

# Winter 2014-2015 Climate Forecast

*Oregon-AMS Meeting, OMSI, Portland*



**Kyle Dittmer**

*Hydrologist-Meteorologist*

Columbia River Inter-Tribal Fish Commission  
Portland, Oregon



**Portland  
Community  
College**

*Professor of Earth Science*

PCC – Southeast Campus, Portland, Oregon

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# Columbia River Inter-Tribal Fish Commission - CRITFC



The screenshot shows the CRITFC website with an orange header. The logo is on the left, followed by the text 'Columbia River Inter-Tribal Fish Commission' and the tagline 'putting fish back in the rivers'. Navigation links include 'Jobs', 'Calendar', 'Donate', 'Contact', and 'Press Room'. A search bar is labeled 'Search CRITFC'. Below the header is a menu with 'About CRITFC', 'Salmon Culture', 'Member Tribes', 'Blog', 'Buy Salmon', and social media icons for Twitter and Facebook. A secondary menu lists 'FISH AND WATERSHEDS', 'TRIBAL TREATY FISHING RIGHTS', 'EDUCATION', and 'FISHER SERVICES'. The main content area features a large image of a person in traditional regalia holding a fishing net, with the text 'Sharing Salmon Culture' and a paragraph about the meaning of 'Wya-Kan-Ush-Pum'. To the right is a yellow box titled '2013 Bonneville Fish Count' with text about the federal government shutdown. Below this are two columns: 'Currents' with an article 'Tribal Restoration Efforts Paying Off' and a 'Subscribe' button, and 'Advocacy Issues' with a 'Resident Fish Consumption Advisory' and a 'Continue Reading' link. A red 'CONSUMPTION ADVISORY' banner is also visible. The footer contains links for 'CRITFC Home', 'CRITFC RESOURCES', 'RESEARCH', 'ACTIVITIES', and 'CONNECT'.



CRITFC website, <http://www.critfc.org>



# 2013-2014 Climate Forecast Performance

Month:	Temperature (mean monthly):	Avg. (n=20)	Observed	Precipitation (% normal):	Avg. (n=20)	Observed
November	Near Normal (-1.8 to + 1.8 degF)	1	0.4	Near Normal (90 - 110%)	102%	55%
December	Near Normal (-1.8 to + 1.8 degF)	1	-4.4	Below Normal (70 - 90%)	82%	29%
January	Near Normal (-1.8 to + 1.8 degF)	1	0.3	Near Normal (90 - 110%)	100%	58%
February	Near Normal (-1.8 to + 1.8 degF)	1	-3.8	Near Normal (90 - 110%)	95%	128%
March	Near Normal (-1.8 to + 1.8 degF)	1	0.9	Near Normal (90 - 110%)	103%	211%
	average:	1.0	<b>-1.3</b>	average:	96%	<b>96%</b>

*...but what about Snow events?!*

Forecasted four events...1 moderate (2-4 inches), 3 minor (1 inch), Jan. to March.

Observed FIVE snow events (Feb. 3-day major event)...18.5 inch seasonal total.

Water Supply Forecast (MEI method): Columbia R. at The Dalles, Jan.-July:  
 110 MAF (issued Oct 2013), 108%. Observed: 108.1 MAF. Error  $\pm 0.3\%$ .  
 103 MAF (issued April 2014), 102%. Observed: 108.1 MAF. Error  $\pm 4.3\%$ .

