



Climate Update

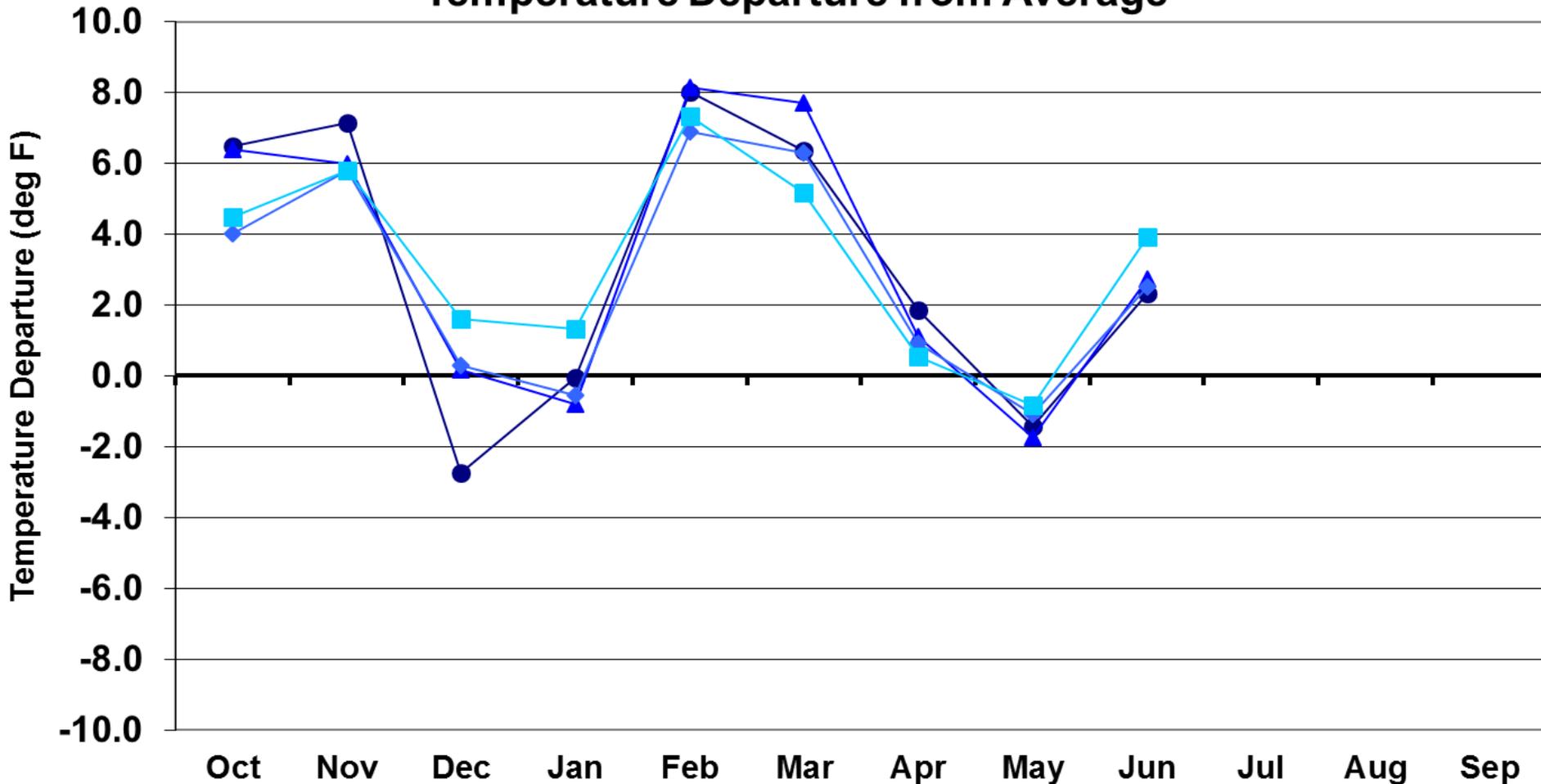


Nolan Doesken
Colorado Climate Center

Presented to
Water Availability Task Force
July 25, 2017
Denver, CO

Water Year 2017 Temperature Departures

Water Year 2017
Temperature Departure from Average



● Eastern Plains

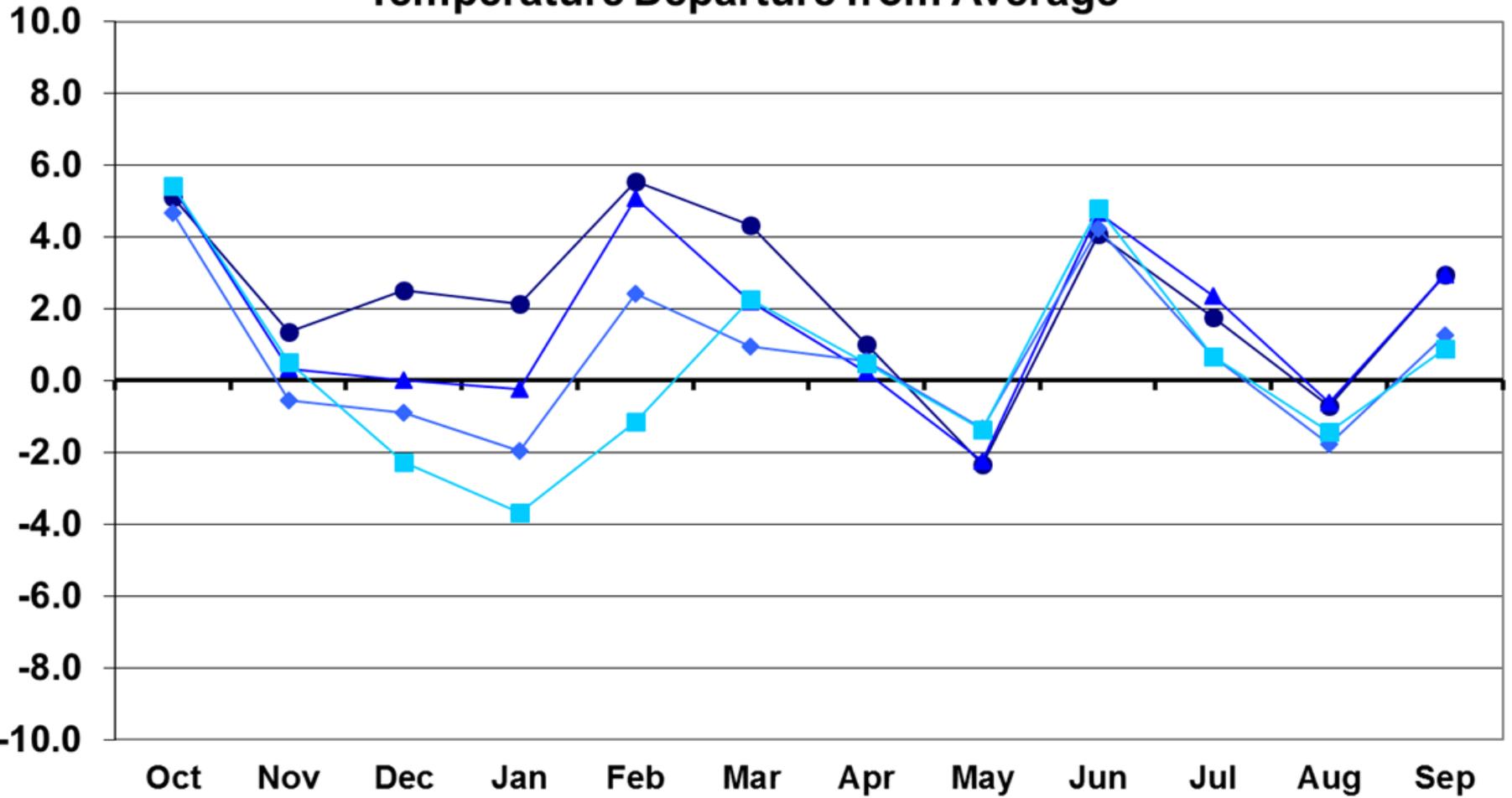
▲ Foothills

◆ Mountains

■ Western Valleys

Water Year 2016

Temperature Departure from Average



● Eastern Plains

▲ Foothills

◆ Mountains

■ Western Valleys

June 2017 Average Temperature History for Colorado (NCEI)

64.8 F (+3.6)

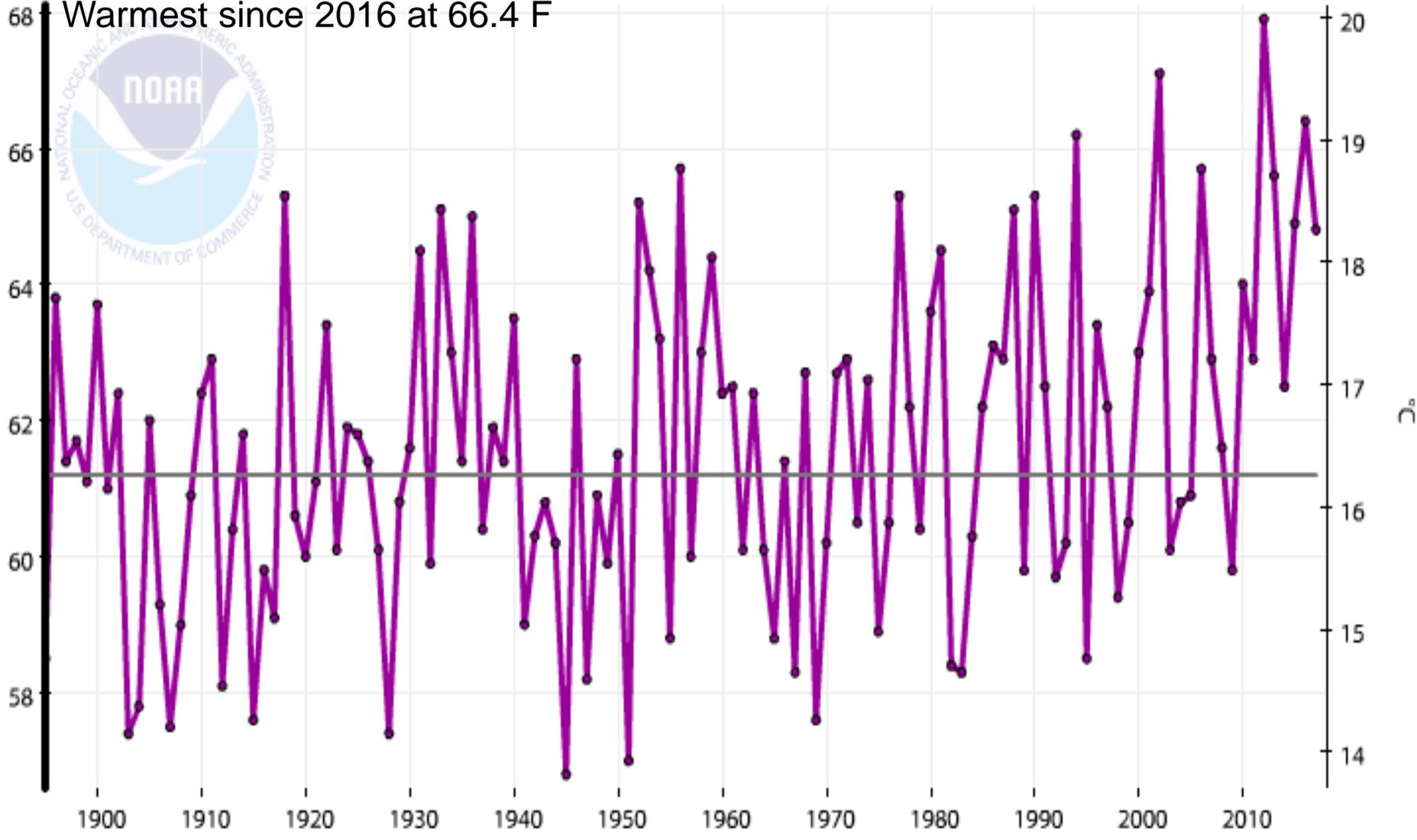
16th warmest on record

Warmest since 2016 at 66.4 F

Colorado, Average Temperature, June

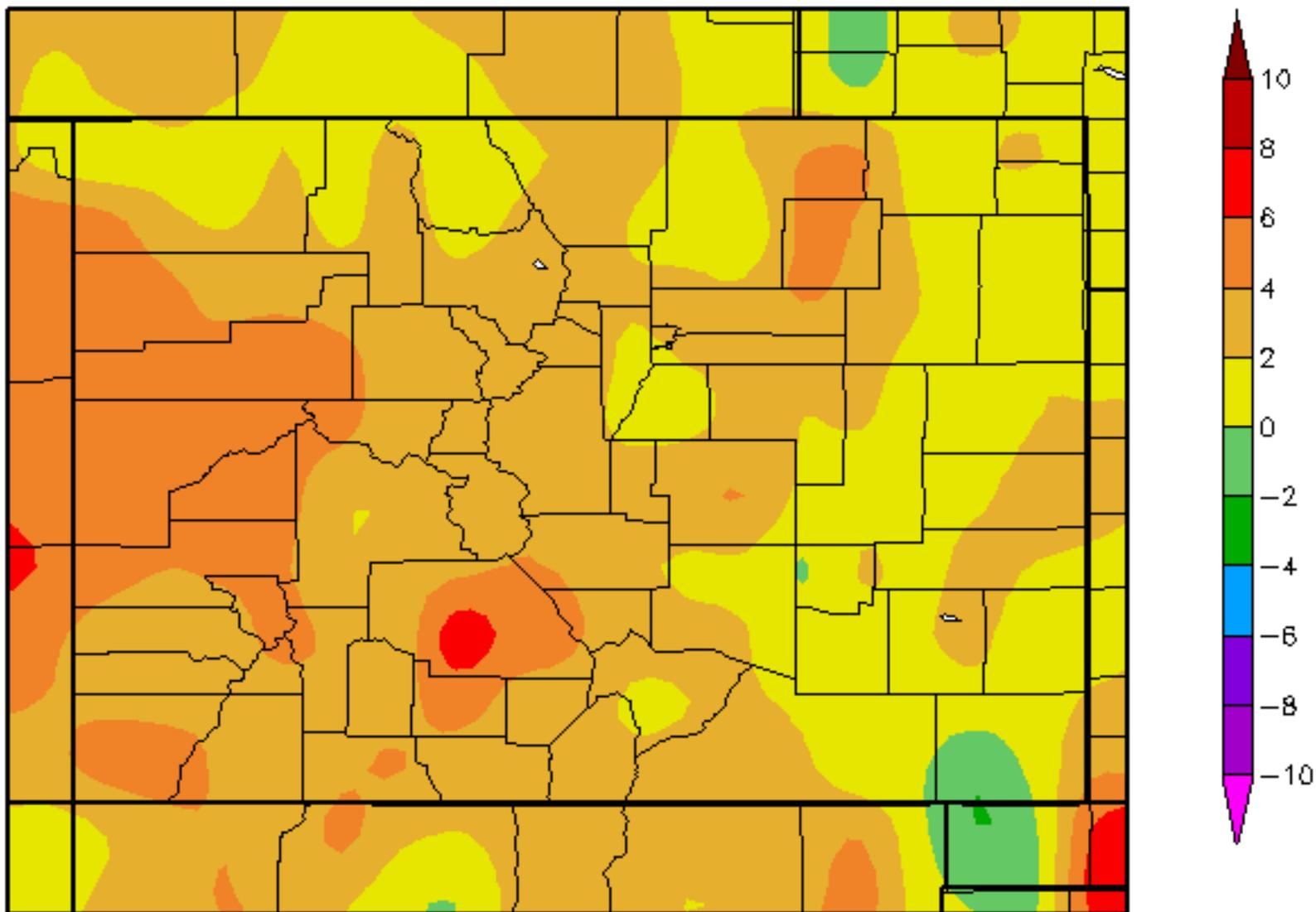
— 1901-2000
Mean: 61.2°F

● Avg Temperature



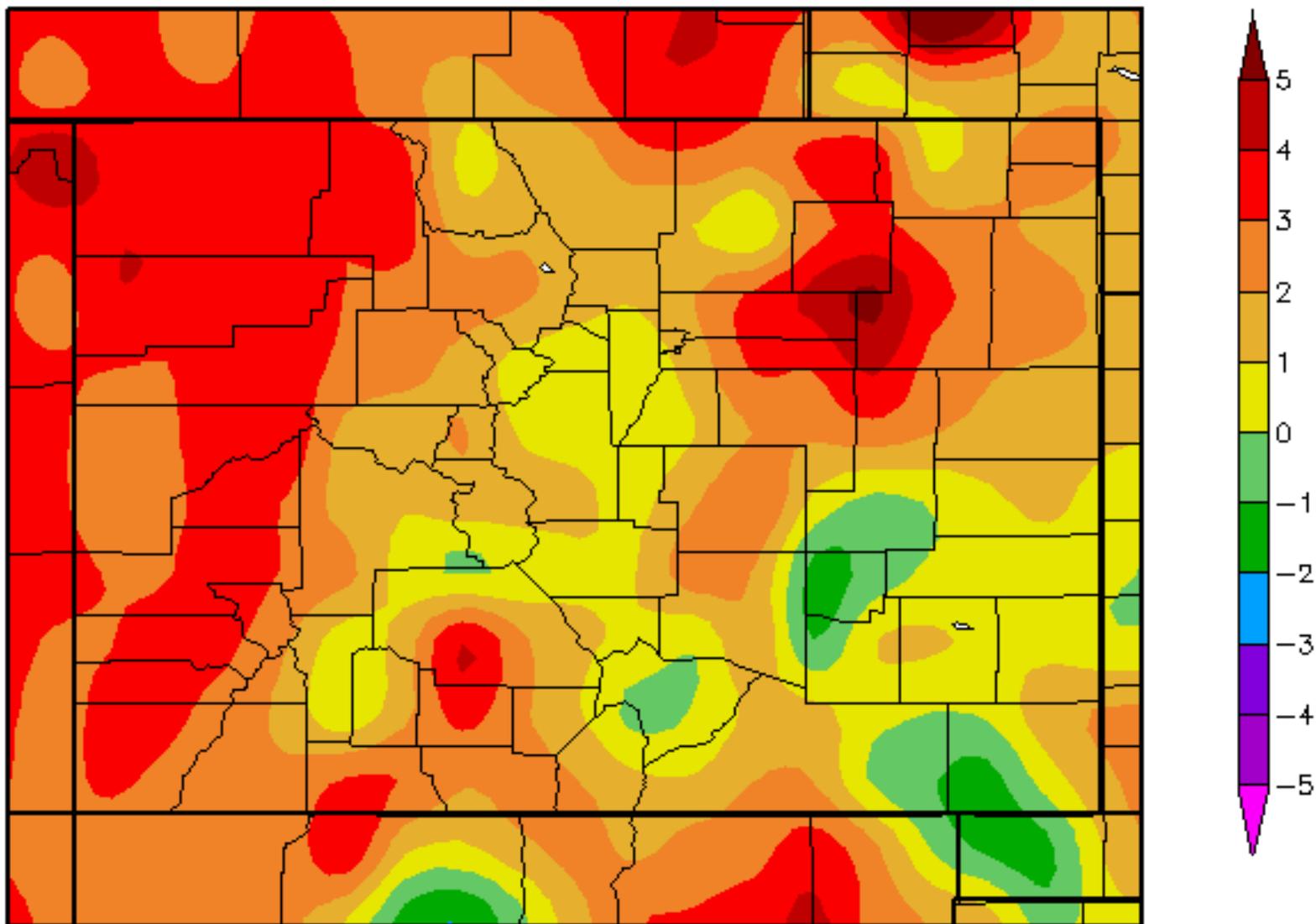
Departure from Normal Temperature (F)

6/1/2017 - 6/30/2017



Departure from Normal Temperature (F)

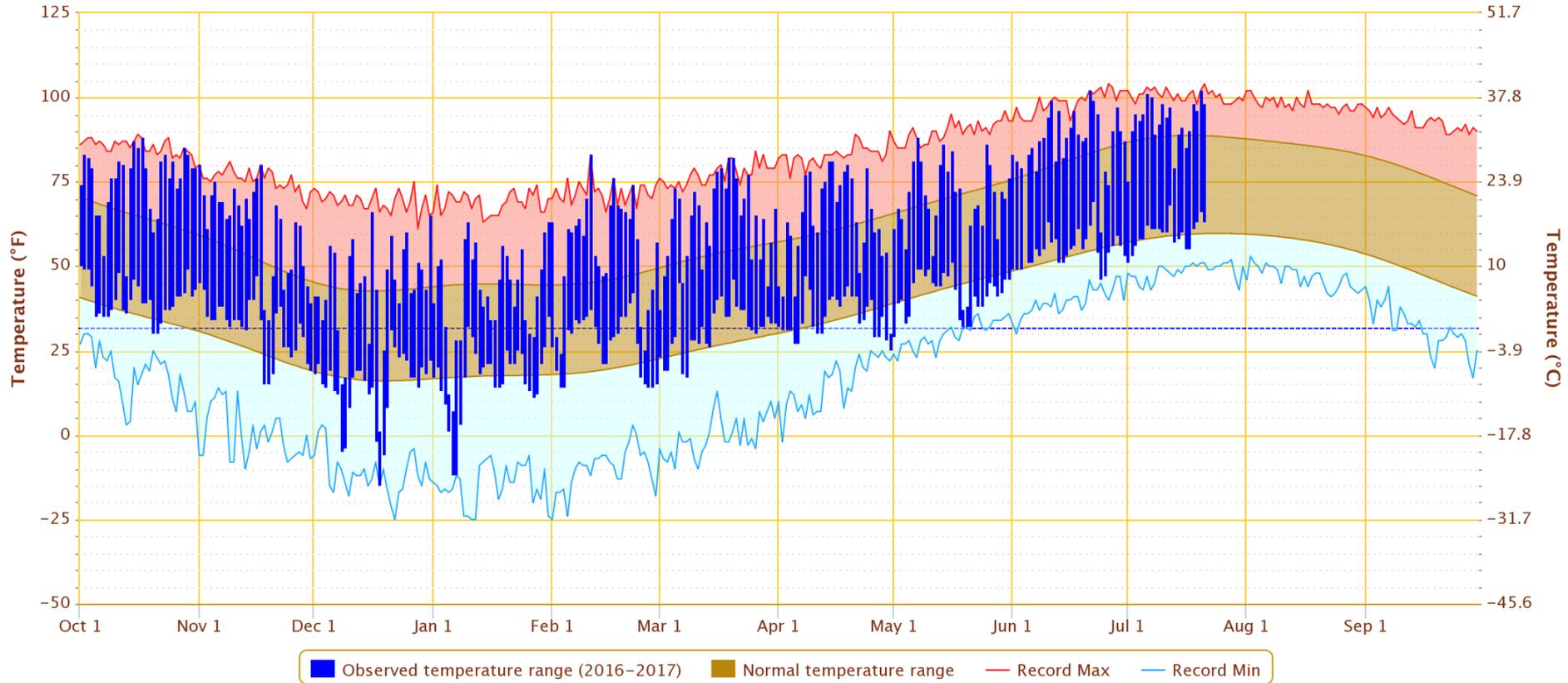
7/1/2017 - 7/23/2017



Denver temperatures wy2017

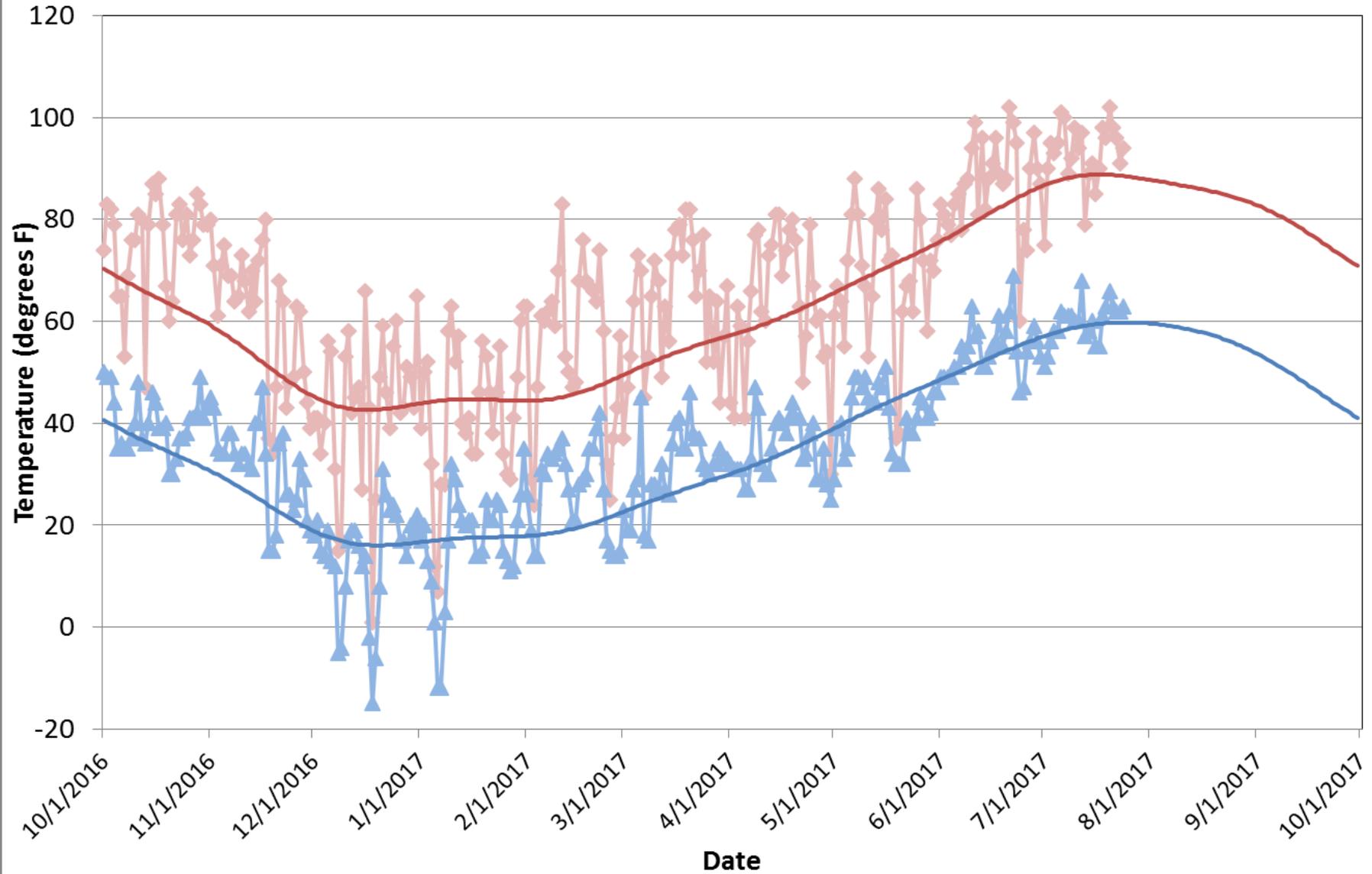
Daily Temperature Data – DENVER STAPLETON, CO

Period of Record – 1948-01-01 to 2017-07-21. Normals period: 1981-2010. Click and drag to zoom chart.



