



The Month In Review

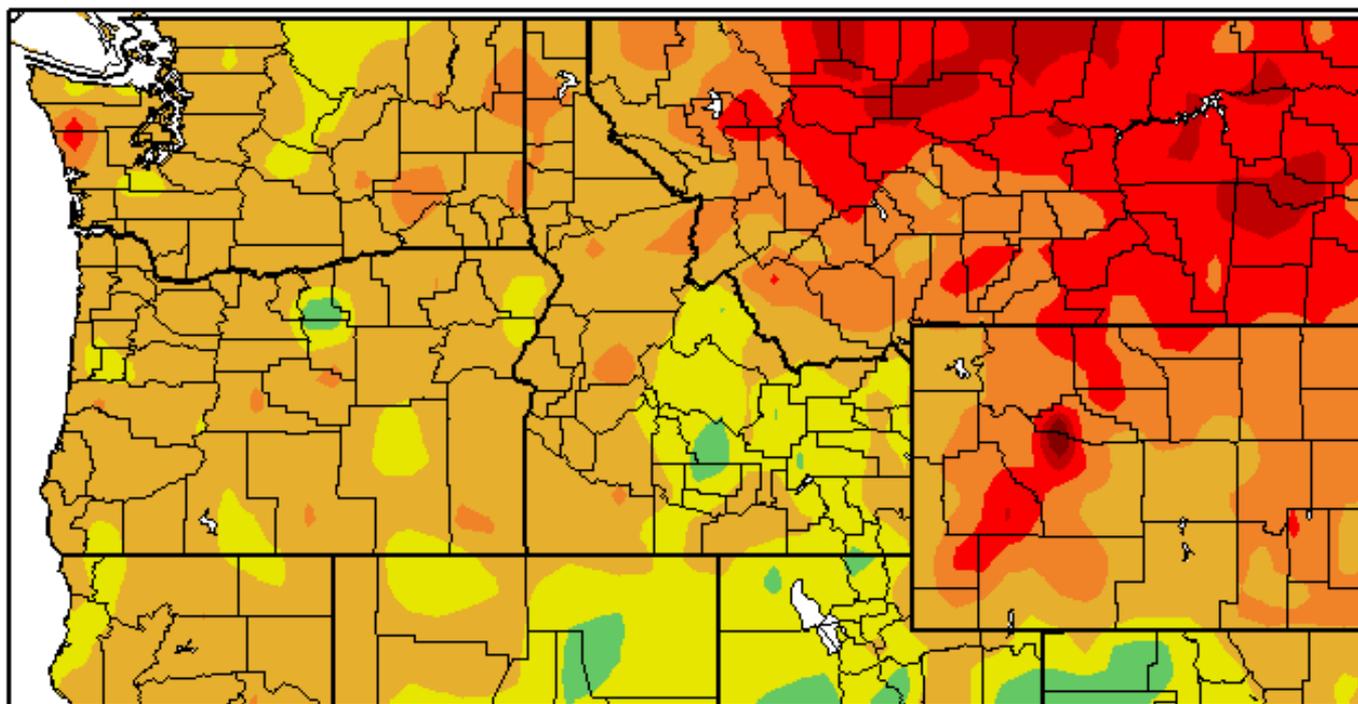
February 2016

National Weather Service
Pendleton, Oregon

Departure From Normal Temperature (F)

Departure from Normal Temperature (F)

2/1/2016 - 2/29/2016



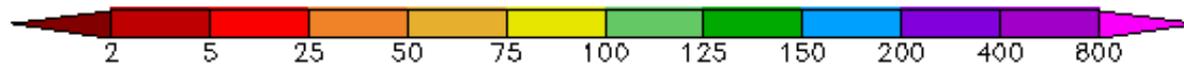
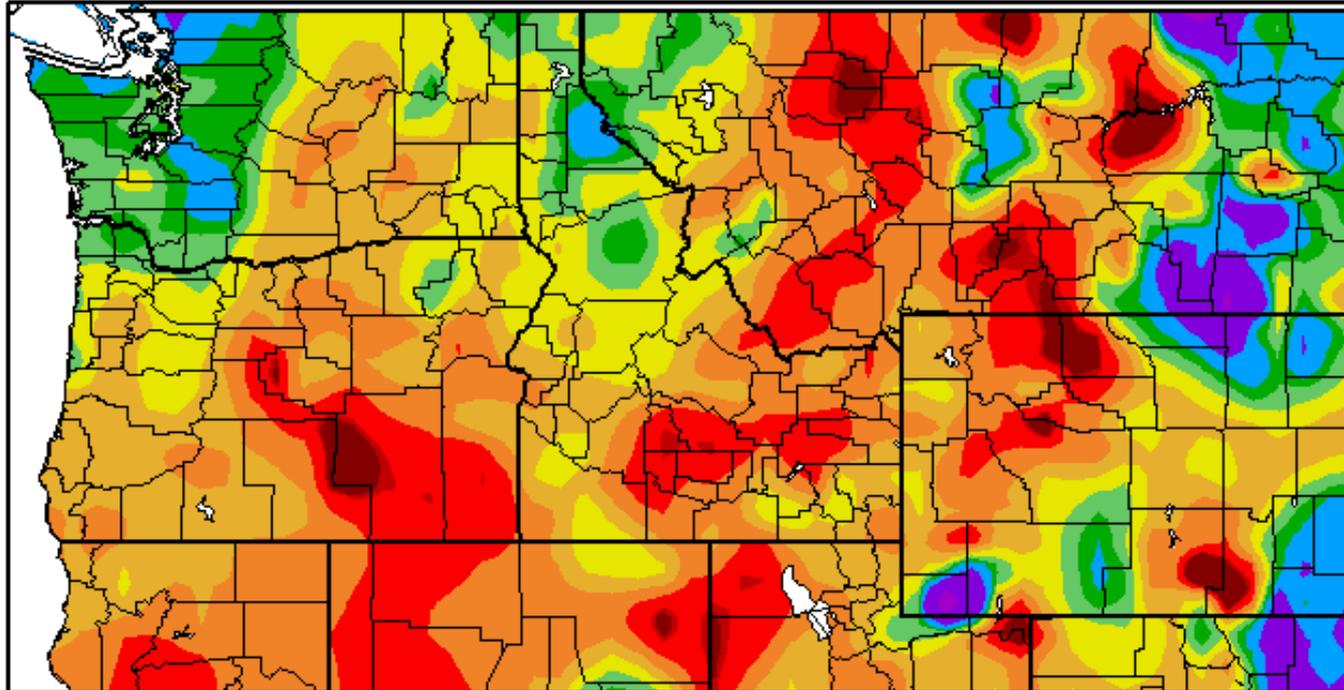
Generated 3/5/2016 at HPRCC using provisional data.

