

WET CALIFORNIA AS STORMS OFFSHORE EASE THE CLAIMED '1200 YEAR' DROUGHT

Joseph D'Aleo December 8 08:24 AM

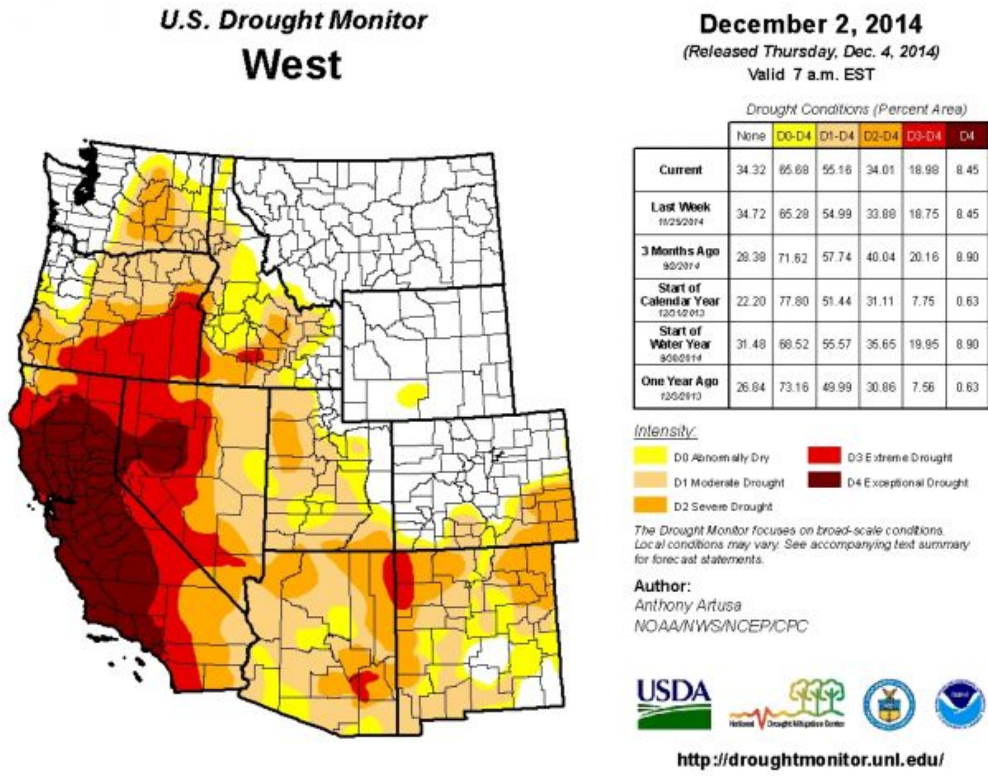
The California drought made the news in Live Science this week:

The drought now plaguing California is the worst to parch the central and southern parts of the state in the last 1,200 years, a new study finds. The 2012 to 2014 drought's lack of rain isn't remarkable on its own, according to tree-ring records reported in the study. There have been three-year periods when less rain and snow fell. But the current drought comes at a time of extreme heat. Record-high temperatures exacerbated the drought, creating the driest soil conditions since the 9th century, according to the study, published Dec. 3 in the journal Geophysical Research Letters.

Based on precipitation alone, the tree-ring records confirmed the researchers' gut instincts: There were past droughts that saw less rainfall. However, in terms of PDSI soil moisture, both 2014 alone and the cumulative three-year drought are the worst in 1,200 years, the study found.

