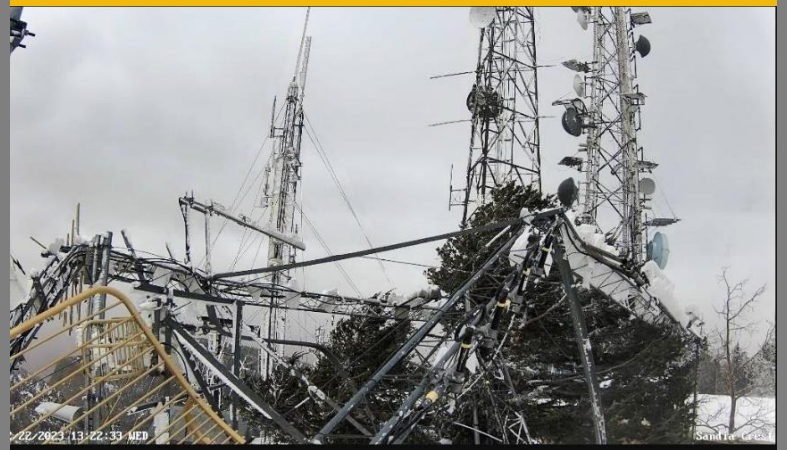
2023 Annual Climate Summary

Memorable Events

Weather Forecast Office
Albuquerque, NM
Issued January 23, 2024 5:05 PM MST

Extensive Snow Squall & Extreme Winds



Sandia Crest Damage | February 22, 2023
Courtesy Jeff Burmeister

Clovis, NM | February 26, 2023
Courtesy of Kolter DeFoor

Spring Snowmelt Flooding

Jemez River @ NM-4 | April 2023
Courtesy of NMSP

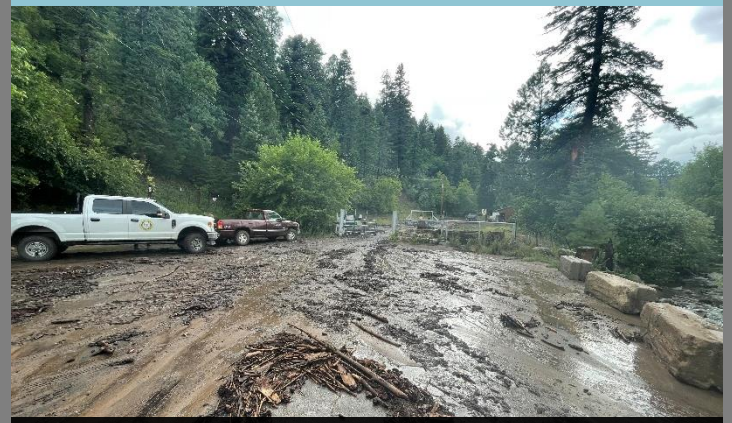
Severe Weather Outbreak

Elida, NM | May 25-26, 2023
Courtesy of Charles Peek

Record Summer Heat

Farmington, NM | August 10, 2023
Courtesy of Victor Lopez

Burn Scar Flooding



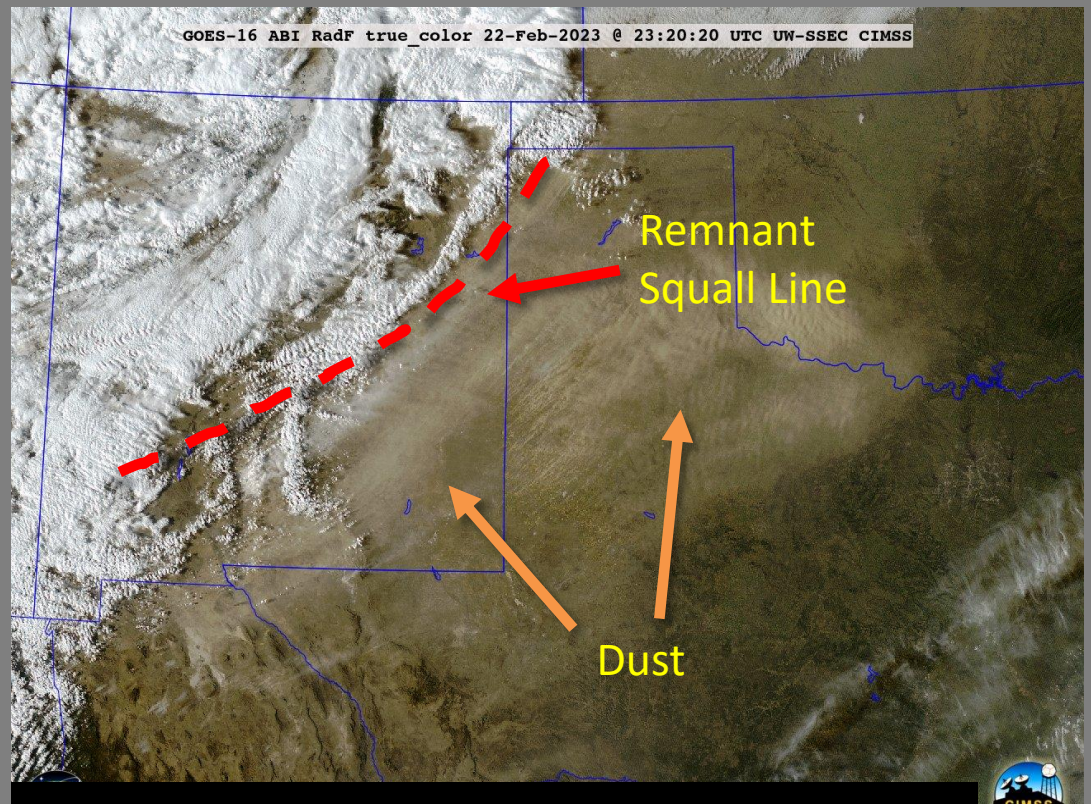
Ruidoso, NM | August 15, 2023
Courtesy of Eric Queller

Snow Squall and Extreme High Winds (February 22, 2023)

Location	Peak Wind Gust
Magdalena Ridge Observatory	93 mph
Santa Fe Airport	85 mph
Bernalillo	77 mph
Raton Airport	75 mph
Las Vegas Airport	75 mph
Corrales	74 mph
ABQ Sunport	74 mph
Tucumcari Airport	74 mph
Edgewood	70 mph
Ruidoso	70 mph
Roswell Airport	69 mph
Santa Rosa	69 mph
Belen	67 mph
Ft Sumner	66 mph
Clayton Airport	66 mph
Capulin	64 mph
Farmington Airport	62 mph

A series of powerful storm systems moved across the western United States during the second half of February 2023. The first system impacted New Mexico on the 22nd with a widespread snow squall event accompanied by damaging winds, heavy snow, hazardous blowing dust, low visibility, and dramatically colder temperatures. Peak wind gusts of 70 to 80 mph were common across the region along with damage to trees, power lines, homes, and light weight structures. The middle image below shows an intense snow squall surging east across the Continental Divide toward the Rio Grande Valley around lunchtime on the 22nd. This squall produced severe winds, visibility below one-quarter mile, brief heavy snow, and significant impacts to travel. The GOES-16 satellite image on the lower right captures the remnant snow squall as it progressed into eastern NM. Widespread areas of blowing dust can also be seen across southeast New Mexico and west Texas.

