

A tropical landscape featuring a green golf course in the foreground, several tall palm trees in the middle ground, and a blue ocean under a clear sky in the background. The scene is bright and sunny.

Winter Weather Outlook
2016-17

Fantasy



**Winter Weather Outlook
2016-17**

Reality



Overview

- **What happened last winter**
- **Outlook for this winter**
- **Tools for Decision Making**

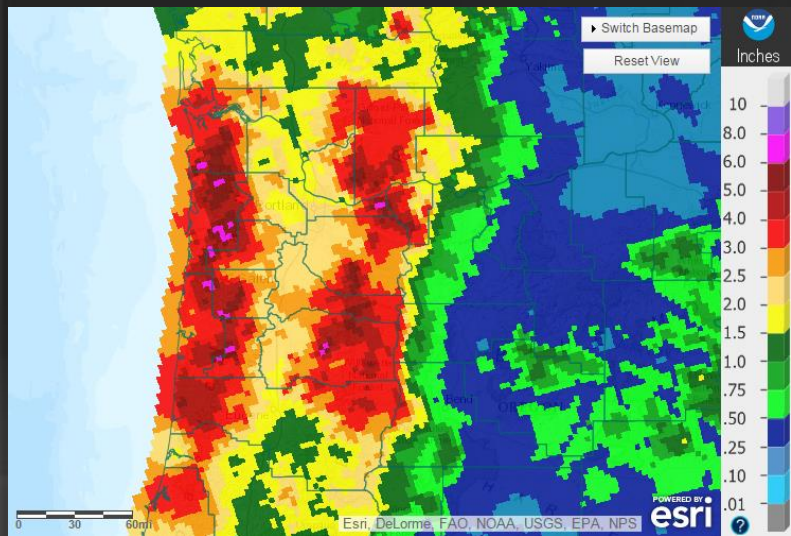


What happened last winter? Winter Recap



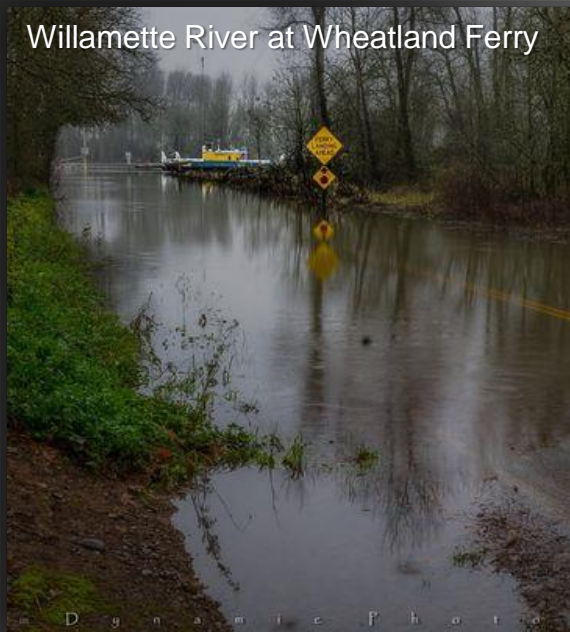


Flooding - Dec 17th - 21st



24-hour Total Ending 4 am

Dec 18



Marys River near Corvallis





What ? Bad Weather in El Niño?

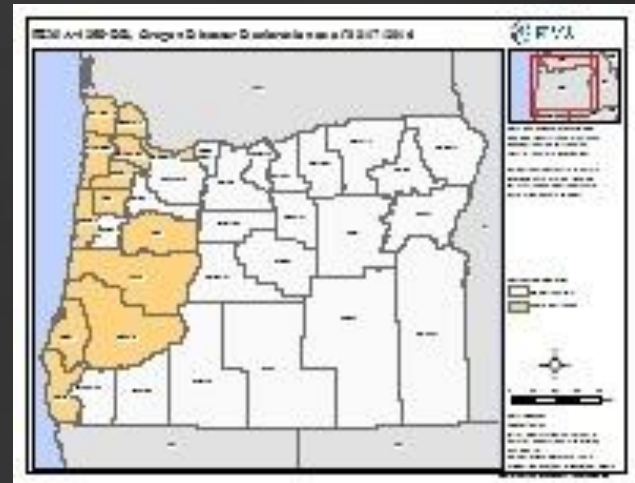


Governor Brown Secures Federal Funds for December Pacific Storm Relief February 18, 2016



Federal Disaster Declaration

Oregon Severe Winter Storms, Straight-line Winds, Flooding, Landslides, and Mudslides (DR-4258)



