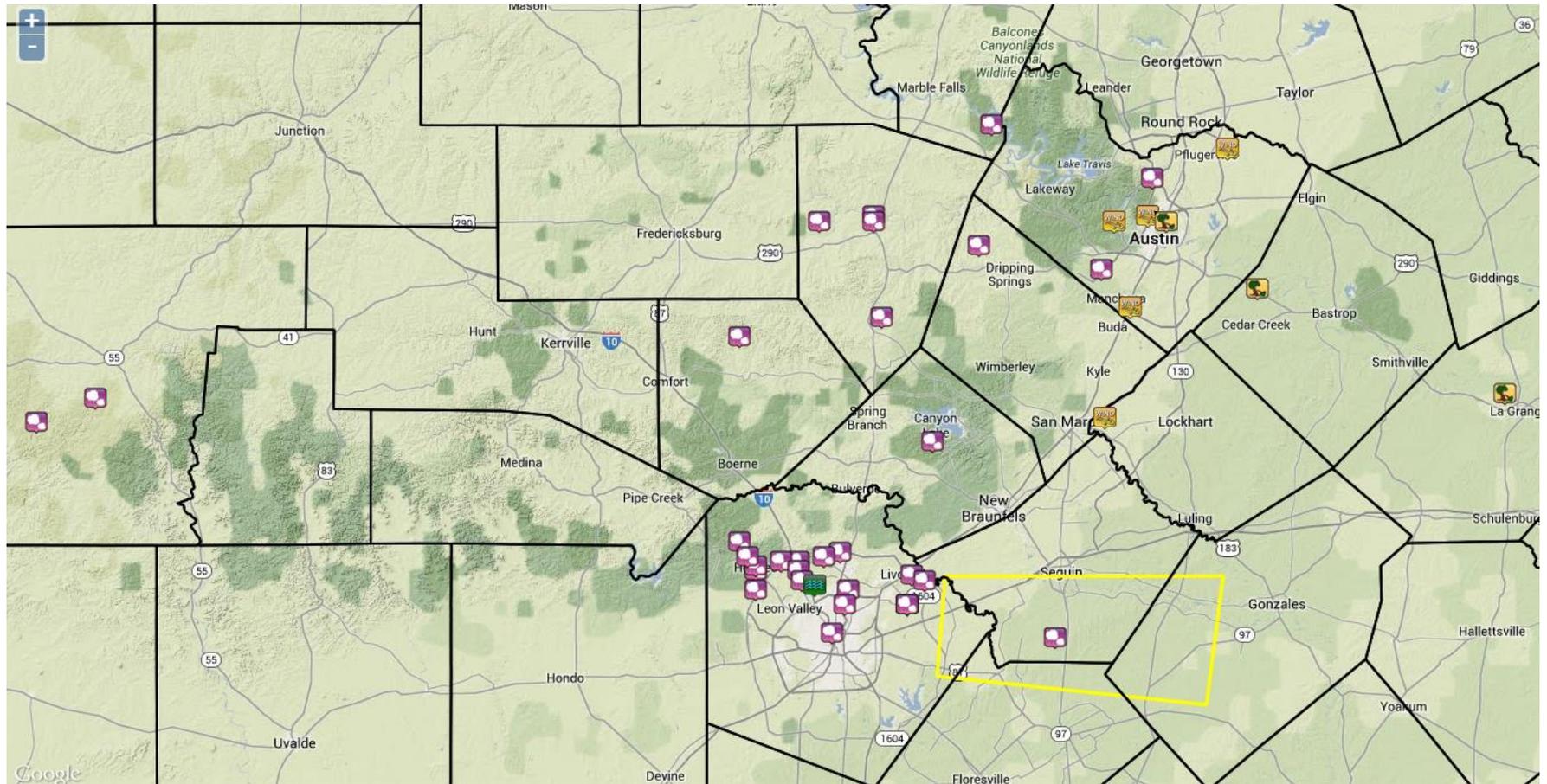


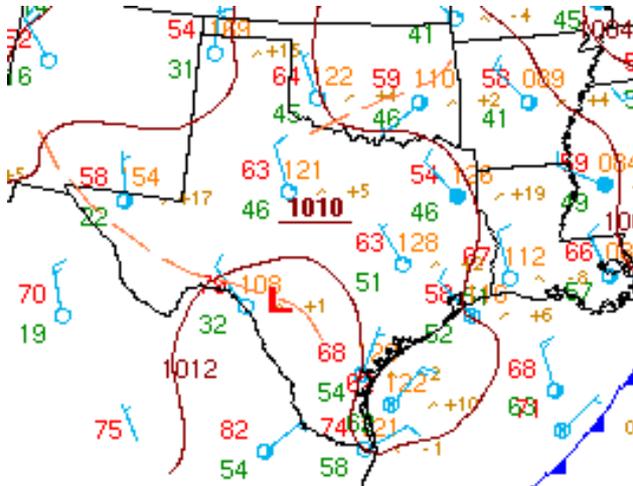
# April 7<sup>th</sup>, 2014 – Hail/Wind Event



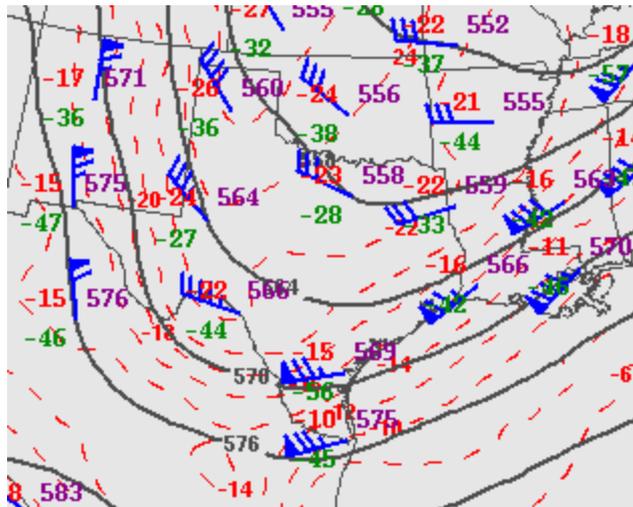
**Austin - San Antonio  
Weather Forecast Office**



# Synoptic Set Up - Summary



1pm WPC Surface Analysis



7pm SPC 500mb Analysis

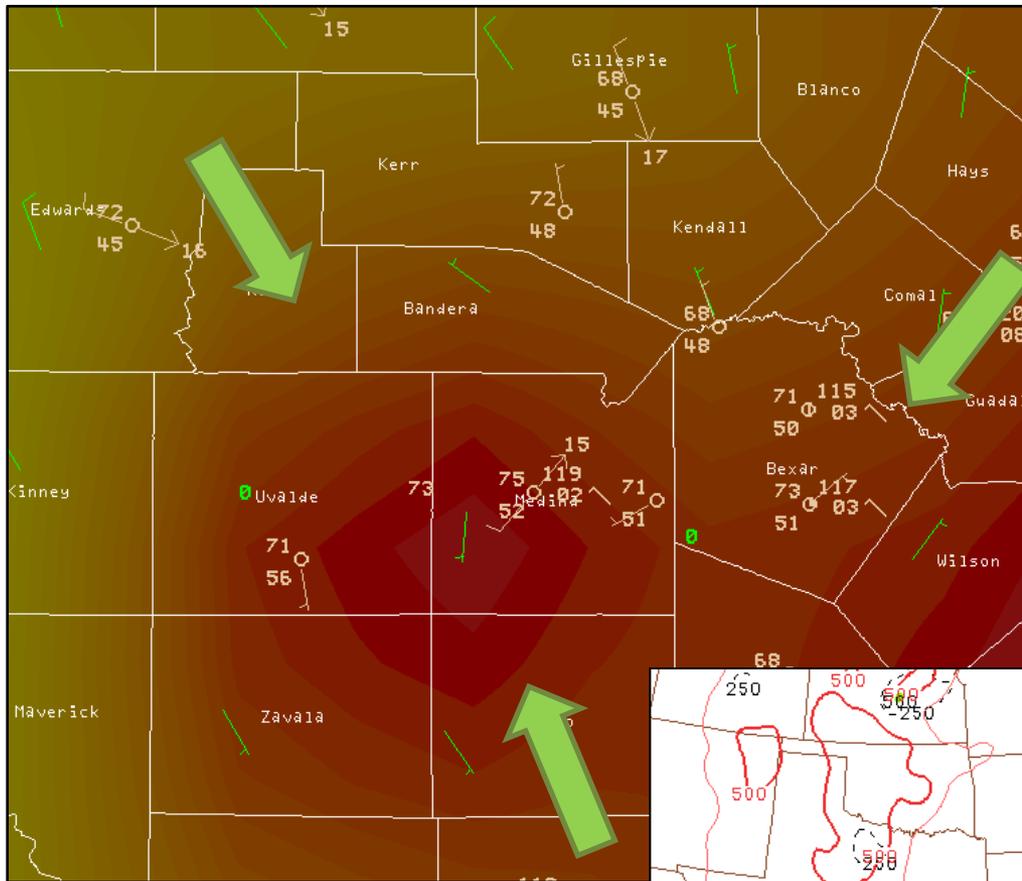
Aloft, a trough of low pressure was progressing across the state of Texas. The trough helped to promote lift, which is one of the 3 ingredients needed for thunderstorms. The other two ingredients are moisture and instability.

