Climate Update

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Colorado Climate Center

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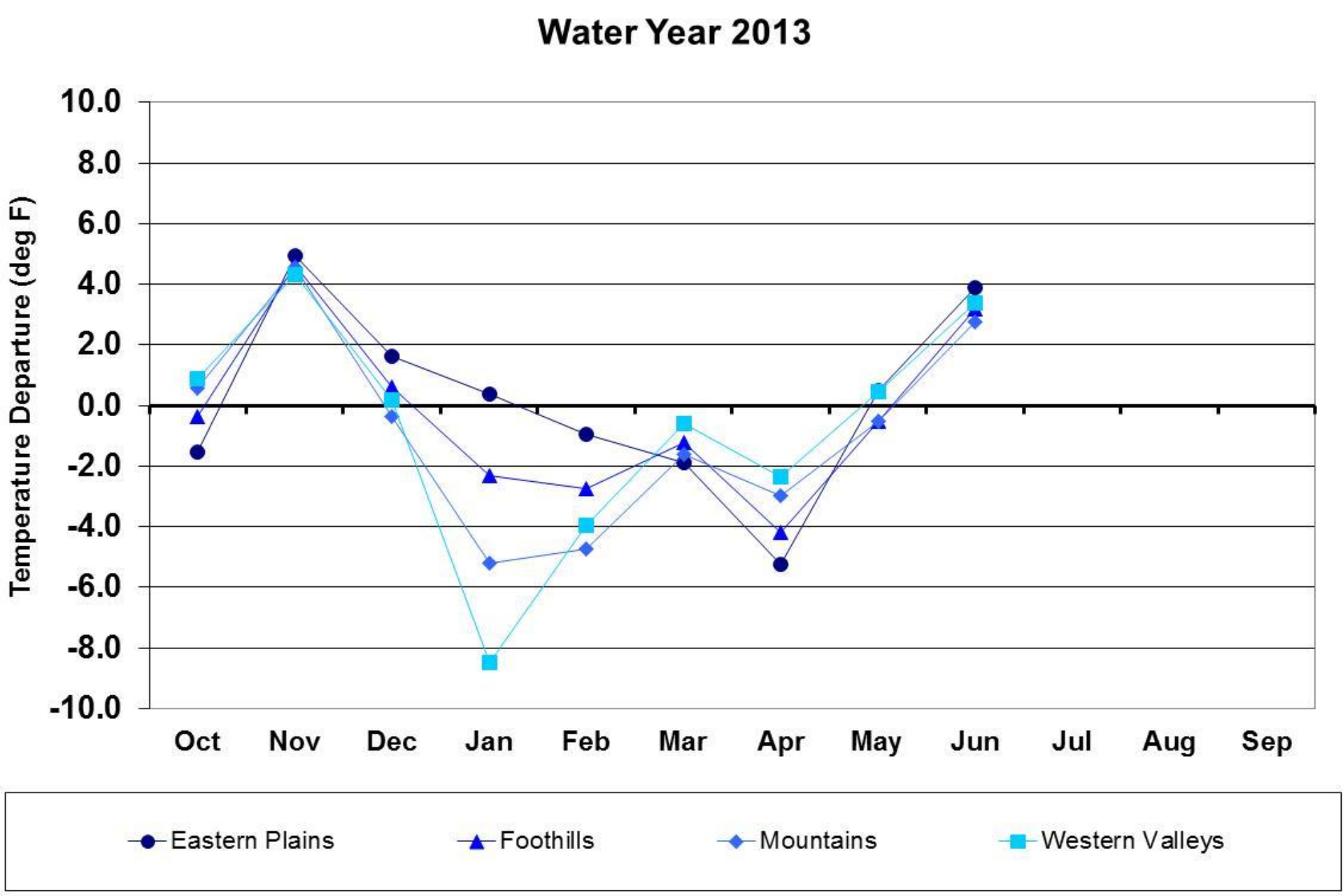
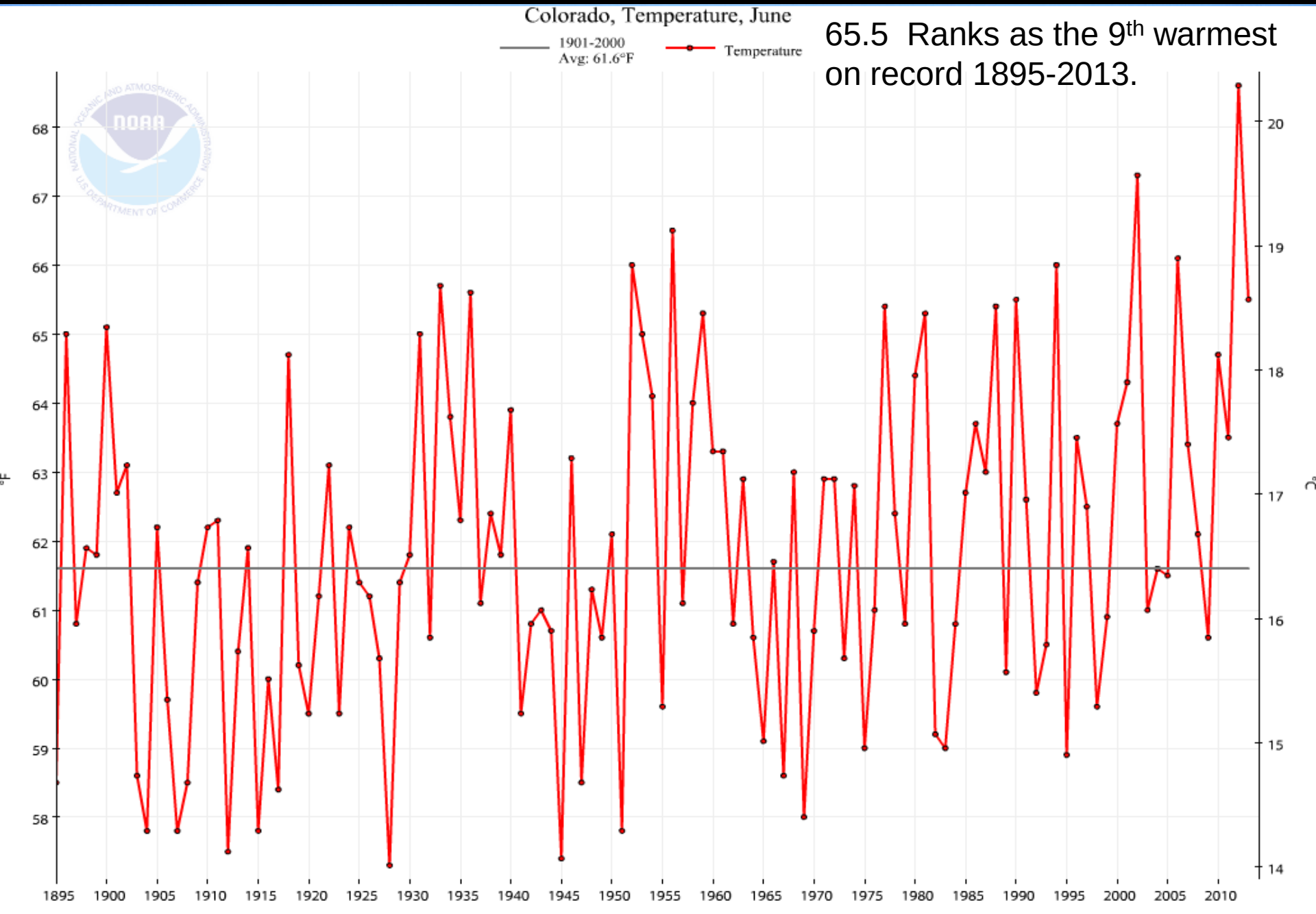
Colorado State University

Presented to
Water Availability Task Force
17 July 2013
Denver, CO

Water Year 2013 Temperature Departures

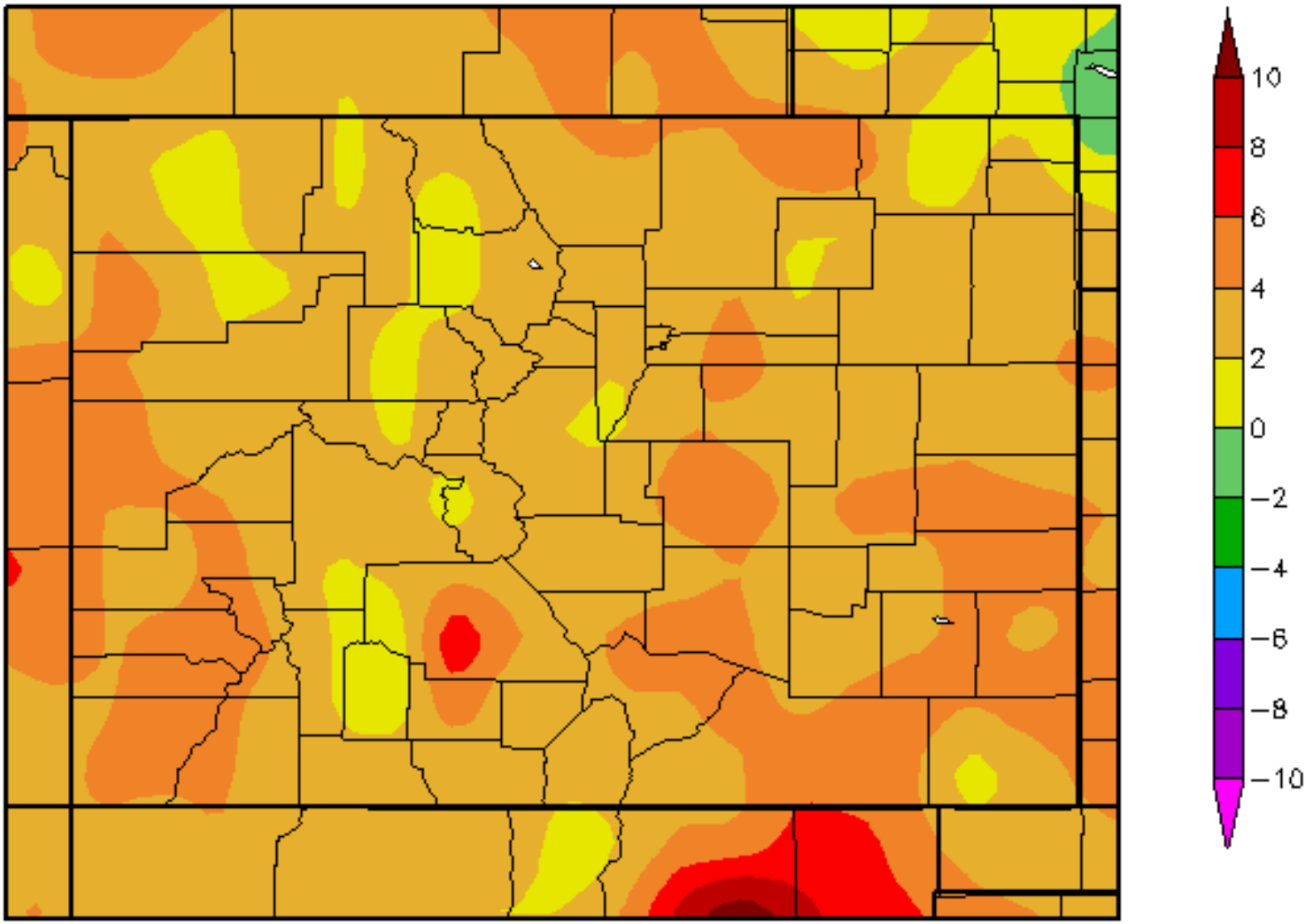


June Average Temperature History for Colorado (NCDC)



65.5 Ranks as the 9th warmest on record 1895-2013.

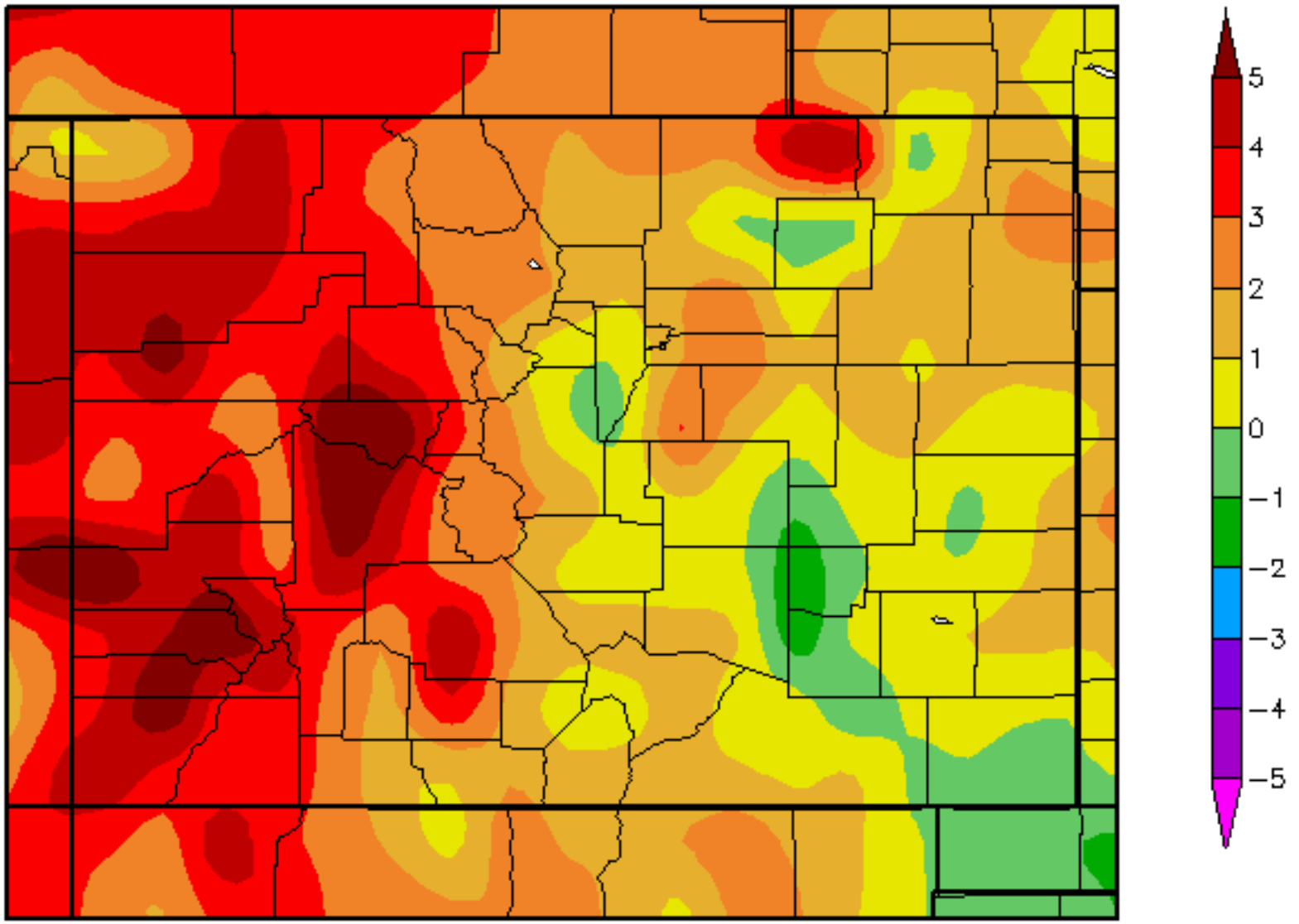
Departure from Normal Temperature (F)
6/1/2013 – 6/30/2013



Generated 7/11/2013 at HPRCC using provisional data.

Regional Climate Centers

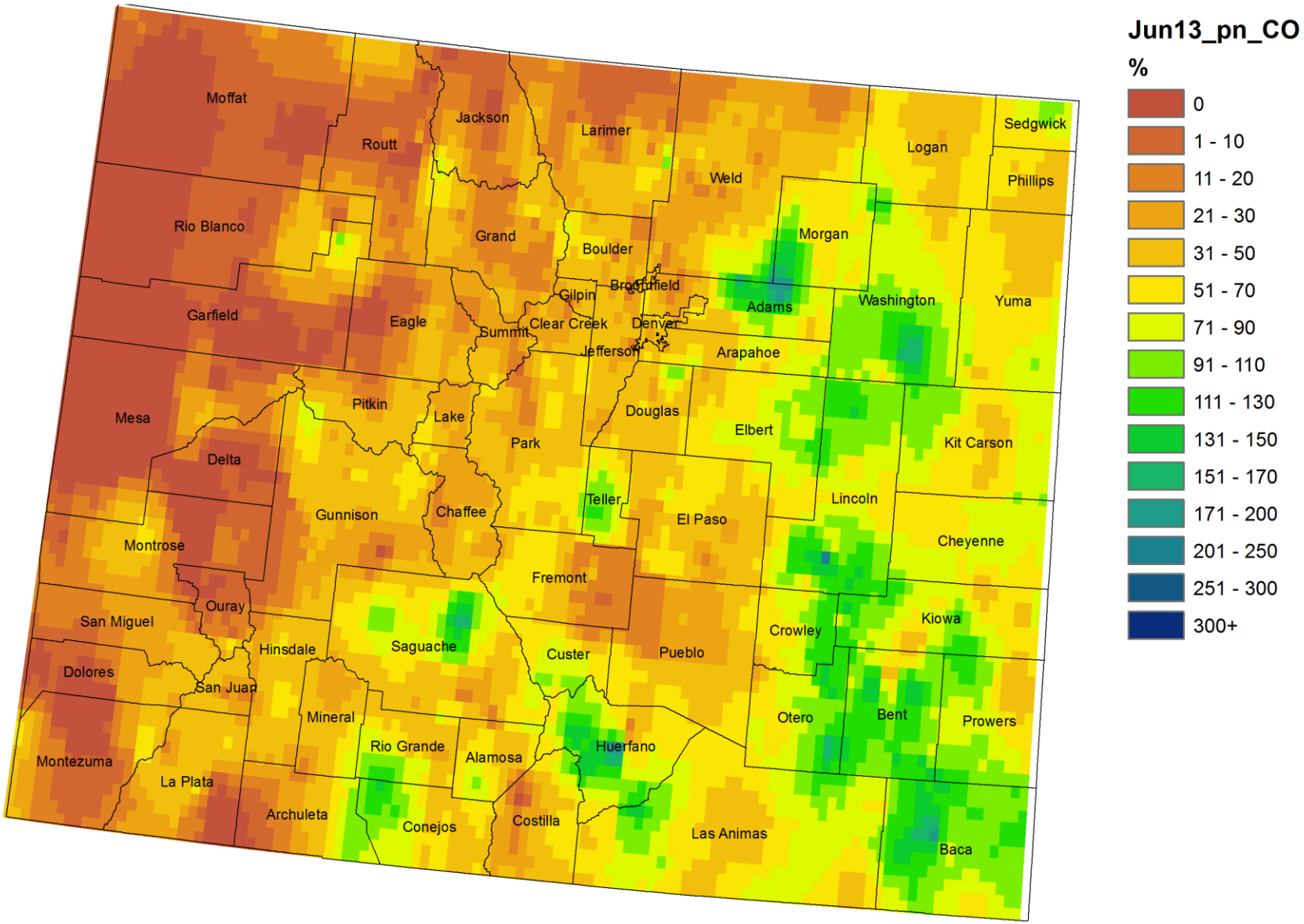
Departure from Normal Temperature (F)
7/1/2013 – 7/16/2013



Generated 7/17/2013 at HPRCC using provisional data.

