

# Berkeley, CA rainfall July 1,2015 to March 9, 2016 (9:00 am)

March 9, 2016 UC Berkeley weather update

Date	Berkeley daily	Berkeley YTD	Last 30 days total	Last 7 days total	Richmond daily	Richmond YTD	Last 30 days total	Last 7 days total
7/1-10/31/15	0.05	0.05			0.15	0.15		
11/1/2015	0.56	0.61			0.63	0.78		
11/9/2015	0.46	1.07			0.56	1.34		
11/15/2015	0.26	1.33			0.45	1.79		
11/24-25/15	0.09	1.42			0.19	1.98		
12/2/2015	0.36	1.78			0.45	2.43		
12/6-7/2015	0.04	1.82			0.09	2.52		
12/10-11/2015	0.39	2.21			0.88	3.4		
12/13/2015	0.79	3			1	4.4		
12/18-21/15	1.96	4.96			2.13	6.53		
12/21 -22/15	0.62	5.58			0.5	7.03		
12/22/2015	0.09	5.67			0.02	7.05		
12/23-24/15	0.12	5.79			0.29	7.36		
12/28/2015	0.05	5.84			0.02	7.38		
12/30/2015	0.01	5.85	4.07		0.03	7.41	4.98	
1/4/2016	0.13	5.98			0.1	7.51		
1/5/2016	1	6.98			1.41	8.82		
1/6-7/2016	1.45	8.43	6.61		2.1	10.92	8.48	
1/9/2016	0.06	8.49			0.12	11.04		
1/13/2016	0.47	8.96	6.75		0.69	11.81	8.41	
1/14/2016	0.16	9.12	6.12	2.14	0.42	12.23	7.83	
1/15/2016	0.2	9.32	6.32	0.89	0.23	12.46	8.06	
1/16/2016	0.26	9.58	6.58	1.15	0.31	12.77	5.74	
1/17/2016	1.1	10.68	7.68	2.19	1.15	13.92	9.52	
1/18/2016	0.44	11.12	8.12	2.63	0.57	14.49	10.09	
1/19/2016	1.19	12.31	7.35	3.35	1.34	15.83	9.3	4.02
1/22/2016	0.45	12.76	7.18	3.64	0.43	16.26	9.23	4.03
1/23/2016	0.02	12.78	7.11	3.46	0.09	16.35	9.3	3.89
1/29/2016	0.42	13.2	7.36	0.44	0.49	16.84	9.48	0.58
2/2/2016	0.06	13.26	7.41	0.48	0.07	16.91	9.52	0.56
2/17/2016	0.19	13.45	3.87	0.19	0.24	17.15	4.38	0.24
2/18/2016	0.17	13.62	2.94	0.36	0.17	17.32	3.4	0.41
2/19/2016	0.04	13.66	0.88	0.21	0.07	17.24	1.04	0.24
2/26/2016	0.01	13.67	0.89	0.05	0	17.39	1.04	0.07
2/29/2016	0.01	13.68	0.9	0.02	0.01	17.4	1.05	0.01
3/3/2016	0	13.68	0.42	0.02	0.01	17.41	0.5	0.02
3/4/2016	0.41	14.09	0.83	0.42	0.57	17.98	1.07	0.59
3/5/2016	2.34	16.43	3.17	2.76	2.71	20.69	3.78	3.3
3/6/2016	0.52	16.95	3.75	3.28	0.55	21.24	4.4	3.85
3/7/2016	0.49	17.44	4.18	3.76	0.3	21.54	4.63	4.14
3/9/2016 to 9am	0.06	17.5	4.24	3.82	0.13	21.67	4.76	4.27
QPF to 3/14/16	3.24	20.74	7.48	4.31	3.2	24.87	7.96	4.18

## Berkeley Hill campus totals

3/9/2016 to 9am	0.14	18.33	5.07	4.65
QPF to 3/10/16	3.24	21.57	8.31	4.72

\* QPF = NWS Quantitative Precipitation Forecast through Saturday noon



### CONDITIONS TO LOOK FOR

1. Compare the rainfall for the year and 24-hour forecast with the following criteria.

- 7" of rain for the season starting on July 1 (year).
- 5" of rain in the last 30 days (month).
- 3" of rain in the last 7 days (week).
- 2" of rainfall is forecast in the next 24 hours (day).

7 Year  
5 Month  
3 Week  
2 Day

2. If these conditions are met, flooding may occur sometime in the next 24 hours. Warnings on TV and radio should be monitored. Your [Personal Evacuation Plan](#) should be implemented if you sense flooding may occur. For information on an evacuation plan, check out the American Red Cross website.

### Current critical antecedent conditions status for UC Berkeley and BGC:

Both Berkeley campus and BGC are almost fully primed for flooding. Using the LBNL met station recent precipitation totals shows that **the Hill Campus is fully primed** for flooding. - however, no storm of 2" in the next 24 hours is forecast by NWS through the end of the forecast period (March 14).

