

Montana Annual Fire Season Outlook

2025 Montana Governor's Fire Briefing

June 2, 2025

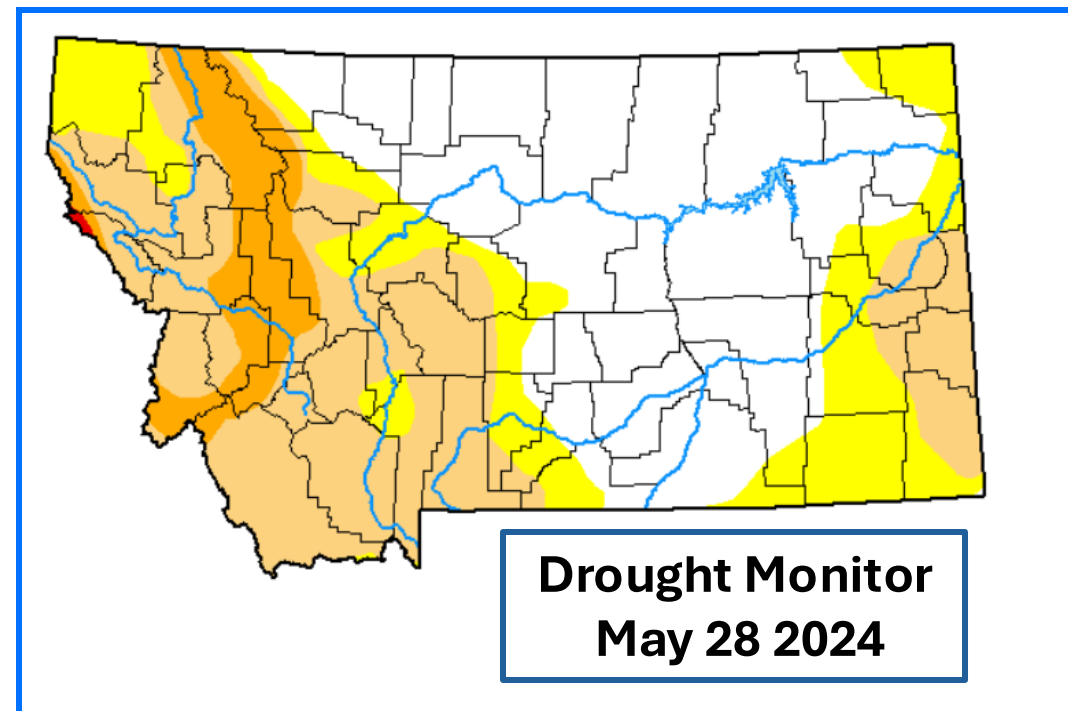
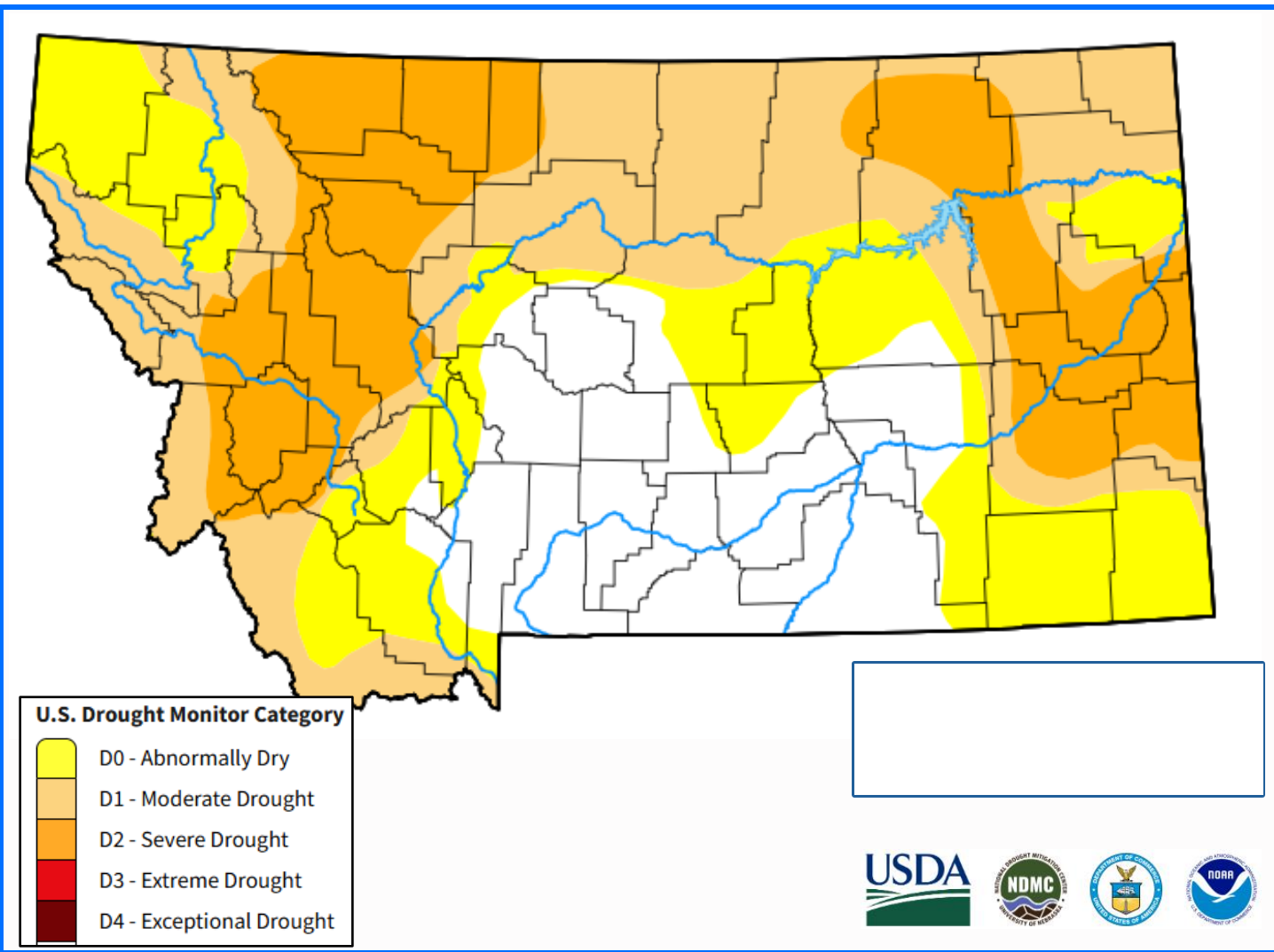
2024	2322	352,491*
2023	1662	123,133
2022	2087	137,509
10 Yr Average	2076	372,454

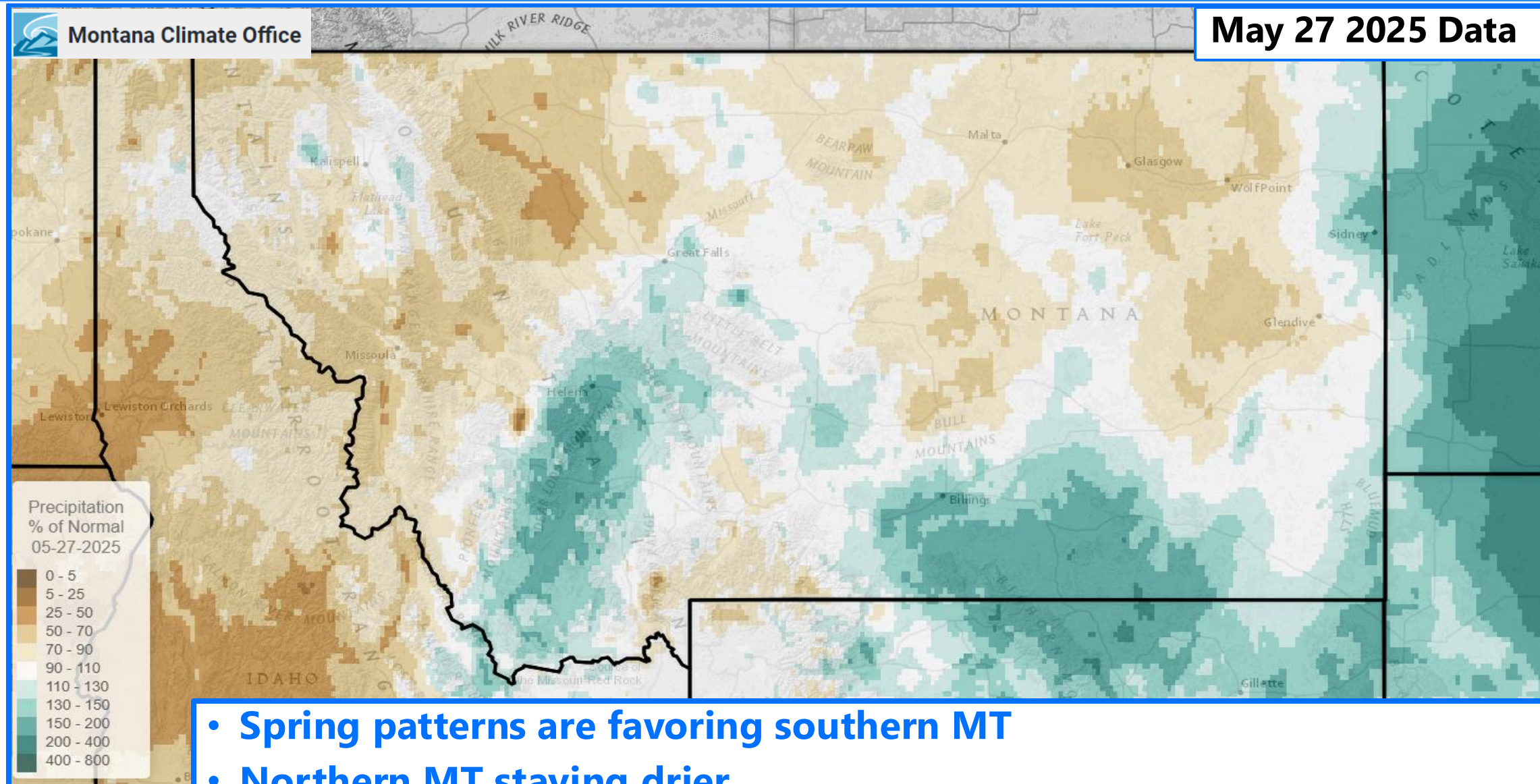
*** 176,000 of the 2024 acres were from
the Remington Fire in southeast MT**

**Hot and dry July 2024 set up fire potential
in much of NRGAs but late July rainfall and
live fuels reduced large fire potential**



- North central Montana drying, moderation parts of southwest and southeast past 8 weeks
- Severe drought coverage has increased over Montana by 15% over the past year





- Spring patterns are favoring southern MT
- Northern MT staying drier
- Weather system this week helps a bit east of Continental Divide

