

# Colorado Climate Center – *WATF Climate Update*

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Becky Bolinger

Water Availability Task Force

May 14, 2019



ATMOSPHERIC SCIENCE  
COLORADO STATE UNIVERSITY



## 2019 Water Year To Date

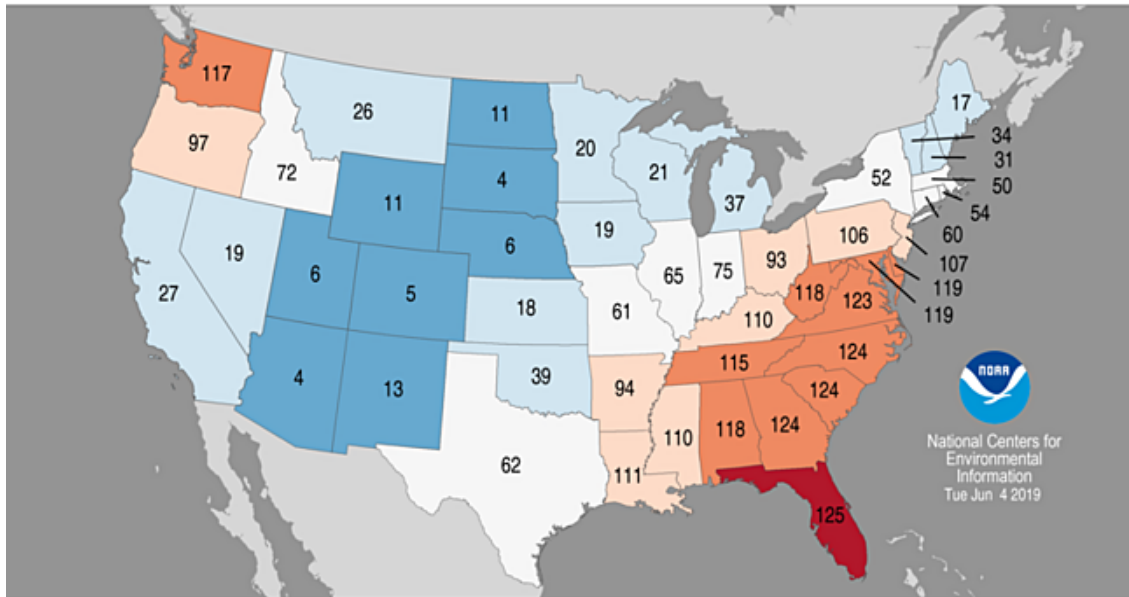
temperature, precipitation,  
evaporative demand



## Statewide Average Temperature Ranks

May 2019

Period: 1895-2019



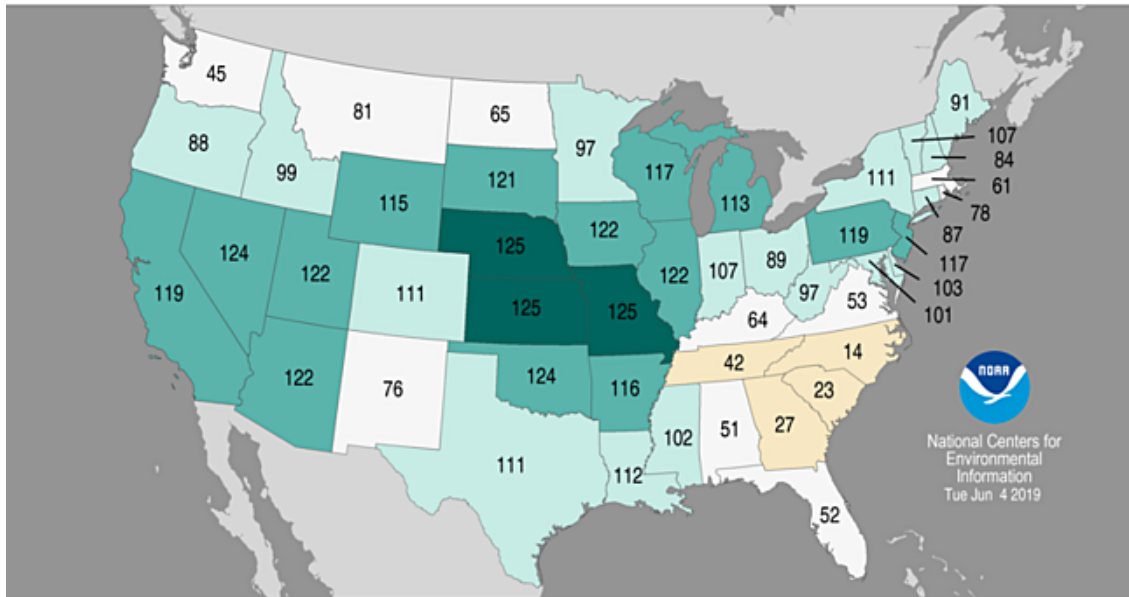
Month	T Rank	
Oct	35 <sup>th</sup>	coldest
Nov	39 <sup>th</sup>	coldest
Dec	80 <sup>th</sup>	average
Jan	36 <sup>th</sup>	warmest
Feb	28 <sup>th</sup>	coldest
Mar	66 <sup>th</sup>	average
Apr	18 <sup>th</sup>	warmest
May	5 <sup>th</sup>	coldest



## Statewide Precipitation Ranks

May 2019

Period: 1895–2019



National Centers for Environmental Information  
Tue Jun 4 2019

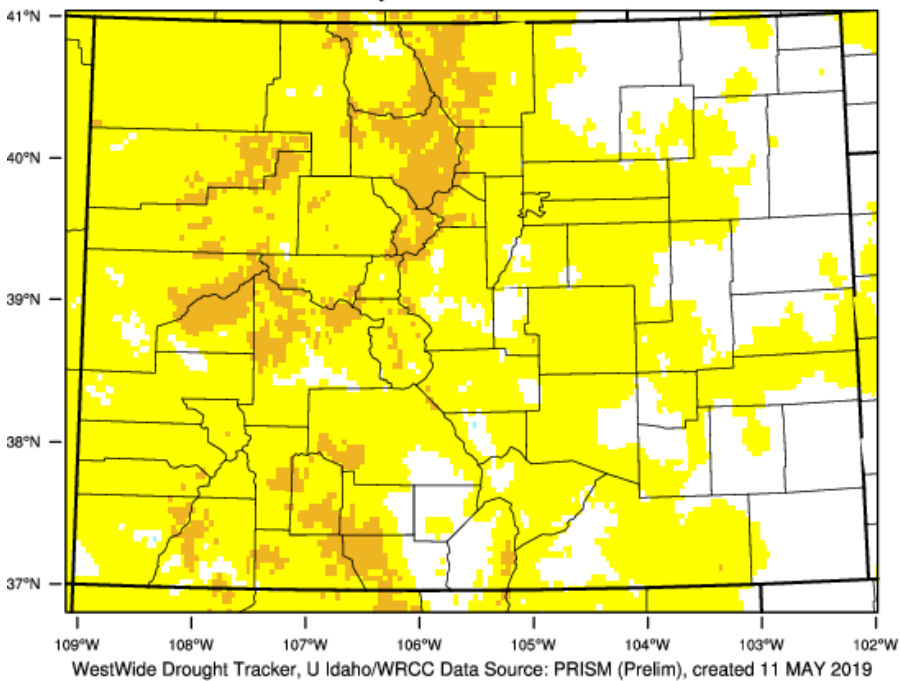


**11<sup>th</sup> wettest January – April**

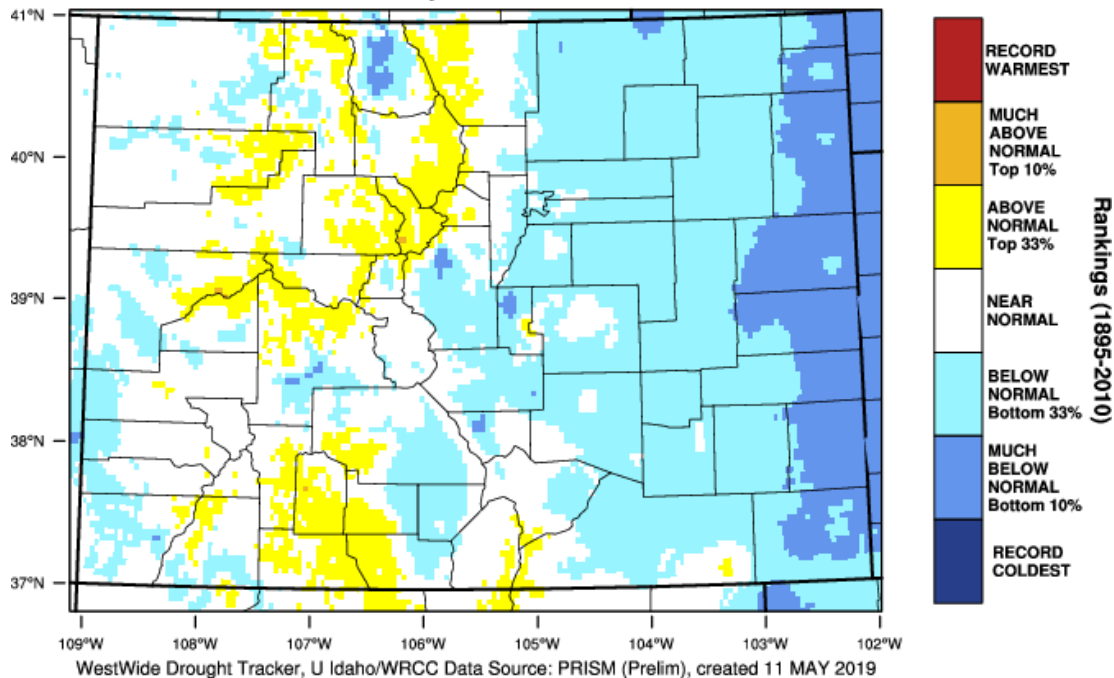
Month	P Rank	Category
Oct	12 <sup>th</sup>	wettest
Nov	45 <sup>th</sup>	average
Dec	31 <sup>st</sup>	driest
Jan	32 <sup>nd</sup>	wettest
Feb	17 <sup>th</sup>	wettest
Mar	6 <sup>th</sup>	wettest
Apr	42 <sup>nd</sup>	driest



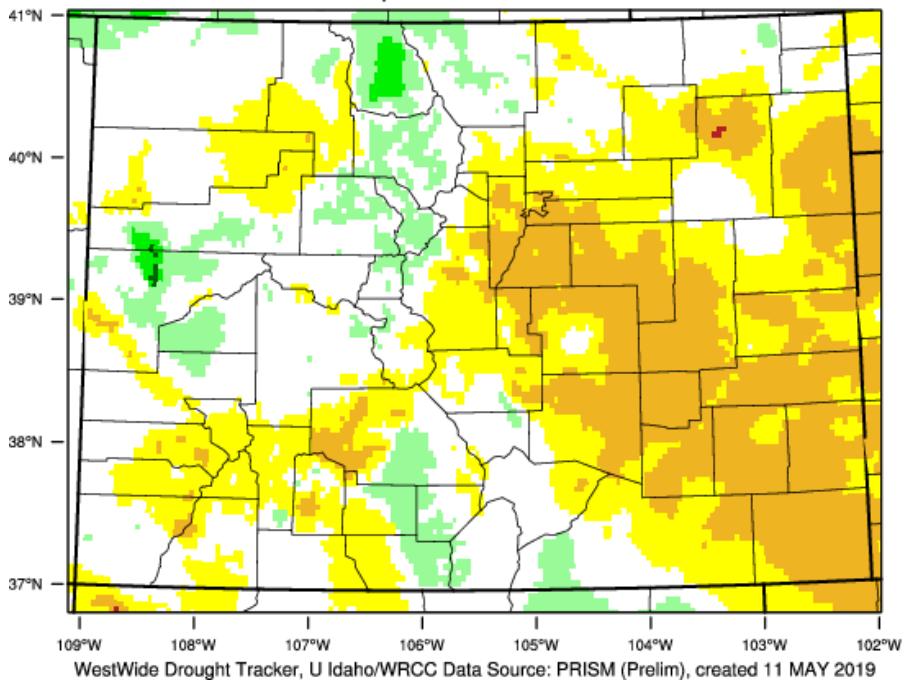
**Colorado - Mean Temperature**  
**April 2019 Percentile**



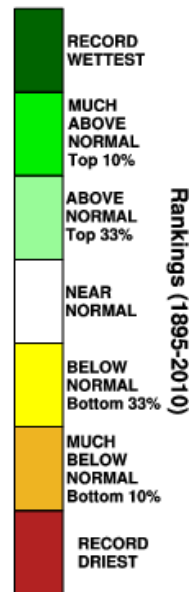
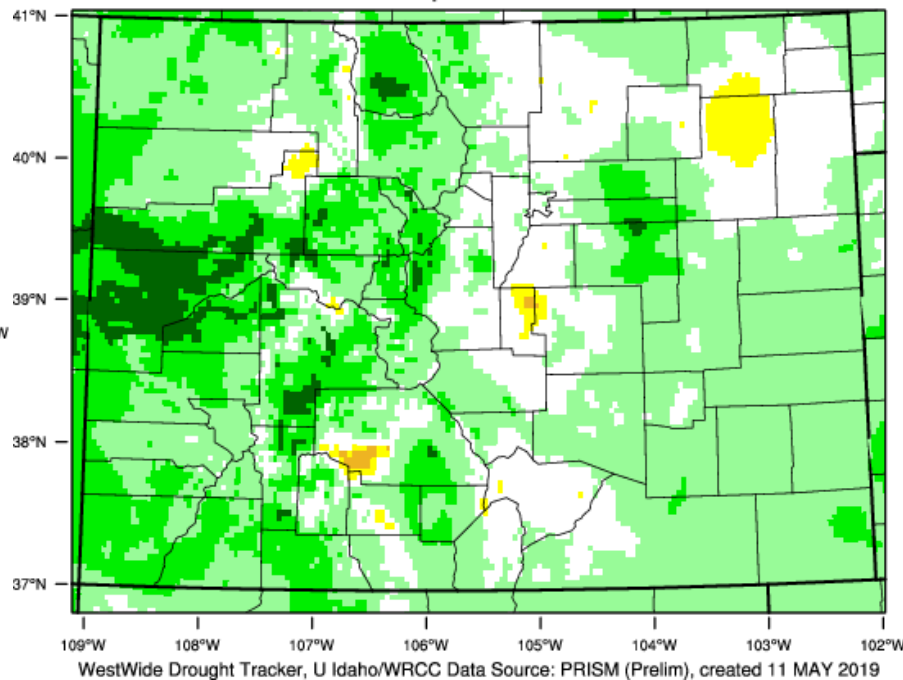
**Colorado - Mean Temperature**  
**October-April 2019 Percentile**



