



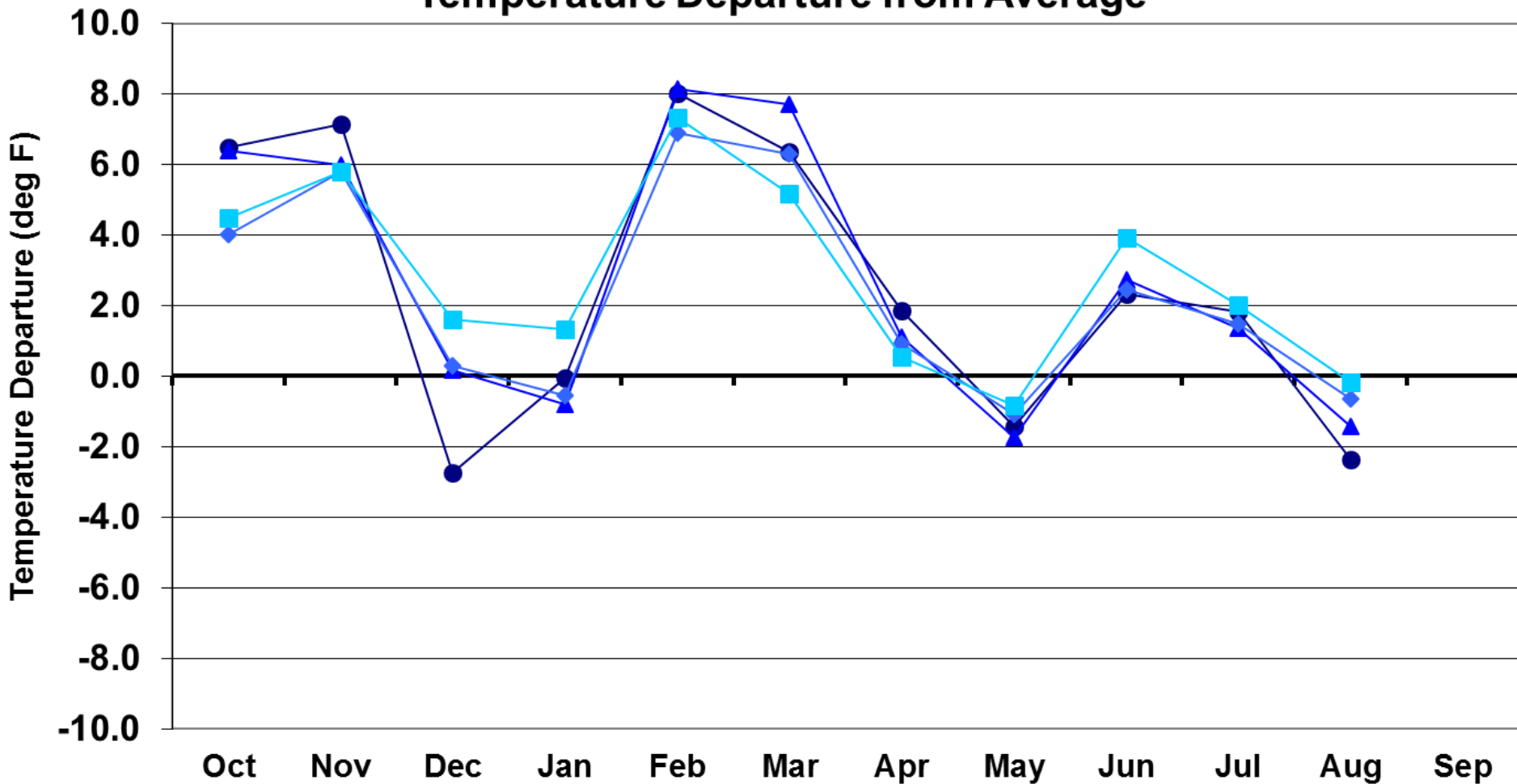
Climate Update

Zach Schwalbe
Colorado Climate Center

Presented to
Water Availability Task Force
September 14, 2017
Denver, CO

Water Year 2017 Temperature Departures

Water Year 2017
Temperature Departure from Average



● Eastern Plains

▲ Foothills

◆ Mountains

■ Western Valleys

Aug 2017 Average Temperature History for Colorado (NCEI)

64.6 F (-0.6)

38th coolest on record,

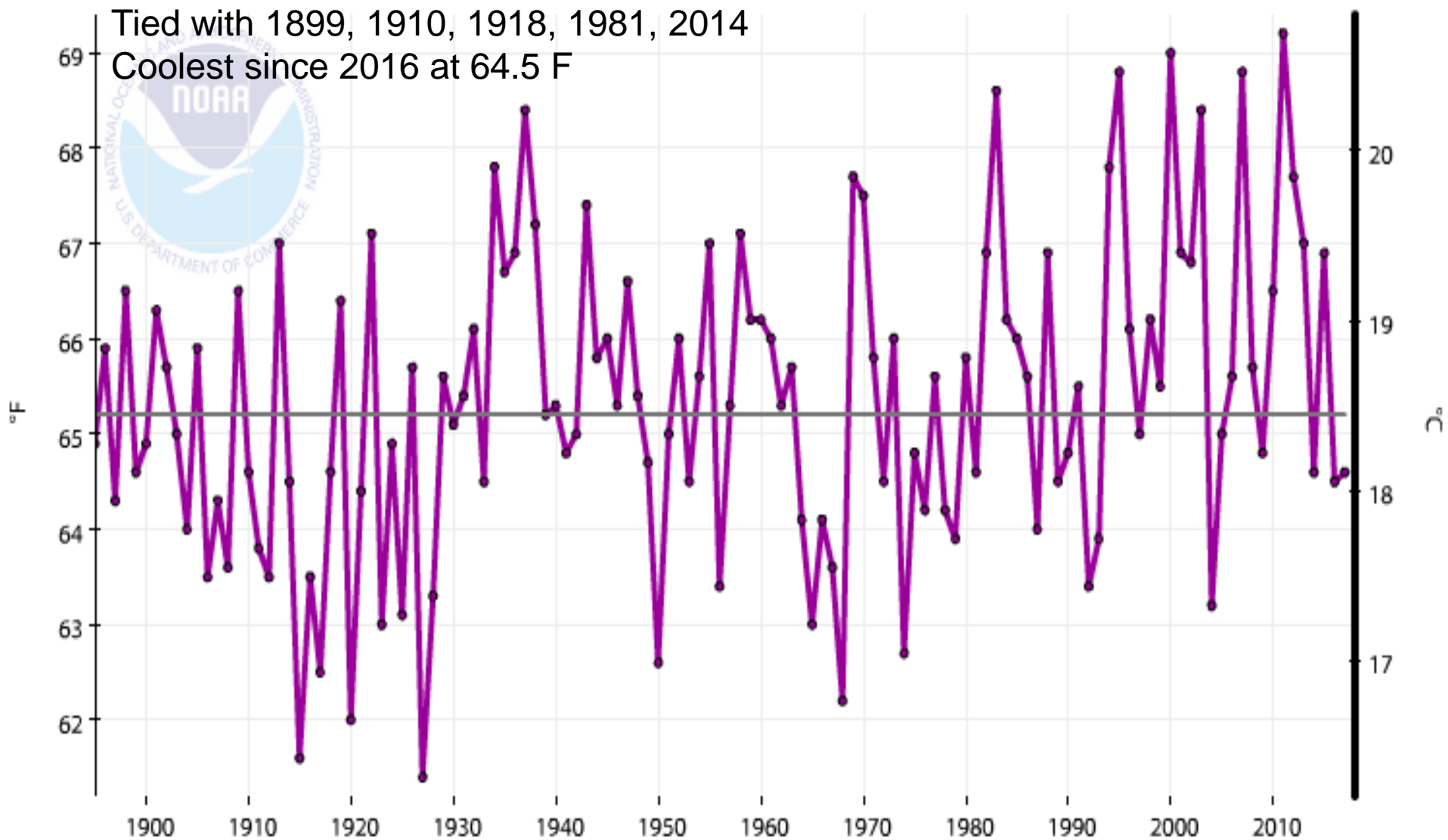
Tied with 1899, 1910, 1918, 1981, 2014

Coollest since 2016 at 64.5 F

Colorado, Average Temperature, August

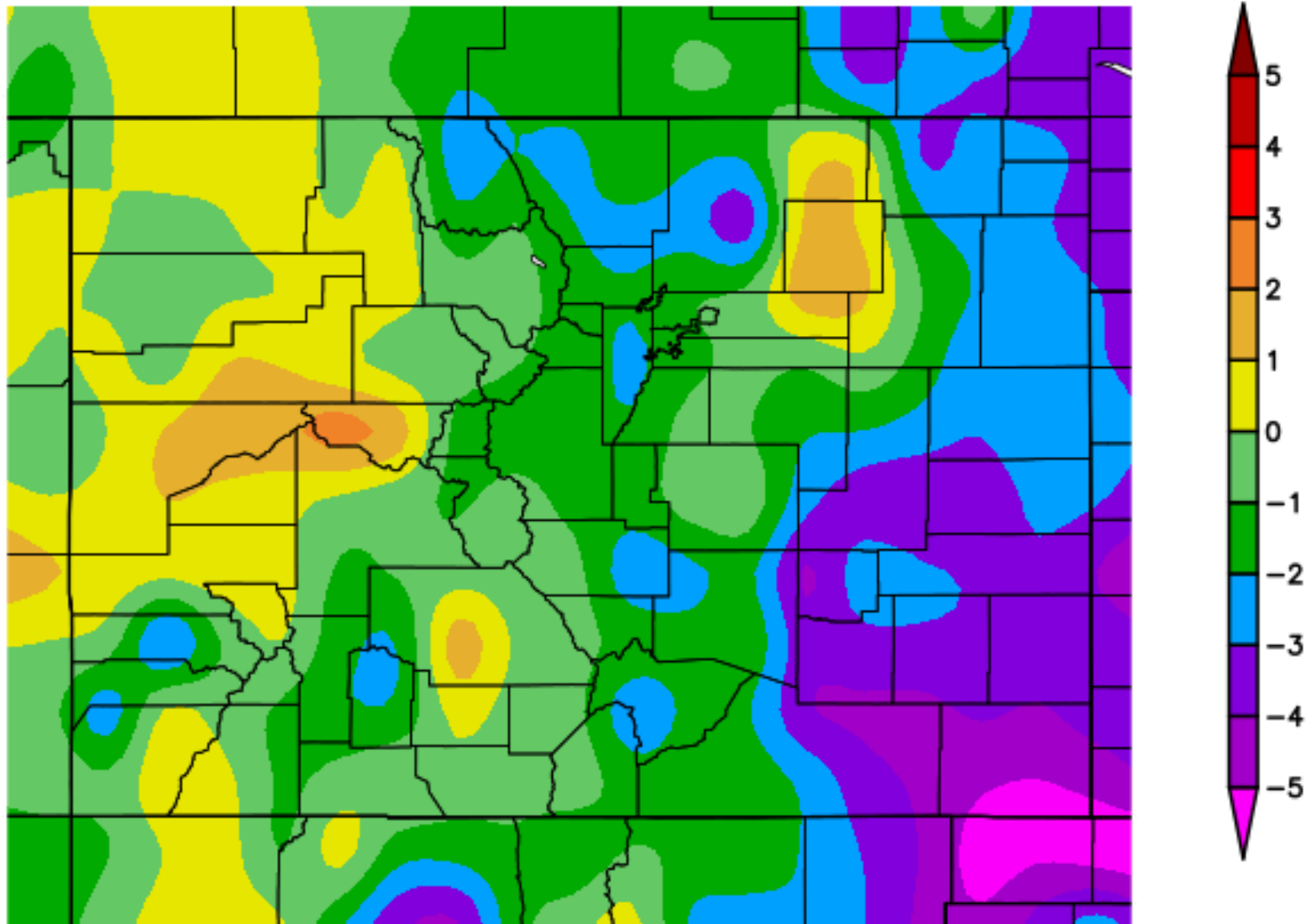
— 1901-2000
Mean: 65.2°F

● Avg Temperature



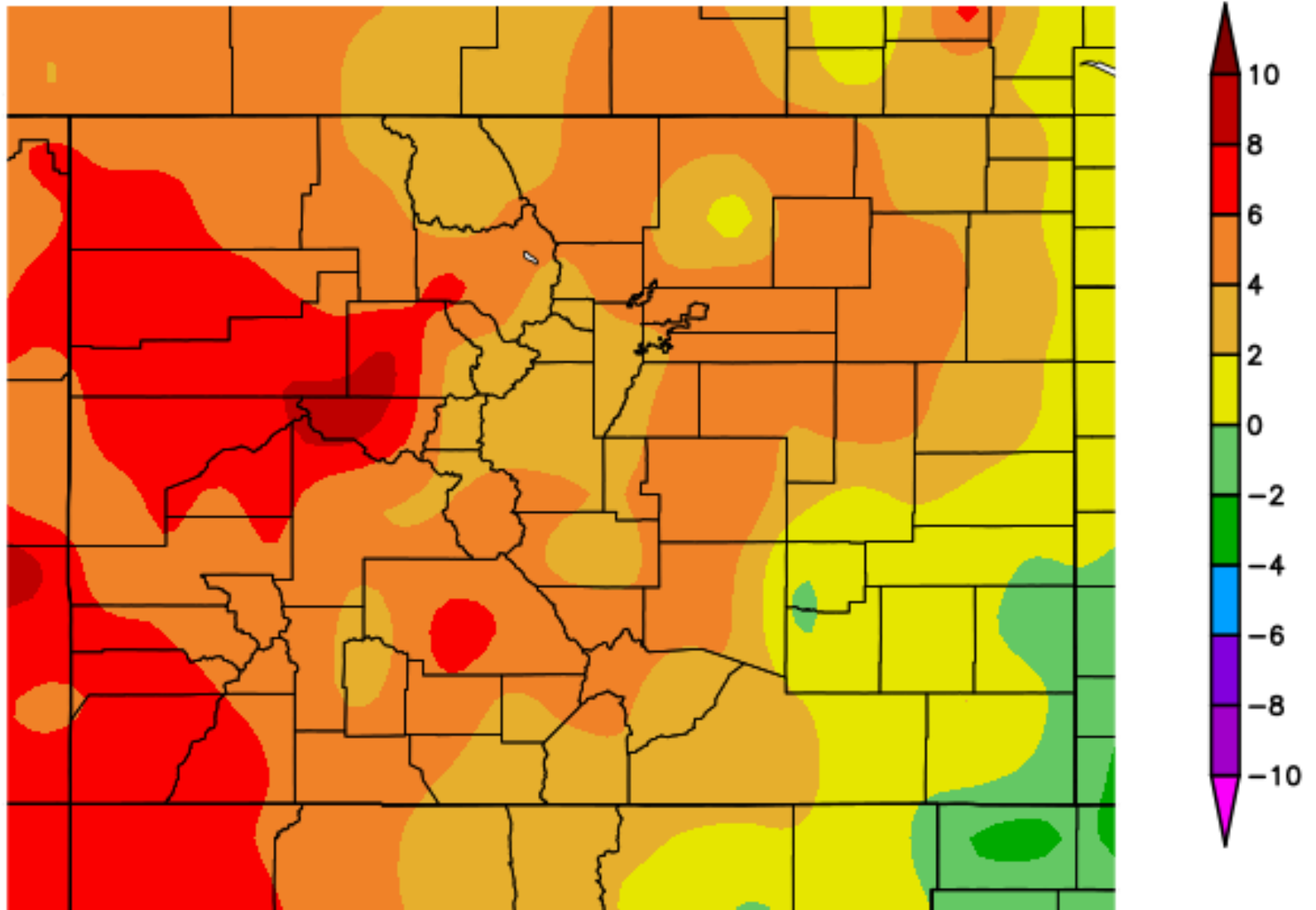
Departure from Normal Temperature (F)

8/1/2017 - 8/31/2017



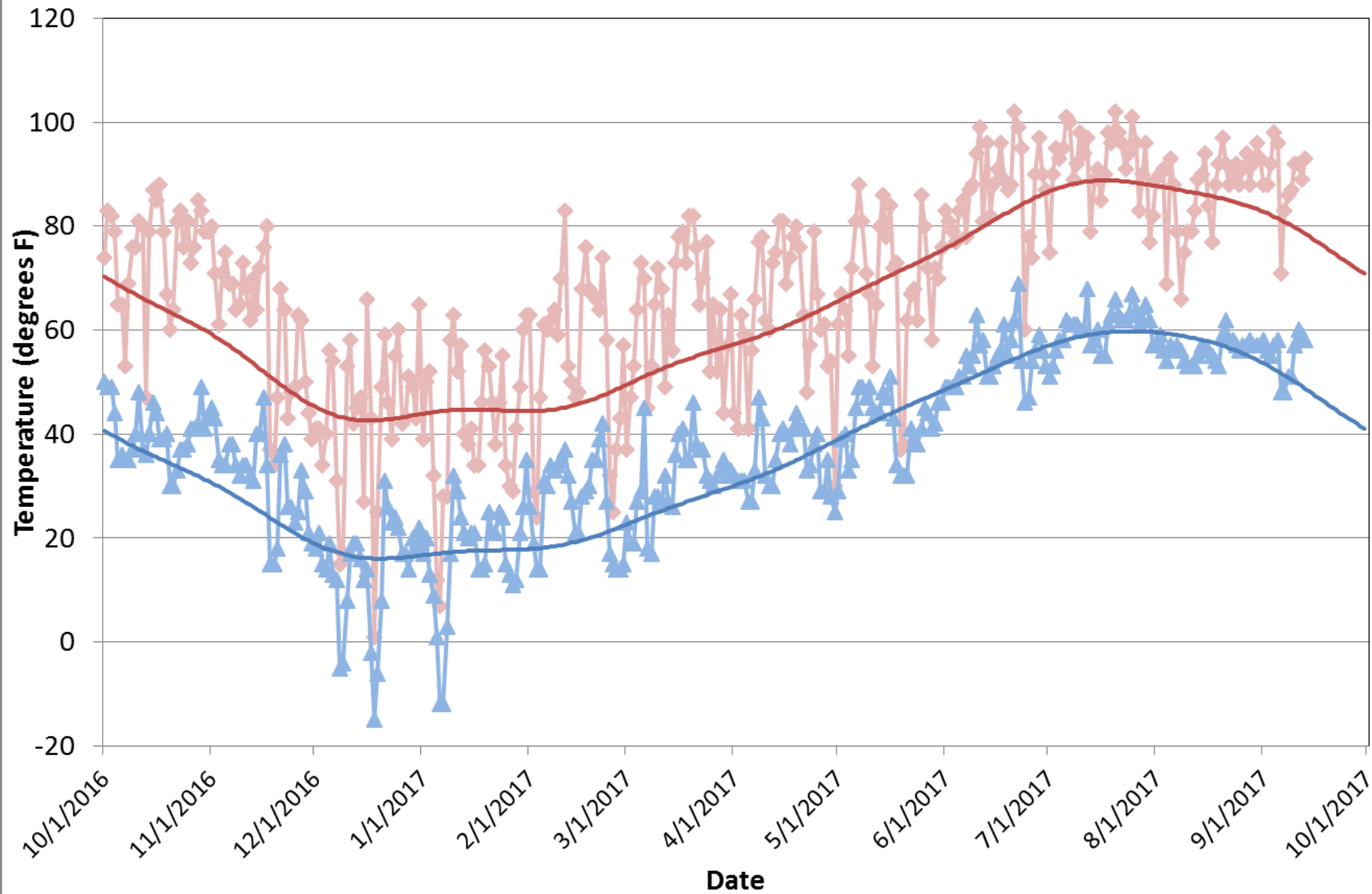
Departure from Normal Temperature (F)

9/1/2017 - 9/12/2017



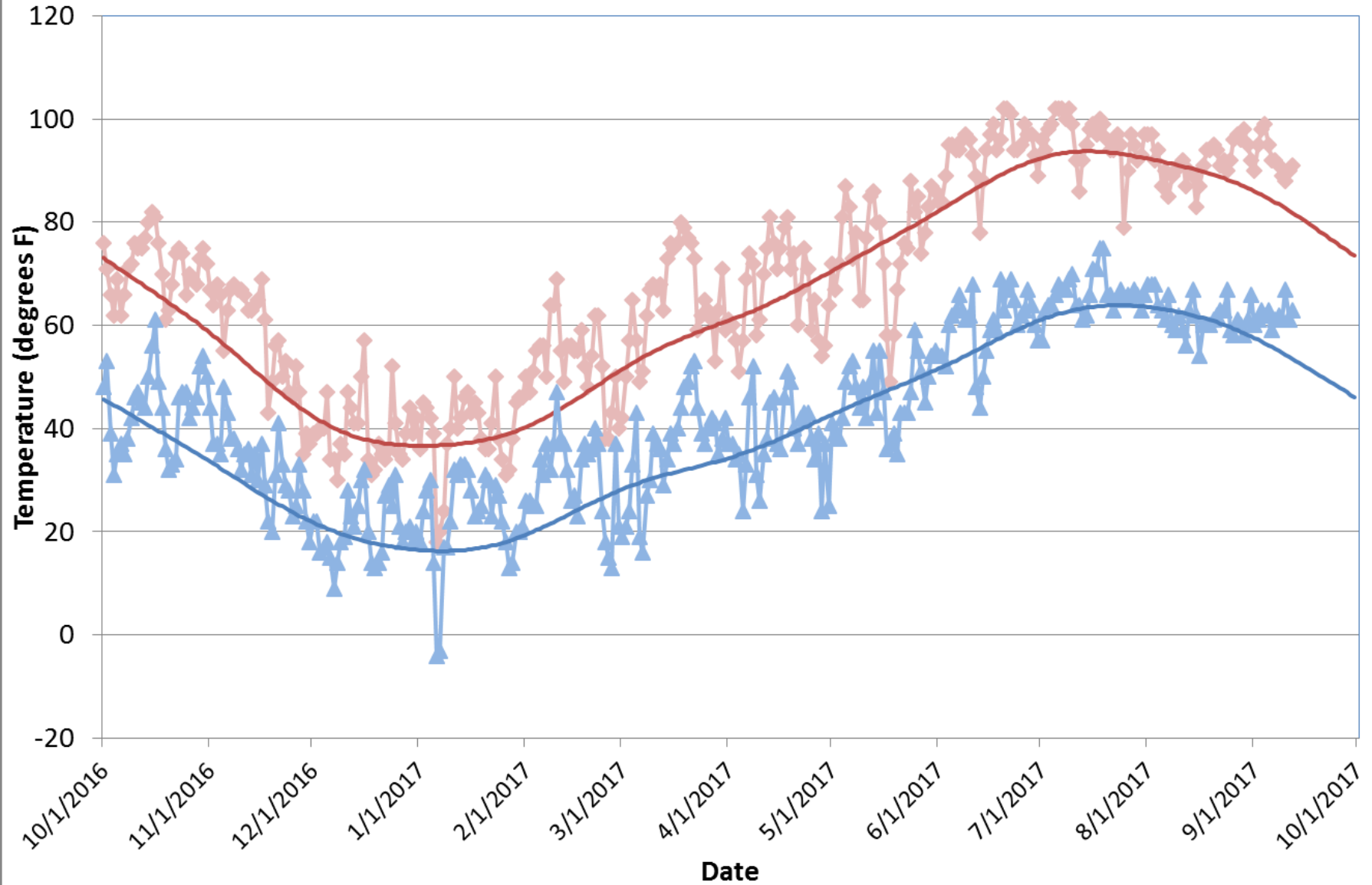
Denver-Stapleton Daily Max/Min Temperatures with Normals, Water Year 2017

