Assessment of 2004 Water Year

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Colorado Climate Center

(presented to Colorado Organic Conference and Trade Show, Brighton, CO, March 2, 2004)

Prepared by Odie Bliss

http://ccc.atmos.colostate.edu

Colorado State University
Knowledge to Go Places

Precipitation Anomalies

"Drought 2002 in Colorado" PAGEOPH article

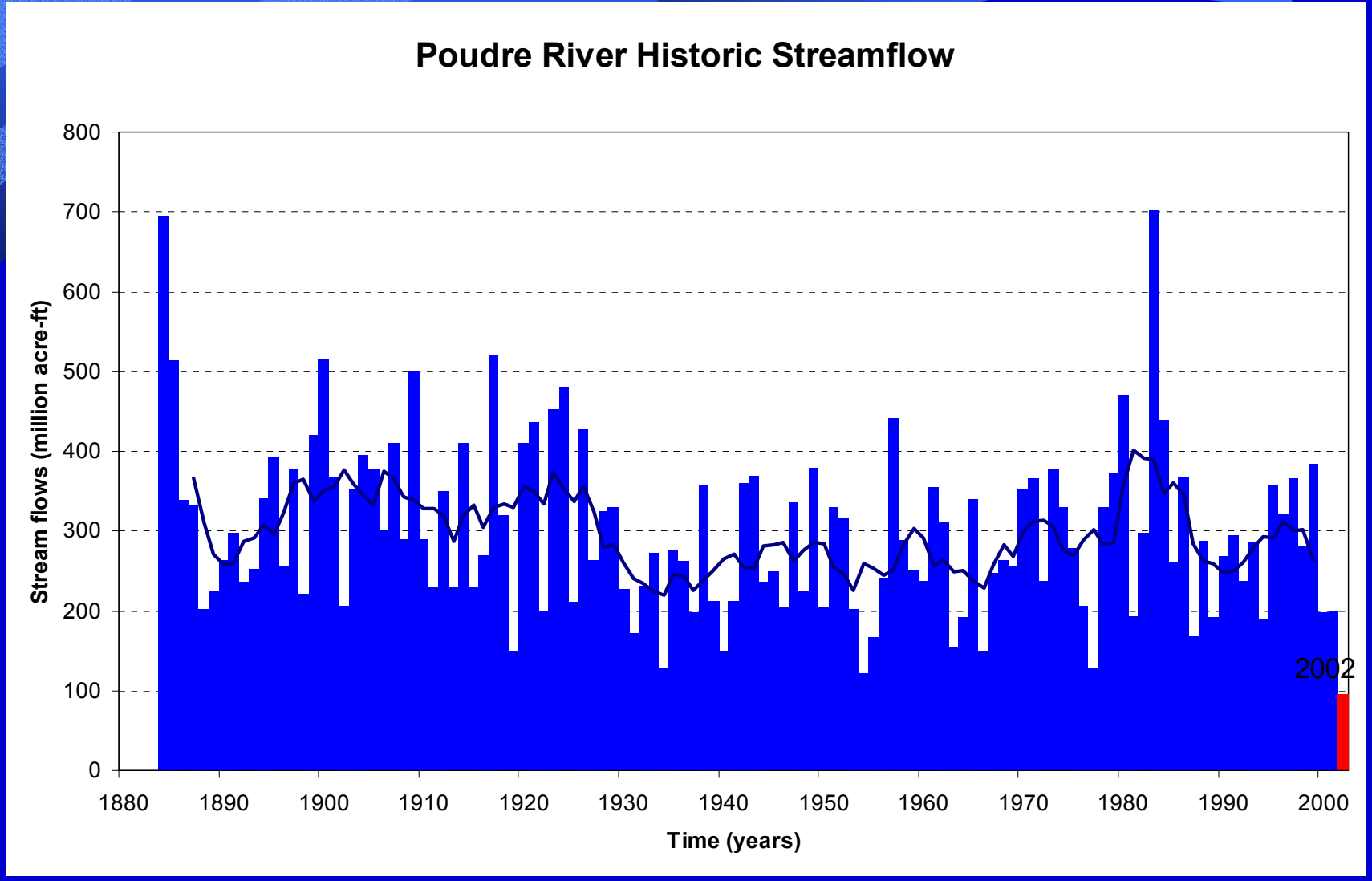
Table 1. Precipitation Accumulation Analysis for 12-month (Sep. 2001-Aug. 2002), 13 month (Sep. 2001-Sep. 2002) and 2002 Water Year (Oct. 2001-Sep. 2002) Compared to Period-of-Record (POR) and 1941-2002 Period. In parentheses are the magnitudes of the standard deviations below the average for the time period, based on the available data for each station.

Table 1.

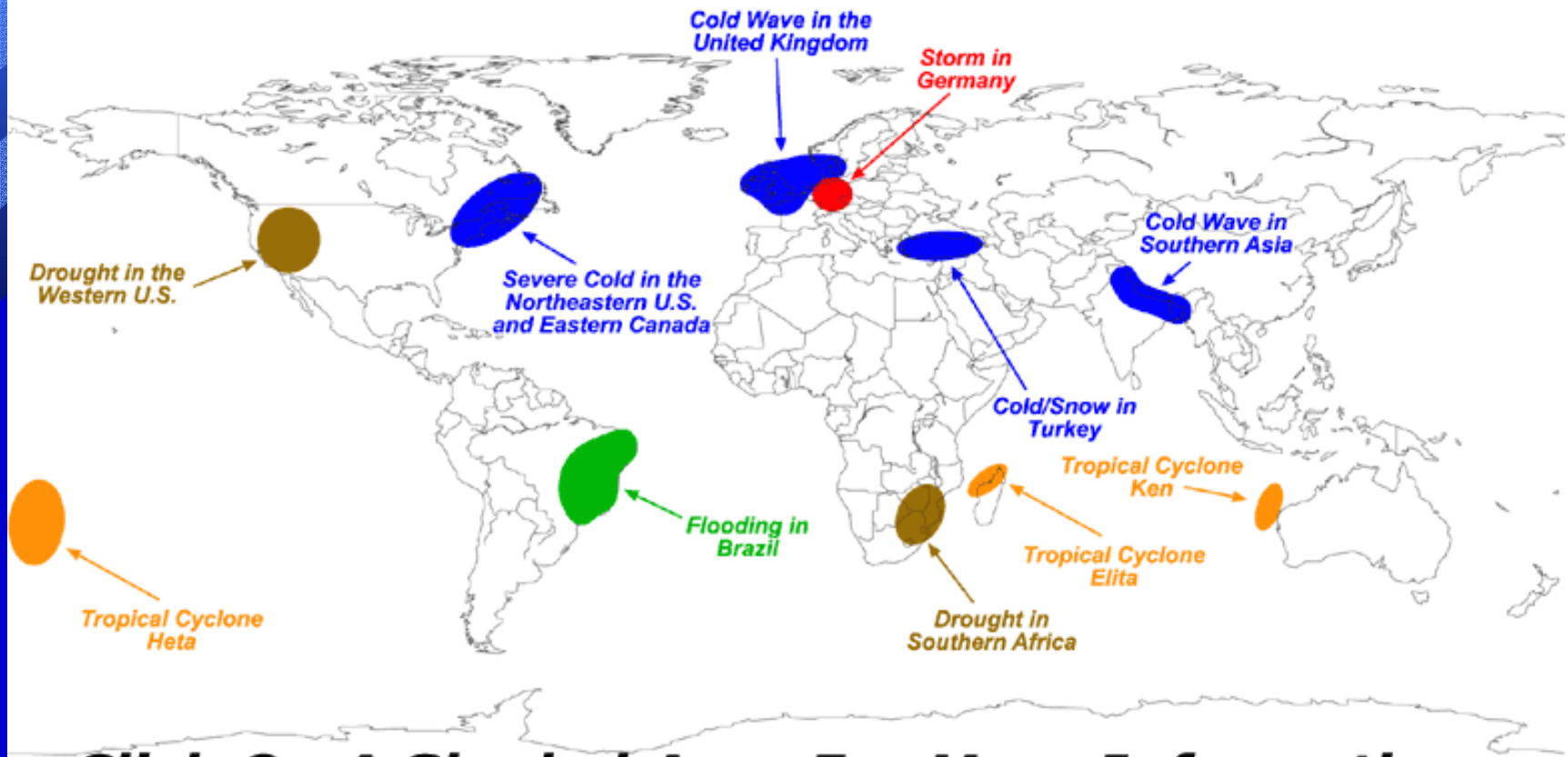
Climatic Stations	Region	Period of Record (POR)	Sep 2001 – Aug 2002 (12 months)			Sep 2001 – Sep 2002 (13 months)			2002 Water Year (Oct 2001 – Sep 2002)		
			POR Rank	1941-2002 Rank (SD)	mm	POR Rank	1941-2002 Rank (SD)	mm	POR Rank	1941-2002 Rank (SD)	mm
Grand Lake 1NW	1	1940-2002	1	1 (1.87)	319	2	2 (1.42)	407	1	1 (1.71)	327
Taylor Park	1	1941-2002	1	1 (2.02)	265	2	2 (1.65)	324	3	3 (1.51)	303
Grand Junction WSO	2	1892-2002	8	5 (1.39)	141	31	20 (0.63)	205	43	27 (0.34)	201
Meeker	2	1891-2002	7	5 (1.78)	263	8	6 (1.64)	303	7	7 (1.58)	276
Montrose No. 2	3	1896-2002	3	3 (1.54)	148	15	8 (1.02)	203	29	1 (0.80)	193
Mesa Verde NP	3	1923-2002	1	1 (2.30)	189	1	1 (1.97)	250	3	3 (1.79)	246
Del Norte 2E	4	1920-2002	1	1 (2.55)	81	3	3 (1.96)	132	3	3 (1.80)	119
Center 4 SSW	4	1891-2002	1	1 (2.69)	62	1	1 (2.20)	97	4	4 (1.92)	94
Colorado Springs WSO	5	1892-2002	1	1 (2.13)	165	1	1 (2.01)	198	2	1 (1.97)	172
Pueblo WSO	5	1891-2002	1	1 (2.65)	96	1	1 (2.64)	113	1	1 (2.56)	101
Rocky Ford 2SE	6	1892-2002	1	1 (2.33)	92	1	1 (2.36)	108	1	1 (2.31)	238
Cheyenne Wells	6	1897-2002	4	2 (1.67)	235	10	5 (1.39)	291	9	5 (1.48)	252
Akron 4E	7	1905-2002	1	1 (2.02)	239	1	1 (1.83)	277	1	1 (1.88)	95
Leroy 7WSW	7	1891-2002	4	2 (1.91)	269	4	2 (1.82)	294	4	2 (2.05)	243
Kassler	8	1899-2002	8	4 (1.49)	319	9	5 (1.44)	351	6	4 (1.48)	309
Fort Collins	8	1890-2002	3	2 (1.96)	200	3	2 (1.84)	237	5	4 (1.66)	214
Stations Ranked Driest			**9**	**9**		**6**	**6**		**4**	**6**	

http://blue.atmos.colostate.edu/publications/pdf/R-285.pdf

Poudre River Streamflow



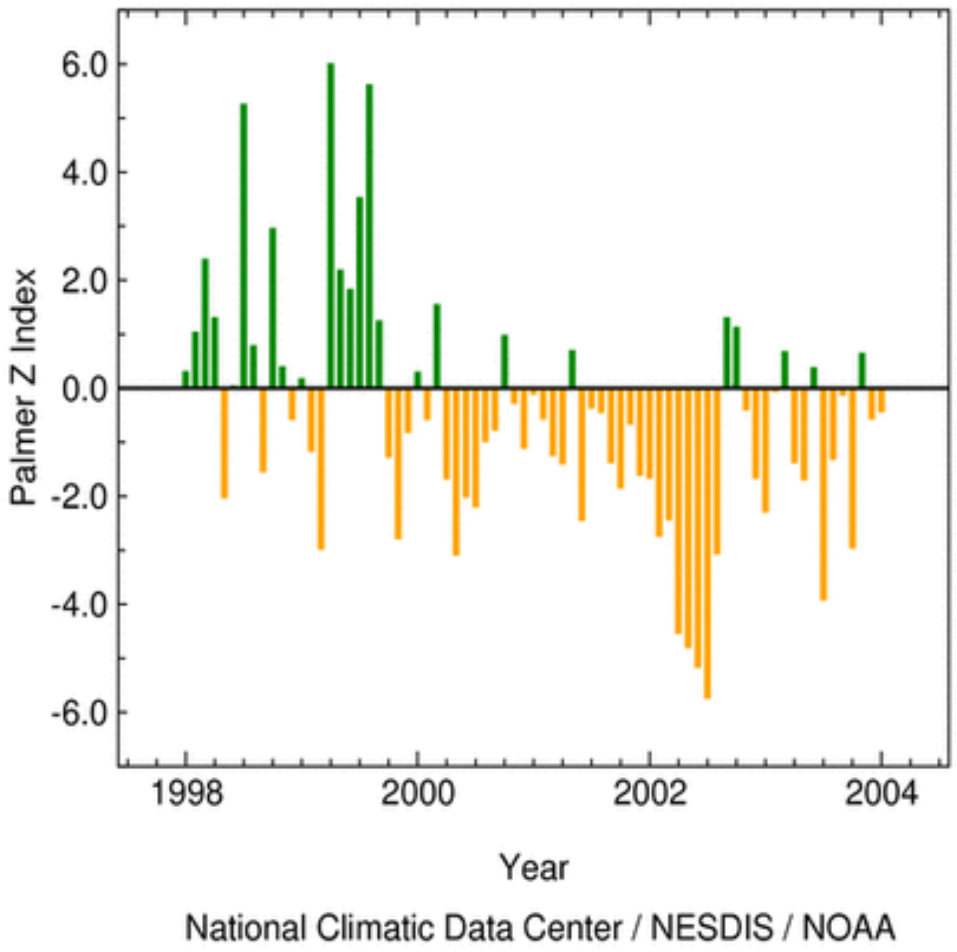
Selected Global Significant Events
January 2004



Click On A Shaded Area For More Information

Drought | Heavy Rain / Flooding | Tropical Systems | Storms | Cold / Snow

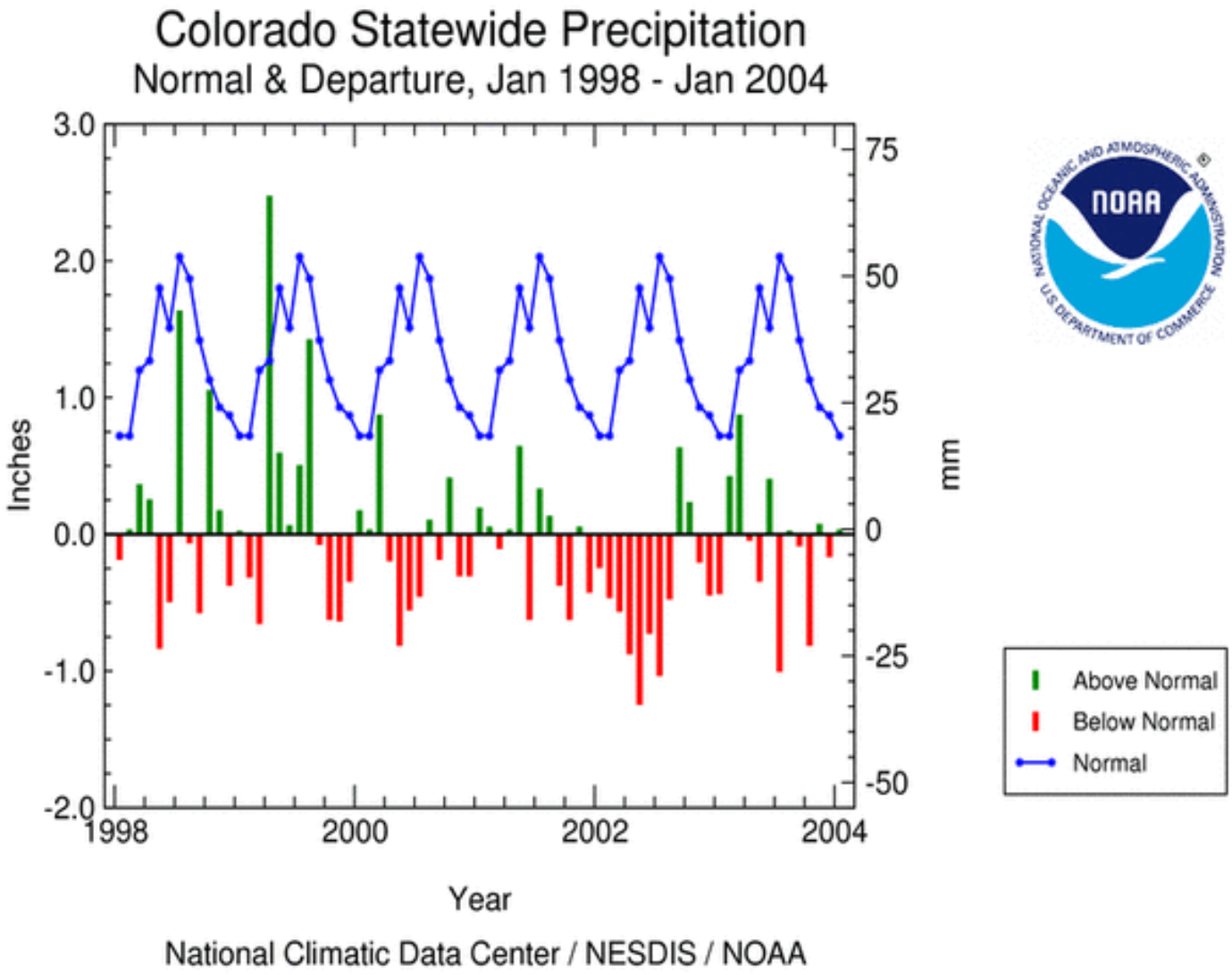
http://www.ncdc.noaa.gov/oa/climate/research/2004/jan/jan04.html



*Palmer Z Index
Short-Term Drought

Dry Spell
Wet Spell

http://www.ncdc.noaa.gov/oa/climate/research/2004/jan/st005dv00pcp200401.html



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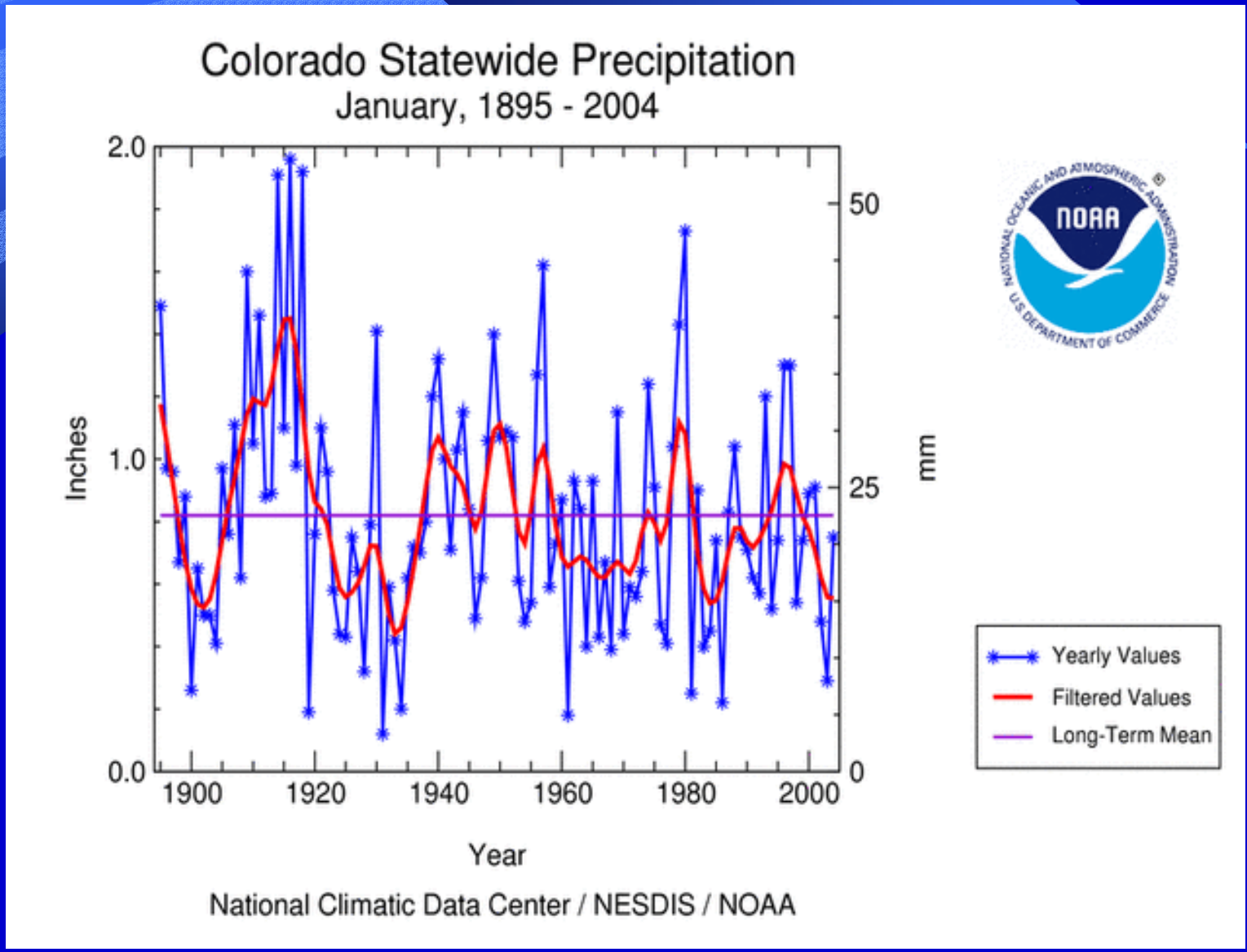


