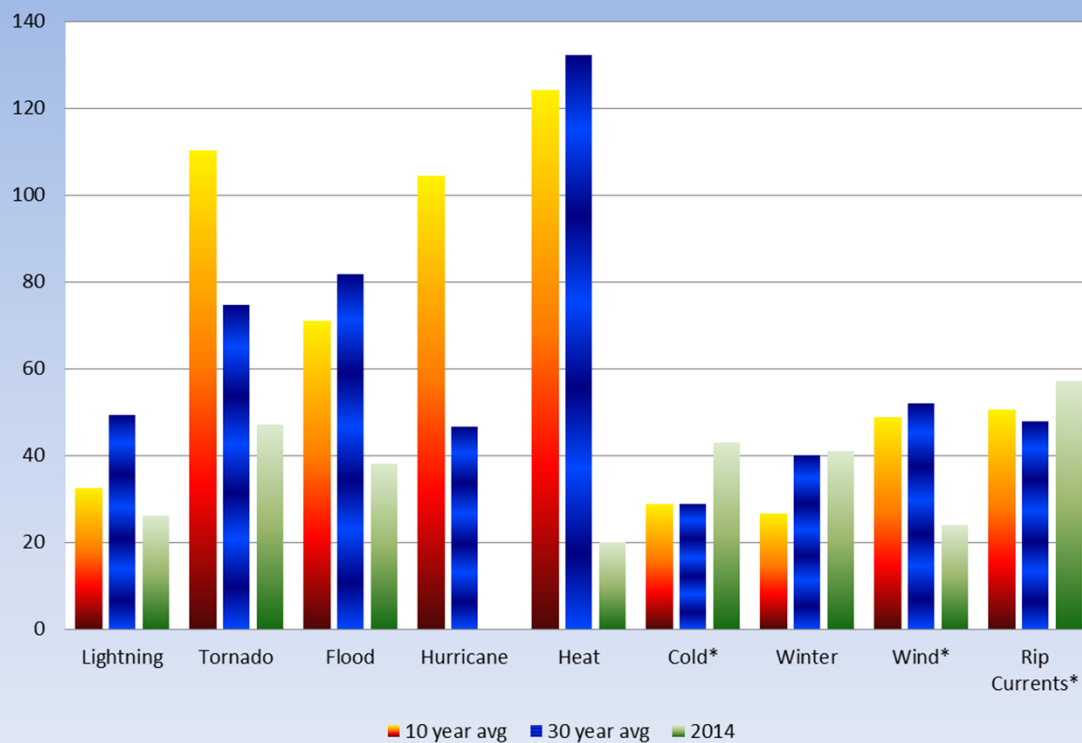
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- Flooding is a major contributor to weather related fatalities
- While most weather hazards are handled by Weather Forecast Offices, River Forecast Centers are also involved
- River Forecast Centers provide time series (river forecasts) to the Weather Forecast Offices, who then add local impacts and issue the warnings/statements to the public

Weather Hazard Fatalities



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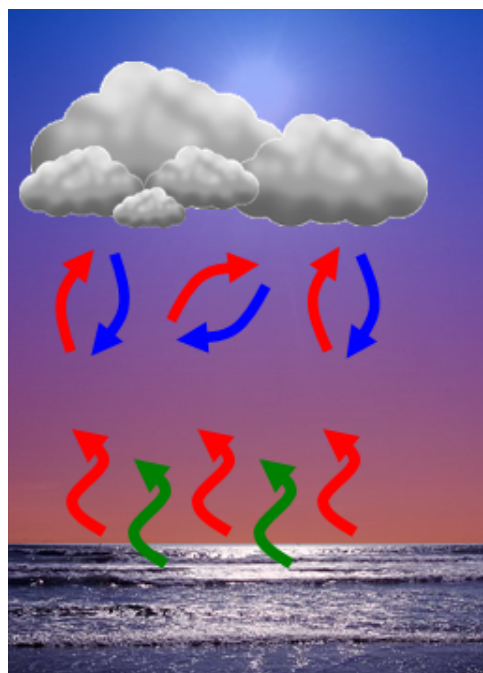
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You need 3 ingredients for thunderstorms:

Lift

Moisture

Instability



- Upper atmosphere is **cool**
- Warm air **cools**; cannot hold additional moisture; **clouds** and **water droplets** form
- Warm air **mixes** with cool air
- Warm, moist air **rises**
- Lower atmosphere **warms**
- **Heat** and **moisture** transfer from ocean to atmosphere



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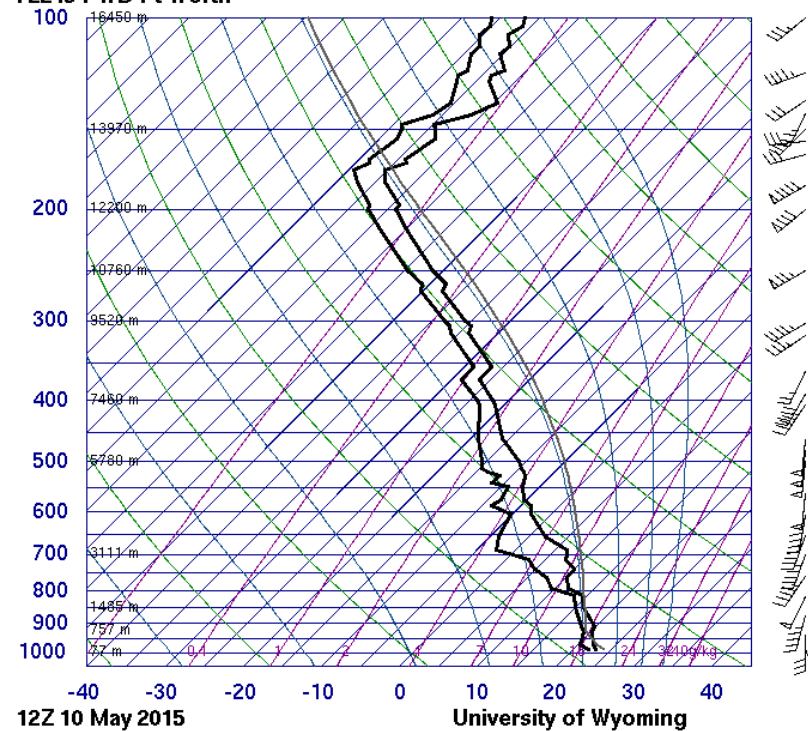