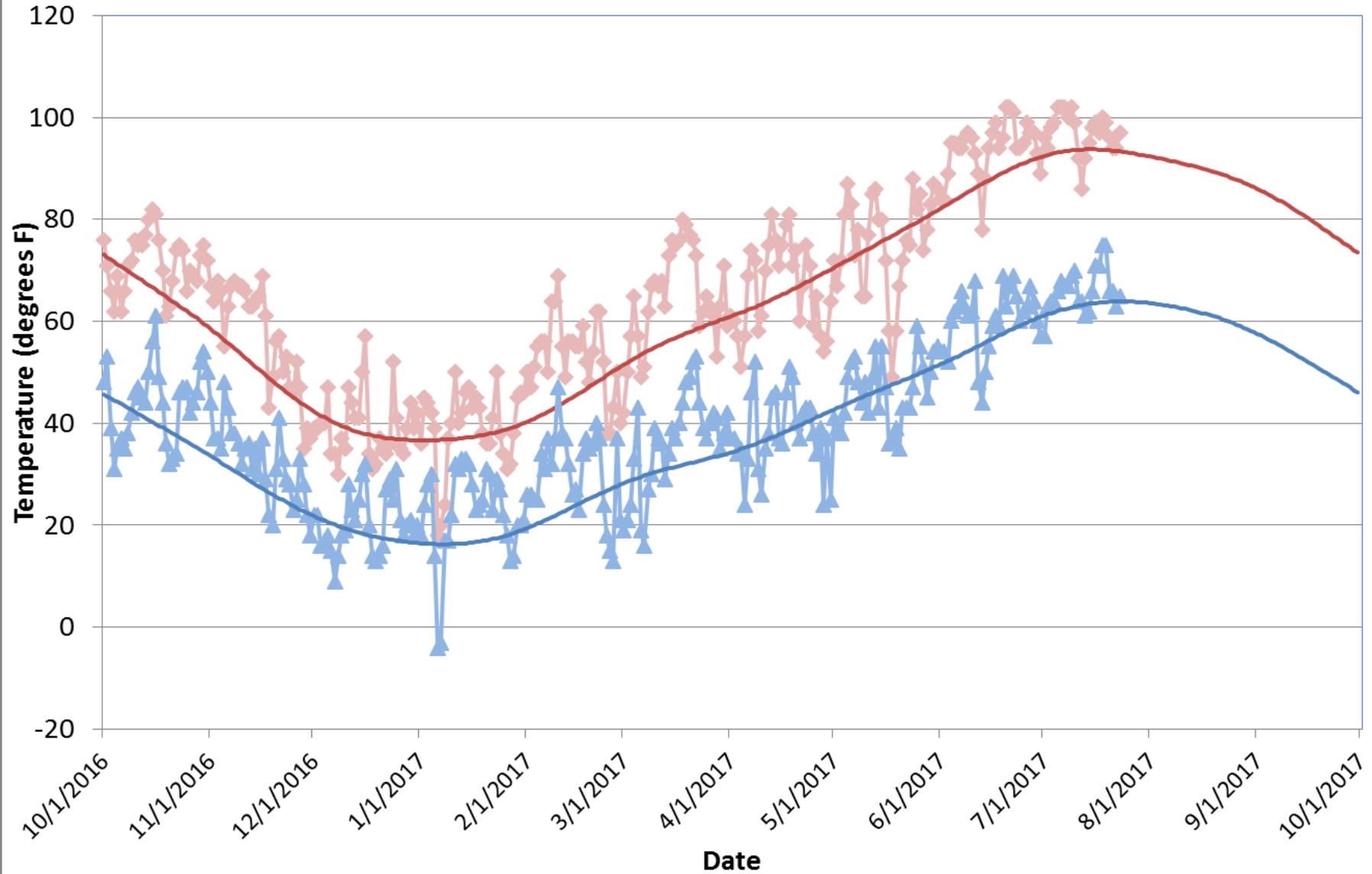
Denver-Stapleton Daily Max/Min Temperatures with Normals, Water Year 2017

Max Temperature Normal Max Temp Min Temperature Normal Min Temp

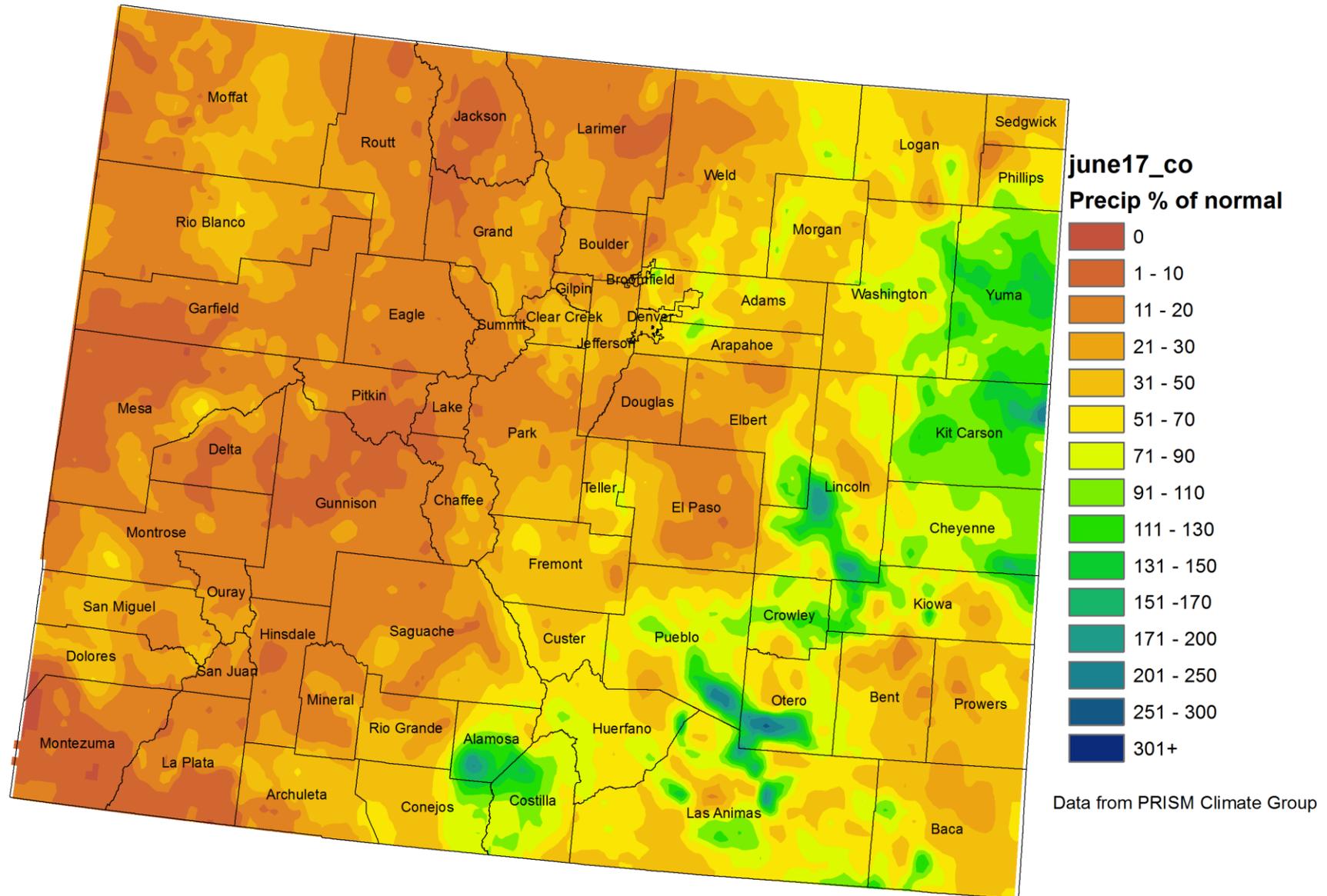


Grand Junction Daily Max/Min Temperature with Normals, WY 2017

Max Temperature Normal Max Temp Min Temperature Normal Min Temp



Colorado June 2017 Precipitation as a Percentage of Normal



June 2017 Statewide Precipitation

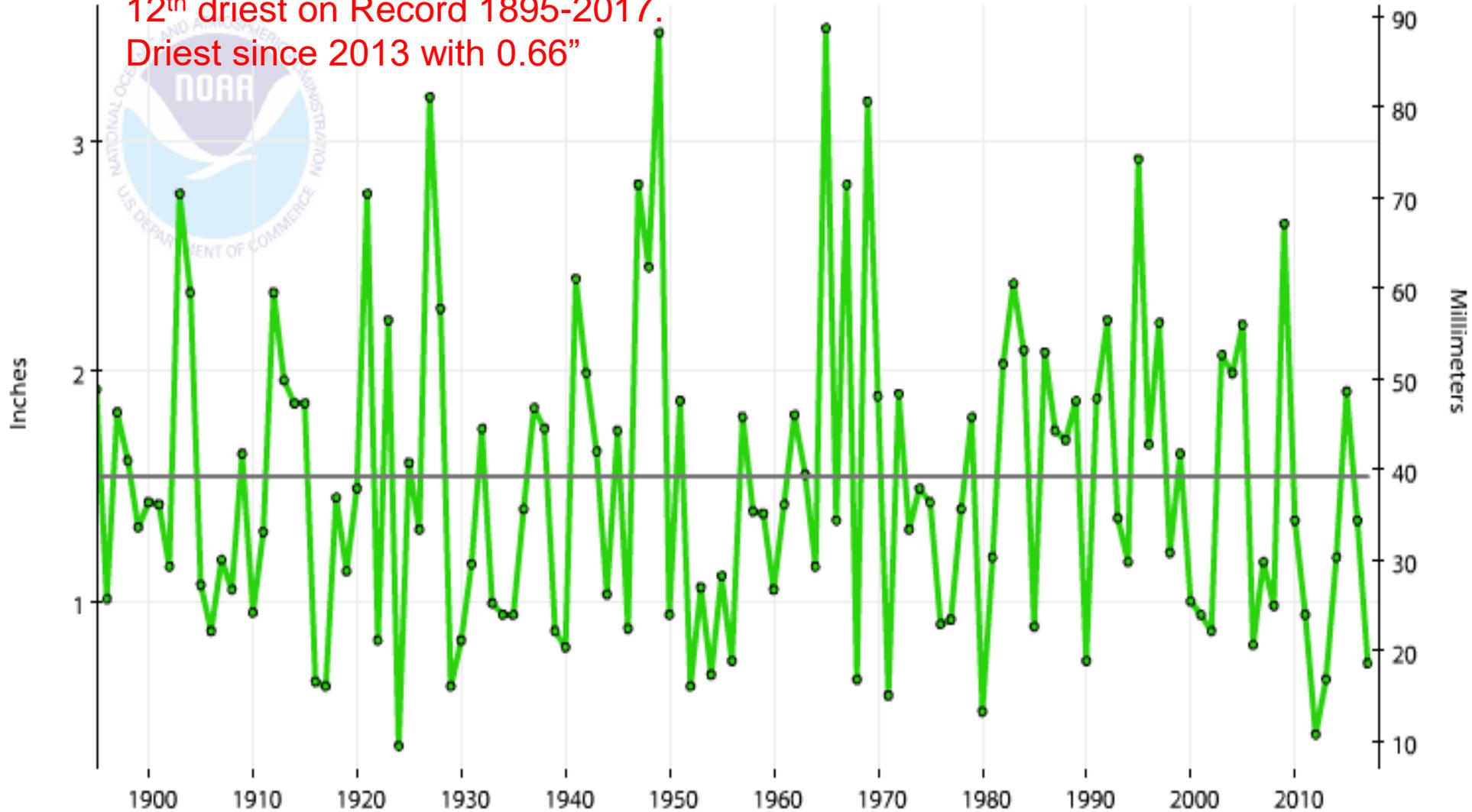
Colorado, Precipitation, June

— 1901-2000 Mean: 1.54" ■ Precip

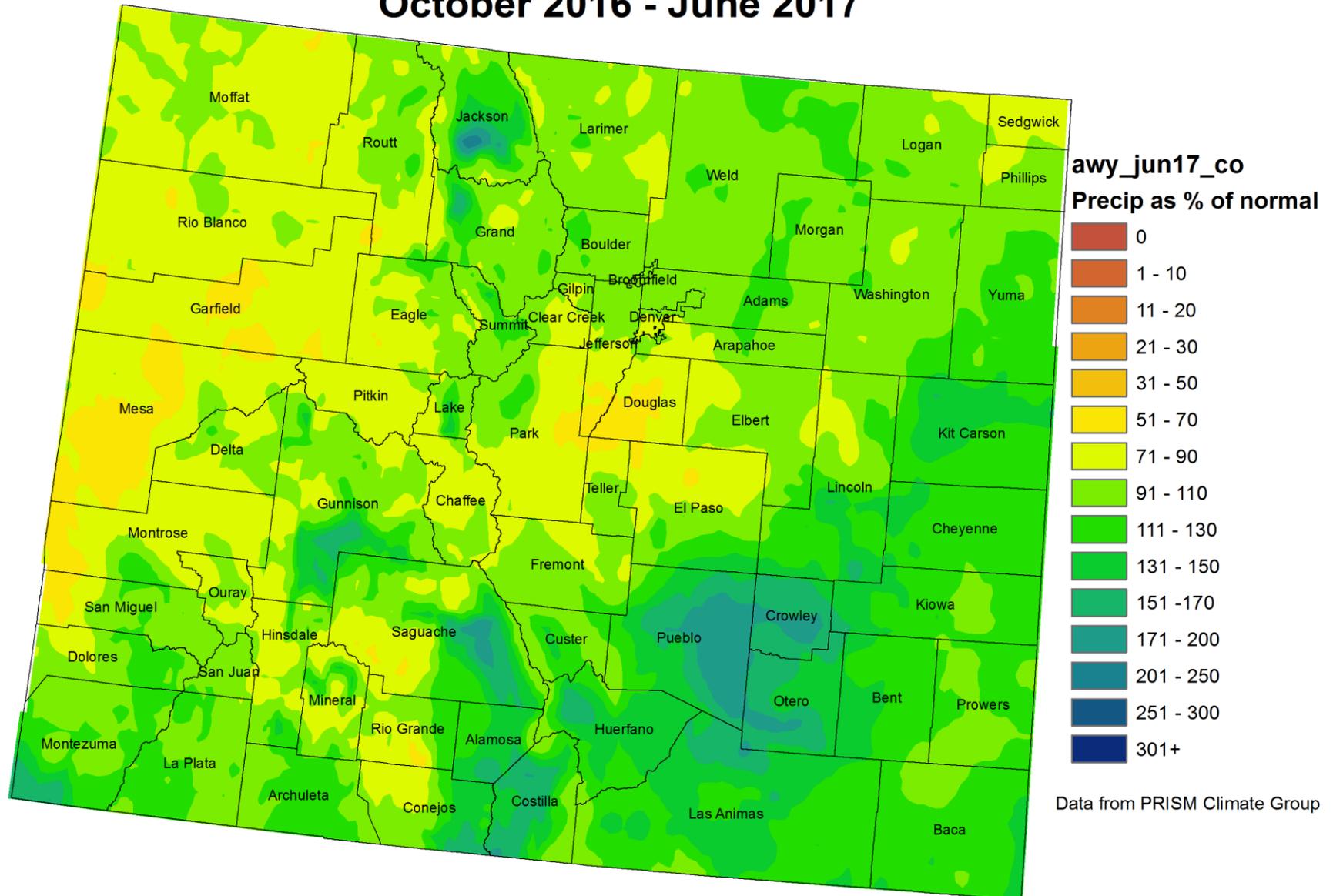
0.73" (-0.81")

12th driest on Record 1895-2017.

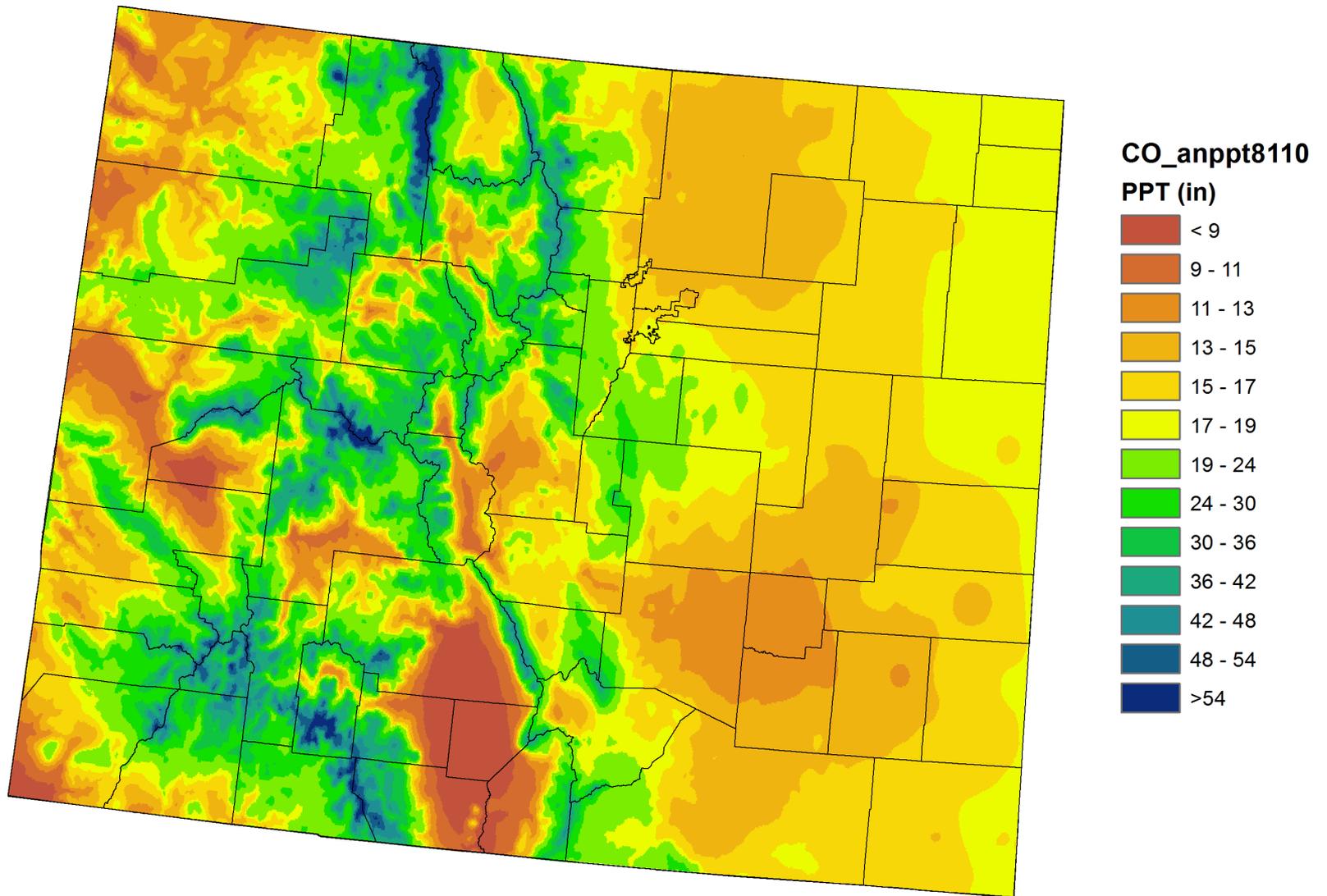
Driest since 2013 with 0.66"



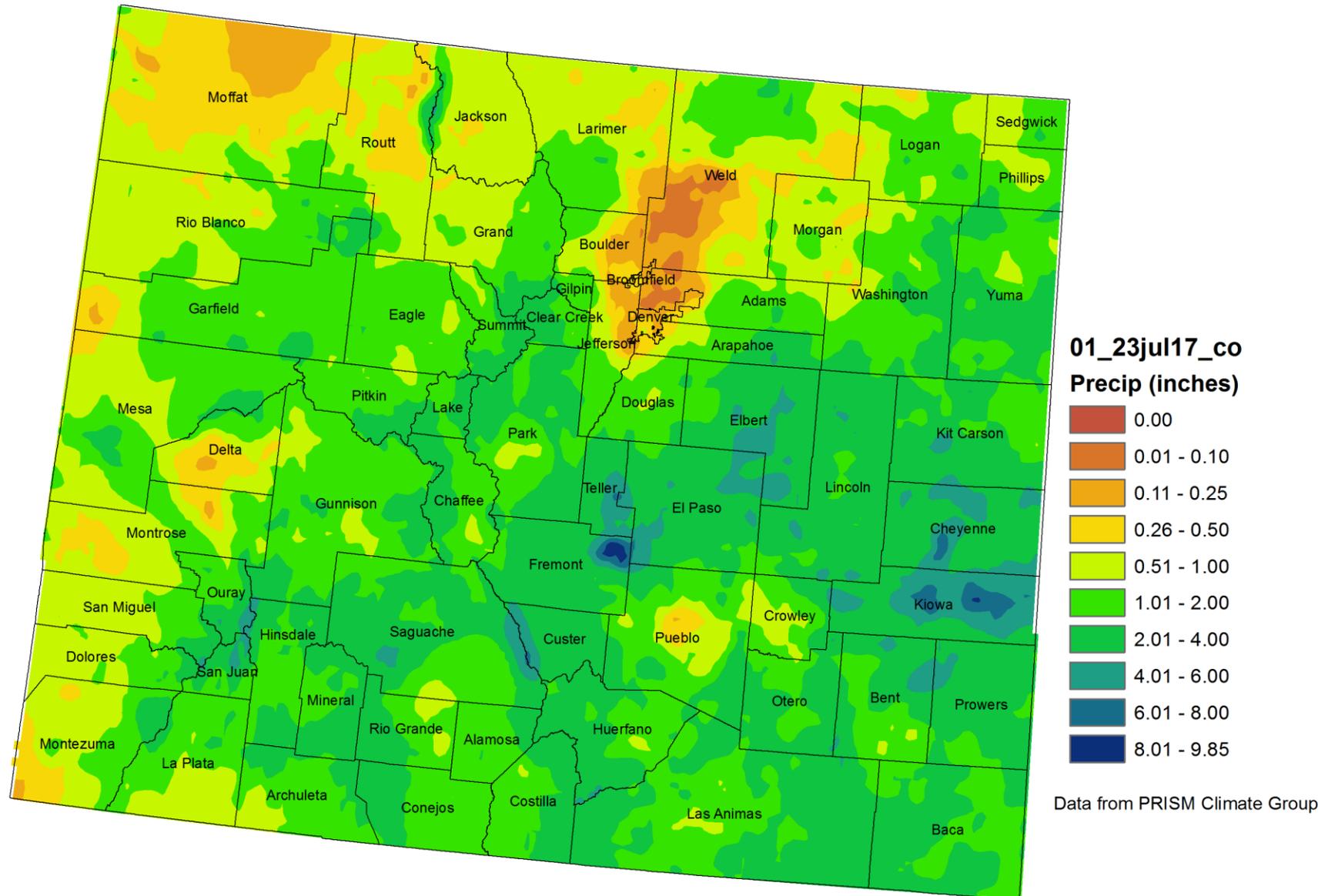
Colorado Water Year 2017 Precipitation as a Percentage of Normal October 2016 - June 2017



Colorado Annual Average Precipitation (in) 1981-2010

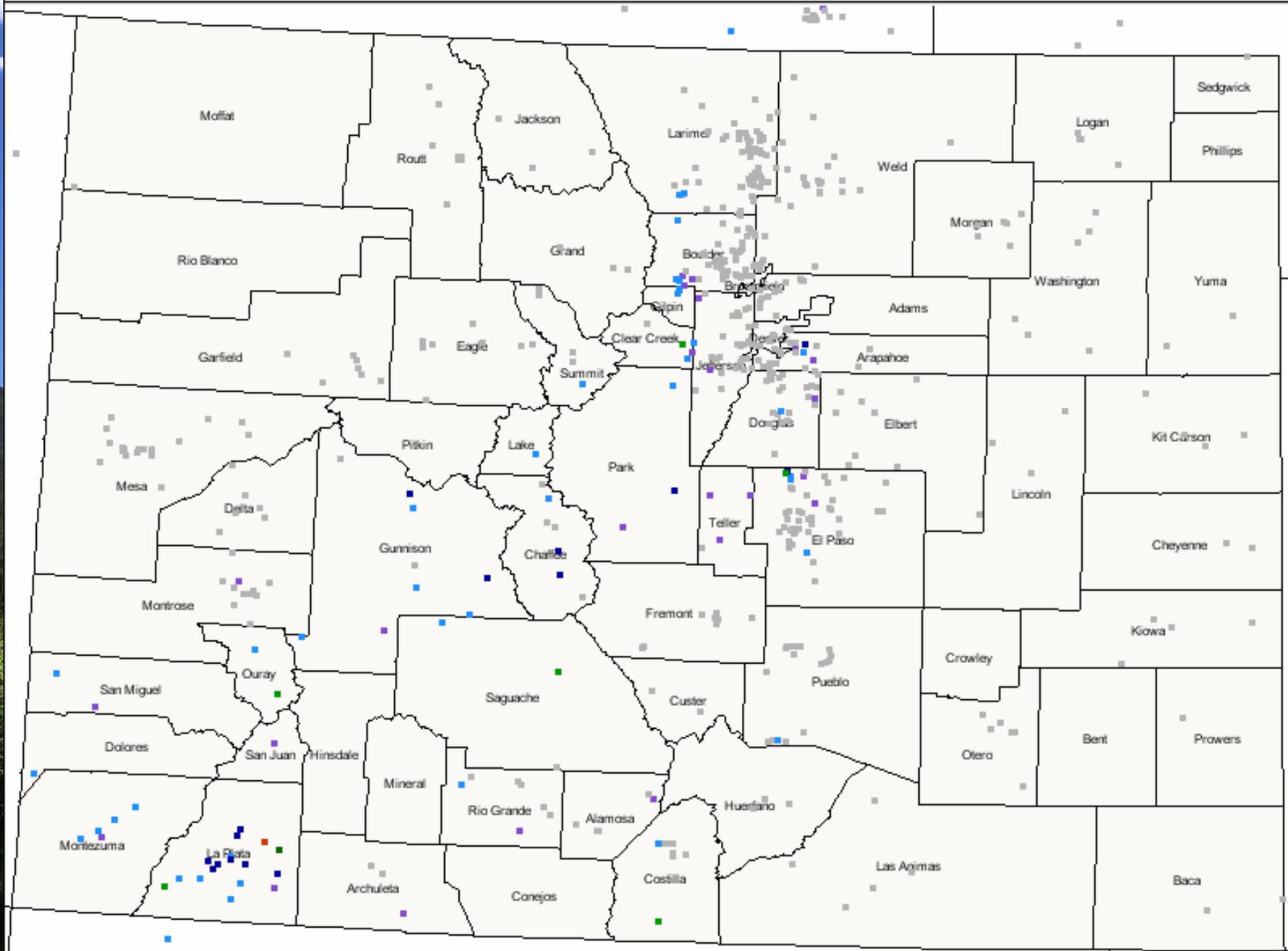
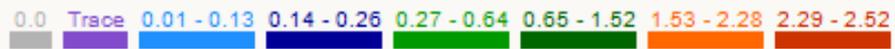


