

# Climate and Drought Update for the White River Basin

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Assistant State Climatologist

White State of the River

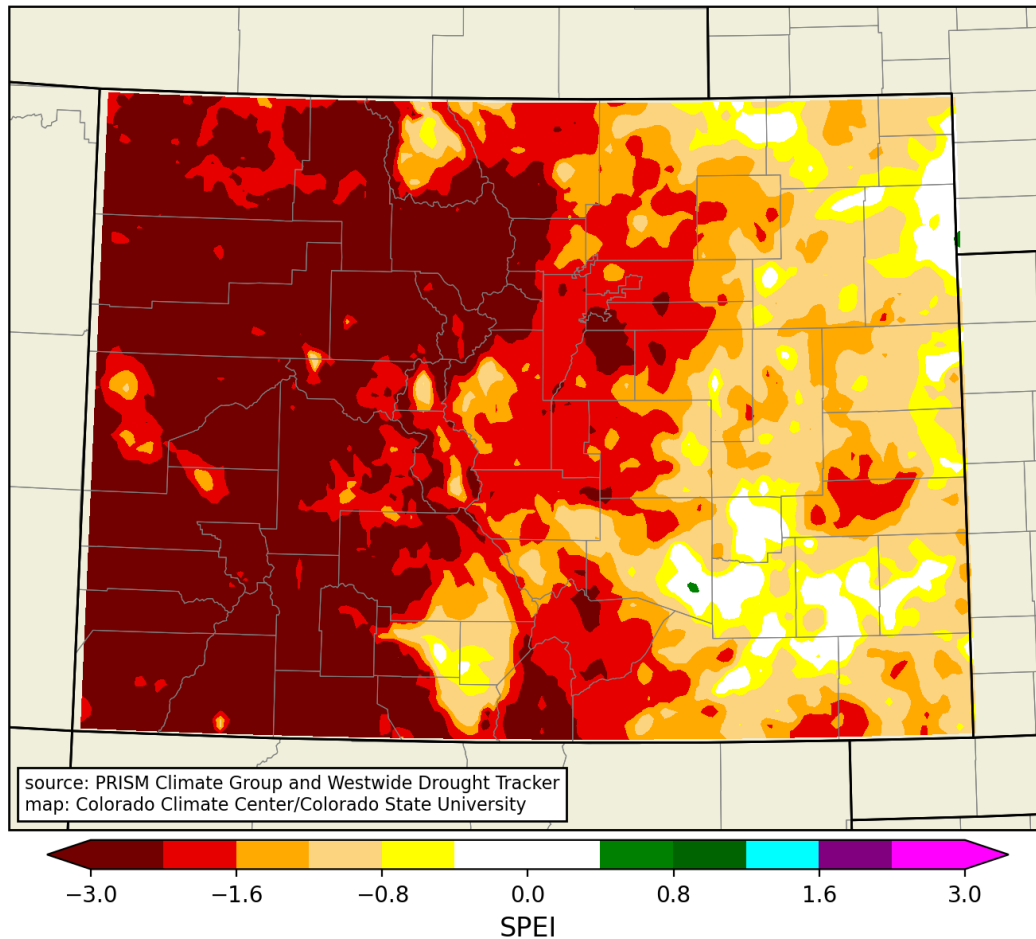
June 15, 2021



ATMOSPHERIC SCIENCE  
COLORADO STATE UNIVERSITY

How it started... how it's  
going... where it's headed.

## 6-month SPEI from Westwide Drought Tracker, October 2020

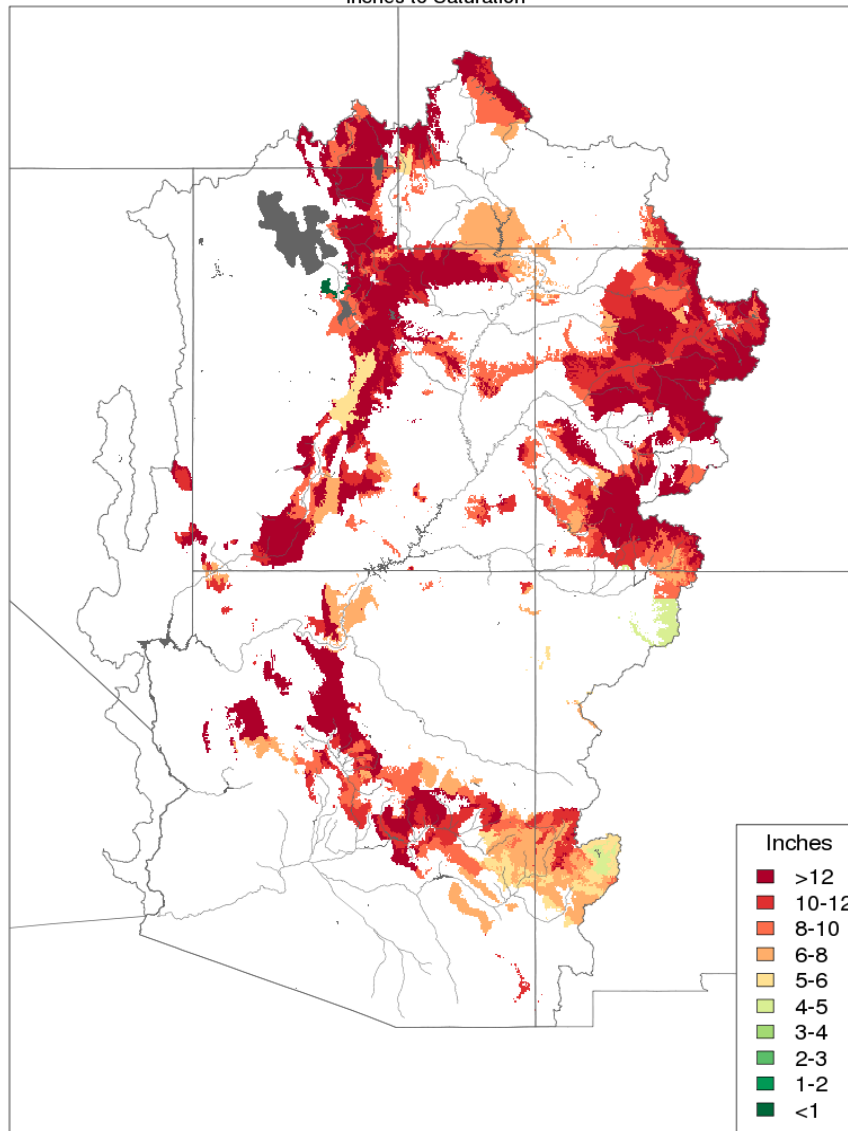


May-Oct temperature and precipitation set the stage before heading into the cold season.

[https://climate.colostate.edu/spi\\_monthly\\_maps.html](https://climate.colostate.edu/spi_monthly_maps.html)

## Soil Moisture - November 15 2020

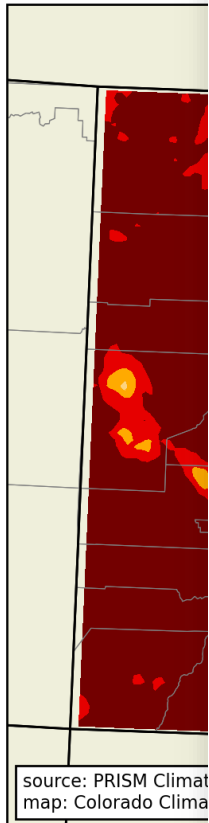
Inches to Saturation



Prepared by NOAA, Colorado Basin River Forecast Center  
Salt Lake City, Utah, [www.cbrfc.noaa.gov](http://www.cbrfc.noaa.gov)

The soil moisture in mid-November is “locked in” for the cold season. This is a deficit that will need to be made up

