

# Colorado Climate Center — *WATF Climate Update*

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Becky Bolinger

Water Availability Task Force

April 25, 2019



ATMOSPHERIC SCIENCE  
COLORADO STATE UNIVERSITY

# 2019 Water Year To Date

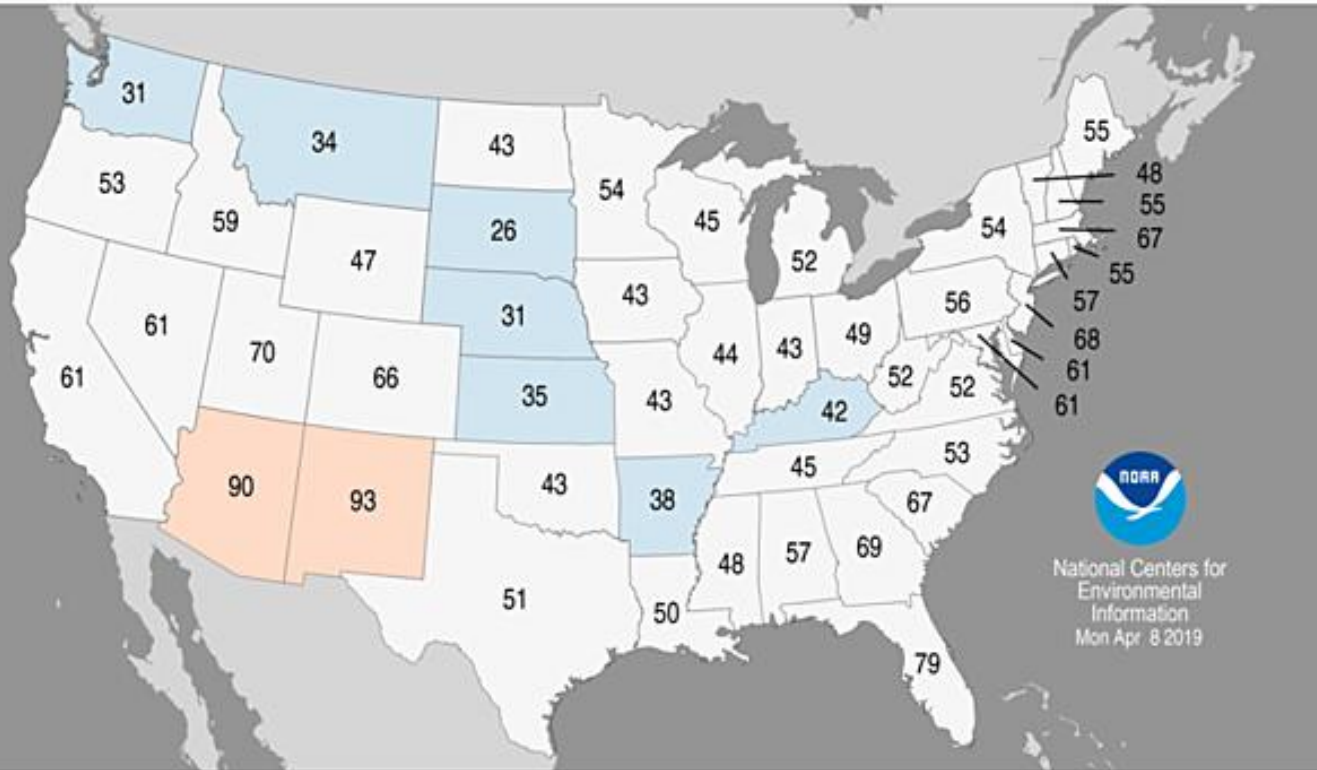
temperature, precipitation,  
anomalies, drought conditions



# Statewide Average Temperature Ranks

March 2019

Period: 1895–2019



Month	T Rank	
Oct	35 <sup>th</sup>	colder
Nov	39 <sup>th</sup>	colder
Dec	80 <sup>th</sup>	average
Jan	36 <sup>th</sup>	warmer
Feb	28 <sup>th</sup>	colder
Mar	66 <sup>th</sup>	average

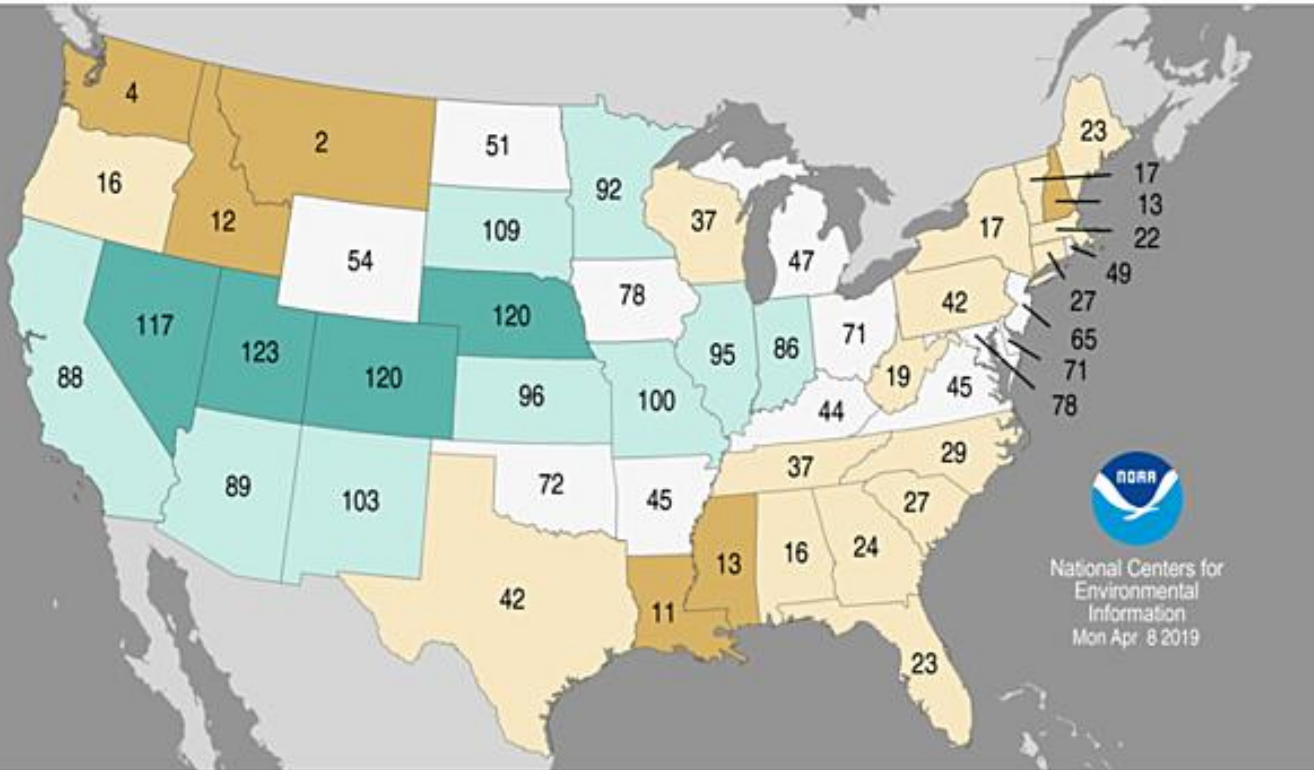




## Statewide Precipitation Ranks

March 2019

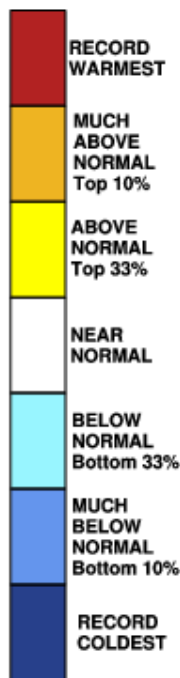
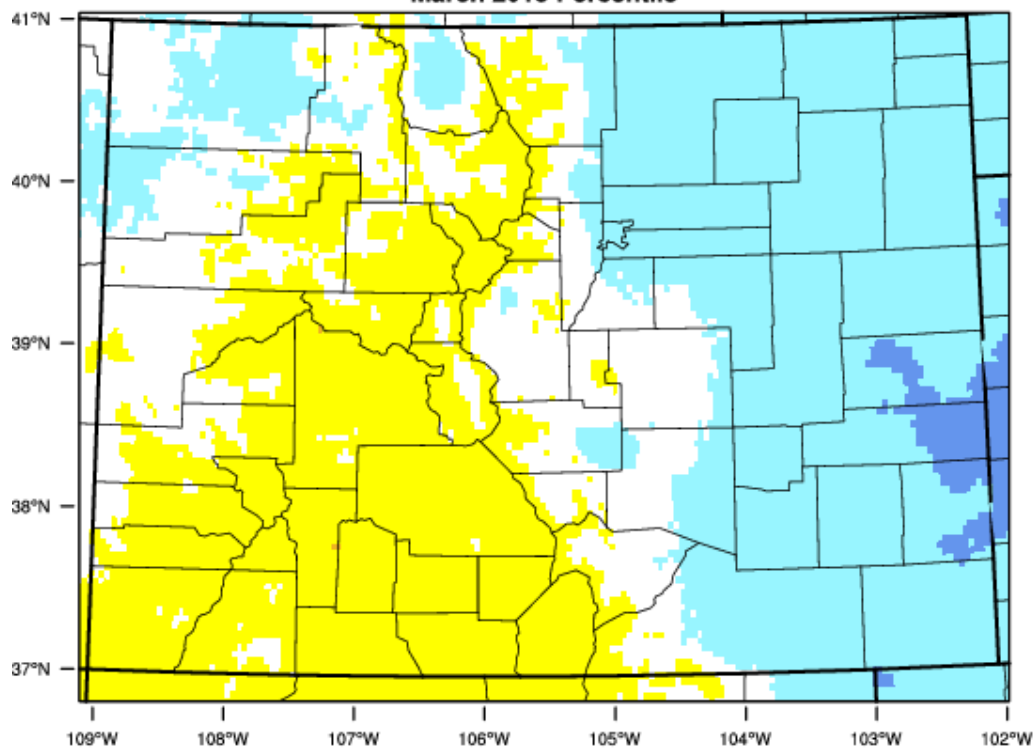
Period: 1895–2019



Month	P Rank	
Oct	12 <sup>th</sup>	wetter
Nov	45 <sup>th</sup>	average
Dec	31 <sup>st</sup>	drier
Jan	32 <sup>nd</sup>	wetter
Feb	17 <sup>th</sup>	wetter
Mar	6 <sup>th</sup>	wetter

## Colorado - Mean Temperature

March 2019 Percentile

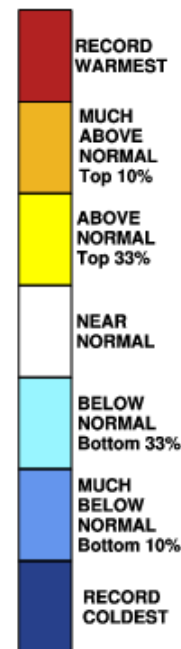
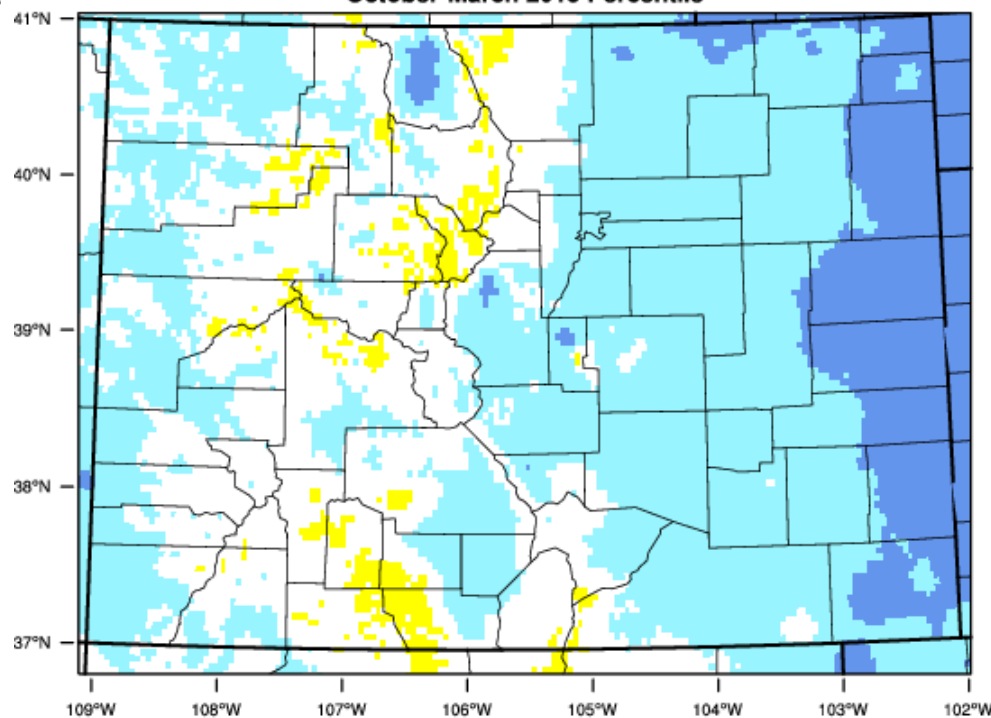


Rankings (1895-2010)

WestWide Drought Tracker, U Idaho/WRCC Data Source: PRISM (Prelim), created 16 APR 2019

## Colorado - Mean Temperature

October-March 2019 Percentile



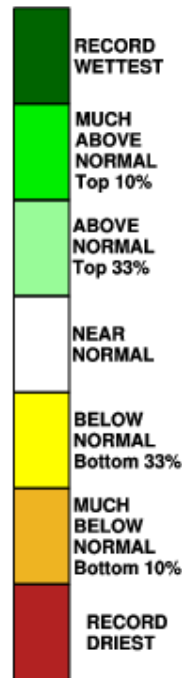
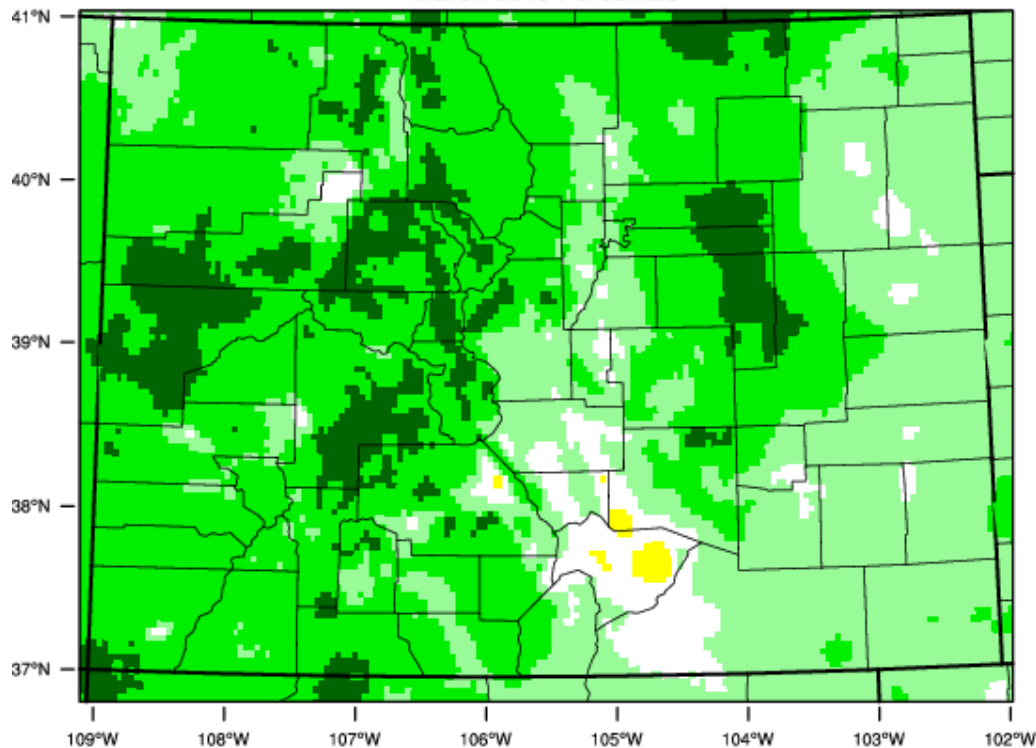
Rankings (1895-2010)

WestWide Drought Tracker, U Idaho/WRCC Data Source: PRISM (Prelim), created 16 APR 2019



# Colorado - Precipitation

March 2019 Percentile

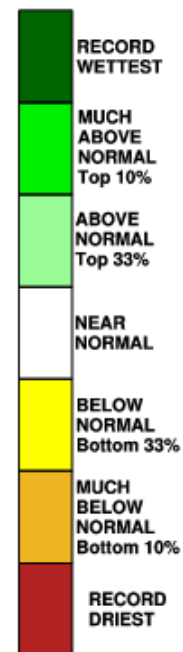
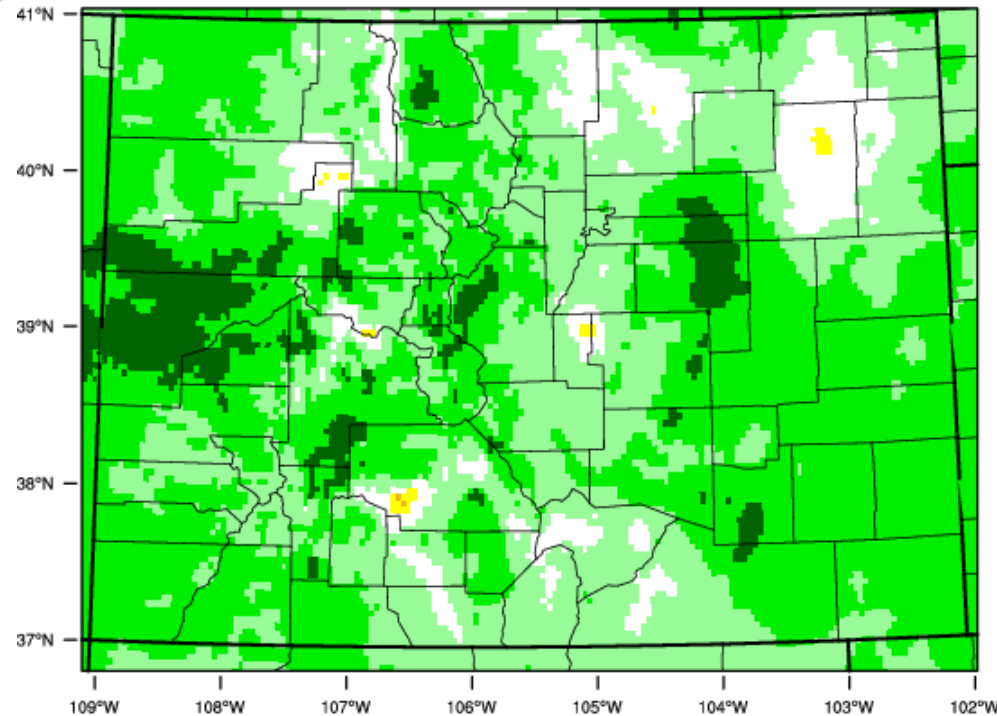


Rankings (1895-2010)

WestWide Drought Tracker, U Idaho/WRCC Data Source: PRISM (Prelim), created 16 APR 2019

# Colorado - Precipitation

October-March 2019 Percentile



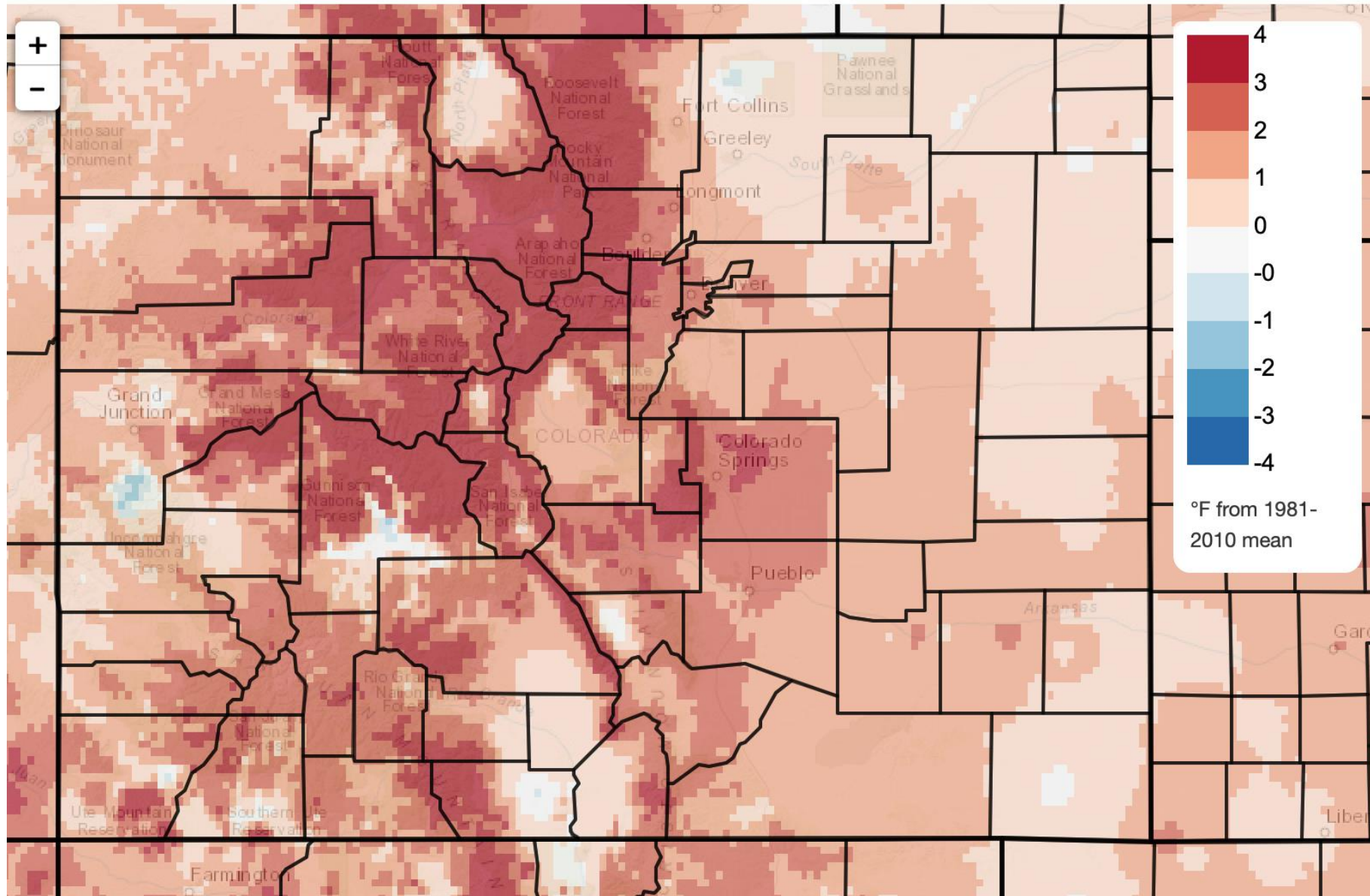
Rankings (1895-2010)

WestWide Drought Tracker, U Idaho/WRCC Data Source: PRISM (Prelim), created 16 APR 2019



