



# *Climate Update*

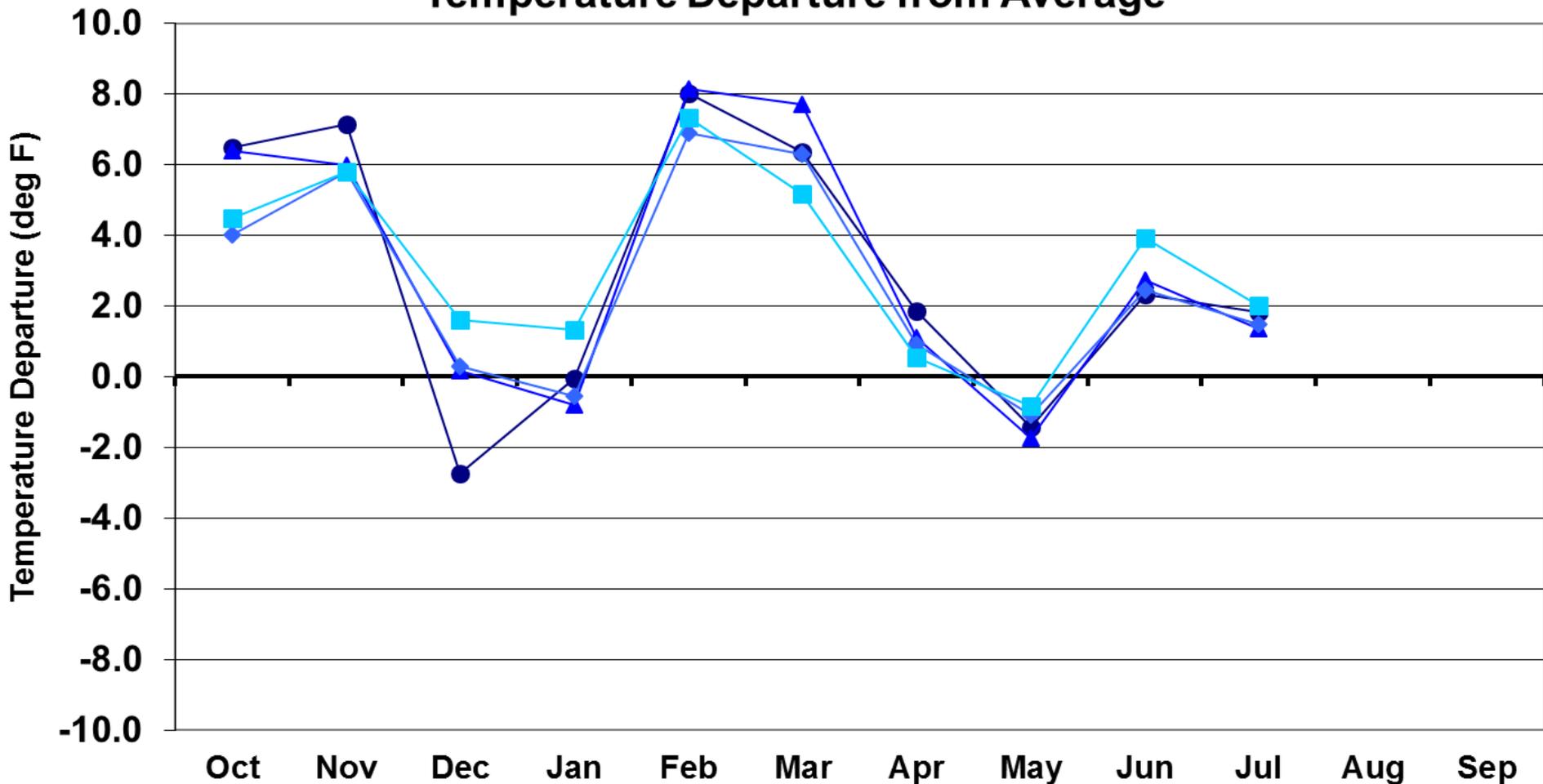


Nolan Doesken  
Colorado Climate Center

Presented to  
Water Availability Task Force  
August 17, 2017  
Denver, CO

# Water Year 2017 Temperature Departures

Water Year 2017  
Temperature Departure from Average



● Eastern Plains

▲ Foothills

◆ Mountains

■ Western Valleys

# July 2017 Average Temperature History for Colorado (NCEI)

69.4 F (+2.3)

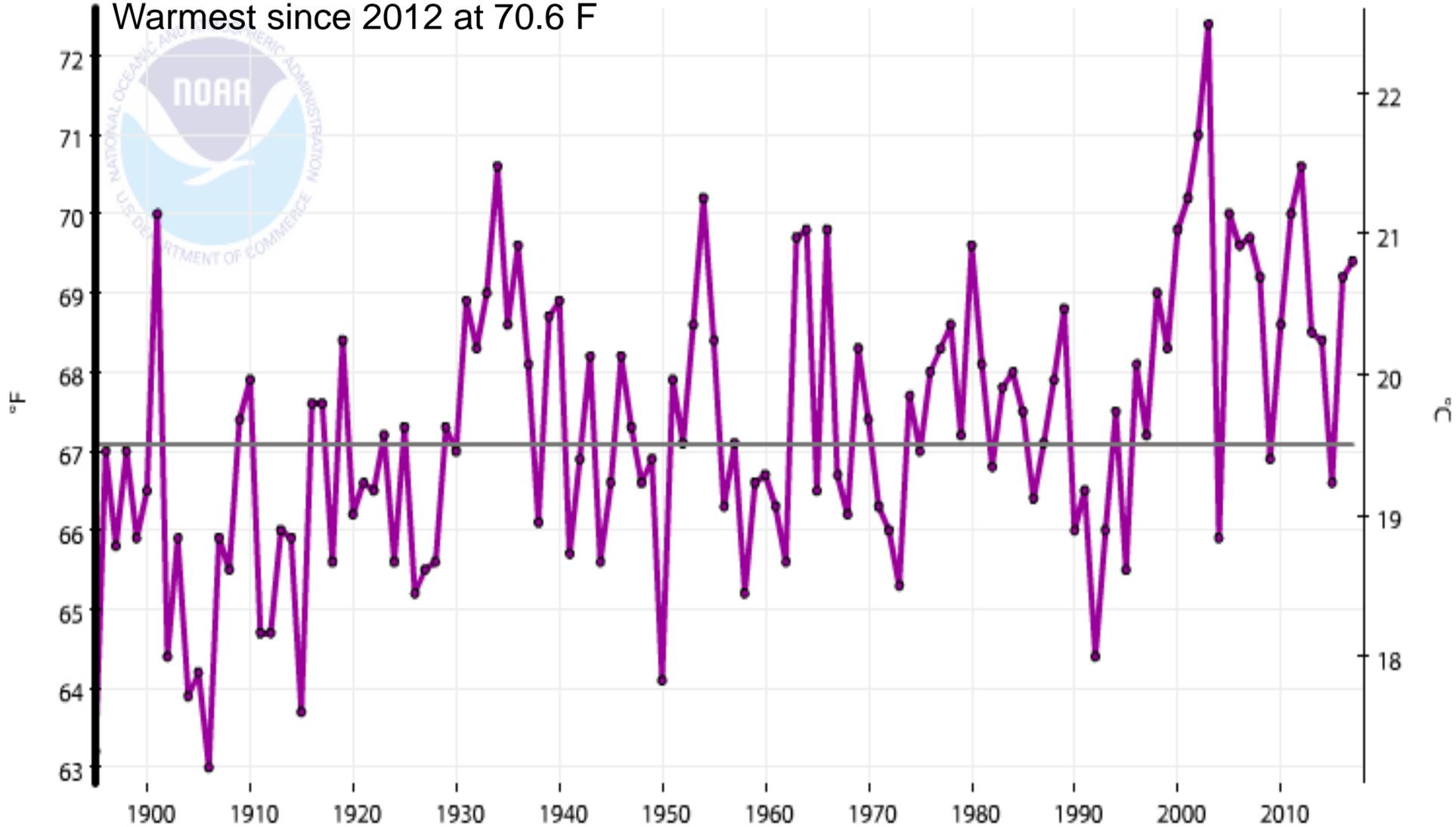
18<sup>th</sup> warmest on record

Warmest since 2012 at 70.6 F

## Colorado, Average Temperature, July

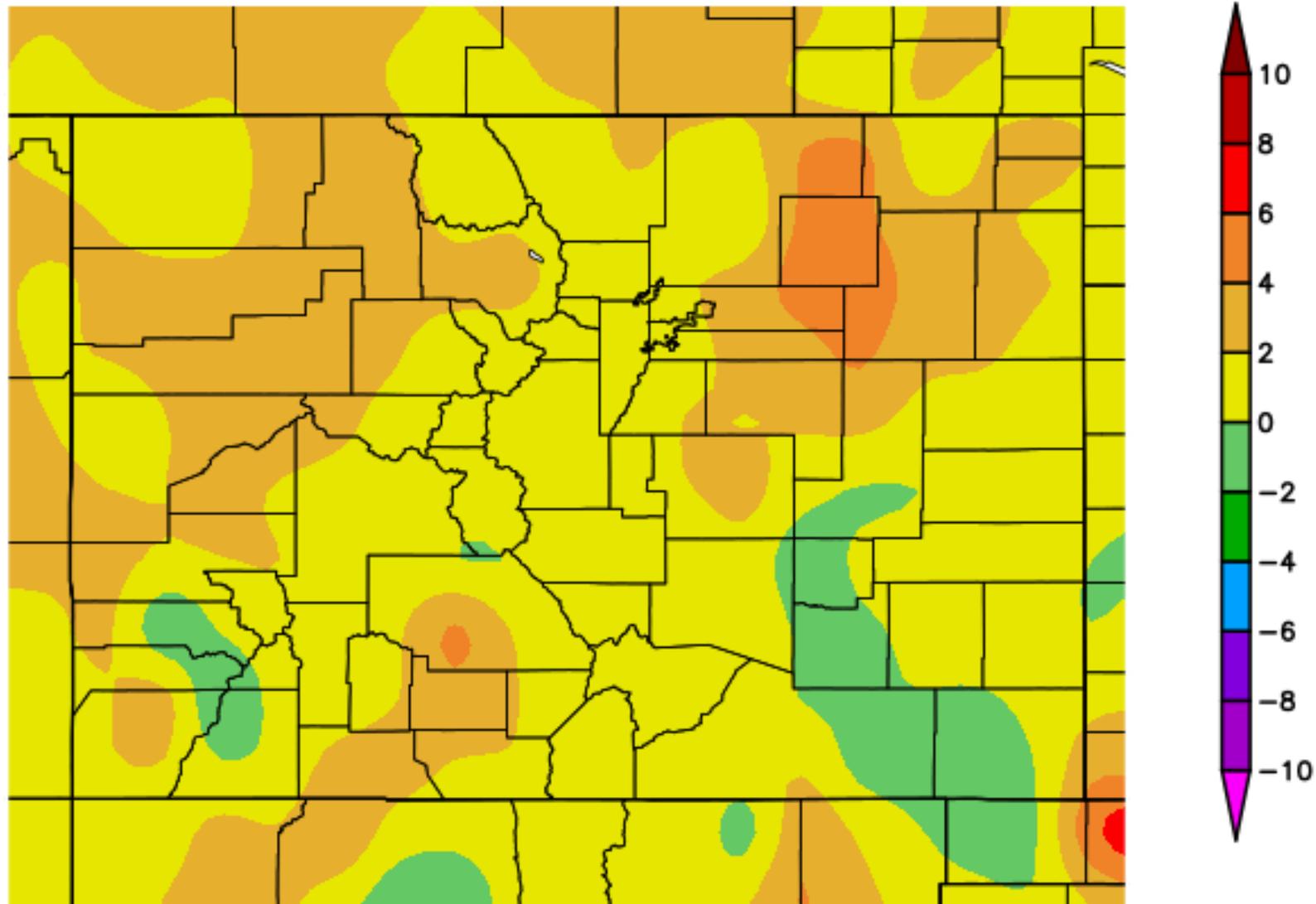
— 1901-2000  
Mean: 67.1°F

● Avg Temperature



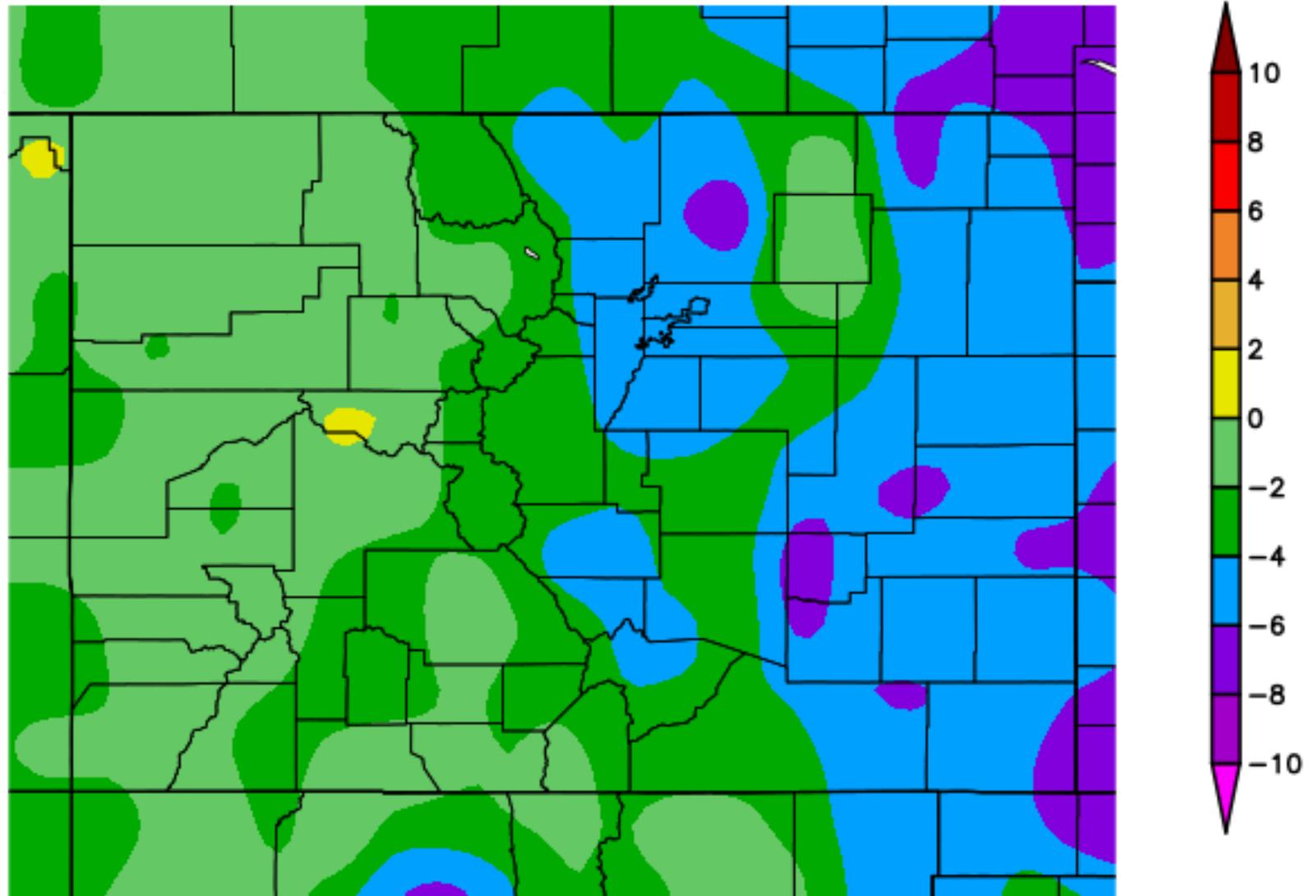
# Departure from Normal Temperature (F)

7/1/2017 - 7/31/2017



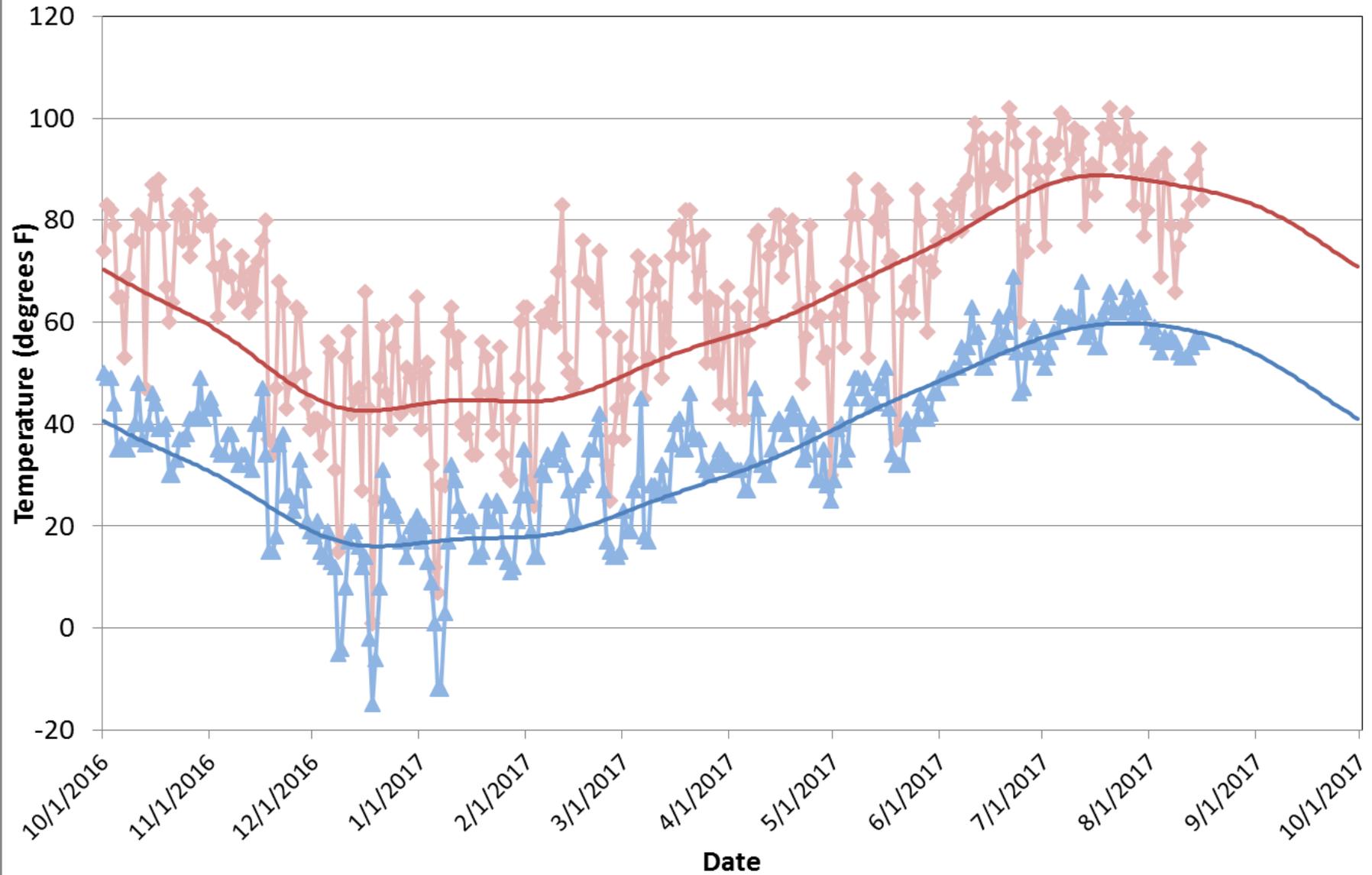
# Departure from Normal Temperature (F)

## 8/1/2017 - 8/15/2017



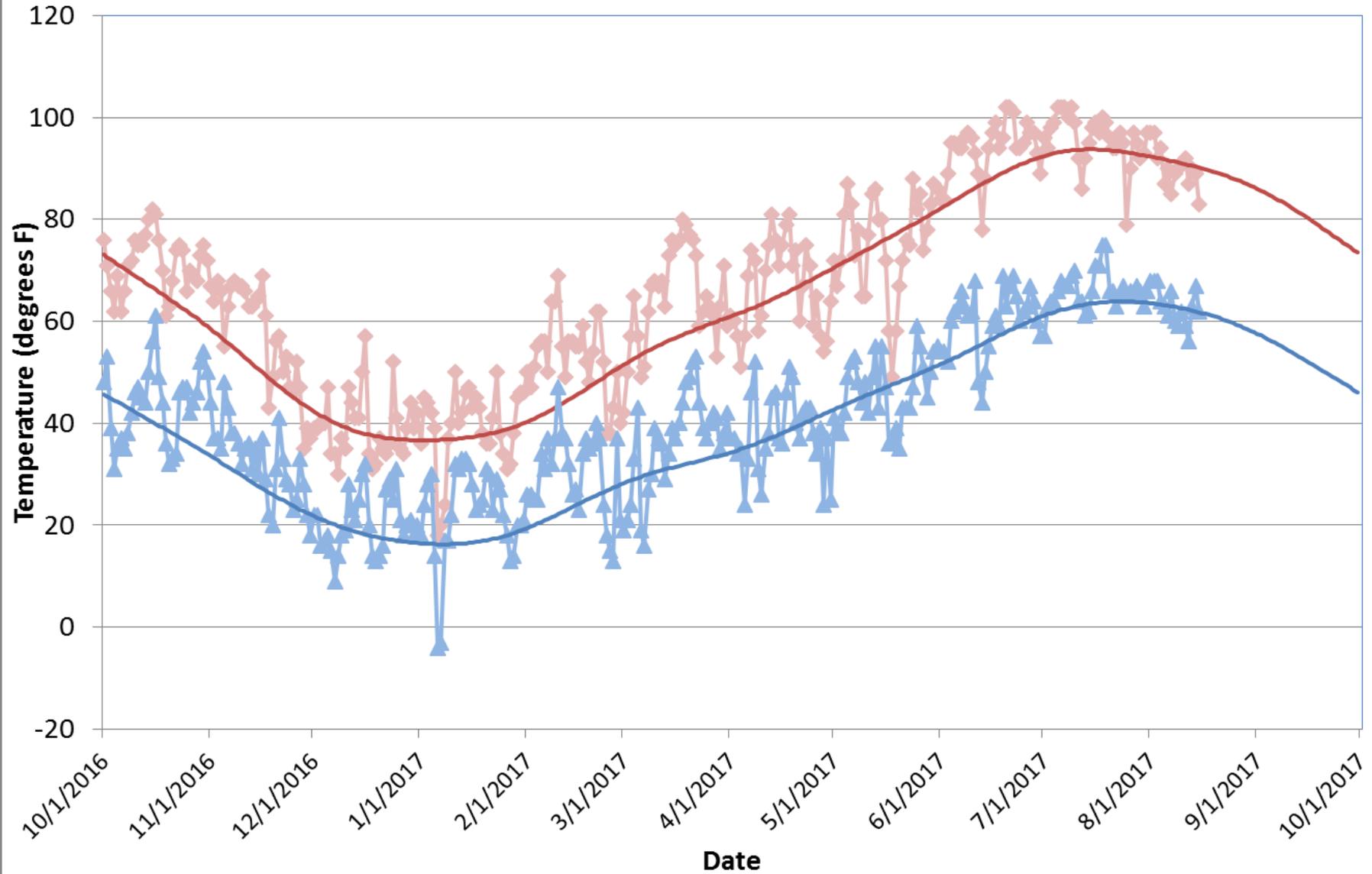
# Denver-Stapleton Daily Max/Min Temperatures with Normals, Water Year 2017

Max Temperature    Normal Max Temp    Min Temperature    Normal Min Temp



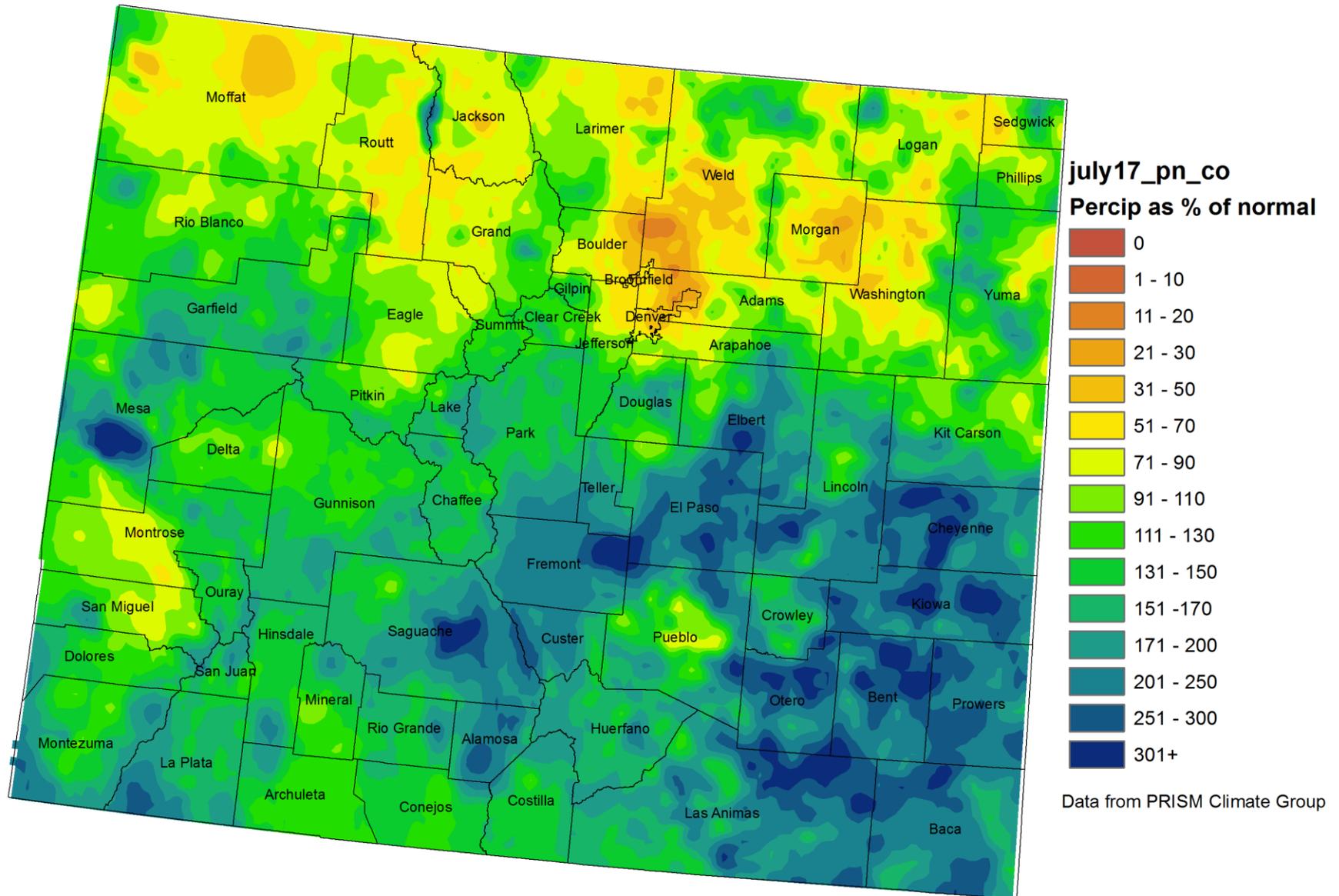
# Grand Junction Daily Max/Min Temperature with Normals, WY 2017