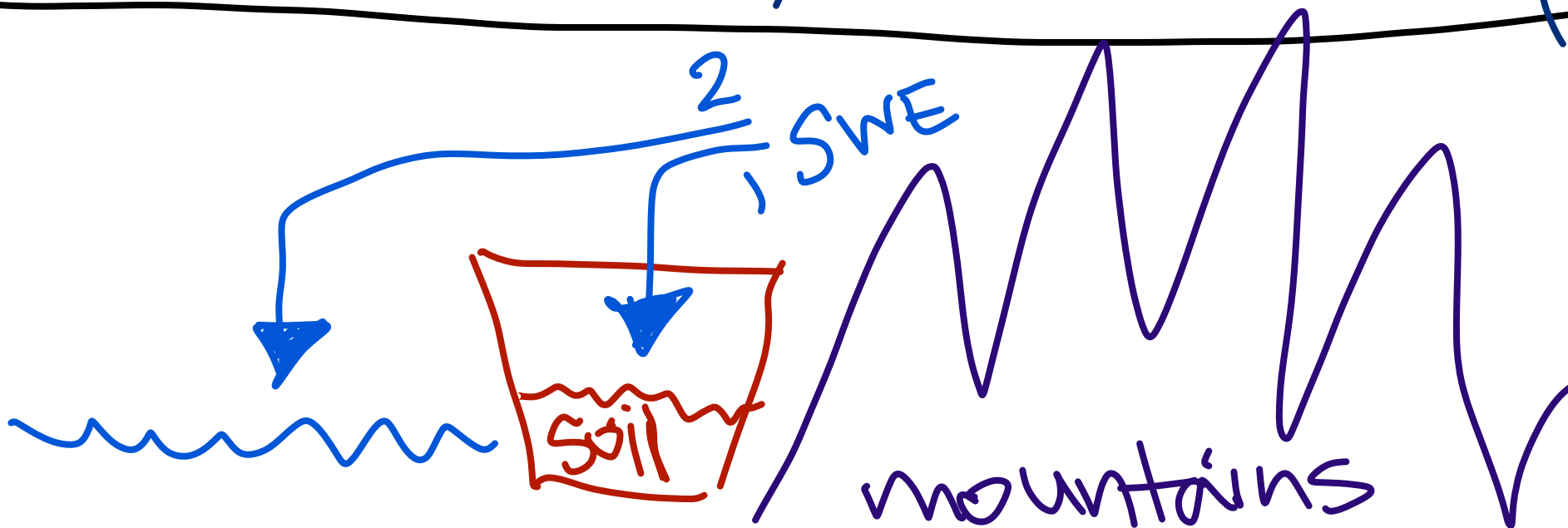
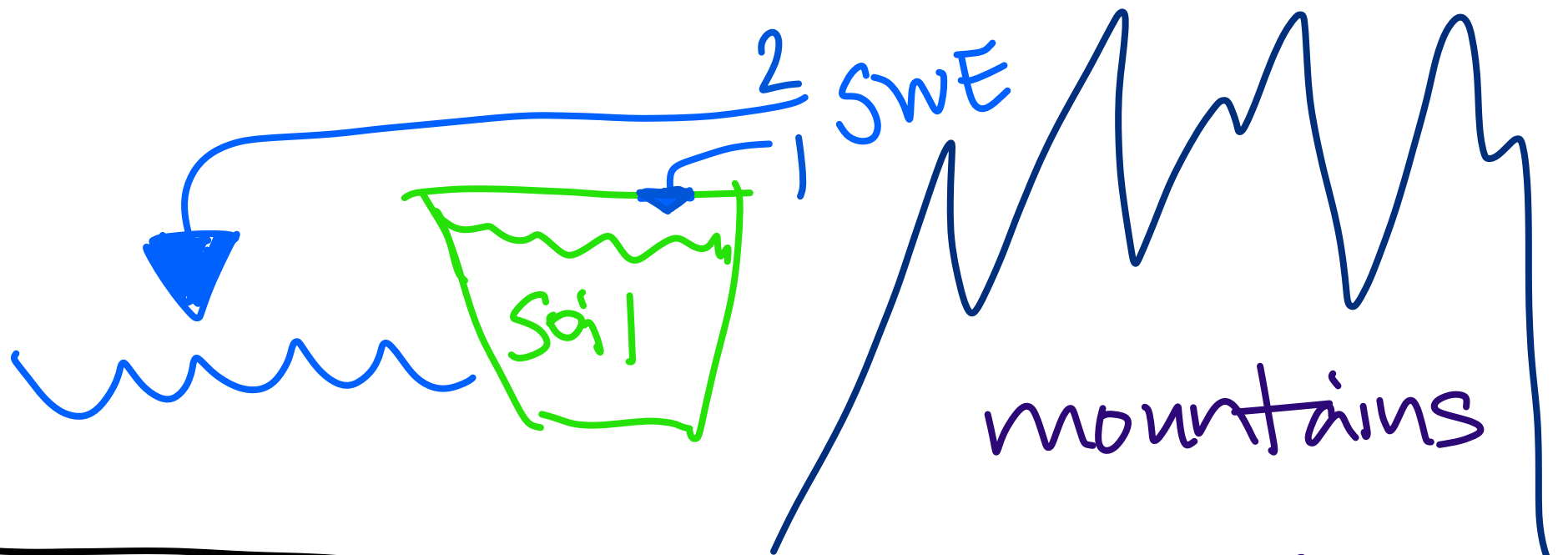
6-month S



-3.0

May-Oct  
stage be

<https://www.cbrfc.noaa.gov/rmap/grid800/index.php?type=soilsat>



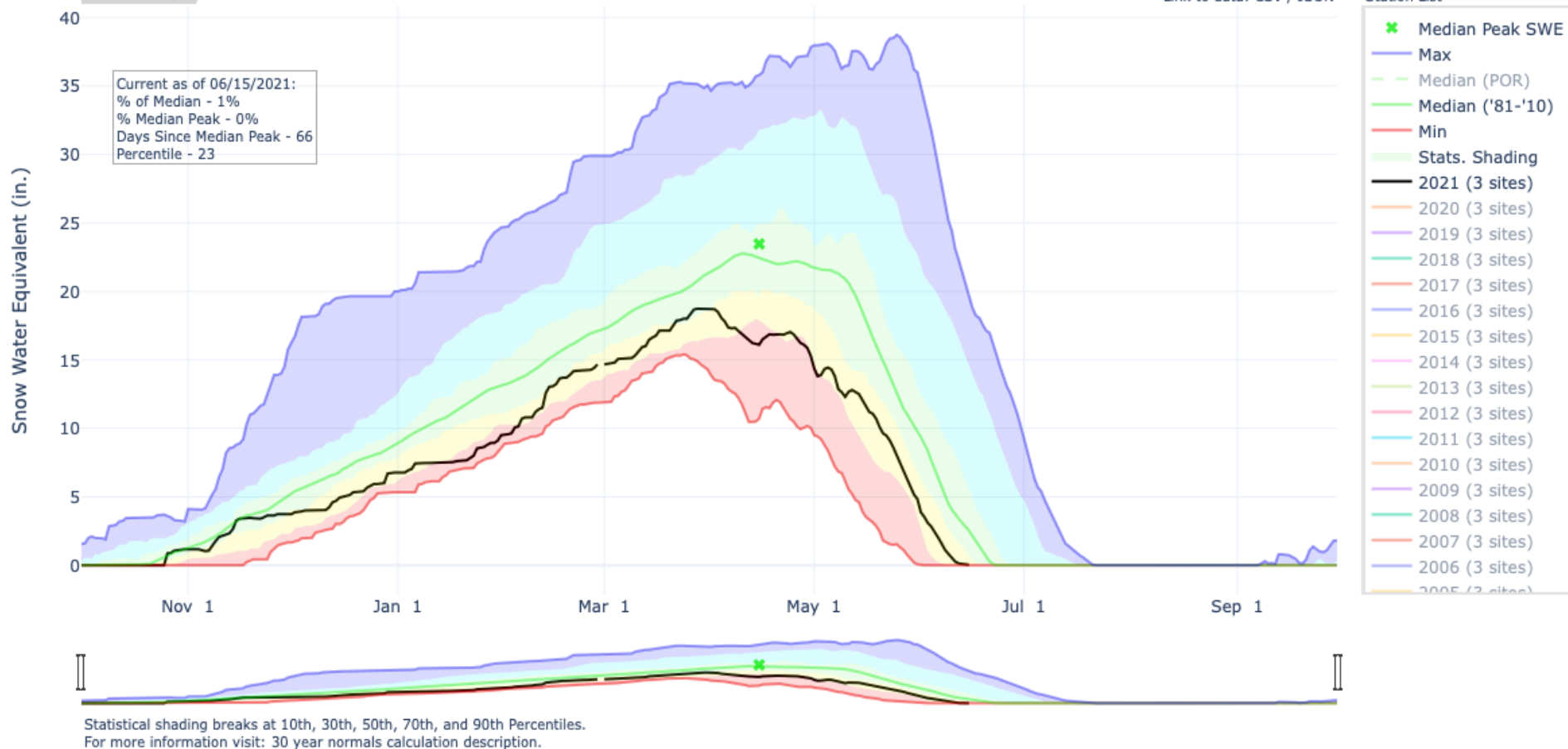
Peaked at 18.8" on April 1, 2021 (**normal 23.5" April 15**)

