Drought Monitor October 2016

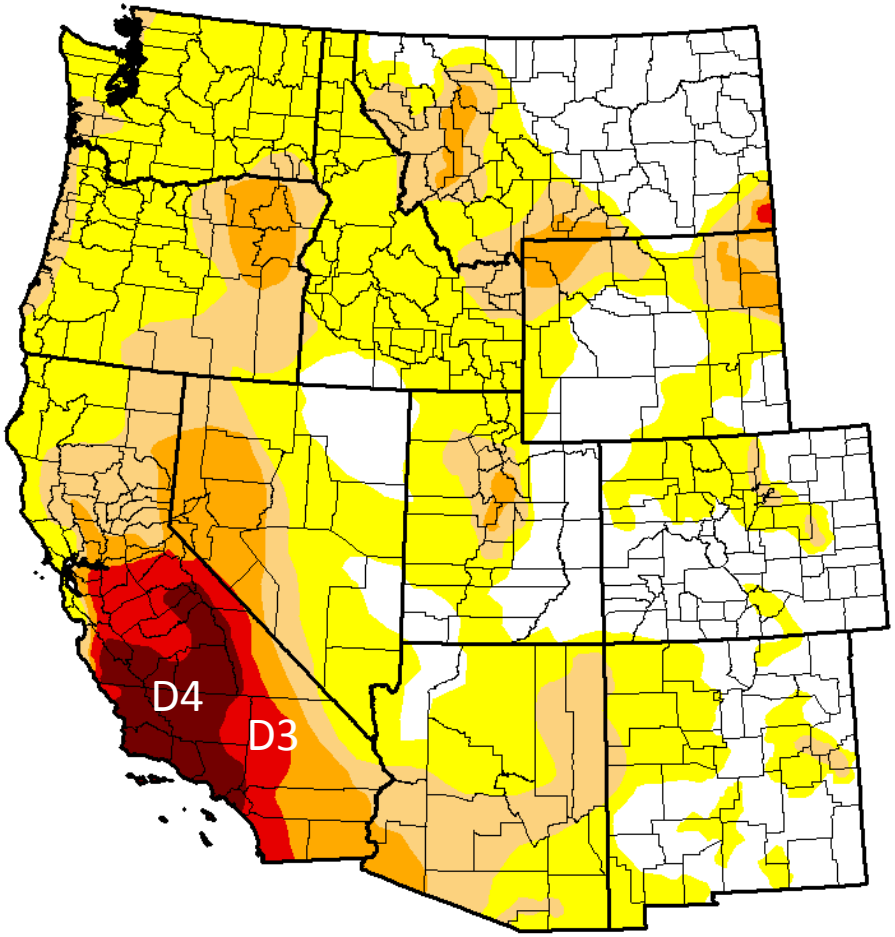
Intensity:

- 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.

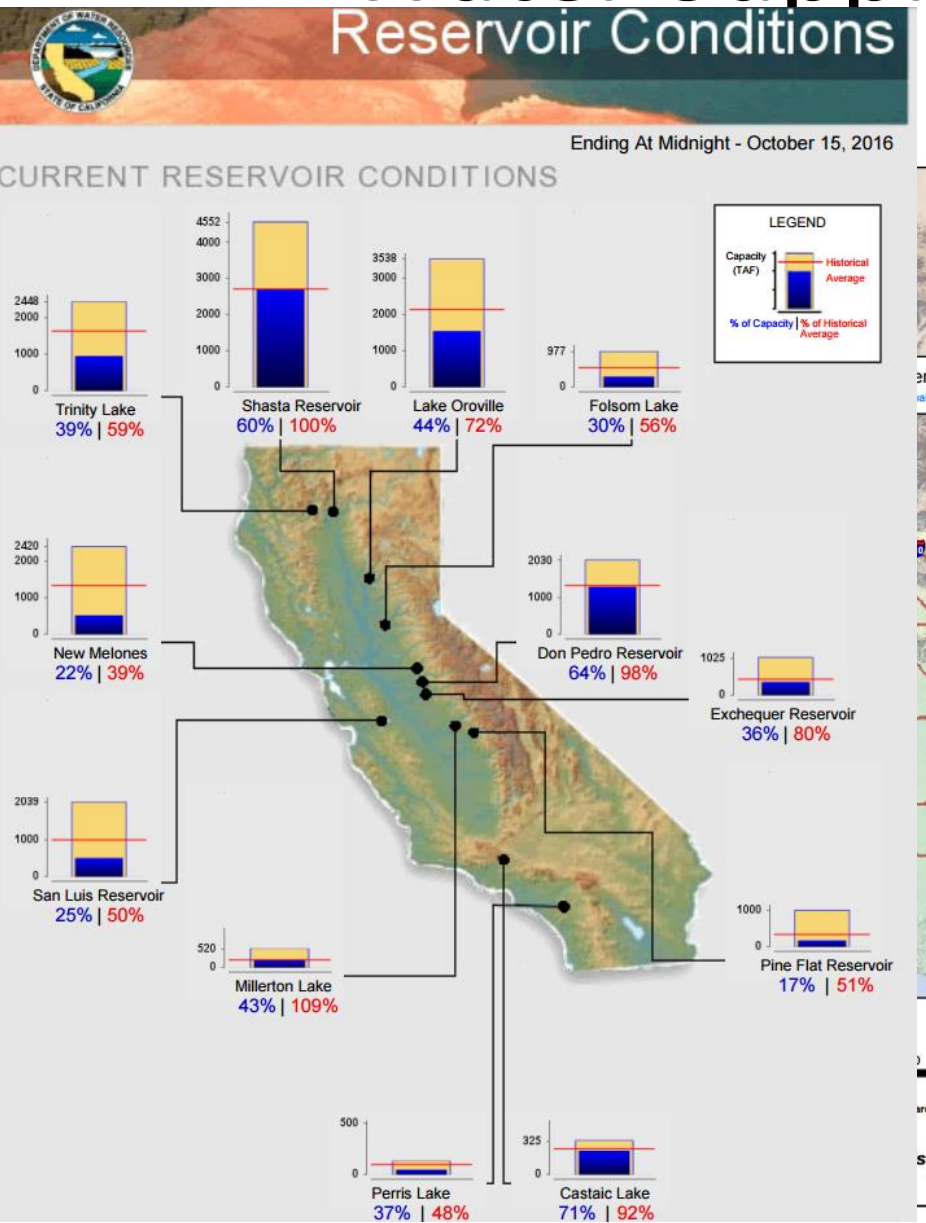
Author:
Brad Rippey
U.S. Department of Agriculture

