

September 2022 Weather Digest



September 2022 Weather Summary

September was fairly typical of the month that leads us into Autumn. Temperatures ranged from near normal to slightly above normal the area saw a fair amount of clouds and rain.

Speaking of rain, September turned out to be a decent month for rainfall. Much of the area received from near normal to slightly above normal rain. Only eastern Hudspeth and southeastern Otero Counties fell short of rainfall. Drought conditions overall continued to ease as most of the area was either in no drought or moderate drought. Of course September is the last month of the summer Monsoon. We often see an easing of drought conditions through the summer months, only to worsen again as the drier winter months begin.

September 2022 Weather Summary, cont'd

Looking ahead, October begins a more noticeable cooling trend as we head for the end of the year. The summer Monsoon is but a memory now as we head towards a drier pattern. We begin to notice the shrinking daylight and many sites other than the major urban areas will see their first freeze of the season. In El Paso the average high on the first day of October is 84 degrees and on the last day it drops to 74 degrees. The length of daylight on October 1 is 11 hours, 50 minutes, and on October 31 is shrinks to 10 hours, 55 minutes. October's full Moon will occur on the 9th, with the new Moon occurring on the 25th. There will be one eclipse in October; a partial Solar Eclipse on the 25th. Unfortunately it will not be visible from the U.S.

September 1 Storm over the Franklin Mtns



September 12 El Paso Lightning



KFOX14 LIVE SEVERE WEATHER CENTER **September 12 El Paso Storm**



September 18 Thunderstorm El Paso



**September 18 Thunderstorm
El Paso**



**September 18 Thunderstorm
Horizon City**



September 24 Sunset near Mesquite



ENSO Alert System Status: La Niña Advisory in Affect

ENSO Alert System

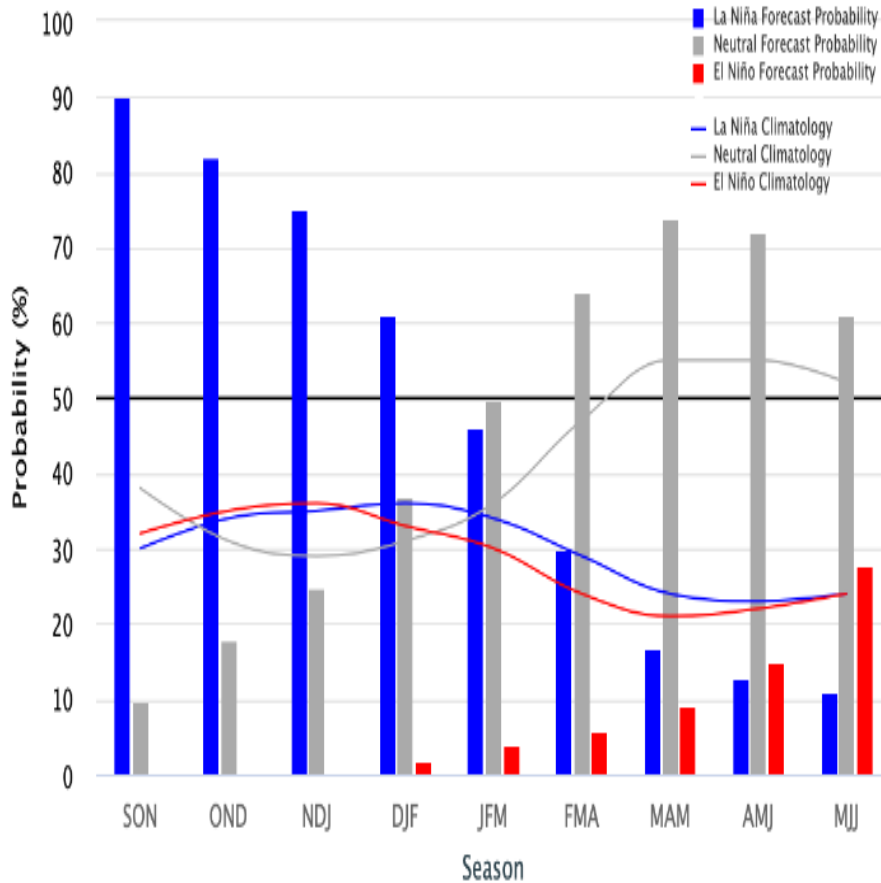
- **El Niño or La Niña Watch:** Issued when conditions are favorable for the development of El Niño or La Niña conditions in the next six months.
- **El Niño or La Niña Advisory:** Issued when El Niño or La Niña conditions are observed and expected to continue.

ENSO Forecast

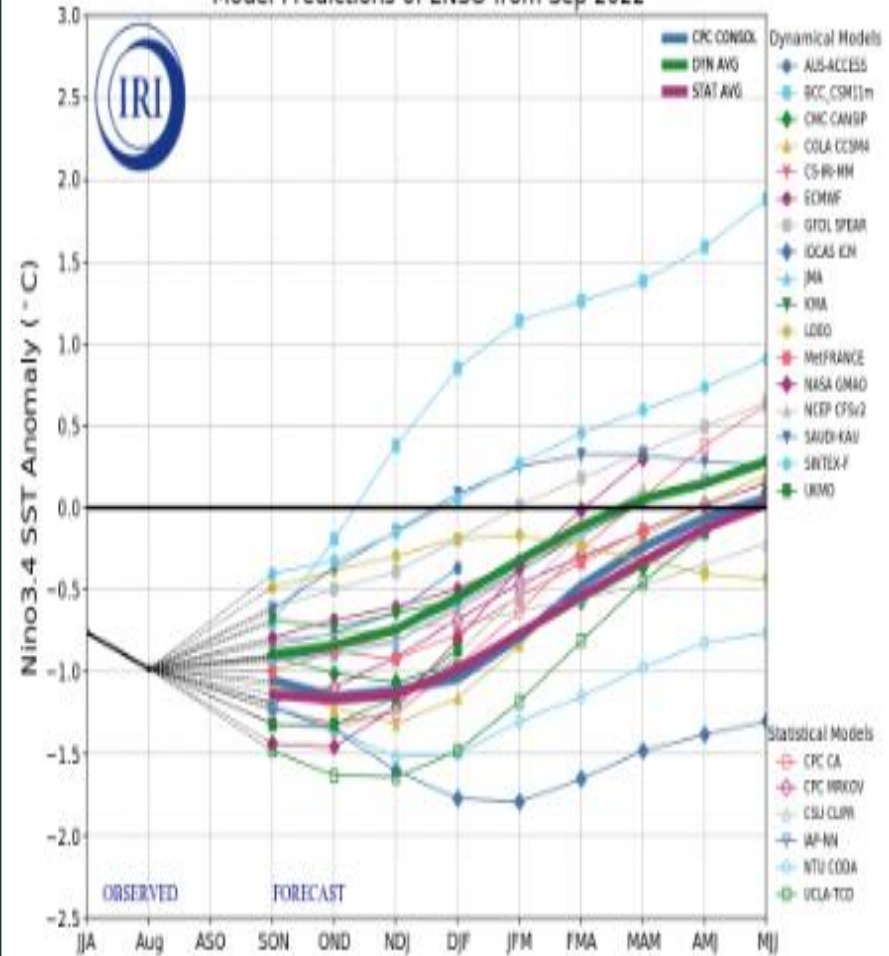
ENSO is in La Niña status. Forecast shows decent chance of La Niña lasting mid winter, with slight tendencies towards neutral late winter into spring of 2023.

Mid-September 2022 IRI Model-Based Probabilistic ENSO Forecasts

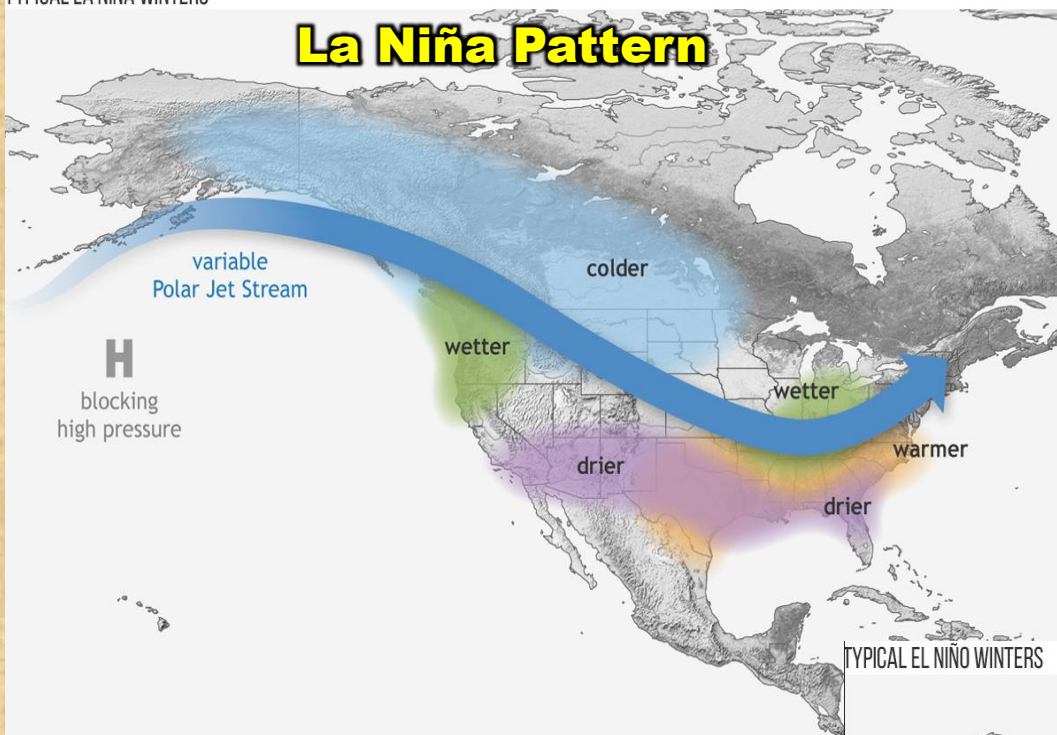
ENSO state based on NINO3.4 SST Anomaly
Neutral ENSO: -0.5°C to 0.5°C



Model Predictions of ENSO from Sep 2022

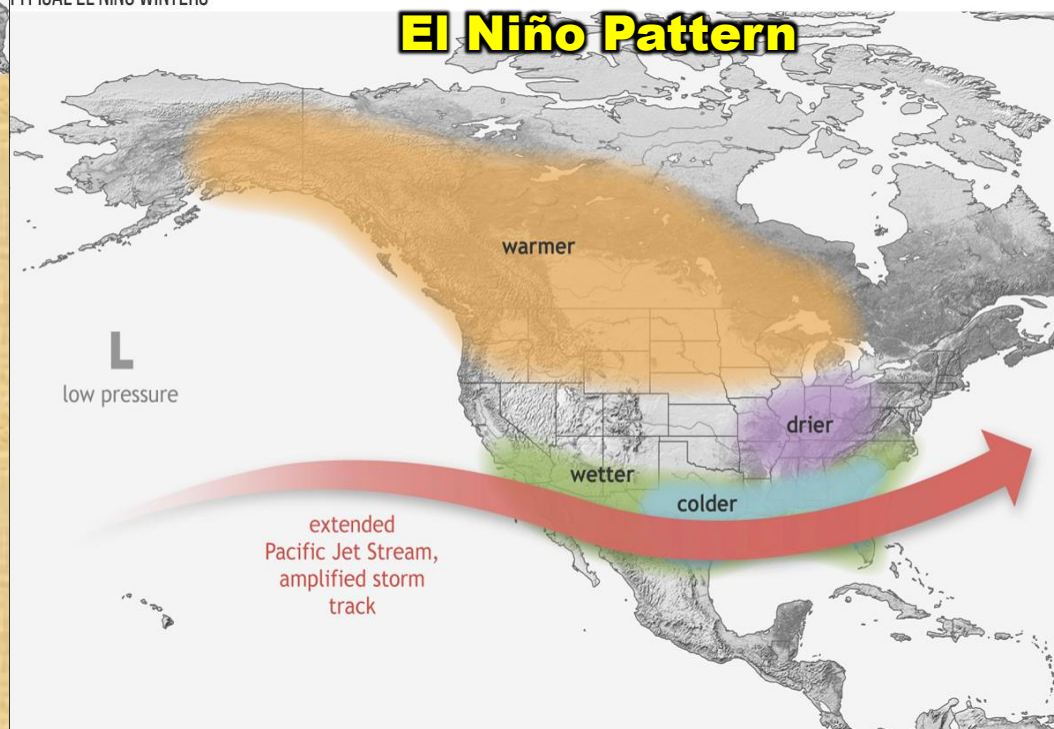


La Niña Pattern



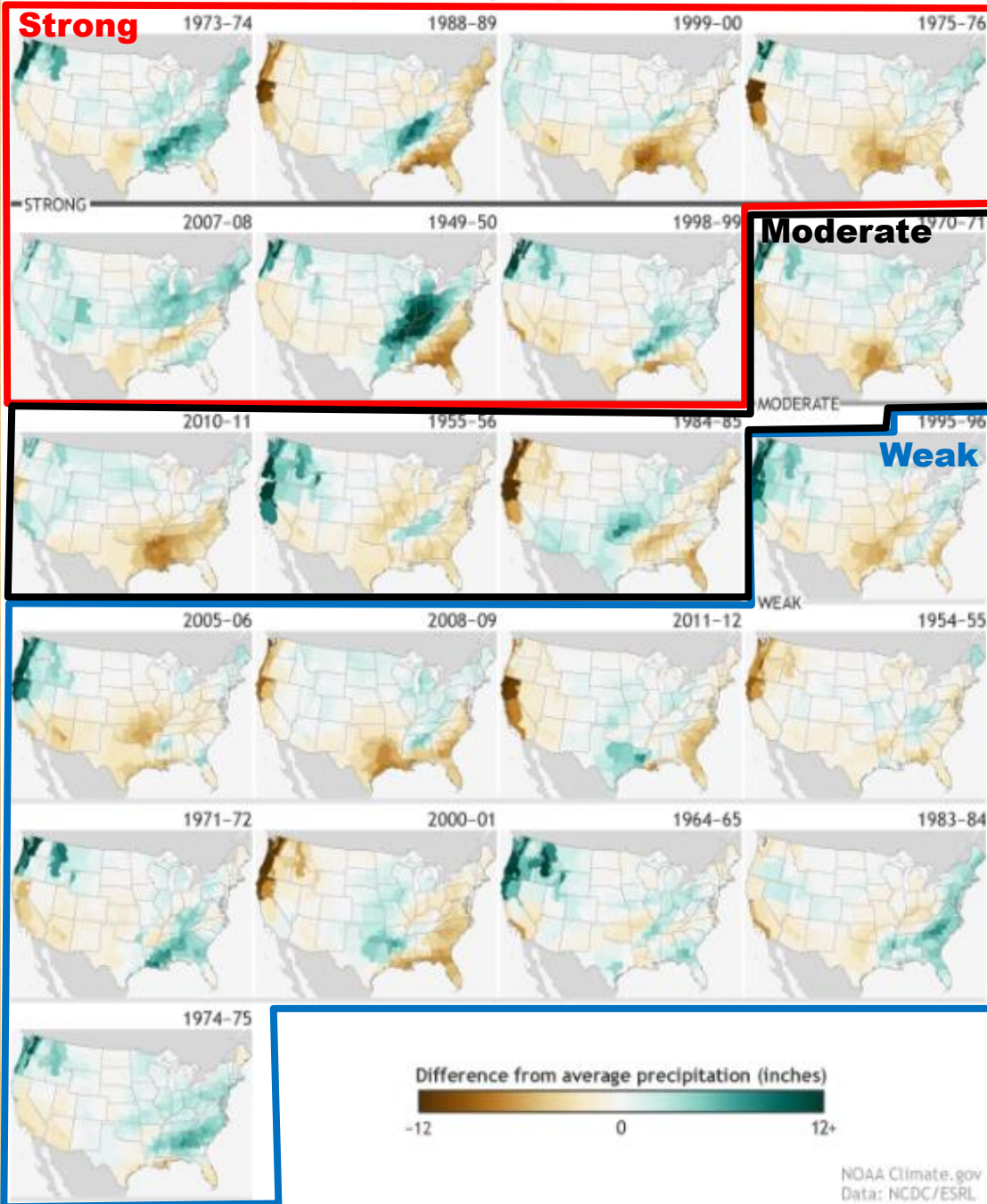
With a La Niña pattern, a ridge of high pressure tends to build off the west coast of the U.S., blocking most of our Pacific winter storm systems. These storms tend to end up moving across the northern Plains and down to the southeastern part of the country. Of course it is important to remember that 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.

Winter (December-February) precipitation during strong, moderate, and weak La Niñas since 1950



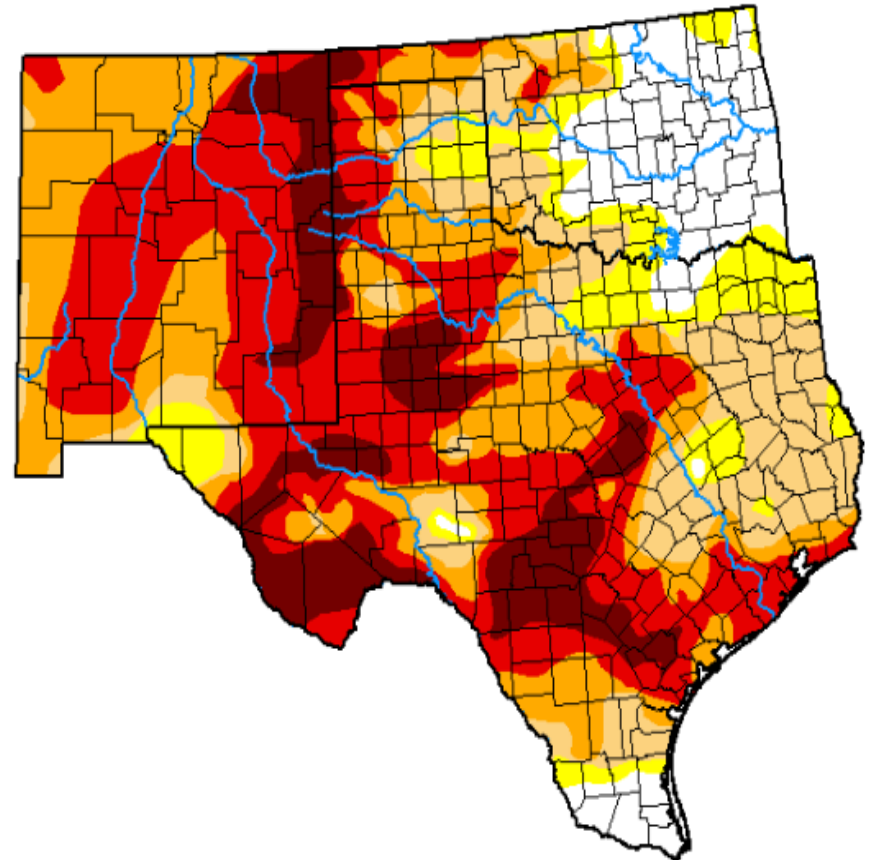
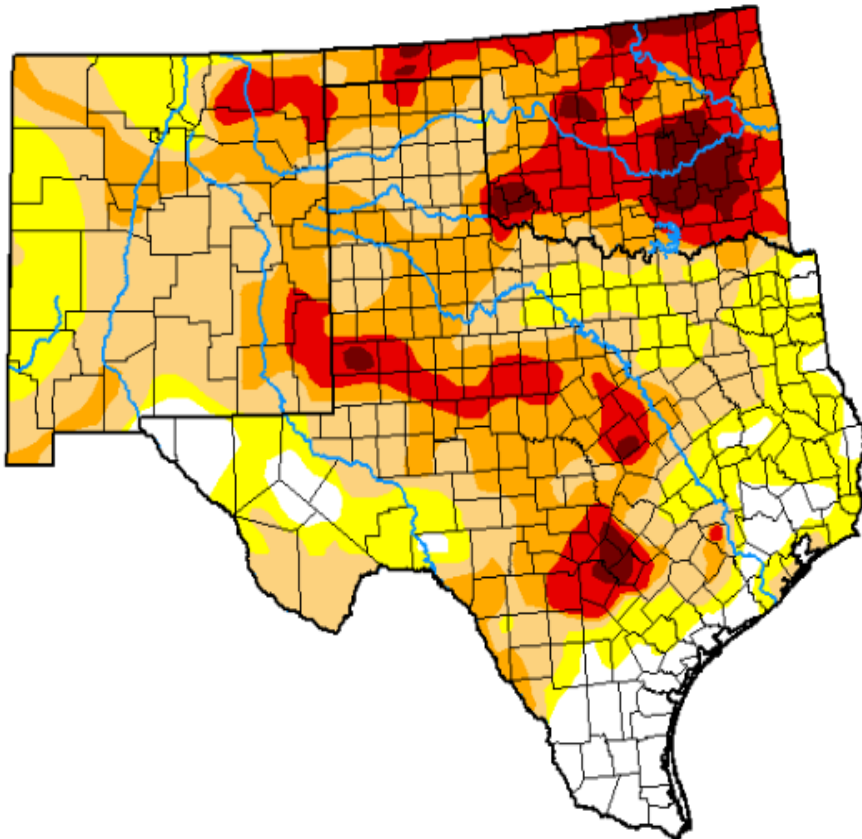
Examples of the numerous La Niña winters since 1950. These maps depict the departure from normal precipitation amounts for a winter.