## SNOW WATER EQUIVALENT IN WHITE

Reset Range

Link to data: CSV / JSON

Station List

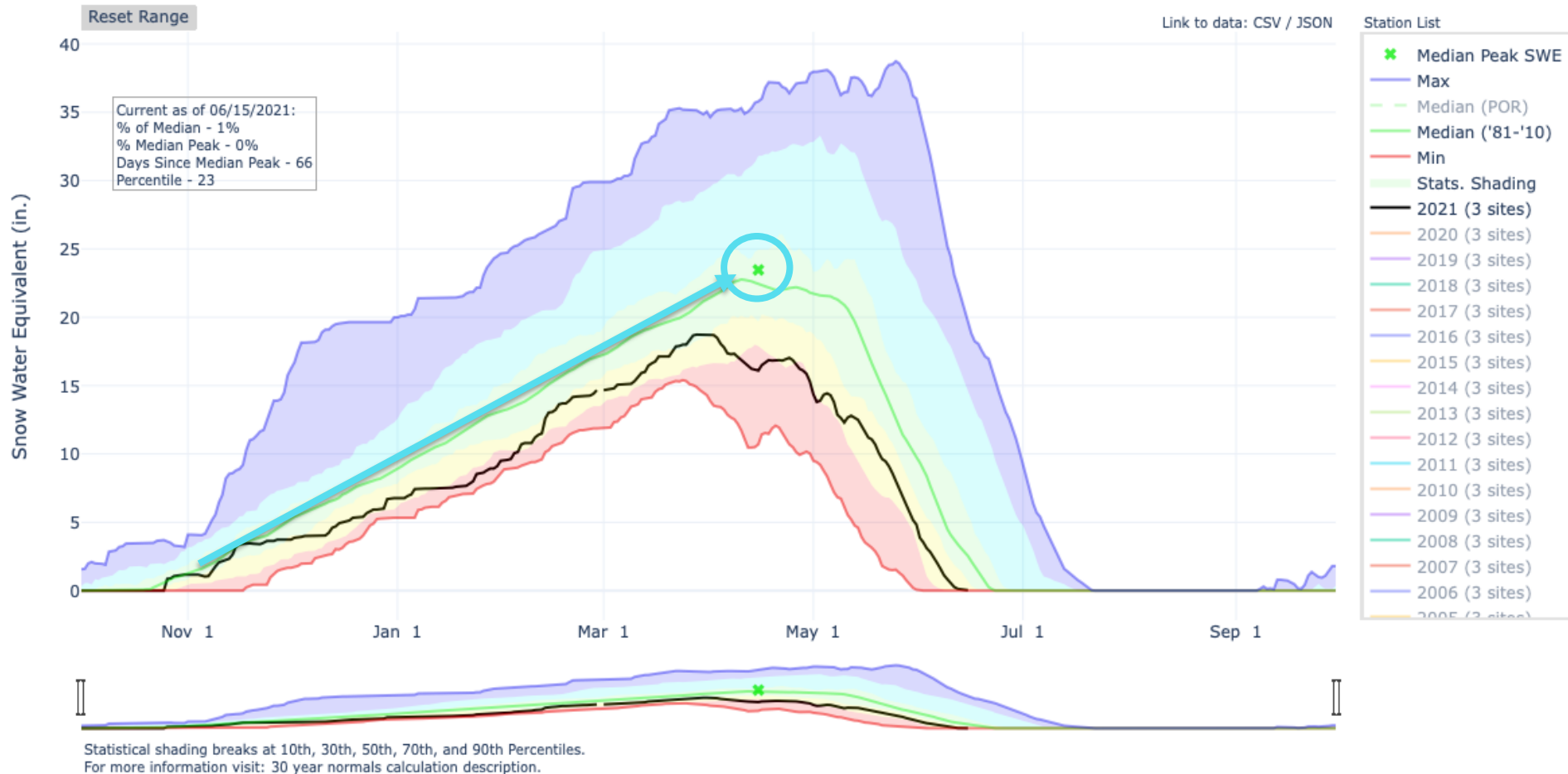


<https://www.nrcs.usda.gov/wps/portal/nrcs/detail/co/snow/products/?cid=nrcseprd1432263>



# The importance of snowpack is not just accumulation and peak

## SNOW WATER EQUIVALENT IN WHITE



<https://www.nrcs.usda.gov/wps/portal/nrcs/detail/co/snow/products/?cid=nrcseprd1432263>

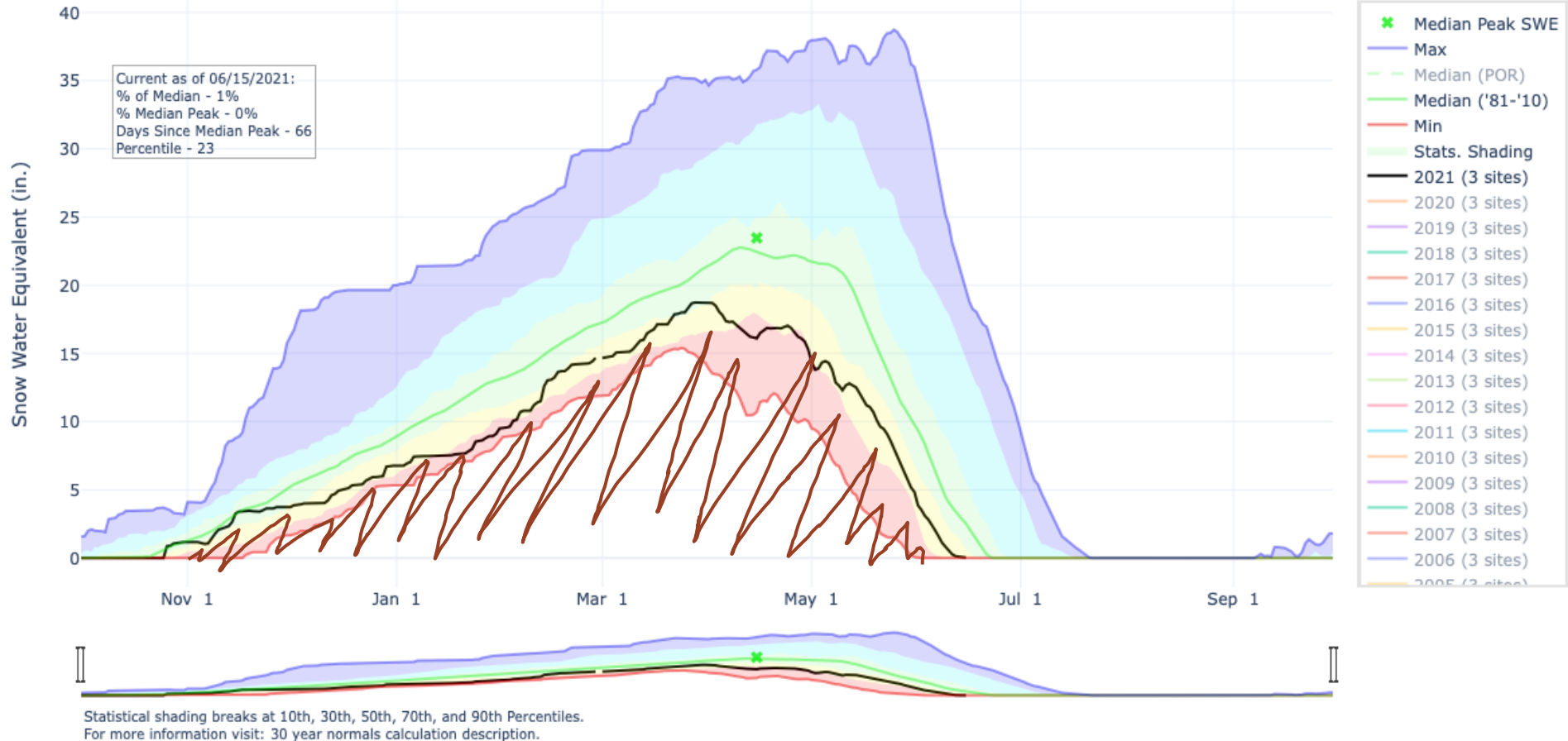
It's the entire area under the curve that can impact conditions

## SNOW WATER EQUIVALENT IN WHITE

Reset Range

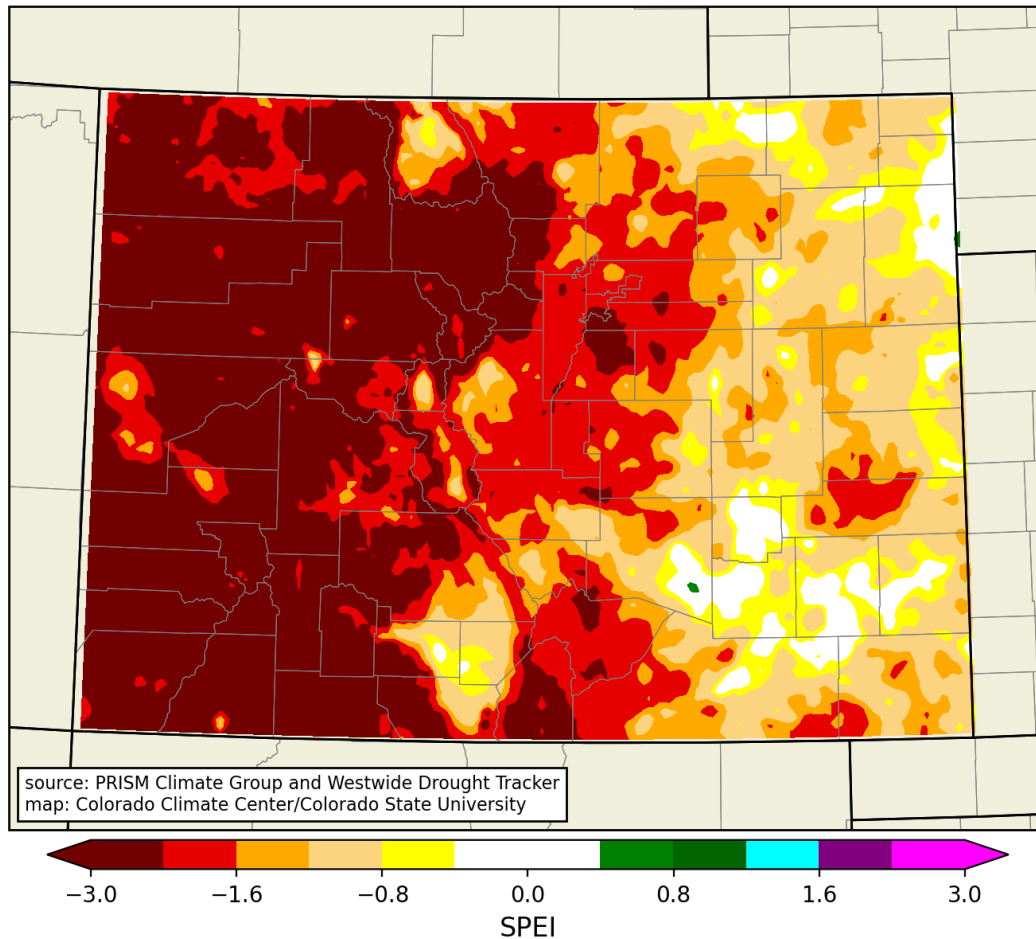
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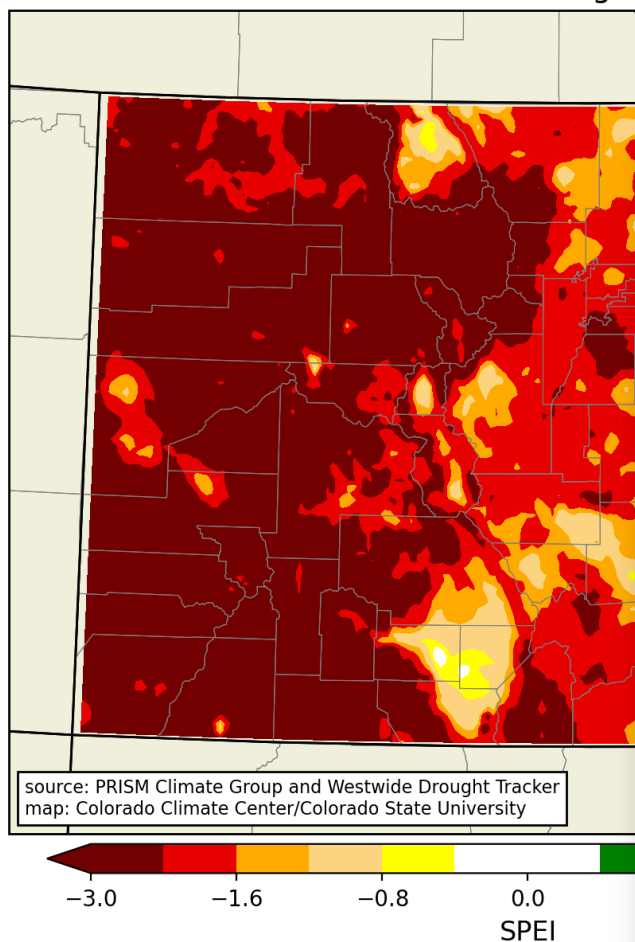
<https://www.nrcs.usda.gov/wps/portal/nrcs/detail/co/snow/products/?cid=nrcseprd1432263>

