

Colorado Climate Center – *WATF Climate Update*

Becky Bolinger

Water Availability Task Force

April 25, 2019



ATMOSPHERIC SCIENCE
COLORADO STATE UNIVERSITY



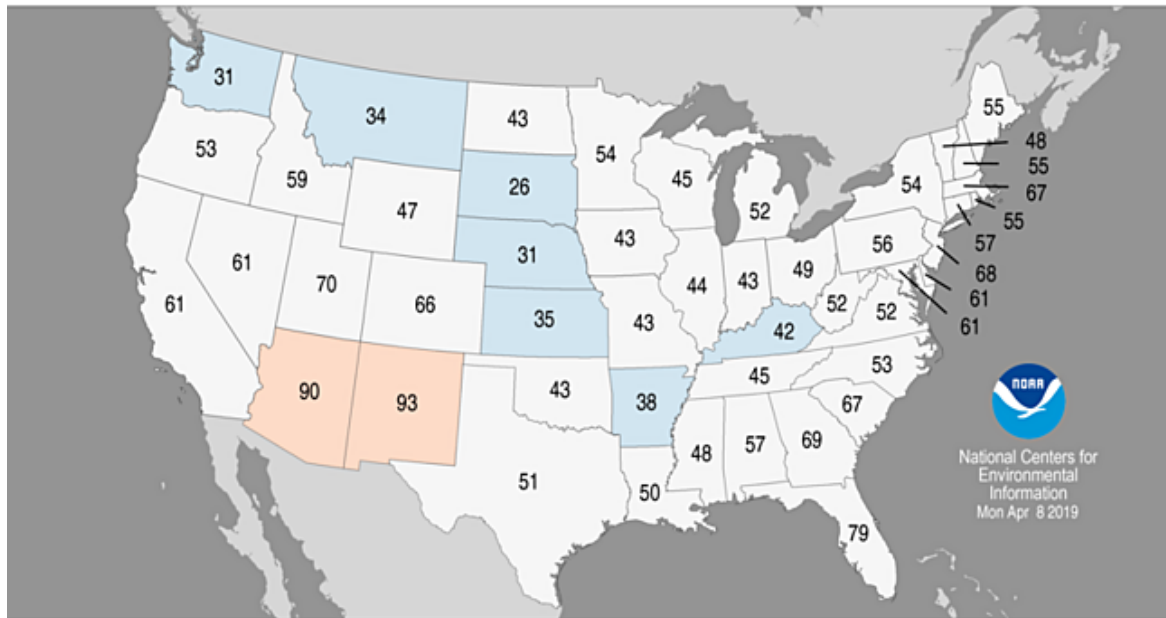
2019 Water Year To Date

temperature, precipitation,
anomalies, drought conditions



Statewide Average Temperature Ranks

March 2019
Period: 1895–2019



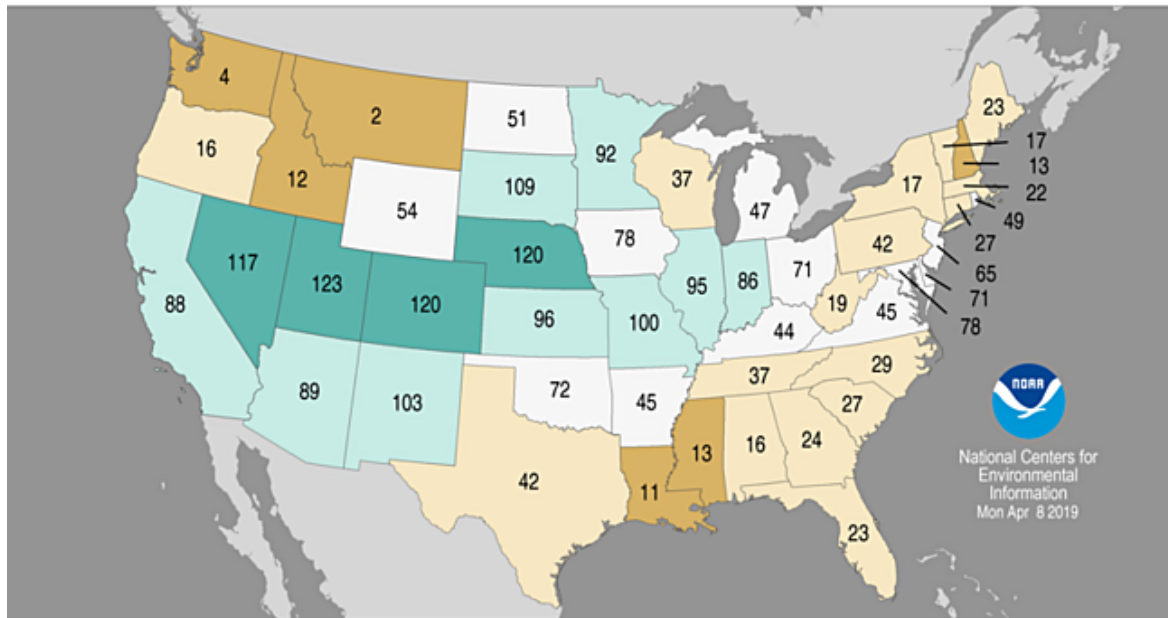
Month	T Rank	
Oct	35 th	colder
Nov	39 th	colder
Dec	80 th	average
Jan	36 th	warmer
Feb	28 th	colder
Mar	66 th	average



Statewide Precipitation Ranks

March 2019

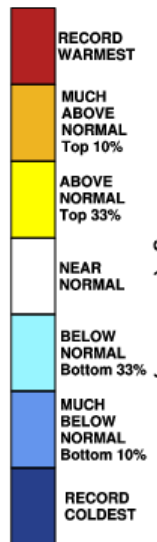
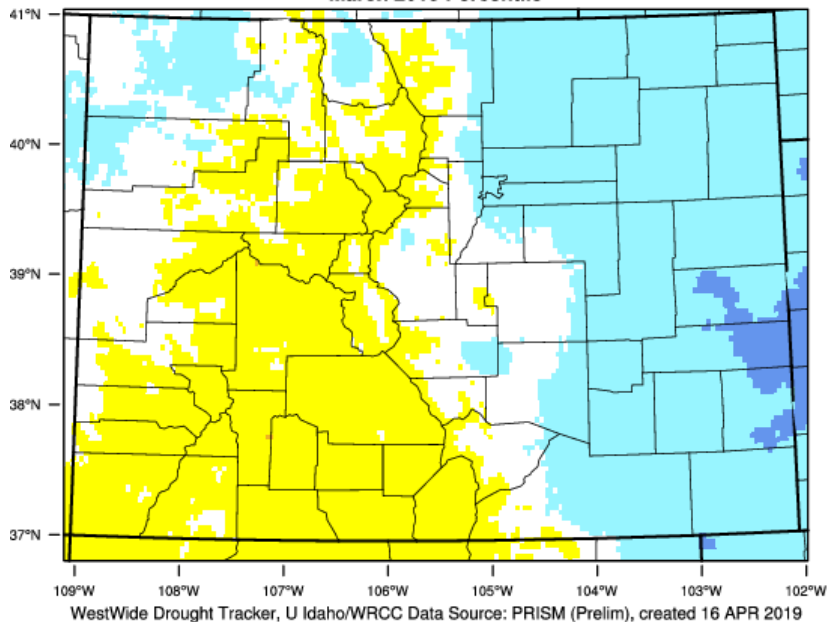
Period: 1895–2019



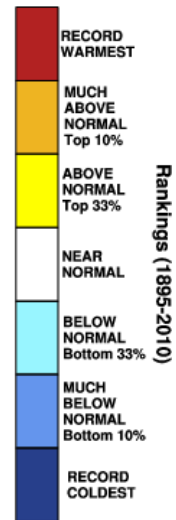
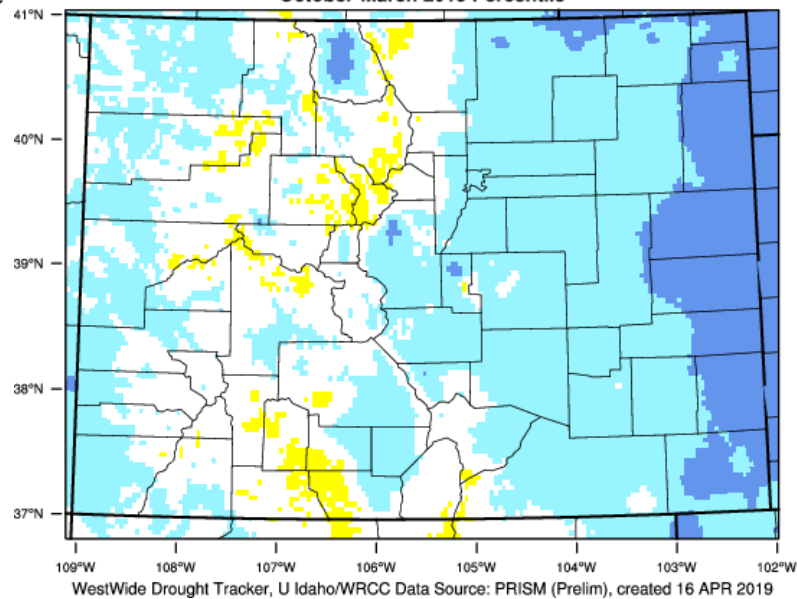
National Centers for Environmental Information
Mon Apr 8 2019

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

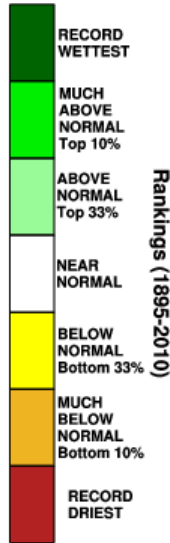
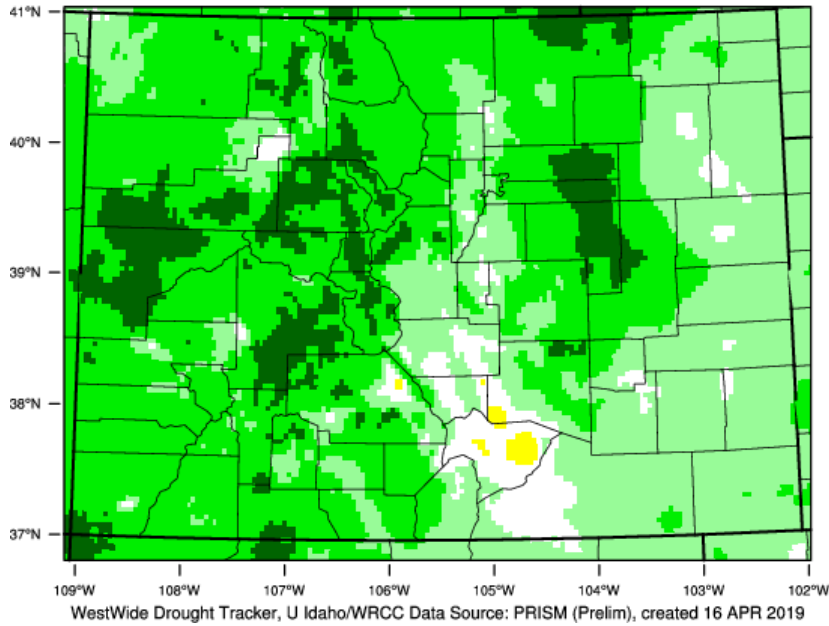
Colorado - Mean Temperature
March 2019 Percentile



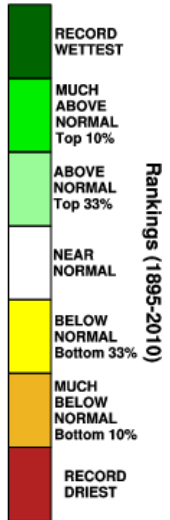
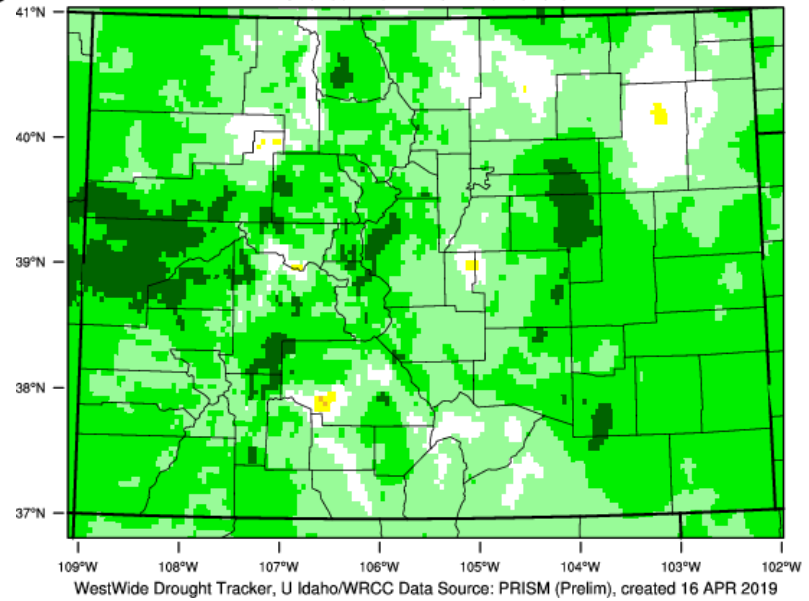
Colorado - Mean Temperature
October-March 2019 Percentile



Colorado - Precipitation
March 2019 Percentile

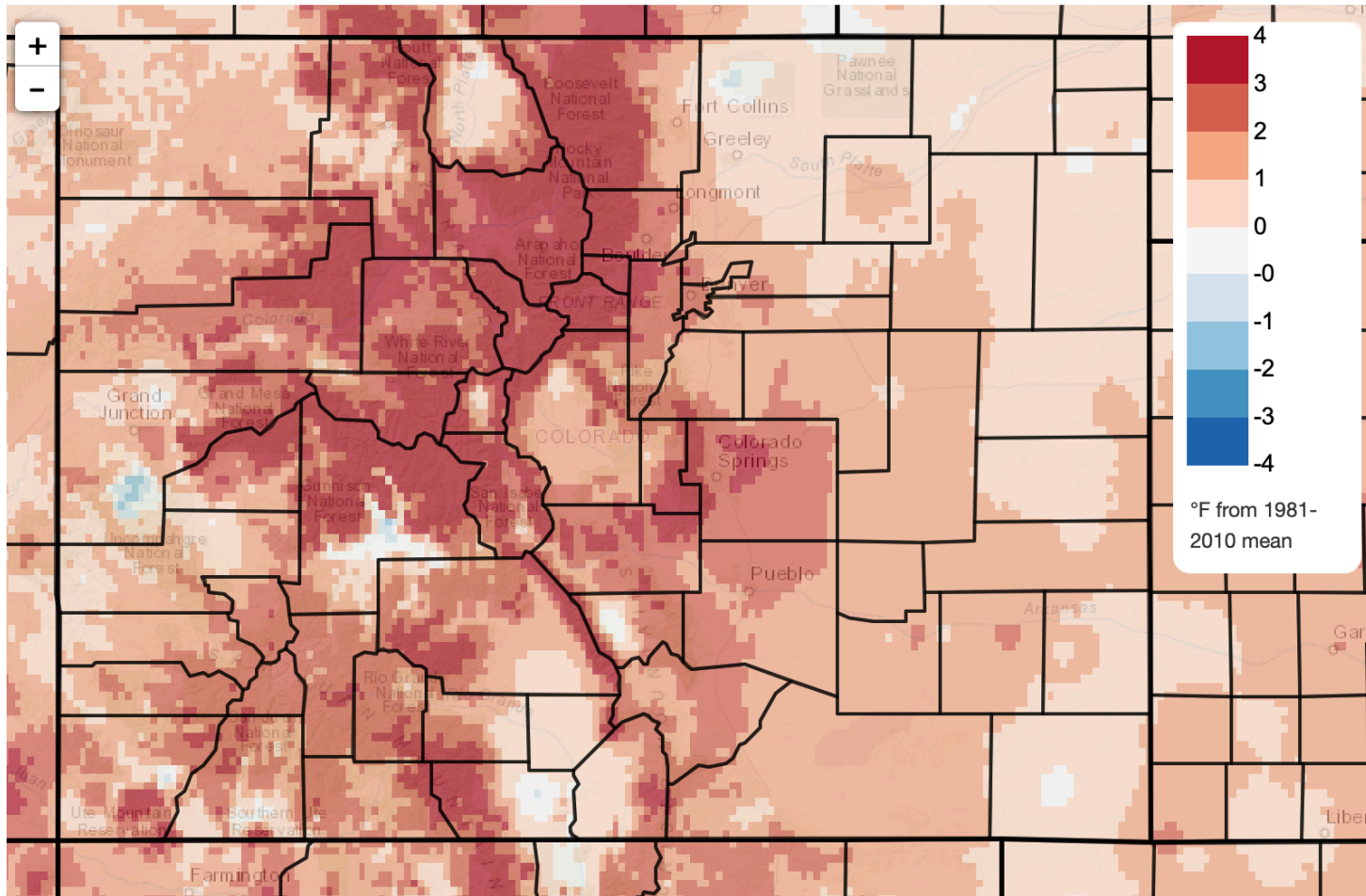


Colorado - Precipitation
October-March 2019 Percentile



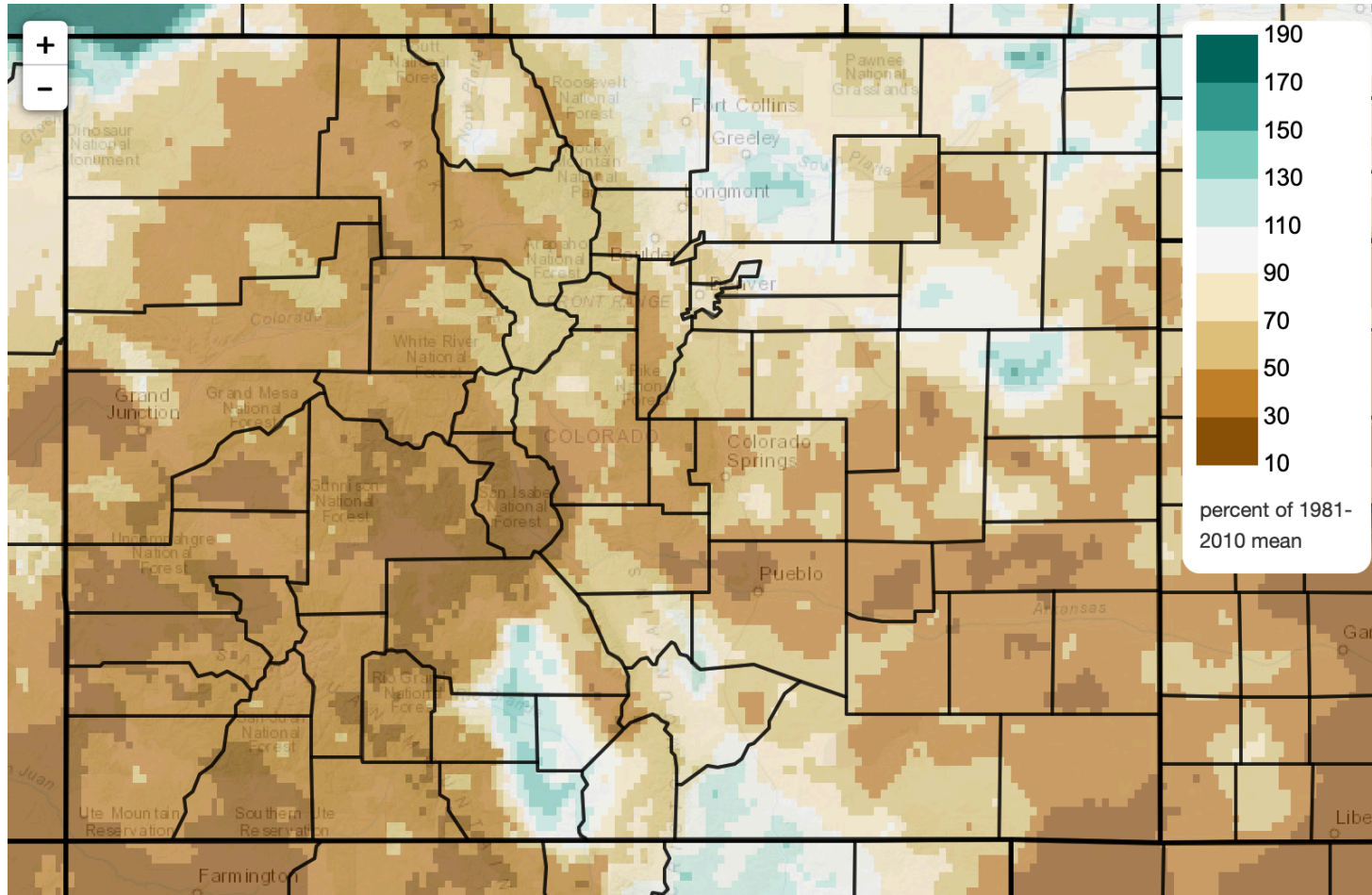
Mean Daily Temperature Anomaly, Last 30 Days

