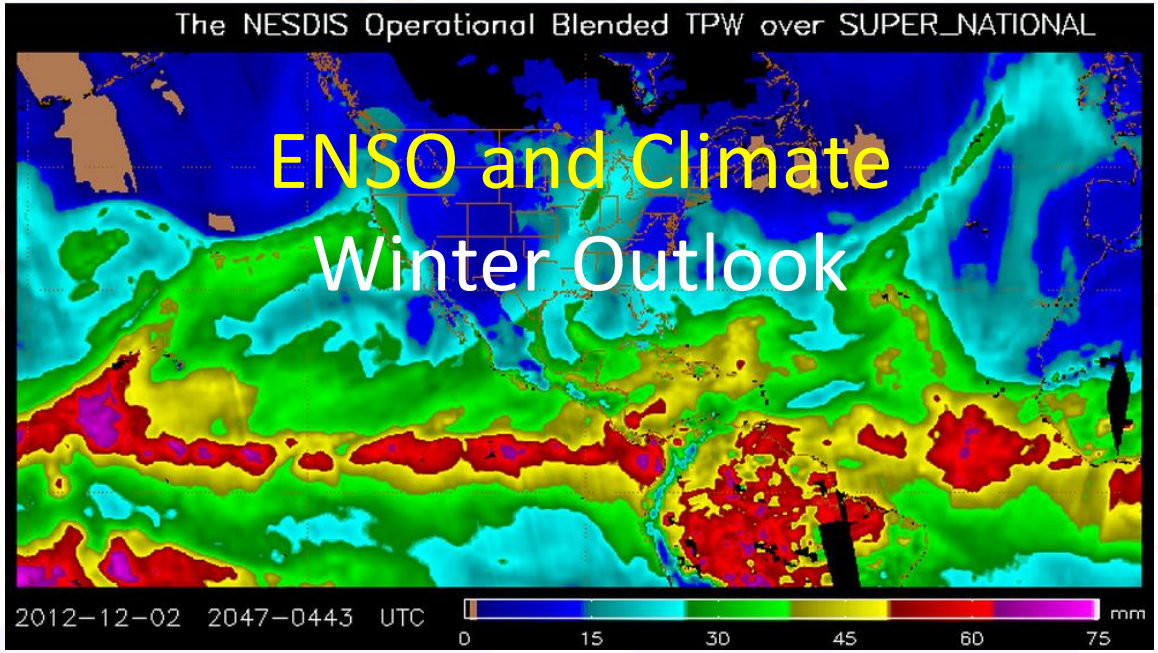
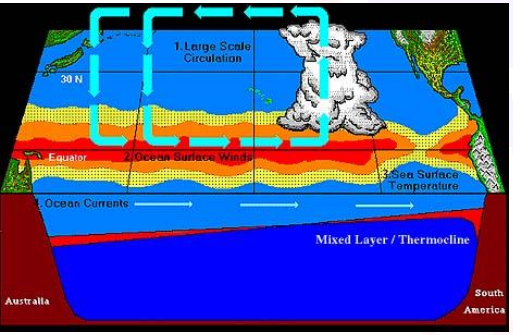
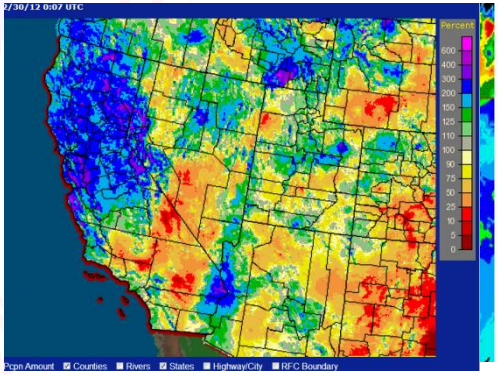


ENSO and Climate
Winter Outlook



National Weather Service
San Diego

December 2013 update



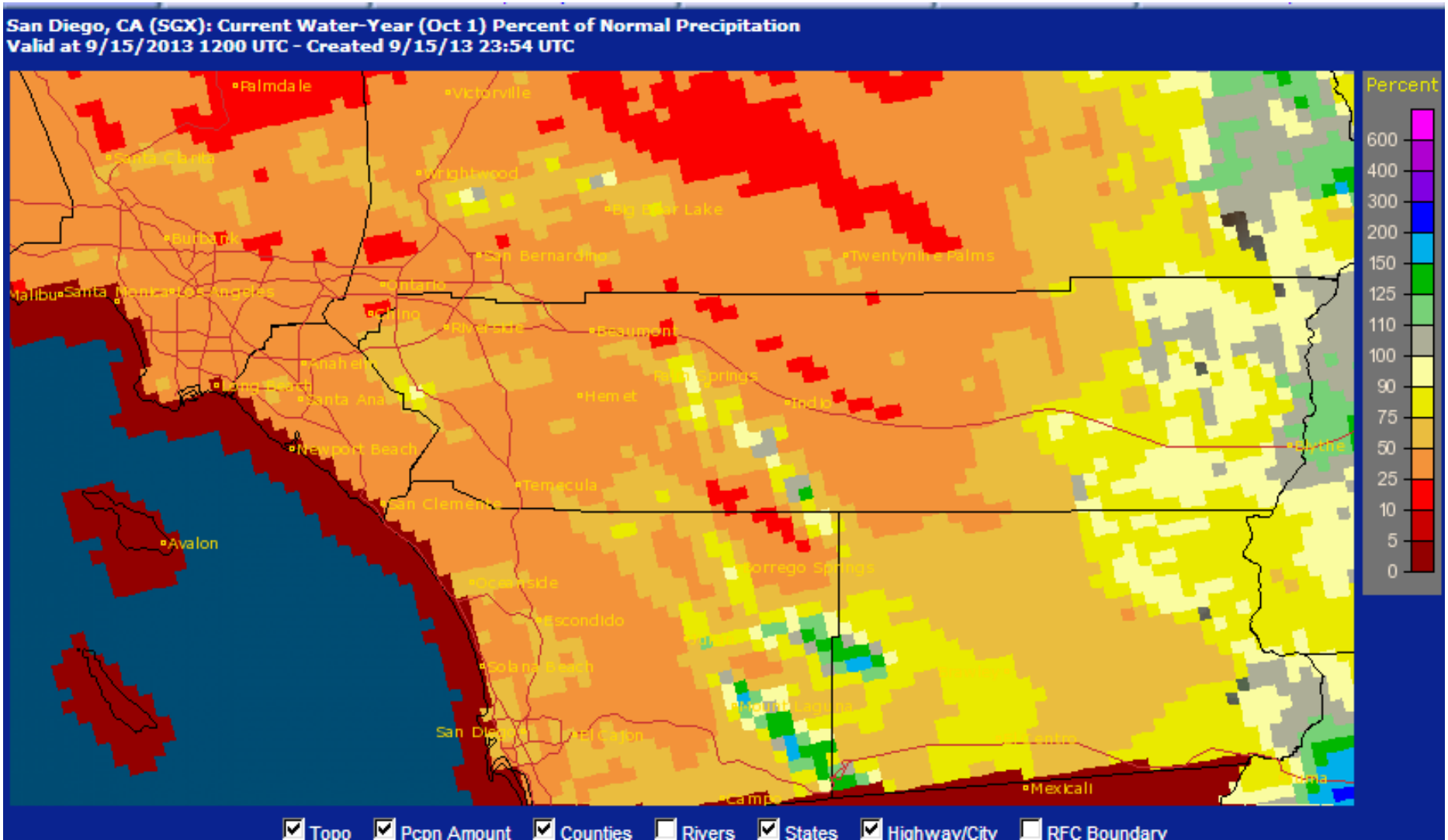
Alex Tardy – Warning Coordination Meteorologist
alexander.tardy@noaa.gov