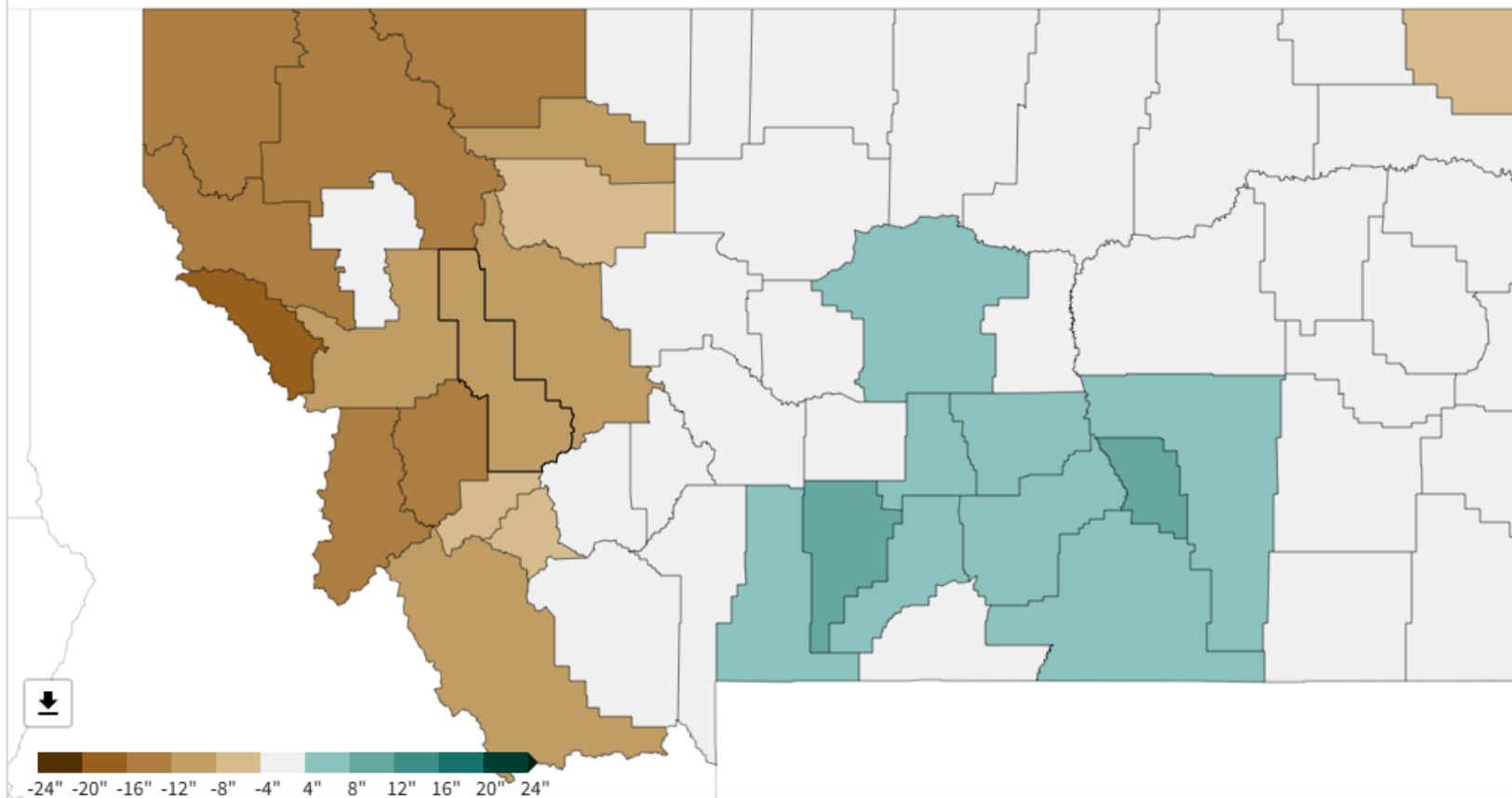


Numerous counties in western Montana missing 8 to 16 inches of moisture past 3 years

Powell County's deficit ranks 11th driest for 36 period for the 128 years of record

County Precipitation Anomaly

May 2022 - April 2025



Powell County

Precip: 69.05in

Anomaly: -11.27in

Rank: 11th Driest

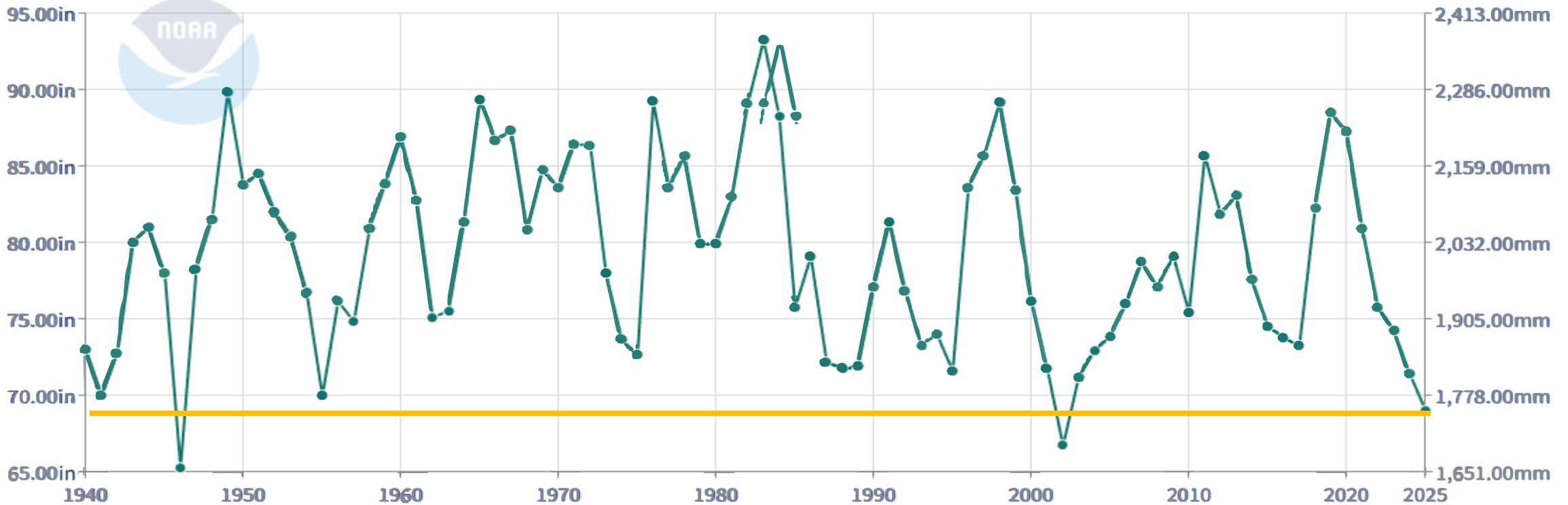
Mean: 80.32in





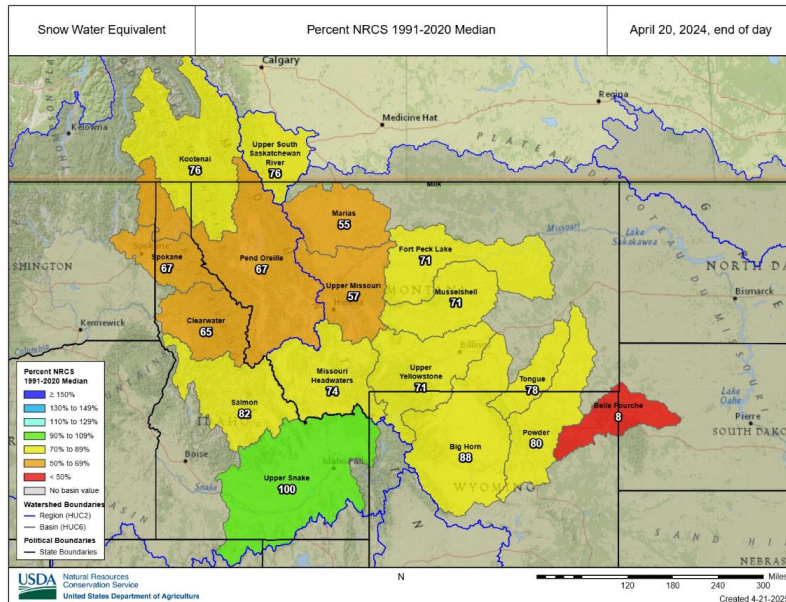
Powell County, Montana Precipitation

36-Month Period Ending in April

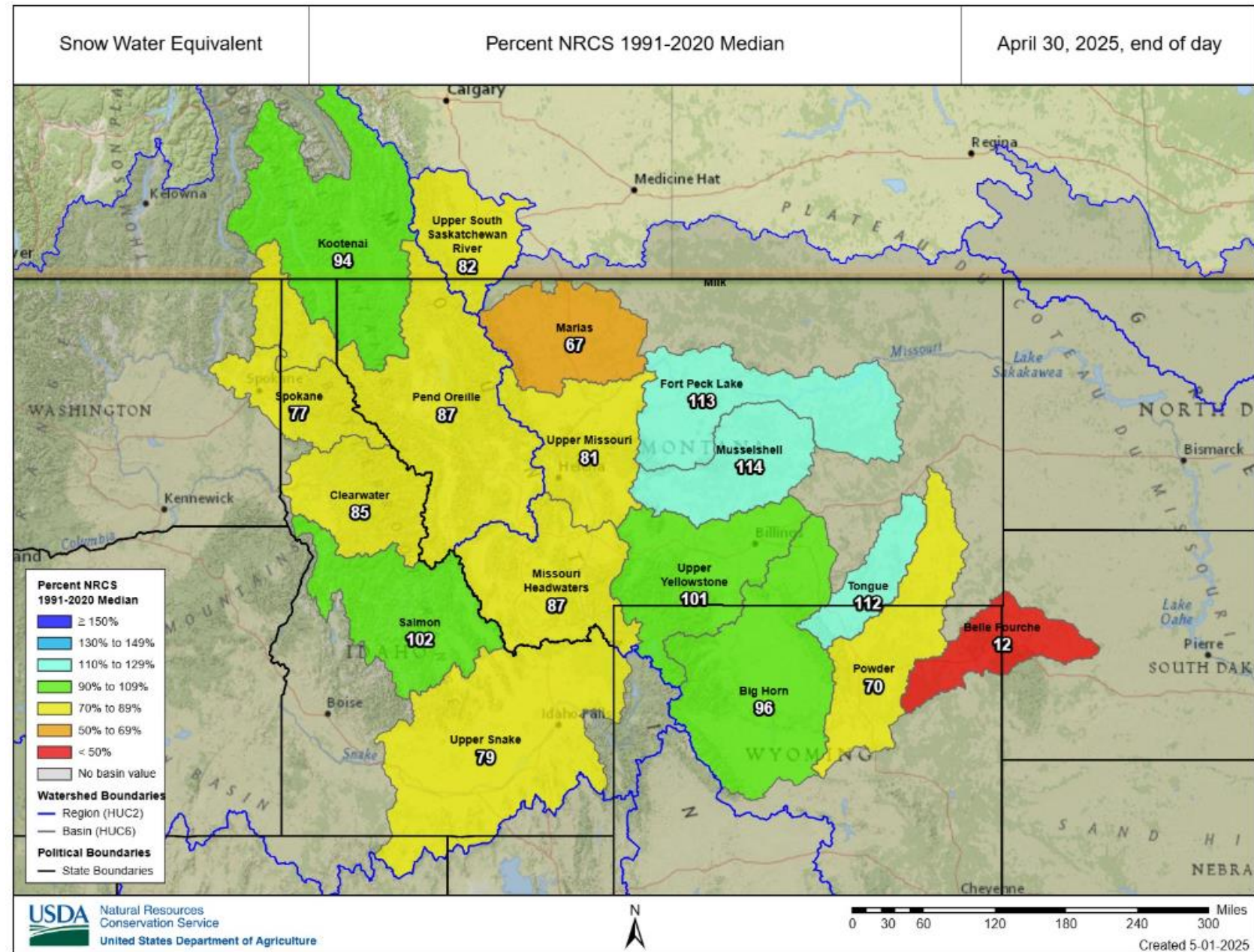


Western Montana Division 36 month running precipitation deficit as dry as early 2000s