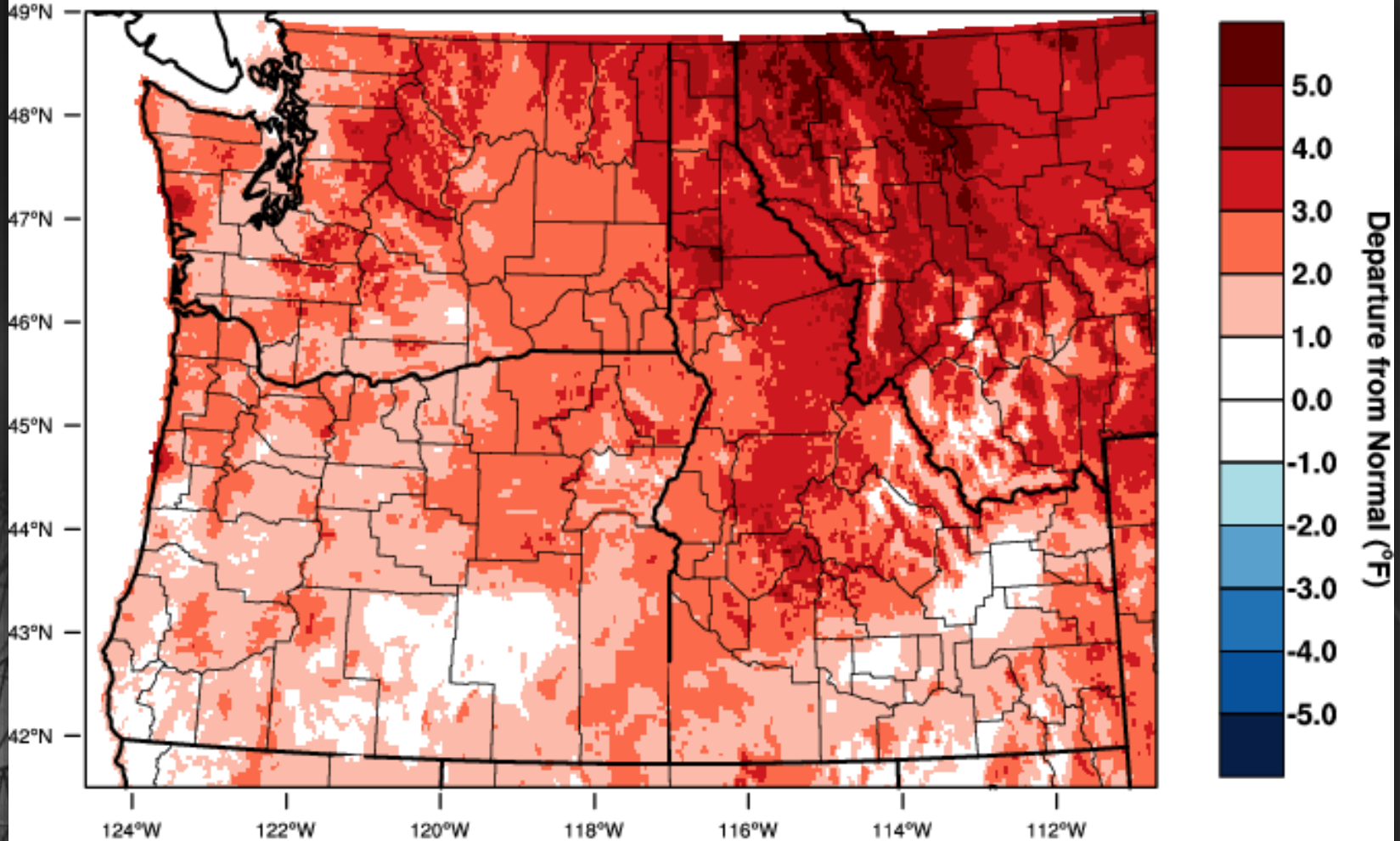


Winter Season (2015-16) Recap

Temperature

Pacific Northwest - Mean Temperature

October-March 2016 Departure from 1981-2010 Normal



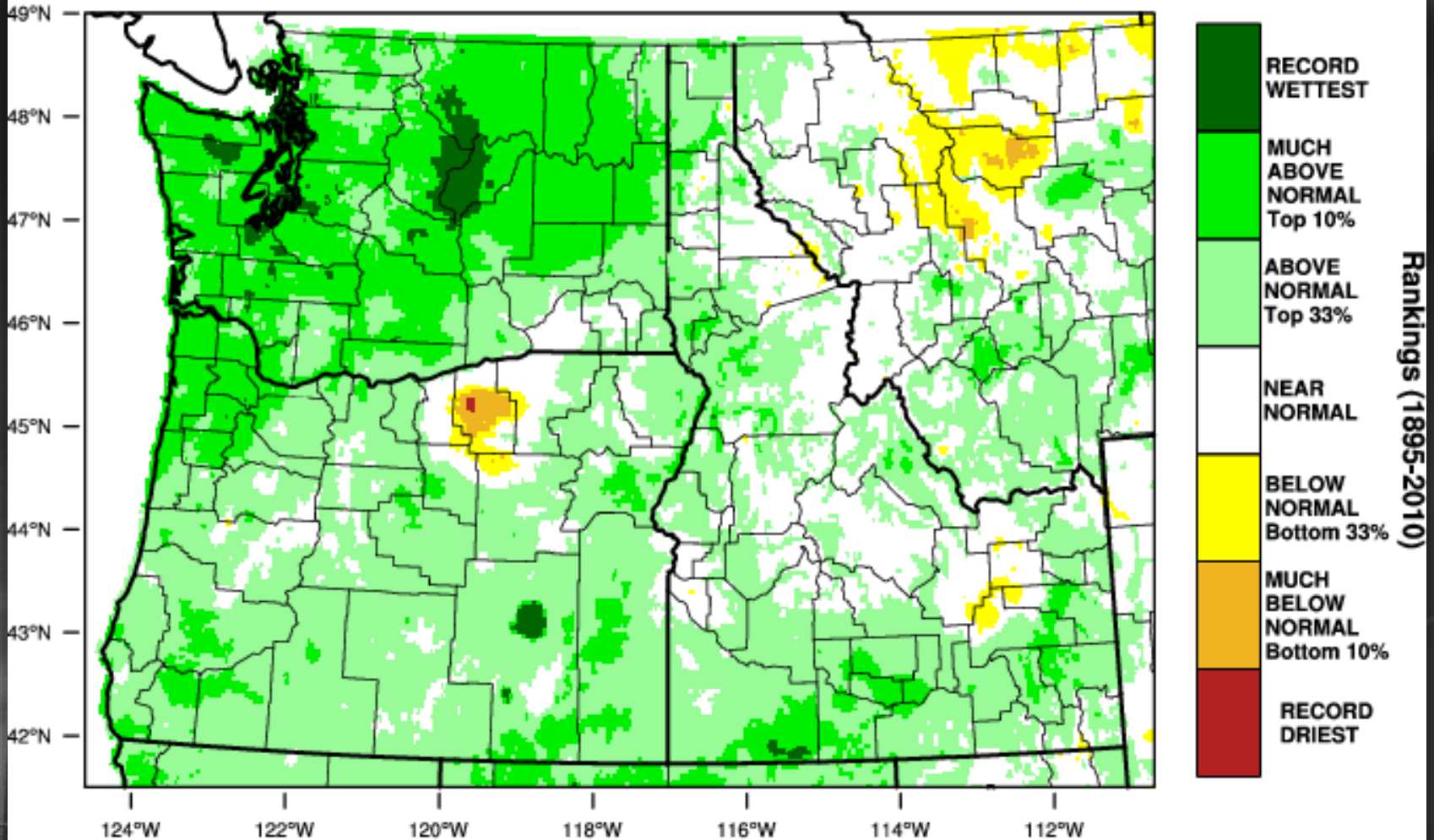
WestWide Drought Tracker - U Idaho/WRCC Data Source - PRISM (Prelim), created 16 APR 2016



Winter Season (2015-16) Recap

Precipitation

Pacific Northwest - Precipitation
October-March 2016 Percentile

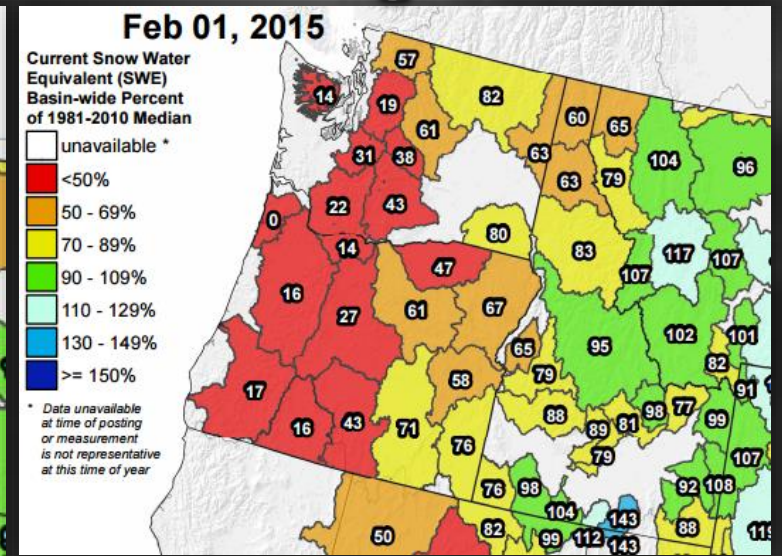
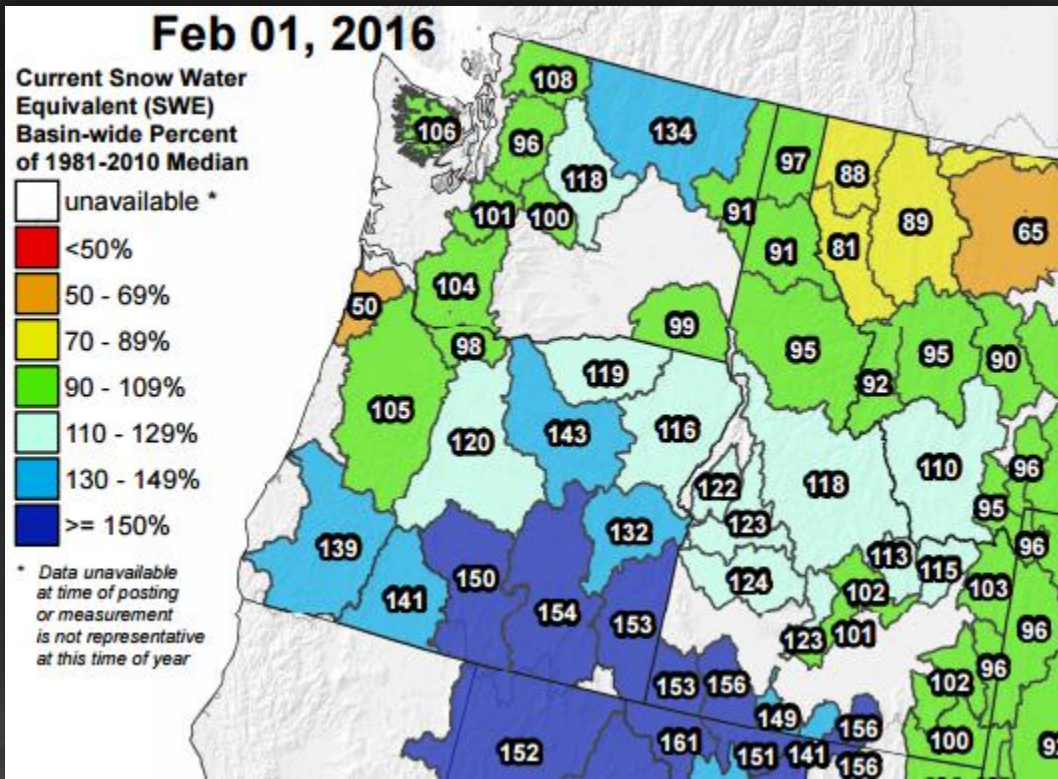