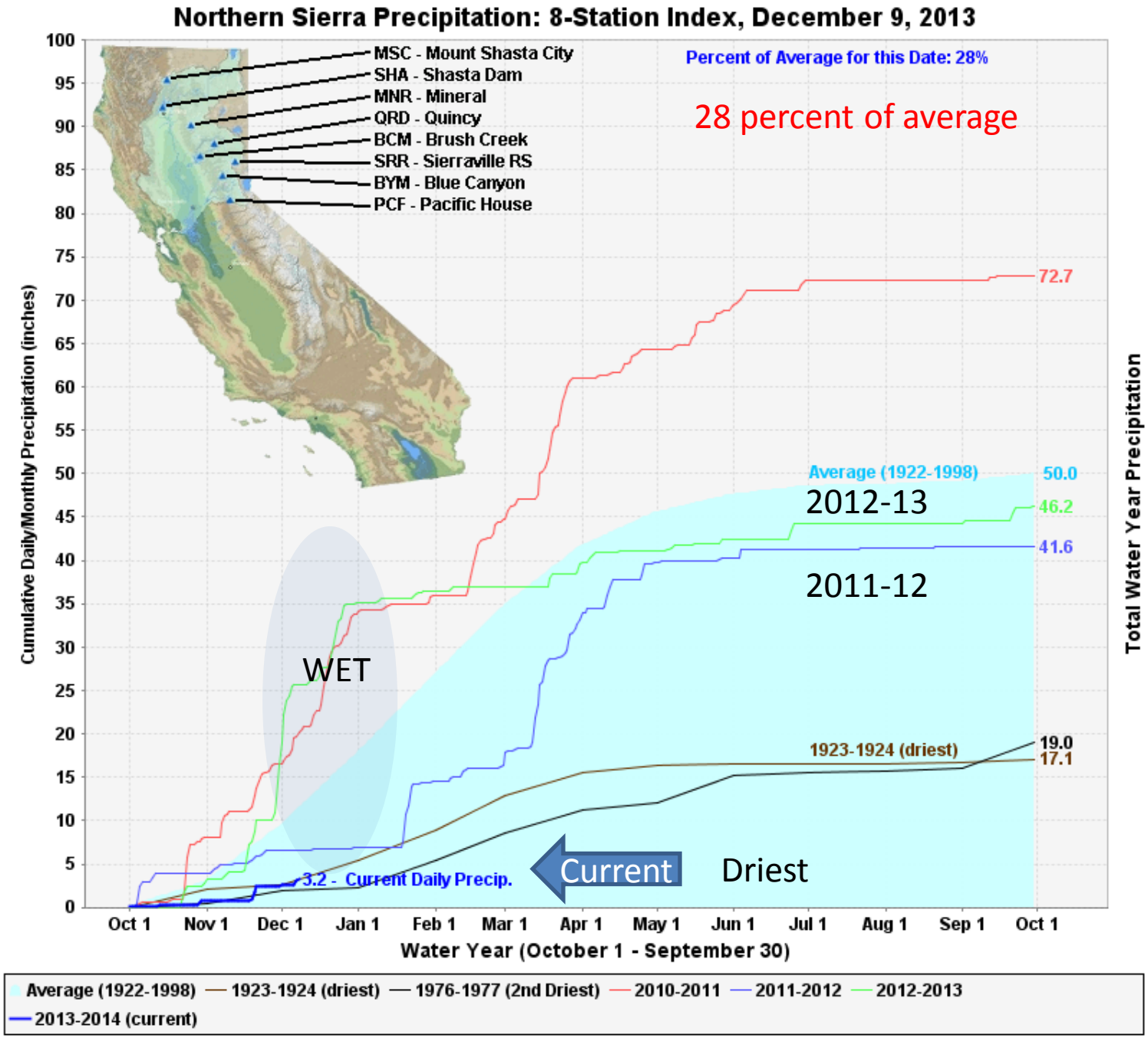
Agenda

- Last winter 2012-13, early wet start
- Recent and past precipitation
- ENSO current conditions
- Past years extreme variability
- Winter outlook 2013-14

October 2012 to September 2013

(last wet season 40 to 60 percent of normal)