Current drought conditions and 3 month change

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

Sep 27, 2022

Jun 28, 2022



Precipitation for the Water Year Oct 1 – Sep 30, 2022

Compare to last few years and average values

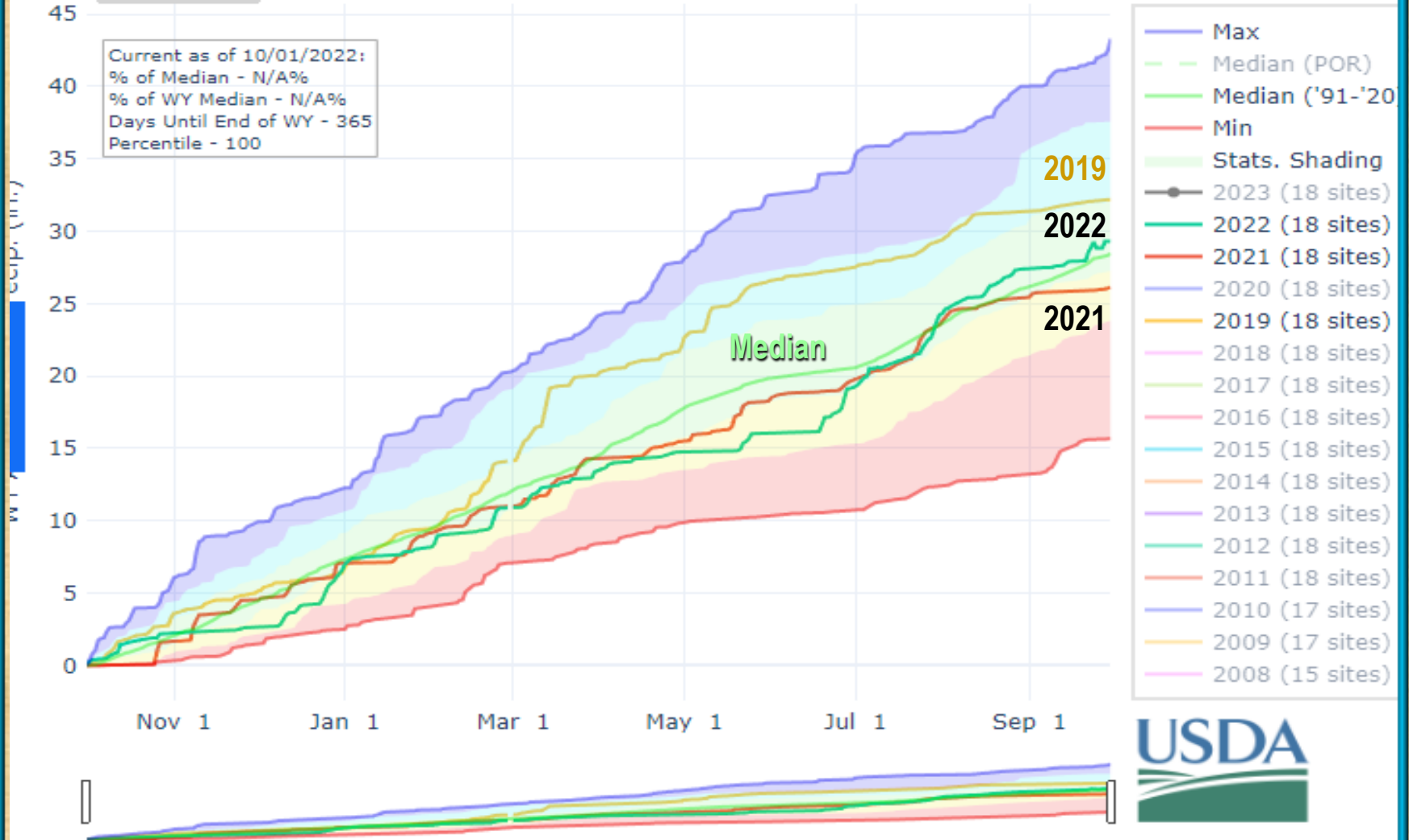
PRECIPITATION IN UPPER RIO GRANDE

Reset Range

[Link to data: CSV / JSON](#)

[Station List](#)

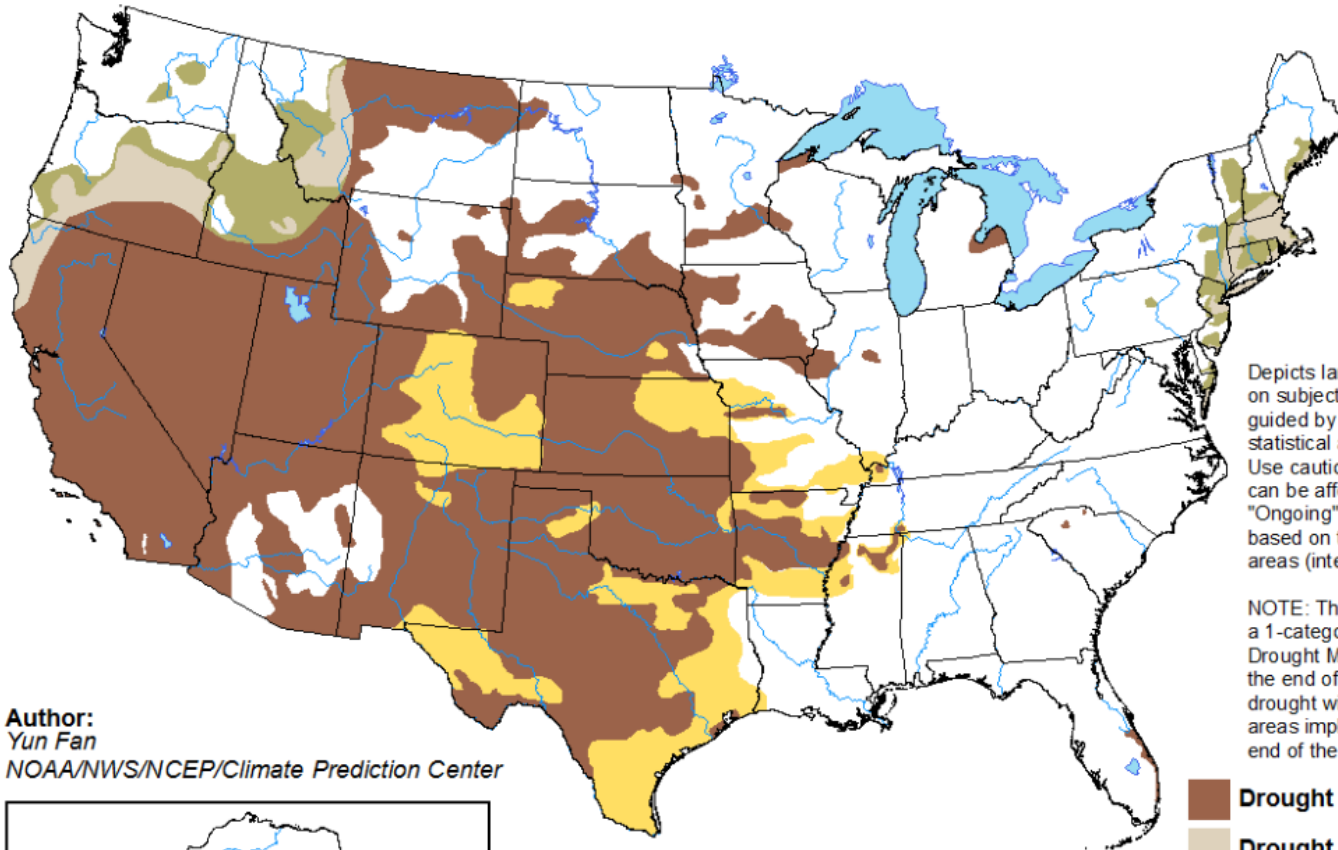
Current as of 10/01/2022:
 % of Median - N/A%
 % of WY Median - N/A%
 Days Until End of WY - 365
 Percentile - 100



U.S. Seasonal Drought Outlook

Drought Tendency During the Valid Period





Valid for September 15 - December 31, 2022
Released September 15

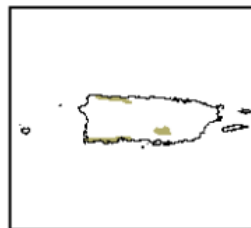
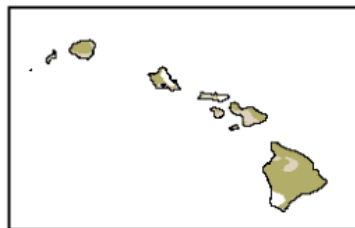
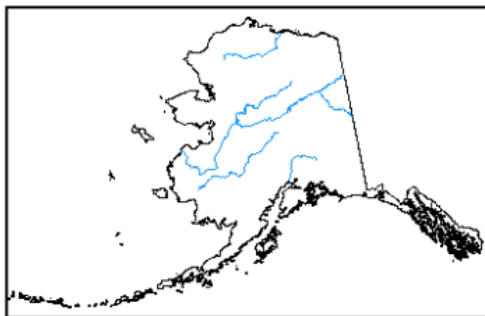


Depicts large-scale trends based on subjectively derived probabilities guided by short- and long-range statistical and dynamical forecasts. Use caution for applications that can be affected by short lived events. "Ongoing" drought areas are based on the U.S. Drought Monitor areas (intensities of D1 to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

Author:
Yun Fan
NOAA/NWS/NCEP/Climate Prediction Center

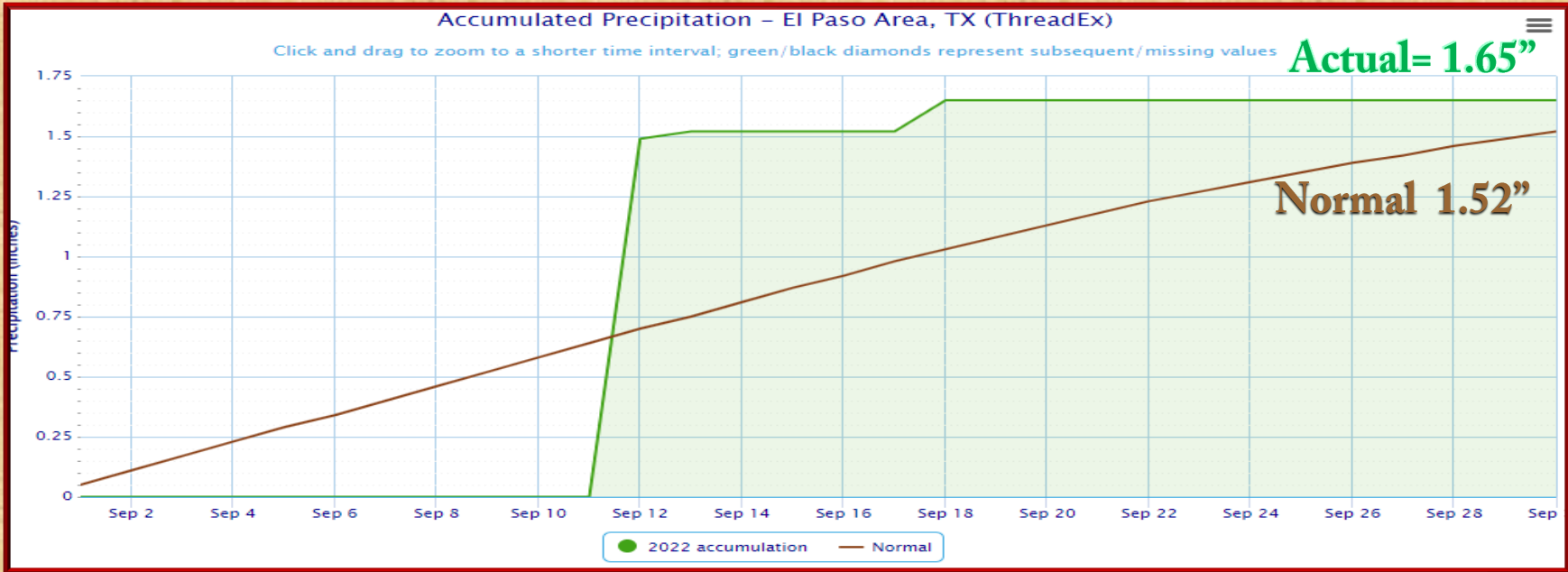
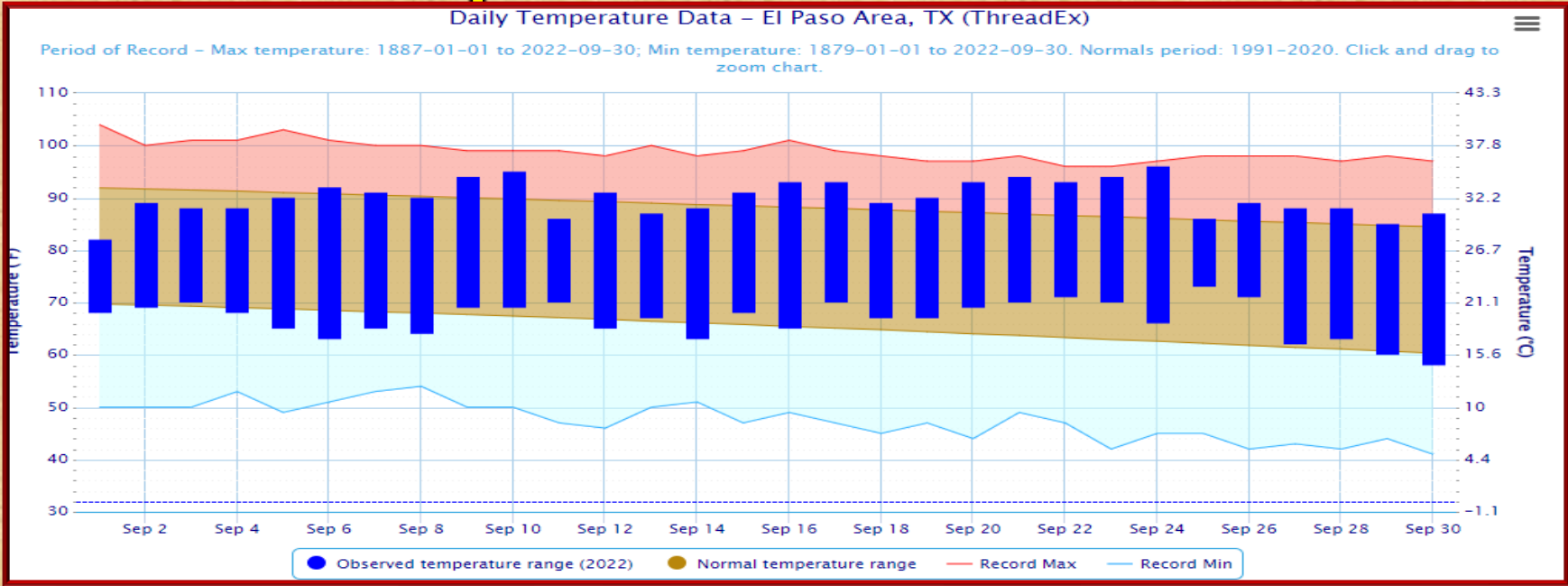
-  Drought persists
-  Drought remains but improves
-  Drought removal likely
-  Drought development likely