http://www.ncdc.noaa.gov/oa/climate/research/2004/jan/st005dv00pcp200401.html

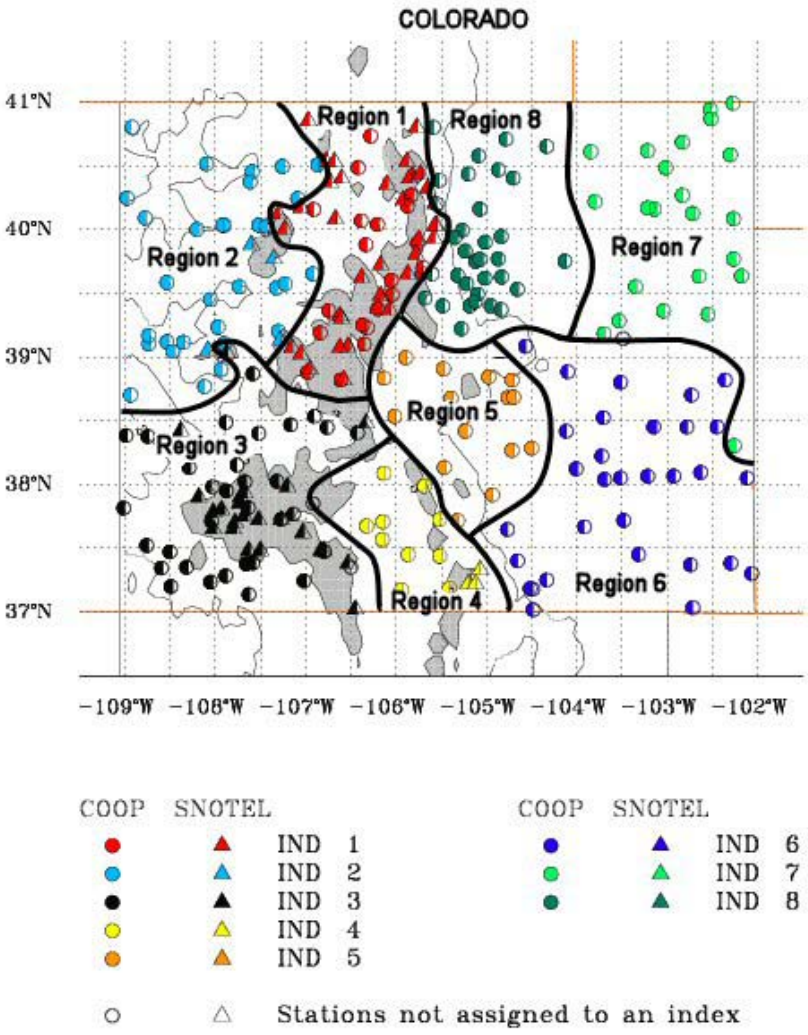
Period of record 1895-2003

Statewide Precipitation Ranks for Colorado , 2003-2004

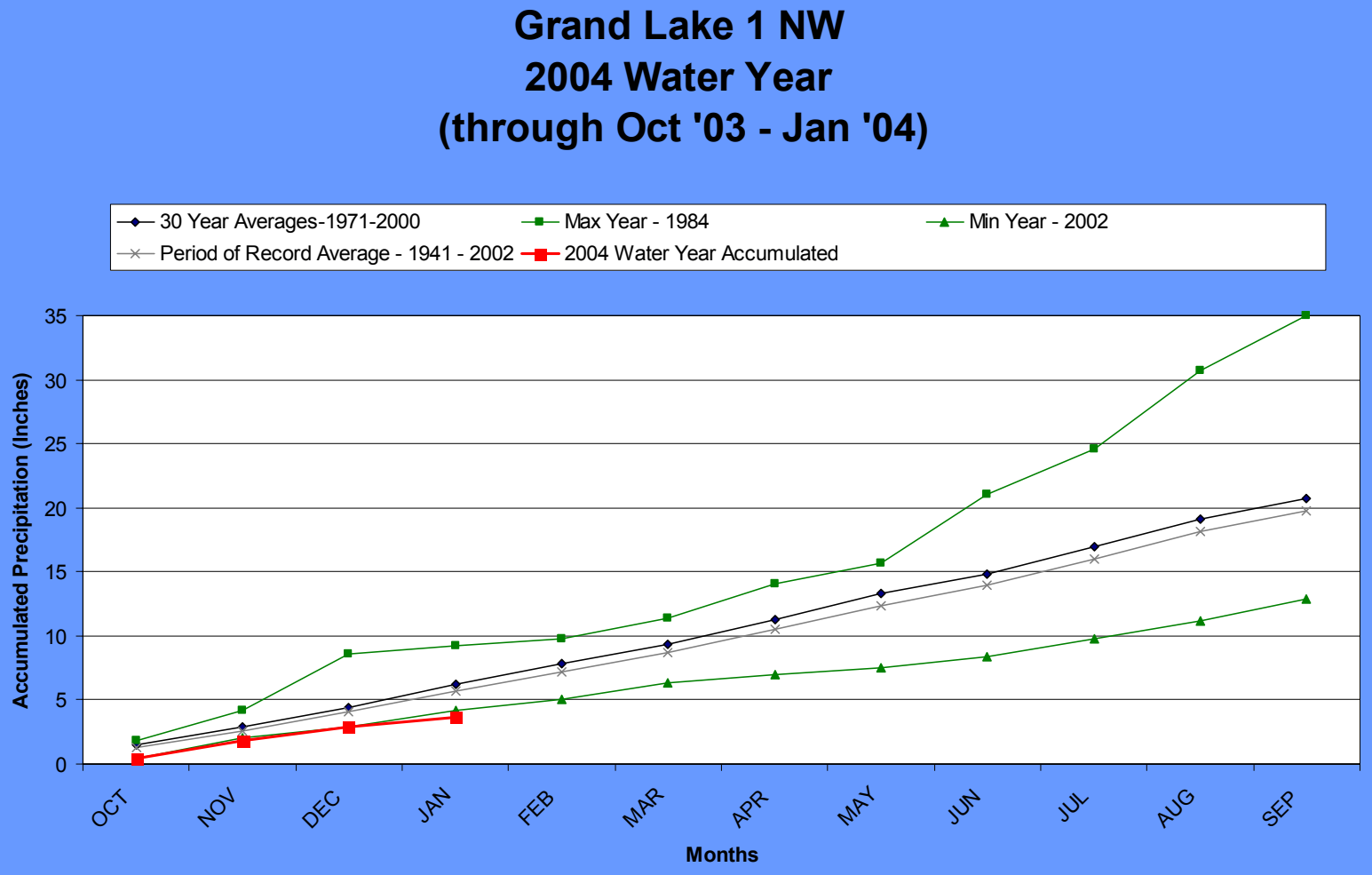
Period	Rank
Jan	54th driest
Dec-Jan	45th driest
Nov-Jan	49th wettest (60th driest)
Oct-Jan	21st driest
Sep-Jan	29th driest
Aug-Jan	31st driest
Jul-Jan	11th driest
Jun-Jan	29th driest
May-Jan	23rd driest
Apr-Jan	23rd driest
Mar-Jan	36th driest
Feb-Jan	41st driest

http://www.ncdc.noaa.gov/oa/climate/research/2004/jan/st005dv00pcp200401.html

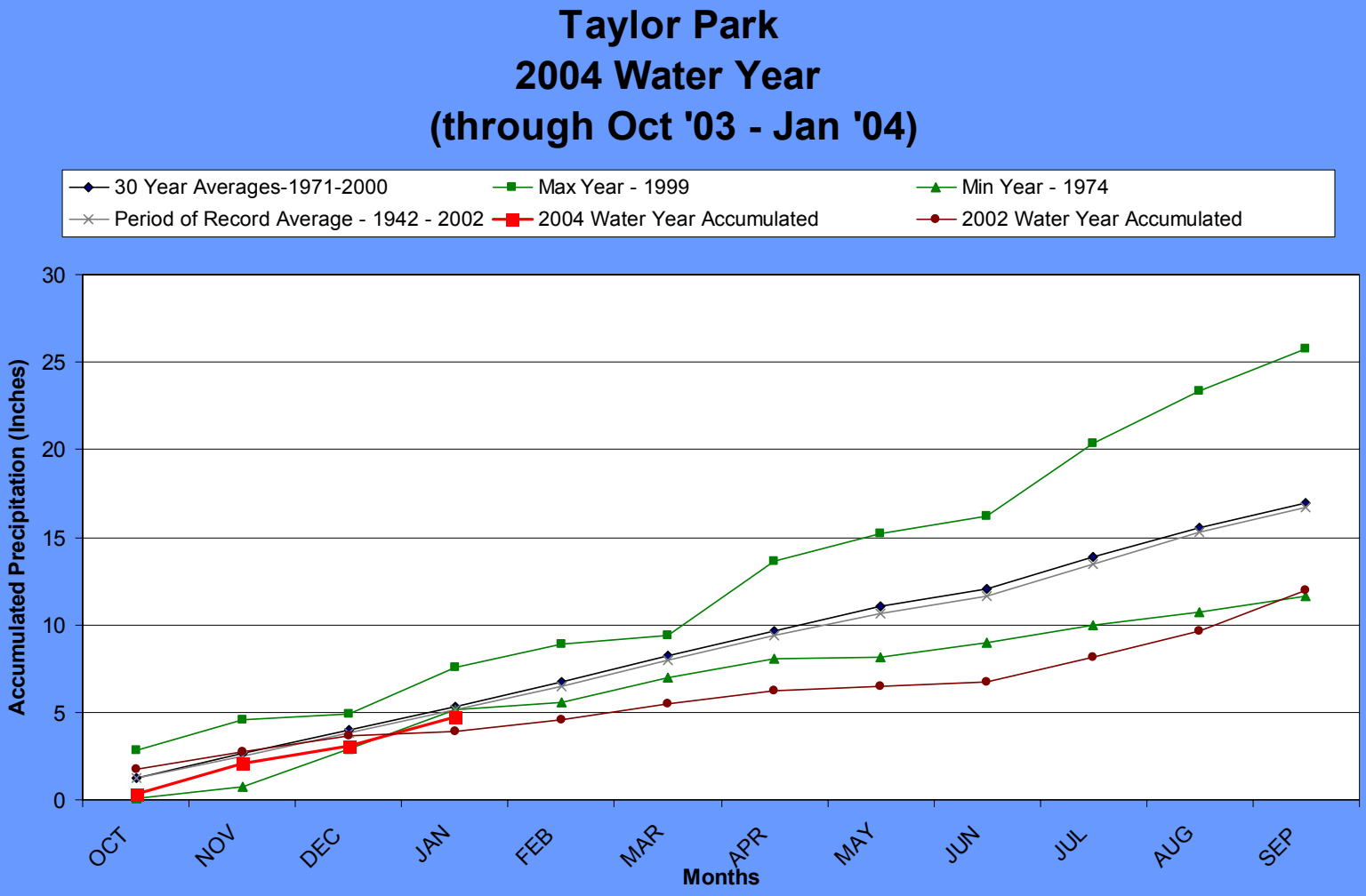
Climate divisions defined by Dr. Klaus Wolter of NOAA's Climate Diagnostic Center in Boulder, CO



