

Colorado Climate Center – *WATF Climate Update*

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Water Availability Task Force

June 23, 2020



ATMOSPHERIC SCIENCE
COLORADO STATE UNIVERSITY

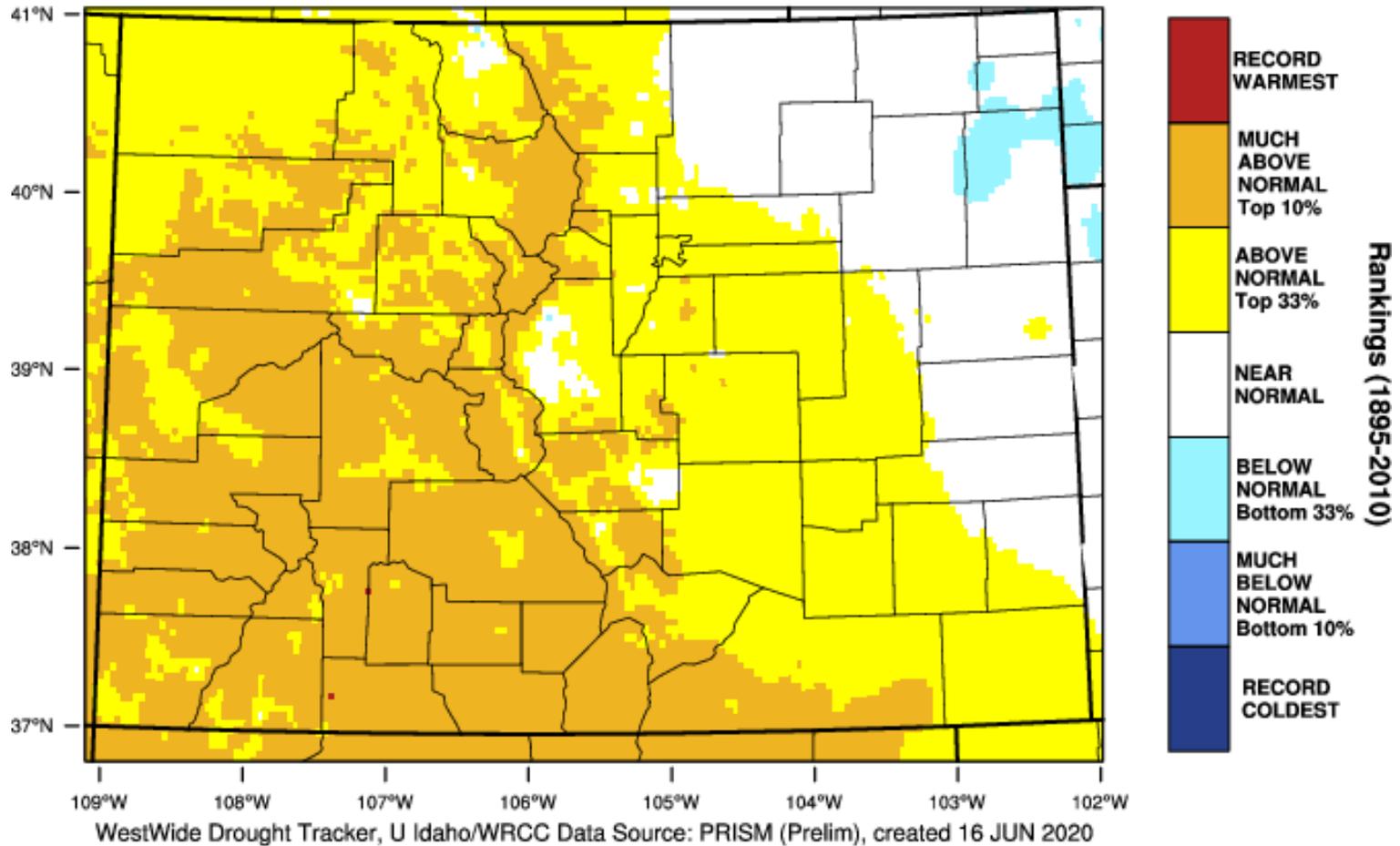


2020 Water Year To Date

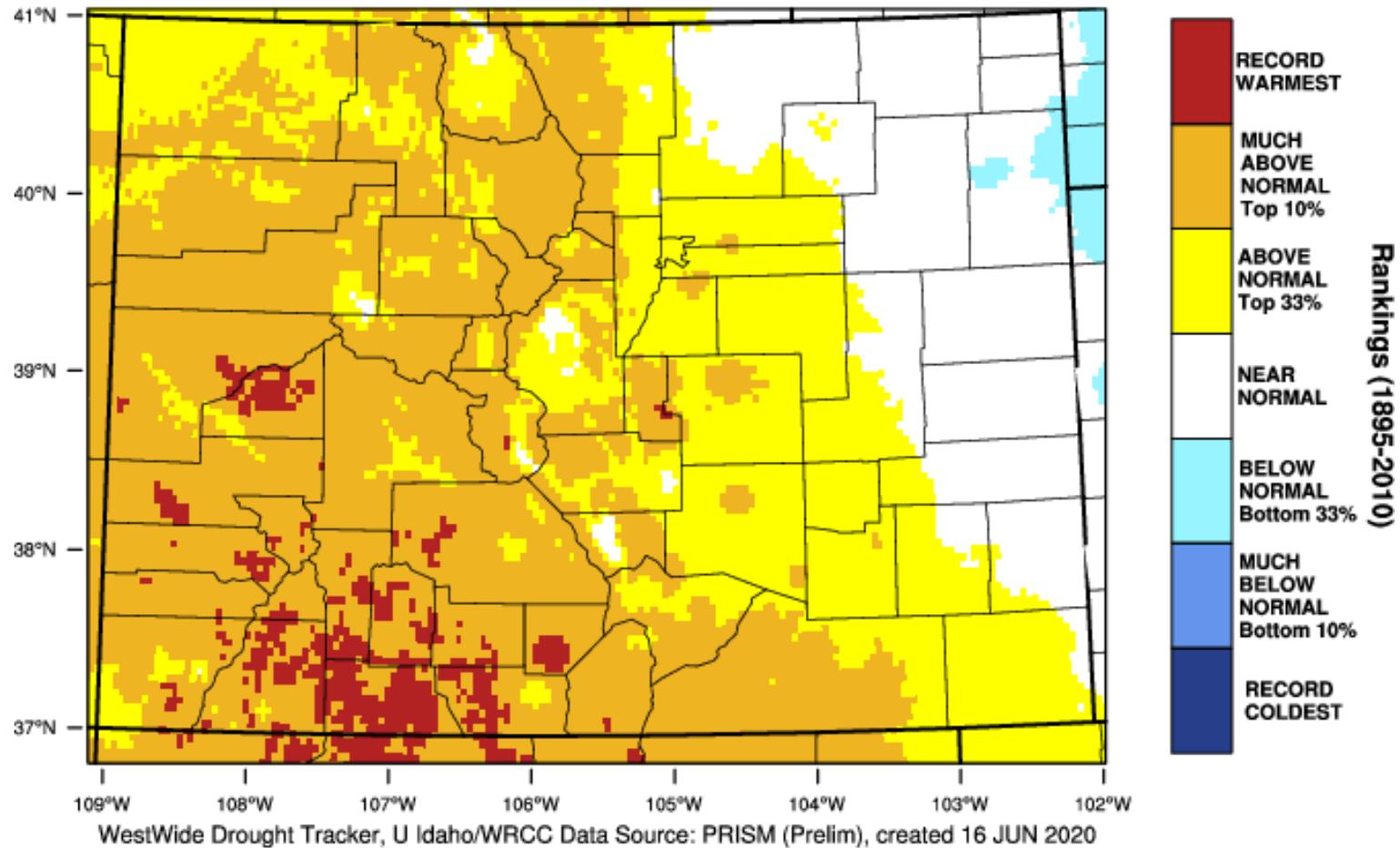
temperature, precipitation,
standardized precipitation index



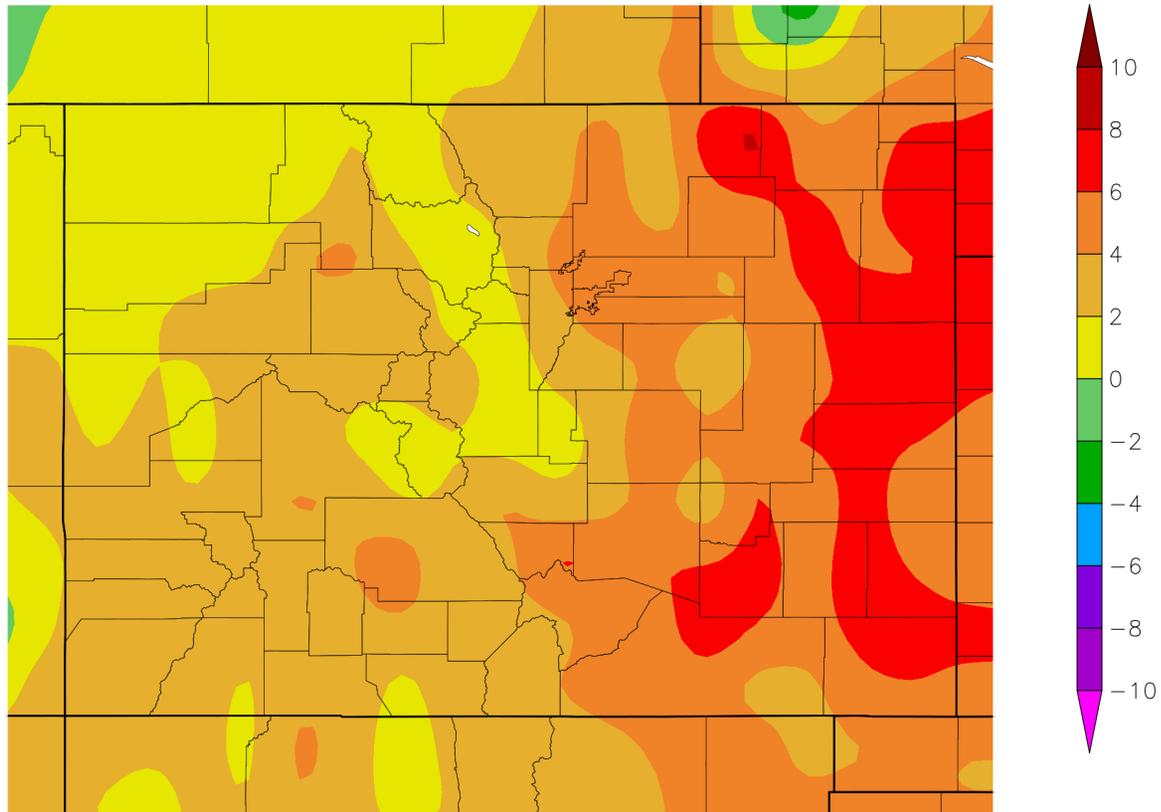
Colorado - Mean Temperature March-May 2020 Percentile



Colorado - Mean Temperature May 2020 Percentile



Departure from Normal Temperature (F) 6/1/2020 – 6/21/2020



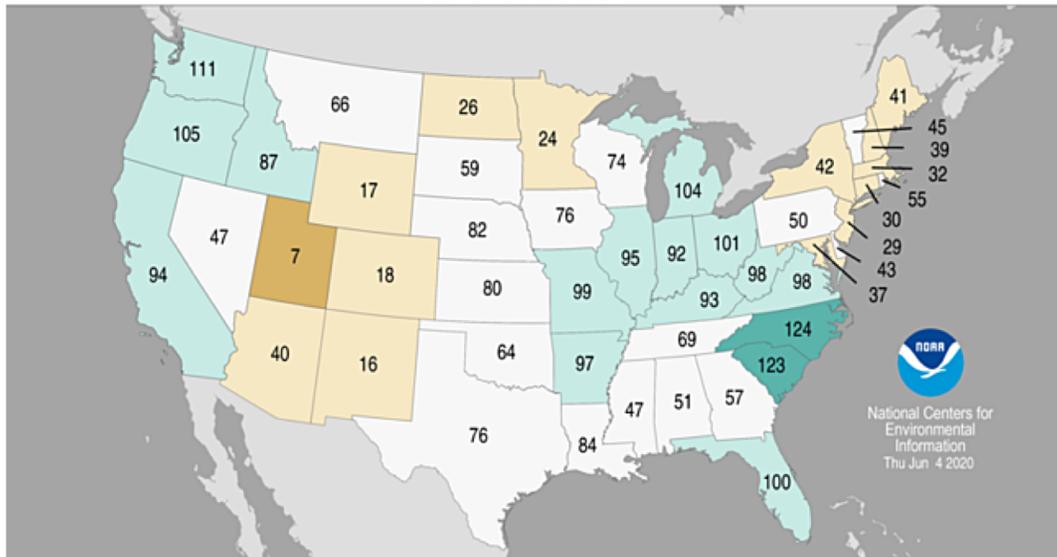
Generated 6/22/2020 at HPRCC using provisional data.

