Winter 2023-24 Outlook - Missouri RAC

10/25/23

Chip Redmond - Assistant Meteorologist, Mesonet Manager

KANSAS STATE UNIVERSITY | Kansas Mesonet


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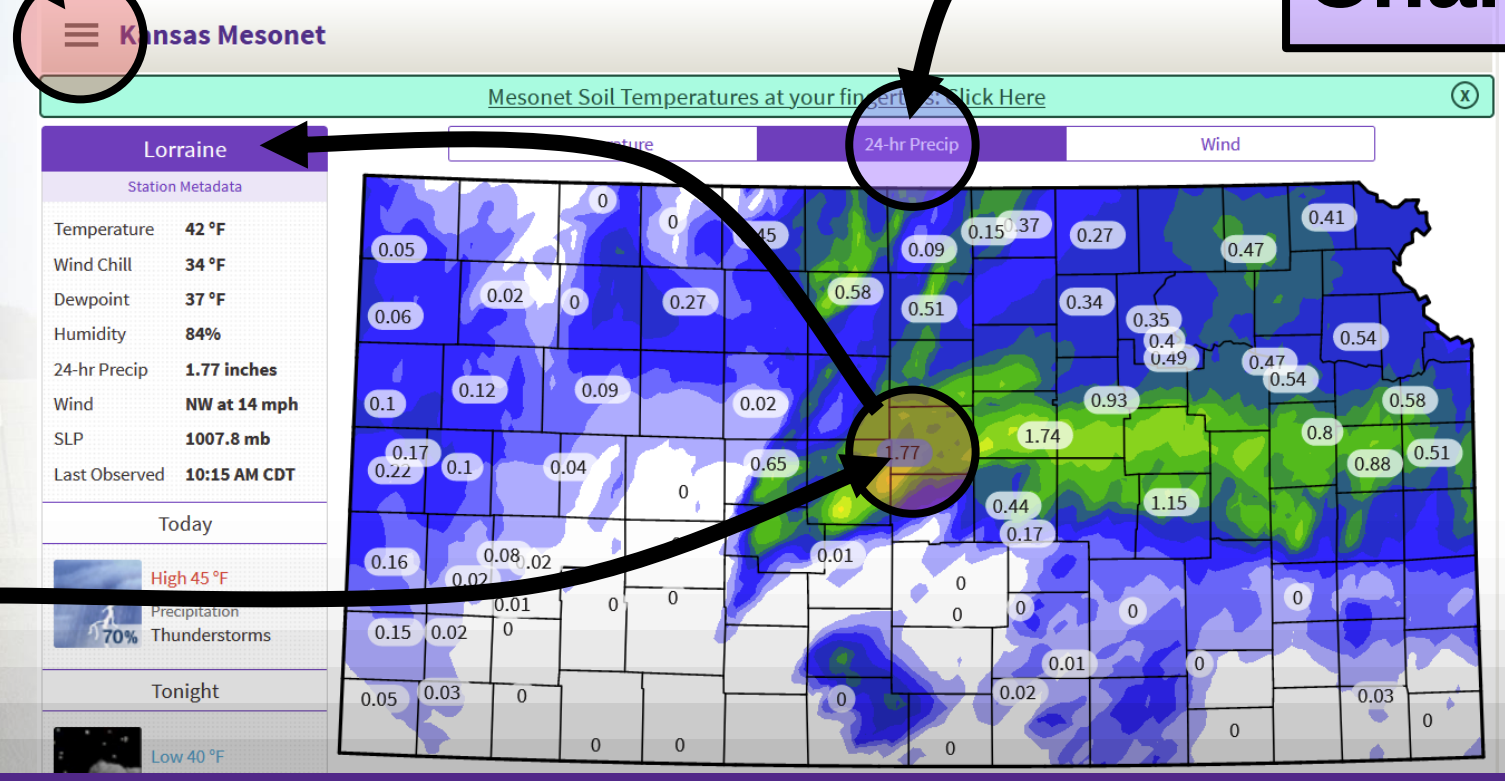
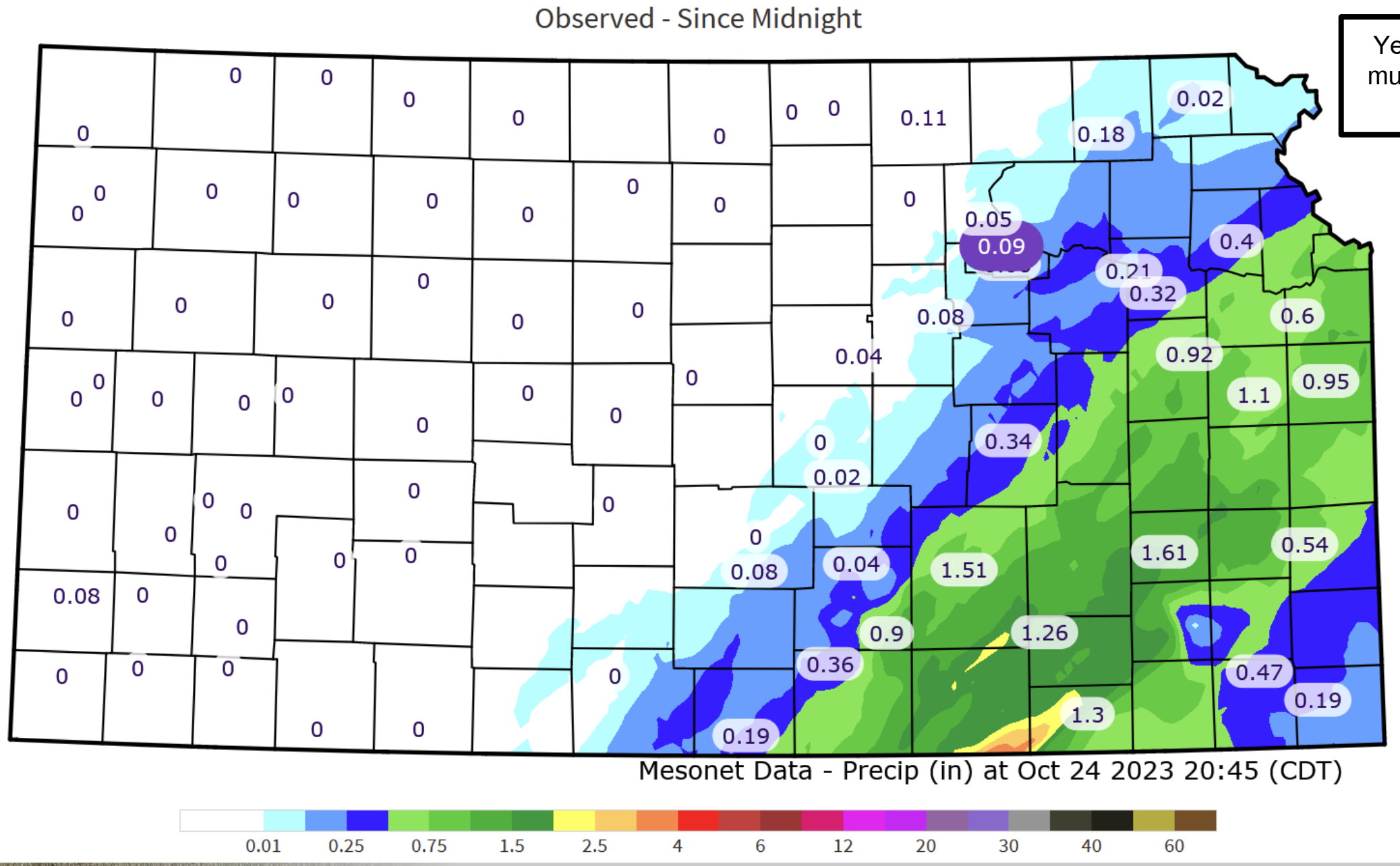
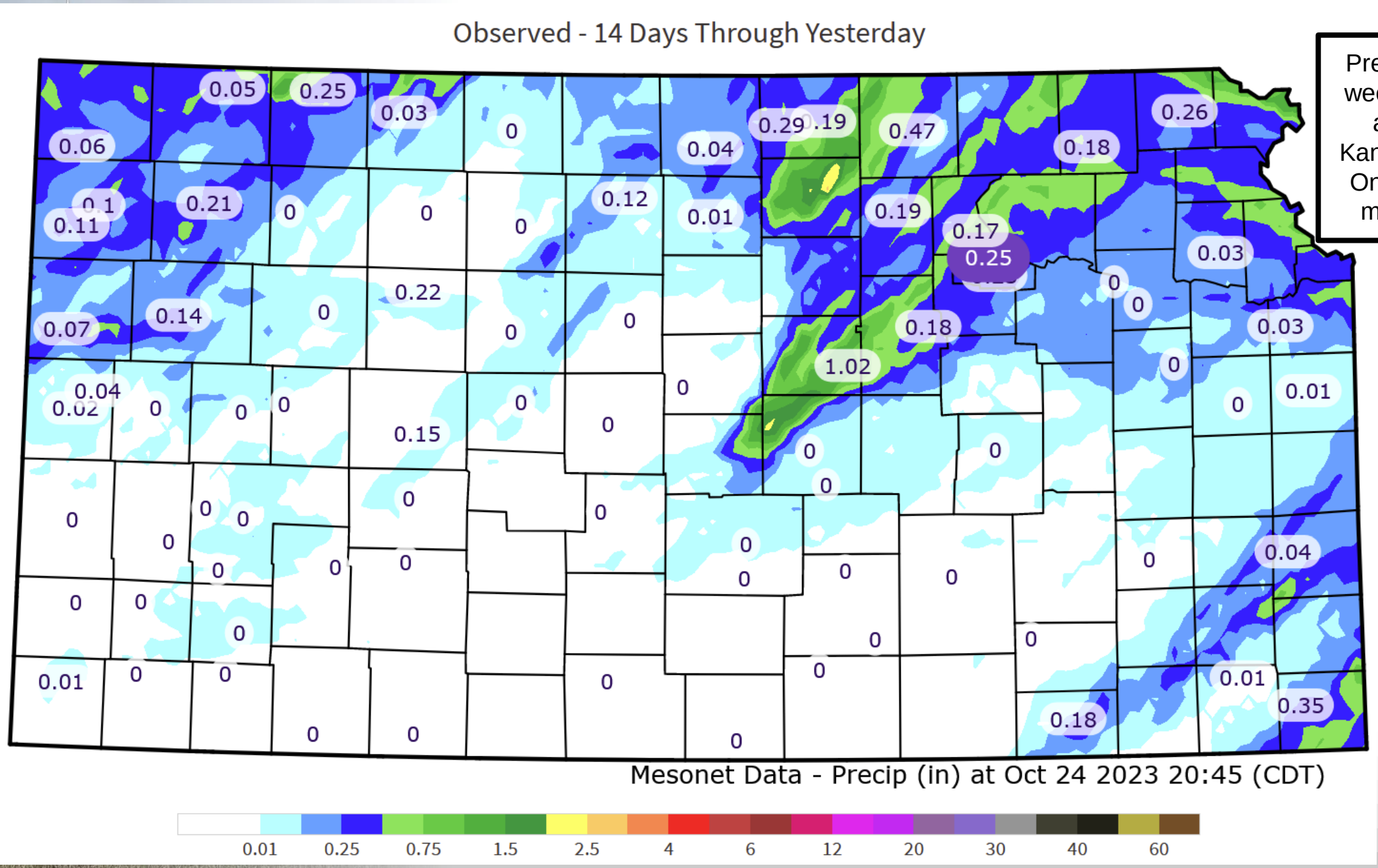
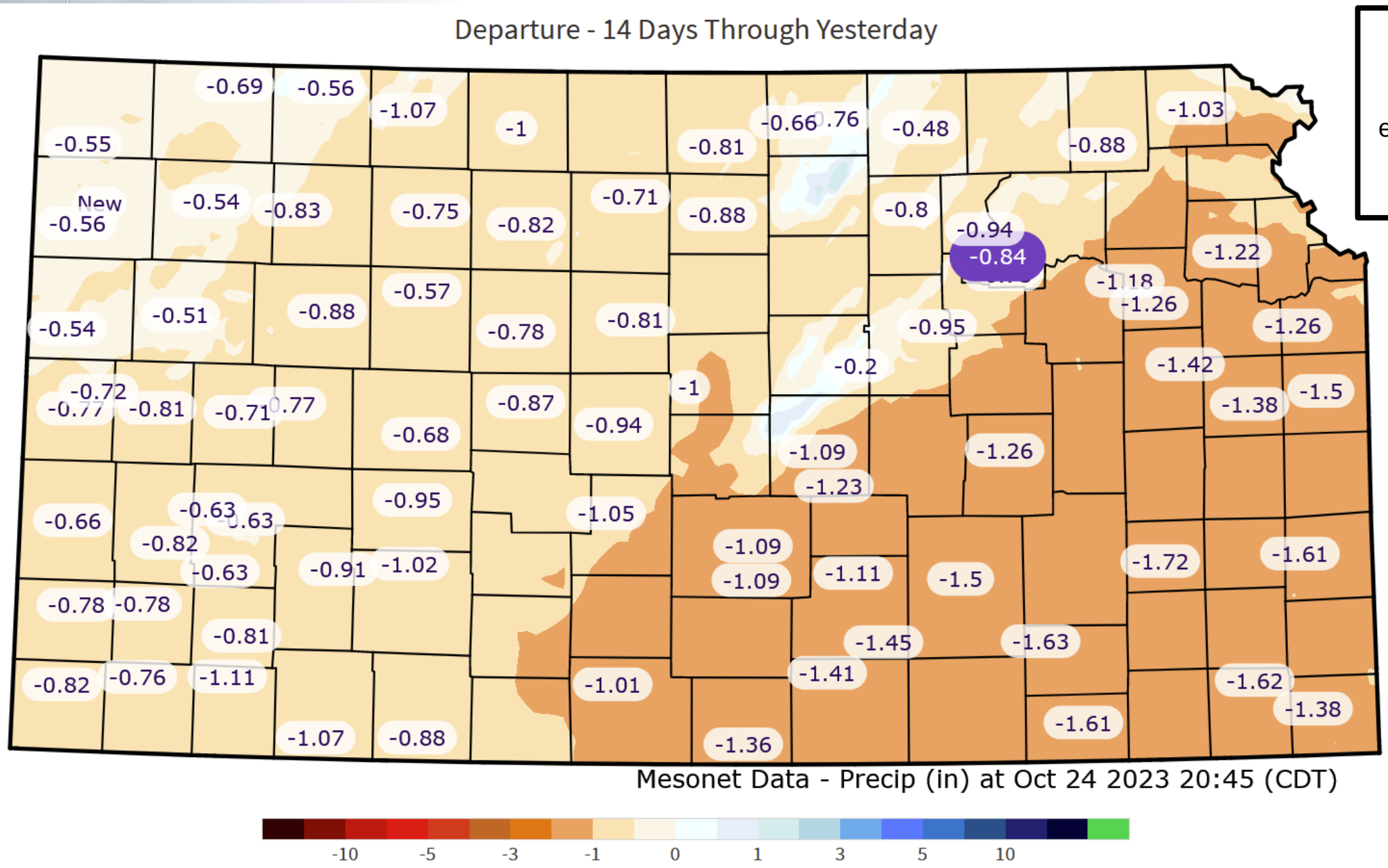




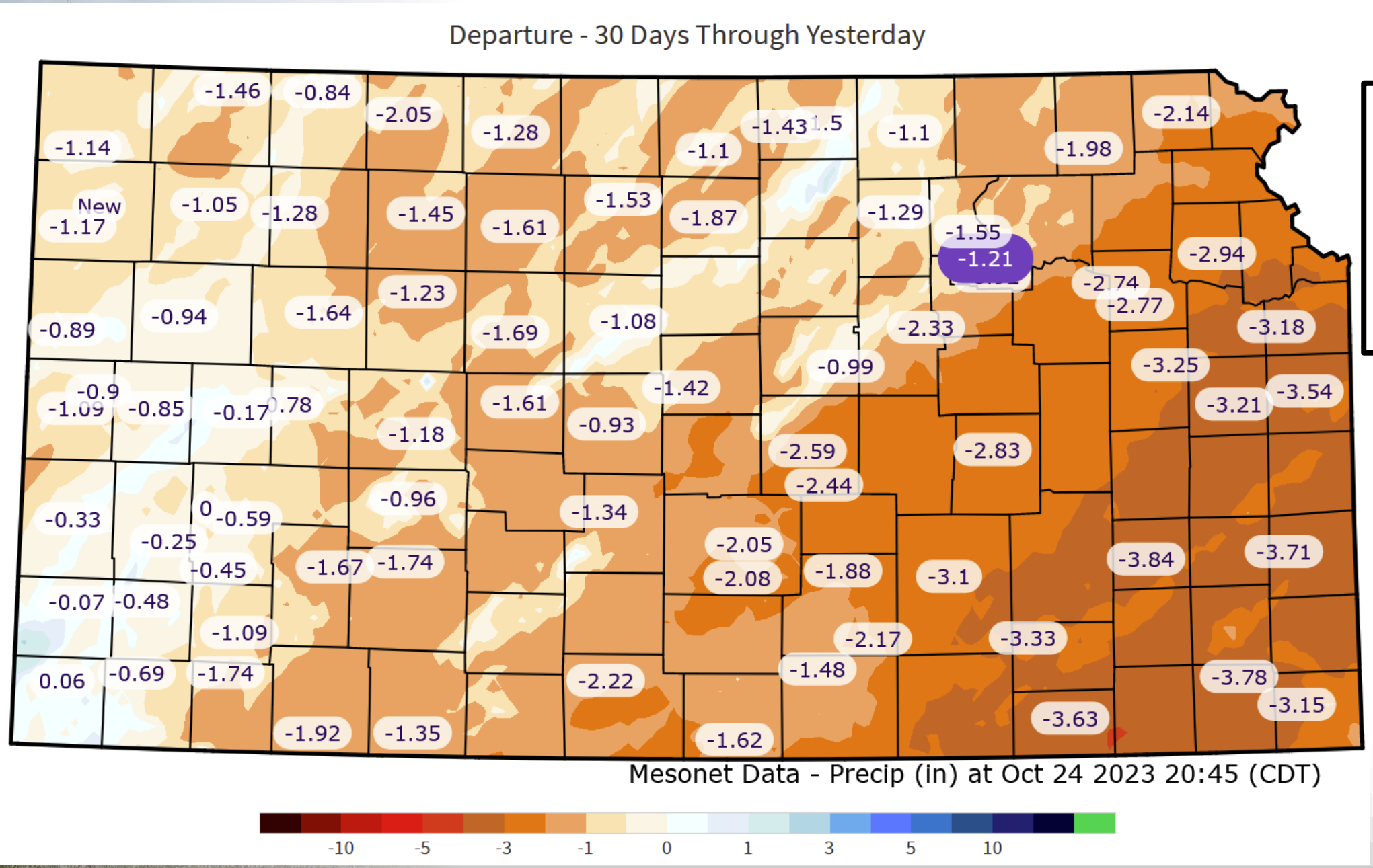
Yesterday's rainfall was much needed in portions of eastern Kansas.