Colorado Month to Date Precipitation 1 - 23 July 2017 ending at 7AM MST

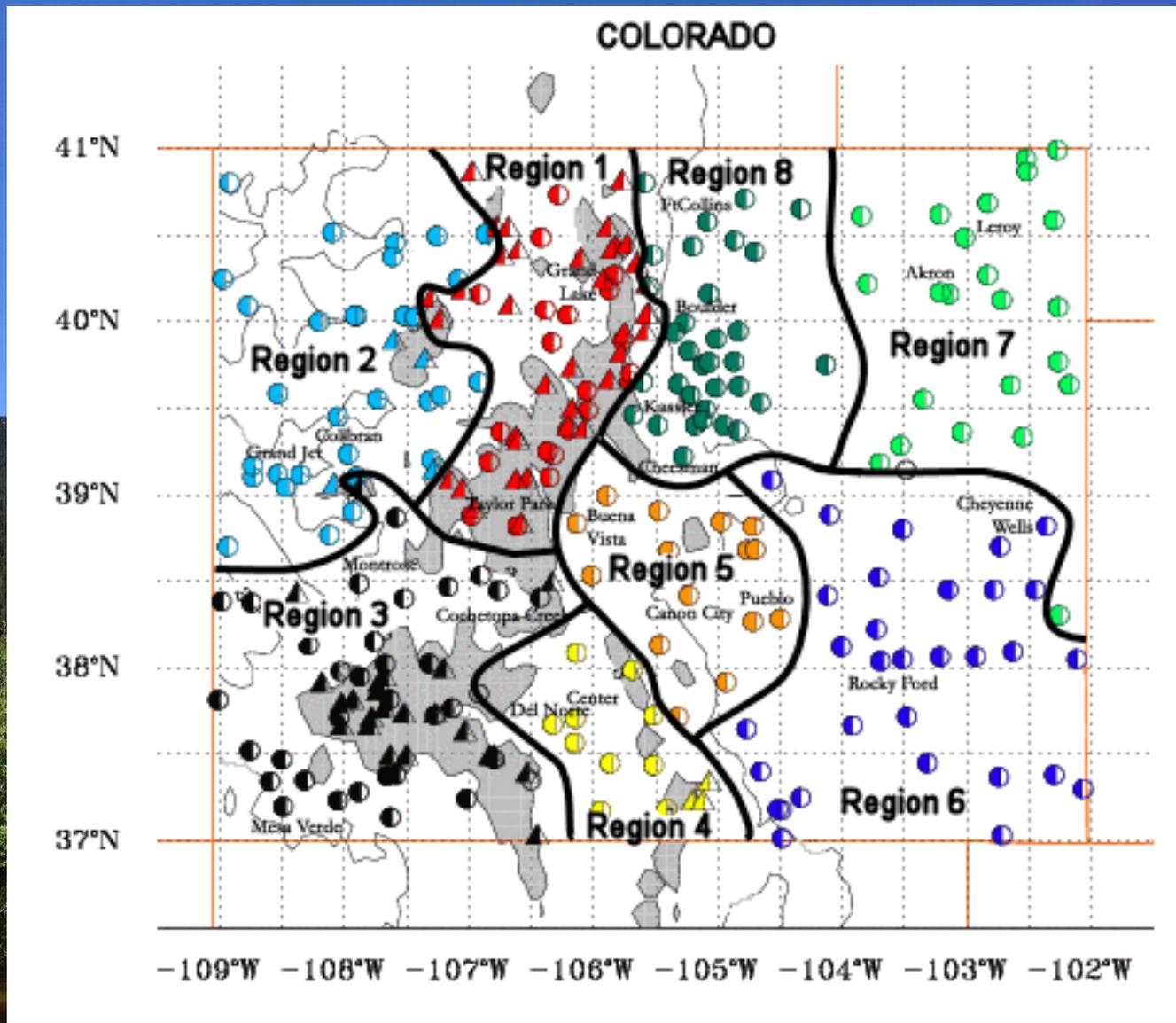


Daily Precipitation (inches x.xx), for the 24 hour period ending ~7:00 am

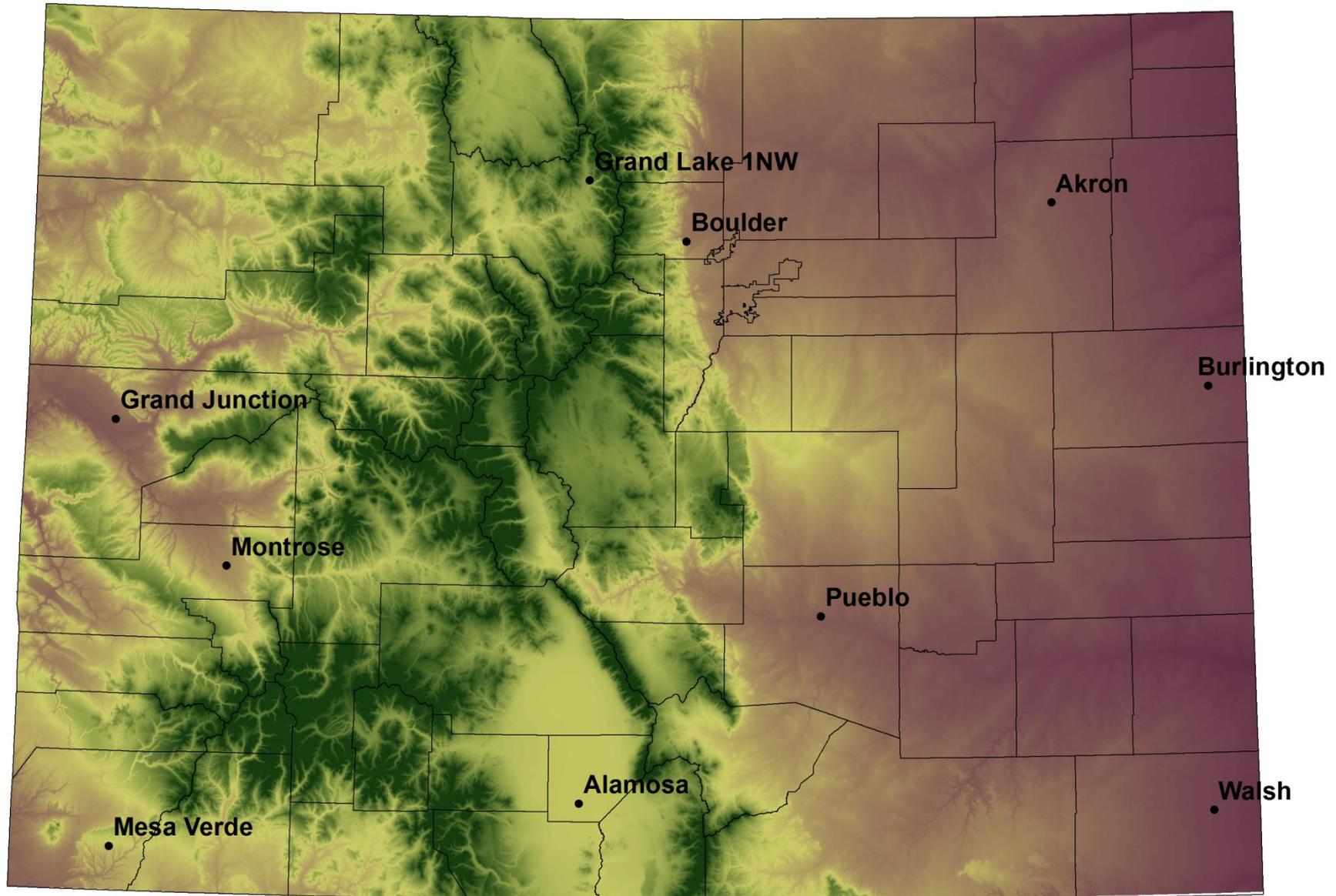
Colorado 7/24/2017



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

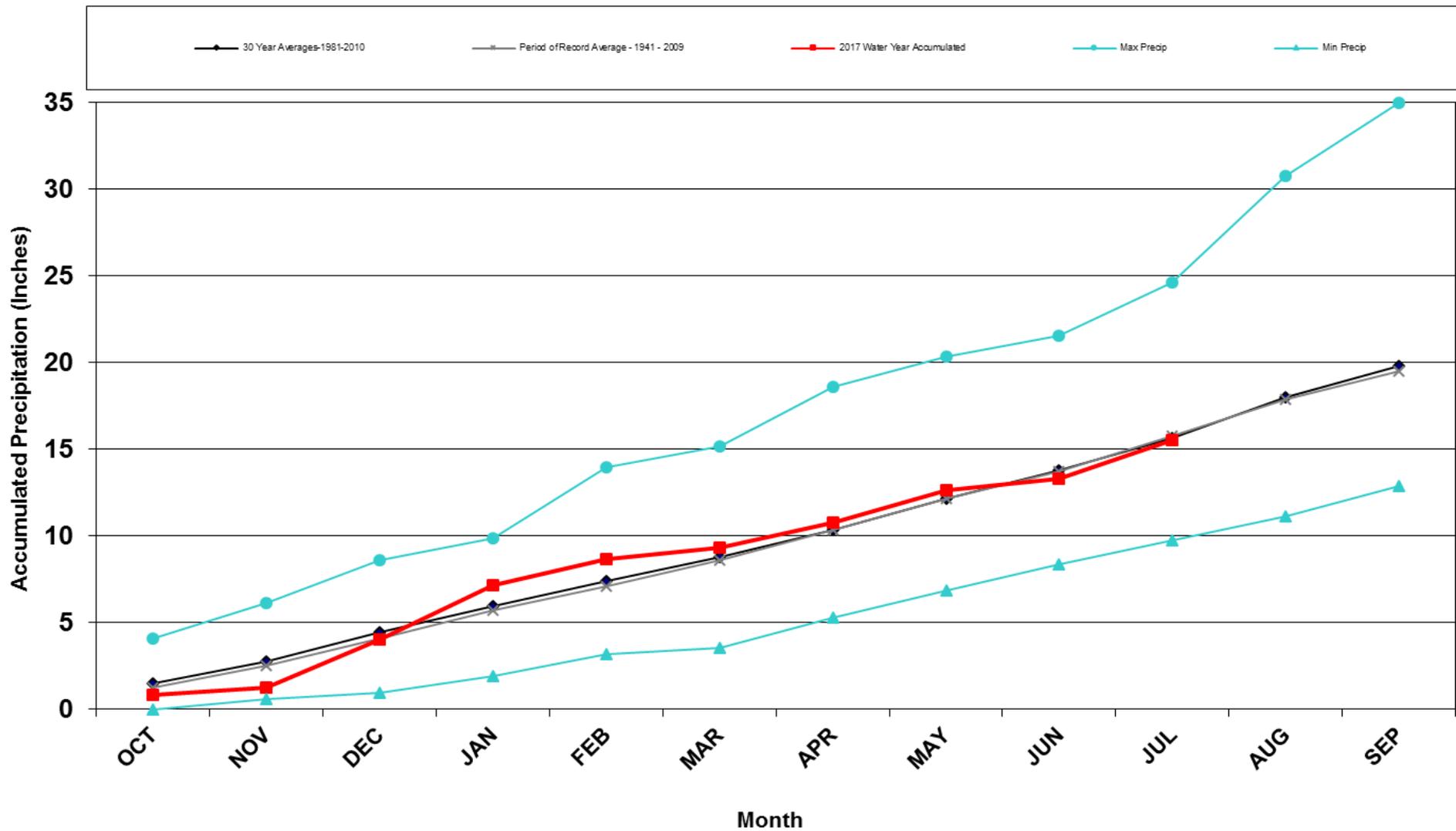


NWS Cooperative Stations for WATF



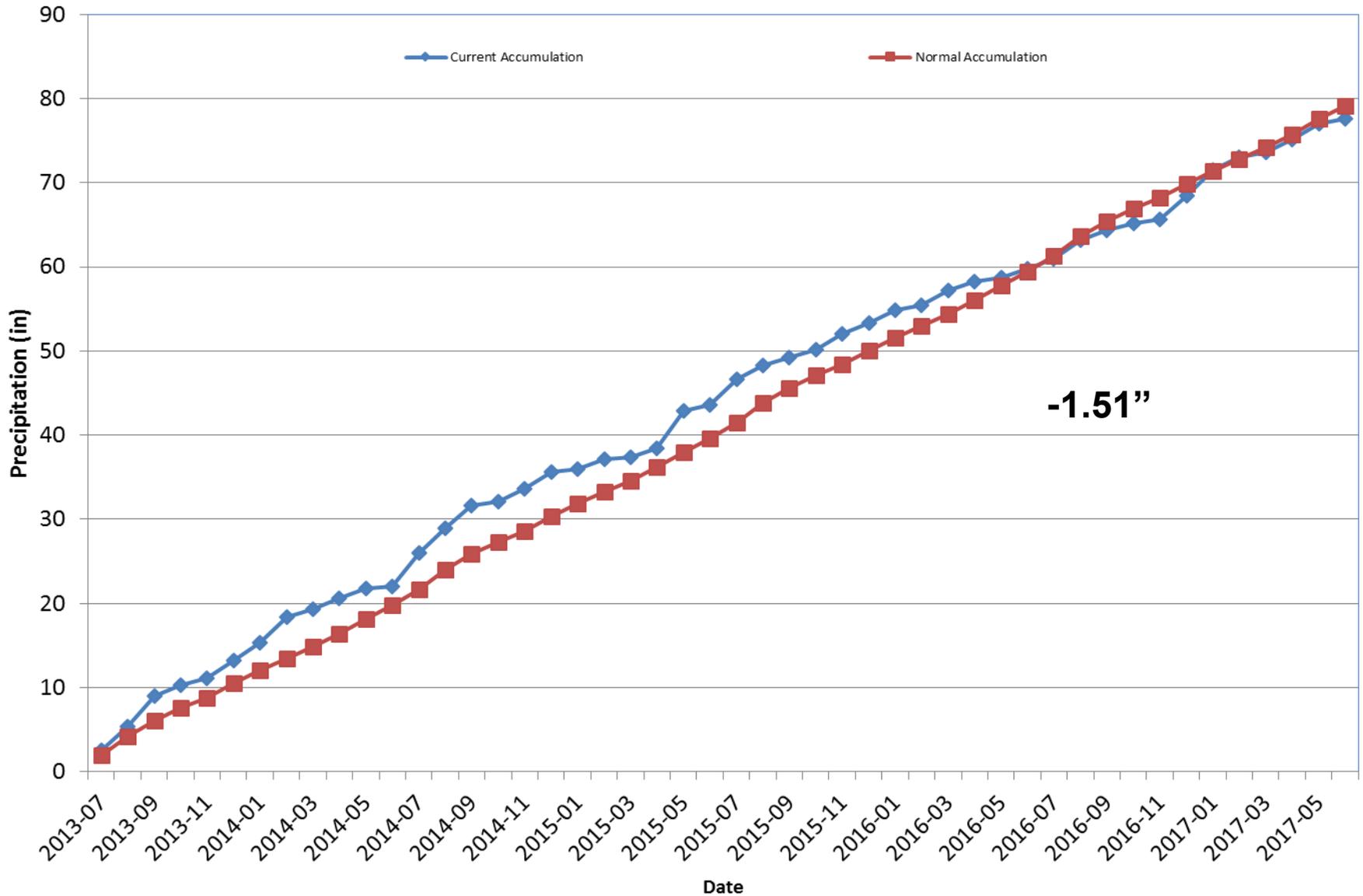
Division 1 – Grand Lake 1NW

Grand Lake 1 NW 2017 Water Year



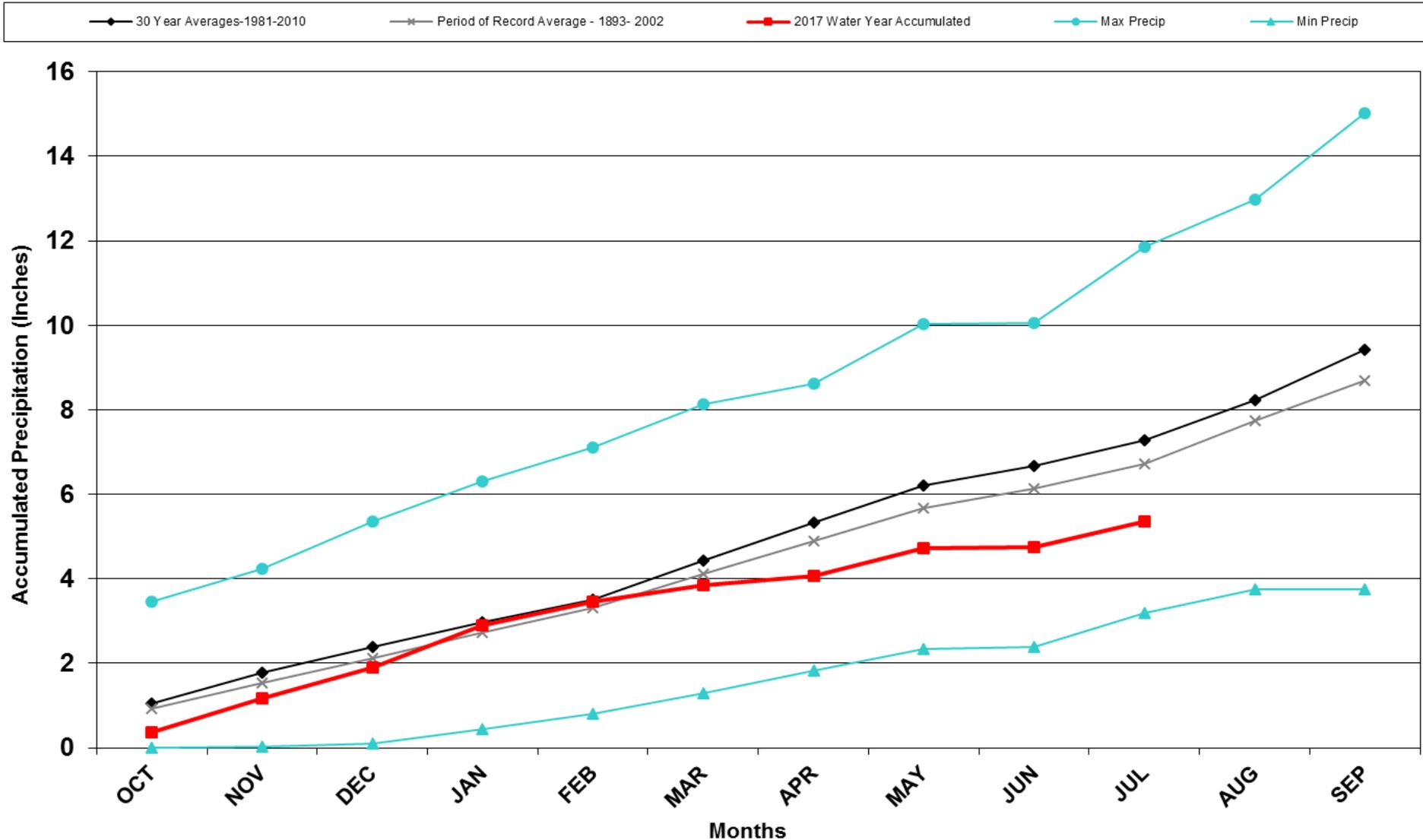
Division 1 – Grand Lake 1NW

Grand Lake 1NW Precipitation Accumulation



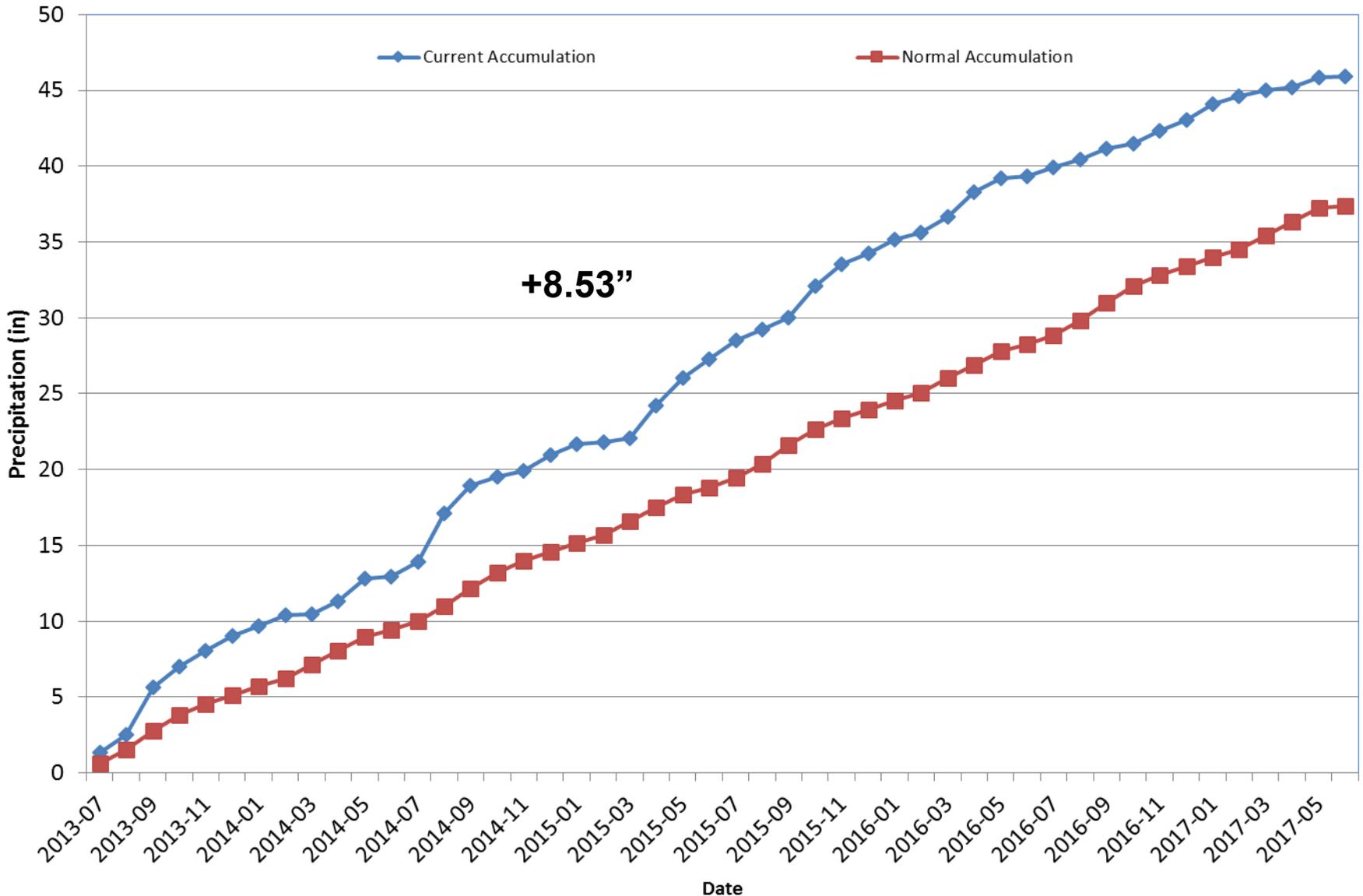
Division 2 – Grand Junction

Grand Junction WSFO 2017 Water Year



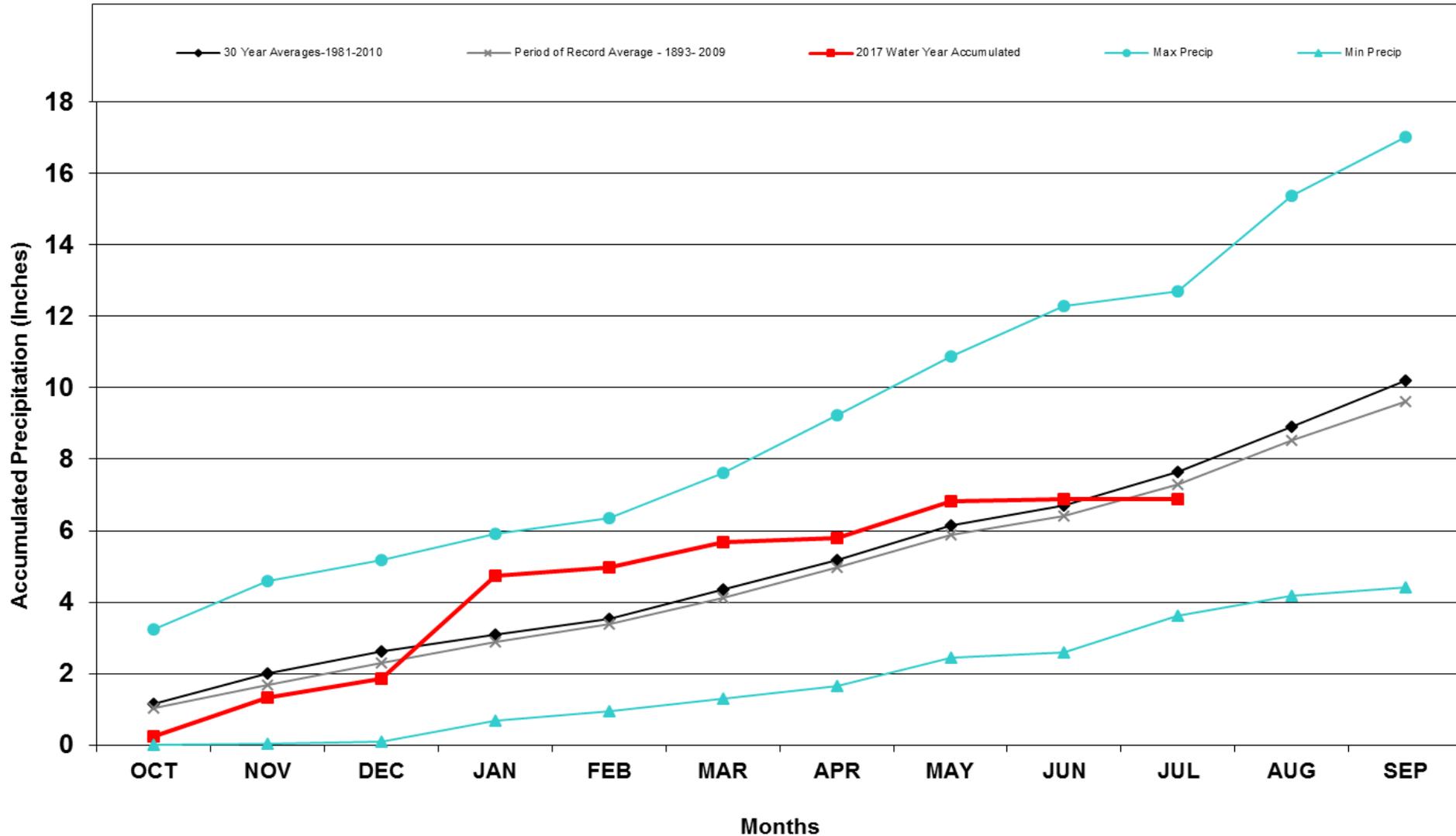
Division 2 – Grand Junction

Grand Junction Precipitation Accumulation