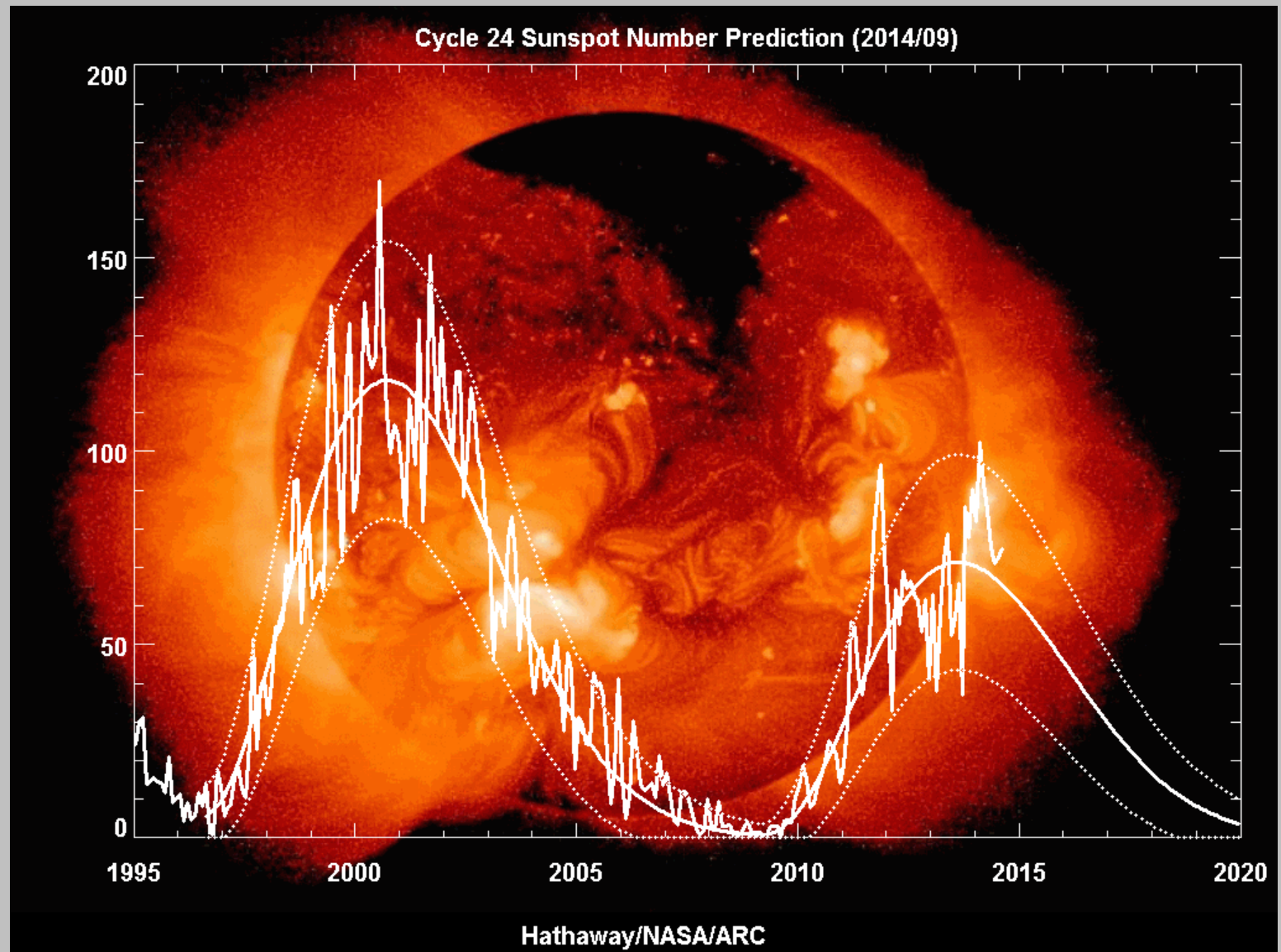


# Introduction – Methods

- CRITFC forecast uses a holistic, integrated big picture view.
- Big-picture: **Solar Forcing** (e.g., sunspot cycles) does influence our global weather patterns. *In memoriam:* Dr. Landscheidt, 1922 – 2004, of Germany.
- Track ENSO with the Multi-variable ENSO Index: **MEI**.
- NOAA's Sea-Surface Temperature Departure Forecasts.
- Hydro-Climate approach: Water year 2015 volume forecast uses regressed Multi-variable ENSO Index vs. historic runoff for the Columbia R. at The Dalles. Use a suite of 20 past water years.
- Select the "right" mixture of past years: 1947, 1949, 1953, **1958**, 1960, 1962, **1964**, **1966**, **1970**, 1981, 1990, 1993, 1994, 2002, **2003**, **2004**, **2005**, 2007, **2010**, and **2013**.
- Pattern recognition is key: ***ENSO-neutral*** and ***El Niño***.

