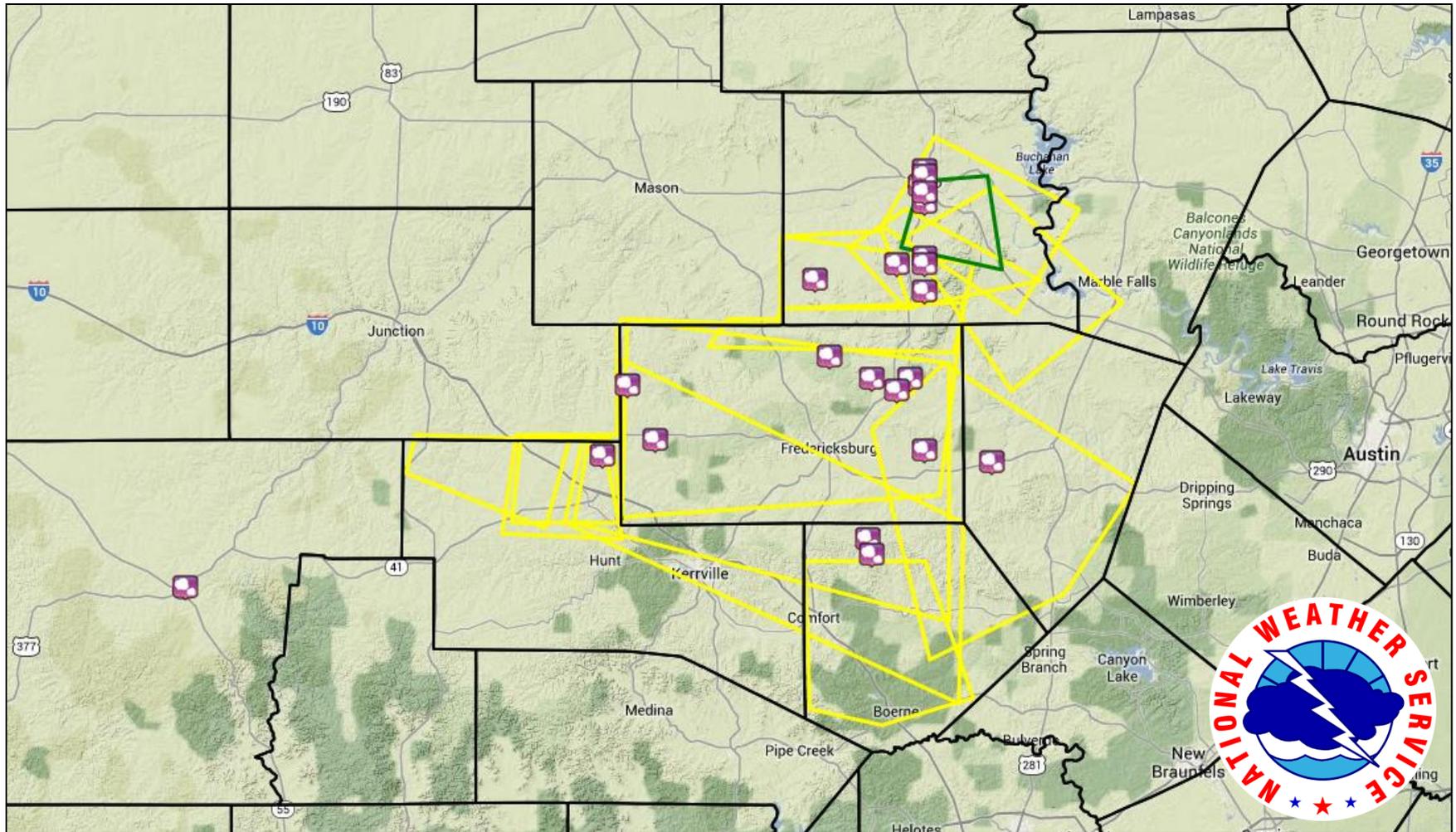


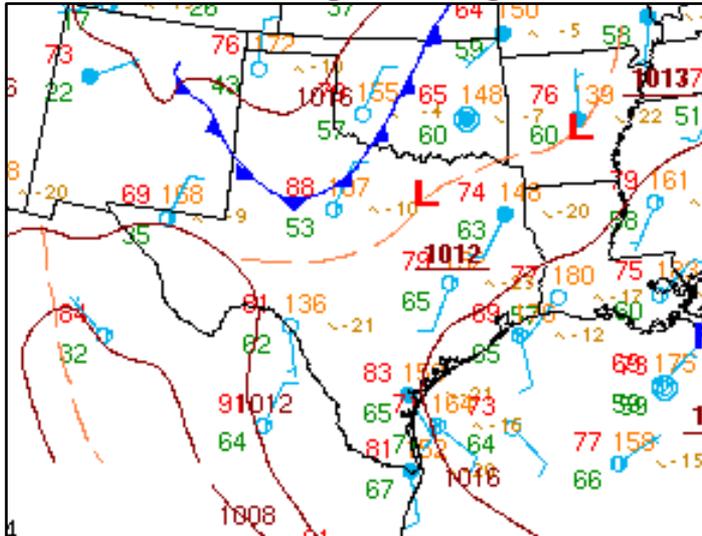
April 21st, 2014 – Hill Country Storms



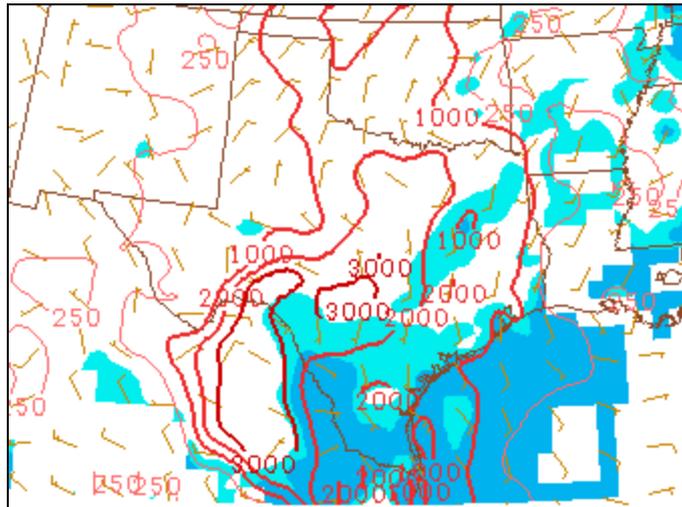
Austin - San Antonio Weather Forecast Office

Updated – 8:56 am, April 24th, 2014

Synoptic Set Up - Summary



4 pm / 21Z Weather Prediction Center Surface Analysis



SPC Mesoscale Analysis showing sufficient instability.

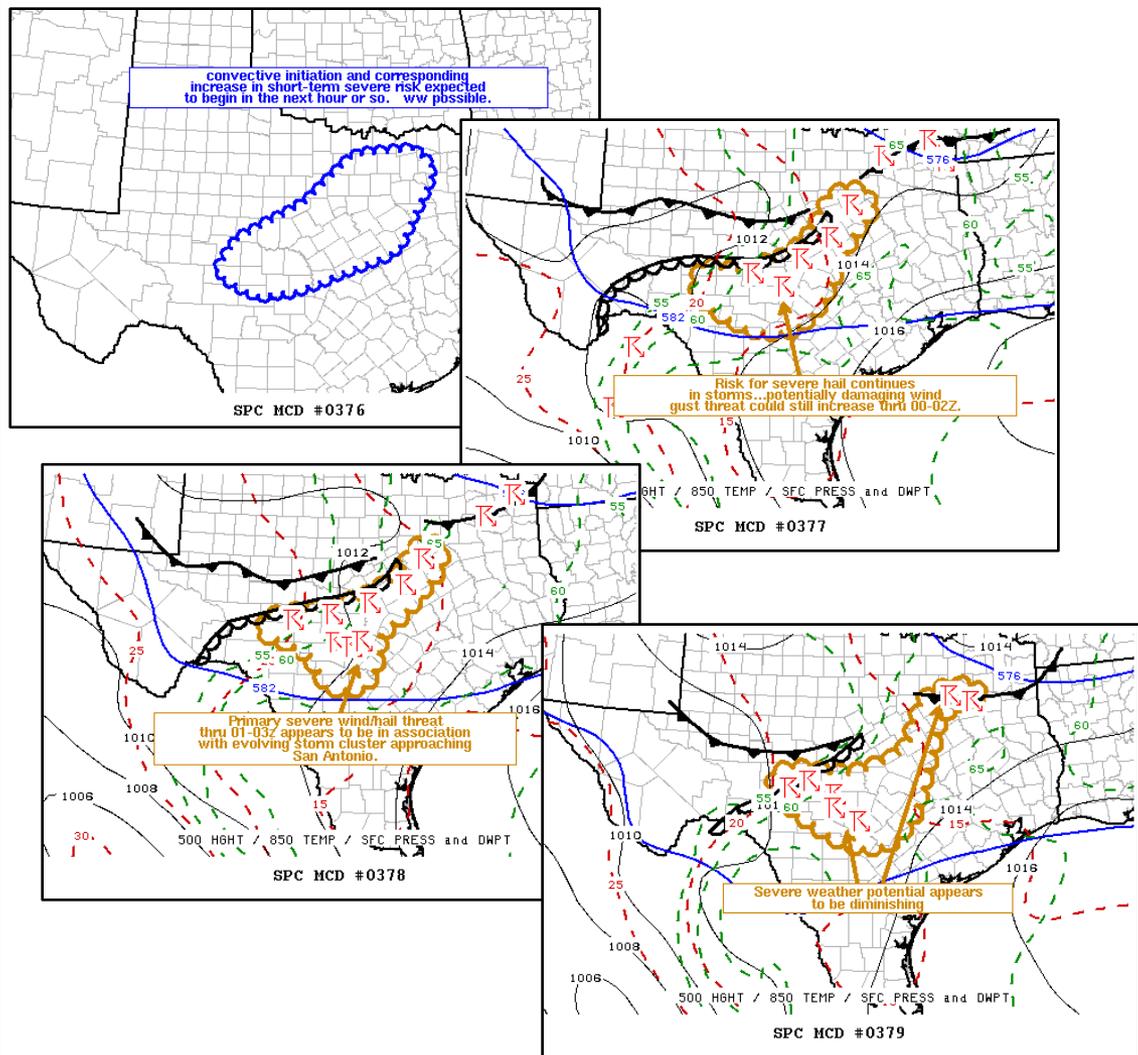
The 3 main ingredients needed for thunderstorm development are instability, lift, and moisture.

Instability: Convective Available Potential Energy (CAPE) was over 2,500 J/kg on the afternoon of April 21st with almost no Convective Inhibition (CIN). The atmosphere was primed with enough energy to support strong to severe storms.

Lift: The combination of daytime heating, the west Texas dryline, and a weak cold front were enough to spark the development of thunderstorms over north Texas and the Hill country.

Moisture: Gulf moisture was in place over South Central Texas with dew points in the 60s. This is plenty of moisture to fuel shower and thunderstorm development.

4 Mesoscale Discussions



Issued by Storm Prediction Center in Norman, OK

Pre-watch MCD #376 issued at 2:25 pm. The others followed to update the watch: MCD #377 at 5:09 pm, MCD #378 at 7:13 pm, and MCD #379 at 9:10 pm.

All 4 focused on the thunderstorm development along the dry line and weak front in the Texas Hill Country. Supercells or multi-cell clusters capable of producing large hail and damaging winds were mentioned.