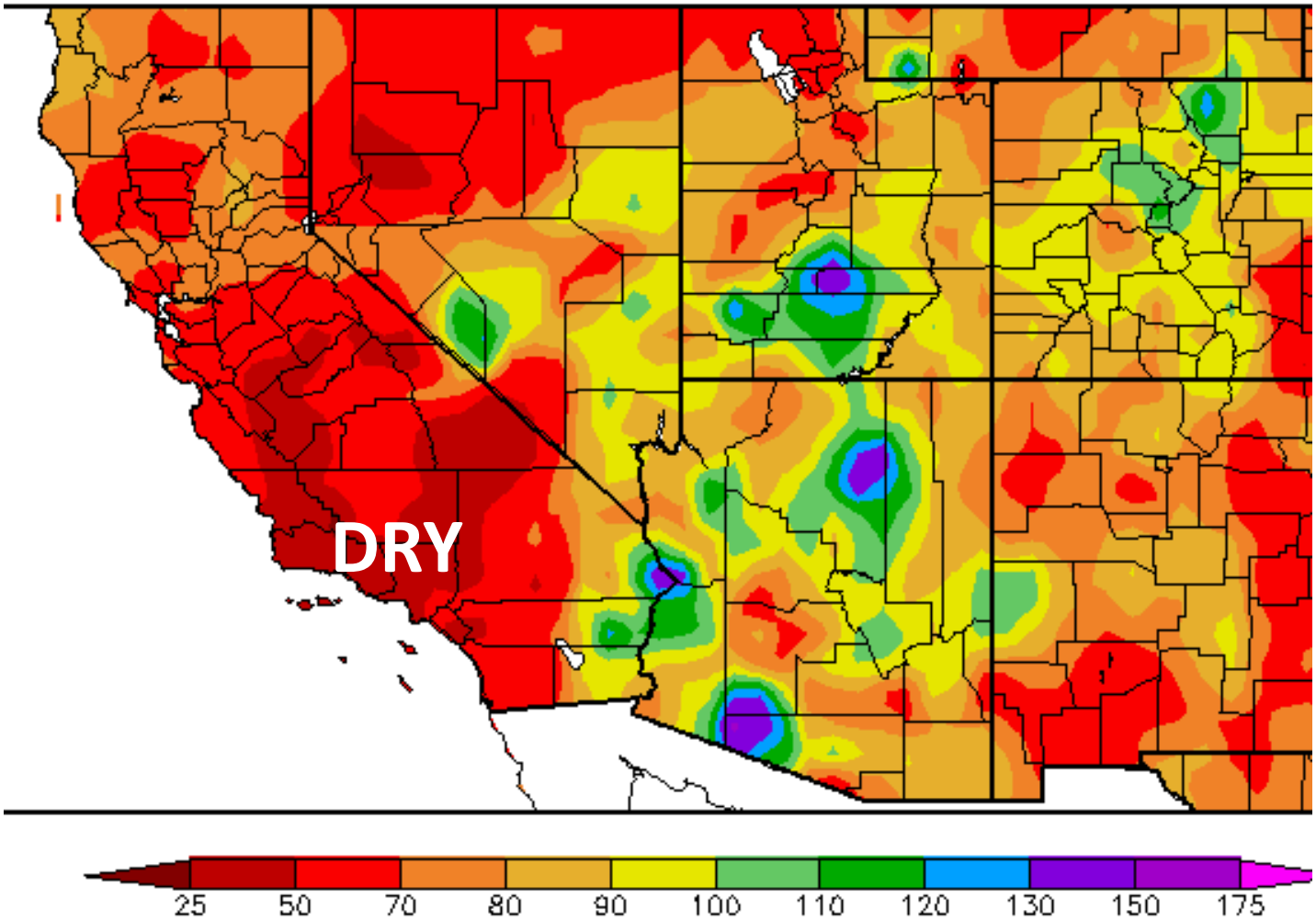

Northern Sierra Precipitation: 8-Station Index, December 9, 2013
MSC - Mount Shasta City
SHA - Shasta Dam
MNR - Mineral
QRD - Quincy
BCM - Brush Creek
SRR - Sierraville RS
BYM - Blue Canyon
PCF - Pacific House
Percent of Average for this Date: 28%
28 percent of average
72.7
Average (1922-1998)
50.0
2012-13
46.2
41.6
2011-12
WET
1923-1924 (driest)
19.0
17.1
3.2 - Current Daily Precip.
Current
Driest
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)
Average (1922-1998)
1923-1924 (driest)
1976-1977 (2nd Driest)
2010-2011
2011-2012
2012-2013
2013-2014 (current)

Water Year Totals (inches)
2013

Month	San Diego (SAN)	Santa Ana (SNA)	Riverside (RAL)
Actual since July 1	1.90	0.90	1.98
Percent Normal	90%	35%	56%
Since January 1	- 3.92	- 8.69	- 7.85

Percent of Normal Precipitation (%)
12/9/2011 – 12/8/2013

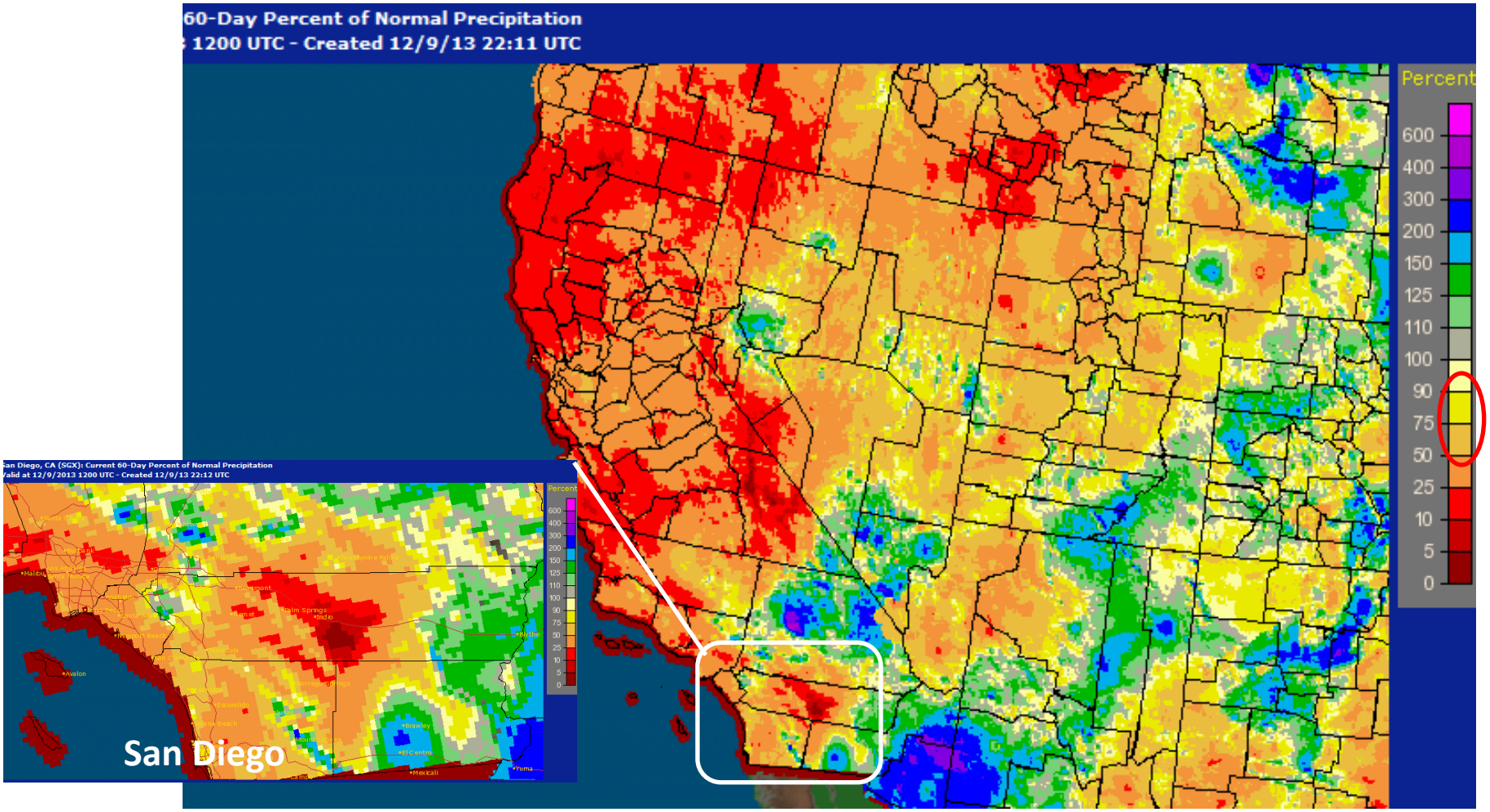
Past 2 years - DRY



rated 12/9/2013 at HPRCC using provisional data.

