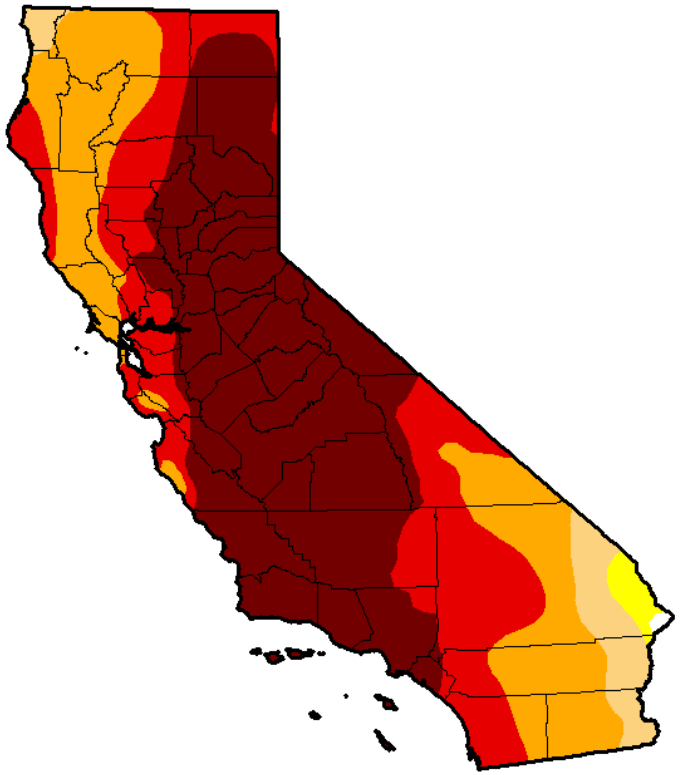
California Drought 2015

U.S. Drought Monitor

California



June 9, 2015

(Released Thursday, Jun. 11, 2015)

Valid 8 a.m. EDT

Drought Conditions (Percent Area)

	None	D0-D4	D1-D4	D2-D4	D3-D4	D4
Current	0.14	99.86	98.71	93.91	71.08	46.73
Last Week 6/2/2015	0.14	99.86	98.71	93.91	69.61	46.73
3 Months Ago 3/10/2015	0.16	99.84	98.11	93.44	67.46	39.92
Start of Calendar Year 12/30/2014	0.00	100.00	98.12	94.34	77.94	32.21
Start of Water Year 9/30/2014	0.00	100.00	100.00	95.04	81.92	58.41
One Year Ago 6/10/2014	0.00	100.00	100.00	100.00	76.68	24.77

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.

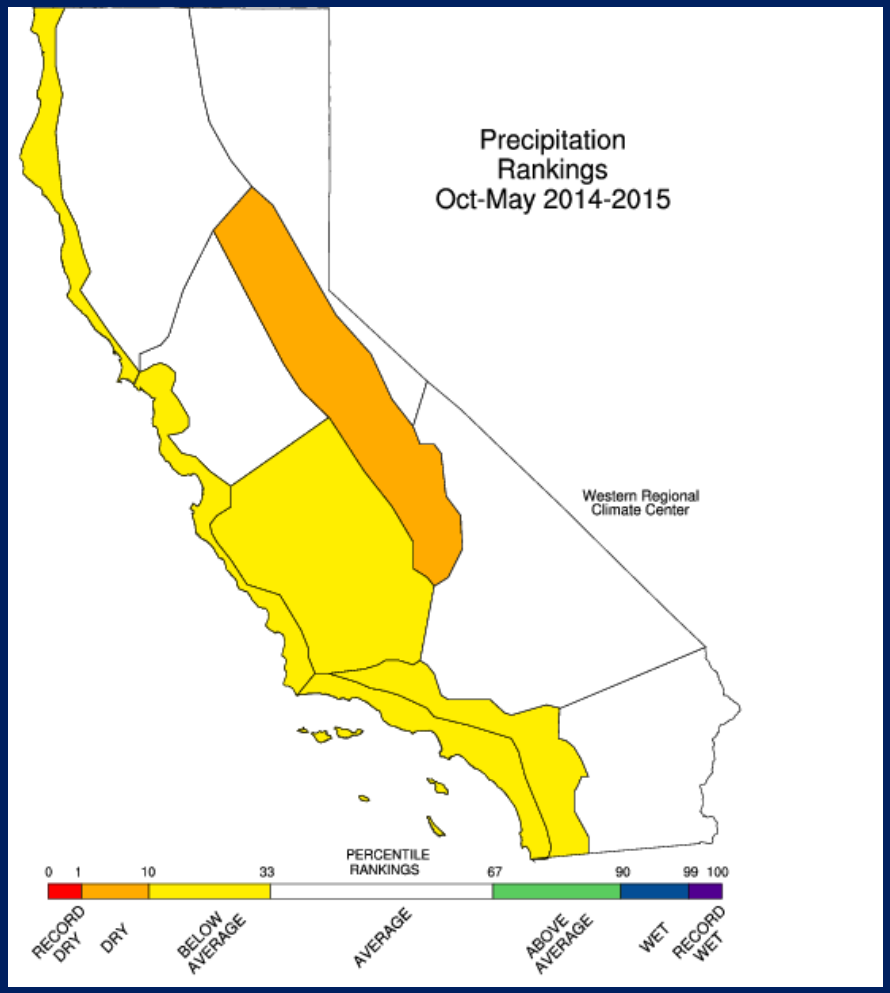
Author:

