



Climate Update

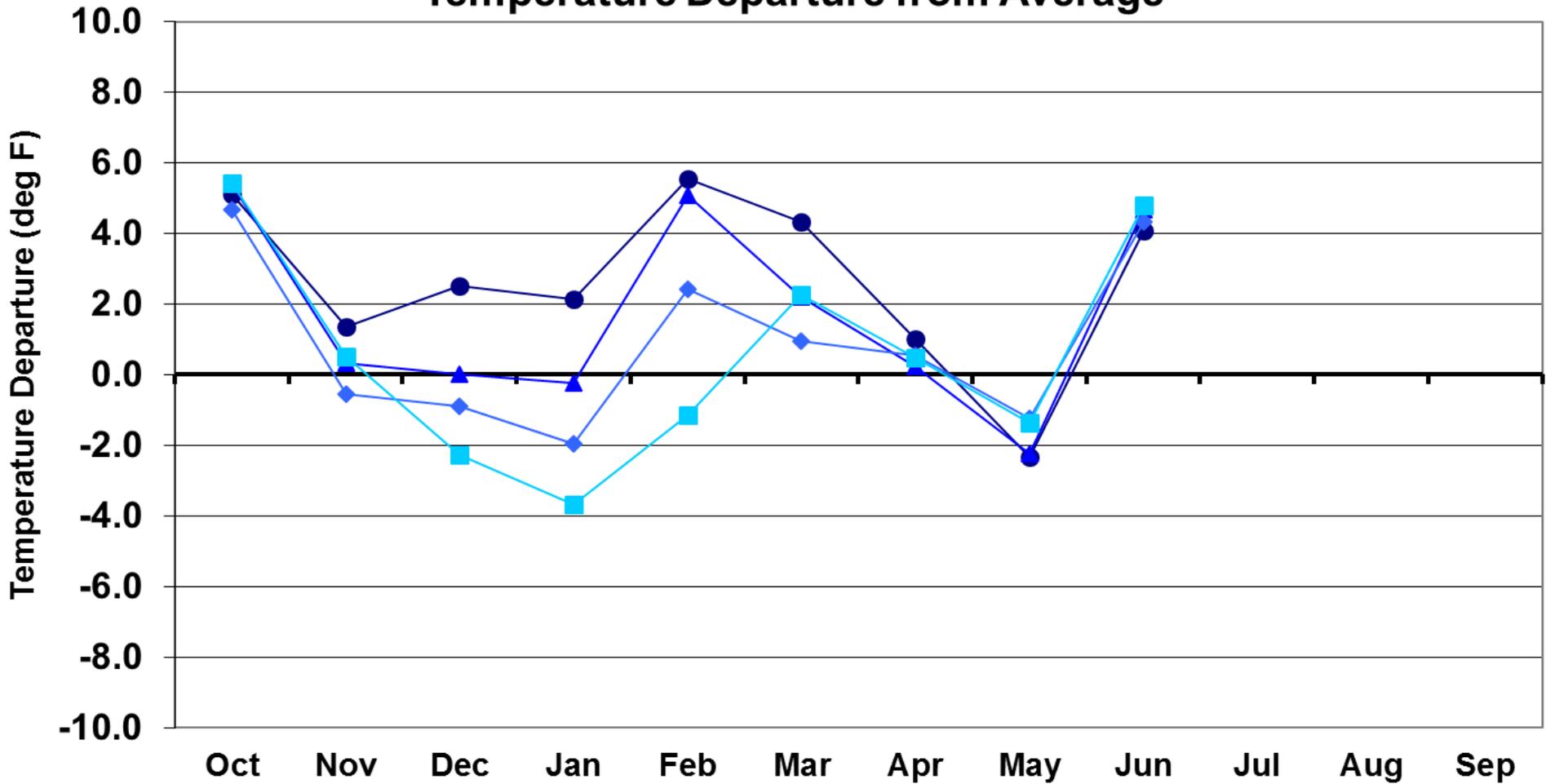


Zach Schwalbe
Colorado Climate Center

Presented to
Water Availability Task Force
July 19, 2016
Denver, CO

Water Year 2016 Temperature Departures

Water Year 2016
Temperature Departure from Average



● Eastern Plains

▲ Foothills

◆ Mountains

■ Western Valleys

June 2016 Average Temperature History for Colorado (NCEI)

Colorado, Average Temperature, June

66.4 F (+5.2)

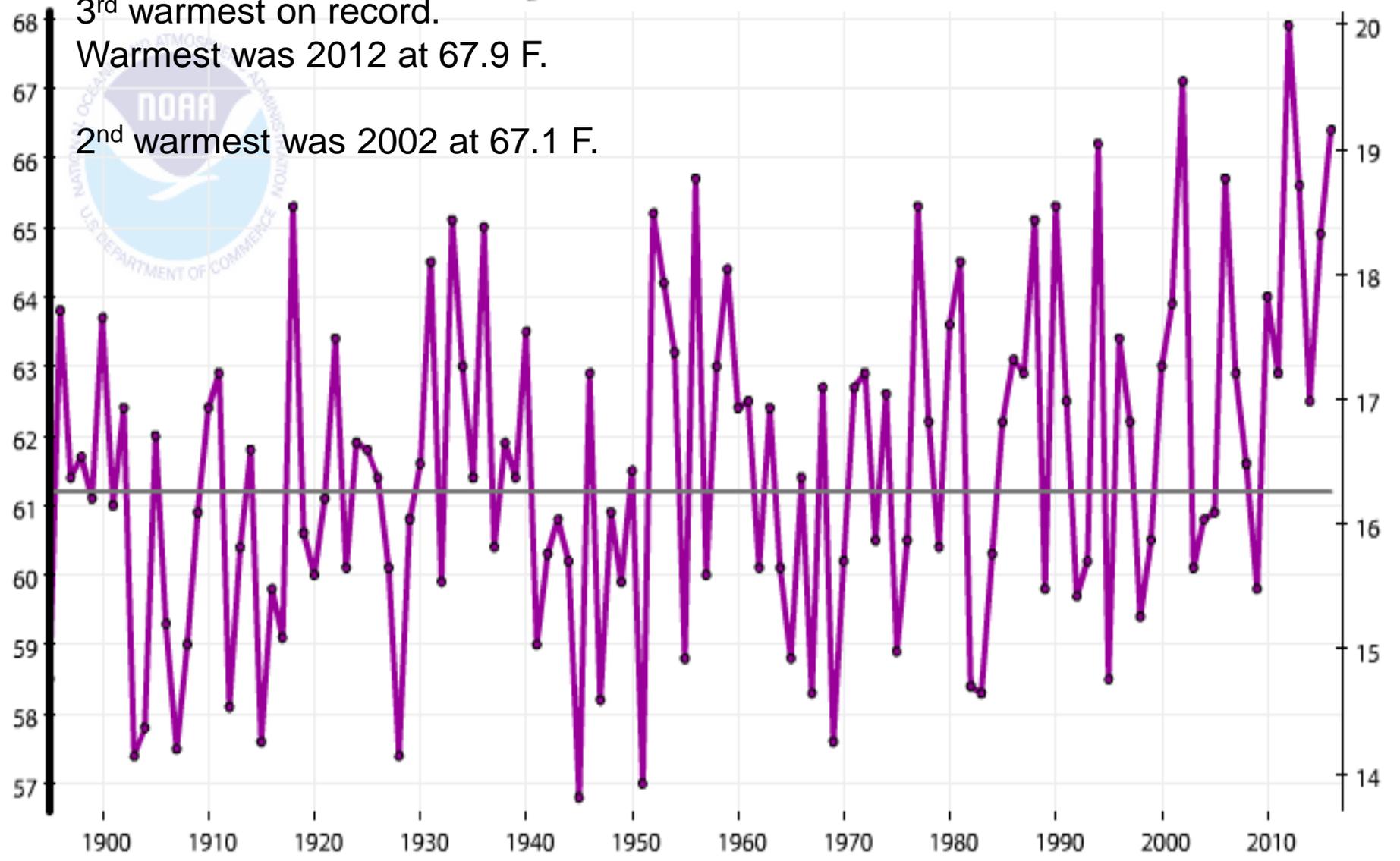
3rd warmest on record.

Warmest was 2012 at 67.9 F.

2nd warmest was 2002 at 67.1 F.

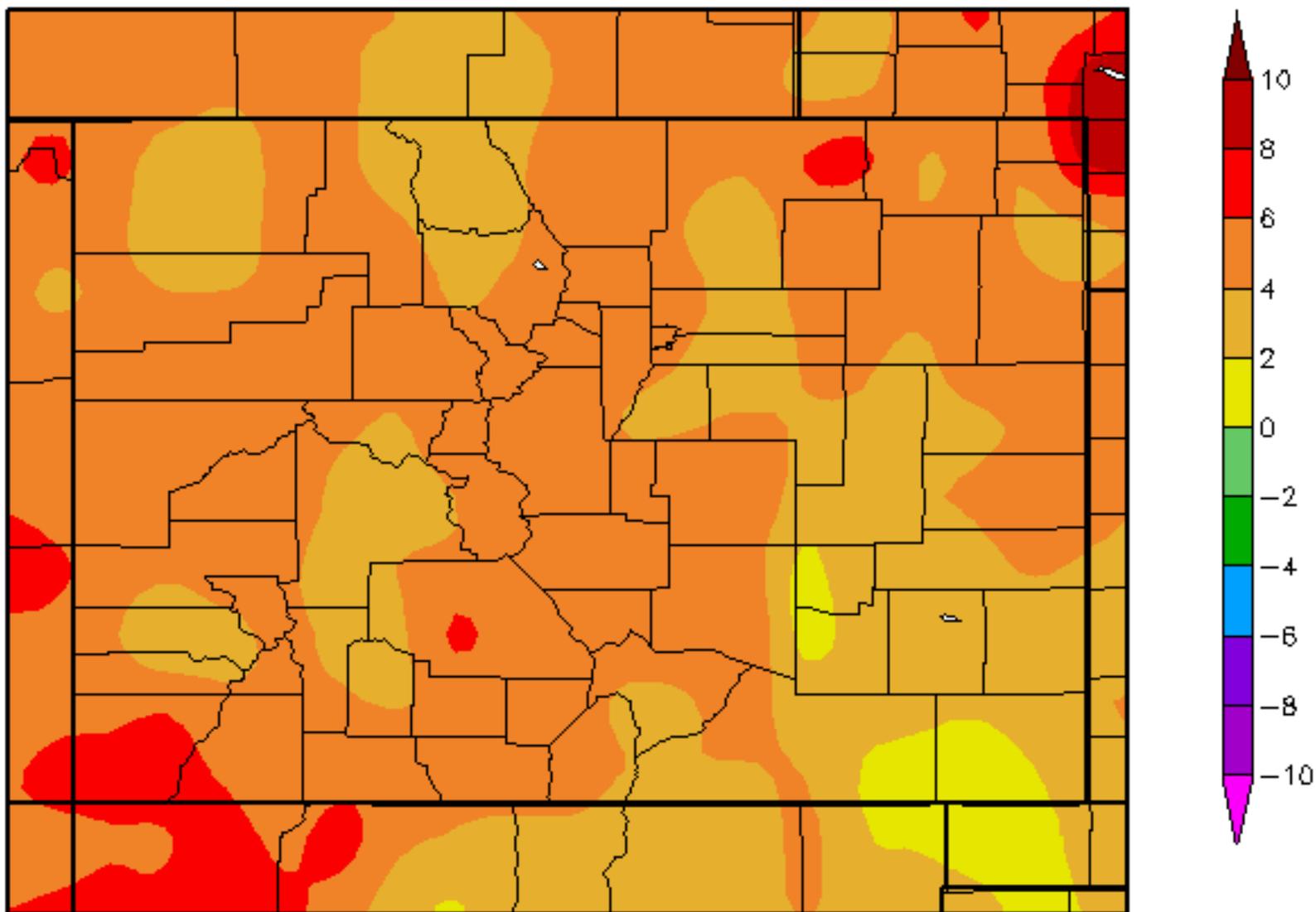
1901-2000
Avg: 61.2°F

Avg Temperature



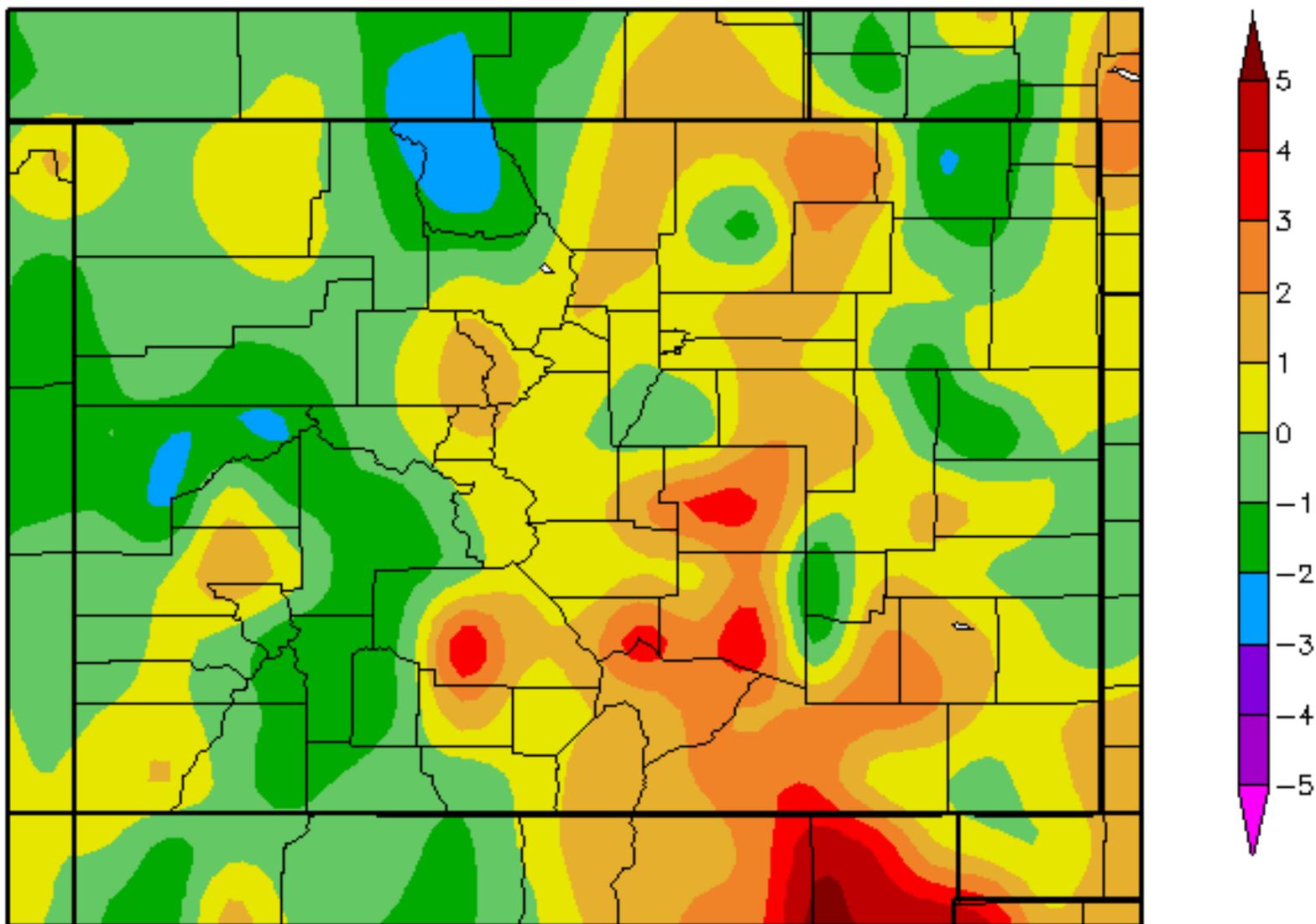
Departure from Normal Temperature (F)

6/1/2016 – 6/30/2016



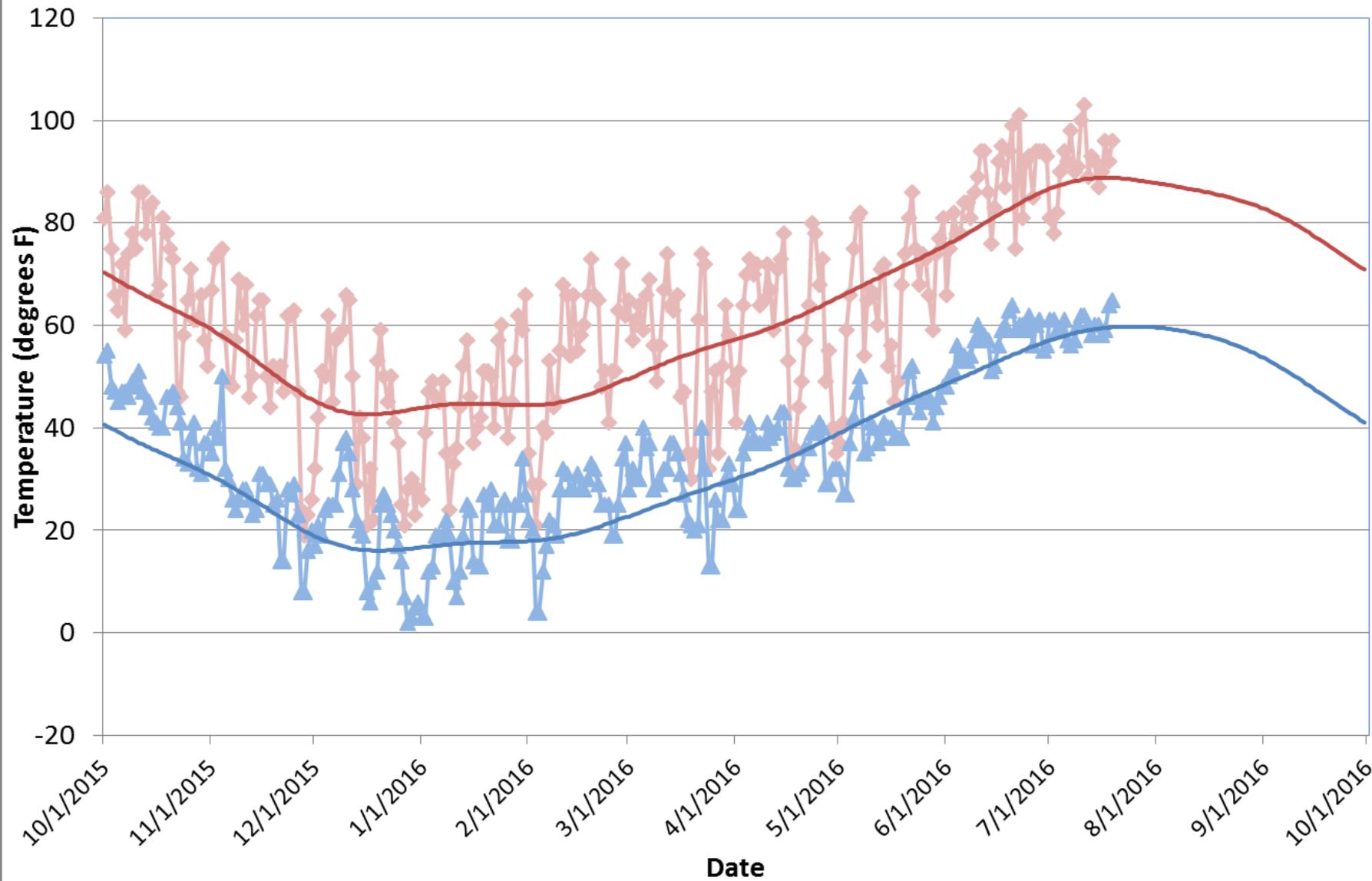
Departure from Normal Temperature (F)

7/1/2016 - 7/18/2016



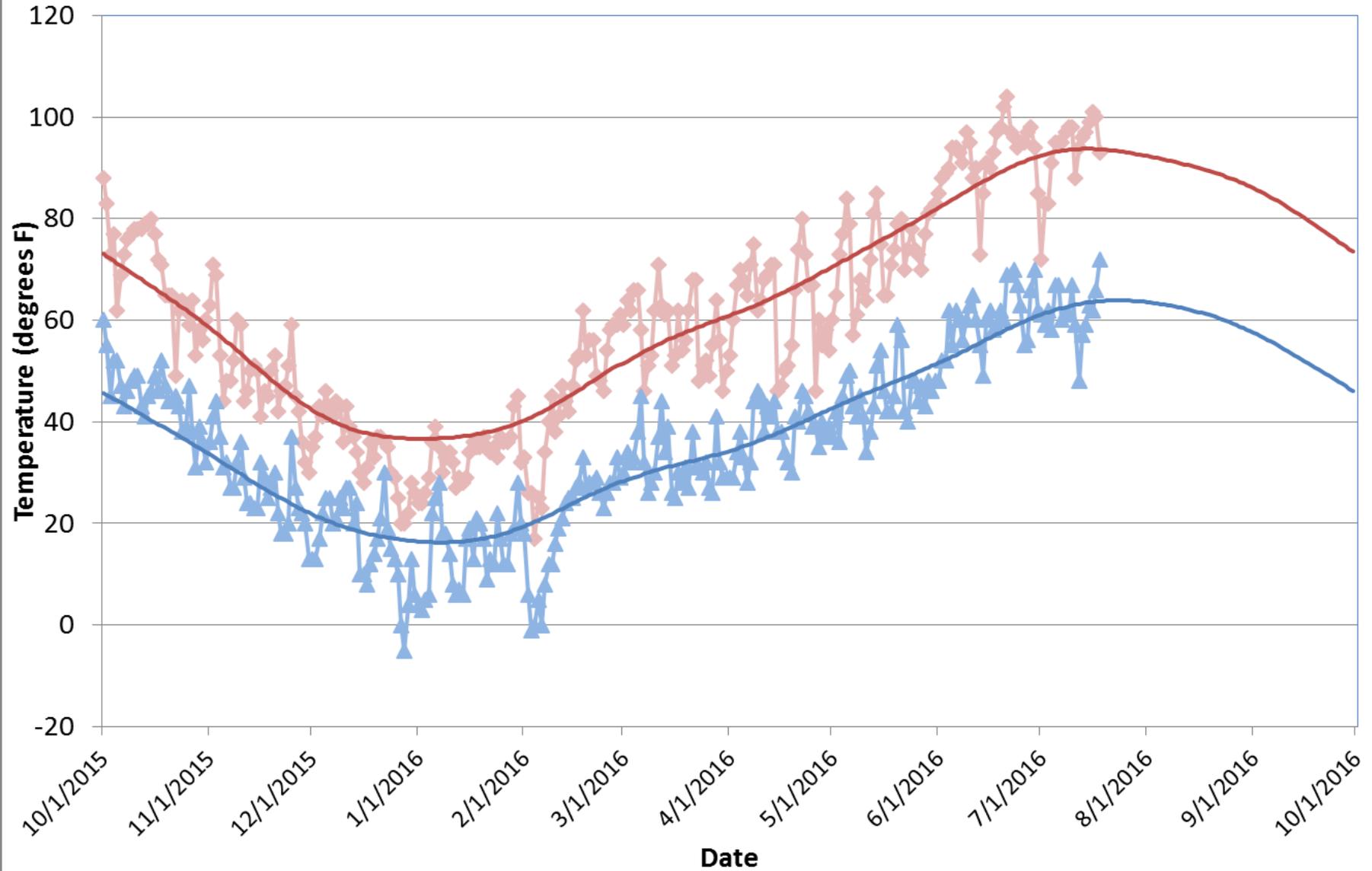
Denver-Stapleton Daily Max/Min Temperatures with Normals, Water Year 2016