Max Temperature Normal Max Temp Min Temperature Normal Min Temp

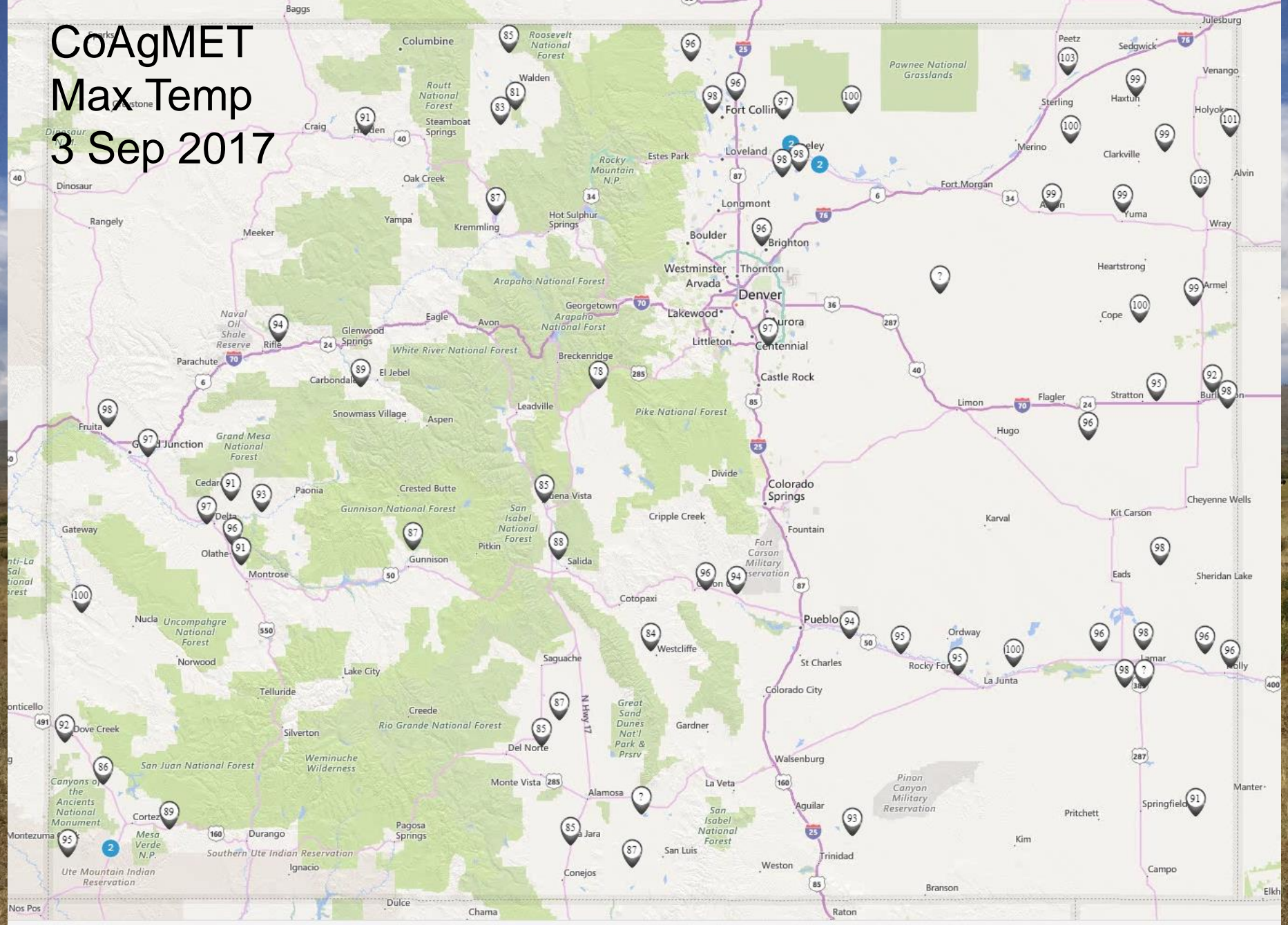


Grand Junction Daily Max/Min Temperature with Normals, WY 2017

Max Temperature Normal Max Temp Min Temperature Normal Min Temp

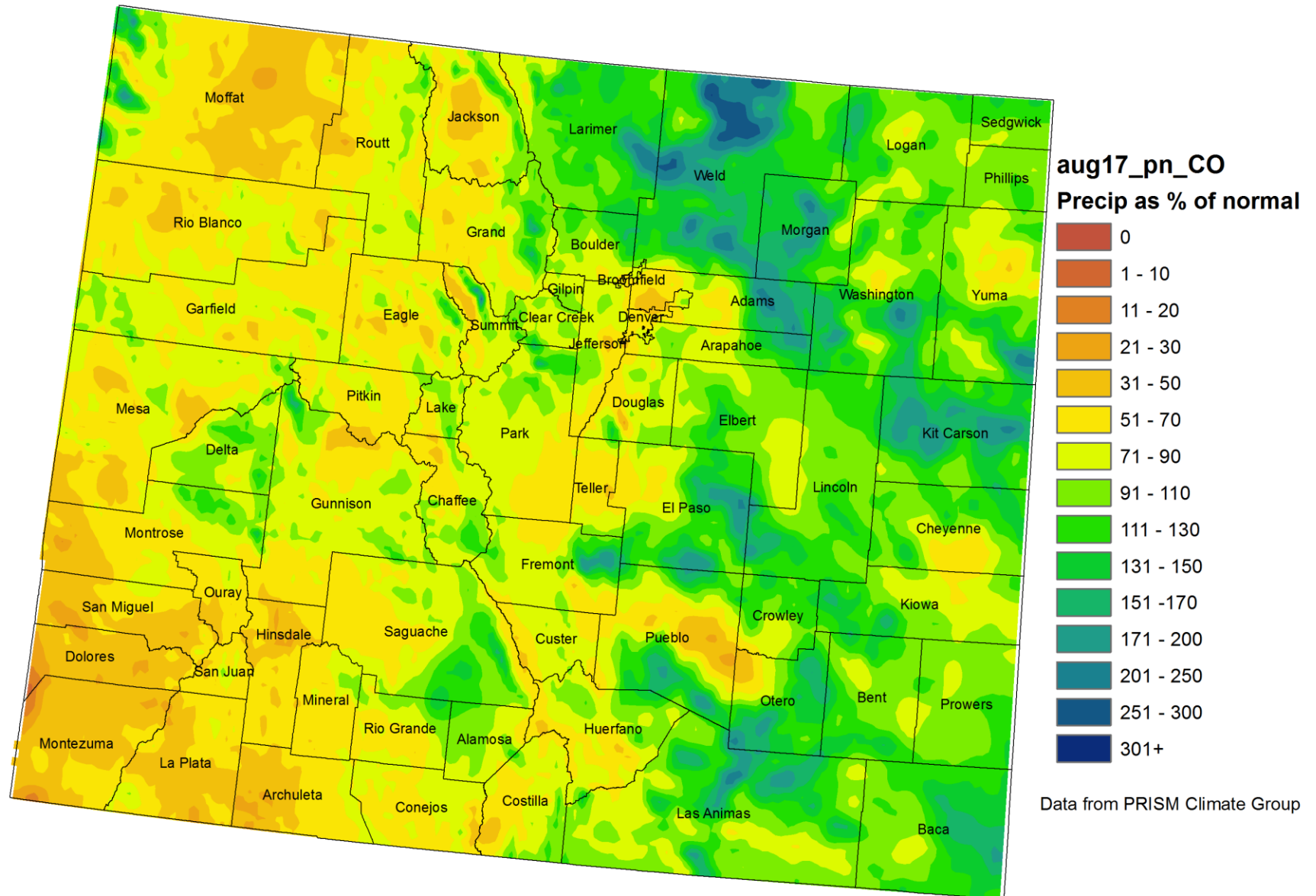


CoAgMET Max Temp 3 Sep 2017



Displaying Daily Max Temperature (f)
Sunday, September 3rd 2017 MST

Colorado August 2017 Precipitation as a Percentage of Normal



Data from PRISM Climate Group

Aug 2017 Statewide Precipitation

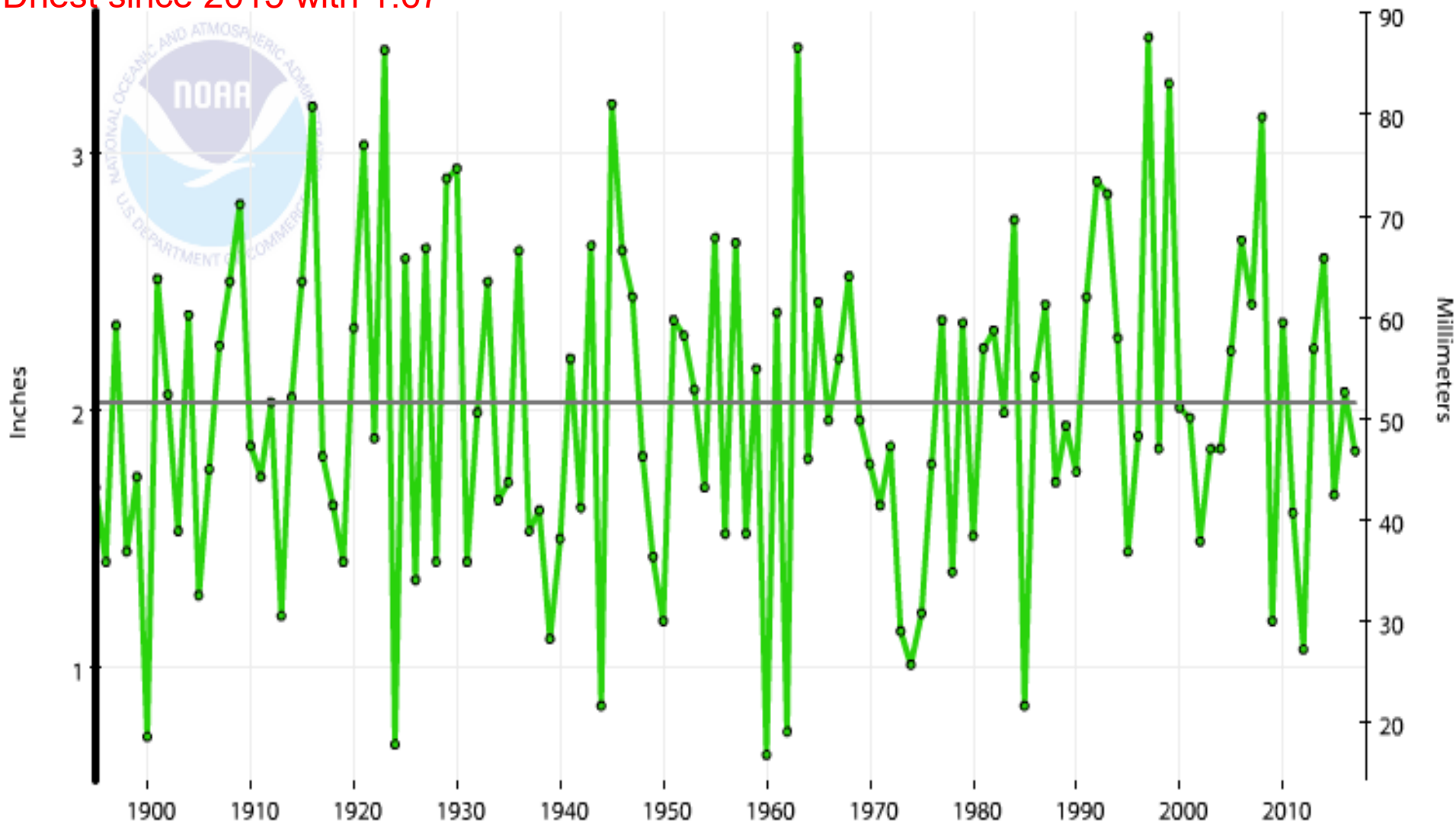
1.84" (-0.19")

52nd driest on record 1895-2017.

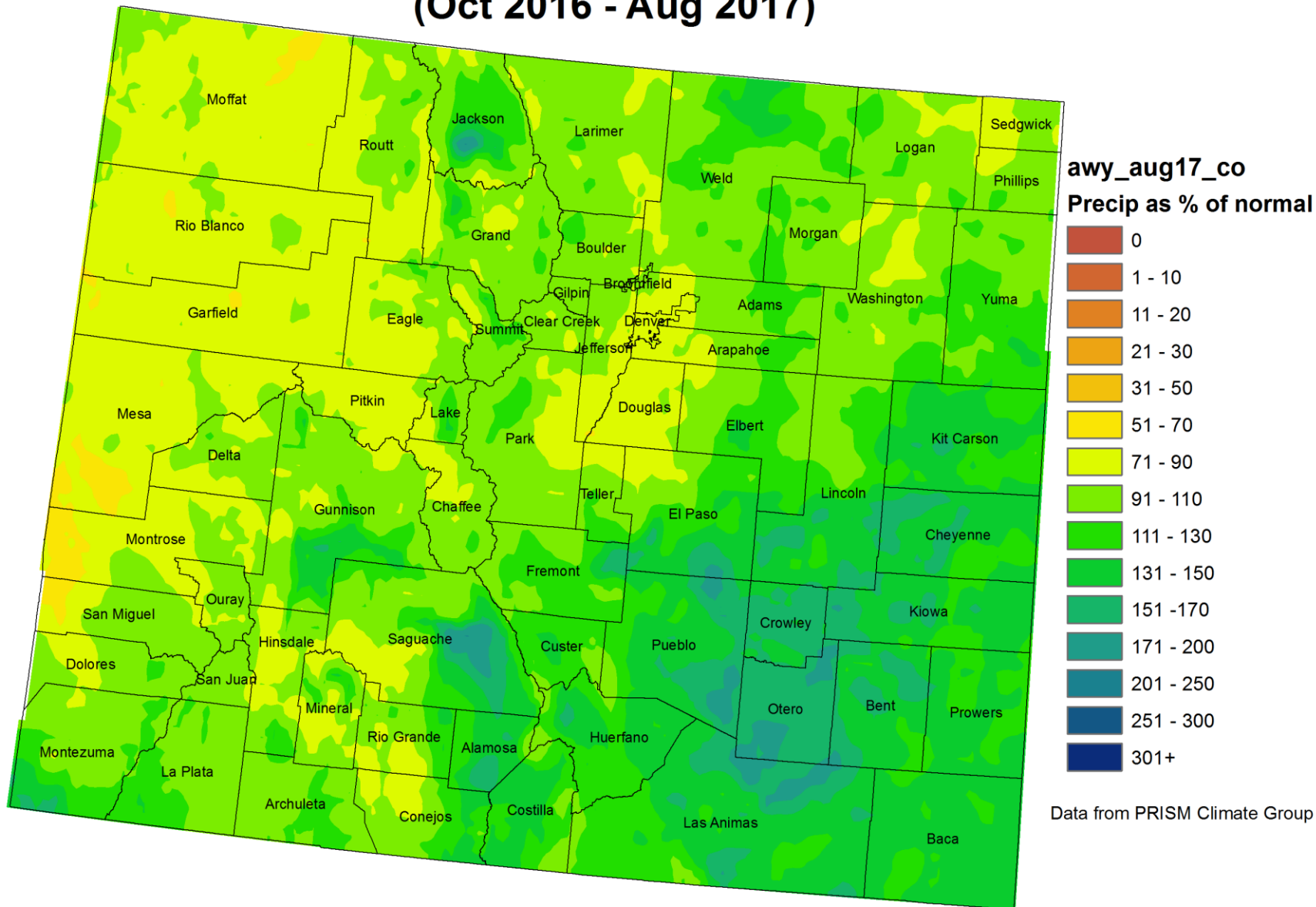
Driest since 2015 with 1.67"

Colorado, Precipitation, August

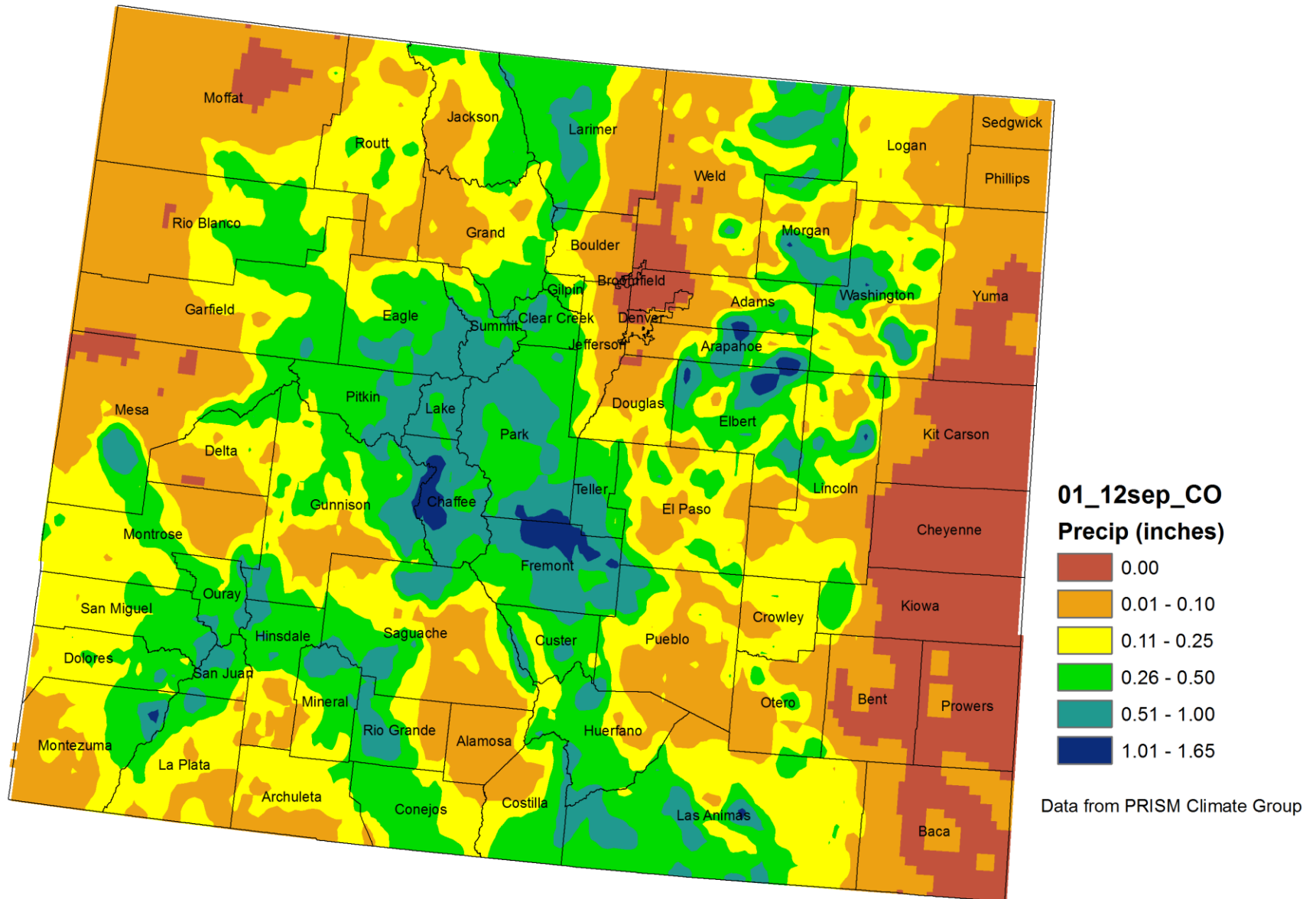
— 1901-2000 Mean: 2.03" ■ Precip



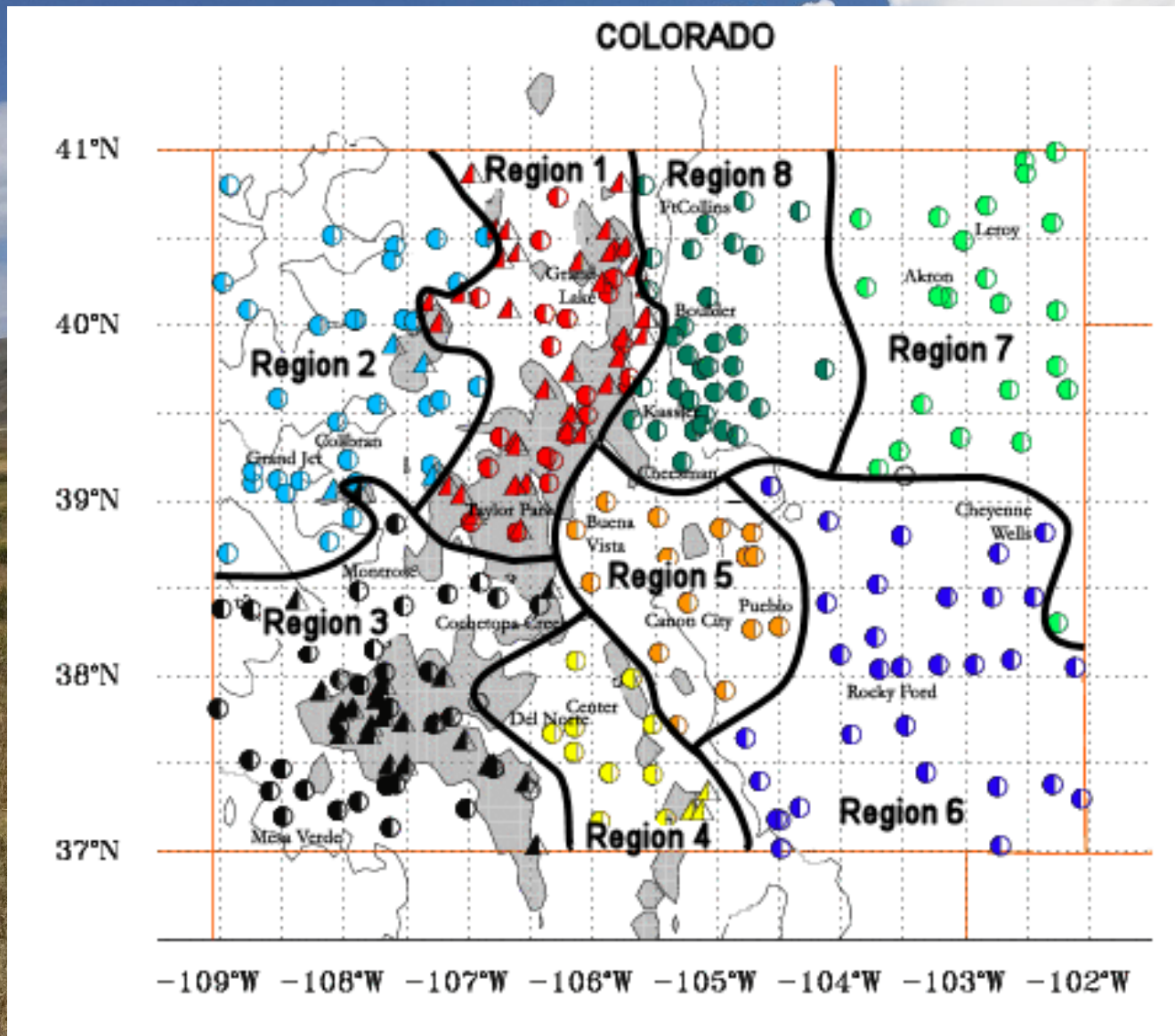
Colorado Water Year to Date Precipitation as a Percentage of Normal (Oct 2016 - Aug 2017)



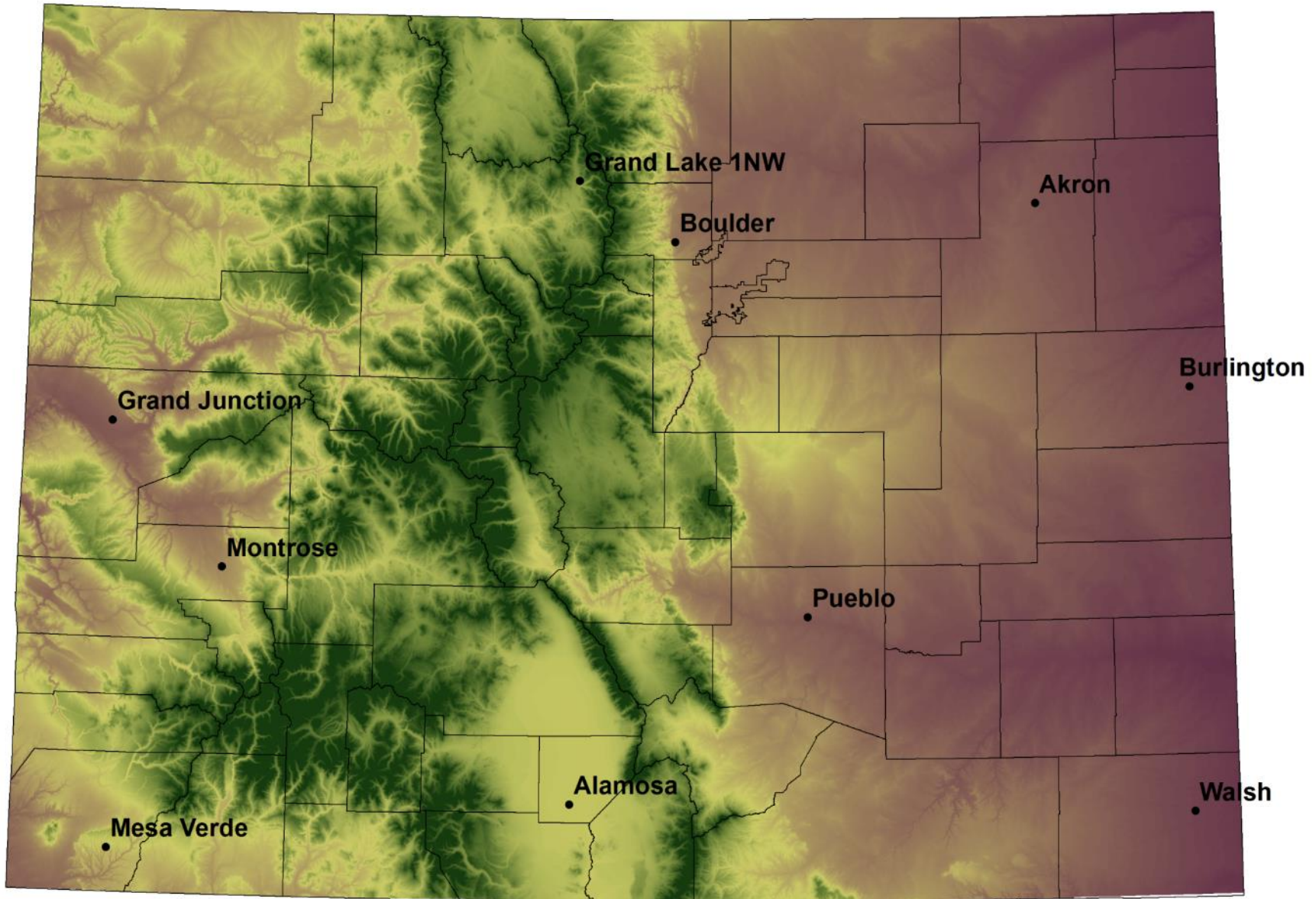
Colorado Month to Date Precipitation 1 - 12 September 2017 Ending 7AM MST