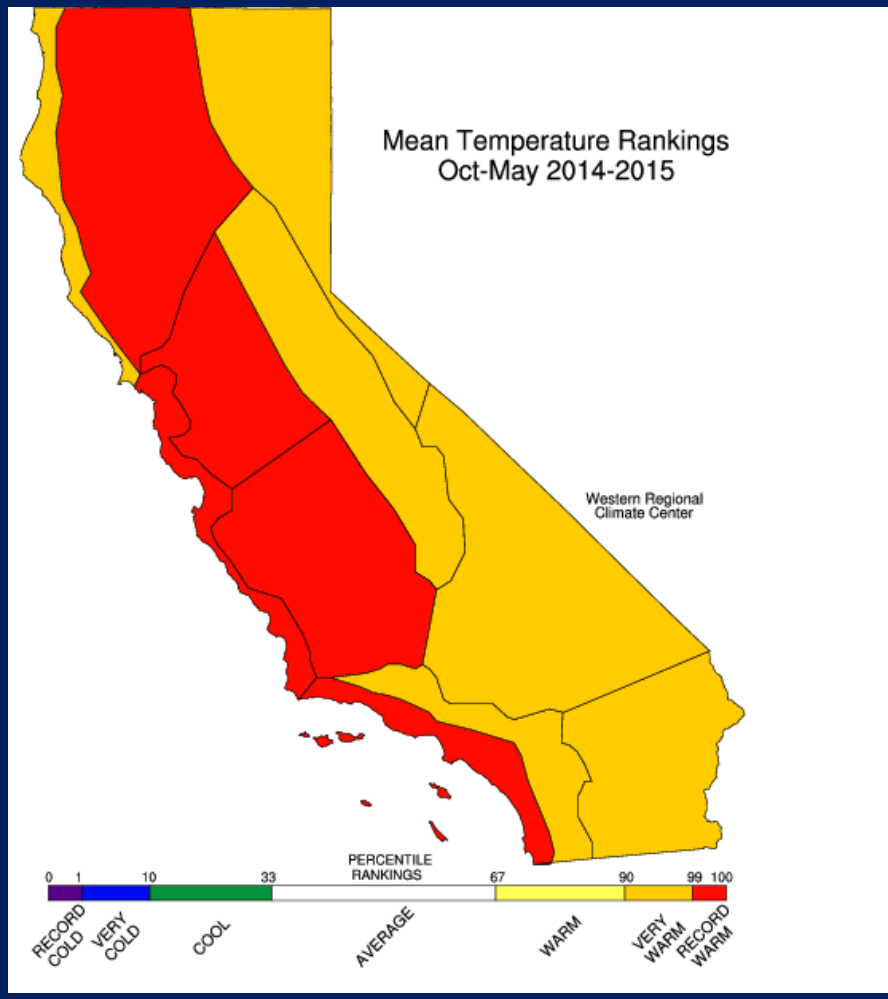
David Miskus

NOAA/NWS/NCEP/CPC

http://droughtmonitor.unl.edu/

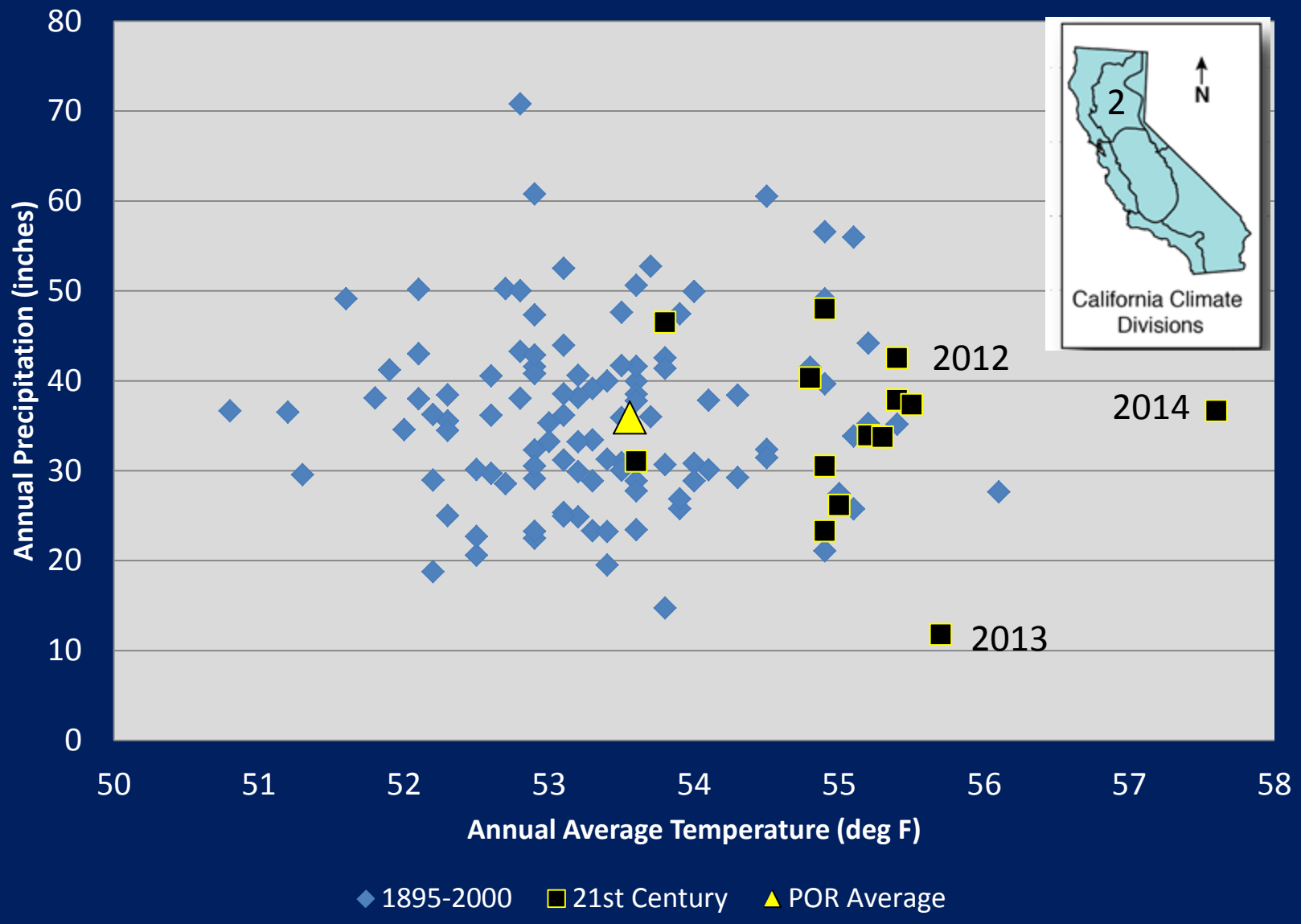
Western Region Climate Center's CA Climate Tracker





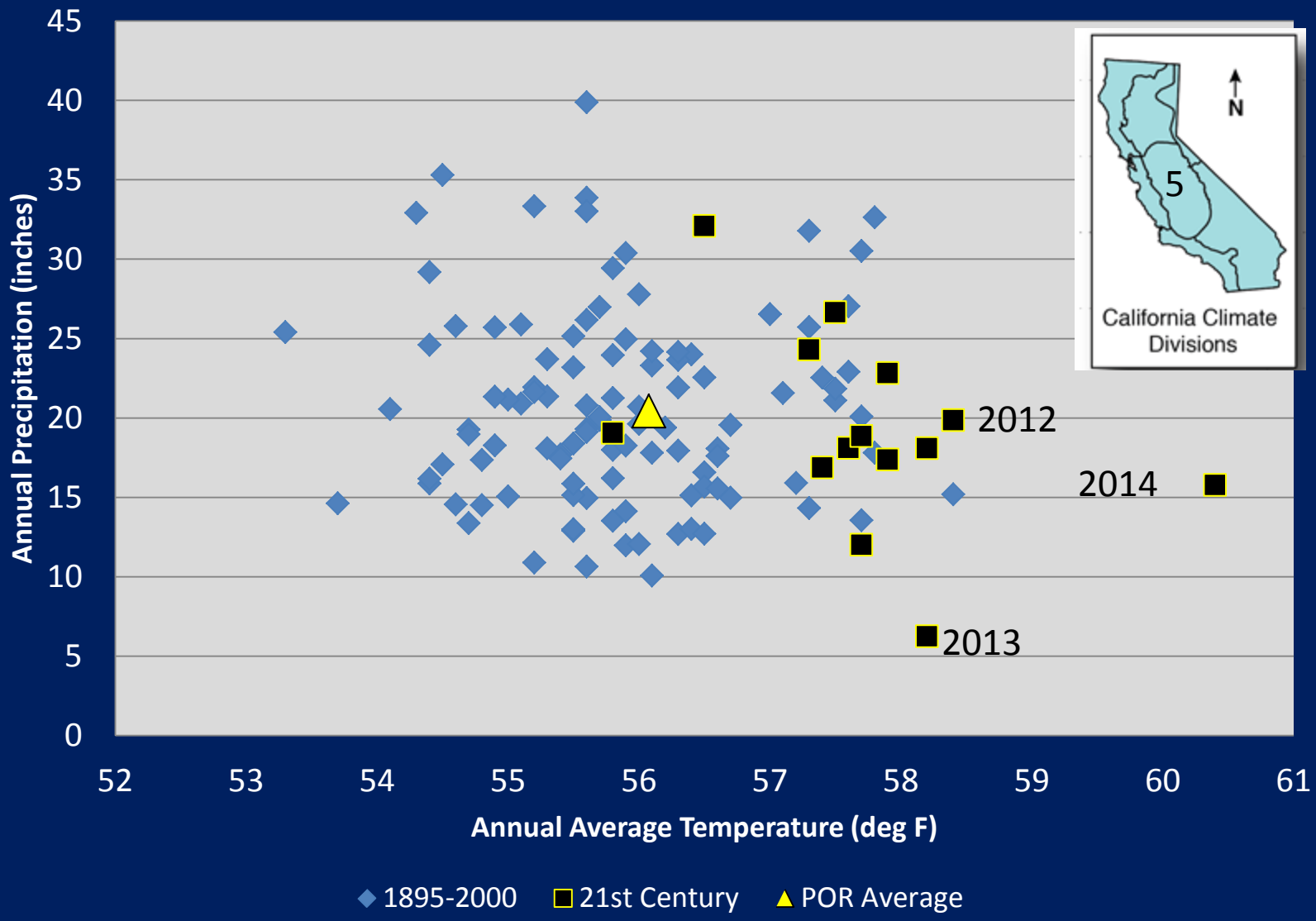
Source: California Climate Tracker - WRCC