Max Temperature Normal Max Temp Min Temperature Normal Min Temp

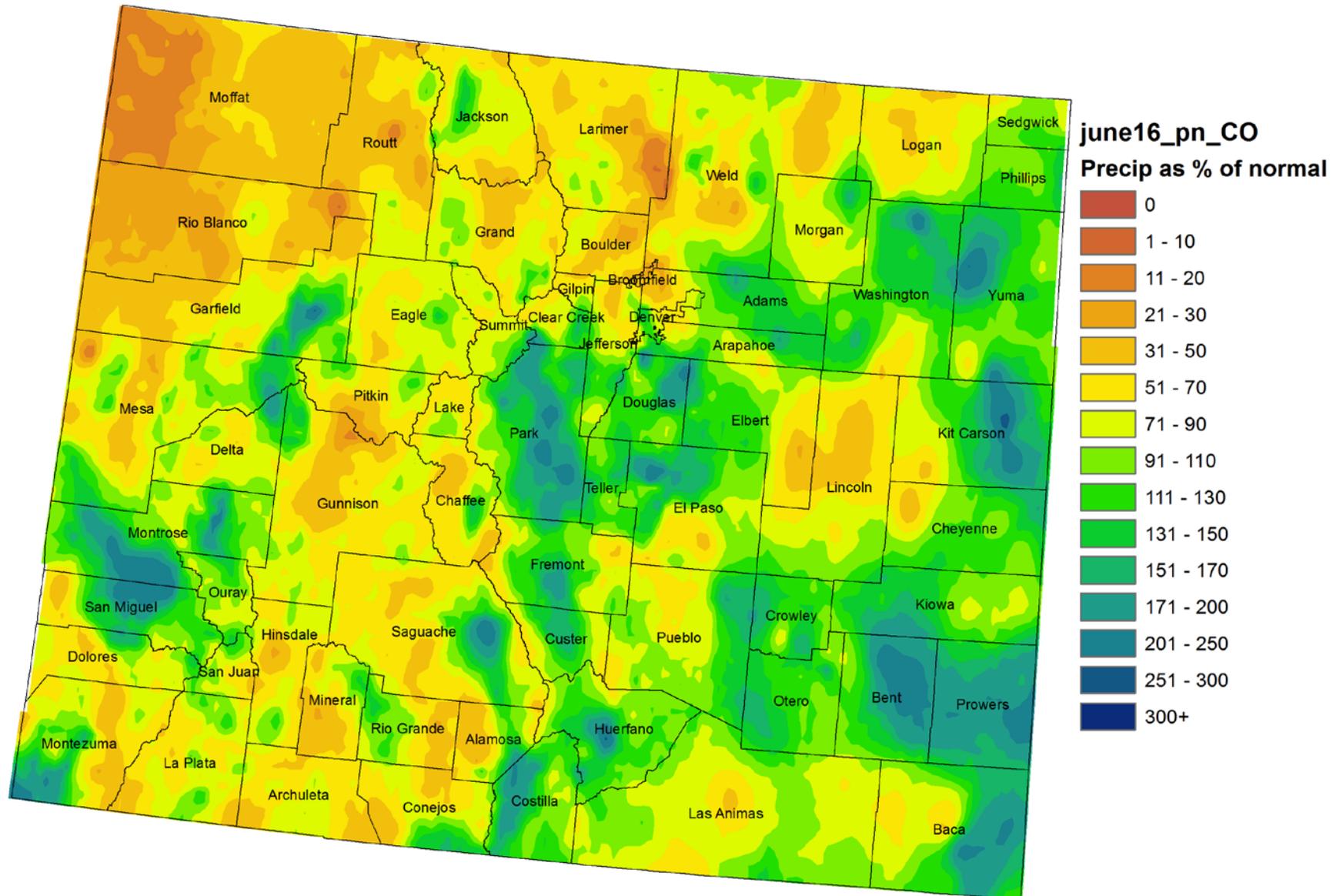


Grand Junction Daily Max/Min Temperature with Normals, WY 2016

Max Temperature Normal Max Temp Min Temperature Normal Min Temp



Colorado June 2016 Precipitation as a Percentage of Normal



June 2016 Statewide Precipitation

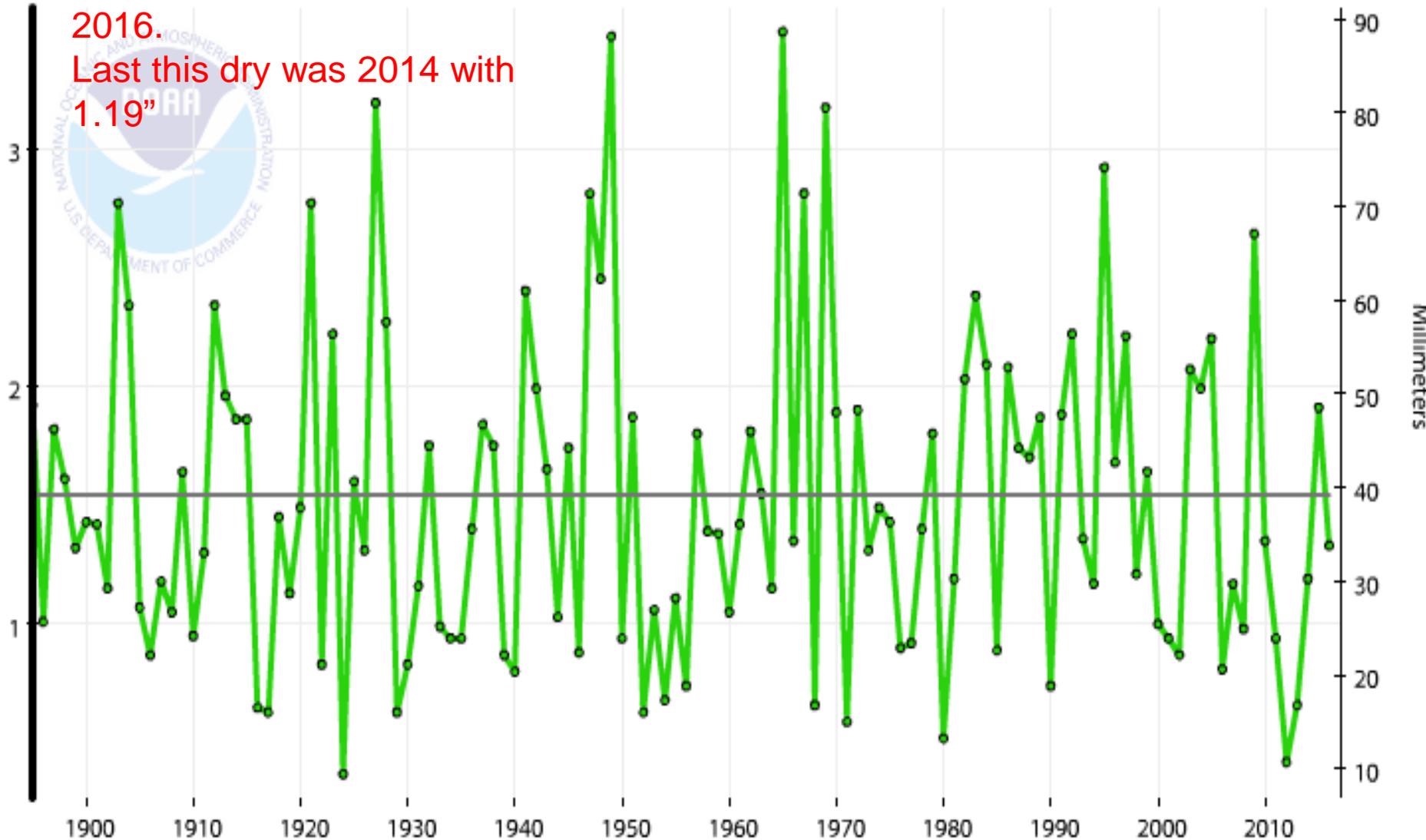
1.33" (-0.21")

55th driest on Record 1895-2016.

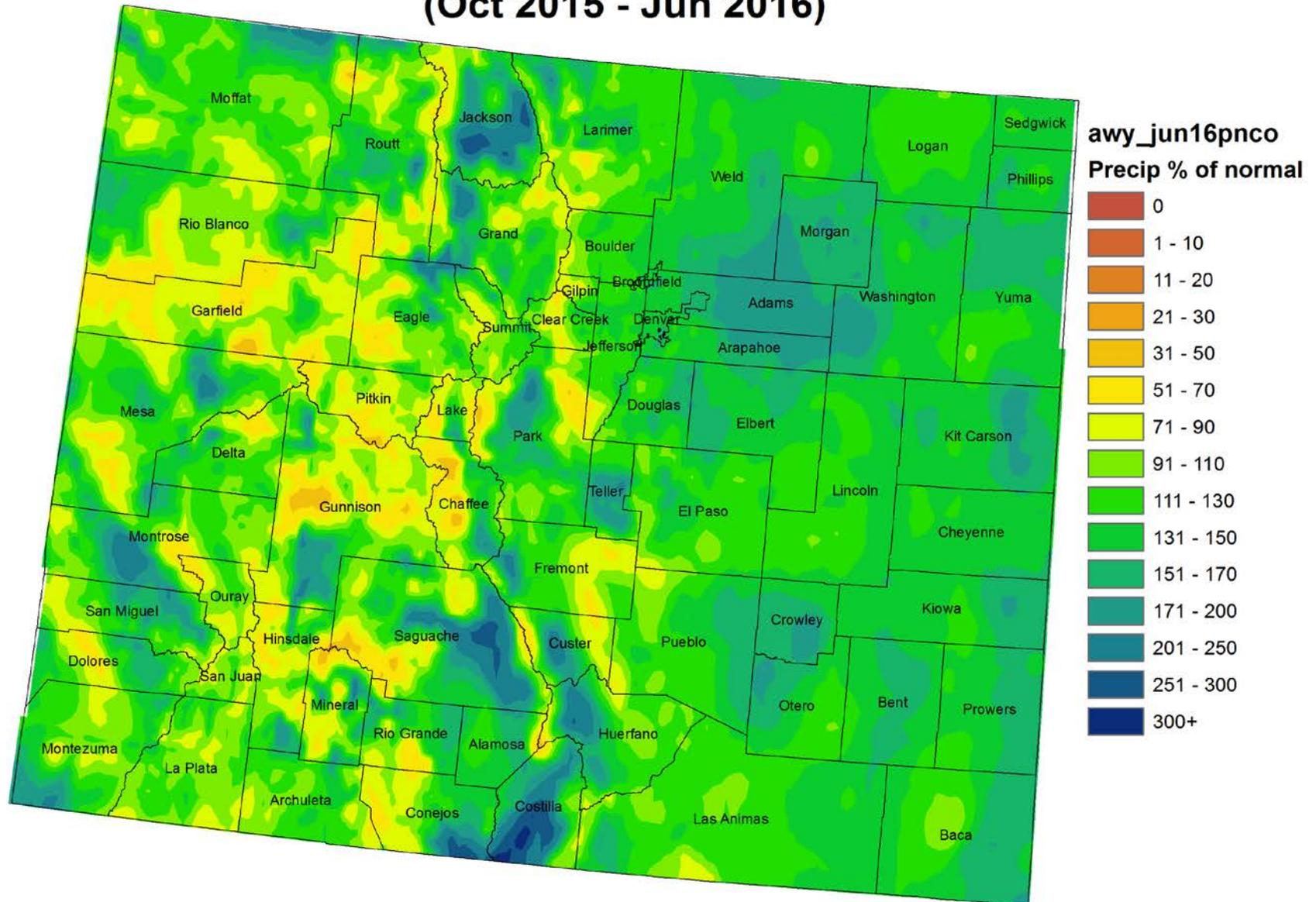
Last this dry was 2014 with 1.19"

Colorado, Precipitation, June

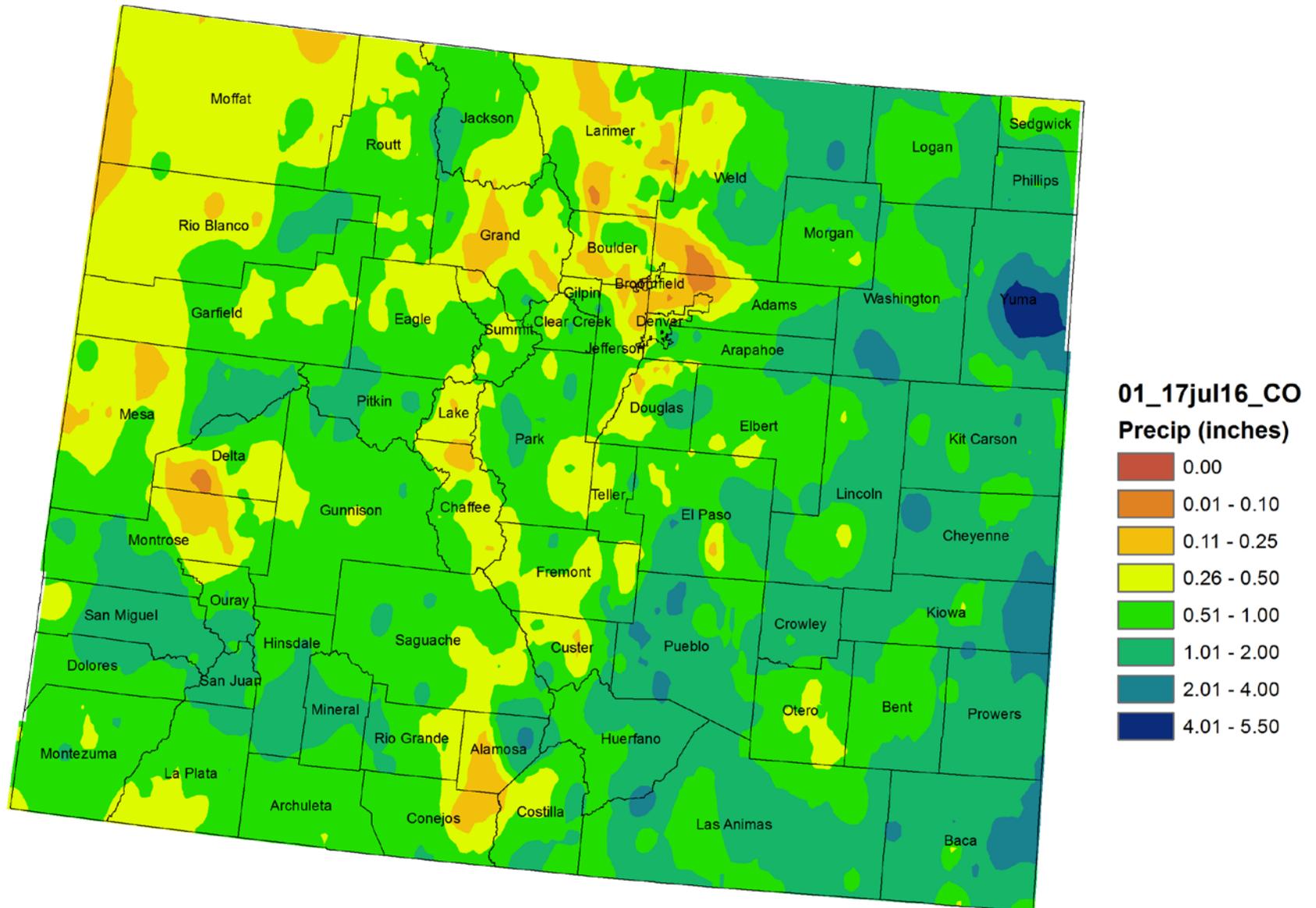
— 1901-2000 Avg: 1.54" —●— Precip



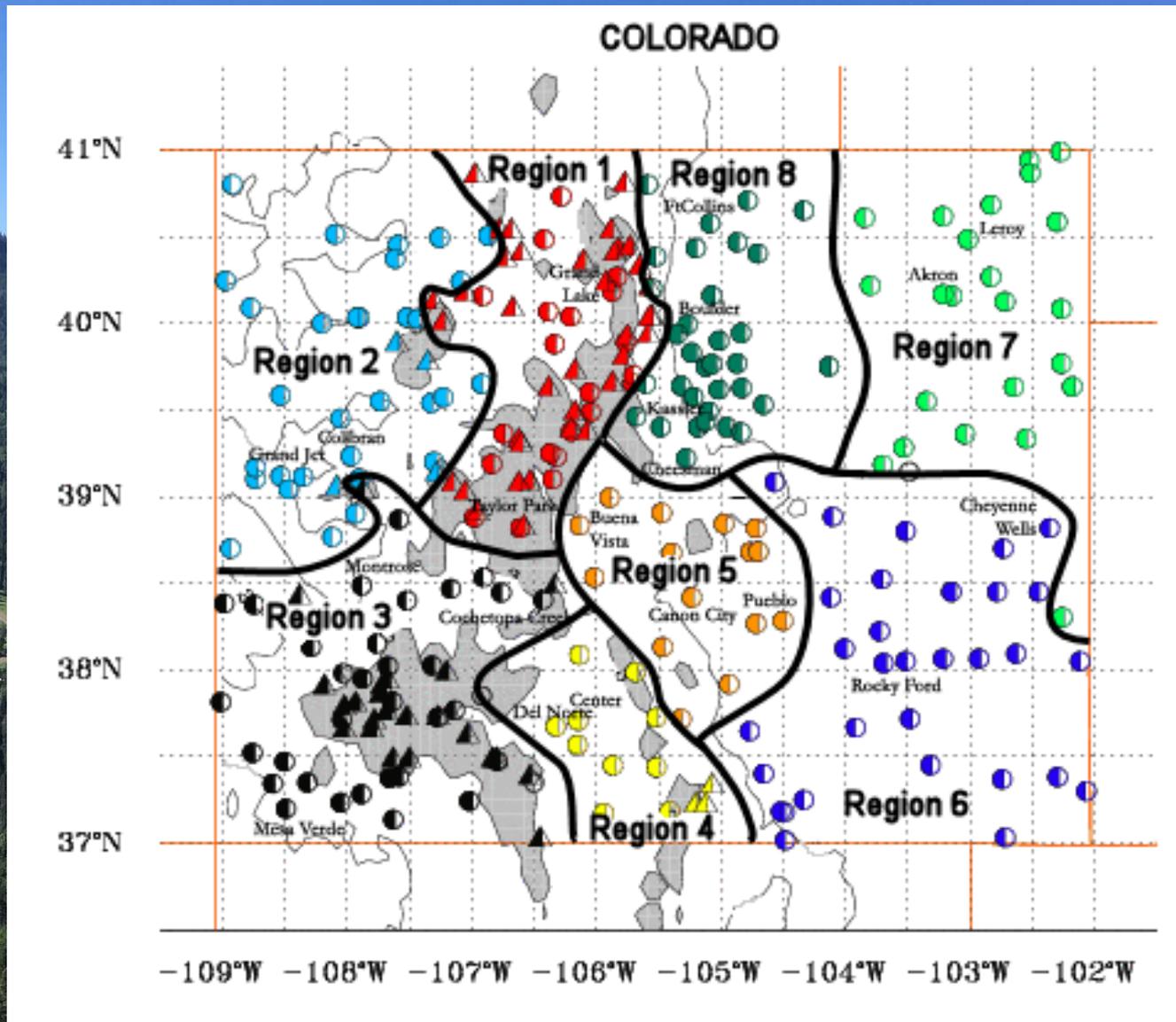
Colorado Water Year 2016 Precipitation as a Percentage of Normal (Oct 2015 - Jun 2016)



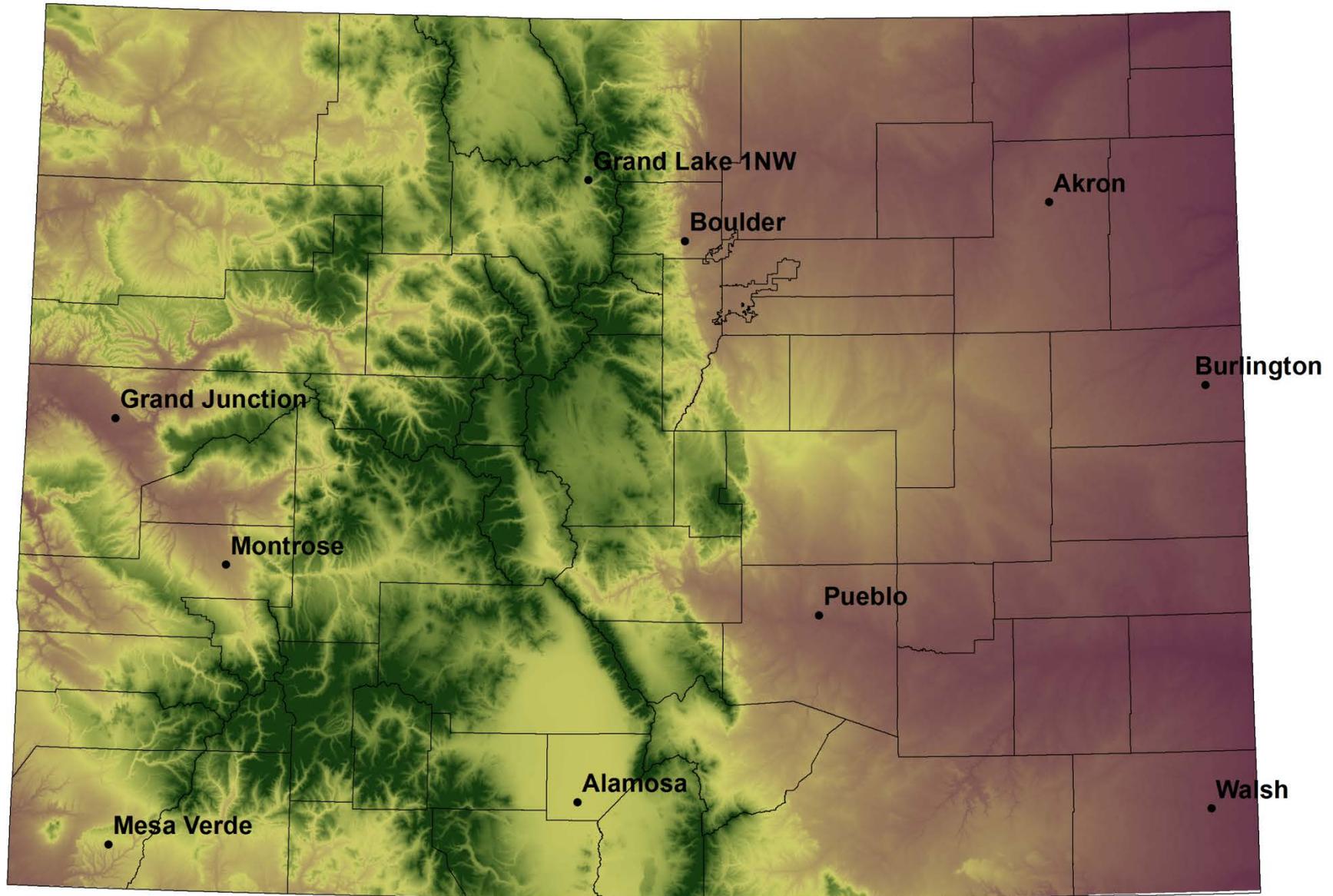
Colorado Month to Date Precipitation 1 - 17 July 2016