## 6-month SPEI from Westwide Drought Tracker, October 2020

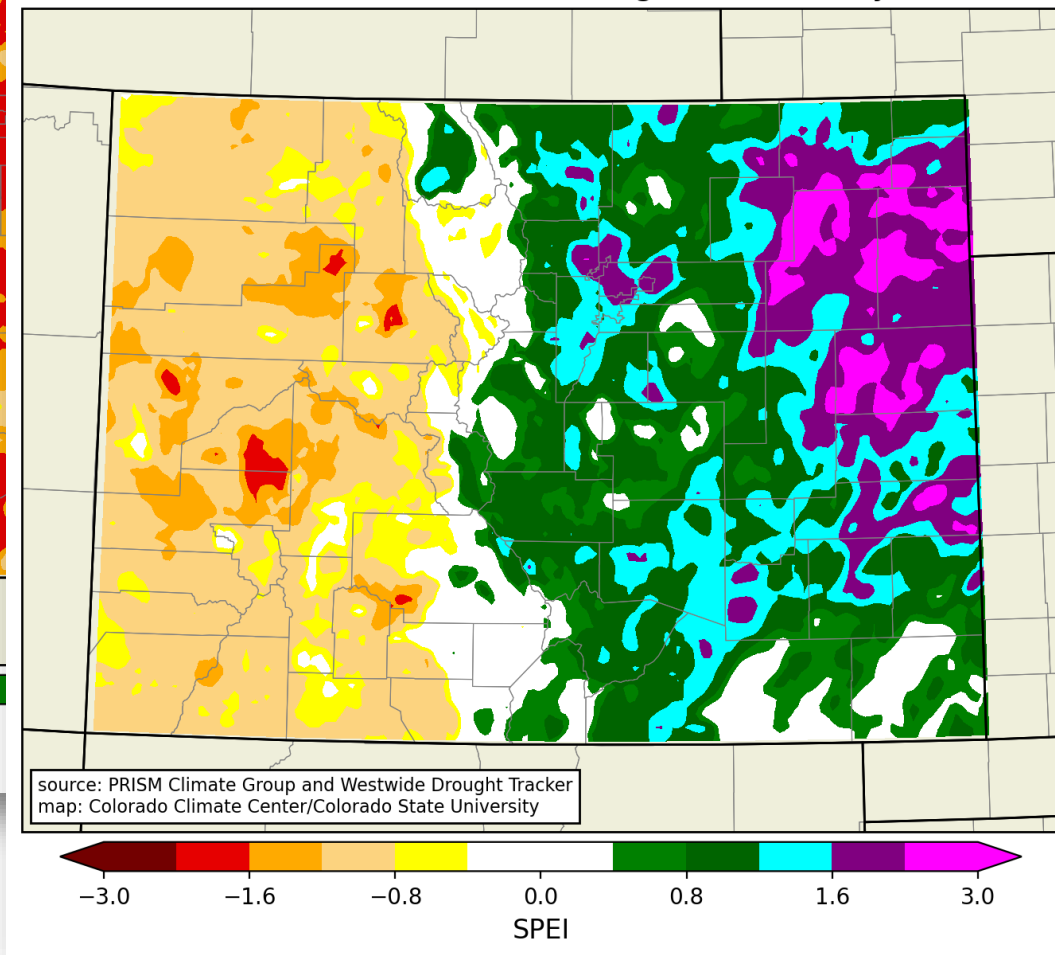


Recall how it started....

