

July 2023 Weather Digest



July 2023 Weather Summary

A historic July, headlined by record-shattering heat and abnormally dry conditions, occurred this year. High pressure aloft dominated the weather pattern drifting back-and-forth across New Mexico and central Texas with little weekly changes. Numerous daily record highs were shattered across the region along with a few all-time monthly records being broken. This also consistently cut off our monsoon tap of Gulf moisture, limiting it to our south and west over the course of the month. Monsoonal southeast flow was present much of the month, but marginal moisture greatly limited thunderstorm activity. Rainfall ended up well below normal (25-50%) and greatly increases the chances of a dry monsoon this year.

Summer heat dominated weather conditions in El Paso, with temperatures soaring above the triple-digit mark for 30 of 31 days. A record 19 days reached or exceed 105 degrees, a July record that culminated with a high of 111 degrees on July 19th. The all-time record for consecutive 100-degrees days was easily surpassed (previously 23 in 1994). Virtually every monthly temperature average was broken along with 12 daily records.

July 2023 Weather Summary

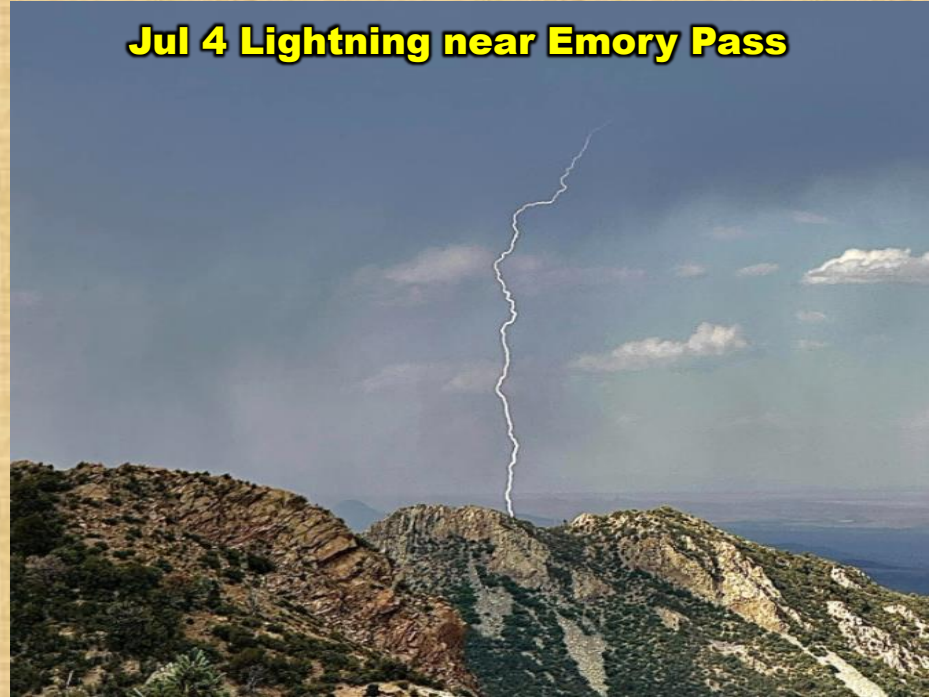
Looking ahead to August, above normal temperatures and low precipitation are expected to continue. Monsoonal winds are firmly in place, but lack of moisture may limit most rainfall to area mountains. We may also see an early end this year's monsoon as midlatitude flow shifts back down to the lower CONUS by mid-September. July through August are the crucial stretch of the three wettest months of the year, so confidence is high that this year will end with below normal precipitation.

August 2023 will feature two full moons, on the 1st and 30th. The new moon will occur on the 16th. Daylight hours have begun to shrink faster, from 13 hours, 41 minutes to 12 hours, 50 minutes at the end of August. The full moon occurs on July 3rd and the new moon occurs on July 17th.

Jul 3 Rainbow at Santa Teresa



Jul 4 Lightning near Emory Pass



Jul 13 Thunderstorm near Tyrone



Jul 12 Downburst near Holloman AFB



Jul 4 Downburst near Silver City



Jul 10 Rainbow near Hurley



Jul 11 Lightning at El Paso



Jul 12 Lightning near Silver City



Jul 12 Storm near Silver City



Jul 10 Lightning near Silver City



Jul 15 Hail near Hanover



Jul 16 Storm near San Lorenzo



Jul 15 Storm near Alamogordo



Jul 15 Hail near Hanover



Jul 15 Storm near White Signal



Jul 18 Apple Tree Fire-Southern Sacramento Mtns



Jul 18 Dark Fire near Reserve/Gila



Jul 22 Storm near Las Cruces



Roy Anzures
©2018/2019

Southern New Mexico Mountains in their July Splendor



Organ Mtns

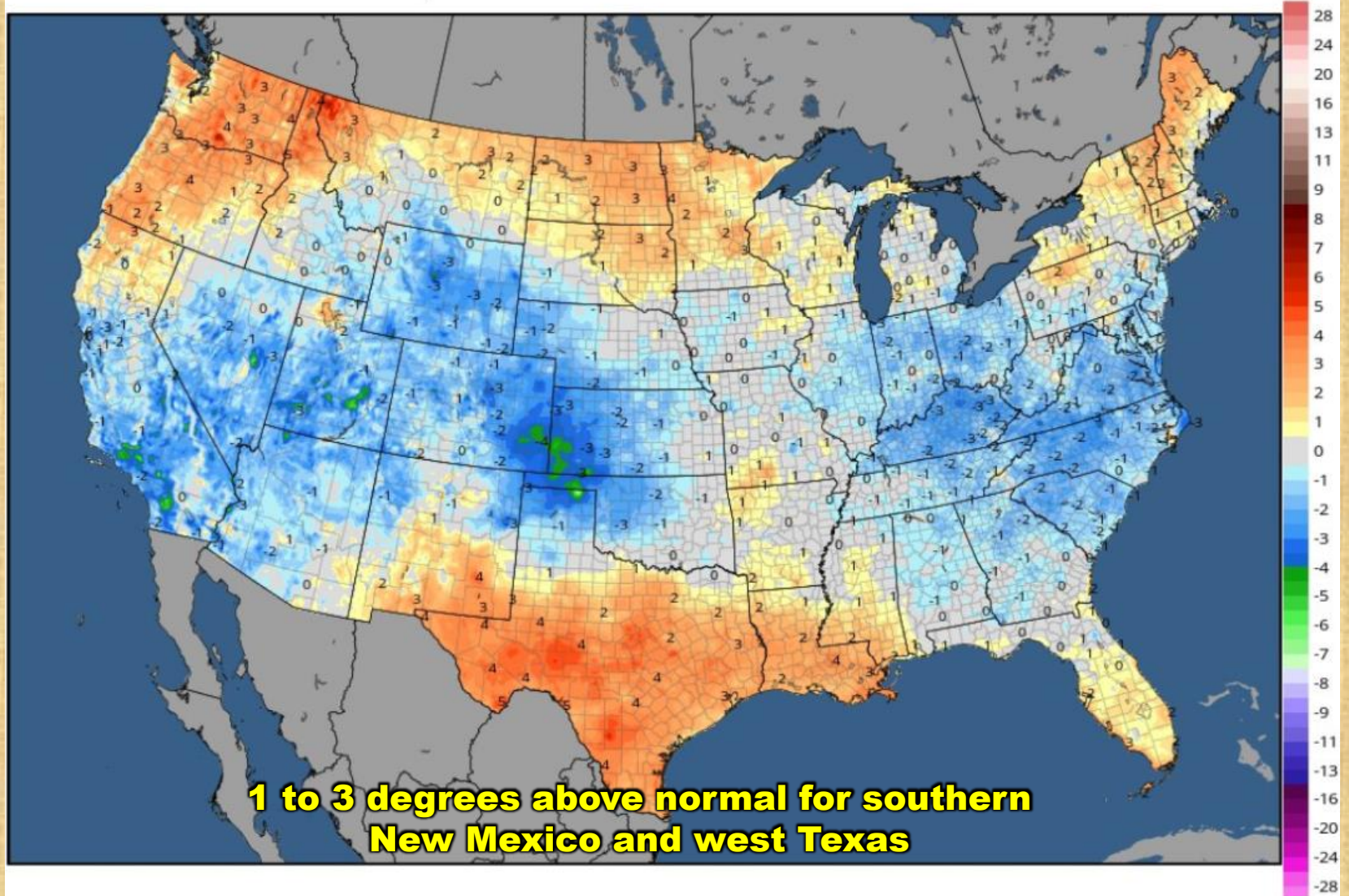


Black Range/Emory Pass

Summer season temperature anomaly June 1 through July 19.

PRISM TEMPERATURE ANALYSIS ANOMALY [°F]: JUN 1, 2023 --> Jul 19, 2023
LOWER 48 MEAN ANOMALY: 0.07°F | ACTUAL MEAN TEMPERATURE: 71.10°F

[weathermodels.com](https://www.weathermodels.com)



ENSO Alert System Status: El Niño Advisory is in Effect

ENSO Alert System

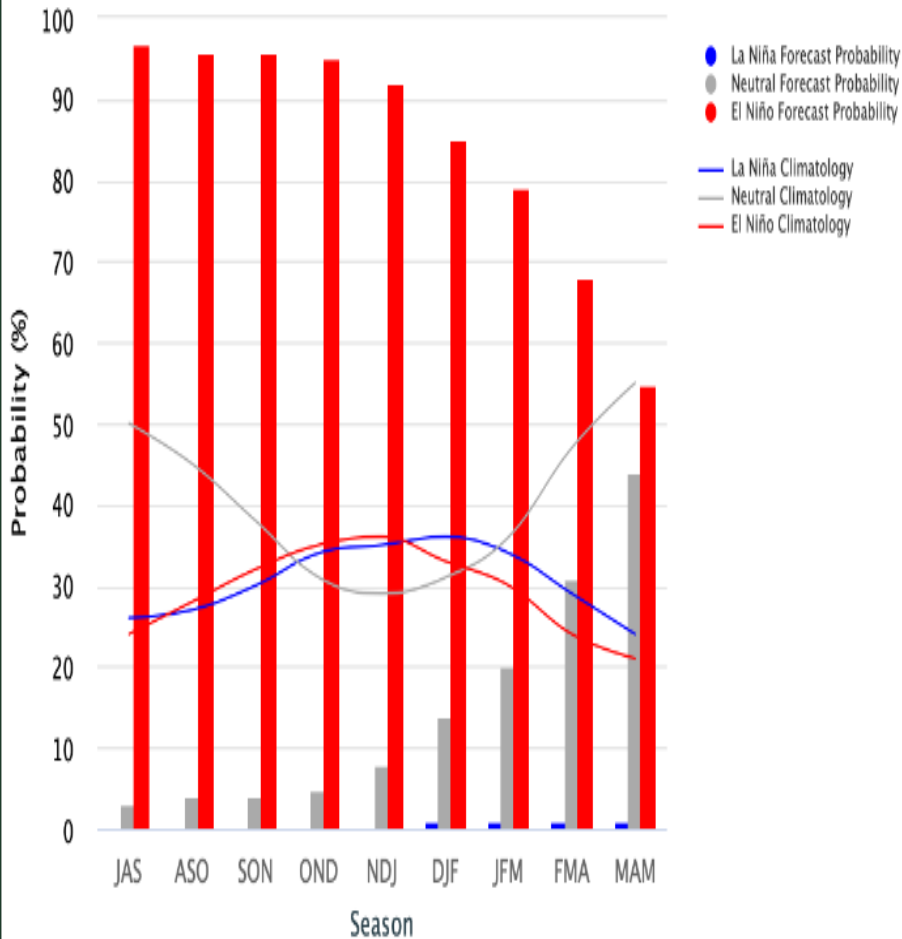
- **El Niño or La Niña Watch:** Issued when conditions are favorable for the development of El Niño or La Niña conditions in the next six months.
- **El Niño or La Niña Advisory:** Issued when El Niño or La Niña conditions are observed and expected to continue.

ENSO Forecast

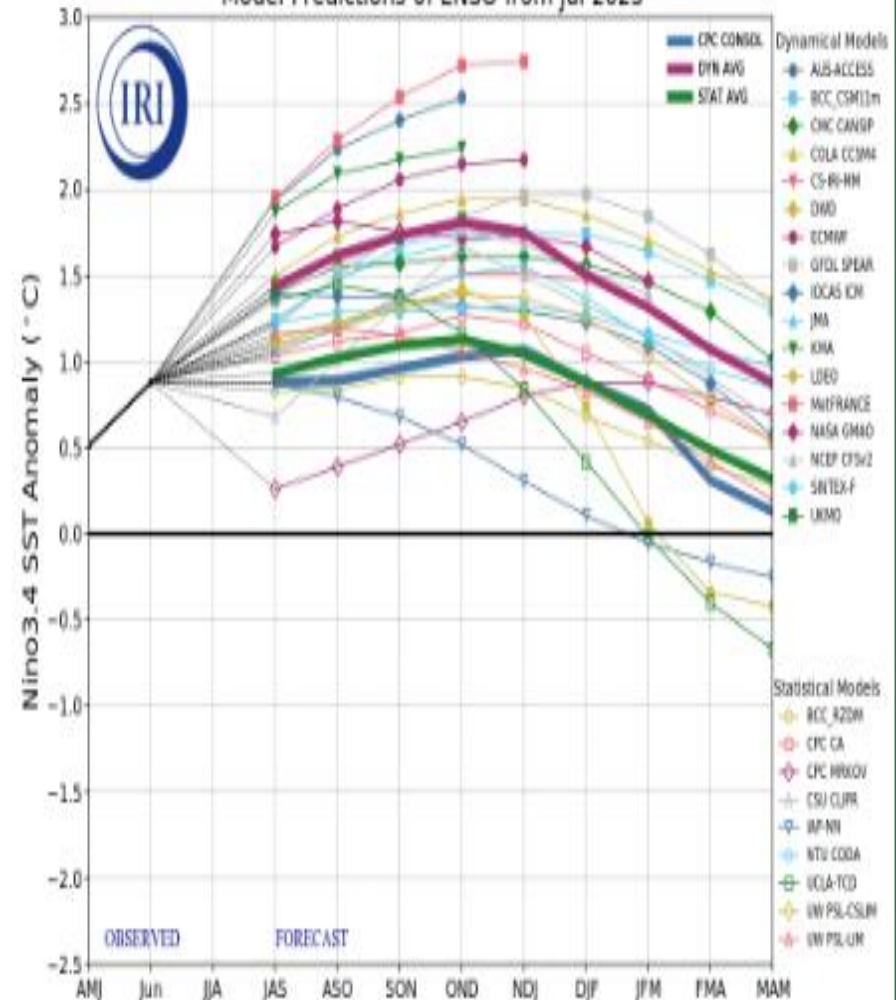
ENSO is in El Niño status and is expected to increase in strength over the next several months.

