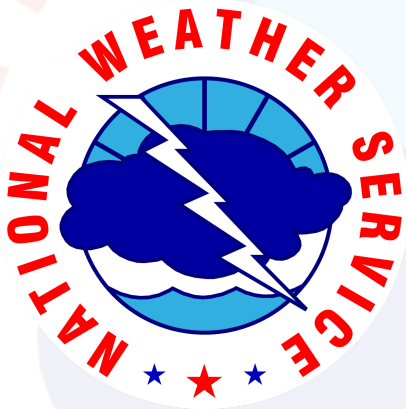


# SPOTTER NEWSLETTER

NWS PHOENIX SKYWARN NEWSLETTER

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OCTOBER 2024



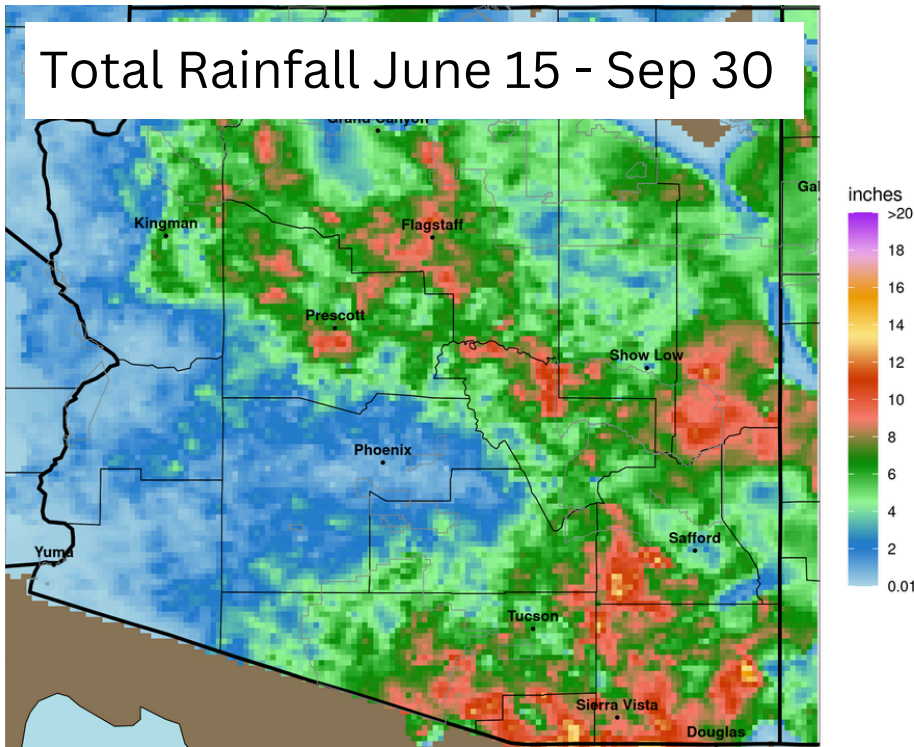
## What's Inside

- Monsoon Review
- Heat
- Rest of October Outlook
- Storm Report review
- Update your contact information

The story of this past Monsoon season and for the past 4 plus months is arguably the heat. We will go into some depth on that. But first, now that the Monsoon season has concluded, we will take a look at precipitation and lightning data to get a sense of how the storm activity played out as a whole this season.

# MONSOON REVIEW

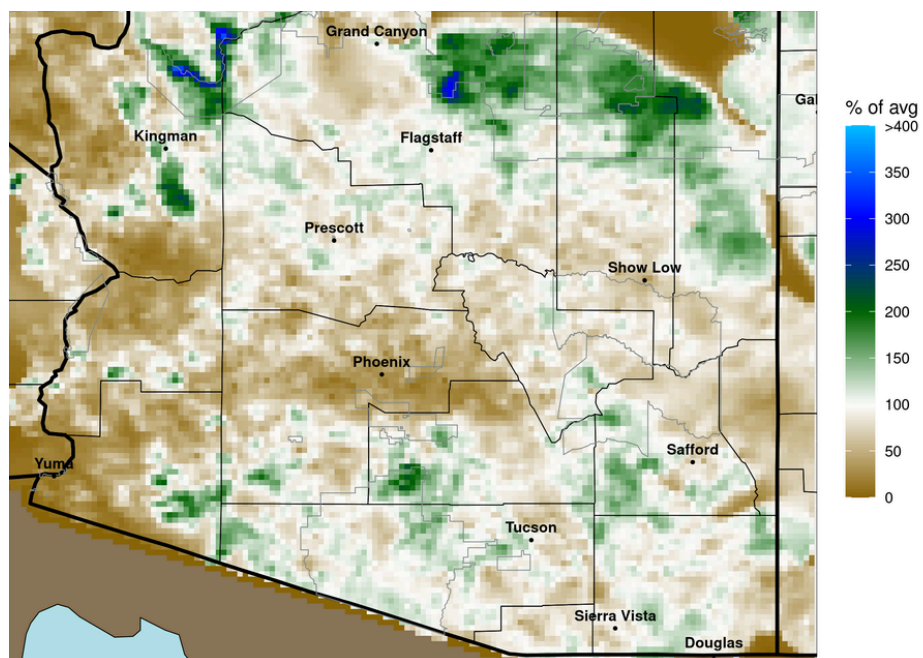
Total Rainfall June 15 - Sep 30



The map at left is for accumulated precipitation from June 15th - September 30th. By and large, the areal distribution aligns well with what we commonly see where higher terrain areas of central, northern, and southeast AZ receive the most. And conversely, the lower deserts see the least.