Snow Squall @ 1218pm Feb. 22, 2023



GOES-16 True Color Feb. 22, 2023 @ 420pm MST via CIMSS

2023

Snow Squall and Extreme High Winds (February 22, 2023)

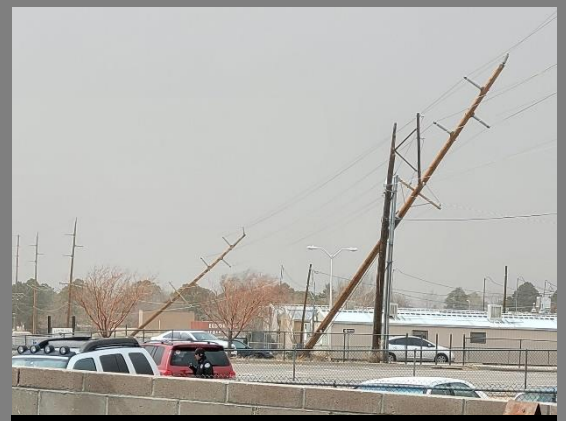
The most significant damage on the 22nd occurred within central New Mexico as the snow squall and associated cold front intensified rapidly. The most impressive damage occurred around the Albuquerque metro area and the nearby Sandia Mountains. Several of the large communications towers on top of Sandia Crest were damaged or destroyed. Nearby metal security fencing was crushed by the falling towers. Trees were toppled in many parts of the metro. Some homes were also damaged by falling trees. Shingles and roofing material was also damaged across the region. Two large power poles were toppled near Eldorado High School in the northeast heights. The image on the lower right shows the approaching dust storm ahead of the powerful squall as seen from the NWS office in Albuquerque.

What are snow squalls?

Snow squalls, often associated with strong cold fronts, typically last less than an hour. The sudden white-out conditions combined with falling temperatures produce icy roads in just a few minutes. Snow squalls can cause localized extreme impacts to the traveling public and to commerce for brief periods of time. Although snow accumulations are typically an inch or less, the added combination of gusty winds, falling temperatures and quick reductions in visibility can cause extremely dangerous conditions for motorists.

Location	Damage Report
Taylor Ranch	Tree down at Montano & Coors.
St Pius High School	Several trees down.
Rio Rancho	Tree down at Southern and Western Hills.
San Acacia	Tree uprooted near Ranch Rd.
Corrales	Stone wall toppled.
Rio Rancho	Fence toppled.
Bernalillo	Tree uprooted and leaning on home.
Magdalena	Tree uprooted near Hop Canyon.
Ventana Ranch	Shingles torn off roof of home.
Paradise Hills	Pergola and fences damaged from high winds.
Sandia Crest	Comms towers toppled and fence damaged.
Sandia Heights	Two power poles toppled at Eldorado HS.
Santa Fe	Several trees uprooted.

Tree Toppled | ABQ
Courtesy Zay via X



Damaged Power Poles | ABQ
Courtesy Susan Cessac

Snow Squall Damage | Santa Fe
Courtesy of PNM

Approaching Squall & Dust Storm |
ABQ Sunport | Courtesy of NWS ABQ

2023

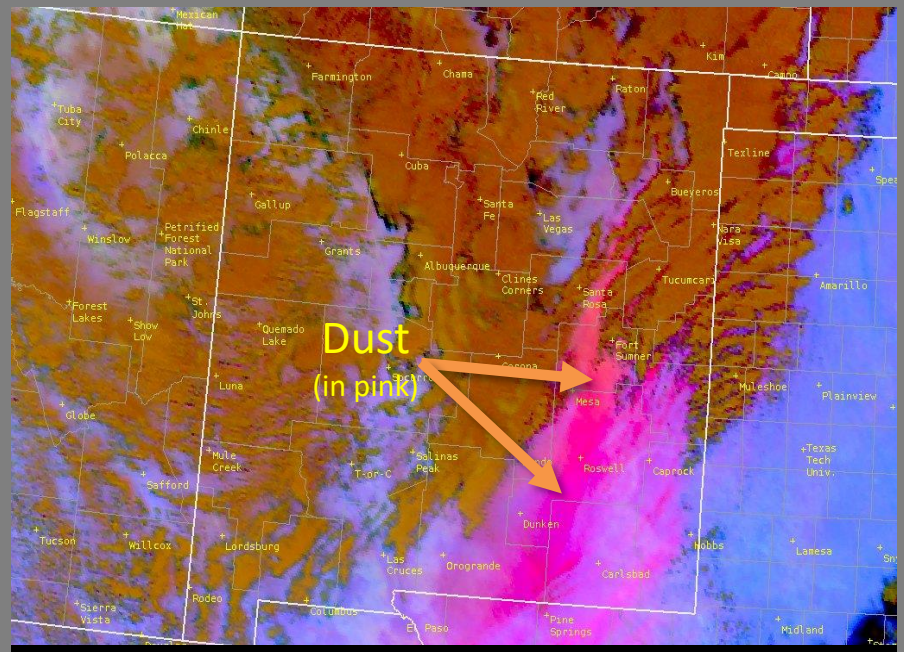
Extreme High Winds (February 26, 2023)

A powerful, but quick moving storm brought strong to damaging winds as well as brief, intense heavy snowfall on Sunday, February 26th. Peak wind gusts ranged from 75 to 95 mph across central and eastern New Mexico as a cold front swept across the state. This produced widespread blowing dust and dangerous crosswinds, along with another well-defined snow squall.

What is the Dust RGB Satellite Imagery?

Dust can be difficult to see in traditional visible and infrared satellite imagery because it is optically thin, or because it appears similar to other cloud types such as cirrus. The GOES/NASA SPoRT Red-Green-Blue (RGB) product is able to contrast airborne dust from clouds using band differencing and infrared thermal channels. Infrared band differencing allows dust storms to be observed during both the day- and night-time. Dust appears pink or magenta during the day and can vary in color at night depending on height.

NMDOT Image Feb. 26, 2023 @ 1005am MST
as Snow Squall Approached Gallup, NM



GOES-16 Dust RGB Feb. 26, 2023 @ 231pm MST

Location	Peak Wind Gusts
Magdalena Ridge Observatory	95 mph
Clovis	90 mph
Estancia	85 mph
Dora	84 mph
Roswell Airport	84 mph
Tucumcari Airport	83 mph
Clines Corners	79 mph
Las Vegas Airport	77 mph
Dunken	77 mph
Cannon AFB	77 mph
Ruidoso Airport	76 mph
ABQ Sunport	75 mph
Clayton Airport	69 mph
White Sands Missile Range	69 mph