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

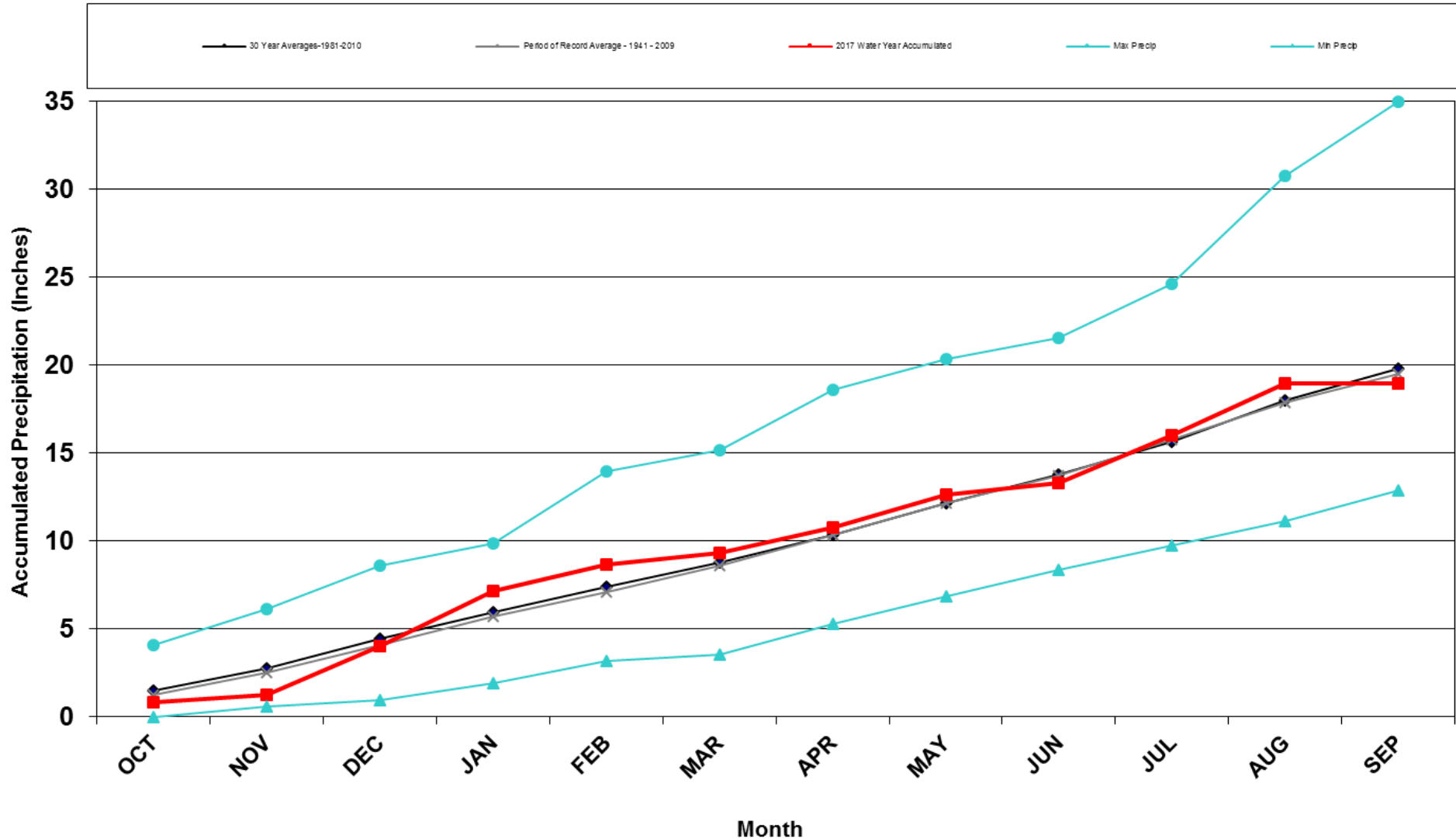


NWS Cooperative Stations for WATF



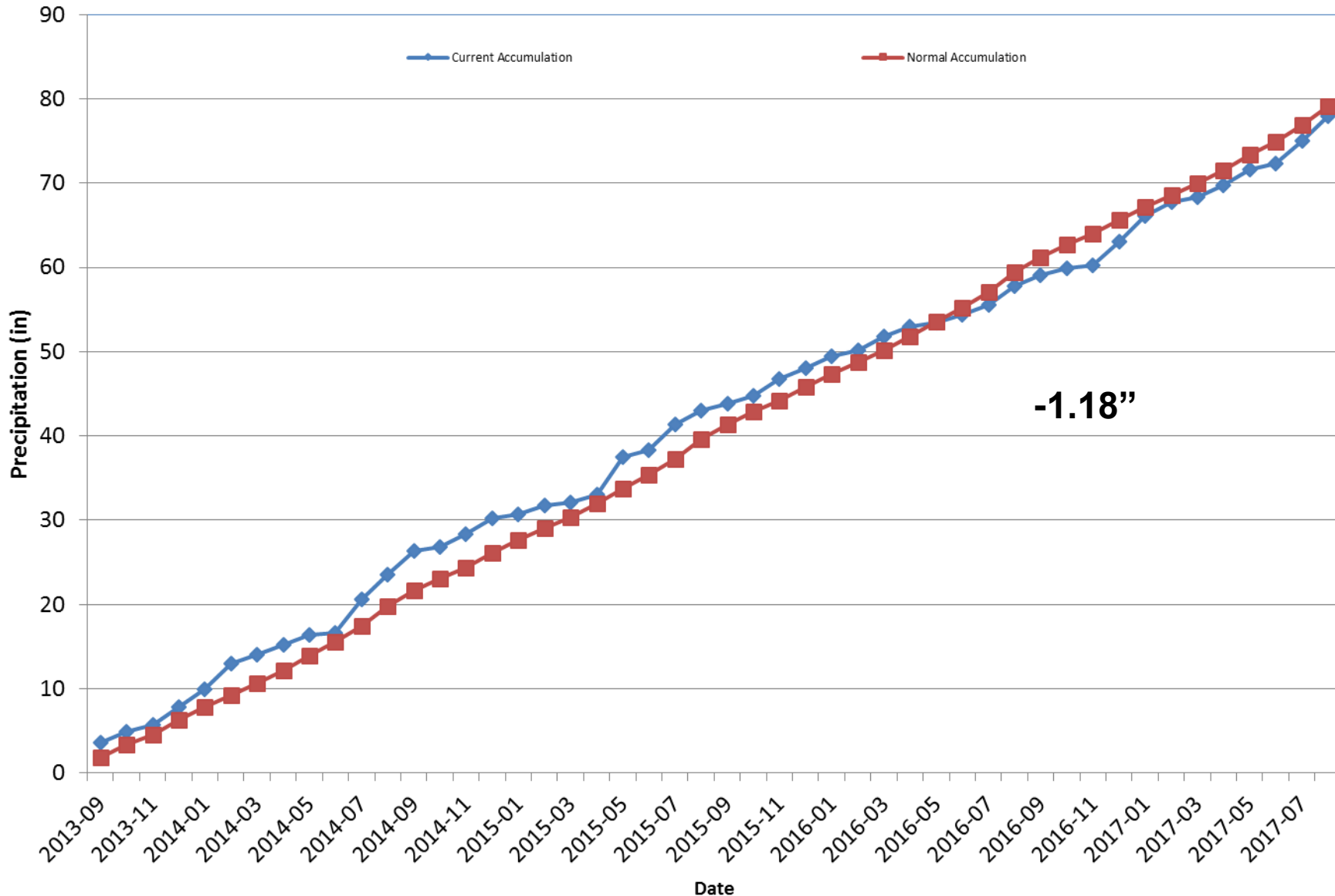
Division 1 – Grand Lake 1NW

Grand Lake 1 NW 2017 Water Year



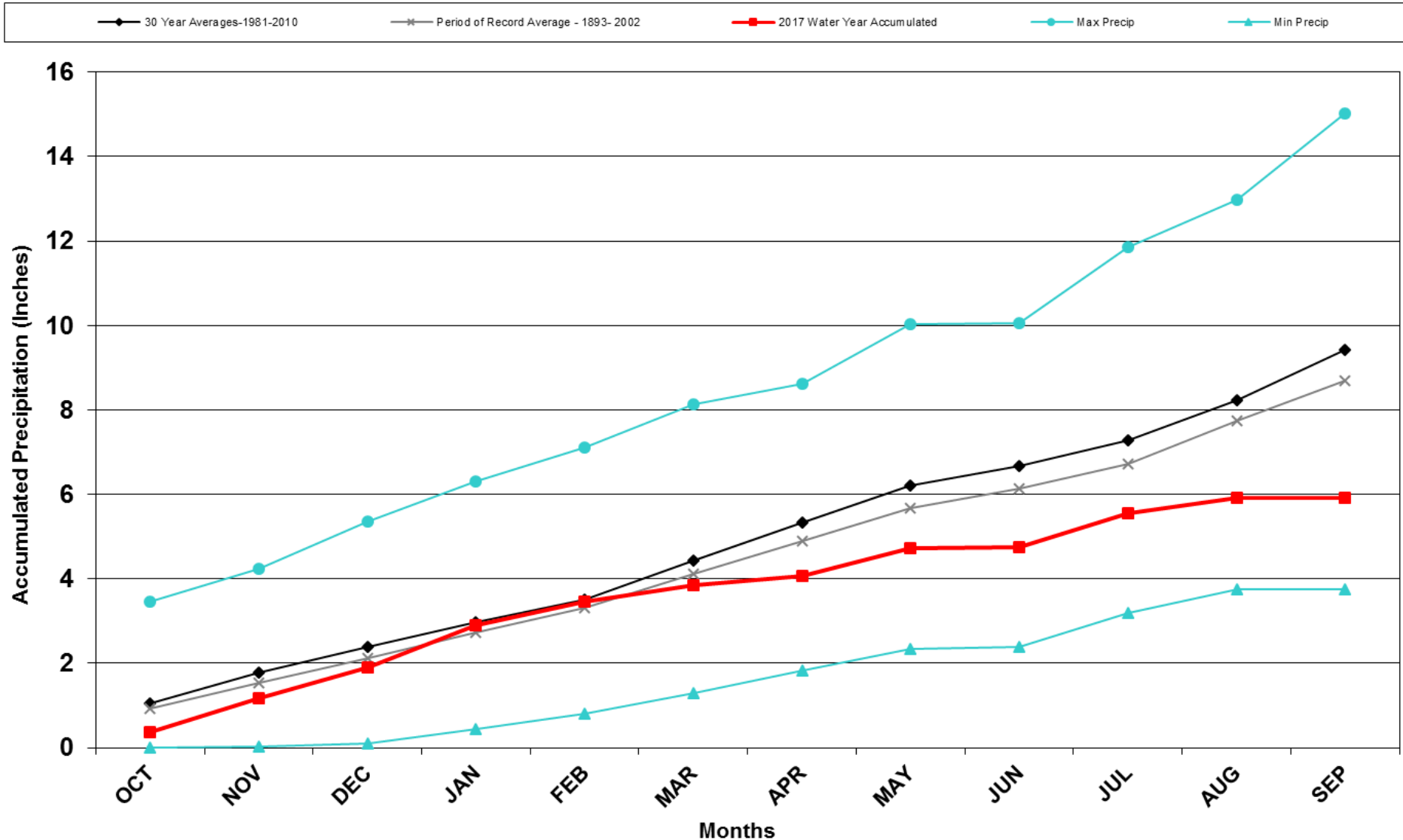
Division 1 – Grand Lake 1NW

Grand Lake 1NW Precipitation Accumulation



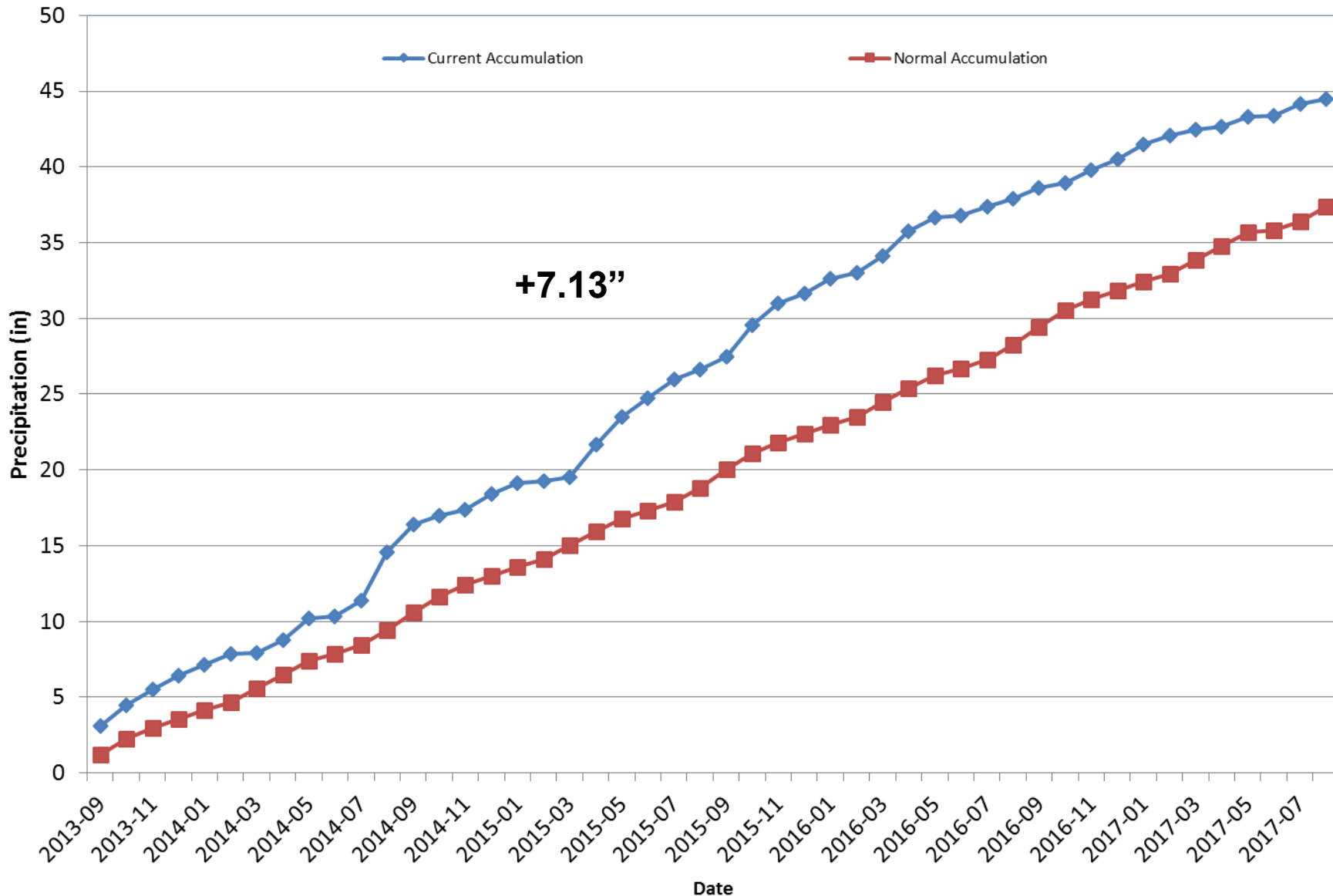
Division 2 – Grand Junction

Grand Junction WSFO 2017 Water Year



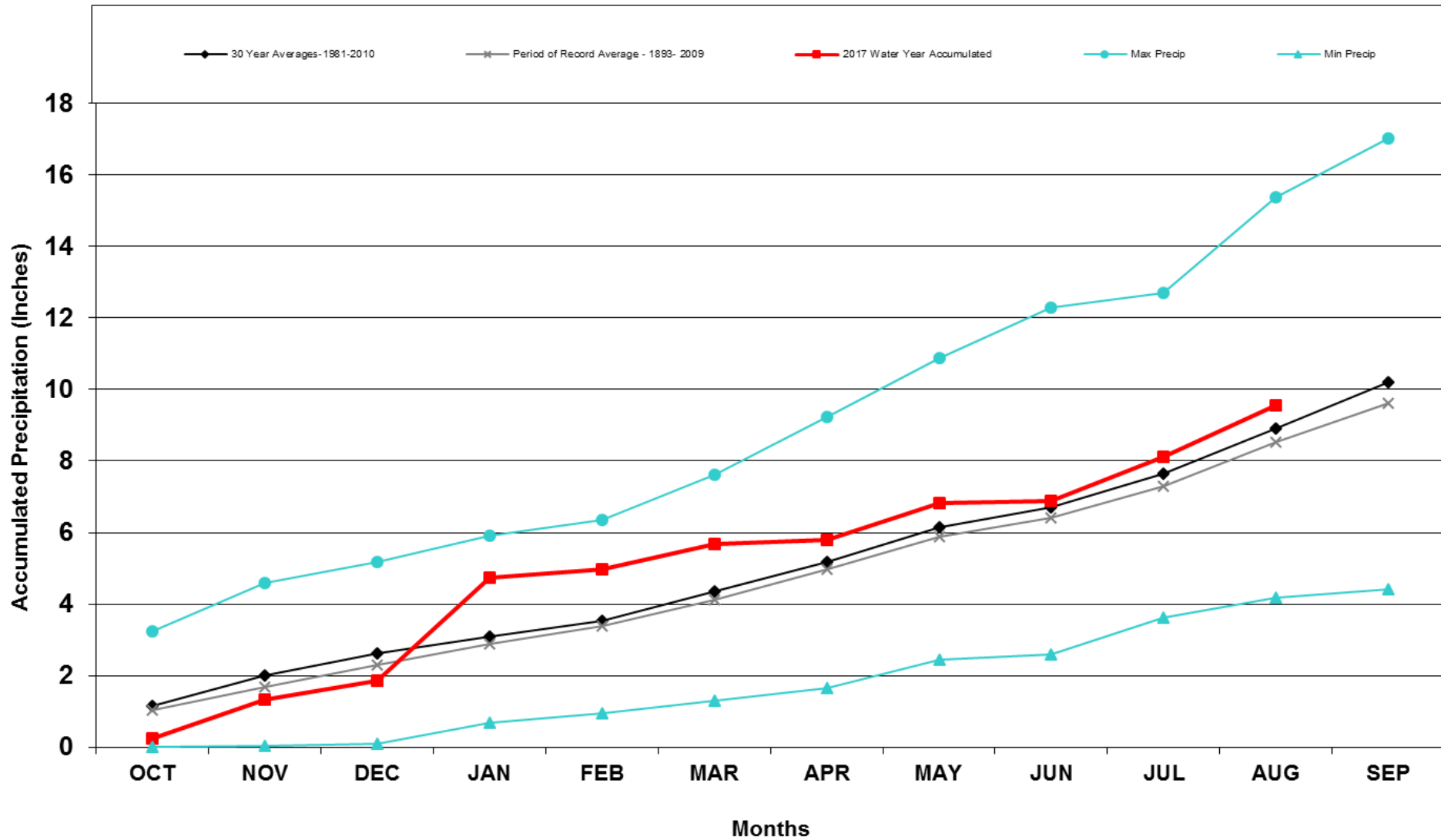
Division 2 – Grand Junction

Grand Junction Precipitation Accumulation



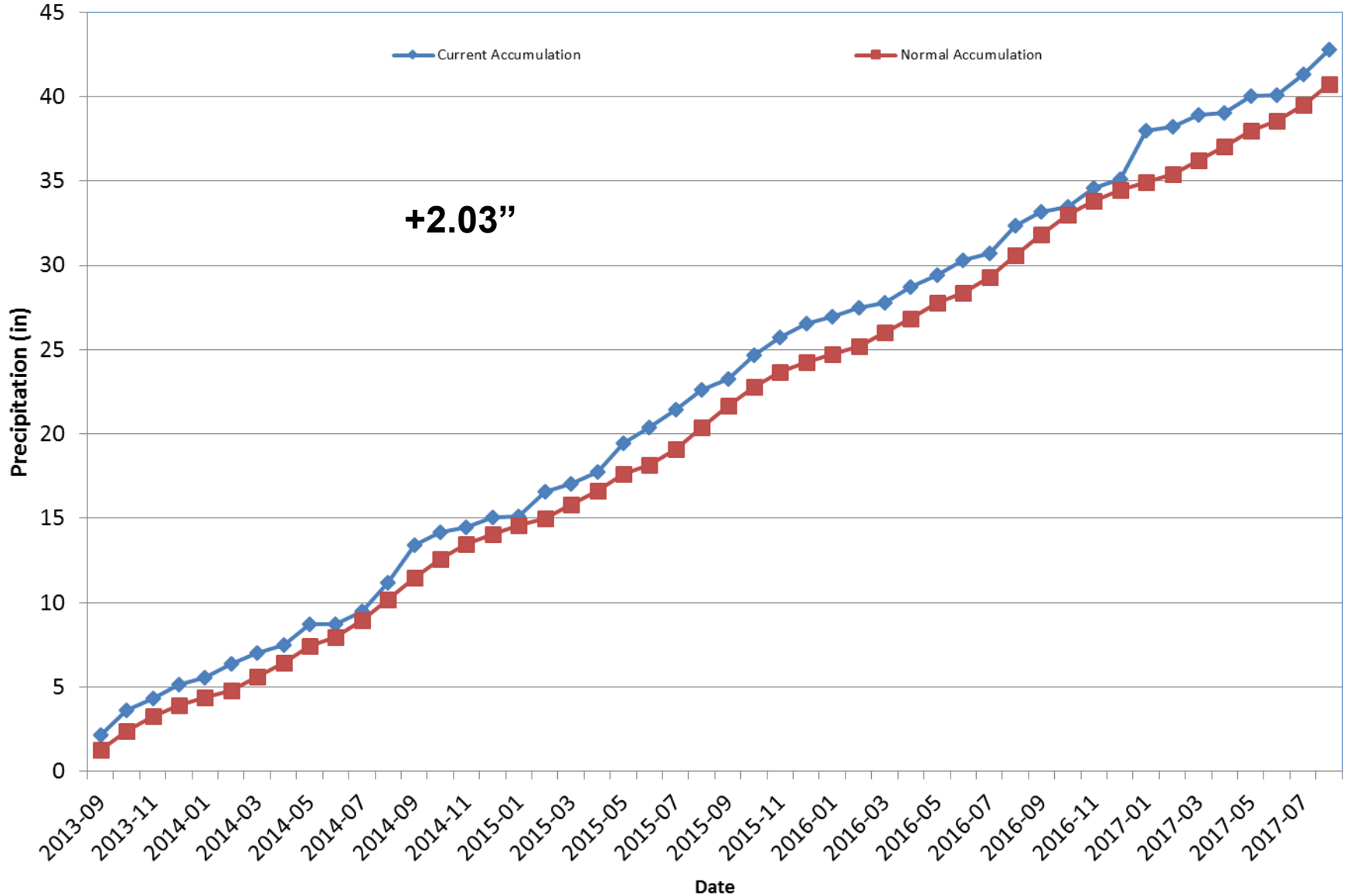
Division 3 – Montrose

Montrose #2 2017 Water Year



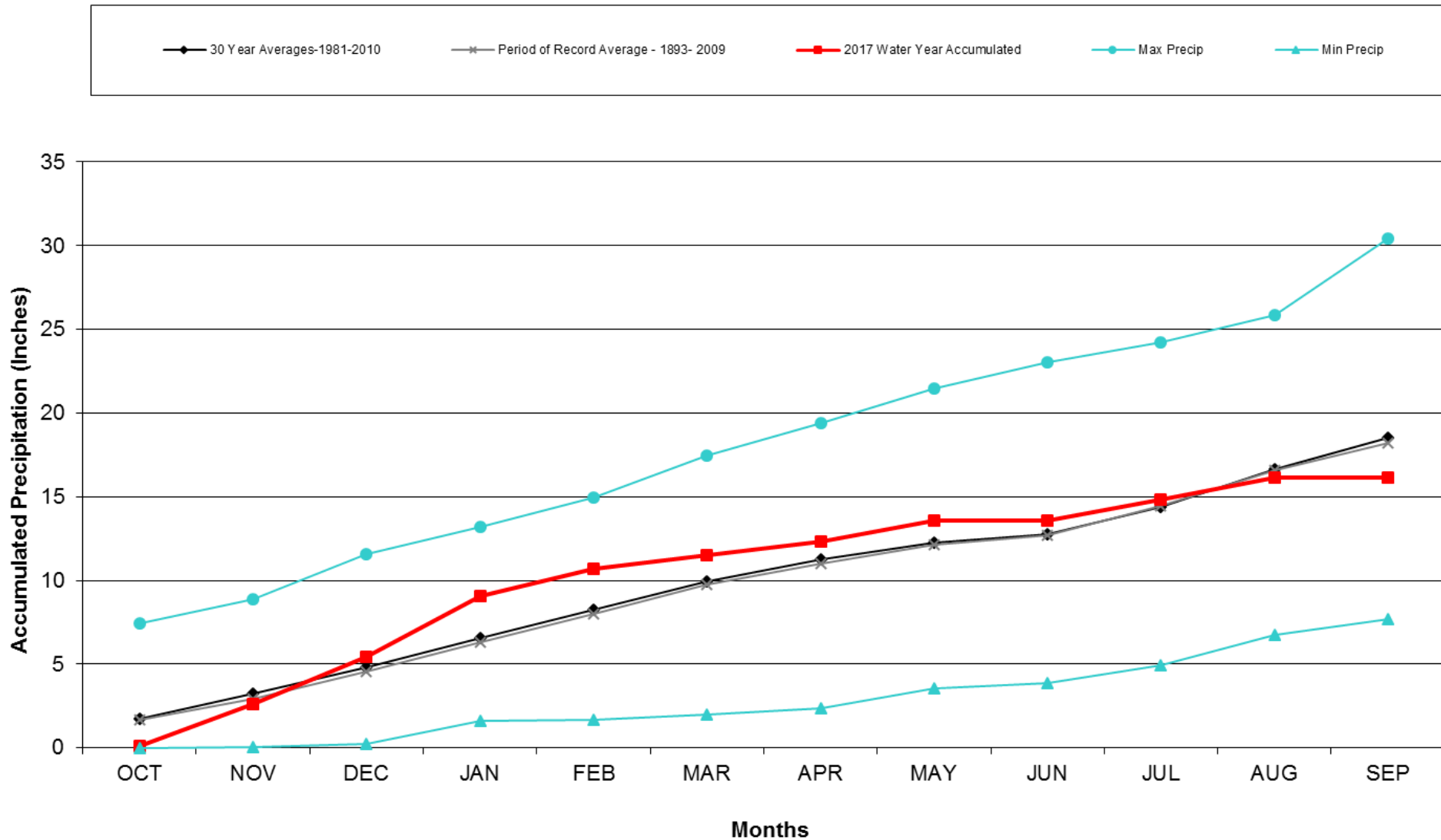