Max Temperature    Normal Max Temp    Min Temperature    Normal Min Temp





# Colorado July 2017 Precipitation as a Percentage of Normal



# July 2017 Statewide Precipitation

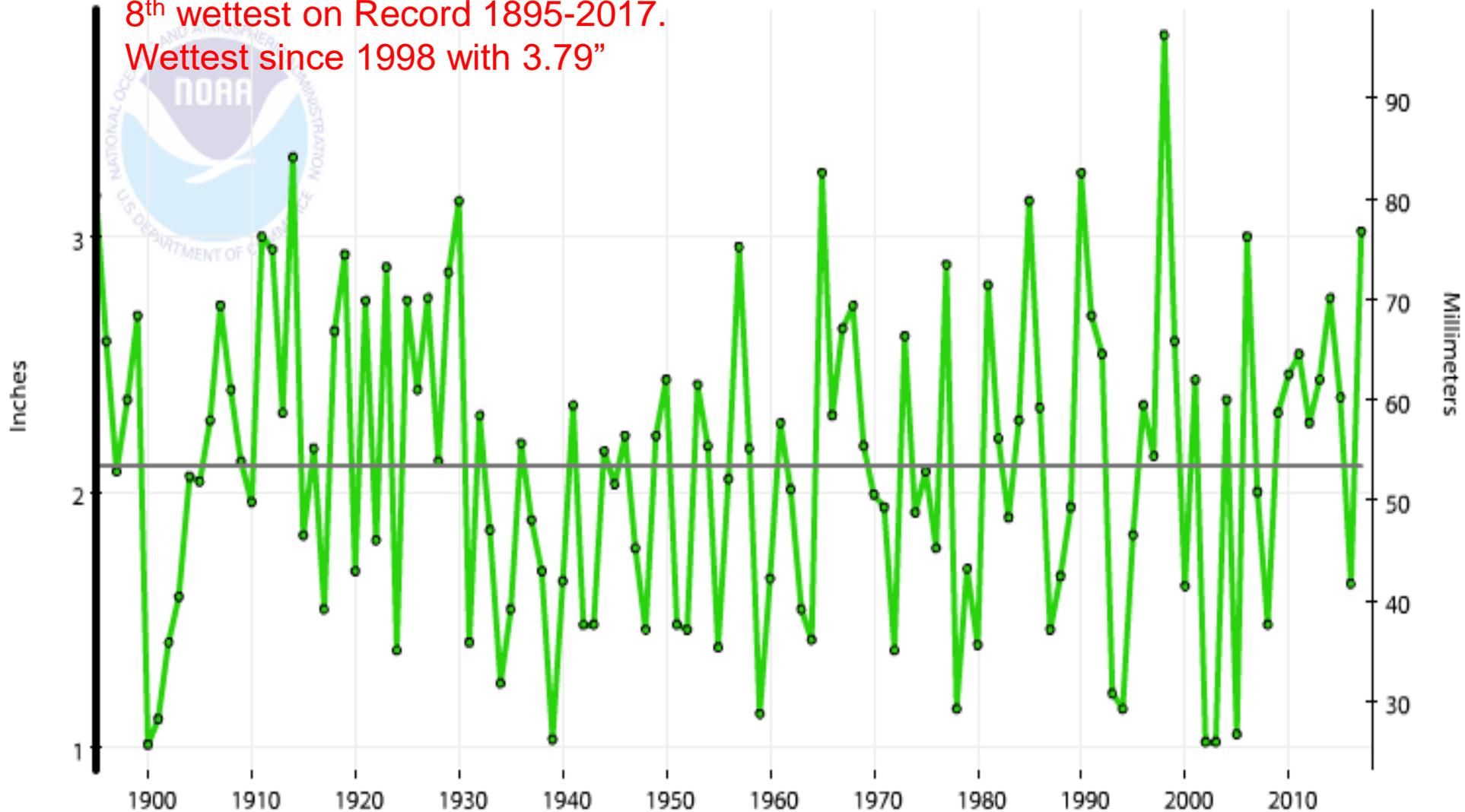
Colorado, Precipitation, July

— 1901-2000 Mean: 2.10"    ■ Precip

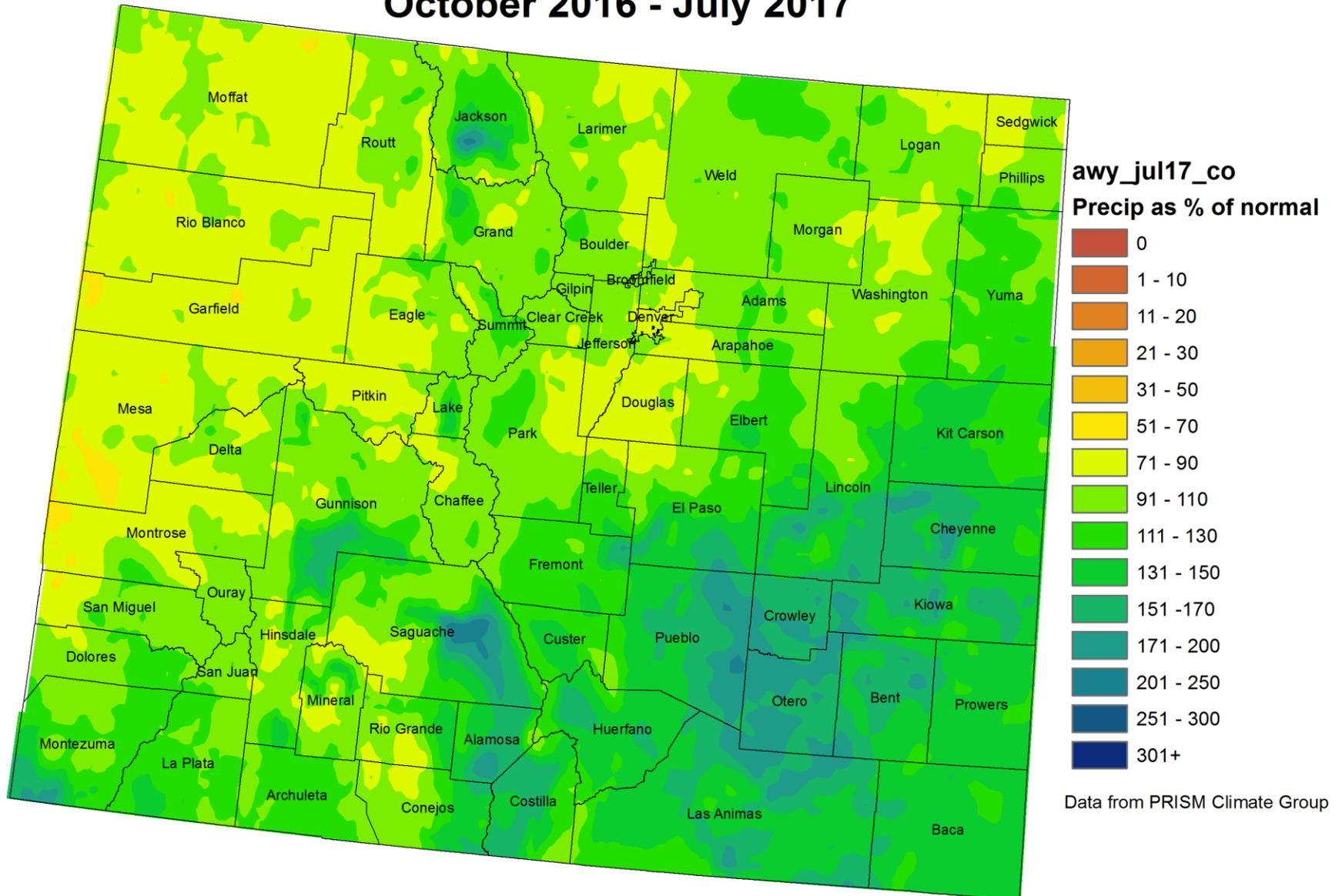
3.02" (+0.92")

8<sup>th</sup> wettest on Record 1895-2017.

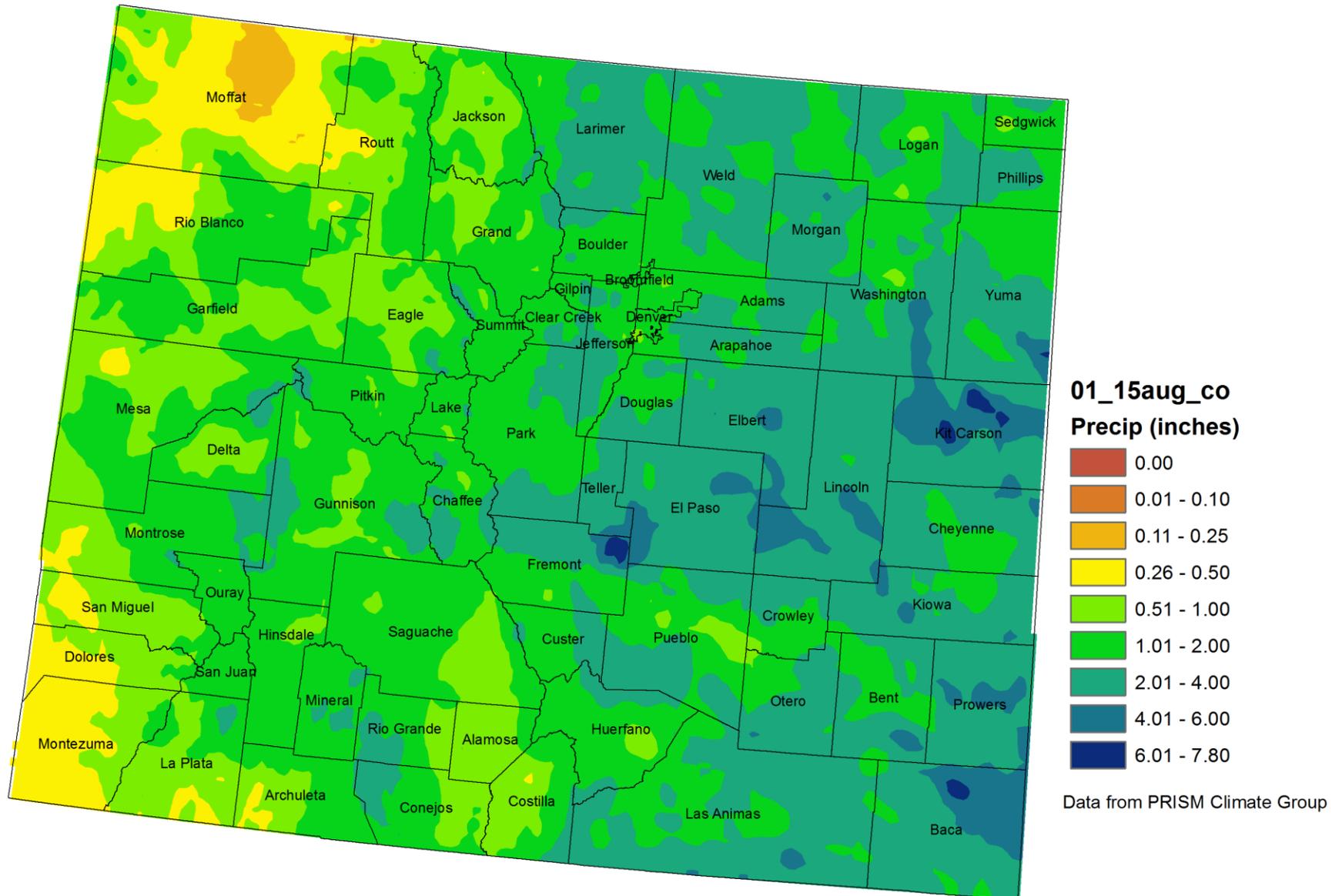
Wettest since 1998 with 3.79"



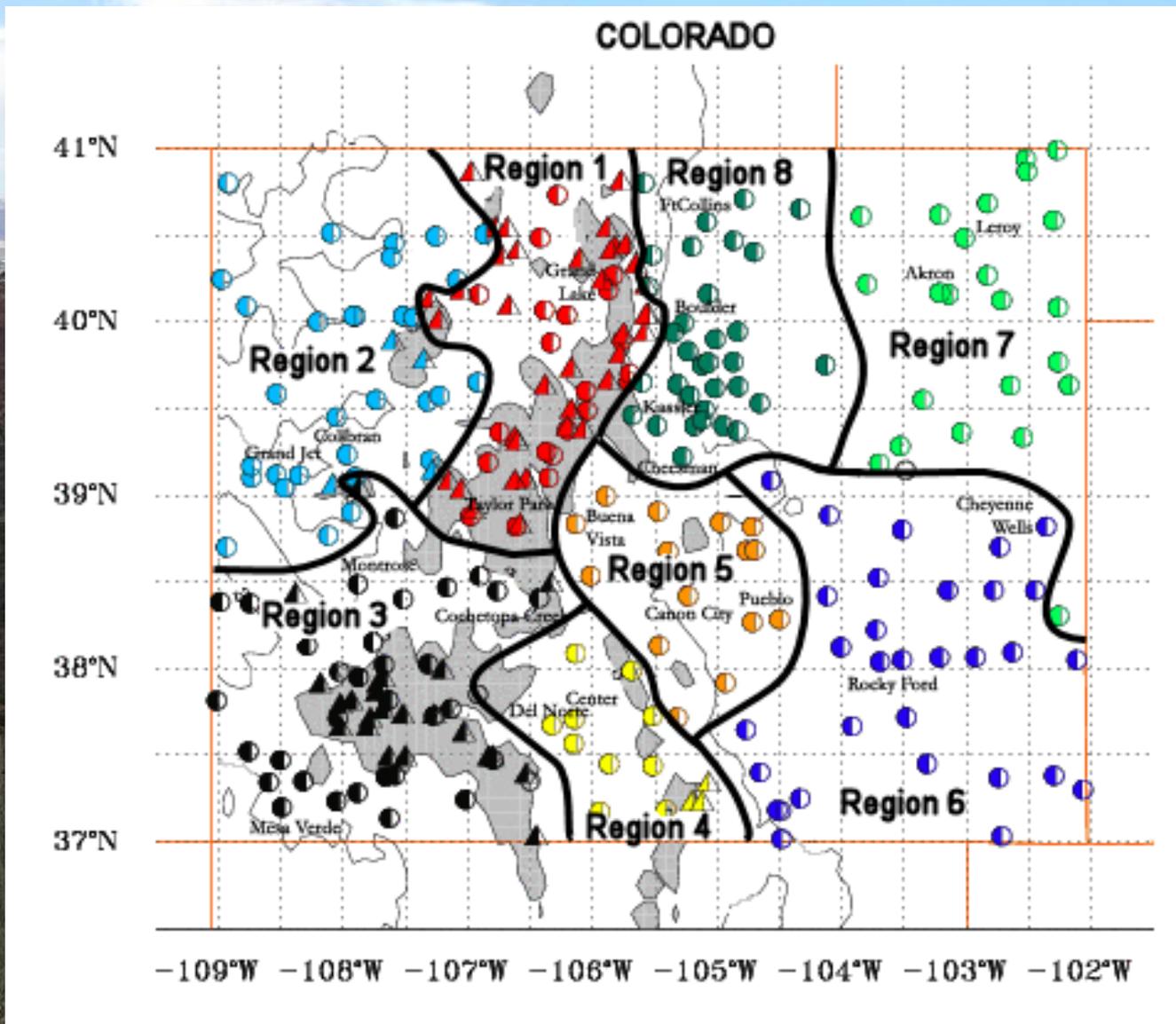
# Colorado Water Year 2017 Precipitation as a Percentage of Normal October 2016 - July 2017



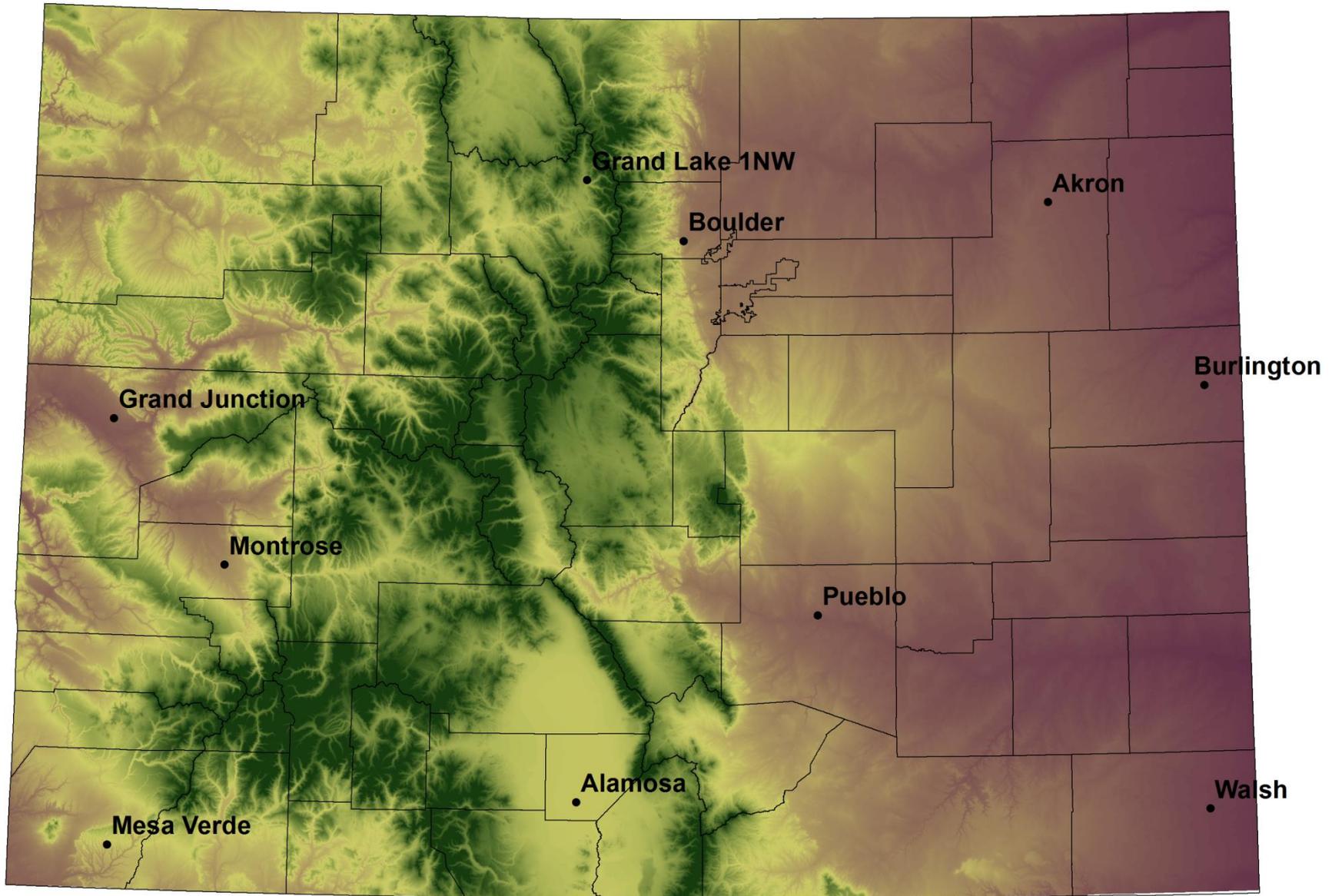
# Colorado Month to Date Precipitation 1 - 15 August 2017 Ending 7AM MST



