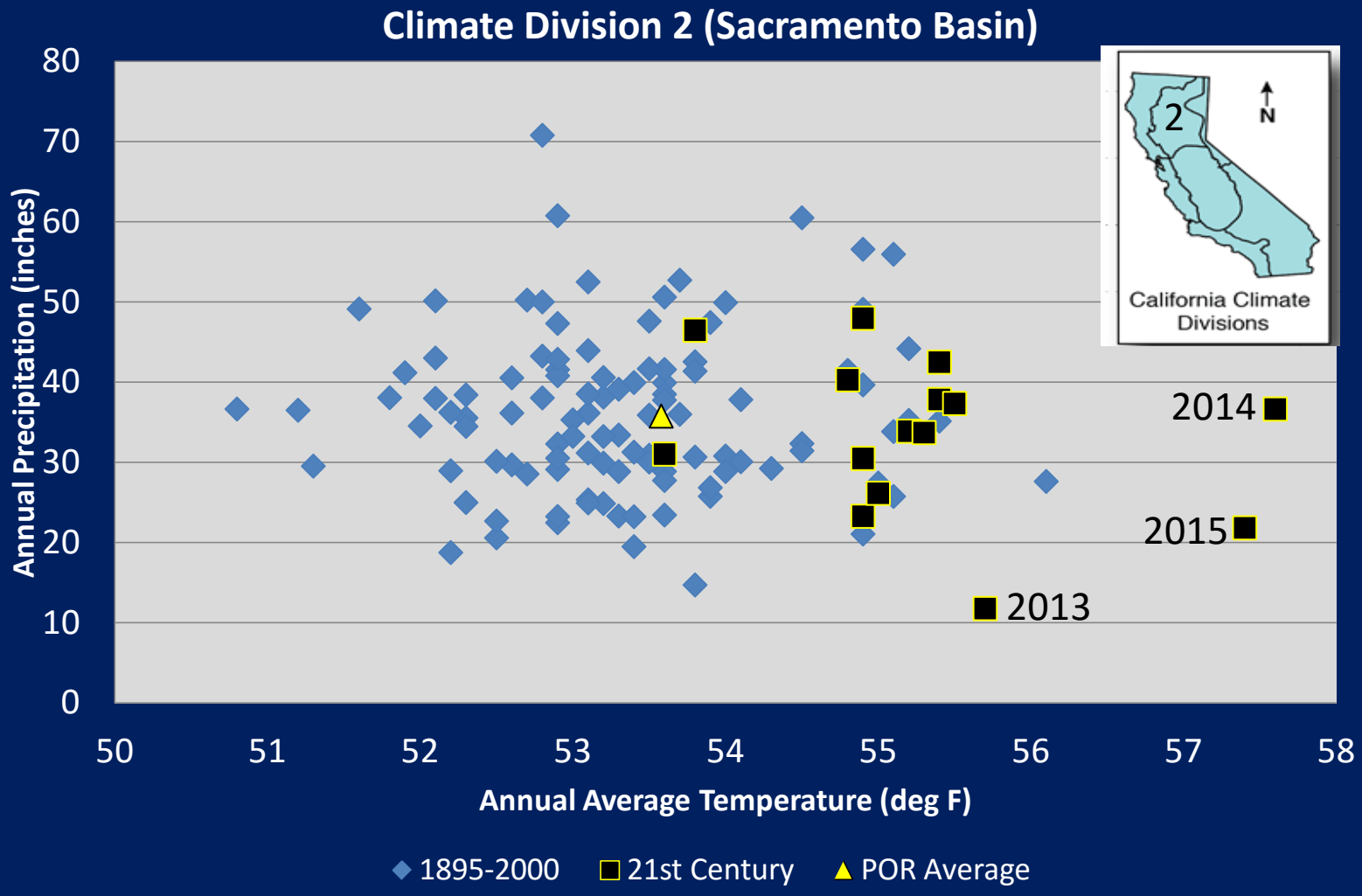
State Climate Office Activities

Talk Overview

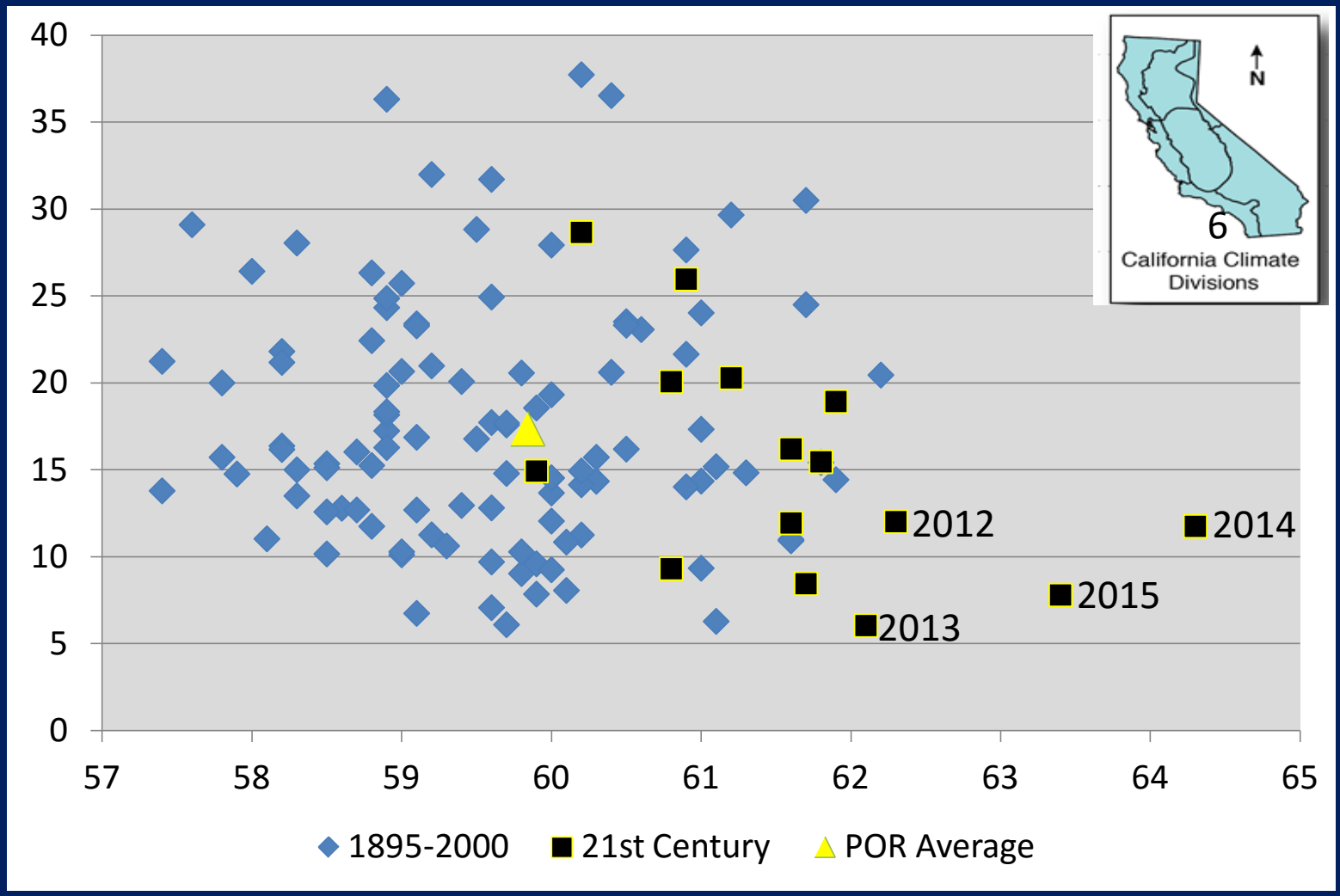
- Drought/El Nino/Outreach
- Research and Development Projects
- Coordination and Collaboration

