

NATIONAL WEATHER SERVICE Building a Weather-Ready Nation

Review of Active 2023 Spring Severe Weather Season

NWS San Angelo

Acronyms

- Keep note of the following acronyms used throughout this review:
- SVR = Severe Thunderstorm Warning
- TOR = Tornado Warning
- FFW = Flash Flood Warning
- CWA = County Warning Area
- WFO = Weather Forecast Office
- SJT = San Angelo

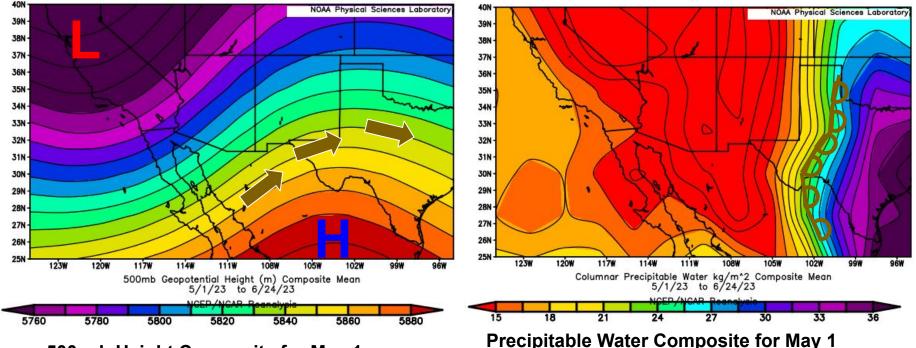


Overview

- NWS San Angelo's (SJT) Weather Forecast Office (WFO) experienced its busiest severe weather season in at least the last 20 years in terms of the number of Severe Thunderstorm Warnings (SVR) that were issued (350).
 - The May 1 through June 25 time-period was particularly active, with 280 SVRs issued during that time-frame
- A persistent, amplified long-wave trough across the southwest United States, and numerous short-wave troughs moving up in the southwest flow aloft, resulted in an active pattern where storms frequently developed along the dry-line, cold fronts, or other boundaries.



Composite 500 mb and Precipitable Water Reanalysis for May 1- June 24 2023

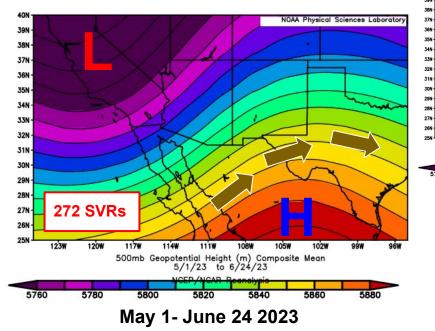


500 mb Height Composite for May 1 through June 24 2023

Precipitable Water Composite for May 1 through June 24 2023 (can be used as a proxy for average dry-line location)

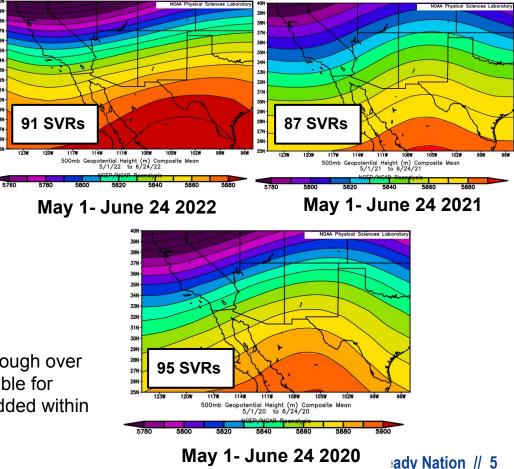


May 1 through June 24: 500 mb Heights and SVR issuances 2023 compared to Previous Years



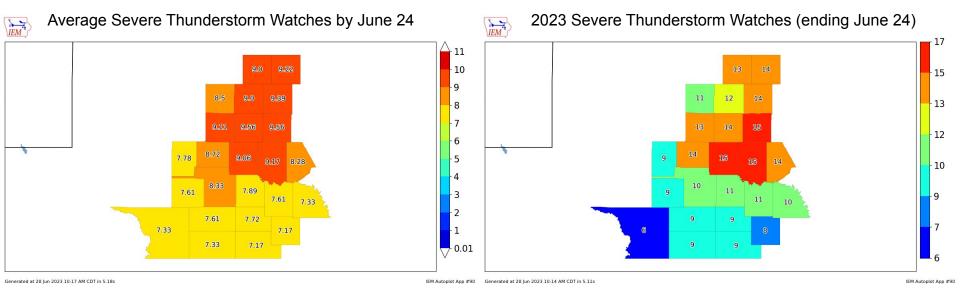
In 2023, generally more persistent and amplified trough over the Southwest United States, which is more favorable for dry-line convective initiation as short-waves embedded within the SW flow aloft move into the region





Severe Thunderstorm Watches -Average vs 2023

On a normal year, during the Jan 1 through June 24 time-period, the counties within the WFO SJT CWA usually have about 7 to 9 Severe Thunderstorm Watches having been issued (left graphic). However, during 2023, there were generally 9 to 14 Severe Thunderstorm Watches that were issued across the CWA, with a low of 6 (Crockett County) and a high of 15 (Runnels, Coleman and Callahan counties).