NOAA Regional Climate Centers



Statewide Precipitation Ranks

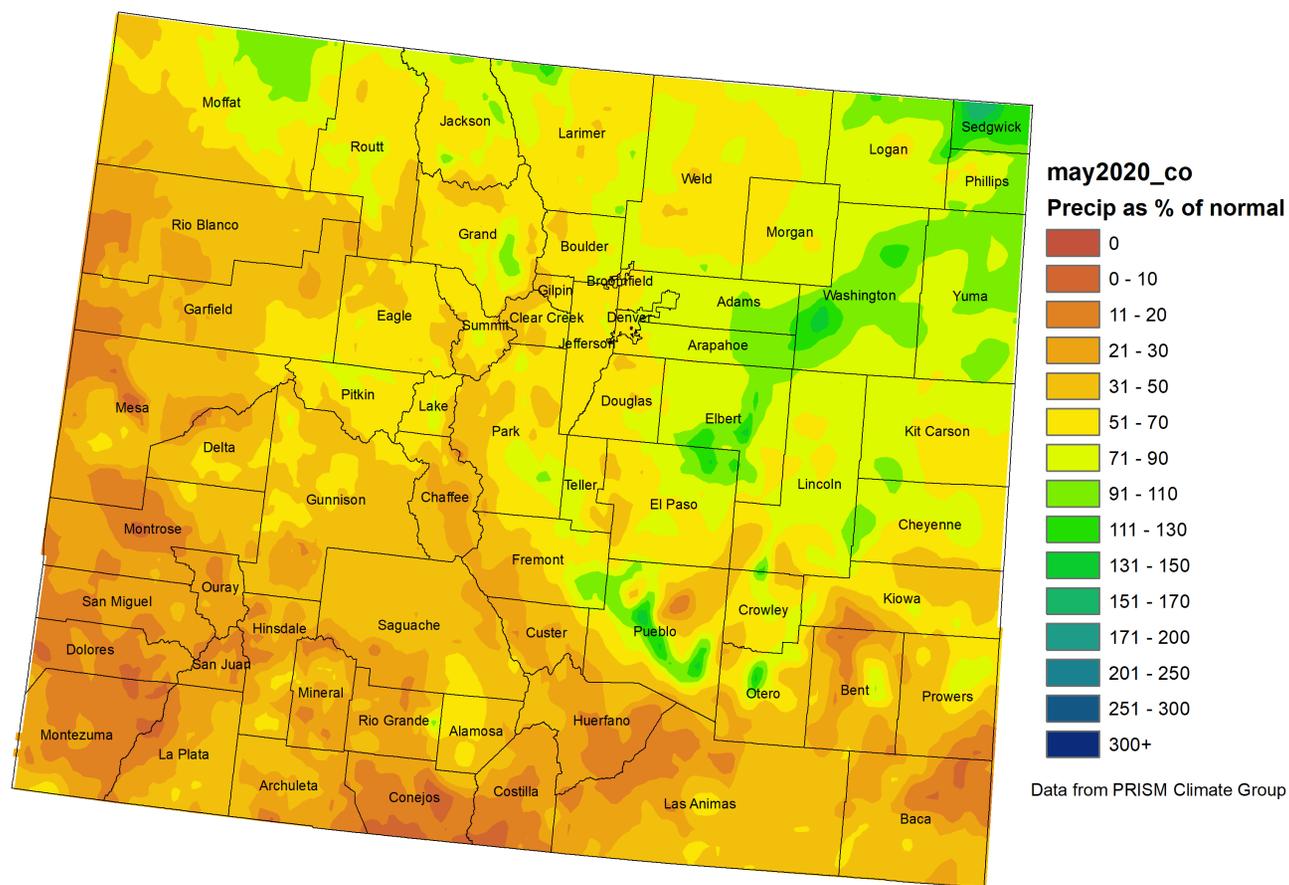
May 2020
Period: 1895–2020



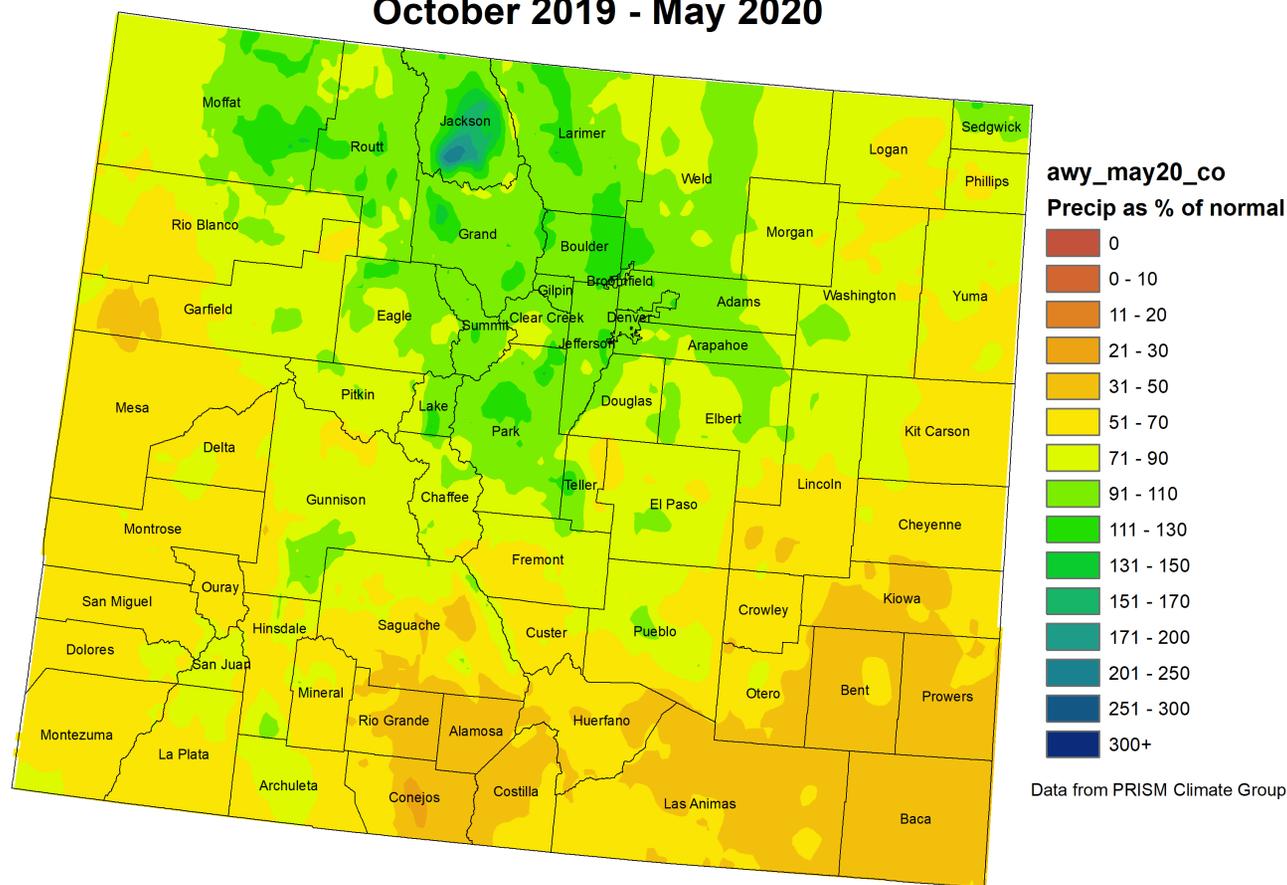
Month	P Rank (of 126 years)	Above, below, or near avg?
Oct	40 th driest	below
Nov	52 nd wettest	average
Dec	41 st wettest	above
Jan	33 rd driest	below
Feb	60 th wettest	average
Mar	55 th driest	average
Apr	8 th driest	much below
May	18 th driest	below
June		
July		
August		



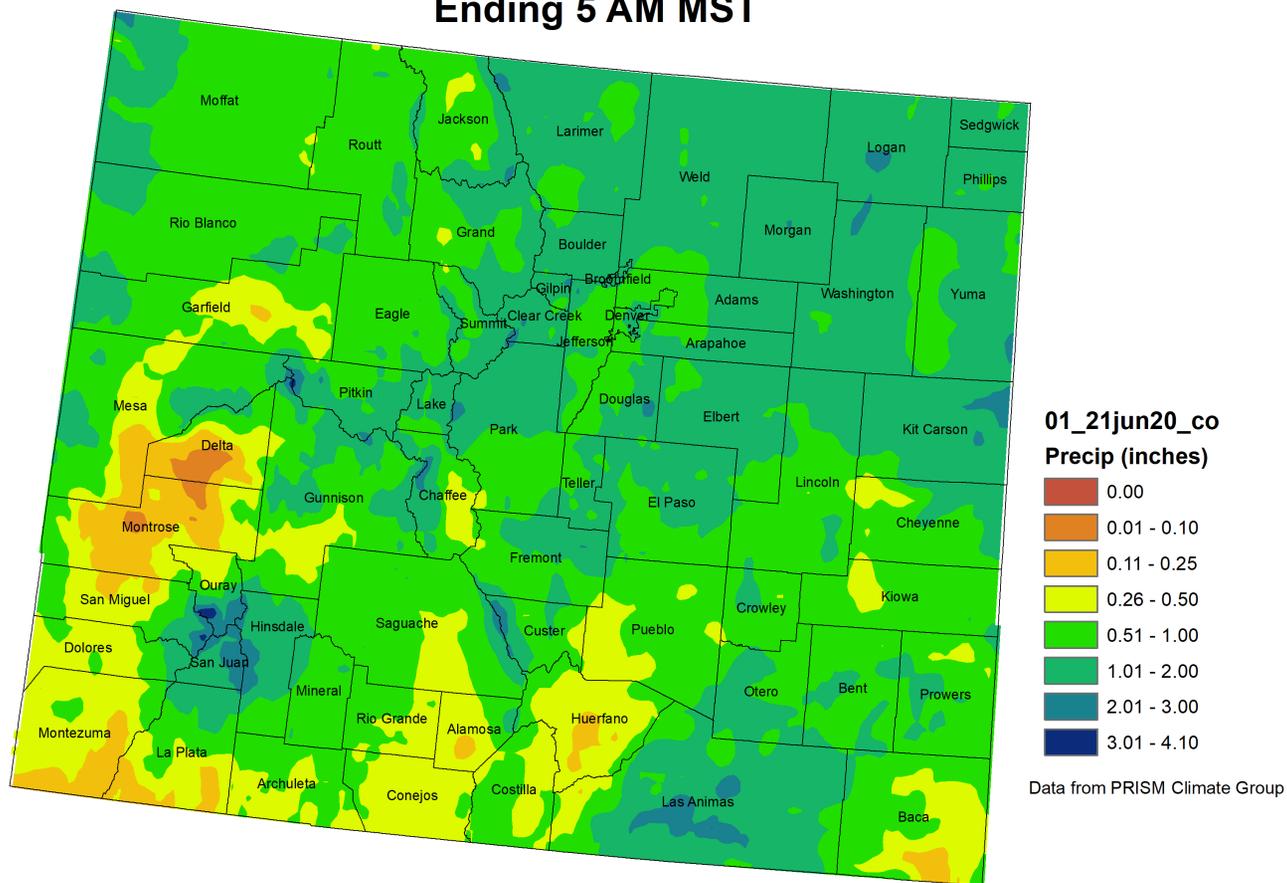
Colorado May 2020 Precipitation as a Percentage of Normal