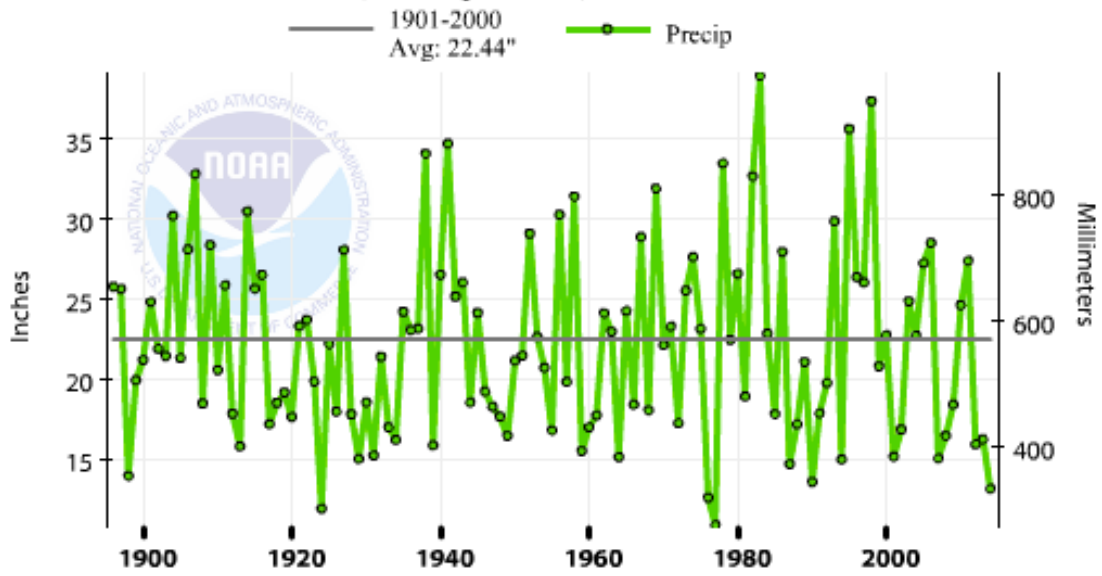
California's climate history is marked by much longer droughts, including megadroughts lasting 100 years, and several decades-long droughts. There were also 66 short-term dry periods that lasted between three and nine years during the 1,200 year study period, which makes the current drought just one of many minor dry spells, if only the lack of rain is considered.

There can be no doubting the drought has been statewide and serious.

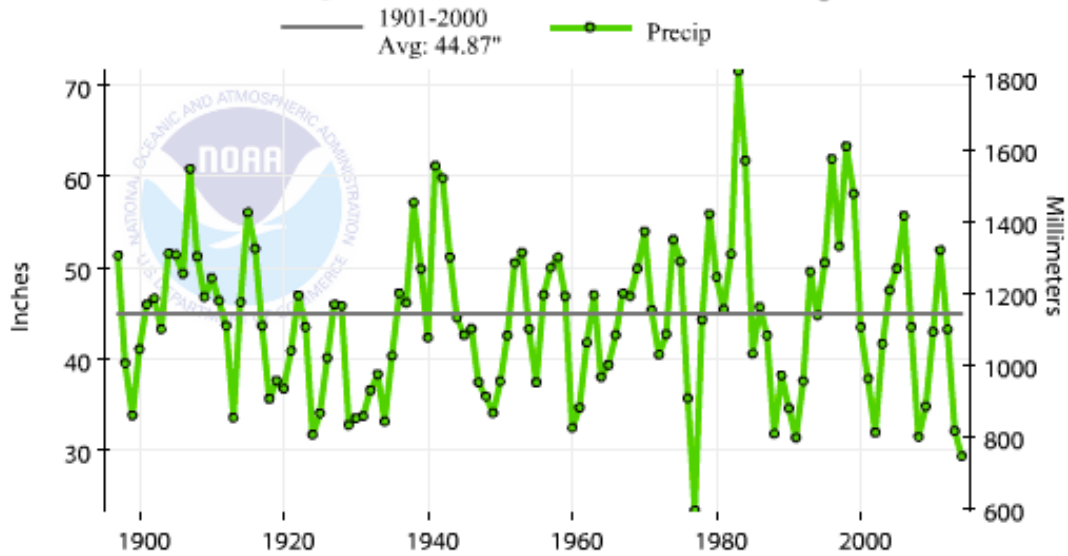


But as noted the last year was not as bad as 1923/24 or the two years 1975/76 -1976/77.