For some context, the map at the right shows how this season's precipitation compared to normal. As you can see, it's a mixed bag. Much of the lower deserts, including the Phoenix area, were on the low side (except for a couple of pockets near and south of I-8). But, some areas on the Colorado Plateau and Mohave County fared well.

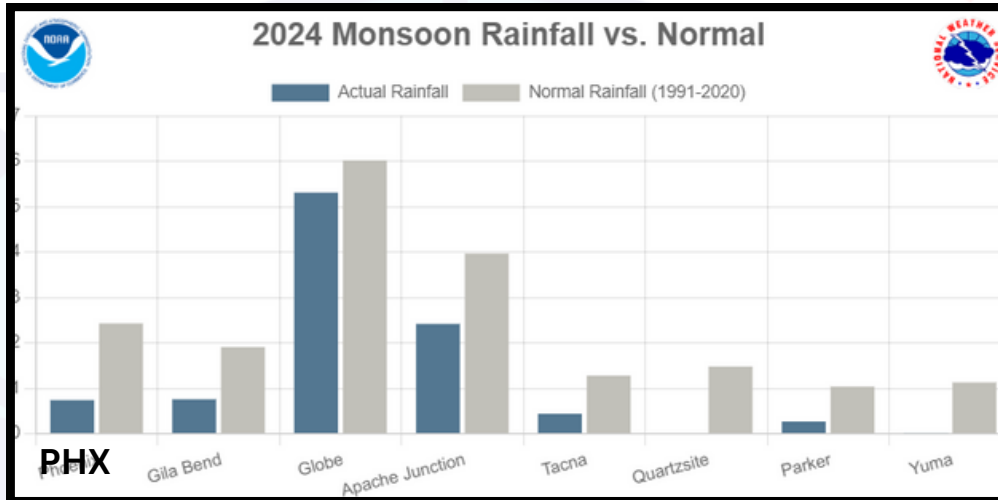
Percent of Average June 15 - Sep 3



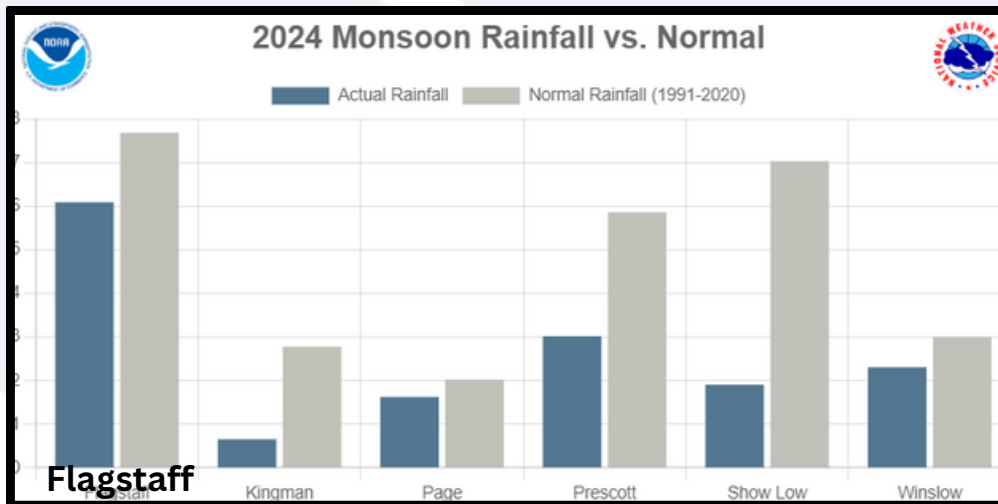
# MONSOON REVIEW (CONT.)

The bar charts below are another way of looking at the mapped data but for individual locations. Southeast AZ fared better than some others.