**Colorado - Precipitation**  
**April 2019 Percentile**

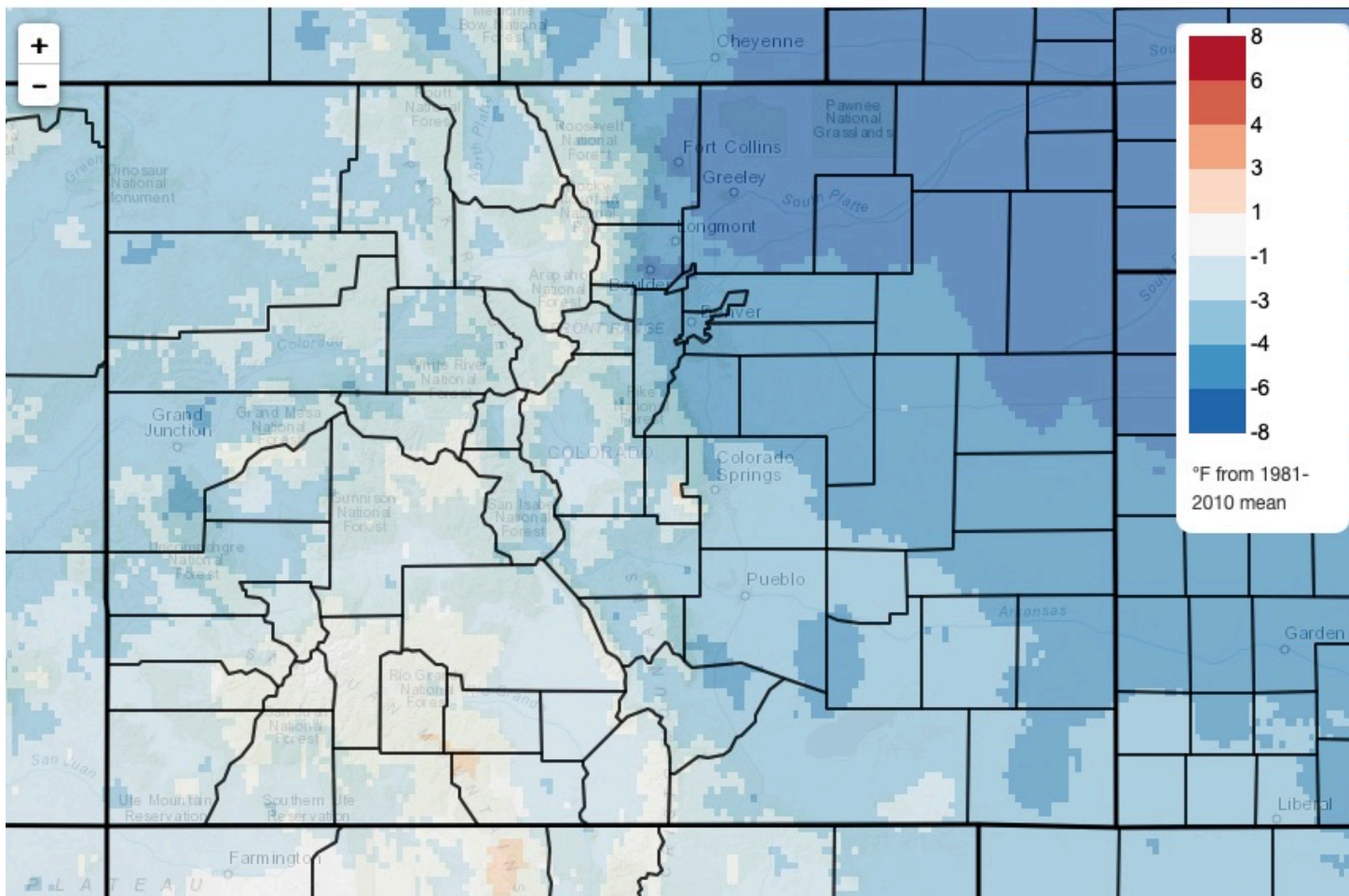


**Colorado - Precipitation**  
**October-April 2019 Percentile**



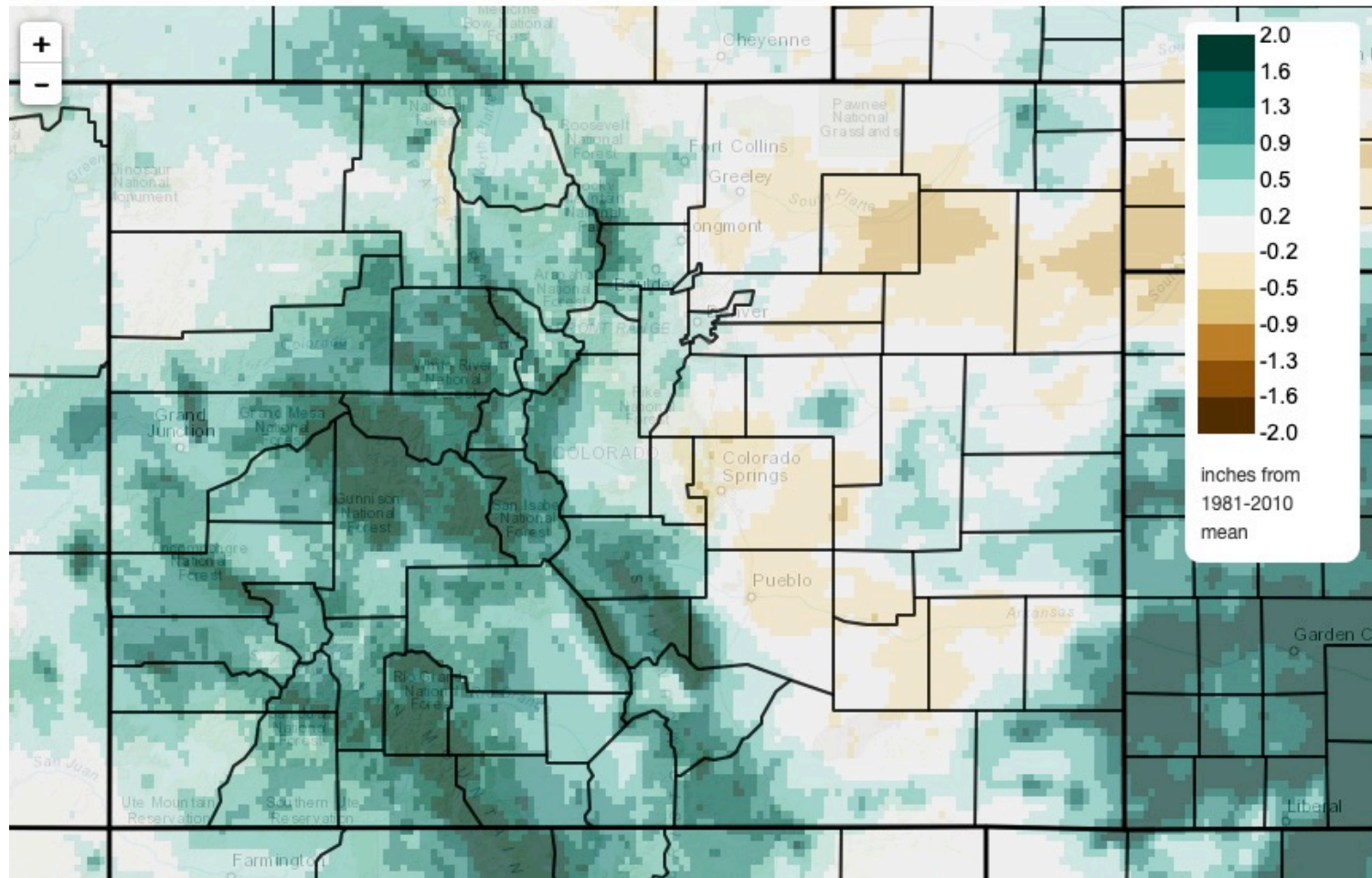
# Mean Daily Temperature Anomaly, Last 15 Days

2019/04/28 - 2019/05/12



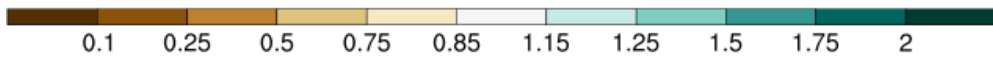
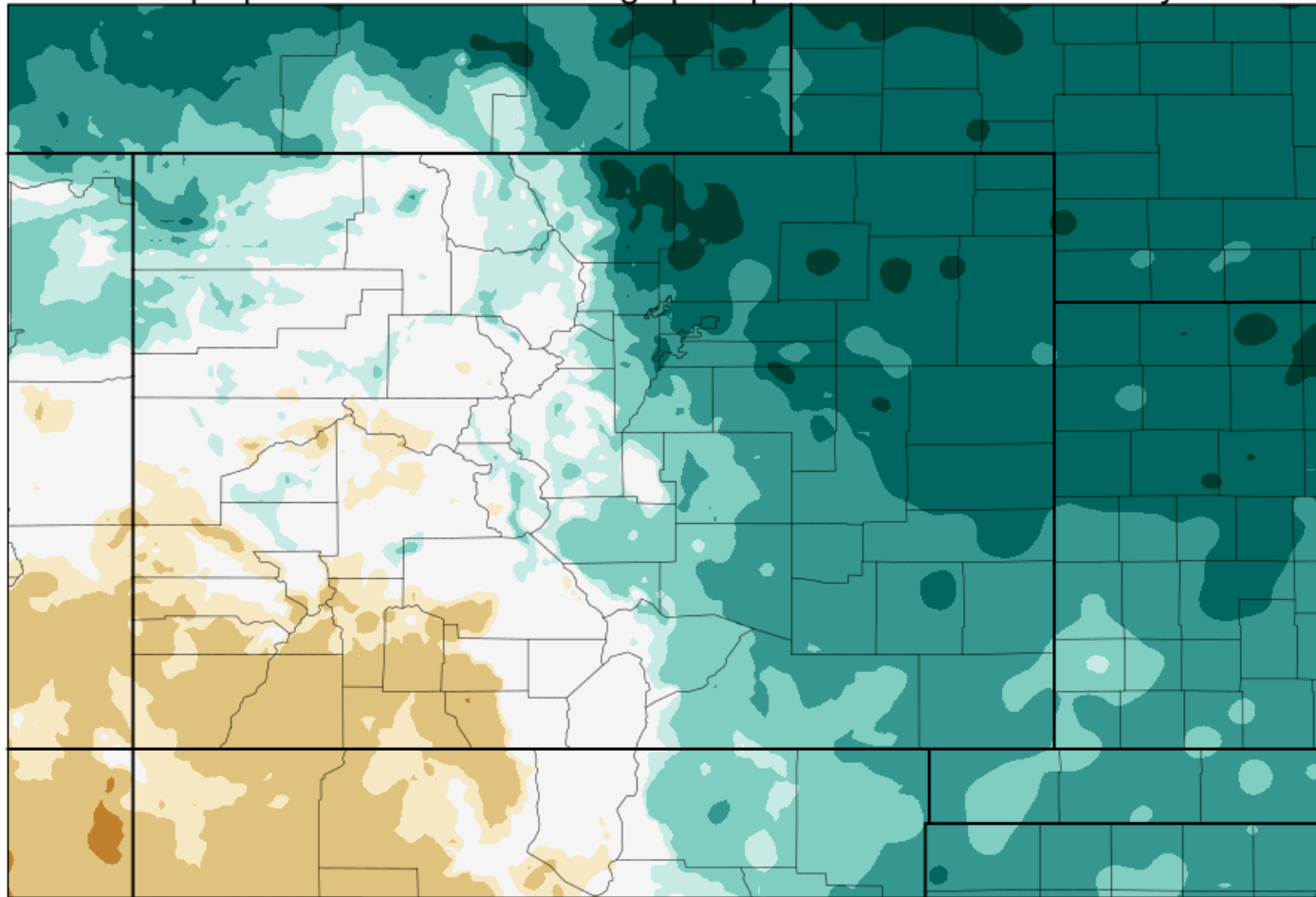
# Total Precipitation Anomaly, Last 15 Days

2019/04/28 - 2019/05/12





# PRISM proportion of annual average precipitation in this month: May

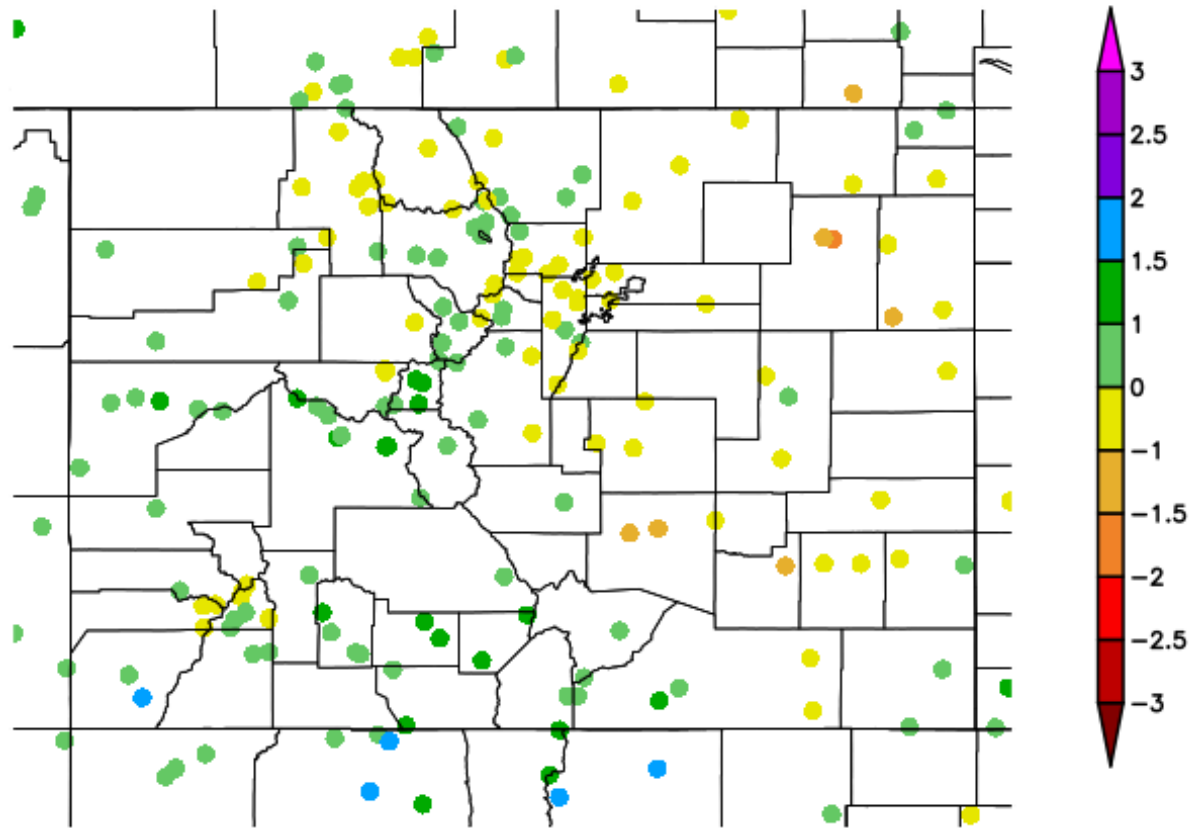


Proportion of precip relative to 1/12th

Russ Schumacher/Colorado Climate Center



30 Day SPI  
4/13/2019 - 5/12/2019

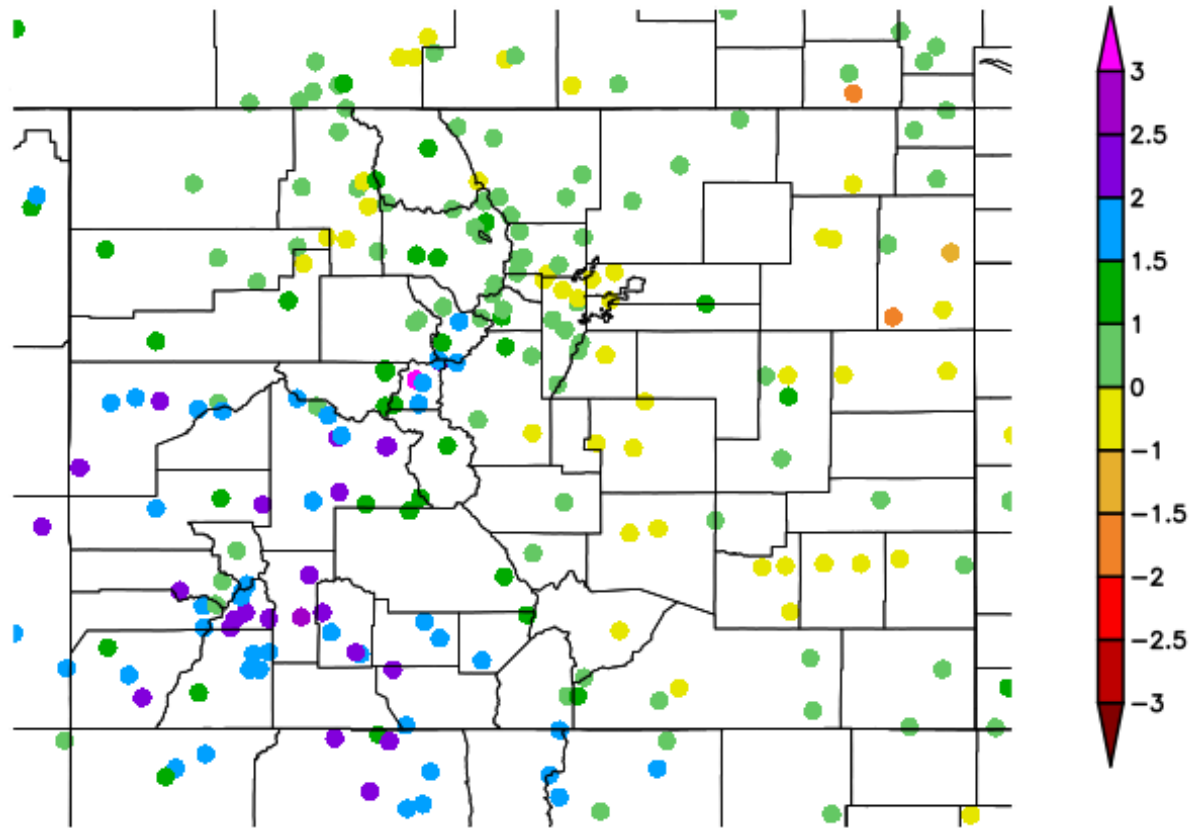


Generated 5/13/2019 at HPRCC using provisional data.

NOAA Regional Climate Centers



90 Day SPI  
2/12/2019 - 5/12/2019

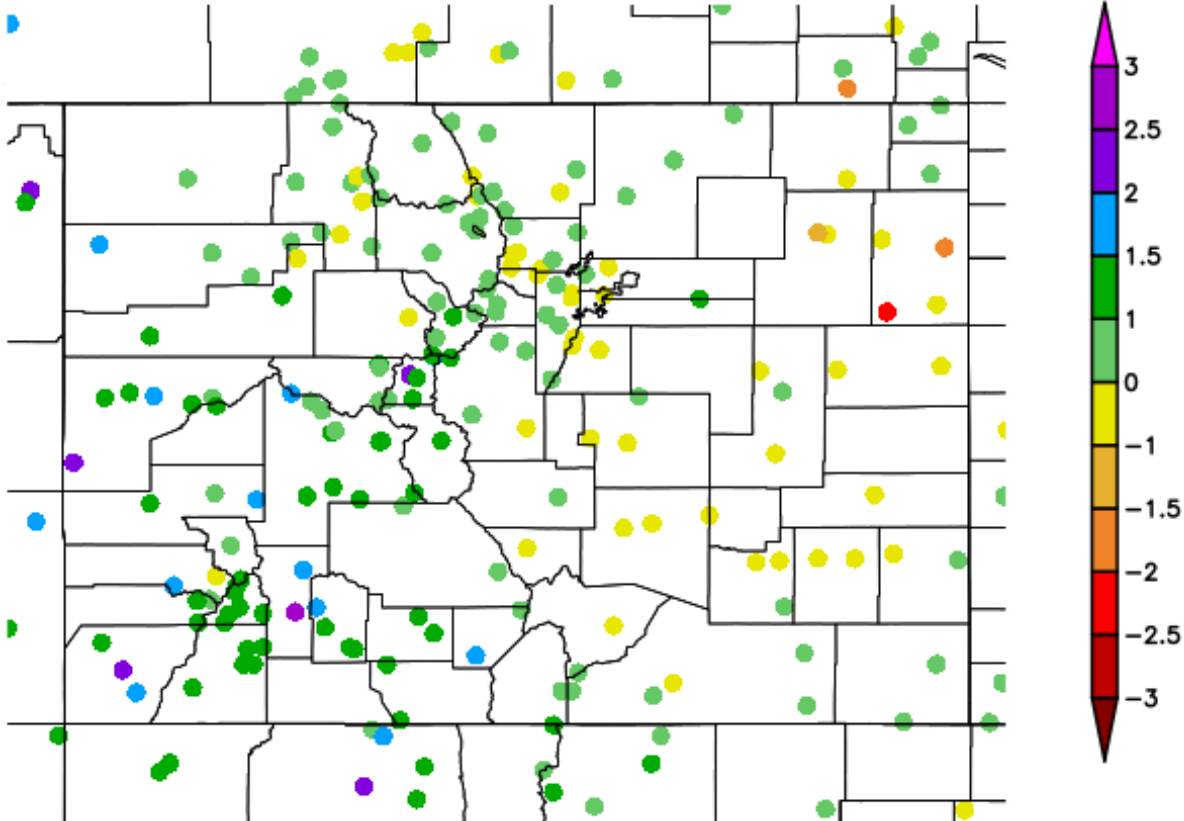


Generated 5/13/2019 at HPRCC using provisional data.