2019/03/25 - 2019/04/23

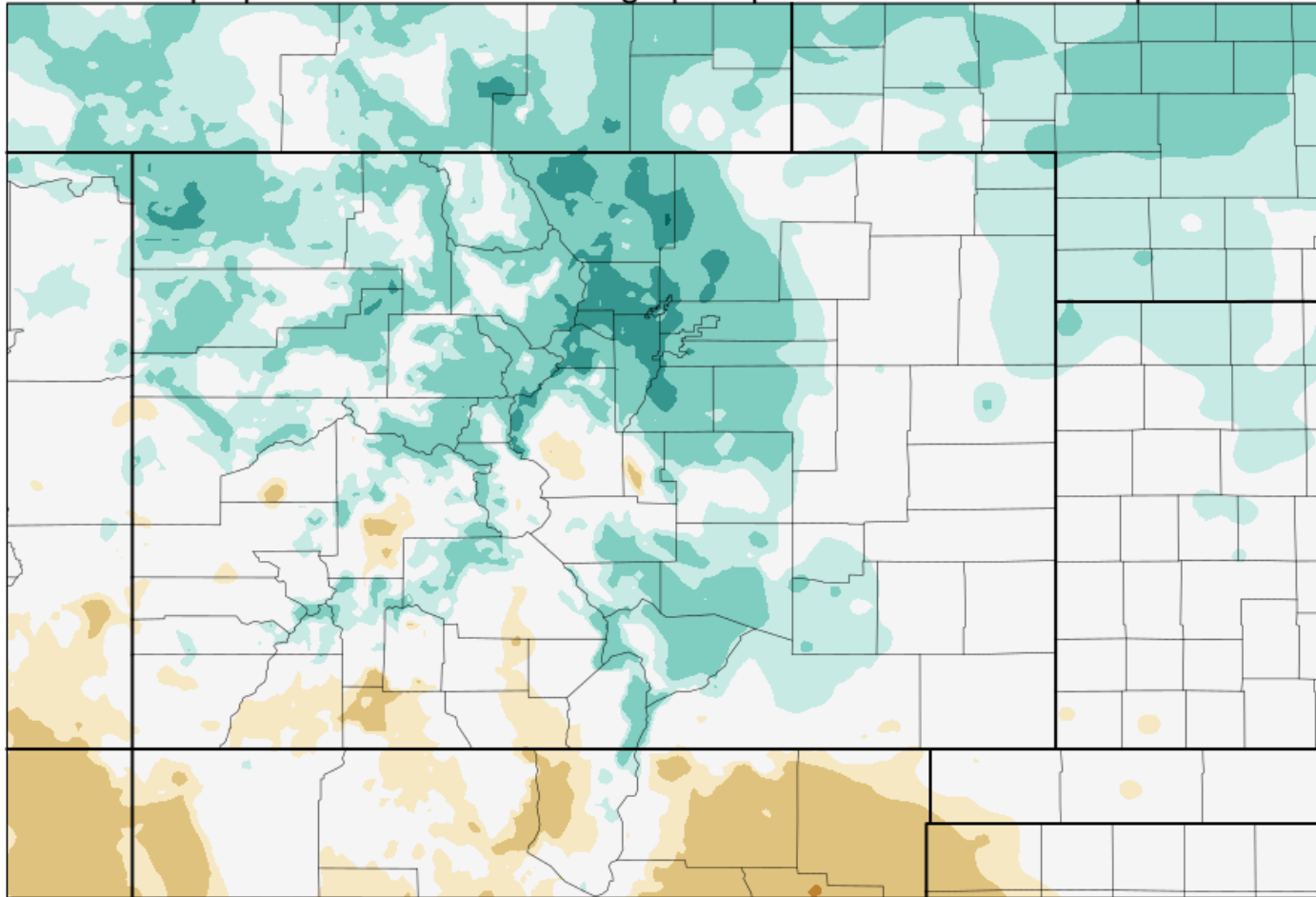


Total Precipitation Anomaly, Last 30 Days

2019/03/25 - 2019/04/23



PRISM proportion of annual average precipitation in this month: April

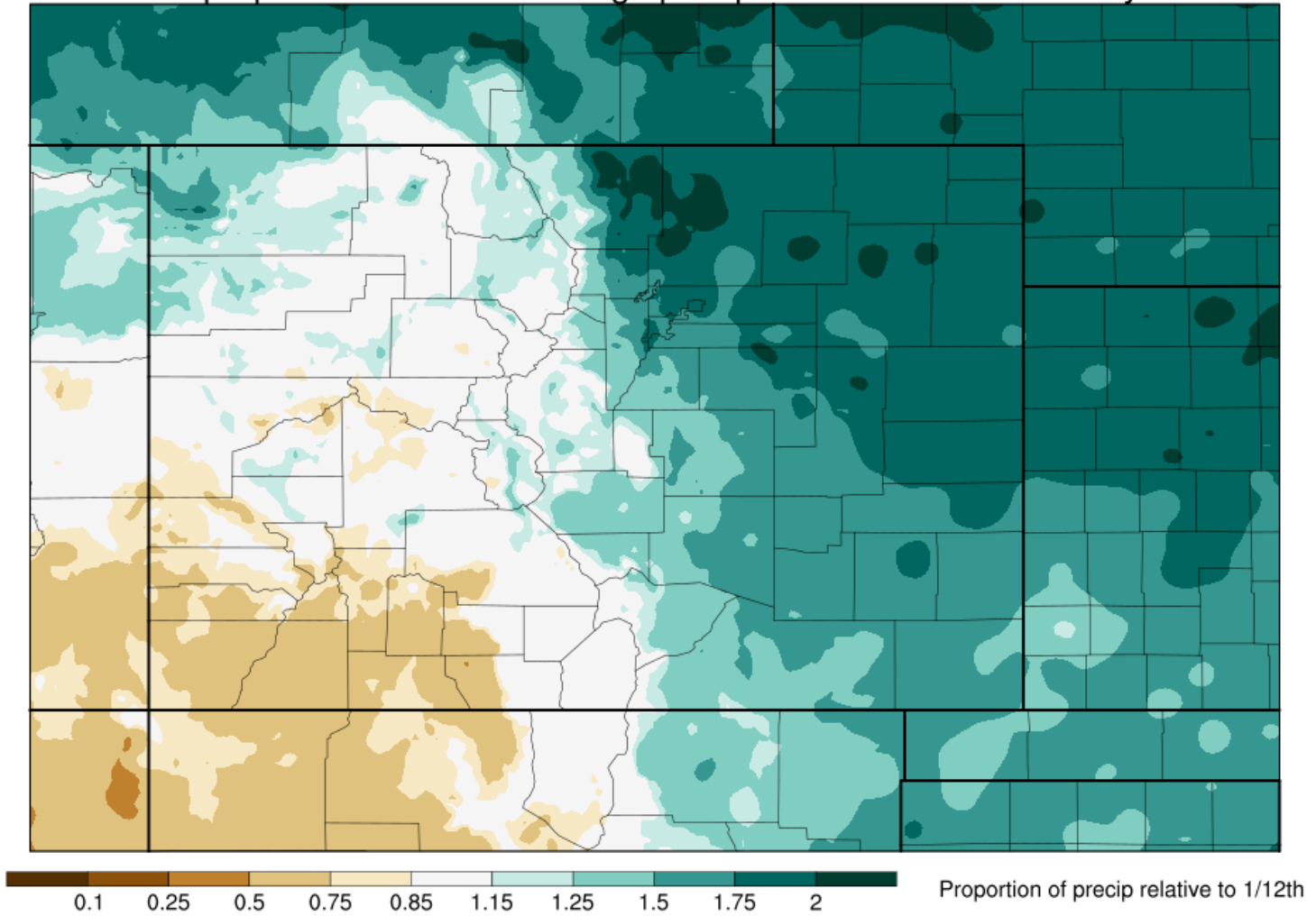


0.1 0.25 0.5 0.75 0.85 1.15 1.25 1.5 1.75 2 Proportion of precip relative to 1/12th

Russ Schumacher/Colorado Climate Center



PRISM proportion of annual average precipitation in this month: May

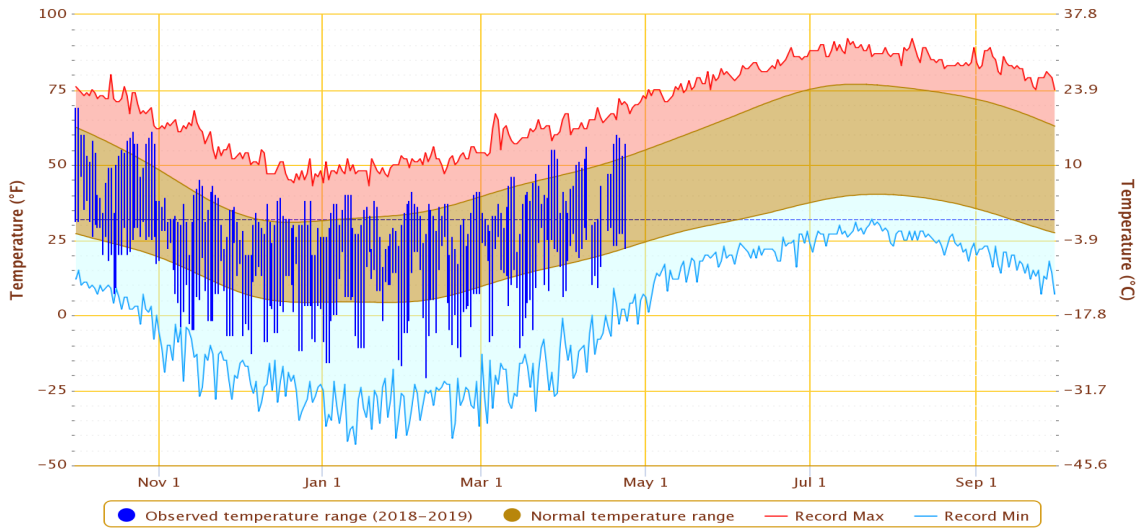


Russ Schumacher/Colorado Climate Center



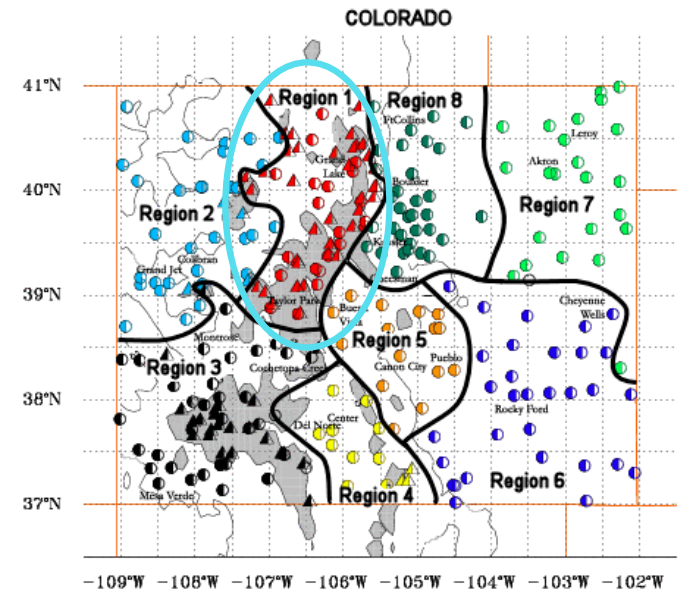
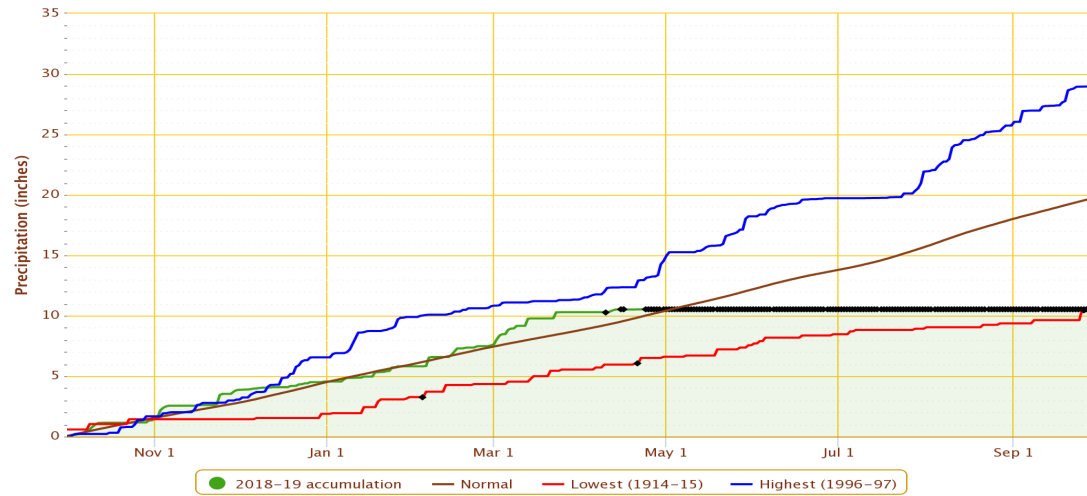
Daily Temperature Data – GRAND LAKE 1 NW, CO

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



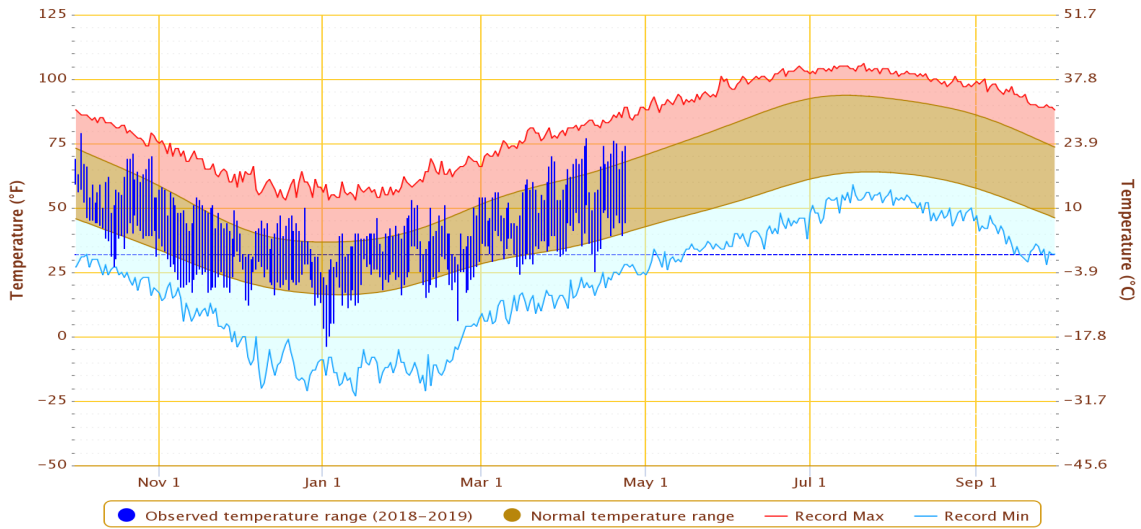
Accumulated Precipitation – GRAND LAKE 1 NW, CO

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



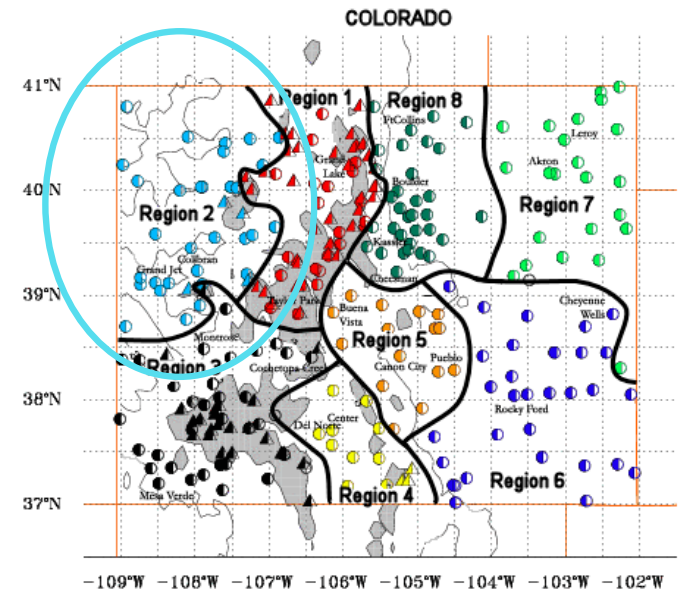
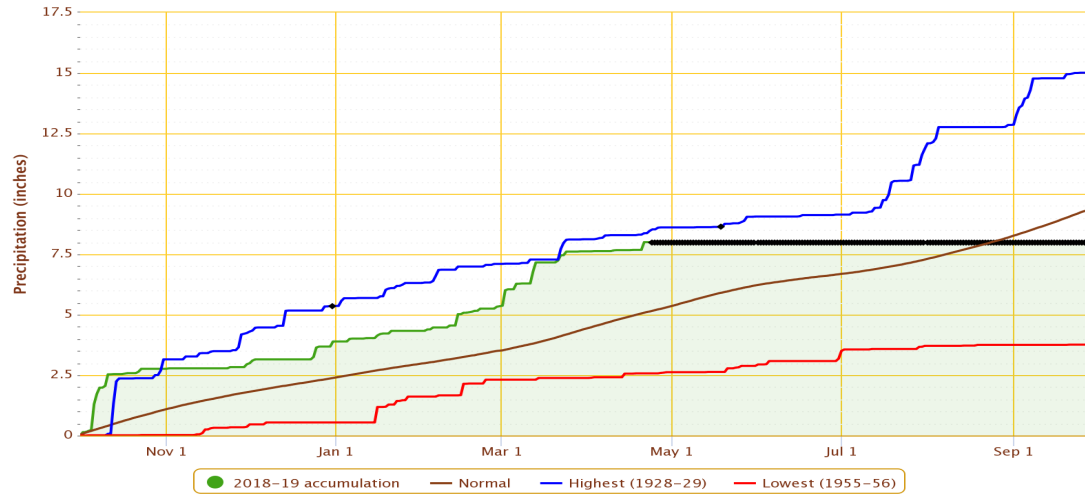
Daily Temperature Data – GRAND JUNCTION WALKER FIELD, CO

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



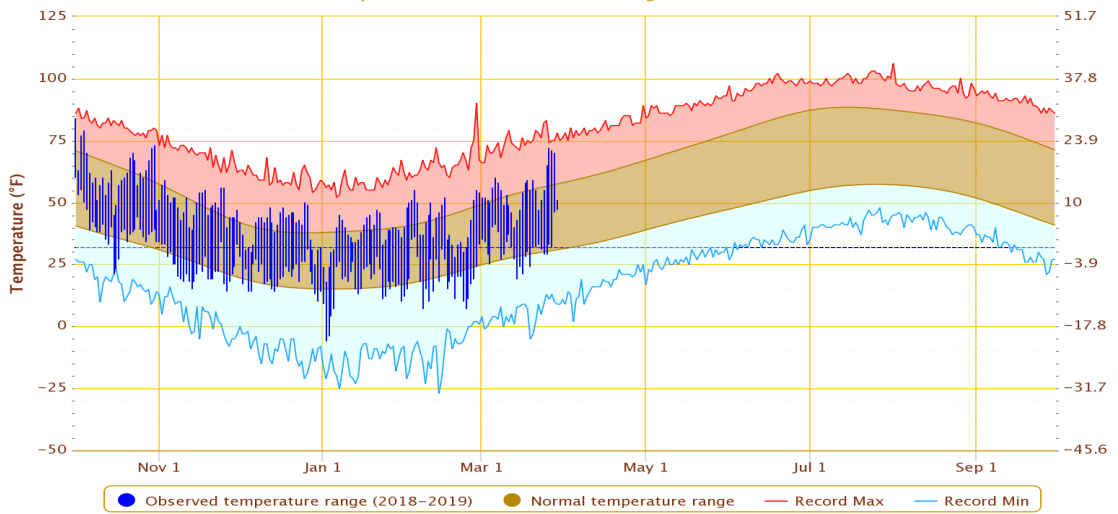
Accumulated Precipitation – GRAND JUNCTION WALKER FIELD, CO

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



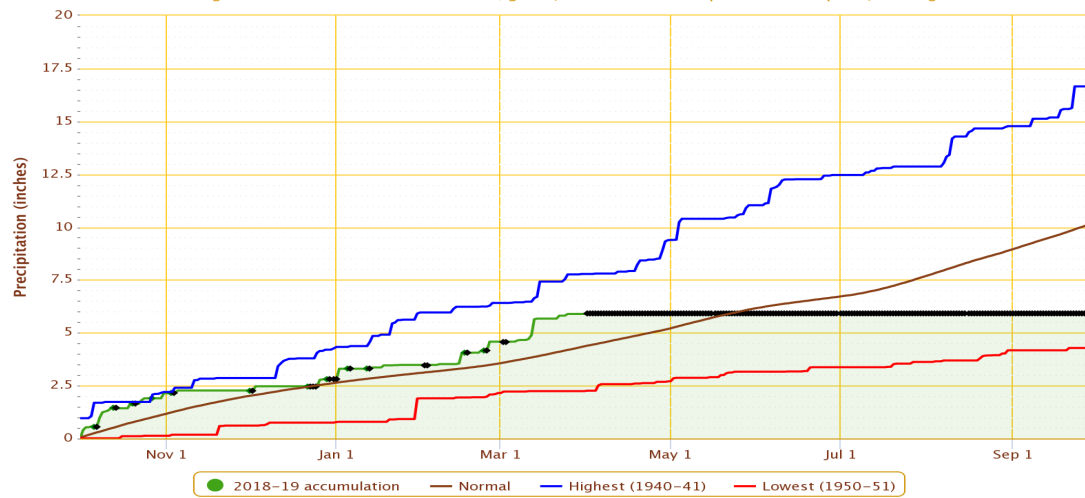
Daily Temperature Data – MONTROSE NO 2, CO

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.