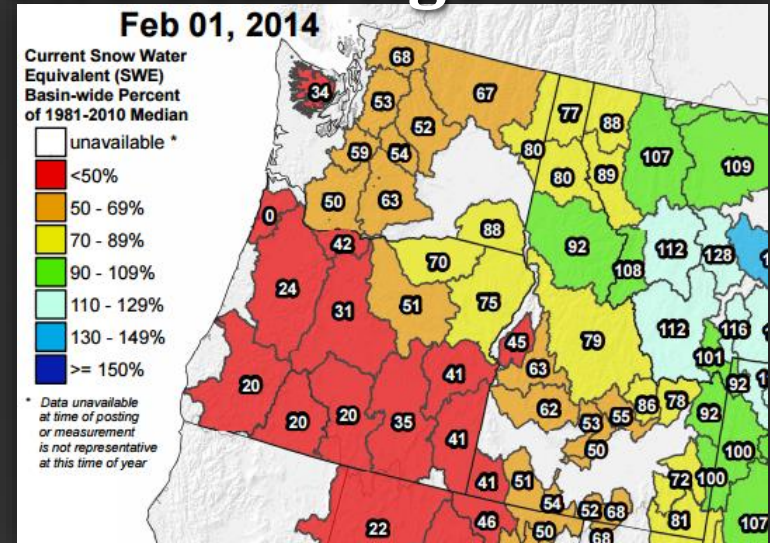
Seasonal Snowpack

Feb 2016

One Year Ago - 2015



Two Years Ago - 2014



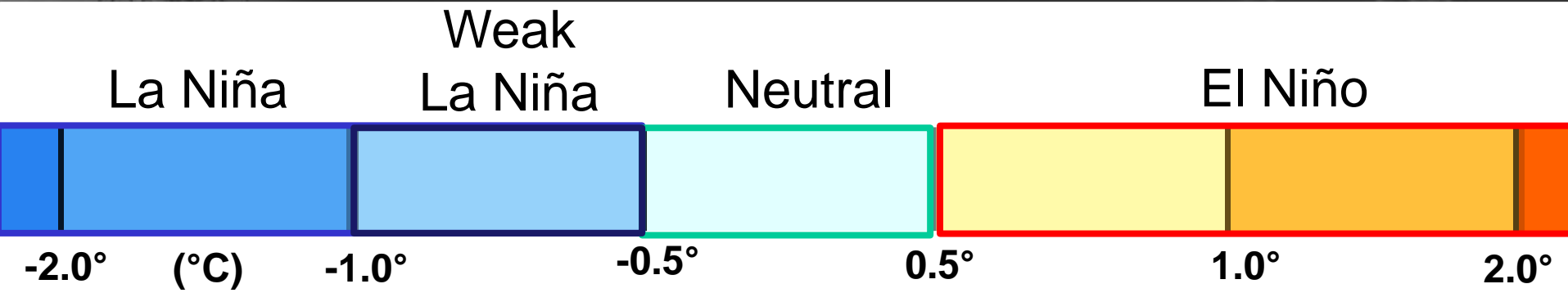
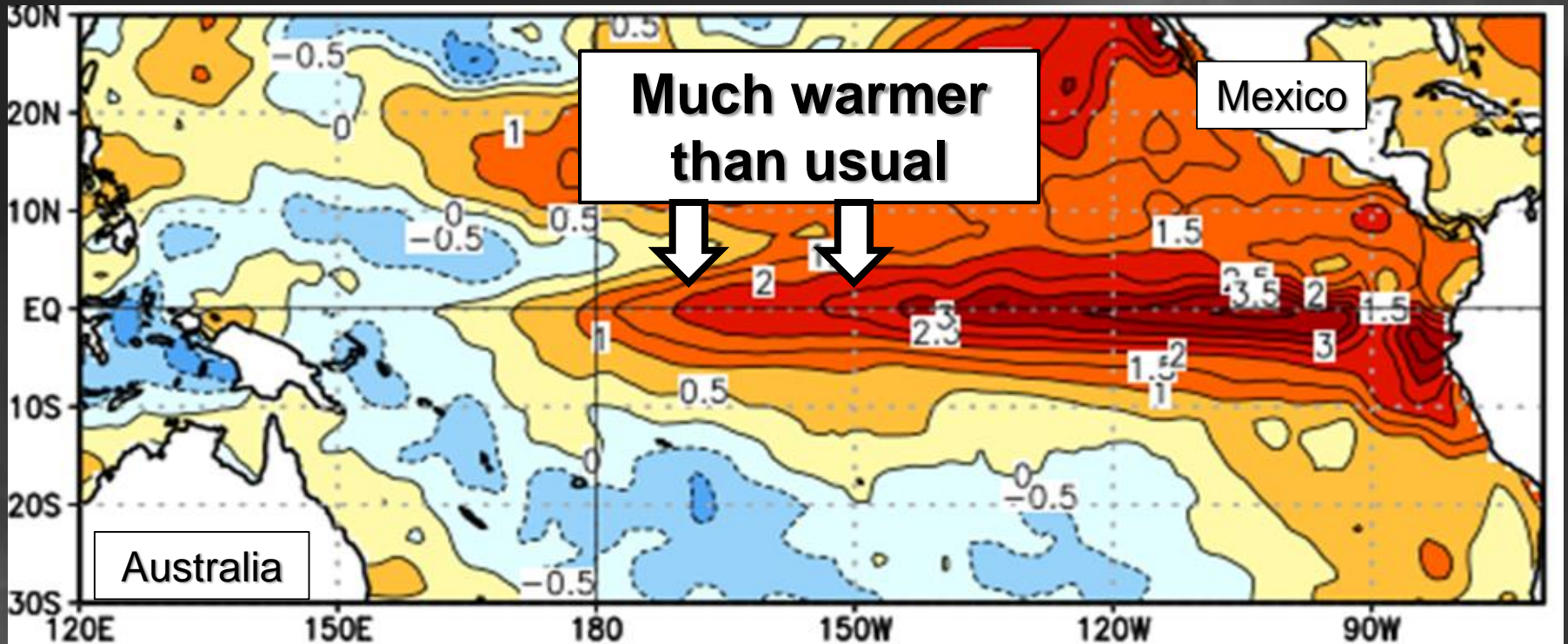
Maps show the basin-wide percent of average for snowpack in terms of water content

Images courtesy of the Natural Resources Conservation Service
www.wcc.nrcs.usda.gov



2015 El Niño

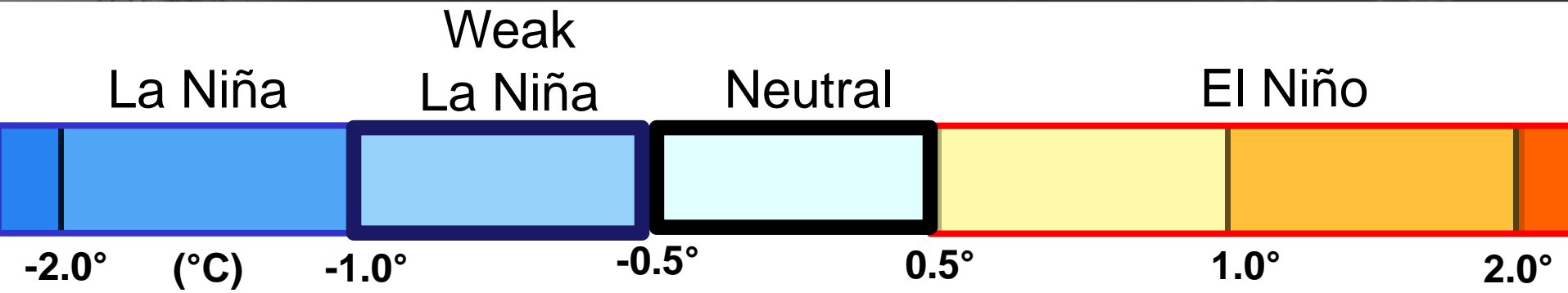
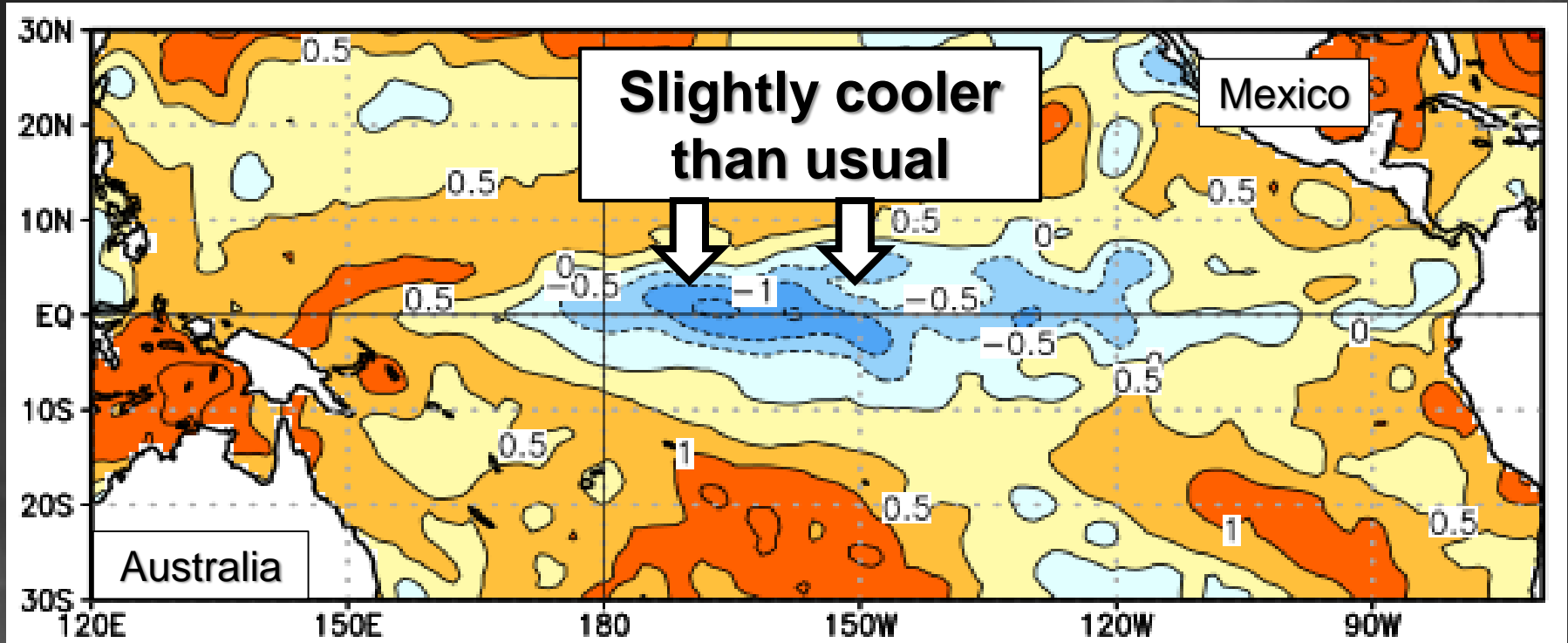
Sea Surface Temperature Anomalies