Mid-July 2023 IRI Model-Based Probabilistic ENSO Forecasts

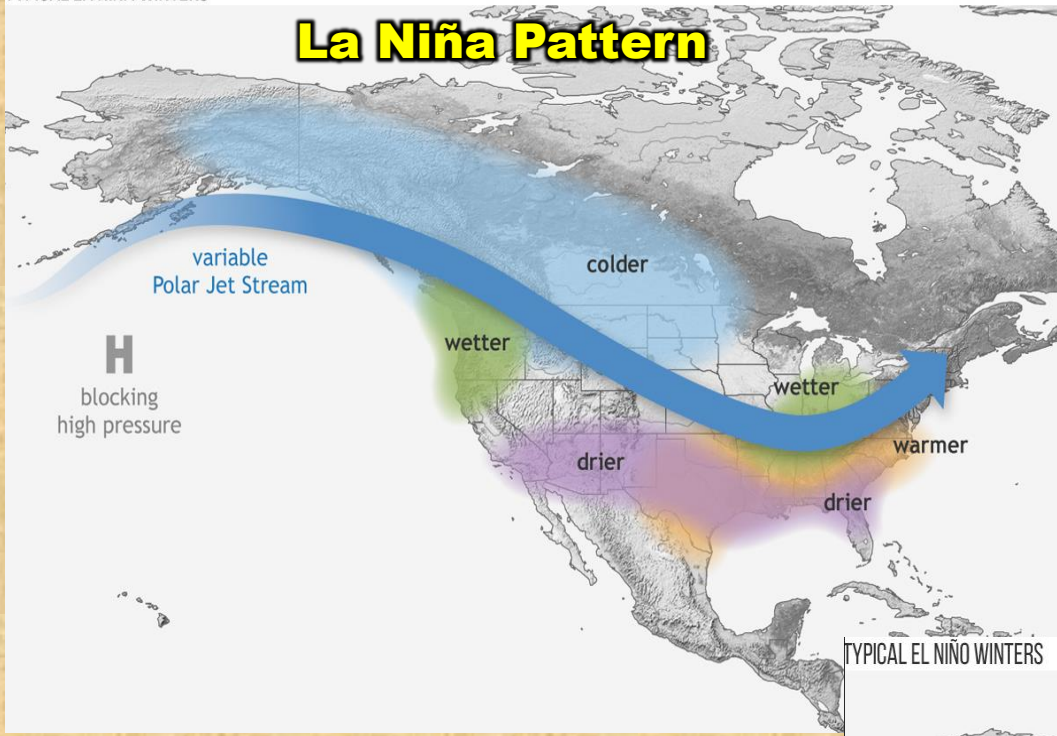
ENSO state based on NINO3.4 SST Anomaly Neutral ENSO: -0.5°C to 0.5°C



Model Predictions of ENSO from Jul 2023

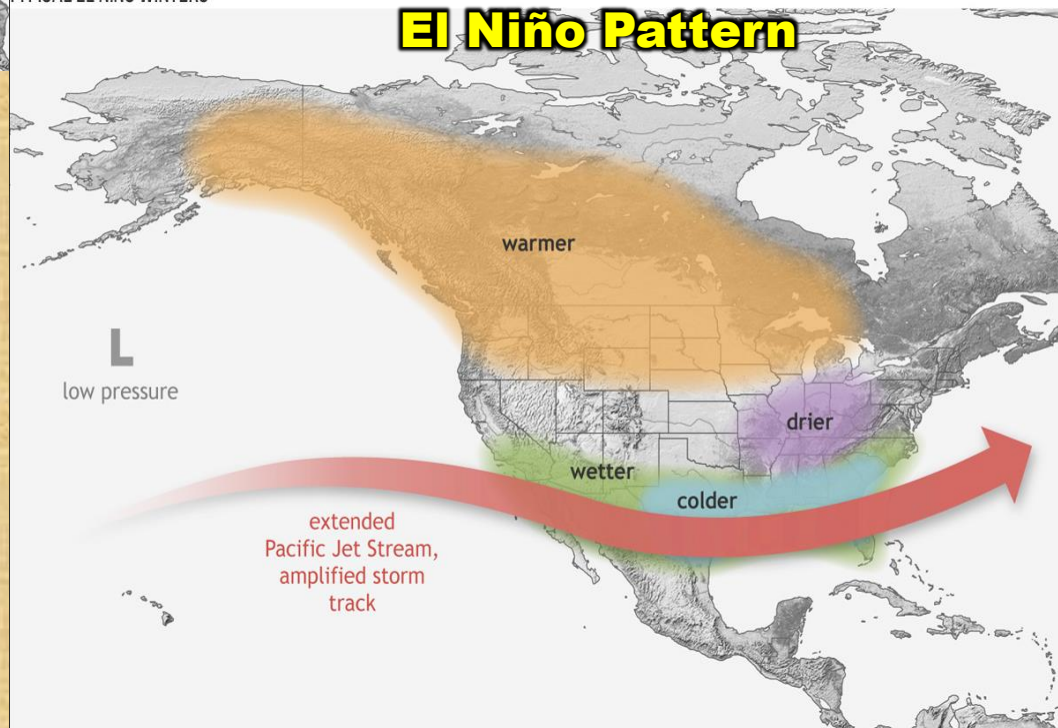


La Niña Pattern



With a La Niña pattern, a ridge of high pressure tends to build off the west coast of the U.S., blocking most of our Pacific winter storm systems. These storms tend to end up moving across the northern Plains and down to the southeastern part of the country. Of course it is important to remember that these patterns are only what typically happens and are not guaranteed to occur.

El Niño Pattern



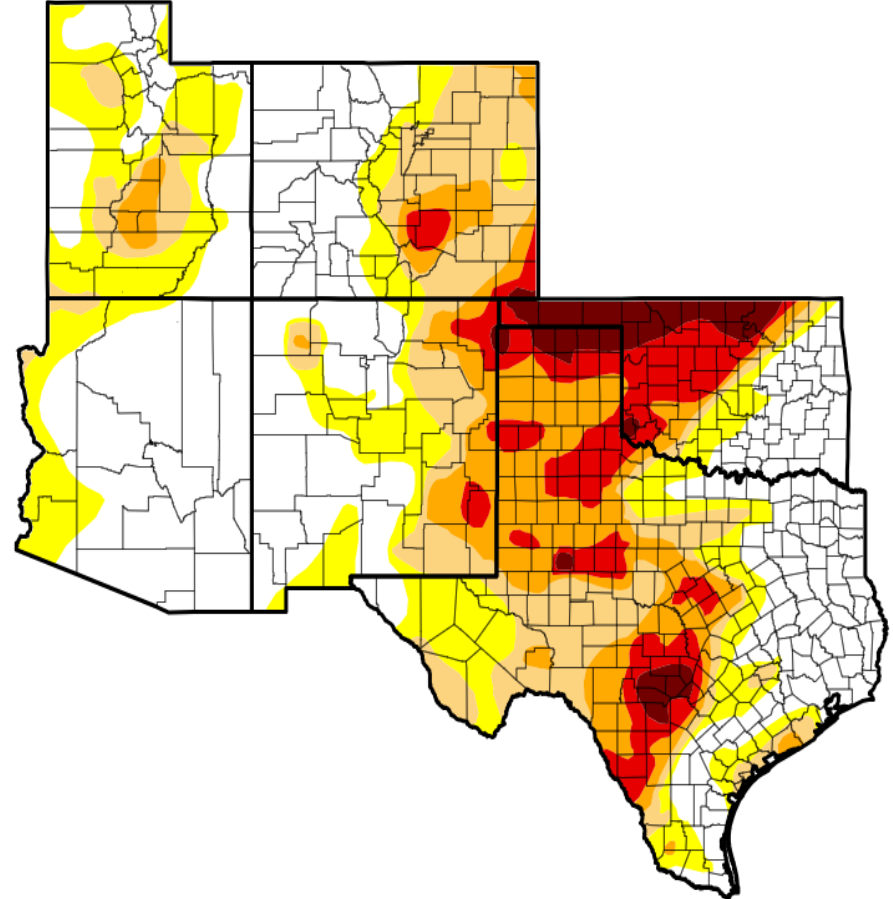
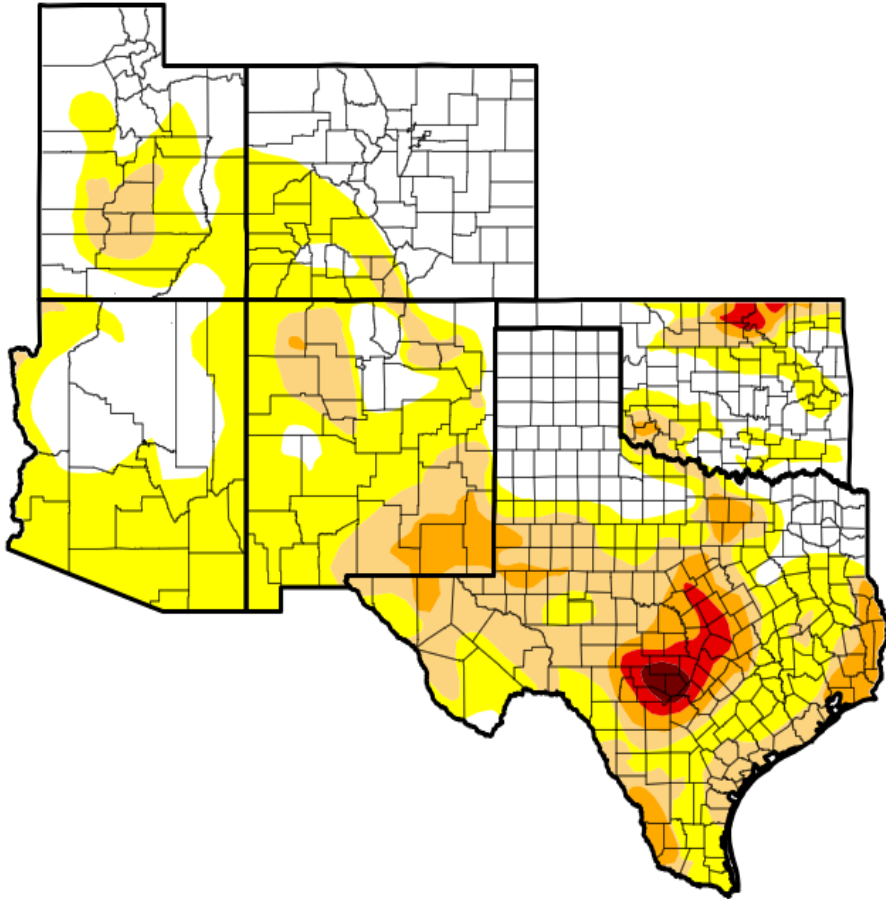
With El Niño, we often see the opposite pattern where the eastern Pacific ridge of high pressure is often weak or non-existent, allowing winter storms to sweep across the southern U.S. This typically will give the southwestern U.S. above normal precipitation.

Current drought conditions and 3 month change

- Abnormally Dry – D0
- Moderate Drought – D1
- Severe Drought – D2
- Extreme Drought – D3
- Exceptional – D4

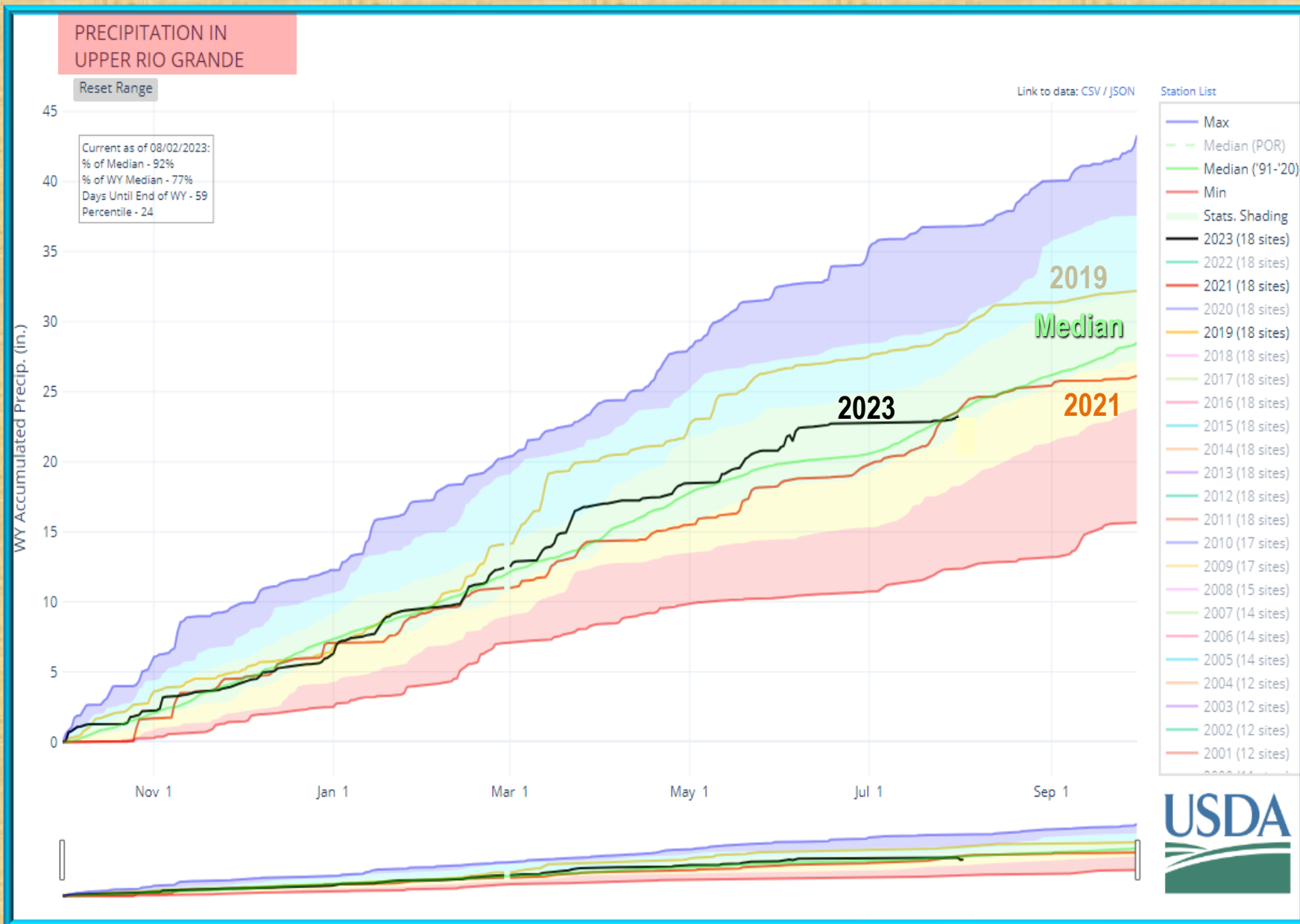
Jul 25, 2023

Apr 25, 2023



Precipitation for the Water Year Oct 1 –Jul 31, 2023

Compare to last few years and average values

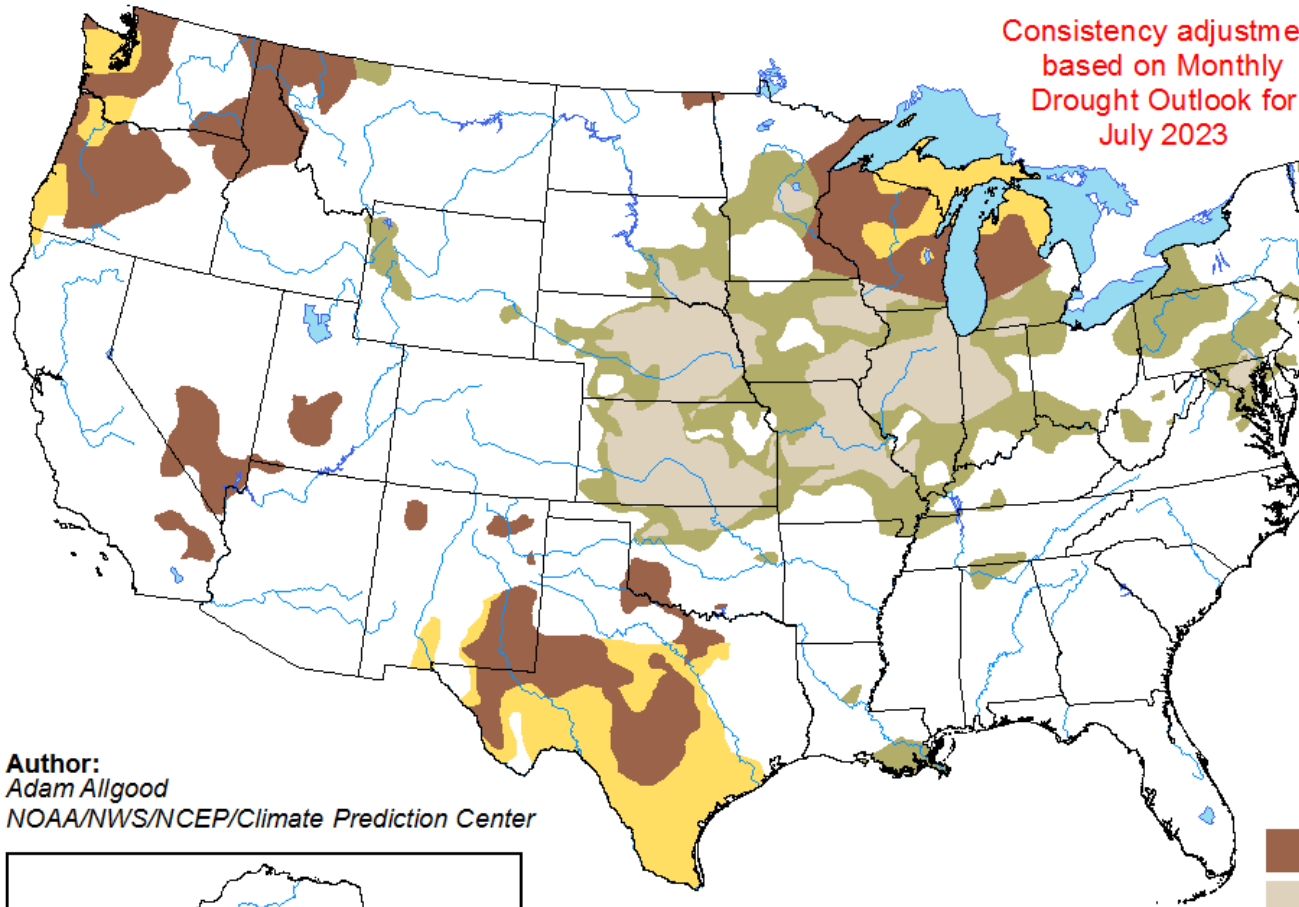


U.S. Seasonal Drought Outlook

Drought Tendency During the Valid Period

Valid for July 1 - September 30, 2023
Released June 30, 2023

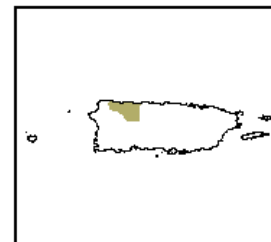
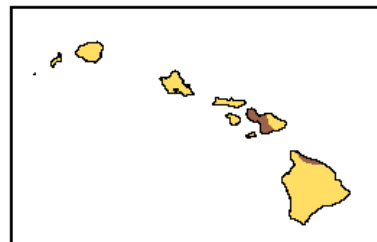
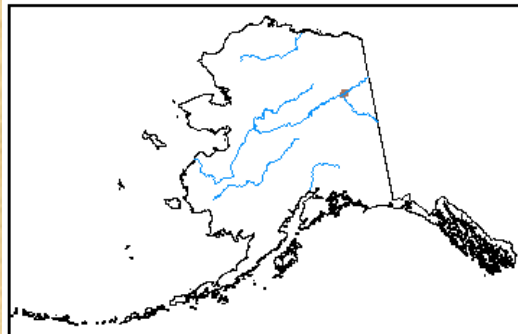
Consistency adjustment
based on Monthly
Drought Outlook for
July 2023







Depicts large-scale trends based on subjectively derived probabilities guided by short- and long-range statistical and dynamical forecasts. Use caution for applications that can be affected by short lived events. "Ongoing" drought areas are based on the U.S. Drought Monitor areas (intensities of D1 to D4).