Indicator that onset of sustain heat and dryness could cause stress quickly because of reduced groundwater

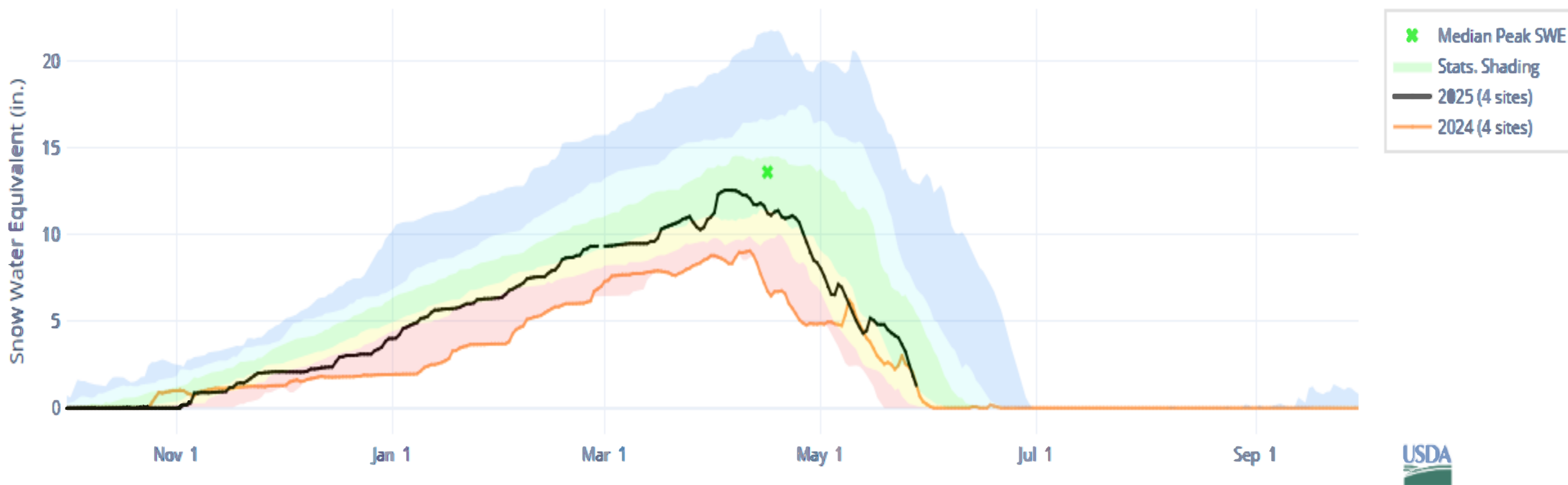


- **Snowpack slightly below normal western basins with better snowpack central Montana**
- **Improvement compared to last year**





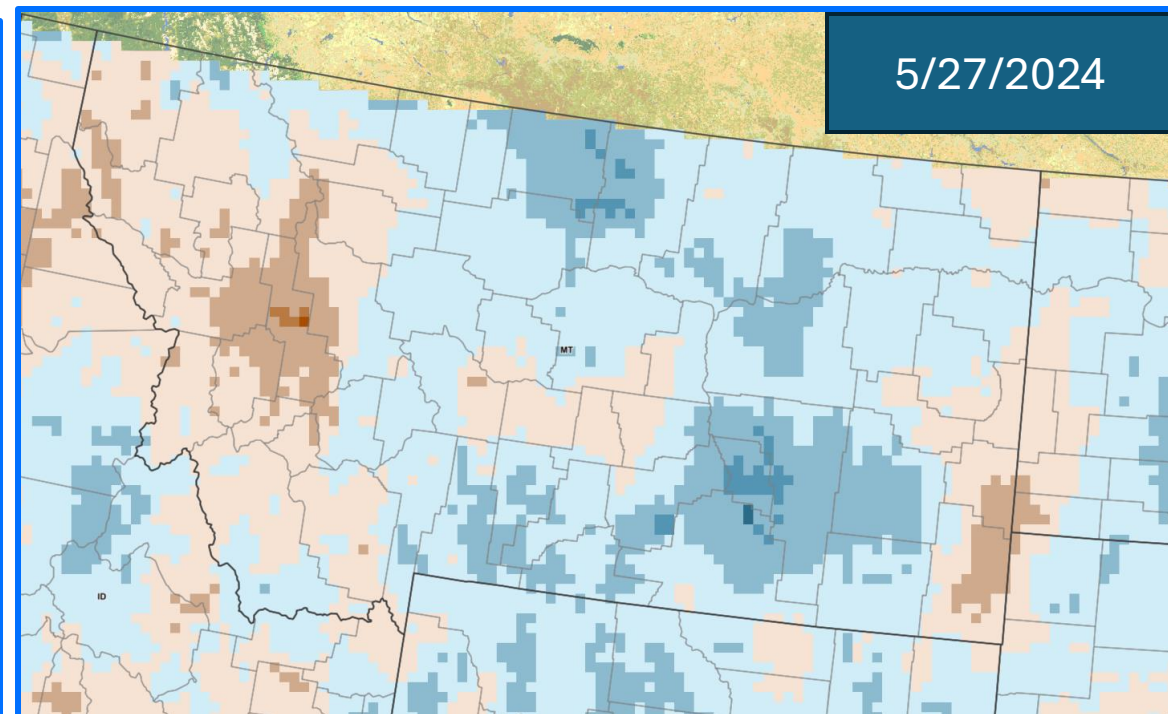
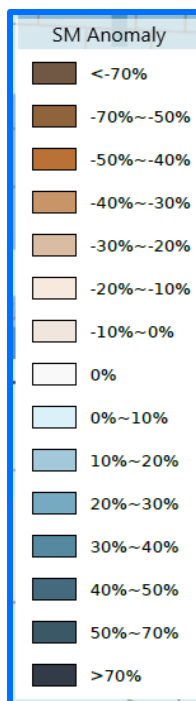
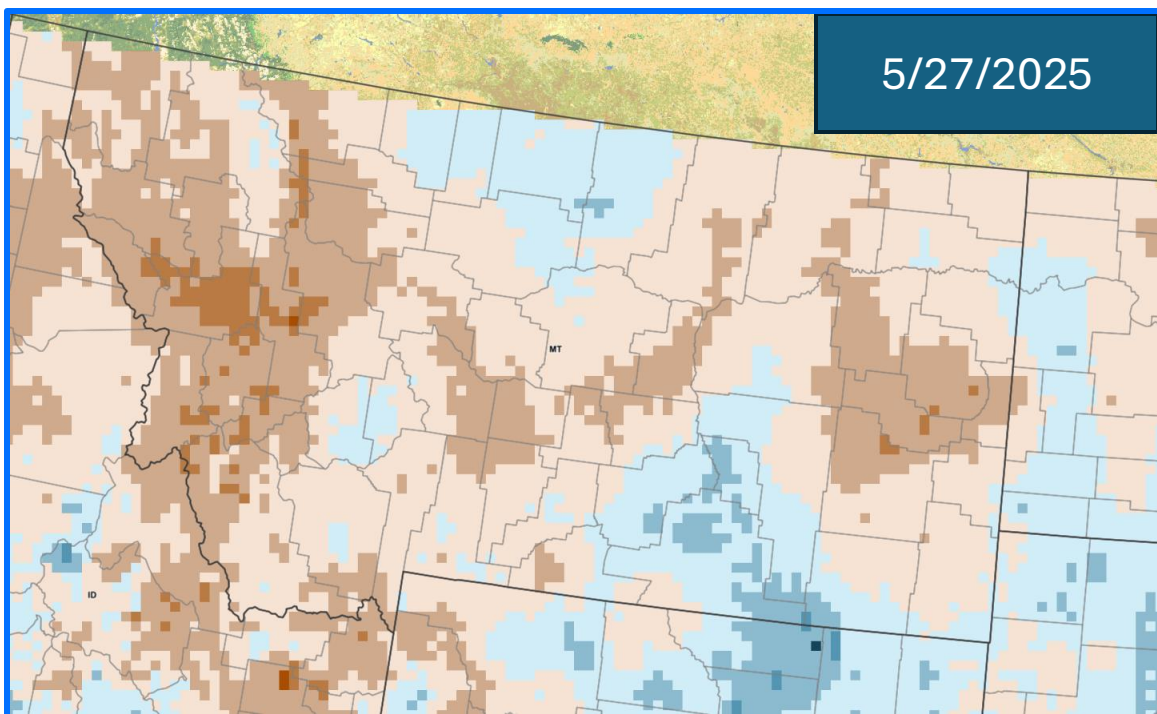
SNOW WATER EQUIVALENT IN UPPER MISSOURI



While the snowpack was better than 2024, warmer weather has already caused 2025 snowpack to deplete as quickly as 2024



2025 subsurface soil moisture anomalies display more deep soil dryness across Montana compared to 2024



Crop-CASMA (Crop Condition and Soil Moisture Analytics)