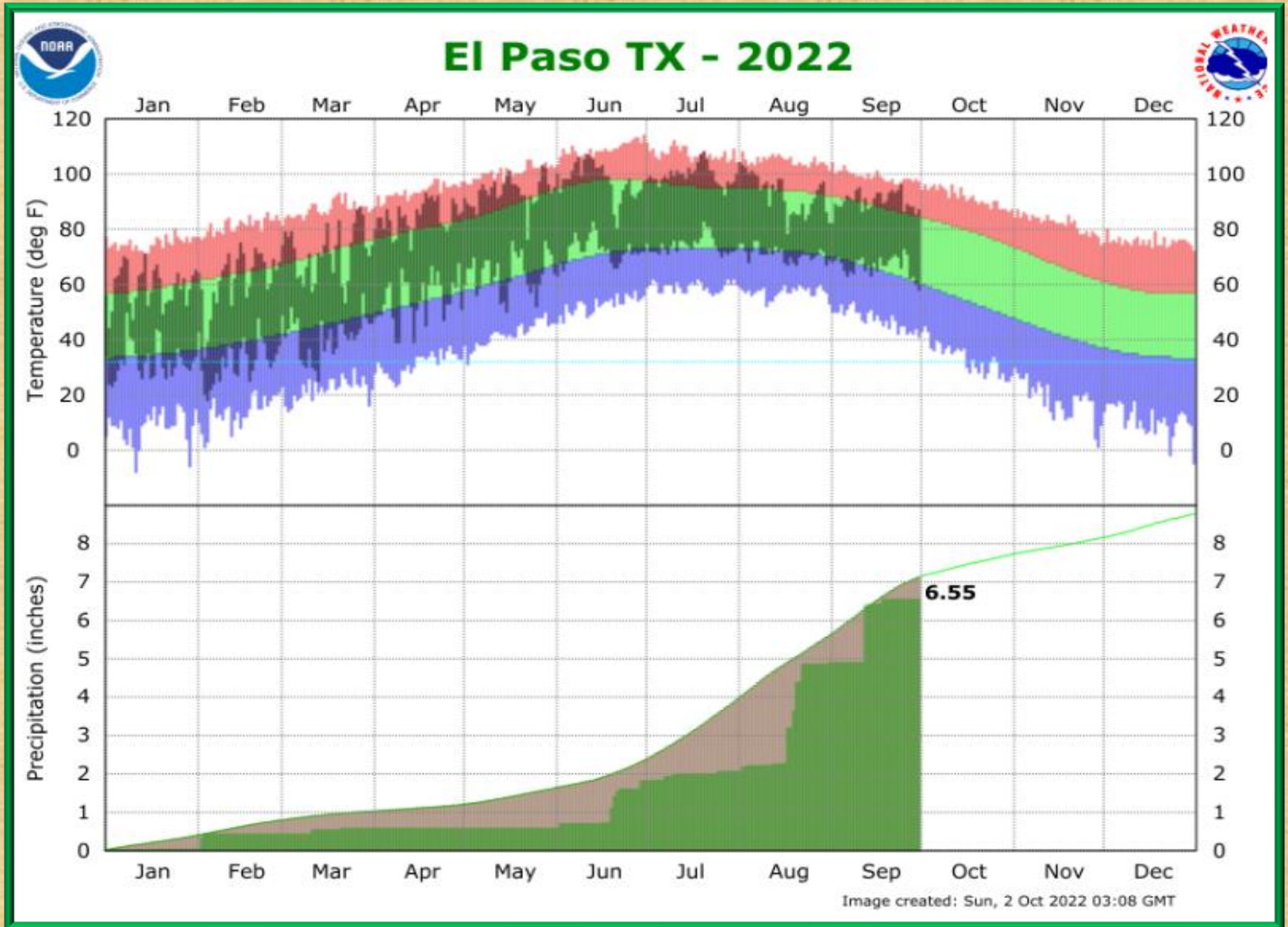
<http://go.usa.gov/3eZ73>

Temperature and precipitation data for September 2022 in El Paso

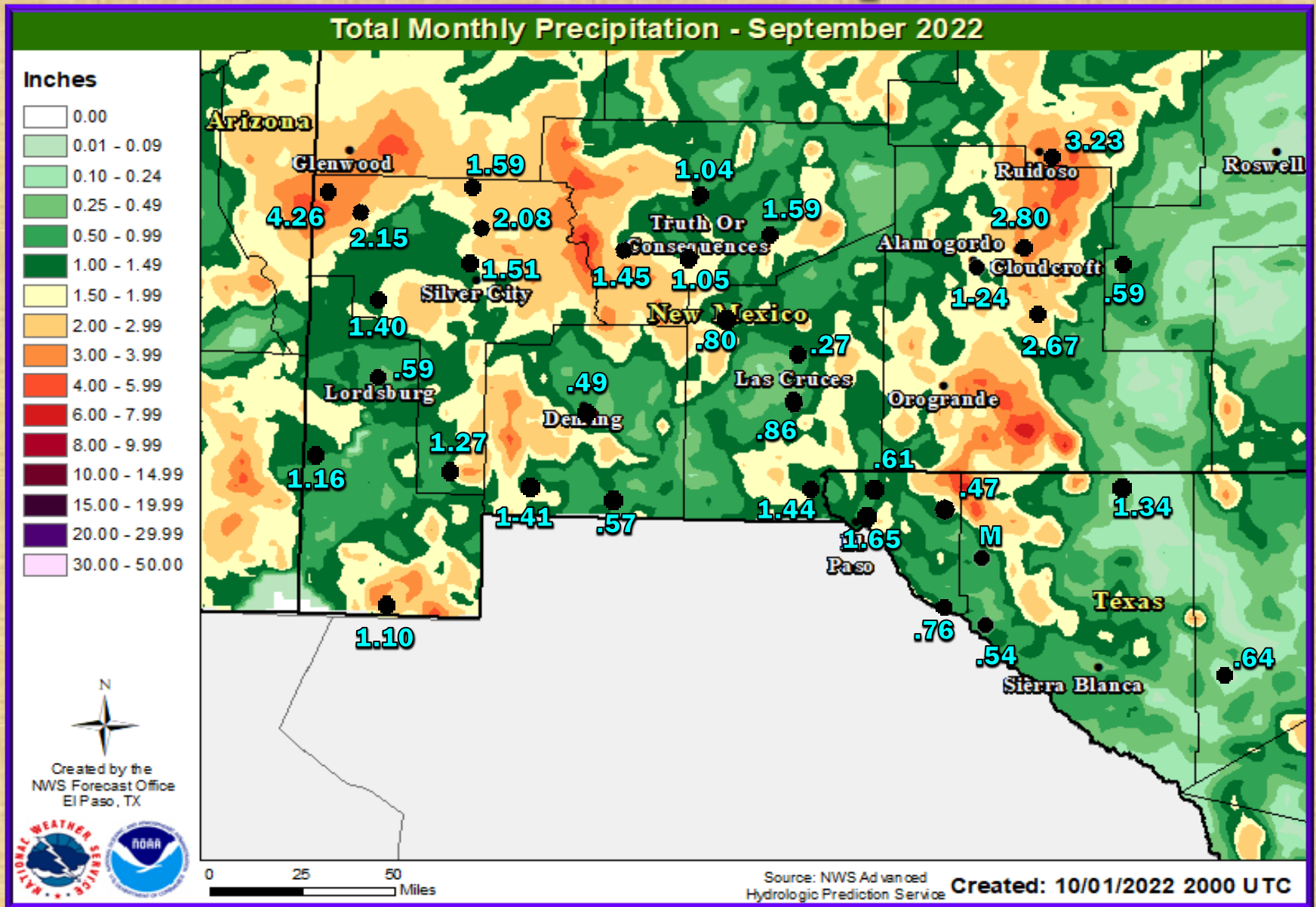
○ = record



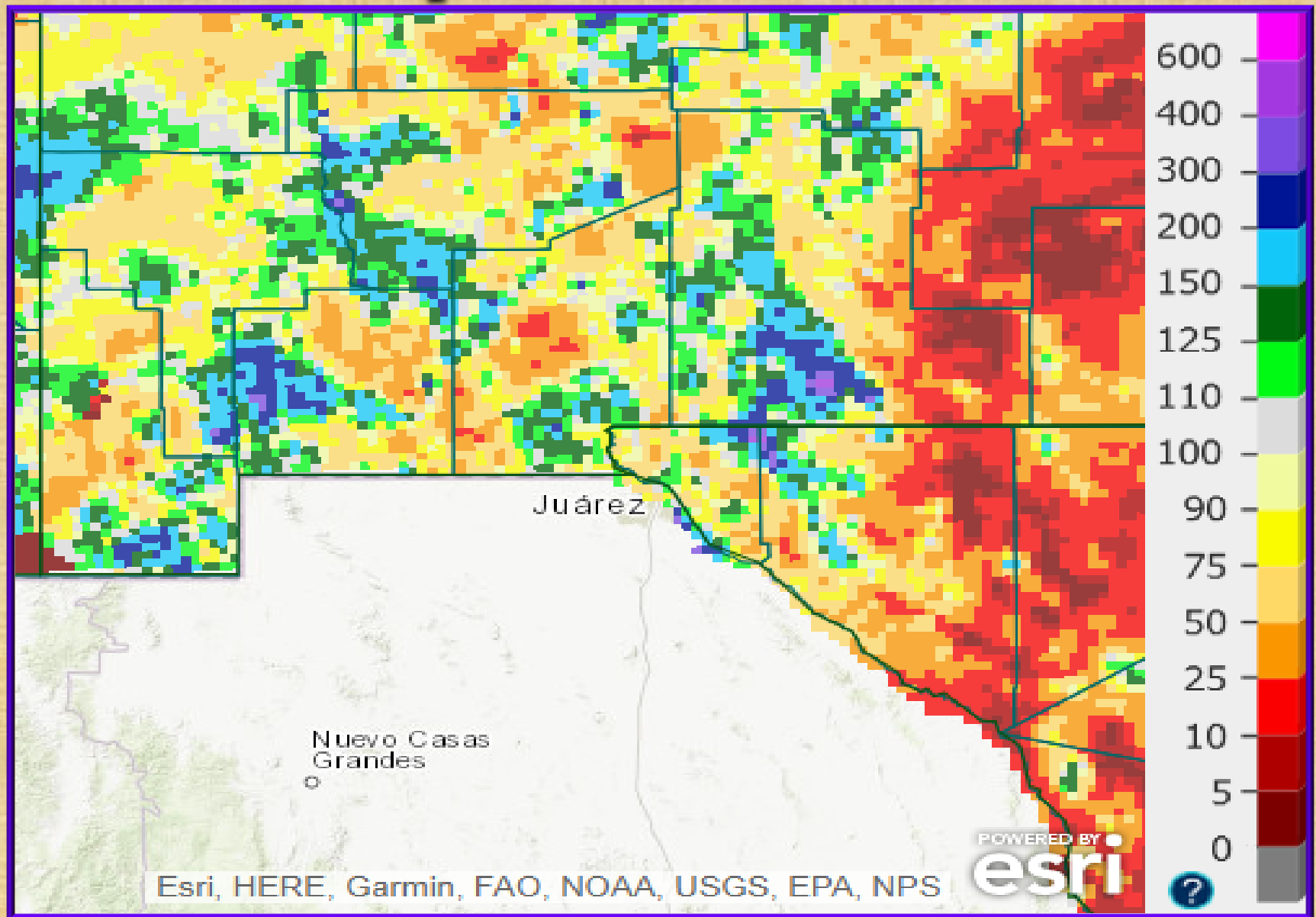
2022: Temperature and Precipitation YTD Data for El Paso



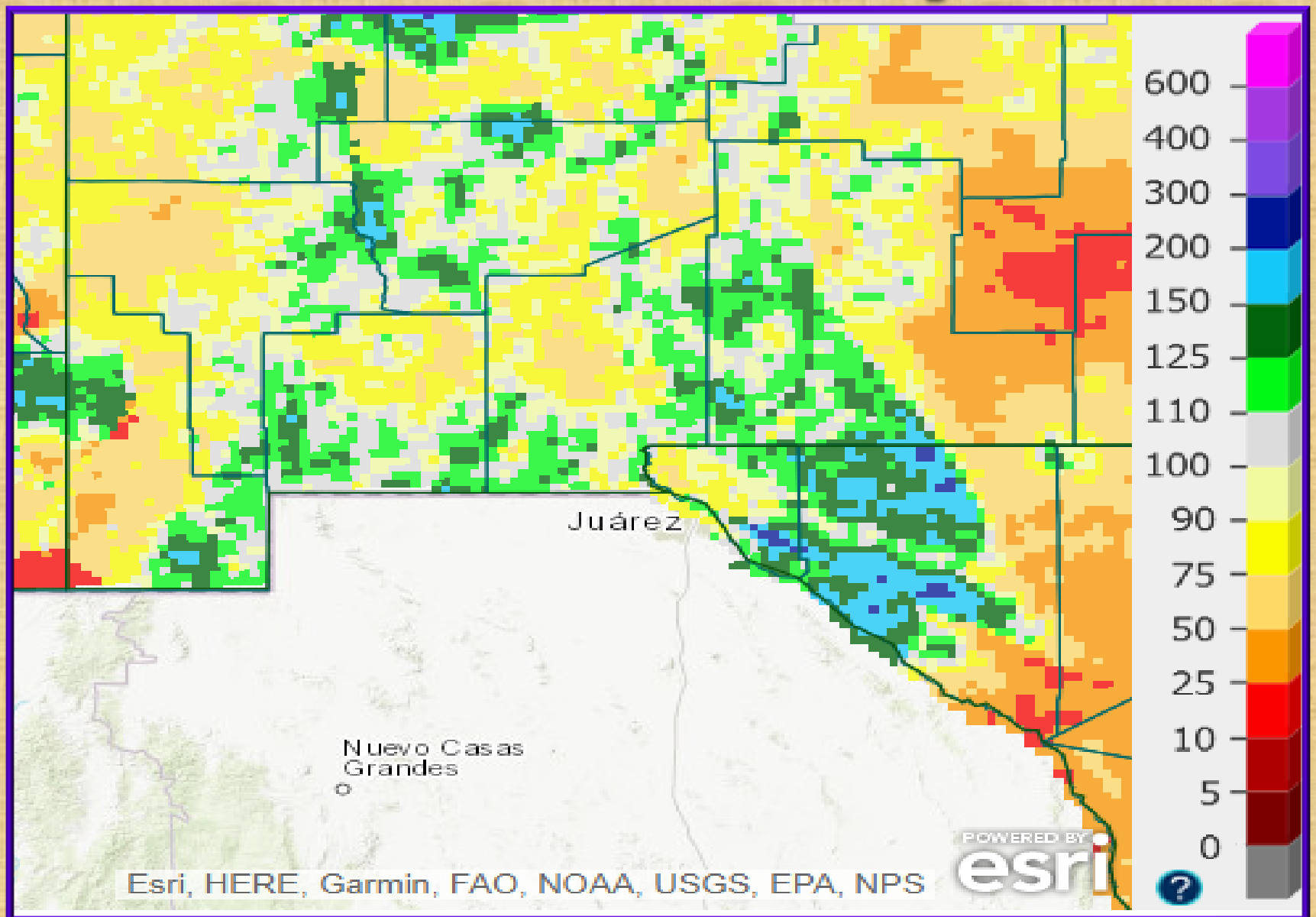
September 2022 radar rainfall estimate with surface rainfall reports



September 2022 rainfall estimate percent of normal



Radar rainfall estimate percent of normal for the Water Year (Oct 1 – Sep 30)



Tracking the 2022 Monsoon Season across the El Paso Forecast Area

The big news with the 2022 Monsoon season is the abnormally early start to the season. The typical Monsoon season starts around the first week of July, but this year it started around June 20, and as of this writing is still in an active period. From June 18 to now, the entire area has seen at least normal rainfall, with most areas receiving 200 to 400 percent of normal. This has begun to moderate drought conditions, and hopefully this trend will continue in July.

We can track the beginning of the Monsoon season by looking at several factors. First the upper air pattern had switched from the cold season westerly flow to the warm season southerly flow from about June 18 to 23 [see fig 1]. We look for dewpoint temperatures to reach a 4 day stretch of 50 degrees or higher, and that took place on June 21 [see fig 1]. Thus the Monsoon season generally began on June 21, some 15 days ahead of schedule.

The second set of data we then look at are the sea surface temperatures of the northern Gulf of California and western Gulf of Mexico. These factors will give clues as to how much rain can typically be expected once specific thresholds are met. The first threshold is the date at which the northern Gulf of California reaches 26C degrees. This threshold was reached on June 16, some 10 days

Tracking the 2022 Monsoon Season across the El Paso Forecast Area

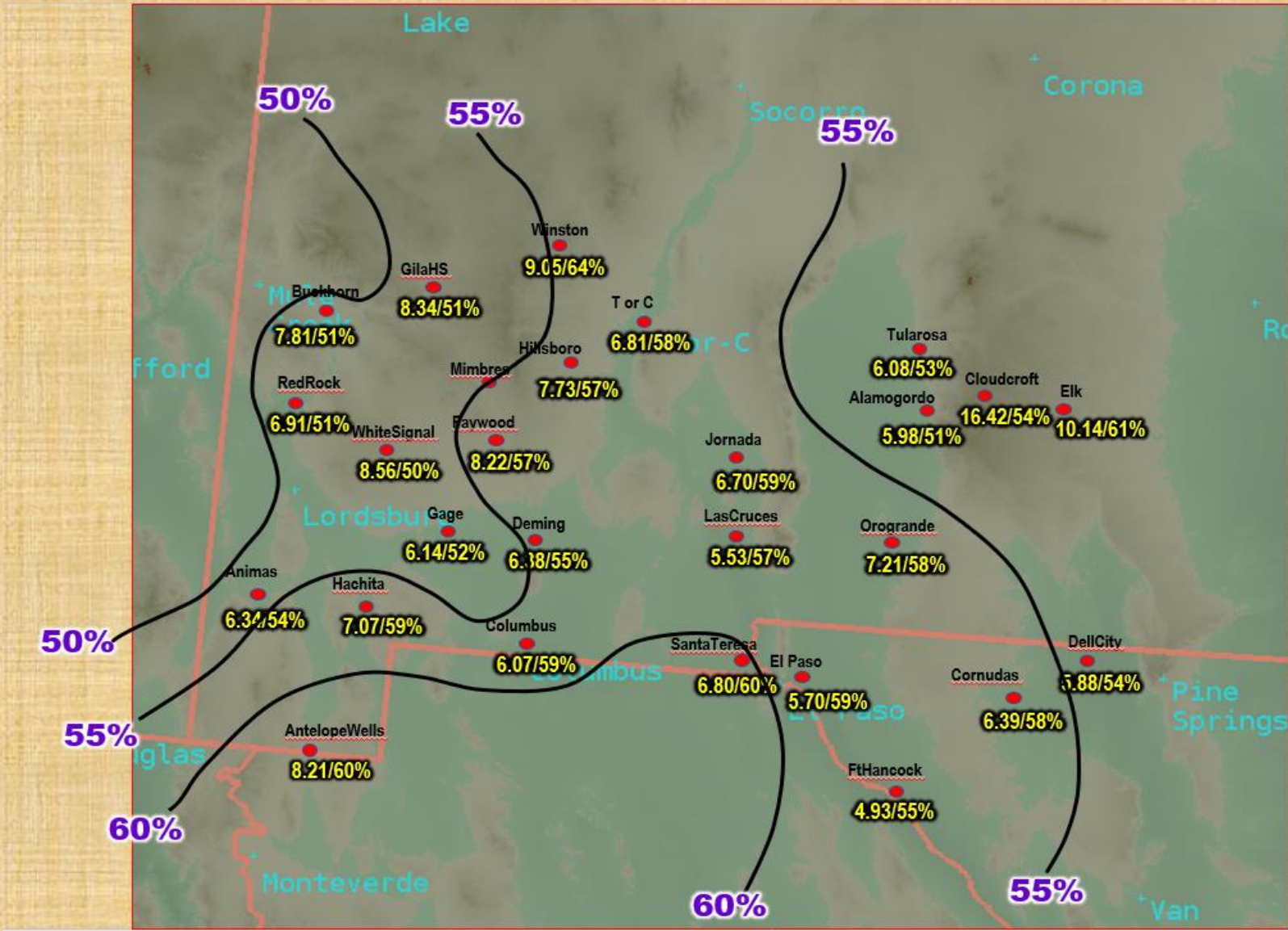
ahead of schedule. Studies have shown that once this occurs, the rainfall should begin around 4 to 7 days later. This proved to be true as widespread rainfall began June 19 through the 21 across the area. The next item to watch for is when the sea temperatures reach 29C degrees in the northern Gulf of California. This normally occurs around July 25, but rapid warming in the Gulf allowed the northern Gulf to reach 29C degrees on June 29 [see fig 3]. Once this mark is reached, research shows that roughly 67 percent of the total Monsoon rainfall will occur [see fig 4]. Sea temperatures in the western Gulf of Mexico coincidentally also reached 29C degrees on the 29. Early research on this shows that about 75 percent of the total Monsoon rainfall occurs. Hopefully this holds true this season. We can also look at outgoing longwave radiation (OLR), which measures cloud top temperatures associated with thunderstorms. A value of 240 W/m^2 indicates thunderstorms are occurring. Also 5 day widespread rainfall totals began around June 20. See fig 5 for both of these events.