# Mean Daily Temperature Anomaly, Last 30 Days

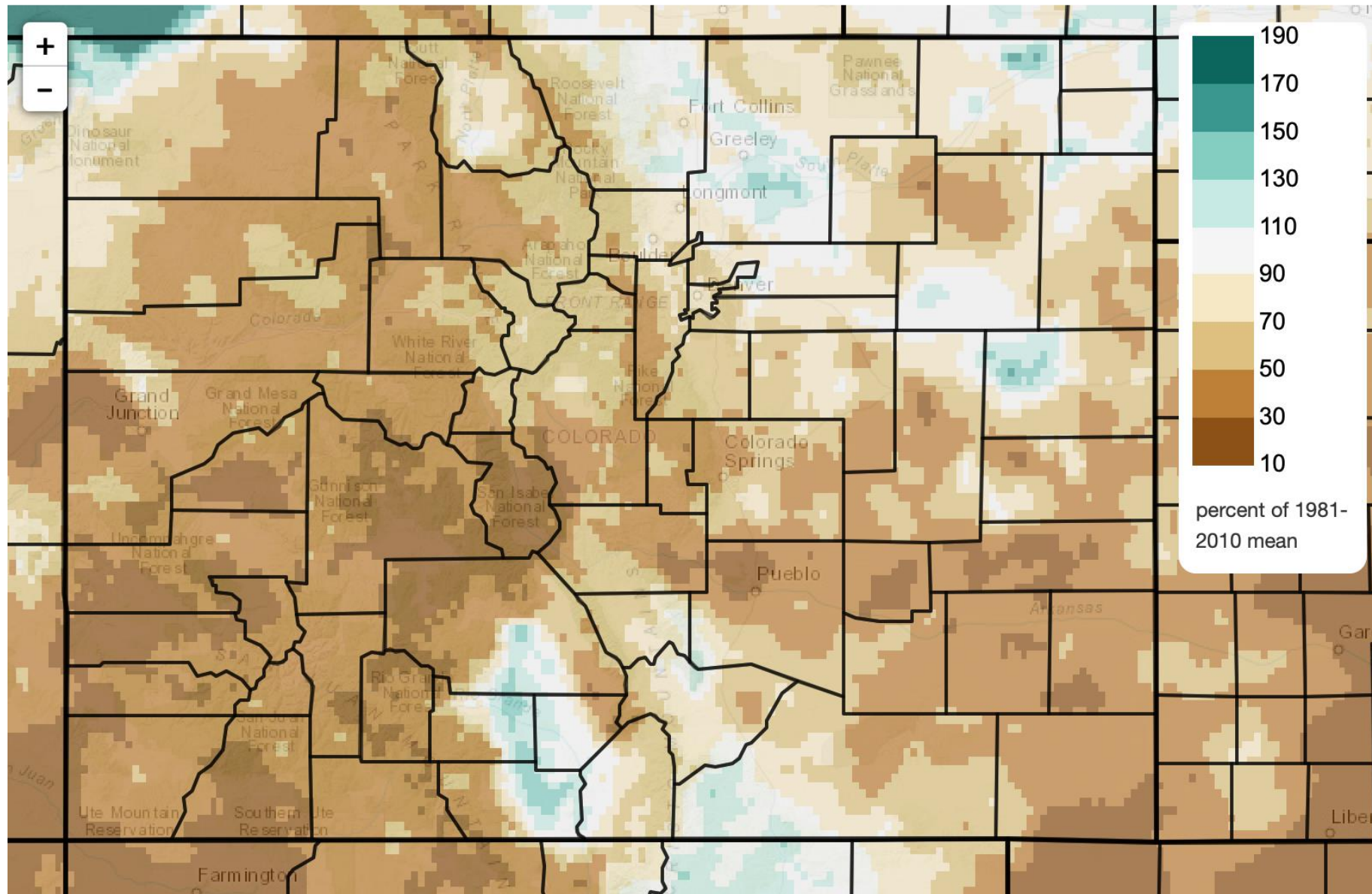
2019/03/25 - 2019/04/23





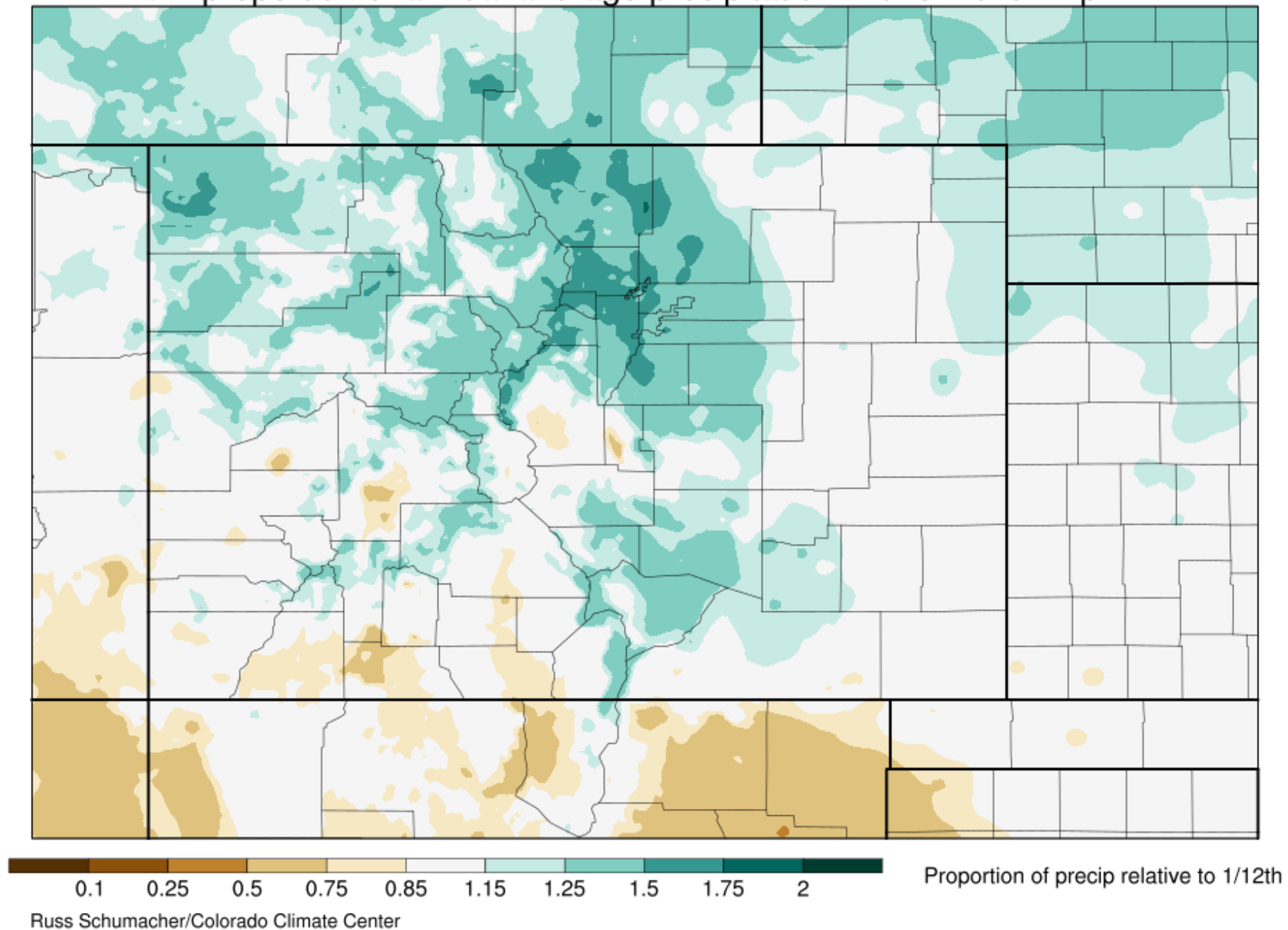
# Total Precipitation Anomaly, Last 30 Days

2019/03/25 - 2019/04/23





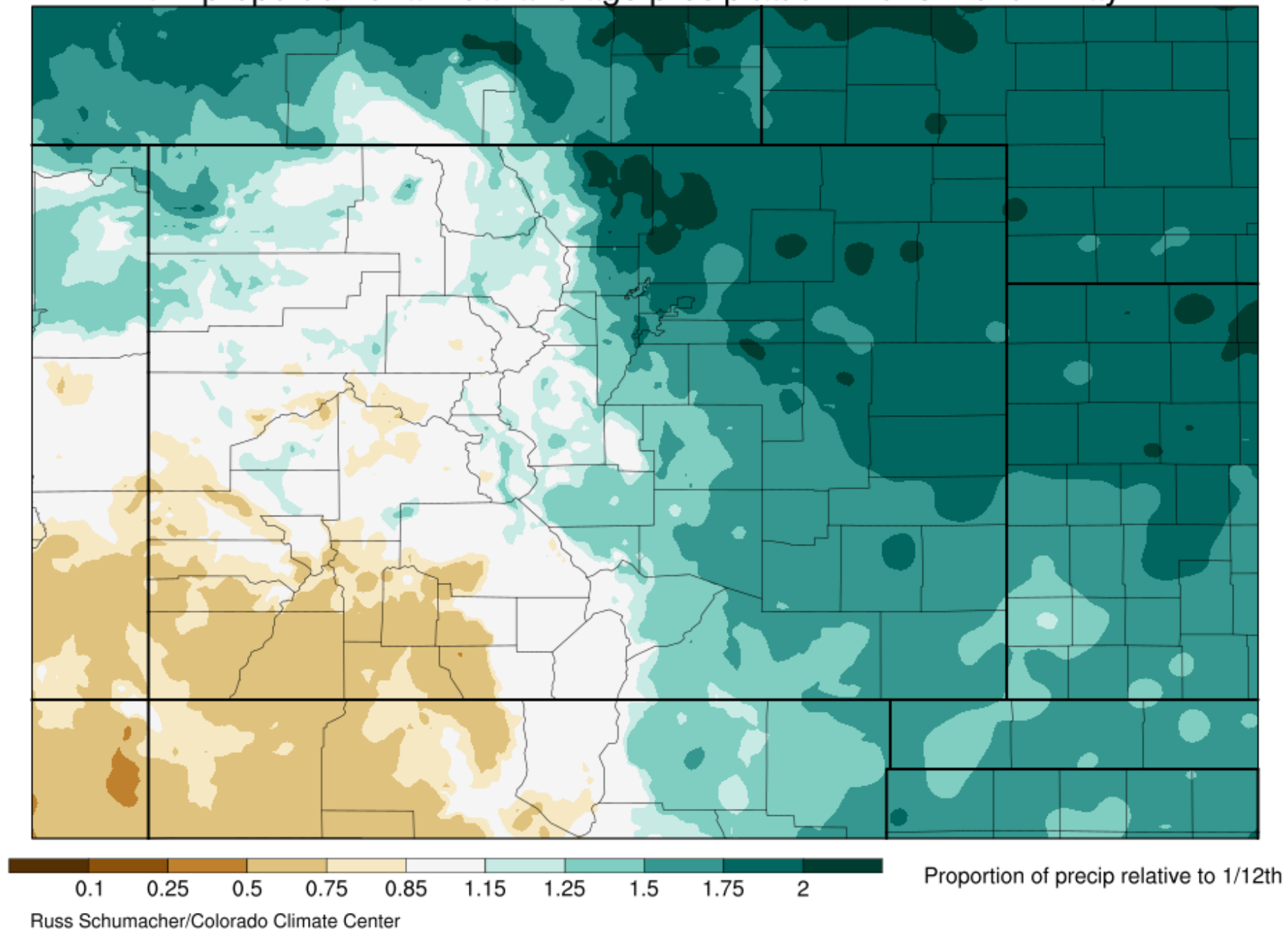
# PRISM proportion of annual average precipitation in this month: April



Russ Schumacher/Colorado Climate Center

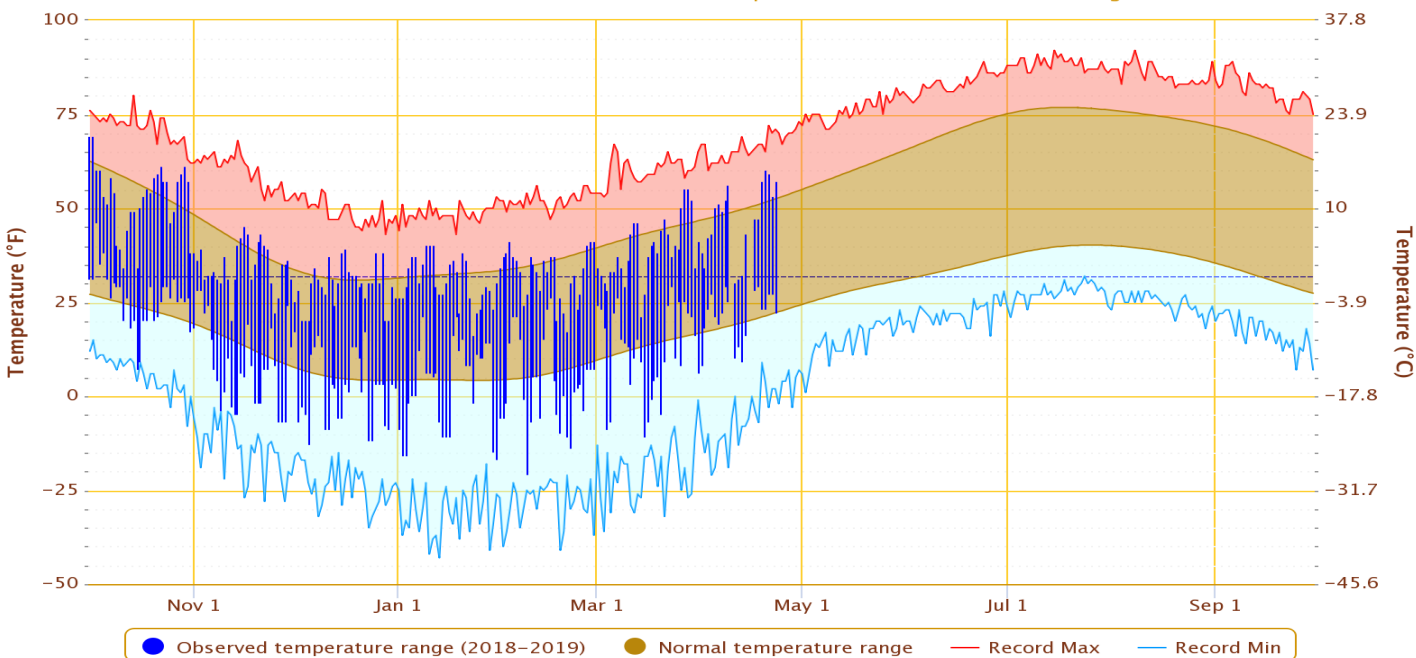


# PRISM proportion of annual average precipitation in this month: May



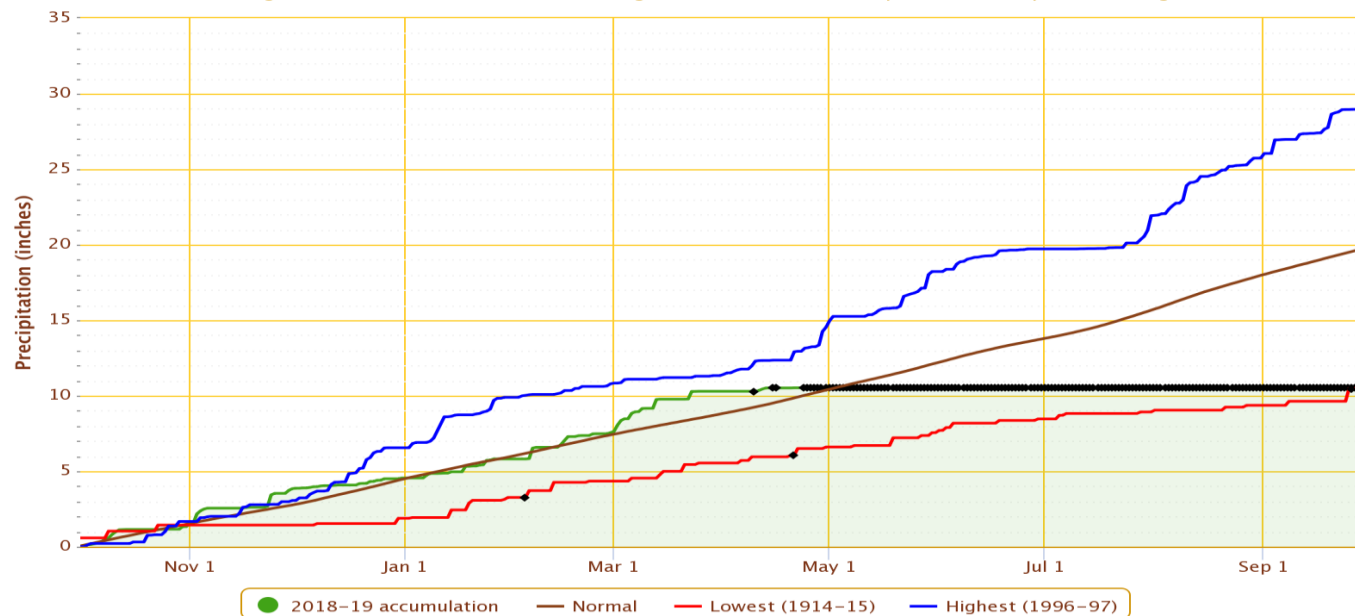
# Daily Temperature Data – GRAND LAKE 1 NW, CO

Period of Record – 1939–10–01 to 2019–04–23. Normals period: 1981–2010. Click and drag to zoom chart.

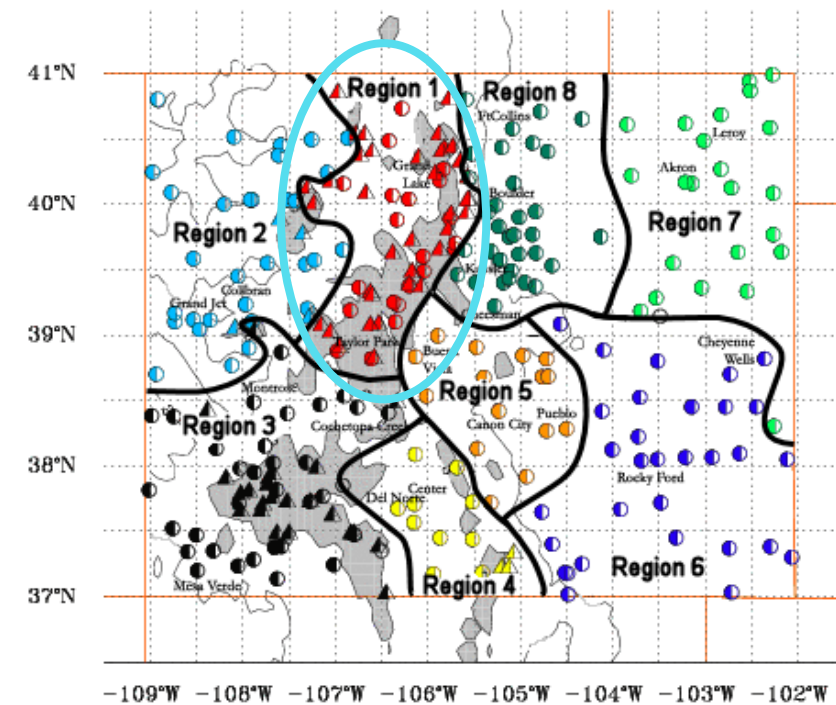


## Accumulated Precipitation – GRAND LAKE 1 NW, CO

Click and drag to zoom to a shorter time interval; green/black diamonds represent subsequent/missing values



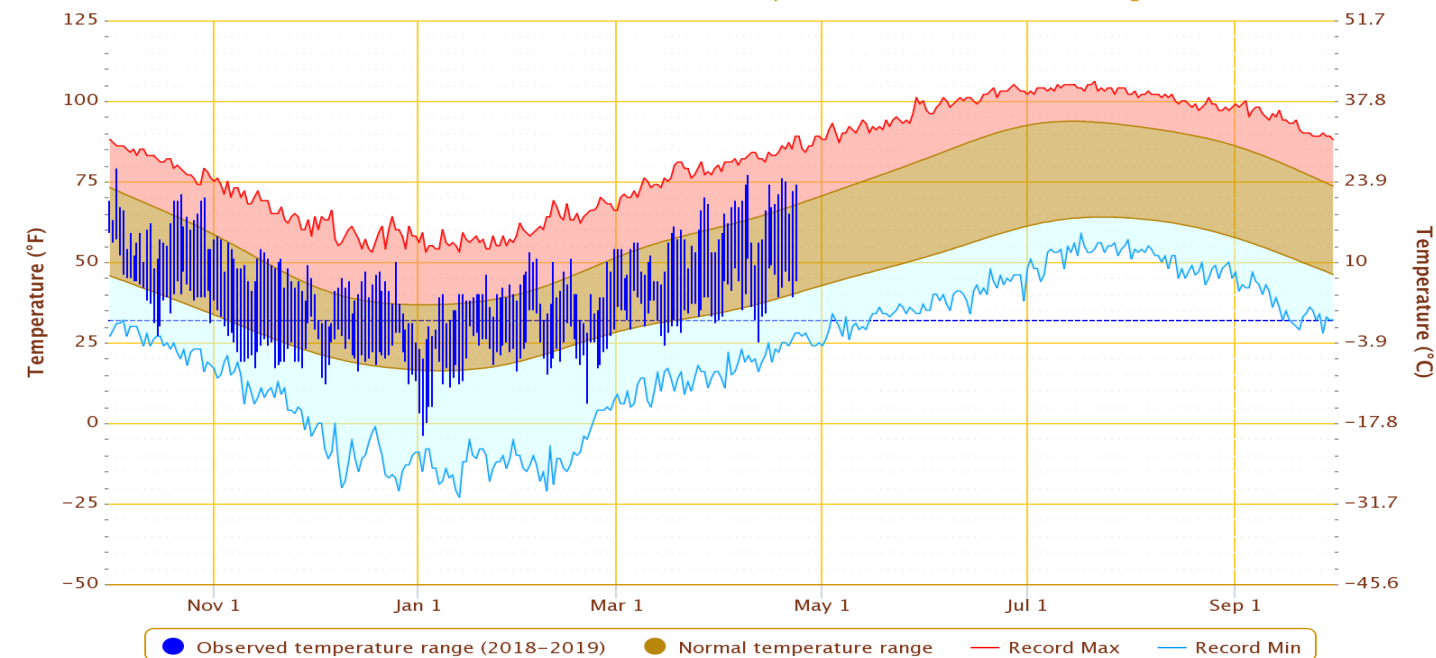
## COLORADO





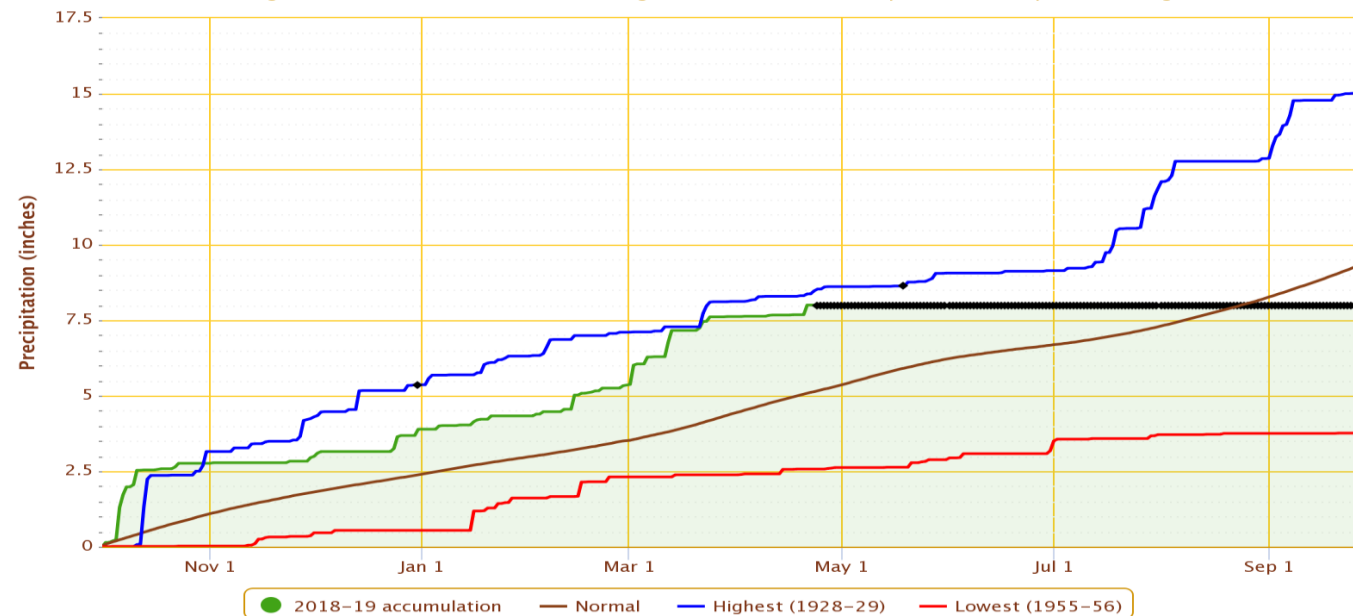
# Daily Temperature Data – GRAND JUNCTION WALKER FIELD, CO

Period of Record – 1900-01-01 to 2019-04-23. Normals period: 1981-2010. Click and drag to zoom chart.