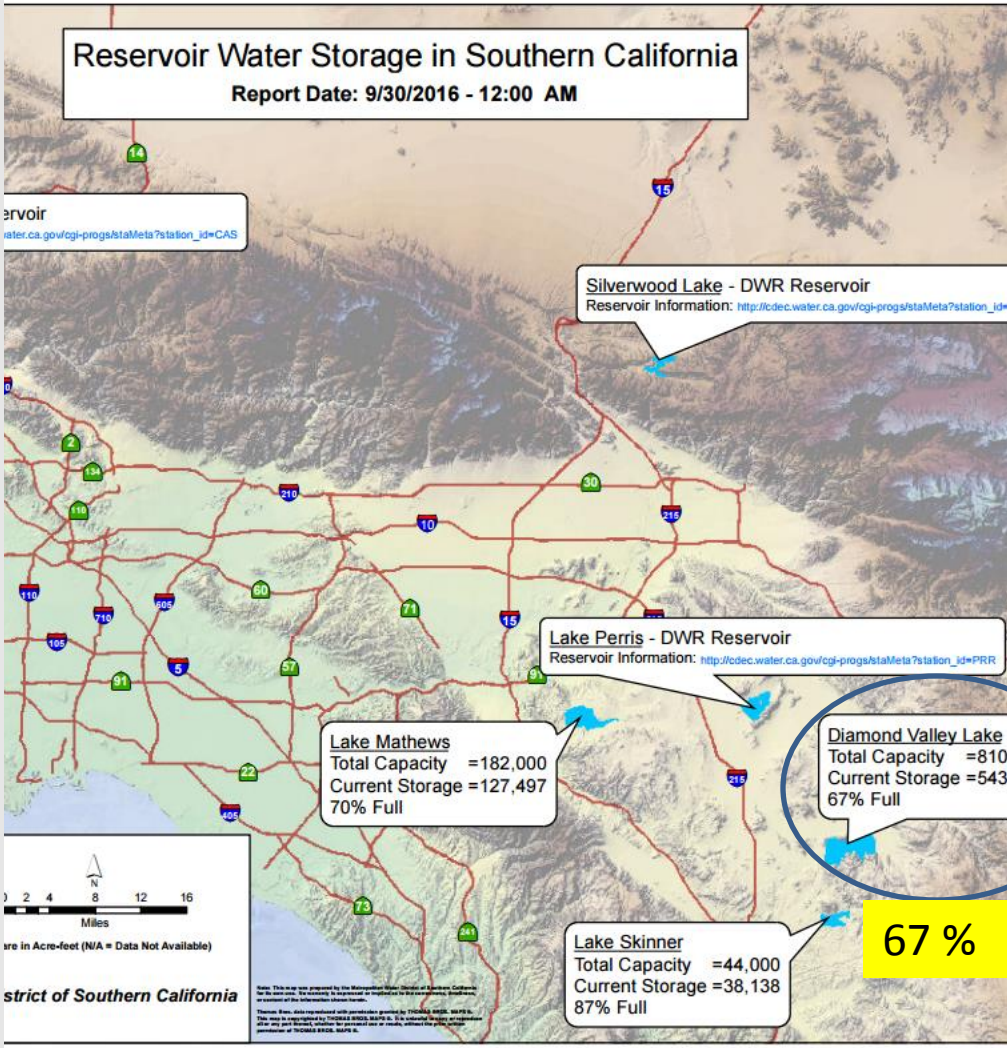
http://droughtmonitor.unl.edu/



October 20, 2016

Water Supply in California

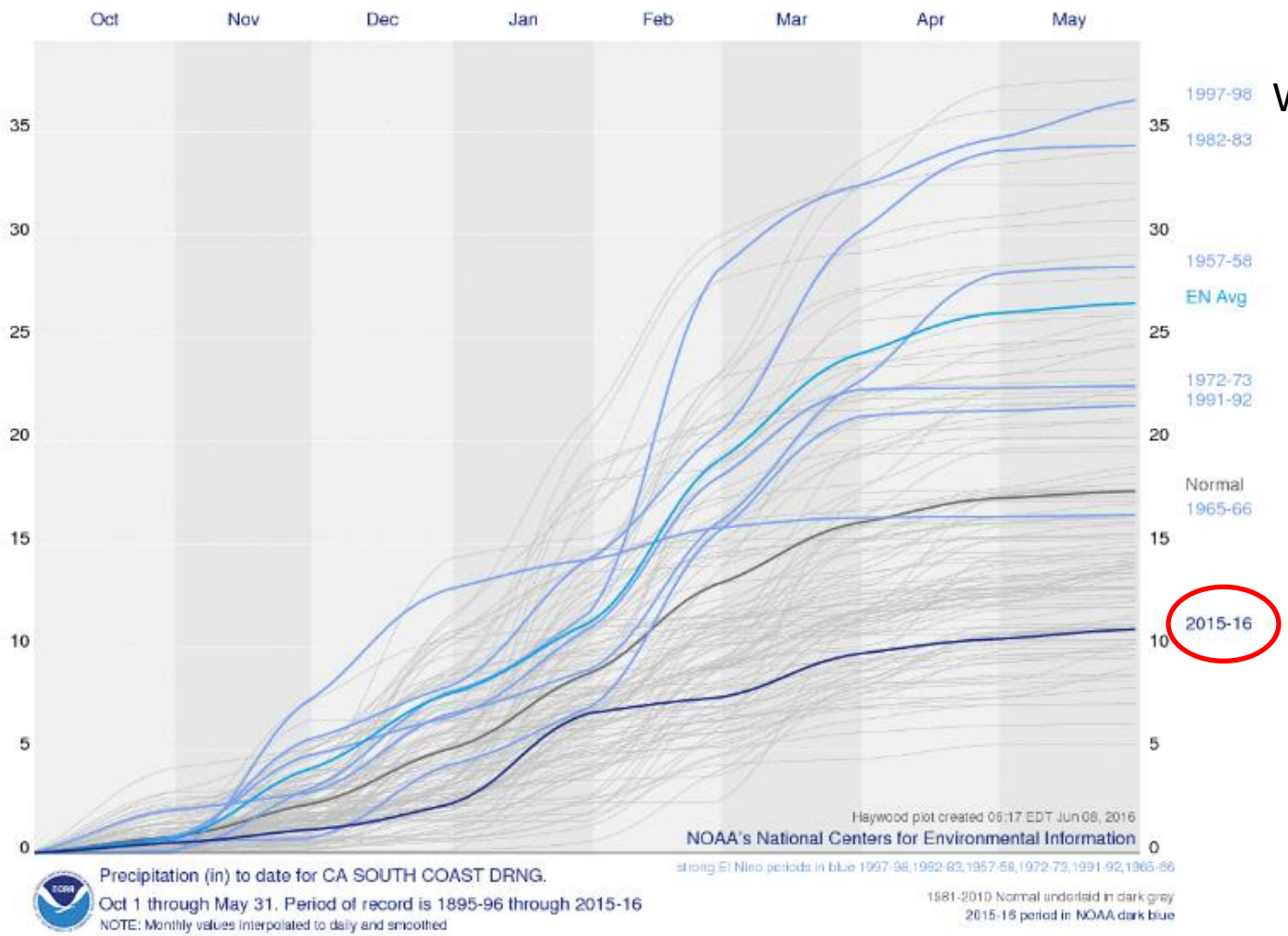




Seasonal precipitation 2015-16

State/District: California ▾ Climate Division/City: CD 6. South Coast Drainage ▾

View Haywood Plot

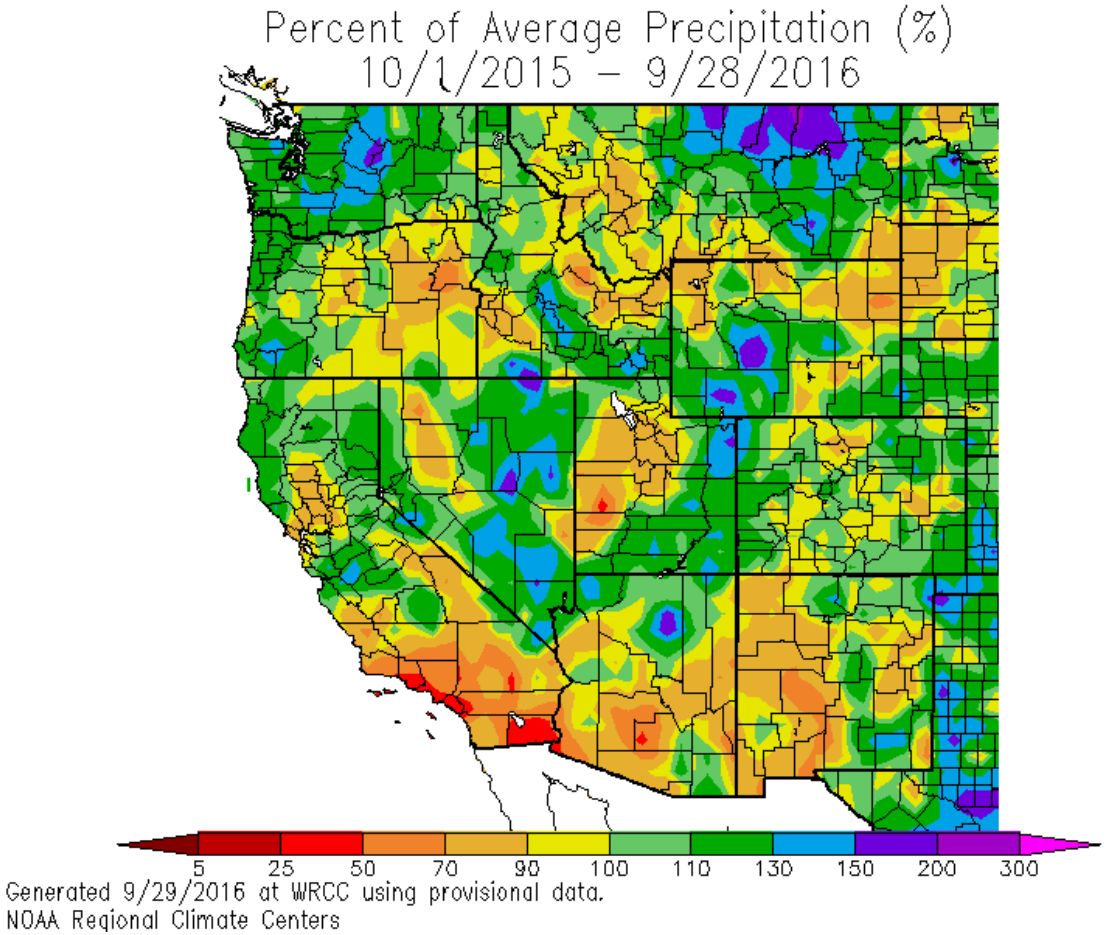


Wettest

normal

Driest

Water Year in the West
October 1, 2015 to September 30, 2016



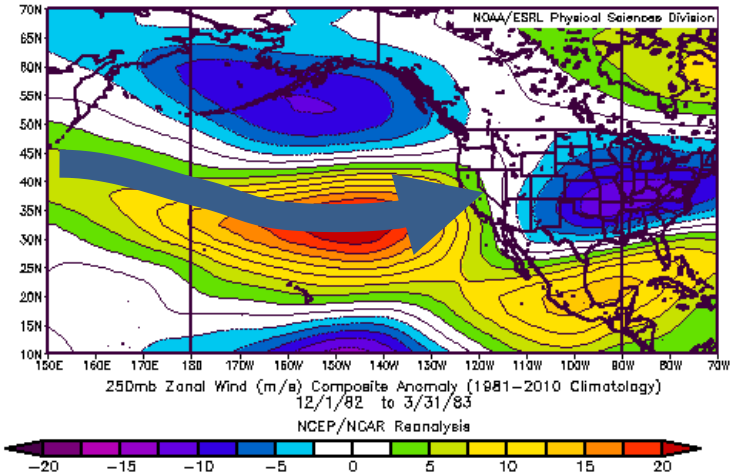
5 year precipitation since January 2011

September 30, 2016

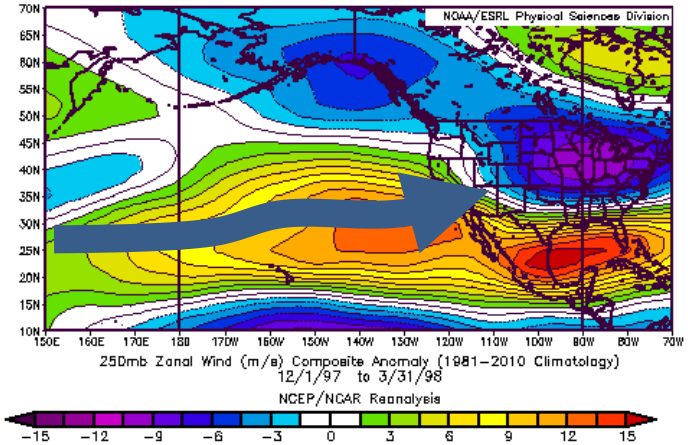
Station 5 year precipitation	Total Deficit Calendar Year	2015-16 % Annual	30-y Annual average	Lost precipitation
San Diego (SAN)				
44.28	14.85 inches	8.18 or 79%	**10.34**	1 ½ season
Santa Ana (Fire stn)				
37.40	40.38 inches	5.19 or 38%	**13.63**	3 seasons
Riverside (Fire stn)				
36.58	22.60 inches	5.59 or 54%	**10.33**	2 seasons
Palomar Mtn				
115.82	59.15 inches	18.59 or 62%	**30.20**	2 seasons
Idyllwild				
111.06	48.01 inches	23.06 or 84%	**27.41**	1 ½ season
Palm Springs				
15.51	13.19 inches	3.69 or 76%	**4.83**	2 ½ seasons