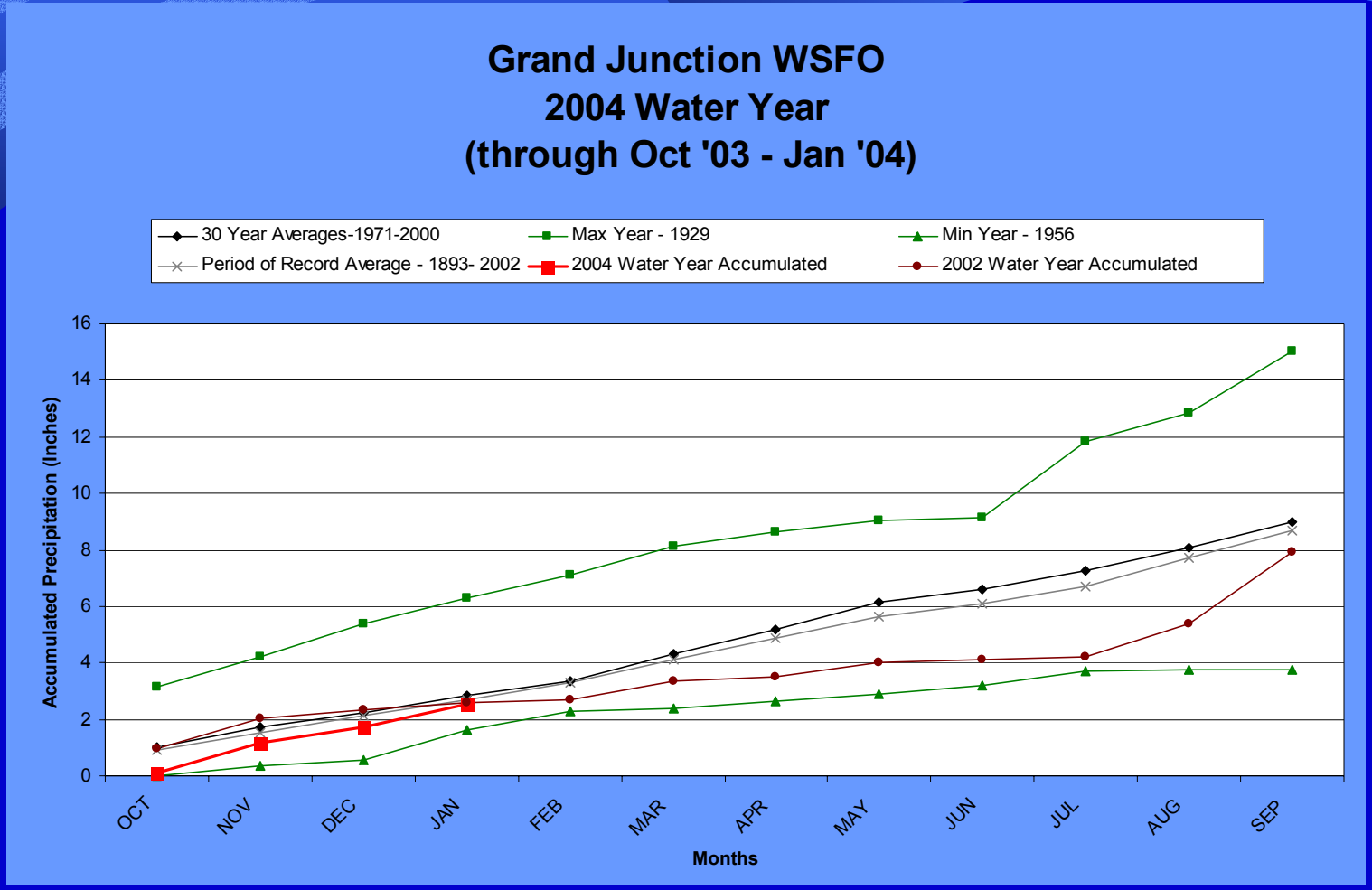
Division 1- Grand Lake 1NW



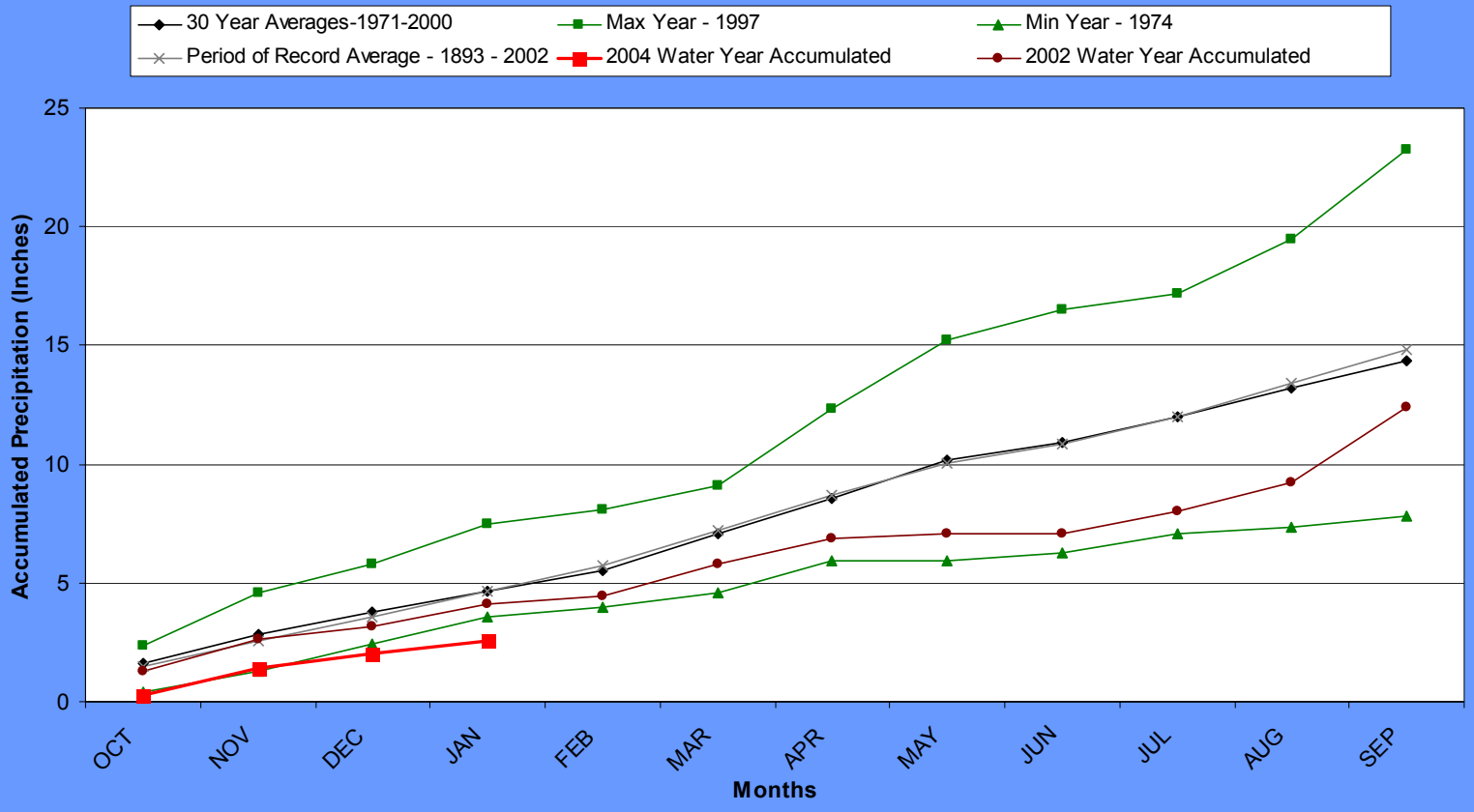
Division 1- Taylor Park



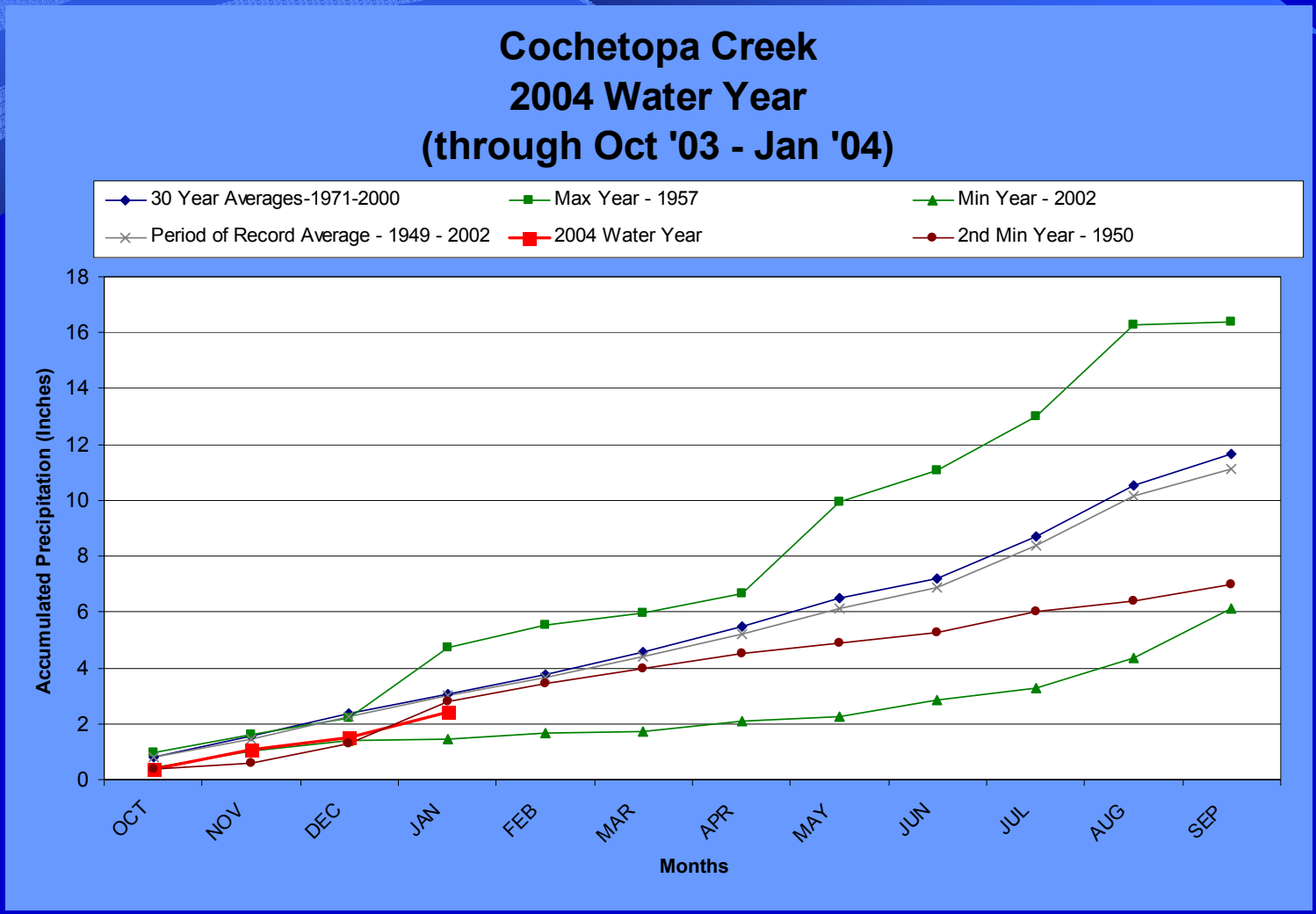
Division 2 – Grand Junction



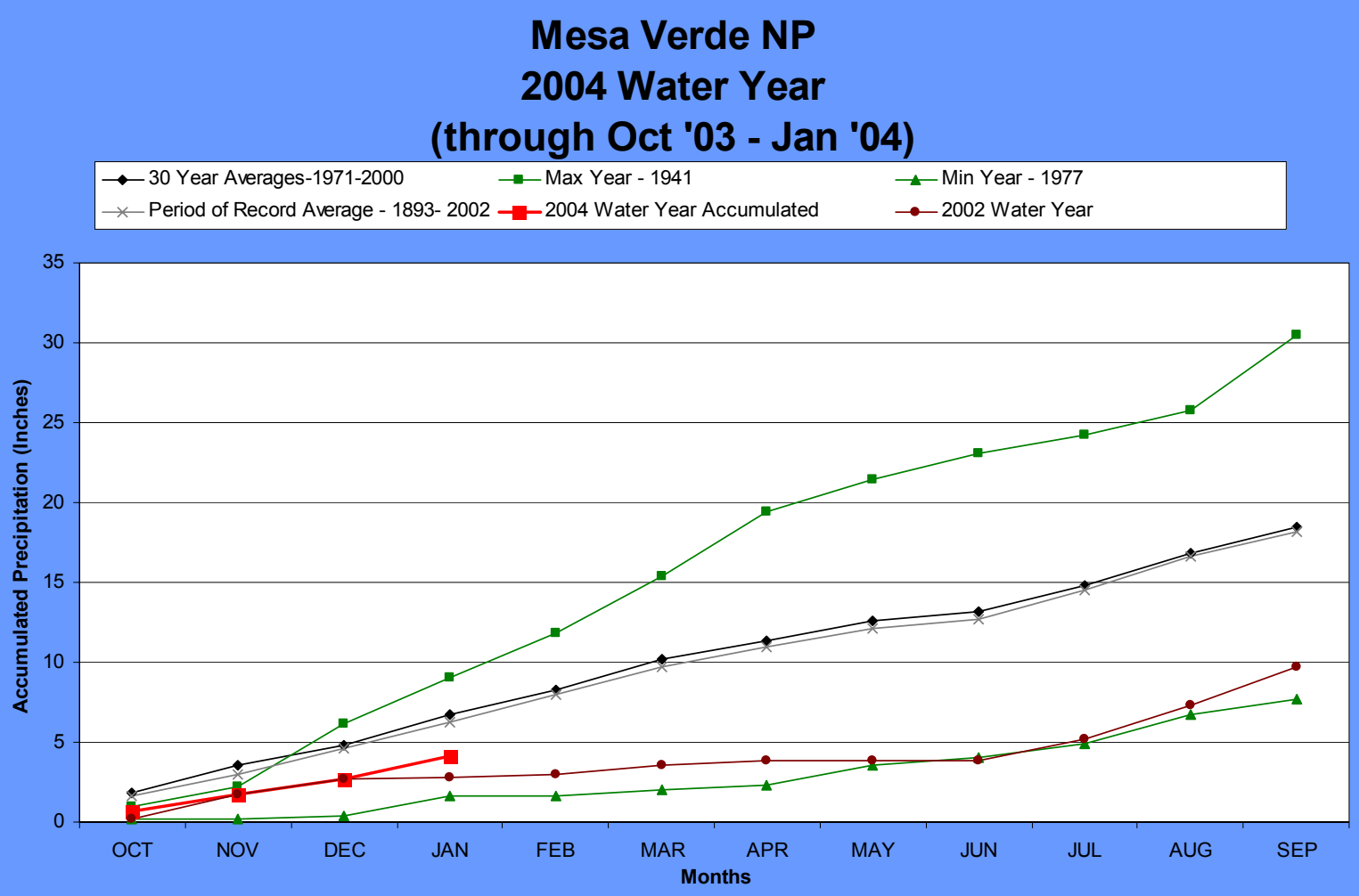
Division 2 – Collbran



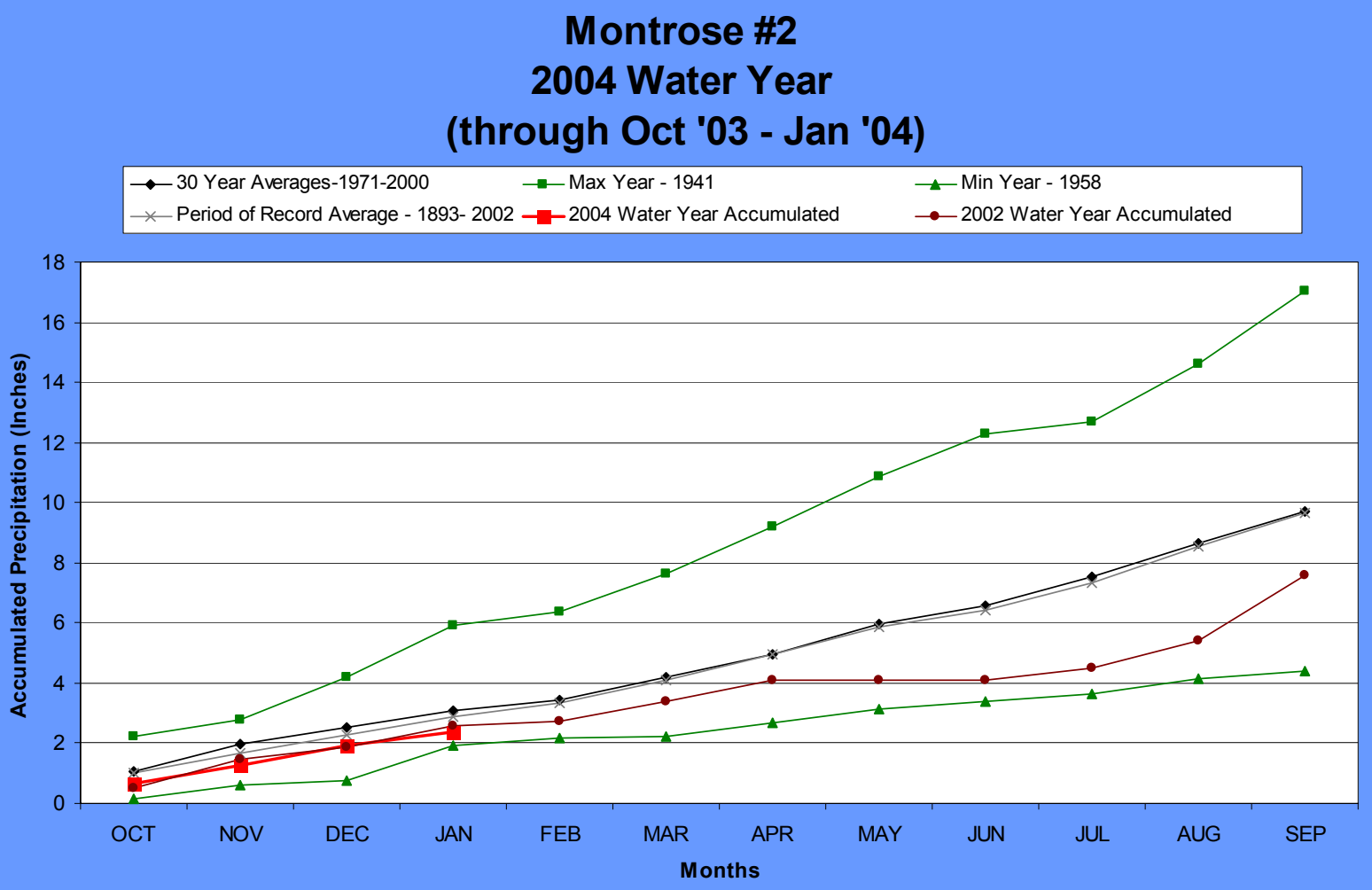
Division 3 – Cochetopa Creek



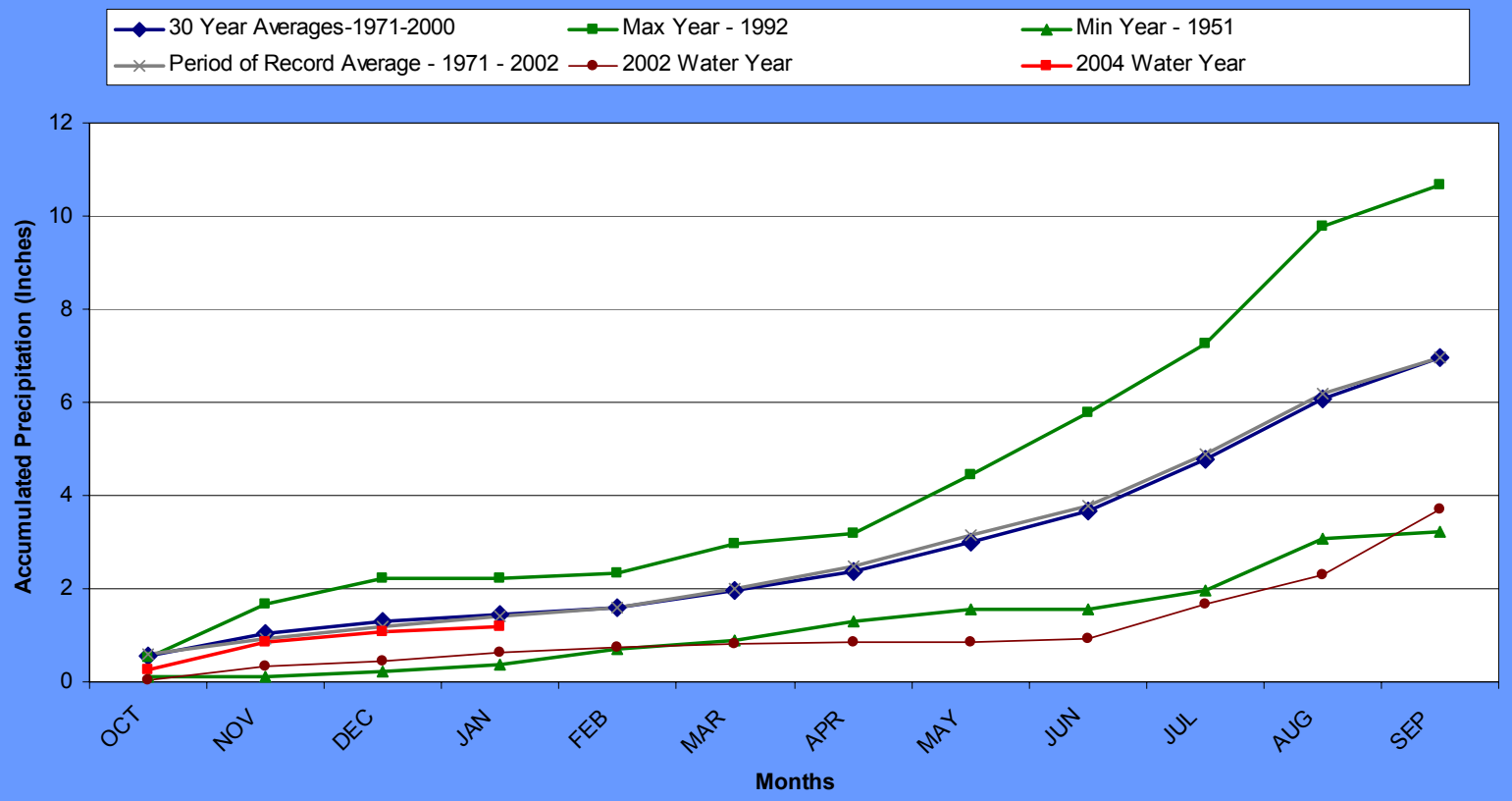
Division 3 – Mesa Verde



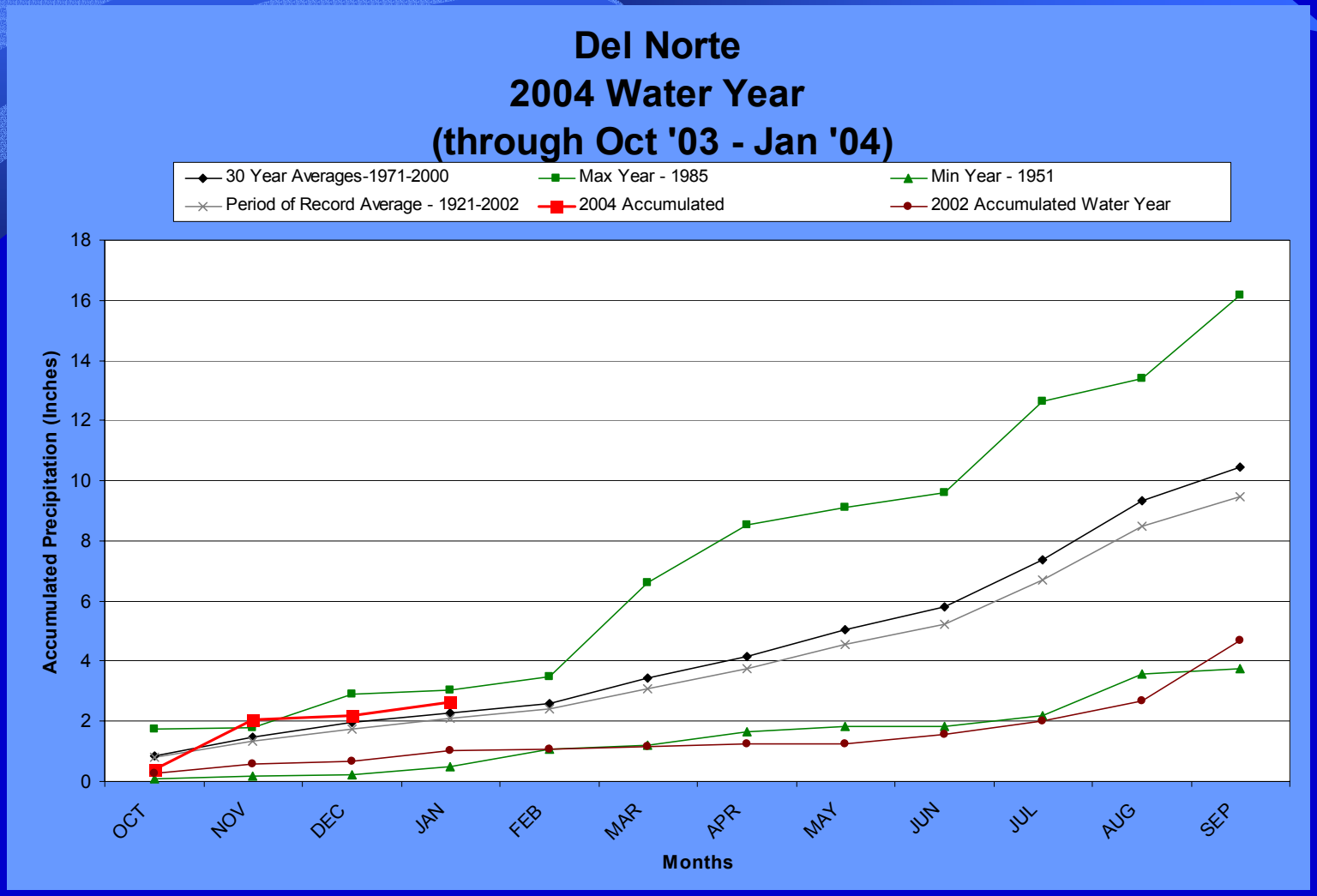
Division 3 - Montrose



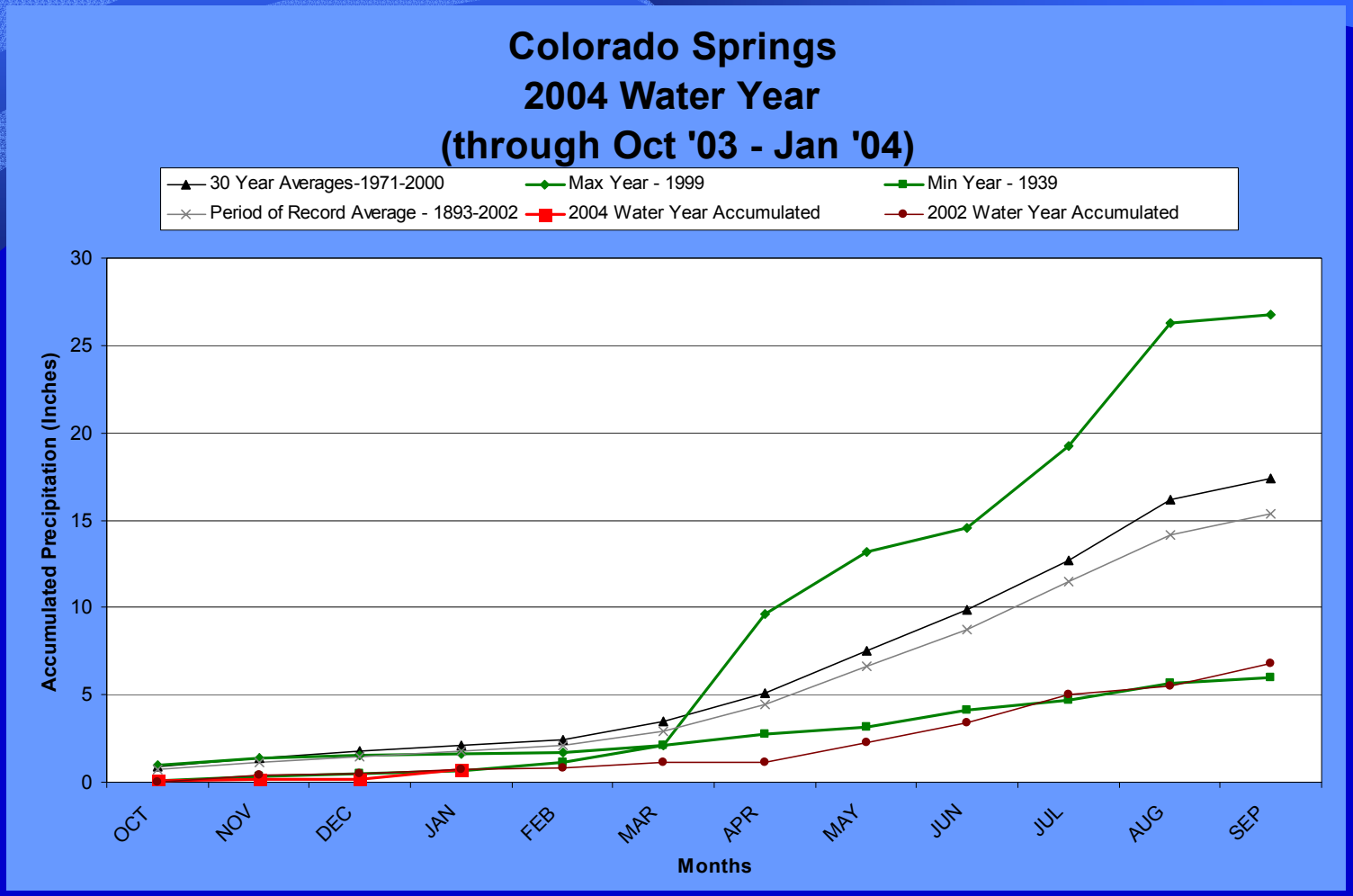
Division 4 - Center