# Current National Weather Service forecast March 9, 2016 morning

Forecast For Lat/Lon: 37.8650/-122.2610 (Elev. 190 ft)  
Albany CA  
Forecast Created at: 9am PST Mar 9, 2016  
Custom Weather Forecast Table

	Wed Mar 09				Thu Mar 10				Fri Mar 11				Sat Mar 12				Sun Mar 13				Mon Mar 14				Tue Mar 15			
Weather	Rain		Chance Rain		Chance Rain		Rain		Chance Rain		Rain		Showers		Likely Rain		Chance Rain		Rain		Chance Rain		Slight Chance Rain					
Daily-Temp	High 67 Low --				High 63 Low 55				High 60 Low 55				High 62 Low 49				High 62 Low 51				High 63 Low 51				High 63 Low 49			
Chance of Precip	80%	30%	15%	10%	45%	80%	85%	80%	100%	90%	30%	25%	35%	35%	75%	75%	55%	55%	85%	85%	50%	50%	40%	40%	15%	15%	10%	10%
Precip	0.04"	0.02"	0.00"	0.01"	0.06"	0.41"	0.28"	0.28"	0.48"	0.24"	0.04"	0.00"	0.01"	0.05"	0.24"	0.15"	0.02"	0.10"	0.17"	0.38"	0.13"	0.11"	0.05"	0.01"				
12-hr Snow Total	0		0		0		0		0		0		0		0													
6-Hour Temp	4am	10am	4pm	10pm	4am	10am	4pm	10pm	4am	10am	4pm	10pm	4am	10am	4pm	10pm	4am	10am	4pm	10pm	4am	10am	4pm	10pm	4am	10am	4pm	10pm
Temp	50	59	67	59	56	60	63	58	56	58	60	53	50	56	62	55	52	57	62	55	52	58	62	54	50	57	62	54
Cloudiness	90%	81%	72%	39%	82%	93%	98%	92%	96%	98%	76%	76%	68%	68%	91%	91%	89%	89%	90%	90%	74%	74%	65%	65%	61%	61%	46%	46%
Dewpoint	46	53	56	55	53	54	54	55	54	52	49	49	47	50	50	51	50	51	49	51	50	51	48	49	47	49	47	49
Relative Humidity	87%	79%	70%	85%	90%	83%	75%	89%	93%	81%	68%	85%	90%	79%	66%	86%	91%	78%	63%	86%	92%	77%	58%	82%	89%	74%	58%	83%
Wind	S	SE	S	S	S	S	S	S	SE	S	W	W	SW	S	S	S	SW	SW	SW	SW	W	SW	SW	SW	W	SW	SW	W
	10	13	12	14	12	16	9	7	16	14	24	15	8	13	21	23	9	17	17	28	13	9	12	9	7	13	13	9
Snow Level (ft)	8557	8121	8266	7127	7675	7795	8364	7286	6015	5783	4381	4306	4450	5049	5848	6123	5532	5127	5690	5809	4884	4142	3921	3549	3419	3609	4487	4750
Possible strong winds at times																												

Possible strong winds at times



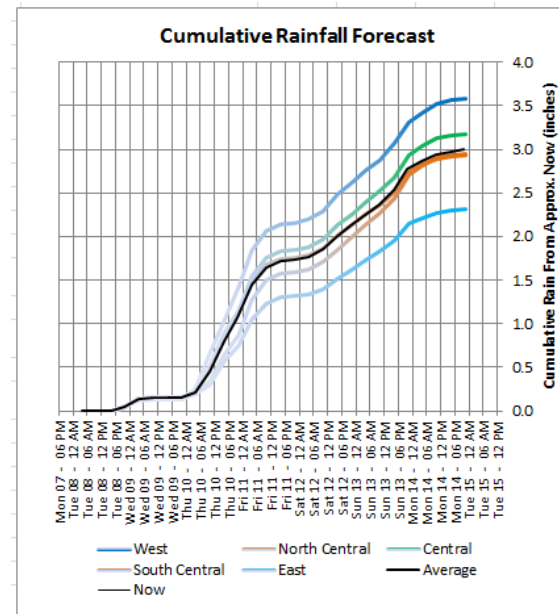
Monday morning Berkeley Global Campus at Richmond Bay. Finally water everywhere.

## Forecast synopsis (Wednesday March 9, 2016)

Rain has begun this Wednesday morning and will continue into Monday. Highest rainfall rates are expected Thursday overnight into Friday morning when periods of heavy rainfall are likely with frontal passage. Winds will also be strong at times.

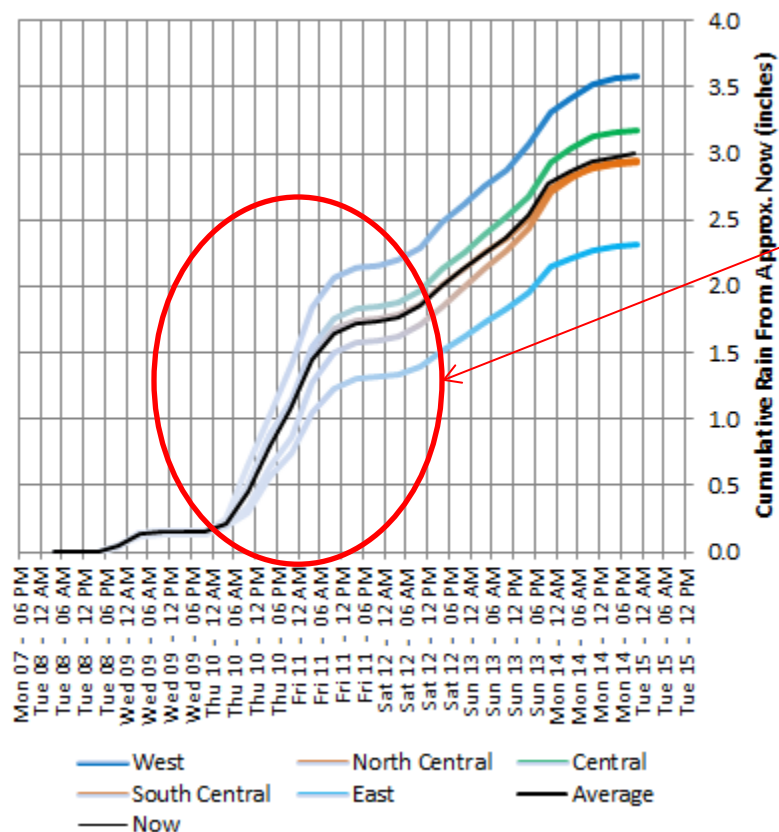
There will be a slight break in the rain Friday evening and Saturday morning after which a couple of weaker systems will bring rain through Monday.