California, Precipitation, November-October

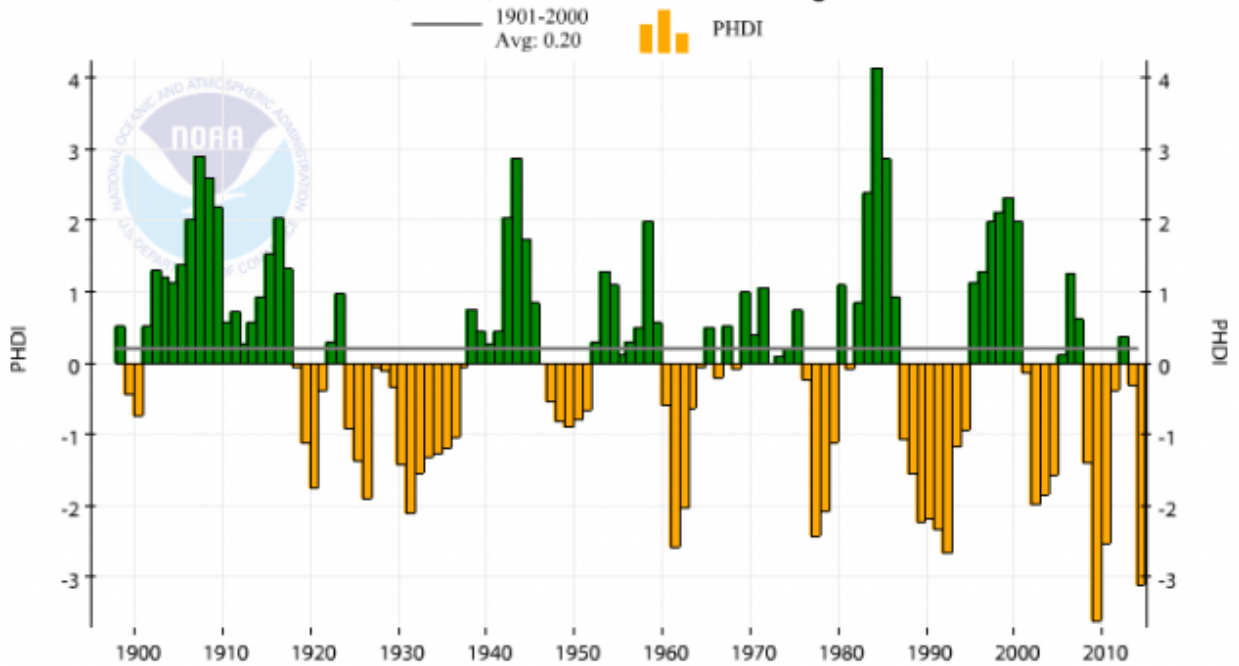


California, Precipitation, 24-Month Period Ending in October



Palmer Hydrological Drought Index 36 months ending October.