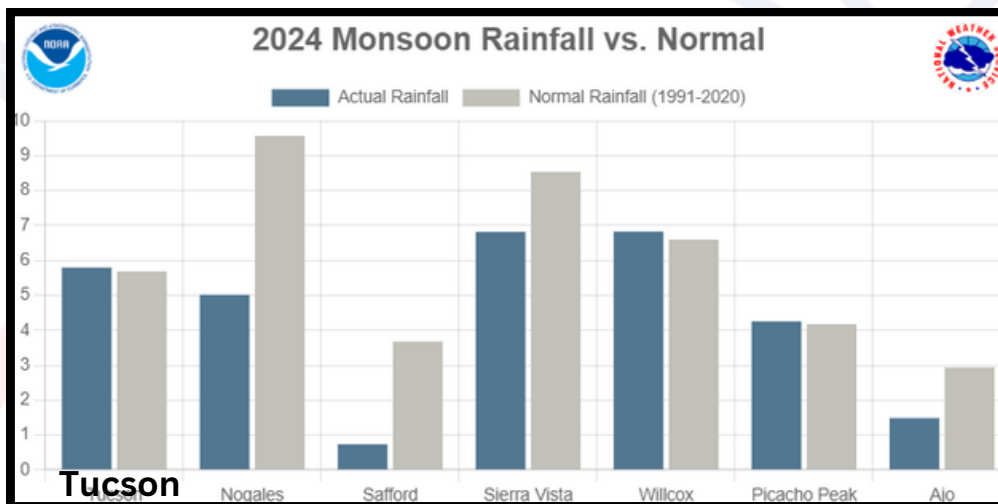
South-central and Southwest AZ



Northern AZ

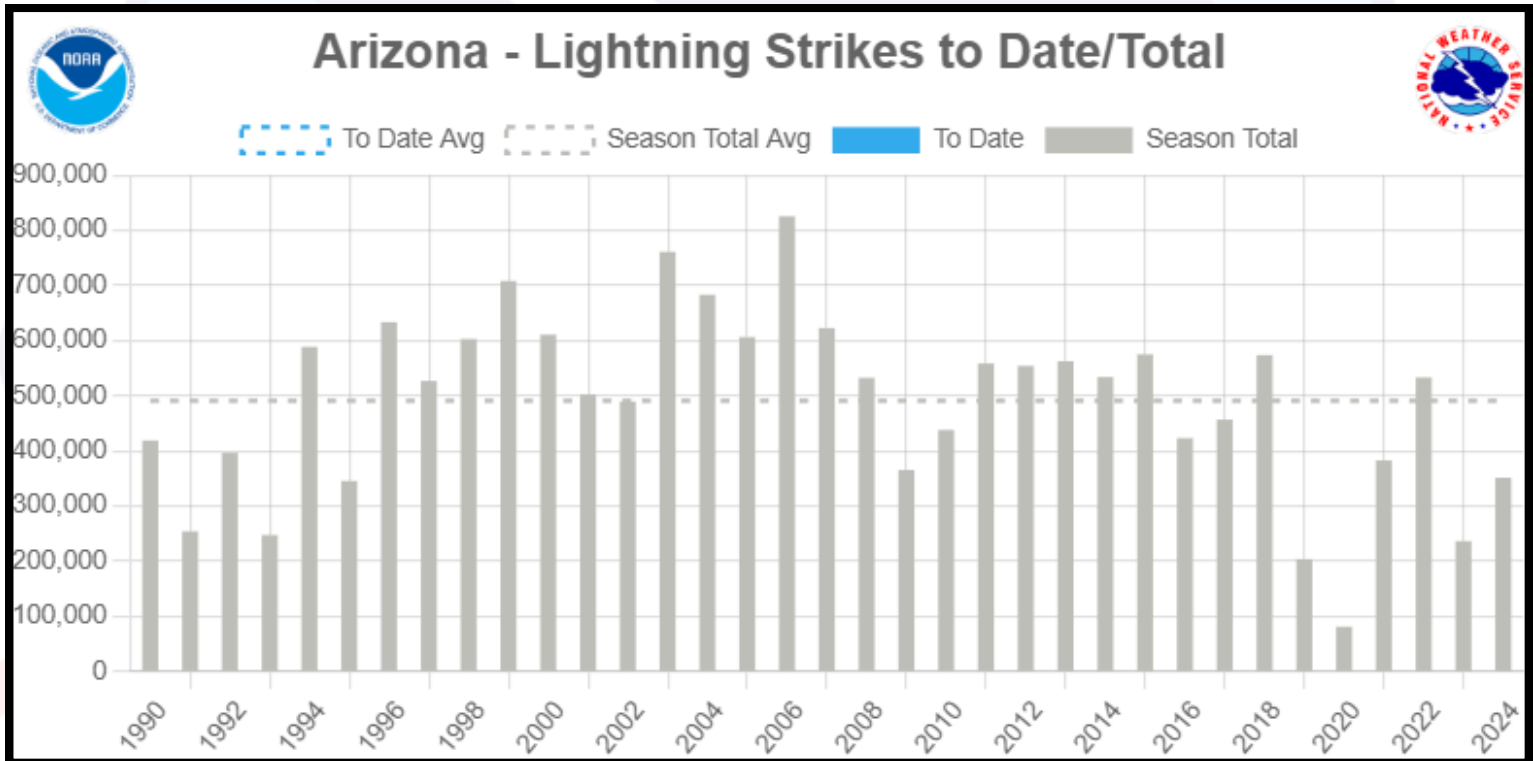


Southeast AZ



## MONSOON REVIEW (CONT.)

Not every rain producing cloud in summer is a thunderstorm. But, most often, the conditions needed to produce rain at that time of year also result in thunderstorms. So, examining lightning data is another way of assessing how active the Monsoon was and doesn't rely upon ground based precipitation measurements that can be pretty sparse in some areas. The bar chart below shows a count of cloud-to-ground lightning strikes for the state of Arizona during the Monsoon season going back to 1990. This year's count is on the far right of the chart.