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Plenty of moisture

- Most soundings (like the FWD sounding) show deep moisture through the column of the atmosphere

72249 FWD Ft Worth



SLAT 32.83
SLON -97.30
SELV 171.0
SHOW -4.60
LIFT -5.85
LFTV -6.35
SWET 411.2
KINX 35.20
CTOT 26.00
VTOT 27.10
TOTL 53.10
CAPE 1969.
CAPV 2097.
CINS -17.7
CINV -15.1
EQLV 172.3
EQTV 172.3
LFCT 854.2
LFCV 861.9
BRCH 22.53
BRCV 24.00
LCLT 293.1
LCLP 941.6
MLTH 298.2
MLMR 15.92
THCK 5703.
PWAT 45.97



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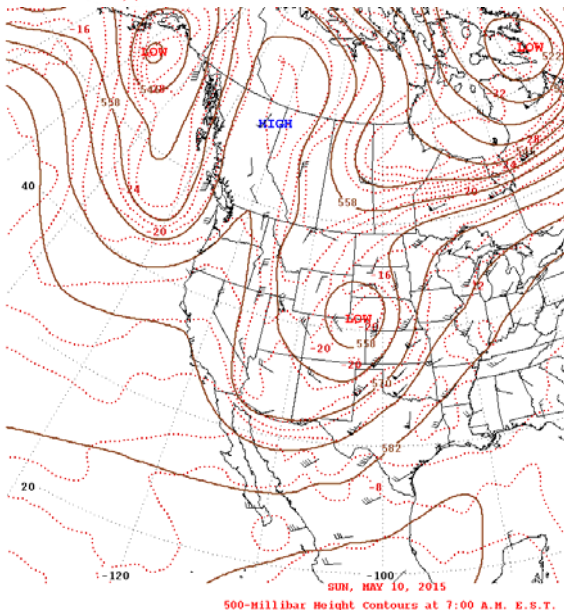


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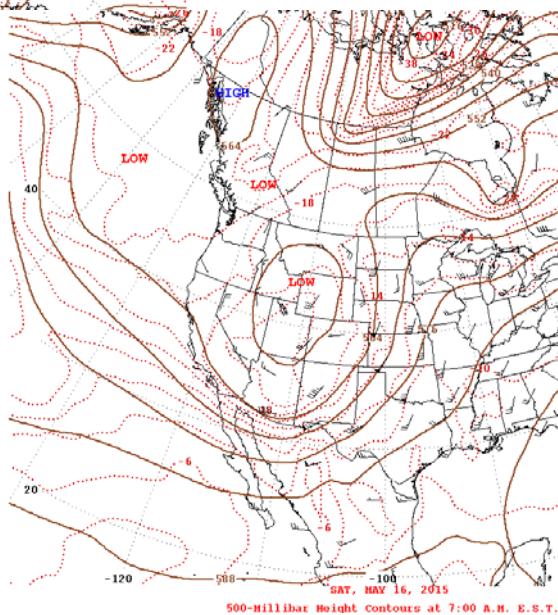


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May 10, 2015

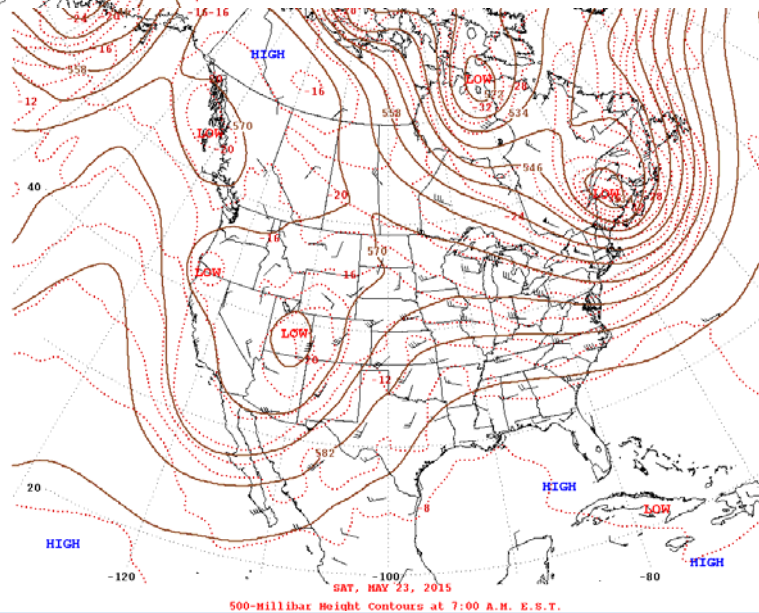


May 16, 2015



Dynamics???