Climate Division 2 Calendar Year Temperature and Precipitation Data

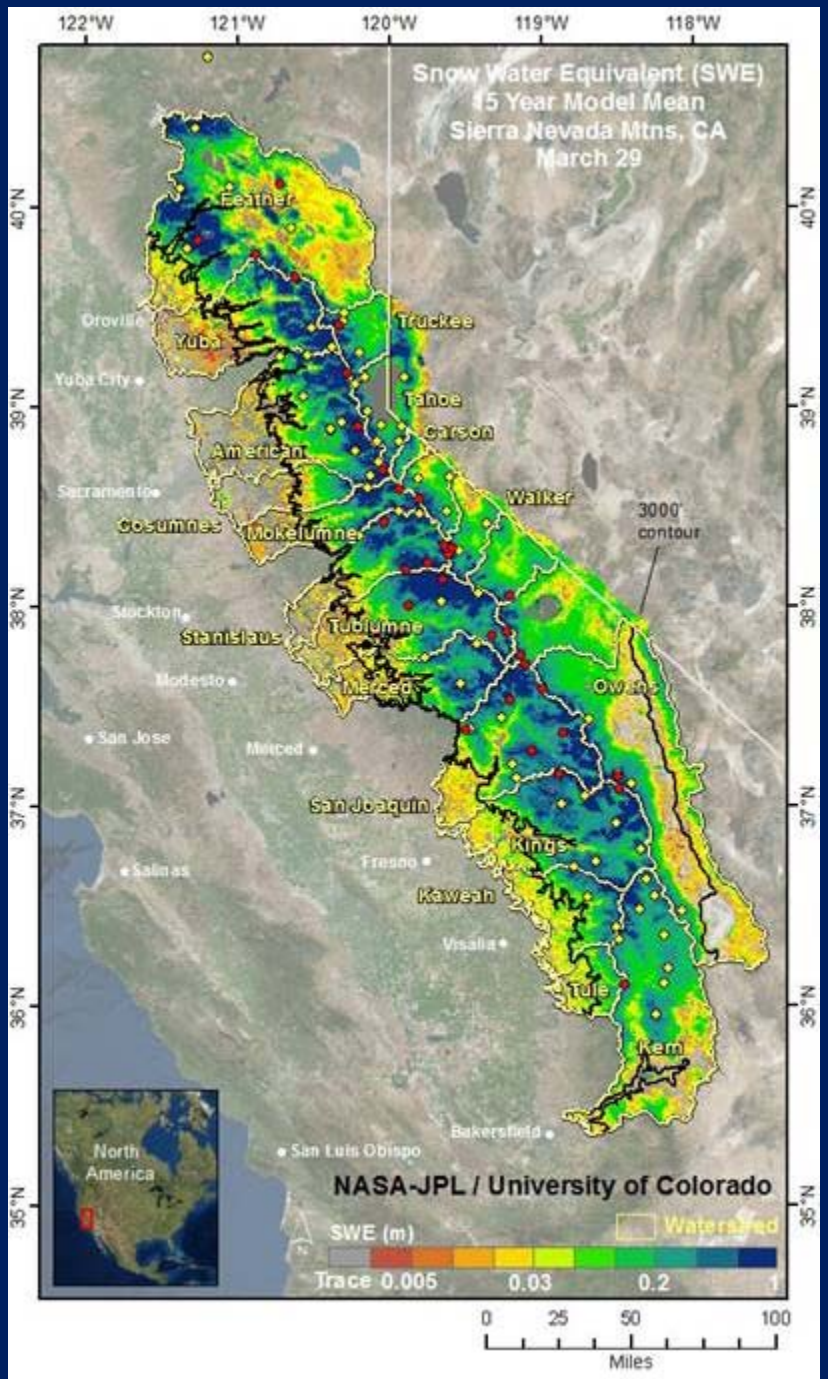


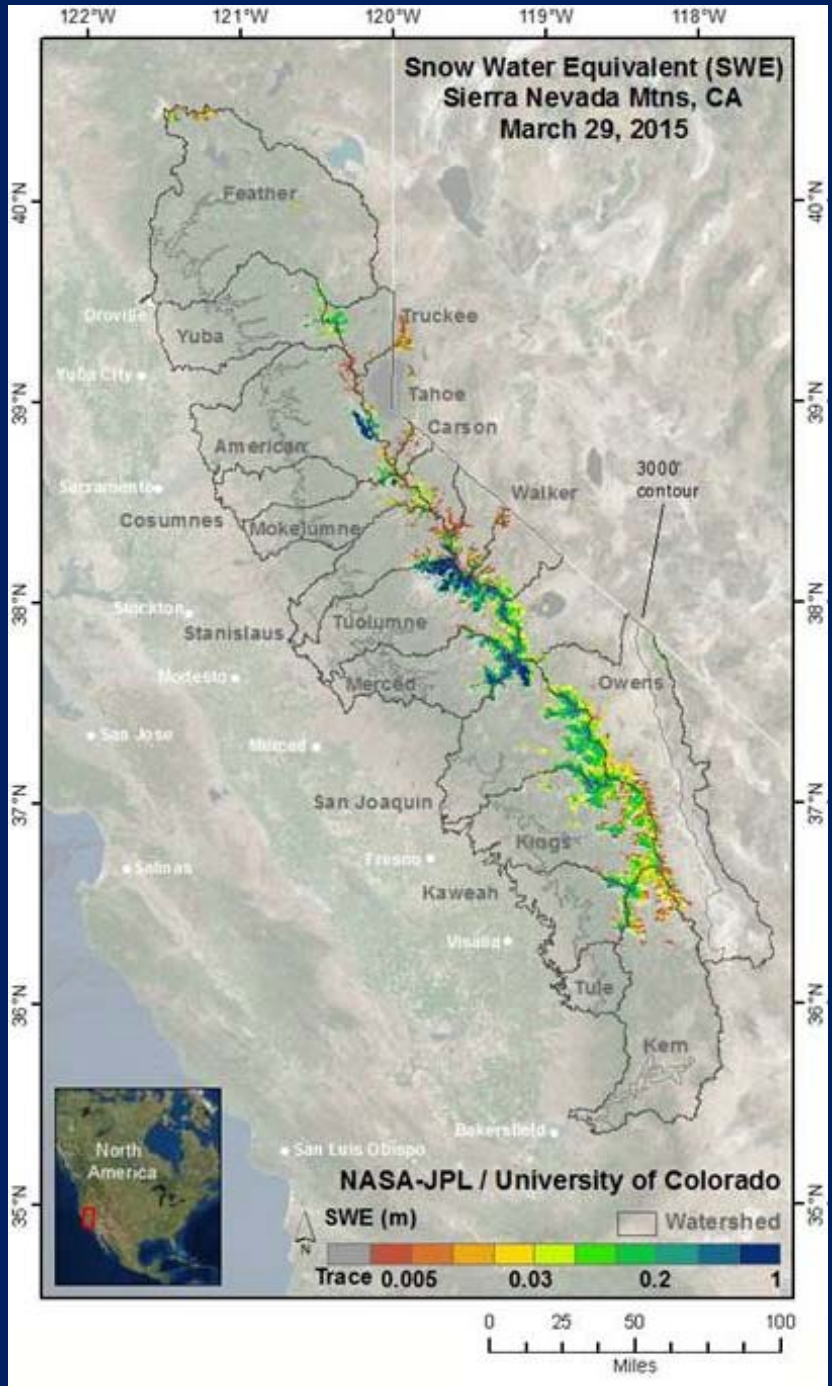
Source: NOAA Climate Division 2 Calendar Year Data

Climate Division 6 Calendar Year Temperature and Precipitation Data



Source: NOAA Climate Division 6 Calendar Year Data


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
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
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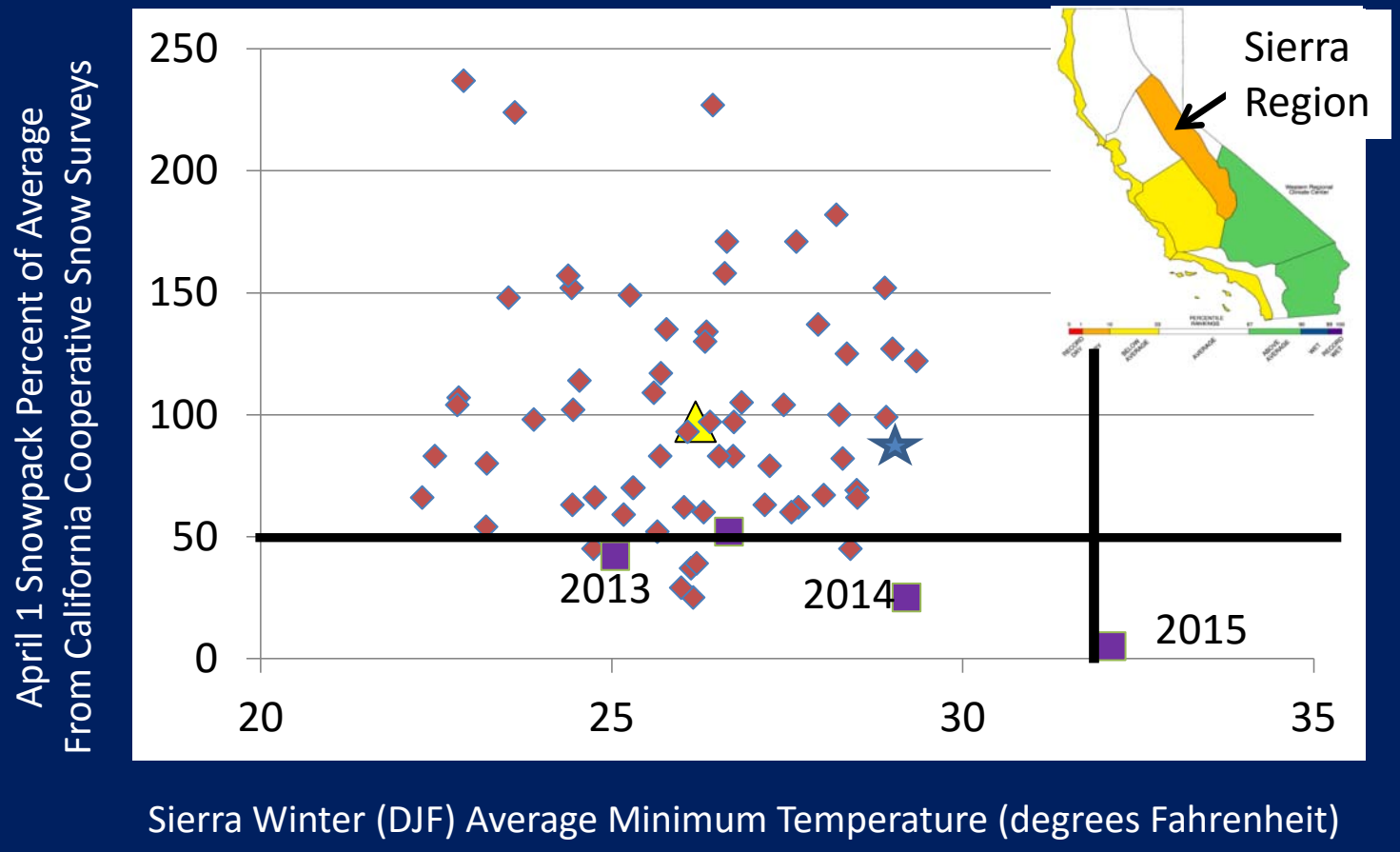
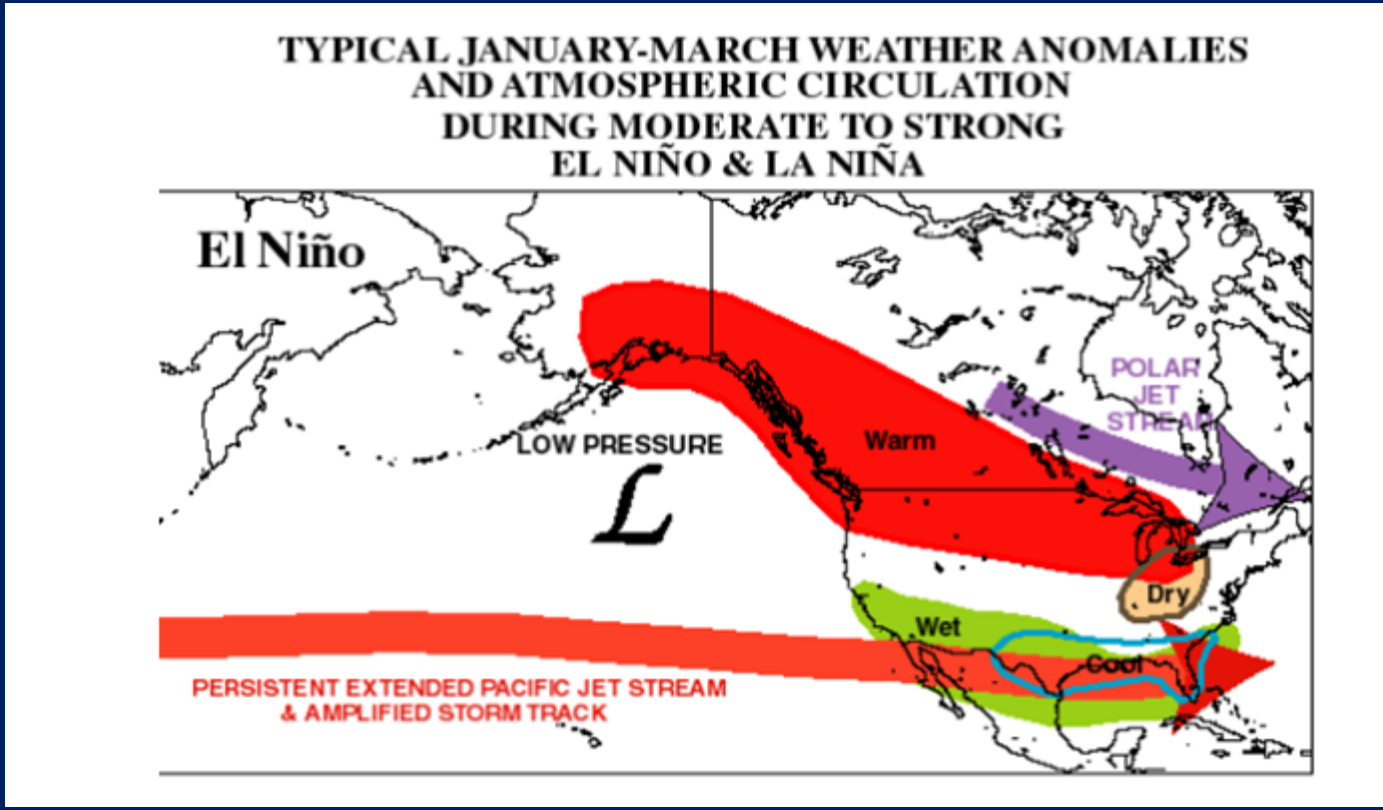
North America
NASA-JPL / University of Colorado
SWE (m)
Watershed
Trace 0.005 0.03 0.2 1
0 25 50 100
Miles