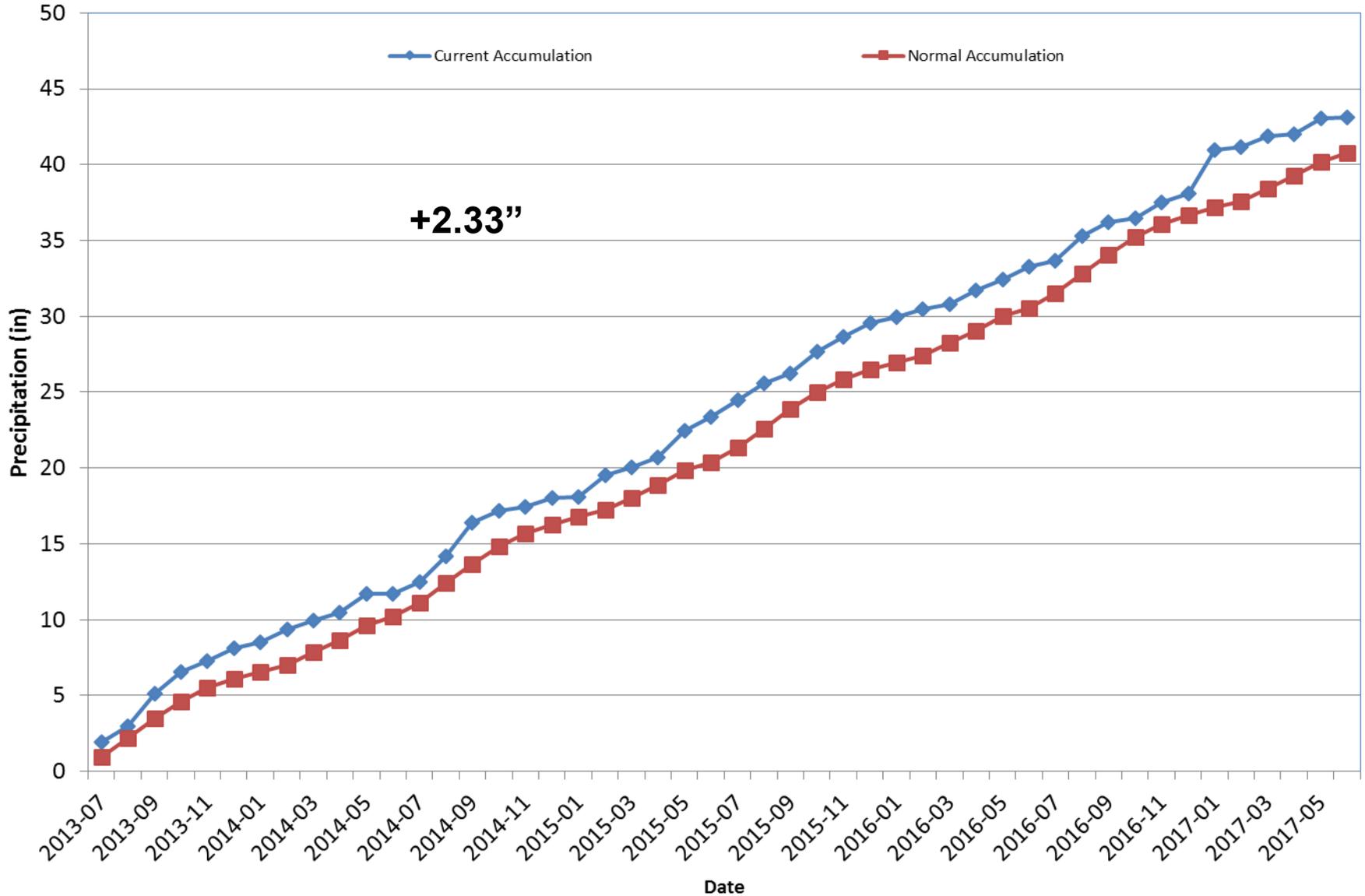
Division 3 – Montrose

Montrose #2 2017 Water Year



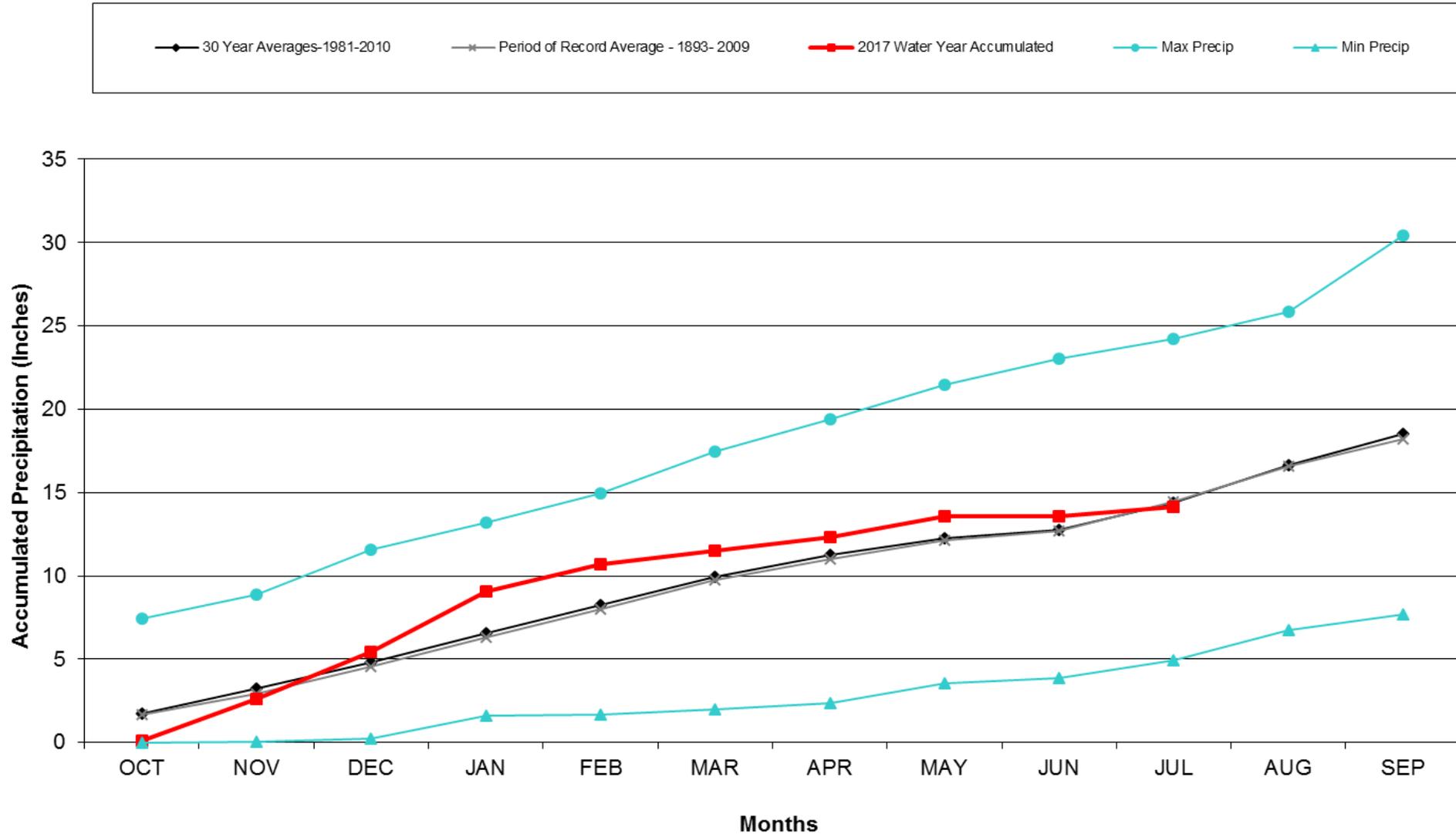
Division 3 – Montrose

Montrose #2 Precipitation Accumulation



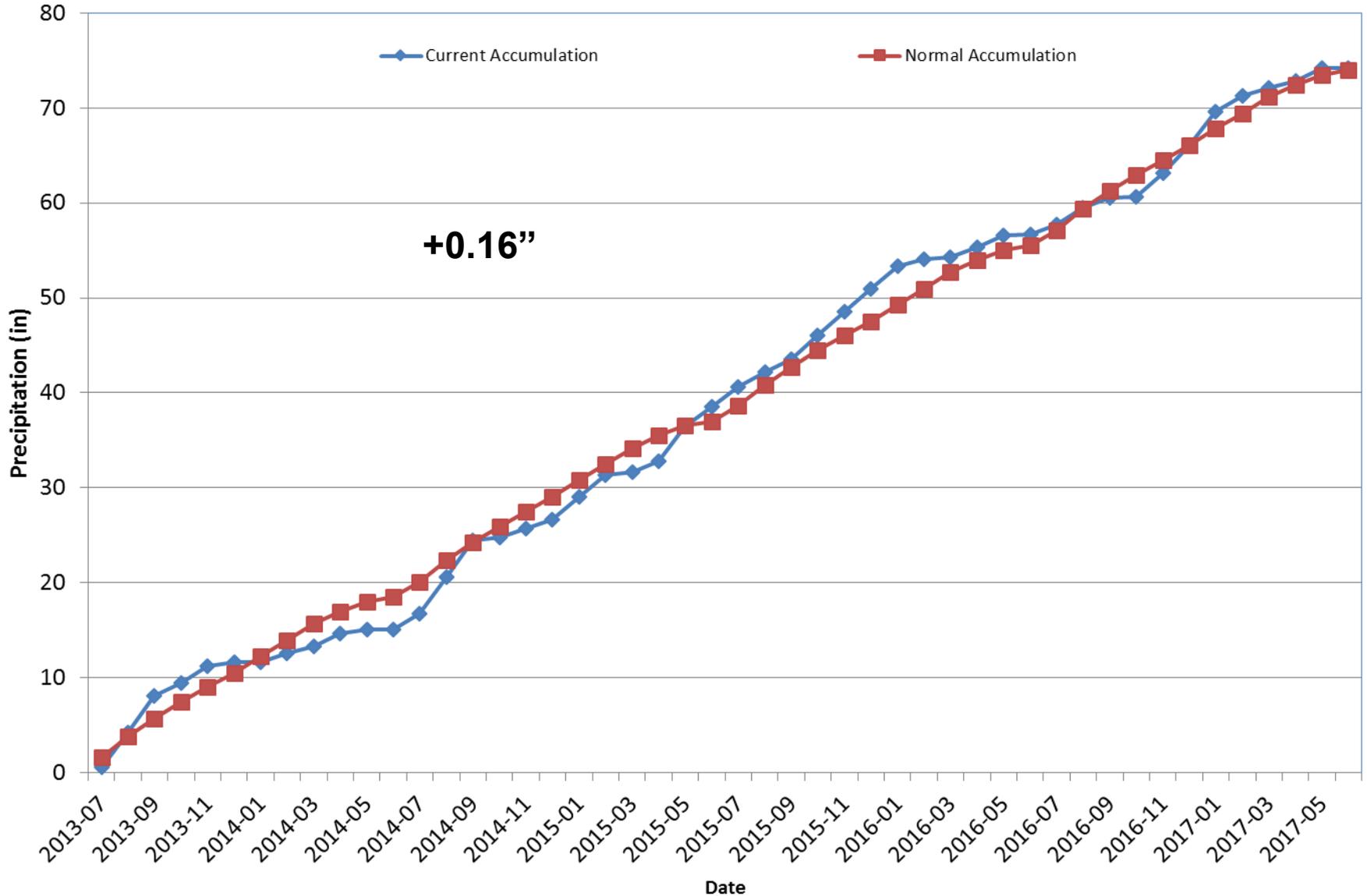
Division 3 – Mesa Verde NP

Mesa Verde NP 2017 Water Year



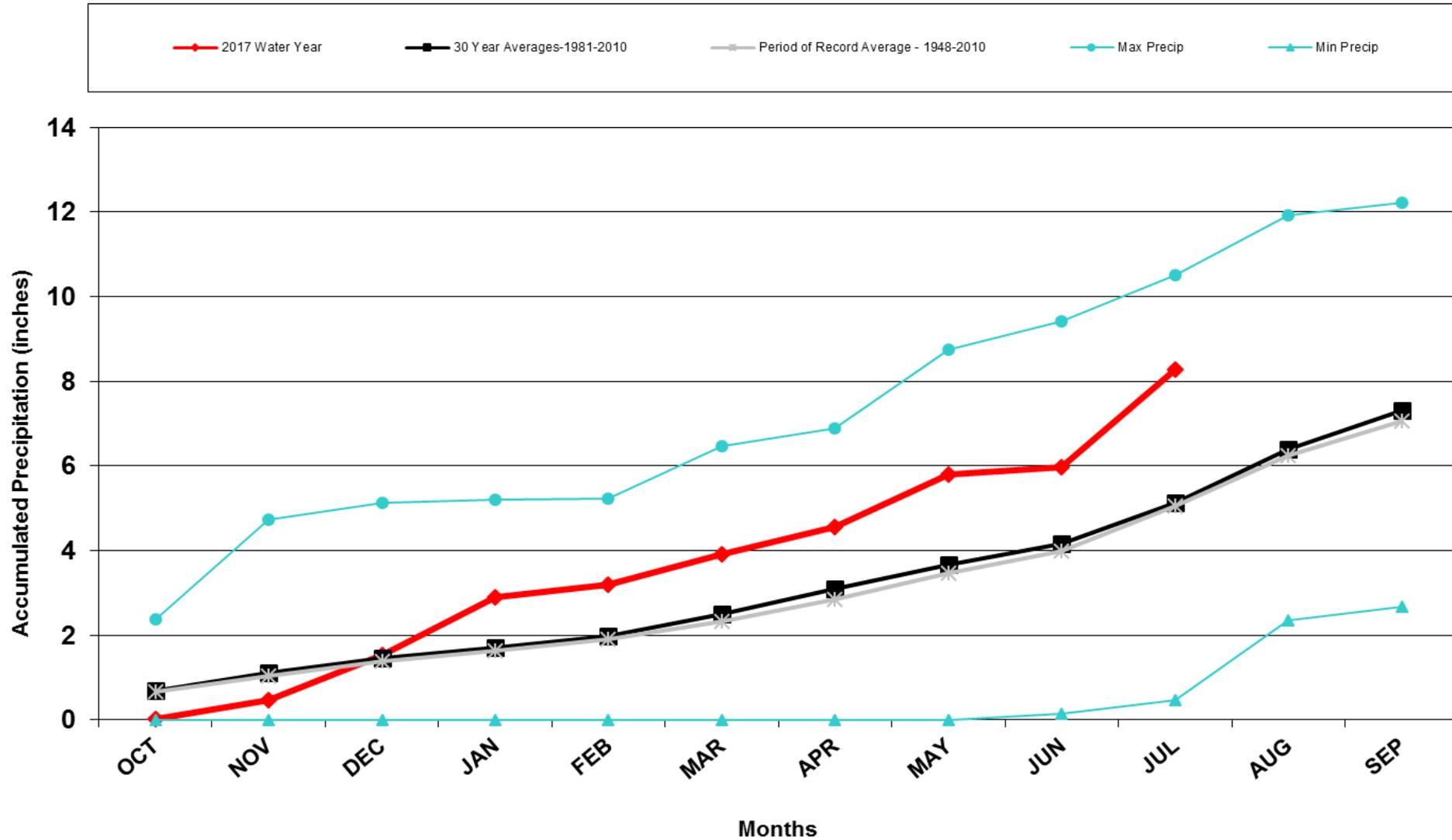
Division 3 – Mesa Verde NP

Mesa Verde NP Precipitation Accumulation



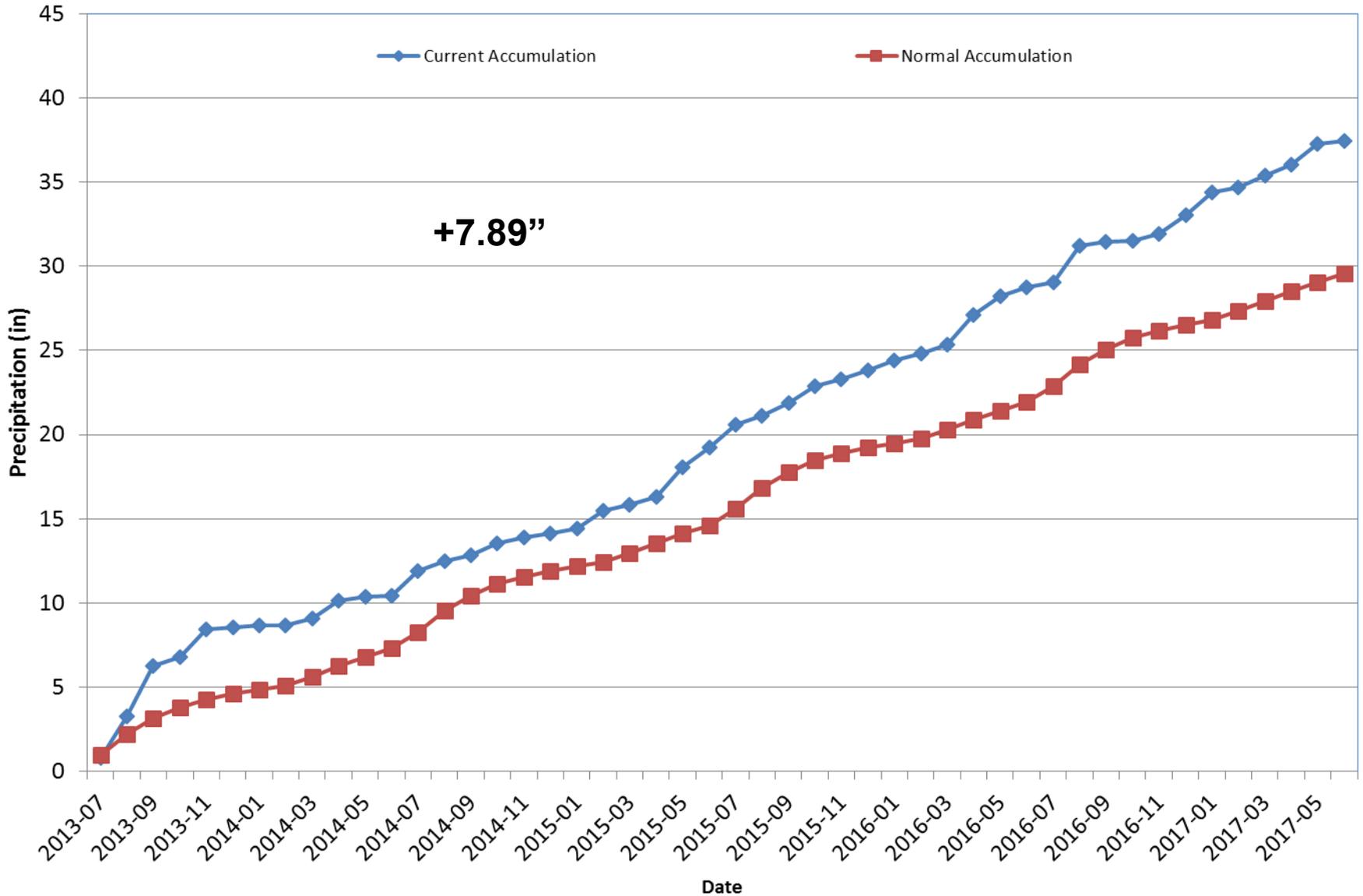
Division 4 – Alamosa

Alamosa WSO 2017 Water Year



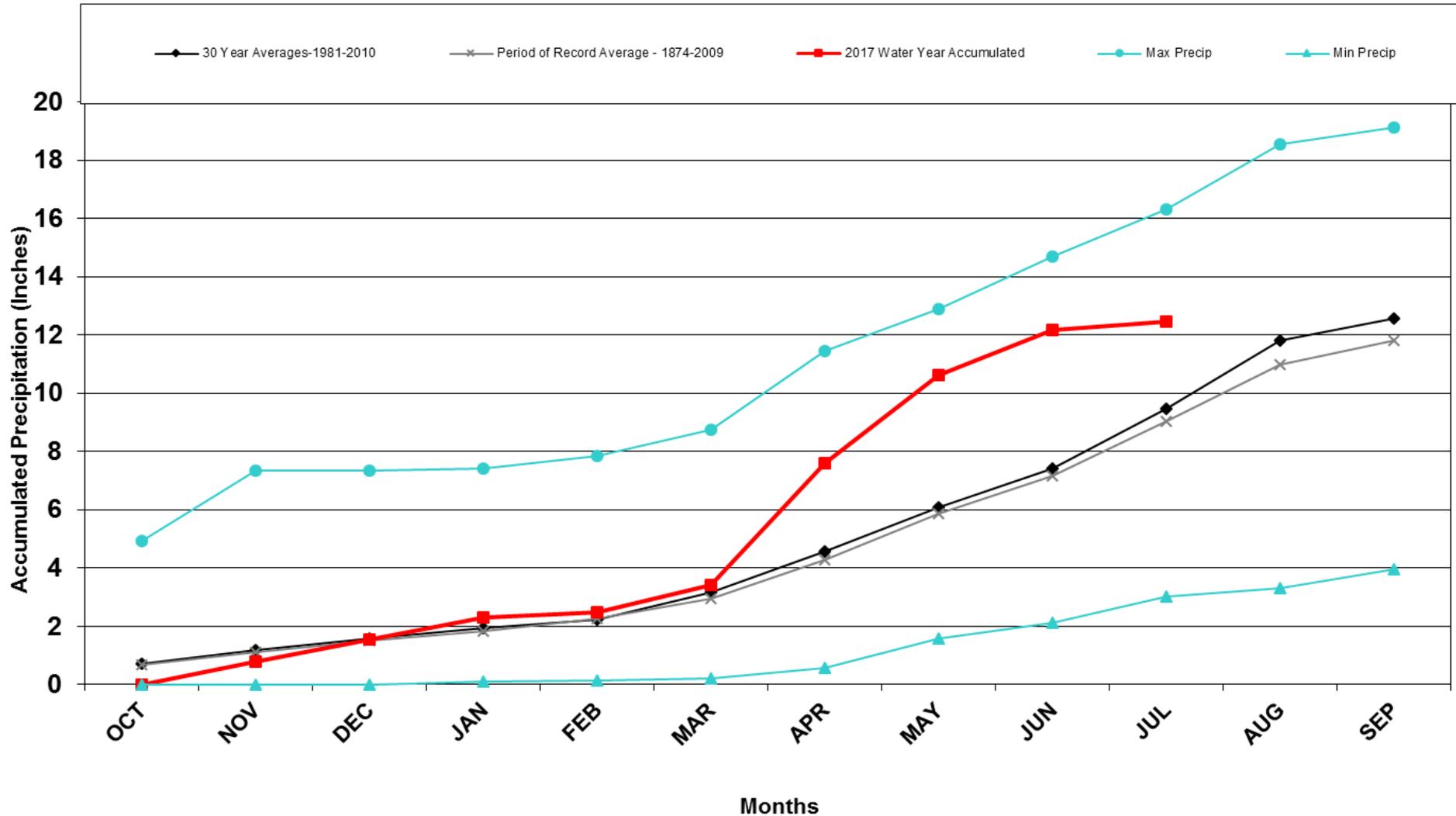
Division 4 – Alamosa

Alamosa WSO Precipitation Accumulation



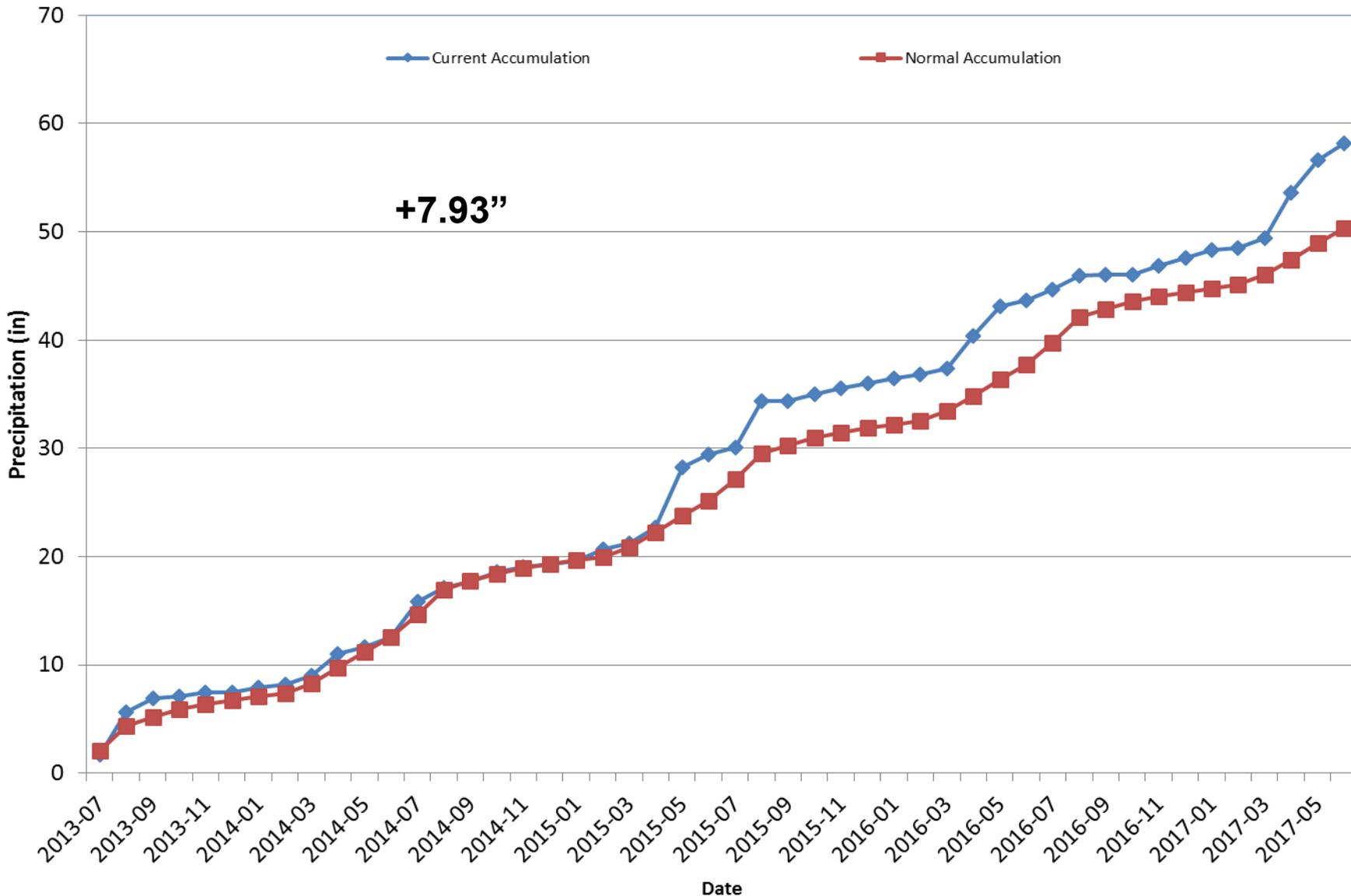
Division 5 – Pueblo

Pueblo WSO 2017 Water Year



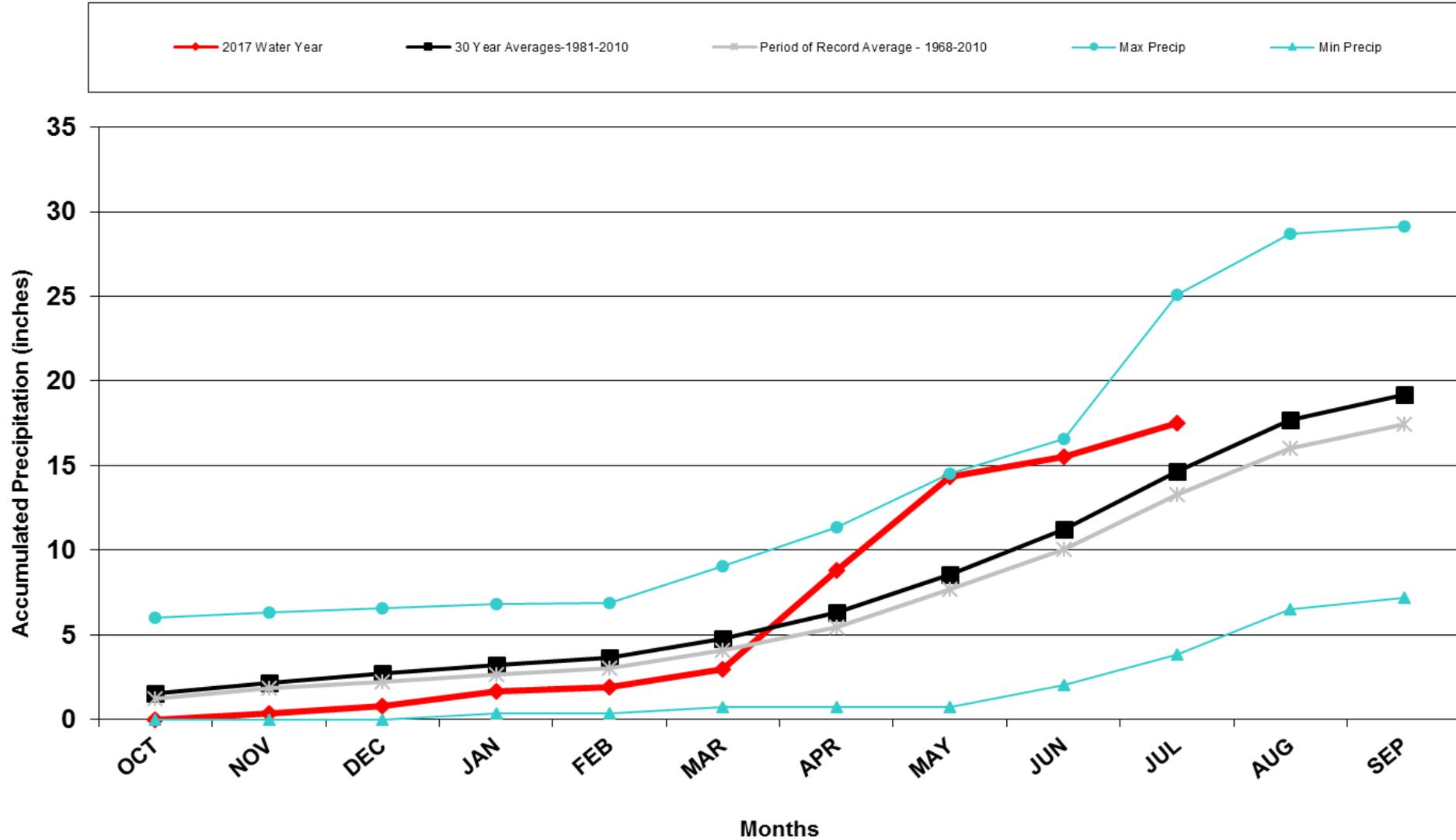
Division 5 – Pueblo

Pueblo Memorial AP Precipitation Accumulation



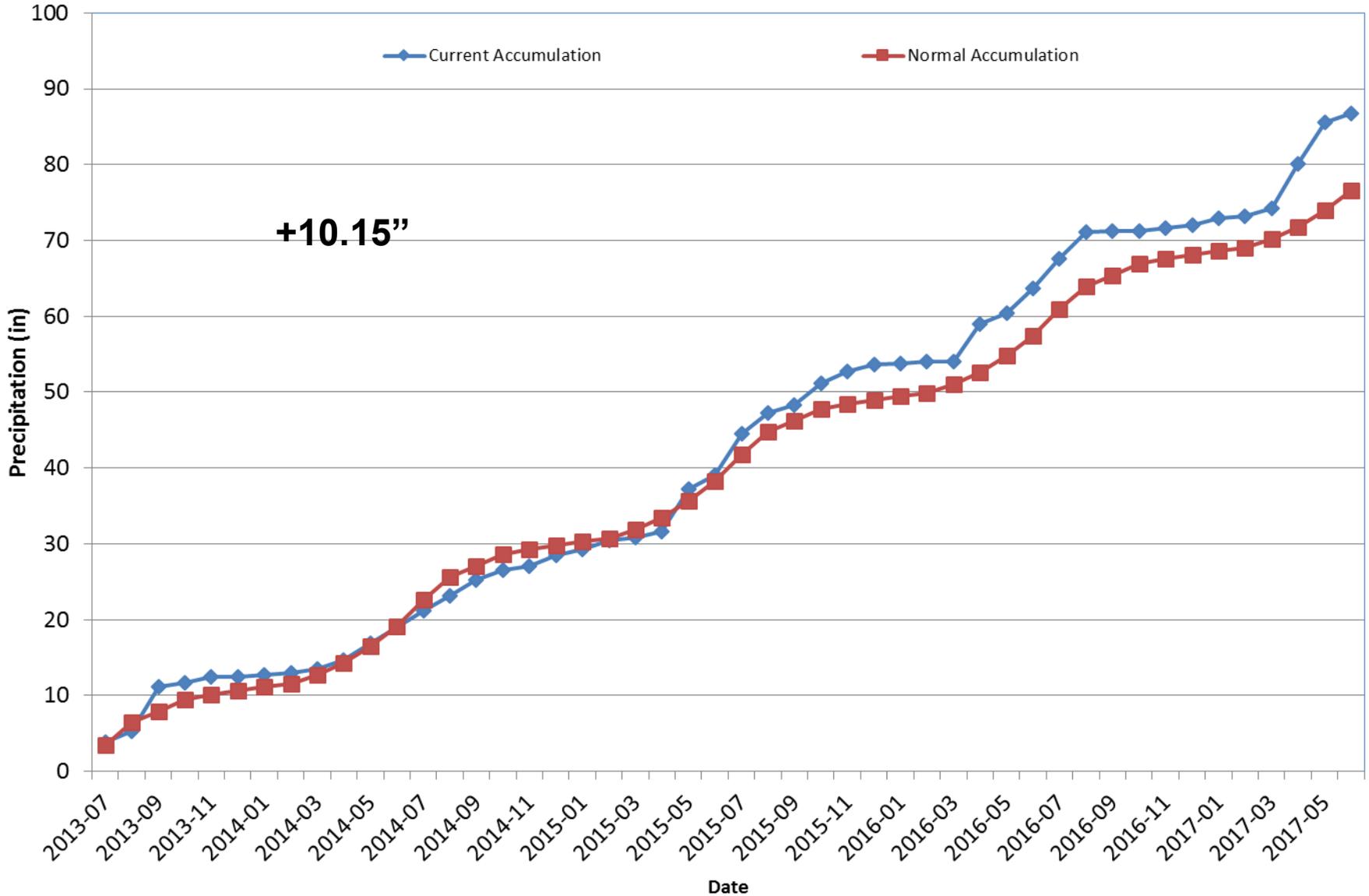
Division 6 - Walsh