Jet zonal wind December 1 to March 31

1982-83

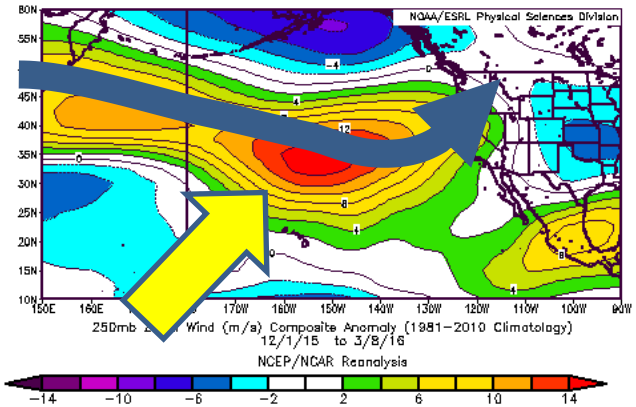


1997-98



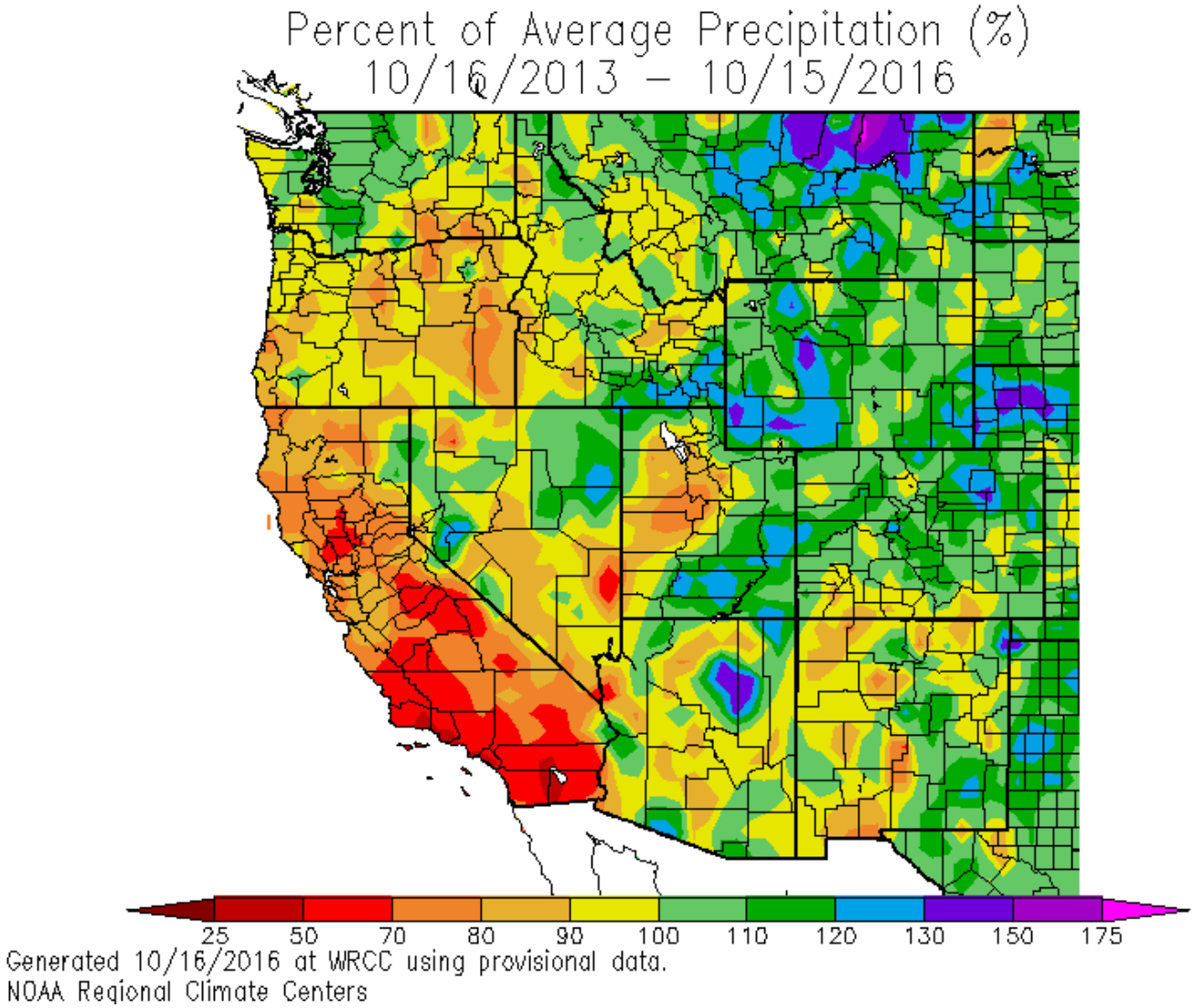
Jet zonal wind 2015-16

Northwesterly oriented JET
Unusually strong and westward position of jet stream

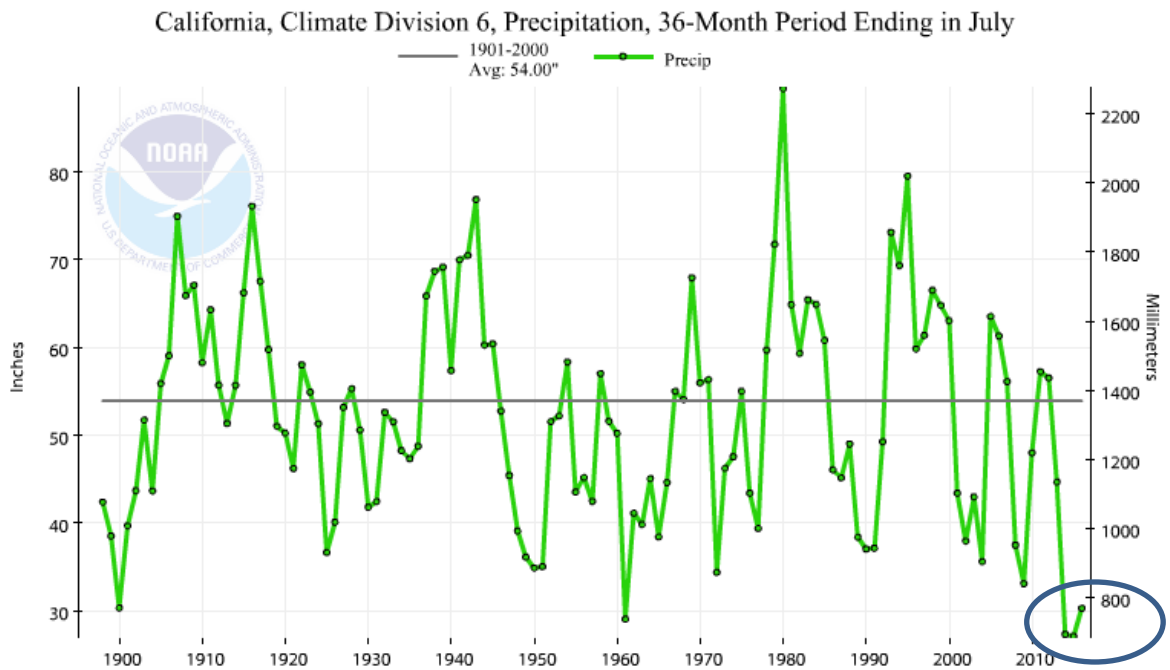


Precipitation

percent of normal past 36 months



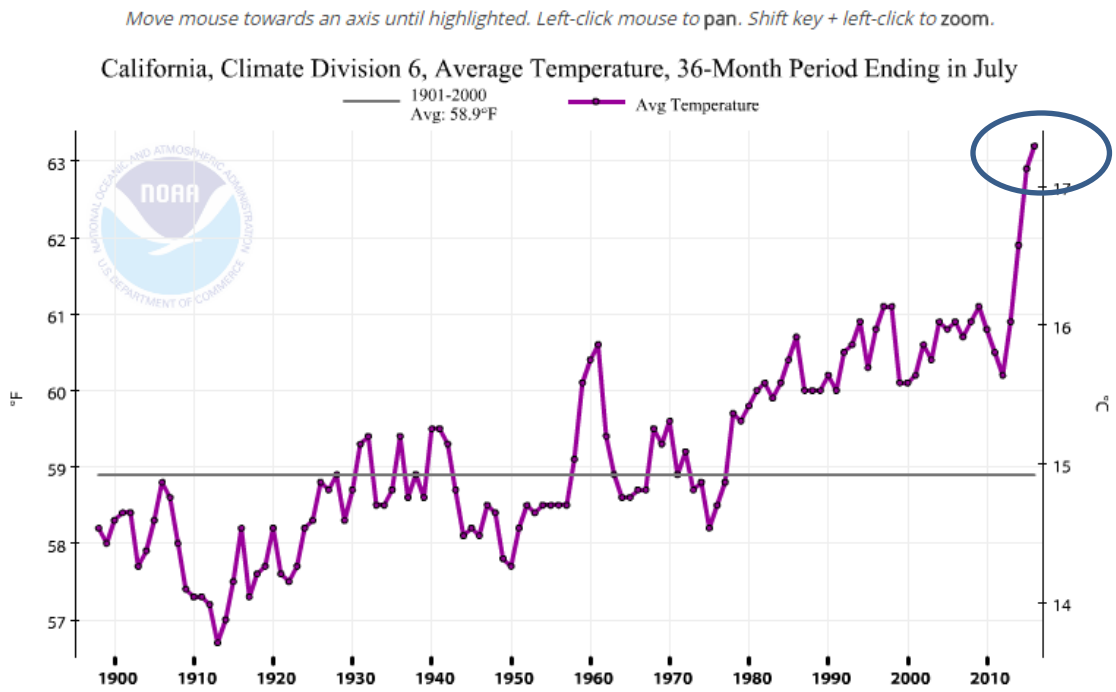
Precipitation past 36 months



Download: XML

	DATES	VALUE	RANK	ANOMALY (54.00") 1901-2000 BASE PERIOD
2012-15	201208 - 201507	27.09"	1	-26.91"
	201108 - 201407	27.33"	2	-26.67"
	195808 - 196107	29.05"	3	-24.95"
2013-16	201308 - 201607	30.31"	4	-23.69"
	189708 - 190007	30.34"	5	-23.66"
	200608 - 200907	33.09"	6	-20.91"