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SPC Highest Day 1 Convective Outlooks in WFO SJT CWA - March-June 2023

	5	J												
Highest SPC Day 1 Convective Outlook for NWS San Angelo [SJT] Valid 01 Mar 2023 - 31 Mar 2023 - 31 Mar 2023 - Days since by threshold: ENH - 2 Days, MRGL 1 Days, SLOT & Days March 2023						Highest SPC Day 1 Convective Outlook for NWS San Angelo [SJT] Valid 01 Apr 2023 - 30 Apr 2023 - Days since by threshold: ENH 2 Days, MEGL - 2 Days, SLGT 5 Days, TSTM 7 Days April 2023								
SUN	MON	TUE	WED	THU	FRI	SAT		SUN	MON	TUE	WED	THU	FRI	SAT
Mar	ch 2023		1 MRGL	2 ENH	3	4		April	2023					1
5	6	7 MRGL	8 MRGL	9 MRGL	10 TSTM	11 TSTM	2	ENH	3 MRGL	4 MRGL	5 TSTM	6 TSTM	7 TSTM	8
12	13	14	15	16	17	18	9	MRGL	10 MRGL	11 TSTM	12	13 TSTM	14 TSTM	15 TSTM
19	20	TSTM 21	TSTM 22	SLGT	24	25	1	16	17 MRGL	18 MRGL	19 SLGT	20 SLGT	21 TSTM	22 SLGT
	20			SLGT	TSTM		2	23 TSTM	24	25 SLGT	26 ENH	27	28 ENH	29
26	27 MRGL	28 TSTM	29	30 MRGL	31 TSTM		(1)	30			J	1		
Highest SPC Day 1 Convective Outlook for NWS San Angelo [SJT] Wild 01 Jun 2023 - 25 Jun 2023. Days since by threshold: ENH - 2 Days, MGG 1 Days, SLGT - 1 Days, TSTM 0 Days May 2023														
SUN	MON	TUE	WED	THU	FRI	SAT		SUN	MON	TUE	WED	THU	FRI	SAT
Мау	2023	2 MRGL	3 SLGT	4 SLGT	5 SLGT	6 ENH		Jun	e 2023			1 SLGT	2 ENH	3 MRGL
7 SLGT	8 SLGT	9 MRGL	10 SLGT	11 SLGT	12 SLGT	13 TSTM	4	I MRGL	5 TSTM	6 TSTM	7 MRGL	8 MRGL	9 MRGL	10 SLGT
14 TSTM	15 TSTM	16 TSTM	17 MRGL	18 MRGL	19 SLGT	20 TSTM		1 SLGT	12 ENH	13 SLGT	14 MRGL	15 SLGT	16 SLGT	17 ENH
21 TSTM	22 SLGT	23 SLGT	24 SLGT	25 MRGL	26 SLGT	27 SLGT	1	.8 MRGL	19 SLGT	20 TSTM	21 ENH	22 SLGT	23 SLGT	24 MRGL
28 MRGL	29 TSTM	30 TSTM	31 TSTM	HINGL	JLUT		2	25 TSTM	5201	13114		5201	JLOT	PIROL
MINUL		IJIM												

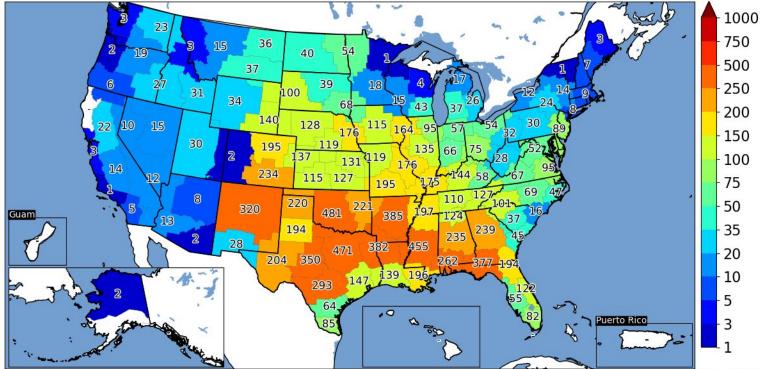
Generated at 28 Jun 2023 10:04 AM CDT in 0.63s

IEM Autoplot App #201 Generated at 28 Jun 2023 10:03 AM CDT in 0.46s

Total SVRs issued (by WFO) Jan 1 through June 25, 2023



Severe Thunderstorm Warning Event Count by WFO Valid 01 Jan 2023 00:00 - 25 Jun 2023 23:59 UTC, based on VTEC: SV.W



data units :: Count

IEM Autoplot App #109

Generated at 26 Jun 2023 1:20 PM CDT in 28.37s



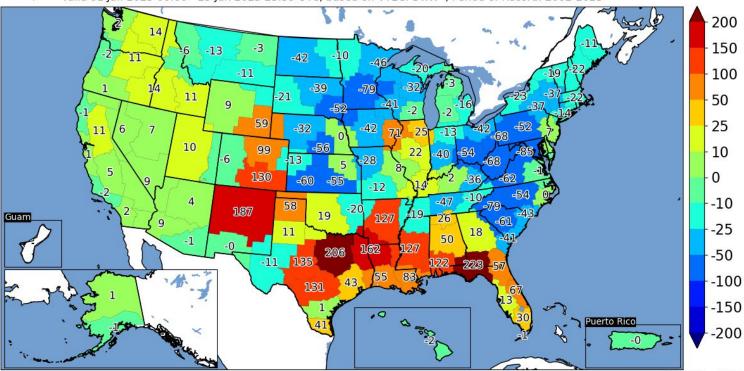
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NWS SJT issued 350 SVRs during the Jan 1 through June 25 time-period of 2023, which ranks 7th among all NWS WFOs for that time-frame