# Climate divisions defined by Dr. Klaus Wolter of NOAA's Climate Diagnostic Center in Boulder, CO

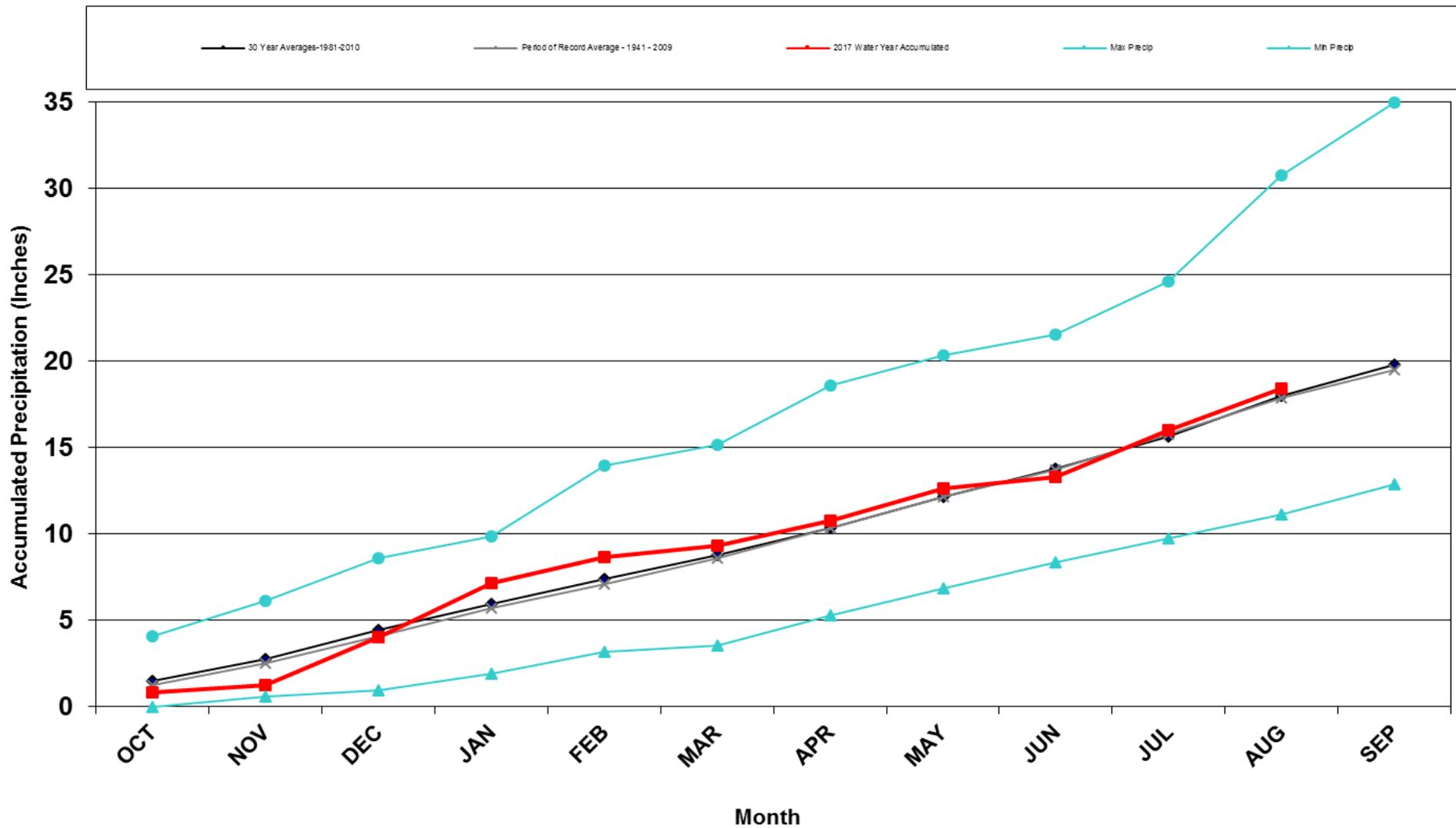


# NWS Cooperative Stations for WATF



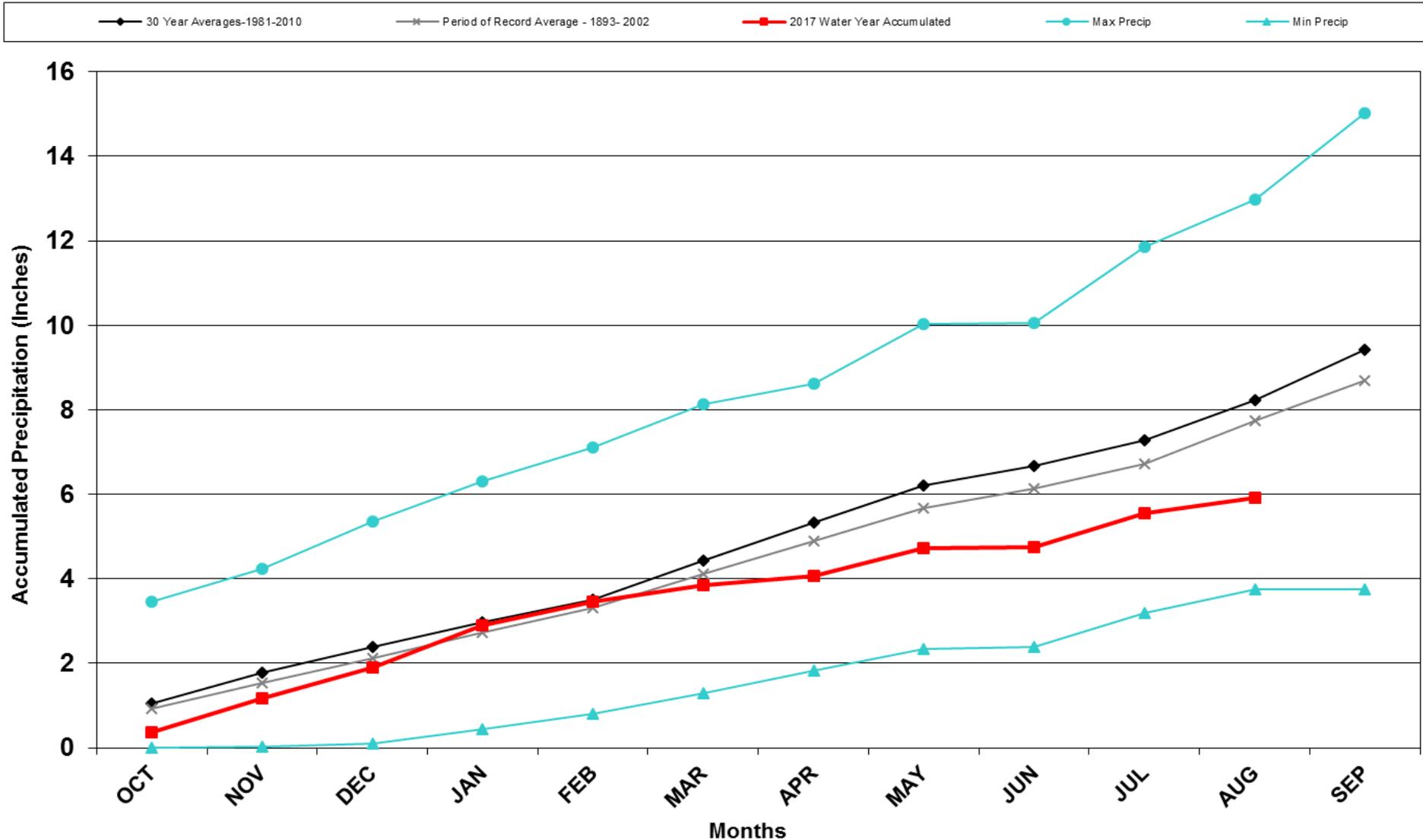
# Division 1 – Grand Lake 1NW

## Grand Lake 1 NW 2017 Water Year



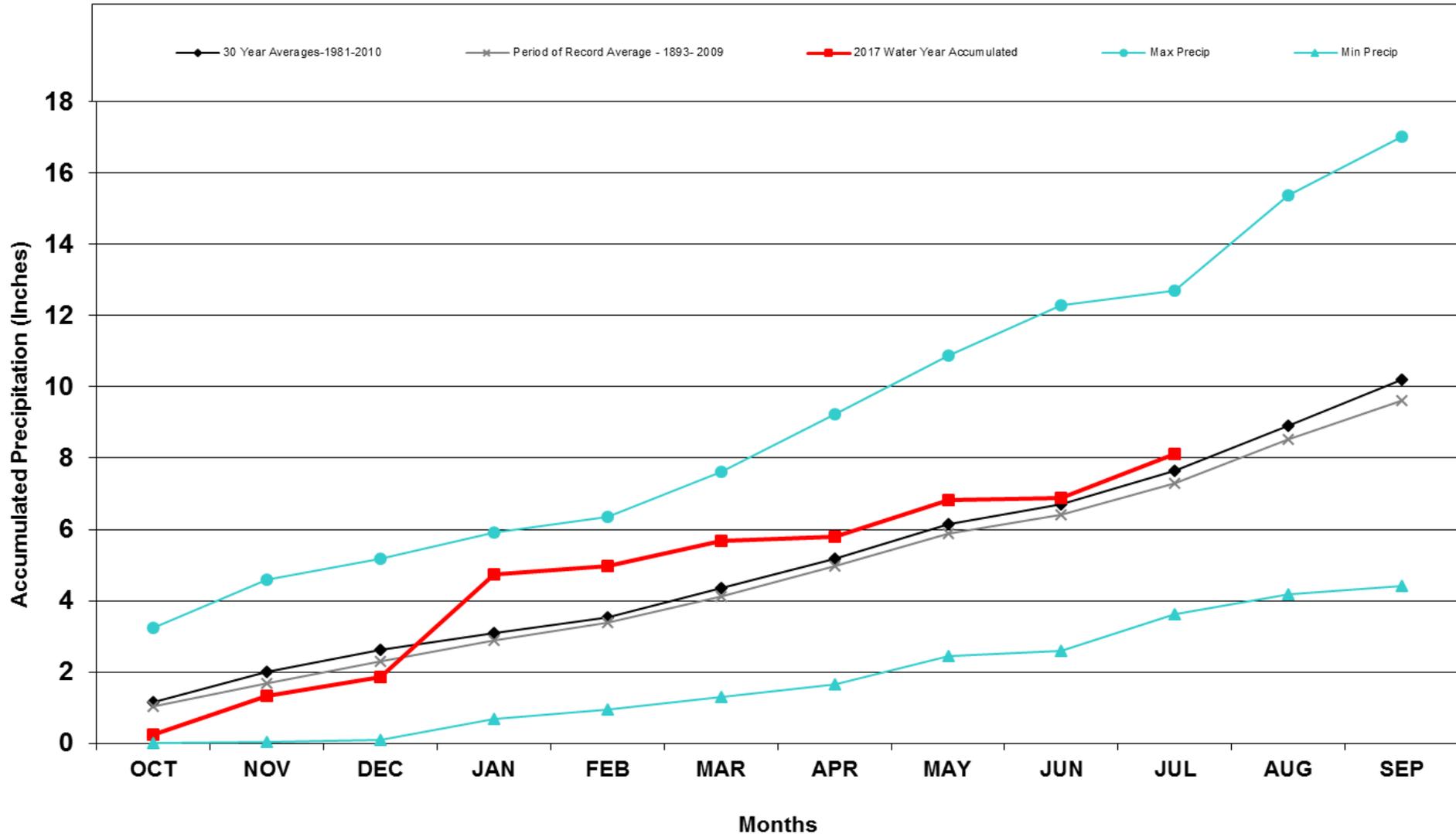
# Division 2 – Grand Junction

## Grand Junction WSFO 2017 Water Year



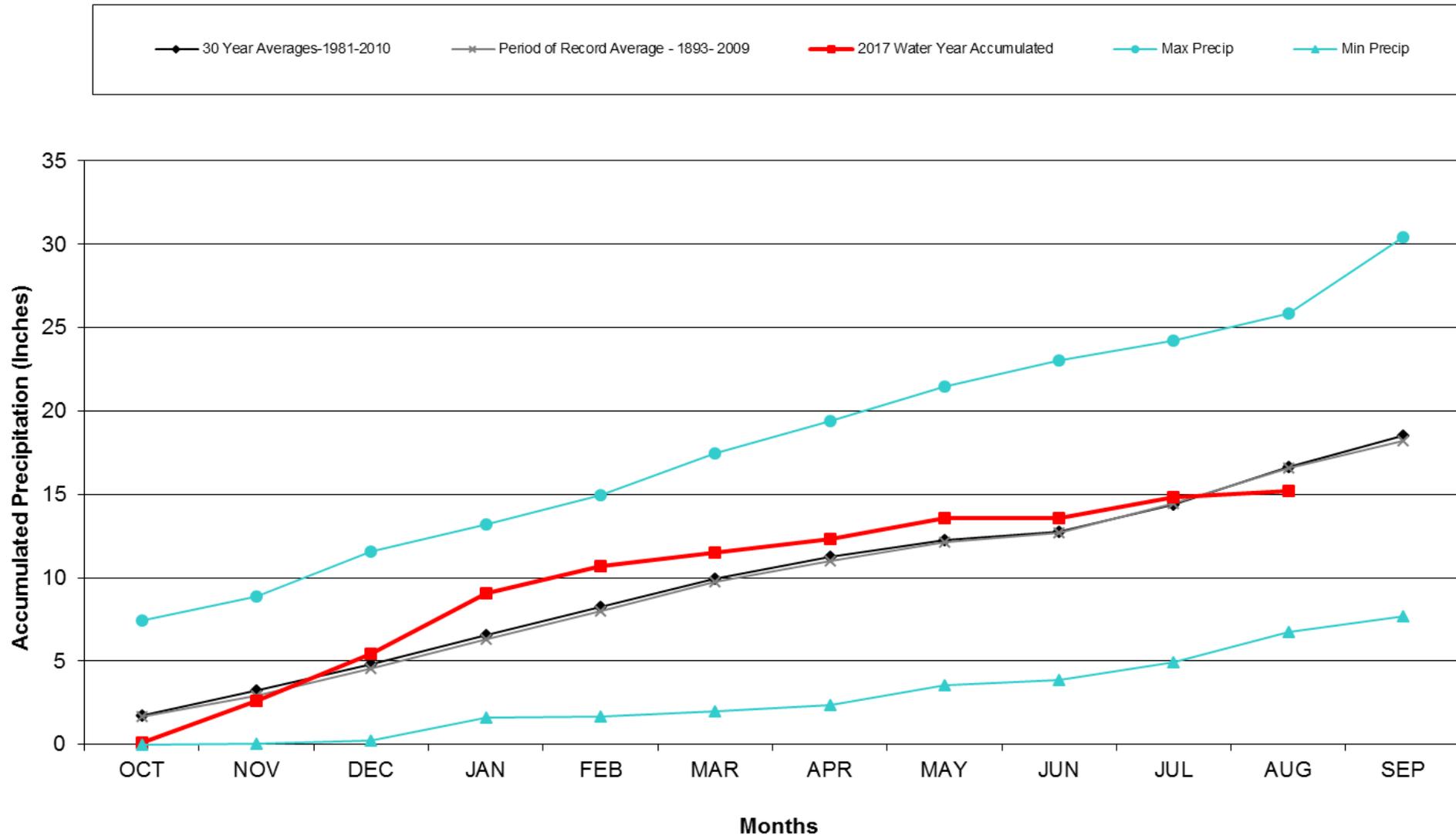
# Division 3 – Montrose

## Montrose #2 2017 Water Year



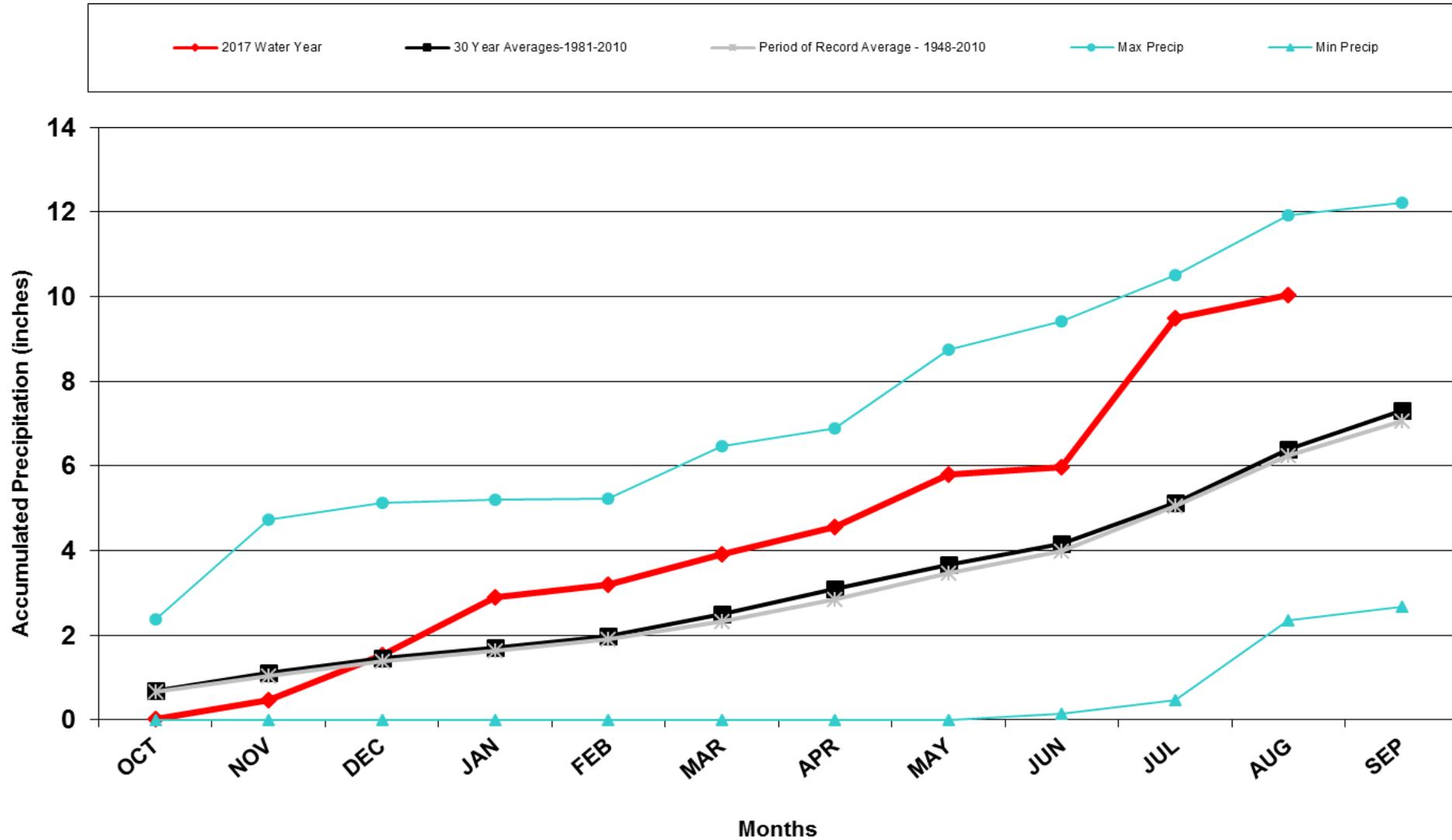
# Division 3 – Mesa Verde NP

## Mesa Verde NP 2017 Water Year



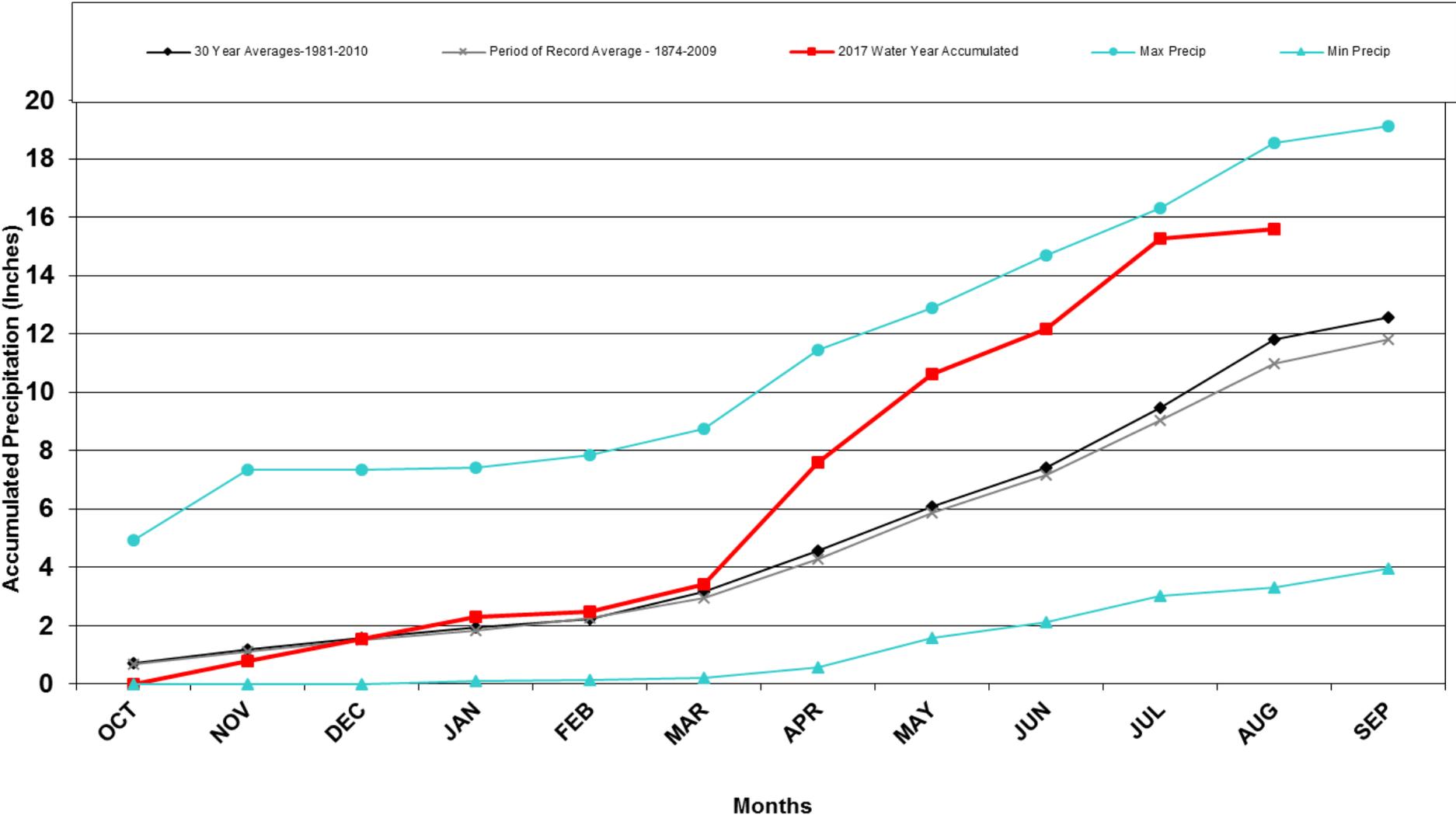
# Division 4 – Alamosa

## Alamosa WSO 2017 Water Year



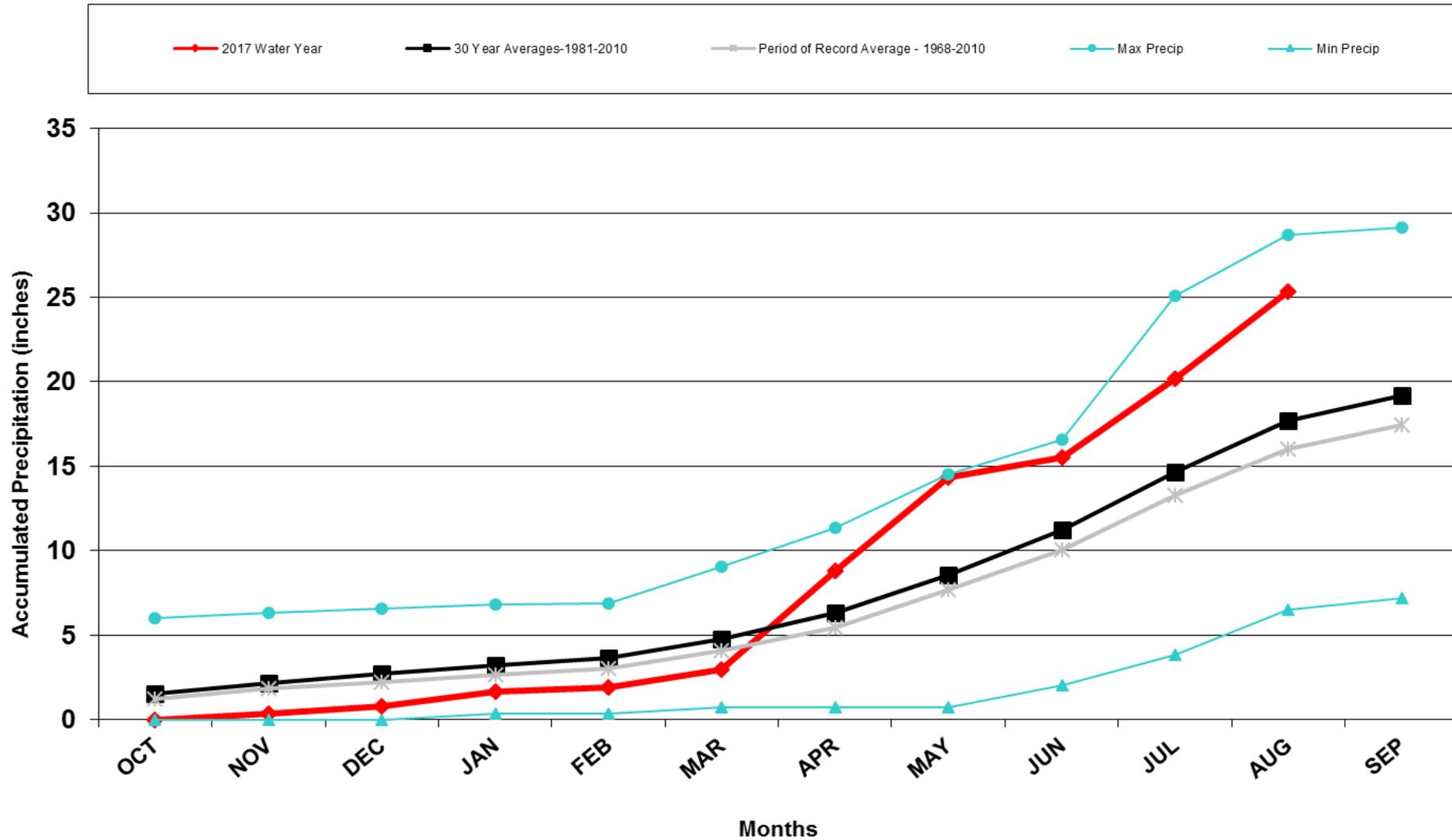