2016 La Niña(?)

Sea Surface Temperature Anomalies

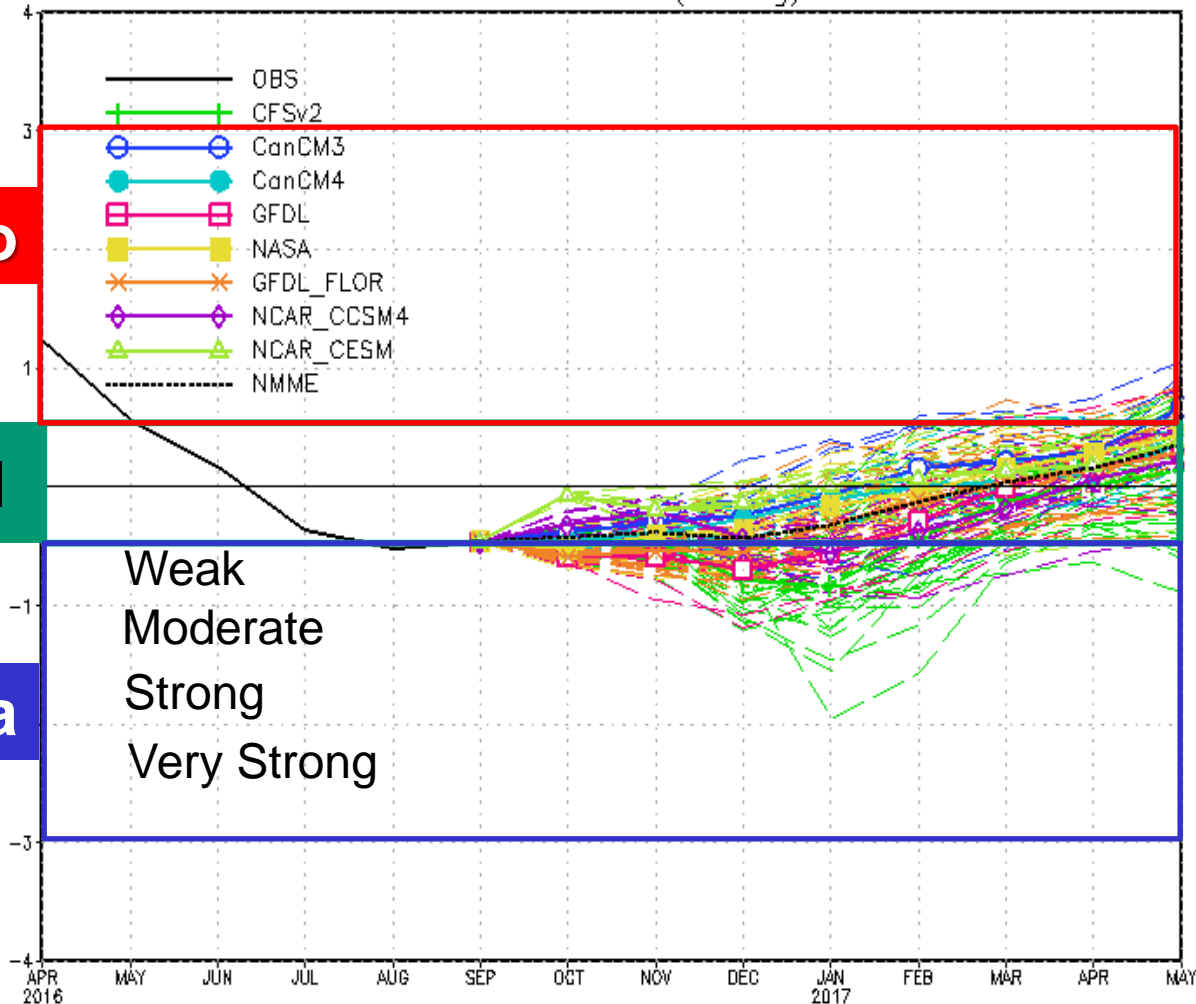




Climate Model Predictions



NMME Forecast for Nino 3.4 (scaling) IC= 201610



El Niño

Neutral

La Niña

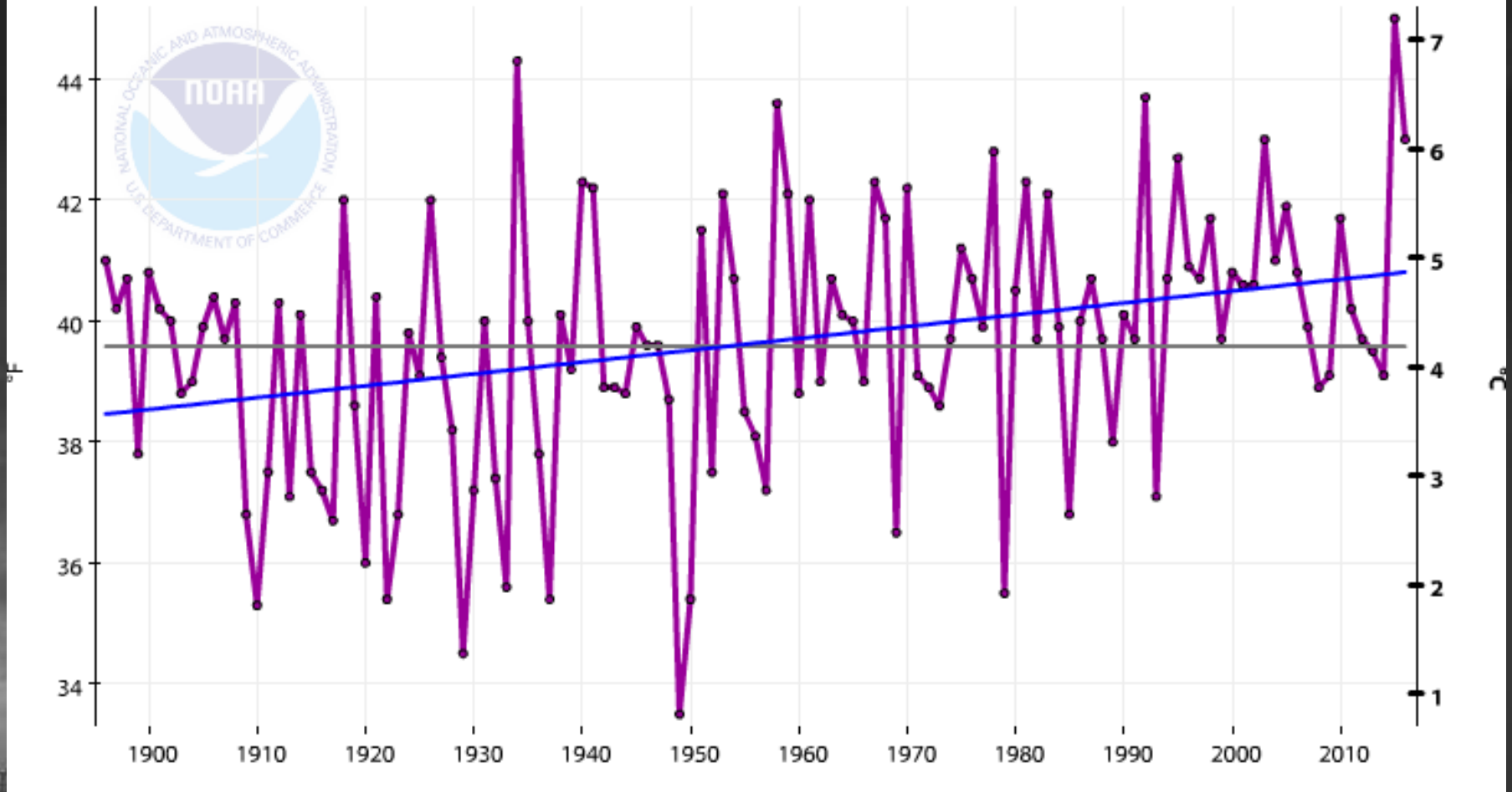
La Niña only slightly favored to persist (~55% chance) during winter 2016-17



Long-Term Temperature Trend

Oregon, Climate Division 2, Average Temperature, December-February

1896-2016 Trend +0.2°F/Decade
1901-2015 Avg: 39.6°F
Avg Temperature

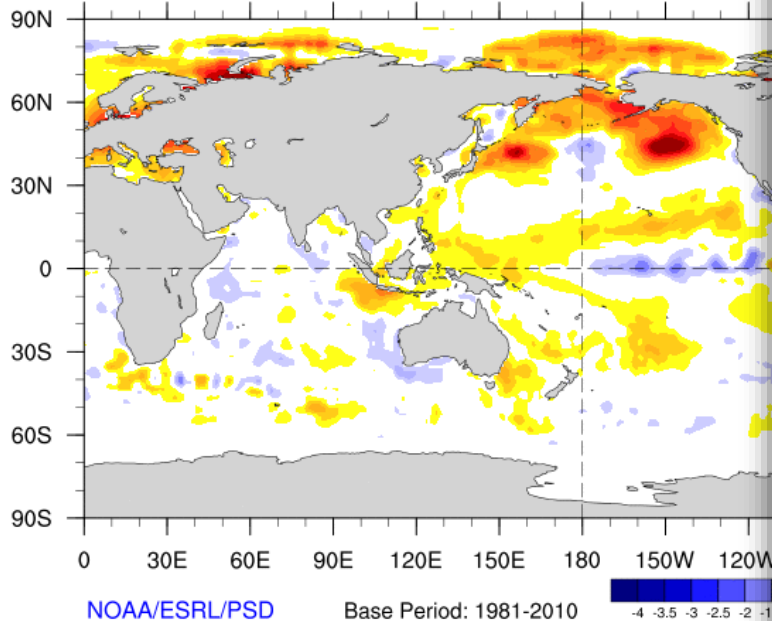




One more factor...