Severe Thunderstorm Watch #85

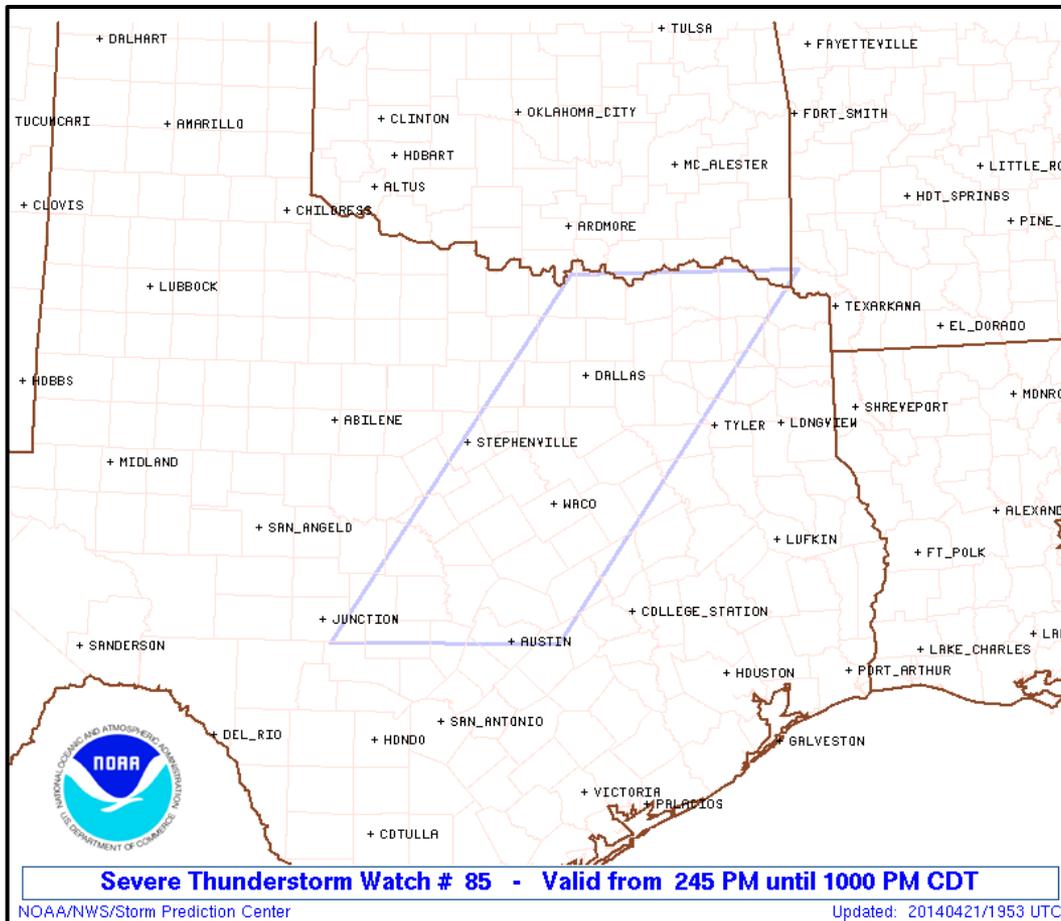
Issued by Storm Prediction Center in Norman, OK

Initially issued for Travis, Williamson, Hays, Blanco, Burnet, Llano, and Gillespie counties

...Kerr, Kendall, and Comal counties were added at 6:34 pm

Primary Threats Included:

- Scattered Large Hail and Isolated Very Large Hail (up to 2 inches)
- Isolated Damaging Winds (gusts up to 70 mph)

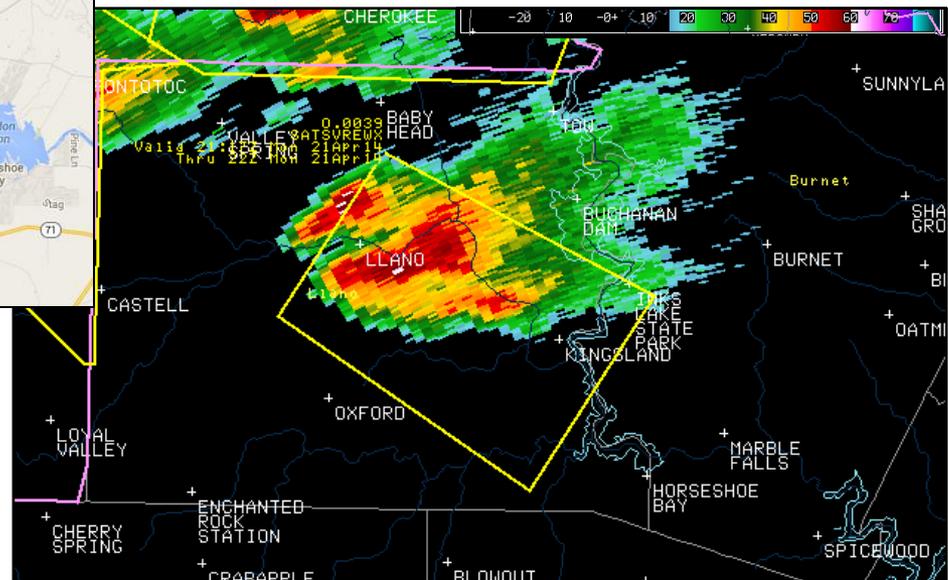
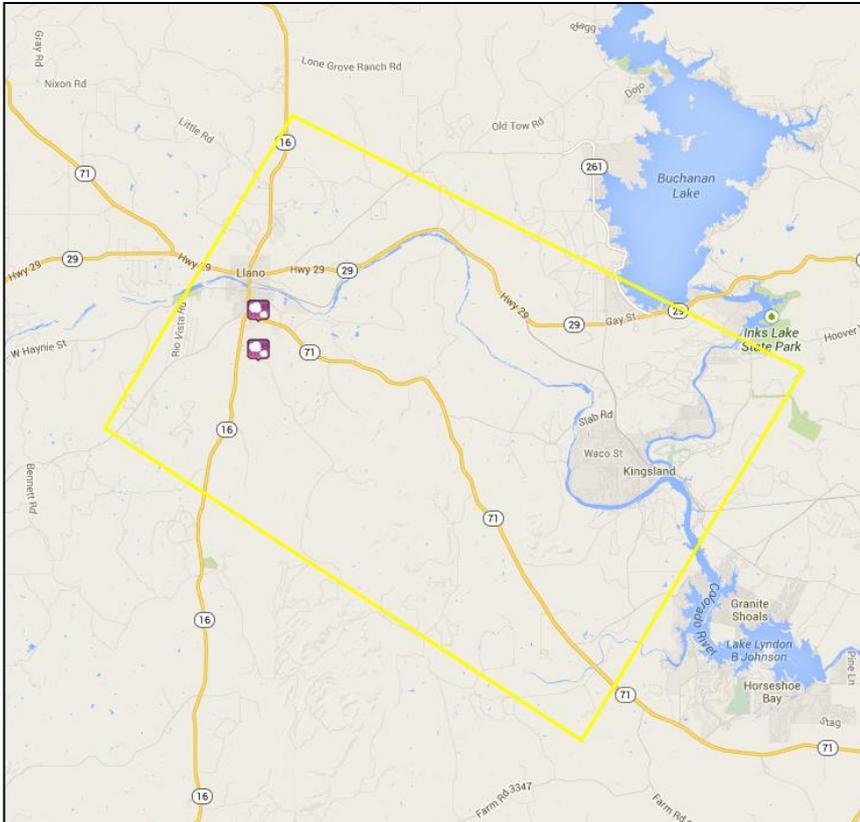


Hazard	Tornadoes	EF2+ Tornadoes	Severe Wind	65 kt+ Wind	Severe Hail	2"+ Hail
Likelihood	Low	Very Low	Moderate	Low	Moderate	Moderate

Severe Thunderstorm Warning #39

West Central Burnet and Eastern Llano Counties

4:17 pm– 5:00 pm



Reports:

4:25 pm...1.25" Hail...2 S Llano

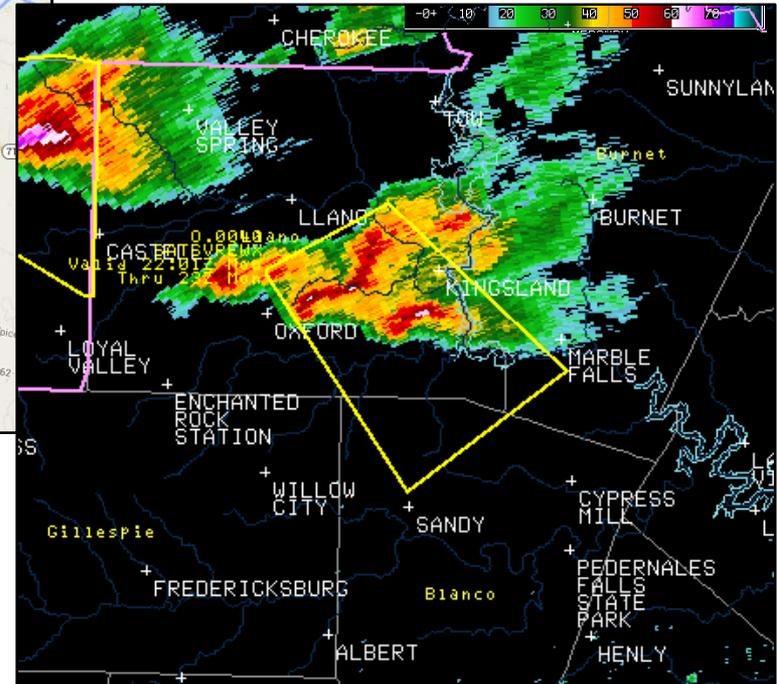
4:26 pm...0.75" Hail...1 SSE Llano

* Indicates report took place in multiple warnings

Severe Thunderstorm Warning #40

Northwestern Blanco,
Southwestern Burnet, and
Southeastern Llano Counties

5:01 pm– 6:00 pm

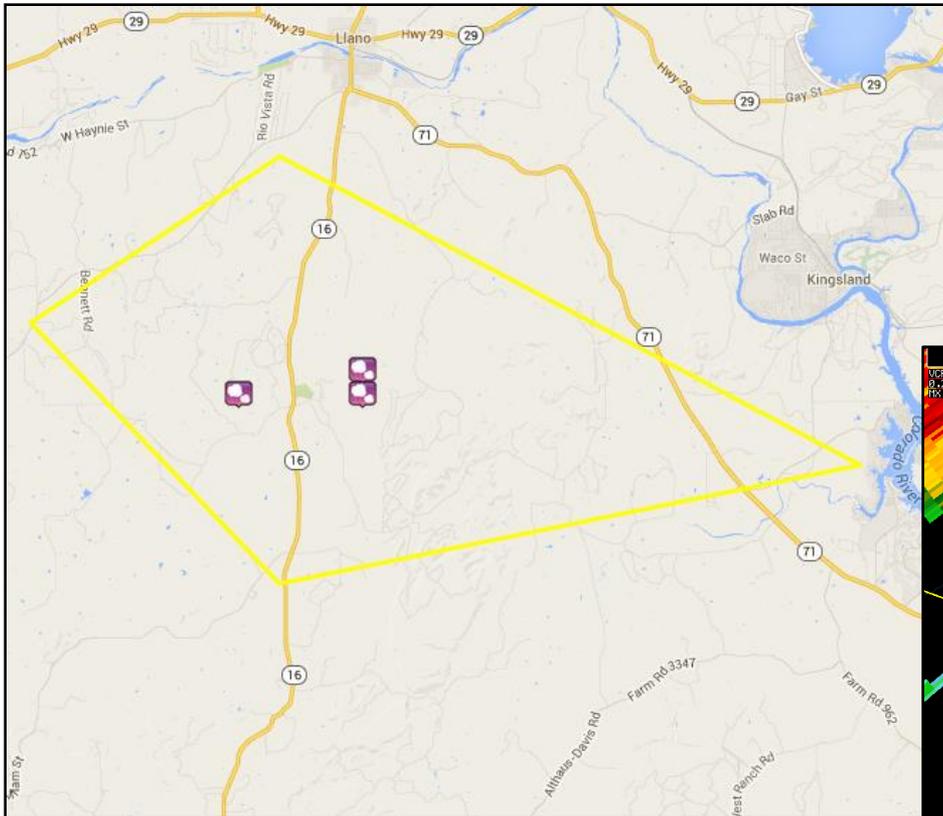


Reports:

5:13 pm...1.00" Hail...9 S Llano*

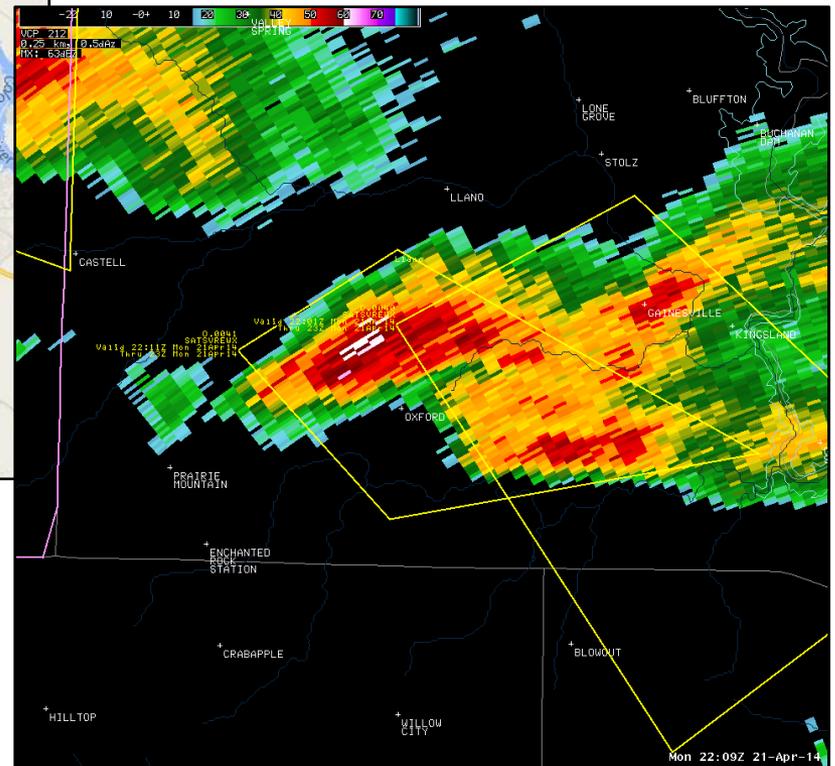
5:31 pm...0.50" Hail...10 S Llano*

Severe Thunderstorm Warning #41



Southern Llano County

5:11 pm– 6:00 pm



Reports:

5:13 pm...1.00" Hail...9 S Llano*

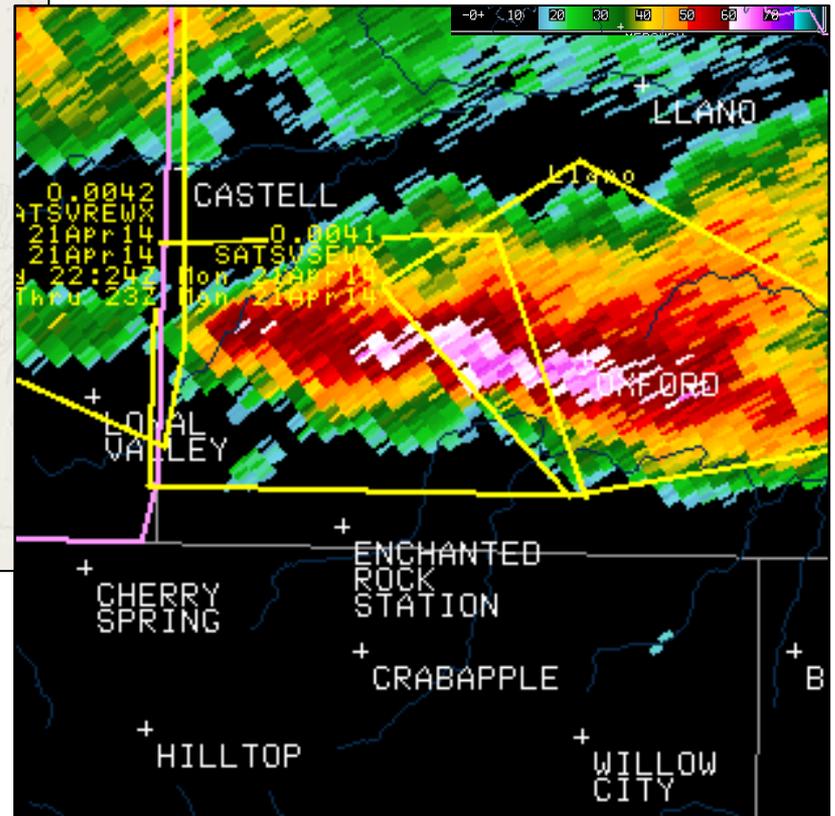
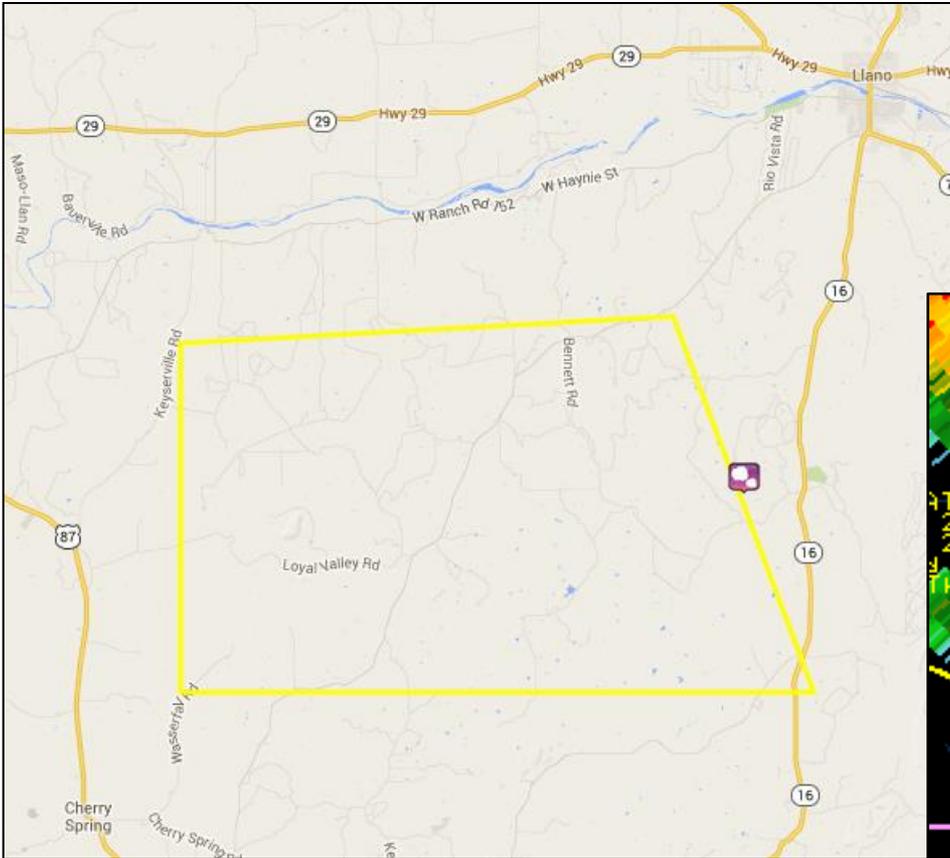
5:31 pm...0.50" Hail...10 S Llano*

5:50 pm...1.50" Hail...10 NE Enchanted Rock
Station*

Severe Thunderstorm Warning #42

Southwestern Llano County

5:31 pm– 6:00 pm



Reports:
5:50 pm...1.50" Hail...10 NE Enchanted Rock
Station

Severe Thunderstorm Warning #43



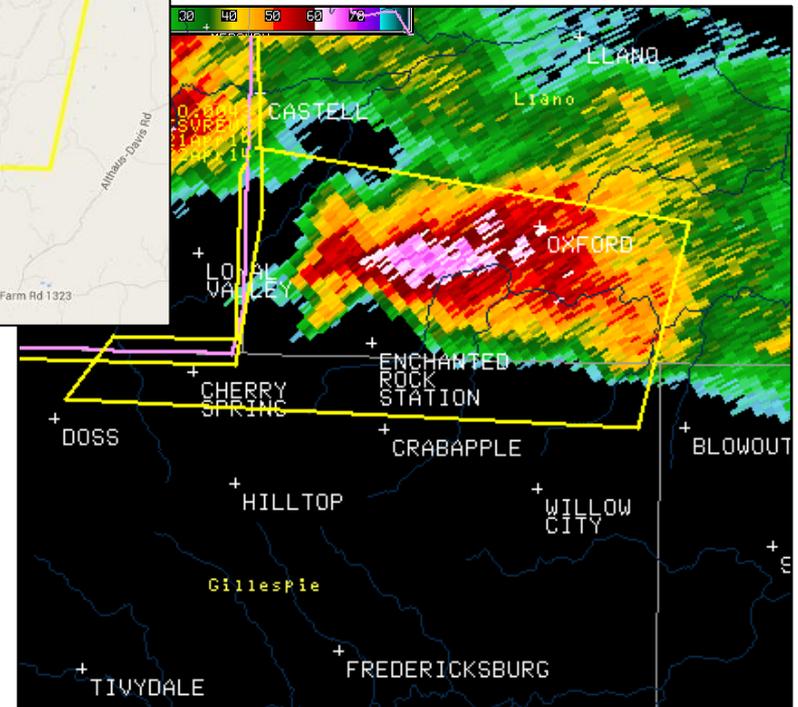
Northeastern Gillespie and
Southwestern Llano Counties

6:00 pm– 7:00 pm

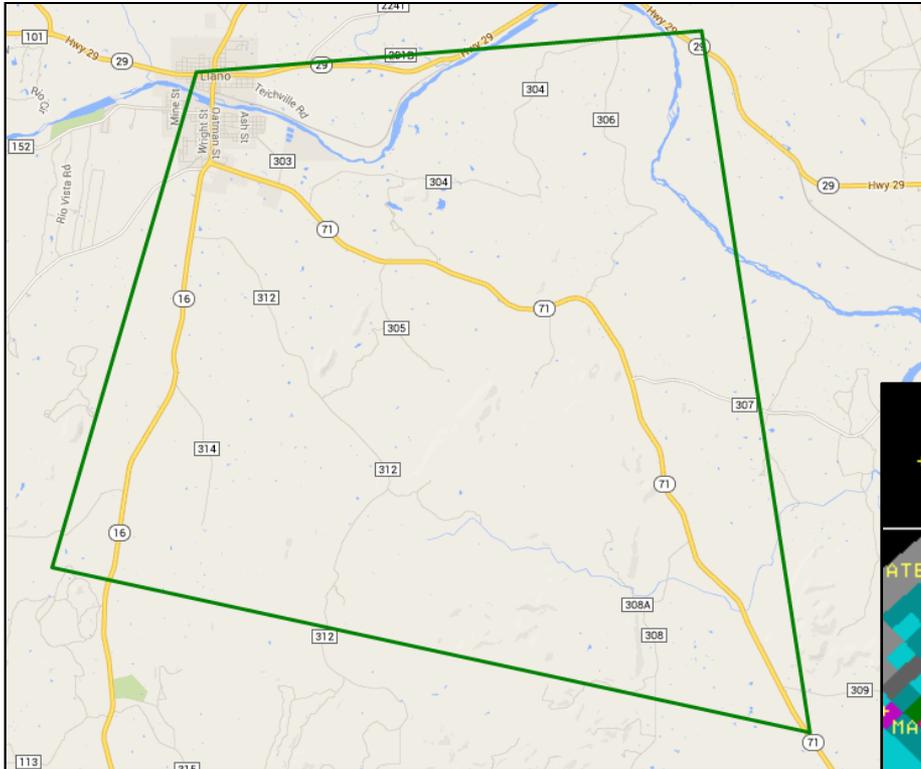
Reports:

6:02 pm...2.00" Hail...6 NNW Enchanted Rock
Station

6:09 pm...1.75" Hail...13 S Llano



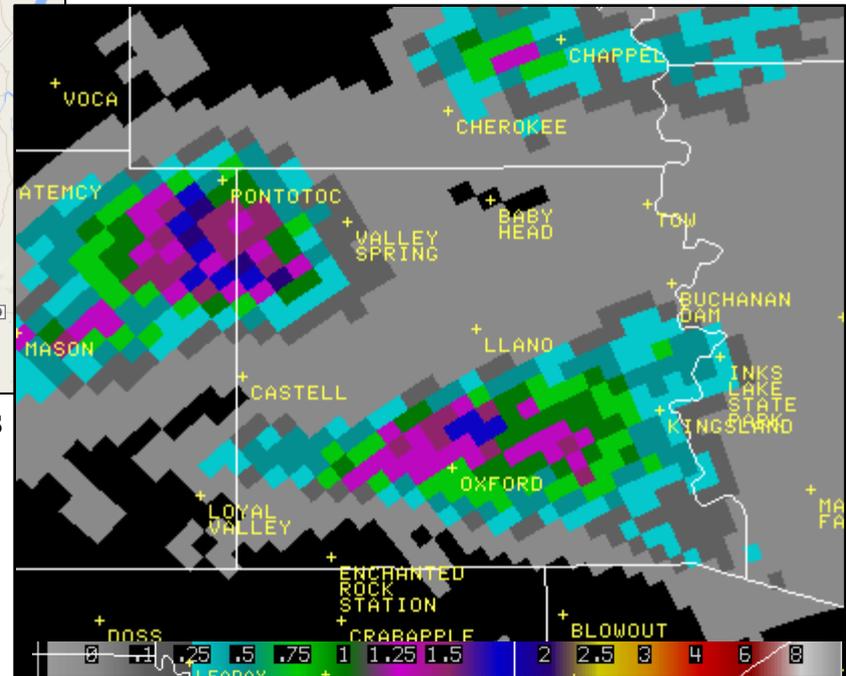
Urban & Small Stream Flood Advisory



Central Llano County

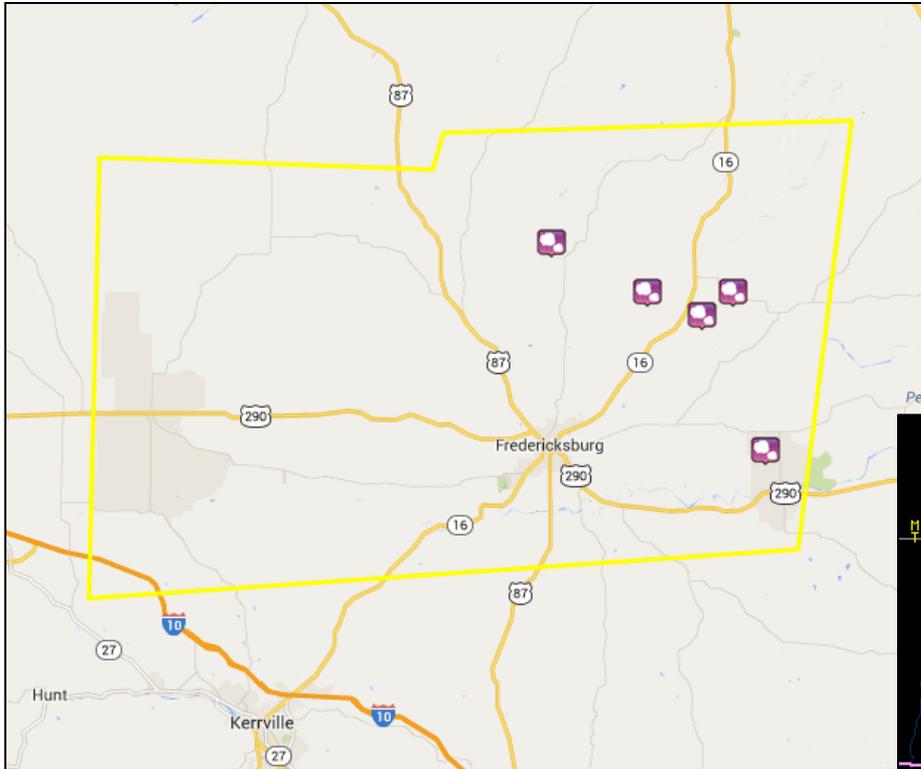
6:05 pm– 8:00 pm

AT 600 PM CDT...NATIONAL WEATHER SERVICE METEOROLOGISTS HAVE DETECTED THUNDERSTORMS WITH HEAVY RAINFALL ACROSS CENTRAL LLANO COUNTY WITH RAINFALL RATES OF 1 TO 2 INCHES PER HOUR. DOPPLER RADAR ESTIMATED NEAR 2 INCHES OF RAINFALL IN THE PAST 2 HOURS WITH ADDITIONAL ONE QUARTER TO HALF AN INCH POSSIBLE BEFORE THESE STORMS DISSIPATE OR MOVE OUT FROM THE AREA.



Dual-Pol Radar Estimated 1 Hour Precipitation as of 5:45 pm

Severe Thunderstorm Warning #44

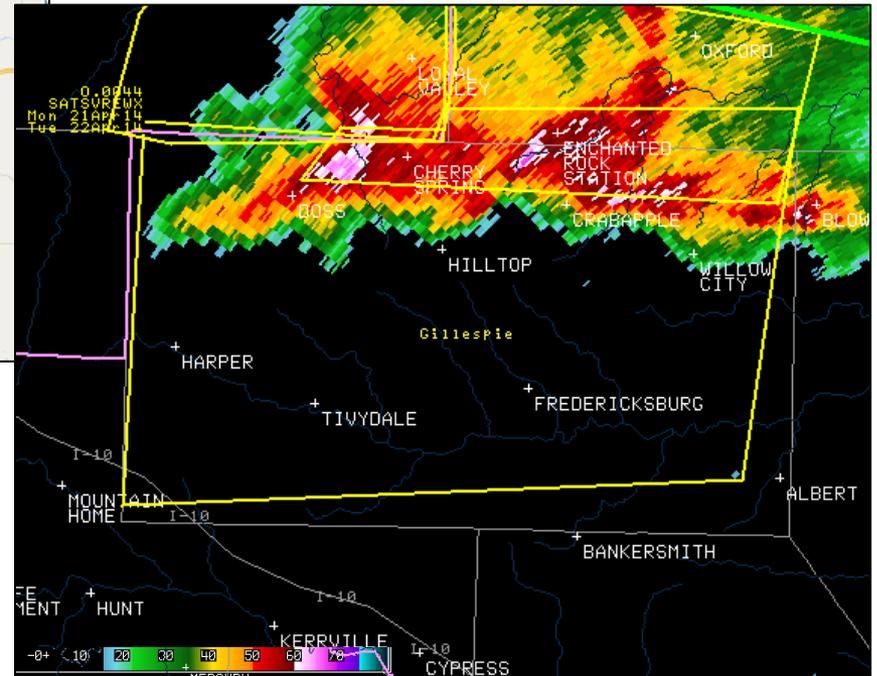


Gillespie County and Southwestern Llano County

6:29 pm– 7:30 pm

Reports:

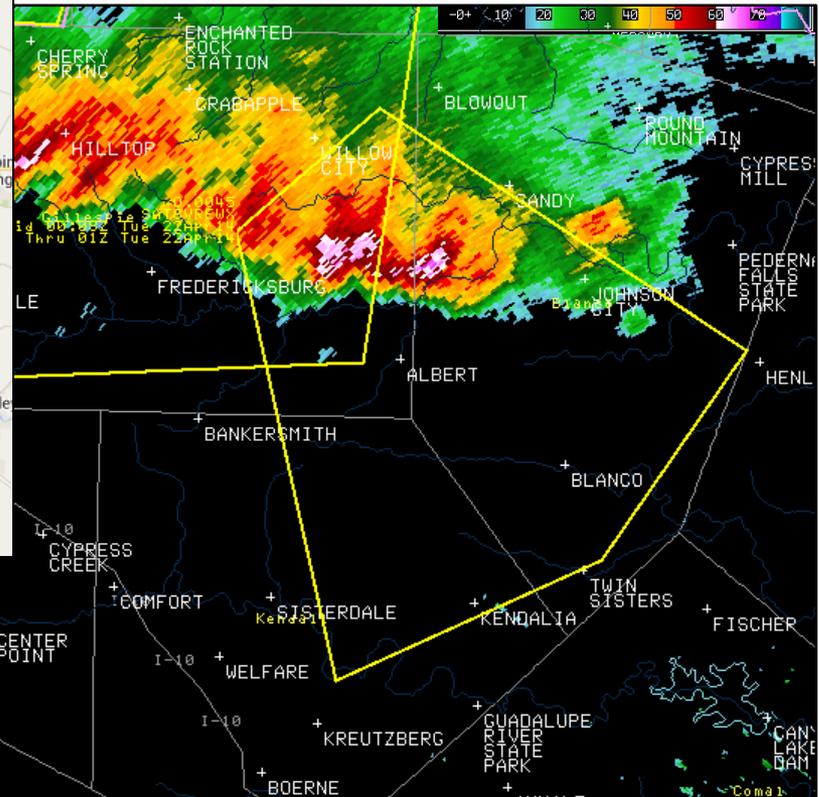
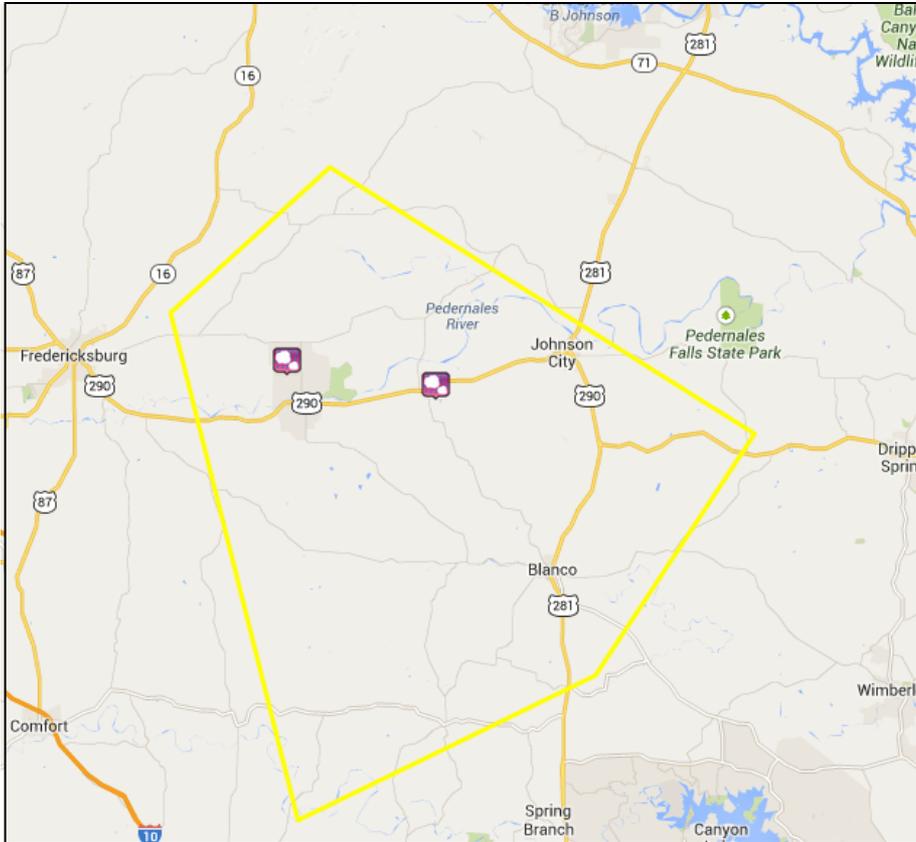
- 6:38 pm...1.75" Hail...5 W Willow City
- 6:43 pm...1.00" Hail...Willow City
- 6:46 pm...2.00" Hail...2 WSW Willow City
- 7:03 pm...1.00" Hail...12 N Fredericksburg
- 7:10 pm...1.00" Hail...12 E Fredericksburg*



Severe Thunderstorm Warning #45

Southern Blanco, Southeastern Gillespie,
Northeastern Kendall Counties

7:08 pm– 8:00 pm



Reports:

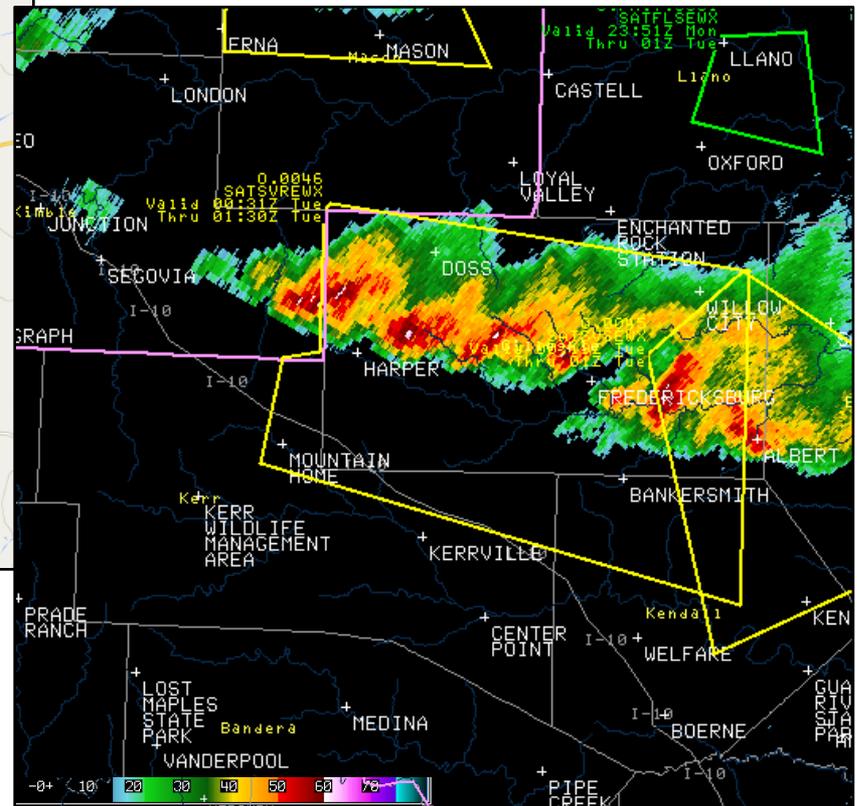
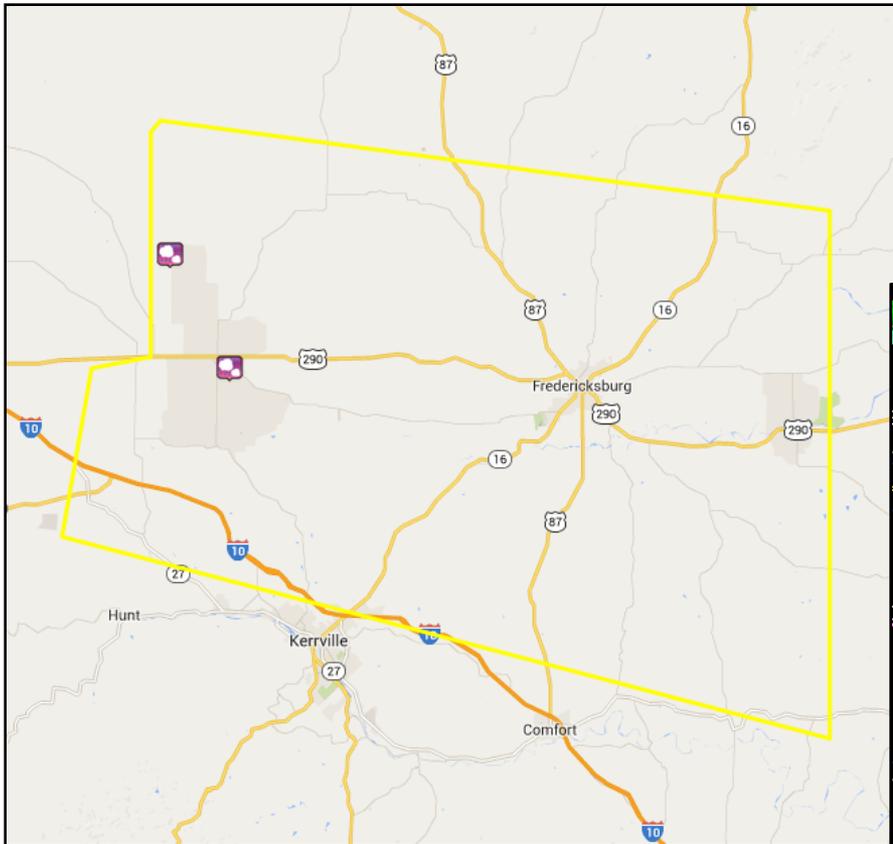
7:10 pm...0.70" Hail...6 E LBJ State Park

7:10 pm...1.00" Hail...12 E Fredericksburg*

Severe Thunderstorm Warning #46

Gillespie, Northwestern Kendall, and
Northeastern Kerr Counties

7:31 pm– 8:30 pm



Reports:

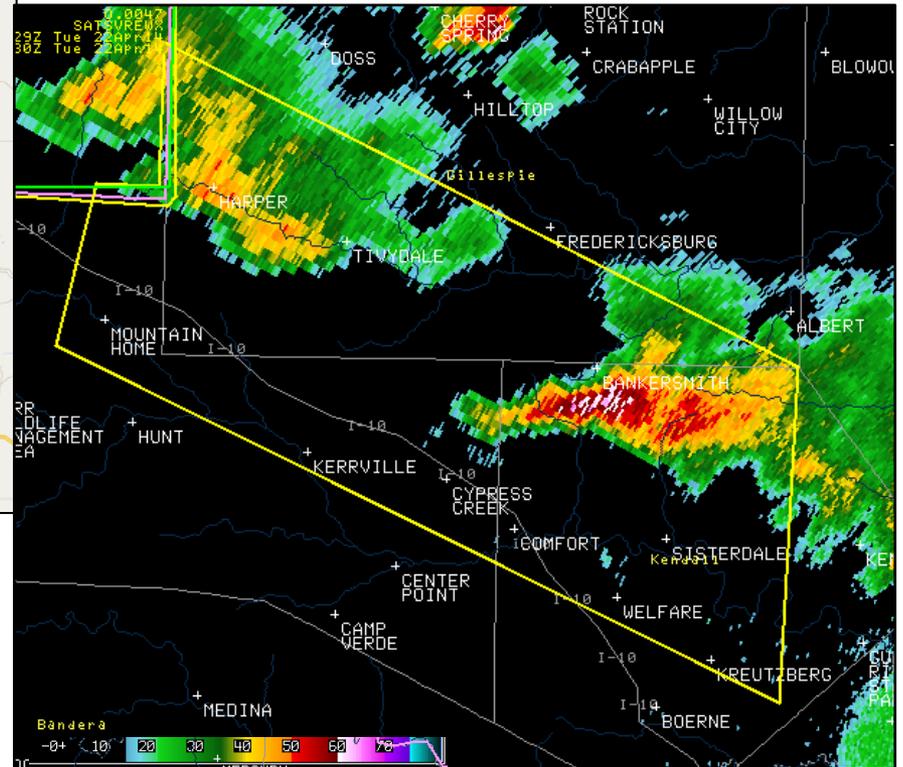
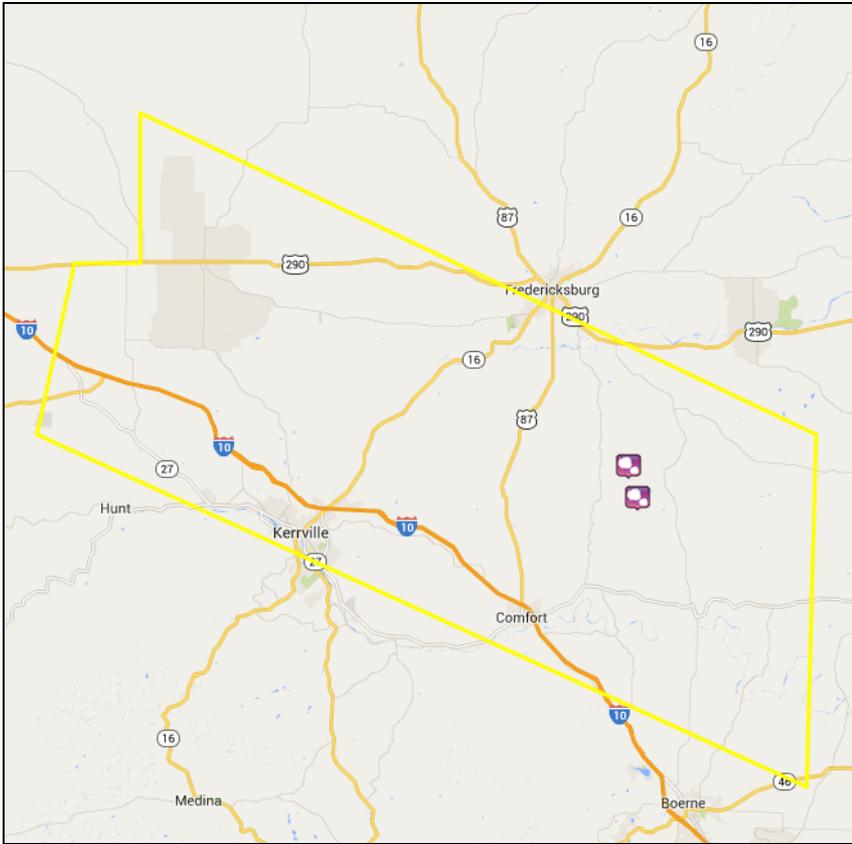
8:00 pm...0.25" Hail...7 NNW Harper

8:22 pm...1.00" Hail...1 SE Harper

Severe Thunderstorm Warning #47

Southern Gillespie, Kendall, and
Northeastern Kerr Counties

8:30 pm– 9:30 pm



Reports:

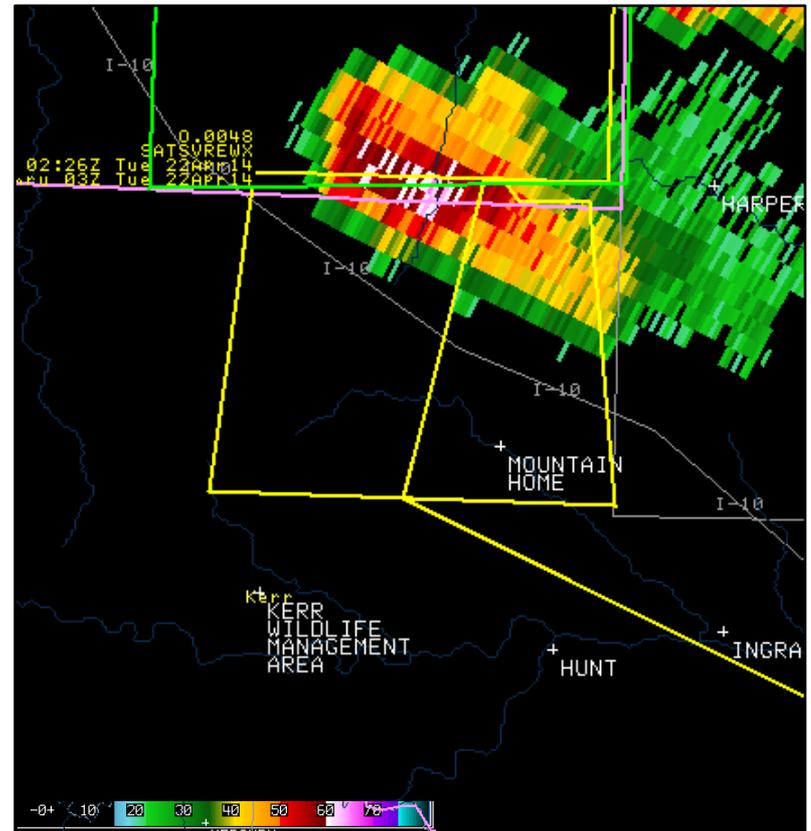
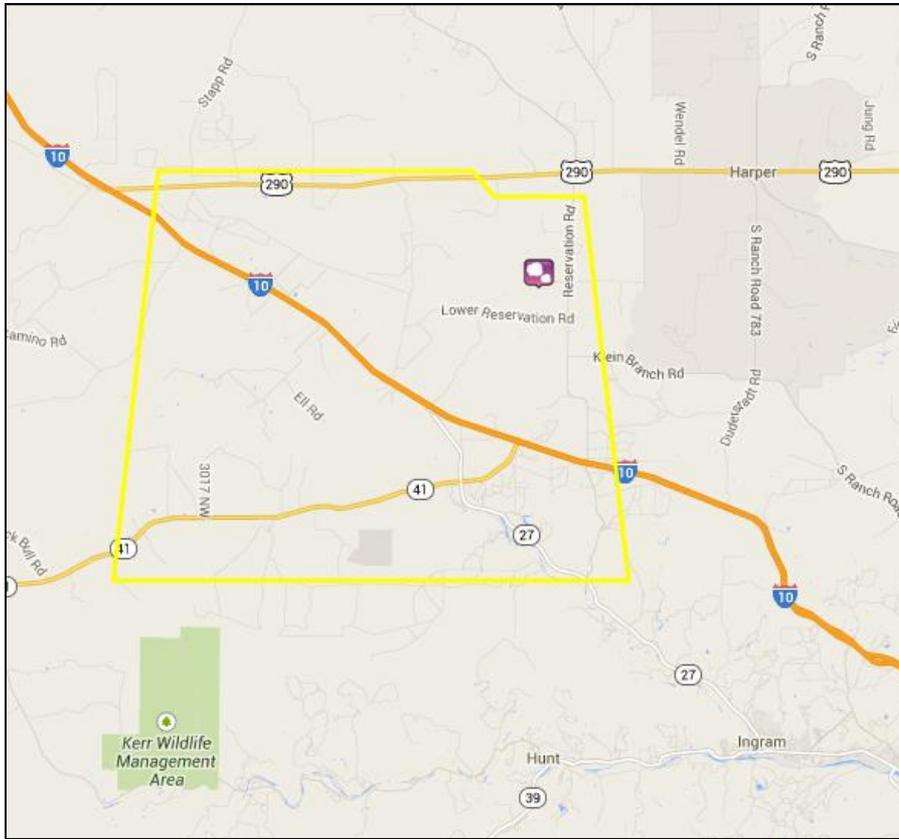
8:38 pm...1.00" Hail...2 SE Bankersmith