Division 3 – Montrose

Montrose #2 Precipitation Accumulation



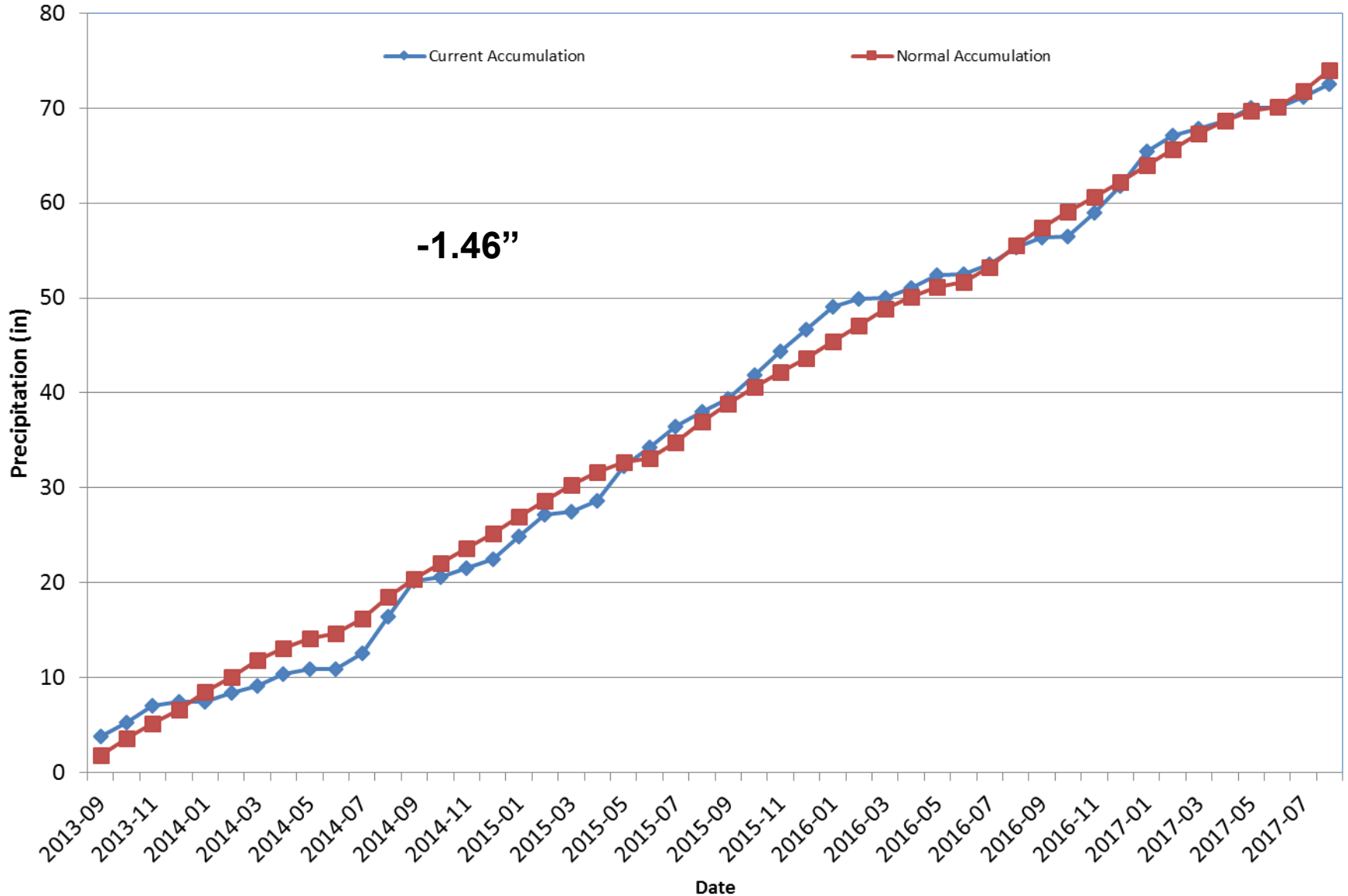
Division 3 – Mesa Verde NP

Mesa Verde NP 2017 Water Year



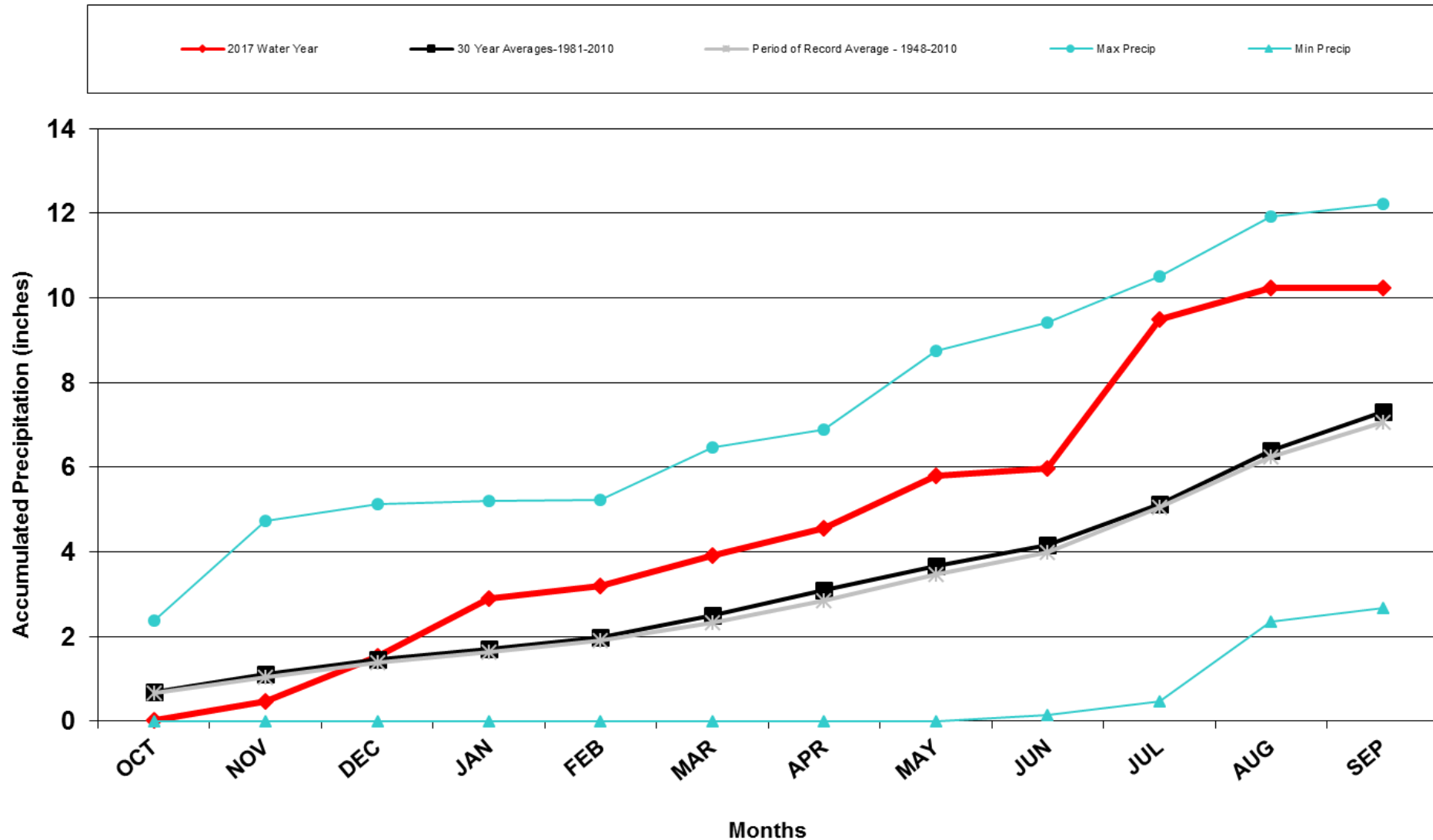
Division 3 – Mesa Verde NP

Mesa Verde NP Precipitation Accumulation



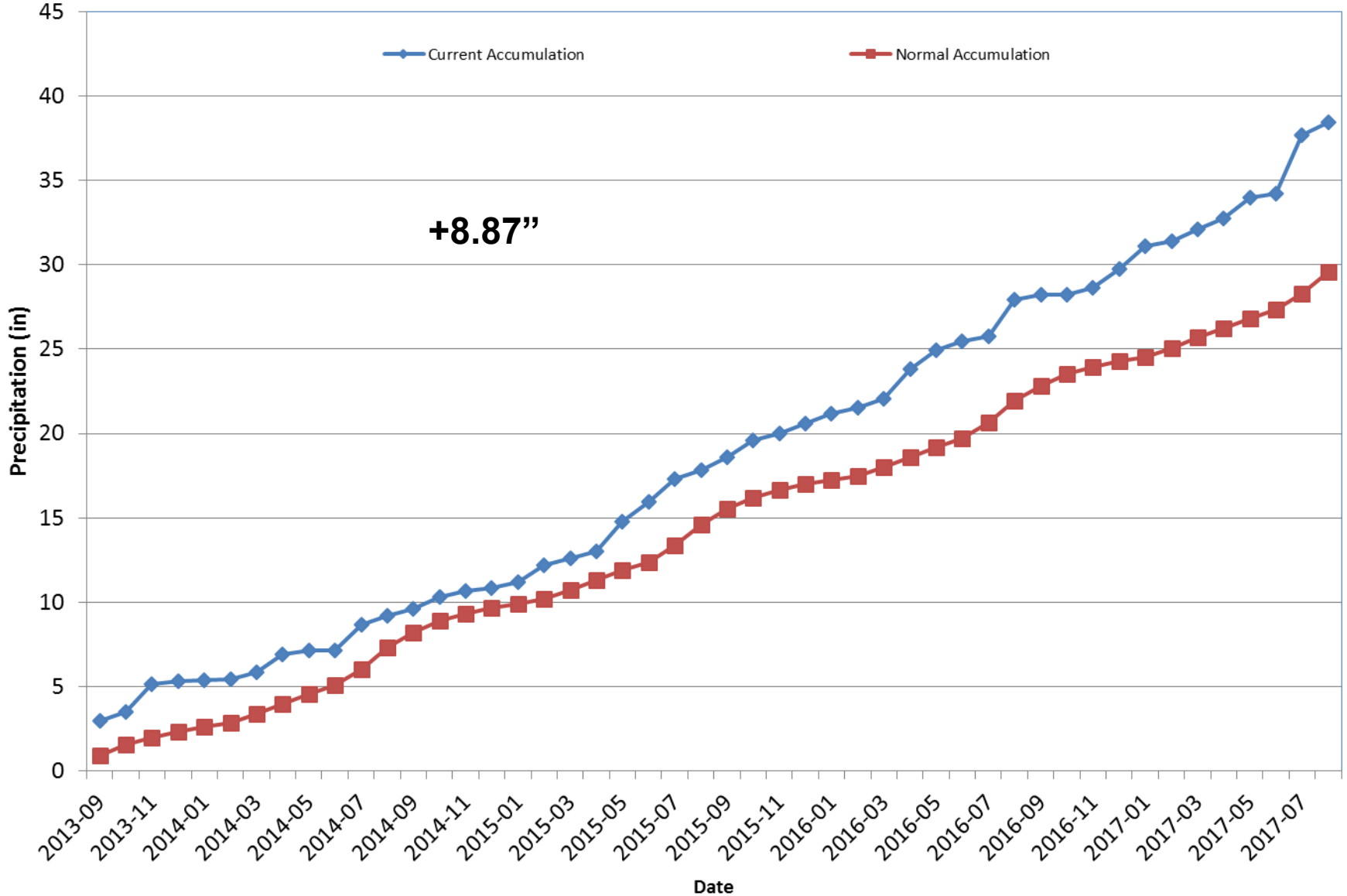
Division 4 – Alamosa

Alamosa WSO 2017 Water Year



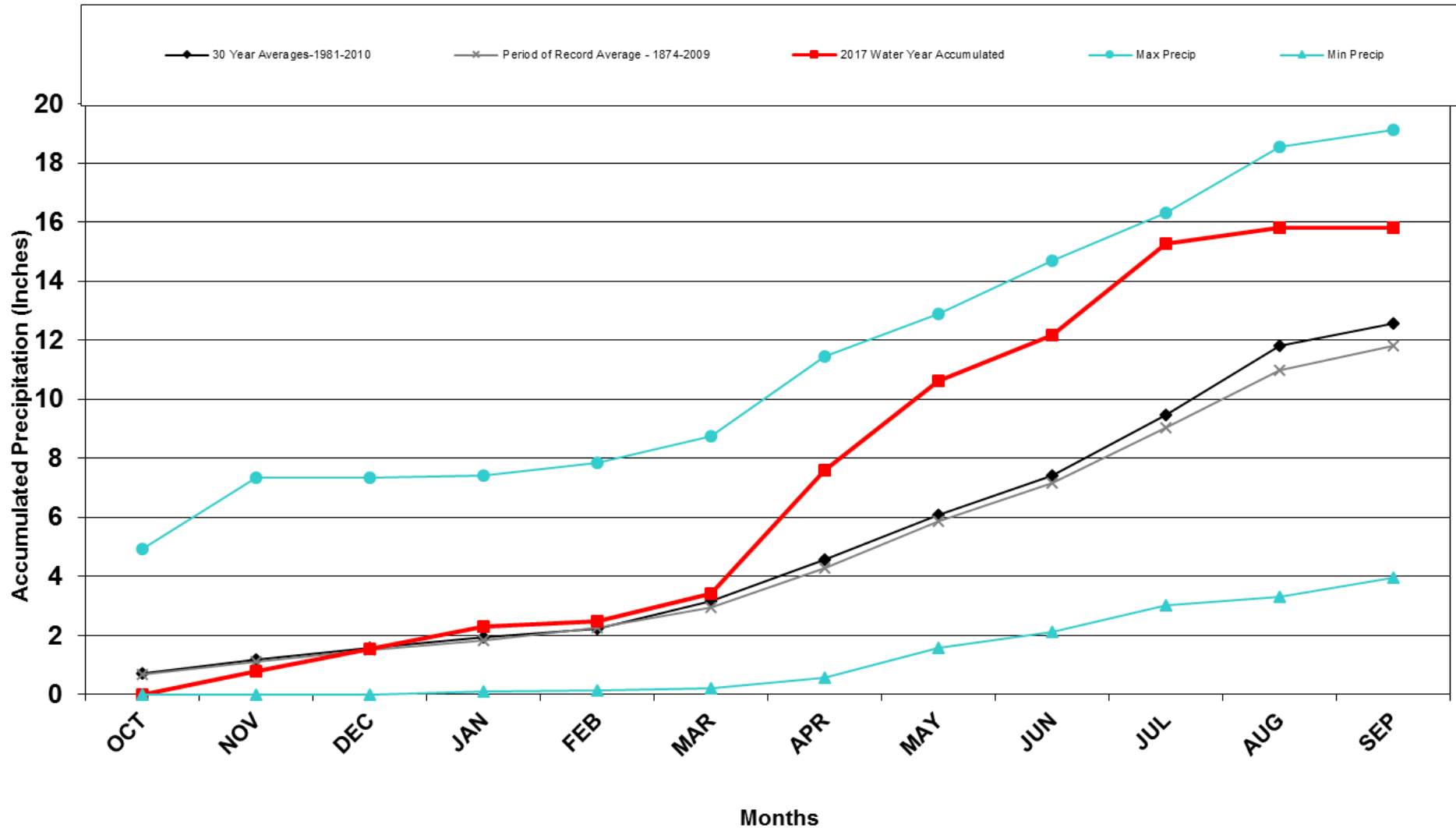
Division 4 – Alamosa

Alamosa WSO Precipitation Accumulation



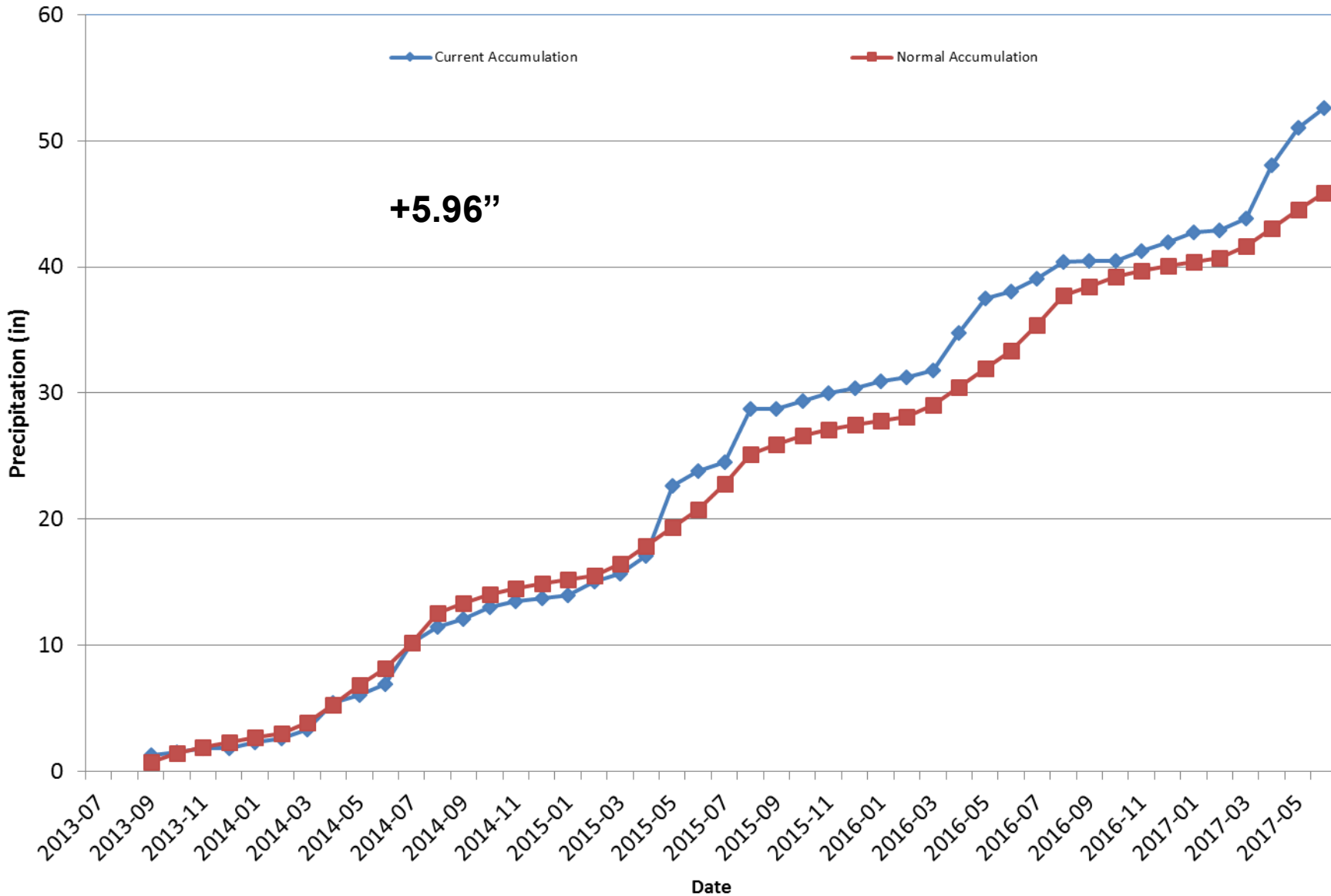
Division 5 – Pueblo

Pueblo WSO 2017 Water Year



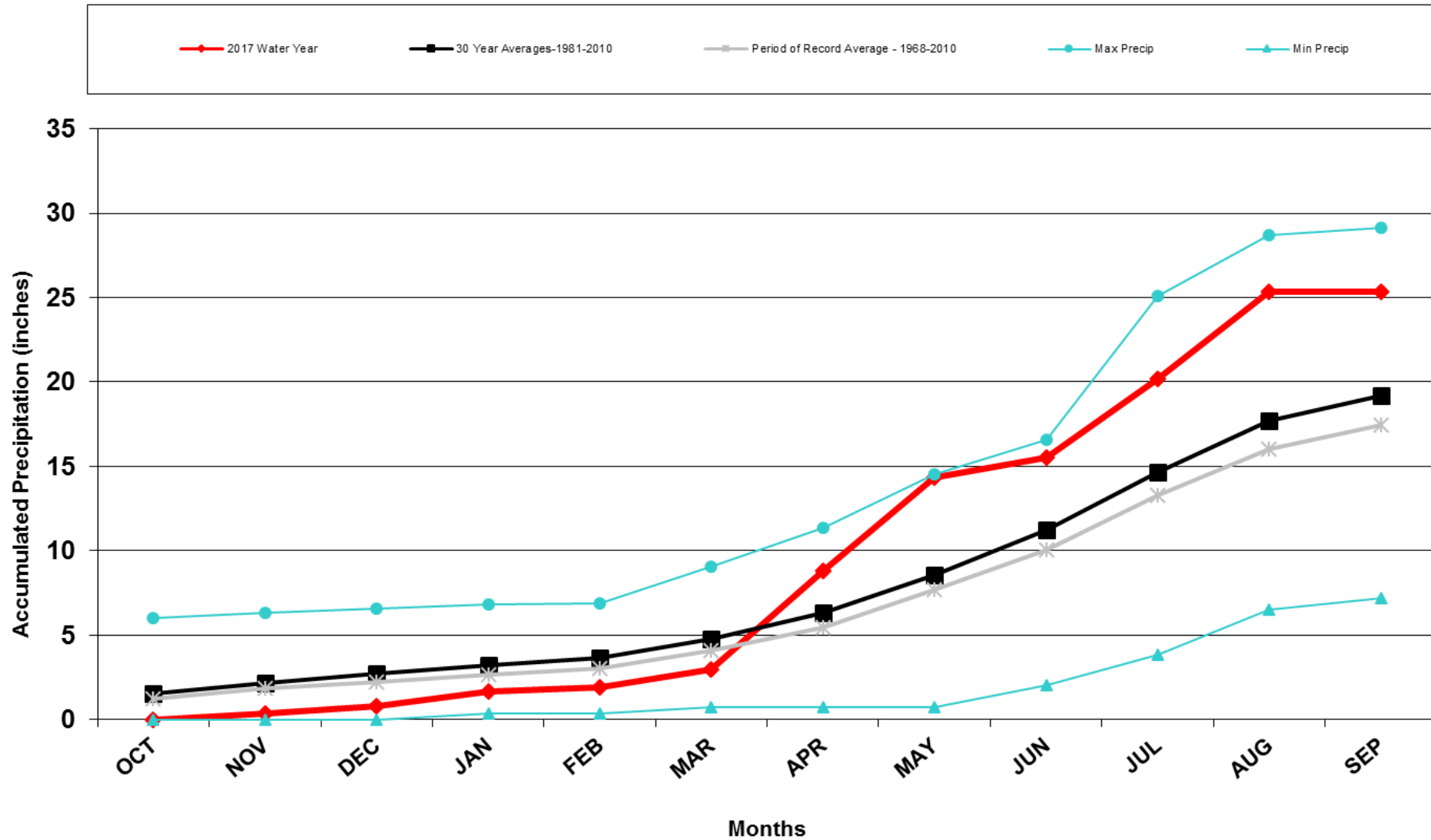
Division 5 – Pueblo

Pueblo Memorial AP Precipitation Accumulation