NOTE: The tan areas imply at least a 1-category improvement in the Drought Monitor intensity levels by the end of the period, although drought will remain. The green areas imply drought removal by the end of the period (D0 or none).

Author:
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NOAA/NWS/NCEP/Climate Prediction Center



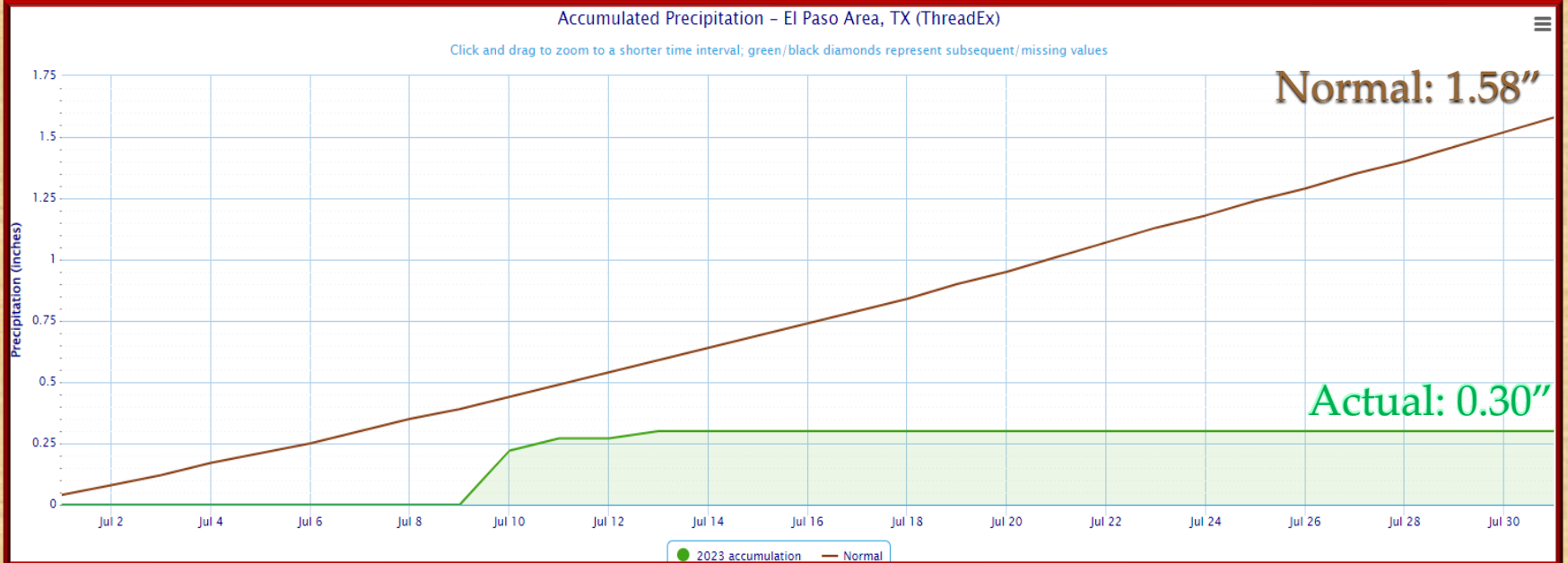
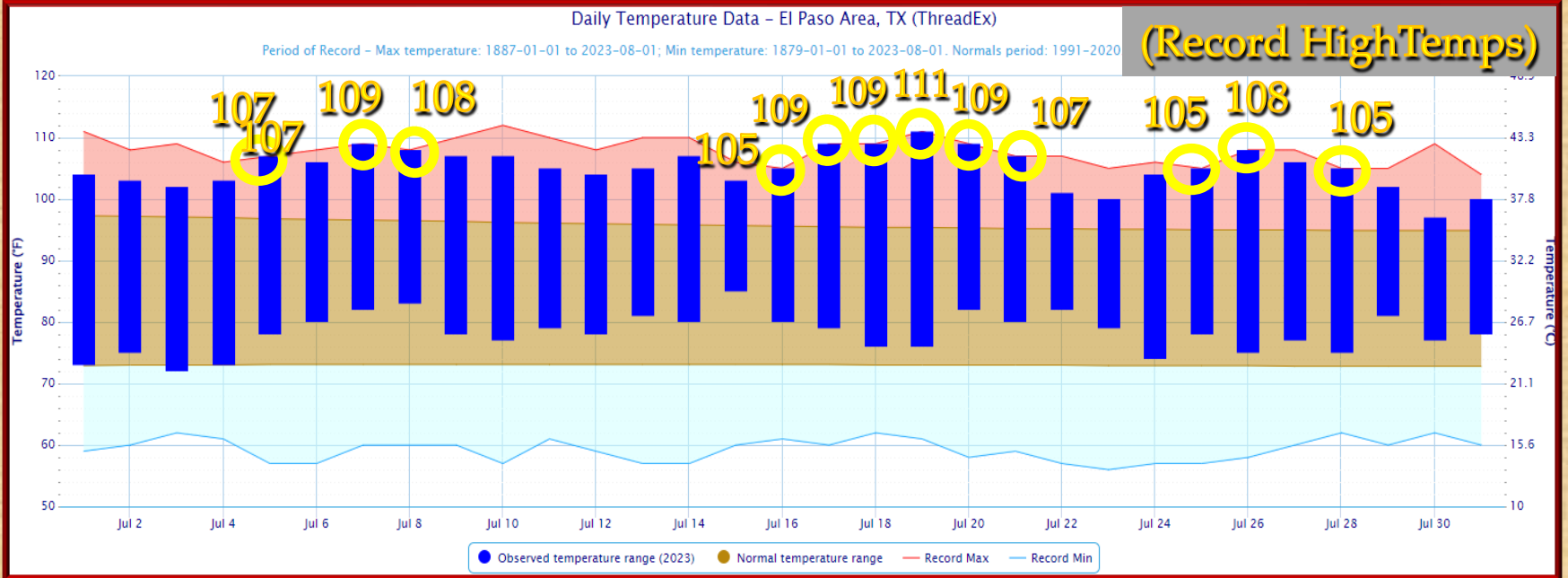
-  Drought persists
-  Drought remains but improves
-  Drought removal likely
-  Drought development likely



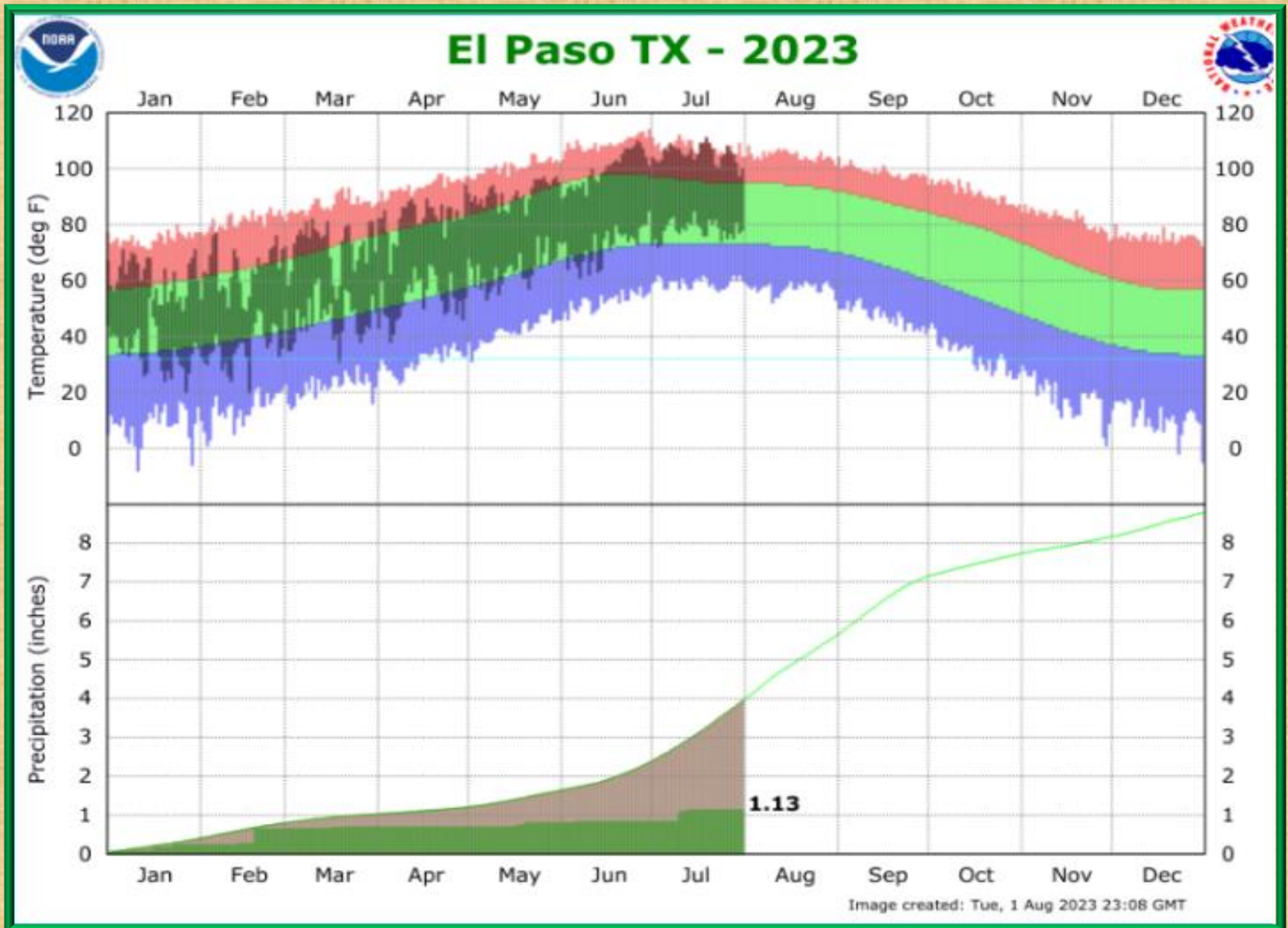
<http://go.usa.gov/3eZ73>

Temperature and precipitation data for July 2023 in El Paso

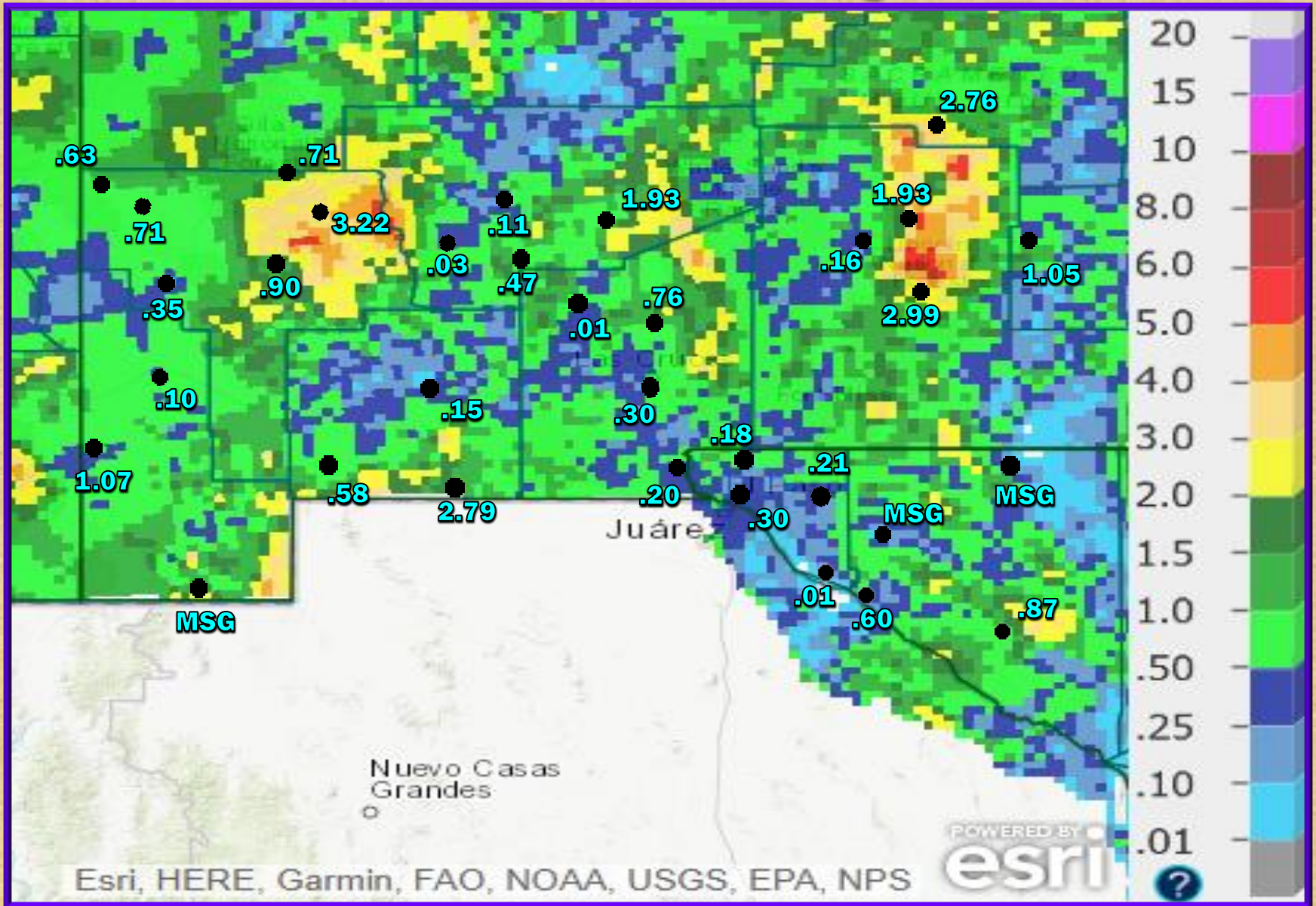
○ = record



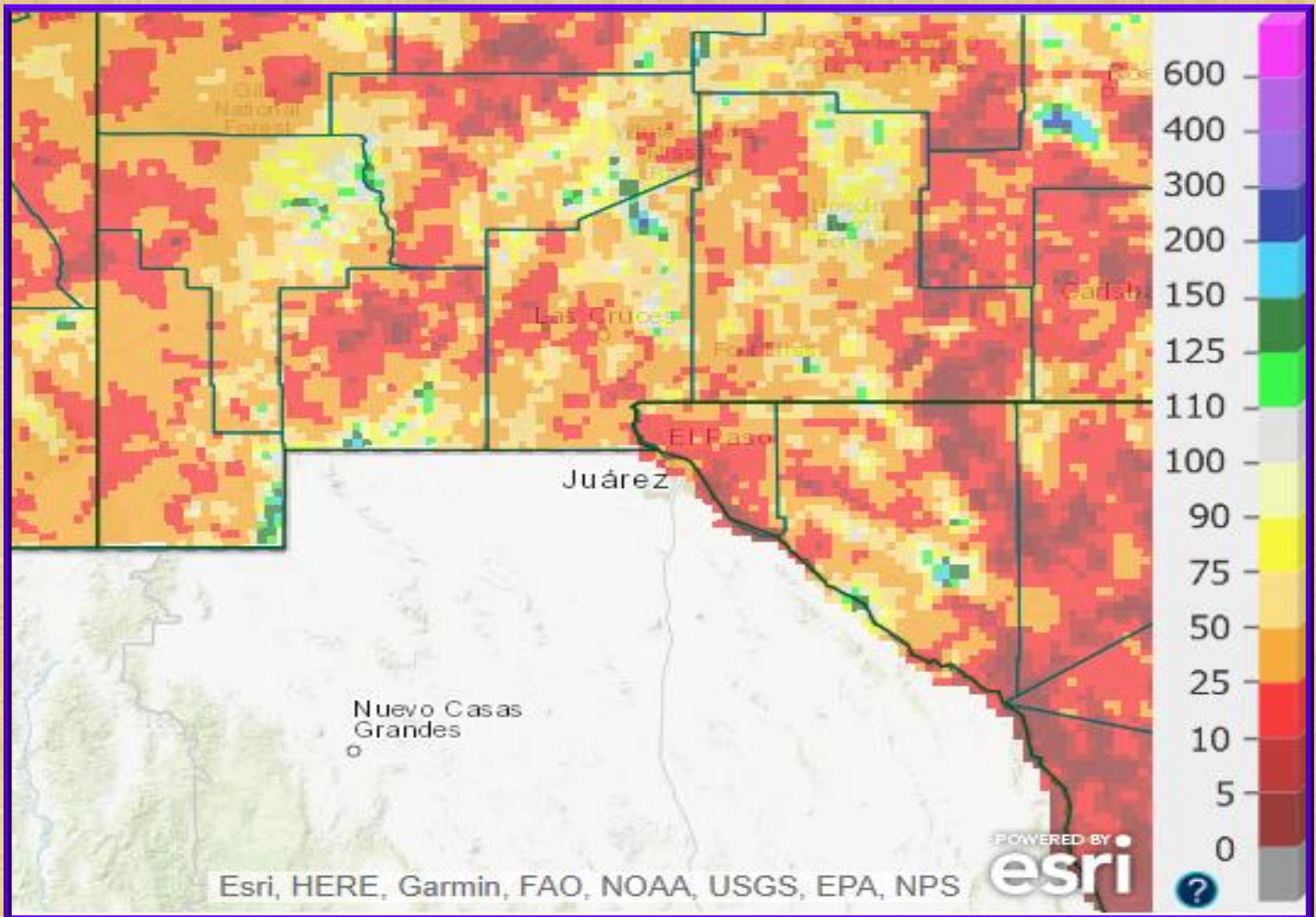
Temperature and Precipitation for 2023 YTD for El Paso