Tracking the Monsoon season through August, we saw rainfall increase and become more widespread. Where July was a bit spotty, August saw the majority of the area receiving above normal rain. In fact many sites have already surpassed their annual monsoon season rainfall as of the end of August. With just an average September, all sites should end up above normal for the season. Lets hope for this outcome.

Tracking the 2022 Monsoon Season across the El Paso Forecast Area

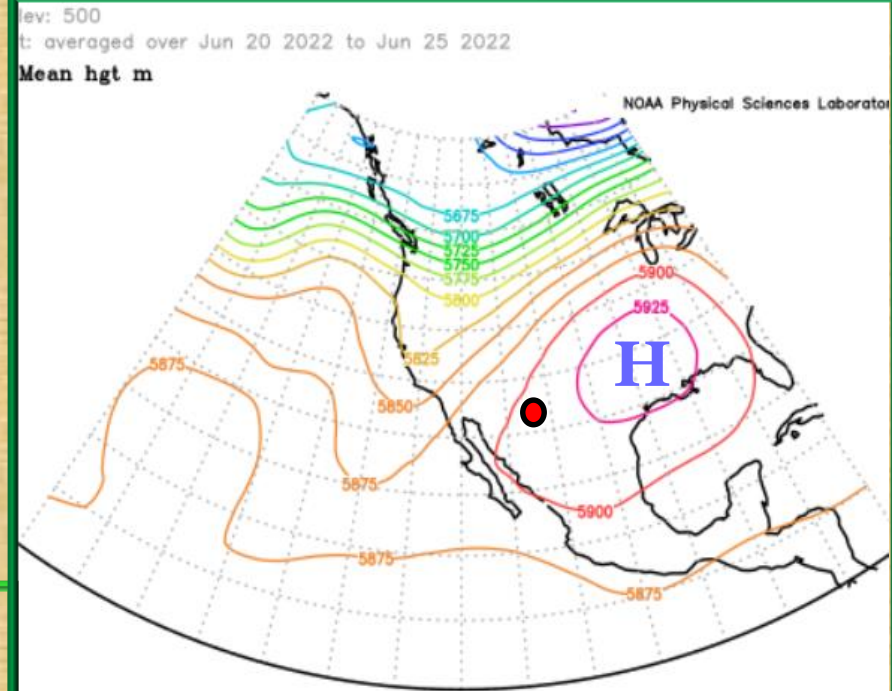
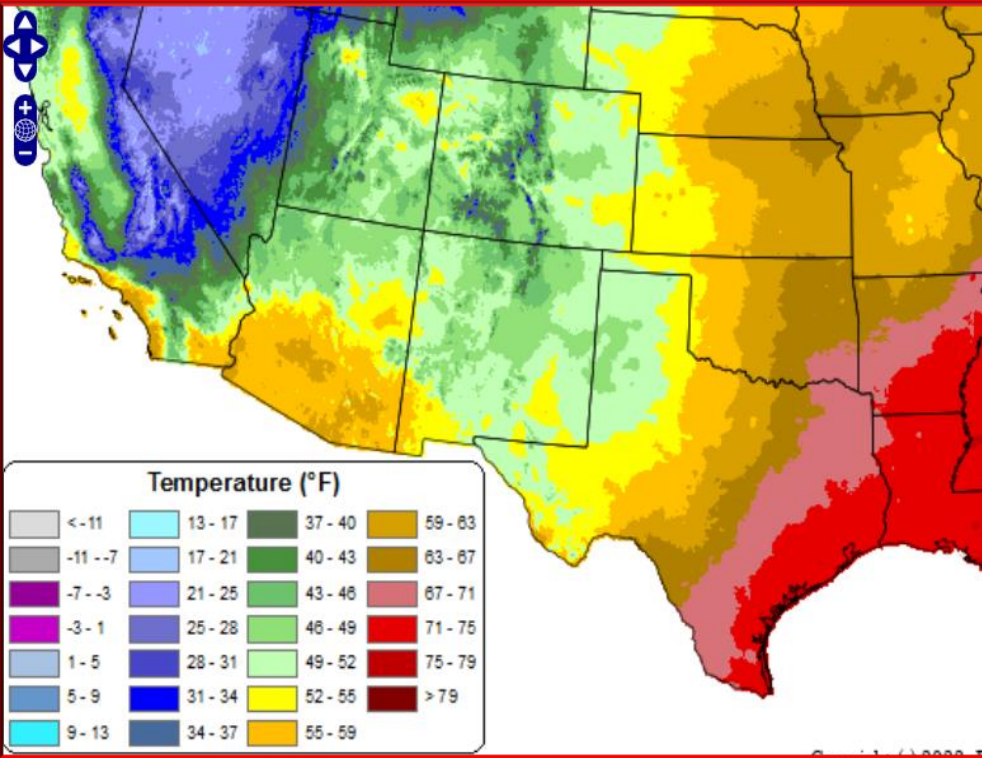
September ended up the Monsoon Season with near normal rainfall most places. Though the official Monsoon Season ends September 30, this year's season ended around the 28th as surface moisture diminished, and the upper air pattern showed the subtropical high pressure dropping south as the main jet stream sags south. Other signs of the Monsoon ending were the increase in outgoing radiation values (dissipating widespread thunderstorms) and satellite estimated rainfall (see Fig 8)

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



Tracking the 2022 Monsoon Season across the El Paso Forecast Area. Fig 1

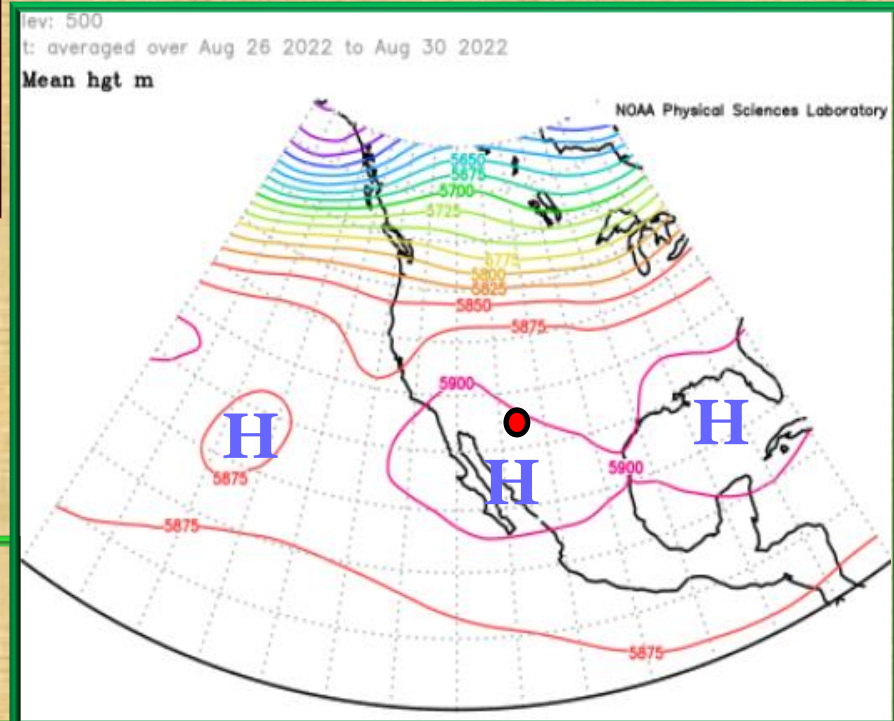
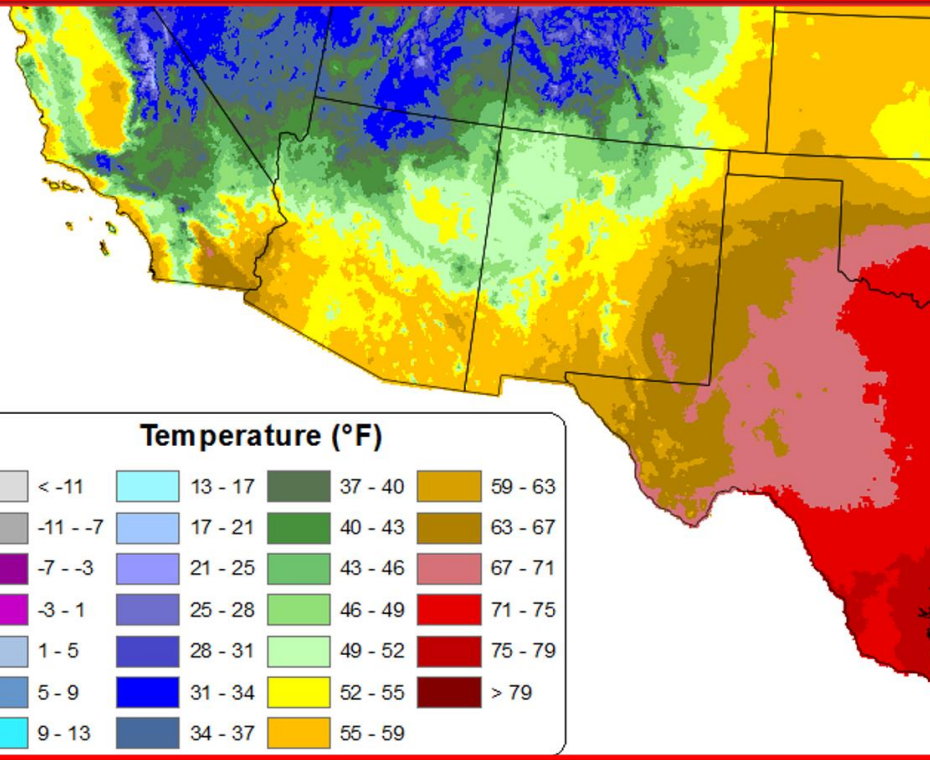
June 21 – Dewpoints reach into the 50s across the area



By June 25, 500mb (18,000 ft) sub-tropical high reaches the Desert Southwest

As we near the end of the 2022 Monsoon Season. Fig 2

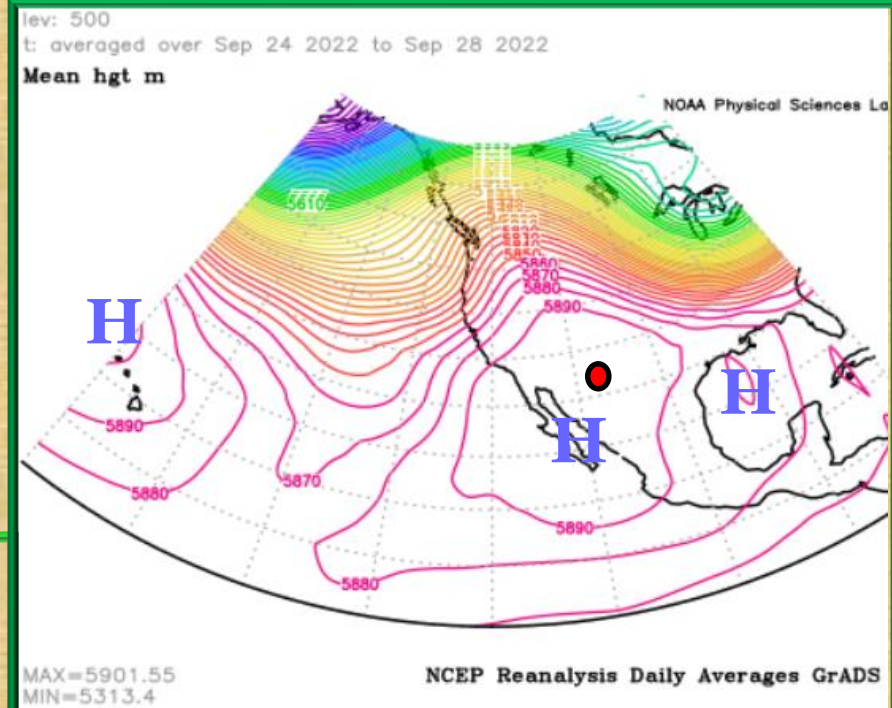
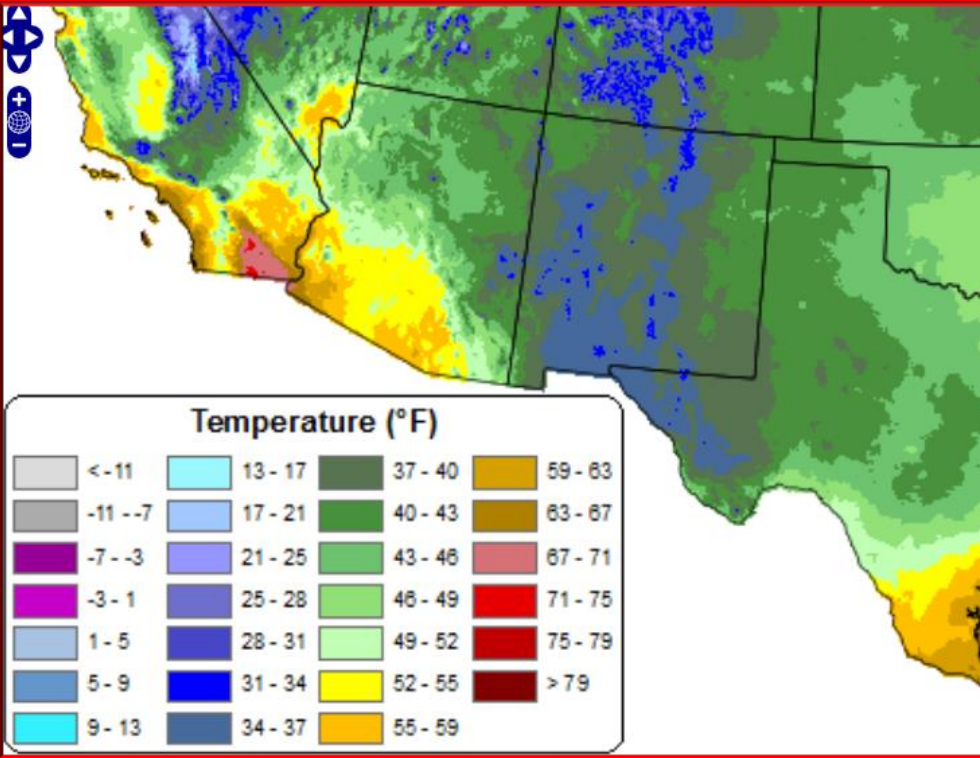
Aug 31– Dewpoints remain in the 50s to 60 degrees.



As of late August, the 500mb (18,000 ft) upper flow is still well in the Monsoon pattern.

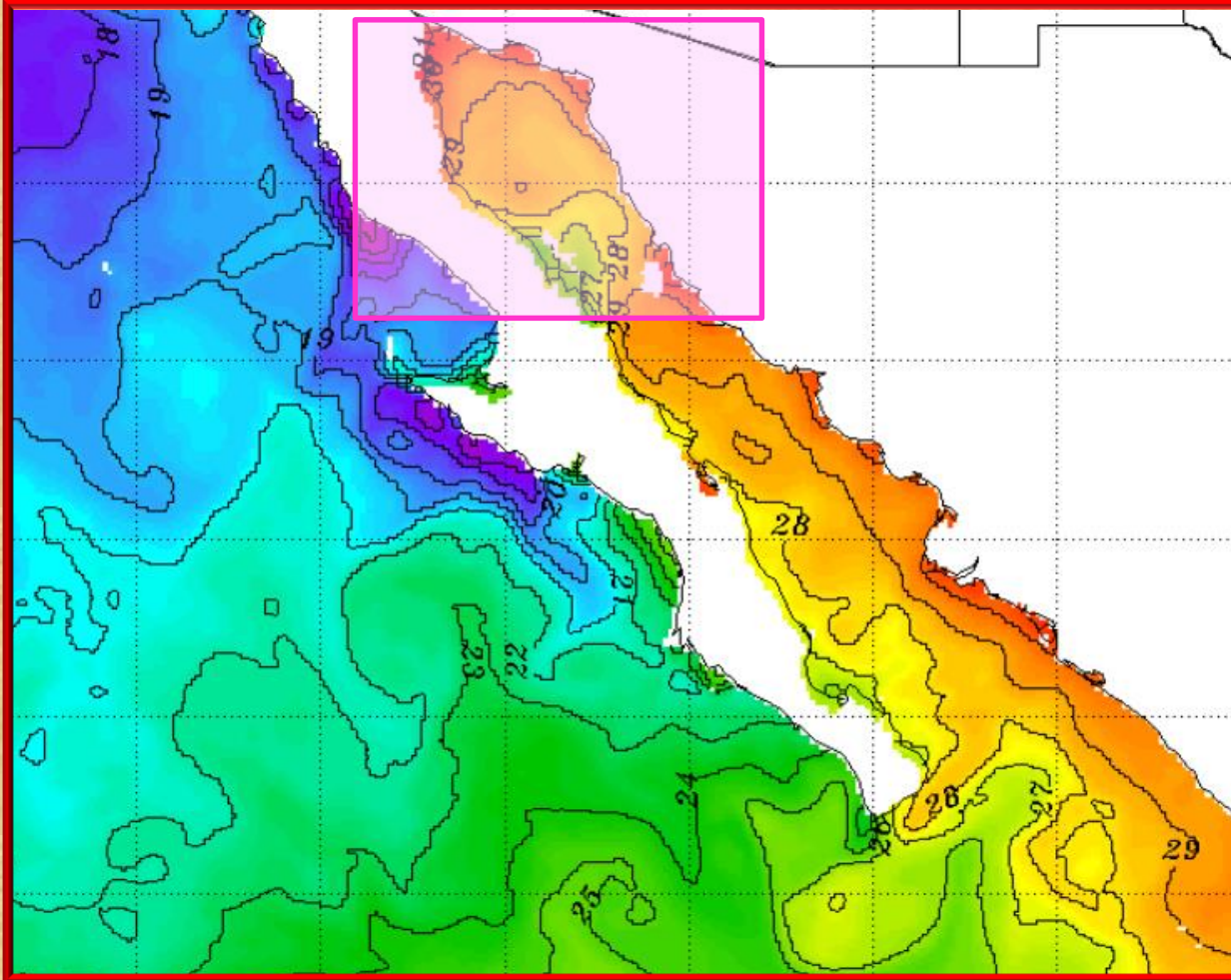
As we near the end of the 2022 Monsoon Season. Fig 3

Sep 29 – Dewpoints fell into the 30s to 40 degrees.



As of late September, the 500mb (18,000 ft) upper flow was still clinging to the Monsoon pattern.