May 23, 2015



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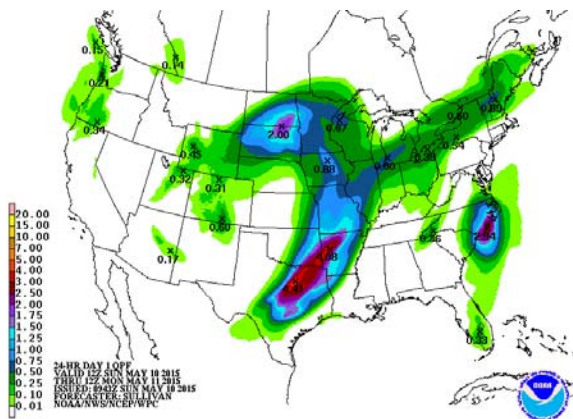


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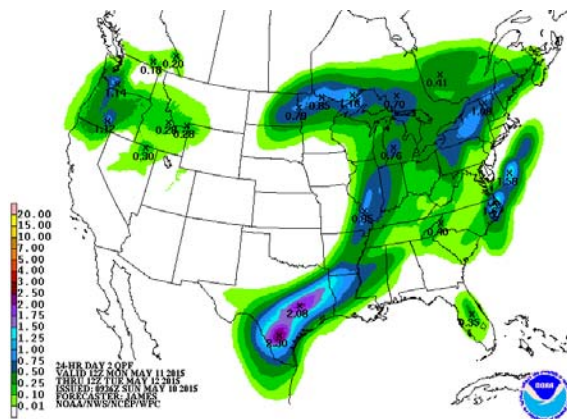


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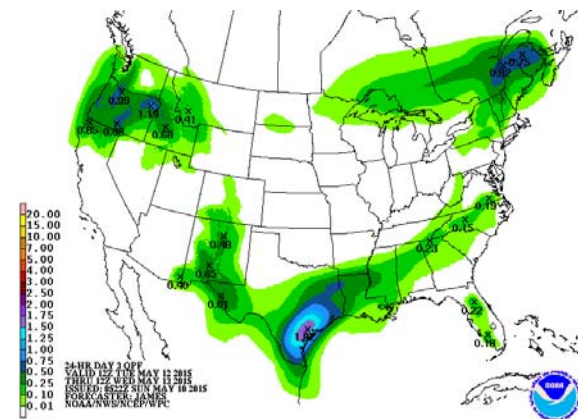
QPF Guidance...