Dewpoints were in the 50s across South Central Texas representing the needed fuel for storms to develop.

The 1pm WPC Surface Analysis shows a surface low pressure over the Rio Grande Valley/Edwards Plateau. This is an additional source of lift, convergence, and instability.

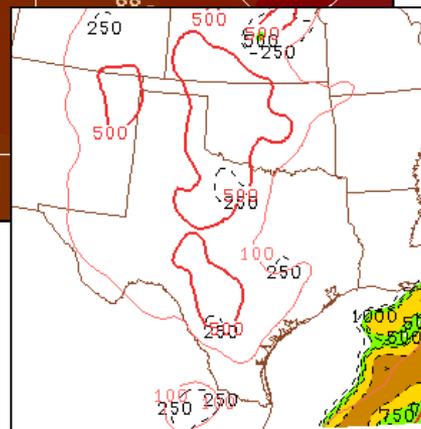
Showers and thunderstorms developed NW of Bexar County by 2pm while other showers and thunderstorms developed west of San Angelo around the same time. Storms moved through the San Antonio Metro area around 3pm. The complex of storms west of San Angelo moved through the Hill Country between 5-6pm, the Austin Metro around 7pm, and points east by 9:30pm.

# San Antonio Storm Formation



Above: 2pm Surface Analysis. Wind barbs (green) and wind arrows show the wind converging. Yellow represents lower dewpoints, while reds show locally higher dewpoints.

Right: Mesoanalysis image of Most Unstable CAPE for 2pm 4/7/14



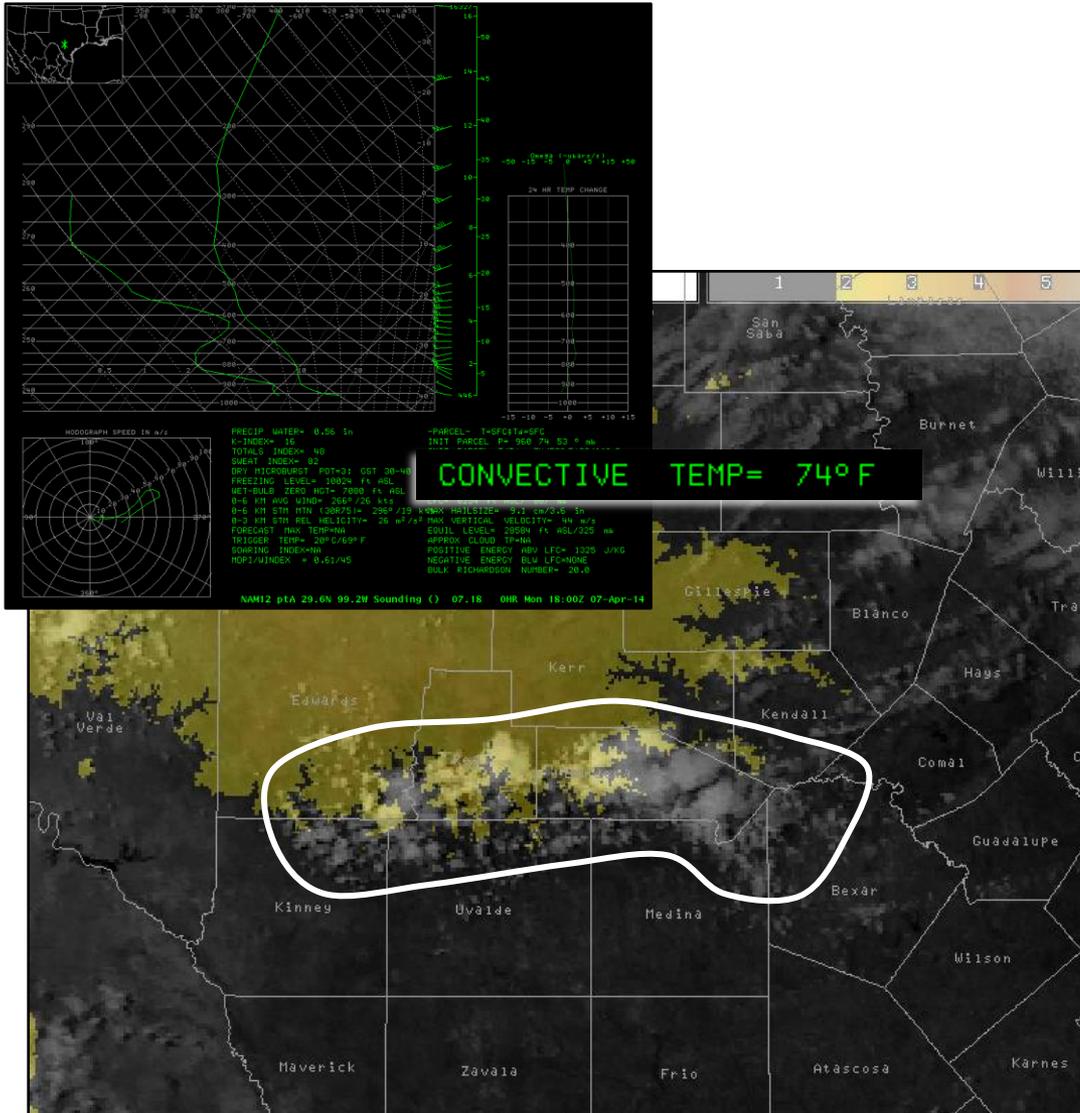
## Moisture:

Around the time of storm formation there was a local maximum in moisture near where storms initiated.

**Instability:** The Storm Prediction Center Mesoanalysis showed a local max of Convective Available Potential Energy (CAPE) over the Edwards Plateau on the afternoon of 4/7. While the value of 500 J/kg of CAPE is not a large amount it is enough to spark off storms.

Winds were also converging over Bandera, Uvalde, Medina, Zavala, and Frio counties.

# San Antonio Storm Formation



## Lift:

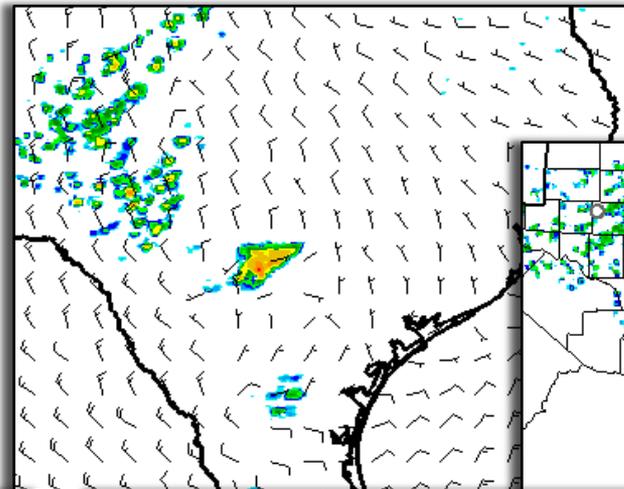
When winds converge, like they were west of Bexar County, the air is forced upward.