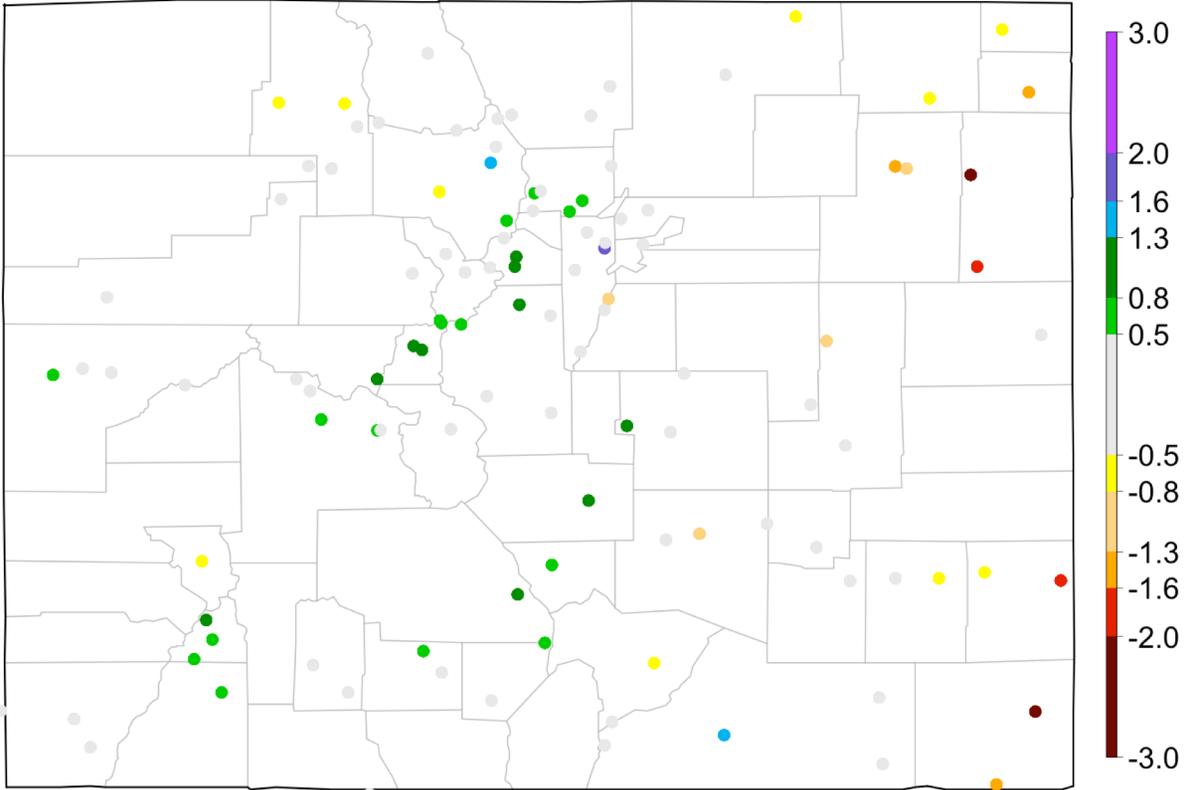
Colorado Water Year to Date Precipitation as a Percentage of Normal October 2019 - May 2020