California, PHDI, 36-Month Period Ending in October

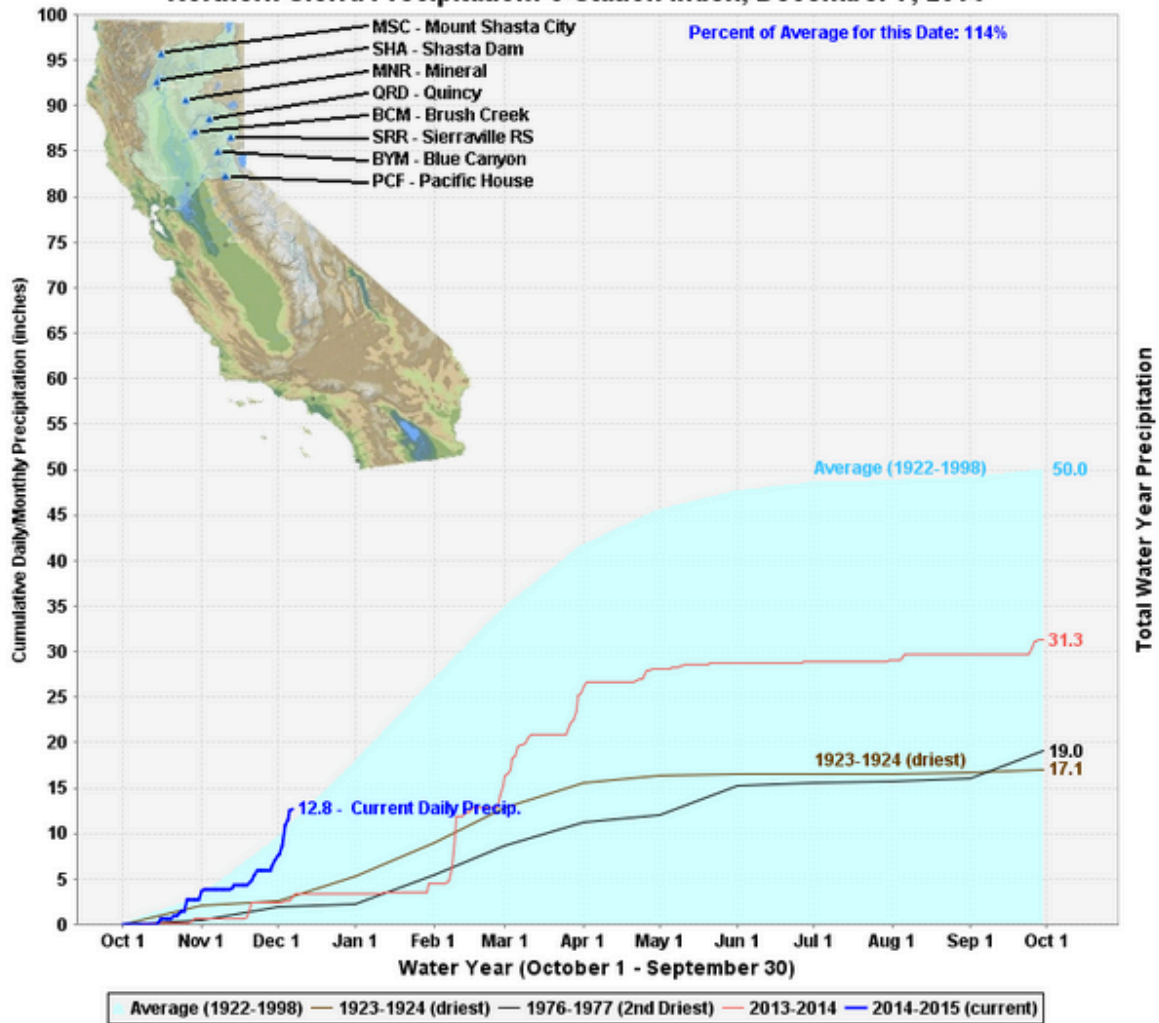


In the Sierra, water year (October to September) precipitation in 2013/14 ranked behind 1923/24, 1976/77, 1938/39, 1930/31, 1975/76, 1986/87 and 1928/29 and in a virtual tie with 1993/94.

Northern Sierra Stations													
Water Year	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Total
1924	2.15	0.46	2.77	3.55	3.94	2.67	0.89	0.05	0.08	0.00	0.14	0.40	17.10
1977	0.48	1.52	0.33	3.14	3.18	2.57	0.76	3.23	0.34	0.16	0.40	2.93	19.04
1939	4.04	3.04	2.49	5.34	3.03	5.14	0.43	2.44	0.40	0.05	0.02	1.30	27.72
1931	0.60	4.58	1.37	7.90	3.16	4.21	1.40	2.08	2.10	0.03	0.00	0.59	28.02
1976	6.78	2.68	2.28	0.74	5.93	2.42	2.70	0.16	0.25	0.09	2.91	1.36	28.30
1987	1.15	0.76	2.07	6.07	7.17	8.97	0.74	1.06	0.17	0.38	0.01	0.01	28.56
1929	1.02	5.65	5.71	2.33	4.00	3.65	4.10	0.10	2.84	0.00	0.01	0.00	29.41
2014	0.72	1.66	0.92	1.20	10.70	10.21	2.64	0.75	0.05	0.22	0.64	1.63	31.34
1994	2.65	2.81	7.34	4.10	7.62	1.53	2.87	1.96	0.32	0.01	0.00	0.62	31.83
1991	1.10	1.56	1.39	0.88	3.11	17.94	1.81	2.51	1.20	0.40	0.22	0.05	32.17
1933	0.29	3.22	4.09	9.45	1.59	8.35	1.28	3.31	0.07	0.12	0.00	0.50	32.27
2001	4.71	1.86	2.62	5.05	9.45	3.76	3.71	0.11	0.87	0.03	0.00	0.80	32.97
1926	1.90	3.53	2.88	5.63	11.55	0.61	6.45	1.49	0.00	0.00	0.24	0.08	34.36
1944	2.13	2.66	2.58	6.42	9.52	3.94	3.63	1.42	1.98	0.23	0.09	0.19	34.79
1988	0.99	3.32	12.72	7.61	0.46	1.32	4.27	2.65	1.11	0.29	0.00	0.12	34.86