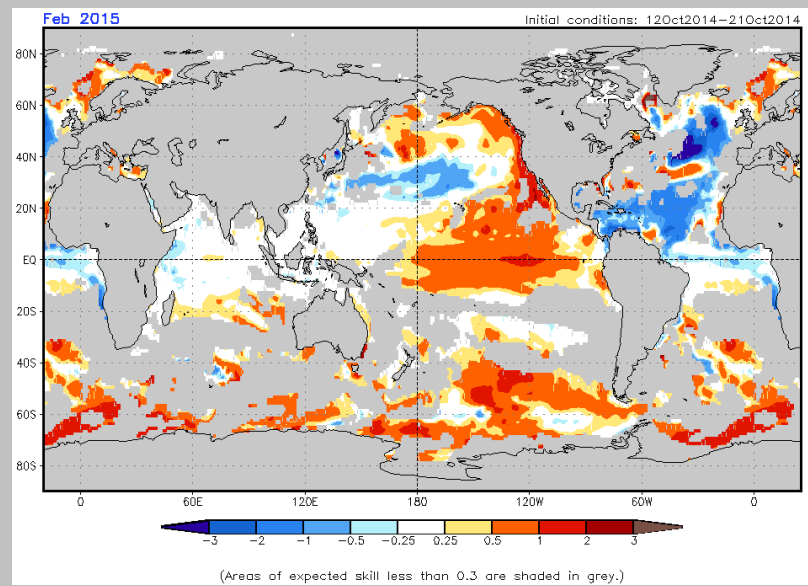
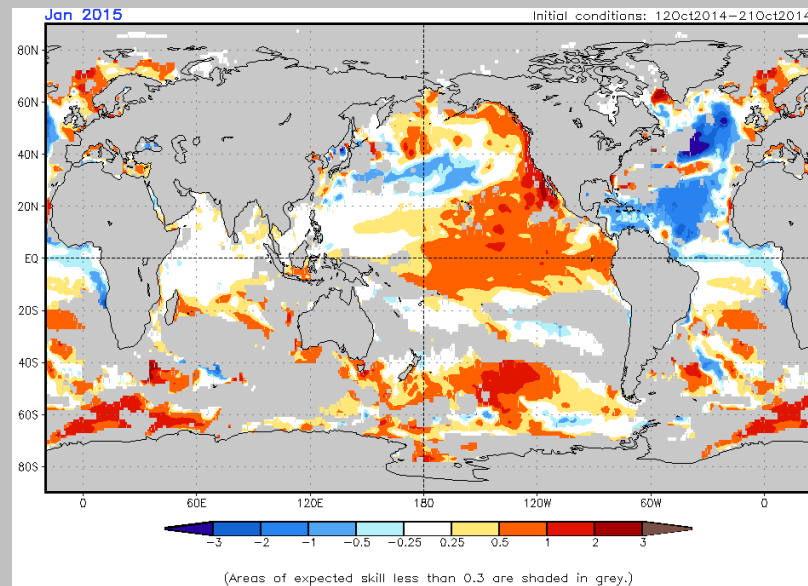