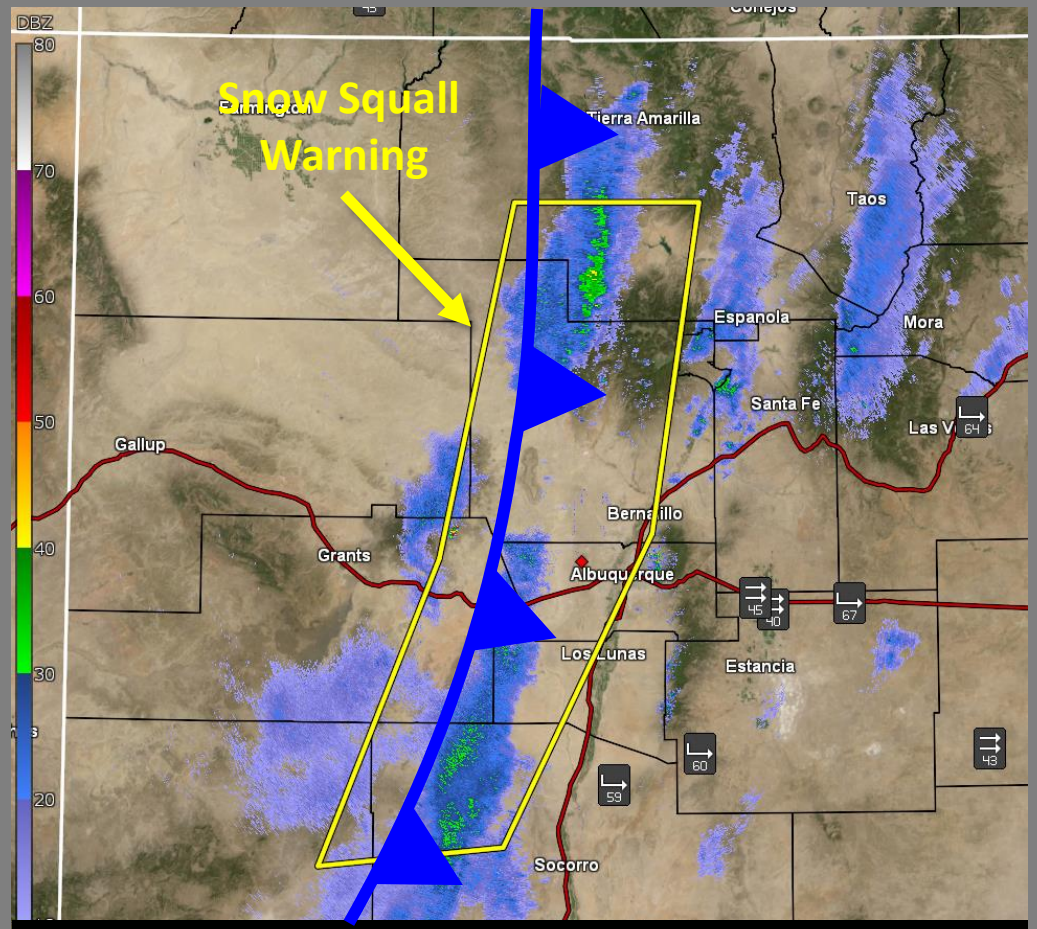
NWS Webcam Feb. 26, 2023 @ 1216pm MST

Extreme High Winds (February 26, 2023)

In addition to the powerful winds across the east, this winter storm also brought widespread high wind damage and another snow squall to northern and central NM. Incredibly strong winds impacted nearly all areas of the state. Peak gusts of 60 to 70 mph were common, with the strongest gusts reaching 80 to 95 mph near Magdalena, the Estancia Valley, Tucumcari, Roswell, and Clovis. Wind damage in the form of downed trees and power polls was reported in Albuquerque, Clovis, Roswell, and Hagerman. Meanwhile, winter weather impacted parts of western and central New Mexico in the form of a snow squall that brought a brief period of strong gusty winds and near zero visibility from blowing snow.