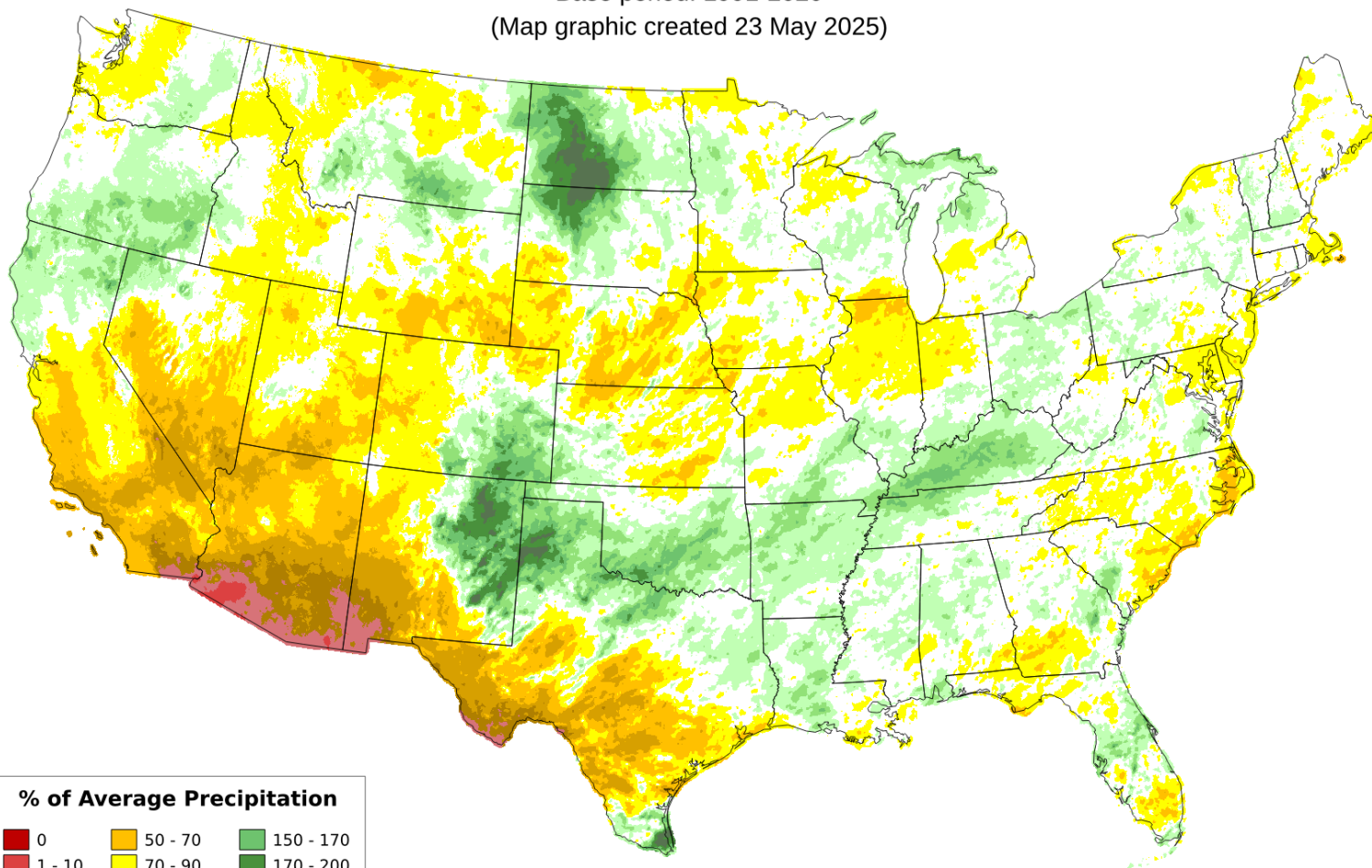


Total Precipitation Anomaly: Oct 2024 - 22 May 2025

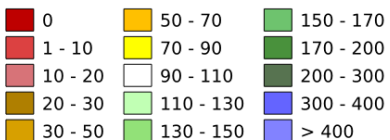
Period ending 7 AM EST 22 May 2025

Base period: 1991-2020

(Map graphic created 23 May 2025)



% of Average Precipitation



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Water Year (Oct-Apr) Precipitation Anomaly

Below normal western NRG, greater deficits north central MT and along MT/ND border

Above normal moisture south central MT

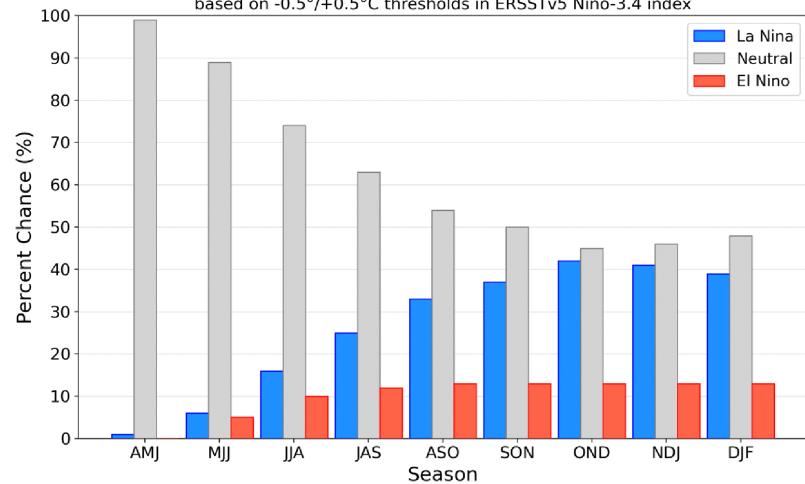
Southwest US/southern GB well below normal

Drier ground to our south will support formation of heat domes



Official NOAA CPC ENSO Probabilities (issued May 2025)

based on $-0.5^{\circ}/+0.5^{\circ}\text{C}$ thresholds in ERSSTv5 Niño-3.4 index

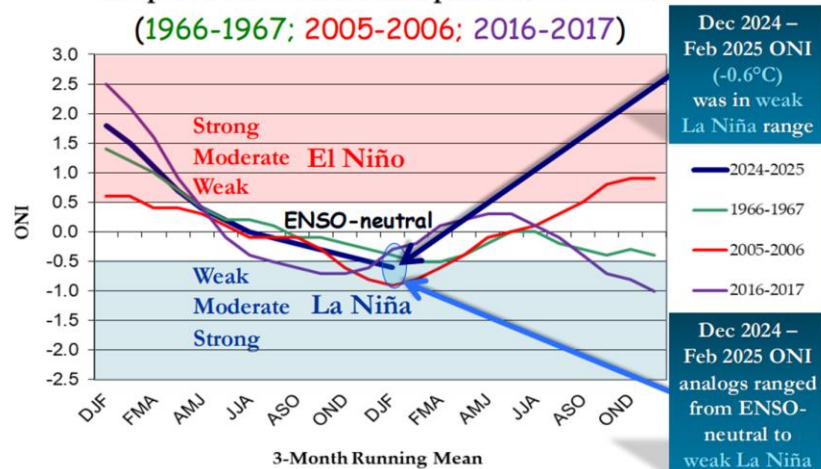


- **El Nino/La Nina pattern**
 - Winter weak La Nina signal became neutral in March and expected to become weak La Nina in the fall
- Sequence matches critical years (2006, 2017)
- Long term weather analysts identify years where current ocean conditions match previous years (table below)

Oceanic Niño Index (ONI)

ONI values from the top "analog years" compared with the current period (2024-2025)

(1966-1967; 2005-2006; 2016-2017)



Nearest Neighbor Analysis

SST

EQ Heat

2006, 2002, 2017, 1996, 2014

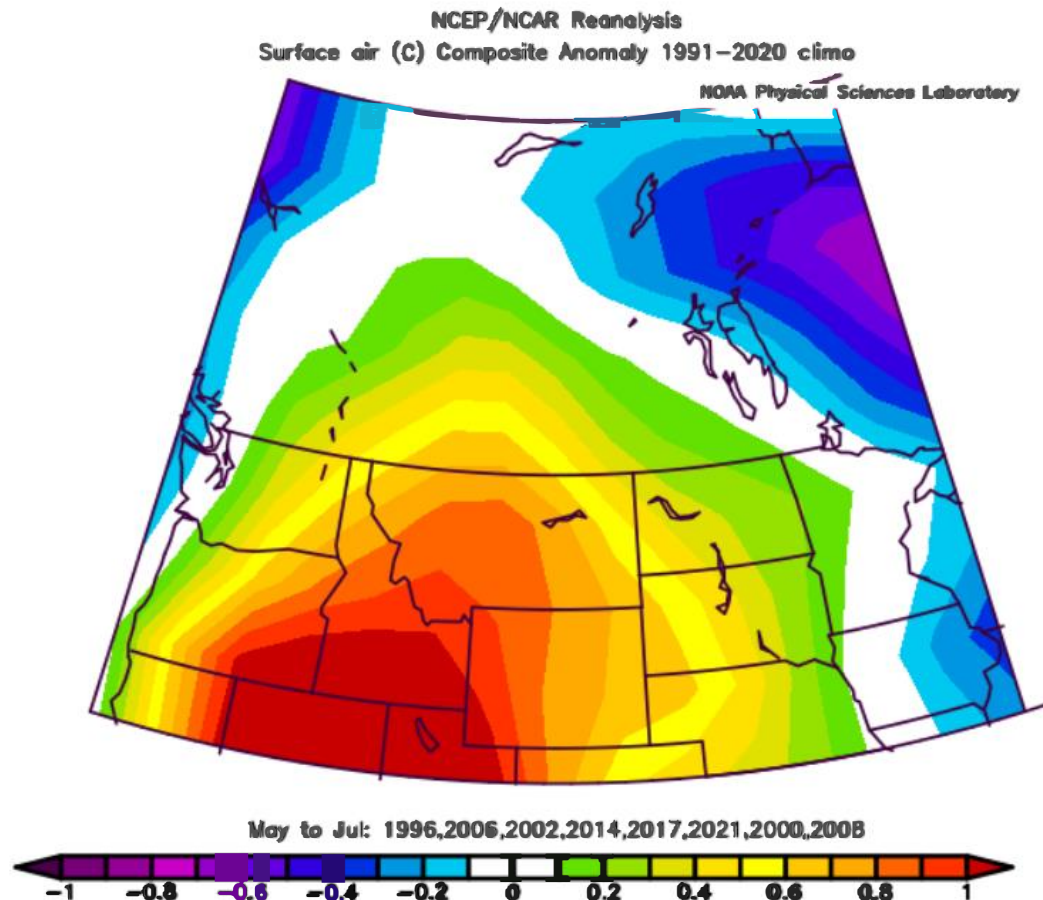
2021, 2008, 1996, 2000, 2006

Sample Size: 8 (1991-Present)