Regional Climate Centers

Colorado Precipitation as Percentage of Normal
June 2013

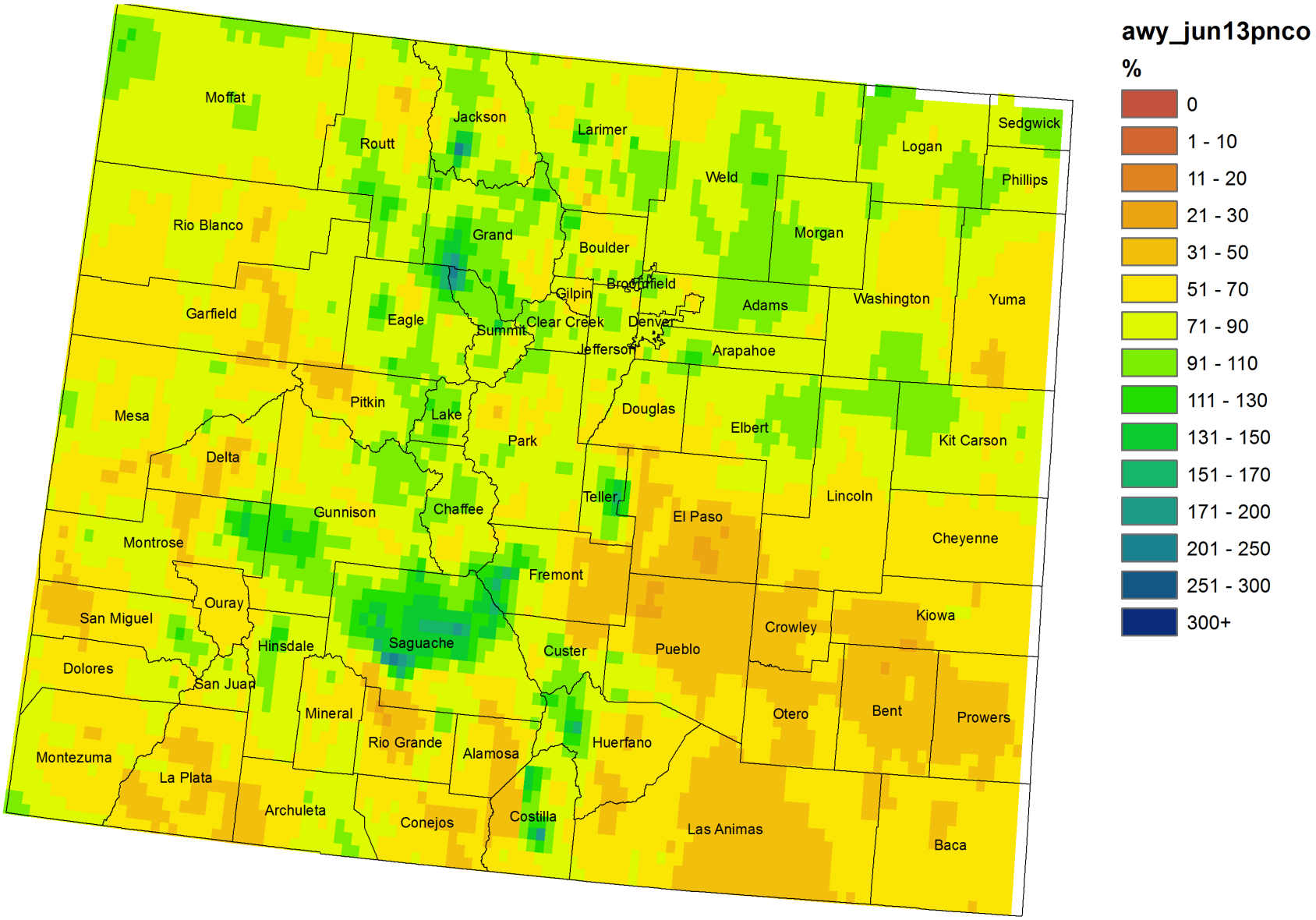


Jun13_pn_CO

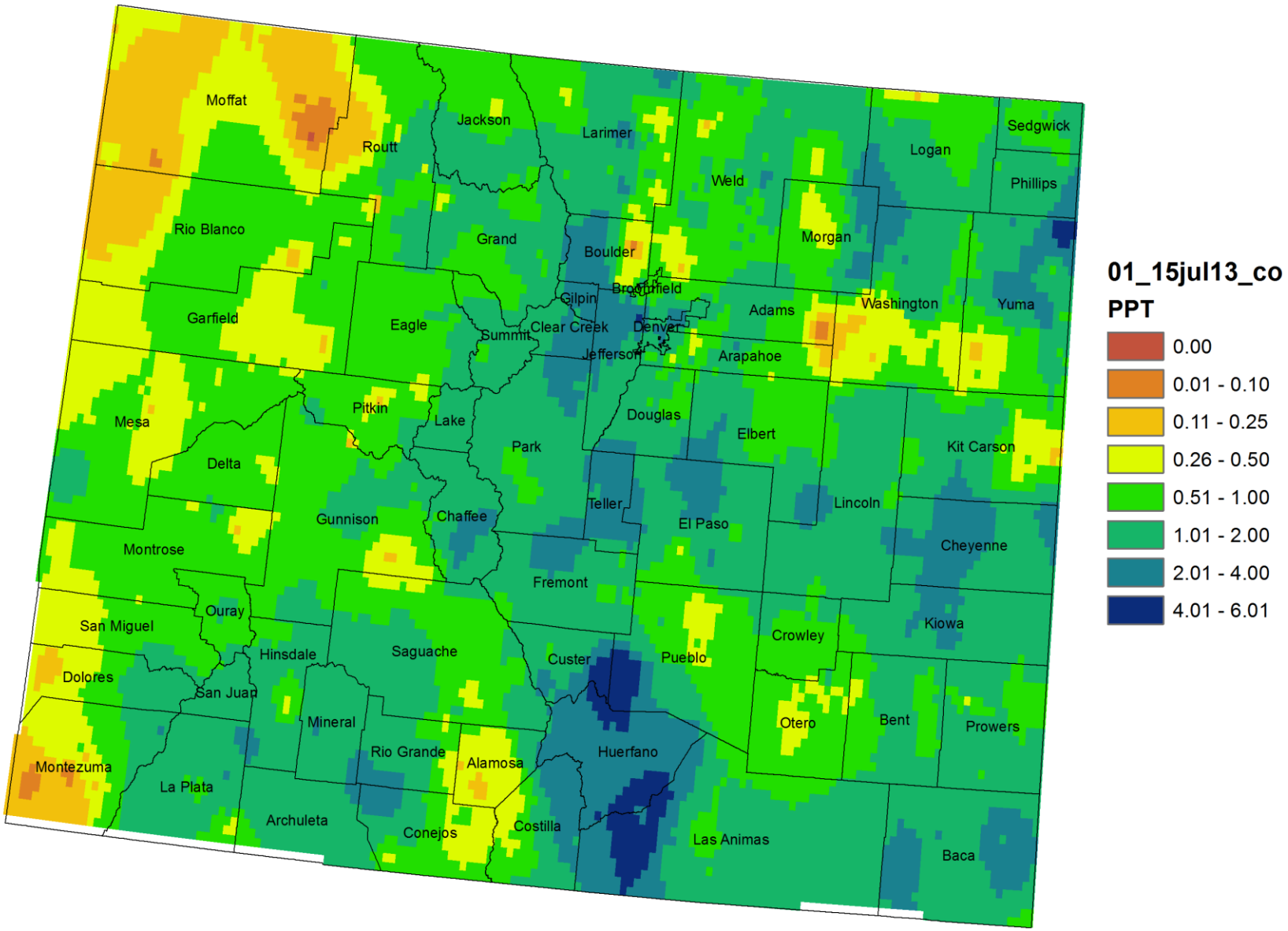
%

- 0
- 1 - 10
- 11 - 20
- 21 - 30
- 31 - 50
- 51 - 70
- 71 - 90
- 91 - 110
- 111 - 130
- 131 - 150
- 151 - 170
- 171 - 200
- 201 - 250
- 251 - 300
- 300+

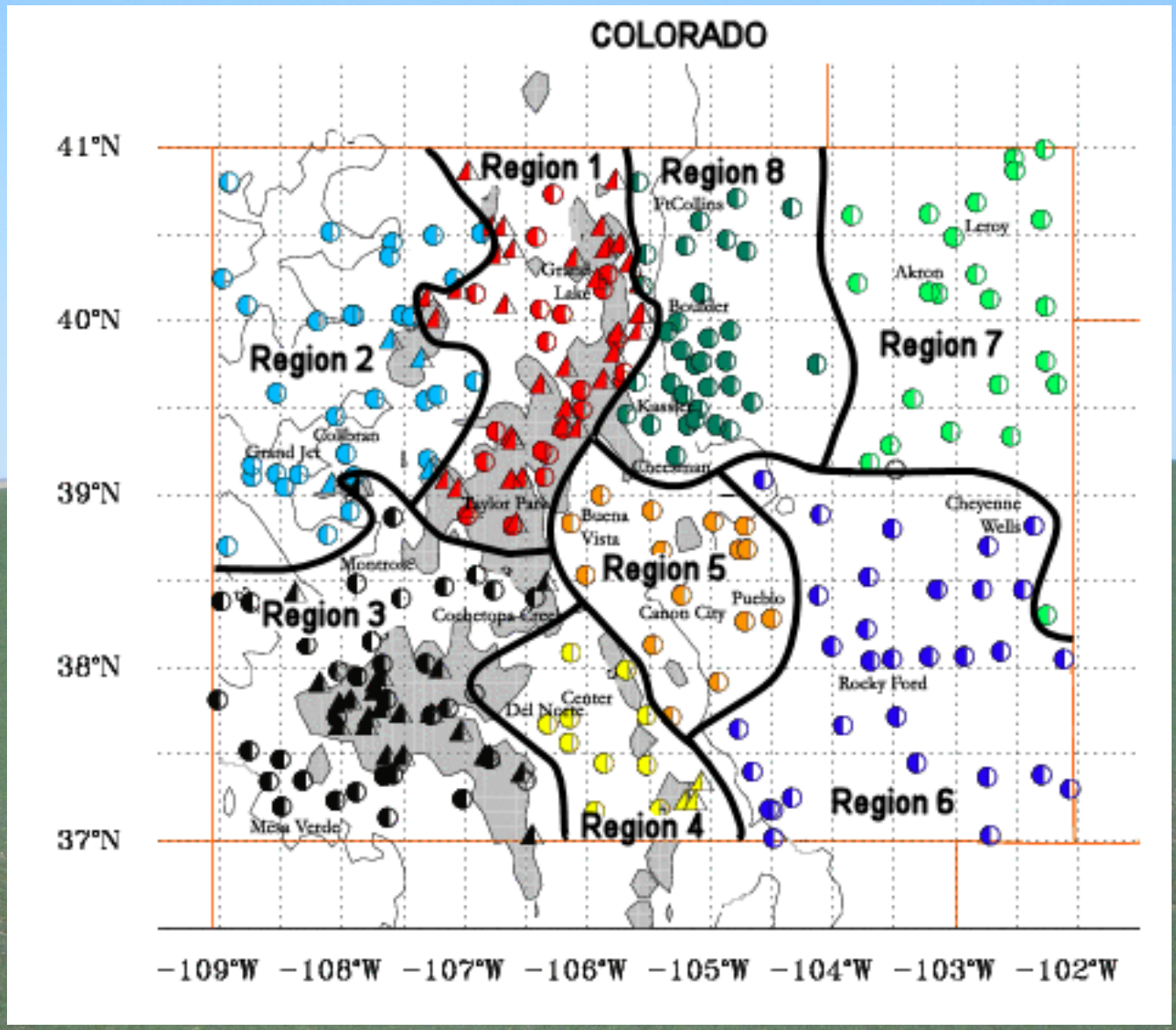
Colorado Water Year 2013 Precipitation as Percentage of Normal (Oct 12 - Jun 13)



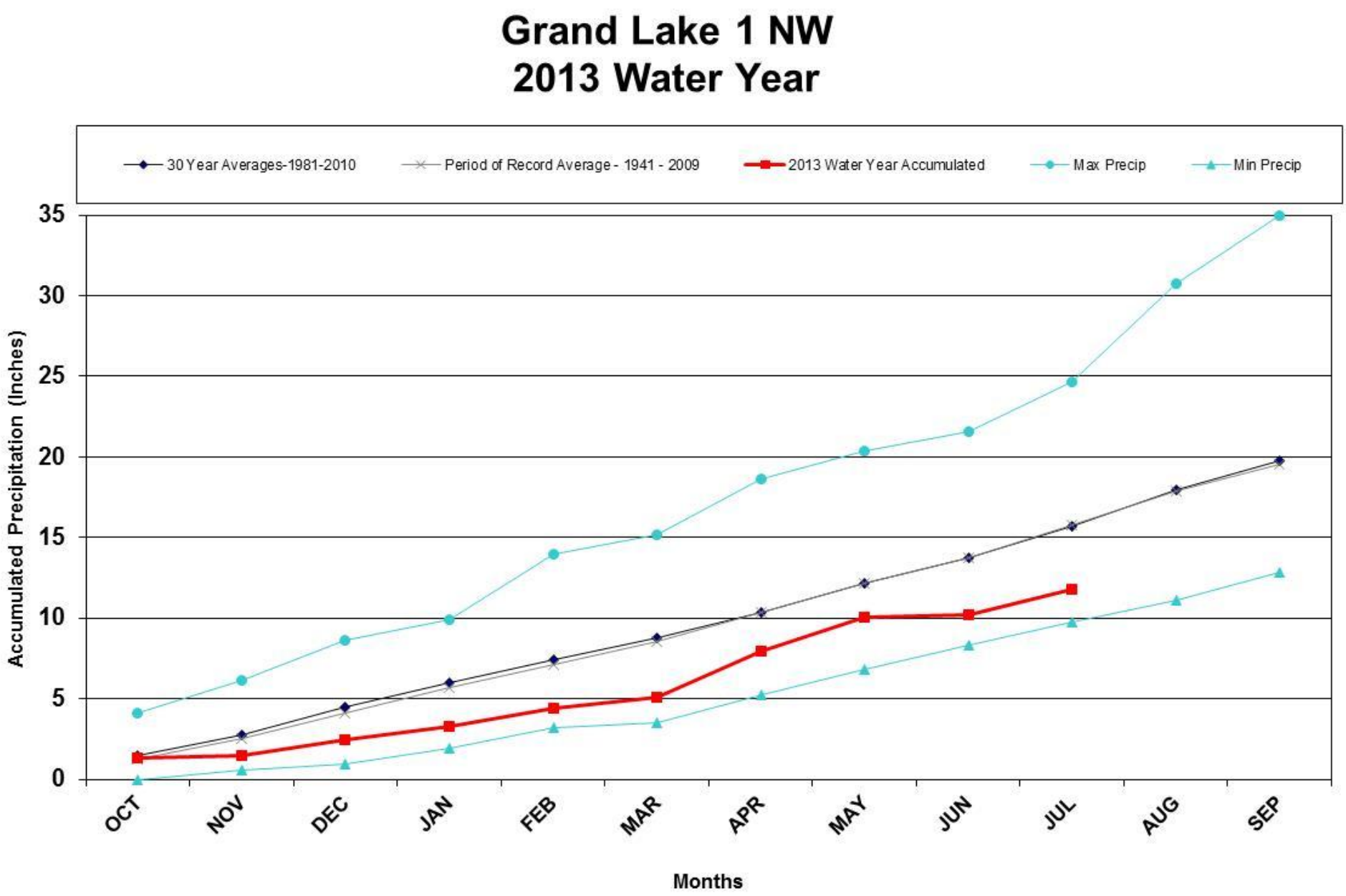
Colorado Month to Date Precipitation (in)
1 - 15 July 2013



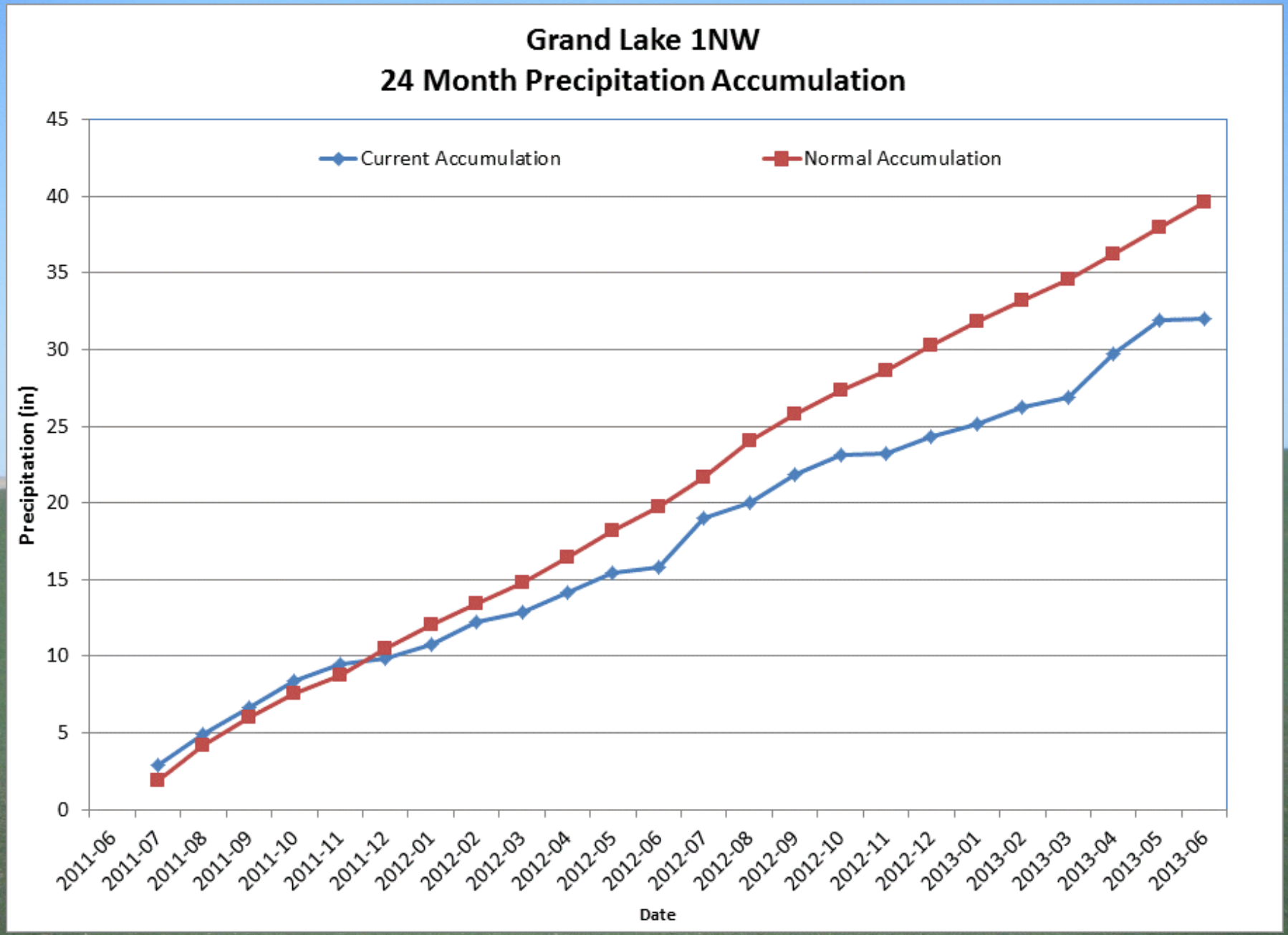
Climate divisions defined by Dr. Klaus Wolter of NOAA's Climate Diagnostic Center in Boulder, CO