SVRs issued (by WFO) Departure from Average - Jan 1 through June 25, 2023



Severe Thunderstorm Warning Departure from Average of Event Count by WFO Valid 01 Jan 2023 00:00 - 25 Jun 2023 23:59 UTC, based on VTEC: SV.W, Period of Record: 2002-2023



Generated at 26 Jun 2023 1:19 PM CDT in 18.88s



data units :: Count IEM Autoplot App #109

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NWS SJT issued

135 more SVRs

than usual during

the Jan 1 through

time-period of

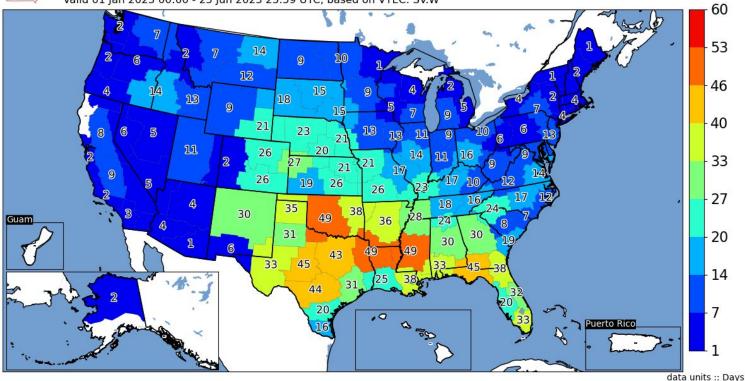
June 25

2023

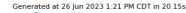
Number of Days with 1 or More SVRs issued (by WFO) Jan 1 through June 25, 2023



Severe Thunderstorm Warning Days with 1+ Events by WFO Valid 01 Jan 2023 00:00 - 25 Jun 2023 23:59 UTC, based on VTEC: SV.W



NWS SJT had 45 days where at least one SVR was issued during the Jan 1 through June 25 period in 2023



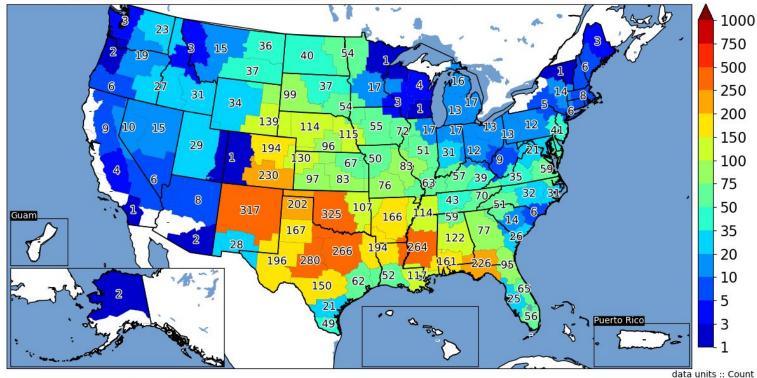


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Total SVRs issued (by WFO) May 1 through June 25, 2023



Severe Thunderstorm Warning Event Count by WFO Valid 01 May 2023 00:00 - 25 Jun 2023 23:59 UTC, based on VTEC: SV.W



Generated at 26 Jun 2023 1:25 PM CDT in 55.82s

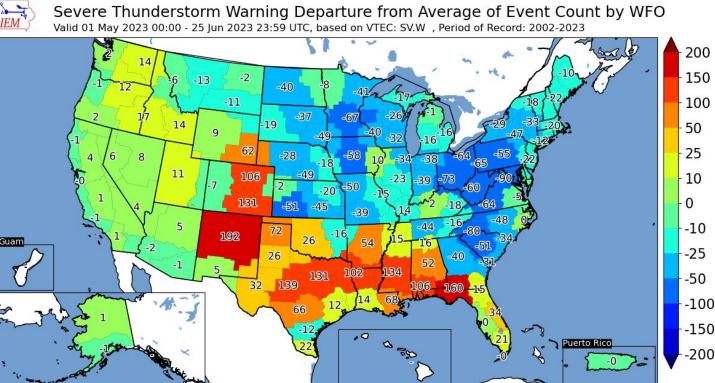


NWS SJT issued 280 SVRs during the May 1 through June 25 time-period of 2023, which ranks 3rd among all NWS WFOs for that time-frame

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SVRs issued (by WFO) Departure from Average - May 1 through June 25, 2023





