Climate Update

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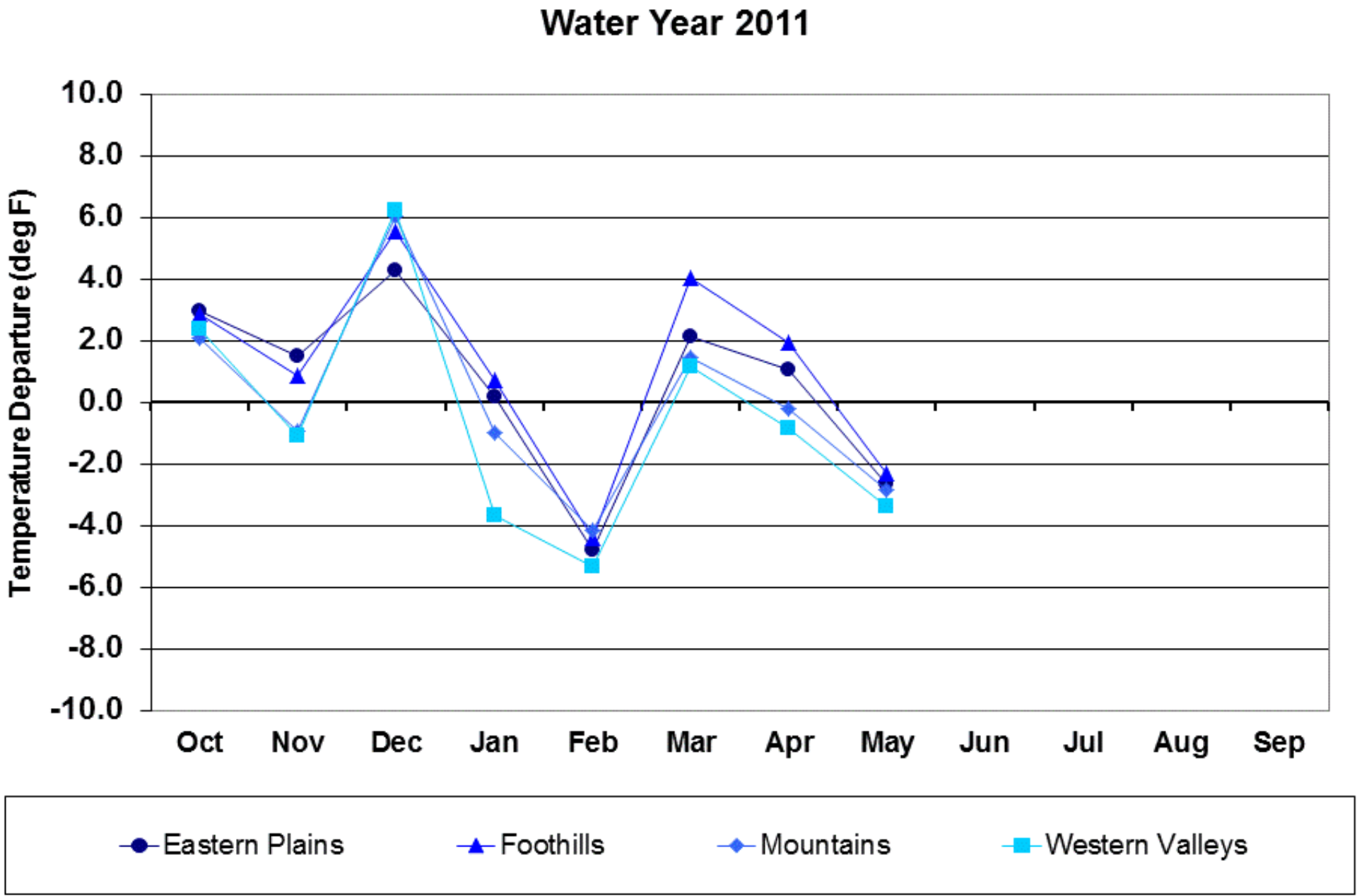
Colorado Climate Center

Atmospheric Science Department
Colorado State University

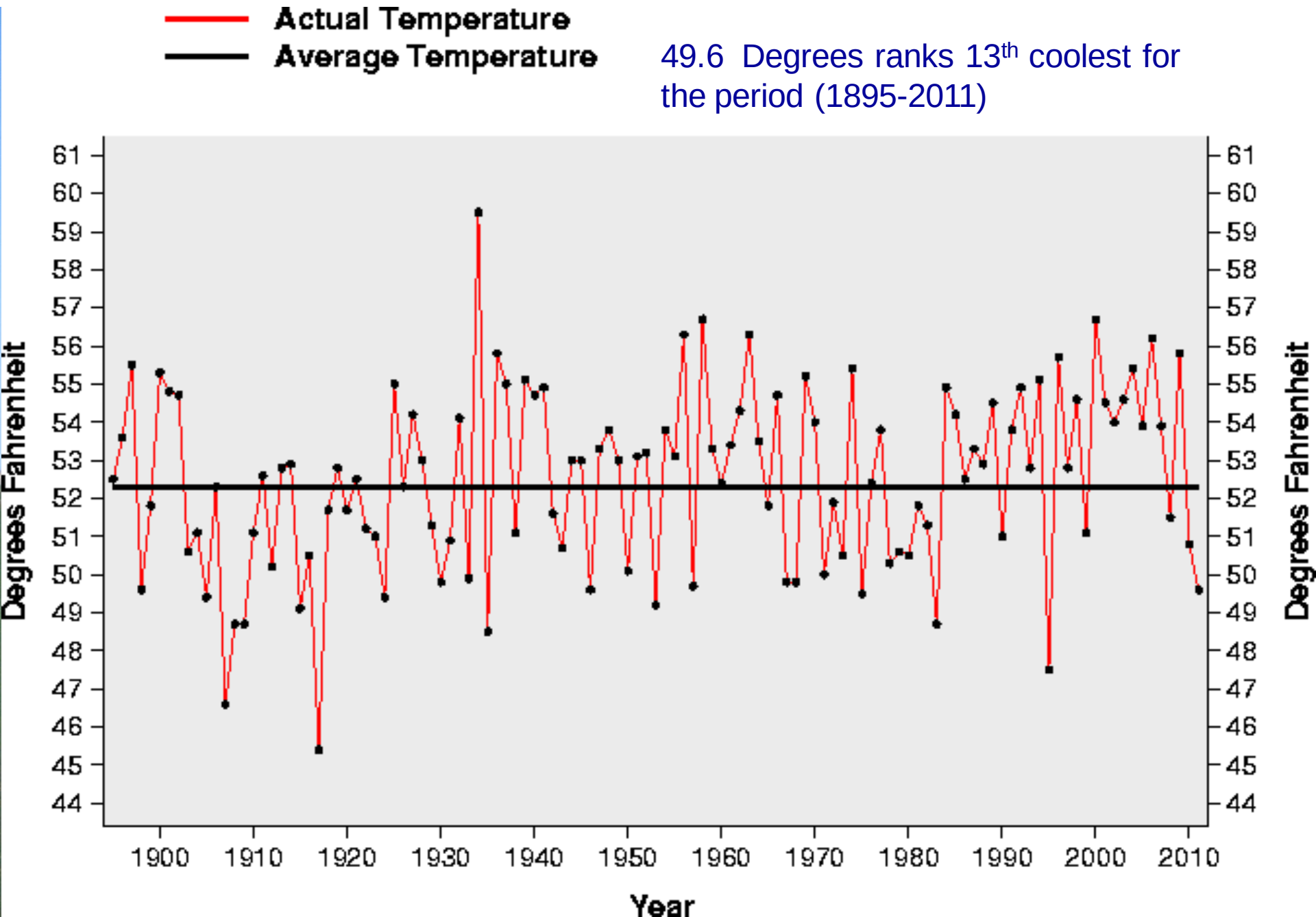
Presented to
Water Availability Task Force
June 17th, 2011
Denver, CO

Prepared by Wendy Ryan

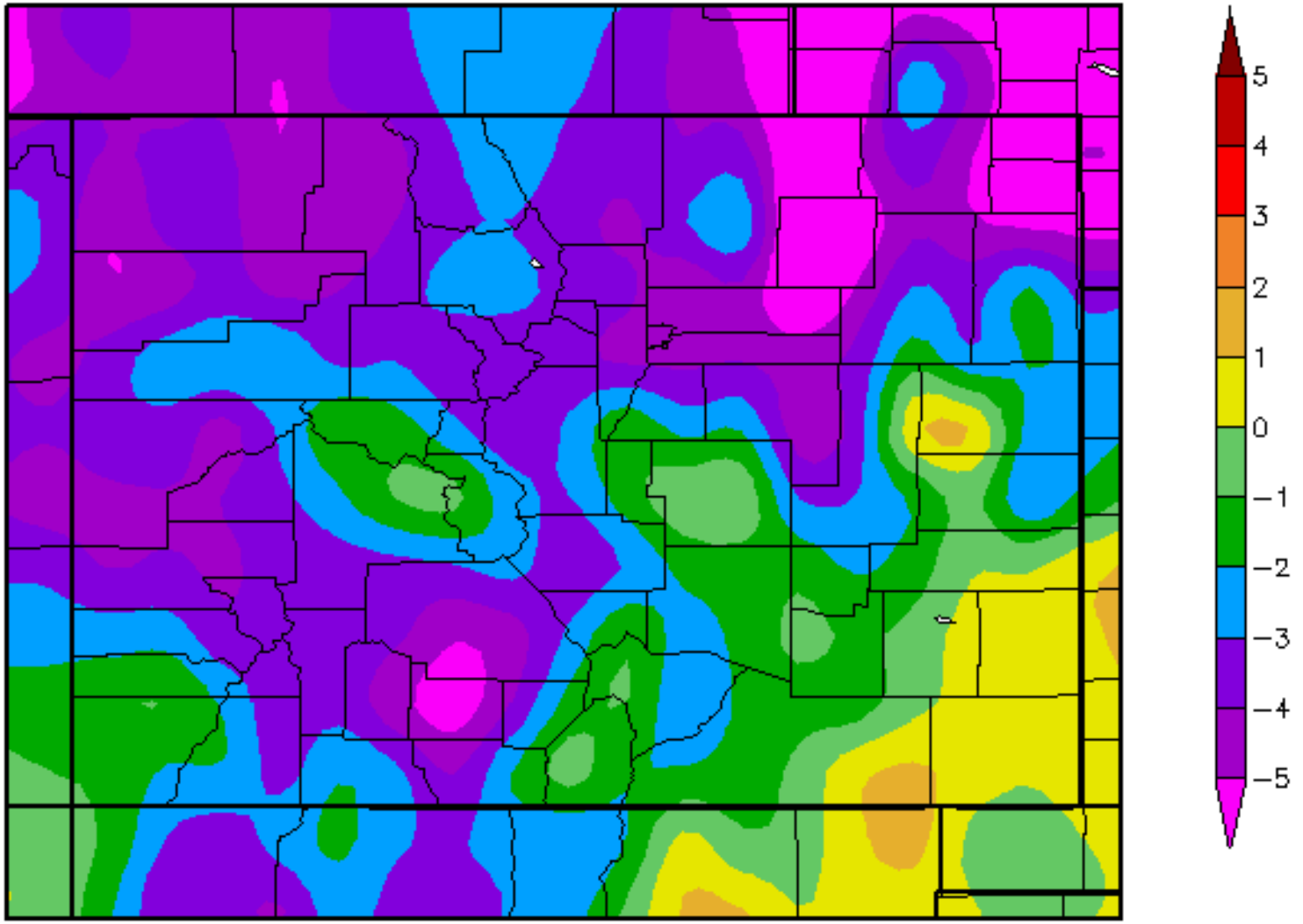
Water Year 2011 Temperature Departures



May Average Temperature History for Colorado (NCDC)



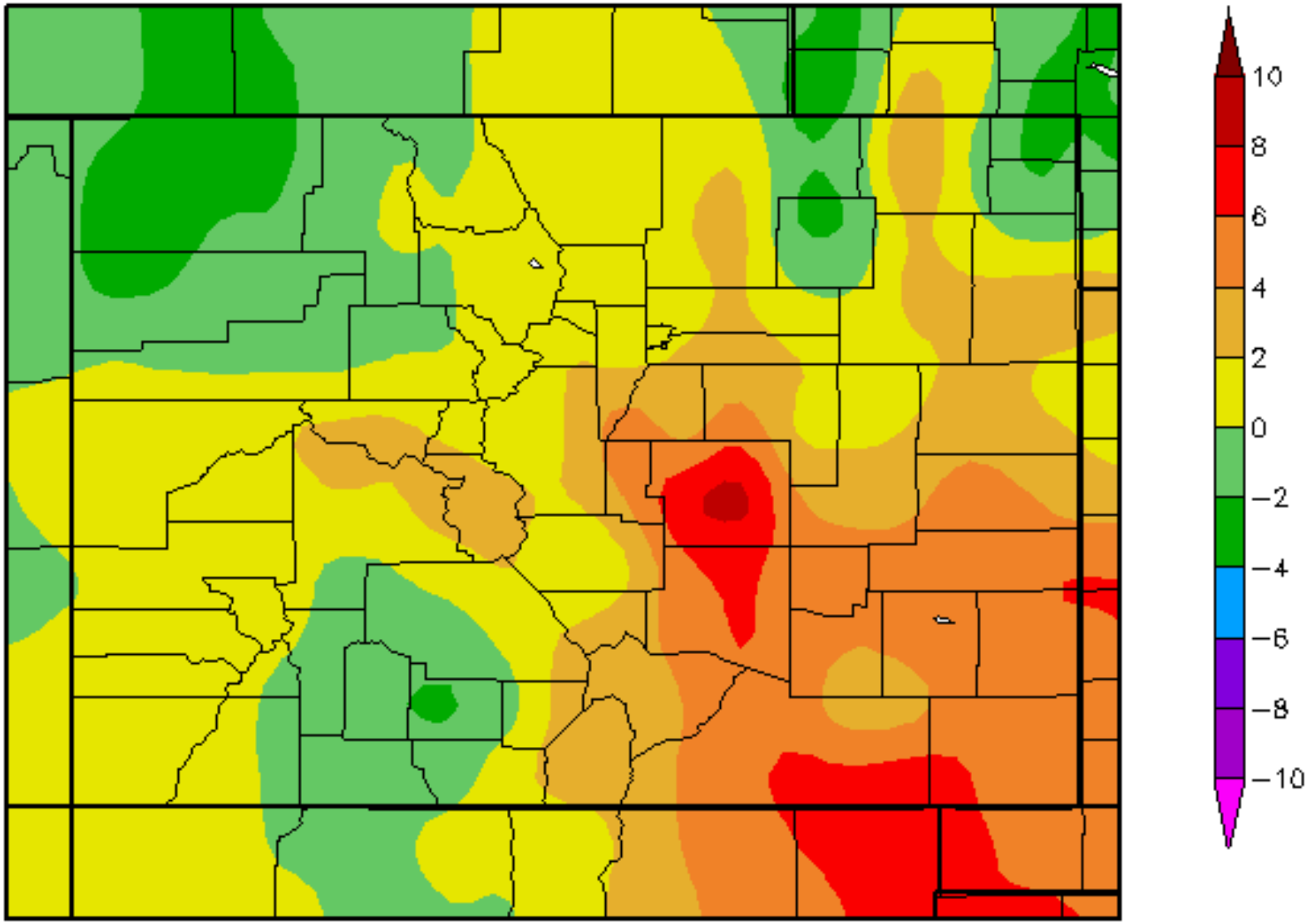
Departure from Normal Temperature (F)
5/1/2011 - 5/31/2011



Generated 6/11/2011 at HPRCC using provisional data.

