

July 2021 Weather Digest



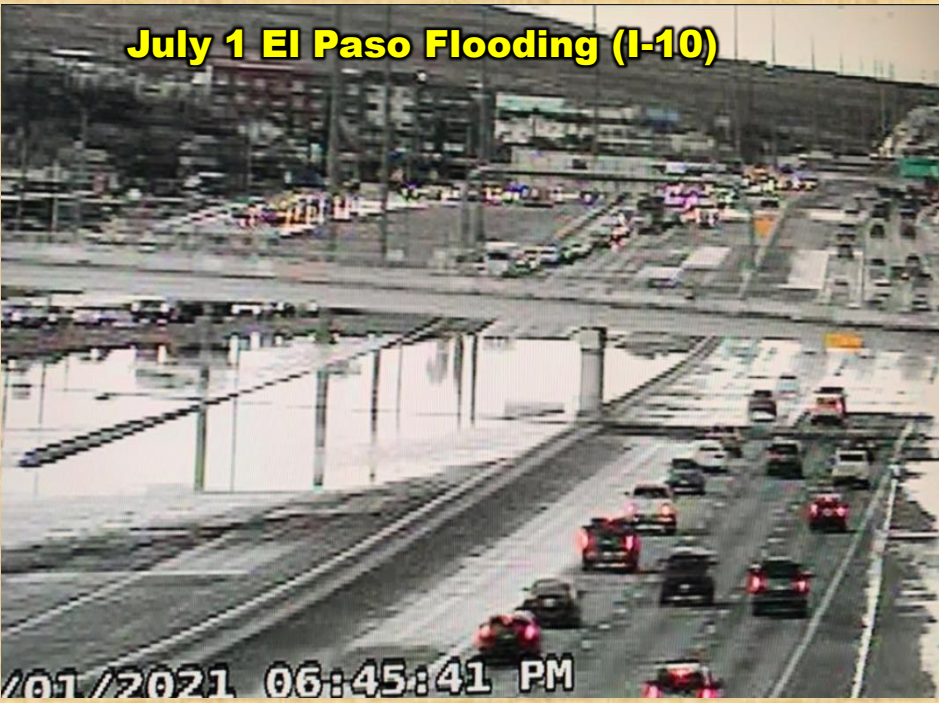
July 2021 Weather Summary

July ended up as one of the wetter months in quite some time around Borderland as the Monsoon pattern brought in copious amounts of moisture throughout the month. As mentioned below in the Monsoon discussion, the Monsoon set up at the very end of June, so July had the full month of Monsoon to work with. The biggest event of the month was on the 11th, when ample moisture combined with a disturbance moving south over the area to produce widespread heavy rainfall. Numerous reports of large hail and associated damage also occurred across El Paso and Otero Counties. Numerous reports of flooding also rolled in, especially in the El Paso metro area (see pictures below). For the month most of the area from the Rio Grande Valley east received around 150-300 percent of normal, while areas to the west received from about 75-150% of normal. This has reduced drought conditions east of the Continental Divide to mostly moderate, while areas to the west improved slightly. With a wet August these areas would see a significant reduction too. Obviously with the wet weather, temperatures were a bit cooler than normal. In fact El Paso only reported one day of 100 degrees or above for the month, a fact which hadn't happened since 2012. The average daily temperatures were very close to normal. It was mainly the daily high temperatures that were below normal, helped by the consistent cloudiness.

July 2021 Weather Summary, cont'd

Looking ahead to August, temperatures continue to slowly decrease, with an average high temperature of 95 at El Paso on the first, to 92 by the end of the month. August is the middle of the 3 consecutive wettest months for most areas, averaging 1.67 inches at El Paso, and 4.98 inches in Cloudcroft. Daylight continues to shrink as we are now more than 45 days from the summer solstice. Daylight on the 1st is 13 hours and 40 minutes, while on the 31st, daylight shrinks to 12 hours and 49 minutes. Our full Moon in August occurs on the 22nd and is commonly known as the Sturgeon Moon. There are no Solar or Lunar Eclipses for August.

July 1 El Paso Flooding (I-10)



July 5 El Paso Thunderstorms



July 5 El Paso Thunderstorms



July 5 El Paso Thunderstorms



July 5 El Paso Thunderstorms



July 11 El Paso Storm Damage



July 11 Storm near Hatch



July 11 Storm Damage Hwy 70



July 11 Las Cruces



July 11 Las Cruces



July 11 Las Cruces



July 11 near Rincon





July 15 Storms near Lordsburg



July 18 El Paso Flooding



July 18 El Paso Flooding



July 18 El Paso Flooding



July 18 El Paso Flooding



I-10 July 18 El Paso Flooding



July 18 El Paso Flooding



July 17 Flooding Elephant Butte



July 18 El Paso Flooding



July 26 Stormy Sunset Santa Teresa



ENSO Alert System Status: La Niña Watch in Affect

ENSO Alert System

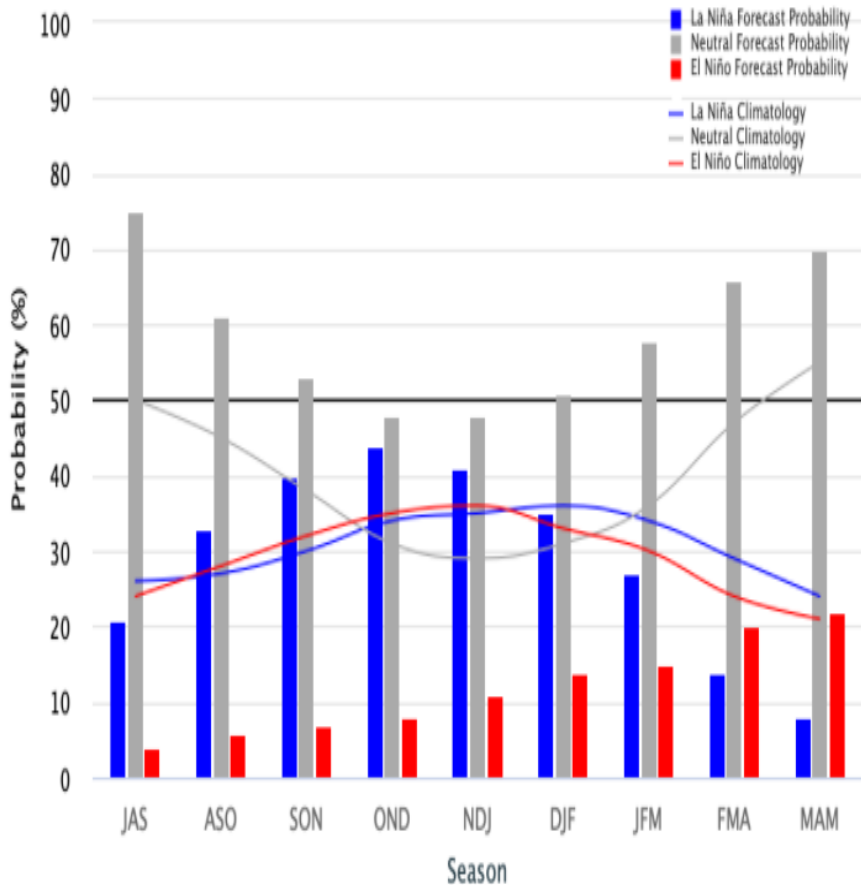
- **El Niño or La Niña Watch:** Issued when conditions are favorable for the development of El Niño or La Niña conditions in the next six months.
- **El Niño or La Niña Advisory:** Issued when El Niño or La Niña conditions are observed and expected to continue.

ENSO Forecast

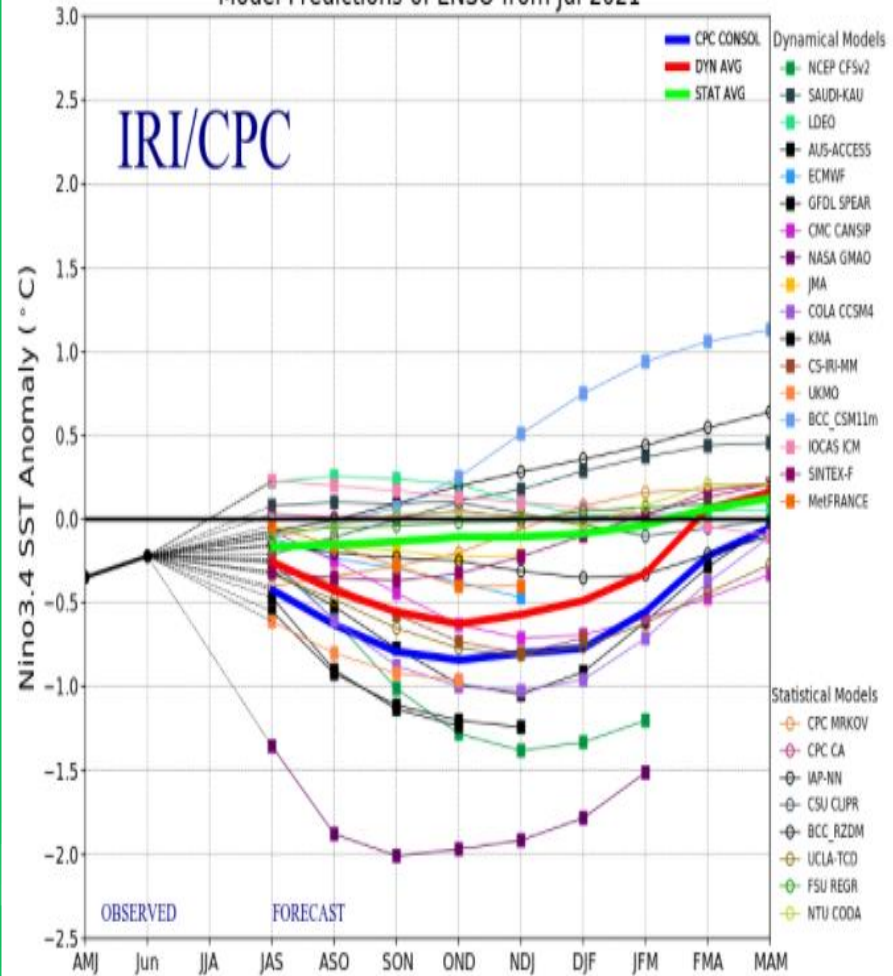
ENSO is in a neutral status; good chance of returning to La Niña for much of the winter ahead.

Mid-July 2021 IRI/CPC Model-Based Probabilistic ENSO Forecasts

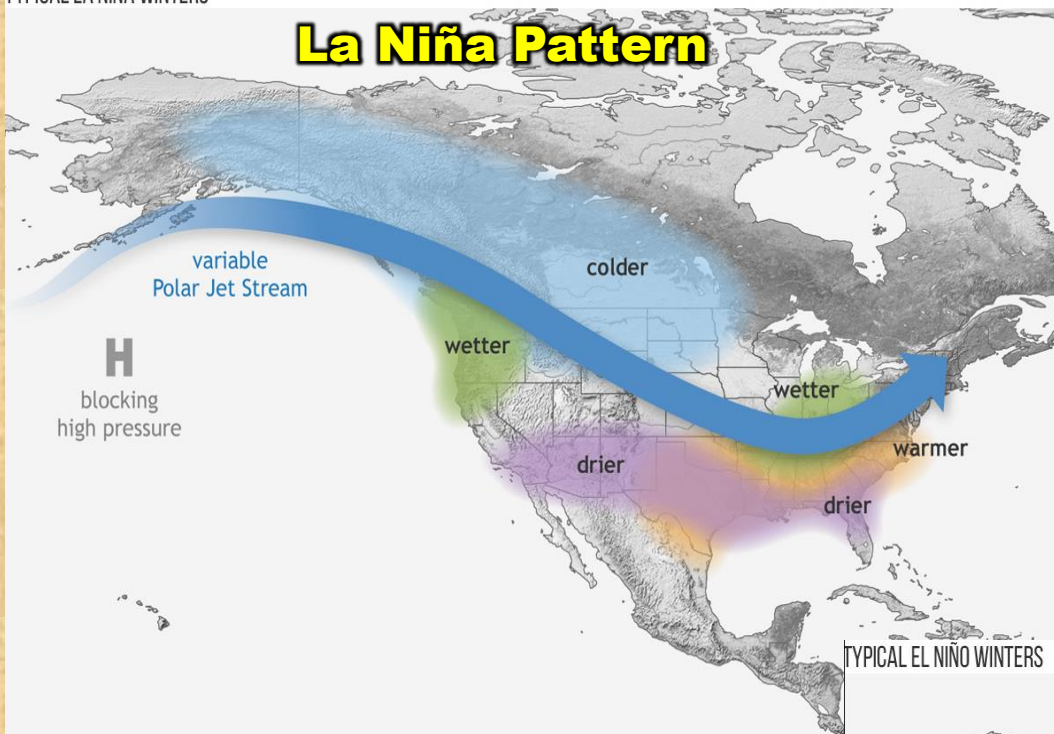
ENSO state based on NINO3.4 SST Anomaly
Neutral ENSO: -0.5°C to 0.5°C