NOAA Regional Climate Centers



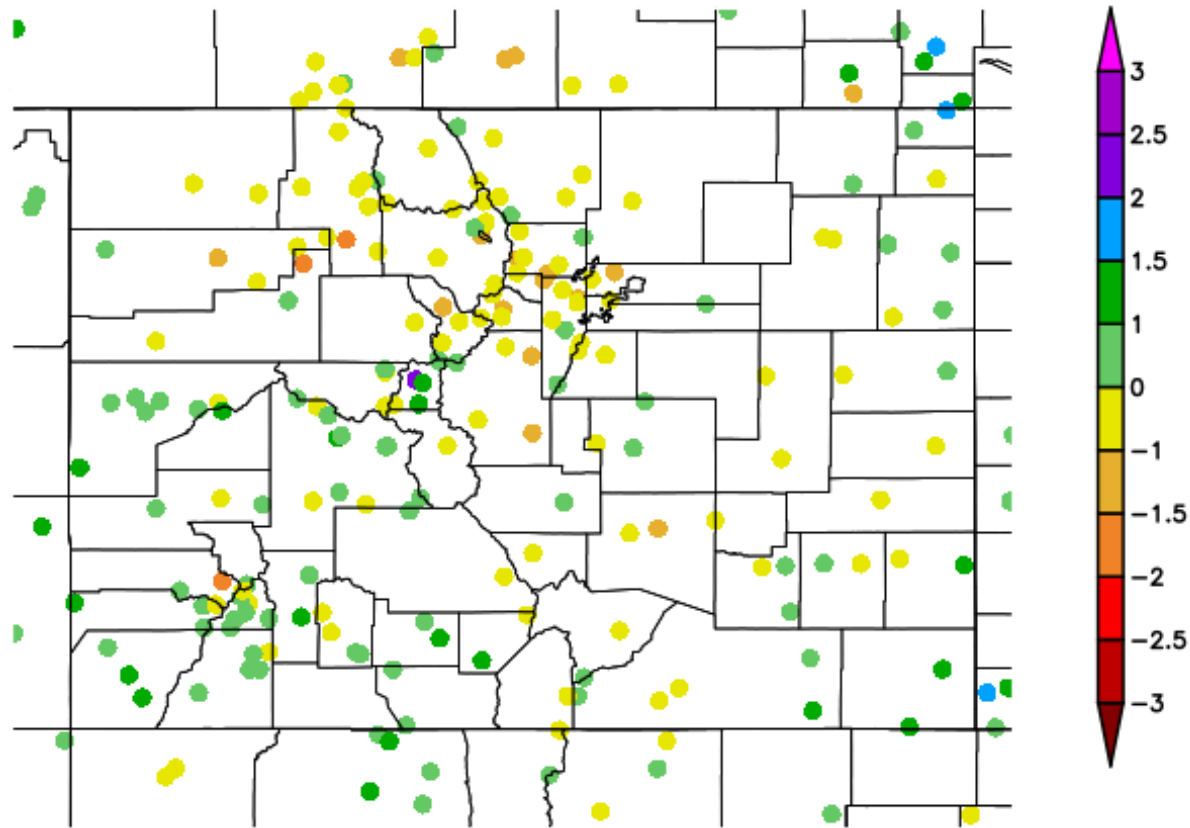
# 6 Month SPI 11/13/2018 - 5/12/2019



Generated 5/13/2019 at HPRCC using provisional data.

NOAA Regional Climate Centers

12 Month SPI  
5/13/2018 - 5/12/2019

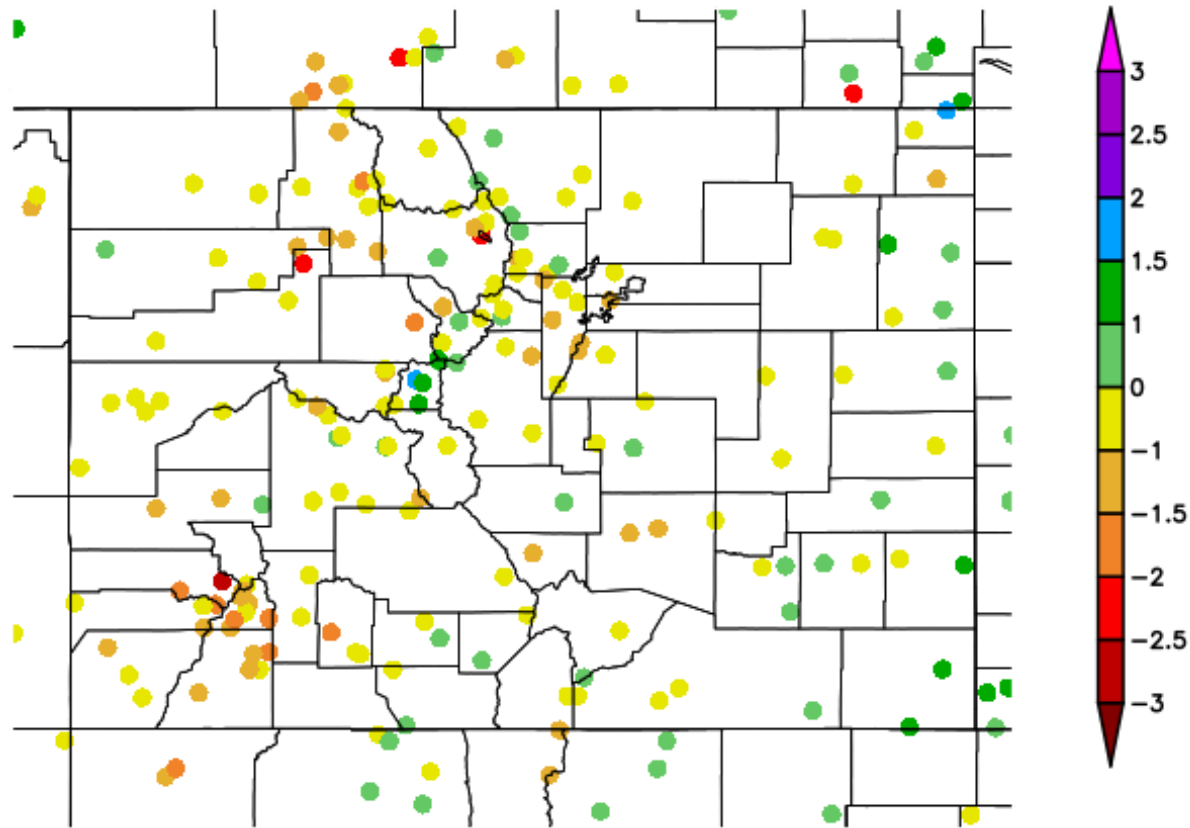


Generated 5/13/2019 at HPRCC using provisional data.

NOAA Regional Climate Centers



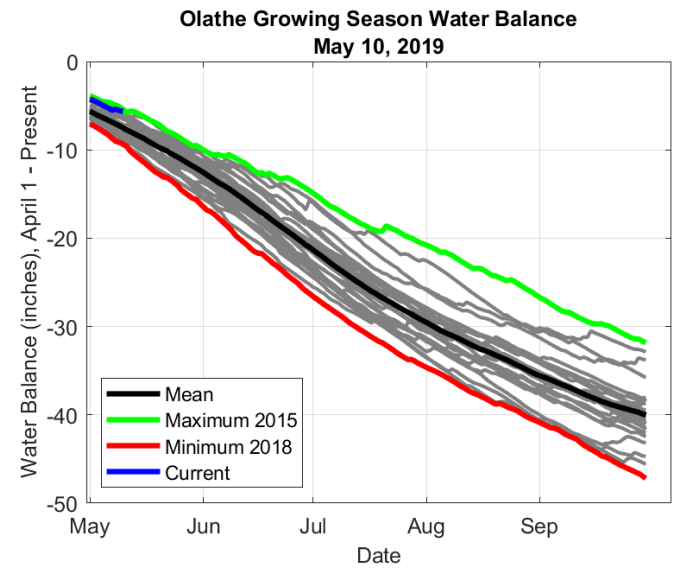
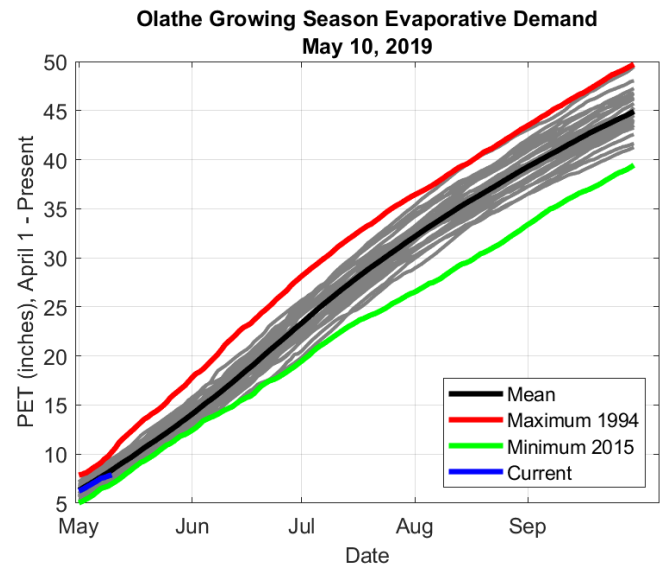
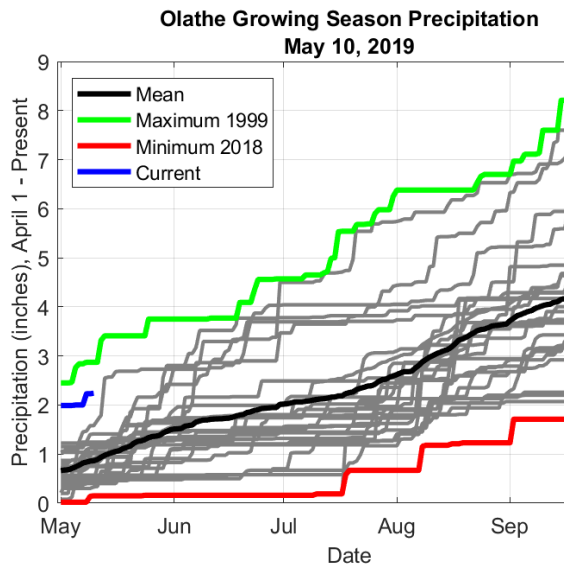
24 Month SPI  
5/13/2017 - 5/12/2019

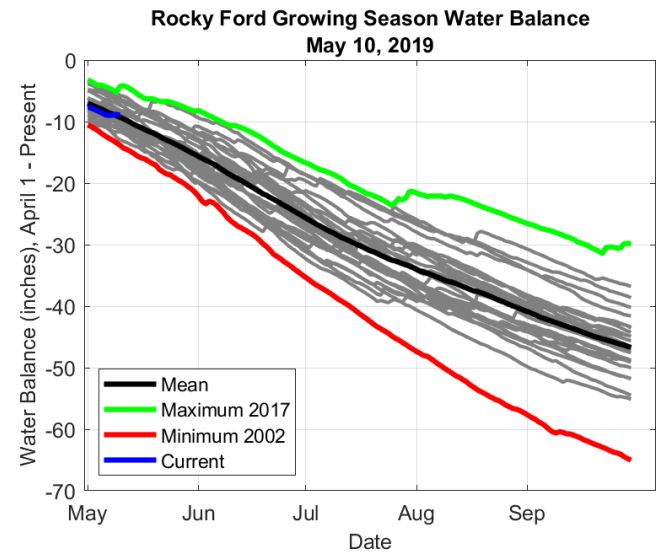
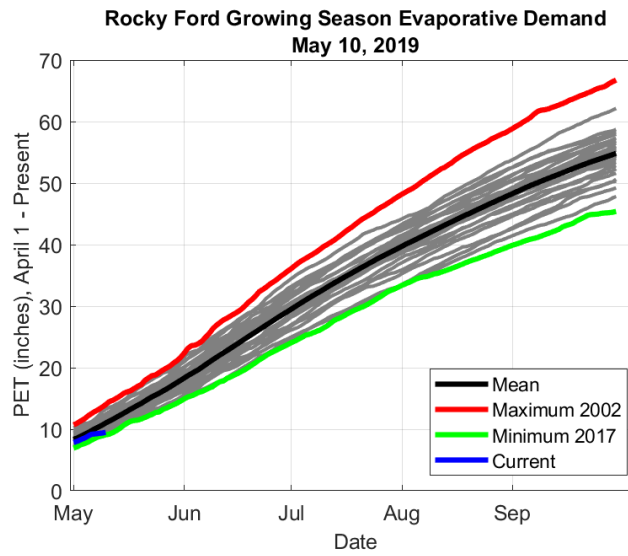
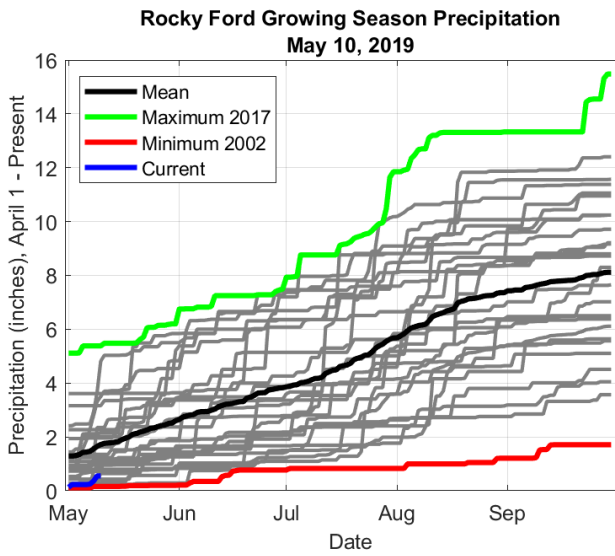


Generated 5/13/2019 at HPRCC using provisional data.

NOAA Regional Climate Centers











# Drought

National Drought

Colorado Drought

Colorado Drought Facts



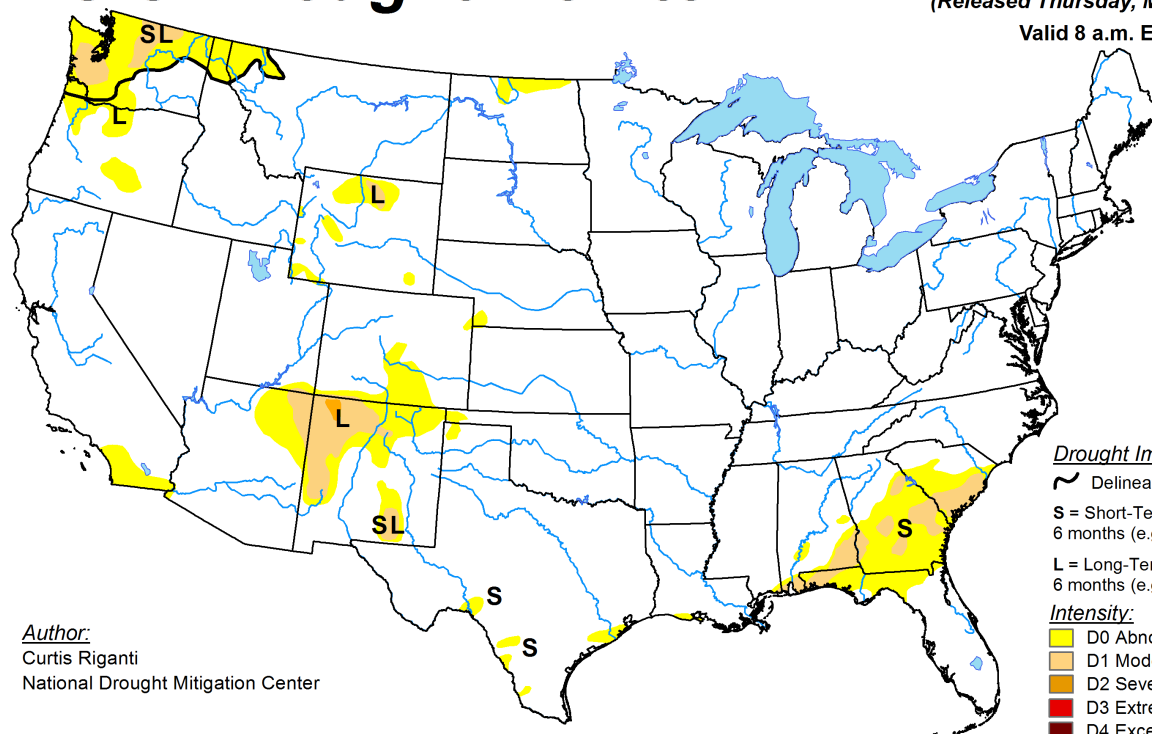
# U.S. Drought Monitor

May 7, 2019  
 (Released Thursday, May. 9, 2019)  
 Valid 8 a.m. EDT

Top 5 lowest percent coverage of drought across the CONUS have occurred over the last 5 weeks.

Record lowest drought coverage over CONUS was 2.28% on April 23, 2019.