Snowpack and Winter Temperatures of the Sierra Nevada



Expectations of a Strong El Niño

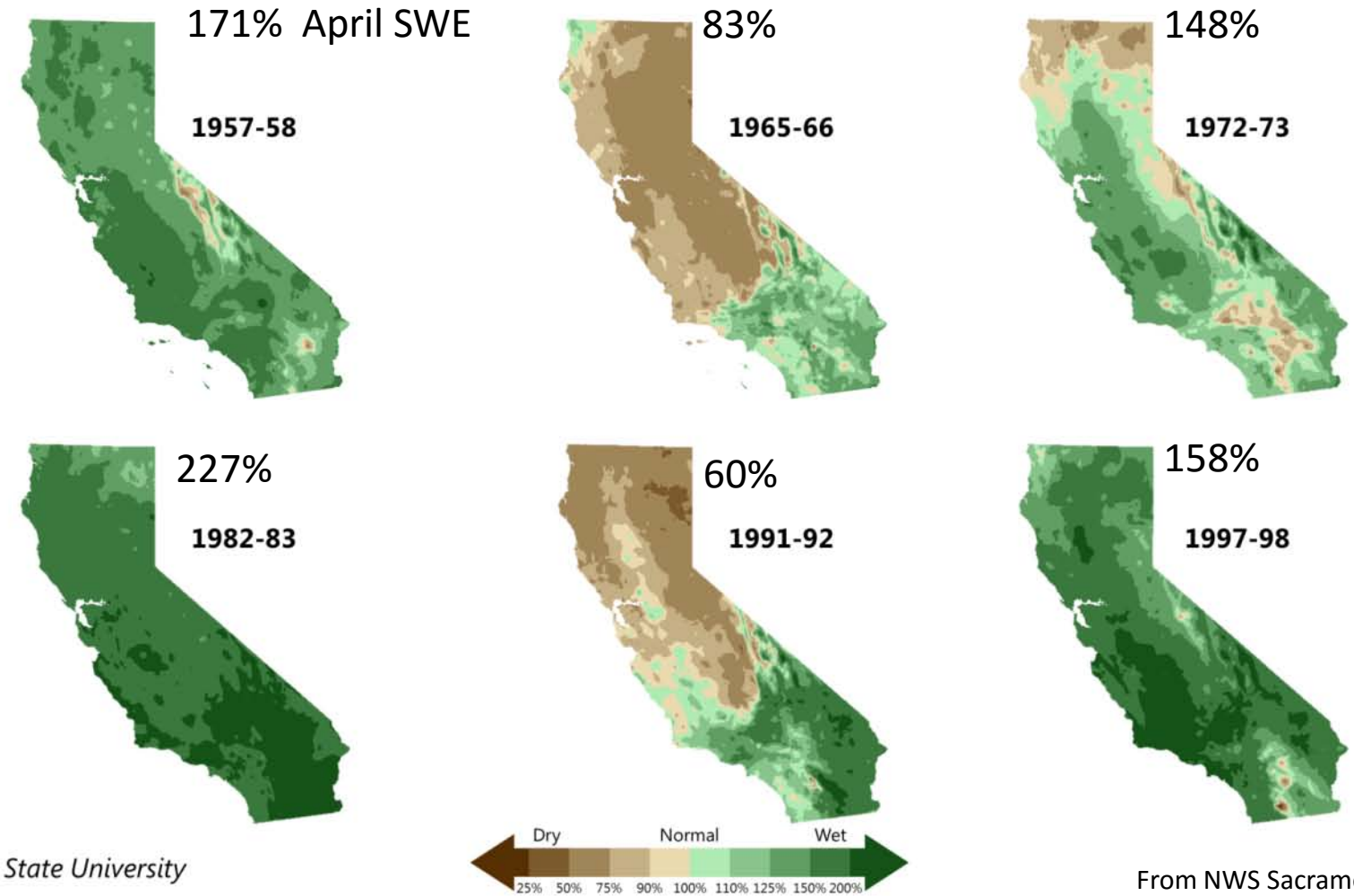


Graphic from NOAA Climate Prediction Center

Expectations:

- High Sea Levels with Coastal Storm Damage
- Heavy rains and flooding in Southern California maybe extending into northern CA
- Warmer than Average Temperatures
- Improvement or Elimination of Drought in California