THE BLOB

Weekly SST Anomaly



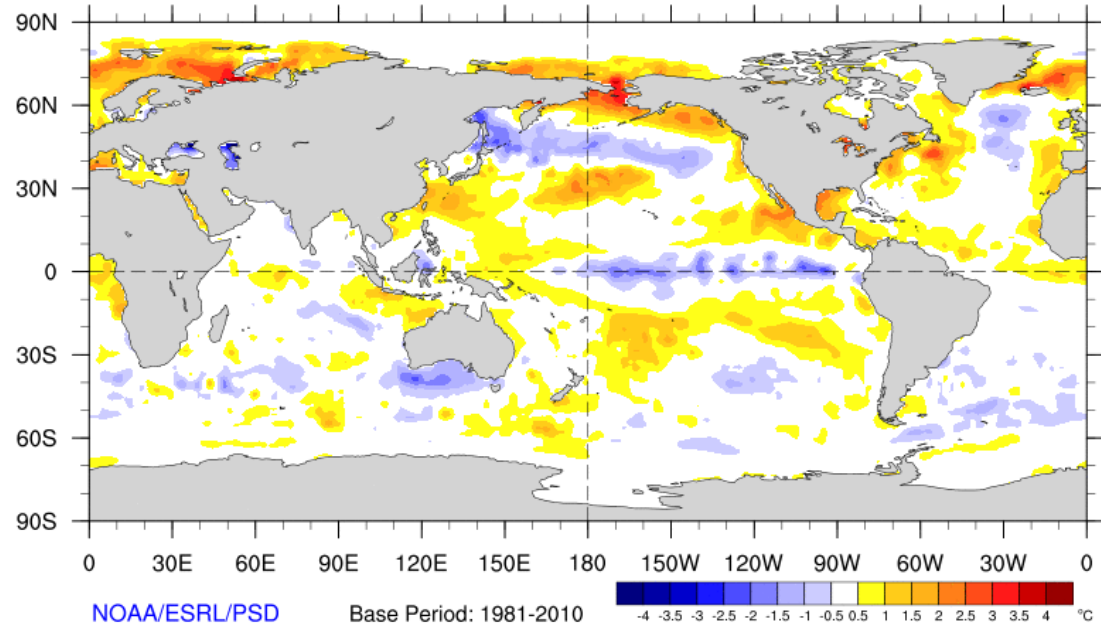
NOAA/ESRL/PSD

Base Period: 1981-2010



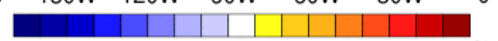
Weekly SST Anomaly

2016/10/30 - 2016/11/05



NOAA/ESRL/PSD

Base Period: 1981-2010



<http://www.esrl.noaa.gov/psd/map/clim/sst.anom.anim.year.html>

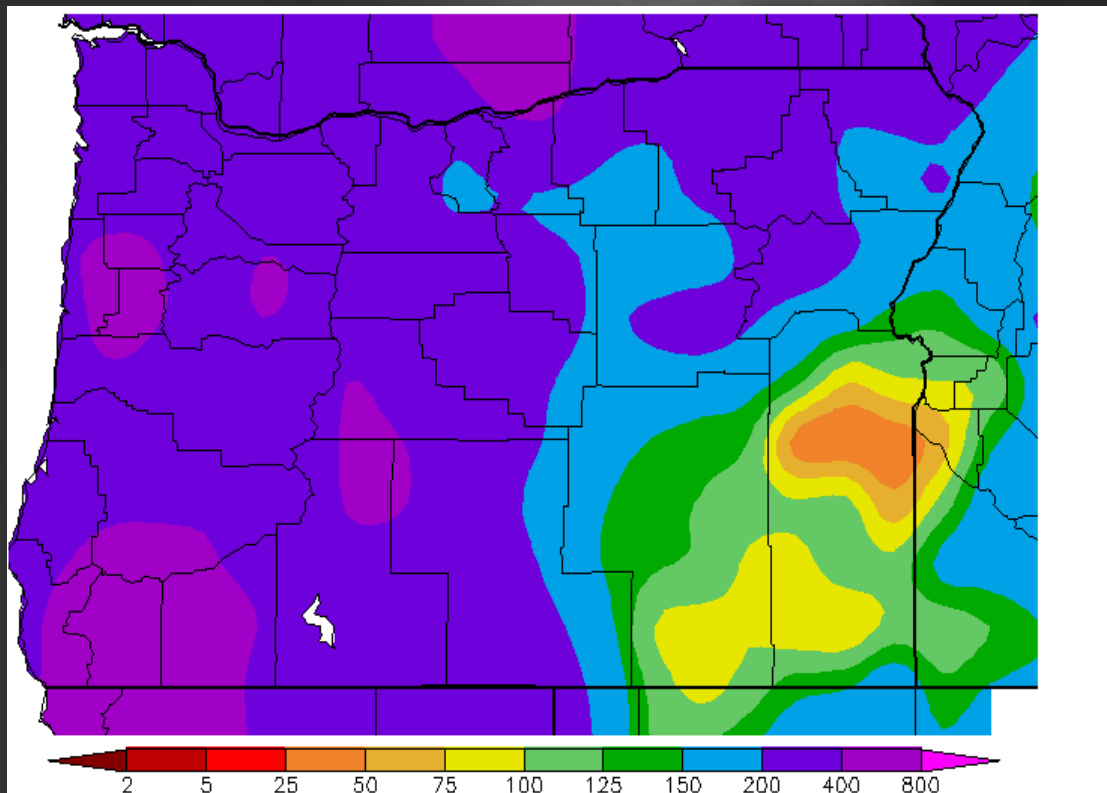


October 2016

% of Average Precipitation for October
(Western Regional Climate Center)

Wettest October on record for:

- *Hillsboro*
- *Salem*
- *North Bend*
- *Brookings*

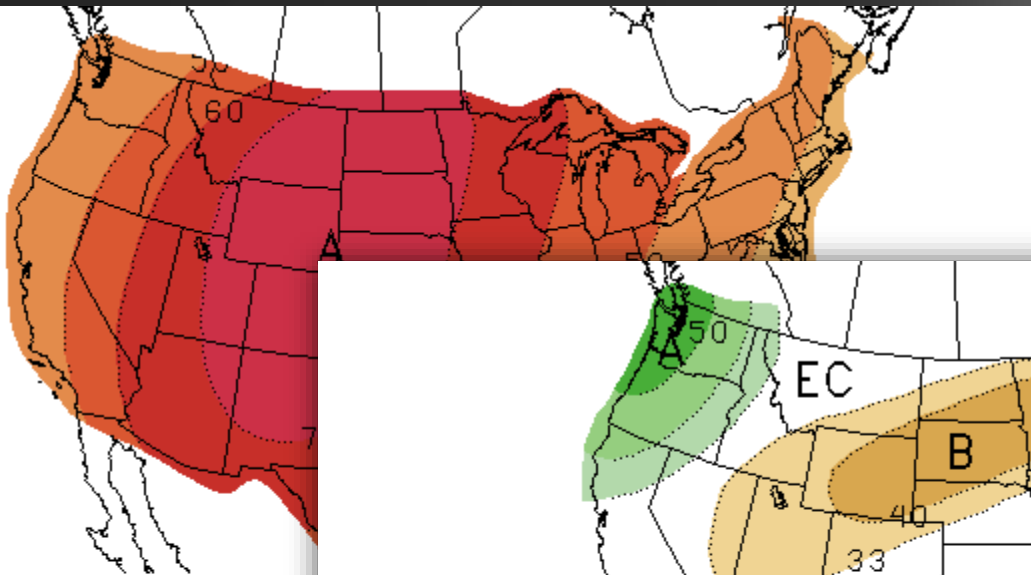




U.S. Seasonal Outlooks

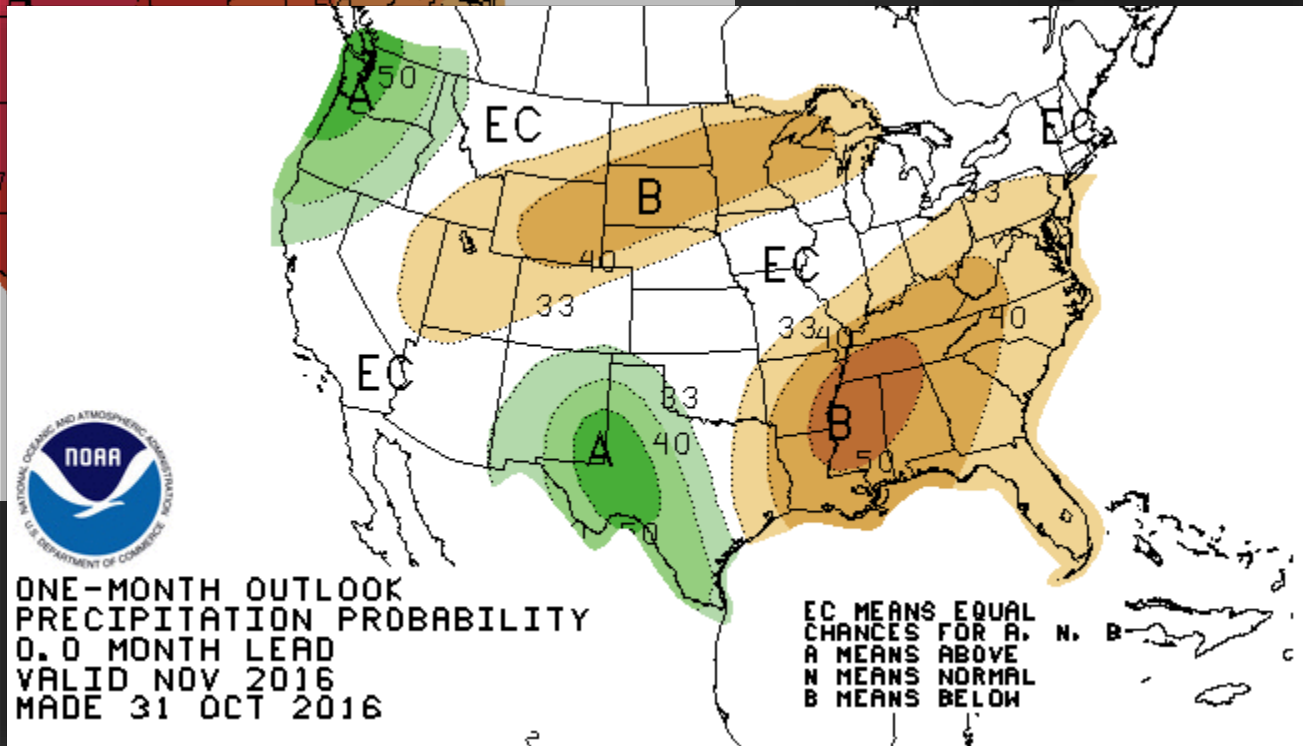
November 2016

Temperature



ONE-MONTH OUTLOOK
TEMPERATURE PROBABILITY
0.0 MONTH LEAD
VALID NOV 2016
MADE 31 OCT 2016

Precipitation



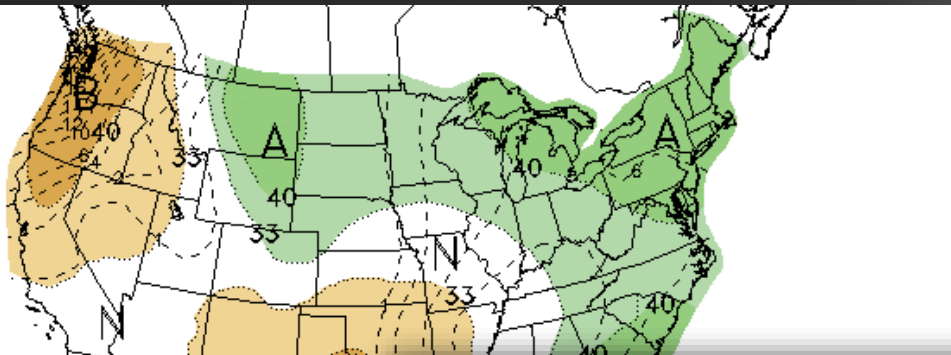
ONE-MONTH OUTLOOK
PRECIPITATION PROBABILITY
0.0 MONTH LEAD
VALID NOV 2016
MADE 31 OCT 2016

EC MEANS EQUAL
CHANCES FOR A, N, B
A MEANS ABOVE
N MEANS NORMAL
B MEANS BELOW

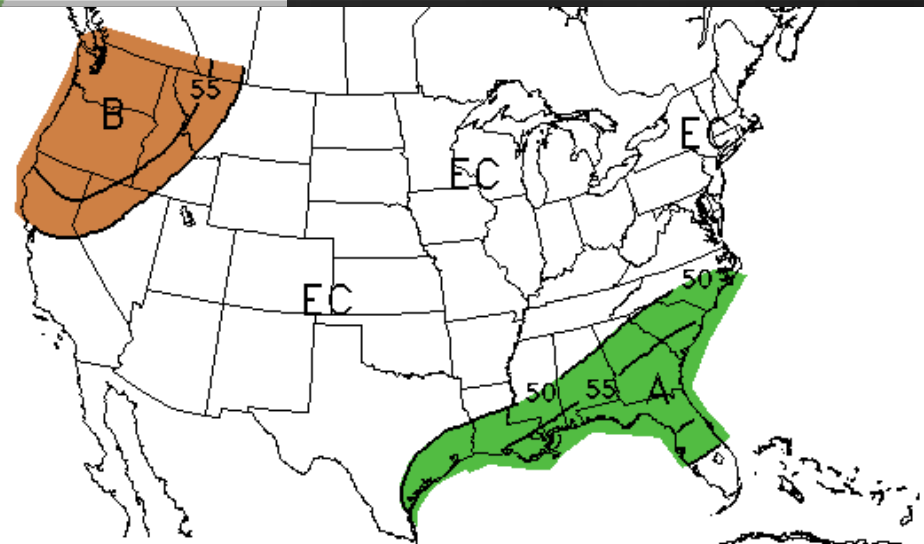
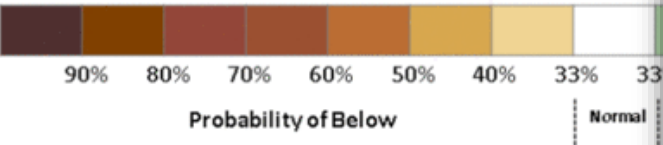


U.S. Seasonal Outlooks

November 2016



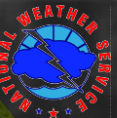
8-14 DAY OUTLOOK
PRECIPITATION PROBABILITY
MADE 7 NOV 2016
VALID NOV 15 - 21, 2016



WEEK 3-4 EXPERIMENTAL OUTLOOK
PRECIPITATION PROBABILITY
MADE 4 NOV 2016
VALID NOV 19 - DEC 02, 2016

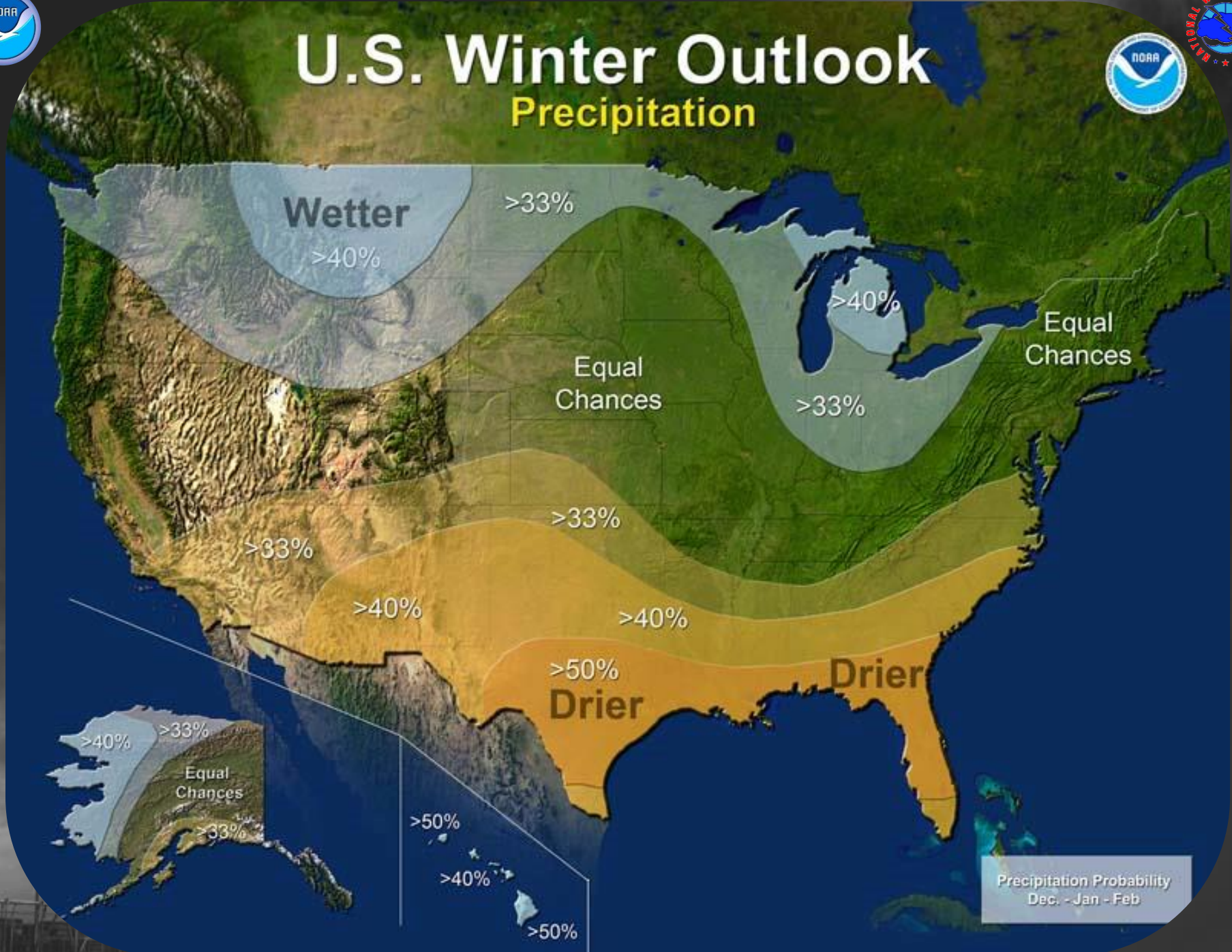
EC MEANS 50/50 CHANCES
FOR ABOVE OR BELOW
A MEANS ABOVE NORMAL
B MEANS BELOW NORMAL