May 7, 2019:  
 9.83% in D0 or worse category  
 2.53% in D1 or worse category  
 0.05% in D2 category

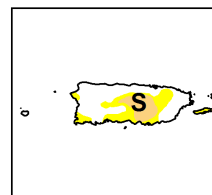
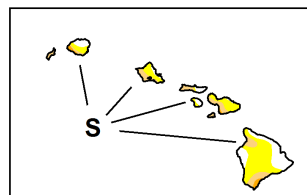
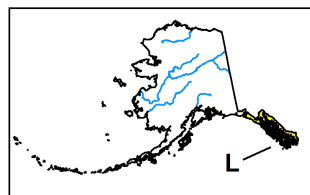


*Author:*  
 Curtis Riganti  
 National Drought Mitigation Center

**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:**  
 Yellow = D0 Abnormally Dry  
 Orange = D1 Moderate Drought  
 Red = D2 Severe Drought  
 Dark Red = D3 Extreme Drought  
 Black = D4 Exceptional Drought

*The Drought Monitor focuses on broad-scale conditions. Local conditions may vary. See accompanying text summary for forecast statements.*

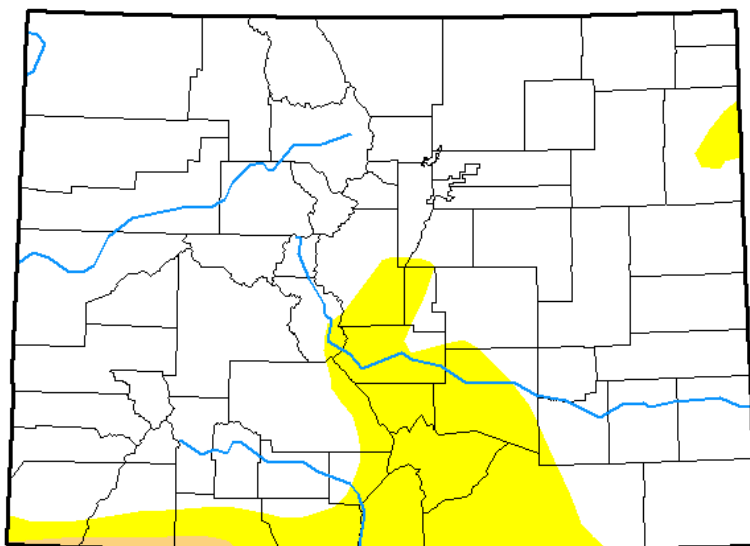


<http://droughtmonitor.unl.edu/>



# U.S. Drought Monitor Colorado

**May 7, 2019**  
(Released Thursday, May. 9, 2019)  
Valid 8 a.m. EDT



Drought Conditions (Percent Area)

	None	D0-D4	D1-D4	D2-D4	D3-D4	D4
<b>Current</b>	84.23	15.77	0.59	0.00	0.00	0.00
<b>Last Week</b> 04-30-2019	84.72	15.28	0.59	0.00	0.00	0.00
<b>3 Months Ago</b> 02-05-2019	8.14	91.86	67.16	40.83	22.05	2.96
<b>Start of Calendar Year</b> 01-01-2019	17.94	82.06	66.26	54.91	27.11	11.22
<b>Start of Water Year</b> 09-25-2018	14.19	85.81	72.30	64.41	48.47	16.21
<b>One Year Ago</b> 05-08-2018	18.02	81.98	67.98	51.57	30.89	7.40

Intensity:

- D0 Abnormally Dry
- D1 Moderate Drought
- D2 Severe Drought
- D3 Extreme Drought
- D4 Exceptional Drought

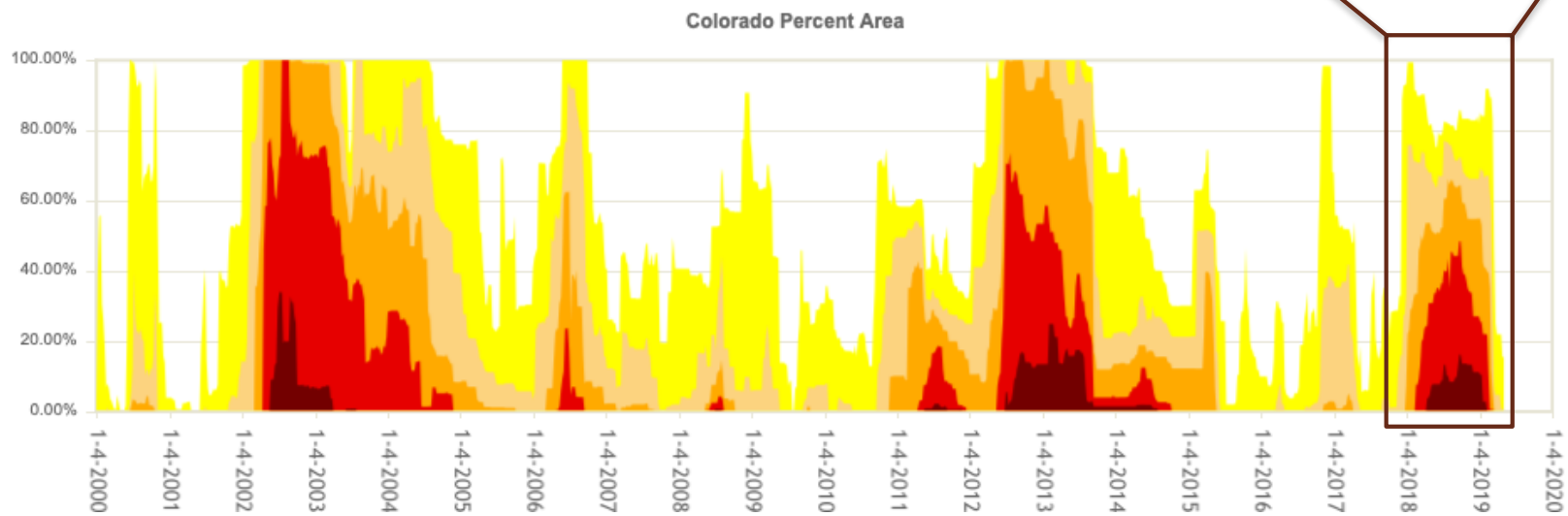
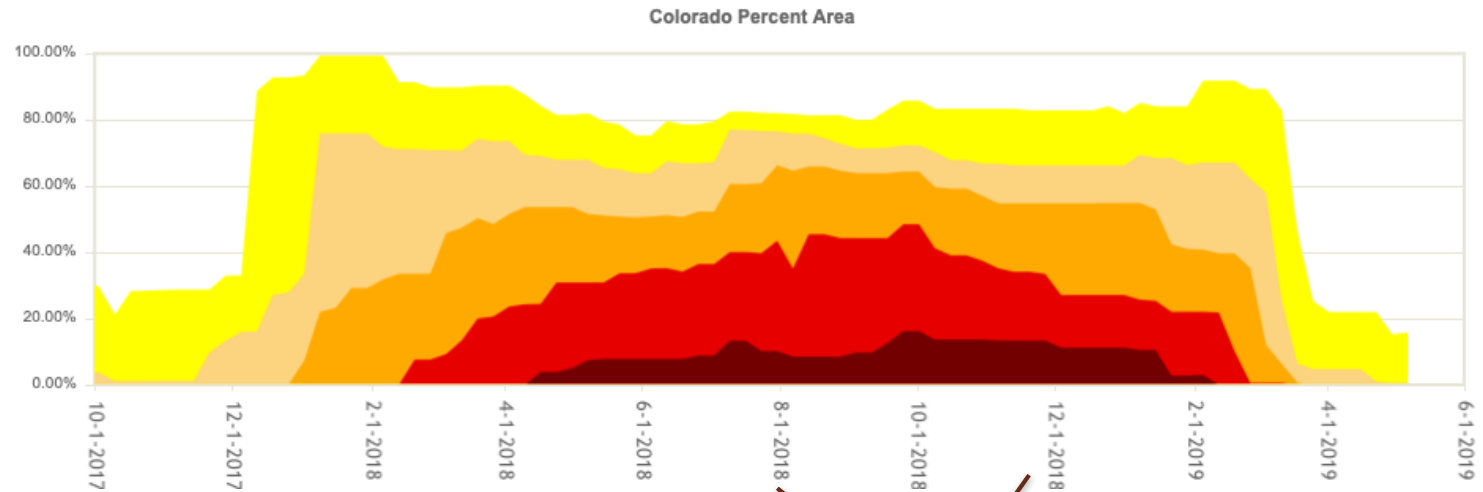
*The Drought Monitor focuses on broad-scale conditions. Local conditions may vary. See accompanying text summary for forecast statements.*

Author:  
Curtis Riganti  
National Drought Mitigation Center



<http://droughtmonitor.unl.edu/>





# Colorado Drought Monitor Facts

- Since the beginning of the US Drought Monitor, our state has never been completely free of D0 – D4.
- Our record smallest amount of D0 occurred in May 2001, when only 0.13% of our state showed D0.
- Our longest period of drought-free conditions since the US Drought Monitor started was from 6/9/2015 – 3/6/2016.
- The last time we were drought free (no D1 – D4) was August 29, 2017.



## Outlook

Next 7 days

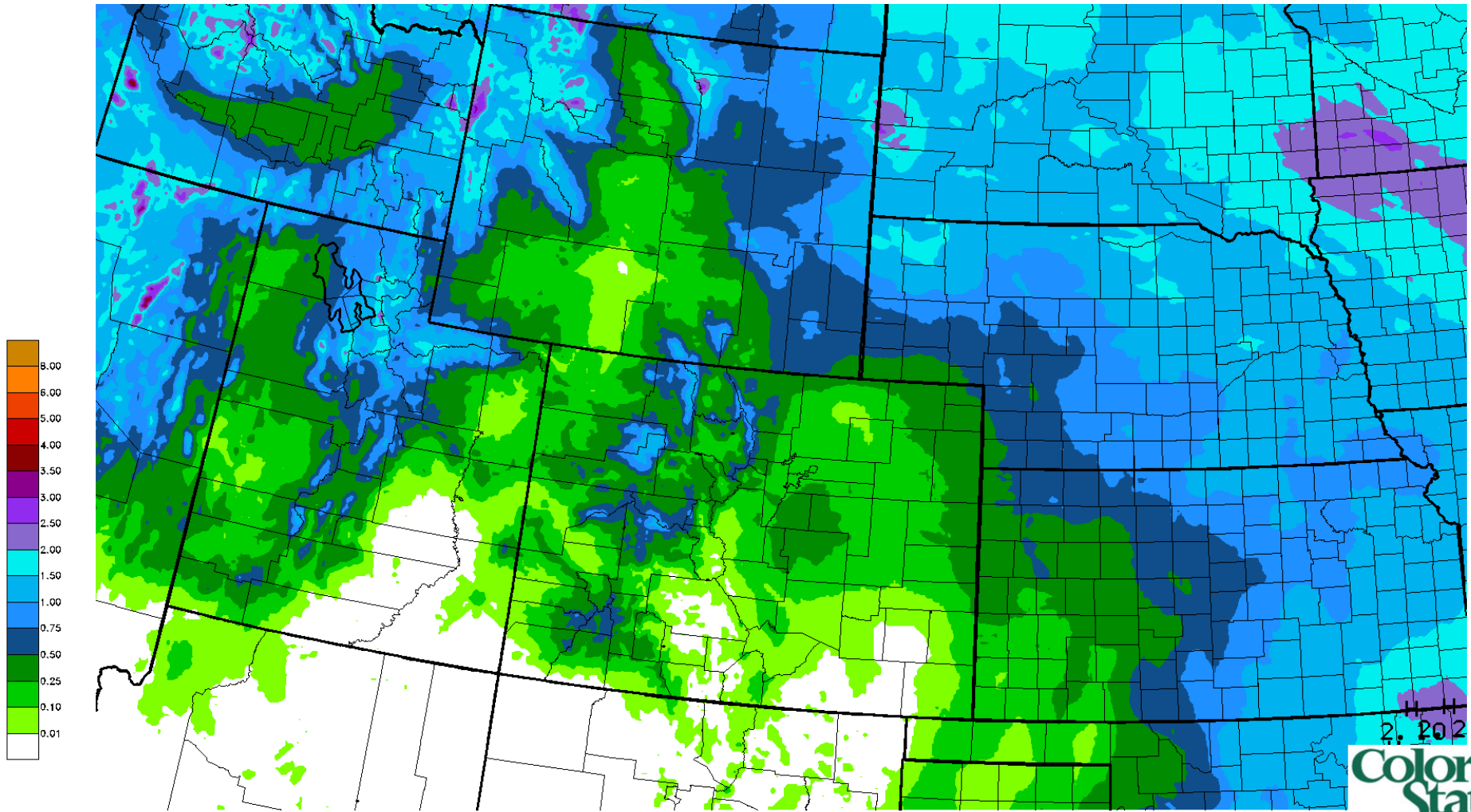
8-14 day Outlook

CPC Outlooks

Precipitation Projections

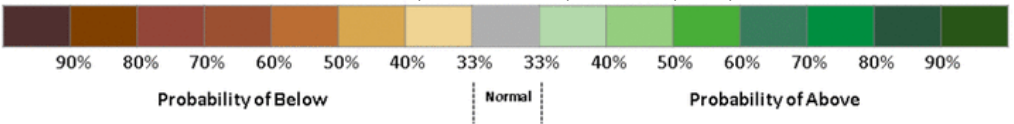
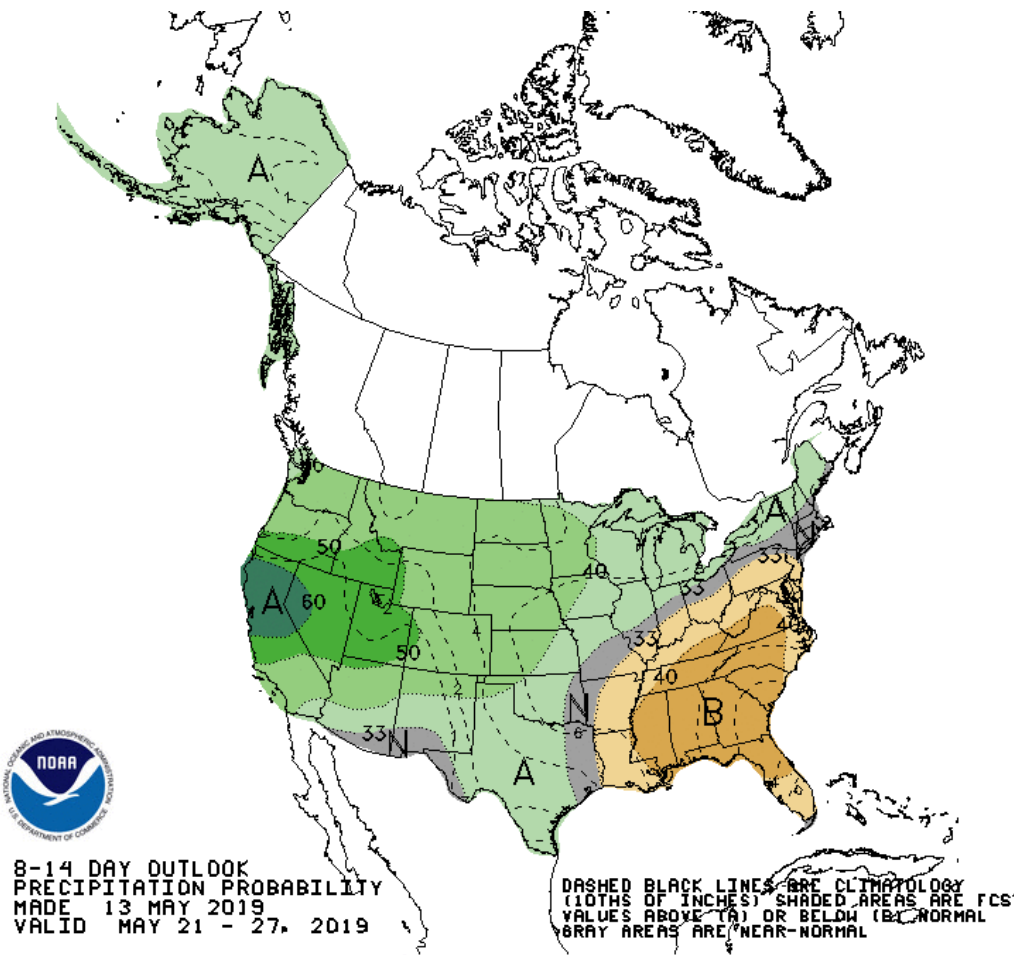
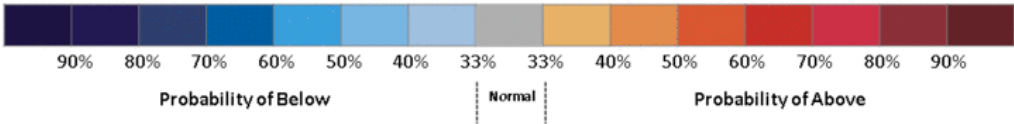
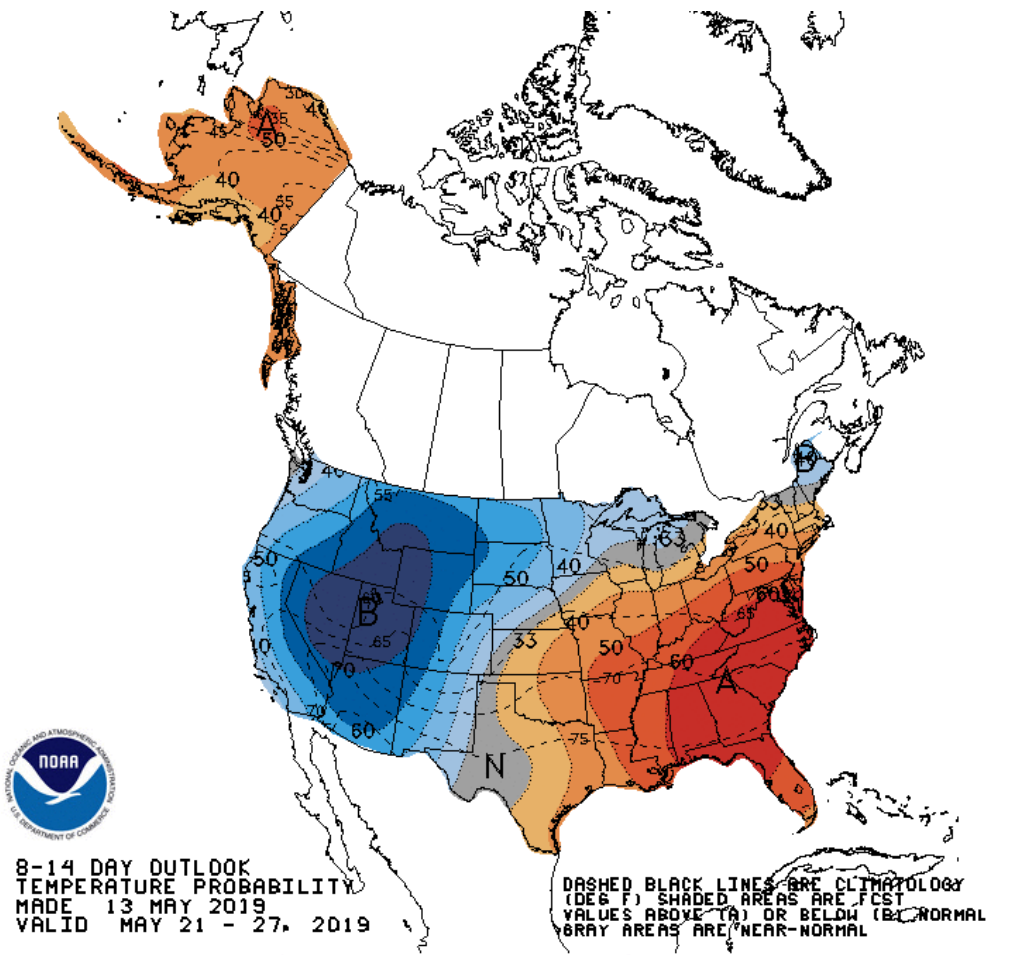
What does El Niño mean?