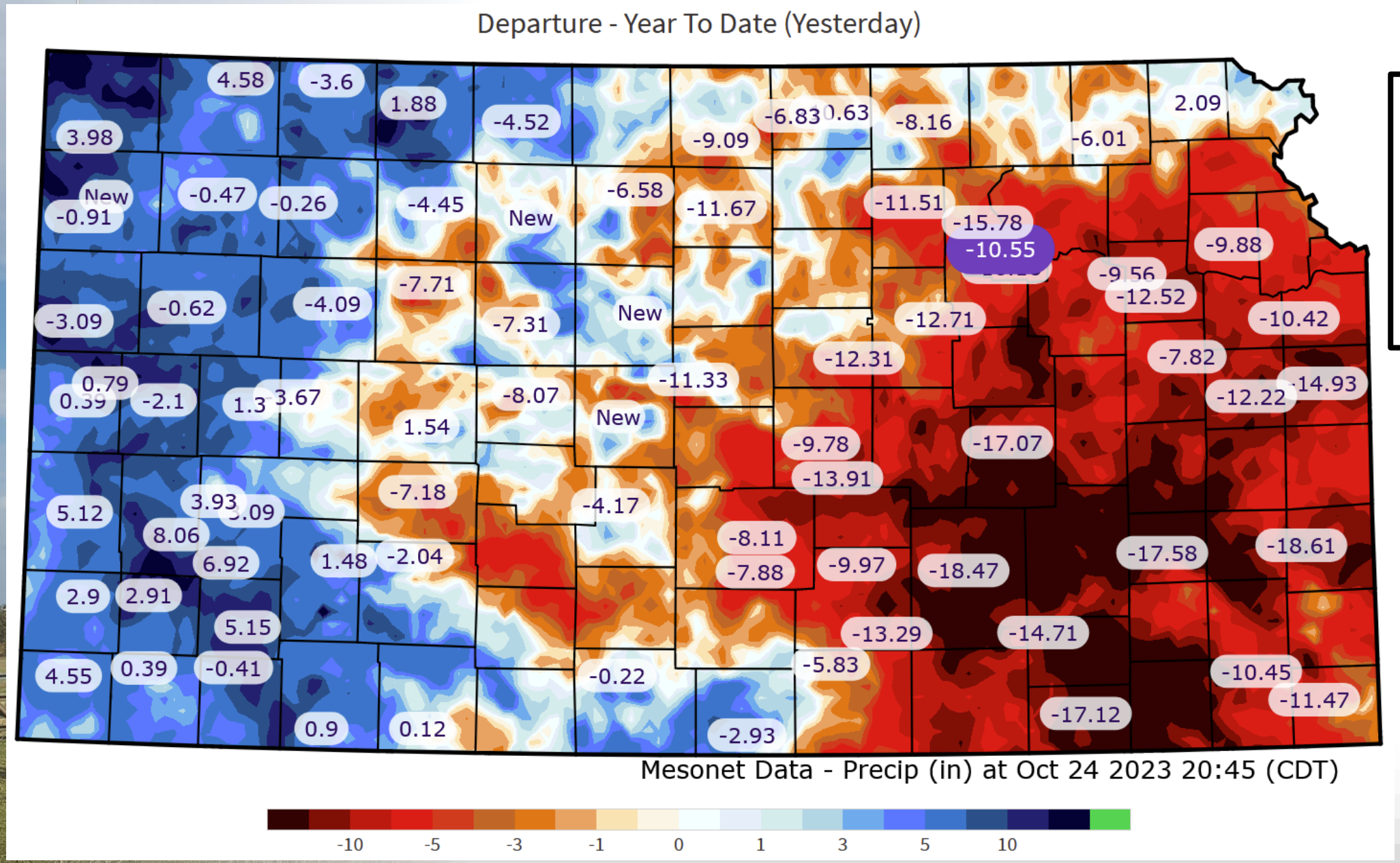
Precipitation the last two weeks has been minimal and isolated across Kansas before yesterday. Only isolated areas had measurable moisture.



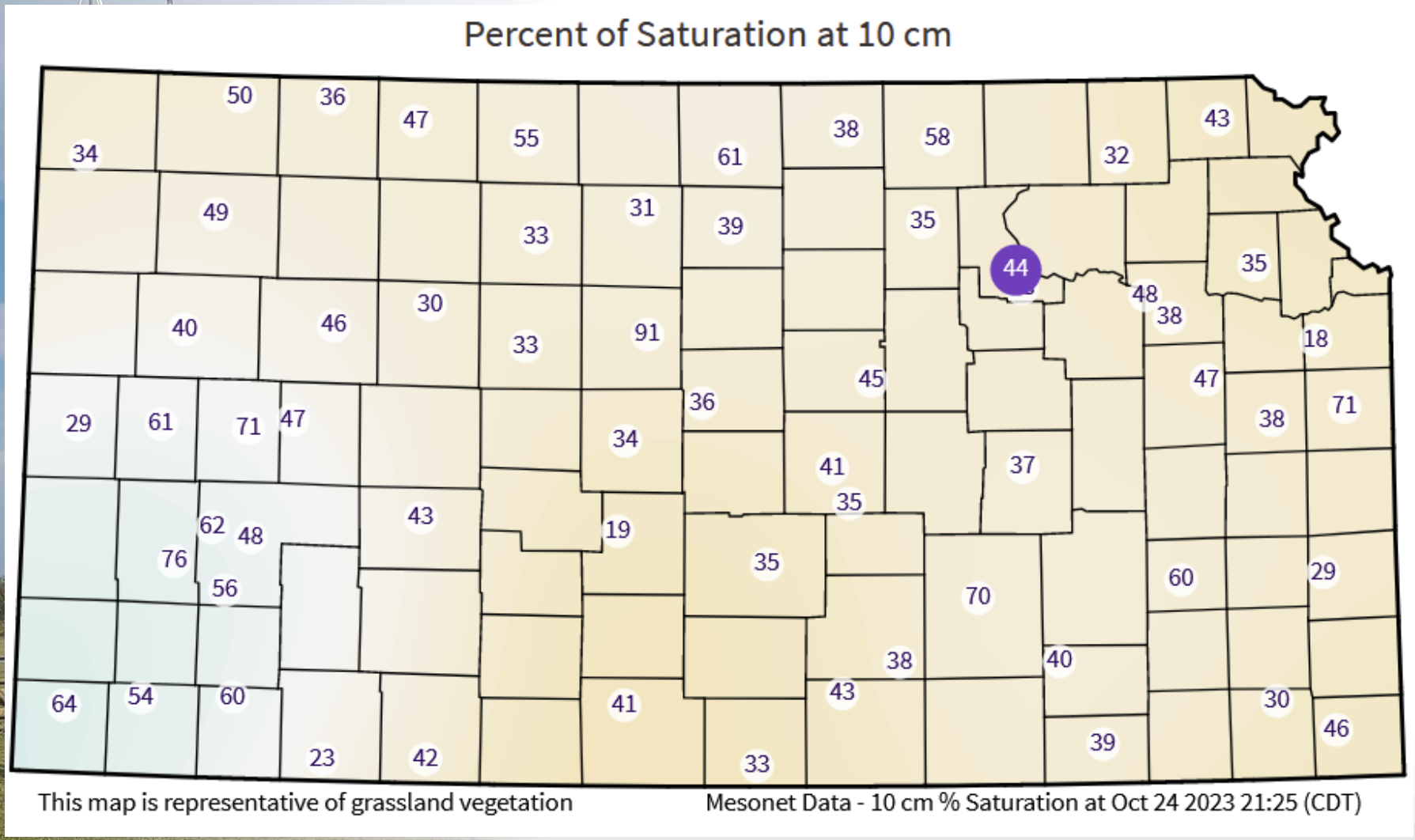
While precipitation averages are climatologically falling each week, zero moisture continues to grow big deficits quickly.



Looking beyond the last two weeks, there has been a few isolated areas of above normal moisture. However, outside of these, most of the state has continued to grow deficits by 1-2” the last 30 days.



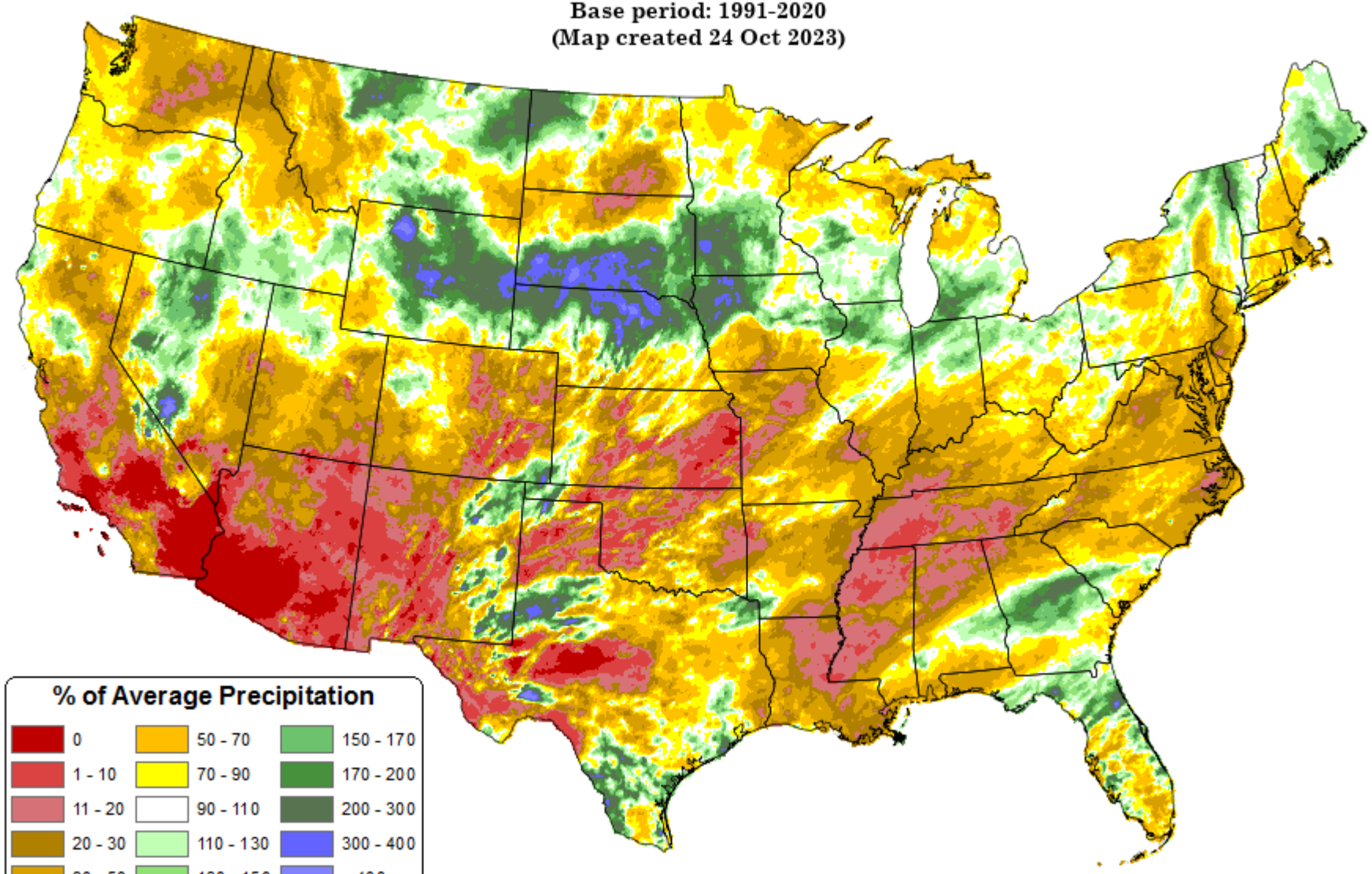
And comparing year to date, the recent dryness has only fueled continued drought in the eastern region. Meanwhile, this has been a welcomed dry out period for those in the west.



Many folks are planting wheat right now into (around) the four inch (or 10cm) depth. Soil moisture is best at this depth in the southwest. Otherwise, less than ideal moisture exists for much of the state.

Total Precipitation Anomaly: 01 Oct 2023 - 23 Oct 2023

Period ending 7 AM EST 23 Oct 2023
Base period: 1991-2020
(Map created 24 Oct 2023)

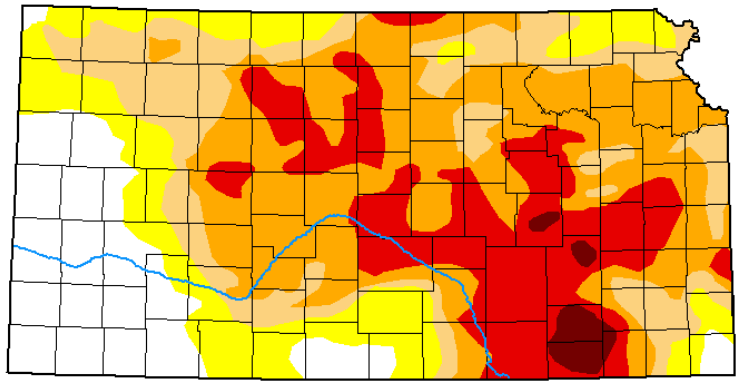


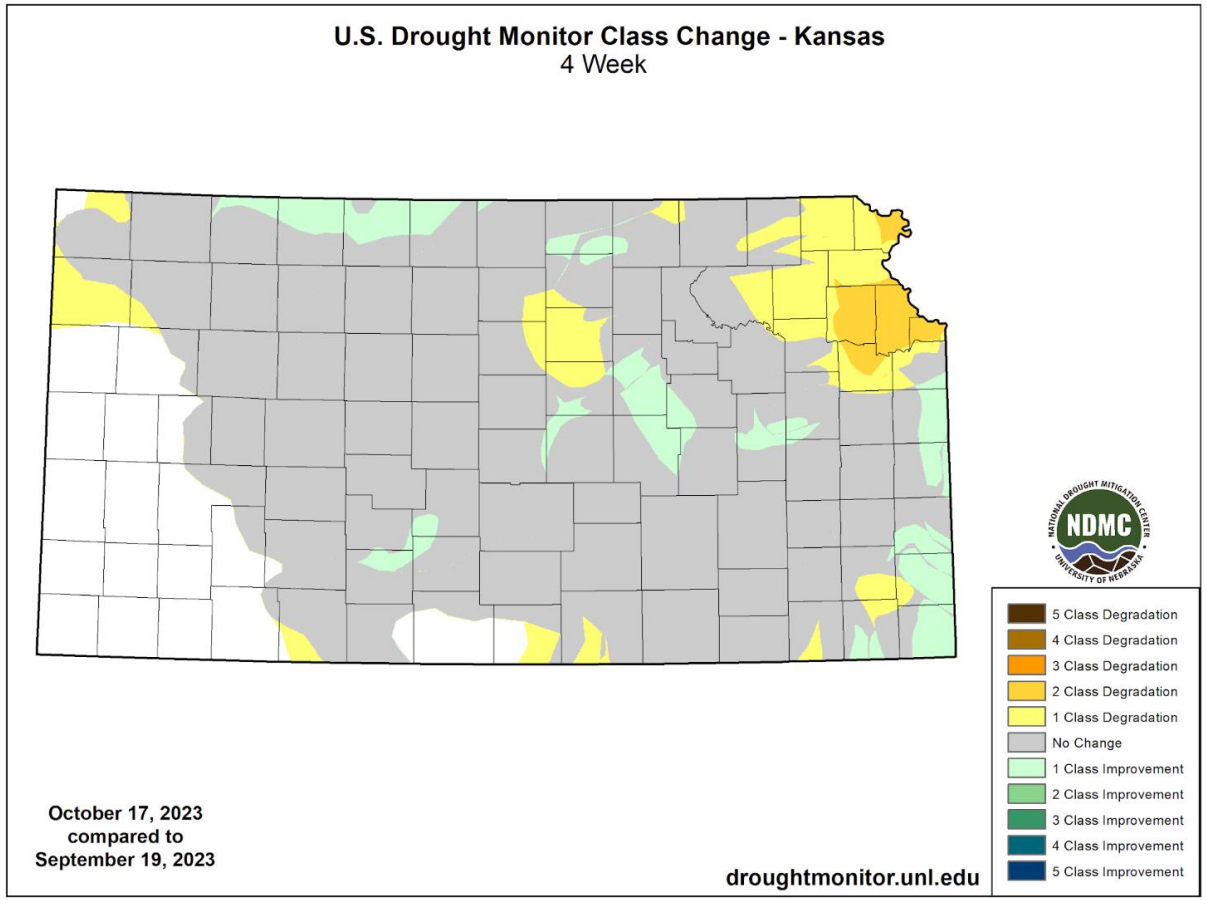
% of Average Precipitation

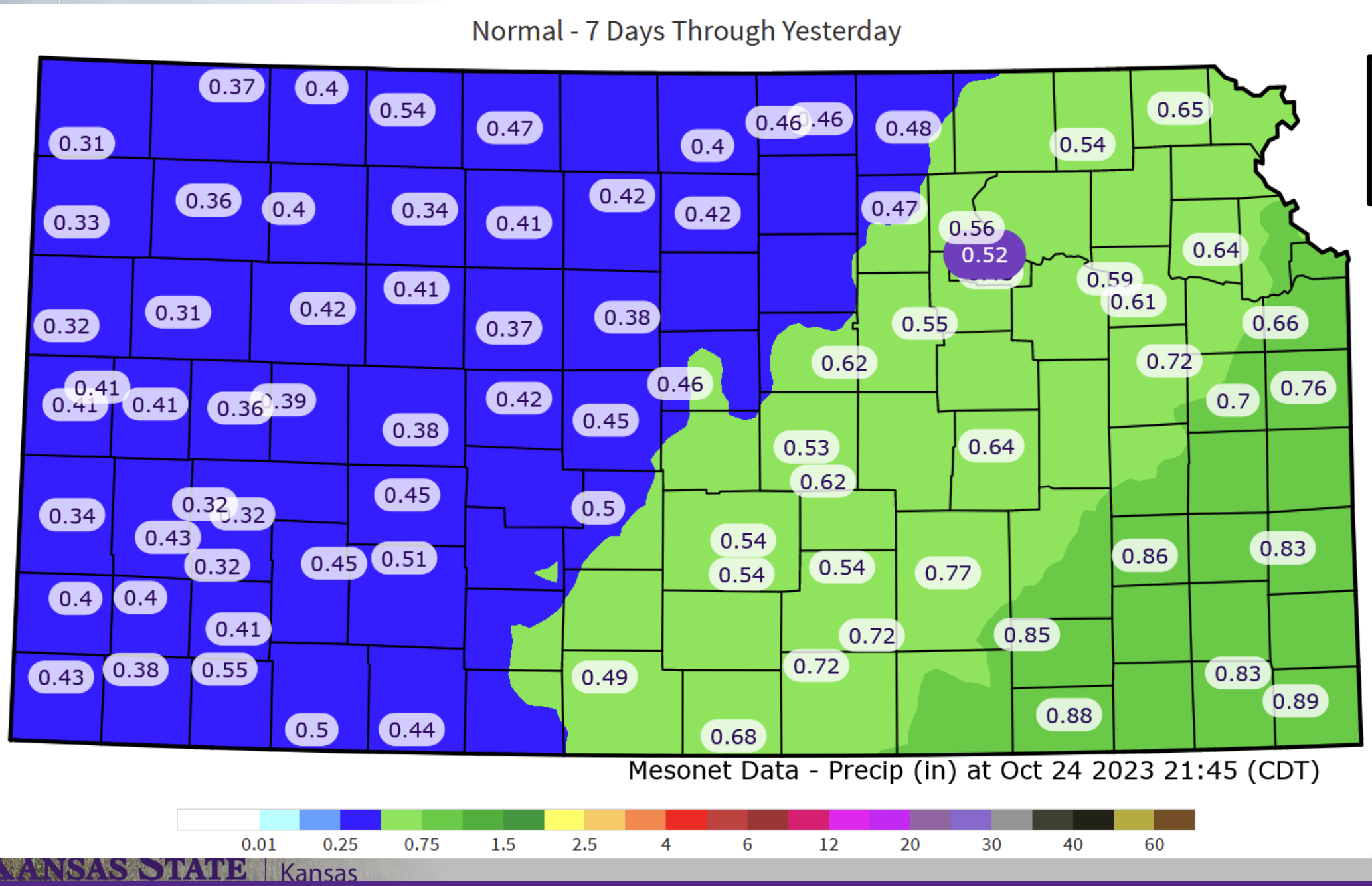
0	50 - 70	150 - 170
1 - 10	70 - 90	170 - 200
11 - 20	90 - 110	200 - 300
20 - 30	110 - 130	300 - 400
30 - 50	130 - 150	> 400