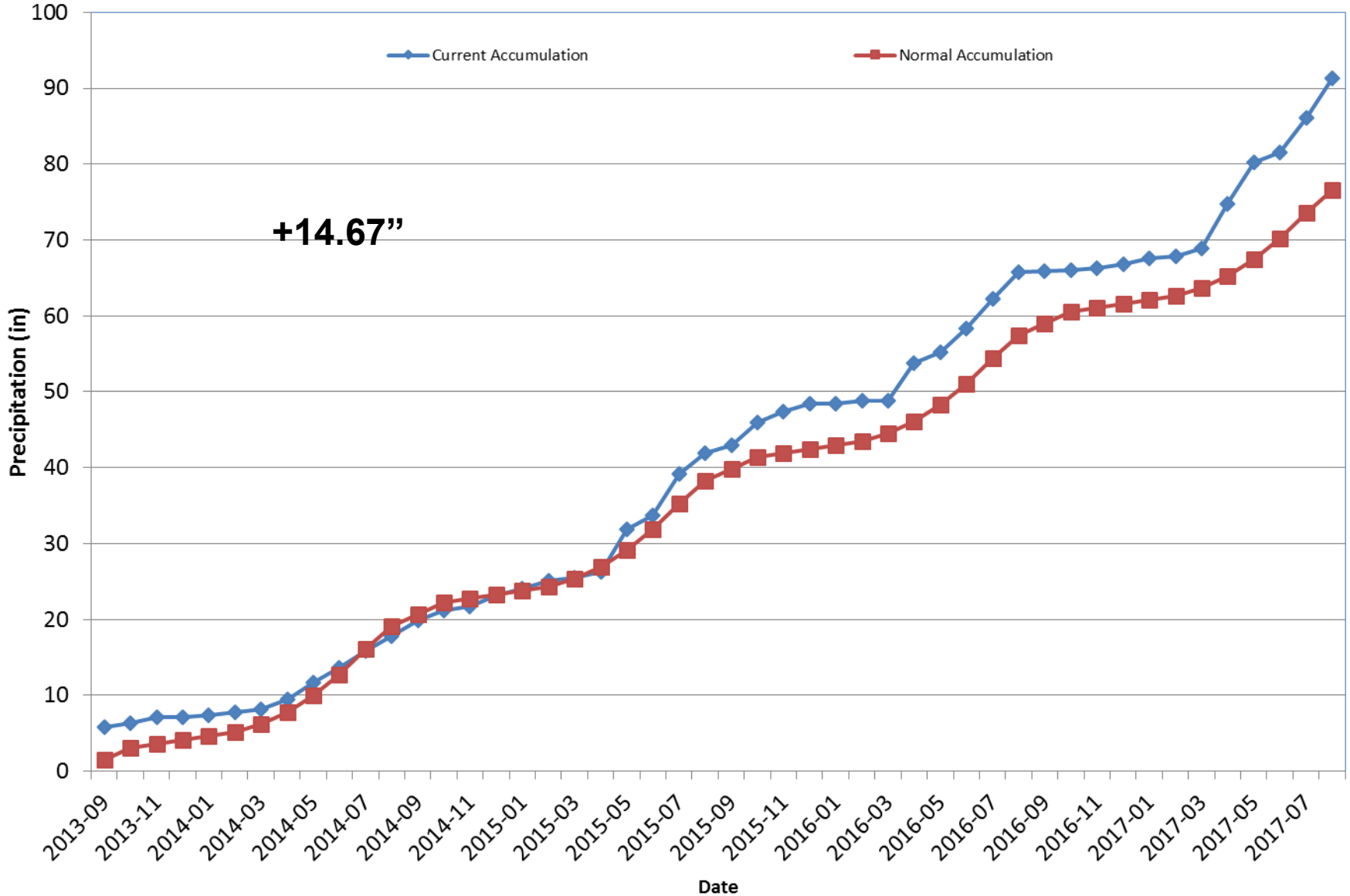
Division 6 - Walsh

Walsh 2017 Water Year



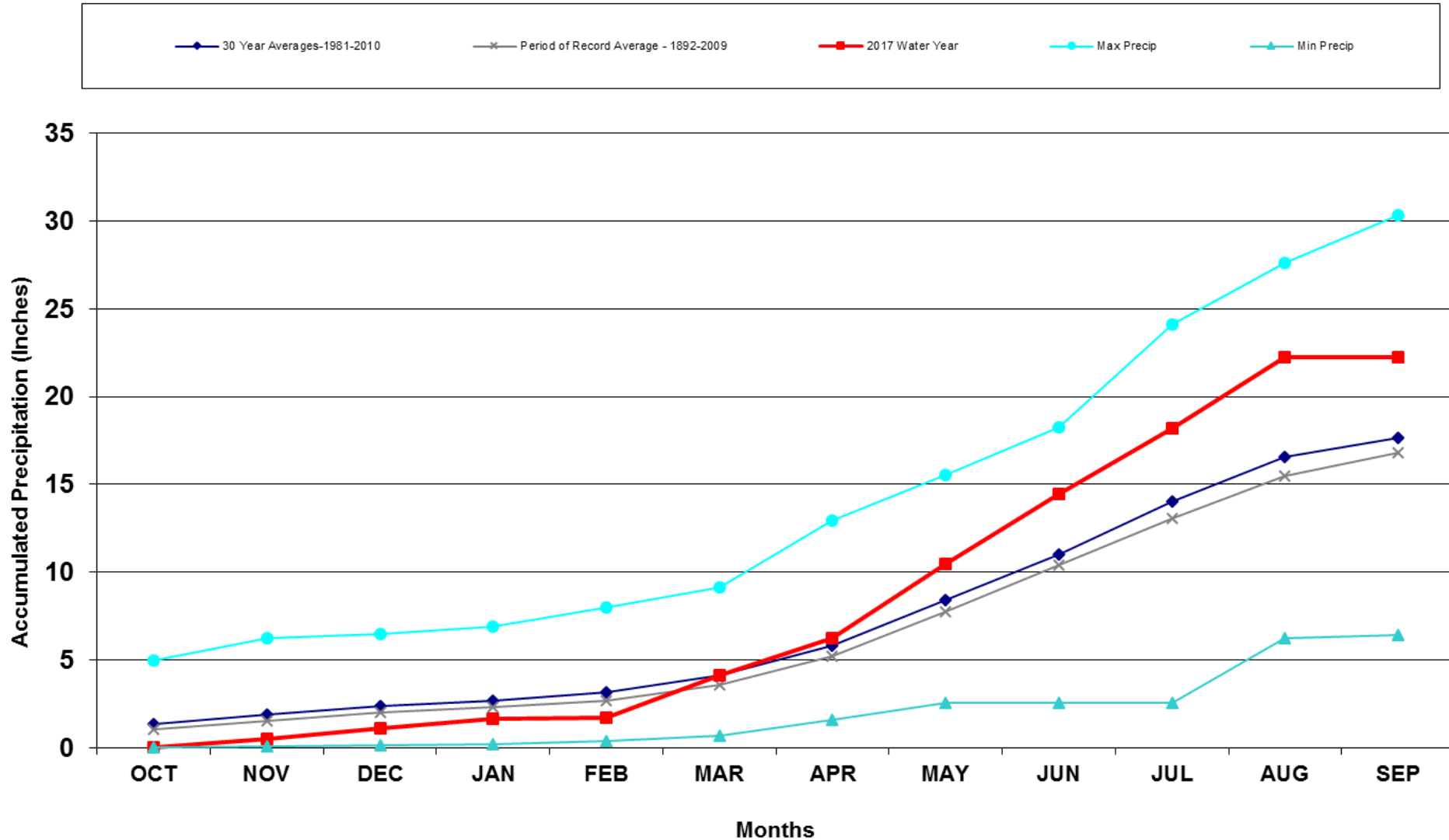
Division 6 - Walsh

Walsh 1W Precipitation Accumulation



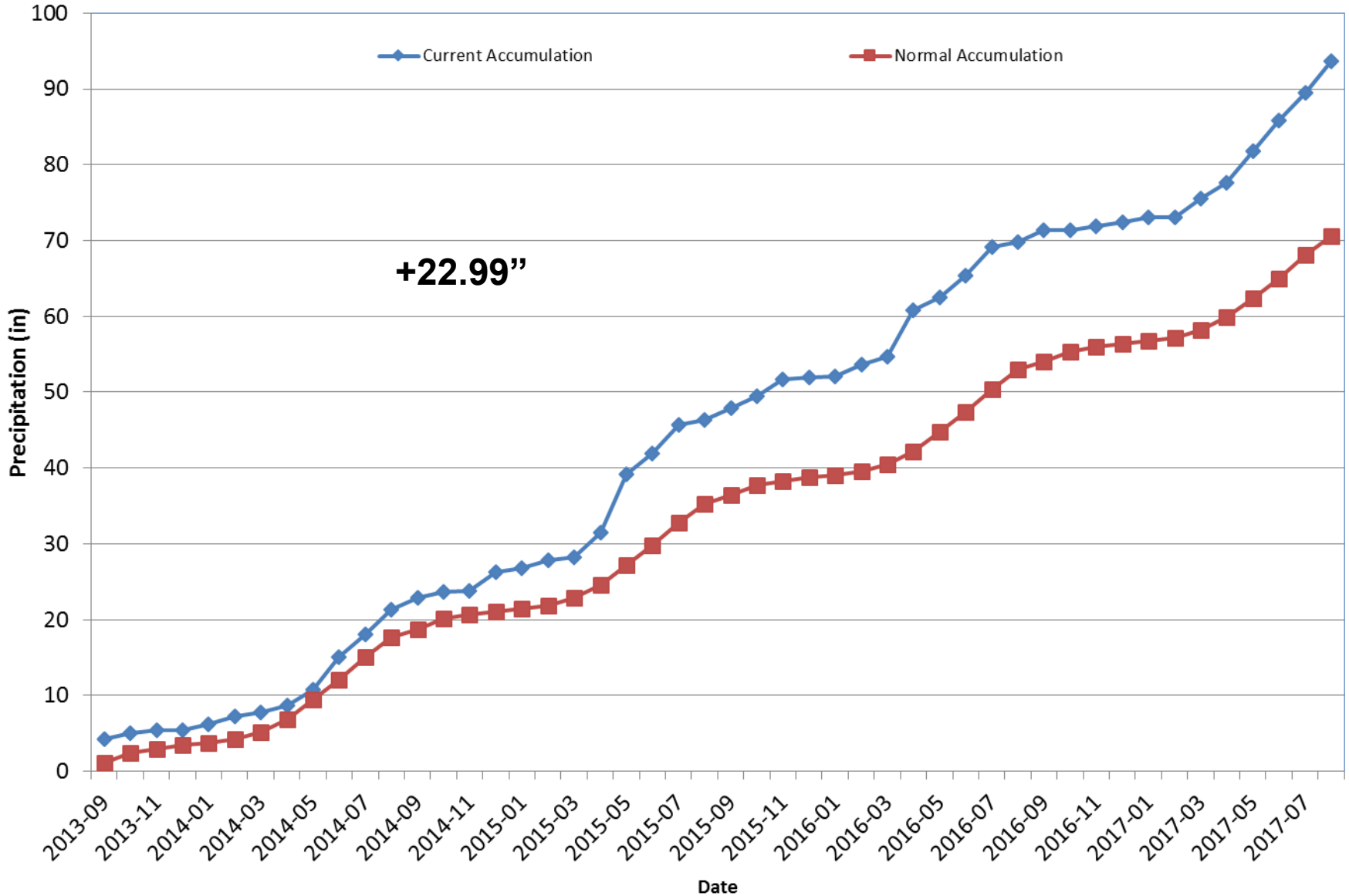
Division 6 - Burlington

Burlington 2017 Water Year



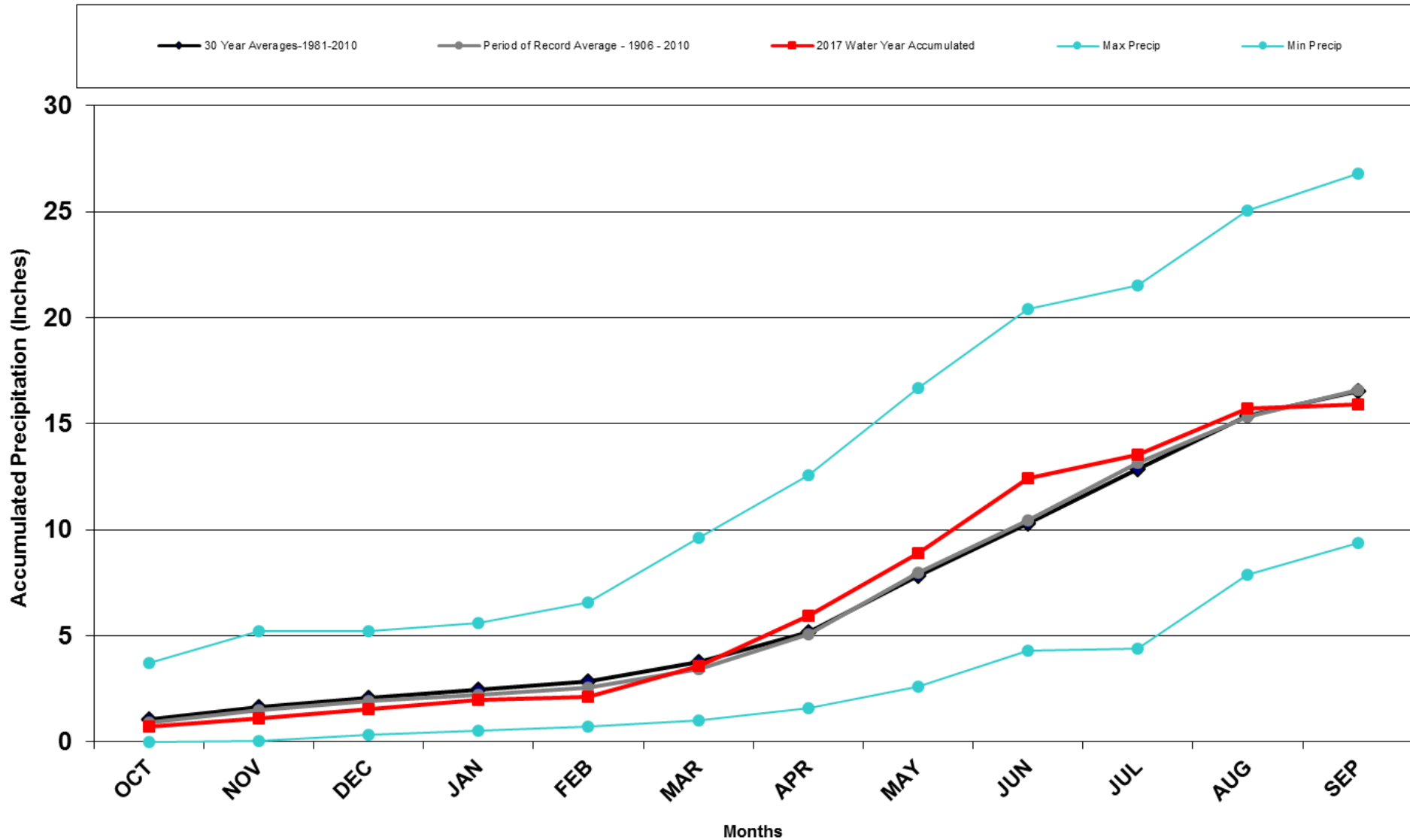
Division 6 - Burlington

Burlington, CO Precipitation Accumulation



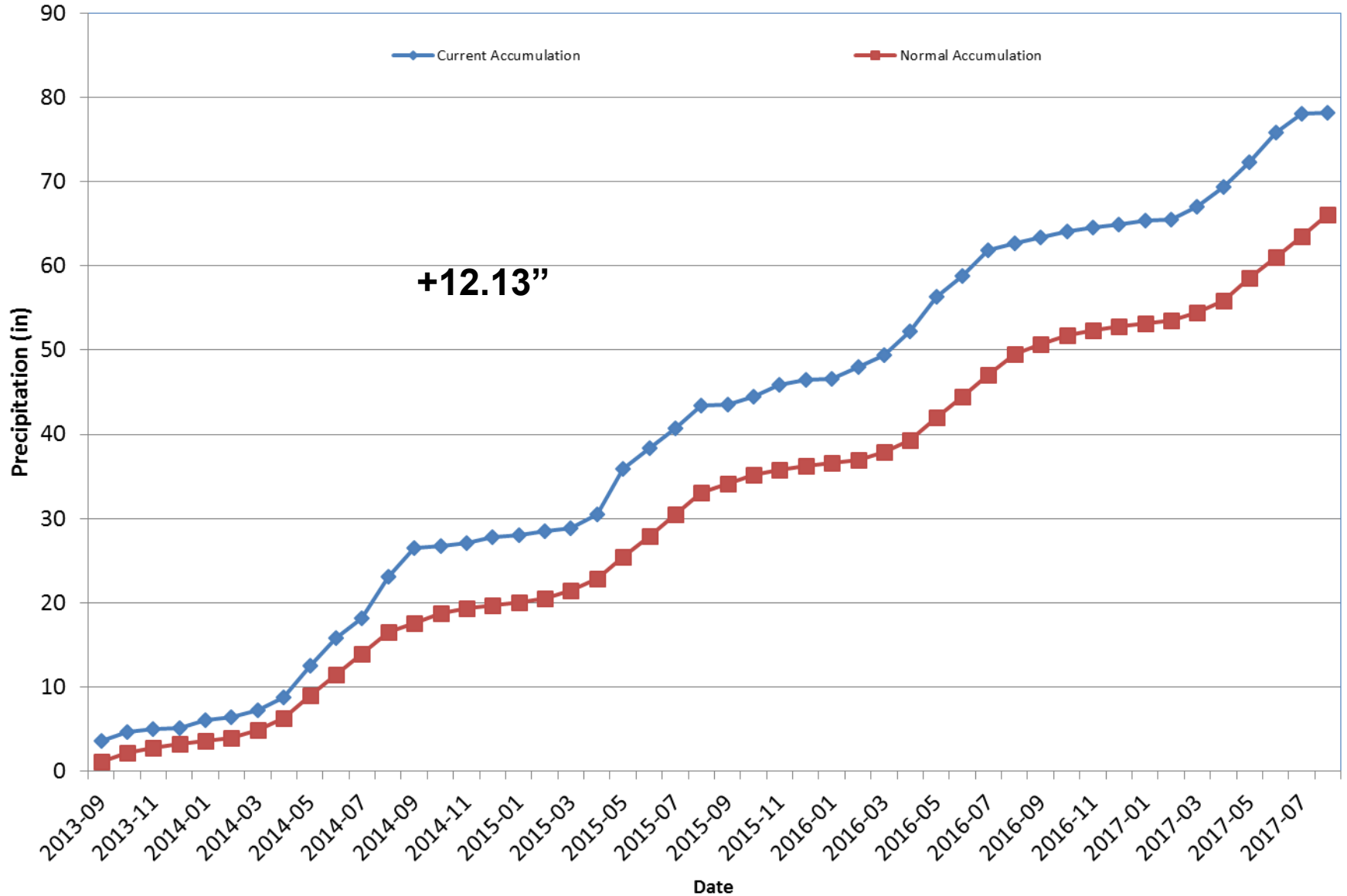
Division 7 – Akron

Akron 4E 2016 Water Year



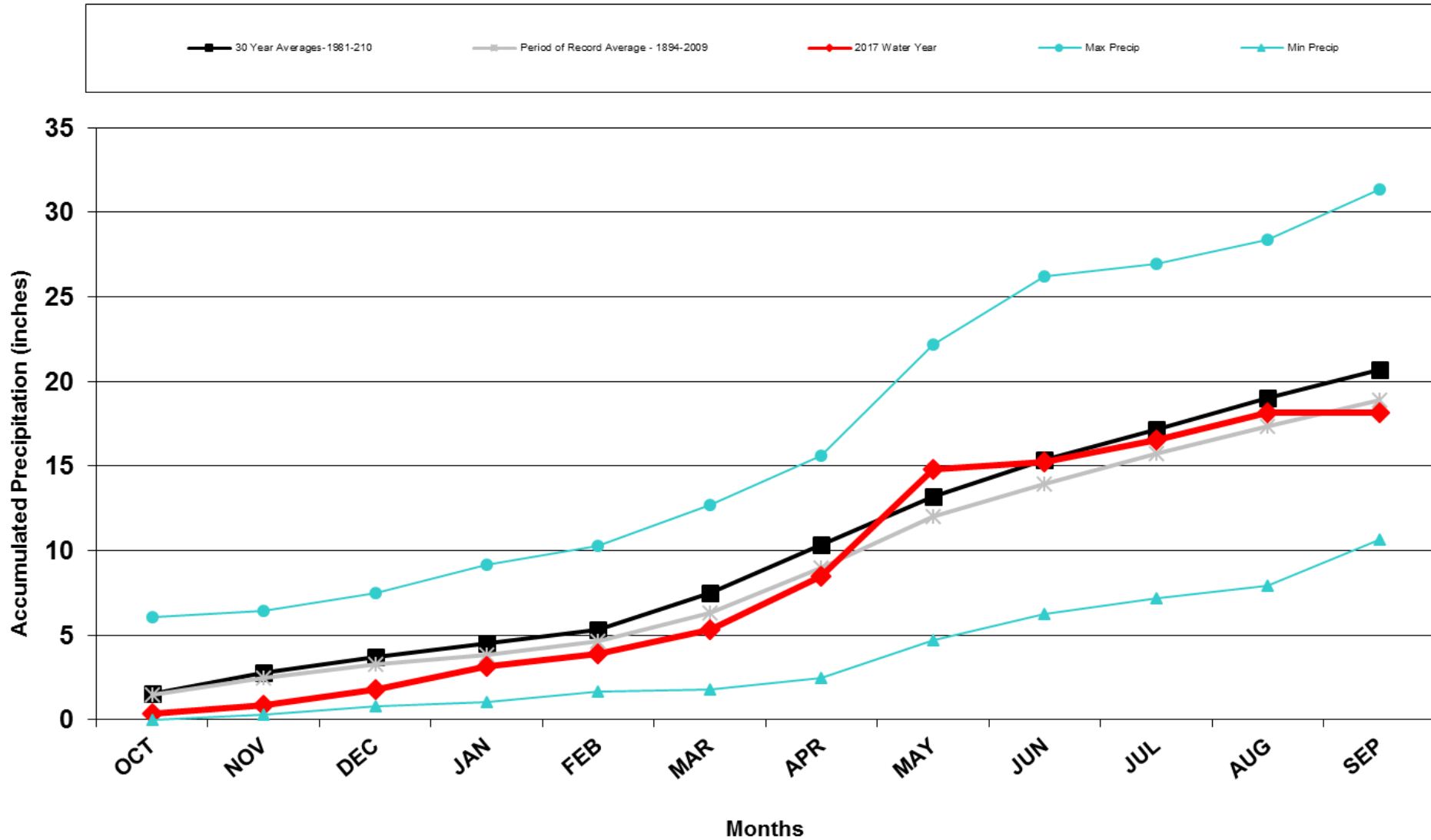
Division 7 – Akron

Akron 4E Precipitation Accumulation



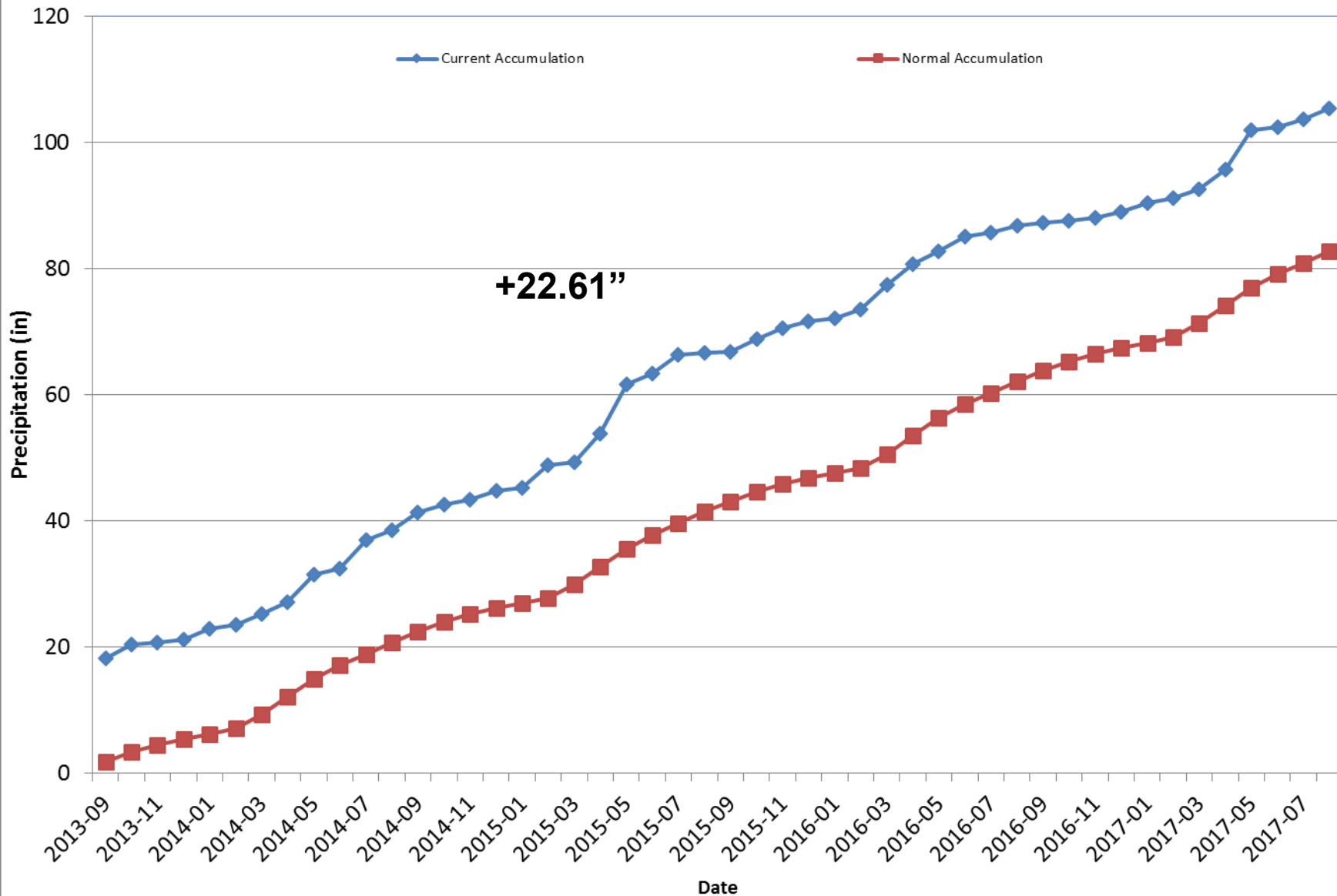
Division 8 - Boulder

Boulder 2017 Water Year

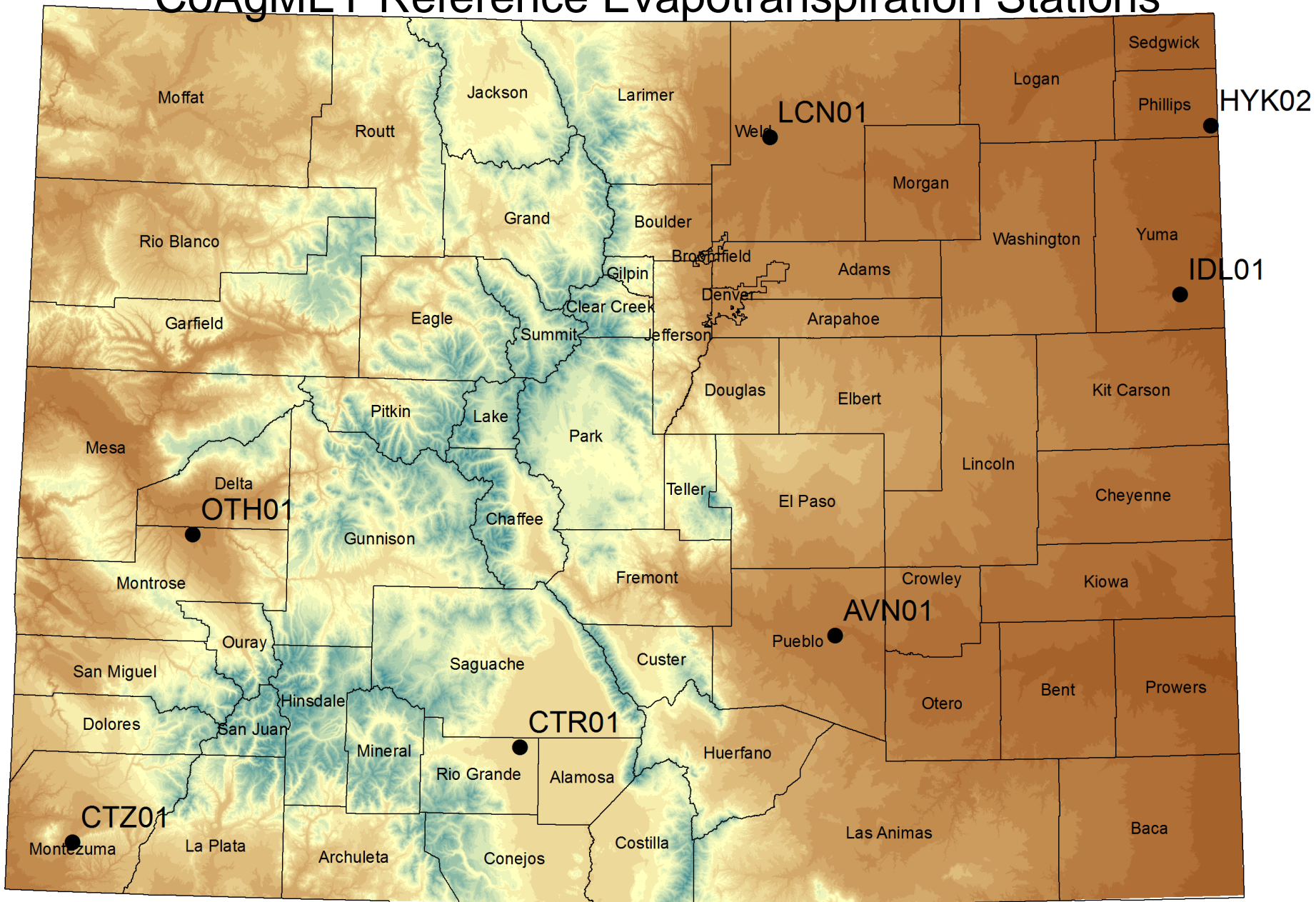