The long range looks dry through the end of the week with more storms arriving the following weekend.



QPF through March 15.  
From Contra Costa County Flood Control District's Forecast Tool  
<http://www.cccounty.us/4923/Flood-Forecast-Tool>

## Cumulative Rainfall Forecast



7<sup>Year</sup>  
5<sup>Month</sup>  
3<sup>Week</sup>  
2<sup>Day</sup>

Note time frame for intense rainfall

### Projected Average by Mon Mar. 14 - 10:00 PM\*

	Year to Date (inches)	Avg 30 Days (inches)	Avg 7 Days (inches)	Avg Max 24-hr Rainfall Forecast (inches)
<b>Compare to Protocol:</b>	<b>7.00</b>	<b>5.00</b>	<b>3.00</b>	<b>2.00</b>
Highlighted if current Average Data + Average Cum. Forecast meets Protocols	19.37	7.06	6.21	1.24

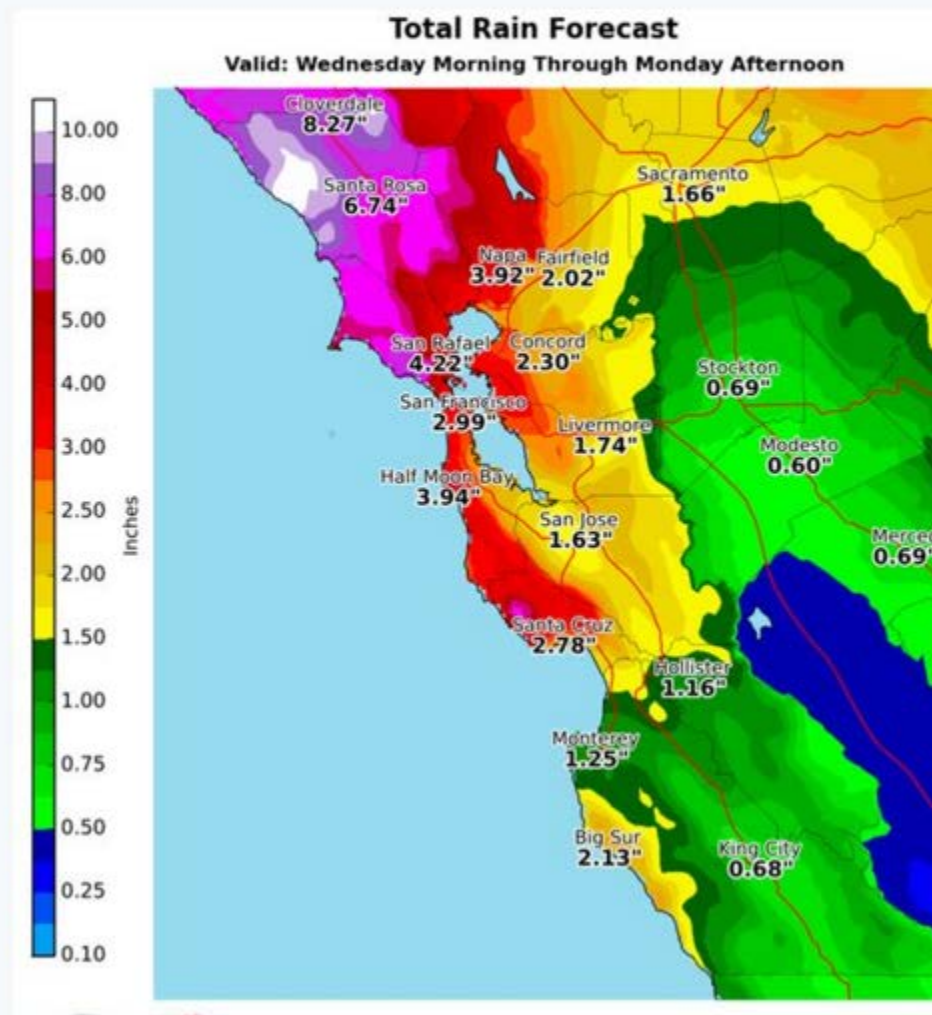
Location	Year to Date (inches)	Last 30 Days (inches)	Last 7 Days (inches)
<b>Compare to Protocol Threshold:</b>	<b>7.00</b>	<b>5.00</b>	<b>3.00</b>
<b>West County Stations</b>			
Rodeo Fire Department - Station 15	15.28	4.23	3.16
Richmond City Hall - Station 21	21.16	4.66	4.17
EBRPD Bald Peak, Tilden Park - Station 32	31.06	7.34	6.14

Note- maximum forecast 24 hour intensity is less than 2", but close.



NWSBayArea @NWSBayArea · 6h

Updated rain totals through Monday.  
Possible some North Bay Mountain spots  
could be near a foot of rain! #cawx