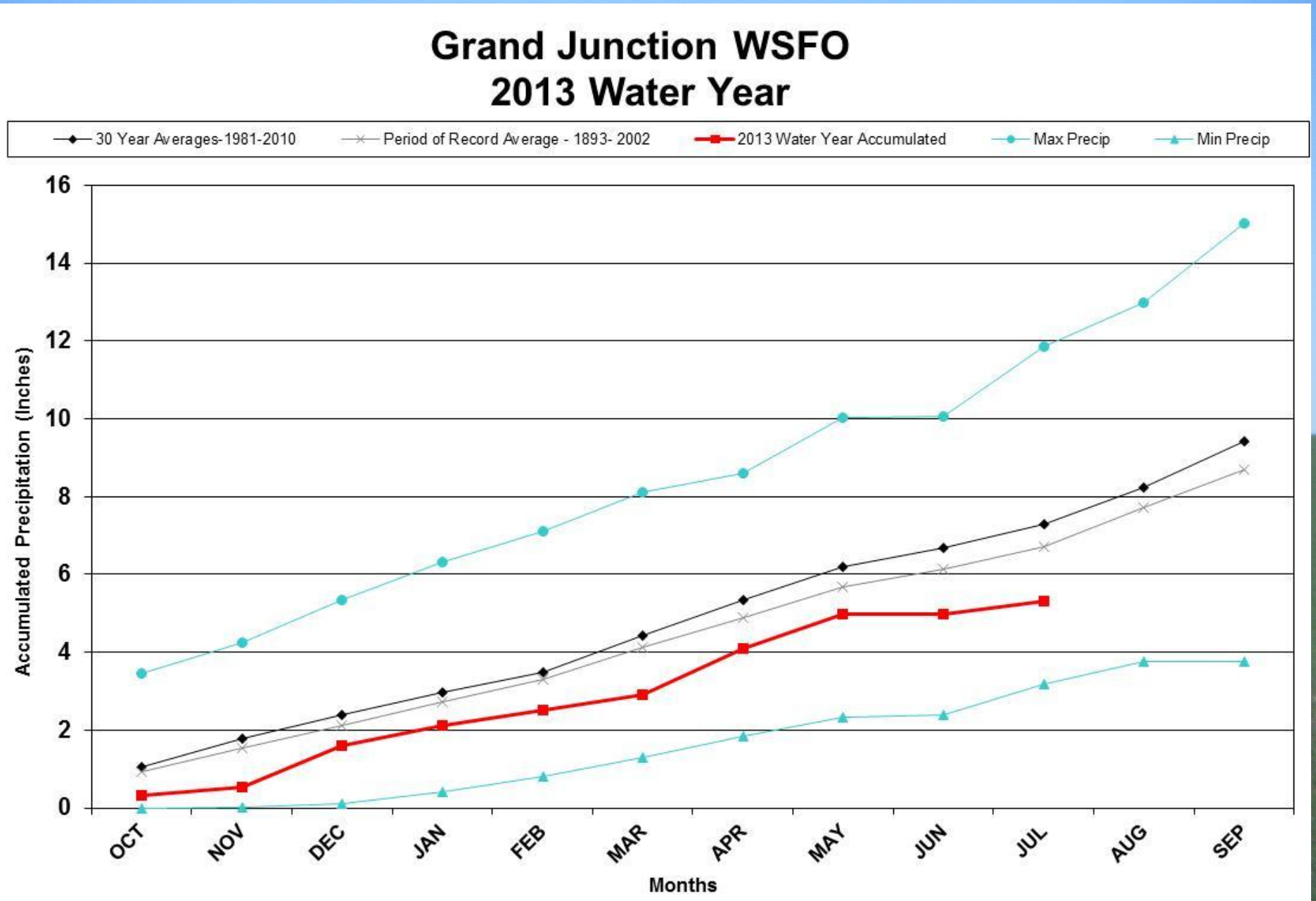
Division 1 – Grand Lake 1NW



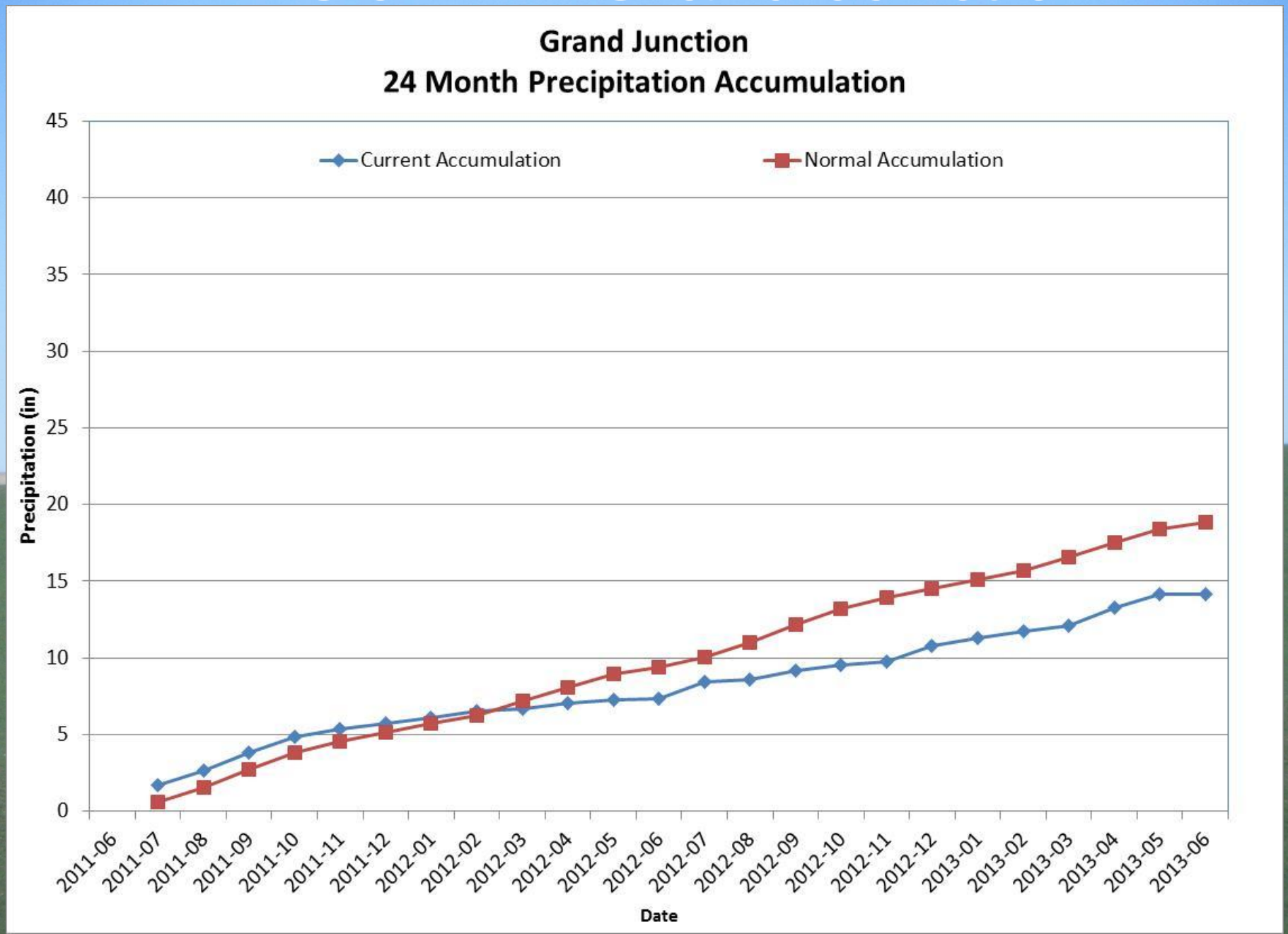
Division 1 – Grand Lake 1NW



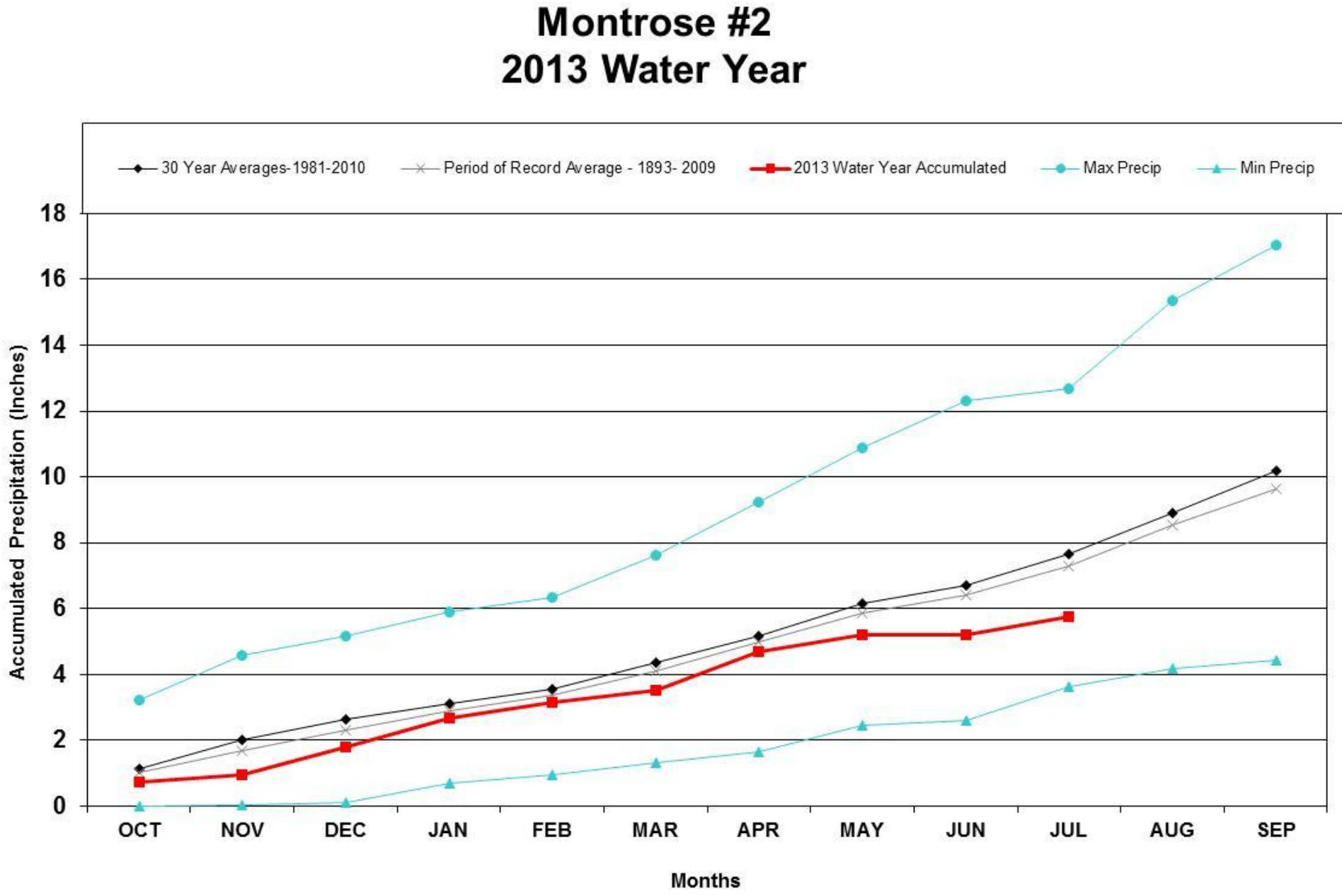
Division 2 – Grand Junction



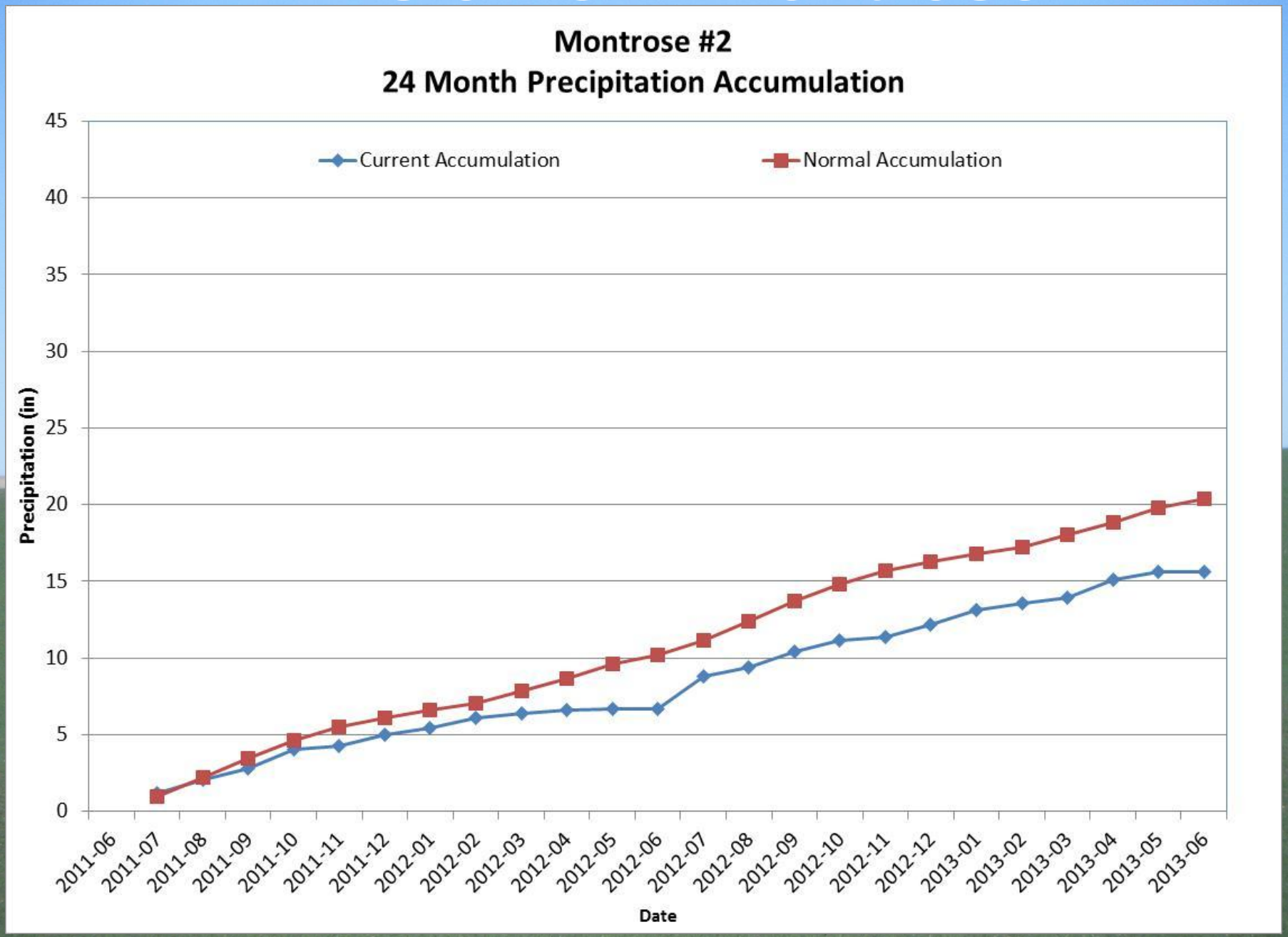
Division 2 – Grand Junction



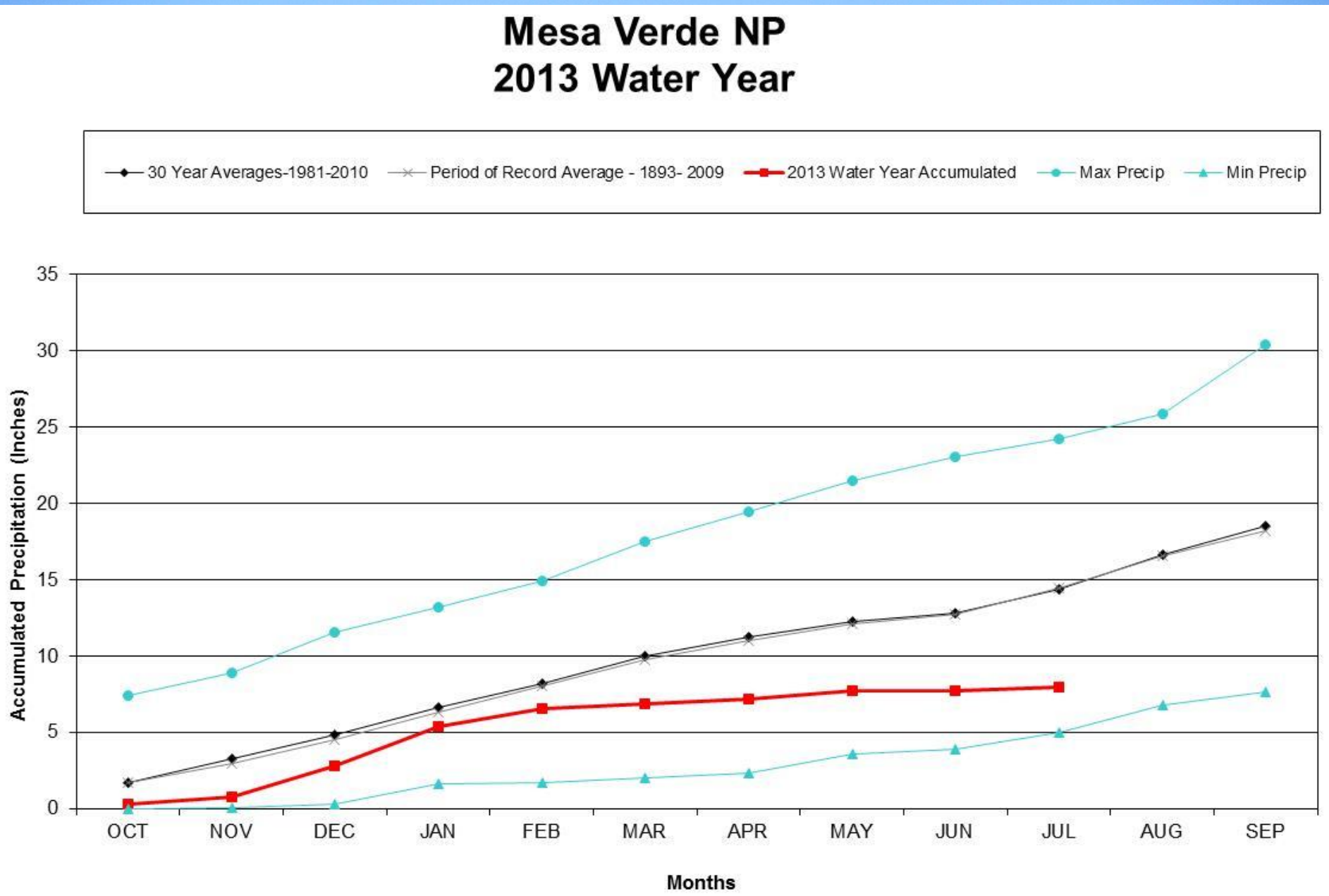
Division 3 – Montrose



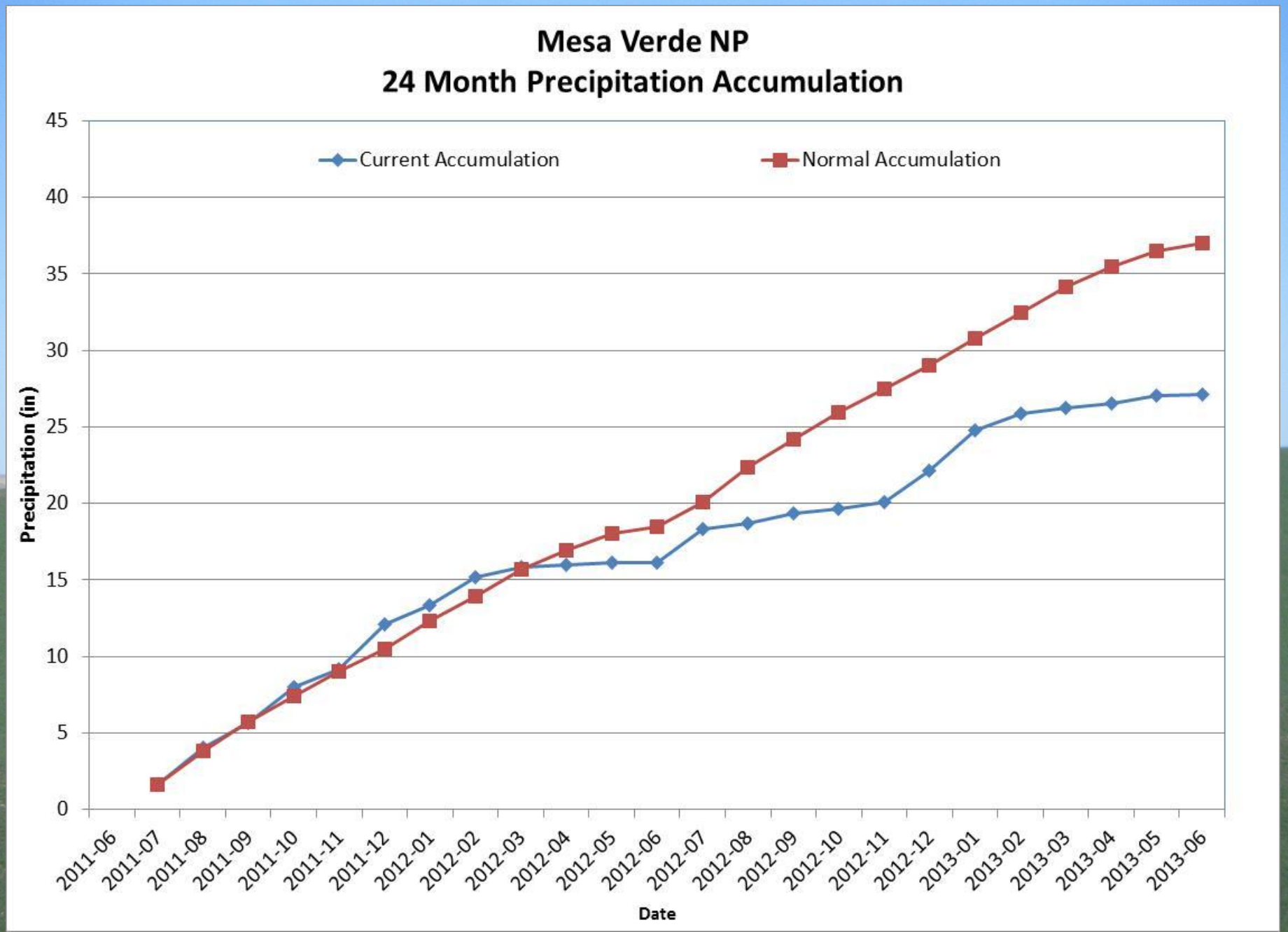
Division 3 – Montrose