Regional Climate Centers

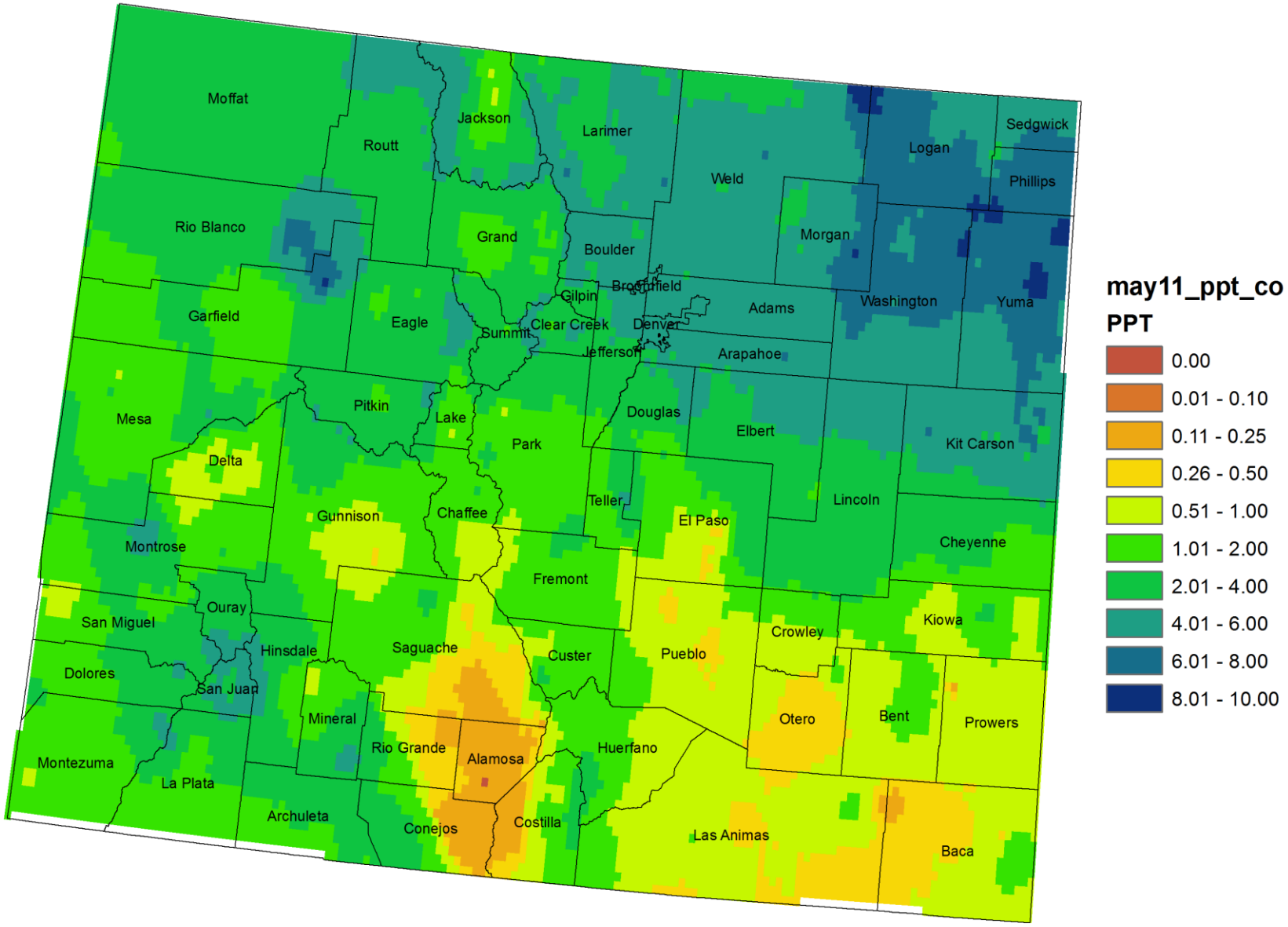
Departure from Normal Temperature (F)
6/1/2011 – 6/15/2011



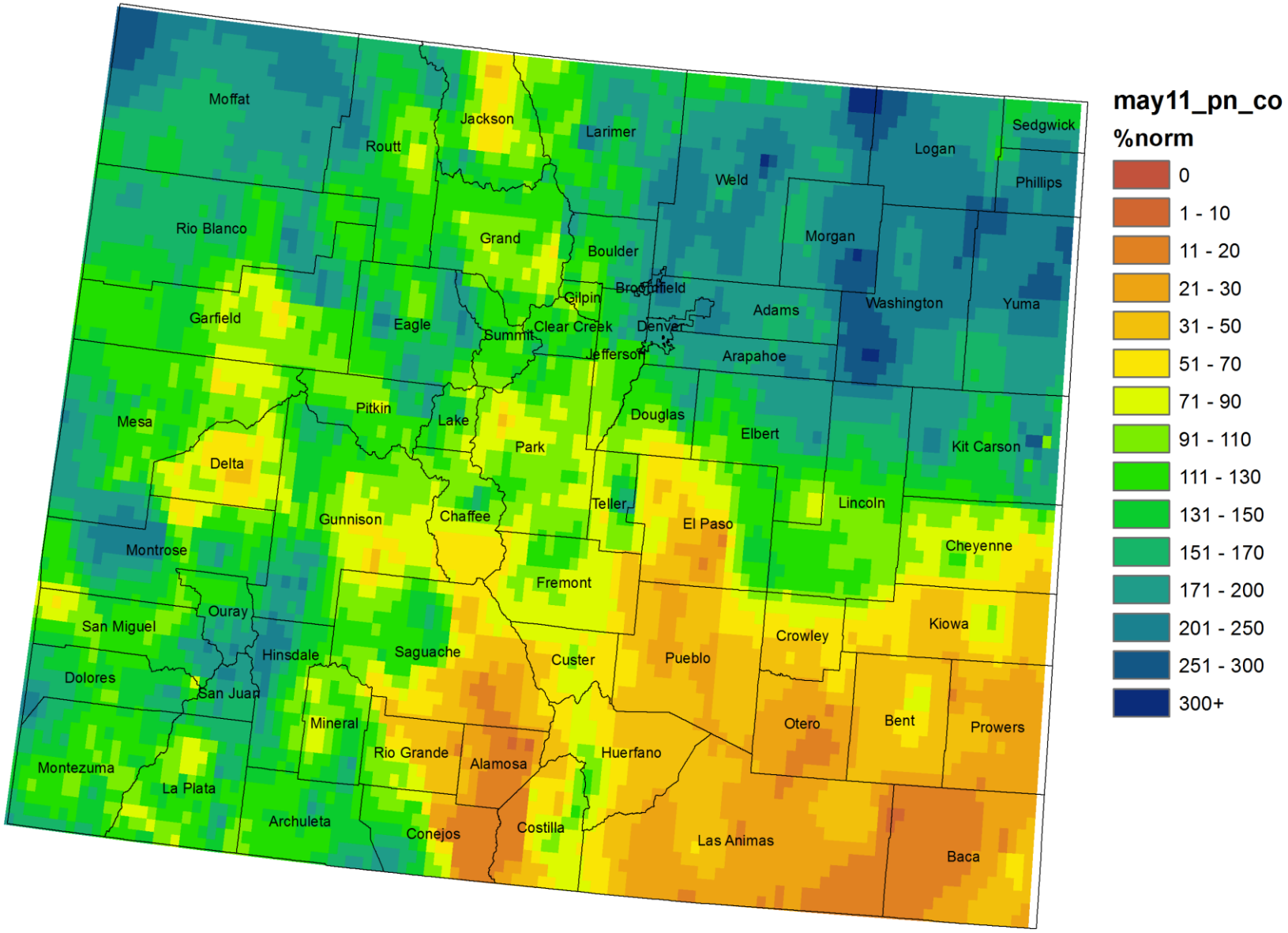
Generated 6/16/2011 at HPRCC using provisional data.

Regional Climate Centers

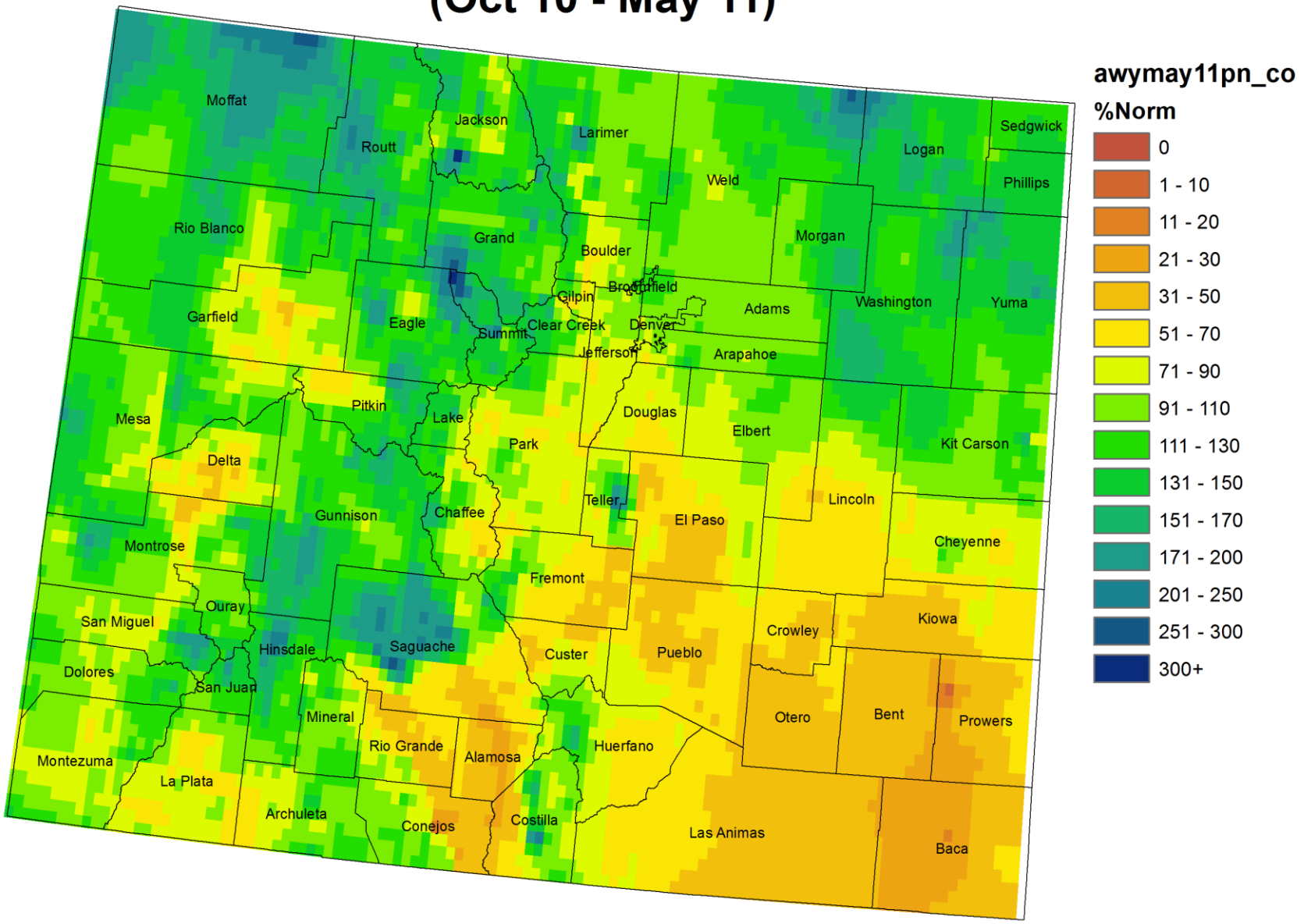
Colorado Precipitation (in)
May 2011



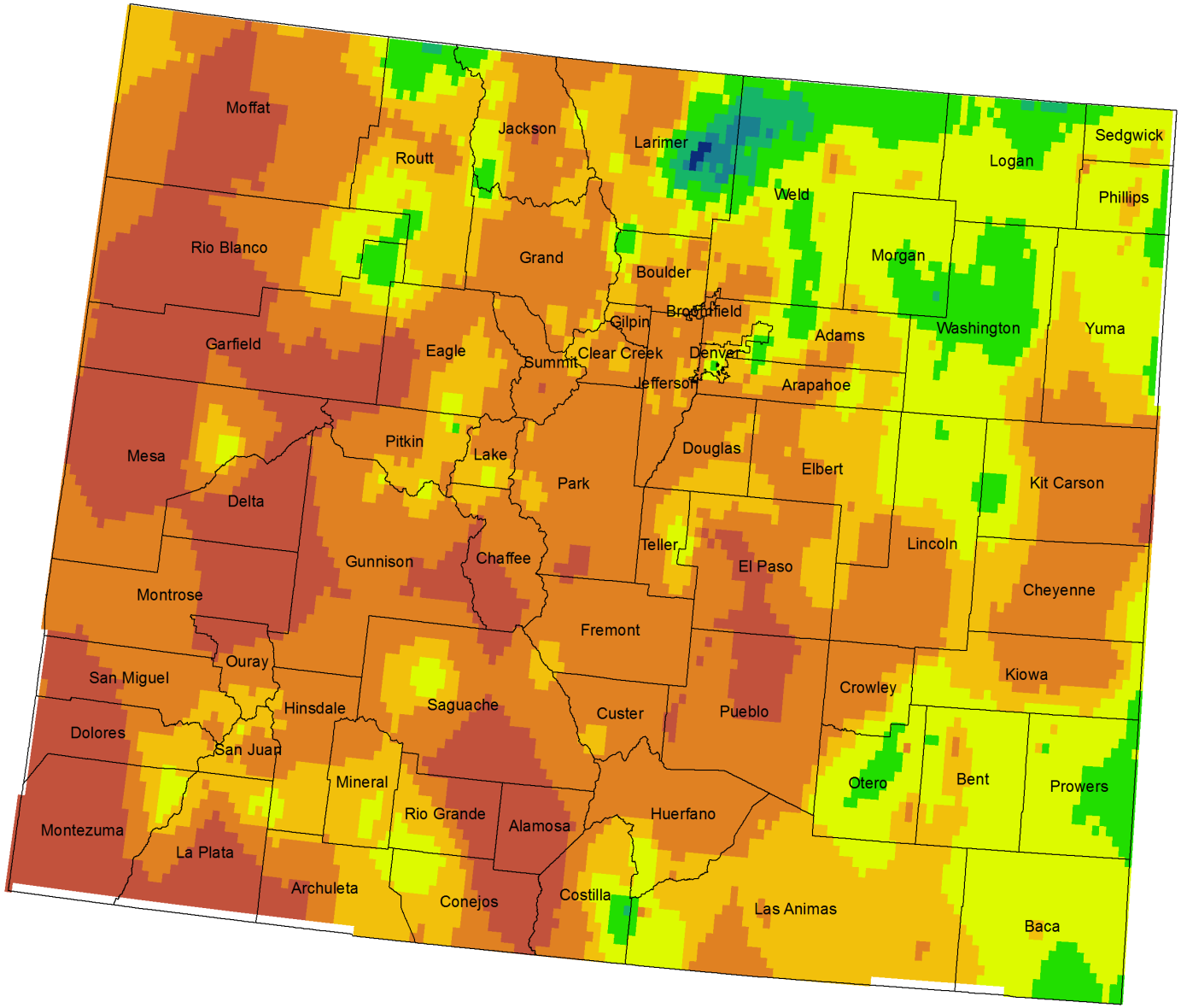
Colorado May 2011 Precipitation as Percentage of Normal



Colorado Water Year 2011 Precipitation
As Percentage of Normal
(Oct 10 - May 11)



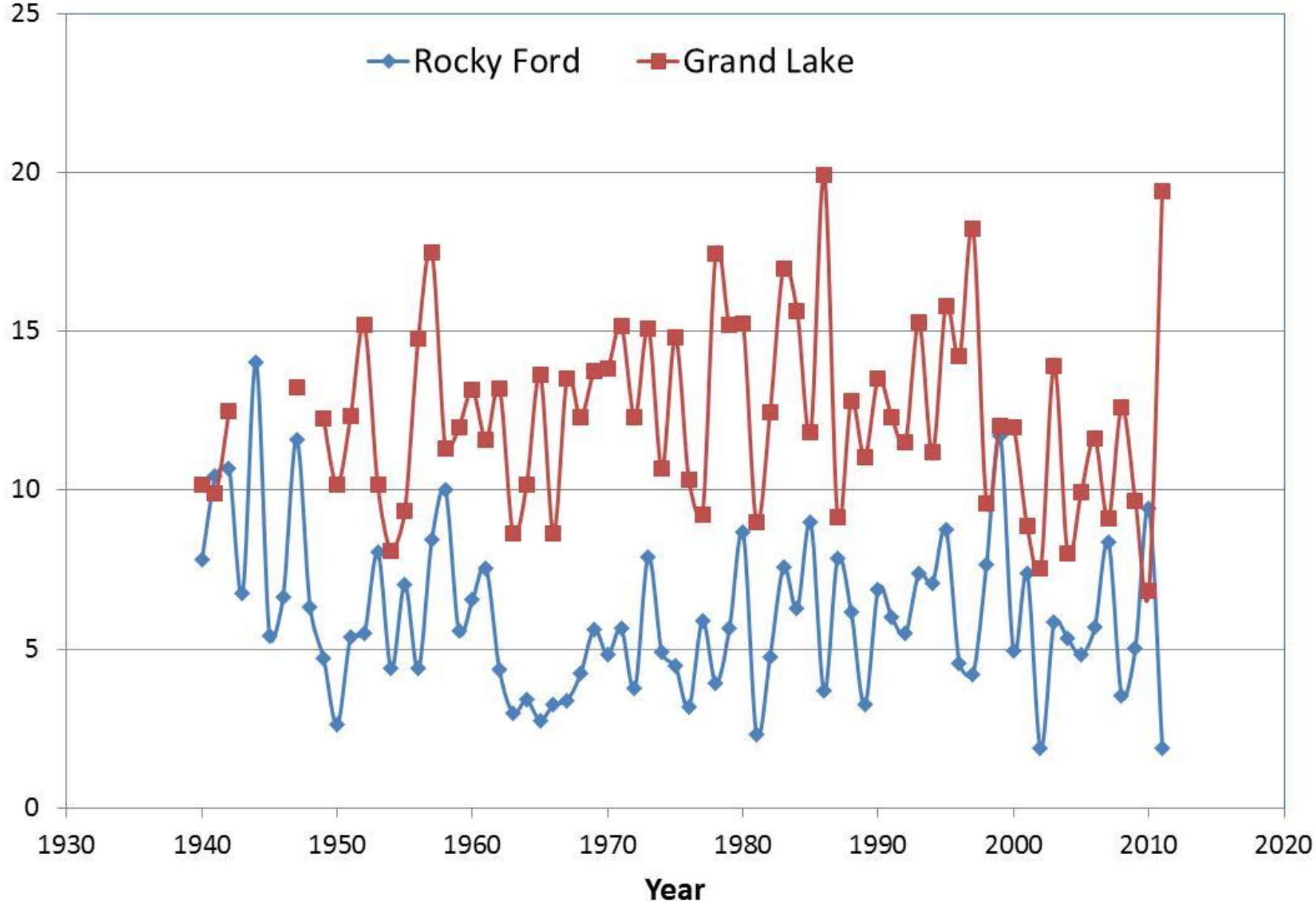
Colorado Precipitation (in)
1 -14 June 2011