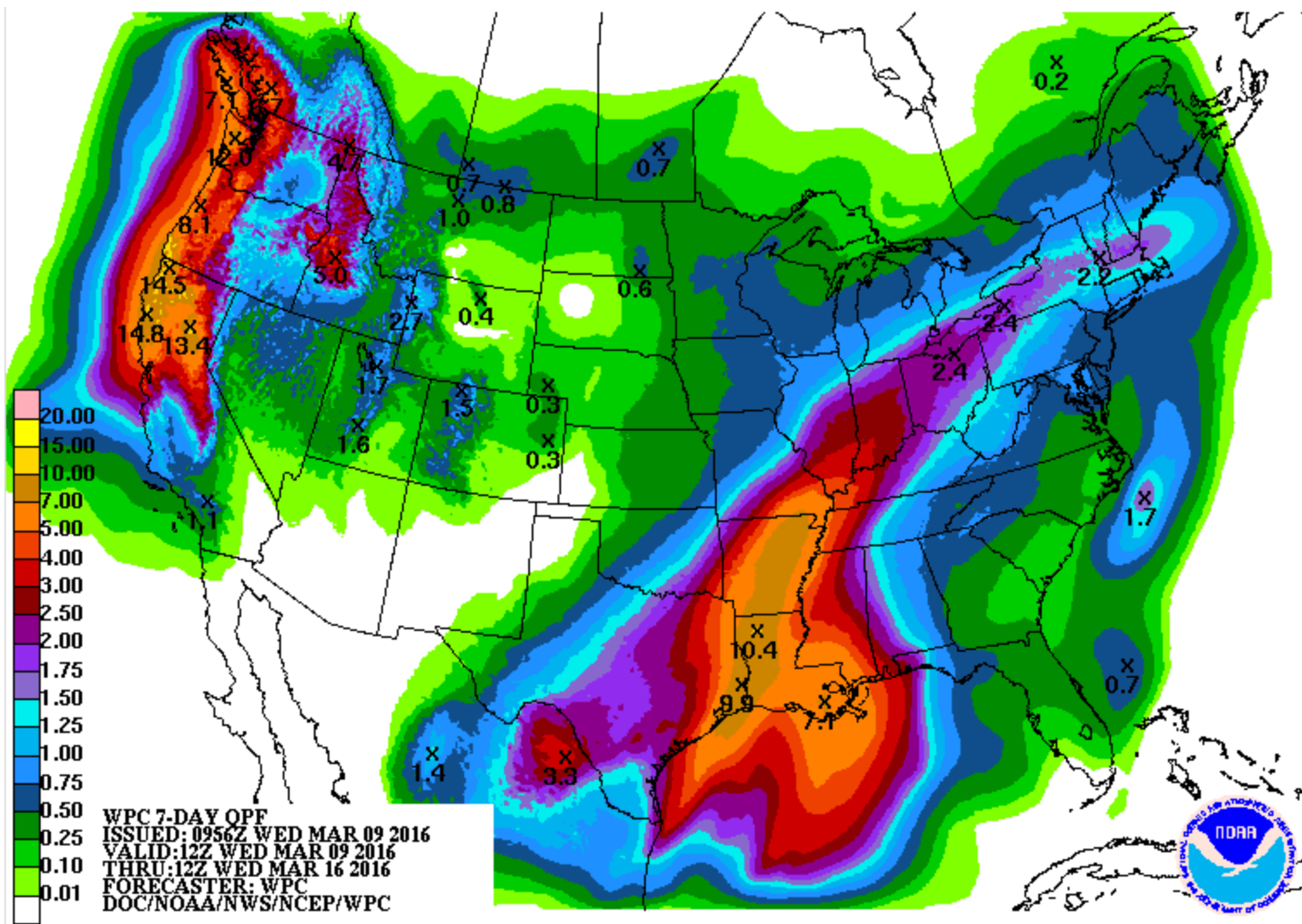
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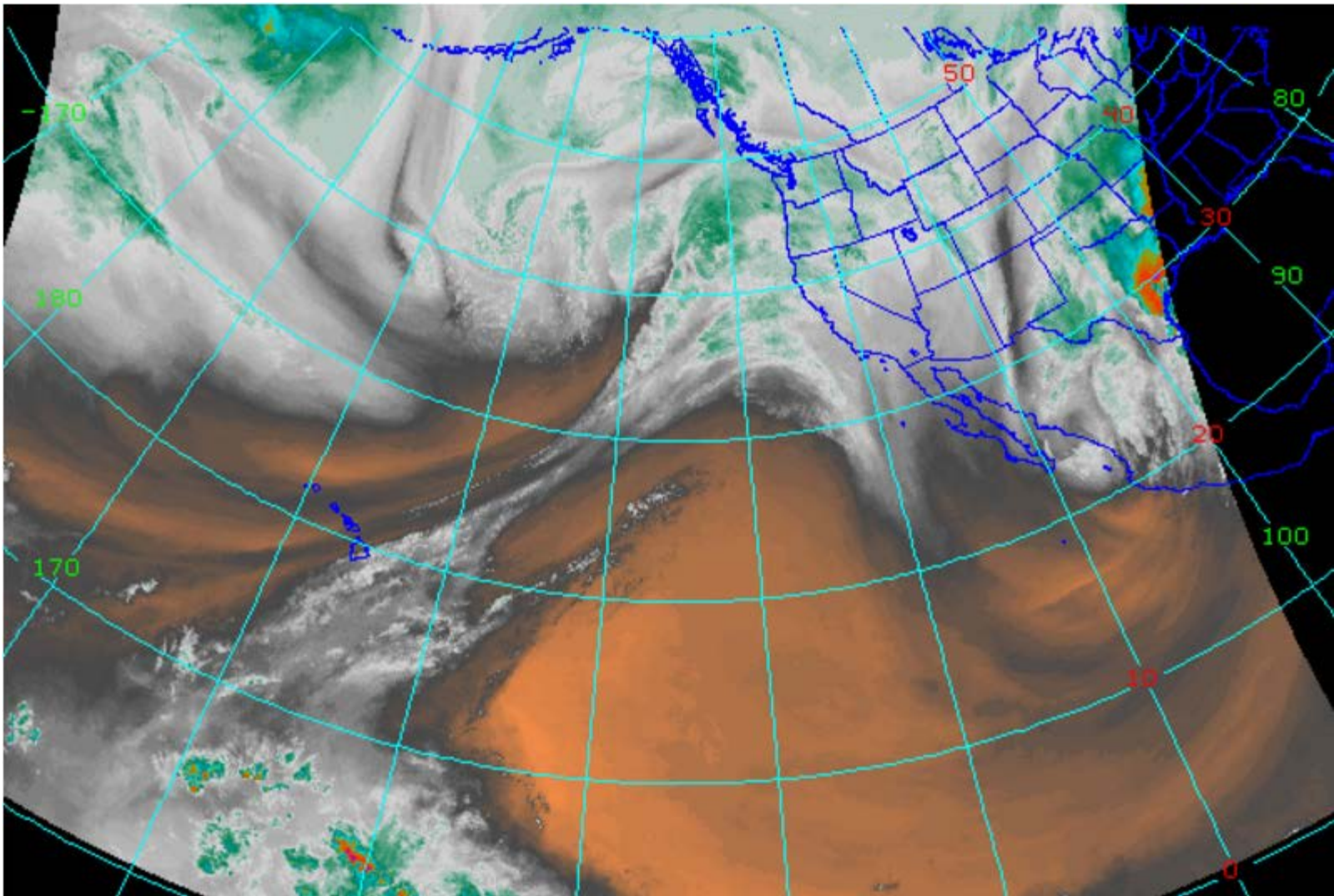
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Issued March 9, 2016 3am