One thing that may stand out is just how many strikes we can get. The dashed line is the seasonal average and that is close to 500,000! As you can see, this year fell short of that (about 350,000). But, at least it wasn't 2020. Contrast that with 2006 with over 800,000 strikes!



# HEAT

## (JUNE-AUG)

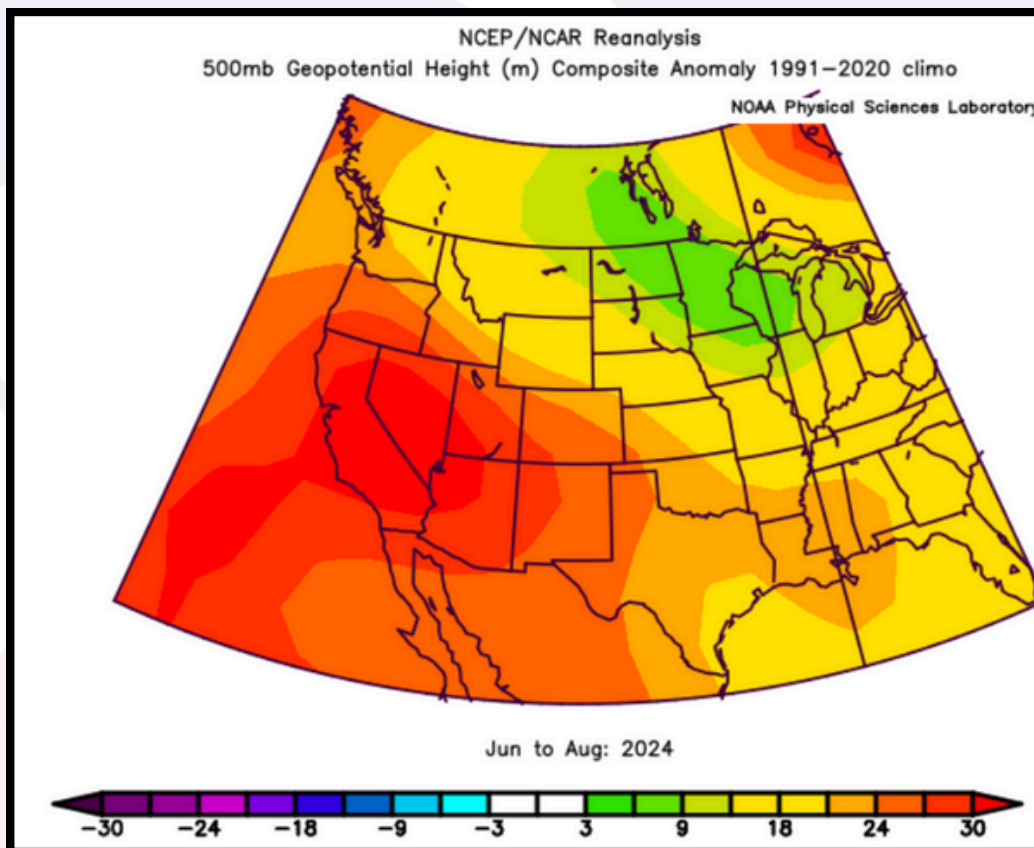
For much of Arizona and southeast CA, 2024 was the hottest summer on record. Below is some record information from select locations.

Hottest Summers	1st	Avg Temp	2nd	Avg Temp	3rd	Avg Temp
Phoenix	2024	98.9	2023	97.0	2020	96.7
Yuma	2024	95.7	1994	95.3	2006	95.0
Casa Grande Nat. Mon.	2024	92.4	1994	91.7	1981	91.1
Imperial	2021	95.0	2024	94.8	2022	94.6
Blythe	2024	97.4	1981	96.3	2021	95.5
Tucson	2024 (tied)	90.0	2020	90.0	1994	89.9
Douglas	2024	81.2	2011	81.2	1994	81.2
Flagstaff	2024	68.4	1981	66.6	2002	66.3
Kingman	2024	86.0	2021	84.7	2020	84.1
Winslow	2024	80.7	2021	79.4	2018	79.1