Model Predictions of ENSO from Jul 2021

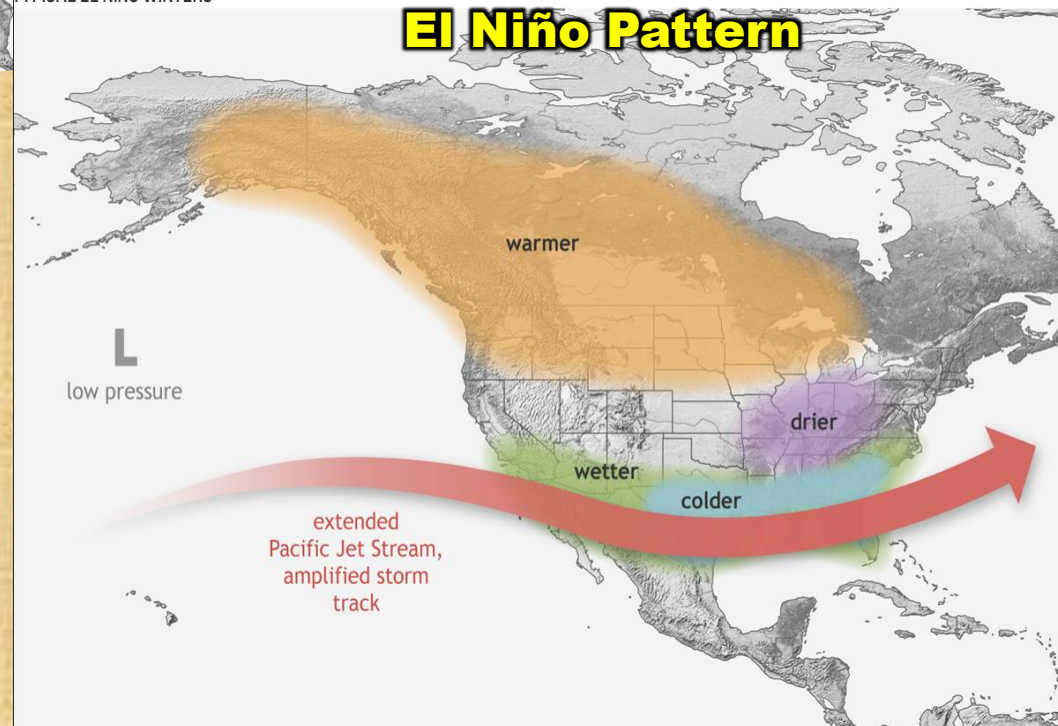


La Niña Pattern



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



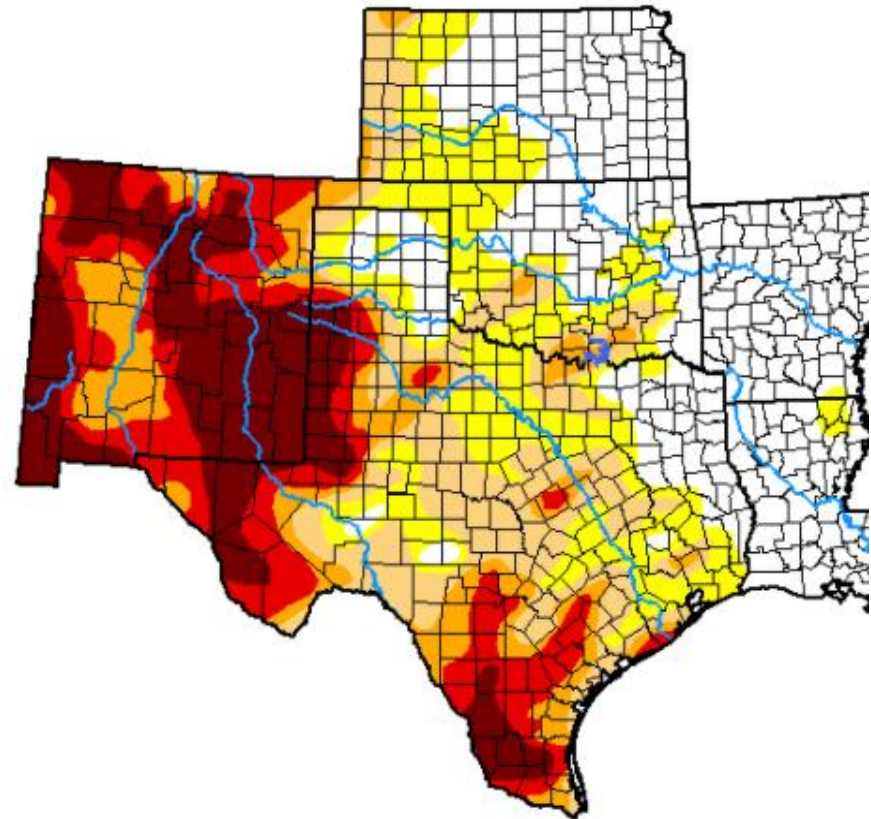
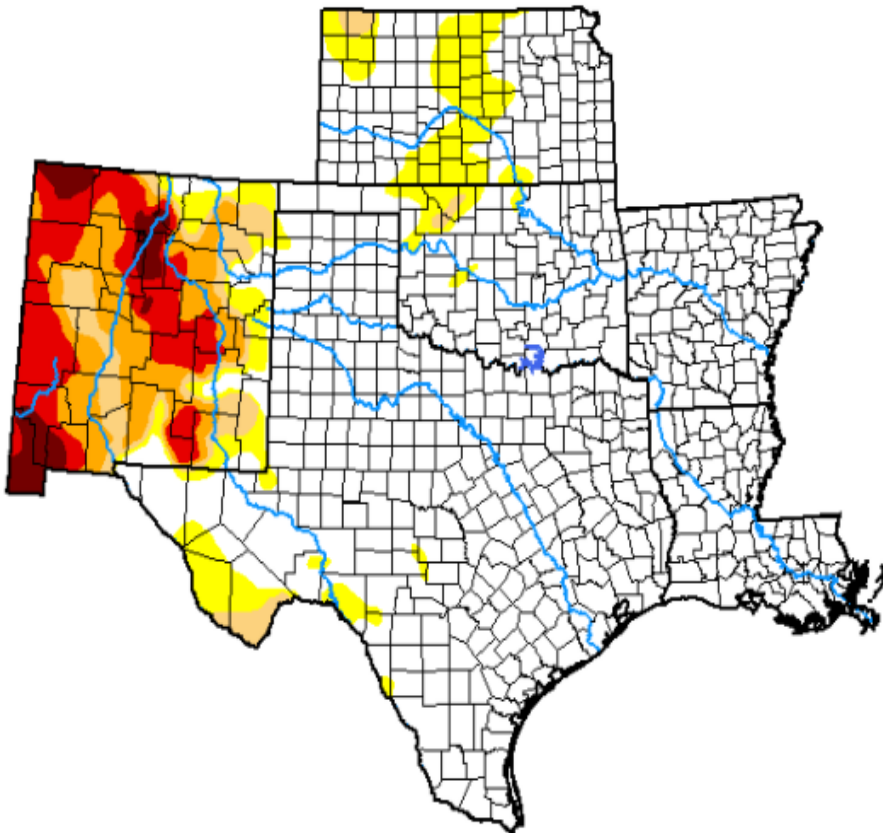
With El Niño, we often see the opposite pattern where the eastern Pacific ridge of high pressure is often weak or non-existent, allowing winter storms to sweep across the southern U.S. This typically will give the southwestern U.S. above normal precipitation.

Current drought conditions and 3 month change

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

July 27, 2021

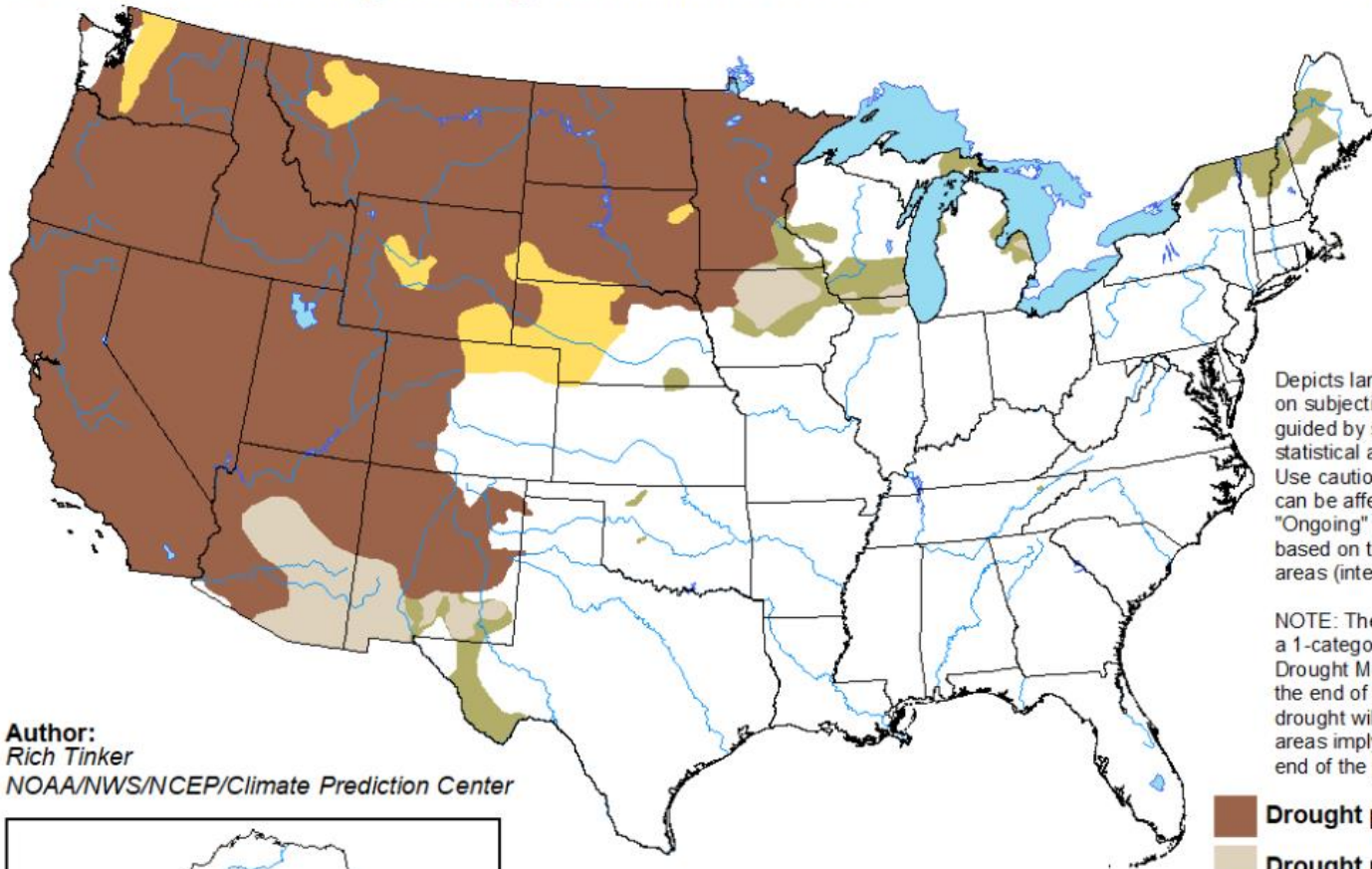
April 27, 2021



U.S. Seasonal Drought Outlook

Drought Tendency During the Valid Period

Valid for July 15 - October 31, 2021
Released July 15

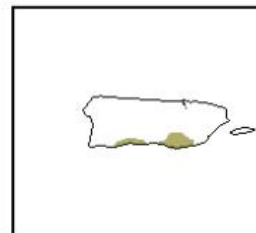
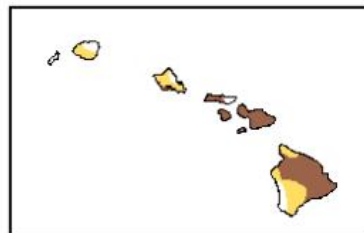


Depicts large-scale trends based on subjectively derived probabilities guided by short- and long-range statistical and dynamical forecasts. Use caution for applications that can be affected by short lived events. "Ongoing" drought areas are based on the U.S. Drought Monitor areas (intensities of D1 to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