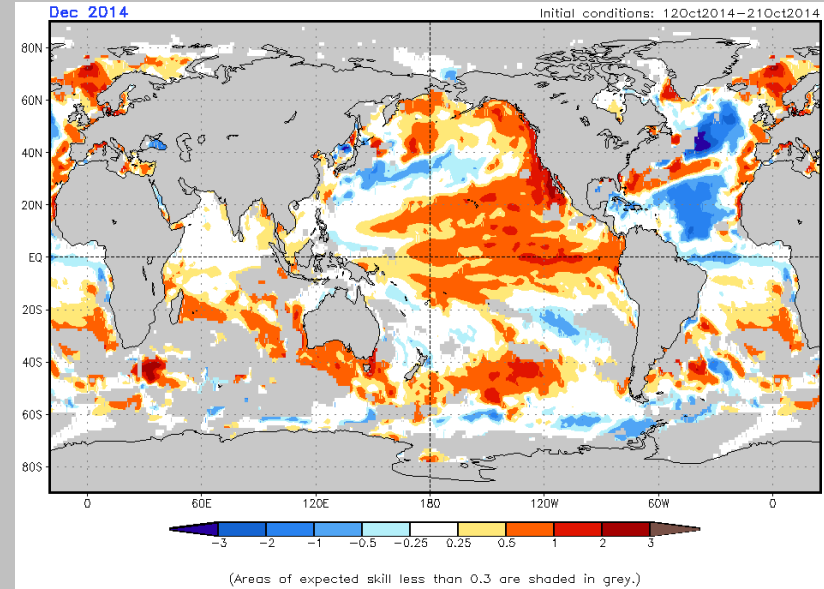
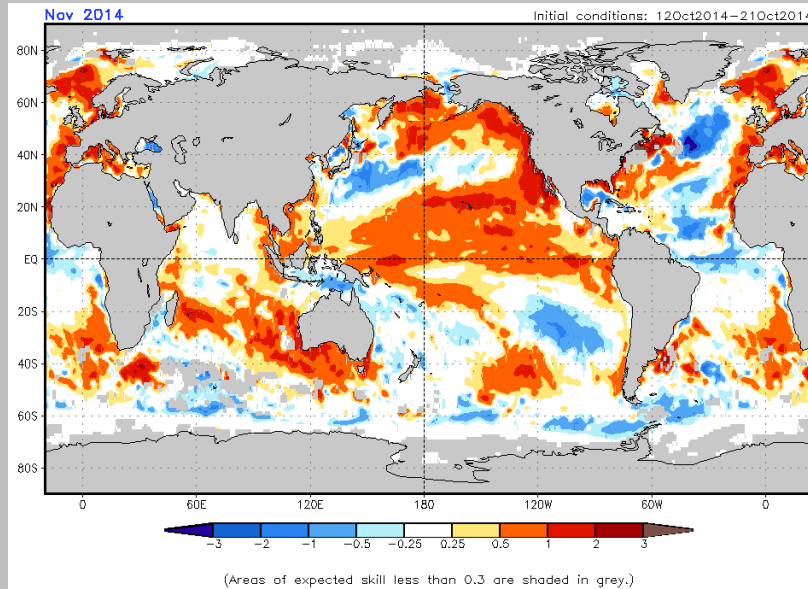