Looking at the bigger picture, outside of northern NE and southern SD, moisture has been limited across much of the US this month.

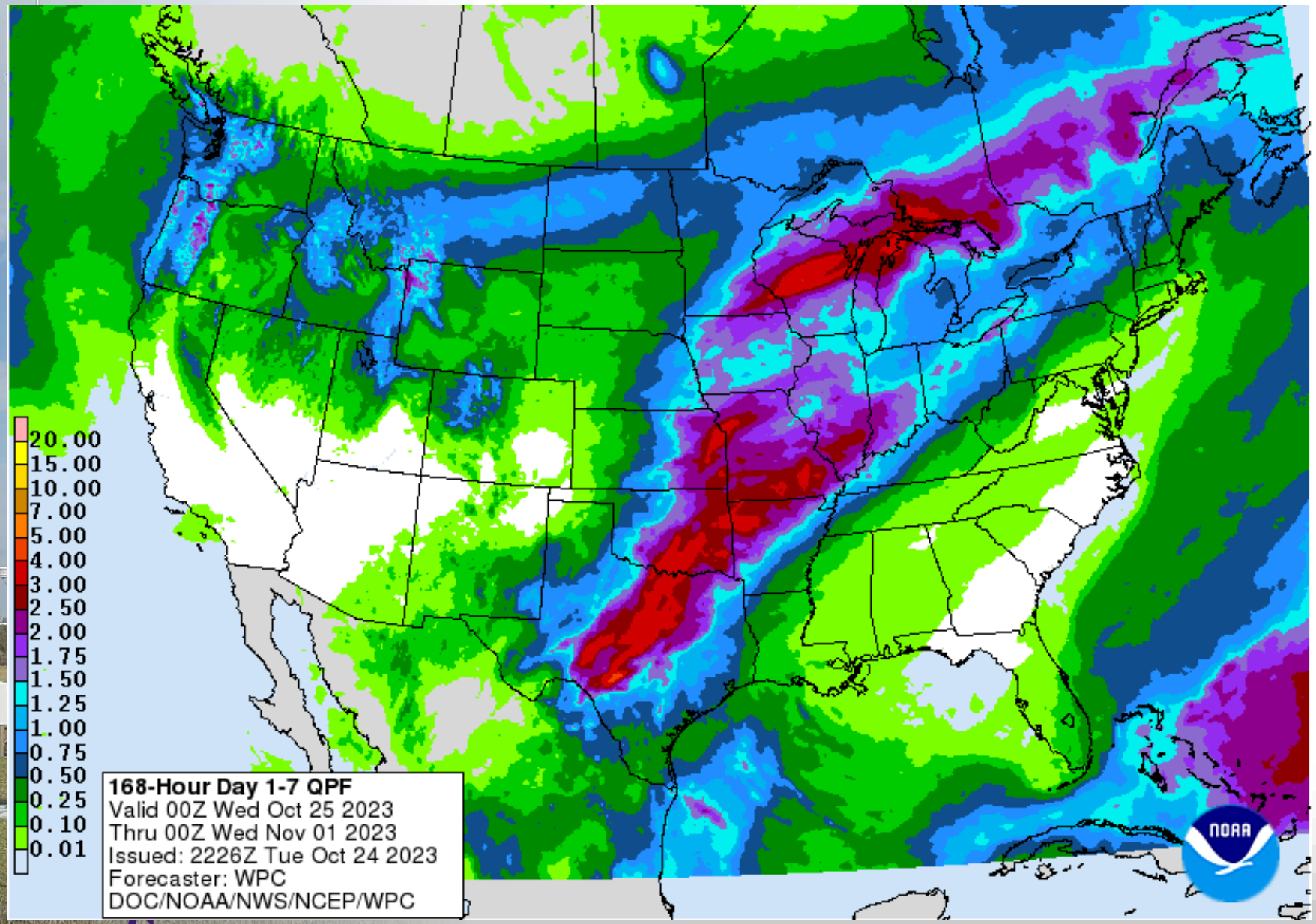
This has resulted in drought expansion in the northeast and isolated areas (right). Over the last few weeks, only a few localized areas have observed one category drought improvement.



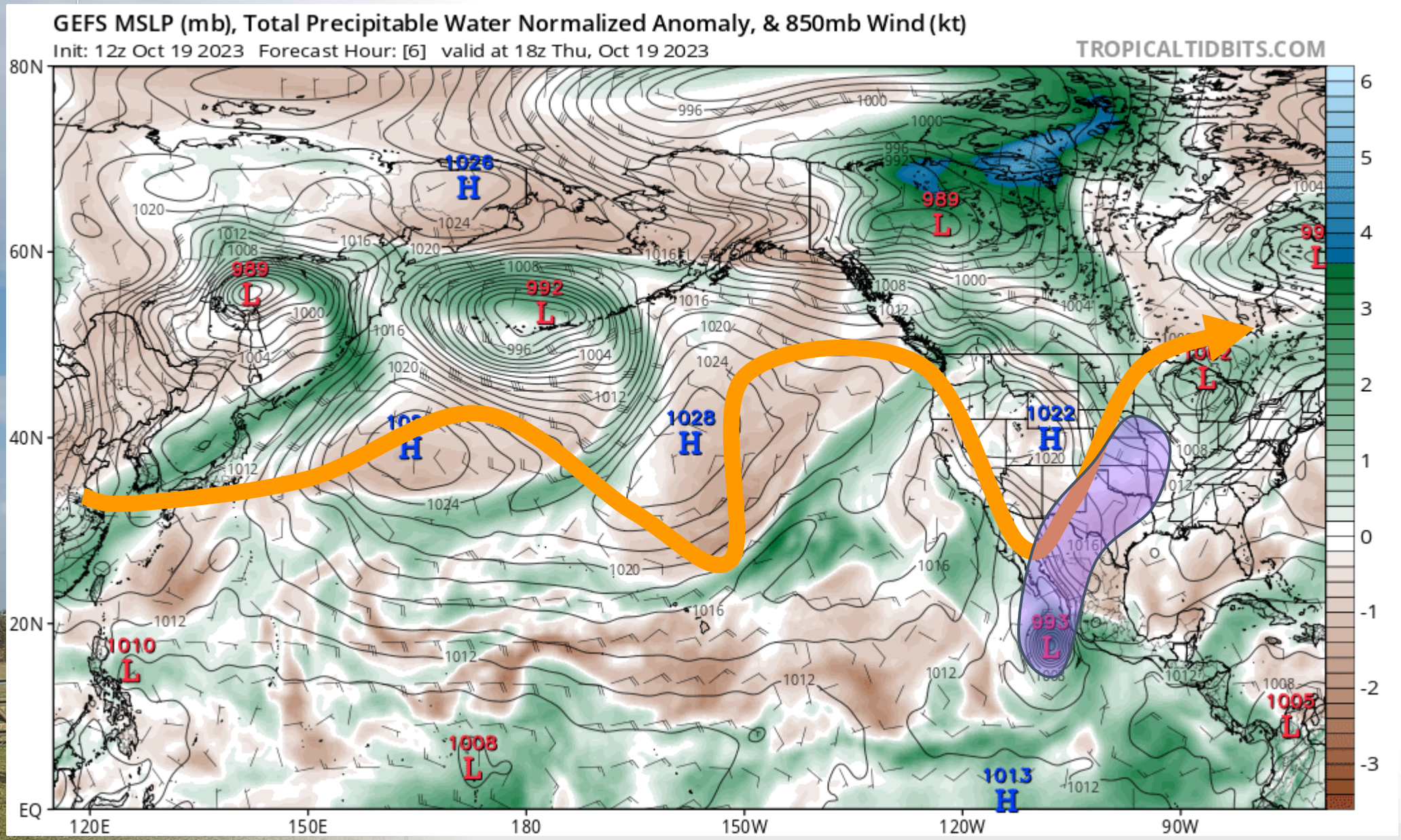




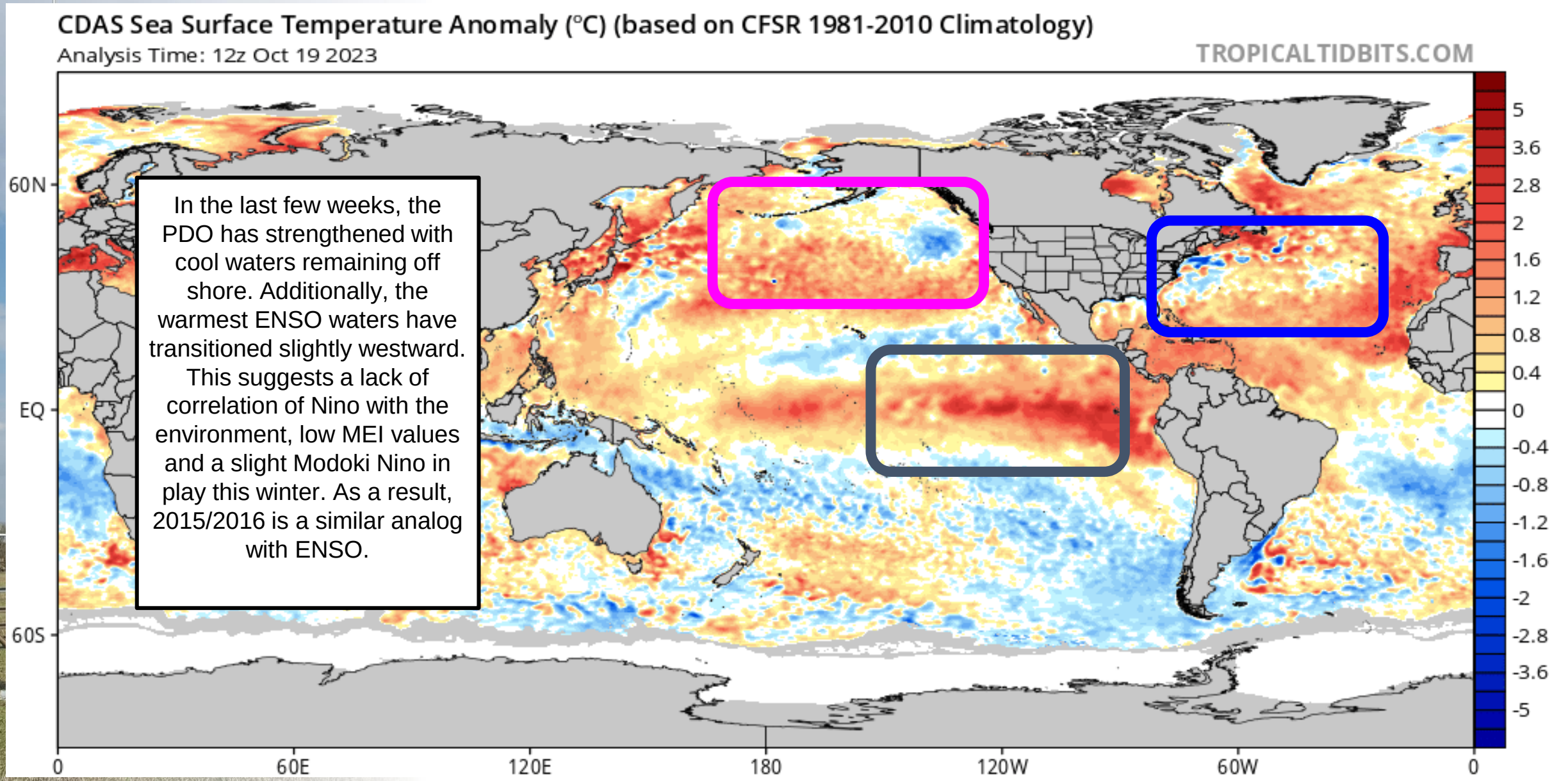
Normal precipitation weekly precipitation is down to 0.3-0.9" expected this week.