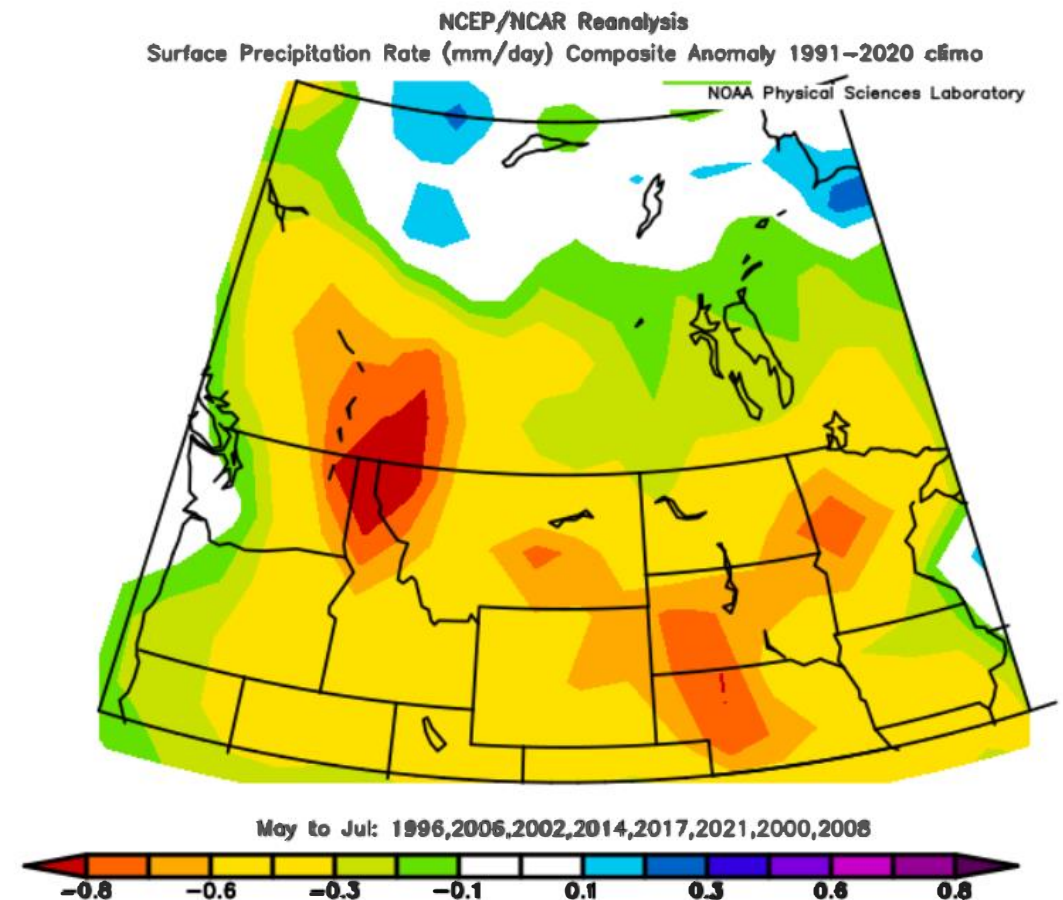


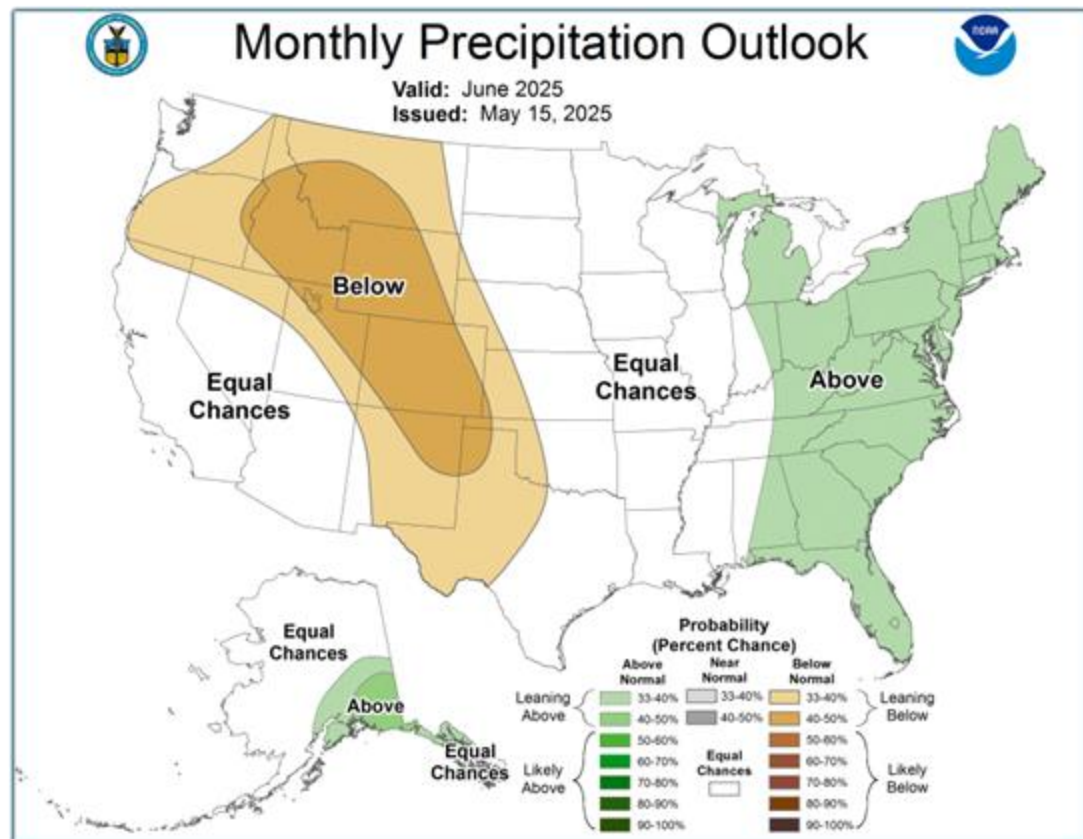
Outlooks based on other years matching current global patterns

Temperature Reanalysis Outlook MJJ
Strong warm signal western half Montana

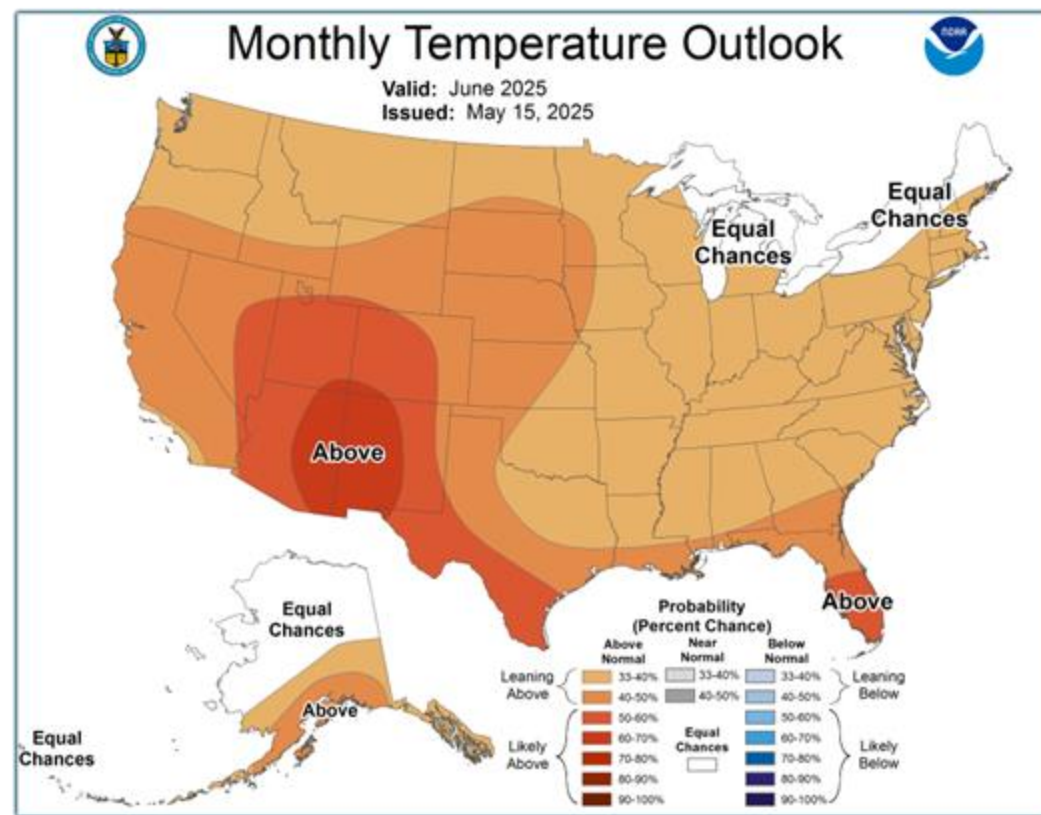


Precipitation Reanalysis Outlook MJJ
Very strong dry signal northwest Montana



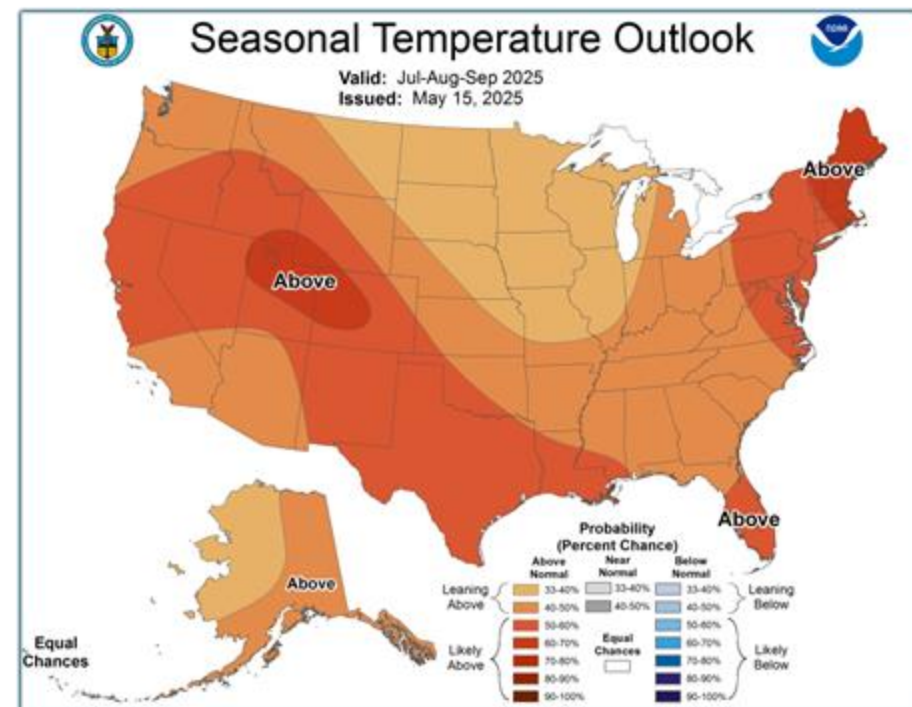
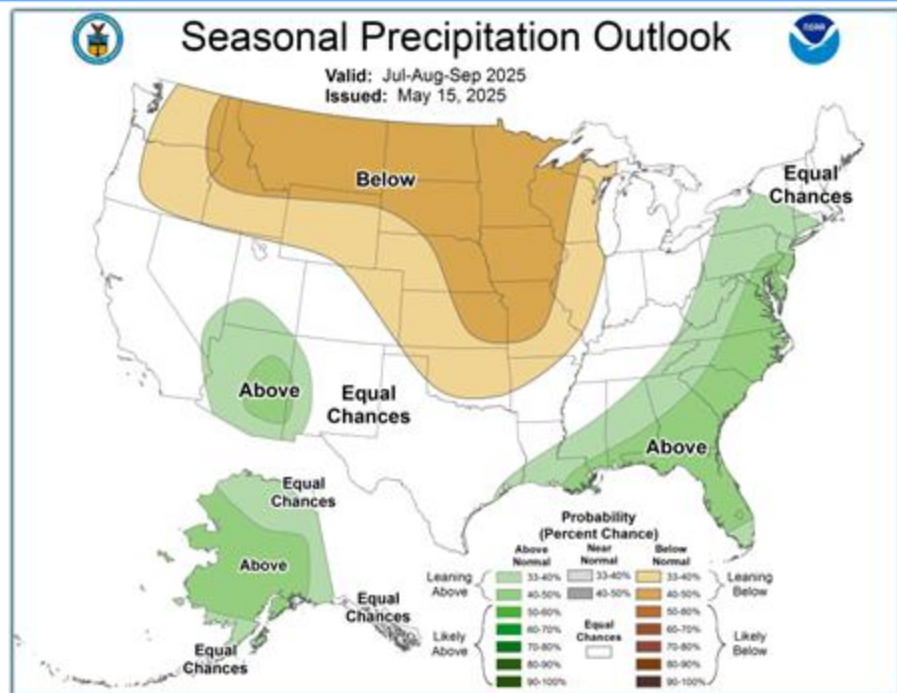


- Most of Montana has a dry signal and southern half a warm signal
- Southwest US and Great Basin should be hotter than normal due to the dry soil conditions





- Widespread below normal signal for all of Montana
- Heat over Great Basin pushing northward in Montana
- Does above normal along AZ/NM border indicate eastward oriented monsoon?