It's Getting Warmer

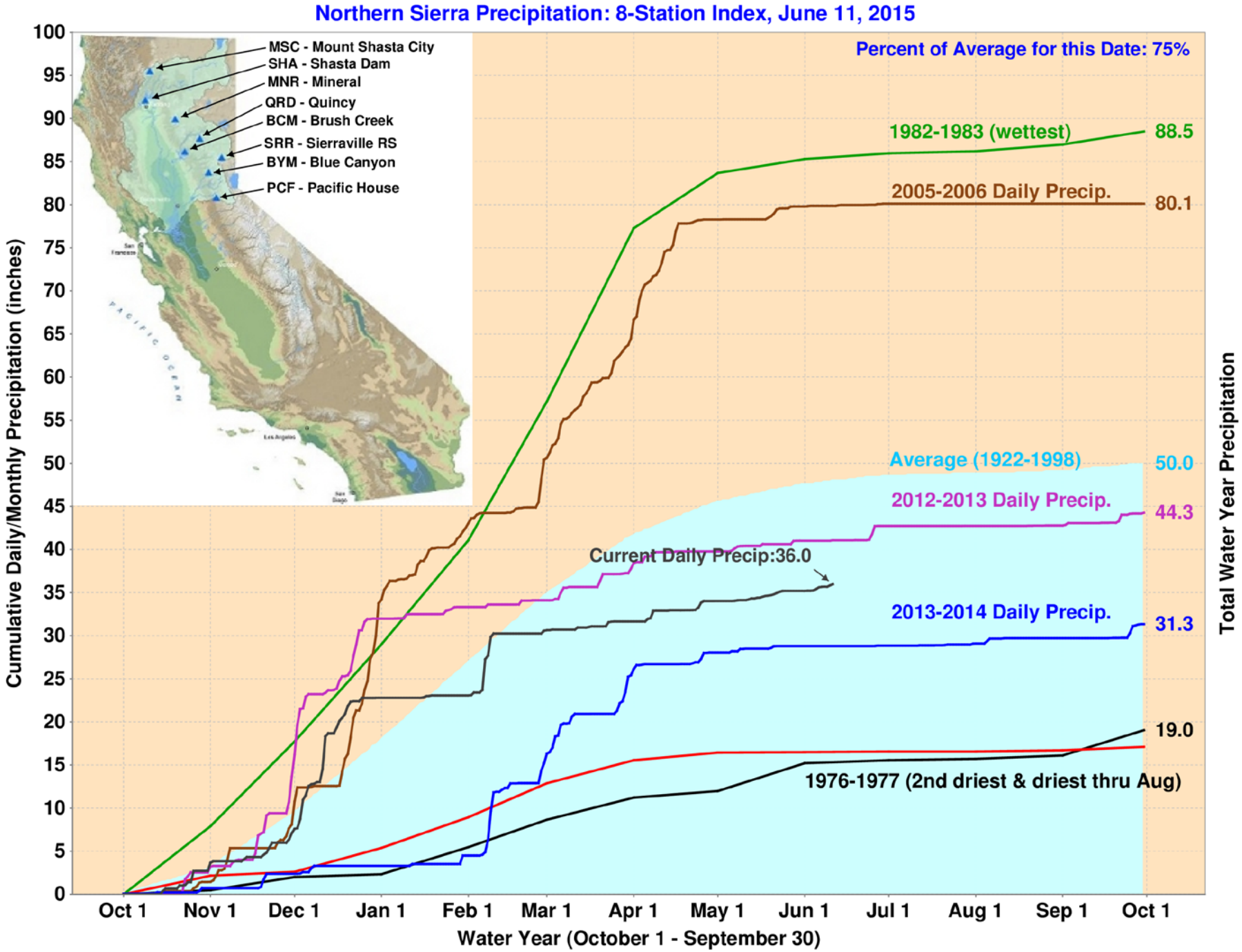


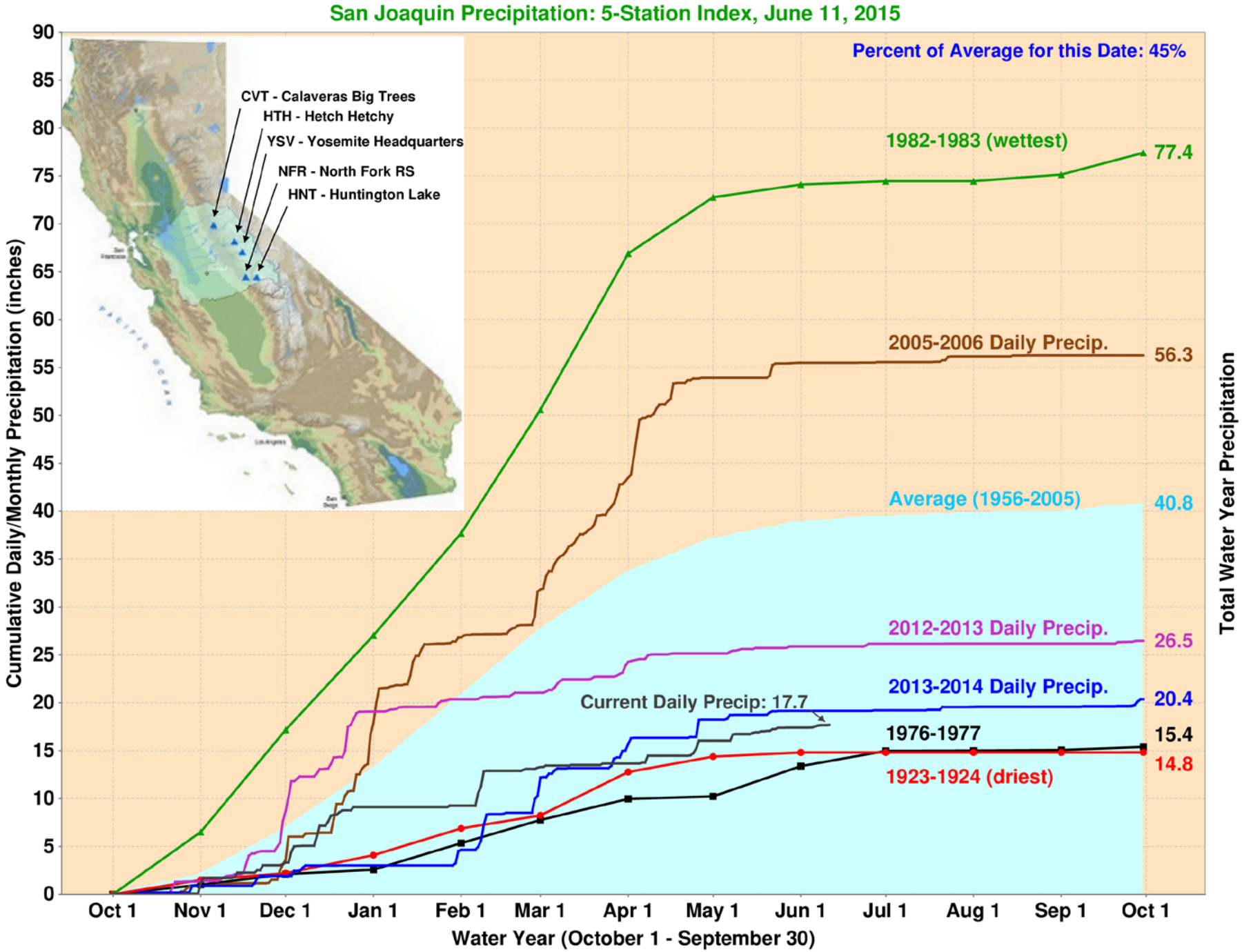
Source: NOAA Climate Division 2 Calendar Year Data