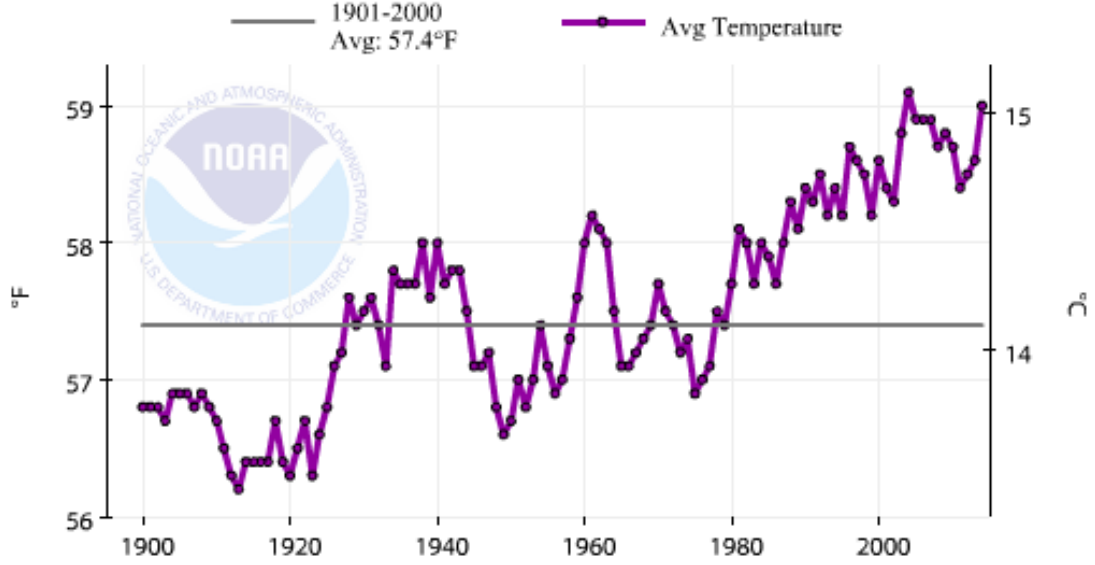
You can see last year ranked well above 1923/24 and 1976/77. This year is running near normal.

Northern Sierra Precipitation: 8-Station Index, December 7, 2014



The 60 month temperature fell just behind the 2002-2004 peak. Recall the west coast had a cool summer and year a few years back when the water off the coast was very cold but now reflects the unusual warmth. Note the California trend reflects the urbanization no longer corrected for after USHCN v1 transitioned to USHCN v2 in 2008.

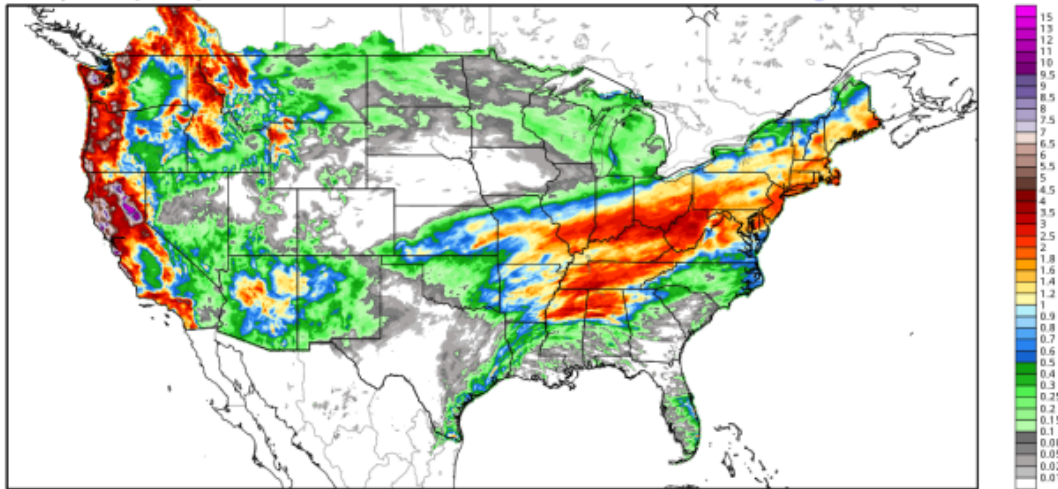
California, Average Temperature, 60-Month Period Ending in October



The last 10 days has seen very wet weather in most of California but focused most the northern third.

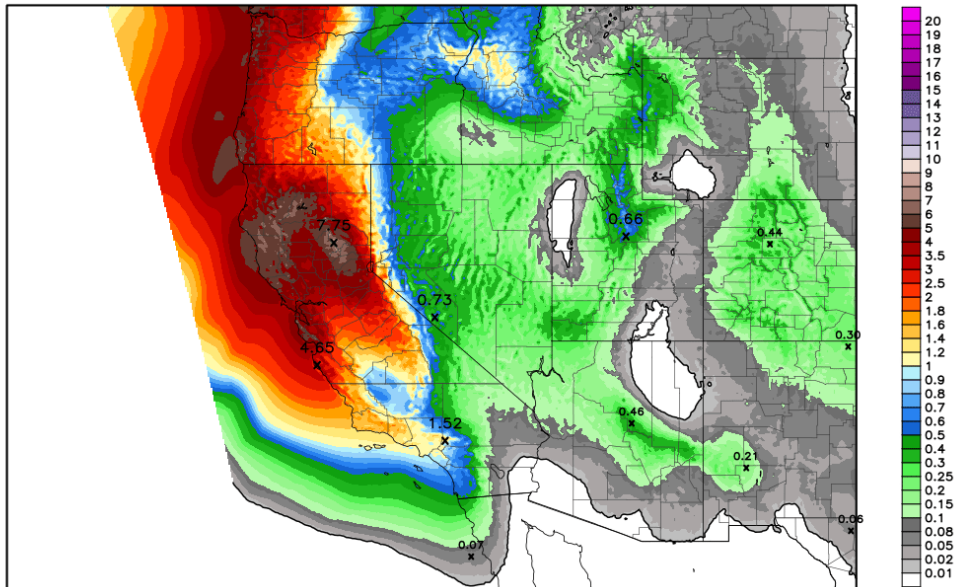
NWS Precipitation Analysis 4-km HRAP Grid -- 10-day Total Accumulation
Total Precipitation [inches] between 12Z27NOV2014 -- 12Z07DEC2014