Historical Strong El Niño Outcomes For California

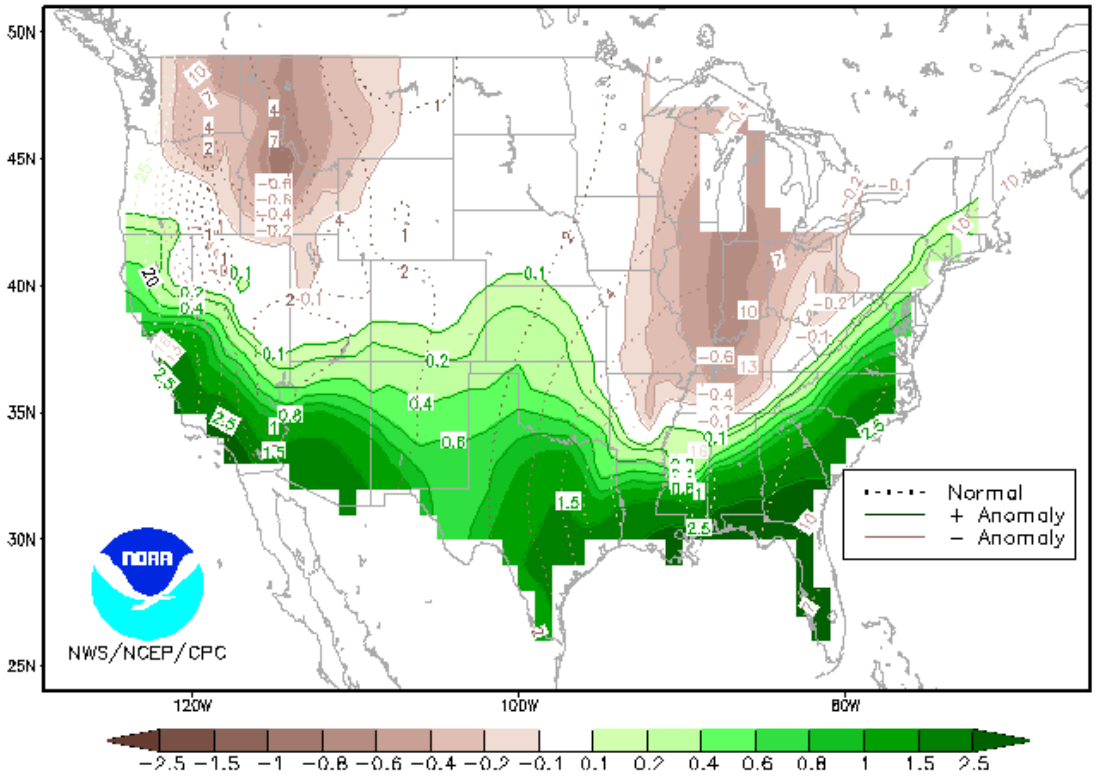


PRISM, Oregon State University

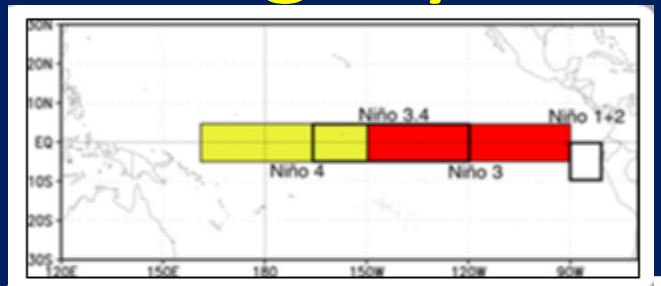
From NWS Sacramento

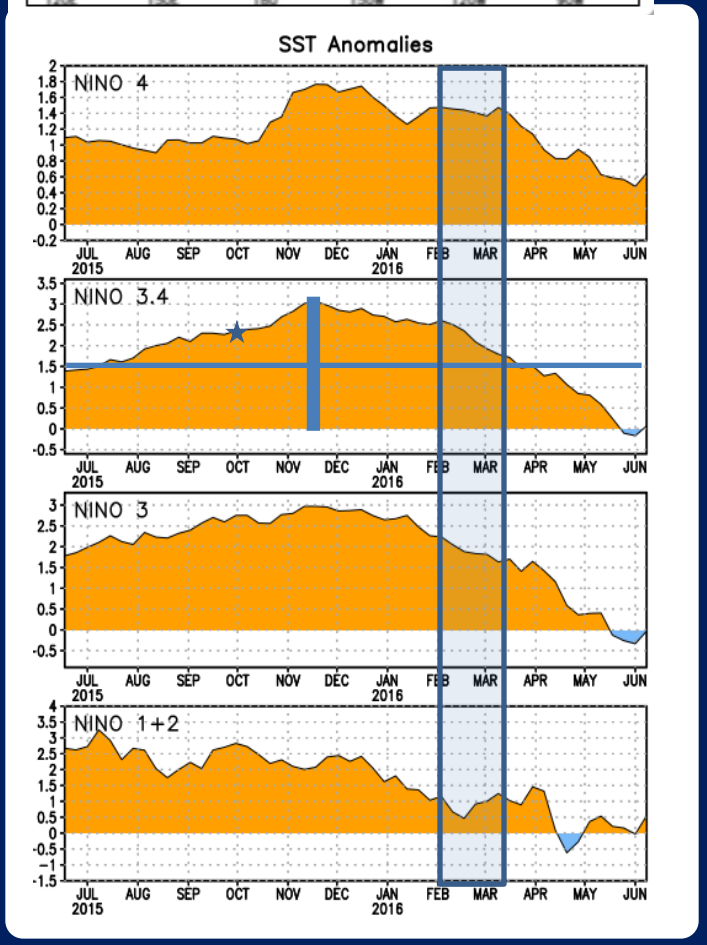
DJF Precipitation Anomaly of the Median of the Forecast Distribution

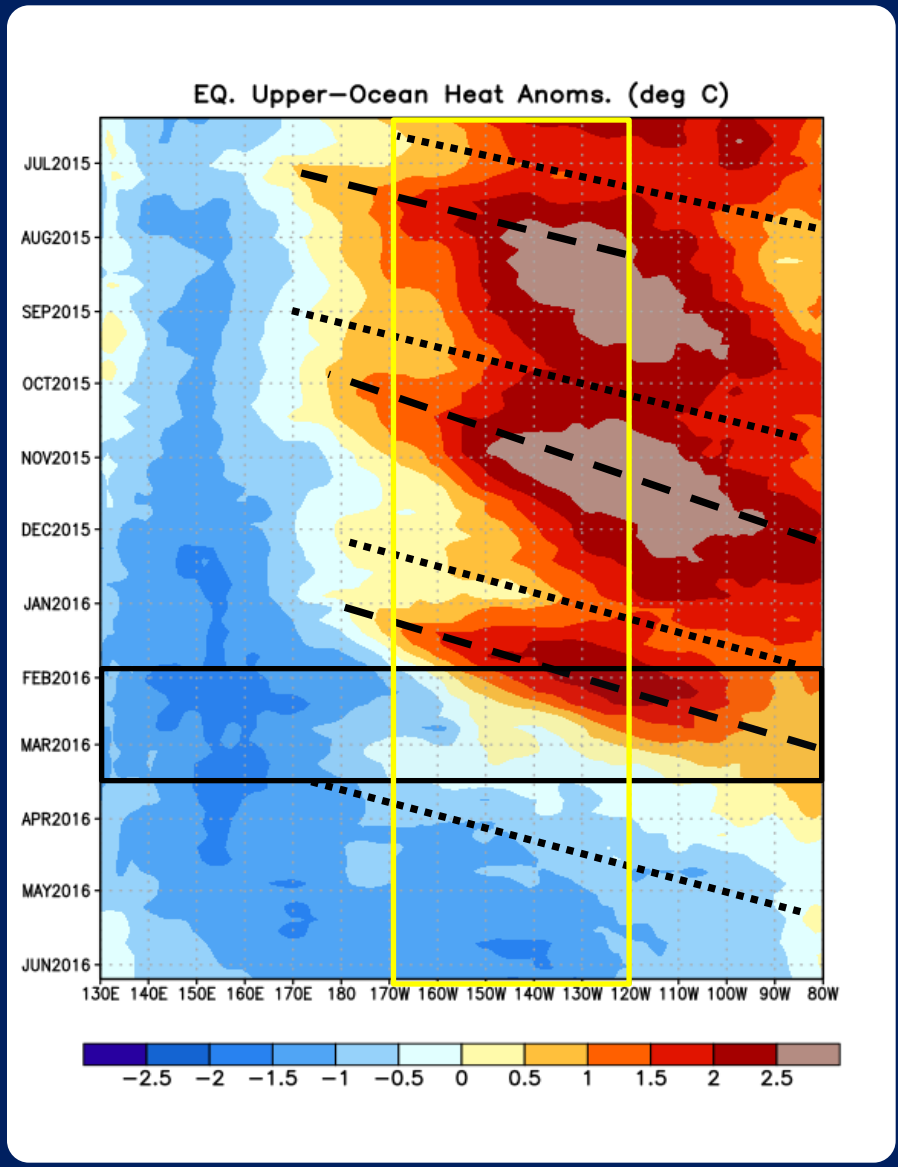
This suggests that most of California will have a wetter than average December-February Period