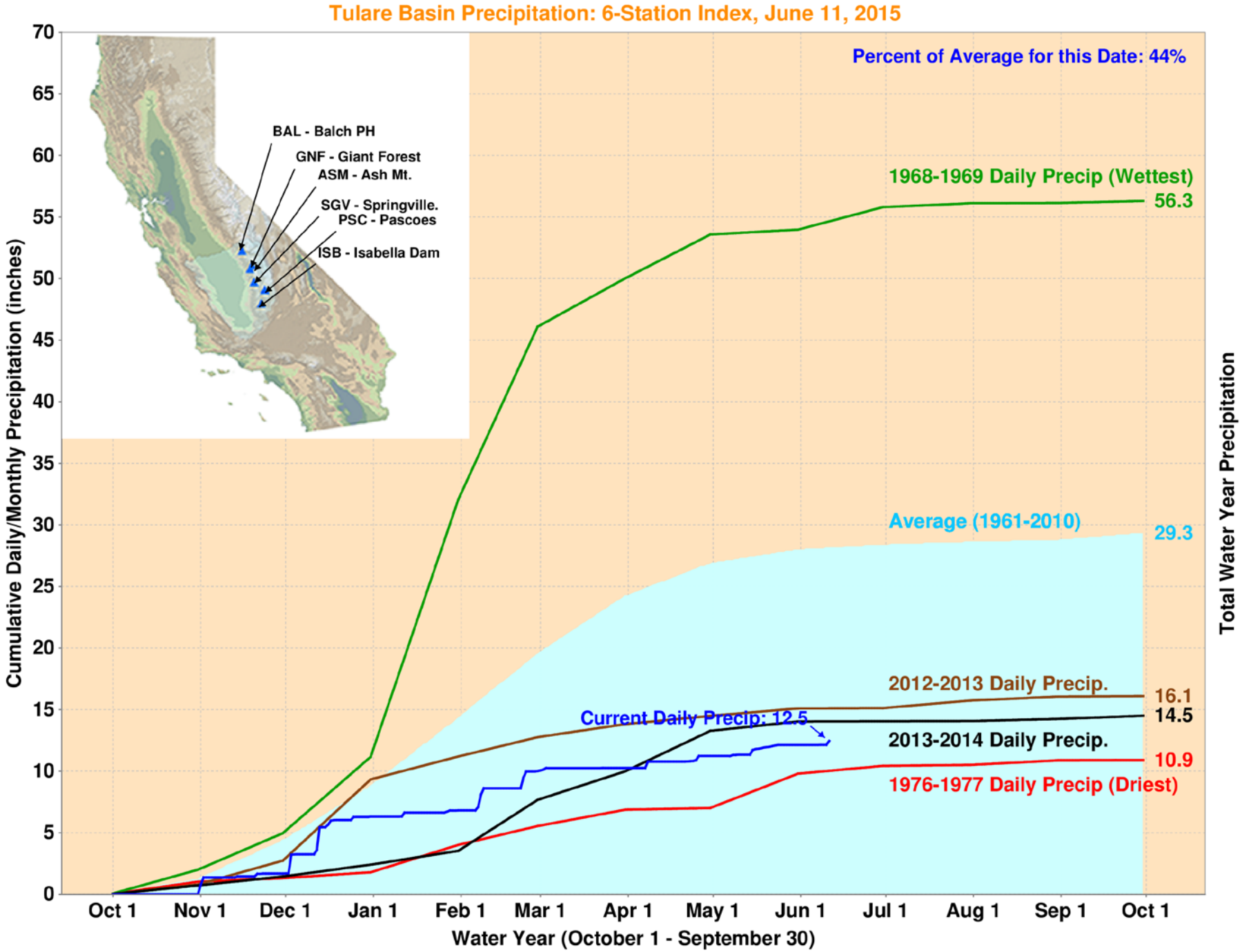
It's Getting Warmer



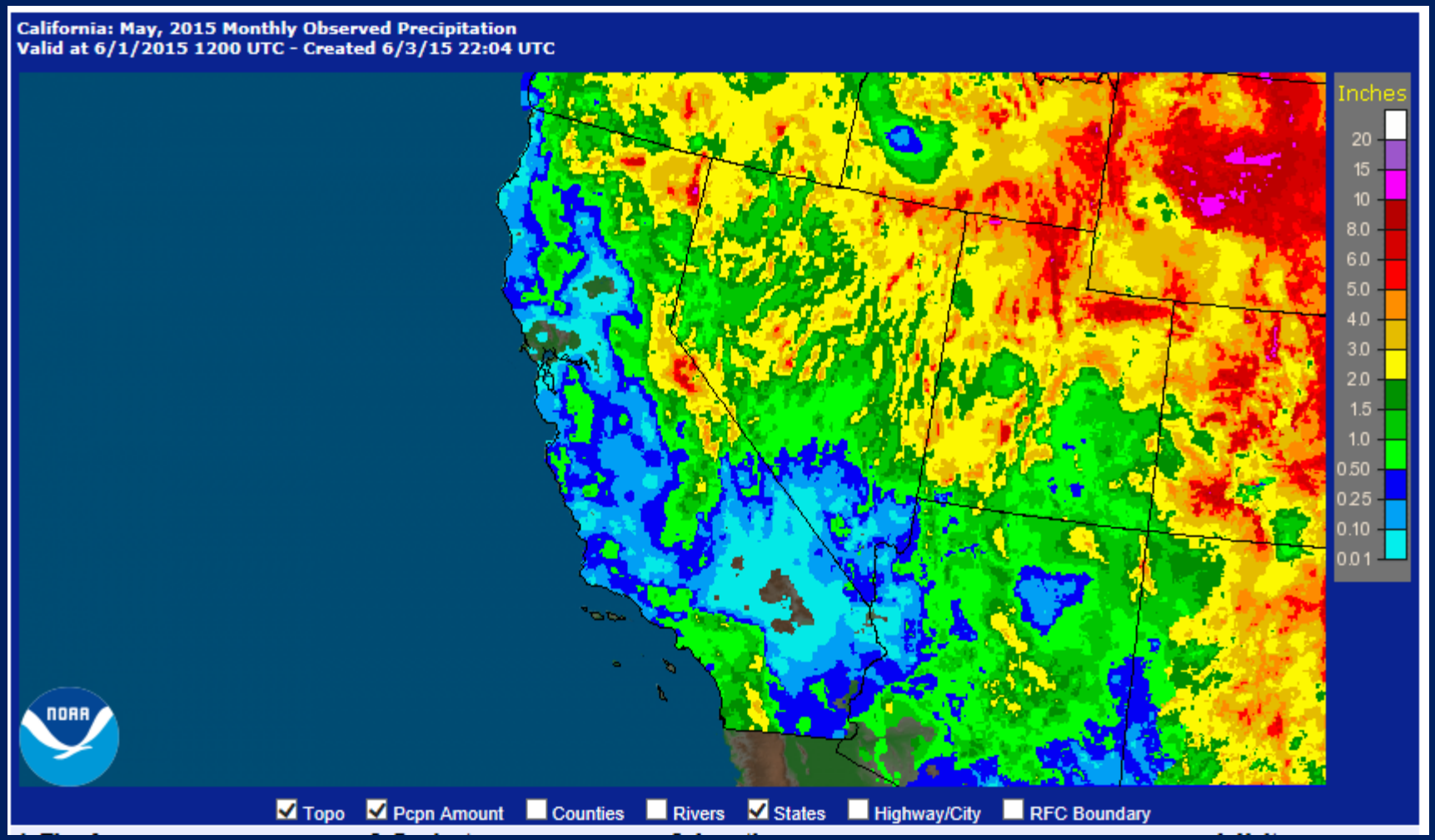
Source: NOAA Climate Division 5 Calendar Year Data


Northern Sierra Precipitation: 8-Station Index, June 11, 2015
MSC - Mount Shasta City
SHA - Shasta Dam
MNR - Mineral
QRD - Quincy
BCM - Brush Creek
SRR - Sierraville RS
BYM - Blue Canyon
PCF - Pacific House
Percent of Average for this Date: 75%
1982-1983 (wettest)
88.5
2005-2006 Daily Precip.
80.1
Average (1922-1998)
50.0
2012-2013 Daily Precip.
44.3
Current Daily Precip:36.0
2013-2014 Daily Precip.
31.3
19.0
1976-1977 (2nd driest & driest thru Aug)
Cumulative Daily/Monthly Precipitation (inches)
Total Water Year Precipitation
Oct 1
Nov 1
Dec 1
Jan 1
Feb 1
Mar 1
Apr 1
May 1
Jun 1
Jul 1
Aug 1
Sep 1
Oct 1
Water Year (October 1 - September 30)


San Joaquin Precipitation: 5-Station Index, June 11, 2015
Percent of Average for this Date: 45%
CVT - Calaveras Big Trees
HTH - Hetch Hetchy
YSV - Yosemite Headquarters
NFR - North Fork RS
HNT - Huntington Lake
1982-1983 (wettest)
77.4
2005-2006 Daily Precip.
56.3
Average (1956-2005)
40.8
2012-2013 Daily Precip.
26.5
2013-2014 Daily Precip.
20.4
Current Daily Precip: 17.7
1976-1977
15.4
1923-1924 (driest)
14.8
Cumulative Daily/Monthly Precipitation (inches)
Total Water Year Precipitation
Water Year (October 1 - September 30)
Oct 1
Nov 1
Dec 1
Jan 1
Feb 1
Mar 1
Apr 1
May 1
Jun 1
Jul 1
Aug 1
Sep 1
Oct 1
0
5
10
15
20
25
30
35
40
45
50
55
60
65
70
75
80
85
90


Tulare Basin Precipitation: 6-Station Index, June 11, 2015
Percent of Average for this Date: 44%
BAL - Balch PH
GNF - Giant Forest
ASM - Ash Mt.
SGV - Springville.
PSC - Pascoes
ISB - Isabella Dam
1968-1969 Daily Precip (Wettest)
56.3
Average (1961-2010)
29.3
2012-2013 Daily Precip.
16.1
Current Daily Precip: 12.5
2013-2014 Daily Precip.
14.5
10.9
1976-1977 Daily Precip (Driest)
Cumulative Daily/Monthly Precipitation (inches)
Total Water Year Precipitation
0
5
10
15
20
25
30
35
40
45
50
55
60
65
70
Oct 1
Nov 1
Dec 1
Jan 1
Feb 1
Mar 1
Apr 1
May 1
Jun 1
Jul 1
Aug 1
Sep 1
Oct 1
Water Year (October 1 - September 30)