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

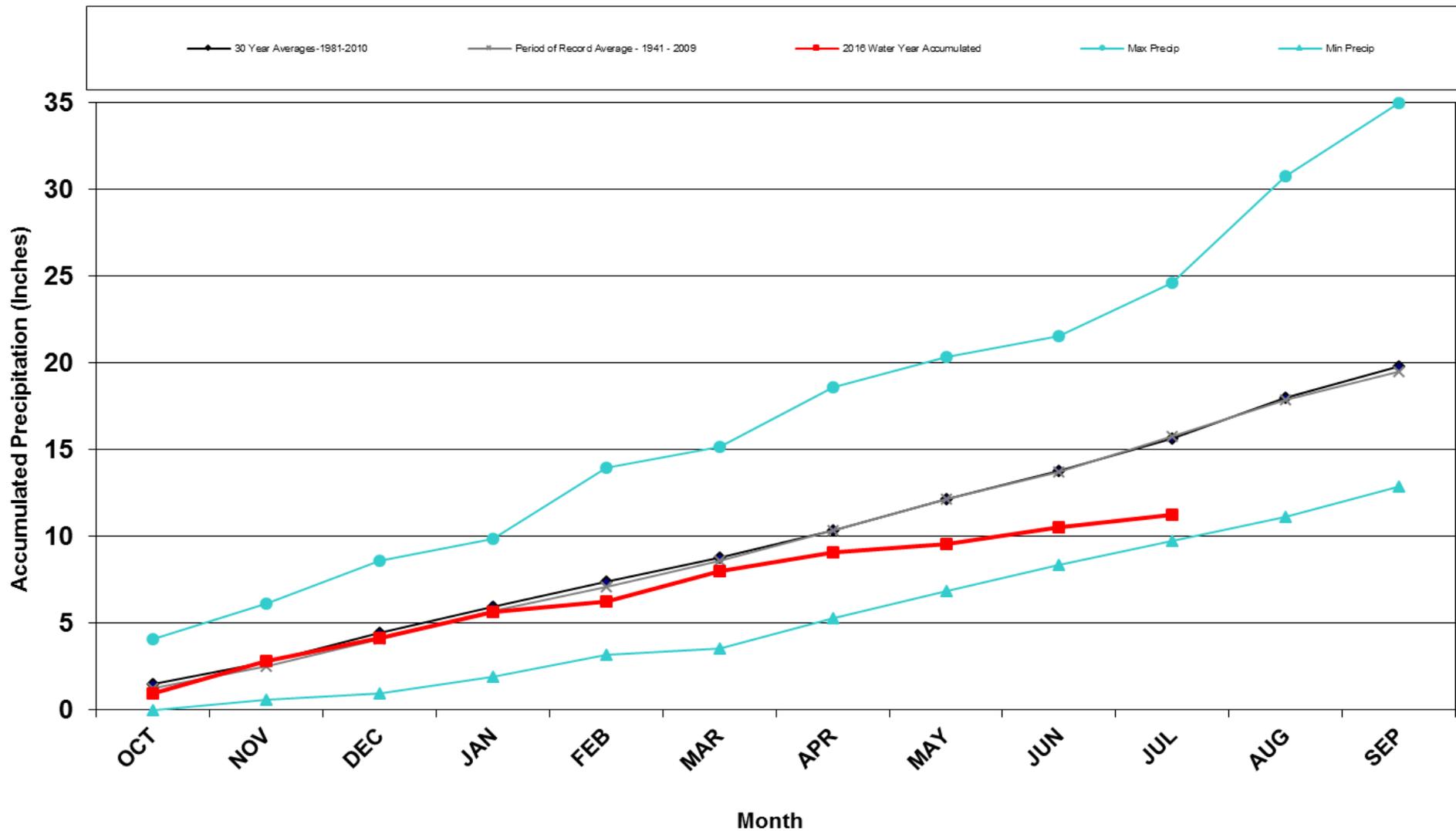


NWS Cooperative Stations for WATF



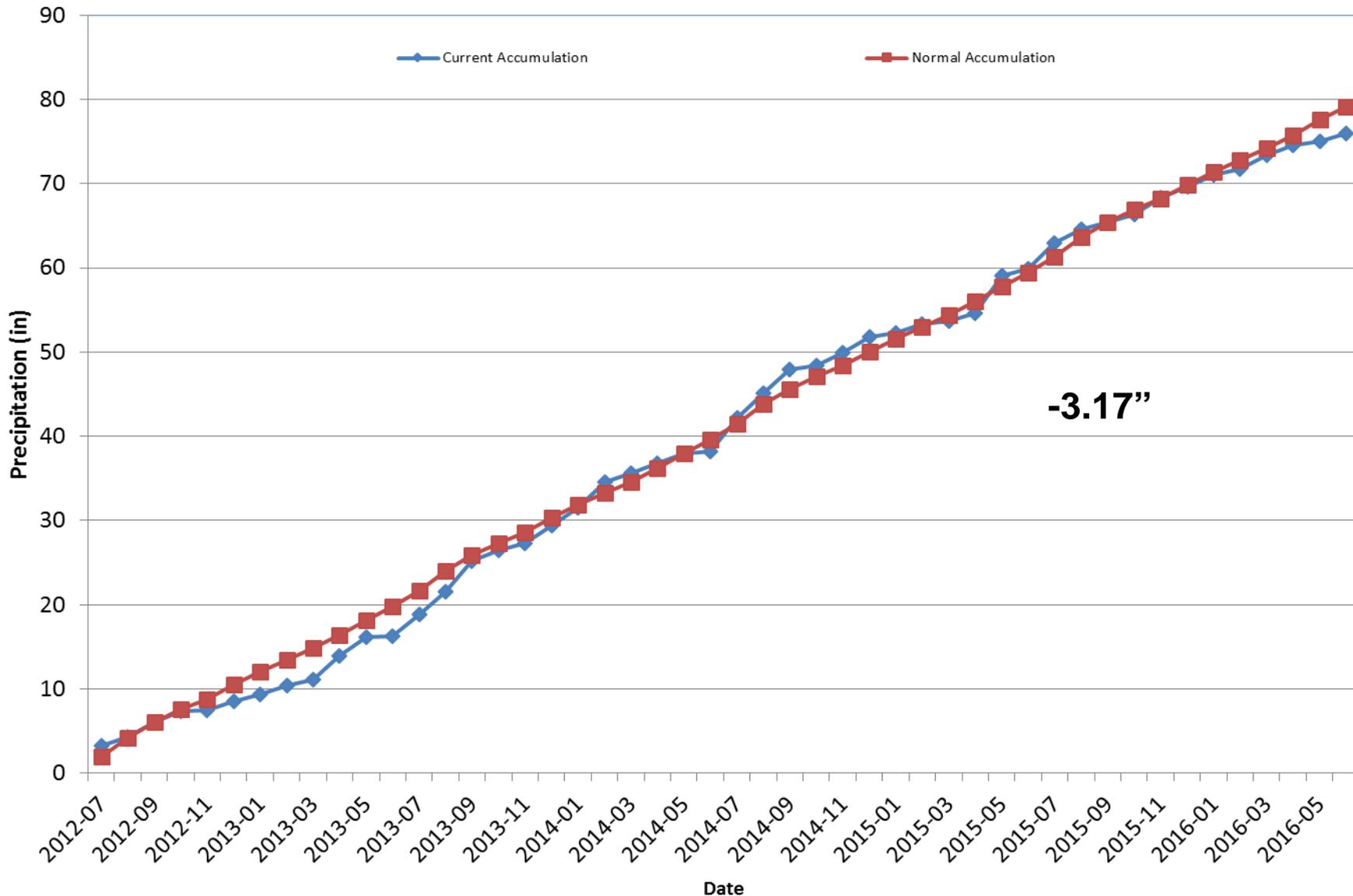
Division 1 – Grand Lake 1NW

Grand Lake 1 NW 2016 Water Year



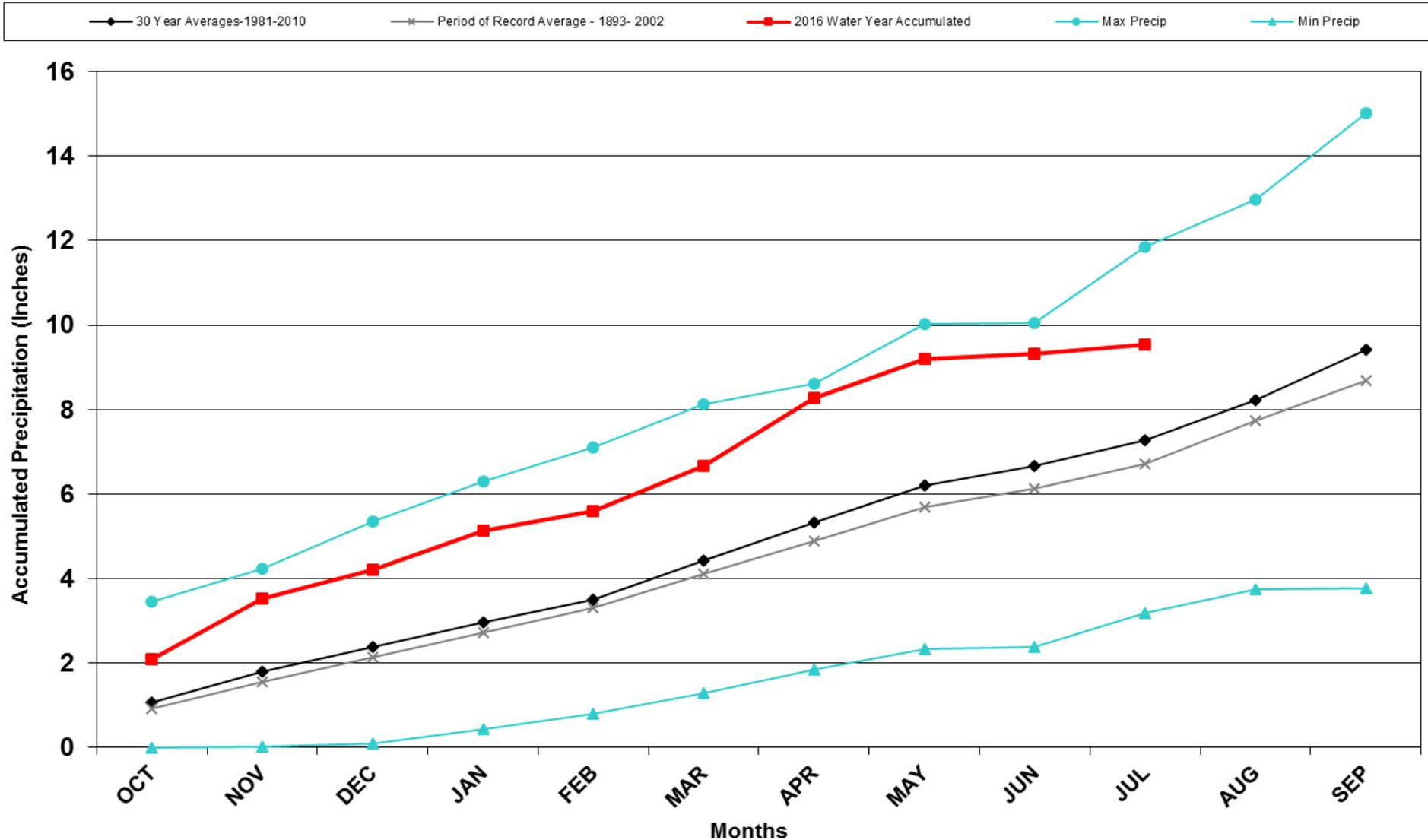
Division 1 – Grand Lake 1NW

Grand Lake 1NW Precipitation Accumulation



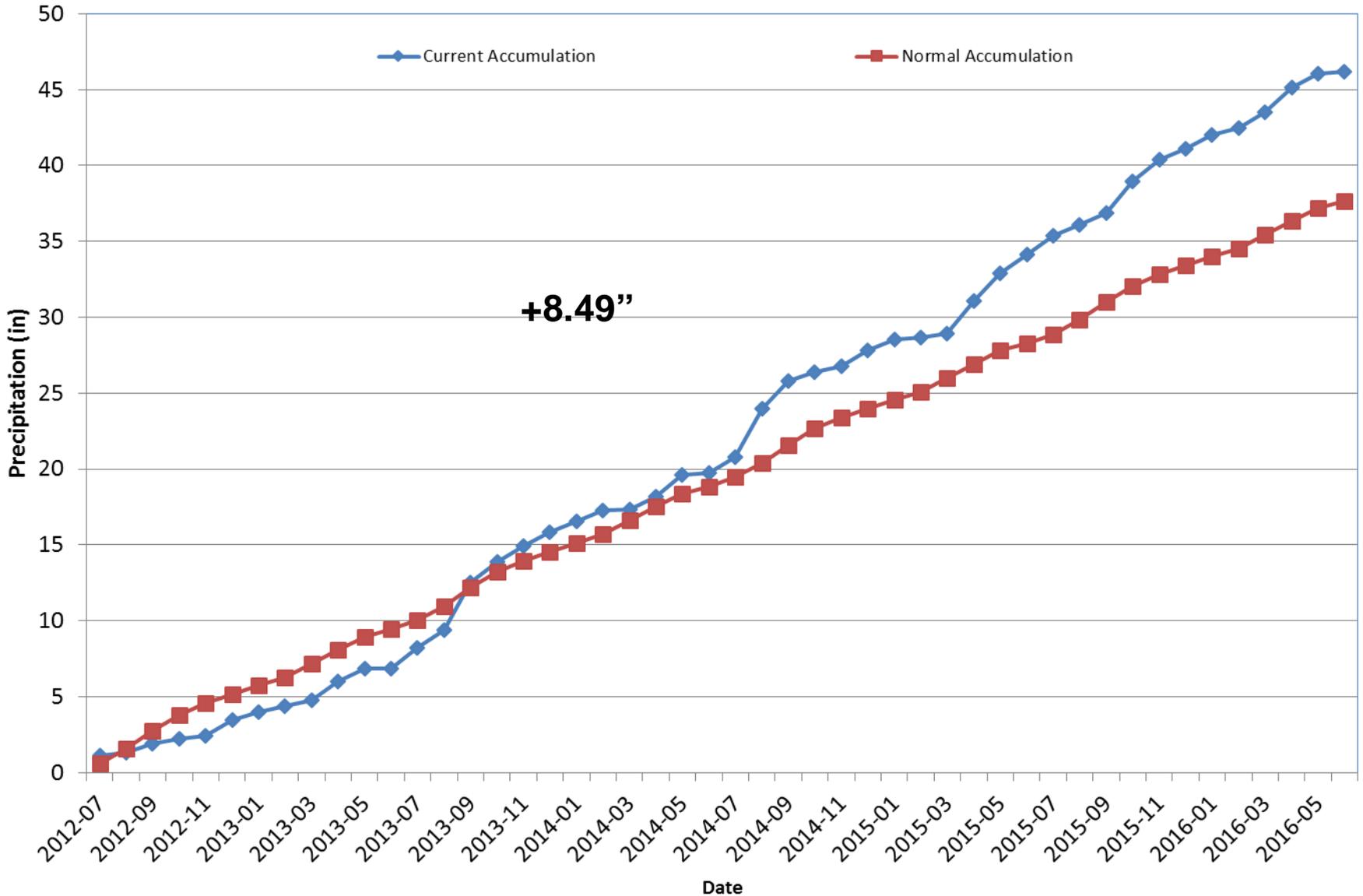
Division 2 – Grand Junction

Grand Junction WSFO 2016 Water Year



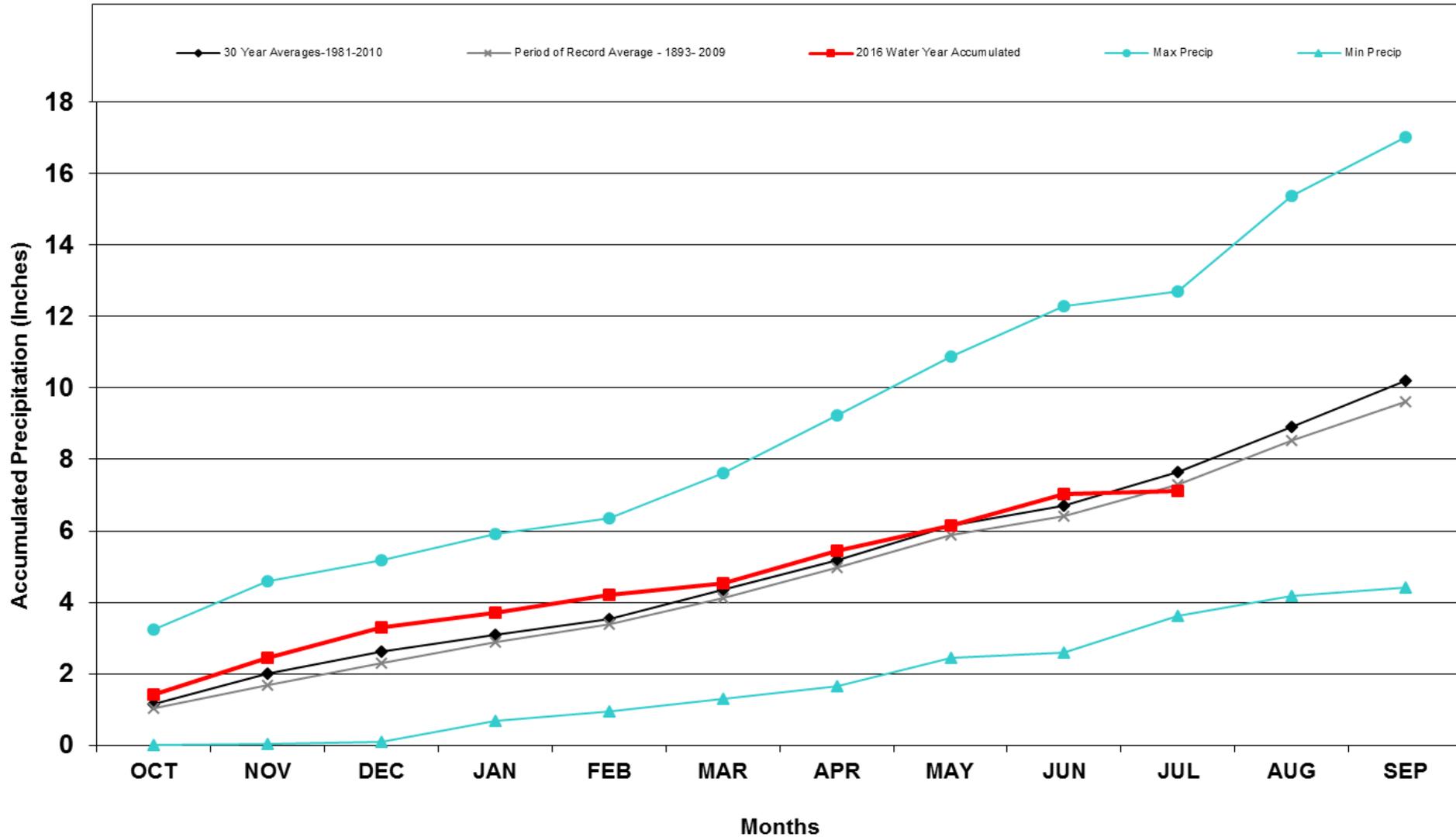
Division 2 – Grand Junction

Grand Junction Precipitation Accumulation



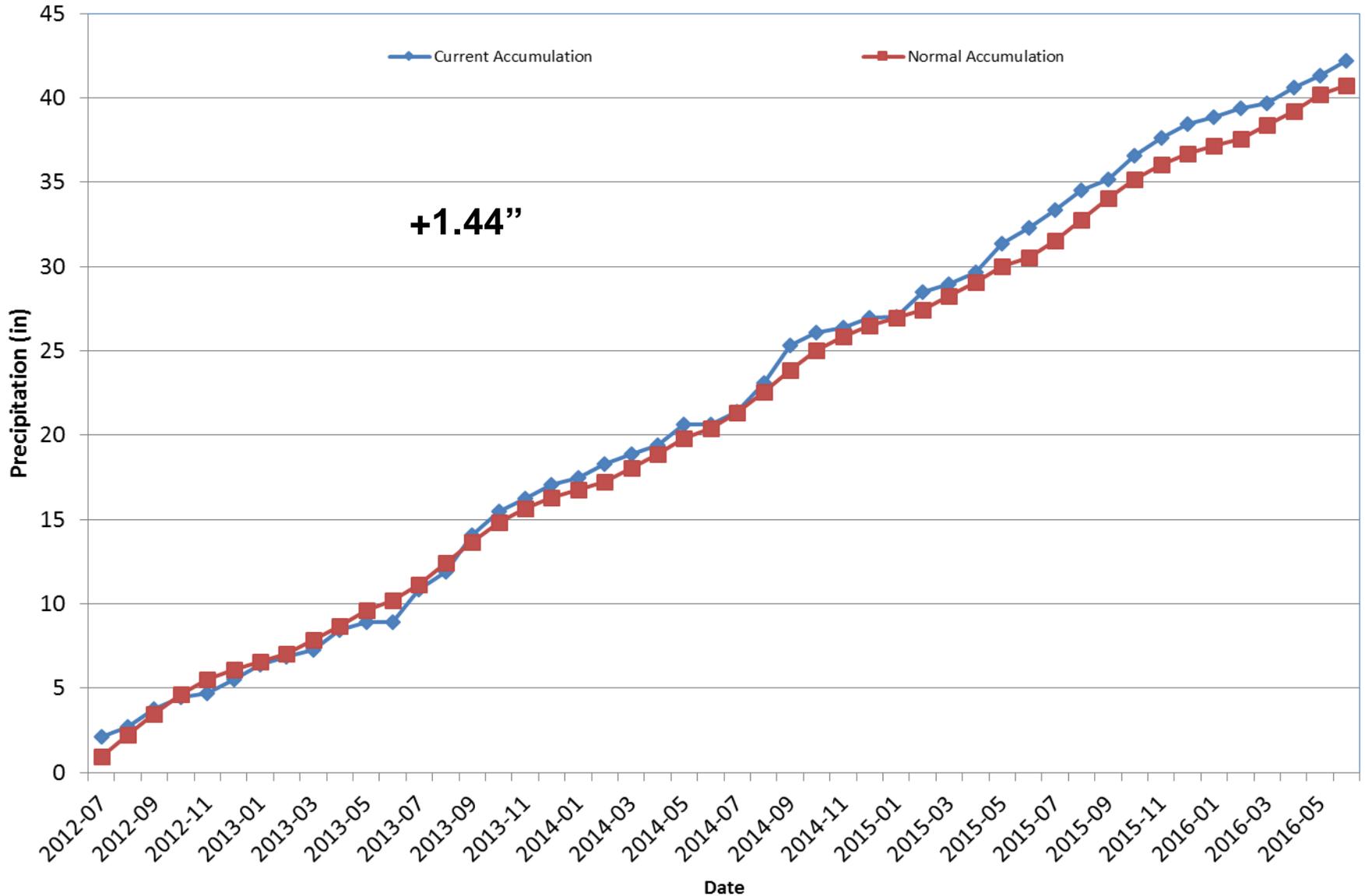
Division 3 – Montrose

Montrose #2 2016 Water Year



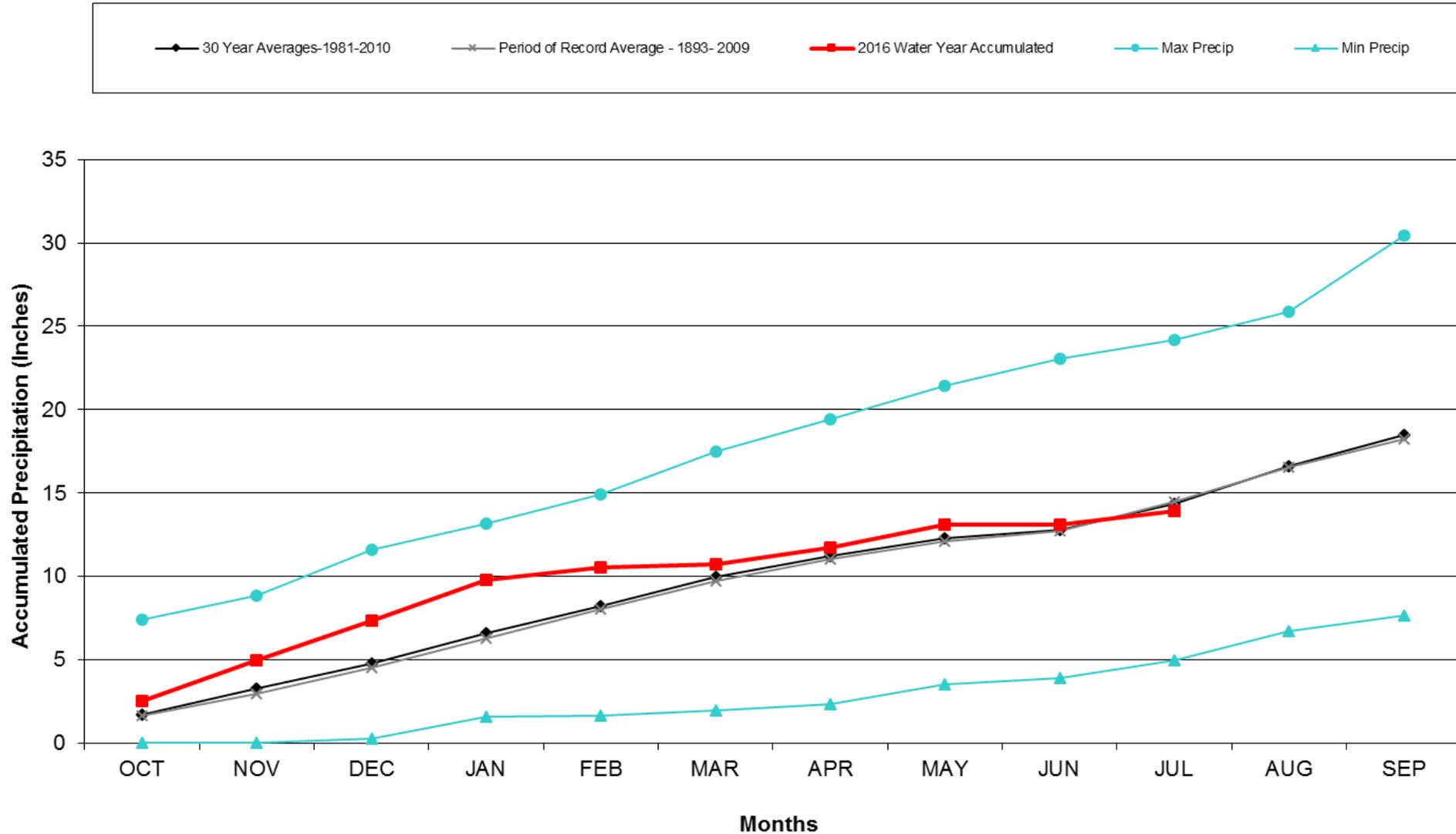
Division 3 – Montrose

Montrose #2 Precipitation Accumulation