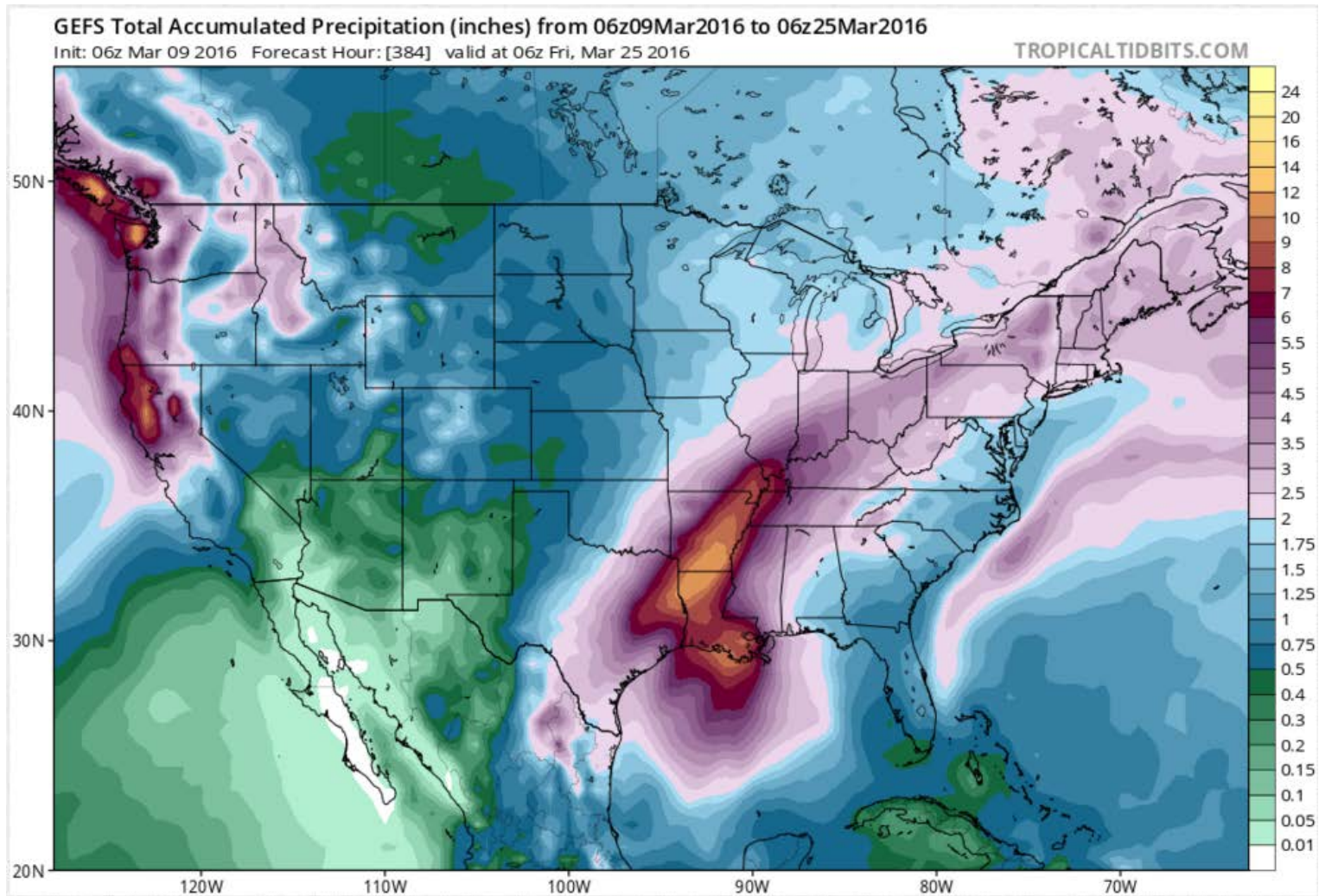






March 9, 2016 9:00 Water Vapor NOAA GOES Satellite Image

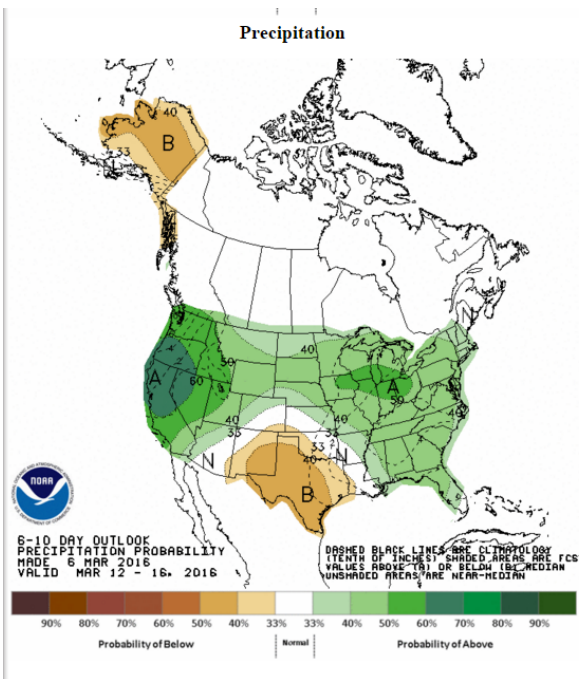
Note the atmospheric river transport of water vapor from the subtropics beyond Hawaii heading straight towards California.