National Weather Service Precipitation Analysis



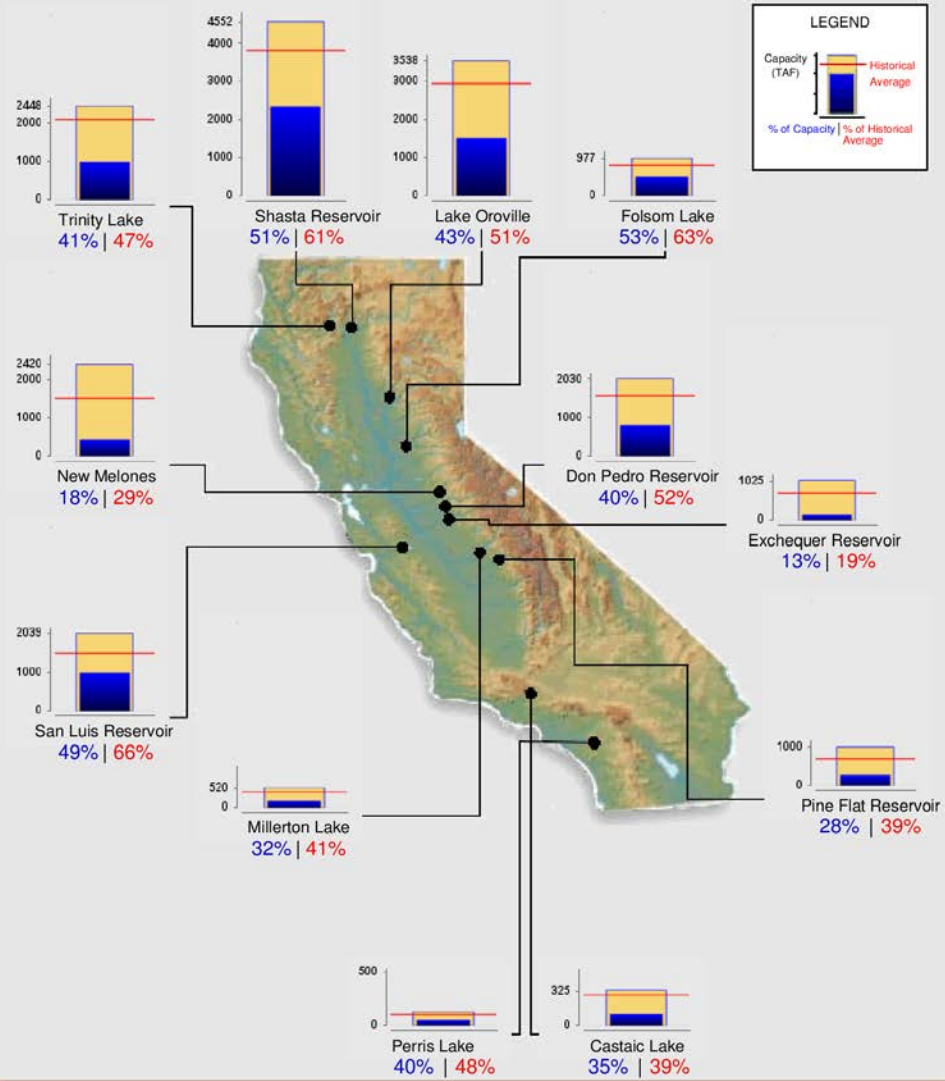
Spring Supercell Thunderstorms, CAPE, and Decaying Tropical Systems

Near Antelope CA

Reservoir Conditions

Ending At Midnight - June 10, 2015

CURRENT RESERVOIR CONDITIONS

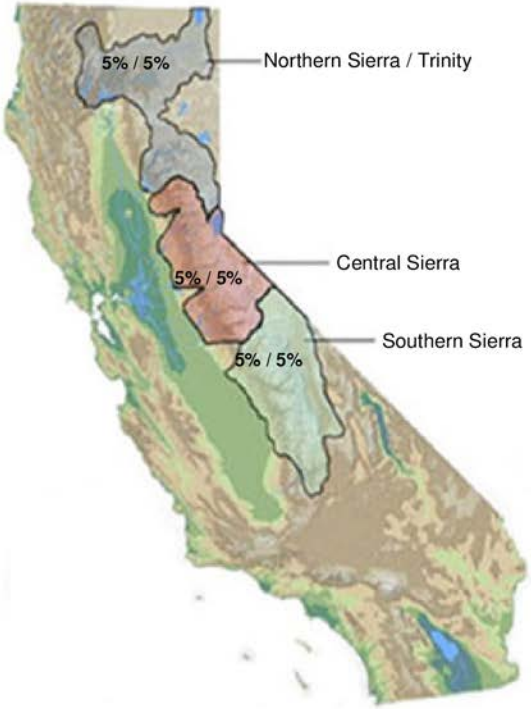


Graph Updated 06/11/2015 08:15 AM

Statewide Summary of Snow Water Content

Current Regional Snowpack from Automated Snow Sensors

% of April 1 Average / % of Normal for This Date



NORTH	
Data as of April 1, 2015	
Number of Stations Reporting	31
Average snow water equivalent (Inches)	1.4
Percent of April 1 Average (%)	5
Percent of normal for this date (%)	5

CENTRAL	
Data as of April 1, 2015	
Number of Stations Reporting	42
Average snow water equivalent (Inches)	1.5
Percent of April 1 Average (%)	5
Percent of normal for this date (%)	5

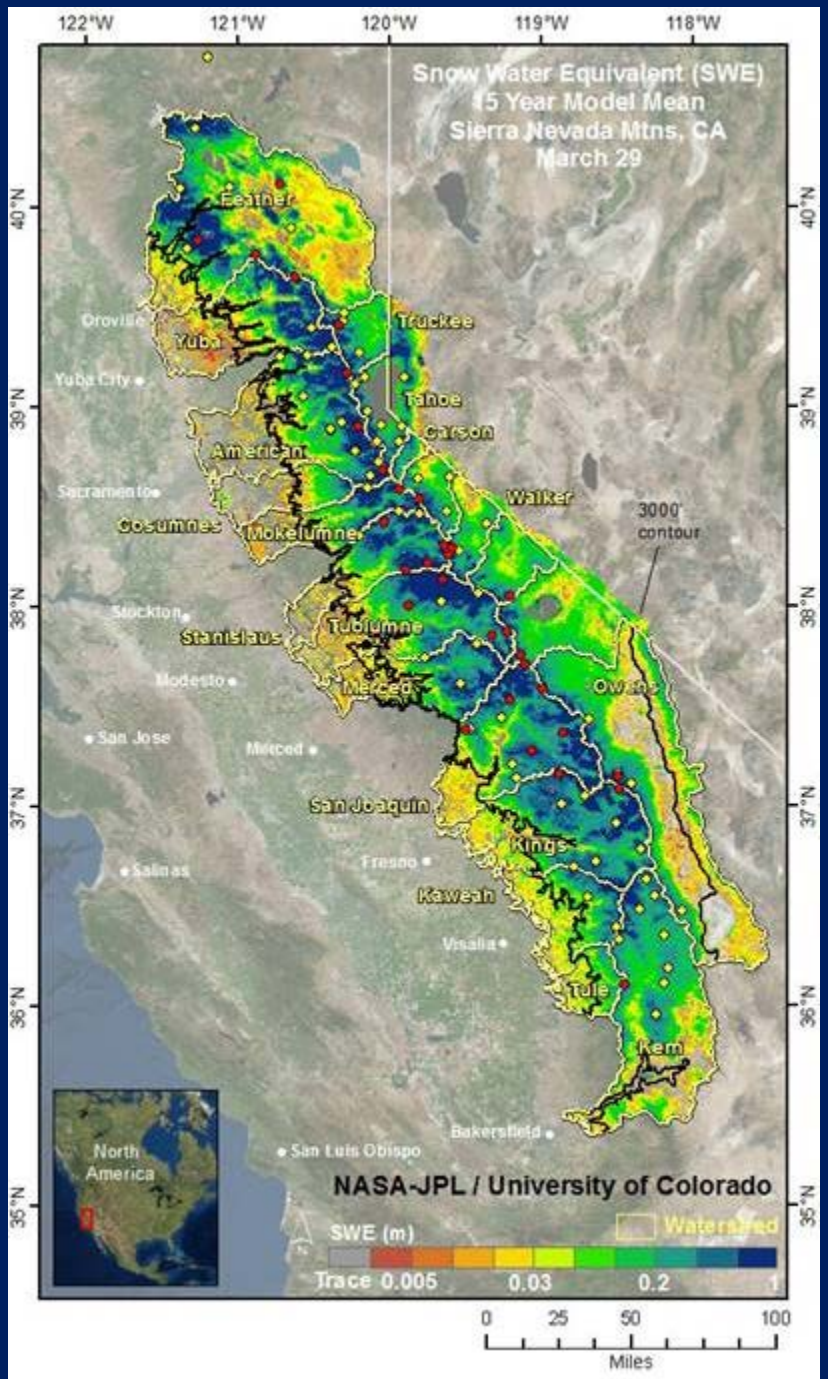
SOUTH	
Data as of April 1, 2015	
Number of Stations Reporting	24
Average snow water equivalent (Inches)	1.3
Percent of April 1 Average (%)	5
Percent of normal for this date (%)	5