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

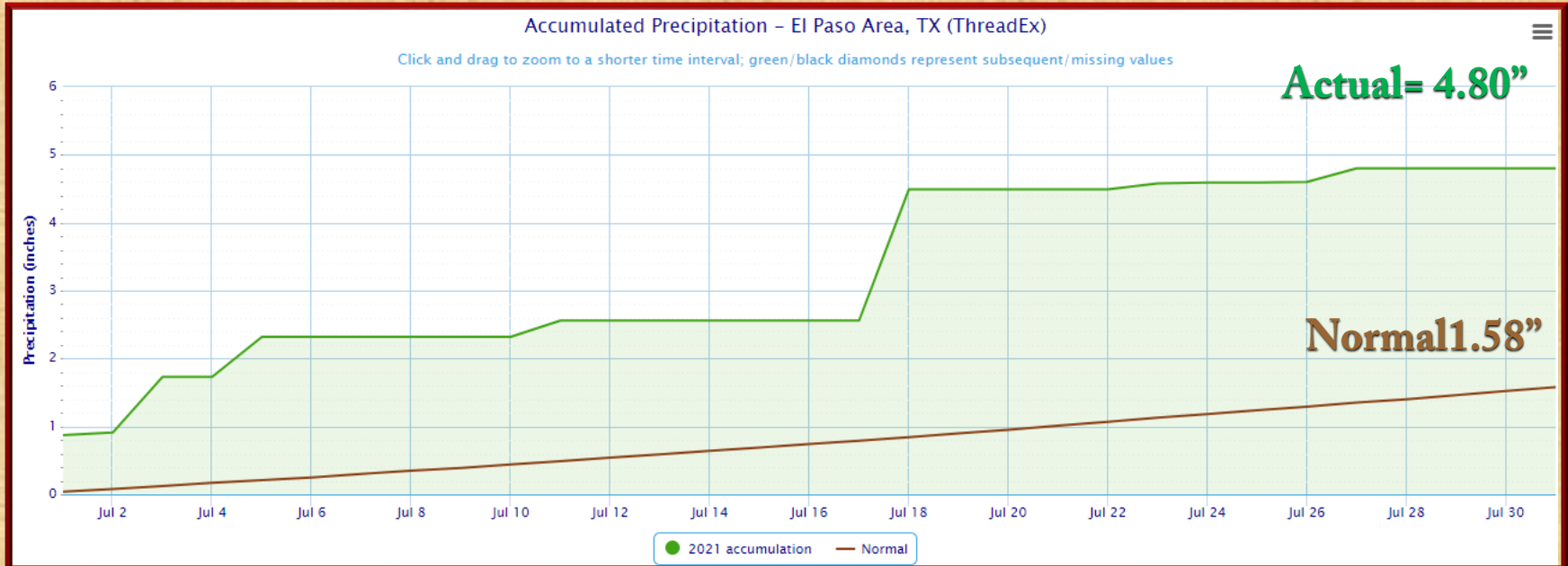
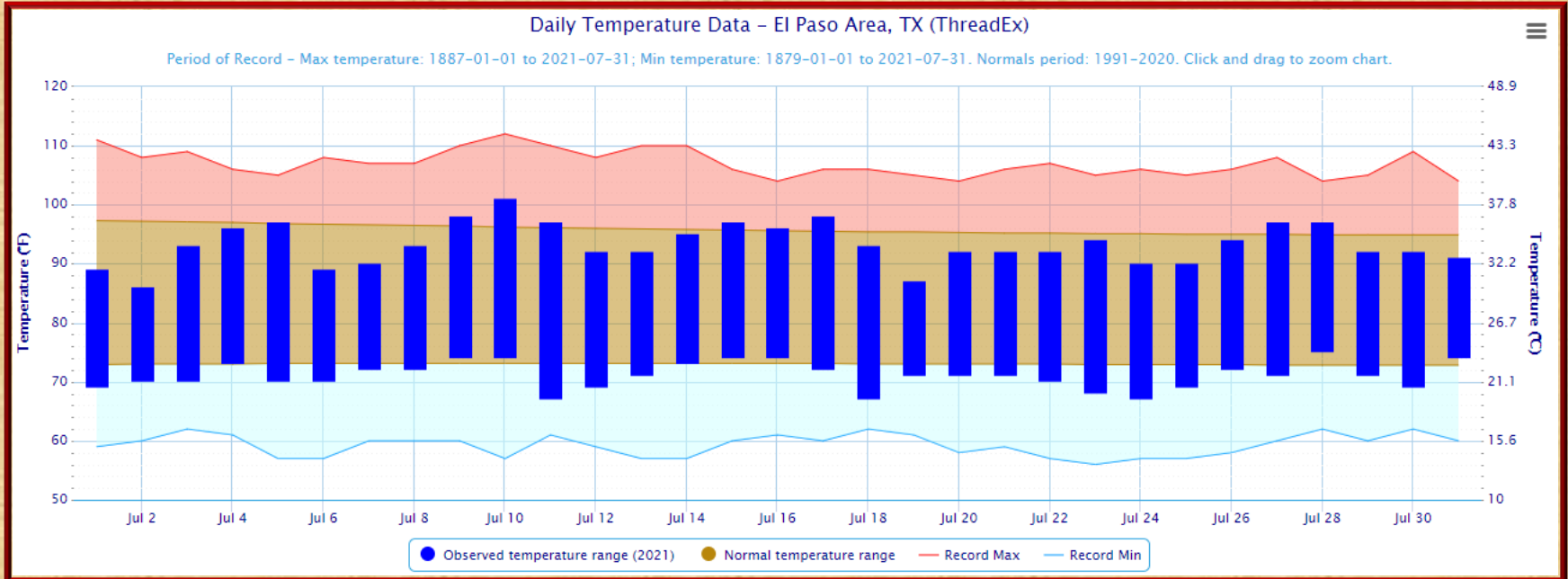
Author:
Rich Tinker
NOAA/NWS/NCEP/Climate Prediction Center



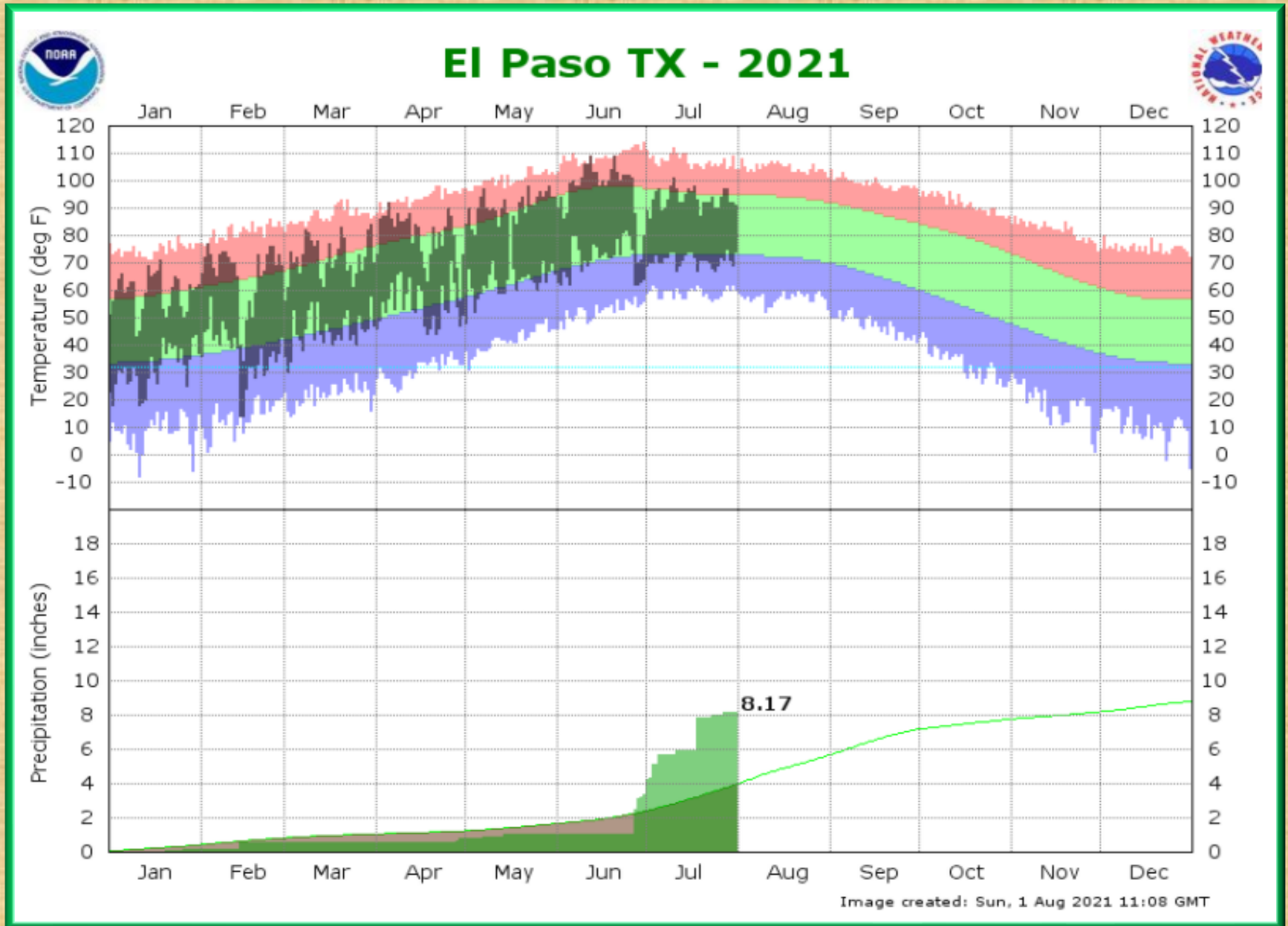
<http://go.usa.gov/3eZ73>

Temperature and precipitation data for June 2021 in El Paso

○ = record



2021: Temperature and Precipitation YTD Data for El Paso



Tracking the 2021 Monsoon Season across the El Paso Forecast Area

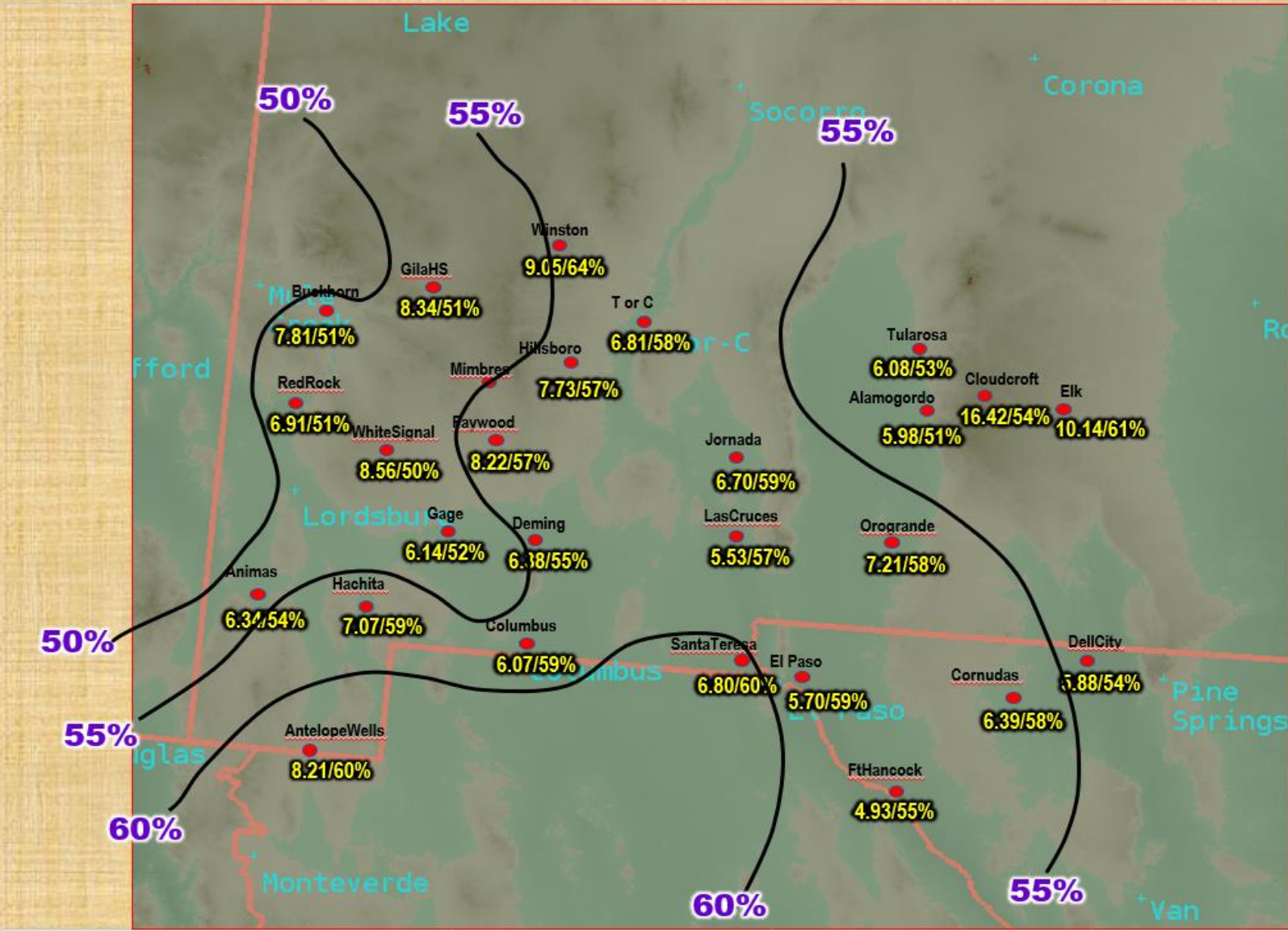
The long term average for the beginning of the Monsoon season normal begins around July 5, but it looks like this year the seasonal wind change pattern will begin the very last day or two of June. We use several parameters to judge the onset of the Monsoon from various studies. One important feature is the dewpoint. Persistent (>5 days) dewpoint temperatures above 50 degrees has occurred, beginning around June 29 or 30 [see fig. 1]. Another parameter to look at is sea surface temperatures in the northern Gulf of California [see fig. 2]. Studies have shown that temperatures of 26C in this area lead to an onset of the Monsoon within about 5-10 days. The temperature reached this mark around June 27 this year. The rain at the end of June was mostly pre-Monsoon as an upper low in the polar jet dropped over us. However, by the last day or two of June this low moved off and then the Bermuda high pressure cell extended westward to the Desert Southwest [see fig. 1], thus beginning the upper pattern of the Monsoon. Finally, the Outgoing Longwave Radiation and Satellite Precipitation maps [see fig. 5] from late June showed that widespread convection/rainfall had spread from the Sierra Madre Occidentals and northern Mexico up over New Mexico and west Texas.