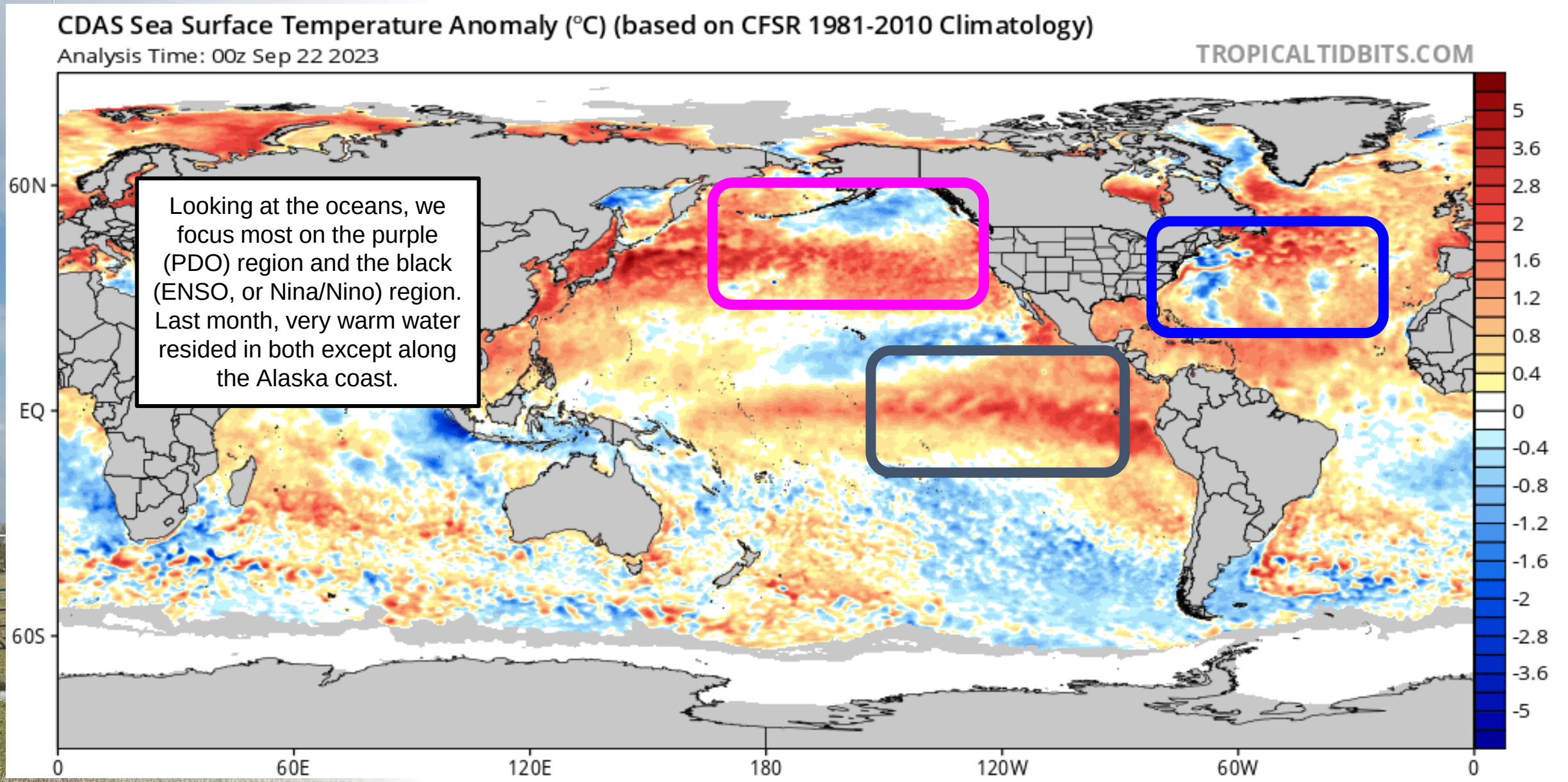


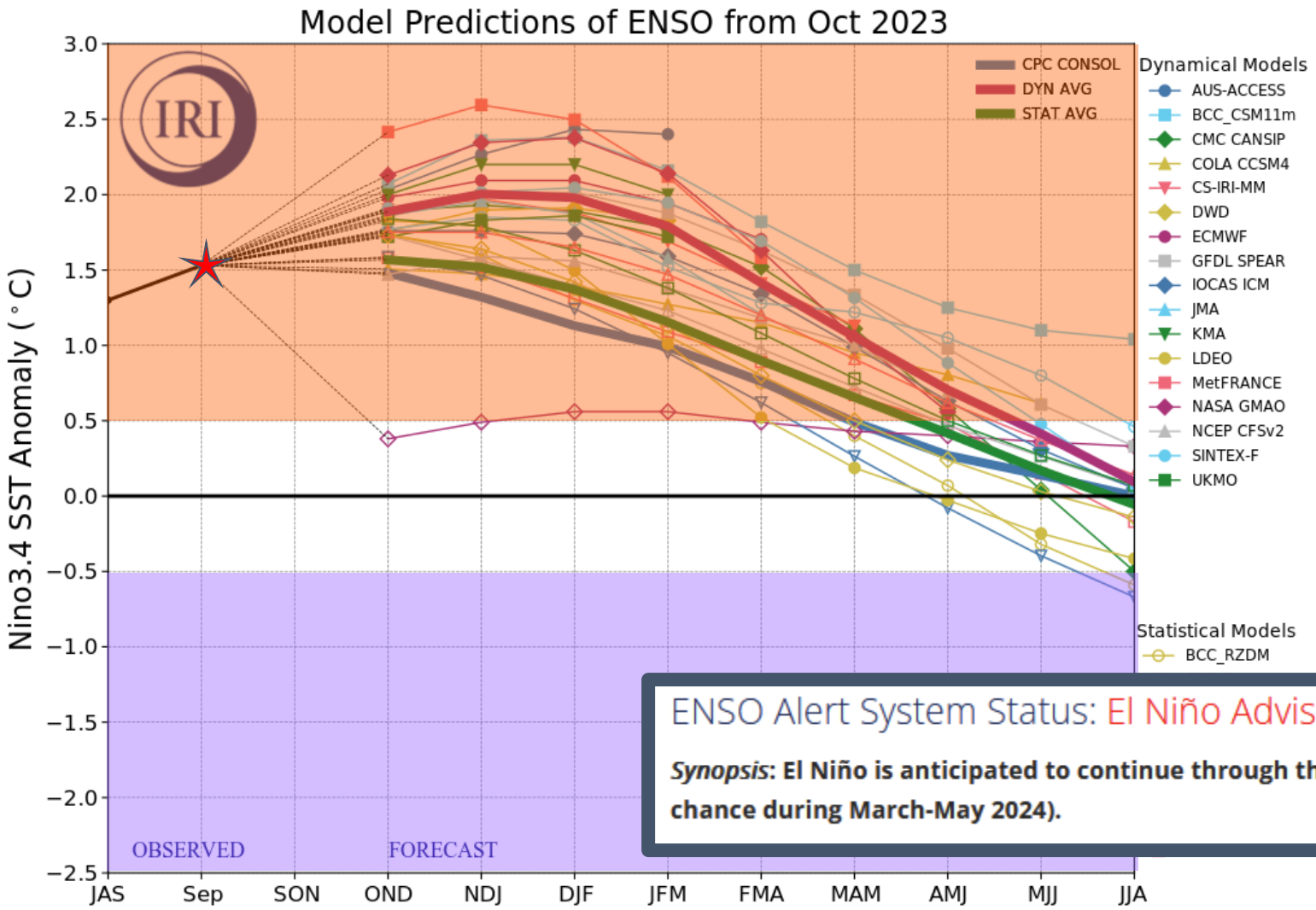
BUT! The forecast calls for above that for much of the state. Big moisture is anticipated this week in the east. This could result in some drought improvements. We average least moisture during the late fall to early spring. Therefore, only one or two potent systems can have a significant impact on the monthly and seasonal averages.



Current jetstream is phased well and is one primary jet in the northern hemisphere (yellow). This will align well with former Hurricane Norma and usher moisture northward into the central Plains. Will this be a common theme this winter?


CDAS Sea Surface Temperature Anomaly (°C) (based on CFSR 1981-2010 Climatology)
Analysis Time: 12z Oct 19 2023
TROPICALTIDBITS.COM
In the last few weeks, the PDO has strengthened with cool waters remaining off shore. Additionally, the warmest ENSO waters have transitioned slightly westward. This suggests a lack of correlation of Nino with the environment, low MEI values and a slight Modoki Nino in play this winter. As a result, 2015/2016 is a similar analog with ENSO.
60N
EQ
60S
0
60E
120E
180
120W
60W
0
5
3.6
2.8
2
1.6
1.2
0.8
0.4
0
-0.4
-0.8
-1.2
-1.6
-2
-2.8
-3.6
-5

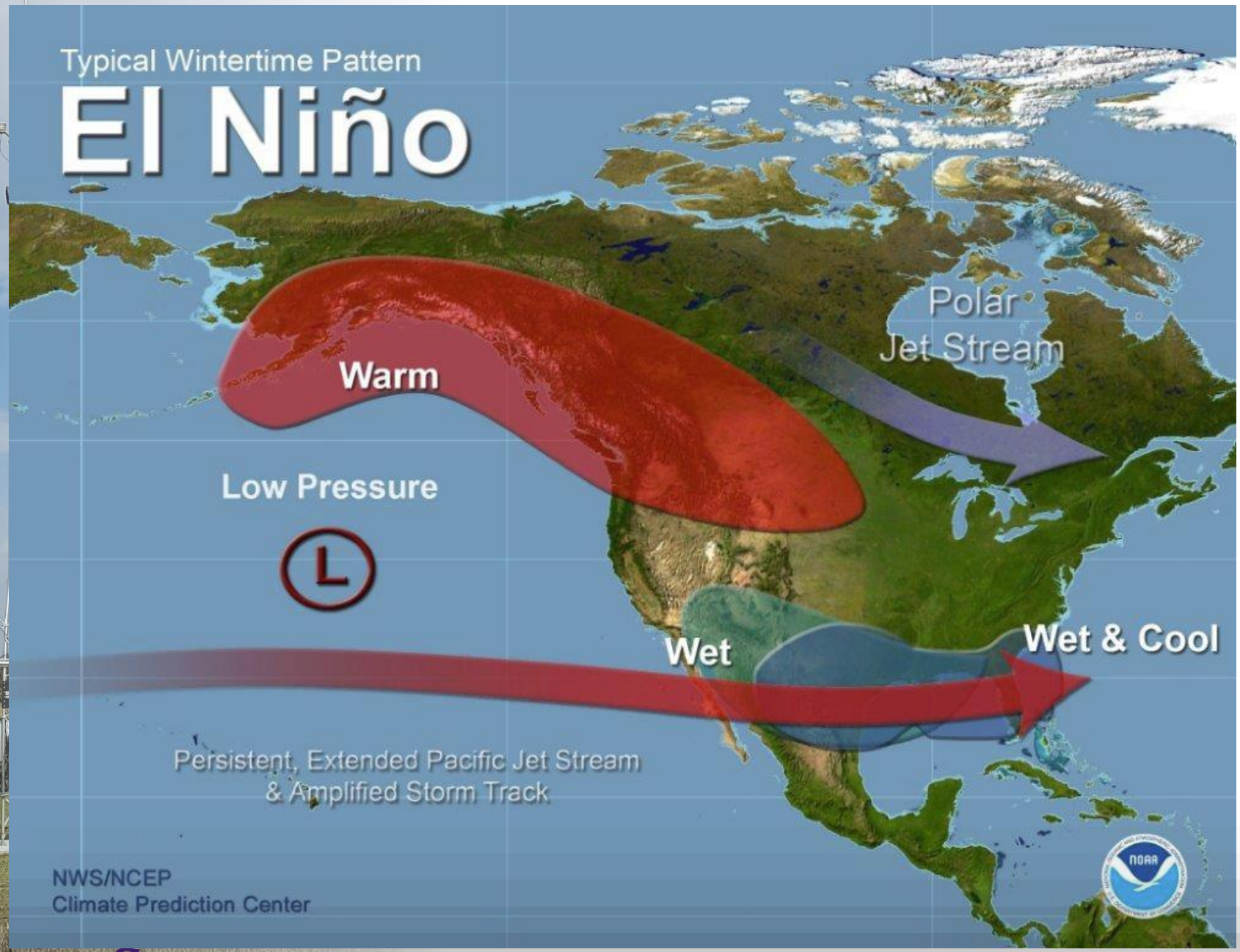

CDAS Sea Surface Temperature Anomaly (°C) (based on CFSR 1981-2010 Climatology)
Analysis Time: 00z Sep 22 2023
TROPICALTIDBITS.COM
Looking at the oceans, we focus most on the purple (PDO) region and the black (ENSO, or Nina/Nino) region. Last month, very warm water resided in both except along the Alaska coast.
60N
EQ
60S
0
60E
120E
180
120W
60W
0
5
3.6
2.8
2
1.6
1.2
0.8
0.4
0
-0.4
-0.8
-1.2
-1.6
-2
-2.8
-3.6
-5



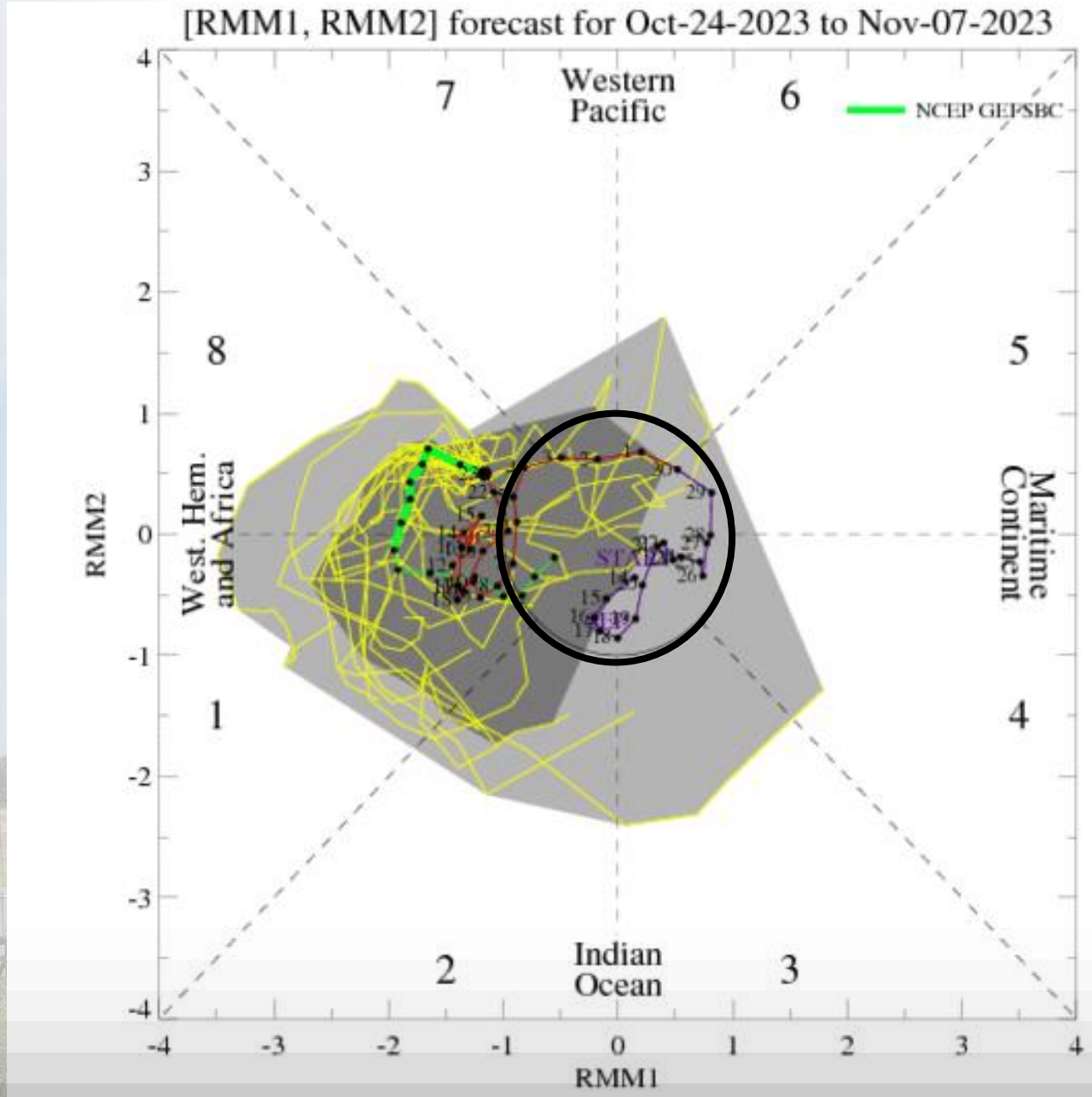
ENSO has reached the moderate stage and borderline strong. Models remain confident that Nino will persist into late spring. Then, probably of bigger concern long term, a strong signal that neutral conditions may return. This will be something to watch later. First….winter…

ENSO Alert System Status: El Niño Advisory

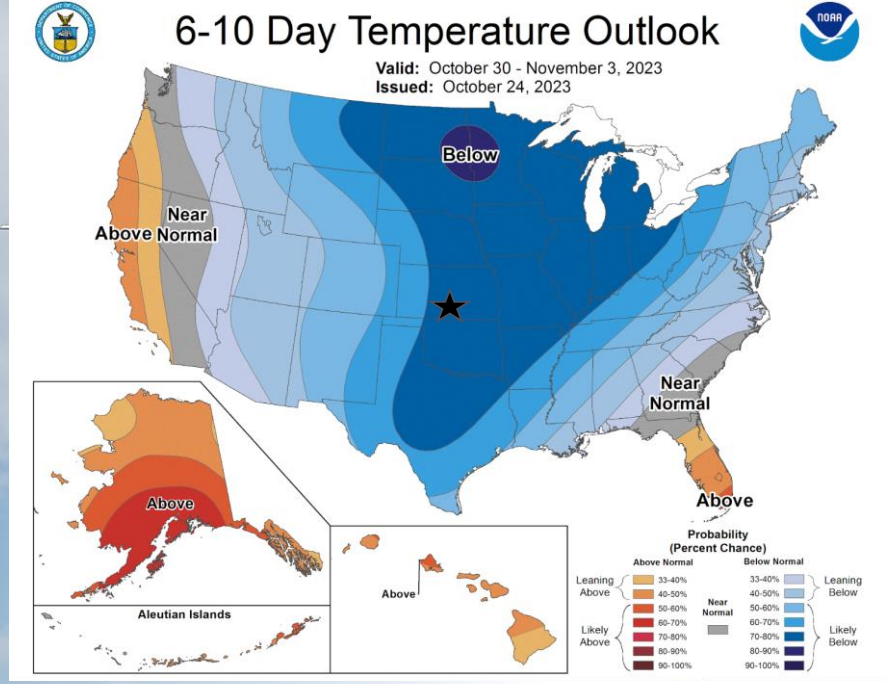
***Synopsis*: El Niño is anticipated to continue through the Northern Hemisphere spring (with an 80% chance during March-May 2024).**

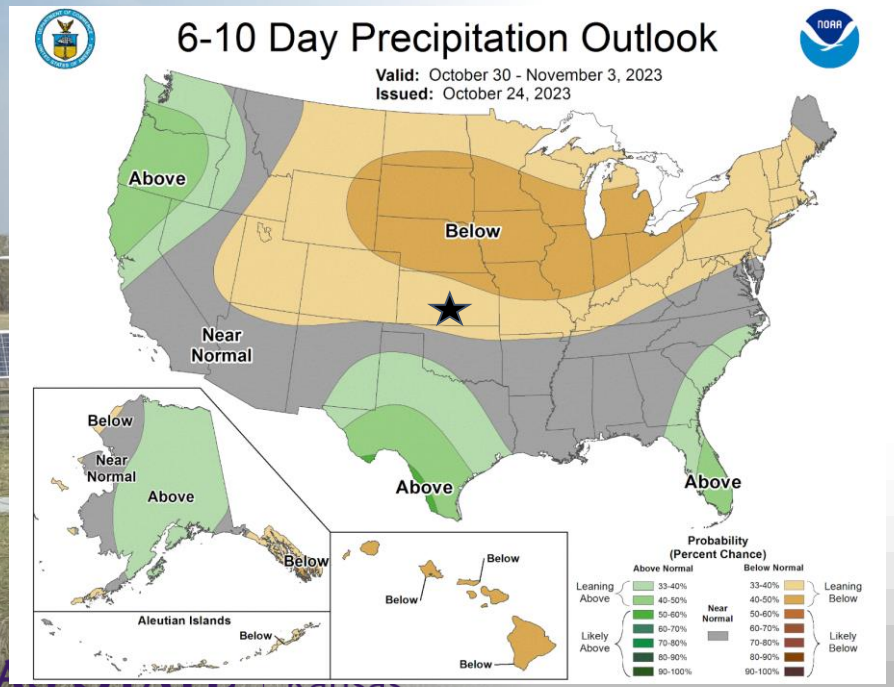


El Nino favors a more active pattern which will ultimately end up further south later in winter (the season with the greatest ENSO impacts).



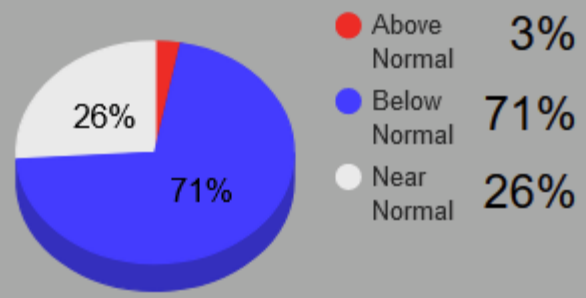
While weak, the MJO has moved into the ⅛ regions which results in some weak coupling with an increase in upward motion in the atmosphere in similar equatorial longitudes as the Americas. This aids in above normal moisture in the central Plains. This looks to be a brief influencer as it isn't projected to revolve around the black circle (aka, earth) in any way after the next few weeks.