# Division 5 – Pueblo

## Pueblo WSO 2017 Water Year



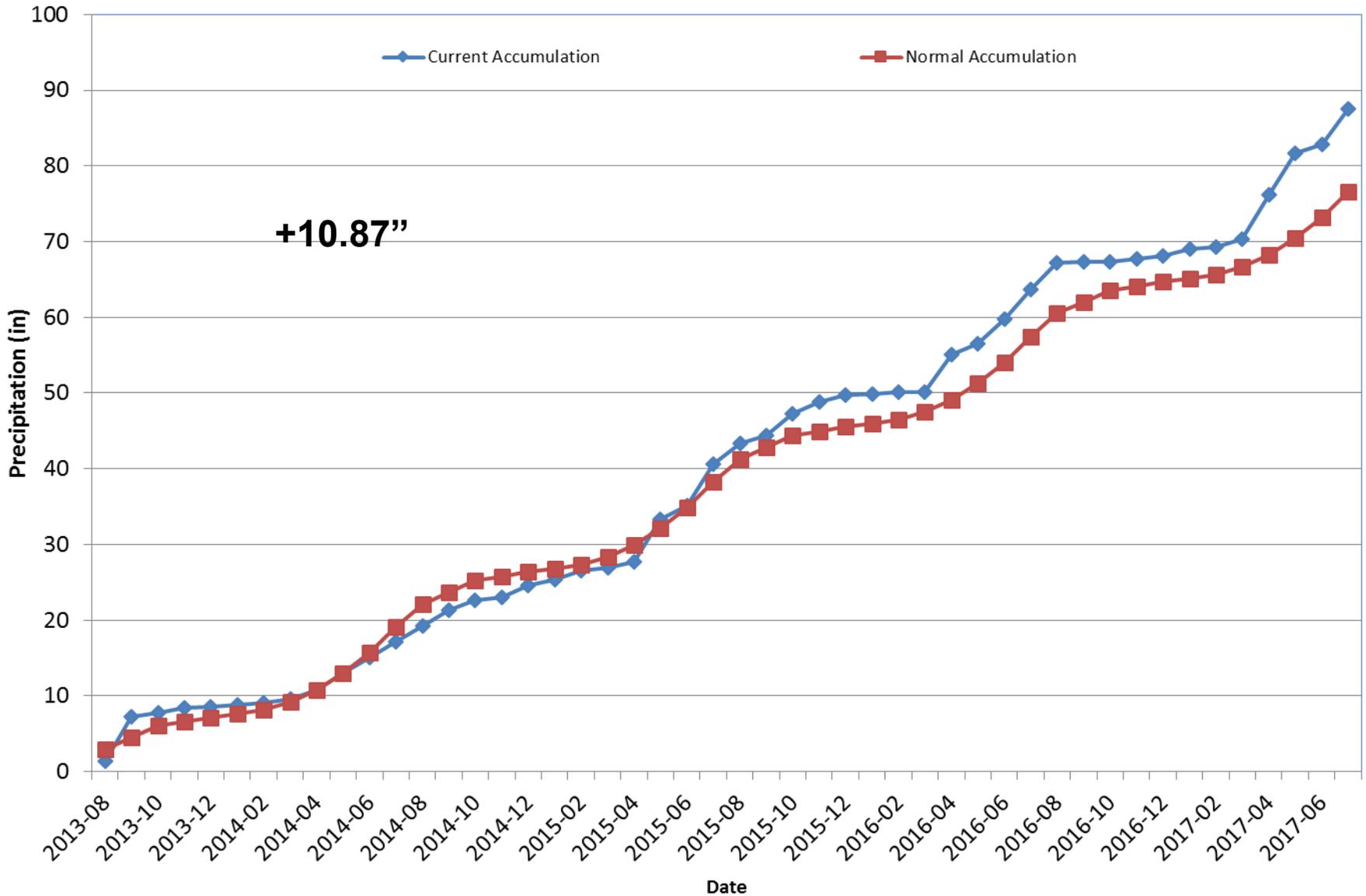
# Division 6 - Walsh

## Walsh 2017 Water Year



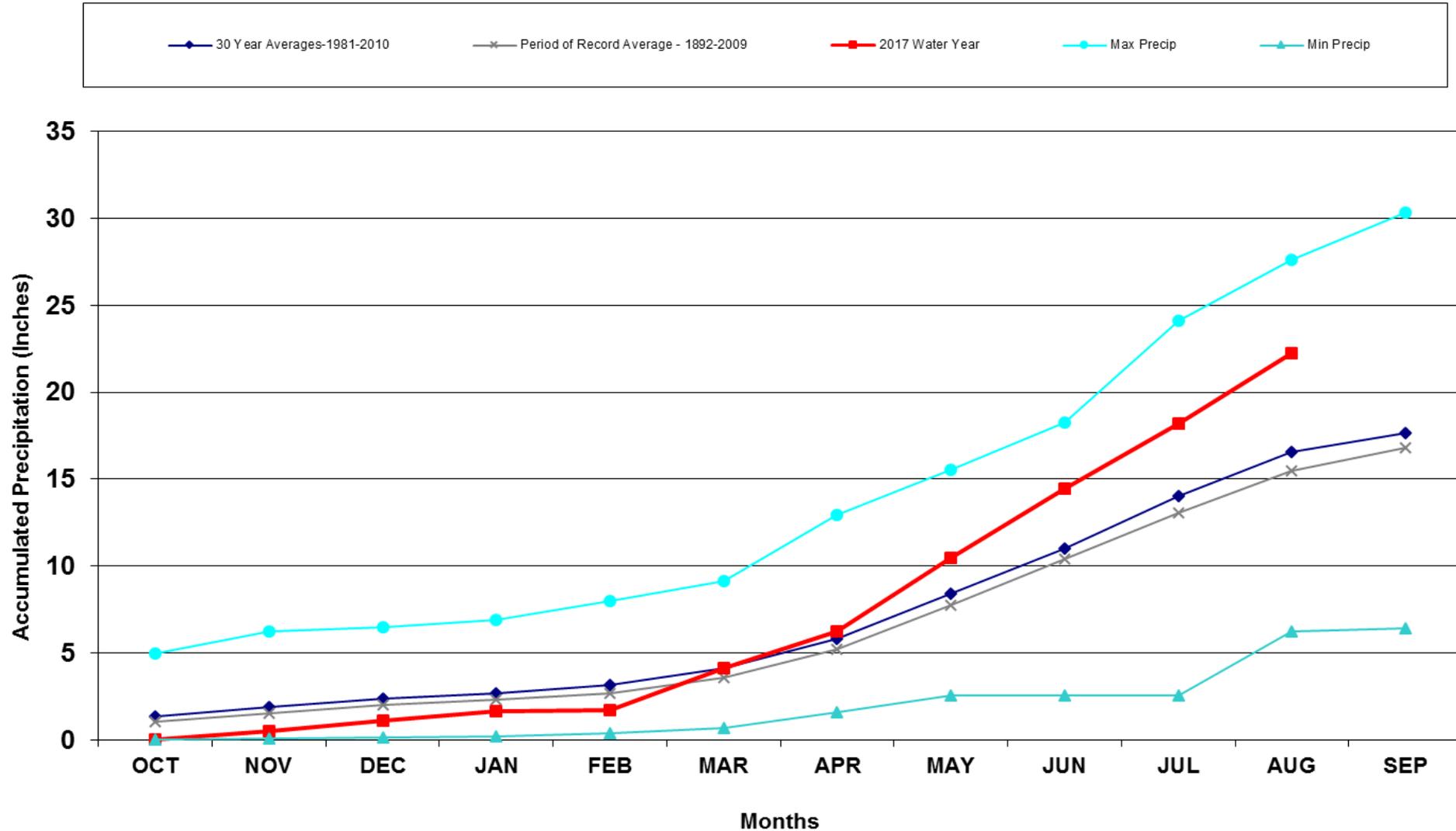
# Division 6 - Walsh

## Walsh 1W Precipitation Accumulation



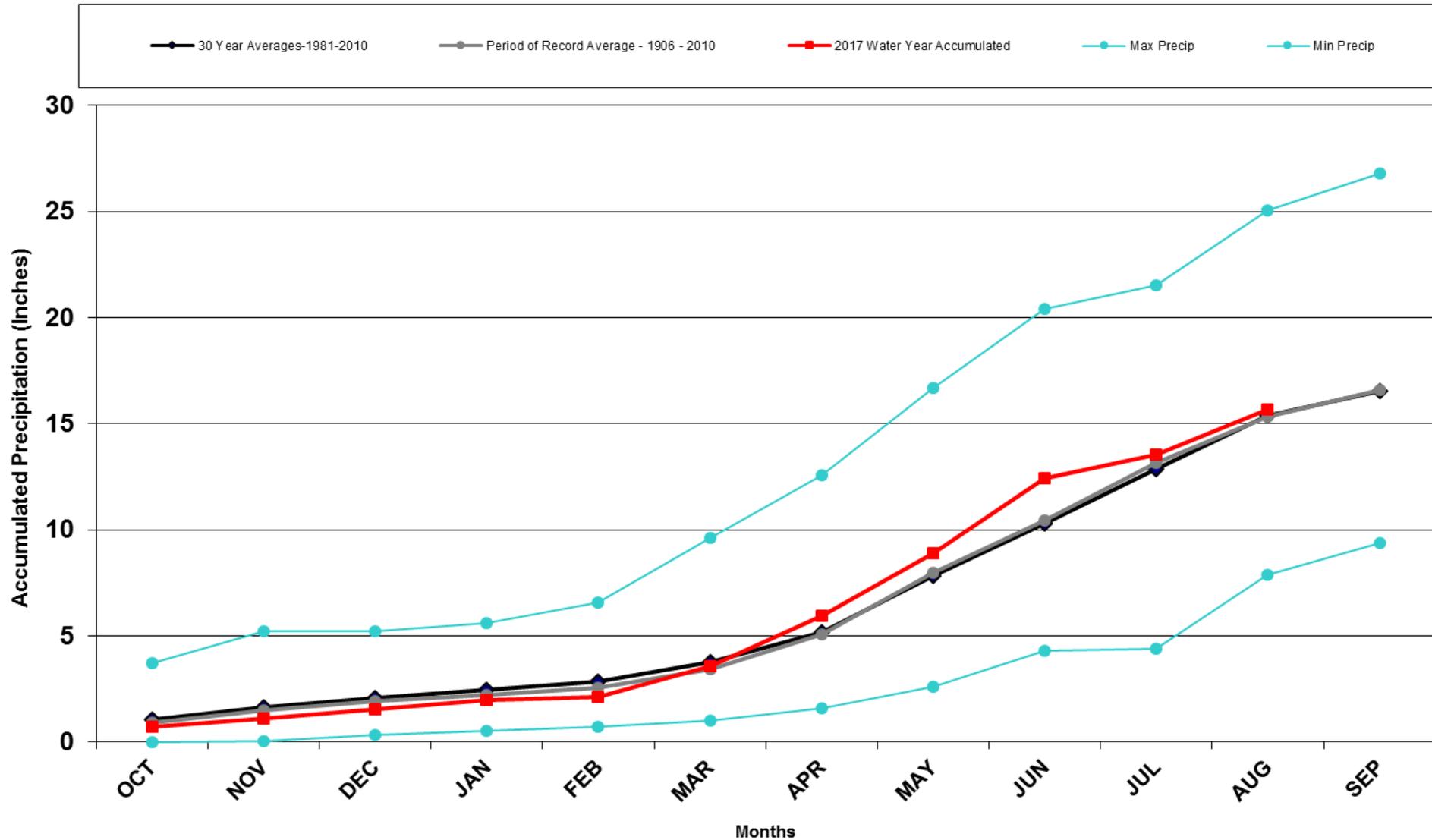
# Division 6 - Burlington

## Burlington 2017 Water Year



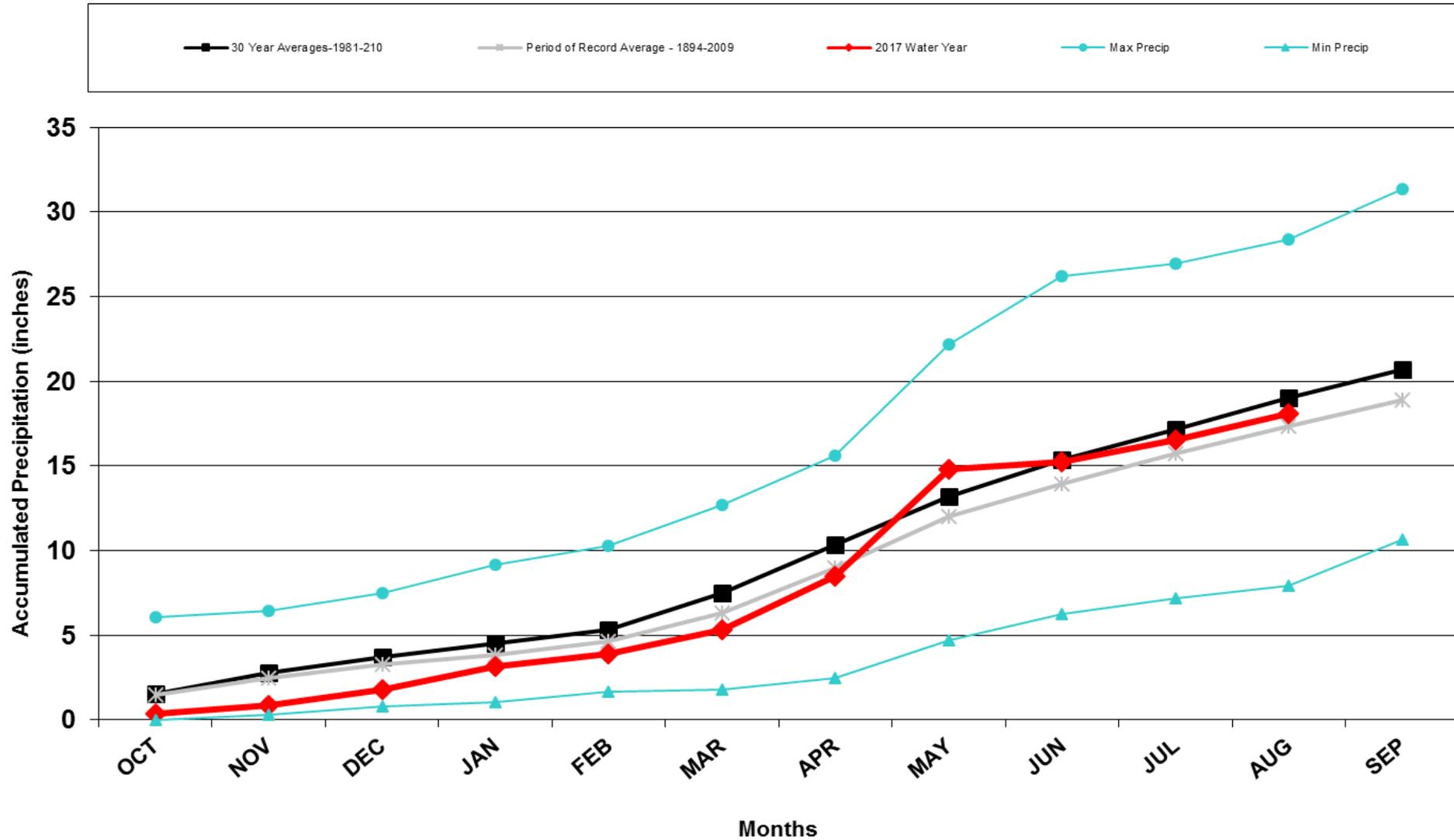
# Division 7 – Akron

## Akron 4E 2016 Water Year



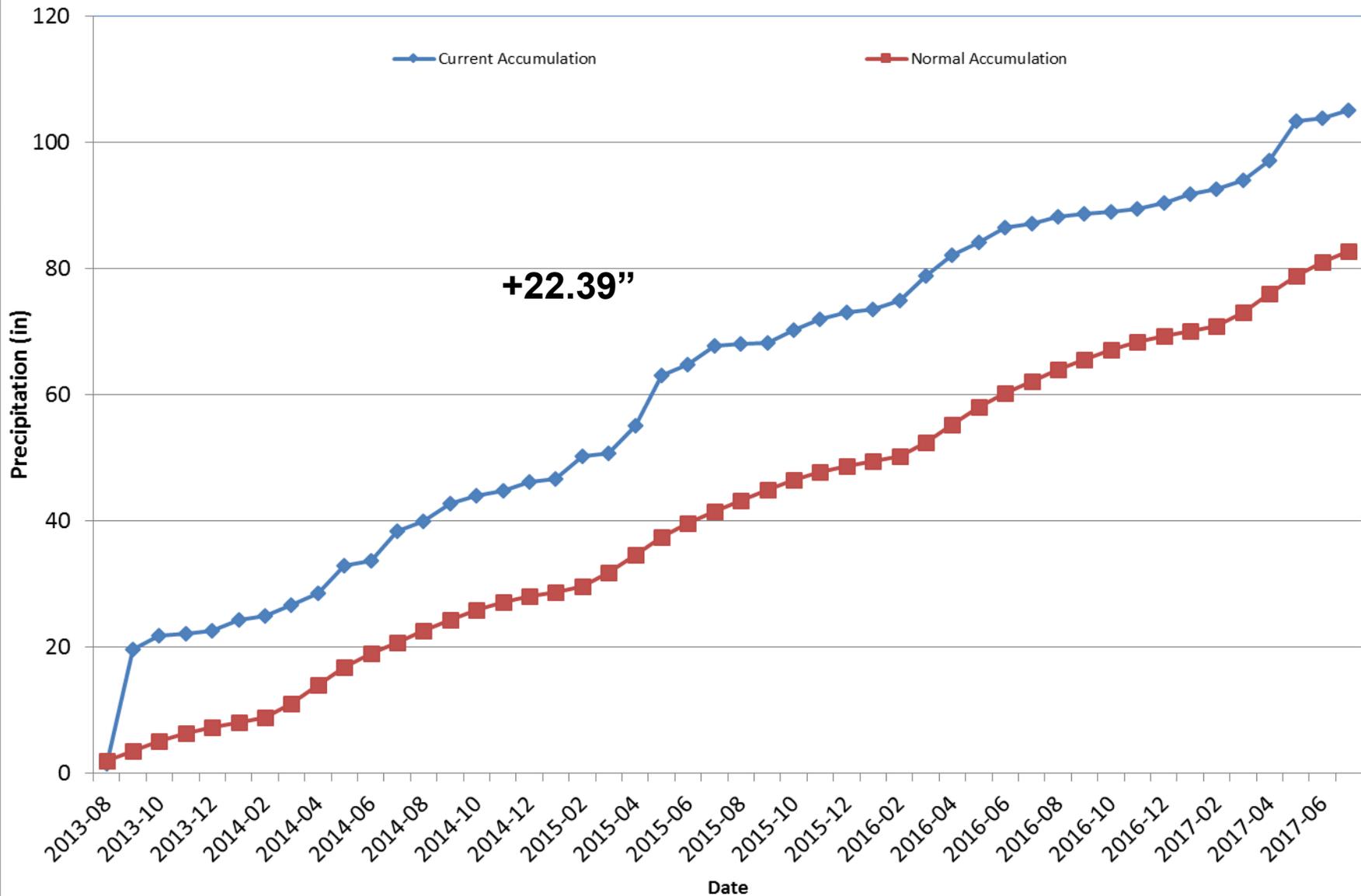
# Division 8 - Boulder

## Boulder 2017 Water Year

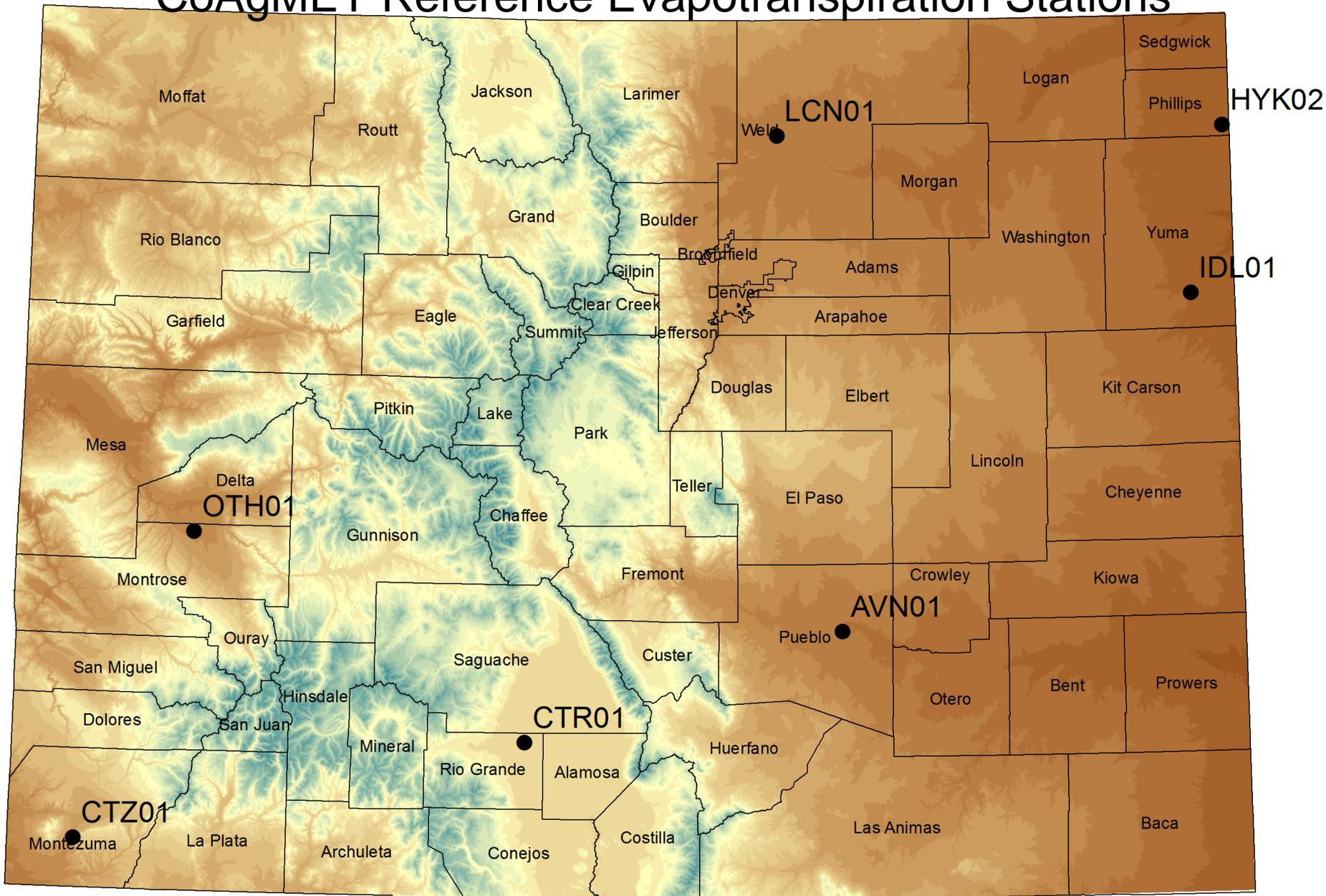


# Division 8 - Boulder

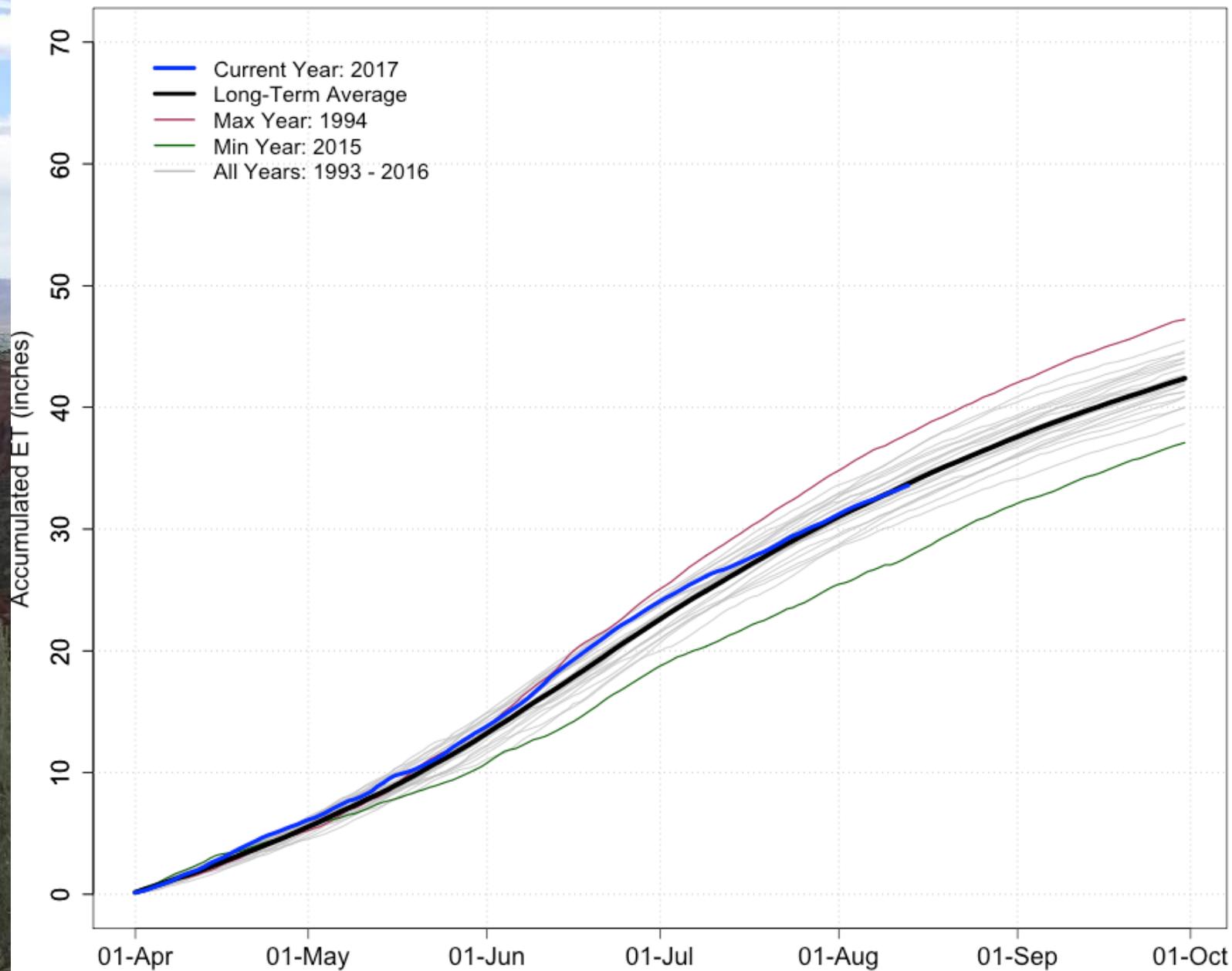
## Boulder Precipitation Accumulation



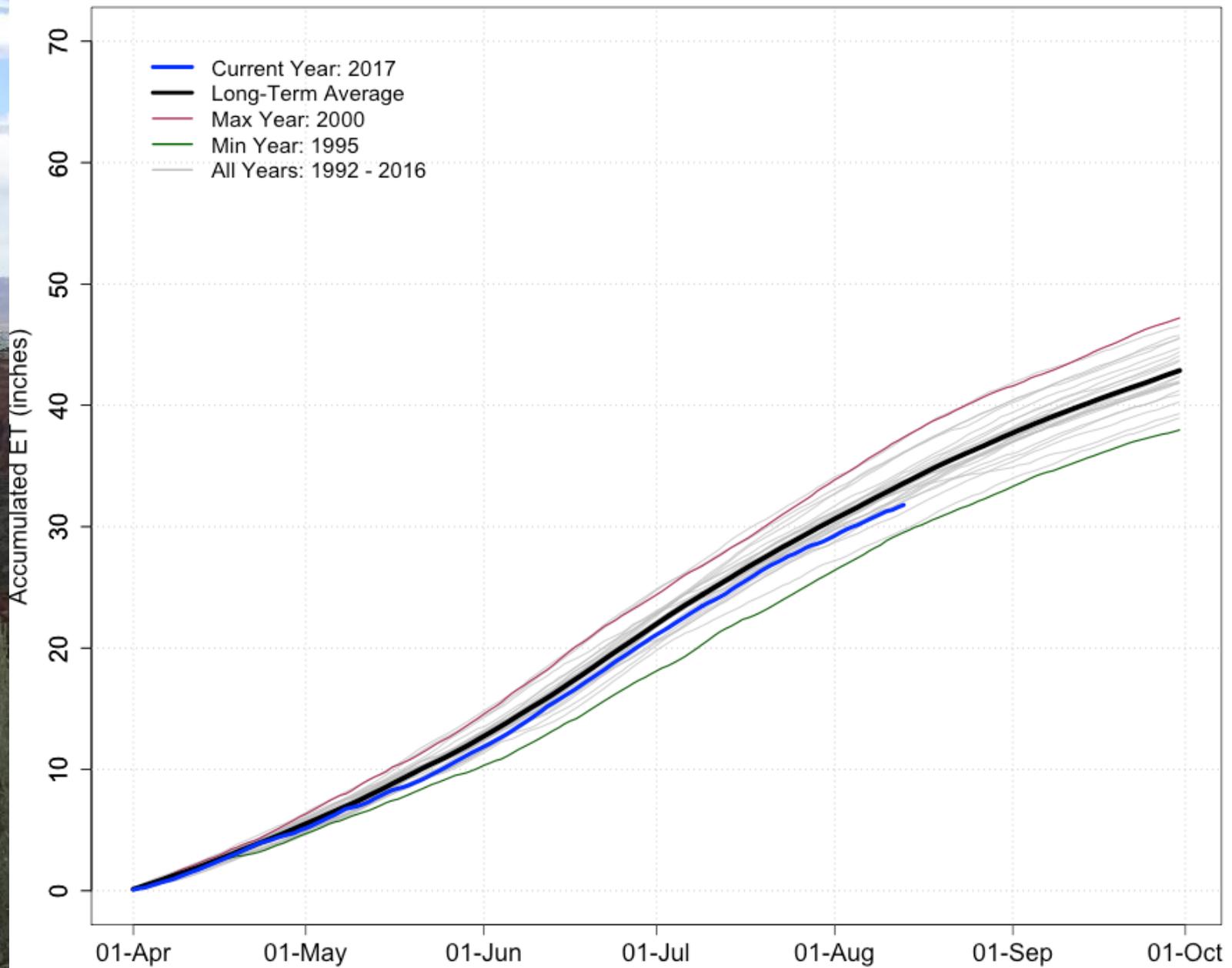
# CoAgMET Reference Evapotranspiration Stations