Regional Climate Centers



Percent of Normal Precipitation (%)

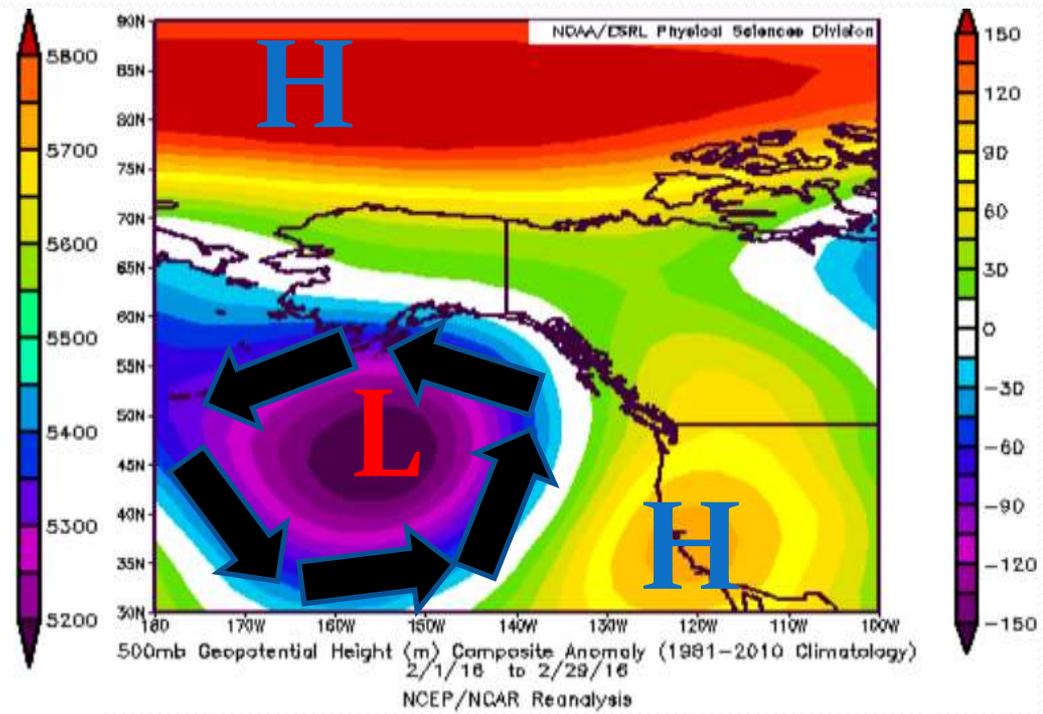
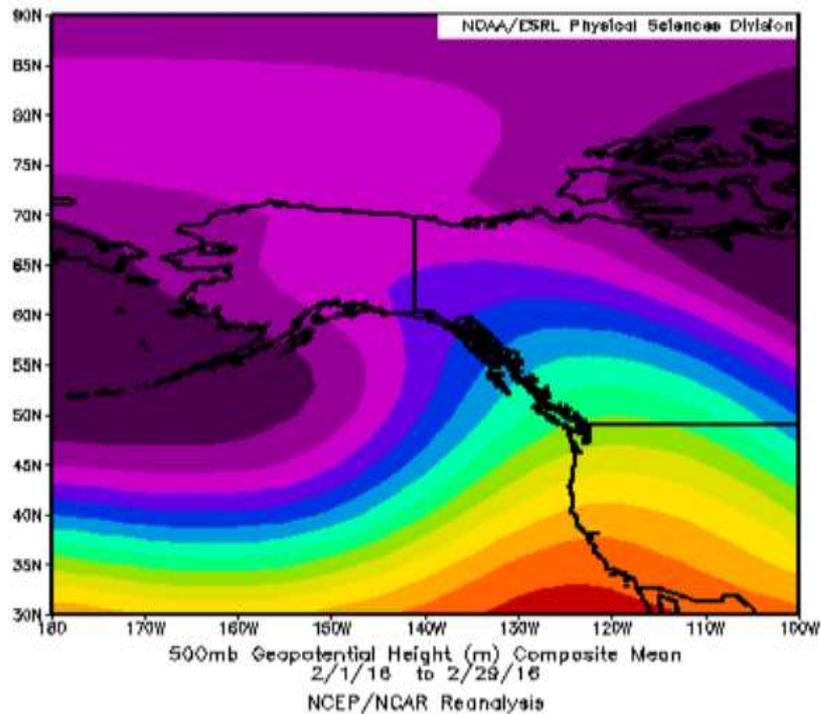
Percent of Normal Precipitation (%)
2/1/2016 - 2/29/2016





February 2016

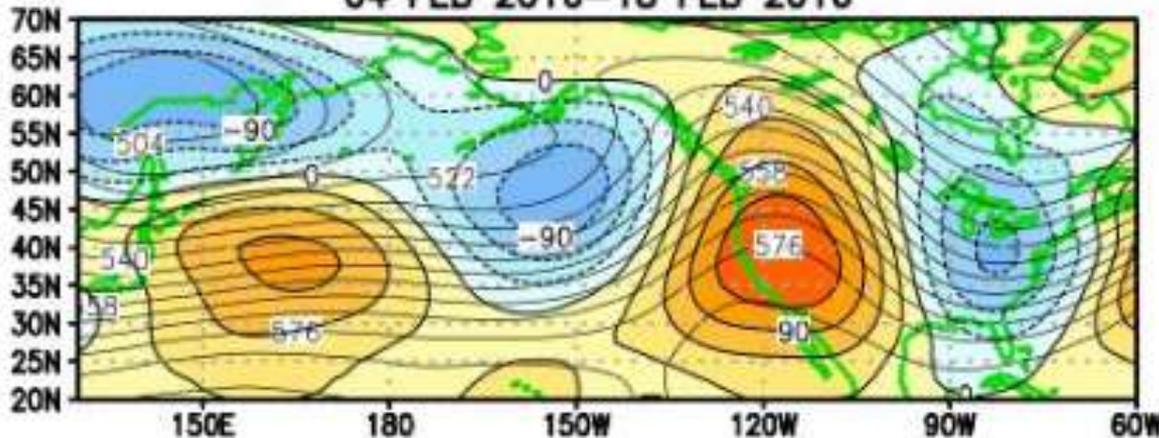
Synoptic Weather Pattern



The mean synoptic pattern for the month of February 2016 was characterized by a large, anomalous trough of low pressure south of Alaska. There was an upper level ridge of high pressure located across northern Alaska and over the Arctic Ocean through the month. There was another upper level ridge centered over the Western US, extended from California northward across the Pacific Northwest and into Western Canada. With this mean upper level ridge in place for the month of February the Pacific Northwest experienced widespread above normal temperatures and generally below average precipitation totals. The main exception to this was over western Washington, where precipitation totals were 100 - 150 percent of average for the month. With the warmer than average temperatures snowfall was very limited in the lower and mid elevations through the month.