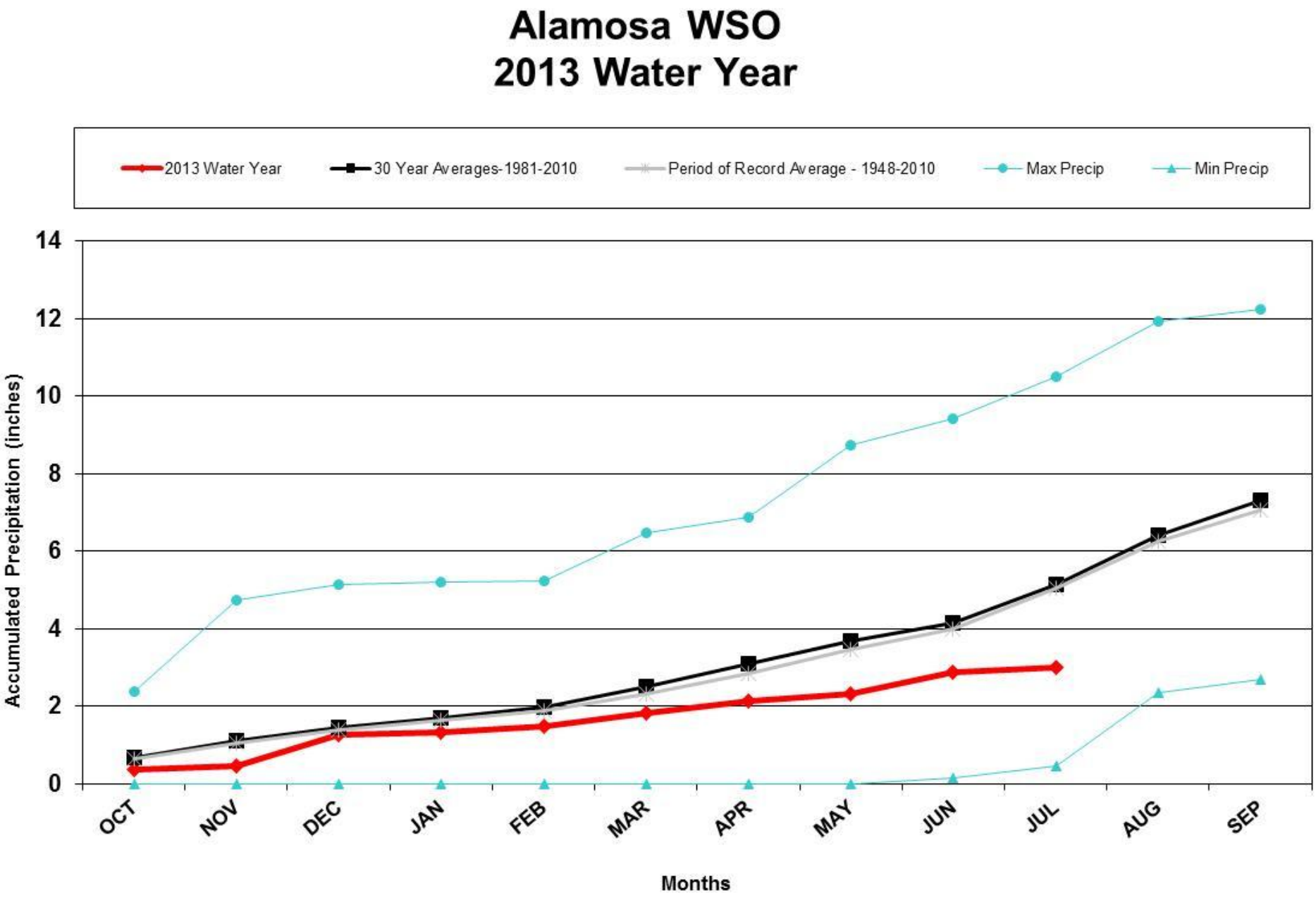
Division 3 – Mesa Verde NP



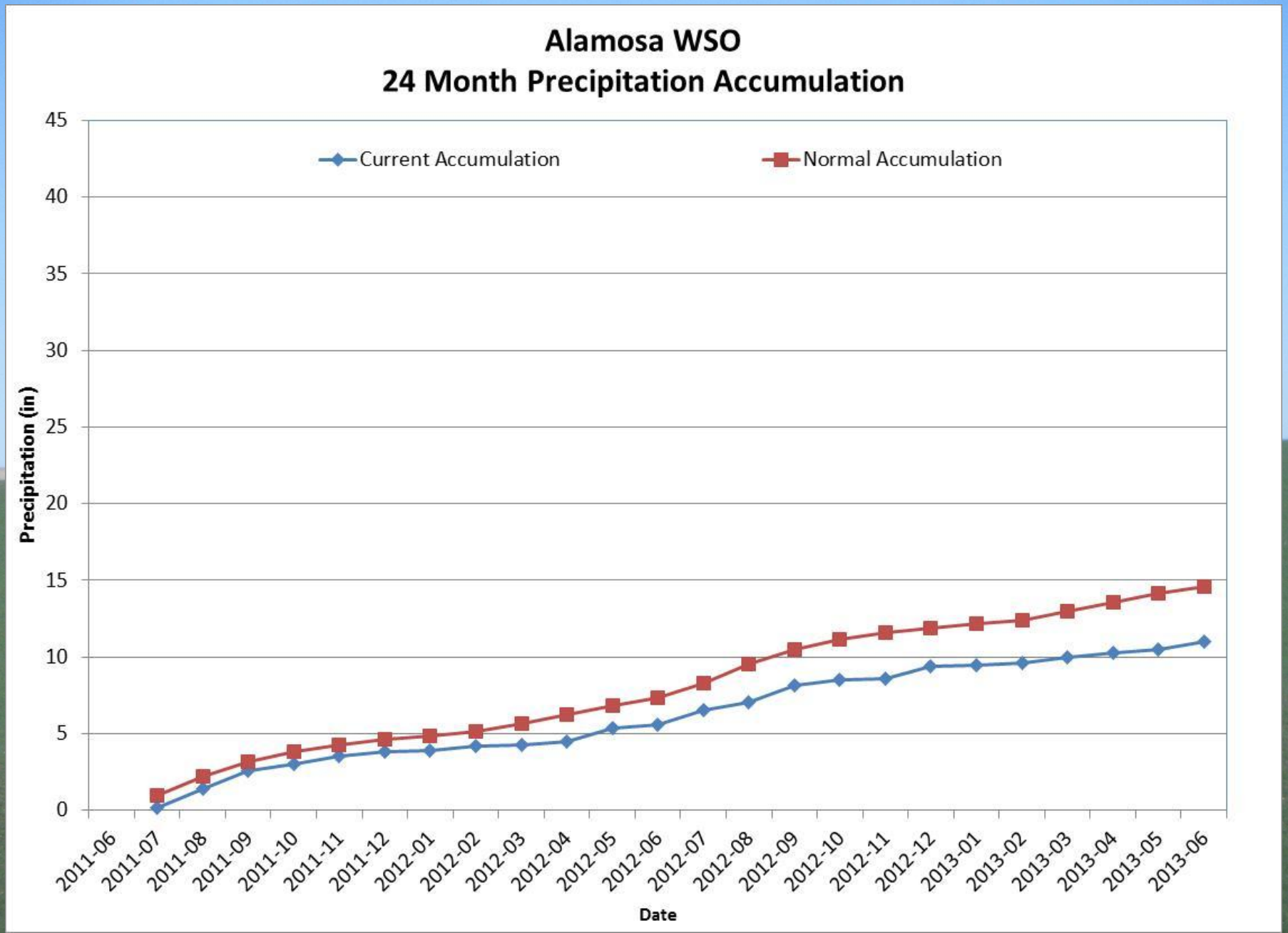
Division 3 – Mesa Verde NP



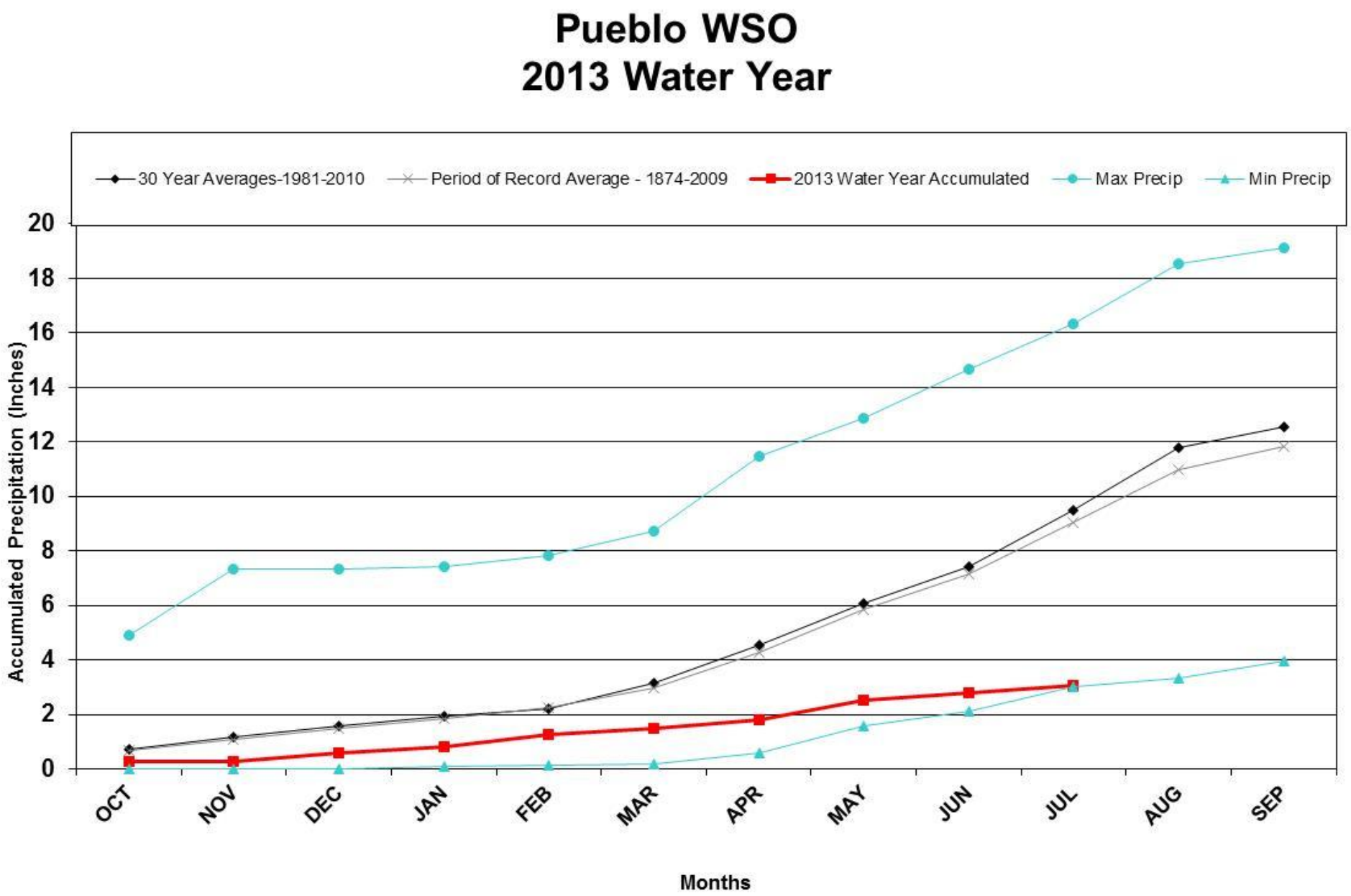
Division 4 – Alamosa



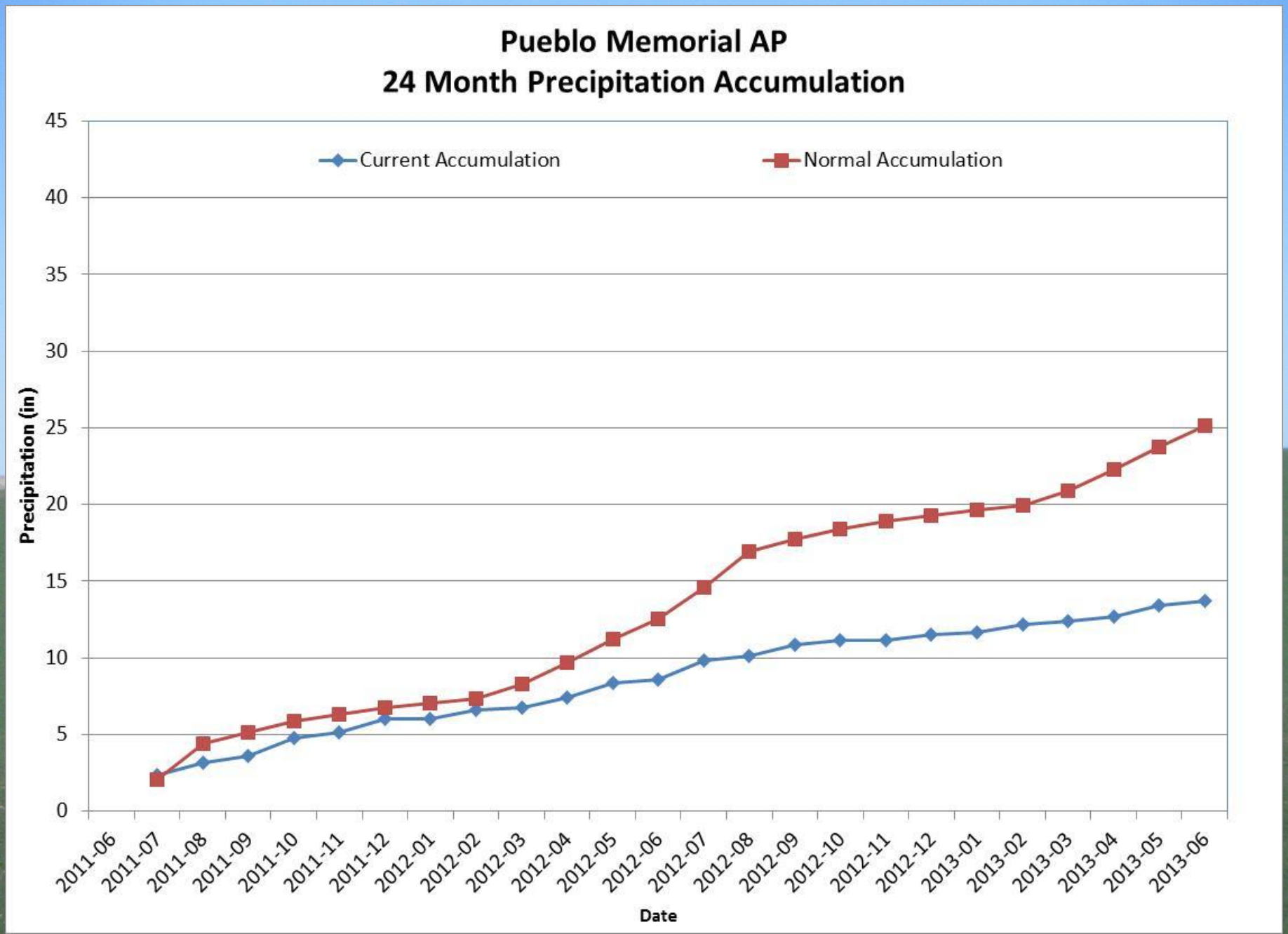
Division 4 – Alamosa



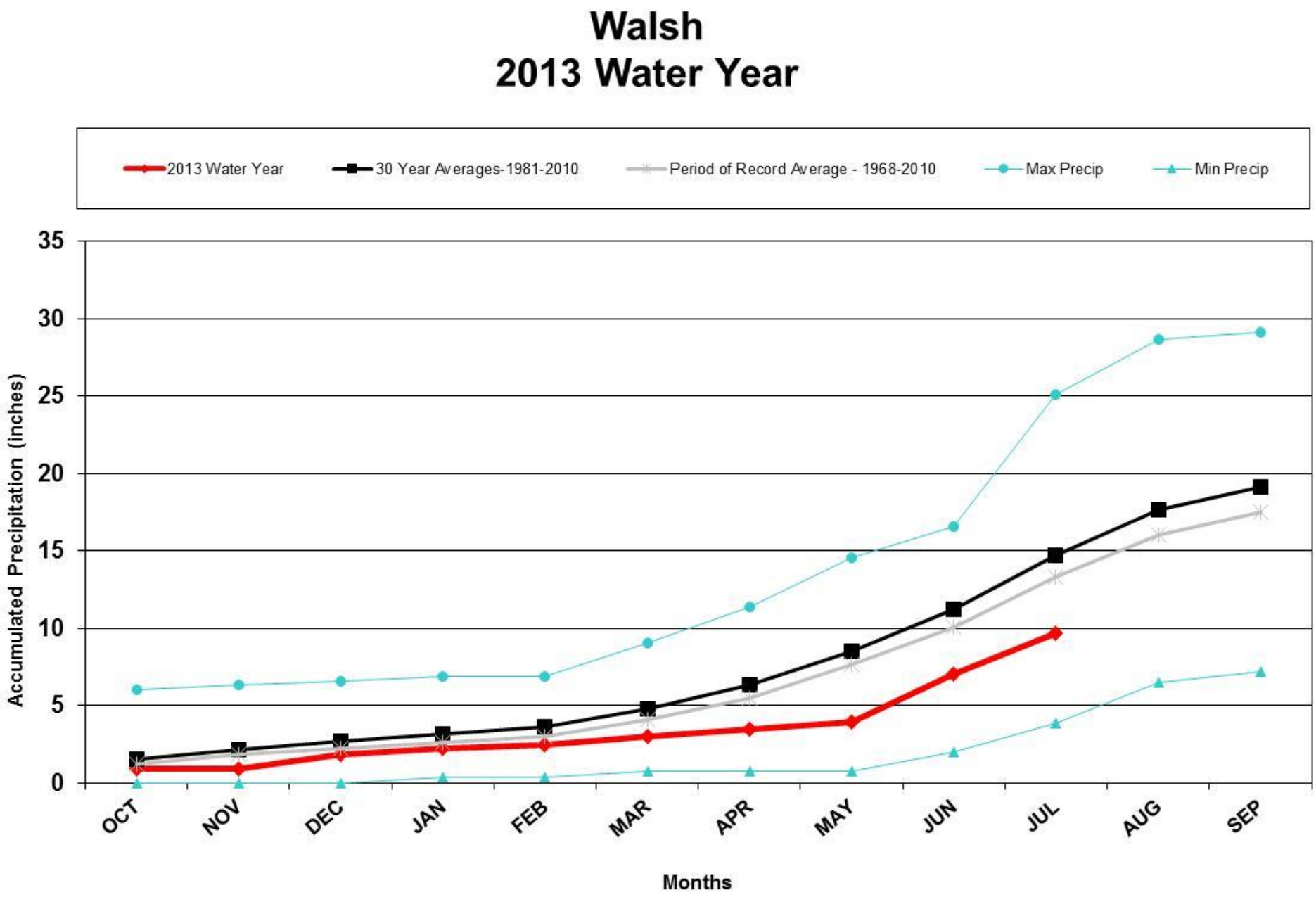
Division 5 – Pueblo



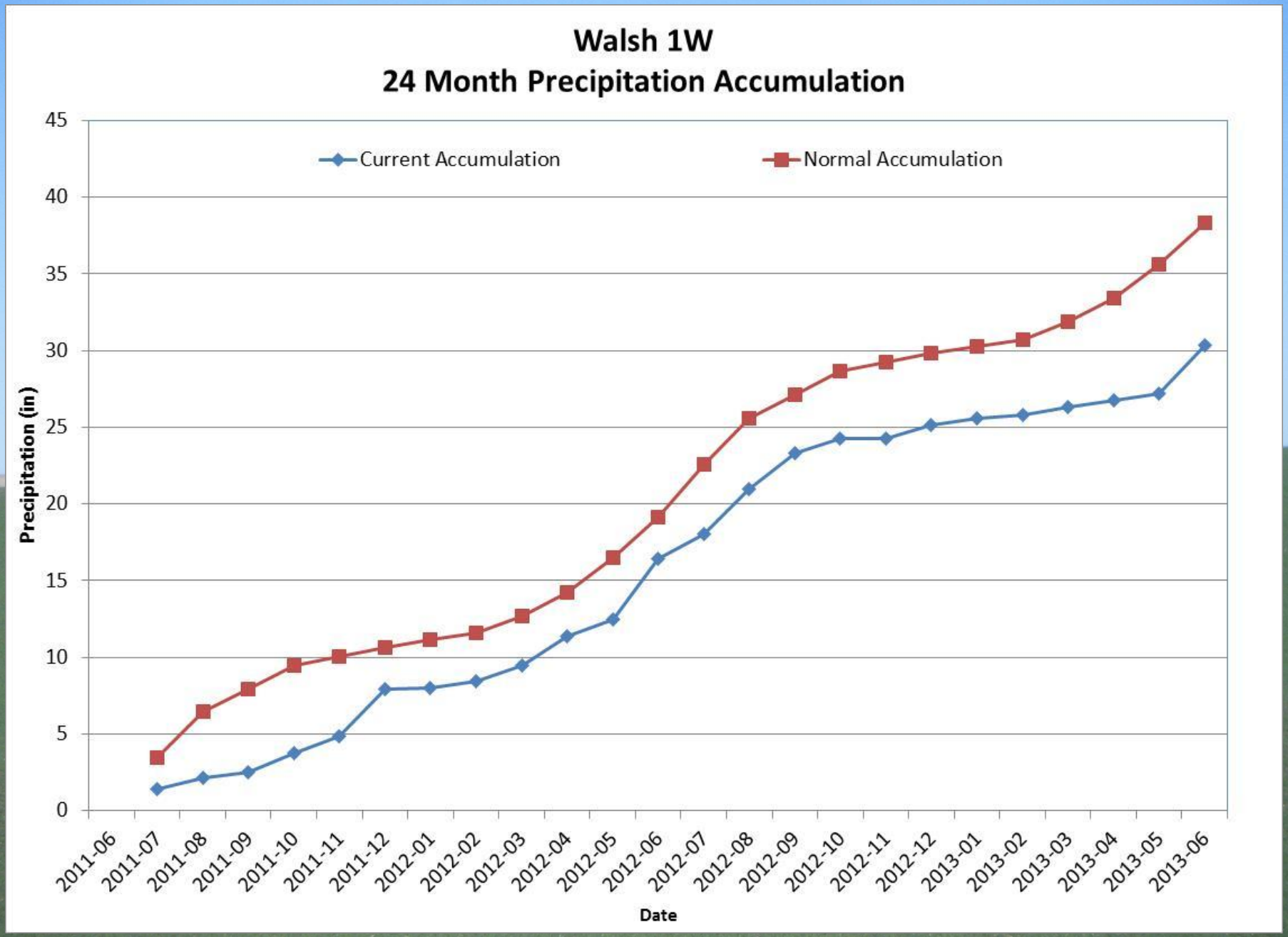
Division 5 – Pueblo



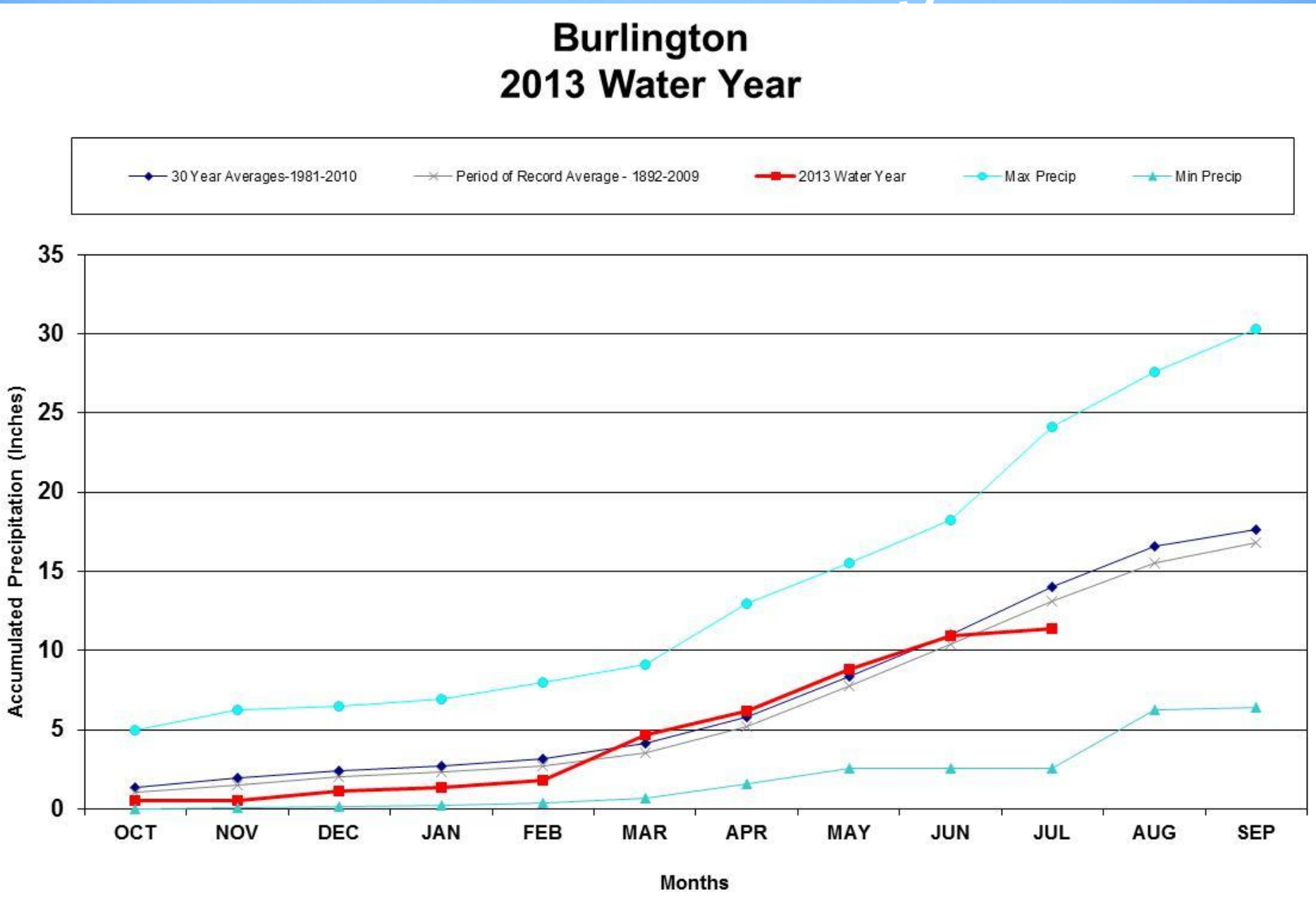