Past 36 months – warmest on record



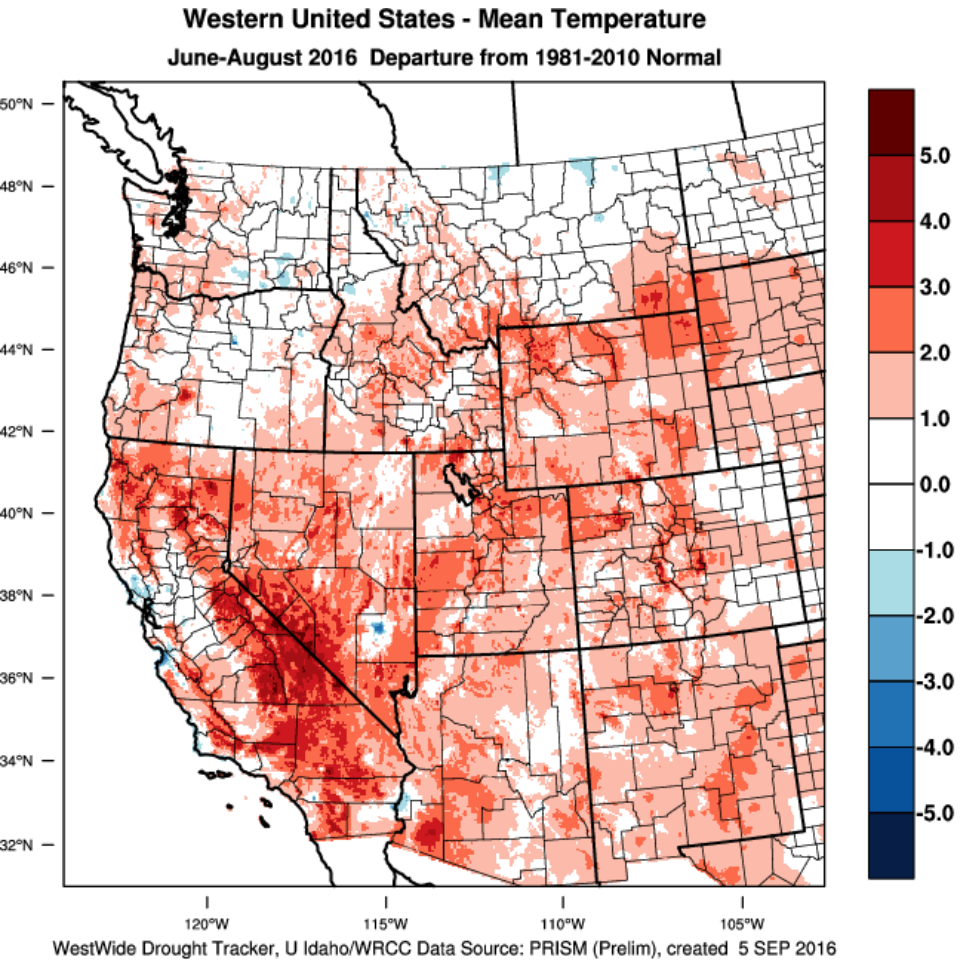
Download: XML

DATES	VALUE	RANK	ANOMALY (58.9°F) 1901-2000 BASE PERIOD
201308 - 201607	63.2°F	119	4.3°F
201208 - 201507	62.9°F	118	4.0°F
201108 - 201407	61.9°F	117	3.0°F
199408 - 199707	61.1°F	116	2.2°F
199508 - 199807	61.1°F	116	2.2°F

2013-2016

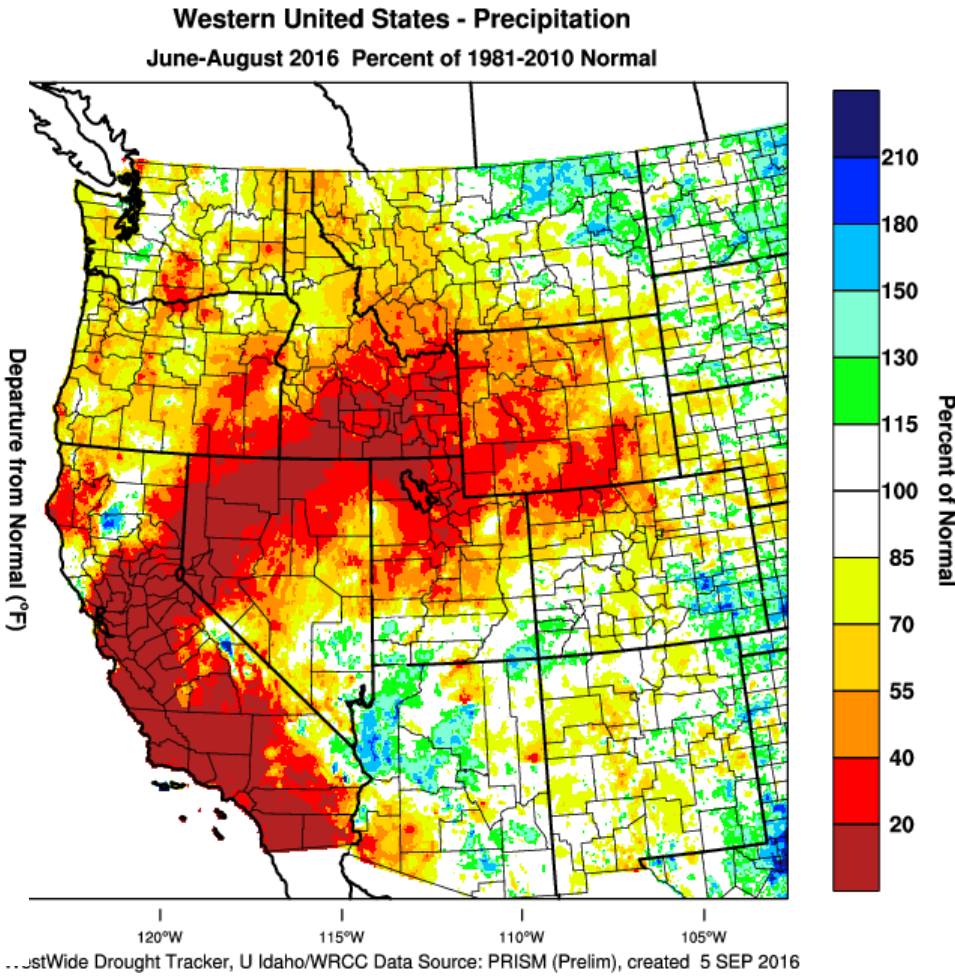
June to August 2016

Temperature departure

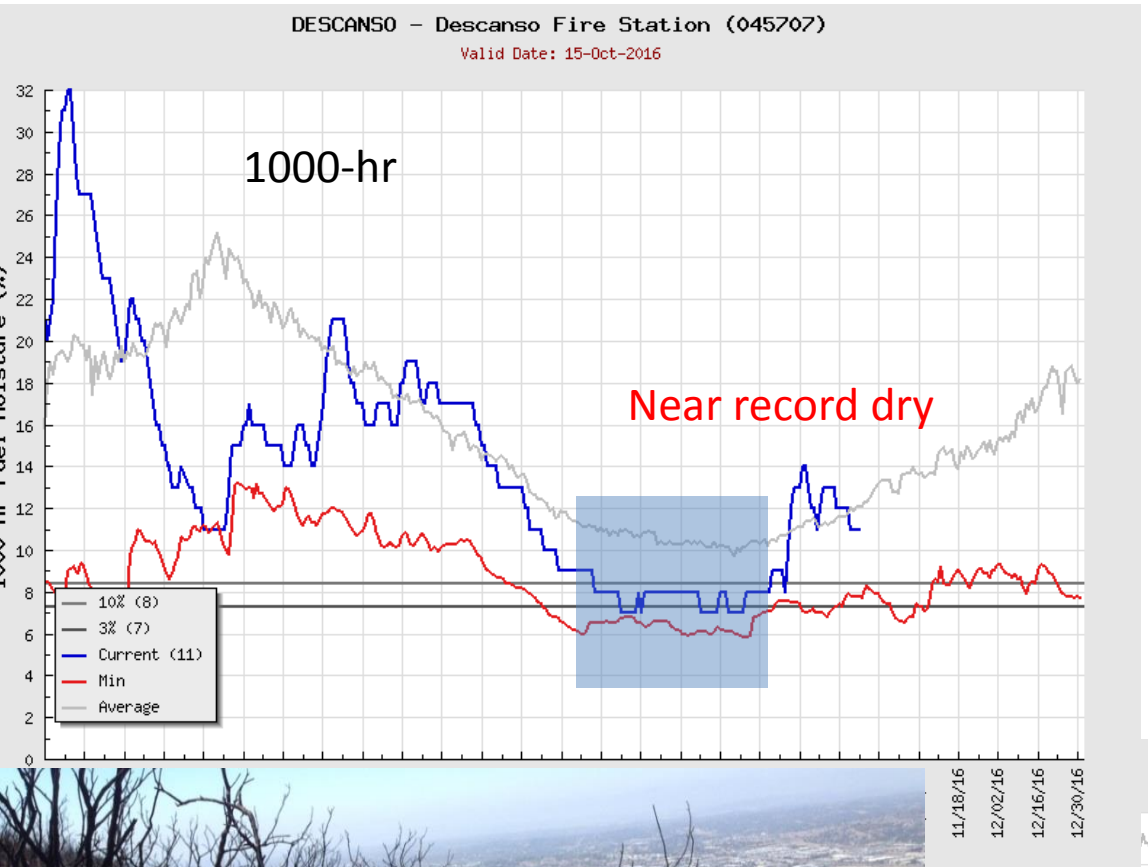


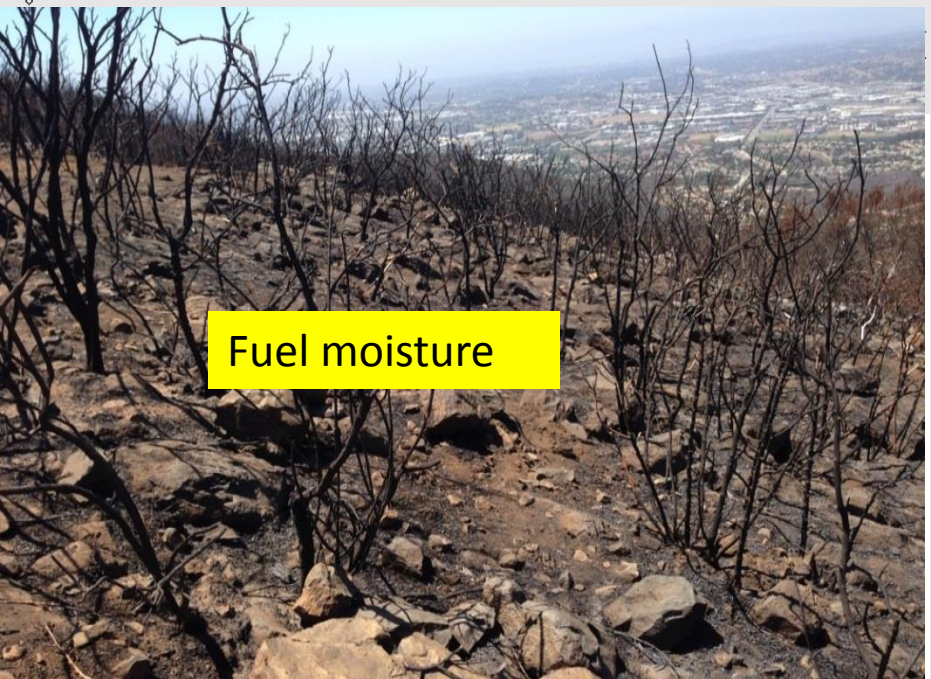
Near normal coast and above normal mountains and deserts