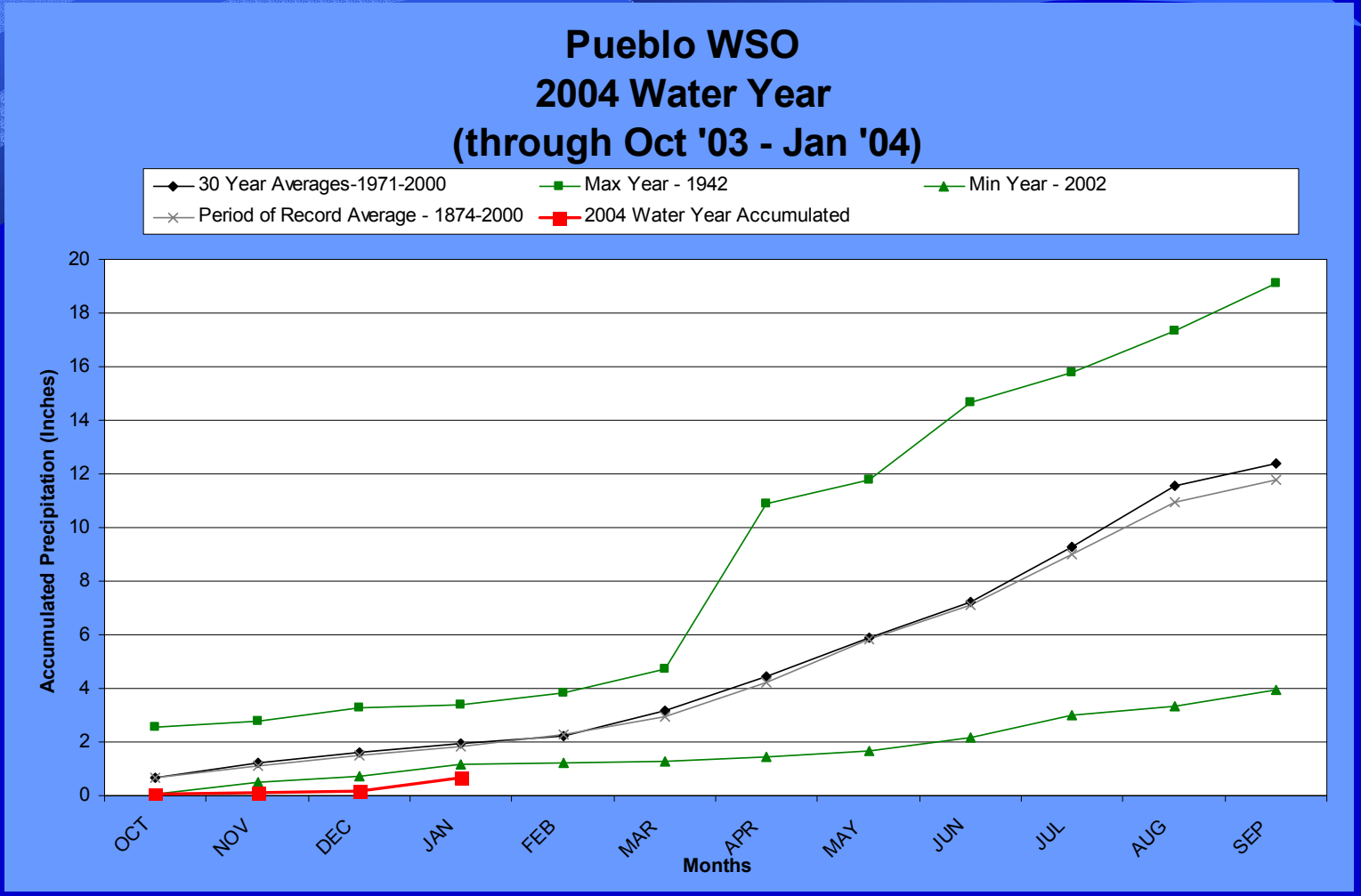
Division 4 – Del Norte



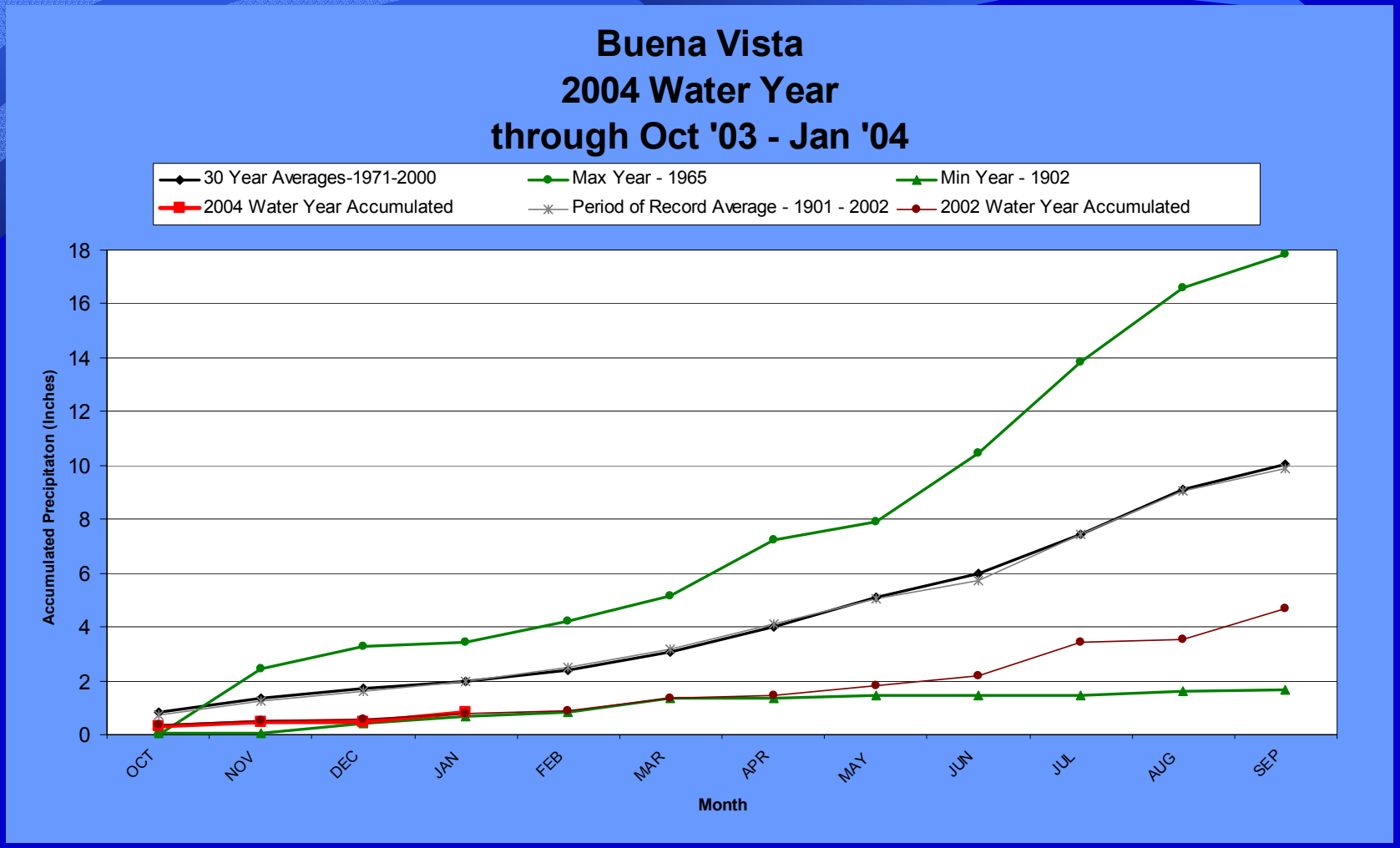
Division 5 – Colorado Springs



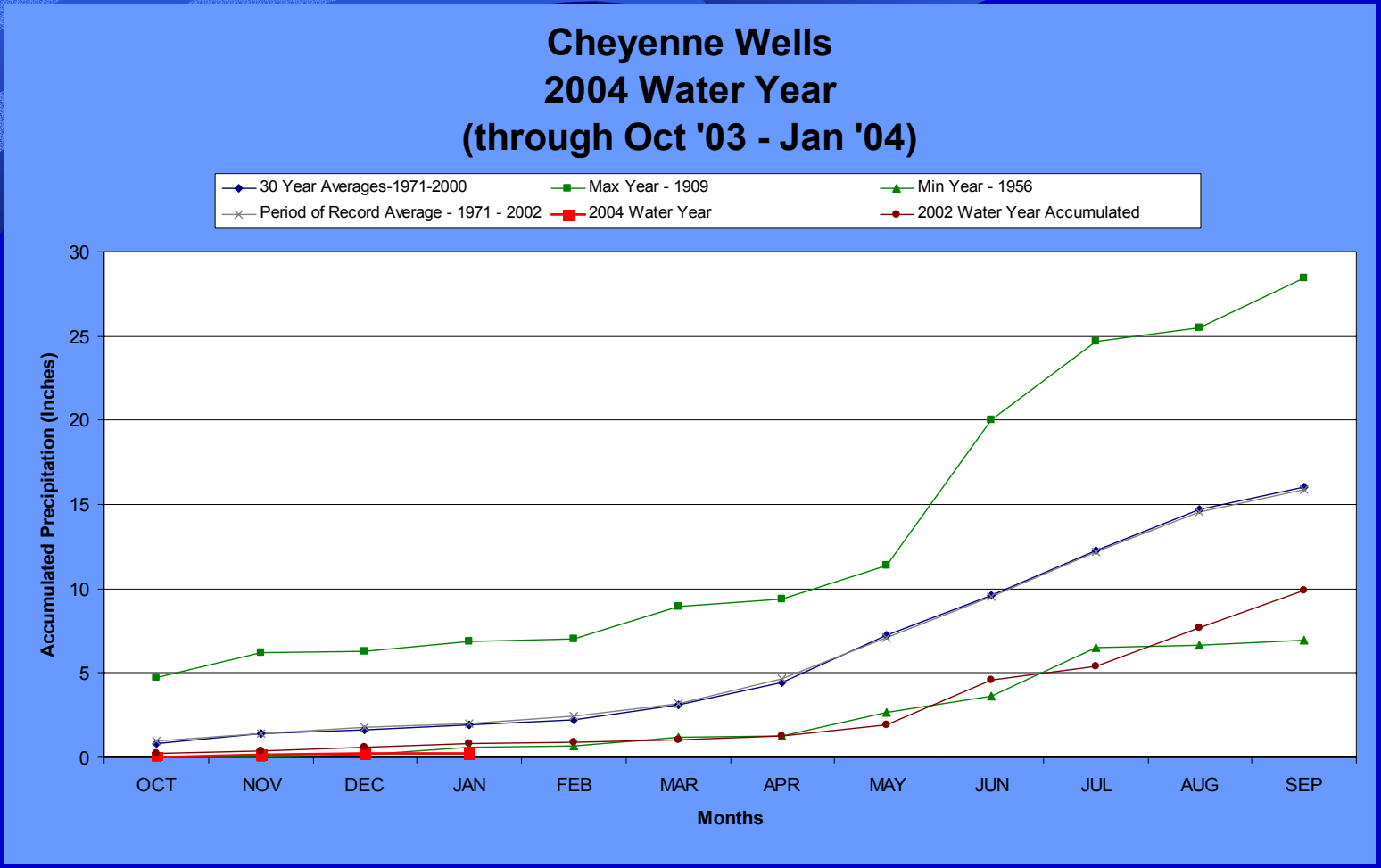
Division 5 - Pueblo



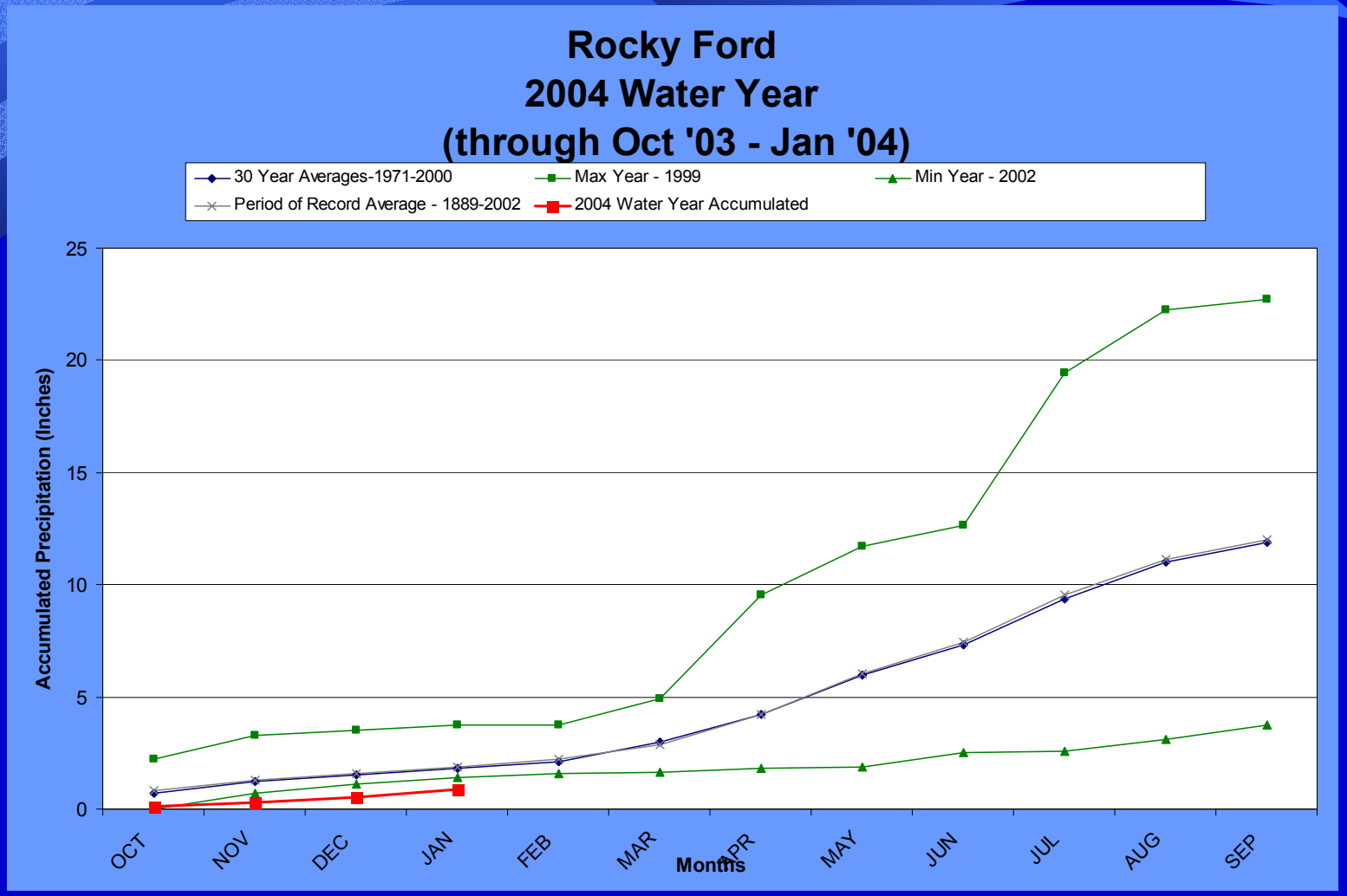
Division 5 – Buena Vista



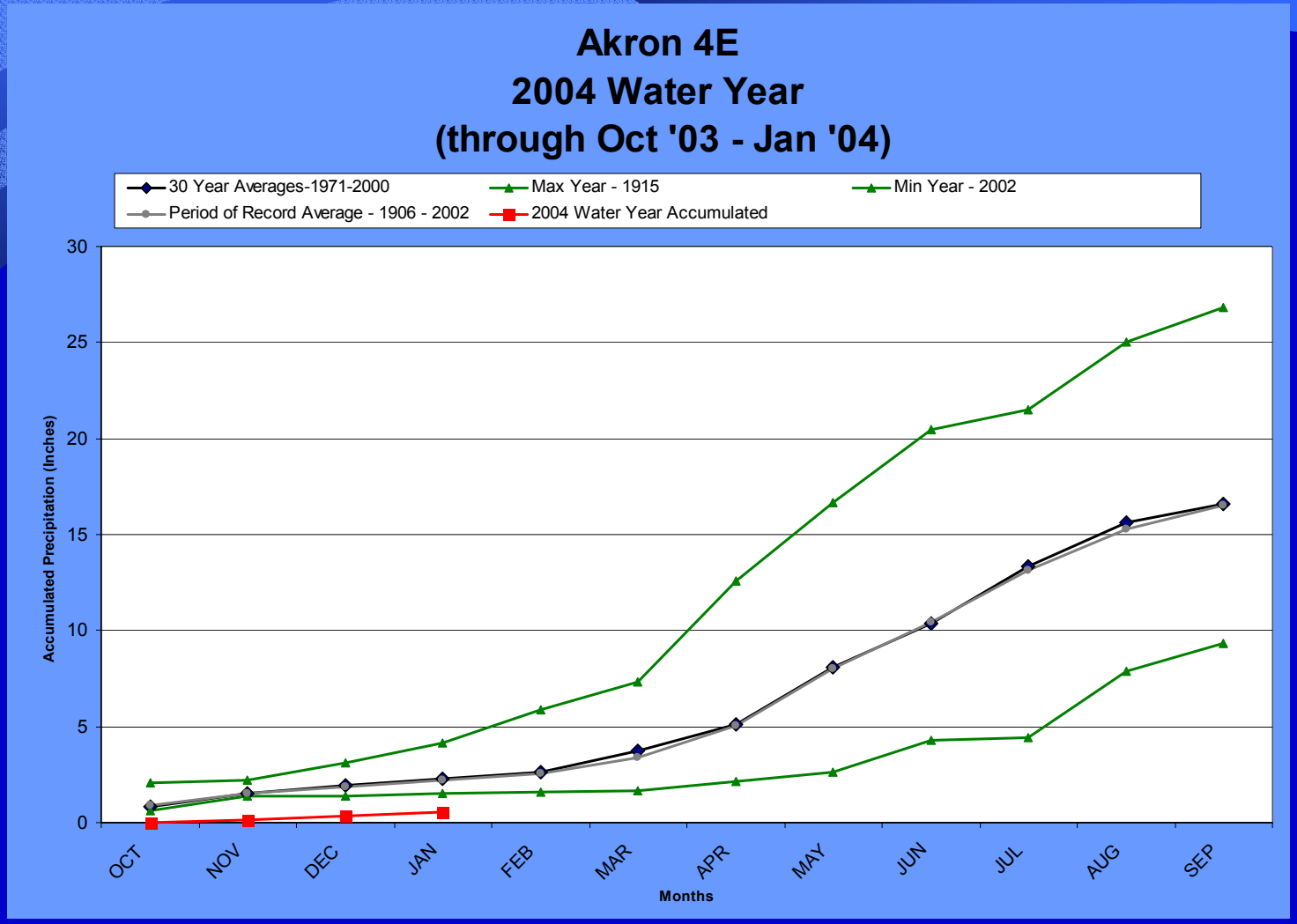
Division 6 – Cheyenne Wells



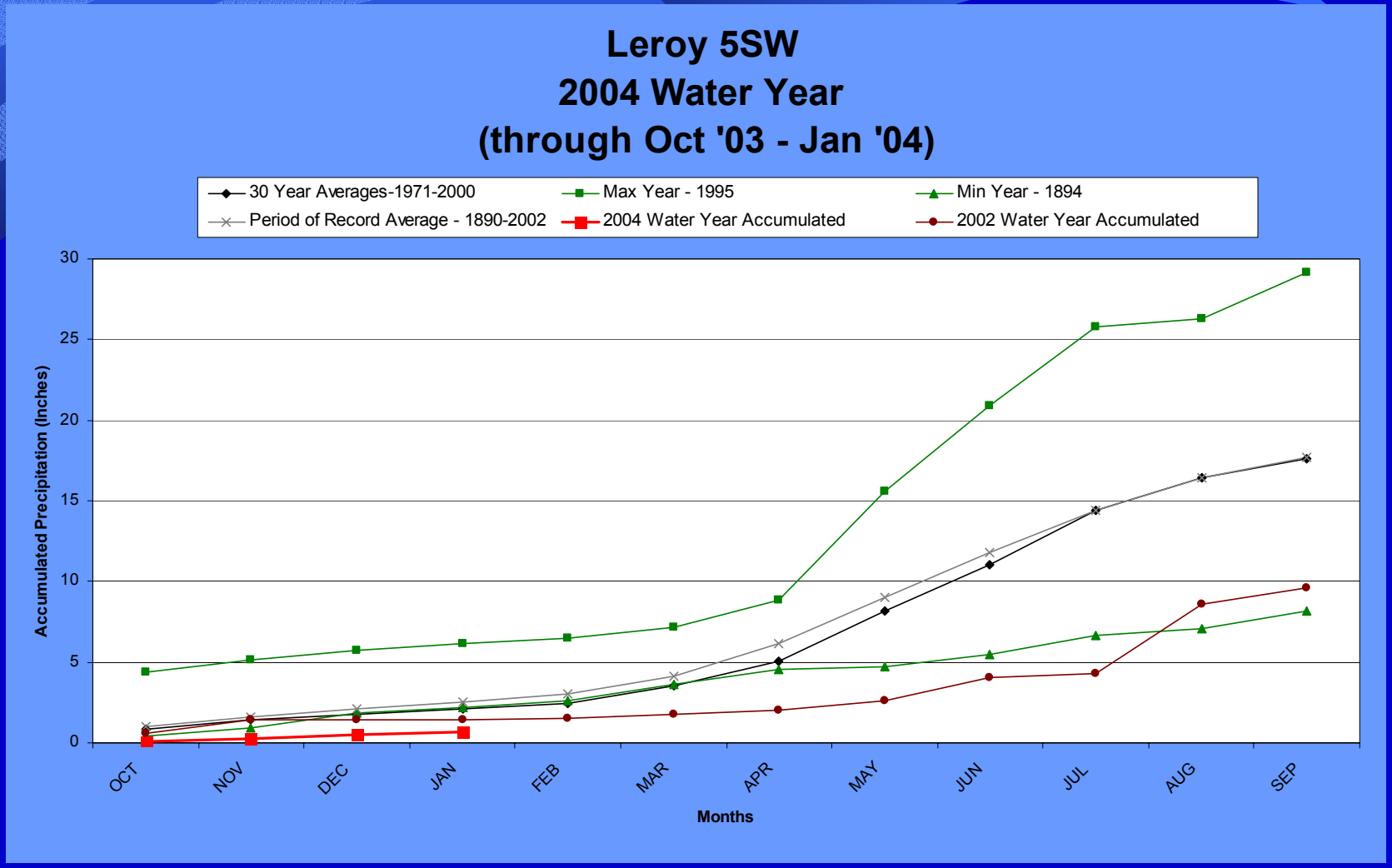
Division 6 – Rocky Ford



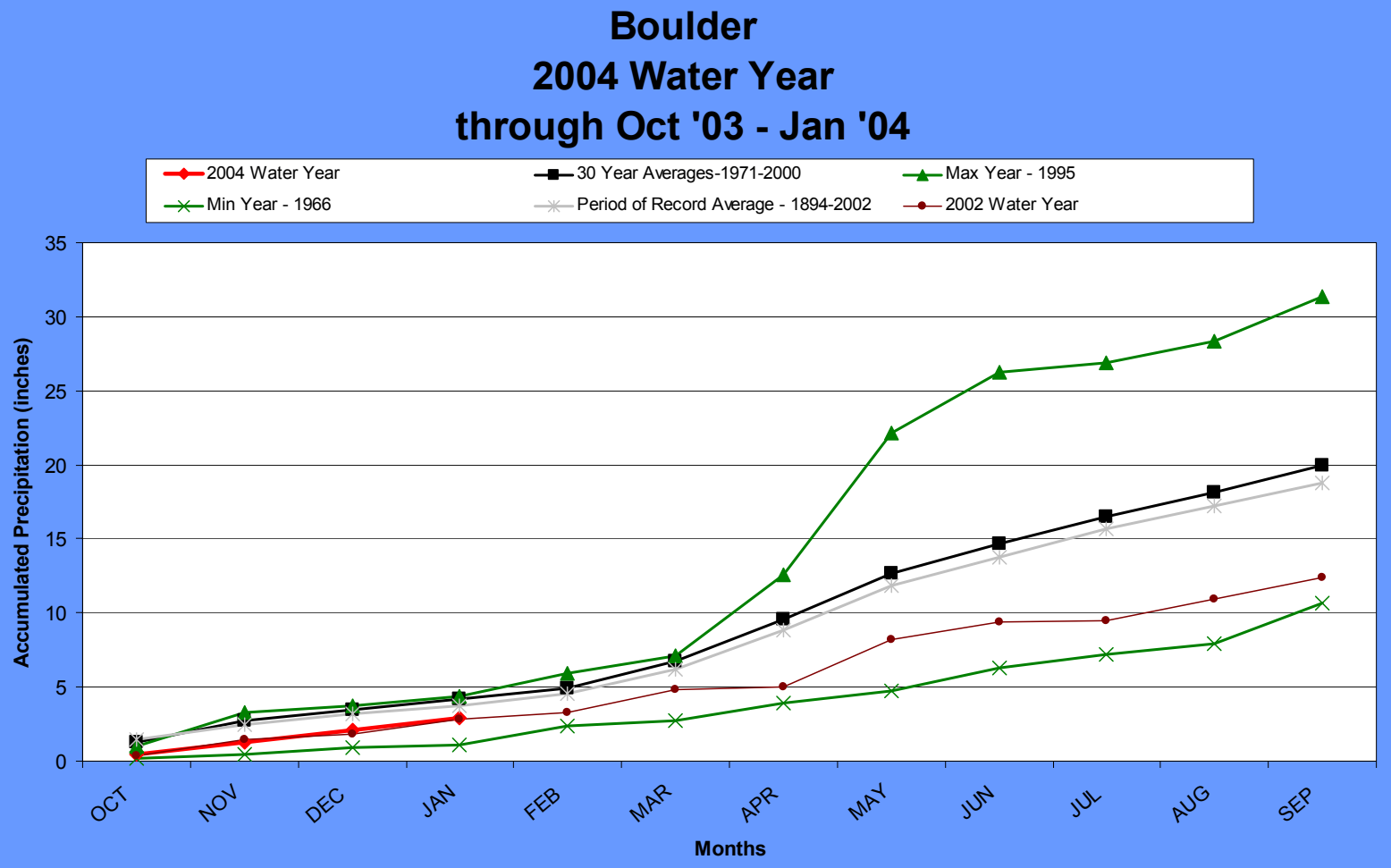
Division 7 – Akron



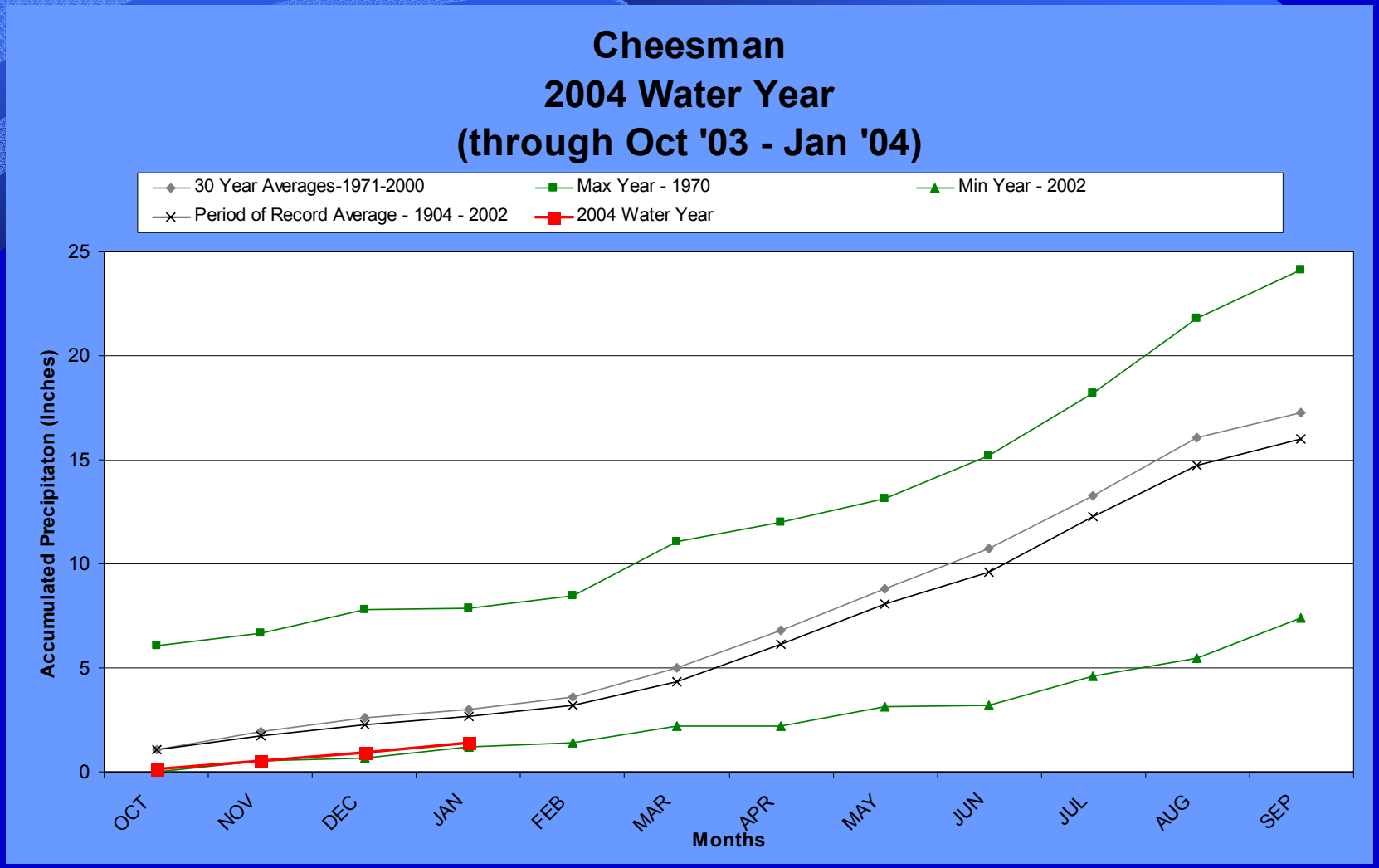
Division 7 - Leroy



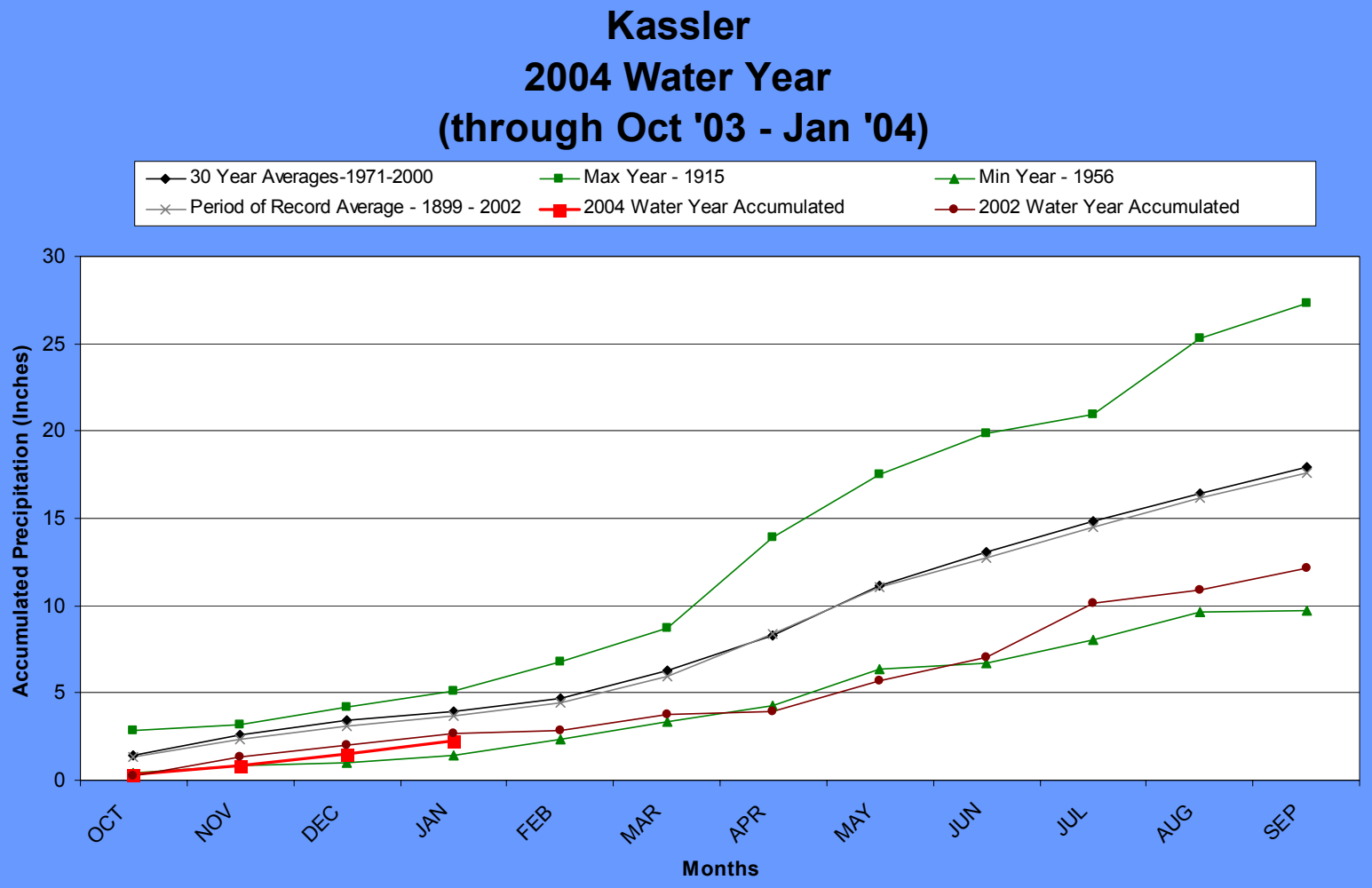