Division 6 - Walsh



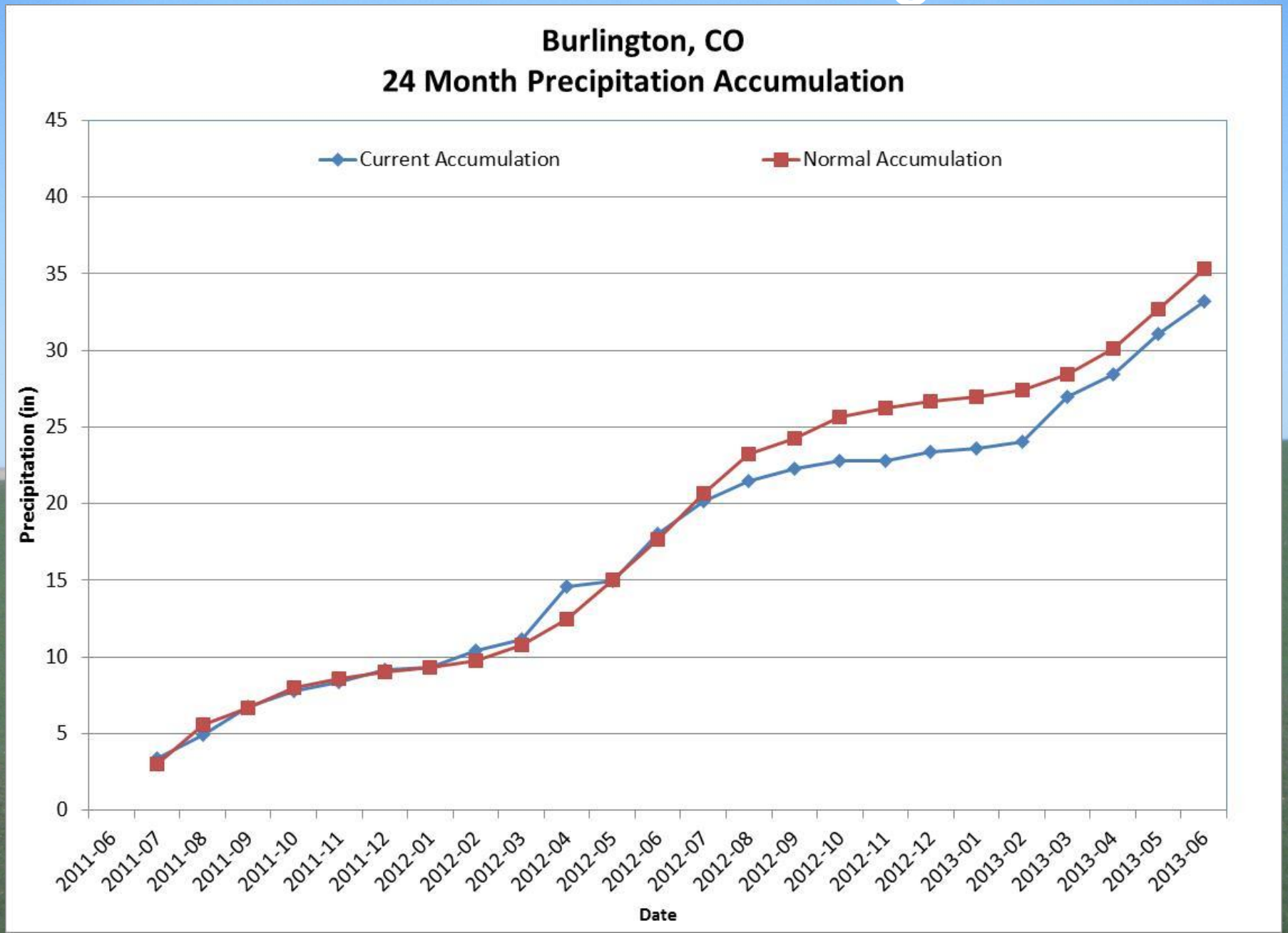
Division 6 - Walsh



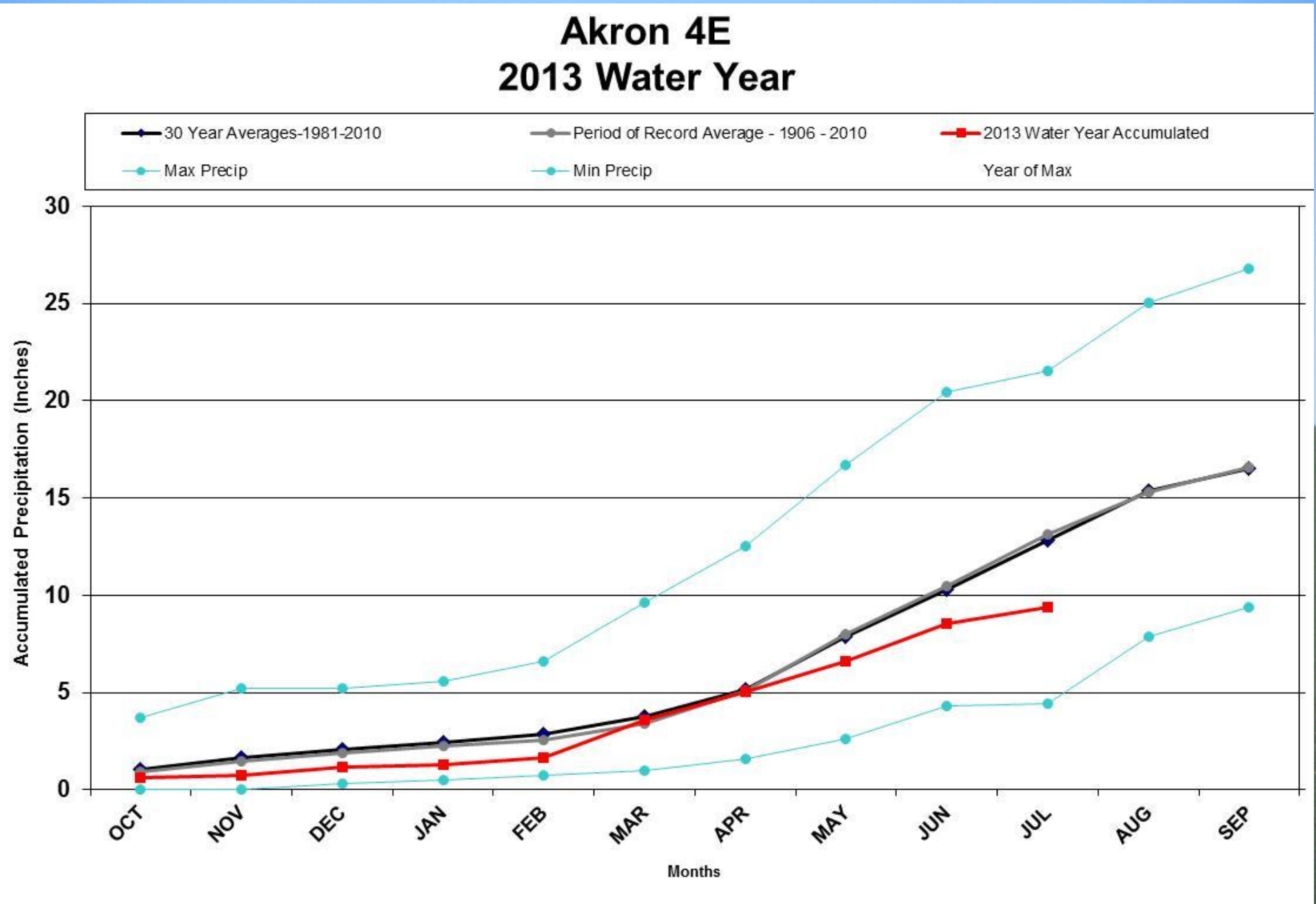
Division 6 - Burlington



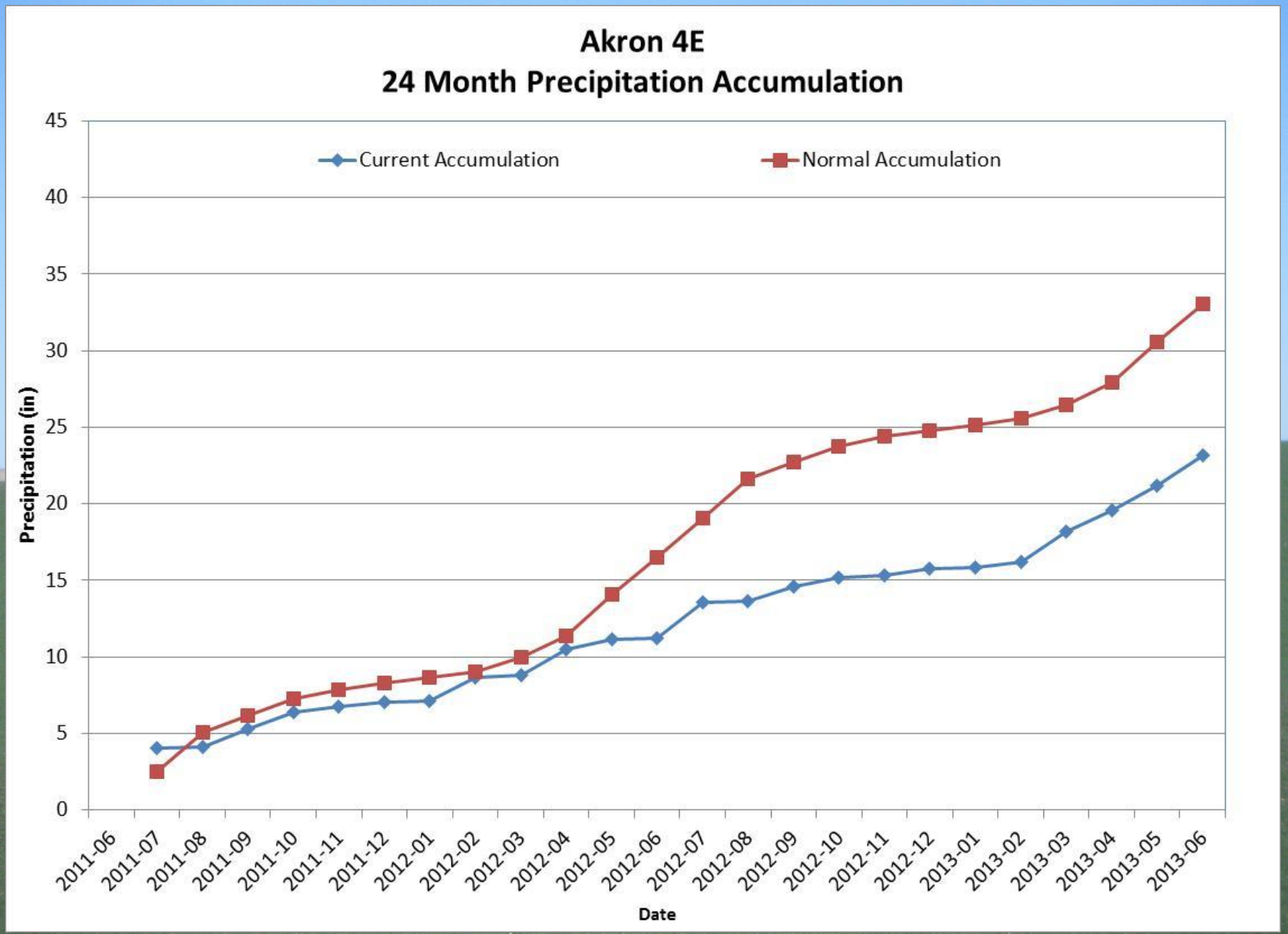
Division 6 - Burlington



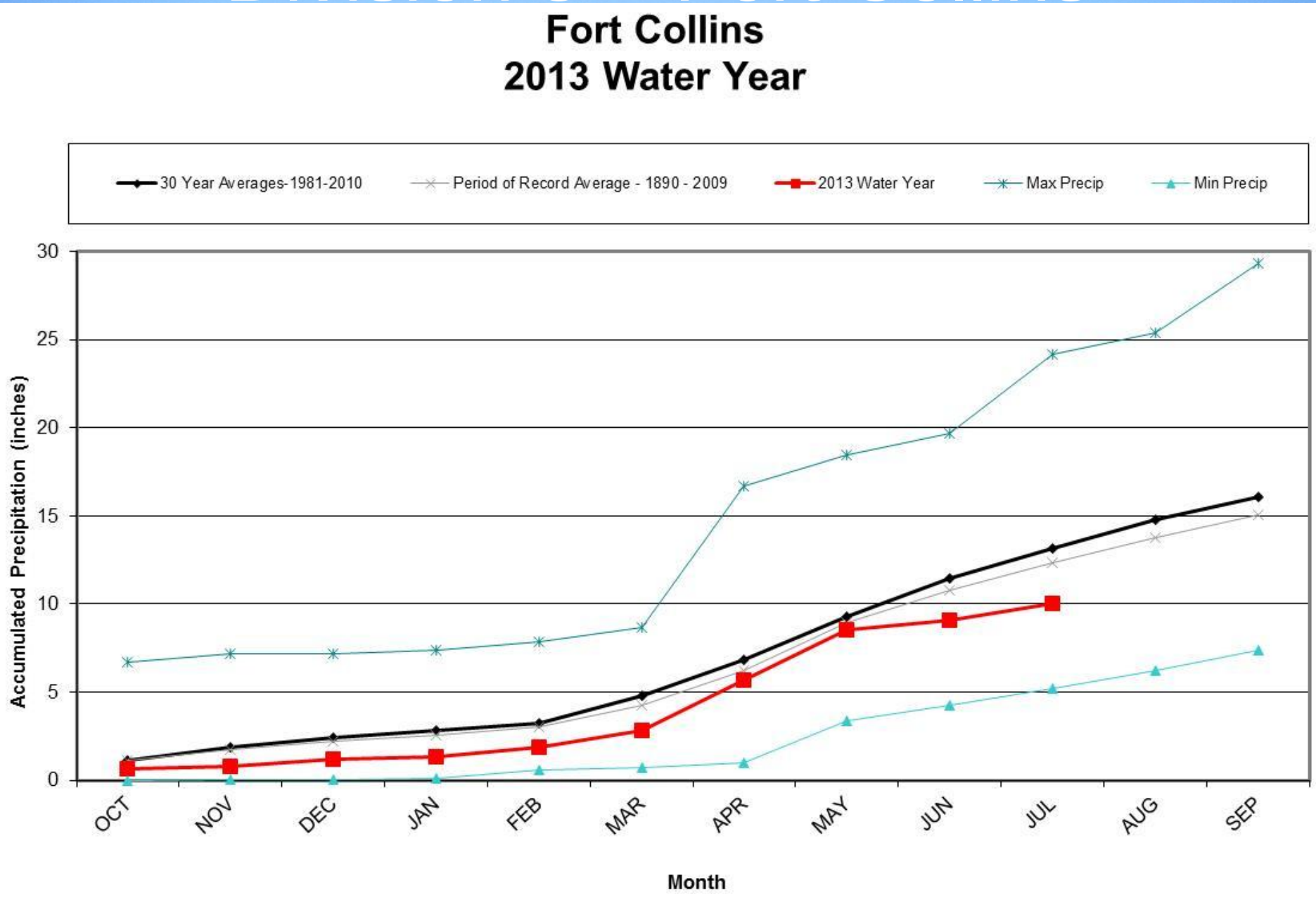
Division 7 – Akron



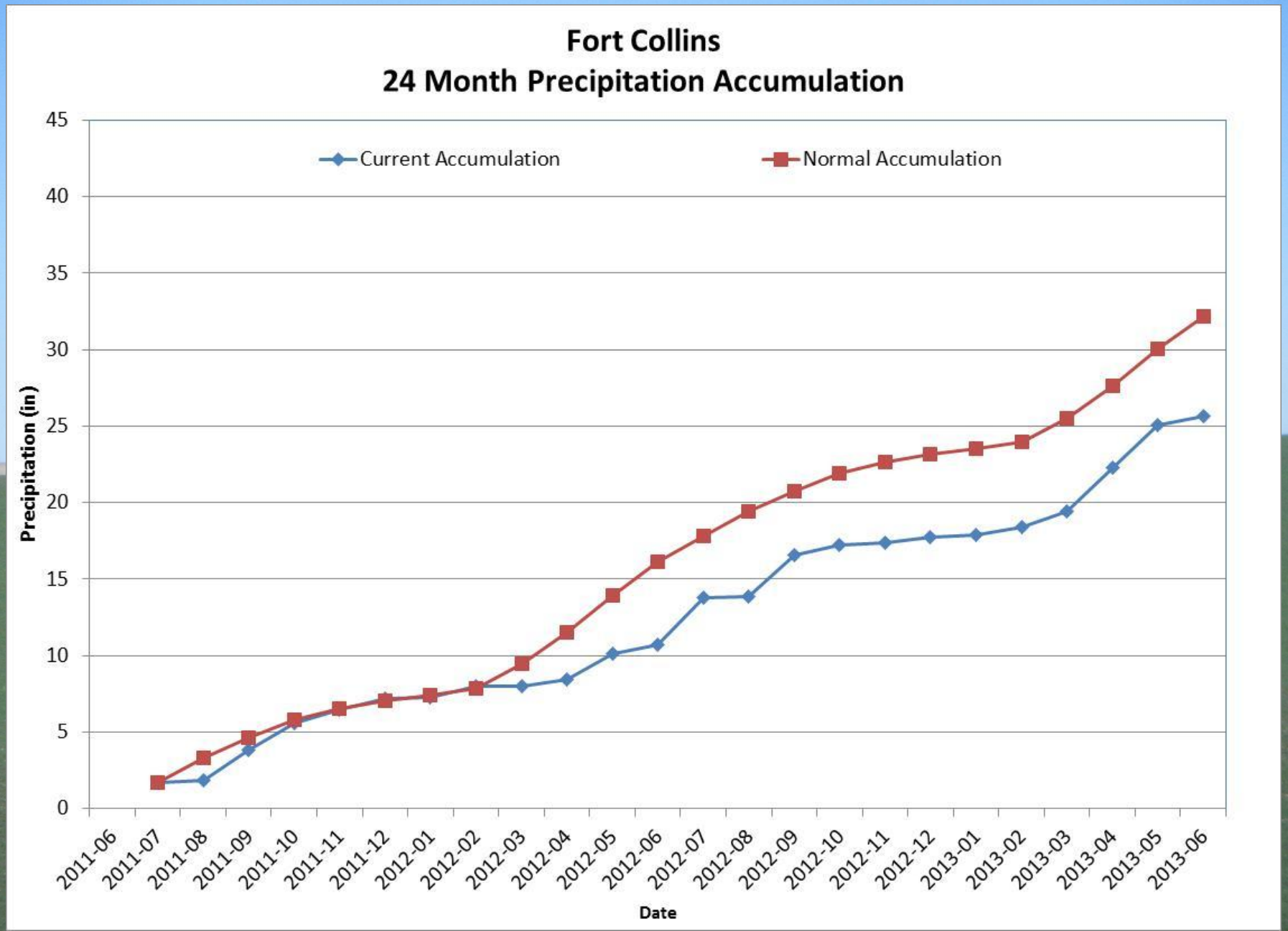
Division 7 – Akron



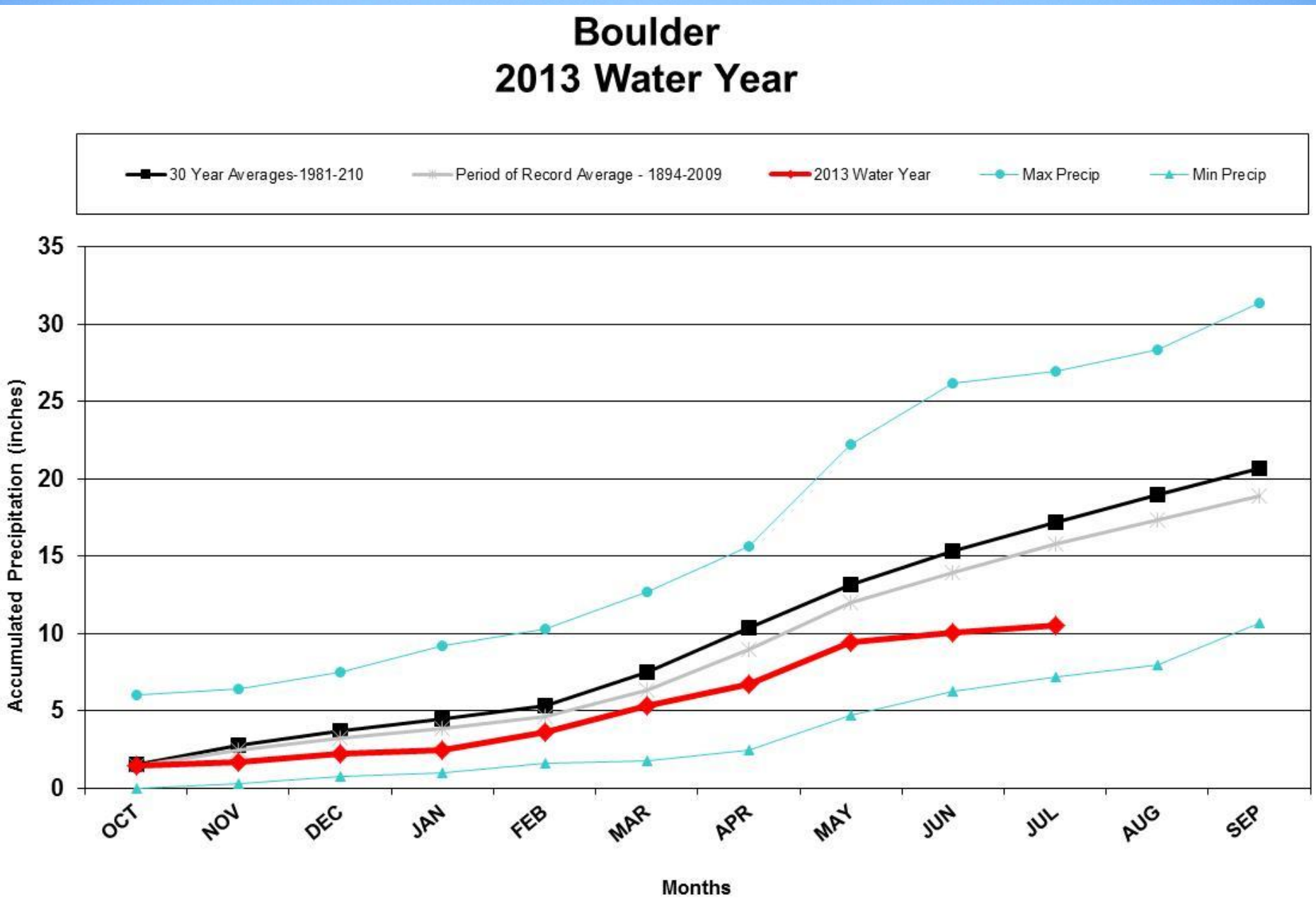
Division 8 – Fort Collins