NWS SJT issued 139 more SVRs than usual during the May 1 through June 25 time-period of 2023

ited at 26 Jun 2023 1:24 PM CDT in 18.66s



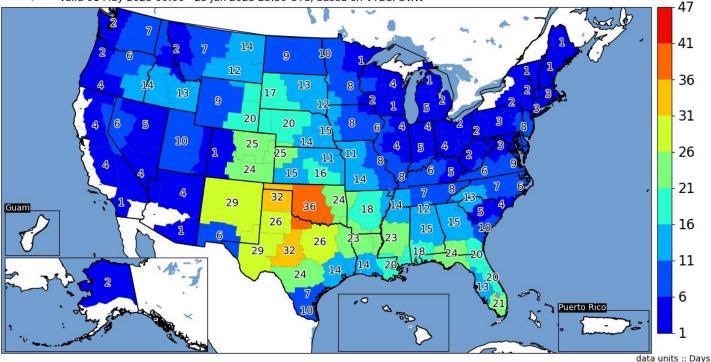
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data units :: Count

Number of Days with 1 or More SVRs issued (by WFO) May 1 through June 25, 2023



Severe Thunderstorm Warning Days with 1+ Events by WFO Valid 01 May 2023 00:00 - 25 Jun 2023 23:59 UTC, based on VTEC: SV.W



NWS SJT had 32 days where at least one SVR was issued during the May 1 through June 25 period in 2023

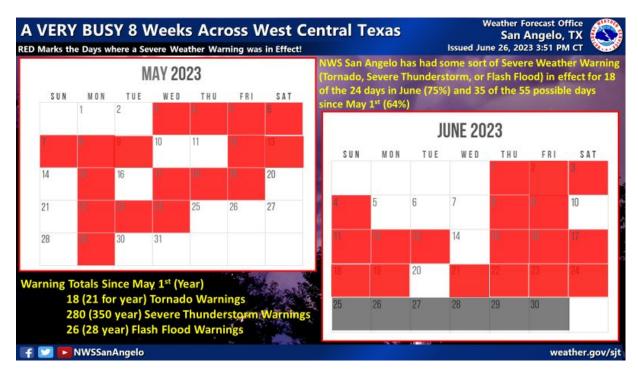
Generated at 26 Jun 2023 1:22 PM CDT in 40.66s



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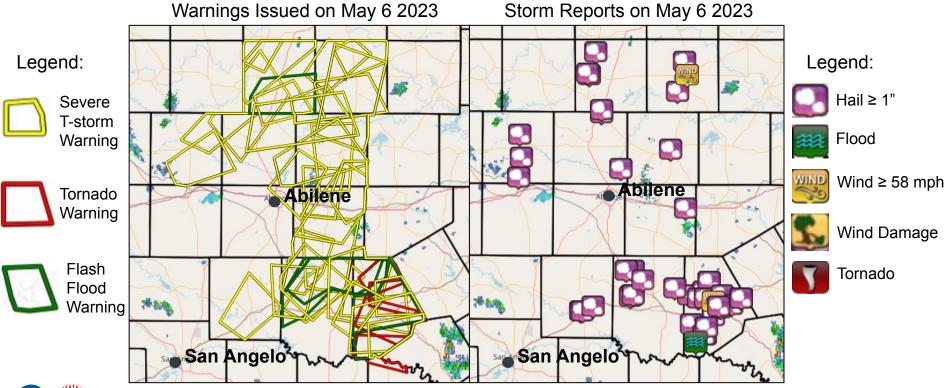
Most SVRs issued by WFO SJT by June 25, by Year