The Mighty El Niño of 2015-2016

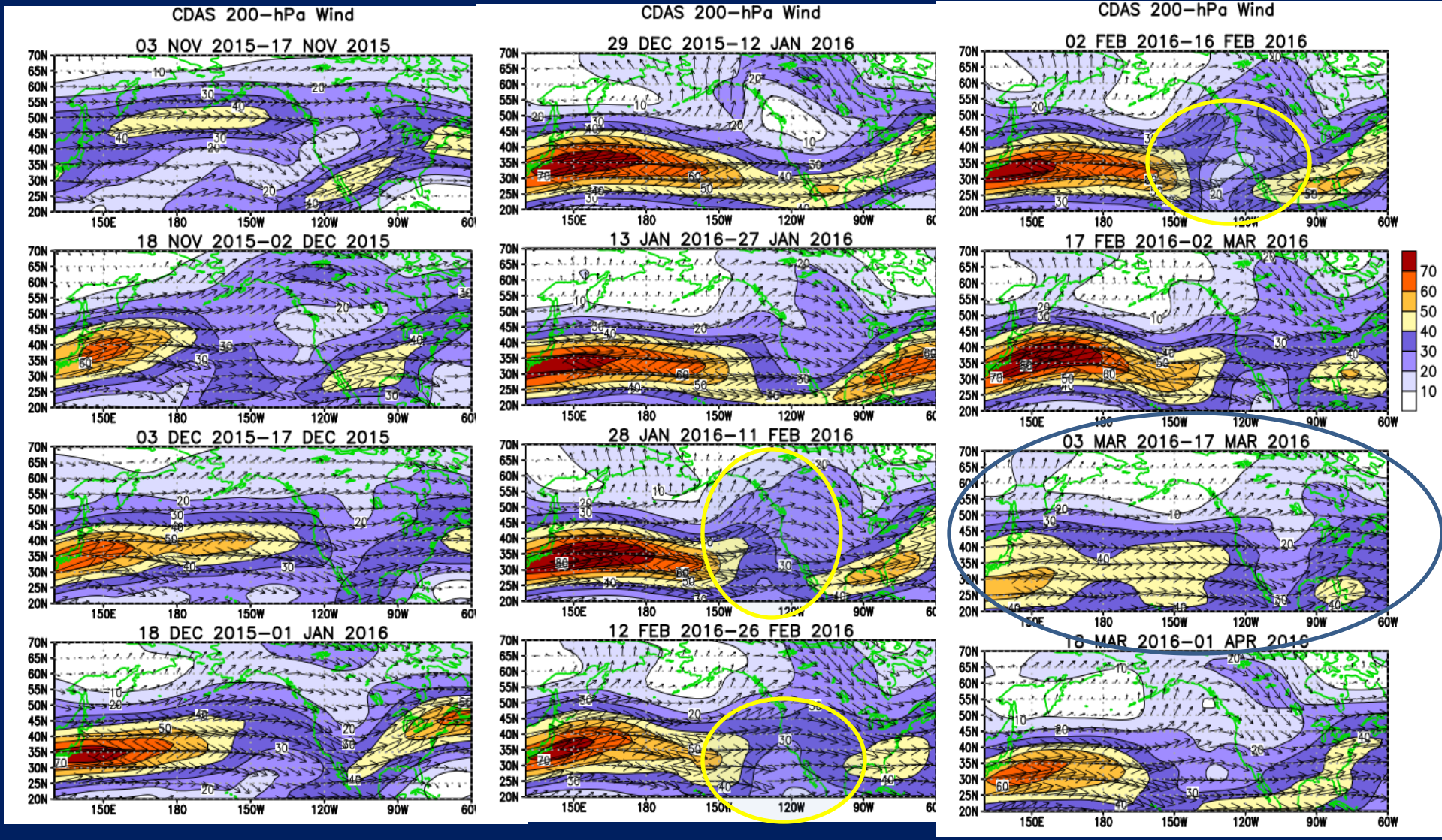




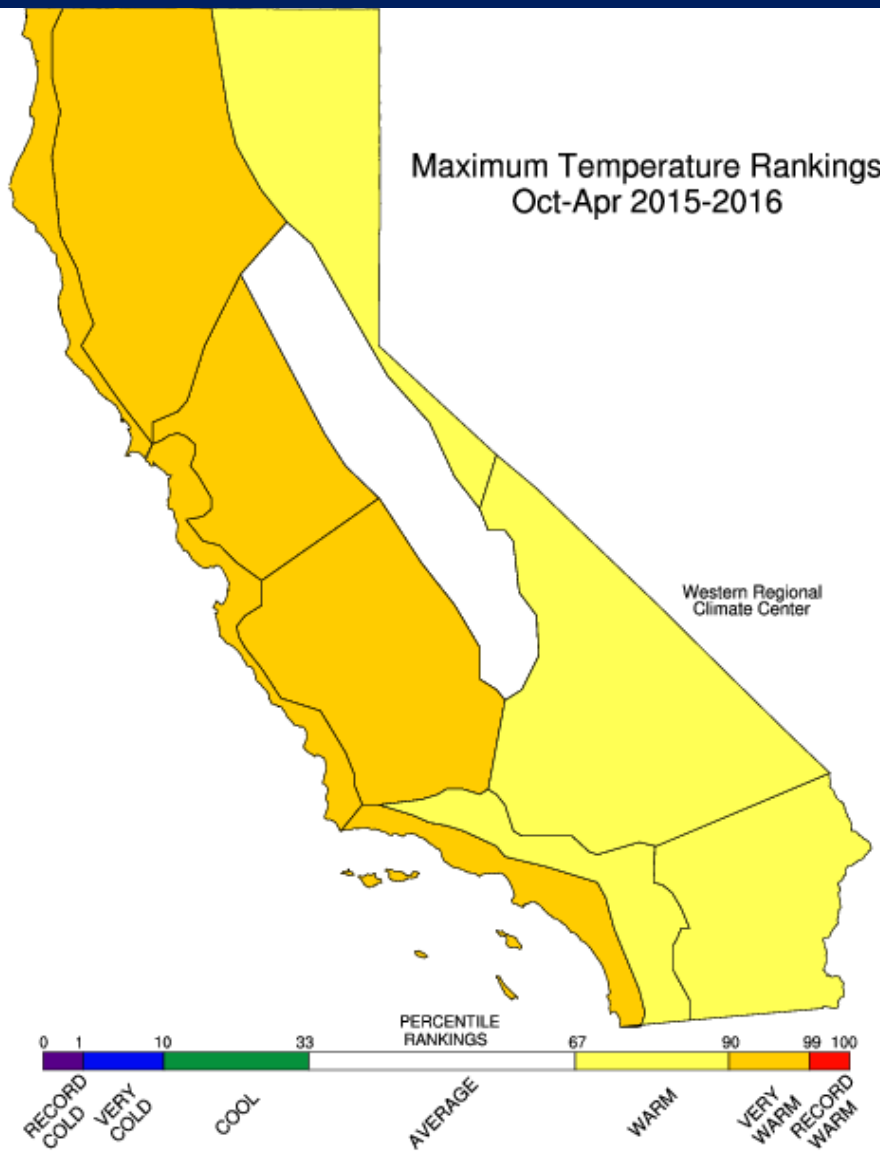


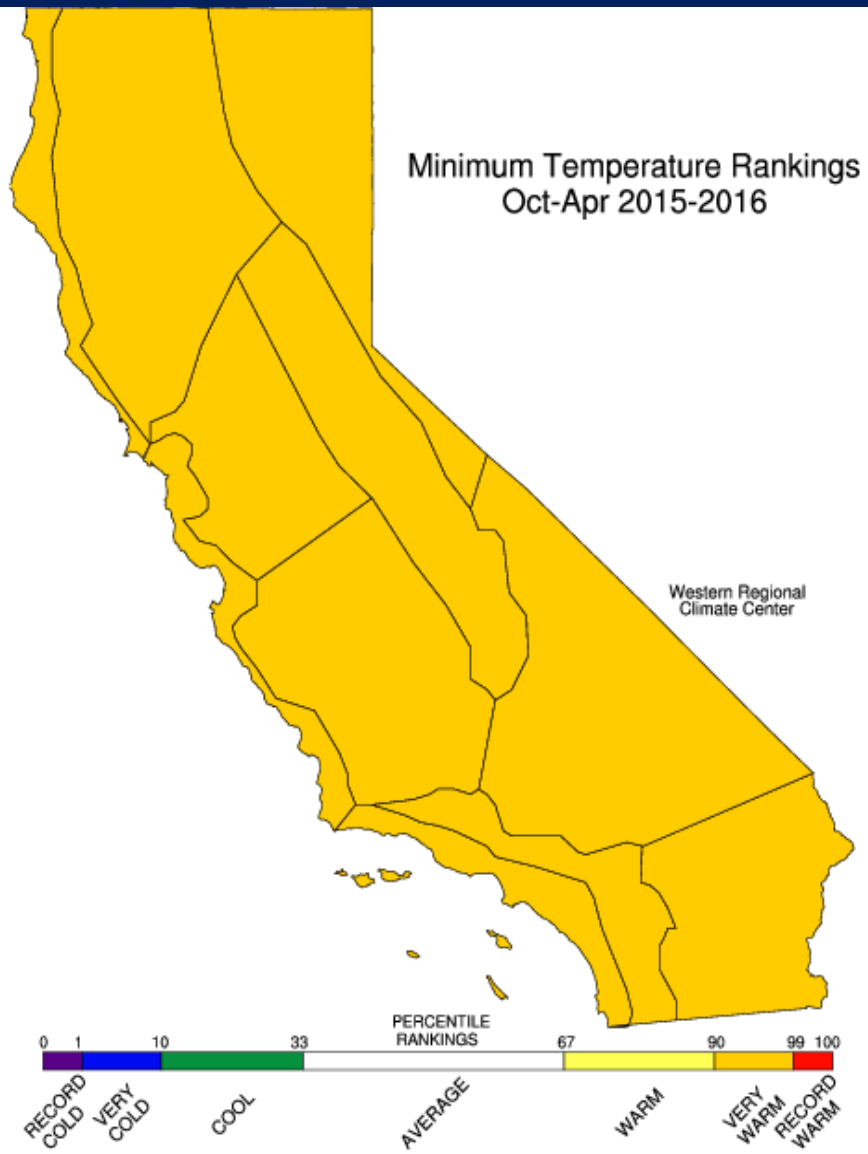
From CPC ENSO Diagnostic Discussion

El Niño and the Jet Stream



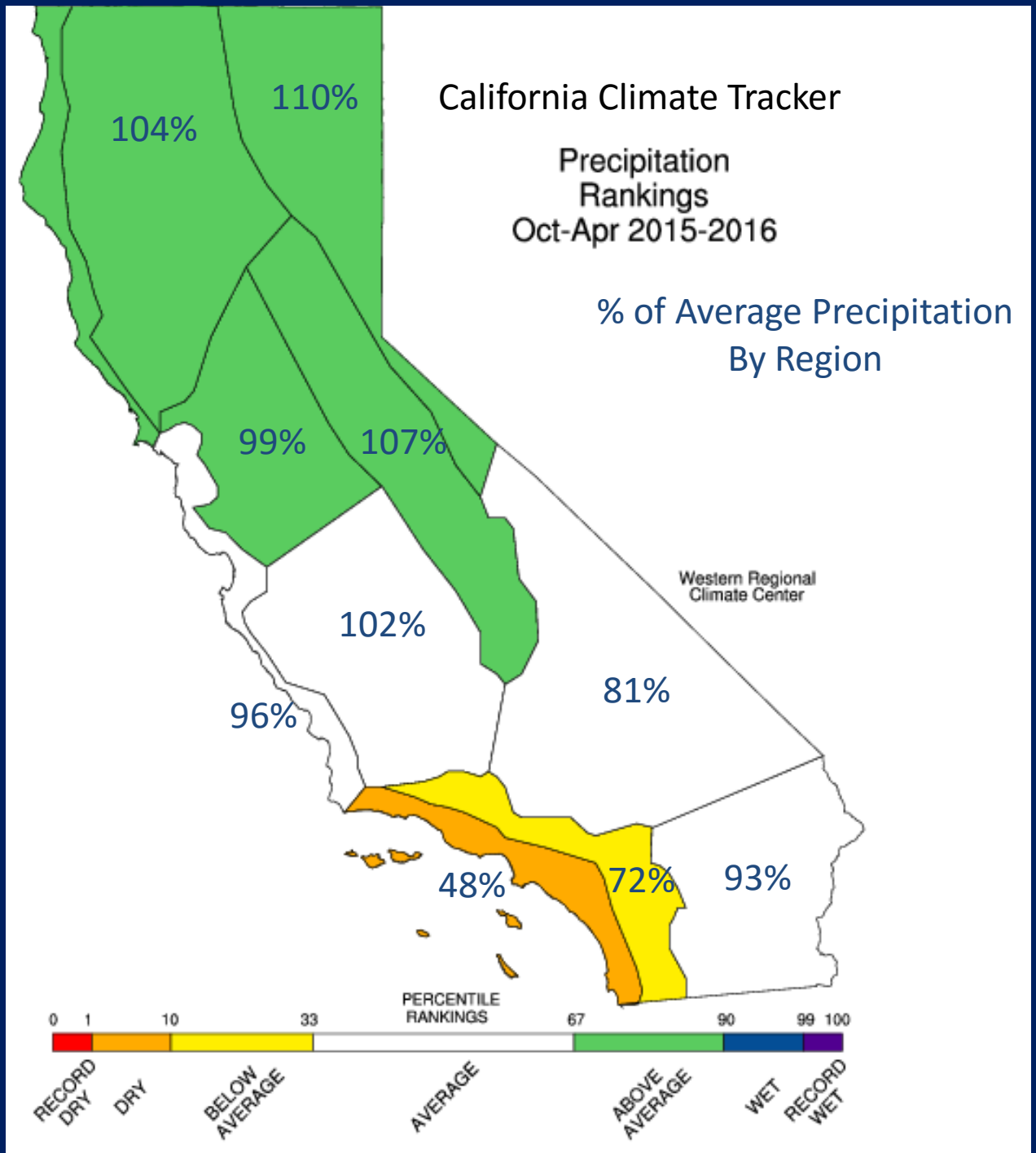
From CPC ENSO Diagnostic Discussion

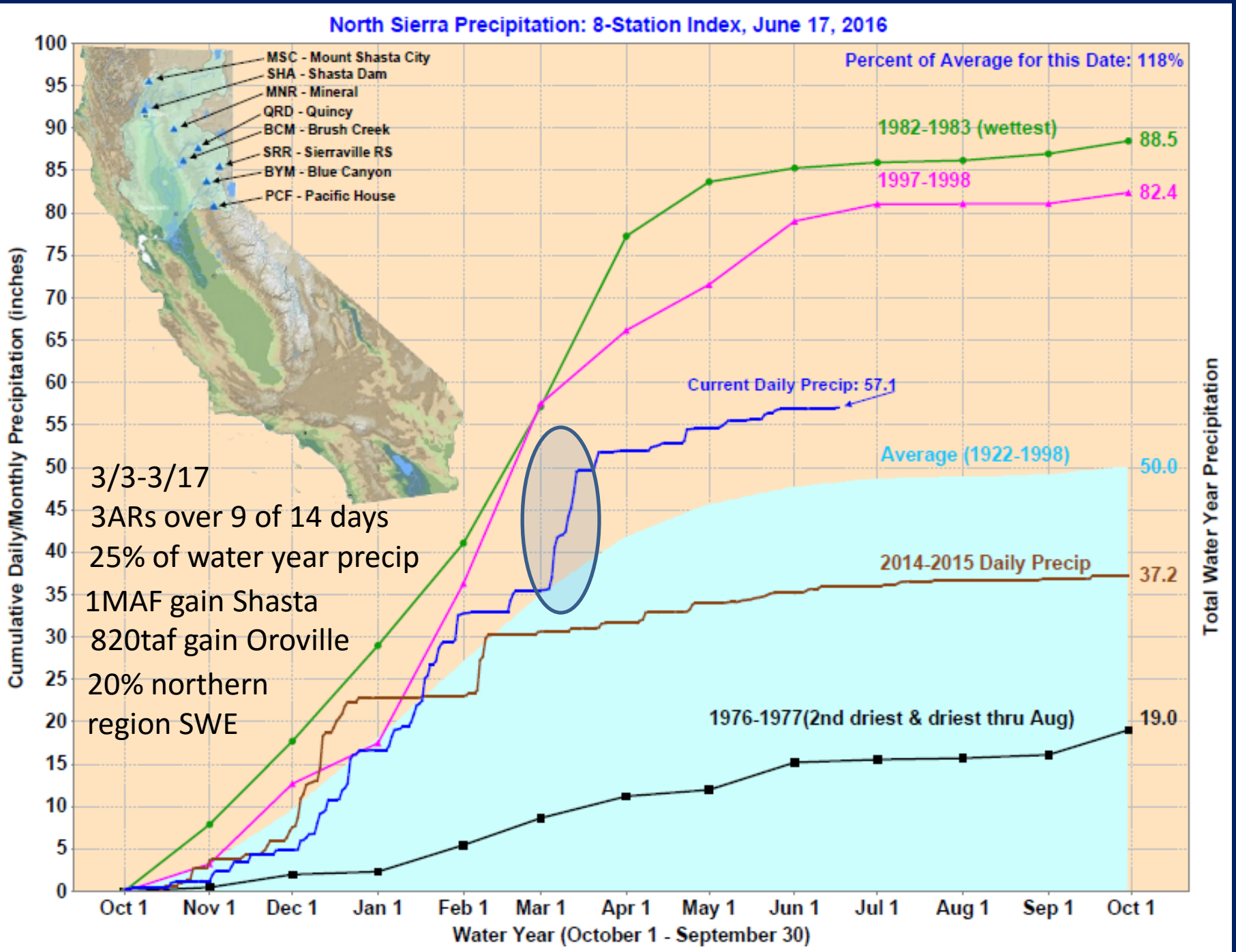

Maximum Temperature Rankings
Oct-Apr 2015-2016
Western Regional
Climate Center
PERCENTILE
RANKINGS
0 1 10 33 67 90 99 100
RECORD COLD
VERY COLD
COOL
AVERAGE
WARM
VERY WARM
RECORD WARM


Minimum Temperature Rankings
Oct-Apr 2015-2016
Western Regional
Climate Center
PERCENTILE
RANKINGS
0 1 10 33 67 90 99 100
RECORD COLD
VERY COLD
COOL
AVERAGE
WARM
VERY WARM
RECORD WARM