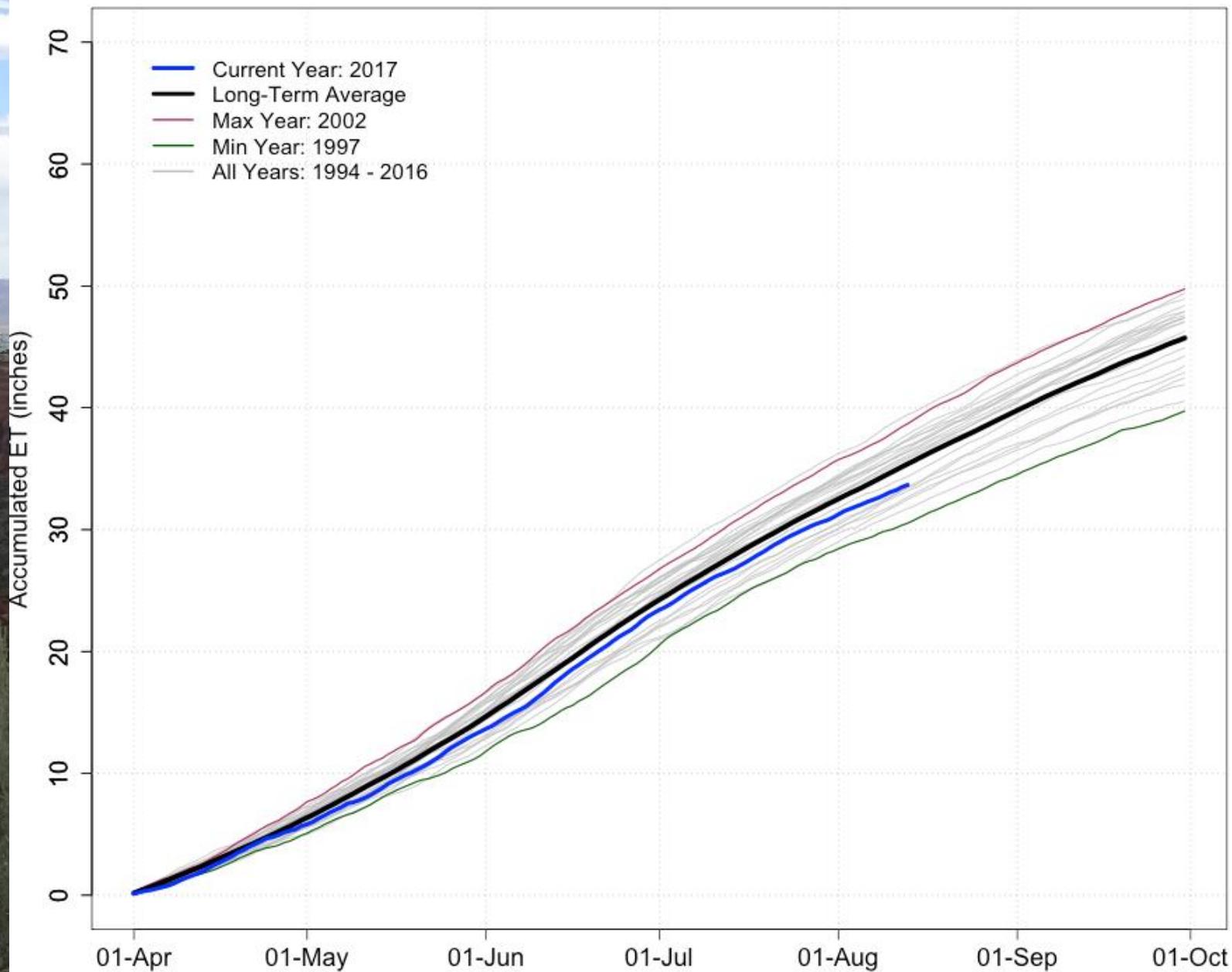
# Olathe Reference ET



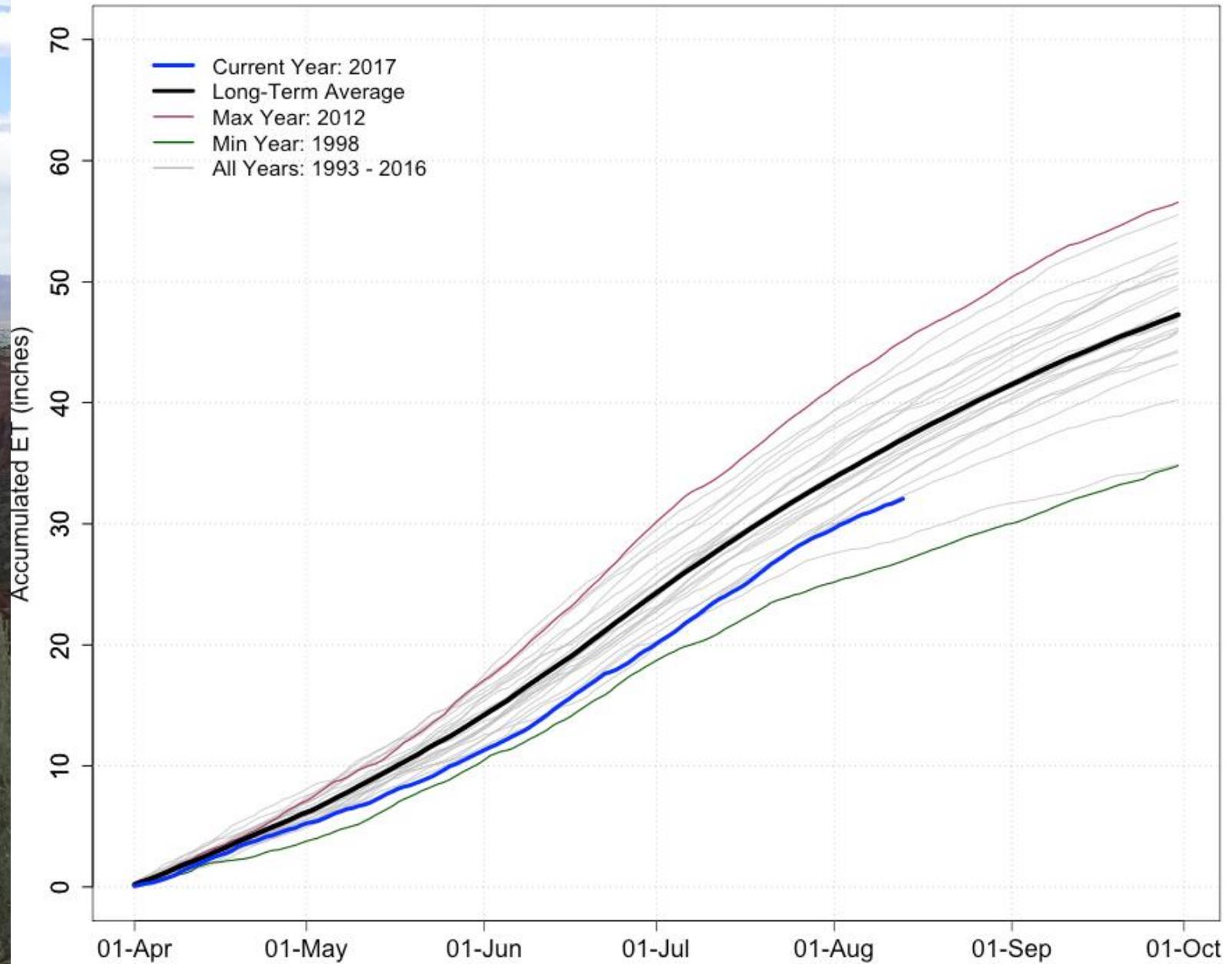
# Cortez Reference ET



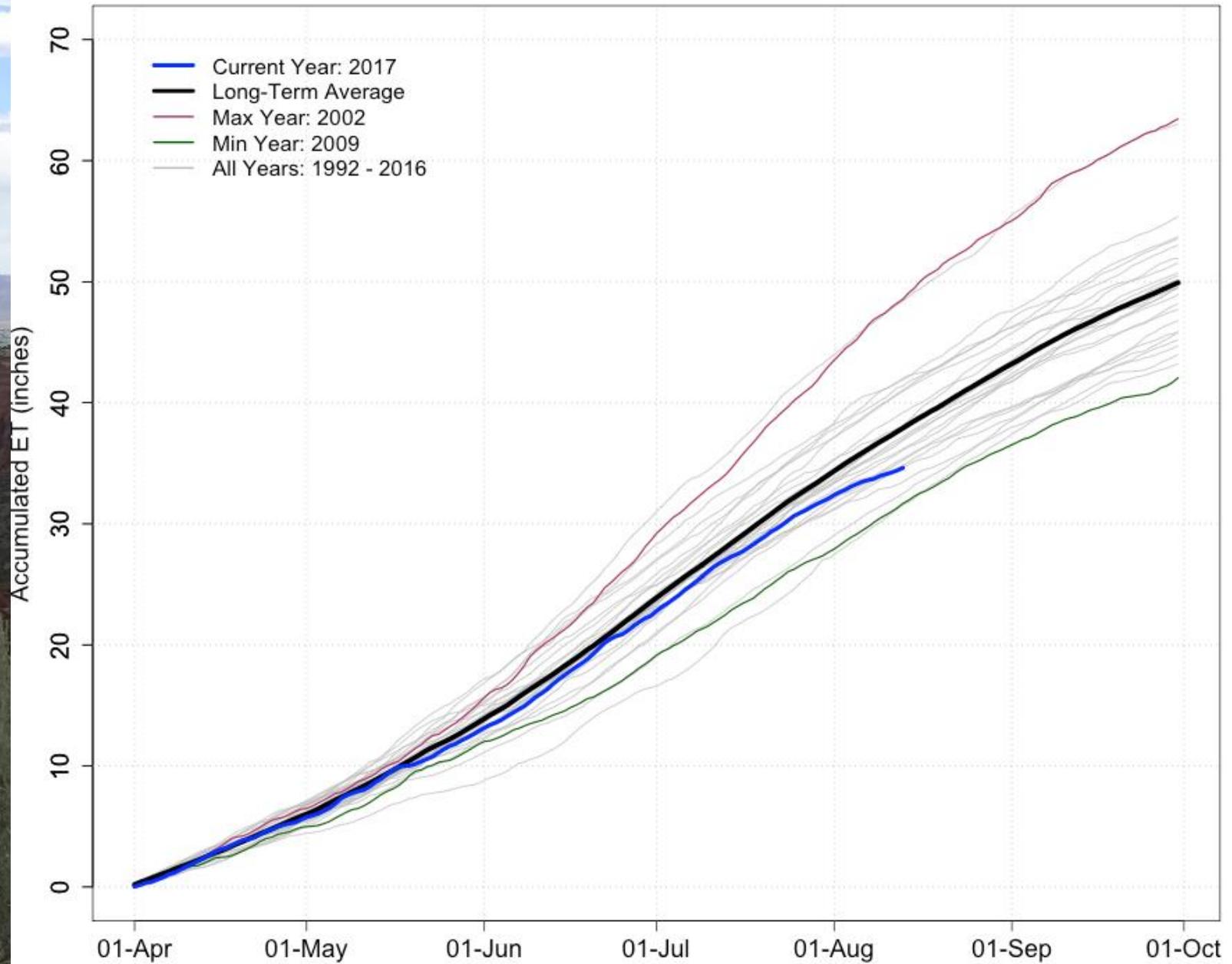
# Center Reference ET



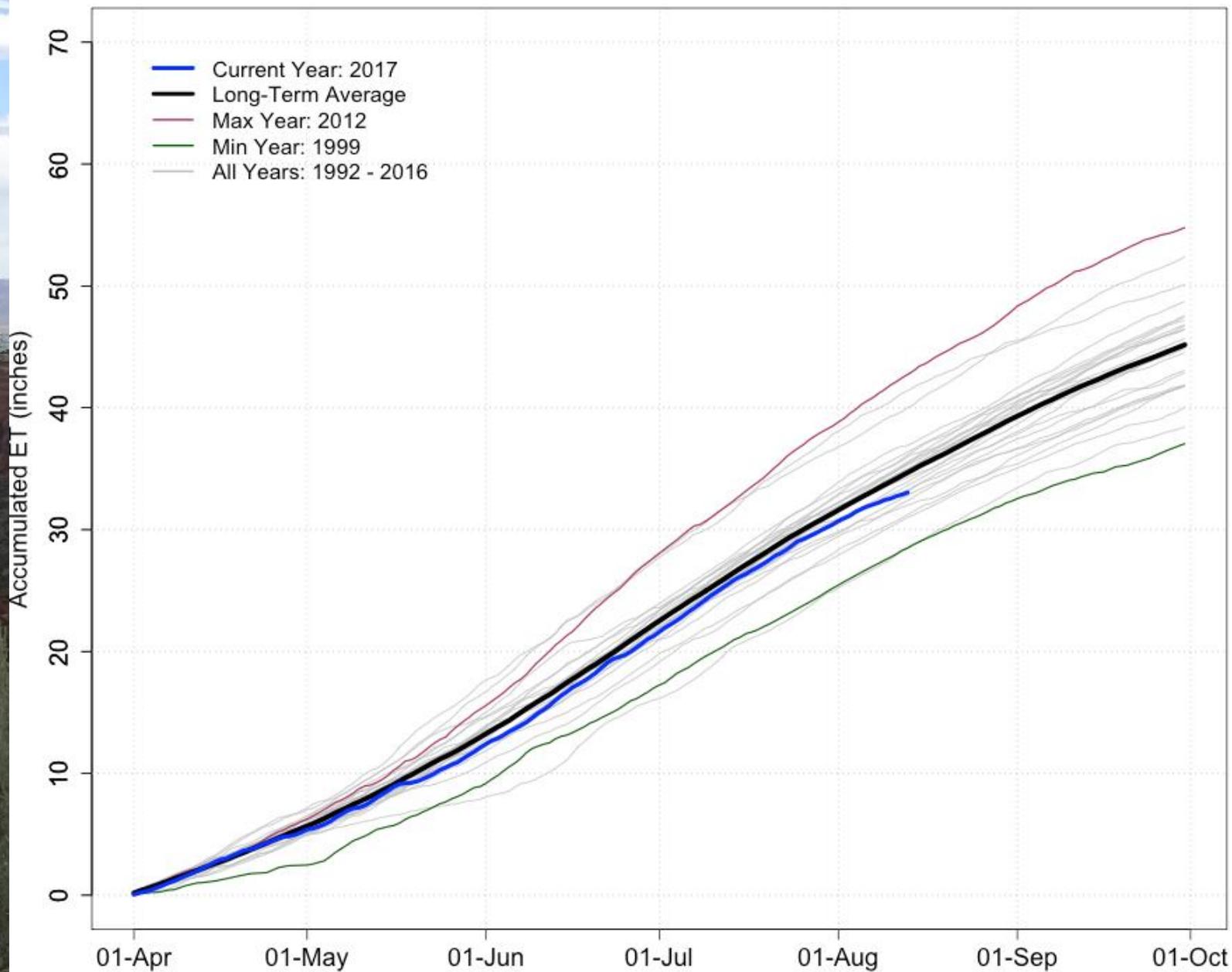
# Avondale Reference ET



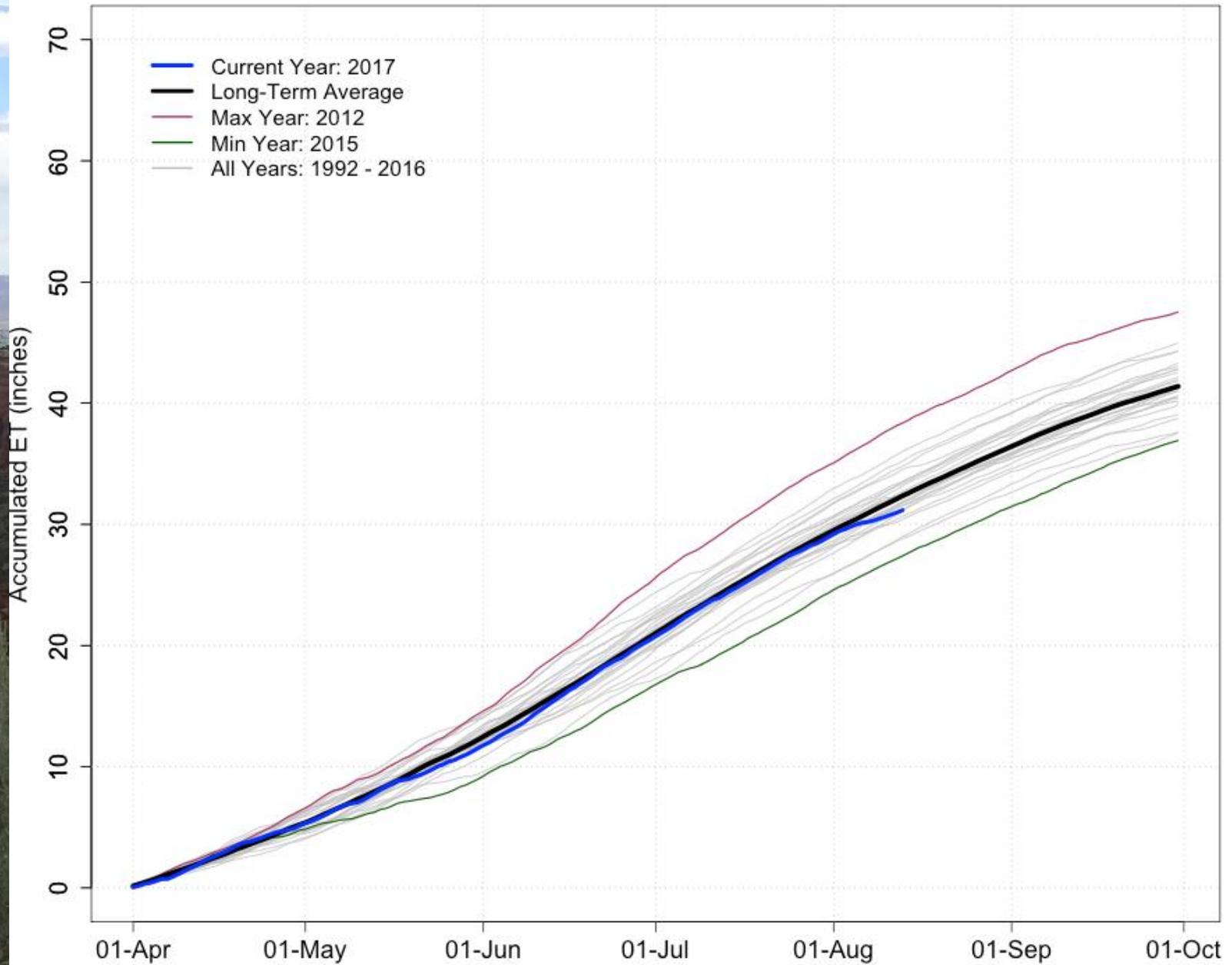
# Idalia Reference ET



# Holyoke Reference ET



# Lucerne Reference ET

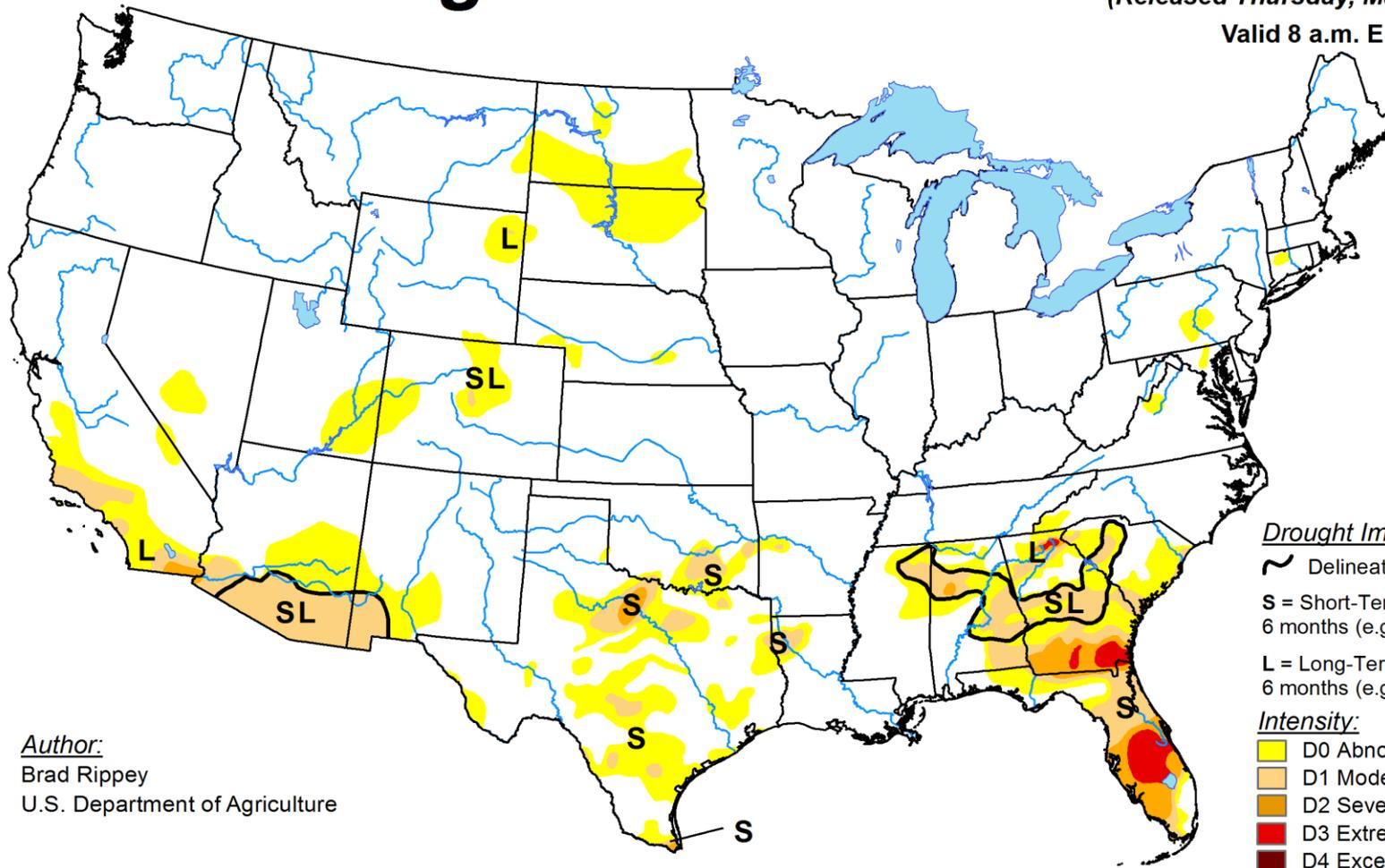


# U.S. Drought Monitor

May 16, 2017

(Released Thursday, May. 18, 2017)

Valid 8 a.m. EDT



Author:  
Brad Rippey  
U.S. Department of Agriculture

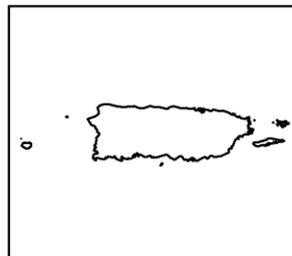
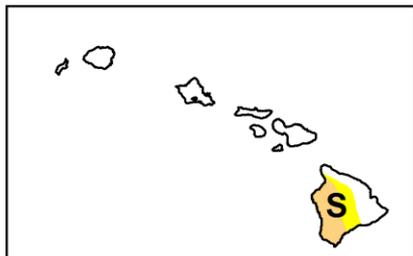
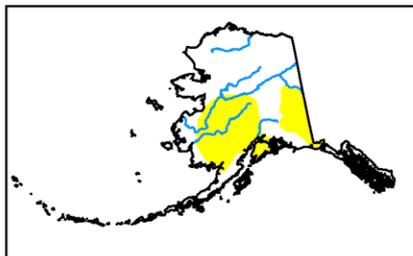
### Drought Impact Types:

- ~ 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
- Dark 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.



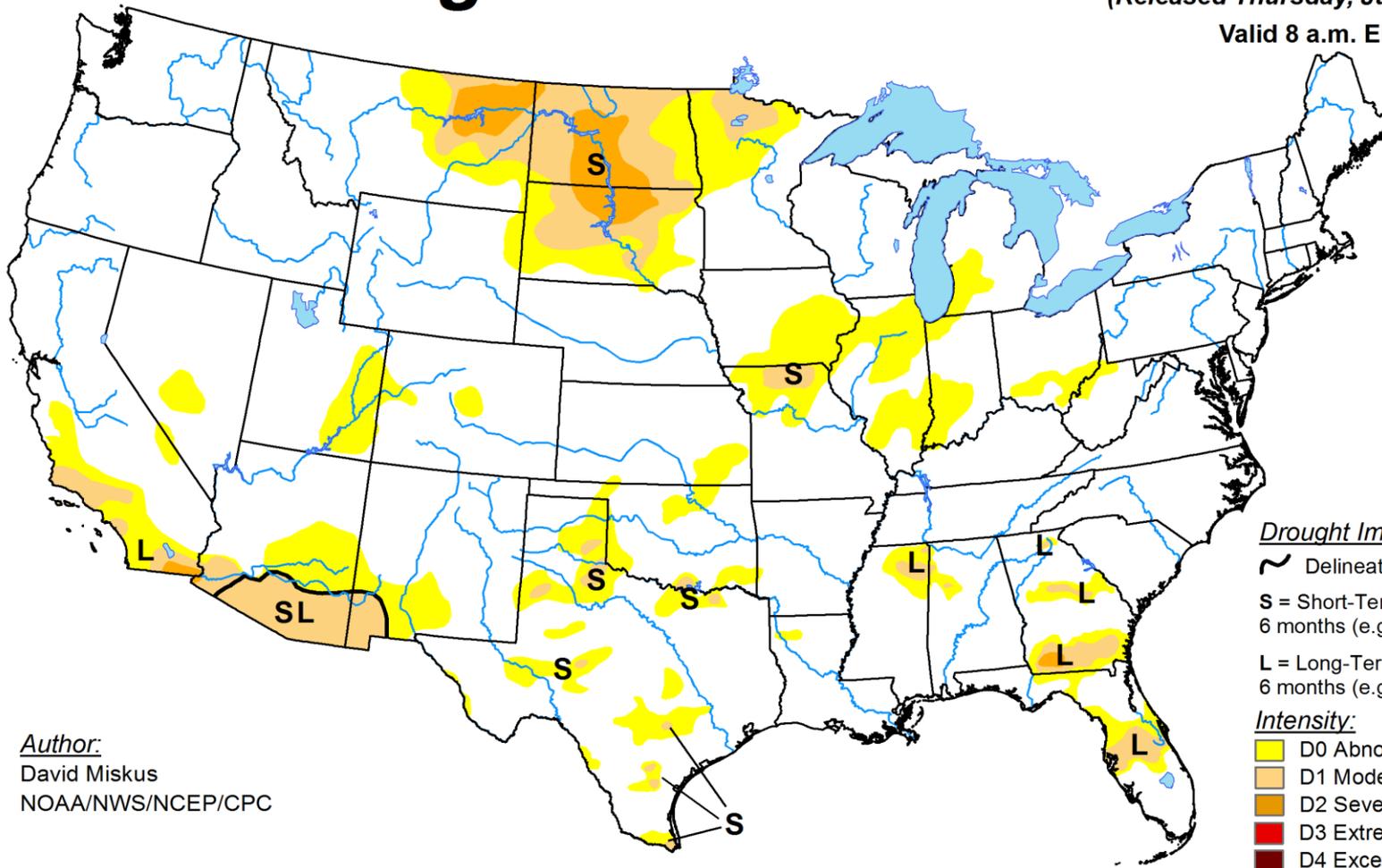
<http://droughtmonitor.unl.edu/>

# U.S. Drought Monitor

June 13, 2017

(Released Thursday, Jun. 15, 2017)

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)

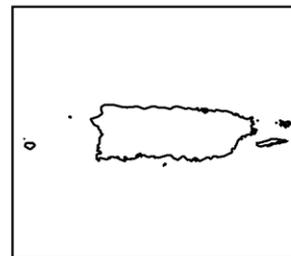
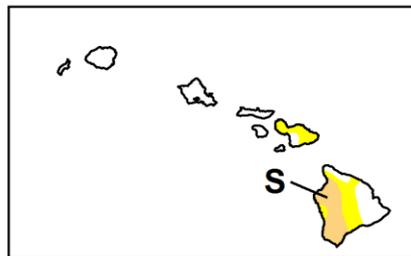
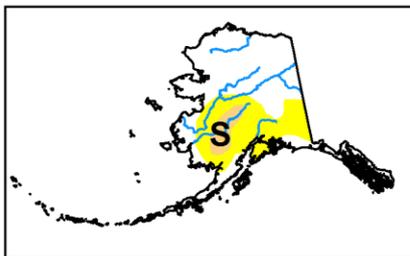
### Intensity:

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

### Author:

David Miskus  
NOAA/NWS/NCEP/CPC

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



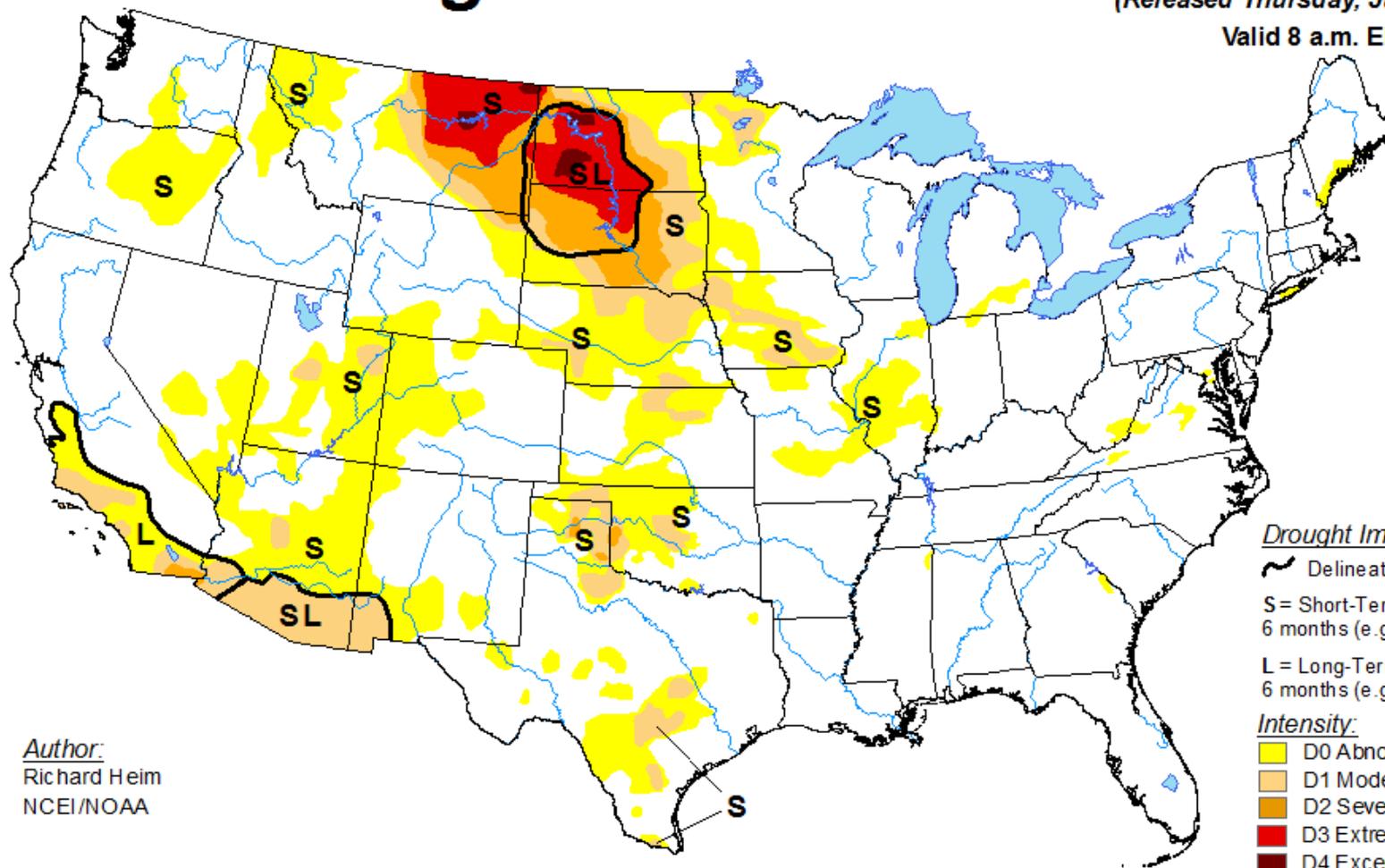
<http://droughtmonitor.unl.edu/>

# U.S. Drought Monitor

July 18, 2017

(Released Thursday, Jul. 20, 2017)

Valid 8 a.m. EDT



Author:  
Richard Heim  
NCEI/NOAA

### 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

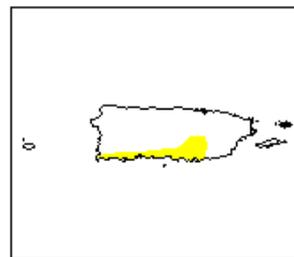
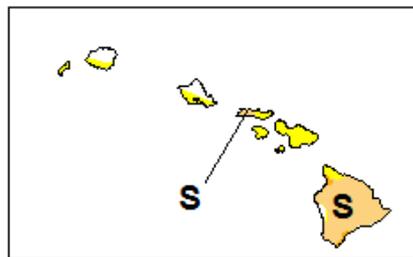
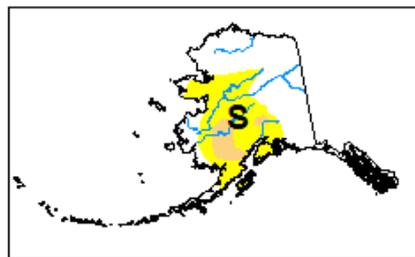
D1 Moderate Drought

D2 Severe Drought

D3 Extreme Drought

D4 Exceptional Drought

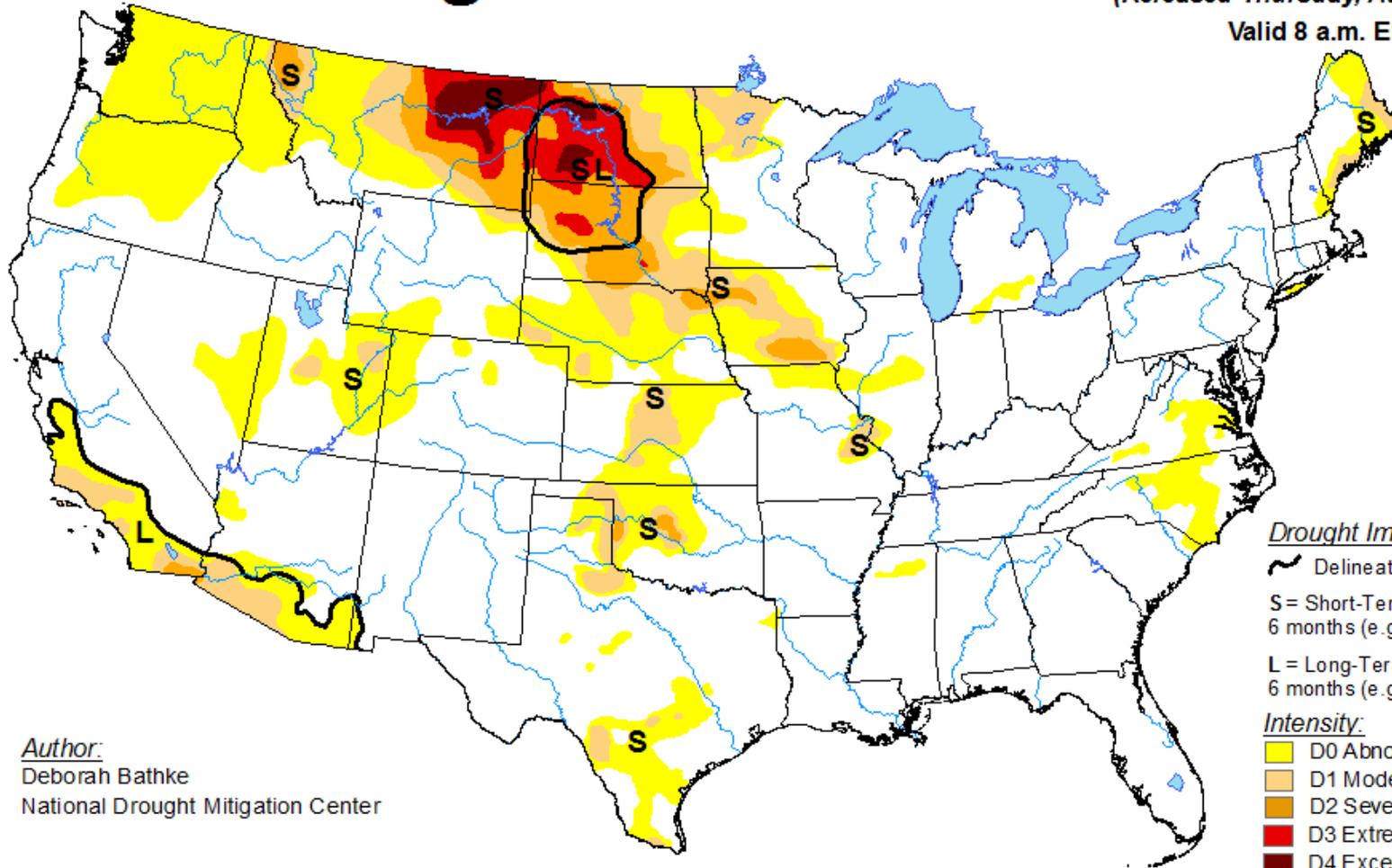
The Drought Monitor focuses on broad-scale conditions. Local conditions may vary. See accompanying text summary for forecast statements.