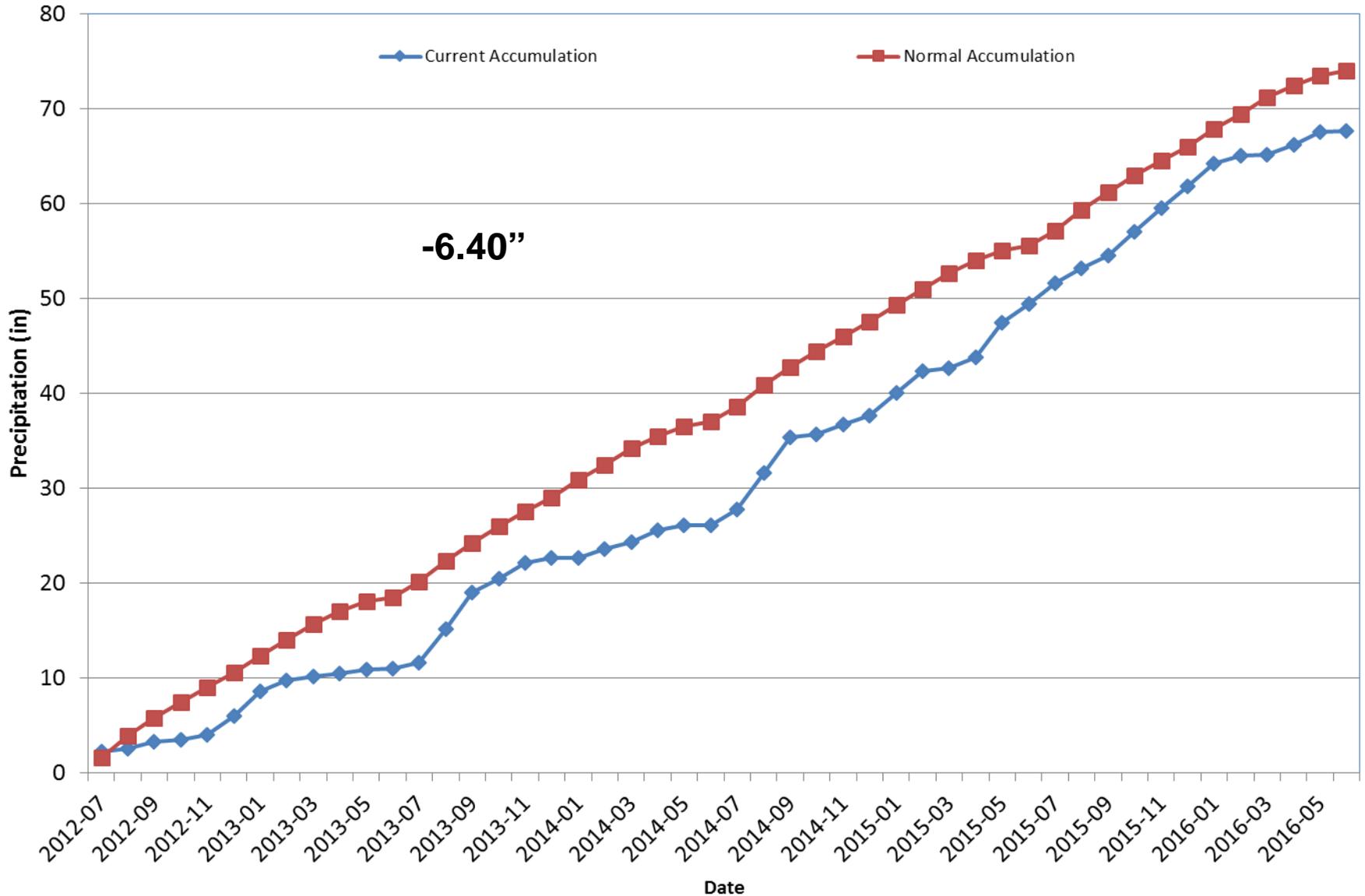
Division 3 – Mesa Verde NP

Mesa Verde NP 2016 Water Year



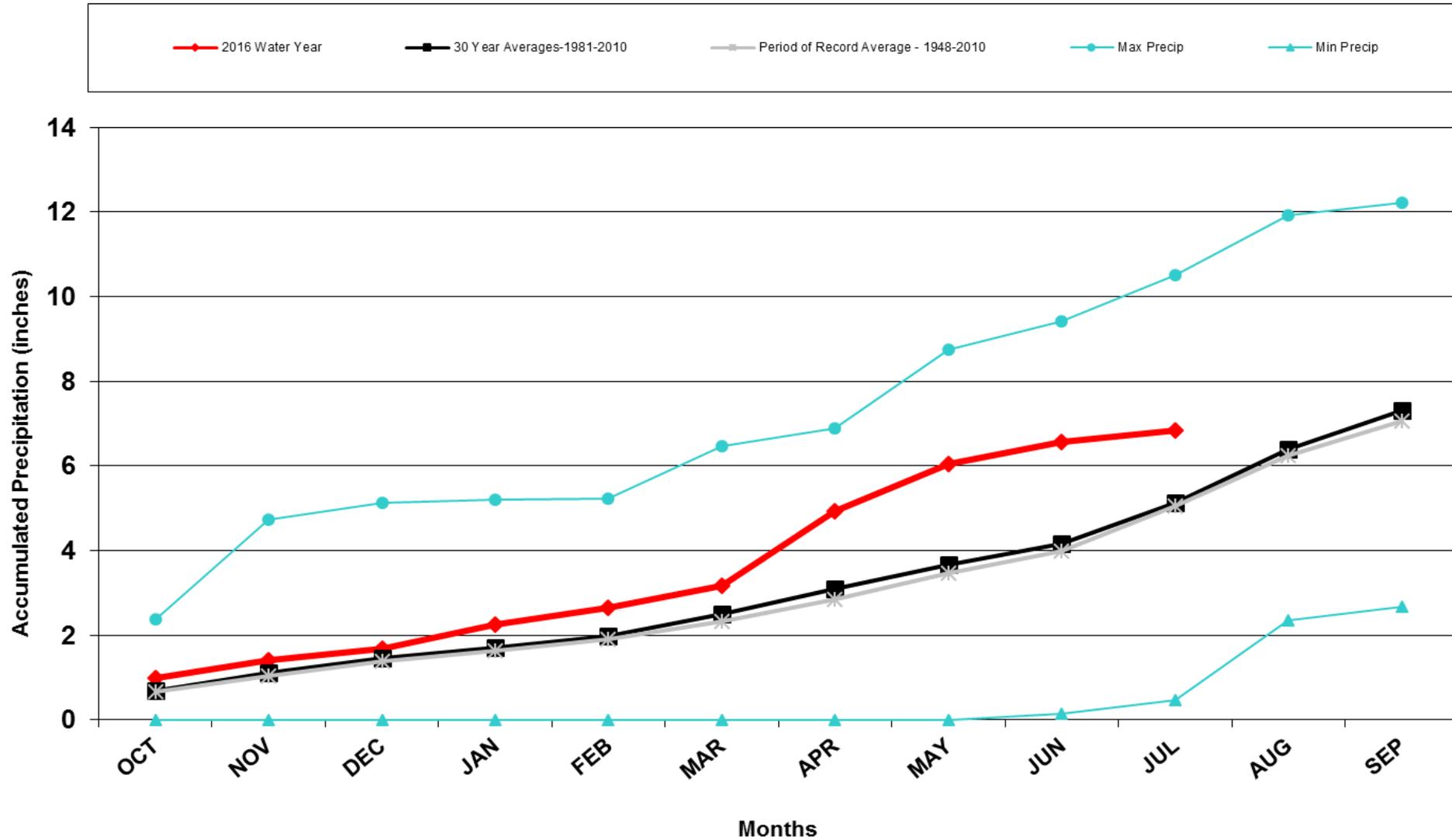
Division 3 – Mesa Verde NP

Mesa Verde NP Precipitation Accumulation



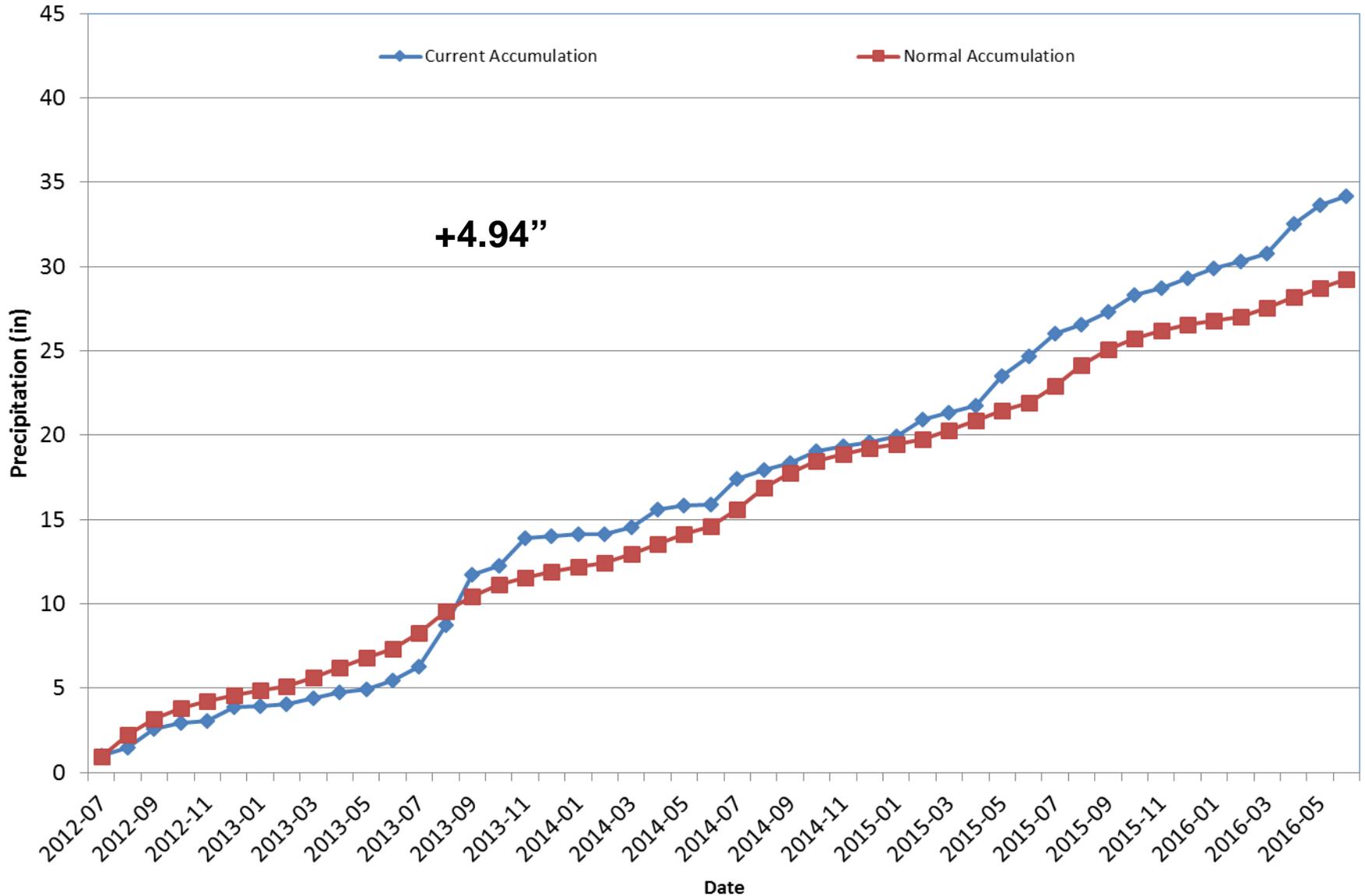
Division 4 – Alamosa

Alamosa WSO 2016 Water Year



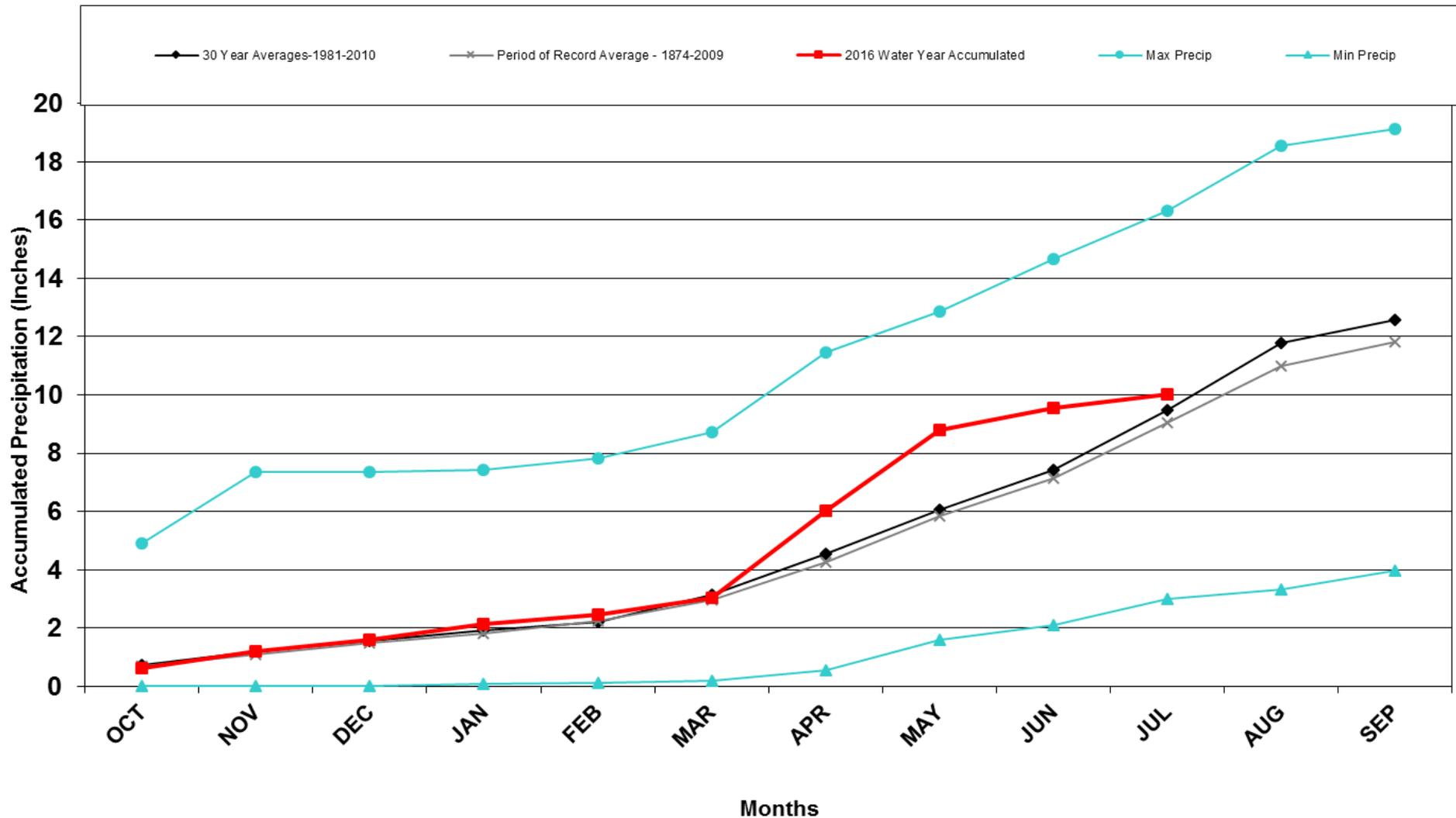
Division 4 – Alamosa

Alamosa WSO Precipitation Accumulation



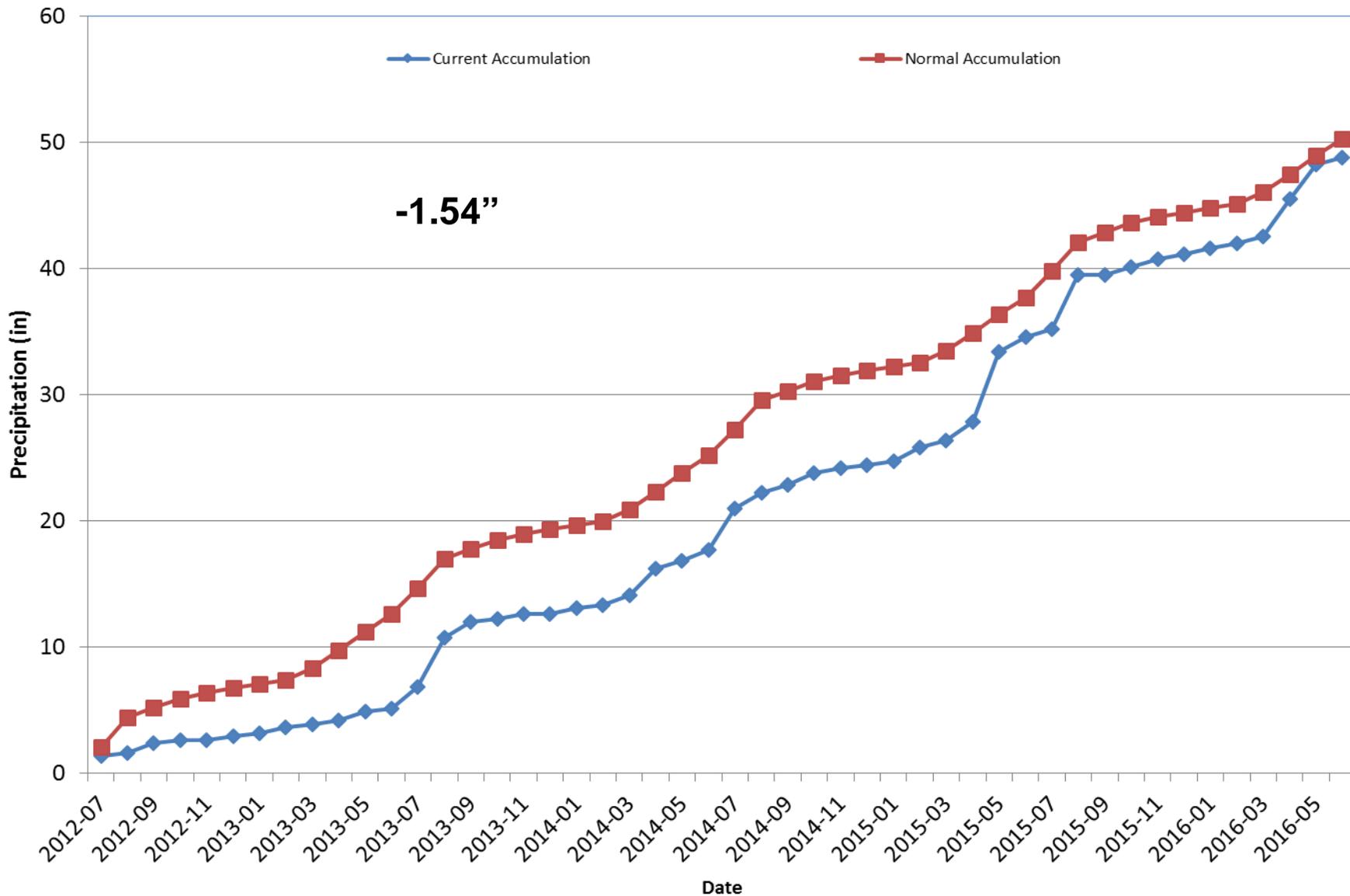
Division 5 – Pueblo

Pueblo WSO 2016 Water Year



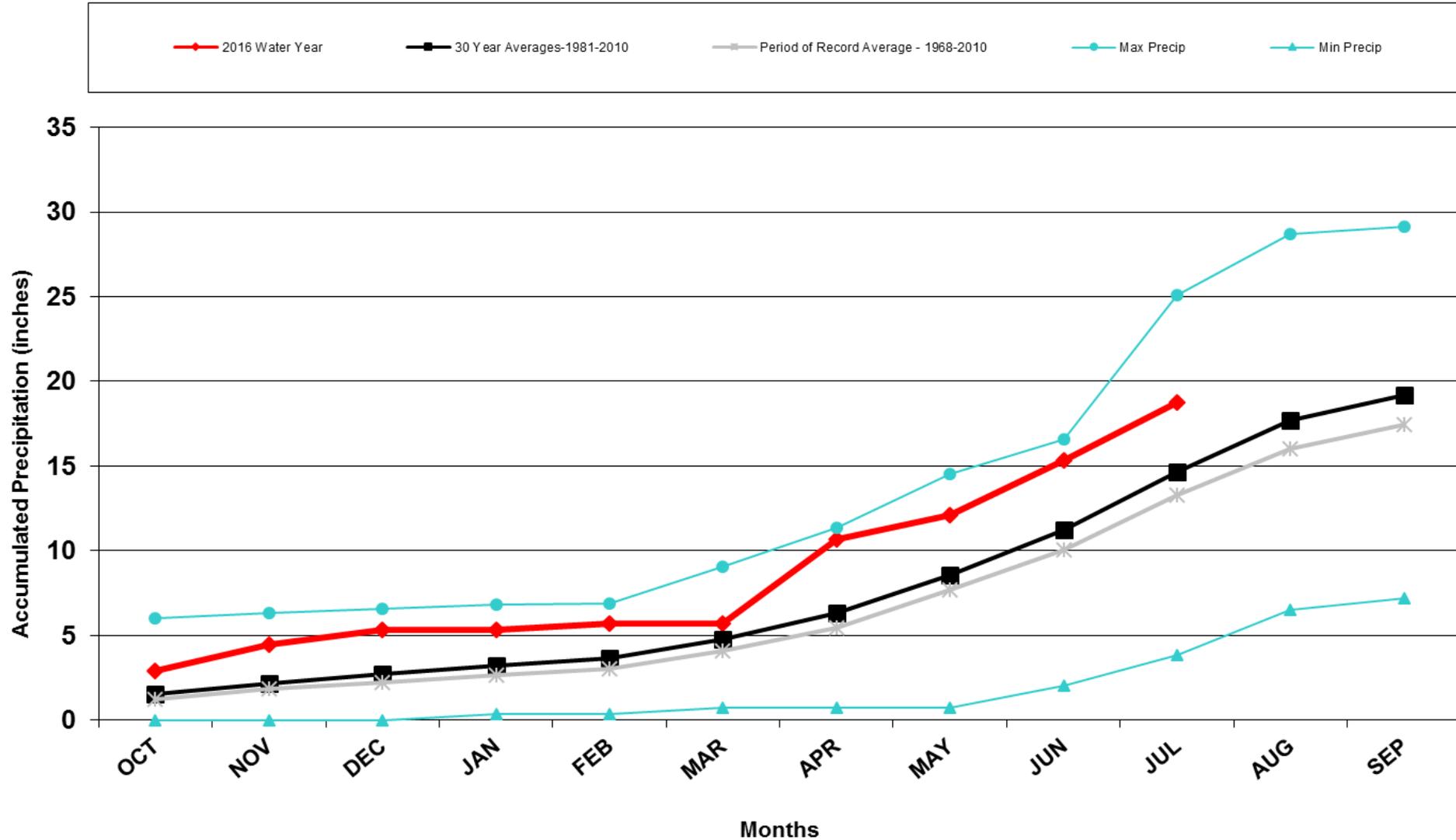
Division 5 – Pueblo

Pueblo Memorial AP Precipitation Accumulation



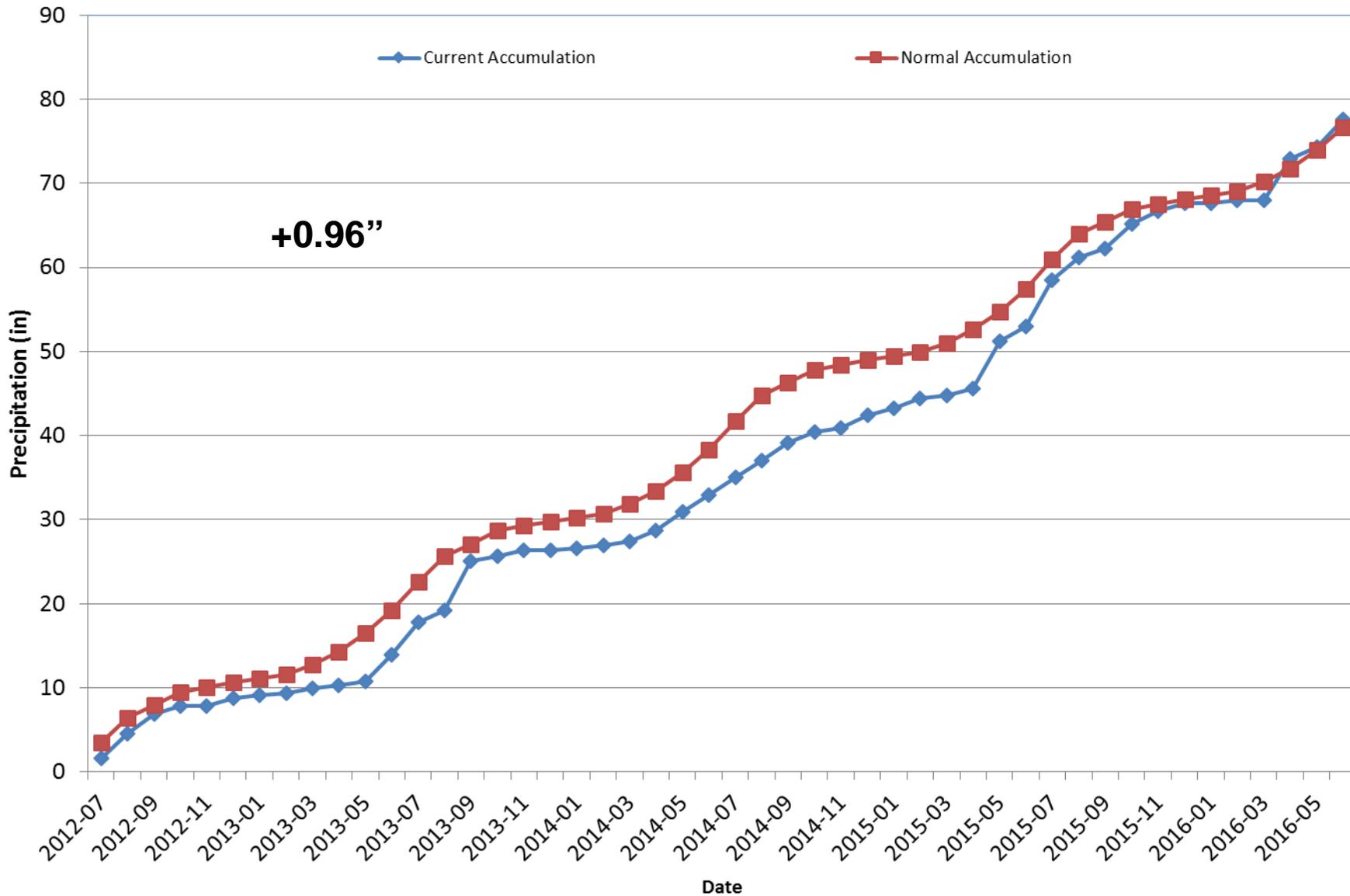
Division 6 - Walsh

Walsh 2016 Water Year



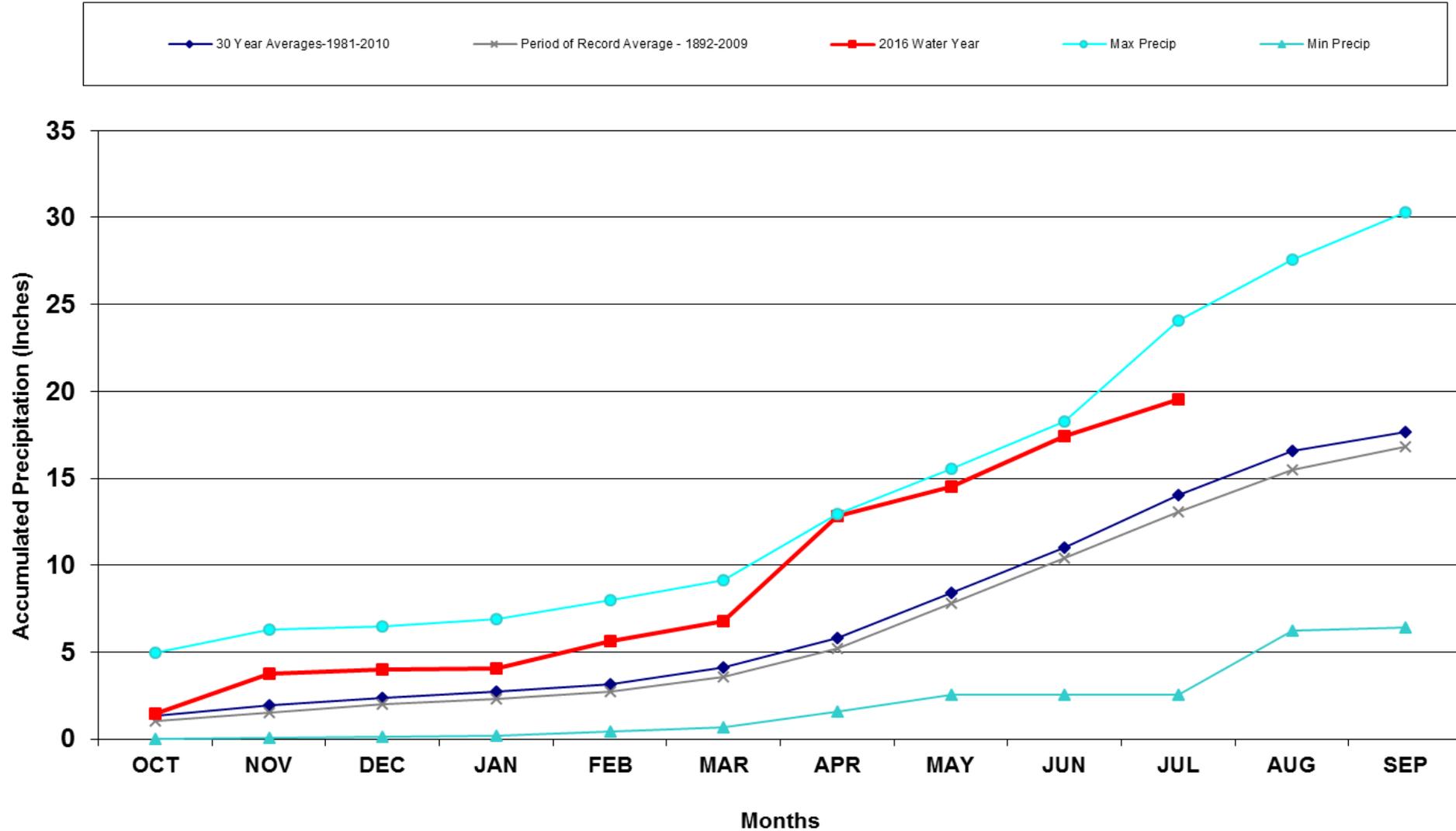
Division 6 - Walsh