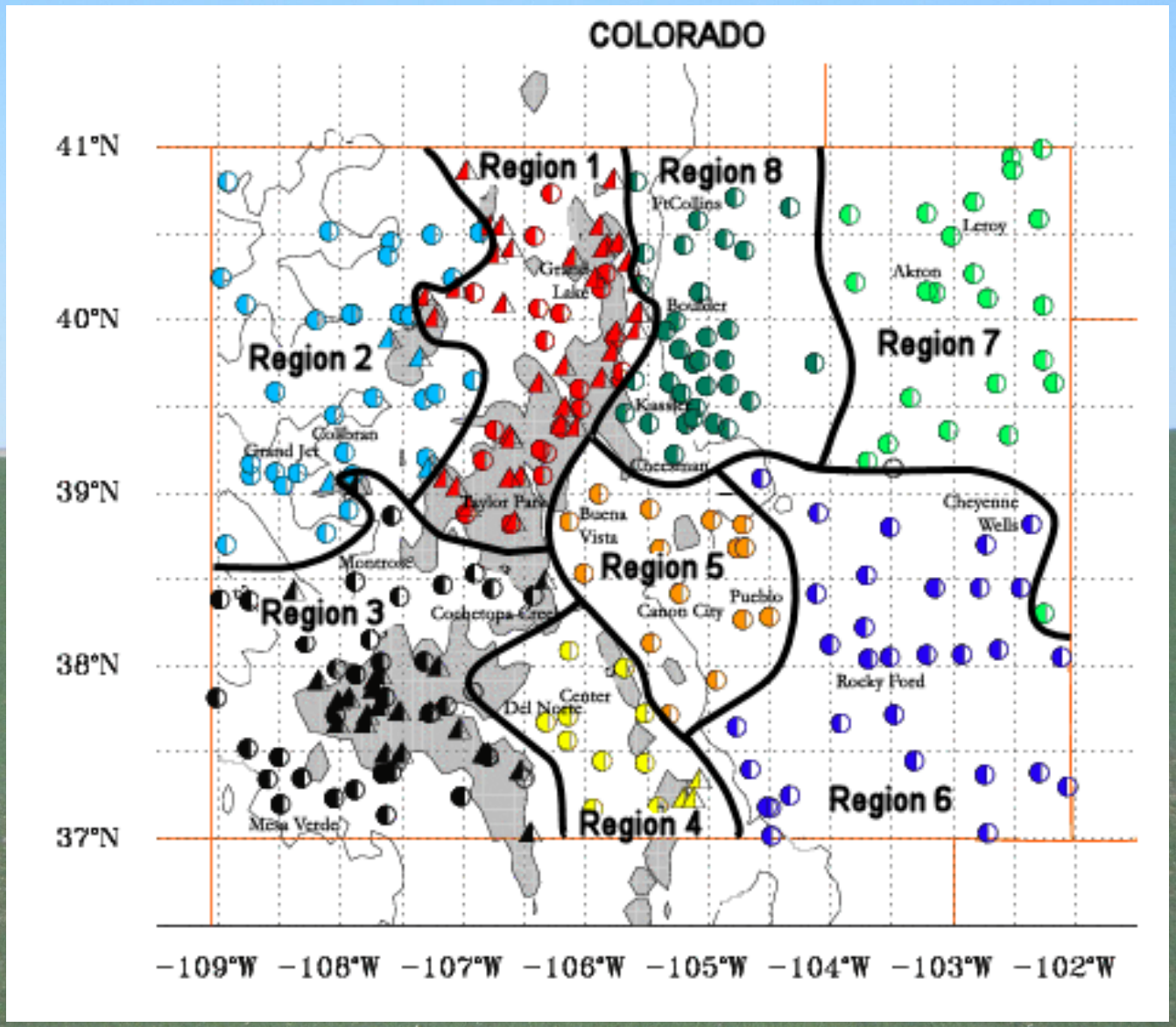
1_14jun11_CO
PPT

- 0.00
- 0.01 - 0.10
- 0.11 - 0.25
- 0.26 - 0.50
- 0.51 - 1.00
- 1.01 - 1.50
- 1.51 - 2.00
- 2.01 - 2.46

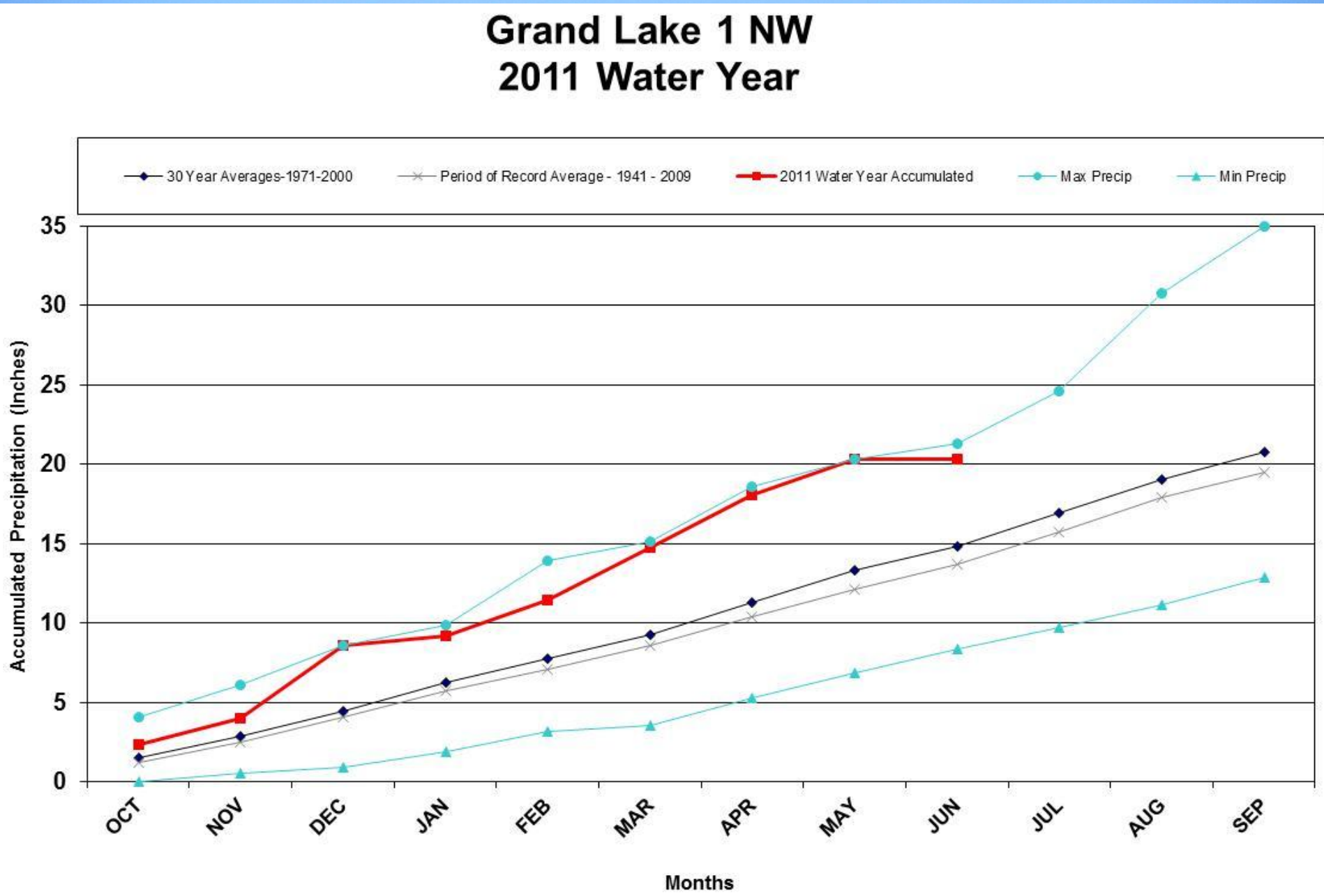
October - May Precipitation (in)



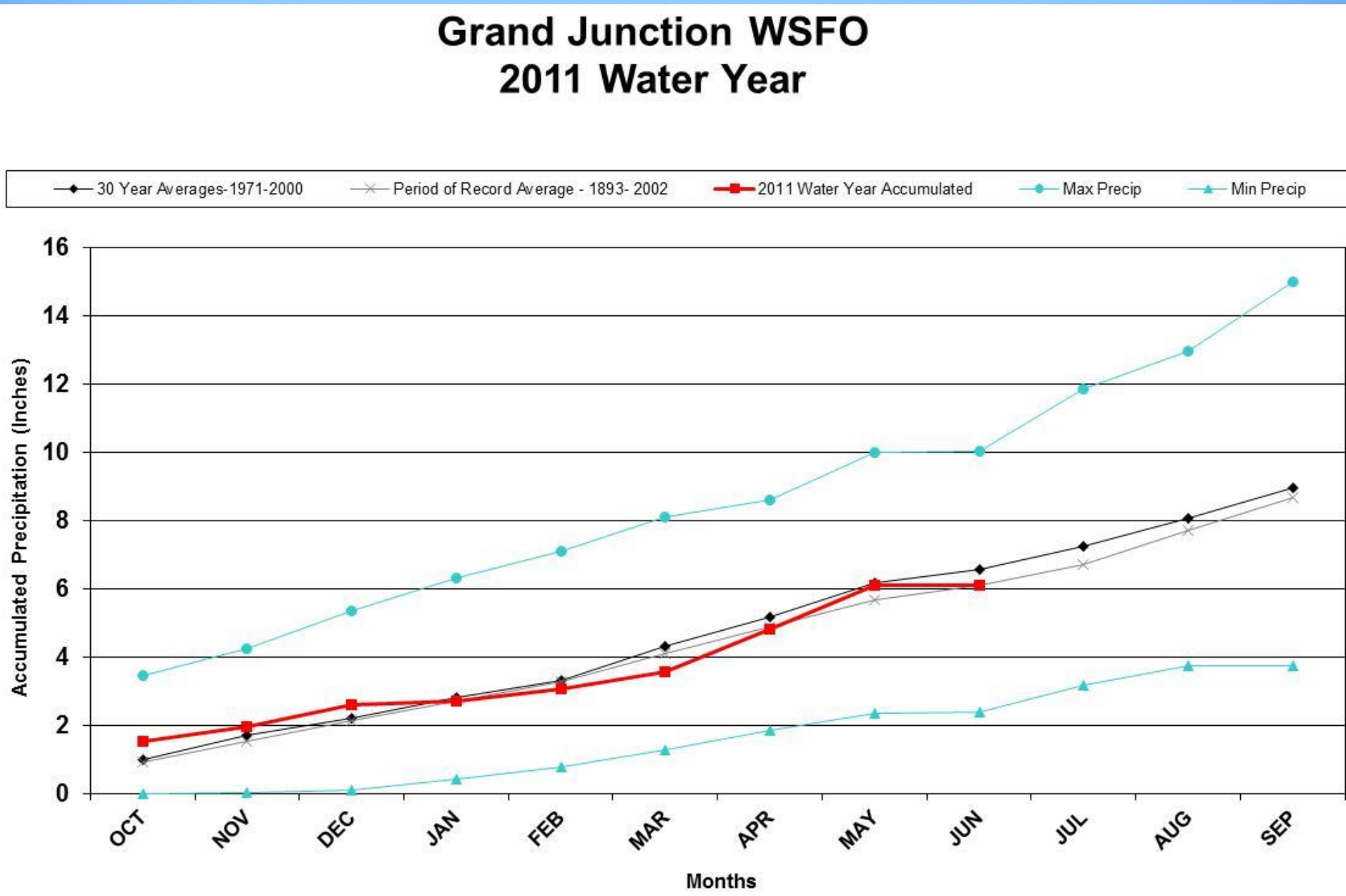
Climate divisions defined by Dr. Klaus Wolter of NOAA's Climate Diagnostic Center in Boulder, CO