Colorado Month to Date Precipitation 1 - 21 June 2020 Ending 5 AM MST



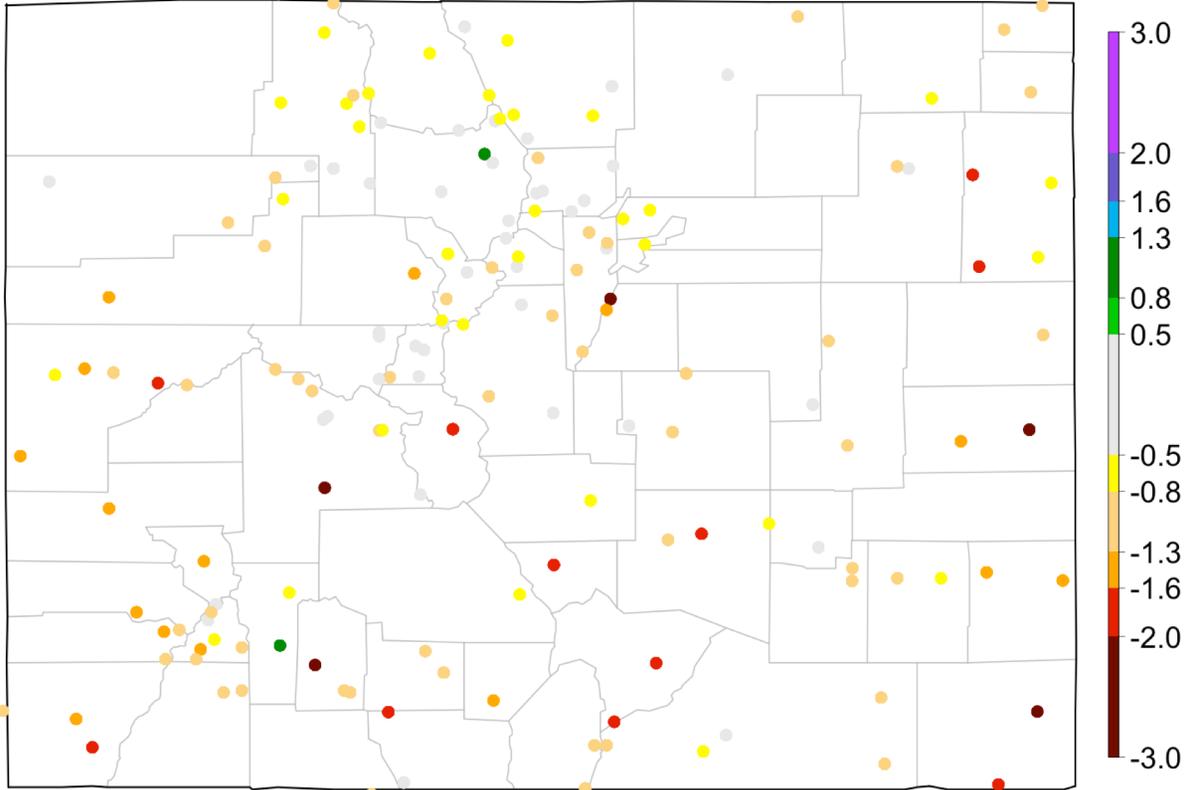
30-day SPI: 2020/05/22 - 2020/06/20



Data from High Plains Regional Climate Center and ACIS

<http://climate.colostate.edu/~drought/spi.html>

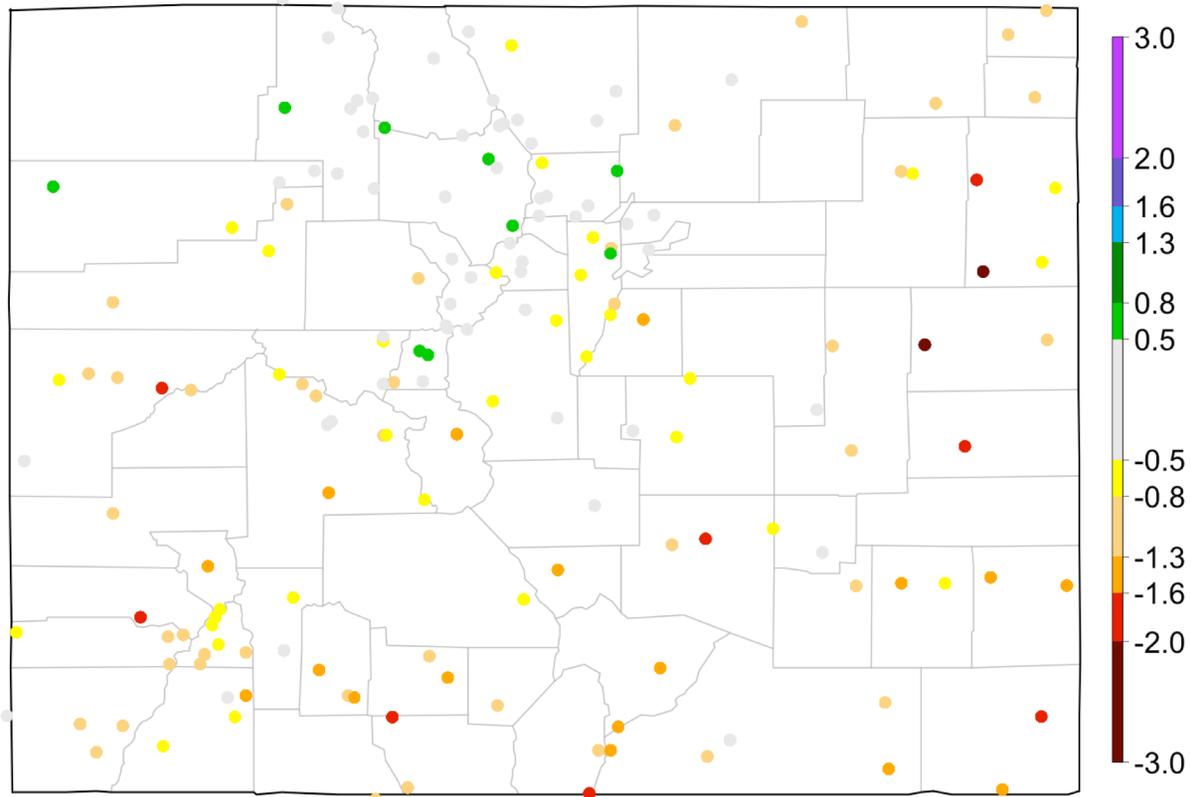
90-day SPI: 2020/03/23 - 2020/06/20



Data from High Plains Regional Climate Center and ACIS

<http://climate.colostate.edu/~drought/spi.html>

6-month SPI: 2019/12/20 - 2020/06/20

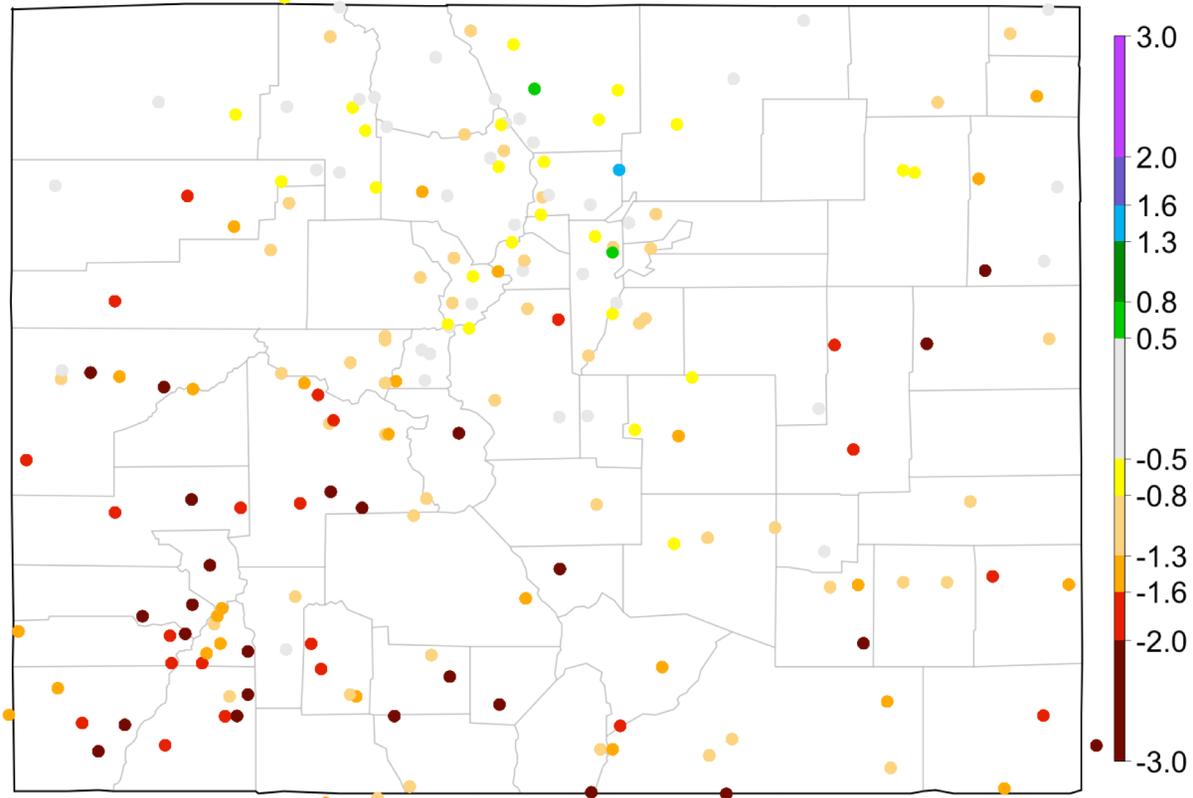


Data from High Plains Regional Climate Center and ACIS

<http://climate.colostate.edu/~drought/spi.html>



12-month SPI: 2019/06/21 - 2020/06/20



Data from High Plains Regional Climate Center and ACIS

<http://climate.colostate.edu/~drought/spi.html>



COLORADO CLIMATE CENTER





Drought

National Drought

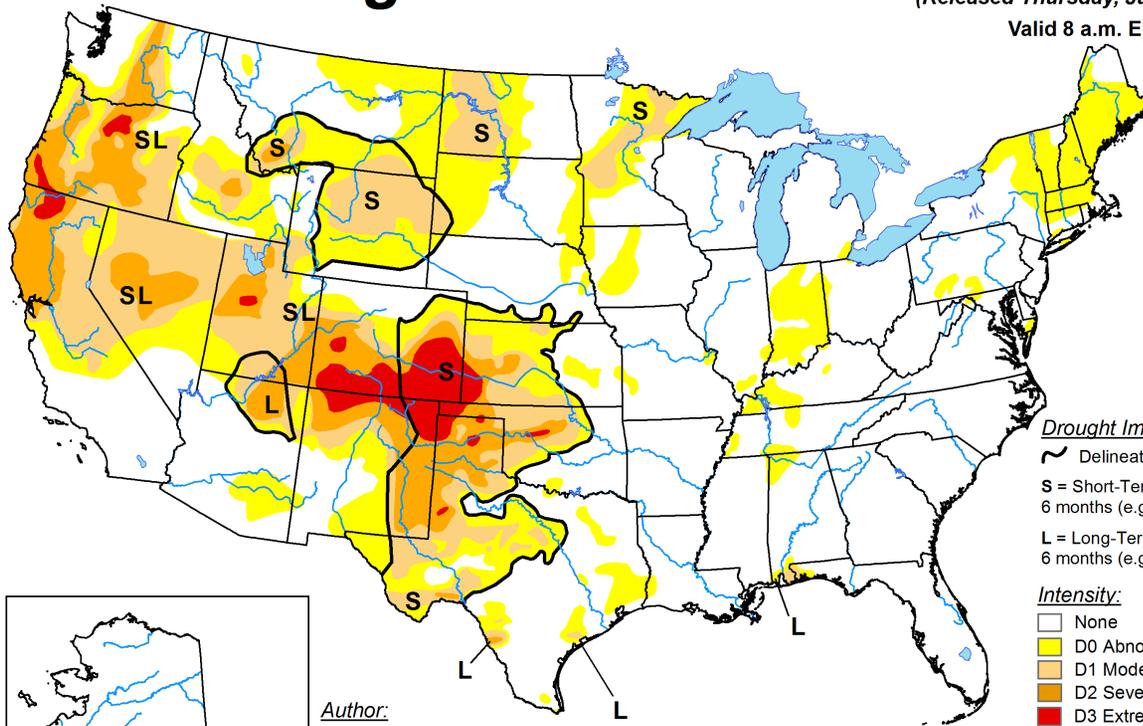
Colorado Drought

Flash Drought?



U.S. Drought Monitor

June 16, 2020
 (Released Thursday, Jun. 18, 2020)
 Valid 8 a.m. EDT



Drought Impact Types:

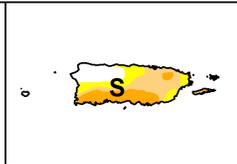
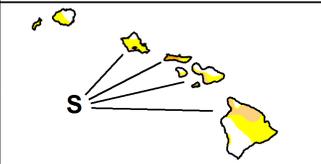
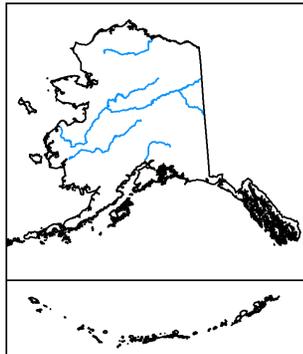
- ~ Delineates dominant impacts
- S = Short-Term, typically less than 6 months (e.g. agriculture, grasslands)
- L = Long-Term, typically greater than 6 months (e.g. hydrology, ecology)

Intensity:

- None
- D0 Abnormally Dry
- D1 Moderate Drought
- D2 Severe Drought
- D3 Extreme Drought
- D4 Exceptional Drought

Author:
 Richard Tinker
 CPC/NOAA/NWS/NCEP

The Drought Monitor focuses on broad-scale conditions. Local conditions may vary. For more information on the Drought Monitor, go to <https://droughtmonitor.unl.edu/About.aspx>

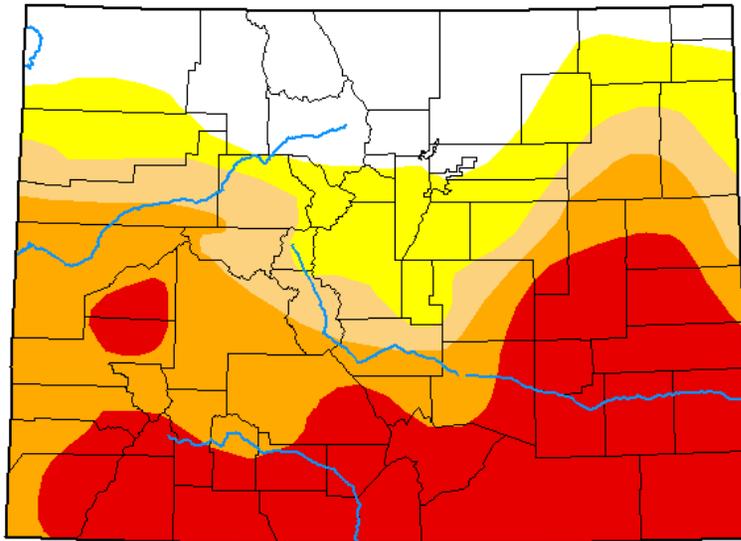


droughtmonitor.unl.edu



U.S. Drought Monitor Colorado

June 16, 2020
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Drought Conditions (Percent Area)

	None	D0-D4	D1-D4	D2-D4	D3-D4	D4
Current	18.40	81.60	65.91	55.41	32.96	0.00
Last Week <i>06-09-2020</i>	23.22	76.78	63.64	49.39	25.49	0.00
3 Months Ago <i>03-17-2020</i>	30.09	69.91	46.88	3.30	0.00	0.00
Start of Calendar Year <i>12-31-2019</i>	31.72	68.28	51.19	20.11	0.00	0.00
Start of Water Year <i>10-01-2019</i>	30.14	69.86	27.53	0.00	0.00	0.00
One Year Ago <i>06-18-2019</i>	100.00	0.00	0.00	0.00	0.00	0.00

Intensity:

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Author:

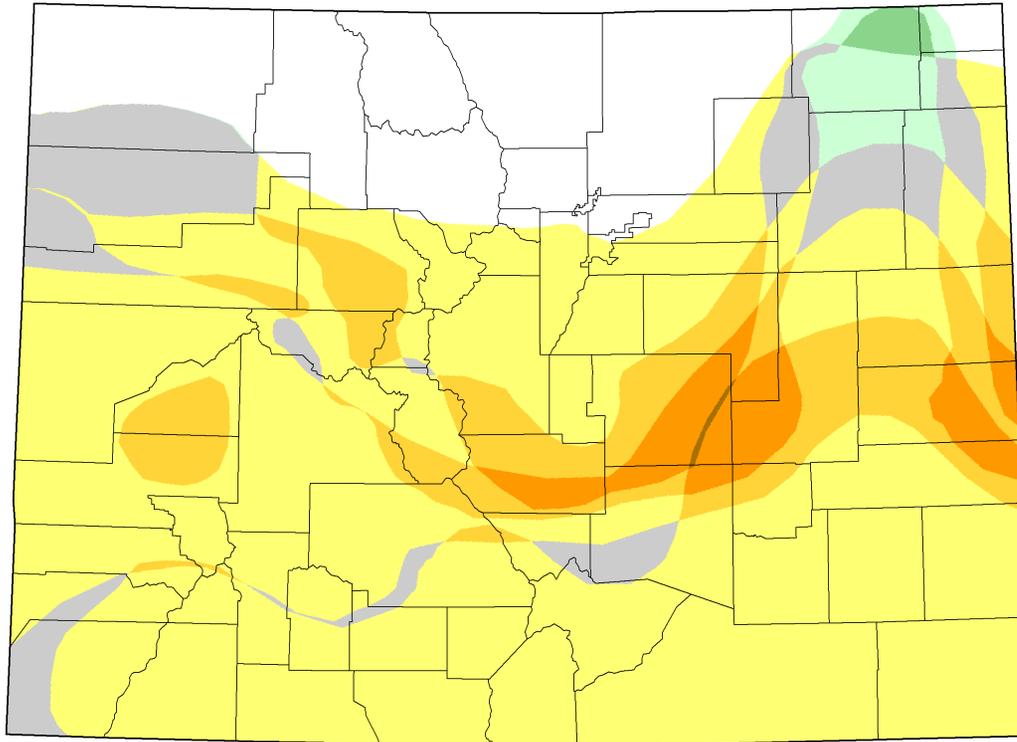
Richard Tinker
CPC/NOAA/NWS/NCEP



droughtmonitor.unl.edu



U.S. Drought Monitor Class Change - Colorado 2 Months



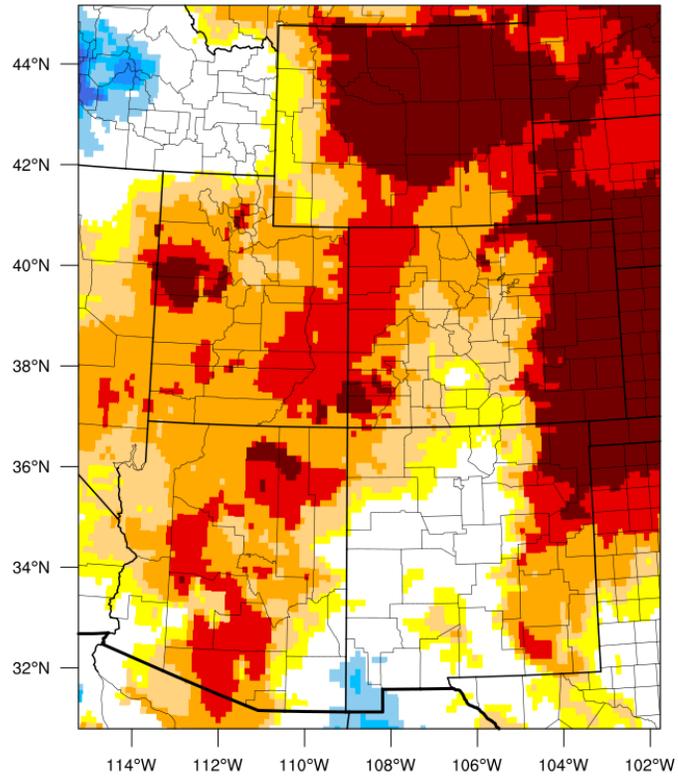
- 5 Class Degradation
- 4 Class Degradation
- 3 Class Degradation
- 2 Class Degradation
- 1 Class Degradation
- No Change
- 1 Class Improvement
- 2 Class Improvement
- 3 Class Improvement
- 4 Class Improvement
- 5 Class Improvement