6-month SPEI from Westwide Drought Tracker, October 2020

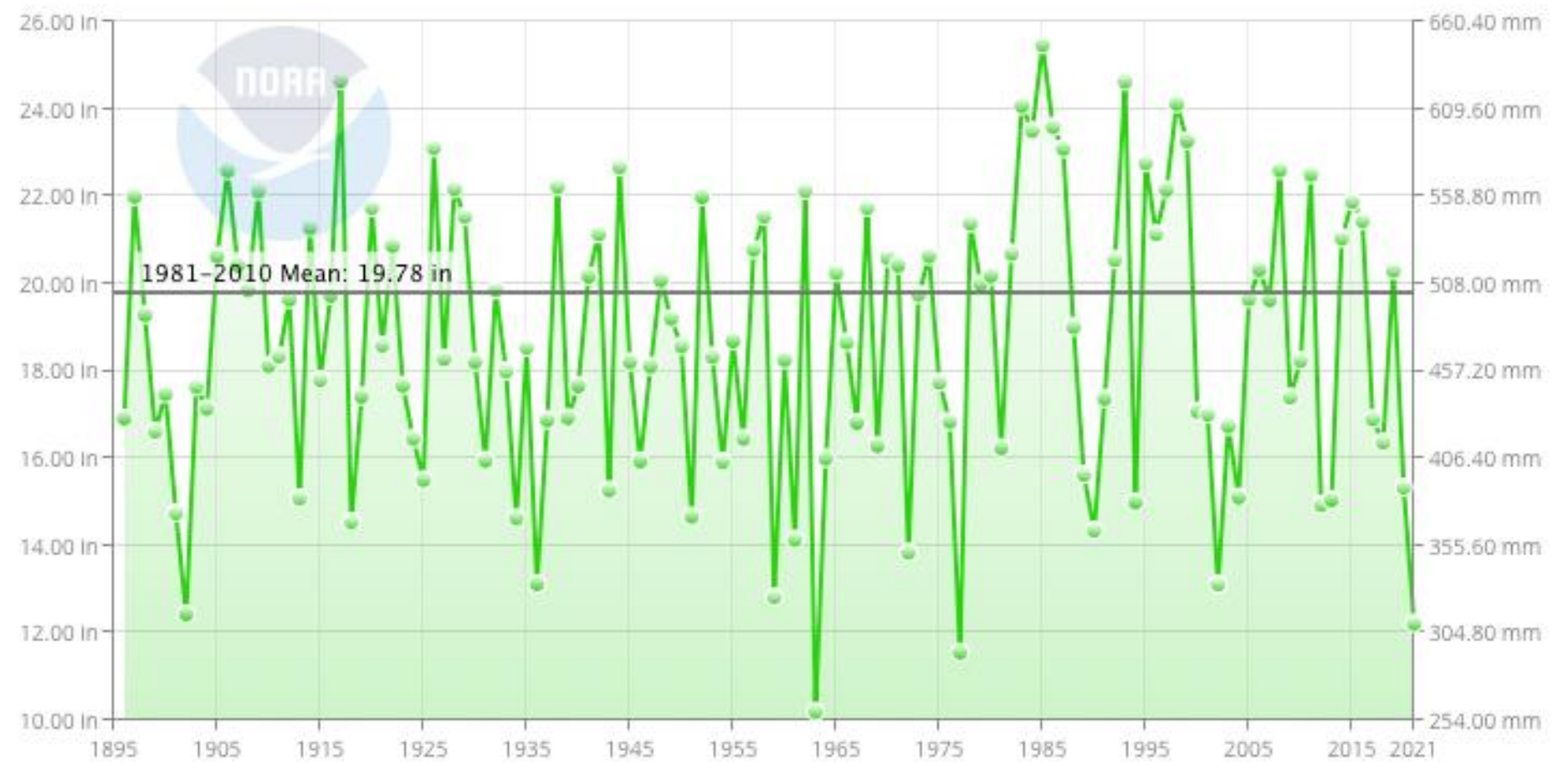


6-month SPEI from Westwide Drought Tracker, May 2021



Marginally better, which  
is still not that great

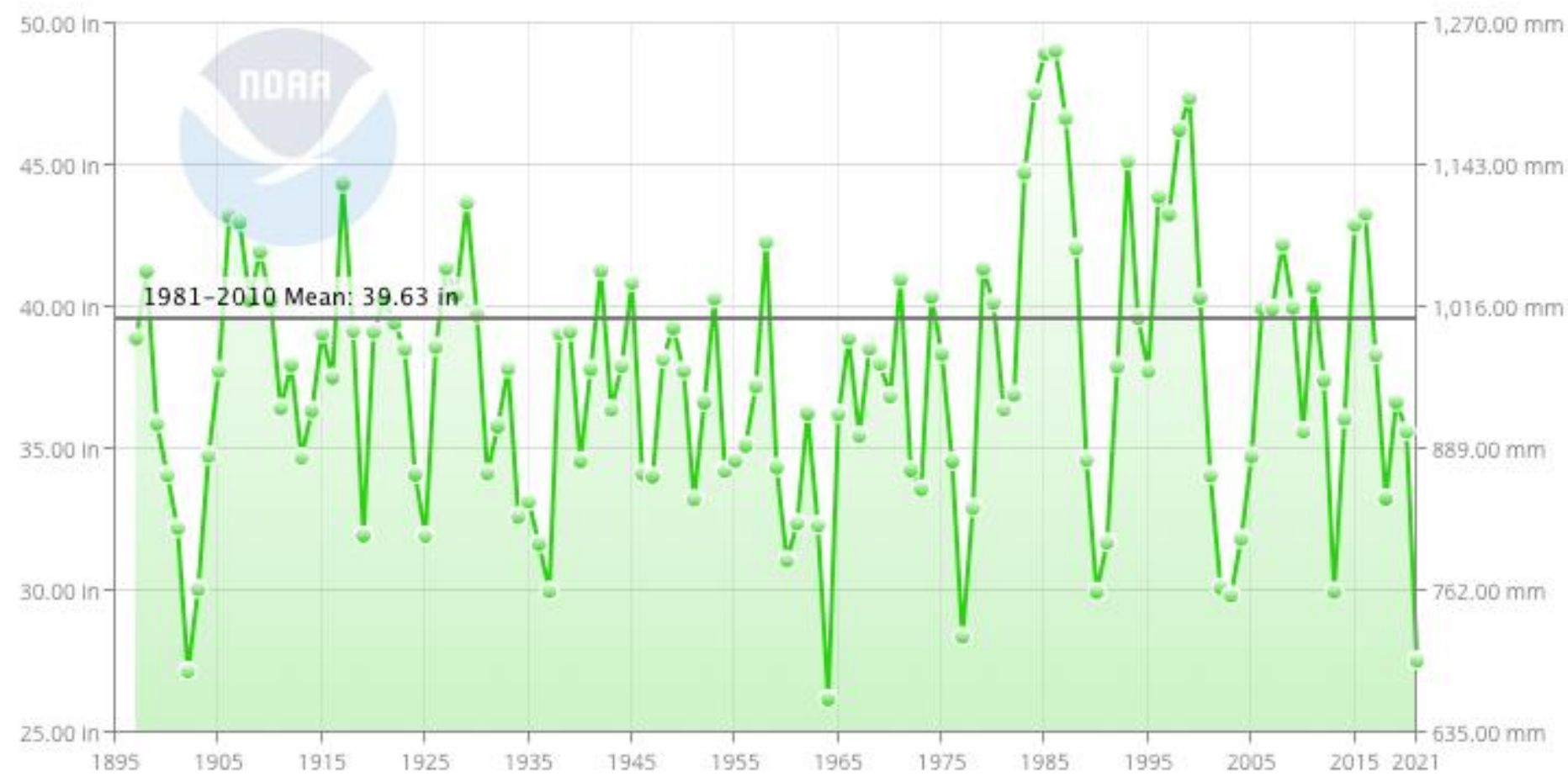
Rio Blanco County, Colorado Precipitation  
June-May



Near record dryness for last 12 months for White River...



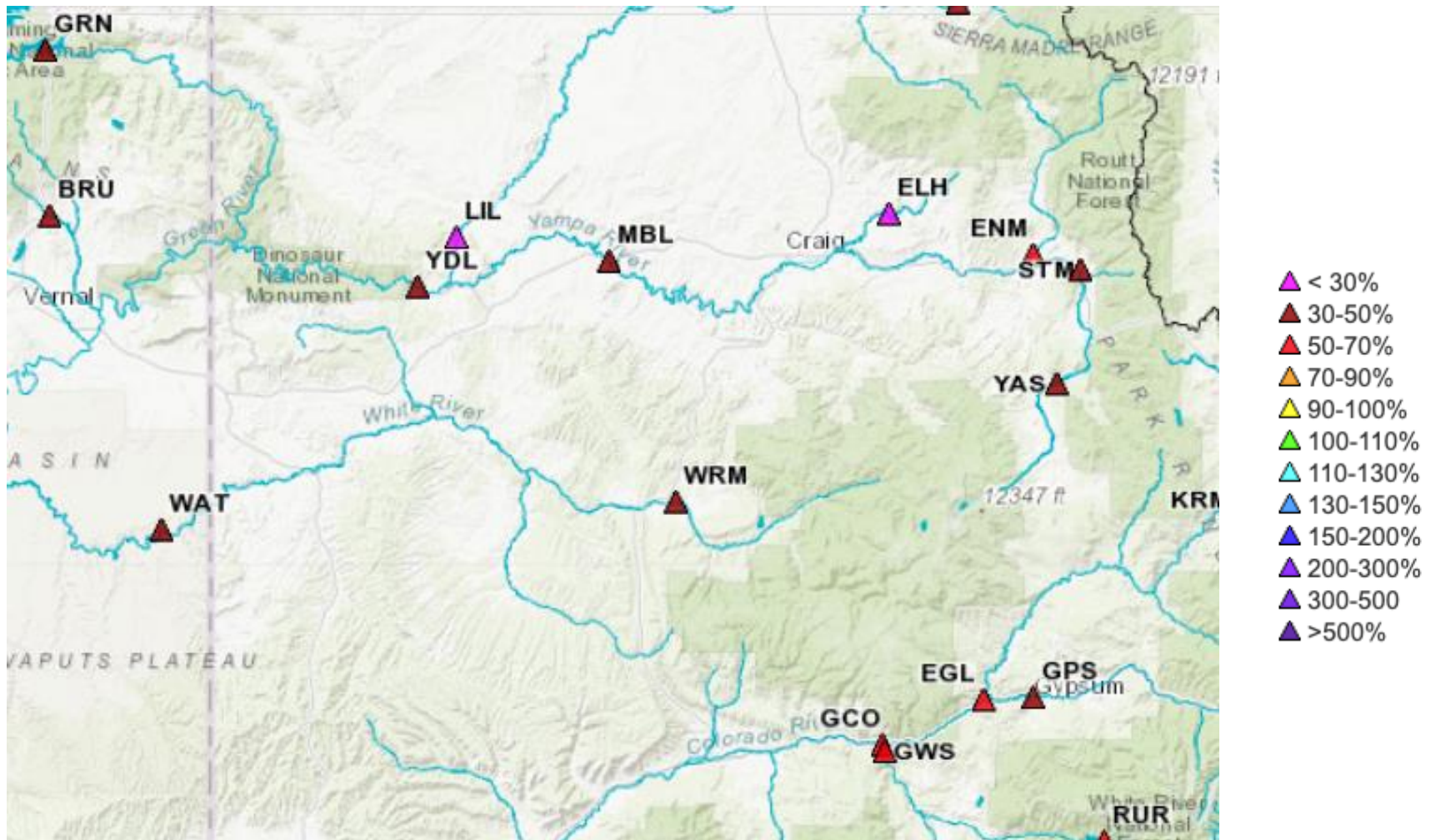
Rio Blanco County, Colorado Precipitation  
24-Month Period Ending in May