# SUNSPOT COUNTS – TREND TO “EL NIÑO”?



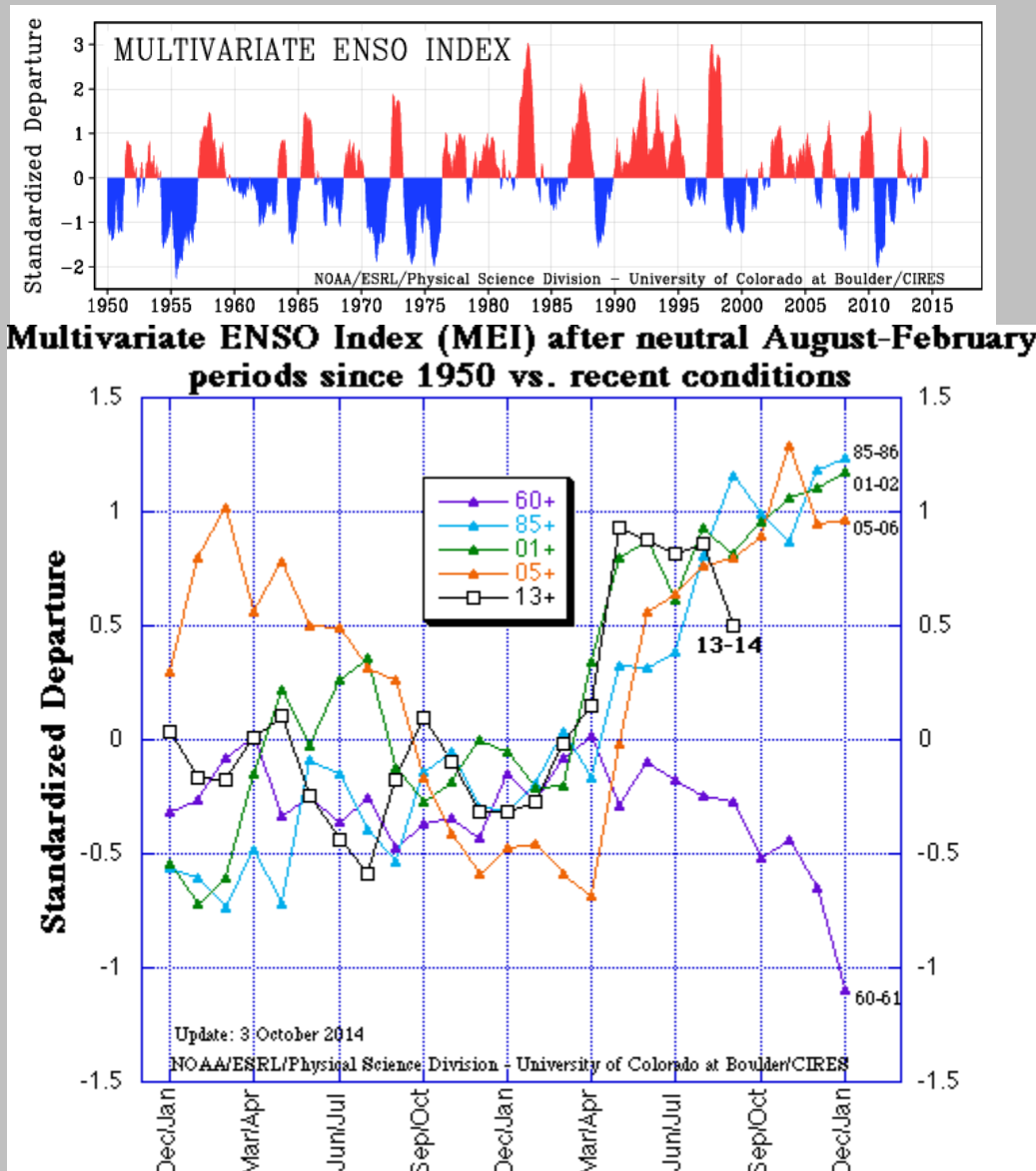
[http://solarscience.msfc.nasa.gov/images/ssn\\_predict\\_l.gif](http://solarscience.msfc.nasa.gov/images/ssn_predict_l.gif)