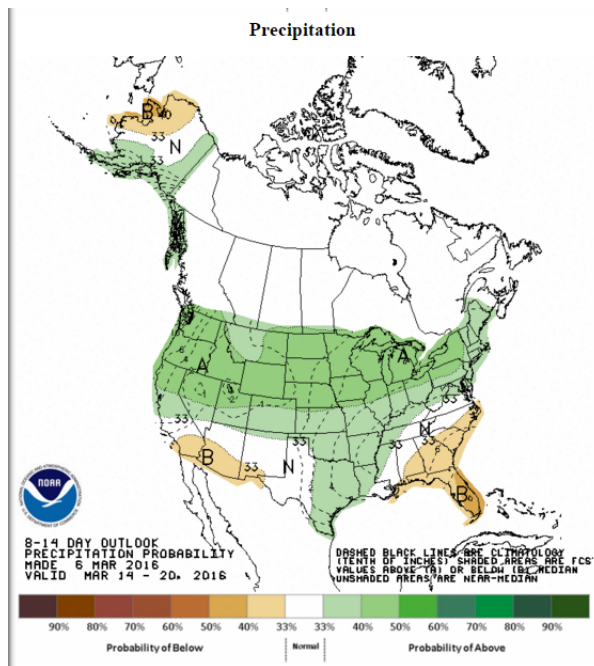
GEFS Model cumulative rainfall March 9- 25 (6Z March 9, 2016). The effect of the atmospheric river can be seen with heavy rainfall accumulation mostly on the North Coast but extending into the SF Bay Area



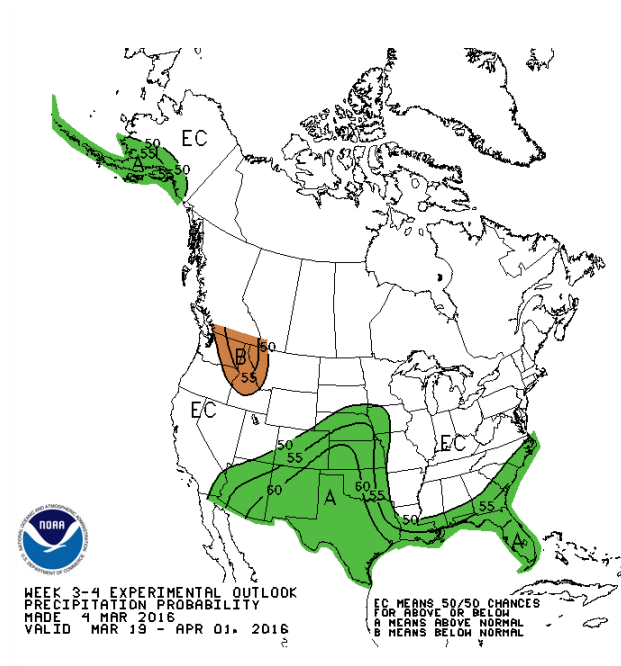
NOAA forecasts continued above rainfall through mid- March.



NCEP 6-10 day precipitation forecast  
(Made 3/6/16 for March 12-16, 2016)



NCEP 8-14 day precipitation forecast  
(Made 3/6/16 for March 14-20, 2016)



NCEP 3- 4 week precipitation probability  
(Made 3/4/16 for March 19- April 1)





Jan Null @ggweather · 3h

Weekend pushes important seasonal precip Sierra Indices to at or above normal. The highest to date in 5 years.

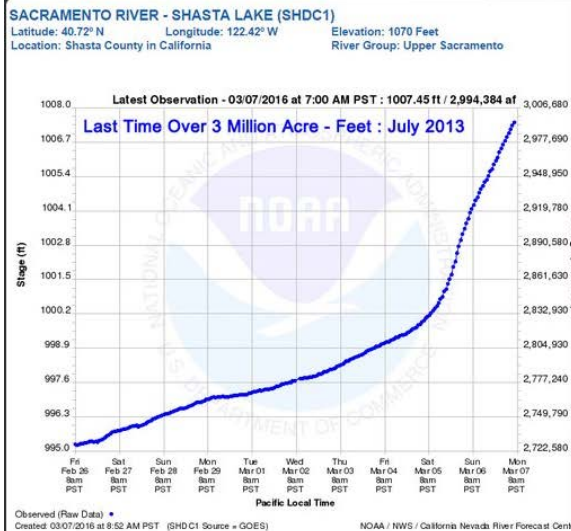
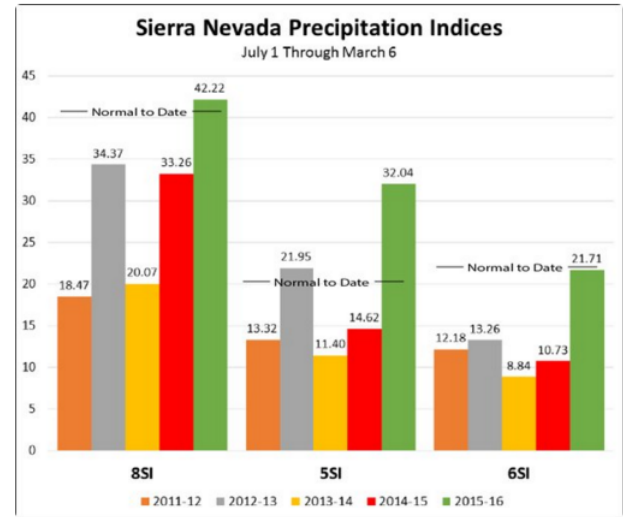
## March 7, 2016 update

March 1 snowpack survey = 83% of average

<http://www.water.ca.gov/news/newsreleases/2016/030116d.pdf>

“Mother Nature is not living up to predictions by some that a ‘Godzilla’ El Niño would produce much more precipitation than usual this winter,” said DWR Director Mark Cowin. “We need conservation as much as ever.”