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

# U.S. Drought Monitor

August 8, 2017  
(Released Thursday, Aug. 10, 2017)  
Valid 8 a.m. EDT



Author:  
Deborah Bathke  
National Drought Mitigation Center

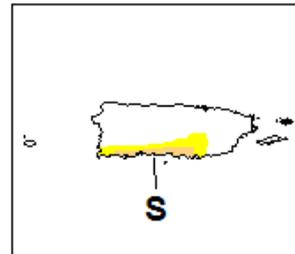
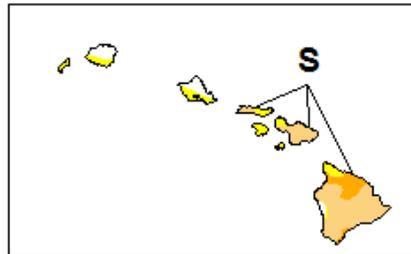
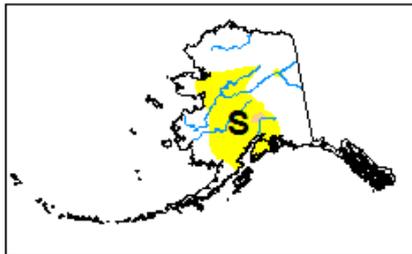
### Drought Impact Types:

- 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:

- 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.

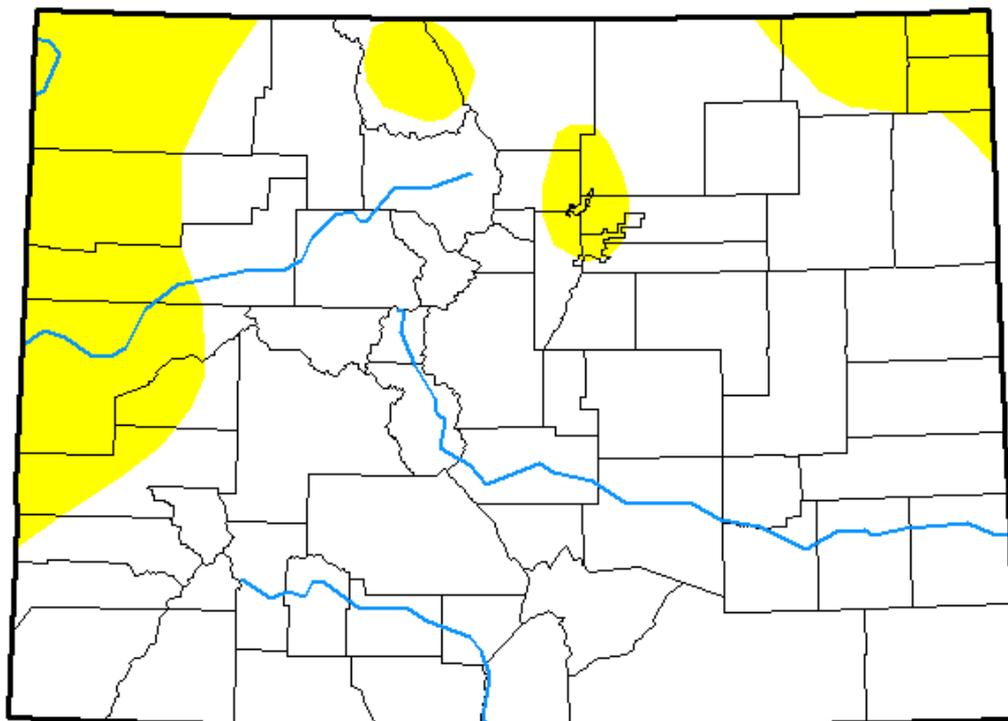


<http://droughtmonitor.unl.edu/>

# U.S. Drought Monitor

## Colorado

**August 8, 2017**  
 (Released Thursday, Aug. 10, 2017)  
 Valid 8 a.m. EDT



*Drought Conditions (Percent Area)*

	None	D0-D4	D1-D4	D2-D4	D3-D4	D4
<b>Current</b>	82.69	17.31	0.00	0.00	0.00	0.00
<b>Last Week</b> <i>08-01-2017</i>	79.02	20.98	0.00	0.00	0.00	0.00
<b>3 Months Ago</b> <i>05-09-2017</i>	87.62	12.38	2.19	0.00	0.00	0.00
<b>Start of Calendar Year</b> <i>01-03-2017</i>	31.88	68.12	37.21	2.88	0.00	0.00
<b>Start of Water Year</b> <i>09-27-2016</i>	70.49	29.51	2.45	0.00	0.00	0.00
<b>One Year Ago</b> <i>08-09-2016</i>	73.34	26.66	0.38	0.00	0.00	0.00

*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.*

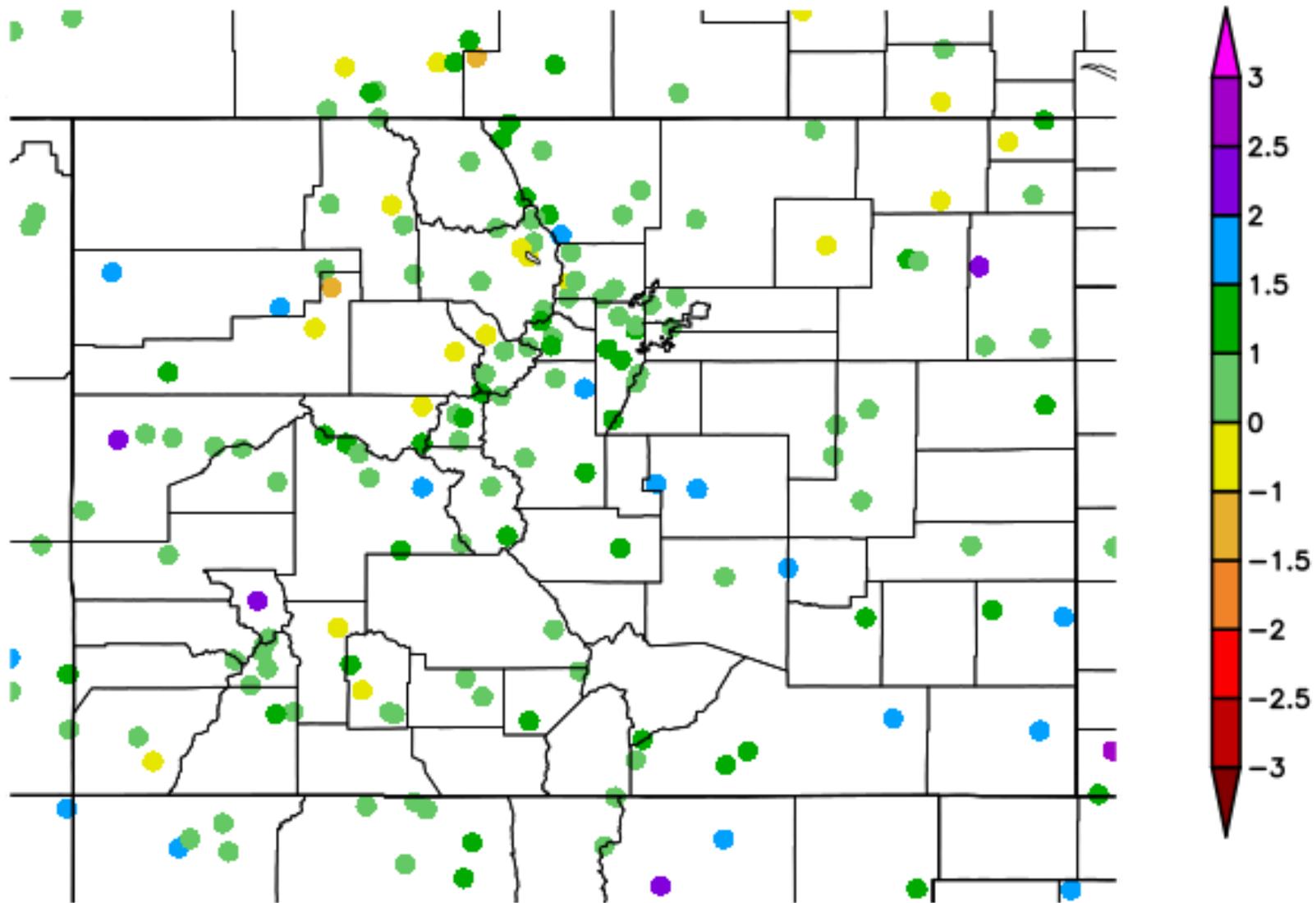
*Author:*

Deborah Bathke  
 National Drought Mitigation Center



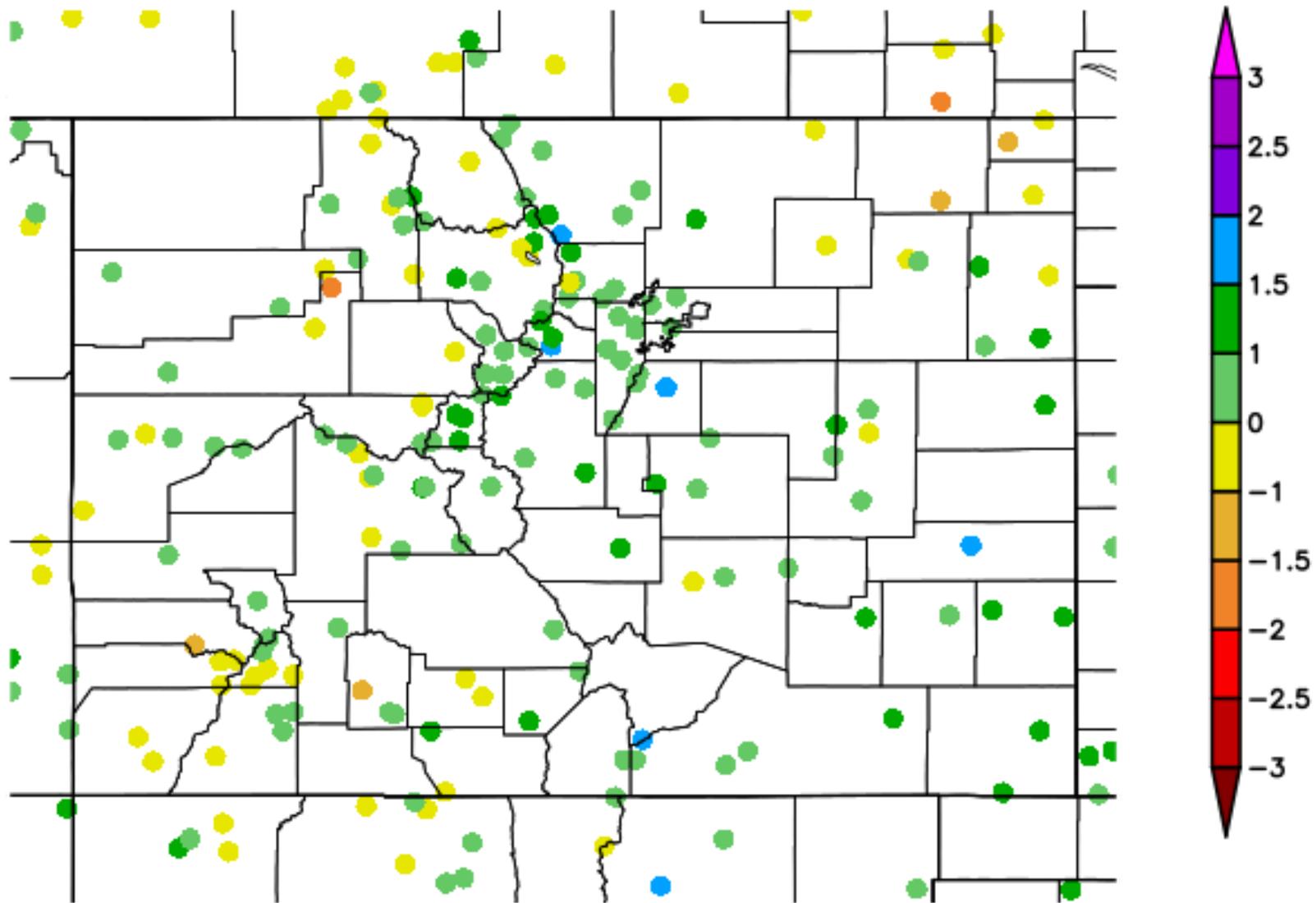
# 30 Day SPI

7/17/2017 - 8/15/2017



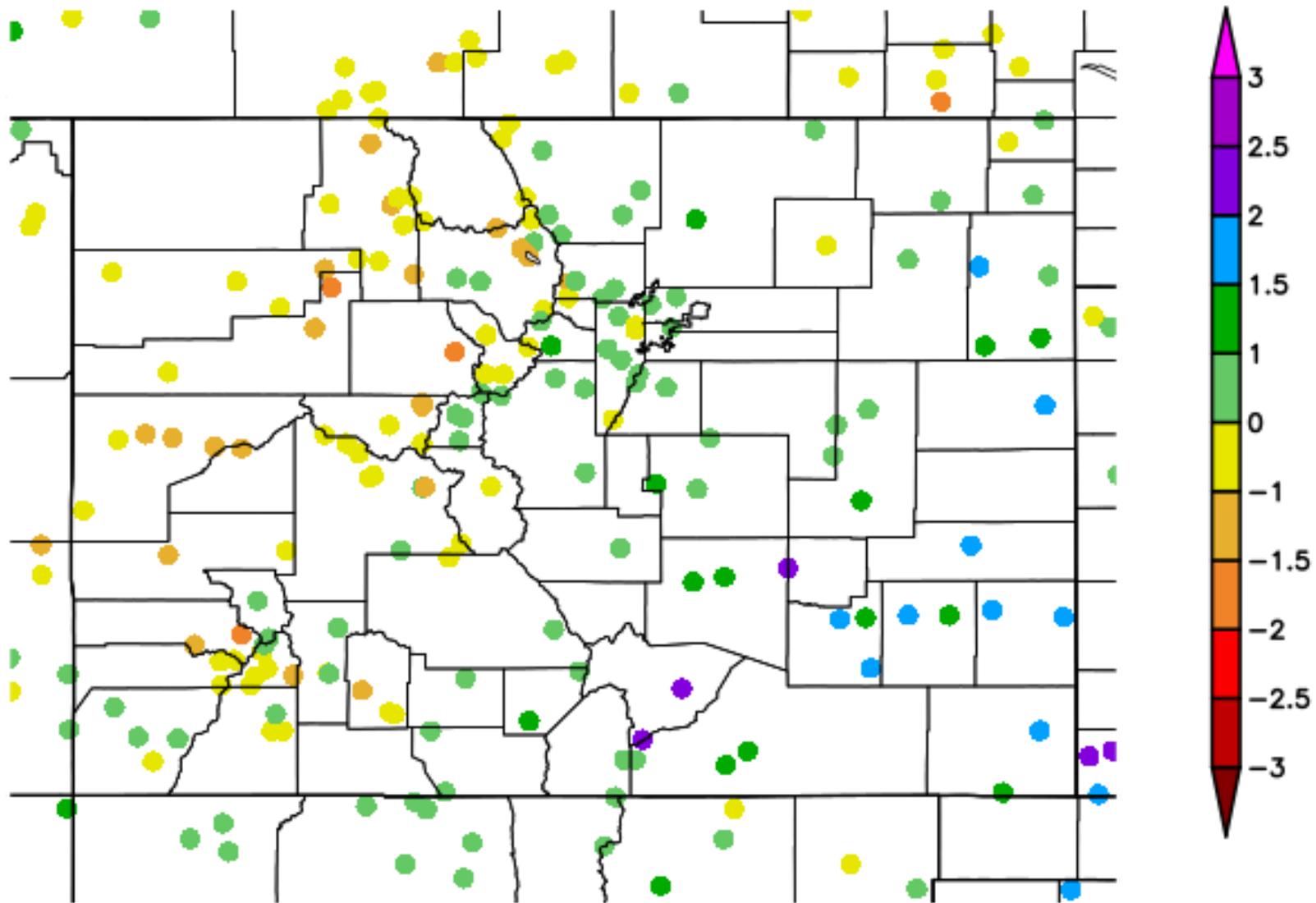
# 90 Day SPI

5/18/2017 - 8/15/2017

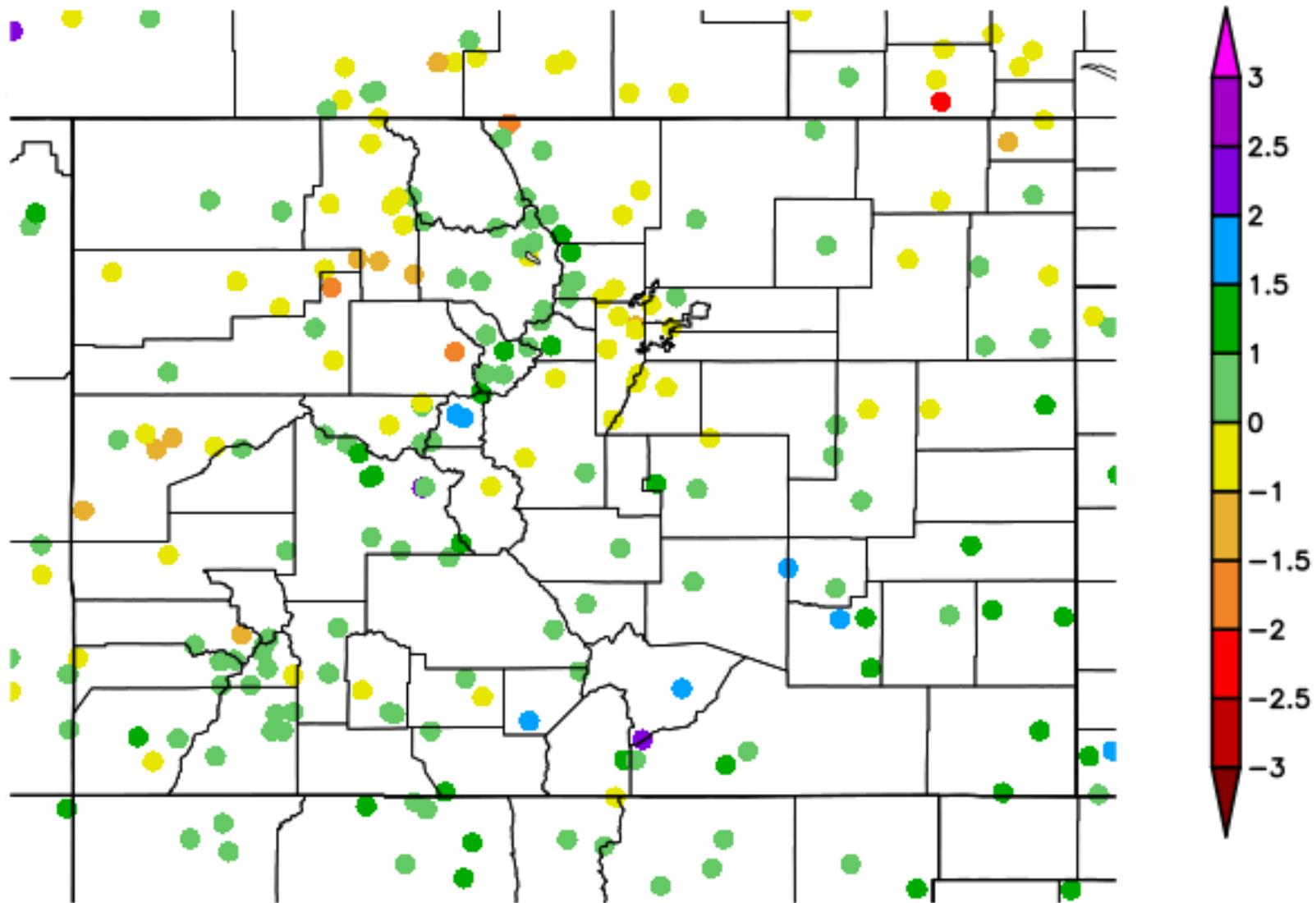


# 6 Month SPI

2/16/2017 - 8/15/2017

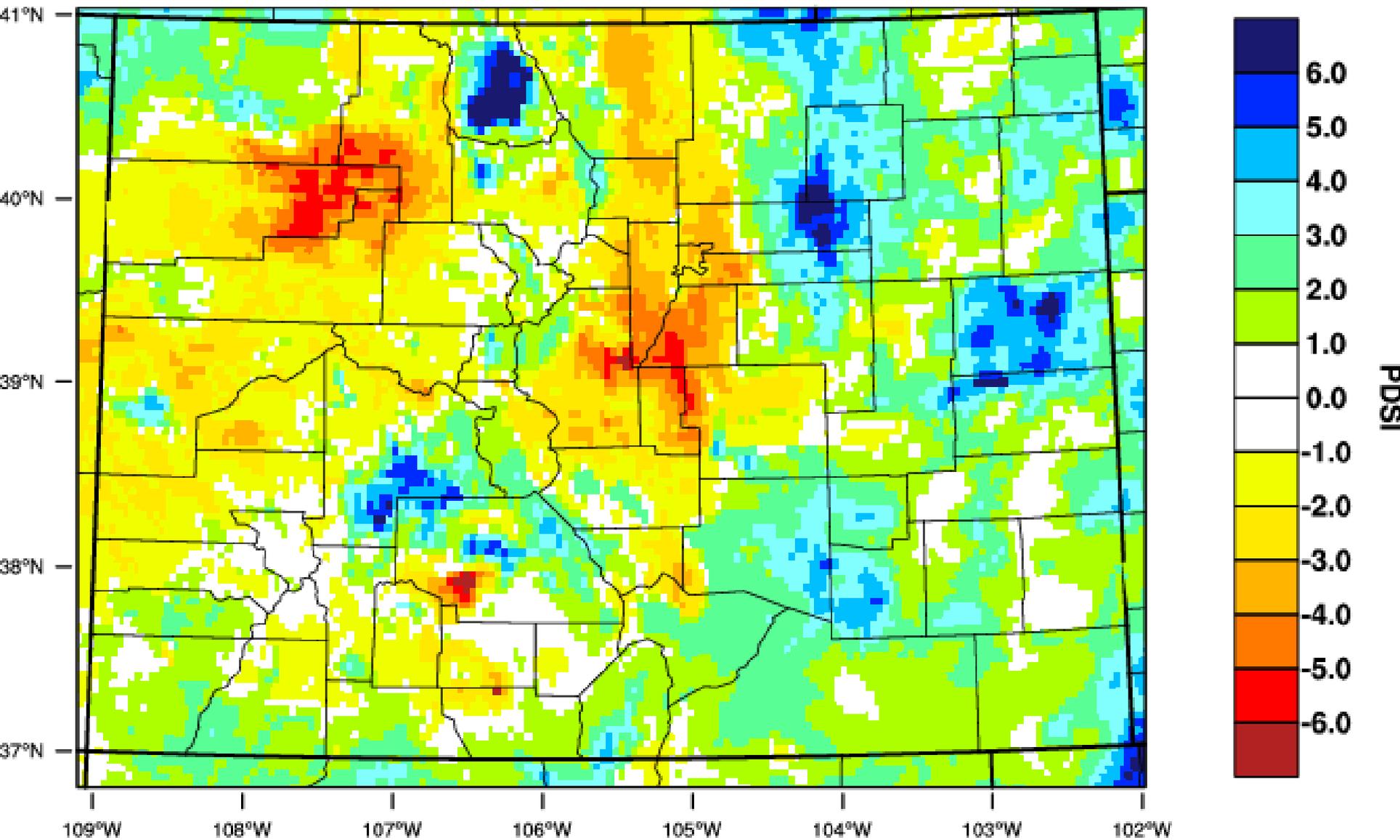


# 12 Month SPI 8/16/2016 - 8/15/2017



# Colorado - PDSI

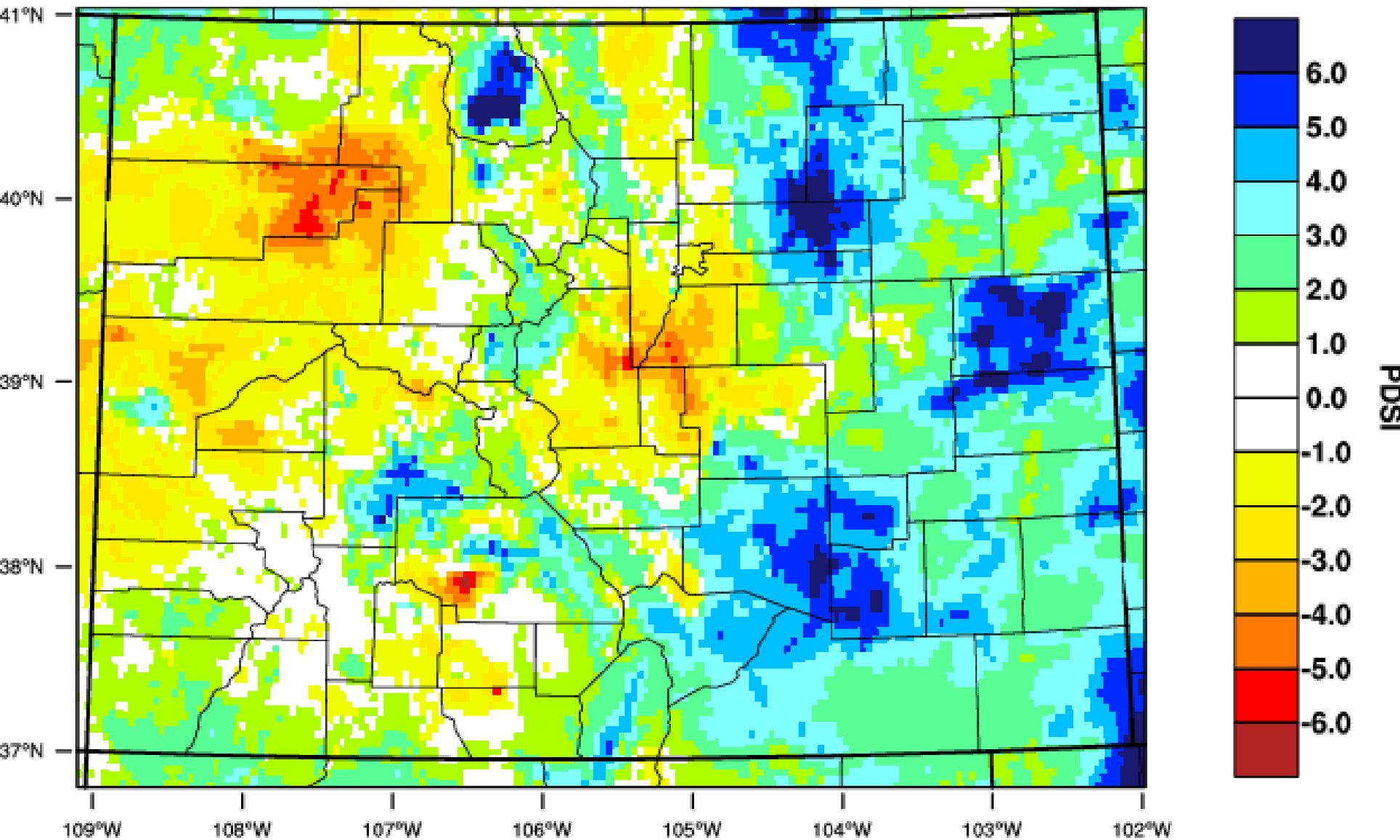
April 2017



WestWide Drought Tracker, U Idaho/WRCC Data Source: PRISM (Prelim), created 7 MAY 2017