2023 - 350
2007 - 330
2006 - 316
2015 - 300
2019 - 286



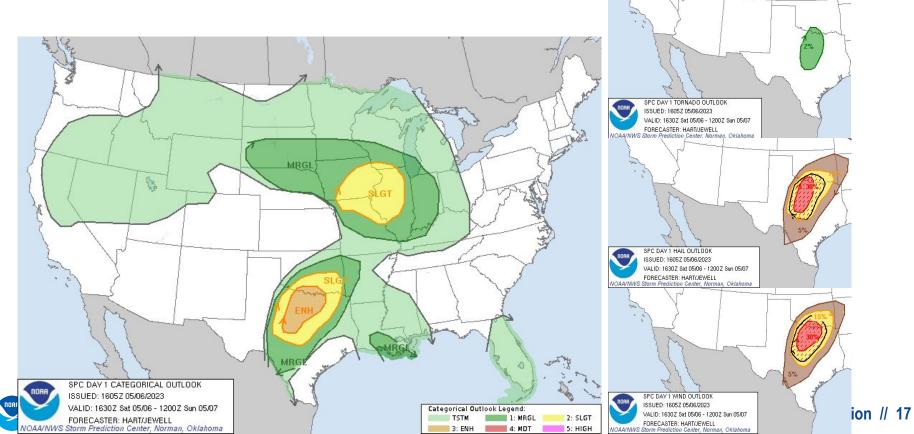


Significant Events - 5/6/23 31 SVRs issued, 4 TORs, 2 FFWs

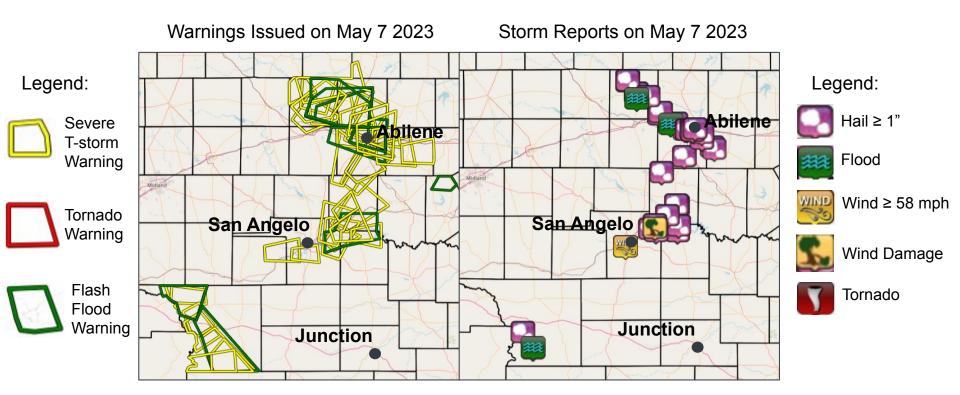




Significant Events - 5/6/23 31 SVRs issued, 4 TORs, 2 FFWs

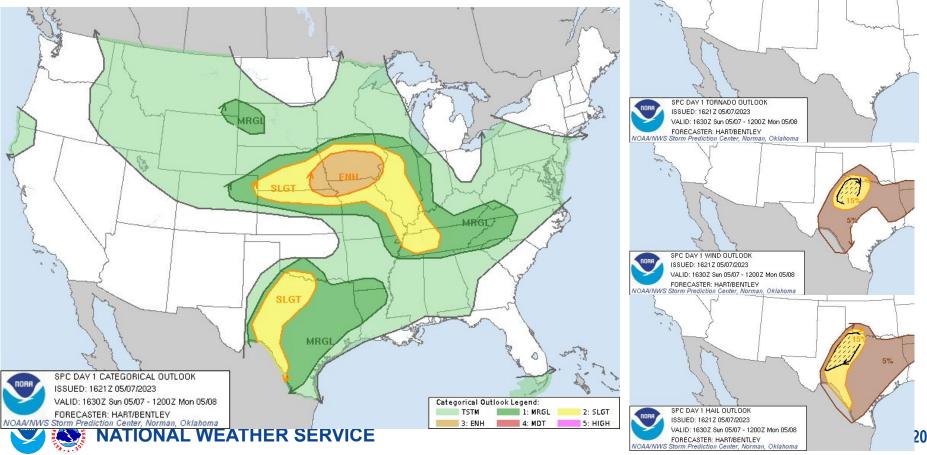


Significant Events - 5/7/23, 36 SVRs, 4 FFWs

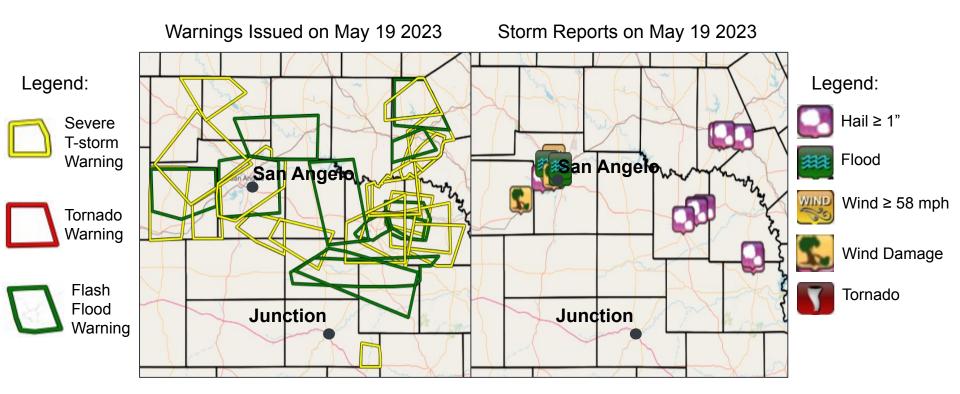




Significant Events - 5/7/23, 36 SVRs, 4 FFWs

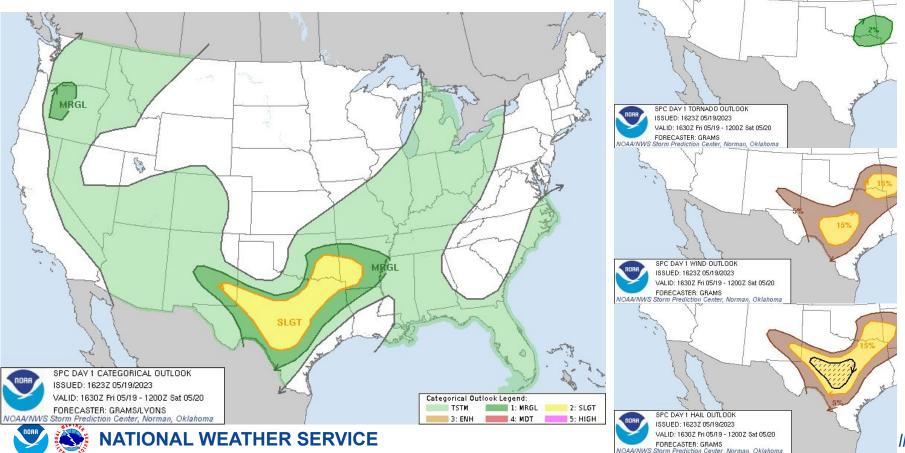


Significant Events - 5/19/23, 19 SVRs, 3 FFWs



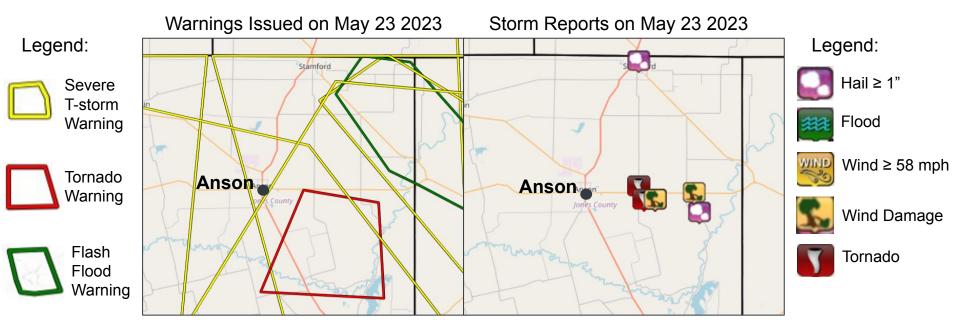


Significant Events - 5/19/23, 19 SVRs, 3 FFWs