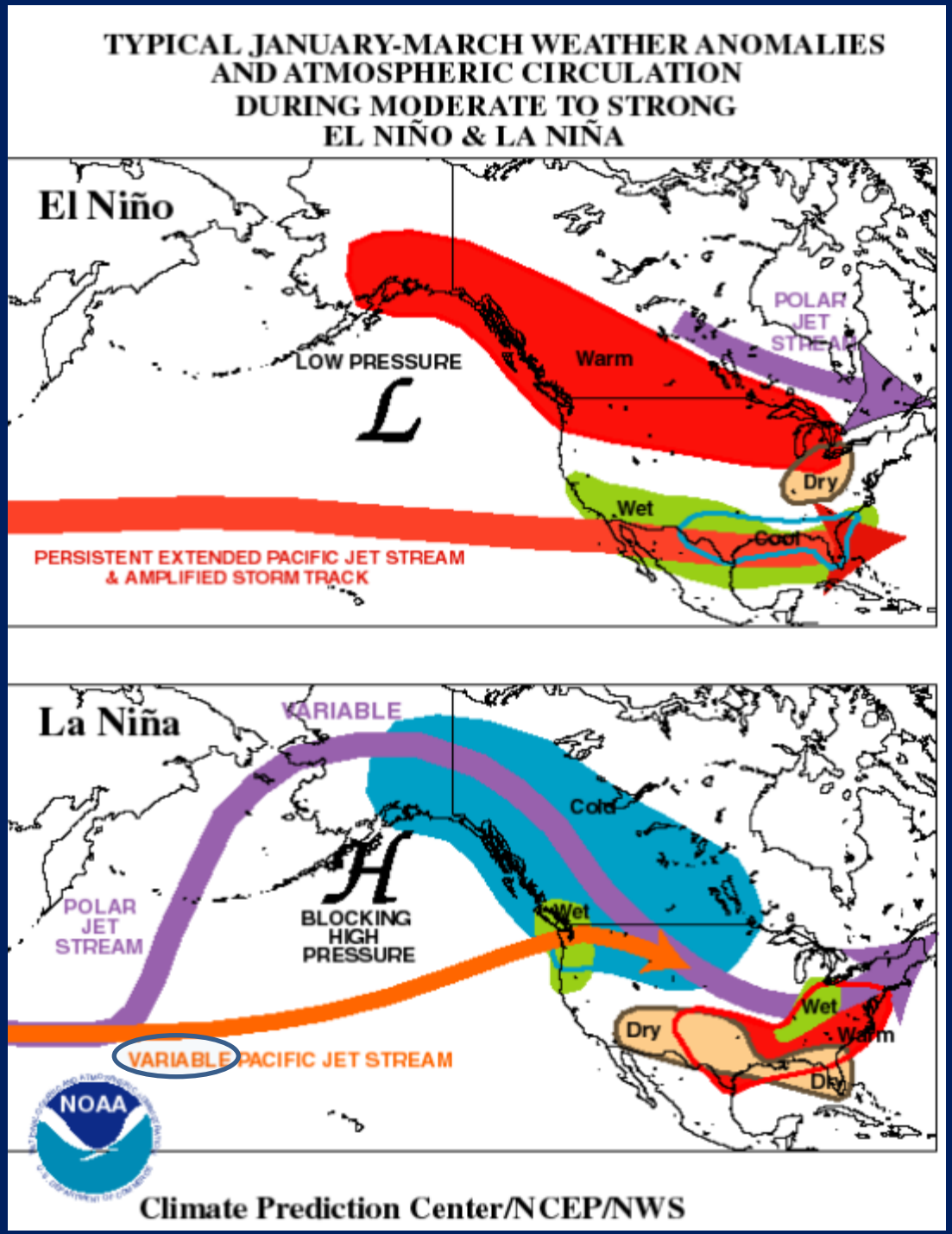
119%

Statewide: 100%



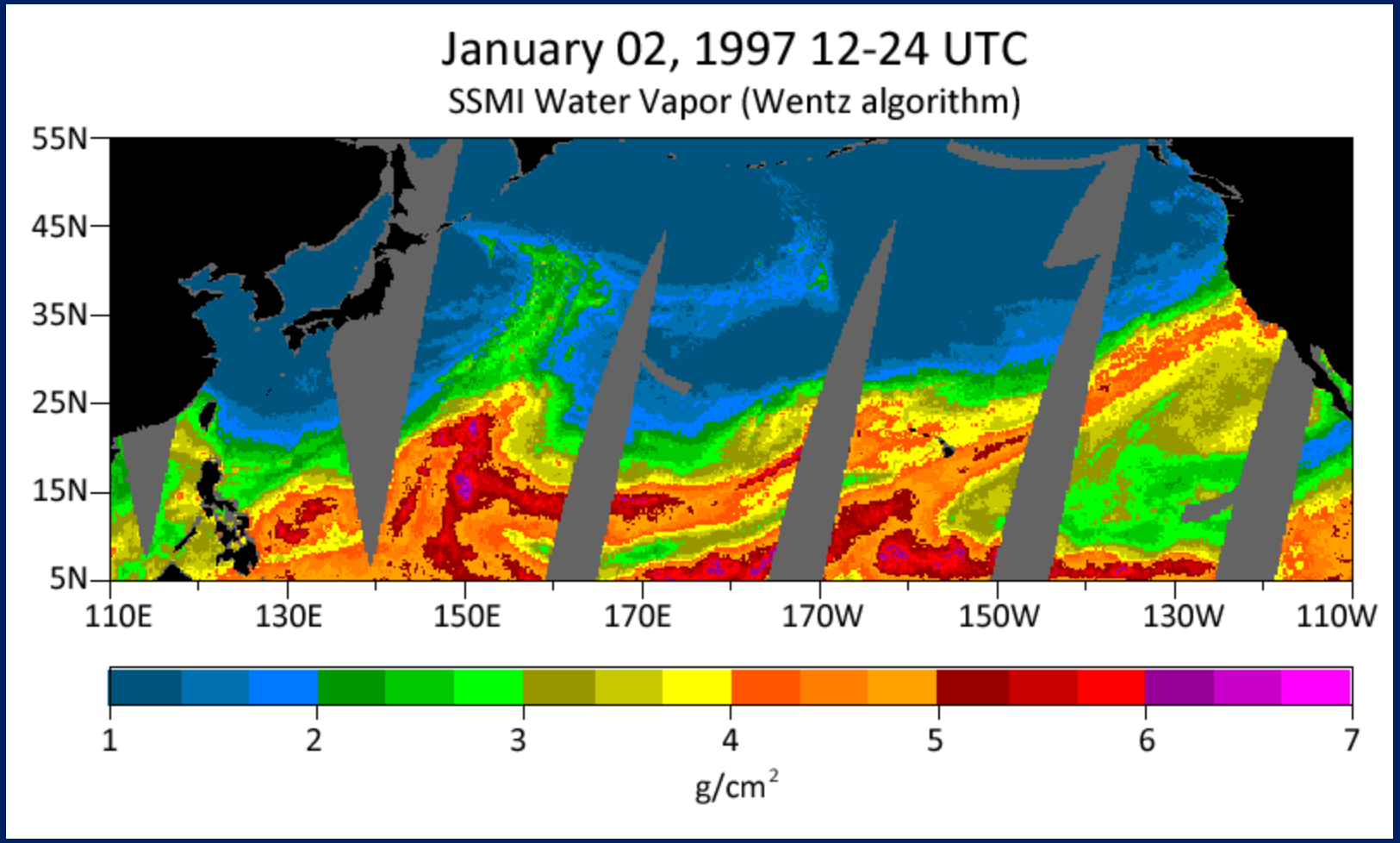

North Sierra Precipitation: 8-Station Index, June 17, 2016
MSC - Mount Shasta City
SHA - Shasta Dam
MNR - Mineral
QRD - Quincy
BCM - Brush Creek
SRR - Sierraville RS
BYM - Blue Canyon
PCF - Pacific House
Percent of Average for this Date: 118%
1982-1983 (wettest)
88.5
1997-1998
82.4
Current Daily Precip: 57.1
Average (1922-1998)
50.0
2014-2015 Daily Precip
37.2
1976-1977(2nd driest & driest thru Aug)
19.0
3/3-3/17
3ARs over 9 of 14 days
25% of water year precip
1MAF gain Shasta
820taf gain Oroville
20% northern region SWE
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

La Nina and the
8-Station Index
Max: 78.5”
Min: 28.3”
Average: 51.1”
10 of 19 years
above average



La Nina and the
5-Station Index
Max: 65.4”
Min: 23.6”
Average: 38”
8 of 19 years
above average

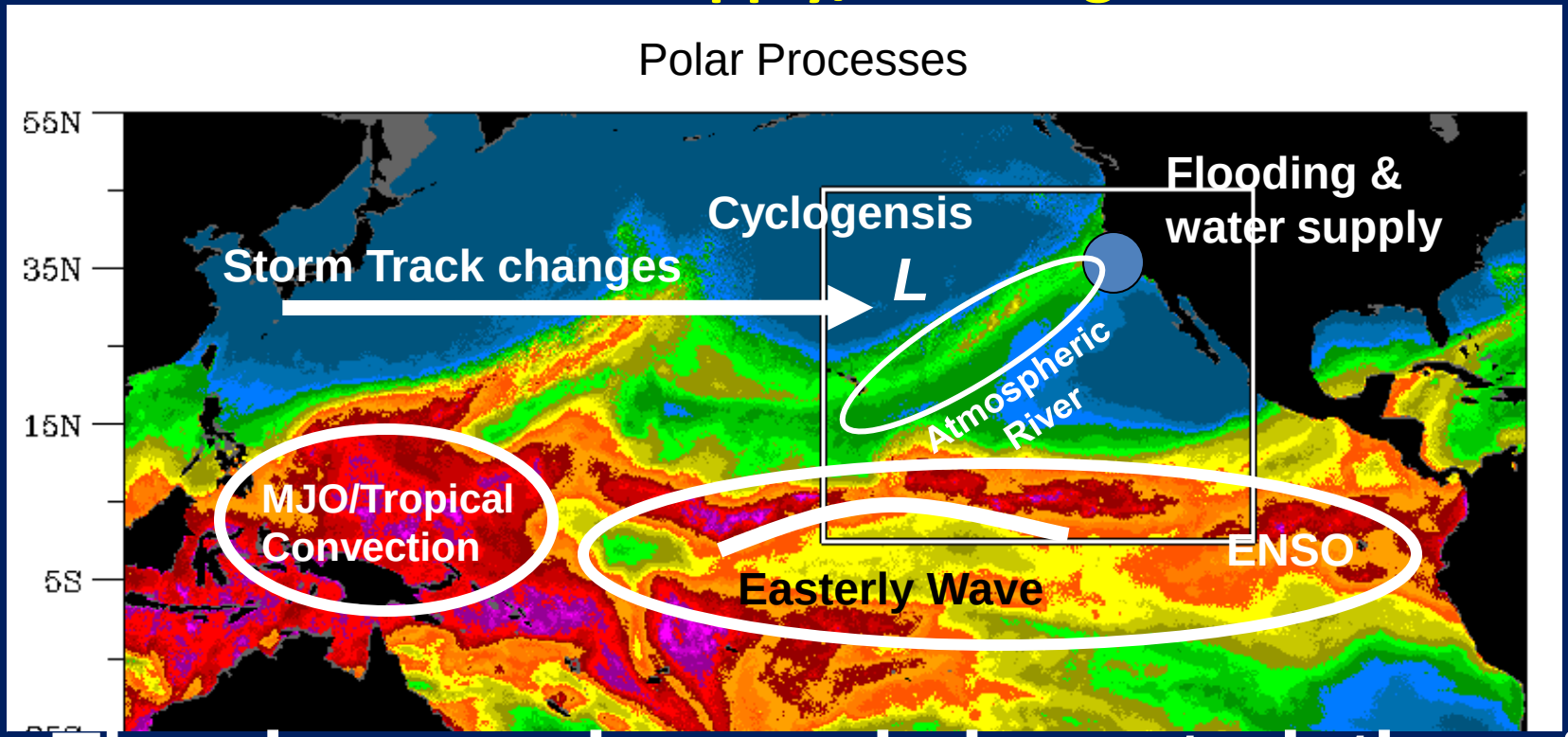
It’s been 20 years since…



The Big 4

Event	ONI Value with Center Month During Event
December 1955	-1.4 (NDJ)
December 1964	-0.8 (NDJ)
February 1986	-0.4 (JFM)
New Year 1997 (Dec 1996/Jan 1997)	-0.5 (DJF)