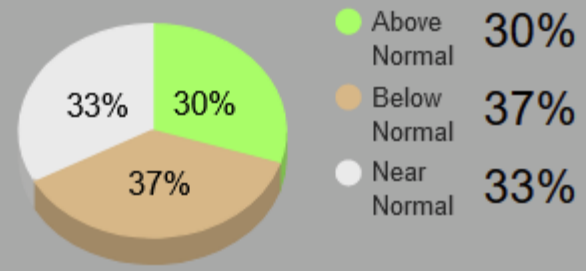


[7 Day Forecast for Russell, KS]

Three Category Temperature Outlook
Normal Maximum Temperature: **61**
Normal Minimum Temperature: **36**

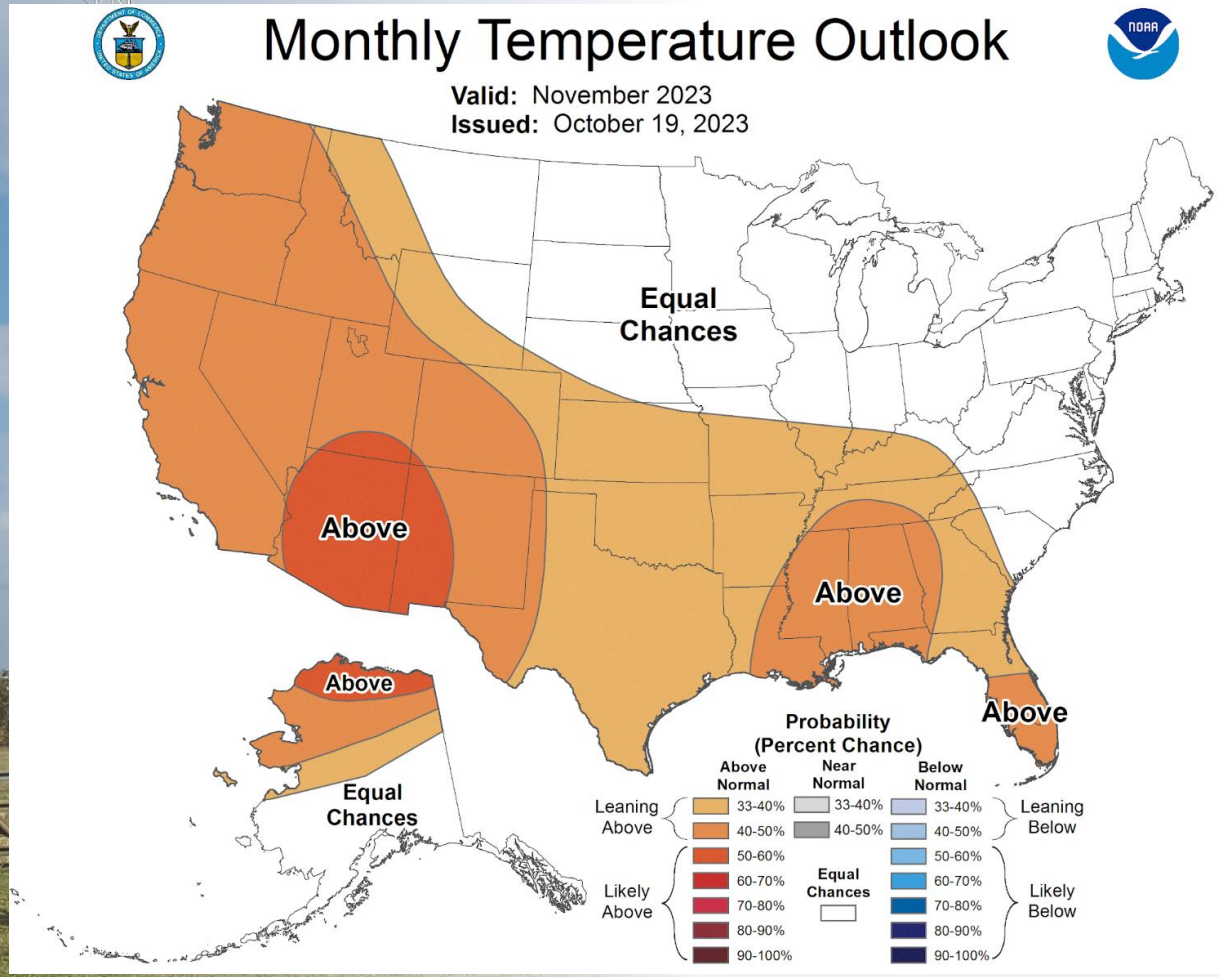


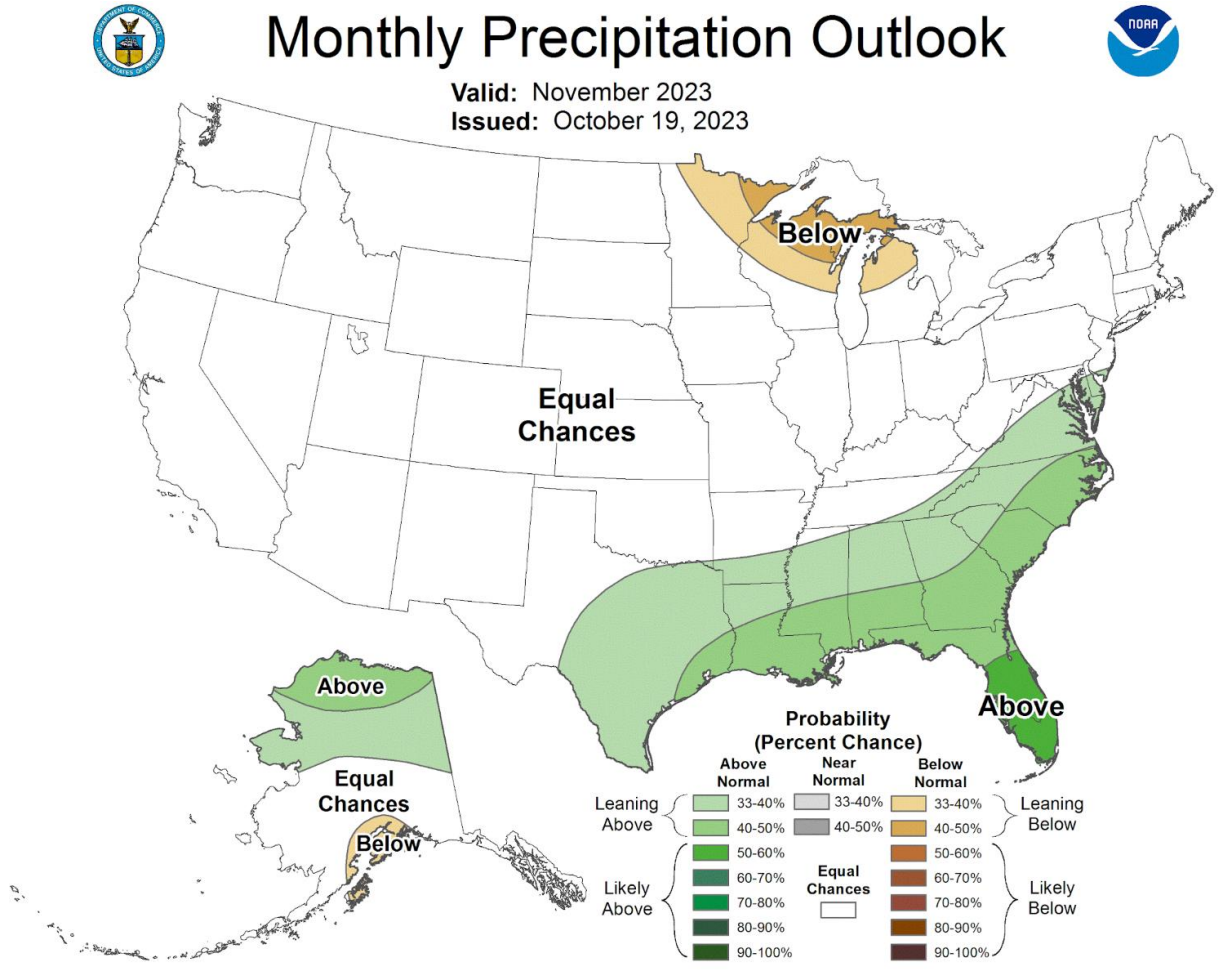
Three Category Precipitation Outlook
Normal Precipitation: **0.21**

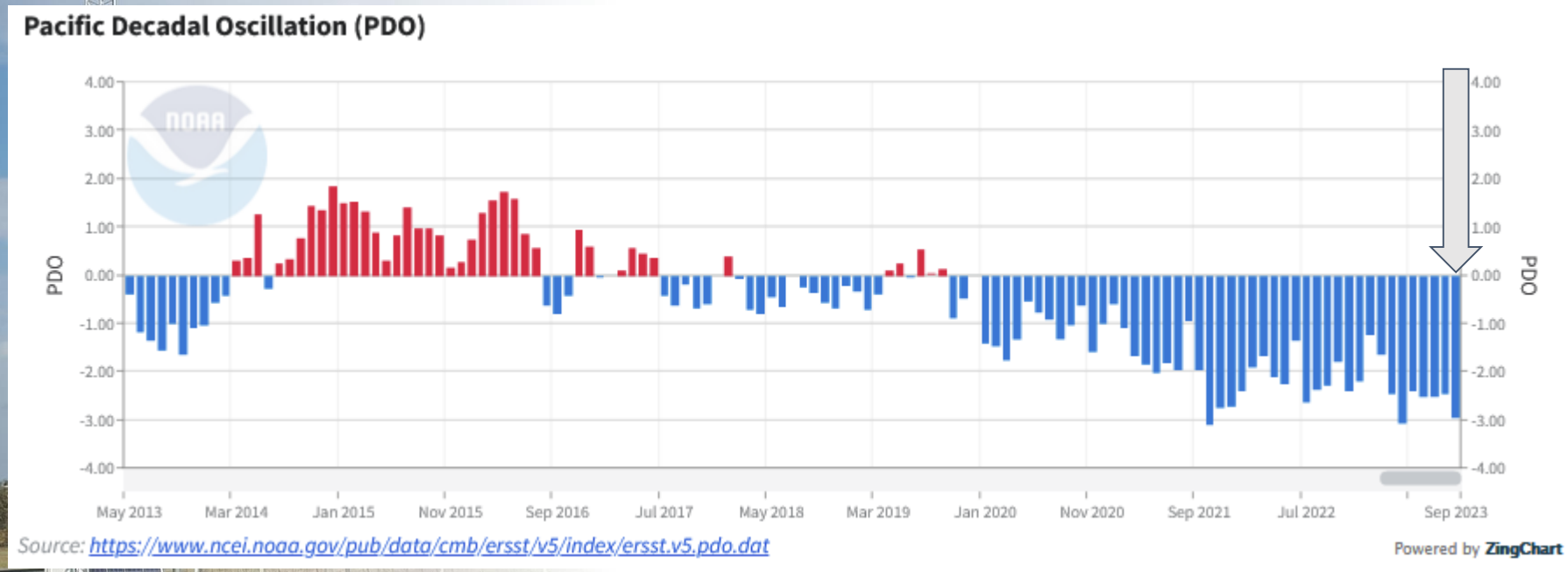


Cold weather is imminent with greater than 70% chance of below normal temperatures to start the month of November. However, the influence of the MJO and Norma are expected to diminish with drier than normal conditions emerging for Kansas.

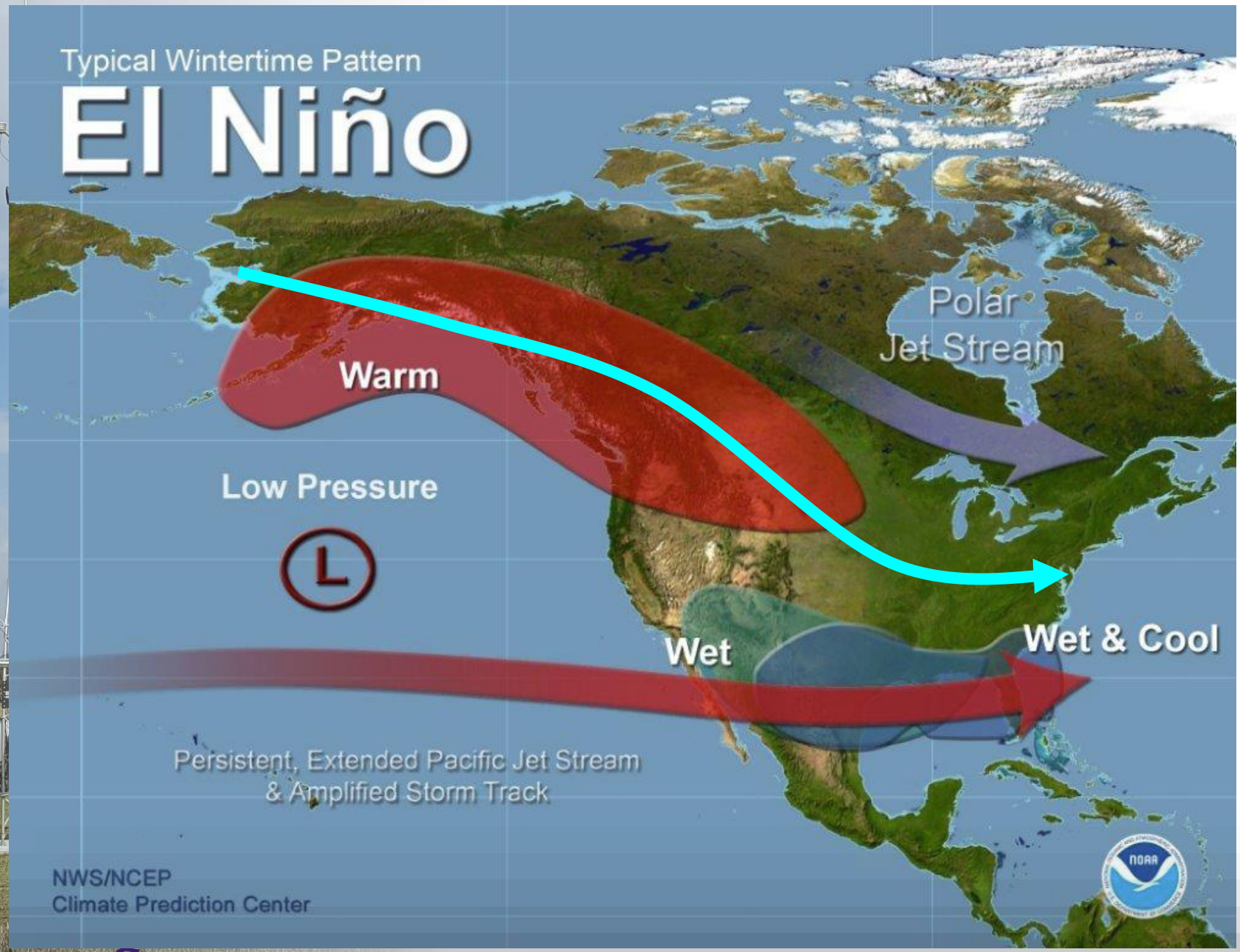
The cooler conditions are a bit in the air of how long they will last. As a result, CPC added some above normal temperature thoughts for the state in November. This would be middle of the month as the pattern begins to transition back to El Nino influence. The moisture forecast is heavily weighted by the Nino influence late month.