June 16, 2020
compared to
April 21, 2020

droughtmonitor.unl.edu



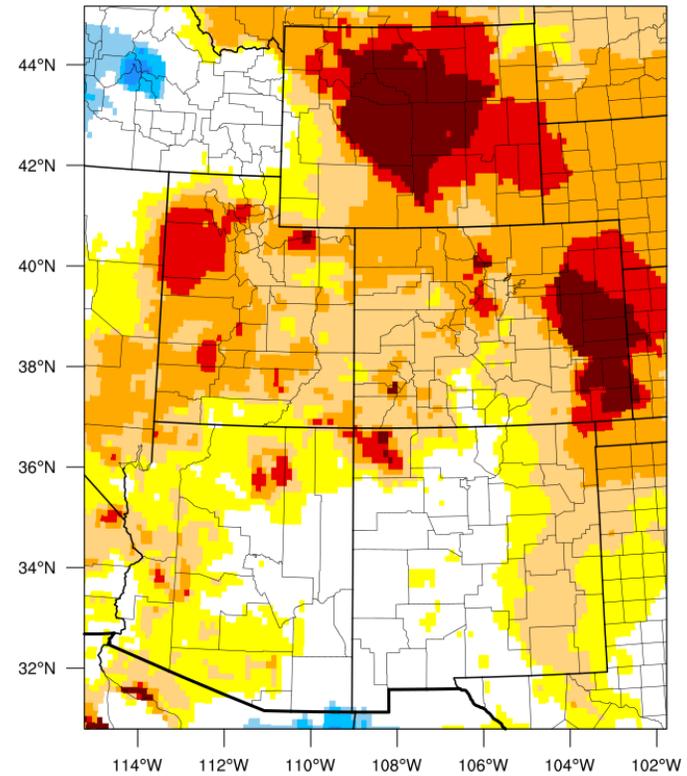
1-week EDDI categories for June 17, 2020



100% 98% 95% 90% 80% 70% 30% 20% 10% 5% 2% 0%
 (EDDI-percentile category breaks: 100% = driest; 0% = wettest)

Generated by NOAA/ESRL/Physical Sciences Division

1-month EDDI categories for June 17, 2020

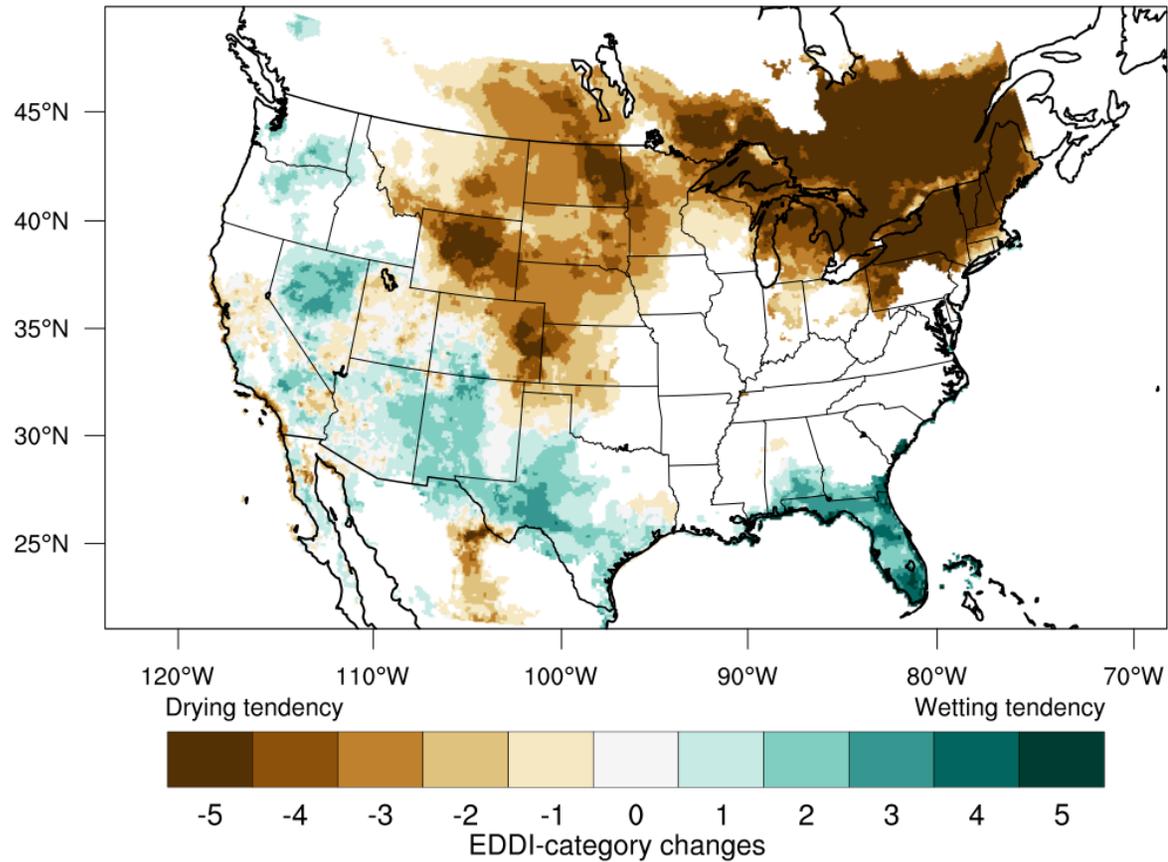


100% 98% 95% 90% 80% 70% 30% 20% 10% 5% 2% 0%
 (EDDI-percentile category breaks: 100% = driest; 0% = wettest)

Generated by NOAA/ESRL/Physical Sciences Division



1-month EDDI: Changes during the 30 days ending on June 17, 2020

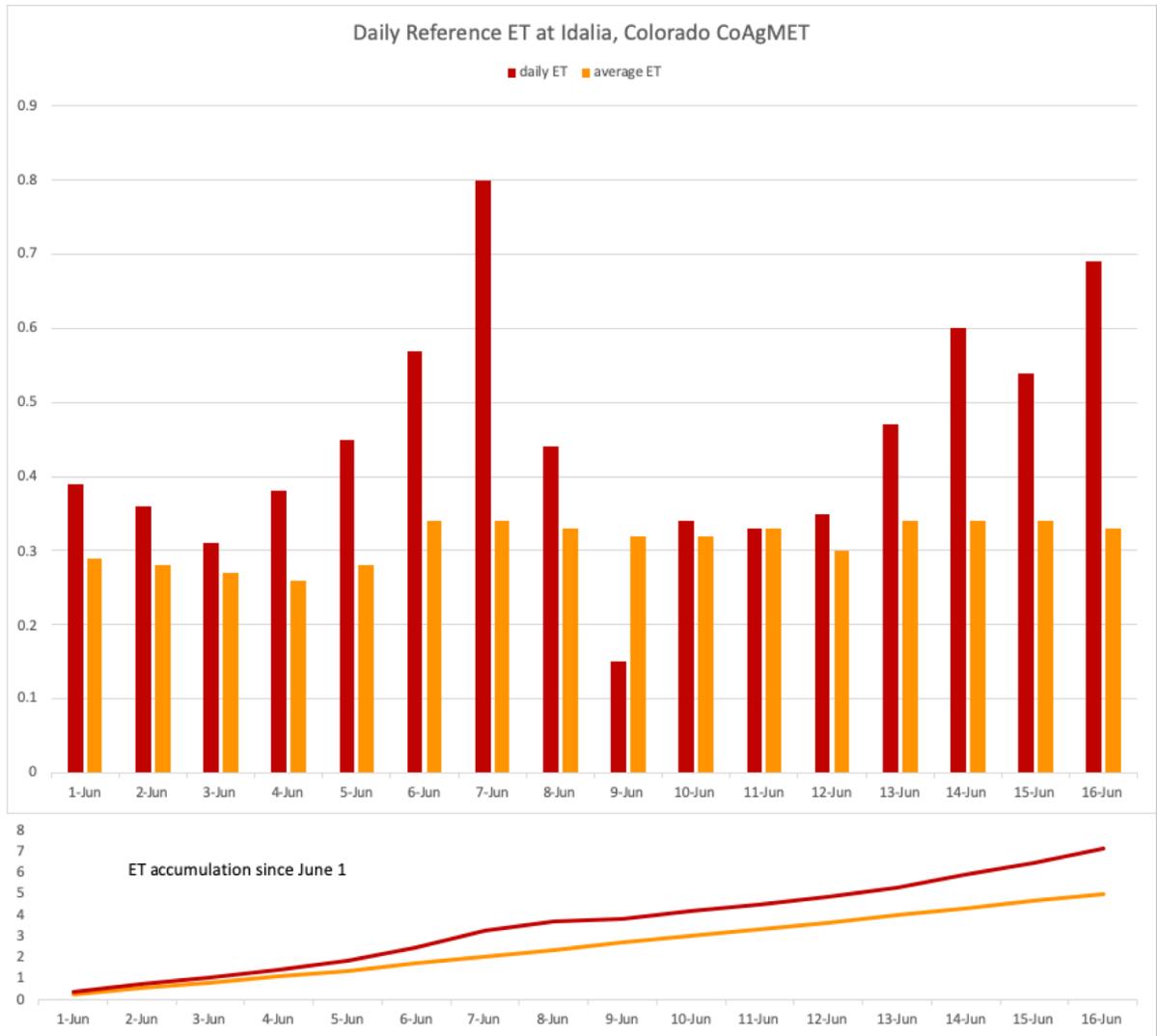


Only regions that start or end above the 70th percentile (i.e., ED0-ED4) are shown.