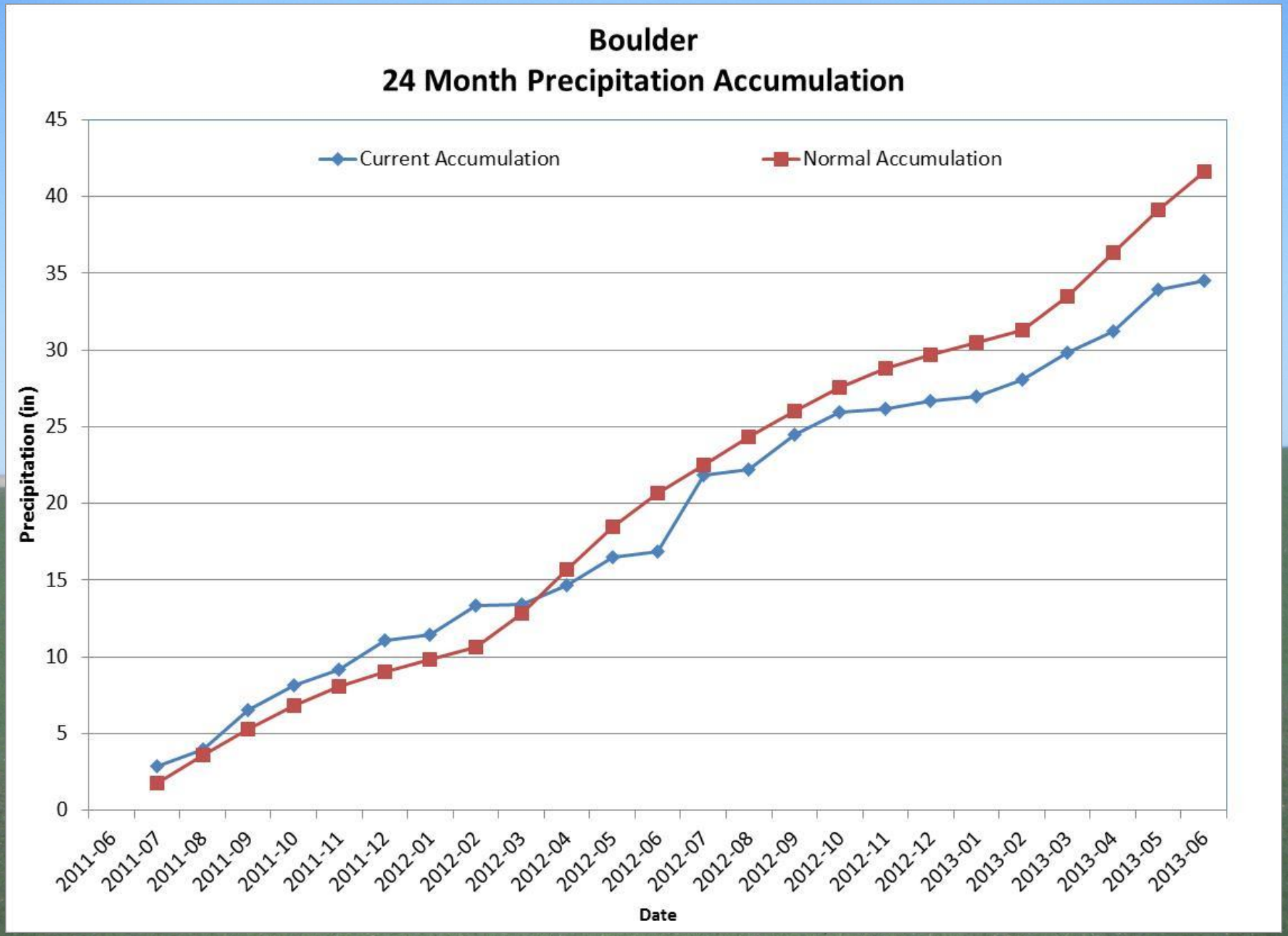
Division 8 – Fort Collins



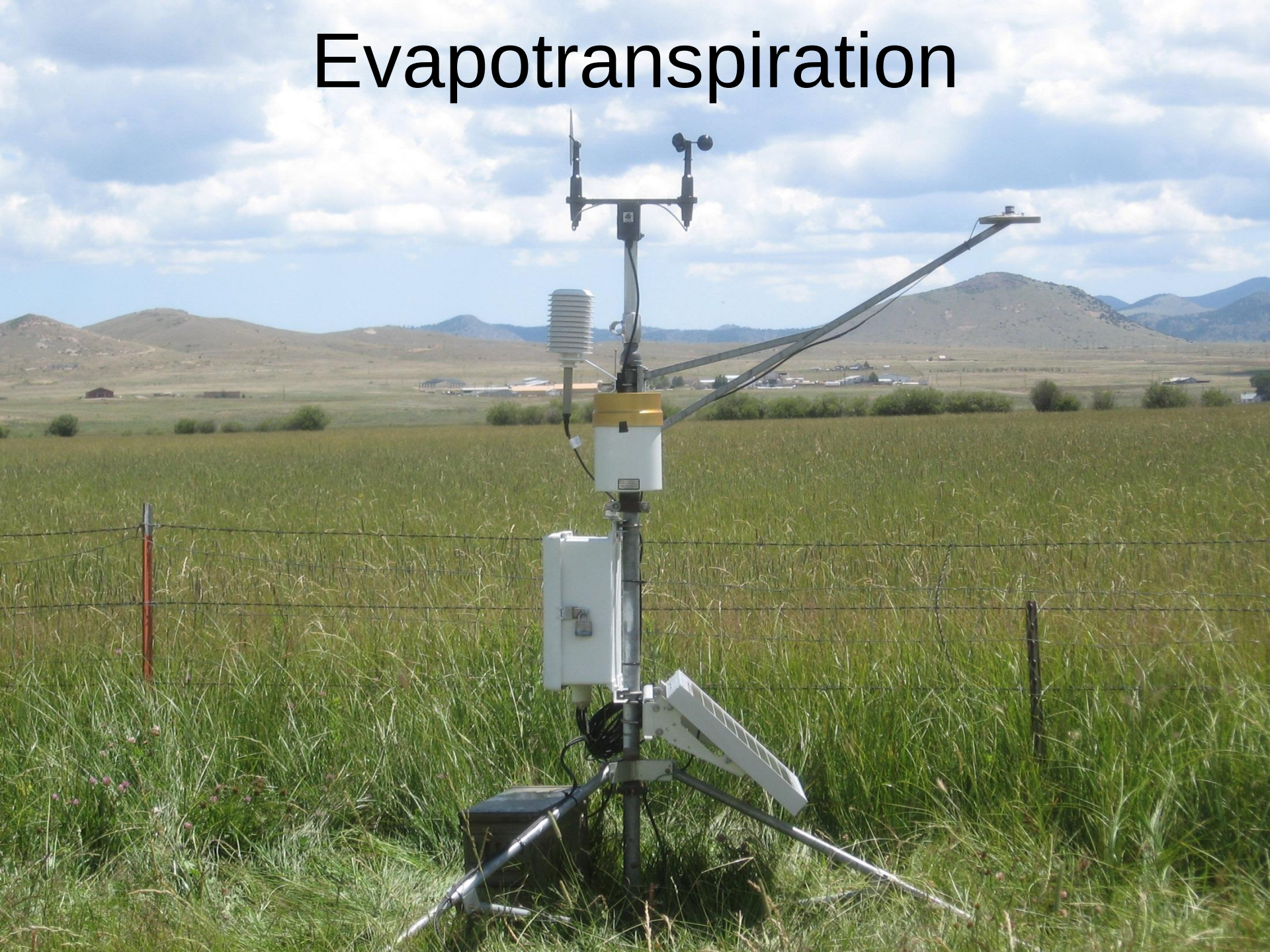
Division 8 - Boulder



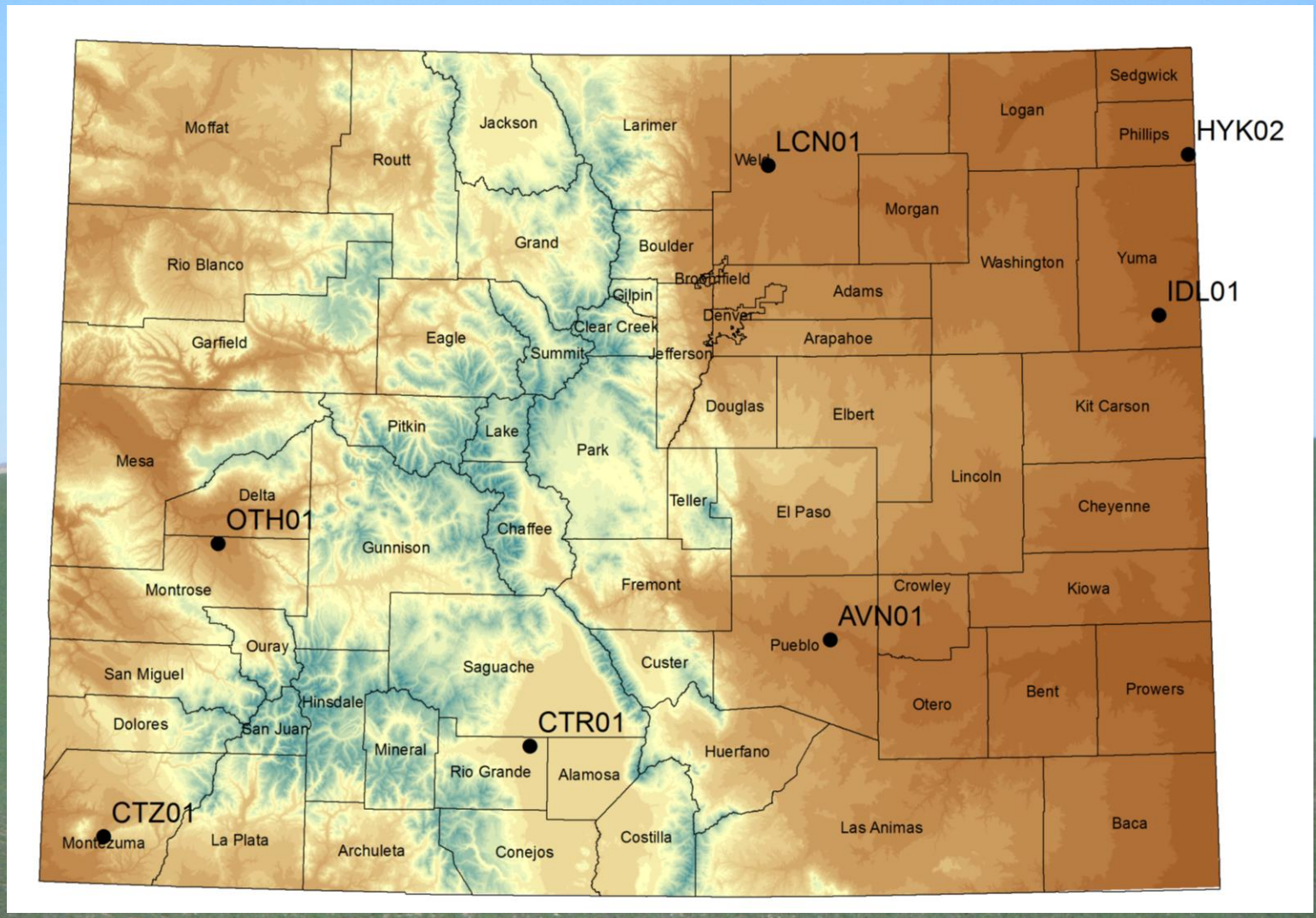
Division 8 - Boulder

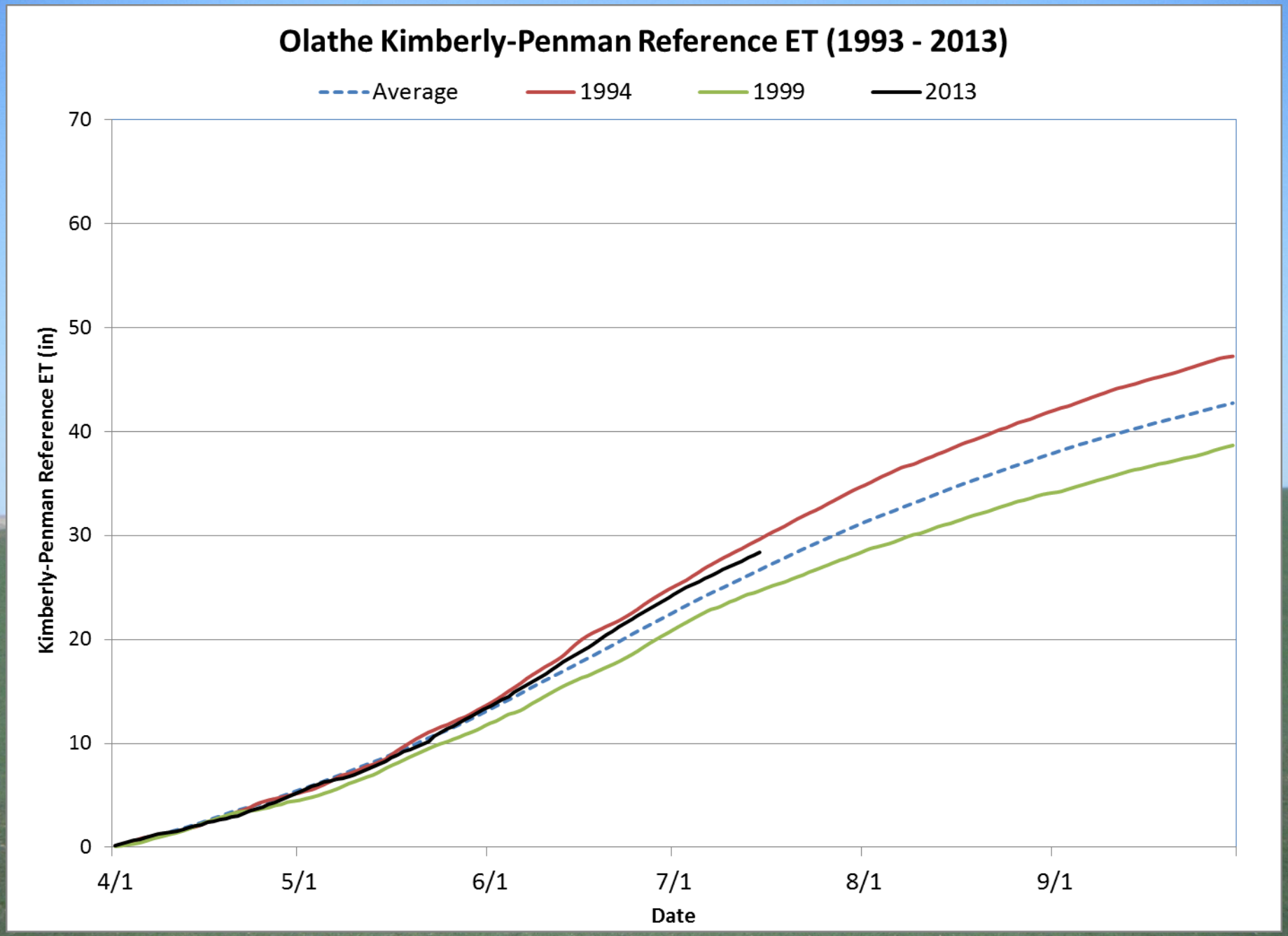


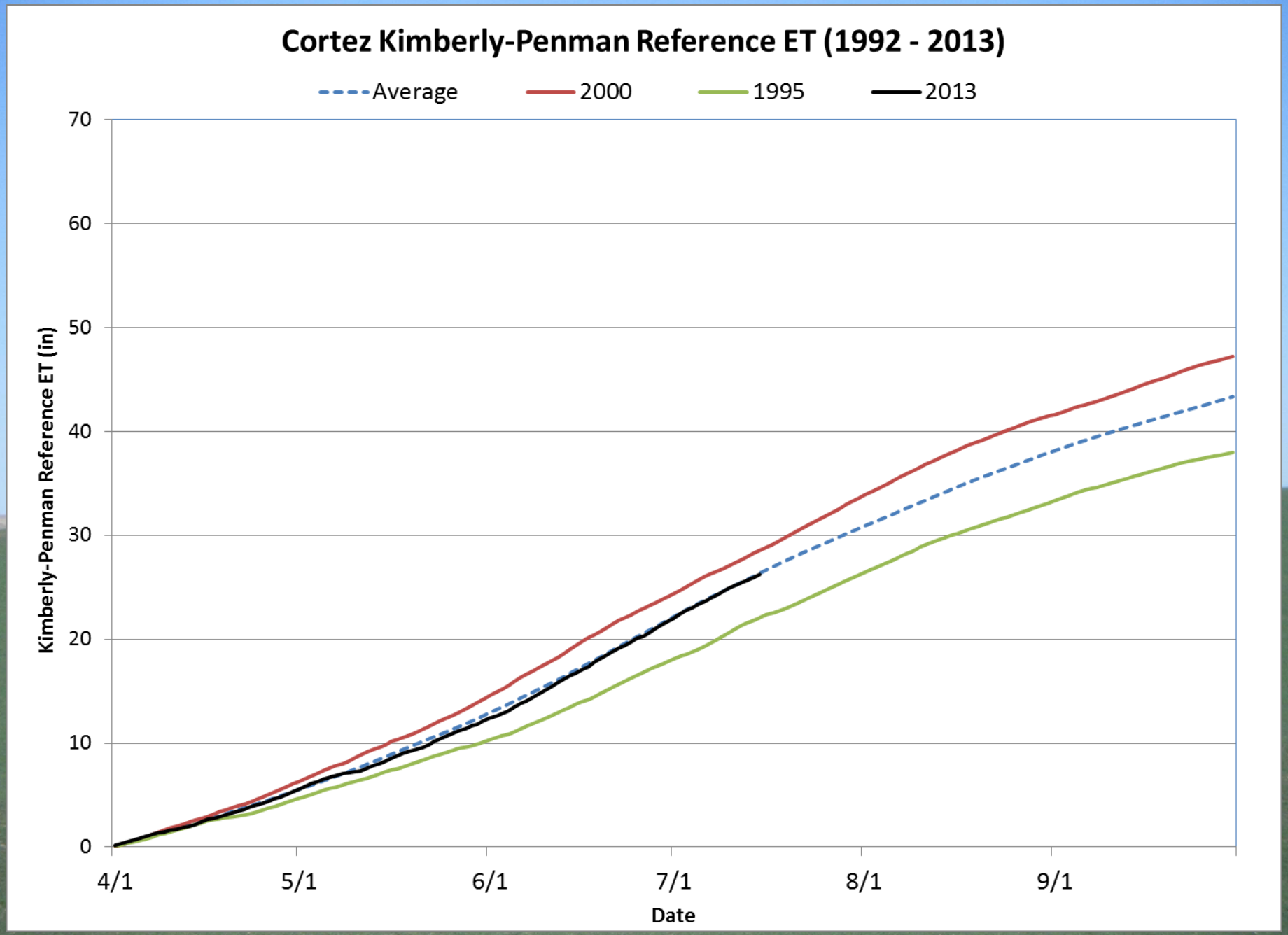
Evapotranspiration

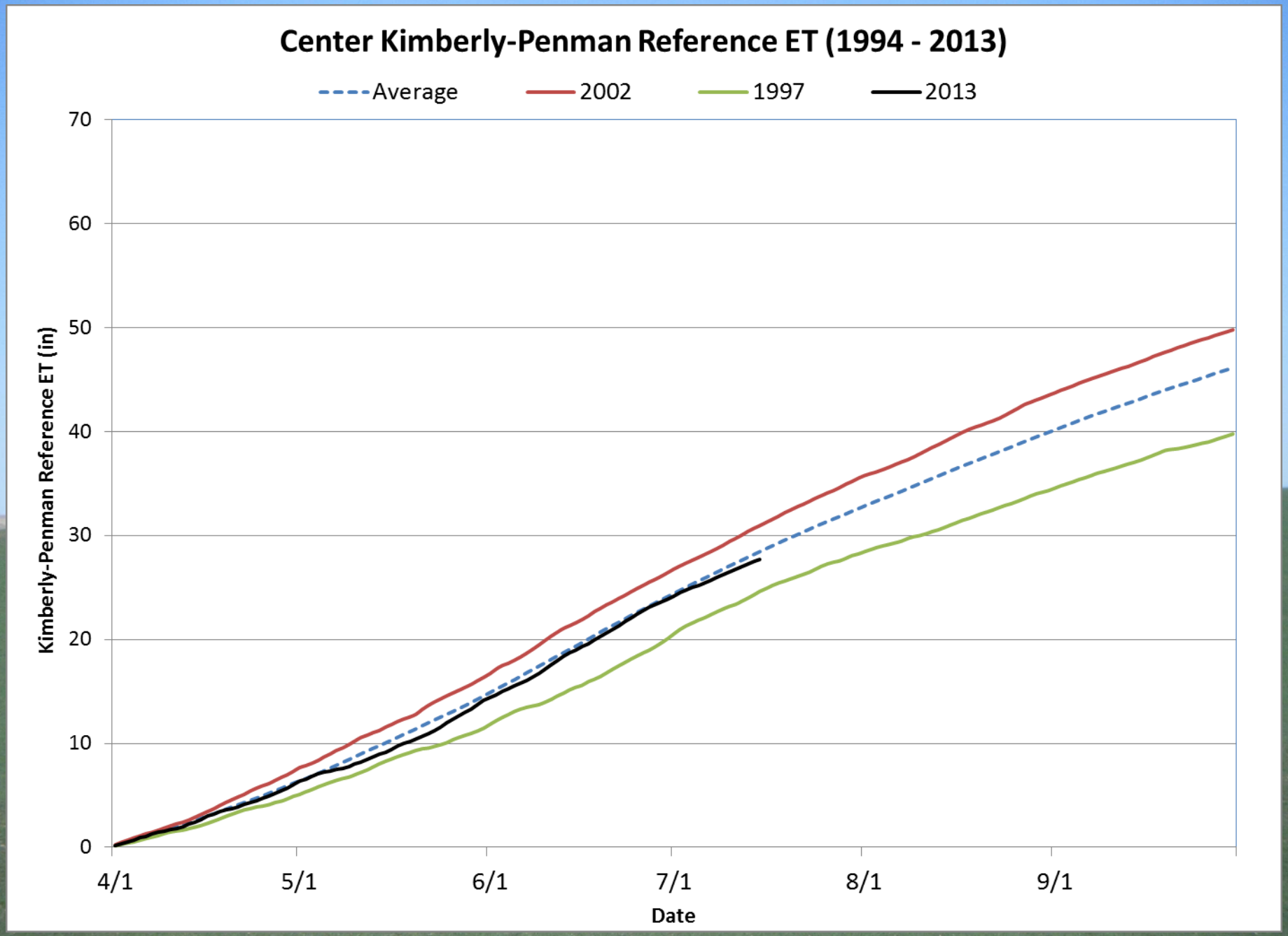


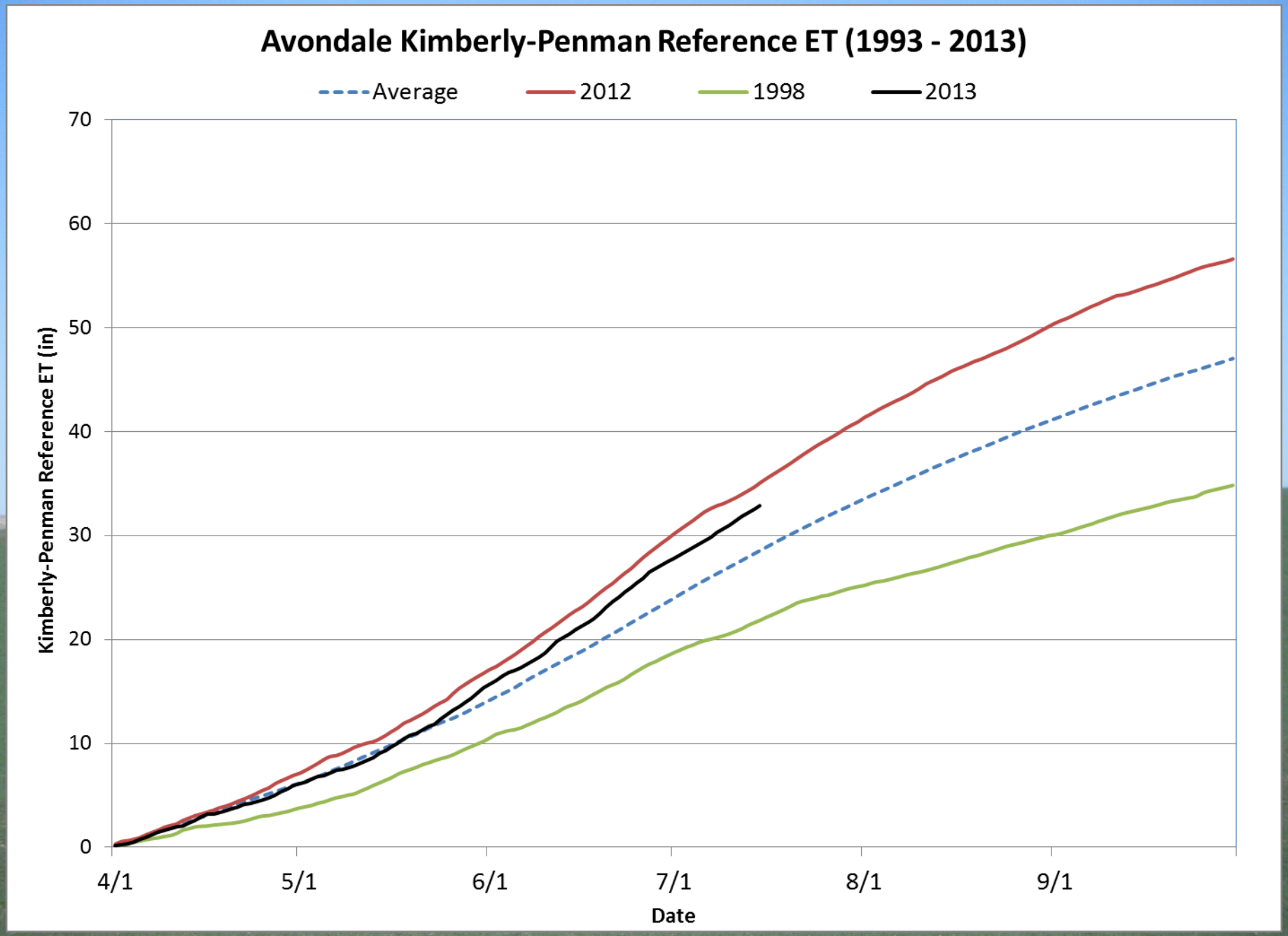
CoAgMet Reference Evapotranspiration Stations