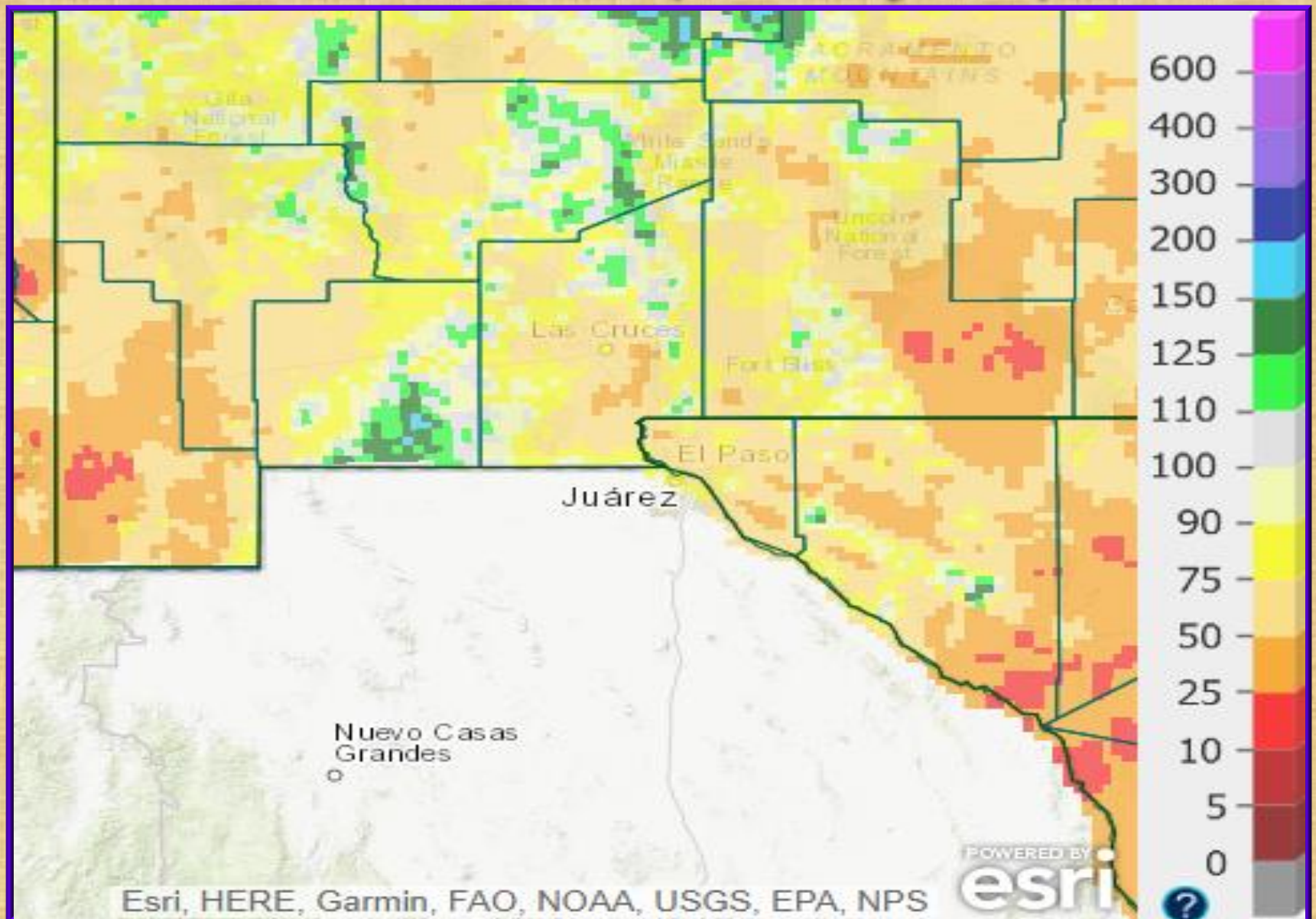
July 2023 radar rainfall estimate with surface rainfall reports



July 2023 rainfall estimate percent of normal



Radar rainfall estimate percent of normal for the Water Year (Oct 1 – Jul 31)



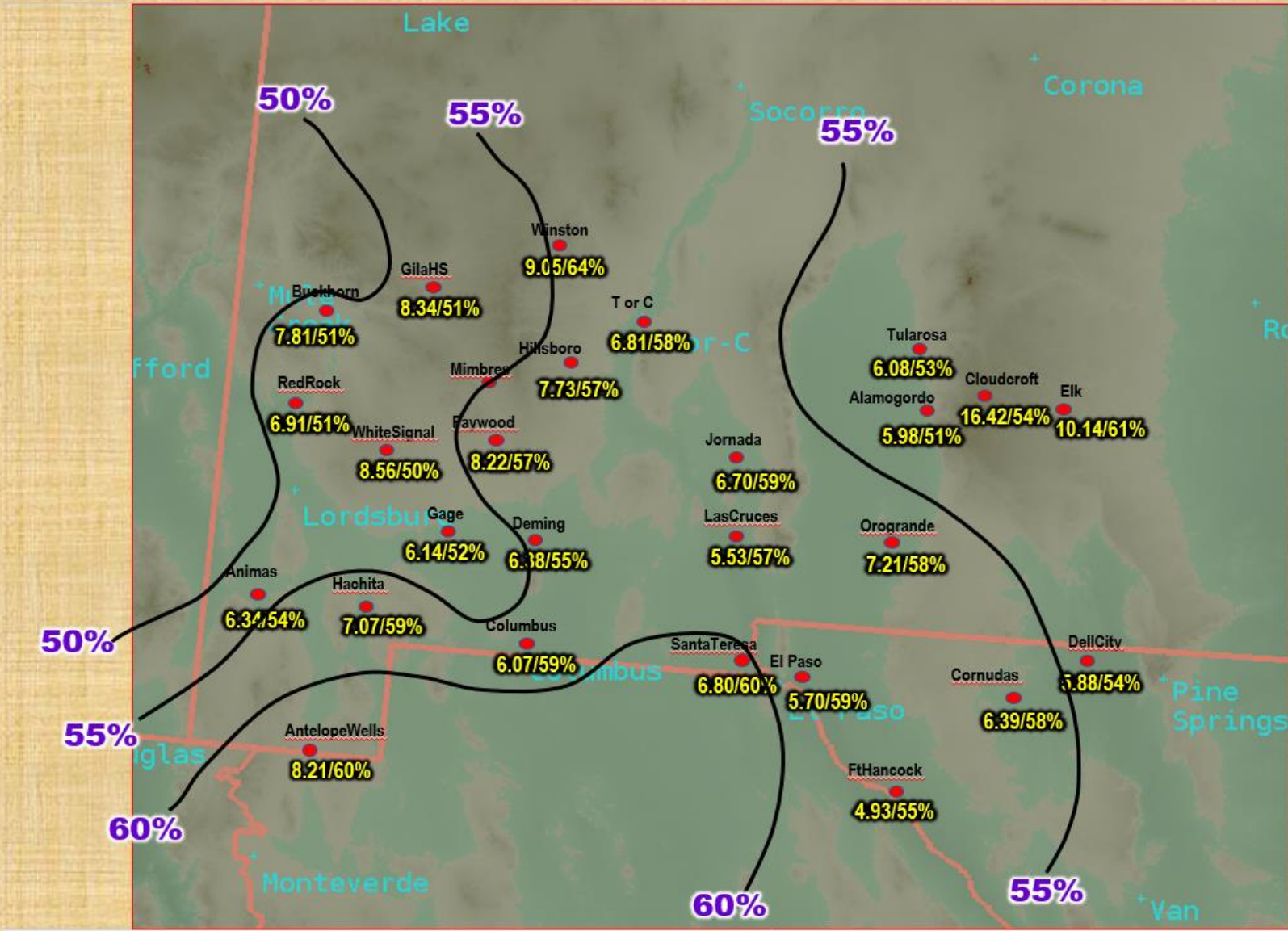
Tracking the 2023 Monsoon Season across the El Paso Forecast Area

A transition to monsoon flow began right on time this year with winds shifting to the south and east the first week of July [see fig 1] and the first round of precipitation following the next week [see fig 2]. This flow remained rather consistent throughout July across south-central New Mexico and far west Texas with occasional southwesterly winds over western New Mexico.

Main headline for the 2023 Monsoon so far is well below precipitation across much of the U.S. Southwest. Seasonal precipitation totals range from 0.25-1.00" across much of the desert floor with 2.00-4.00" over the high terrain. This is leading to rainfall deficits of 1-2" compared to climate normals and growing, which is only 20-50% of expected monsoon rainfall.

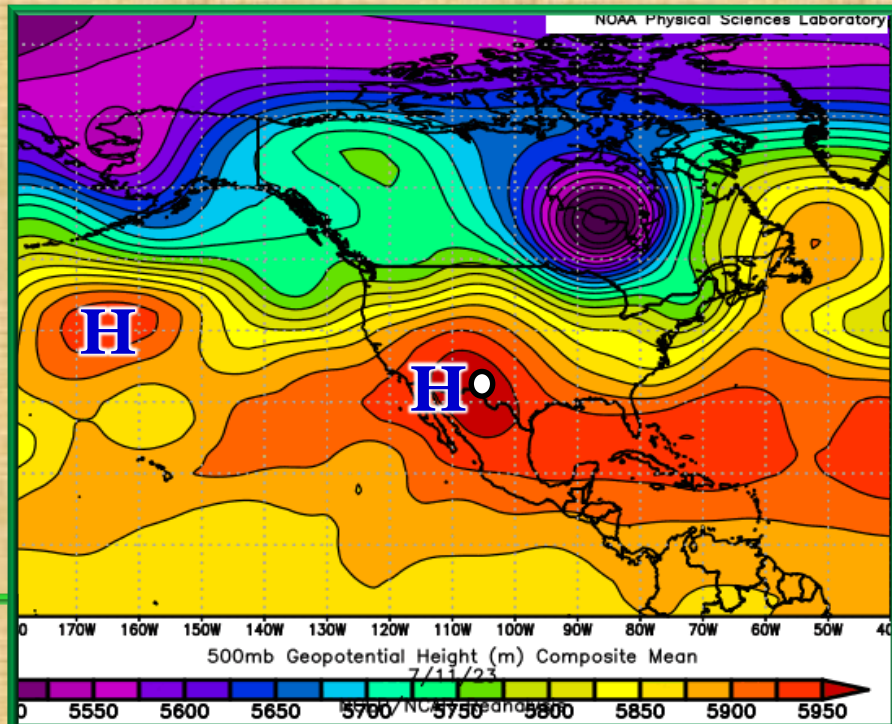
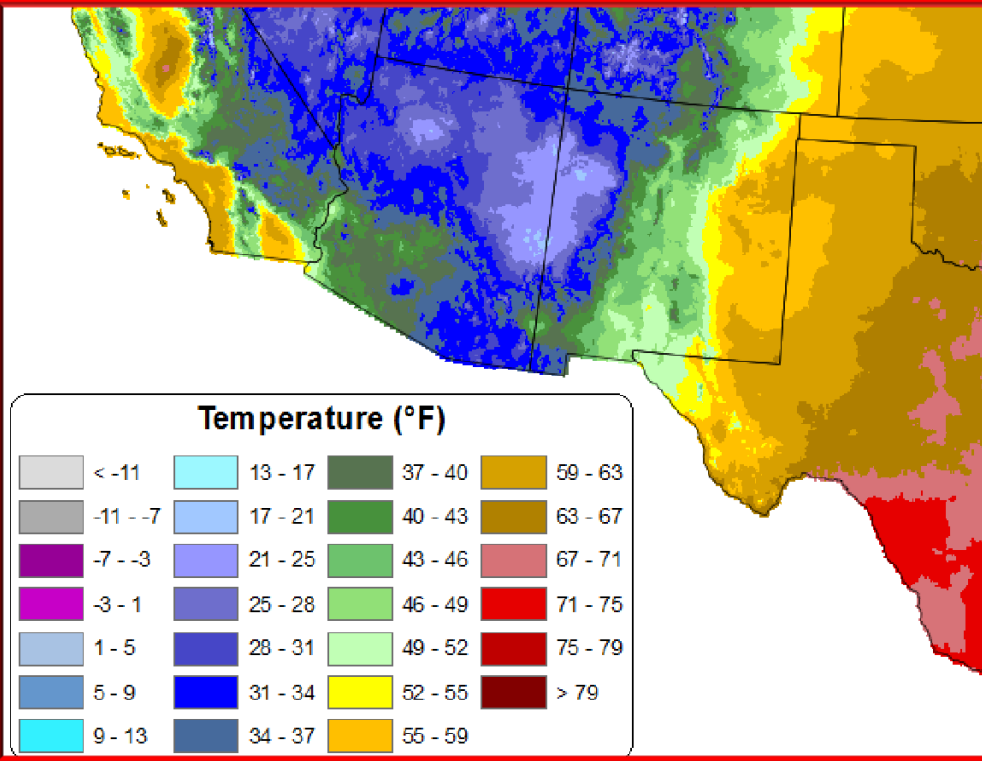
Sea surface temperatures of the northern Gulf of California and western Gulf of Mexico are a good indicator of how far we've progressed through the monsoon. SSTs reaching 29 degrees typically indicate the 1/3 progress mark, which was quickly reached on July 17th [see fig 4]. This suggests we're already well into the second half of the season. Mid-latitude flow may resume earlier than usual, bringing this year's monsoon to an end in mid-September. Thus, confidence is high that 2023 will finish well below normal for precipitation.