Roof Damage | Hagerman
Courtesy Hagerman PD

Tree Toppled | ABQ Heights
Courtesy Christian Manzer

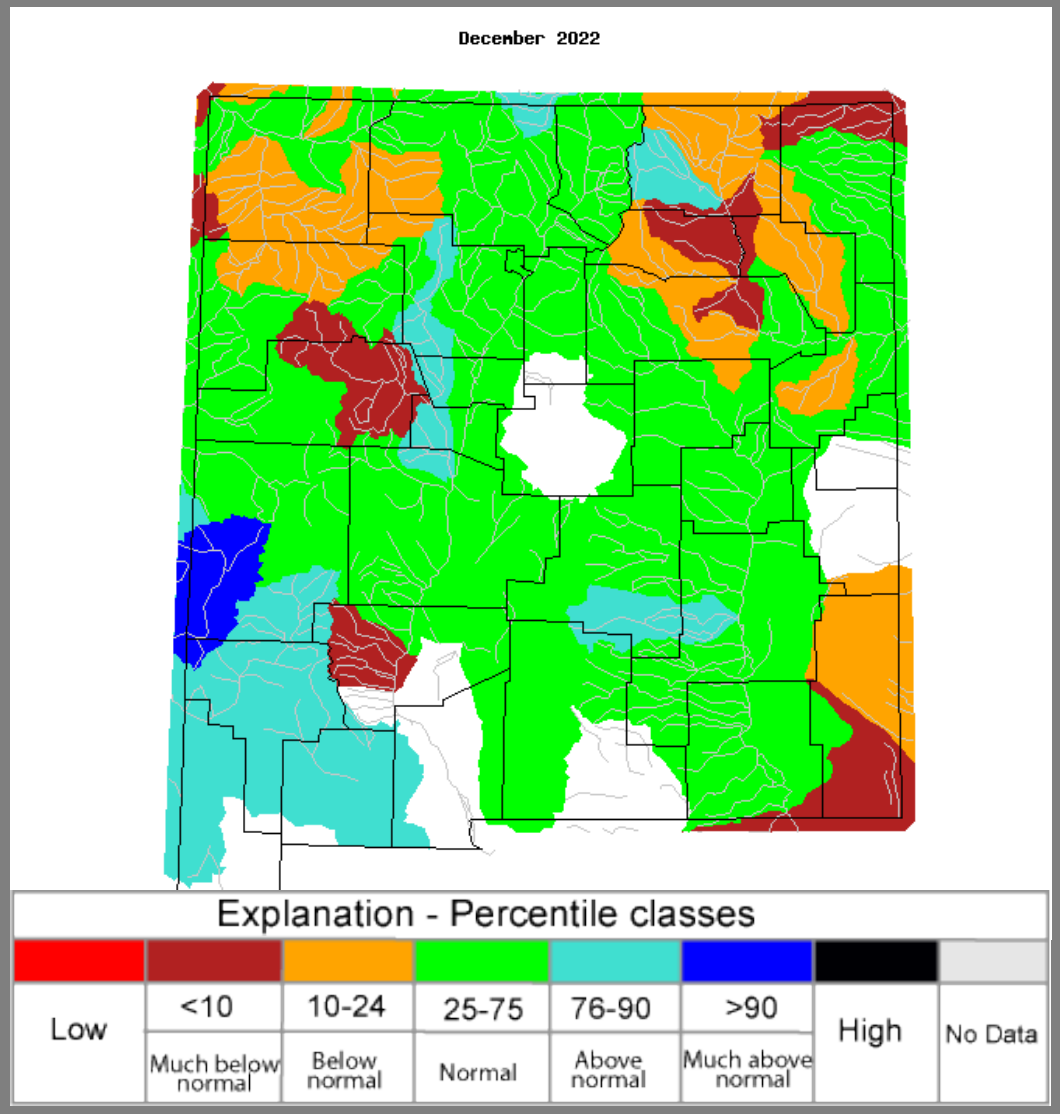


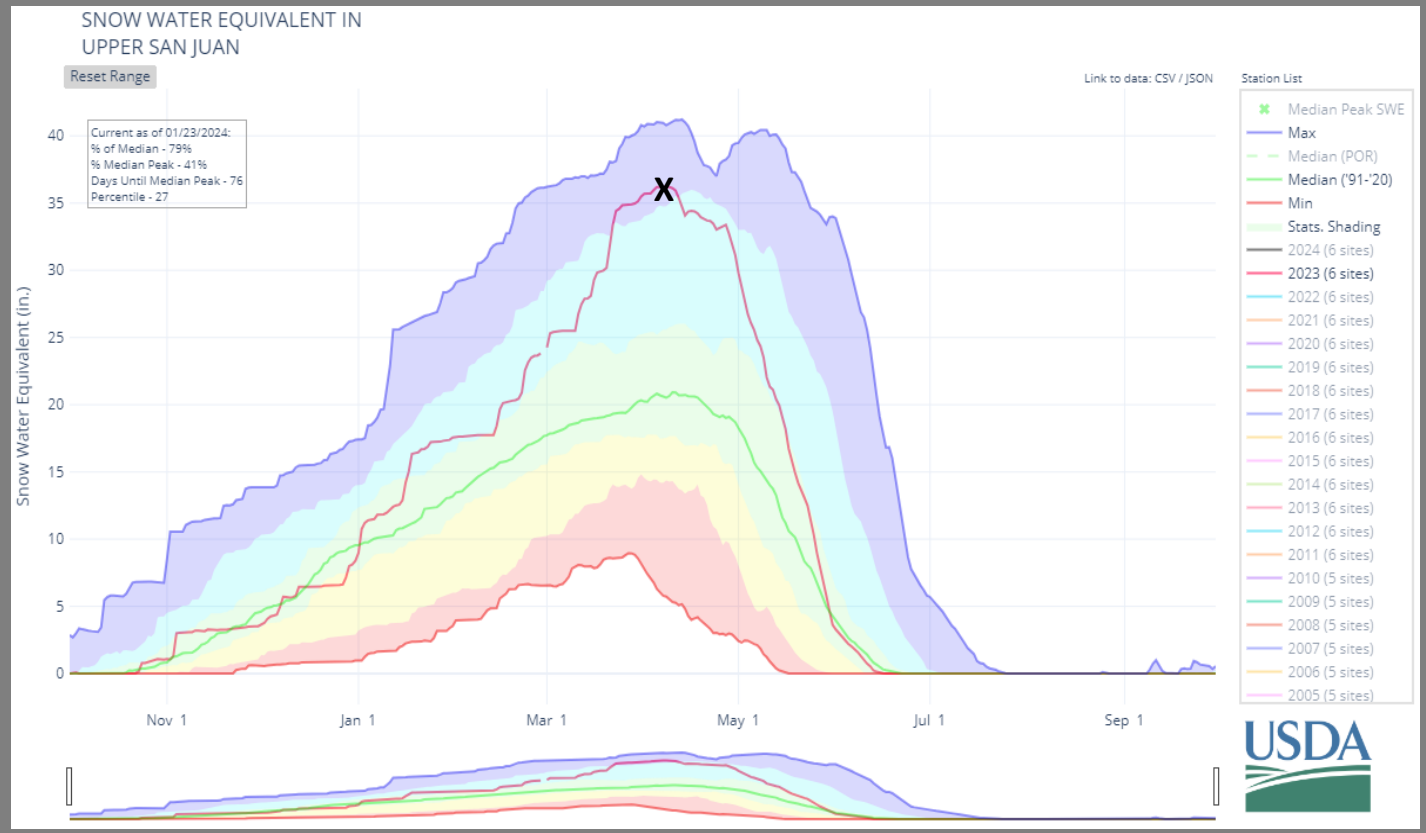
KABX Radar at 11:52am MST February 26, 2023

Location	Damage Report
Willard	26-car train derailment near U.S. 60
Moriarty	Trees down along NM-41.
Hagerman	Numerous trees toppled. Roof damage.
Roswell	Large tree blown down on S. Richardson.
Belen	Semi overturned on I-25.
Clovis	Trees and power lines down, small brush fire, and roof damage across town.
Santa Fe	Tree limbs down. Damage to roofing.
Albuquerque	Large tree down in south valley.
Mountainair	Large pine tree toppled.
Rio Communities	Trampoline tossed from yard.
Rio Rancho	Large crane damaged at Intel.
Isleta Pueblo	Trailer overturned along NM-47

Spring Snowmelt Runoff Flooding (April 2023)

Soil moisture heading into the 2022-2023 winter season was in remarkably good condition after an active fall season of wet storms moving through NM. The image on the lower left shows the USGS streamflow classes for river basins across NM valid December 2022. Streamflow in many basins was near to above normal before the bulk of our snowpack even began to develop, especially the southwest. The image on the lower right shows the snow water equivalent (SWE) distribution for the Upper San Juan Basin of southwest CO and northwest NM. The 2022-2023 season is outlined by the red curve with the black X. The purple line is the maximum SWE for the basin since records began, the 30-year mean is shown in the green line, and the minimum is the red line. The SWE for 2022-2023 was well above normal and close to the record value for part of the season. This scenario helped set the stage for river flooding as temperatures warmed through the spring and snow began to melt. Additional rain through the spring with cooler than normal temperatures allowed much of the melting snowpack to improve river and reservoir levels across the region.