# HEAT (CON'T.)

## (JUNE-AUG)

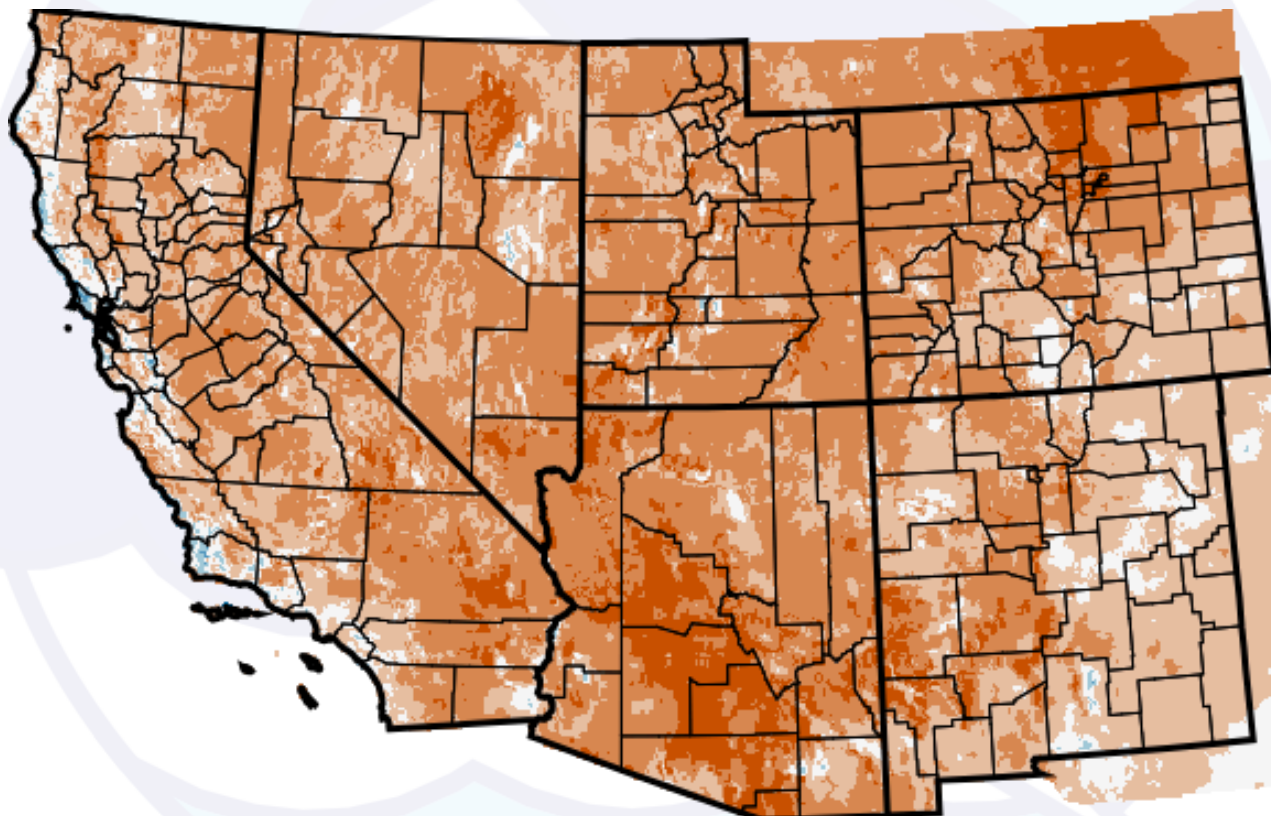
Why was it so hot? While we don't have a definitive answer, one thing we can look at is the upper air pattern that shows where there are anomalies in high pressure ridges. The map below shows differences from average for the height of a layer that is roughly in the middle of the troposphere for the period of June - August 2024. The warmer colors show where high pressure has been stronger than average. That's one factor. This also indicates where the center of high pressure has been more prevalent. Notice that instead of being centered closer to the Four Corners, the center is closer to the CA/NV border. That's not a favorable position to be able to import humid air. And when there is a lack of that, you have a lack of cloudiness and in turn precipitation and the associated rain cooled air.



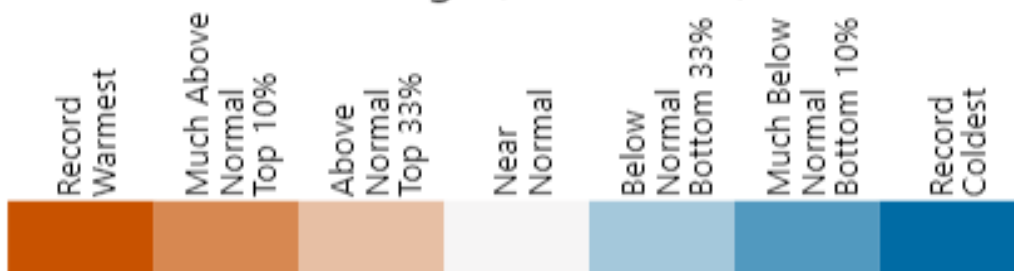
# HEAT (CON'T.)

## (SEPTEMBER)

September turned out to be pretty hot as well - despite a reprieve in the middle of the month with a low pressure system that moved through. The map below gives you a sense of how a lot of places in the west were hot last month (within the top third of records). And in portions AZ and southeast CA, it was at record levels.