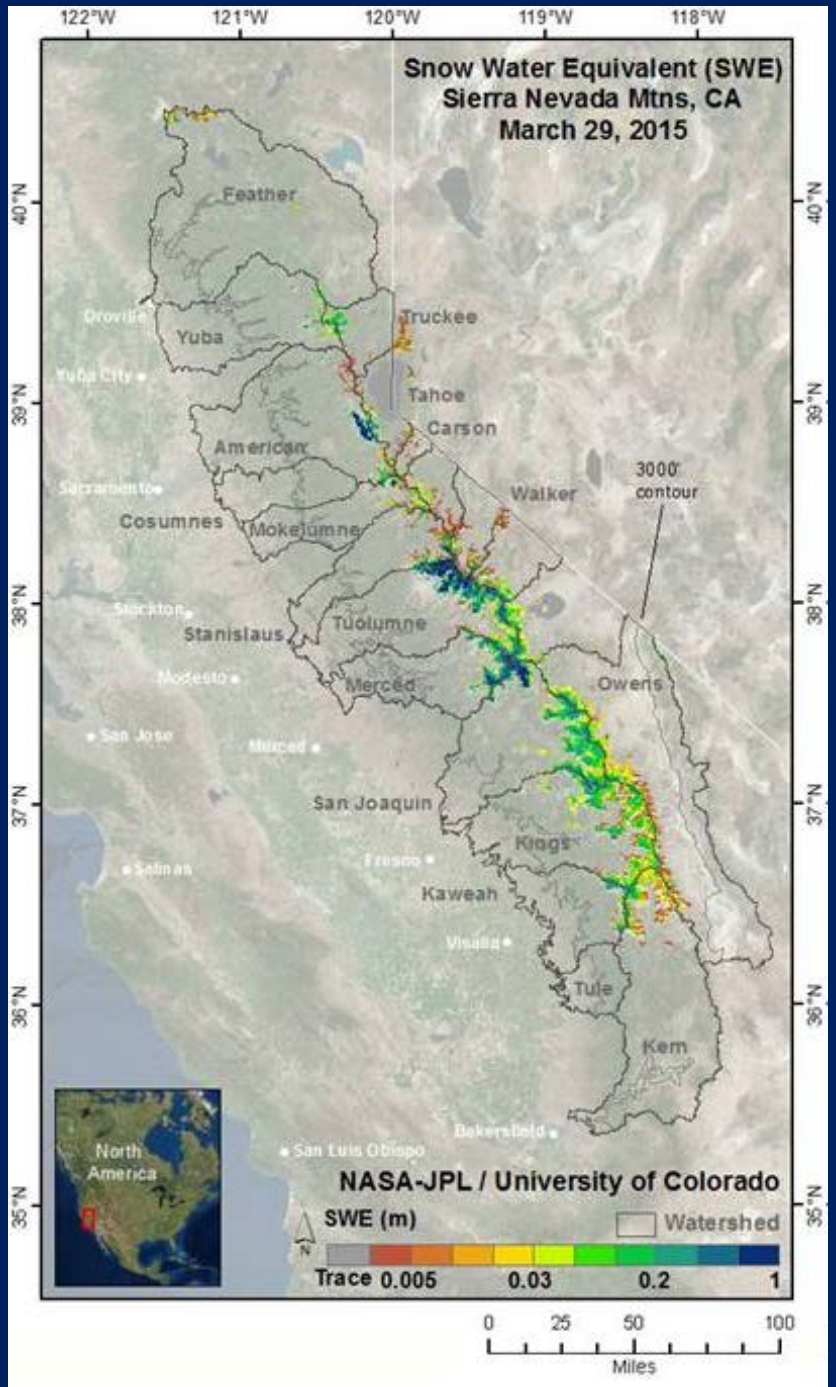
STATE	
Data as of April 1, 2015	
Number of Stations Reporting	97
Average snow water equivalent (Inches)	1.4
Percent of April 1 Average (%)	5
Percent of normal for this date (%)	5

Statewide Average: 5% / 5%

Data as of April 1, 2015

Updated 04/03/2015 08:15 AM

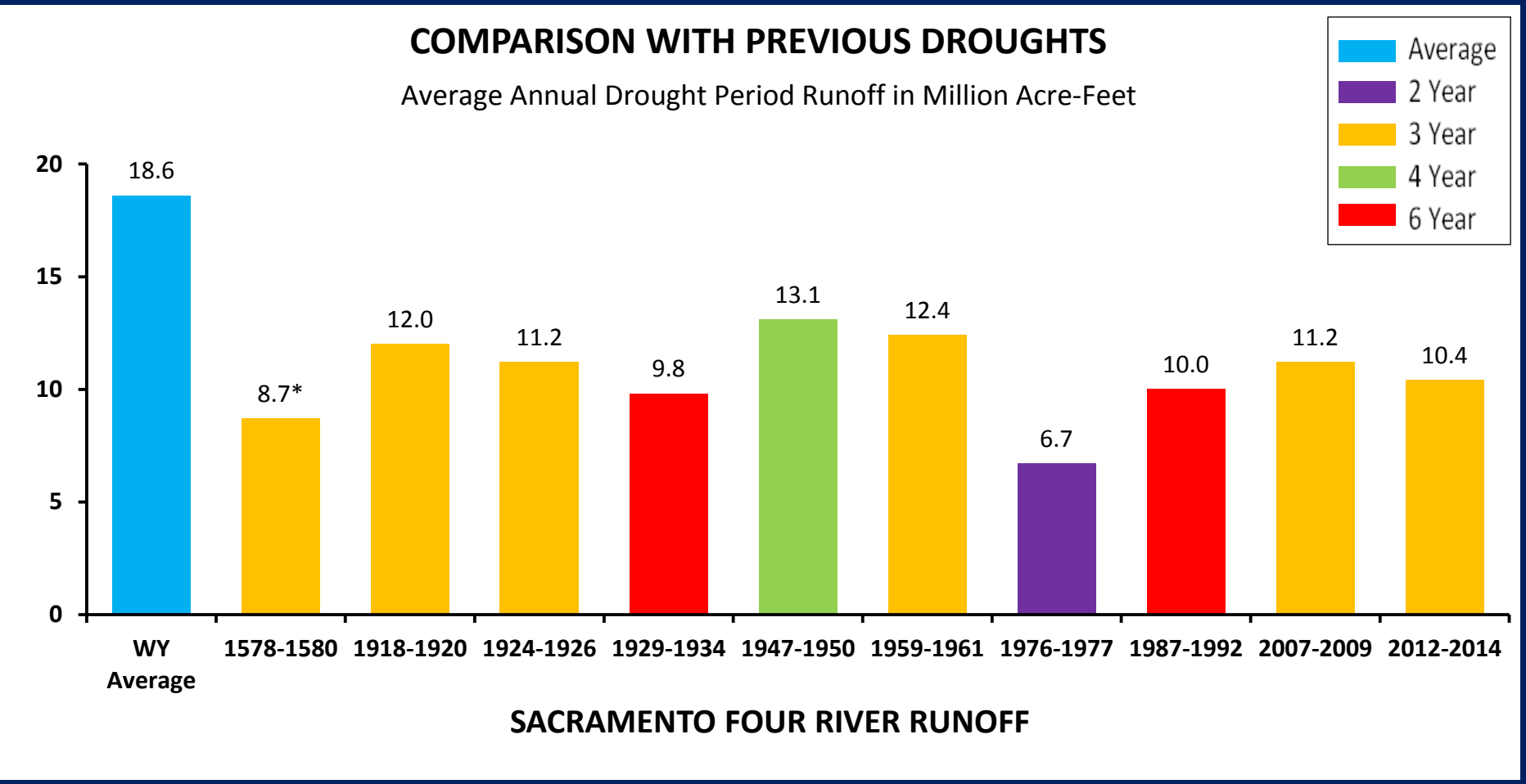

Snow Water Equivalent (SWE)
15 Year Model Mean
Sierra Nevada Mtns, CA
March 29
122°W
121°W
120°W
119°W
118°W
40°N
39°N
38°N
37°N
36°N
35°N
Feather
Oroville
Yuba
Yuba City
Truckee
Tahoe
Carson
American
Sacramento
Walker
Cosumnes
Mokelumne
3000' contour
Stockton
Stanislaus
Tuolumne
Modesto
Merced
Owens
San Jose
Merced
San Joaquin
Kings
Fresno
Salinas
Kaweah
Visalia
Tule
Kern
Bakersfield
San Luis Obispo
North America
NASA-JPL / University of Colorado
SWE (m)
Watershed
Trace
0.005
0.03
0.2
1
0
25
50
100
Miles


Snow Water Equivalent (SWE)
Sierra Nevada Mtns, CA
March 29, 2015
122°W
121°W
120°W
119°W
118°W
40°N
39°N
38°N
37°N
36°N
35°N
Feather
Oroville
Yuba
Truckee
Yuba City
Tahoe
Carson
American
Sacramento
Walker
3000' contour
Cosumnes
Mokelumne
Stockton
Stanislaus
Tuolumne
Modesto
Merced
Owens
San Jose
Merced
San Joaquin
Kings
Fresno
Salinas
Kaweah
Visalia
Tule
Kern
Bakersfield
San Luis Obispo
North America
NASA-JPL / University of Colorado
SWE (m)
Watershed
Trace
0.005
0.03
0.2
1
0
25
50
100
Miles

Worst April 1 Snowpacks

2015	5 percent
2014	25
1977	25
1988	29
1976	37
2007	39
2013	42
1963	45
1990	45
1994	52
2012	52