Walsh 2017 Water Year



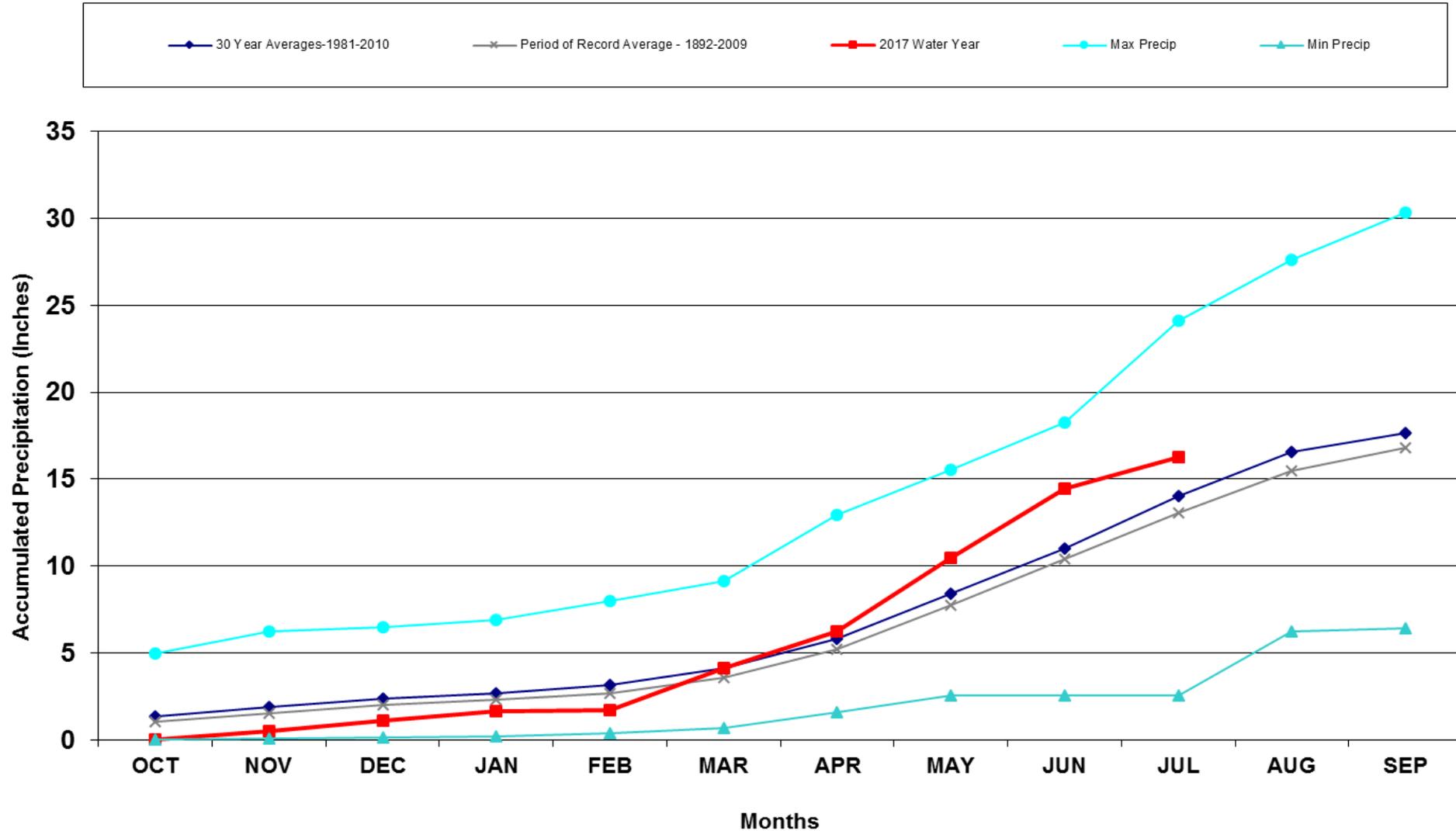
Division 6 - Walsh

Walsh 1W Precipitation Accumulation



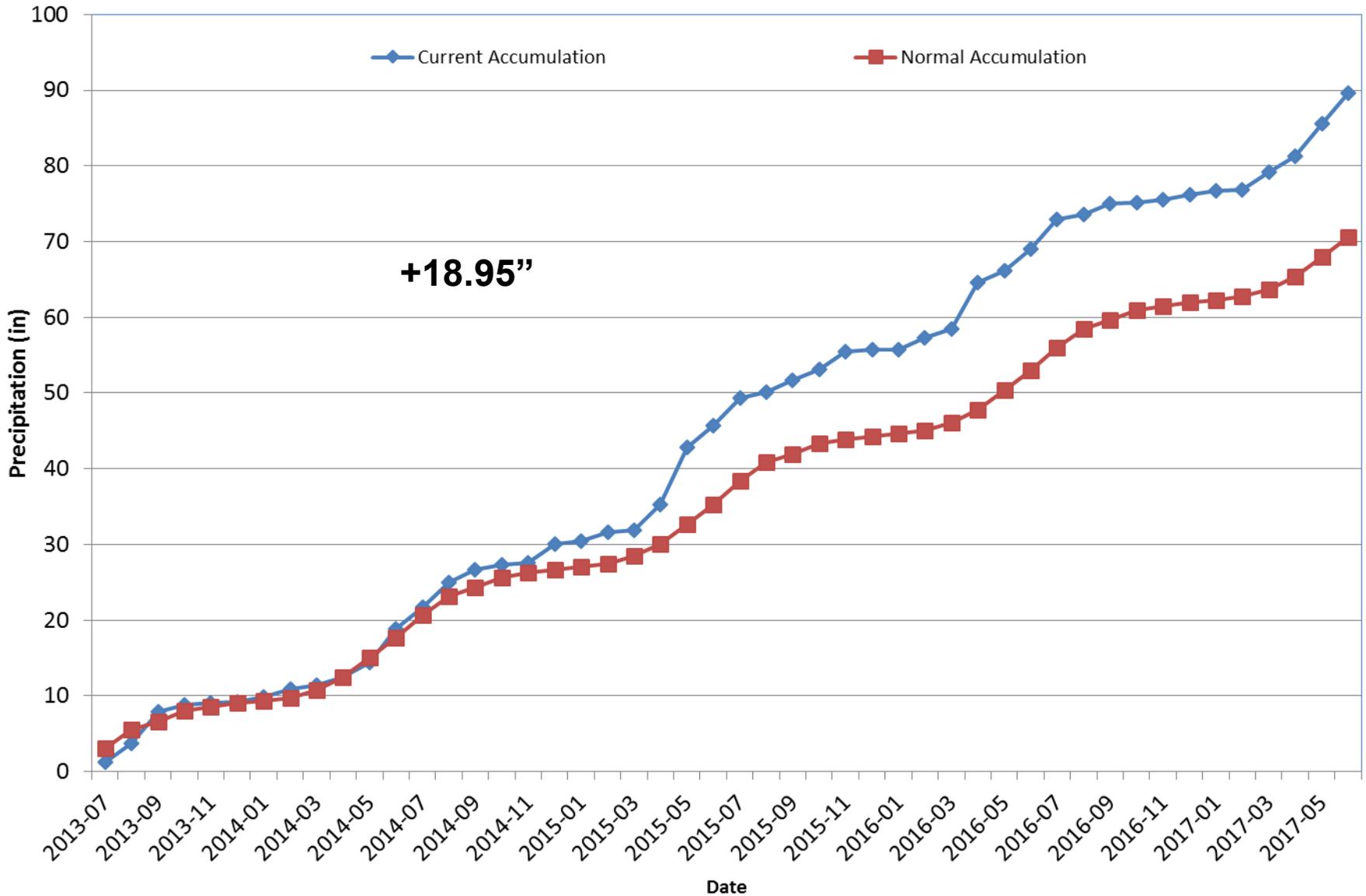
Division 6 - Burlington

Burlington 2017 Water Year



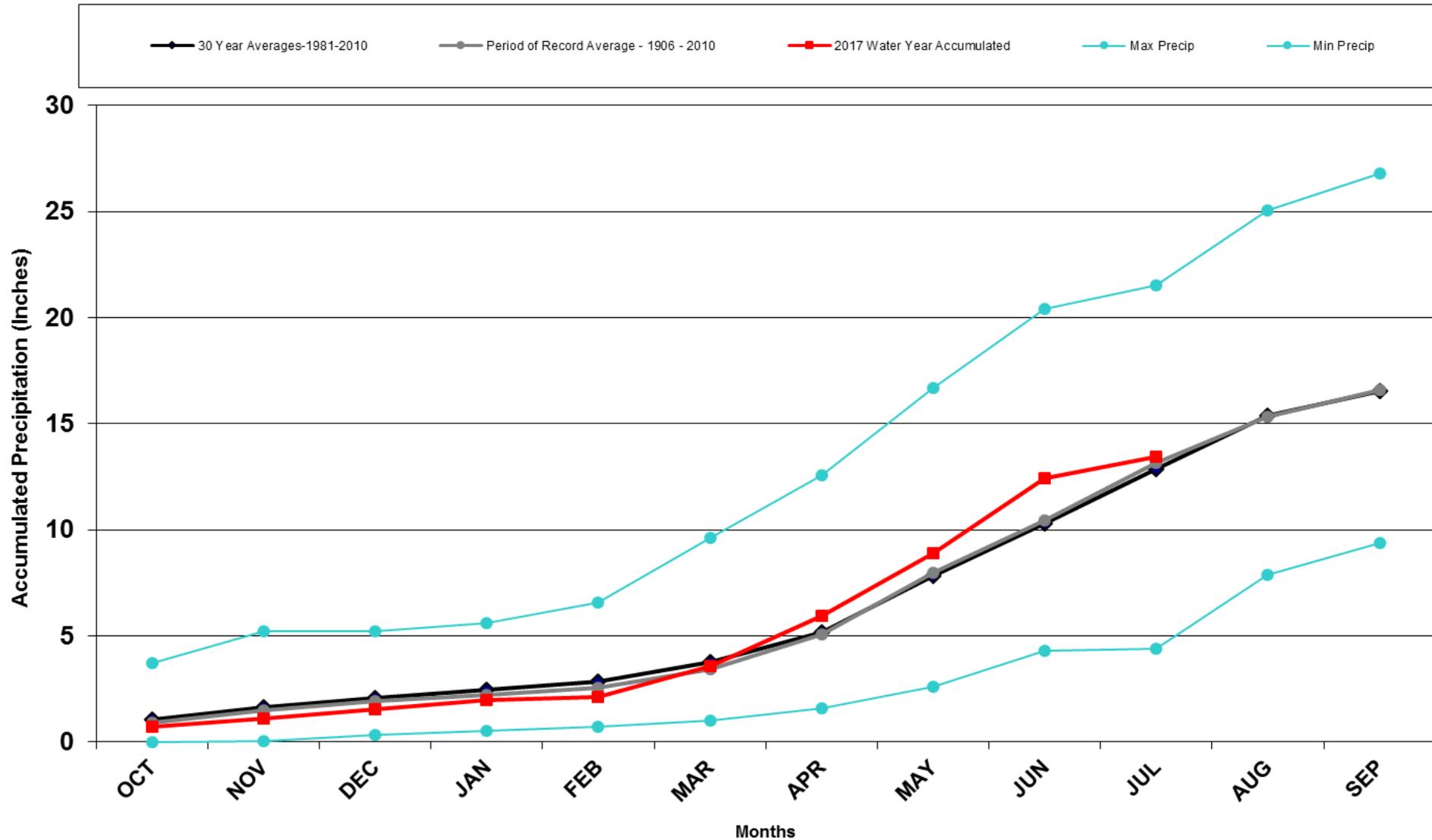
Division 6 - Burlington

Burlington, CO Precipitation Accumulation



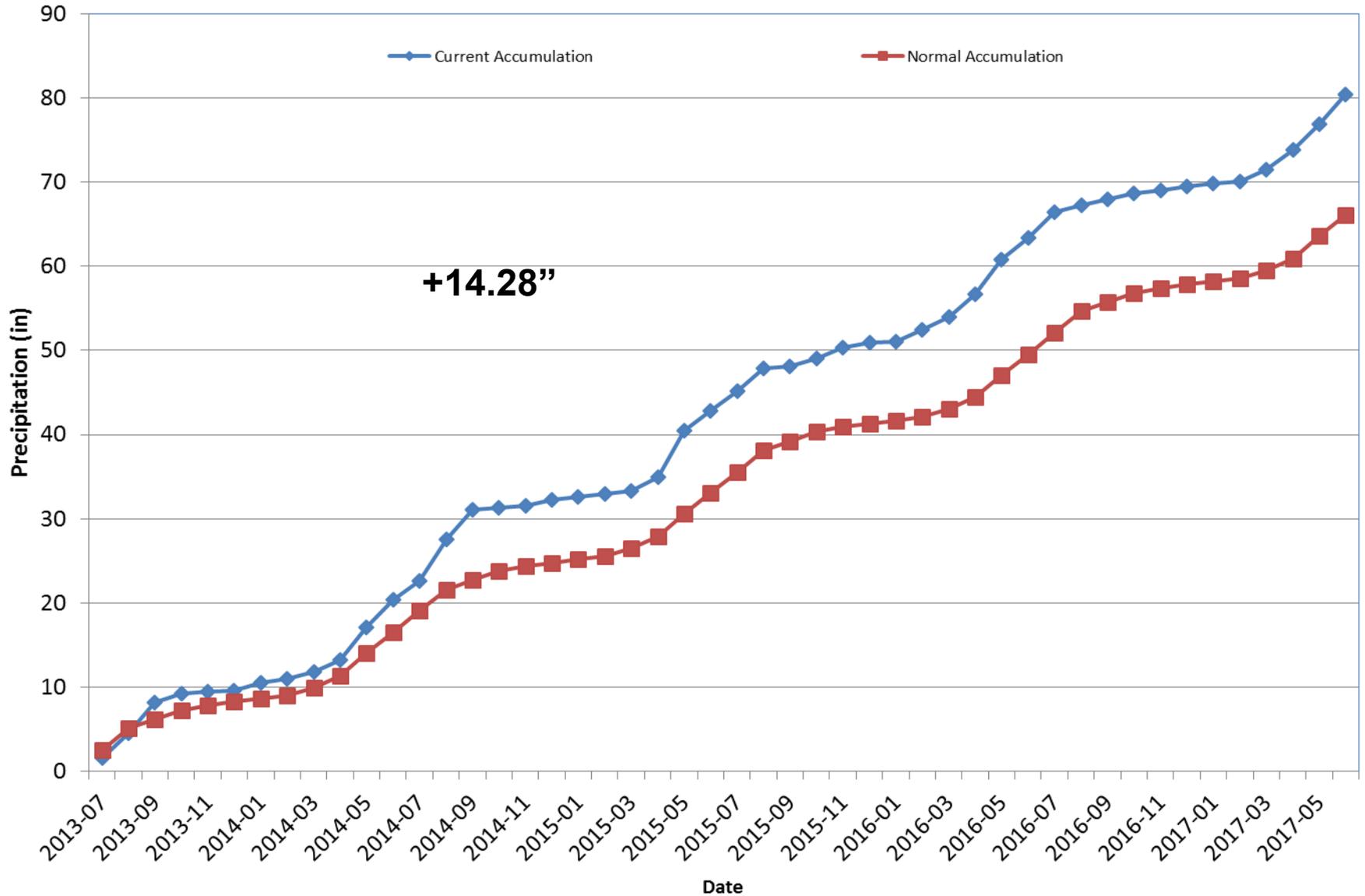
Division 7 – Akron

Akron 4E 2016 Water Year



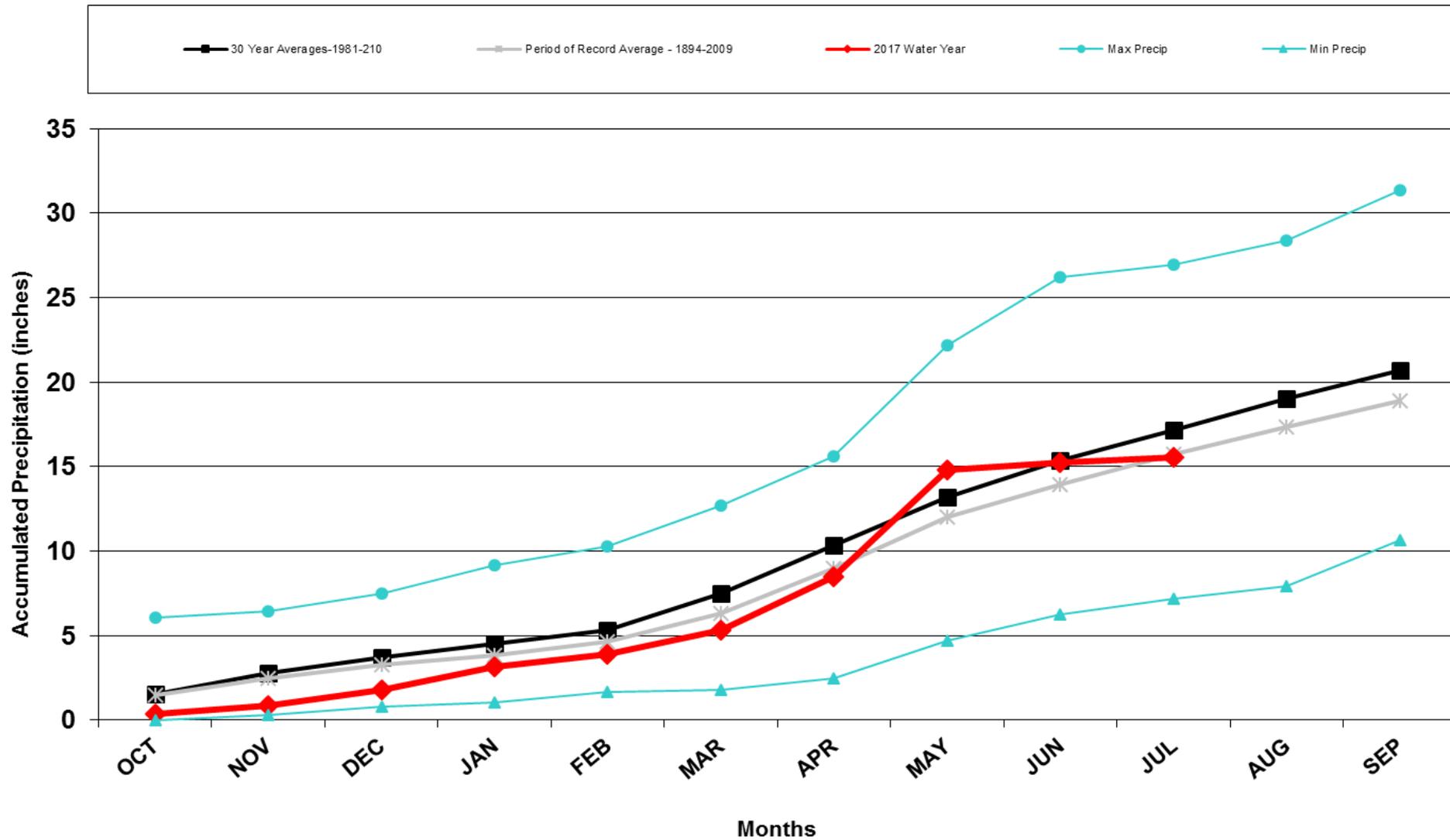
Division 7 – Akron

Akron 4E Precipitation Accumulation



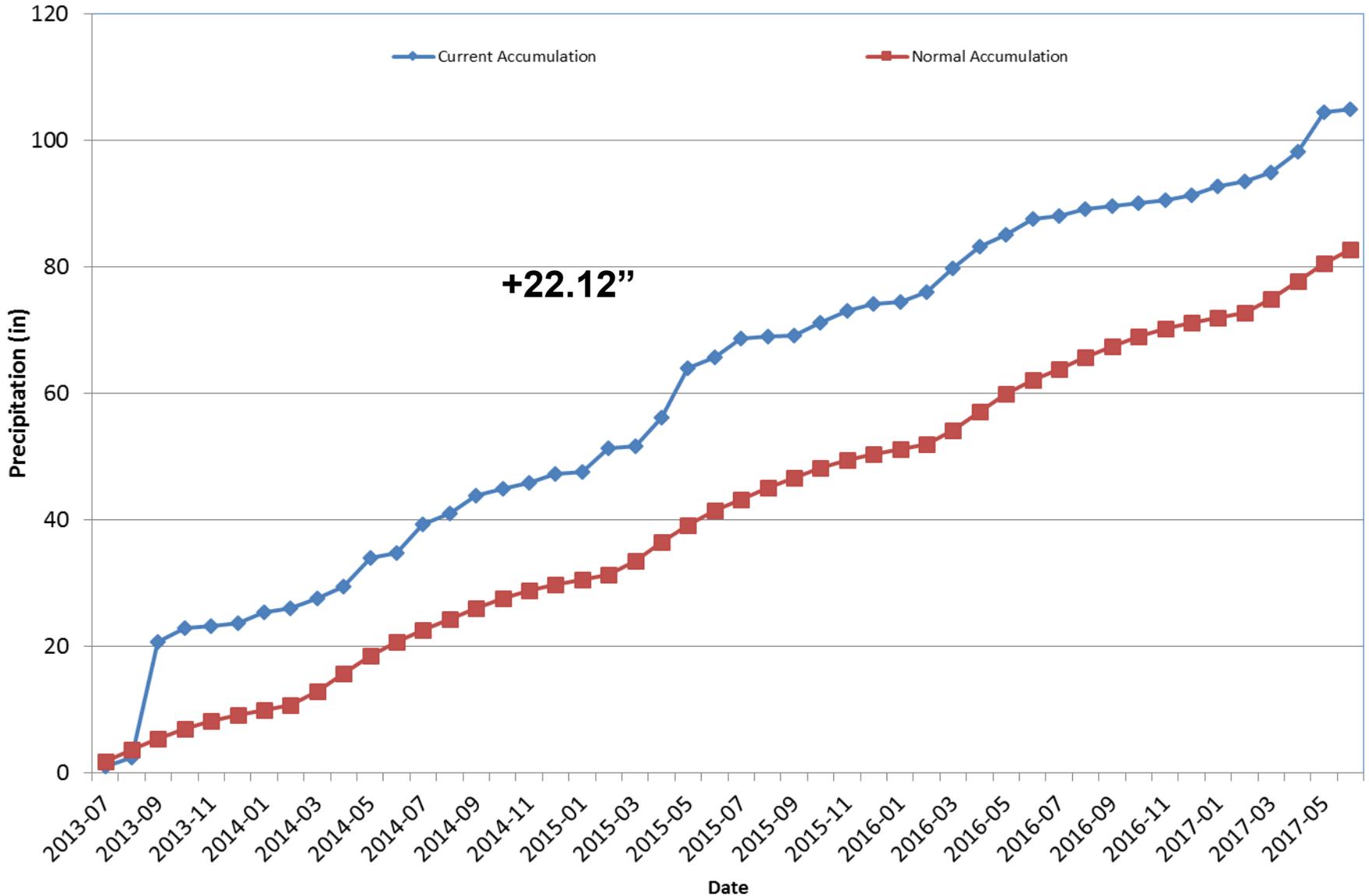
Division 8 - Boulder

Boulder 2017 Water Year

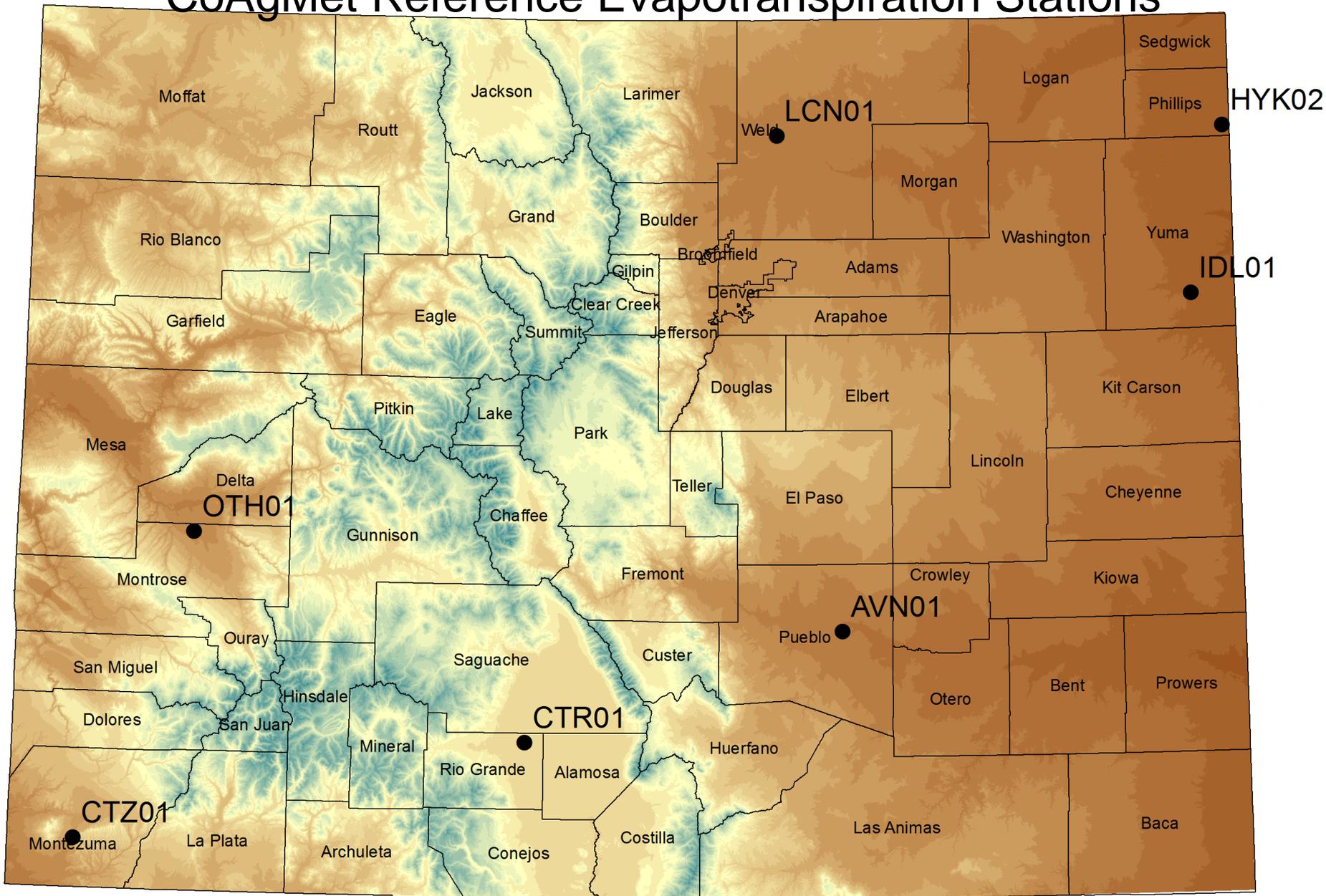


Division 8 - Boulder

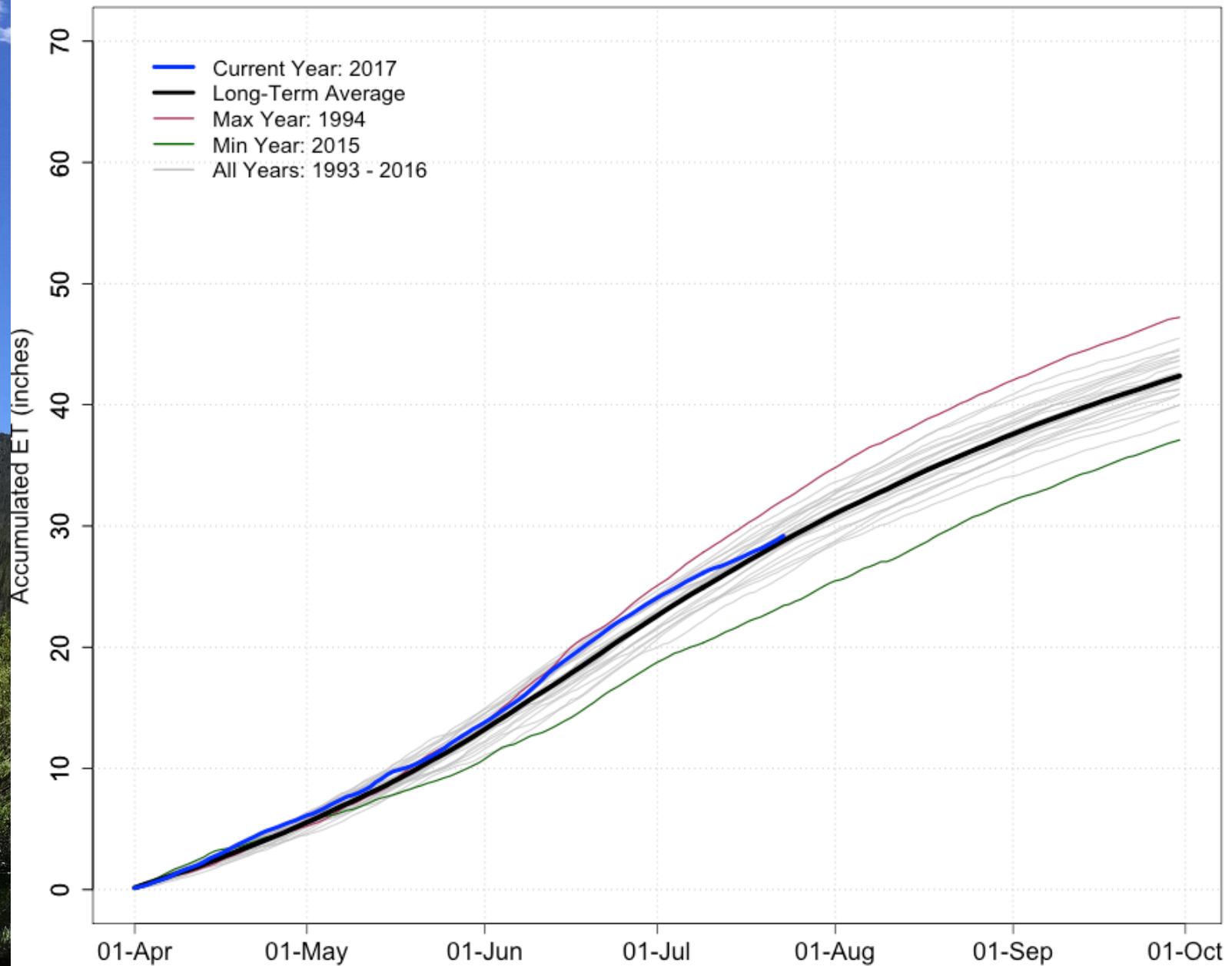
Boulder Precipitation Accumulation



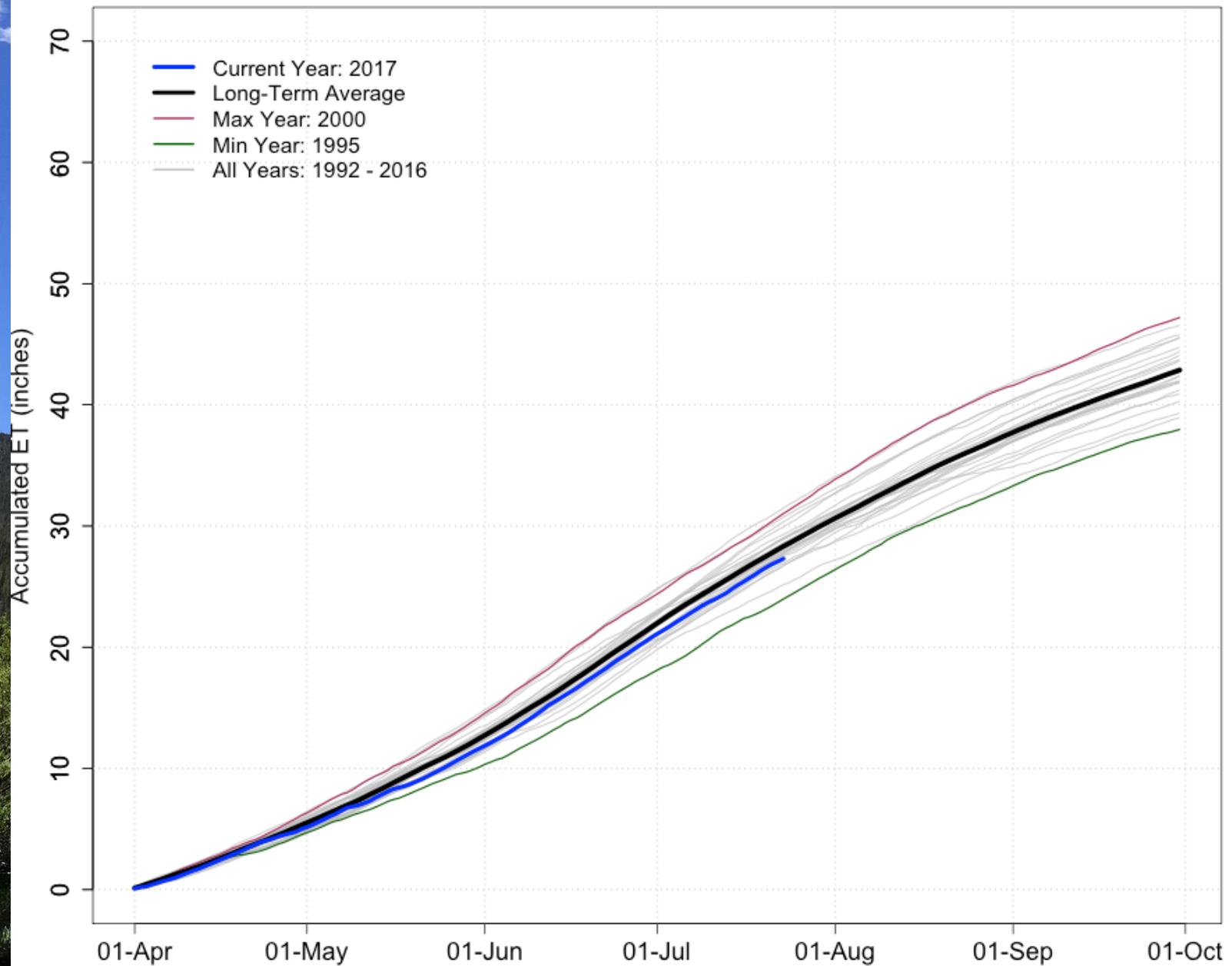
CoAgMet Reference Evapotranspiration Stations