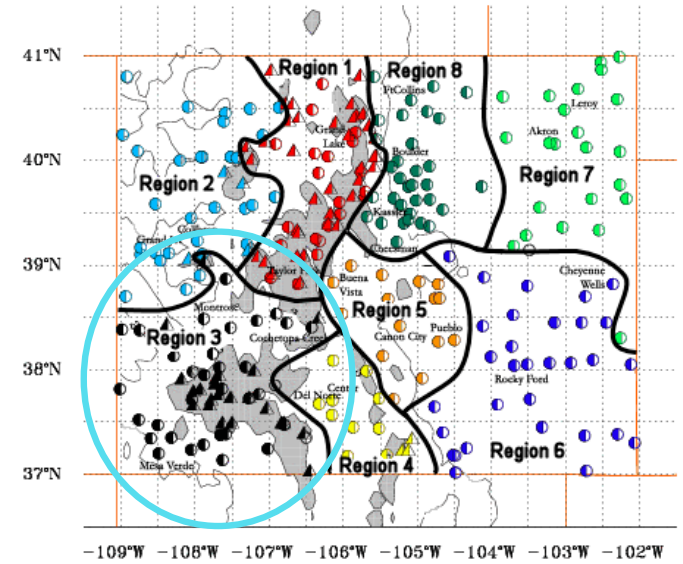
Accumulated Precipitation – MONTROSE NO 2, CO

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



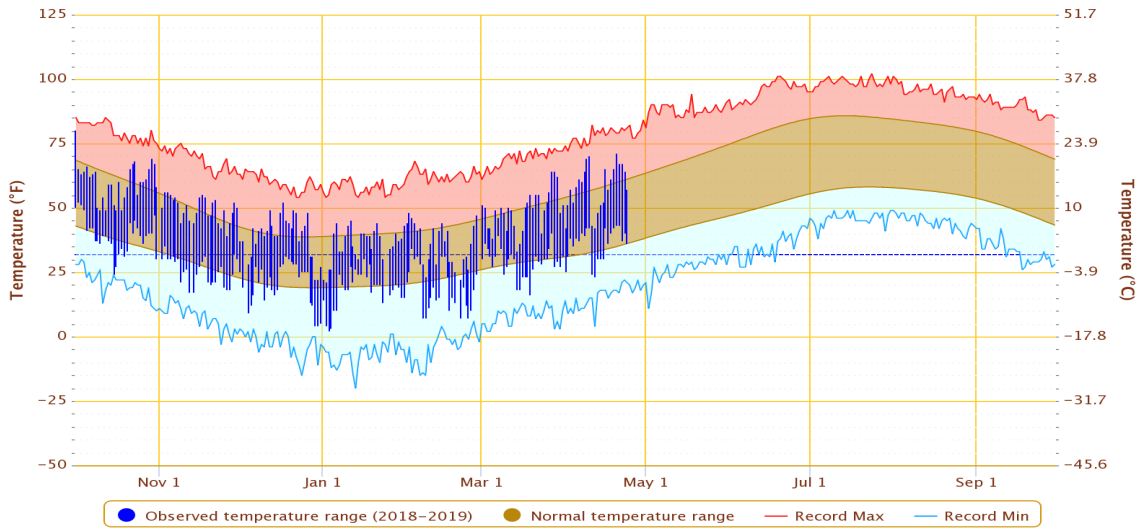
Powered by ACIS

COLORADO



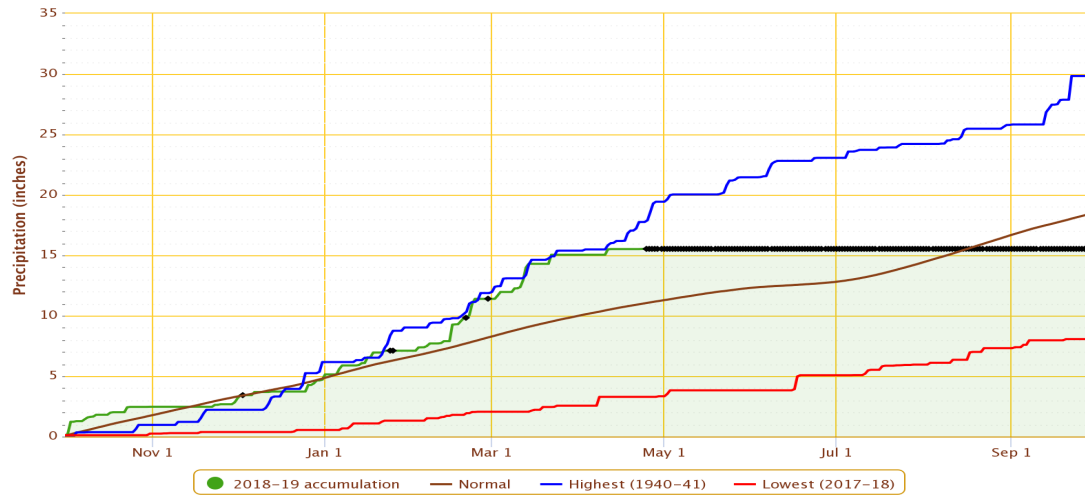
Daily Temperature Data – MESA VERDE NP, CO

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



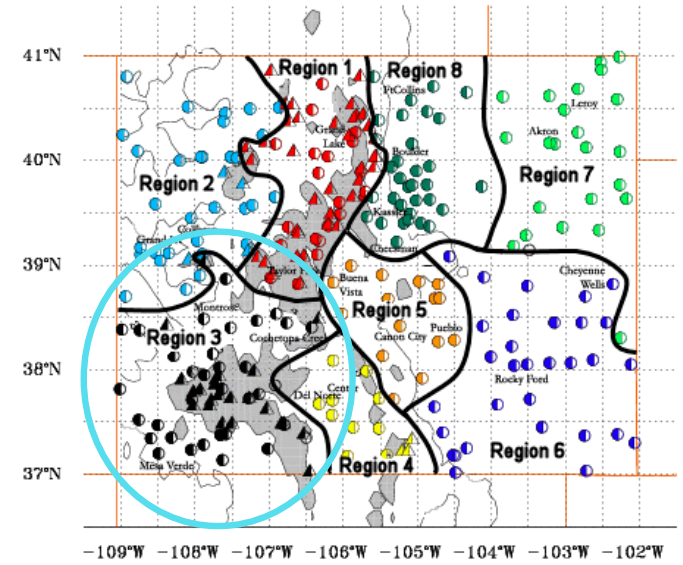
Accumulated Precipitation – MESA VERDE NP, CO

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



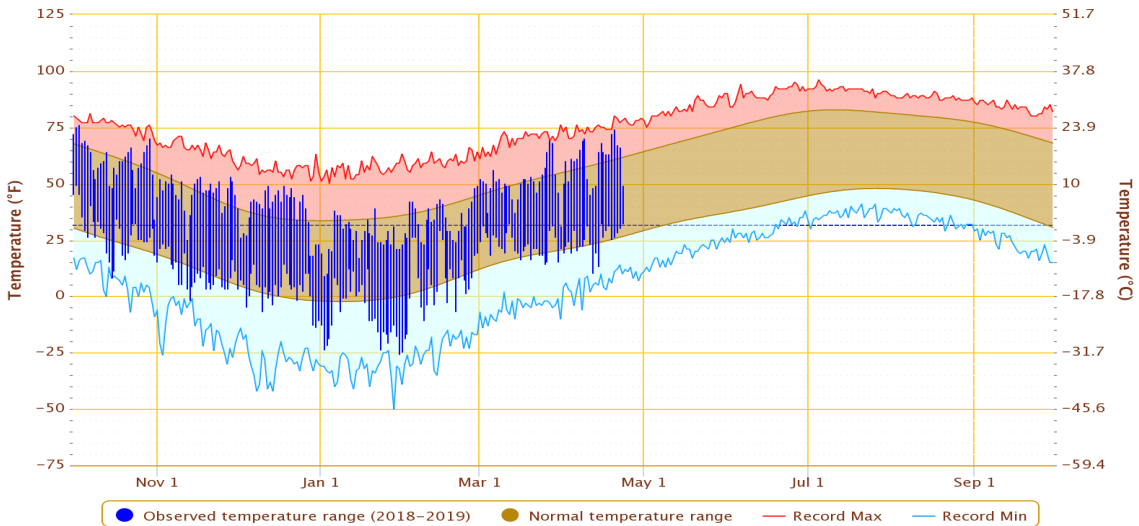
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COLORADO



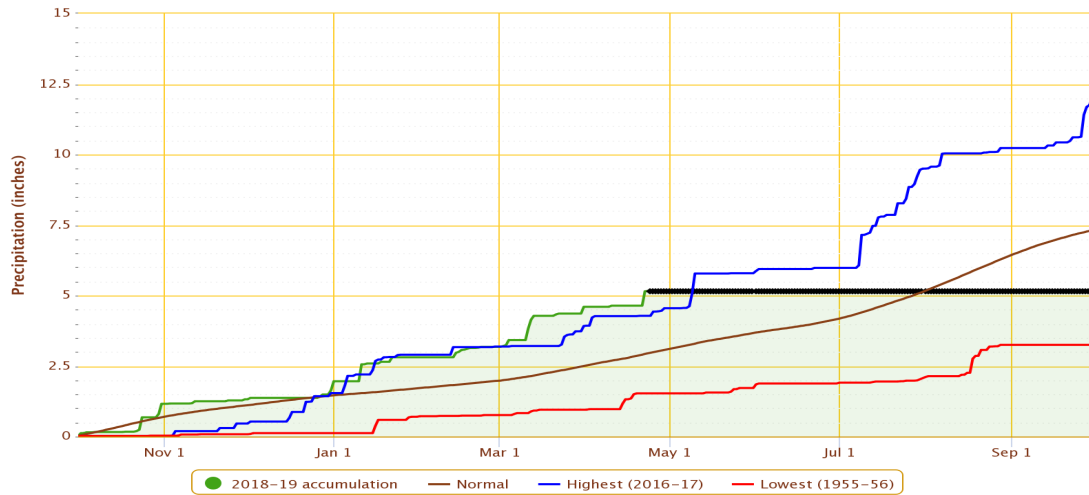
Daily Temperature Data – ALAMOSA SAN LUIS VALLEY REGIONAL AP, CO

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



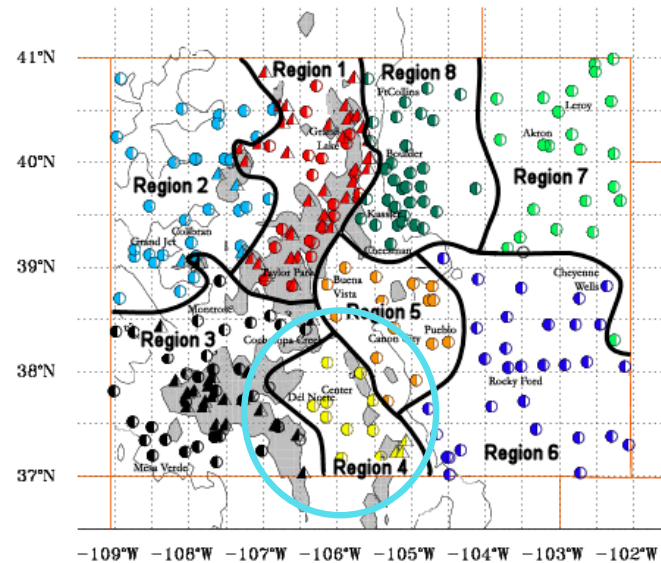
Accumulated Precipitation – ALAMOSA SAN LUIS VALLEY REGIONAL AP, CO

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



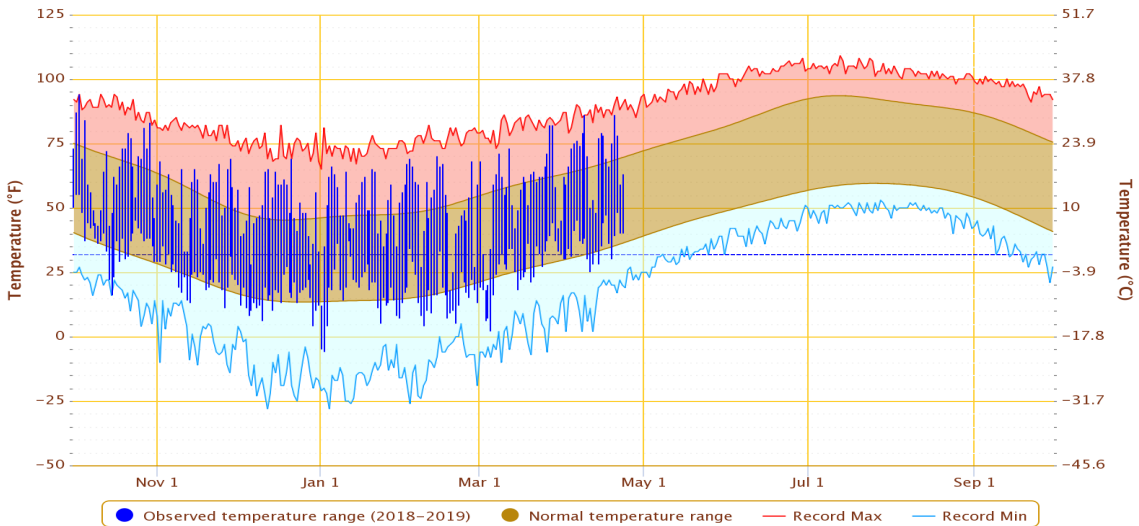
Powered by ACIS

COLORADO



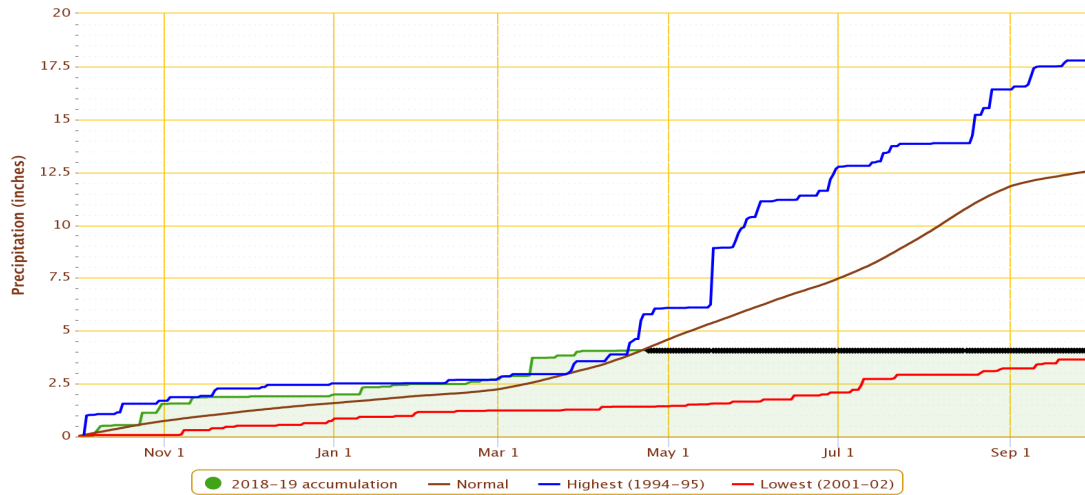
Daily Temperature Data – PUEBLO MEMORIAL AP, CO

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



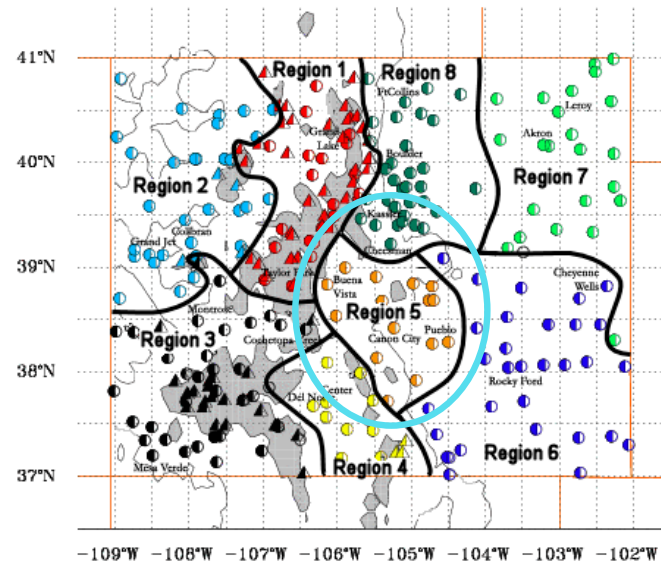
Accumulated Precipitation – PUEBLO MEMORIAL AP, CO

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



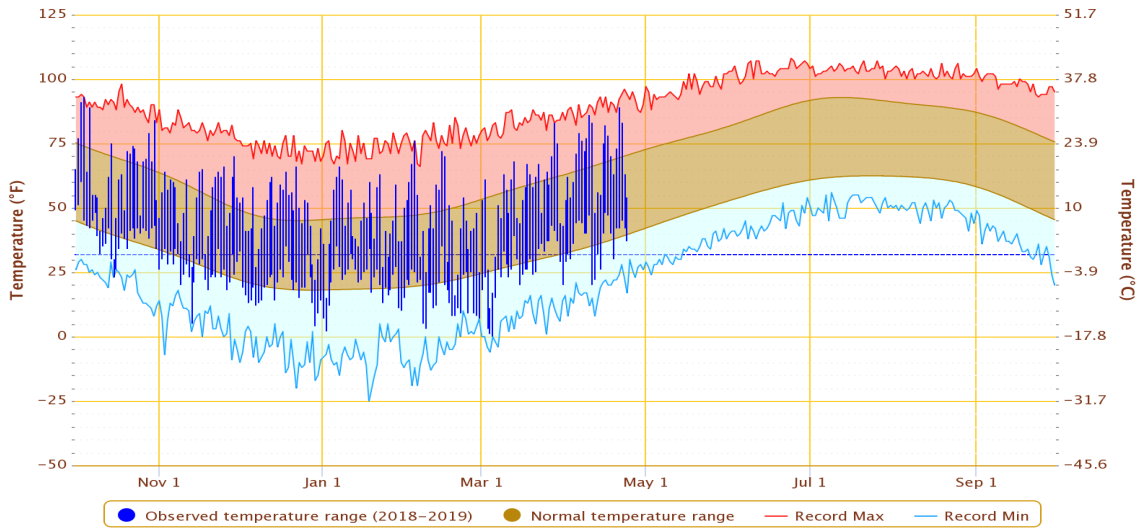
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COLORADO