Walsh 1W Precipitation Accumulation



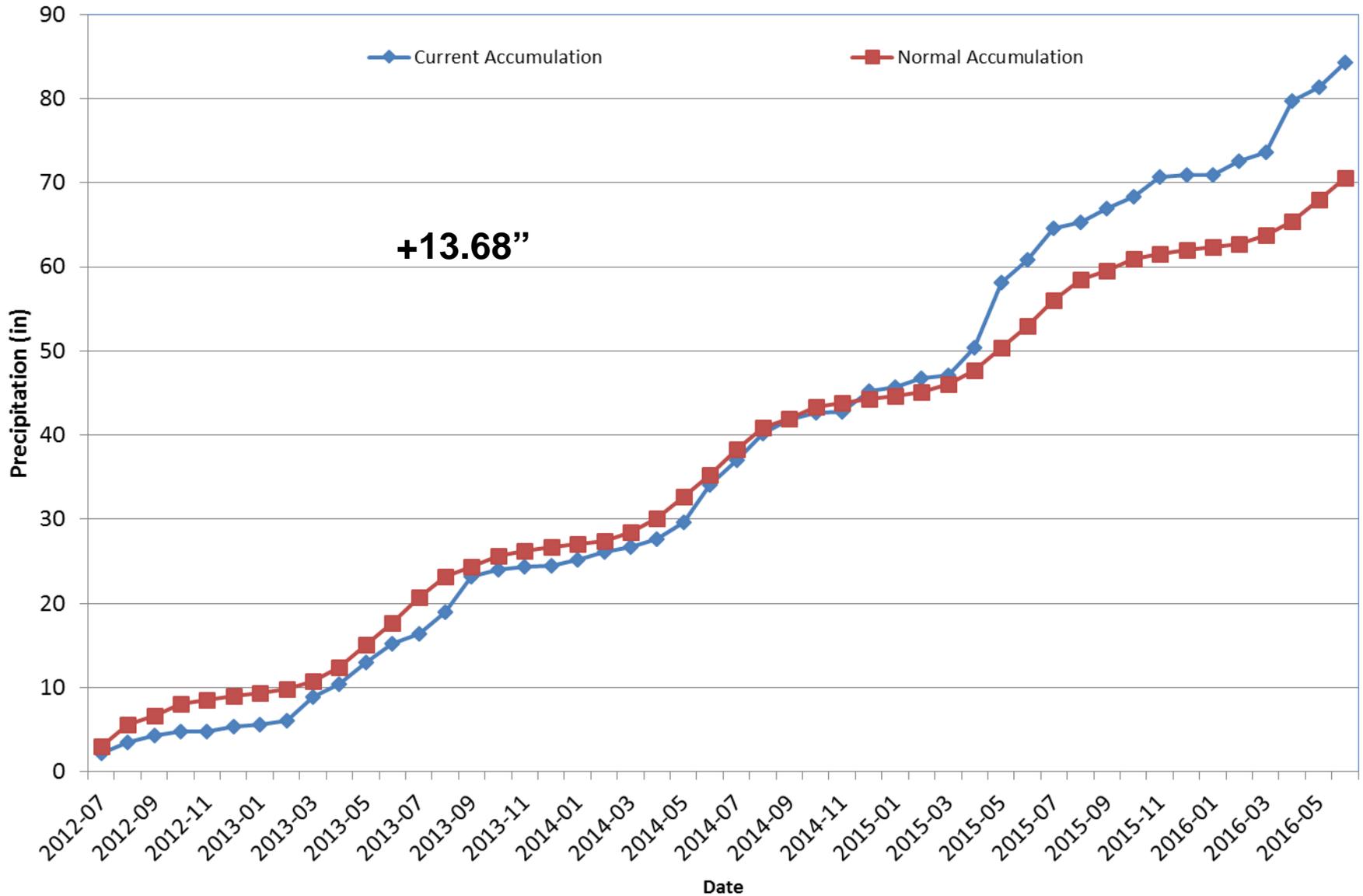
Division 6 - Burlington

Burlington 2016 Water Year



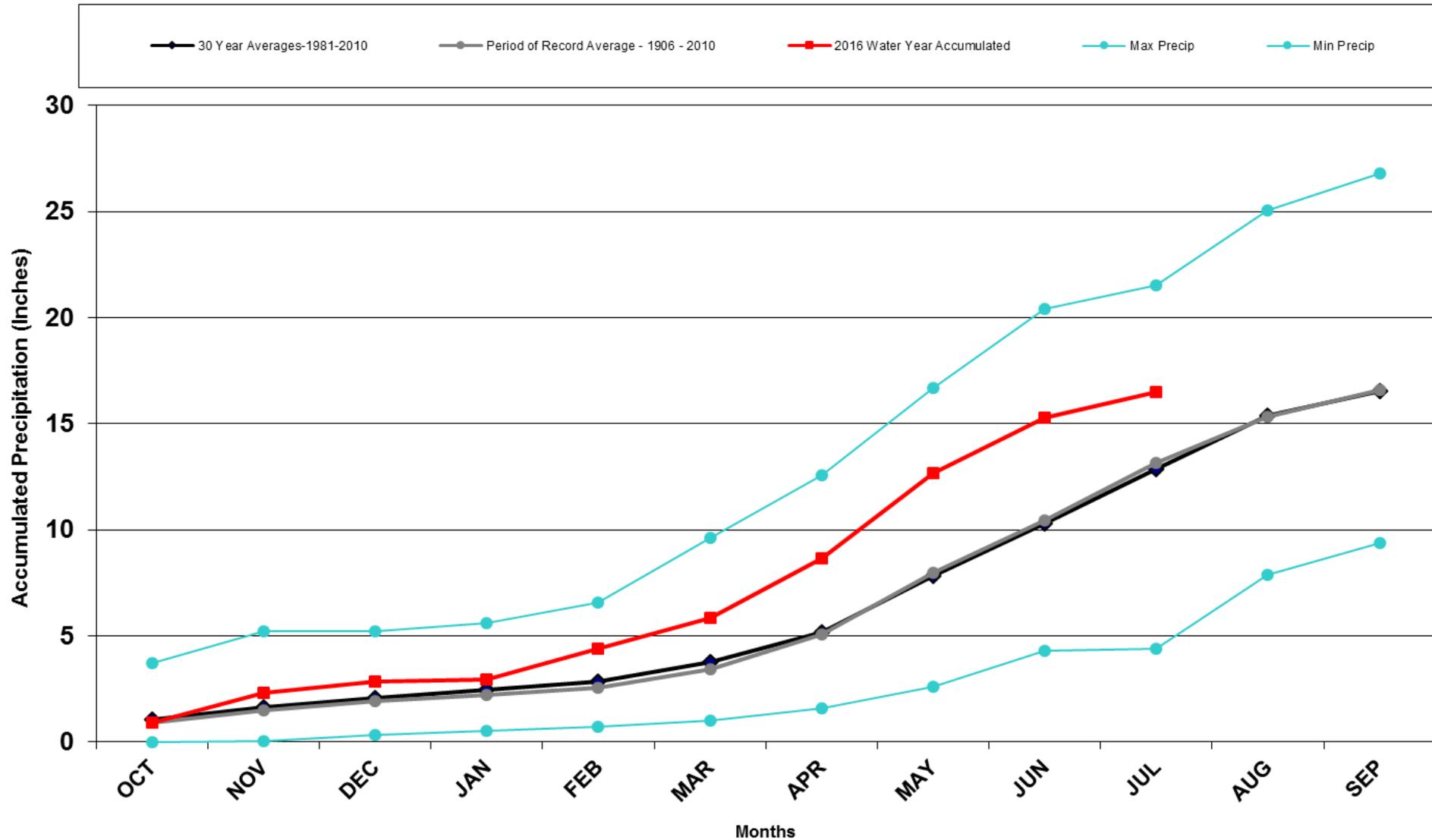
Division 6 - Burlington

Burlington, CO Precipitation Accumulation



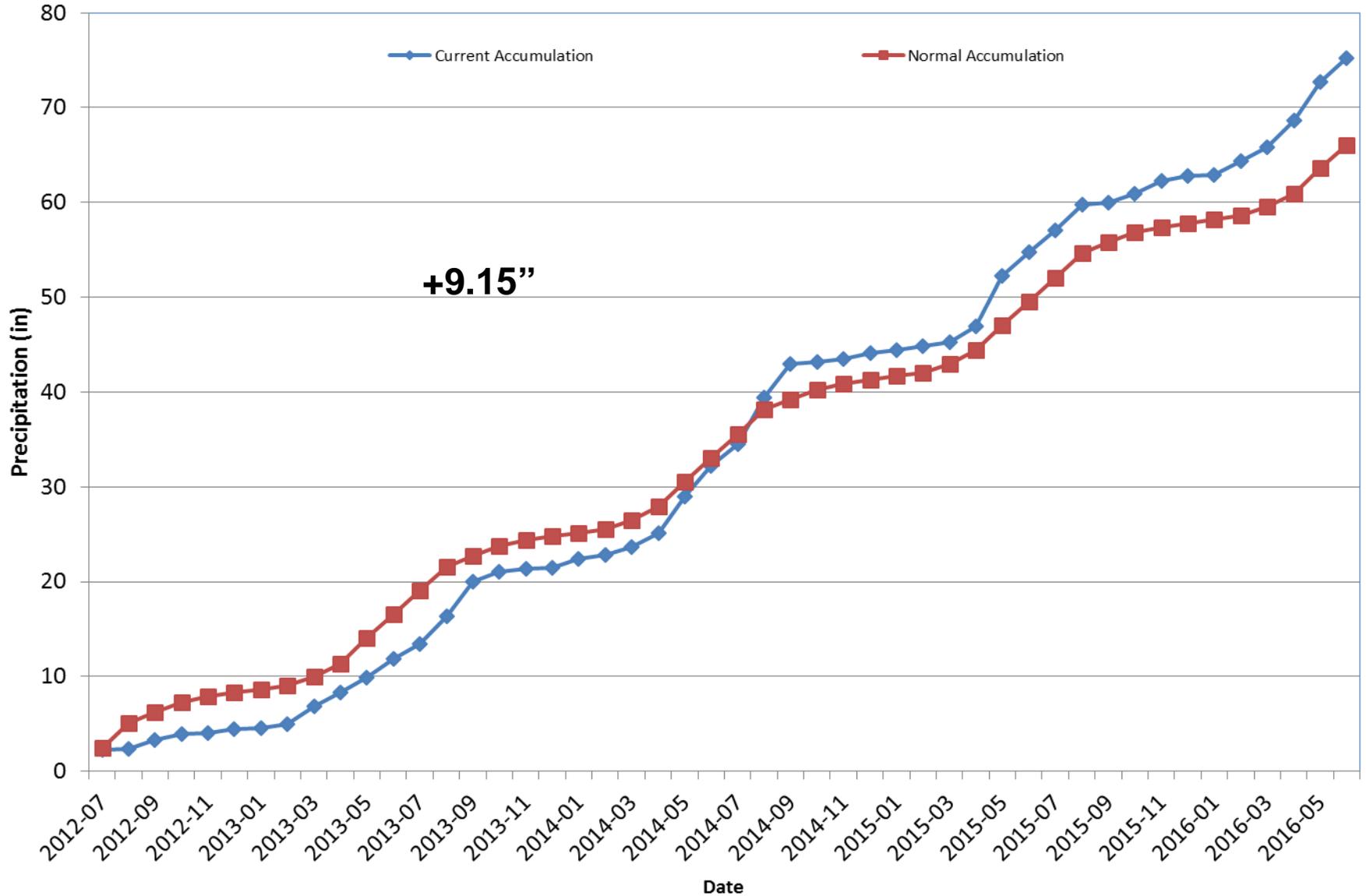
Division 7 – Akron

Akron 4E 2016 Water Year



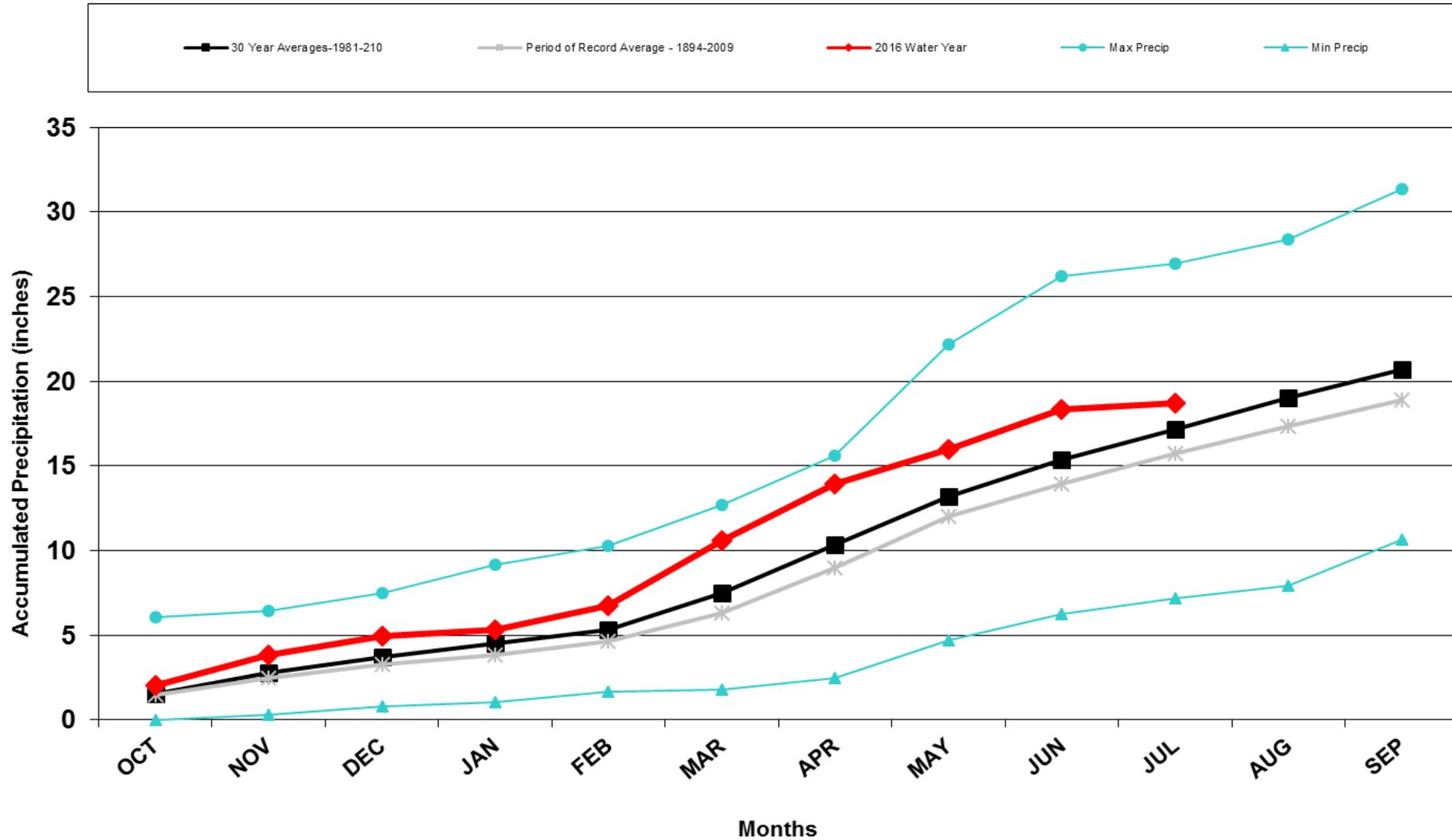
Division 7 – Akron

Akron 4E Precipitation Accumulation



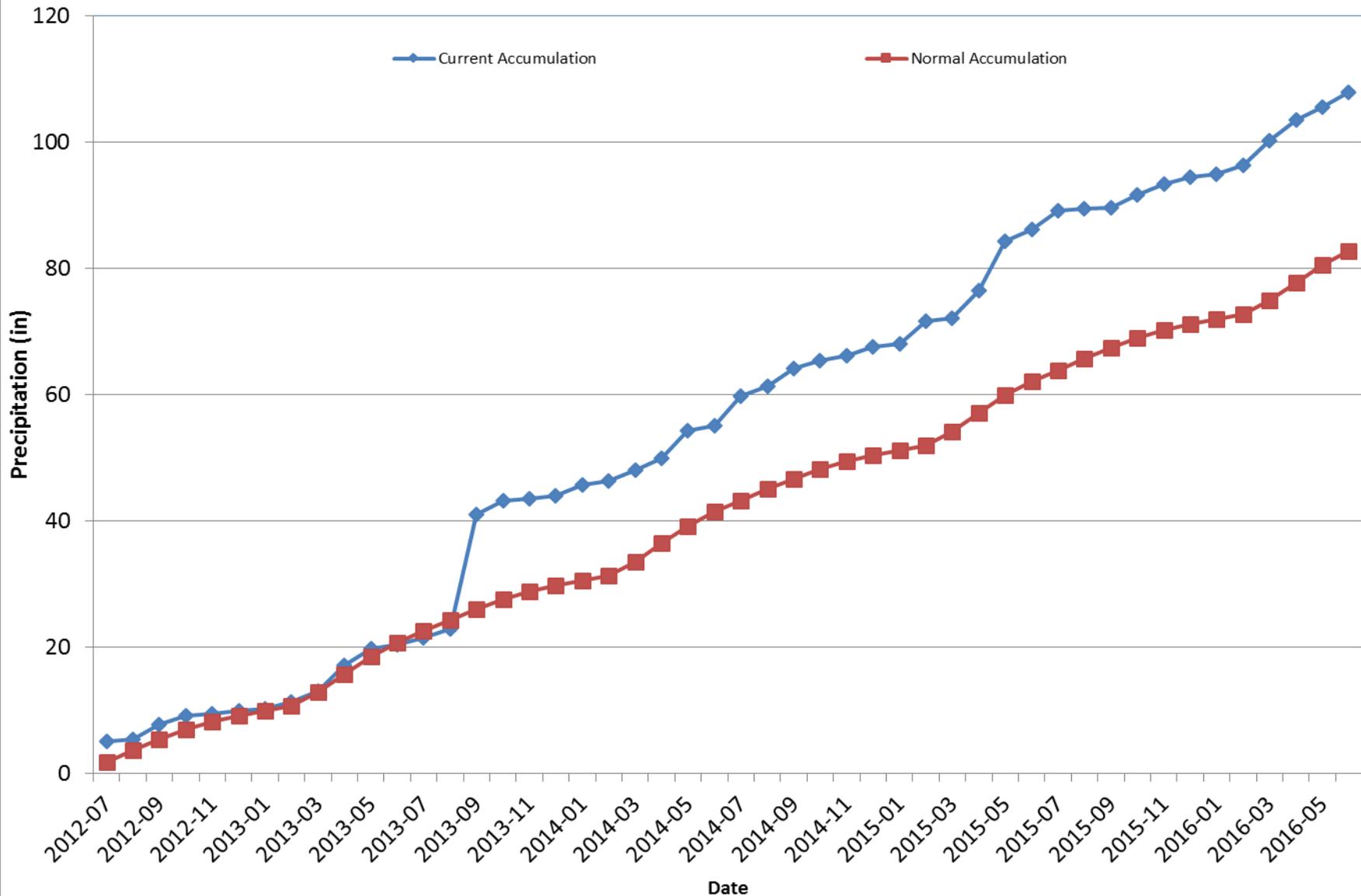
Division 8 - Boulder

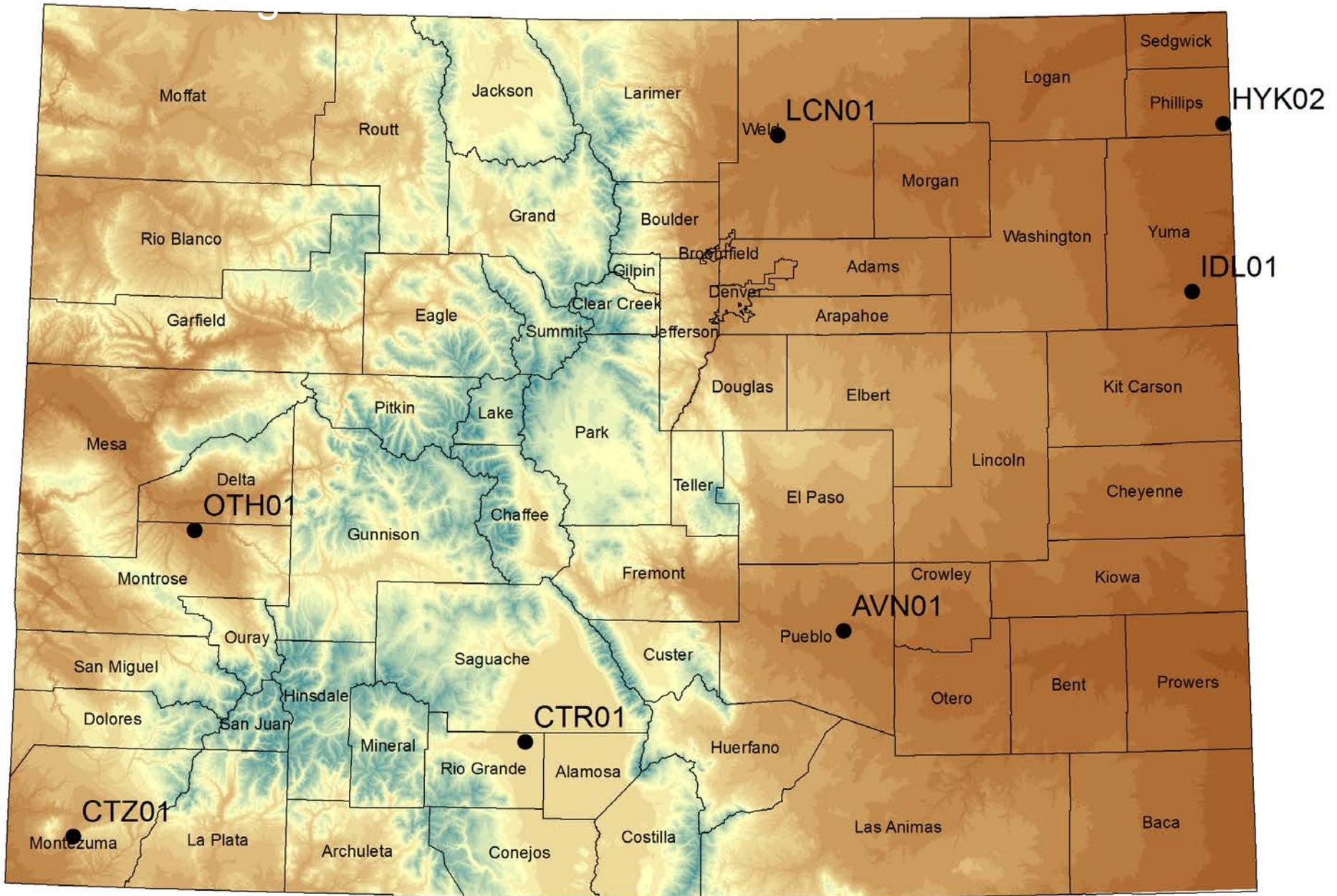
Boulder 2016 Water Year



Division 9 Boulder

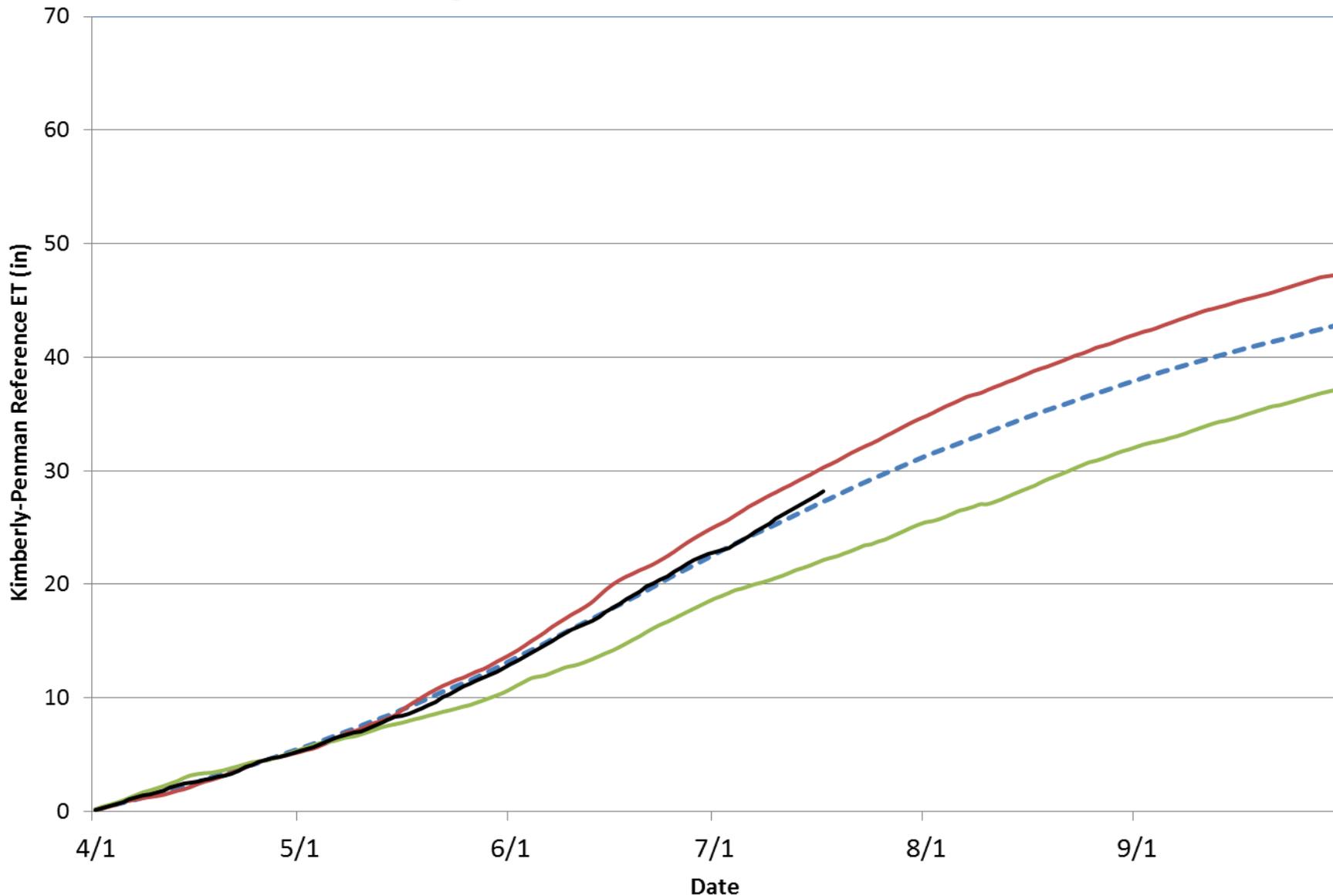
Boulder Precipitation Accumulation





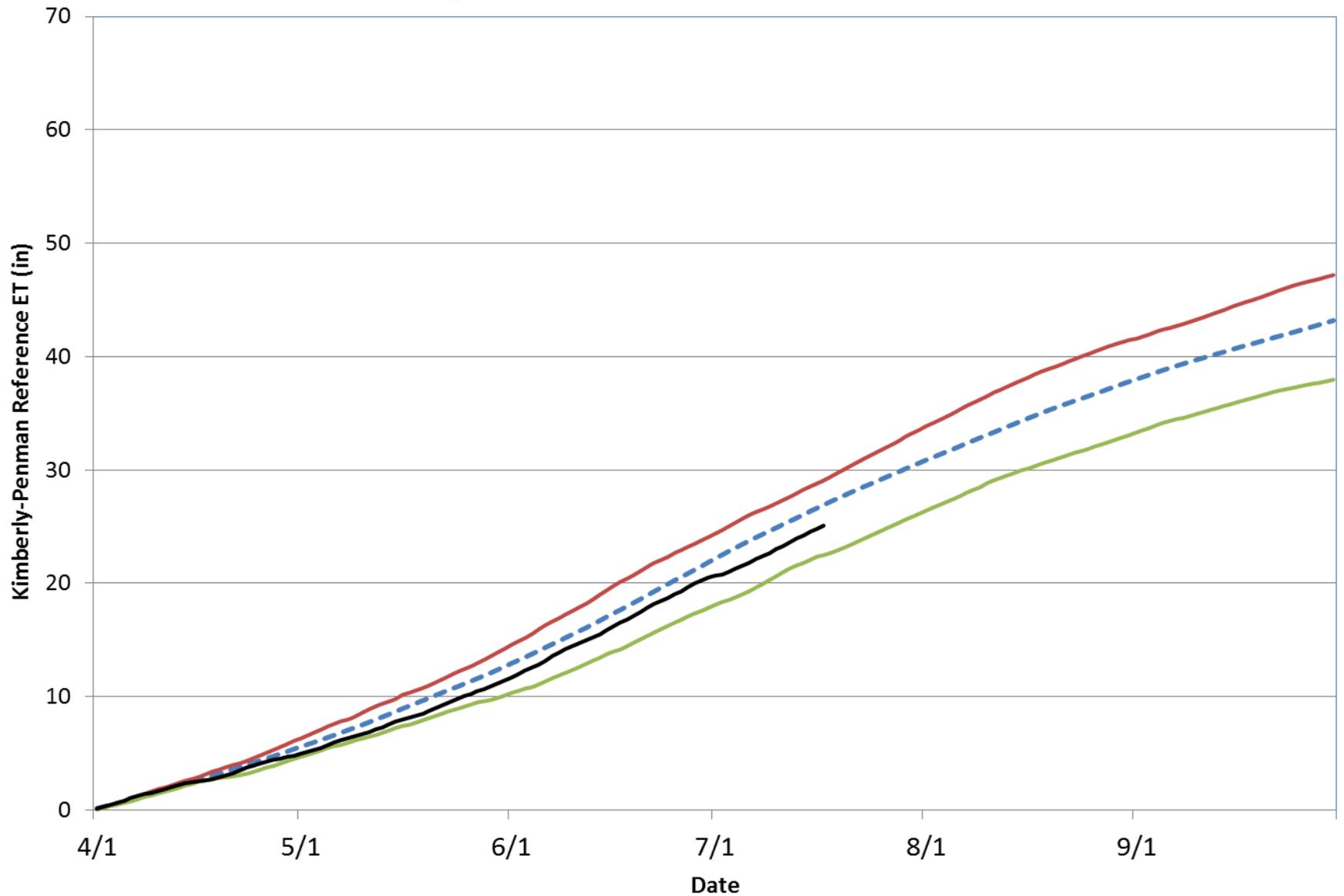
Olathe Kimberly-Penman Reference ET (1993 - 2016)