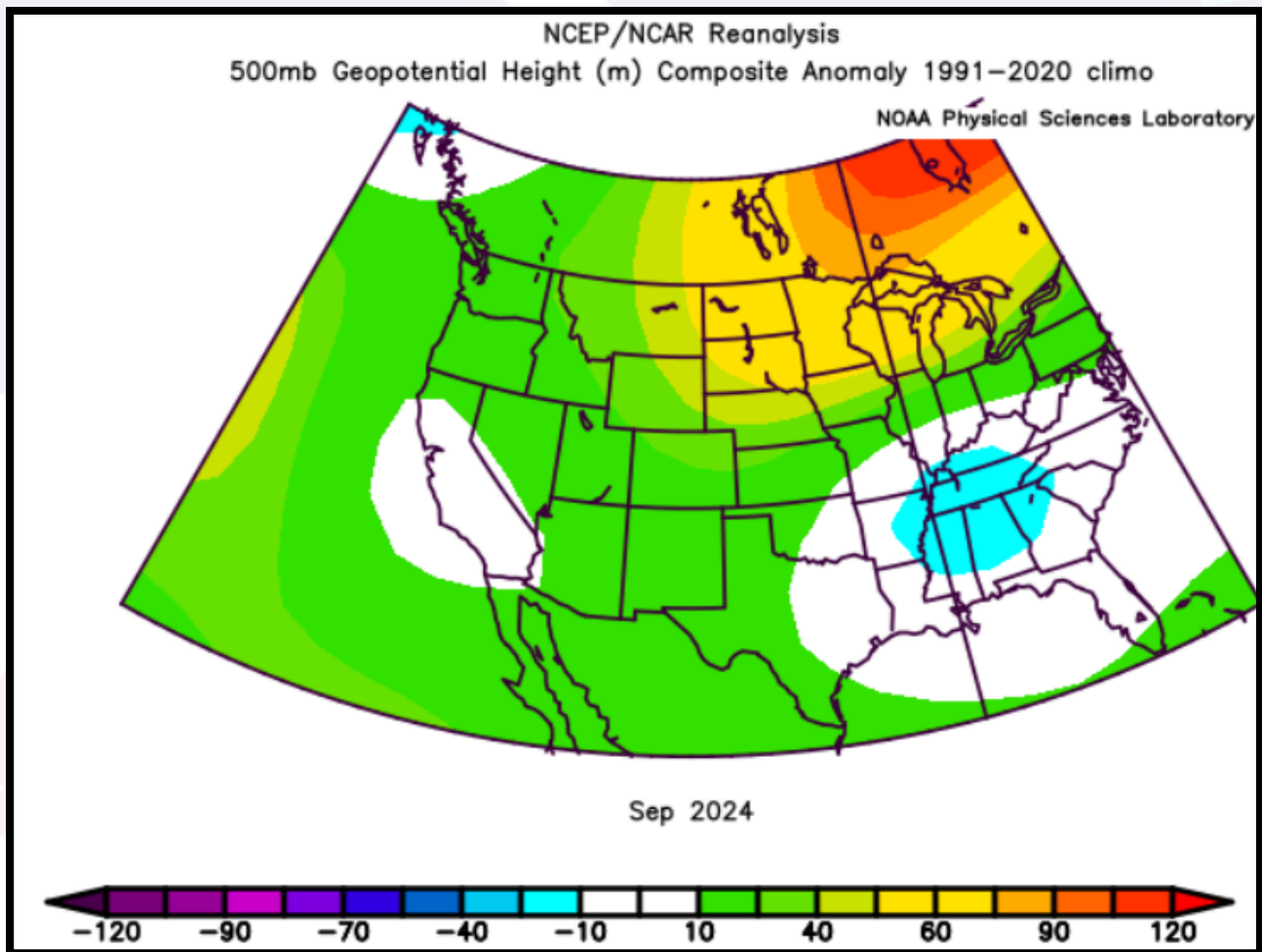
Rankings (1895-2024)