The monsoon rainfall kicked into high gear for much of July, especially east of the Continental Divide. Most of southern New Mexico and west Texas from the Rio Grande Valley east received about 150-400 percent of normal, while areas to the west were around 75-150 percent of normal. From more research, it has been found that from the date that which the northern Gulf of California sea surface temperature reaches 29C to the end of the Monsoon season (Sep 30) we will receive around 50-70% of our seasonal rainfall total. In other words from June 15 to the day of 29C in the Gulf of California (July 16 this year), we will receive around one-third to one-half of our total, with the other half to two-thirds falling after that date. [See Figs 3-4]

Tracking the 2021 Monsoon Season (cont'd)

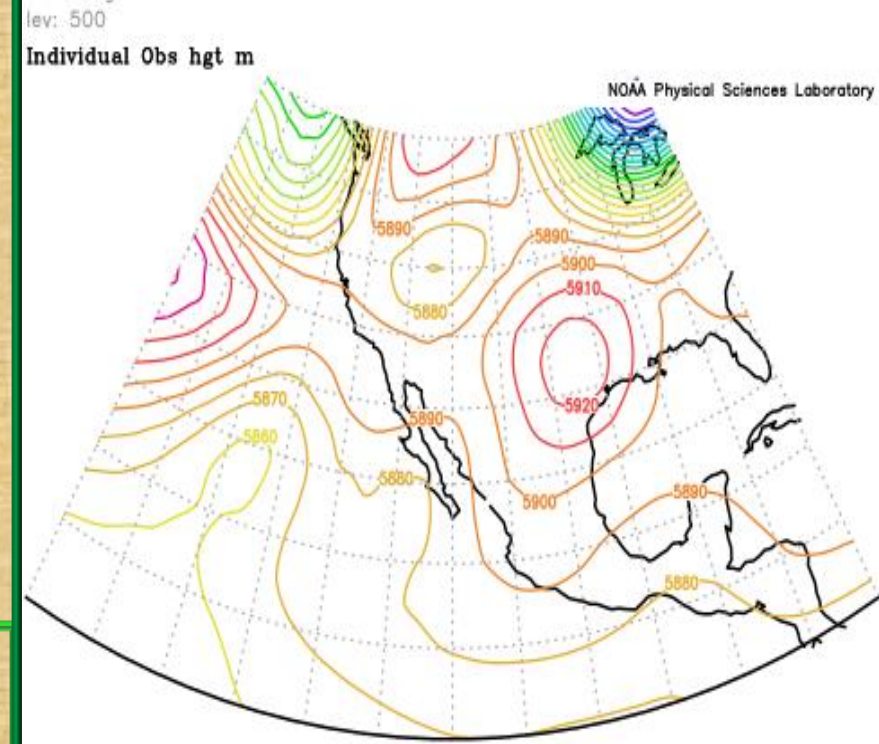
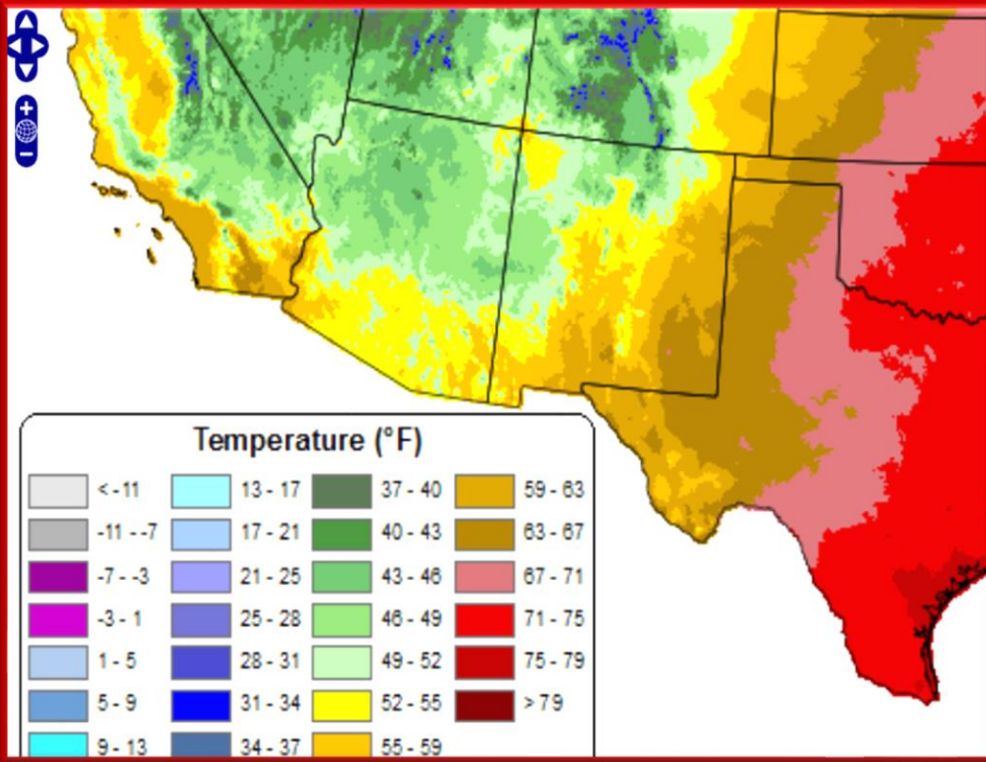
This Monsoon season should go along way toward easing the drought of the past couple of years. Many sites east of the Continental Divide through the end of July have already equaled or surpassed their average rainfall for the entire season (we still have two months to go). Hopefully August will see more rain falling west of the Divide, where the drought has only minimally weakened.

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



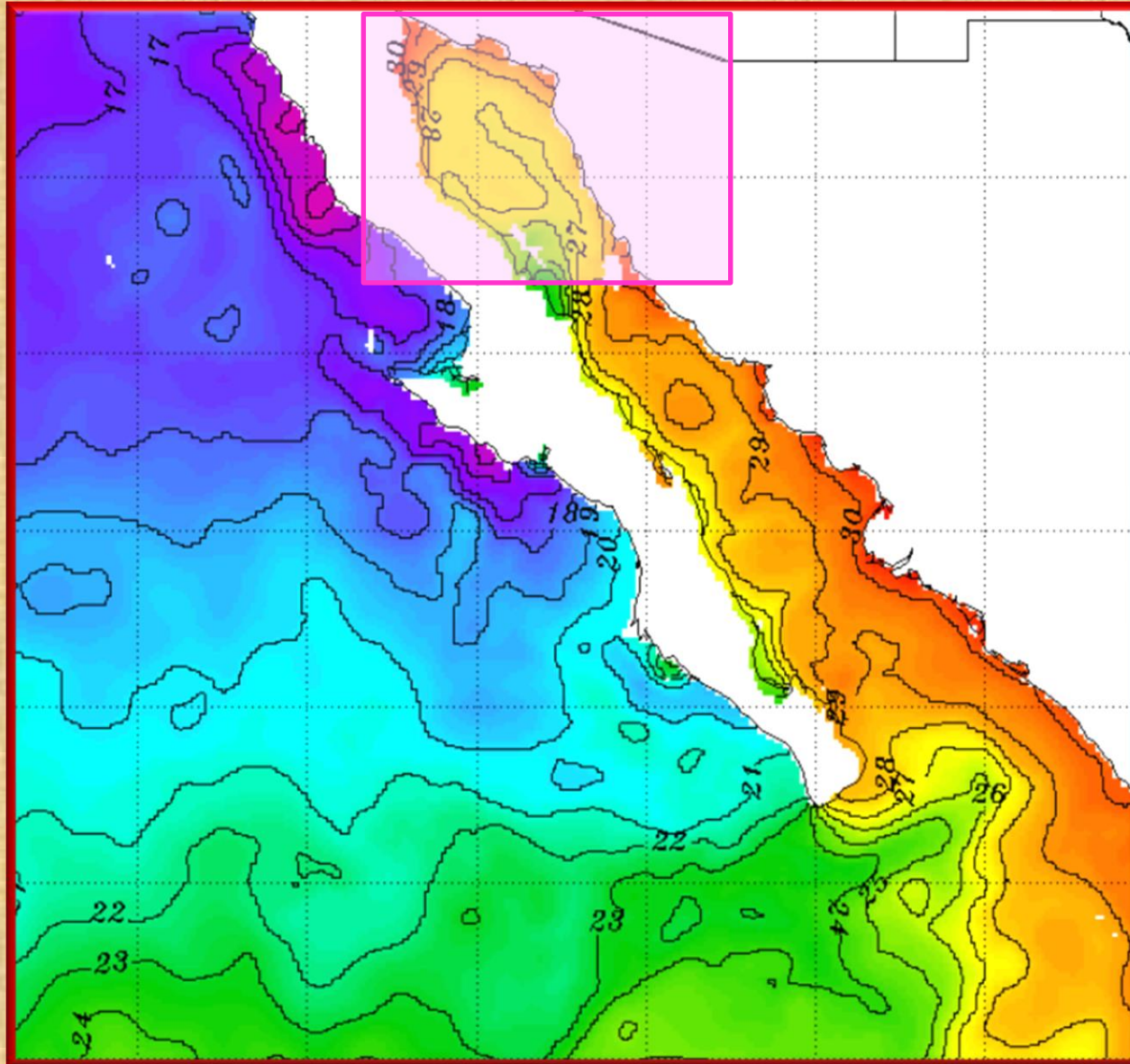
Tracking the 2021 Monsoon Season across the El Paso Forecast Area. Fig 1

June 30 – Dewpoints reach into the 50s across the area



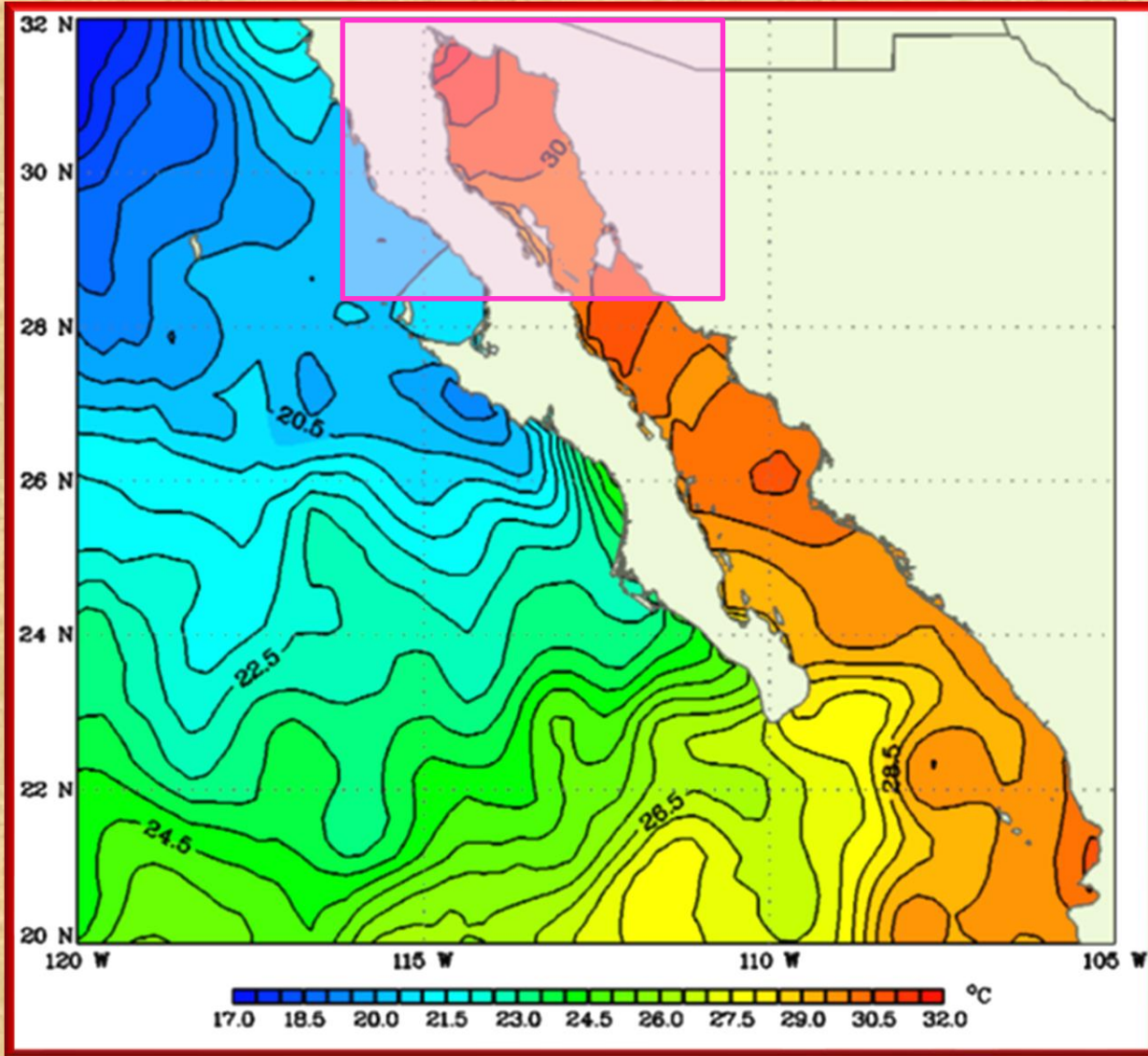
By July 2, 500mb sub-tropical high reaches the Desert Southwest

Tracking the 2021 Monsoon Season across the El Paso Forecast Area. Fig. 2



June 27 – Sea surface temperatures in the northern Gulf of California reach 26C deg (79F)

Tracking the 2021 Monsoon Season across the El Paso Forecast Area. Fig. 3



July 16 – Sea surface temperatures in the northern Gulf of California reach 29C deg (84F)

Fig. 4

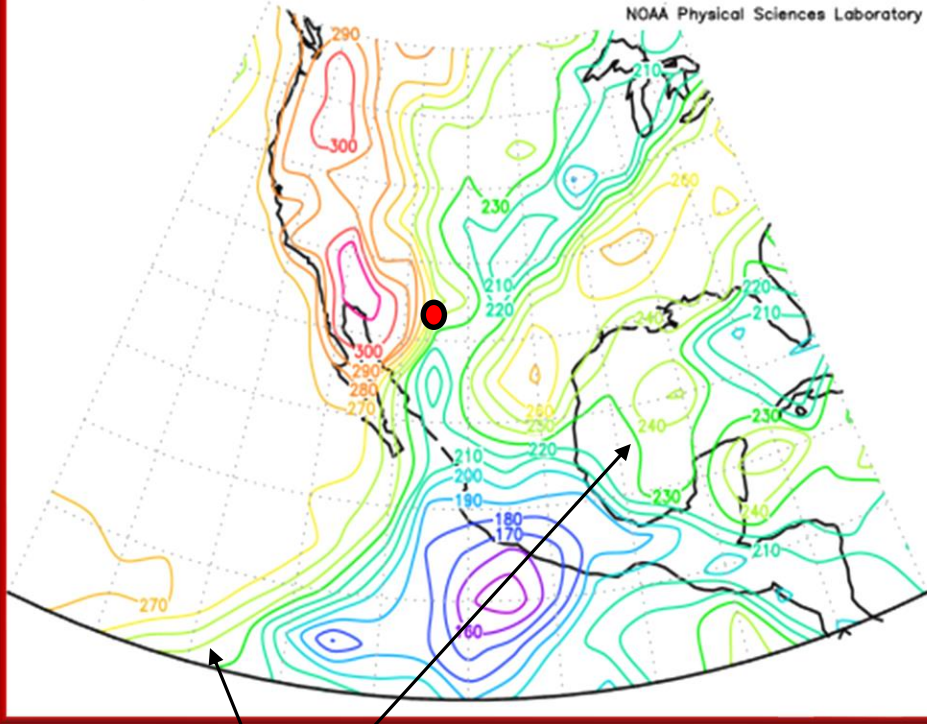
	50-80% (68%)	50-80% (66%)	50-70% (62%)	50-80% (73%)	50-80% (69%)
<u>Date of 29C GOC=July 16</u>	ELP	DMN	CLD	TCS	HIL
Precip Jun 15 - Jul 16	4.91"	1.15"	7.69"	2.39"	2.94"
Pct of Normal	396%	93%	188%	266%	207%
Fcst precip Jul 17 - Sep 30	4.91"-19.50"	1.15"-4.60"	7.69"-17.94"	2.39"-9.56"	2.94"-11.76"
Total for Monsoon Season	9.80"-23.40"	2.30"-5.75"	15.40"-25.60"	4.80"-11.90"	5.90"-14.70"
Normal for Monsoon Season	5.27"	5.48"	15.28"	5.38"	7.01"

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 reached 29C on July 16. Research has shown that around 50-75% of the total Monsoon rainfall will fall after that date. Given that most of the sites listed above are well above normal, 50% is probably a reasonable forecast. Therefore the sites above are likely to double the rainfall values of June 15 through July 16.