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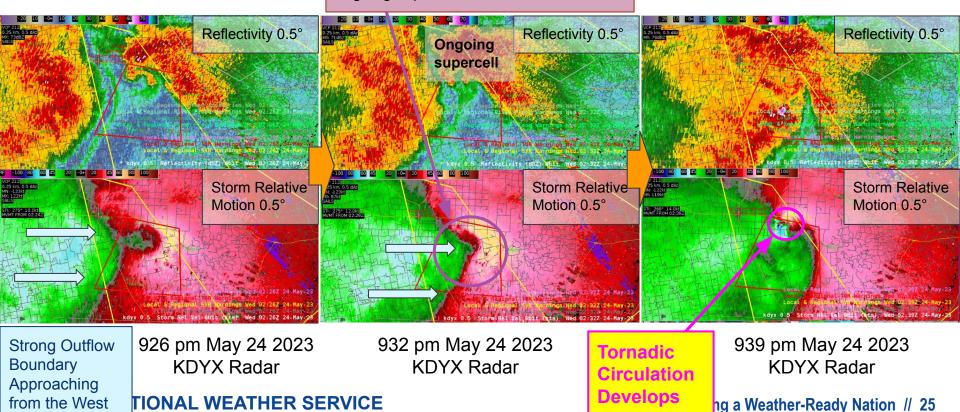
Significant Events - 5/23/23 Funston Tornado



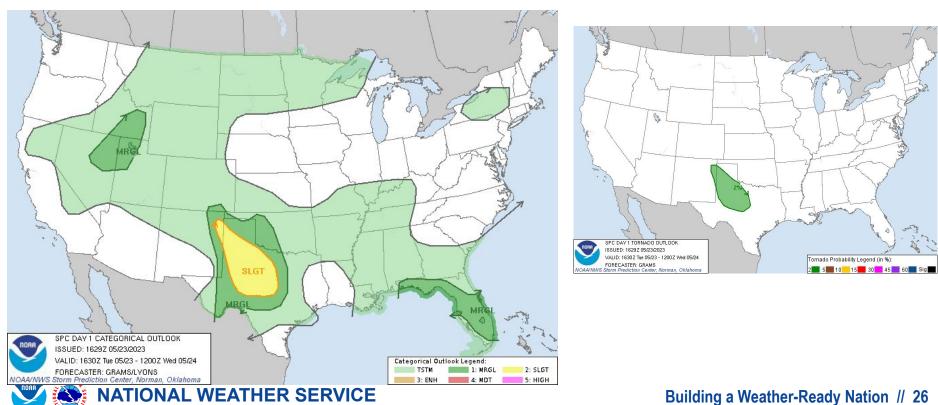


Significant Events - 5/23/23 Funston Tornado Outflow boundary begins interacting with

ongoing supercell



Significant Events - 5/23/23 Funston Tornado



Significant Events - 5/23/23 Funston Tornado

Rating:	EF2	
Estimated Pea	ak Wind:	130 mph
Path Length /s	statute/: 4	.61 miles
Path Width /m	aximum/:	700 yards
Fatalities:	0	
Injuries:	2	

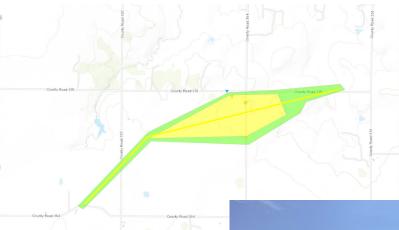
Start Date:	05/23/2023
Start Time:	09:13 PM CDT
Start Location: TX	2 ESE Funston / Jones County /