www.cpc.ncep.noaa.gov

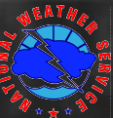


U.S. Winter Outlook

Precipitation



Precipitation Probability
Dec. - Jan - Feb



U.S. Winter Outlook

Temperature

Cooler
>40%

>40%

>33%

>40%

>33%

Equal
Chances

>33%

Equal
Chances

>40%

Warmer

>33%

>50%

>40%

>50%

Warmer

>60%

>40%

>40%

>33%

Equal
Chances

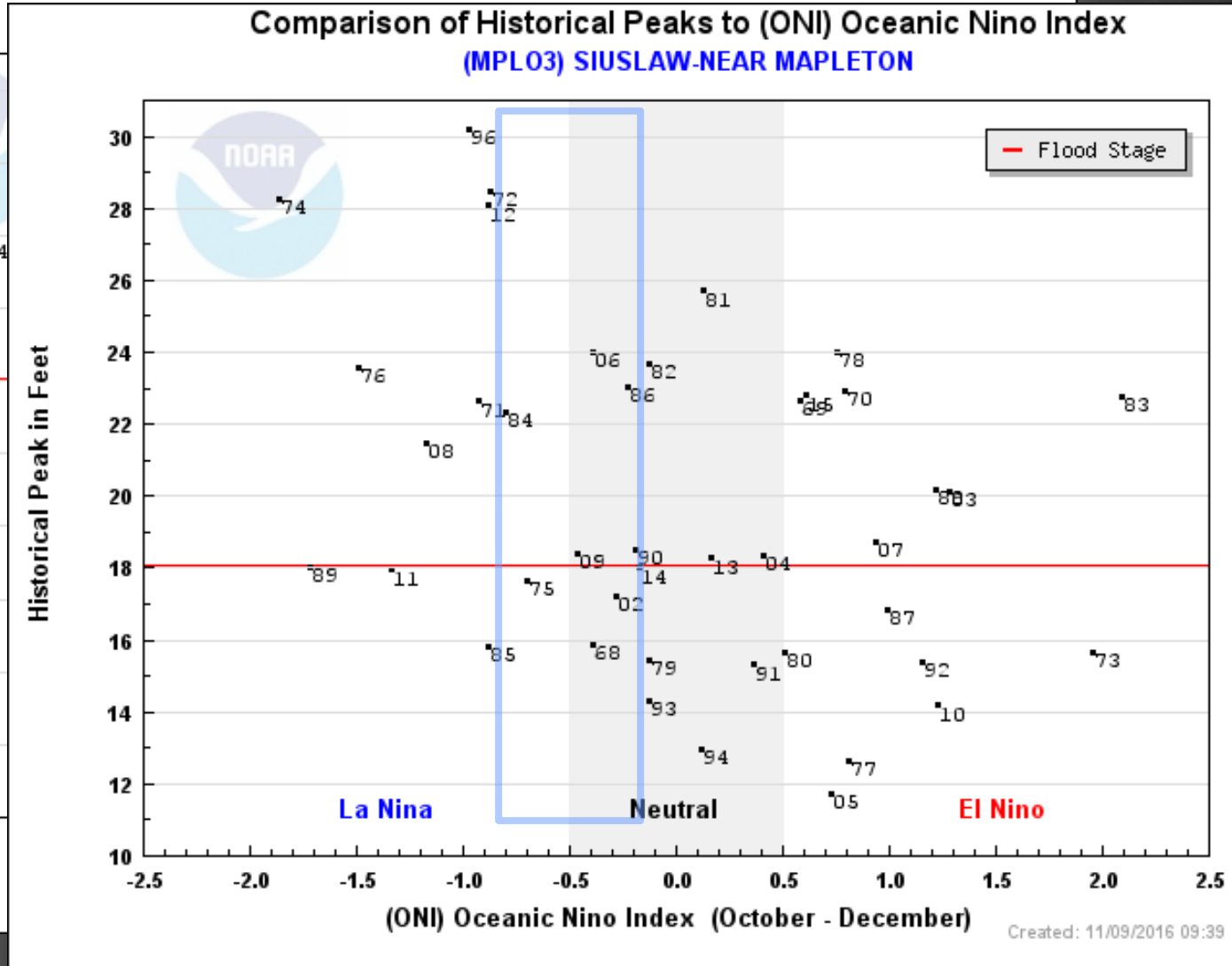
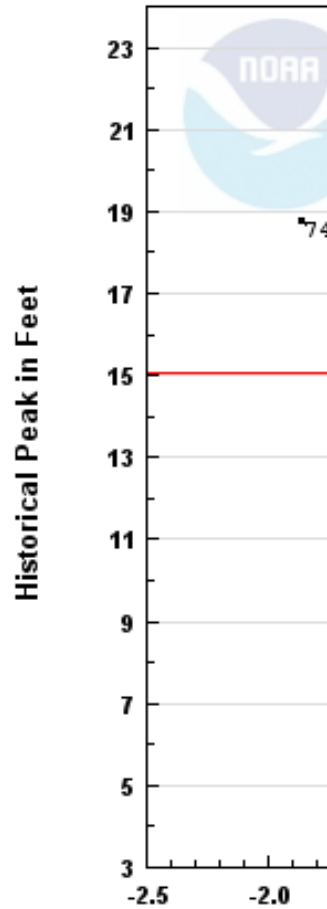
>70%

Temperature Probability
Dec - Jan - Feb



Flood Potential

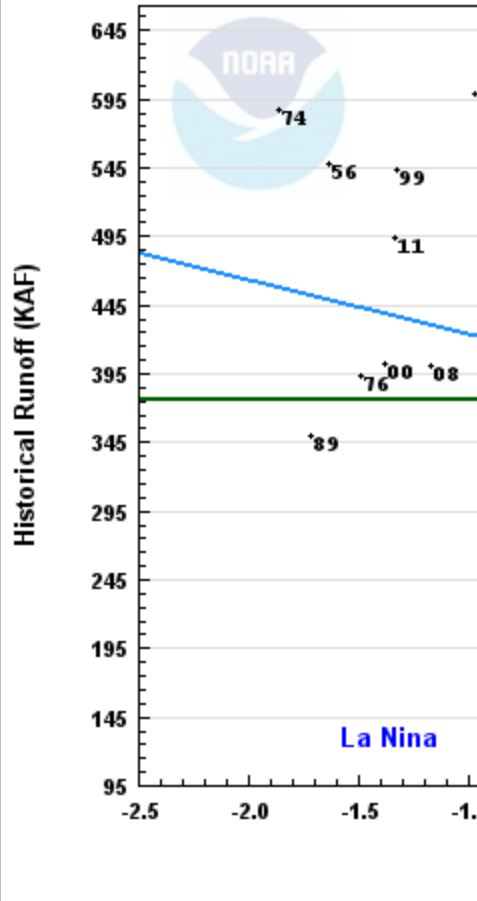
Comparison of Historical Peaks to (ONI) Oceanic Nino Index



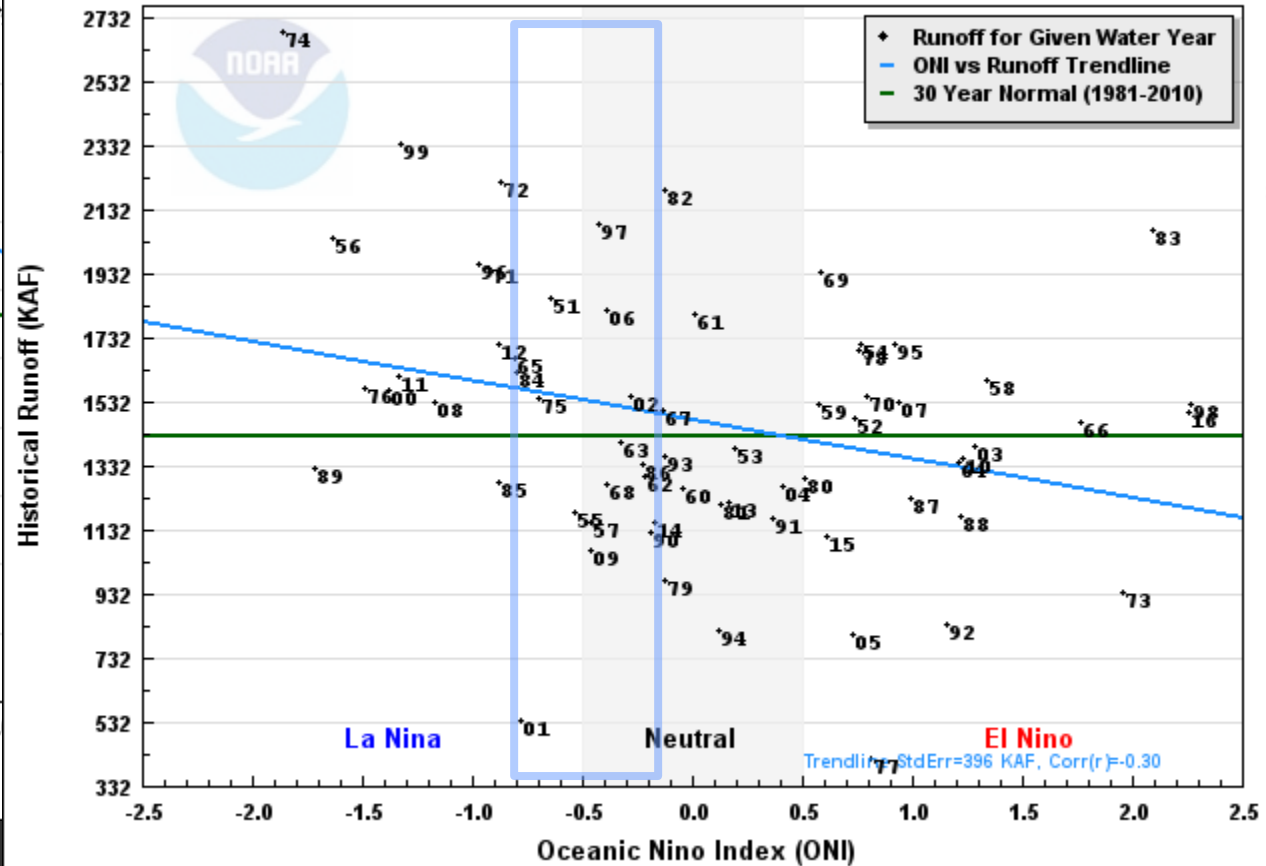


Water Year Streamflow

OCT-DEC Oceanic Nino Index vs OCT-SEP Historical Natural Runoff
(SPR03) MOHAWK - NEAR SPRINGFIELD



OCT-DEC Oceanic Nino Index vs OCT-SEP Historical Natural Runoff
(MPLO3) SIUSLAW - NEAR MAPLETON