Winds flowing up the Balcones Escarpment also promoted lift. The image to the left is topography >1,800 ft shaded in yellow and satellite. It shows the storms forming on ridges on the southern edge of the Escarpment.

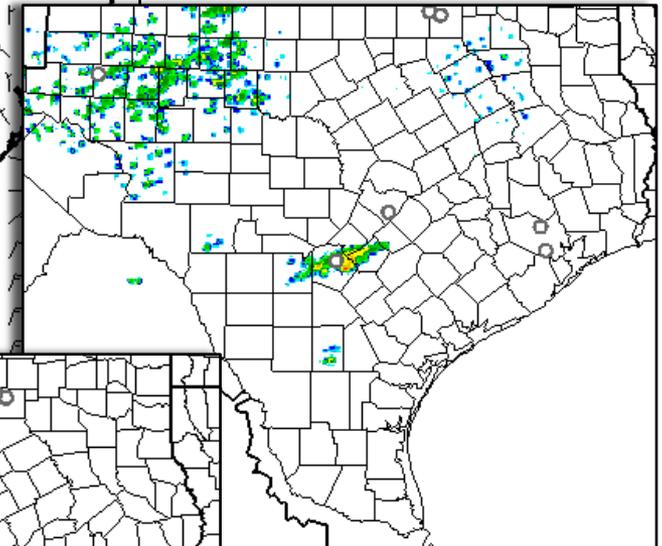
A forecast model sounding (trace of temperature/dewpoint in the atmosphere) predicted the convective temperature (temperature to promote storms) to be 74°F at 1pm...the temperature in Hondo at that hour was 75°F.

# High Resolution Models

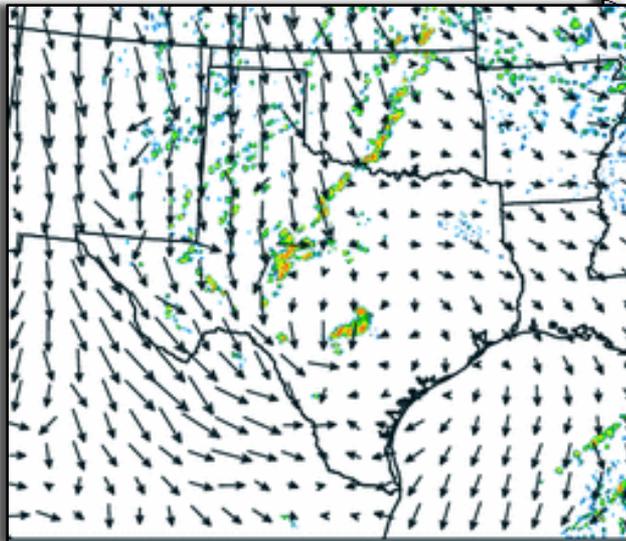
All of the morning high resolution models pointed to storms forming northwest of Bexar County during the afternoon hours. They then showed (not pictured) a line of storms moving through the Austin area later in the evening.



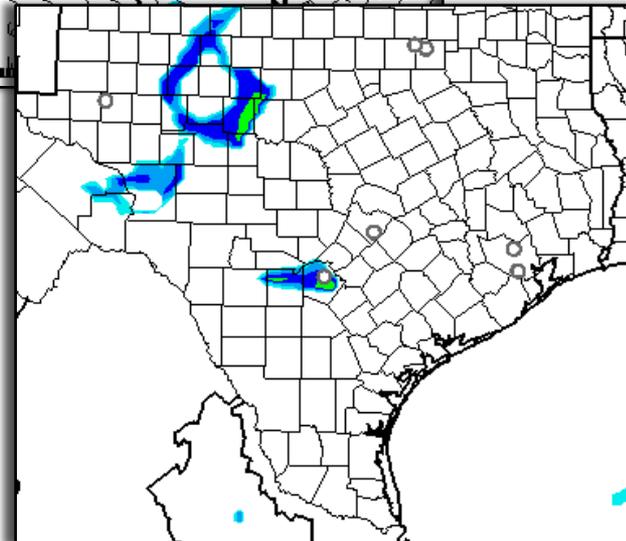
Texas Tech WRF Model  
for 5pm 4/7/14



HRRR Model for 4pm 4/7/14

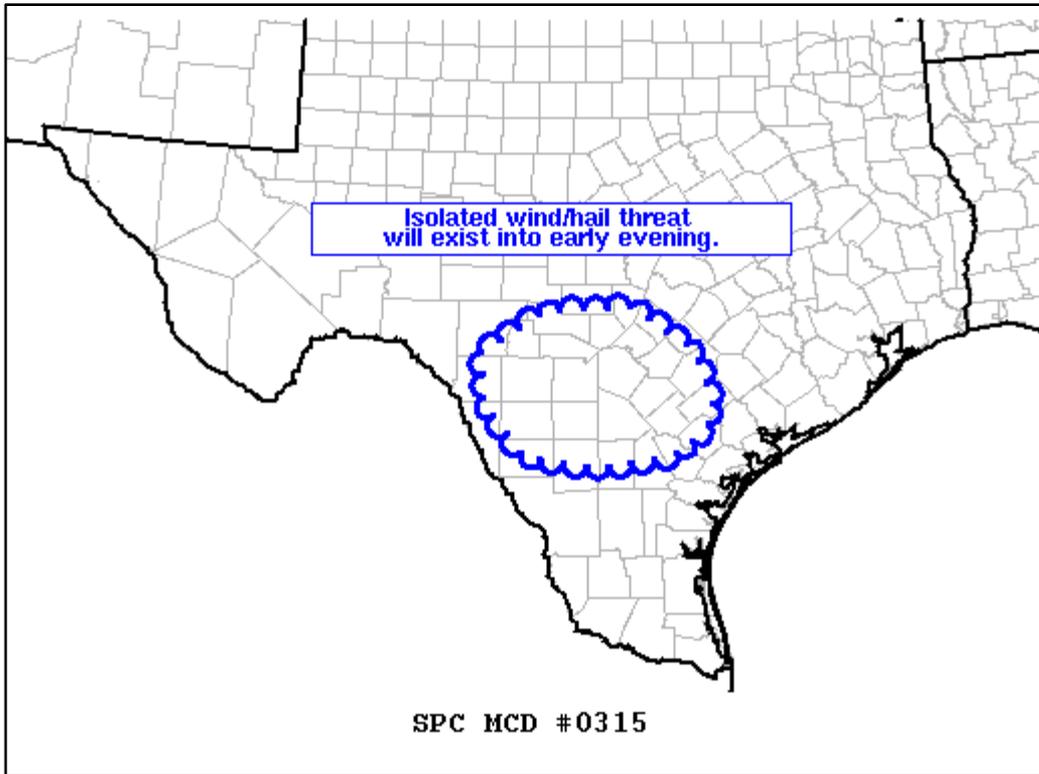


NSSL WRF Model for 4pm 4/7/14



RAP Model for 3pm 4/7/14

# Mesoscale Discussion #315



Issued by Storm Prediction Center in Norman, OK

Issued at 3:09pm

Highlighted how surface heating from the sun would help to promote isolated thunderstorms across the area. Due to the instability, wind shear and structure of the atmosphere storms producing strong gusty winds and sub-severe hail (Pea – Nickel size) were likely.