Tracking the 2021 Monsoon Season across the El Paso Forecast Area. Fig. 5

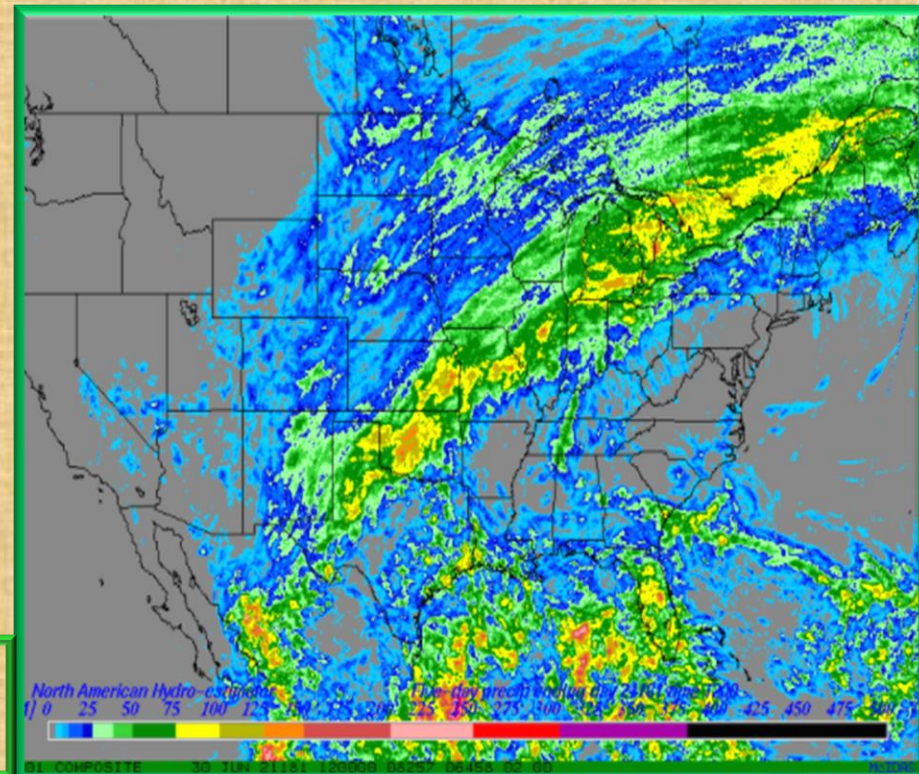
t: averaged over Jun 25 2021 to Jun 29 2021
lev: 0
Mean olr W/m²



Lime Green lines=230

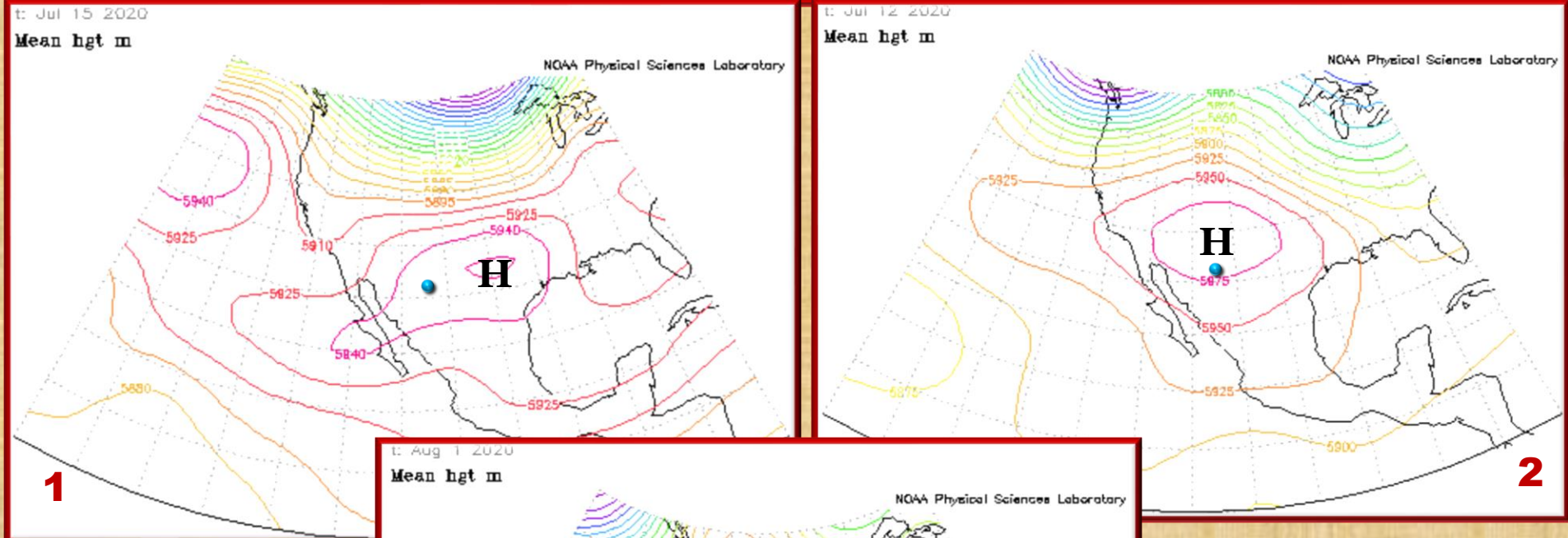
June 29 – Outgoing Longwave Radiation (OLR) diminishes to less than 240 W/m². Thick clouds and anvil tops from thunderstorms diminish the OLR values, often indicative of the monsoon moisture and thunderstorms moving into the area. (Pentad data Jun 25-29)

By June 26-30 the first area wide Monsoon precipitation occurs



Tracking the 2021 Monsoon Season across the El Paso Forecast Area. Fig. 6

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

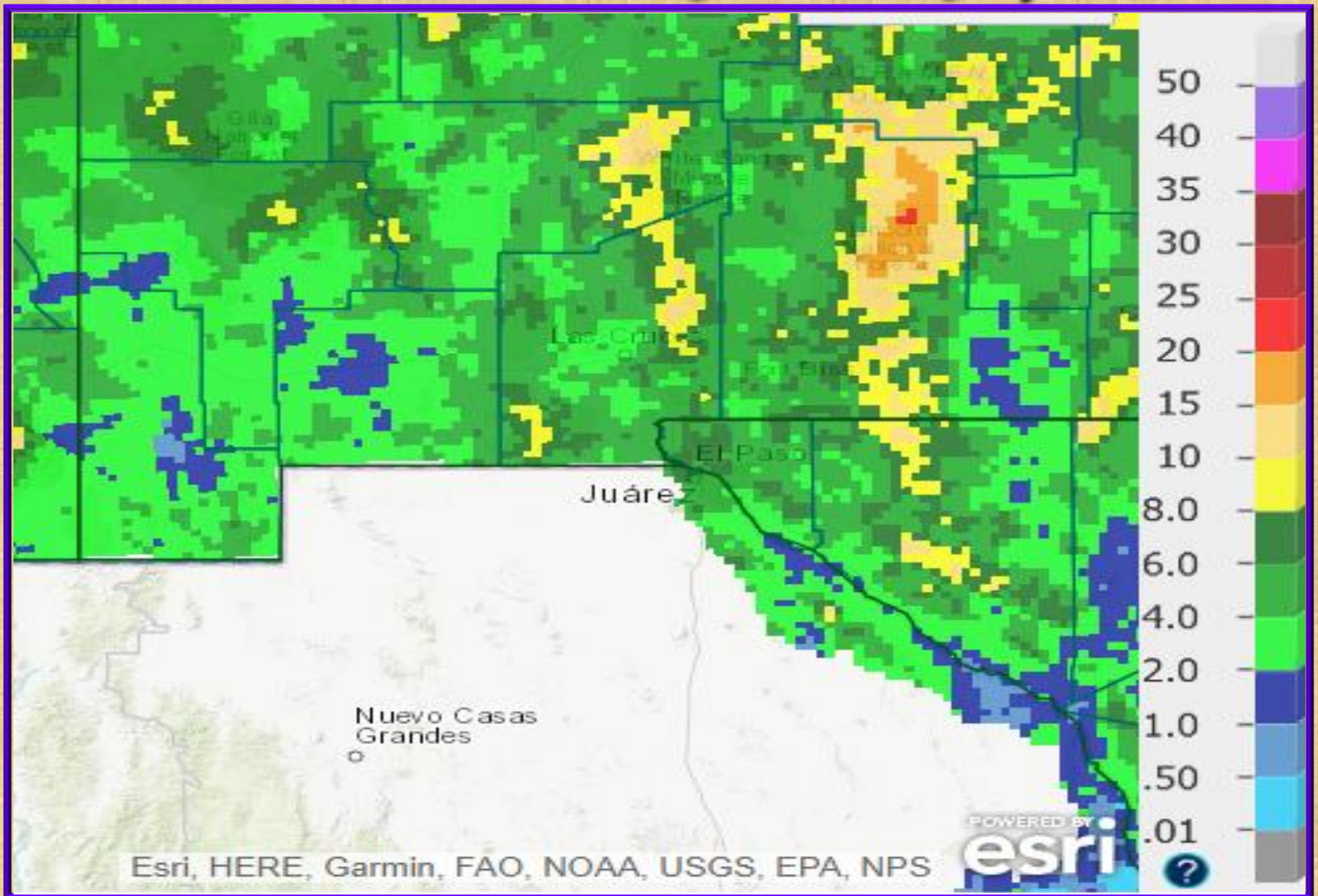


No. 1 High center east of New Mexico. Often brings ample tropical moisture and widespread heavy rain and flooding to the area

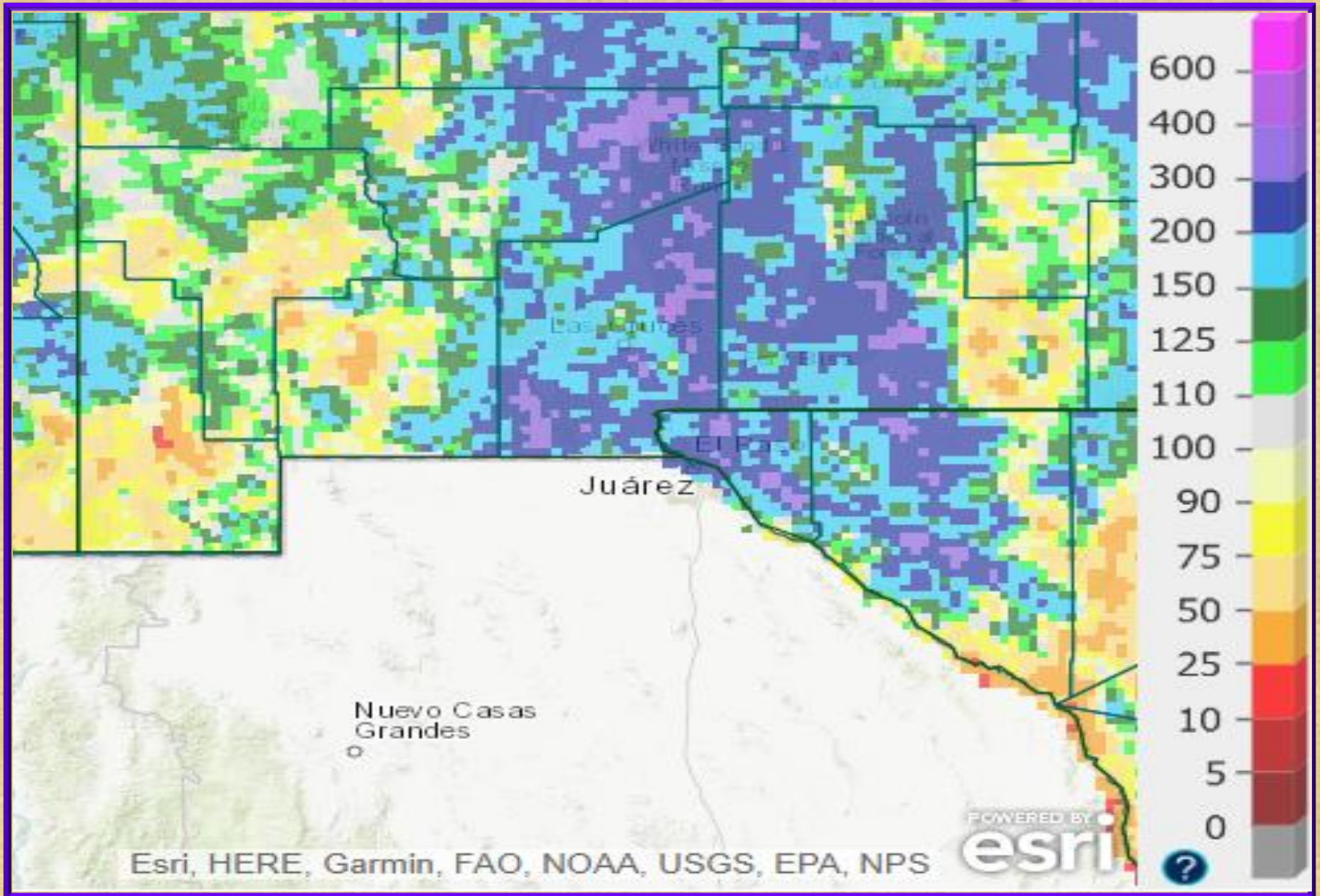
No. 2 High center over New Mexico. Often brings very hot temperatures and little if any rain (usually limited to the mountains).