WPC FORECAST PRECIPITATION (INCHES) IN 7 DAYS ENDING TUE 190521/0000V168  
 FORECAST ISSUED 190514/0000F168



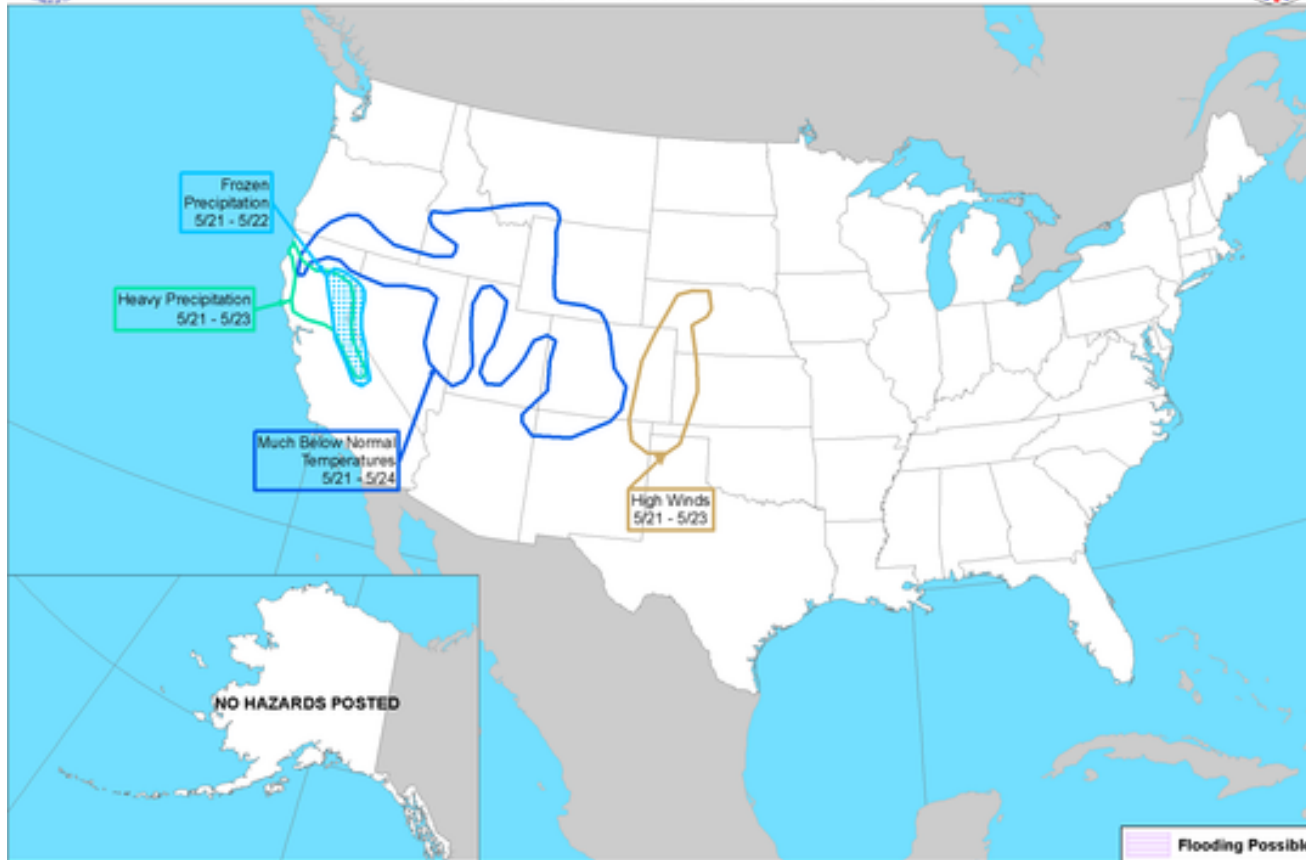






# Day 8-14 U.S. Hazards Outlook

Valid: 05/21/2019-05/27/2019



Climate Prediction Center

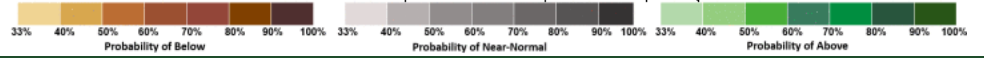
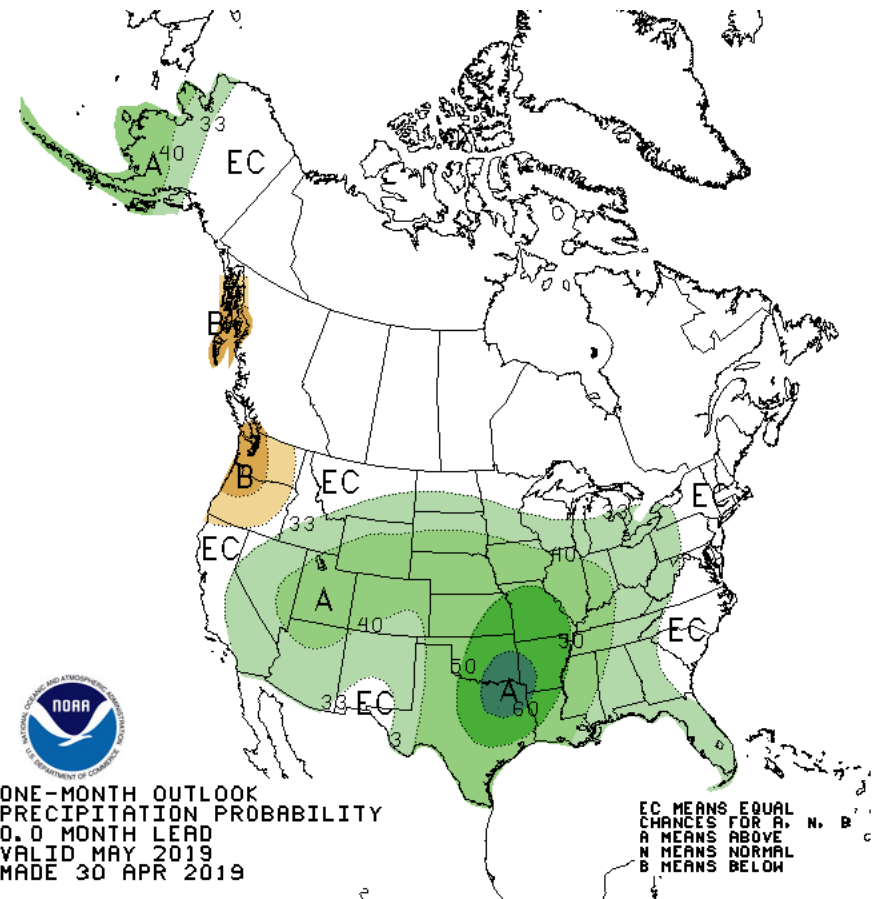
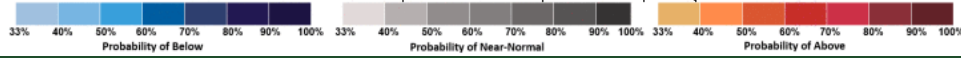
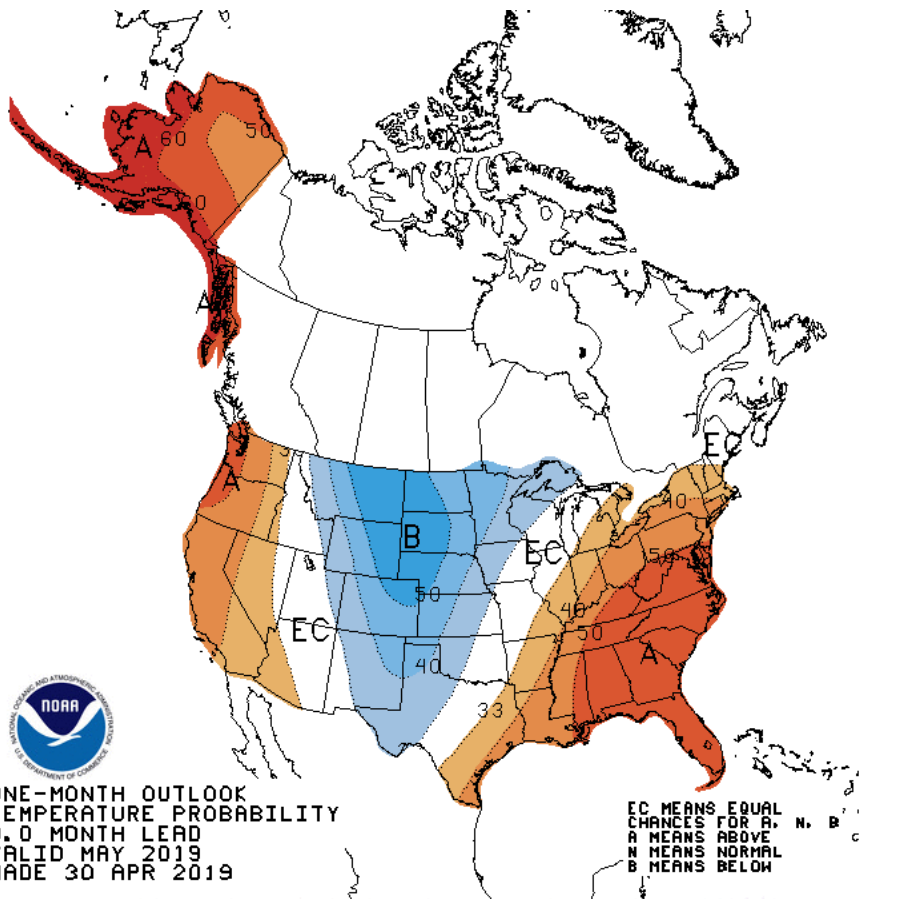
Made: 05/13/2019 3PM EDT

Follow us:

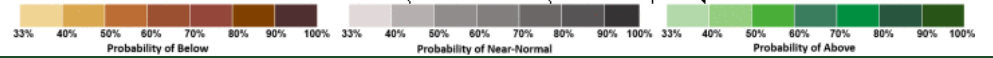
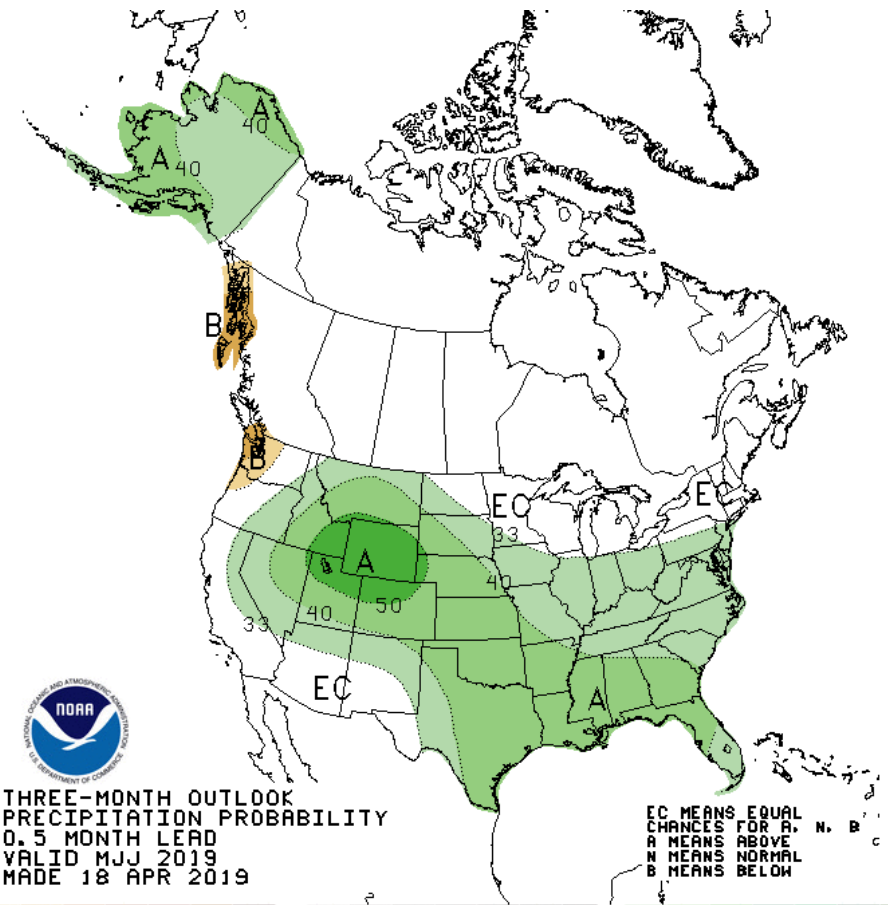
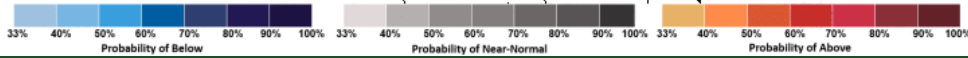
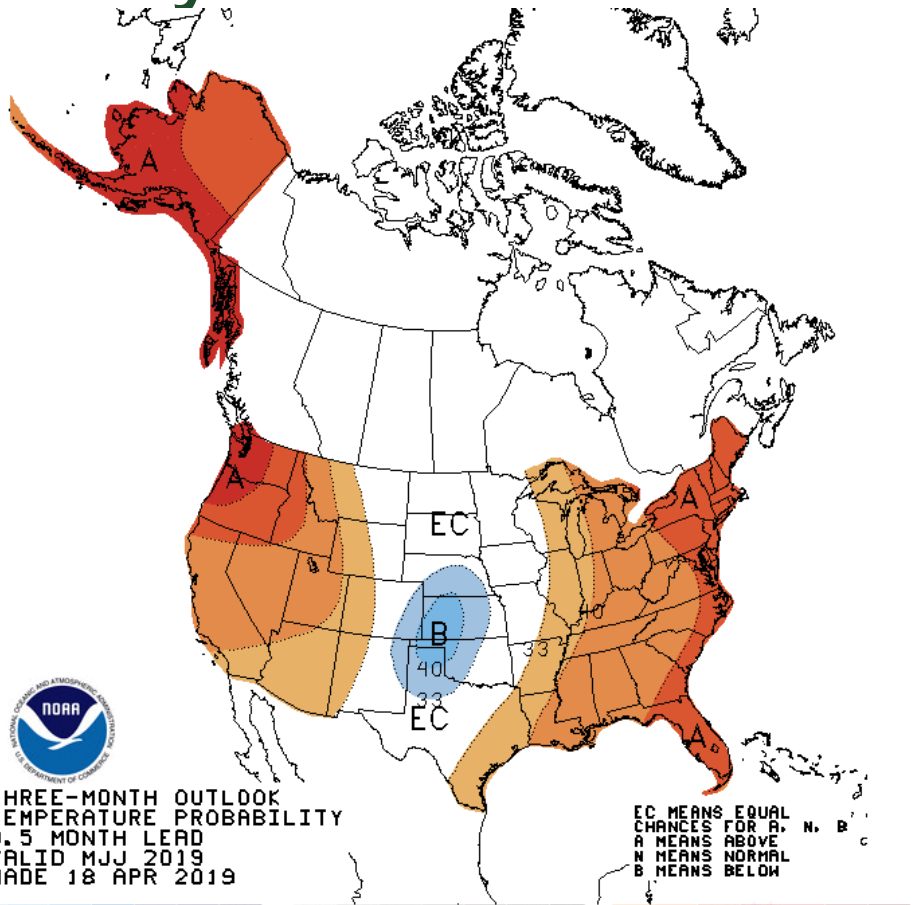
[www.cpc.ncep.noaa.gov](http://www.cpc.ncep.noaa.gov)