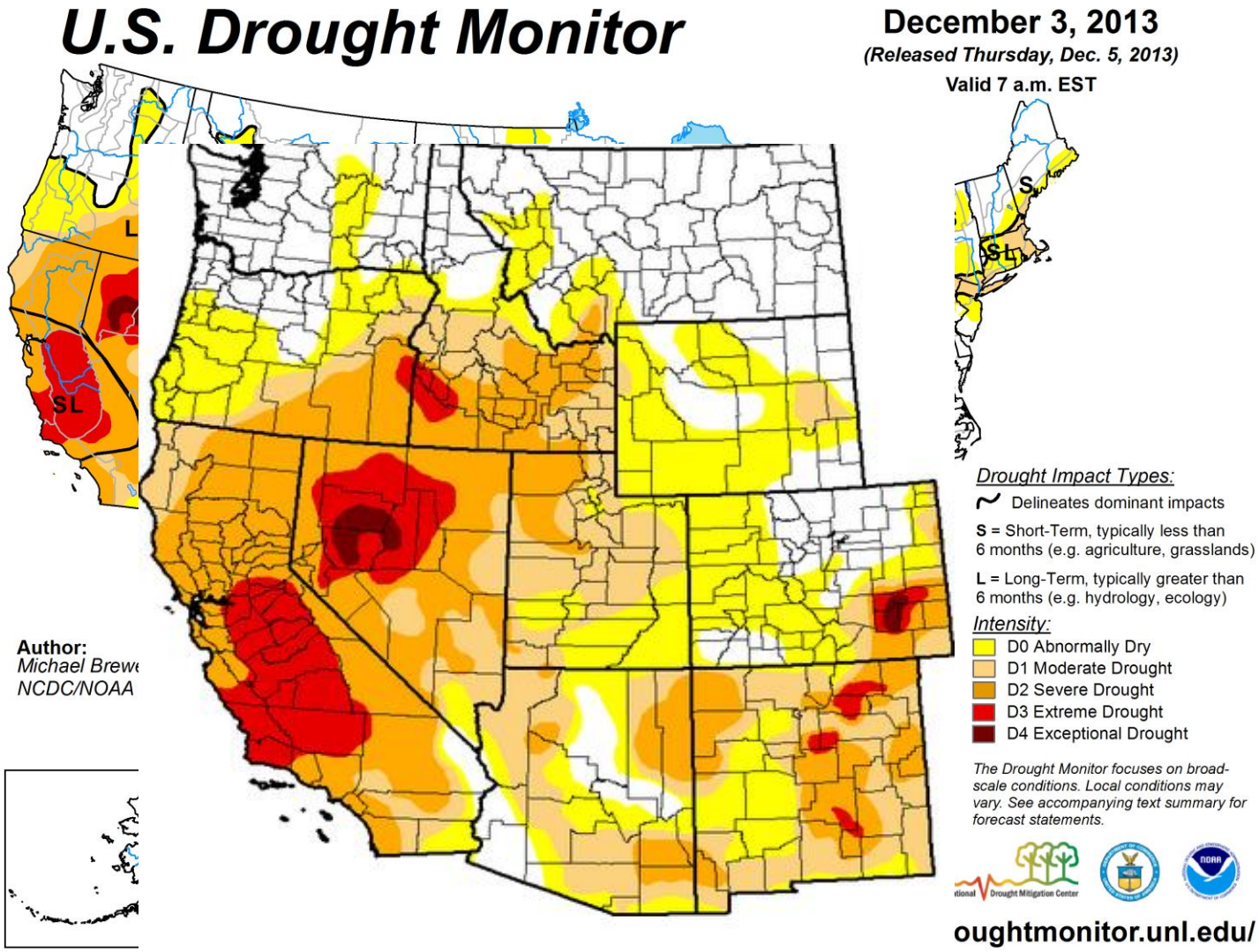
Regional Clir

Since October 1, 2013 percent of normal

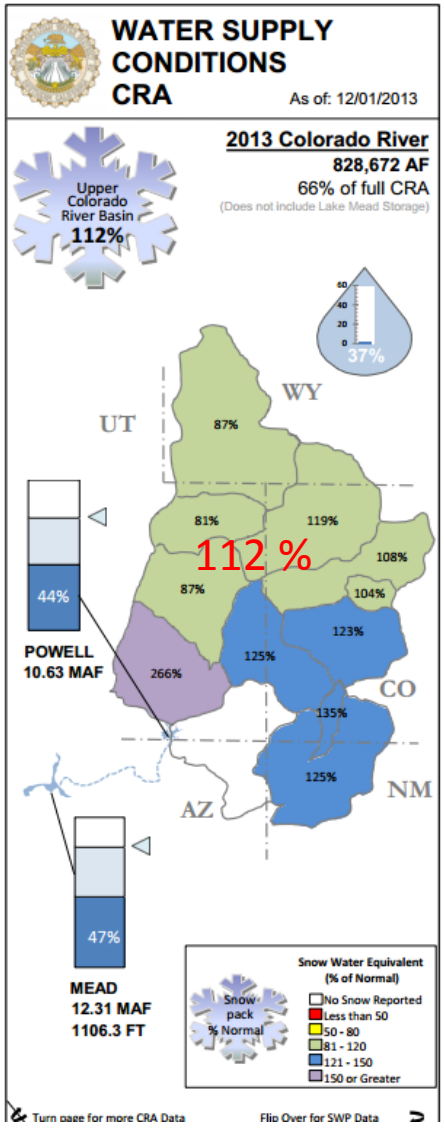


NATIONAL OCEANIC AND ATMOSPHERIC ADMINISTRATION

Drought Monitor



Metropolitan Water Supply

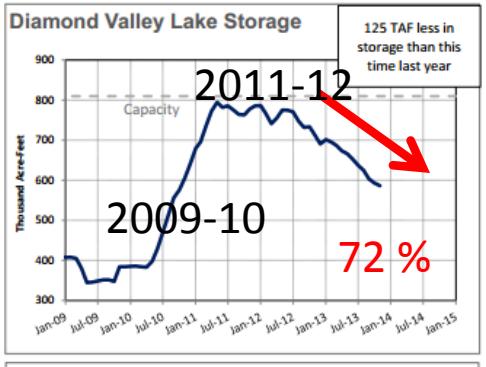


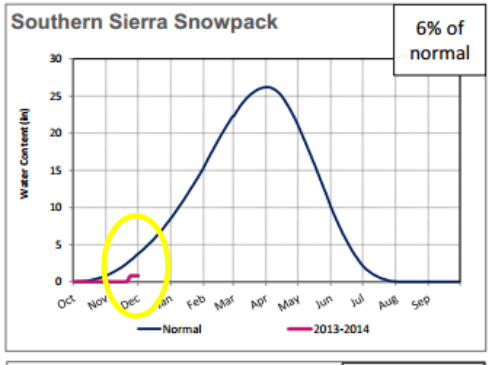
HIGHLIGHTS

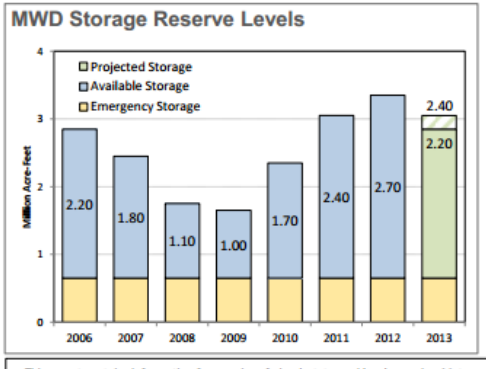
2014 Initial State Water Project allocation announced: 5%

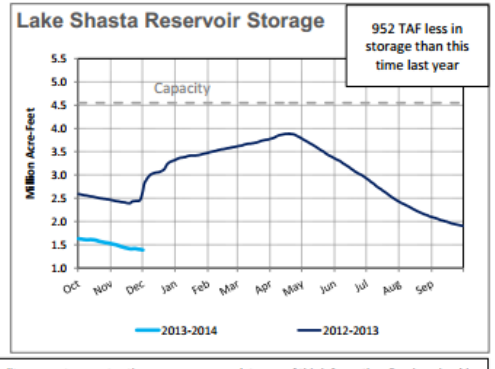
Northern California: A cold storm will bring precipitation throughout Northern California this Monday through Tuesday. Snow levels will lower with 5 inches of accumulation above 6,500 ft.

Colorado River Basin: Storm activity has resulted in above normal snowpack for the region, currently at 112% of normal. The additional inflow into Lake Powell due to the summer storms will help reduce the likelihood of reaching shortage levels in Lake Mead in 2016.