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.

Radar rainfall estimate for the Monsoon Season 2021 (June 15 - July 31)



Radar rainfall estimate percent of normal for Monsoon season 2021 (June 15-July 31)

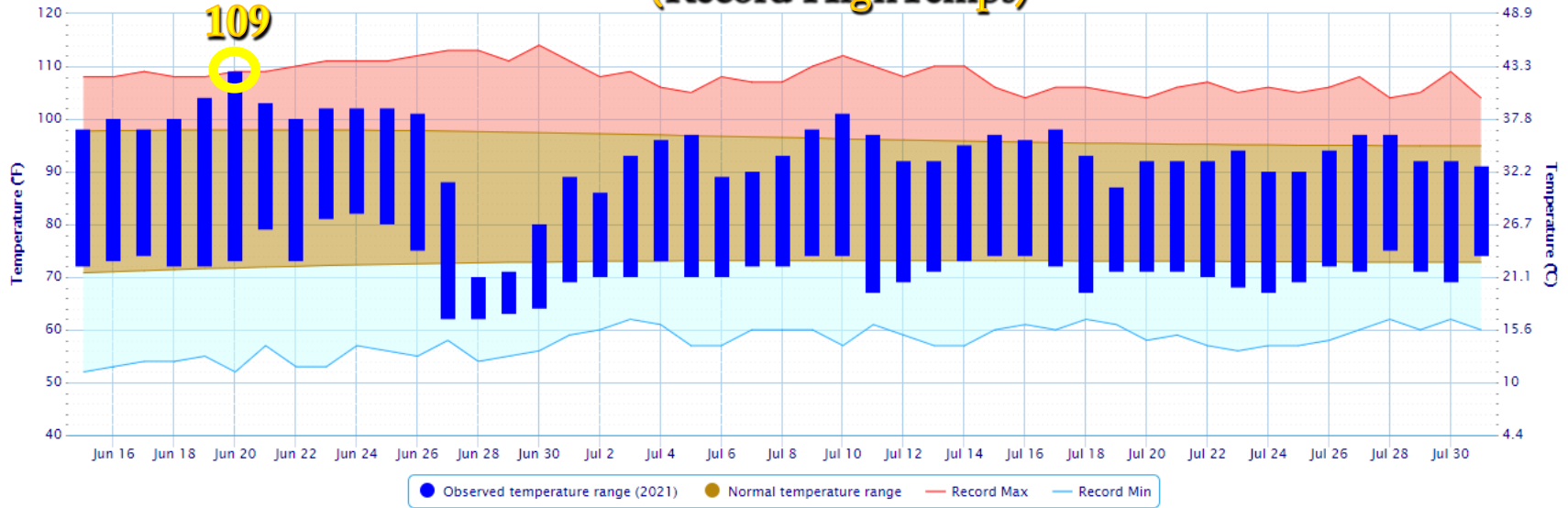


Temperature and precipitation data through July 31 for the 2021 Monsoon Season in El Paso

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

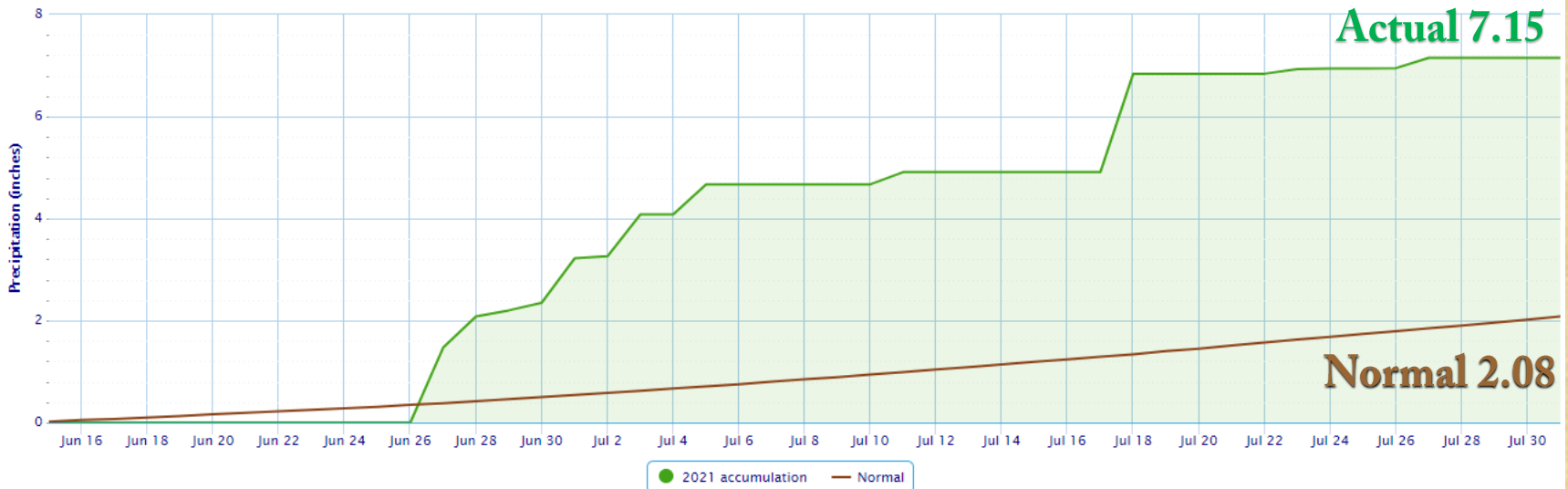
Period of Record – Max temperature: 1887-01-01 to 2021-07-31; Min temperature: 1887-01-01 to 2021-07-31; Normal temperature range: 1991-2020. Click and drag to zoom chart.

(Record High Temps)



Accumulated Precipitation – El Paso Area, TX (ThreadEx)

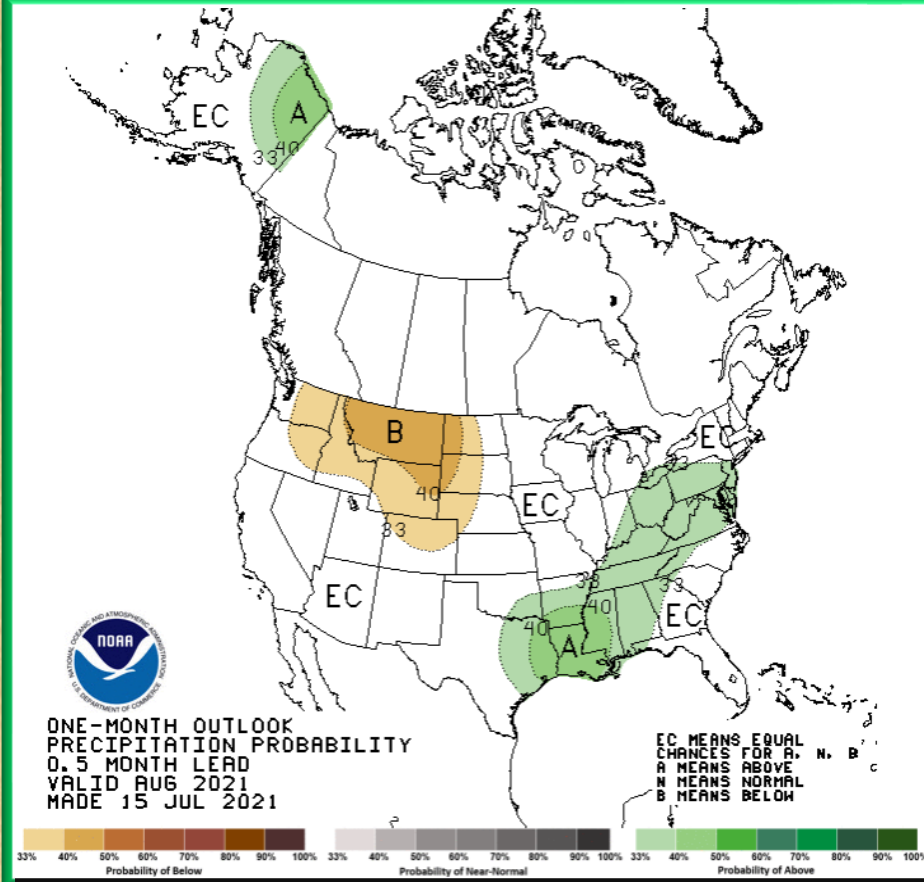
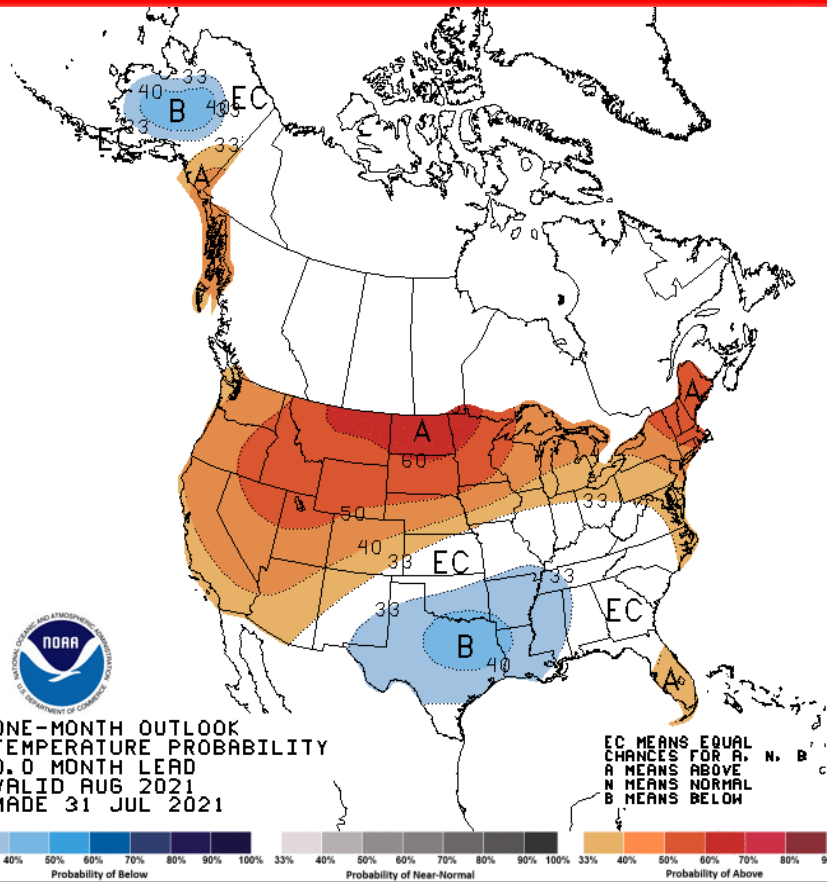
Click and drag to zoom to a shorter time interval; green/black diamonds represent subsequent/missing values