--- Average — 1994 — 2015 — 2016



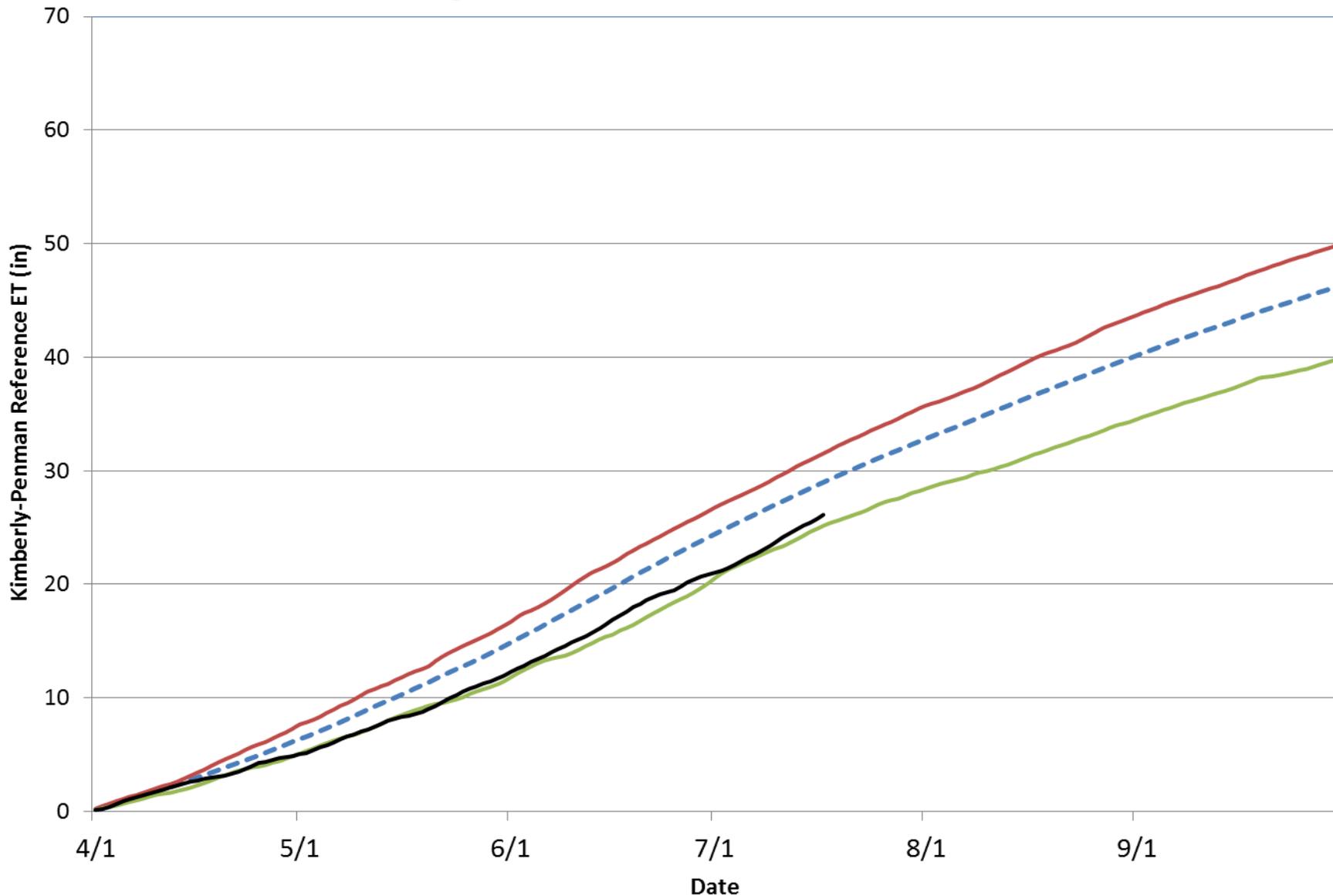
Cortez Kimberly-Penman Reference ET (1992 - 2016)

--- Average — 2000 — 1995 — 2016



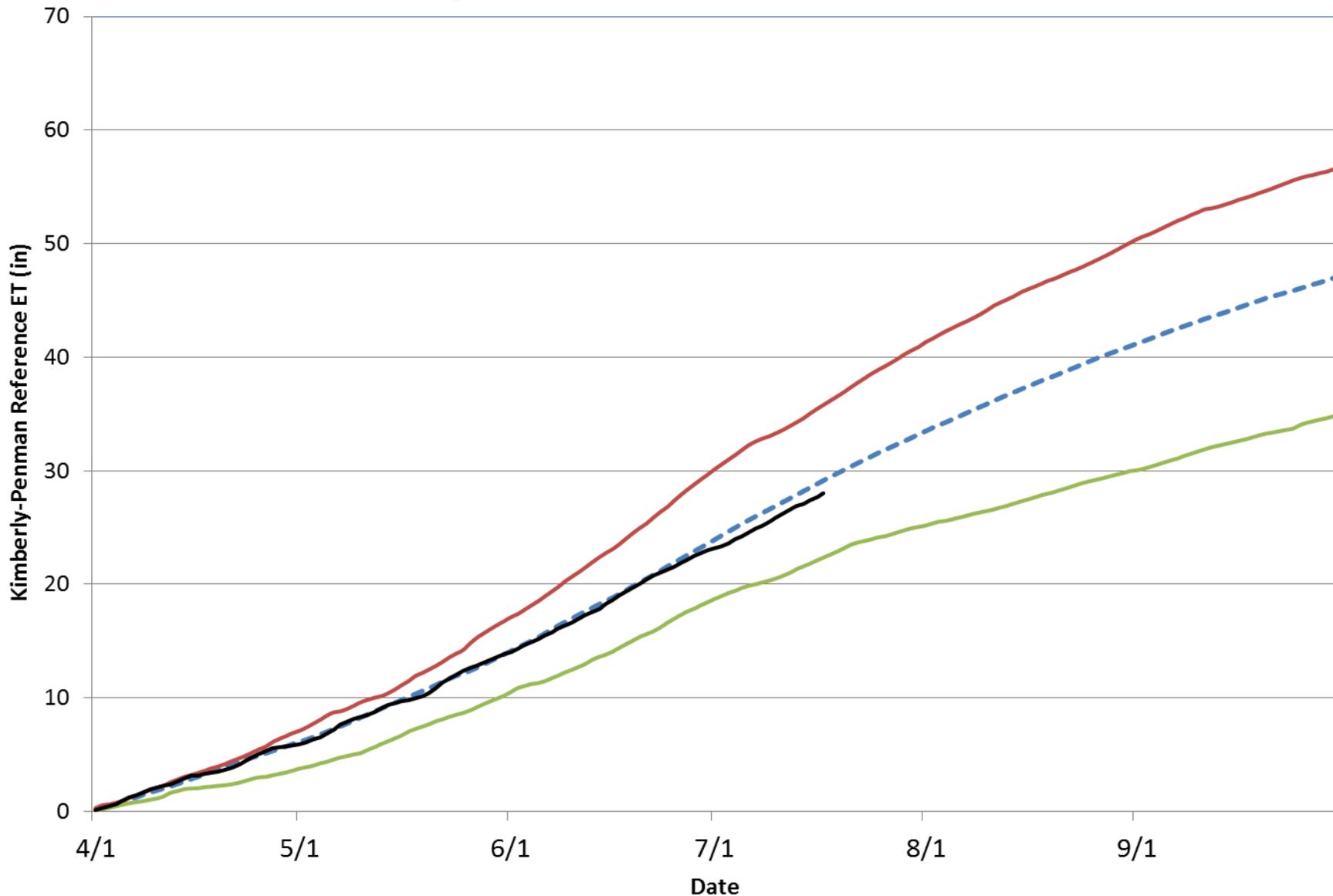
Center Kimberly-Penman Reference ET (1994 - 2016)

--- Average — 2002 — 1997 — 2016



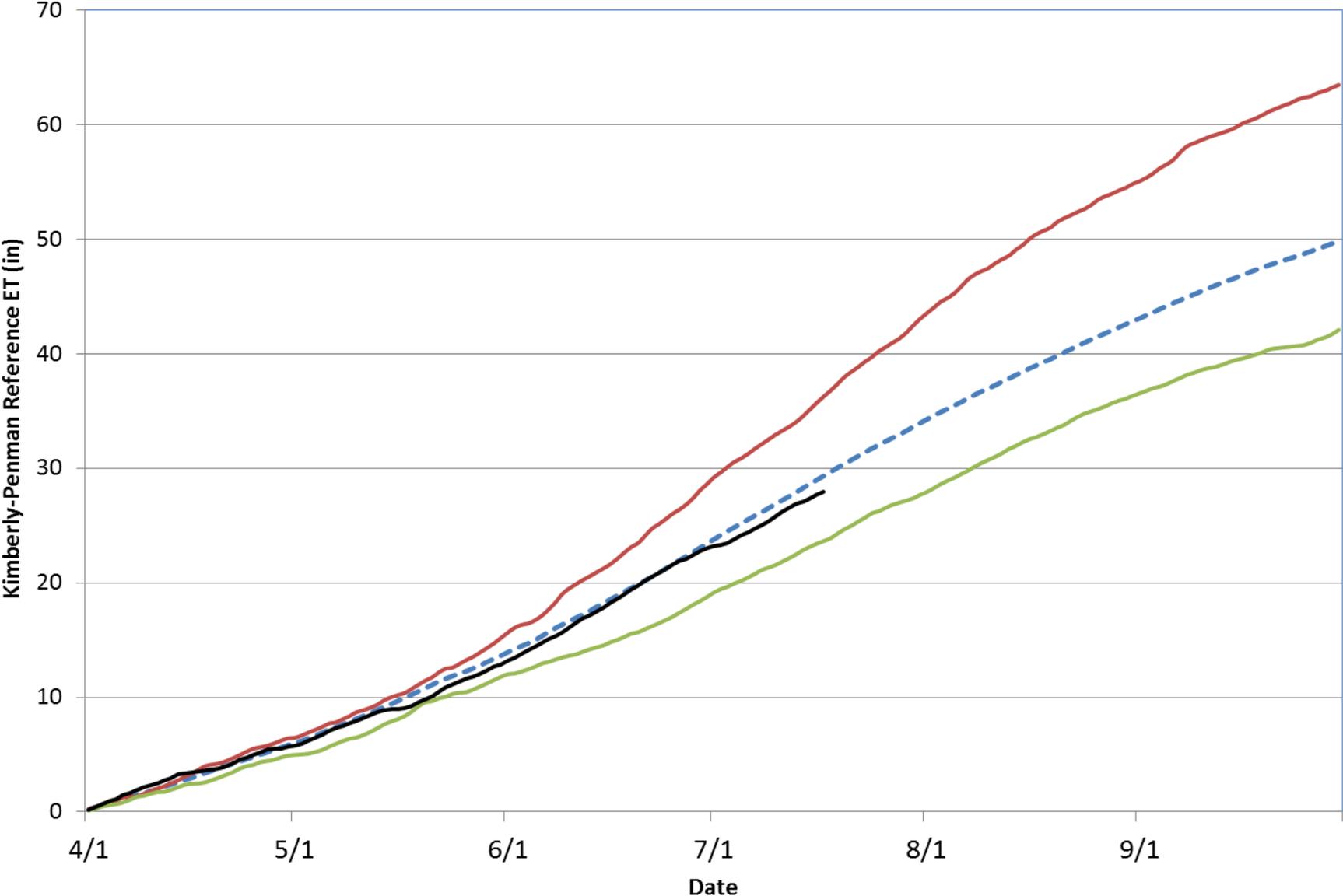
Avondale Kimberly-Penman Reference ET (1993 - 2016)

— Average — 2012 — 1998 — 2016



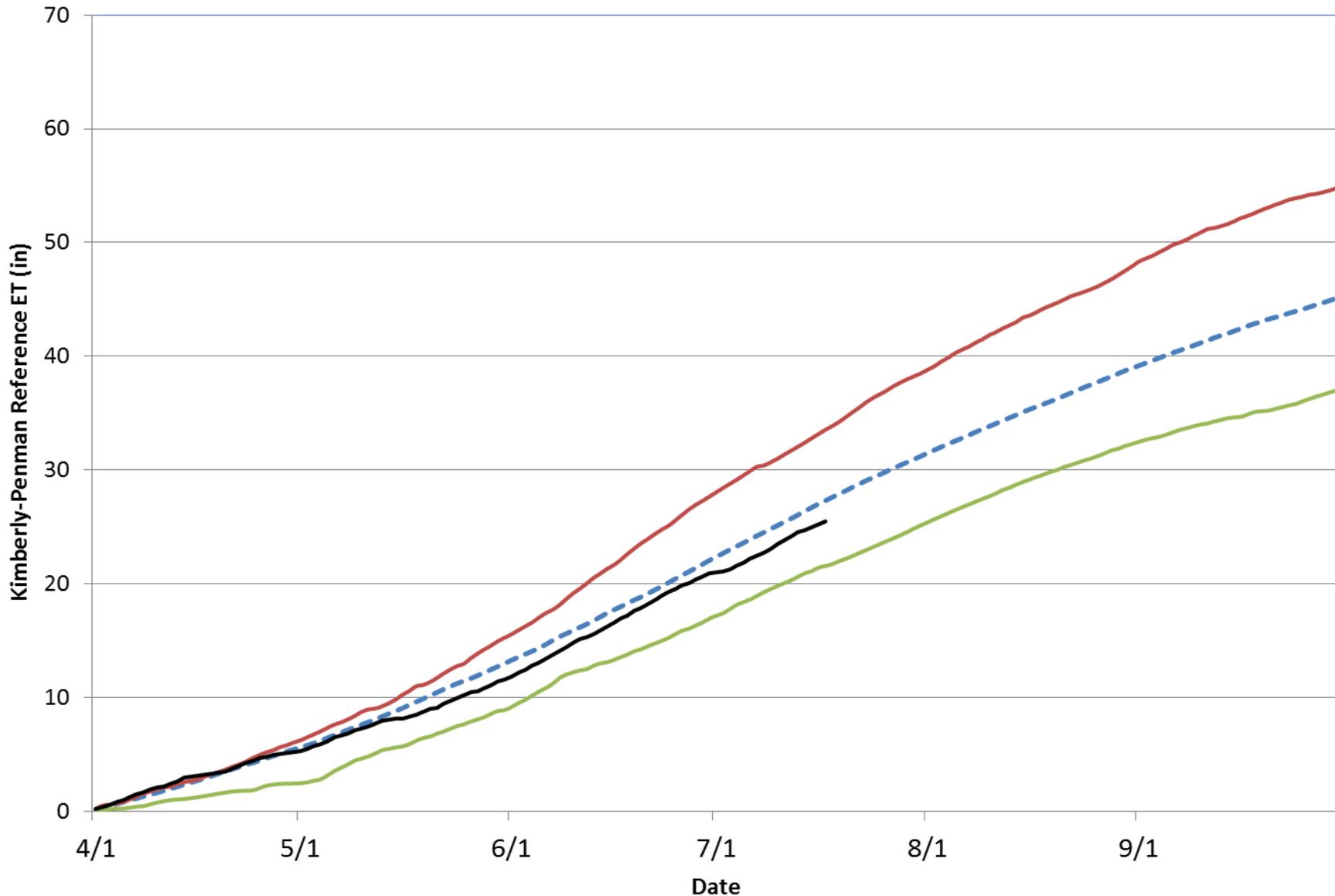
Idalia Kimberly-Penman Reference ET (1992 - 2016)

--- Average — 2002 — 2009 — 2016



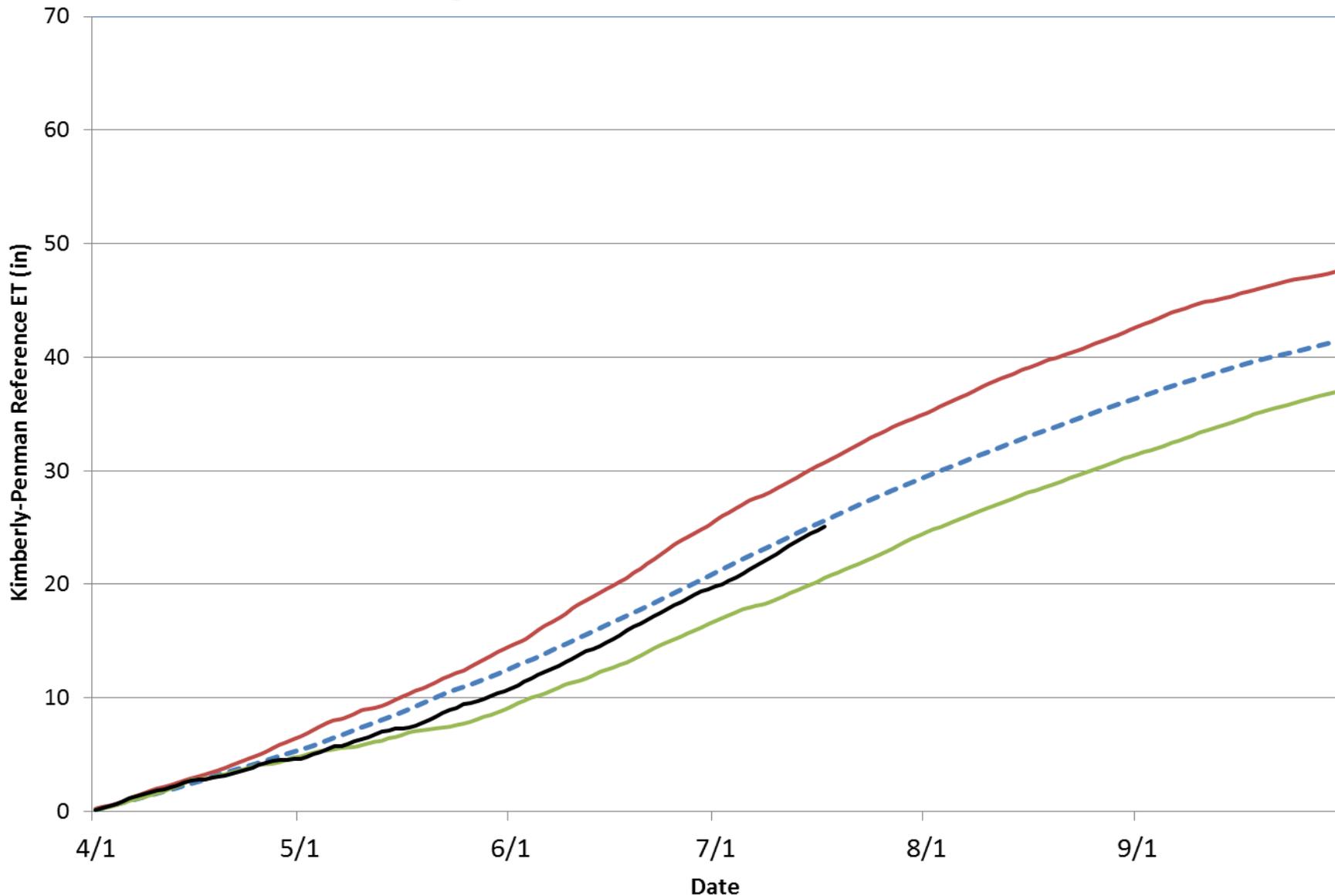
Holyoke Kimberly-Penman Reference ET (1992 - 2016)

— Average — 2012 — 1999 — 2016



Lucerne Kimberly-Penman Reference ET (1992 - 2016)

— Average — 2012 — 2015 — 2016

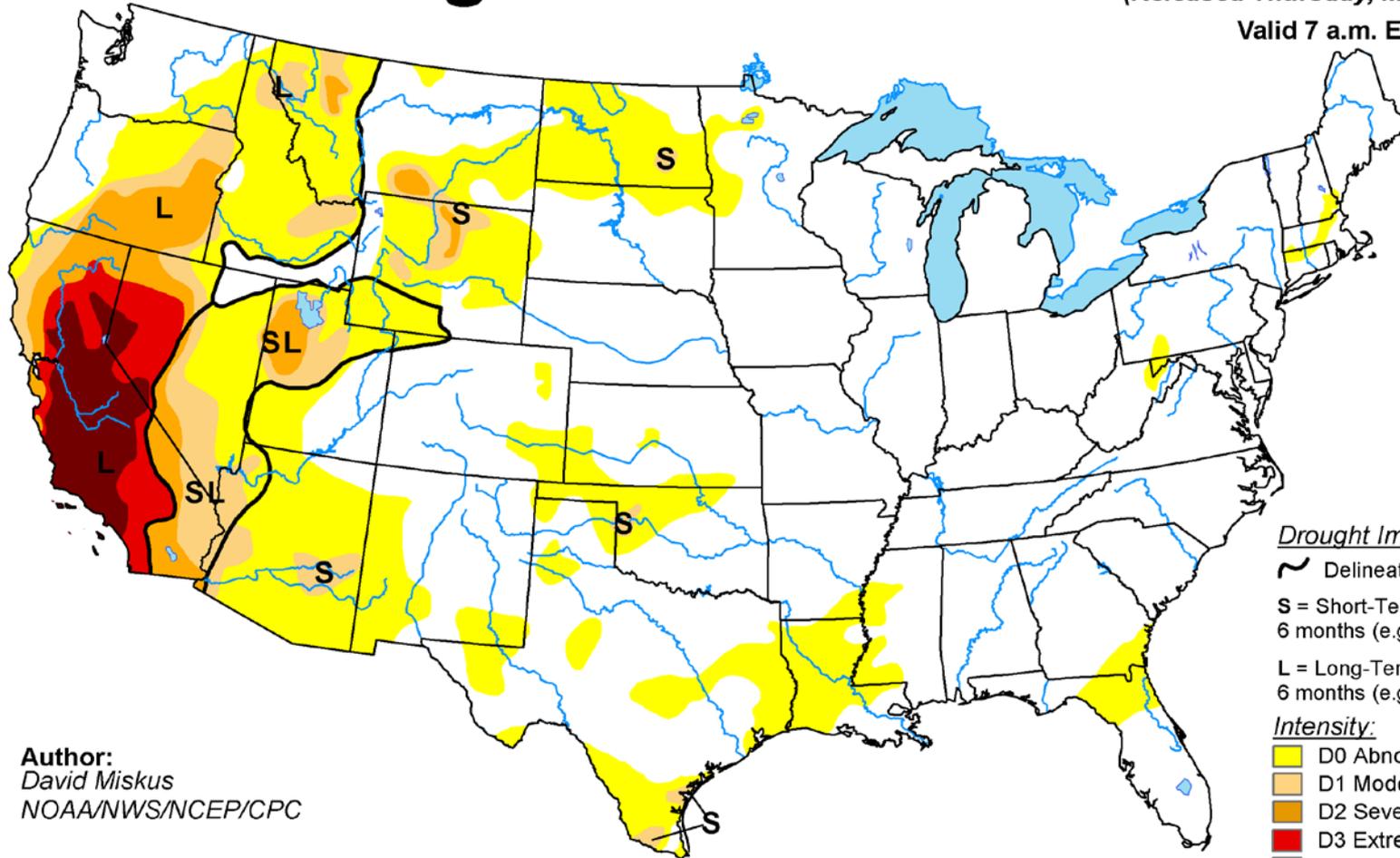


U.S. Drought Monitor

March 8, 2016

(Released Thursday, Mar. 10, 2016)

Valid 7 a.m. EST



Author:
David Miskus
NOAA/NWS/NCEP/CPC

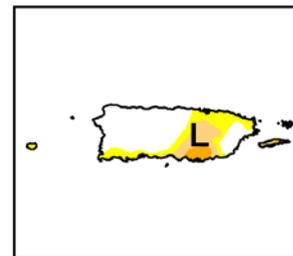
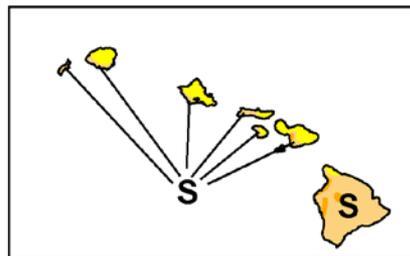
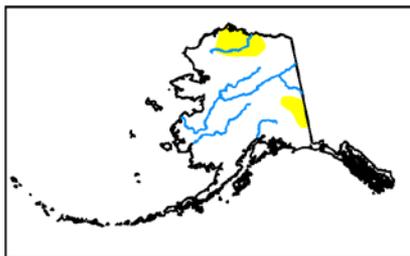
Drought Impact Types:

- ~ 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.