# NOAA SEA SURFACE TEMPERATURES SUGGEST "EL NIÑO"



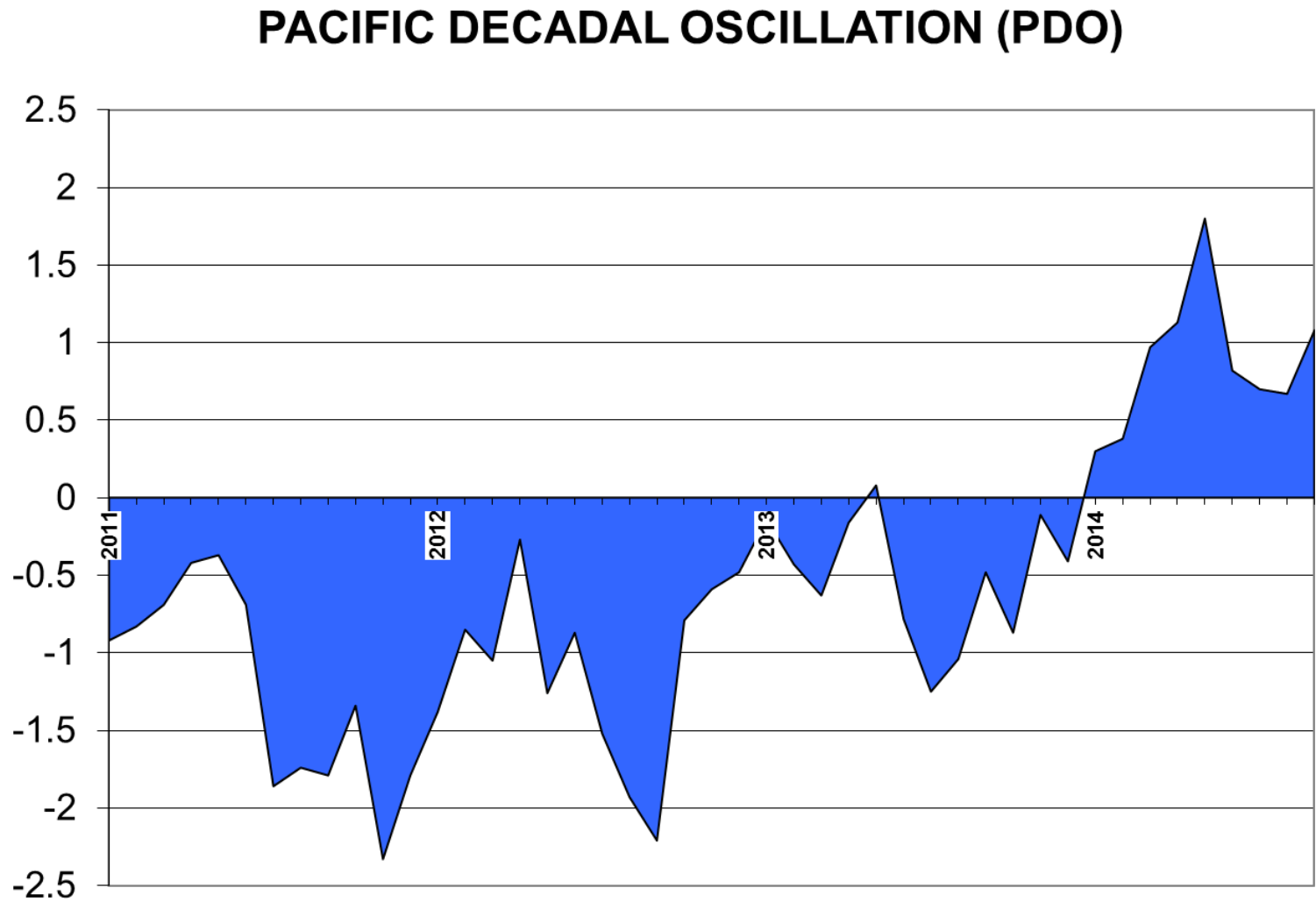
<http://www.cpc.ncep.noaa.gov/products/CFSv2/htmls/glbSSTe3MonMask.html>

# MEI SIGNAL SUGGESTS "ENSO-NEUTRAL" WINTER WEATHER



MEI tracks the Sea-Level Pressure, surface winds (2D), Sea-surface Temperature, Air Temperature, and fraction of Cloud cover.