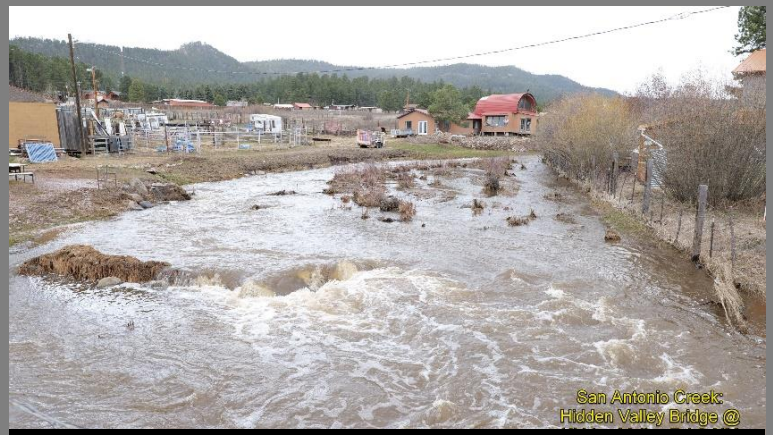




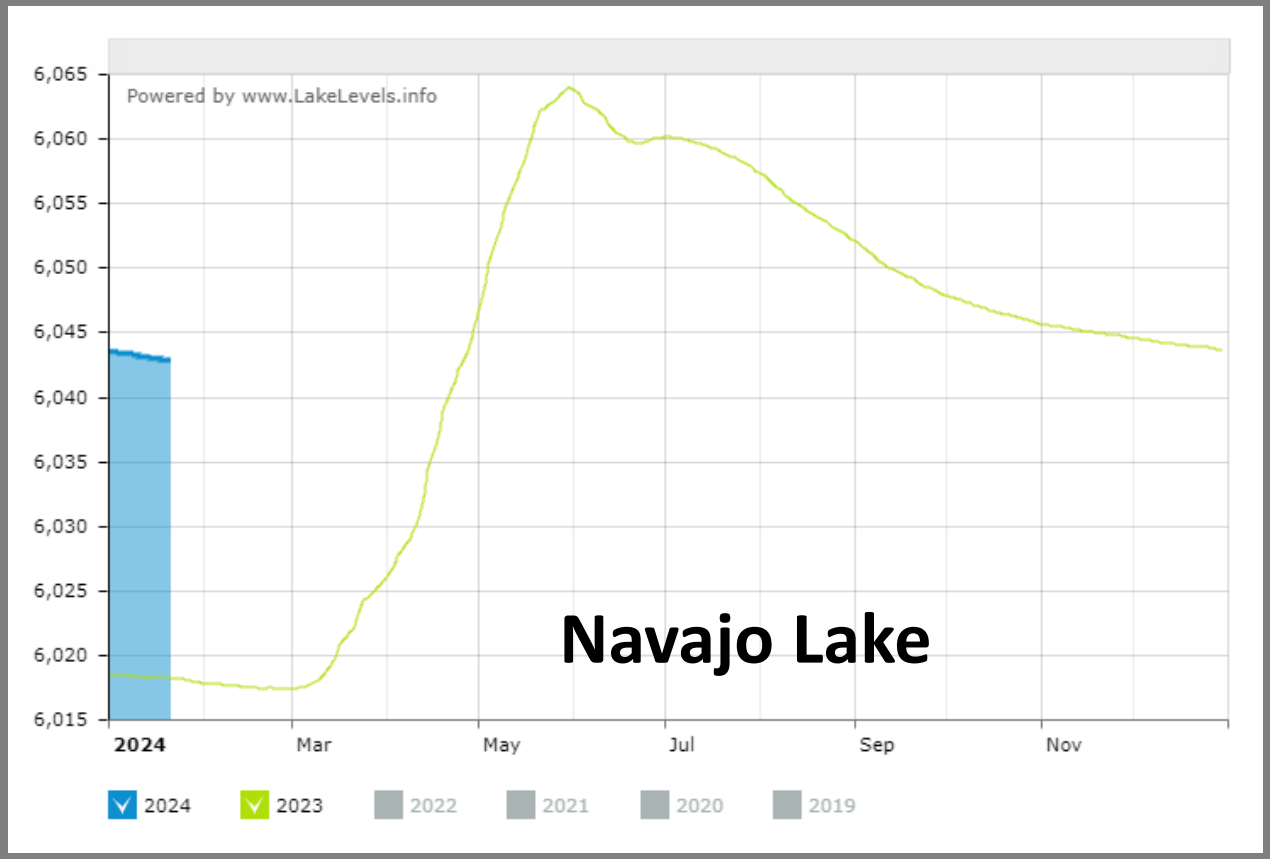
Spring Snowmelt Runoff Flooding (April 2023)

Flooding peaked in April and primarily impacted river basins across northwest NM as well as areas leading into the Rio Grande. The chart on the lower left shows the reservoir level at Navajo Lake during 2023 in the thin green line. Note the very impressive increase in the water level between March and May as snowmelt provided significant contributions to the San Juan River. Those elevated levels decreased through the remainder of 2023 but remain much higher in early 2024 compared to last year (blue line). The chart on the lower right shows the river levels on the Jemez River in feet dating back to January 2019. Note the various peaks on the curve primarily indicate maximums in river levels during the spring months. The last good runoff season before 2023 was 2019. More detailed hydrologic information for 2023 can be found at the link below.

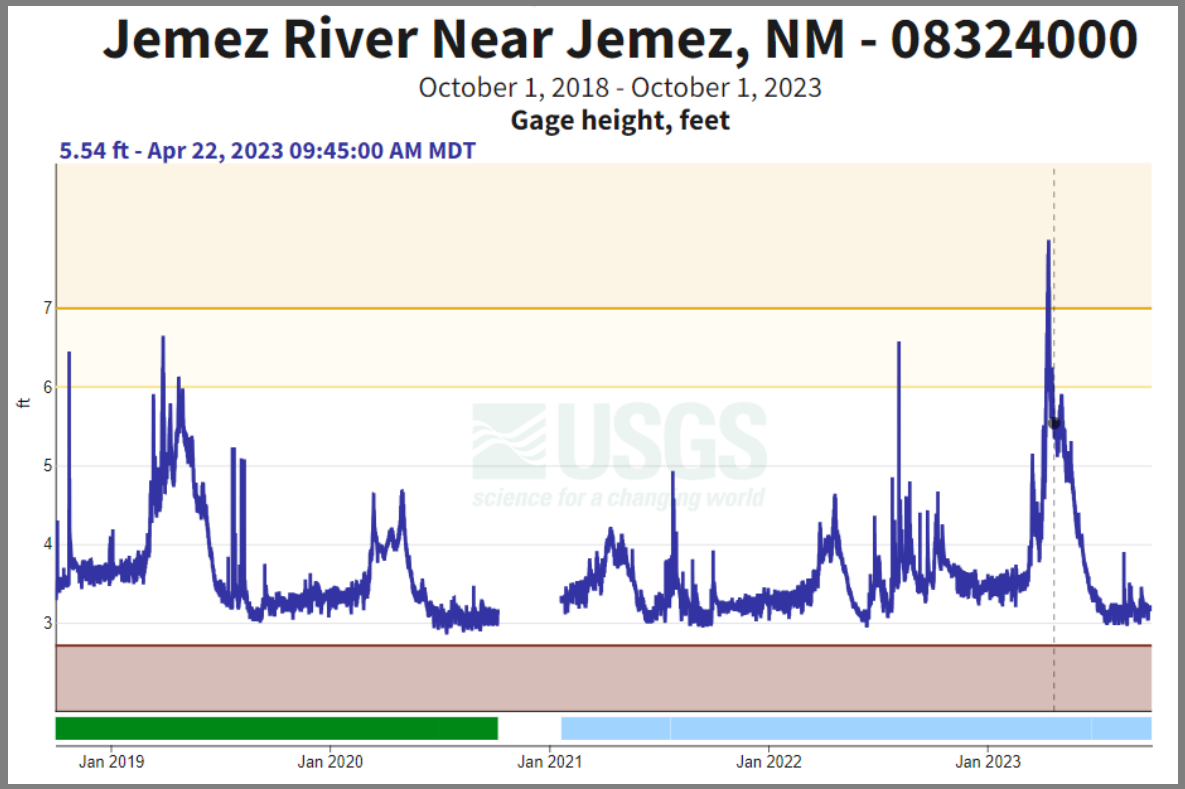
Link to Main Hydrology Summary PDF for 2023