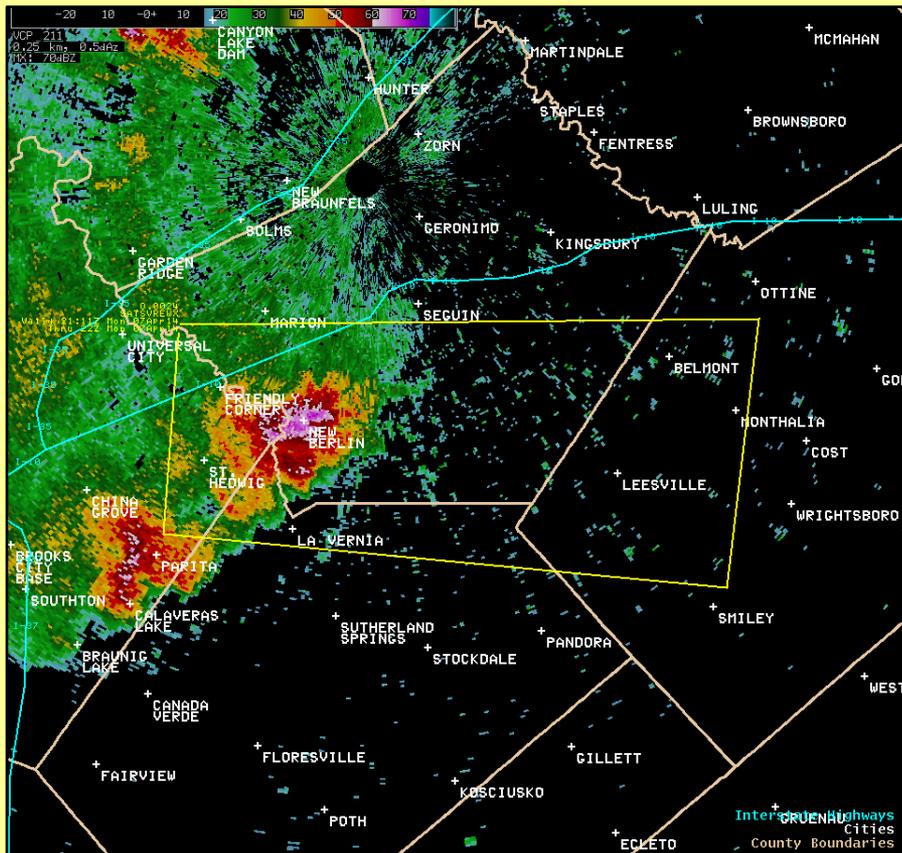
# Severe Thunderstorm Warning

Issued by Austin/San Antonio National Weather Service Forecast Office.

## Criteria:

Radar detection or ground truth report of **Hail 1" in diameter (Quarter size) or larger** and/or **winds of 58mph or stronger**.

With the hail on 4/7/14 we received multiple reports from Austin and San Antonio of pea to dime sized hail covering the ground. Even though the amount of hail was significant, the size of the hail did not meet the above criteria. The one warning we did issue (left) verified in Guadalupe County.



Severe Thunderstorm Warning #24 issued 4/7/14 – Quarter Size Hail reported ~10 miles south of Seguin

# Special Weather Statement (SPS)

SPECIAL WEATHER STATEMENT  
NATIONAL WEATHER SERVICE AUSTIN/SAN ANTONIO TX  
726 PM CDT MON APR 7 2014

TXZ173-191>193-208-080100-  
BASTROP-CALDWELL-HAYS-TRAVIS-WILLIAMSON-  
726 PM CDT MON APR 7 2014

...SIGNIFICANT WEATHER ADVISORY FOR NORTHWESTERN BASTROP...  
NORTHWESTERN CALDWELL...EASTERN WILLIAMSON...TRAVIS AND EASTERN HAYS  
COUNTIES UNTIL 800 PM CDT...

AT 722 PM CDT...NATIONAL WEATHER SERVICE METEOROLOGISTS DETECTED  
STRONG THUNDERSTORMS ALONG A LINE EXTENDING FROM JARRELL TO WINDEMERE  
TO ROLLINGWOOD TO 5 MILES NORTHWEST OF BUDA TO KYLE TO 8 MILES WEST  
OF SAN MARCOS...AND MOVING EAST AT 35 MPH.

HAIL UP TO THE SIZE OF PENNIES AND WIND GUSTS UP TO 40 MPH ARE  
EXPECTED WITH THESE STORMS. THE HAIL IS EXPECTED MAINLY ACROSS  
SOUTHERN PARTS OF THE CITY OF AUSTIN.

LOCATIONS NEAR THE PATH OF THESE STORMS INCLUDE...

WINDEMERE...  
SAN MARCOS...  
PFLUGERVILLE...  
AUSTIN BERGSTROM INT AP...  
GRANGER...  
TAYLOR...  
LOCKHART...  
BUDA...  
WEIR...  
ONION CREEK...

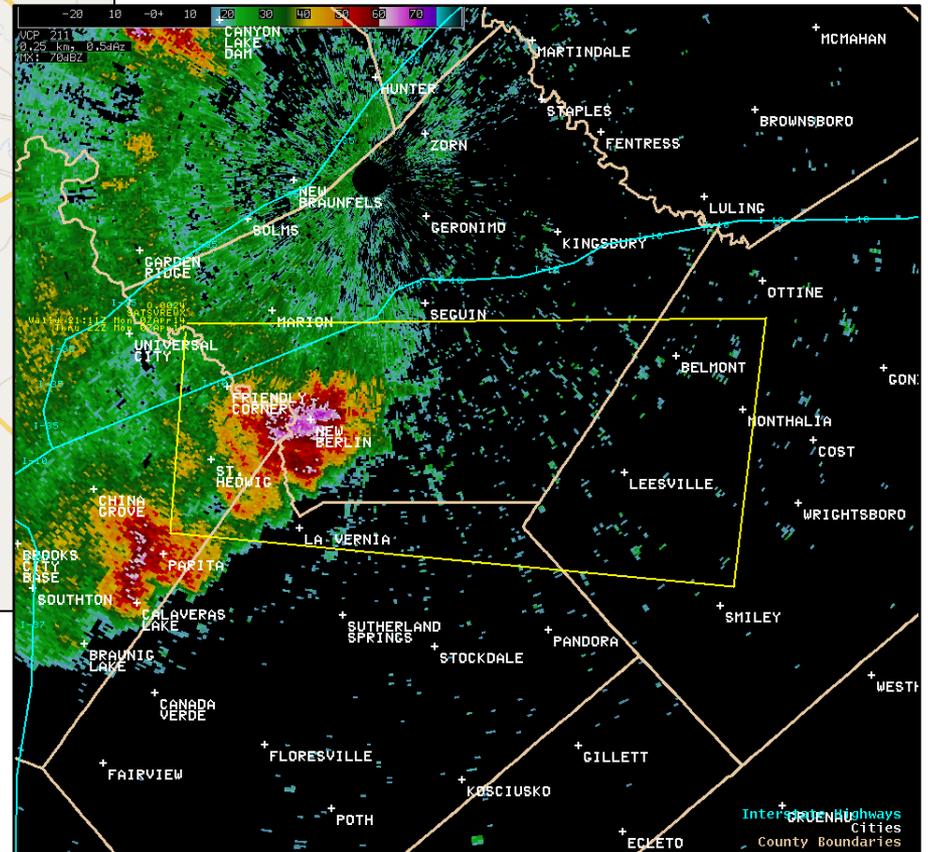
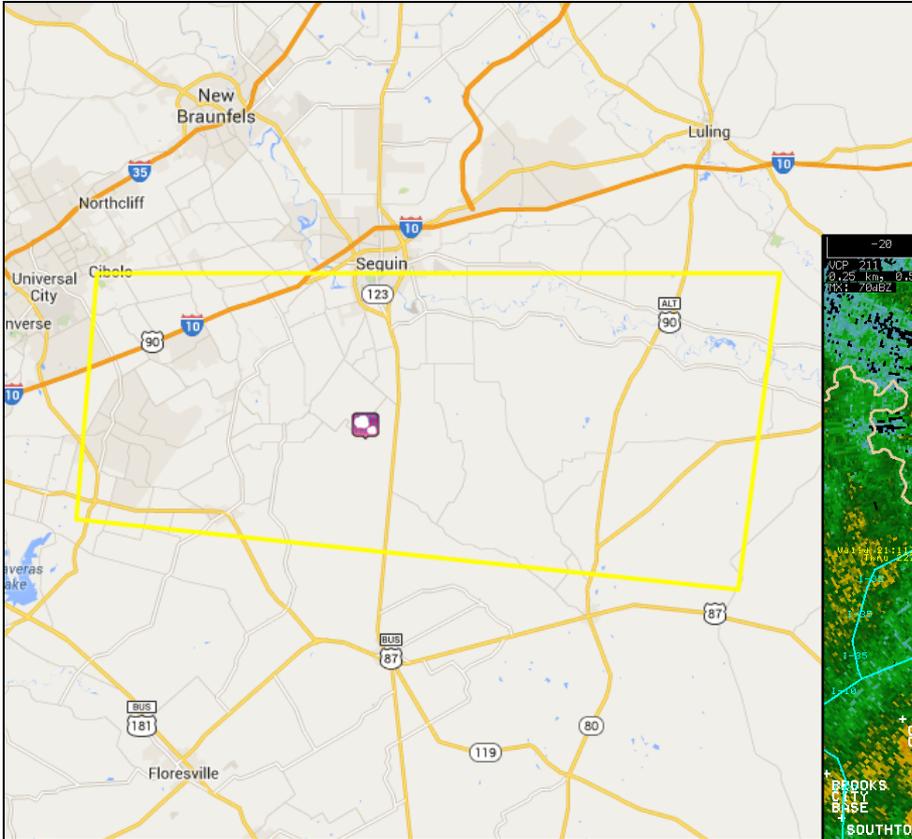
Issued by Austin/San Antonio  
National Weather Service  
Forecast Office.