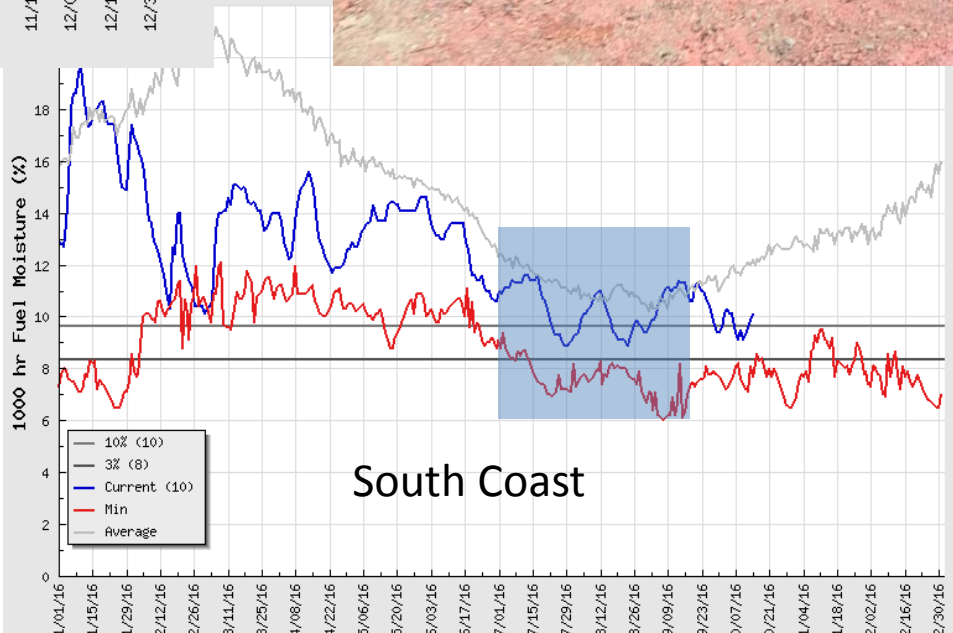
Percent of Normal precipitation



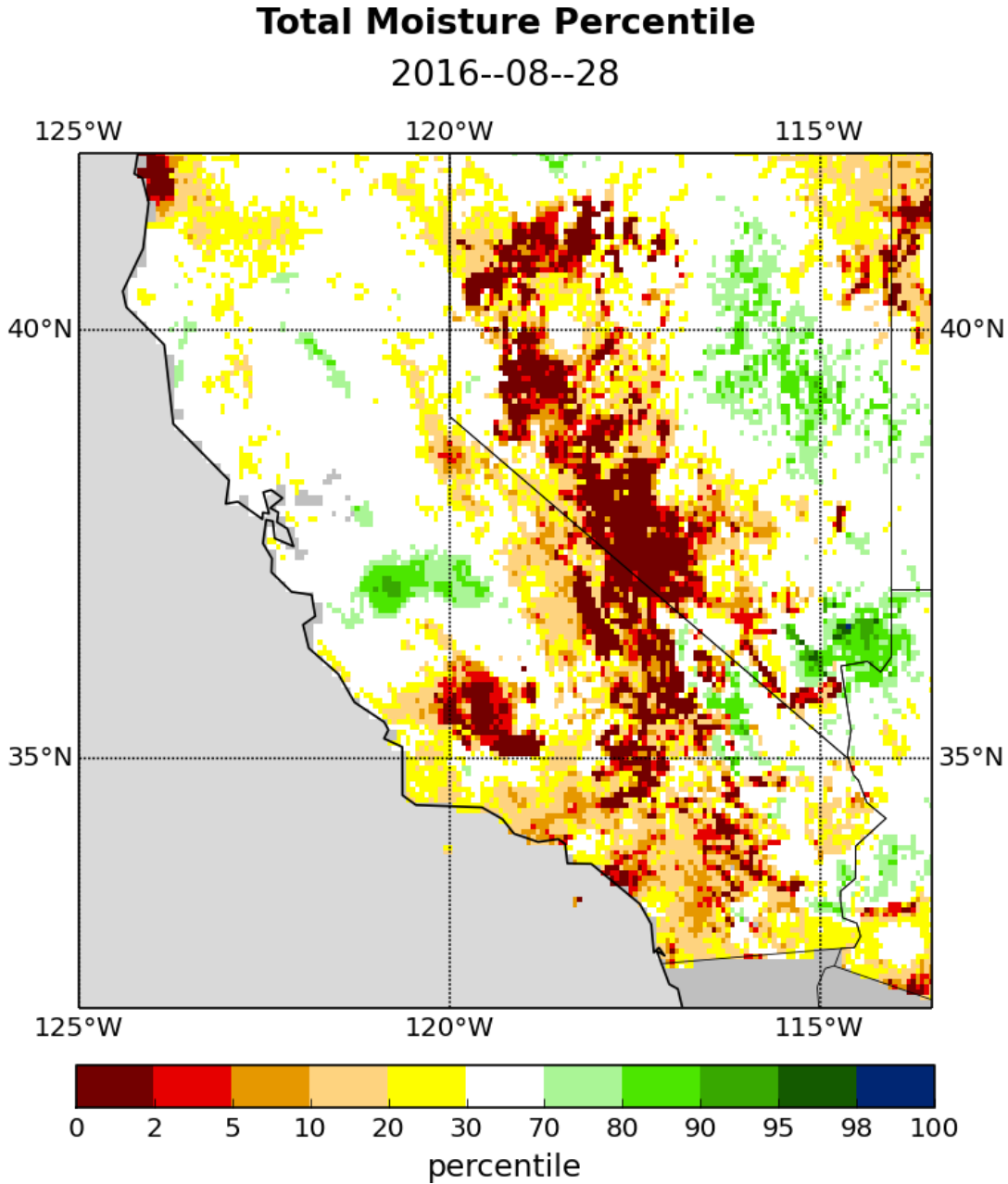
Much below normal monsoon precipitation in California


DESCANSO - Descanso Fire Station (045707)
Valid Date: 15-Oct-2016
1000-hr
Near record dry
10% (8)
3% (7)
Current (11)
Min
Average
11/18/16
12/02/16
12/16/16
12/30/16