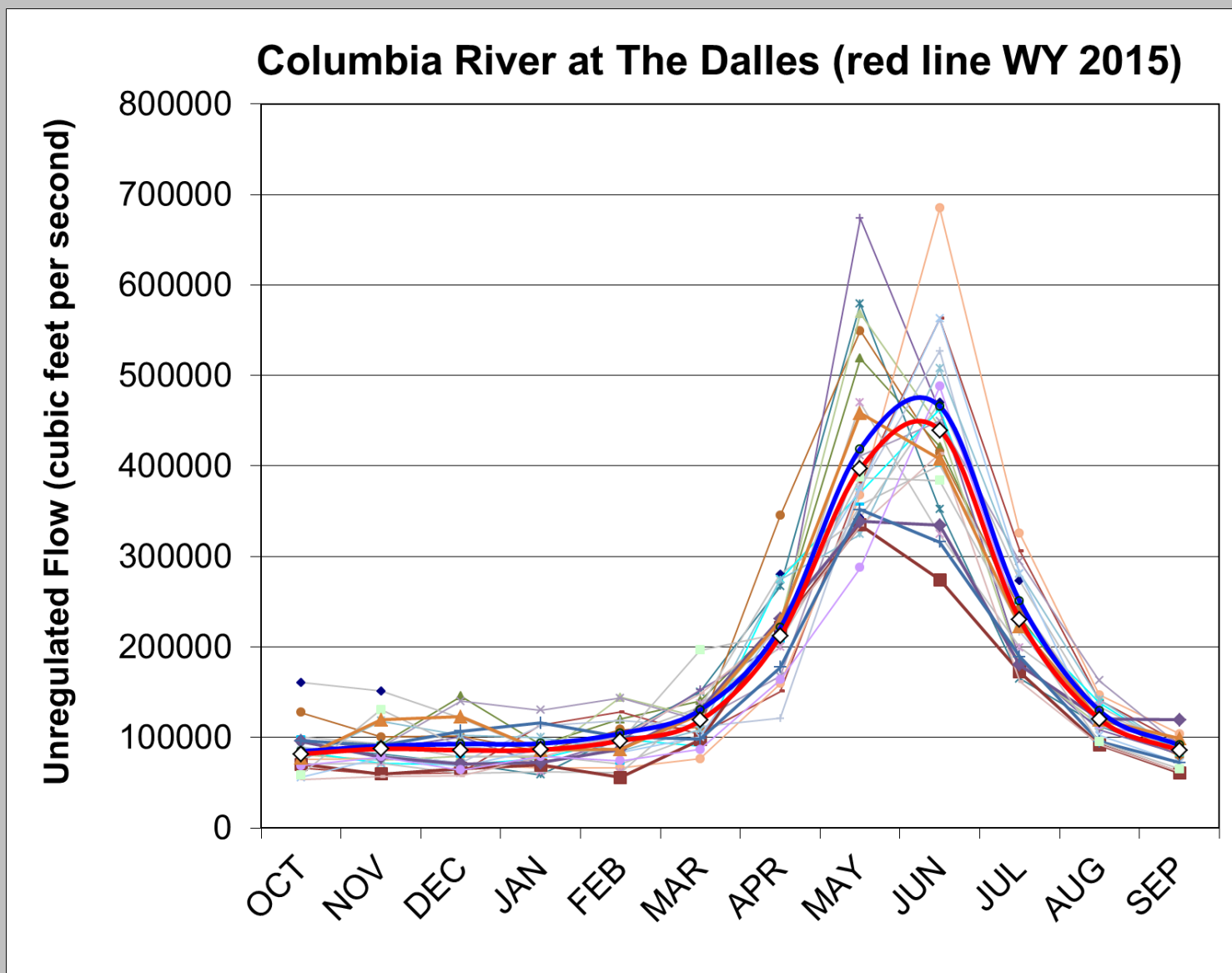
# PDO SIGNAL...THE COLD PHASE CONTINUES



Source: UW-Climate Impacts Group



# ENSEMBLE STREAMFLOW FORECAST



Blue line = long-term average (WY 1929-2014)



# Summary: The Forecast

Month:	Temperature (mean monthly):	Avg. (n = 20)	Precipitation (% normal):	Avg. (n = 20)
November	Near Normal (-1.8 to + 1.8 degF)	1	Below Normal (70 - 90%)	88%
December	Near Normal (-1.8 to + 1.8 degF)	1	Near Normal (90 - 110%)	96%
January	Near Normal (-1.8 to + 1.8 degF)	1	Near Normal (90 - 110%)	97%
February	Near Normal (-1.8 to + 1.8 degF)	1	Below Normal (70 - 90%)	78%
March	Near Normal (-1.8 to + 1.8 degF)	1	Below Normal (70 - 90%)	85%

EXPECT HIGH VARIABILITY PLUS EXTREMES — HEAVY RAIN EVENTS, DRY-SPELLS, FLOODS, etc. WATCH OUT FOR SPRING!

WATER SUPPLY FORECAST: **96 MAF** or 95%, COLUMBIA RIVER AT THE DALLES, JANUARY - JULY.

*...but what about Snow events?!*

Expect Four events...all minor (2-inch seasonal total)

(60% - 80% likely), December through mid-February.