Temperature and precipitation outlook for August 2021

Temperature

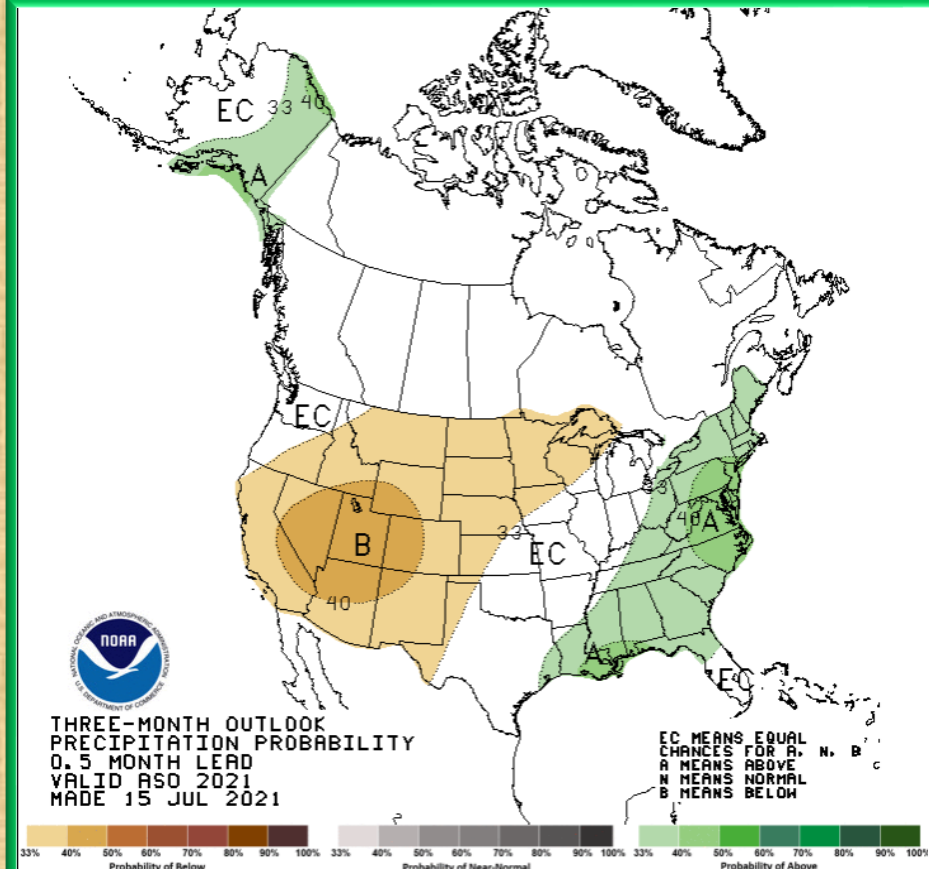
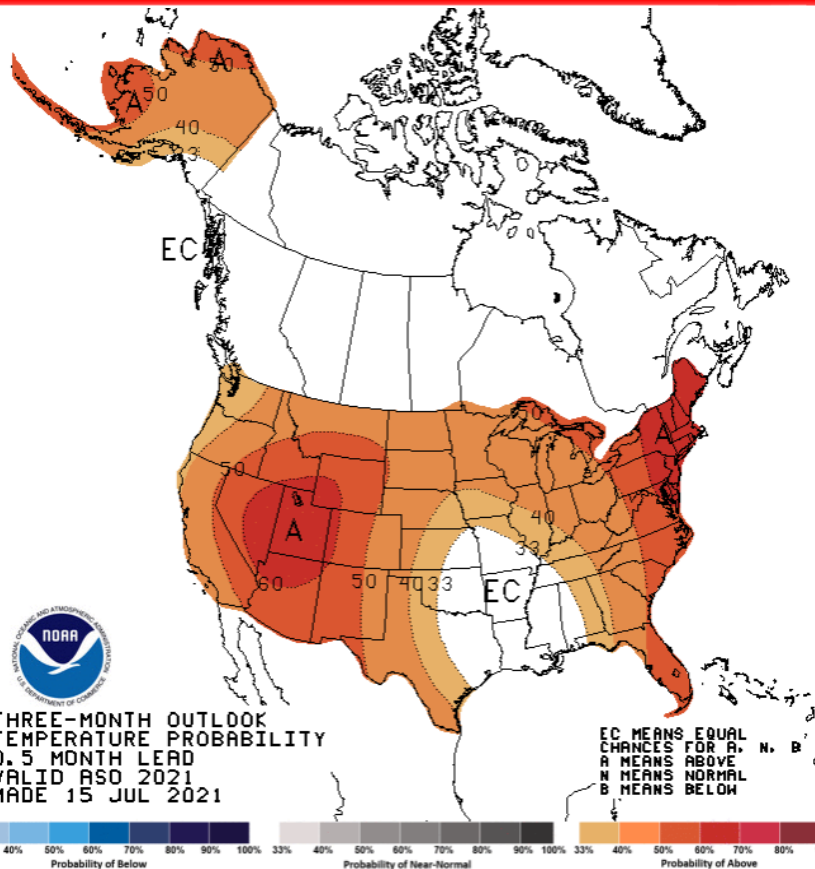
Precipitation



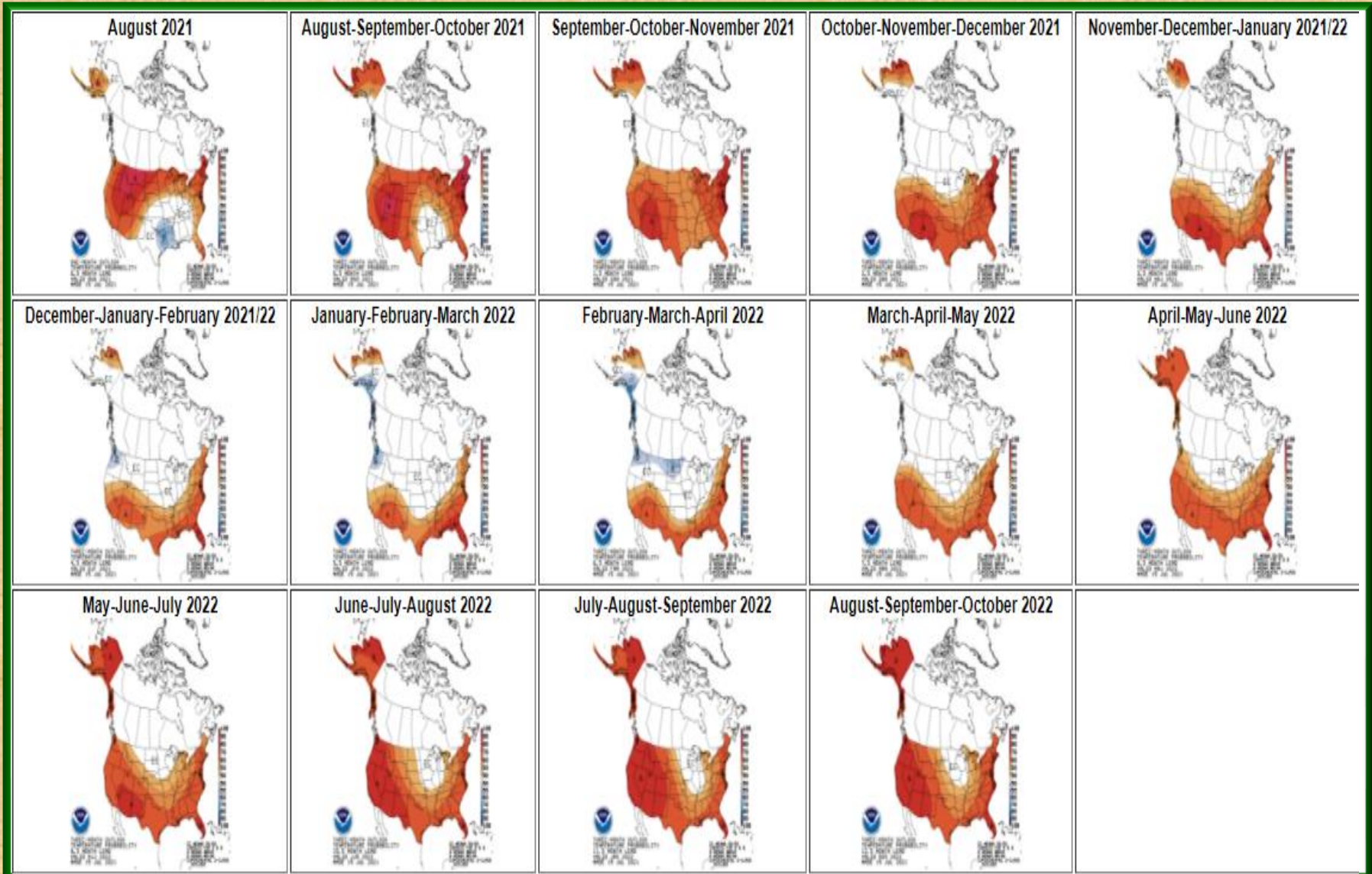
Temperature and precipitation outlook For August-October 2021

Temperature

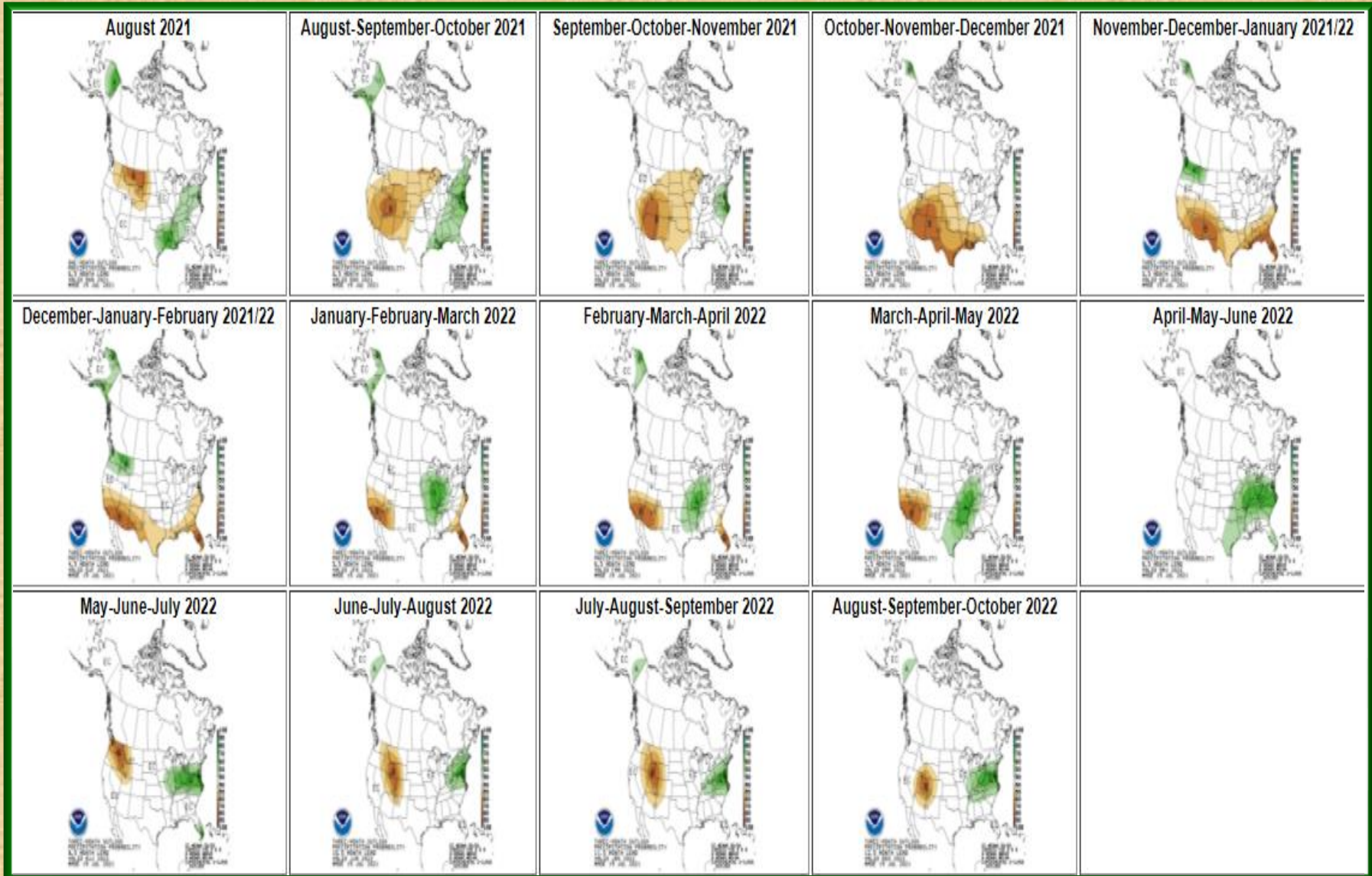
Precipitation



Temperature Outlook Through October 2022



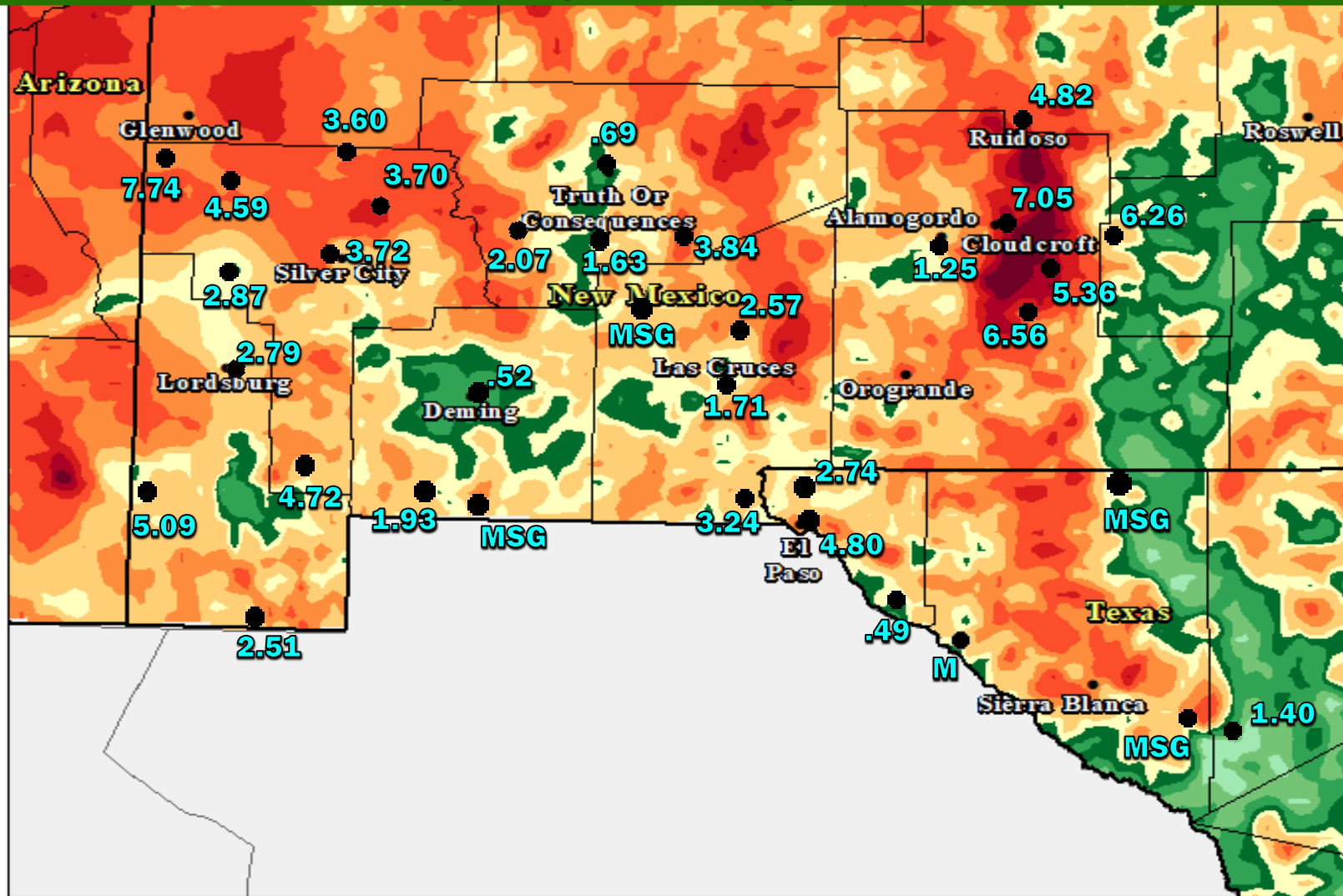
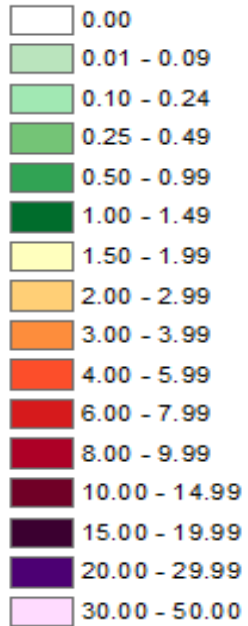
Precipitation Outlook Through October 2022