Fuel moisture

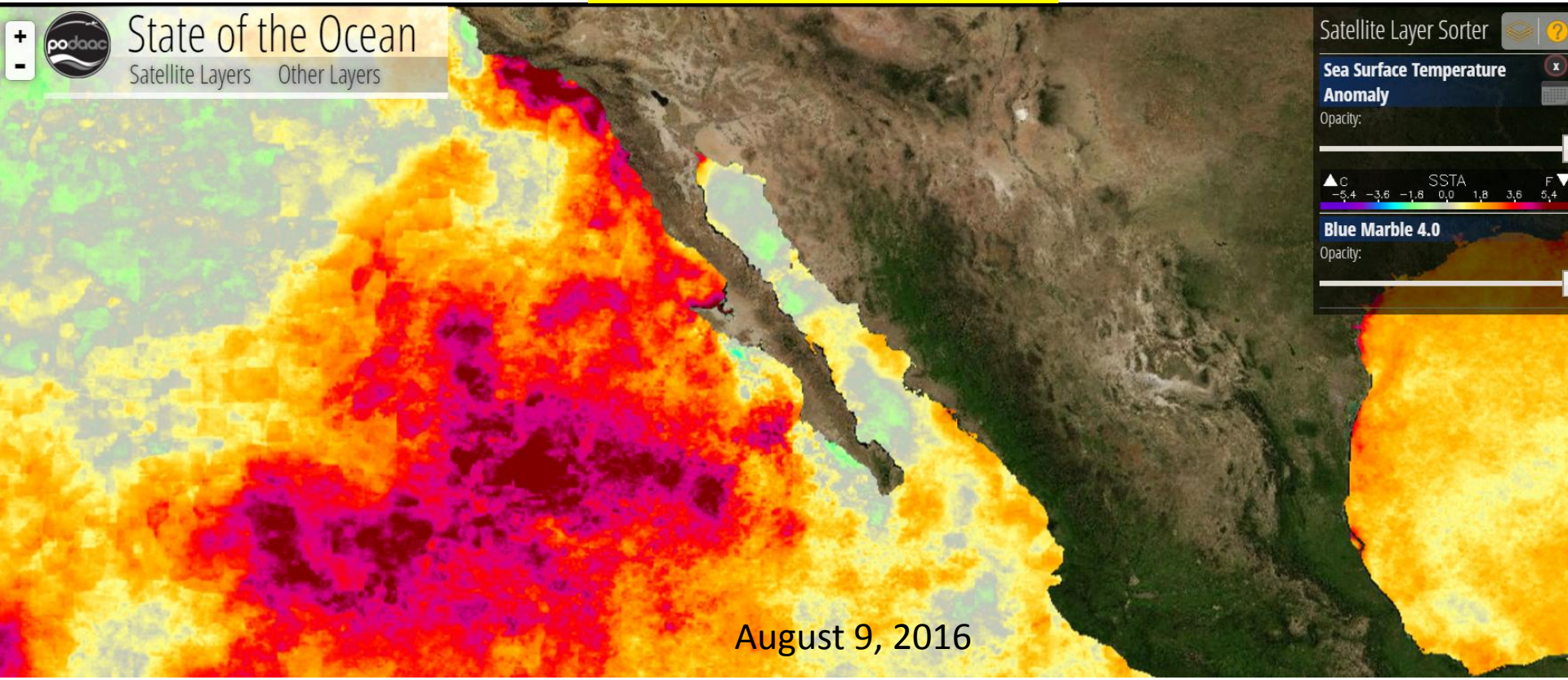

1000 hr Fuel Moisture (%)
10% (10)
3% (8)
Current (10)
Min
Average
South Coast

Hydro.ucla.edu/monitor_ca/index.html



Warm Ocean
Sea Surface Temperature Anomaly

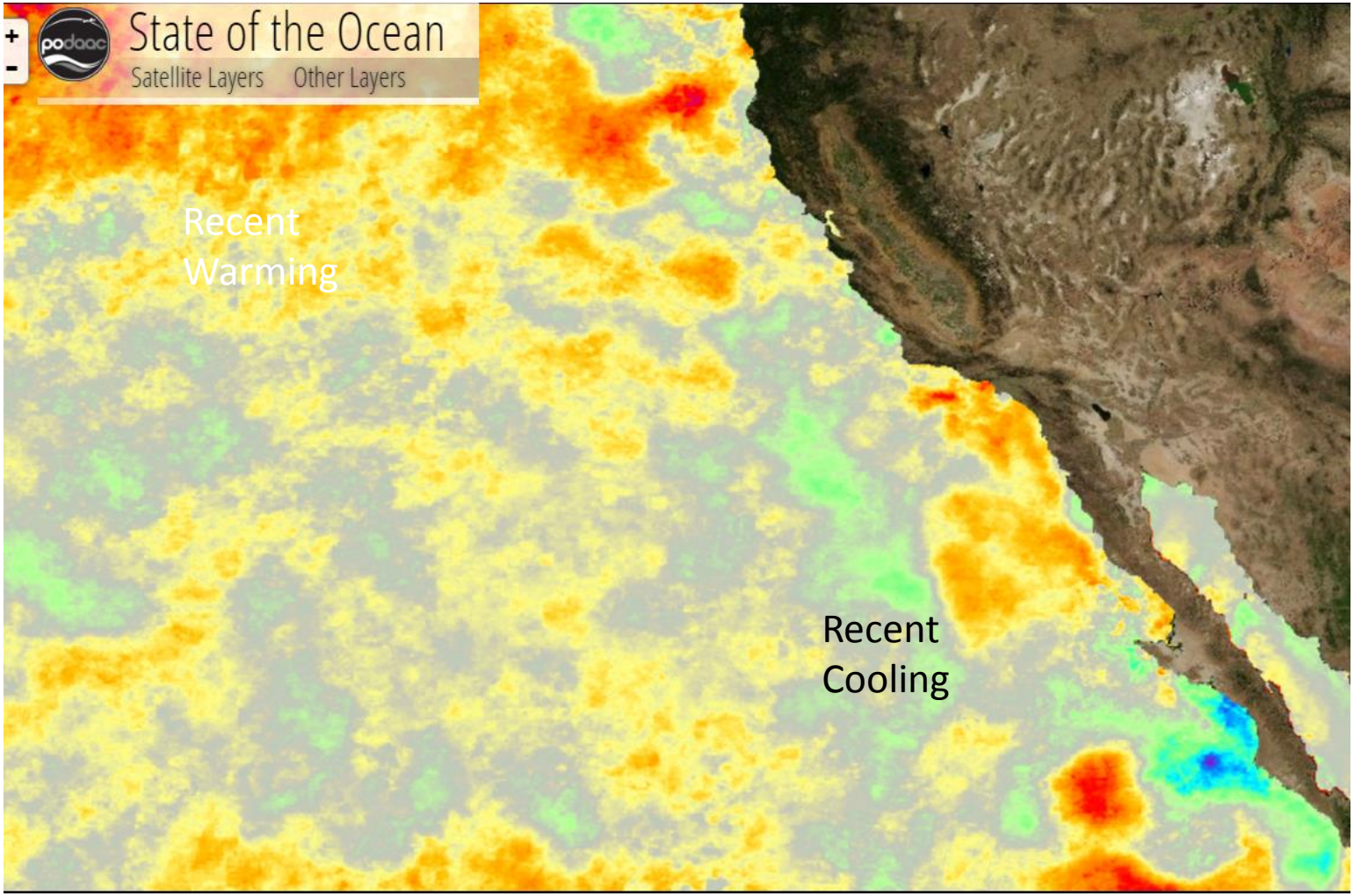
Average July temperature at La Jolla was 72 F with a peak of 77.4 F



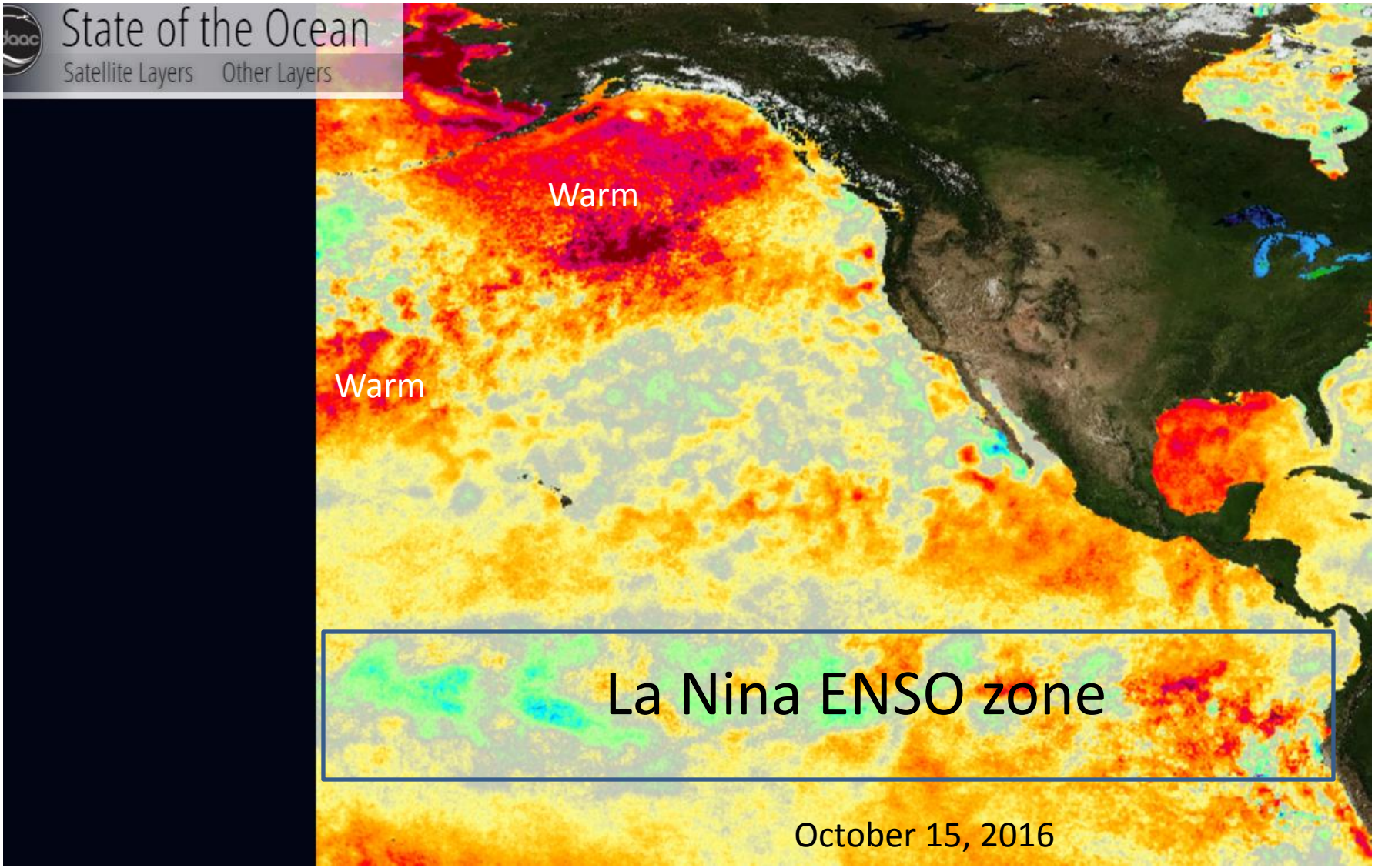
Warmer coastal temperature can cause warmer overnight low temperatures, higher humidity and less cooling in the daytime heat

October 16, 2016

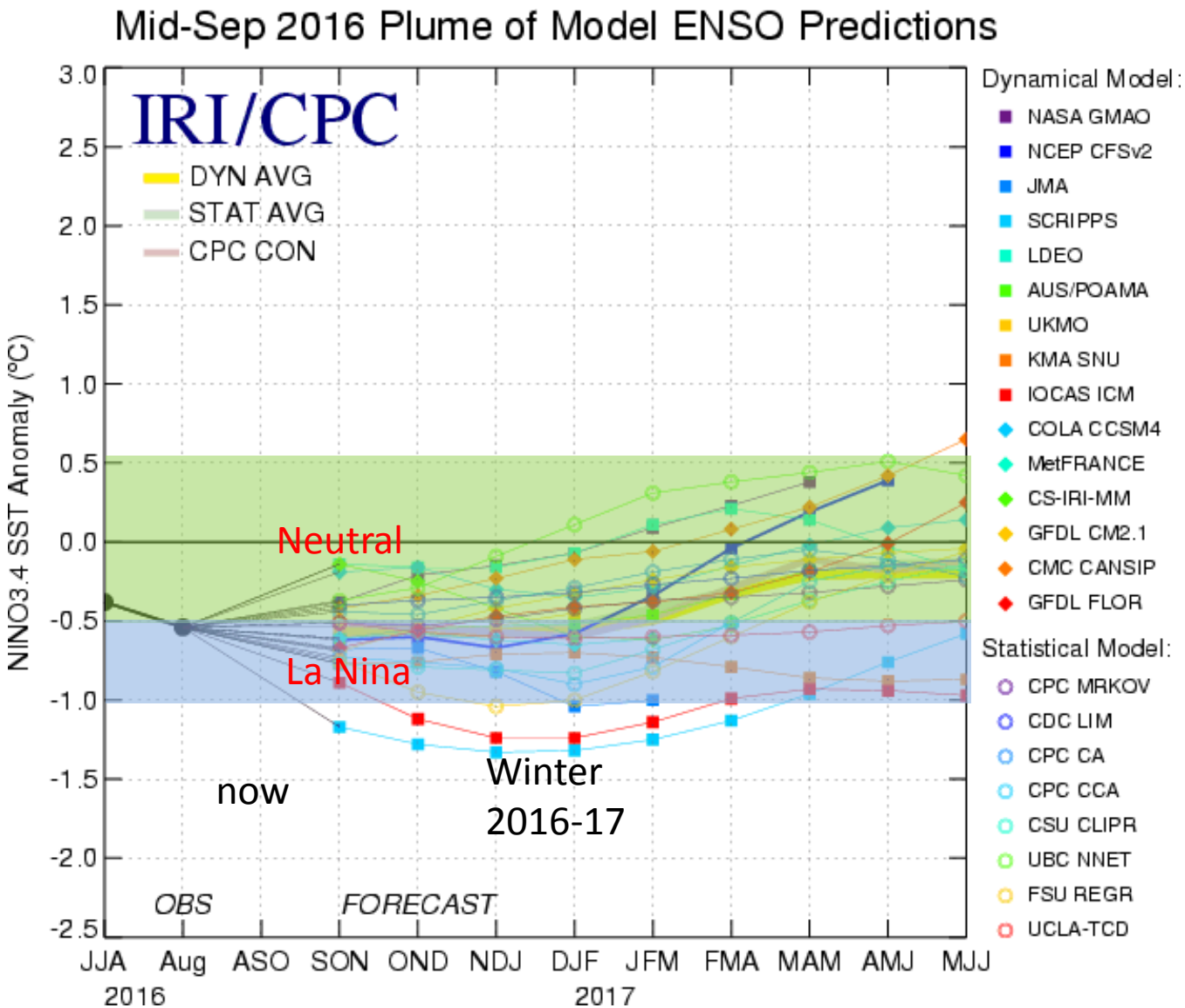
Cooling (below normal) occur along the West Coast this summer from north to south and coastal areas had normal average air temperatures