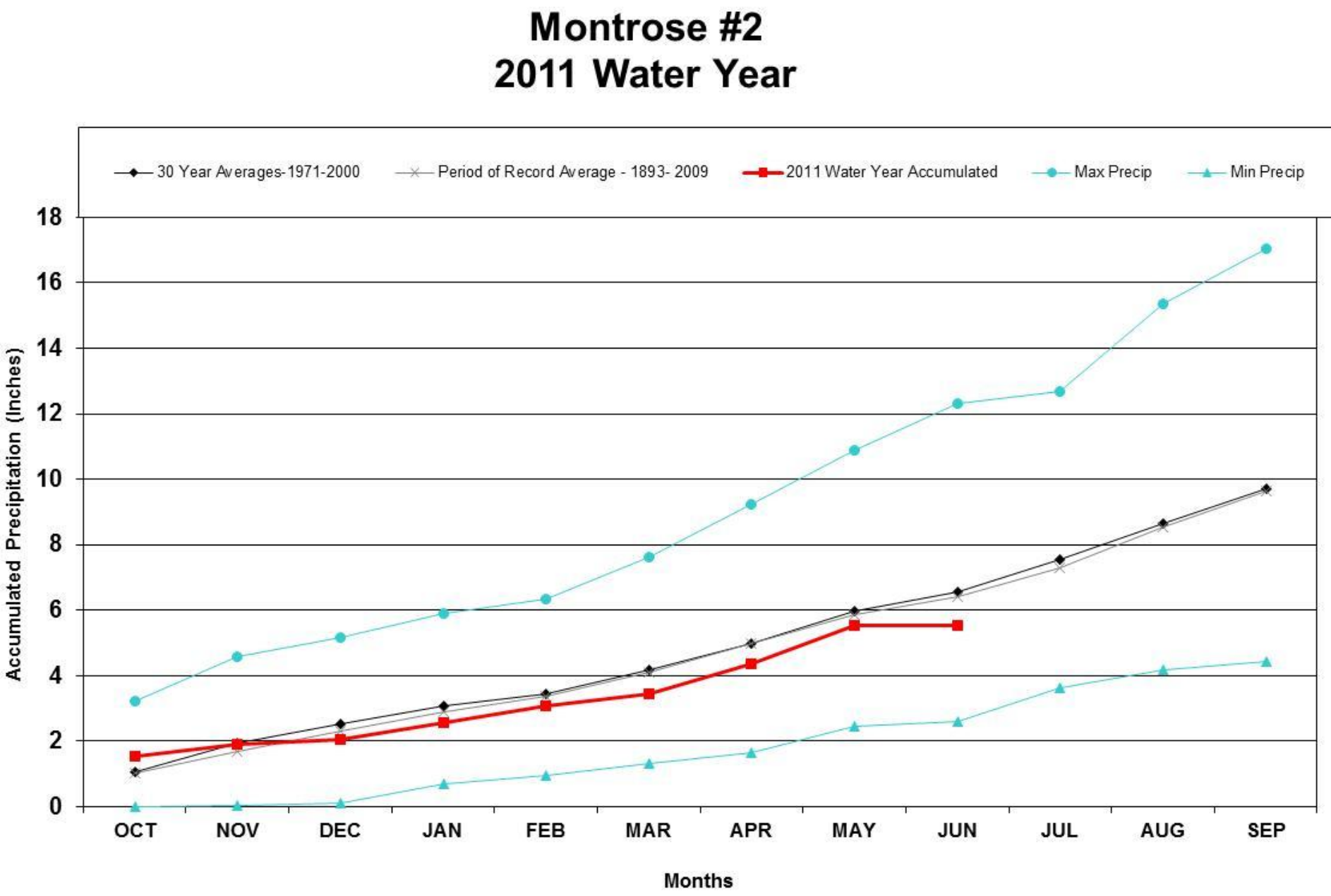
Division 1 – Grand Lake 1NW



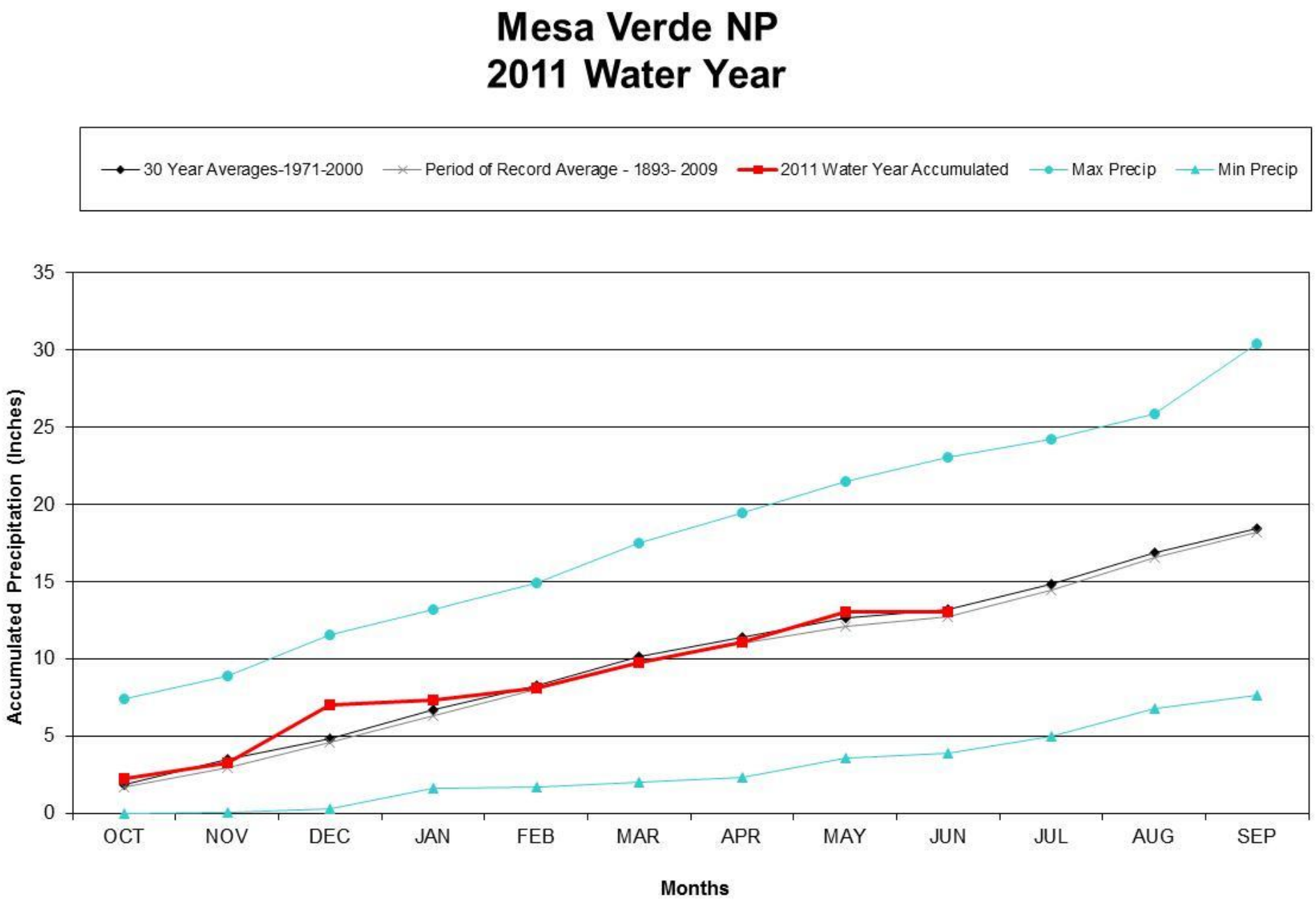
Division 2 – Grand Junction



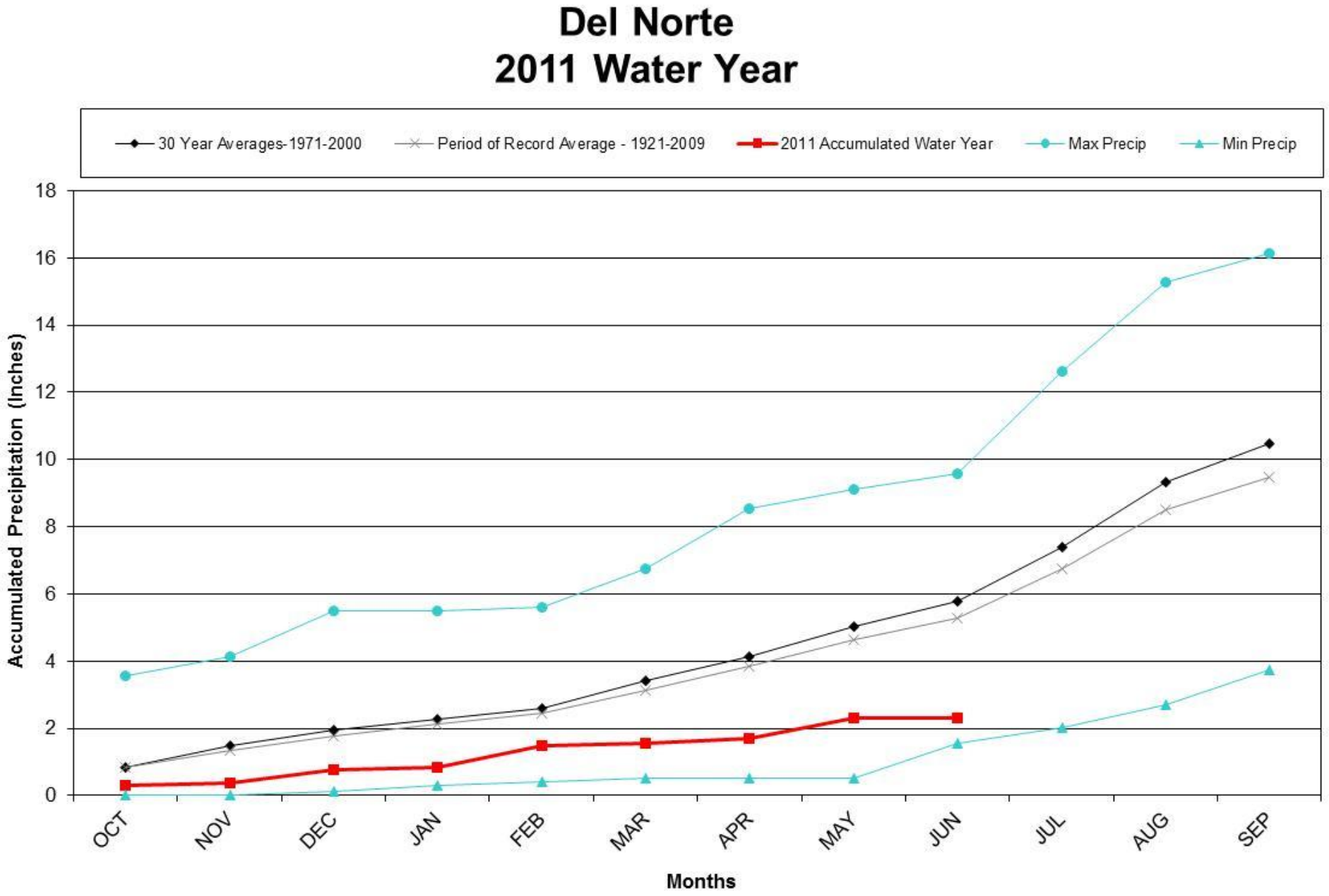
Division 3 – Montrose



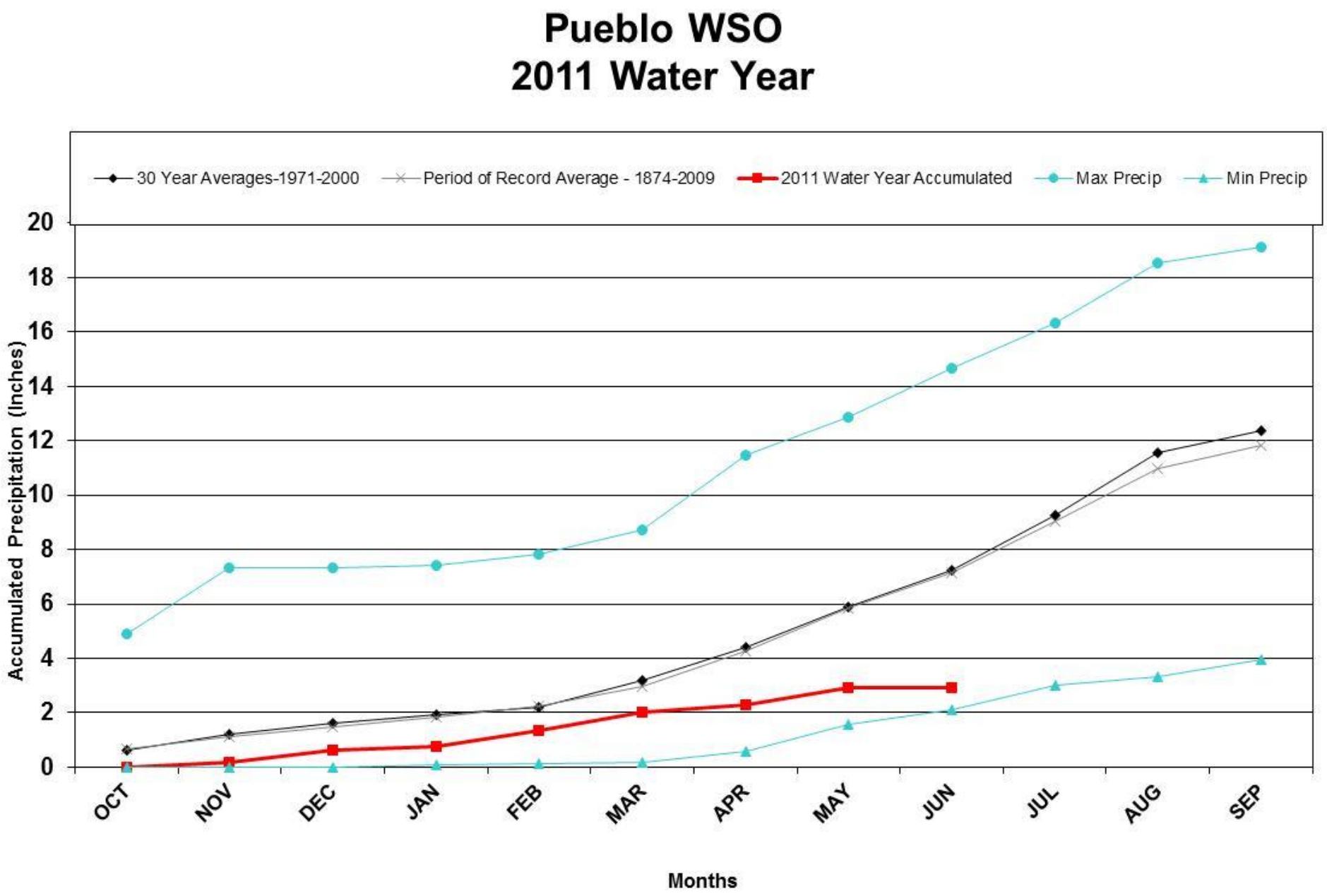
Division 3 – Mesa Verde NP



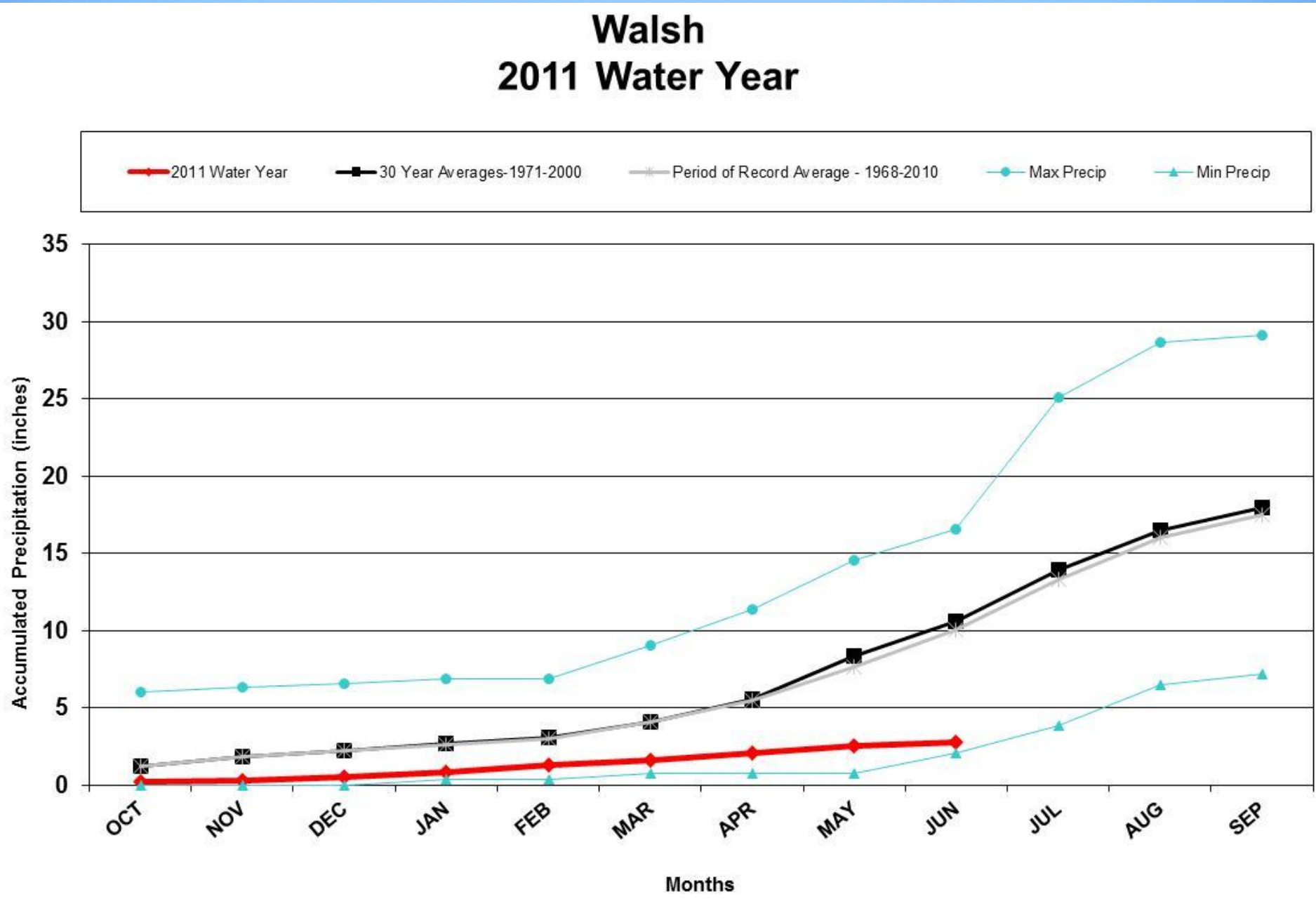
Division 4 – Del Norte



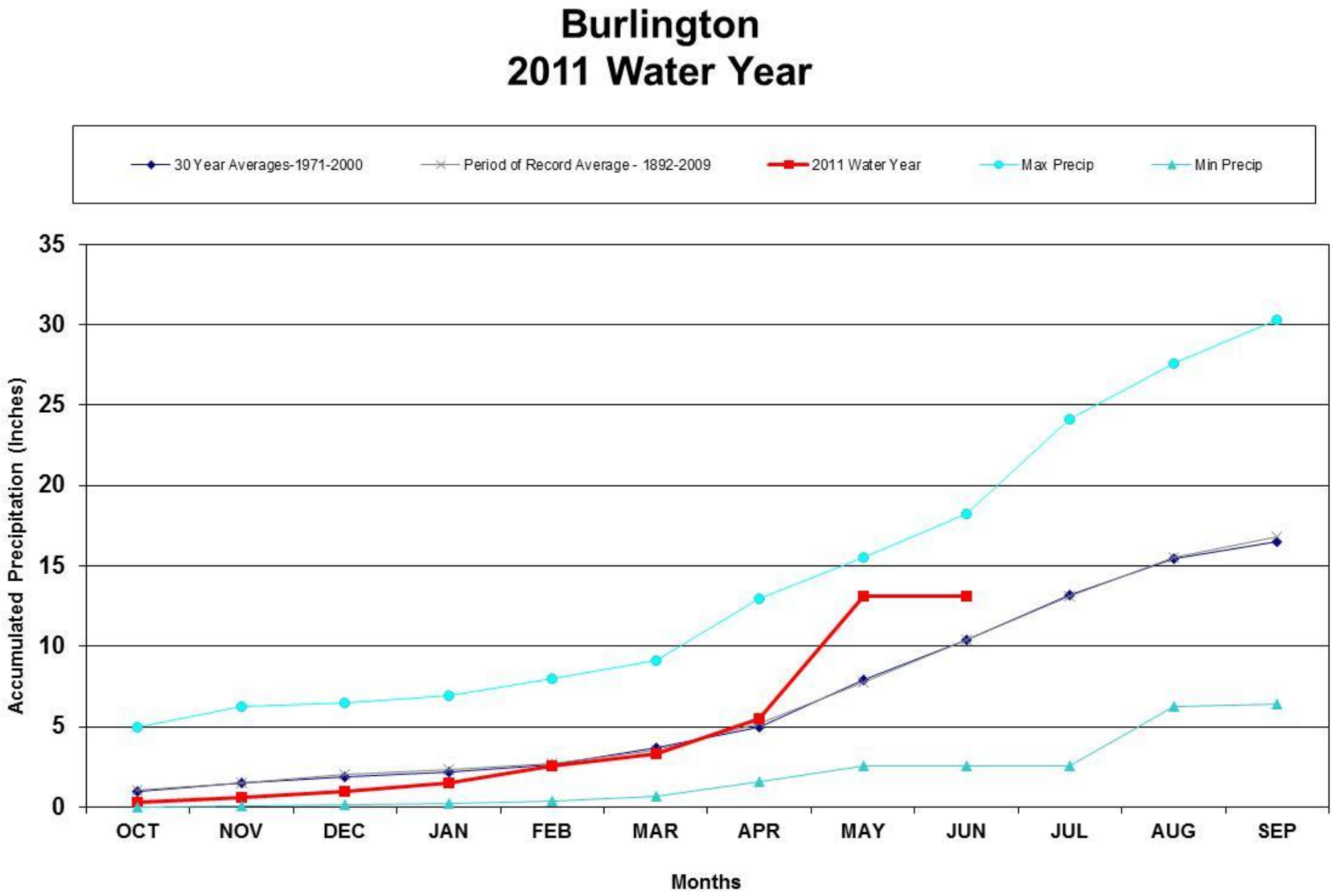
Division 5 – Pueblo



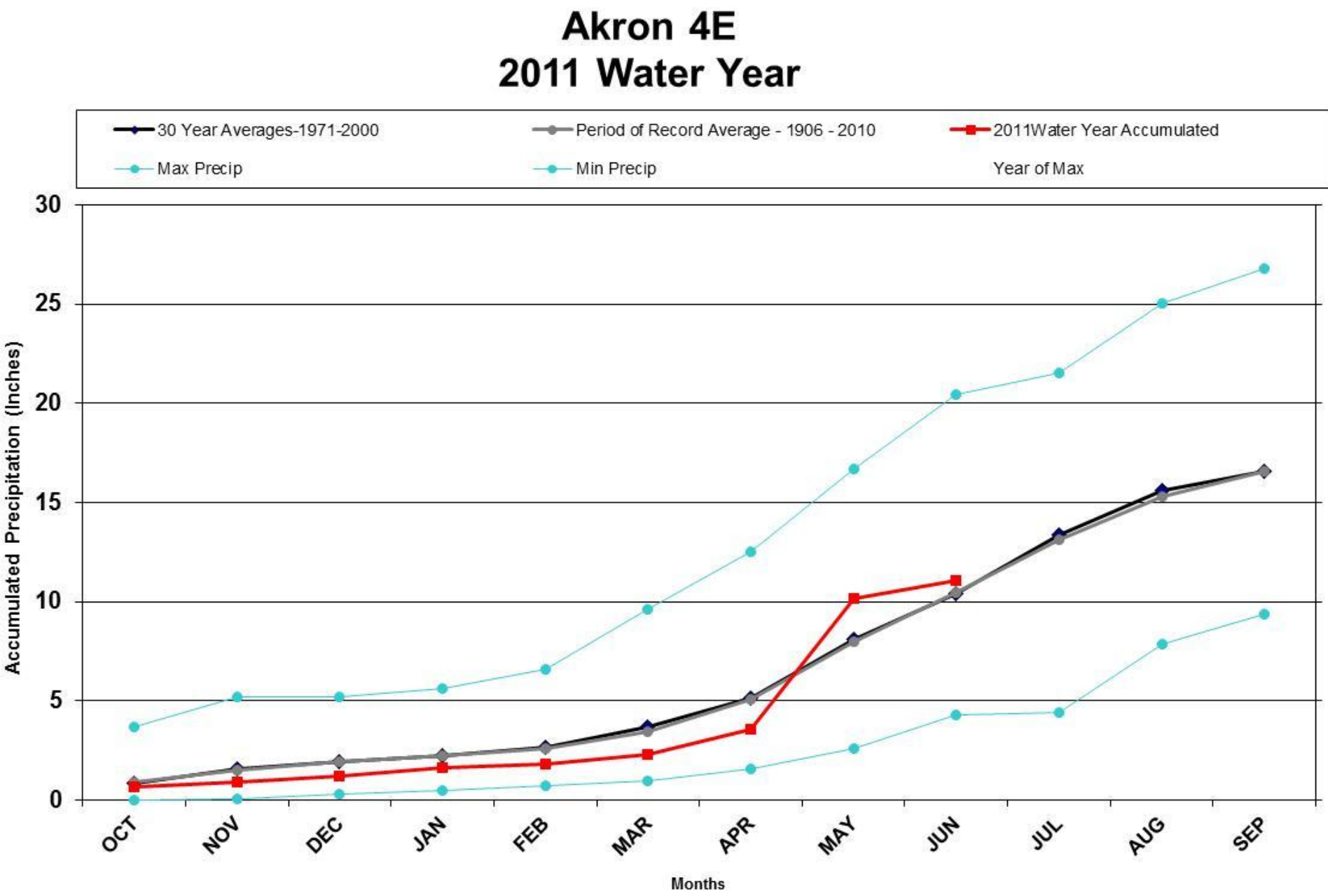