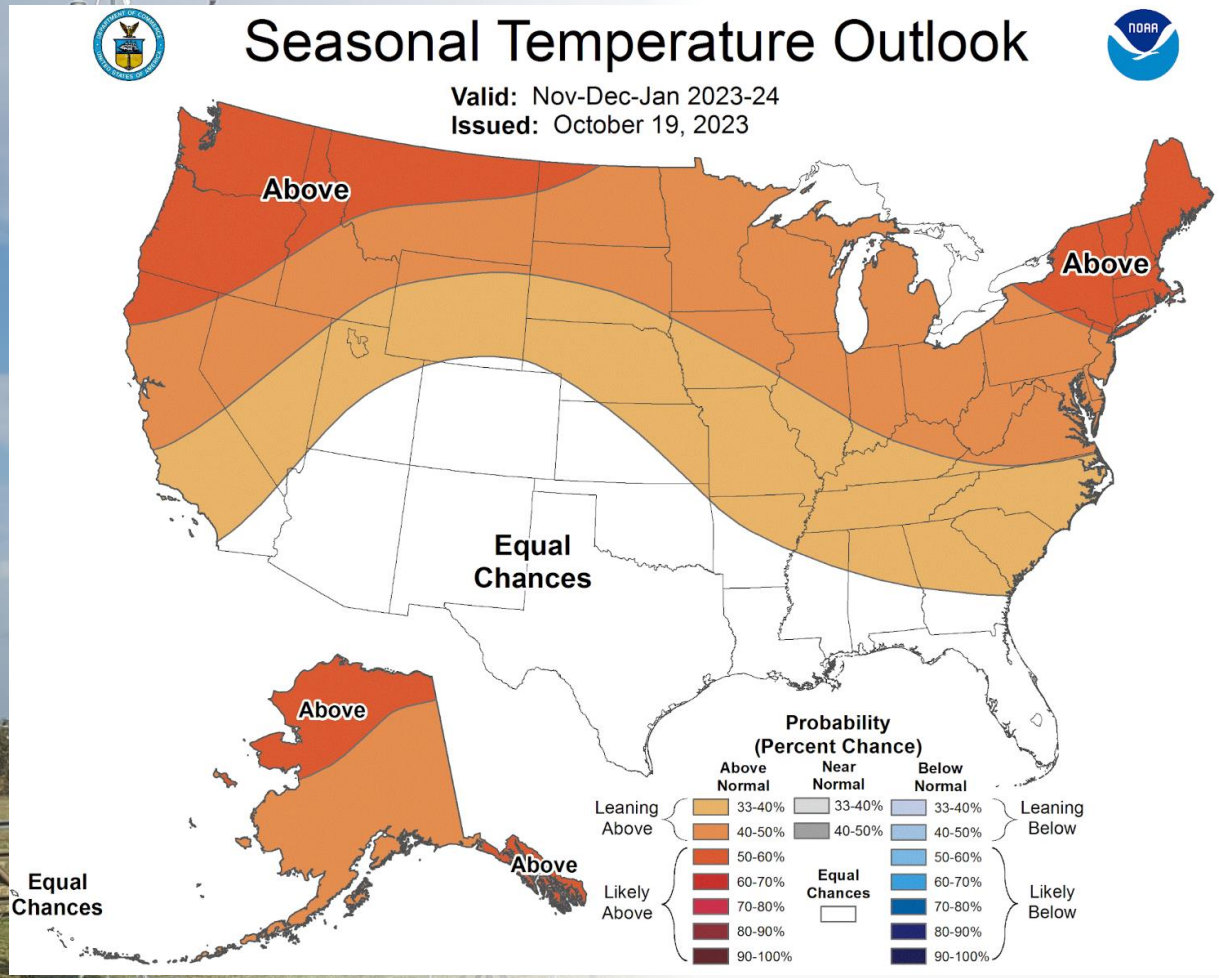


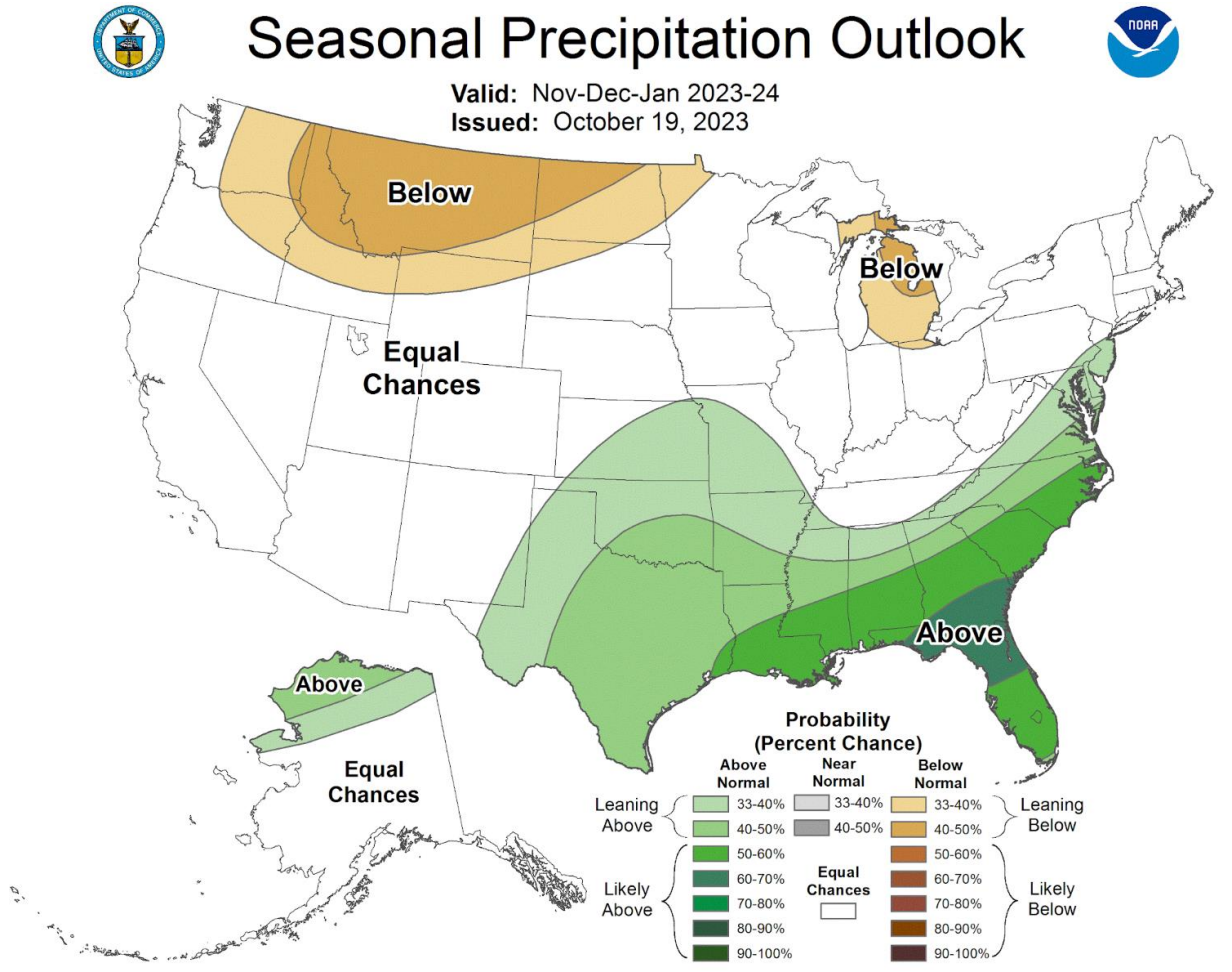
A negative PDO still persists and has in fact strengthened over the last month. This opens the door for a westward shifted jet stream. As a result, there would be an increased potential for cold air to push south form the northern latitudes into the central US this winter.



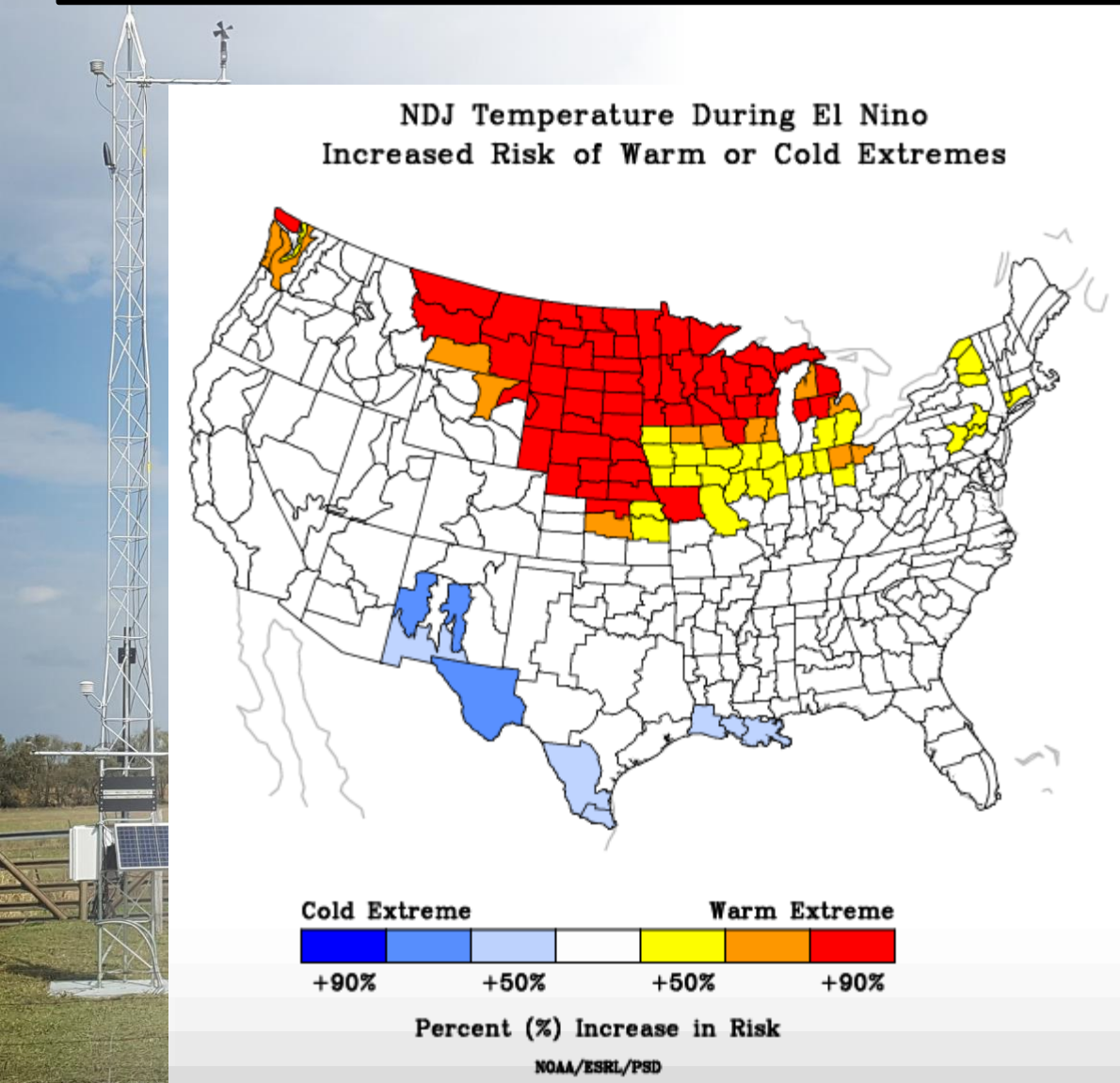
Here is a depiction of where the northern polar jet stream gets shunted westward by the -PDO and -AO if they align this winter. This could shift where storms form and open the door for cool/wet conditions to be slightly further west and north than a typical El Nino winter pattern.

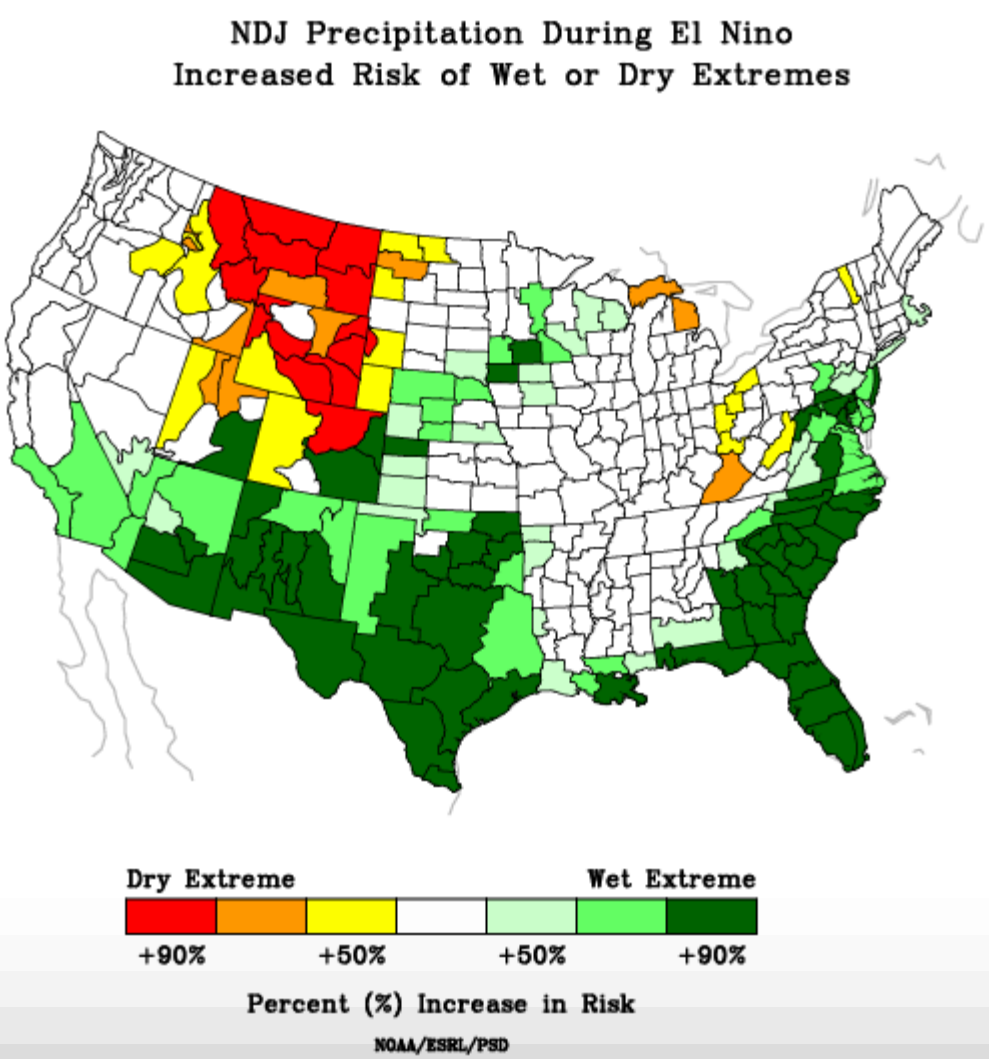
CPC suggests that much of the “cooler” potential isn’t going to be Arctic origin with above normal temperatures across the northern US. Precipitation wise though, they align well with these considerations.

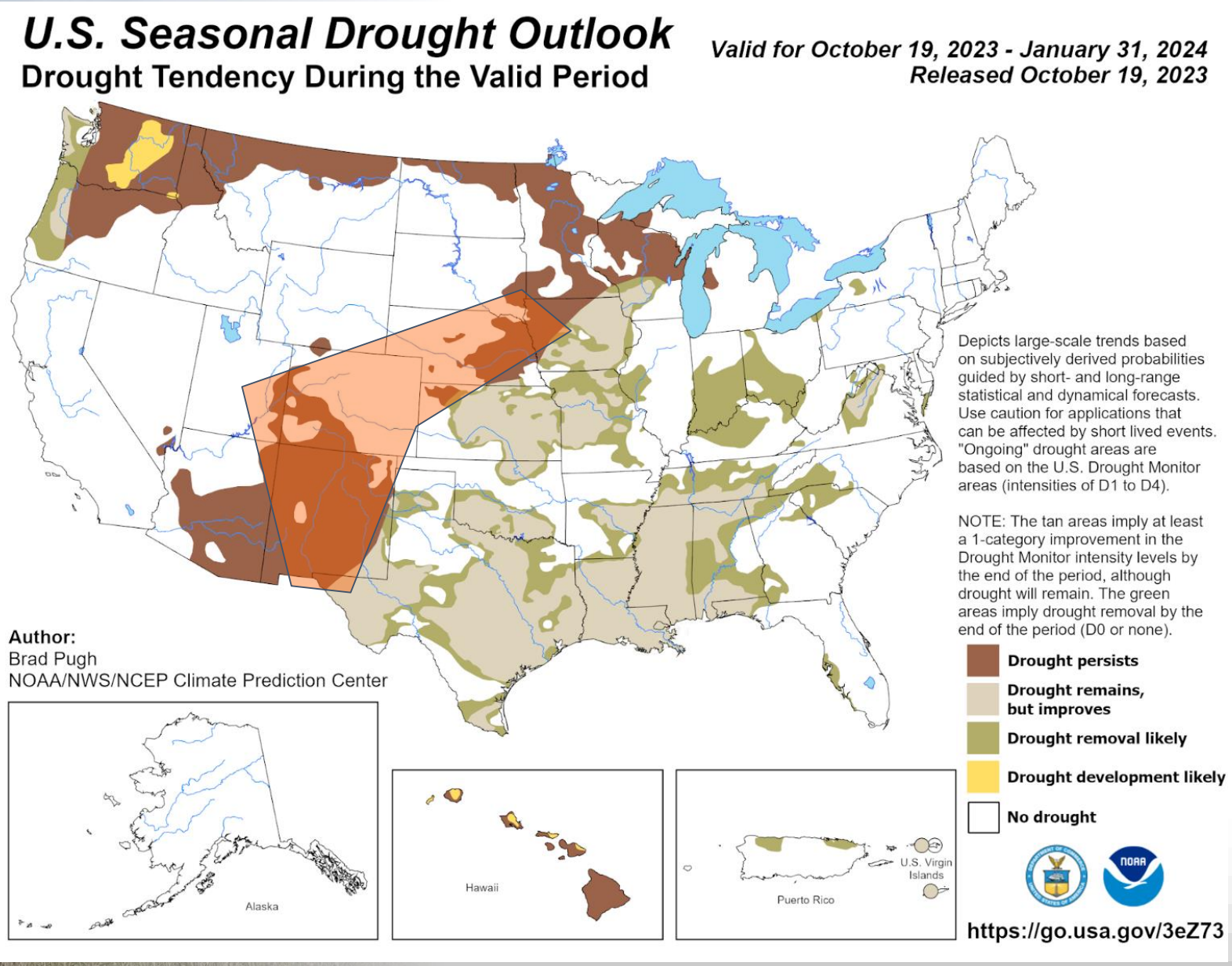




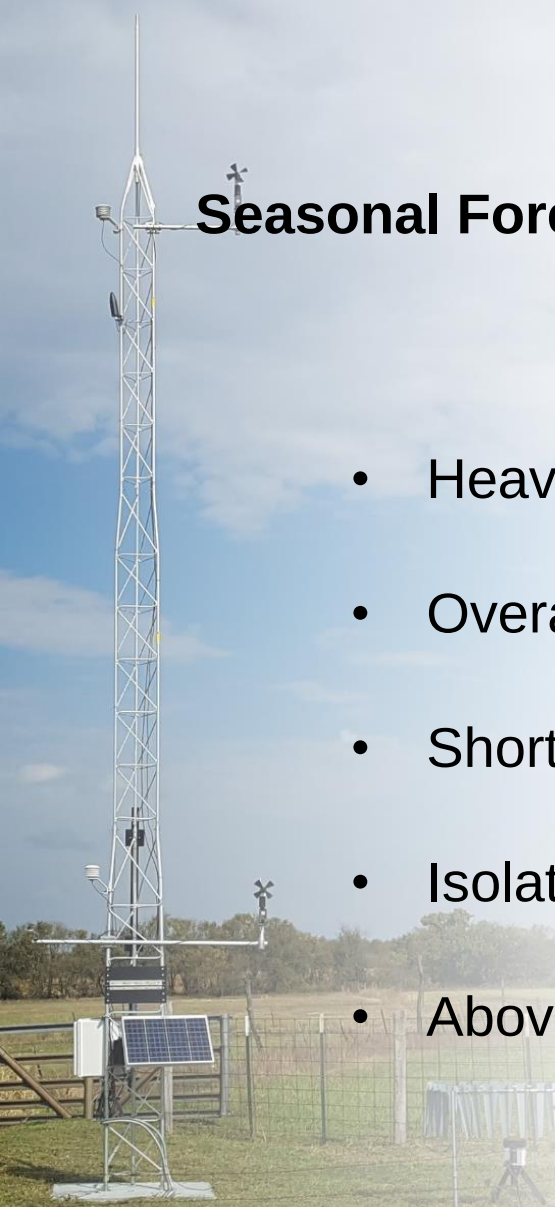
Historically for El Nino, Kansas remains in the battle ground for precipitation extremes (right) and swings slightly towards above normal temperature heat extremes in the winter months (left).