We issue SPS for storms that are strong, but do not meet the severe criteria. Several SPS products were issued on 4/7/14. Multiple reports of pea to penny sized hail and wind gusts from 40-50mph were received from across South Central Texas.

SPS products play on NOAA Weather Radio, are available on our website: [weather.gov/ewx](http://weather.gov/ewx), and are passed along to the media.

# Severe Thunderstorm Warning

East Central Bexar, West Central Gonzales, Southern Guadalupe, and Northeastern Wilson County



4:11pm – 5:00pm

Reports:

- 4:40pm...1" Hail...8 ESE New Berlin

# All Hail Reports / Pictures

0250 PM HAIL 3 WNW GREY FOREST 29.63N 98.73W  
04/07/2014 E0.25 INCH BEXAR TX TRAINED SPOTTER

0252 PM HAIL 2 W SHAVANO PARK 29.59N 98.59W  
04/07/2014 E0.25 INCH BEXAR TX PUBLIC

PEA SIZE HAIL REPORTED NEAR 1604 AND I-10.

0258 PM HAIL 4 ESE GREY FOREST 29.59N 98.63W  
04/07/2014 E0.50 INCH BEXAR TX PUBLIC

HALF INCH SIZE HAIL.

0300 PM HAIL HELOTES 29.57N 98.69W  
04/07/2014 E0.50 INCH BEXAR TX BROADCAST MEDIA

0303 PM HAIL 1 NNE HELOTES 29.58N 98.69W  
04/07/2014 M0.25 INCH BEXAR TX PUBLIC

PEA SIZE HAIL.

0308 PM HAIL 3 WSW SHAVANO PARK 29.57N 98.59W  
04/07/2014 E0.25 INCH BEXAR TX OTHER FEDERAL

PEA SIZE NEAR DEZAVALA AND I-10.

0310 PM HAIL 1 N HOLLYWOOD PARK 29.61N 98.49W  
04/07/2014 M0.88 INCH BEXAR TX TRAINED SPOTTER

DIME TO NICKEL SIZE HAIL.

0314 PM HAIL 2 NE SHAVANO PARK 29.60N 98.53W  
04/07/2014 E0.88 INCH BEXAR TX PUBLIC

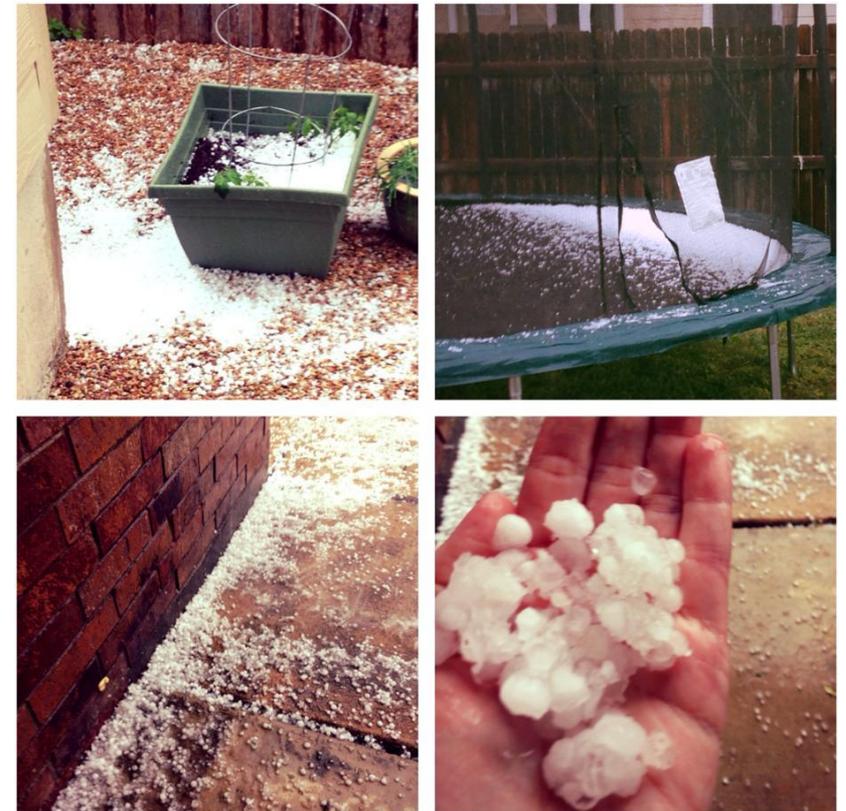


Photo Credit: Tiffany B. (via Facebook) – Hail in San Antonio

# All Hail Reports / Pictures

0314 PM HAIL 1 SSW SAN ANTONIO 29.44N 98.51W  
04/07/2014 E0.25 INCH BEXAR TX STORM CHASER

PEA SIZE HAIL.

0319 PM HAIL 3 ENE CASTLE HILLS 29.53N 98.47W  
04/07/2014 M0.50 INCH BEXAR TX ASOS

ONE HALF INCH HAIL AT THE SAN ANTONIO INTERNATIONAL AIRPORT

0319 PM HAIL 3 SSW SHAVANO PARK 29.55N 98.58W  
04/07/2014 E0.50 INCH BEXAR TX PUBLIC

PEA TO HALF INCH SIZE HAIL.

0325 PM HAIL 1 NW ALAMO HEIGHTS 29.50N 98.48W  
04/07/2014 E0.88 INCH BEXAR TX PUBLIC

PENNY TO NICKEL SIZE HAIL.

0327 PM HAIL 2 S HELOTES 29.53N 98.69W  
04/07/2014 M0.75 INCH BEXAR TX TRAINED SPOTTER

DIME TO PENNY SIZE HAIL.