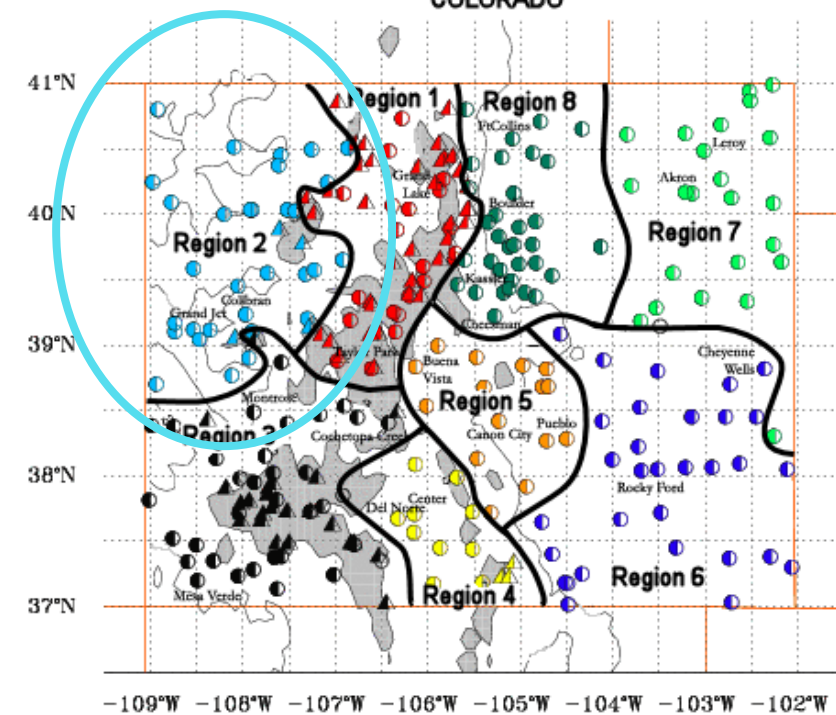


## Accumulated Precipitation – GRAND JUNCTION WALKER FIELD, CO

Click and drag to zoom to a shorter time interval; green/black diamonds represent subsequent/missing values

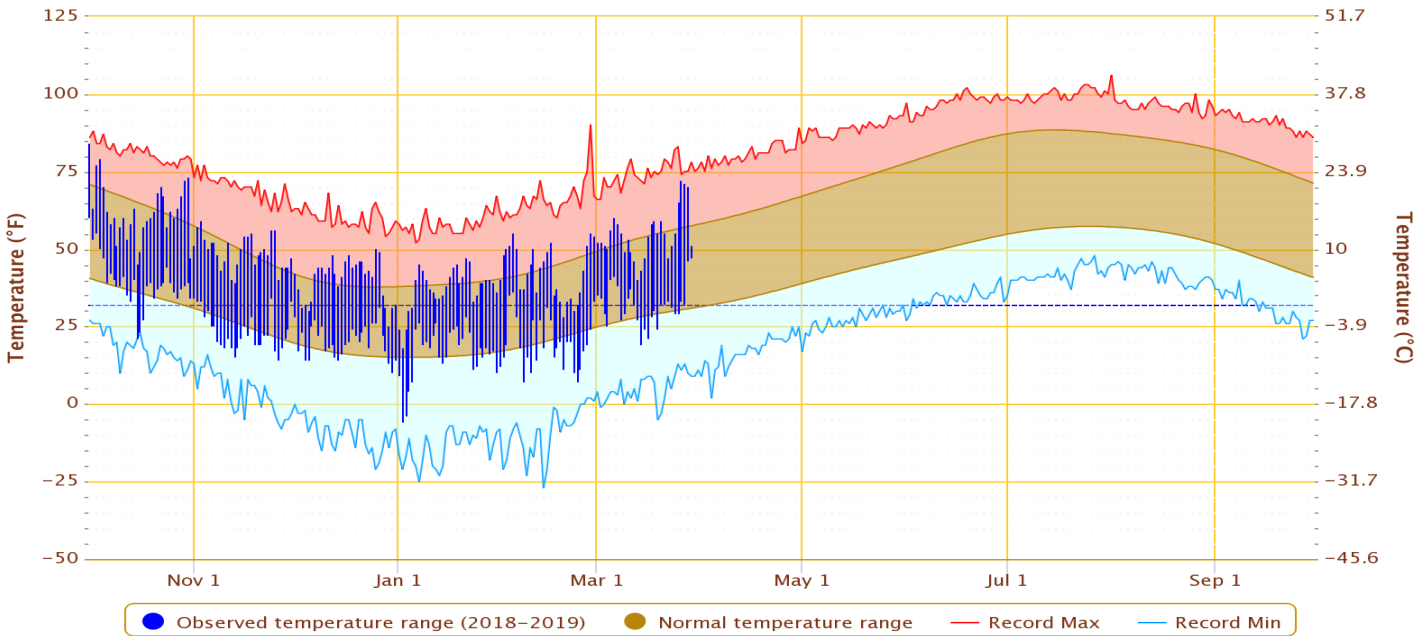


## COLORADO



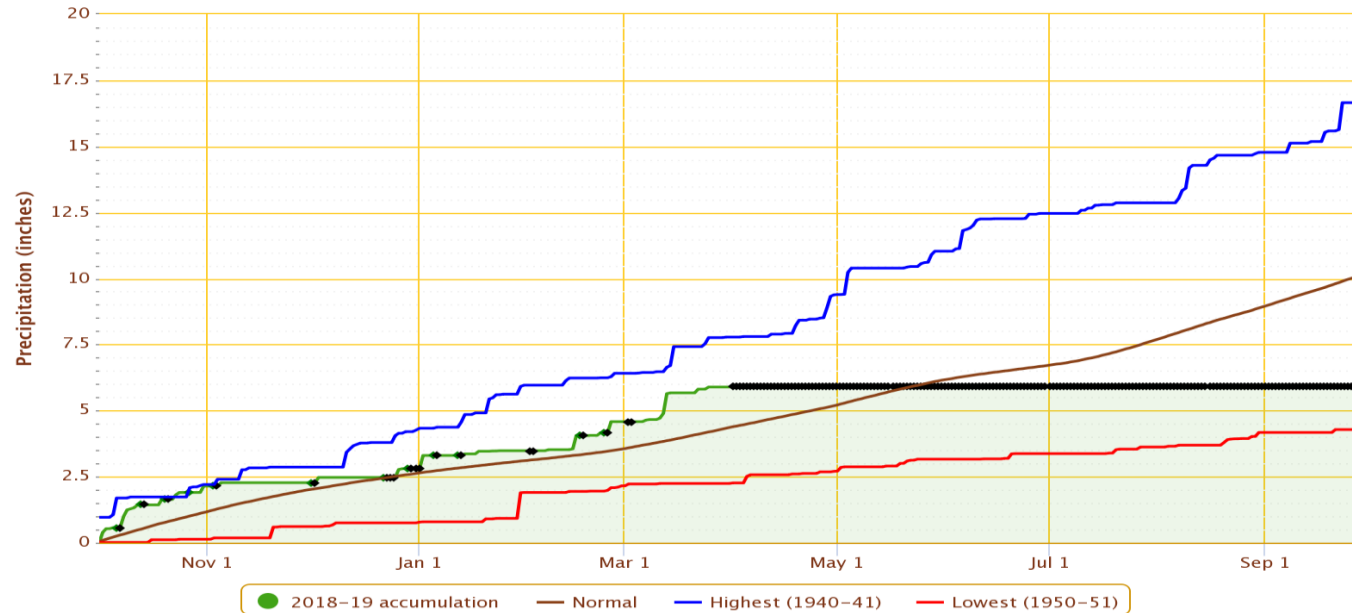
# Daily Temperature Data – MONTROSE NO 2, CO

Period of Record – Max temperature: 1895–10–01 to 2019–03–31; Min temperature: 1895–10–01 to 2019–03–29. Normals period: 1981–2010. Click and drag to zoom chart.

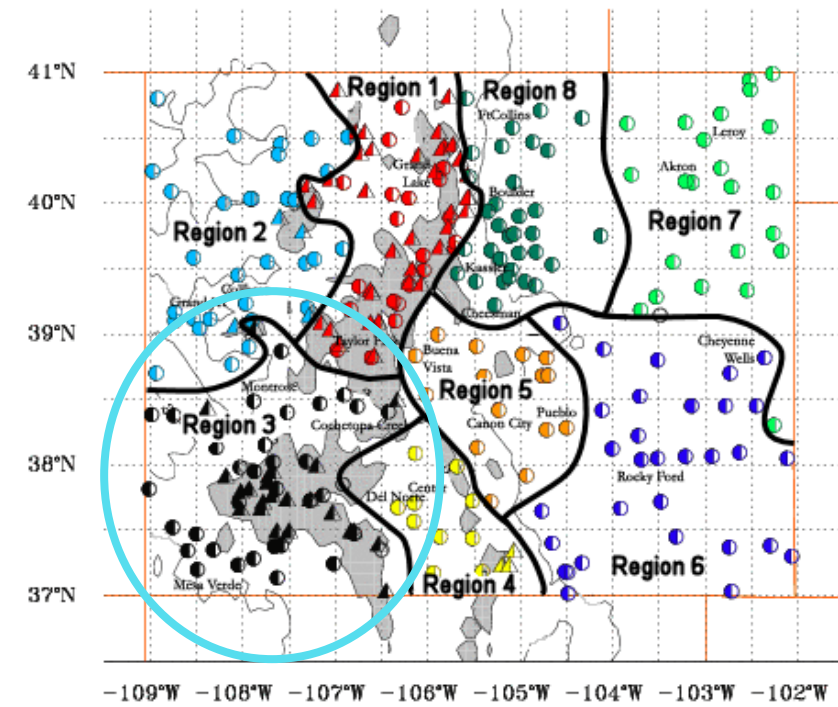


## Accumulated Precipitation – MONTROSE NO 2, CO

Click and drag to zoom to a shorter time interval; green/black diamonds represent subsequent/missing values

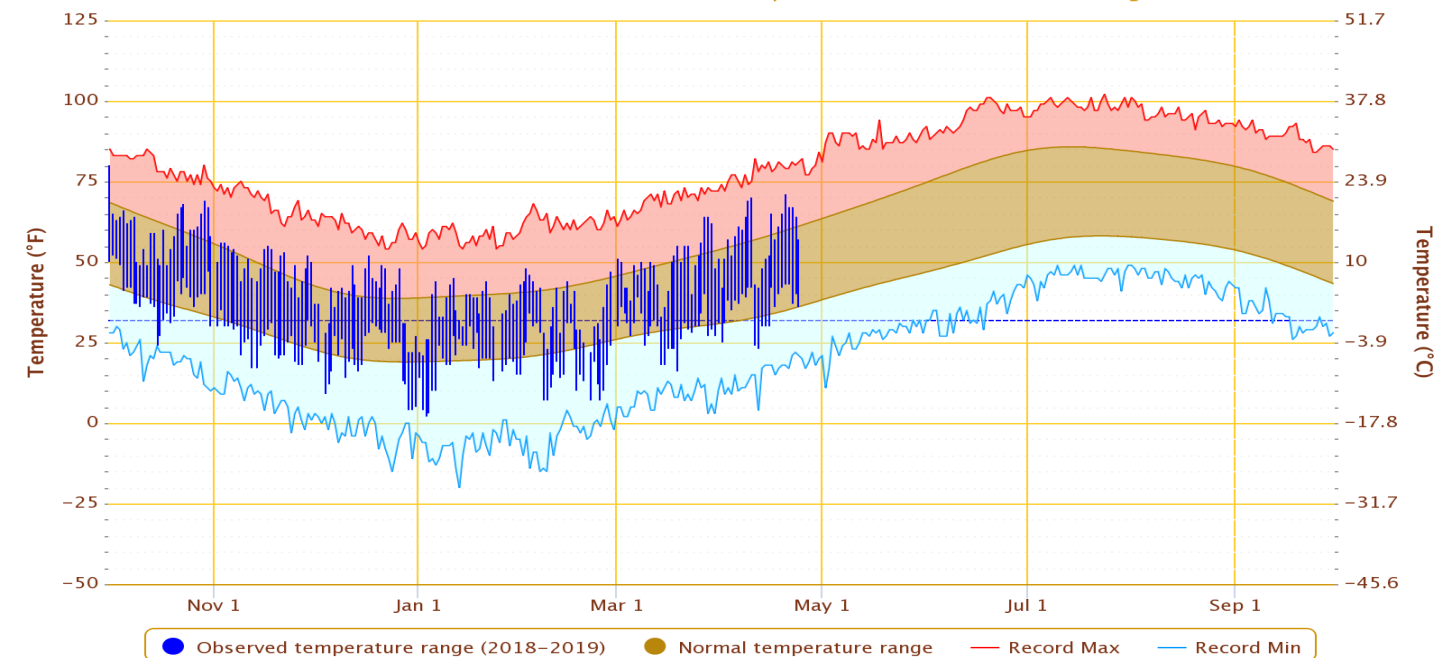


## COLORADO



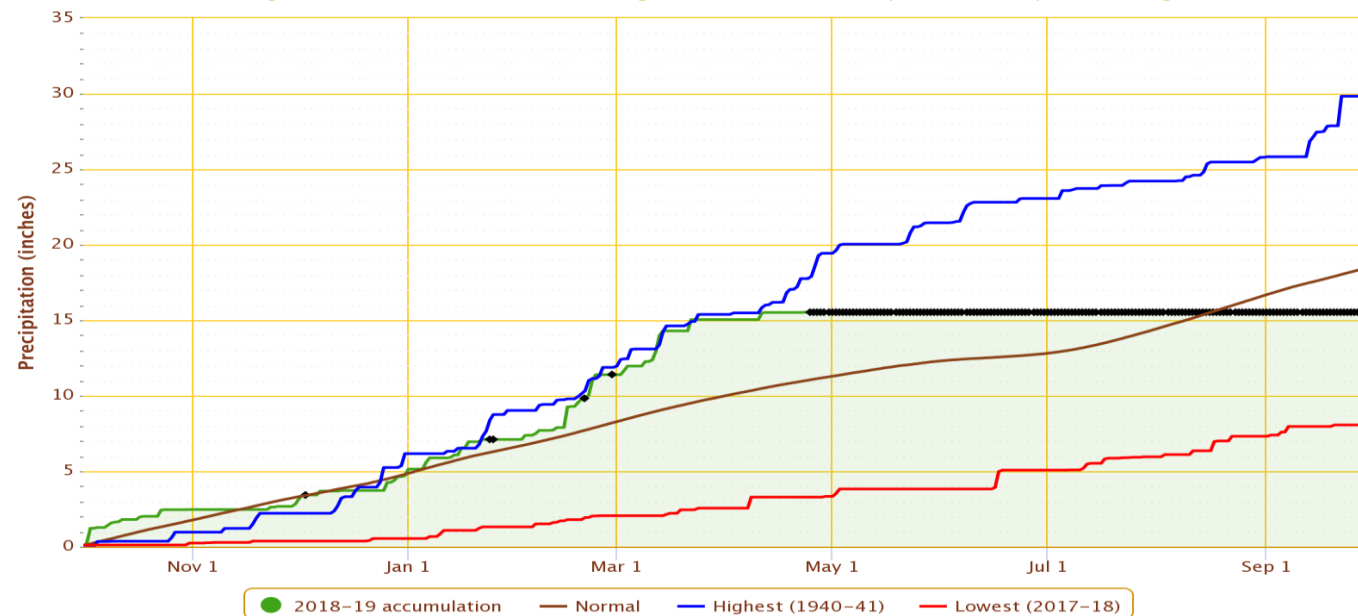
# Daily Temperature Data – MESA VERDE NP, CO

Period of Record – 1922-02-16 to 2019-04-24. Normals period: 1981-2010. Click and drag to zoom chart.

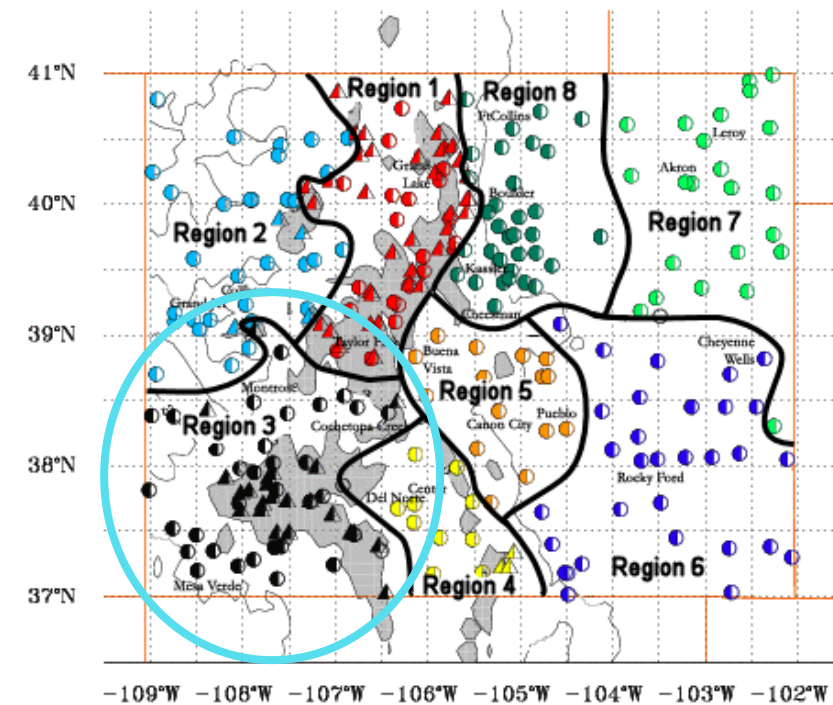


## Accumulated Precipitation – MESA VERDE NP, CO

Click and drag to zoom to a shorter time interval; green/black diamonds represent subsequent/missing values



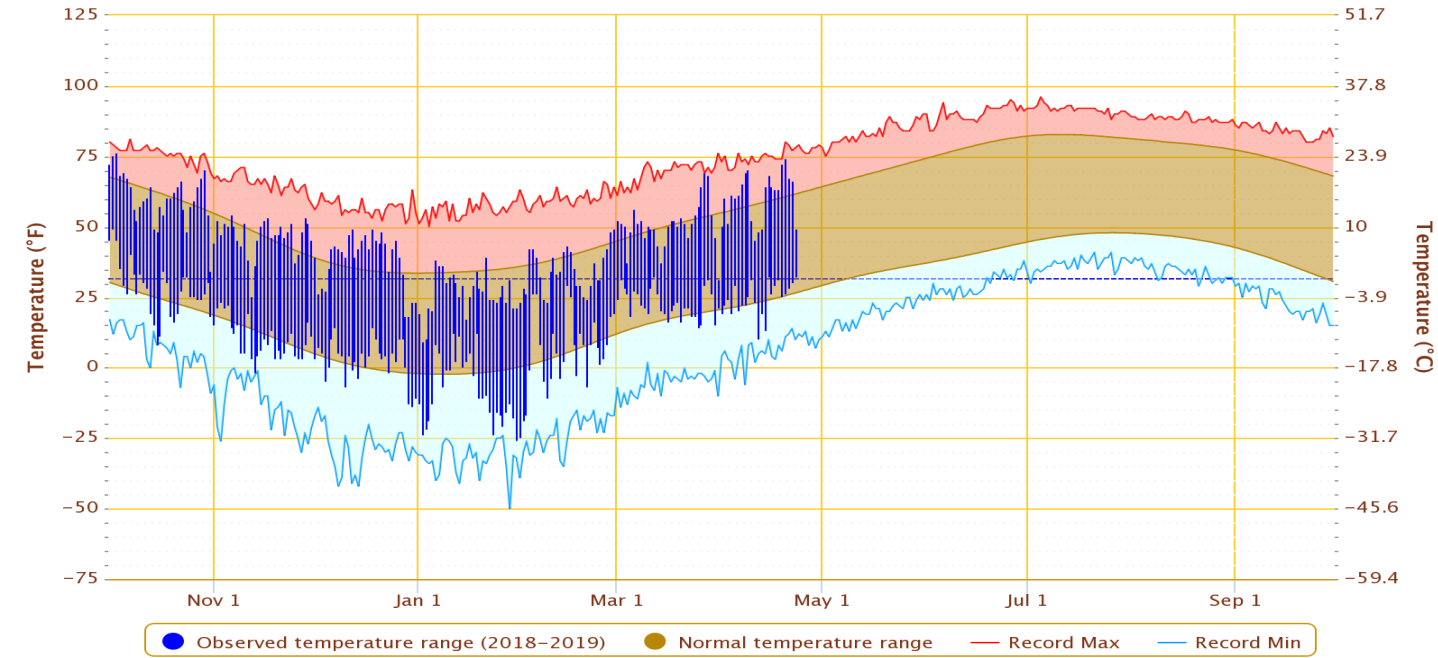
## COLORADO





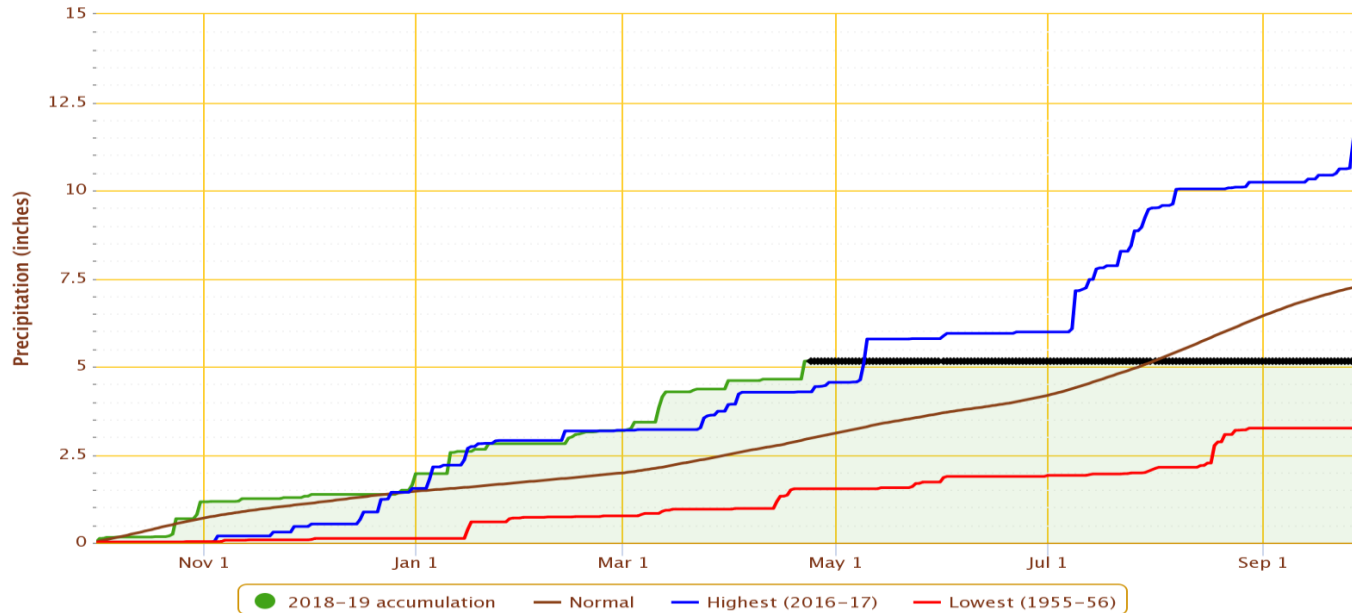
# Daily Temperature Data – ALAMOSA SAN LUIS VALLEY REGIONAL AP, CO

Period of Record – 1948-01-01 to 2019-04-23. Normals period: 1981-2010. Click and drag to zoom chart.

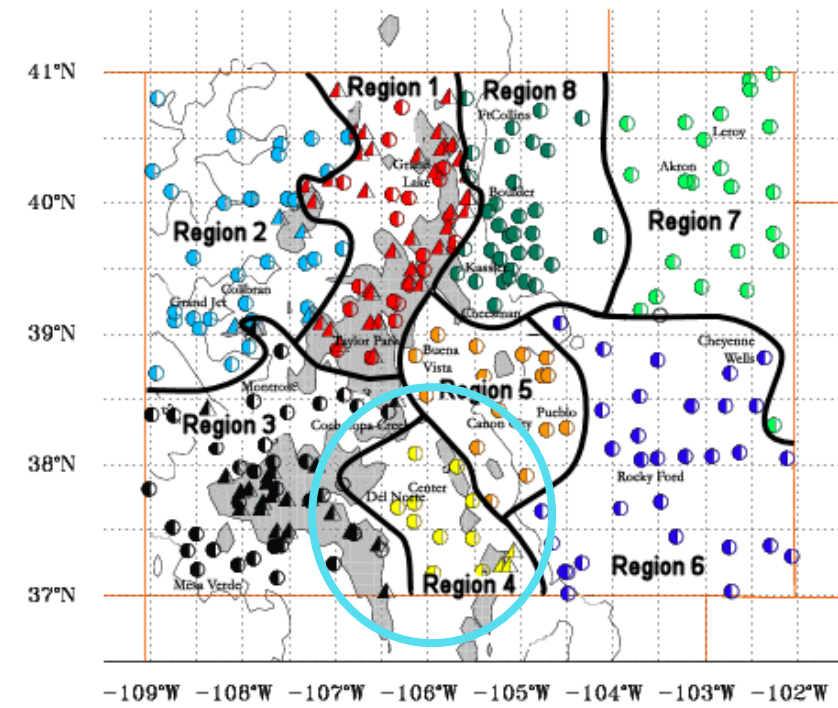


## Accumulated Precipitation – ALAMOSA SAN LUIS VALLEY REGIONAL AP, CO

Click and drag to zoom to a shorter time interval; green/black diamonds represent subsequent/missing values

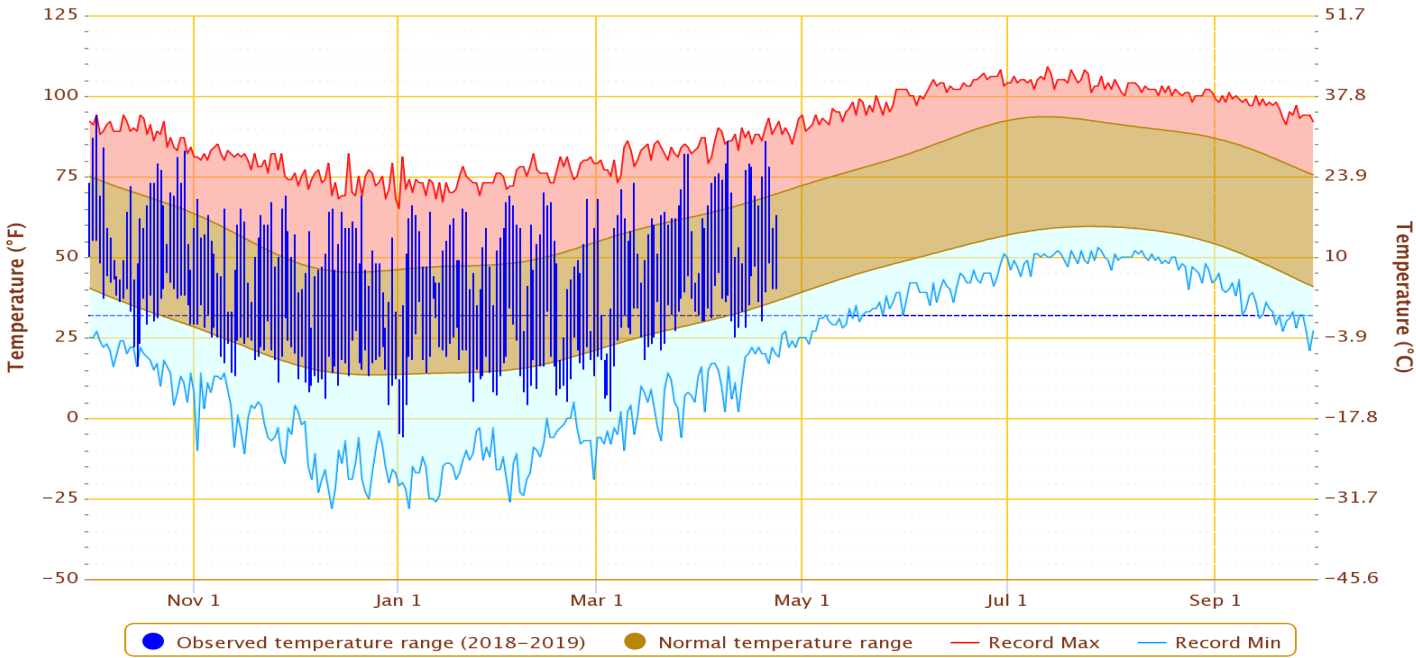


## COLORADO



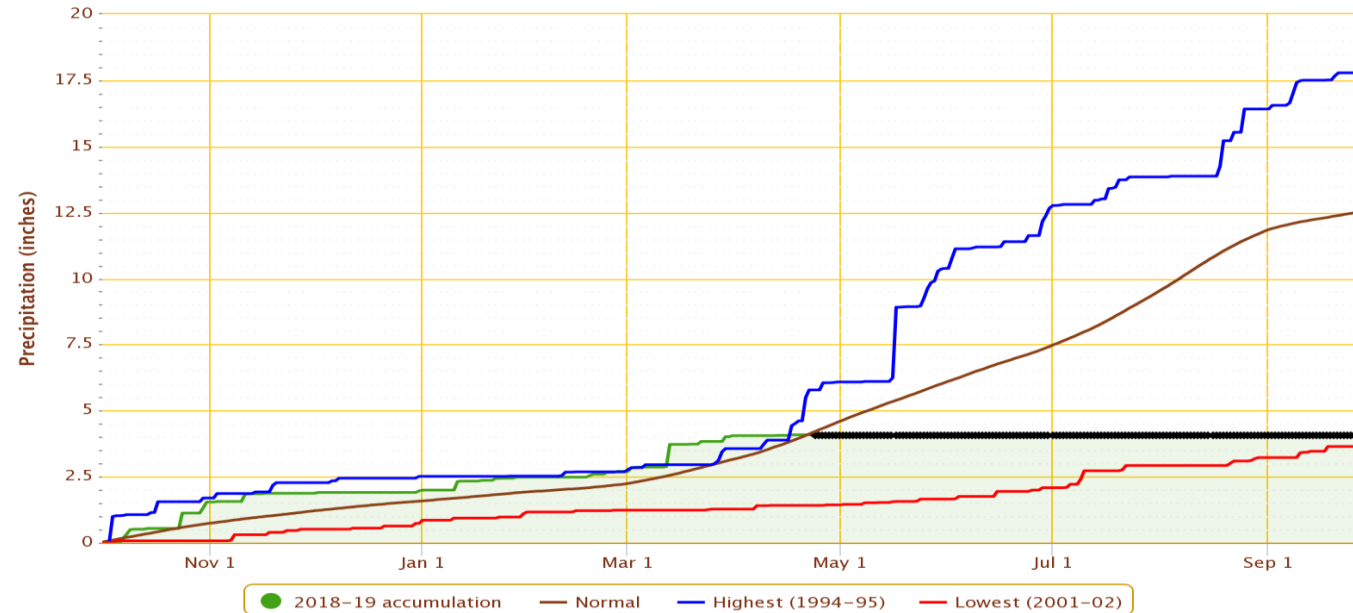
# Daily Temperature Data – PUEBLO MEMORIAL AP, CO

Period of Record – 1954-06-16 to 2019-04-23. Normals period: 1981-2010. Click and drag to zoom chart.