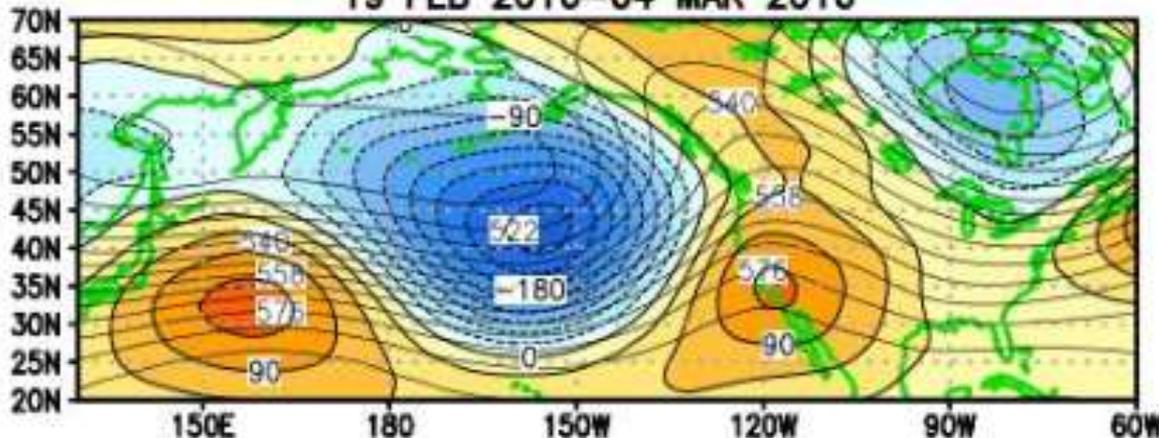
February 2016 Detailed Upper Level Pattern Analysis

04 FEB 2016–18 FEB 2016



❖ The first two weeks of February were characterized by a large upper level ridge centered over the Western US, with a trough in the Great Lakes and Eastern US.

19 FEB 2016–04 MAR 2016



❖ The last two weeks of February saw this mean upper level ridge continue over the Western US, as an anomalous and expansive upper level low formed south of Alaska. The upper level trough relaxed and shifted north over eastern N. America during this time.



Top 10 February Record Daily High Temperatures

City	Rank	Feb 2016 Max T	February Max T Record
Long Creek, OR	#2(T)	68 on 2/9	69 on 2/20/1995
Pasco, WA	#3(T)	65 on 2/27	68 on 2/17/2007
Yakima, WA	#4(T)	67 on 2/15	69 on 2/23/1947
Dayville, OR	#8	70 on 2/10	76 on 2/21/1995
Easton, WA	#8(T)	56 on 2/18	61 on 2/03/2005
Meacham, OR	#10	57 on 2/25	61 on 2/12/2015
Hermiston, OR	#10	63 on 2/27	68 on 2/07/2015



Top 10 February Daily Record Warmest Minimum Temperatures

City	Rank	Feb 2016 Min T	Warmest Feb Min T
Bend, OR	#1 (T)	47 on 2/15	47 on 2/8/1996
Pasco, WA	#2	52 on 2/15	53 on 2/24/1999
Yakima, WA	#2	48 on 2/15	49 on 2/10/1990
Sisters, OR	#2	48 on 2/16	49 on 2/19/1995
Kennewick, WA	#2(T)	54 on 2/16	58 on 2/26/1932
Easton, WA	#2(T)	38 on 2/15 & 17	39 on 2/12/2015
Hermiston, OR	#3(T)	45 on 2/17	52 on 2/24/1999
Satus Pass, WA	#4(T)	42 on 2/16	47 on 2/22/2002
The Dalles, OR	#7(T)	48 on 2/15	50 on 2/19/1995
Richland, WA	#8(T)	52 on 2/15	60 on 2/24/1986
Meacham, OR	#9(T)	40 on 2/17	46 on 2/6/2015
Madras, OR	#10	48 on 2/15	54 on 2/22/1992



Top 10 Record Warmest Average Low Temperatures for February

City	Rank	Feb 2016 Avg Min T	Warmest Feb Avg Min T Record
Hermiston, OR	#2	32.1	32.6 in 1999
Pasco, WA	#2	32.4	33.7 in 1999
Yakima, WA	#4	31.7	33.4 in 1958
Grizzly, OR	#6	28.2	32.8 in 1958
Kennewick, WA	#6	35.9	39.7 in 1961
Walla Walla, WA	#7	36.7	39.1 in 1958
Ellensburg, WA	#7	28.1	32.7 in 2015
Dayville, OR	#7	32.3	34.4 in 2015



Top 10 Record Warmest Average Low Temperatures for February (Cont'd)

City	Rank	Feb 2016 Avg Min T	Warmest Feb Avg Min T Record
Meacham, OR	#8	27.8	32.0 in 1963
Goldendale, WA	#8	32.1	35.0 in 1958
Moxee City, WA	#8	30.9	34.3 in 1958
Richland, WA	#8	34.5	39.3 in 1961
Long Creek, OR	#8	28.4	32.9 in 1958
Bend, OR	#9	29.2	30.9 in 1958
The Dalles, OR	#9	35.4	38.3 in 1958



Top 10 Record Warmest Average Max Temperatures for February

City	Rank	Feb 2016 Avg Max T	Warmest Feb Avg Max T Record
Hermiston, OR	#2	54.5	54.6 in 2015
Pasco, WA	#2	54.6	54.8 in 2015
Redmond, OR	#2	55.4	55.9 in 1991
Bend, OR	#2	53.1	53.2 in 1991
Prineville, OR	#3	55.2	59.7 in 1898
Dayton, WA	#3	53.1	55.6 in 1958
Meacham, OR	#3	45.9	47.6 in 2015
Sisters, OR	#4	51.2	53.0 in 1963
Grizzly, OR	#4	51.2	53.6 in 1995
Yakima, WA	#4	53.8	55.5 in 2015