Start Lat/Lon: 32.7445 / -9

32.7445 / -99.759

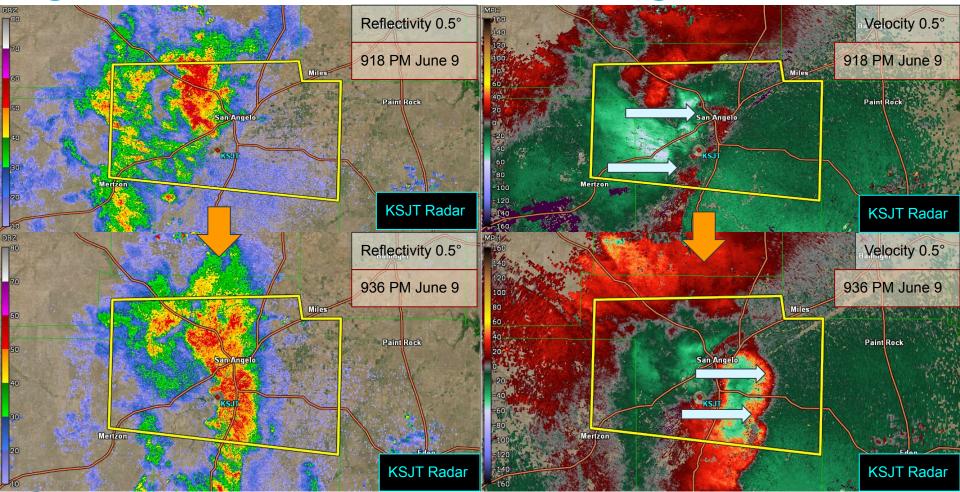
End Date:	05/23/2023
End Time:	09:47 PM CDT
End Location: TX	3 ESE Funston / Jones County /
End Lat/Lon:	32.7365 / -99.753







Significant Events - 6/09/23 San Angelo Microburst



Significant Events - 6/09/23 San Angelo Microburst

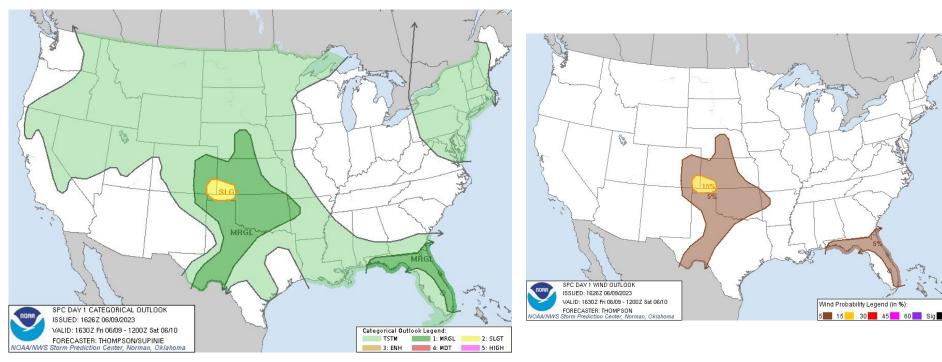
Warnings Issued on June 9 2023

Storm Reports on June 9 2023



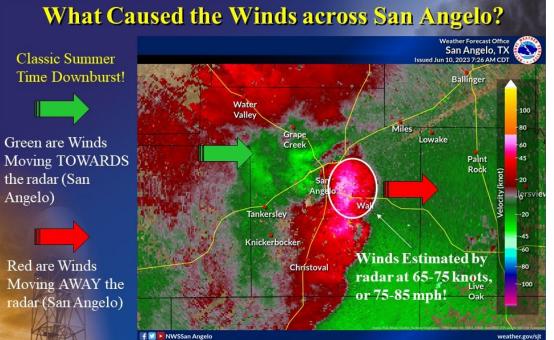


Significant Events - 6/09/23 San Angelo Microburst





Significant Events - 6/09/23 San Angelo Microburst

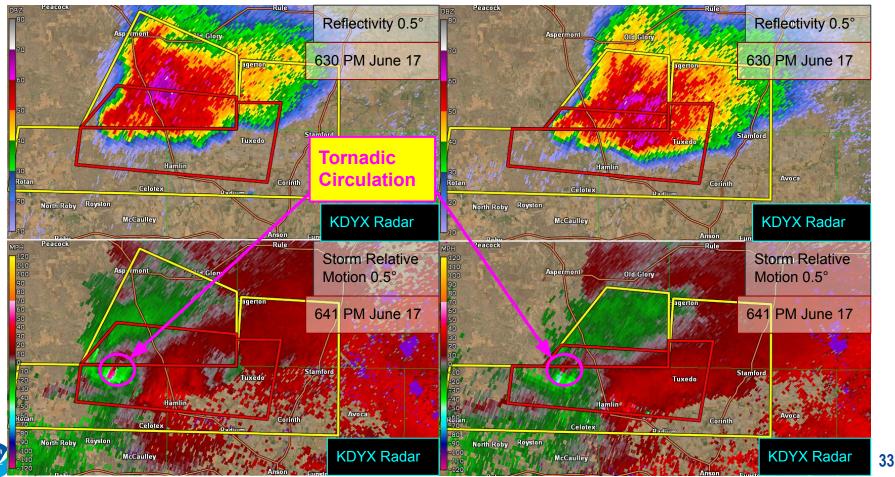


Downbursts can produce Hurricane-like winds (On a smaller scale) or a weak tornado (but on a larger scale)!