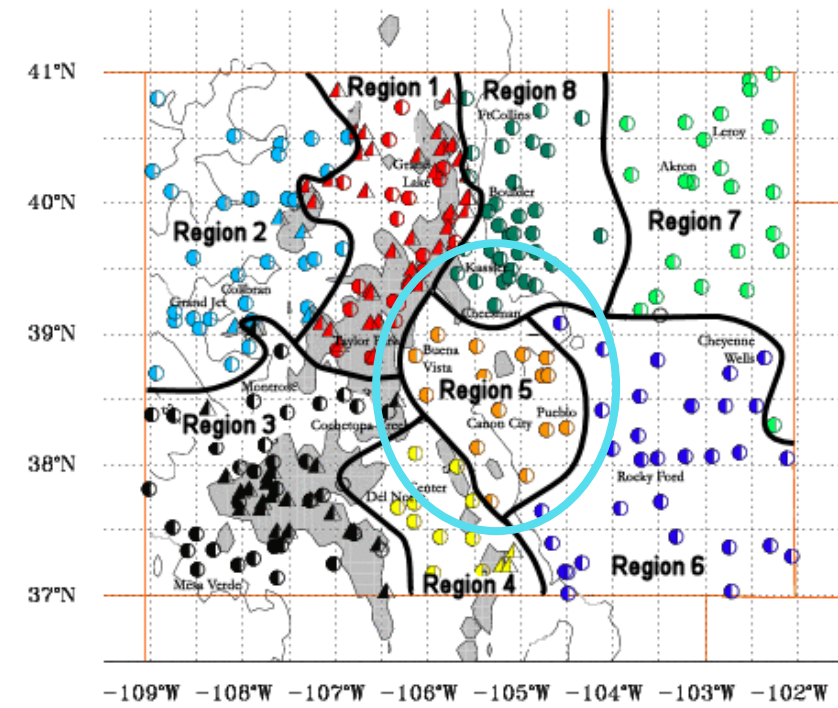


## Accumulated Precipitation – PUEBLO MEMORIAL AP, CO

Click and drag to zoom to a shorter time interval; green/black diamonds represent subsequent/missing values



## COLORADO



Period of Record - 1967-09-01 to 2019-04-24. Normals period: 1981-2010. Click and drag to zoom chart.



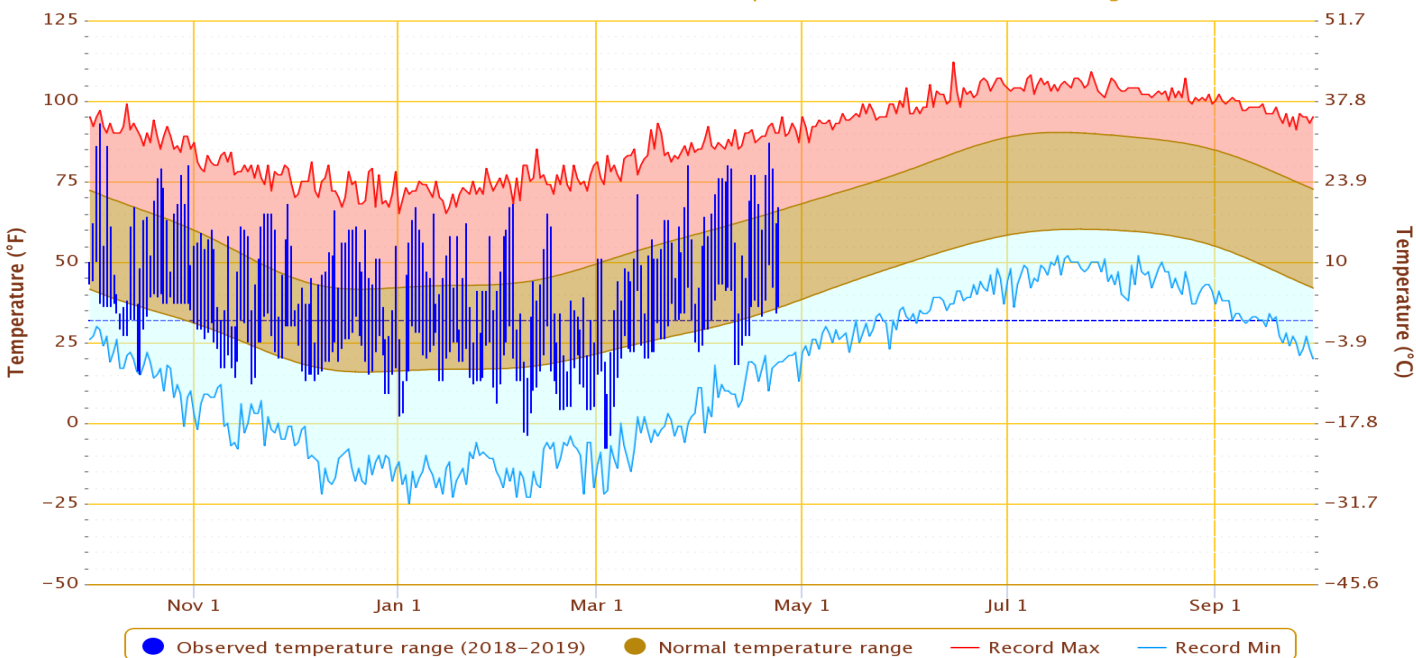
Click and drag to zoom to a shorter time interval; green/black diamonds represent subsequent/missing values





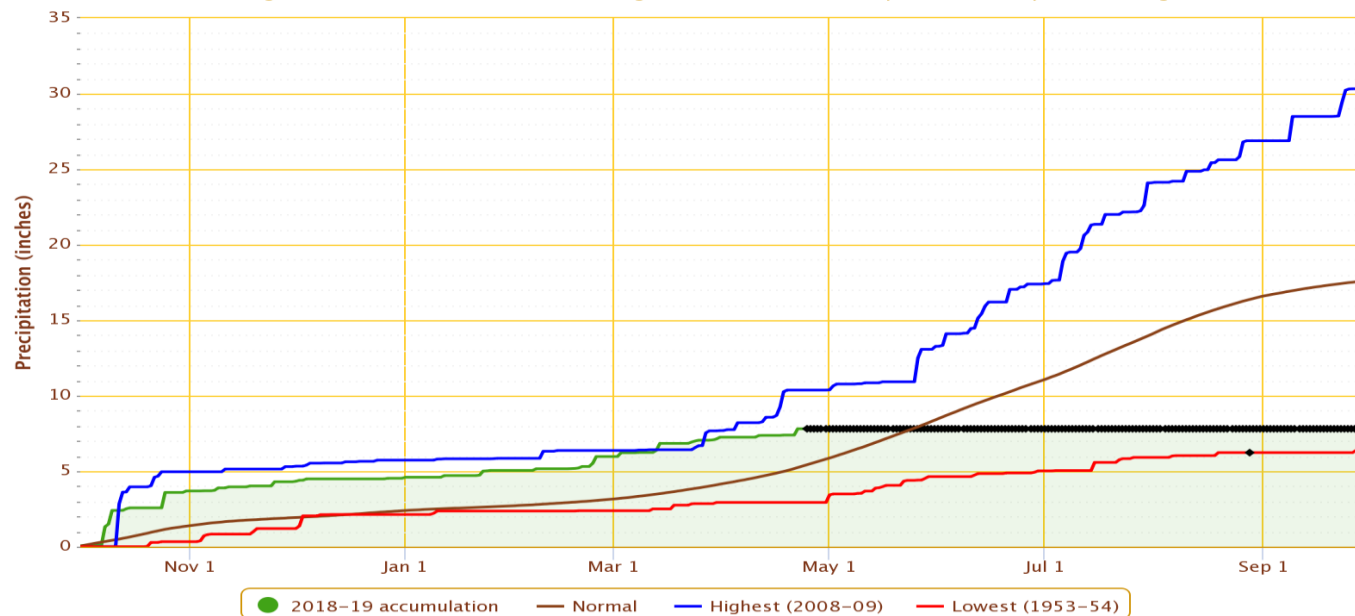
# Daily Temperature Data – BURLINGTON, CO

Period of Record – 1903-12-01 to 2019-04-24. Normals period: 1981-2010. Click and drag to zoom chart.

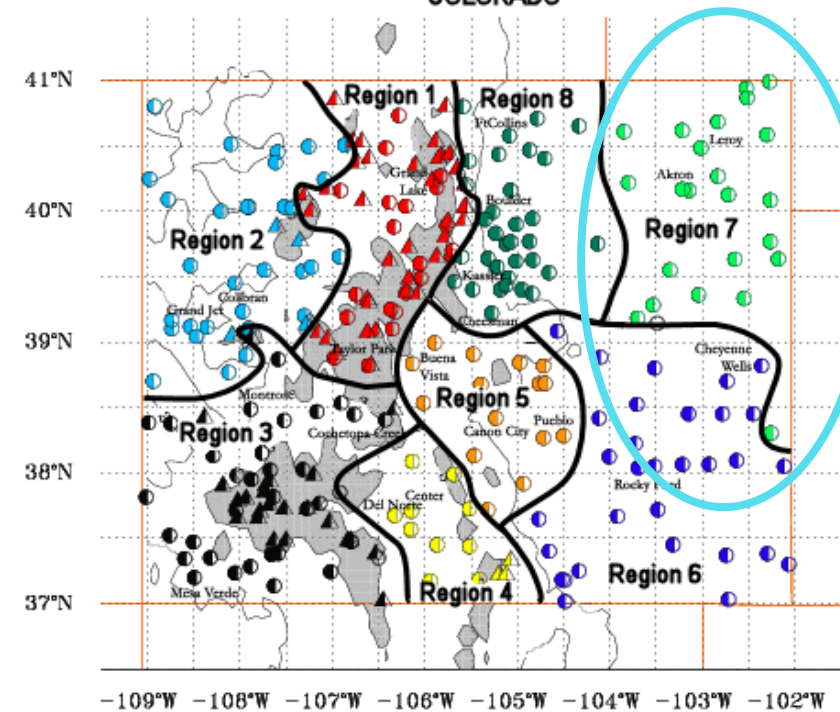


## Accumulated Precipitation – BURLINGTON, CO

Click and drag to zoom to a shorter time interval; green/black diamonds represent subsequent/missing values

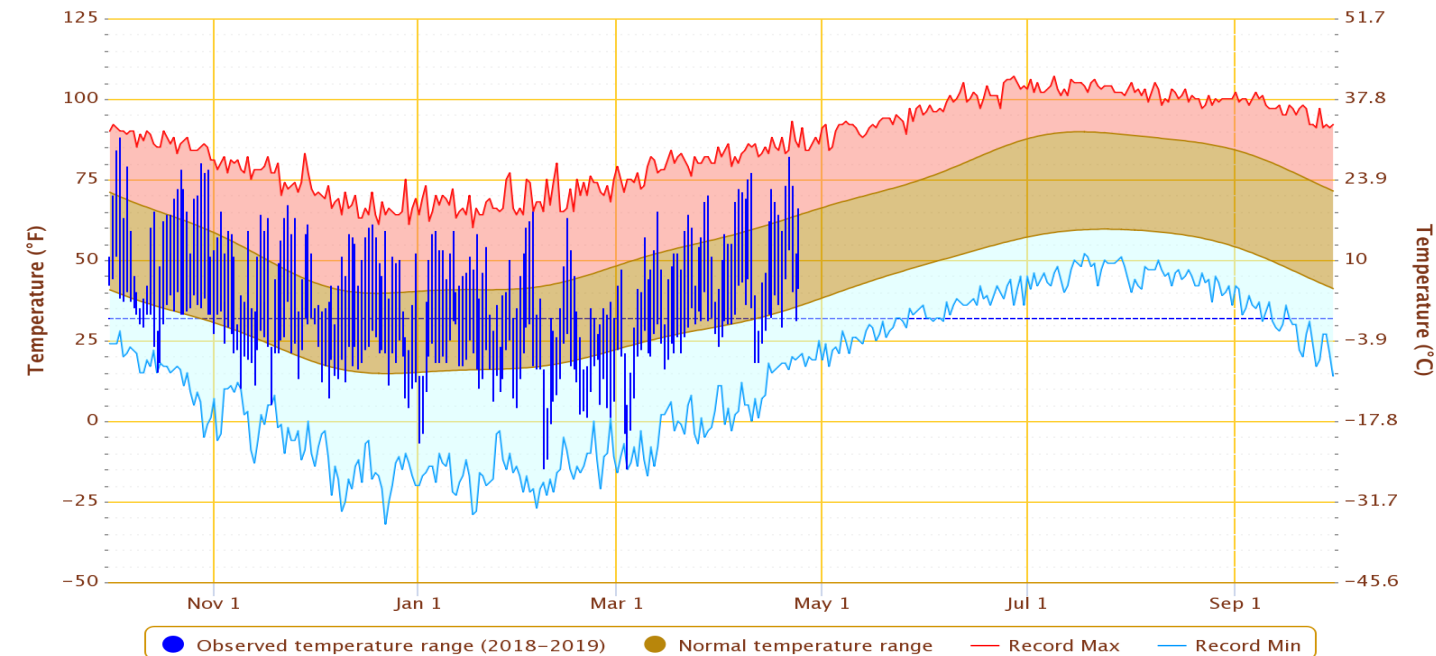


## COLORADO



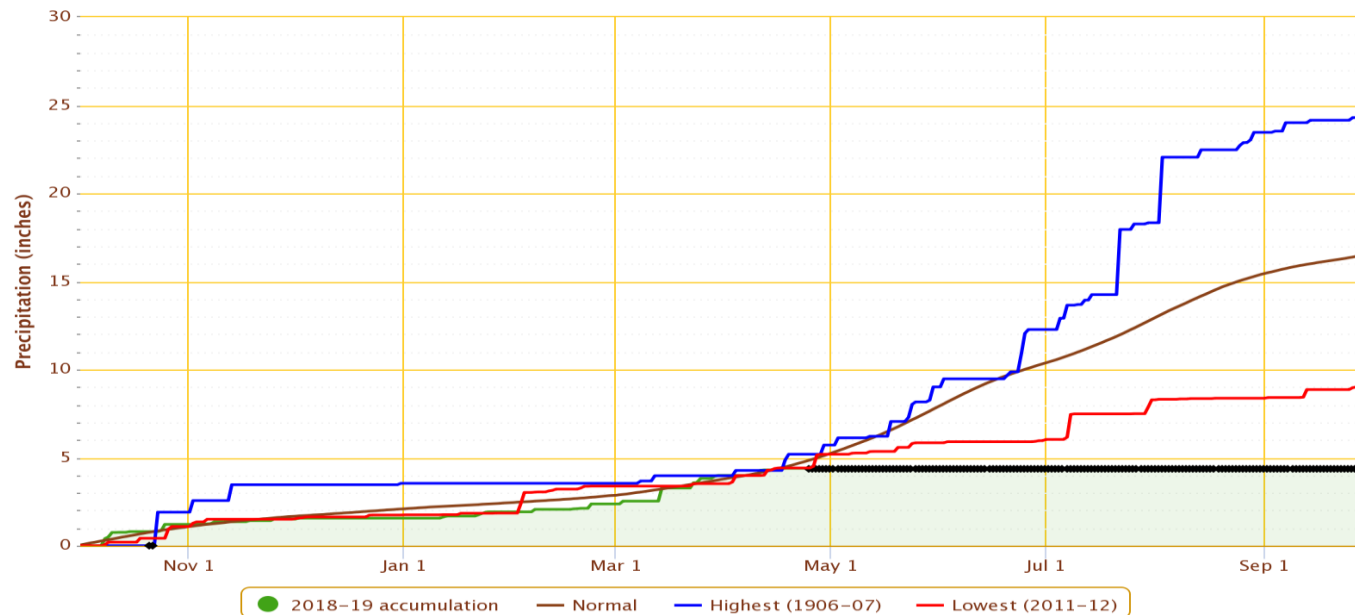
# Daily Temperature Data – AKRON 4 E, CO

Period of Record – 1893-06-01 to 2019-04-24. Normals period: 1981-2010. Click and drag to zoom chart.

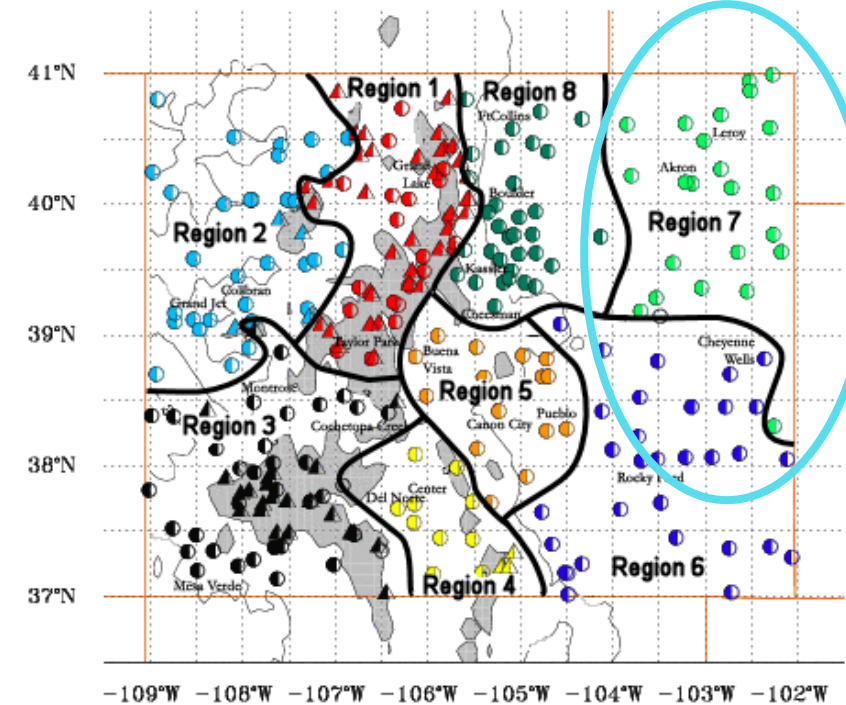


## Accumulated Precipitation – AKRON 4 E, CO

Click and drag to zoom to a shorter time interval; green/black diamonds represent subsequent/missing values

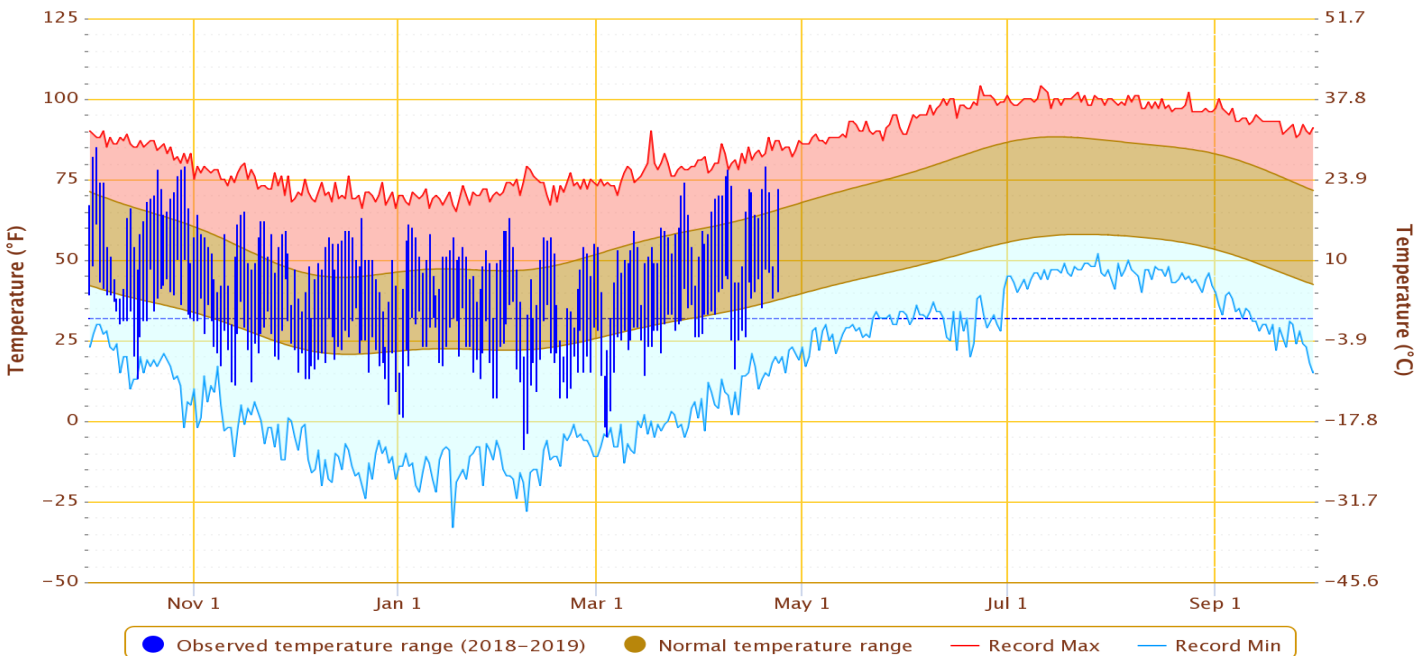


## COLORADO



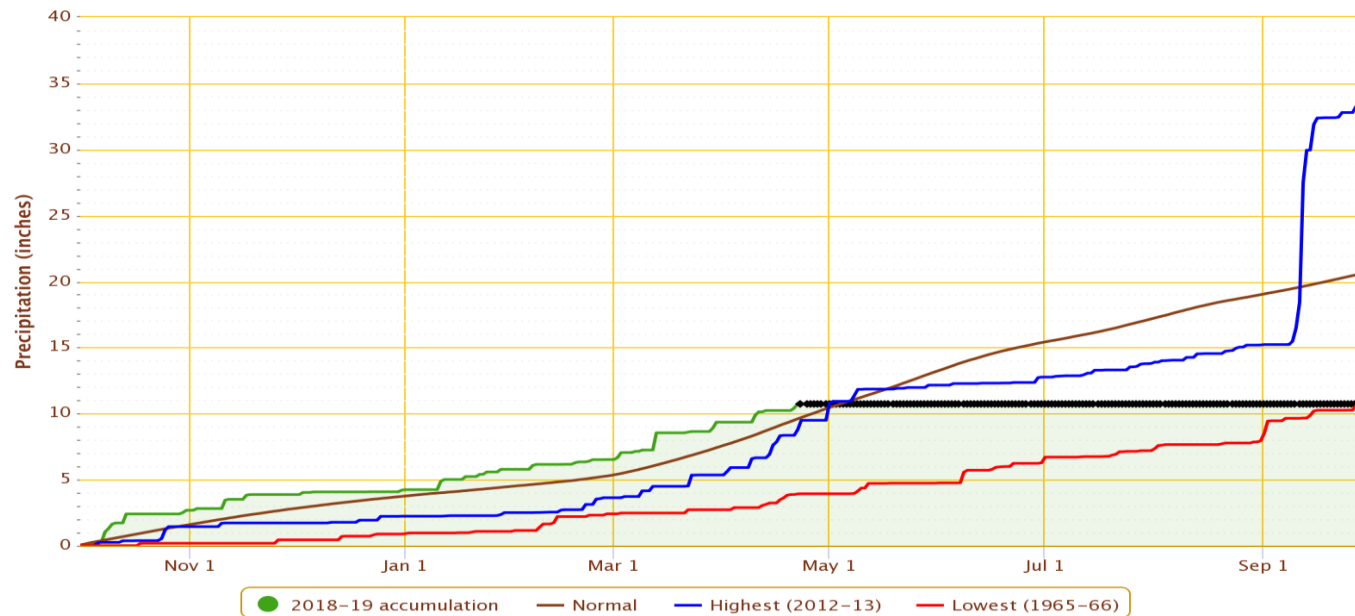
# Daily Temperature Data – BOULDER, CO

Period of Record – 1893–10–01 to 2019–04–24. Normals period: 1981–2010. Click and drag to zoom chart.