0330 PM HAIL 1 NW UNIVERSAL CITY 29.56N 98.32W  
04/07/2014 M0.50 INCH BEXAR TX PUBLIC

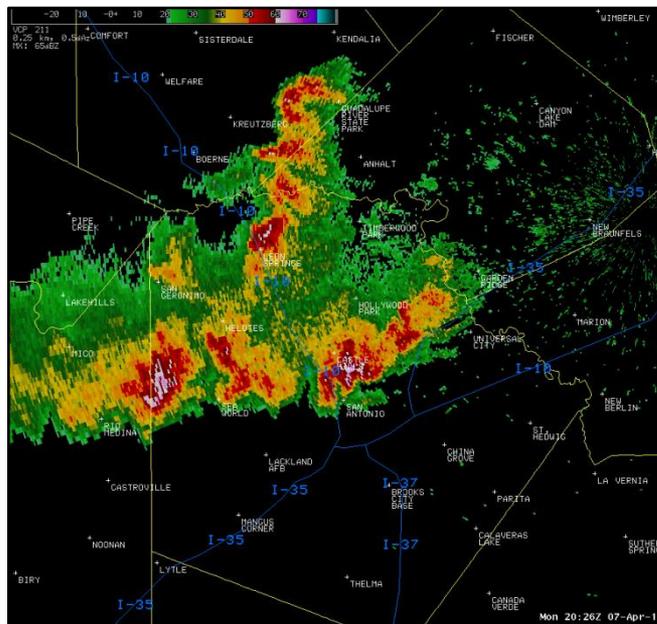
PEA TO HALF INCH SIZE HAIL.

0335 PM HAIL 7 SSW ROCKSPRINGS 29.93N 100.26W  
04/07/2014 M0.88 INCH EDWARDS TX TRAINED SPOTTER

PENNY TO NICKEL SIZE HAIL.



Photo  
Credit:  
Felicia M.  
(via twitter)  
– Pea sized  
hail by  
Ingram Mall



NWS AWIPS  
Radar Image  
from  
3:26pm of  
storms going  
through San  
Antonio

# All Hail Reports / Pictures

0343 PM HAIL 15 SW ROCKSPRINGS 29.88N 100.40W  
04/07/2014 M0.75 INCH EDWARDS TX TRAINED SPOTTER

DIME TO PENNY SIZE HAIL.

0350 PM FLASH FLOOD 2 WNW CASTLE HILLS 29.54N  
98.55W  
04/07/2014 BEXAR TX PUBLIC

VERY HEAVY RAINFALL HAD CAUSED SOME MINOR ROAD  
FLOODING ON VAN JACKSON.

0415 PM HAIL 2 SSW CANYON LAKE DAM 29.84N 98.27W  
04/07/2014 E0.50 INCH COMAL TX PUBLIC

PEA TO HALF INCH SIZE HAIL.

0421 PM HAIL 1 SW CONVERSE 29.50N 98.33W  
04/07/2014 M0.50 INCH BEXAR TX PUBLIC

PEA TO HALF INCH SIZE HAIL...FLOODING OF LOW WATER  
CROSSING AND TREE LIMBS DOWN.

0421 PM FLASH FLOOD 1 SW CONVERSE 29.50N 98.33W  
04/07/2014 BEXAR TX PUBLIC

PEA TO HALF INCH SIZE HAIL...FLOODING OF LOW WATER  
CROSSING AND TREE LIMBS DOWN.

0430 PM HAIL 3 E LIVE OAK 29.55N 98.29W  
04/07/2014 E0.50 INCH BEXAR TX EMERGENCY MNGR

PEA TO HALF INCH SIZE HAIL ALONG VERY HEAVY RAIN.



Photo Credit: Brandon R. – Dime sized hail in Kirby, TX

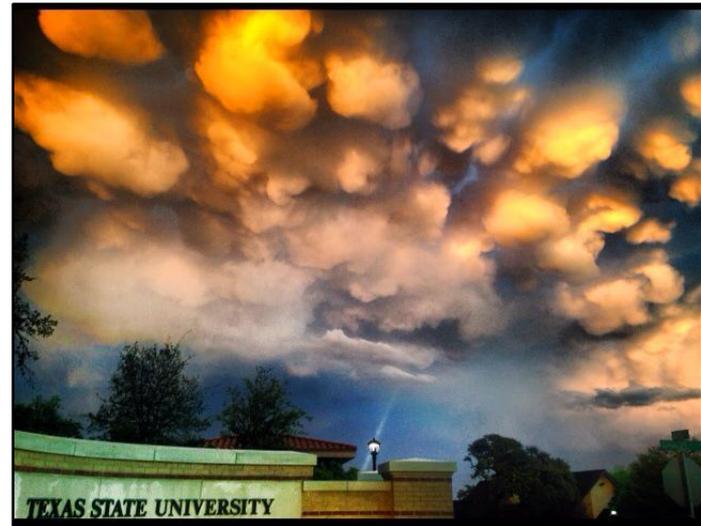


Photo Credit: David S. – Mammatus Clouds in San Marcos, TX

# All Hail Reports / Pictures

0437 PM HAIL 2 WSW GREY FOREST 29.60N 98.71W  
04/07/2014 E0.50 INCH BEXAR TX COCORAHS

PEA TO HALF INCH SIZE HAIL.

0440 PM HAIL 8 ESE NEW BERLIN 29.43N 97.98W  
04/07/2014 M1.00 INCH GUADALUPE TX COCORAHS

NICKEL TO QUARTER SIZE HAIL.

0600 PM HAIL 6 N SISTERDALE 30.06N 98.73W  
04/07/2014 E0.50 INCH KENDALL TX COCORAHS

HAIL SIZE ALMOST HALF AN INCH.

0635 PM HAIL 7 NE LBJ STATE PARK 30.30N 98.54W  
04/07/2014 M0.50 INCH BLANCO TX COCORAHS

PEA TO HALF INCH SIZE HAIL.

0644 PM HAIL 2 E BLANCO 30.10N 98.39W  
04/07/2014 E0.50 INCH BLANCO TX PUBLIC

PEA TO HALF INCH SIZE HAIL.

0644 PM HAIL 2 N JOHNSON CITY 30.31N 98.41W  
04/07/2014 M0.75 INCH BLANCO TX COCORAHS

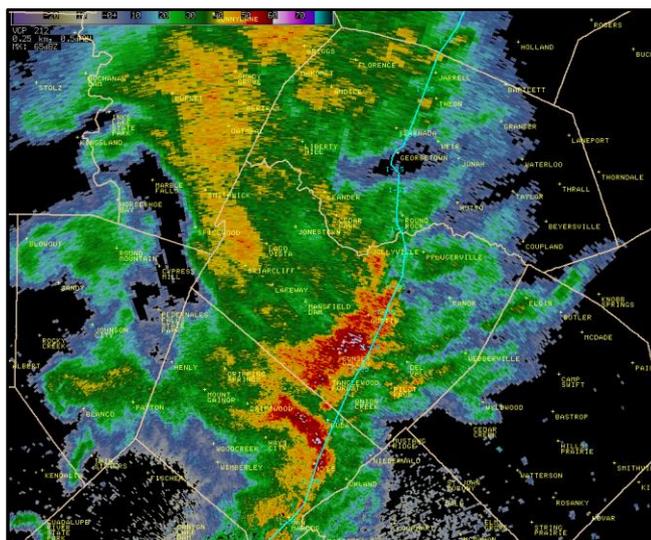
NICKEL TO PENNY SIZE HAIL.

0650 PM HAIL 4 S JOLLYVILLE 30.39N 97.75W  
04/07/2014 E0.50 INCH TRAVIS TX PUBLIC

PEA TO HALF INCH SIZE HAIL.



Photo Credit: Troy W. (via Facebook)  
– Rainbow east of Kyle



NWS AWIPS Radar  
Image from  
7:30pm of storms  
approaching  
Austin

# All Hail Reports / Pictures

0655 PM HAIL 2 N JOHNSON CITY 30.30N 98.41W  
04/07/2014 E0.50 INCH BLANCO TX CO-OP OBSERVER

PEA TO HALF INCH SIZE HAIL.

0659 PM HAIL 3 ENE SPICEWOOD 30.50N 98.13W  
04/07/2014 E0.50 INCH BURNET TX COCORAHS

PEA TO HALF INCH HAIL LASTING LESS THAN 5 MINUTES.  
TIME ESTIMATED VIA RADAR.