# Colorado - PDSI

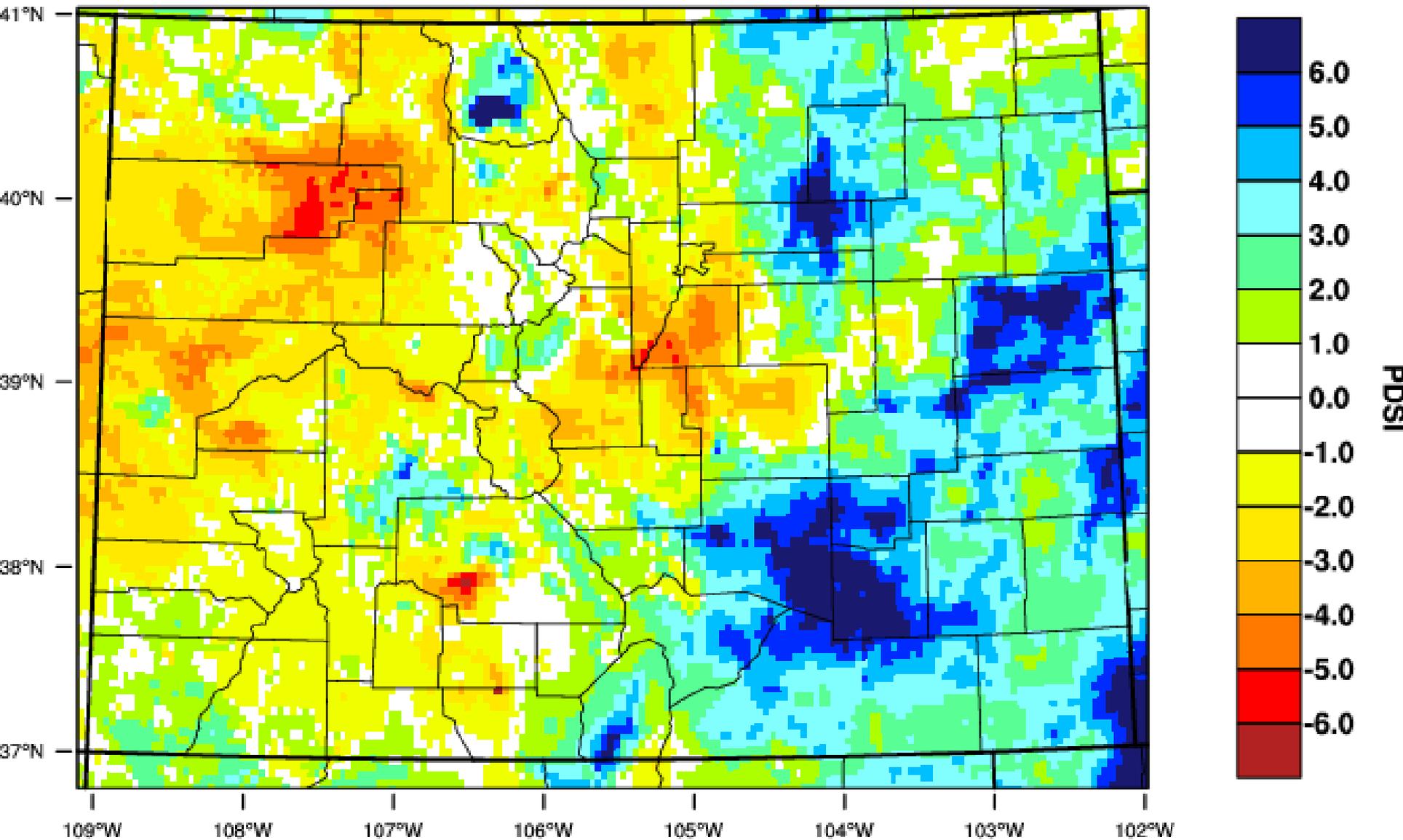
May 2017



WestWide Drought Tracker, U Idaho/WRCC Data Source: PRISM (Prelim), created 16 JUN 2017

# Colorado - PDSI

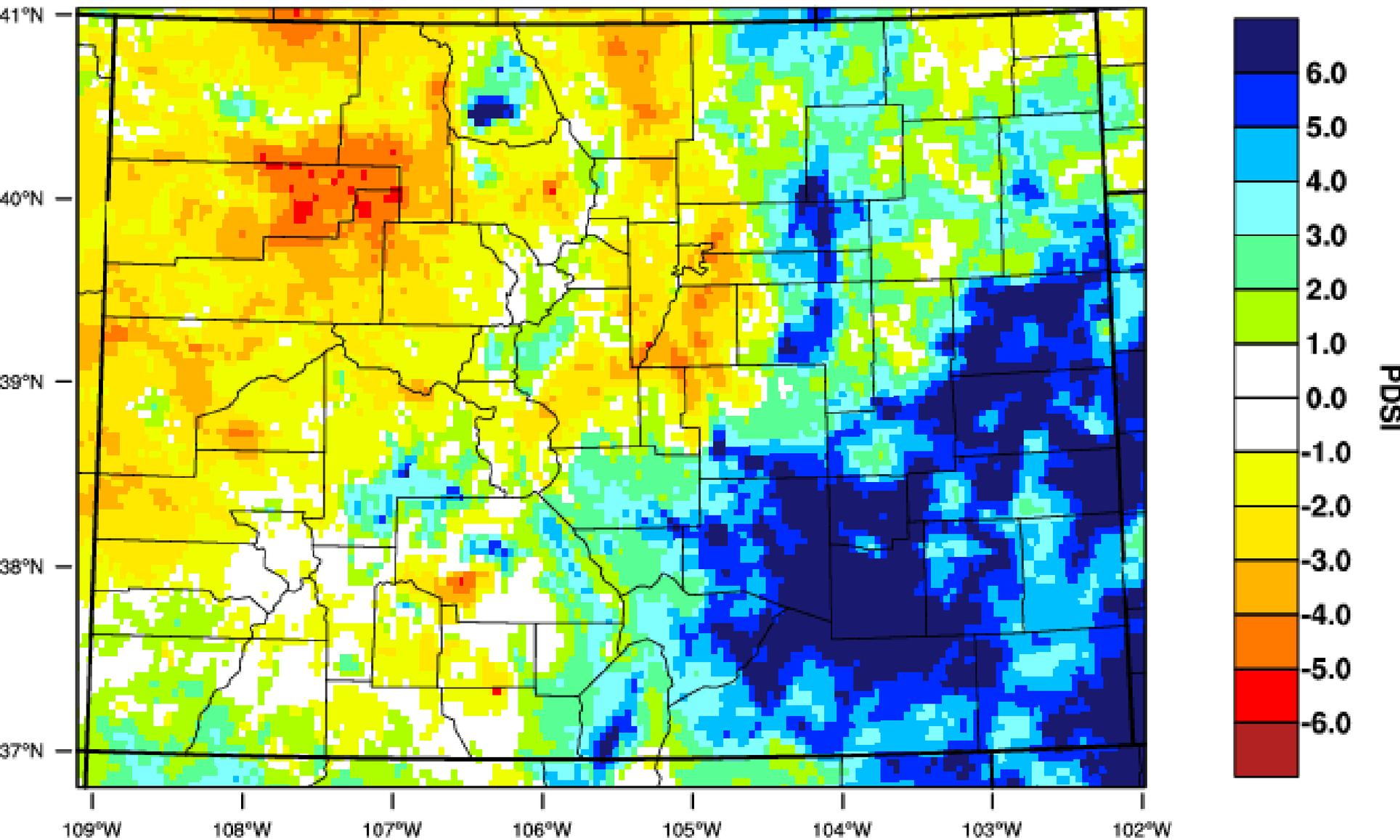
June 2017



WestWide Drought Tracker, U Idaho/WRCC Data Source: PRISM (Prelim), created 16 JUL 2017

# Colorado - PDSI

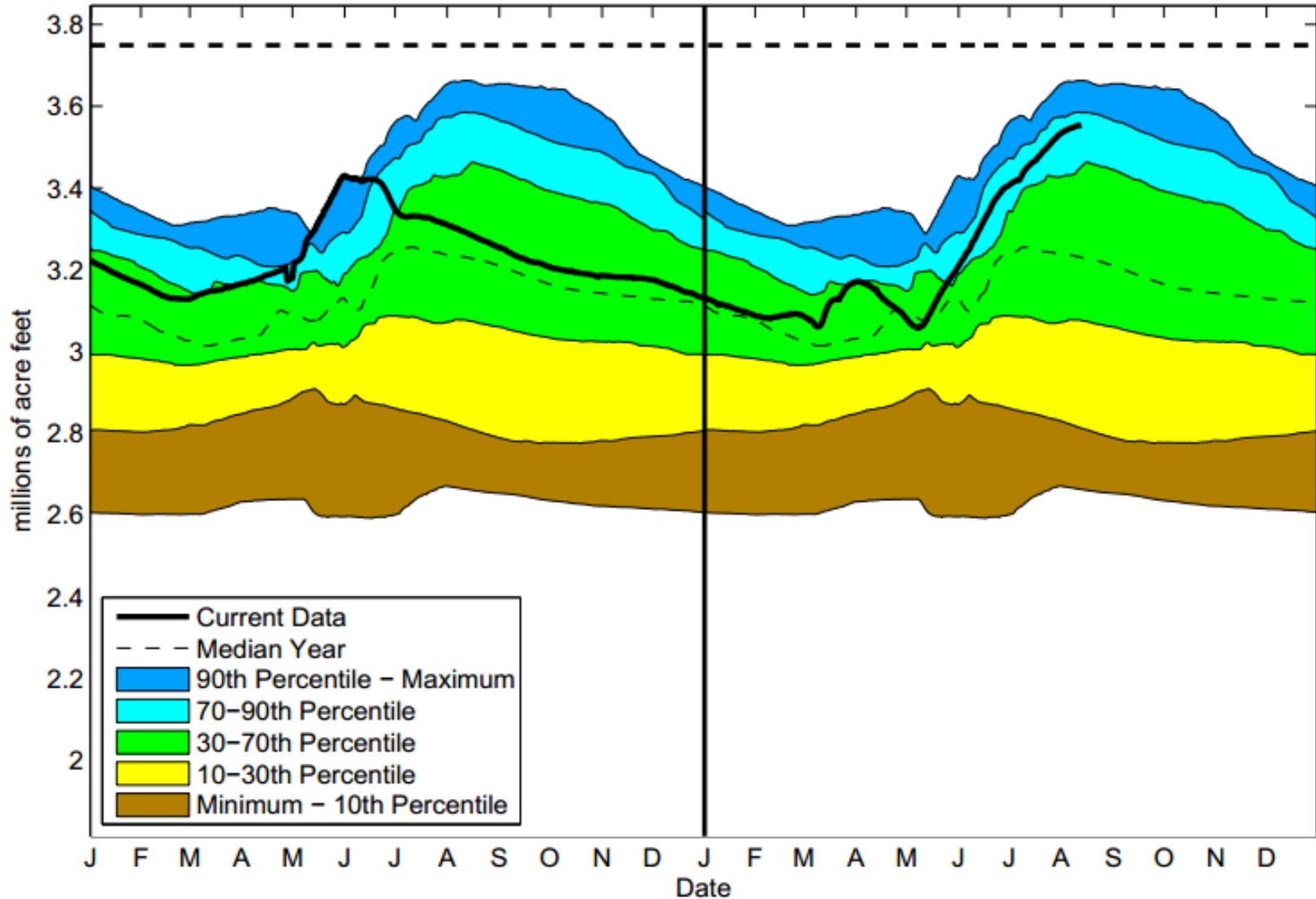
July 2017



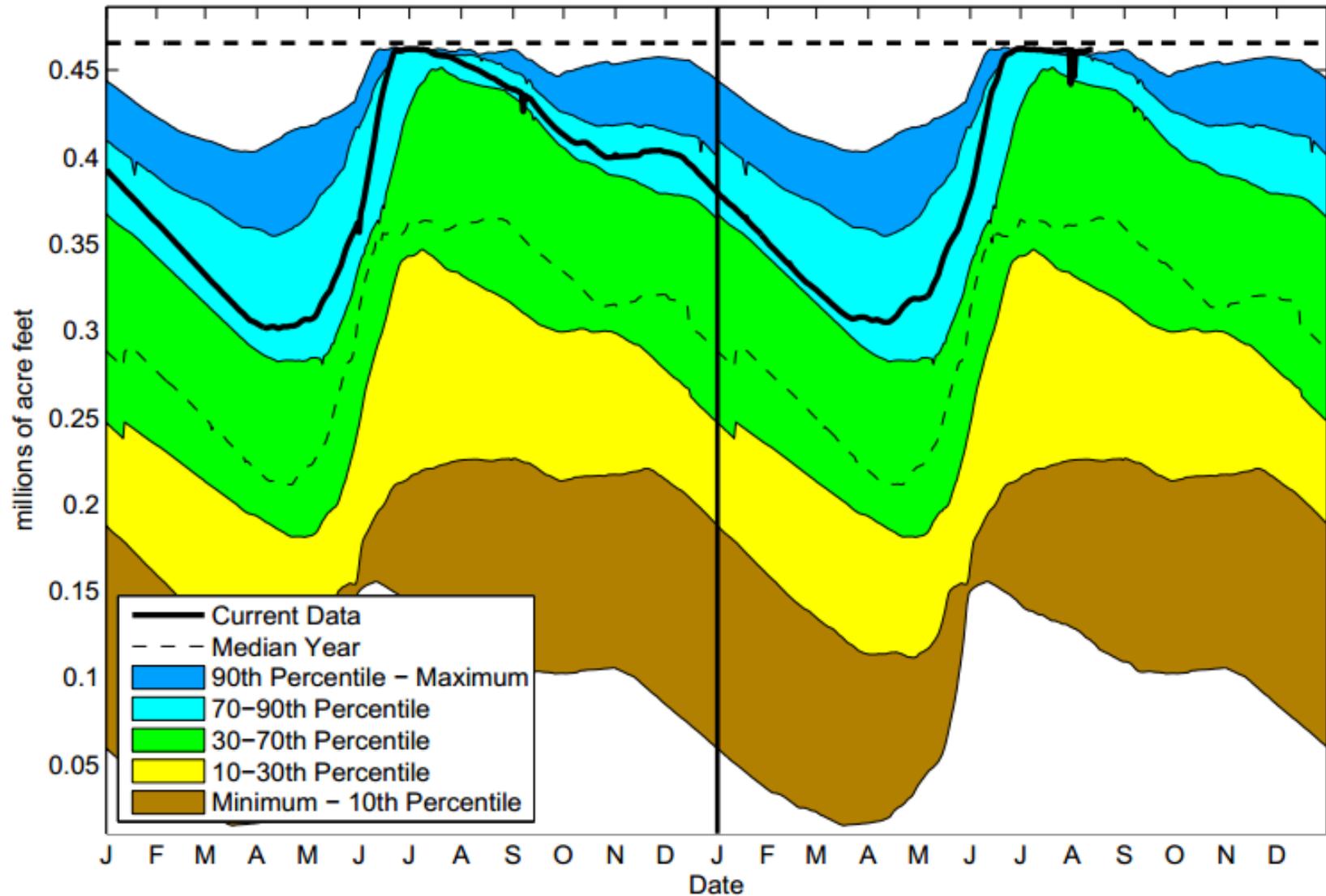
WestWide Drought Tracker, U Idaho/WRCC Data Source: PRISM (Prelim), created 16 AUG 2017

# Reservoir Levels

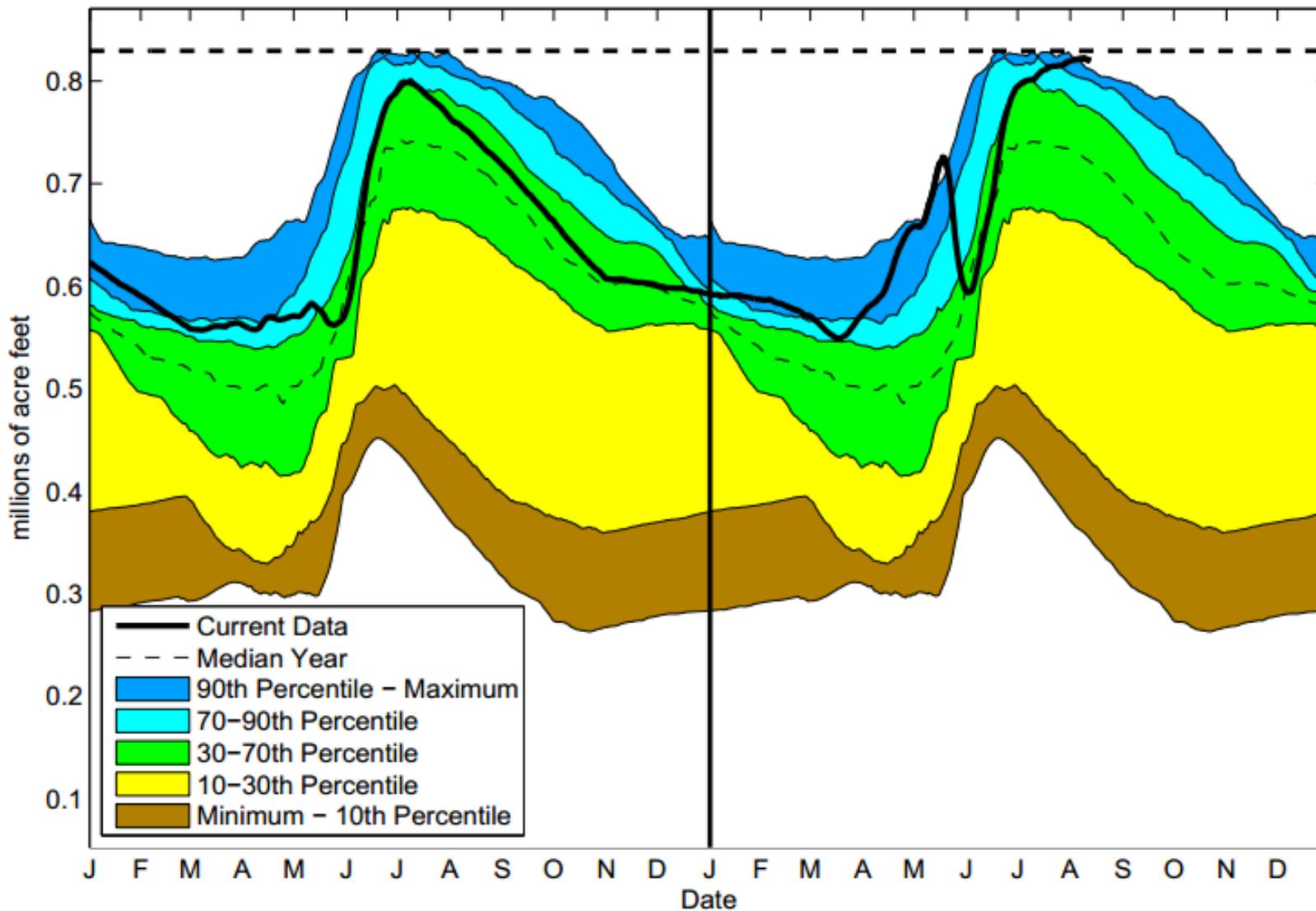
Flaming Gorge Reservoir Level 08/13/2017  
110 Percent of 1985-2015 Average



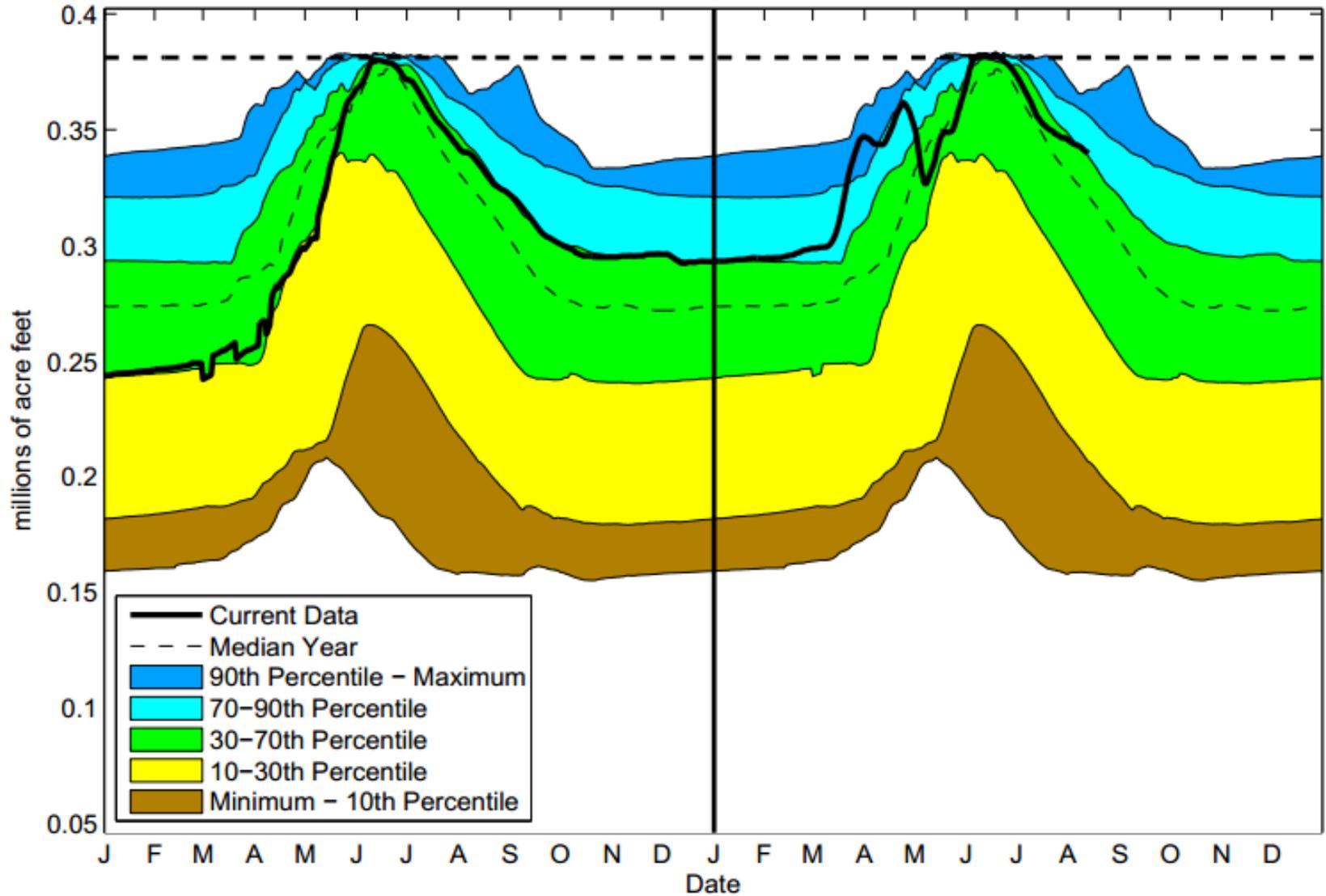
Lake Granby Reservoir Level 08/13/2017  
129 Percent of 2000-2015 Average



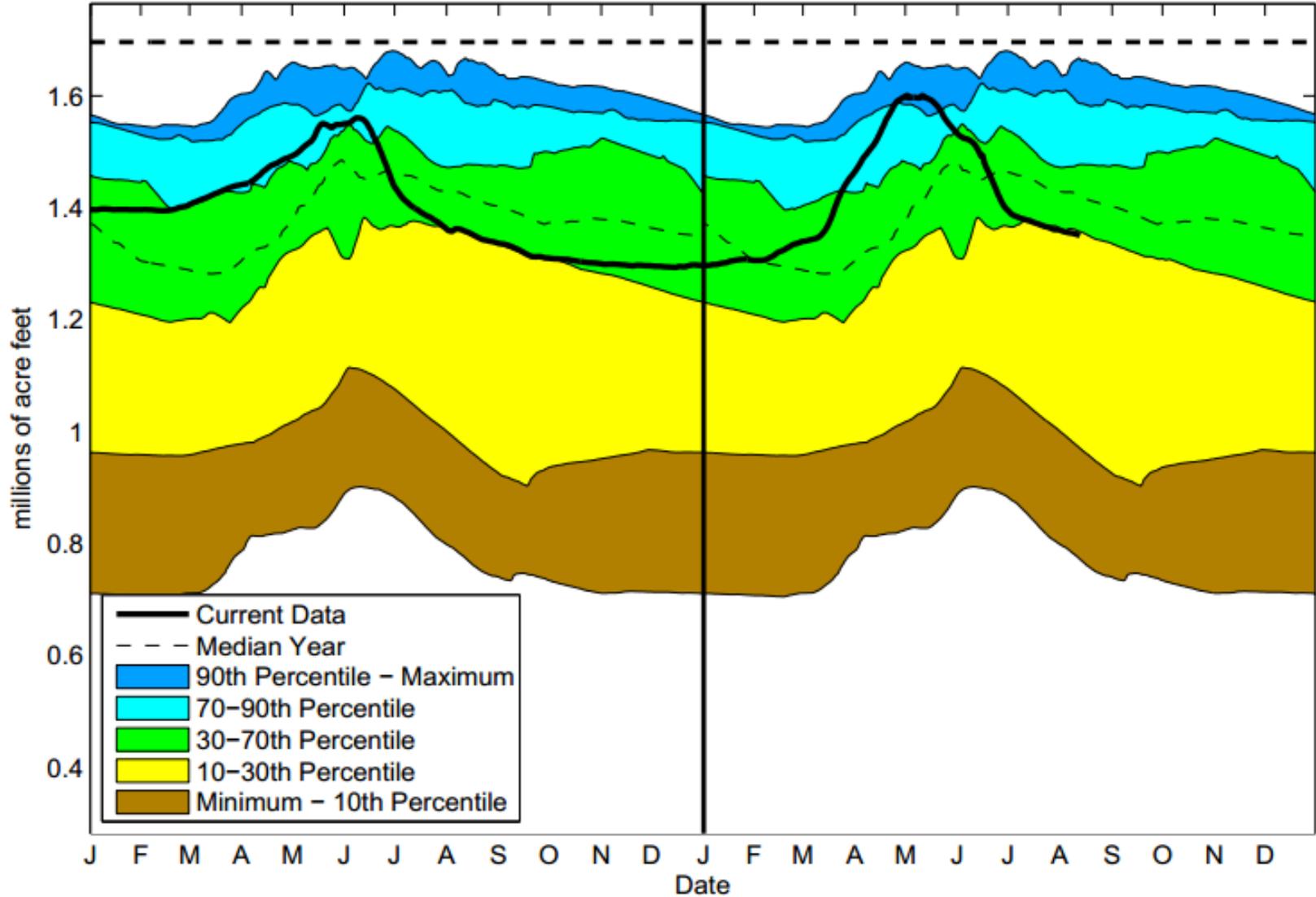
Blue Mesa Reservoir Level 08/13/2017  
120 Percent of 1985-2015 Average