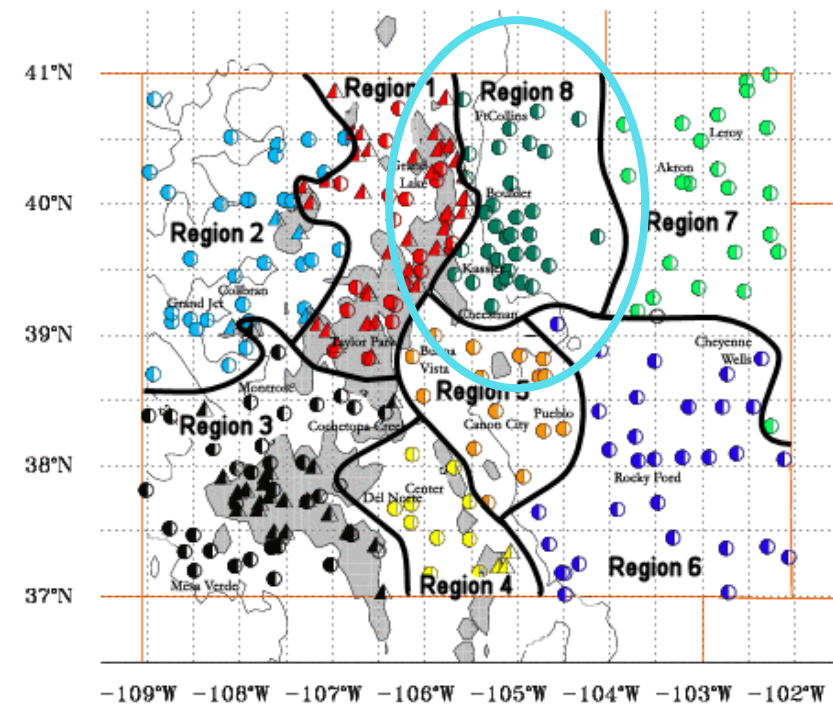


## Accumulated Precipitation – BOULDER, CO

Click and drag to zoom to a shorter time interval; green/black diamonds represent subsequent/missing values

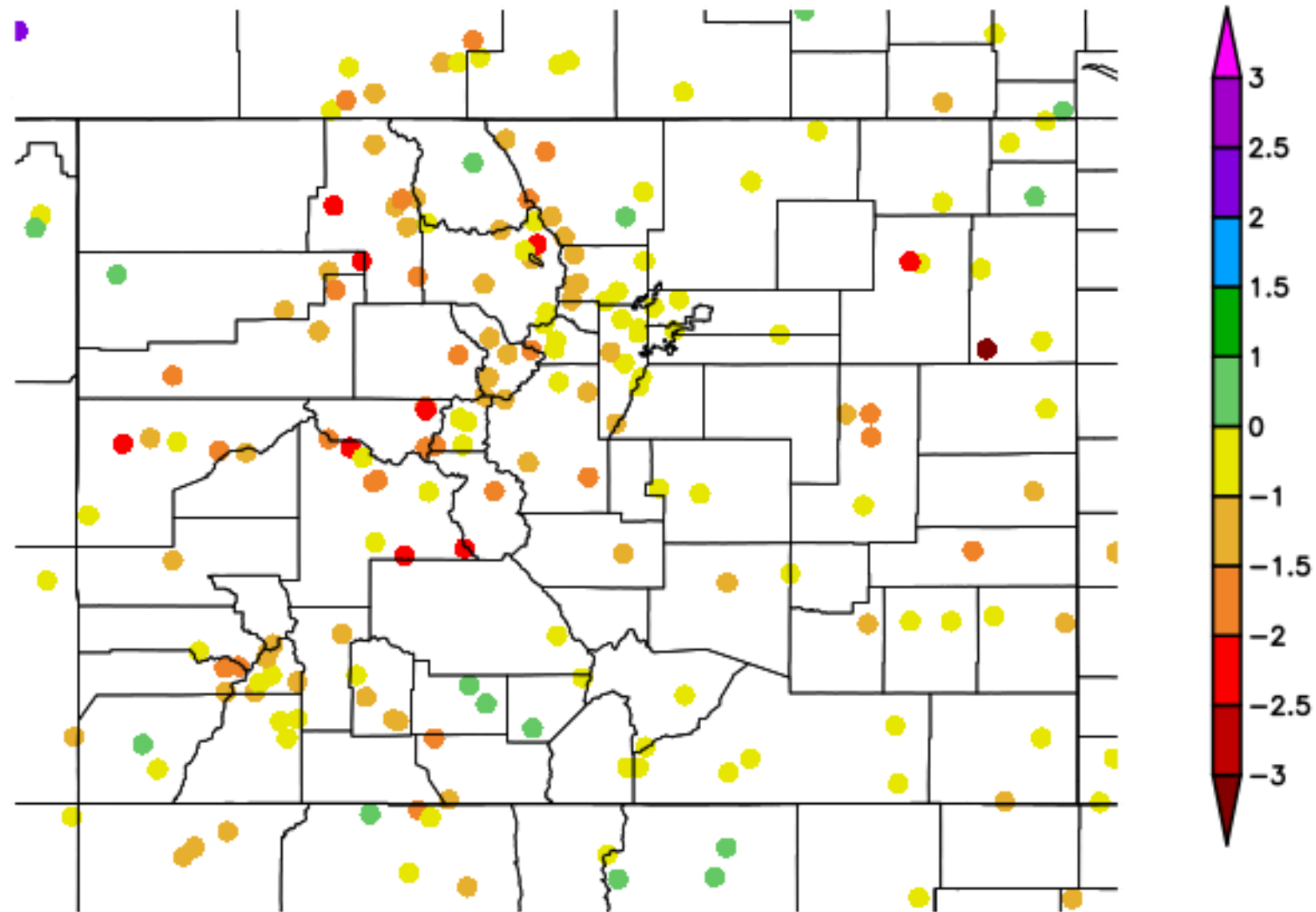


## COLORADO





30 Day SPI  
3/25/2019 – 4/23/2019



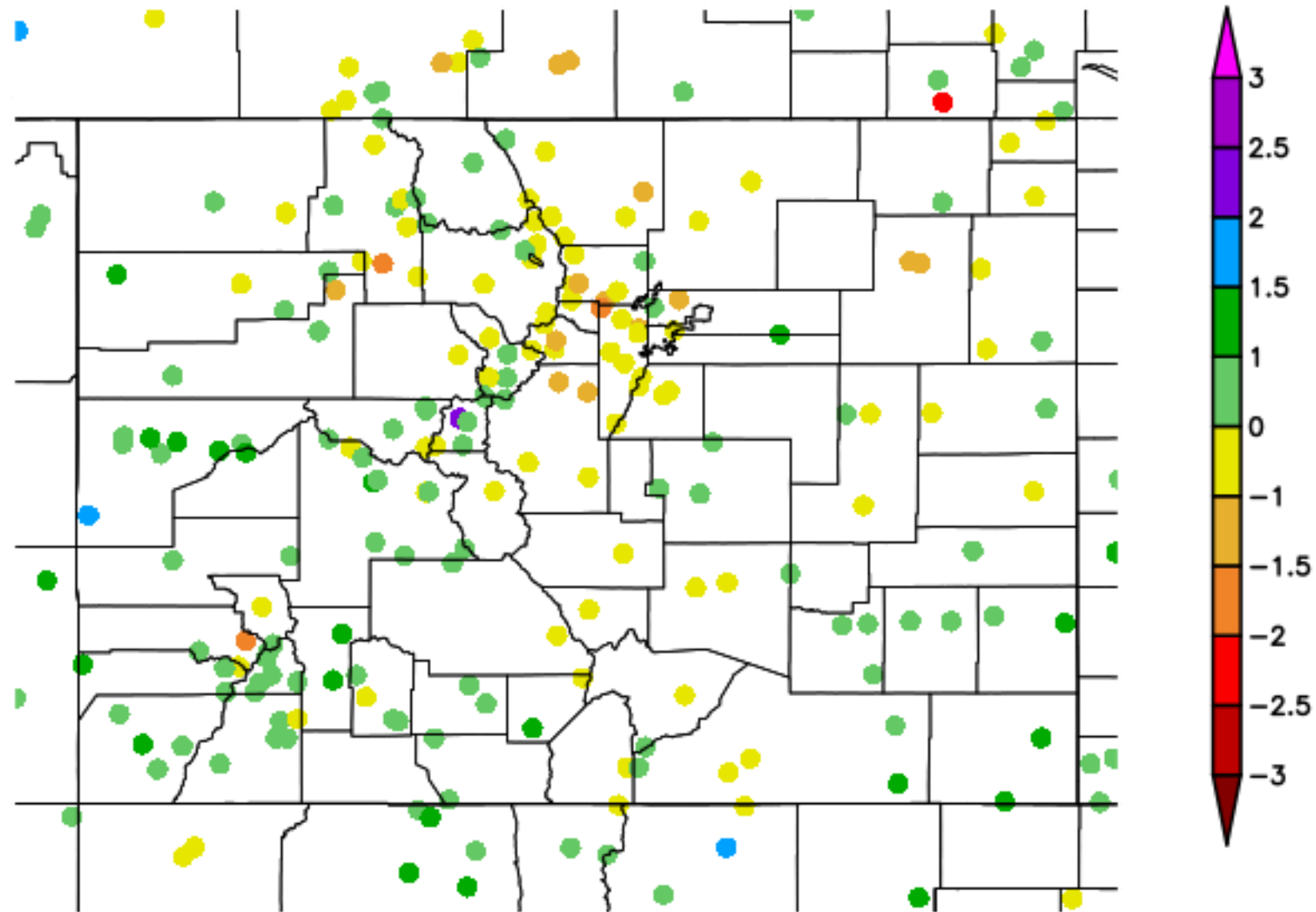
COLORADO

Generated 4/24/2019 at HPRCC using provisional data.

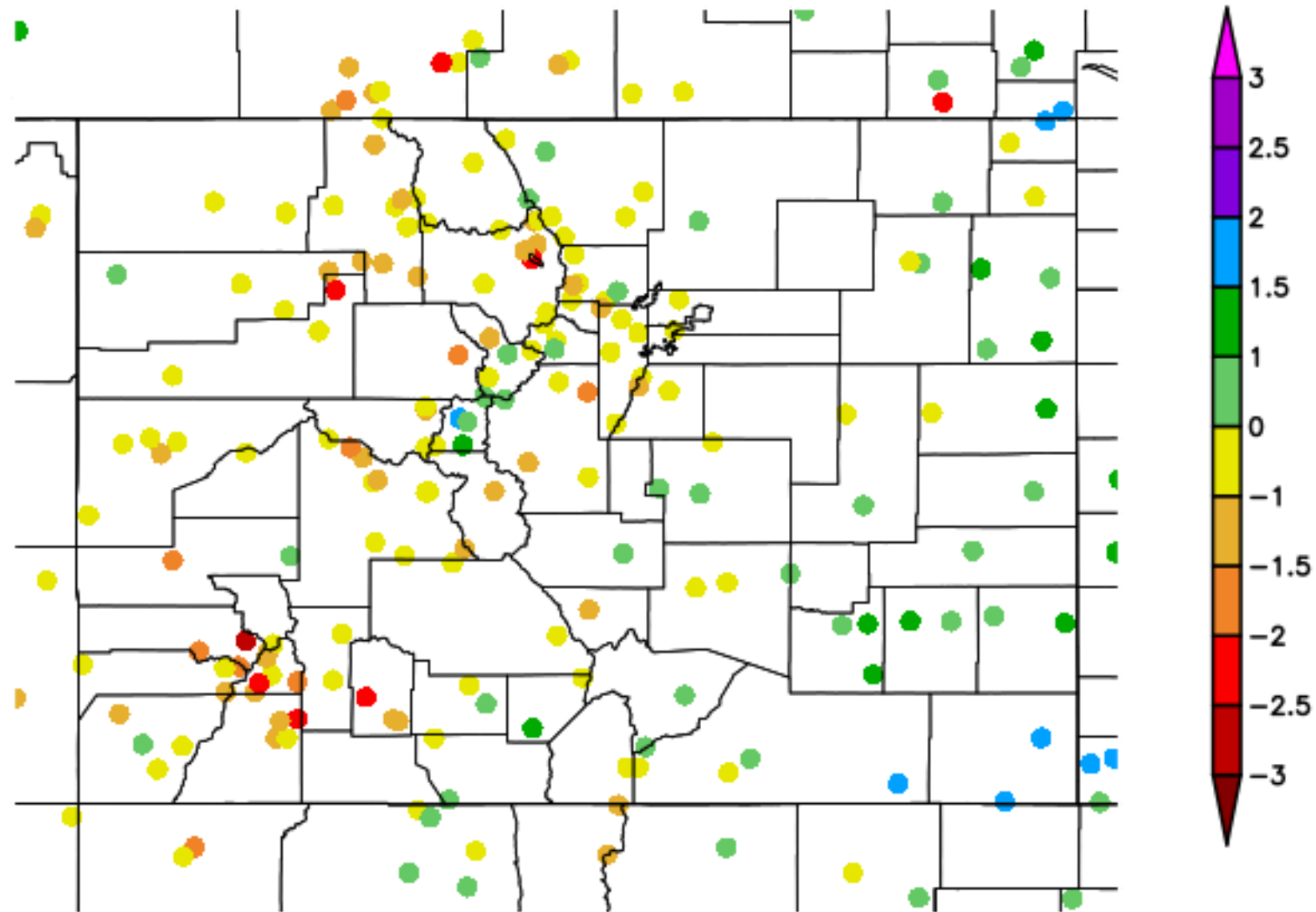
NOAA Regional Climate Centers



# 9 Month SPI 7/25/2018 - 4/24/2019



# 24 Month SPI 4/24/2017 - 4/23/2019

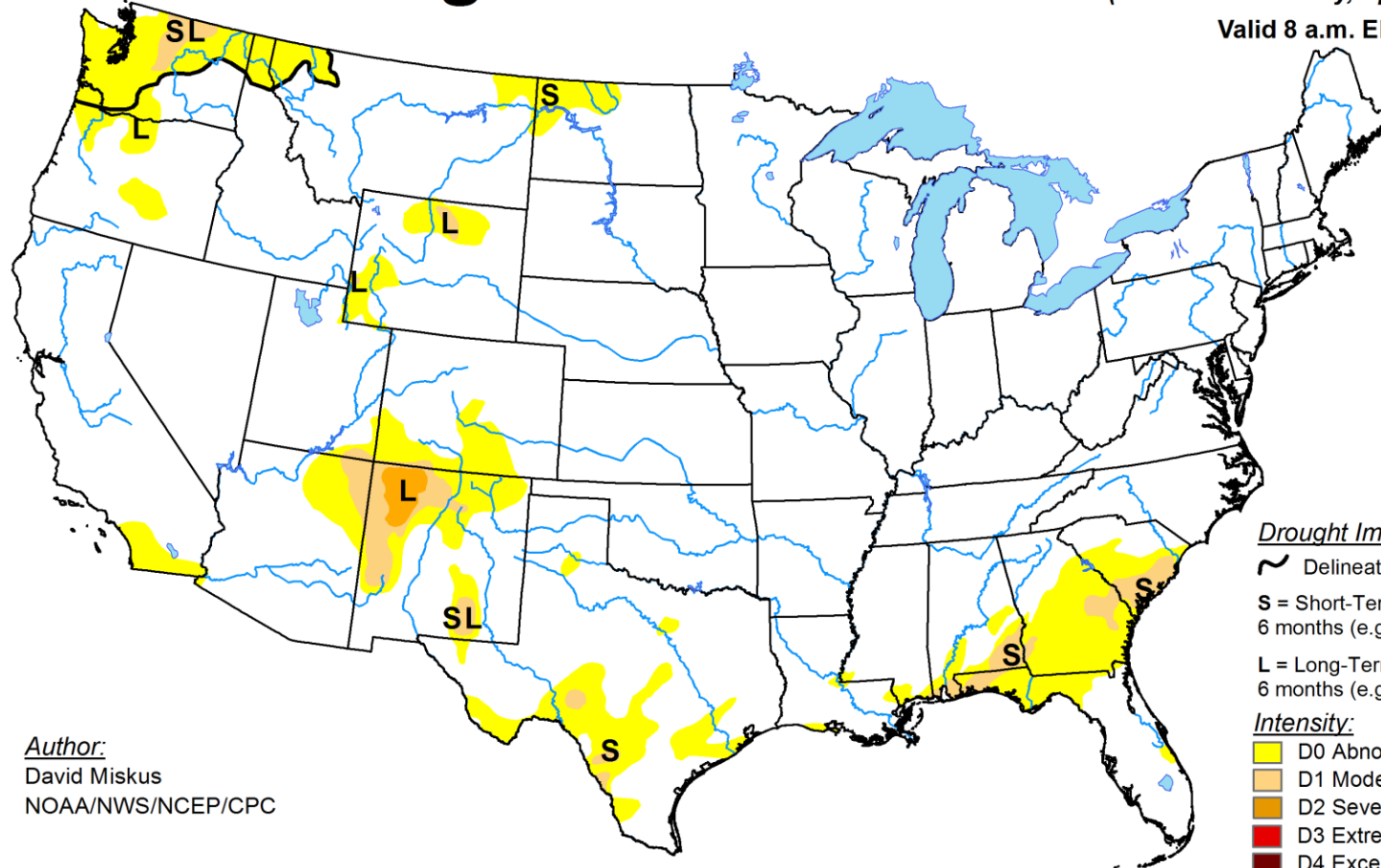


# U.S. Drought Monitor

April 23, 2019

(Released Thursday, Apr. 25, 2019)

Valid 8 a.m. EDT



Author:  
David Miskus  
NOAA/NWS/NCEP/CPC

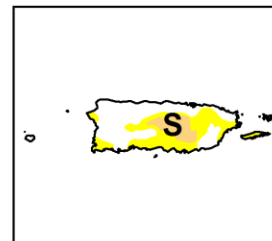
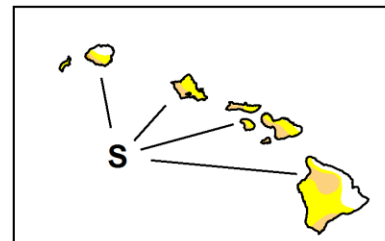
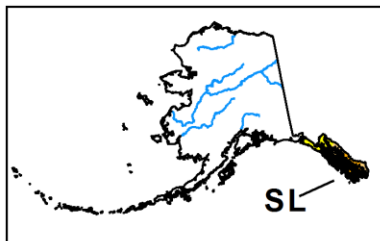
## Drought Impact Types:

- ~ 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:

- 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.



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





# U.S. Drought Monitor

## Colorado

**April 23, 2019**

(Released Thursday, Apr. 25, 2019)

Valid 8 a.m. EDT

*Drought Conditions (Percent Area)*

	None	D0-D4	D1-D4	D2-D4	D3-D4	D4
<b>Current</b>	78.01	21.99	0.98	0.00	0.00	0.00
<b>Last Week</b> 04-16-2019	78.01	21.99	4.74	0.00	0.00	0.00
<b>3 Months Ago</b> 01-22-2019	15.91	84.09	68.49	42.41	22.04	2.79
<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> 04-24-2018	18.47	81.53	67.98	53.65	30.89	3.87

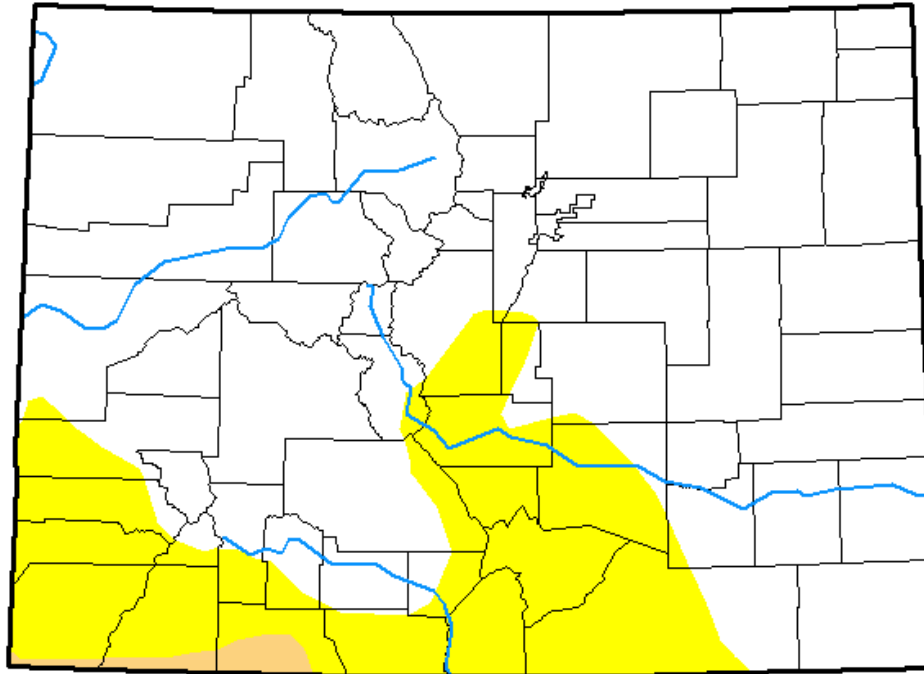
### Intensity:

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

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

### Author:

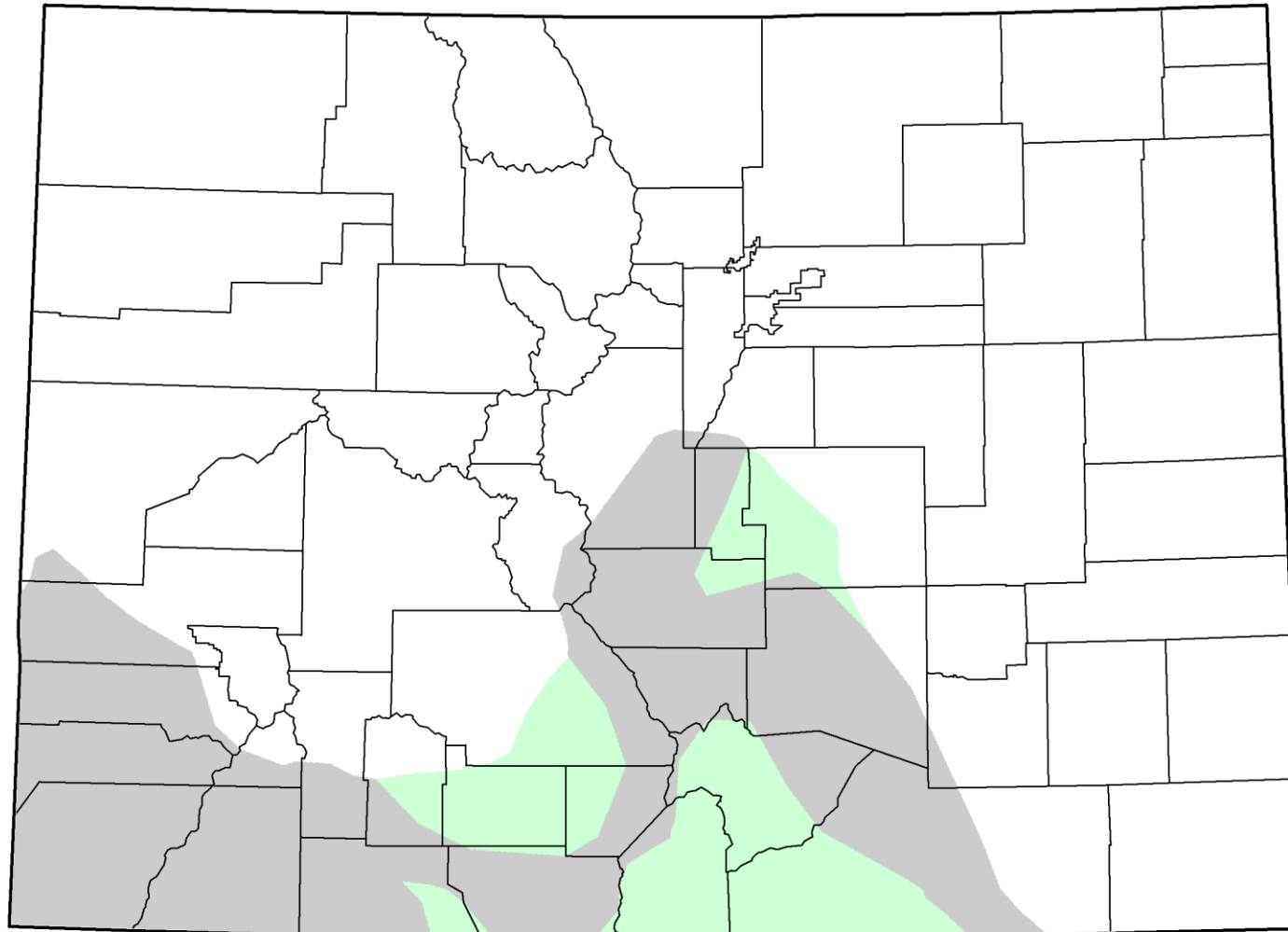
David Miskus  
NOAA/NWS/NCEP/CPC



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



# U.S. Drought Monitor Class Change - Colorado 1 Month



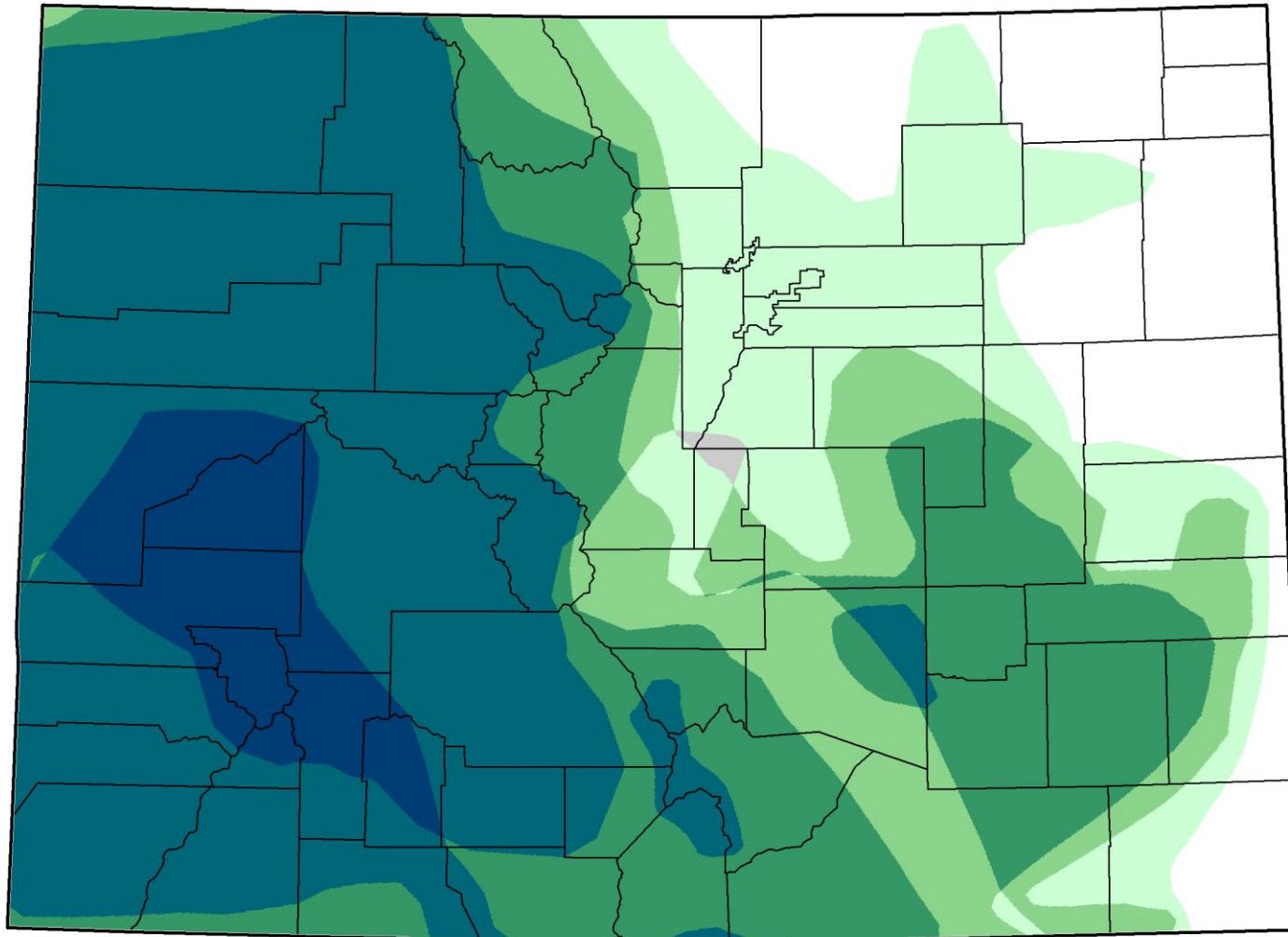
April 23, 2019  
compared to  
March 26, 2019

[droughtmonitor.unl.edu](http://droughtmonitor.unl.edu)



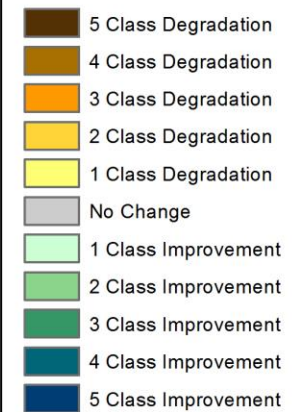
- 5 Class Degradation
- 4 Class Degradation
- 3 Class Degradation
- 2 Class Degradation
- 1 Class Degradation
- No Change
- 1 Class Improvement
- 2 Class Improvement
- 3 Class Improvement
- 4 Class Improvement
- 5 Class Improvement

## U.S. Drought Monitor Class Change - Colorado Start of Water Year



April 23, 2019  
compared to  
September 25, 2018

[droughtmonitor.unl.edu](http://droughtmonitor.unl.edu)





## Summer Outlook

What does El Niño mean?

CPC Outlooks

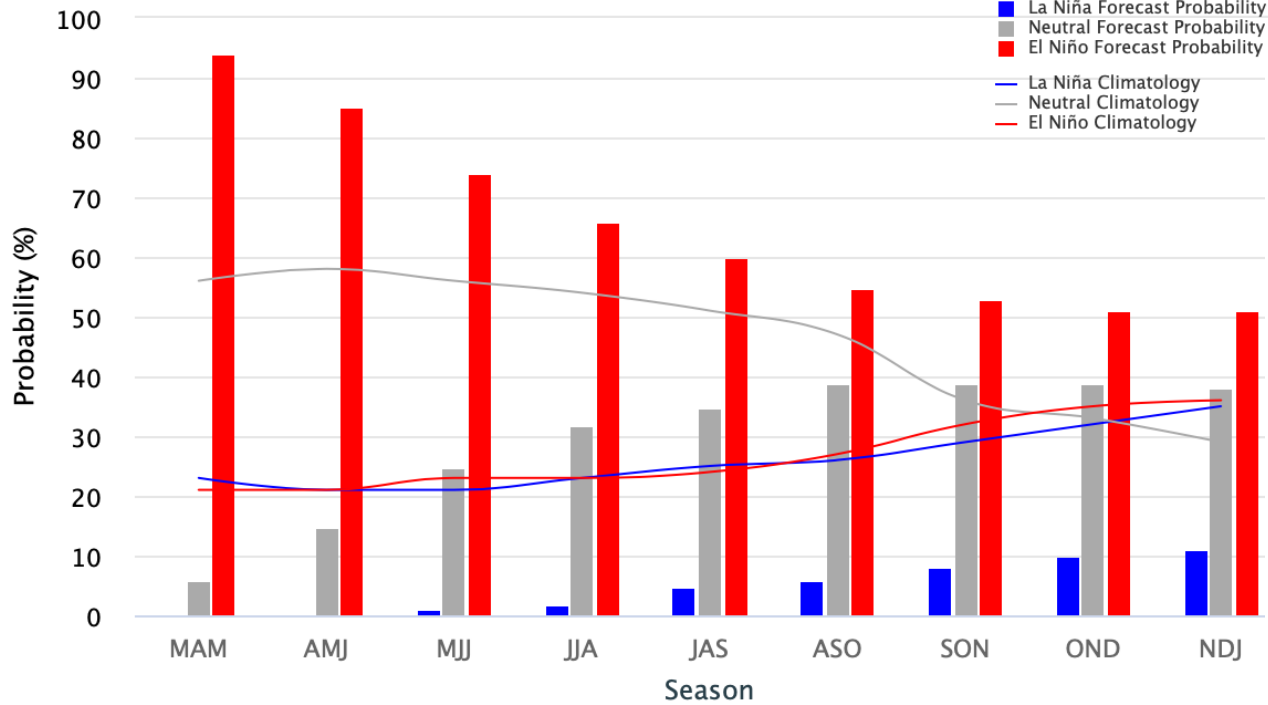




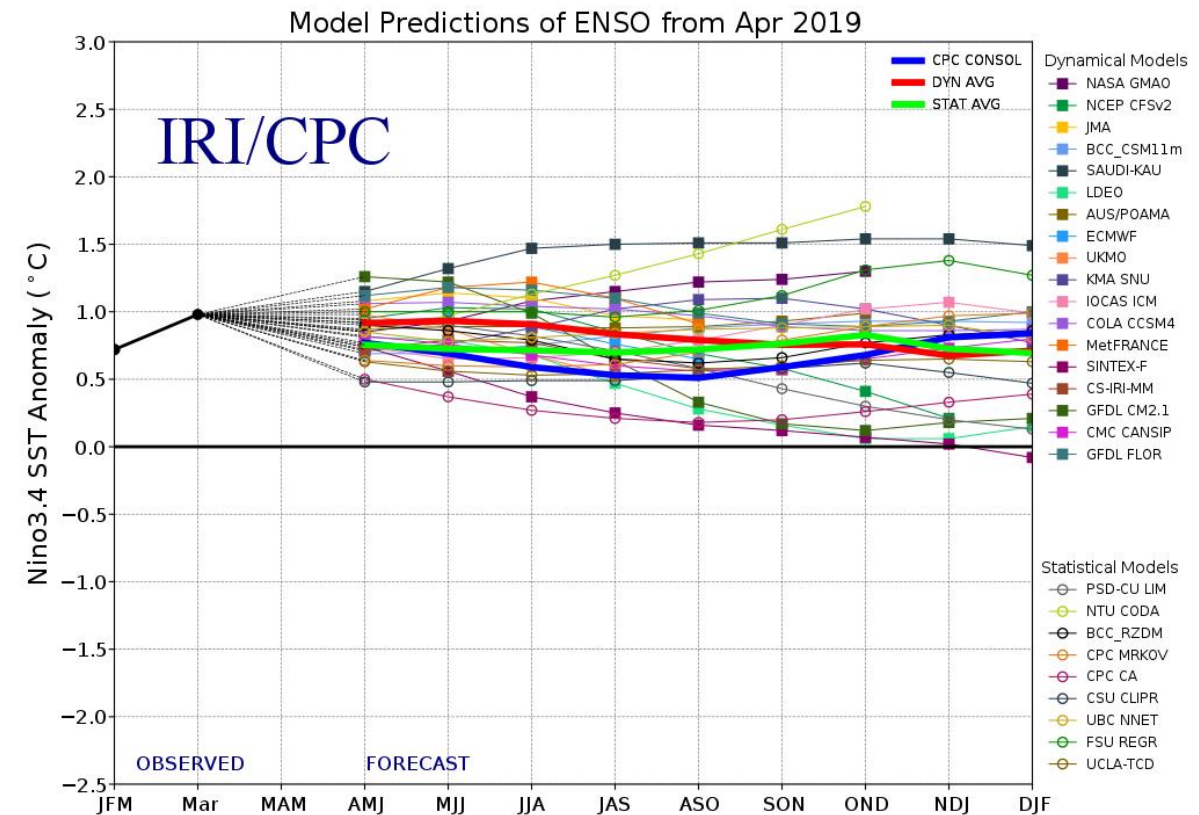
# What's the El Niño forecast?

Early-April 2019 CPC/IRI Official Probabilistic ENSO Forecasts

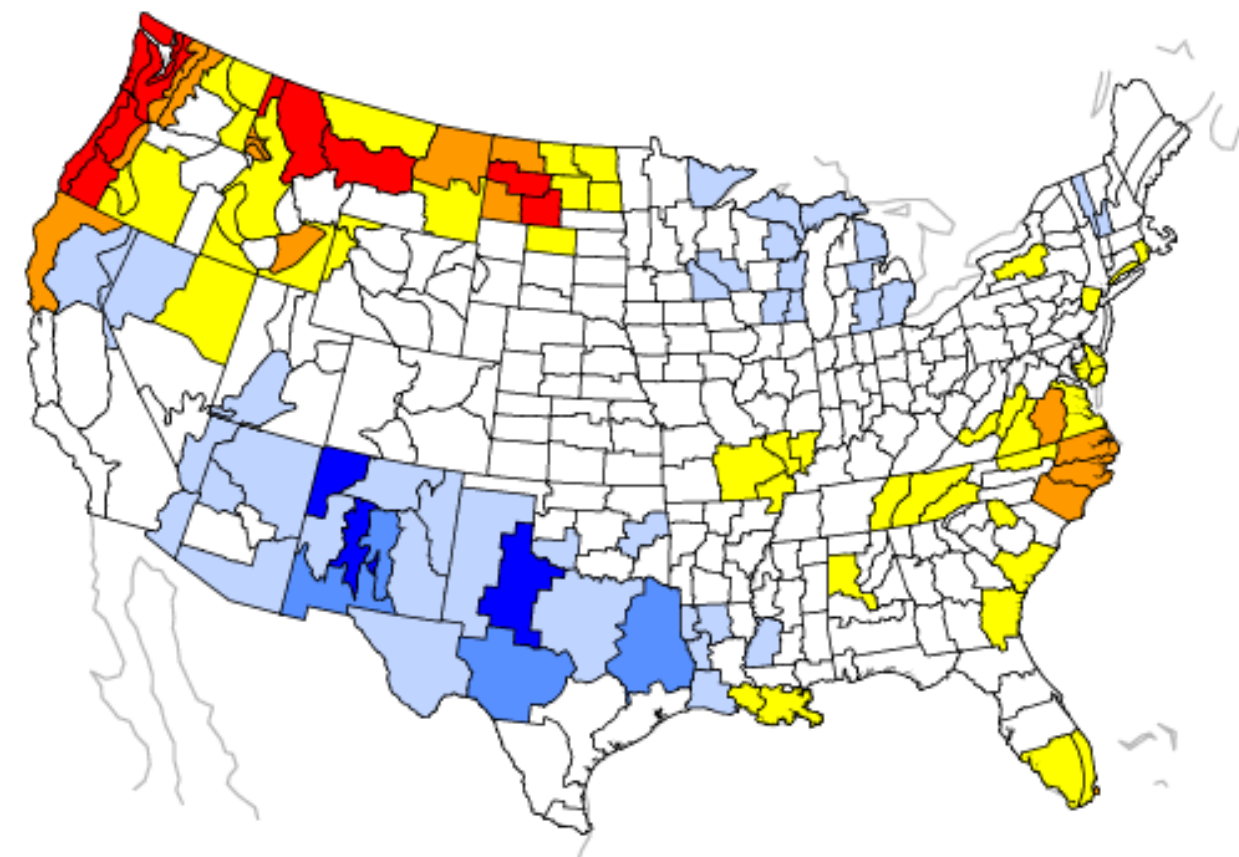
ENSO state based on NINO3.4 SST Anomaly  
Neutral ENSO:  $-0.5^{\circ}\text{C}$  to  $0.5^{\circ}\text{C}$



An El Niño advisory is in effect...



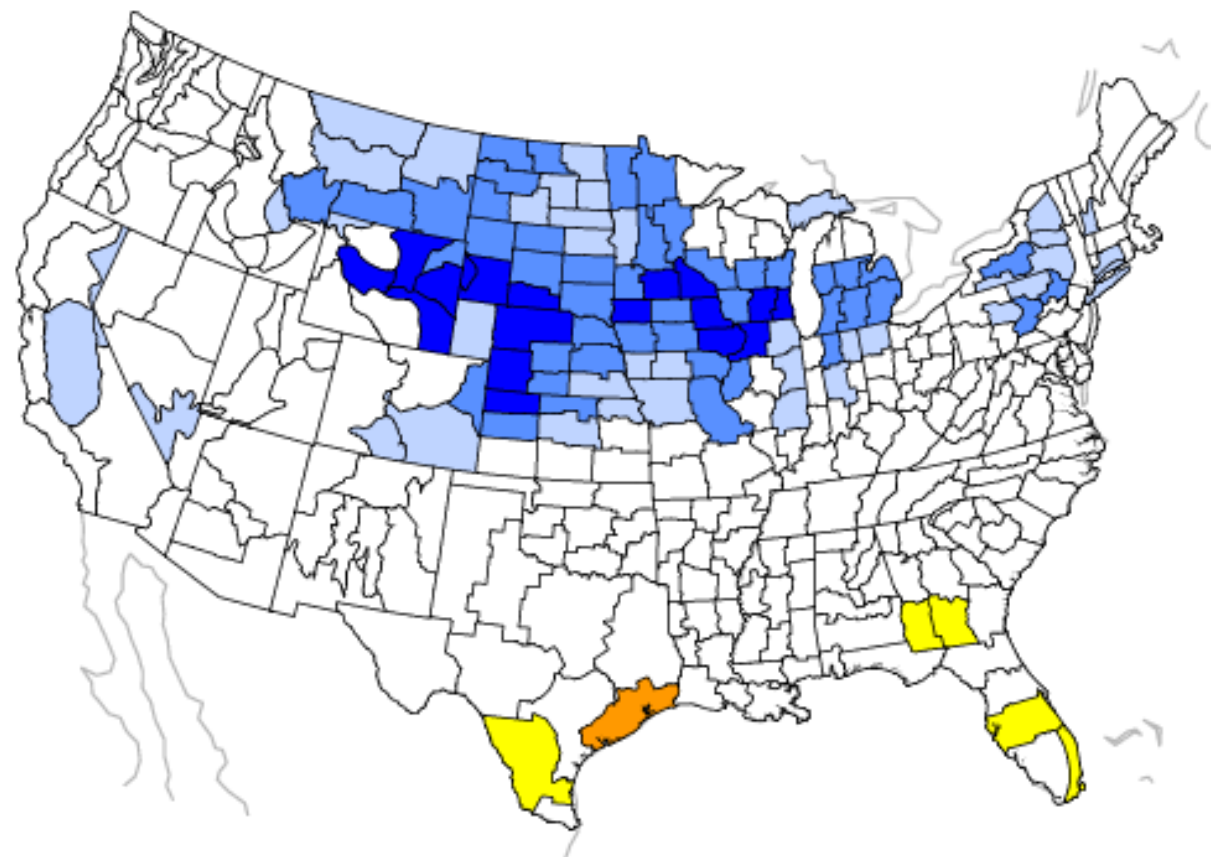
**MJJ Temperature During El Nino**  
**Increased Risk of Warm or Cold Extremes**



Percent (%) Increase in Risk

NOAA/ESRL/PSD

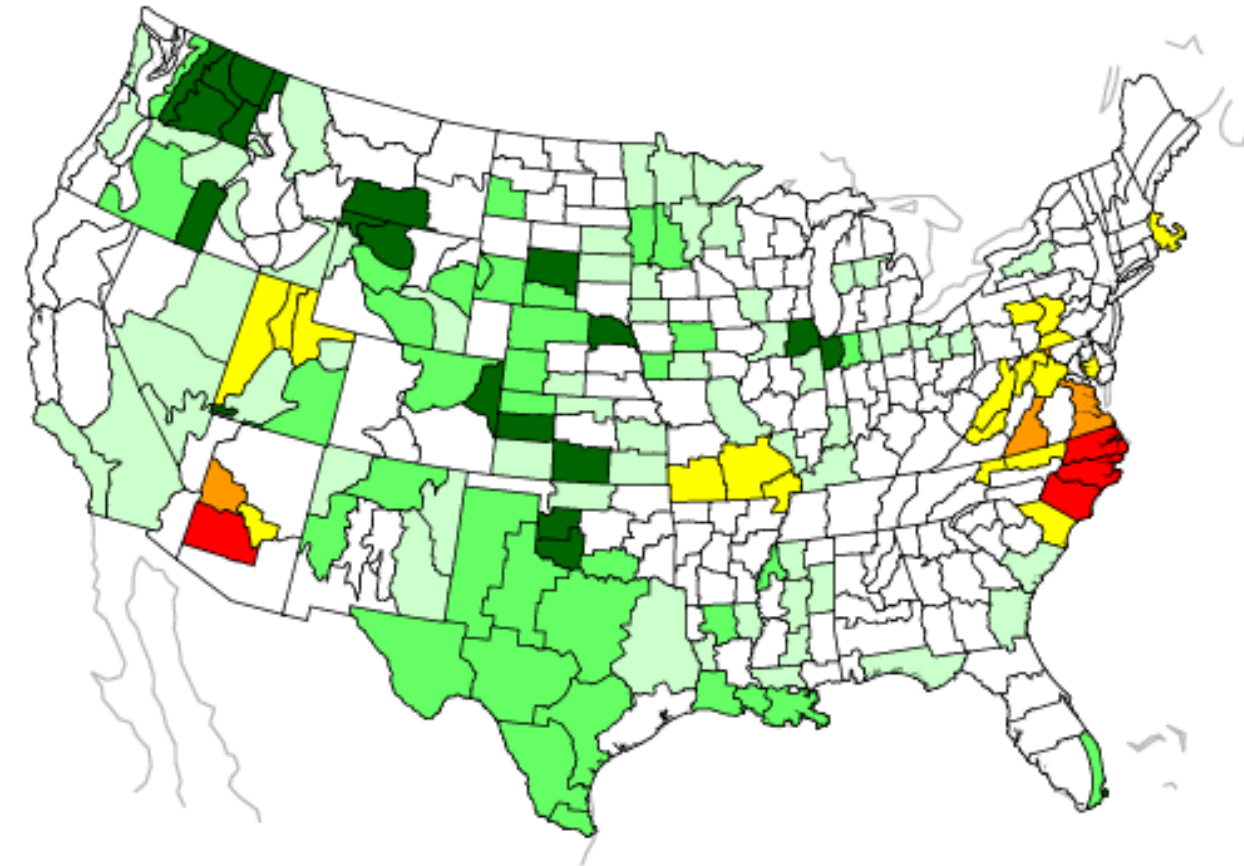
**JAS Temperature During El Nino**  
**Increased Risk of Warm or Cold Extremes**



Percent (%) Increase in Risk

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

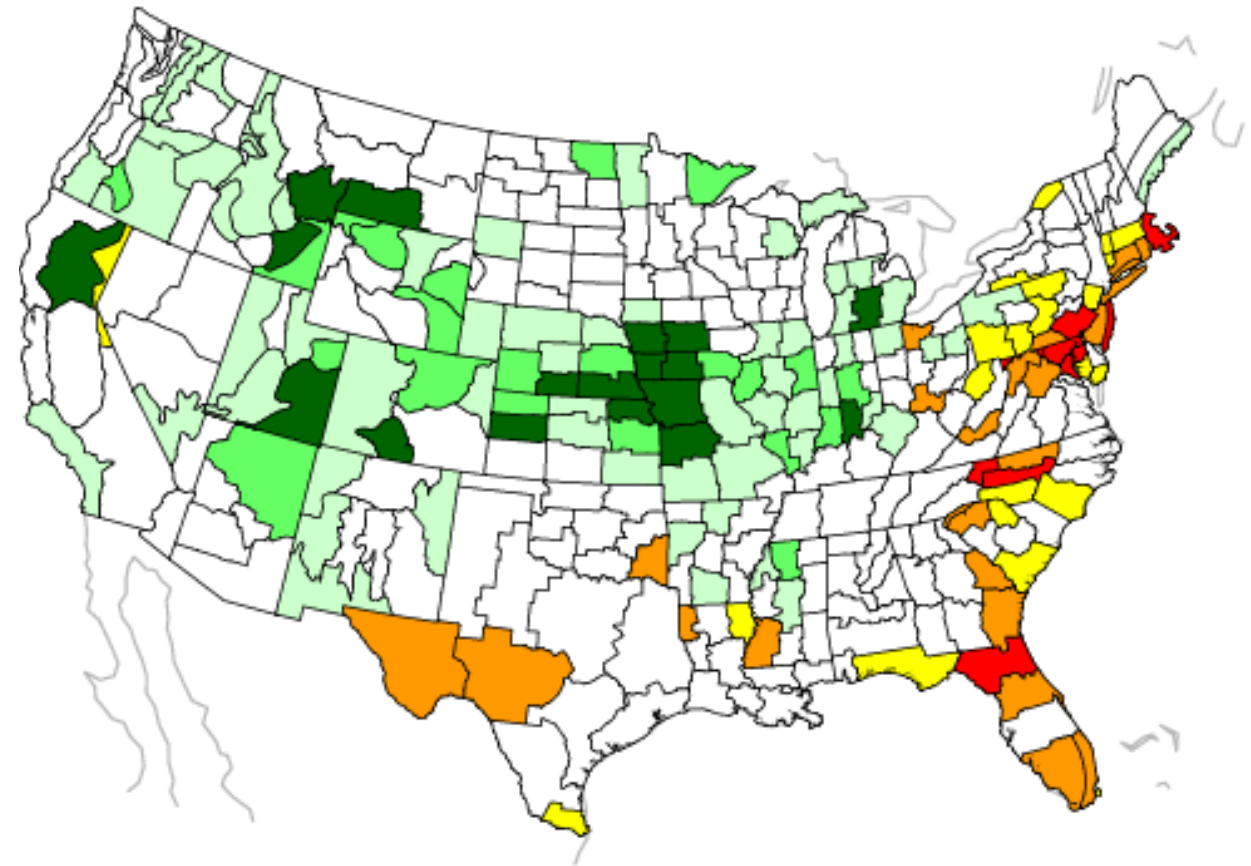
**MJJ Precipitation During El Nino**  
**Increased Risk of Wet or Dry Extremes**