Percent of Annual Precipitation Falling During the Monsoon Season (Jun15-Sep 30)



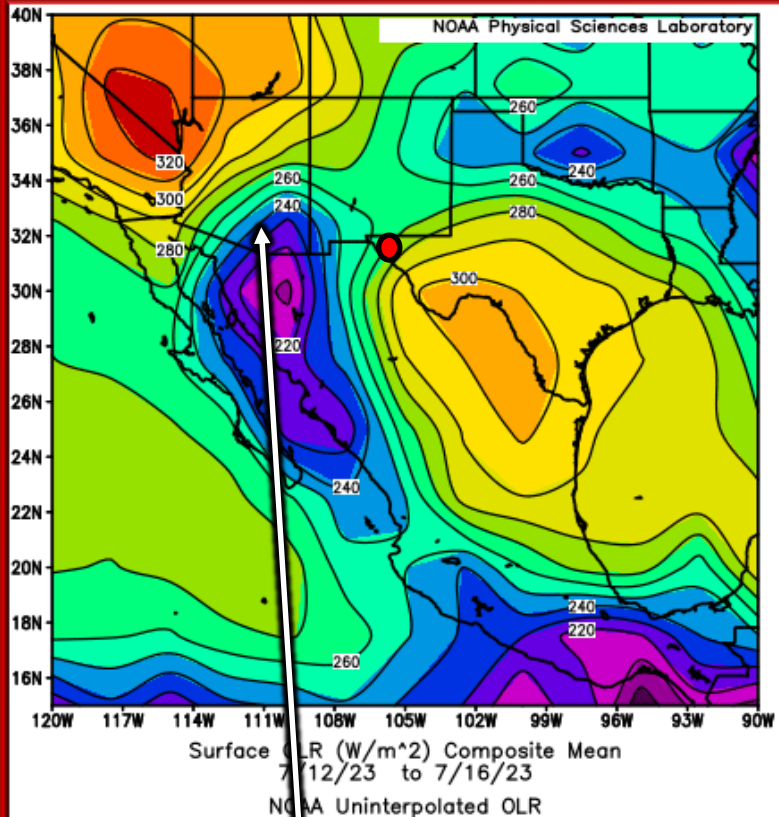
Tracking the 2023 Monsoon Season across the El Paso Forecast Area. Fig 1

July 3 – Dewpoints reach into the upper 40s to lower 50s across the area



By July 5, 500mb (18,000 ft) sub-tropical high reaches the Desert Southwest

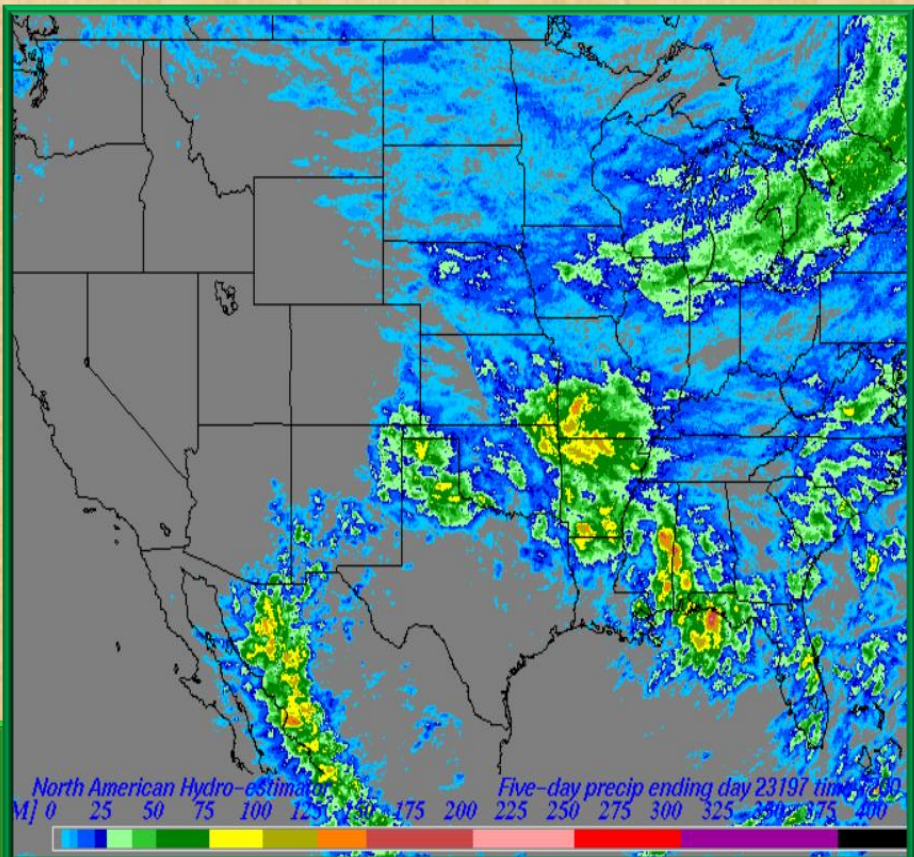
Tracking the 2023 Monsoon Season across the El Paso Forecast Area. Fig. 2



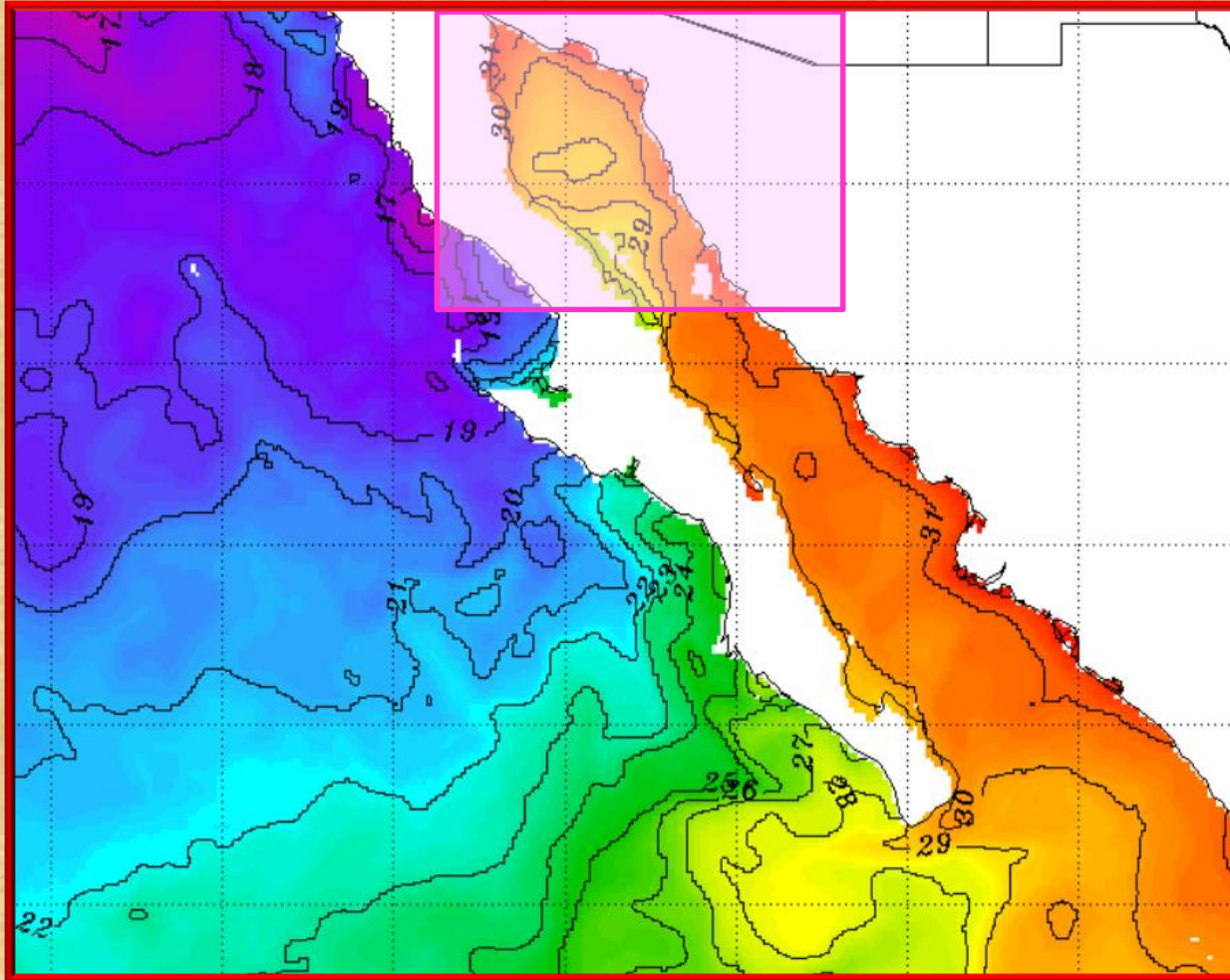
240 W/m²

July 12-16 - Outgoing Longwave Radiation (OLR) diminishes to less than 240 W/m² in the area though not over New Mexico. Thick clouds and anvil tops from thunderstorms diminish the OLR values, often indicative of the monsoon moisture and thunderstorms moving into the area. (Pentad data Jun 26-30)

By July 11-16, the first area wide Monsoon precipitation occurs



Tracking the 2023 Monsoon Season across the El Paso Forecast Area. Fig. 3



July 17 – Sea surface temperatures in the northern Gulf of California reach 29C deg (84F)

Studies have shown that once northern Gulf of California sea surface temperatures reach 29C, New Mexico/Arizona will receive around 65-70% of their total summer rainfall.

Fig. 4

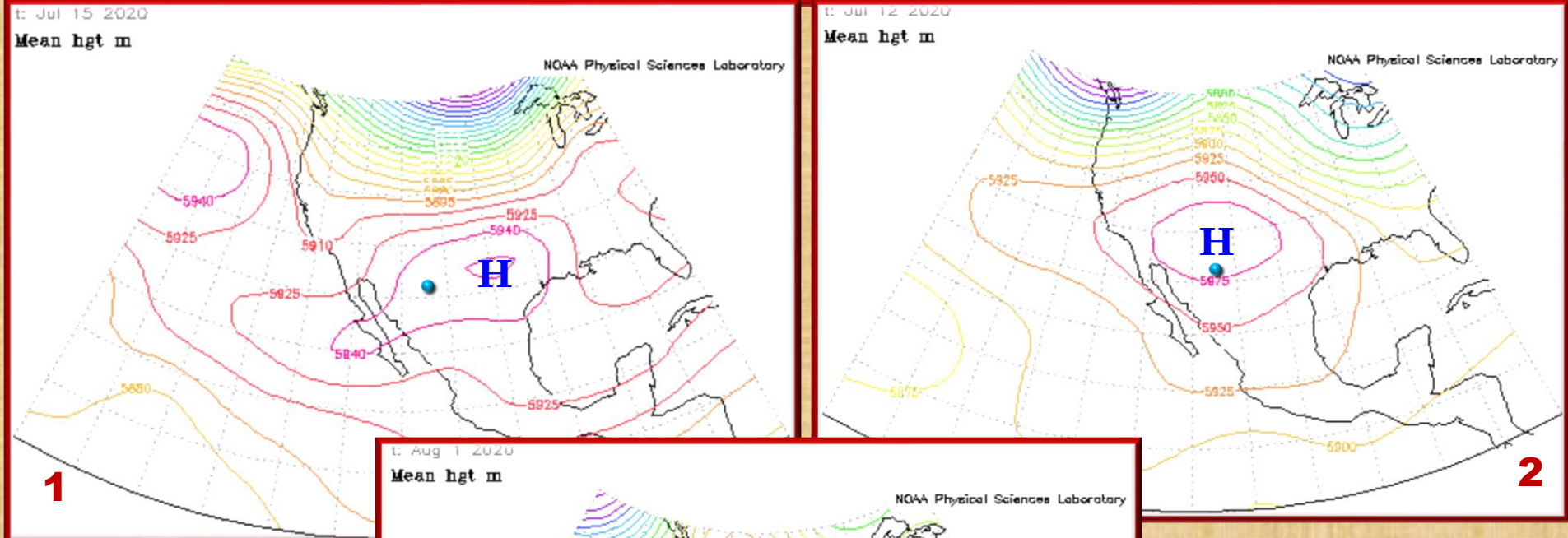
Percent of Monsoon rainfall after 29C							
Year	29C Date	ELP	DMN	CLD	ANM	TCS	HIL
2022	Jun 29	85	82	85	MSG	67	74
2021	Jul 16	51	75	68	MSG	60	63
2020	Jul 22	88	65	67	MSG	98	89
2019	Aug 8	83	91	62	67	71	49
2018	Jul 21	59	46	74	38	80	62
2017	Jul 23	58	67	66	48	88	61
2016	Aug 3	93	92	71	57	79	85
2015	Jul 27	63	43	56	60	53	61
2014	Jul 23	92	82	77	MSG	91	89
2013	Aug 8	61	68	61	23	88	75
2012	Jul 24	53	64	73	65	42	52
2011	Jul 29	37	90	36	67	86	62
2010	Jul 29	47	31	43	71	33	47
2009	Jul 24	54	61	47	63	56	65
2008	Jul 27	48	39	54	44	46	58
2007	Jul 26	65	62	60	66	91	72
2006	Jul 29	84	81	73	76	86	85
2005	Jul 30	95	79	72	92	83	87
Ave	Jul 27	68	68	64	60	72	69

ELP=El Paso Intl Airport
DMN=Deming Airport
CLD=Cloudcroft COOP
TCS=T or C Airport
HIL-Hillsboro COOP

The northern Gulf of California sea surface temperature this year reached 29C on June 29. Research has shown that around 50-75% of the total Monsoon rainfall will fall after that date. As this table shows, this year even exceeded the average figures.

Tracking the 2023 Monsoon Season across the El Paso Forecast Area. Fig. 5

Position of NAM upper high determines our rainfall potential. Blue dot represents El Paso.

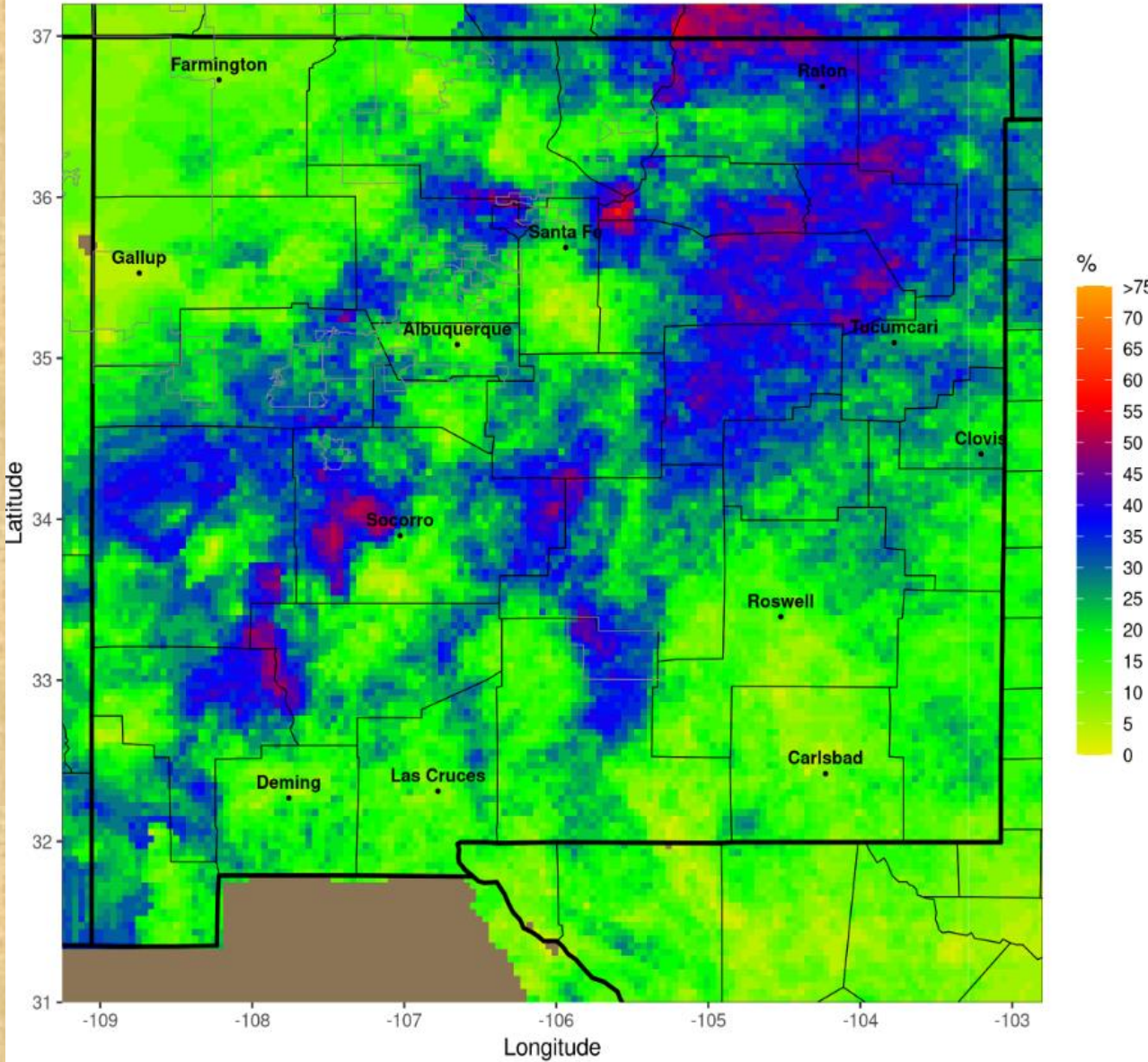


No. 1 High center east of New Mexico. Often brings ample tropical moisture and widespread heavy rain and flooding to the area under southerly flow.

No. 2 High center over New Mexico. Often brings very hot temperatures and little if any rain (usually limited to the mountains).