Day 1 QPF May 10, 2012 12Z



Day 2 QPF May 10, 2012 12Z



Day 3 QPF May 10, 2012 12Z



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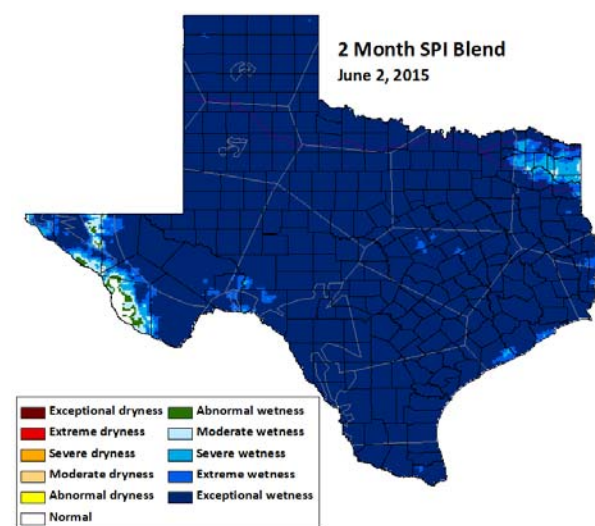
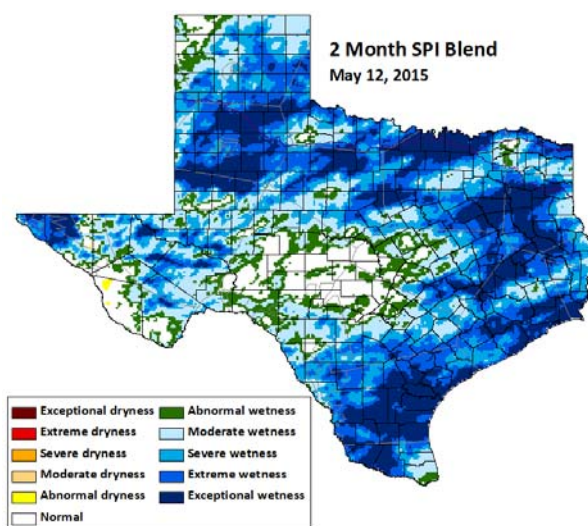
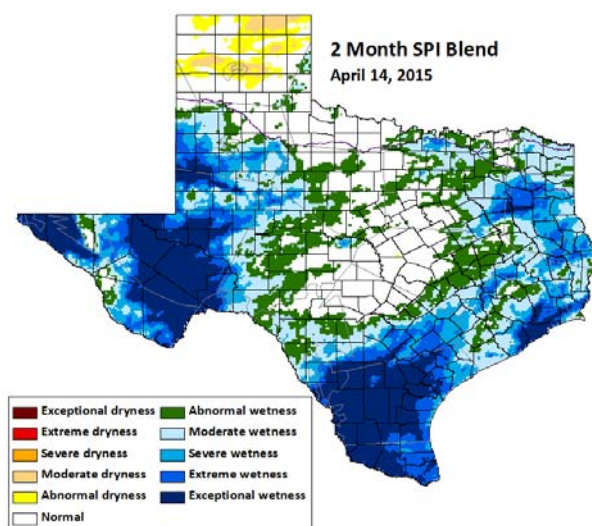
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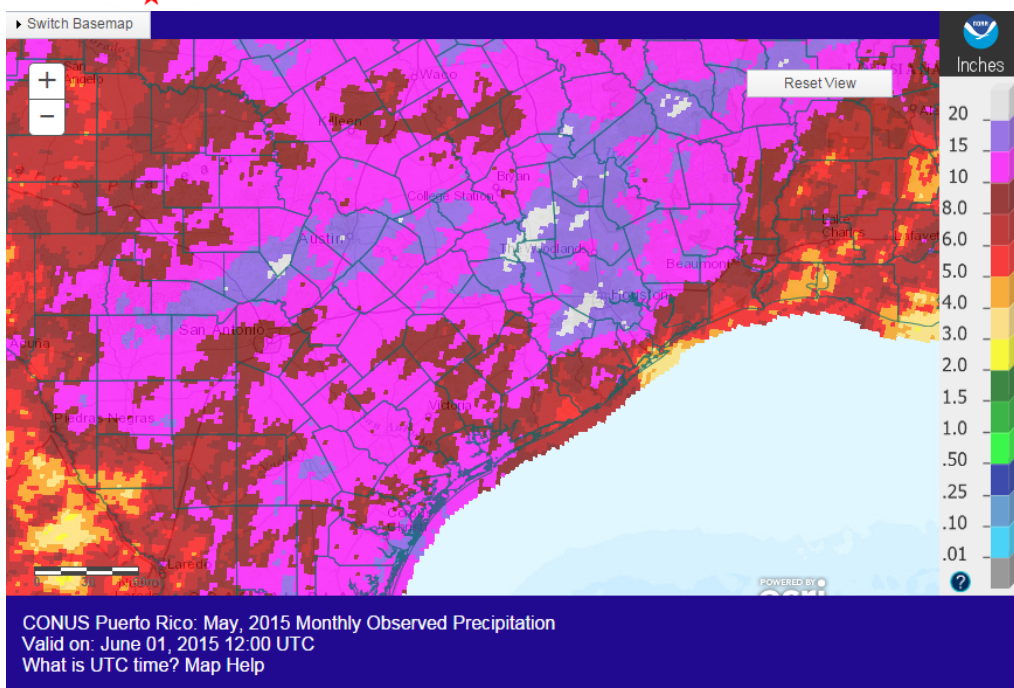
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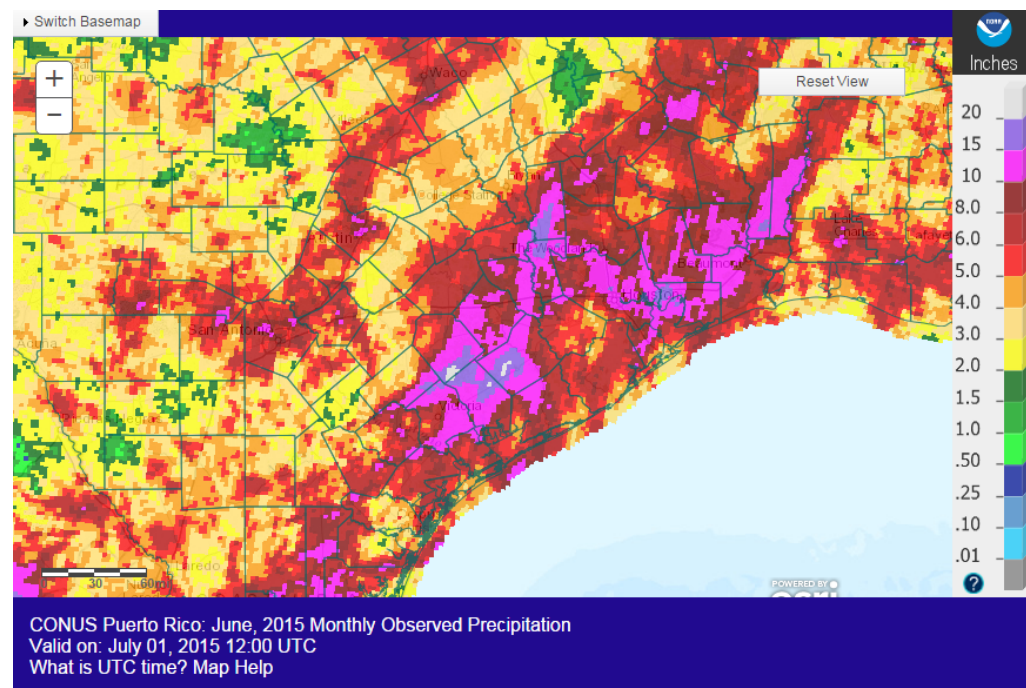
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May 2015



June 2015



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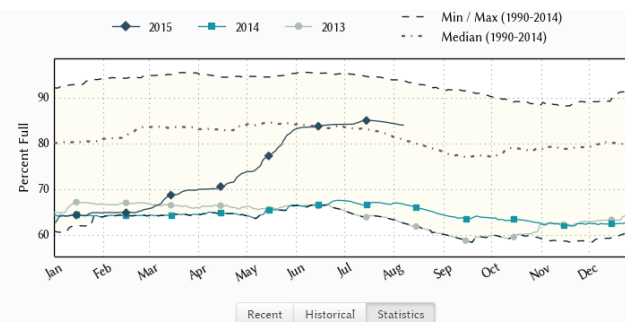
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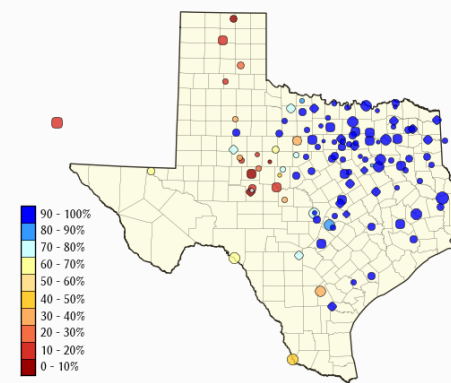
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Notes:

- I. Maxed out at 125 forecast points with a criteria forecast (think 2007)
- II. Every river basin with the exception of the Pecos, had a criteria forecast at some point
- III. Transitioned from record low reservoir storage across the state to numerous lakes reaching their surcharge pools



	Date	Percent Full	Reservoir Storage (acre-ft)	Conservation Storage (acre-ft)	Conservation Capacity (acre-ft)
Today	2015-08-07	84.1	33,561,556	26,433,234	31,442,241
Yesterday	2015-08-06	84.1	33,669,445	26,455,671	31,442,241
2 days ago	2015-08-05	84.2	33,831,945	26,483,358	31,457,382
1 week ago	2015-07-31	84.5	34,677,564	26,585,823	31,457,382
1 month ago	2015-07-07	84.3	37,580,608	26,531,259	31,457,382
3 months ago	2015-05-07	74.4	29,384,873	23,447,216	31,536,268
6 months ago	2015-02-07	64.9	25,139,572	20,351,314	31,341,475
1 year ago	2014-08-07	66.8	25,452,265	21,012,920	31,457,382



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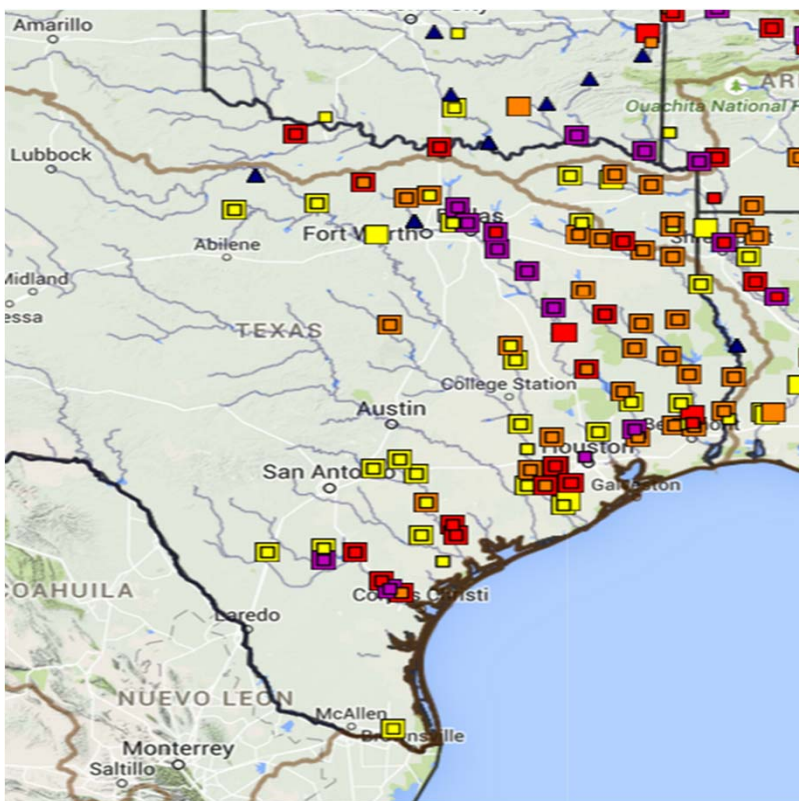


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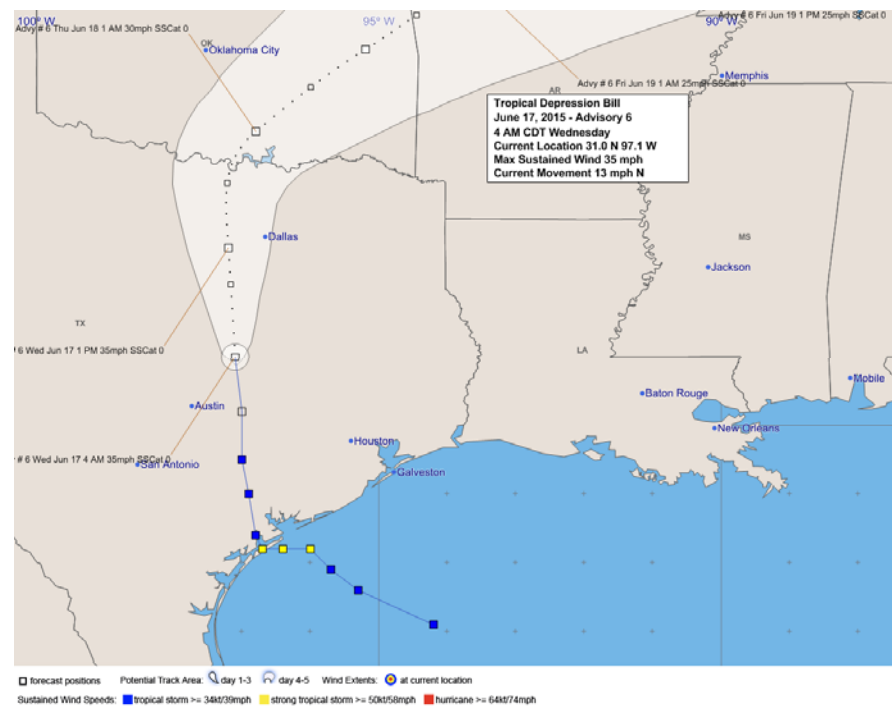


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River Status morning of June 2