Percent (%) Increase in Risk

NOAA/ESRL/PSD

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



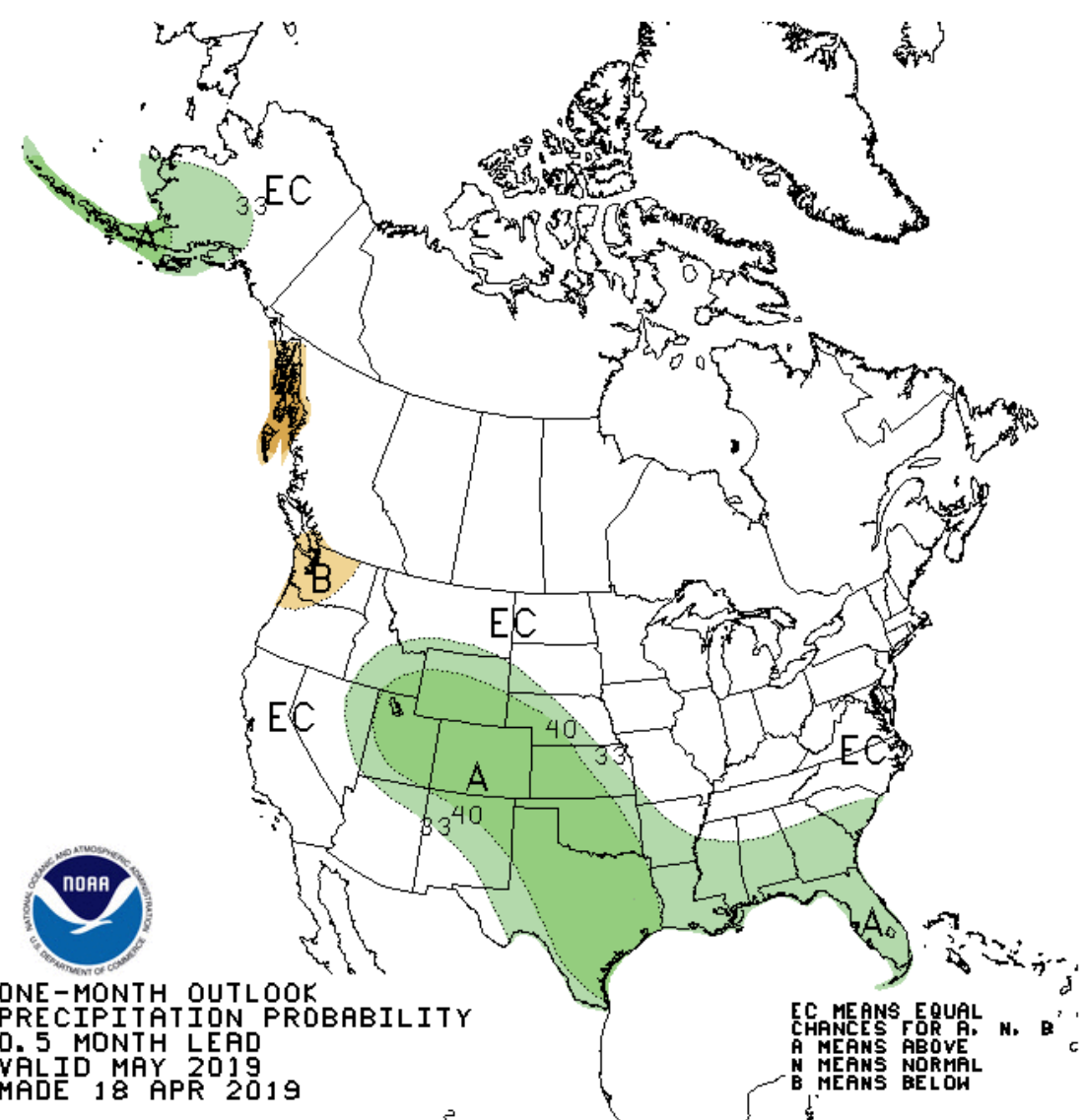
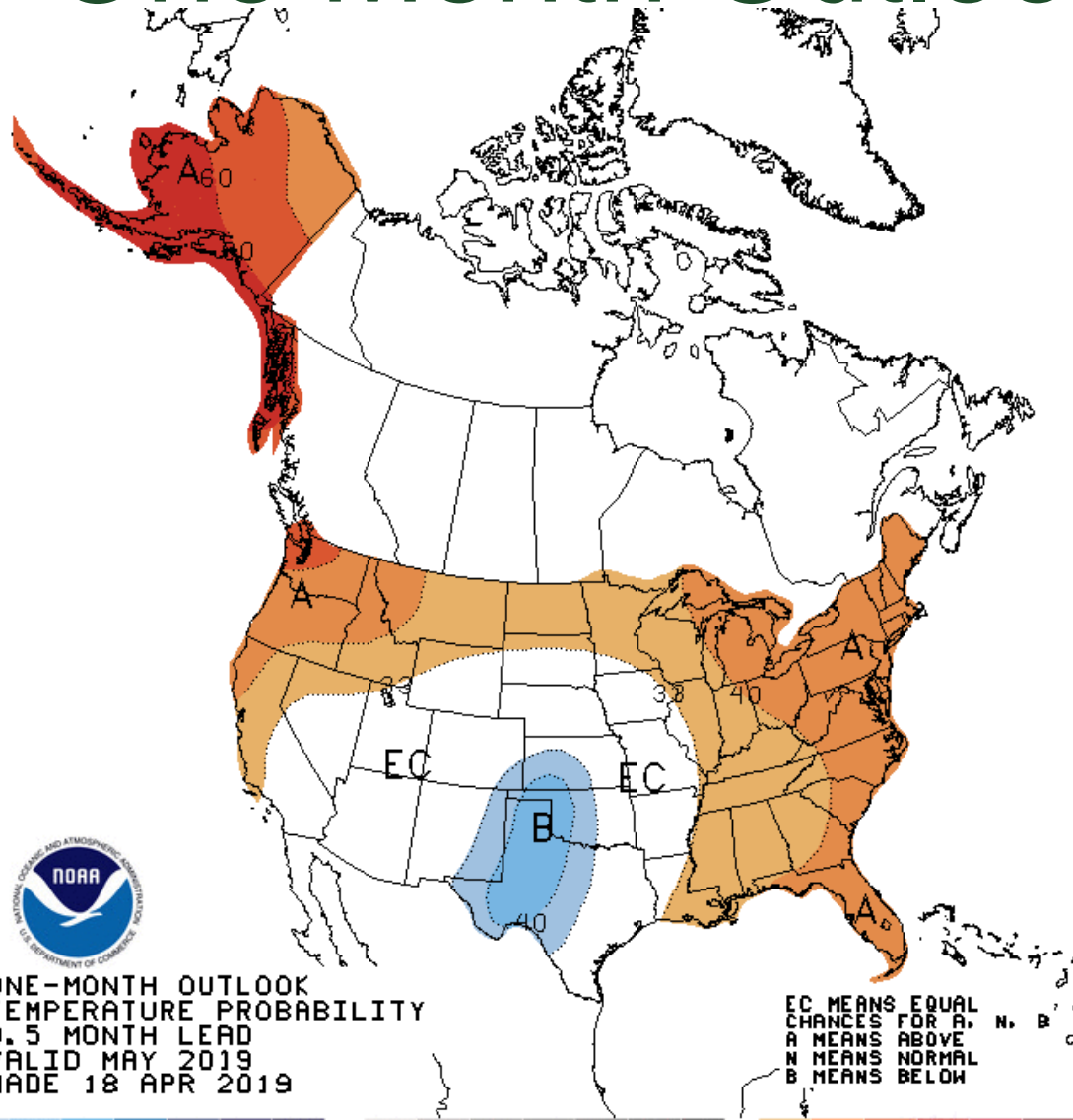
Percent (%) Increase in Risk

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



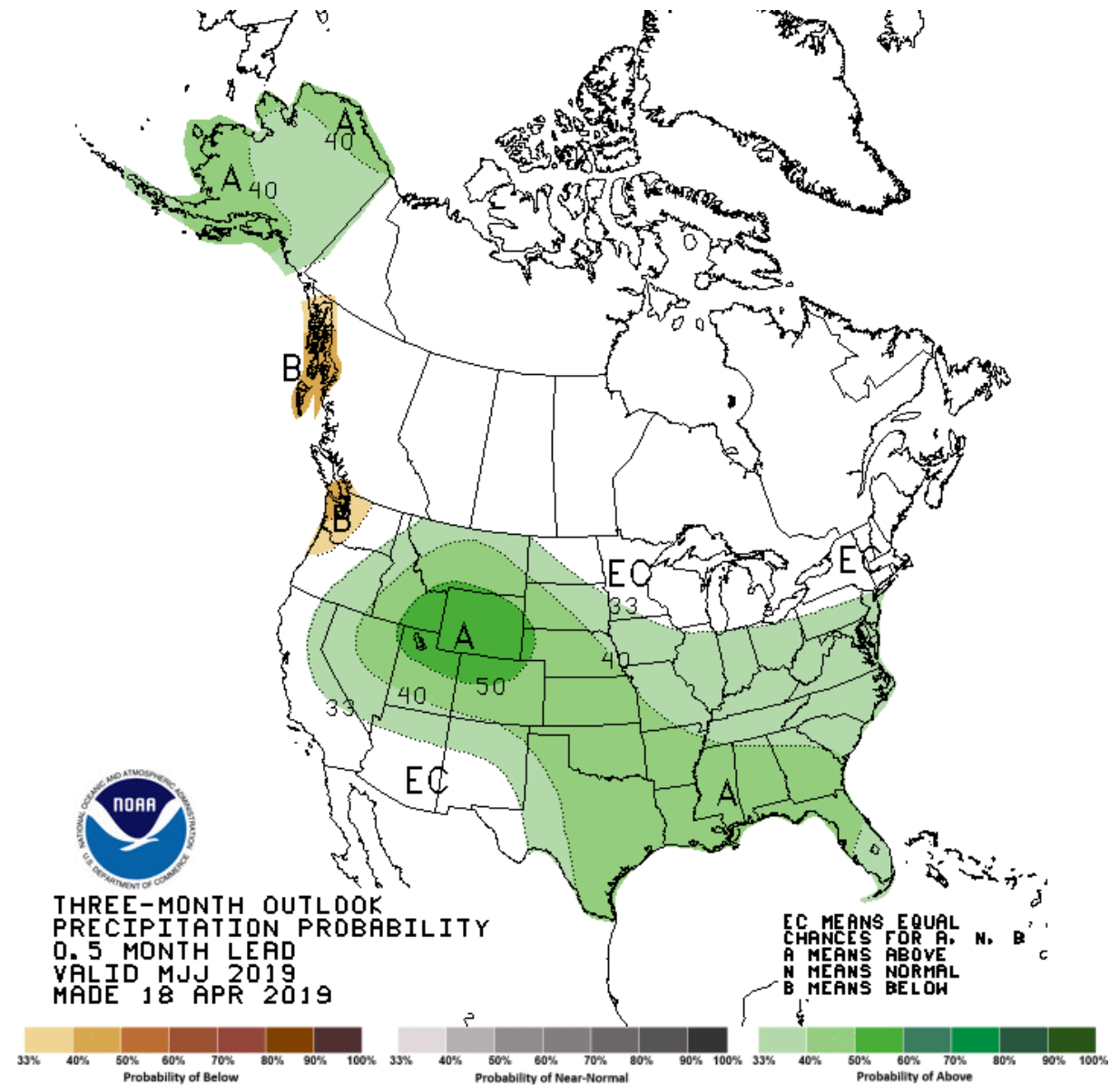
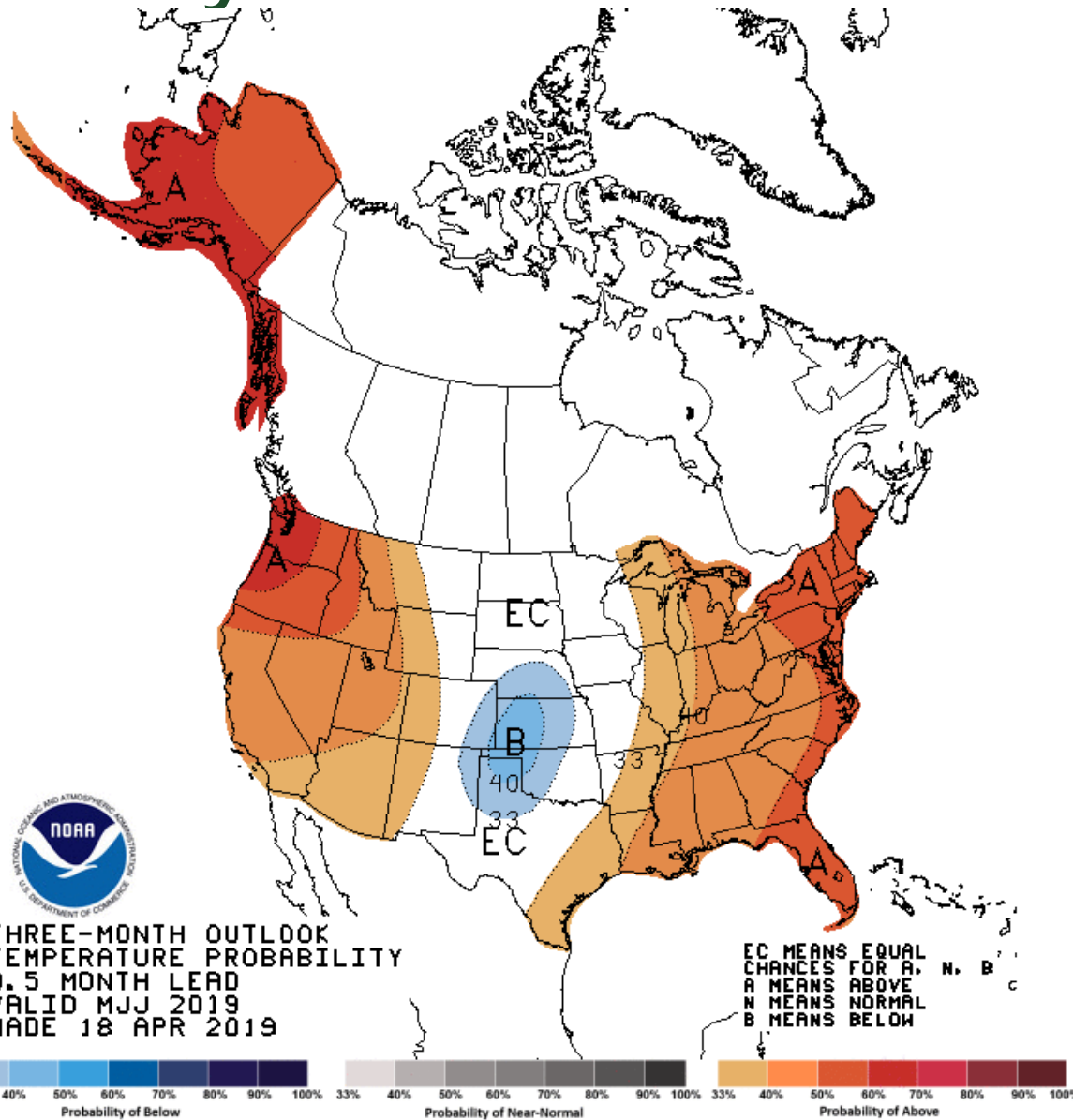


# One Month Outlook



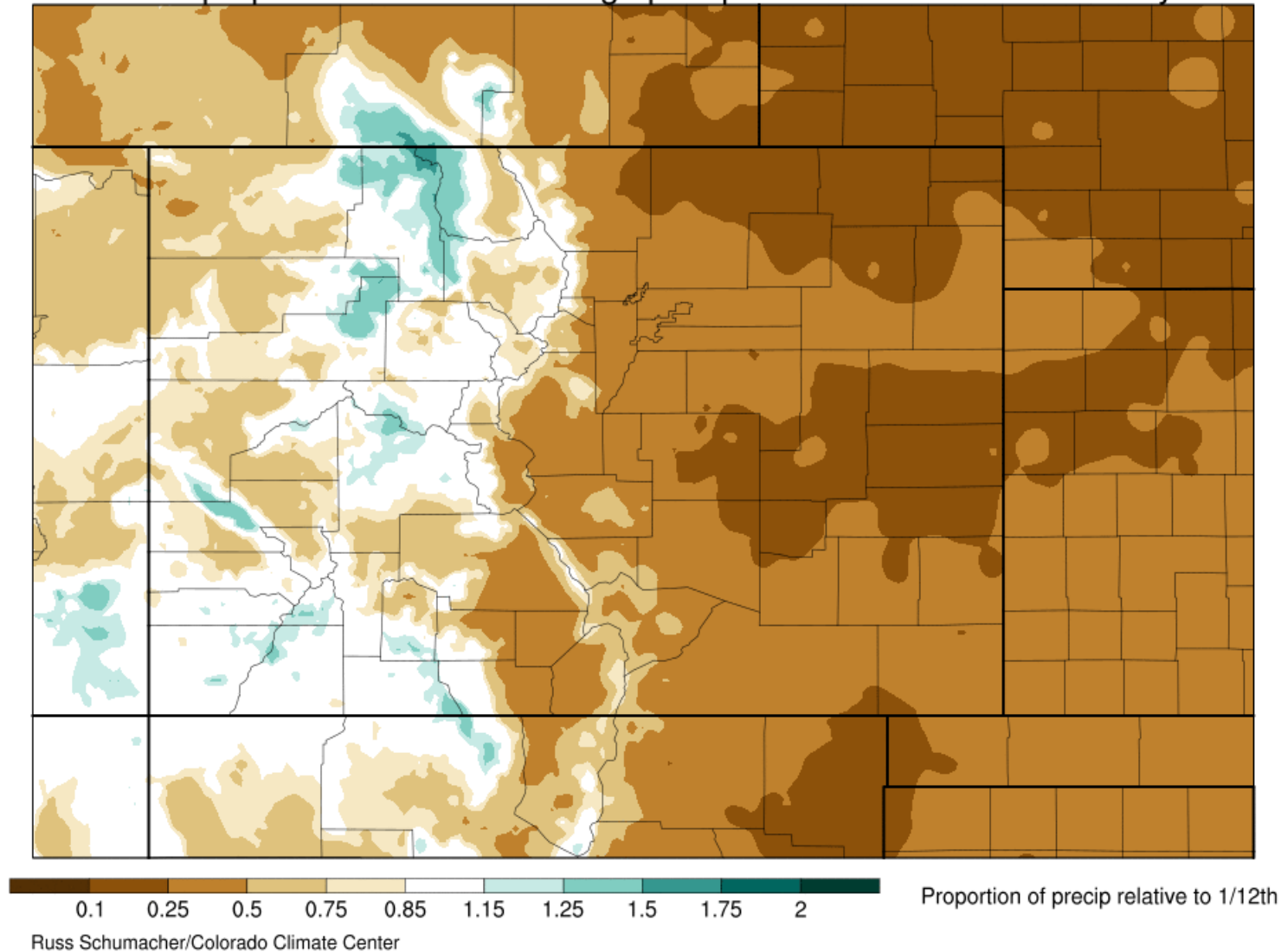


# May-Jun-Jul Outlook

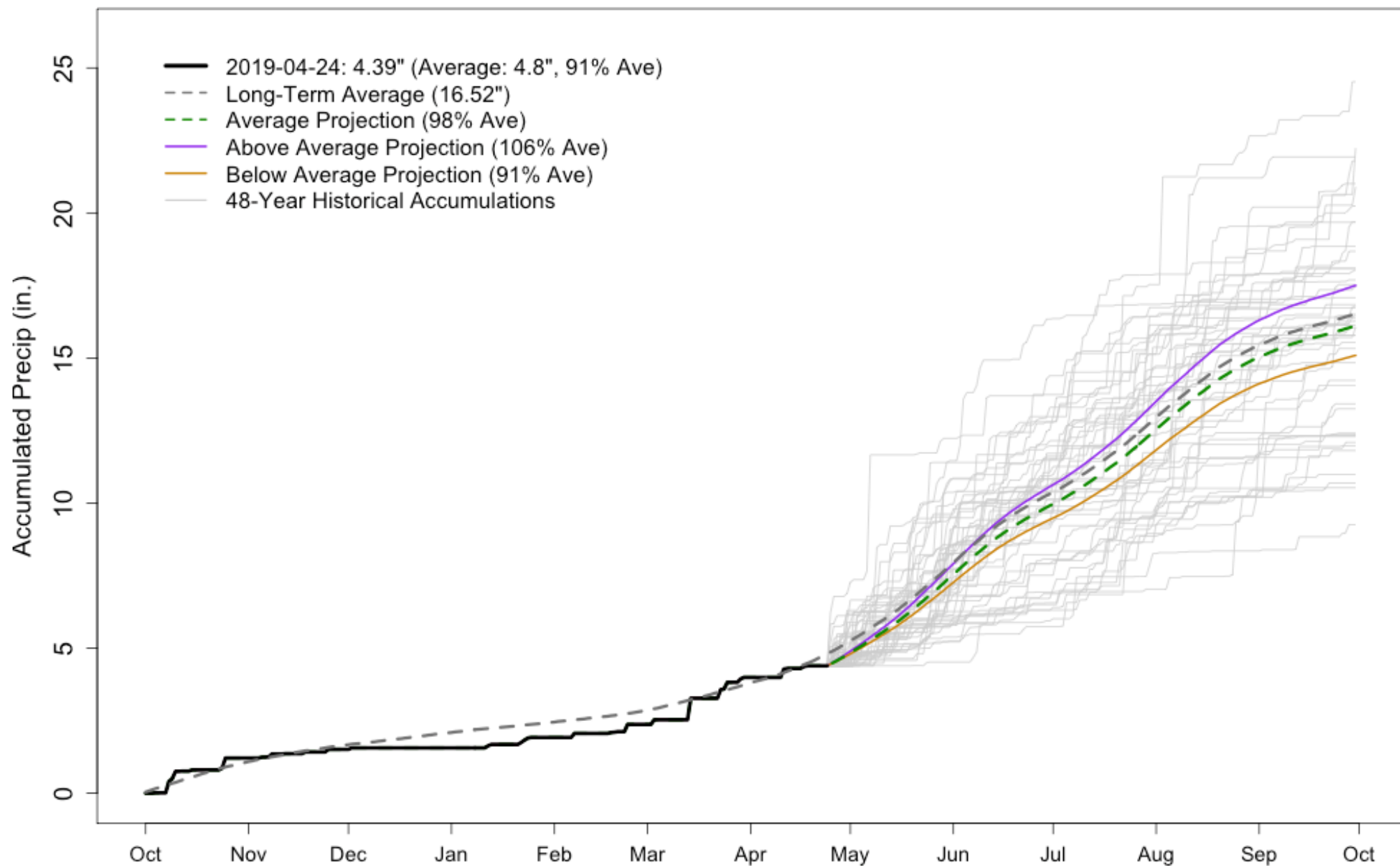


# The importance of summer precipitation

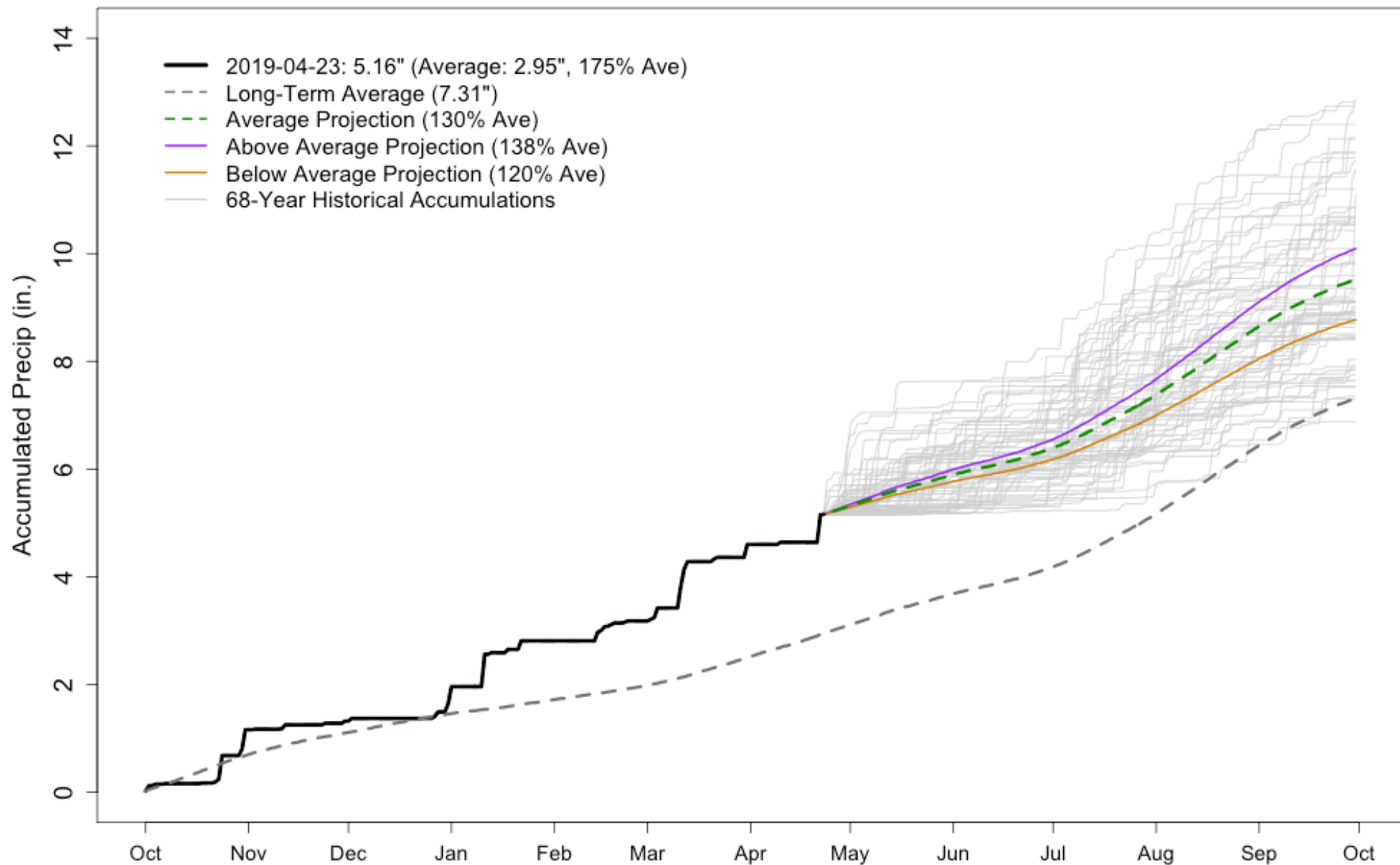
PRISM proportion of annual average precipitation in this month: January