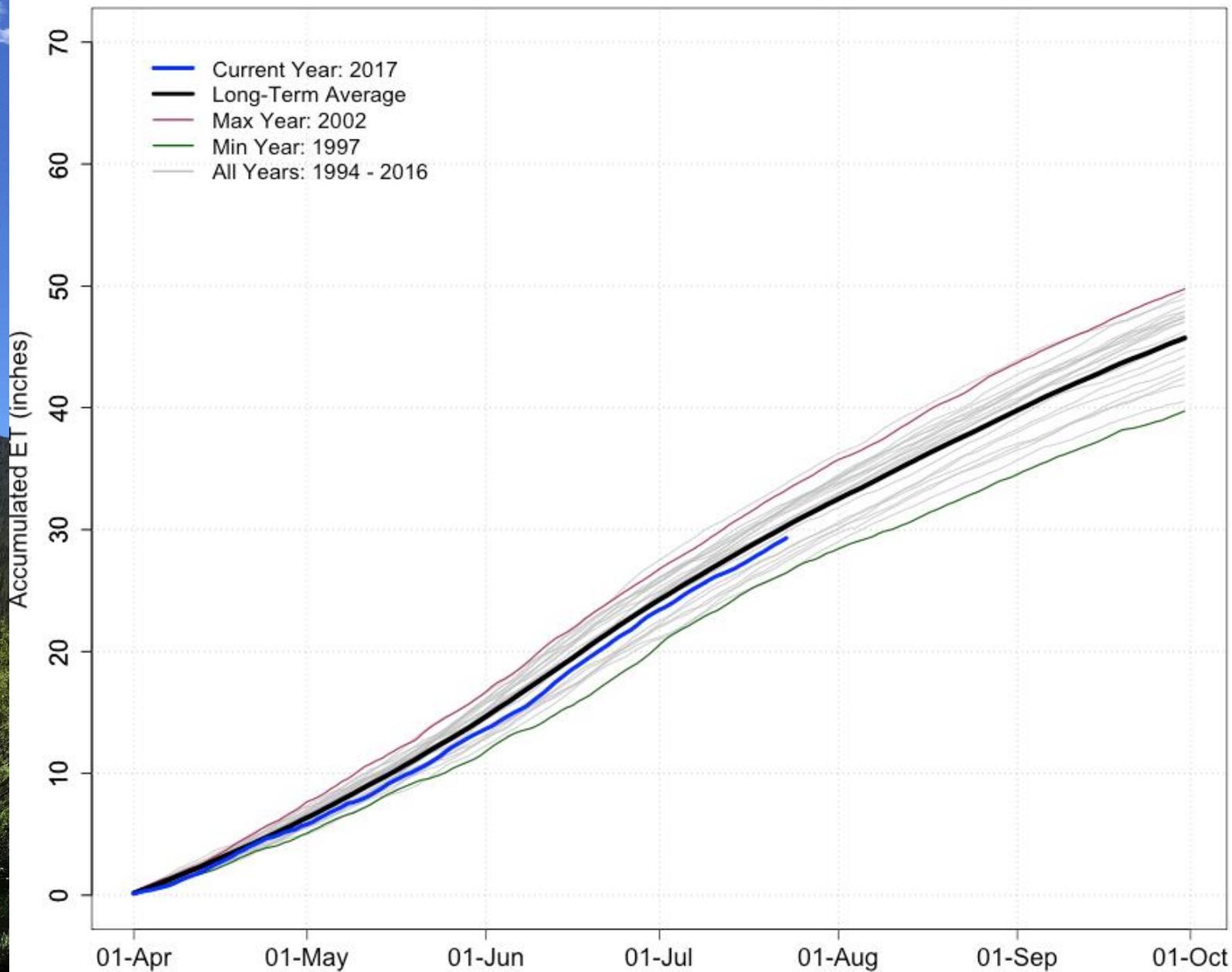
Olathe Reference ET



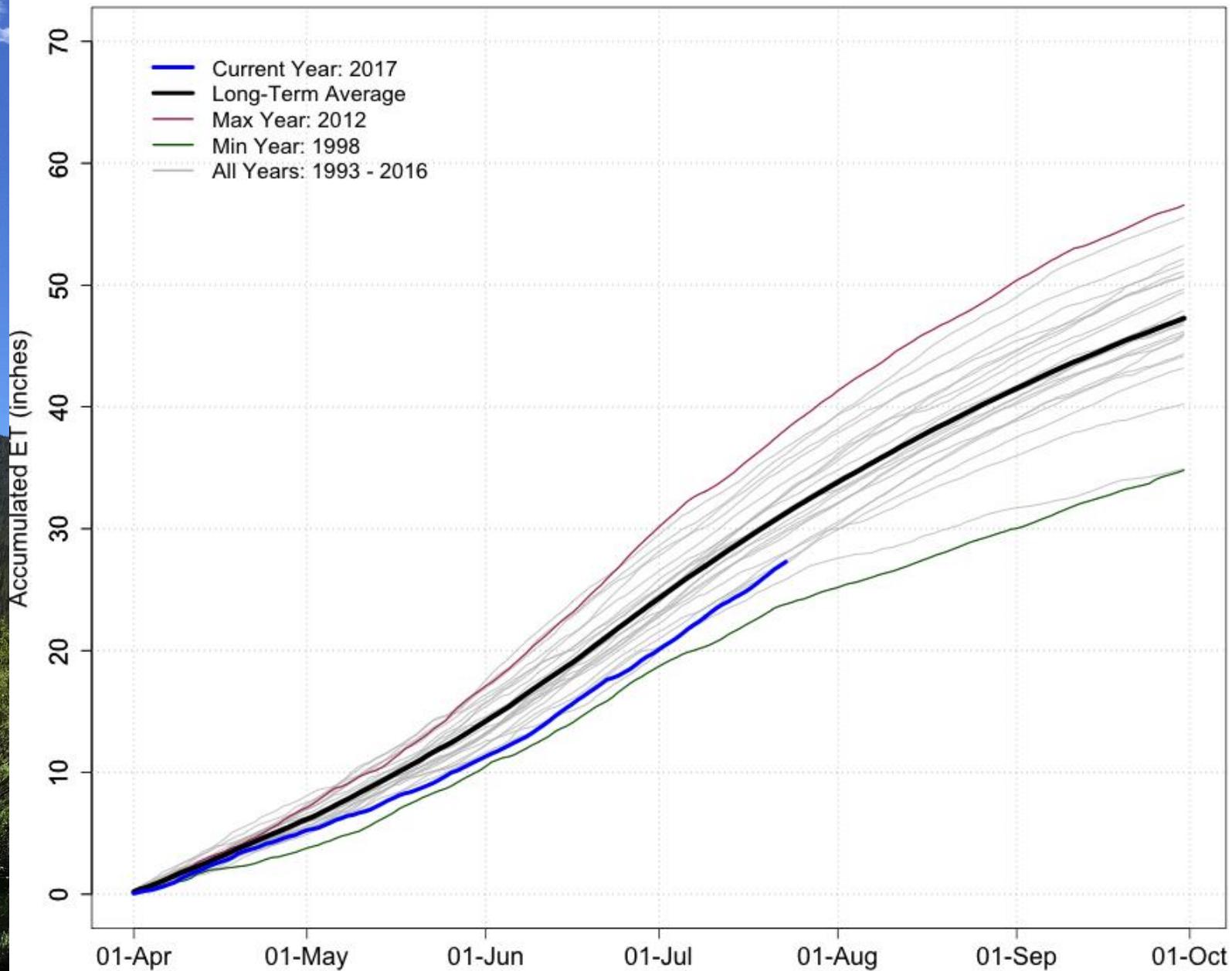
Cortez Reference ET



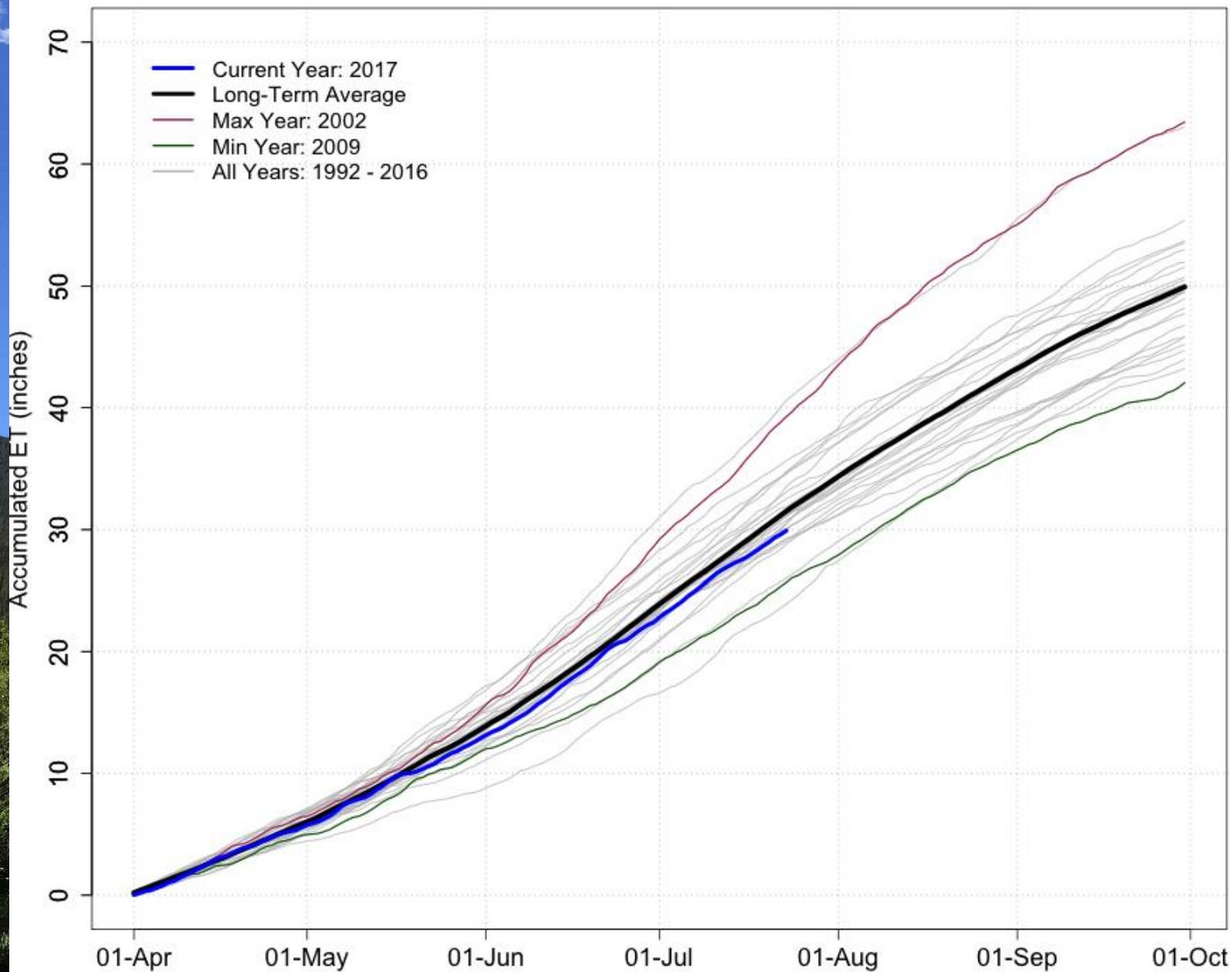
Center Reference ET



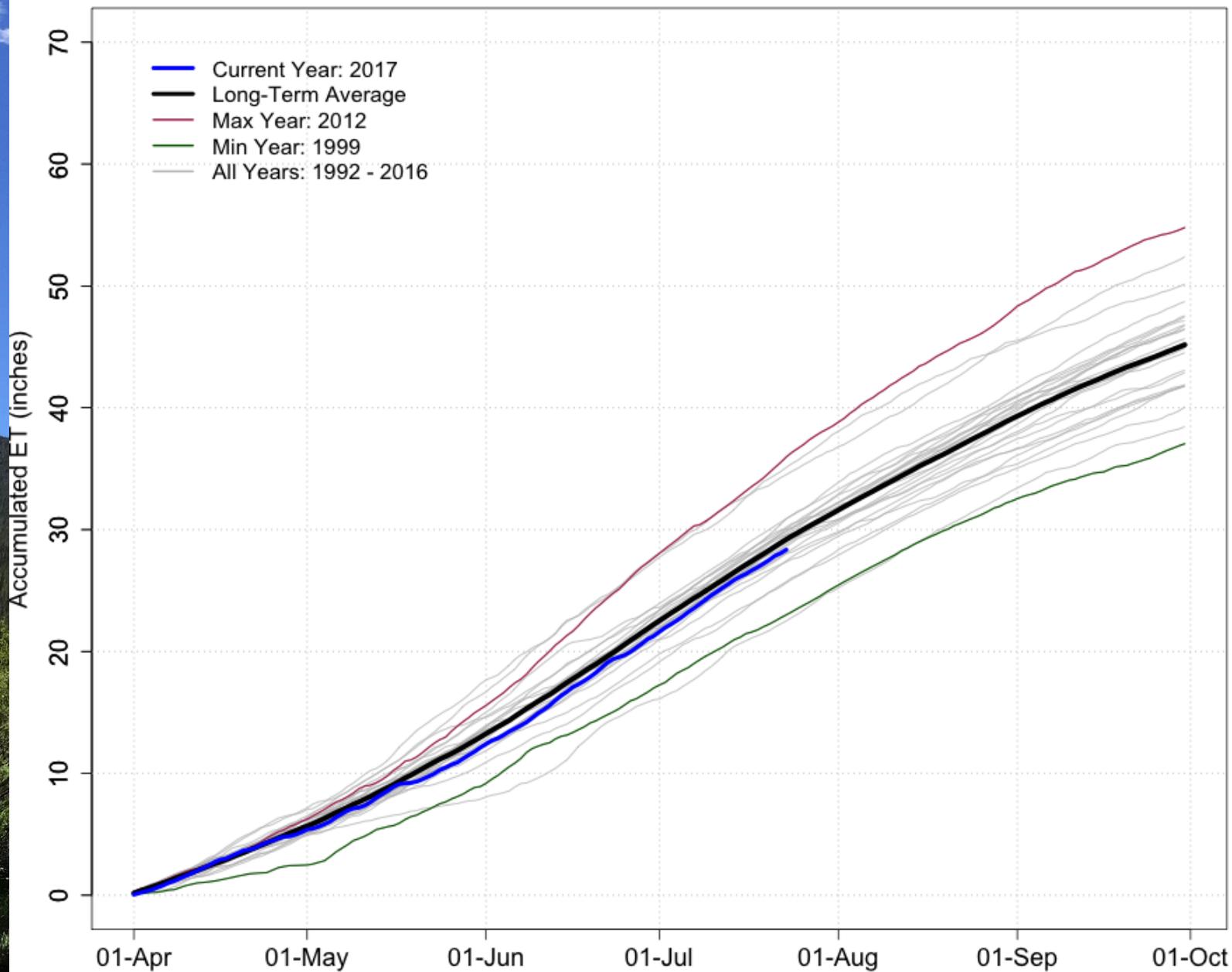
Avondale Reference ET



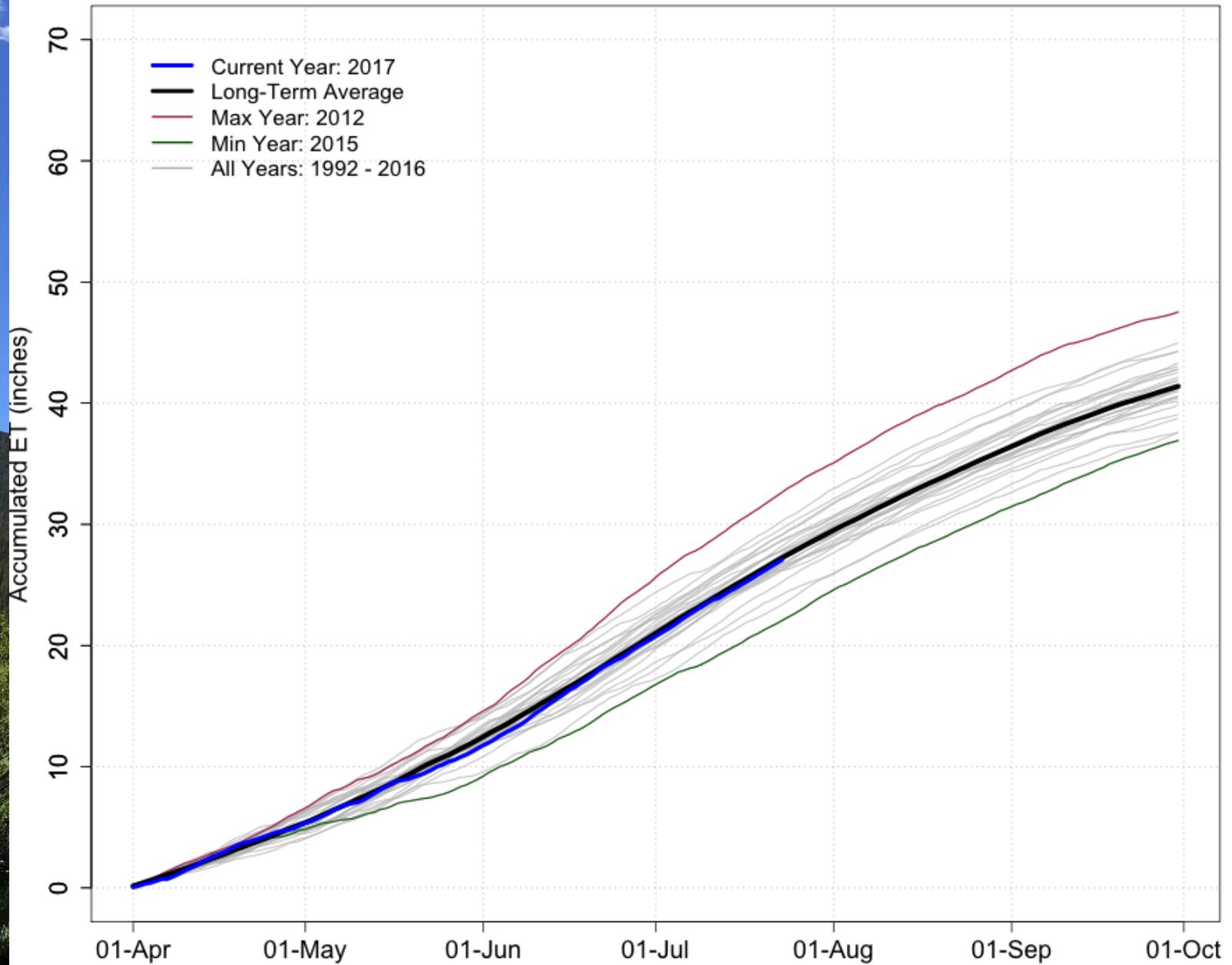
Idalia Reference ET



Holyoke Reference ET



Lucerne Reference ET



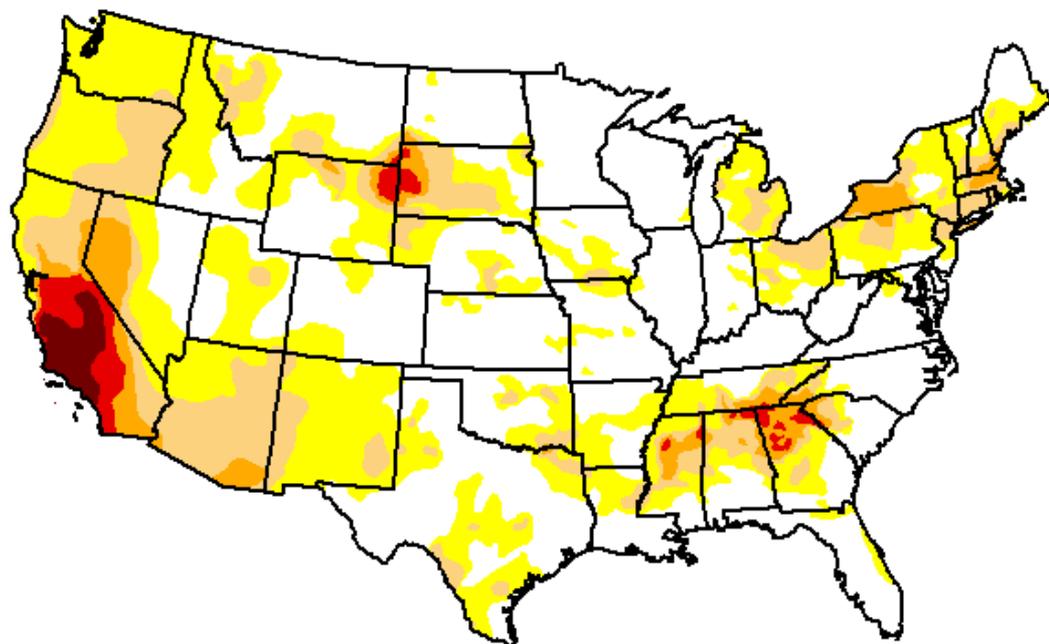
U.S. Drought Monitor CONUS

July 26, 2016

(Released Thursday, Jul. 28, 2016)

Valid 8 a.m. EDT

Drought Conditions one year ago



Drought Conditions (Percent Area)

	None	D0-D4	D1-D4	D2-D4	D3-D4	D4
Current	49.07	50.93	20.75	7.13	2.92	1.11
Last Week <i>7/19/2016</i>	52.34	47.66	18.79	6.78	2.85	1.11
3 Months Ago <i>4/26/2016</i>	60.36	39.64	15.38	5.89	3.44	1.11
Start of Calendar Year <i>12/29/2015</i>	66.99	33.01	18.74	11.56	6.28	2.70
Start of Water Year <i>9/29/2015</i>	44.91	55.09	31.36	20.09	11.45	3.00
One Year Ago <i>7/26/2015</i>	61.11	38.89	25.71	17.17	8.79	2.83

Intensity:



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

Author(s):

Brad Rippey

U.S. Department of Agriculture



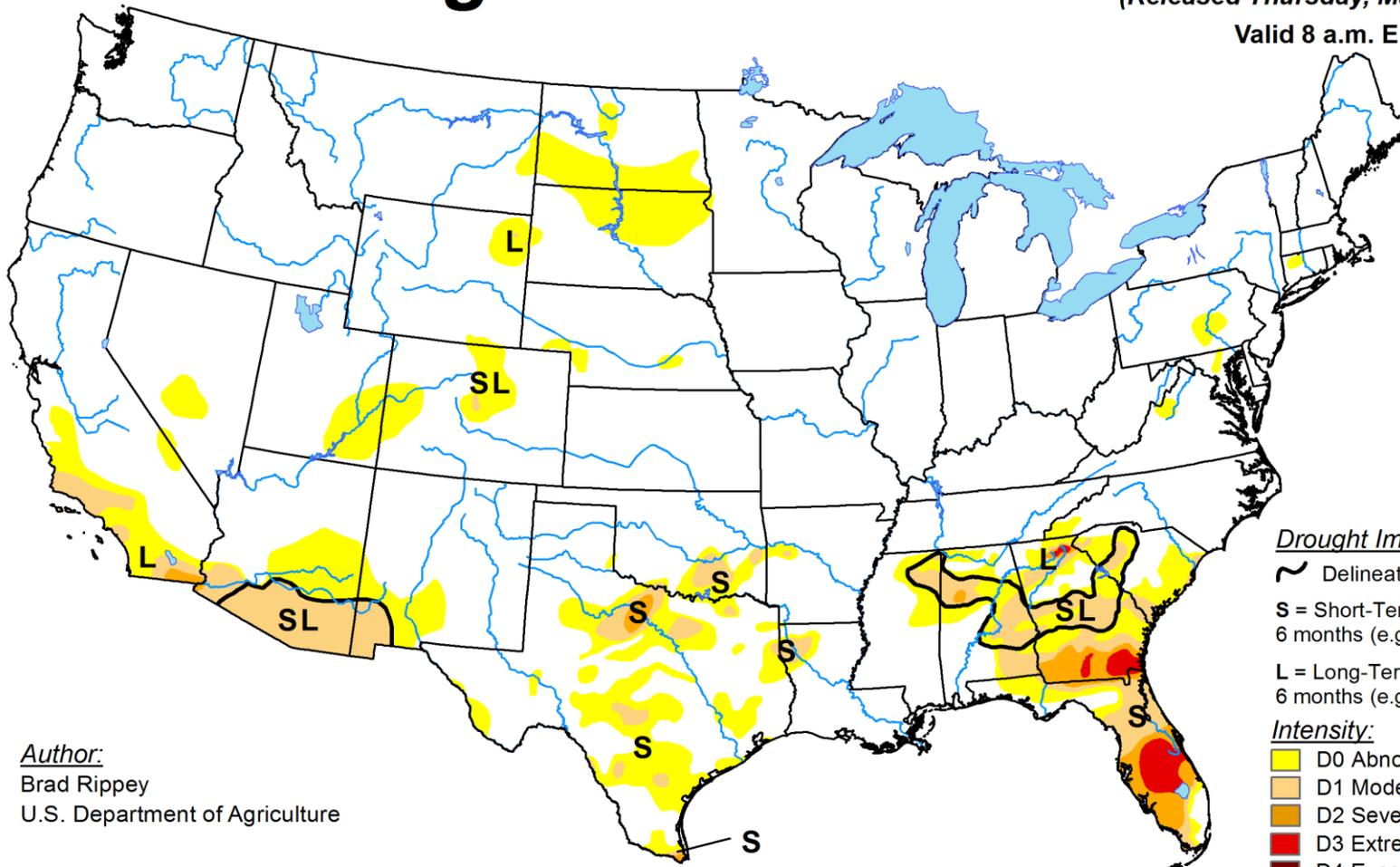
<http://droughtmonitor.unl.edu/>

U.S. Drought Monitor

May 16, 2017

(Released Thursday, May. 18, 2017)

Valid 8 a.m. EDT



Drought Impact Types:

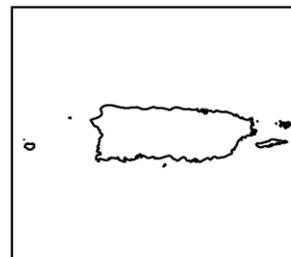
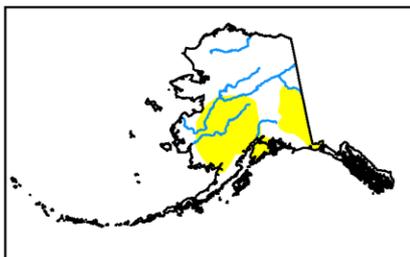
- ~ Delineates dominant impacts
- S = Short-Term, typically less than 6 months (e.g. agriculture, grasslands)
- L = Long-Term, typically greater than 6 months (e.g. hydrology, ecology)

Intensity:

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

Author:
Brad Rippey
U.S. Department of Agriculture

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



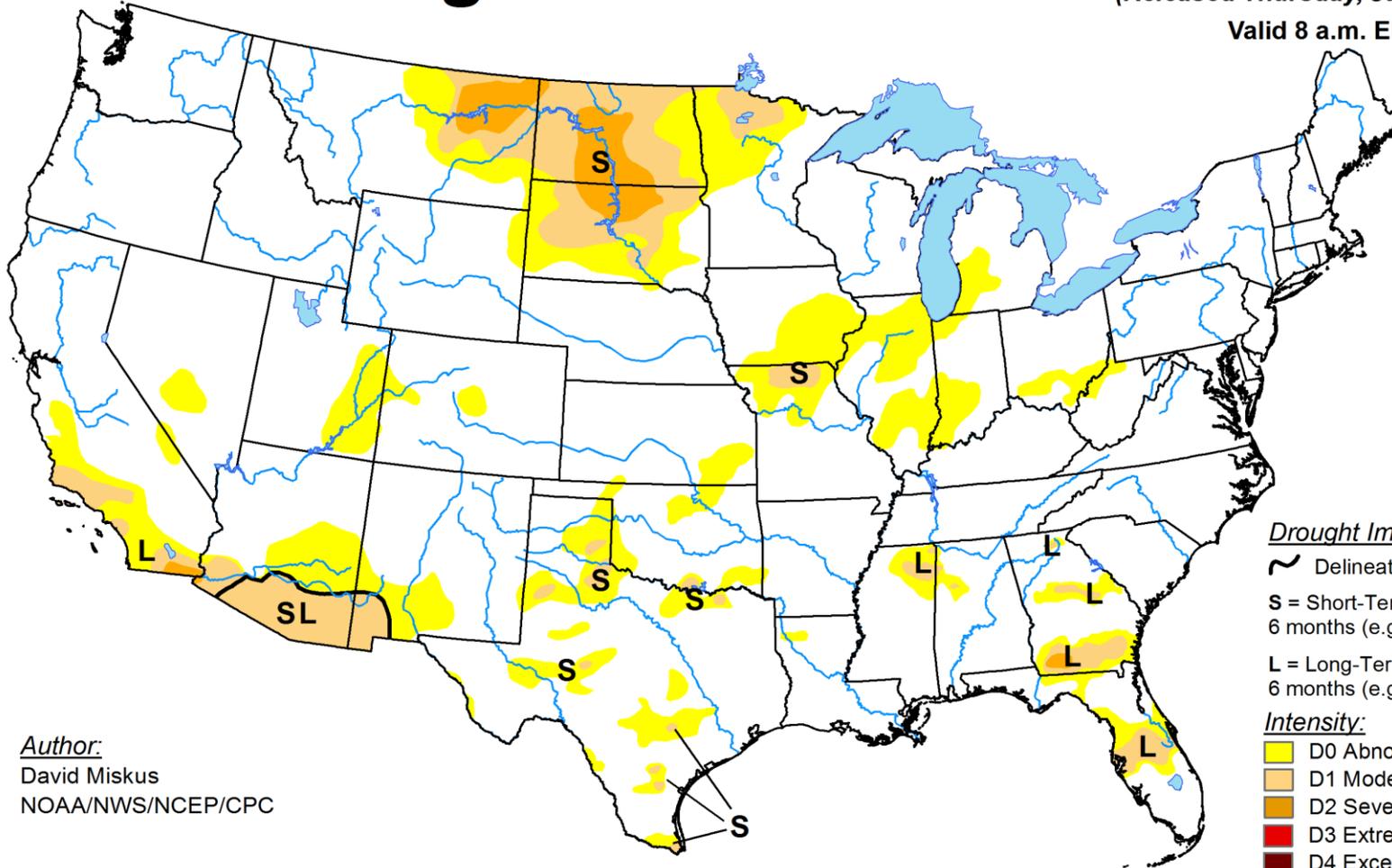
<http://droughtmonitor.unl.edu/>

U.S. Drought Monitor

June 13, 2017

(Released Thursday, Jun. 15, 2017)

Valid 8 a.m. EDT



Author:
David Miskus
NOAA/NWS/NCEP/CPC

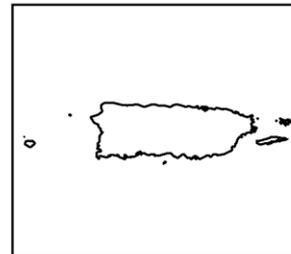
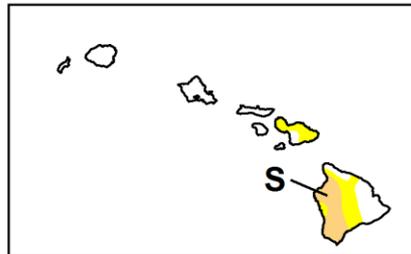
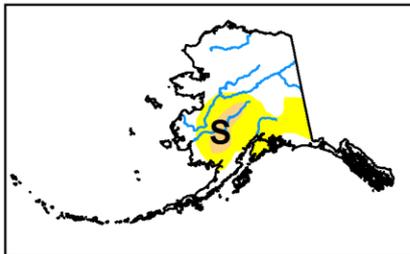
Drought Impact Types:

- ~ 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
- 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.