# HEAT (CON'T.)

## (SEPTEMBER)

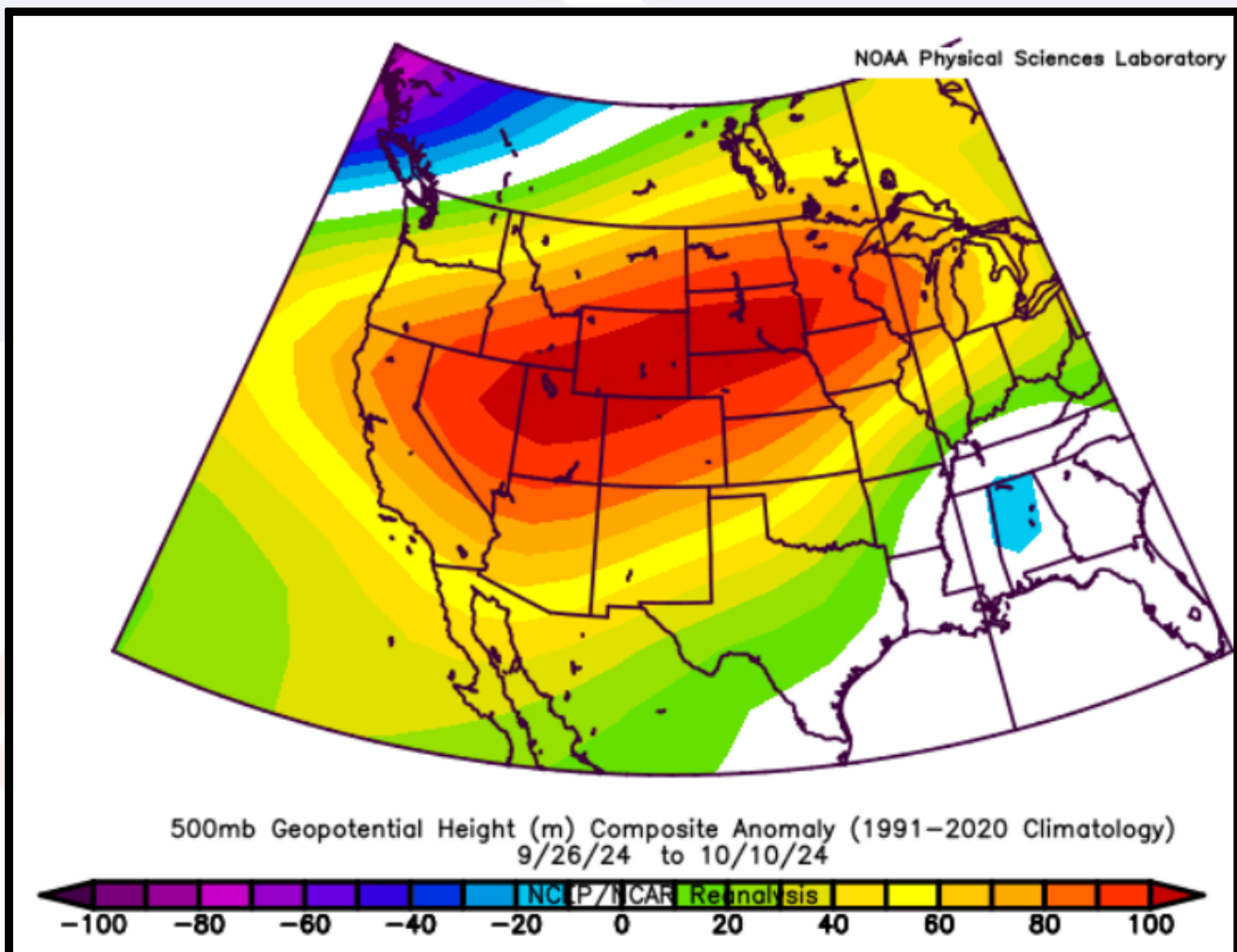
At first blush, the upper air anomaly map for September (below) isn't that impressive. Notice though that the scale is different than the previous map such that the values over AZ (10-20 meters) would show up as yellow on the June-Aug map. The values would be higher except for the low pressure system that come through in the middle of the month which brought down the average so to speak. However, outside of that time frame, high pressure was not positioned well for Monsoon activity.





## HEAT (CON'T.)

As we know, the heat has continued well into this month. Phoenix (Sky Harbor Airport) has had 21 days in a row of record breaking and/or tying high temperatures through October 14th along with a number of record warm low temperatures. During the same time frame, Tucson has had 18 out of 19 days with a record high. Meanwhile, Flagstaff had 11 days of record highs between Sep 26th and Oct 8th. The map below shows the upper air anomalies for Sep 26 - Oct 10. The scale is the same as for September. Instead of 10-20 meters above normal, it's 50-80 meters which is significant.