Generated by NOAA/ESRL/Physical Sciences Division

<https://psl.noaa.gov/eddi/>

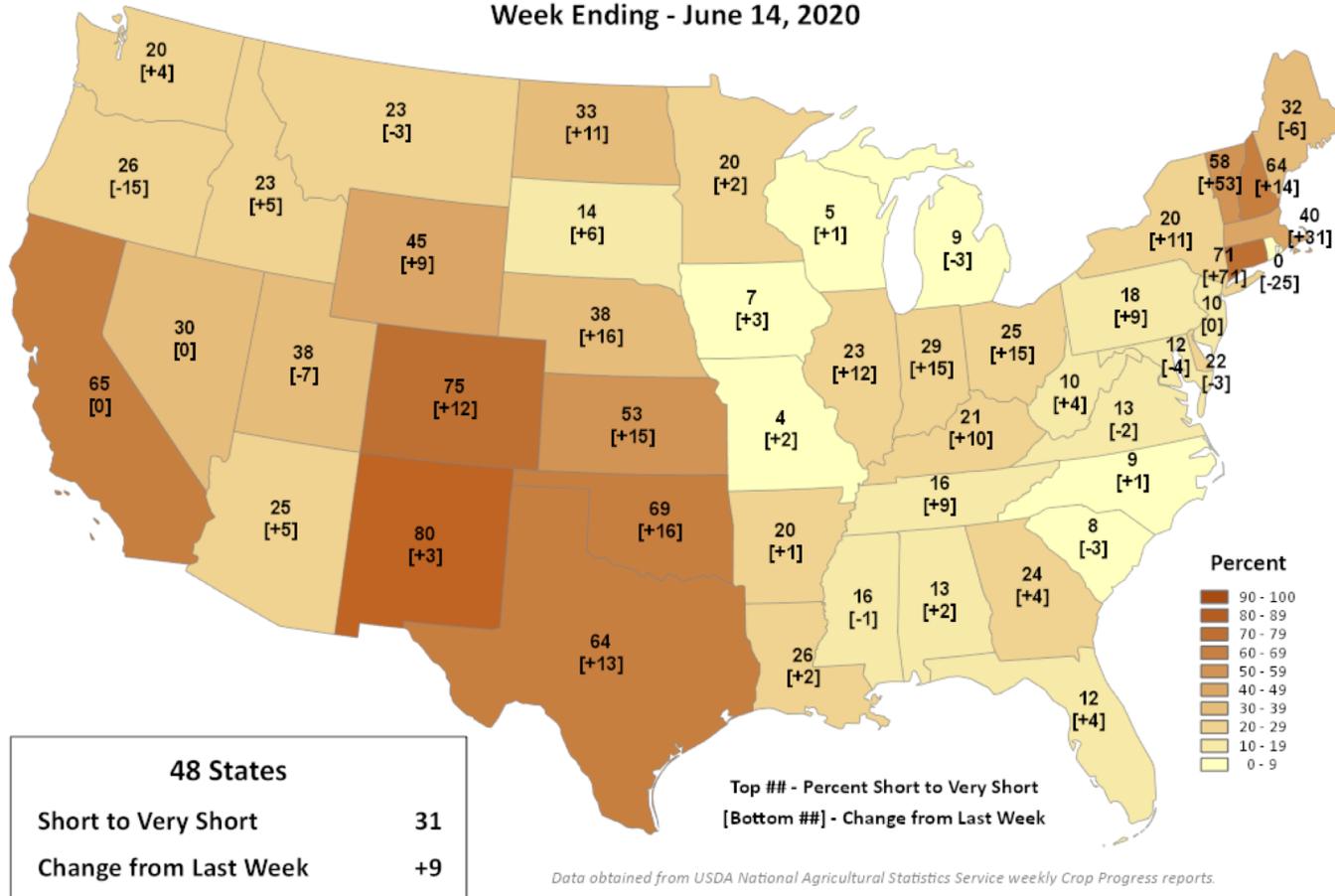




Topsoil Moisture

Percent Short to Very Short

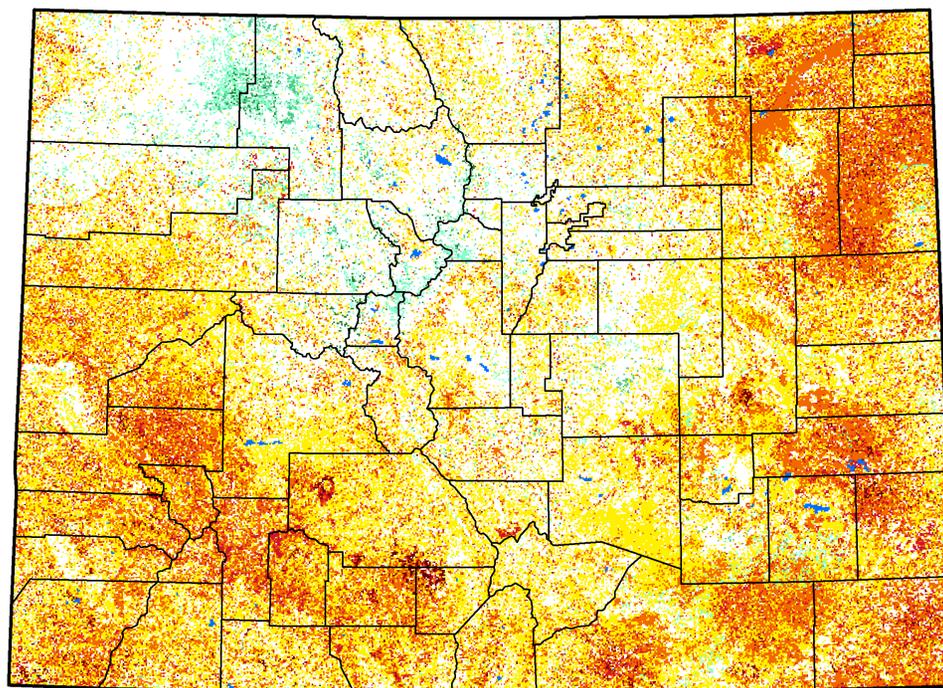
Week Ending - June 14, 2020



Vegetation Drought Response Index

Complete: Colorado

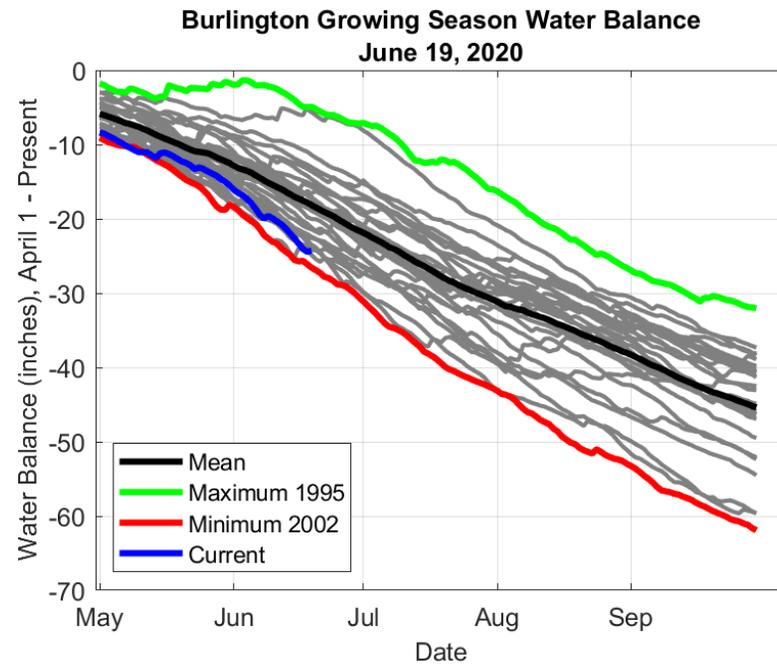
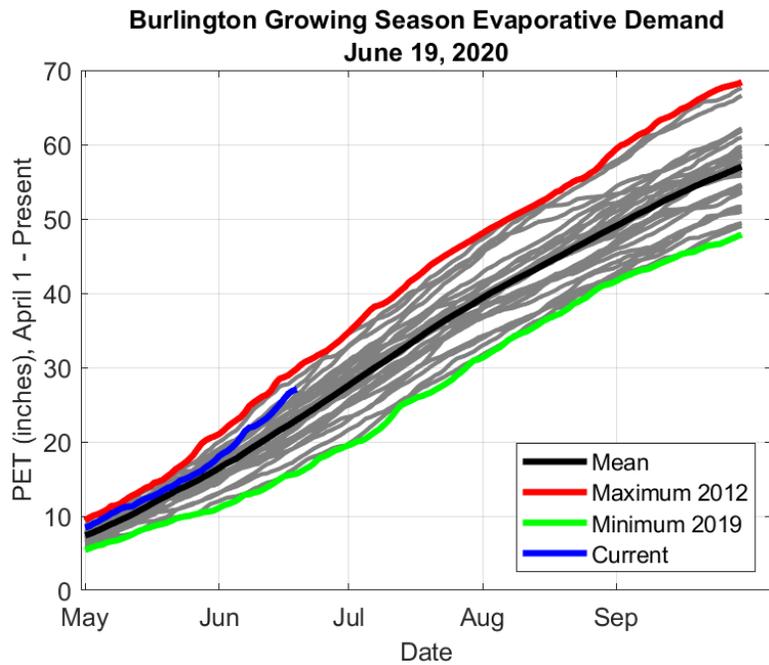
June 21, 2020



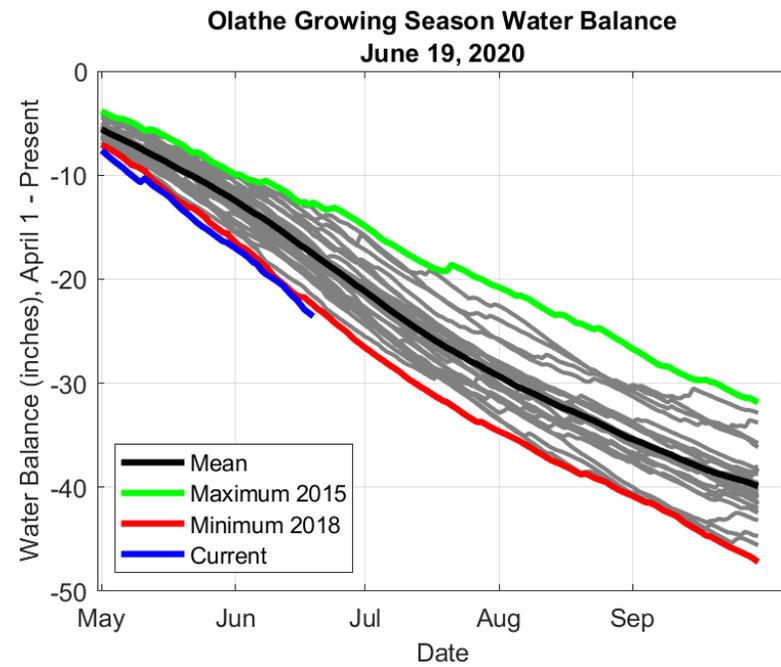
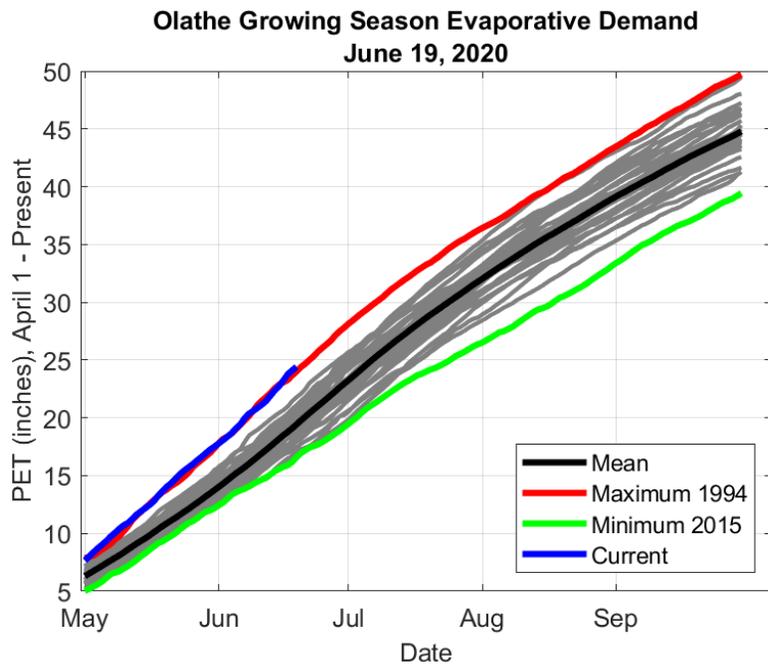
Vegetation Condition

- Extreme Drought
- Severe Drought
- Moderate Drought
- Pre-drought stress
- Near Normal
- Unusually Moist
- Very Moist
- Extreme Moist
- Out of Season
- Water





<http://climate.colostate.edu/~drought/et.php>



<http://climate.colostate.edu/~drought/et.php>



Outlook

Next 7 days

CPC Outlooks

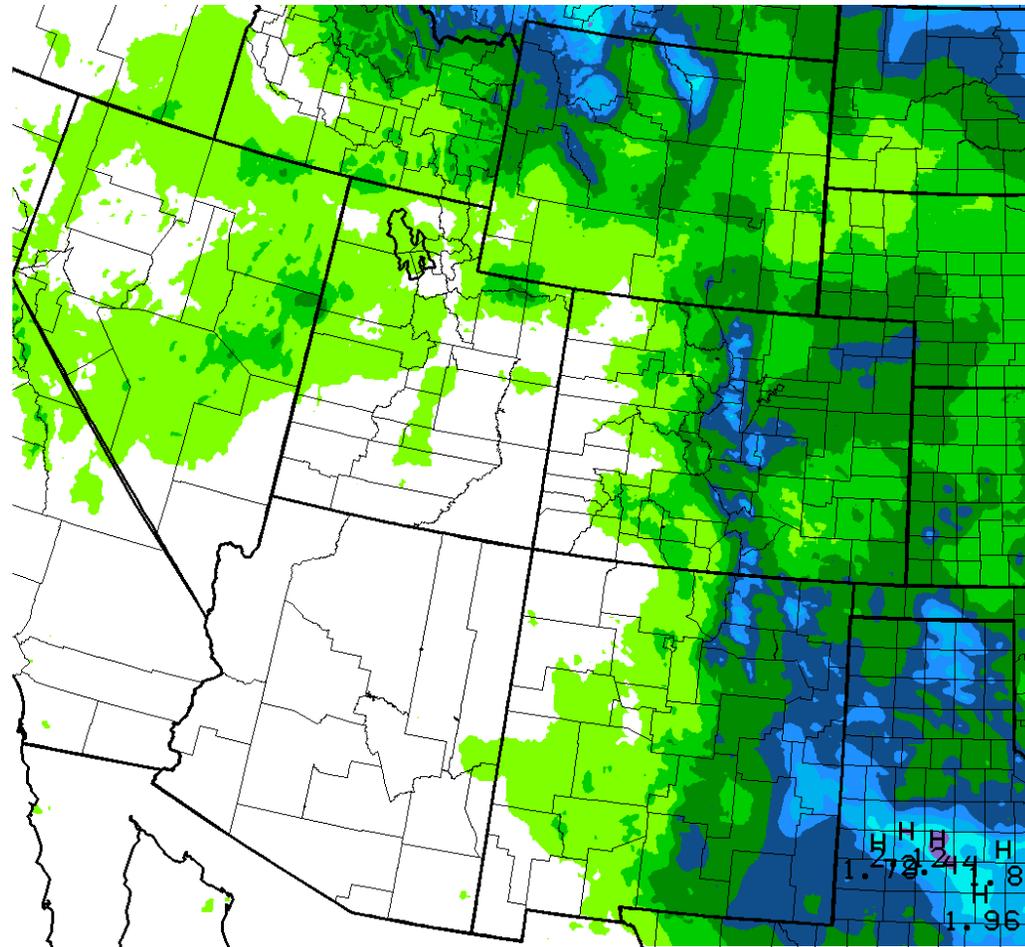
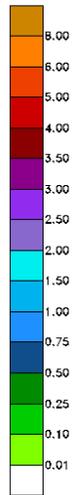
What is happening with El Niño?