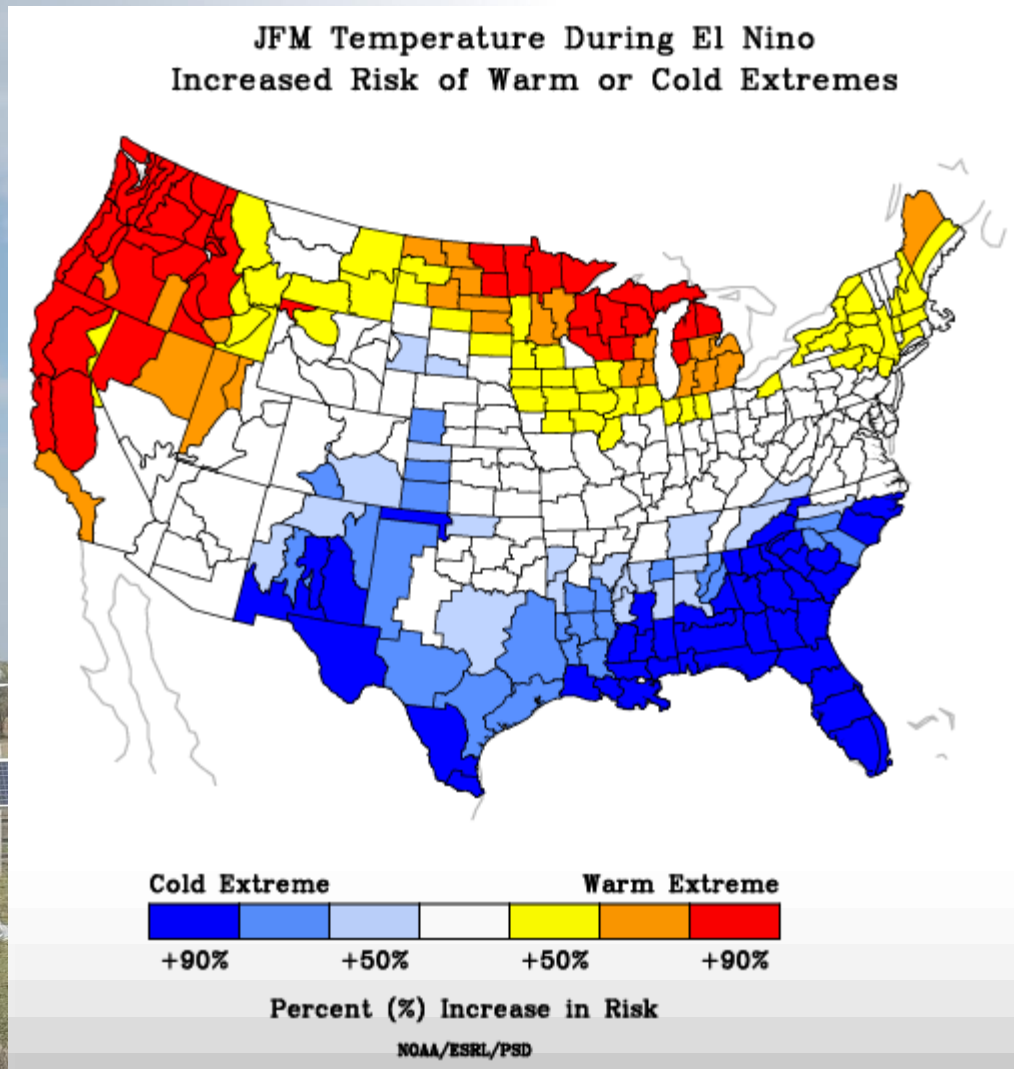
Notably, there have been some adjustments to the seasonal drought outlook on the western edge of the current drought. They have added “drought persists” for these regions as drier than normal conditions are expected to emerge. Regardless, drought is expected to persist across much of the central Plains even if there is some marginal improvements.

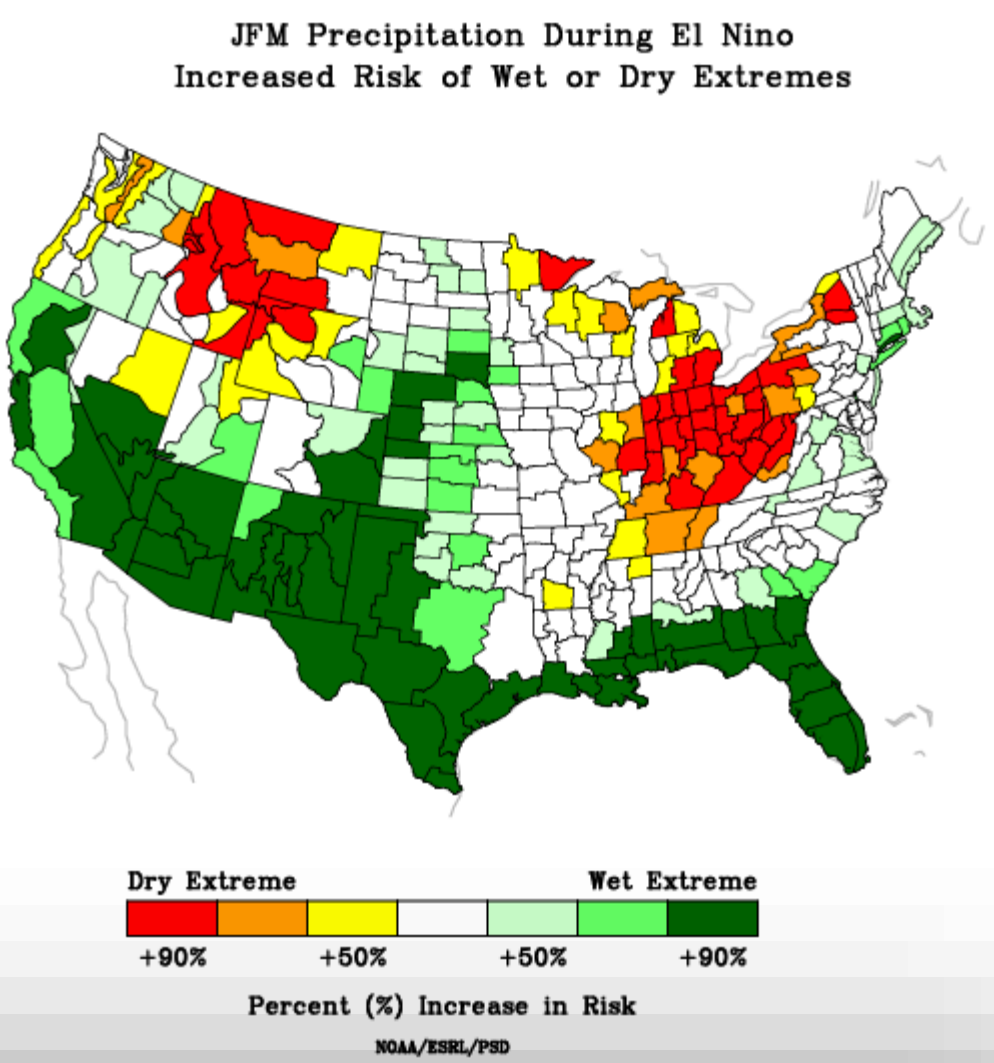


Seasonal Forecast (Nov, Dec, Jan)

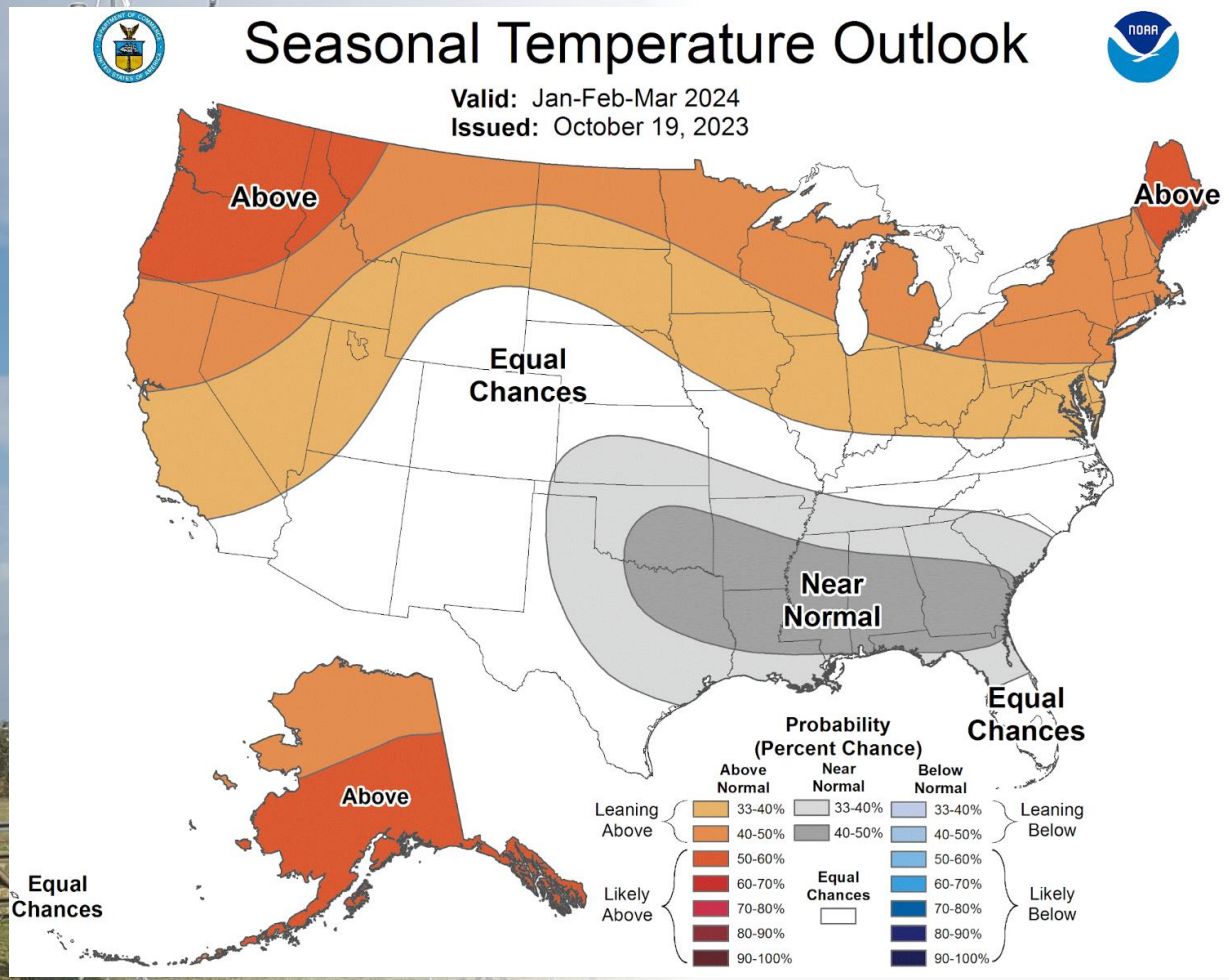
- Heavy influence of one or two storms through the period
- Overall dry outside of that system(s)
- Short term cold potential increasing in early winter
- Isolated areas of drought improvements, otherwise persistence
- Above normal grass amounts in west and south-central driving fire season

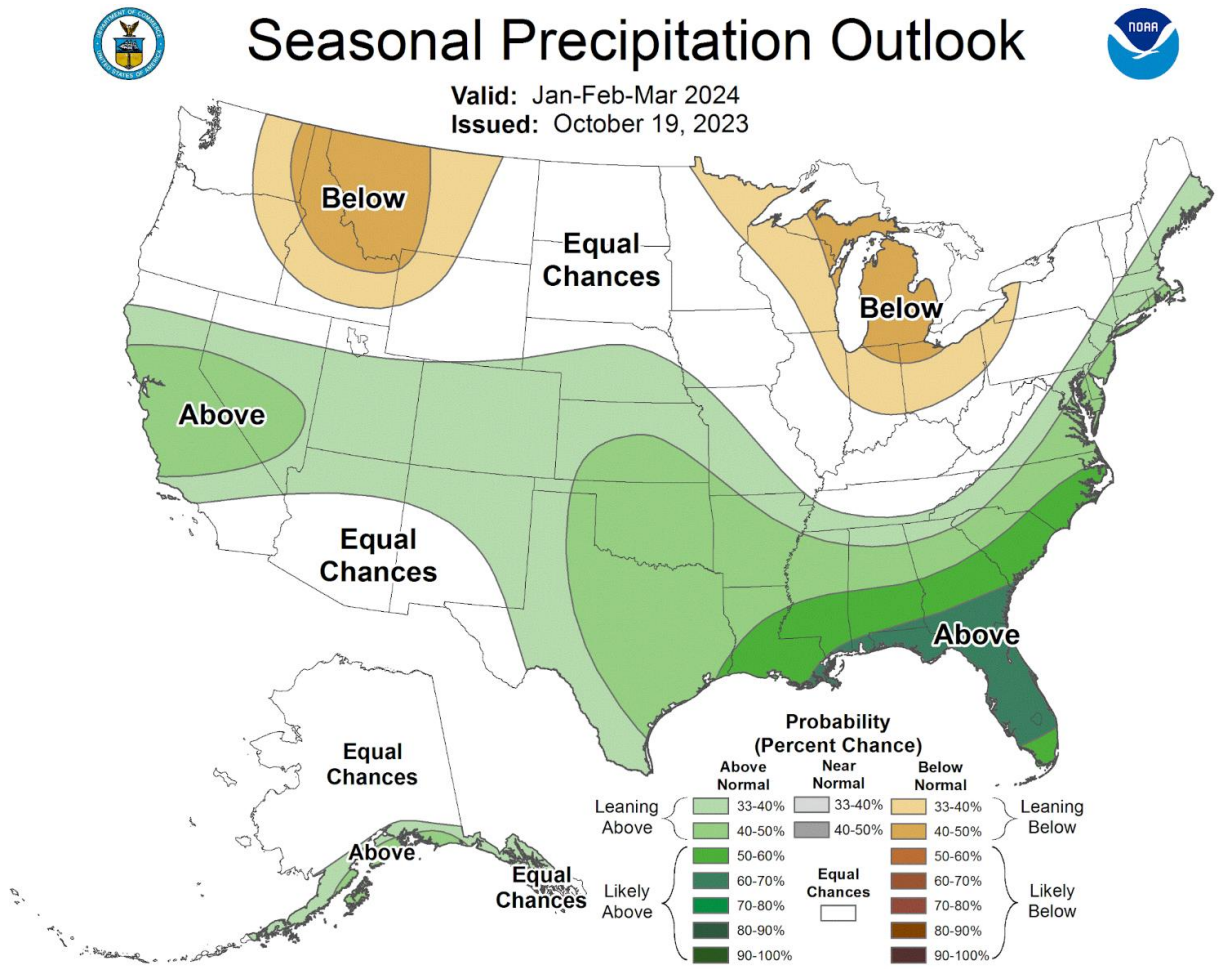
Looking at the extremes further into Winter and early Spring, precipitation become more confident in a wetter result. While the coldest extremes remain the highest to the south, wetter weather typically results in an increase in clouds which keep afternoon highs lower. Moisture chances definitely on the upswing by early spring and coincide with some potential for drought relief. This could be a ample recipe for late season snow storms (and ICE).



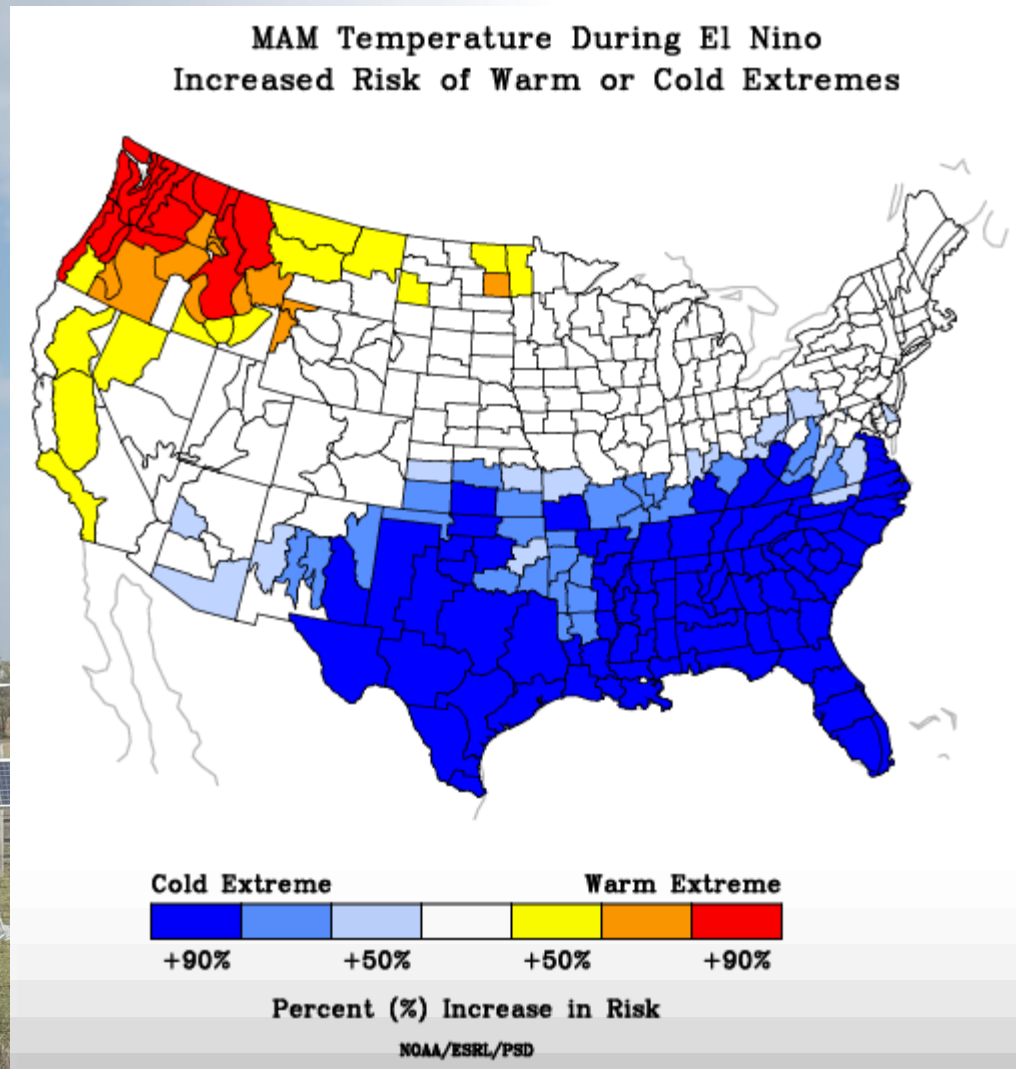


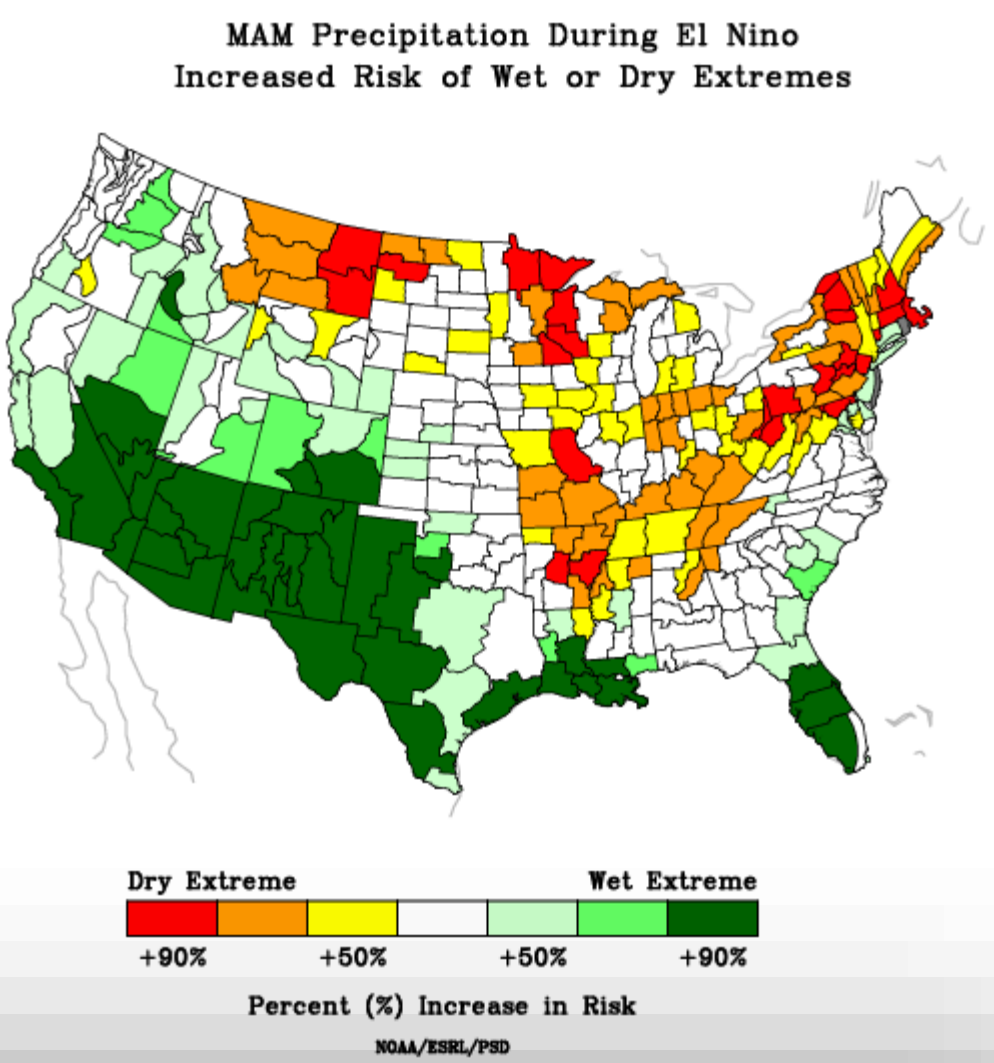
CPC holds on to a classic El Nino pattern into the heart of the winter. It also picks up on the increased potential for an active storm track with enhanced potential for a storm or two to skew statistics across the central Plains resulting in above normal precipitation for the region.