Division 8 - Boulder

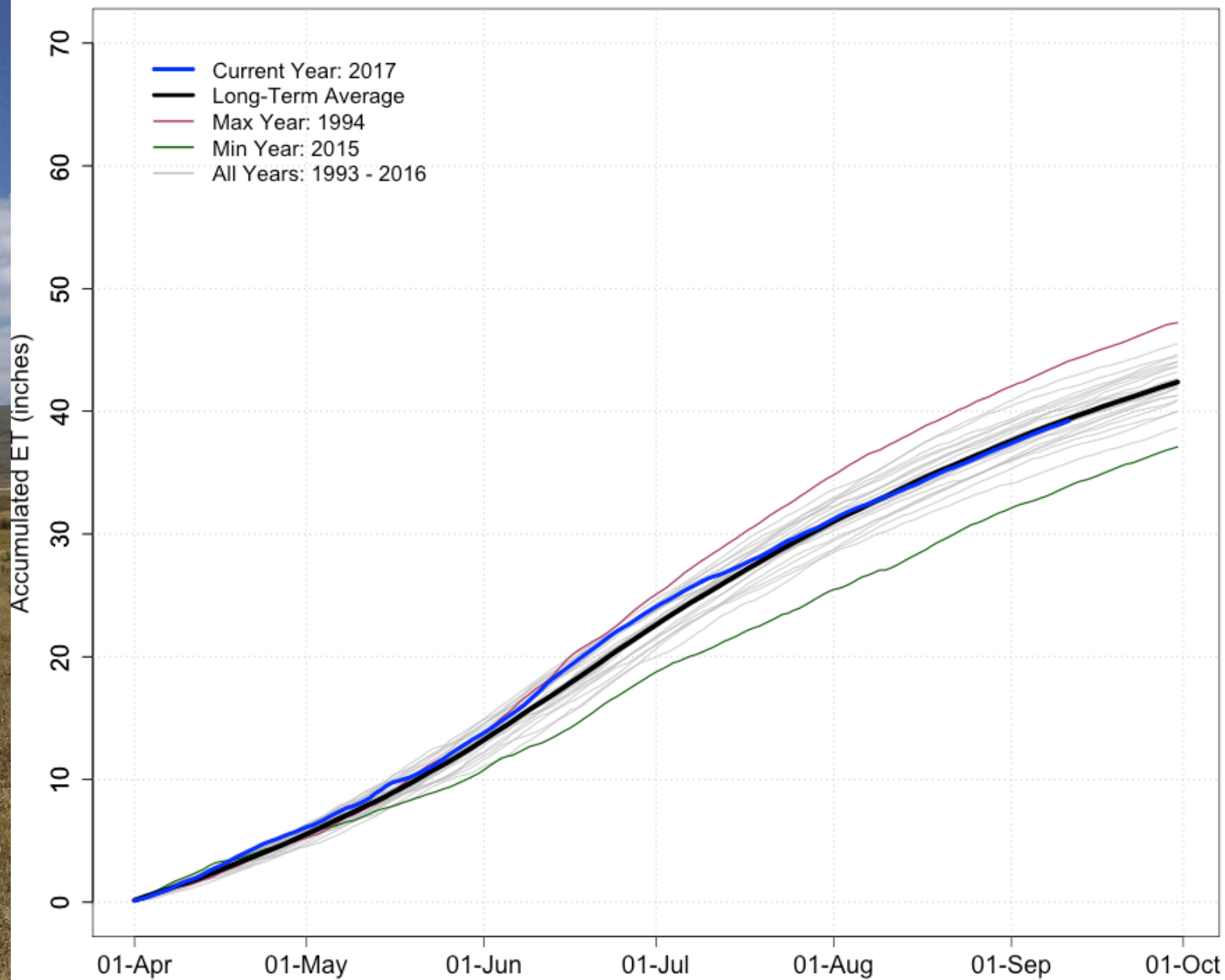
Boulder Precipitation Accumulation



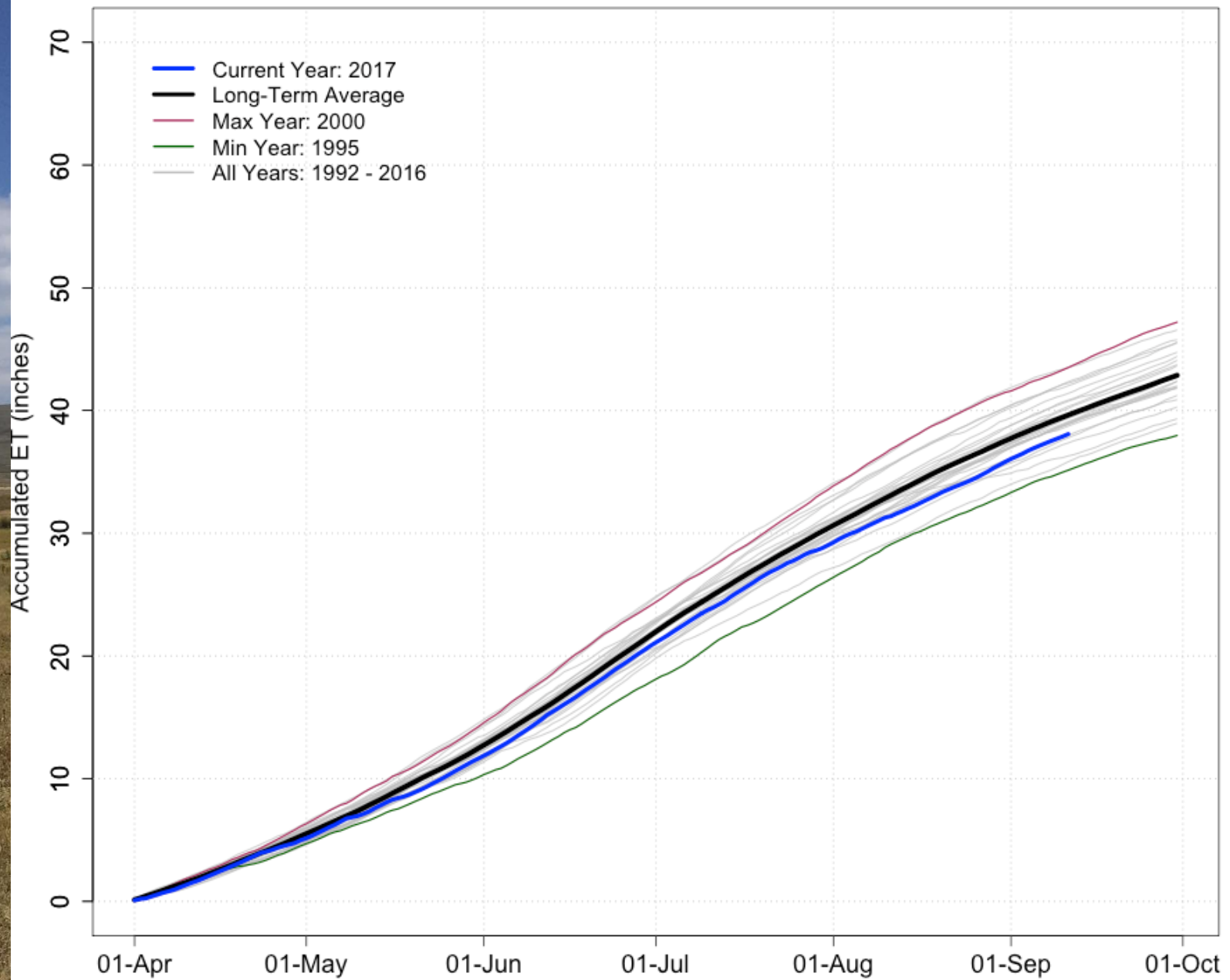
CoAgMET Reference Evapotranspiration Stations



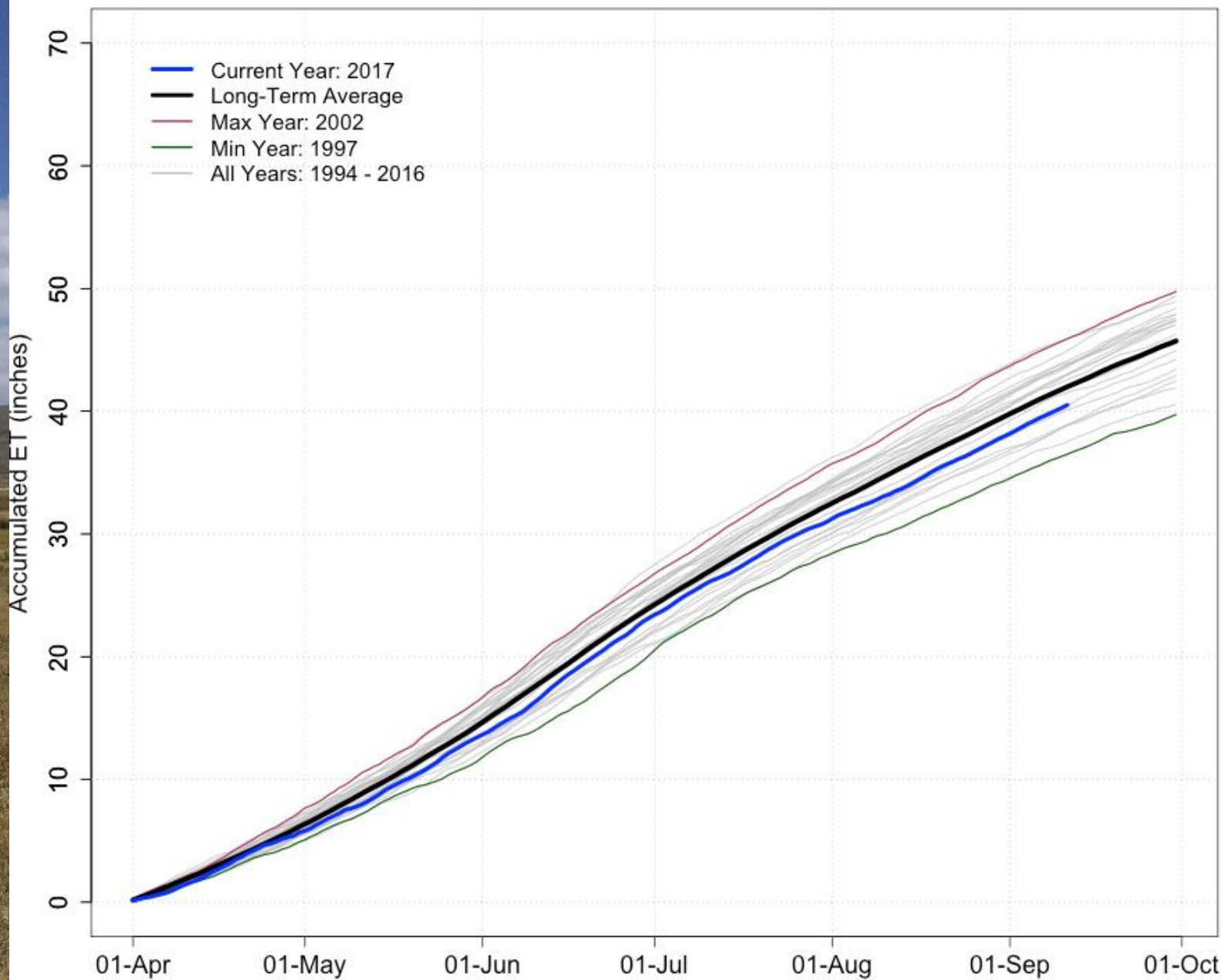
Olathe Reference ET



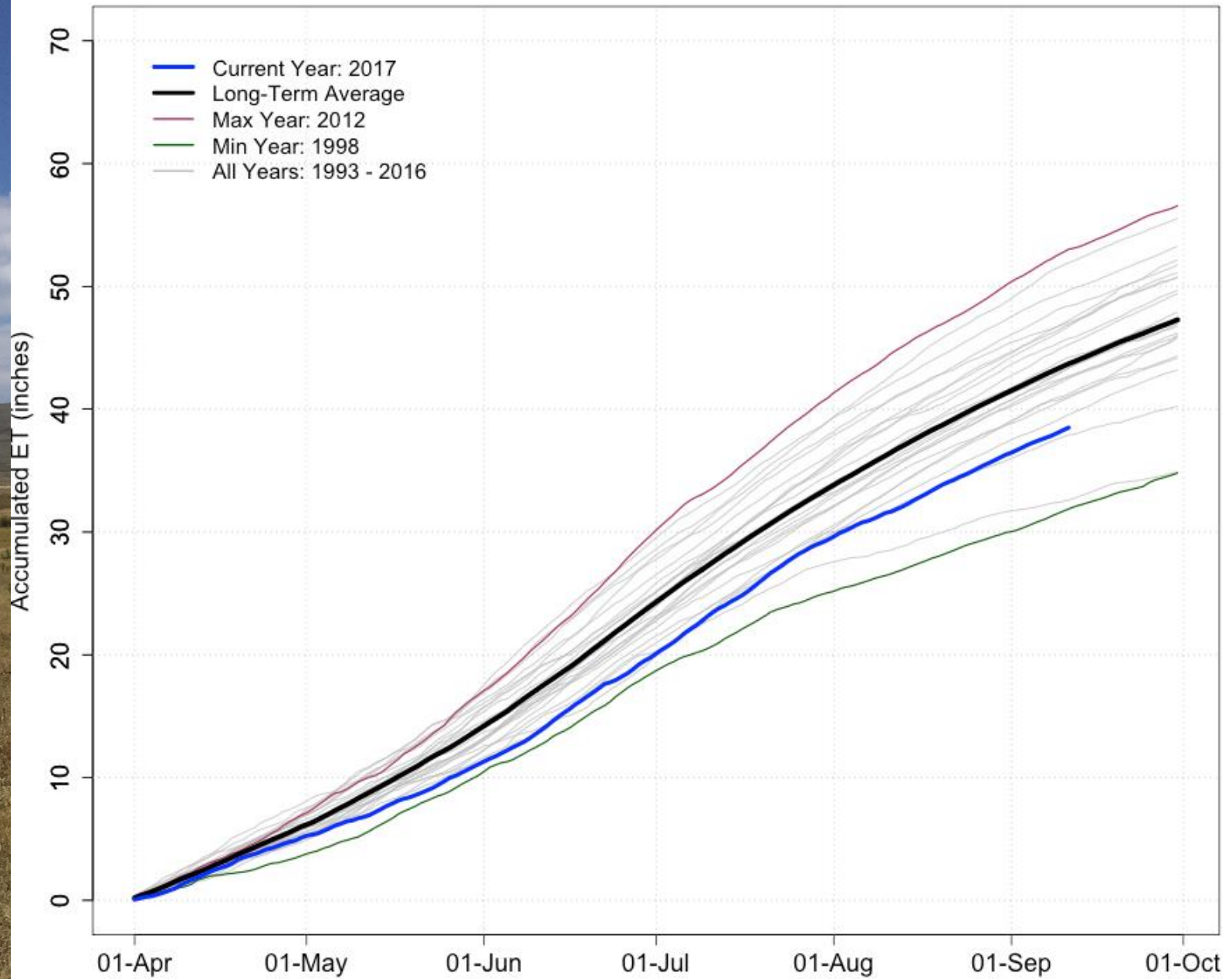
Cortez Reference ET



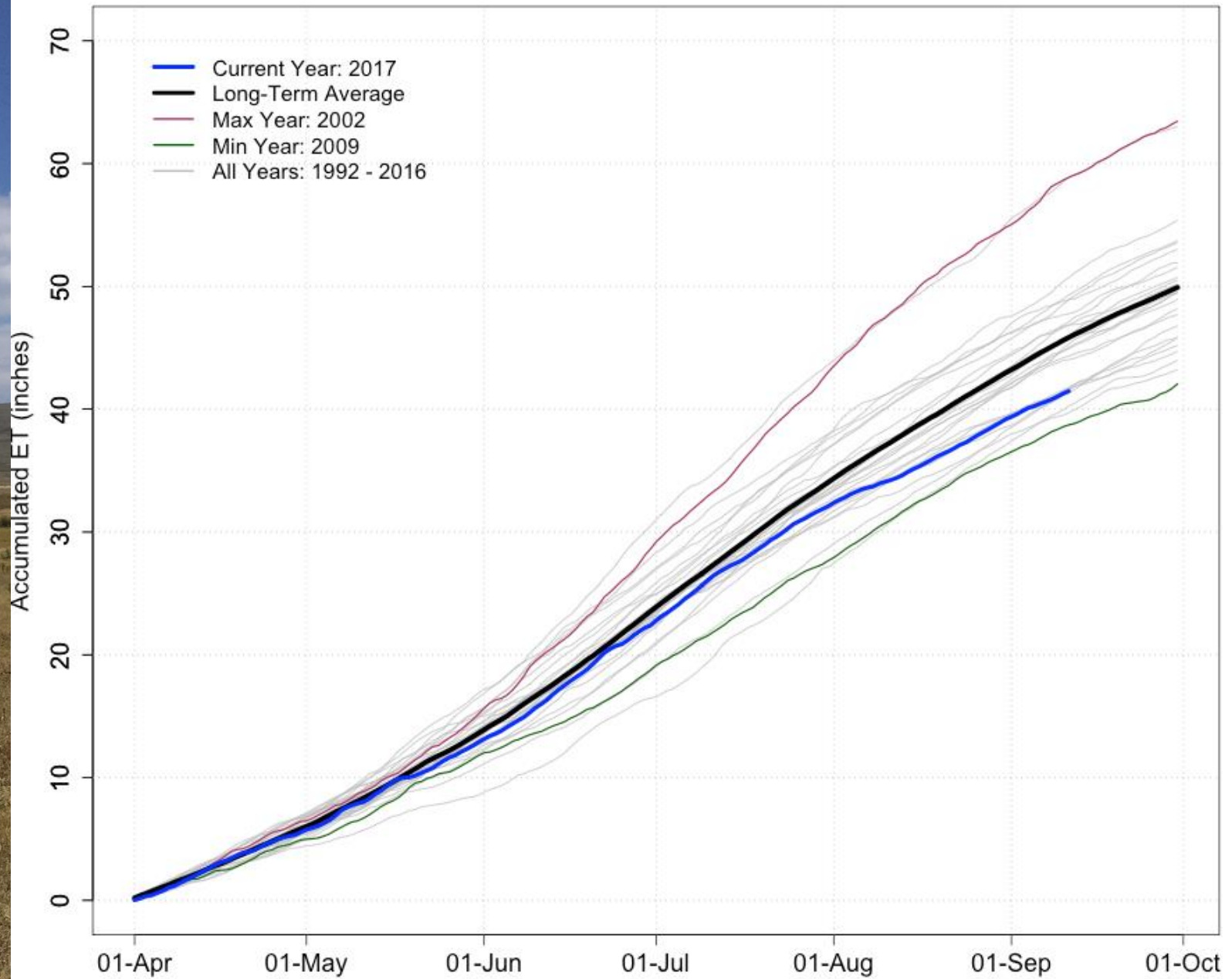
Center Reference ET



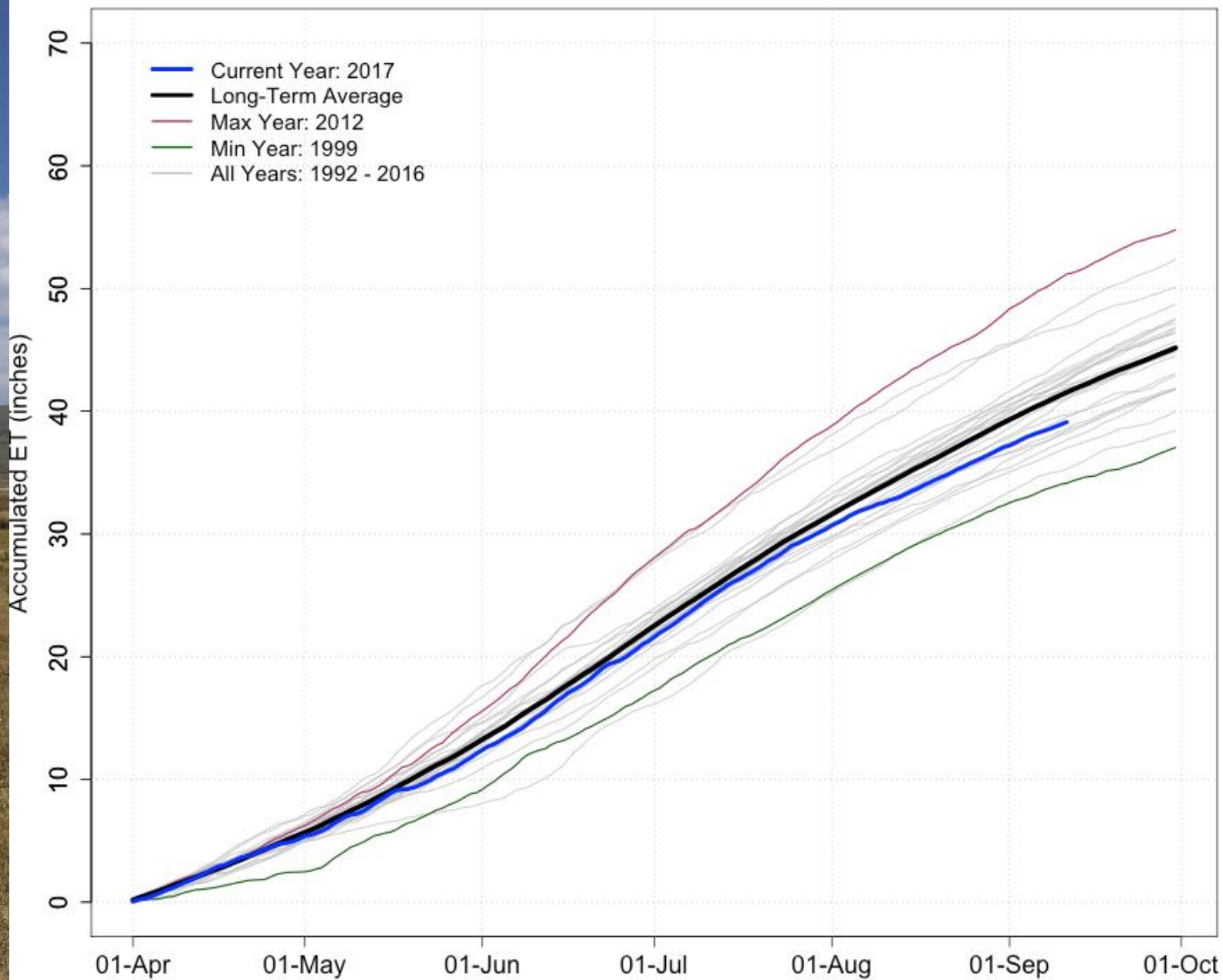
Avondale Reference ET



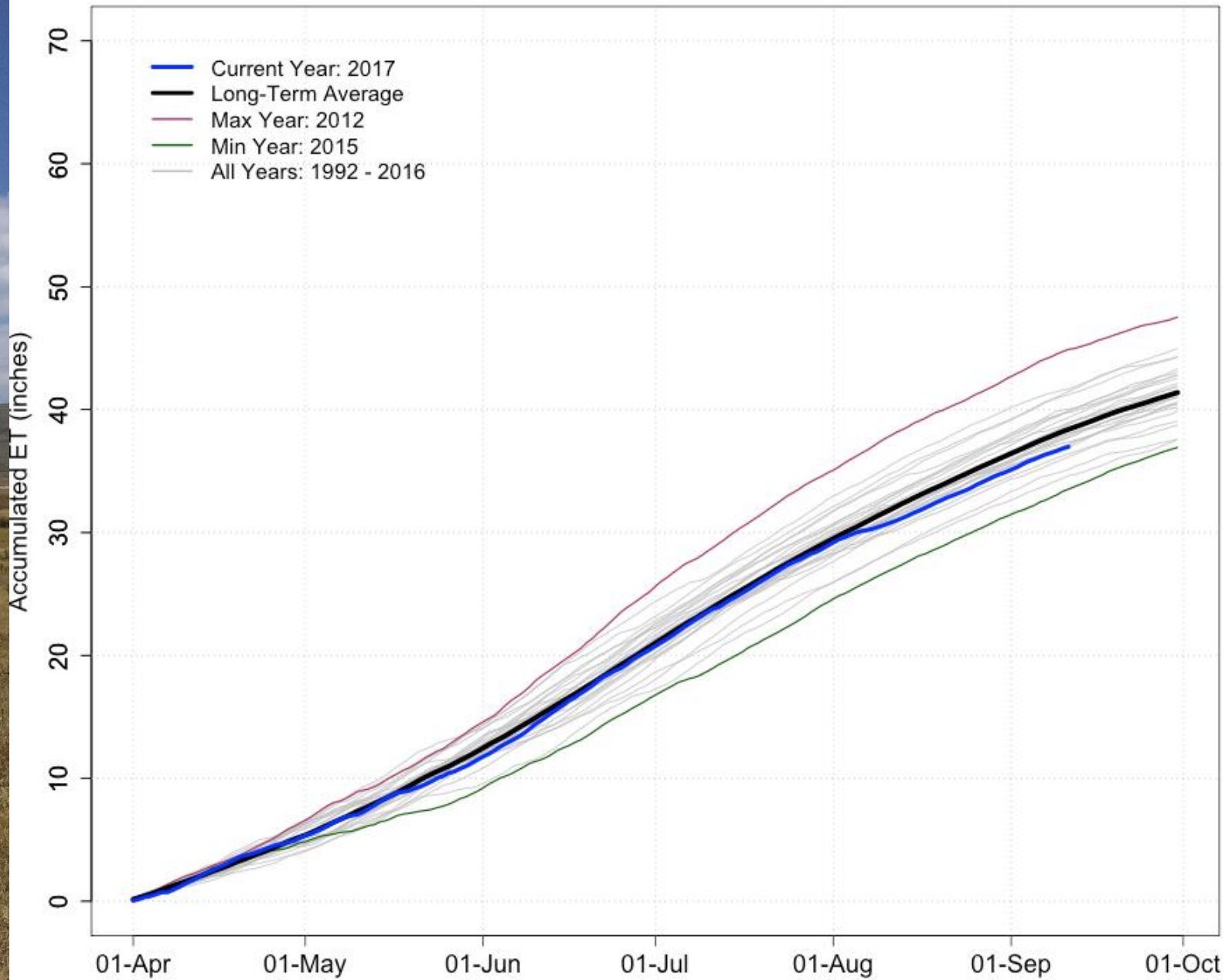
Idalia Reference ET



Holyoke Reference ET



Lucerne Reference ET

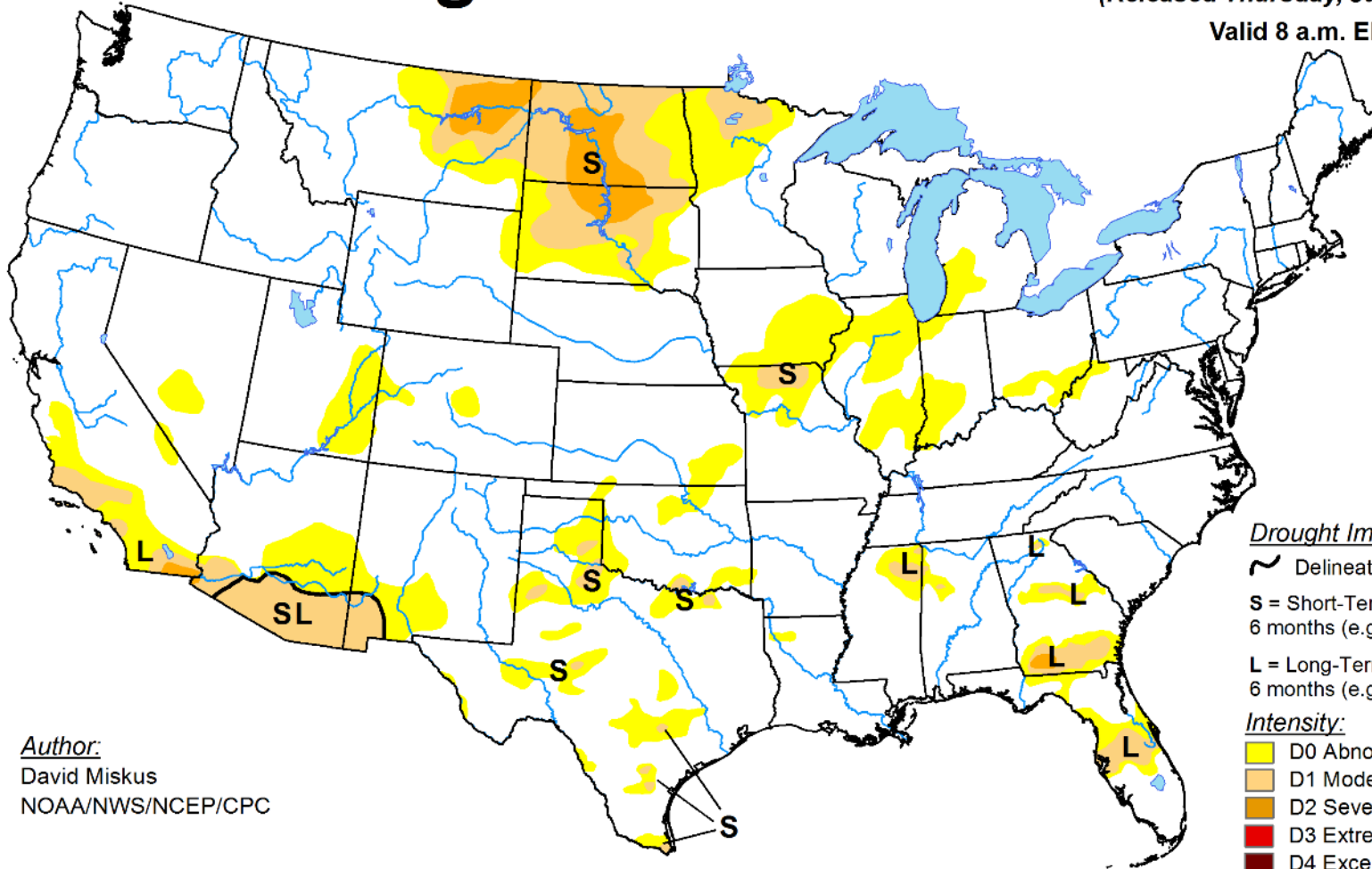


U.S. Drought Monitor

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)