Top 10 Record Warmest Average Max Temperatures for February (Cont'd)

City	Rank	Feb 2016 Avg Max T	Warmest Feb Avg Max T Record
The Dalles, OR	#4(T)	54.1	55.6 in 2015
Walla Walla, WA	#5	52.7	54.5 in 2015
Pendleton, OR	#5	53.0	57.1 in 1934
Long Creek, OR	#7	51.0	51.9 in 1992
La Grande, OR	#7	48.1	53.0 in 2015
Kennewick, WA	#7	54.3	60.2 in 1896
Ellensburg, WA	#7	47.4	53.7 in 2015
John Day, OR	#8	52.7	57.7 in 1954
Moxee City, WA	#9	49.6	53.2 in 1991



Top 10 Record Warmest Average Temperatures for February

City	Rank	Feb 2016 Avg T	Current or Previous Feb Avg T Record
Pasco, WA	#1	43.5	43.0 in 2015
Hermiston, OR	#1	43.3	43.1 in 2015
Yakima, WA	#2	42.7	43.5 in 2015
Meacham, OR	#3	36.8	39.1 in 1963
Prineville, OR	#4	42.4	43.8 in 1898
Bend, OR	#4	41.1	41.3 in 1930
Redmond, OR	#4	41.2	42.7 in 1958
Long Creek, OR	#5	39.7	42.0 in 1958
Grizzly, OR	#5	39.7	41.9 in 1963
Richland, WA	#6	44.1	47.9 in 1961
Kennewick, WA	#6	45.1	47.9 1896



Top 10 Record Warmest Average Temperatures for February (Cont'd)

City	Rank	Feb 2016 Avg T	Current or Previous Feb Avg T Record
Ellensburg, WA	#6	37.7	43.2 in 2015
Walla Walla, WA	#6	44.7	46.3 in 1958
The Dalles, OR	#6	44.8	46.2 in 2015
Moxee City, WA	#6	40.2	42.4 in 1958
Sisters, OR	#7	38.3	41.4 in 1963
Pendleton, OR	#9	43.1	46.8 in 1958
Dayton, WA	#9	43.1	47.0 in 1958
Mt. Adams R.S.	#9	37.6	42.0 in 1934
Goldendale, WA	#10	40.6	43.3 in 1958
La Grande, OR	#10	38.4	42.0 in 2015



February Significant Weather

February 3 – 4th Rain and Wet Snow Event

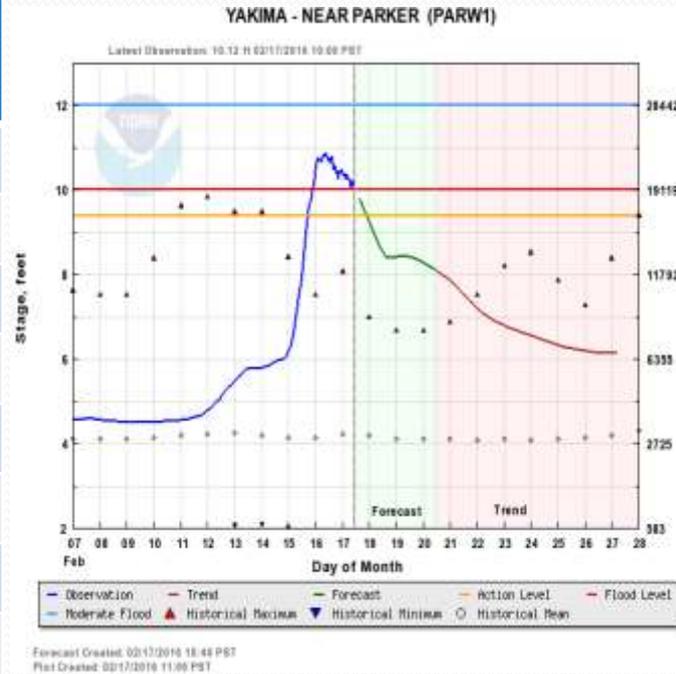


A storm system moved into the area bringing rain and mountain snow. Light snow also fell in and around the Yakima and Kittitas Valleys.

Location	Rain Total	Snowfall
Mt. Adams R.S.	1.12"	3.5"
Emigrant Springs	0.95"	7.0"
Easton, WA	0.75"	4.0"
La Grande, OR	0.49"	2.0"
Satus Pass, WA	0.48"	2.1"
Pendleton, OR	0.22"	0.0"
Cle Elum, WA	0.18"	3.5"
Arlington, OR	0.16"	0.0"
Goldendale, WA	0.15"	0.0"
The Dalles, OR	0.13"	0.0"
Dayton, WA	0.11"	0.0"
Walla Walla, WA	0.07"	0.0"
Ellensburg, WA	0.06"	0.4"
Hermiston, OR	0.05"	0.0"
Yakima, WA	0.03"	0.8"

February 15 – 19th Rain and Yakima Flooding

Location	5 Day Rainfall
Easton, WA	2.00"
Mt. Adams RS	1.77"
Satus Pass, WA	0.93"
Goldendale, WA	0.63"
Meacham, OR	0.54"
The Dallas, OR	0.43"
Dayton, WA	0.35"
Walla Walla	0.34"
Ellensburg, WA	0.20"
Yakima, WA	0.18" (67° 2/15)
Selah, WA	0.15"



Flooding 40th Ave & Fruitvale. Courtesy of Yakima PD Twitter.
8:19 PM 2/15/2016



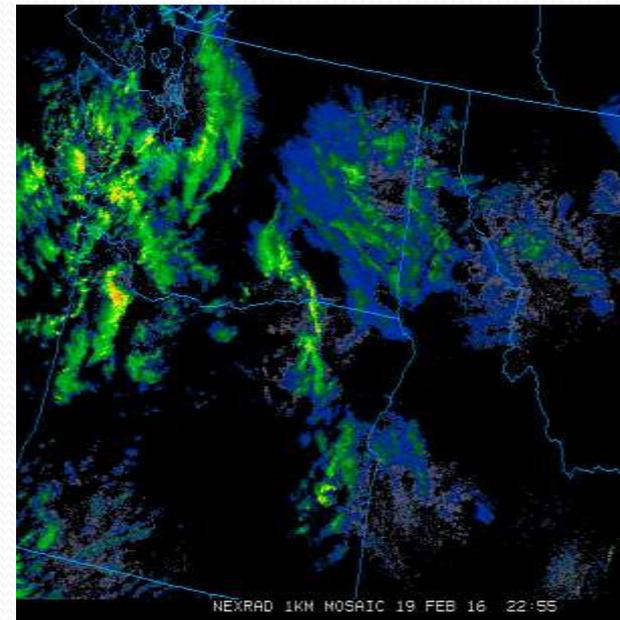
After a brief break the weather pattern turned much more active with several systems moving through the area from February 15th through the 19th. These systems brought milder temperatures and several rounds of rain to the region. The heaviest rainfall was generally noted along the east slopes of the Washington Cascades, where it also combined with rapid snow melt to cause flooding issues. Smaller streams, including Cowhiche Creek overflowed their banks causing minor to moderate flooding in and around the Yakima Valley on February 15th.