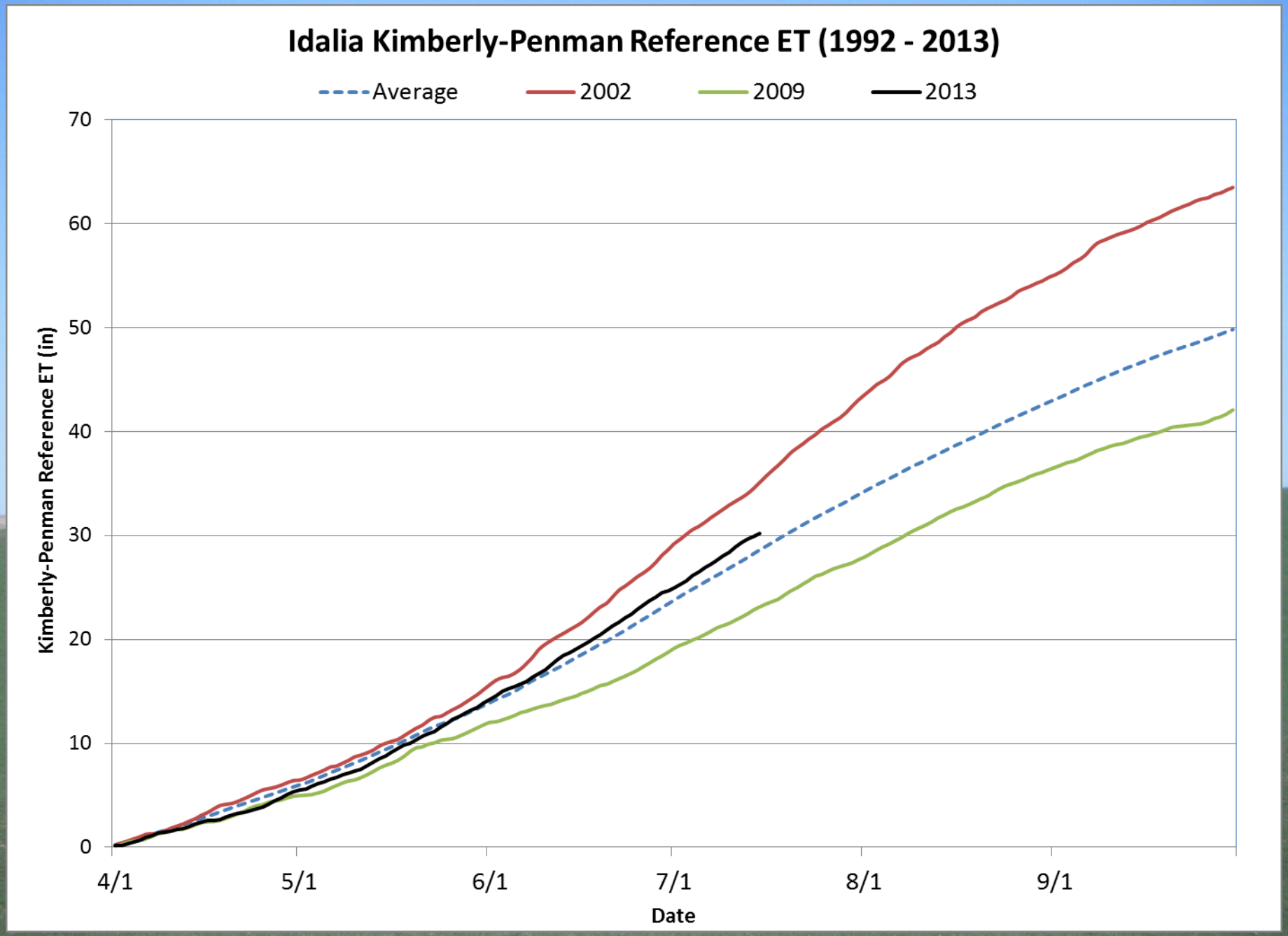


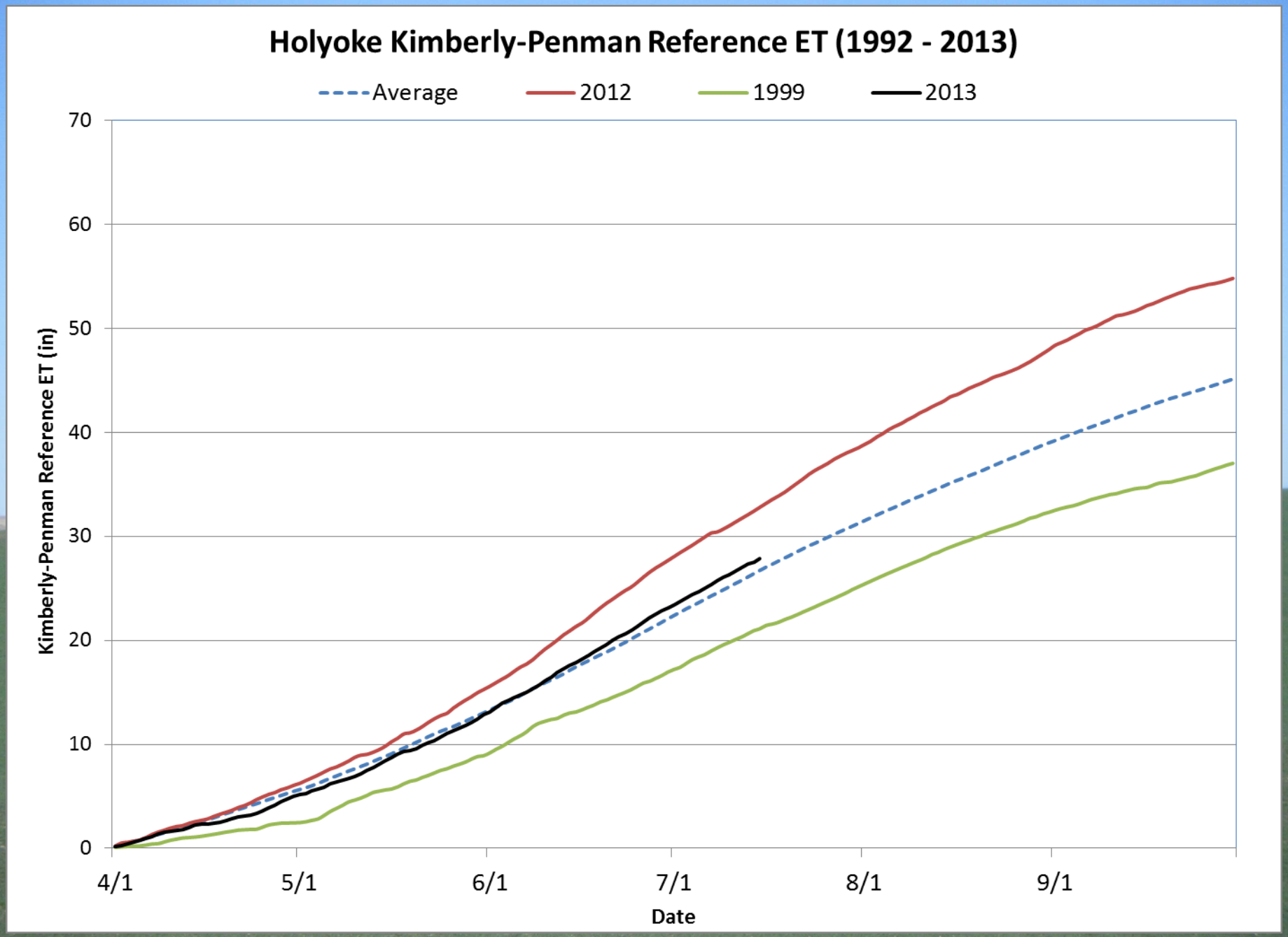

Olathe Kimberly-Penman Reference ET (1993 - 2013)
Average
1994
1999
2013
70
60
50
40
30
20
10
0
Kimberly-Penman Reference ET (in)
4/1
5/1
6/1
7/1
8/1
9/1
Date

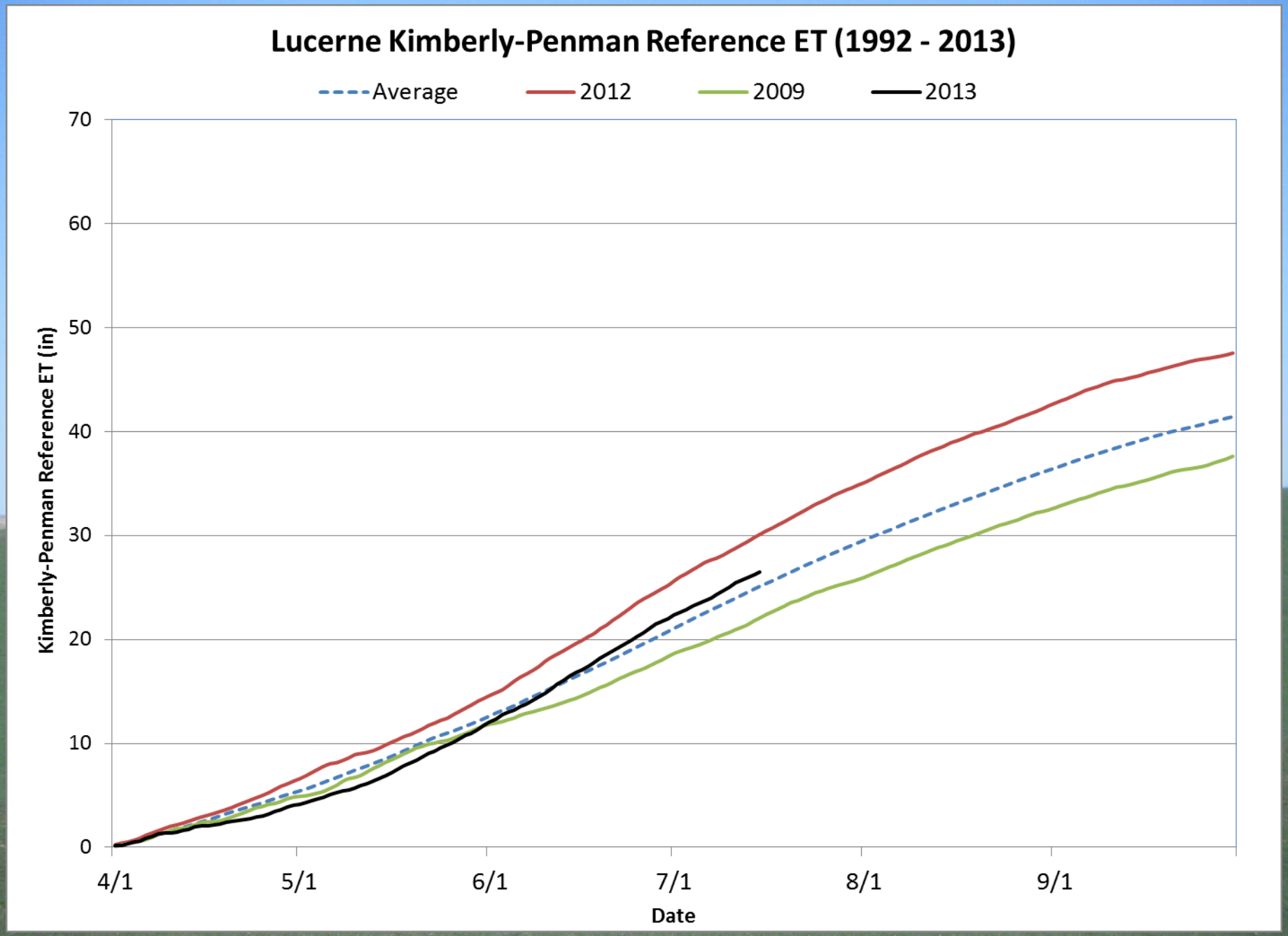

Cortez Kimberly-Penman Reference ET (1992 - 2013)
Average
2000
1995
2013
70
60
50
40
30
20
10
0
Kimberly-Penman Reference ET (in)
4/1
5/1
6/1
7/1
8/1
9/1
Date


Center Kimberly-Penman Reference ET (1994 - 2013)
Average
2002
1997
2013
70
60
50
40
30
20
10
0
Kimberly-Penman Reference ET (in)
4/1
5/1
6/1
7/1
8/1
9/1
Date

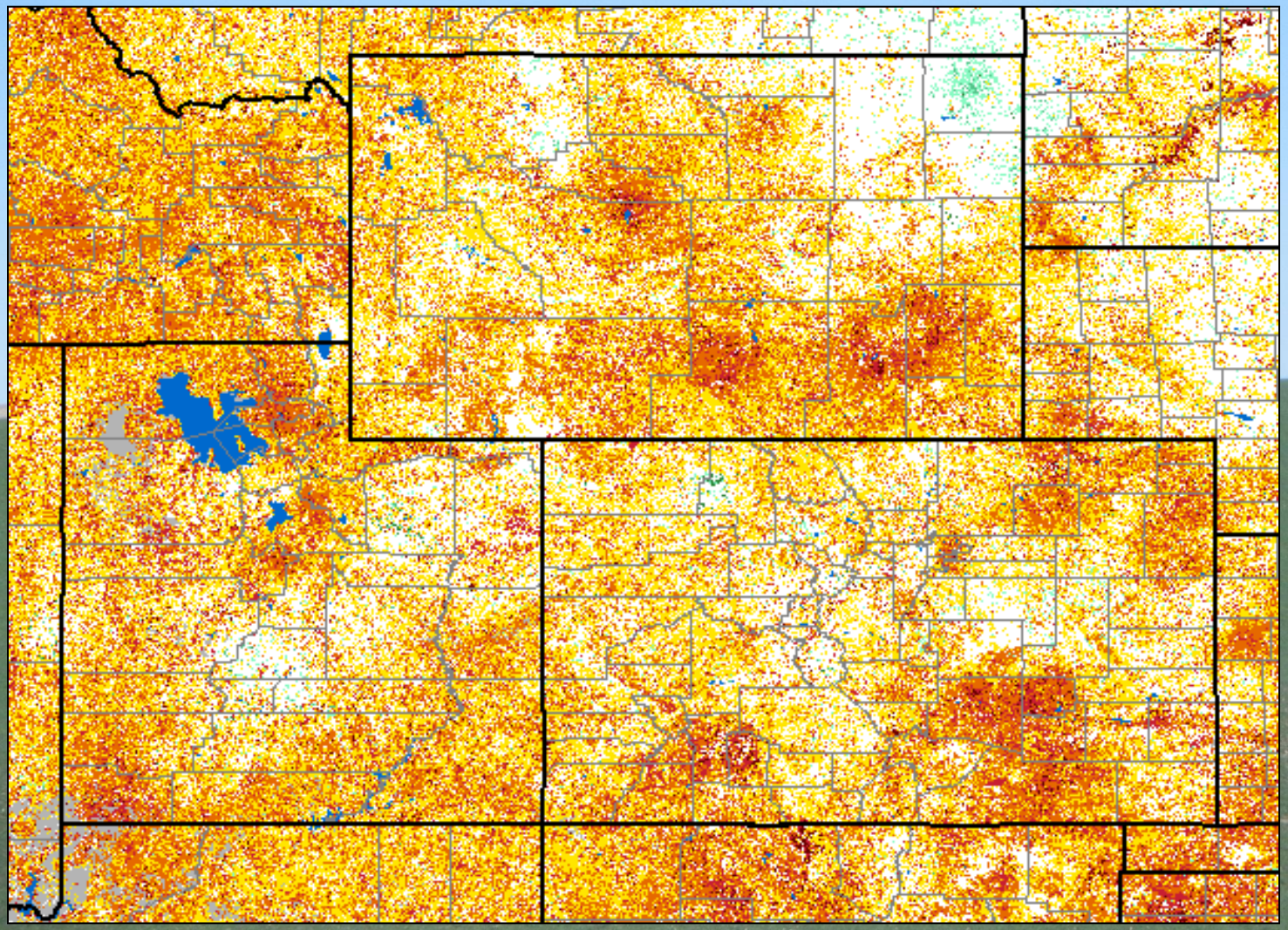

Avondale Kimberly-Penman Reference ET (1993 - 2013)
Average
2012
1998
2013
70
60
50
40
30
20
10
0
Kimberly-Penman Reference ET (in)
4/1
5/1
6/1
7/1
8/1
9/1
Date


Idalia Kimberly-Penman Reference ET (1992 - 2013)
Average
2002
2009
2013
70
60
50
40
30
20
10
0
Kimberly-Penman Reference ET (in)
4/1
5/1
6/1
7/1
8/1
9/1
Date


Holyoke Kimberly-Penman Reference ET (1992 - 2013)
Average
2012
1999
2013
70
60
50
40
30
20
10
0
Kimberly-Penman Reference ET (in)
4/1
5/1
6/1
7/1
8/1
9/1
Date

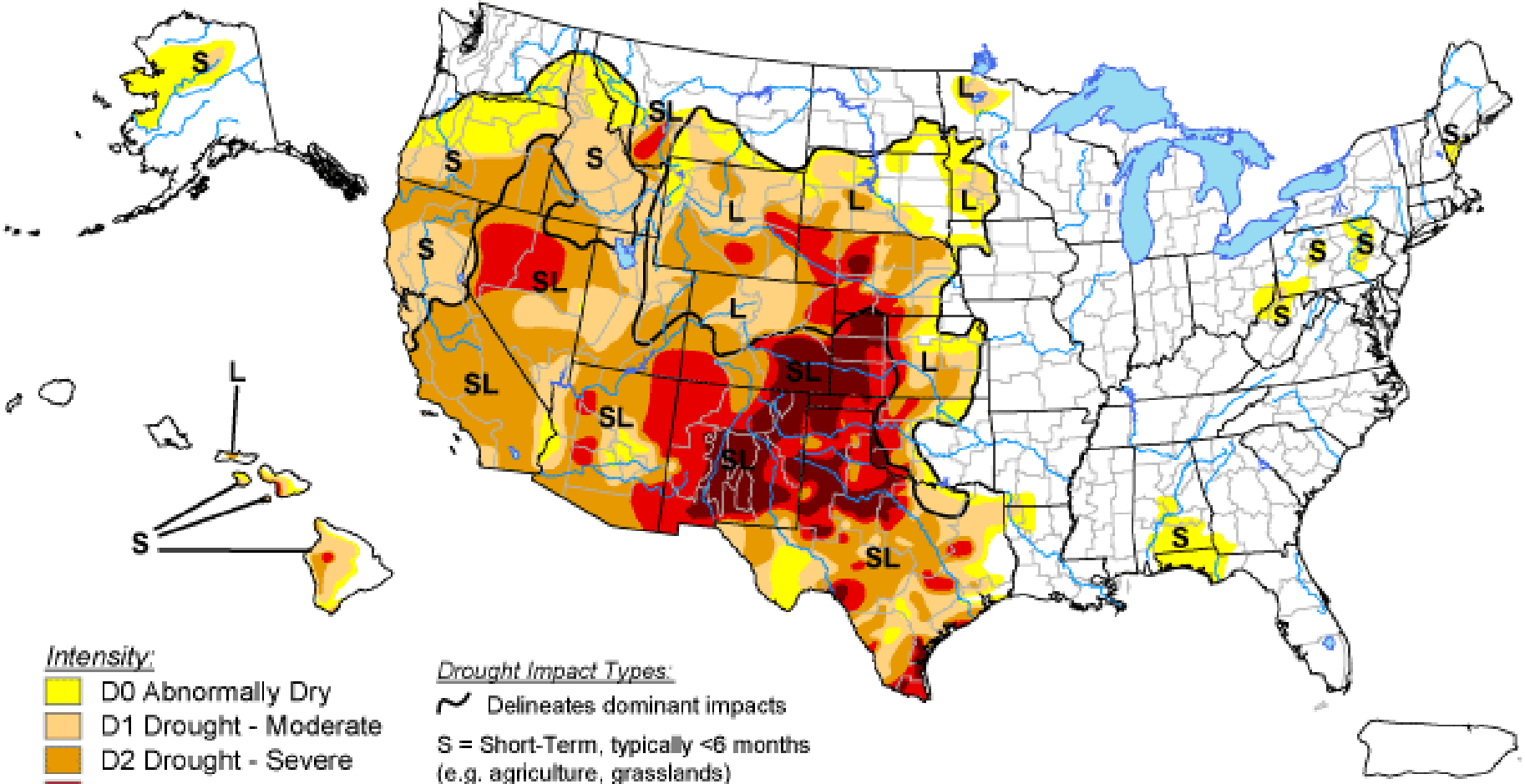

Lucerne Kimberly-Penman Reference ET (1992 - 2013)
Average
2012
2009
2013
70
60
50
40
30
20
10
0
Kimberly-Penman Reference ET (in)
4/1
5/1
6/1
7/1
8/1
9/1
Date

VegDRI
14 July 2013



U.S. Drought Monitor

June 18, 2013
Valid 7 a.m. EDT



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

Drought Impact Types:

Delineates dominant impacts

S = Short-Term, typically <6 months (e.g. agriculture, grasslands)

L = Long-Term, typically >6 months (e.g. hydrology, ecology)