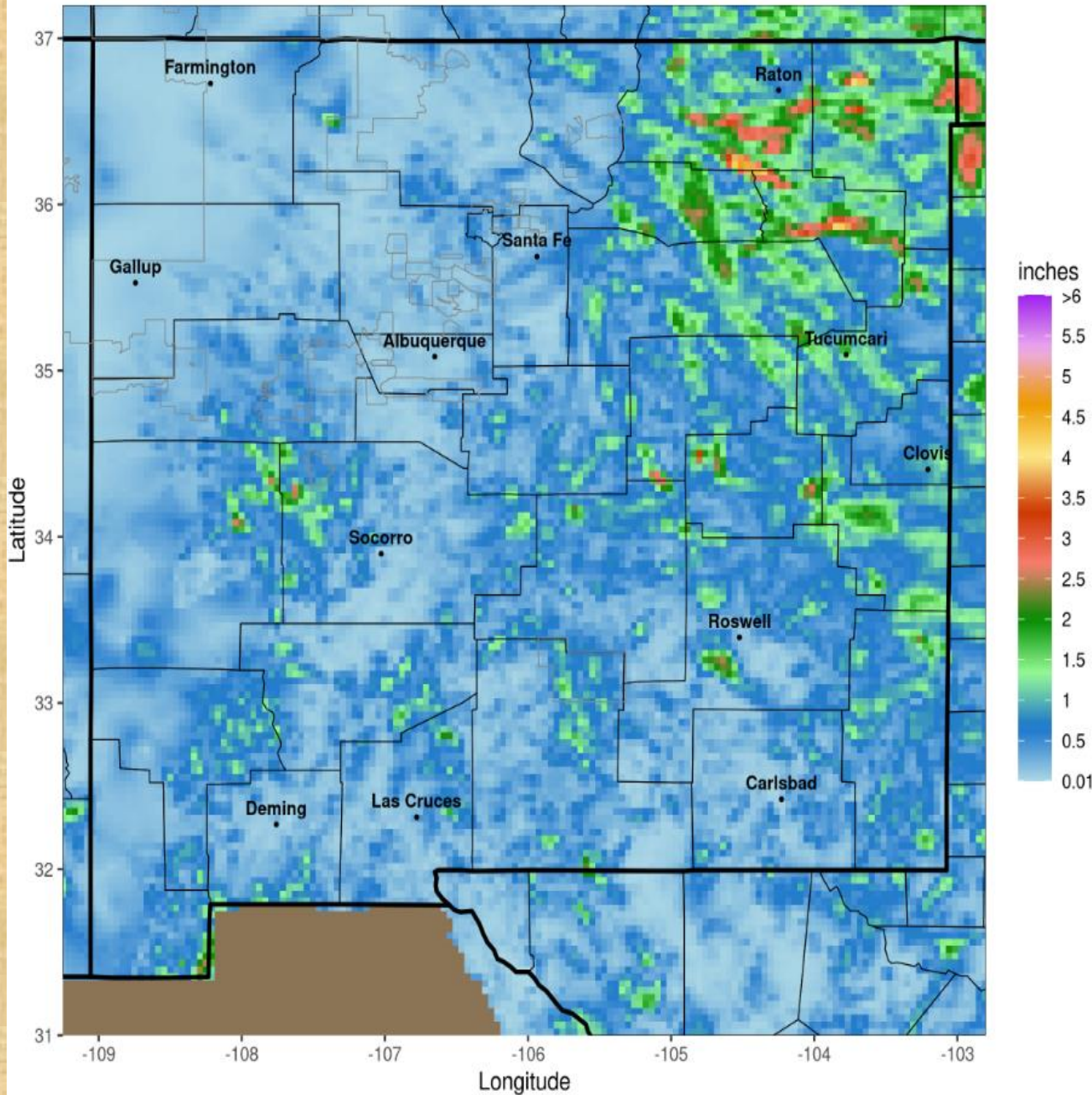
No. 3 High center west of New Mexico. Often brings scattered storms with hit and miss heavy rains and large hail and strong wind potential.

Percent of days with rain (>0.01 in): 2023-06-15 to 2023-08-02



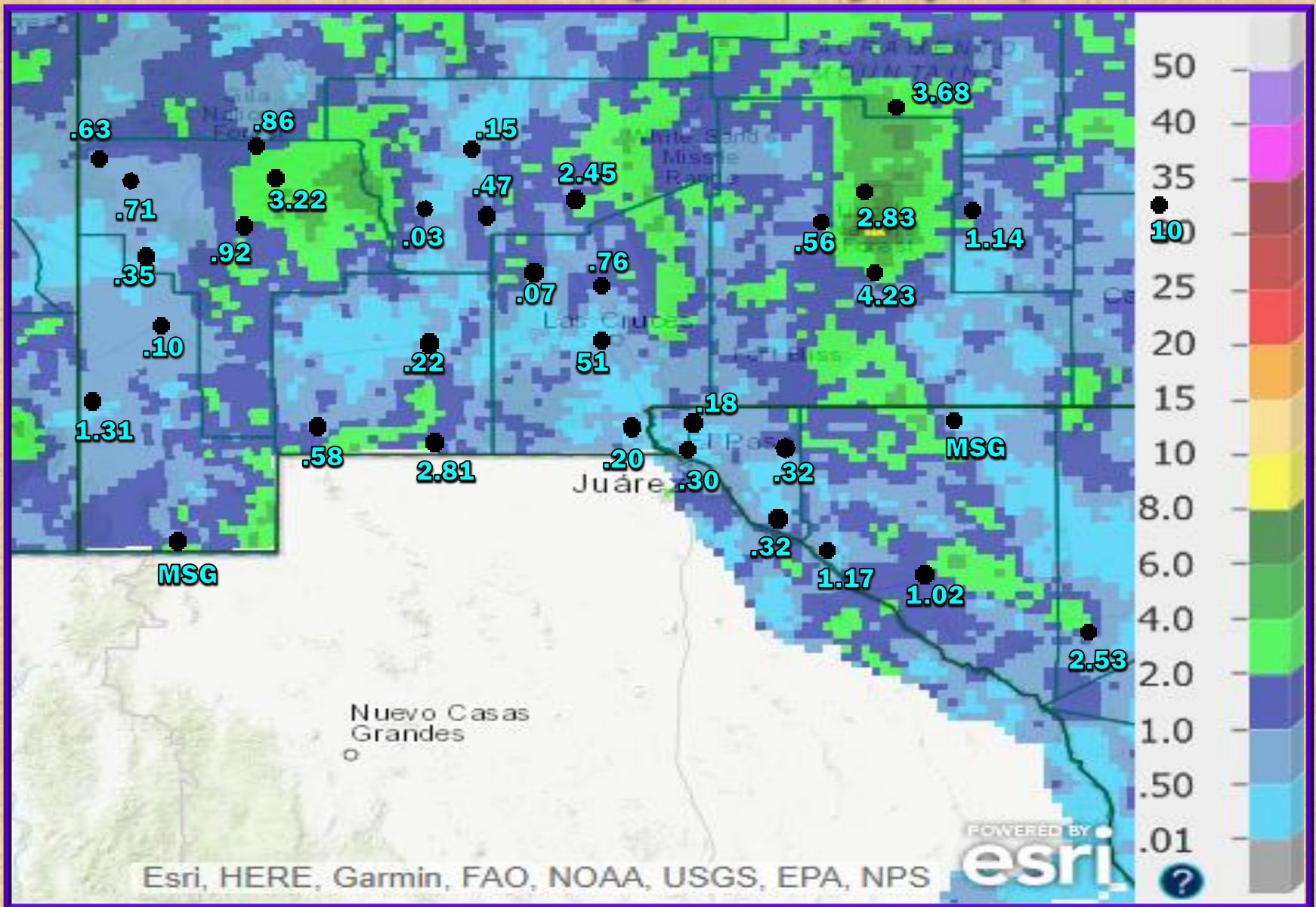
This map shows the percentage of measurable rainfall days so far during the Monsoon season. Courtesy of Climate Assessment for the Southwest.

Max 1-day Precipitation (in.): 2023-06-15 to 2023-08-02

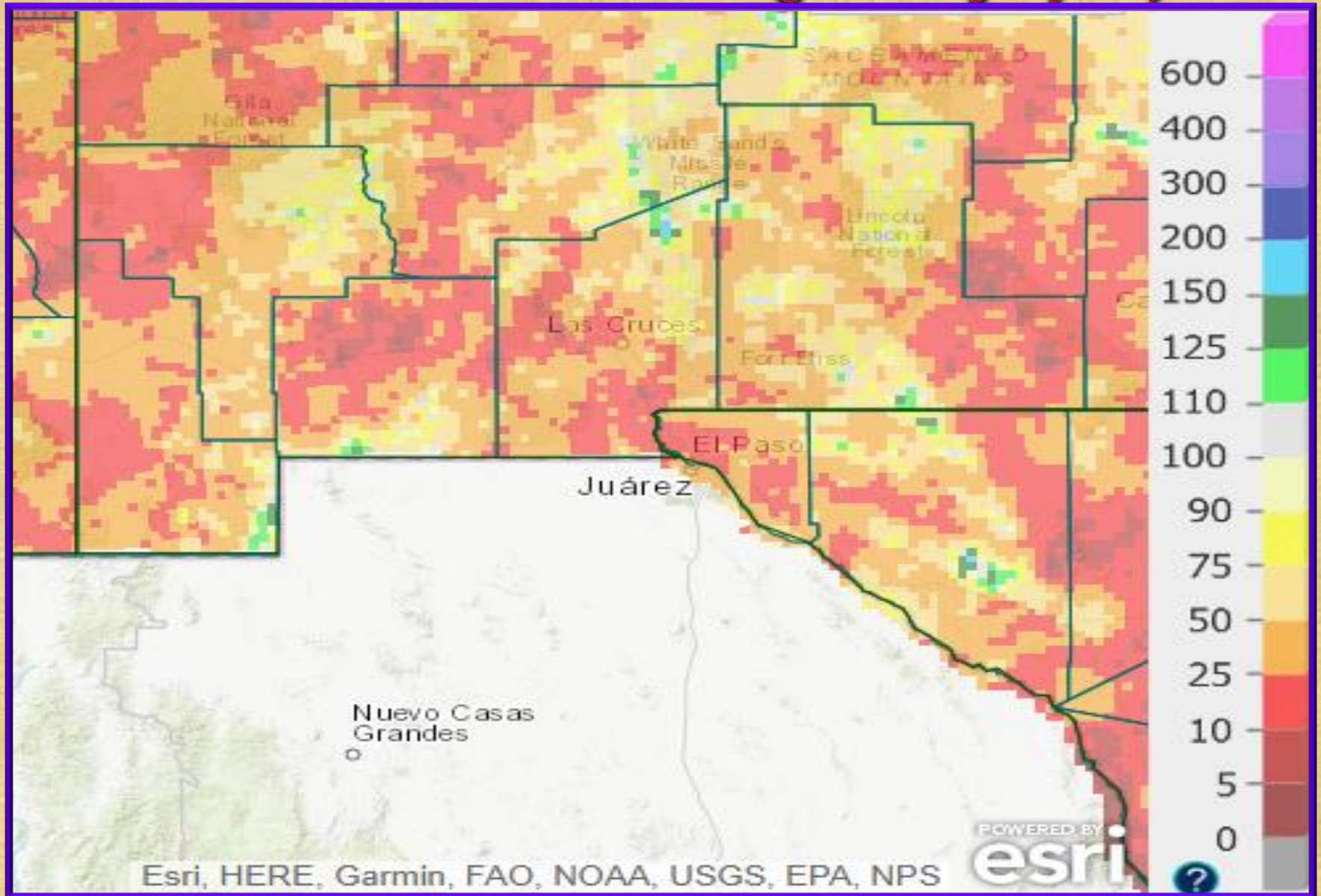


This map shows greatest one day rainfall total so far during the Monsoon season. Courtesy of Climate Assessment for the Southwest.

Radar rainfall estimate for the Monsoon Season 2023 (June 1 – July 31)



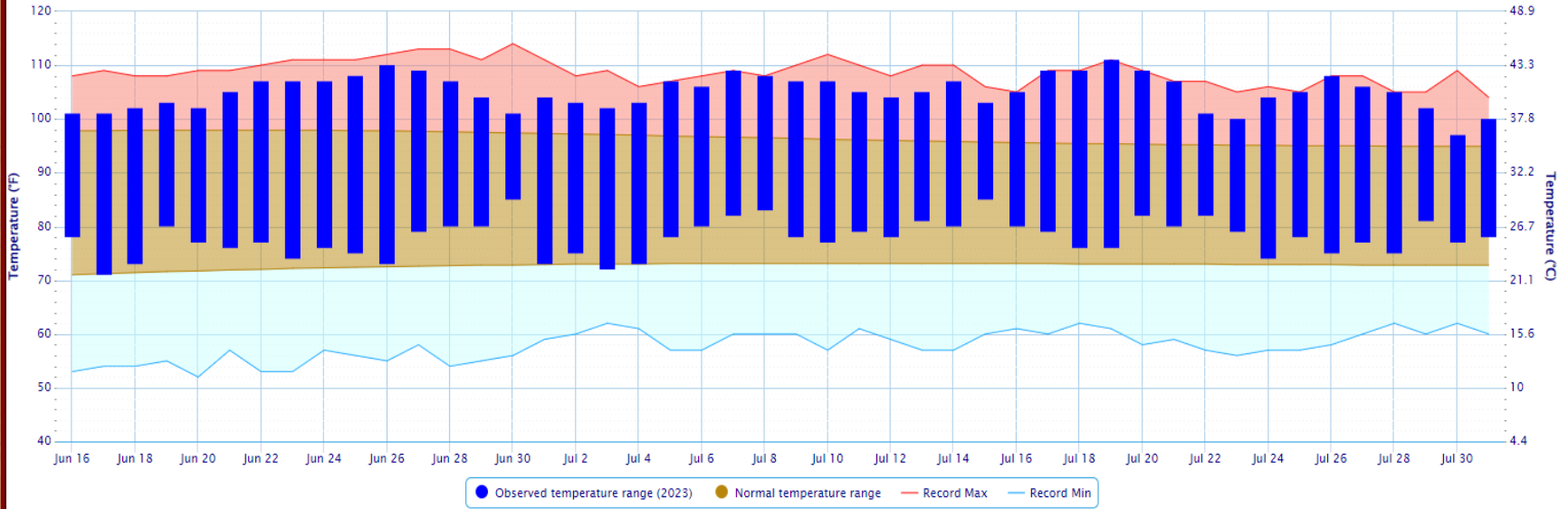
Radar rainfall estimate percent of normal for Monsoon season 2023 (June 1-July 31)



Temperature and precipitation data through July 31, 2023 Monsoon Season in El Paso

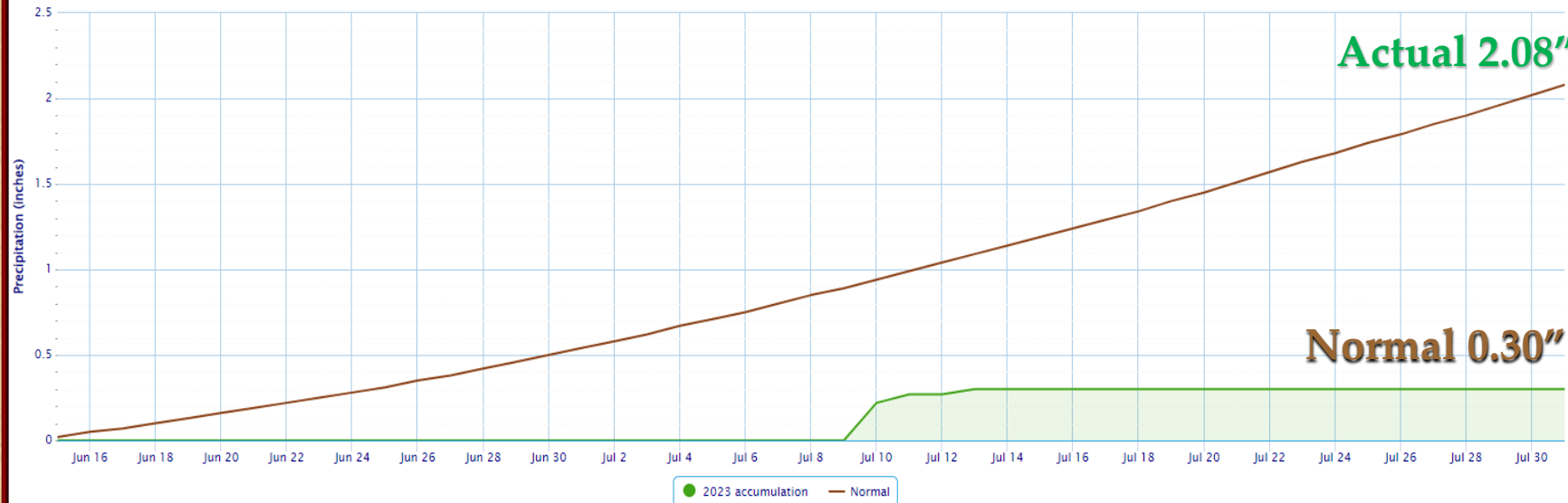
Daily Temperature Data – El Paso Area, TX (ThreadEx)

Period of Record – Max temperature: 1887-01-01 to 2023-08-01; Min temperature: 1879-01-01 to 2023-08-01. Normals period: 1991-2020. Click and drag to zoom chart.