Domain Max: 15.1 in.
Lower 48 Avg: 0.7 in.



The 7 day forecast had more of the same again focused SFO north.

NCEP WPC Accumulated Precip [inches] between 12Z08DEC2014 -- 12Z15DEC2014
 Init: 12Z08DEC2014 -- [168] hr --> Valid Mon 12Z15DEC2014 Maximum: 7.7 in.

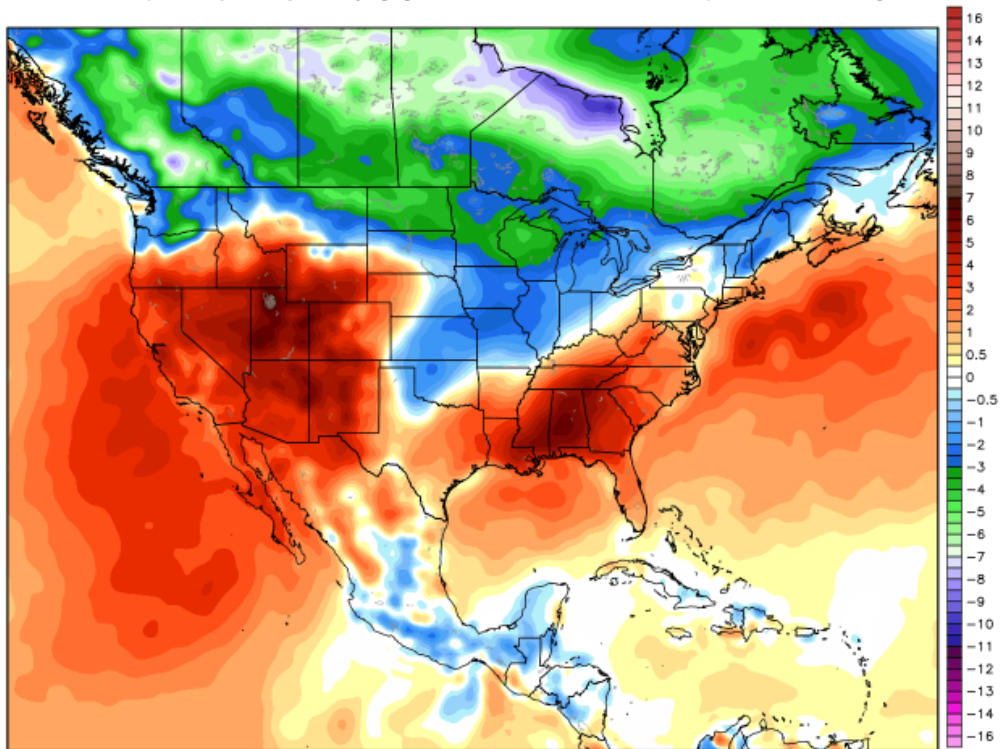


WPC 5km Forecast Grid | Total Accumulated Precip (shaded)

WxBell

It has been warm to date this month in the southwest.