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

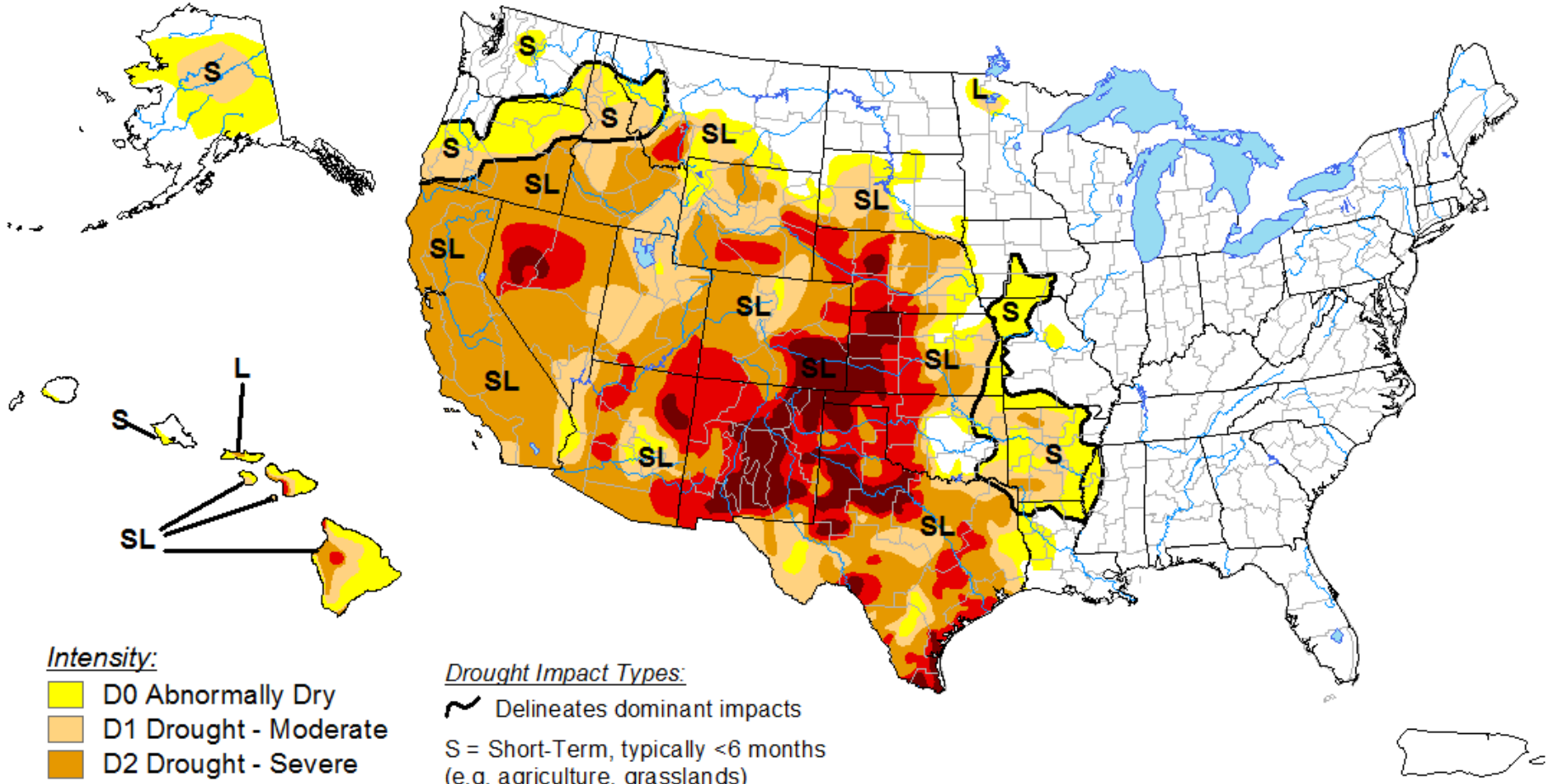
http://droughtmonitor.unl.edu/

Released Thursday, June 20, 2013

Author: Mark Svoboda, National Drought Mitigation Center

U.S. Drought Monitor

July 16, 2013
Valid 7 a.m. EDT



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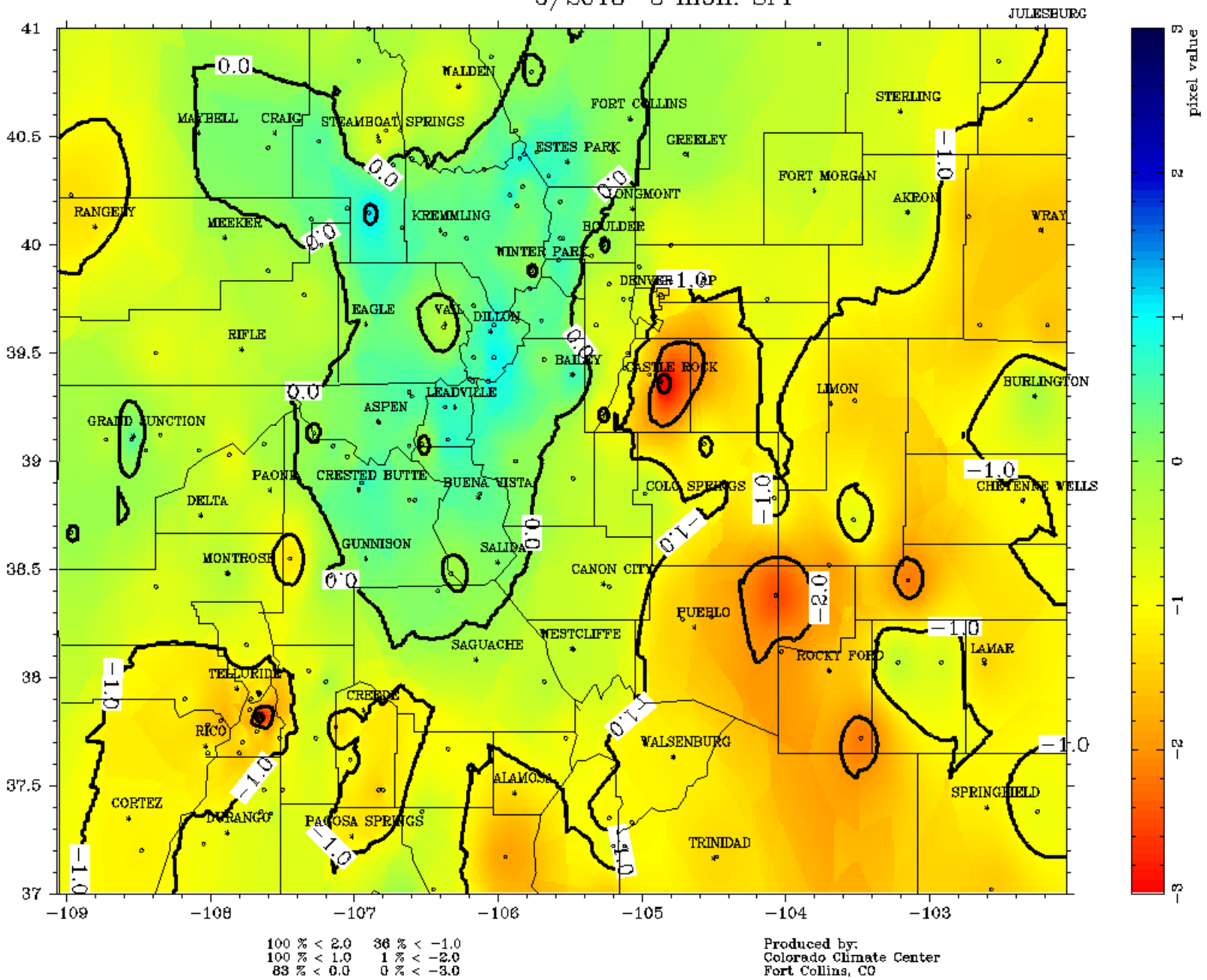
http://droughtmonitor.unl.edu/

USDA | National Drought Mitigation Center | NOAA

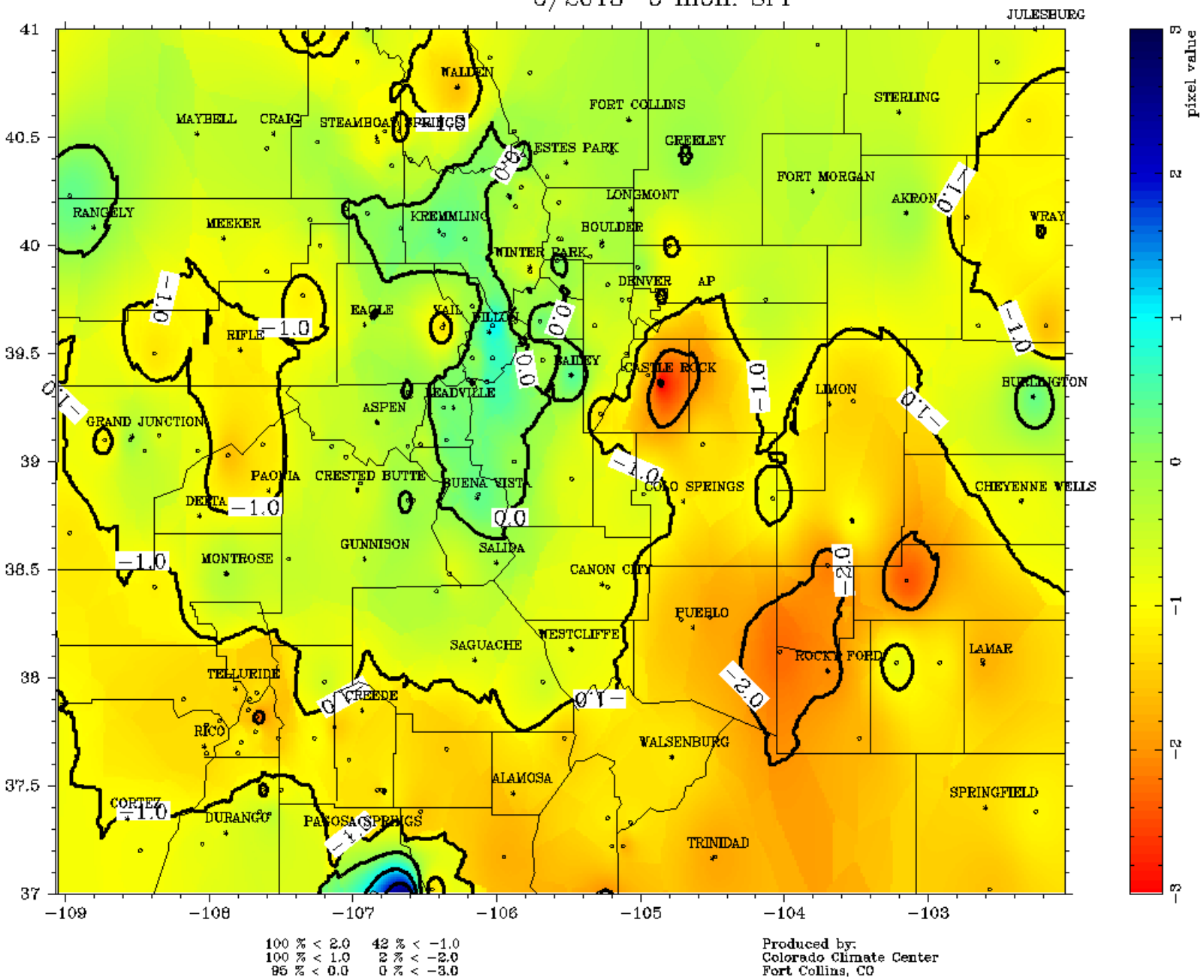
Released Thursday, July 18, 2013

Author: Richard Heim, NOAA/NESDIS/NCDC

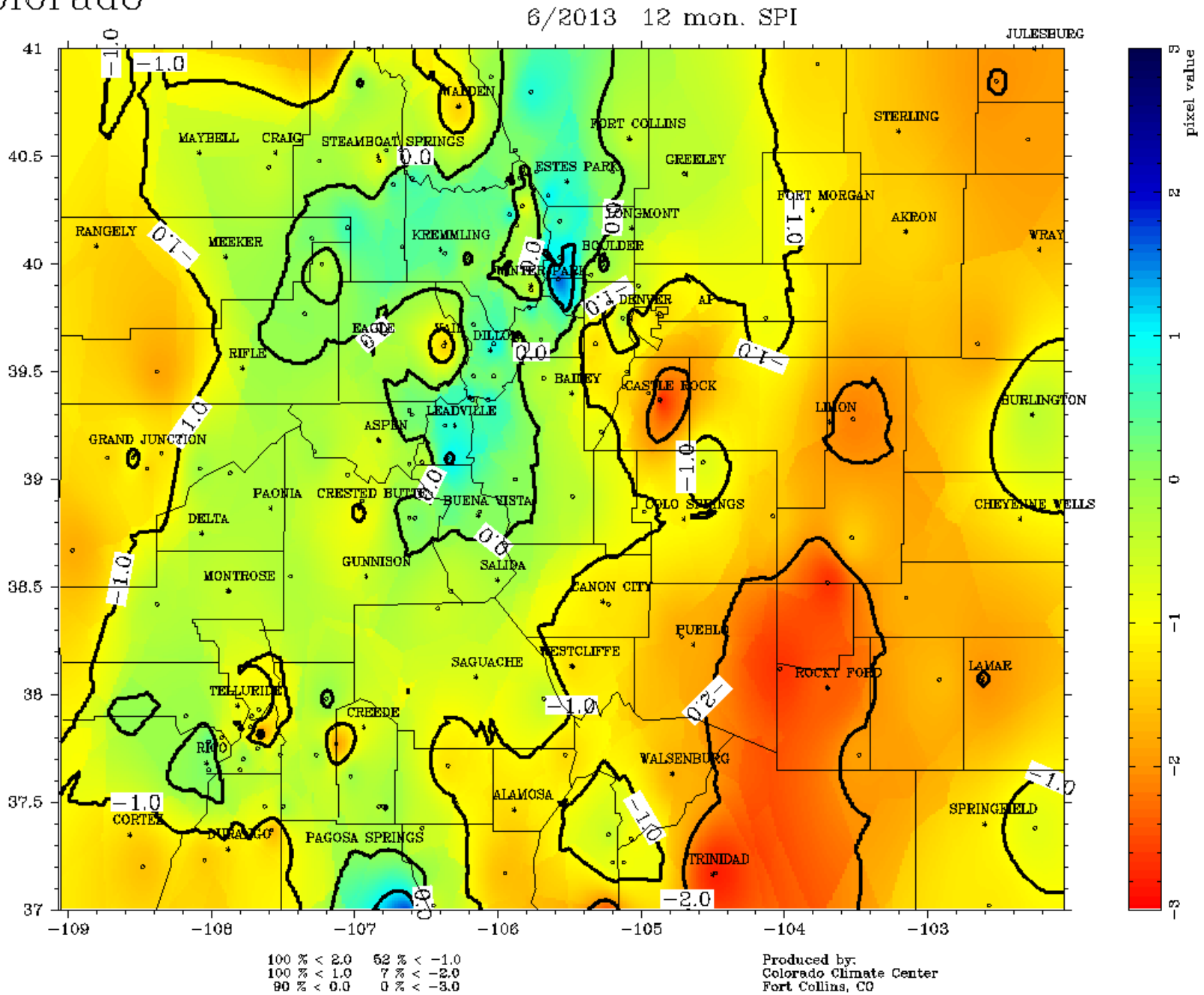
Colorado


6/2013 3 mon. SPI
JULESBURG
STERLING
FORT COLLINS
GREELEY
FORT MORGAN
AKRON
WRAY
LONGMONT
BOULDER
WALDEN
MAYBELL
CRAIG
STEAMBOAT SPRINGS
ESTES PARK
RANGELY
MEEKER
KREMMLING
WINTER PARK
DENVER
EAGLE
VAIL
DILLON
RIFLE
BAILEY
CASTLE ROCK
LIMON
BURLINGTON
GRAND JUNCTION
ASPEN
LEADVILLE
PAONIA
CRESTED BUTTE
BUENA VISTA
COLO SPRINGS
CHEYENNE WELLS
DELTA
GUNNISON
SALIDA
MONTROSE
CANON CITY
PUEBLO
WESTCLIFFE
SAGUACHE
ROCKY FORD
LAMAR
TELLURIDE
CREEDE
RICO
WALSENBURG
ALAMOSA
SPRINGFIELD
CORTEZ
DURANGO
PAGOSA SPRINGS
TRINIDAD
41
40.5
40
39.5
39
38.5
38
37.5
37
−109
−108
−107
−106
−105
−104
−103
pixel value
3
2
1
0
−1
−2
−3
100 % < 2.0
100 % < 1.0
83 % < 0.0
36 % < −1.0
1 % < −2.0
0 % < −3.0
Produced by:
Colorado Climate Center
Fort Collins, CO

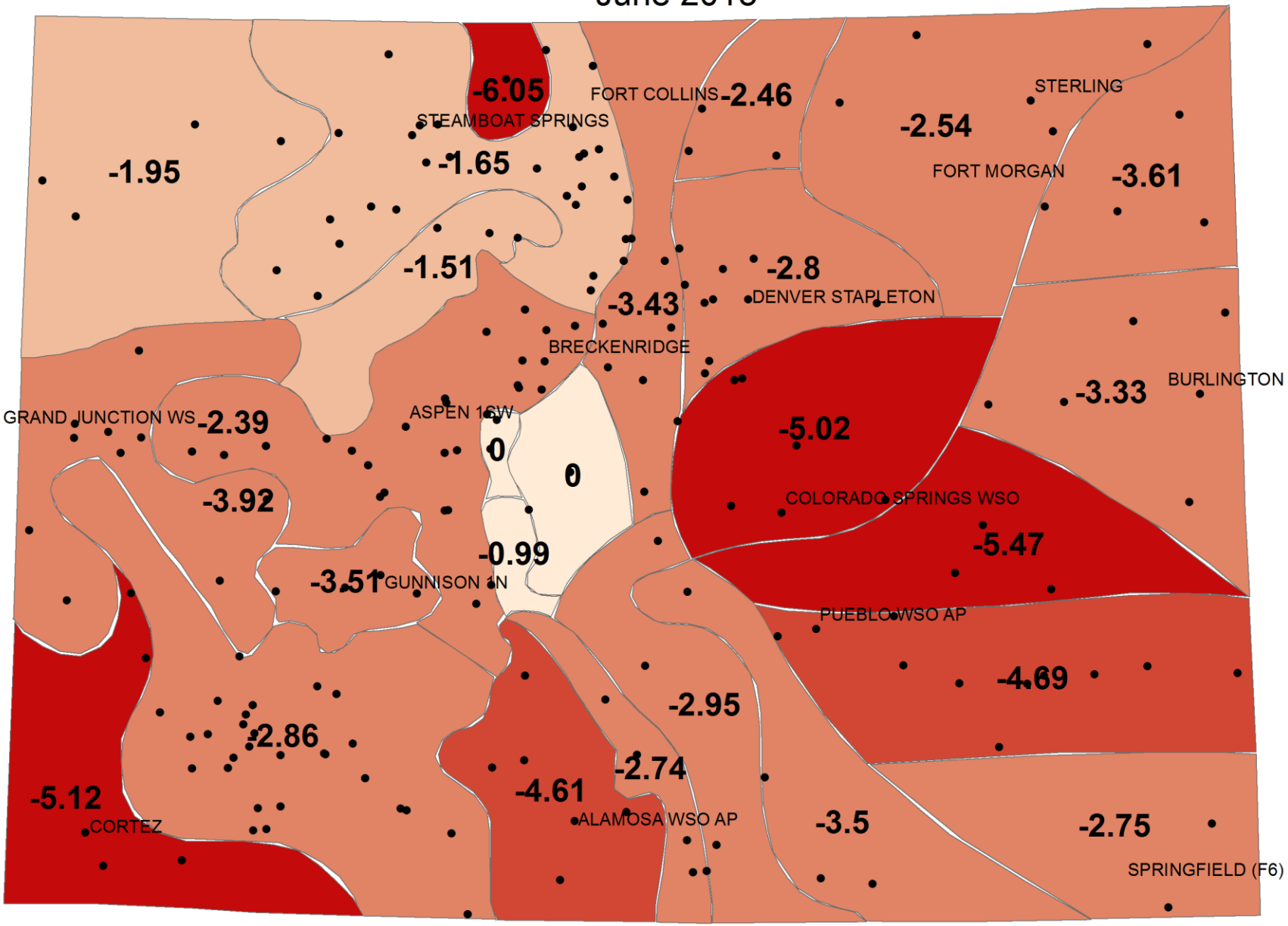
Colorado


6/2013 6 mon. SPI
JULESBURG
WALDEN
MAYBELL
CRAIG
STEAMBOAT SPRINGS
FORT COLLINS
STERLING
GREELEY
ESTES PARK
FORT MORGAN
LONGMONT
AKRON
RANGELY
MEEKER
KREMMLING
BOULDER
WRAY
WINTER PARK
DENVER AP
EAGLE
VAIL
KILLON
RIFLE
BAILEY
CASTLE ROCK
LIMON
BURLINGTON
LEADVILLE
ASPEN
GRAND JUNCTION
PAONIA
CRESTED BUTTE
BUENA VISTA
COLO SPRINGS
CHEYENNE WELLS
DELTA
GUNNISON
SALIDA
MONTROSE
CANON CITY
PUEBLO
WESTCLIFFE
SAGUACHE
ROCKY FORD
LAMAR
TELLURIDE
CREEDE
RICO
WALSENBURG
ALAMOSA
SPRINGFIELD
CORTEZ
DURANGO
PAGOSA SPRINGS
TRINIDAD
pixel value
100 % < 2.0
100 % < 1.0
95 % < 0.0
42 % < -1.0
2 % < -2.0
0 % < -3.0
Produced by:
Colorado Climate Center
Fort Collins, CO

Colorado


6/2013 12 mon. SPI
JULESBURG
STERLING
MALDEN
MAYBELL
CRAIG
STEAMBOAT SPRINGS
FORT COLLINS
GREELEY
ESTES PARK
FORT MORGAN
AKRON
WRAY
LONGMONT
BOULDER
RANGELY
MEEKER
KREMMLING
WINTER PARK
DENVER AP
EAGLE
VAIL
DILLON
RIFLE
BAILEY
CASTLE ROCK
LIMON
BURLINGTON
LEADVILLE
ASPEN
GRAND JUNCTION
PAONIA
CRESTED BUTTE
BUENA VISTA
COLO SPRINGS
CHEYENNE WELLS
DELTA
GUNNISON
SALIDA
MONTROSE
CANON CITY
PUEBLO
WESTCLIFFE
SAGUACHE
ROCKY FORD
LAMAR
TELLURIDE
CREEDE
RICO
WALSENBURG
ALAMOSA
SPRINGFIELD
CORTEZ
DURANGO
PAGOSA SPRINGS
TRINIDAD
41
40.5
40
39.5
39
38.5
38
37.5
37
−109
−108
−107
−106
−105
−104
−103
pixel value
3
2
1
0
−1
−2
−3
100 % < 2.0
100 % < 1.0
90 % < 0.0
52 % < −1.0
7 % < −2.0
0 % < −3.0
Produced by:
Colorado Climate Center
Fort Collins, CO

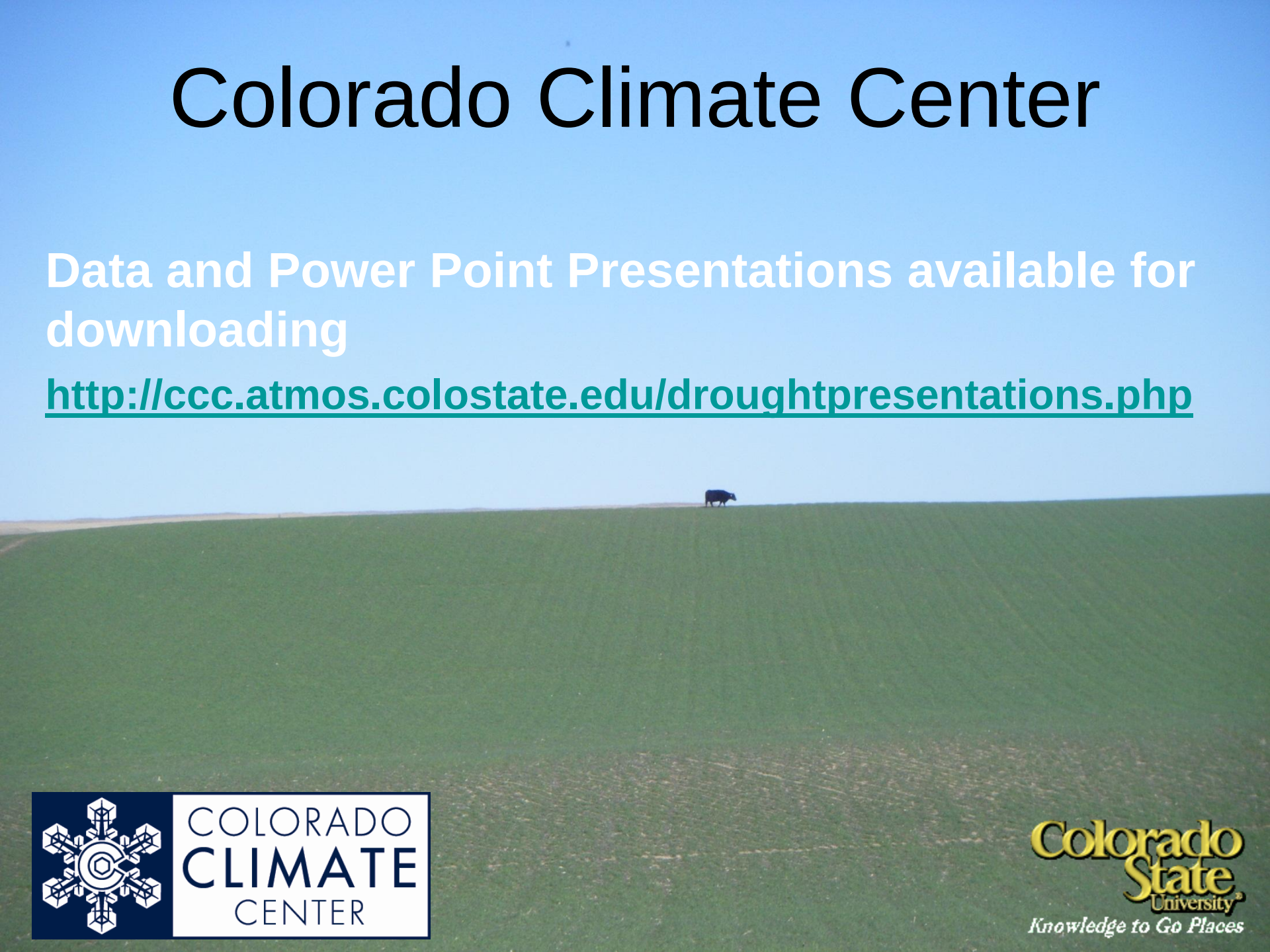
Modified Palmer Drought Severity Index for Colorado
June 2013



Colorado Climate Center

Data and Power Point Presentations available for downloading

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



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Colorado State University
Knowledge to Go Places