Tracking the 2022 Monsoon Season across the El Paso Forecast Area. Fig. 4



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

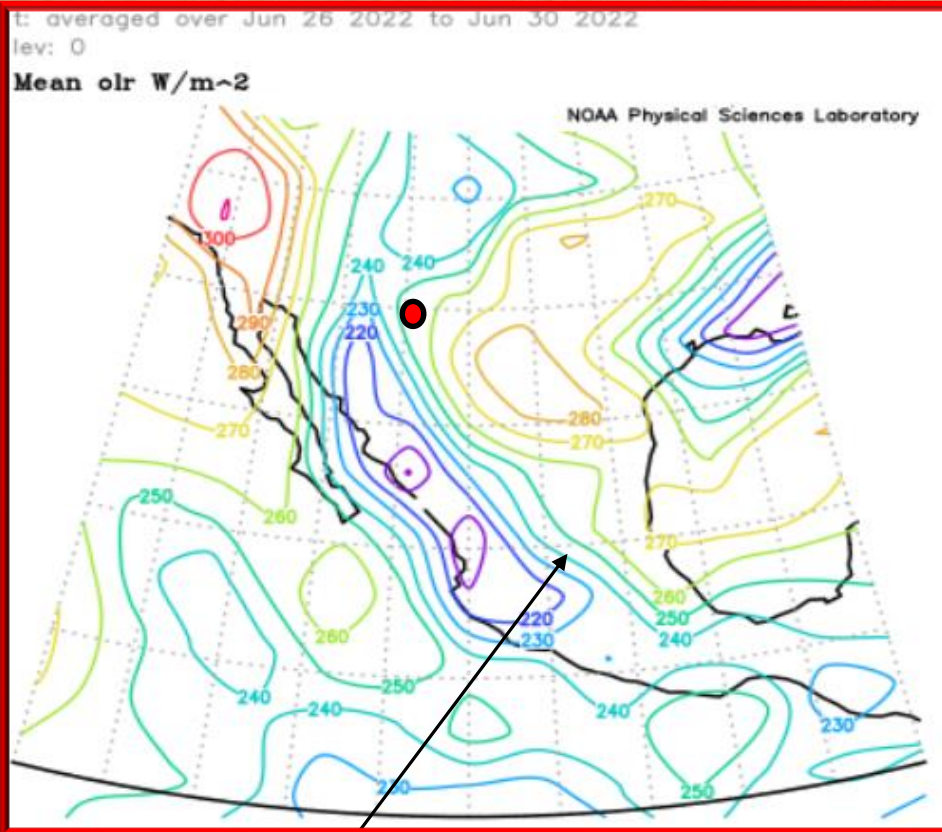
Fig. 5**Percent of Monsoon rainfall after 29C**

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.

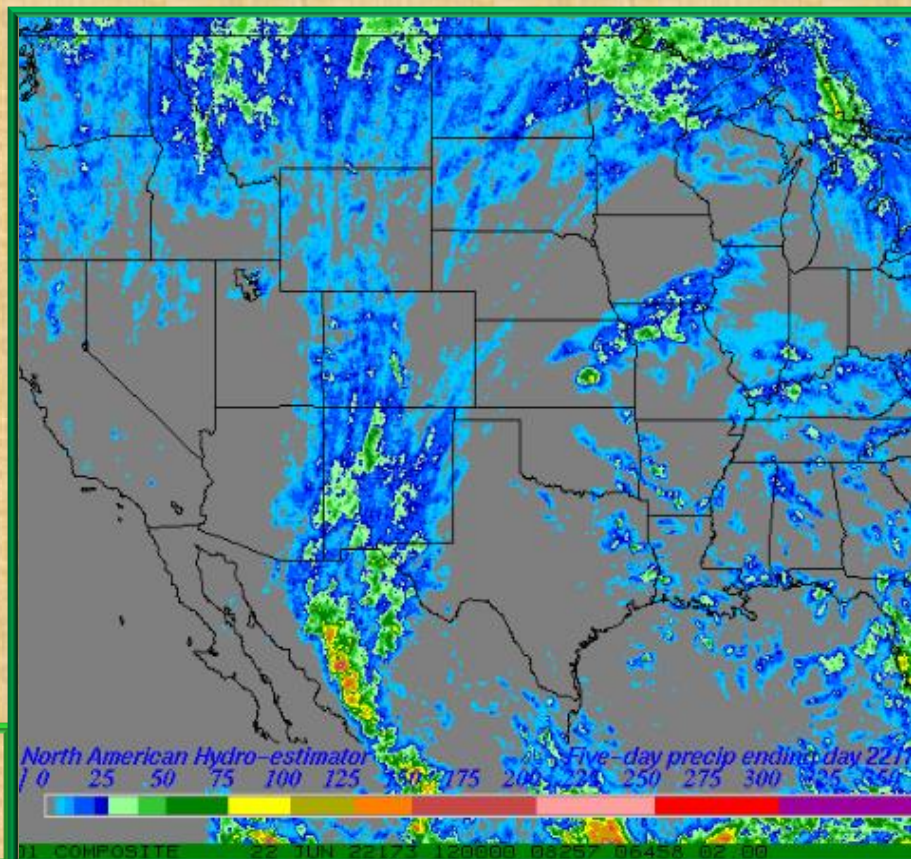
Tracking the 2022 Monsoon Season across the El Paso Forecast Area. Fig. 6



June 26 – 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 26-30)

Teal lines=240

By June 18-22 the first area wide Monsoon precipitation occurs



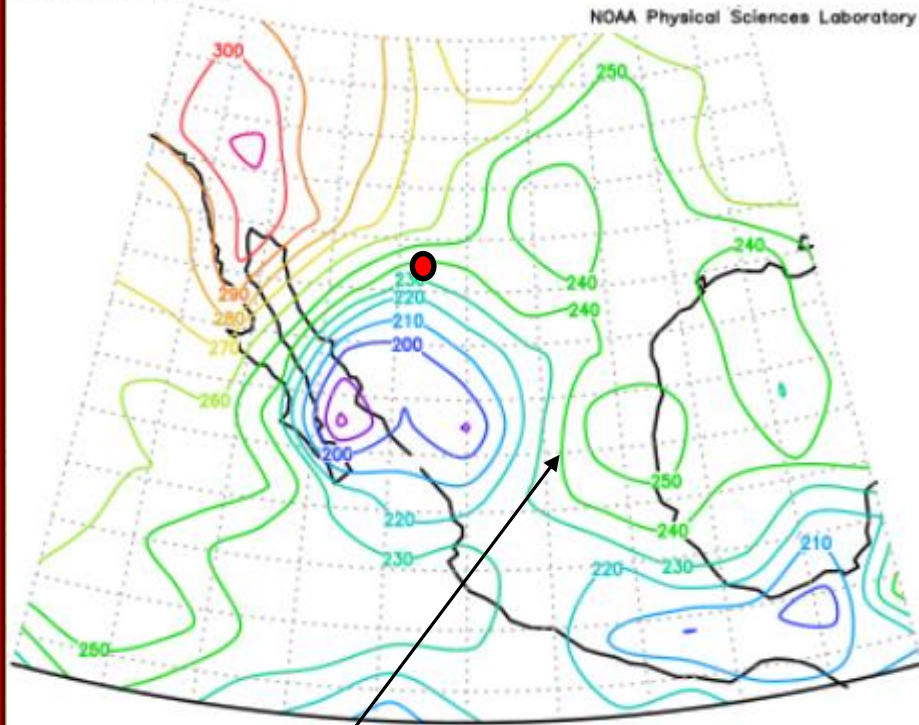
Tracking the 2022 Monsoon Season across the El Paso Forecast Area. Fig. 7

t: averaged over Aug 27 2022 to Aug 31 2022

lev: 0

Mean olr W/m²

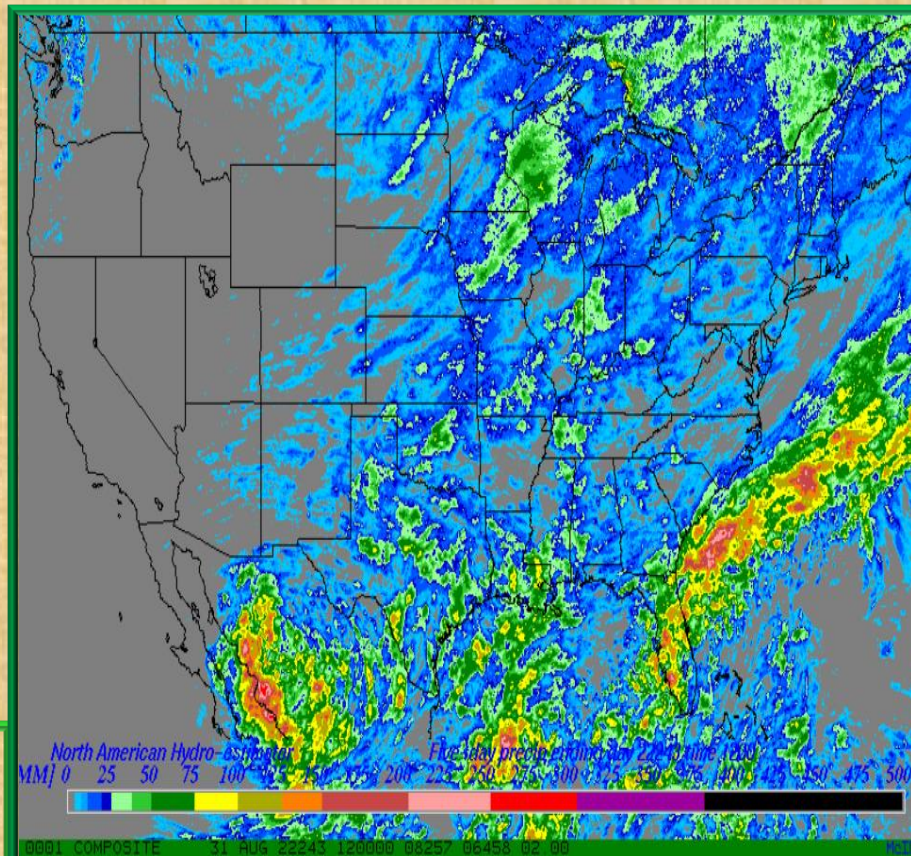
NOAA Physical Sciences Laboratory



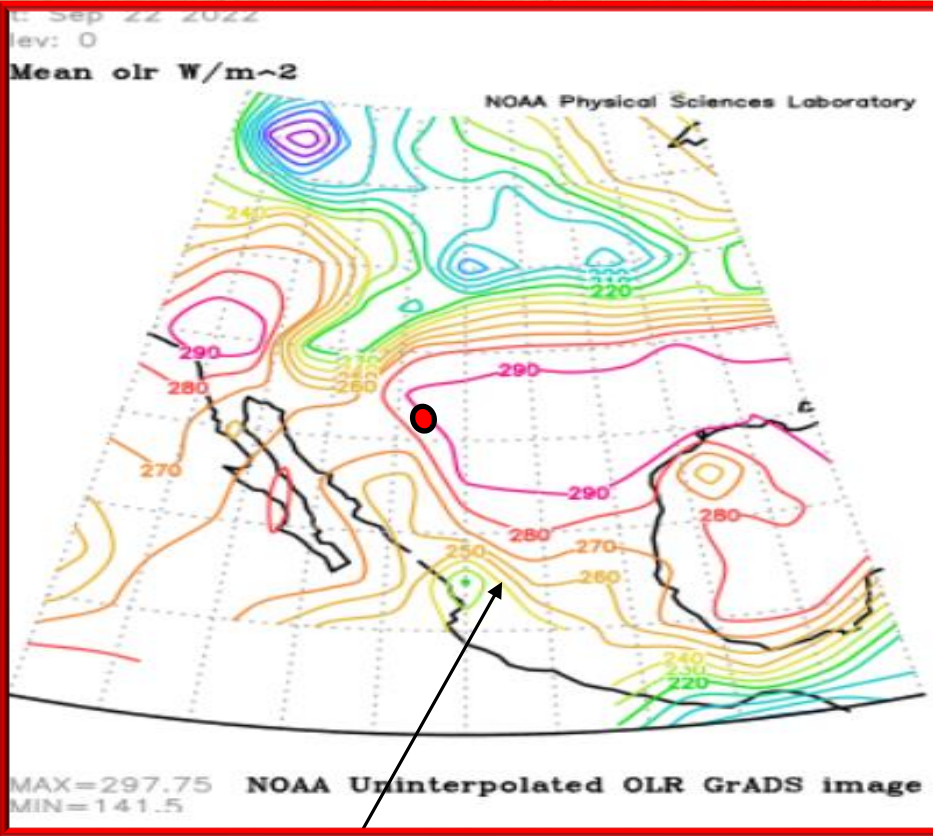
Green Line=240

Aug 31– Outgoing Longwave Radiation (OLR) still remaining at level 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 Aug 27-31)

On Aug 31 the Monsoon rainfall pattern was still going strong.



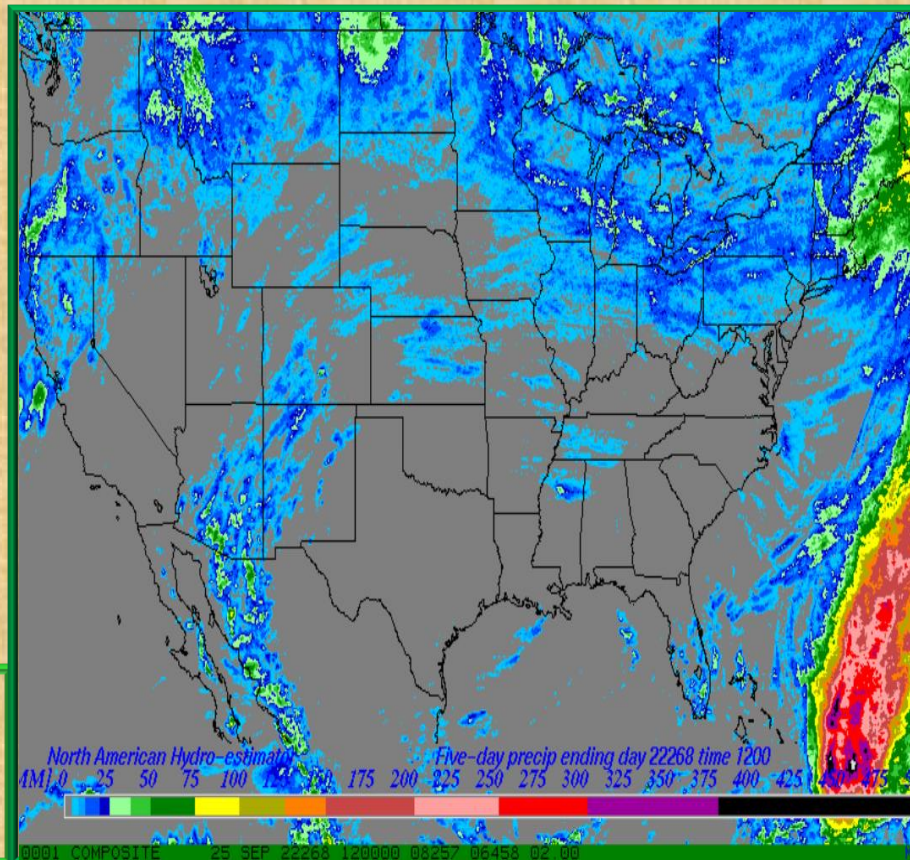
Tracking the 2022 Monsoon Season across the El Paso Forecast Area. Fig. 8



Sep 22 – Outgoing Longwave Radiation (OLR) increased to well above 240 W/m² and remained there for the season; indicative of the monsoon moisture ending.

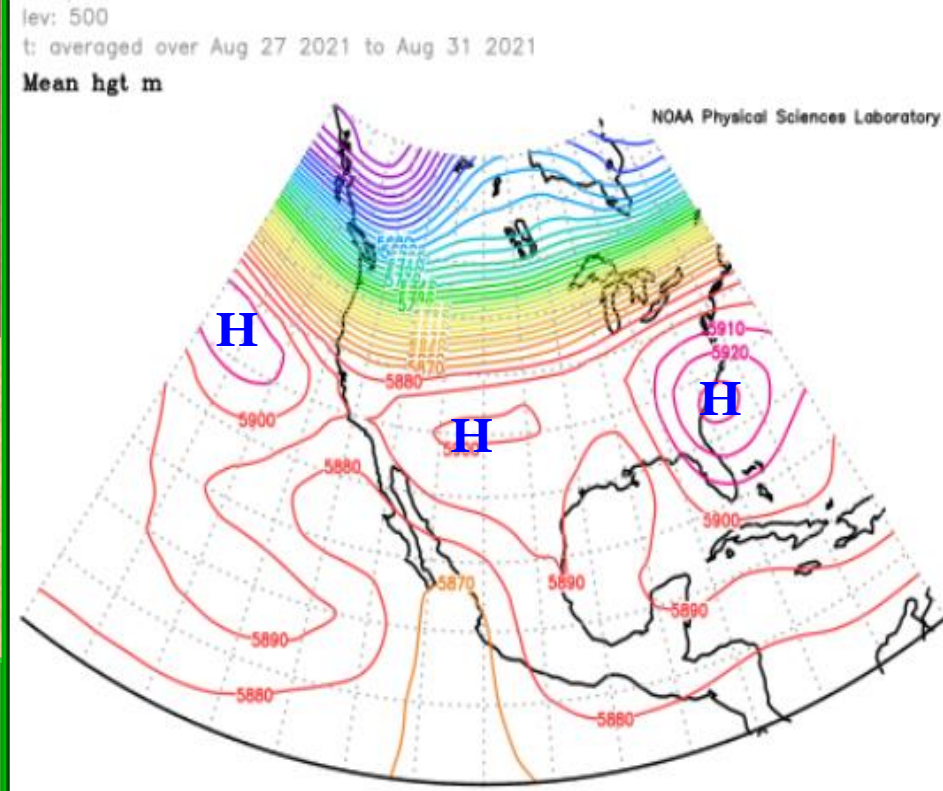
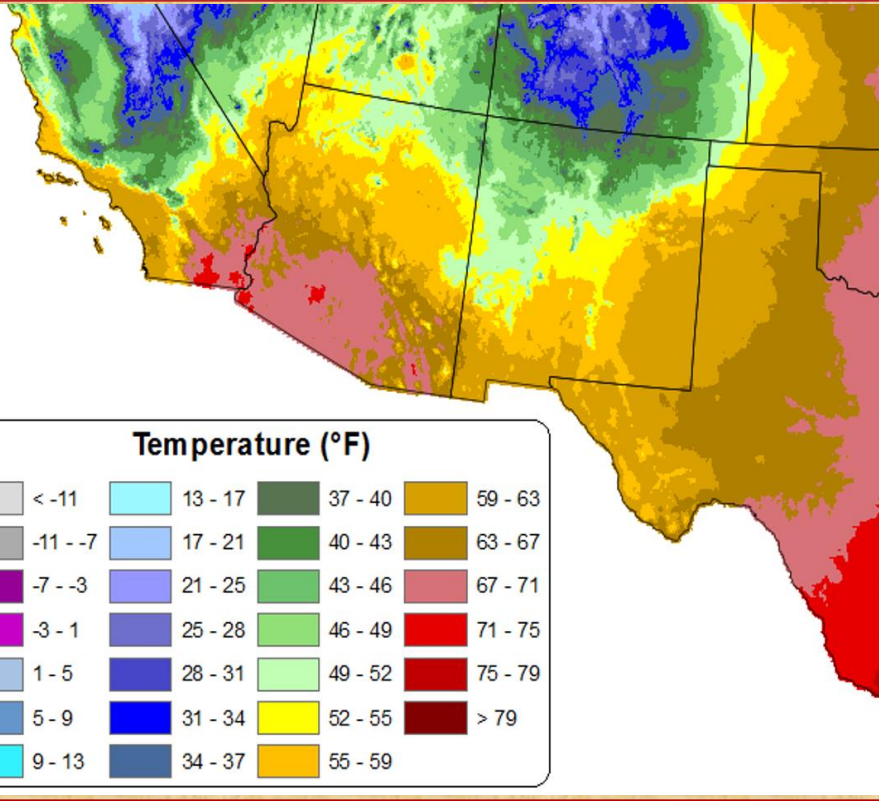
Orange Line=240

By Sep 24 the Monsoon rainfall had moved out of New Mexico but continued over Arizona.