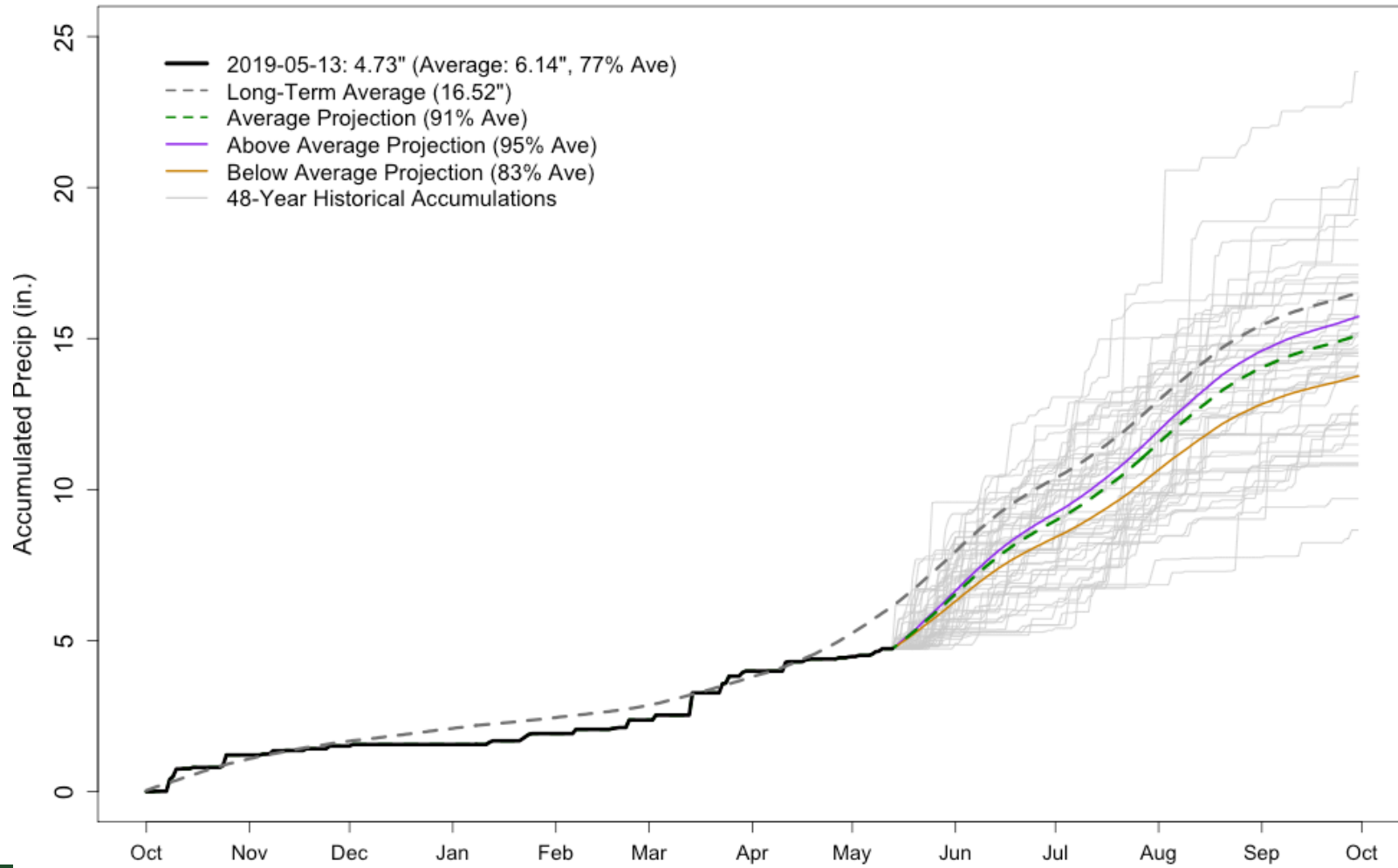
# One Month Outlook



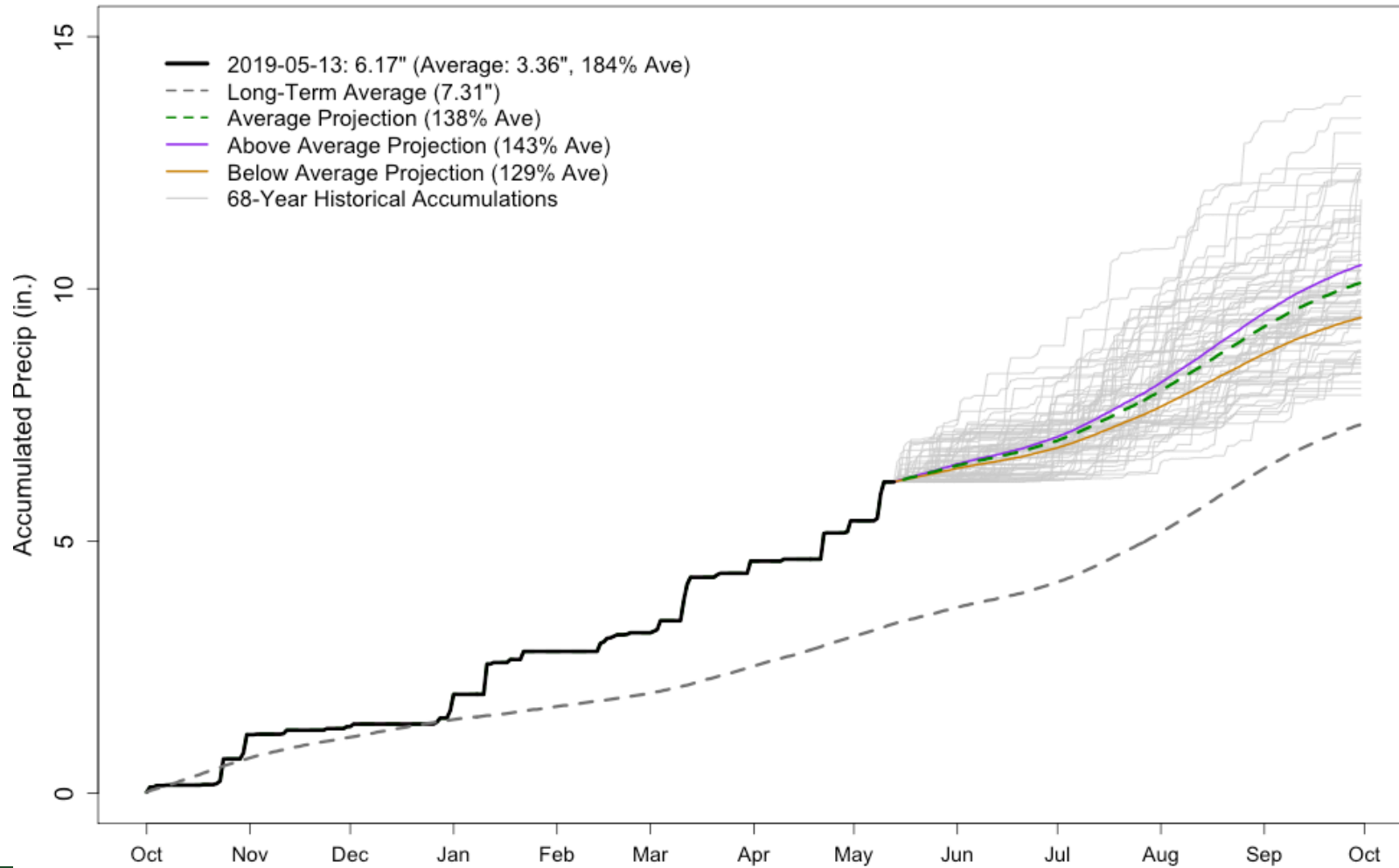
# May-Jun-Jul Outlook



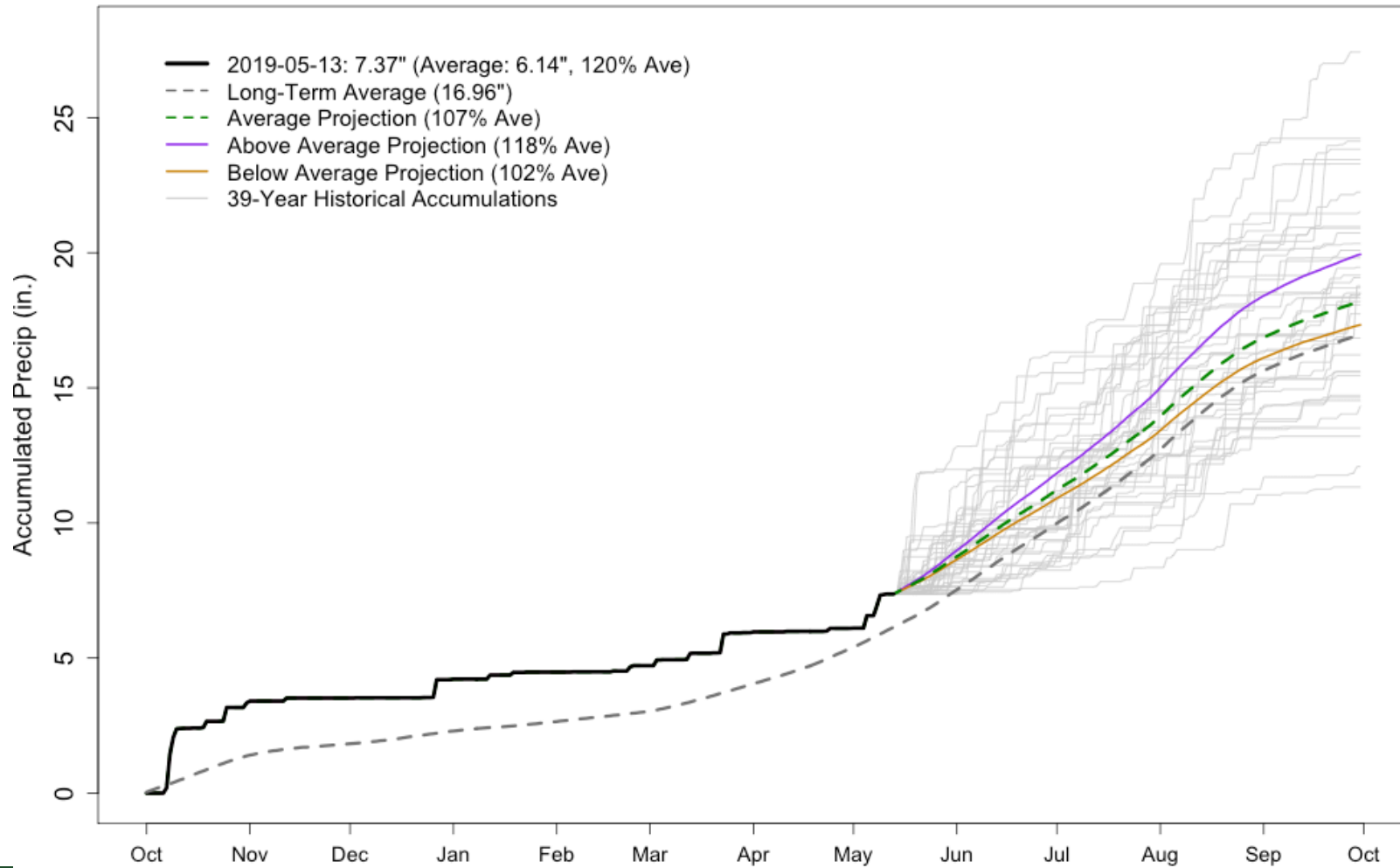
## AKRON 4 E WY2019 Precipitation Projections



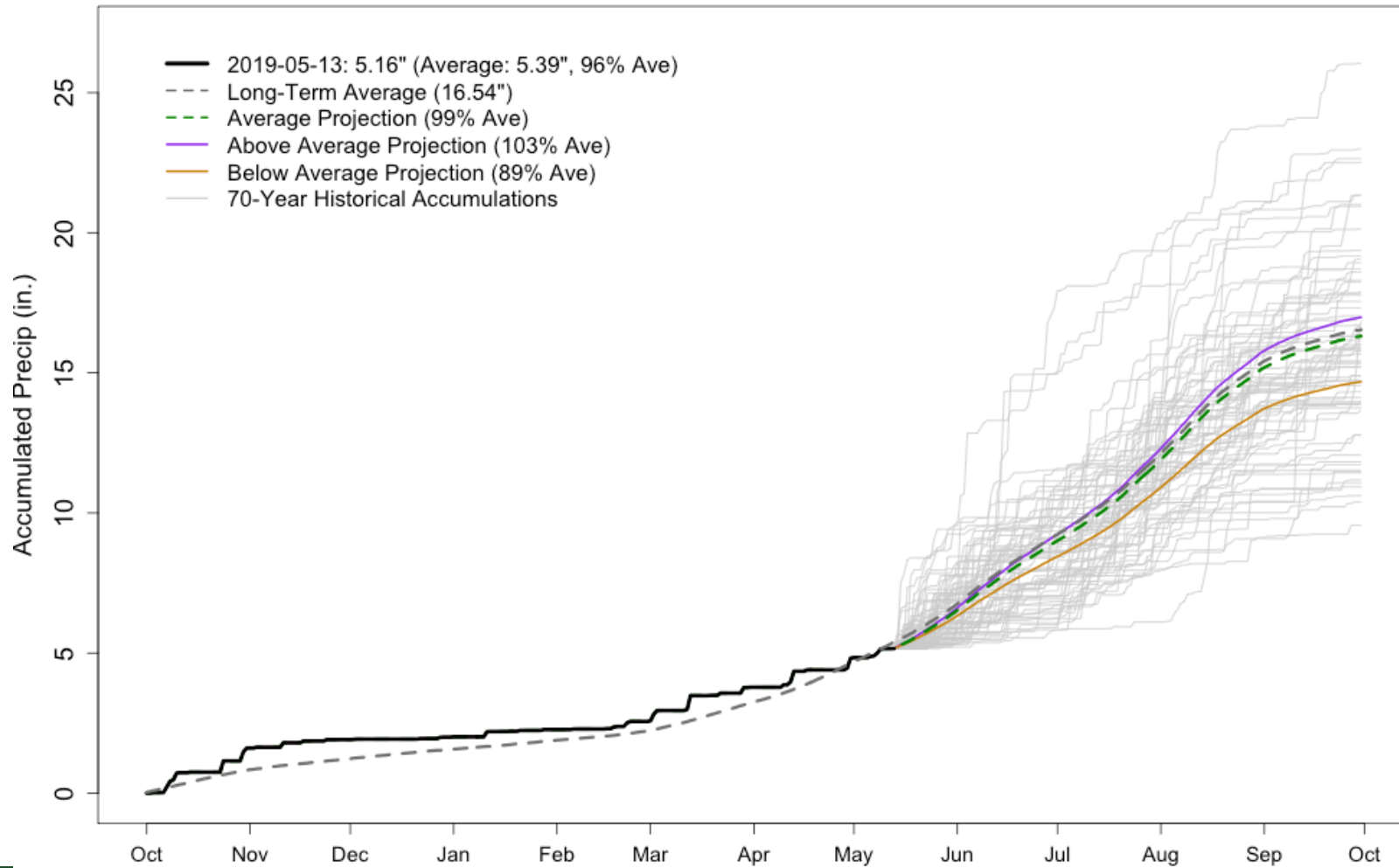
# ALAMOSA SAN LUIS VALLEY REGIONAL AP WY2019 Precipitation Projections



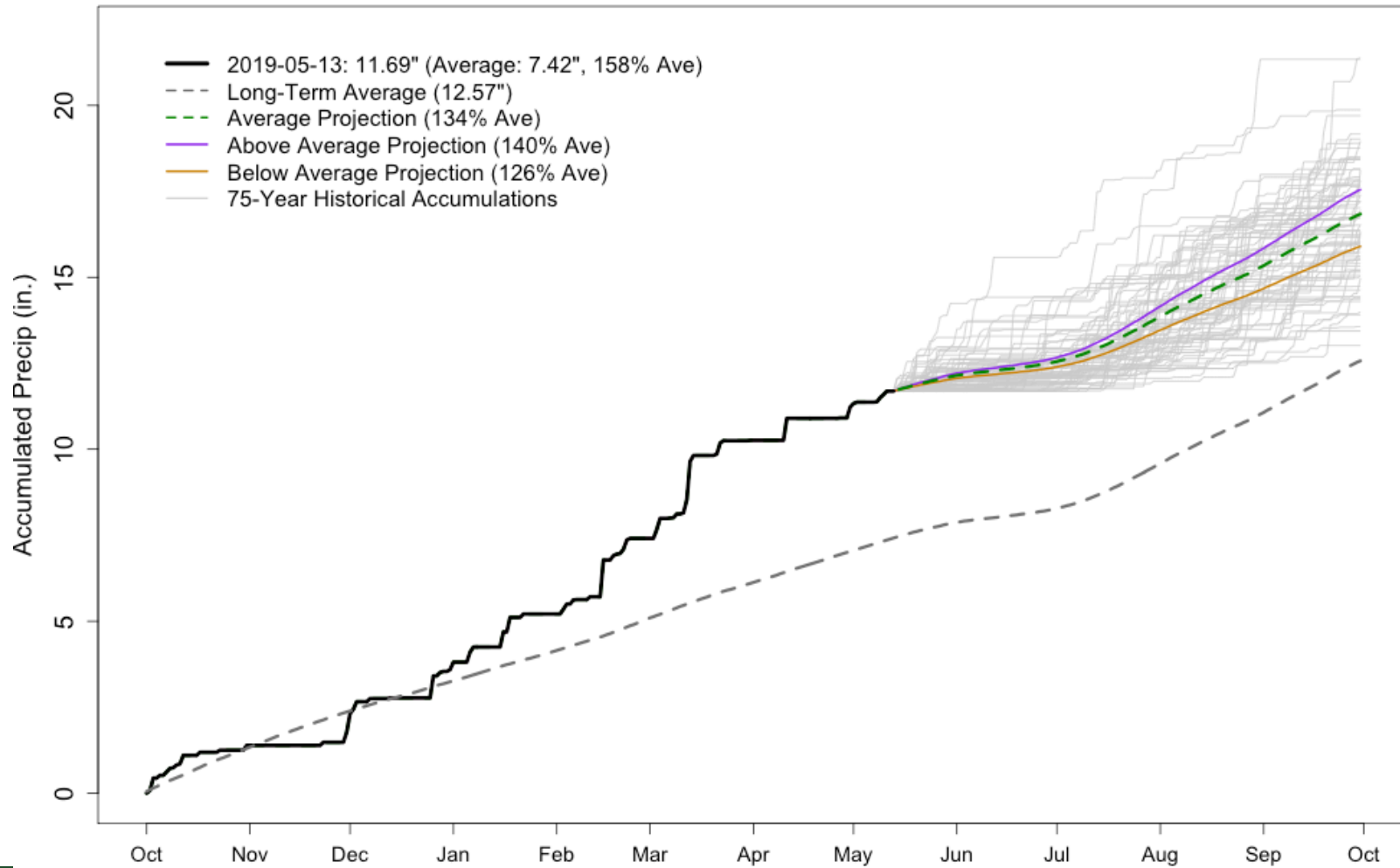
## CAMPO 7 S WY2019 Precipitation Projections