Division 6 - Walsh



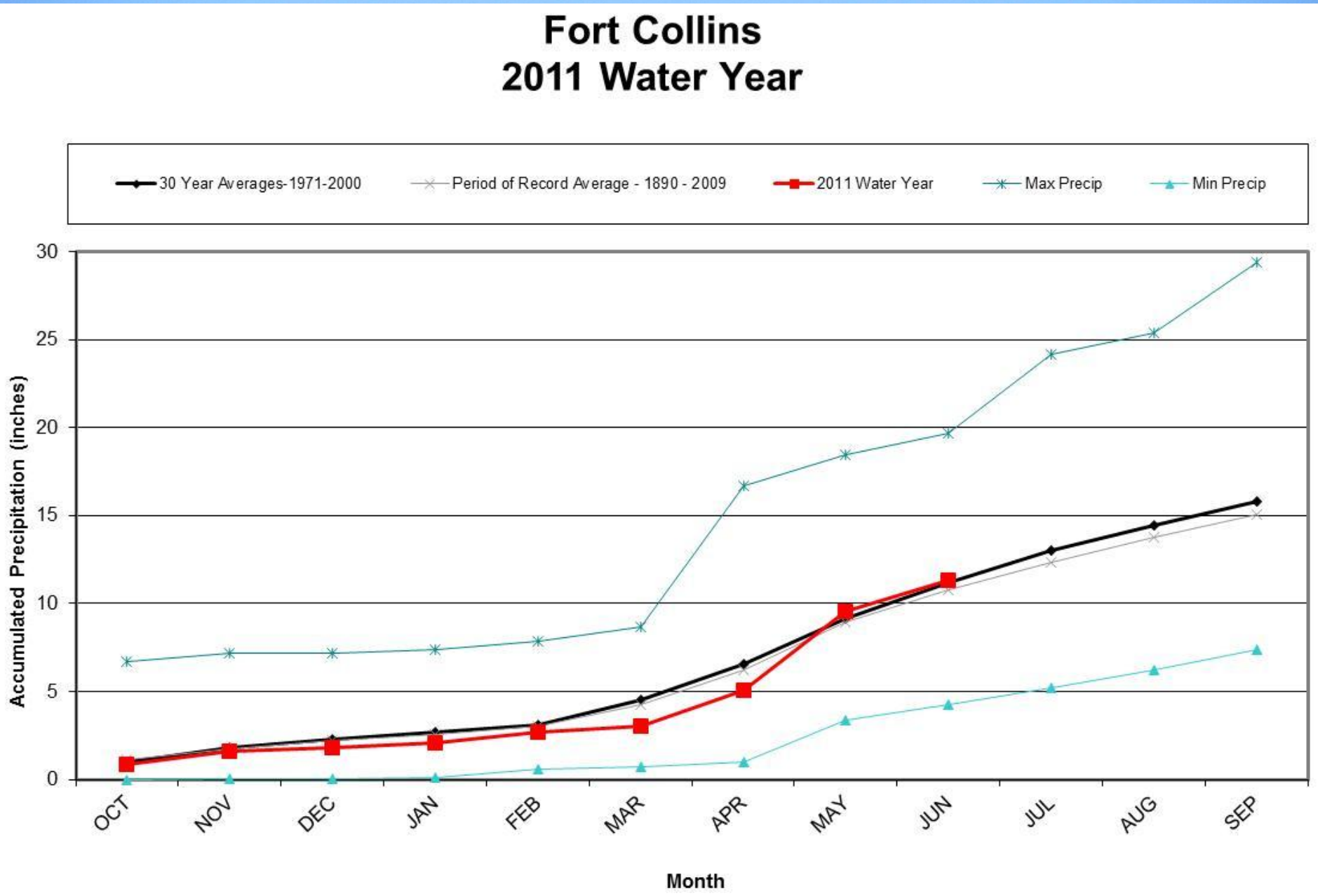
Division 6 - Burlington



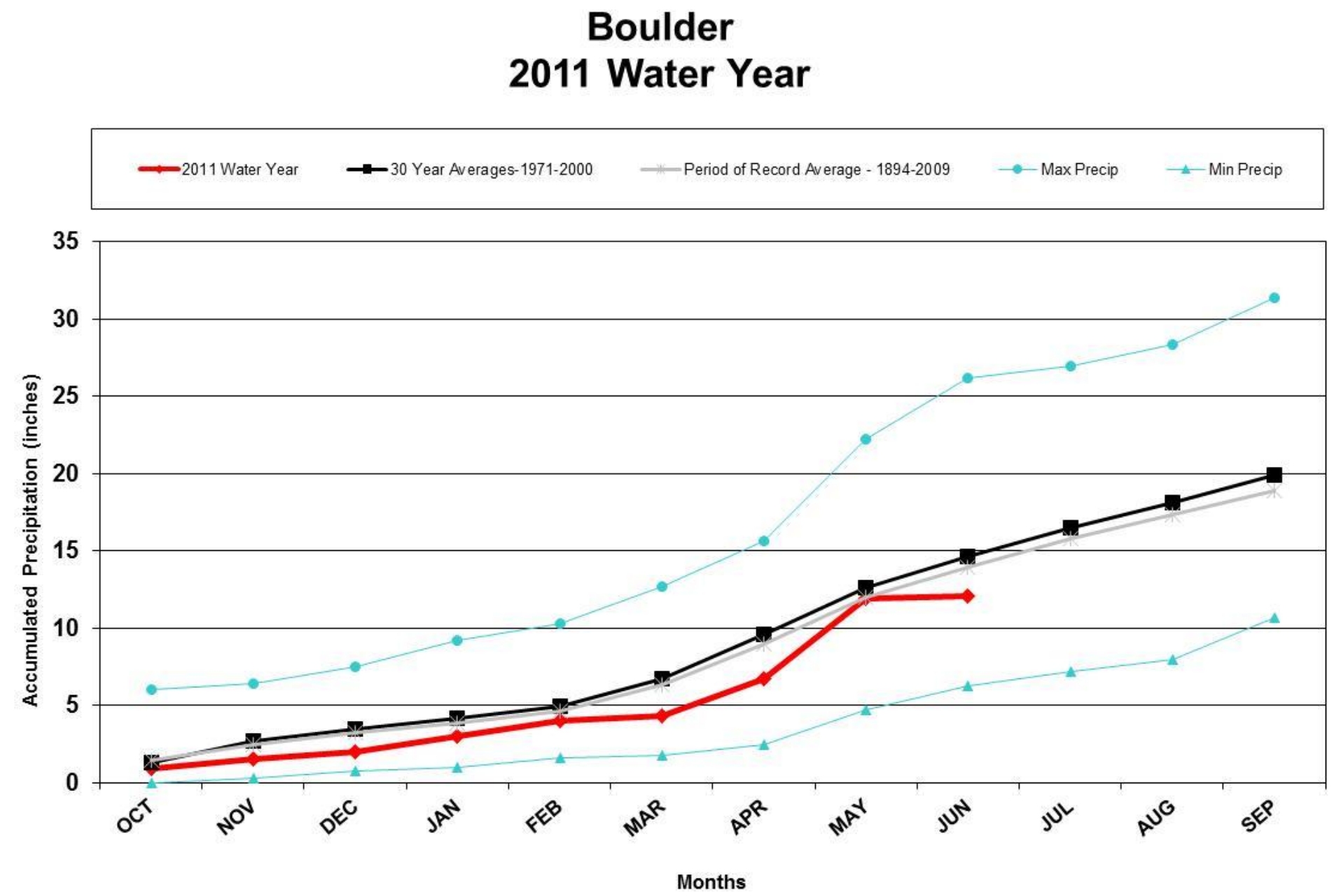
Division 7 – Akron



Division 8 – Fort Collins

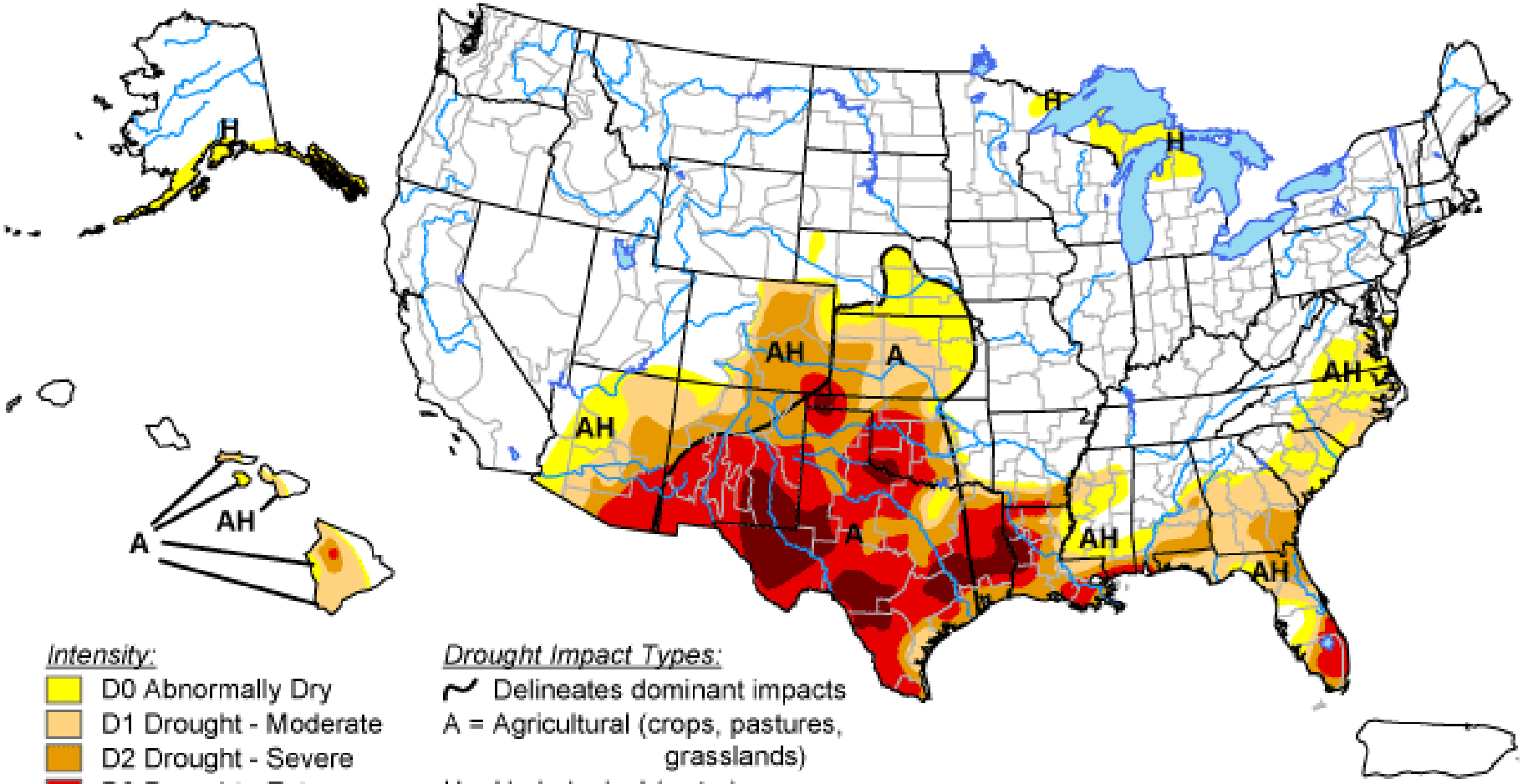


Division 8 - Boulder



U.S. Drought Monitor

May 3, 2011
Valid 8 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
- A = Agricultural (crops, pastures, grasslands)
- H = Hydrological (water)