In fact, dry anomalies dominate the 21<sup>st</sup> century



# How did this translate to water supply?



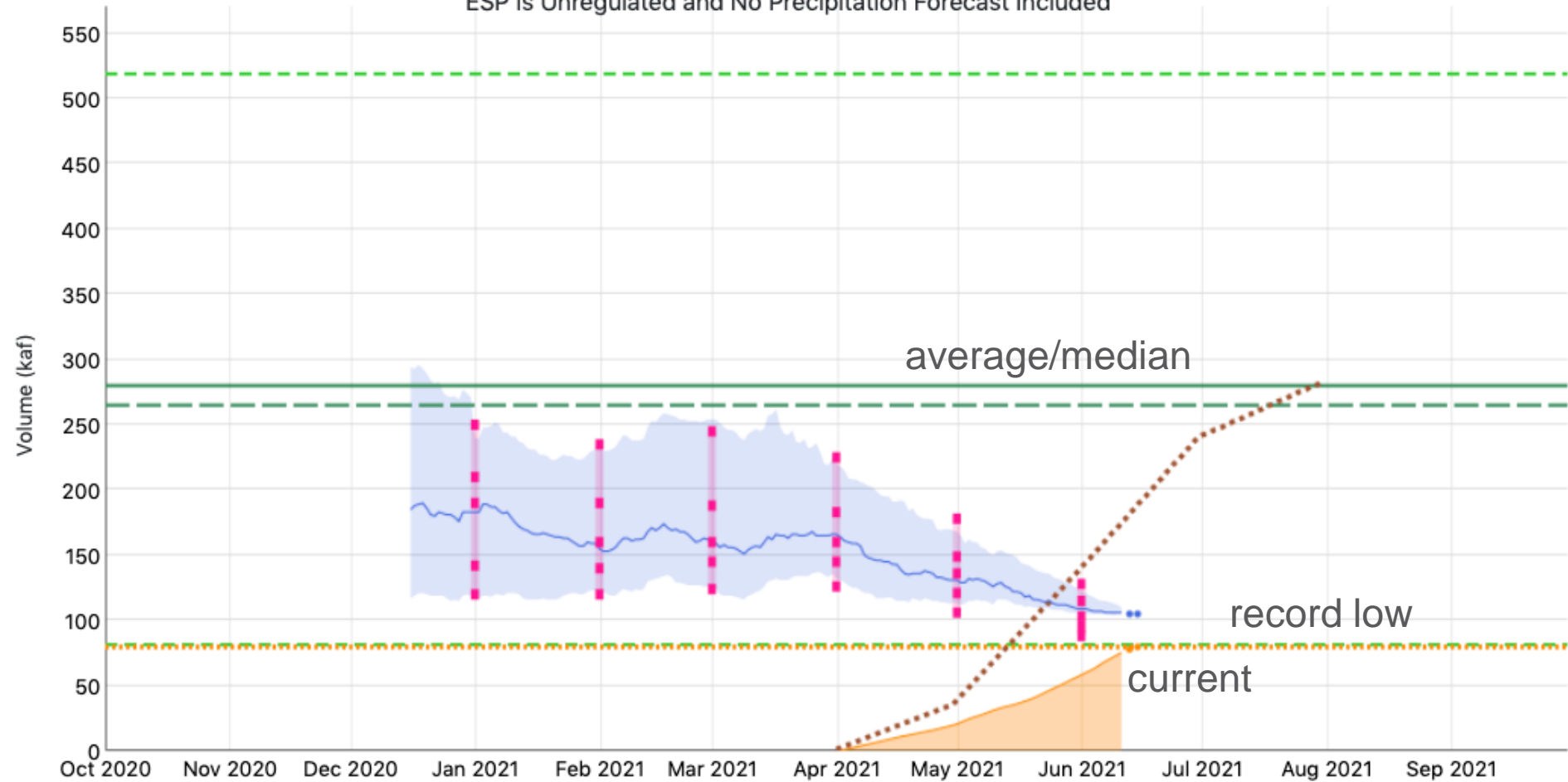
<https://www.cbrfc.noaa.gov>



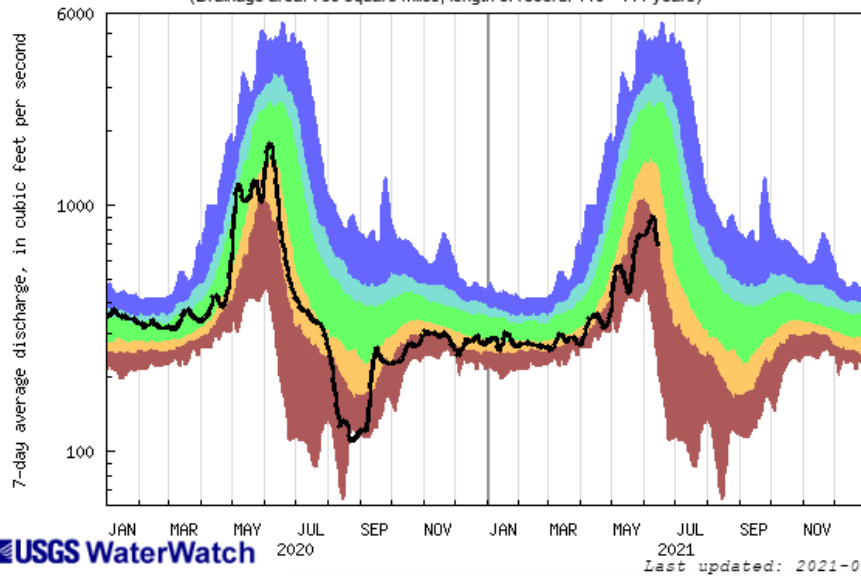
White - Meeker, Nr (WRMC2)

Period: Apr-Jul, Official 50% Forecast (2021-06-01): 103 kaf (37% Average, 39% Median)

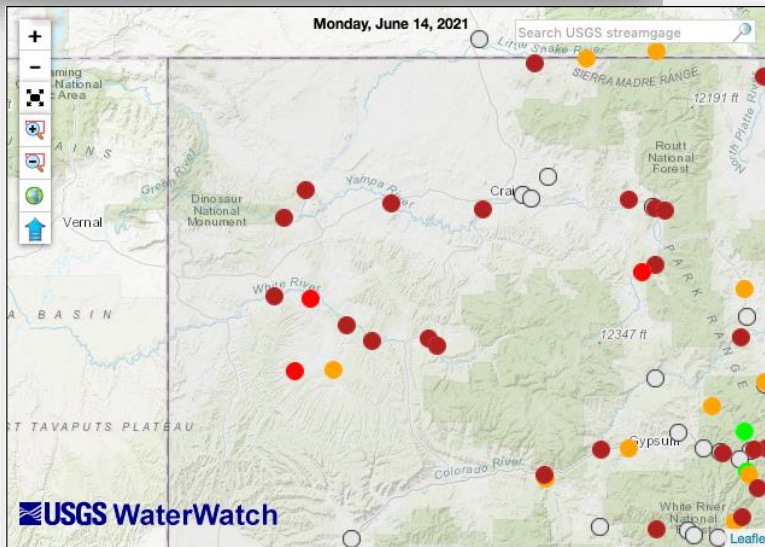
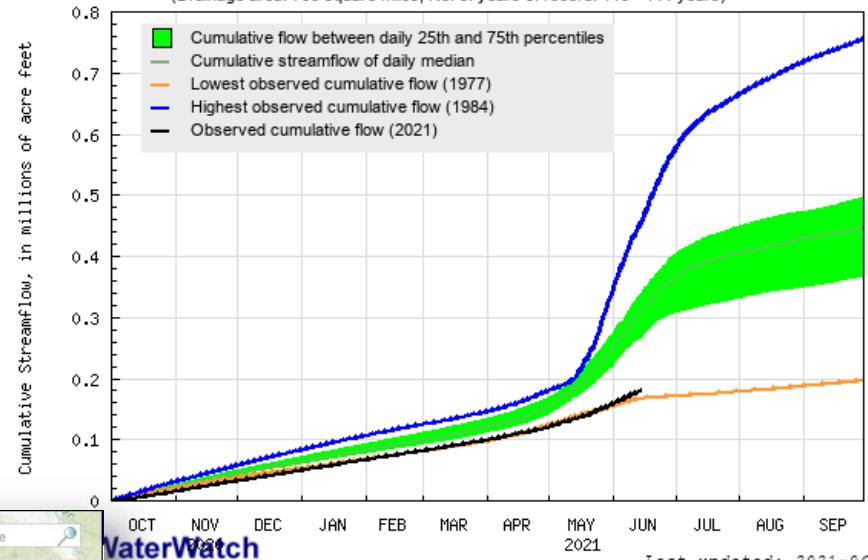
ESP is Unregulated and No Precipitation Forecast Included



USGS 09304500 WHITE RIVER NEAR MEEKER, CO.  
(Drainage area: 760 square miles, length of record: 110 - 111 years)



USGS 09304500 WHITE RIVER NEAR MEEKER, CO.  
(Drainage area: 760 square miles, No. of years of record: 110 - 111 years)



Explanation - Percentile classes							
<span style="color: red;">●</span>	<span style="color: red;">●</span>	<span style="color: orange;">●</span>	<span style="color: green;">●</span>	<span style="color: cyan;">●</span>	<span style="color: blue;">●</span>	<span style="color: black;">●</span>	<span style="color: gray;">○</span>
Low	<10	10-24	25-75	76-90	>90	High	Not-ranked
	Much below normal	Below normal	Normal	Above normal	Much above normal		