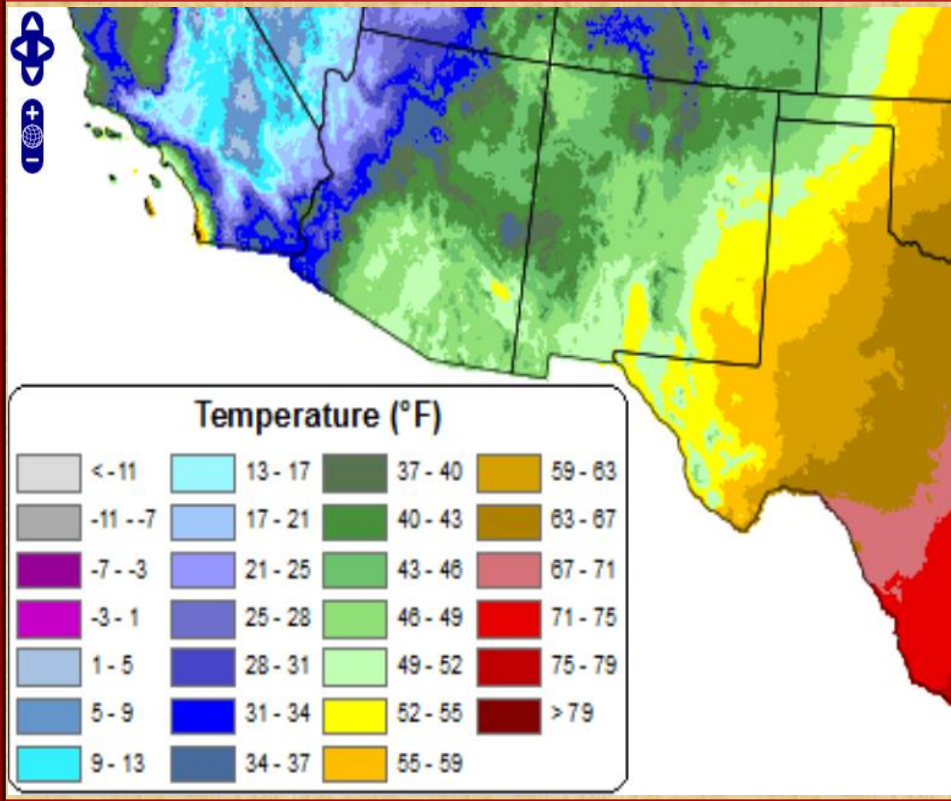
Tracking the 2022 Monsoon Season across the El Paso Forecast Area. Fig. 9

Aug 31 – Surface dewpoints still well into the 50s (deg) across the vast majority of the Desert Southwest



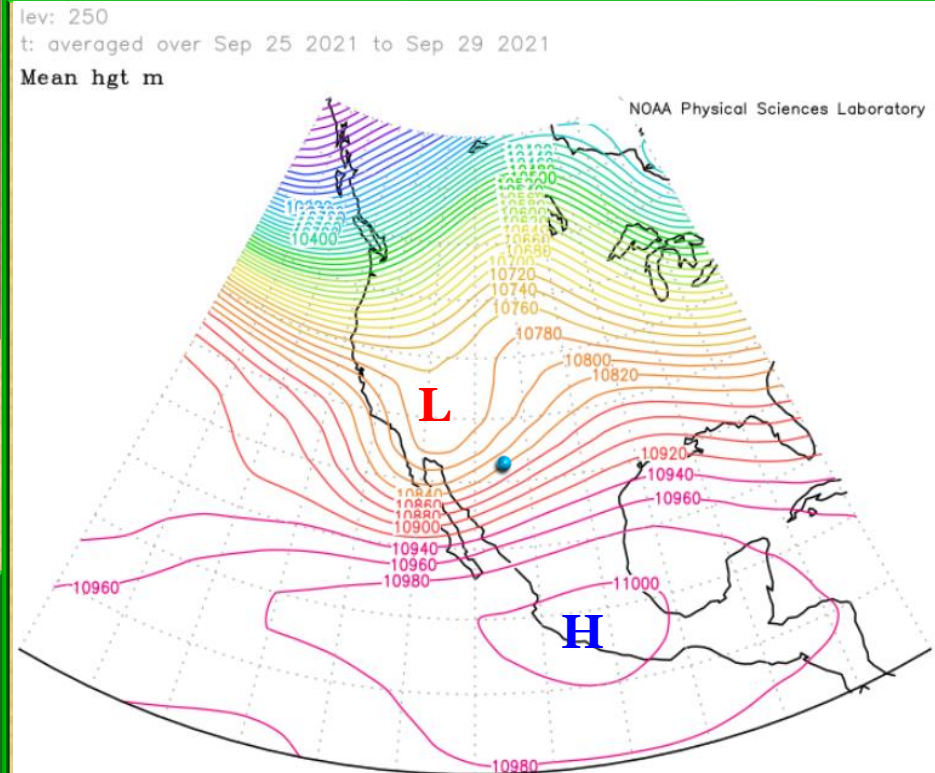
Aug 31 – Mid level flow still showing weak monsoon pattern

Tracking the end of the 2022 Monsoon Season across the El Paso Forecast Area. Fig. 10



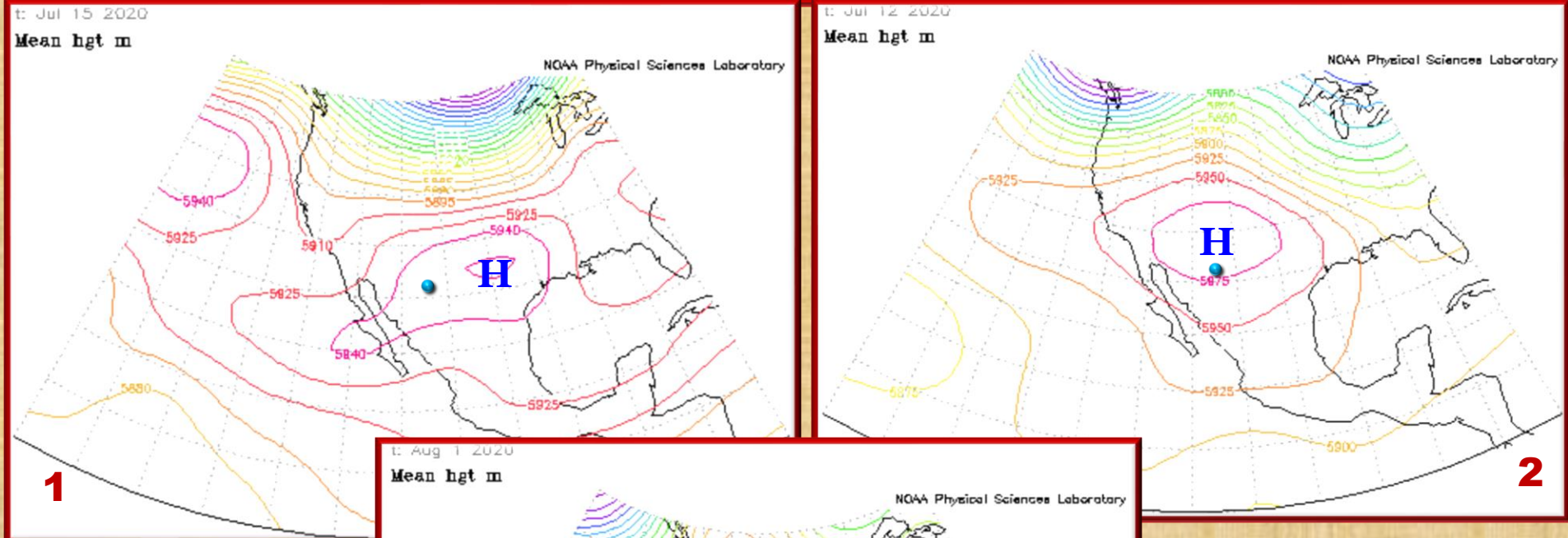
Sep 30 – Surface dewpoints had fallen into the 40s for several consecutive days.

By Sep 25 the upper air pattern showed a consistently strong intrusion from the polar jet, thus ending the monsoon flow for the season.



Tracking the 2022 Monsoon Season across the El Paso Forecast Area. Fig. 11

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

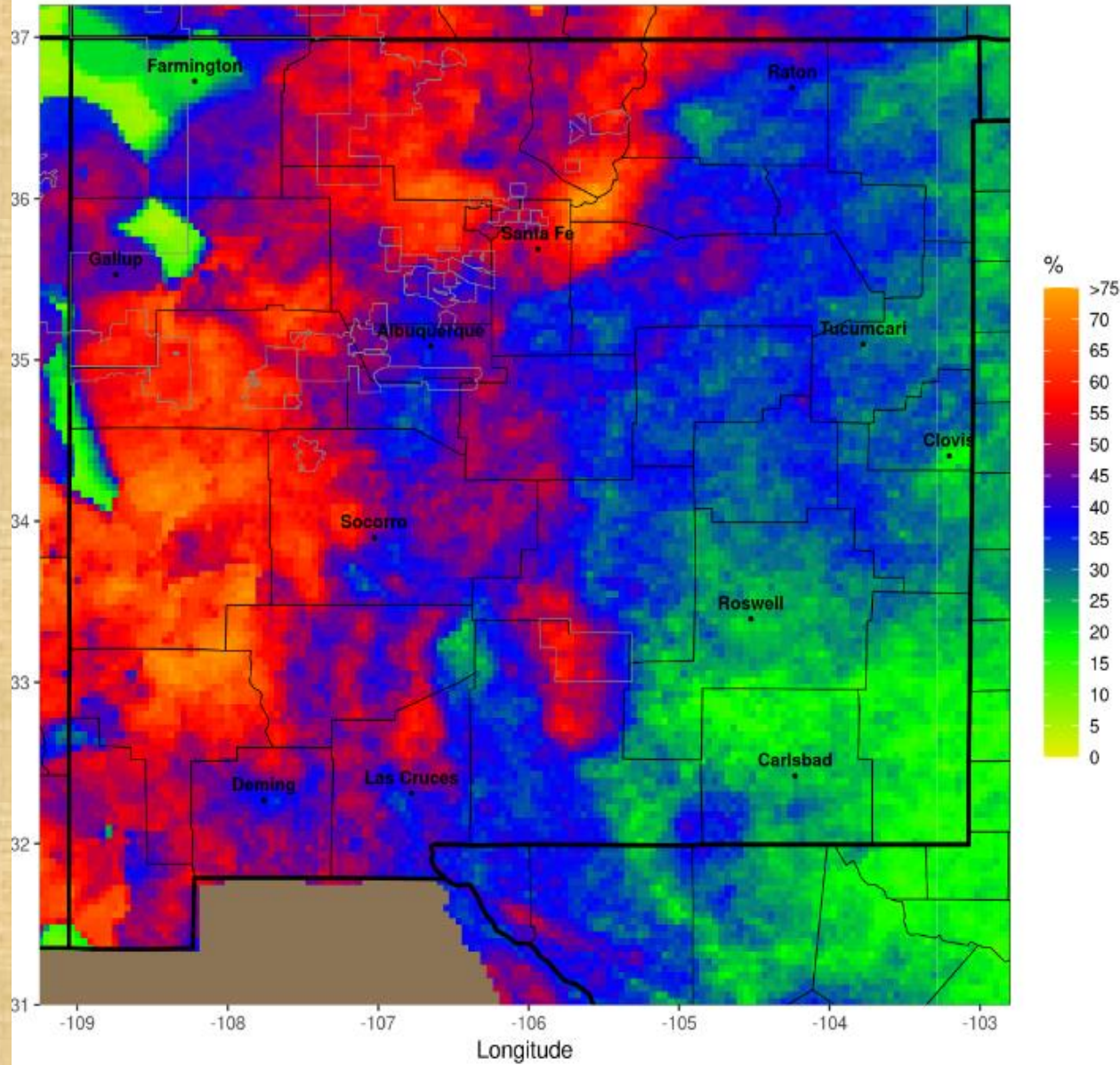


No. 1 High center east of New Mexico. Often brings ample tropical moisture and widespread heavy rain and flooding to the area under southerly flow.

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

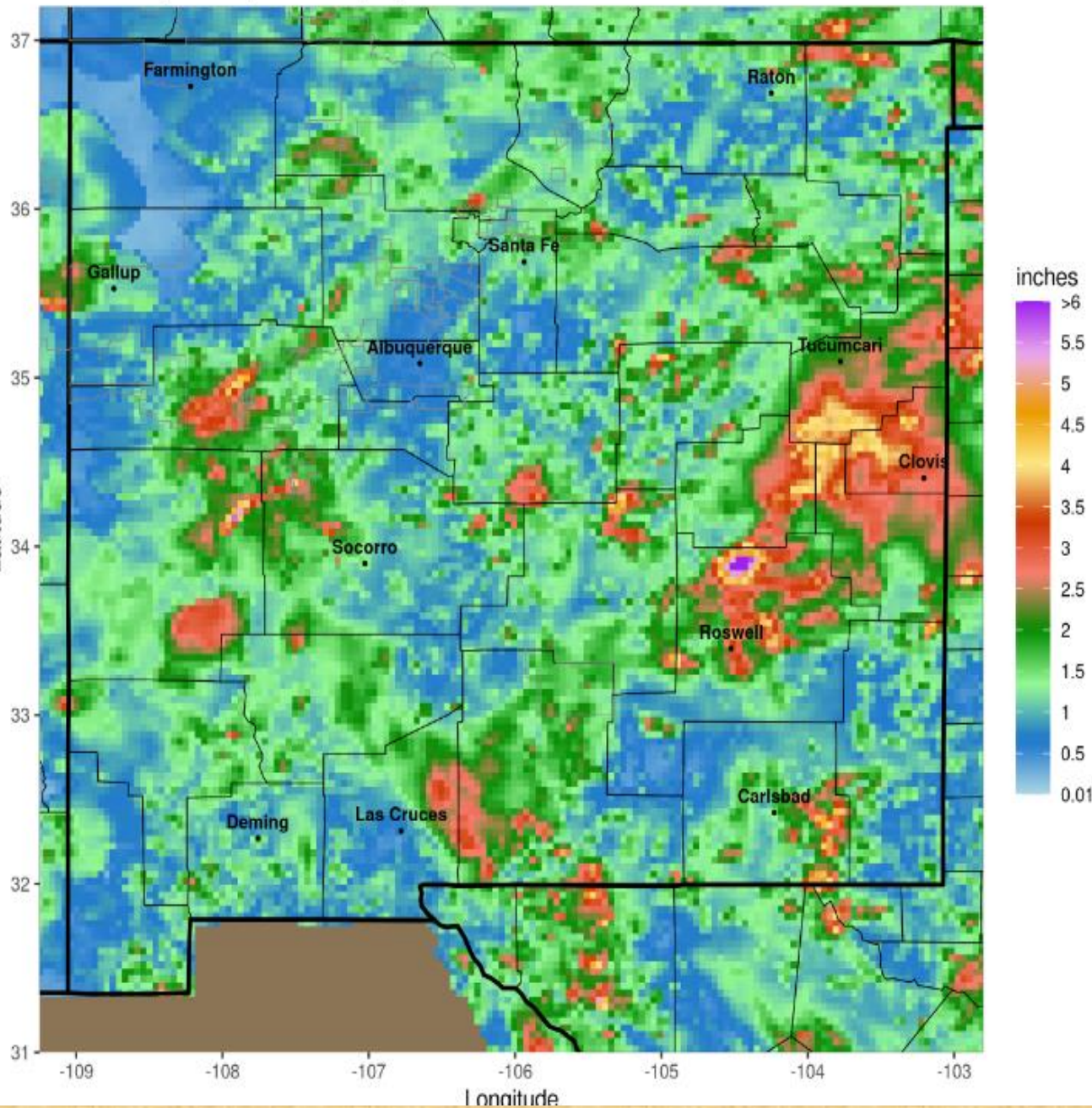
No. 3 High center west of New Mexico. Often brings scattered storms with hit and miss heavy rains and large hail and strong wind potential.

Percent of days with rain (>0.01 in): 2022-06-15 to 2022-09-30



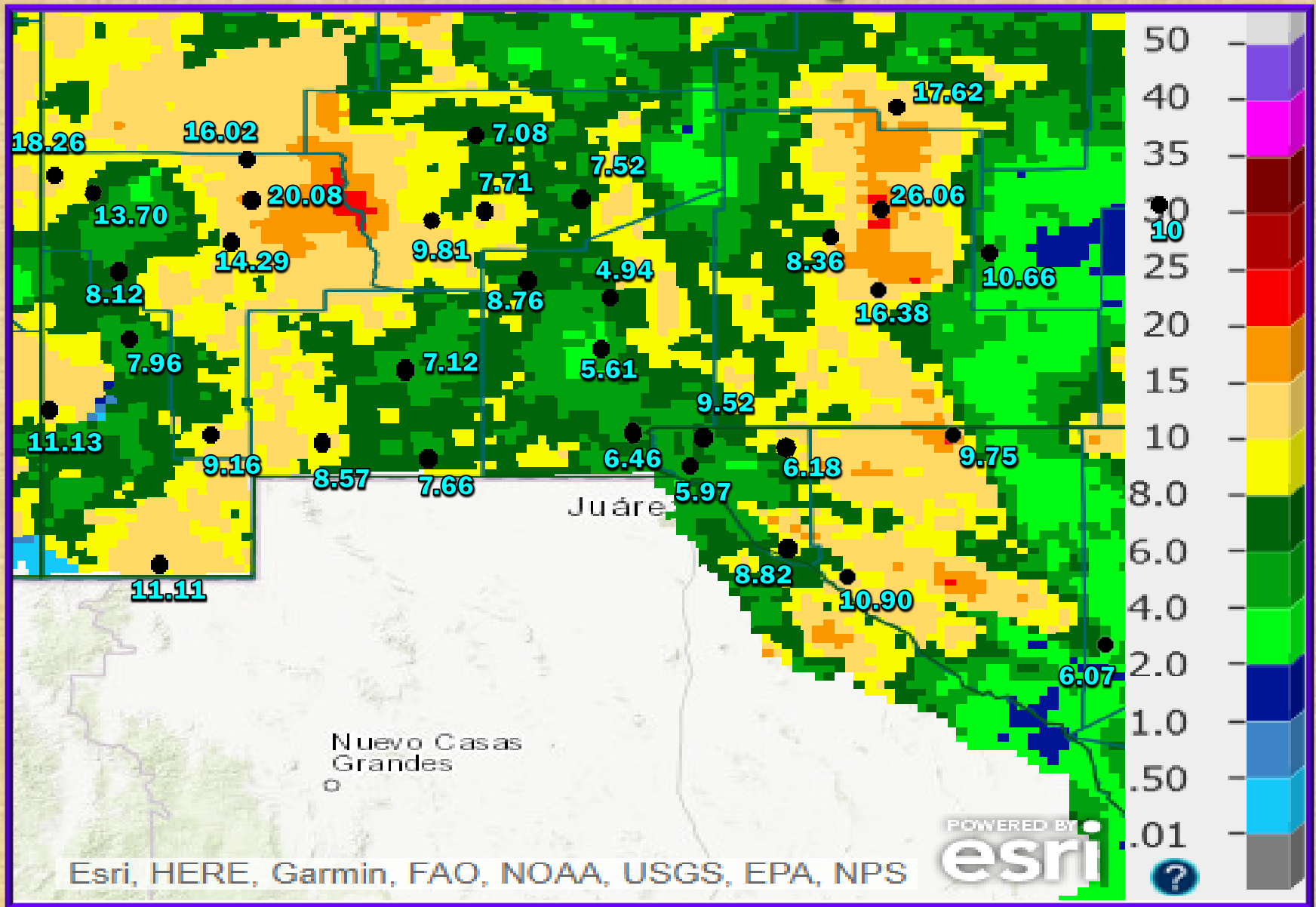
This map shows the percentage of measurable rainfall days during the Monsoon season. Courtesy of Climate Assessment for the Southwest.