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

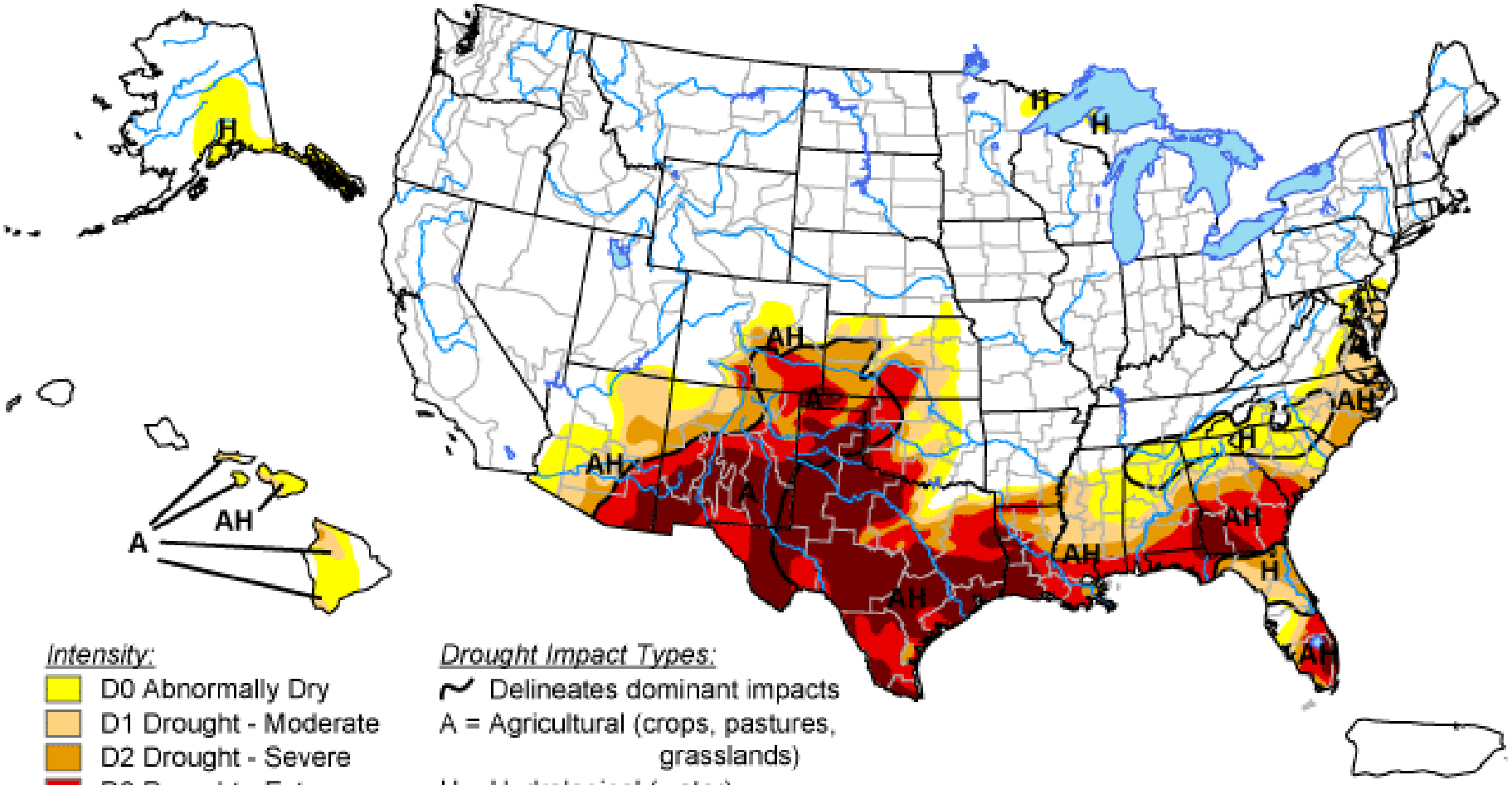
http://drought.unl.edu/dm

Released Thursday, May 5, 2011

Author: Rich Tinker, NOAA/NWS/NCEP/CPC

U.S. Drought Monitor

June 14, 2011
Valid 8 a.m. EDT



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http://drought.unl.edu/dm

Released Thursday, June 16, 2011

Author: Brian Fuchs, National Drought Mitigation Center

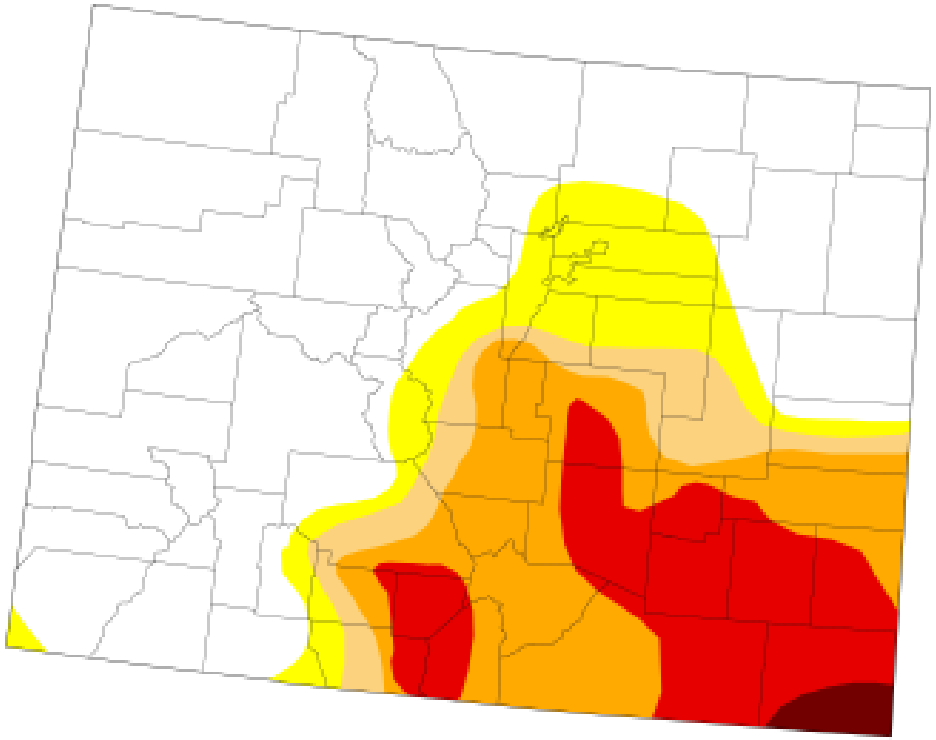
U.S. Drought Monitor

June 14, 2011
Valid 7 a.m. EST

Colorado

Drought Conditions (Percent Area)

	None	D0-D4	D1-D4	D2-D4	D3-D4	D4
Current	58.84	41.16	31.89	26.50	13.01	0.91
Last Week (06/07/2011 map)	59.67	40.33	31.89	25.19	9.62	0.91
3 Months Ago (03/15/2011 map)	41.65	58.35	51.50	35.33	0.00	0.00
Start of Calendar Year (12/28/2010 map)	40.40	59.60	49.57	10.13	0.00	0.00
Start of Water Year (09/28/2010 map)	28.86	71.14	10.70	0.00	0.00	0.00
One Year Ago (06/08/2010 map)	81.04	18.96	0.25	0.00	0.00	0.00



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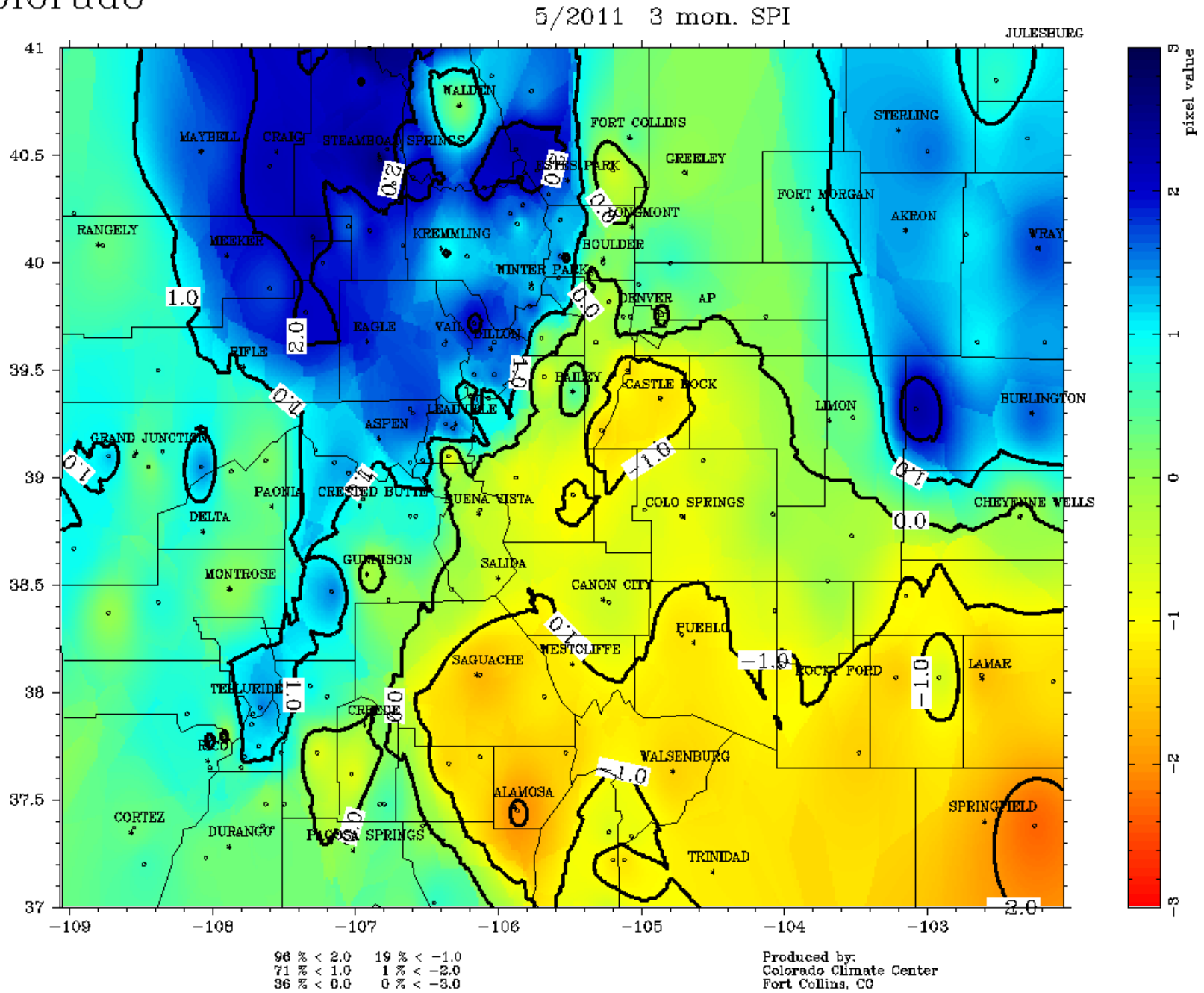
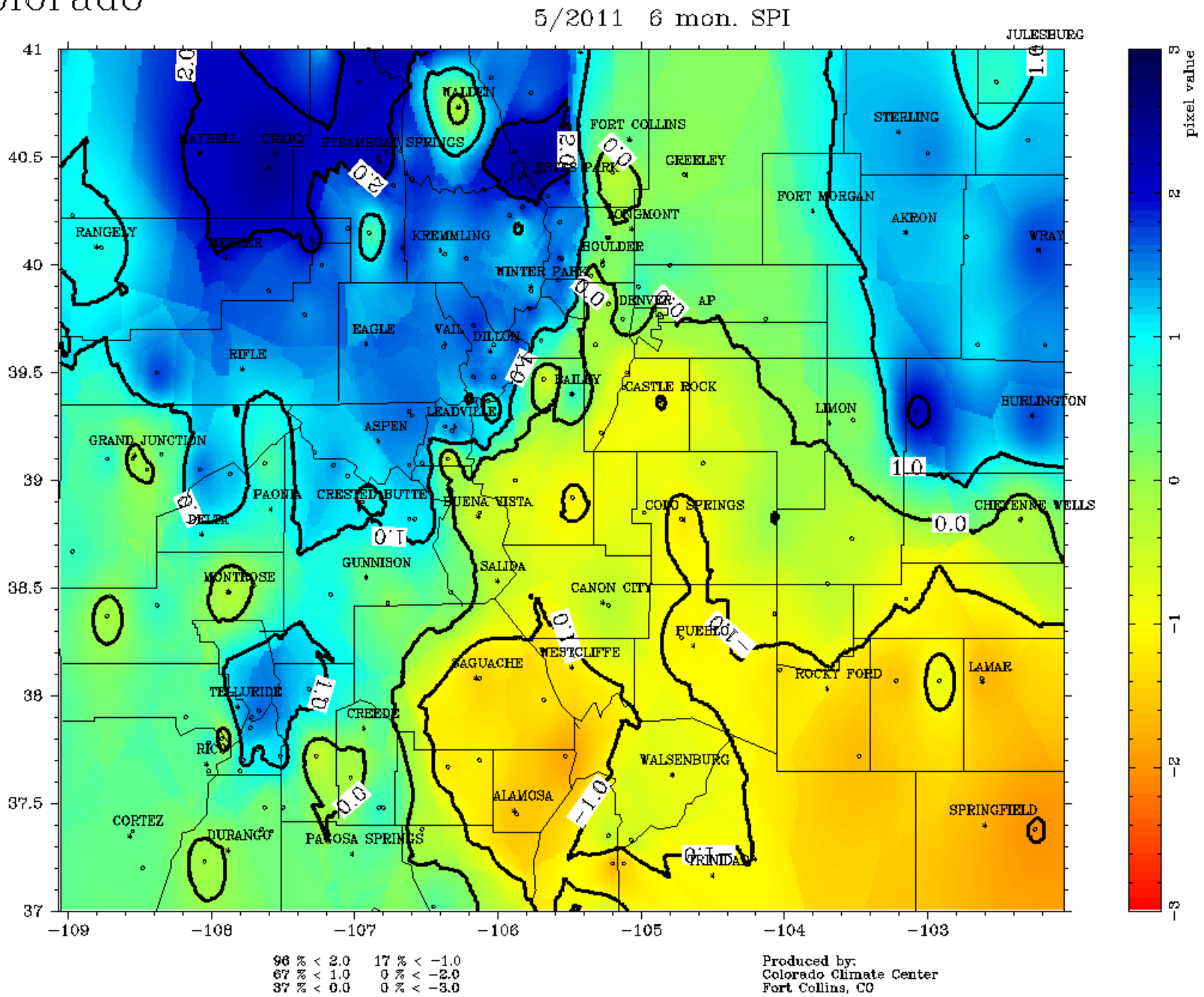
Colorado


5/2011 3 mon. SPI
JULESBURG
STERLING
FORT COLLINS
GREELEY
FORT MORGAN
AKRON
WRAY
WALDEN
MAYBELL
CRAIG
STEAMBOAT SPRINGS
ESTES PARK
LONGMONT
BOULDER
RANGELY
MEEKER
KREMMLING
WINTER PARK
DENVER AP
EAGLE
VAIL
GILLON
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
96 % < 2.0 19 % < −1.0
71 % < 1.0 1 % < −2.0
36 % < 0.0 0 % < −3.0
Produced by:
Colorado Climate Center
Fort Collins, CO