Division 8 – Boulder



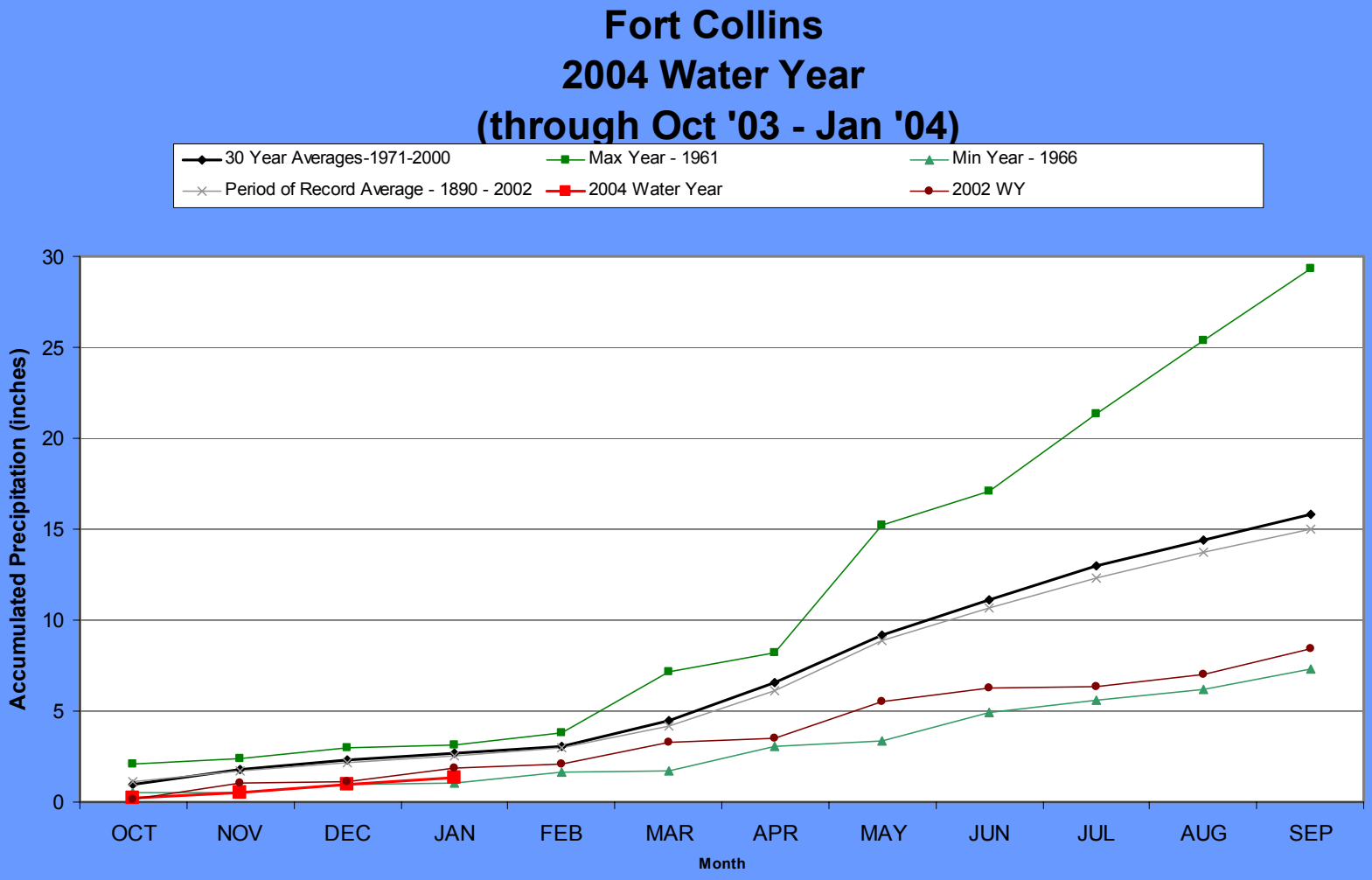
Division 8 – Cheesman

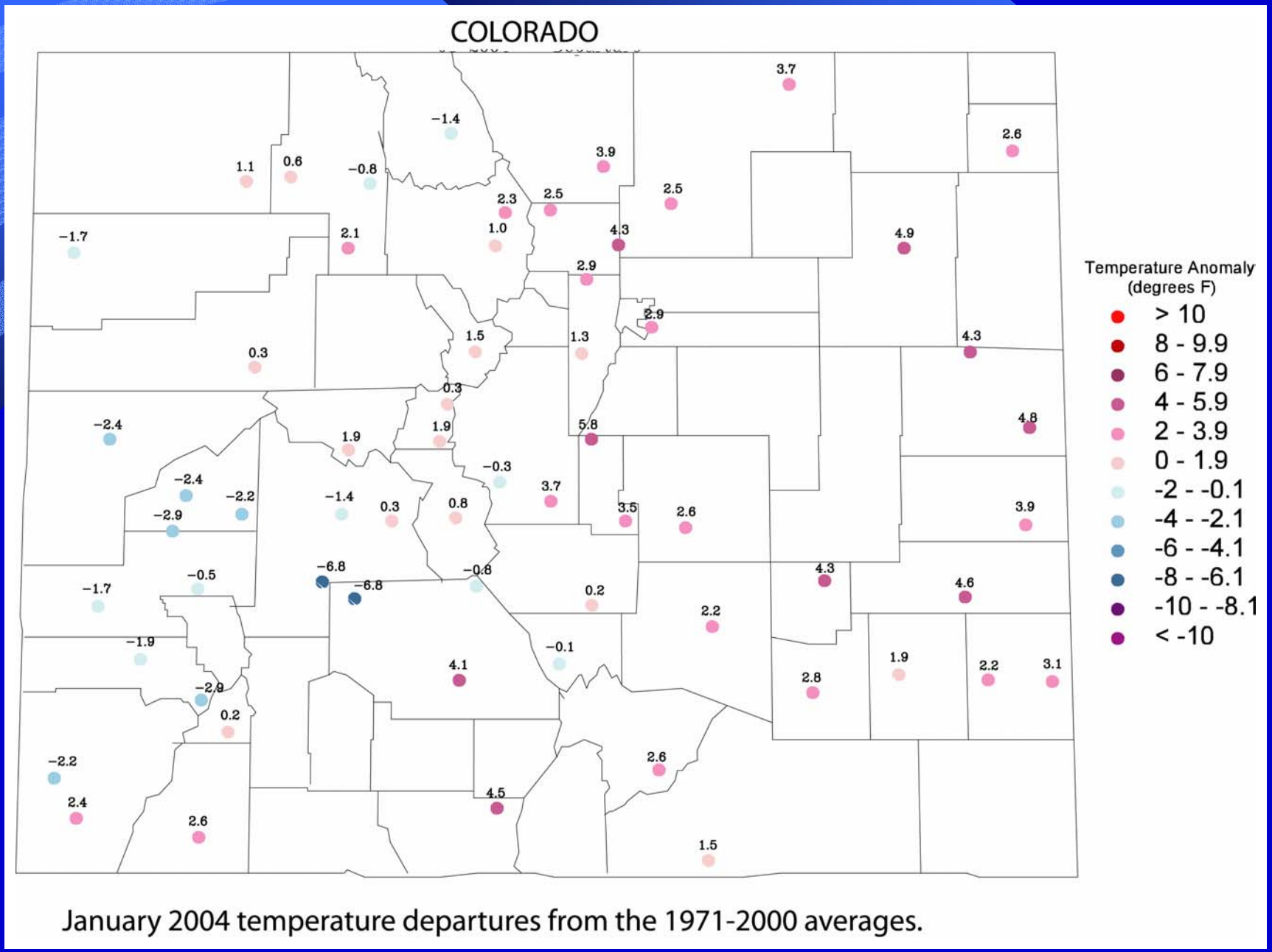


Division 8 – Kassler



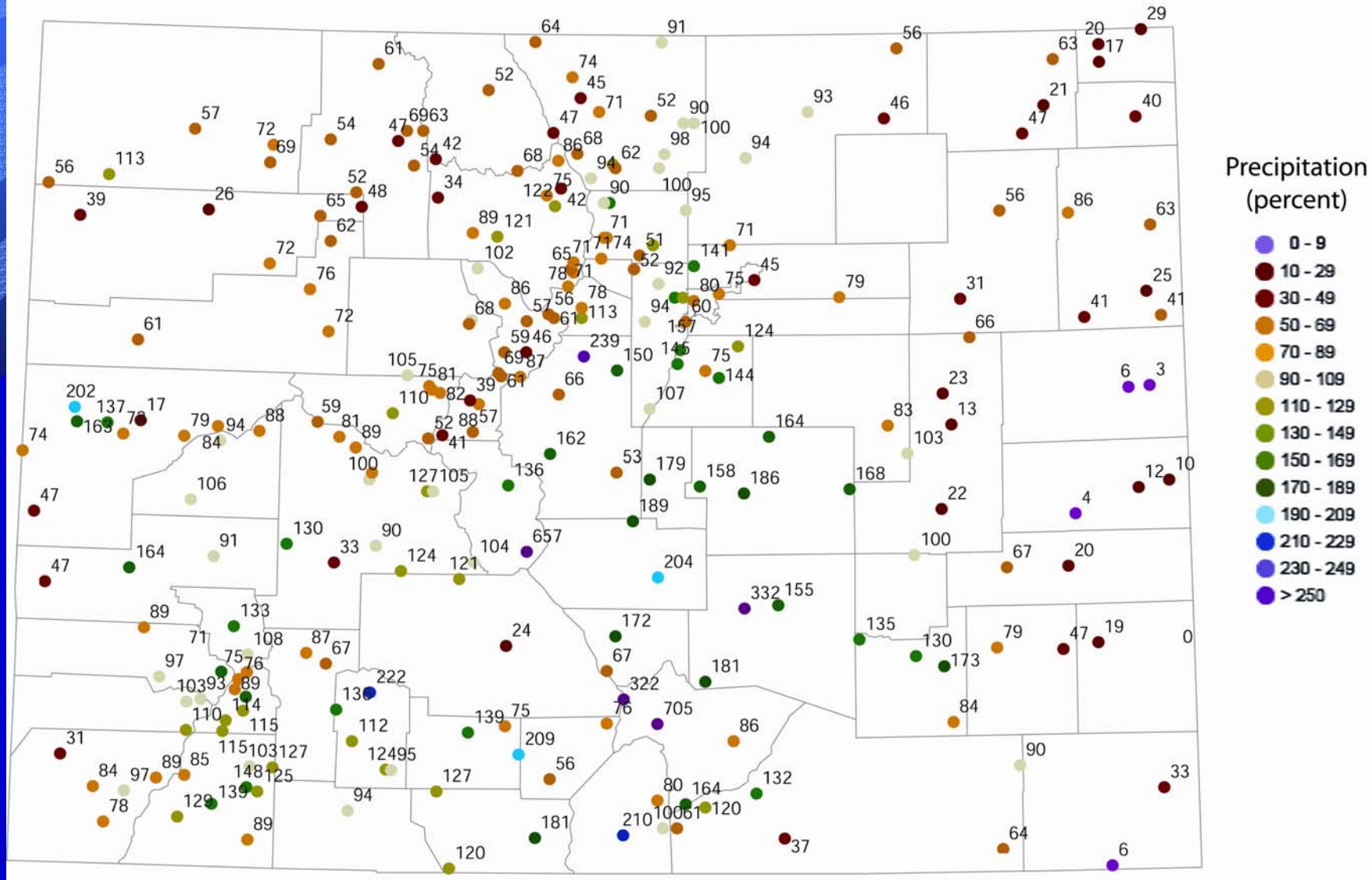
Division 8 – Fort Collins





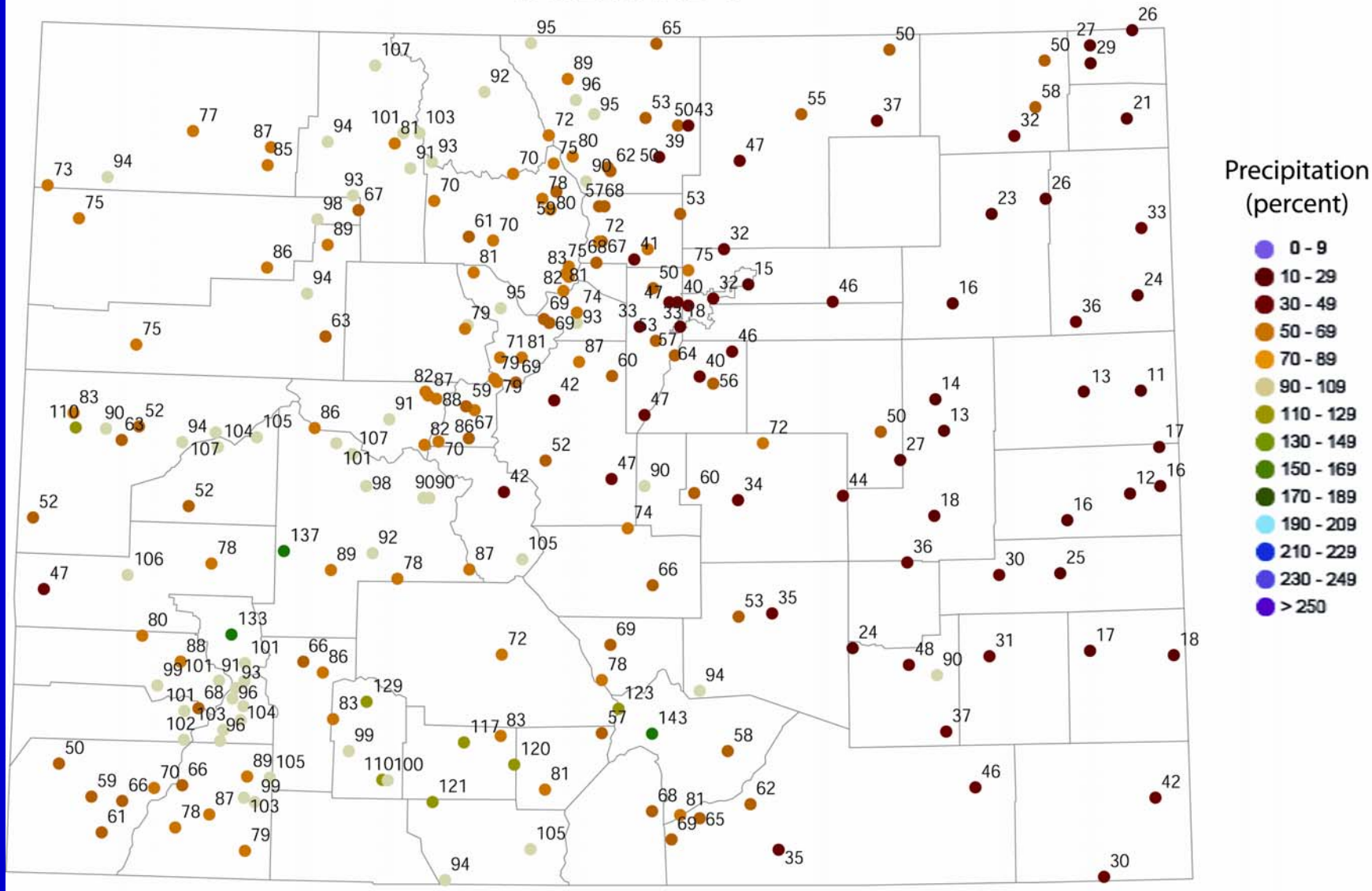
January 2004 temperature departures from the 1971-2000 averages.

COLORADO



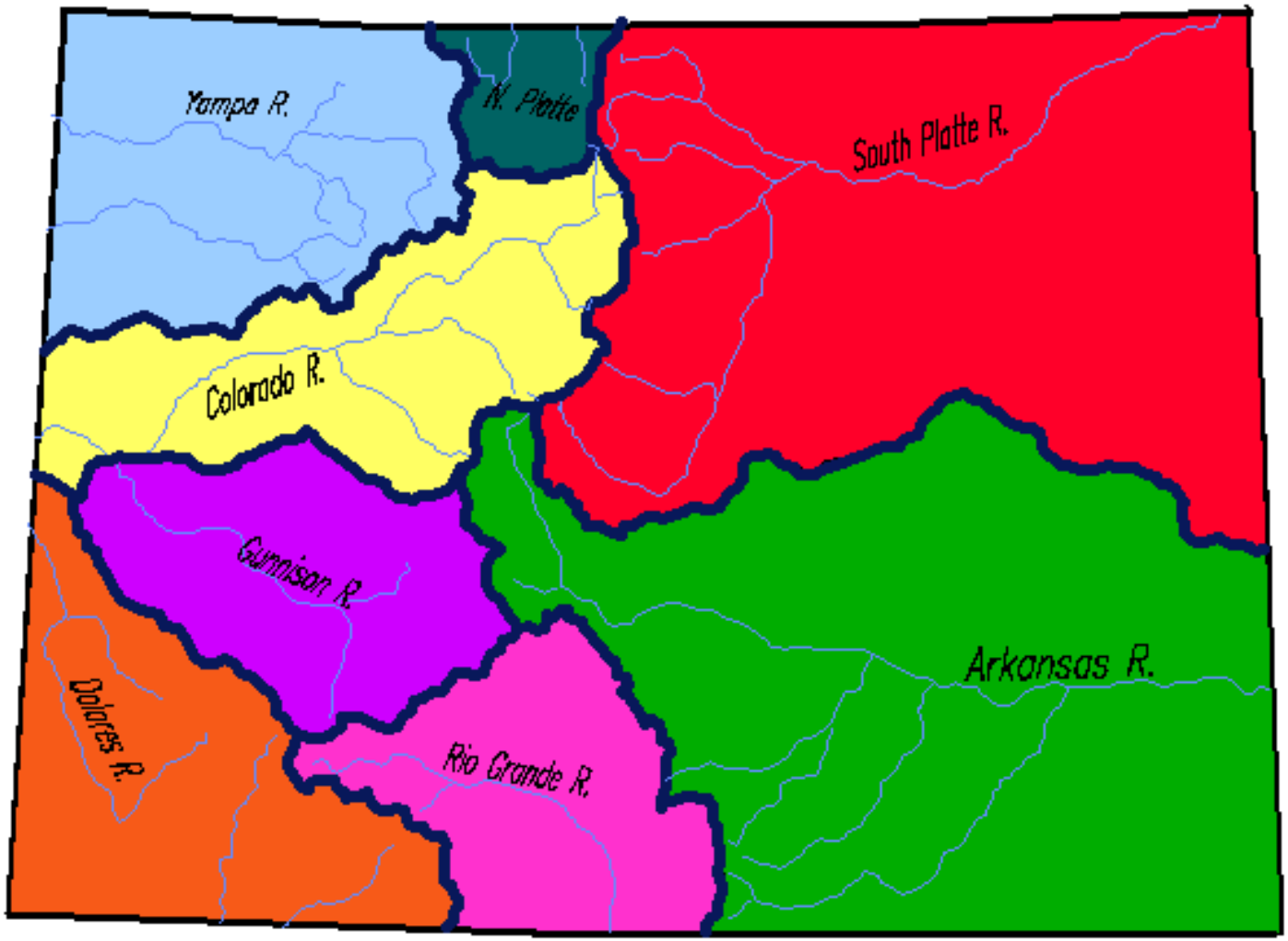
January 2004 precipitation as a percent of the 1971-2000 average.

COLORADO



Water Year 2004 (October 2003 through January 2004) precipitation as a percent of the 1971-2000 average.