## COLORADO SPRINGS MUNICIPAL AP WY2019 Precipitation Projections

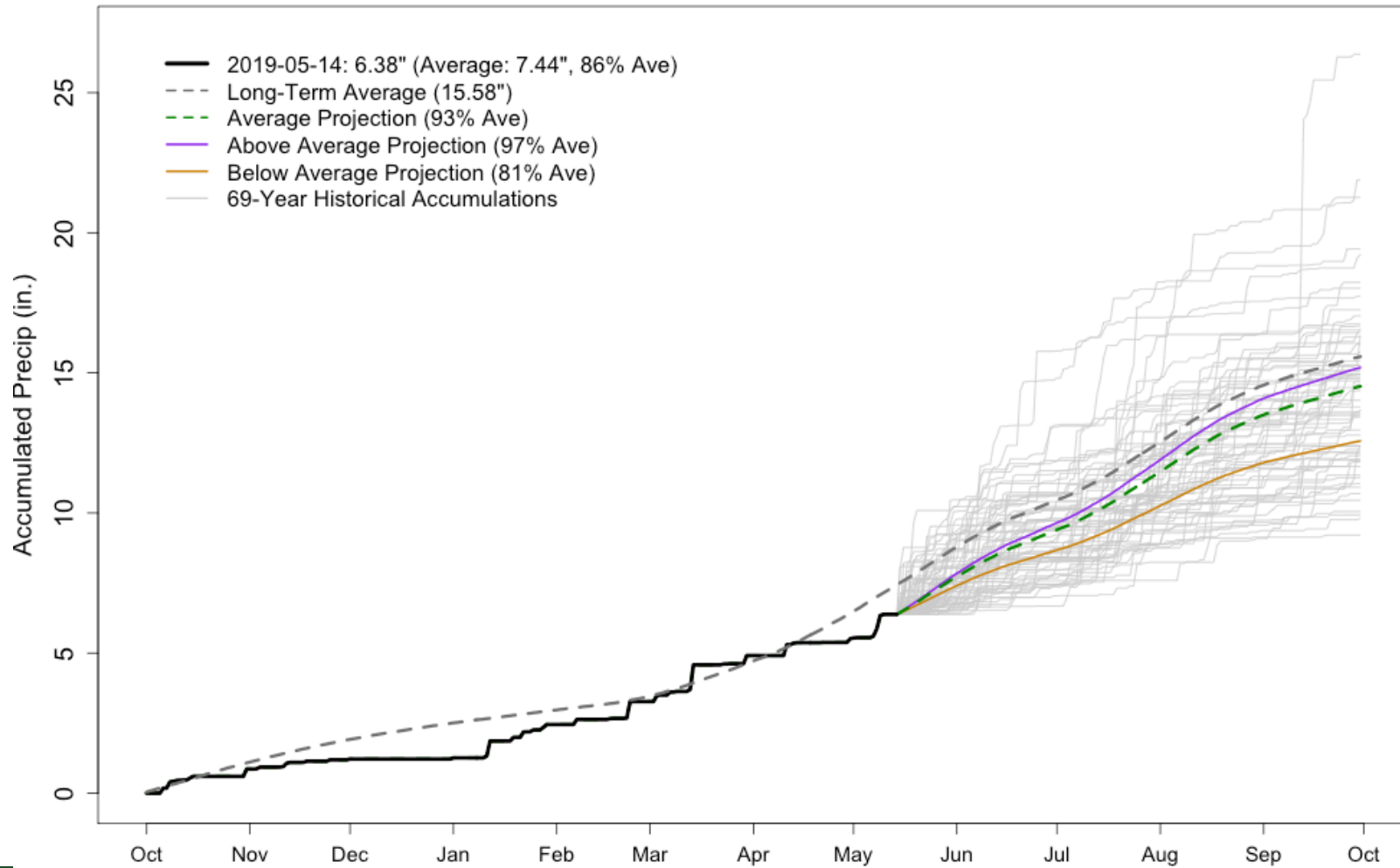


# CORTEZ WY2019 Precipitation Projections

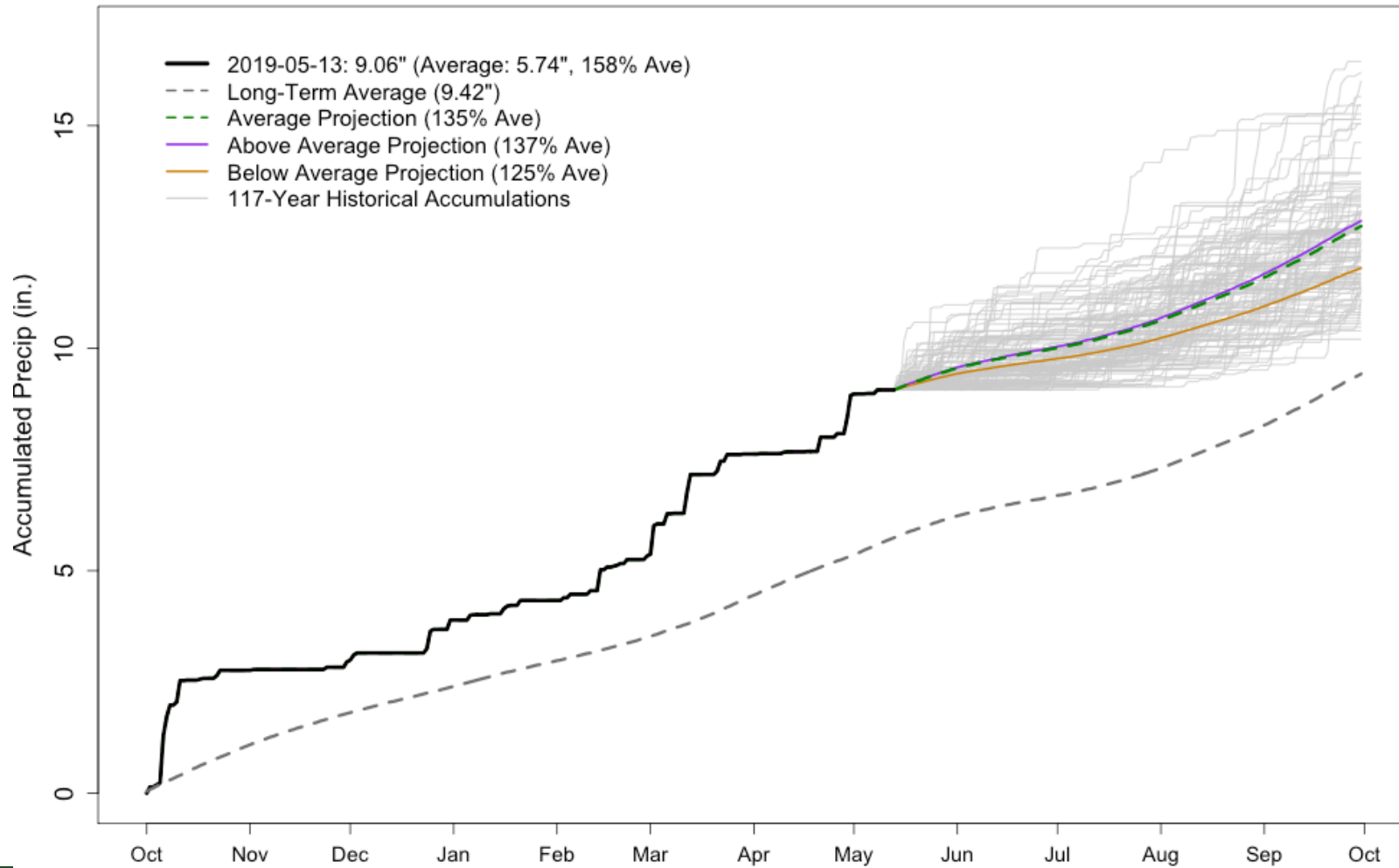




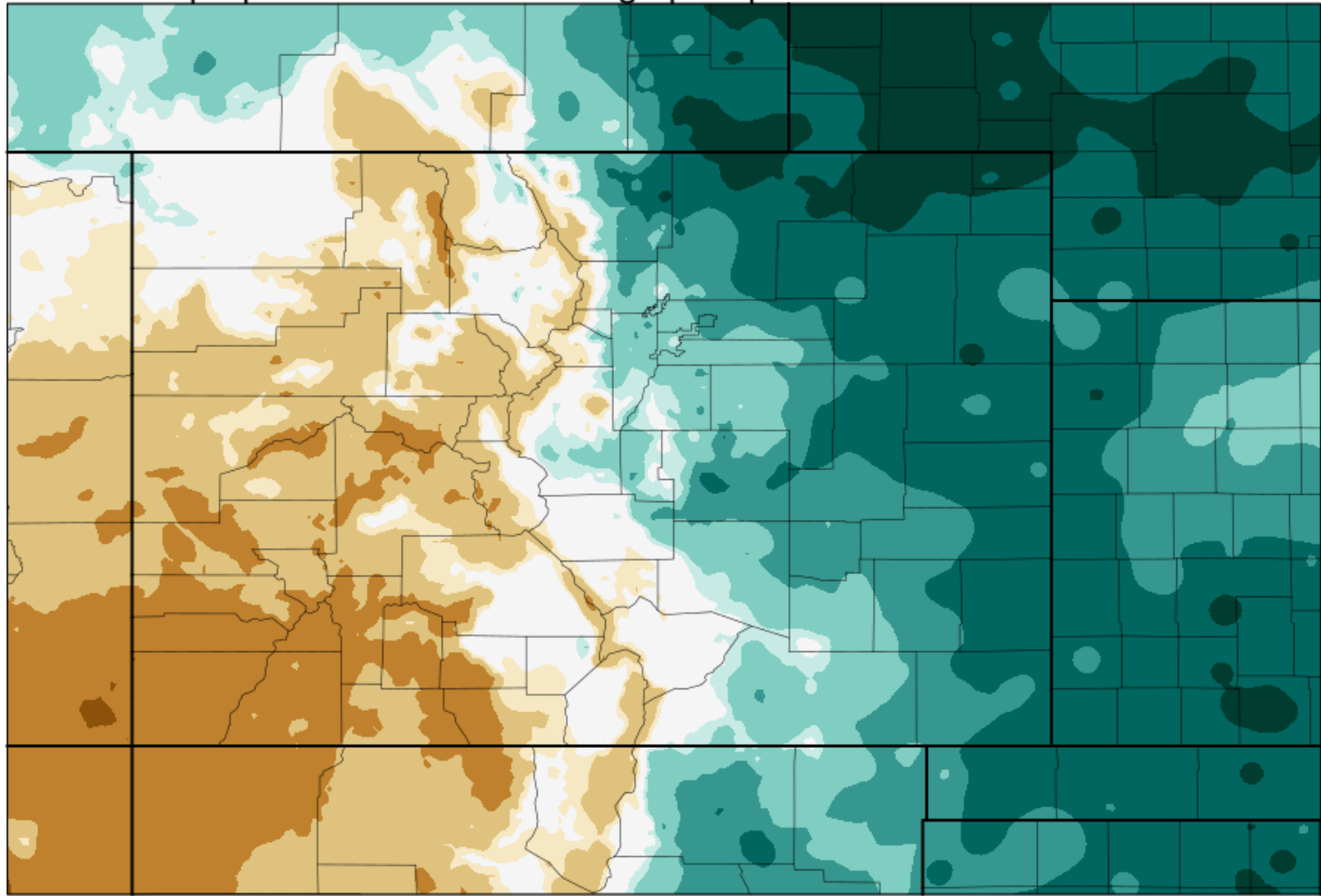
## DENVER-STAPELTON WY2019 Precipitation Projections



## GRAND JUNCTION WALKER FIELD WY2019 Precipitation Projections



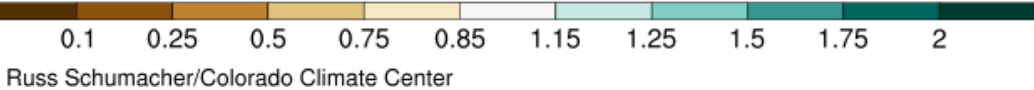
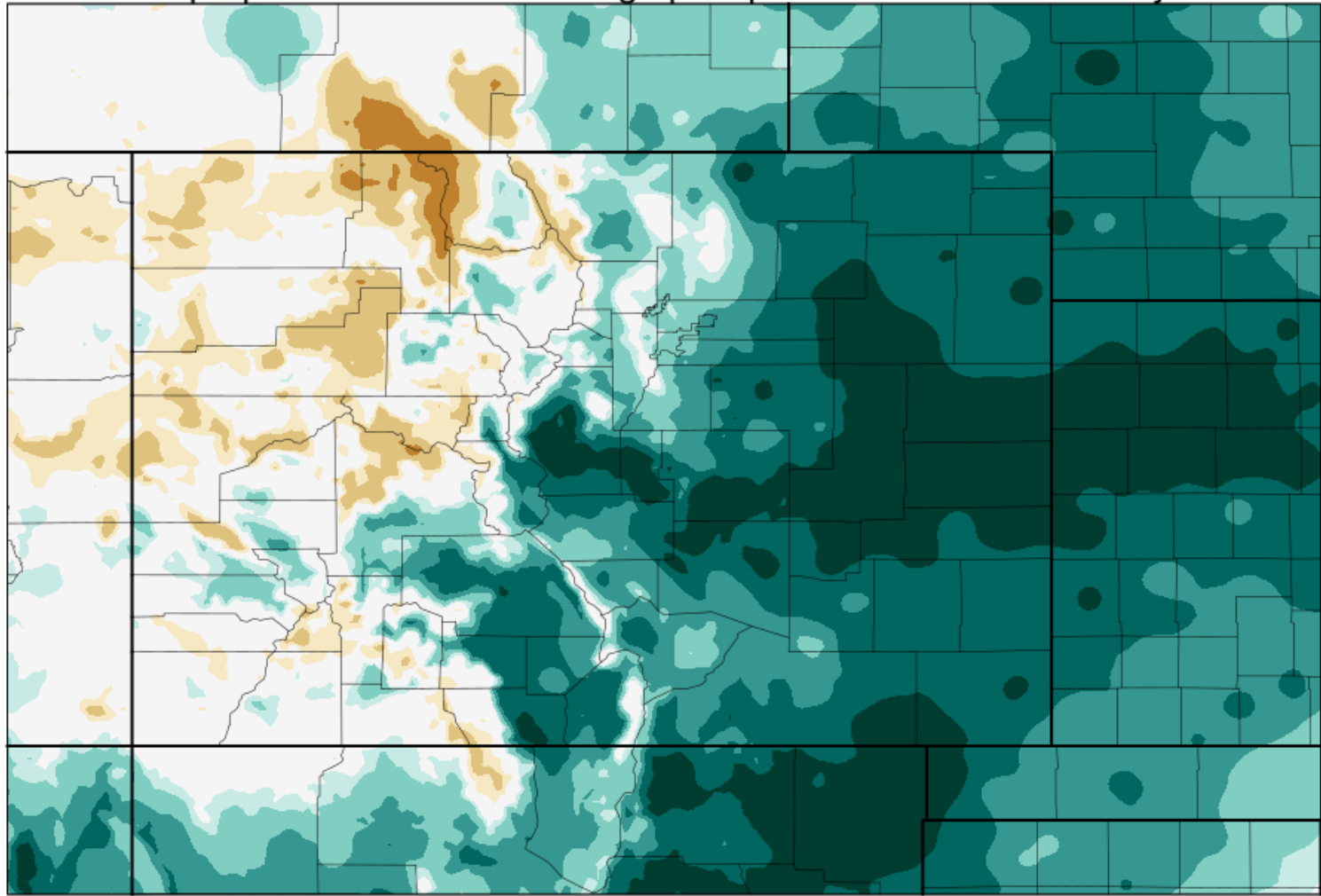
# PRISM proportion of annual average precipitation in this month: June



0.1 0.25 0.5 0.75 0.85 1.15 1.25 1.5 1.75 2  
Russ Schumacher/Colorado Climate Center

Proportion of precip relative to 1/12th

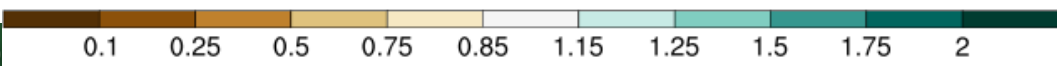
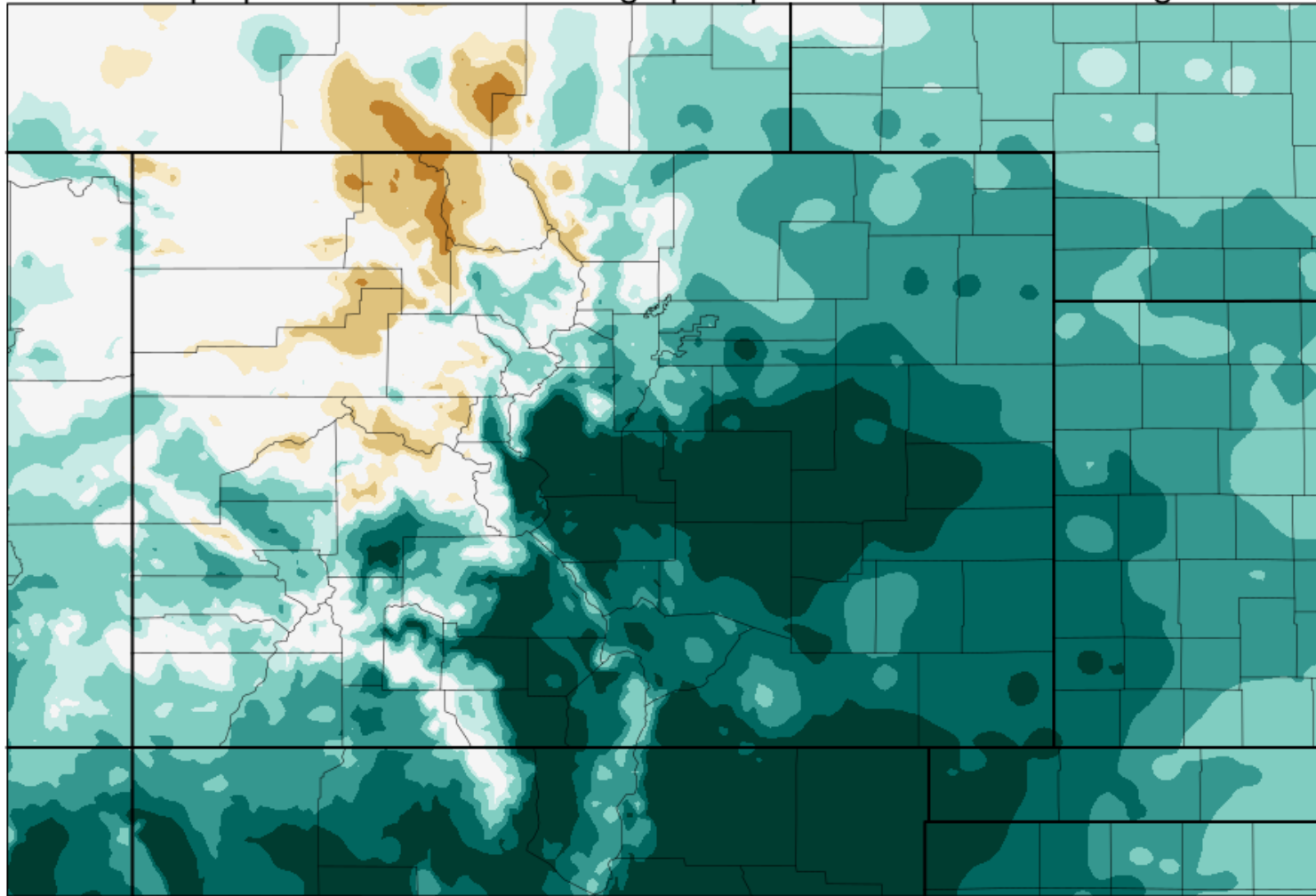
# PRISM proportion of annual average precipitation in this month: July