Precipitation Projections

Any word on the monsoon?



NOAA 7-day precip forecast

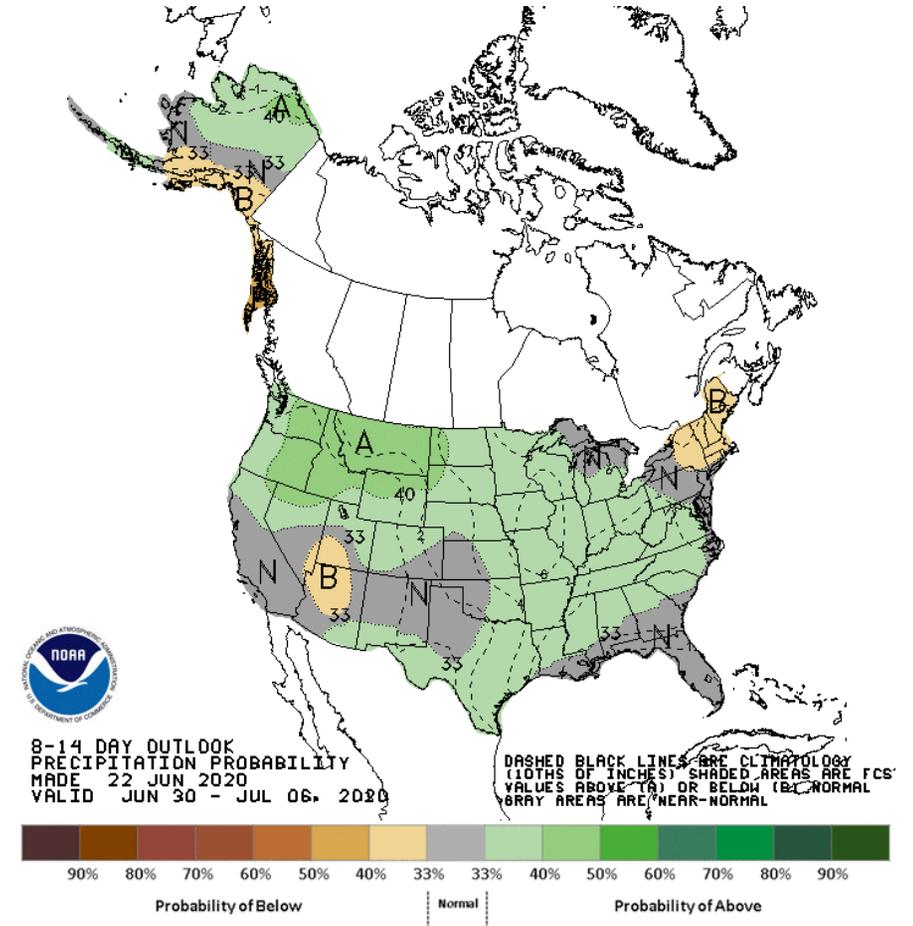
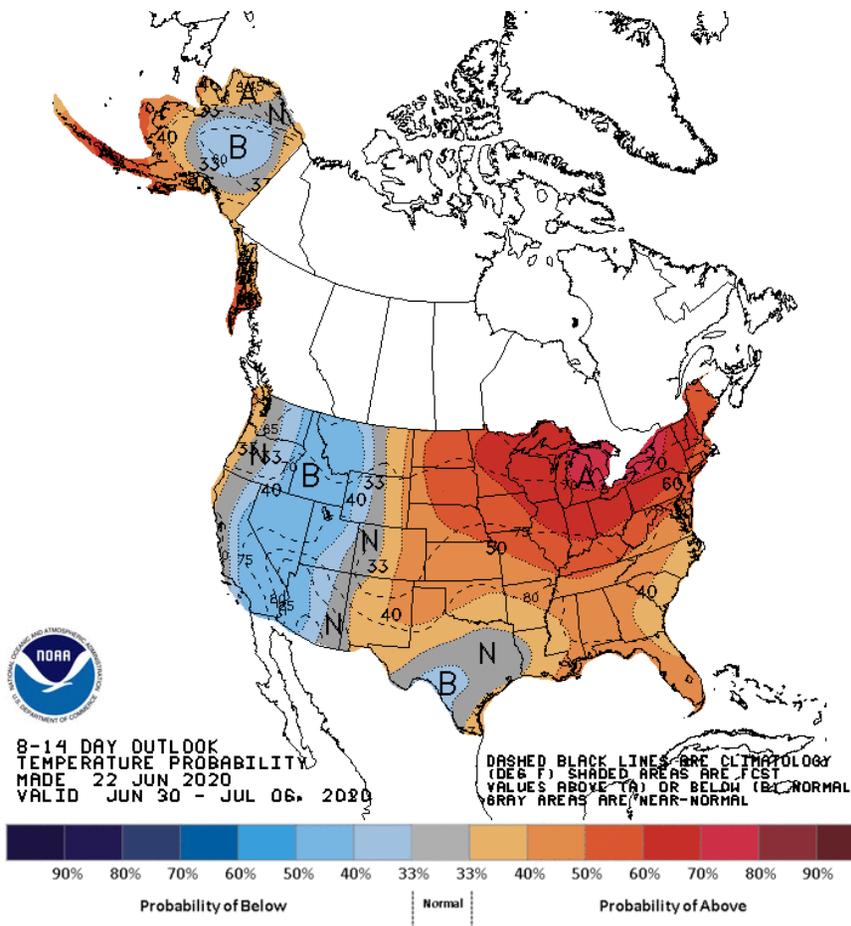


NOAA WPC FORECAST PRECIPITATION (INCHES) IN 7 DAYS ENDING TUE 200630/000
FORECAST ISSUED 200623/0000F168

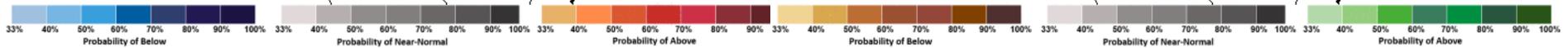
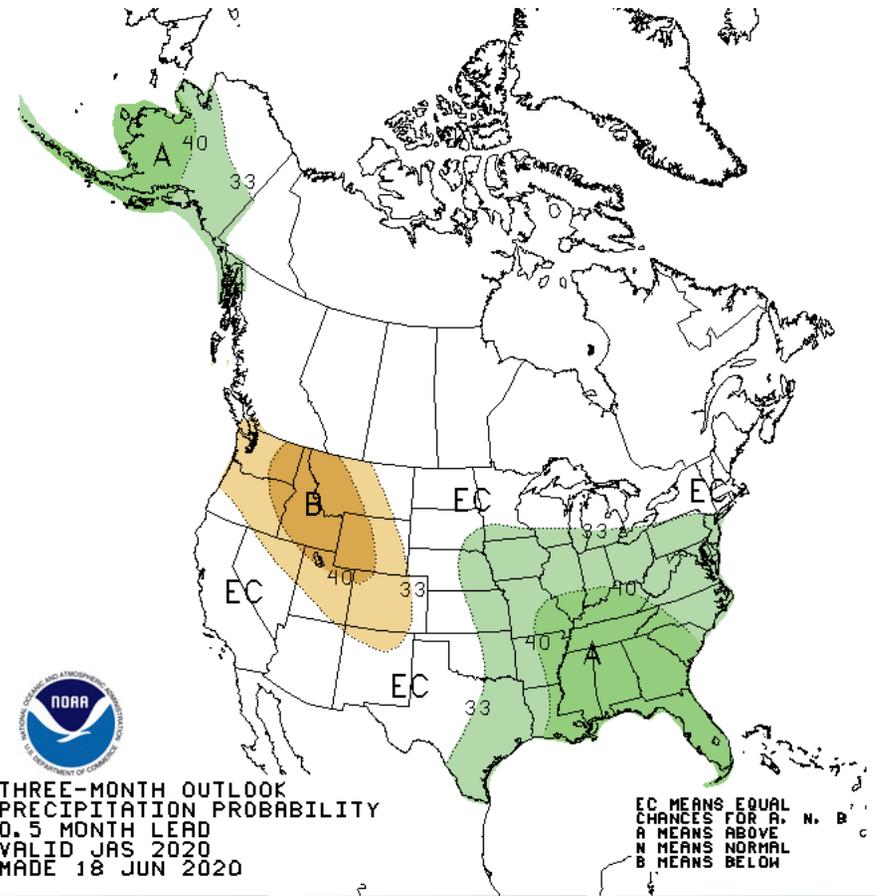
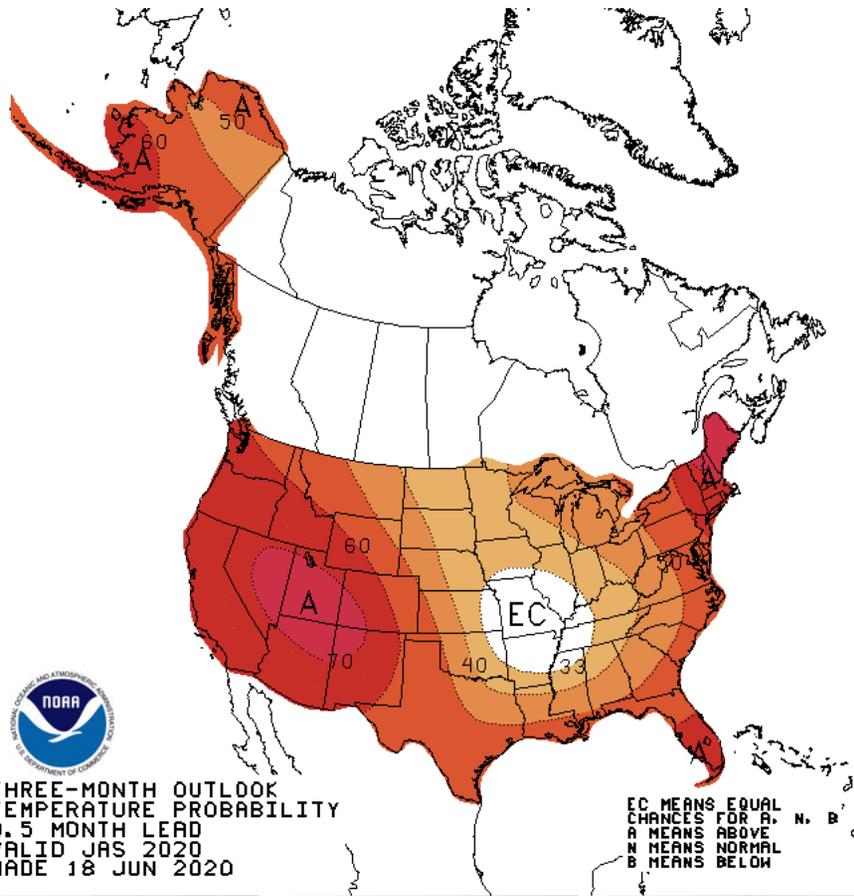
http://schumacher.atmos.colostate.edu/weather/real_time/hpc_qpf_168h_imw/hpc_qpf_168h_imw.gif