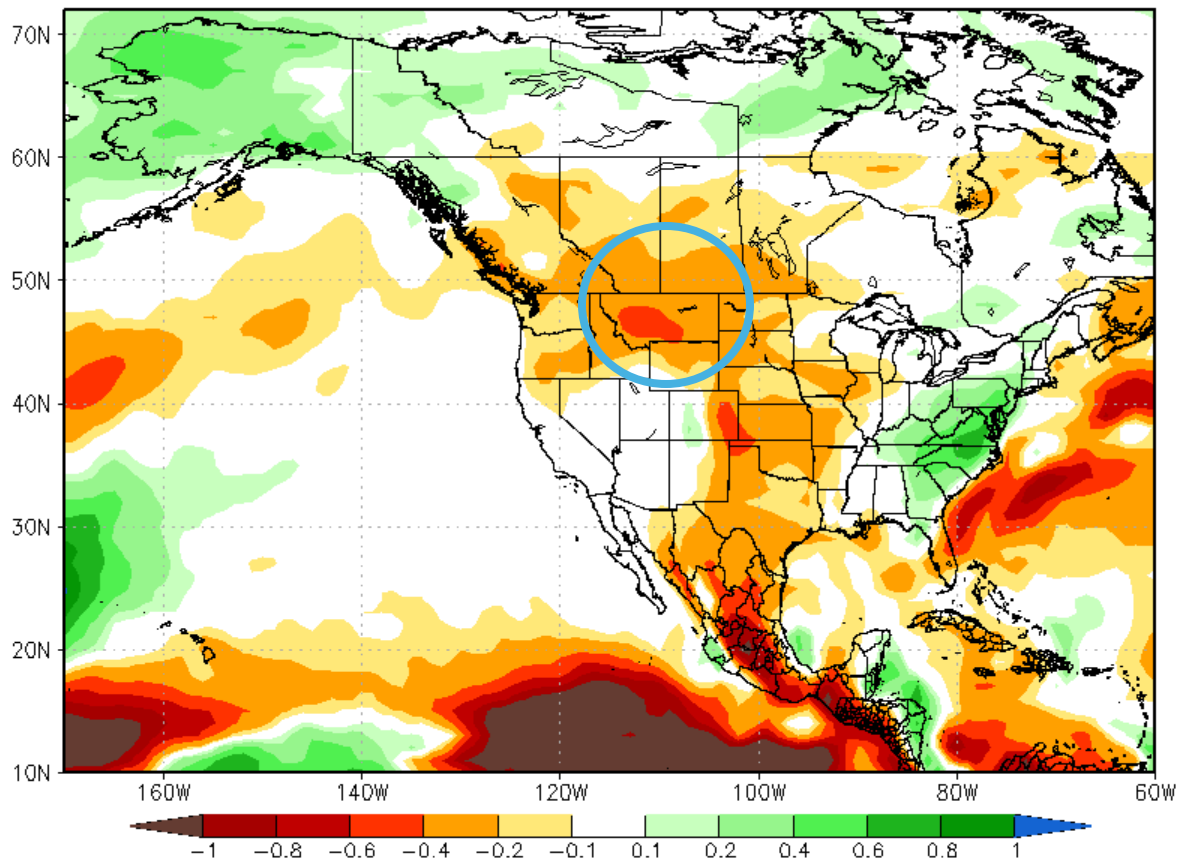


JULY

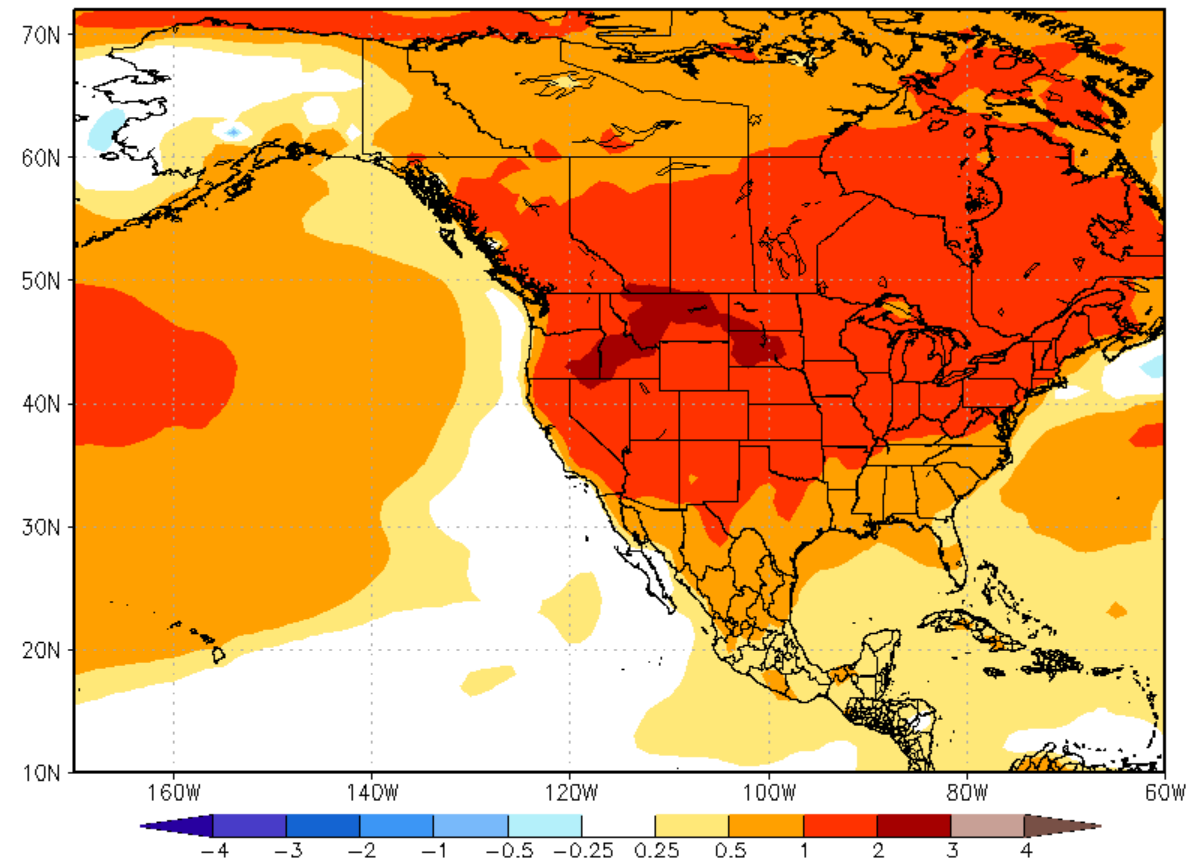
AUGUST

SEPTEMBER

NMME Forecast of Prec. rate Anom IC=202505 for Lead 2 2025Jul



NMME Forecast of TMP2m Anom IC=202505 for Lead 2 2025Jul



Strong dry signal over Montana with well above normal average temperatures
Wet monsoon signal favors Colorado versus western Great Basin