February 18 – 19th

Hermiston Squall Line & Wind

Location	Peak Wind
Butler Grade, OR	60 MPH
Hermiston Airport	53 MPH
Pendleton, OR	49 MPH
Redmond, OR	48 MPH
Walla Wall, WA	48 MPH
Pasco, WA	45 MPH
Bend, OR	43 MPH
Richland, WA	39 MPH
Sunnyside, WA	38 MPH
Yakima, WA	33 MPH
The Dalles, OR	31 MPH



A series of powerful storm systems moved through the Pacific NW on February 18th and 19th. On February 19th a squall line quickly developed along an advancing cold front just to the west of Hermiston, OR. As this squall line moved through Hermiston it produced brief heavy rain, small hail, thunder and very gusty winds. The wind was able to overturn a parked truck and destroy a metal shed near the Hermiston hospital. Early reports of a tornado went unconfirmed, as the damage almost certainly came from strong straight line winds associated with the squall.

February 28th Wind Event

24 Hour Peak Winds (mph)	
THE DALLES MUNICIPAL	SW 54
YAKIMA ARPT	W 45
6 ENE BEND	W 43
BOWERS FIELD ARPT	NW 41
TRICITIES ARPT	W 41
REDMOND ARPT	W 40
PENDLETON, OR	W 37
GRANT COUNTY REGIONAL	S 37
HERMISTON MUNICIPAL	W 36
WALLA WALLA REGIONAL	SW 33
LA GRANDE/UNION COUNTY	S 33

data valid as of Sun 4:45 pm - NWS Pendleton



Multiple wind advisories were issued across the region as a strong storm system moved through the area to round out the month. This weather system brought a period of gusty winds on February 28th to much of the region. Some of the strongest winds were noted near The Dalles, OR and in the Yakima Valley. In the Yakima Valley multiple trees were toppled from the combination of the strong winds and loose, saturated soil. The falling trees then took down power lines as well, leaving over 1500 residents without power according to the Yakima Herald.

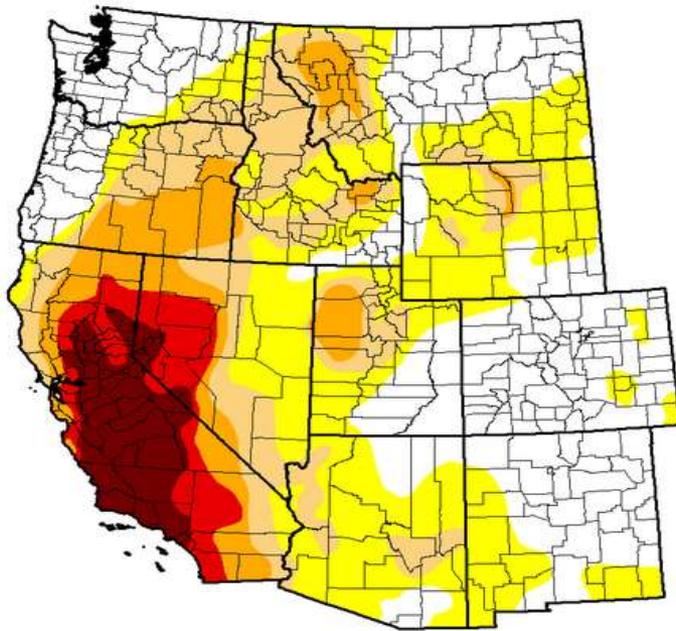
Drought Conditions Improving

U.S. Drought Monitor West

March 1, 2016
(Released Thursday March 3, 2016)
Valid 7 a.m. EST

Statistics type: Traditional Percent Area

Export table: [PNG](#) [CSV](#) [XLS](#)



Week	None	D0-D4	D1-D4	D2-D4	D3-D4	D4
Current 2016-03-01	34.49	65.51	35.79	19.70	10.28	5.55
Last Week 2016-02-23	37.06	62.94	36.25	19.70	10.28	5.55
3 Months Ago 2015-12-01	28.98	71.02	48.88	37.23	21.16	6.85
Start of Calendar Year 2015-12-29	33.17	66.83	45.07	29.30	15.92	6.85
Start of Water Year 2015-09-29	22.77	77.23	57.81	42.42	26.50	7.62
One Year Ago 2015-03-03	29.95	70.05	59.79	29.48	16.62	7.04

Estimated Population in Drought Areas: **42,562,544**

[View More Statistics](#)

Intensity:

■ D0 (Abnormally Dry)
 ■ D2 (Severe Drought)
 ■ D4 (Exceptional Drought)
■ D1 (Moderate Drought)
 ■ D3 (Extreme Drought)

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

Author(s):

David Miskus, NOAA/NWS/NCEP/CPC

Download: [PNG](#) [PDF](#) [JPG](#)