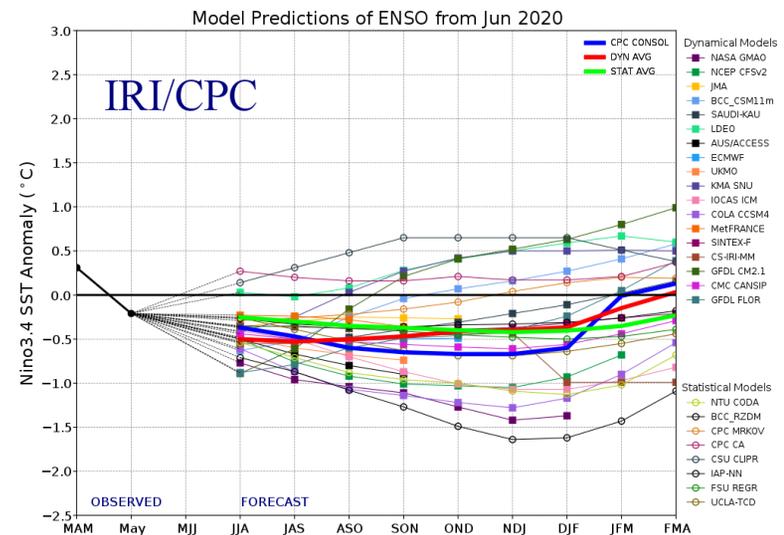
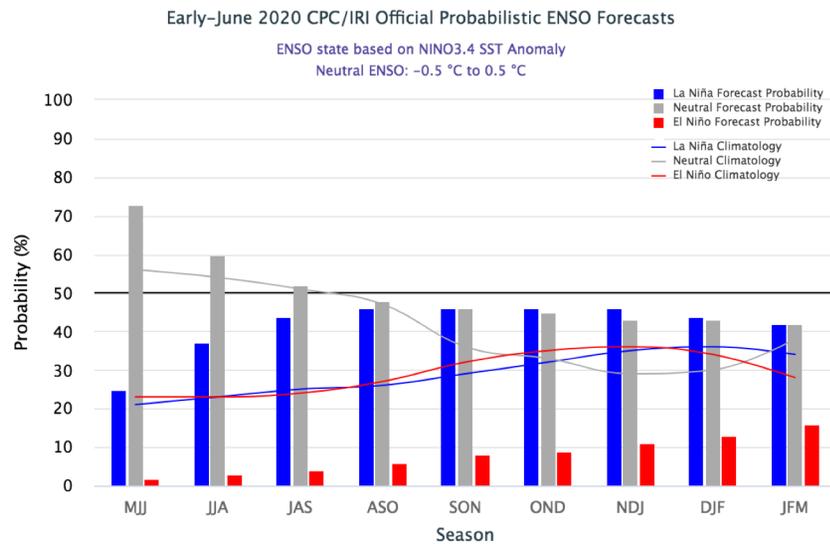
8-14 day outlook



Seasonal outlook



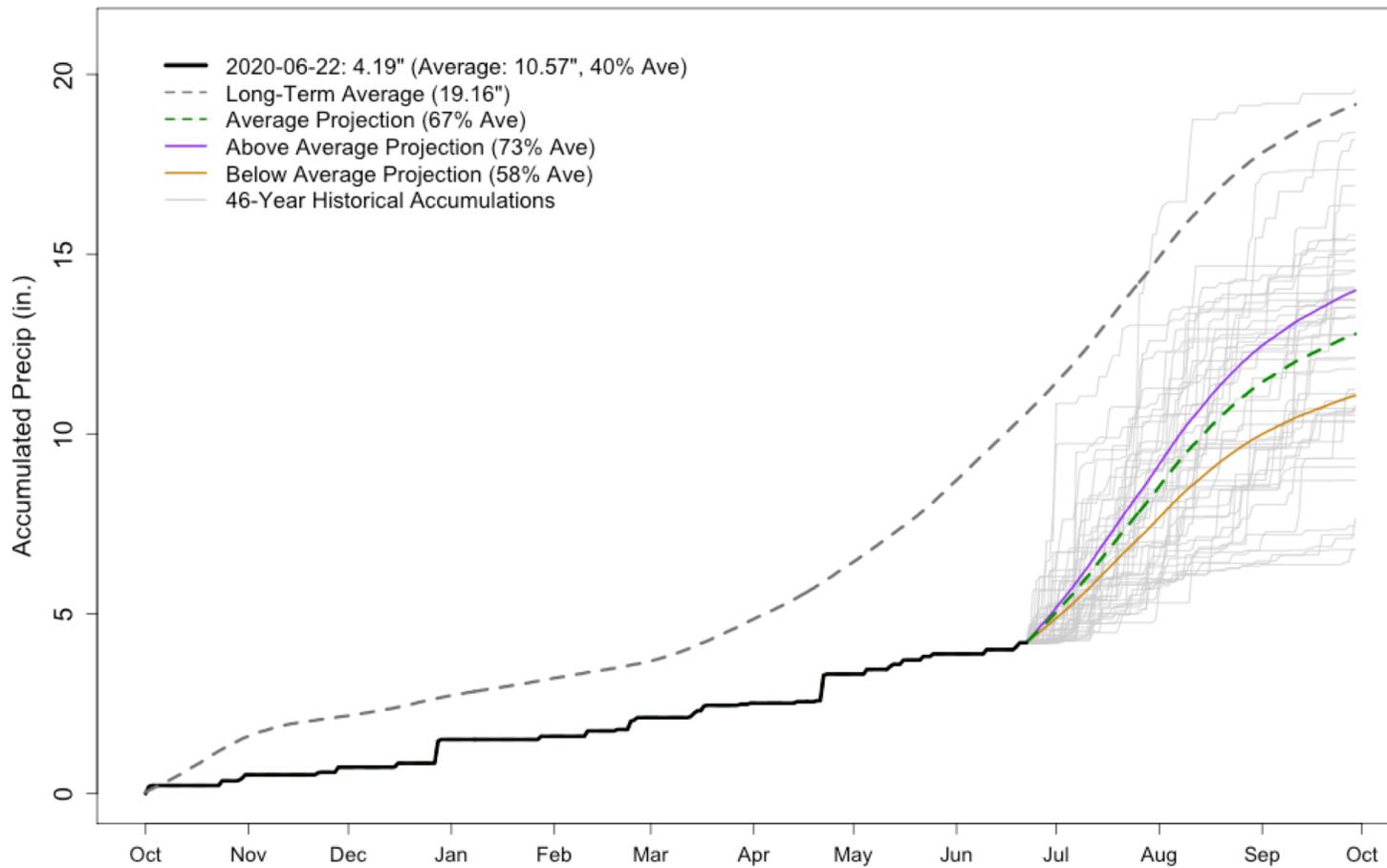
What's the El Niño forecast?



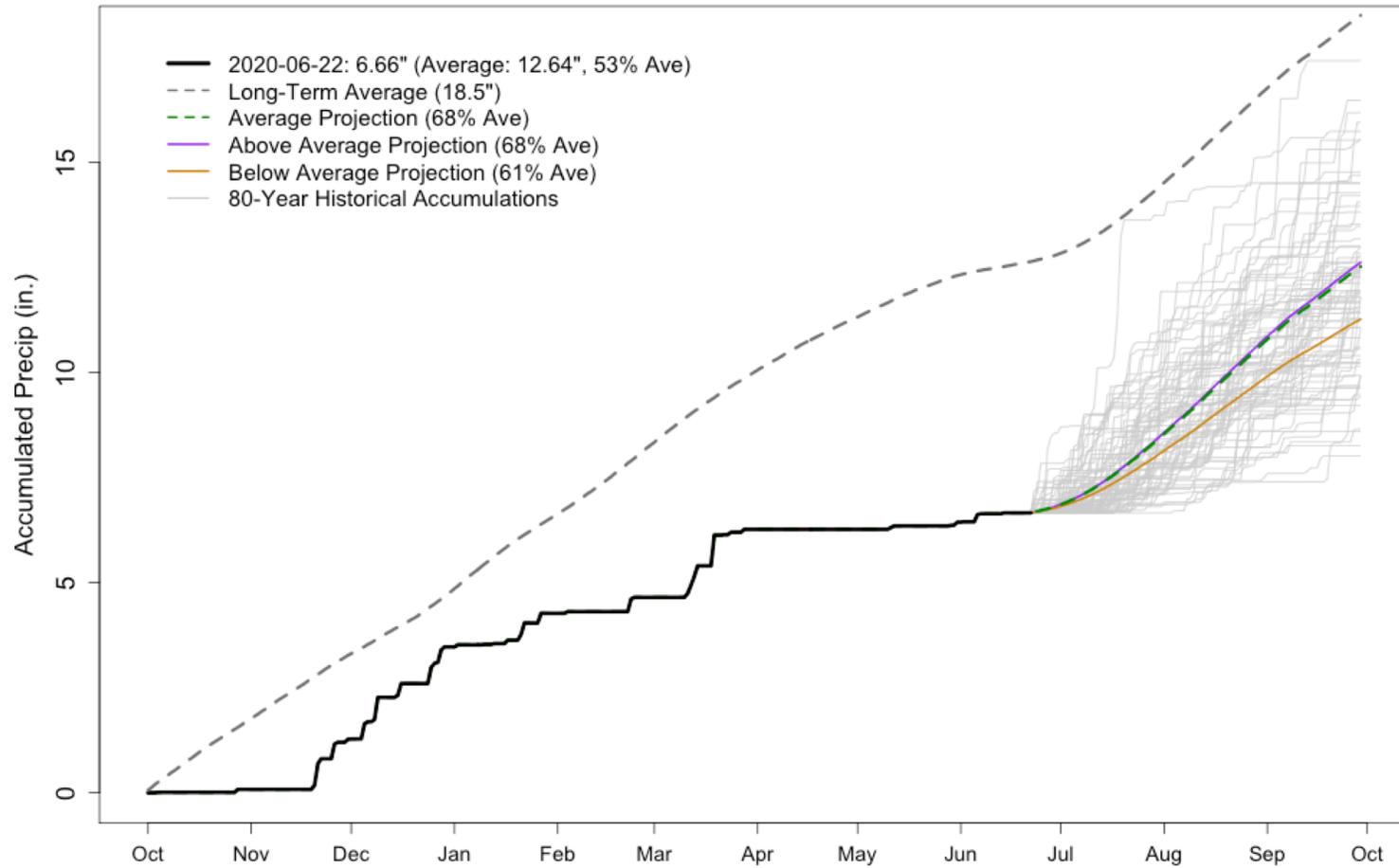
Sea surface temperatures show borderline La Niña conditions, with the atmospheric response at weak La Niña or neutral. Outlook is for continuation of neutral through summer with equal chances neutral/La Niña in the fall and winter.



WALSH 1 W WY2020 Precipitation Projections



MESA VERDE NP WY2020 Precipitation Projections



Monsoon?

- El Niño Southern Oscillation (ENSO) is not giving us a clear picture
- Some research has shown that a strong transition from neutral to La Niña conditions would make the monsoon stronger in southern AZ/NM but it wouldn't extend as far north.
- Models are indicating the subtropical ridge may be moving into place for the start of monsoon conditions in early July.
- Even with a start in AZ/NM in early July, it may take some time before we know how and when it may impact Colorado.
- Lots of uncertainty right now!



Summary points

- With spring, the spigot shut off and the heat turned on. Most areas of the state have been struggling with dry conditions ever since.
- Drought conditions have expanded in the last month. 33% of Colorado is currently in extreme drought (D3) conditions.
- We have seen an ET event occur in June over the eastern plains – consistent with flash drought... except we were already in drought!
- Expect warmer than average temperatures to continue.
- Monsoon hasn't started yet, hopeful for a solid start in AZ around the 4th.
- Recovery before the end of the water year is very unlikely for southeast and southwest CO.



To view this and other presentations:
http://climate.colostate.edu/ccc_archive.html

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Thank you!



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