0708 PM HAIL 6 NW DRIPPING SPRINGS 30.25N 98.16W  
04/07/2014 E0.25 INCH HAYS TX COCORAHS

PEA SIZE HAIL. TIME ESTIMATED VIA RADAR.

0715 PM HAIL 3 NW TANGLEWOOD FOREST 30.20N  
97.87W  
04/07/2014 M0.88 INCH TRAVIS TX TRAINED SPOTTER

NICKEL SIZE HAIL AND WIND GUSTS ESTIMATED AT 55 MPH.

0727 PM TSTM WND GST LOST CREEK 30.30N 97.84W  
04/07/2014 E50 MPH TRAVIS TX TRAINED SPOTTER

PEA SIZED HAIL WITH WIND GUST OF 50 MPH

0730 PM TSTM WND GST 3 E PFLUGERVILLE 30.45N 97.57W  
04/07/2014 E50 MPH TRAVIS TX TRAINED SPOTTER

WIND GUSTS ESTIMATED TO 50 MPH.

0733 PM TSTM WND GST 1 NW AUSTIN 30.31N 97.76W  
04/07/2014 M56 MPH TRAVIS TX ASOS

CAMP MABRY ASOS KATT 30010G49KTS.



Photo Credit:  
Elizabeth H. (via  
twitter). – Small Hail  
piled up in South  
Austin



Photo Credit:  
David (via  
twitter). – 4"  
Oak Limb  
down in Austin

# All Hail Reports / Pictures

0735 PM TSTM WND DMG 2 SE AUSTIN 30.29N 97.73W  
04/07/2014 TRAVIS TX BROADCAST MEDIA

STRONG WINDS BLEW DOWN A LARGE TREE NEAR 24TH STREET AND SAN JACINTO. TIME IS ESTIMATED BY RADAR.

0735 PM TSTM WND GST 4 NNW MARTINDALE 29.89N  
97.86W  
04/07/2014 M56 MPH CALDWELL TX AWOS

WIND GUSTS TO 56 MPH REPORTED AT THE SAN MARCOS AIRPORT. HAIL.

0739 PM TSTM WND GST 2 SW ONION CREEK 30.12N  
97.80W  
04/07/2014 E50 MPH TRAVIS TX PUBLIC

WIND GUSTS TO 50 MPH ALONG WITH PEA SIZE HAIL.

0755 PM TSTM WND DMG 2 NW WYLDWOOD 30.16N  
97.50W  
04/07/2014 BASTROP TX EMERGENCY MNGR

LARGE TREE WAS BLOWN INTO POWER LINES KNOCKING OUT POWER TO THE AREA.

0915 PM TSTM WND DMG 3 NW LA GRANGE 29.94N  
96.91W  
04/07/2014 FAYETTE TX EMERGENCY MNGR

NUMEROUS TREES DOWN ACROSS THE NORTHERN HALF OF FAYETTE COUNTY. THE AWOS AT LA GRANGE REPORTED A WIND GUSTS TO 47 MPH.



Photo Credit:  
@CityofBastropTx  
- Tree on power lines in Bastrop, TX



Photo Credit: Lee T.  
- Limbs down in Smithville, TX Neighborhood.

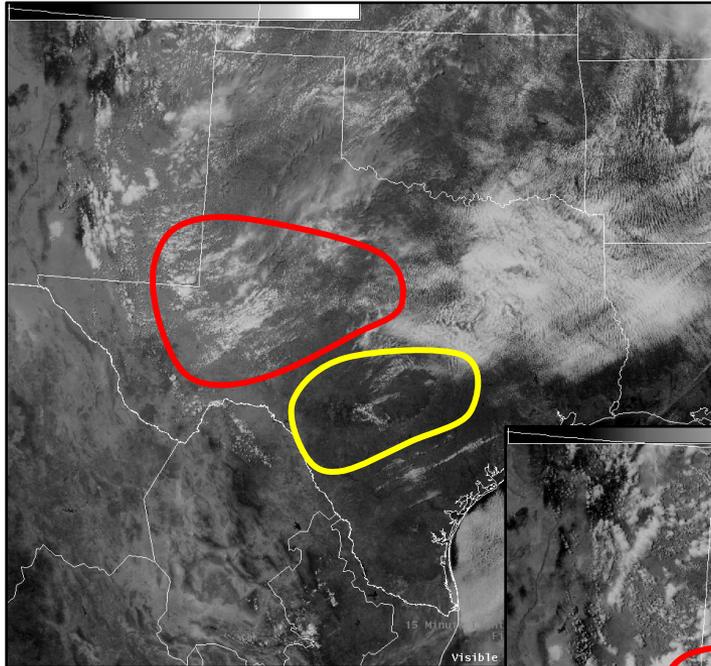
# Peak Wind Gusts for April 7th

...PEAK WIND GUSTS FOR TODAY APRIL 7TH...

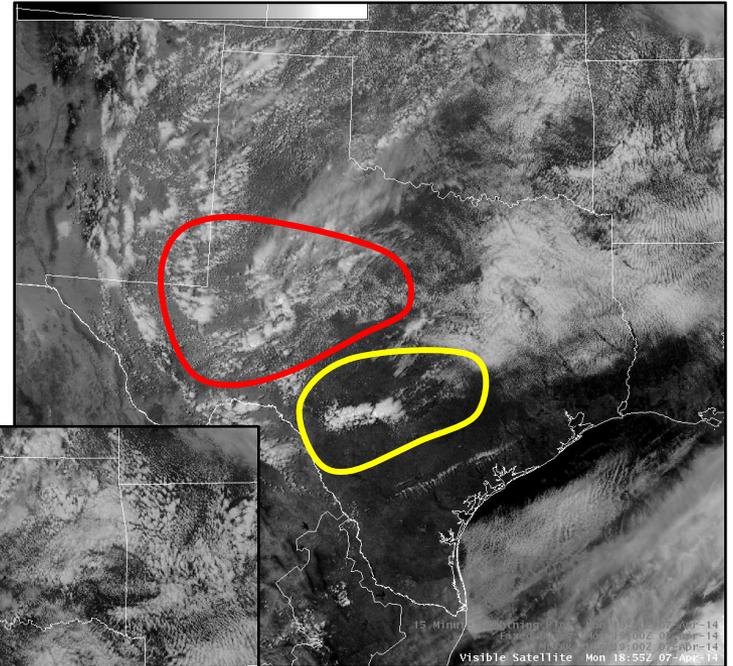
LOCATION	SPEED	TIME/DATE
SAN MARCOS MUNICIPAL AIRPORT	56 MPH	0735 PM 04/07
CAMP MABRY	56 MPH	0727 PM 04/07
12 ESE TELEGRAPH	50 MPH	0459 PM 04/07
2 ENE BRIARCLIFF	50 MPH	0709 PM 04/07
3 SE AUSTIN	49 MPH	0736 PM 04/07
1 E LA GRANGE	49 MPH	0903 PM 04/07
FREDERICKSBURG	48 MPH	0615 PM 04/07
BERGSTROM INTL AIRPORT	48 MPH	0735 PM 04/07
DEL RIO INTL AIRPORT	47 MPH	0410 PM 04/07
LA GRANGE	47 MPH	0835 PM 04/07
KERRVILLE MUNI /LOUIS SCHREINE	46 MPH	0555 PM 04/07
HONDO MUNICIPAL AIRPORT	45 MPH	0337 PM 04/07
LAUGHLIN AFB	45 MPH	0422 PM 04/07
1 W HAYS	43 MPH	0729 PM 04/07
SAN ANTONIO INTL ARPT	43 MPH	0317 PM 04/07
BURNET MUNICIPAL KATE CRADDOCK	43 MPH	0632 PM 04/07
4 WNW MOUNTAIN CITY	42 MPH	0748 PM 04/07
1 SSW LOST MAPLES STATE PARK	42 MPH	0446 PM 04/07
6 WSW HARPER	42 MPH	0540 PM 04/07
3 E CHINA GROVE	42 MPH	0357 PM 04/07