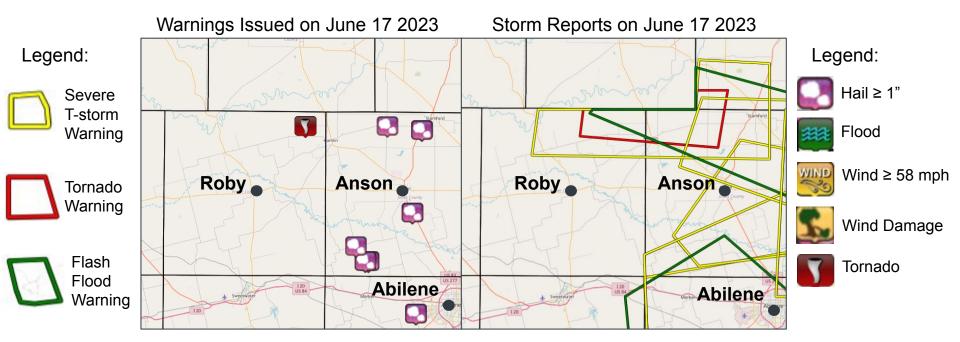
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Significant Events - 6/17/23 Hamlin Tornado

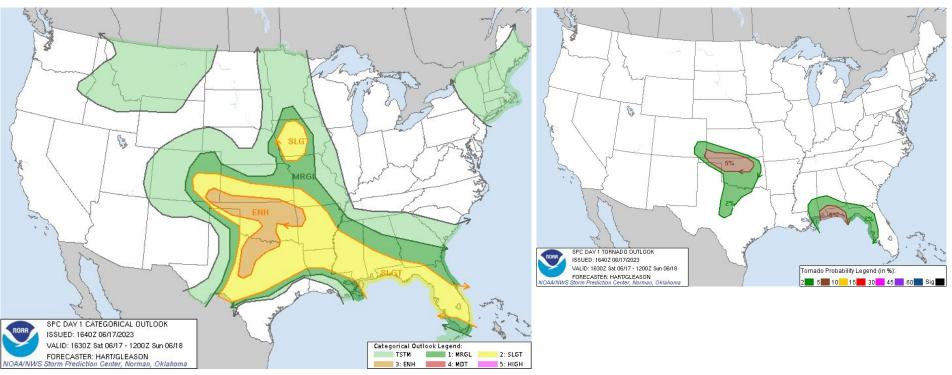


Significant Events - 6/17/23 Hamlin Tornado



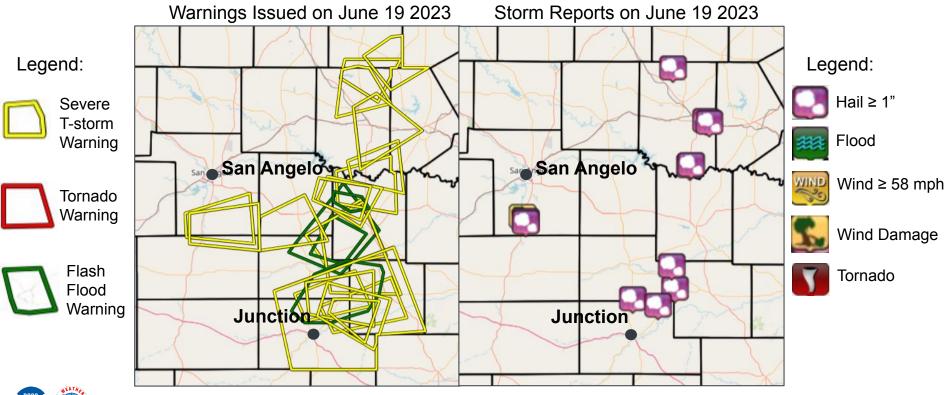


Significant Events - 6/17/23 Hamlin Tornado



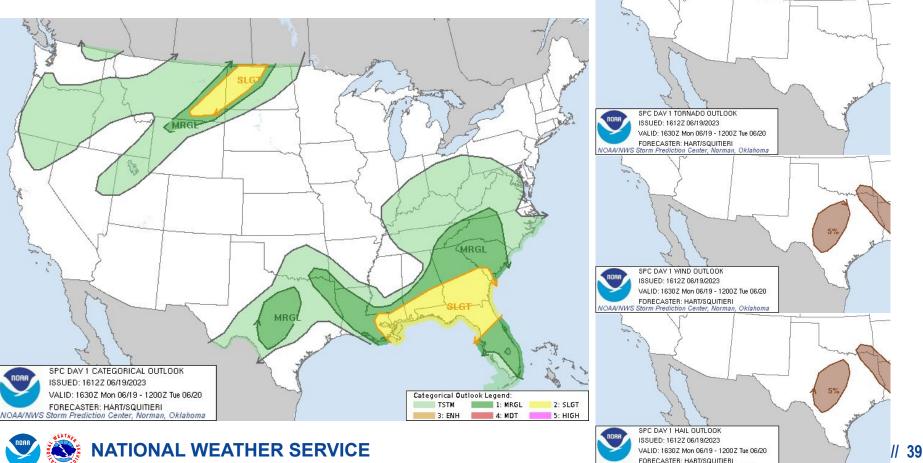


Significant Events - 6/19/23, 19 SVRs, 2 FFWs





Significant Events - 6/19/23, 19 SVRs, 2 FFWs



NOAA/NWS Storm Prediction Center, Norman, Oklahoma

Significant Events - Widespread Wind Damage 6/21/23

Warnings Issued on June 21 2023 Storm Reports on June 21 2023 Legend: Legend: Hail ≥ 1" Severe Abilene bilene T-storm Flood Warning Wind \geq 58 mph Tornado Warning San Angelo Wind Damage San Angelo Flash Tornado Flood Warning Junction Junction

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Significant Events - Widespread Wind Damage 6/21/23