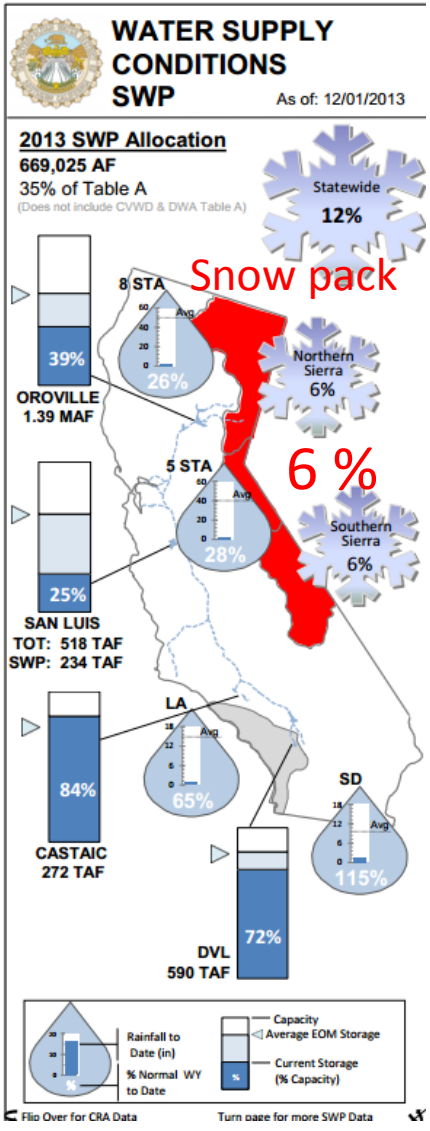


This report contains information from various federal, state, and local agencies. Metropolitan cannot guarantee the accuracy or completeness of this information. Readers should refer to the relevant state, federal, and local agencies for additional or for the most up to date water supply information.

Reservoirs, lakes, aqueducts, maps, watersheds, and all other visual representations on this report are not drawn to scale.

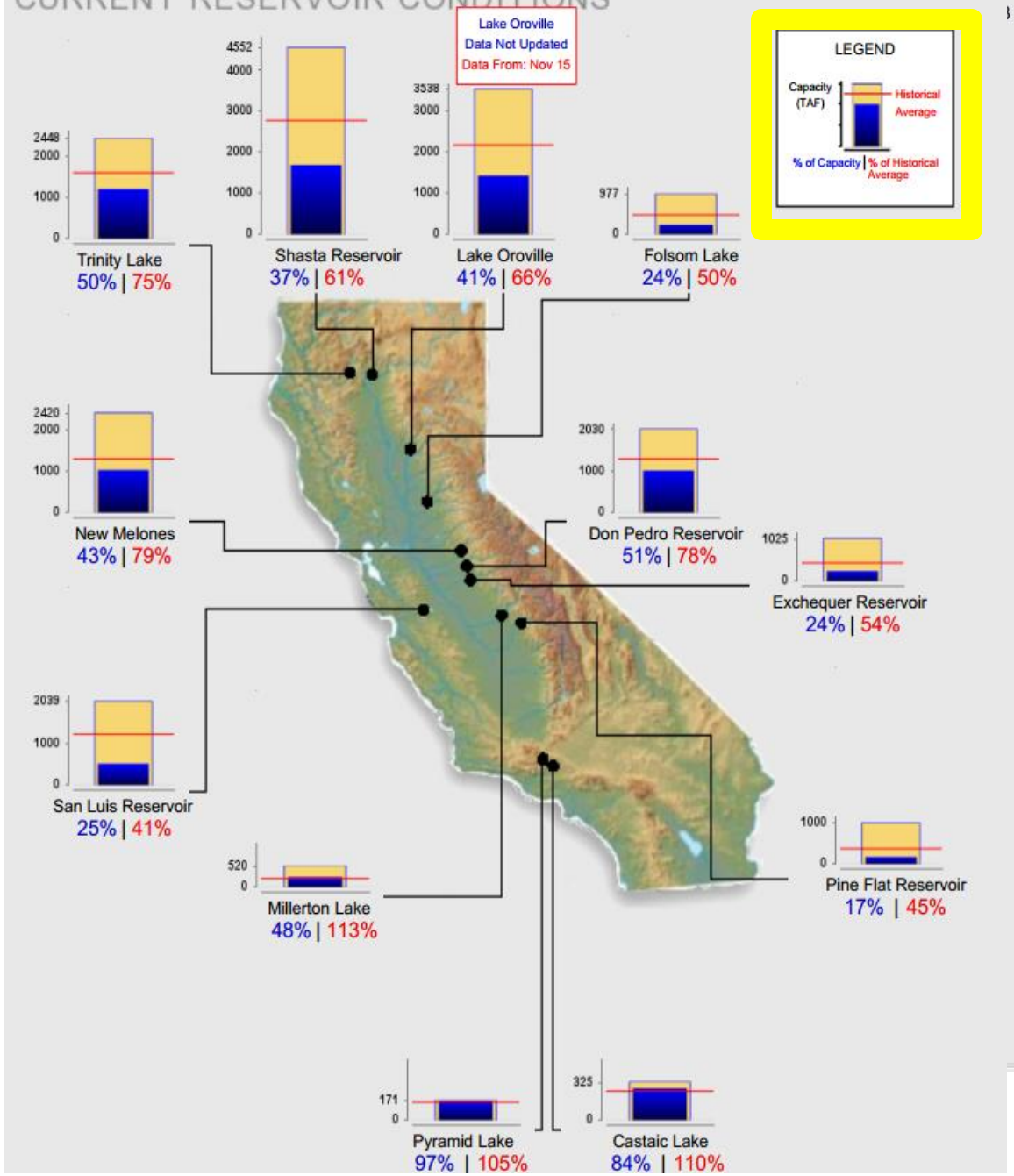
http://www.mwdh2o.com/mwdh2o/pages/yourwater/supply/res_storage/res_storage.pdf

This report is best printed on legal size paper (8.5" x 14") and folded in quarters