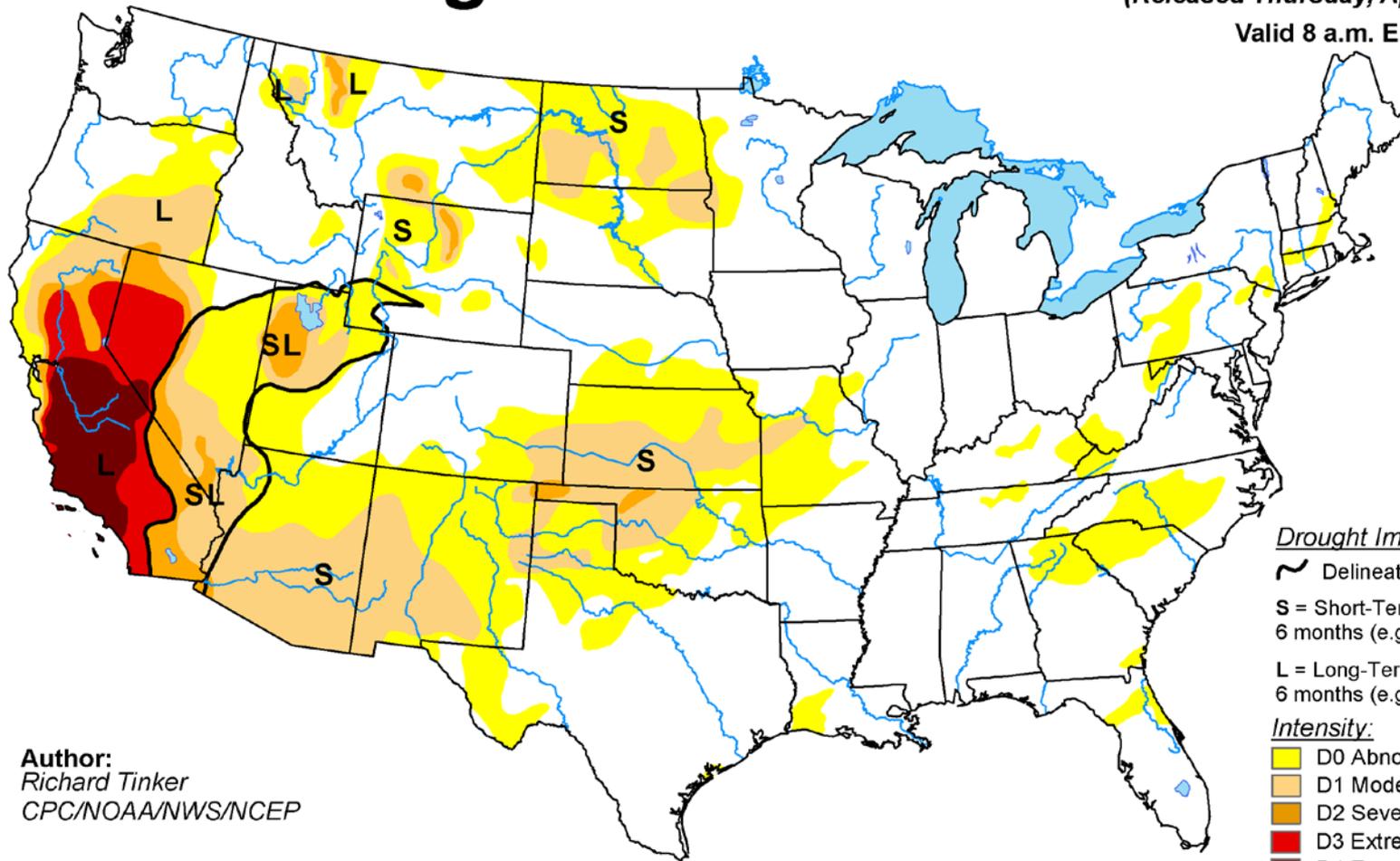
<http://droughtmonitor.unl.edu/>

U.S. Drought Monitor

April 12, 2016

(Released Thursday, Apr. 14, 2016)

Valid 8 a.m. EDT



Author:
Richard Tinker
CPC/NOAA/NWS/NCEP

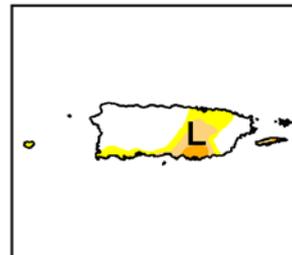
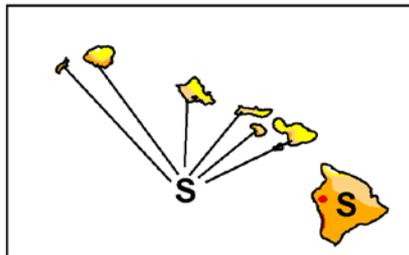
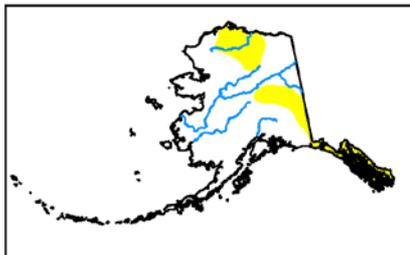
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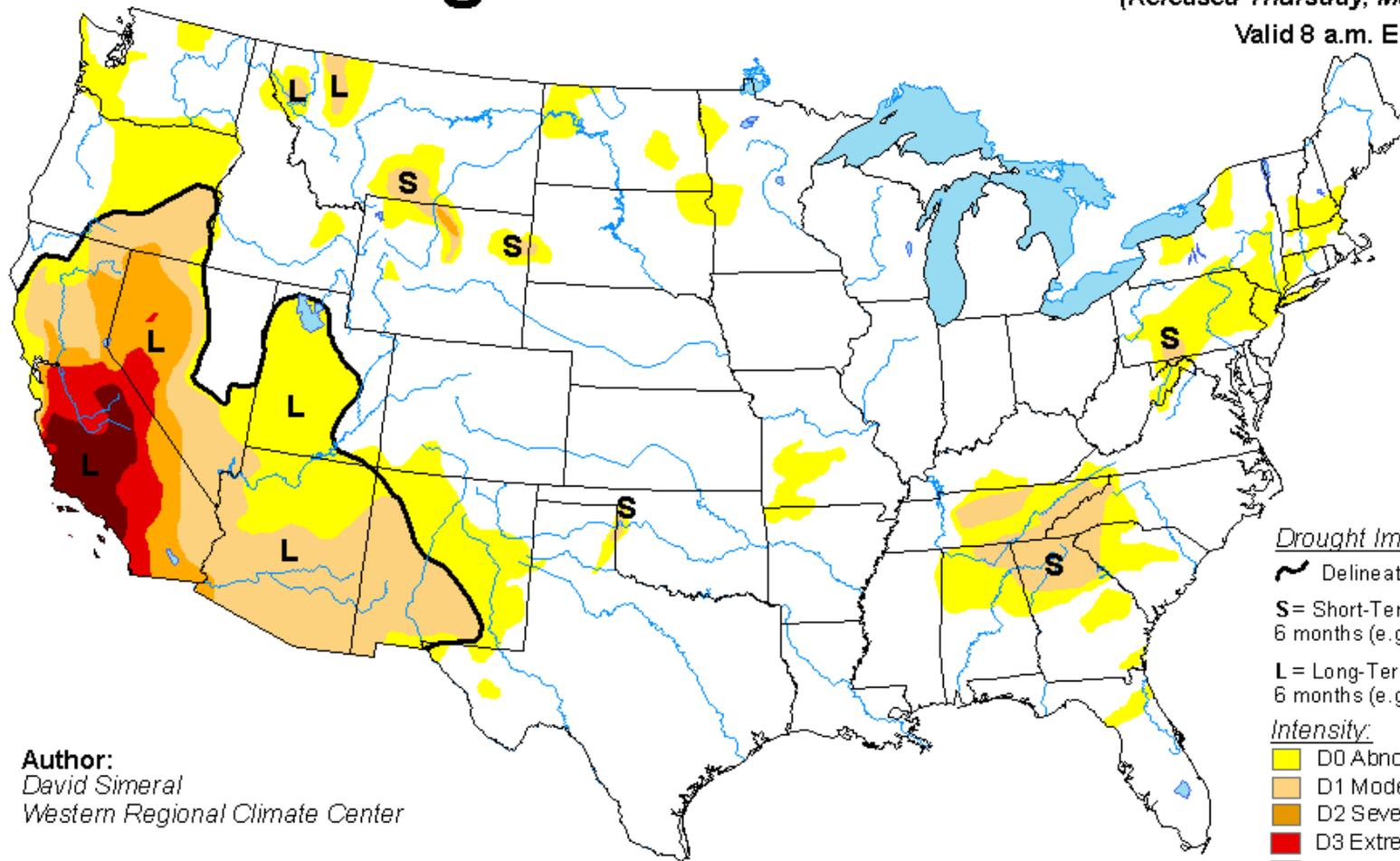
<http://droughtmonitor.unl.edu/>

U.S. Drought Monitor

May 17, 2016

(Released Thursday, May. 19, 2016)

Valid 8 a.m. EDT



Author:
David Simeral
Western Regional Climate Center

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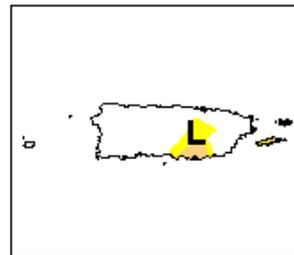
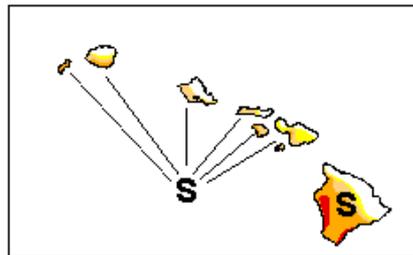
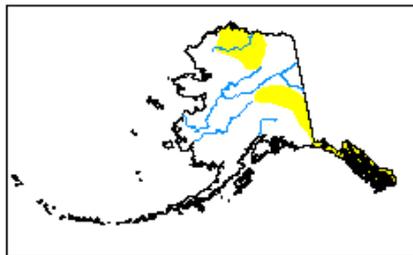
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Dark Red: D4 Exceptional Drought

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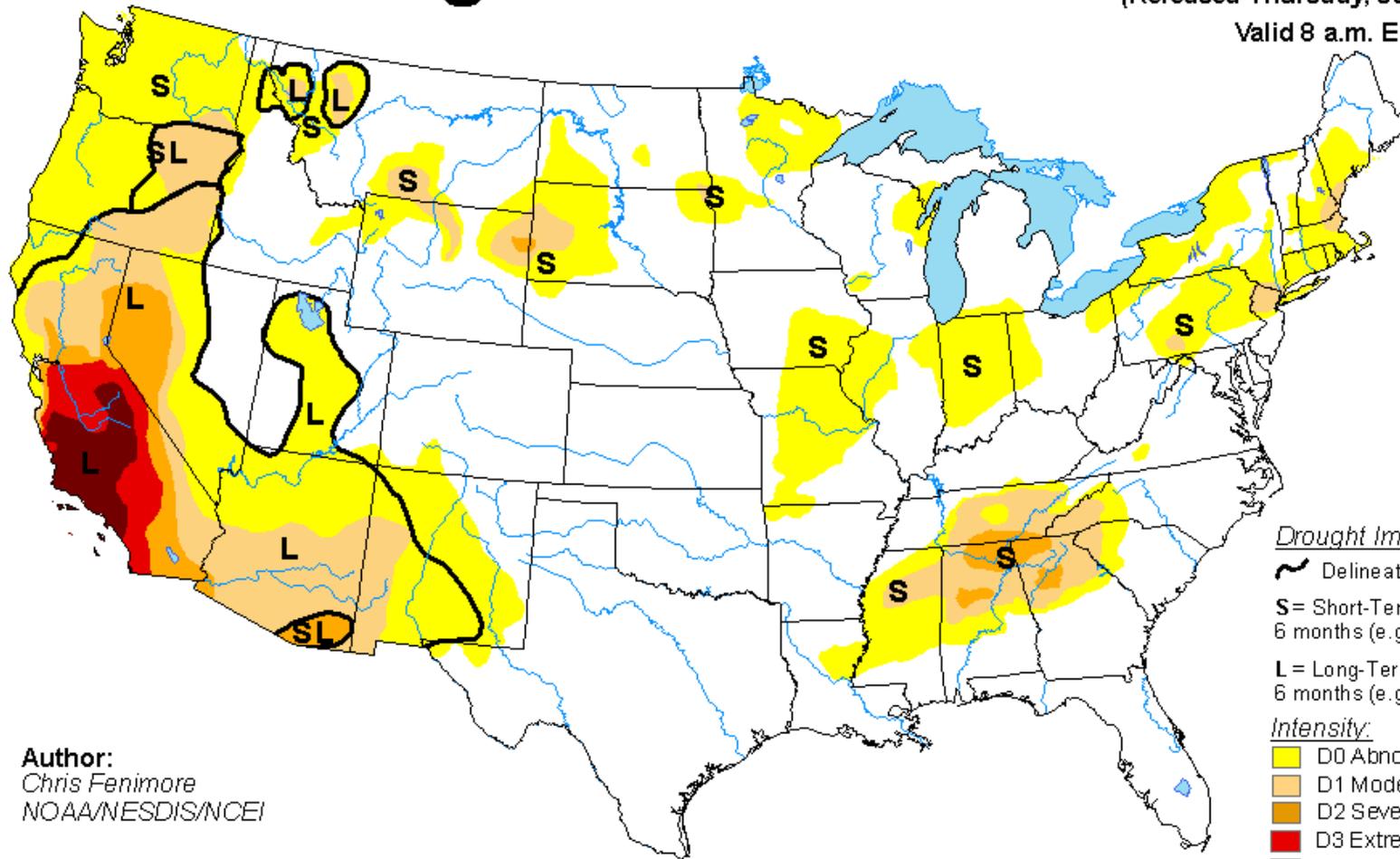
<http://droughtmonitor.unl.edu/>

U.S. Drought Monitor

June 14, 2016

(Released Thursday, Jun. 16, 2016)

Valid 8 a.m. EDT



Author:
Chris Fenimore
NOAA/NESDIS/NCEI

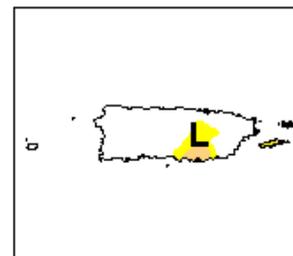
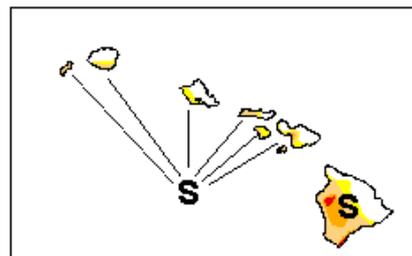
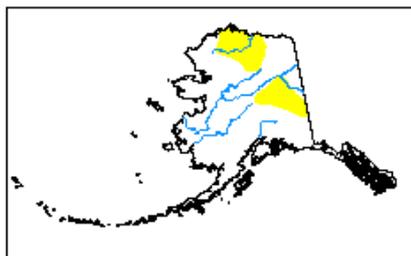
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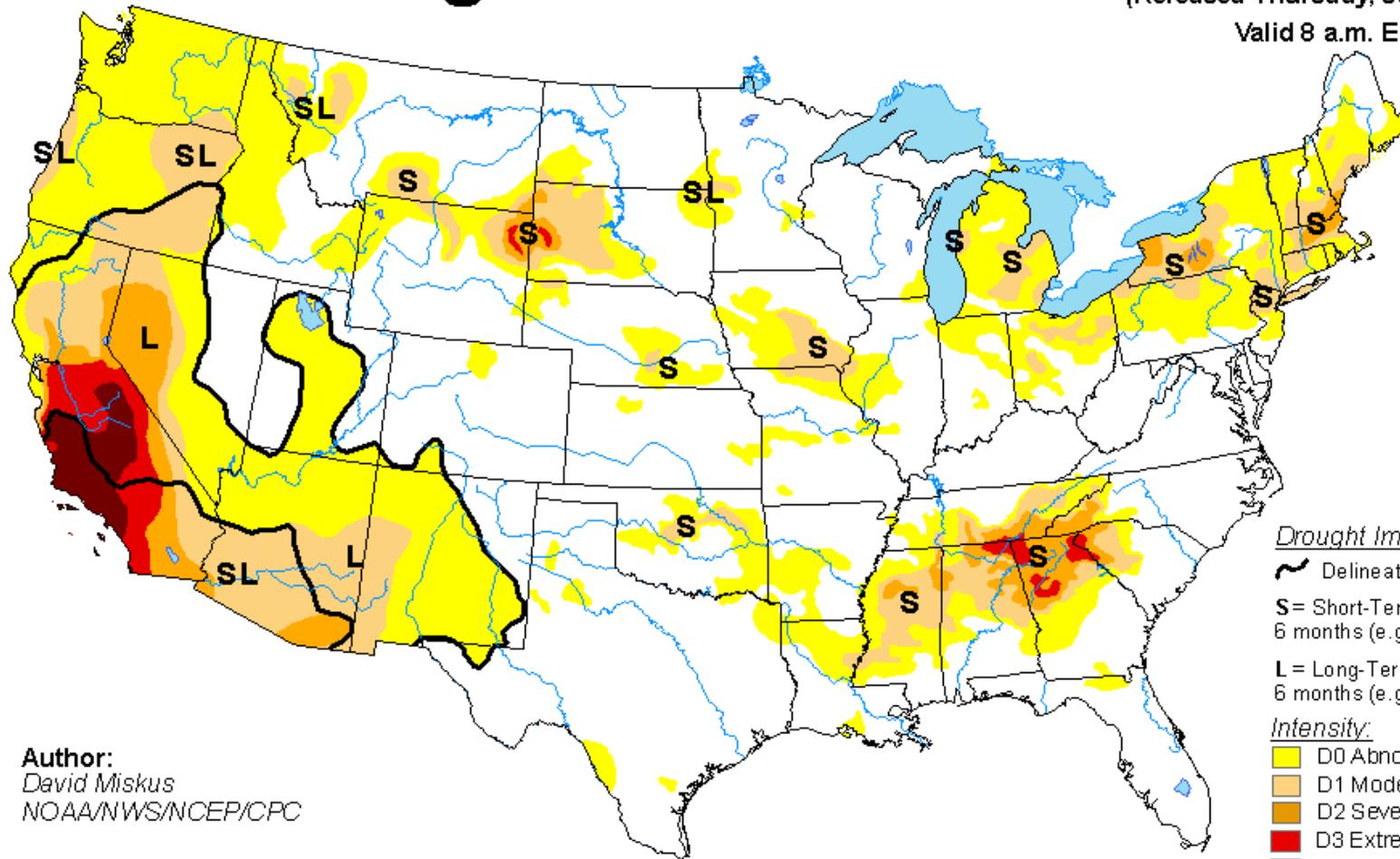
<http://droughtmonitor.unl.edu/>

U.S. Drought Monitor

July 12, 2016

(Released Thursday, Jul. 14, 2016)

Valid 8 a.m. EDT



Author:
David Miskus
NOAA/NWS/NCEP/CPC

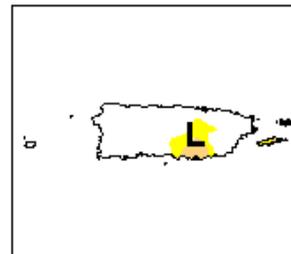
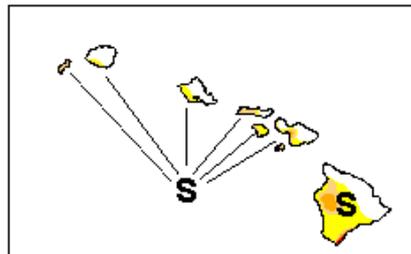
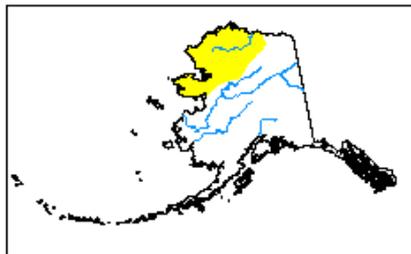
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<http://droughtmonitor.unl.edu/>

U.S. Drought Monitor Colorado

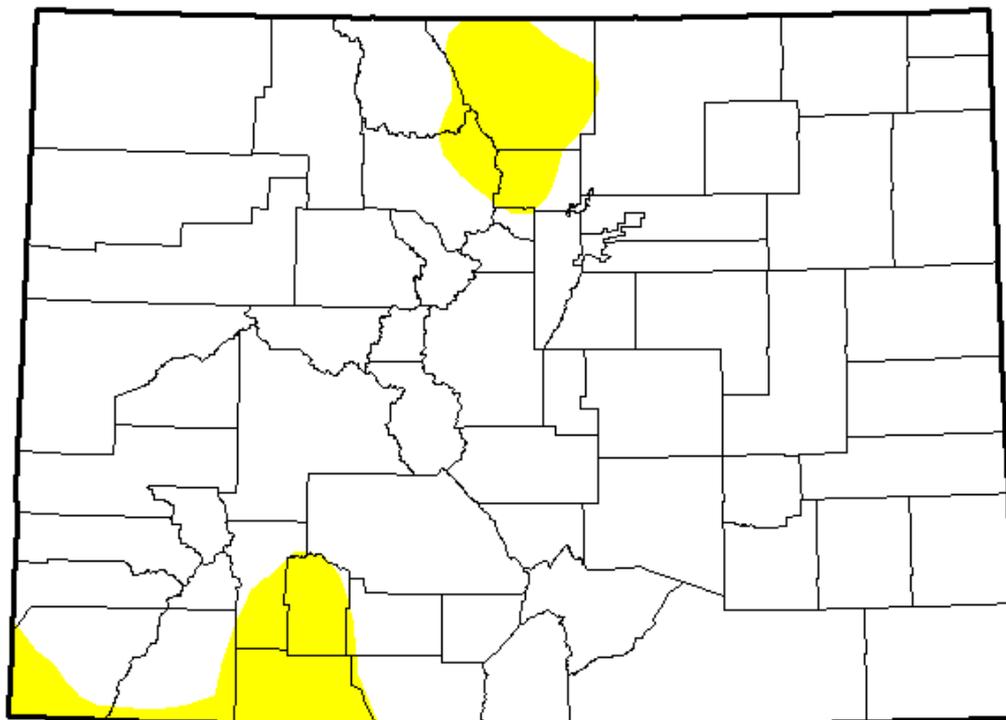
July 12, 2016

(Released Thursday, Jul. 14, 2016)

Valid 8 a.m. EDT

Drought Conditions (Percent Area)

	None	D0-D4	D1-D4	D2-D4	D3-D4	D4
Current	92.96	7.04	0.00	0.00	0.00	0.00
Last Week <i>7/5/2016</i>	94.76	5.24	0.00	0.00	0.00	0.00
3 Months Ago <i>4/12/2016</i>	70.41	29.59	7.75	0.35	0.00	0.00
Start of Calendar Year <i>12/29/2015</i>	90.02	9.98	0.00	0.00	0.00	0.00
Start of Water Year <i>9/29/2015</i>	71.49	28.51	0.00	0.00	0.00	0.00
One Year Ago <i>7/14/2015</i>	97.96	2.04	0.00	0.00	0.00	0.00



Intensity:



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Author:

David Miskus

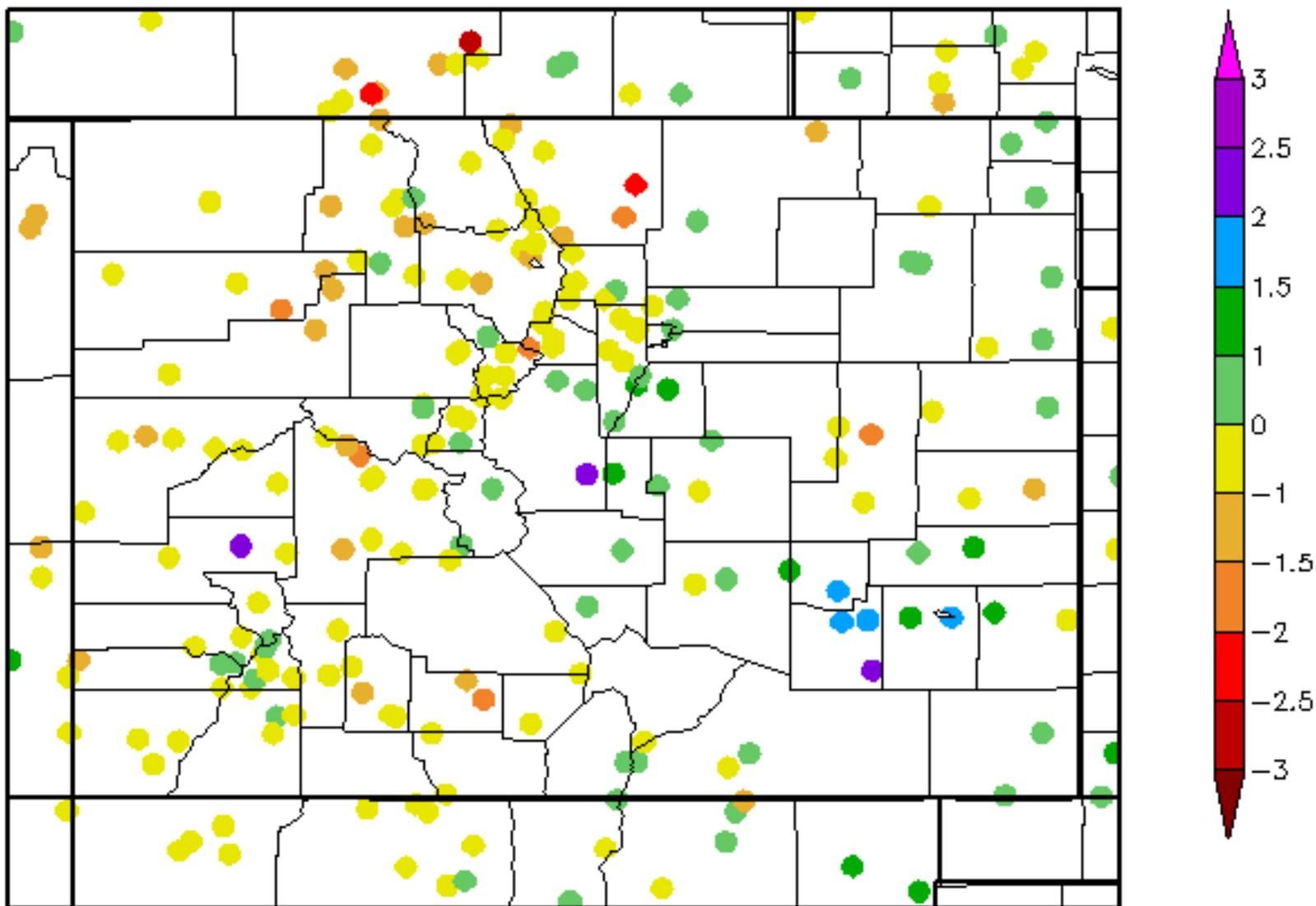
NOAA/NWS/NCEP/CPC



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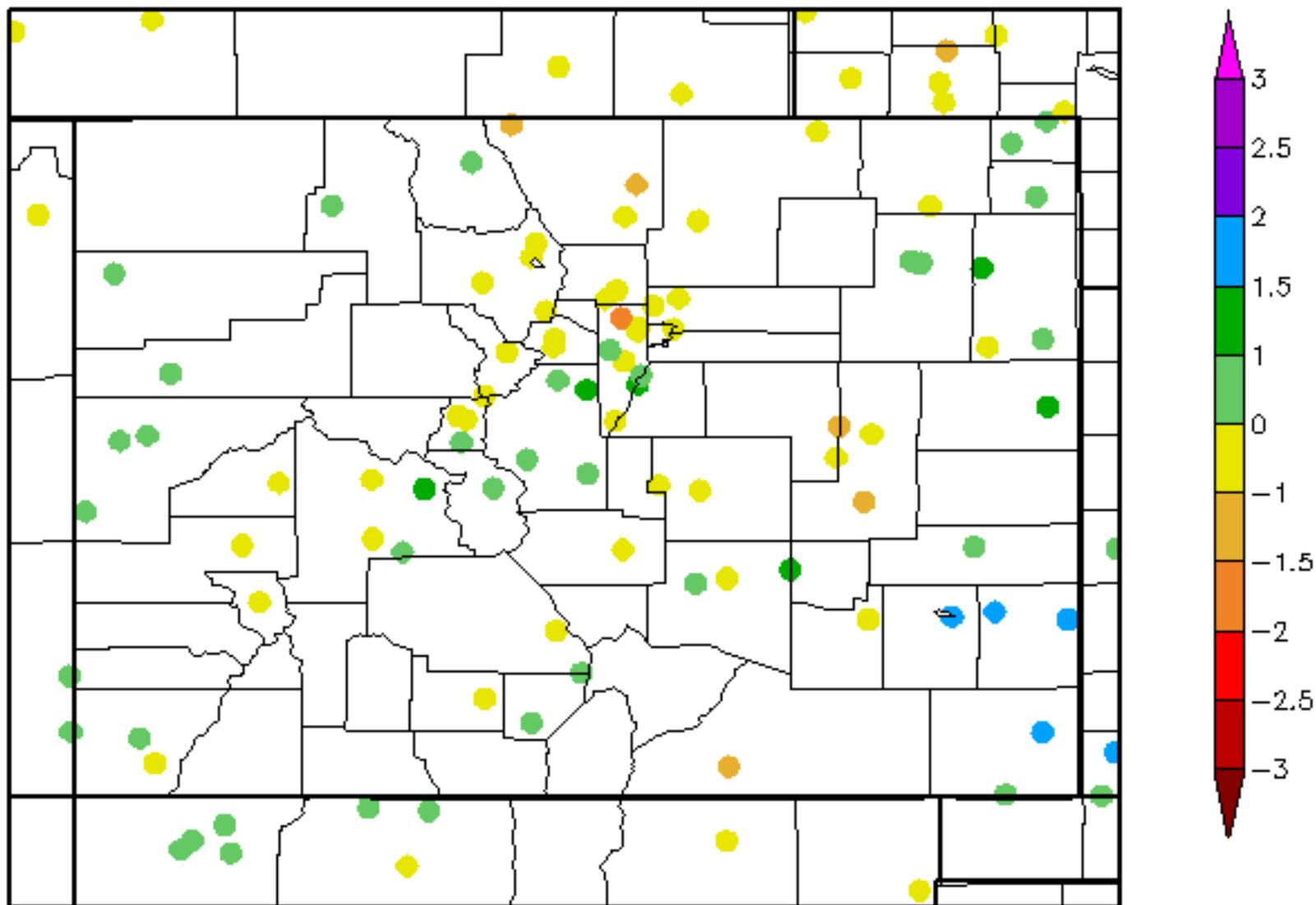
Monthly SPI