Runoff Comparisons



* From tree rings

Comparison of Runoff – Sacramento

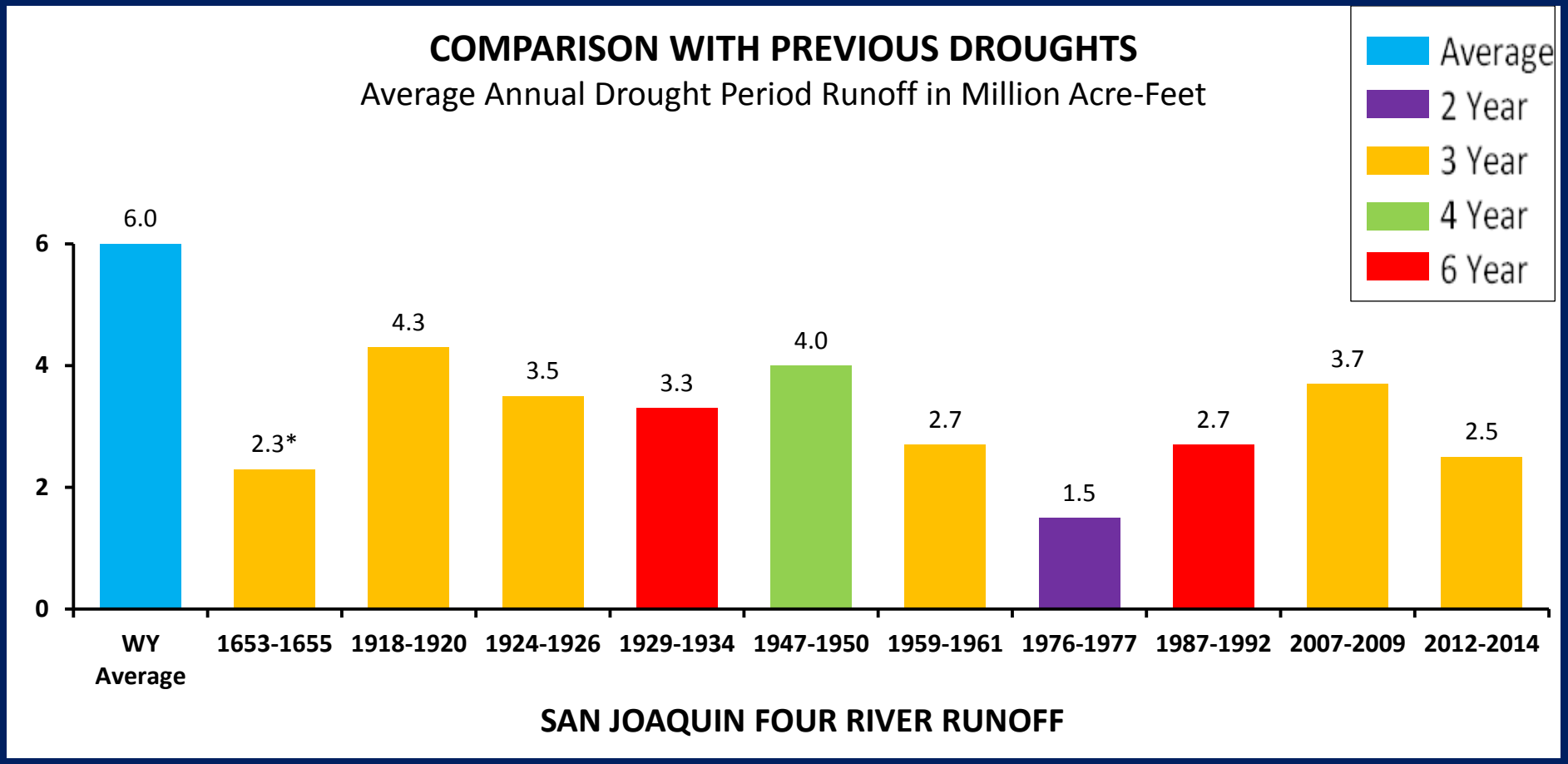
21st Century	Oct-Mar	Apr-Jul	WY
Max	18.06	13.09	32.09
Average	8.66	6.08	15.48
Min	4.29	2.6	7.47
1923-1940	Oct-Mar	Apr-Jul	WY
Max	17.96	12.93	31.83
Average	7.63	5.87	14.13
Min	3.27	1.94	5.74