Pacific Basin water temperature anomalies



Weak La Nina or Neutral ENSO favored



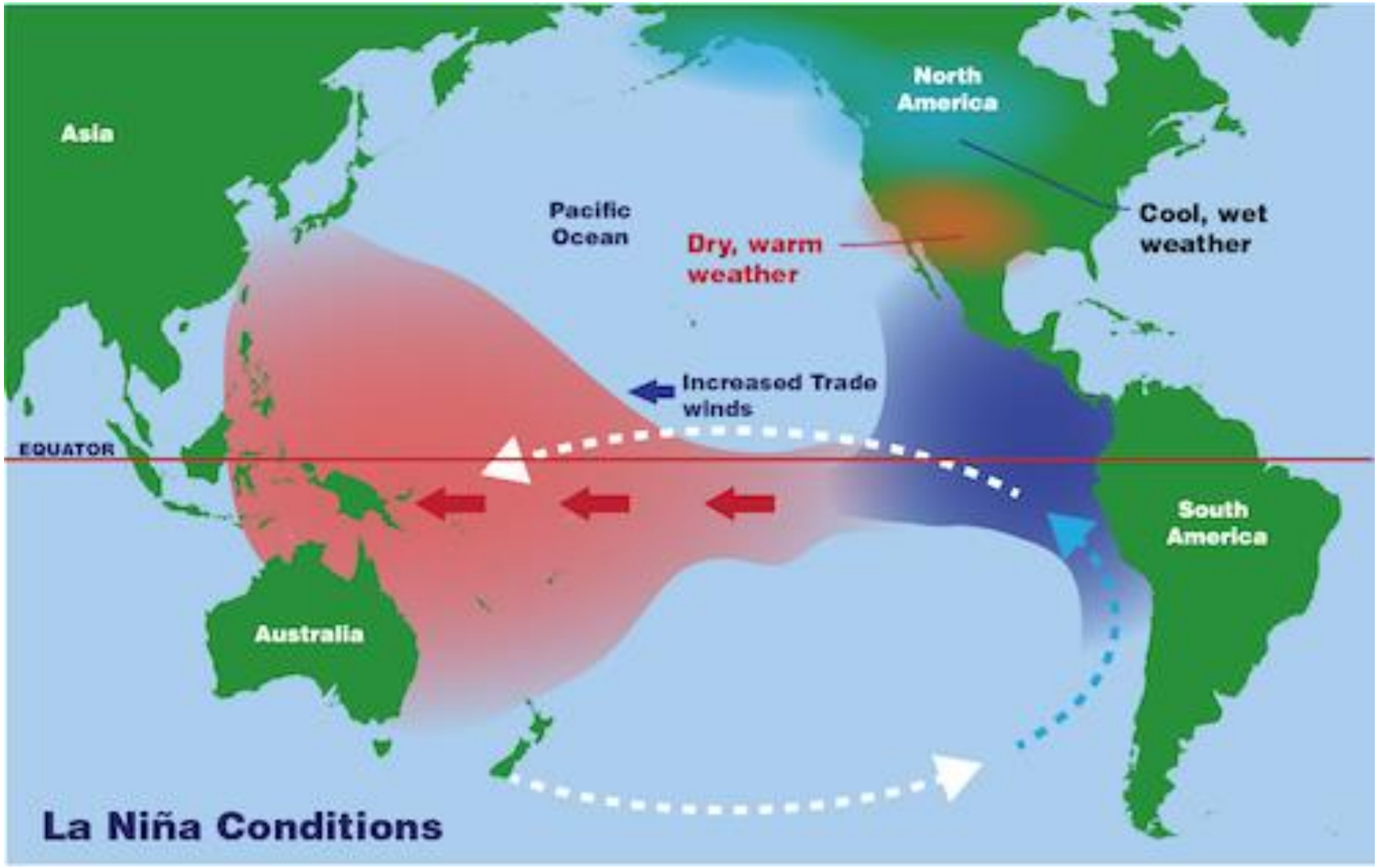
San Diego Big Monthly Rainfall

Winter October to April

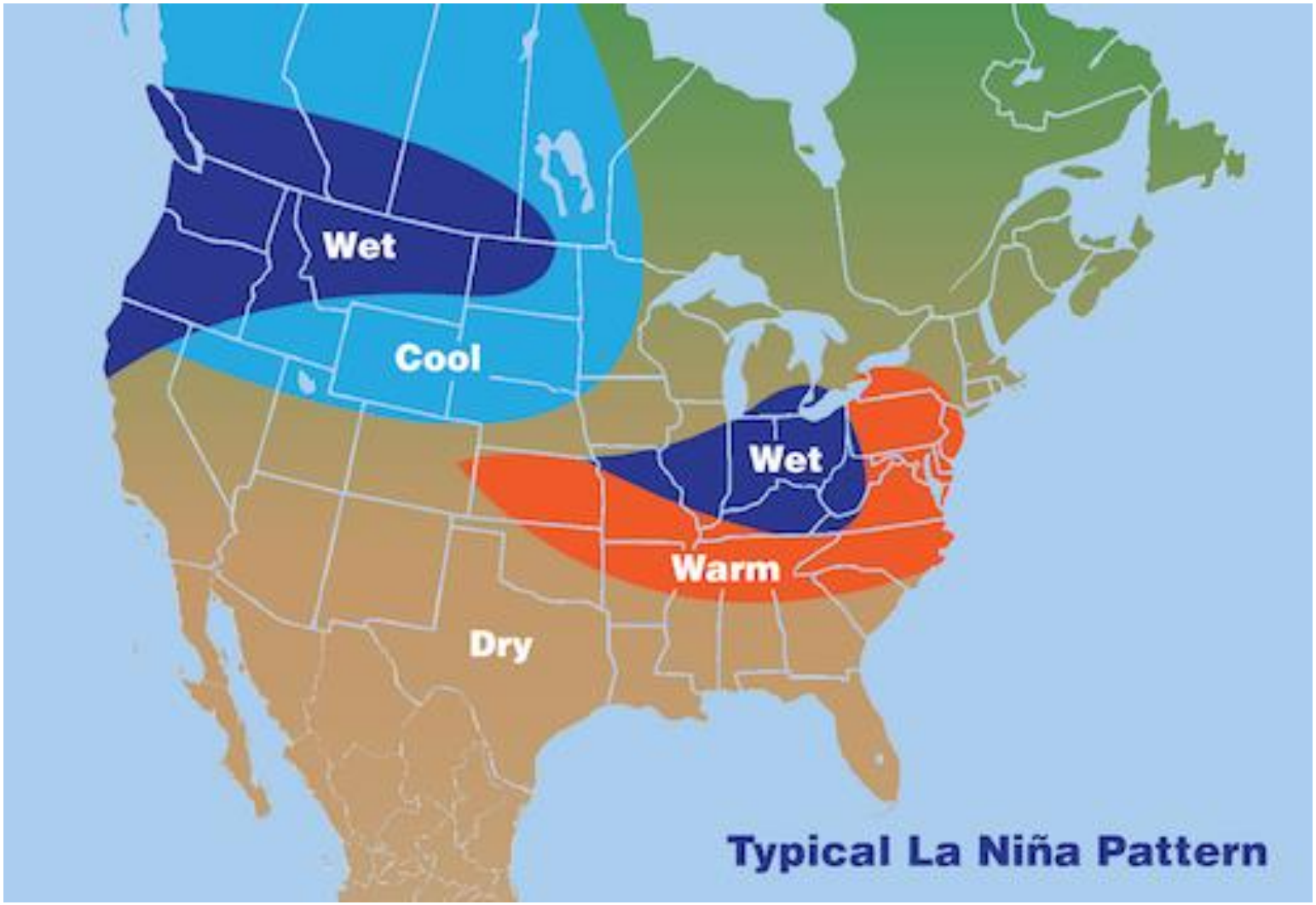
Month Year	Total Precipitation	October-April	ENSO ONI
January 1993	9.09	17.81	0.2 (neutral)
January 1995	8.06	16.63	1.3
February 1998	7.65	16.19	2.5
March 1991	6.96	11.77	0.4 (neutral)
March 1983	6.57	17.87	2.3
December 1965	6.60	14.74	1.5
January 1978 Drought Buster Year	5.95	16.54	0.7
February 2005	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

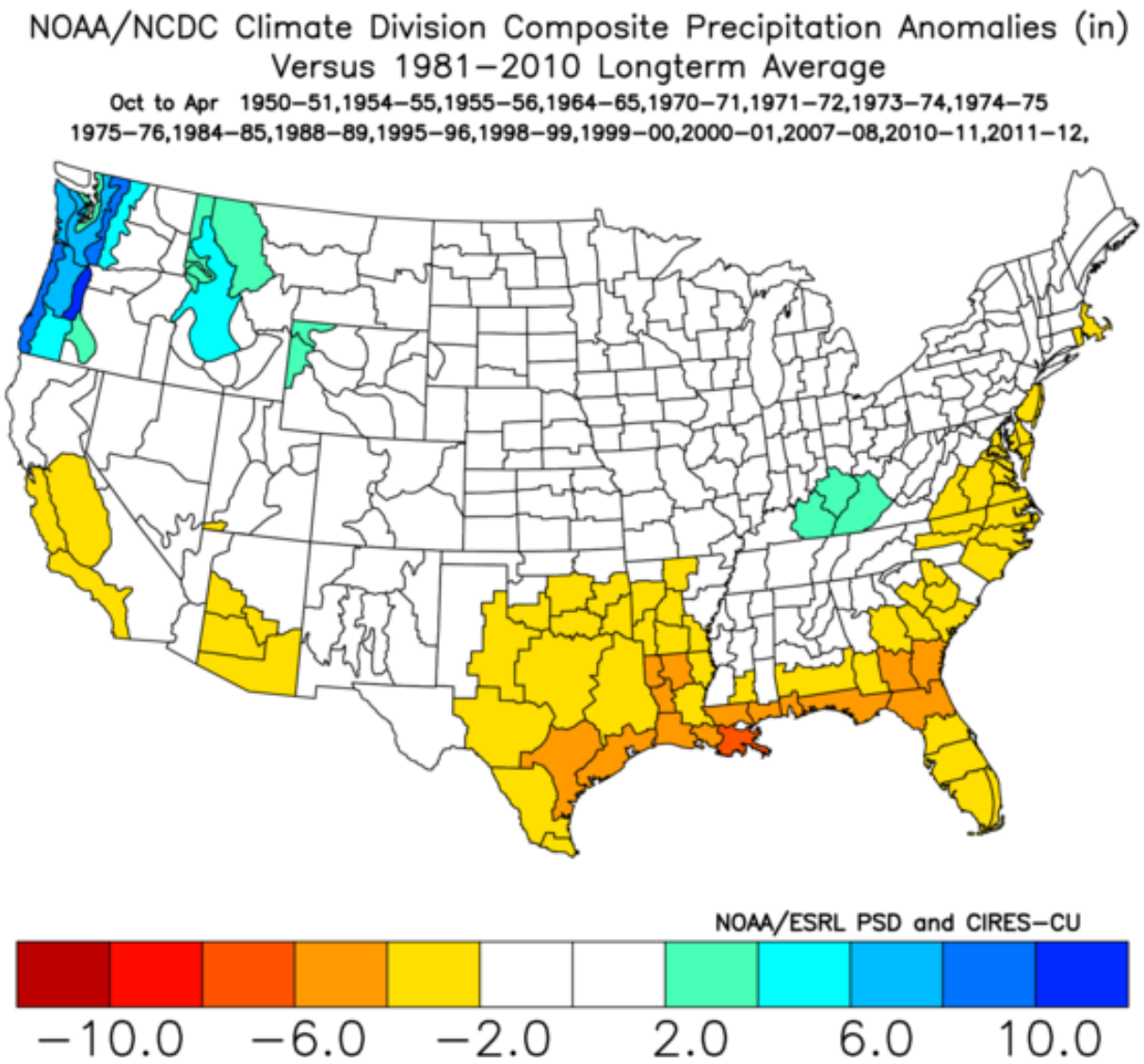
What is the La Nina pattern?