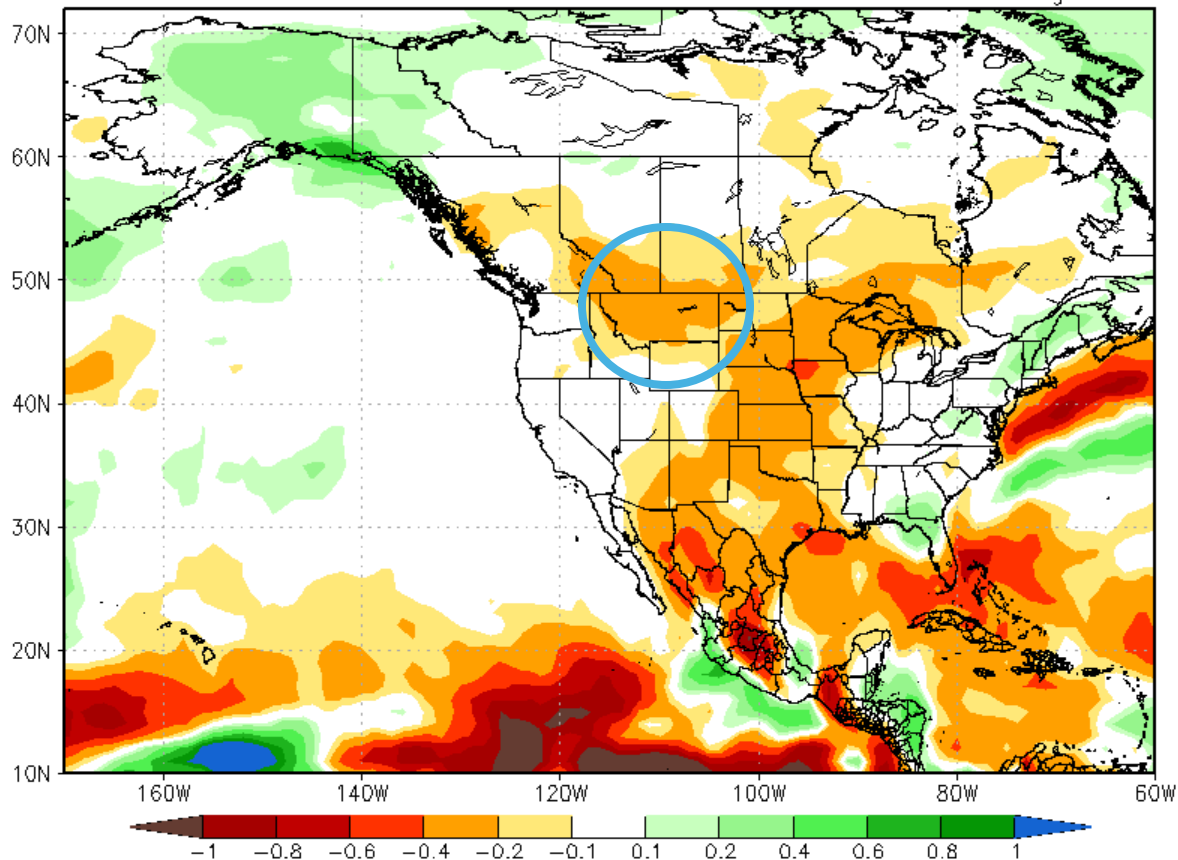


JULY

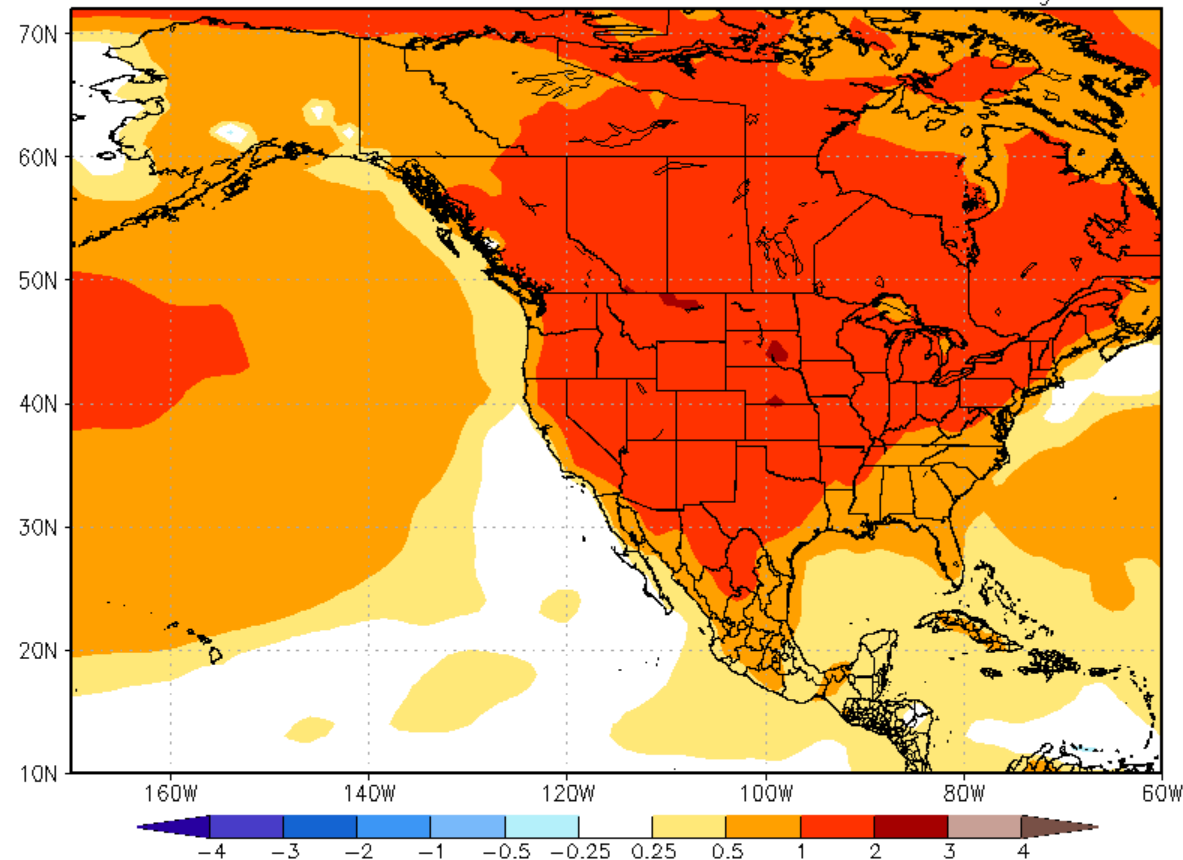
AUGUST

SEPTEMBER

NMME Forecast of Prec. rate Anom IC=202505 for Lead 3 2025Aug



NMME Forecast of TMP2m Anom IC=202505 for Lead 3 2025Aug



Still dry signal over Montana with normal moisture over the Great Basin indicating monsoon may stay south of state

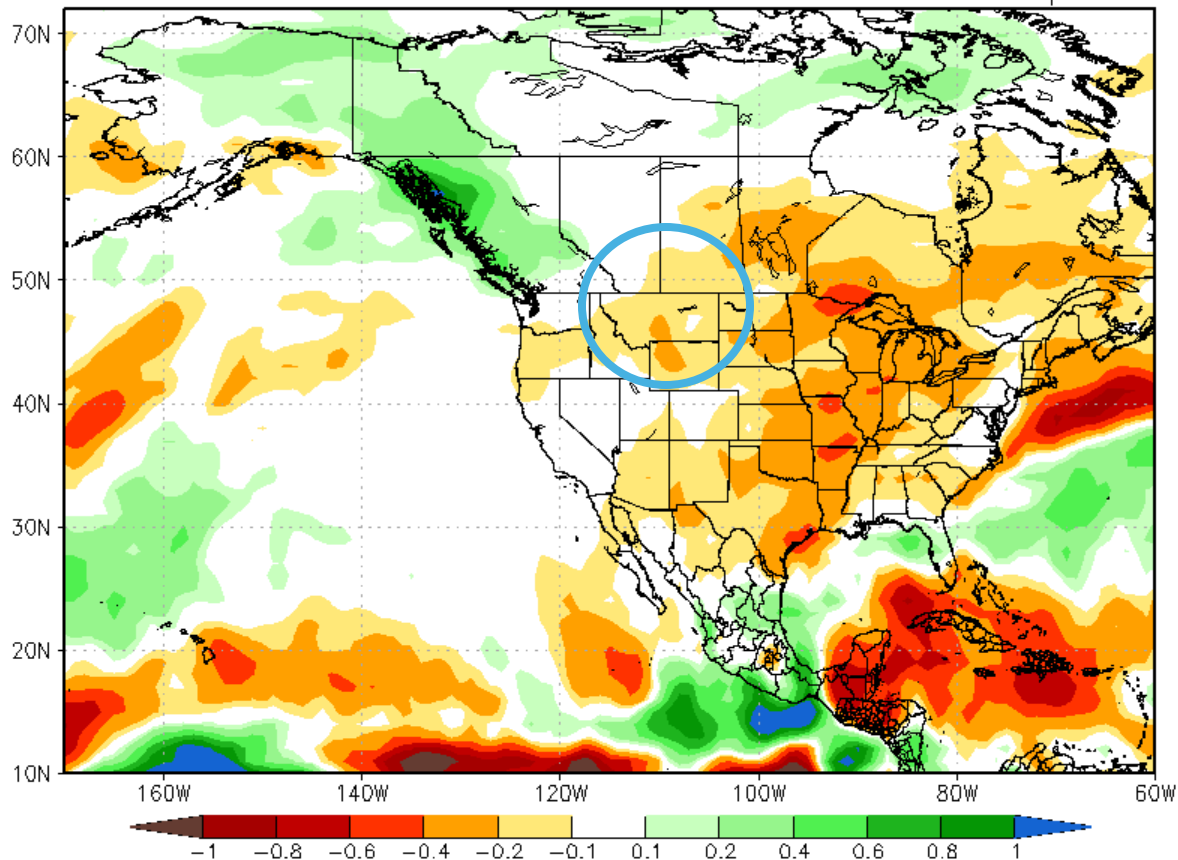


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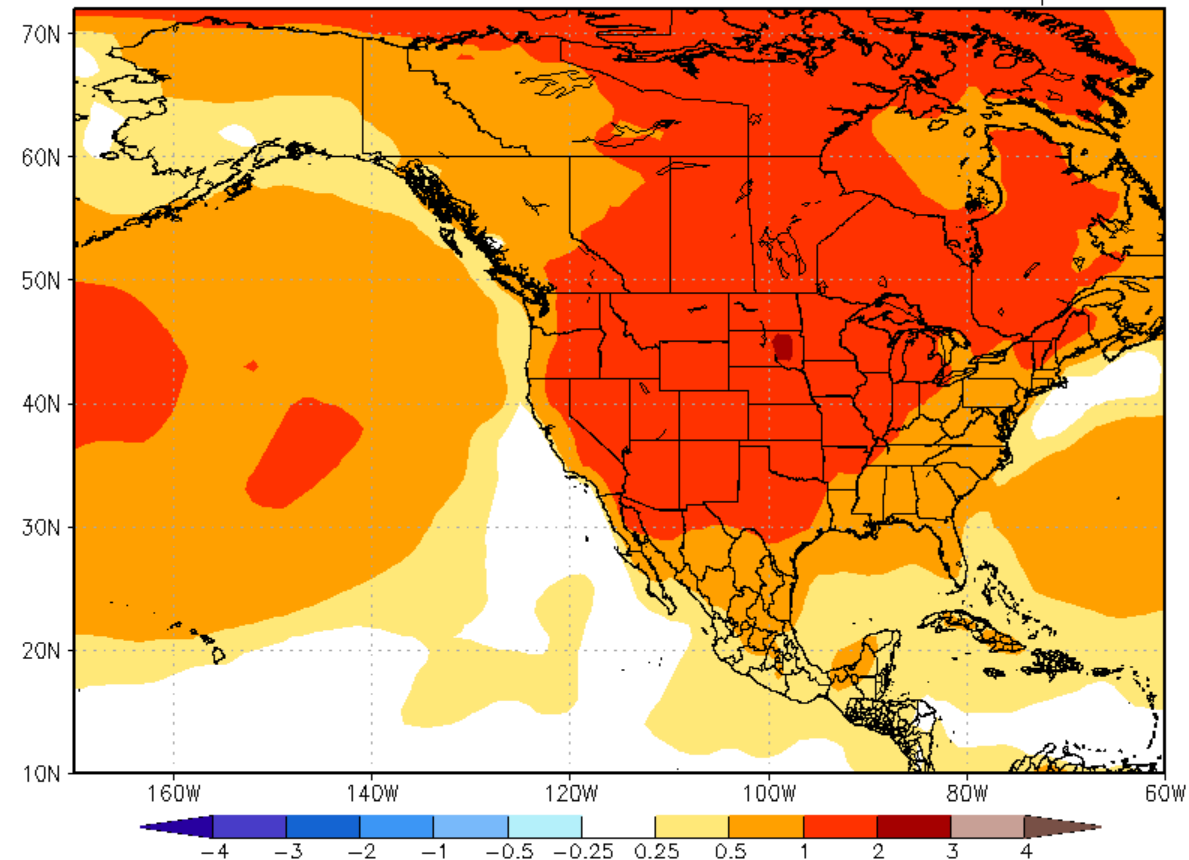
AUGUST