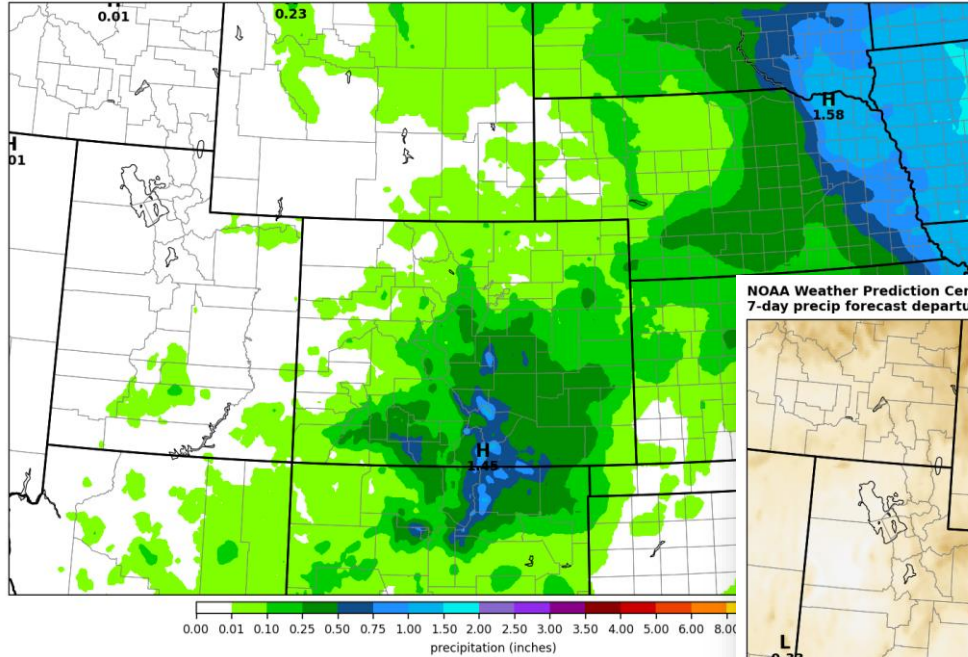
[waterwatch.usgs.gov](https://waterwatch.usgs.gov)



# Short-term Outlook

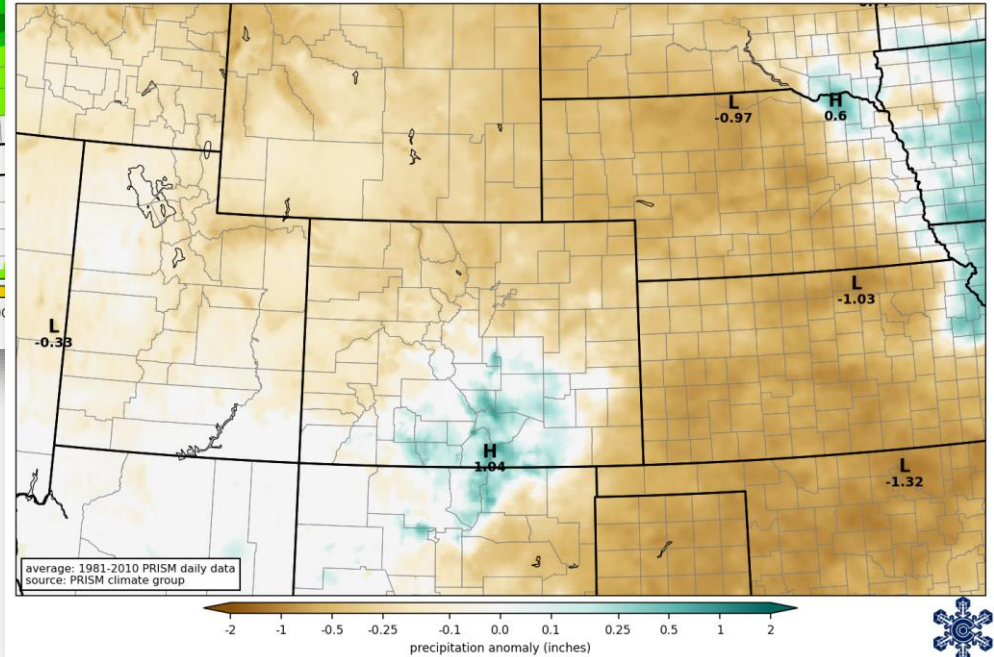
NOAA Weather Prediction Center  
7-day precipitation forecast

forecast issued 1200 UTC Tue 15 Jun 2021  
precipitation in 168 hrs ending 1200 UTC Tue 22 Jun 2021



NOAA Weather Prediction Center  
7-day precip forecast departure from average

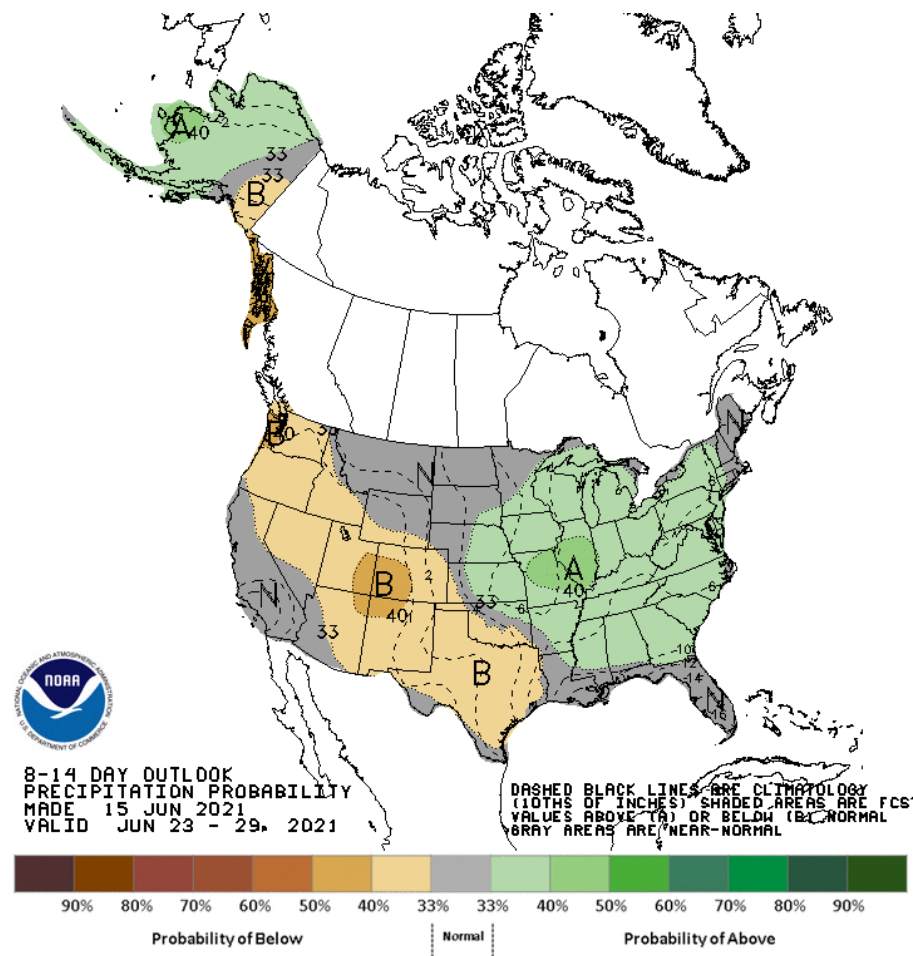
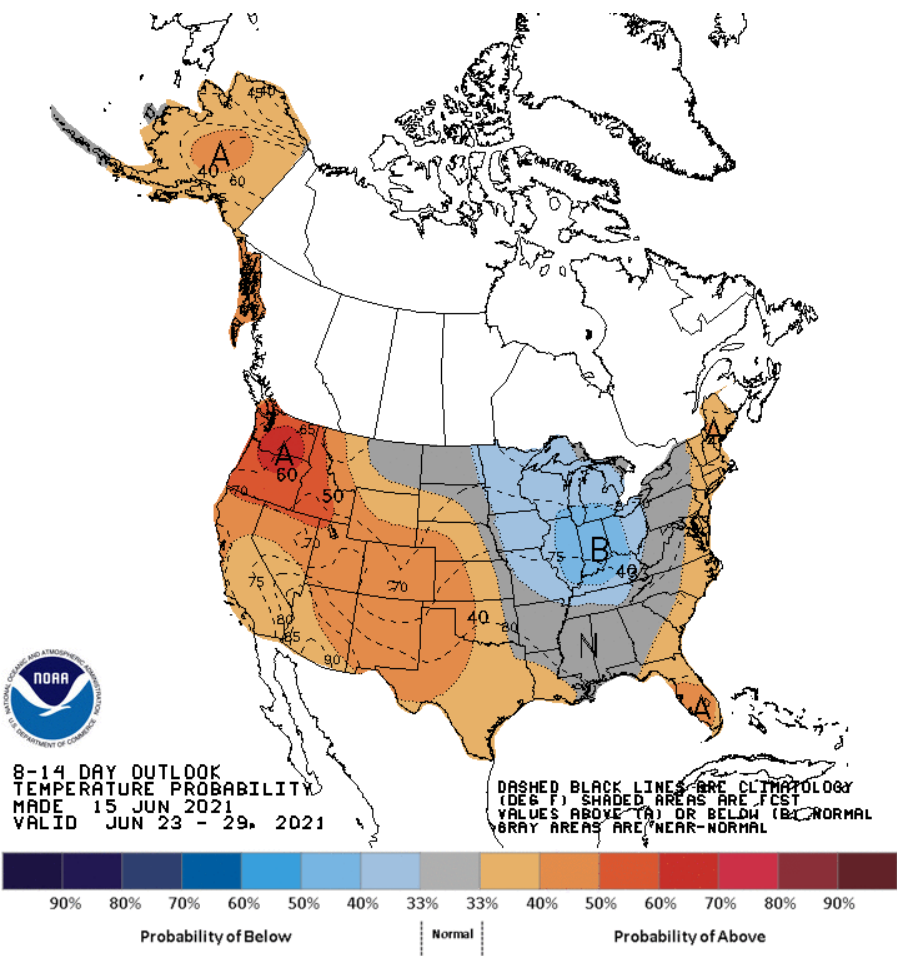
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[climate.colostate.edu/drought](http://climate.colostate.edu/drought)