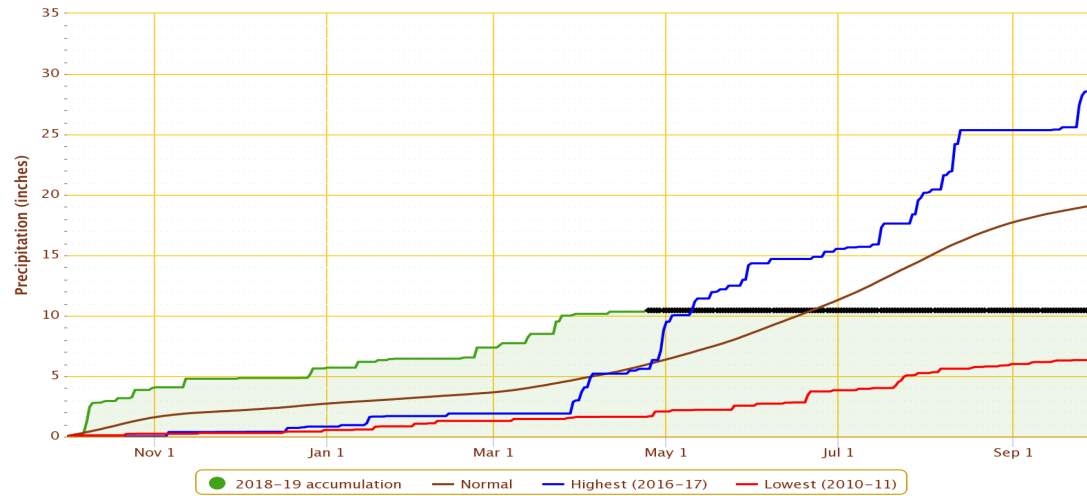
Daily Temperature Data – WALSH 1 W, CO

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

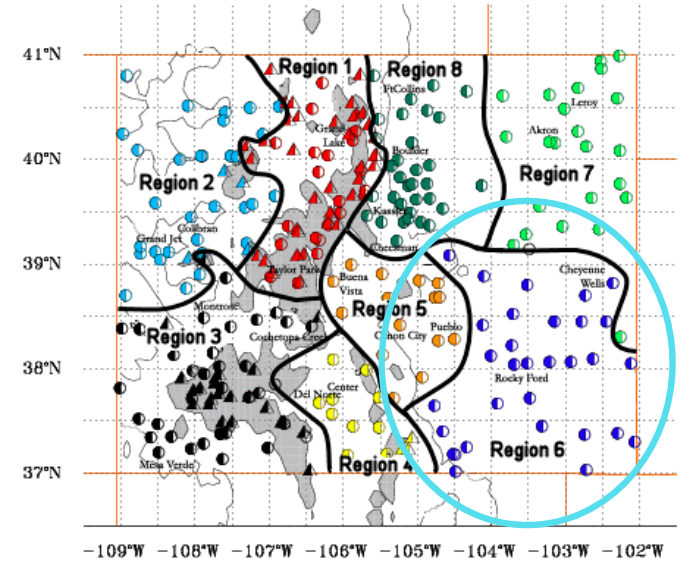


Accumulated Precipitation – WALSH 1 W, CO

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

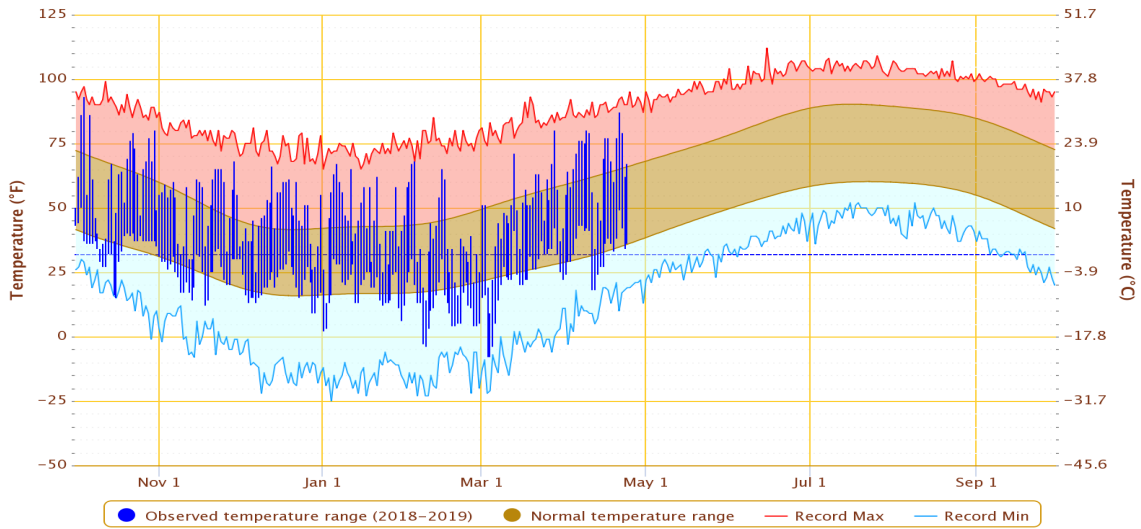


COLORADO



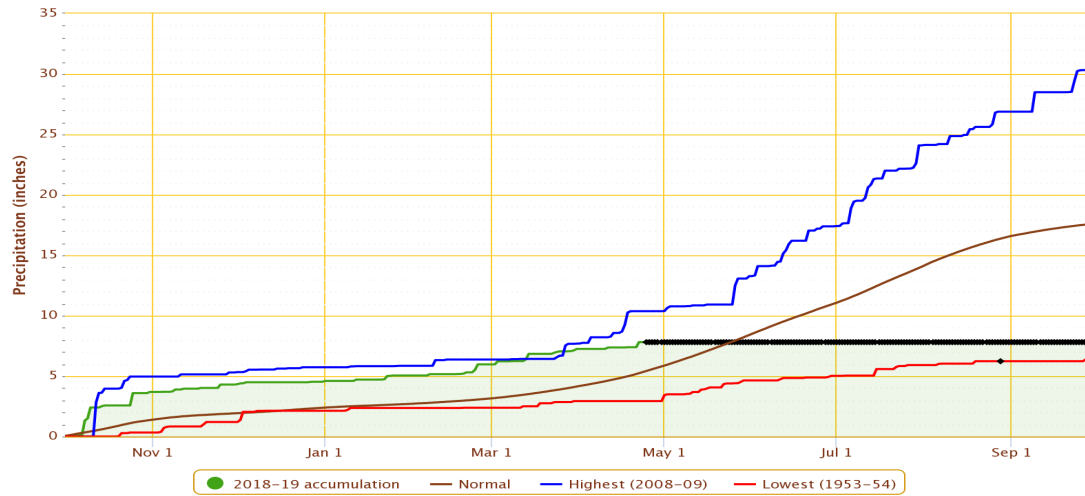
Daily Temperature Data – BURLINGTON, CO

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



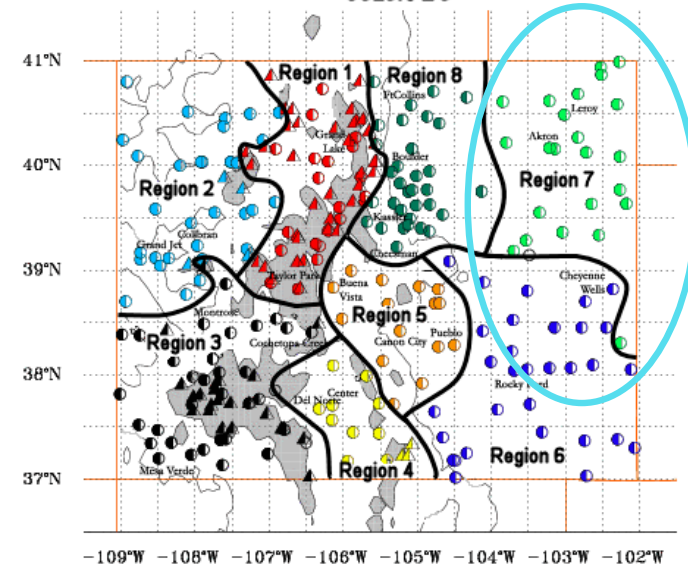
Accumulated Precipitation – BURLINGTON, CO

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



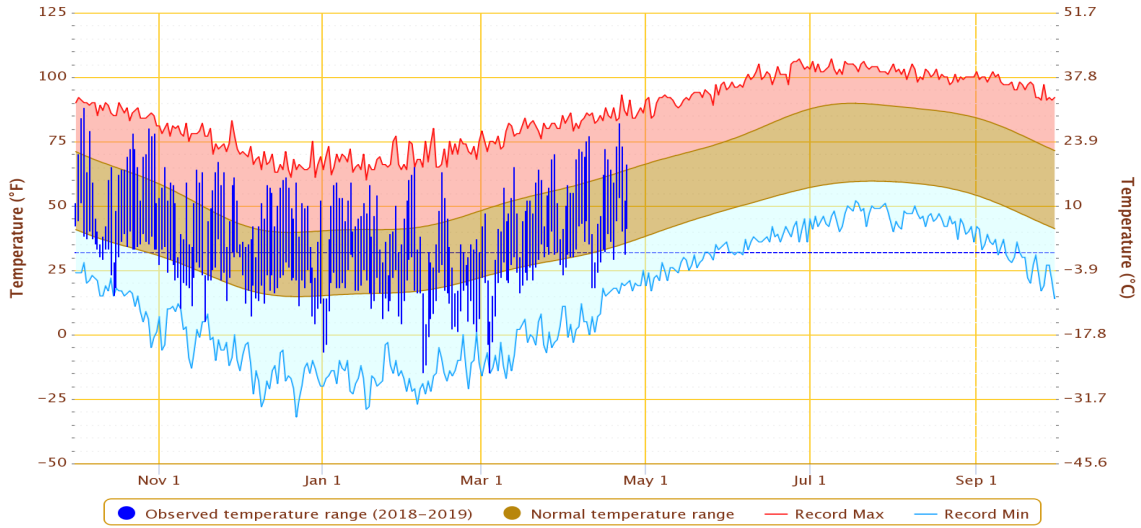
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COLORADO



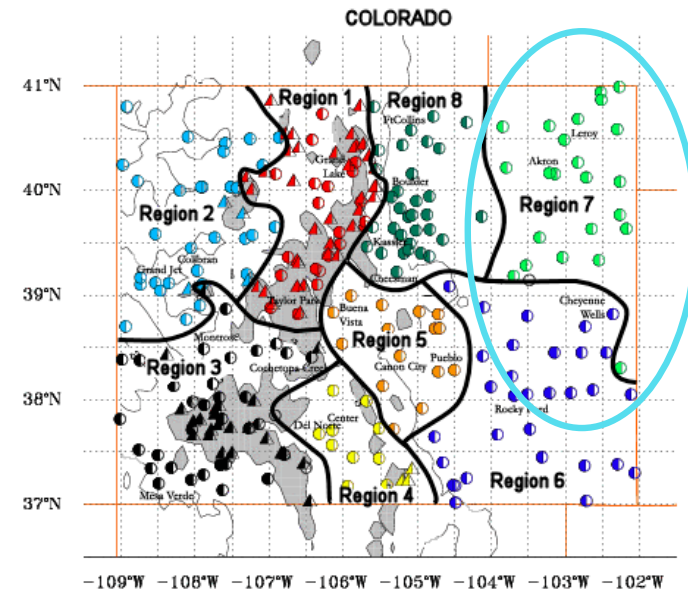
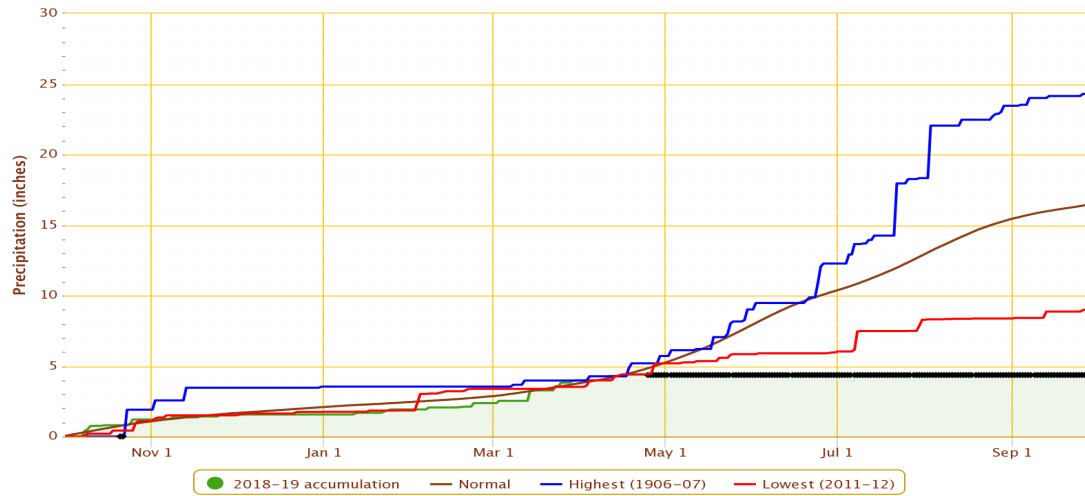
Daily Temperature Data – AKRON 4 E, CO

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



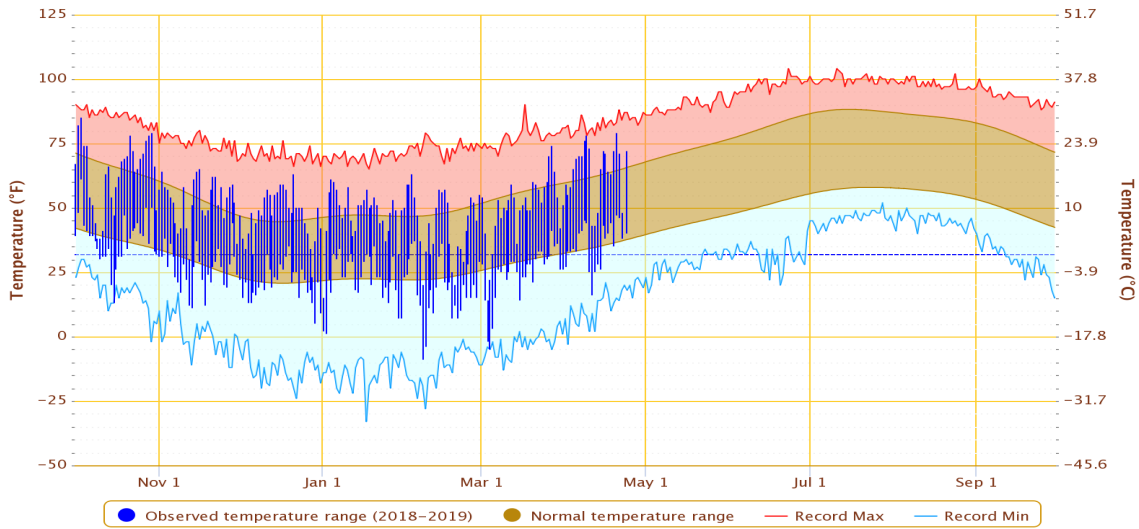
Accumulated Precipitation – AKRON 4 E, CO

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



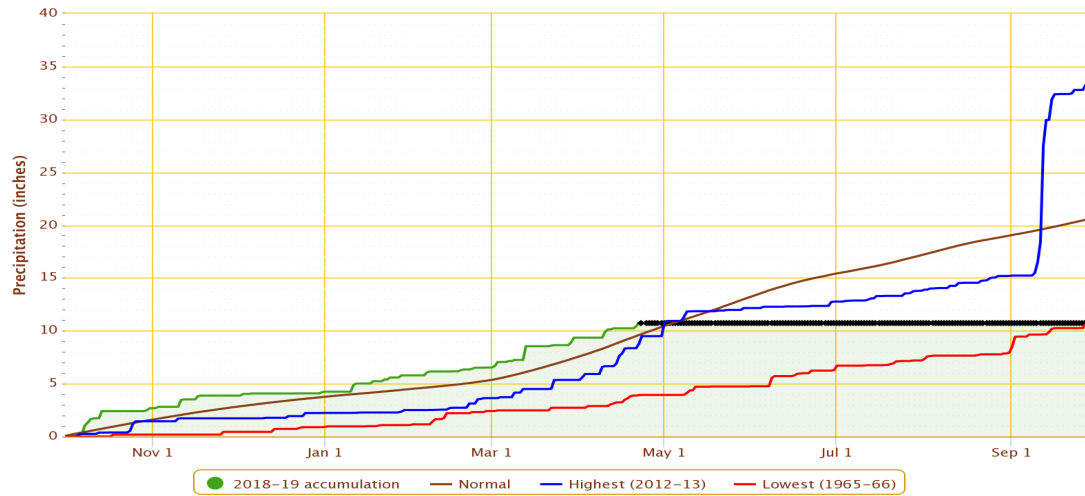
Daily Temperature Data – BOULDER, CO

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



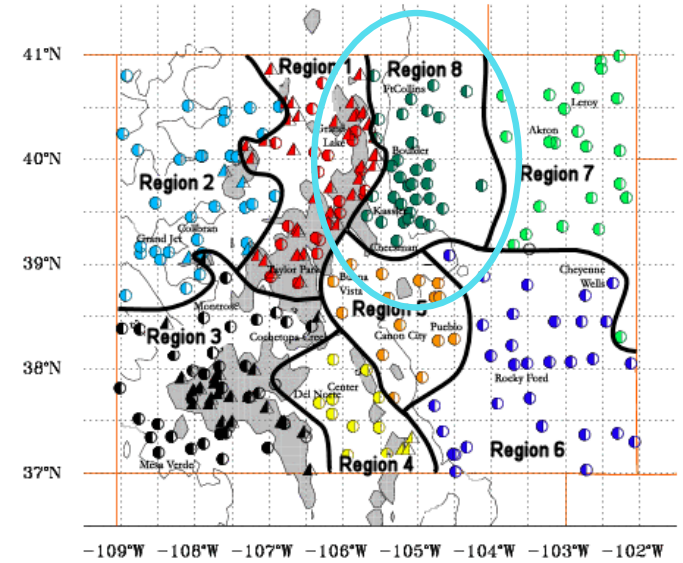
Accumulated Precipitation – BOULDER, CO

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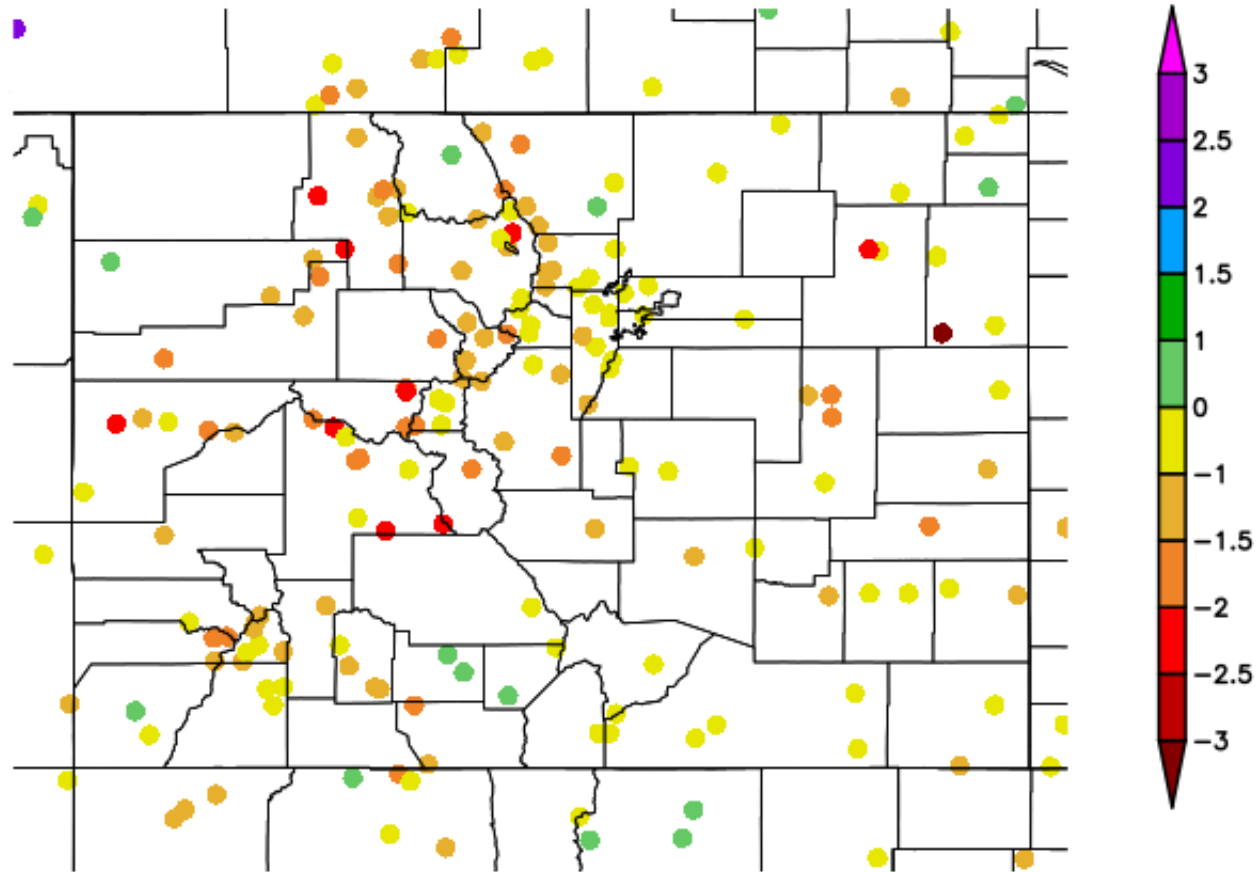