July 2021 radar rainfall estimate with surface rainfall reports

Total Monthly Precipitation - July 2021

Inches



Created by the
NWS Forecast Office
El Paso, TX

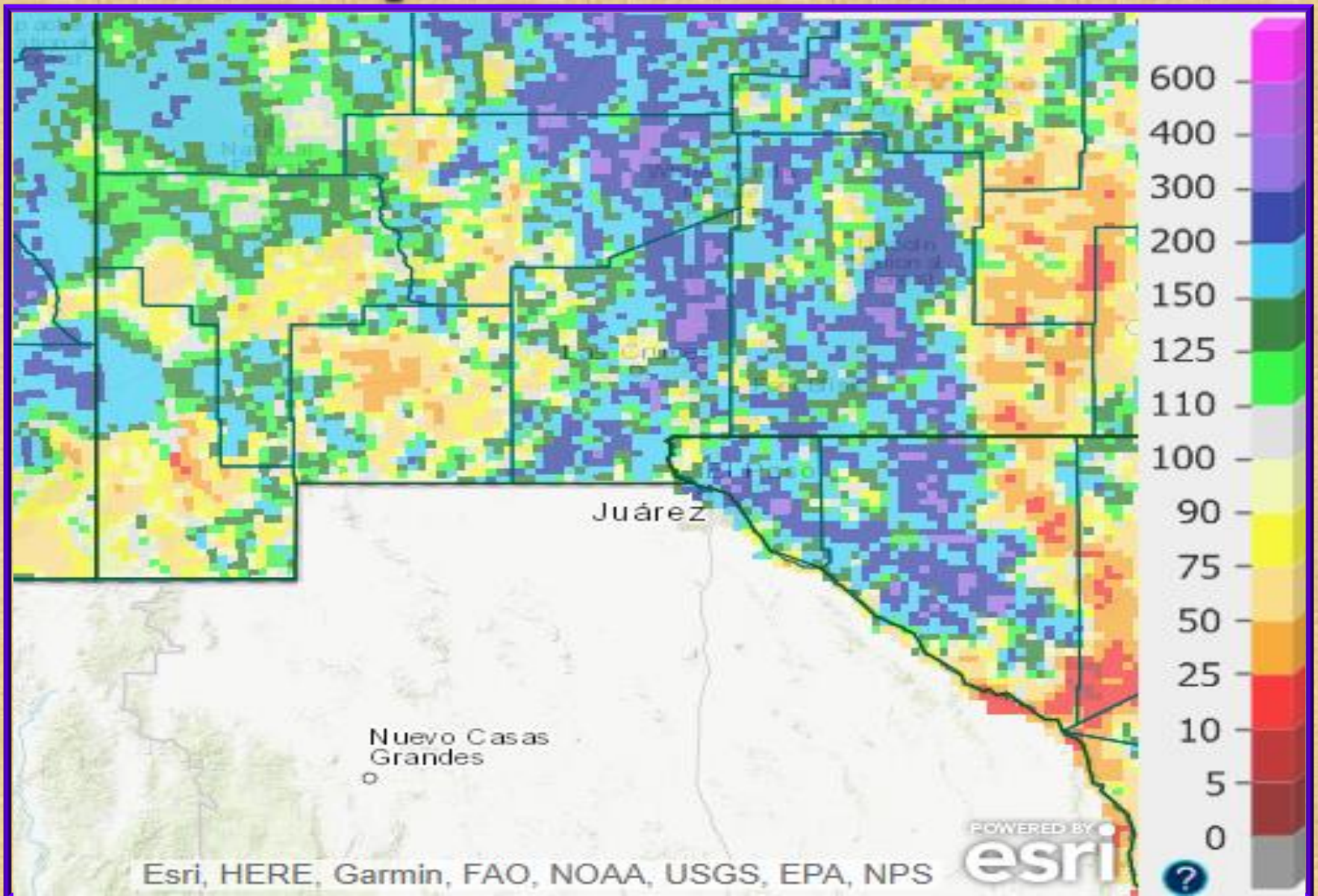


0 25 50 Miles

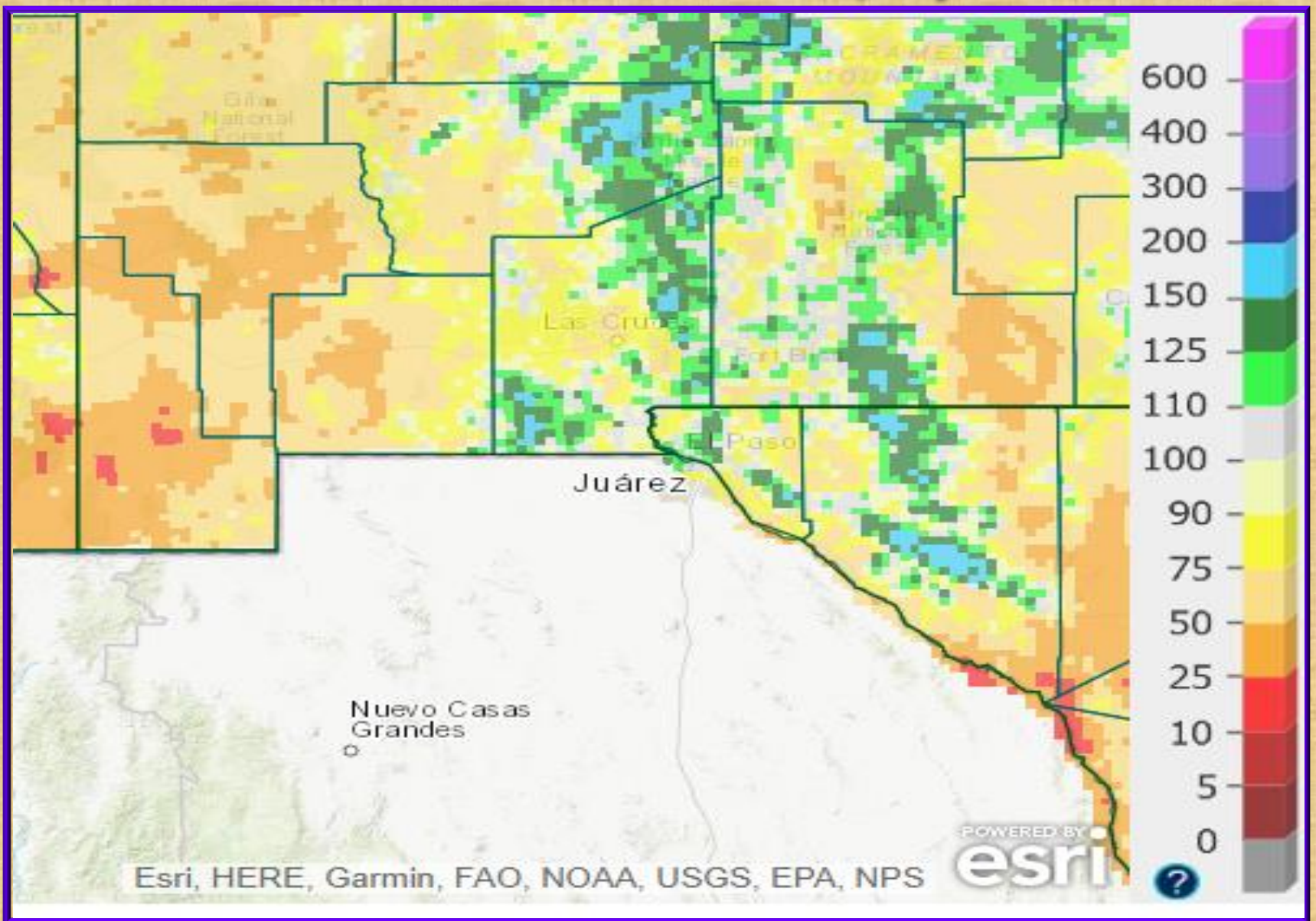
Source: NWS Advanced
Hydrologic Prediction Service

Created: 08/01/2021 2000 UTC

July 2021 radar rainfall estimate percent of normal



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

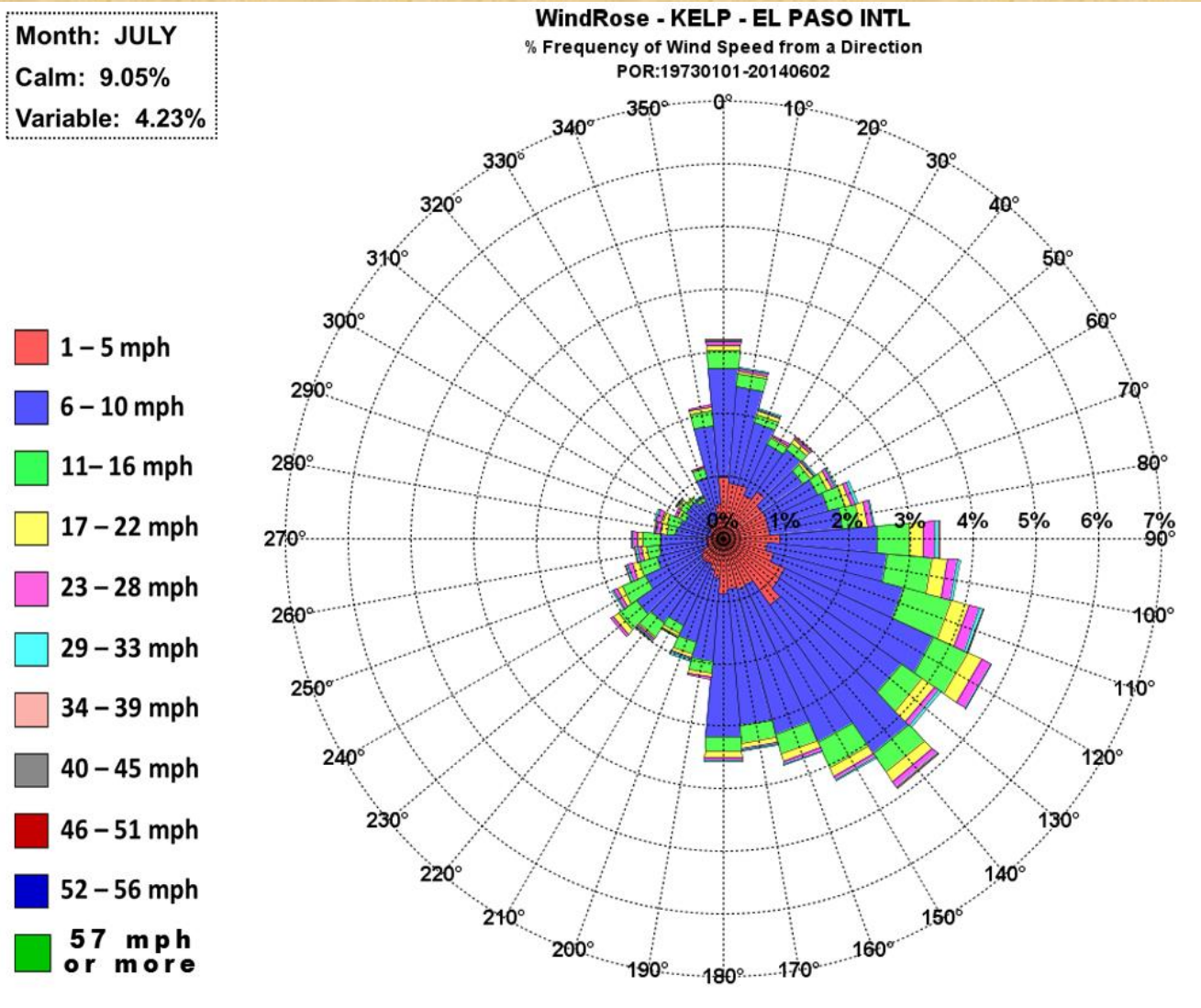


Selected Weather Reports July 2021

Date/Time	Location (County)	Event
JULY 11 455 PM	CLOUDCROFT 4S-OTERO	1.75 IN HAIL
JULY 11 541 PM	BOLES ACRES 5SSE-OTERO	1.75 IN HAIL
JULY 11 835 PM	EL PASO 6W-EL PASO	1.25 IN HAIL
JULY 11 726 PM	DRIPPING SPRINGS-DONA ANA	76 MPH PEAK WIND
JULY 11 715 PM	ORGAN 5S-DONA ANA	70 MPH PEAK WIND
JULY 11 600 PM	SALT CREEK-OTERO	67 MPH PEAK WIND
JULY 11 600 PM	TULAROSA 8W-OTERO	63 MPH PEAK WIND
JULY 11 1015 PM	LORDSBURG 14W-HIDALGO	61 MPH PEAK WIND
JULY 11 726 PM	LAS CRUCES	61 MPH PEAK WIND
JULY 15 425 PM	ROAD FORKS 6NE-HIDALGO	67 MPH PEAK WIND
JULY 15 435 PM	ROAD FORKS 5NE-HIDALGO	62 MPH PEAK WIND
JULY 15 420 PM	LORDSBURG 6SW-HIDALGO	54 MPH PEAK WIND

Special Features

<http://www.srh.noaa.gov/epz/?n=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
[Weather.gov > El Paso, TX](#)

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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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 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 <http://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.

weather.gov/epz