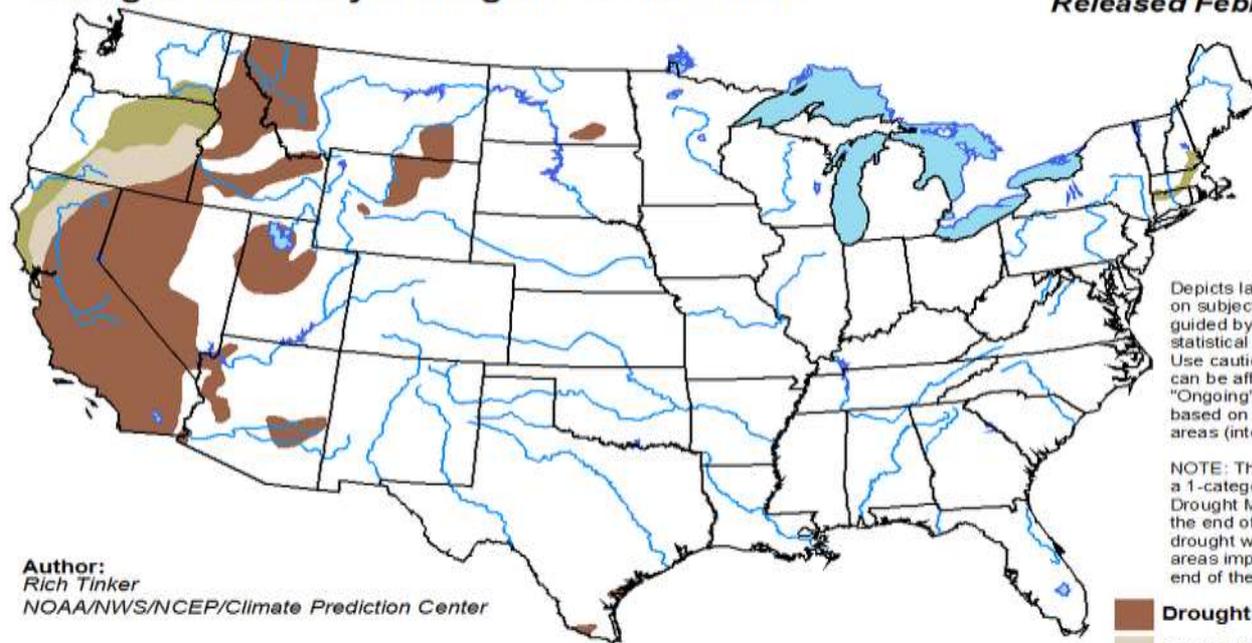
The latest drought monitor shows improvement across the Pacific Northwest, with only a small area of D1, or moderate drought lingering in southeastern Washington. All of Eastern Oregon has now been reduced to only D1 or D2 drought status. In fact, portions of Central and North-Central Oregon have now been reduce to category D-O, or just 'abnormally dry' conditions.



March Drought Outlook

U.S. Monthly Drought Outlook
Drought Tendency During the Valid Period

Valid for March 2016
Released February 29, 2016



Depicts large-scale trends based on subjectively derived probabilities guided by short- and long-range statistical and dynamical forecasts. Use caution for applications that can be affected by short lived events. "Ongoing" drought areas are based on the U.S. Drought Monitor areas (intensities of D1 to D4).

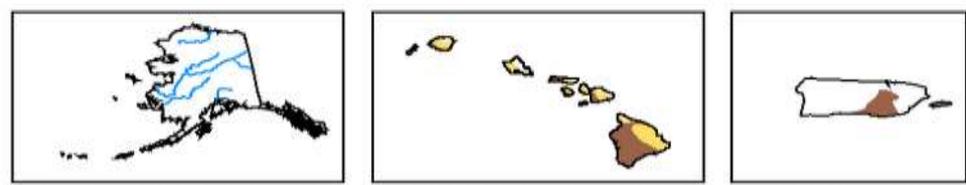
NOTE: The tan areas imply at least a 1-category improvement in the Drought Monitor intensity levels by the end of the period, although drought will remain. The green areas imply drought removal by the end of the period (D0 or none).

- Drought persists**
- Drought remains but improves**
- Drought removal likely**
- Drought development likely**



<http://go.usa.gov/3eZGd>

Author:
Rich Tinker
NOAA/NWS/NCEP/Climate Prediction Center

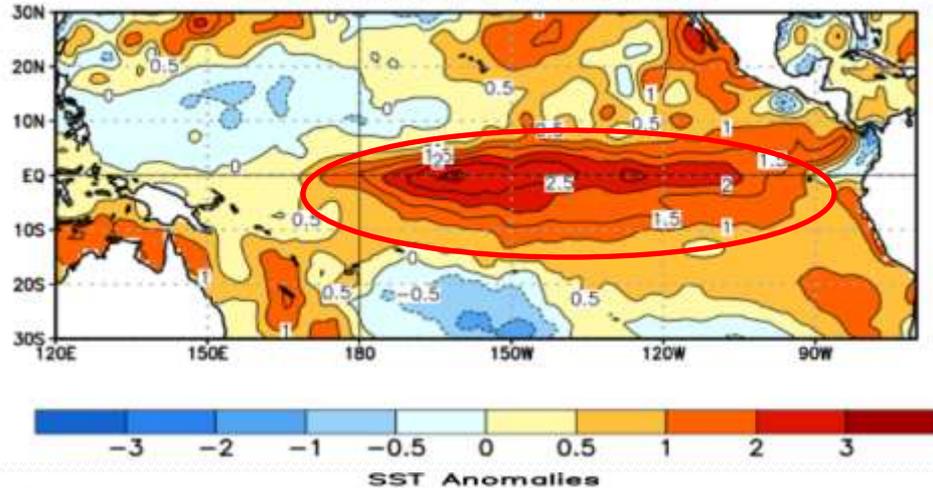


The monthly drought outlook from CPC indicates drought removal likely over much of northeast Oregon, with drought remaining but improving over much of south-central and southeastern Oregon. This outlook is valid through March 2016.