San Antonio Creek | Hidden Valley near NM-126



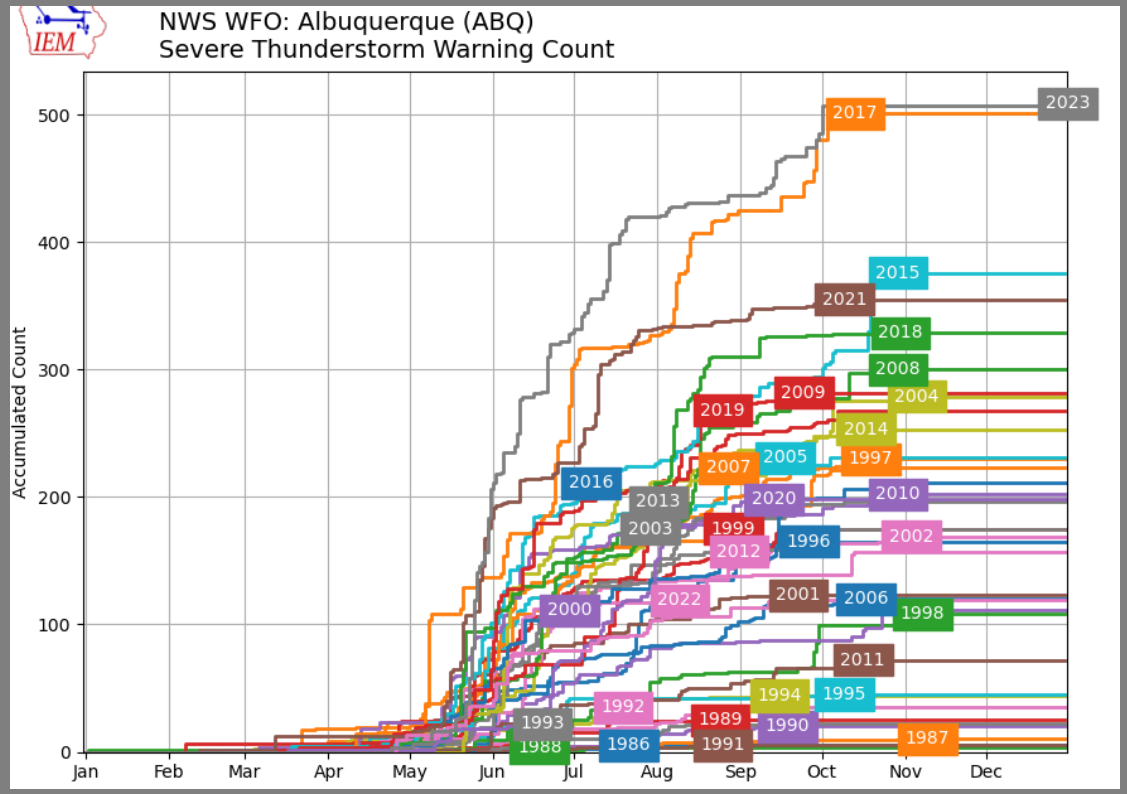
Navajo Lake



Severe Weather Outbreak (May 23-27, 2023)

Severe weather during the spring and early summer of 2023 broke records for the NWS Albuquerque area. The chart below shows the warning tallies by year. A total of 509 Severe Thunderstorm Warnings were issued by NWS Albuquerque in 2023, well above the 119 Severe Thunderstorm Warnings that were issued in 2022 and nearly double the 2011-2020 average of 256. The record 509 Severe Thunderstorm Warnings in 2023 exceeded the 2017 record by 8 warnings!

The most active period occurred on several consecutive days when significant severe weather impacted eastern New Mexico from May 23-27, 2023.



May 26 Hail in Elida
Photo by Charles Peek

May 25th Supercell near Grady |
Photo by Landon Moeller

May 24 Flash Flooding along Highway 70 in Clovis | Photo by Russ Smith

Severe Weather Outbreak (May 23-27, 2023)

Showers and thunderstorms developed along the dryline and eastern slopes of the Sangre de Cristo Mts on the 23rd. Extensive severe weather was reported while these storms migrated east to the TX border. Hail up to 3.5” in diameter, thunderstorm wind gusts of 80-90 mph, and three tornados were reported in an area stretching from Union Co. to Roosevelt Co. Hail and wind damage was reported in Tucumcari, Grady, and Clovis. Three separate tornadoes were noted in northern Curry Co. Thunderstorms also dropped very heavy rainfall (2-4”) across portions of Quay, De Baca, Curry, and Roosevelt counties. Urban flooding occurred in Clovis causing some roads to be closed and cars to be stranded. Severe weather continued through the night and into the 25th with numerous reports of large hail, strong winds, and flash flooding. Quay Co. was particularly hard hit with baseball size hail and torrential rain in excess of 5”. Significant hail damage was reported across Tucumcari with widespread flooding across the county. Severe wind gusts of 70-80 mph were common with these storms with damage reported. Severe storms continued well into the night once again on the 25th with more heavy rainfall around the Caprock. The focus for severe weather shifted farther west on the 26th with large hail and heavy rain reported around Torrance Co. A tornado and baseball size hail was also reported with a supercell near Encino. This activity spread eastward through the day with large hail, damaging wind gusts, and more torrential rainfall around the Caprock well into the night of the 26th. Three-day rainfall amounts exceeded 6” in many parts of Curry and Quay counties.

[Link to Main Severe Weather Summary PDF for 2023]

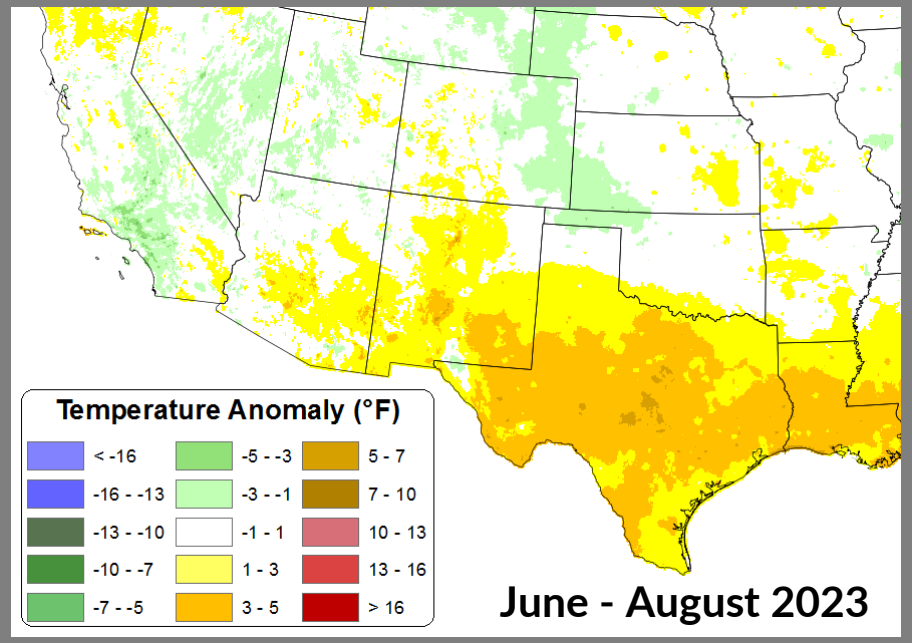
Location	Date	Select Severe Reports
Des Moines	5/24	Quarter size hail with heavy rain led to hail drifts of 3 to 4 feet in some areas.
Amistad	5/24	Ping pong size hail for 45 minutes produced heavy accumulations and damage near Amistad.
Pleasant Hill	5/24	Thunderstorm wind gust up to 84 mph.
Causey	5/24	Tennis ball size hail blew out windows on south side of homes.
Clovis	5/24	Thunderstorm wind gust ~70 mph downed tree limbs, power lines, and damaged roofs.
Clovis	5/24	Thunderstorm wind gust to 92 mph blew out the windows of a church.
Clovis	5/24	Golf ball size hail with strong winds produced significant damage to windows.
Texico	5/24	Hail near 2.0” in diameter reported by storm chasers
Tucumcari Area	5/25	Thunderstorm wind gust to 82 mph along U.S. 278. Hail between 2.5” and 3.5” in diameter was reported by numerous storm chasers.
Encino	5/26	Hail up to 3.5” in diameter. One vehicle windshield was destroyed.
Elida	5/26	Major flash flooding closed U.S. 70. Several vehicles and one bus flooded.
Clovis Area	5/26	Numerous roads inundated/closed due to flood waters. Significant damage to dirt roads.
Encino	5/26	Rope tornado spotted by chasers just south of Encino.