Max 1-day Precipitation (in.): 2022-06-15 to 2022-09-30

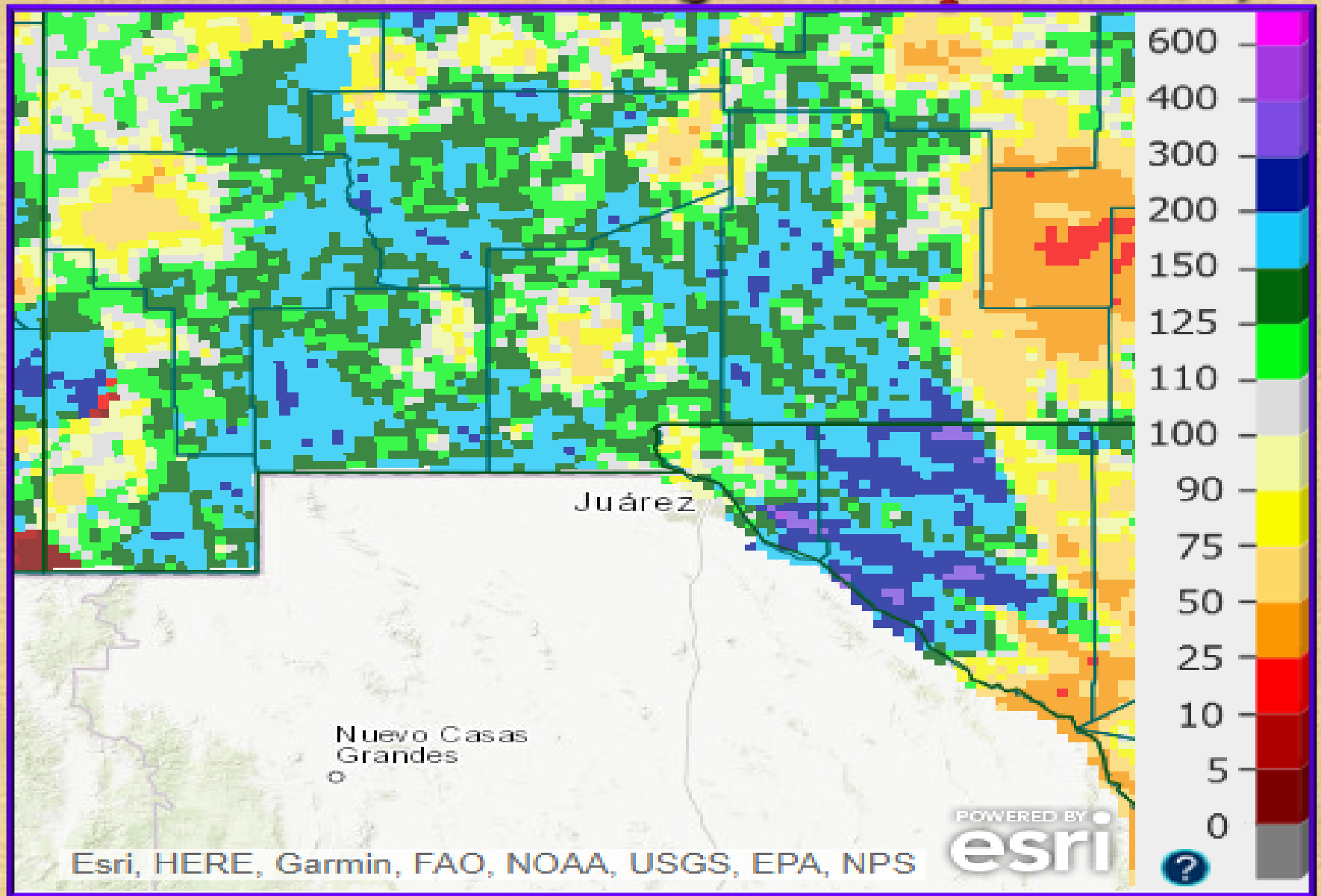


This map shows greatest one day rainfall total during the Monsoon season. Courtesy of Climate Assessment for the Southwest.

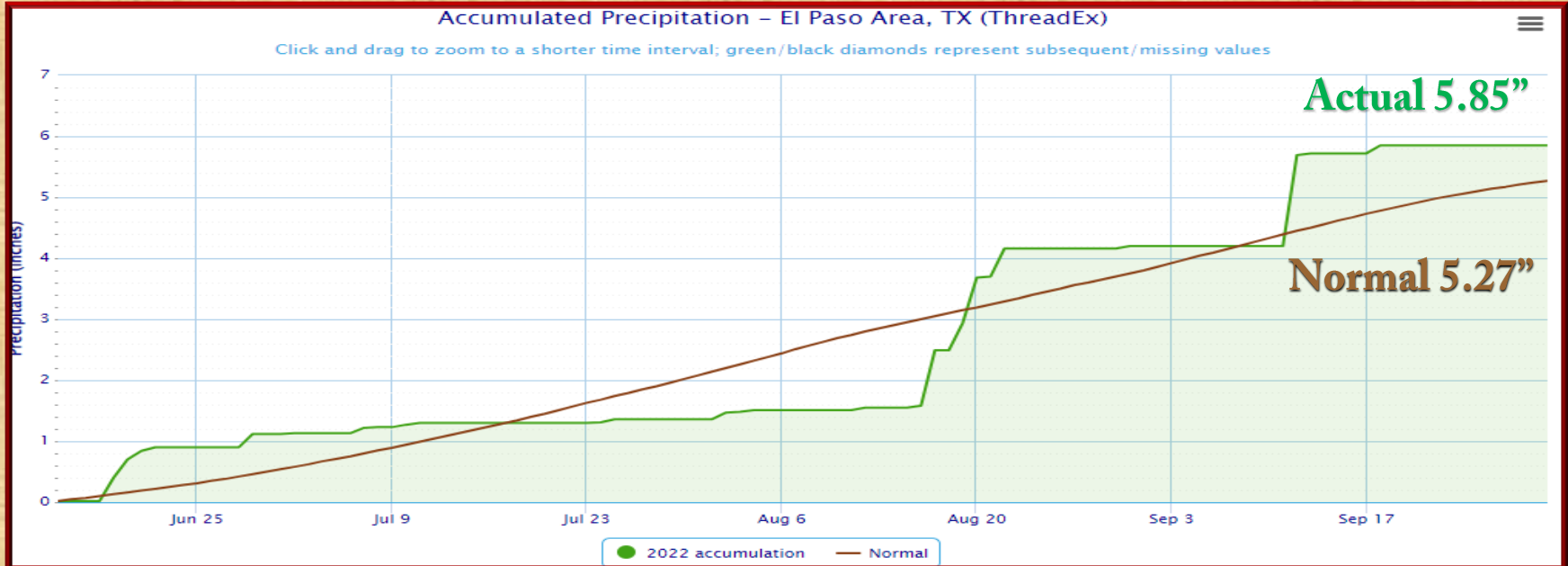
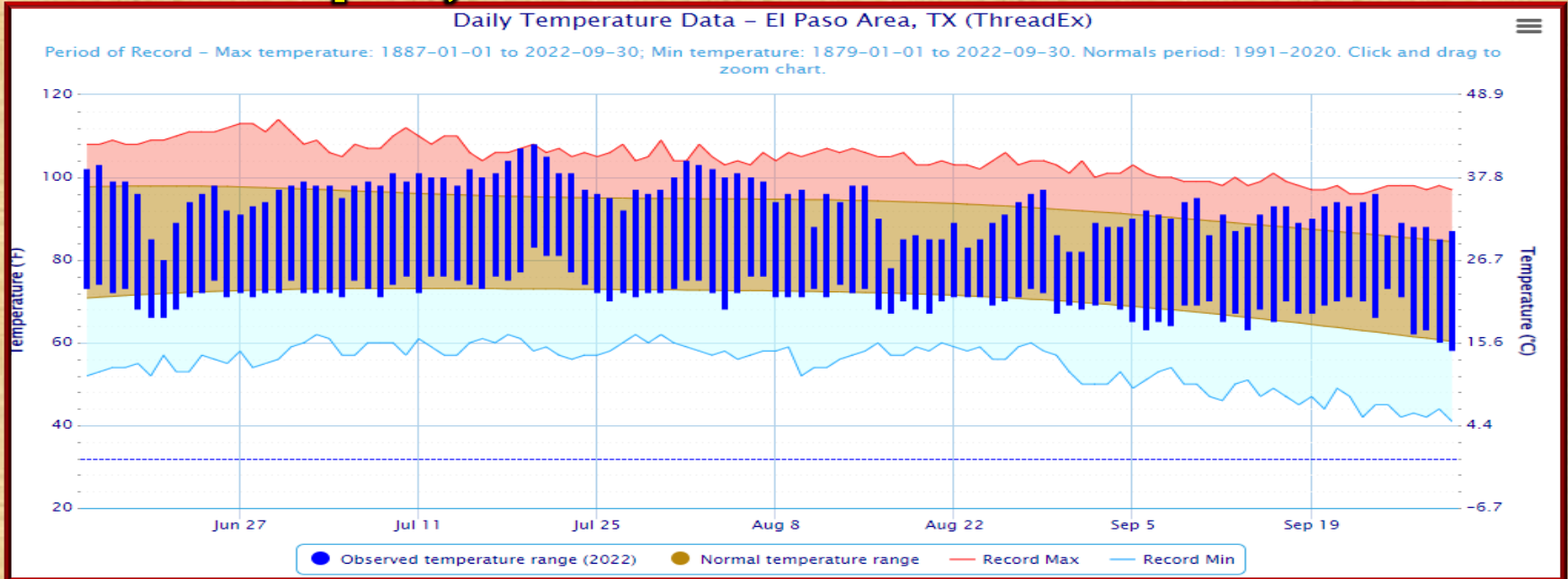
Radar rainfall estimate for the Monsoon Season 2022 (June 1 – September 30)



Radar rainfall estimate percent of normal for Monsoon season 2022 (June 1-September 30)



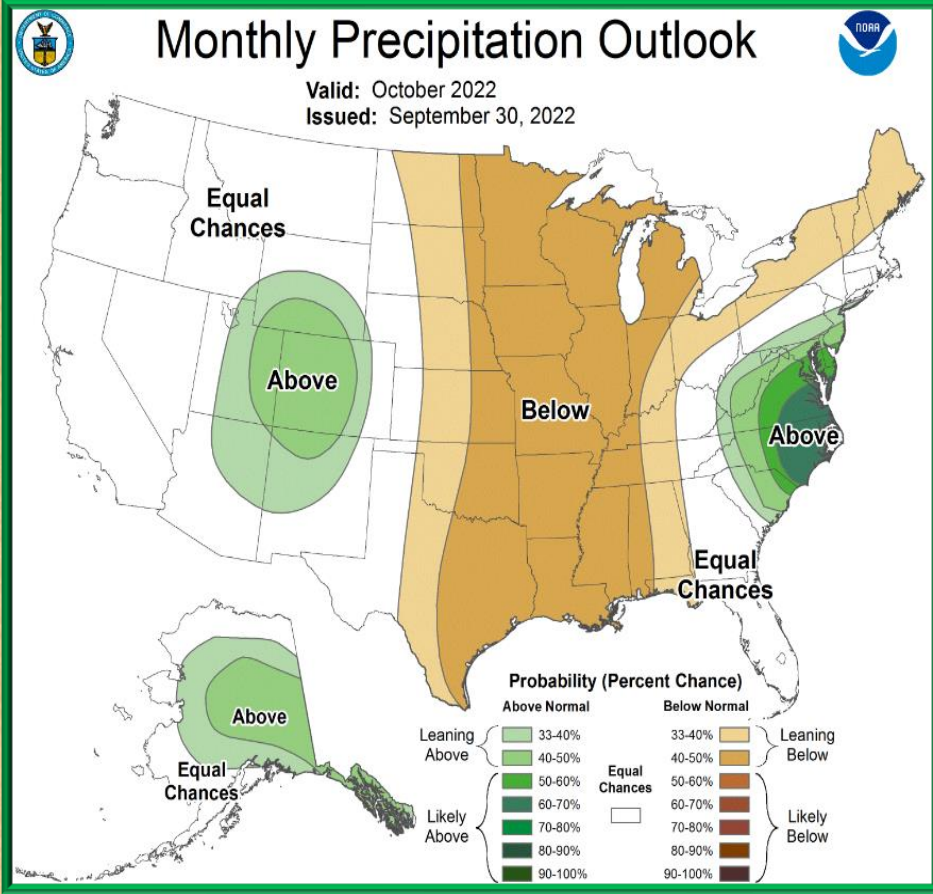
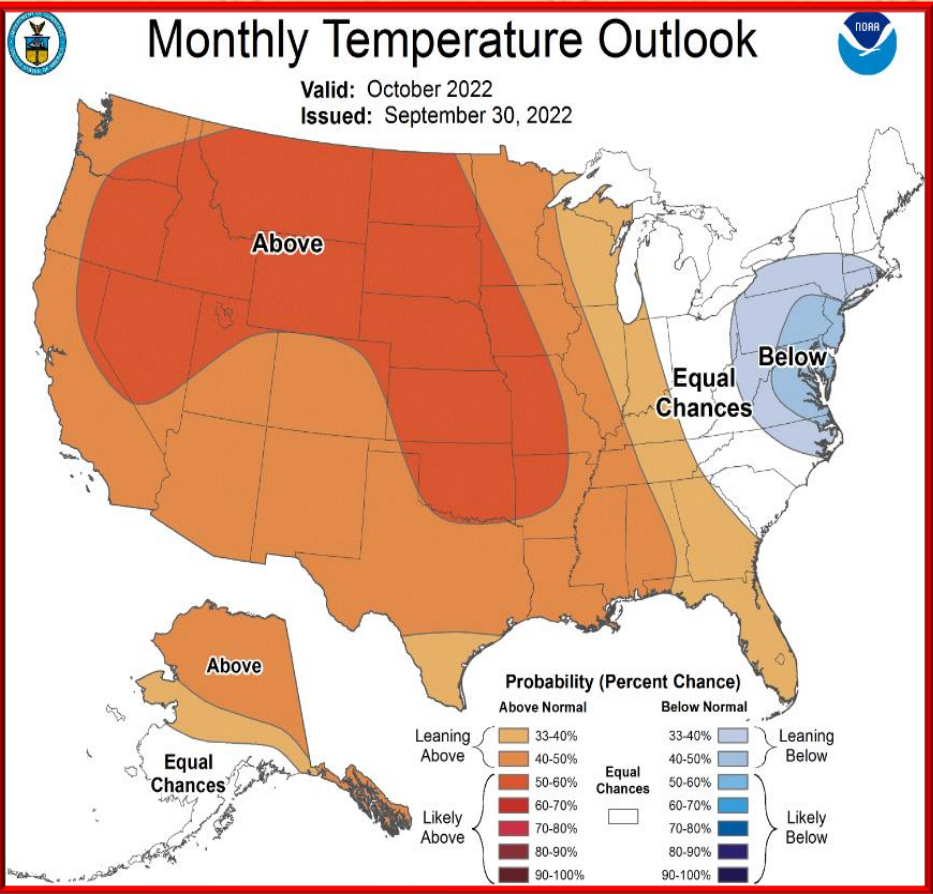
Temperature and precipitation data through Sep 30, 2022 Monsoon Season in El Paso



Temperature and precipitation outlook For October 2022

Temperature

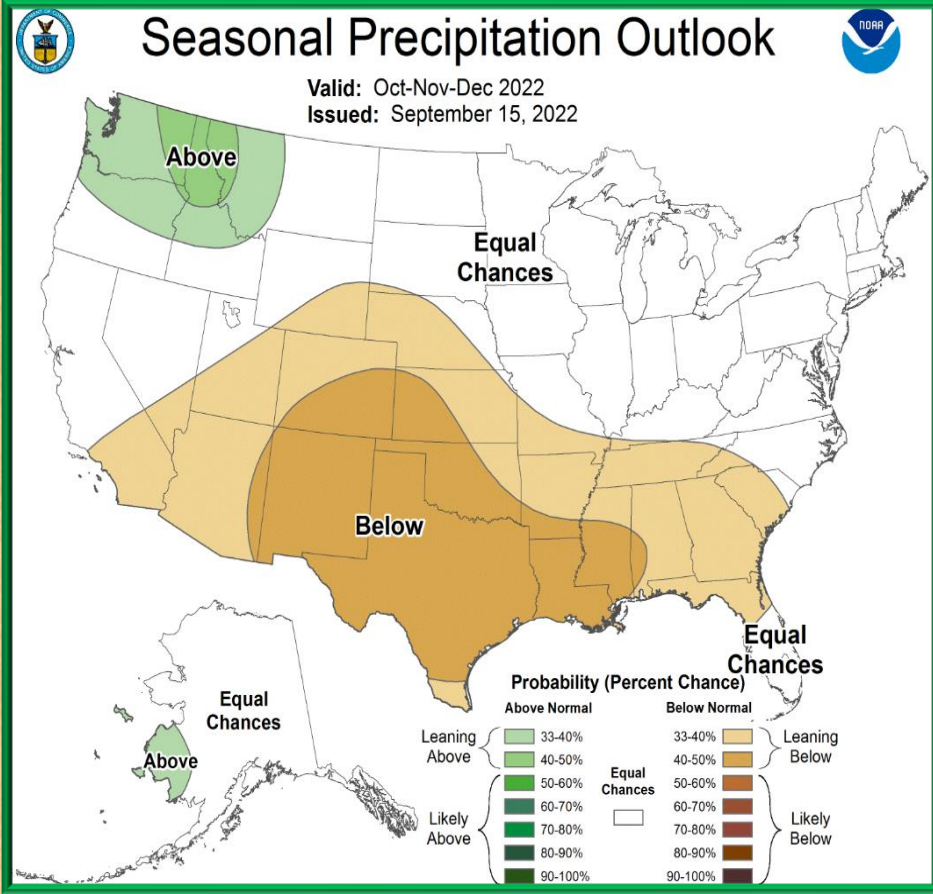
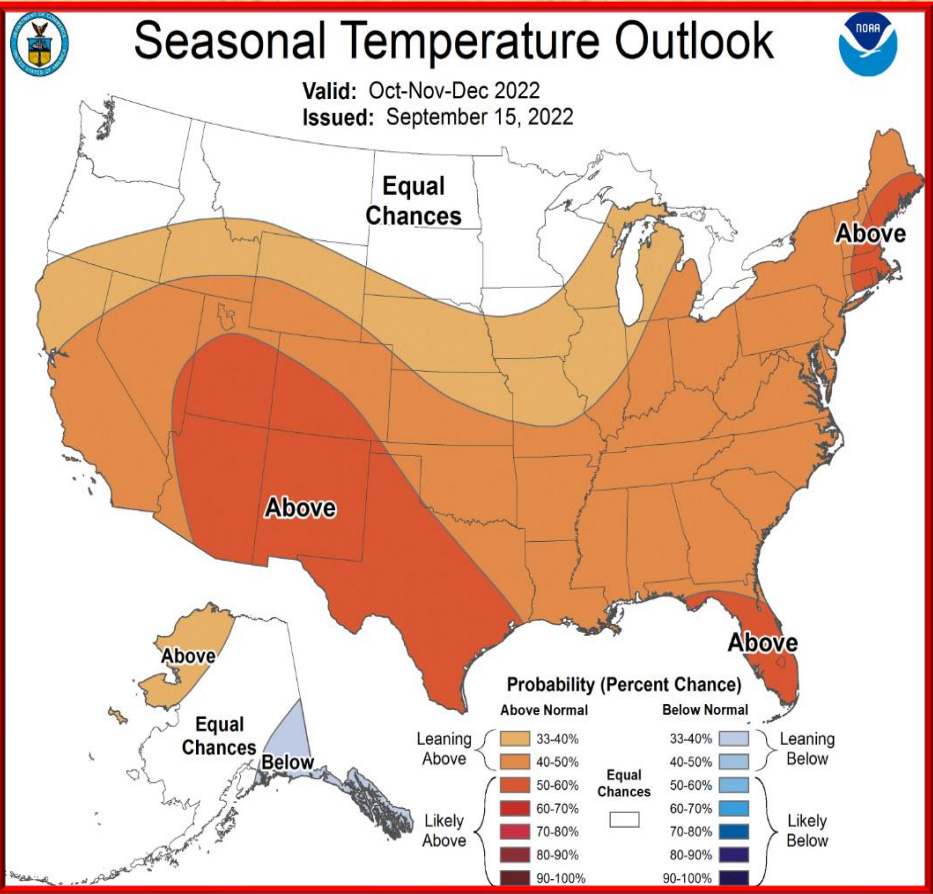
Precipitation