6/1/2016 - 6/30/2016



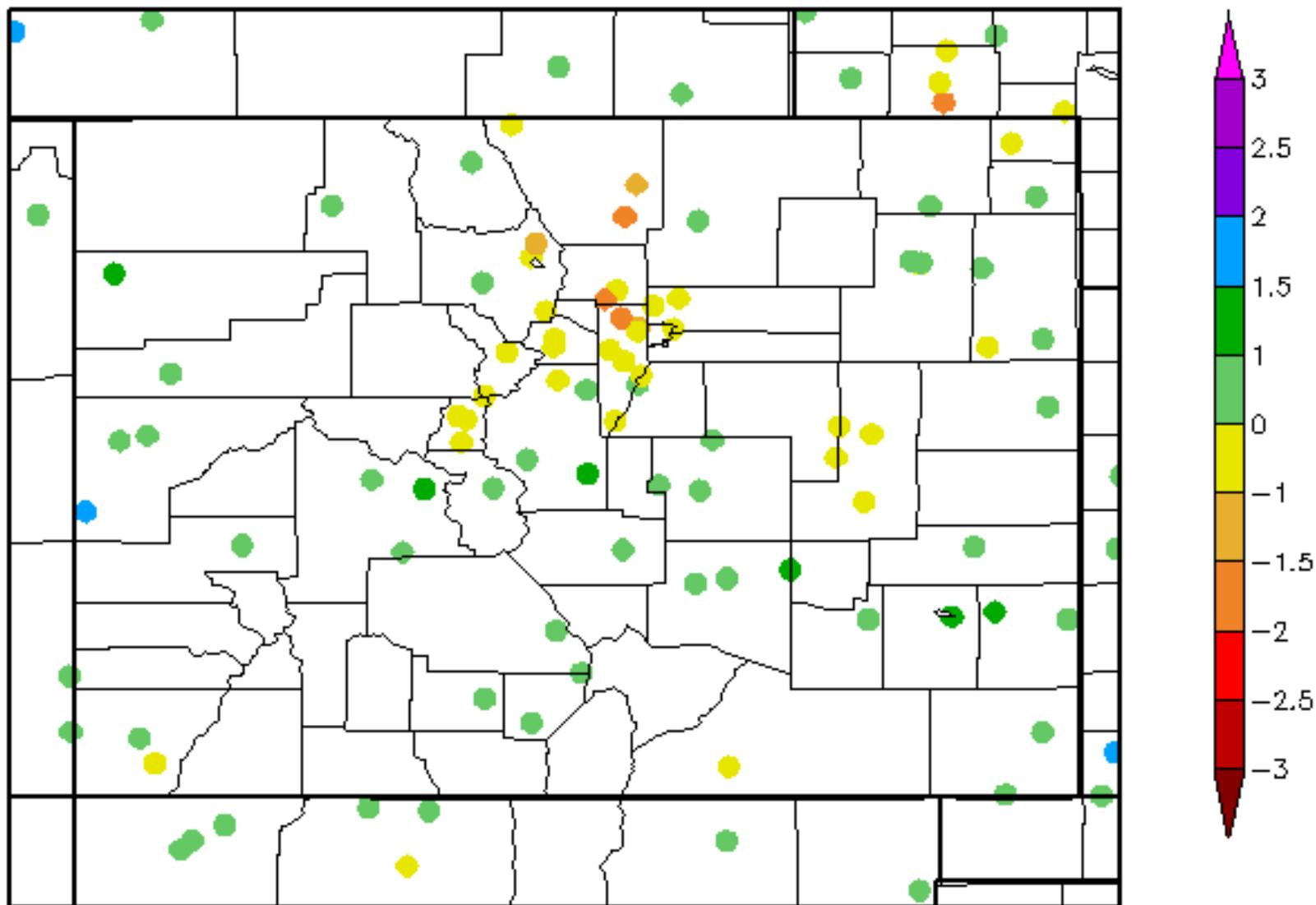
30 Day SPI

6/19/2016 - 7/18/2016



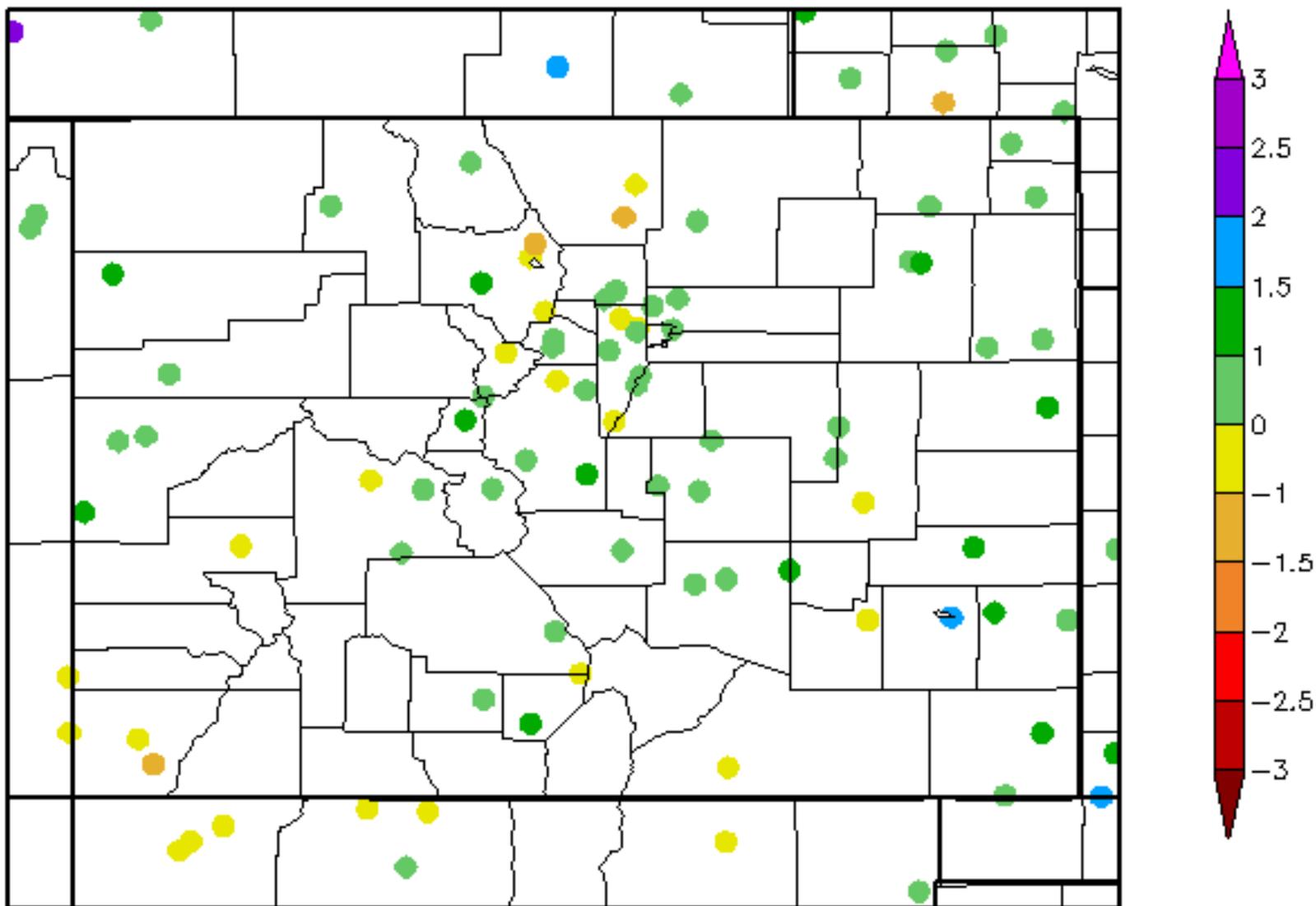
90 Day SPI

4/20/2016 - 7/18/2016



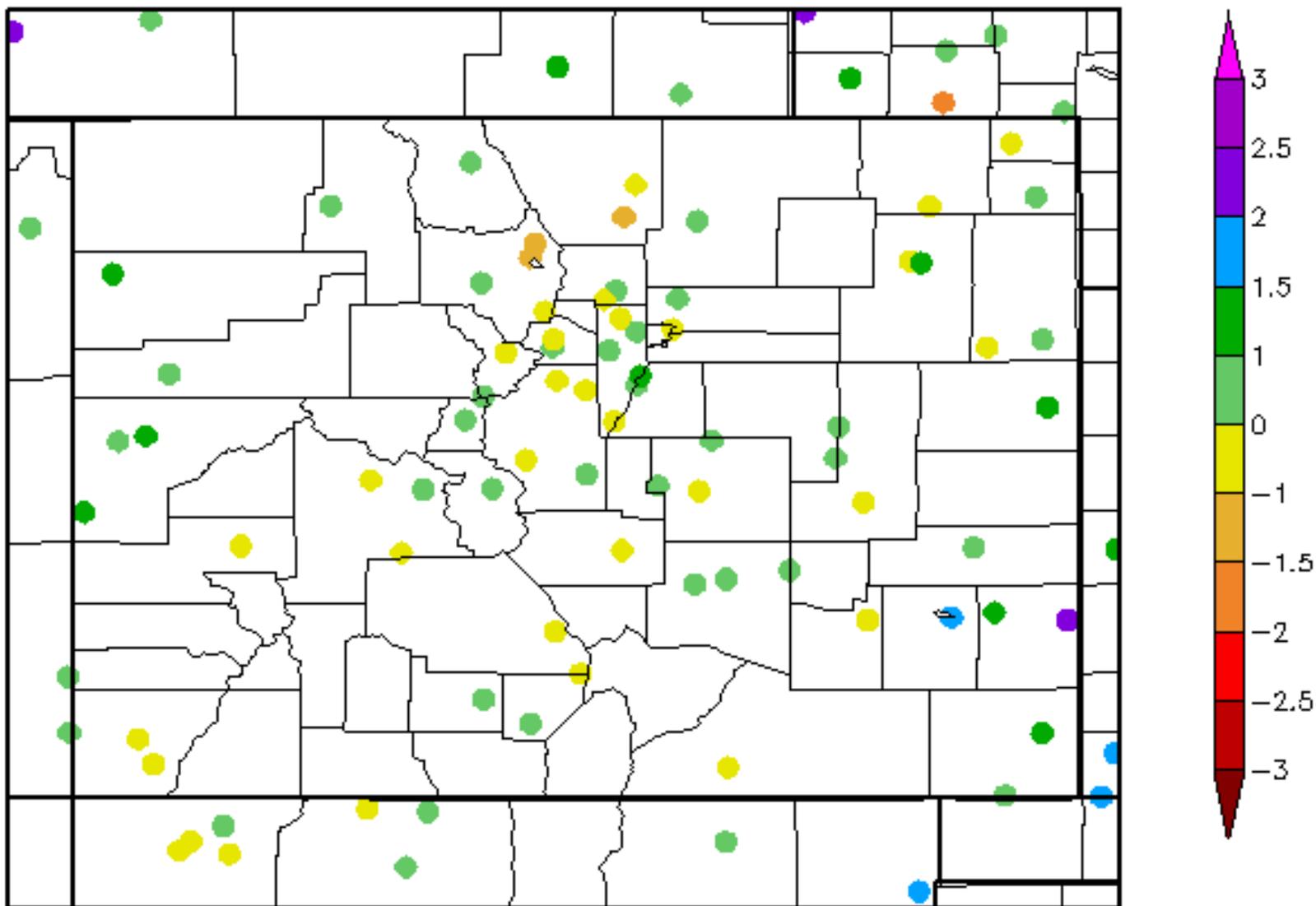
6 Month SPI

1/19/2016 - 7/18/2016



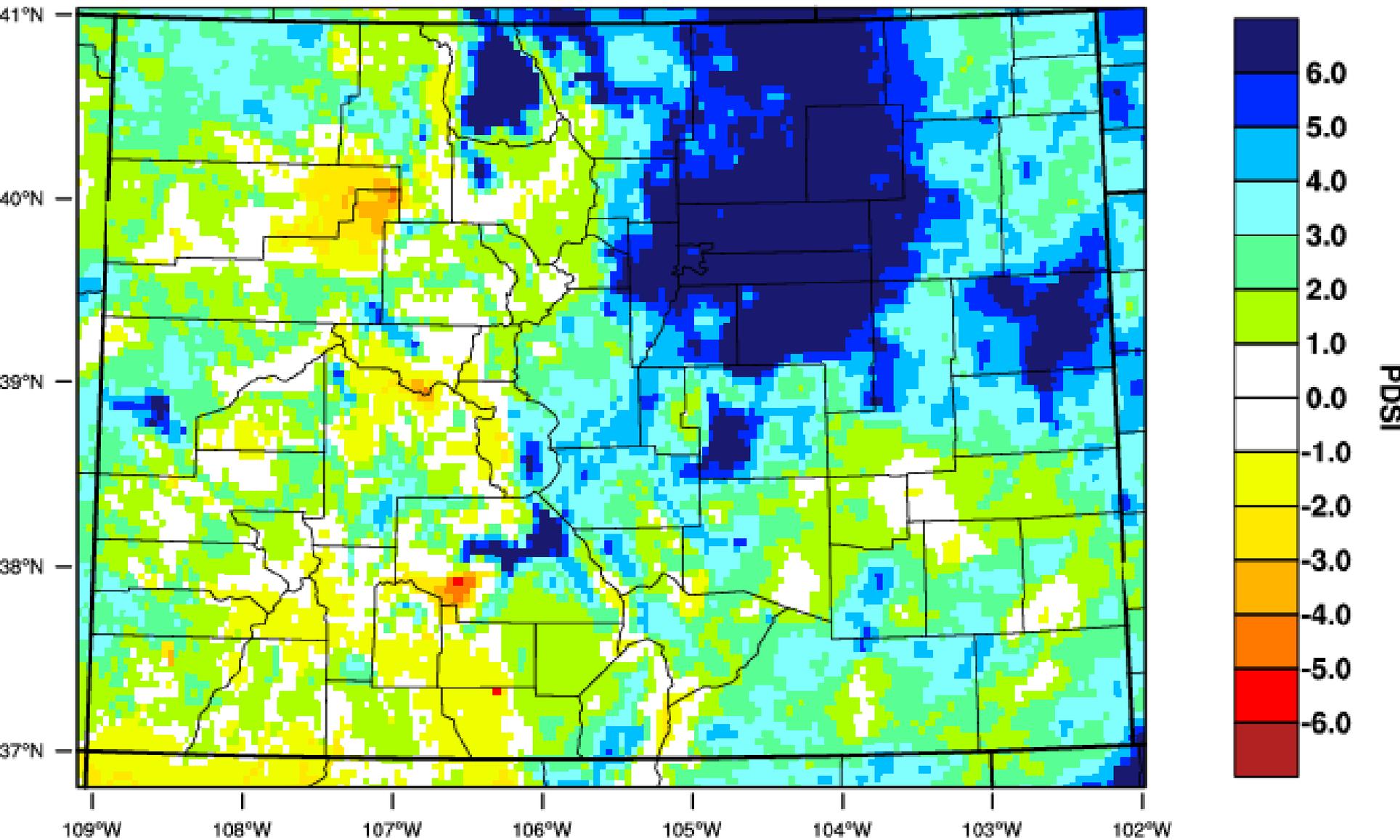
12 Month SPI

7/19/2015 - 7/18/2016



Colorado - PDSI

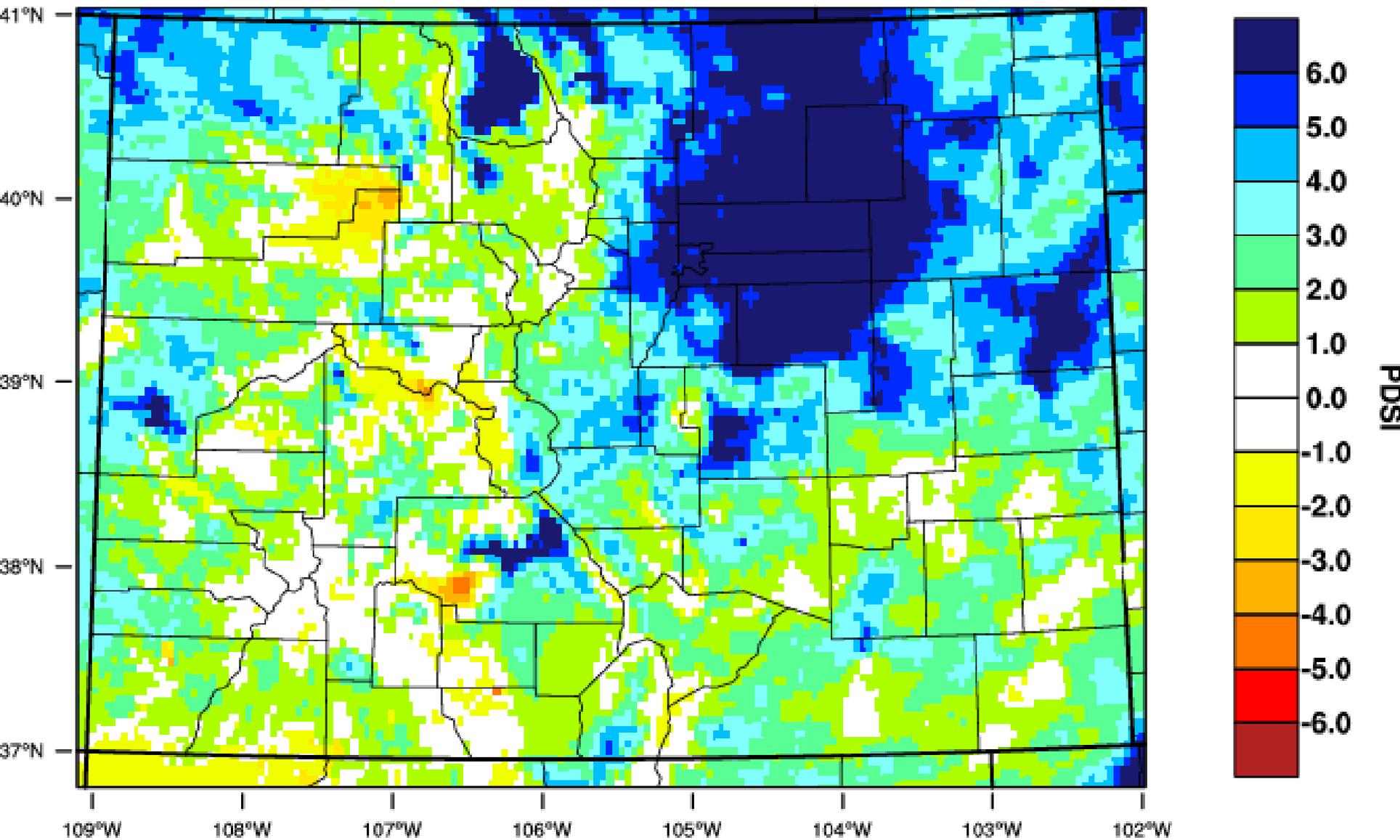
April 2016



WestWide Drought Tracker, U Idaho/WRCC Data Source: PRISM (Prelim), created 16 MAY 2016

Colorado - PDSI

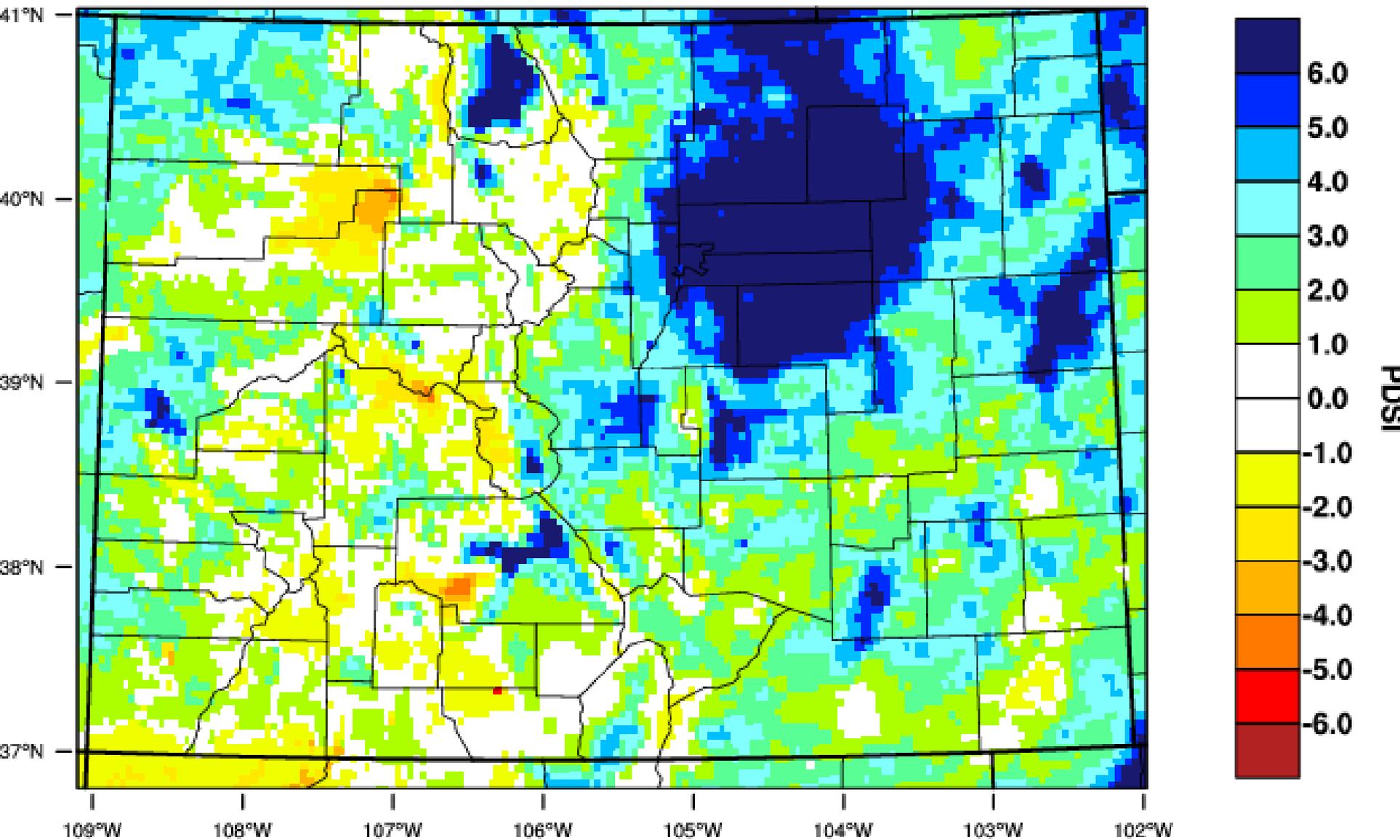
May 2016



WestWide Drought Tracker, U Idaho/WRCC Data Source: PRISM (Prelim), created 16 JUN 2016

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June 2016



WestWide Drought Tracker, U Idaho/WRCC Data Source: PRISM (Prelim), created 16 JUL 2016

Colorado Climate Center

Data and Power Point Presentations available for downloading

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



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