Throw in Tropical Storm Bill



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WGRFC and DSS - 2015

- After the 2007 Flood Event, WGRFC management agreed in concept to a Incident Coordination Hydrologist role/shift
 - Loosely patterned after the WFO Coordinator Role during severe weather operations
 - Individual assigned would assume responsibility of briefings, phone calls, coordination
- Notice the date (2007):
 - No NWSChat
 - No Social Media
 - Facebook
 - Twitter
 - YouTube
- Huge multi-year drought
 - All events were fairly short duration
 - Never assigned the tasks



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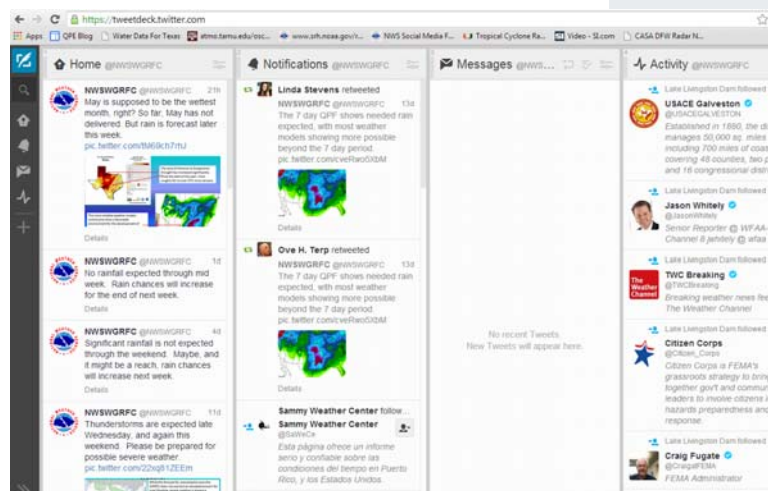
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WGRFC and DSS - 2015

- WGRFC DSS requirements and workload
- During May 2015 Event, revived the concept
 - Referred to a DSS Shift or Flood Coordinator
- At least ½ staff member to meet the needs of DSS
 - Phone coordination
 - River
 - Precipitation
 - Product consistency
 - Social Media
 - Facebook
 - Twitter
 - Skype
 - Special images
 - NWSChat



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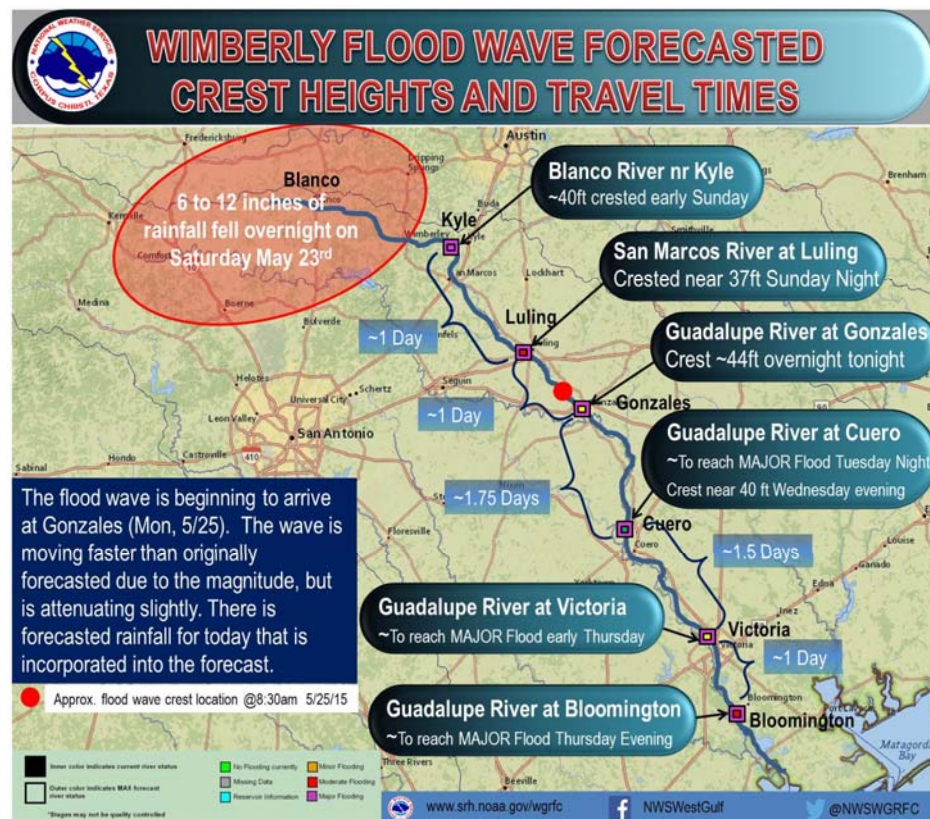
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WGRFC and DSS - 2015

- Special images
 - Event specific
 - Can be used for FB posts or tweets
- Not GIS based
 - Would like to have GIS skills/shift
- Images/maps are edited in Powerpoint
 - Manual, not automated
 - Can be time intensive
- Work creep → Graphiccasts
 - Graphiccasts will be added to existing workload
 - Displayed on web but can also be “special image”