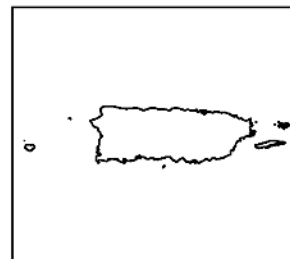
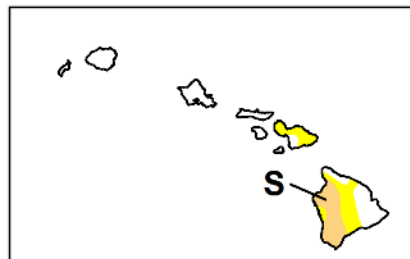
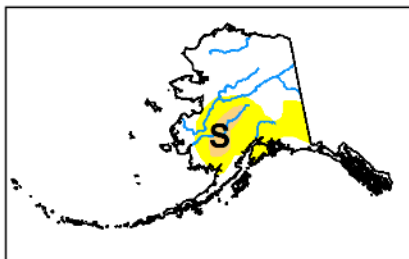
Intensity:

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



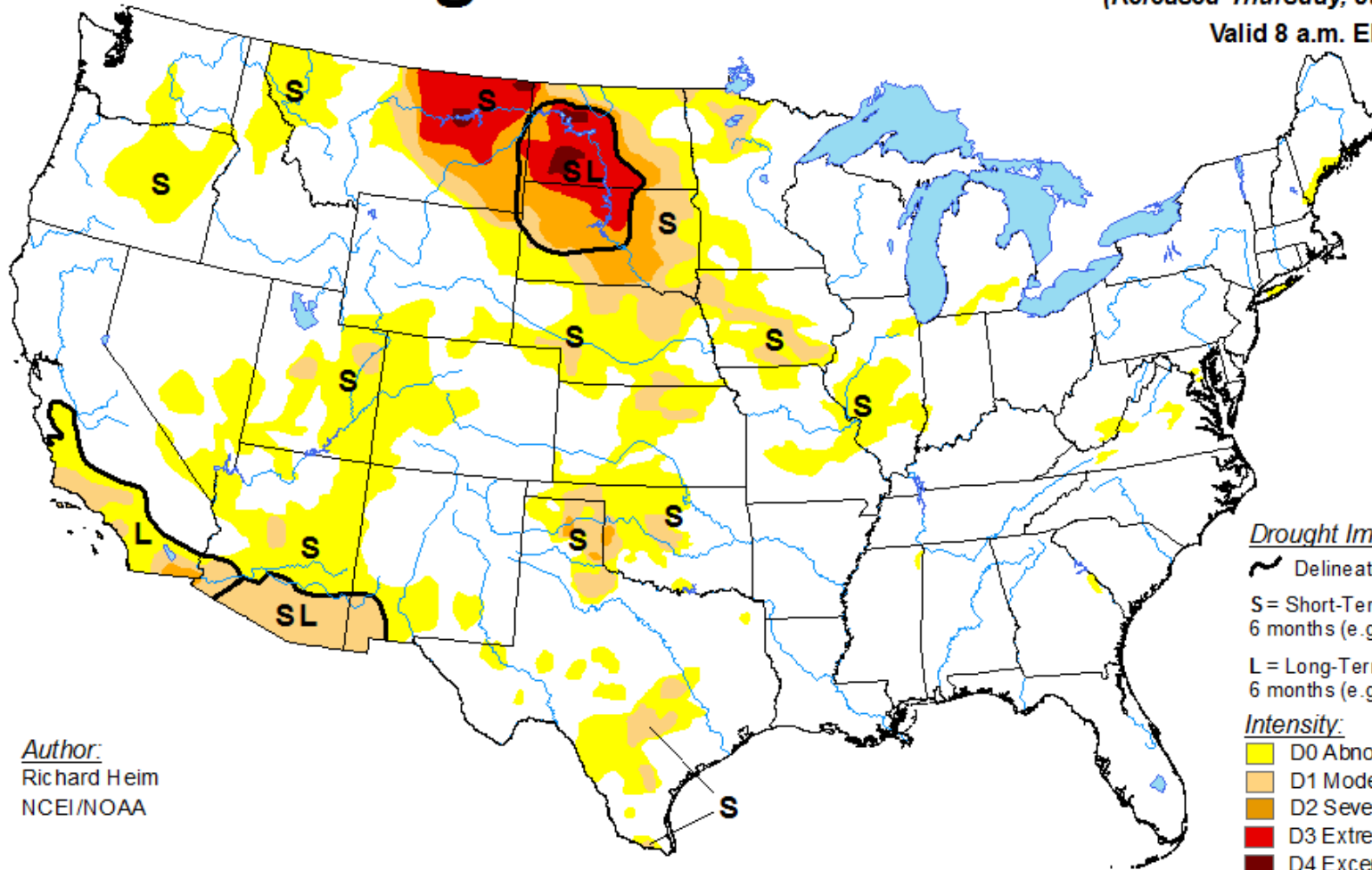
<http://droughtmonitor.unl.edu/>

U.S. Drought Monitor

July 18, 2017

(Released Thursday, Jul. 20, 2017)

Valid 8 a.m. EDT



Author:
Richard Heim
NCEI/NOAA

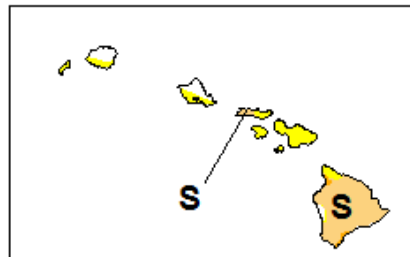
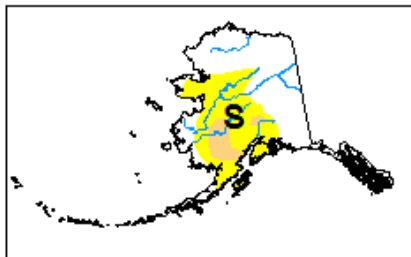
Drought Impact Types:

- 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.

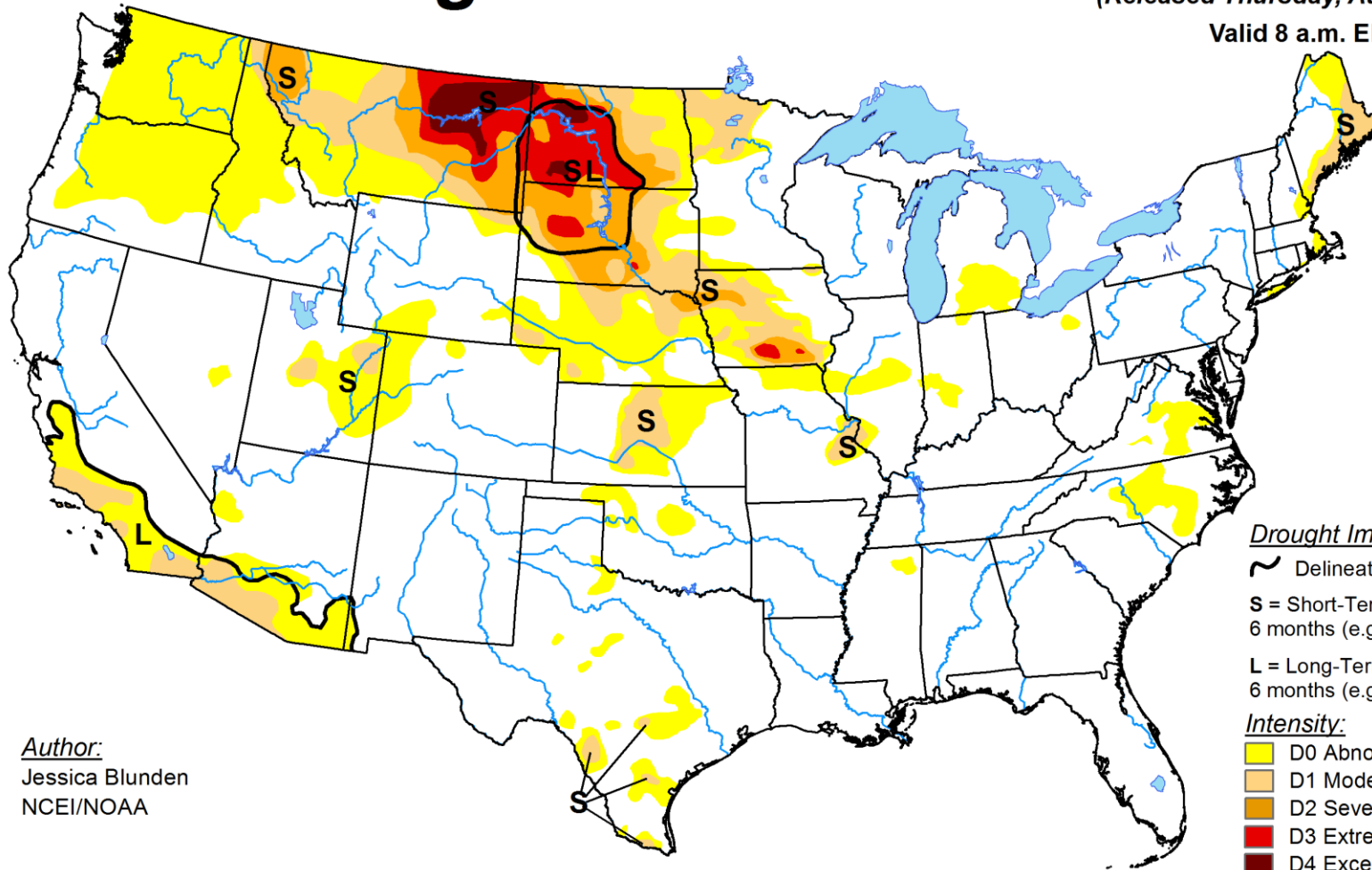


<http://droughtmonitor.unl.edu/>

U.S. Drought Monitor

August 15, 2017
(Released Thursday, Aug. 17, 2017)

Valid 8 a.m. EDT



Author:
Jessica Blunden
NCEI/NOAA

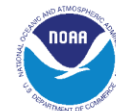
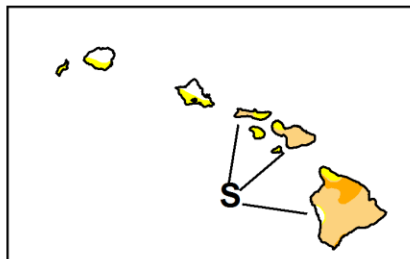
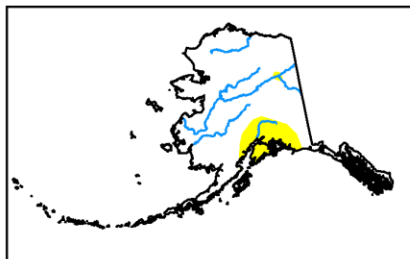
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Intensity:

- Yellow: D0 Abnormally Dry
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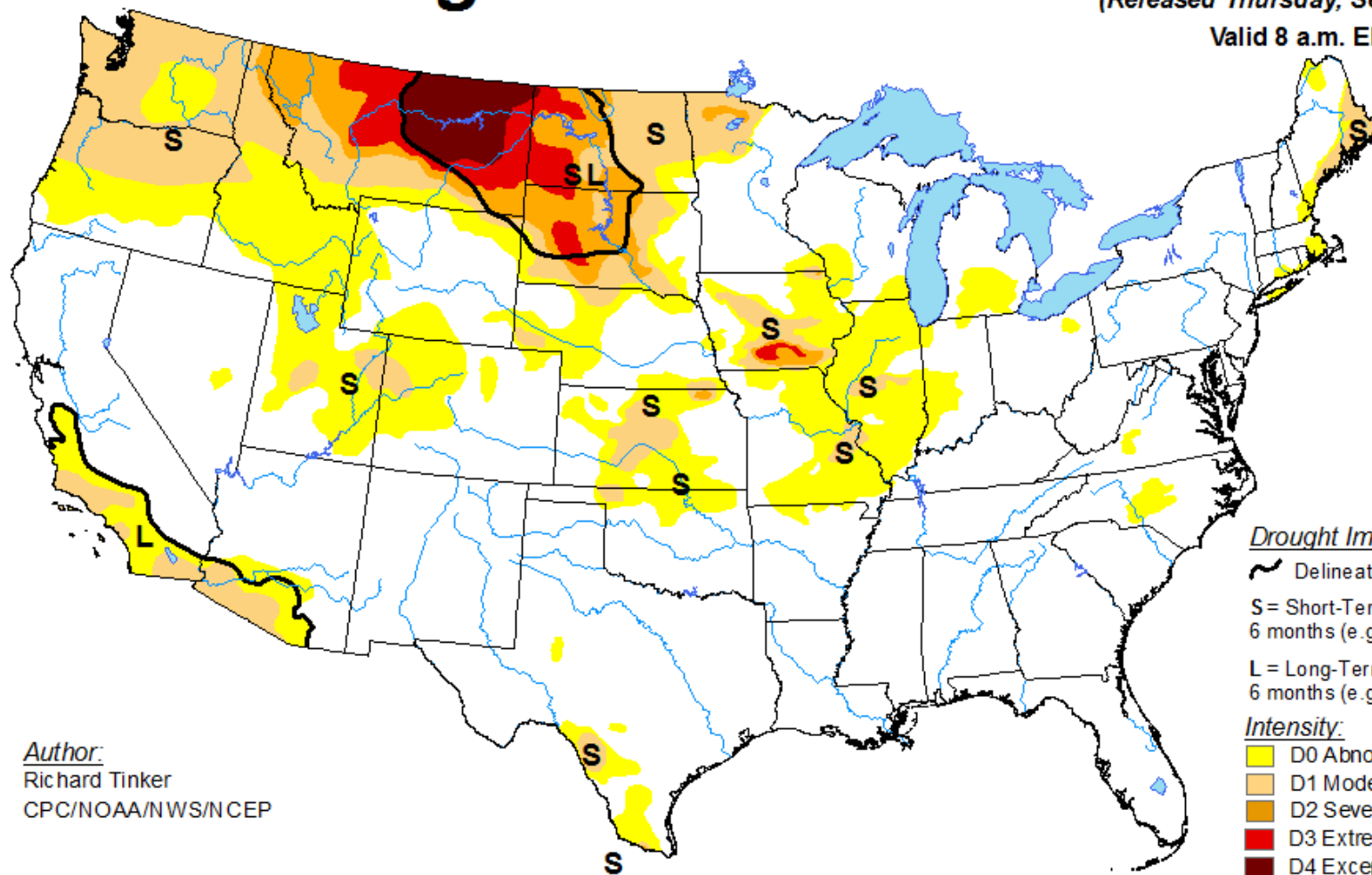
The Drought Monitor focuses on broad-scale conditions. Local conditions may vary. See accompanying text summary for forecast statements.



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

U.S. Drought Monitor

September 12, 2017
(Released Thursday, Sep. 14, 2017)
Valid 8 a.m. EDT



Author:
Richard Tinker
CPC/NOAA/NWS/NCEP

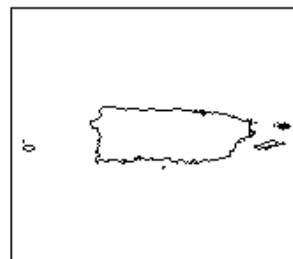
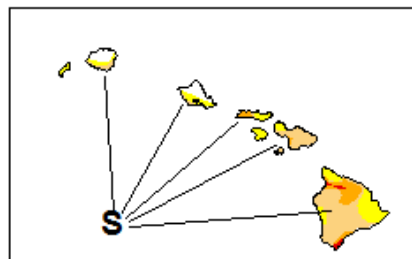
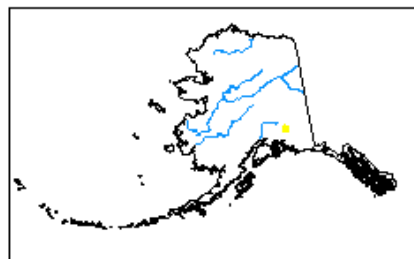
Drought Impact Types:

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Intensity:

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

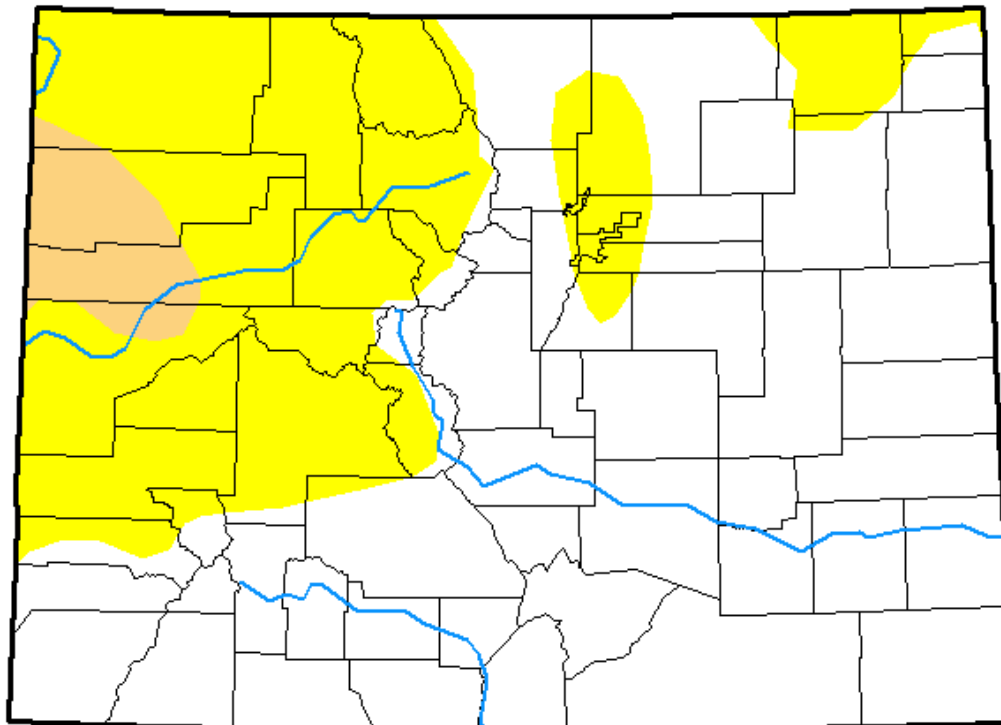
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<http://droughtmonitor.unl.edu/>

U.S. Drought Monitor Colorado

September 12, 2017
(Released Thursday, Sep. 14, 2017)
Valid 8 a.m. EDT



Drought Conditions (Percent Area)

	None	D0-D4	D1-D4	D2-D4	D3-D4	D4
Current	64.81	35.19	3.72	0.00	0.00	0.00
Last Week <i>09-05-2017</i>	67.49	32.51	3.72	0.00	0.00	0.00
3 Months Ago <i>06-13-2017</i>	93.84	6.16	0.00	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>09-13-2016</i>	71.75	28.25	1.79	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.

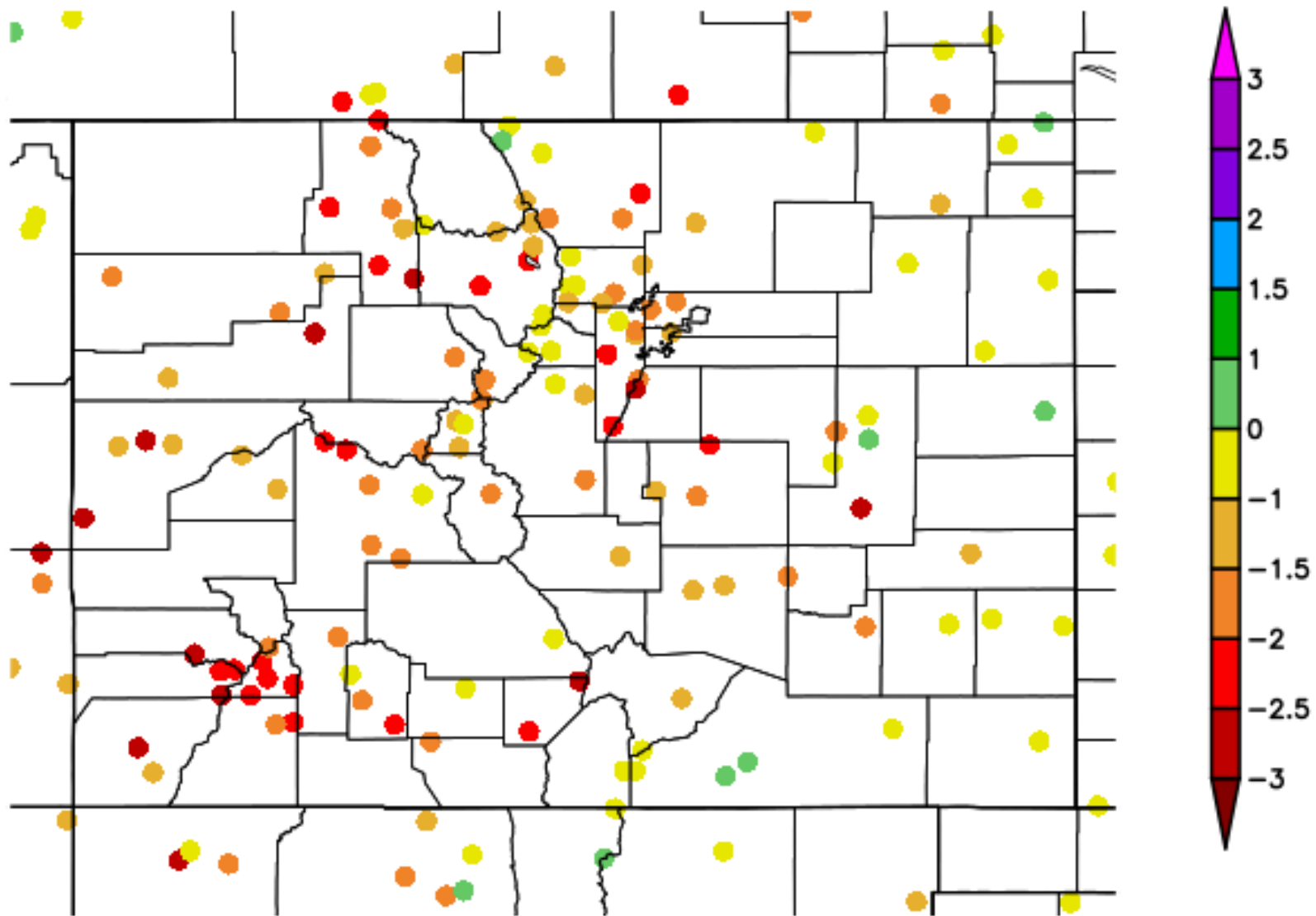
Author:

Richard Tinker
CPC/NOAA/NWS/NCEP



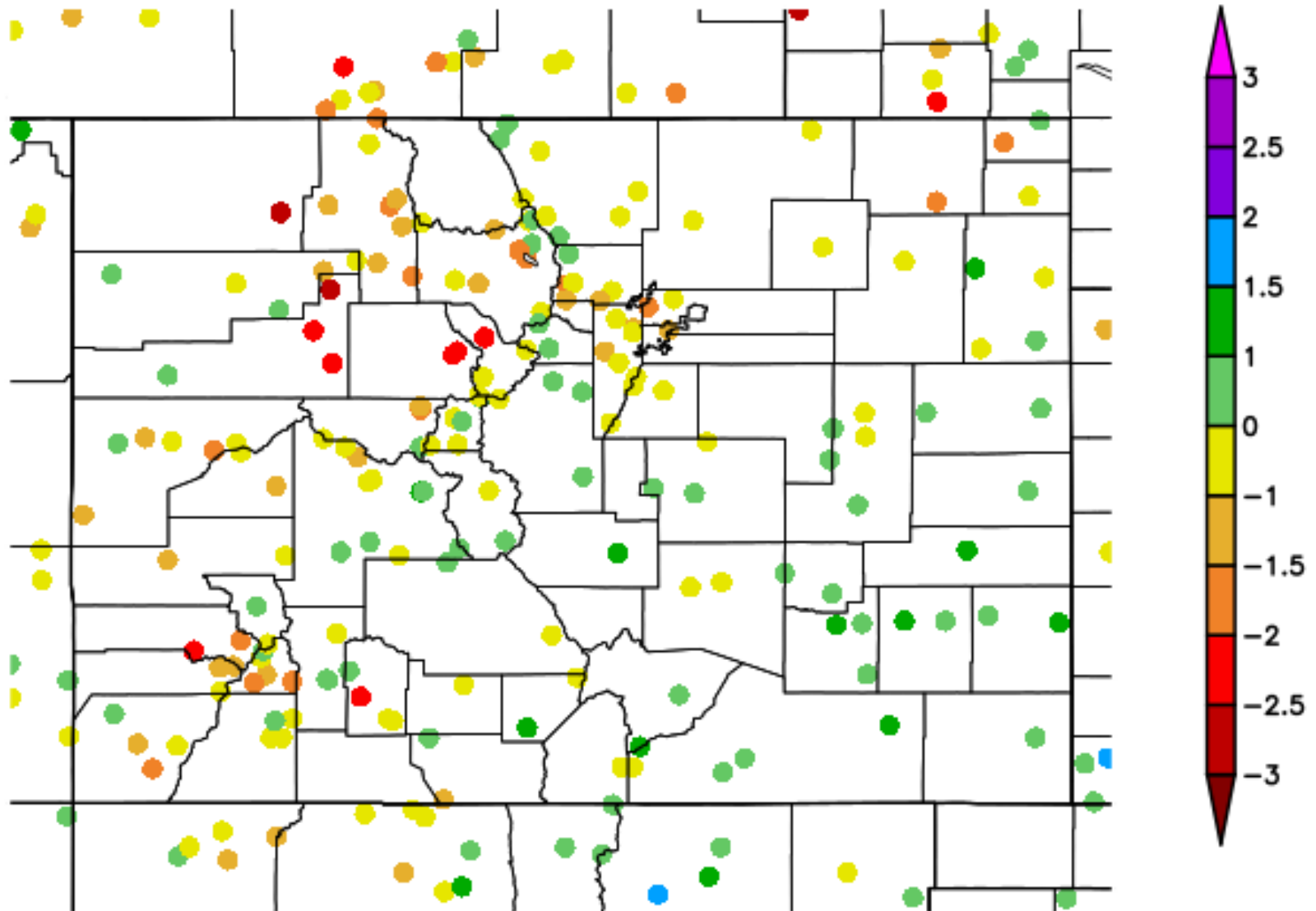
30 Day SPI

8/13/2017 - 9/11/2017



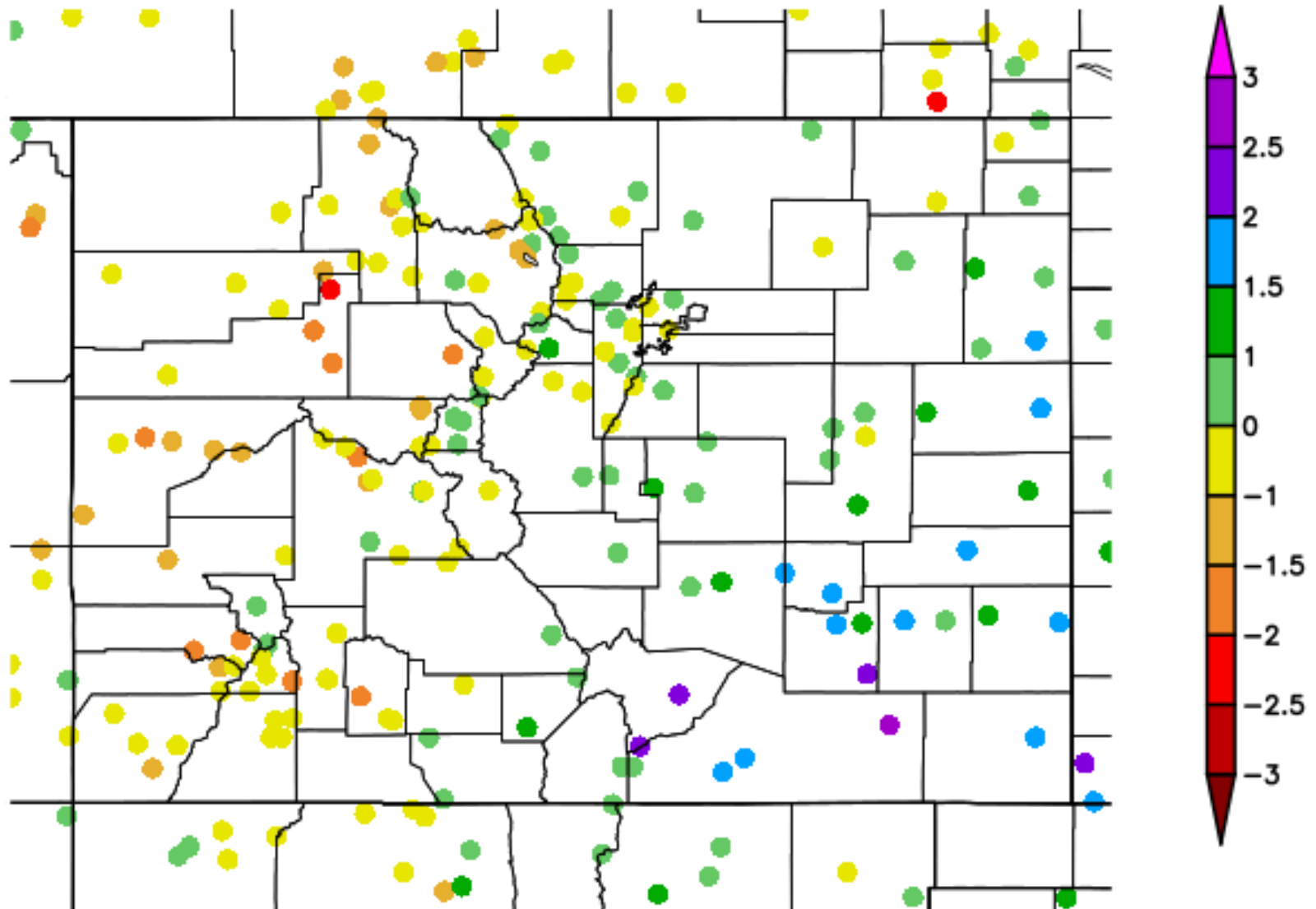
90 Day SPI

6/14/2017 - 9/11/2017

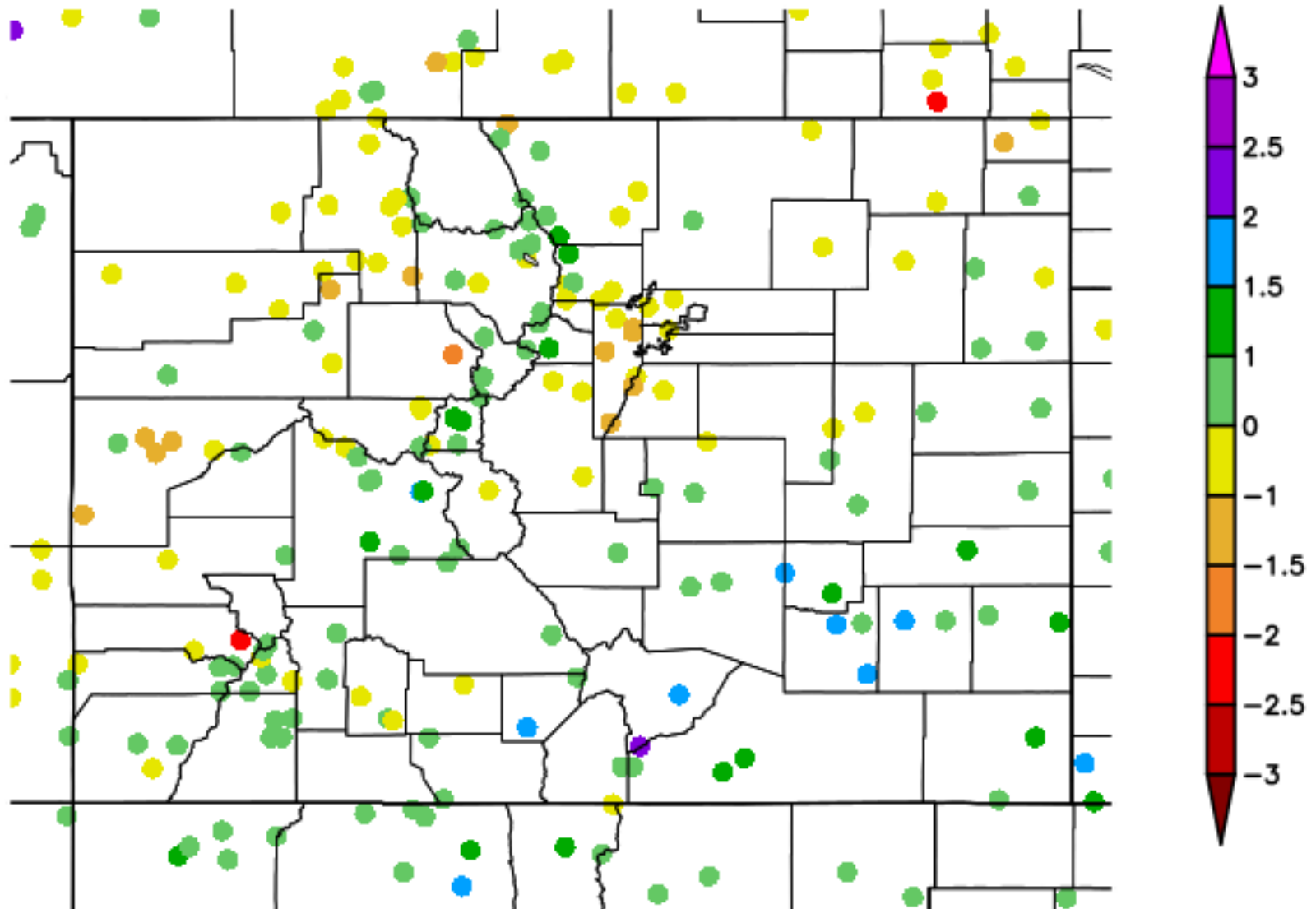


6 Month SPI

3/12/2017 - 9/11/2017

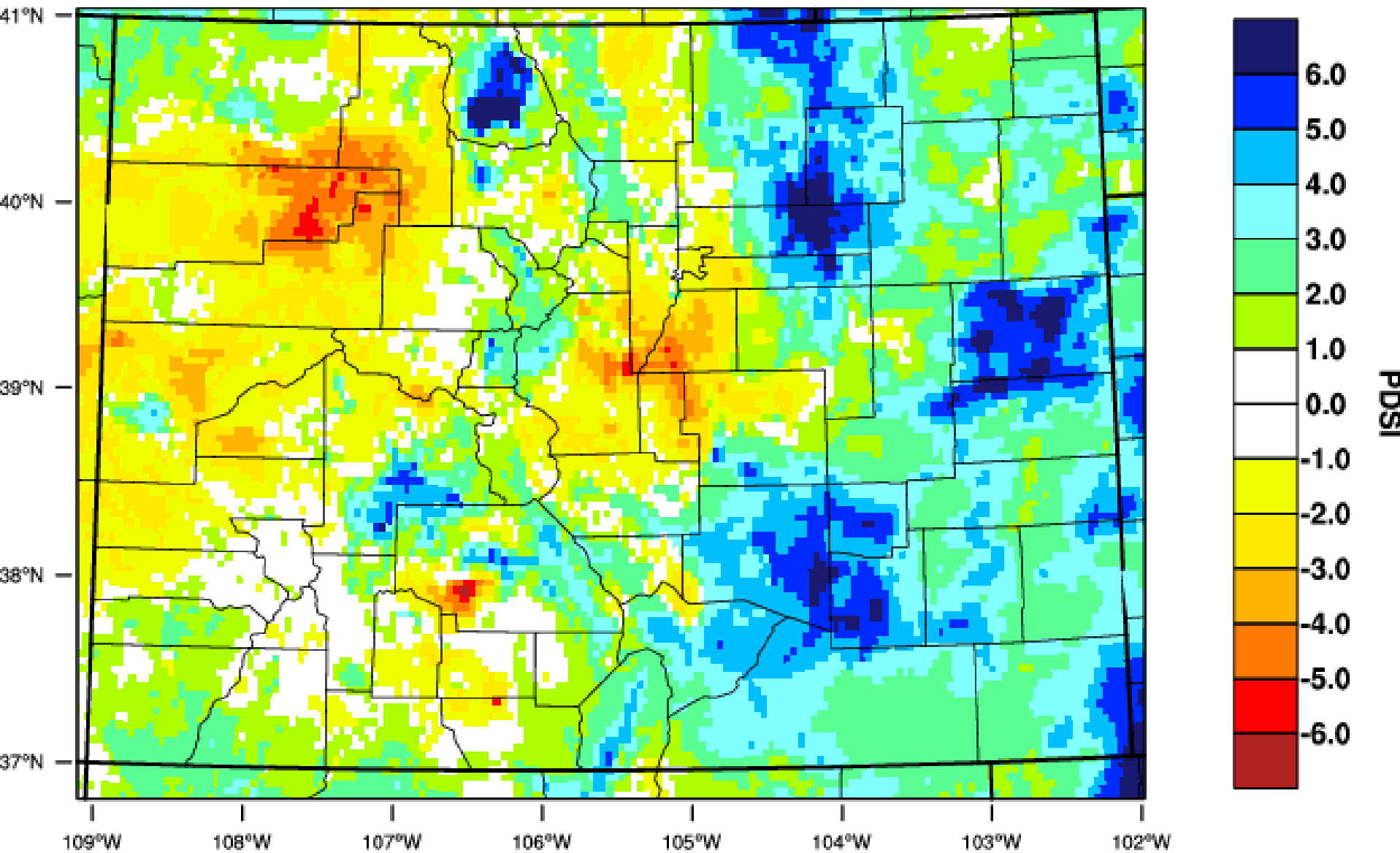


12 Month SPI 9/12/2016 - 9/11/2017



Colorado - PDSI

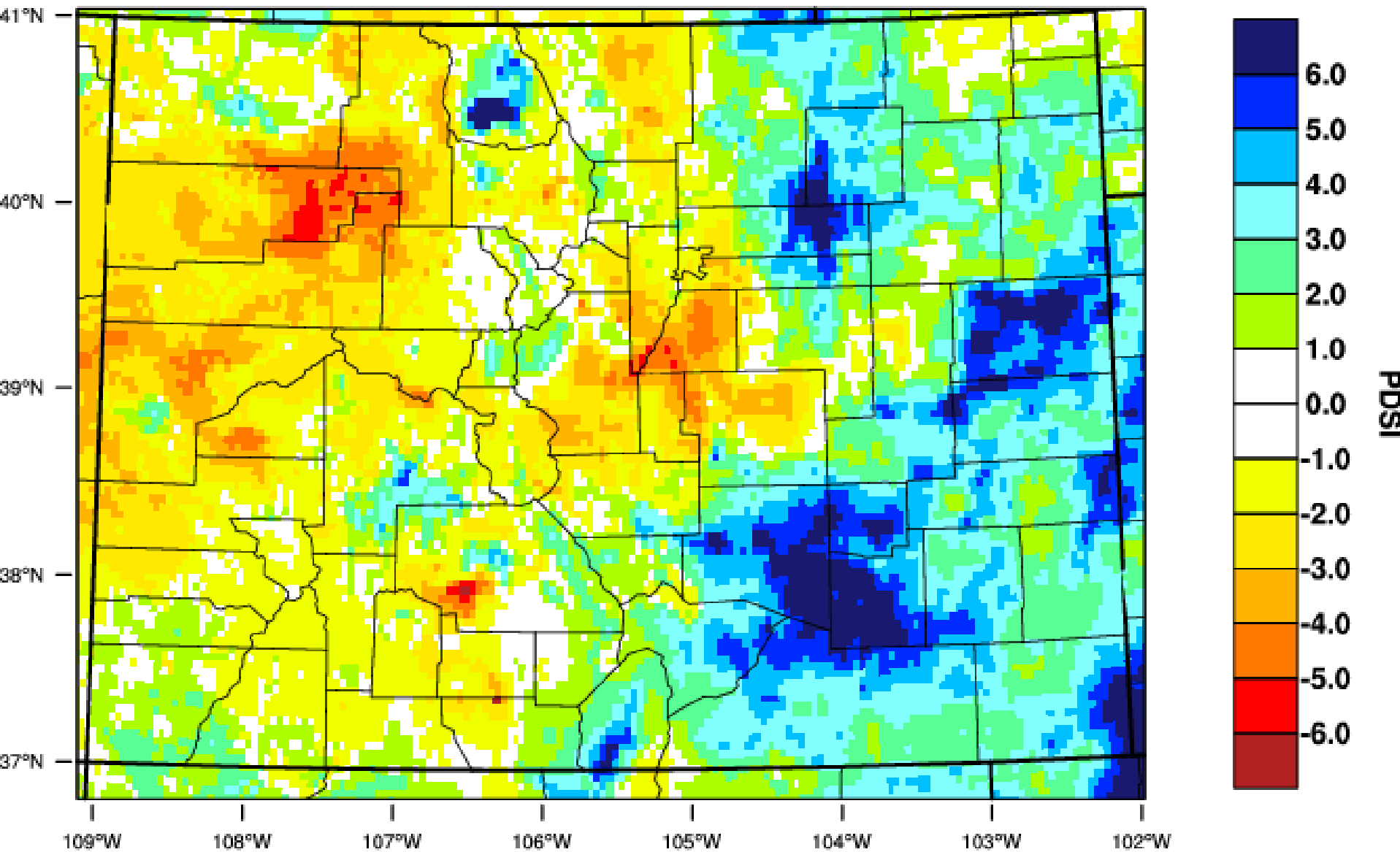
May 2017



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

Colorado - PDSI

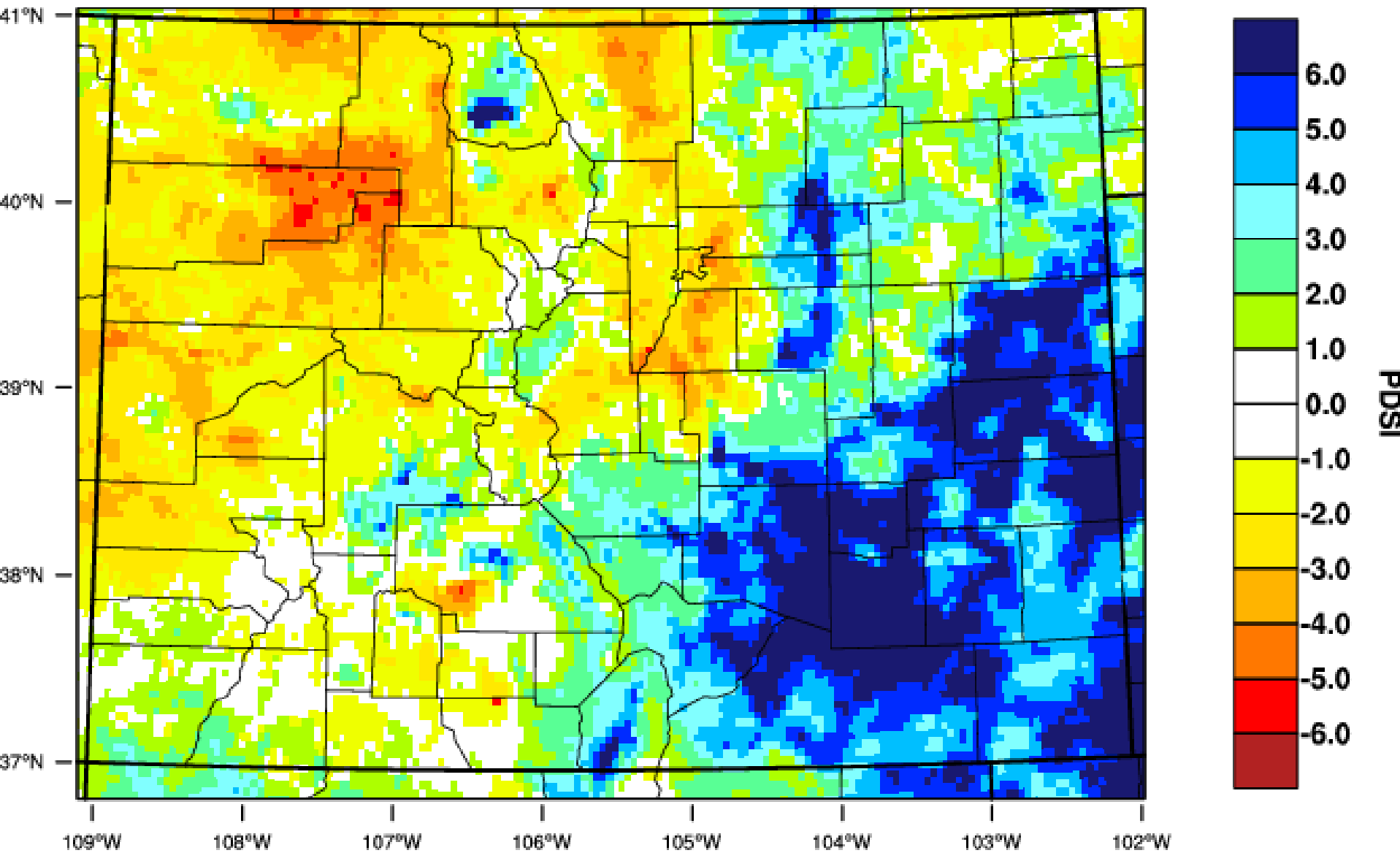
June 2017



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

Colorado - PDSI

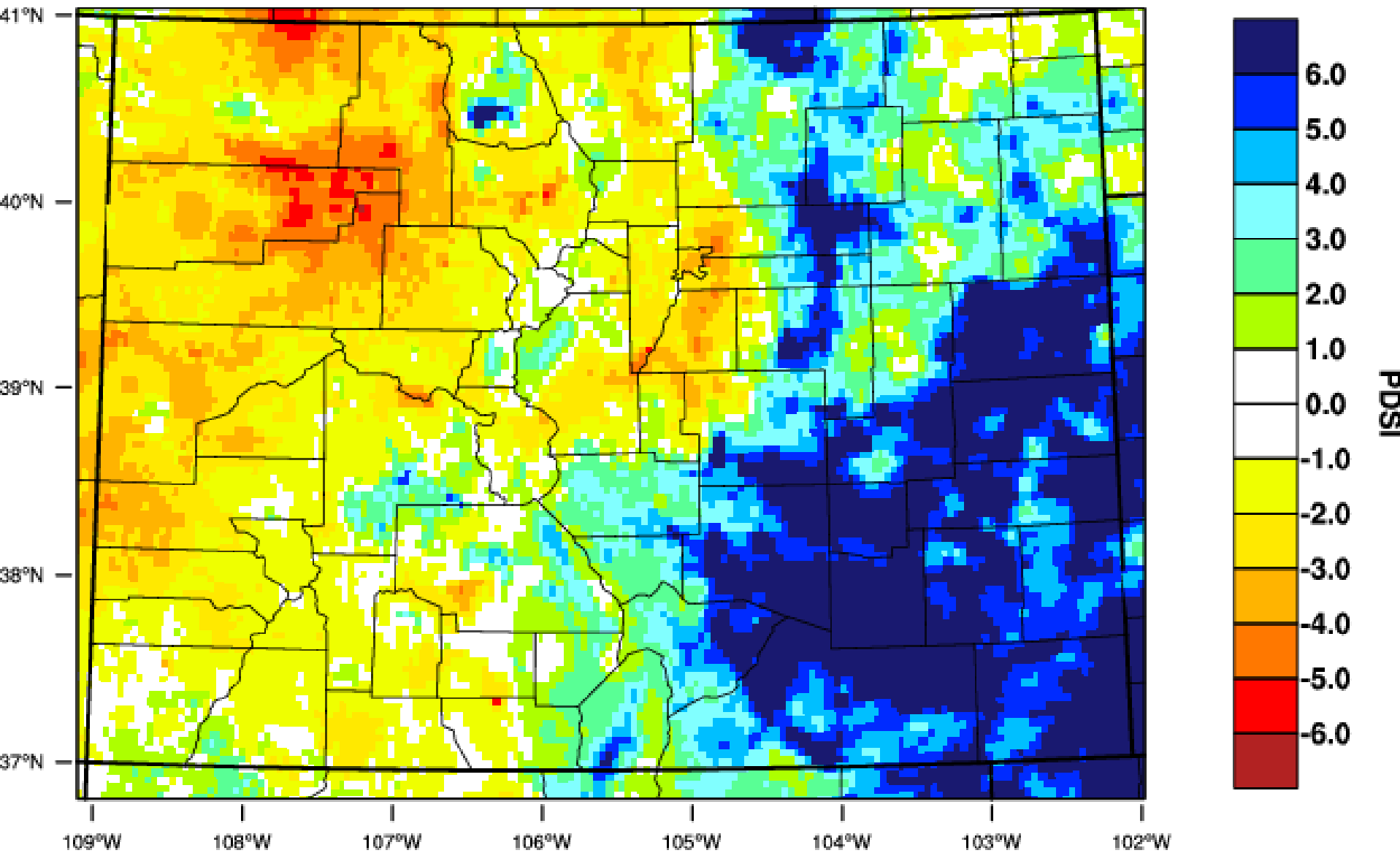
July 2017



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

Colorado - PDSI

August 2017



WestWide Drought Tracker, U Idaho/WRCC Data Source: PRISM (Prelim), created 11 SEP 2017

Colorado Climate Center

Data and Power Point Presentations available for downloading

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