Colorado


5/2011 6 mon. SPI
JULESBURG
STERLING
FORT COLLINS
GREELEY
FORT MORGAN
AKRON
WRAY
BURLINGTON
LIMON
CHEYENNE WELLS
WALDEN
CRAIG
STEAMBOAT SPRINGS
ESTES PARK
LONGMONT
BOULDER
RANGELY
MEEKER
KREMMLING
WINTER PARK
DENVER AP
EAGLE
VAIL
DILLON
RIFLE
BAILEY
CASTLE ROCK
LEADVILLE
ASPEN
GRAND JUNCTION
PAONIA
CRESTED BUTTE
BUENA VISTA
COLO SPRINGS
DELTA
GUNNISON
SALIDA
MONTROSE
CANON CITY
PUEBLO
WESTCLIFFE
SAGUACHE
ROCKY FORD
LAMAR
TELLURIDE
CREEDE
RICO
WALSENBURG
ALAMOSA
SPRINGFIELD
CORTEZ
DURANGO
PAGOSA SPRINGS
TRINIDAD
2.0
1.6
0.2
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0.4
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0.1
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0.0
-1.0
0.1
41
40.5
40
39.5
39
38.5
38
37.5
37
-109
-108
-107
-106
-105
-104
-103
pixel value
3
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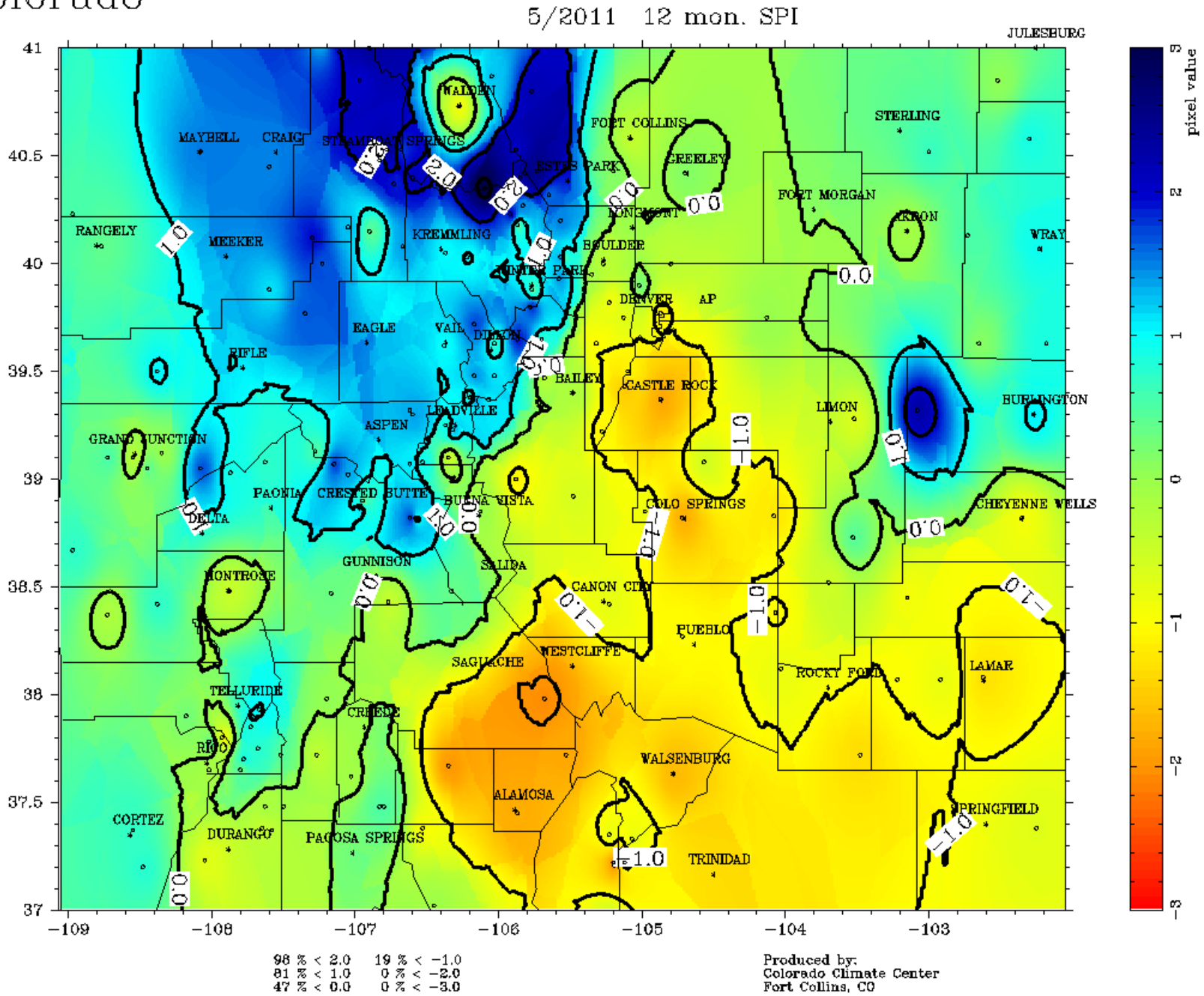
1
0
-1
-2
-3
96 % < 2.0 17 % < -1.0
67 % < 1.0 0 % < -2.0
37 % < 0.0 0 % < -3.0
Produced by:
Colorado Climate Center
Fort Collins, CO

Colorado


5/2011 12 mon. SPI
JULESBURG
STERLING
WALDEN
MAYBELL
CRAIG
STEAMBOAT SPRINGS
FORT COLLINS
ESTES PARK
GREELEY
FORT MORGAN
LONGMONT
BOULDER
KREMMLING
RANGELY
MEEKER
WRAY
HUNTER 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
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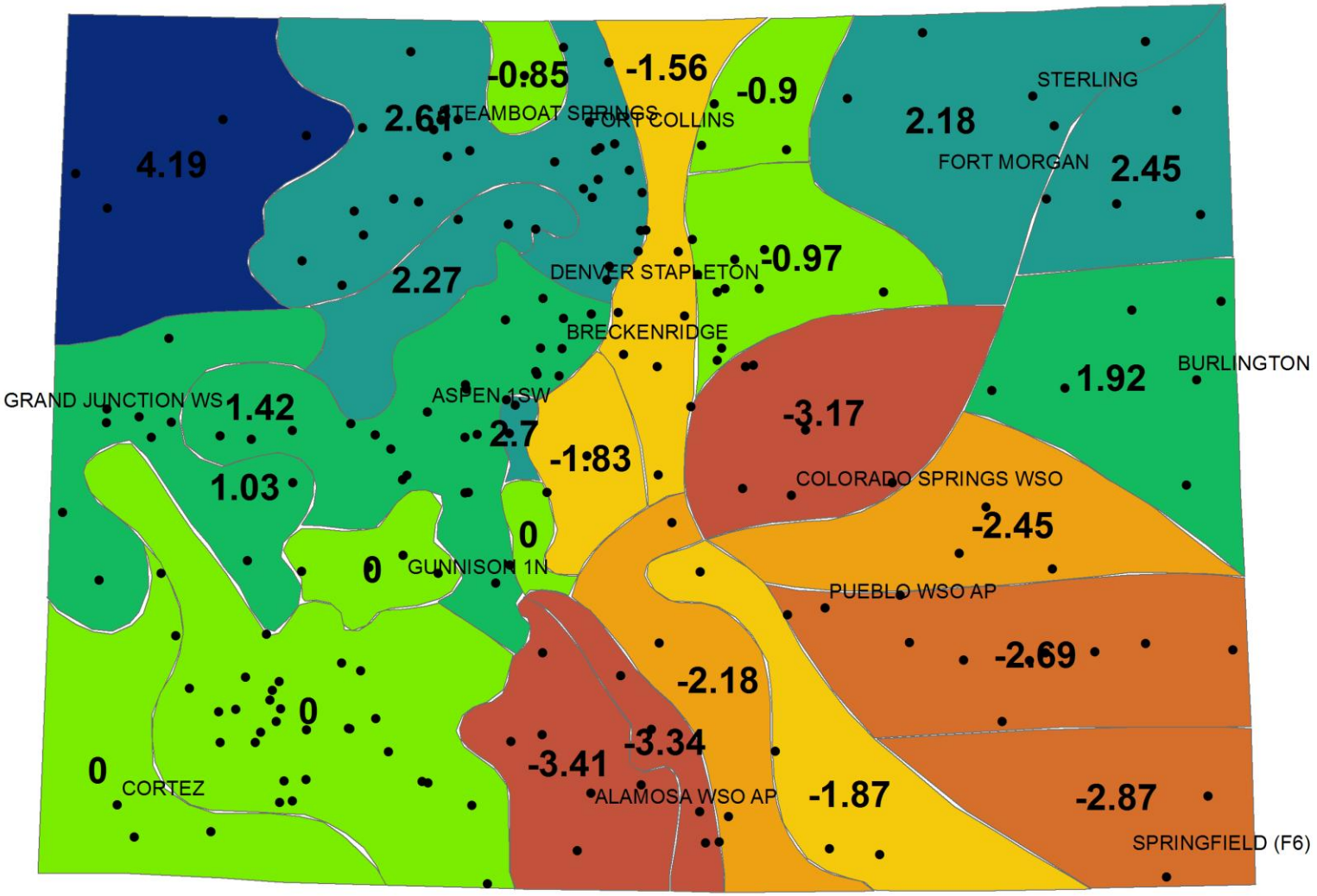
WESTCLIFFE
SAGUACHE
ROCKY FORD
LAMAR
TELLURIDE
CRIPPLE
RICO
WALSENBURG
ALAMOSA
SPRINGFIELD
CORTEZ
DURANGO
PAGOSA SPRINGS
TRINIDAD
41
40.5
40
39.5
39
38.5
38
37.5
37
−109
−108
−107
−106
−105
−104
−103
pixel value
3
2
1
0
−1
−2
−3
98 % < 2.0
81 % < 1.0
47 % < 0.0
19 % < −1.0
0 % < −2.0
0 % < −3.0
Produced by:
Colorado Climate Center
Fort Collins, CO

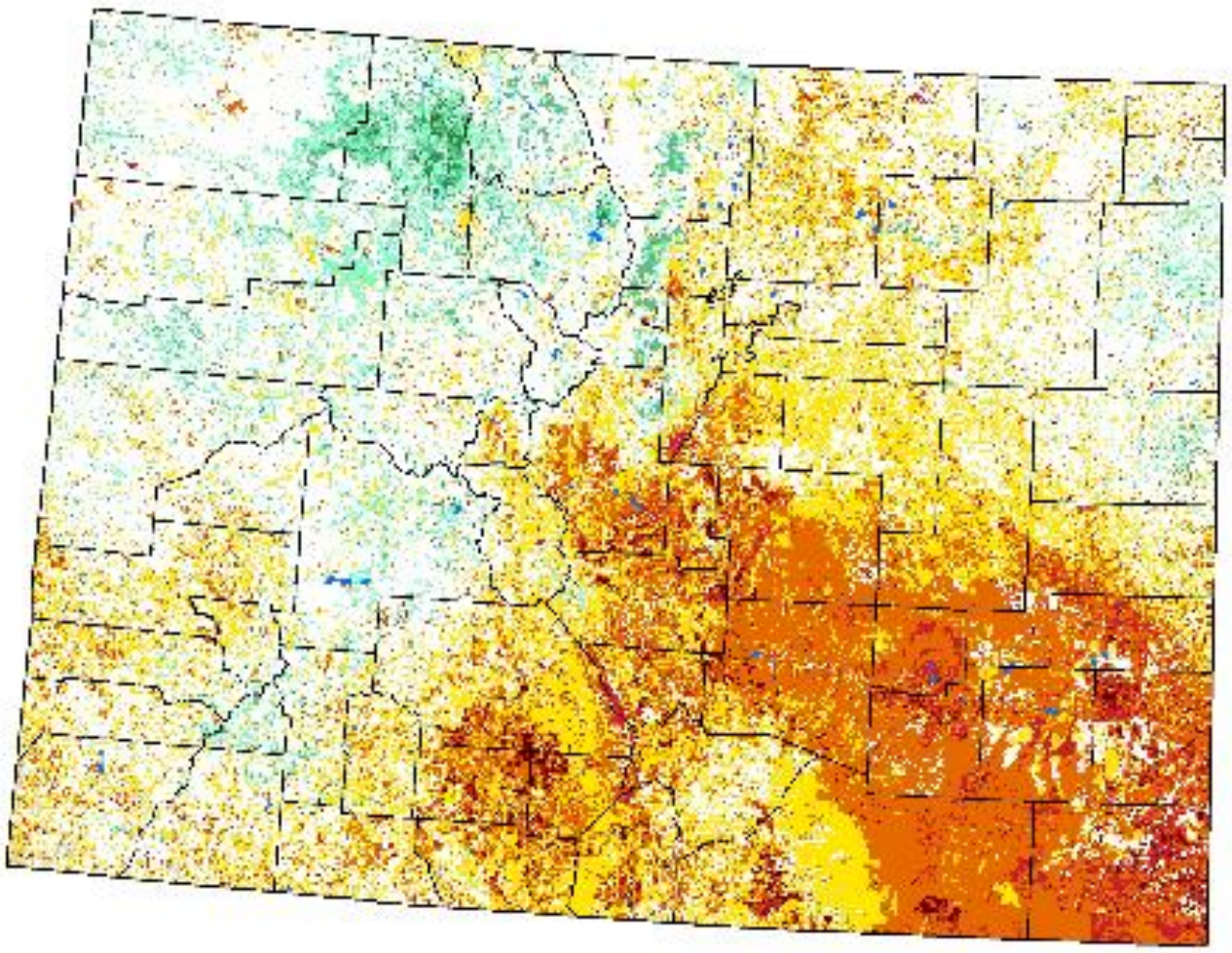
Preliminary Modified Palmer Drought Severity Index for Colorado
May 2011



Vegetation Drought Response Index

Complete: Colorado

June 13, 2011



Vegetation Condition

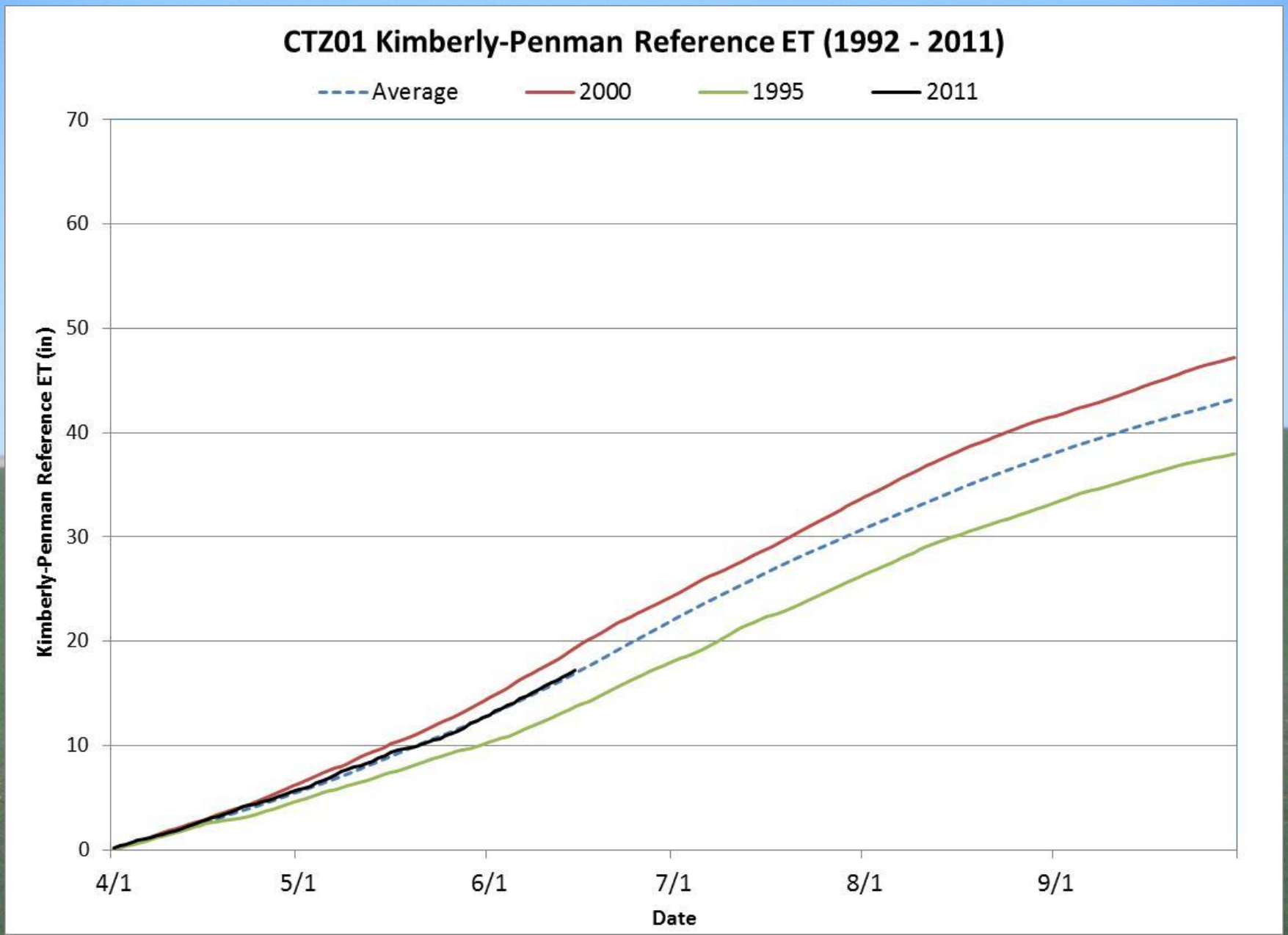
- Extreme Drought
- Severe Drought
- Moderate Drought
- Pre-Drought
- Near Normal
- Unusually Moist
- Very Moist
- Extremely Moist
- Out of Season
- Water