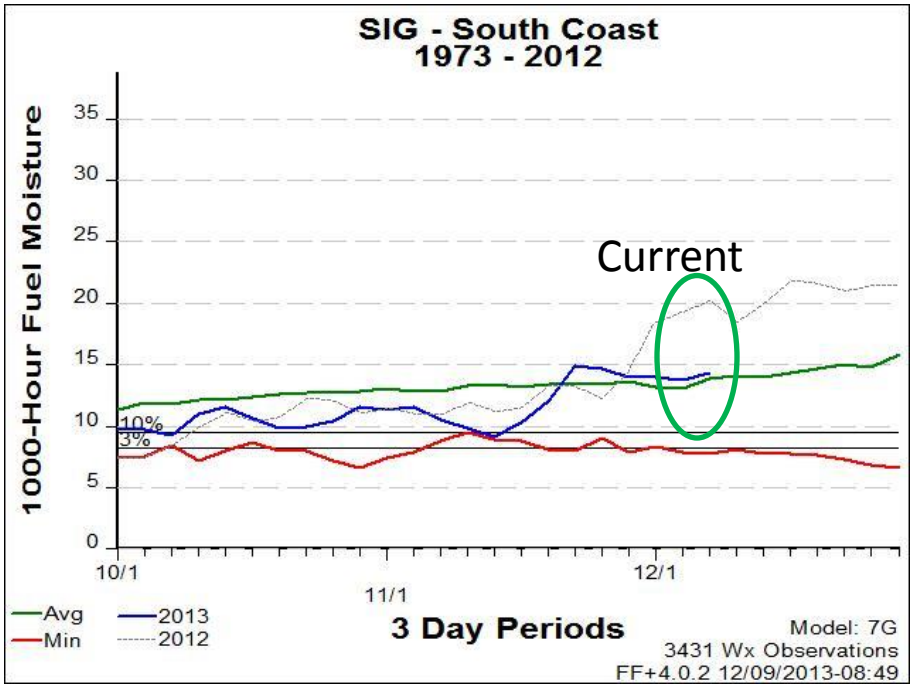


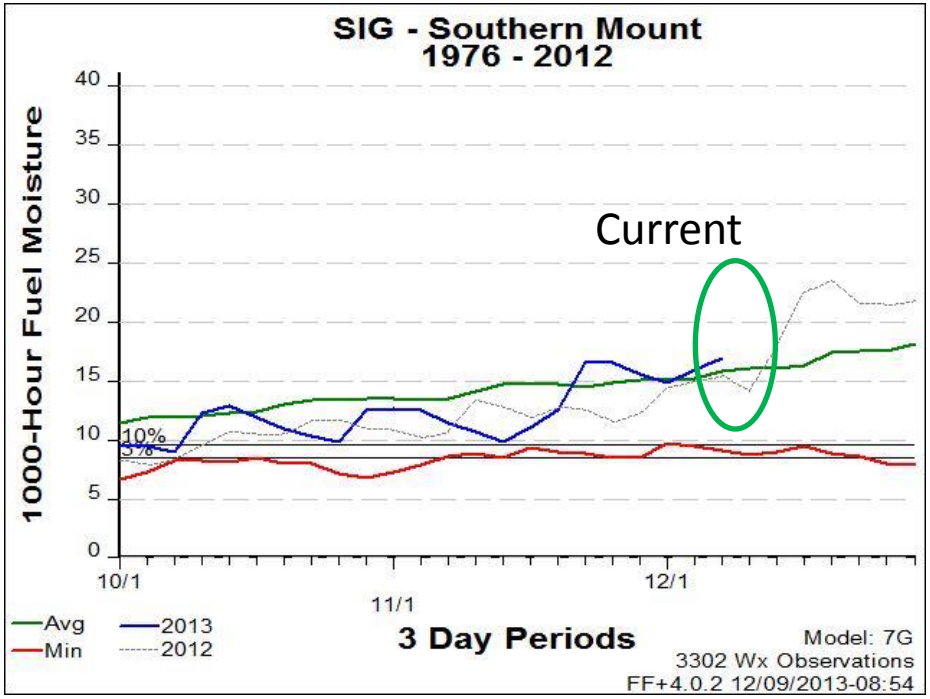
Ending At Midnight - December 1, 2013

CURRENT RESERVOIR CONDITIONS



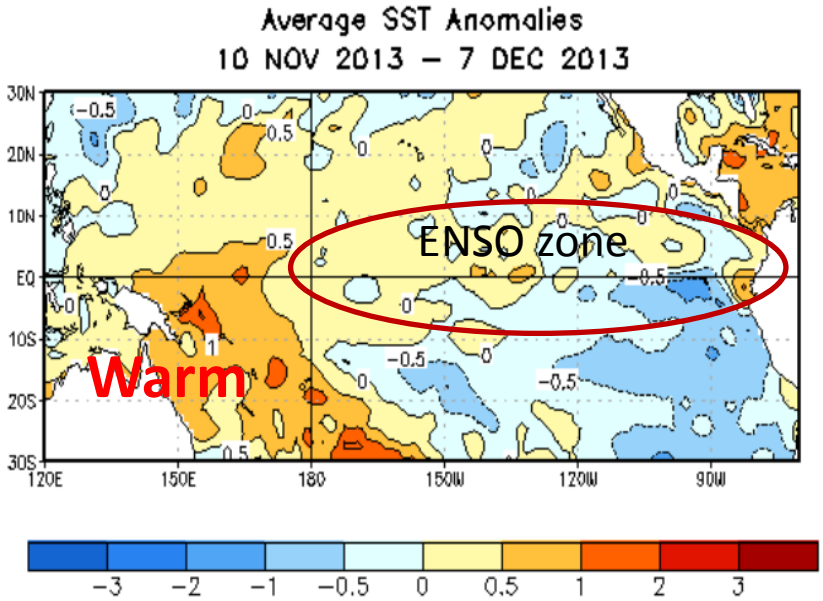
1000 hour fuel moisture dry and below average

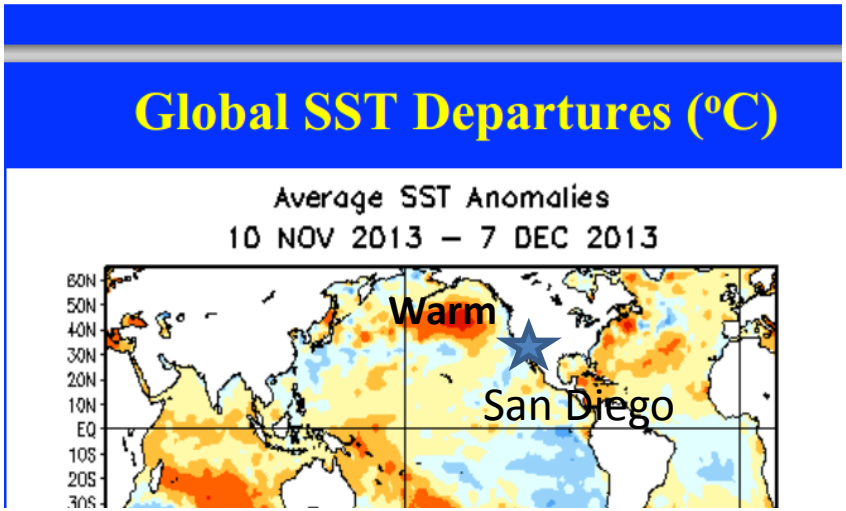




Sea Surface Temps in Pacific current for 2013

ENSO state



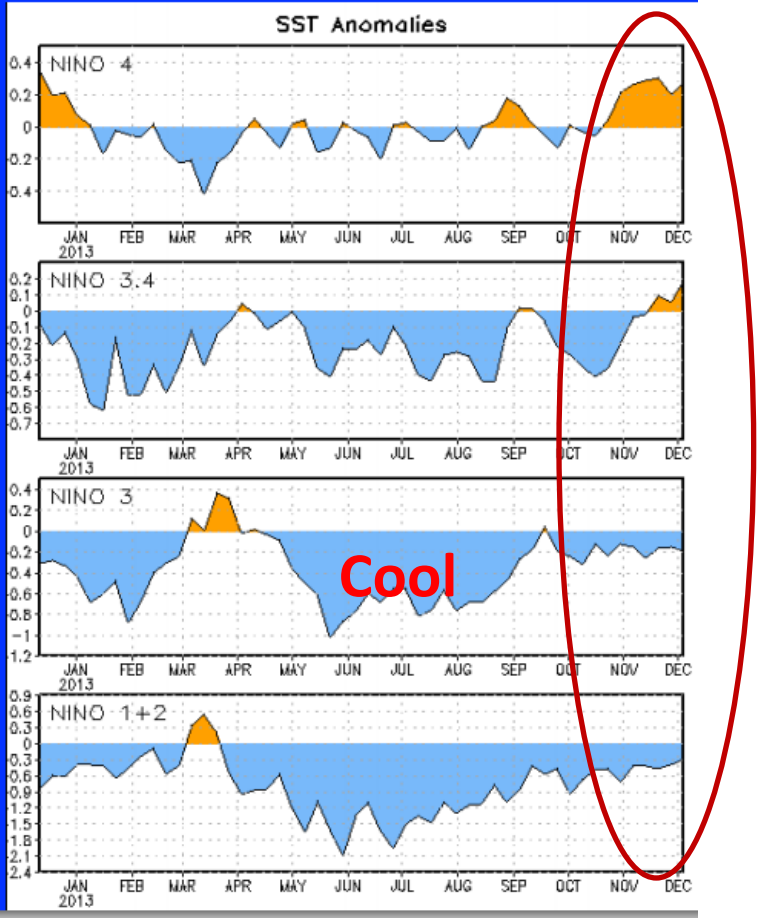


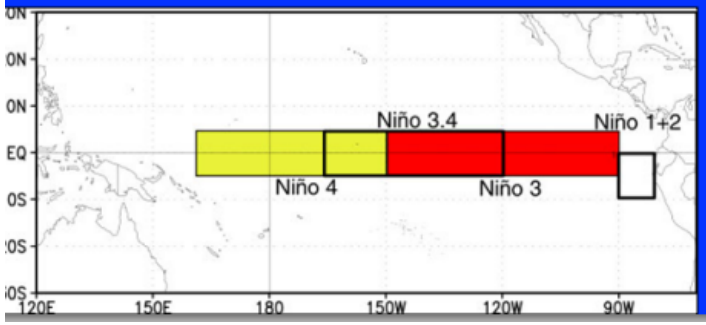
Sea Surface Temps in Pacific current for 2013