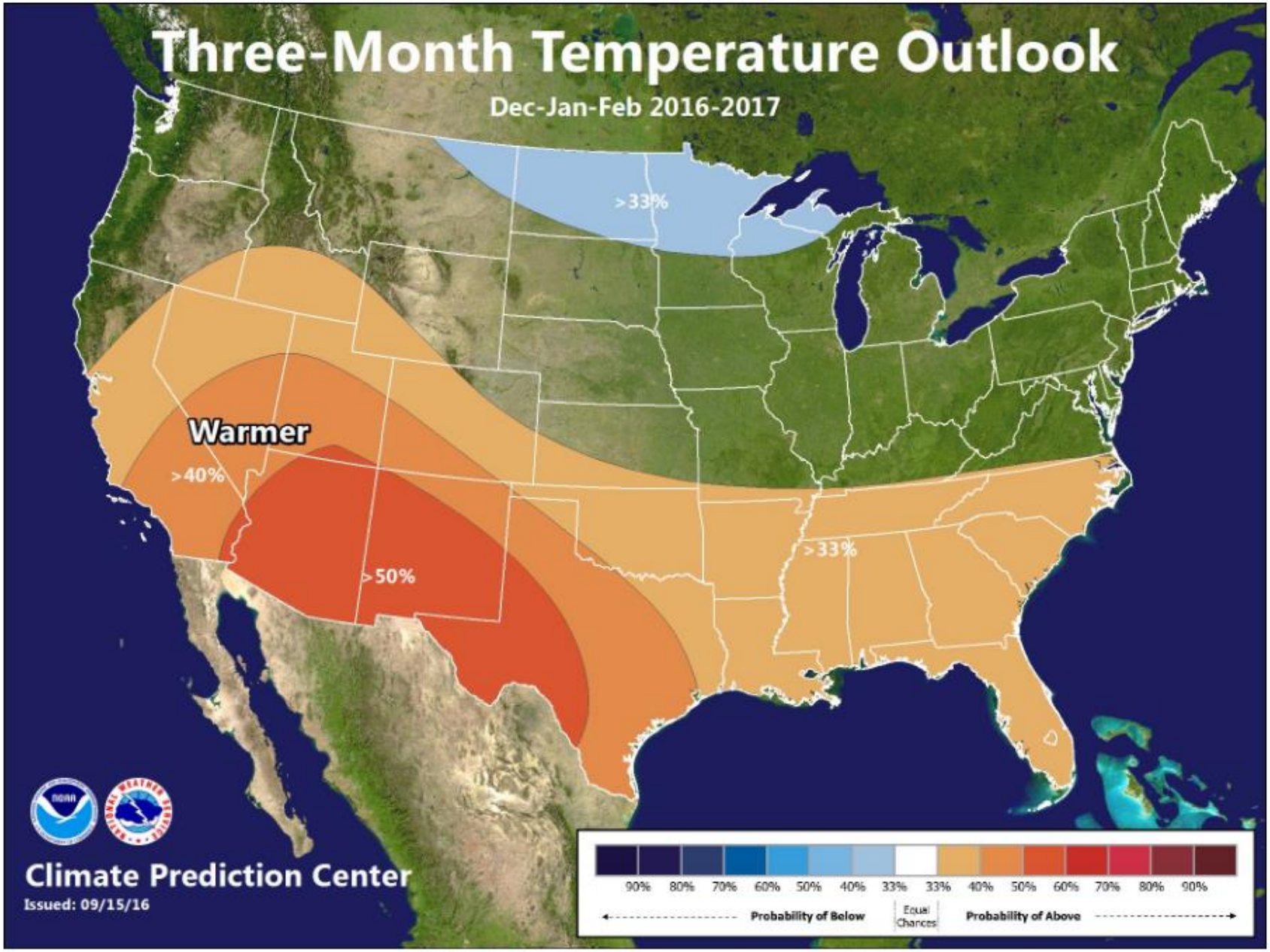


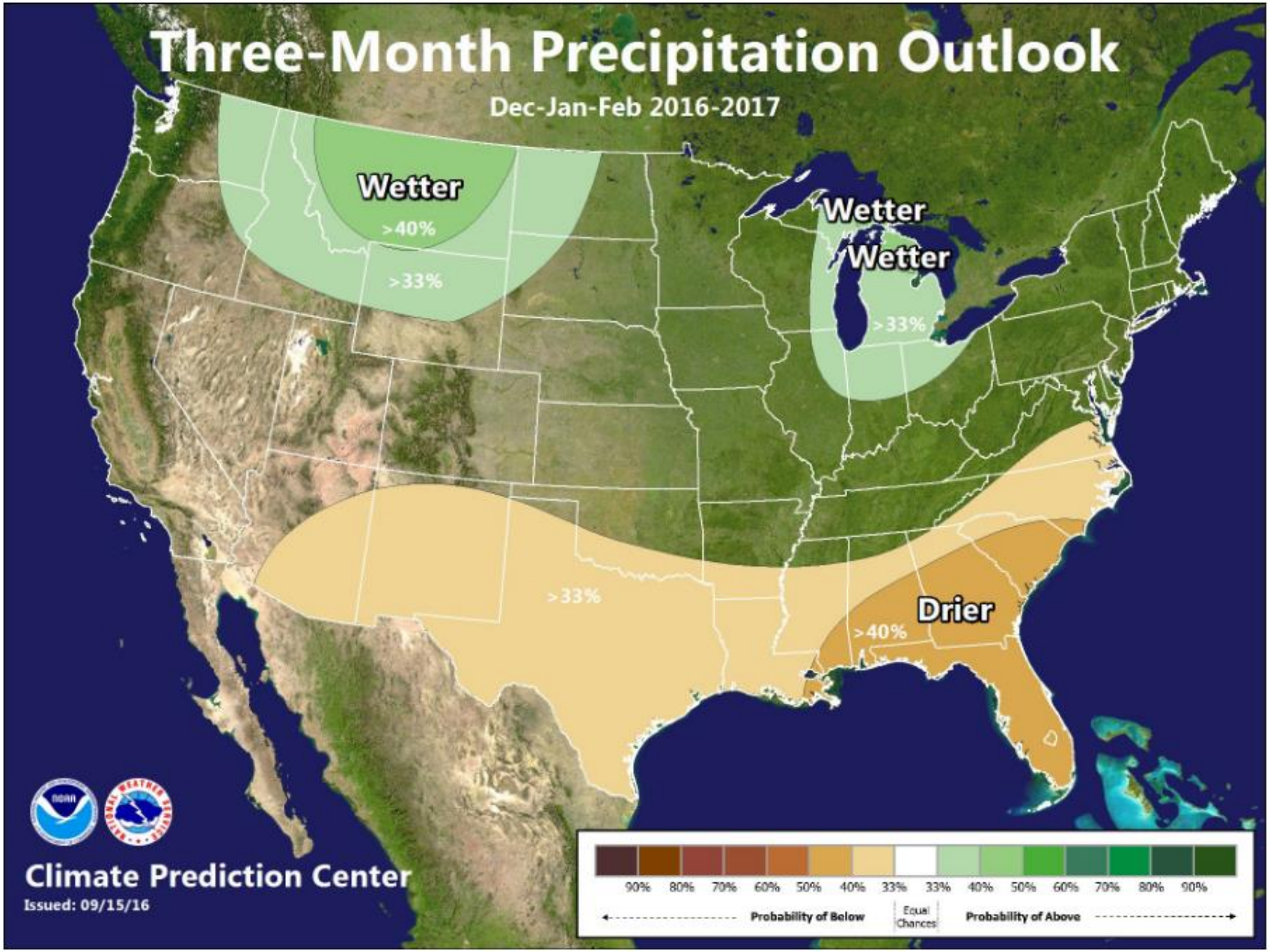
Typical La Nina Impact to Weather



La Nina Winters precipitation anomalies




Three-Month Temperature Outlook
Dec-Jan-Feb 2016-2017
>33%
Warmer
>40%
>50%
>33%
Climate Prediction Center
Issued: 09/15/16
90% 80% 70% 60% 50% 40% 33% 33% 40% 50% 60% 70% 80% 90%
Probability of Below
Equal Chances
Probability of Above


Three-Month Precipitation Outlook
Dec-Jan-Feb 2016-2017
Wetter
>40%
>33%
Wetter
Wetter
>33%
>33%
Drier
>40%
Climate Prediction Center
Issued: 09/15/16
90% 80% 70% 60% 50% 40% 33% 33% 40% 50% 60% 70% 80% 90%
Probability of Below
Equal Chances
Probability of Above

Winter 2016-17

- 5 years of drought
- Record warmth past 5 years
- Warmth has included winters and springs
- Critically dry fuels
- Santa Ana winds will occur October to February
- La Nina and El Nino (ocean conditions) are only part of weather and climate
- Weak La Nina oceanic conditions expected in 2016-17
- Tendency for drier than normal winters but extreme weather events are making much of seasons