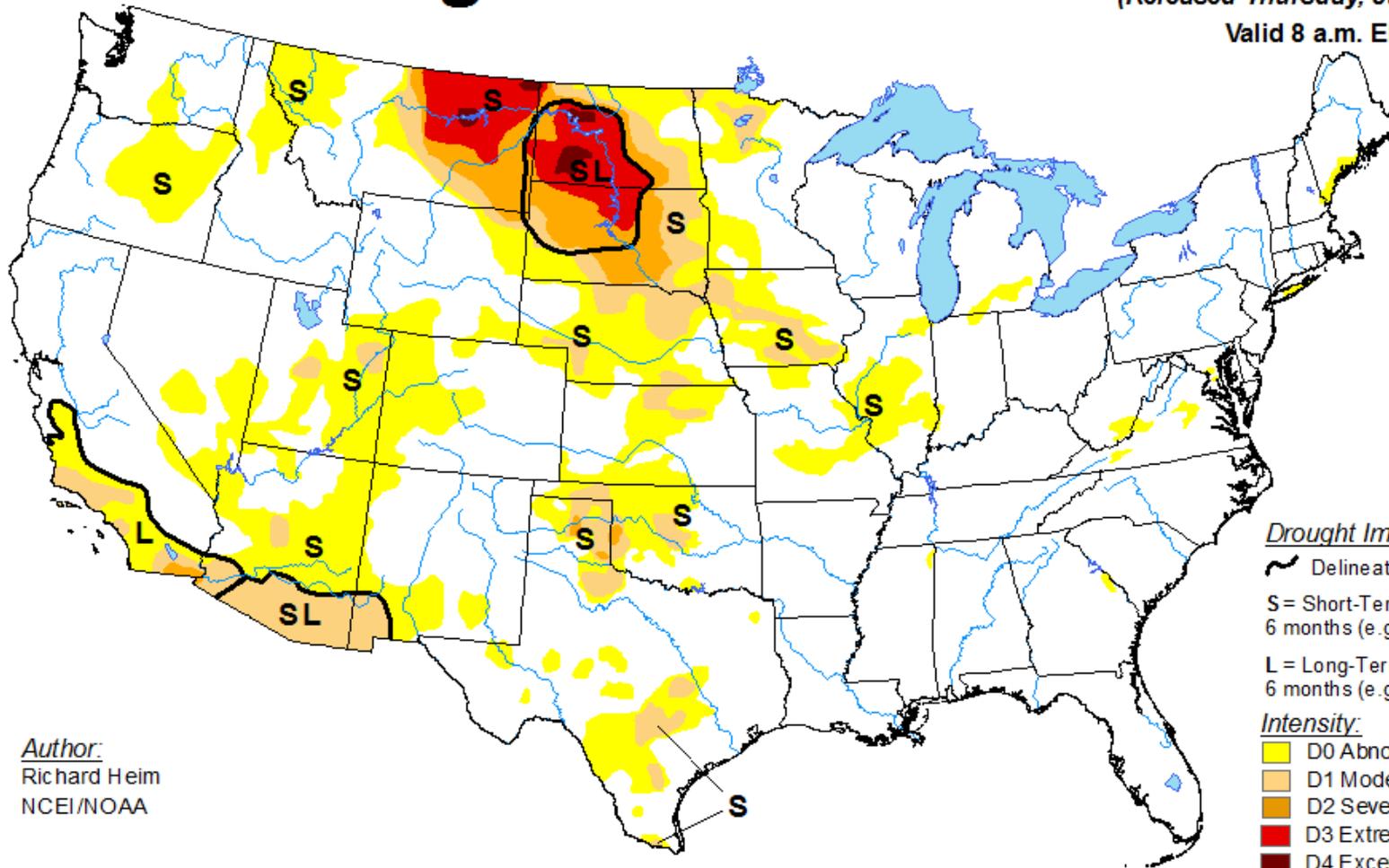
<http://droughtmonitor.unl.edu/>

U.S. Drought Monitor

July 18, 2017

(Released Thursday, Jul. 20, 2017)

Valid 8 a.m. EDT



Author:
Richard Heim
NCEI/NOAA

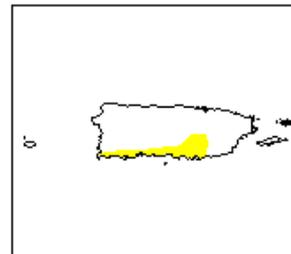
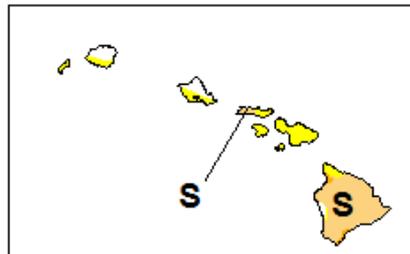
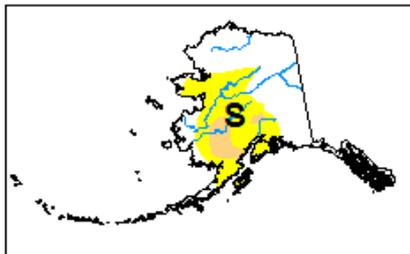
Drought Impact Types:

- 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 Colorado

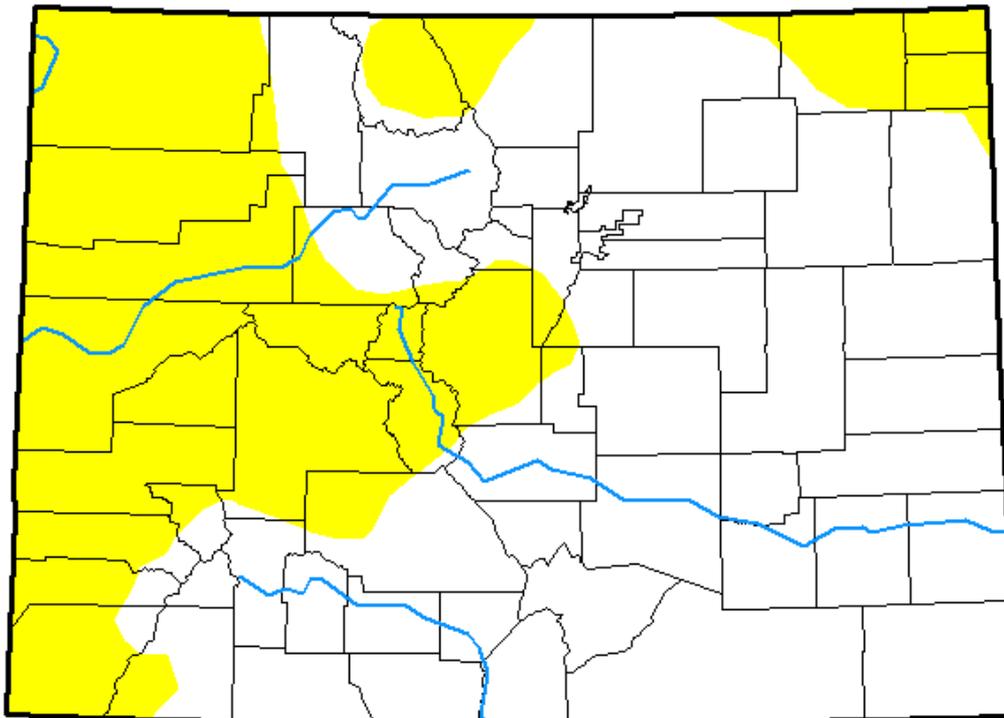
July 18, 2017

(Released Thursday, Jul. 20, 2017)

Valid 8 a.m. EDT

Drought Conditions (Percent Area)

	None	D0-D4	D1-D4	D2-D4	D3-D4	D4
Current	64.47	35.53	0.00	0.00	0.00	0.00
Last Week <i>07-11-2017</i>	66.84	33.16	0.00	0.00	0.00	0.00
3 Months Ago <i>04-18-2017</i>	46.01	53.99	11.88	0.00	0.00	0.00
Start of Calendar Year <i>01-03-2017</i>	31.88	68.12	37.21	2.88	0.00	0.00
Start of Water Year <i>09-27-2016</i>	70.49	29.51	2.45	0.00	0.00	0.00
One Year Ago <i>07-19-2016</i>	81.13	18.87	0.00	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:

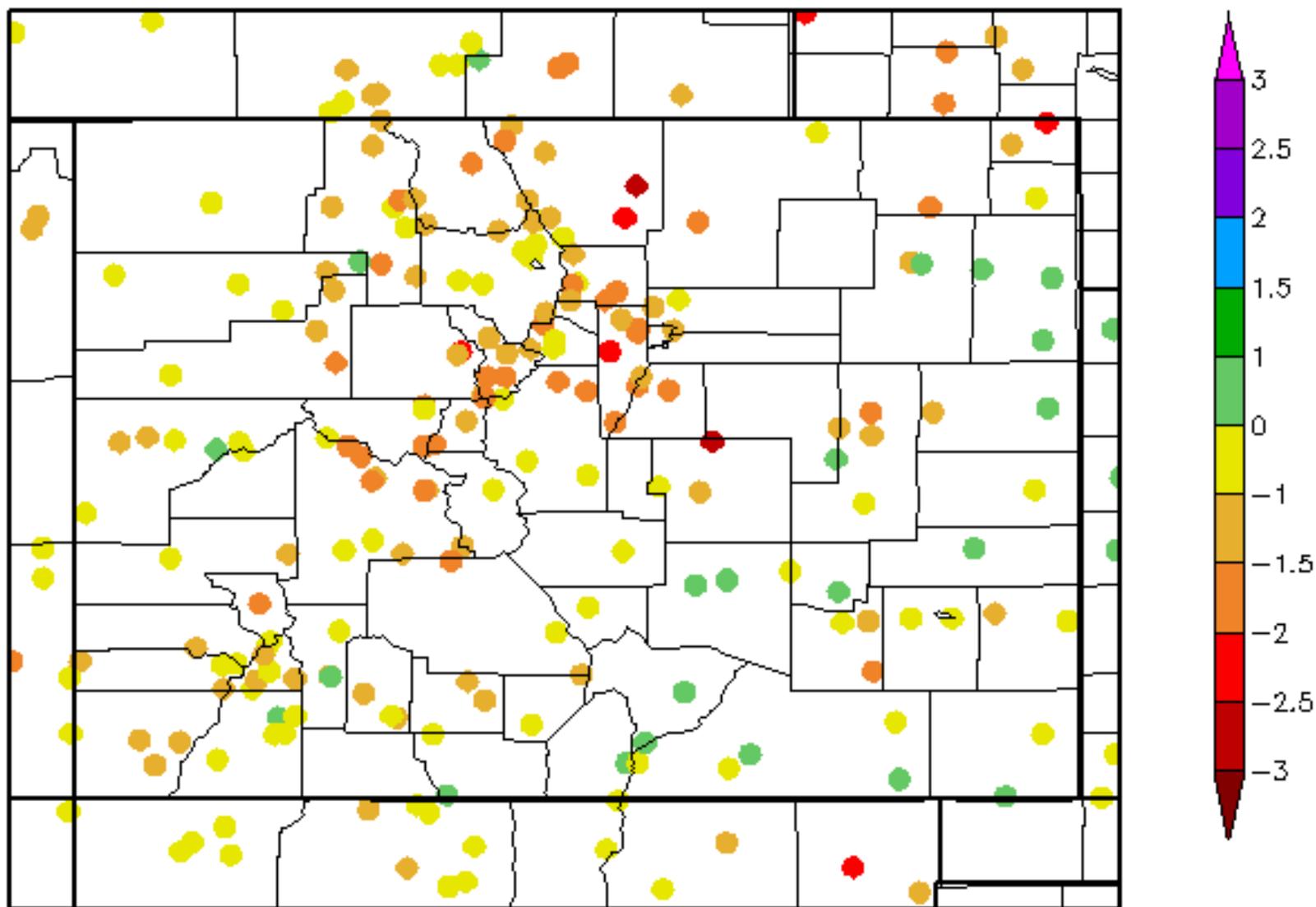
Richard Heim
NCEI/NOAA



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

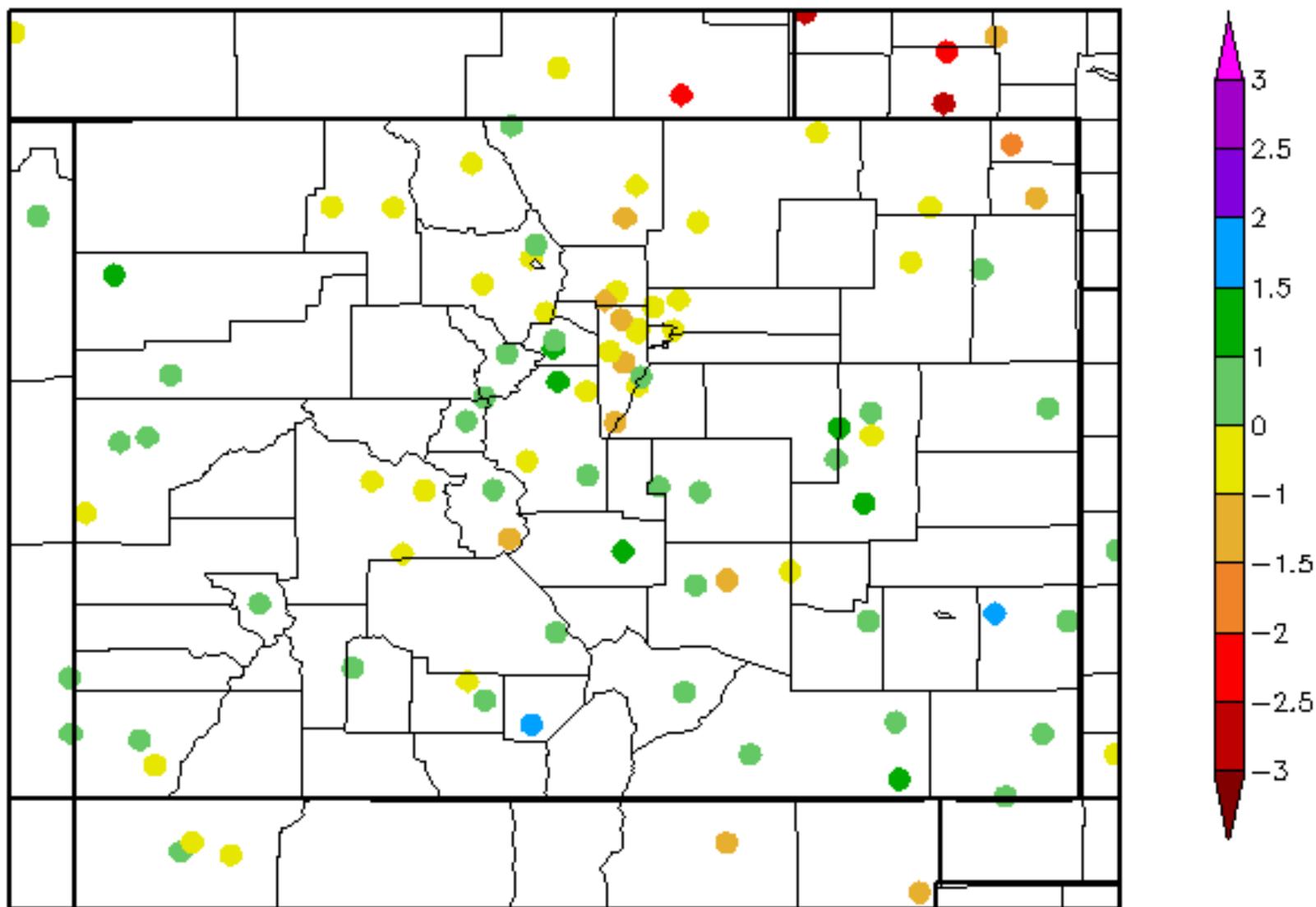
Monthly SPI

6/1/2017 - 6/30/2017



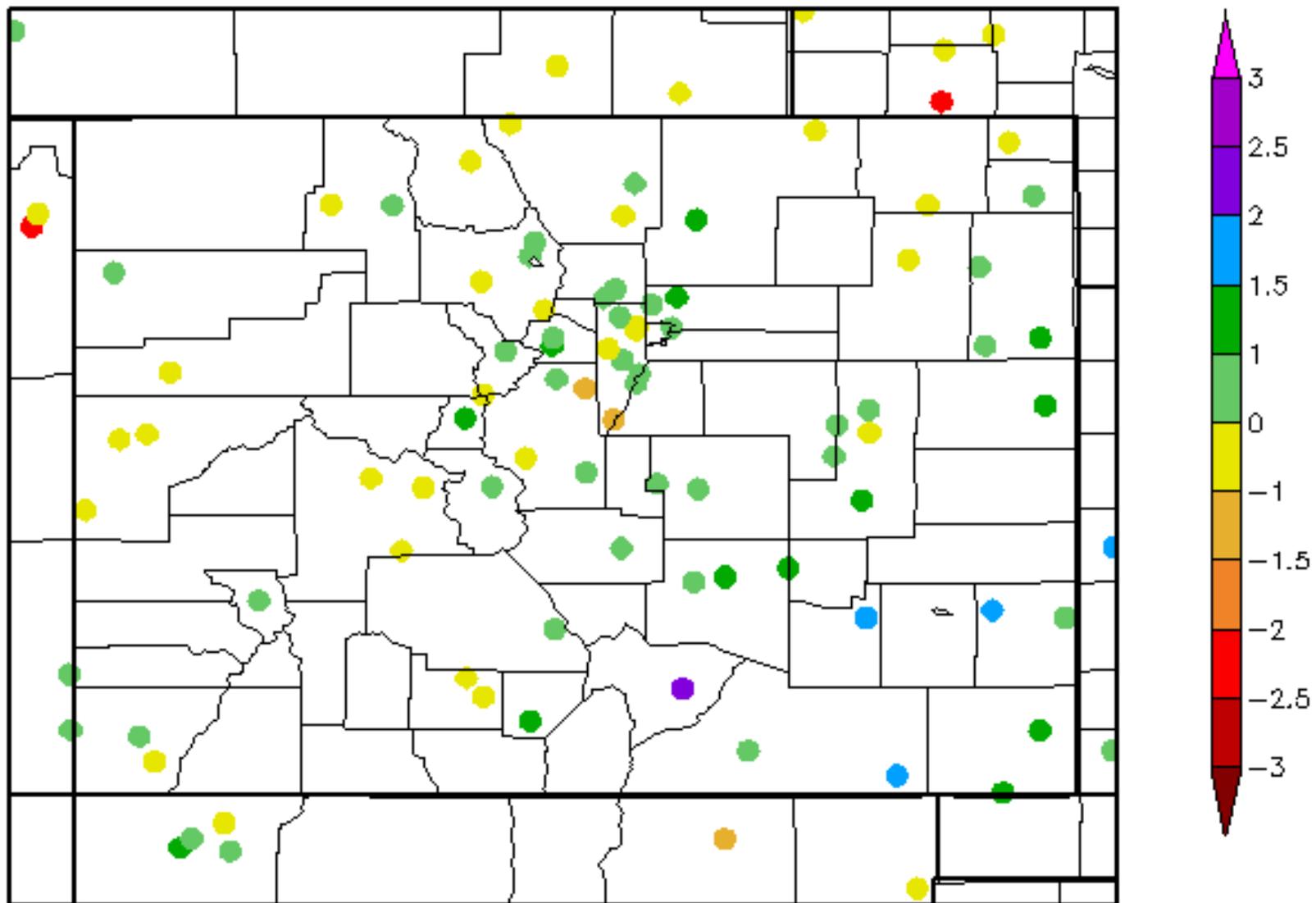
30 Day SPI

6/24/2017 - 7/23/2017



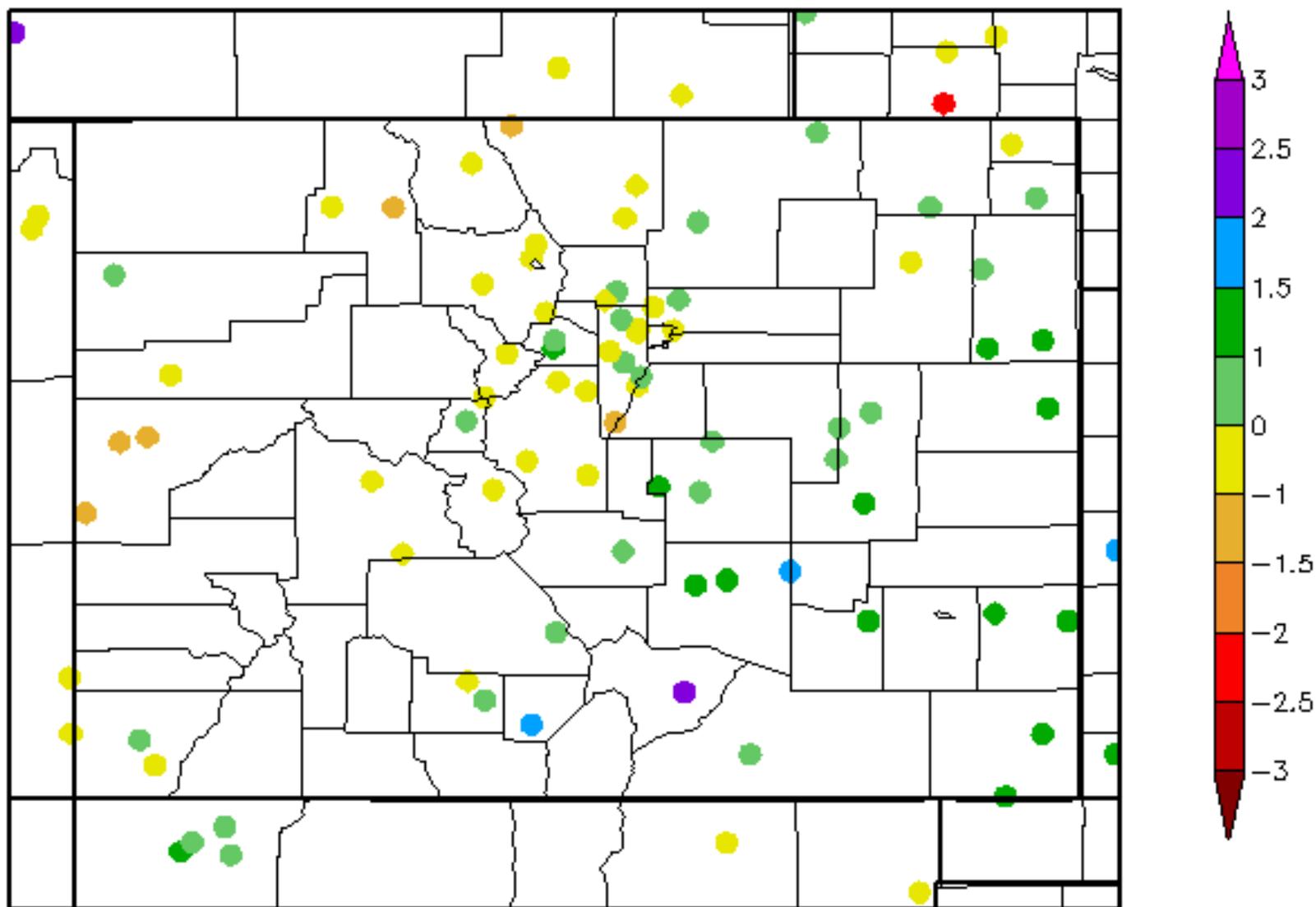
90 Day SPI

4/25/2017 - 7/23/2017



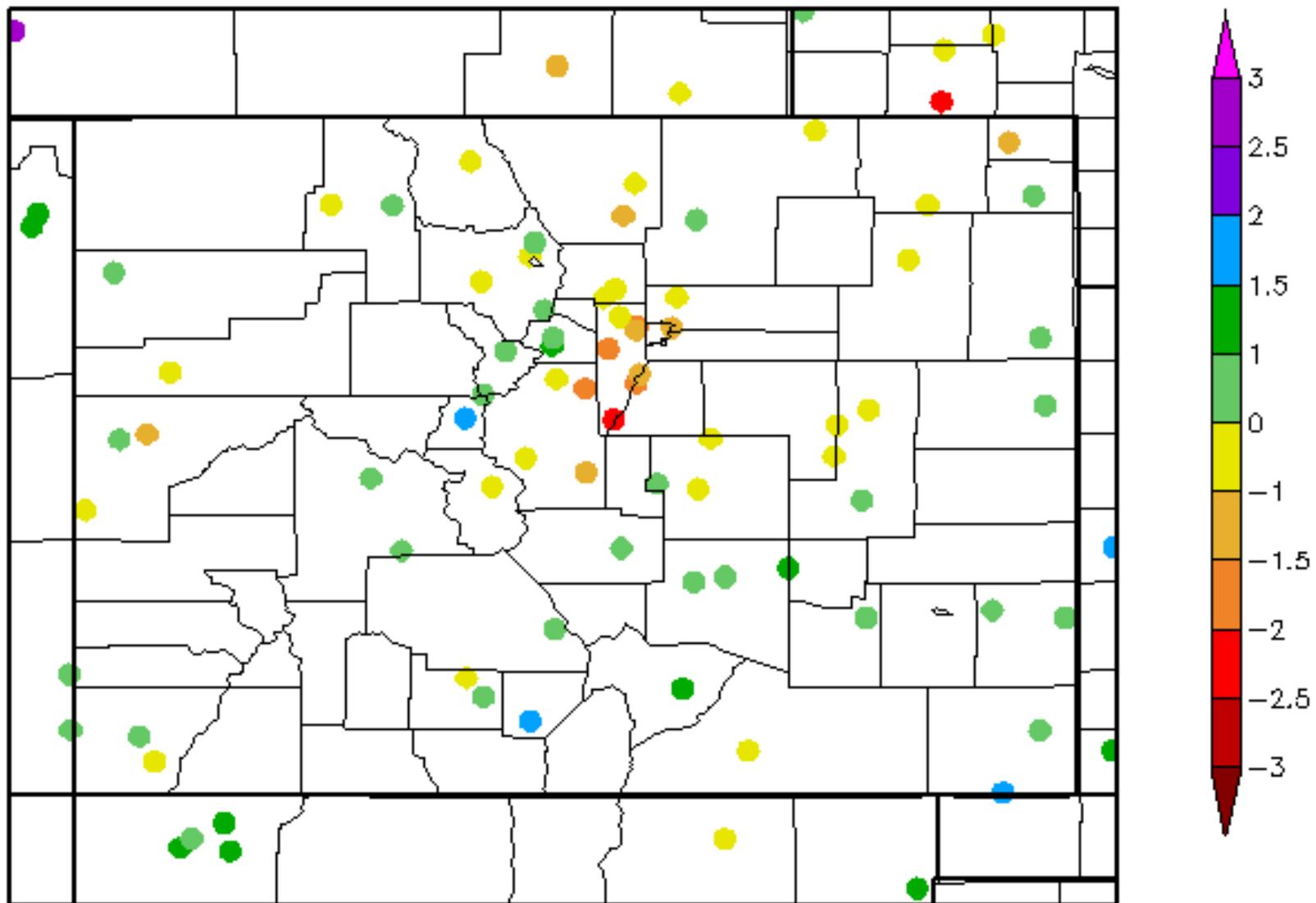
6 Month SPI

1/24/2017 - 7/23/2017



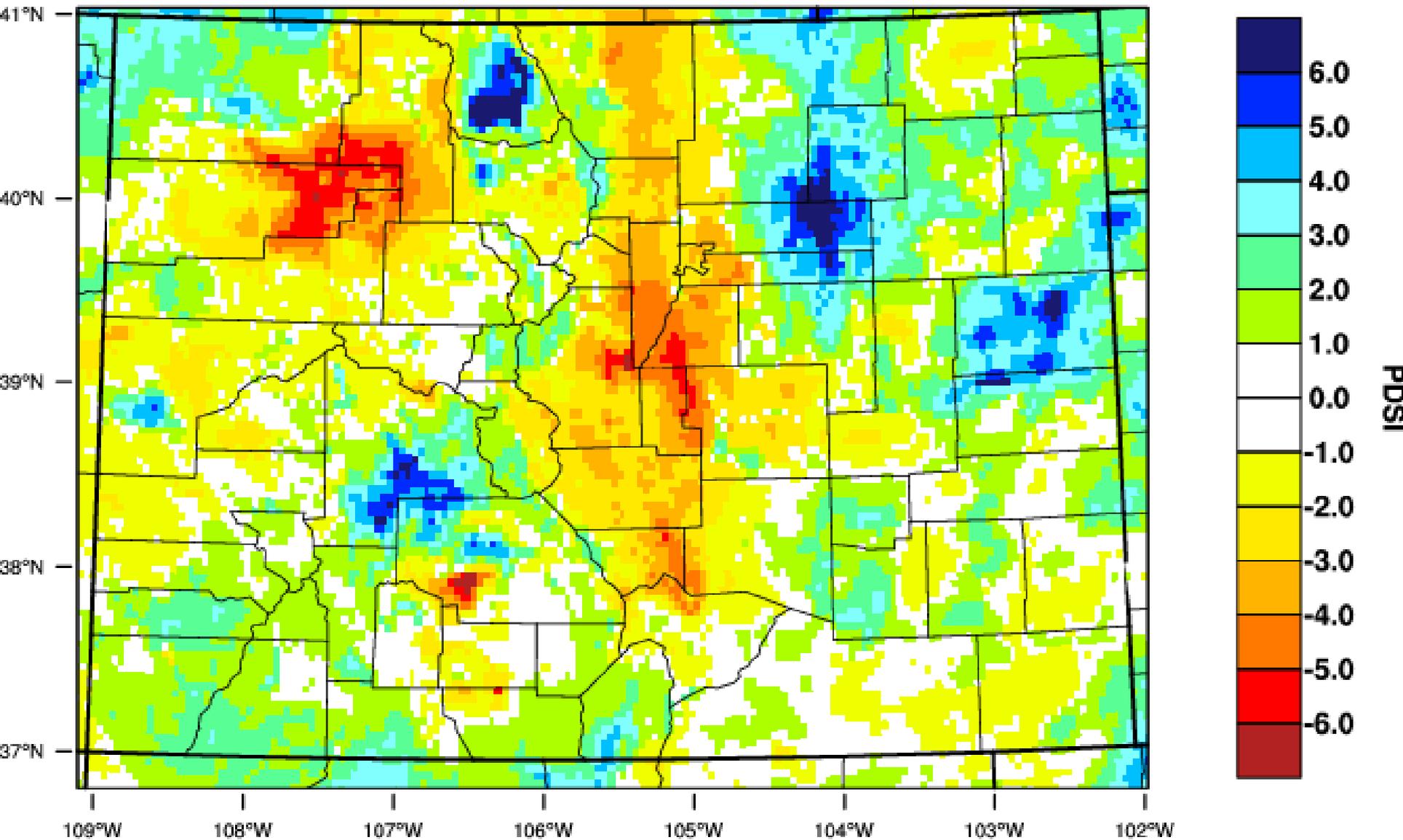
12 Month SPI

7/24/2016 - 7/23/2017



Colorado - PDSI

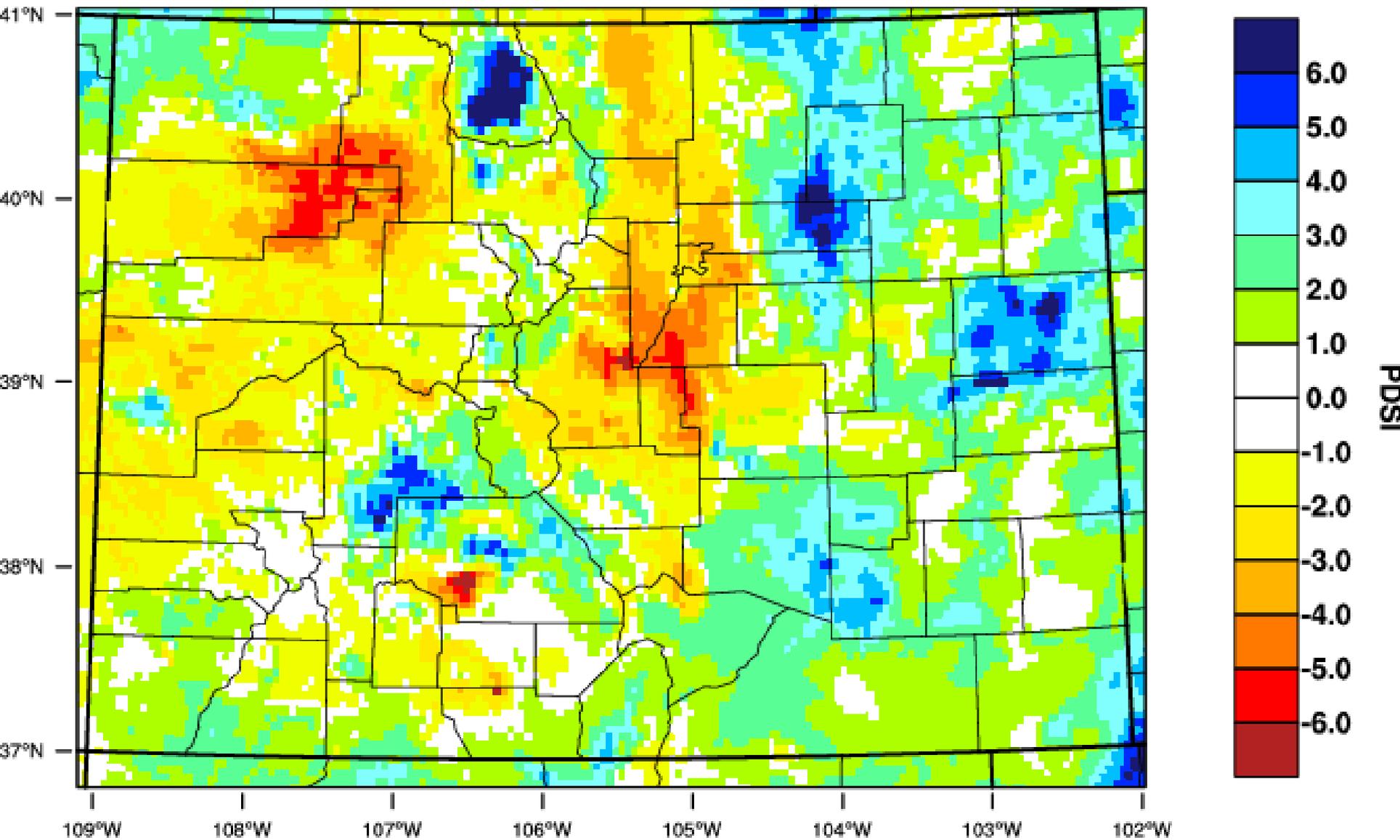
March 2017



WestWide Drought Tracker, U Idaho/WRCC Data Source: PRISM (Prelim), created 25 MAY 2017