Niño Region SST Departures (°C)
Recent Evolution

The latest weekly SST departures are:

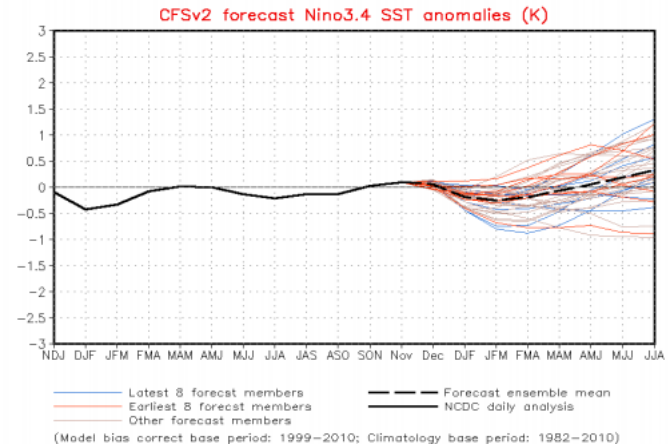
Niño 4	0.3°C
Niño 3.4	0.2°C
Niño 3	-0.2°C
Niño 1+2	-0.3°C

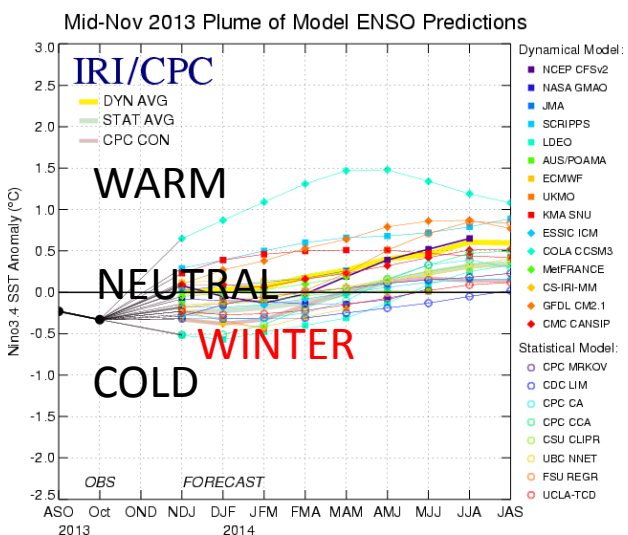


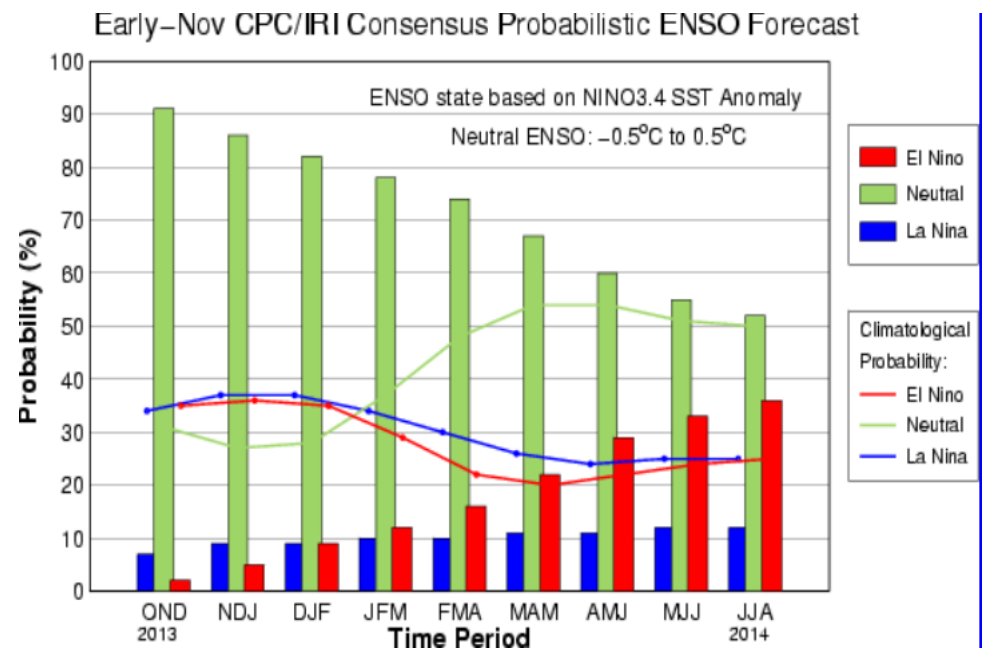


El Nino-Southern Oscillation

The CFS.v2 ensemble mean (black dashed line) predicts ENSO-neutral conditions into summer 2014.







WINTER

Forecast to remain Neutral ENSO

2012-13 outlook

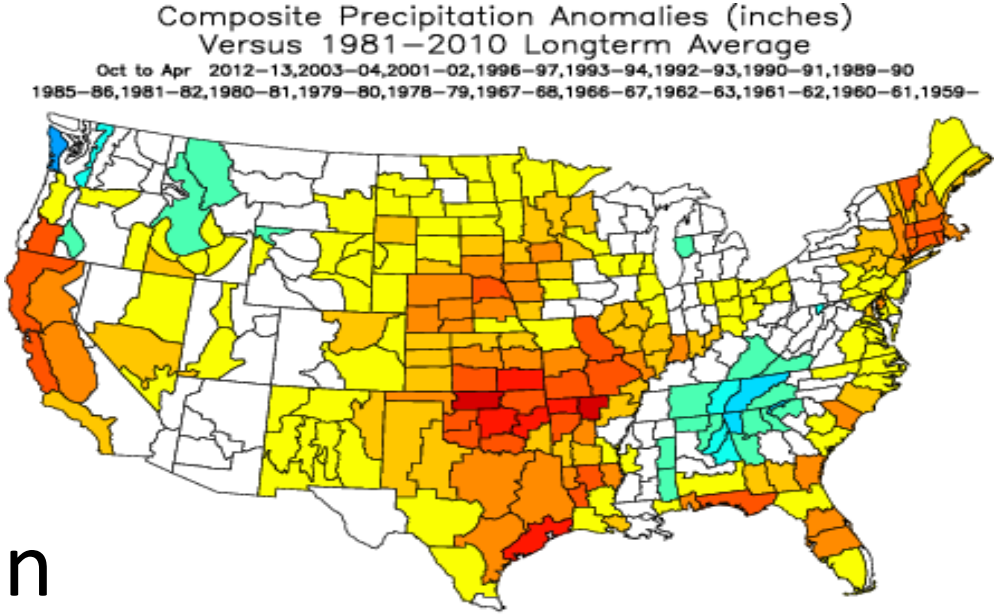
San Diego Big Monthly Rainfall

Winter October to April

Month Year	Total Precipitation	October-April	ENSO ONI
January 1993	9.09	17.81	0.2 (neutral)
January 1995	8.06	16.63	1.3
February 1998	7.65	16.19	2.5
March 1991	6.96	11.77	0.4 (neutral)
March 1983	6.57	17.87	2.3
December 1965	6.60	14.74	1.5
January 1978	5.95	16.54	0.7
February 2005	5.83	22.35	0.7
January 1979	5.82	14.03	-0.1 (neutral)
November 1965	5.82	14.74	1.5
January 1980	5.58	14.96	0.5
December 2010	5.00	12.18	-1.4 2010-11