Colorado SNOTEL Basins

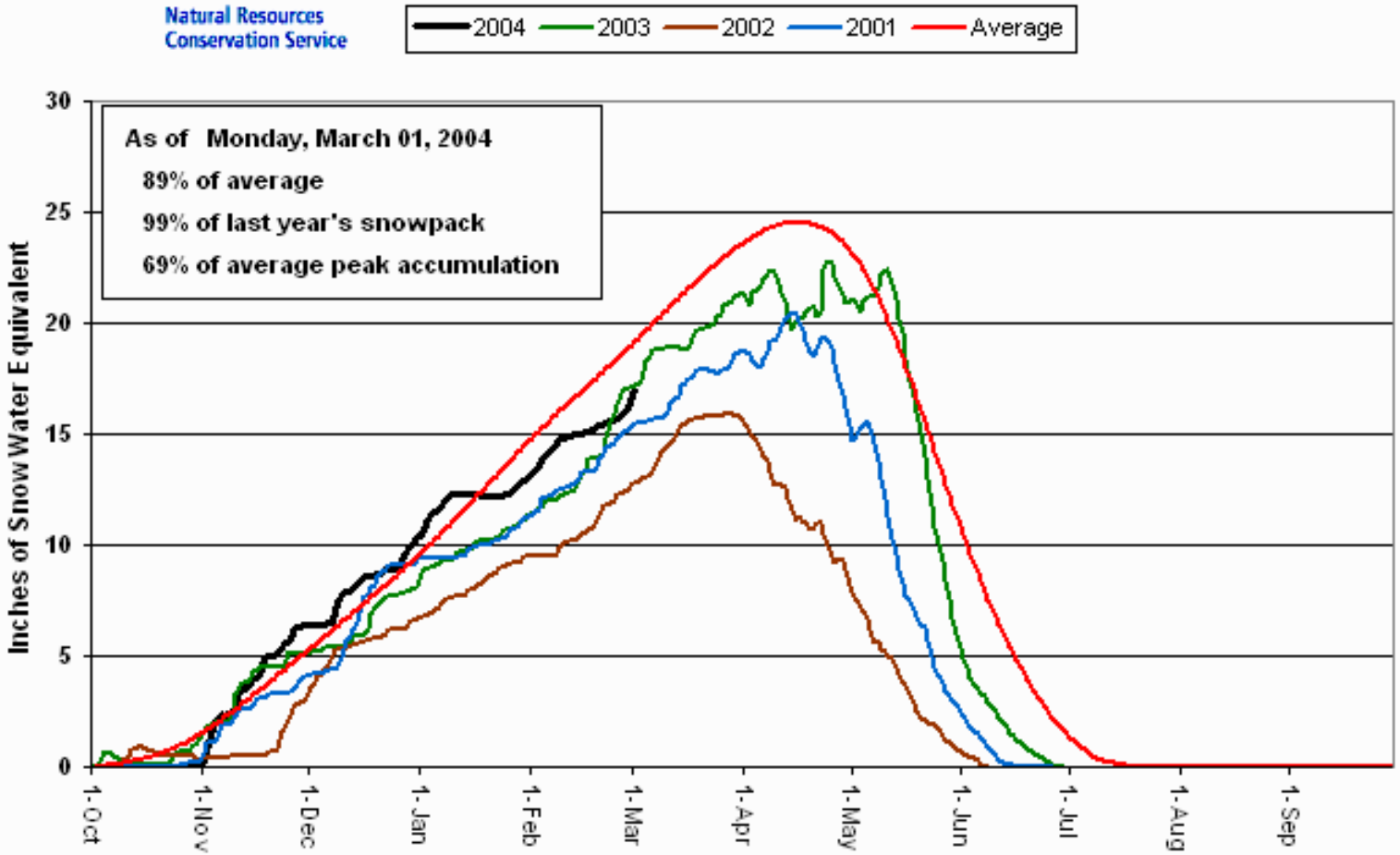


http://www.co.nrcs.usda.gov/snow/data/basins.html

NRCS
Natural Resources Conservation Service

Yampa & White Basin Snowpack

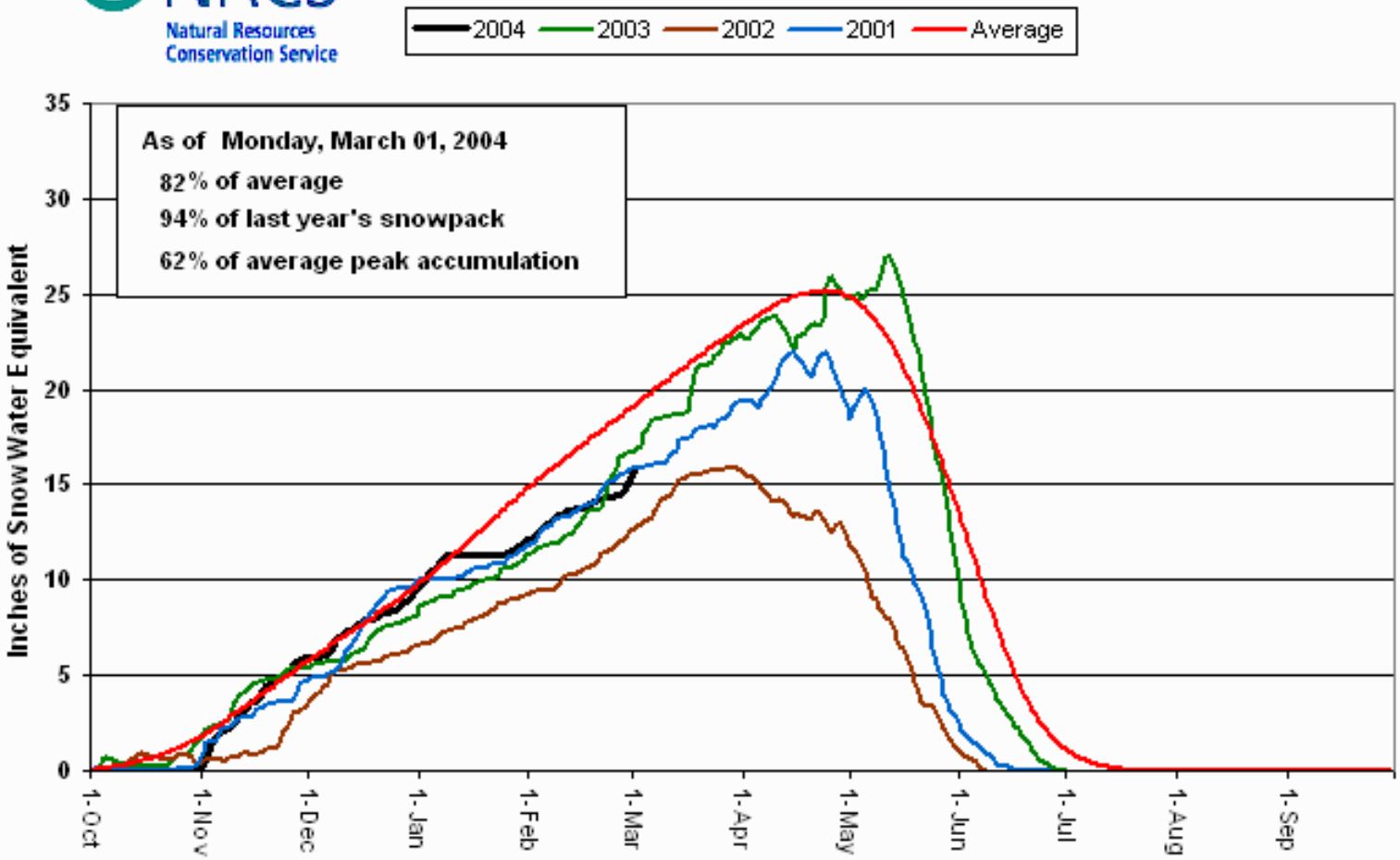
Based on provisional SNOTEL data.



NRCS
Natural Resources Conservation Service

North Platte Basin Snowpack

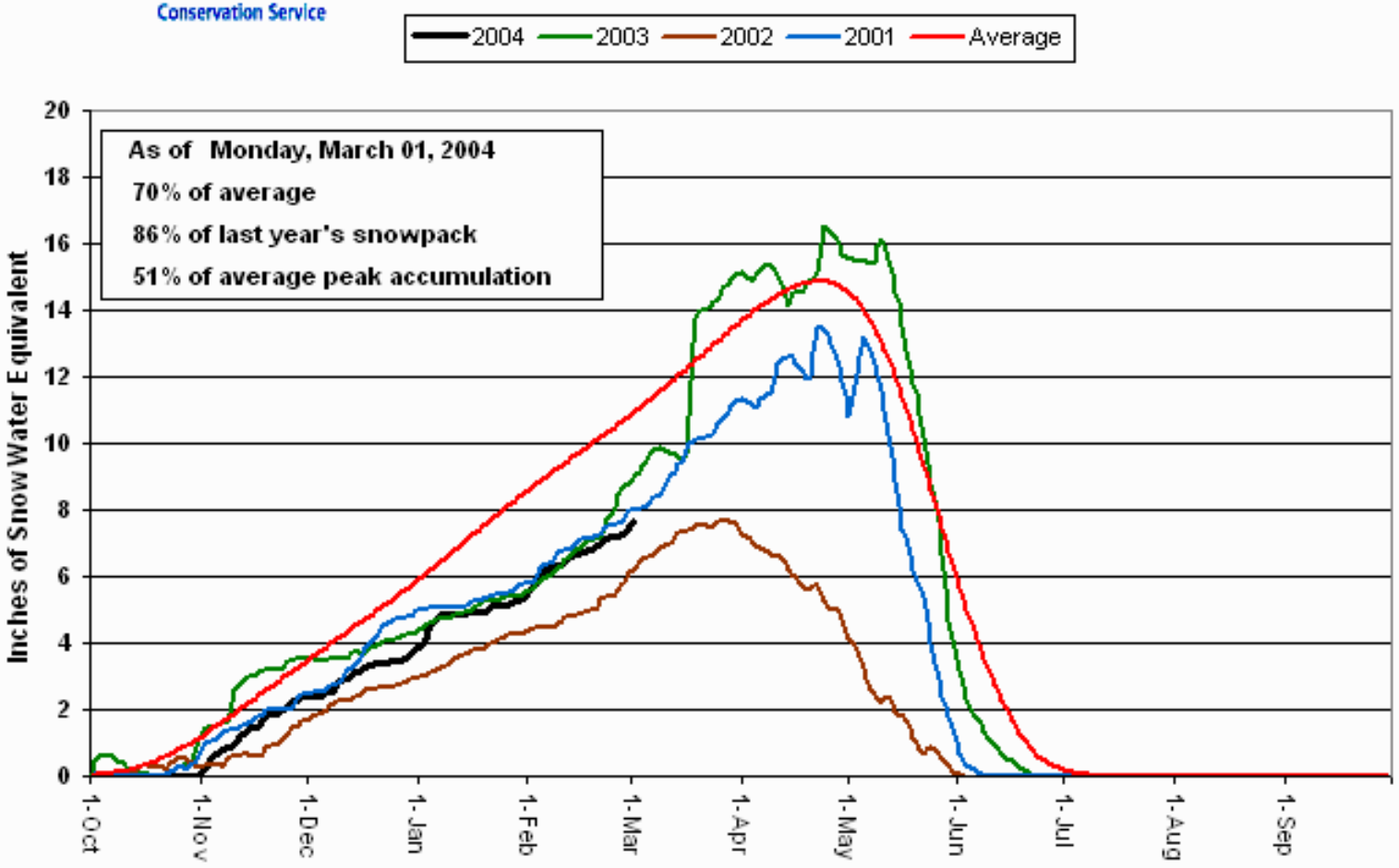
Based on provisional SNOTEL data.



NRCS
Natural Resources Conservation Service

South Platte Basin Snowpack

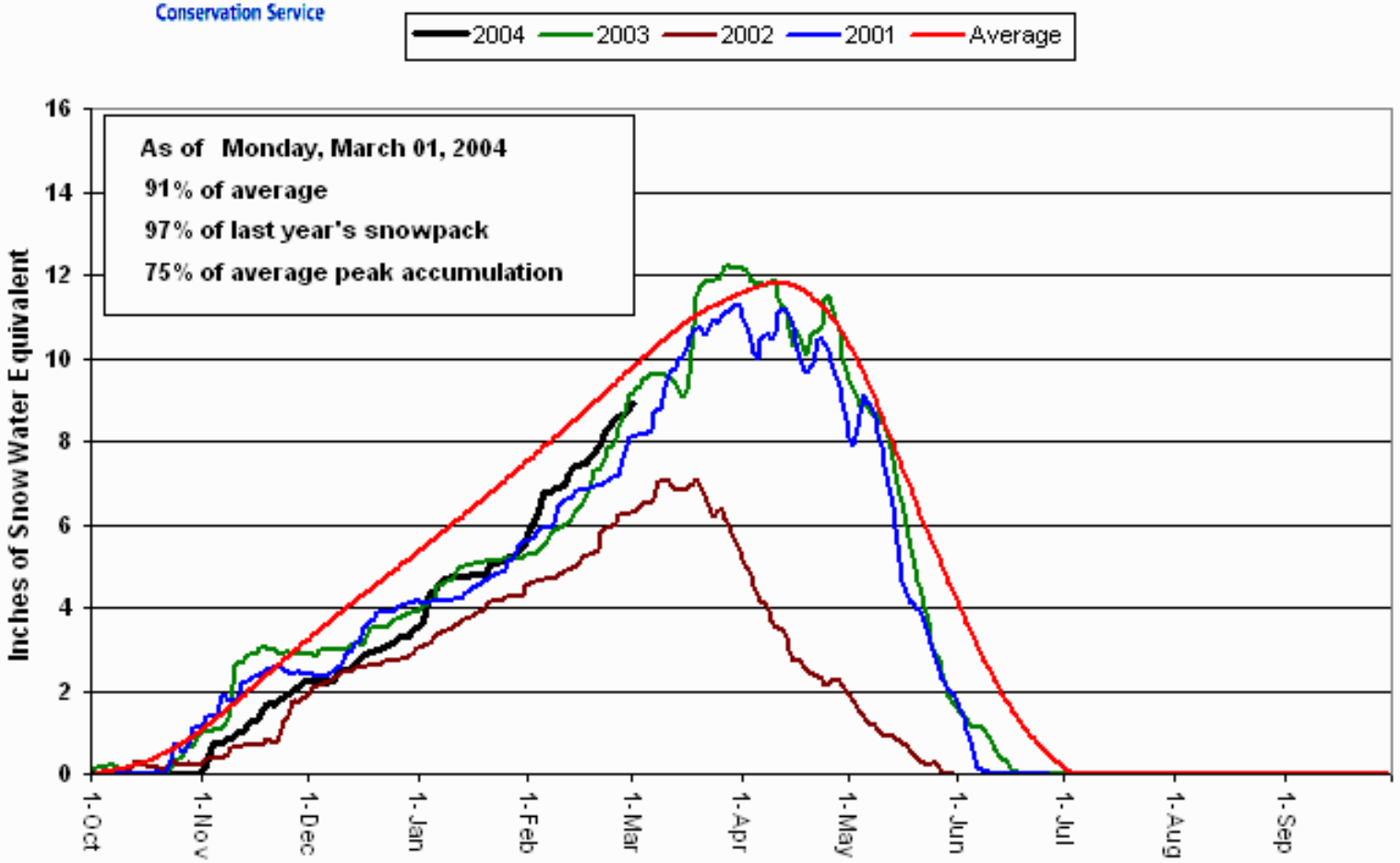
Based on provisional SNOTEL data.



NRCS
Natural Resources Conservation Service

Arkansas Basin Snowpack

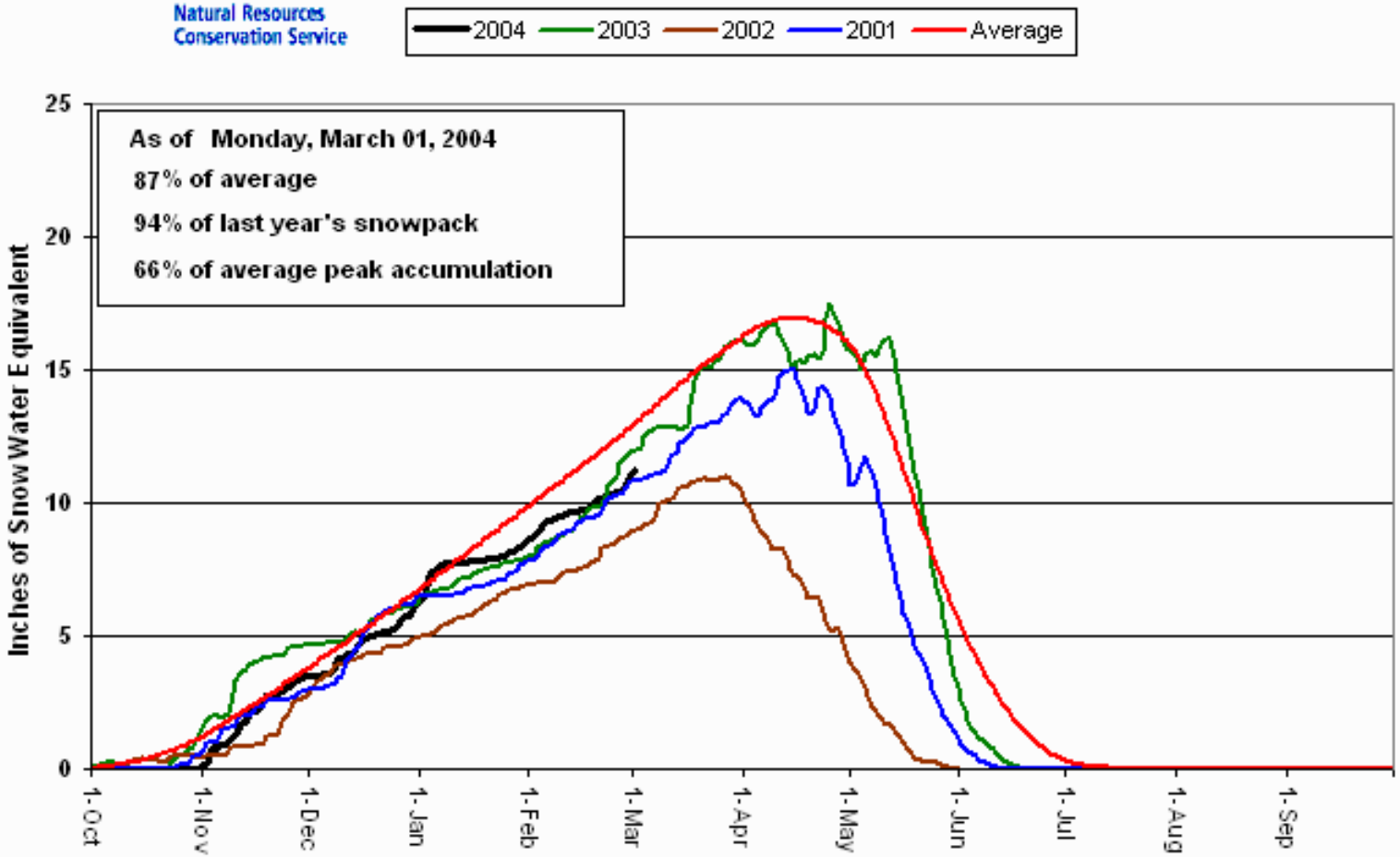
Based on provisional SNOTEL data.



NRCS
Natural Resources Conservation Service

Colorado Basin Snowpack

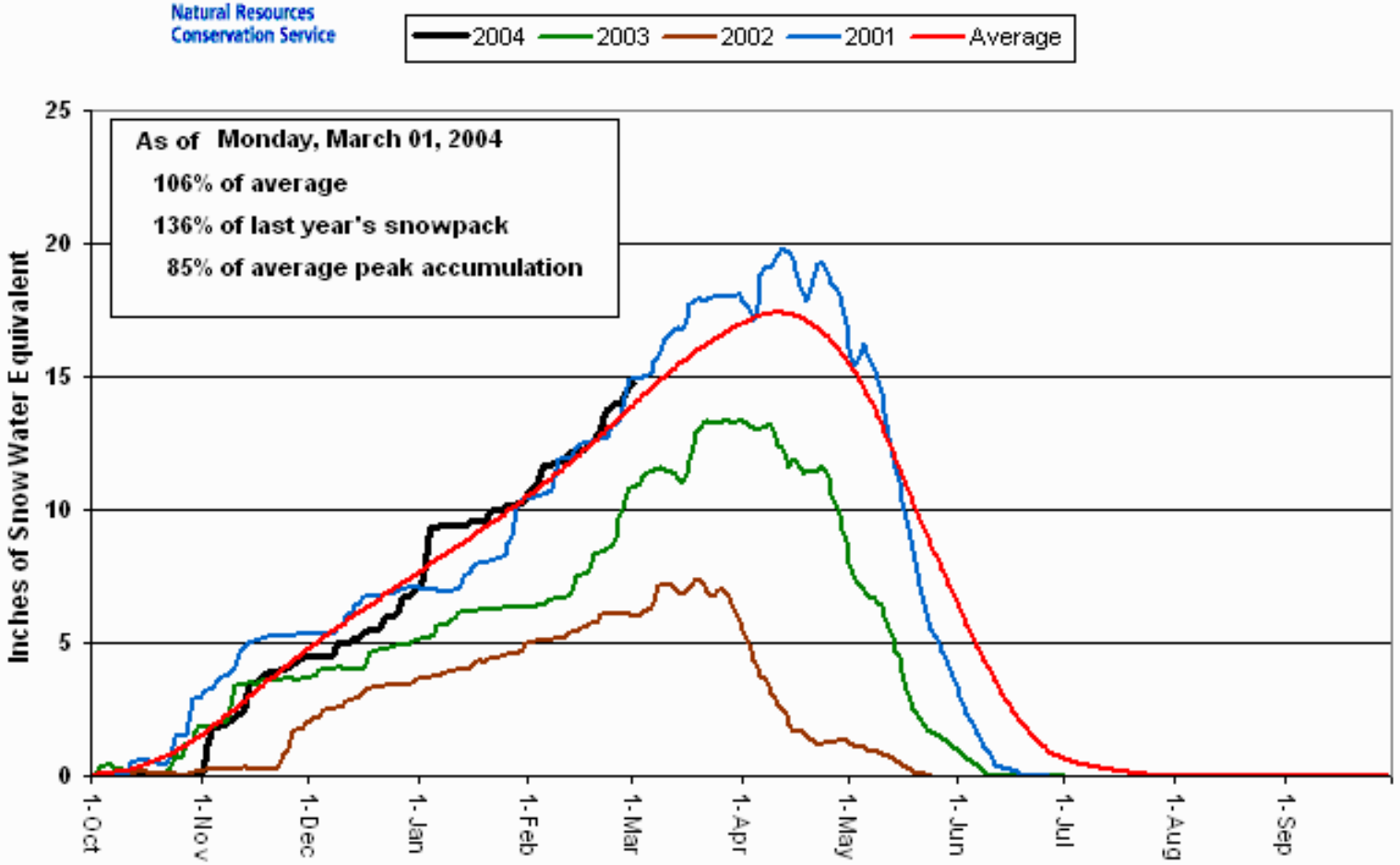
Based on provisional SNOTEL data.



NRCS
Natural Resources Conservation Service

Rio Grande Basin Snowpack

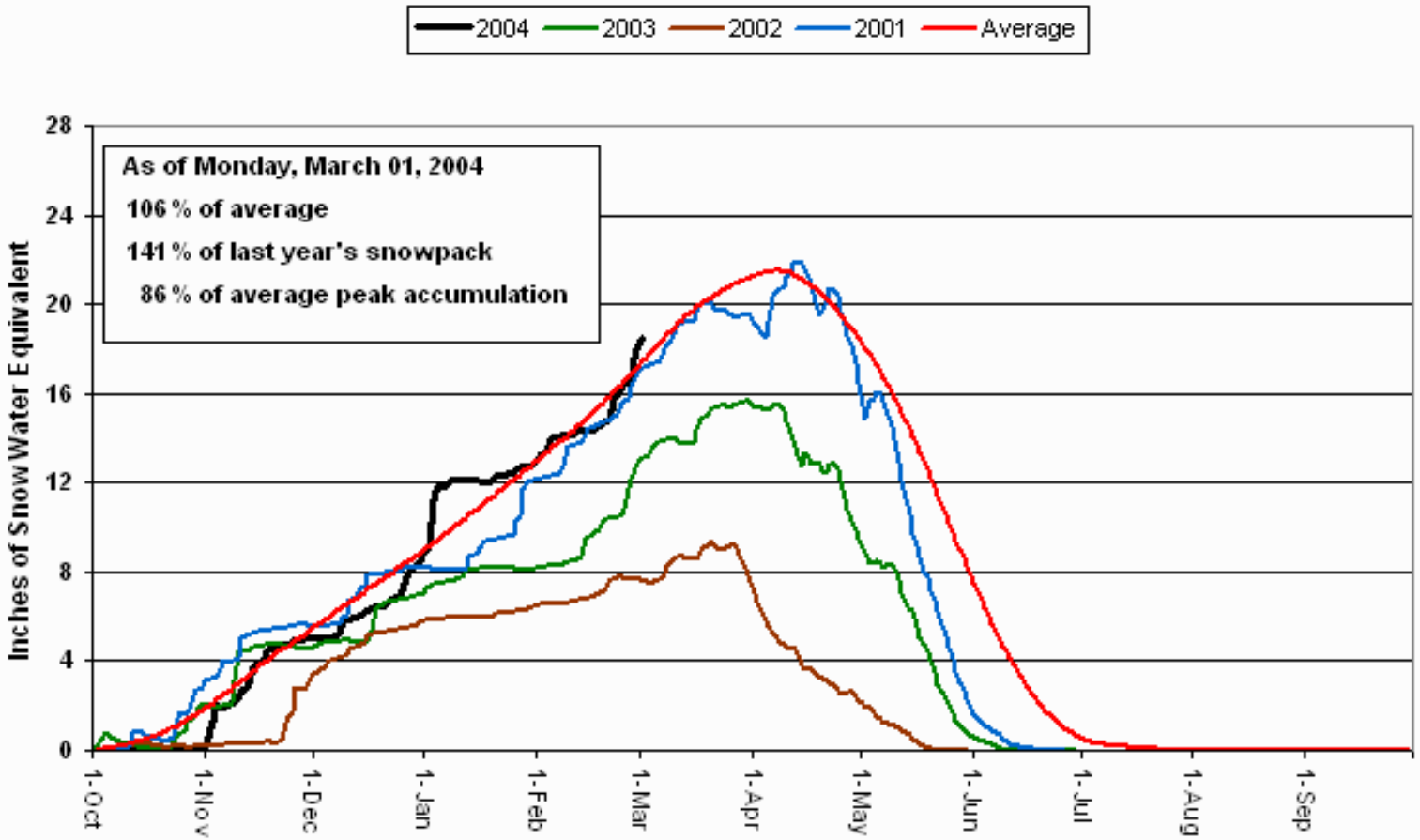
Based on provisional SNOTEL data.