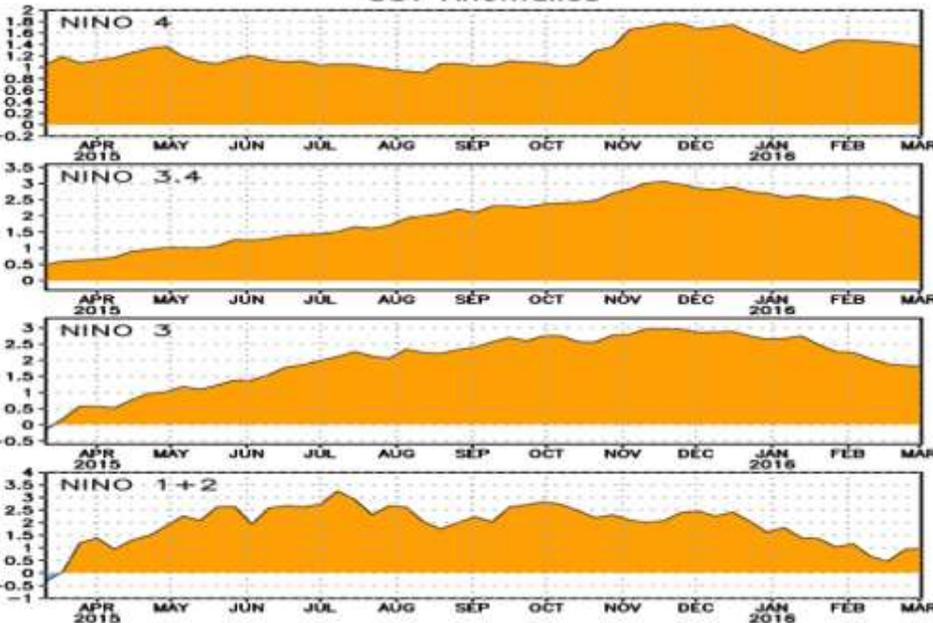
El Niño Continues

Average SST Anomalies
7 FEB 2016 – 5 MAR 2016

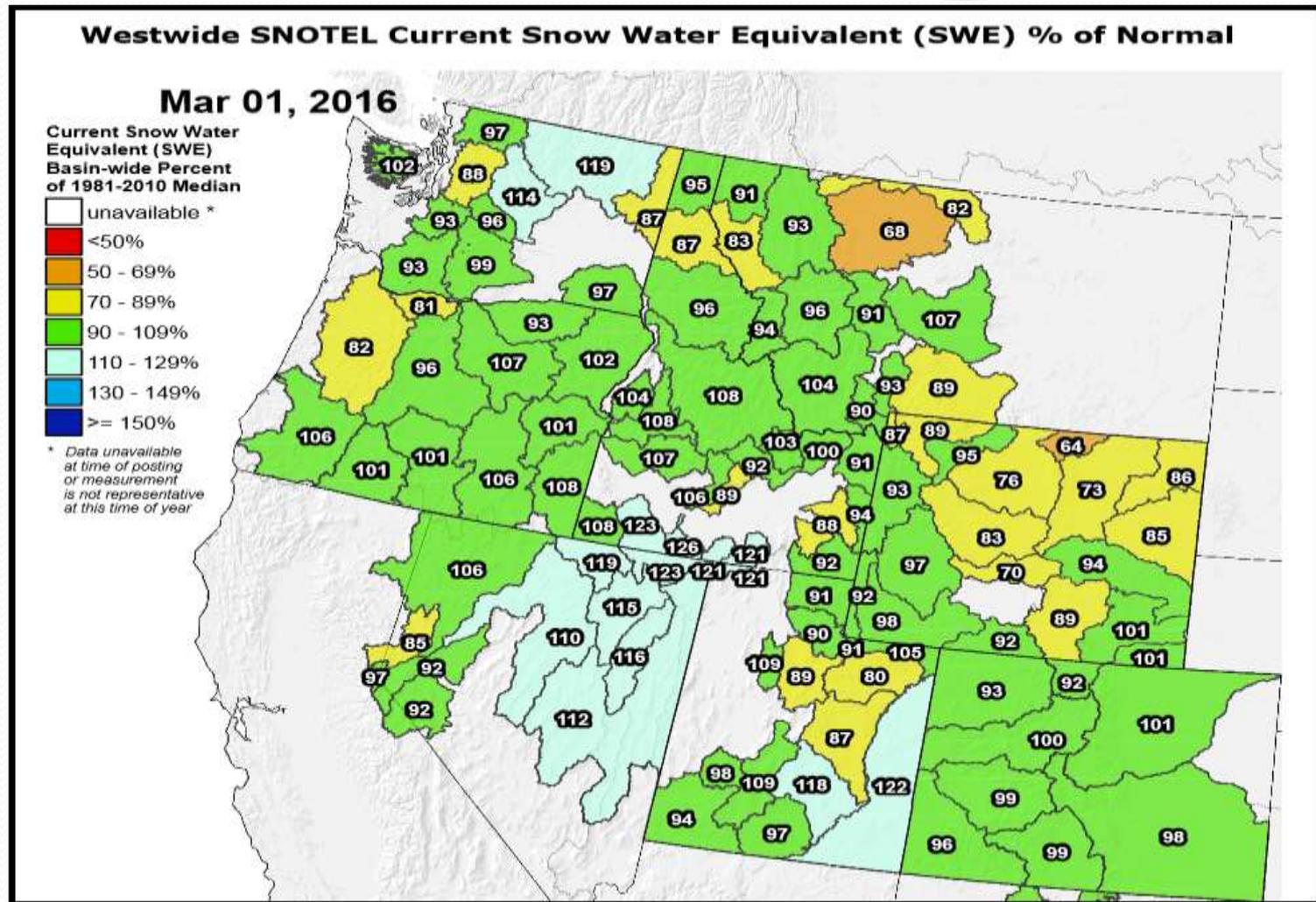


❖ An El Niño Advisory has been issued by the Climate Prediction Center, with the warmest Ocean temperature anomalies noted just east of The Date-Line along the Equator.

❖ The Climate Prediction Center has stated that a transition to ENSO neutral is likely during late Northern Hemisphere spring or early summer 2016, with a possible transition to La Niña conditions during the fall.