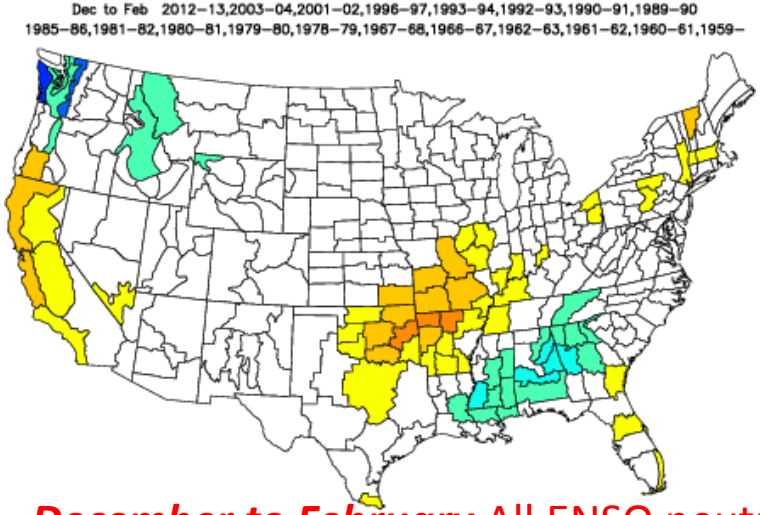
Precipitation

DRY

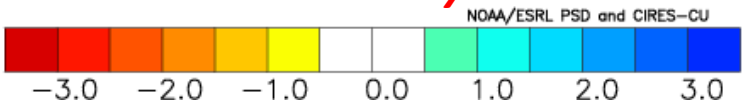


October to April All ENSO neutral

DRY



December to February All ENSO neutral



Winter Outlook Key Messages

- High uncertainty for the winter precipitation outlook. There is always considerable uncertainty with any climate forecast, but it is quite high this year.

- ENSO to remain neutral through winter 2013-2014

- Considerable spread and variability in empirical tools and dynamical model guidance. Little clear, reliable consensus for California.

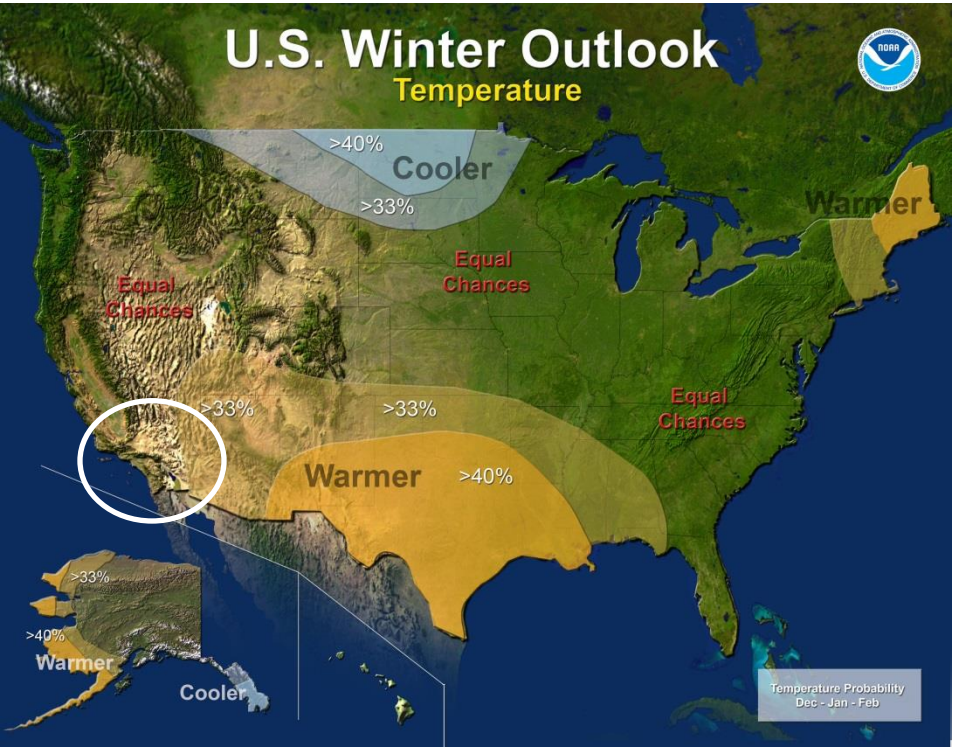
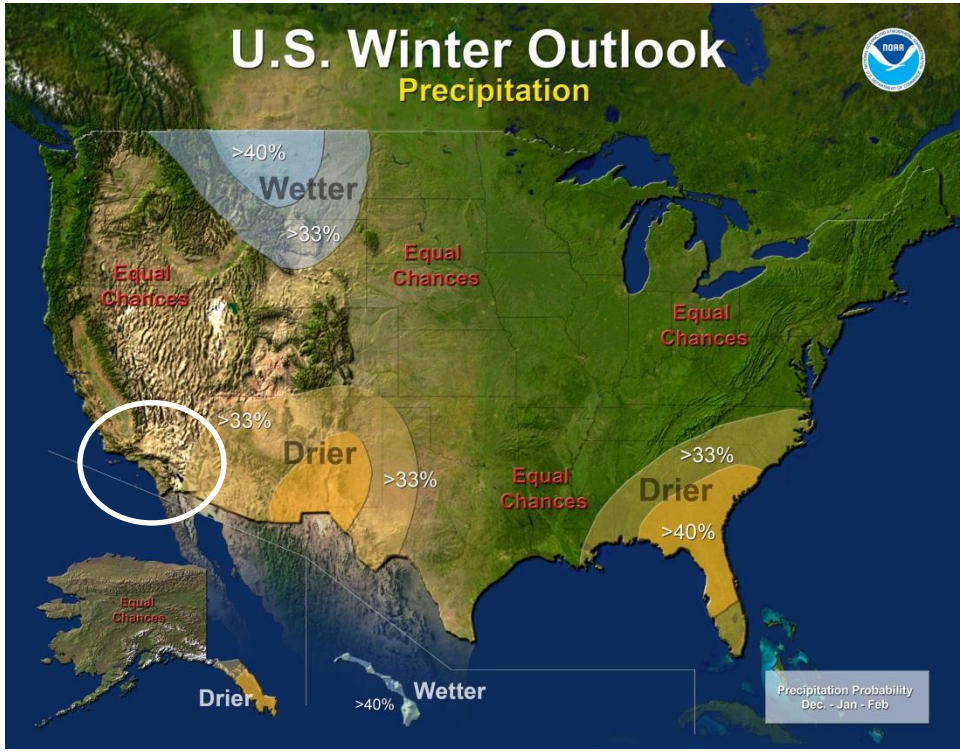
- Current Outlook: Elevated probabilities for above-normal seasonal mean temperatures for southern and central California. No clear, reliable climate signals in precipitation, so equal chances for normal season (above or below). Dry tendency in past ENSO neutral years give a slight dry bias.

Extreme precipitation events have occurred in Neutral ENSO years

NATIONAL OCEANIC AND ATMOSPHERIC ADMINISTRATION

Dec-Jan-Feb
Seasonal Outlook

Temperature



Precipitation