SEPTEMBER

NMME Forecast of Prec. rate Anom IC=202505 for Lead 4 2025Sep



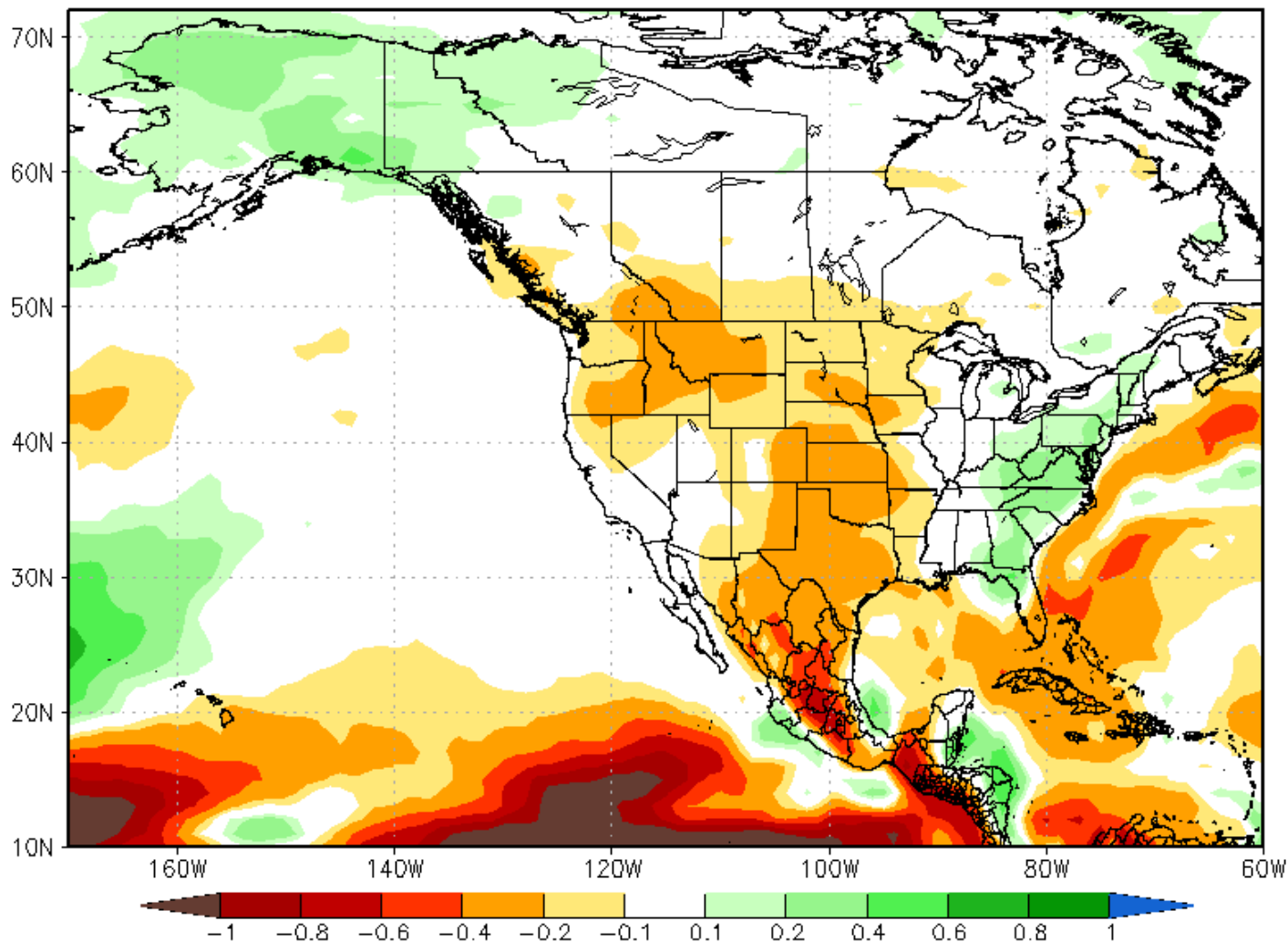
NMME Forecast of TMP2m Anom IC=202505 for Lead 4 2025Sep



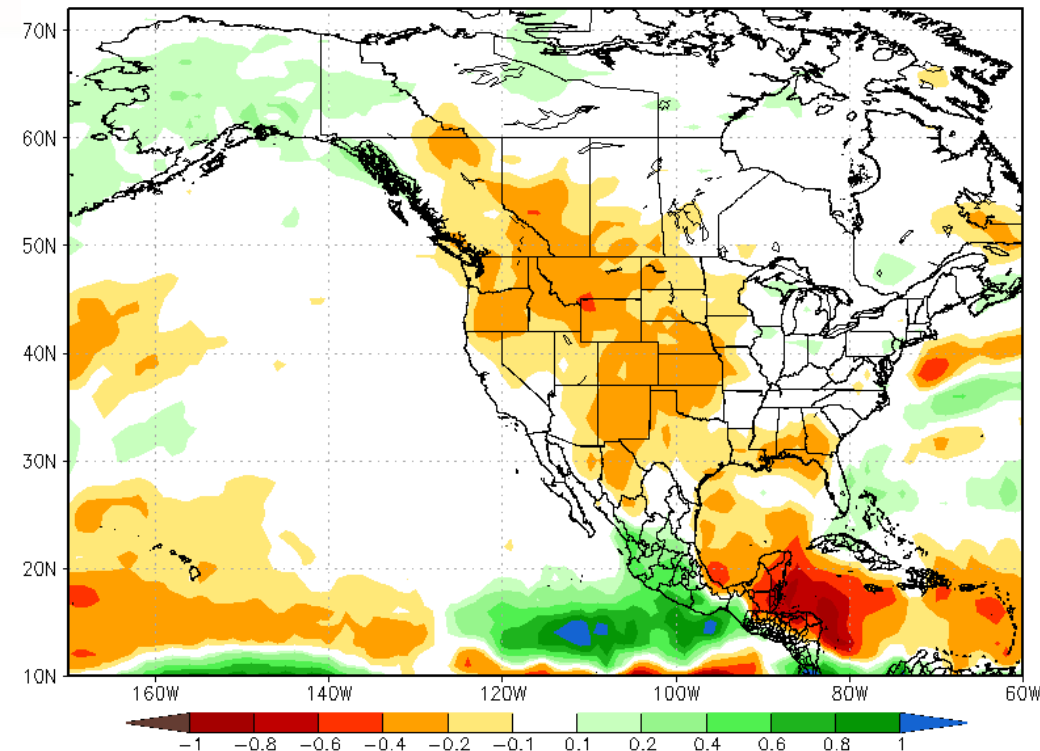
**September continues dry with stronger chances shifting a bit east
This is the time of year where wind will become an increasing factor**



NMME Forecast of Prec. rate Anom IC=202505 for Lead 1 2025JJA



NMME Forecast of Prec. rate Anom IC=202105 for Lead 1 2021JJA



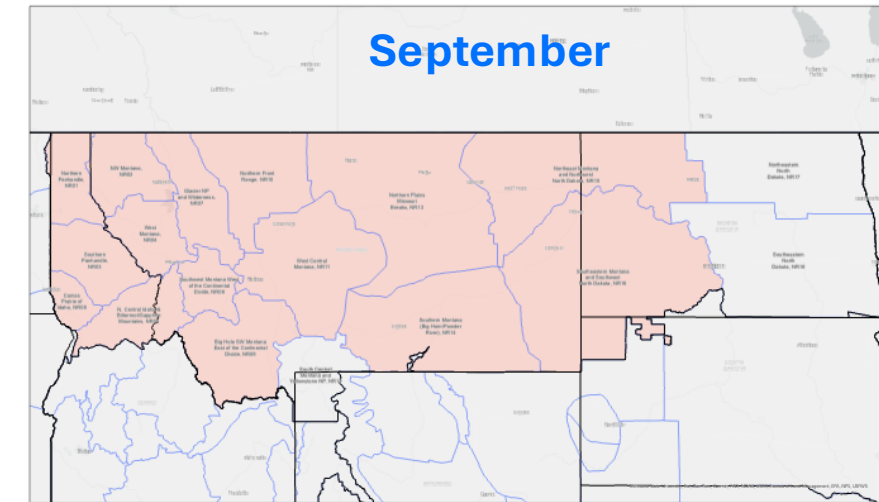
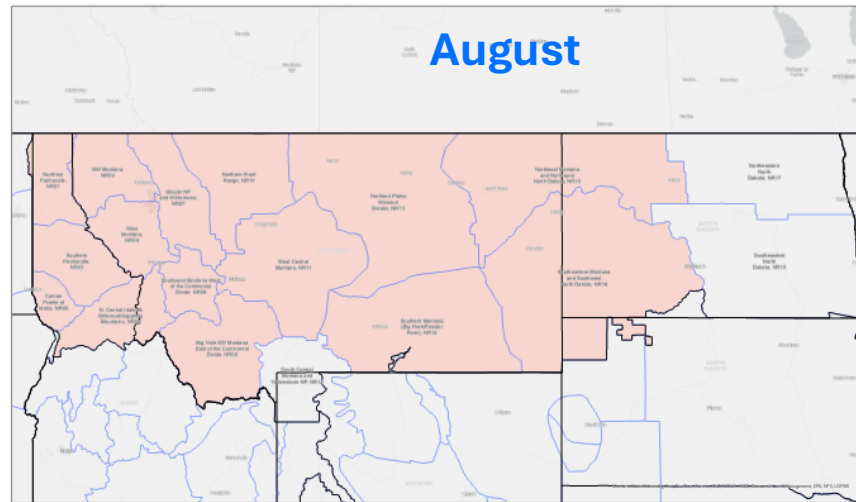
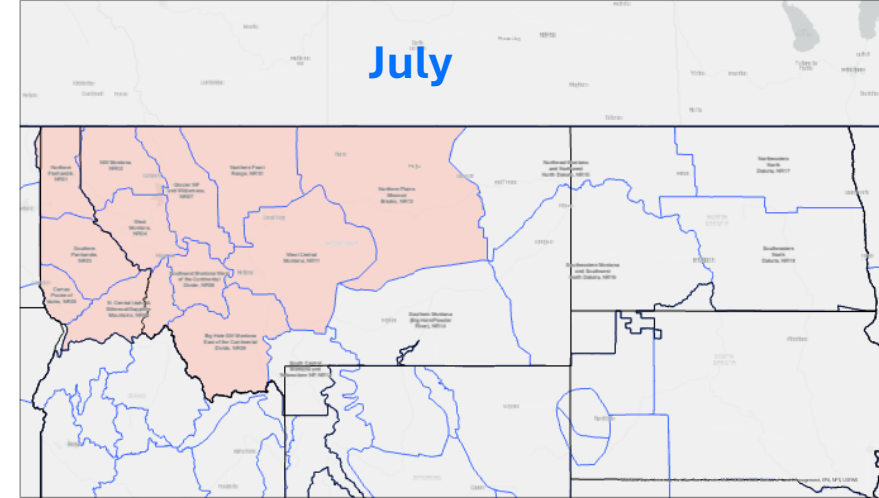
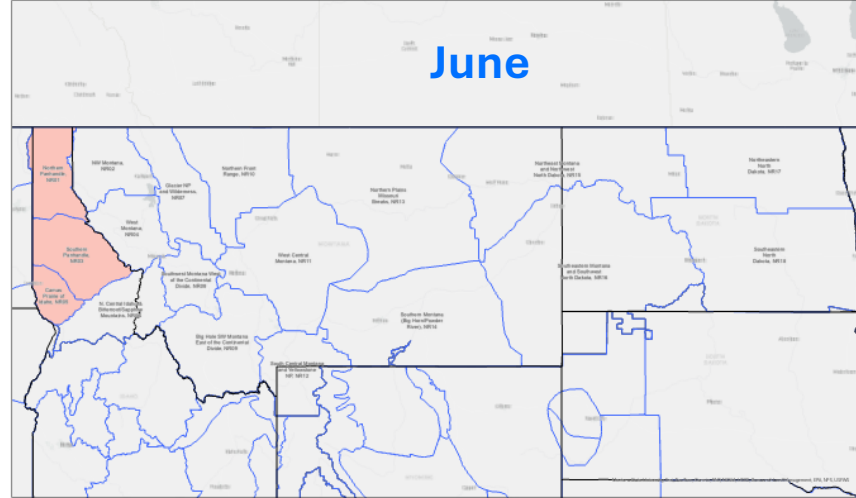
**Strong similarity 2021 and 2025
forecasts for June through August
precipitation anomalies**



Increasing significant wildland fire potential north Idaho in June.

Concerns spread to the western half of Montana in July

Concerns spread through southeast Montana to western North Dakota by August, persist into September



Neighboring geographic areas to our west and south align with our increasing potential



- **Western Montana multi-year moisture deficits match the early 2000s**
- **June starts wet but turns hot and dry during the second half of the month**
- **Hot and dry forecasts in July and August will erase spring moisture surplus in central Montana**
- **Be prepared for an early start and a long fire season especially if monsoon moisture does not recharge seasonal grasses late summer**

Contact Information:

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