NRCS
Natural Resources Conservation Service

San Juan, Animas, Dolores, & San Miguel Basin Snowpack

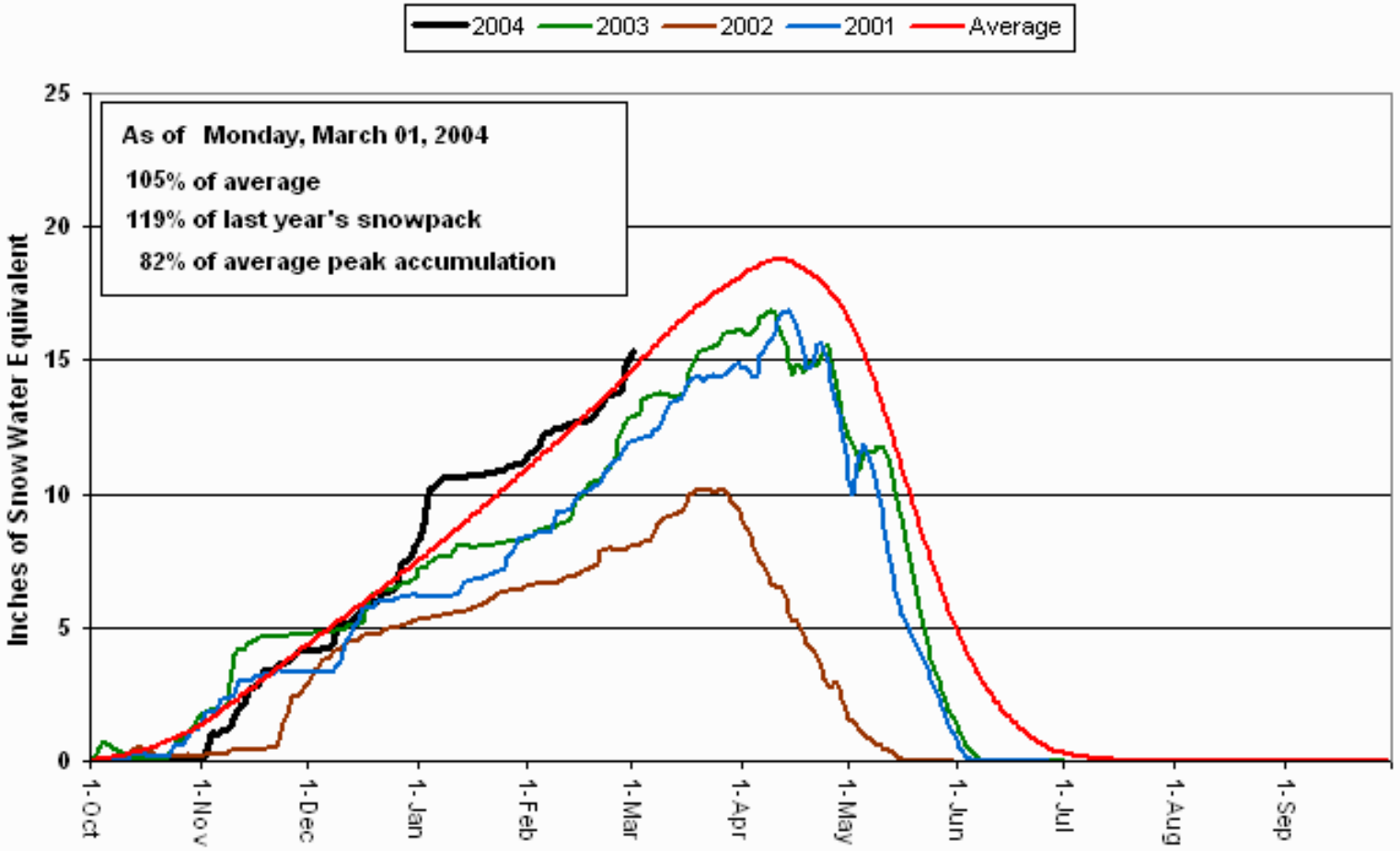
Based on provisional SNOTEL data.



NRCS
Natural Resources Conservation Service

Gunnison Basin Snowpack

Based on provisional SNOTEL data.

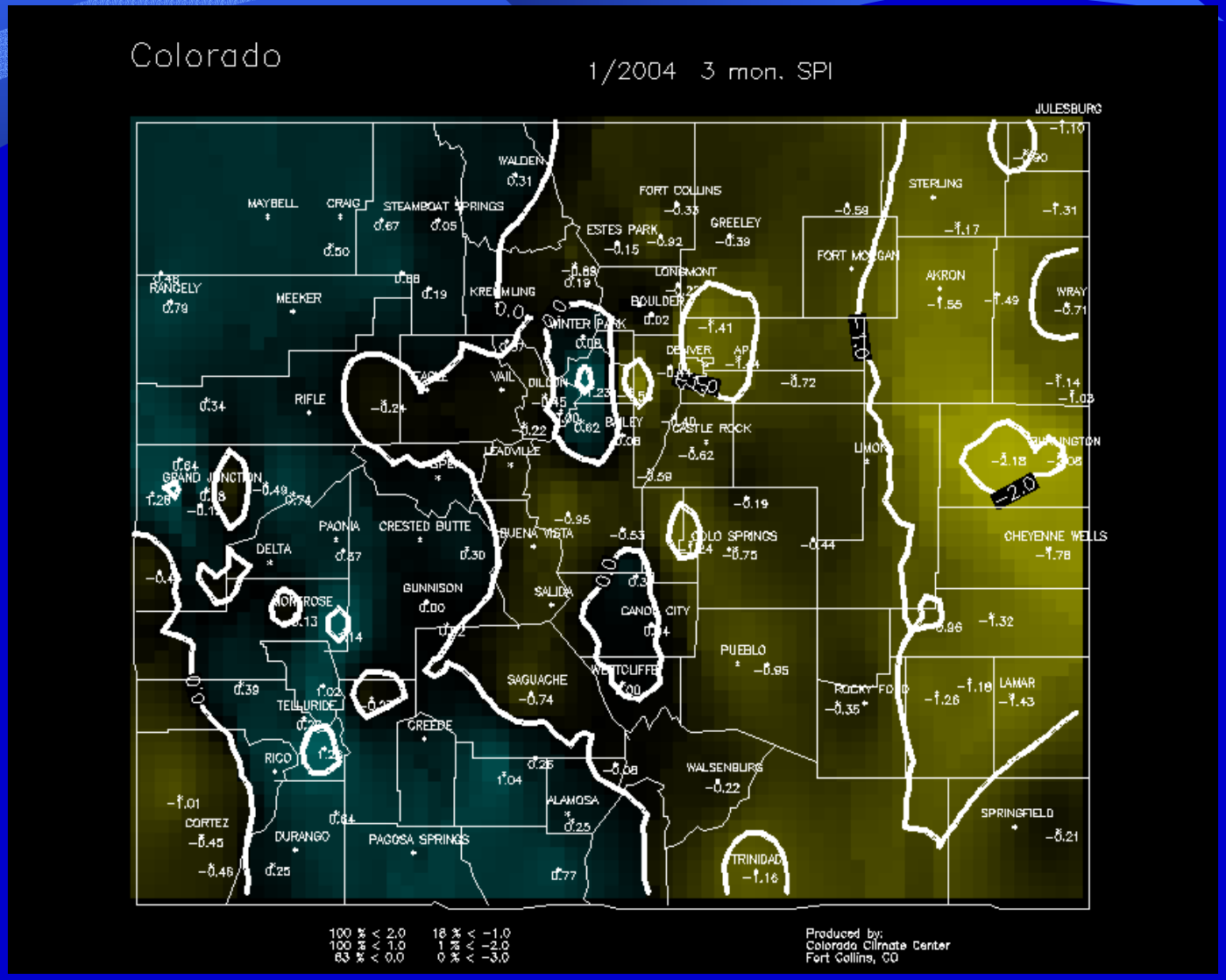


Definition of Standardized Precipitation Index (SPI)

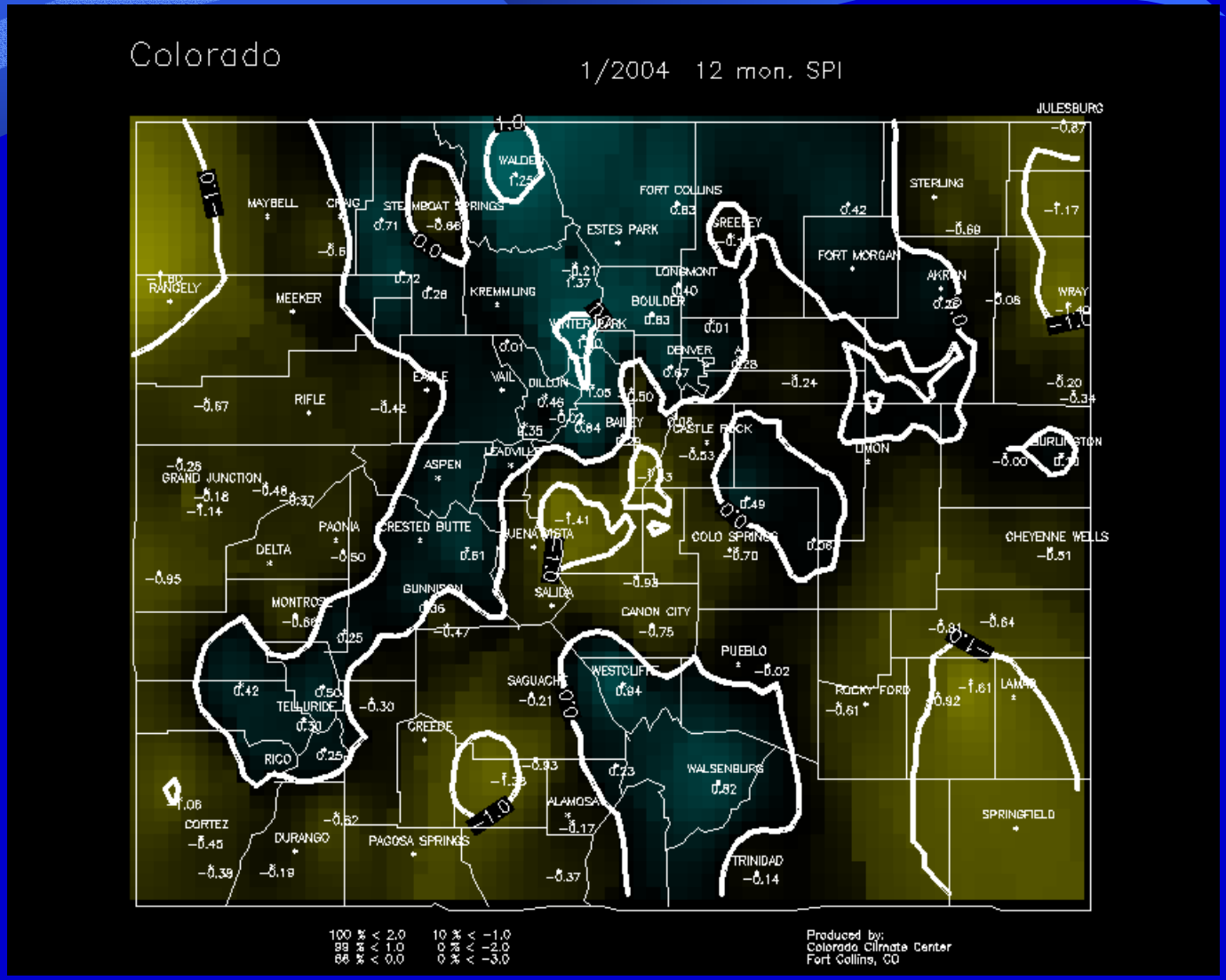
- *Deviation from average in terms of standard deviation. For example, an SPI of -2.0 corresponds to an event that occurs less than 5% of the time.*

SPI Value	Drought Category
0 to -0.99	Mild Drought
-1.00 to -1.49	Moderate Drought
-1.50 to -1.99	Severe Drought
<= -2.00	Extreme Drought

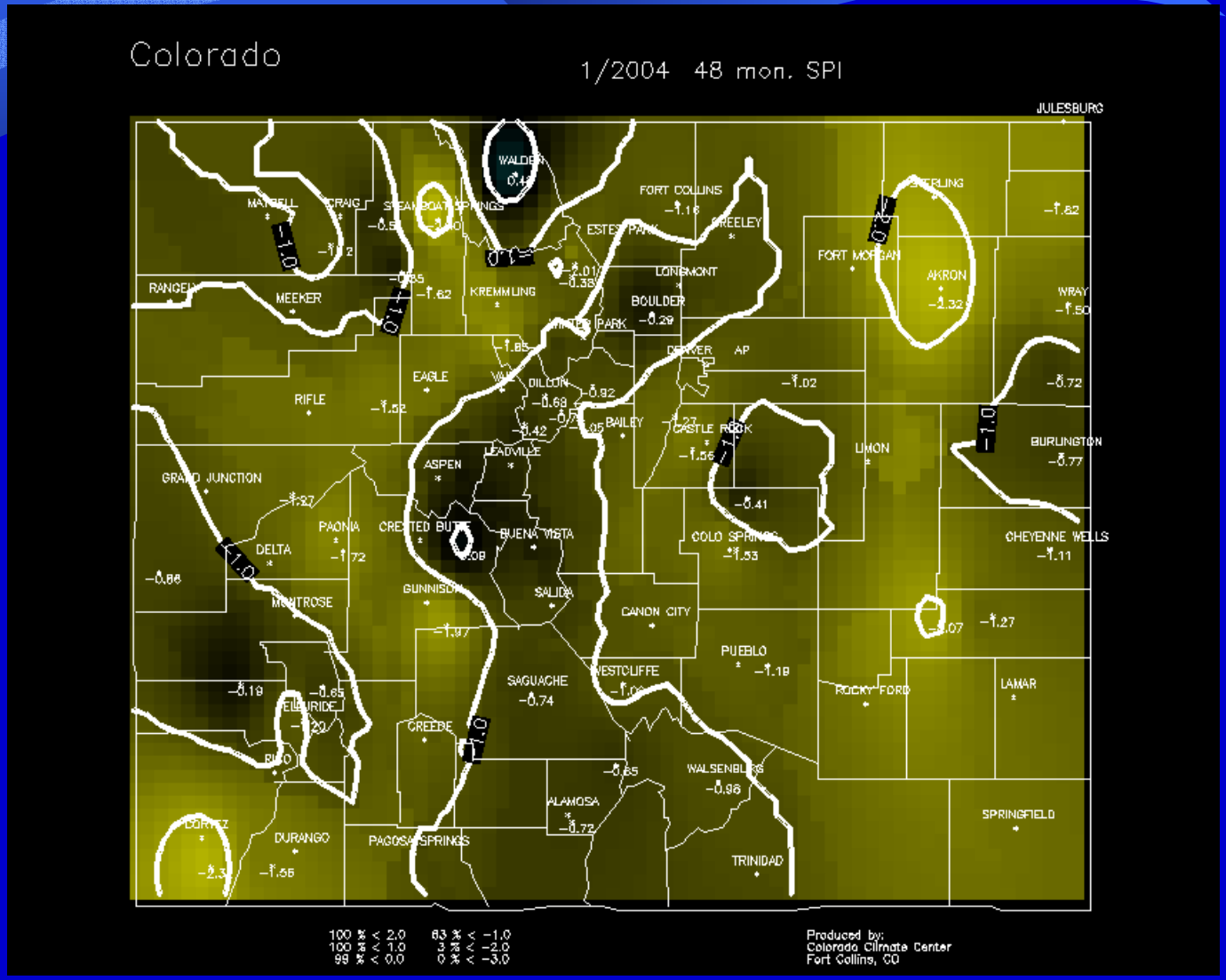
3 Month SPI


Colorado
1/2004 3 mon. SPI
JULESBURG
WALDEN
MAYBELL
CRAIG
STEAMBOAT SPRINGS
FORT COLLINS
STERLING
ESTES PARK
GREELEY
FORT MORGAN
AKRON
WRAY
RANGELY
MEEKER
KREMMLING
LONGMONT
BOULDER
WINTER PARK
DENVER AP
VAIL
DILLON
RIFLE
CASTLE ROCK
LIMON
LEADVILLE
GRAND JUNCTION
PAONIA
CRESTED BUTTE
BUENA VISTA
COLO SPRINGS
CHEYENNE WELLS
DELTA
GUNNISON
SALIDA
CANON CITY
MONTROSE
PUEBLO
SAGUACHE
WESTCLIFFE
ROCKY FORD
LAMAR
TELLURIDE
CREEDE
RICO
WALSENBURG
ALAMOSA
SPRINGFIELD
CORTEZ
DURANGO
PAGOSA SPRINGS
TRINIDAD
100 % < 2.0
100 % < 1.0
83 % < 0.0
18 % < -1.0
1 % < -2.0
0 % < -3.0
Produced by:
Colorado Climate Center
Fort Collins, CO

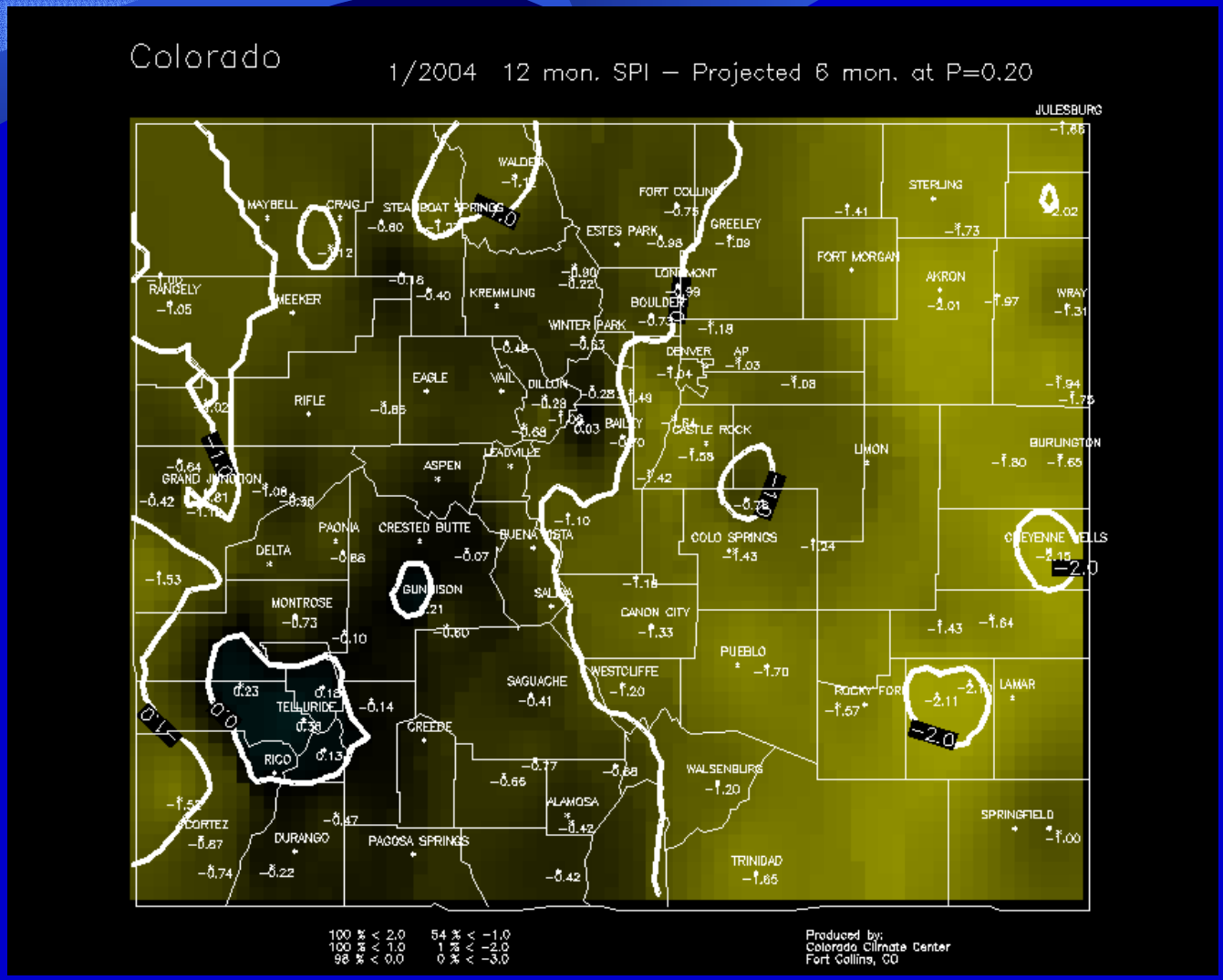
12 Month SPI


Colorado
1/2004 12 mon. SPI
JULESBURG
STERLING
FORT COLLINS
GREELEY
FORT MORGAN
AKRON
WRAY
ESTES PARK
LONGMONT
BOULDER
DENVER
KREMMLING
WALDEN
STEAMBOAT SPRINGS
MAYBELL
CRAIG
MEEKER
RANGELY
WINTER PARK
EAGLE
VAIL
DILLON
RIFLE
ASPEN
LEADVILLE
BAILEY
CASTLE ROCK
LIMON
BURLINGTON
GRAND JUNCTION
PAONIA
CRESTED BUTTE
DELTA
SALIDA
COLO SPRINGS
CHEYENNE WELLS
GUNNISON
MONTROSE
CANON CITY
PUEBLO
SAGUACHE
WESTCLIFFE
ROCKY FORD
LAMAR
TELLURIDE
CREEDE
RICO
WALSENBURG
ALAMOSA
CORTEZ
DURANGO
PAGOSA SPRINGS
TRINIDAD
SPRINGFIELD
100 % < 2.0
99 % < 1.0
66 % < 0.0
10 % < -1.0
0 % < -2.0
0 % < -3.0
Produced by:
Colorado Climate Center
Fort Collins, CO