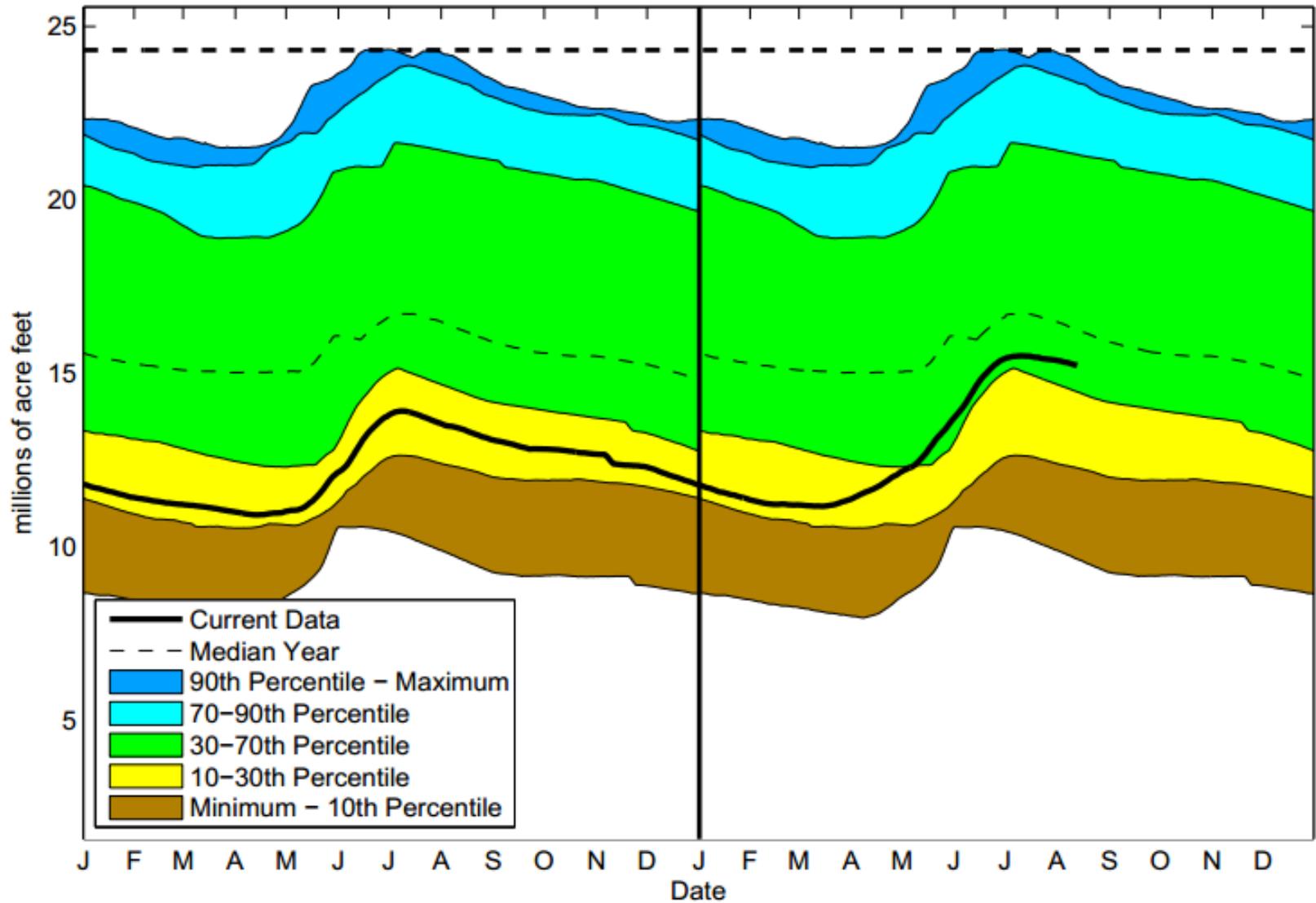
McPhee Reservoir Level 08/13/2017  
113 Percent of 1985-2015 Average



Navajo Reservoir Level 08/13/2017  
99 Percent of 1985-2015 Average

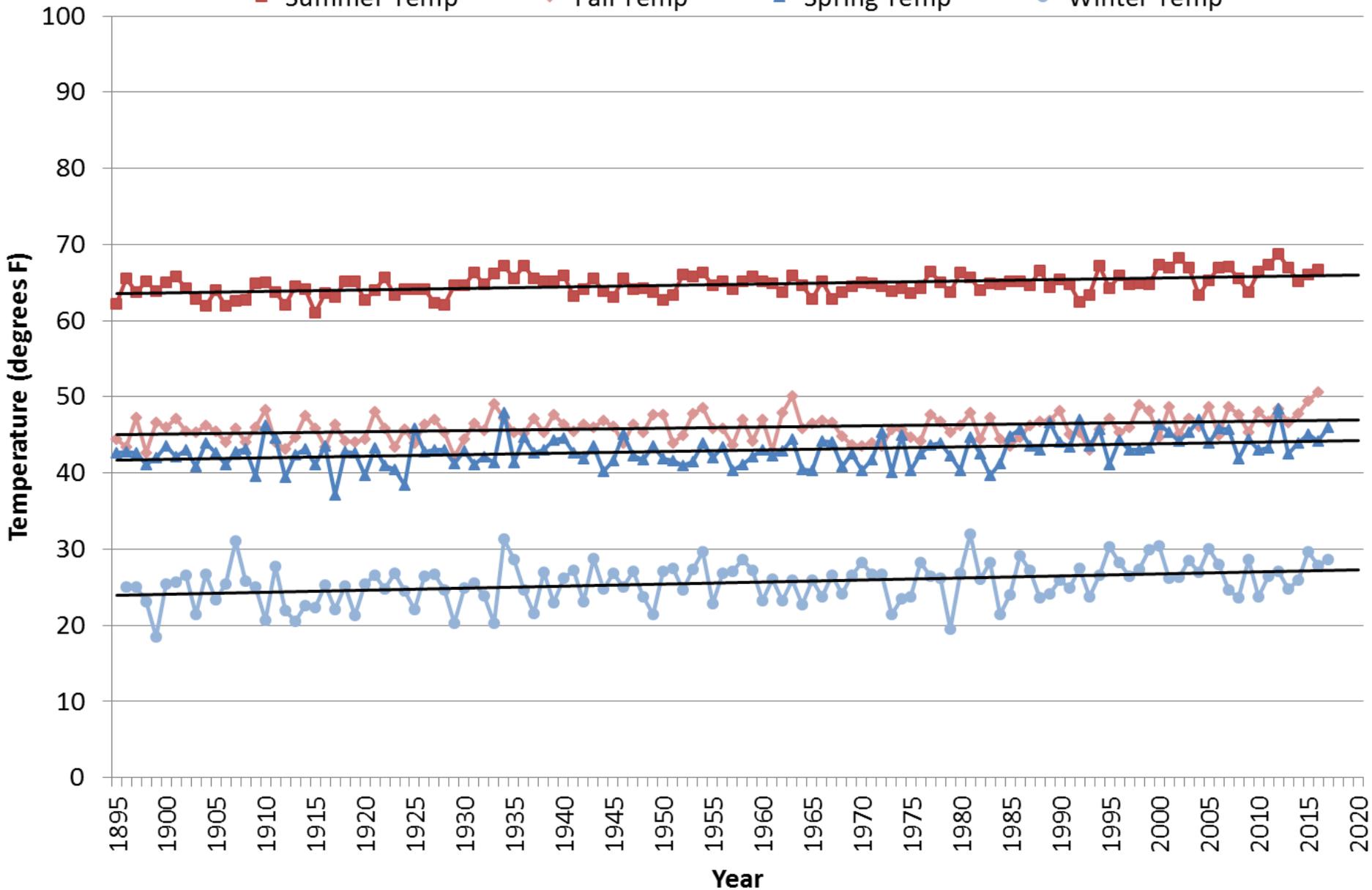


Lake Powell Reservoir Level 08/13/2017  
87 Percent of 1985-2015 Average

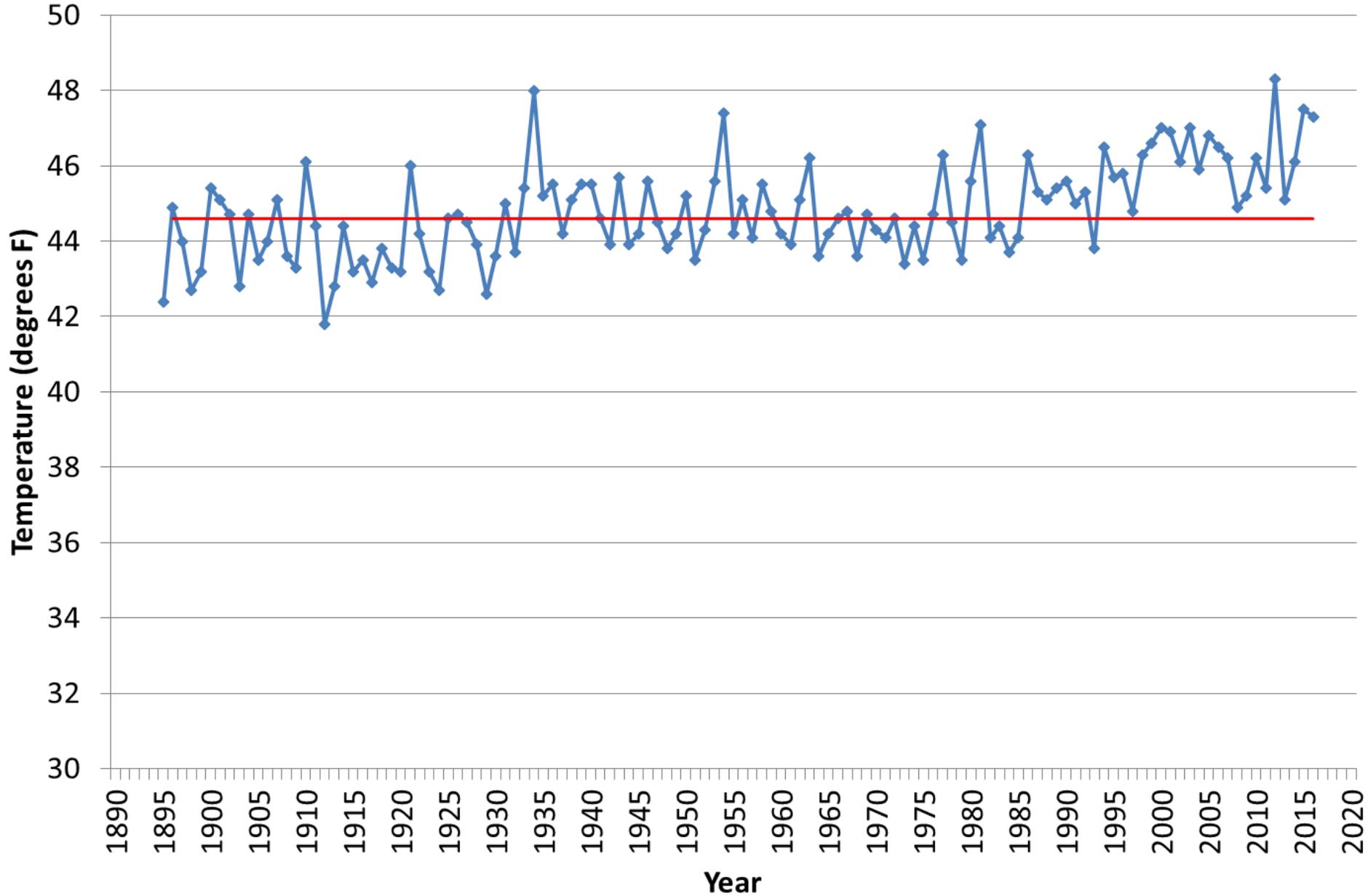


# Colorado Statewide Seasonal Temperature

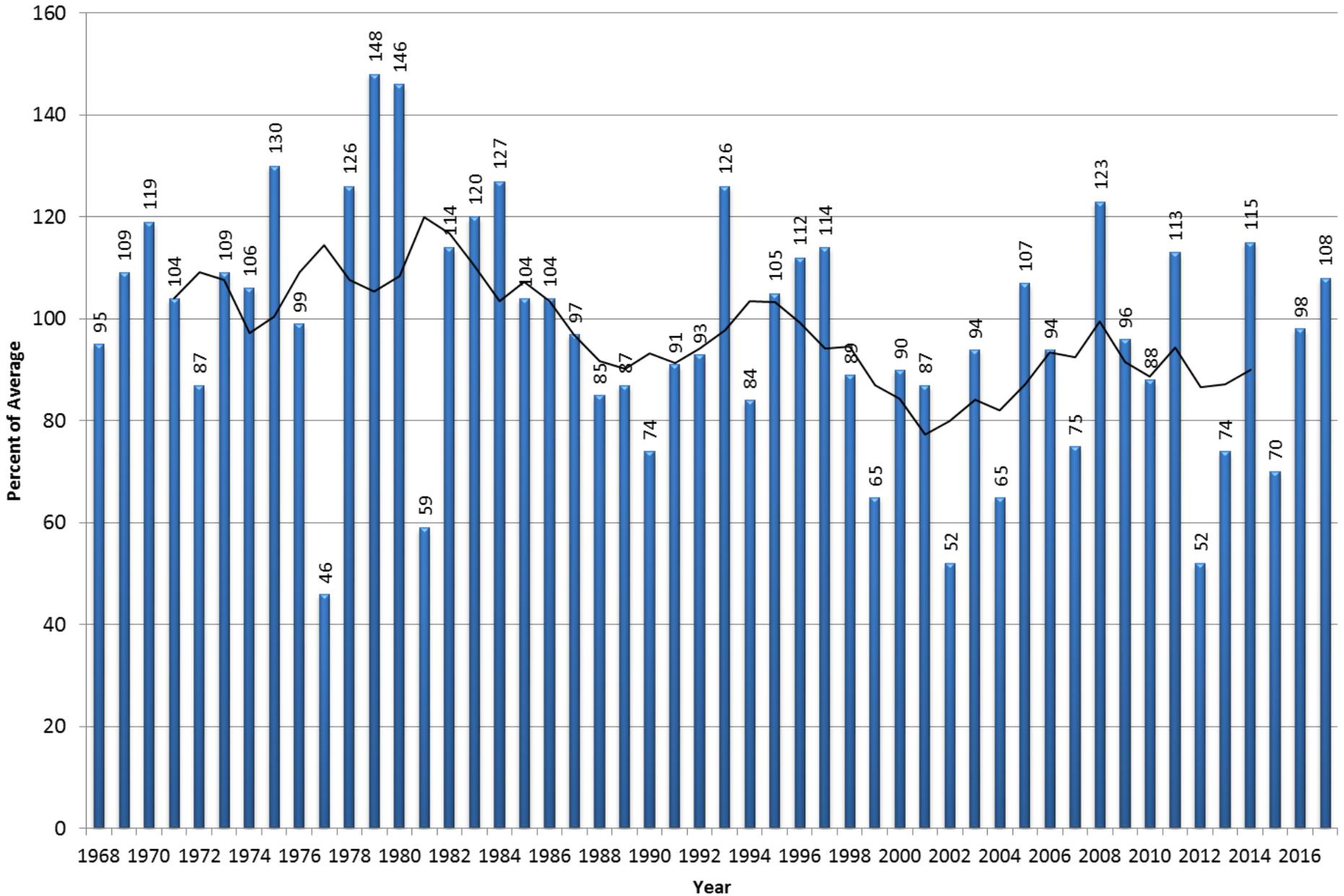
Summer Temp      Fall Temp      Spring Temp      Winter Temp



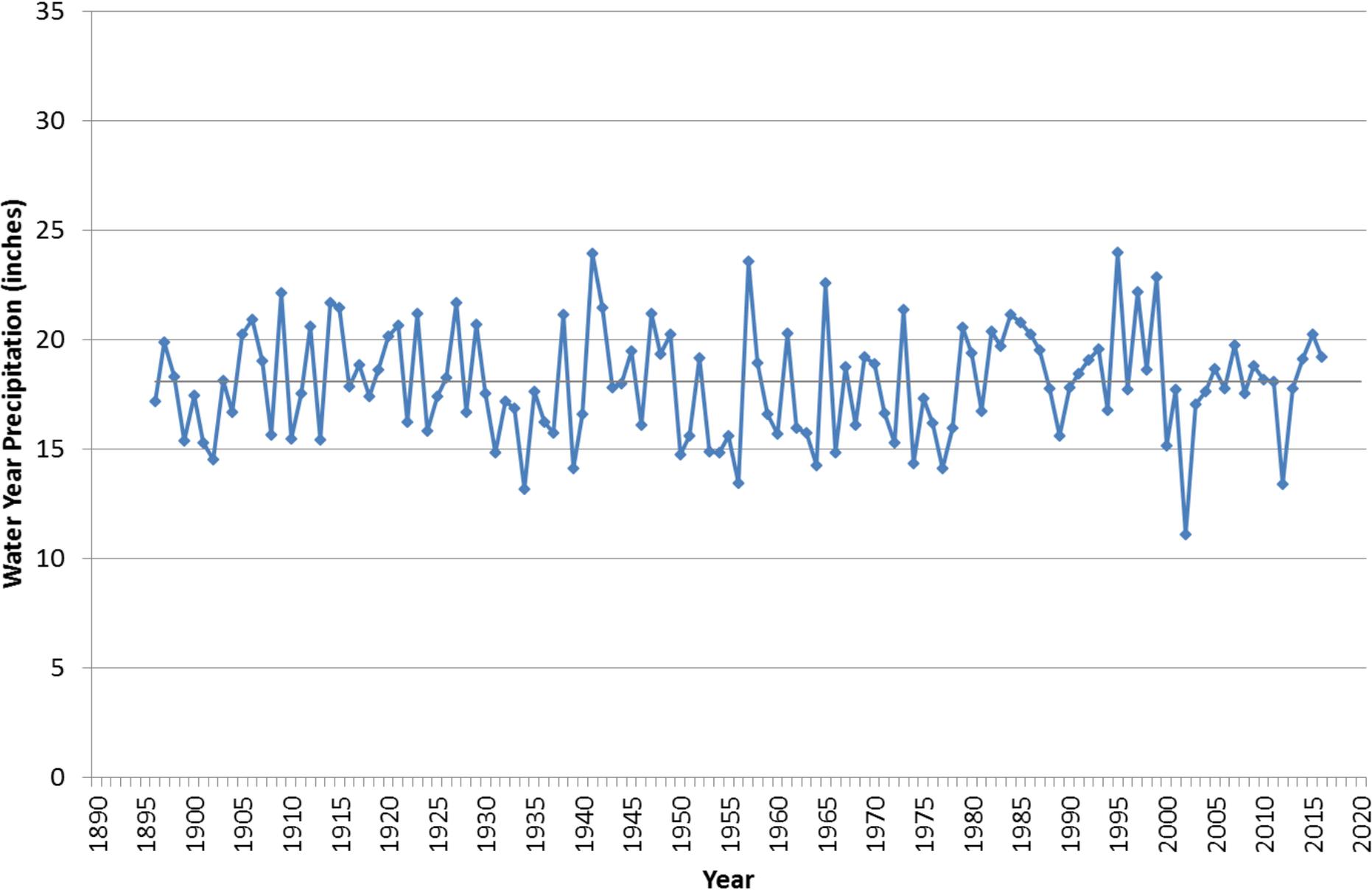
# Statewide Annual Average Temperature



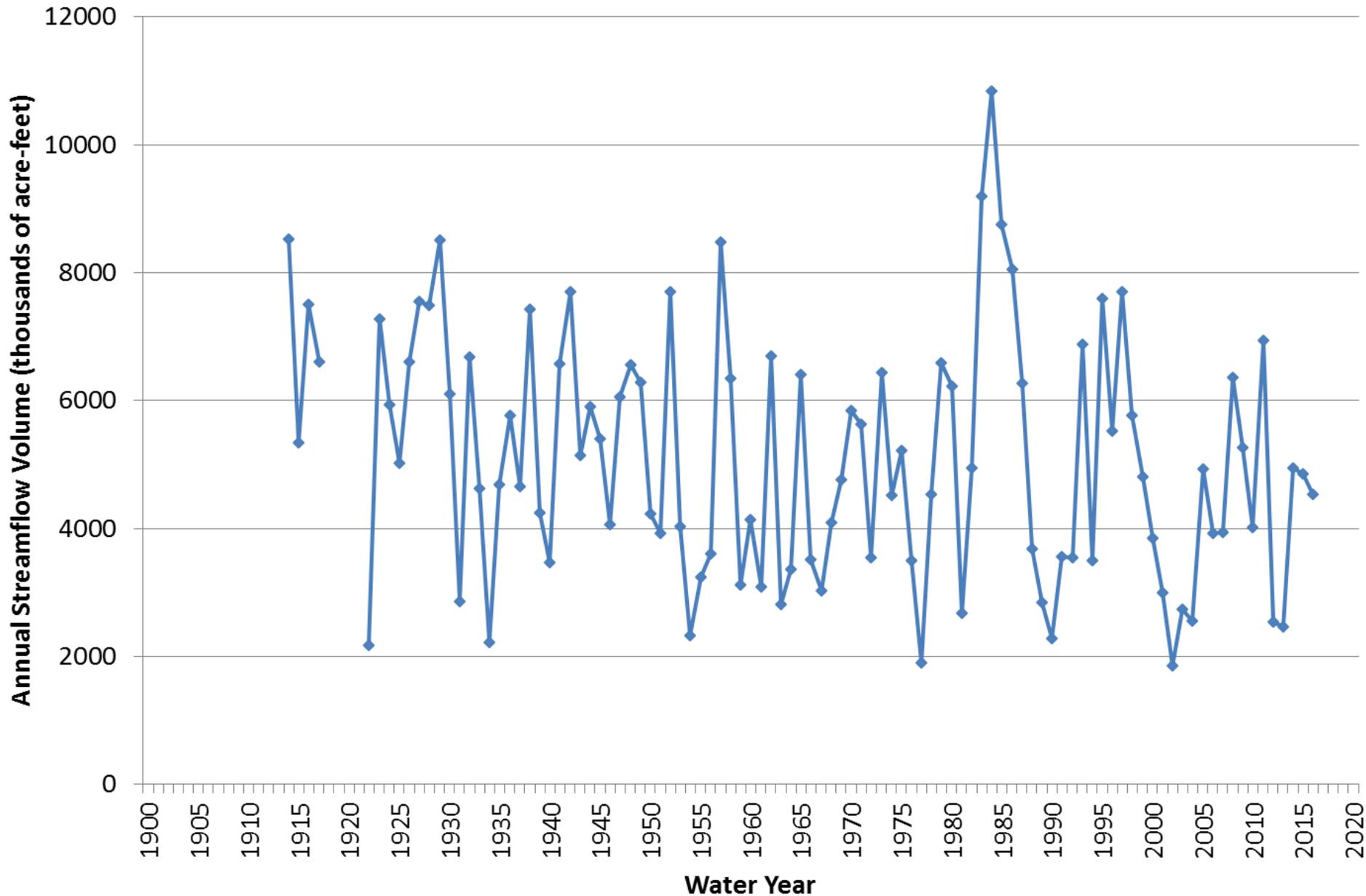
# April 1 Colorado Statewide Snowpack



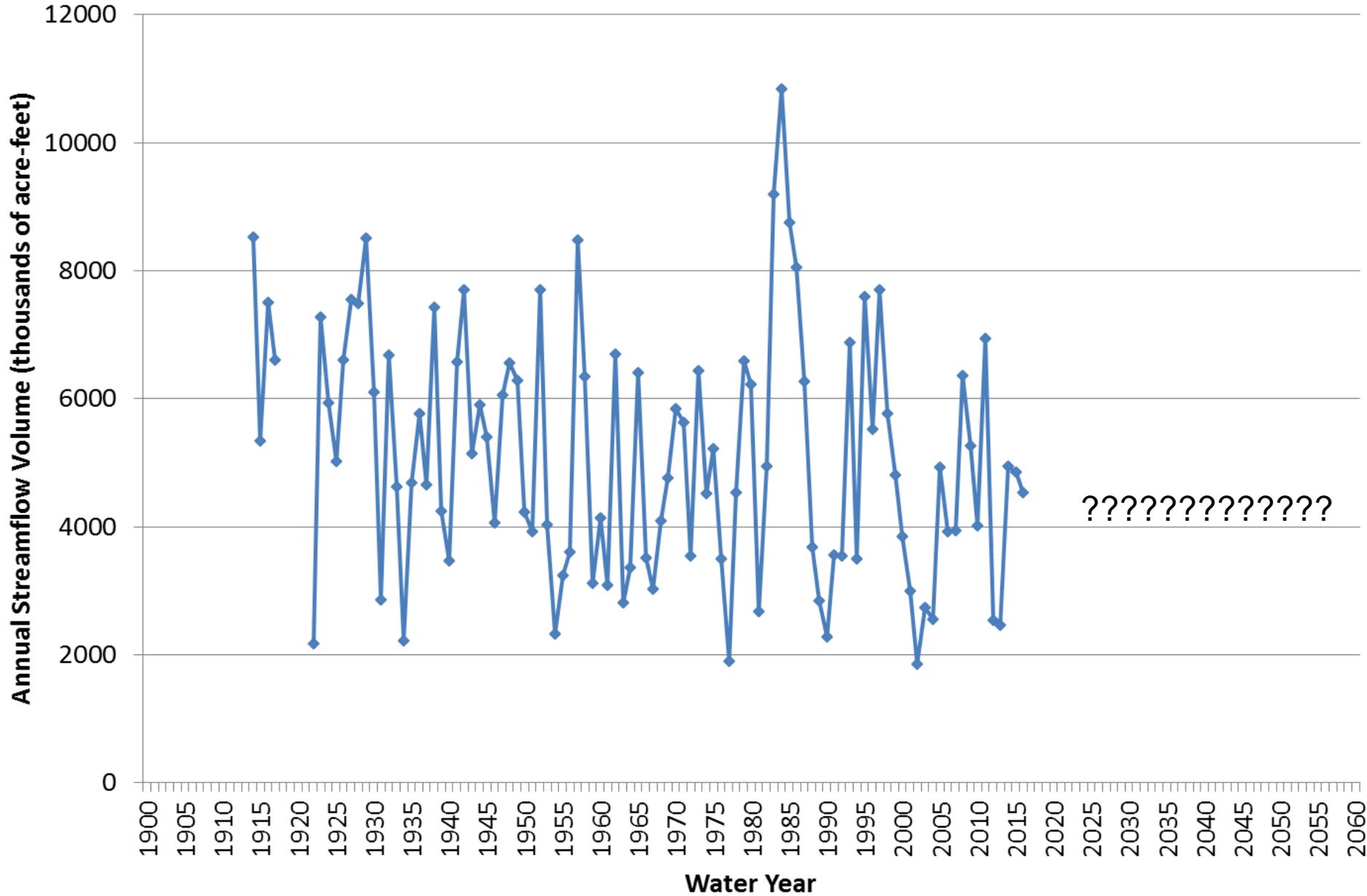
# Statewide Water Year Precipitation



# Colorado River near Cisco, UT Annual Streamflow Volume



# Colorado River near Cisco, UT Annual Streamflow Volume



# Colorado Climate Center

**Data and Power Point Presentations available for downloading**

**<http://ccc.atmos.colostate.edu/droughtpresentations.php>**



COLORADO  
**CLIMATE**  
CENTER

Thanks Nolan, we will miss your leadership and knowledge, even though you will still be with the Climate Center! 😊

**Colorado  
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*Knowledge to Go Places*