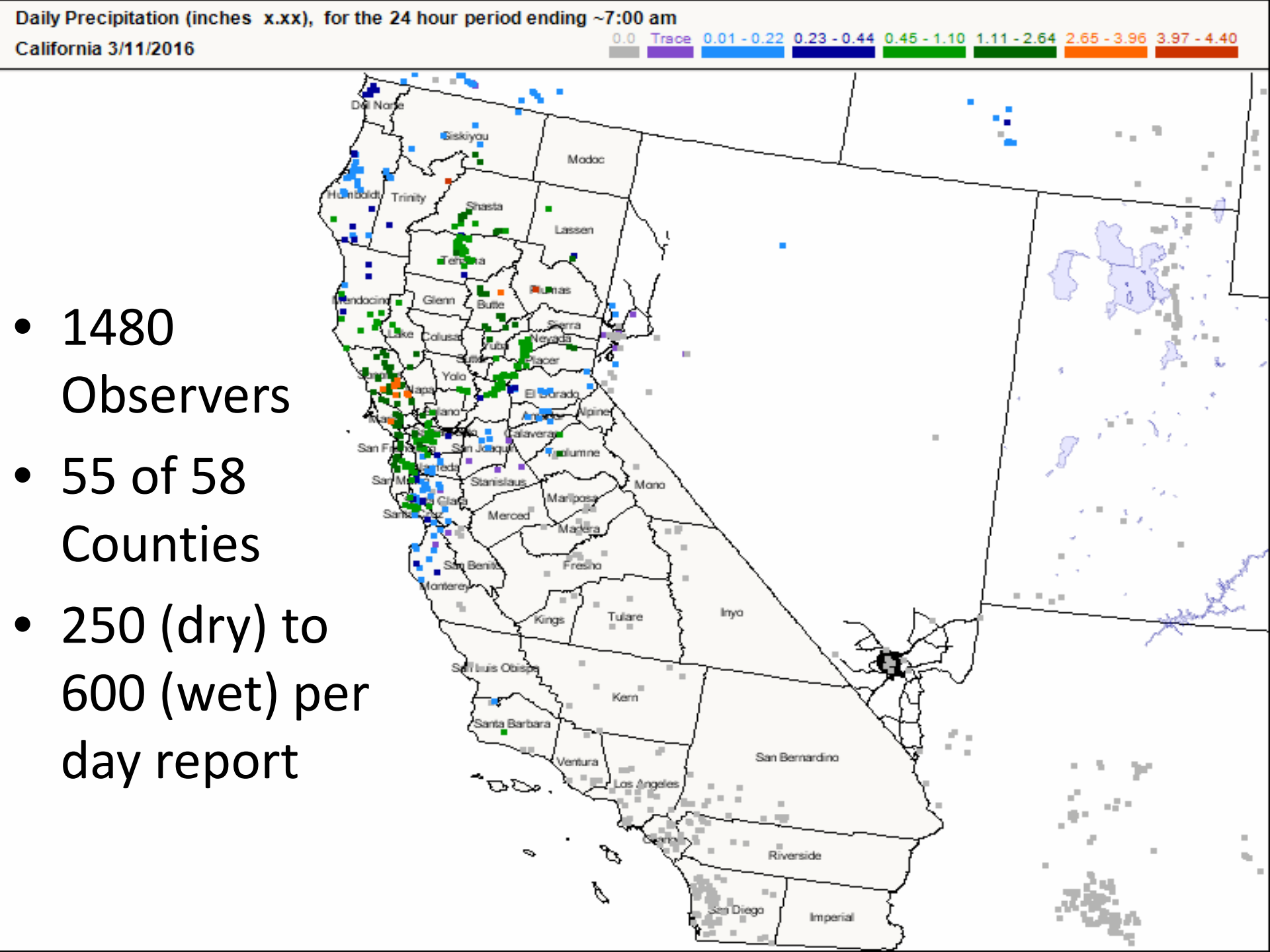
Key Phenomena Affecting California Water Supply/Flooding:



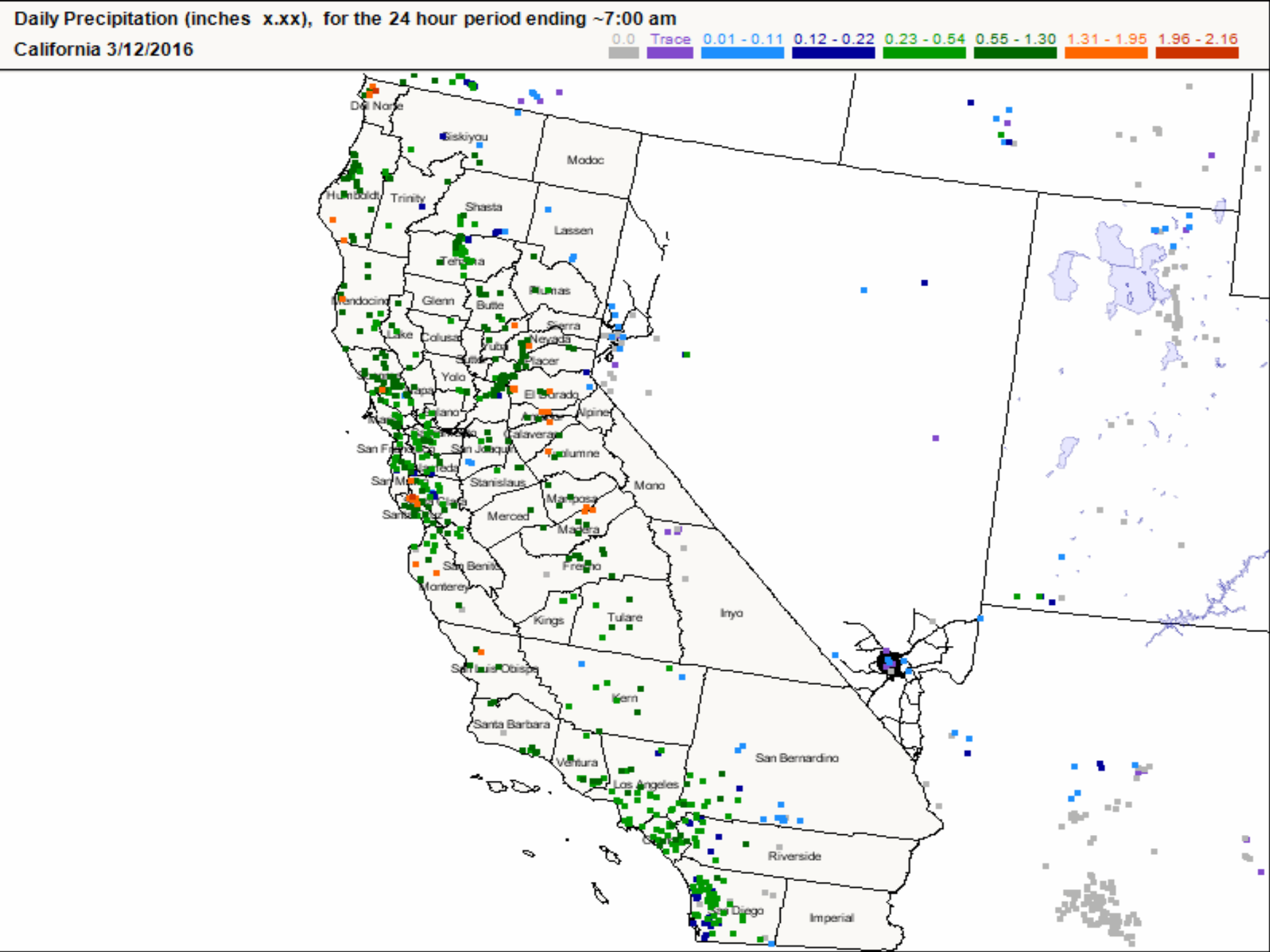
The size, number, and characteristics of atmospheric river events (ARs) result from the alignment of key processes operating on different space/time scales

Research and Development

- UCOP Climate Services Agreement – work with UC Davis, UC Merced, UC Irvine, UC Berkeley, Scripps
- NOAA ESRL
- USGS Development Work
- INFORM Platform Development
- FIRO work at Lake Mendocino/AQPI/CHARG
- CAMS on FERIX



- 1480 Observers
- 55 of 58 Counties
- 250 (dry) to 600 (wet) per day report


Daily Precipitation (inches x.xx), for the 24 hour period ending ~7:00 am
California 3/12/2016
0.0
Trace
0.01 - 0.11
0.12 - 0.22
0.23 - 0.54
0.55 - 1.30
1.31 - 1.95
1.96 - 2.16
Del Norte
Siskiyou
Modoc
Humboldt
Trinity
Shasta
Lassen
Tehama
Plumas
Mendocino
Glenn
Butte
Sierra
Lake
Colusa
Nevada
Yuba
Placer
Yolo
El Dorado
Napa
Solano
Alpine
Calaveras
San Francisco
San Joaquin
Tuolumne
San Mateo
Alameda
Stanislaus
Mono
Mariposa
Santa Cruz
Merced
Madera
San Benito
Fresno
Monterey
Kings
Tulare
Inyo
San Luis Obispo
Kern
Santa Barbara
San Bernardino
Ventura
Los Angeles
Riverside
San Diego
Imperial

Coordination and Collaboration

- Project Operations Committees
- FEMA RRAP
- AASC
- WERA-102
- NASA JPL WWAO
- CA Extreme Precipitation Symposia
- F-CO Program


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