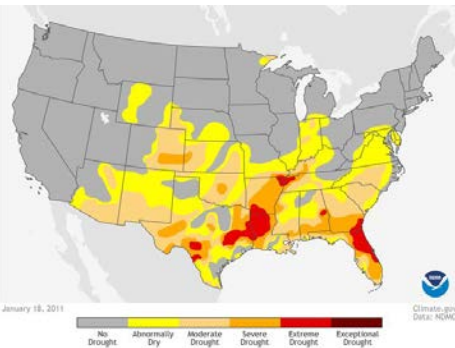
Rainfall through March 7 has resulted in significant improvement in seasonal water resources.



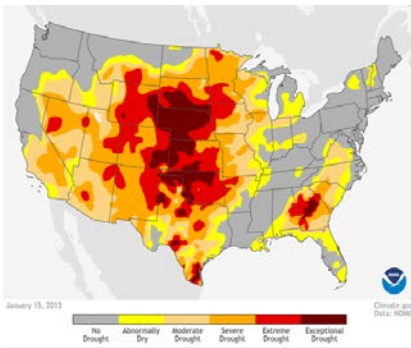
NWS CNRFC @NWSNCRFC · 56m

Good weekend inflows for northern CA reservoirs. Shasta almost over 3M AcFt & Oroville over 2M AcFt! #ElNino #cawx

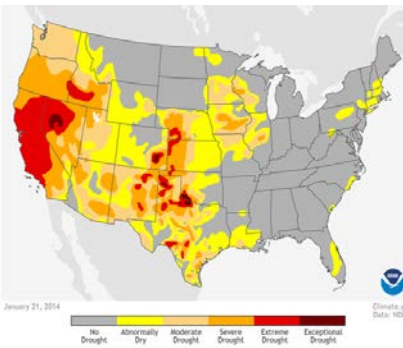
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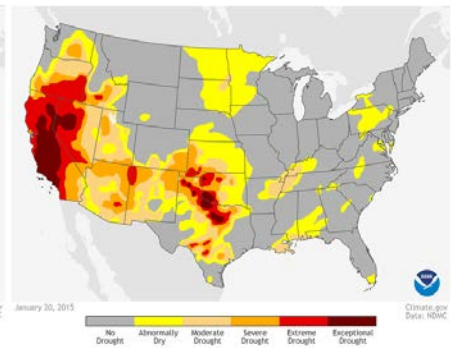
January 17, 2012



January 15, 2013

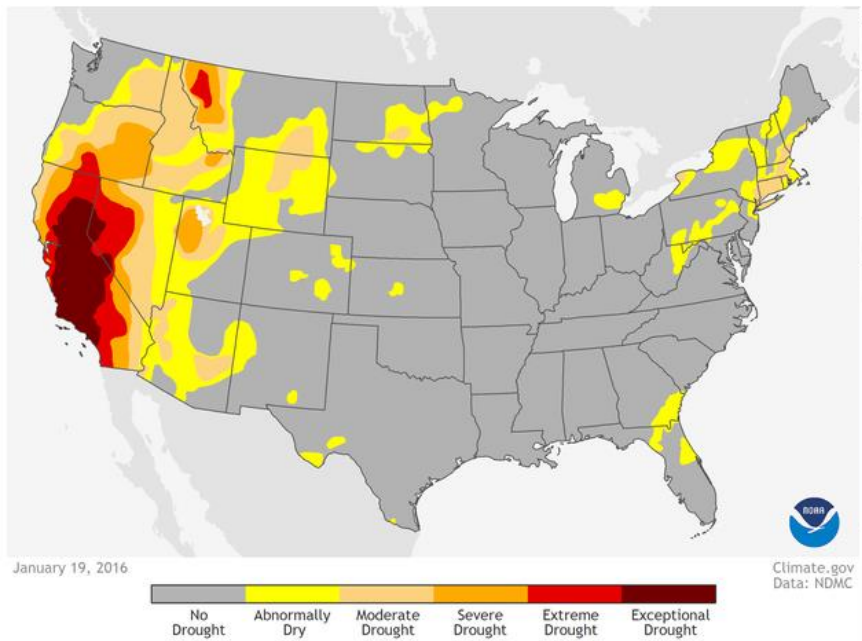


January 21, 2014



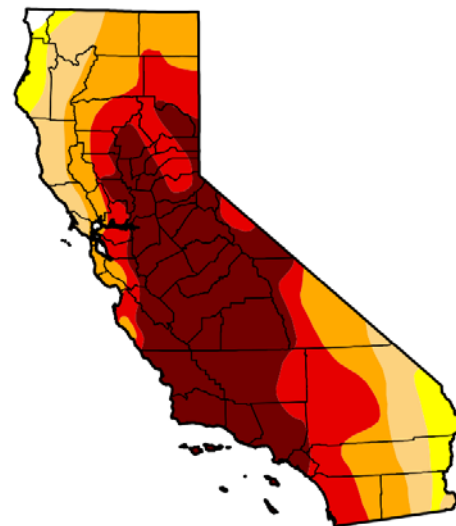
January 20, 2015

## Drought Progress 2012- 2016



### U.S. Drought Monitor California

**February 23, 2016**  
(Released Thursday, Feb. 25, 2016)  
Valid 7 a.m. EST



#### Intensity:

- D0 Abnormally Dry
- D1 Moderate Drought
- D2 Severe Drought
- D3 Extreme Drought
- D4 Exceptional Drought