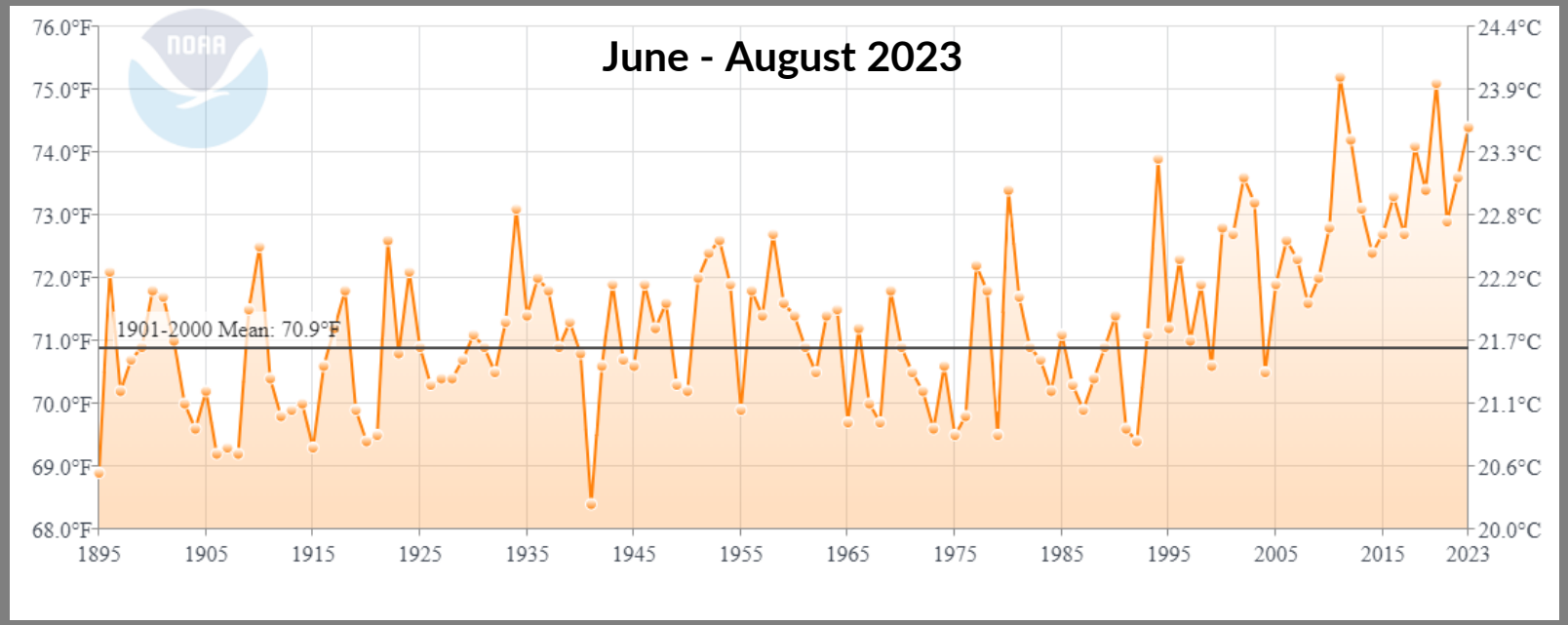
May 26 near Encino | Photo by Lori Grace

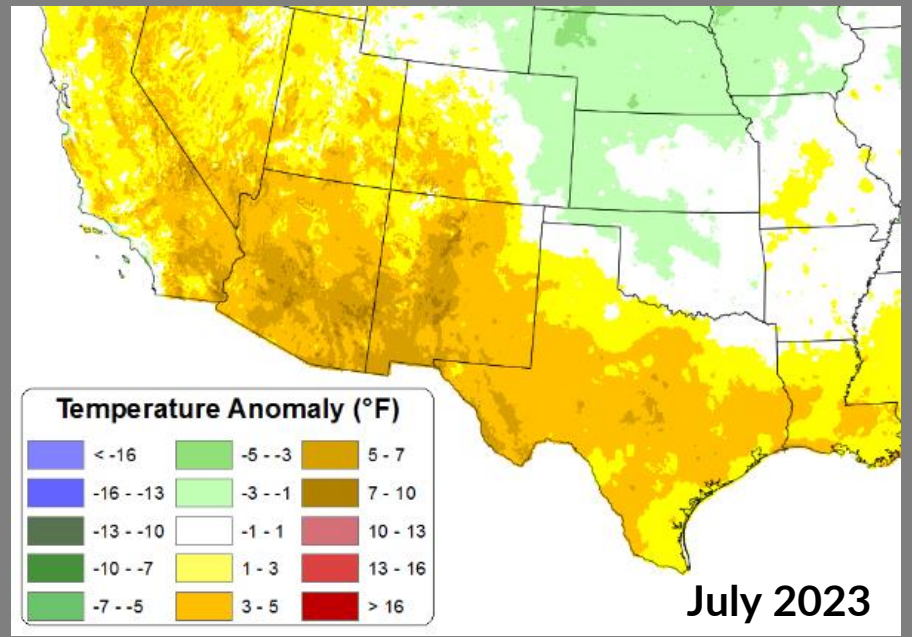
May 26th Tornado near Encino | Photo by Andrew Justin

Record Summer Heat (2023)

New Mexico is no stranger to very hot weather during the summer months, especially June and early July. However, 2023 brought some absolutely brutal heat to the entire region with record temperatures occurring on many days. An unusually strong area of high pressure set up over the southwest U.S. by the end of June and it parked itself over the area through a good chunk of the summer. As a result, relentless heat impacted the region, especially southeast NM where Roswell reported high temperatures in the 100s nearly everyday between June 15th and August 21st. Records were shattered across the state at many locations and it ended up being the hottest July on record for the state as a whole. Unfortunately, the strong area of high pressure that led to the hot temperatures also prevented the bulk of our much needed monsoon moisture from surging into the area until early August. There were a few days with decent storm coverage but overall the lack of moisture and cloud cover were not available to provide much relief to the heat. The image on lower left shows the average temperature distribution for the state of NM by year for the three month period from June to August. 2023 was the 3rd warmest on record. The upper right image is the average temperature anomaly for the same period with July singled out in the lower right.