Accumulated Precipitation – El Paso Area, TX (ThreadEx)

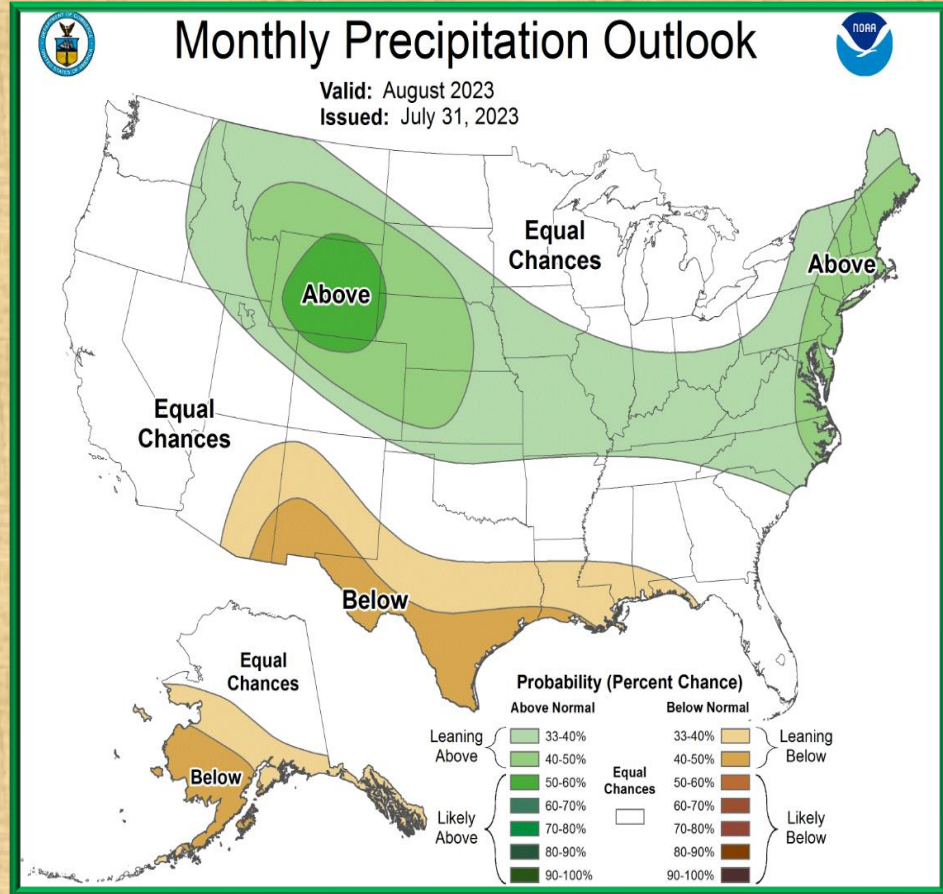
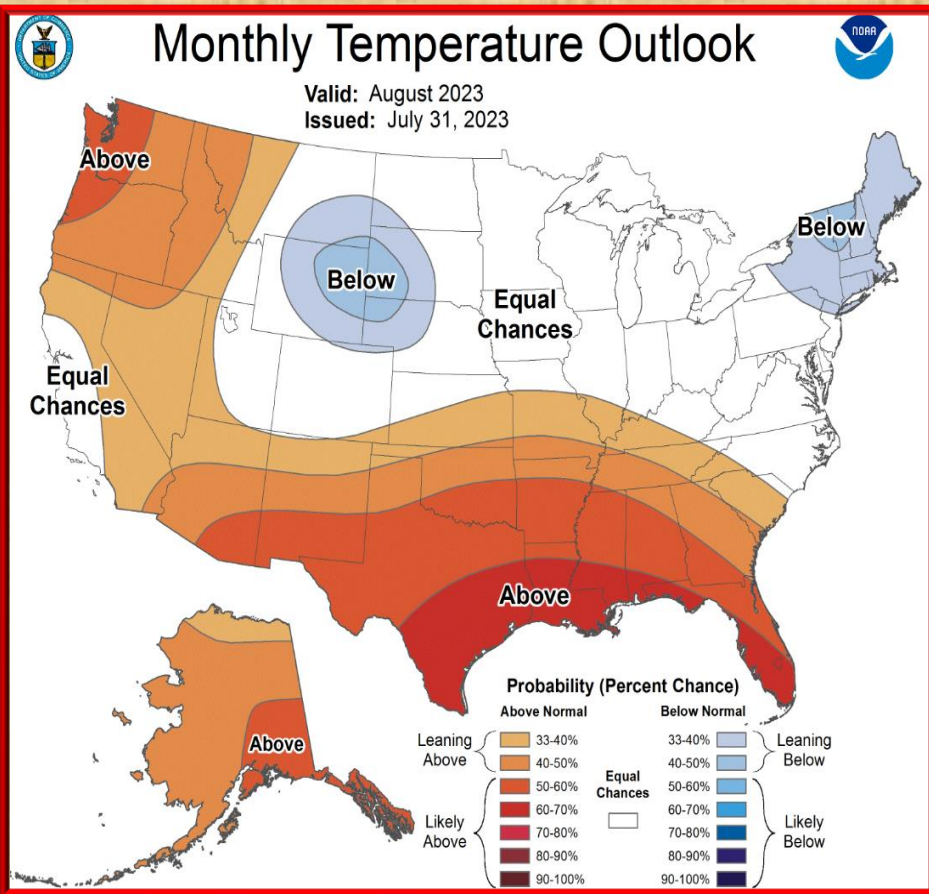
Click and drag to zoom to a shorter time interval; green/black diamonds represent subsequent/missing values



Temperature and precipitation outlook For August 2023

Temperature

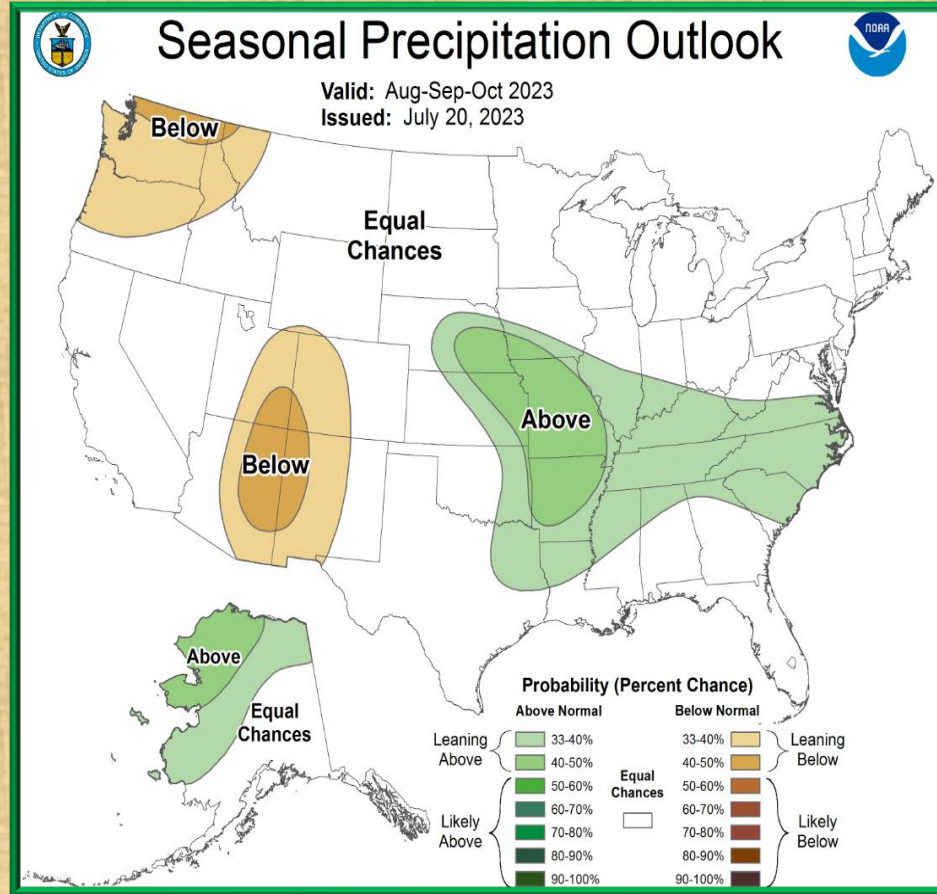
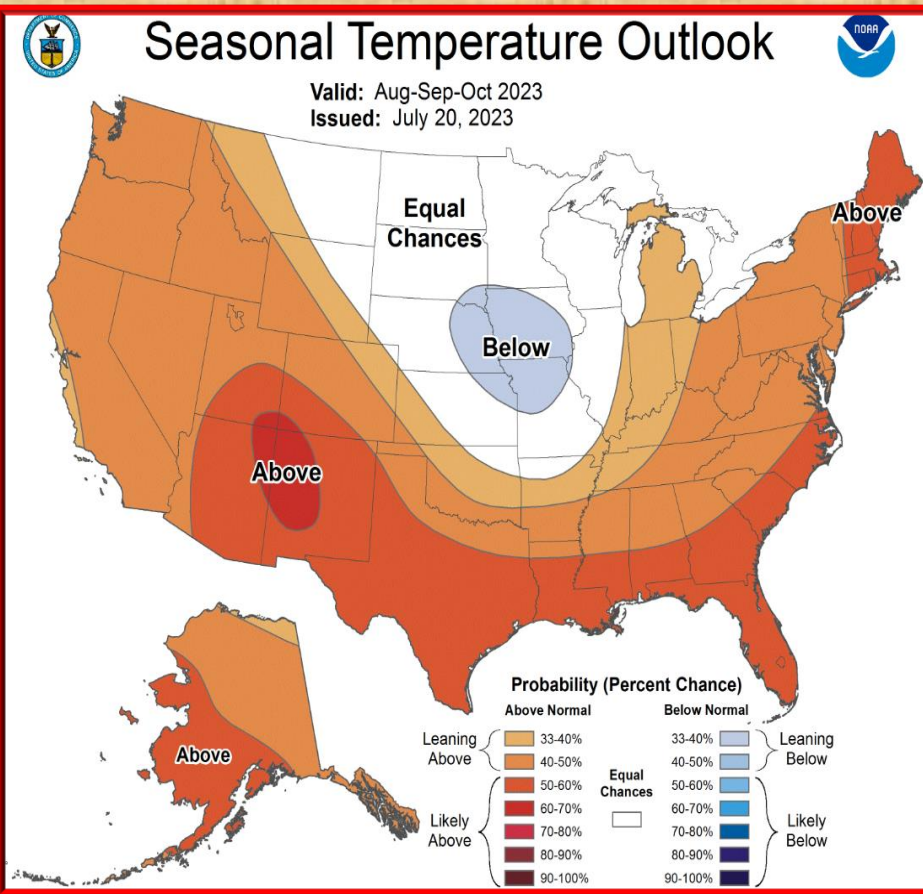
Precipitation



Temperature and precipitation outlook for Aug-Oct 2023

Temperature

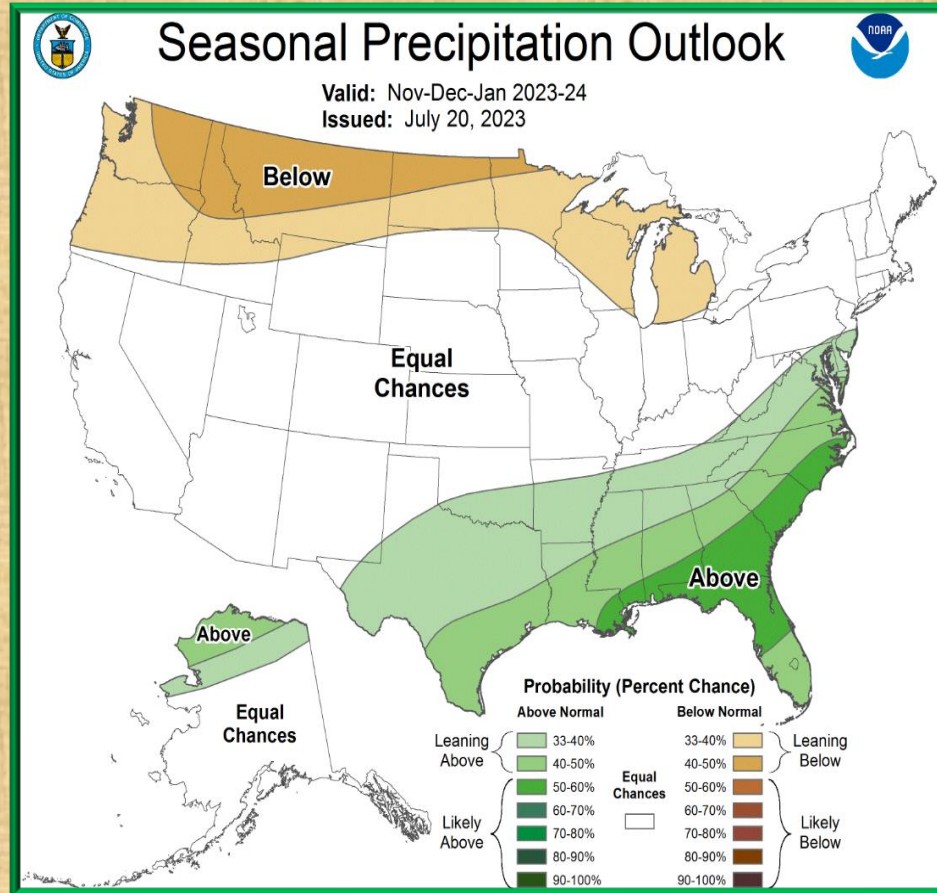
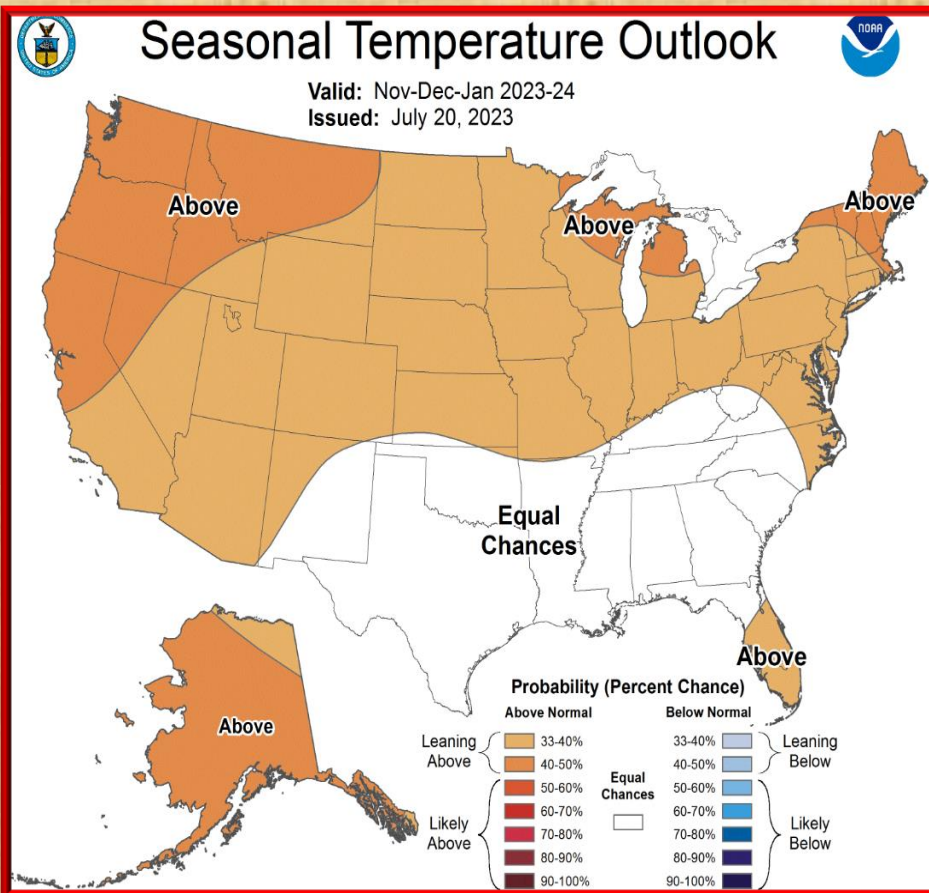
Precipitation