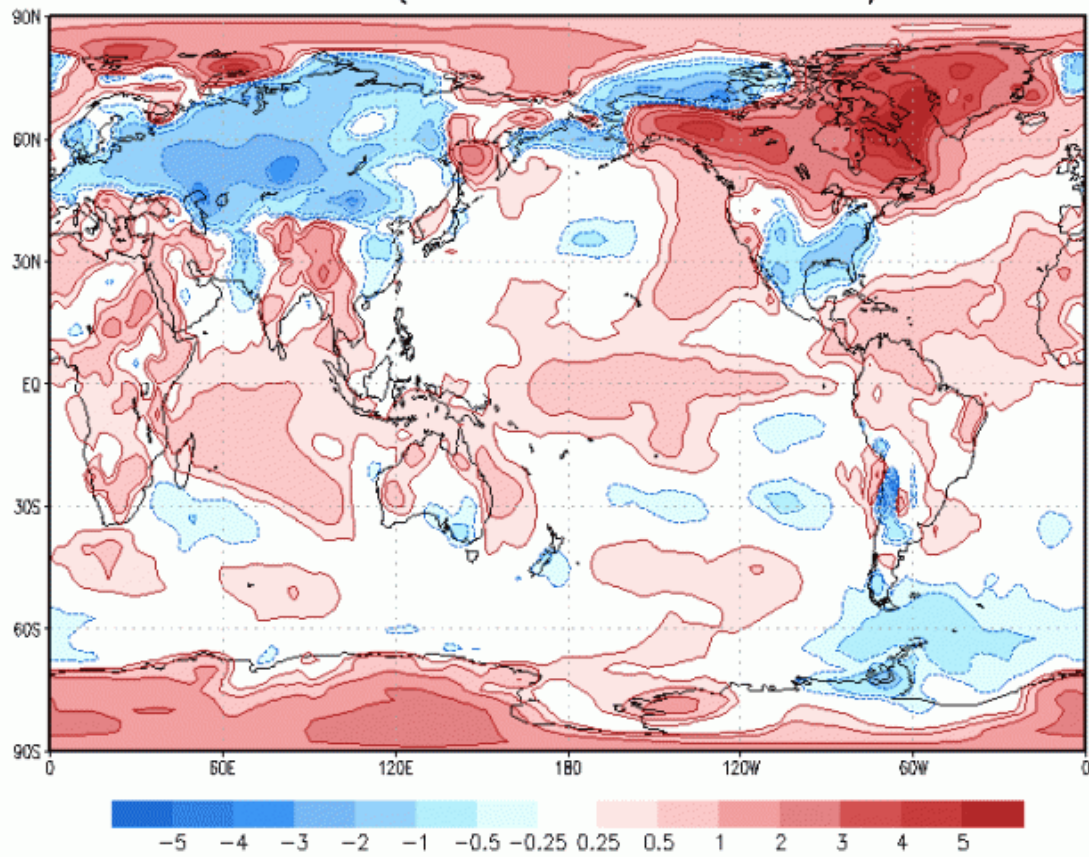
NCEP CFSv2 Temperature (2-meter) Anomaly [°C] 00Z01DEC2014 --> 18Z07DEC2014 | Month to Date Average



NCEP CFSR 1981-2010 Climatology | T574 CFSv2 Analysis Grid | Ryan N. Maue | WeatherBELL

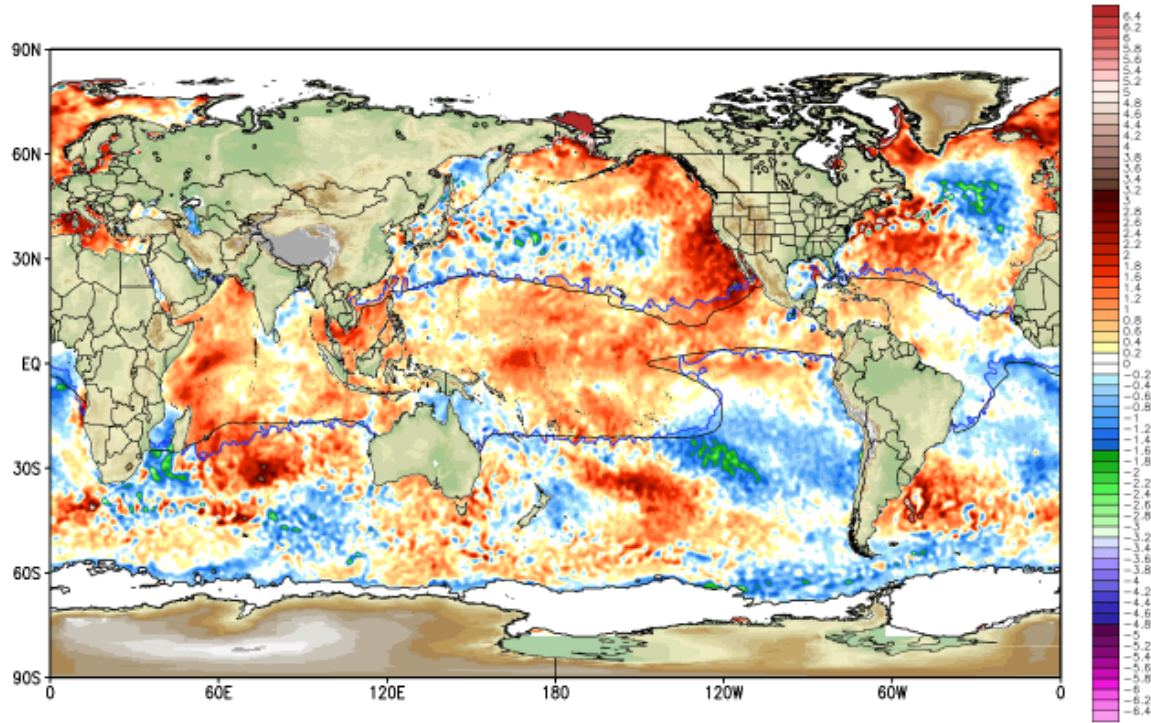
The constructed analog has it biased warm this winter in California. Ocean temperature anomalies support that.