8:39 pm...0.50" Hail...14 SSE Fredericksburg

Severe Thunderstorm Warning #48

North Central Kerr County

9:26 pm– 10:00 pm

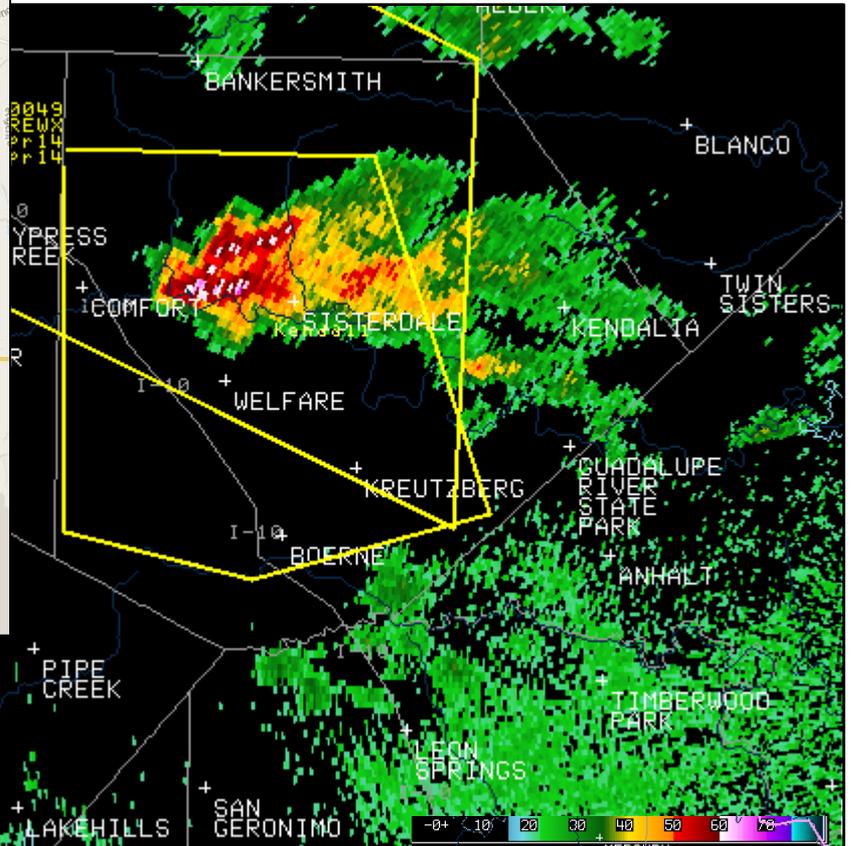
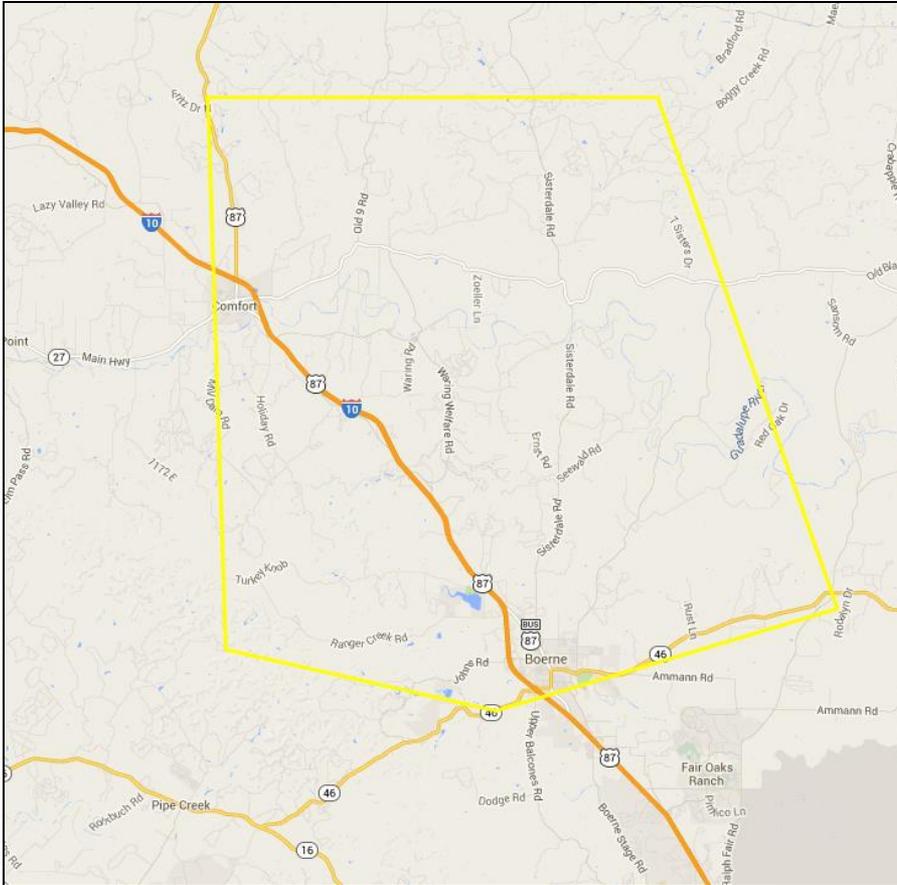


Reports:
9:40 pm...1.00" Hail...6 WSW Harper

Severe Thunderstorm Warning #49

Central Kendall county

9:28 pm– 10:00 pm

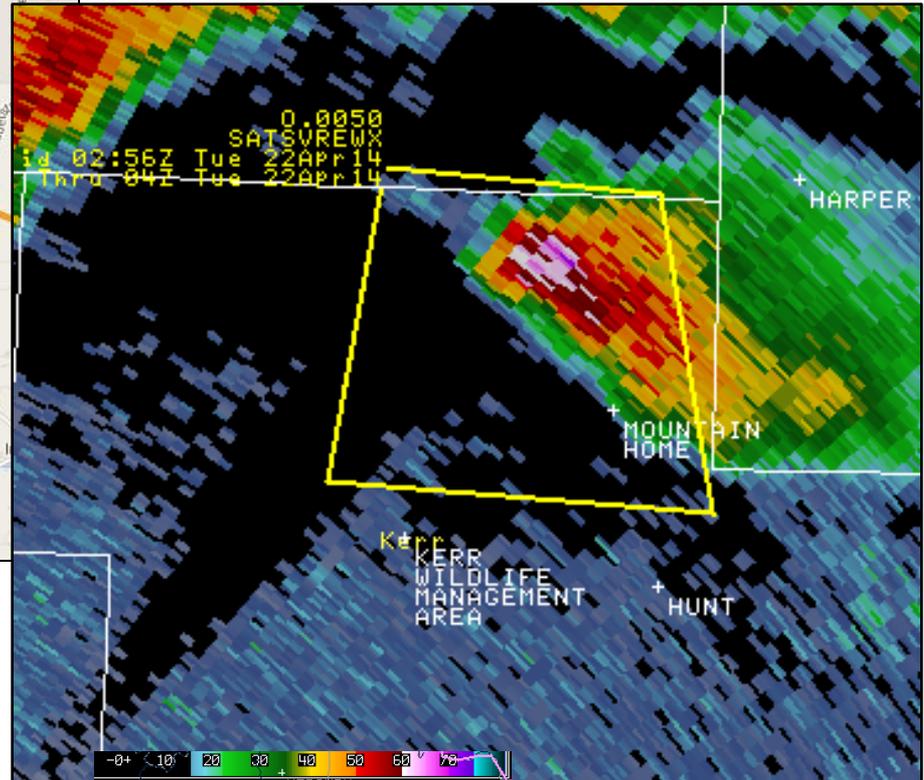
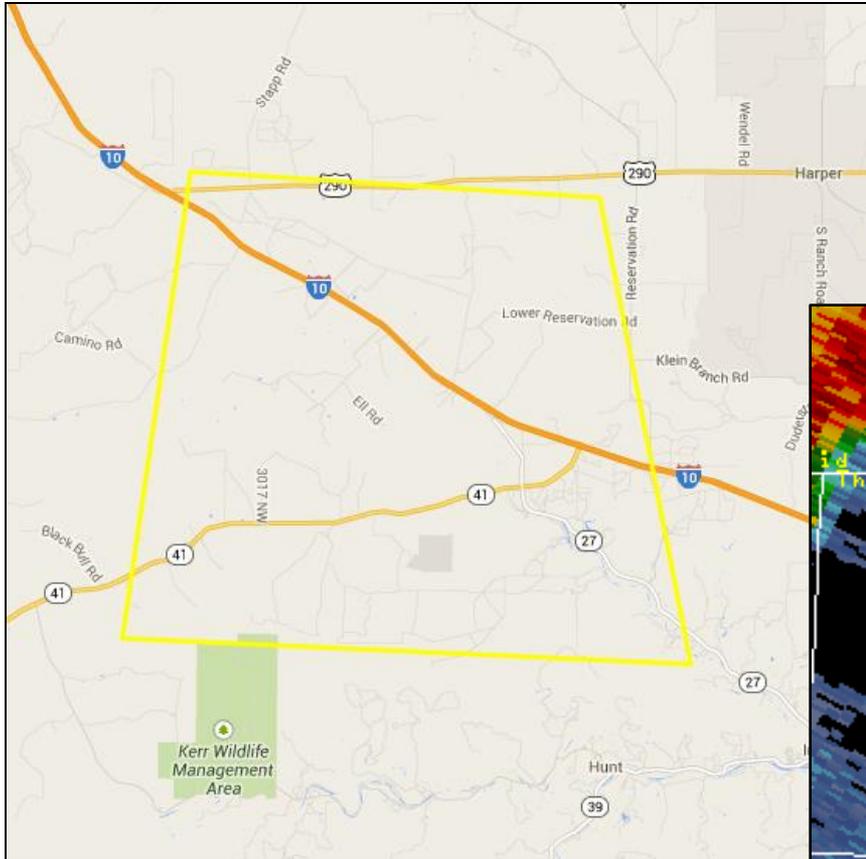


Reports:

Severe Thunderstorm Warning #50

North Central Kerr County

9:56 pm– 11:00 pm

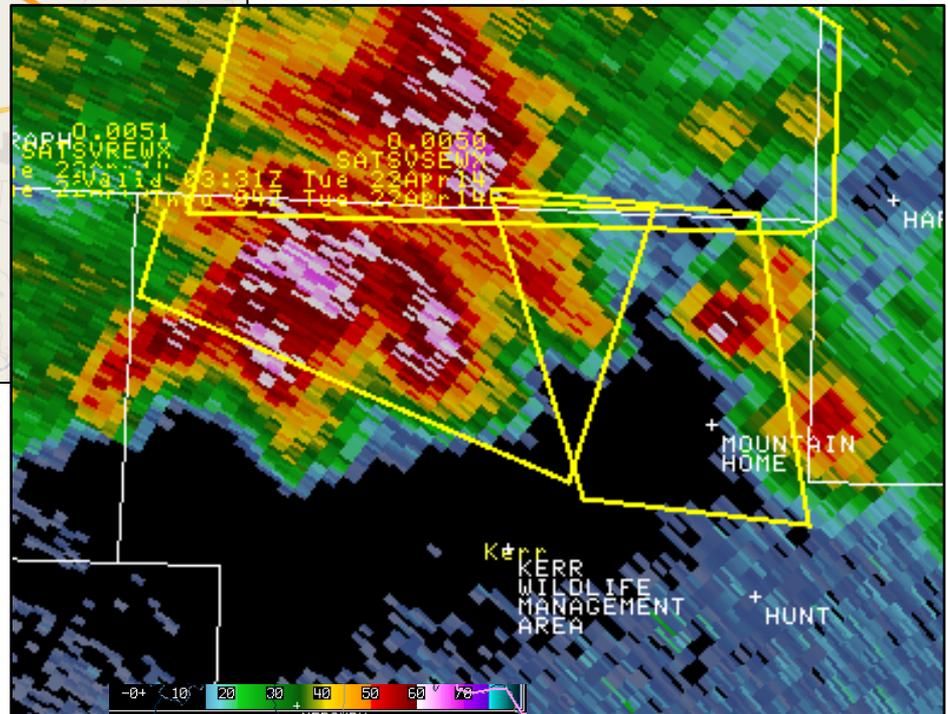
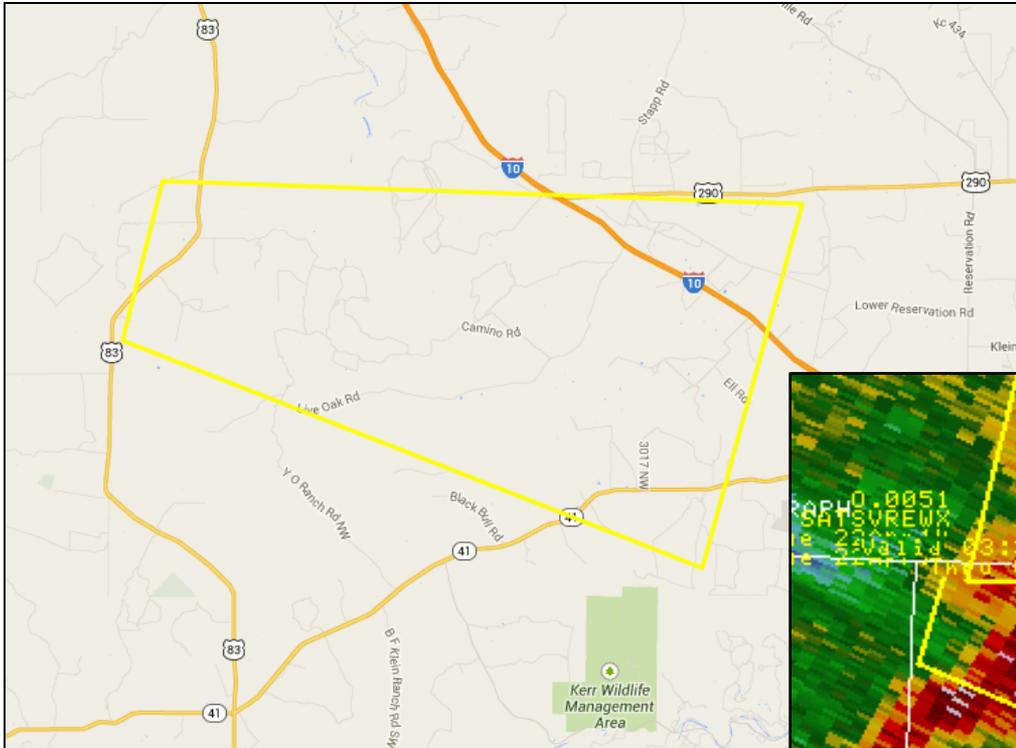


Reports:

Severe Thunderstorm Warning #51

Northwestern Kerr County

10:36 pm– 11:15 pm



Reports:

All Hail Reports / Pictures

0341 PM HAIL 2 N LLANO 30.78N 98.67W
04/21/2014 M0.25 INCH LLANO TX PUBLIC

PEA SIZED HAIL AT LLANO AIRPORT

0400 PM HAIL 1 ESE LLANO 30.75N 98.67W
04/21/2014 M1.00 INCH LLANO TX COCORAHS

0405 PM HAIL 1 WSW LLANO 30.75N 98.68W
04/21/2014 E0.88 INCH LLANO TX TRAINED SPOTTER

0407 PM HAIL 1 N LLANO 30.77N 98.67W
04/21/2014 M1.00 INCH LLANO TX PUBLIC

0425 PM HAIL 2 S LLANO 30.72N 98.67W
04/21/2014 E1.25 INCH LLANO TX PUBLIC

0426 PM HAIL 1 SSE LLANO 30.74N 98.67W
04/21/2014 E0.75 INCH LLANO TX TRAINED SPOTTER

0513 PM HAIL 9 S LLANO 30.62N 98.67W
04/21/2014 M1.00 INCH LLANO TX PUBLIC

TIME ESTIMATED FROM RADAR

0531 PM HAIL 10 S LLANO 30.61N 98.67W
04/21/2014 M0.50 INCH LLANO TX PUBLIC

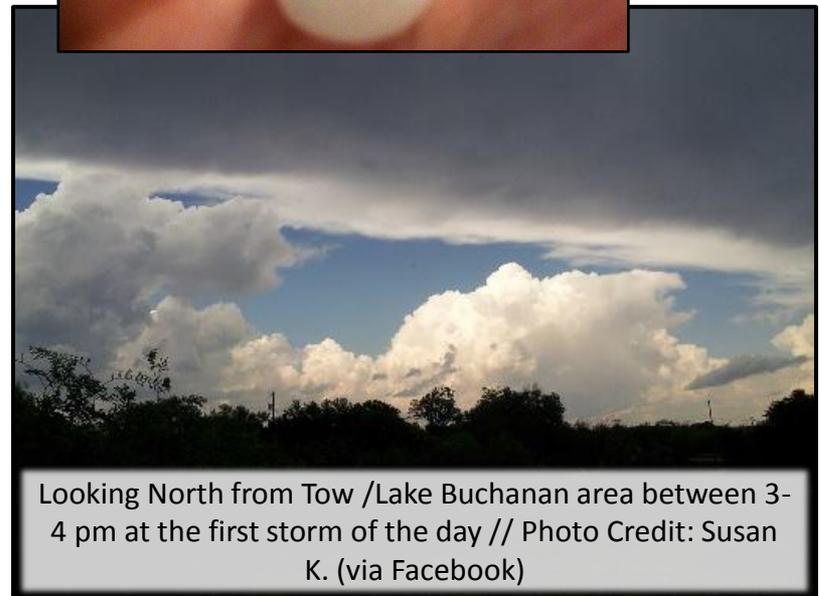
LOCATION IS APPROX 1 MILE NNE OF OXFORD

0550 PM HAIL 10 NE ENCHANTED ROCK ST 30.61N 98.73W
04/21/2014 M1.50 INCH LLANO TX STORM CHASER

HAIL SIZES RANGED FROM HALF INCH TO 1.50 INCHES



Hail in Llano //
Photo Credit:
Phillip (via
twitter)



Looking North from Tow /Lake Buchanan area between 3-
4 pm at the first storm of the day // Photo Credit: Susan
K. (via Facebook)

All Hail Reports / Pictures

0602 PM HAIL 6 NNW ENCHANTED ROCK ST 30.58N 98.90W
04/21/2014 E2.00 INCH LLANO TX CO-OP OBSERVER

0609 PM HAIL 13 S LLANO 30.56N 98.67W
04/21/2014 M1.75 INCH LLANO TX CO-OP OBSERVER

0638 PM HAIL 5 W WILLOW CITY 30.40N 98.78W
04/21/2014 M1.75 INCH GILLESPIE TX TRAINED SPOTTER

0643 PM HAIL WILLOW CITY 30.40N 98.70W
04/21/2014 M1.00 INCH GILLESPIE TX TRAINED SPOTTER

PEA TO QUARTER SIZED HAIL COVERING THE GROUND IN
WILLOW CITY

0646 PM HAIL 2 WSW WILLOW CITY 30.38N 98.73W
04/21/2014 M2.00 INCH GILLESPIE TX COCORAHS

0703 PM HAIL 12 N FREDERICKSBURG 30.44N 98.87W
04/21/2014 M1.00 INCH GILLESPIE TX PUBLIC

0710 PM HAIL 12 E FREDERICKSBURG 30.27N 98.67W
04/21/2014 M1.00 INCH GILLESPIE TX TRAINED SPOTTER

LOCATION IS 3.5 MILES NORTH OF STONEWALL

0710 PM HAIL 6 E LBJ STATE PARK 30.25N 98.53W
04/21/2014 M0.70 INCH BLANCO TX COCORAHS

0800 PM HAIL 7 NNW HARPER 30.39N 99.29W
04/21/2014 E0.25 INCH GILLESPIE TX TRAINED SPOTTER



All Hail Reports / Pictures

0822 PM HAIL 1 SE HARPER 30.29N 99.23W
04/21/2014 E1.00 INCH GILLESPIE TX COCORAHS

SOME QUARTER SIZE HAIL MIXED WITH MOSTLY SMALLER
PIECES.

0838 PM HAIL 2 SE BANKERSMITH 30.11N 98.79W
04/21/2014 M1.00 INCH KENDALL TX PUBLIC

0839 PM HAIL 14 SSE FREDERICKSBURG 30.08N 98.78W
04/21/2014 E0.50 INCH KENDALL TX COCORAHS

0940 PM HAIL 6 WSW HARPER 30.26N 99.34W
04/21/2014 E1.00 INCH KERR TX TRAINED SPOTTER

1220 AM HAIL ROCKSPRINGS 30.02N 100.21W
04/22/2014 M0.25 INCH EDWARDS TX TRAINED SPOTTER

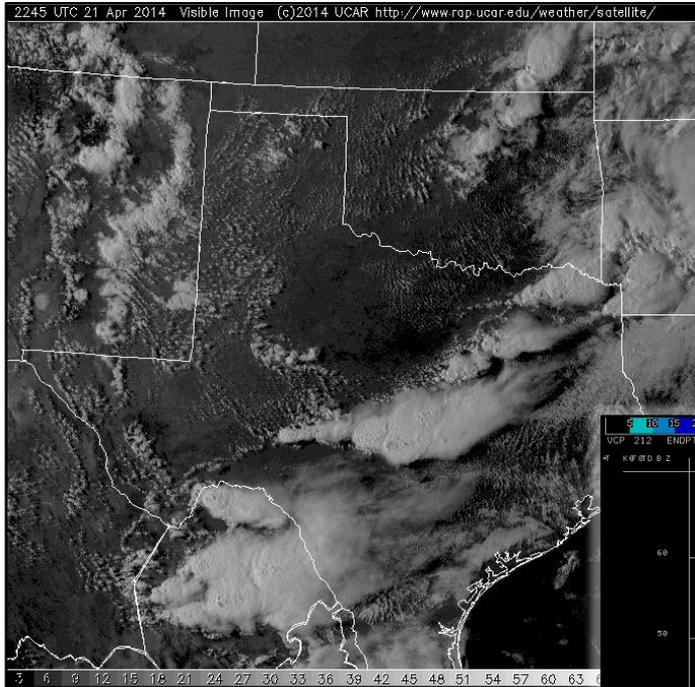
We are still collecting storm reports! If you received hail/wind on April 21st you can submit the report through our website:
weather.gov/Austin