Temperature and precipitation outlook for Nov-Jan 2024

Temperature

Precipitation

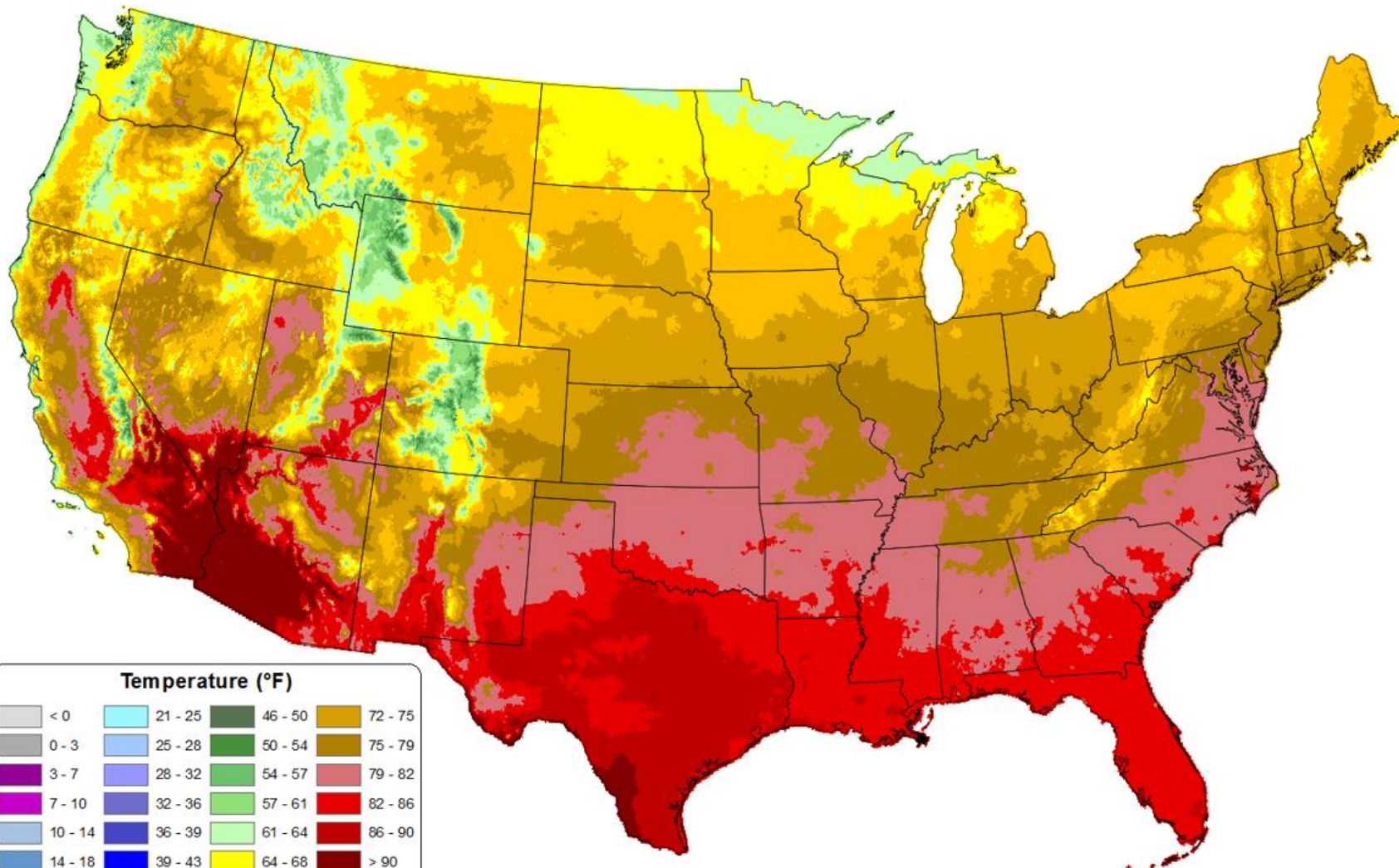


Average Daily Mean Temperature for July 2023

Average Daily Mean Temperature: Jul 2023

Period ending 7 AM EST 31 Jul 2023

(Map created 02 Aug 2023)



Temperature (°F)

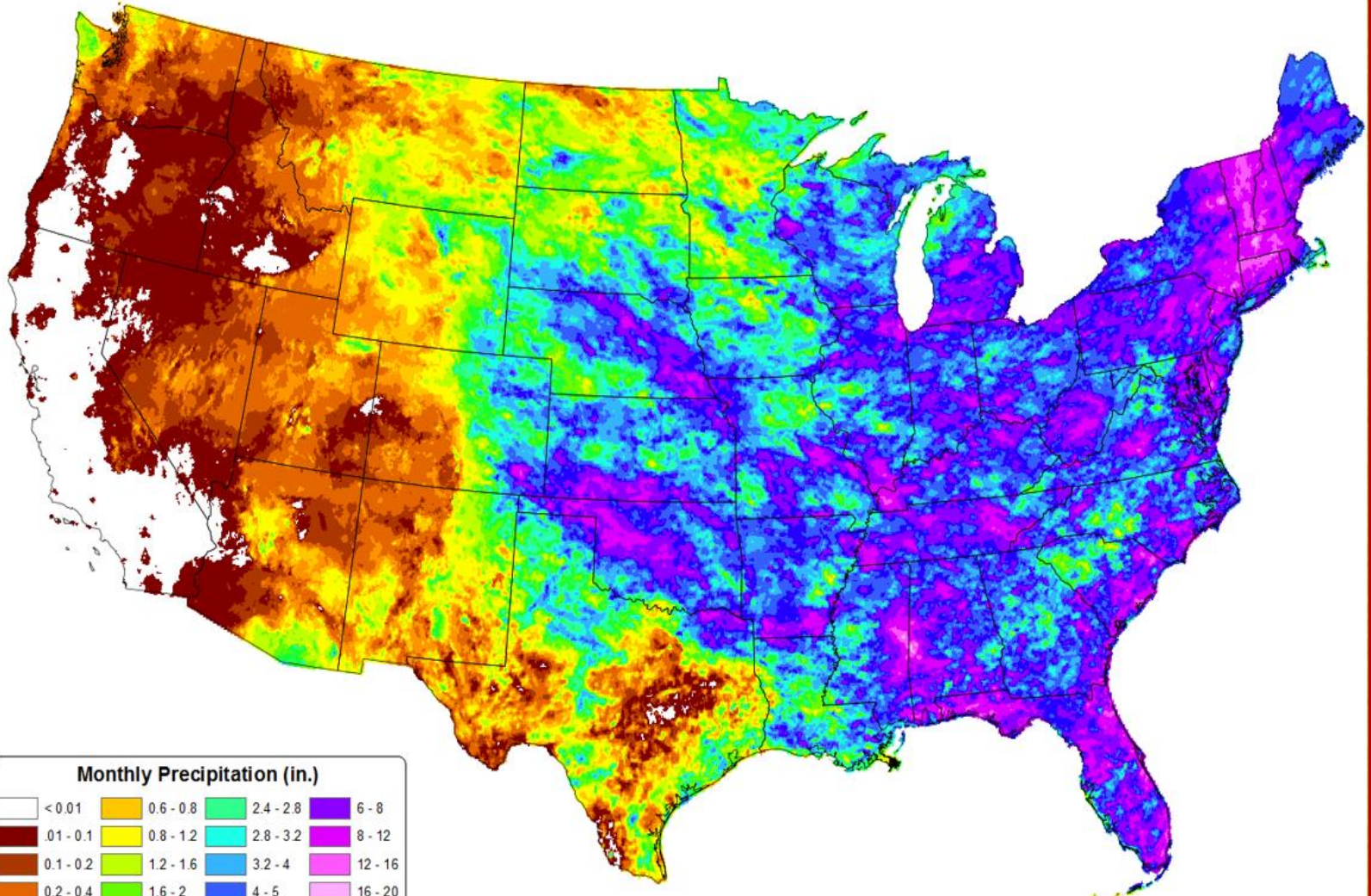
< 0	21 - 25	46 - 50	72 - 75
0 - 3	25 - 28	50 - 54	75 - 79
3 - 7	28 - 32	54 - 57	79 - 82
7 - 10	32 - 36	57 - 61	82 - 86
10 - 14	36 - 39	61 - 64	86 - 90
14 - 18	39 - 43	64 - 68	> 90
18 - 21	43 - 46	68 - 72	

Total Precipitation for July 2023

Total Precipitation: Jul 2023

Period ending 31 Jul 2023

(Map created 02 Aug 2023)



Selected Weather Reports July 2023

Date/Time	Location (County)	Event
JULY 8 737 PM	MCGREGGOR RANGE-OTERO	63 MPH TSTM GUST
JULY 8 800 PM	WSMR ABC-1-DONA ANA	63 MPH TSTM GUST
JULY 15 250 PM	MESCALERO 1NE-OTERO	1.00 INCH HAIL
JULY 15 315 PM	GRANT CO AIRPORT-GRANT	59 MPH TSTM GUST
JULY 17 600 PM	EL PASO INTL AIRPORT-EL PASO	109 DAILY REC HIGH
JULY 17 600 PM	DEMING AIRPORT-LUNA	107 DAILY REC HIGH
JULY 17 600 PM	T OR C AIRPORT-SIERRA	105 DAILY REC HIGH
JULY 17 600 PM	REDROCK-GRANT	106 DAILY REC HIGH
JULY 17 600 PM	GILA HOT SPRINGS-GRANT	100 DAILY REC HIGH
JULY 17 600 PM	HILLSBORO-SIERRA	103 DAILY REC HIGH
JULY 18 600 PM	EL PASO INTL AIRPORT-EL PASO	109 DAILY REC HIGH
JULY 18 600 PM	DEMING AIRPORT-LUNA	107 DAILY REC HIGH

Selected Weather Reports July 2023

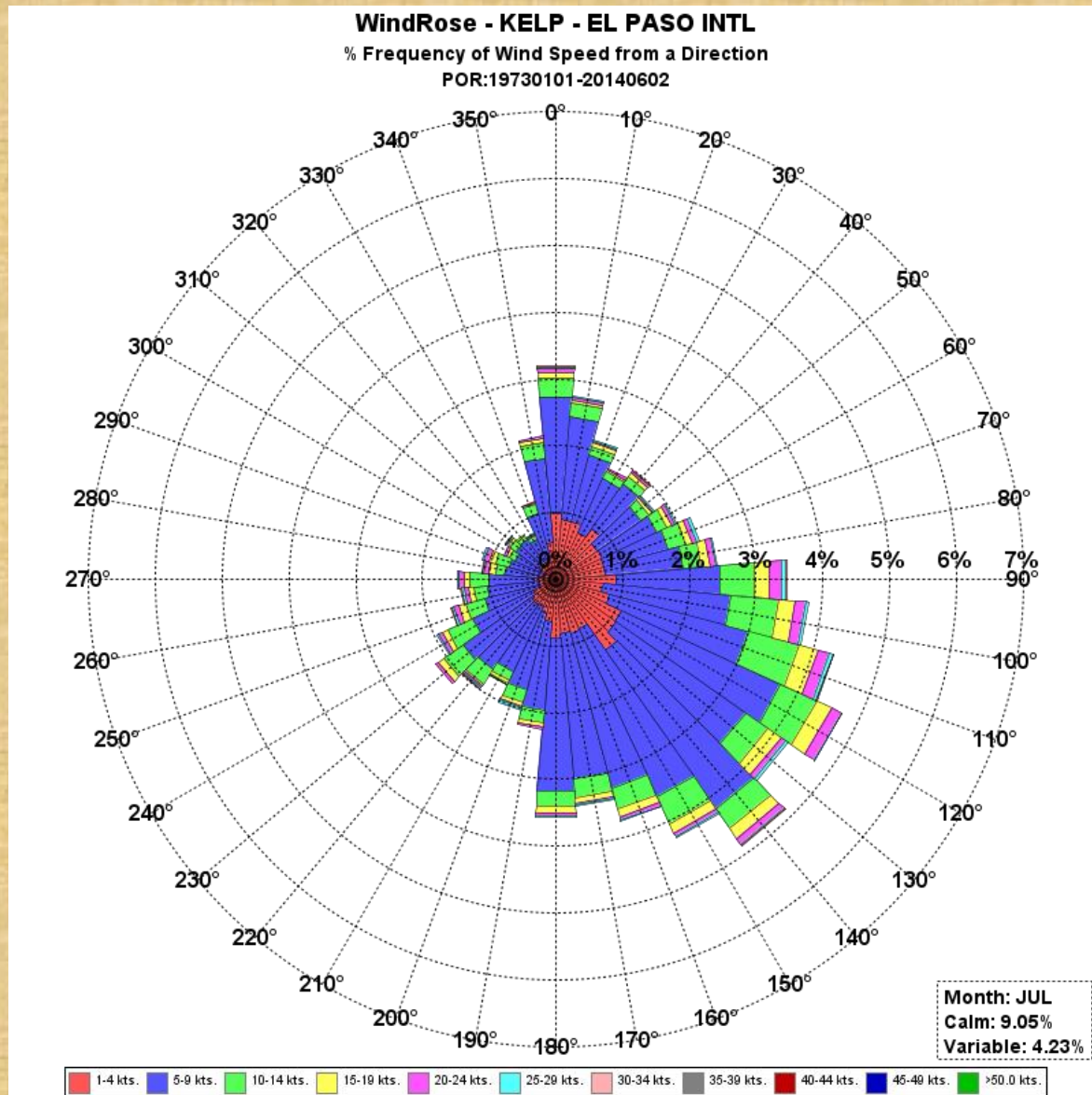
Date/Time	Location (County)	Event
JULY 18 600 PM	SANTA TERESA NWS-DONA ANA	107 DAILY REC HIGH
JULY 18 600 PM	REDROCK-GRANT	107 DAILY REC HIGH
JULY 18 600 PM	T OR C AIRPORT-SIERRA	105 DAILY REC HIGH
JULY 18 600 PM	JORNADA RANGE-DONA ANA	105 DAILY REC HIGH
JULY 18 600 PM	WHITE SIGNAL-GRANT	100 DAILY REC HIGH
JULY 19 600 PM	EL PASO INTL AIRPORT-EL PASO	111 DAILY REC HIGH
JULY 19 600 PM	DEMING AIRPORT-LUNA	108 DAILY REC HIGH
JULY 19 600 PM	REDROCK-GRANT	108 DAILY REC HIGH
JULY 19 600 PM	SANTA TERESA NWS-DONA ANA	107 DAILY REC HIGH
JULY 20 600 PM	EL PASO INTL AIRPORT-EL PASO	109 DAILY REC HIGH
JULY 20 600 PM	SANTA TERESA NWS-DONA ANA	107 DAILY REC HIGH
JULY 20 600 PM	DEMING AIRPORT-LUNA	108 DAILY REC HIGH

Selected Weather Reports July 2023

Date/Time	Location (County)	Event
JULY 21 600 PM	EL PASO INTL AIRPORT-EL PASO	107 DAILY REC HIGH
JULY 21 600 PM	REDROCK-GRANT	107 DAILY REC HIGH
JULY 21 600 PM	DEMING AIRPORT	106 DAILY REC HIGH
JULY 21 600 PM	JORNADA RANGE-DONA ANA	105 DAILY REC HIGH
JULY 21 600 PM	WHITE SIGNAL-GRANT	100 DAILY REC HIGH
JULY 25 600 PM	REDROCK-GRANT	107 DAILY REC HIGH
JULY 25 600 PM	EL PASO INTL AIRPORT-EL PASO	105 DAILY REC HIGH

Special Features

www.weather.gov/epz/elpwindrosedata



Local forecast by "City, St" or ZIP code
 Enter location ...
[Location Help](#)

Heavy Rain and Flash Flooding Possible Over Parts of the Eastern United States
 Heavy rainfall is expected over portions of the eastern United States through Thursday. Flooding and flash flooding will be possible in some areas. Click the "Read More" link for excessive rainfall forecasts from the Weather Prediction Center. [Read More >](#)

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NWS El Paso
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El Paso, TX
 Weather Forecast Office

Current Hazards Current Conditions Radar Forecasts Rivers and Lakes Climate and Past Weather **Local Programs**

Today

Wednesday
 Warmer with a Few Afternoon Storms
 Weather Forecast Office
 El Paso, TX
 September 27, 2016 4:43 PM

Local forecast by "City, St" or ZIP code
 Enter location ...
[Location Help](#)

Heavy rain expected across the Mid-Atlantic region and central Appalachians.
 Heavy rainfall is possible over portions of the eastern United States today, with the highest risk across the Mid-Atlantic and central Appalachians. Click the "Read More" link for excessive rainfall forecasts from the Weather Prediction Center. Afternoon showers and thunderstorms are possible over portions of the Southwest and southern Rockies through Friday. [Read More >](#)

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El Paso, TX
 Weather Forecast Office

Current Hazards Current Conditions Radar Forecasts Rivers and Lakes Climate and Past Weather **Local Programs**

Southern New Mexico and Far West Texas has a variety of weather from month to month. Conditions can range from extreme drought, to heavy flooding rains, from record breaking heat to bone chilling cold. Below you will find past weather highlights from the area that the NWS office in Santa Teresa NM covers. This area includes the following counties in New Mexico: Hudspeth, Grant, Luna, Sierra, Doña Ana and Otero and the following counties in Texas: El Paso and Hudspeth.

weather.gov/epz

WEATHER DIGESTS AND BULLETINS	
Weather Digest	Southwest Weather Bulletins
January	2005 Spring Fall
February	2006 Spring Fall
March	2007 Spring Fall
April	2008 Spring Fall
May	2009 Spring Fall
June	2010 Spring Fall
July	2011 Spring Fall
August	2012 Spring Fall
September	2013 Spring Fall
October	2014 Spring Fall
November	
December	

Don't Forget-Current and past issues of our Weather Digest are available on our website at www.weather.gov/epz/

Just click on "Local Programs>Weather Digest", then choose which month's Digest to view. Also, though discontinued, don't forget to check out our back issues of Southwest Weather Bulletin.