Units are Million Acre-Feet

Comparison of WSI - Sacramento

Water Year Type	1924-1938	21st Century
W	2	2
AN	1	2
BN	3	3
D	4	5
C	5	3

Includes forecast of critical for 2015



* From tree rings

Comparison of WSI - San Joaquin

Water Year Type	1924-1938	21st Century
W	2	3
AN	4	1
BN	2	2
D	2	4
C	5	5

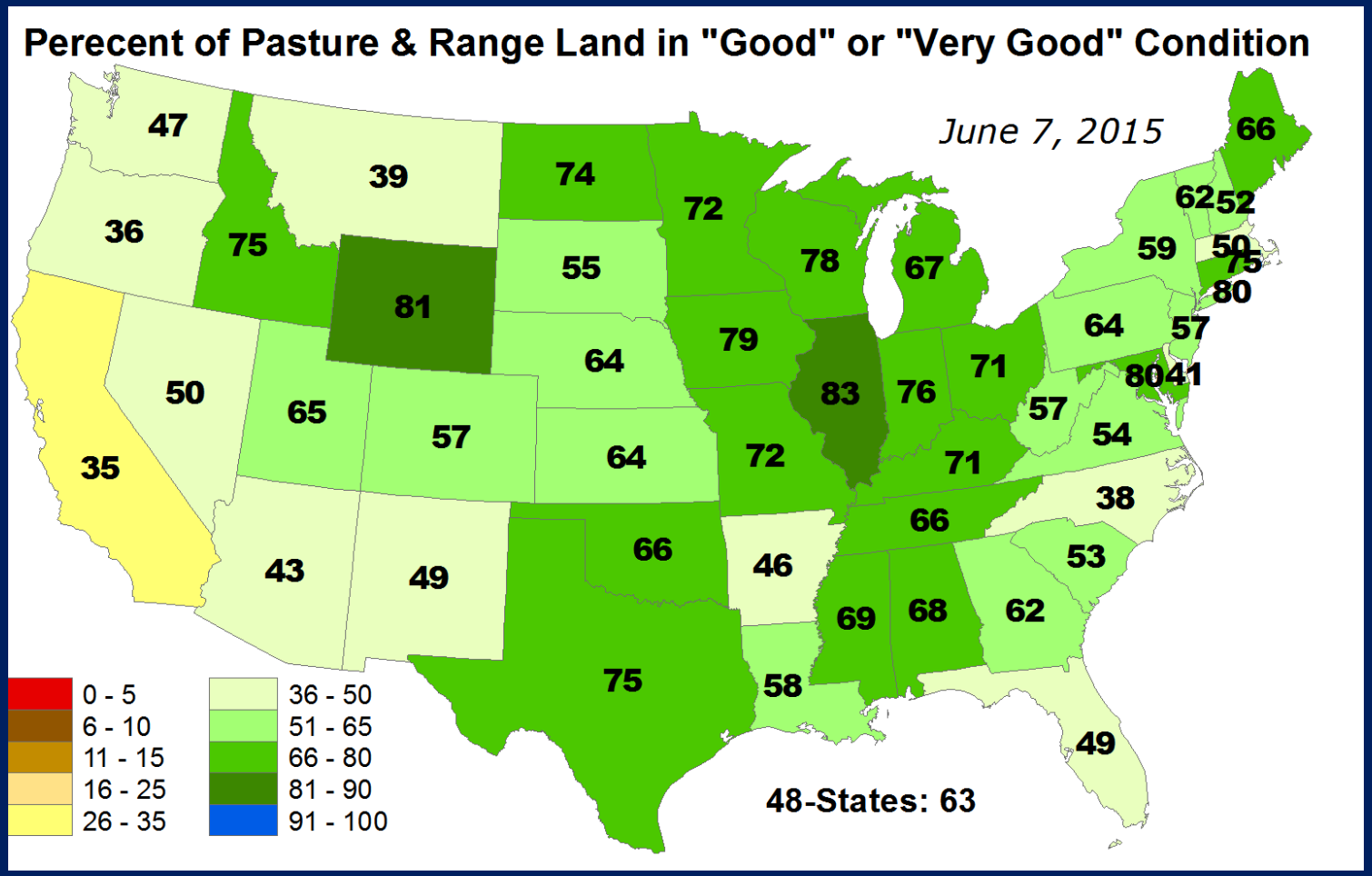
Includes forecast of critical for 2015

Comparison of Runoff – San Joaquin

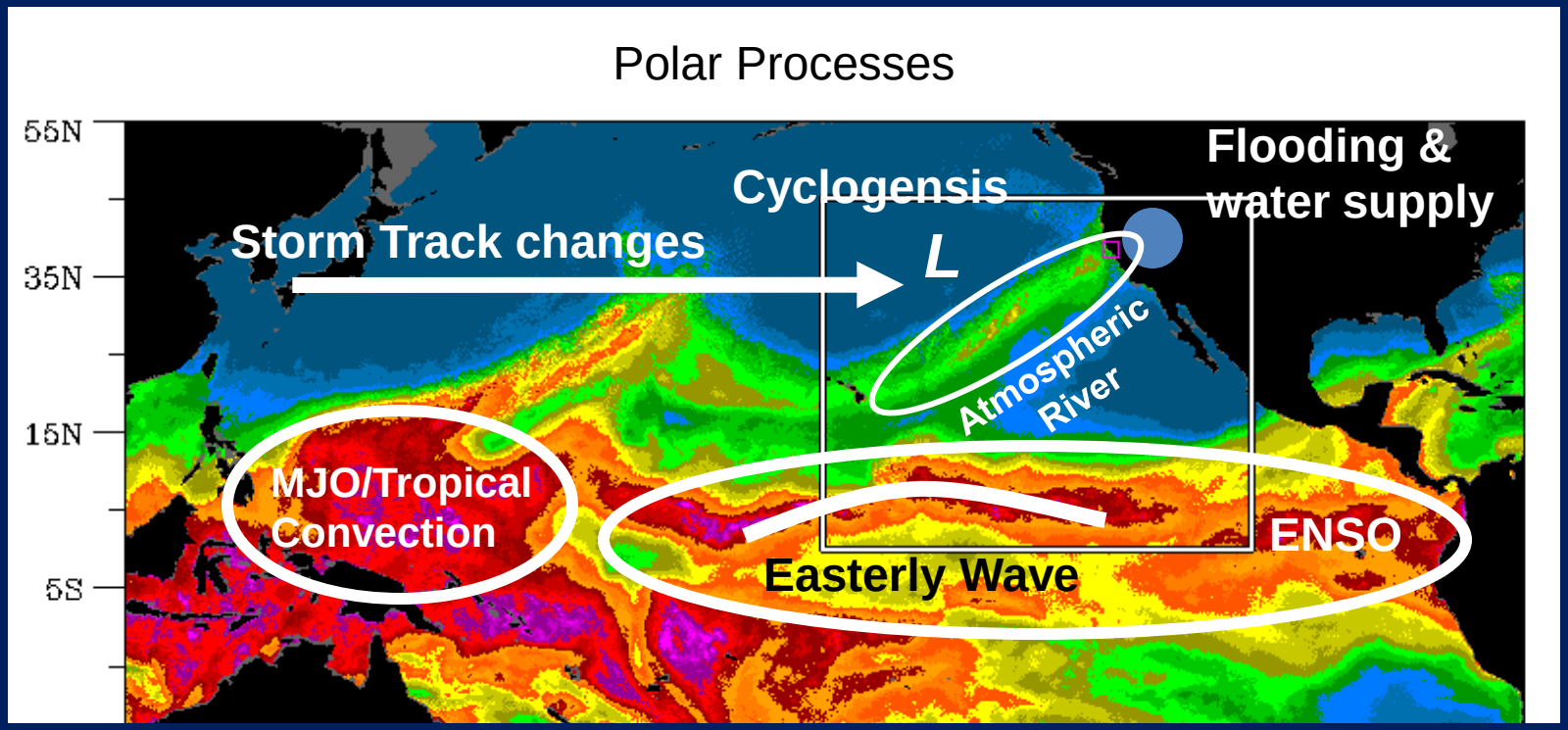
21st Century	Oct-Mar	Apr-Jul	WY
Max	3.68	7.37	10.99
Average	1.55	3.41	5.08
Min	0.46	1.21	1.72
1924-1938	Oct-Mar	Apr-Jul	WY
Max	3.58	7.33	11.24
Average	1.33	3.38	4.80
Min	0.45	1.03	1.5

Units are Million Acre-Feet

CPC Rangeland Experimental Product



Key Phenomena Affecting California Water Supply/Flooding:



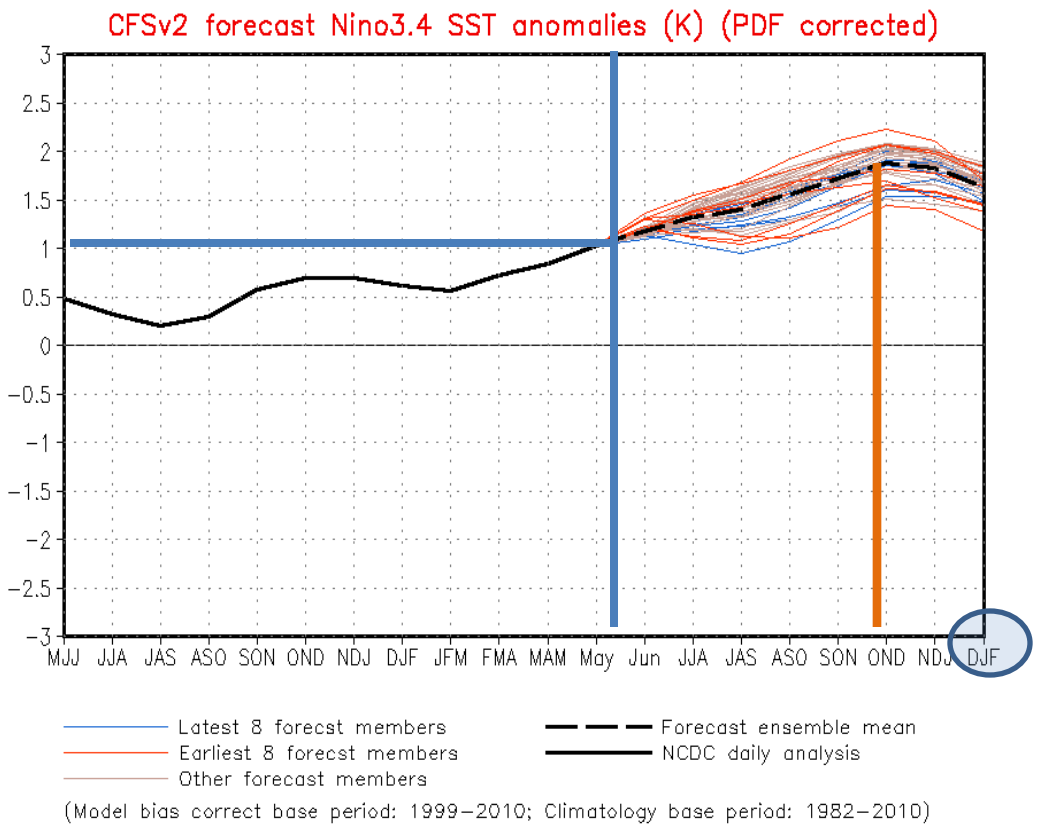
The size of the AR results from the alignment of key processes

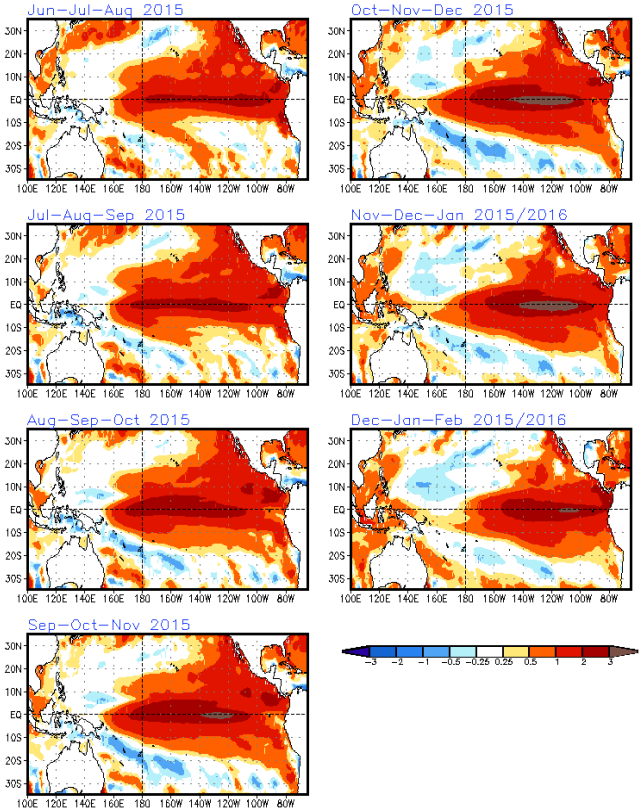
The absence of AR activity important to drought

SST Outlook: NCEP CFS.v2 Forecast (PDF corrected)

Issued: 8 June 2015

The CFS.v2 ensemble mean (black dashed line) predicts El Niño through DJF 2015-16.





From CPC ENSO Diagnostic Discussion

Summarizing Thoughts

- Current drought warmer than 20th century counterparts
- Several record-setting elements during this drought (lowest April 1 snowpack, lowest calendar year precipitation, warmest year)
- Precipitation timing and form (rain vs snow) and temperature are important elements in California drought story with different emphases for different sectors

Questions?

Email: Michael.L.Anderson@water.ca.gov