National Drought Mitigation Center

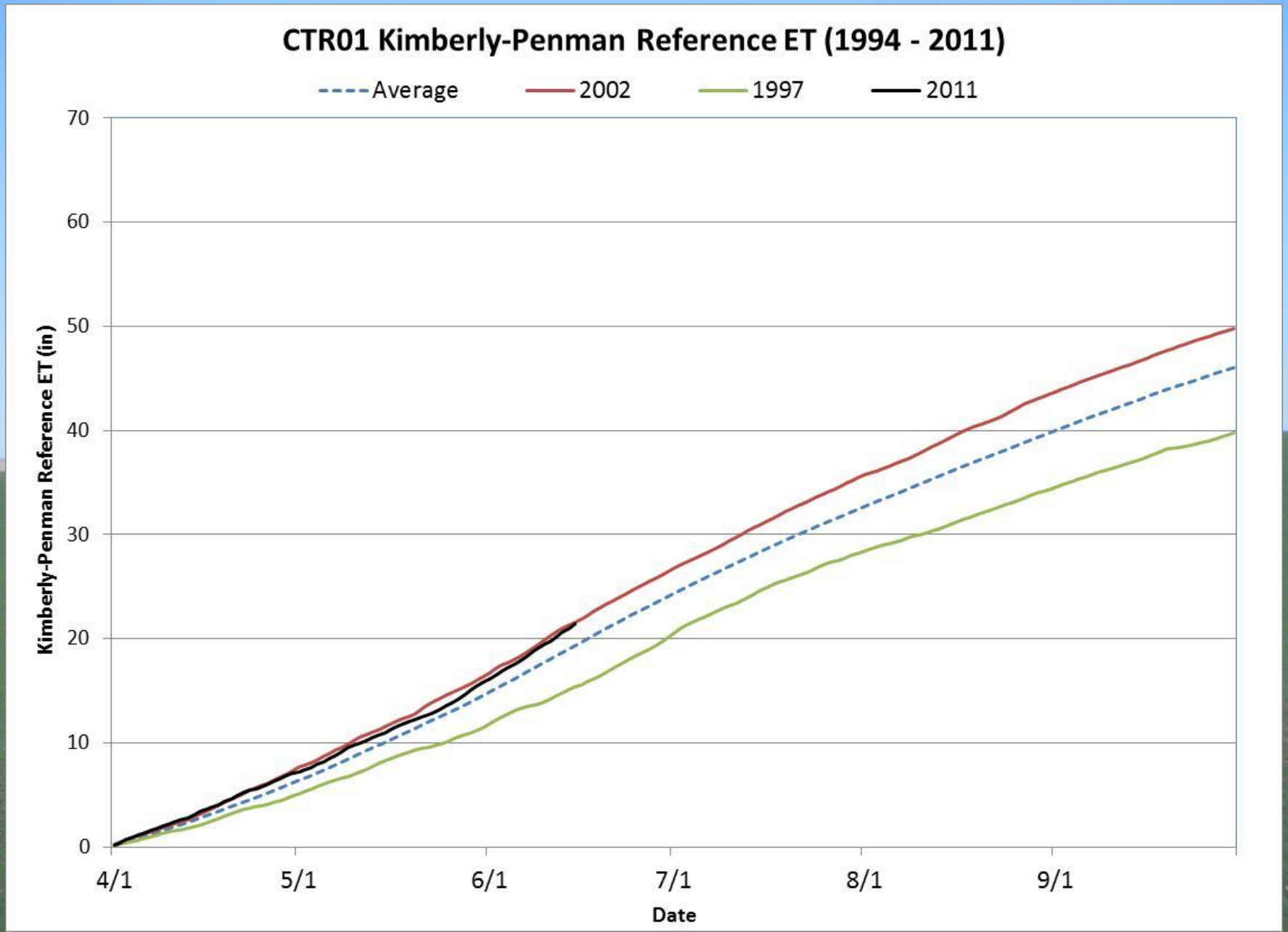
USGS

RMA

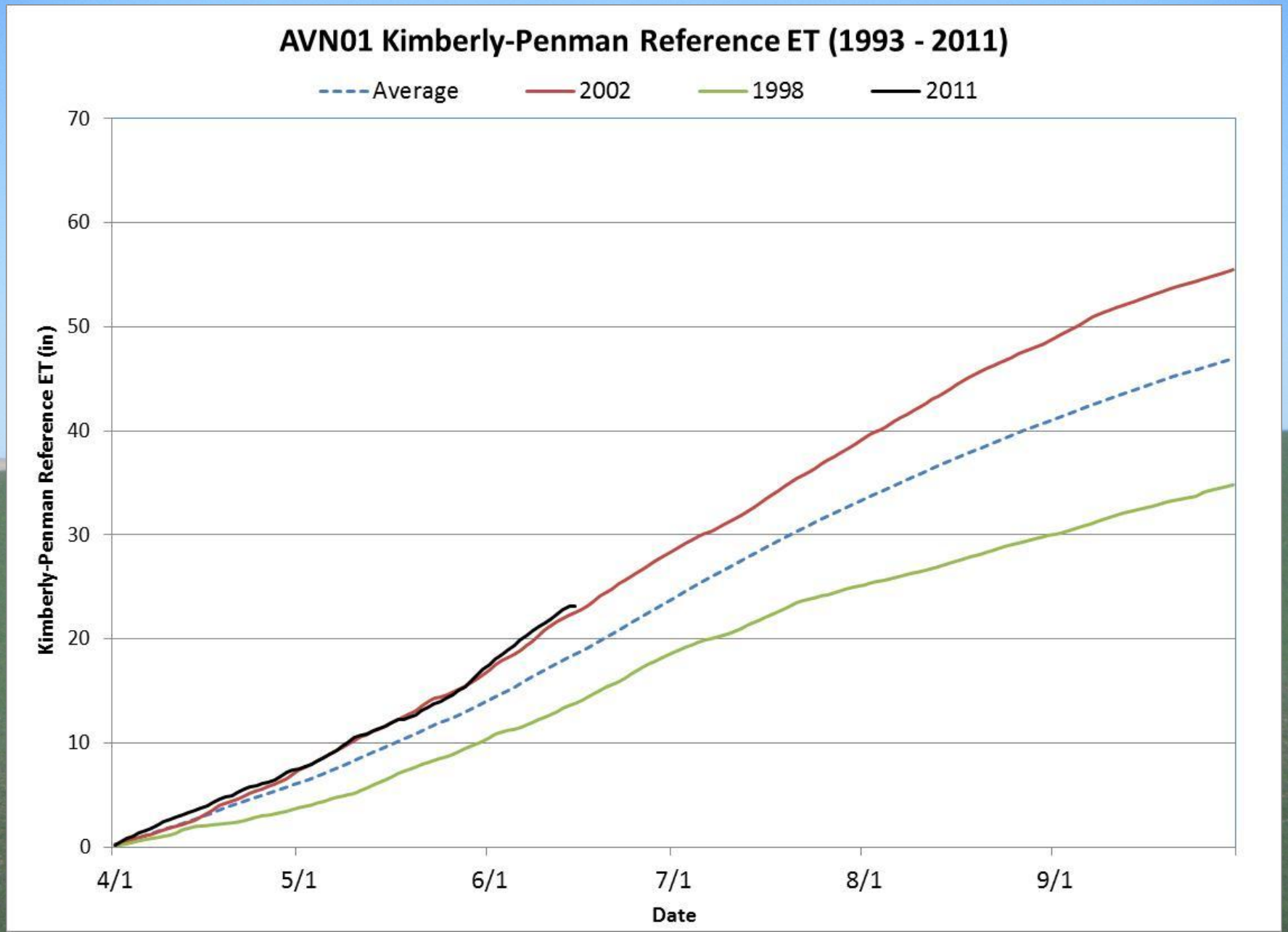
Cortez Reference ET



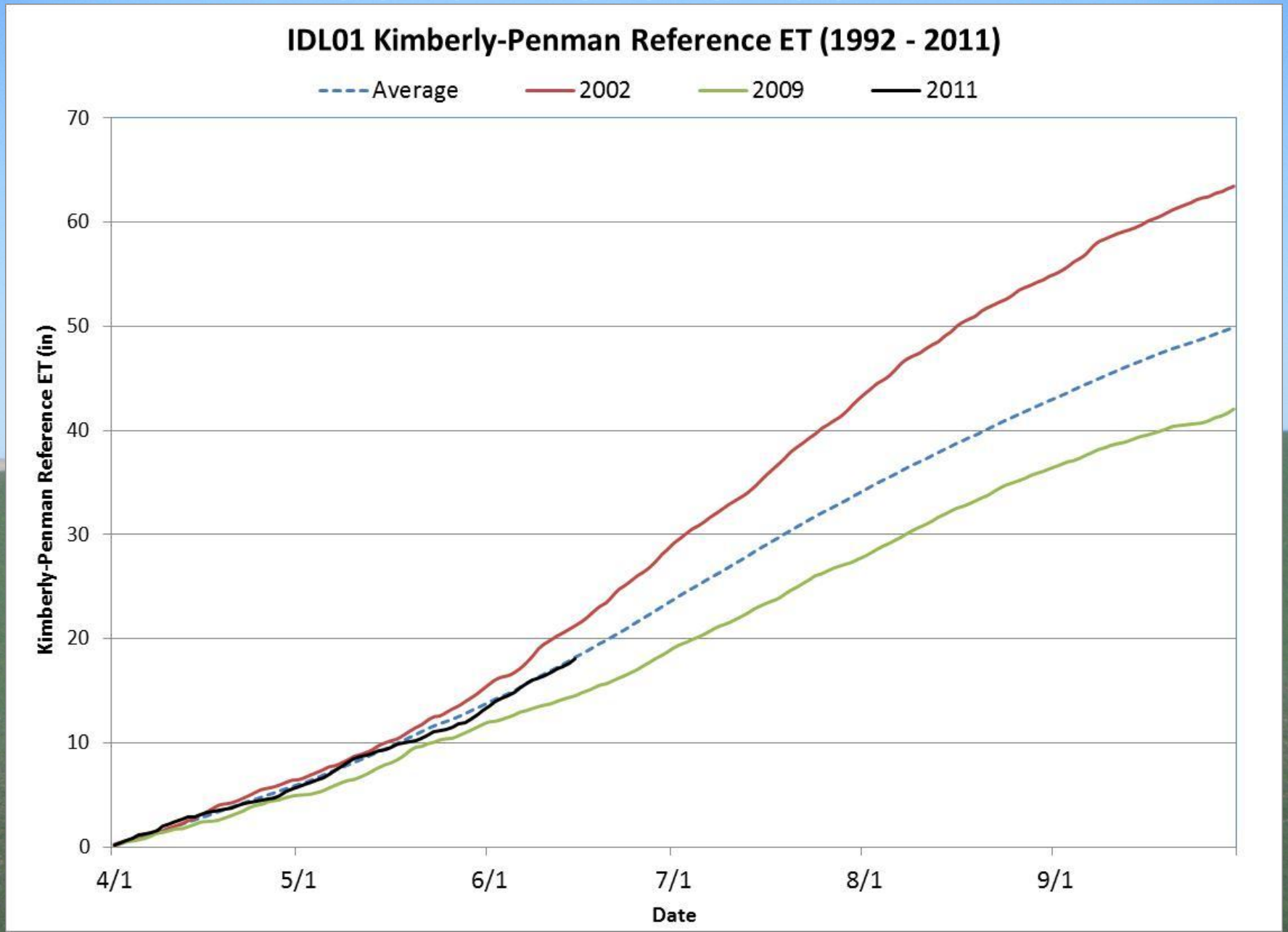
Center Reference ET



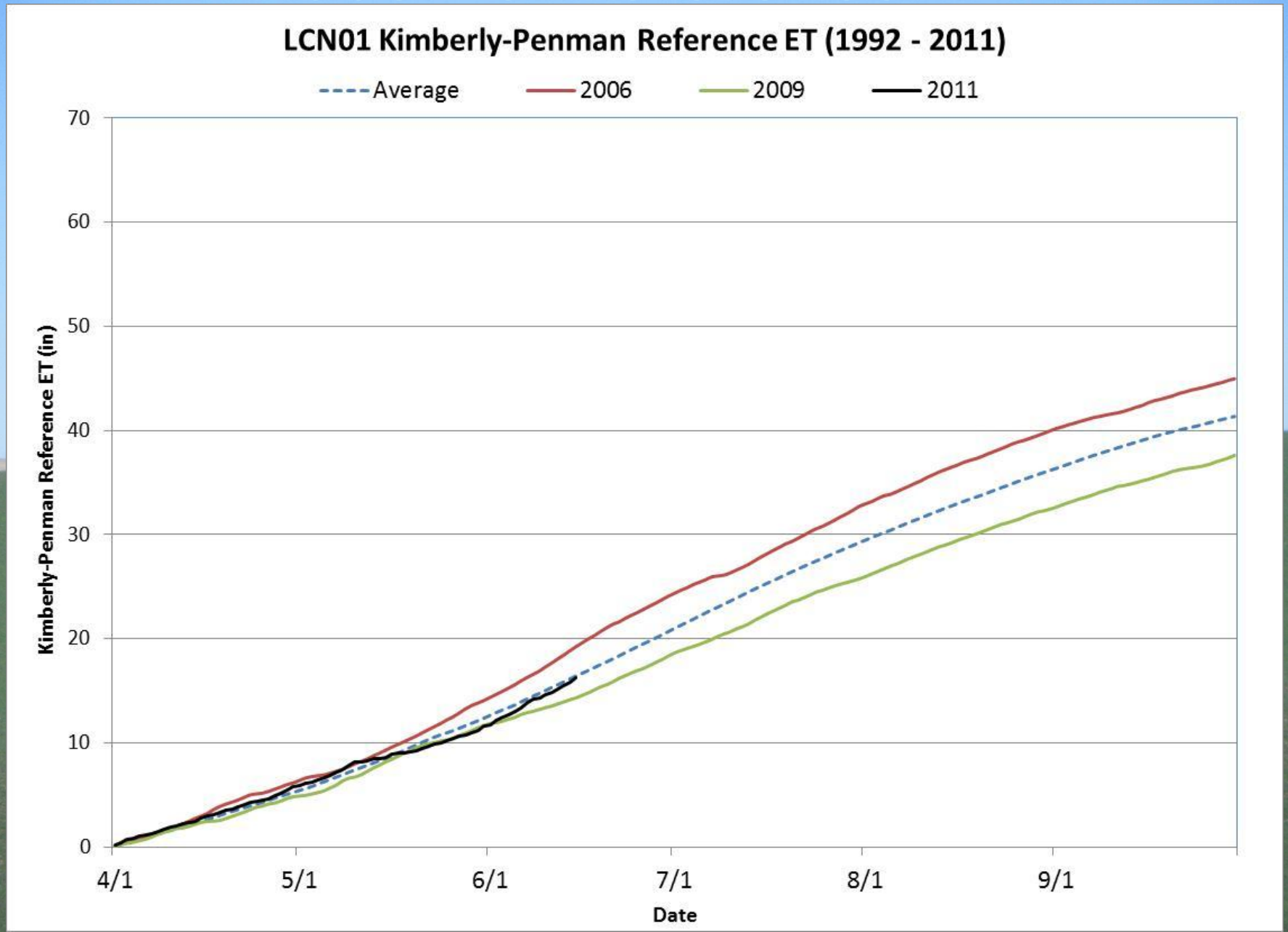
Avondale Reference ET



Idalia Reference ET



Lucerne Reference ET



Colorado Climate Center

Data and Power Point Presentations available for downloading

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