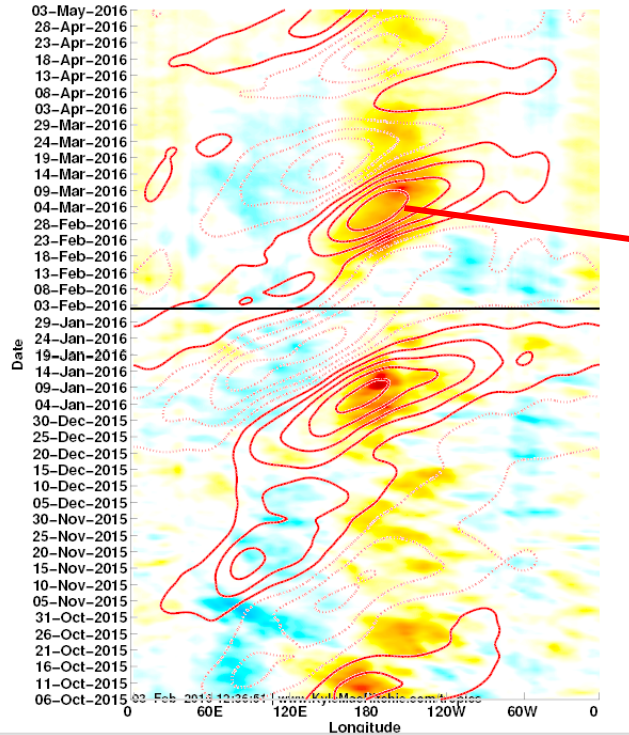
The Drought Monitor focuses on broad-scale conditions. Local conditions may vary. See accompanying text summary for forecast statements.

Author:  
Eric Loebehausen  
U.S. Department of Agriculture

USDA

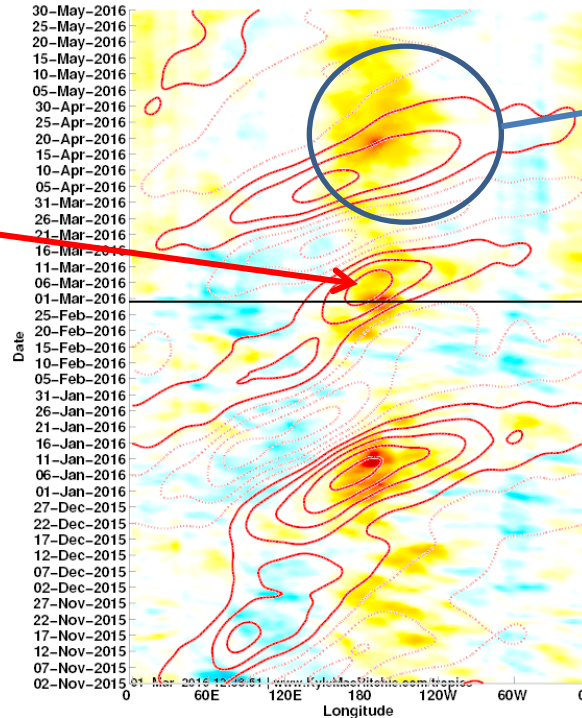
# Why the pattern change now?

Real Time CFS 800/850 hPa U-Wind – 7.5S to 7.5N



February 3, 2016 chart and forecast:  
Red contours = MJO active phase  
forecast- as in January 2016 which led to  
above normal precipitation for most of  
northern CA, the active phase of the  
MJO is expected to return in March and  
may enhance the El Nino base state,  
possibly bringing more rain to the state.  
(Figure from  
<http://www.kylemacritchie.com/real-time-maps/>)

Real Time CFS 800/850 hPa U-Wind – 7.5S to 7.5N

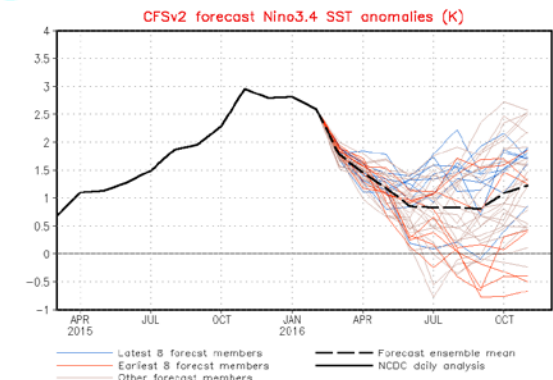


Another active  
MJO period?

March 1, 2016: The active phase of the  
Madden Julian Oscillation has propagated  
to the eastern Pacific and constructively  
interfering with (enhancing) the El Nino  
base-state enhancing convective activity.  
Note another active phase may lead to  
further enhancement in mid to later April.  
El Nino conditions (sea surface  
temperatures > 0.5 in the Nino3.4 region)  
may continue through the summer into  
early fall.

NWS/NCEP/CPC

Last update: Tue Mar 1 2016  
Initial conditions: 20Feb2016-29Feb2016



# Ensemble GFS (GEFS) MJO Forecast

RMM1 and RMM2 values for the most recent 40 days and forecasts from the ensemble Global Forecast System (GEFS) for the next 15 days

light gray shading: 90% of forecasts

dark gray shading: 50% of forecasts

The GFS ensemble MJO index forecast depicts a continuation of MJO activity during the period with eastward propagation through Phases 8 and 1, but with a predicted decrease in amplitude.

Yellow Lines - 20 Individual Members  
Green Line - Ensemble Mean