Temperature and precipitation outlook for Oct-Dec 2022

Temperature

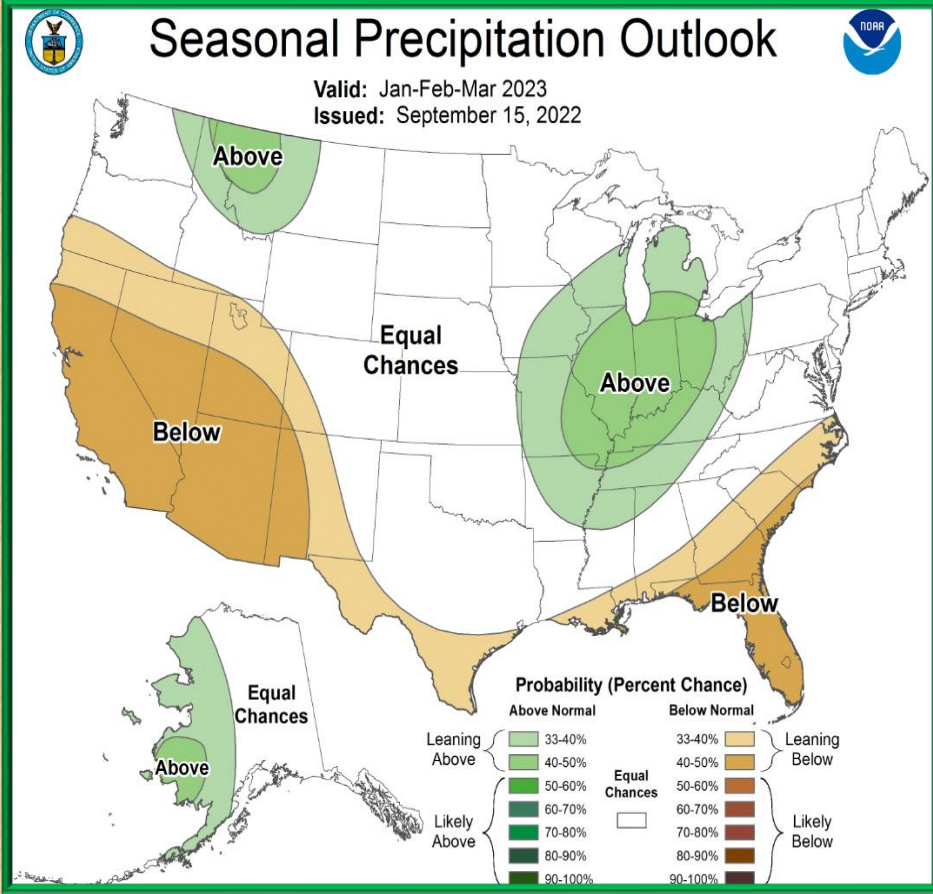
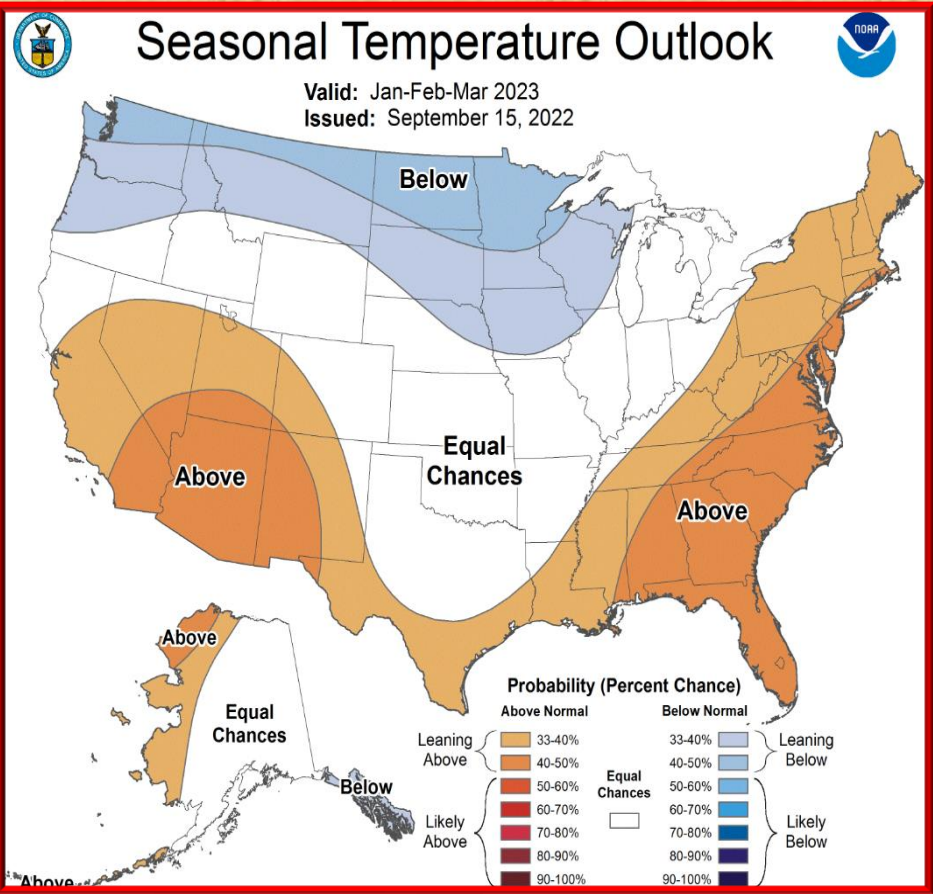
Precipitation



Temperature and precipitation outlook for Jan-Mar 2023

Temperature

Precipitation

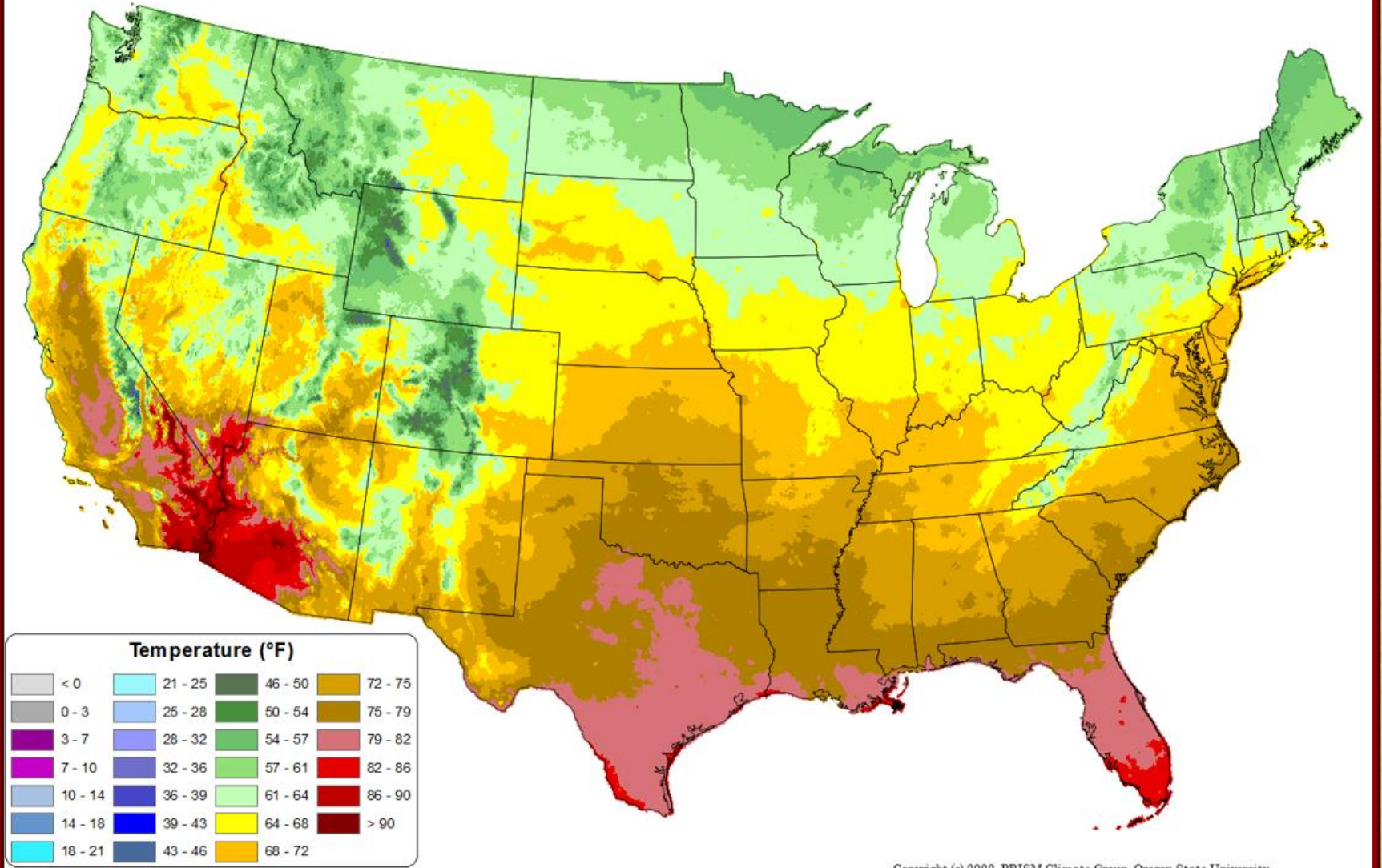


Average Daily Mean Temperature for September 2022

Average Daily Mean Temperature: Sep 2022

Period ending 7 AM EST 30 Sep 2022

(Map created 02 Oct 2022)

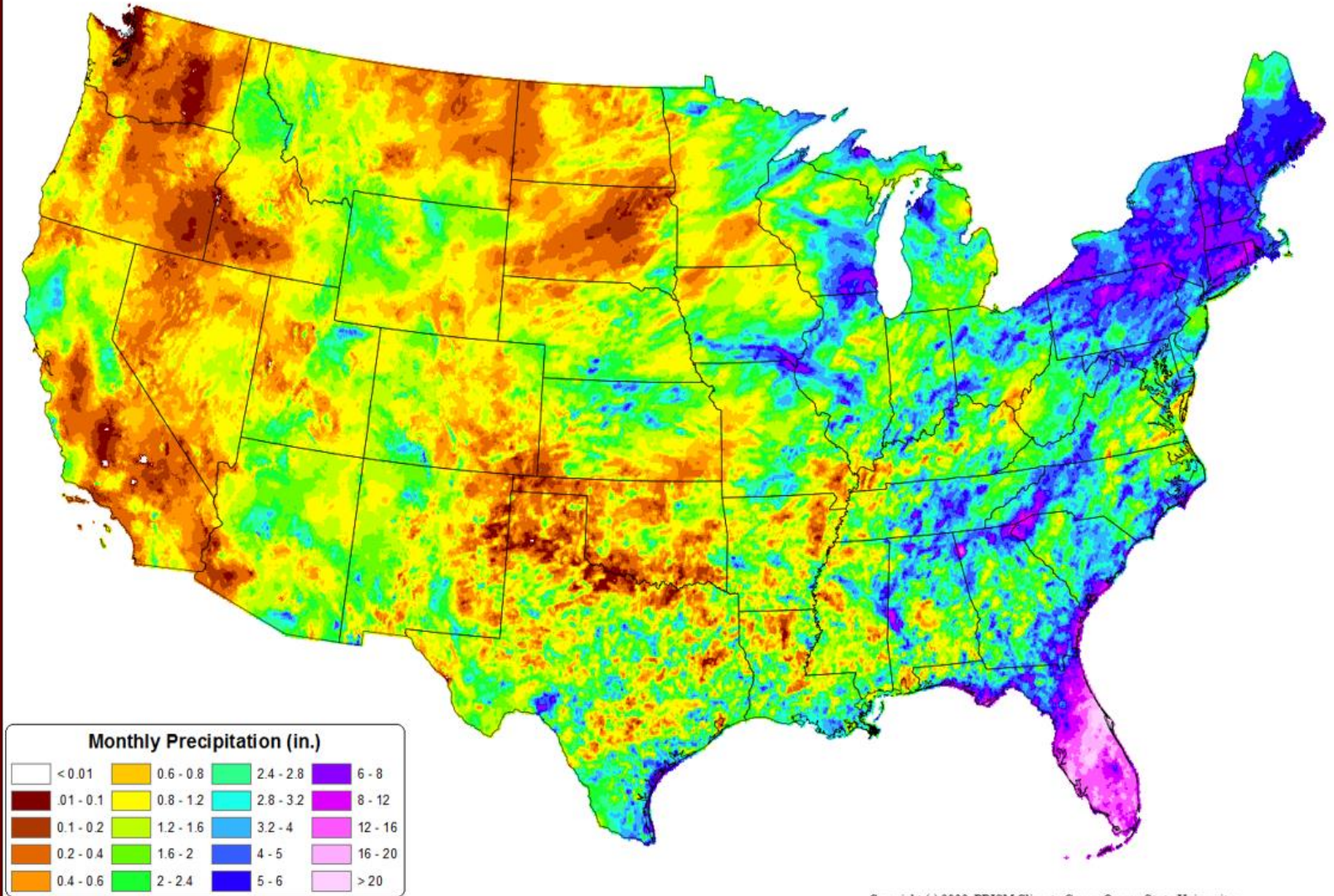


Total Precipitation for September 2022

Total Precipitation: Sep 2022

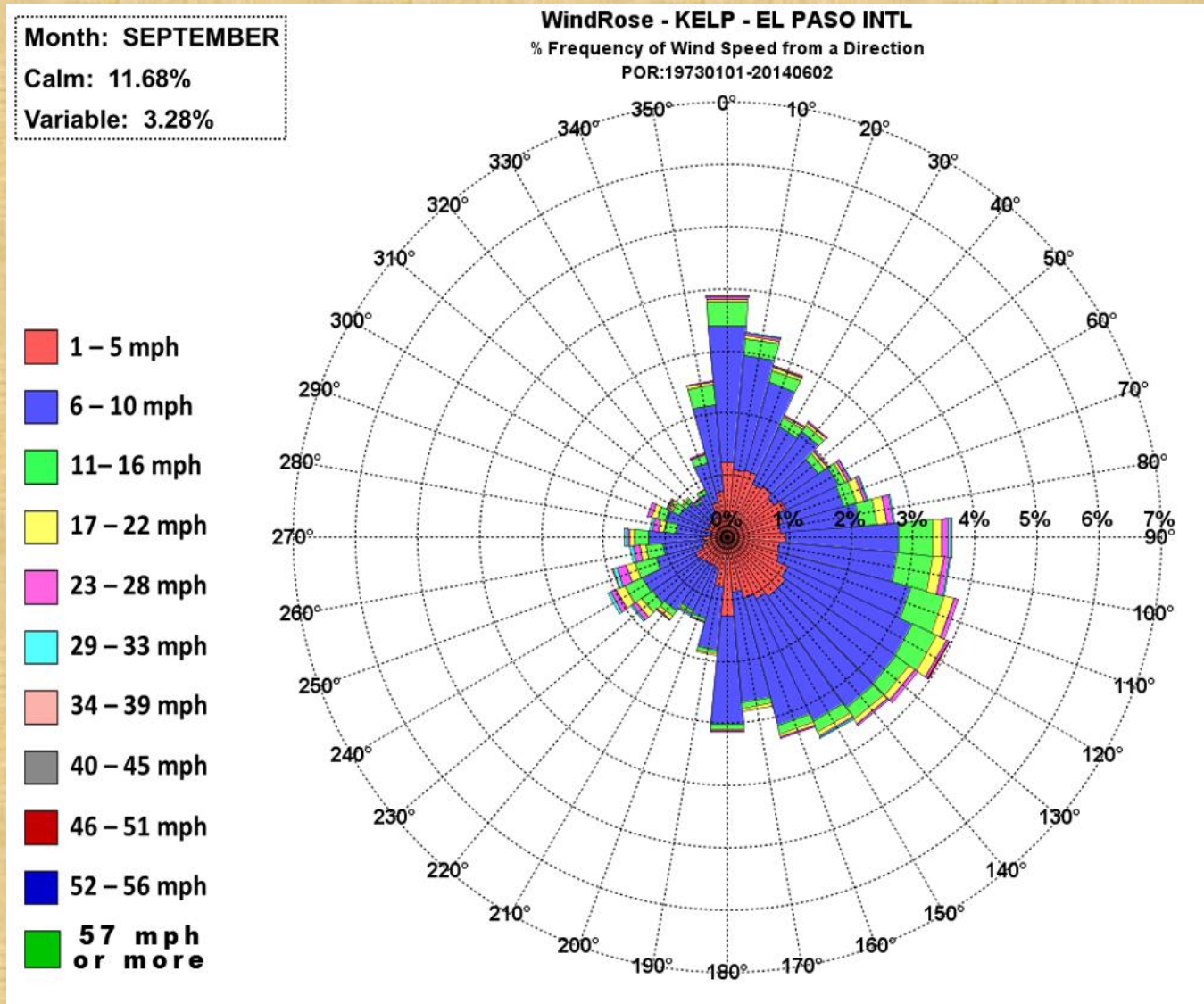
Period ending 30 Sep 2022

(Map created 02 Oct 2022)



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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El Paso, TX
 Weather Forecast Office

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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
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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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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

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 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	