## AKRON 4 E WY2019 Precipitation Projections

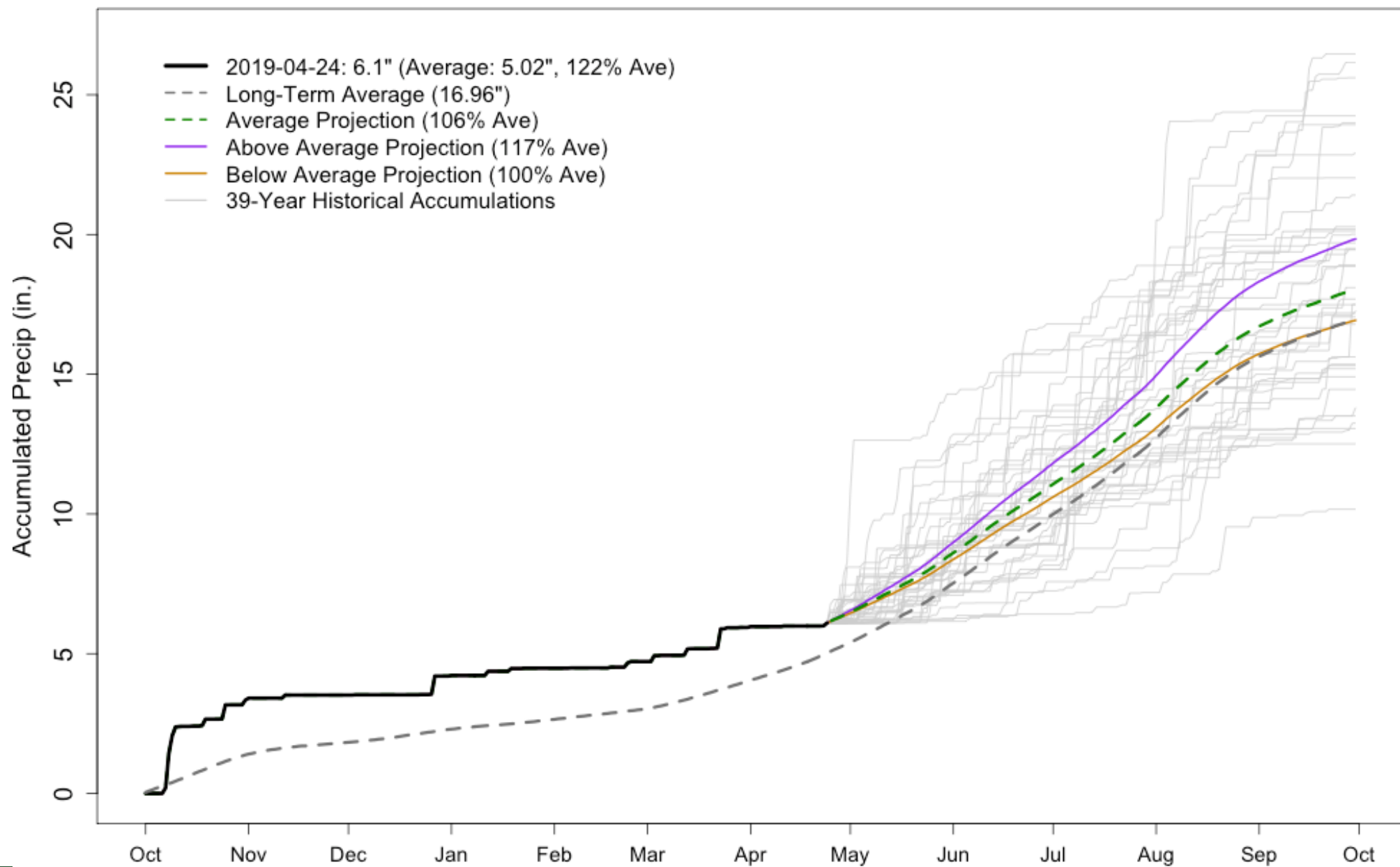


# ALAMOSA SAN LUIS VALLEY REGIONAL AP WY2019 Precipitation Projections

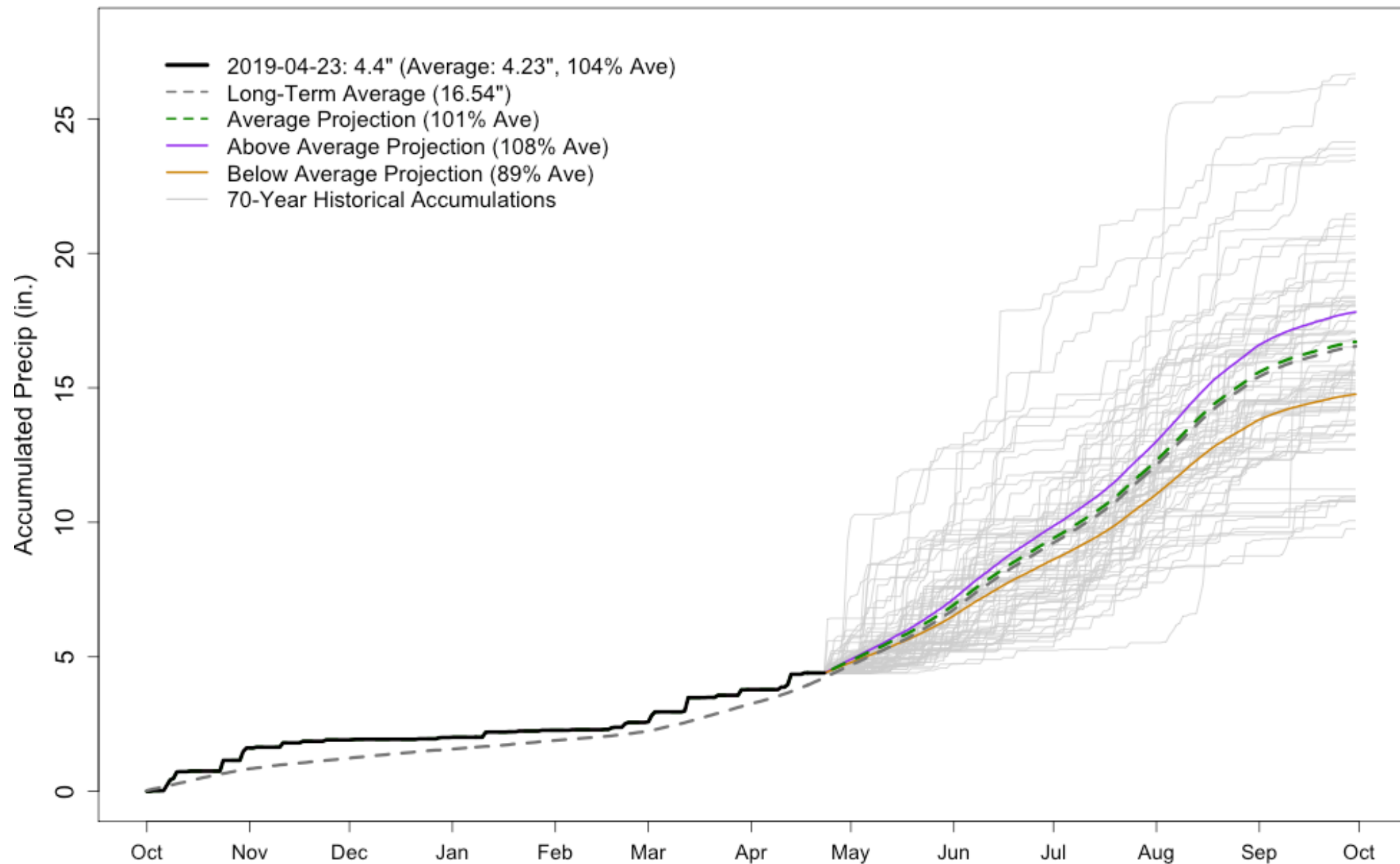




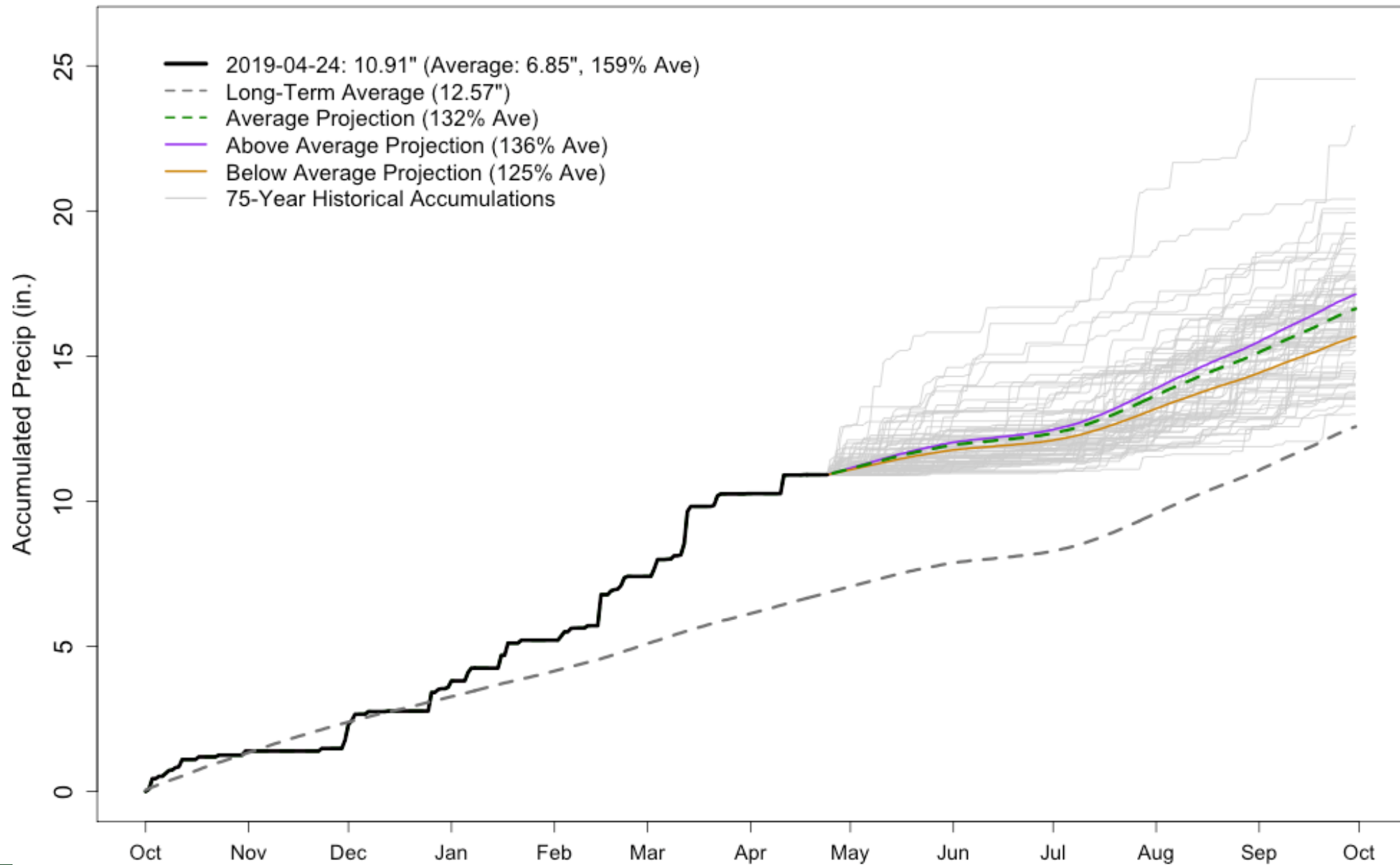
## CAMPO 7 S WY2019 Precipitation Projections



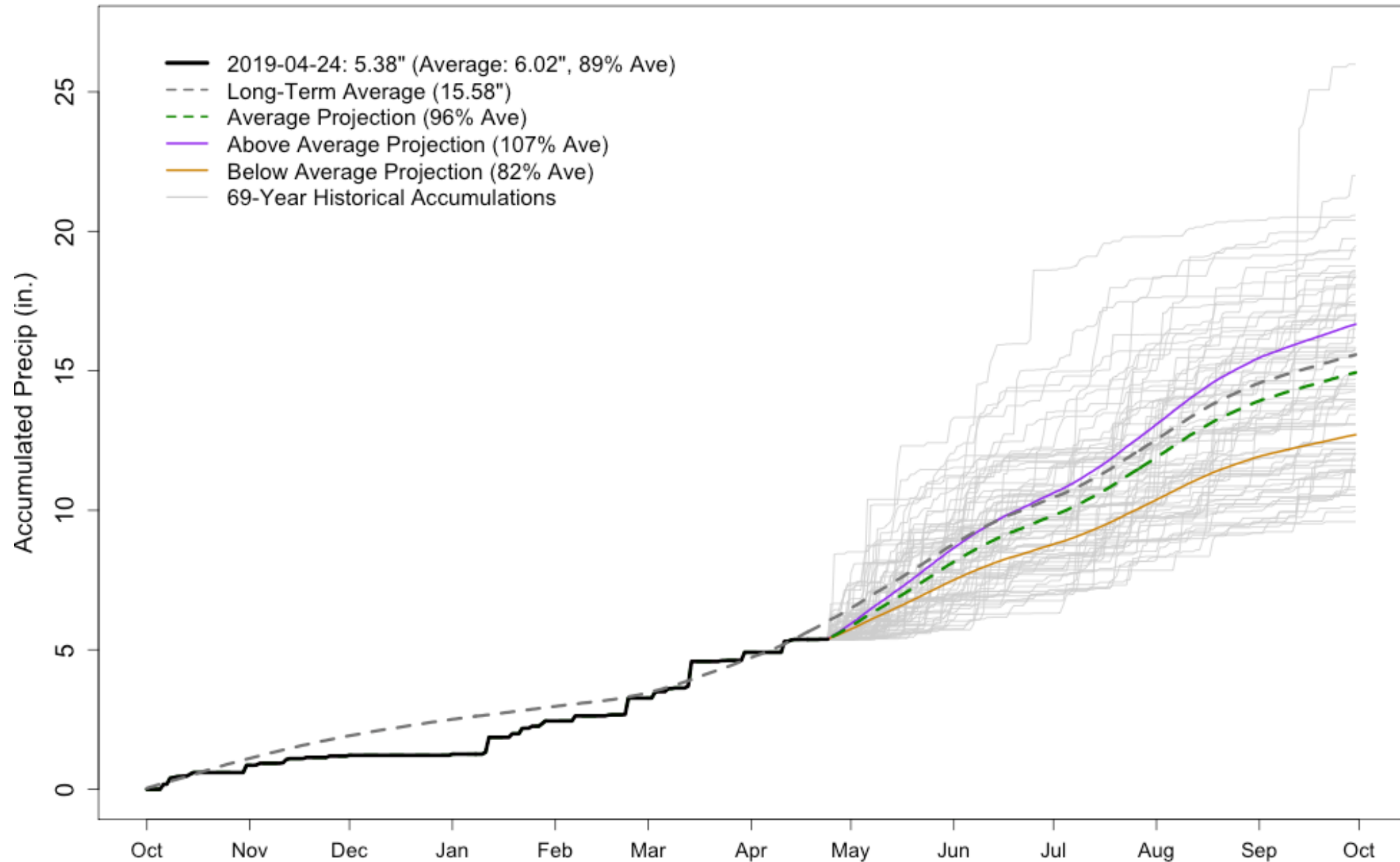
# COLORADO SPRINGS MUNICIPAL AP WY2019 Precipitation Projections



## CORTEZ WY2019 Precipitation Projections

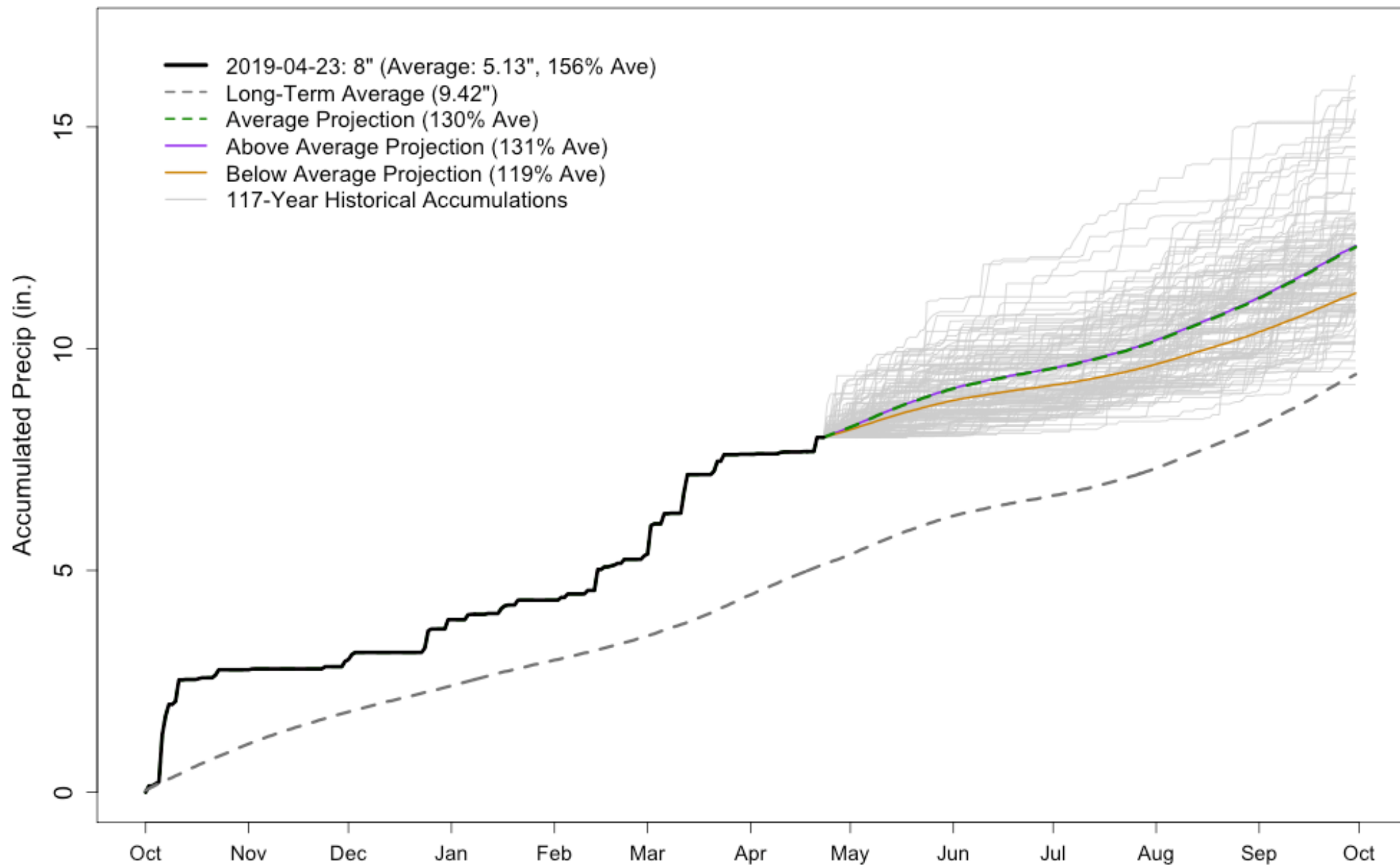


# DENVER-STAPELTON WY2019 Precipitation Projections

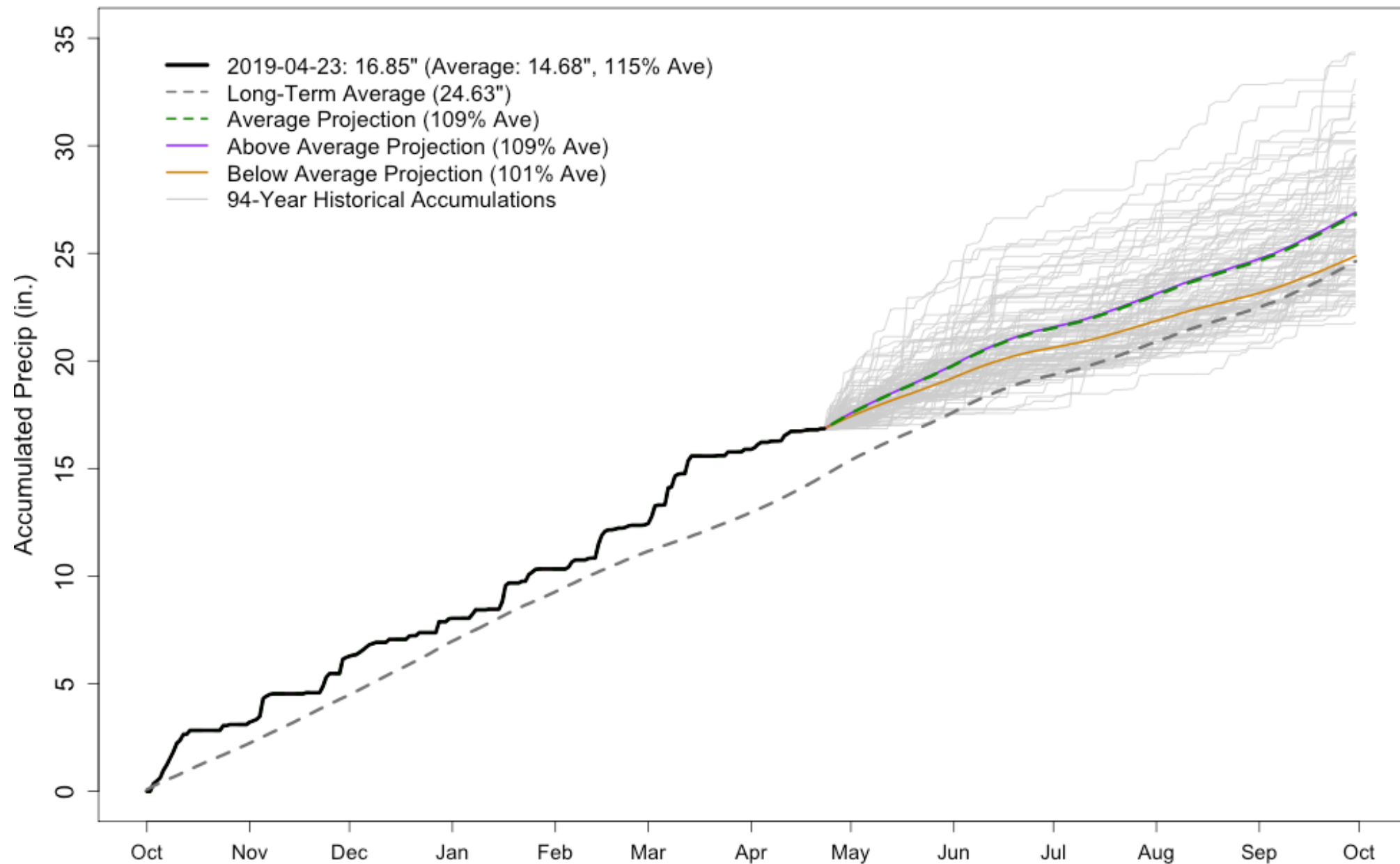




# GRAND JUNCTION WALKER FIELD WY2019 Precipitation Projections



# STEAMBOAT SPRINGS WY2019 Precipitation Projections



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**Thank you**

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