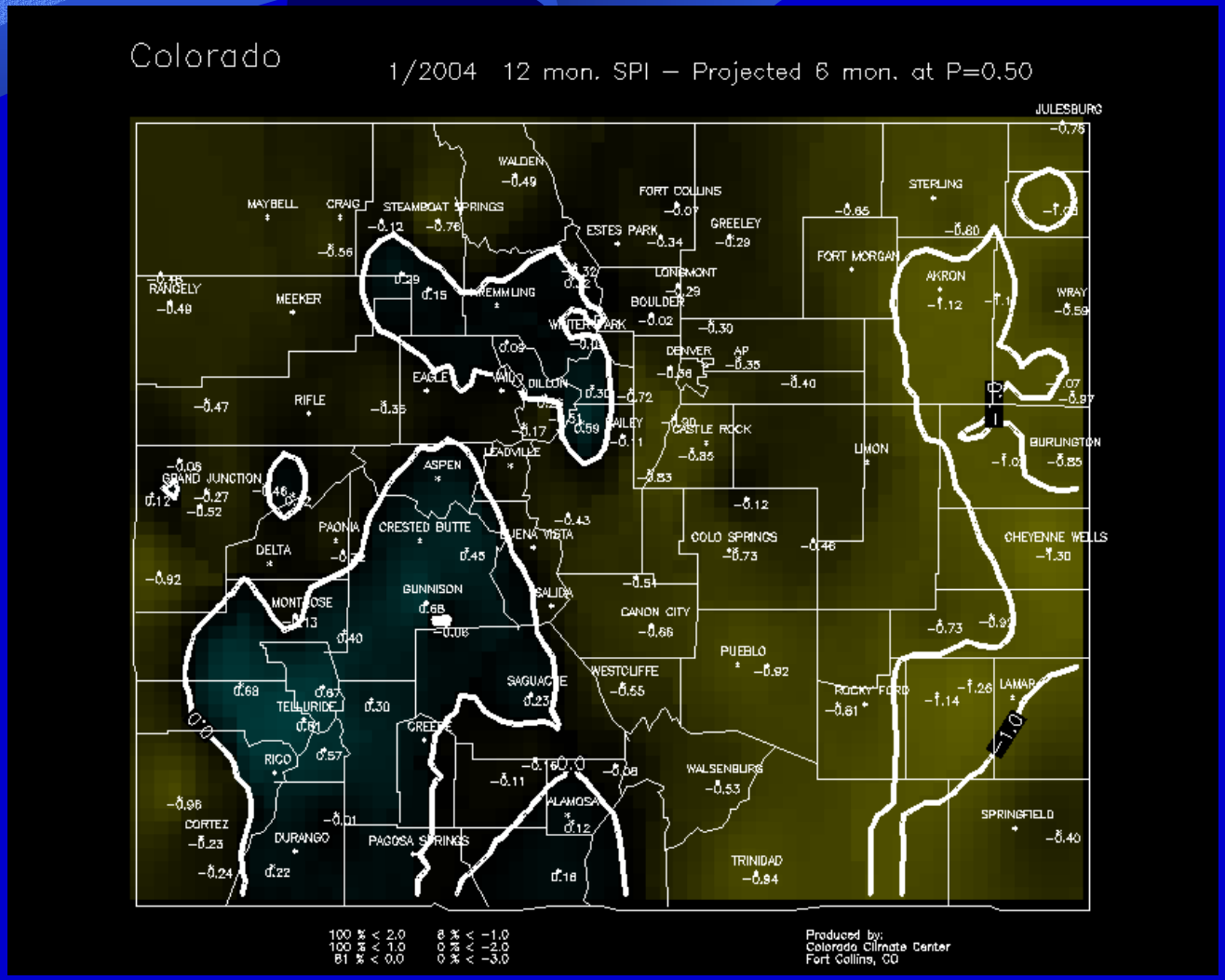
48 Month SPI


Colorado
1/2004 48 mon. SPI
JULESBURG
WALDEN
FORT COLLINS
STERLING
MAYBELL
CRAIG
STEAMBOAT SPRINGS
GREELEY
FORT MORGAN
AKRON
WRAY
RANGELY
MEEKER
KREMMLING
LONGMONT
BOULDER
WINTER PARK
DENVER AP
EAGLE
RIFLE
VAIL
DILLON
BAILEY
CASTLE ROCK
LIMON
BURLINGTON
LEADVILLE
ASPEN
GRAND JUNCTION
PAONIA
CRESTED BUTTE
BUENA VISTA
COLO SPRINGS
CHEYENNE WELLS
DELTA
MONTROSE
GUNNISON
SALIDA
CANON CITY
PUEBLO
WESTCLIFFE
ROCKY FORD
LAMAR
SAGUACHE
TELLURIDE
CREEDE
RICO
WALSENBURG
ALAMOSA
SPRINGFIELD
CORTEZ
DURANGO
PAGOSA SPRINGS
TRINIDAD
100 % < 2.0
100 % < 1.0
99 % < 0.0
63 % < -1.0
3 % < -2.0
0 % < -3.0
Produced by:
Colorado Climate Center
Fort Collins, CO

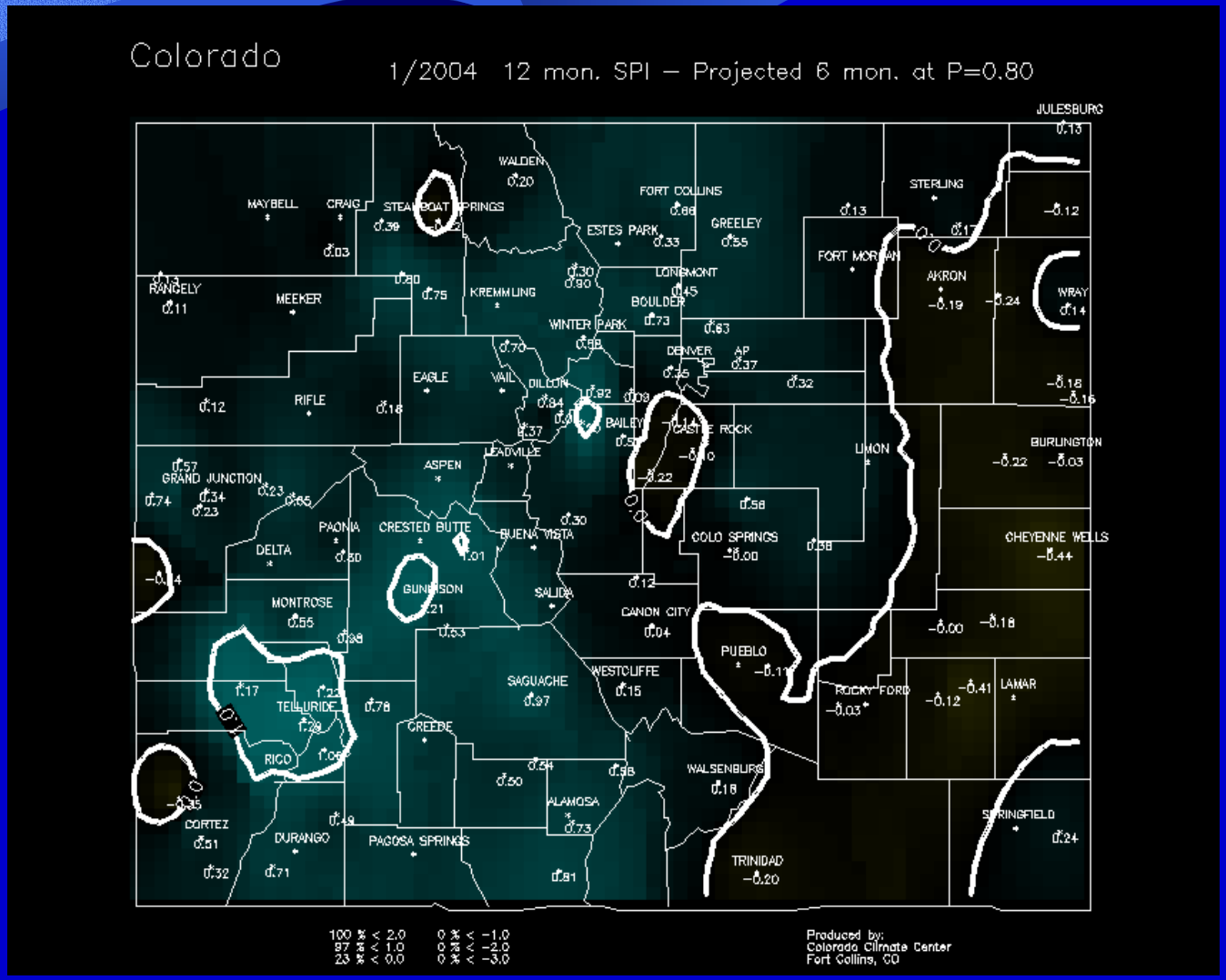
Projected Conditions at 0.2 Probability Level
12 Month SPI at 6 months



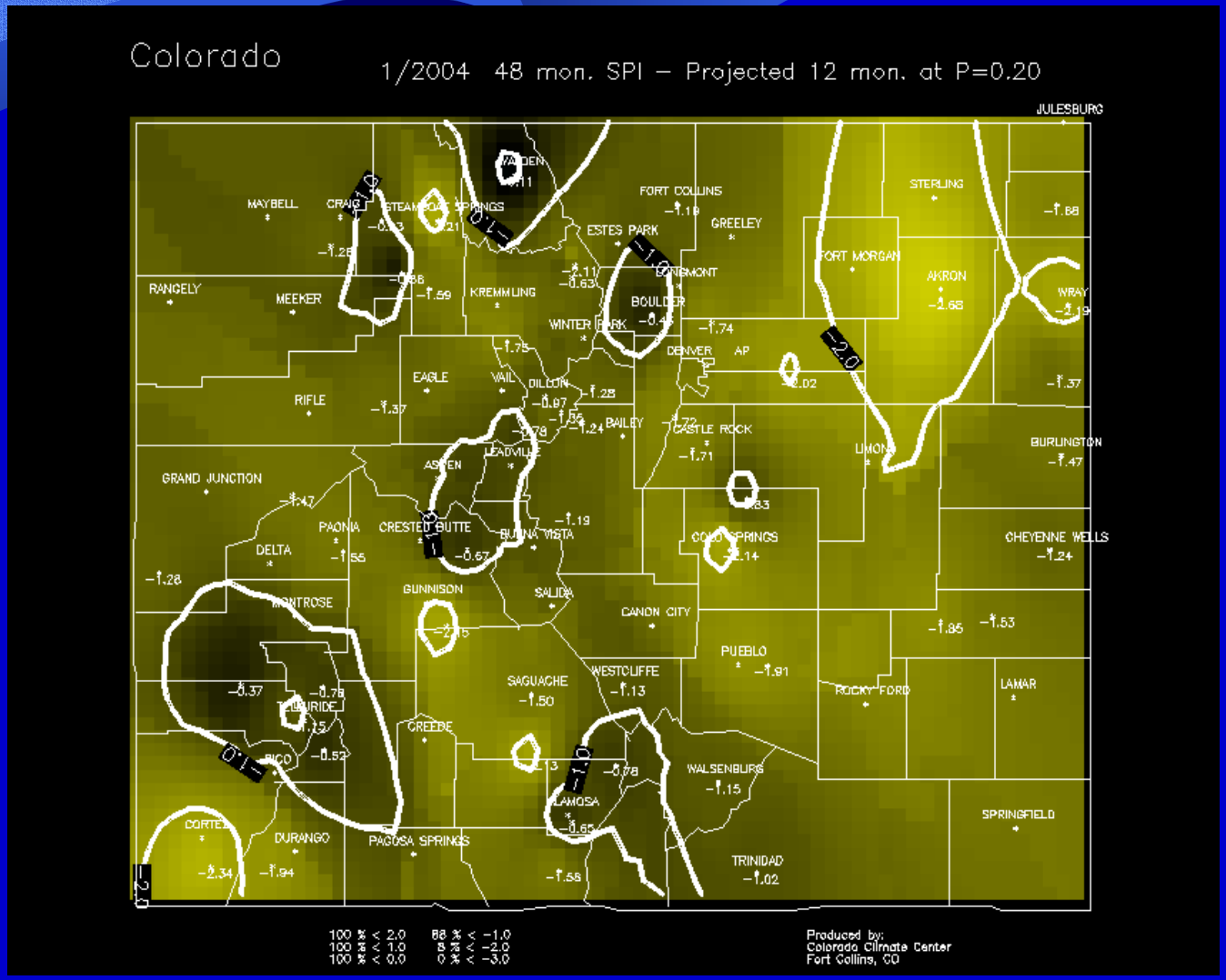
Projected Conditions at 0.5 Probability Level
12 Month SPI at 6 months



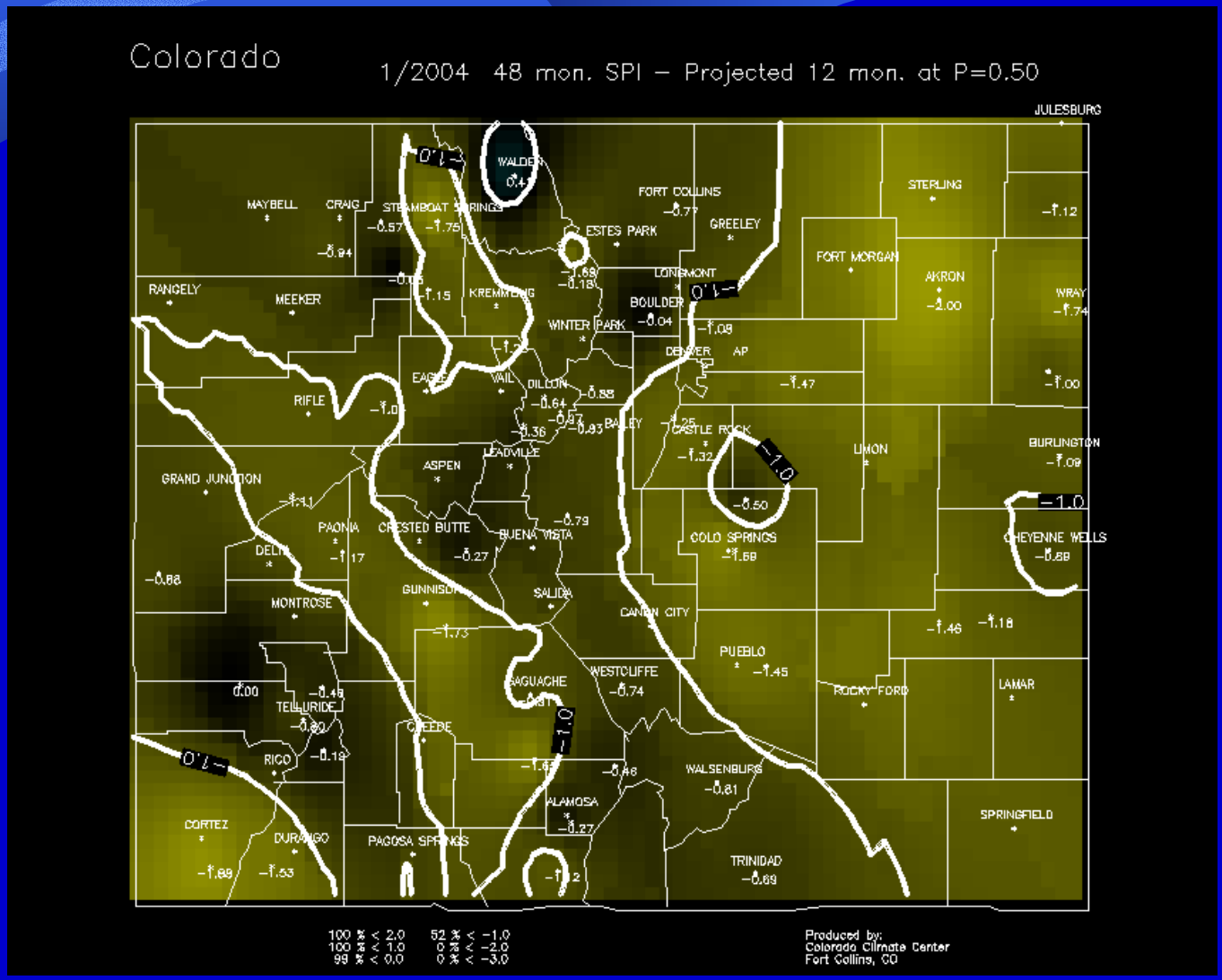
Projected Conditions at 0.8 Probability Level
12 Month SPI at 6 months



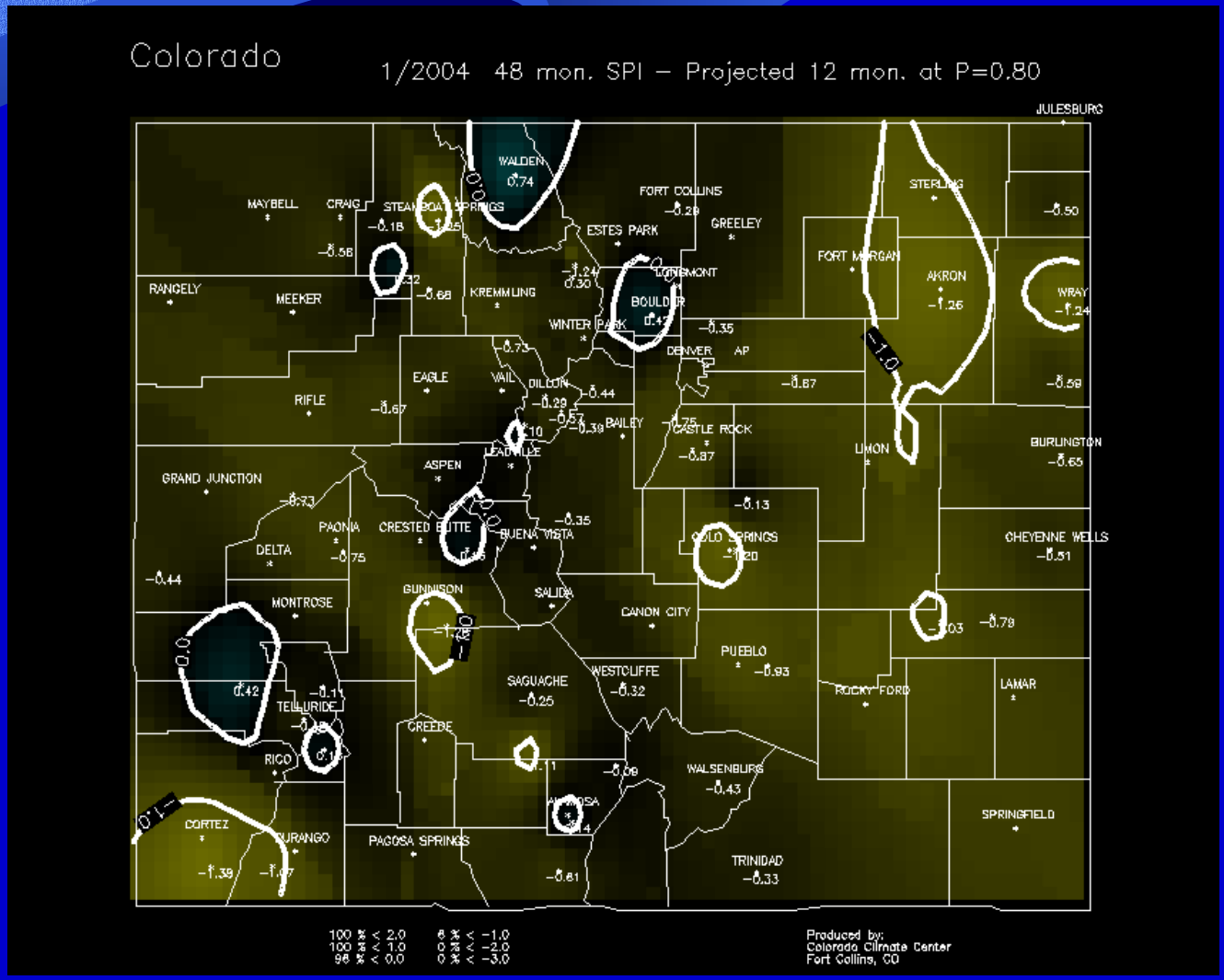
Projected Conditions at 0.2 Probability Level
48 Month SPI at 12 months



Projected Conditions at 0.5 Probability Level
48 Month SPI at 12 months



Projected Conditions at 0.8 Probability Level 48 Month SPI at 12 months



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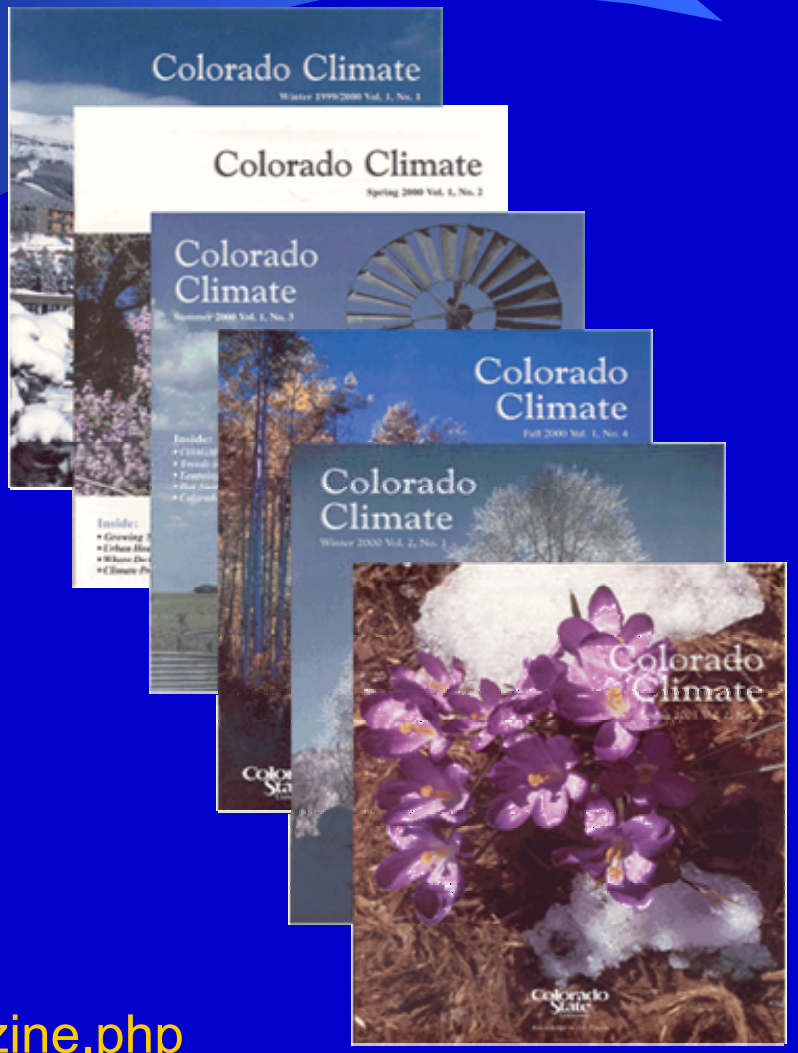

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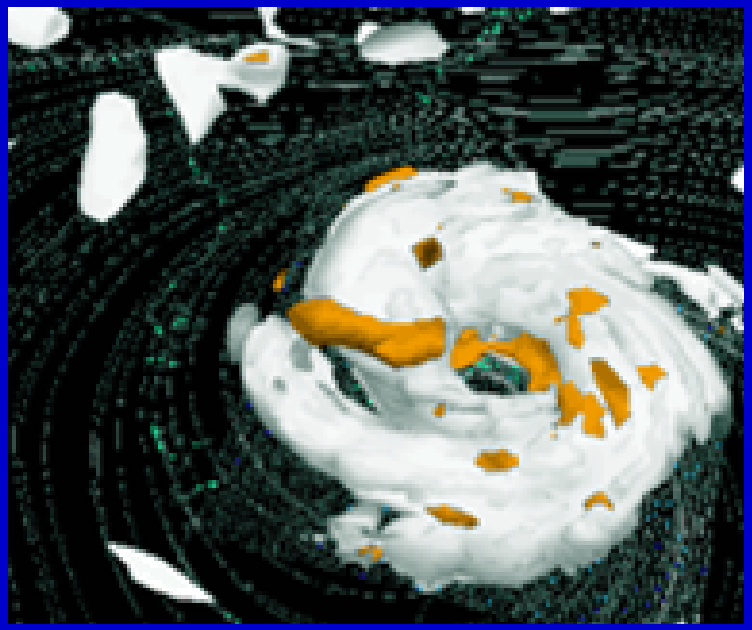

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