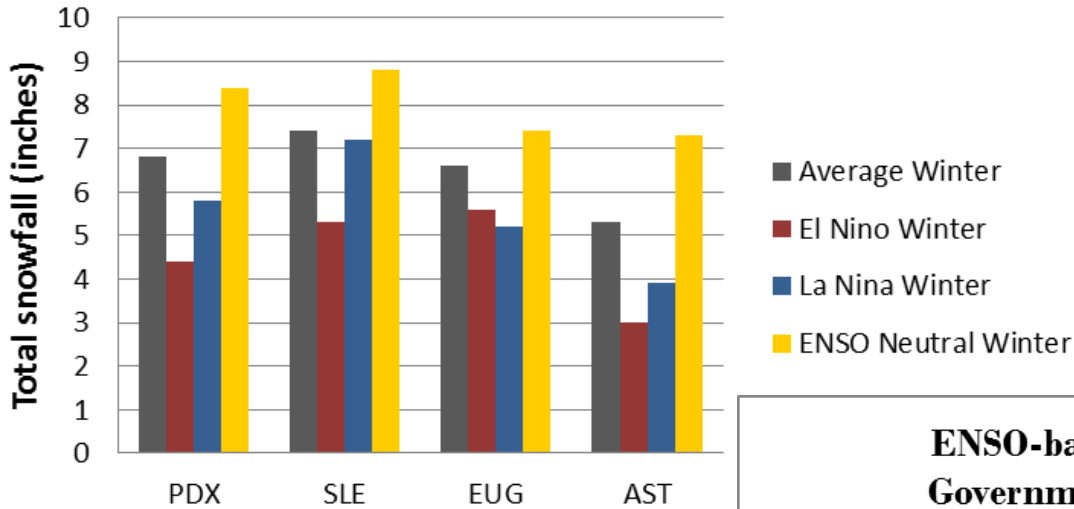


Created: 11/09/2016 09:48 PST



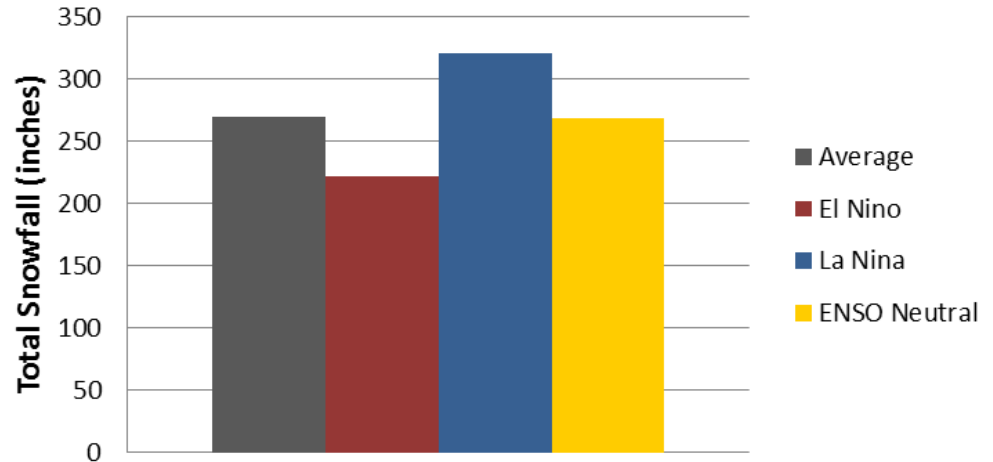
Snowfall History 1950 to 1995

ENSO-based Average Seasonal Snowfall Lowlands 1949/50 - 1994/95



Lowlands

ENSO-based Average Seasonal Snowfall Government Camp 1950/51 - 2009/10



Cascades



Summary

- **Weak La Niña most likely**
- **No strong indication for winter precip / temps**
- **Low elevation snow? Mountain snow? Tough to say > combination of precipitation & temperatures**
- **Based on history, water year runoff is likely to be above average**
- **Some major floods historically during Weak La Niña**



Resources

Some NWS Resources to help you stay informed this winter





Weather Briefings



Event-Driven Weather Briefings

- For Key Decision Makers
- Conducted prior to and through anticipated 'high-impact' weather events
- Email briefings for lower impact
- Conference call / webinar for higher impact storms

Are you on the list???



NWS Briefing

on the

Heavy Rain and Flood Potential

Expected this Weekend (Dec 11-13)



Email Weather Briefing

Courtesy: NOAA/NWS, Portland, OR

November 16, 2011

Emergency Managers and Public Safety Officials,

- **SYNOPSIS:** A large upper level low pressure system will move into the Pacific Northwest on Thursday (Nov 17) and remain in place through the weekend. This system will usher in a significantly colder air mass with widespread rain and snow showers and quite low snow levels for this time of year.
- **PRIMARY AREAS IMPACTED:** Coast Range, Cascade Foothills and Cascades. Snow levels are expected to start out around 2000 feet on Thursday, lowering to 1000 to 1500 feet Thursday night and Friday.
- **IMPACTS:**
 - Snow accumulations of 4 to 8 inches in Coast Range
 - Snow accumulations of 6 to 10 inches Cascade Foothills
 - Snow accumulations around 12 inches in the Cascades
 - Brief snow showers or a rain-snow mix may affect the higher elevations of the Willamette Valley, Columbia River Gorge and Lower Columbia areas, but little to no snow accumulation expected.
 - Travel may become hazardous with snow covered roads.
 - Hikers, hunters and other outdoor recreation enthusiasts should prepare for winter weather.
- **TIMING:** Thursday afternoon through Friday evening (Nov 17-18). Snow potential decreases after Friday evening as moisture becomes limited.
- **FORECAST CONFIDENCE:** High confidence in snow in the Coast Range, Foothills and Cascades. Low to moderate confidence in precipitation type for valley locations and the Gorge. Current expectation is for precipitation to remain mostly as rain below 1000 feet.
- **UNCERTAINTIES:** Primary uncertainty is snow level. Brief periods of snow or rain mixed with snow may reach near the valley floor in heavier showers.



NWS Chat

- **NWSChat –**
www.nwschat.weather.gov

- *Register as a partner*
- *Instant Messaging With Forecasters on Duty*
- *Efficient information exchange*

- **All in Chat Room see the information**

- **nwschat.weather.gov/live**

NOAA's National Weather Service
NWSChat

Search [] NWS All NOAA Go

NWSChat Home Reset Password Documentation/Help Contacts Online Tools NWS Toolbox

EXPERIMENTAL, NON-OPERATIONAL

Home > Request National Weather Service Chat Account

In order to use the chat server, you need to have a NWSChat Account. Please fill out the following form to create the account.

1. Agree to Terms
 I have read and agree to the [terms of use](#).

2. Requested NWSChat Username (must be lowercase!)
This is your username you will use to log into the chat server. This username is much like an email address, so the same formatting rules apply (no spaces, special characters, etc. and nothing greater than 24 characters)
Option 1: Fill out this form to generate my NWSChat username.
Prefix / Affiliation: [Please select from list.] First Name: [] Middle Initial (optional): [] Last Name: []
Option 2: If you believe the above format does not apply, please email the nwschatadmin@noaa.gov team and explicitly state your NWSChat Username preference.

3. Alias on Account
This is the 'alias' that your account will appear to others in their Buddy List. You should enter something descriptive of you and your organization. (Nothing greater than 35 characters)

- Include your call letters, if you are media (Ex: knjz-chief-meteorologist)
- Include your geography, if you are an emia (Ex: fulton-ga-ema-lastname)
- Include your agency and office, if you are government (Ex: faa-memphis-lastname)

Help [] one outside of this project

Map Panel [] Map View: 1:15 PM Tools [] Opacity []

Layers Control []

- Base Layer
- Blank
- ESRI: Topo
- Satellite
- GCES Water
- GCES West V
- GCES East V
- GCES IR
- ProgRADAR
- HAQ Q2 3 Dr
- HAQ Q2 2 Dr

Help All Chats indrchat wewrchat porchat usgd13chat aschat sevchat mfrchat werc poramchat nwsfrschat

Clear Room Log Print Log View As HTML NWSBot Hidden Mute Sounds A A

Message []

they're due to an FAA server failure in Salt Lake City. I ecns are aware of the issue and working on switching to the backup server, but are coming across some issues trying to get it going. Still unknown as to when to expect obs to return...

(04 Oct 3:27 PM) media-riley.oconnor: Afternoon PQR - just want to verify that its the 86th day of 80+ temps correct? Thanks so much! -Riley

(04 Oct 3:31 PM) nws-william.ahue: Riley - you are correct, today was the 86th day of temps greater than or equal to 80.

(04 Oct 3:32 PM) media-riley.oconnor: Cool thanks for the info!

(04 Oct 3:33 PM) nws-william.ahue: was just about to tweet that out

(04 Oct 3:37 PM) media-riley.oconnor: I just did as well, haha

(10:04 AM) ham-jeff.newton: Good Morning everyone! How things with you all! Got a question for the NWS Gang in PDX?

(10:49 AM) nws-colby.neuman: Fire away Jeff

(11:05 AM) ham-jeff.newton: Hi Colby - What's the forecast models saying about the Tropical Storm Oho impacting the PNW from Hawaii into the next week? Any chances it will just be another one of those deluge Pineapple Express's or will we actually deal with a Hurricane coming ashore in who knows how long it's been since we ever had one of those type of storms to hit the PNW??

17 people in room []

- ac-ctrl-boeman
- media-matt.cullen
- nws-ellen.polan
- nws-eranda.brown
- nws-colby.neuman
- nws-jm.vasquez
- nws-jim.davigrovo
- nws-jim.bork
- nws-laurel.mccoy
- nws-laura.ramirez
- nws-marc.schler
- nws-noel.keane
- nws-rob.bushner
- nws-tyne.wilde
- nwsbot
- POT-HMT - Adams
- ZSE-MIC-david.baeger

Send



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Recent News



Social Media



- Public posts of local weather / conditions

- Interactive forum

– *Photos and Video*

– *Exchange Information*

- Situational Awareness





On the internet...



- weather.gov/portland
- www.nwrfc.noaa.gov
- mobile.weather.gov
- cpc.ncep.noaa.gov





No Matter What Be “Weather Ready”



Weather-Ready Nation

National Oceanic and Atmospheric Administration