T2m (anom C) based on SST CA Forecast : Lead 0 :
DJF2015 (last data used thru Nov 2014)



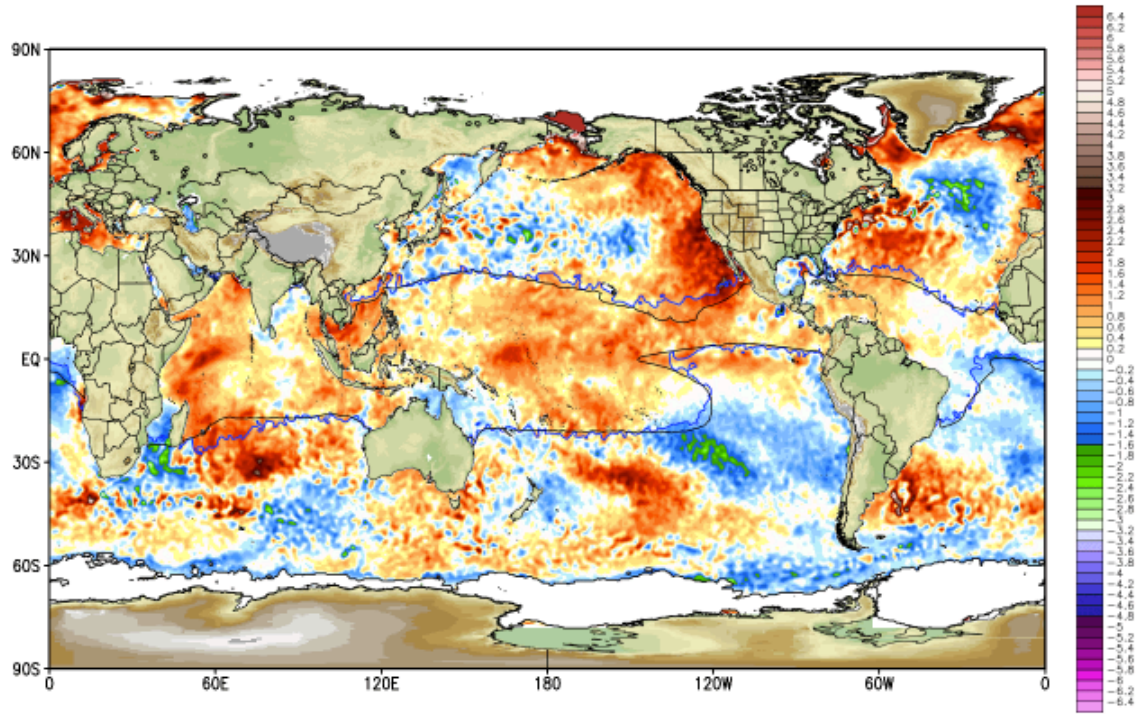
Huug van den Dool, CPC/NCEP/NWS/NOAA

Base Period 1981-2010



NCEP CFSR Coupled-Reanalysis 1981-2010 Climatology 26°C climatology contour (black)
NCEP CDASv2 sflux Grid tmpfc 1760x880 ~0.2° 3-day Averaged SST | Current 26°C SST contour (blue)

NCEP CDASv2 [CFS Reanalysis] SST Anomaly [°C] 12Z05DEC2014



NCEP CFSR Coupled-Reanalysis 1981-2010 Climatology 26°C climatology contour (black)
NCEP CDASv2 sflux Grid tmpsfc 1760x880 ~0.2° 3-day Averaged SST | Current 26°C SST contour (blue)