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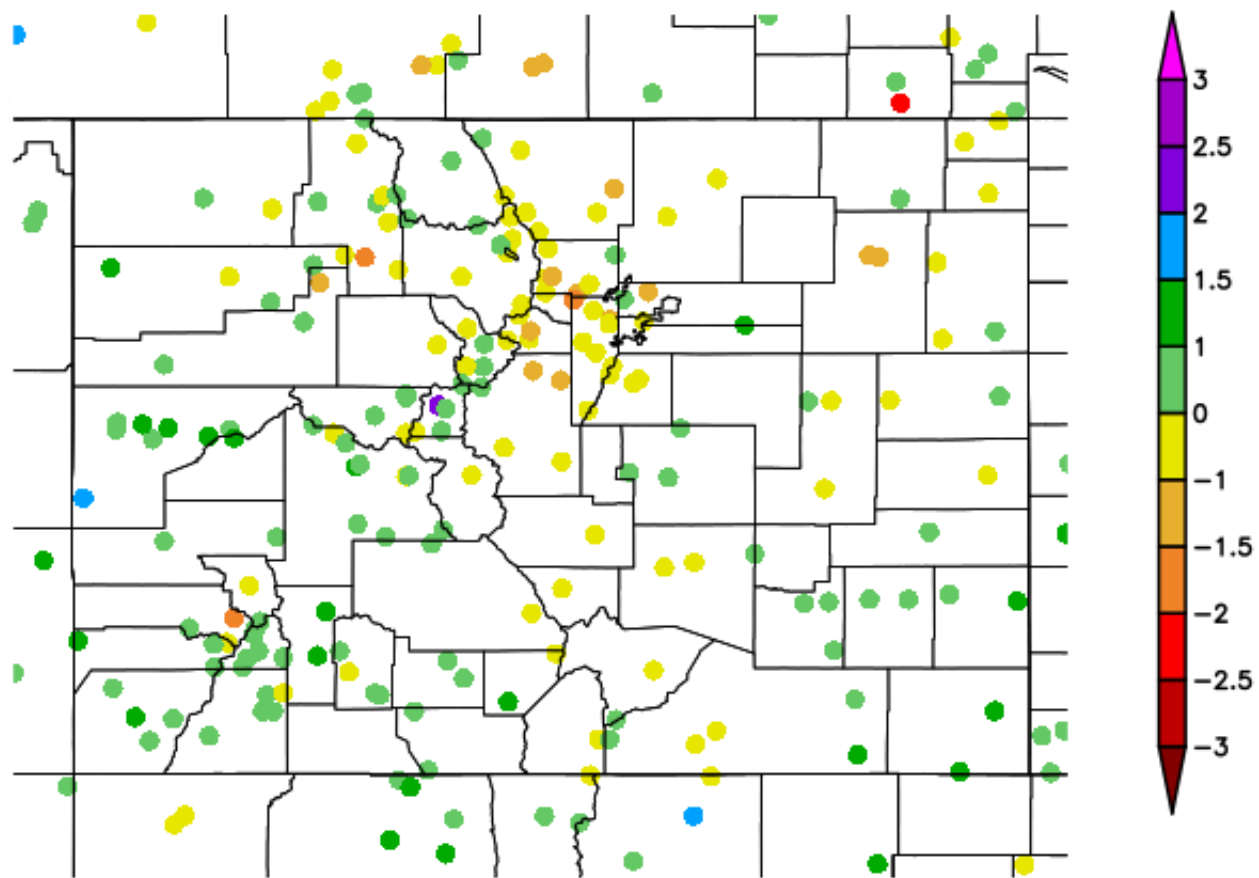
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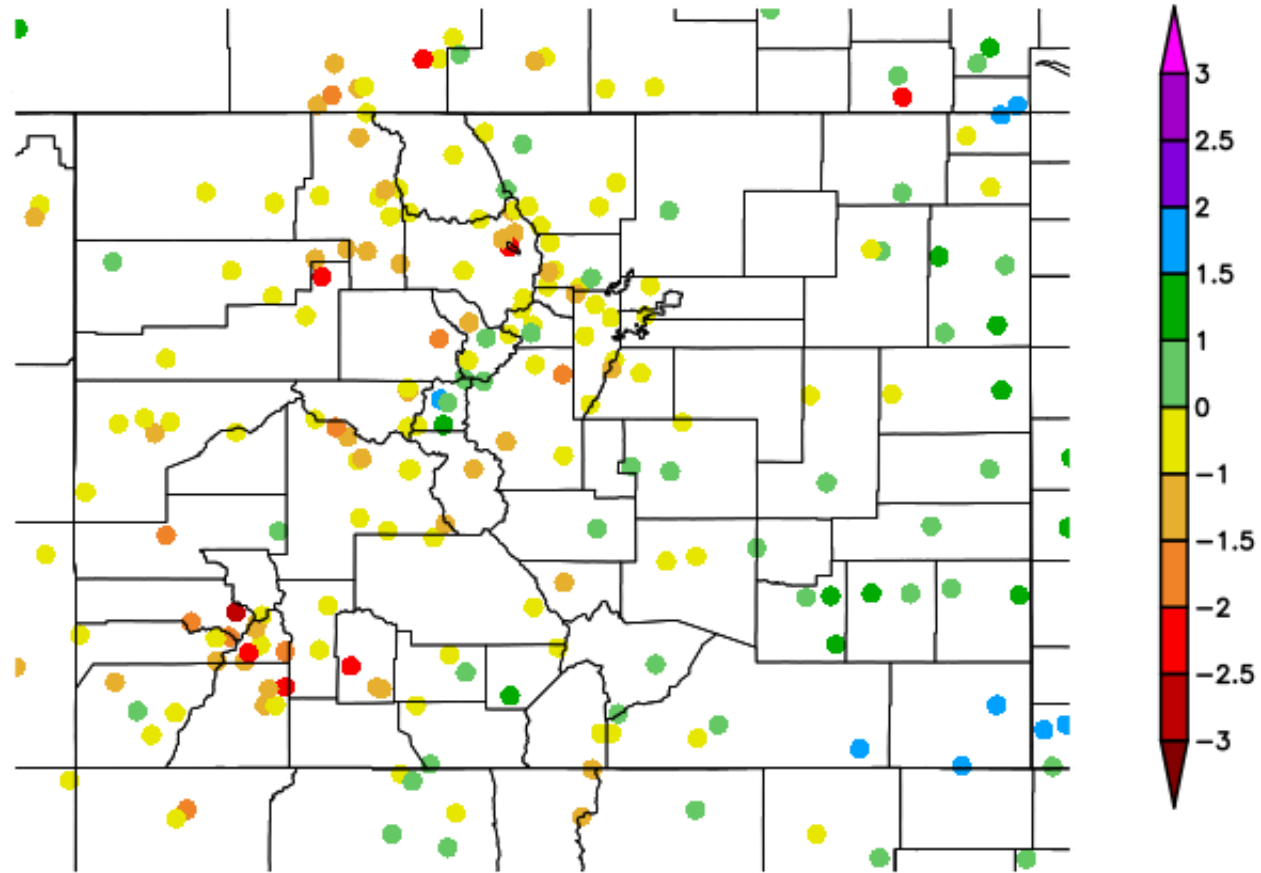
30 Day SPI 3/25/2019 - 4/23/2019



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



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

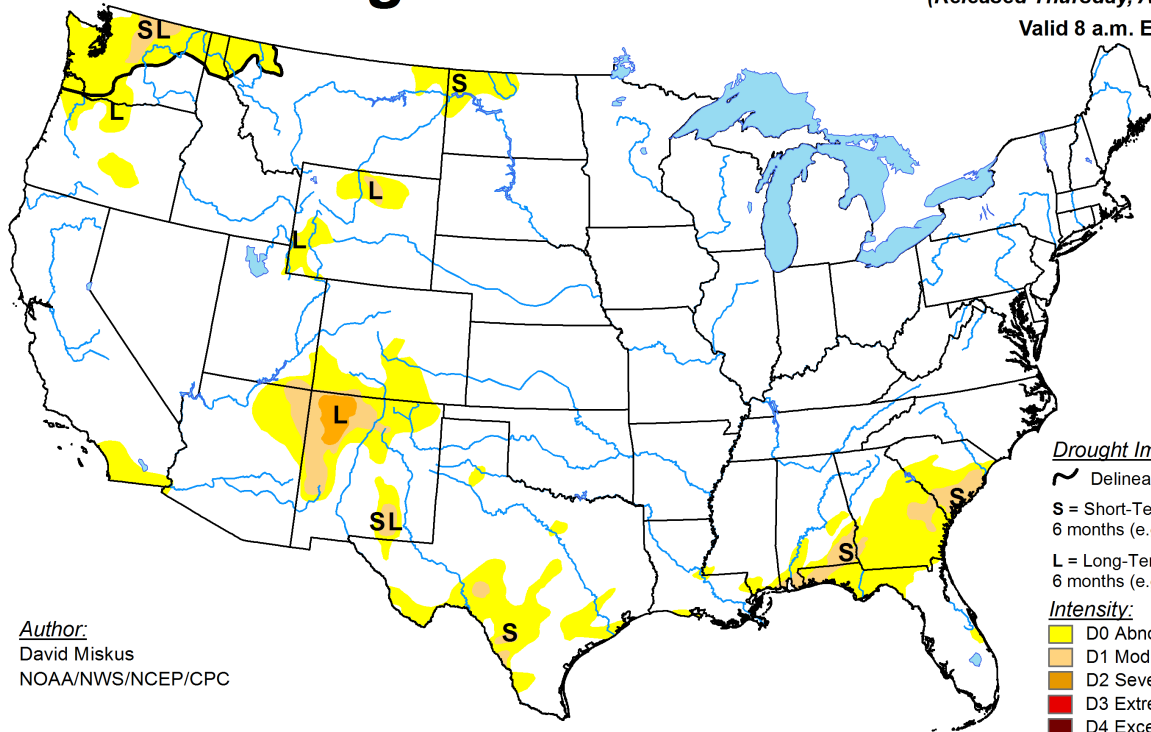


U.S. Drought Monitor

April 23, 2019

(Released Thursday, Apr. 25, 2019)

Valid 8 a.m. EDT



Author:
David Miskus
NOAA/NWS/NCEP/CPC

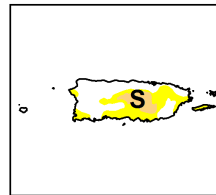
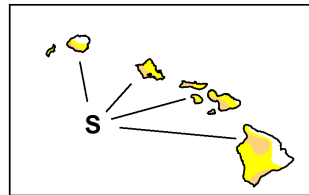
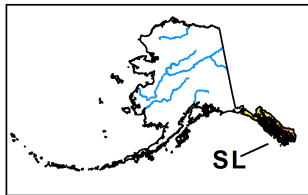
Drought Impact Types:

- ~ 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:

- Yellow: D0 Abnormally Dry
- Light Orange: D1 Moderate Drought
- Orange: D2 Severe Drought
- Red: D3 Extreme Drought
- Dark Red: D4 Exceptional Drought

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

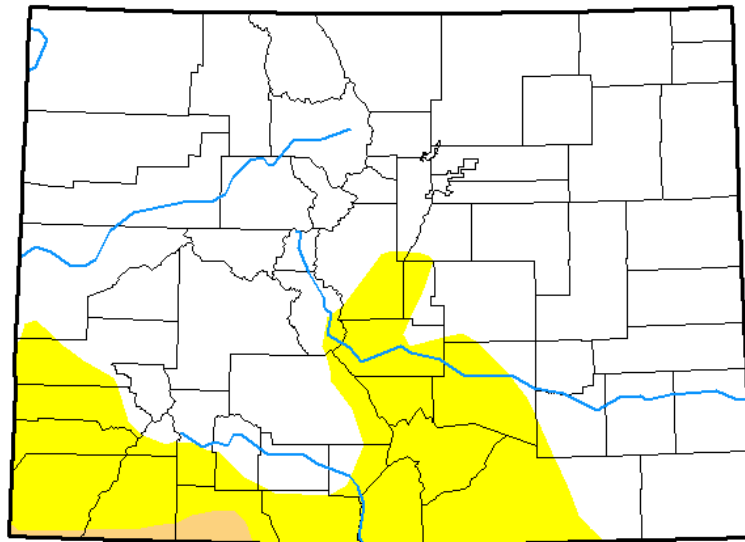


<http://droughtmonitor.unl.edu/>



U.S. Drought Monitor Colorado

April 23, 2019
(Released Thursday, Apr. 25, 2019)
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Drought Conditions (Percent Area)

	None	D0-D4	D1-D4	D2-D4	D3-D4	D4
Current	78.01	21.99	0.98	0.00	0.00	0.00
Last Week <i>04-16-2019</i>	78.01	21.99	4.74	0.00	0.00	0.00
3 Months Ago <i>01-22-2019</i>	15.91	84.09	68.49	42.41	22.04	2.79
Start of Calendar Year <i>01-01-2019</i>	17.94	82.06	66.26	54.91	27.11	11.22
Start of Water Year <i>09-25-2018</i>	14.19	85.81	72.30	64.41	48.47	16.21
One Year Ago <i>04-24-2018</i>	18.47	81.53	67.98	53.65	30.89	3.87

Intensity:

- D0 Abnormally Dry
- D1 Moderate Drought
- D3 Extreme 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:

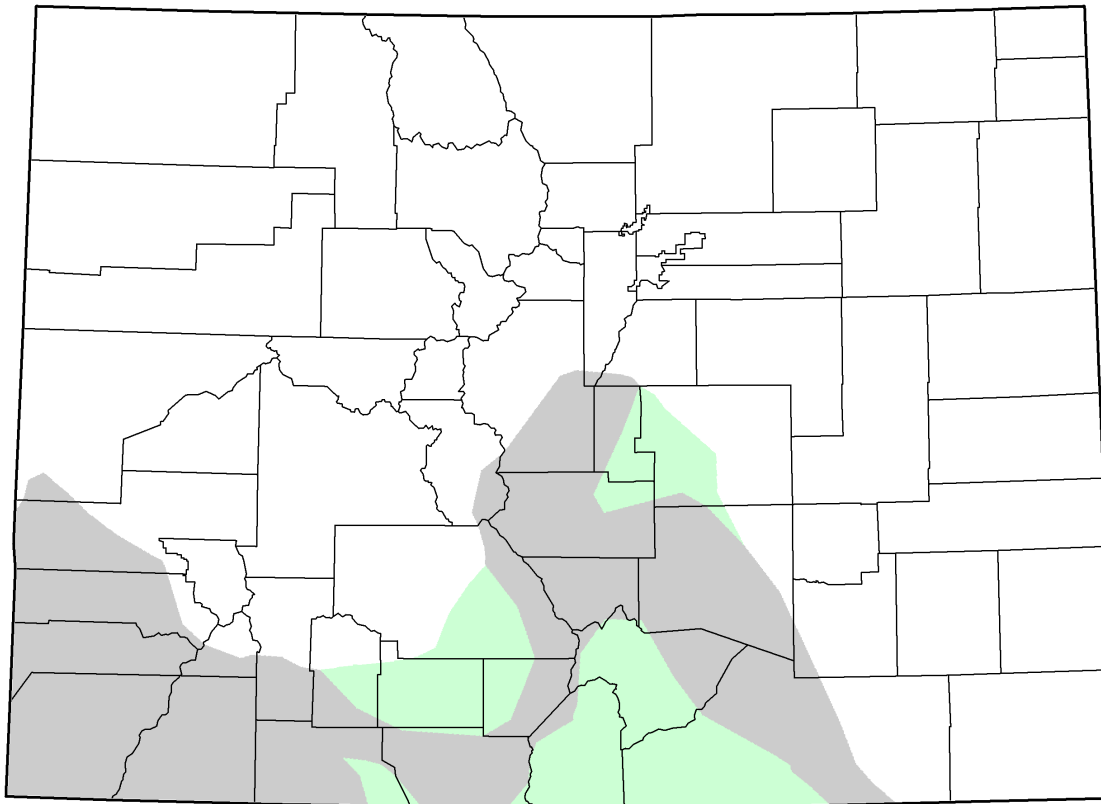
David Miskus
NOAA/NWS/NCEP/CPC



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



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



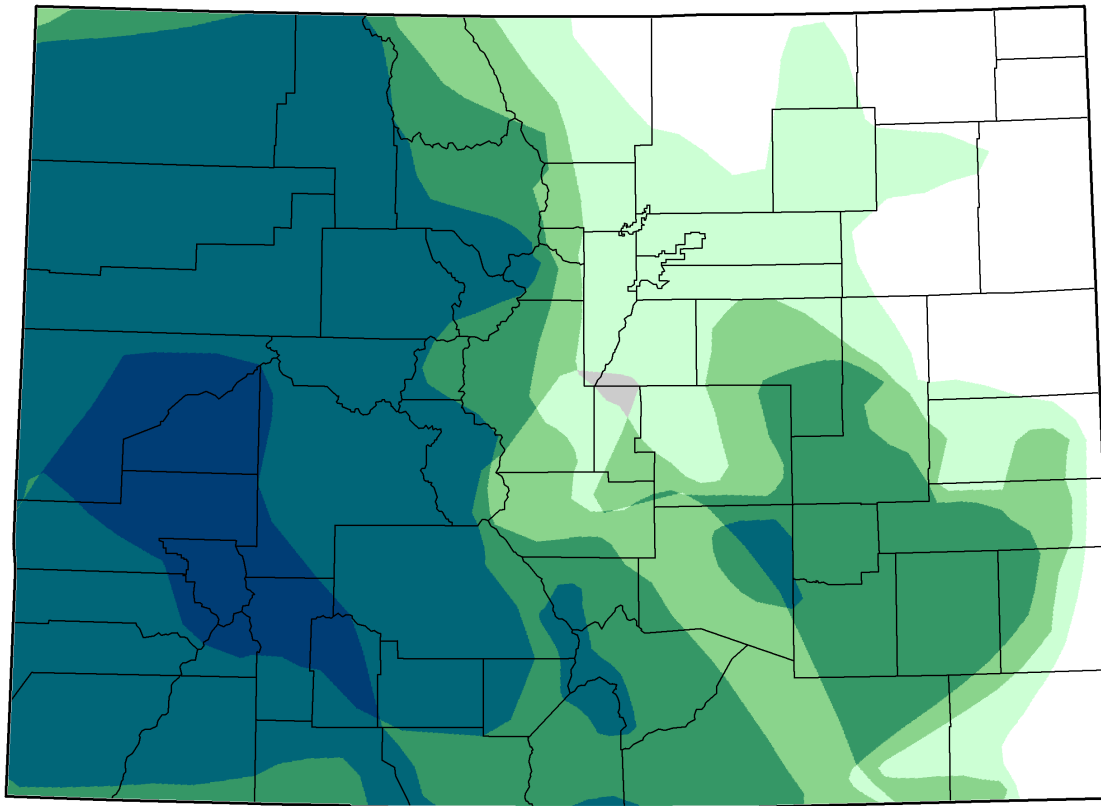
April 23, 2019
compared to
March 26, 2019

droughtmonitor.unl.edu



- 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



- 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

Summer Outlook

What does El Niño mean?