Proportion of precip relative to 1/12th

Russ Schumacher/Colorado Climate Center

# PRISM proportion of annual average precipitation in this month: August

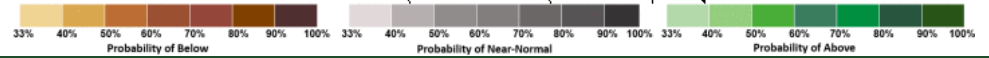
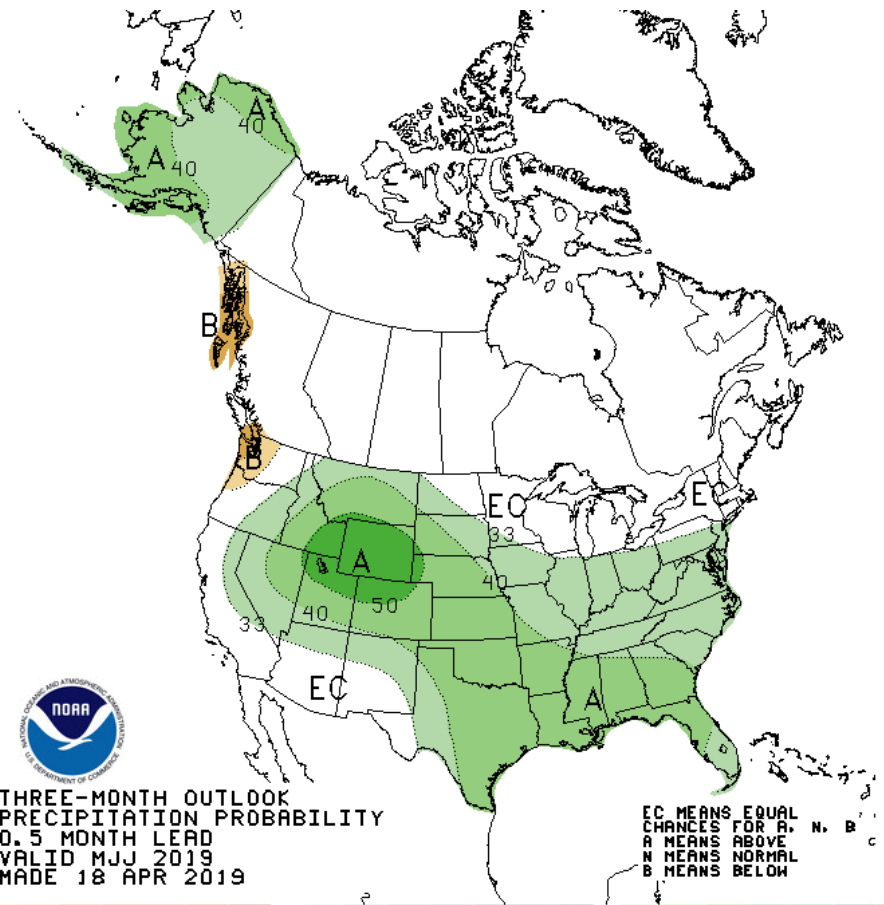
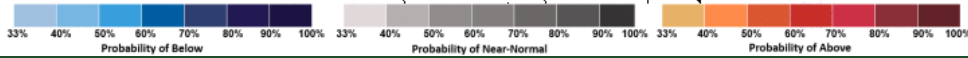
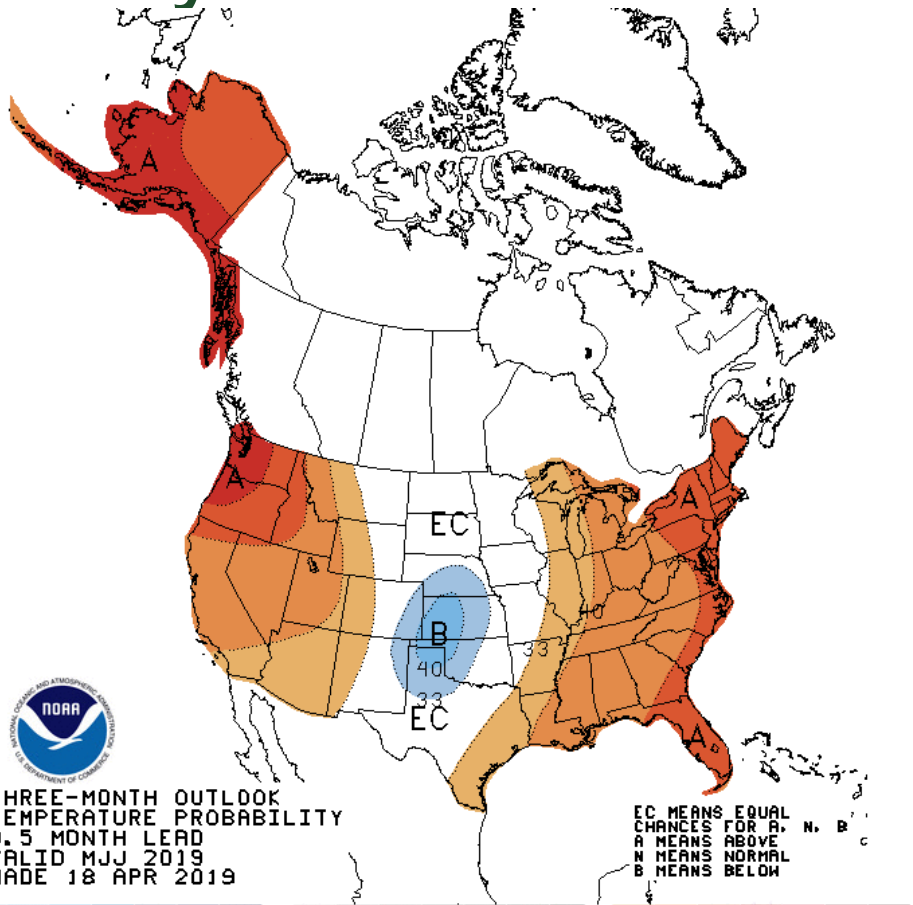


Proportion of precip relative to 1/12th

Russ Schumacher/Colorado Climate Center



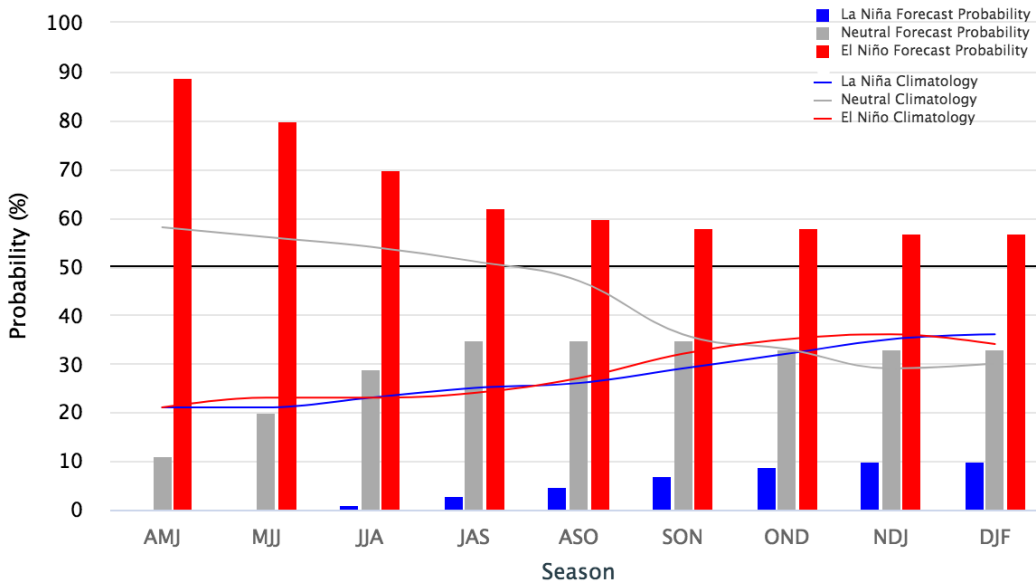
# May-Jun-Jul Outlook



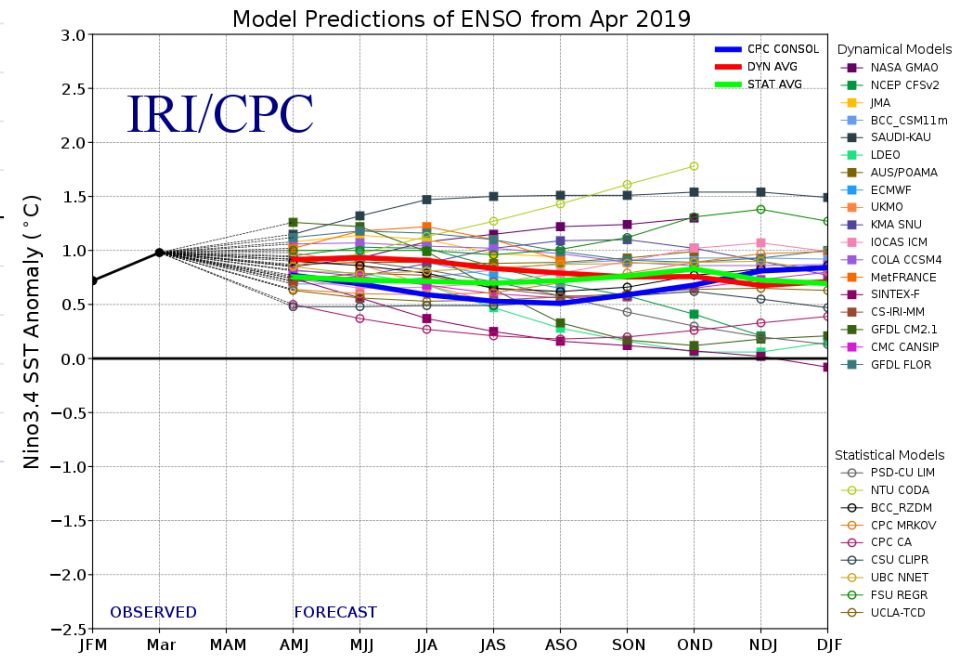
# What's the El Niño forecast?

Early-May 2019 CPC/IRI Official Probabilistic ENSO Forecasts

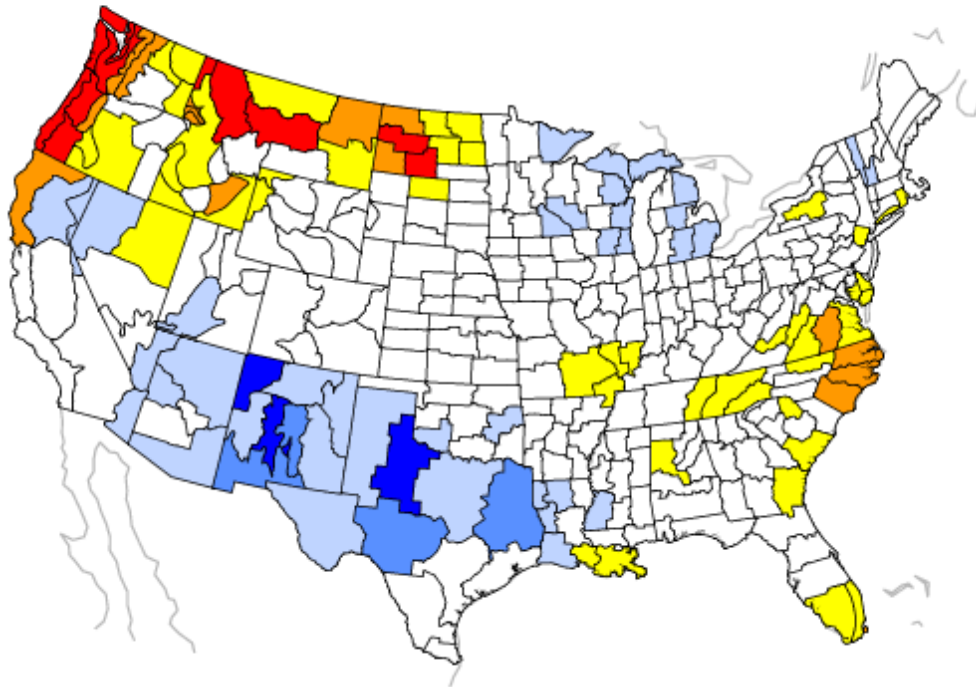
ENSO state based on NINO3.4 SST Anomaly  
Neutral ENSO: -0.5 °C to 0.5 °C



An El Niño advisory is in effect...



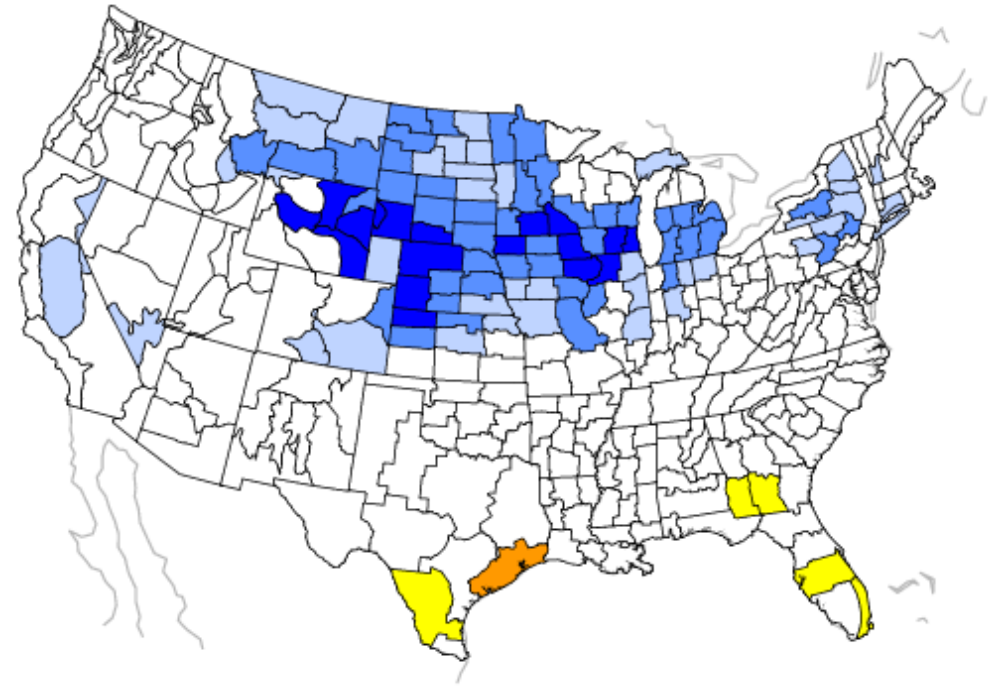
**MJJ Temperature During El Nino**  
**Increased Risk of Warm or Cold Extremes**



Percent (%) Increase in Risk

NOAA/ESRL/PSD

**JAS Temperature During El Nino**  
**Increased Risk of Warm or Cold Extremes**



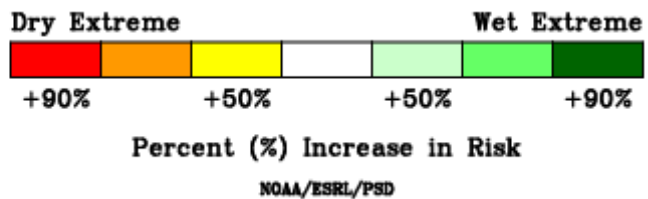
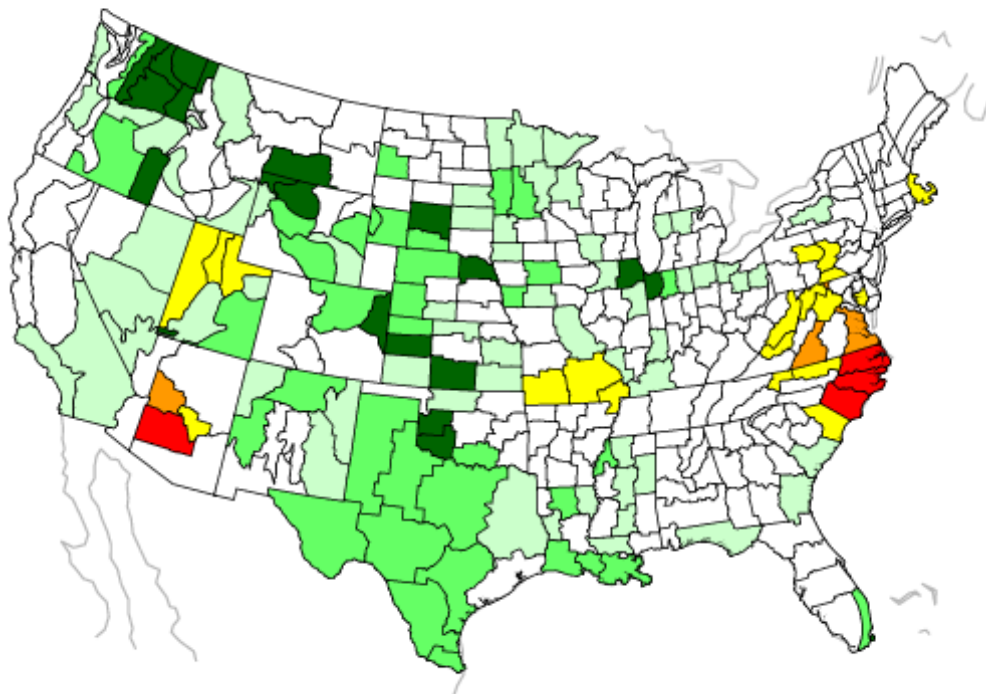
Percent (%) Increase in Risk

<https://www.esrl.noaa.gov/psd/enso/climaterisks/>

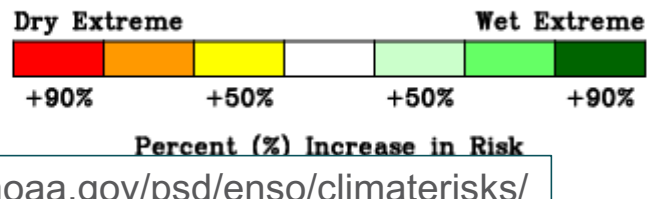
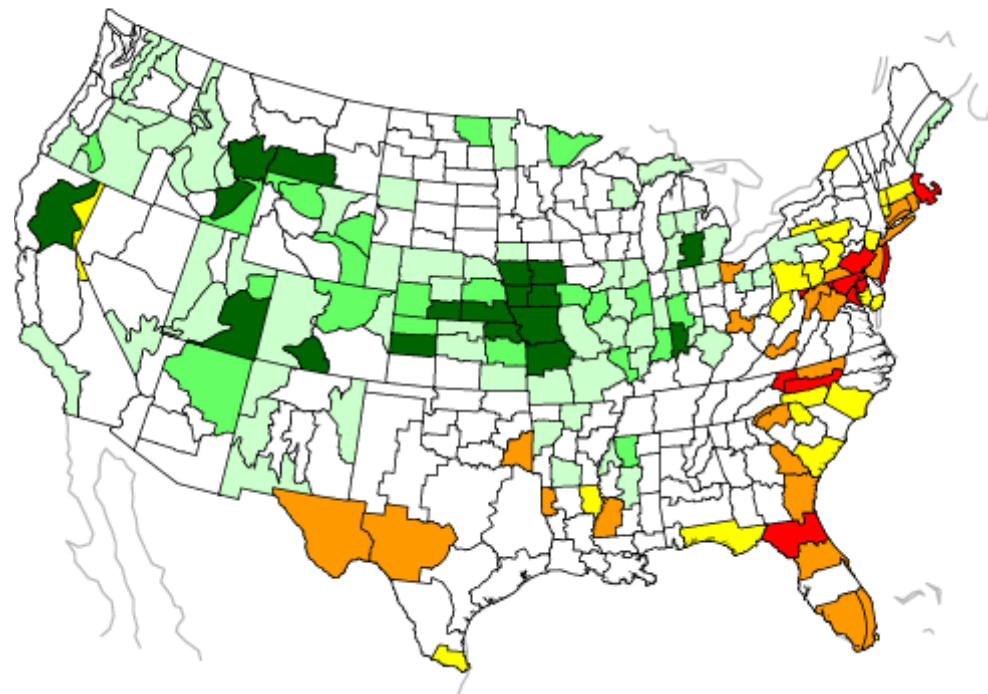




MJJ Precipitation During El Nino  
Increased Risk of Wet or Dry Extremes



JAS Precipitation During El Nino  
Increased Risk of Wet or Dry Extremes



<https://www.esrl.noaa.gov/psd/enso/climaterisks/>



**Becky.Bolinger@colostate.edu**

**To view this and other presentations:  
[http://climate.colostate.edu/ccc\\_archive.html](http://climate.colostate.edu/ccc_archive.html)**

**Thank you**

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**ATMOSPHERIC SCIENCE**  
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