Colorado - PDSI

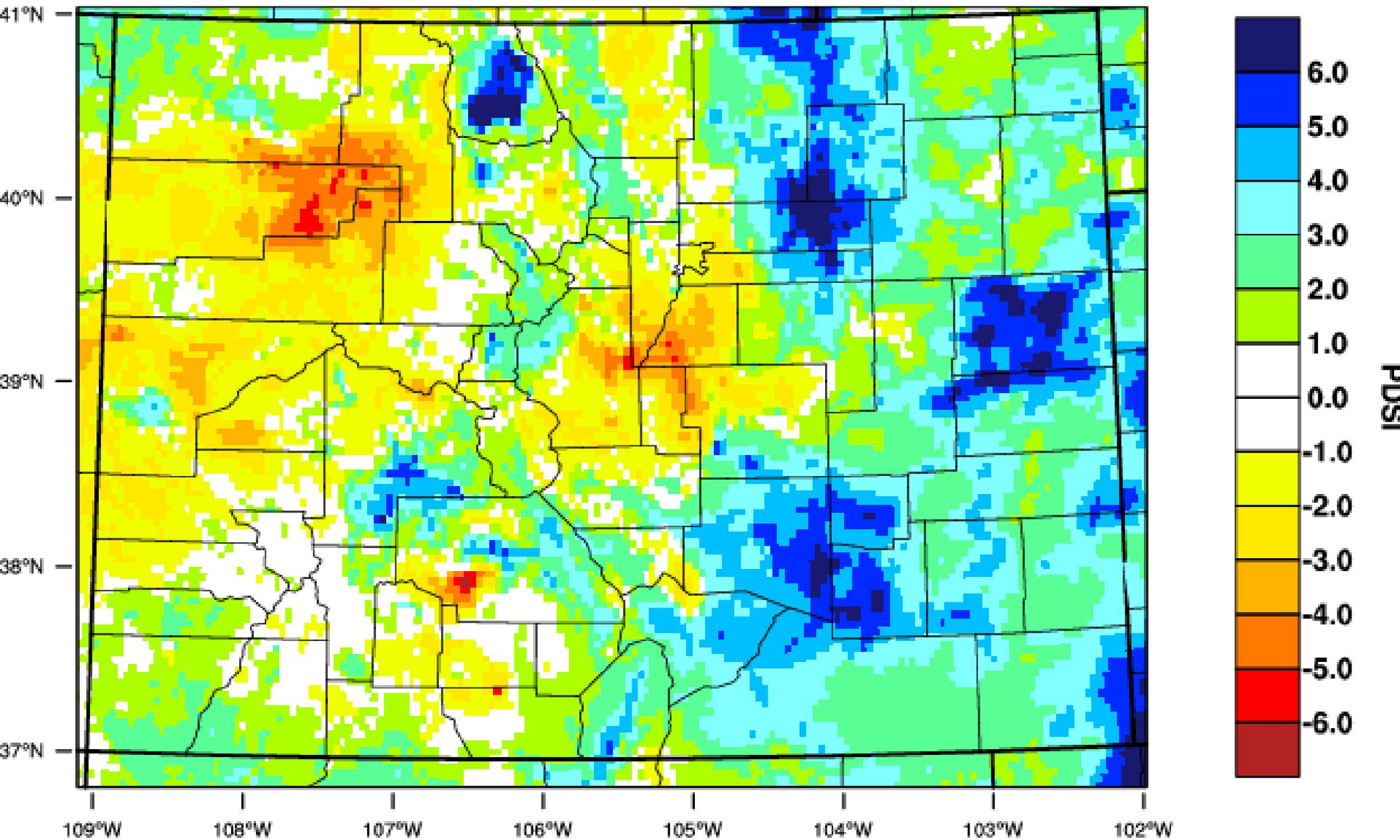
April 2017



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

Colorado - PDSI

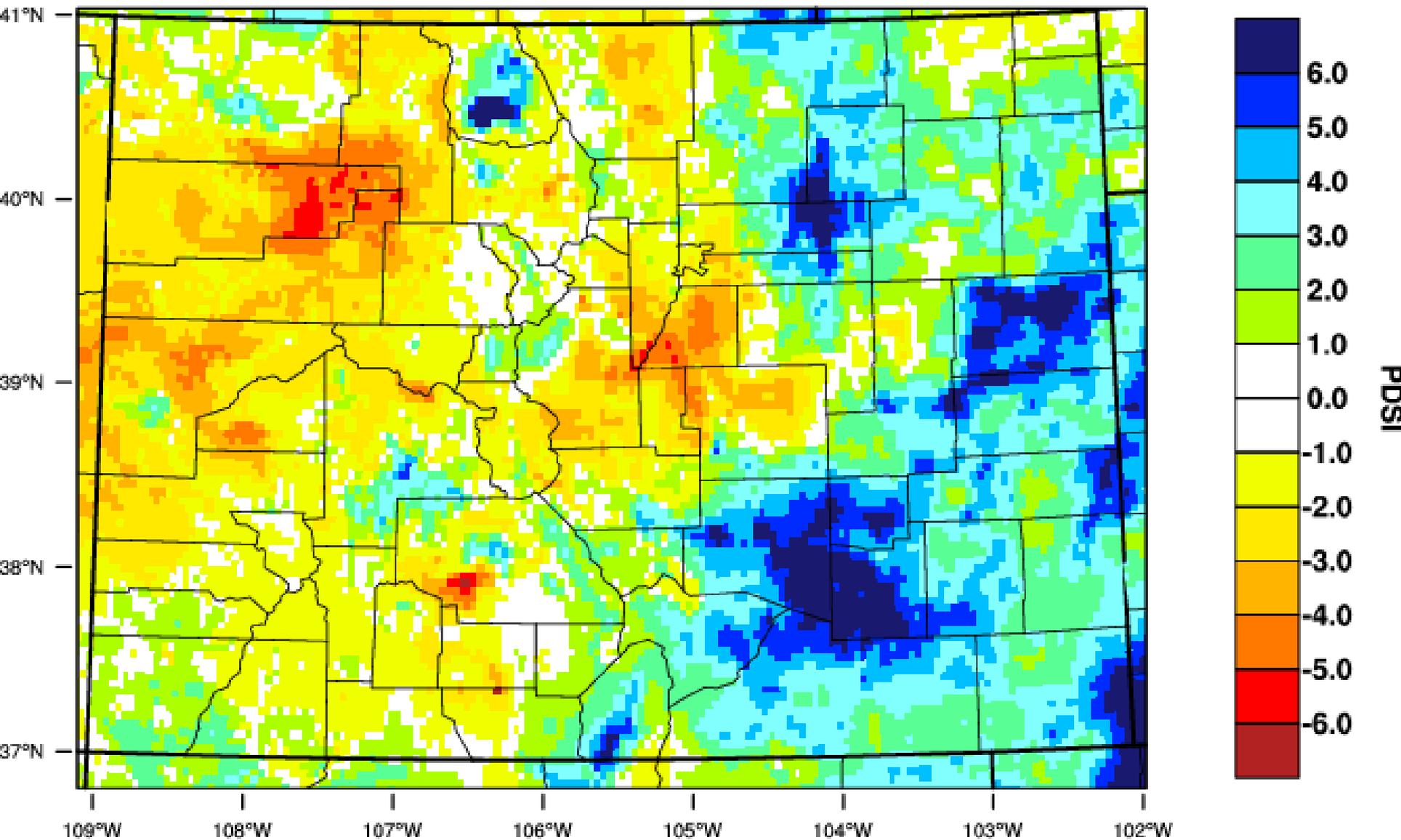
May 2017



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

Colorado - PDSI

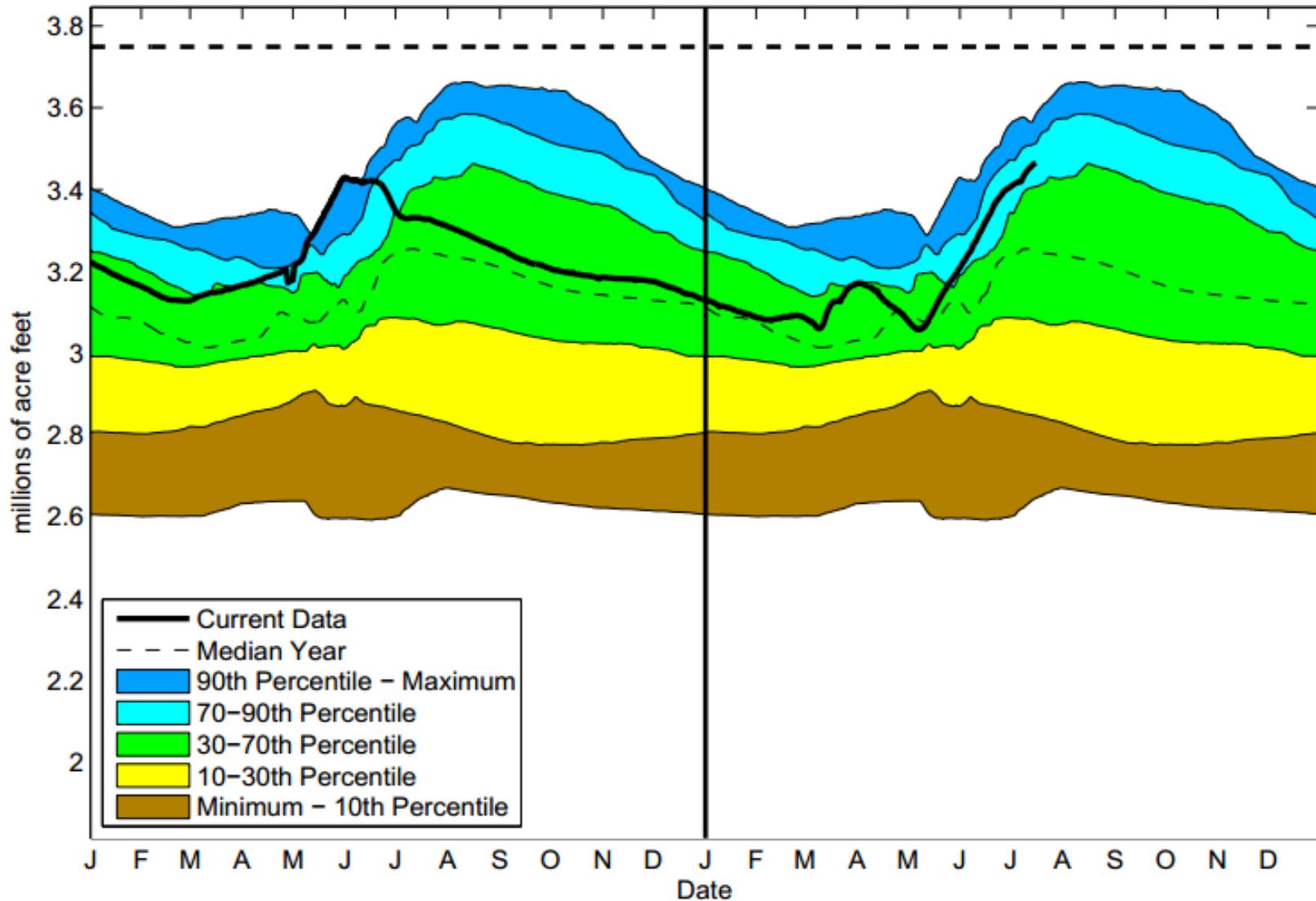
June 2017



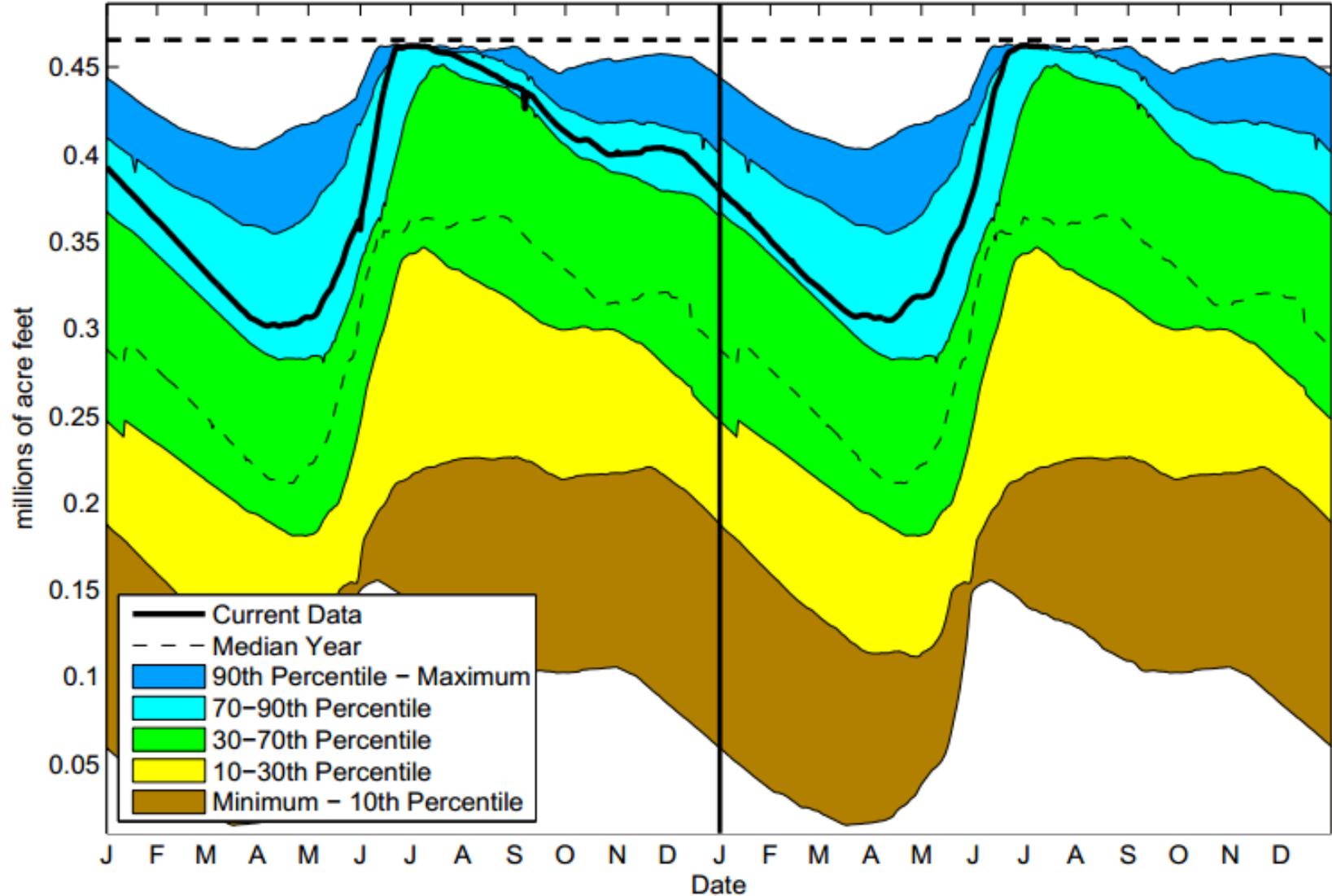
WestWide Drought Tracker, U Idaho/WRCC Data Source: PRISM (Prelim), created 16 JUL 2017

Reservoir Levels

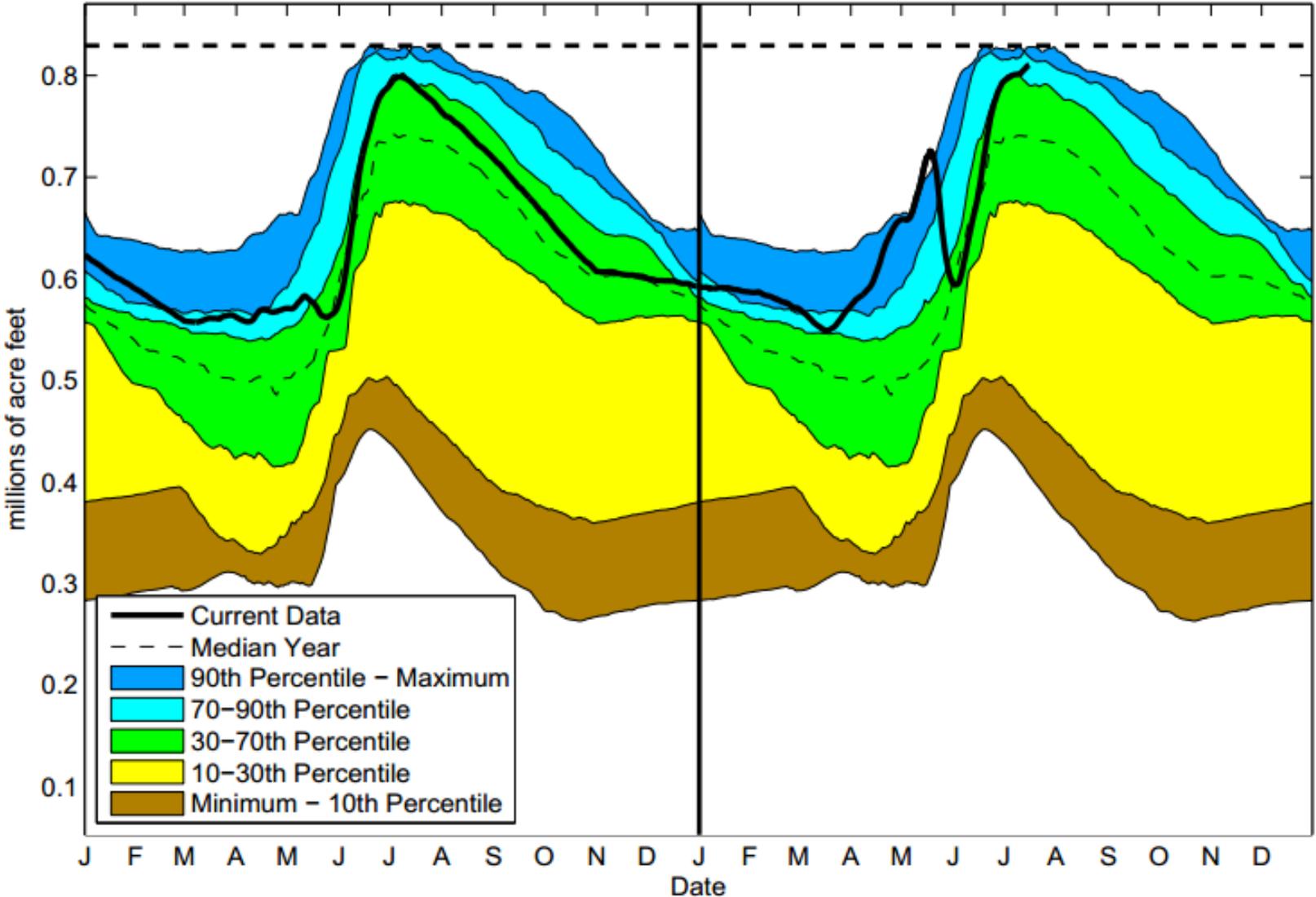
Flaming Gorge Reservoir Level 07/16/2017
108 Percent of 1985-2015 Average



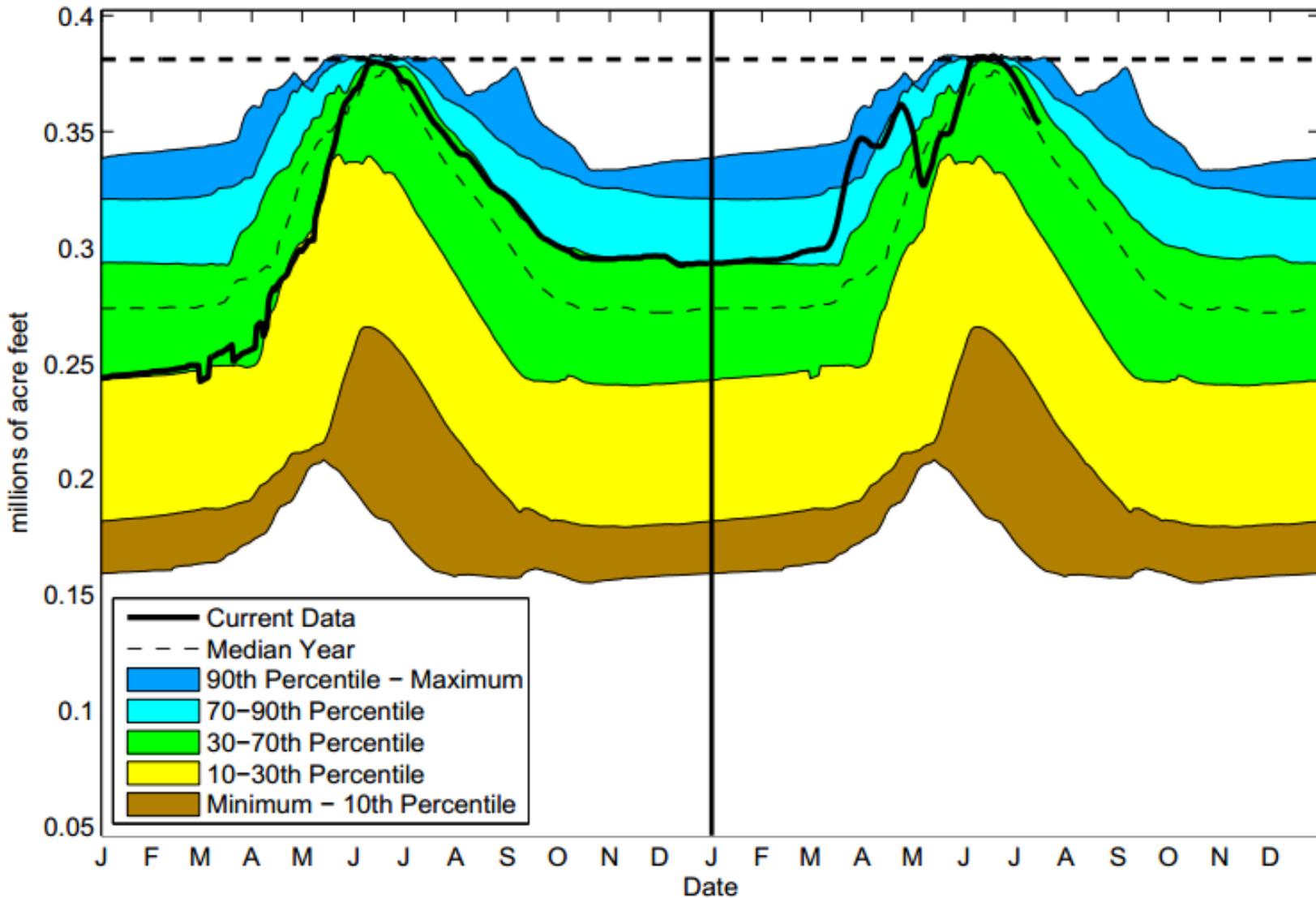
Lake Granby Reservoir Level 07/16/2017
125 Percent of 2000-2015 Average



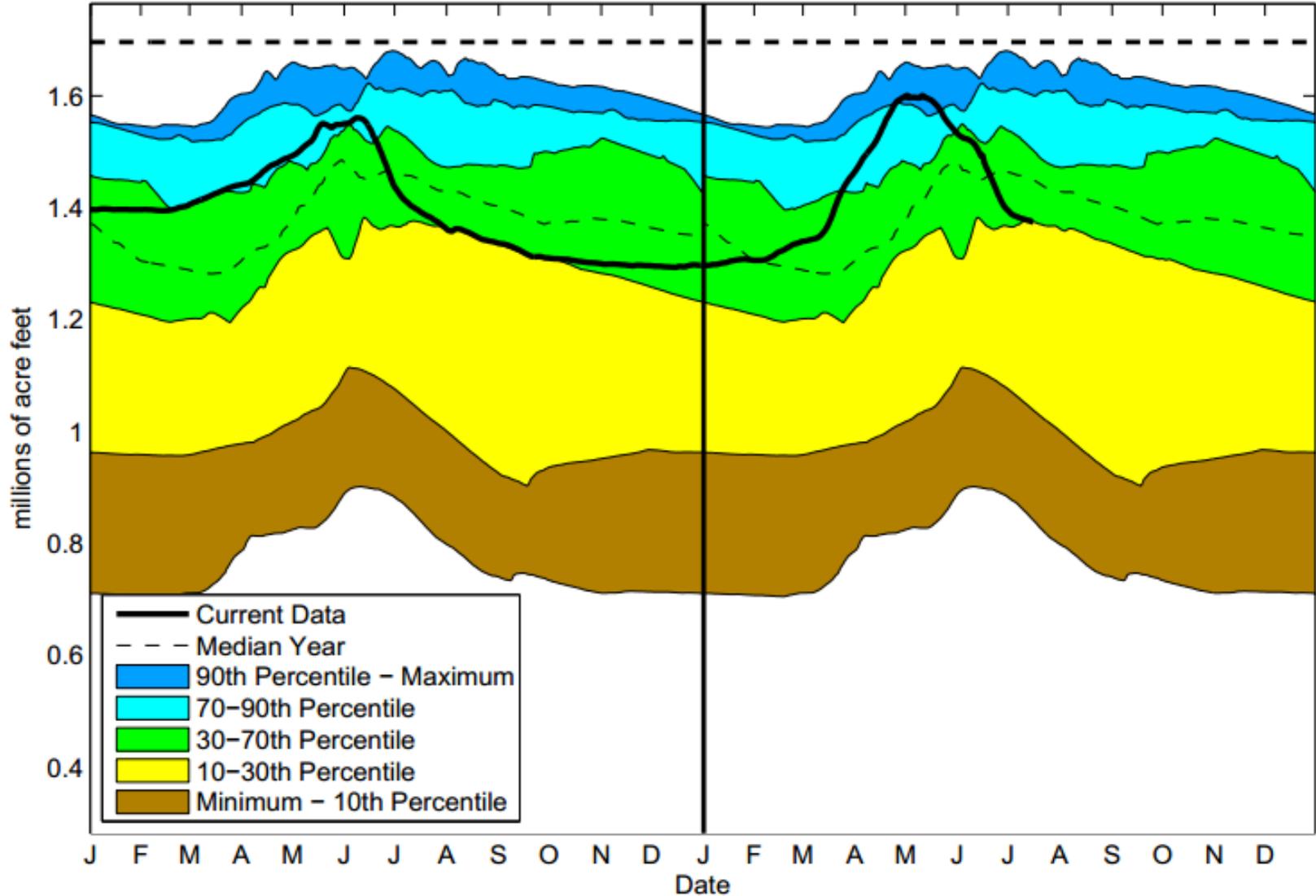
Blue Mesa Reservoir Level 07/16/2017
115 Percent of 1985-2015 Average



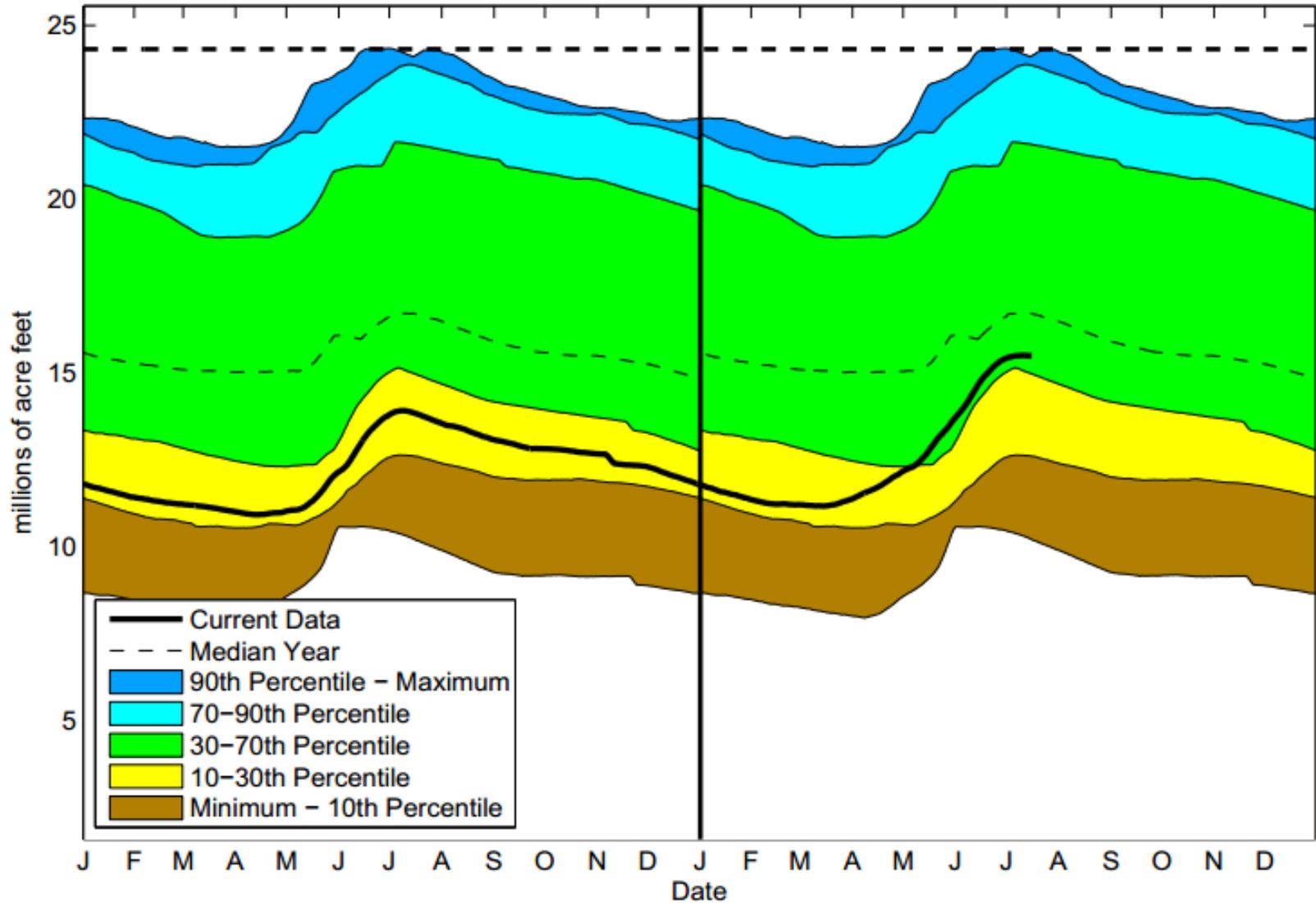
McPhee Reservoir Level 07/16/2017
109 Percent of 1985-2015 Average



Navajo Reservoir Level 07/16/2017
99 Percent of 1985-2015 Average



Lake Powell Reservoir Level 07/16/2017
87 Percent of 1985-2015 Average



Colorado Climate Center

Data and Power Point Presentations available for downloading

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