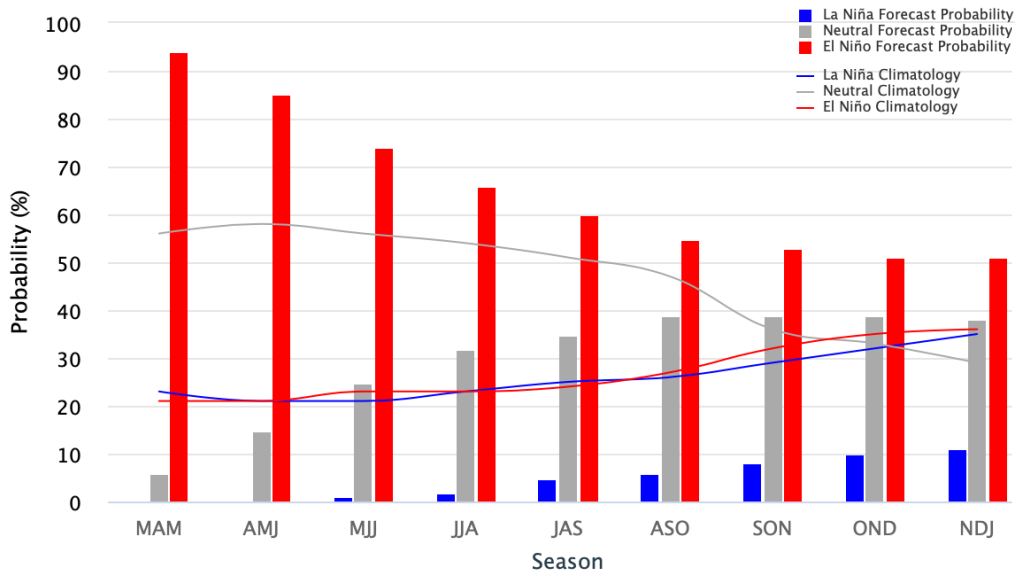
CPC Outlooks



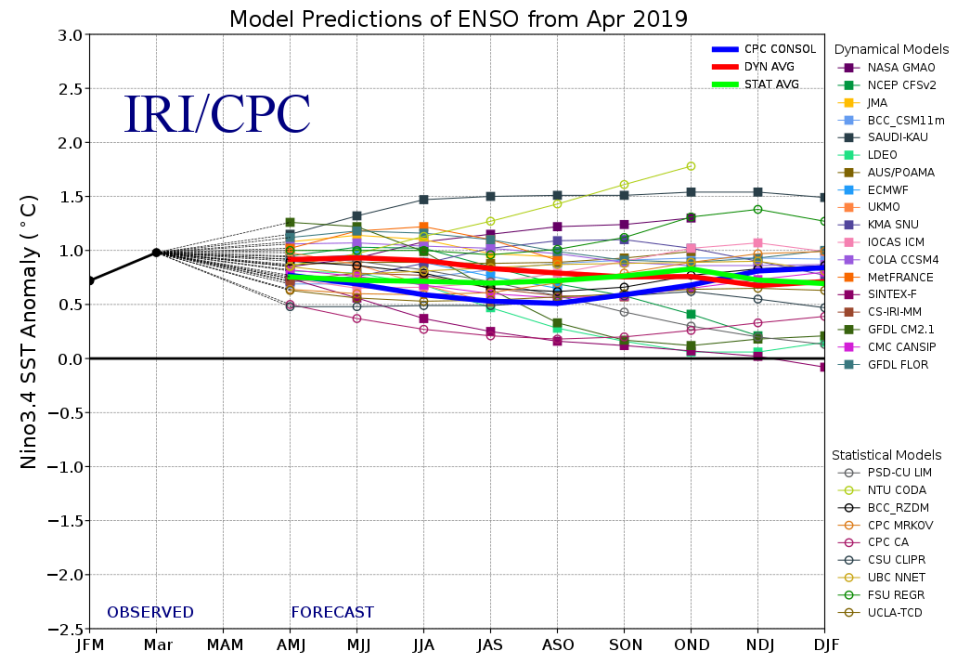
What's the El Niño forecast?

Early-April 2019 CPC/IRI Official Probabilistic ENSO Forecasts

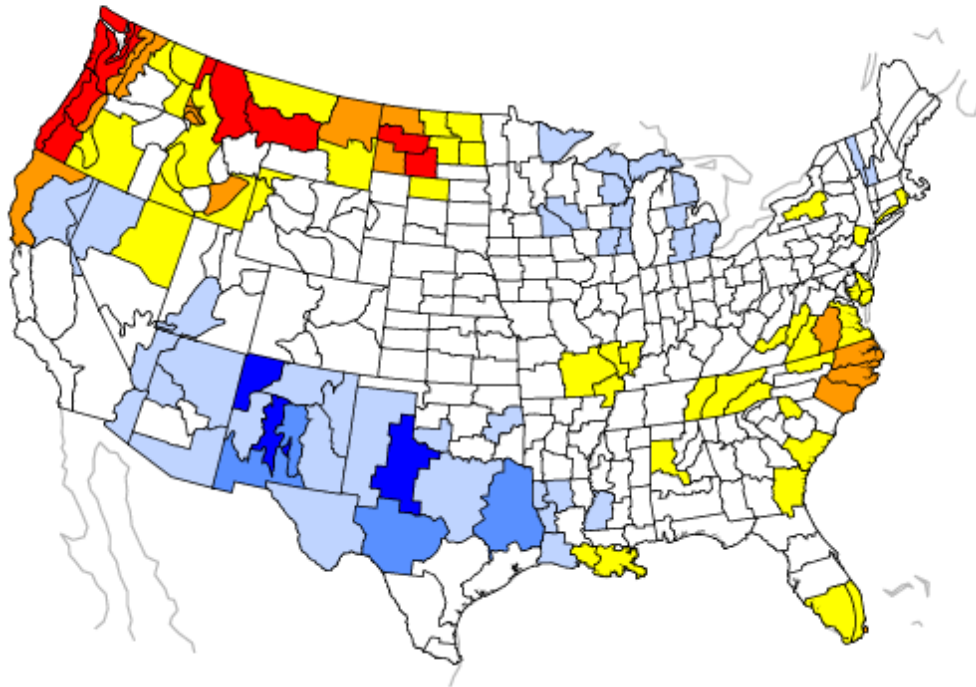
ENSO state based on NINO3.4 SST Anomaly
Neutral ENSO: -0.5 °C to 0.5 °C



An El Niño advisory is in effect...



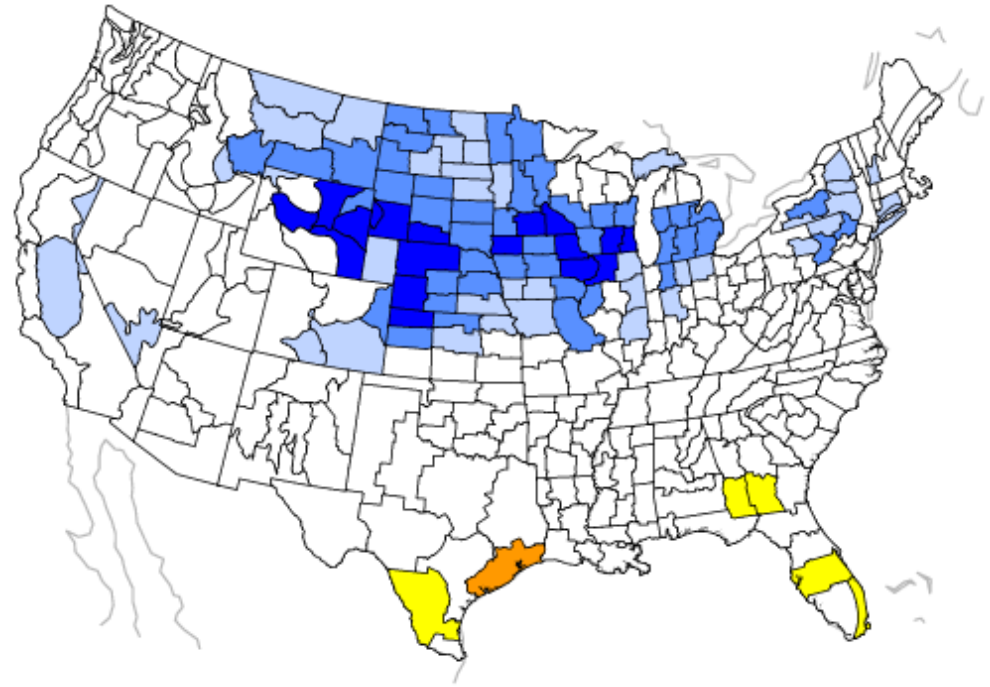
MJJ Temperature During El Nino
Increased Risk of Warm or Cold Extremes



Percent (%) Increase in Risk

NOAA/ESRL/PSD

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

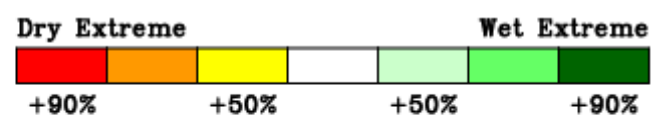
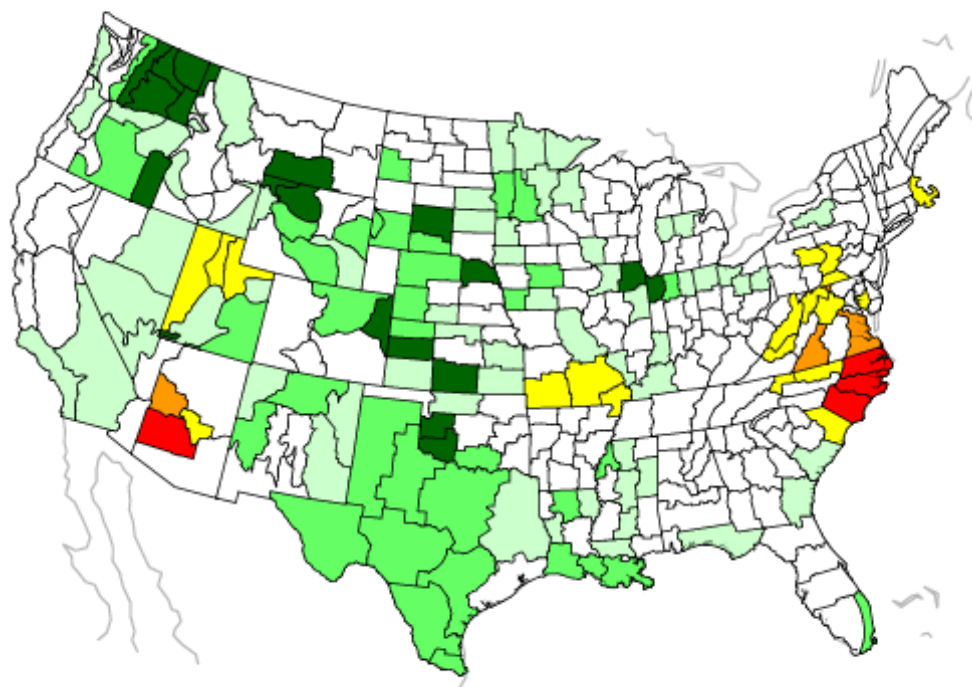


Percent (%) Increase in Risk

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



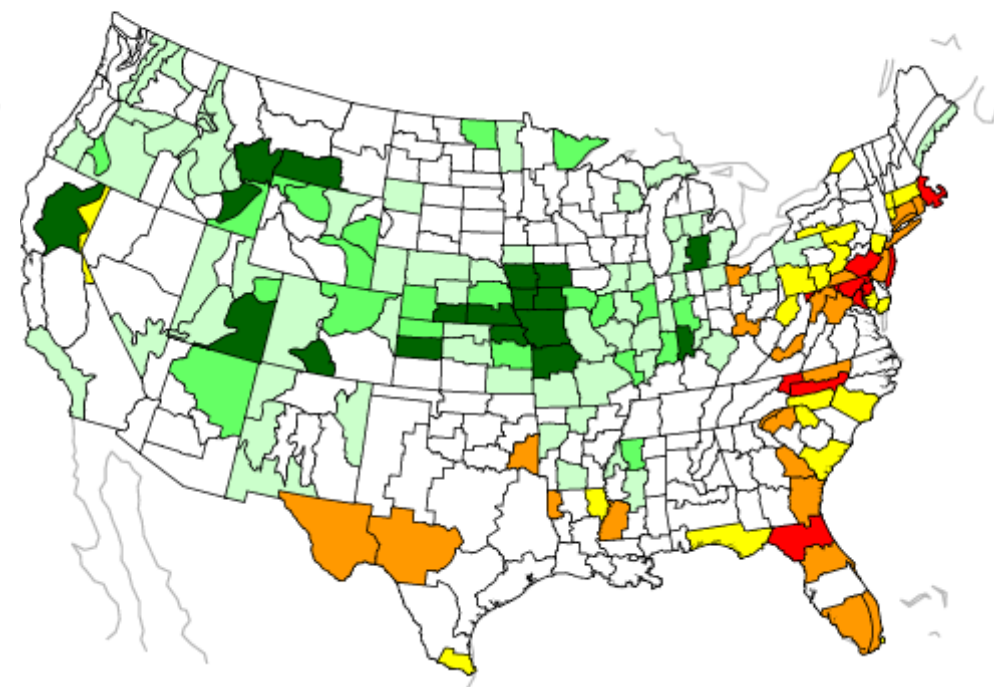
MJJ Precipitation During El Nino
Increased Risk of Wet or Dry Extremes



Percent (%) Increase in Risk

NOAA/ESRL/PSD

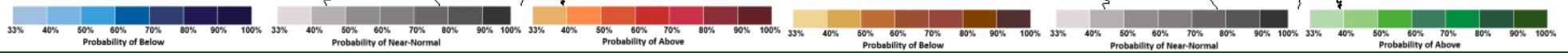
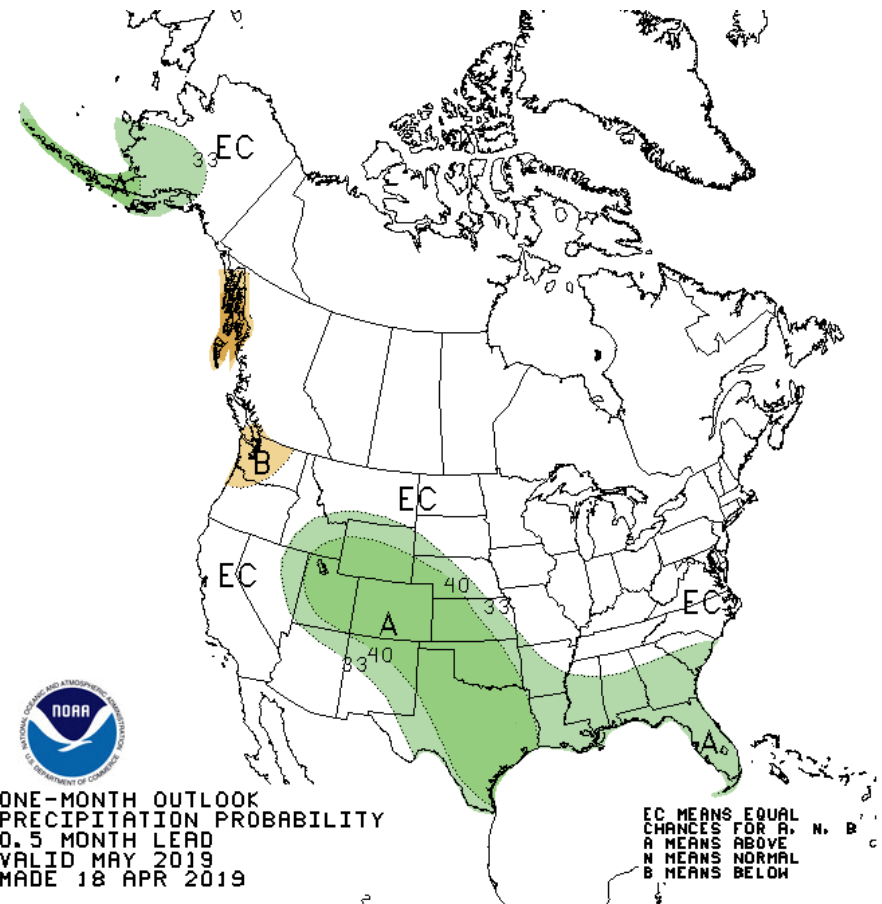
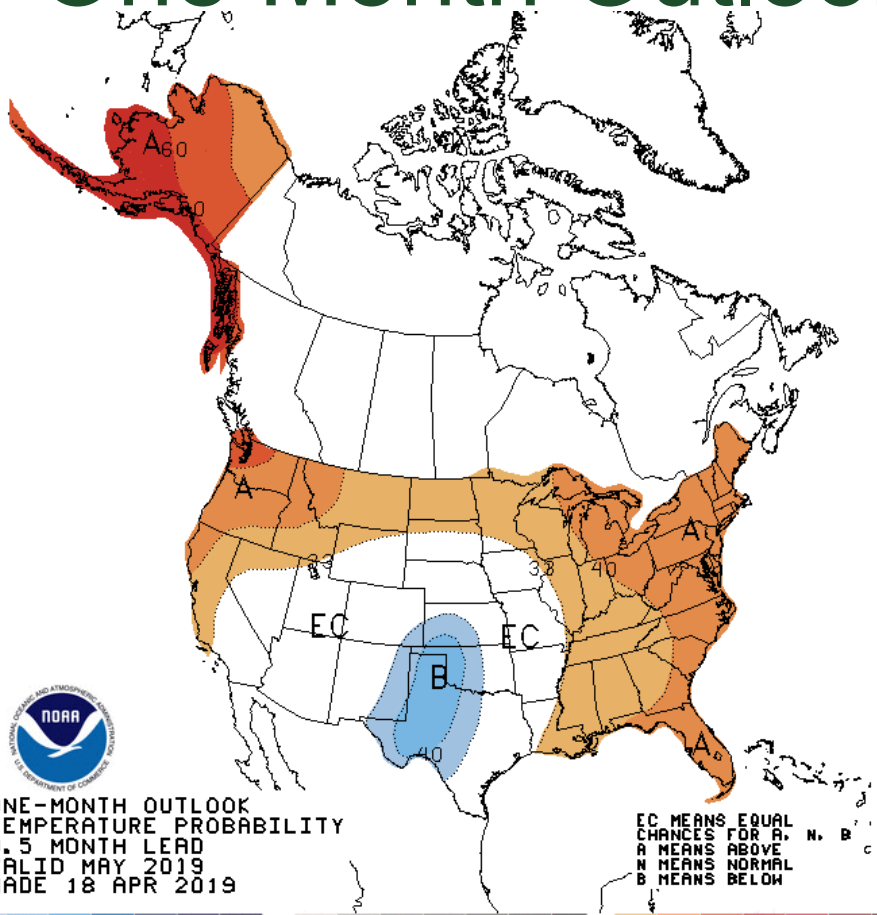
JAS Precipitation During El Nino
Increased Risk of Wet or Dry Extremes