[Submit Storm Report](#)

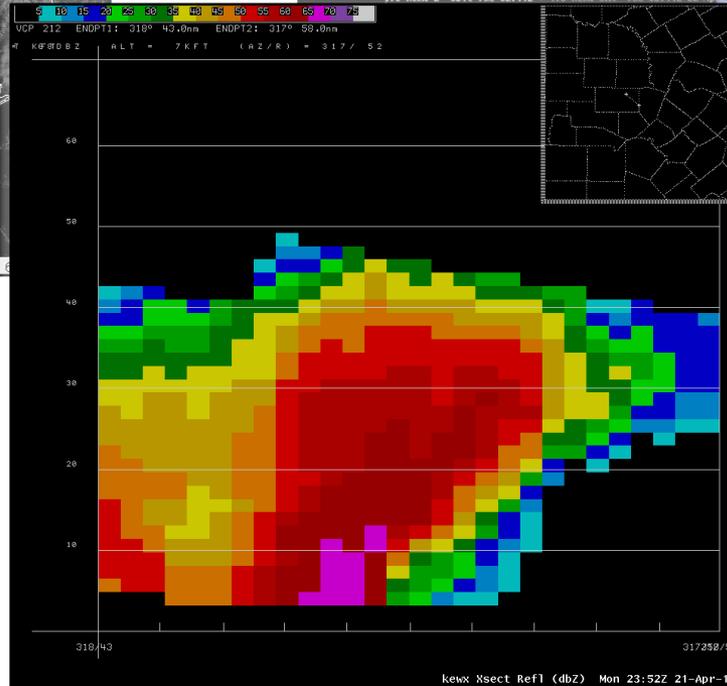
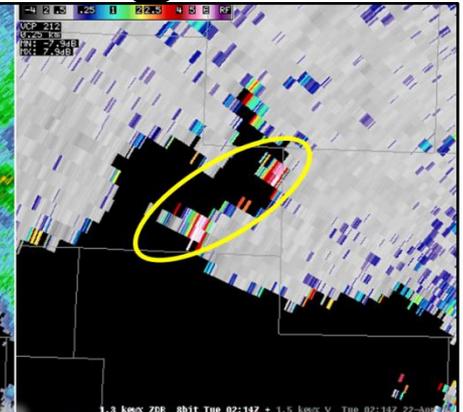
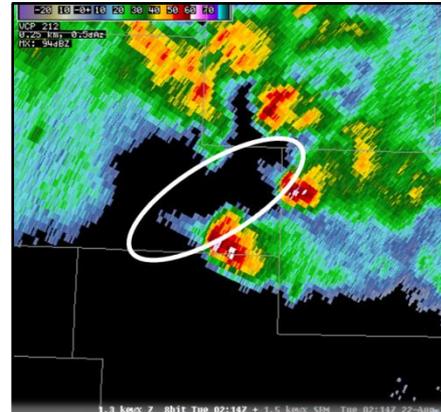


Storm Approaching Harper in Gillespie County around 7:30 pm (top) and 8:17 pm (bottom) // Photo Credit: Kim F. (via twitter)

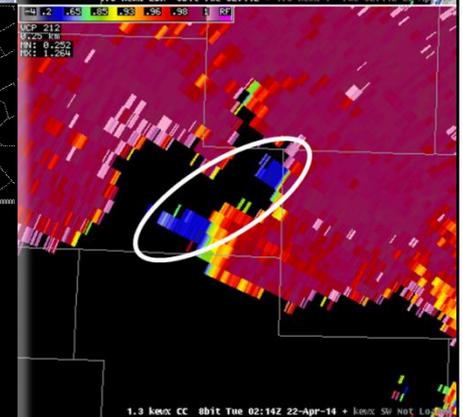
Various Radar/Satellite Images



Above: Visible Satellite Image from 5:45 pm showing storms over North Texas, the Hill Country, and the Mountains of Mexico

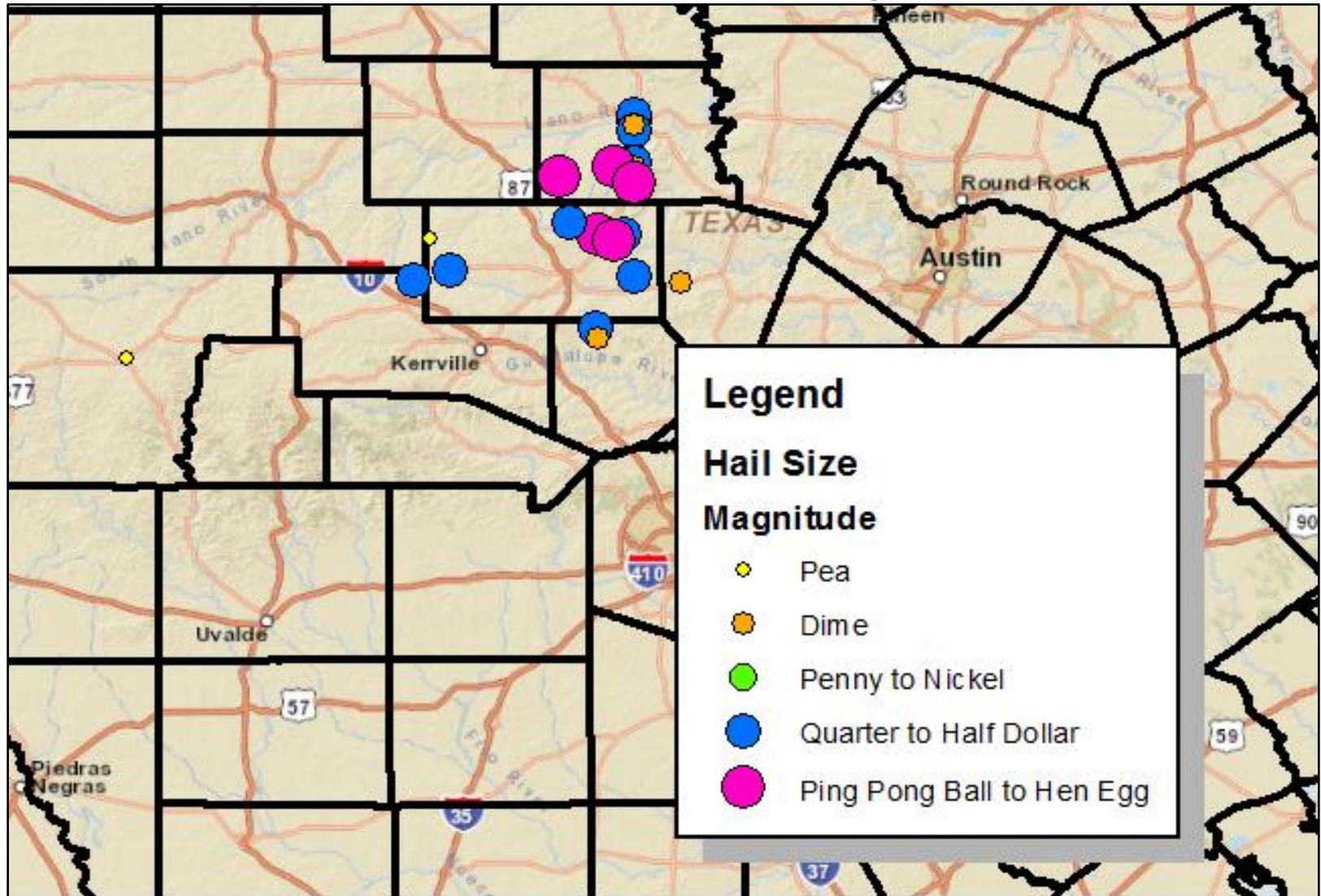


Right: Cross Section of a storm showing the hail/heavy rain at the surface (purples) and how the storm is tilted to the right.



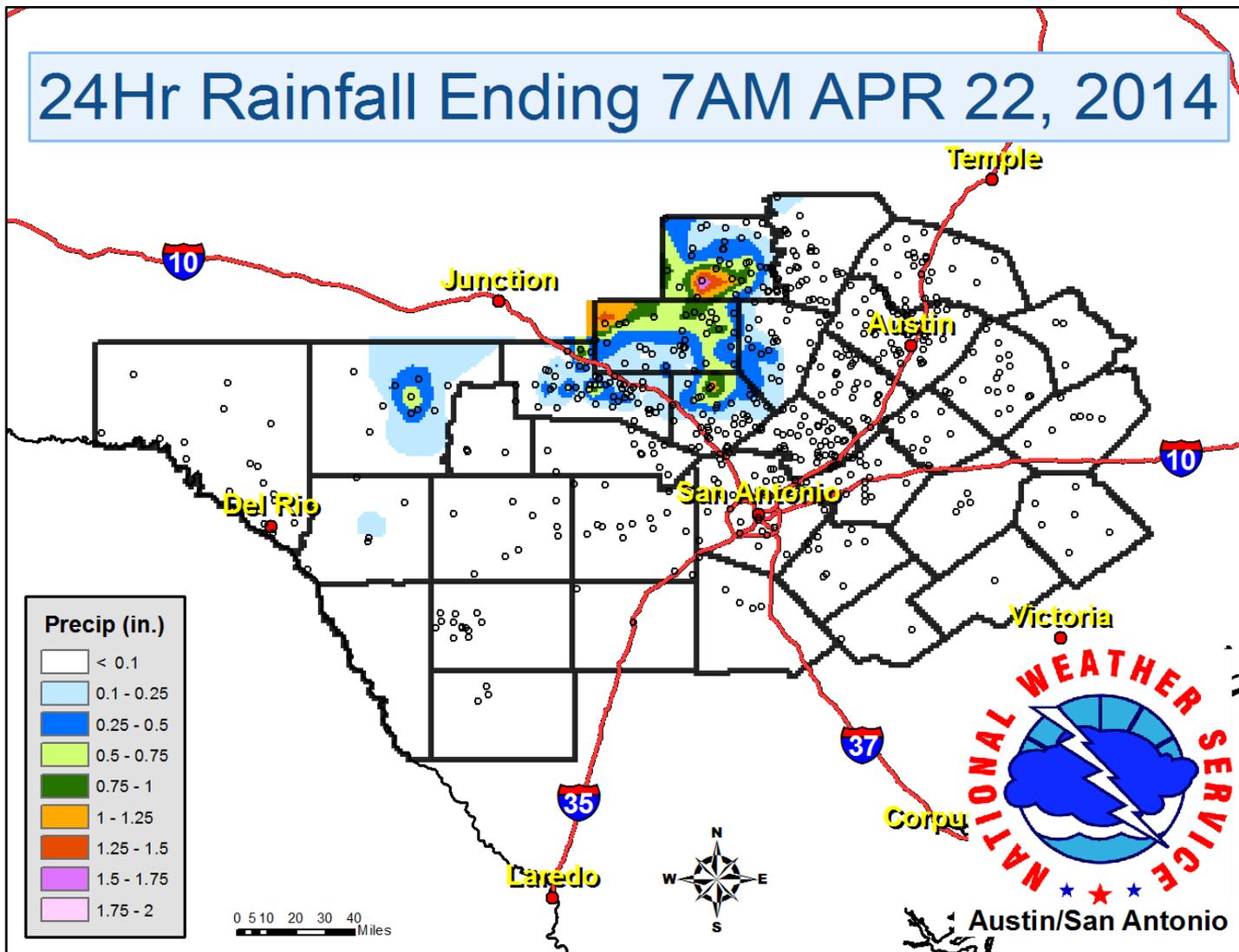
Above: Dual-Pol Radar Three-Body Scatter Spike (circled areas) indicating hail in the storms.

GIS Hail Map



Total Rainfall

24Hr Rainfall Ending 7AM APR 22, 2014



Social Media



KEWX Radome with cumulus and stratocumulus at different levels around sunset on April 21st.



Austin/San Antonio, TX
Weather Forecast Office
weather.gov/ewx



US National Weather
Service Austin-San
Antonio, Texas



@NWSSanAntonio