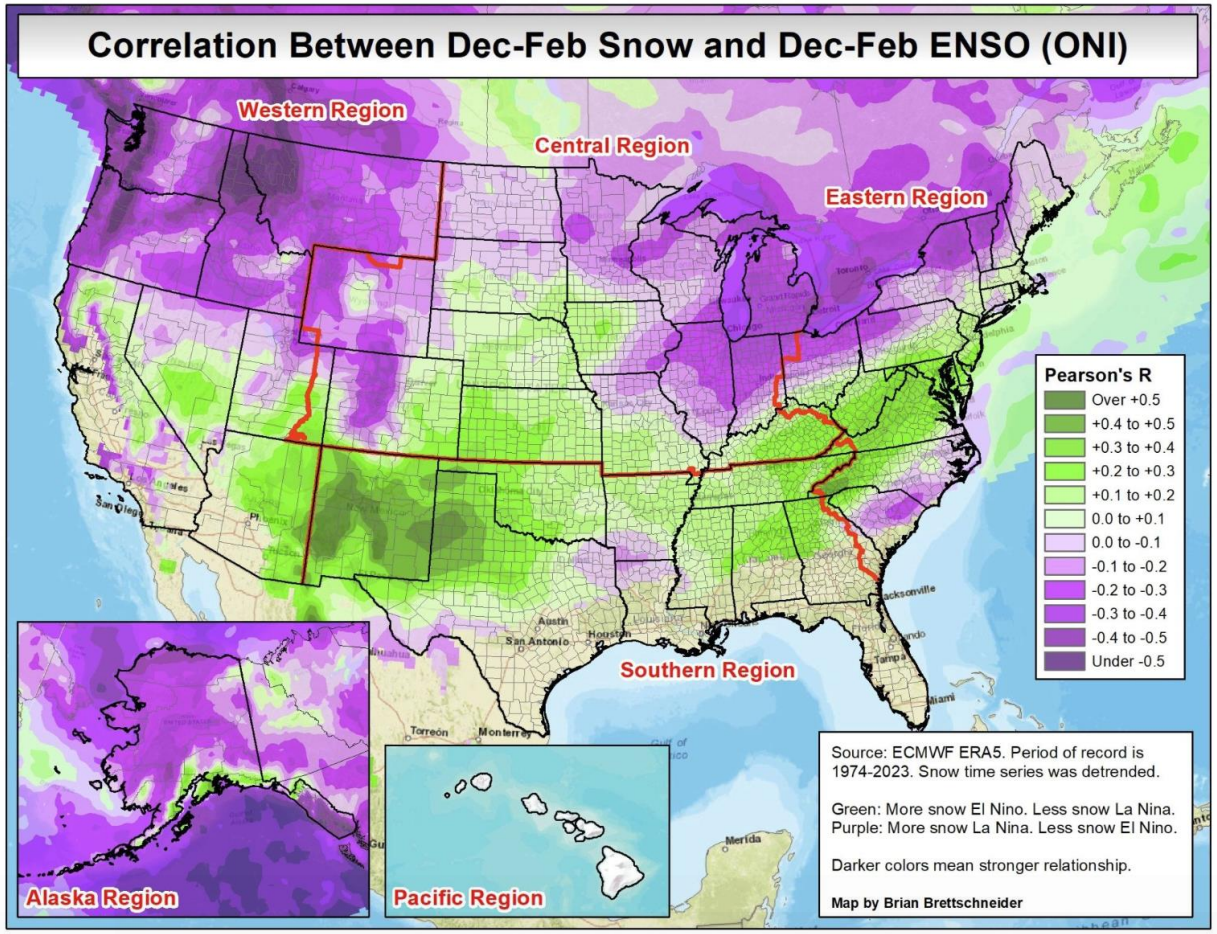


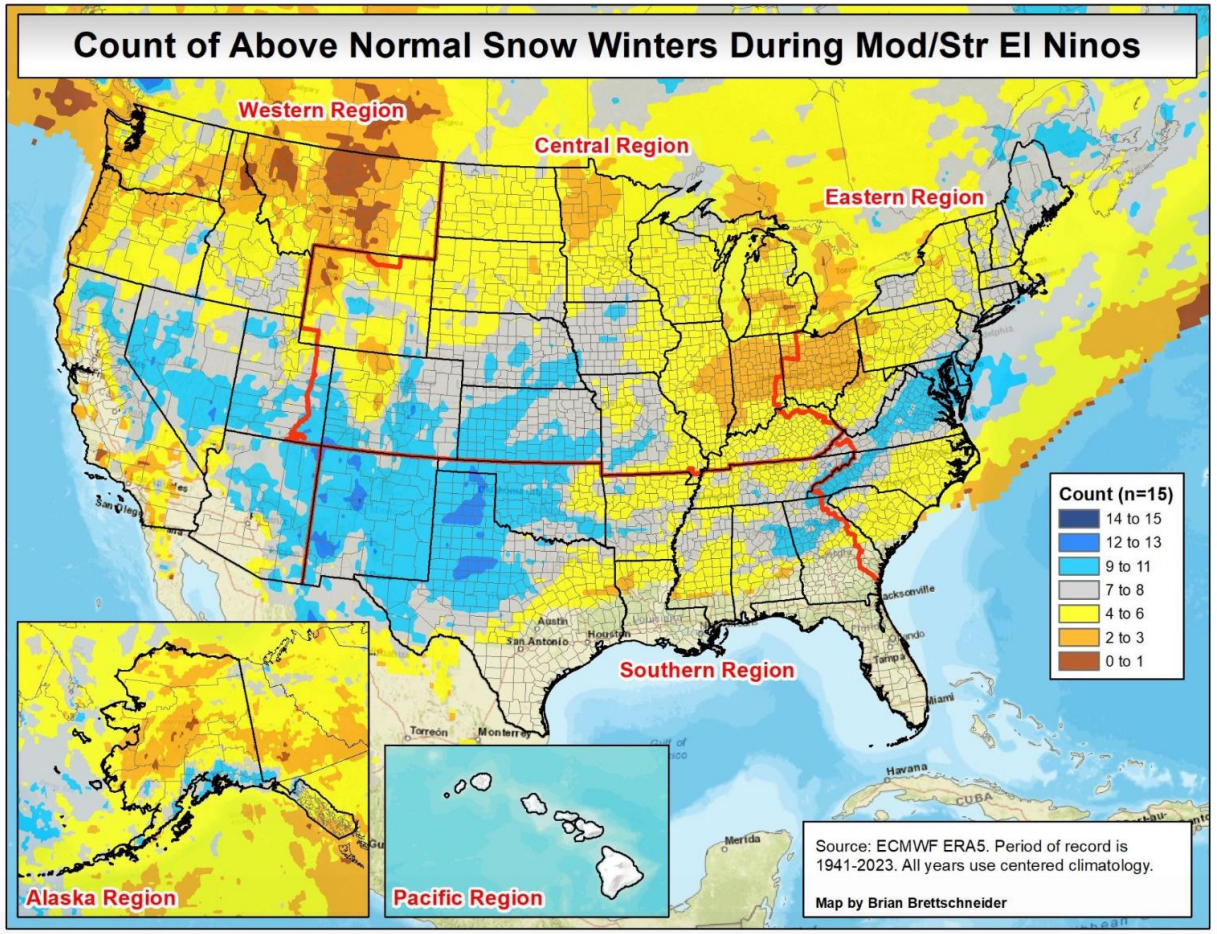
Looking at the extremes further into Winter and early Spring, while the coldest extremes remain the highest to the south. Moisture chances definitely on the upswing by early spring and coincide with some potential for drought relief. This could be a ample recipe for late season snow storms (and ICE).



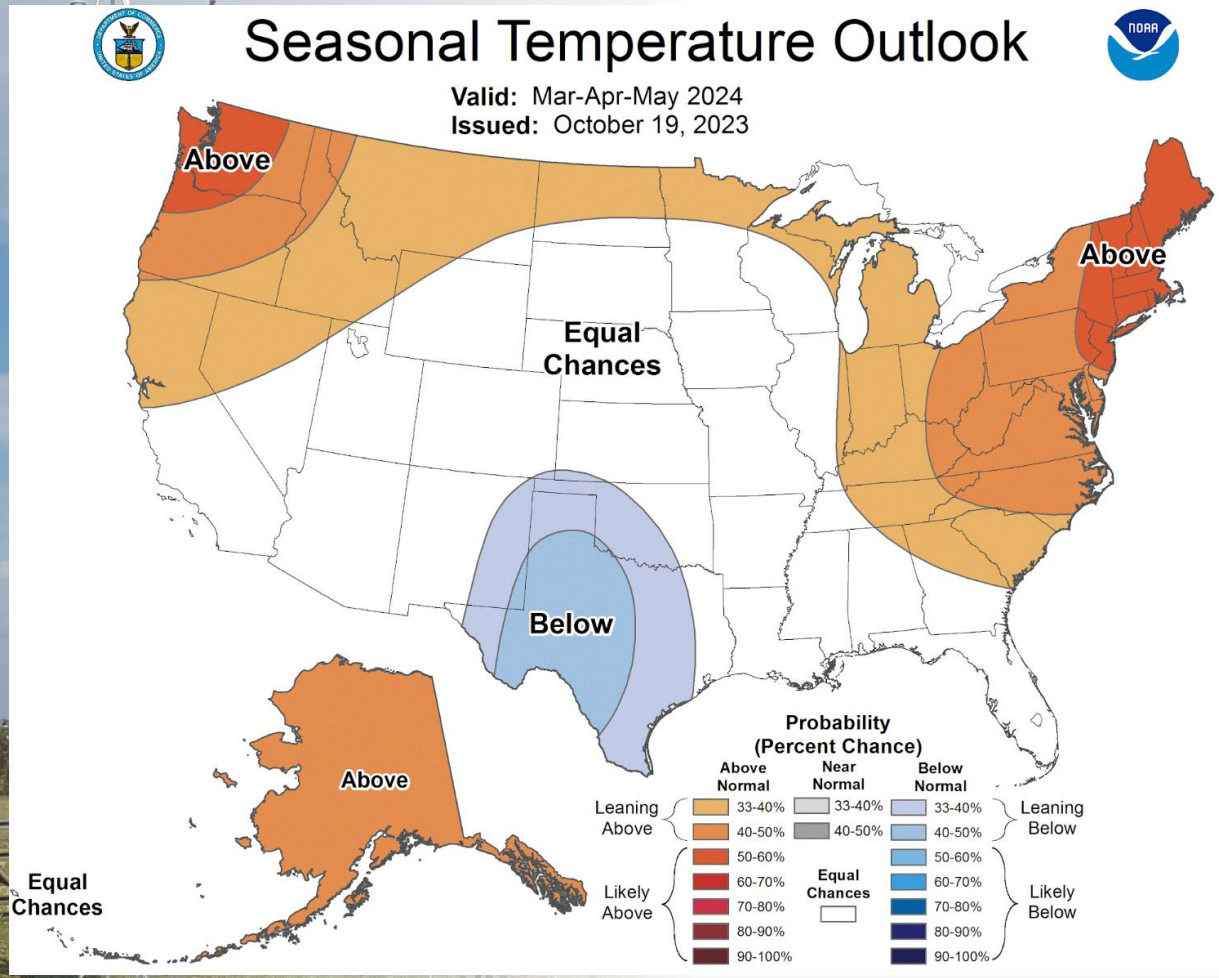


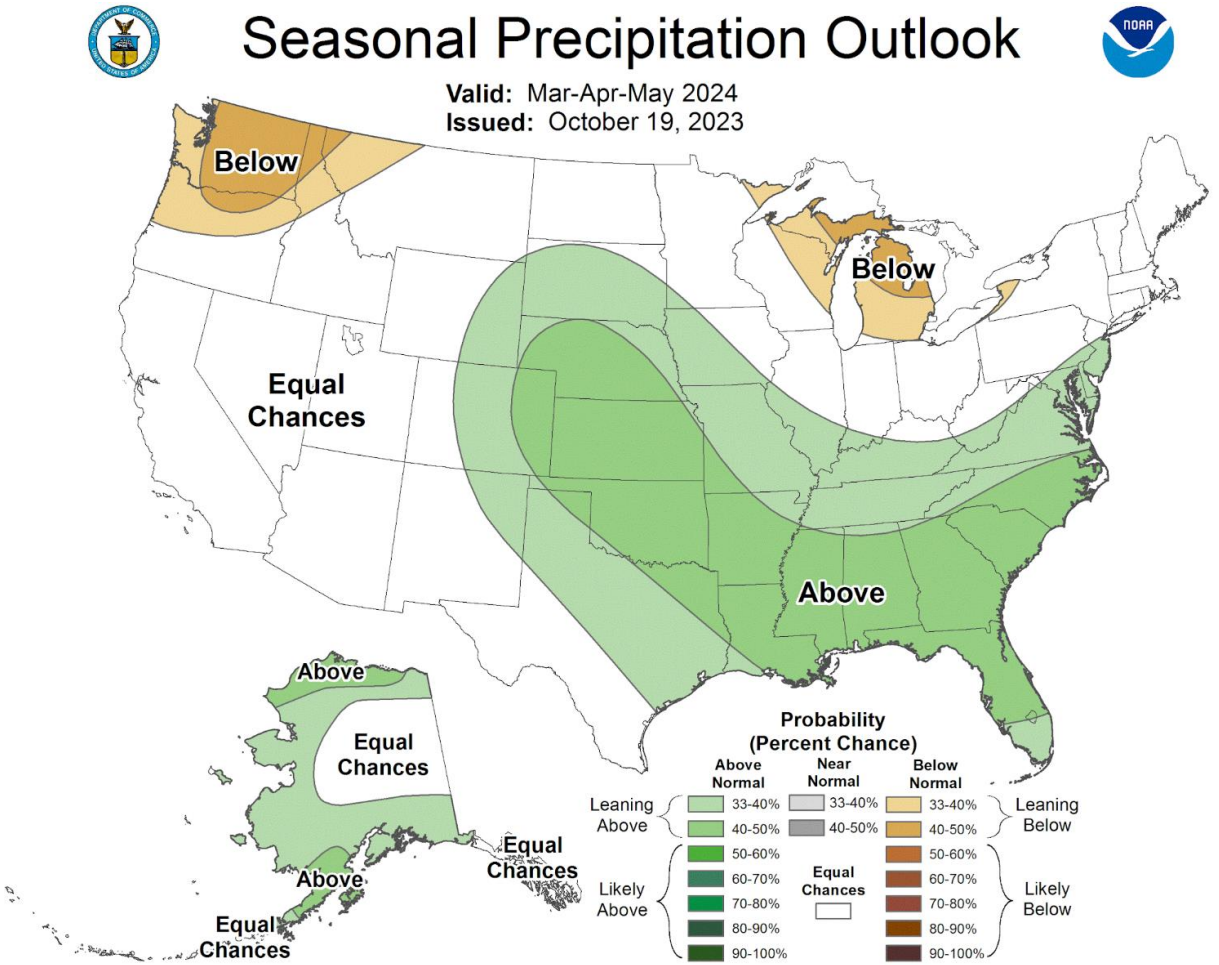
Snow probability increases with access to additional moisture during an El Nino winter. With early winter cold potential, this could be optimized for more snow than previous years (almost guaranteed).





CPC tosses out that temperature NMME result but leans heavily on the Nino influenced pattern for precipitation. Also remember, this is the average over the three month period. Early spring looking wetter than normal. This would have implications on fire season - in a good way! Could also mean an increase in early severe weather potential as well.





Seasonal Forecast (Feb, Mar, Apr)

- Seasonal jetstream shift with El Nino likely to yield above normal moisture
- Late snow potential increased compared to last year
- Less Arctic influence but remaining cooler than normal
- Increased cloud cover potential with more active pattern
- Overall decreased fire weather concerns
- Some early severe weather episodes possible

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Please share these links widely.

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NWS Springfield has had a big response with adding link to their webpage headlines!