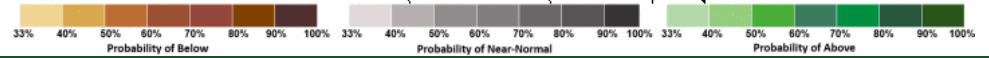
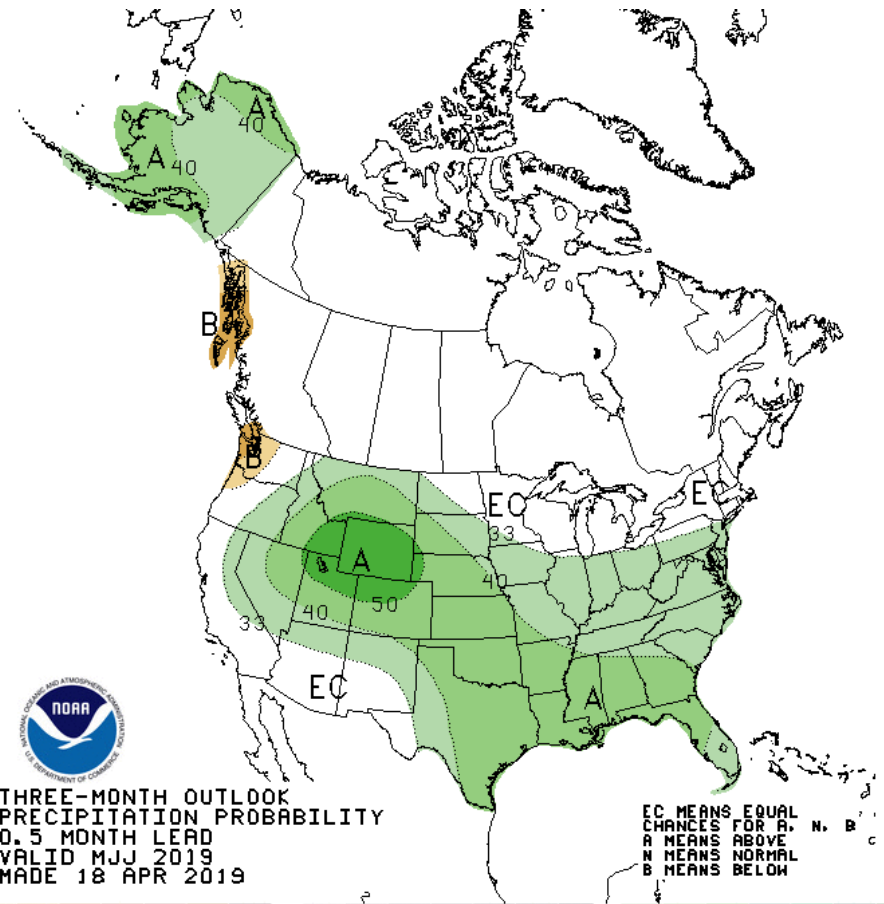
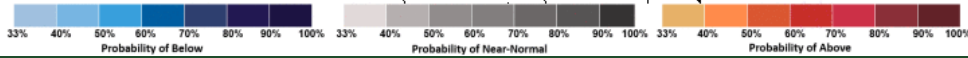
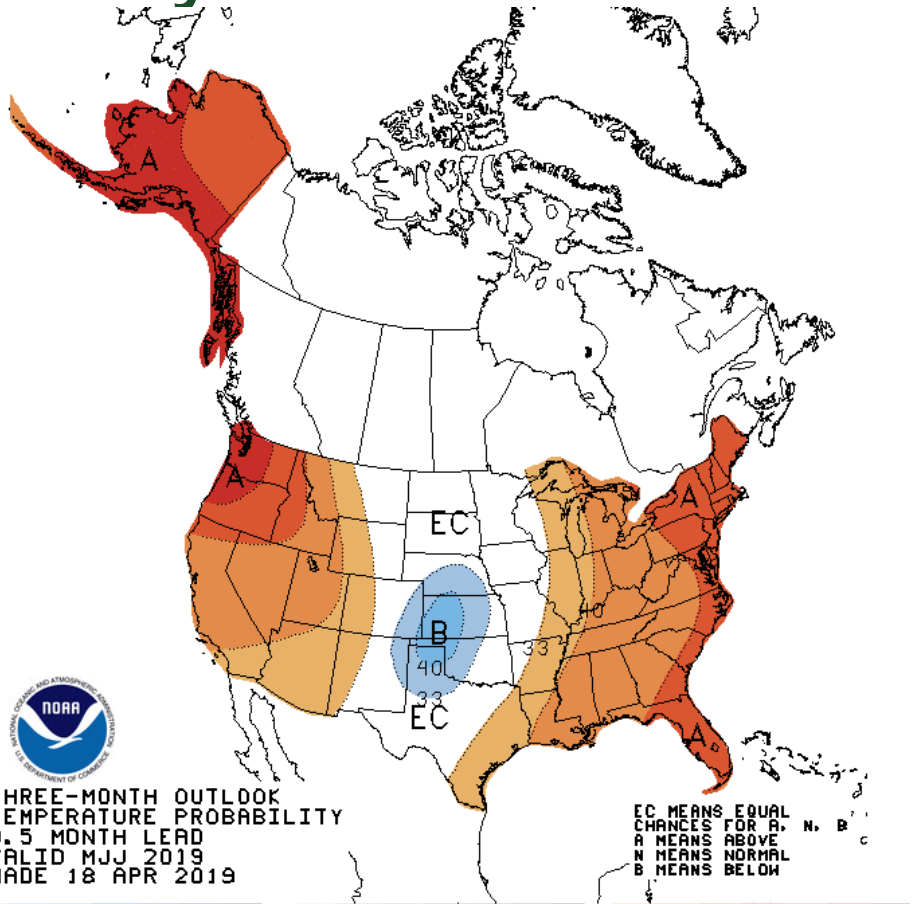
Percent (%) Increase in Risk

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

One Month Outlook

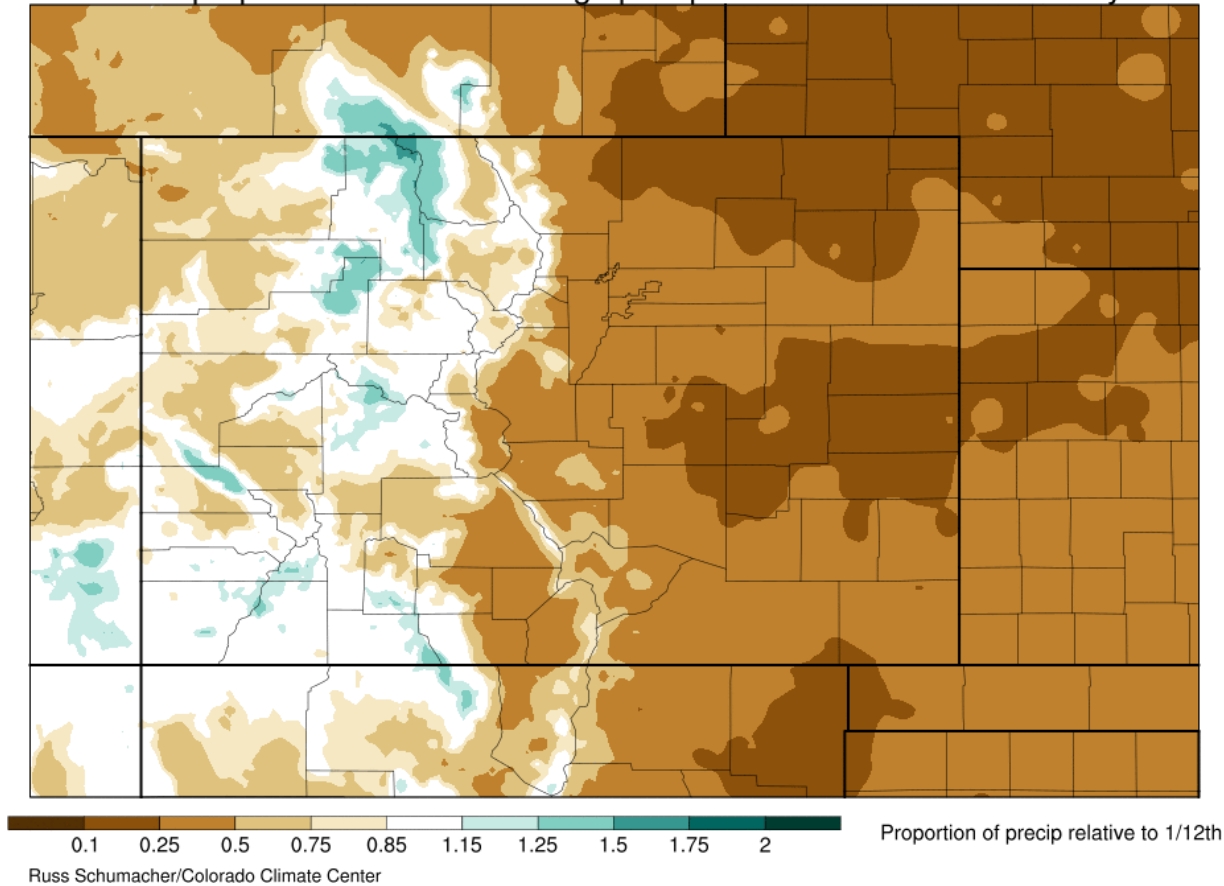


May-Jun-Jul Outlook

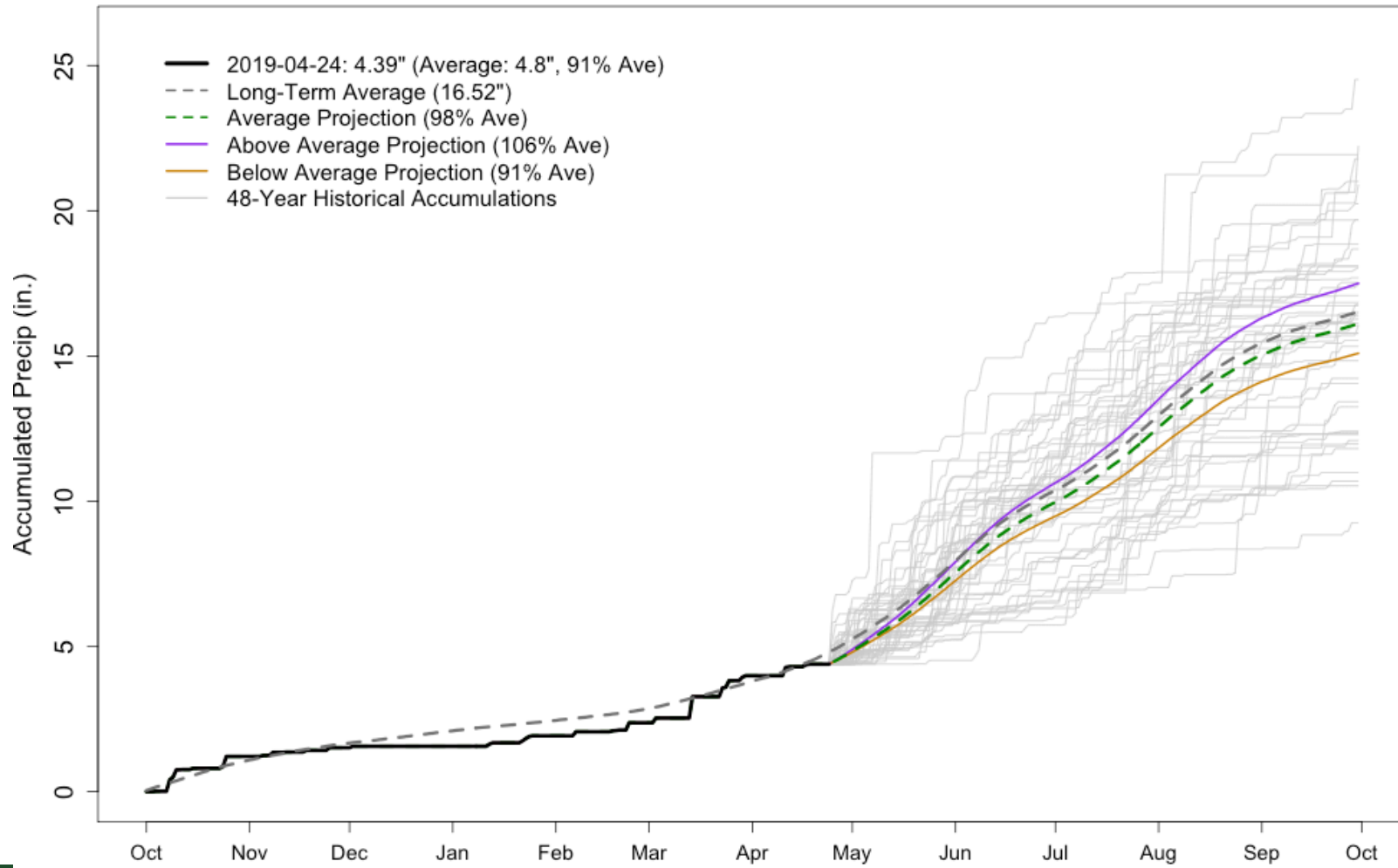


The importance of summer precipitation

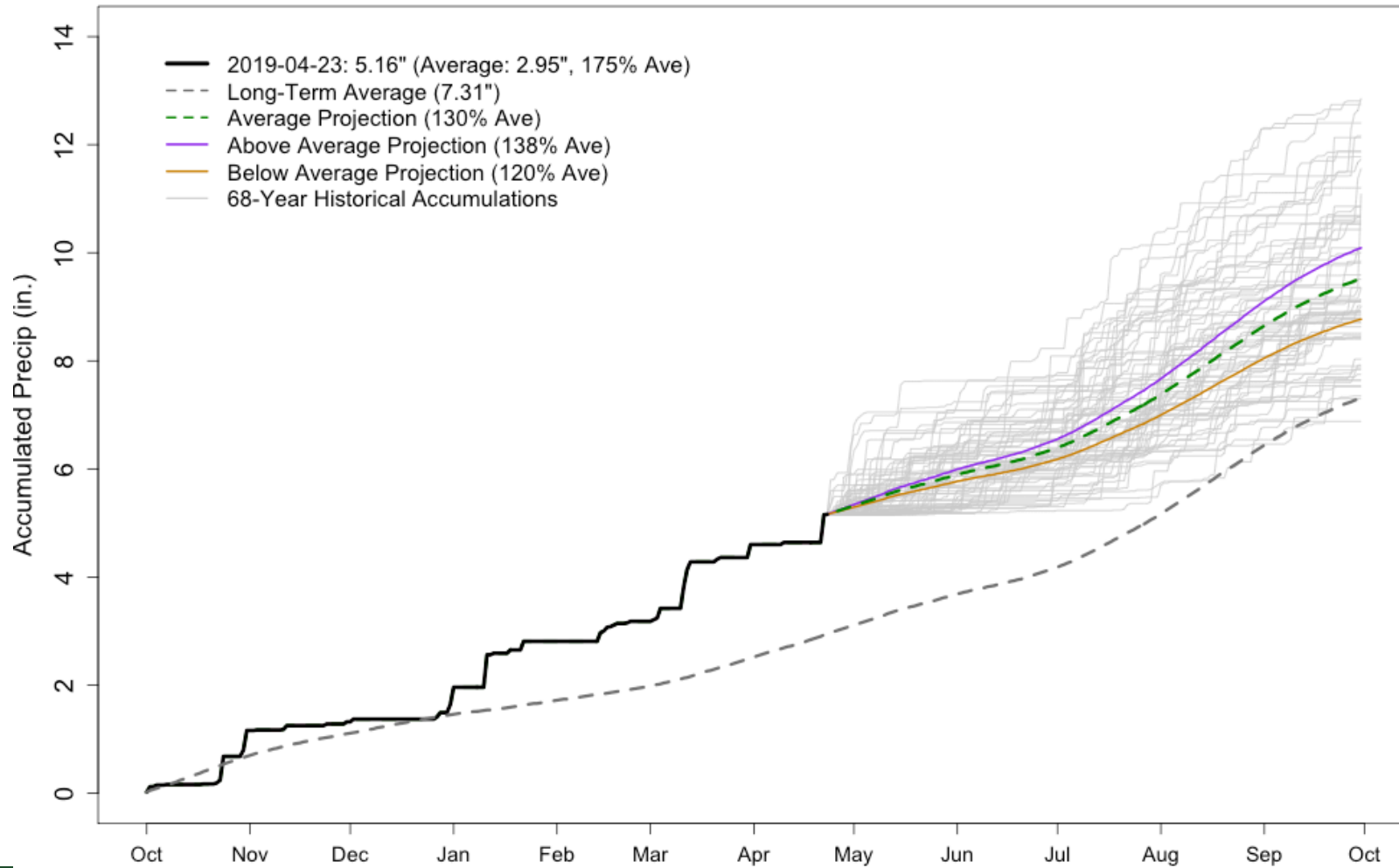
PRISM proportion of annual average precipitation in this month: January



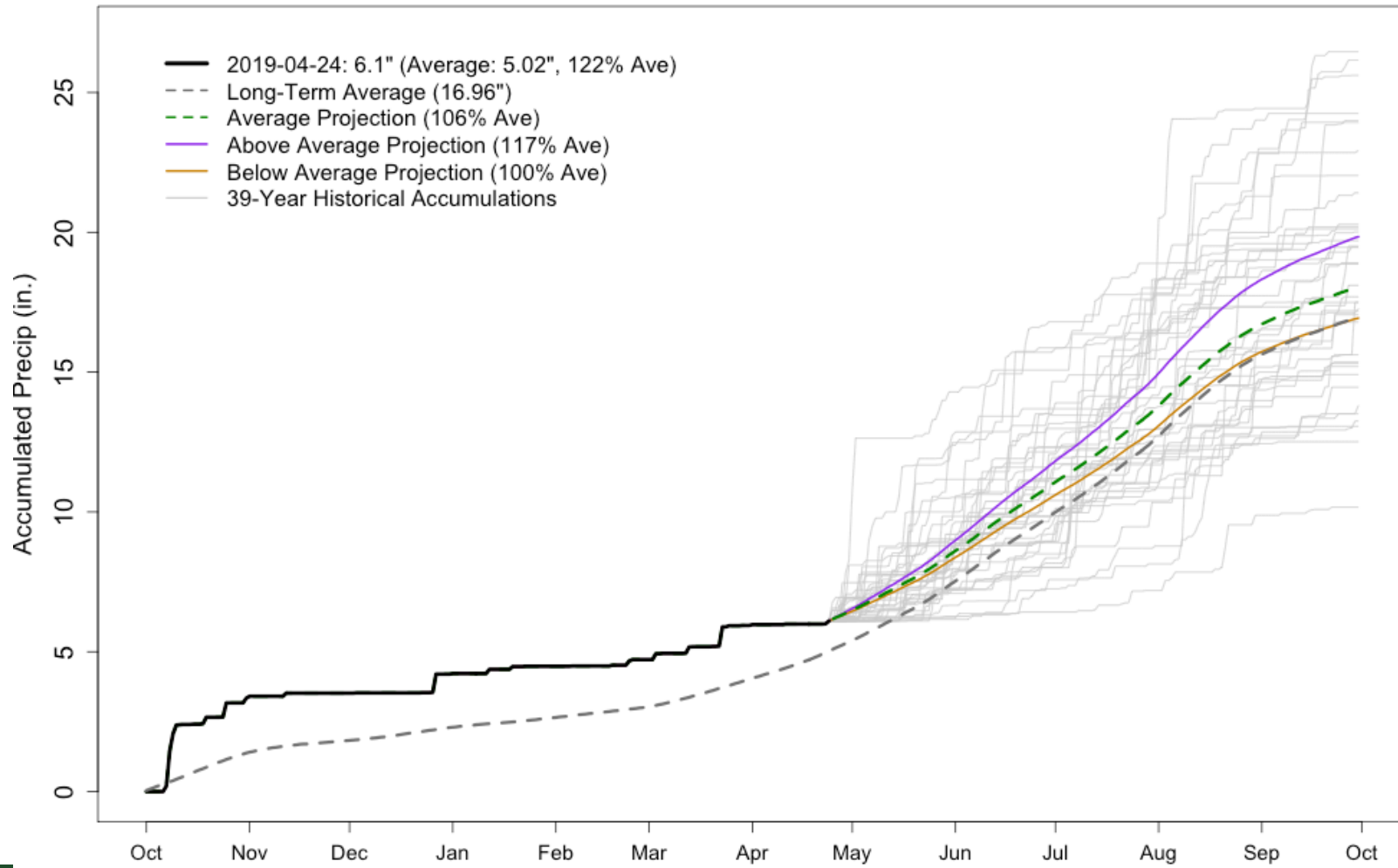
AKRON 4 E WY2019 Precipitation Projections