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WGRFC and DSS - 2015

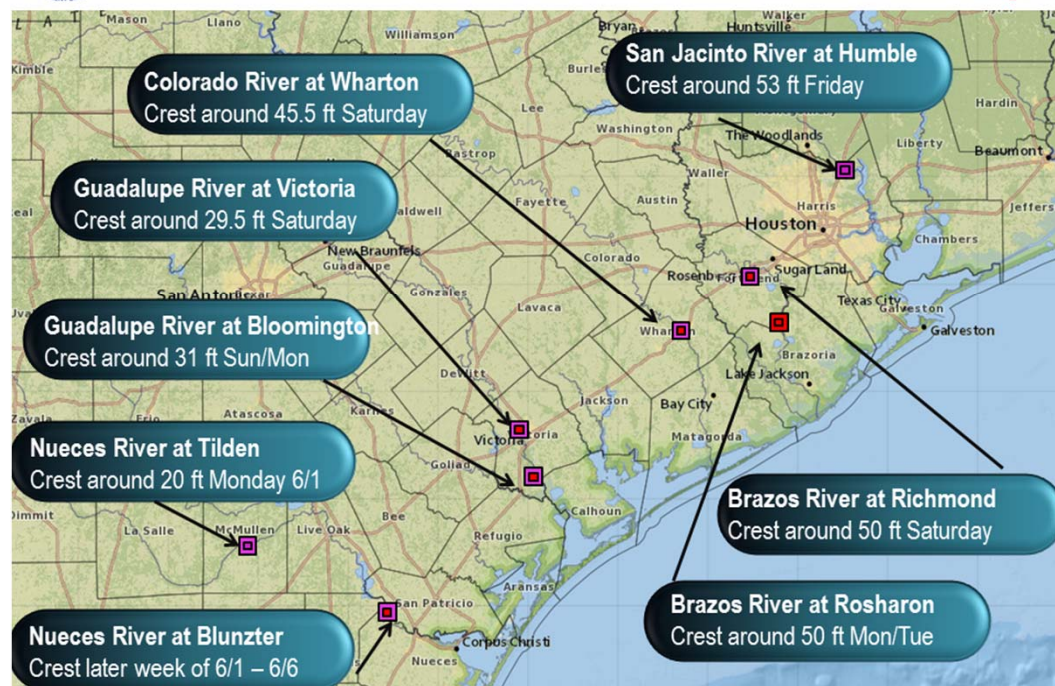


River Crest Times



Why create these special images?

"Out of everything that was briefed on the call that is the most valuable piece of information" TX State SOC Manager



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WGRFC and DSS - 2015

- Media

- In the past, RFCs were behind the scenes
- Media usually goes through WFOs
- During high impact events, media comes to RFCs
 - Print (USA Today, Austin-American Statesman, Bloomberg)
 - TV (The Weather Channel, KXXV 25)



USA TODAY NEWS SPORTS LIFE MONEY TECH TRAVEL OPINION 82° CROSSWORDS YOUR TAKE INVESTIGATIONS MORE

LIVE STREAM Charleston church holds Sunday service after shooting | [Live Video](#)

In Texas, flooding leaves disaster in its wake



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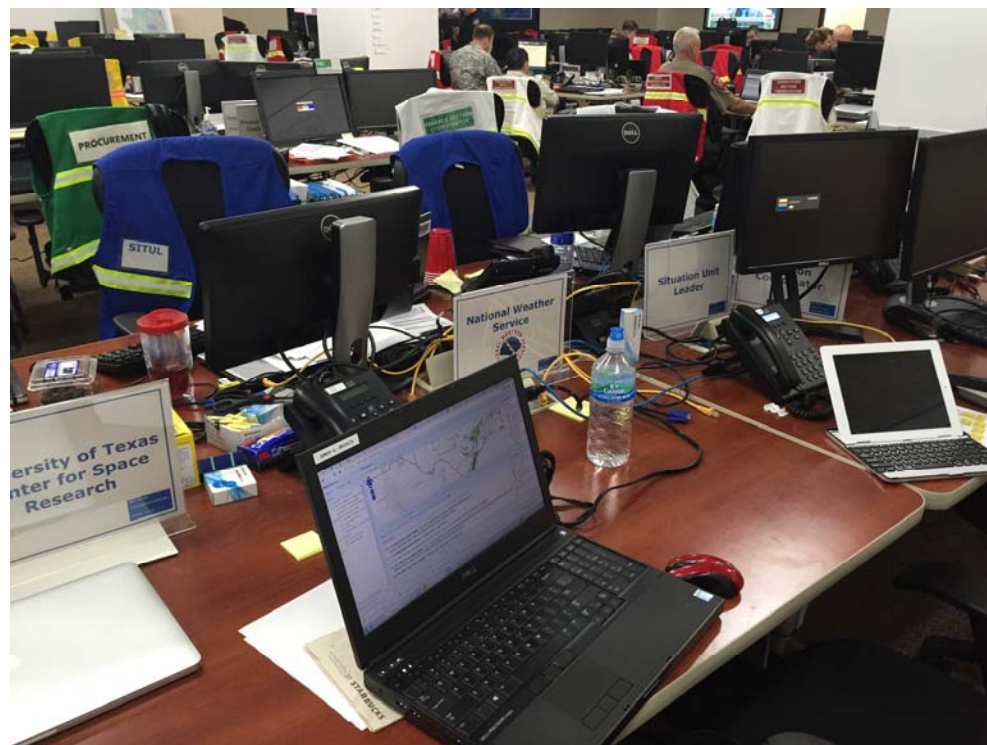
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WGRFC and DSS – 2015 → Deployment

- Another level
 - Pros
 - Subject Matter Expert on hand
 - Critical exchange of information to partners
 - Cons
 - Technology
 - NWS structure?