2 E CANYON LAKE DAM	40 MPH	0707 PM 04/07
SUNSET VALLEY	40 MPH	0730 PM 04/07
NEW BRAUNFELS MUNICIPAL AIRPOR	40 MPH	0411 PM 04/07
2 W TANGLEWOOD FOREST	40 MPH	0918 PM 04/07
ROCKSPRINGS	40 MPH	0510 PM 04/07
RANDOLPH AFB	39 MPH	0348 PM 04/07
1 NW CAMP SWIFT	39 MPH	0908 PM 04/07
HORSESHOE BAY RESORT AP	39 MPH	0655 PM 04/07
8 SSW BERTRAM	39 MPH	0735 PM 04/07
STINSON MUNICIPAL AIRPORT	38 MPH	0357 PM 04/07
7 SSE PONTOTOC	38 MPH	0603 PM 04/07
5 NW BANDERA	38 MPH	0603 PM 04/07
8 NNW LAGO VISTA	37 MPH	0747 PM 04/07
4 NE PFLUGERVILLE	37 MPH	0750 PM 04/07
RUSTY ALLEN AP	36 MPH	0715 PM 04/07
GONZALES AIRPORT	36 MPH	0515 PM 04/07
LIBERTY HILL	36 MPH	0707 PM 04/07
4 NNE AUSTIN	36 MPH	0740 PM 04/07
FAITH RANCH	36 MPH	0615 PM 04/07
LLANO	36 MPH	0610 PM 04/07
PLEASANTON MUNICIPAL AIRPORT	36 MPH	0435 PM 04/07
1 NNE SAN LEANNA	36 MPH	0730 PM 04/07
2 SSW HAYS	35 MPH	0729 PM 04/07
5 E VANDERPOOL	35 MPH	0605 PM 04/07
1 N LBJ STATE PARK	35 MPH	0708 PM 04/07
3 SSE ROLLINGWOOD	35 MPH	0735 PM 04/07
4 WSW ANDERSON MILL	35 MPH	0725 PM 04/07

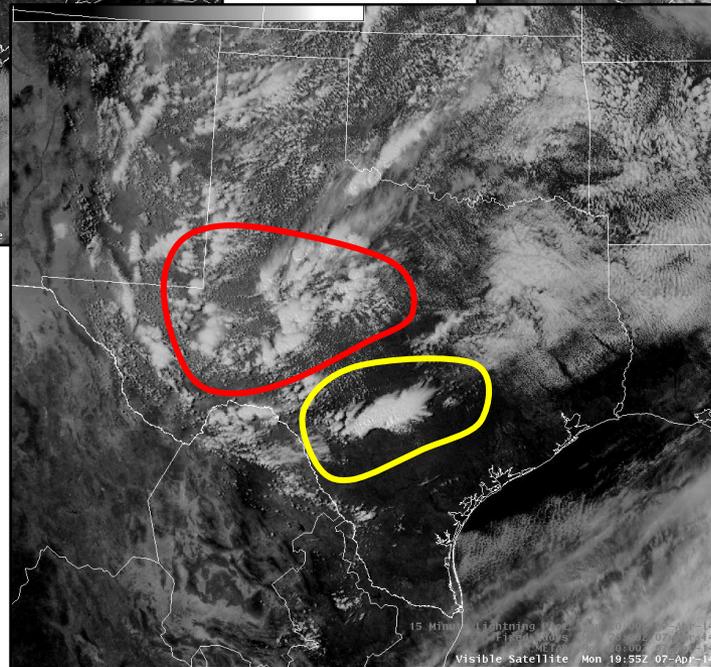
# Satellite



1pm Satellite



2pm Satellite

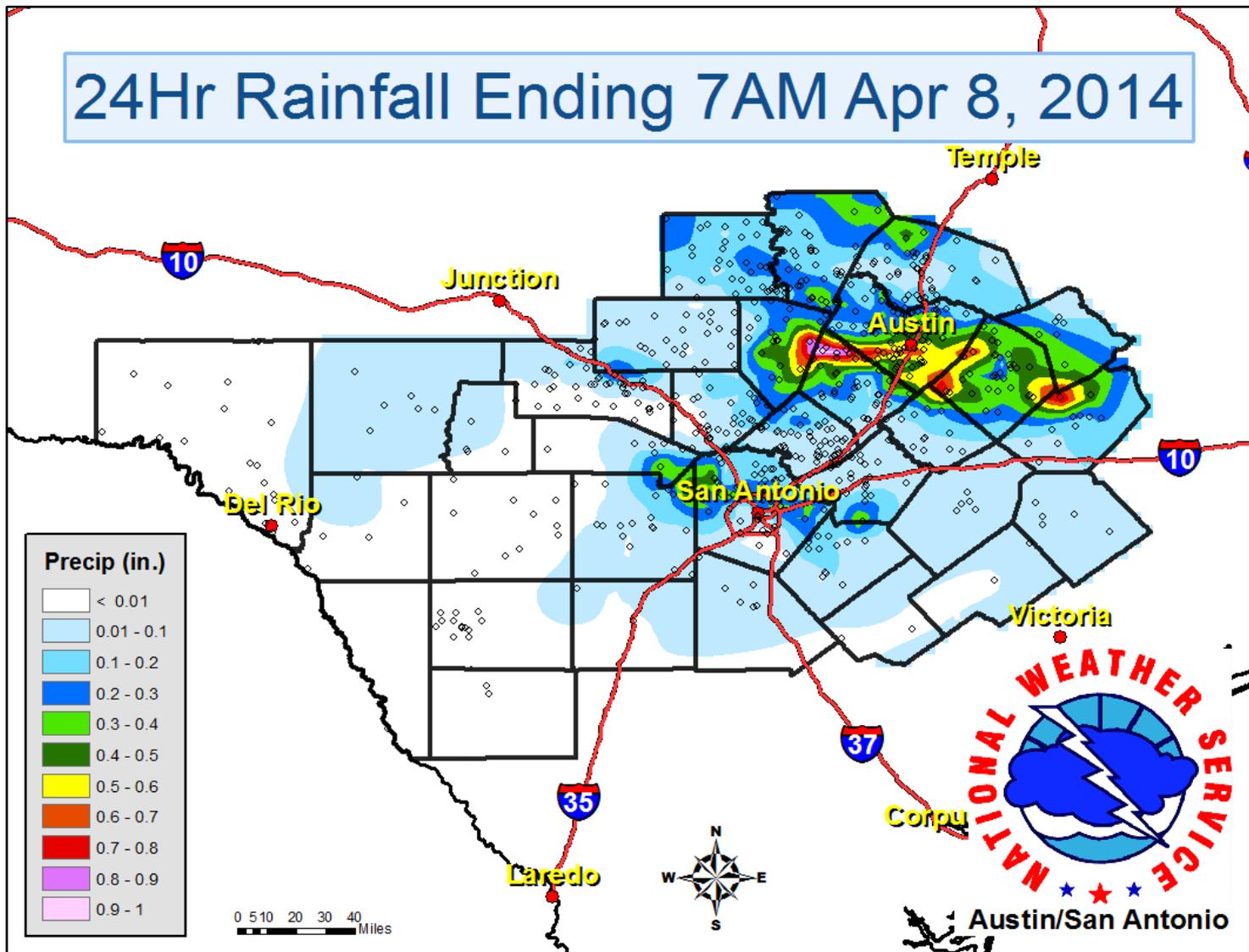


← 3pm Satellite

Storms forming in the **Yellow** impacted San Antonio around 3pm. Storms forming in the **Red** impacted the Hill Country, Austin, and points east from 5pm-9pm.

# Total Rainfall

24Hr Rainfall Ending 7AM Apr 8, 2014



# Social Media



Photo Credit: Aaron T. – Mammatus Clouds at WFO New Braunfels



Austin/San Antonio, TX  
Weather Forecast Office  
[weather.gov/ewx](http://weather.gov/ewx)



US National Weather  
Service Austin-San  
Antonio, Texas



@NWSSanAntonio