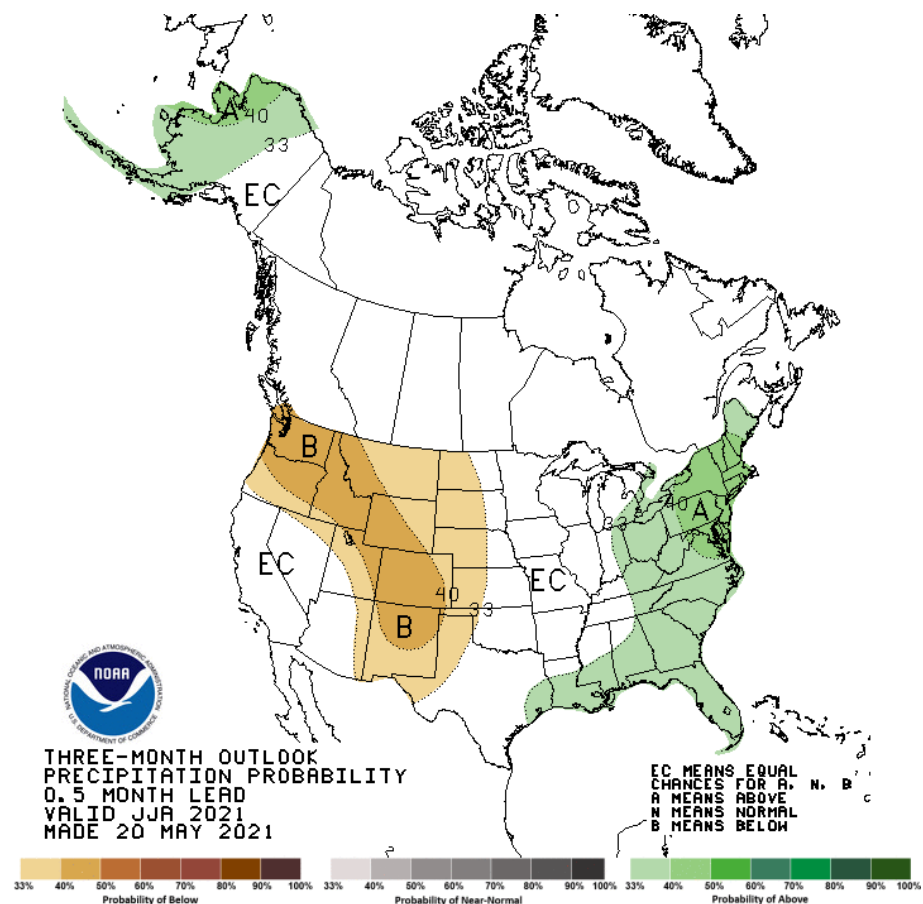
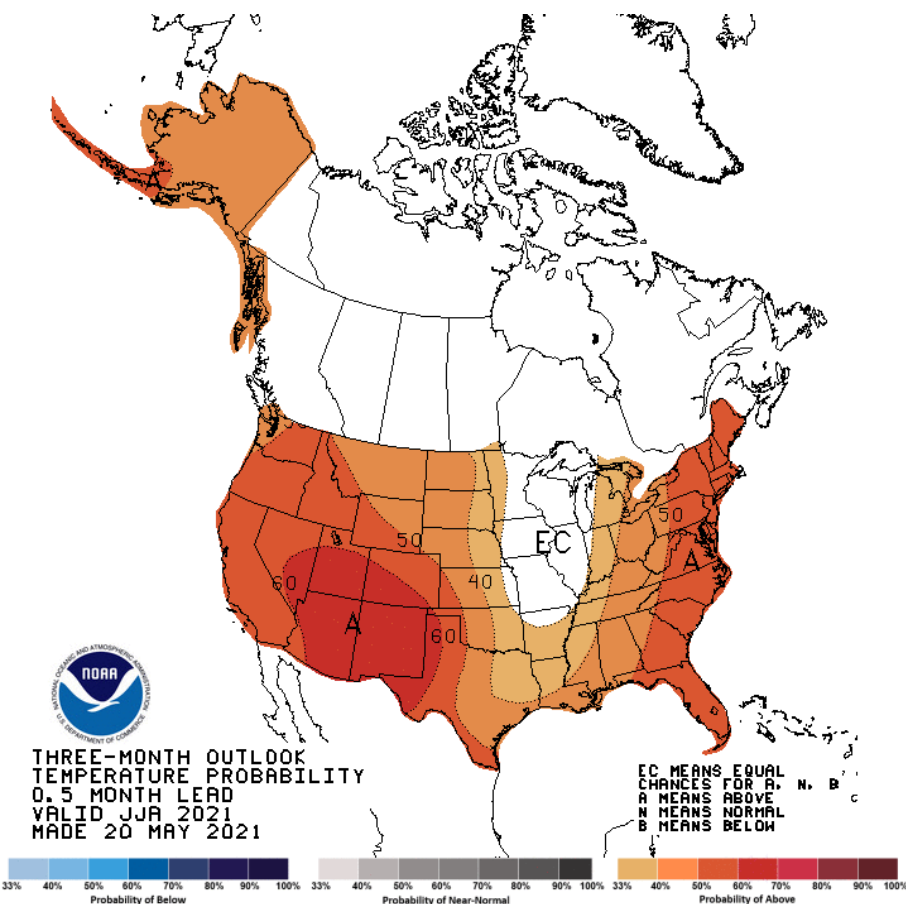


# Short-term Outlook



End of June likely to still be warm and dry

# Long-term Outlook

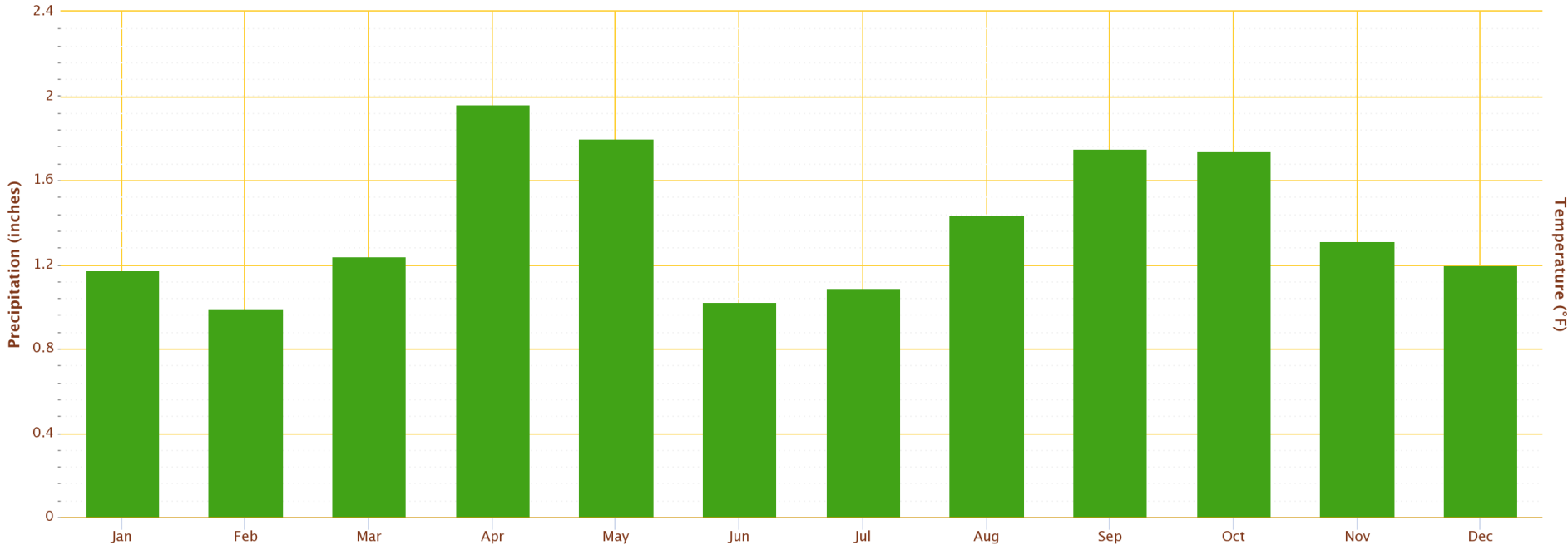


Hot and dry pattern likely to prevail through the summer

# Seasonal Rainfall Pattern

Monthly Climate Normals (1991–2020) – MEEKER, CO

Click and drag to zoom to a shorter time interval



This is a drier time of year – 3.55” average over Jun-Jul-Aug. Can’t expect to bust a drought during the dry season.

BUT! Even average precip can help. And some solid fall precipitation would provide relief too.



Rio Blanco County, Colorado Precipitation  
August-October



Aug-Sep-Oct more frequently drier than average. But above average would result in improvement to drought conditions.



# Key Points

- ❑ Hot and dry summer and fall started the drought and dried the soils
- ❑ Poor start to snowpack accumulation, couldn't make up the early deficit
- ❑ Early peak, low peak
- ❑ All combined resulted in low water supplies in the basin
- ❑ Dry pattern looking to continue, hot and dry summer likely
- ❑ Drought relief is not expected soon
- ❑ Late summer precipitation and an early start to cool and snow could help recharge the soils
- ❑ A strong snowpack season next year would help with recovery



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Thank you

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