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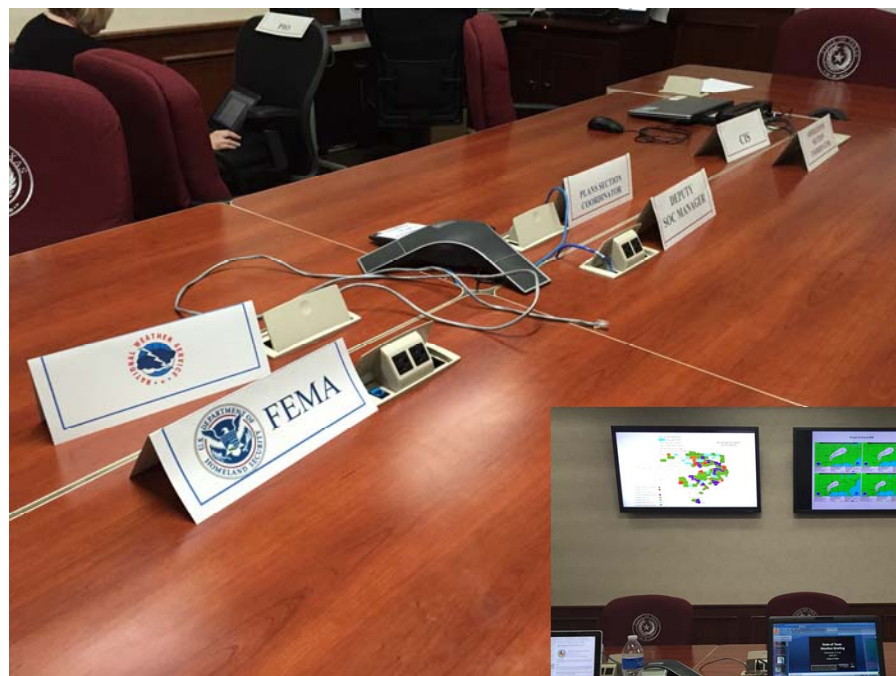
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WGRFC and DSS – 2015 → Deployment

- Deployment is necessary
 - Provided a Subject Matter Expert (SME) on the spot to answer a variety of planned (and unplanned) questions that arise
 - For the TX State EOC
 - 3 staff briefings
 - 3 to 4 conference calls
 - Specific information from specific state agencies
 - Tx DOT
 - Texas Military Forces
 - DPS



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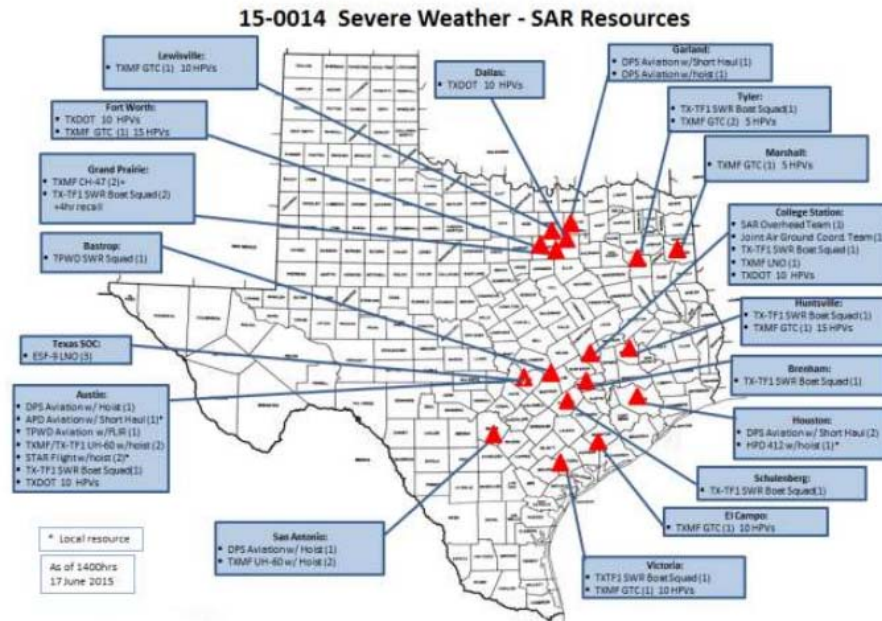
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WGRFC and DSS – 2015 → Deployment Success

- As SME, was able answer specific timing and impact scenarios (best forecast and reasonable worst case scenario) for the State EOC
- Tx DOT
- Texas Military Forces
- DPS
- Texas Task Force 1
- Texas Commission on Environmental Quality

During the May 2015 and Tropical Storm Bill Events

- Allowed various state agencies to organize resources ahead of potential impacts
- State position – “We prefer to evacuate, rather than rescue”



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NWS Deployment Issues

- NWS Structure
 - Hydro vs. Meteorology
 - NWS has defined forecast processes
 - RFCs produce river time series
 - WFOs produce daily forecasts
 - NHC produces tropical products
 - WPC produces rainfall guidance
 - SPC produces watches/outlooks
 - Outside customers only see “1 NWS”
 - Not rivers vs. weather
 - The individual deployed must be well rounded to answer *ALL* NWS related questions
 - Or deploy 2 (not the best option)



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Deployment Fact:

- We could not do what we do, without our partners.
- U.S. Army Corps of Engineers
 - Lake Control
 - Emergency Management
- River Authorities
 - Brazos River Authority
 - Trinity River Authority
 - Sabine River Authority
 - San Jacinto River Authority
- Municipal/Regional Water Agencies
 - Tarrant Regional Water District
 - City of Corpus Christi
- Other NWS Offices
 - Arkansas Basin River Forecast Center
 - WFOs
- Emergency Management
 - Harris County Flood Control



US Army Corps of Engineers



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- Questions?
- Thank You
- Gregory Waller
 - Service Coordination Hydrologist
 - WGRFC
 - greg.waller@noaa.gov



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