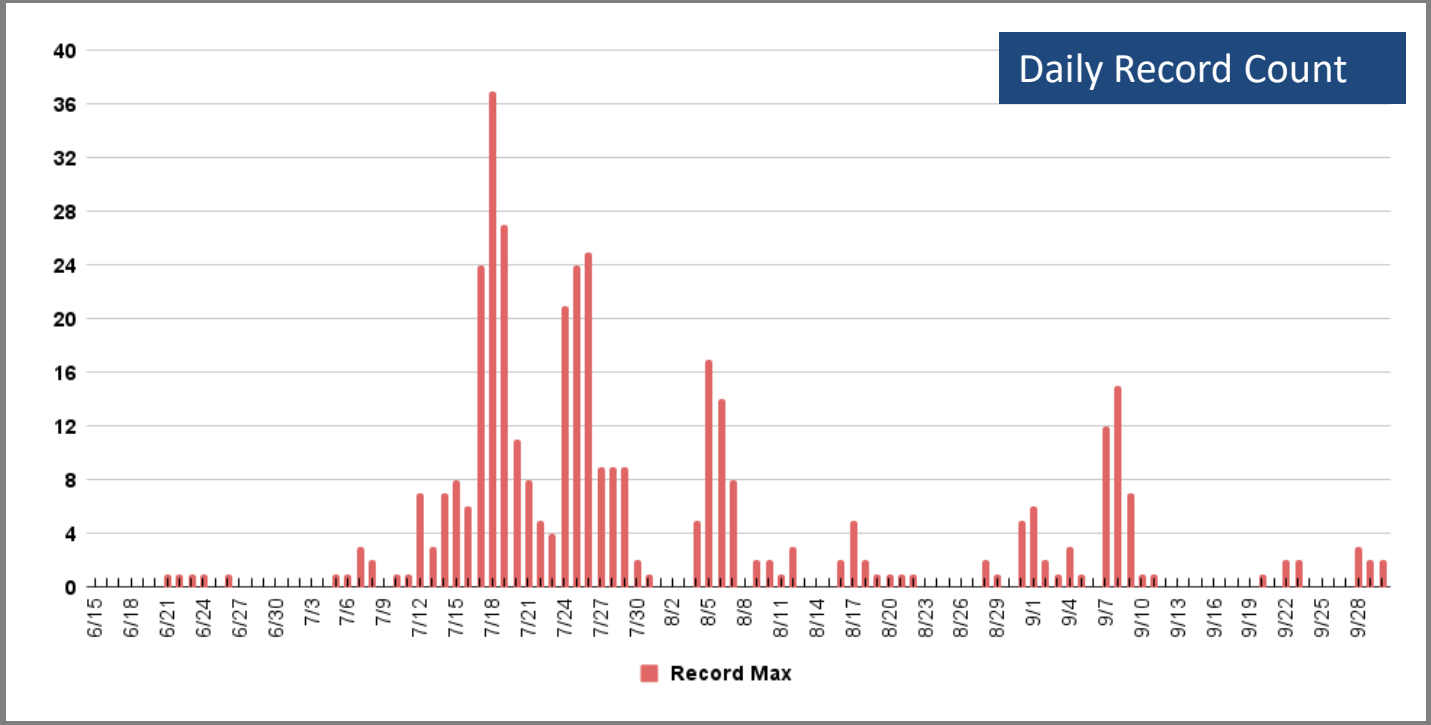




2023

Record Summer Heat (2023)

The chart on the lower left shows the distribution of record high temperatures by date for the 2023 monsoon season across the Albuquerque NWS forecast area. Record data was taken using Cooperative Observer stations and automated weather stations maintained by the NWS. There was a notable peak in the number of daily records broken in mid July, followed by a secondary maximum in late July, then again in early August, and early September. A few stations were still breaking record highs at the end of September. The table on the upper right categorizes the daily record count by temperature at the nine main airport locations across the region. Roswell was by far the hottest location with a record 67 days at or above 100°. An eye-popping 29 days were reported at or above 105°. The table on the lower right summarizes the total number of records broken. The 395 daily maximum temperature records is the same as adding up the daily count from the chart on the lower left. Eight sites set new all-time record highs. Details are available on the monsoon summary: Link to Summer Monsoon Feature PDF



Number of Days ≥ Max Temperature				
Location	**95°**	**100°**	**105°**	**110°**
Roswell	103	67*	29*	6*
Albuquerque	50	17	-	-
Clayton	26	3	-	-
Farmington	43	14*	-	-
Gallup	22	4*	-	-
Santa Fe	23	1	-	-
Raton	6	-	-	-
Las Vegas	9*	1*	-	-
Tucumcari	49	18	2	-

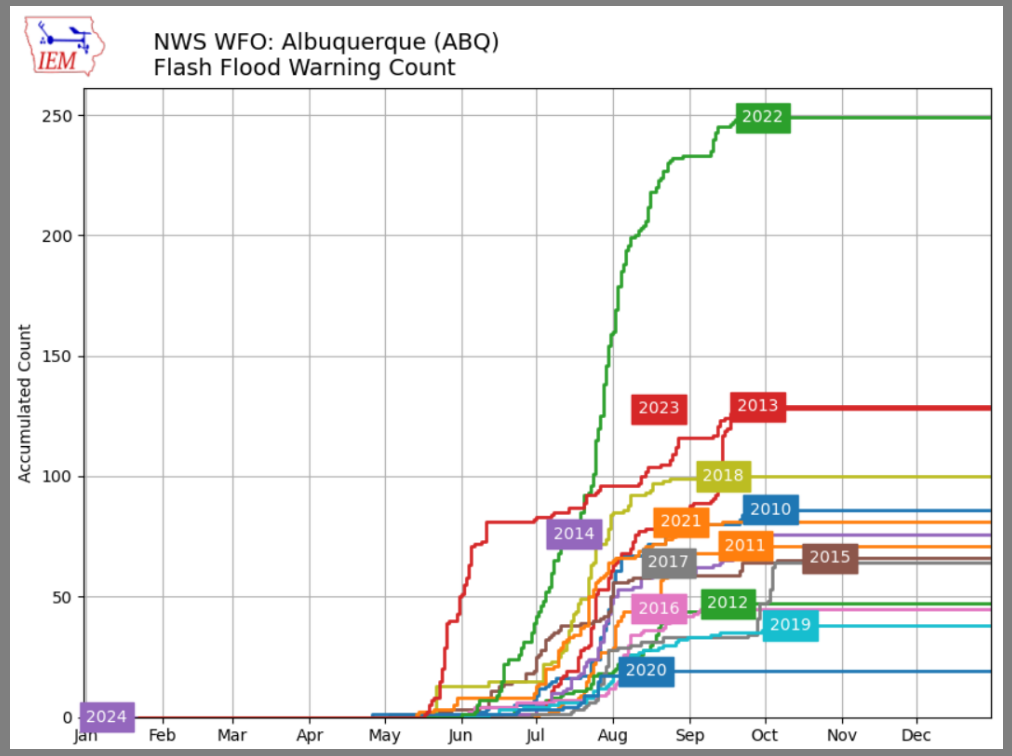
Record Type	# of Records Broken
Total Daily Max Temperature	395
Total Daily High Min Temperature	291
All-Time Max Temperature	8
All-Time High Min Temperature	4
All-Time Max Seasonal Average Temperature	12

Burn Scar Flash Flooding (2023)

The historic wildfires across the state from 2022 were still very susceptible to flash flooding during the summer of 2023. Burned soils created a hydrophobic surface that rainfall runoff cannot penetrate easily. This increased runoff then picks up ash and burned vegetation to create debris flows capable of washing out anything in its path. The weather pattern during the summer of 2023 was much less active than 2022 so flash flooding was less frequent. There were still a few flood events in 2023 that were quite severe in localized areas around the burn scar.

The bulk of the 2023 events occurred around the Hermit's Peak/Calf Canyon (HPCC) and McBride burn scars. Most of the reports within HPCC focused around Holman to Cleveland and Gascon to Rociada. Nearly all of the reports around McBride occurred along Gavilan Canyon Rd. Rainfall thresholds for flash flooding tend to increase each year after the initial burn but they can still be very low. Sometimes as much as a 0.10" to 0.25" of rain can cause flash flooding.

NWS Albuquerque issued a record number of Flash Flood Warnings in 2022 (249 in total). Even though our office issued approximately 50% fewer warnings in 2023 (128 in total), this did not diminish the severity of impacts felt on the incredibly sensitive wildfire burn scars. Even though mitigation continues throughout the state, there will still be a risk for significant flash flooding in 2024 as the soils and landscape continue to slowly recovery.



McBride Burn Scar Area
Courtesy Eric Queller | Sep 16, 2023

Hermit's Peak/Calf Canyon area
Courtesy Avery Willow | July 21, 2023

San Ignacio | July 21, 2023
Courtesy Jessica Valasquez

Tecolote Creek | June 6, 2023 | Courtesy of Grant Tosterud via X