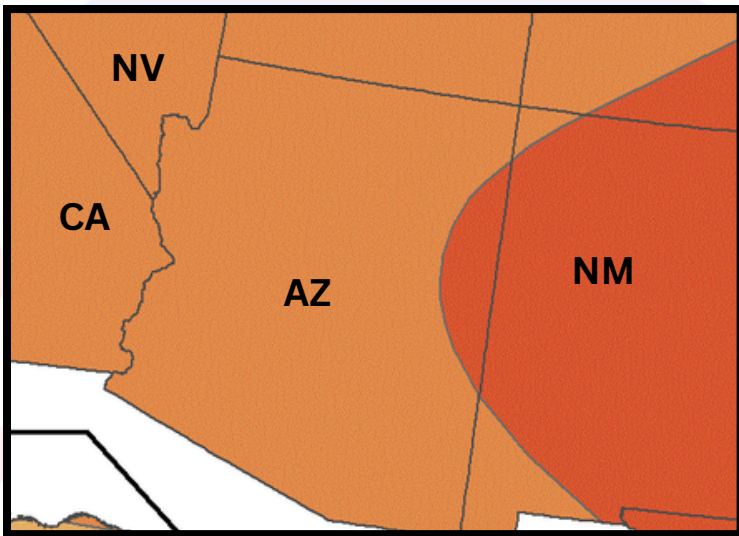




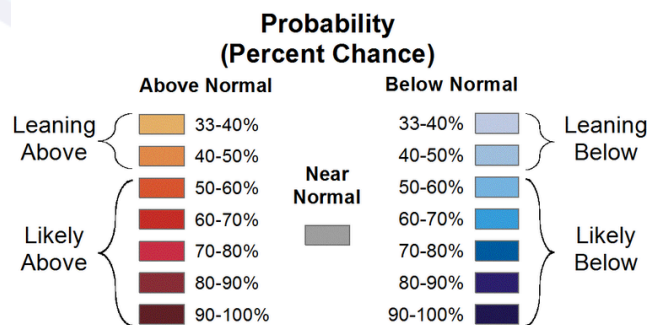
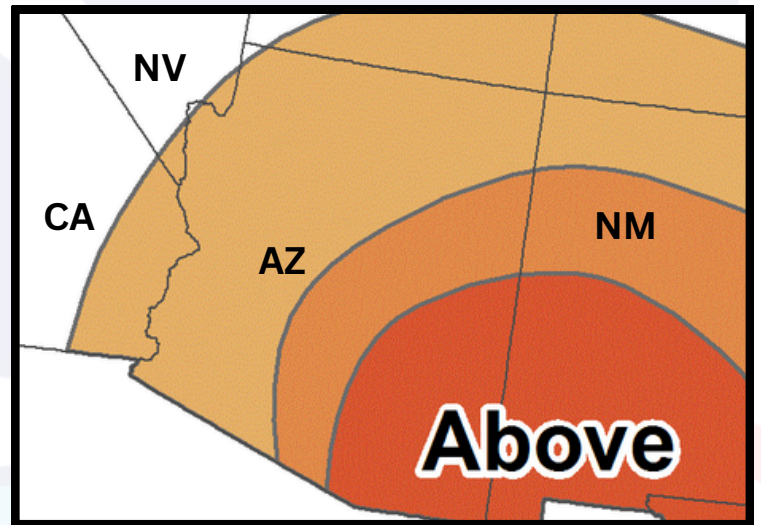
# REST OF OCTOBER OUTLOOK

Finally a cooling trend has begun! What does the rest of the month look like? Let's take a look at the Climate Prediction Center's forecasts for the next two to three weeks. Like the seasonal forecasts, these maps show the probabilities of a given category occurring: Above Normal, Near Normal, or Below Normal. The category with the higher likelihood is "painted" on the map and the shading corresponds to the probability numbers. It's important to bear in mind that the other two categories are still possible. Currently, it looks like above normal temperatures are more likely than below normal or near normal. But, it isn't a prediction of how much above normal. Also, we will continue to have shortening daylight hours which will help make the nights and mornings more pleasant even if things turn out to be above normal.

October 20-26



Oct 26 - Nov 8



# SPOTTER REPORTS

Though a weather event may not bring much in the way of thunderstorms, it can still lead to other hazards. See below for a review of reporting criteria and methods.

## Reporting Criteria:

- Tornado
- Funnel Cloud
- Storm Damage (broken tree limbs, shingles off roofs, etc.)
- Flooding (streets, running washes, etc.)
- Low Visibility
  - less than 1 mile due to dust, sand, fog, etc. (not rain though)
- Rotating Wall Cloud
- Heavy Rainfall
  - measured ½ inch or more accumulation in 30 min. or less
- Hail (diameter of largest stone - any size)
- Snow (accumulating or not)

## Reporting Methods (for trained Spotters only):

- Web: <https://inws.ncep.noaa.gov/report/>
- Email: [psr.spotters@noaa.gov](mailto:psr.spotters@noaa.gov)
- Voice Hotline (unlisted - just for Spotters): 1-800-697-0655
- HAM Radio NET

Sector 2 - Maricopa and Pinal Counties: 443.050 MHz (PL 100.0)

Sector 6 - Southern Gila County: 147.200 MHz (PL 162.2)

Sector 7 - Yuma County: 146.780 MHz (PL 103.5)

Sector 8 - Imperial County: 146.670 MHz (PL 103.5)

Sector 9 - La Paz County and Blythe: 145.310 (PL 107.2) and 147.06 (PL 203.5)

# STAYING CONNECTED

## SOCIAL MEDIA

Be sure to stay up to date with the weather and our other programs by following us on social media.



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## HAS YOUR INFORMATION CHANGED?

If your email, phone number, or address has changed since your last class, please click the link to help us keep that information up to date.

[GOOGLE FORM TO CHANGE CONTACT INFORMATION](#)

## FORGOT YOUR SPOTTER ID?

It happens to the best of us! Send Austin an email he will email you back with your information.

[AUSTIN.JAMISON@NOAA.GOV](mailto:AUSTIN.JAMISON@NOAA.GOV)

## NO LONGER WANT TO BE A SPOTTER?

If you would no longer like to be one of our trained weather spotters, you can fill out this google form and we will remove you from our database of spotters.

[GOOGLE FORM TO BE TAKEN OFF SPOTTER DATABASE](#)