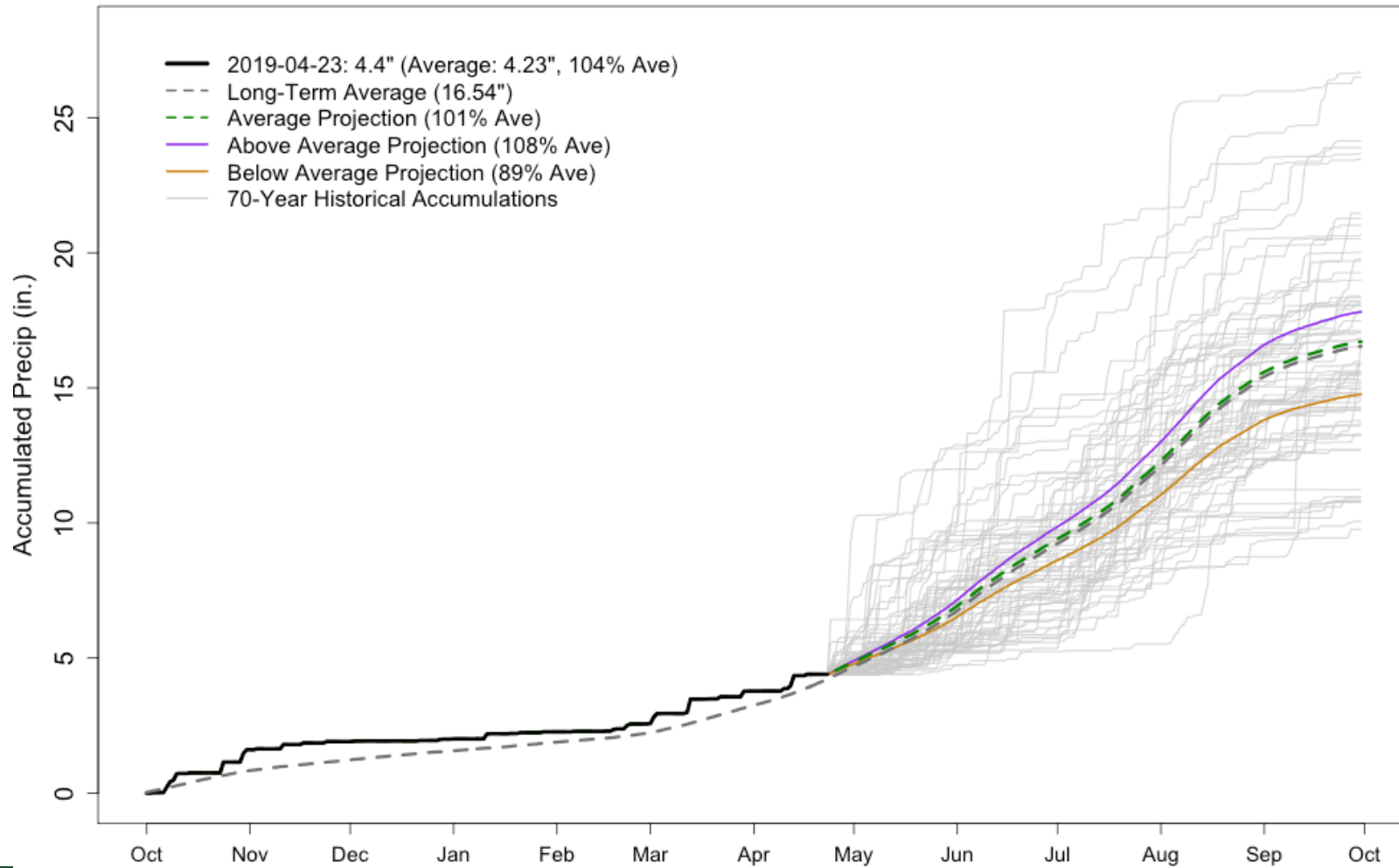
ALAMOSA SAN LUIS VALLEY REGIONAL AP WY2019 Precipitation Projections



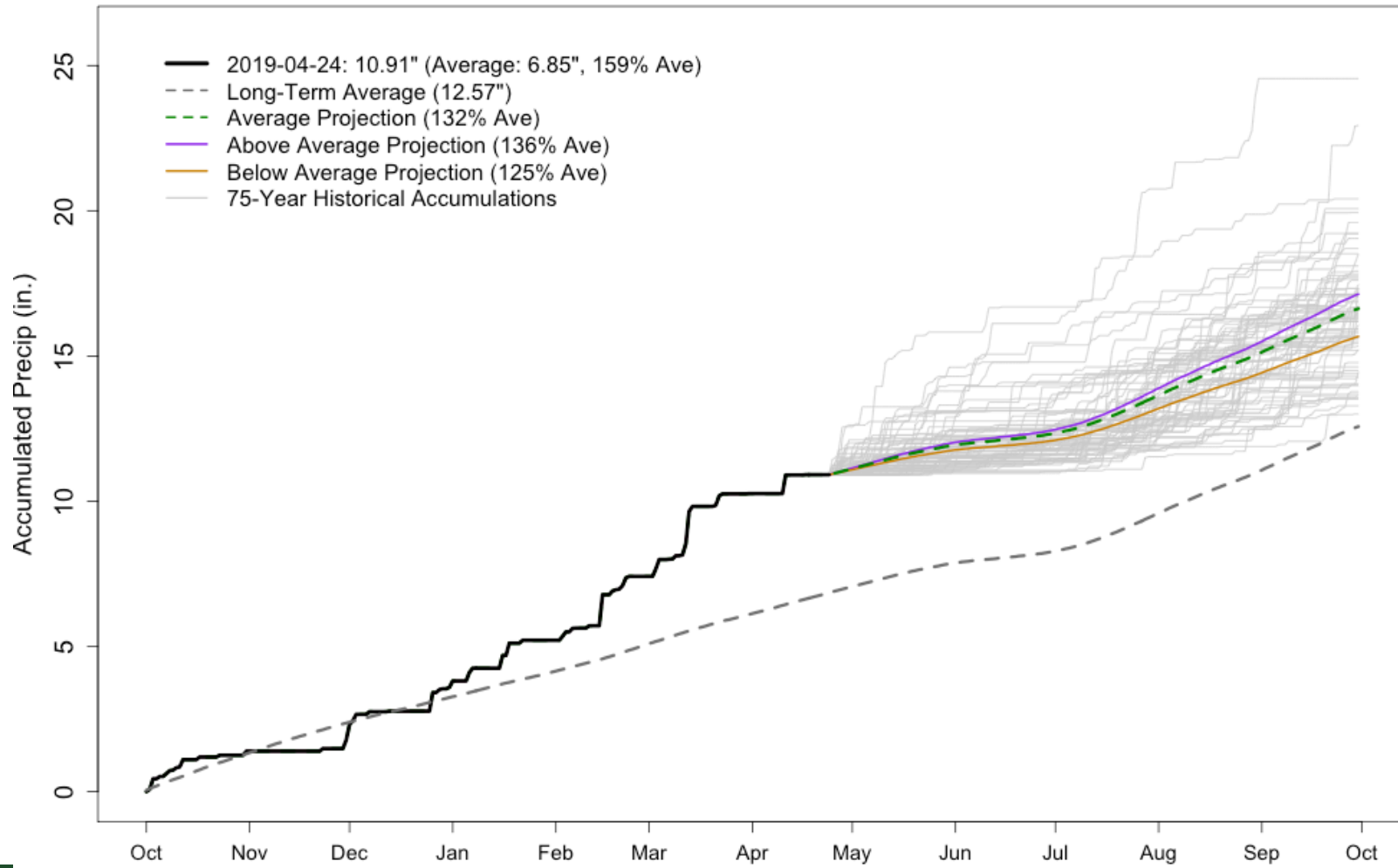
CAMPO 7 S WY2019 Precipitation Projections



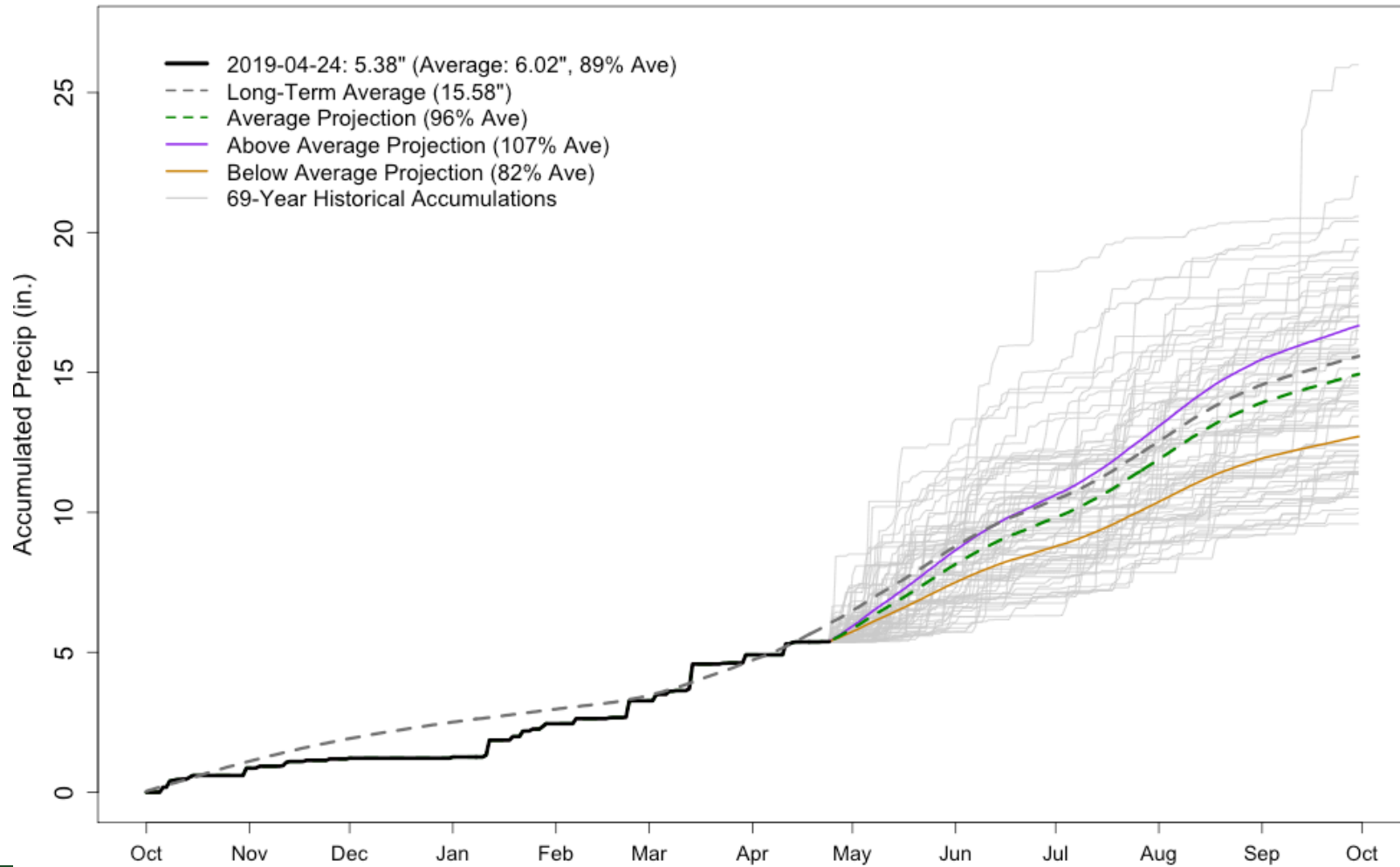
COLORADO SPRINGS MUNICIPAL AP WY2019 Precipitation Projections



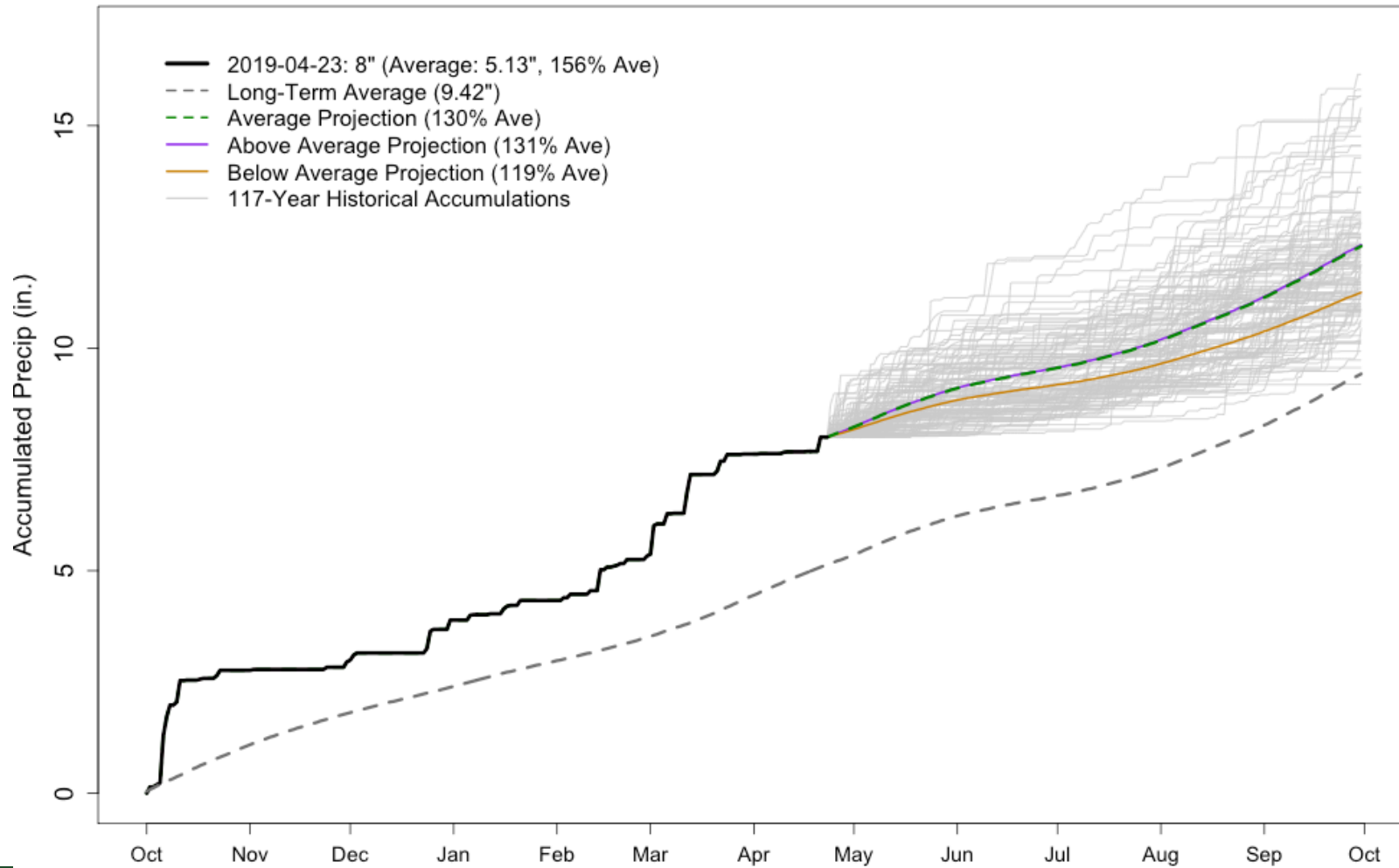
CORTEZ WY2019 Precipitation Projections



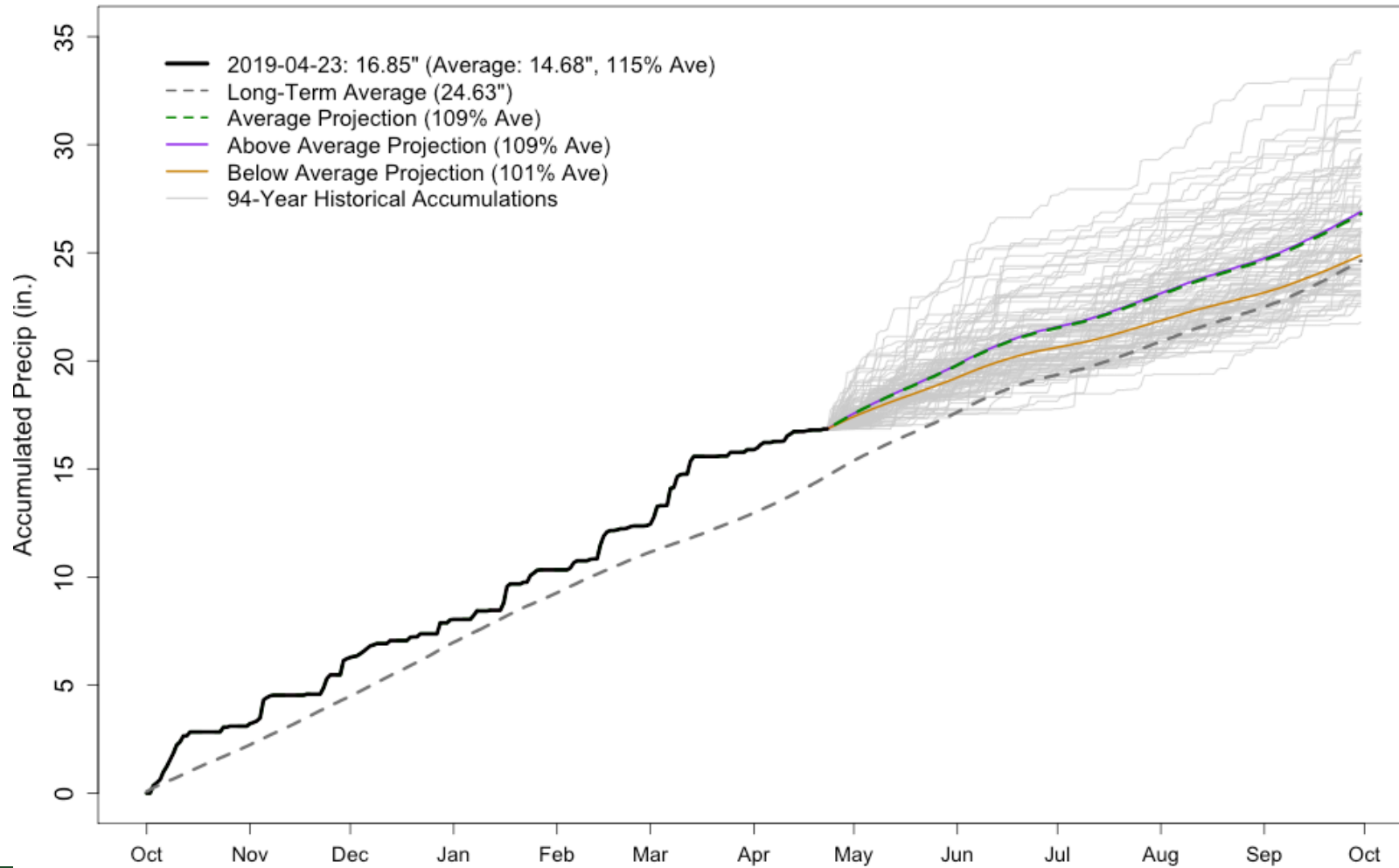
DENVER-STAPELTON WY2019 Precipitation Projections



GRAND JUNCTION WALKER FIELD WY2019 Precipitation Projections



STEAMBOAT SPRINGS WY2019 Precipitation Projections



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**To view this and other presentations:
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Thank you



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