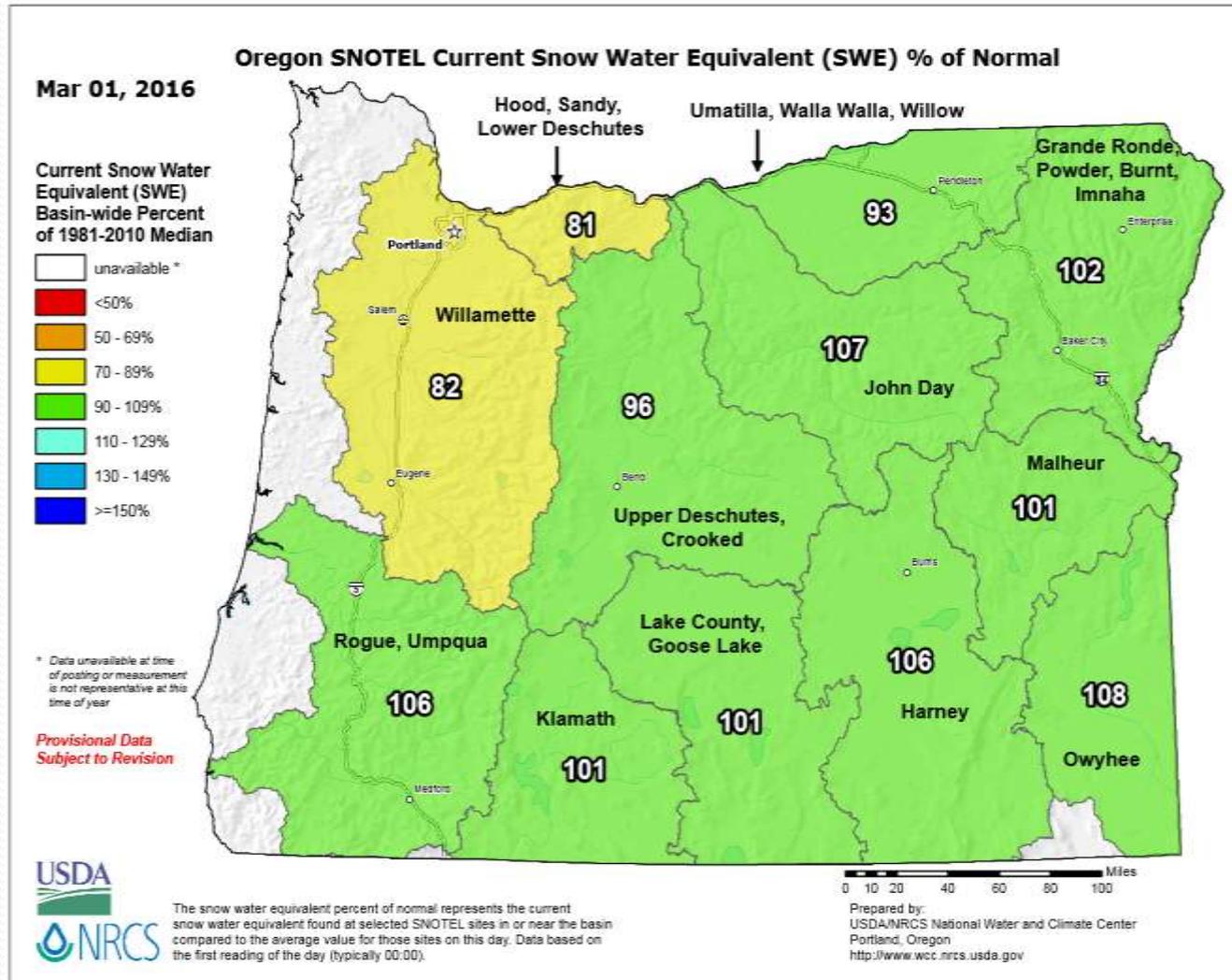


Current Snow Water Equivalent



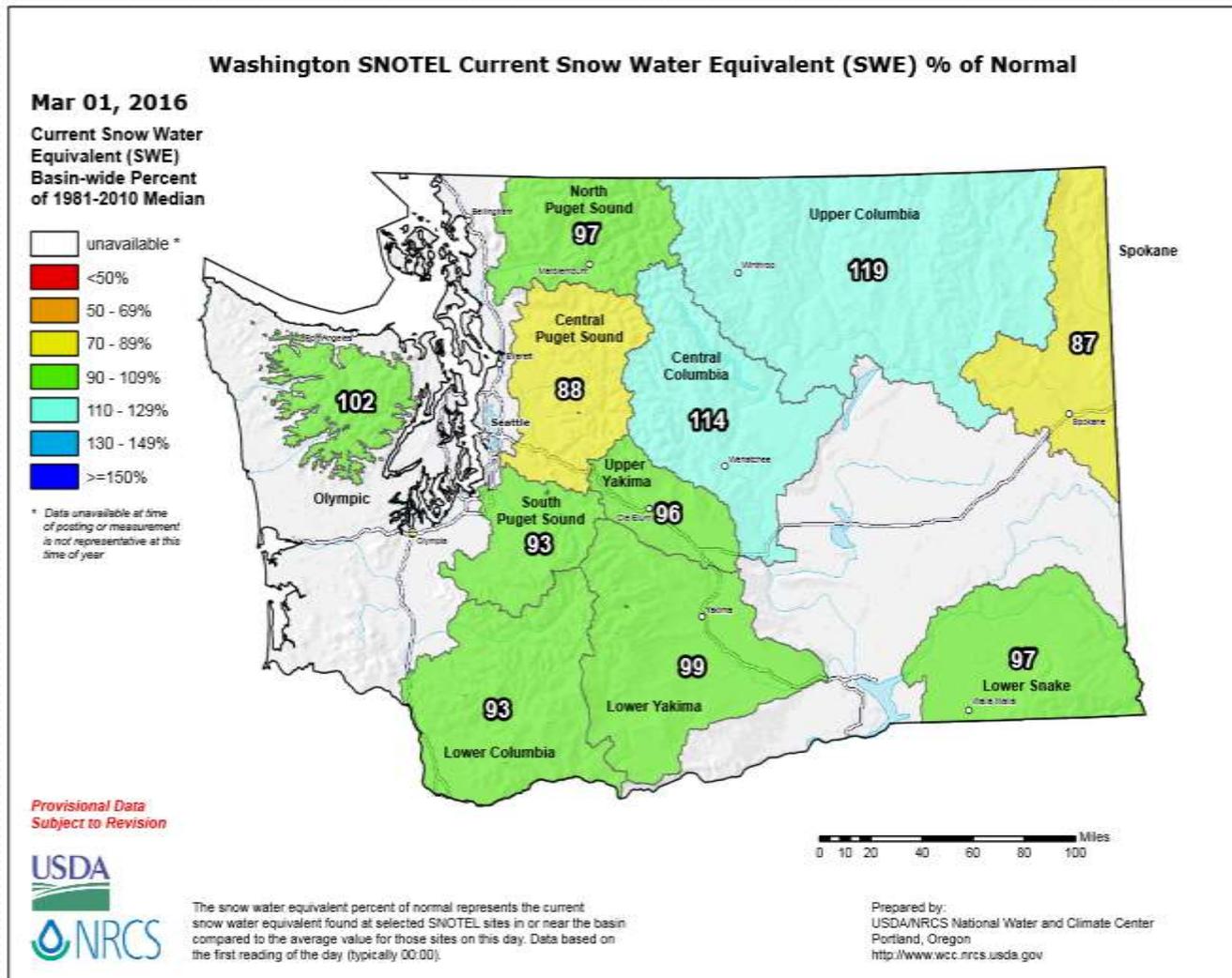
Current snow water equivalent (SWE) is running mainly near average across the Pacific Northwest. Just about all of Washington and Oregon now has SWE values between 80 and 120 percent of normal for March 1st. This should provide a source of much needed water through the spring and summer months ahead. We are in much better shape compared to last year at this time.

Oregon Current Snow Water Equivalent



March 1st 2016: 81 to 108 percent SWE

Washington Current Snow Water Equivalent

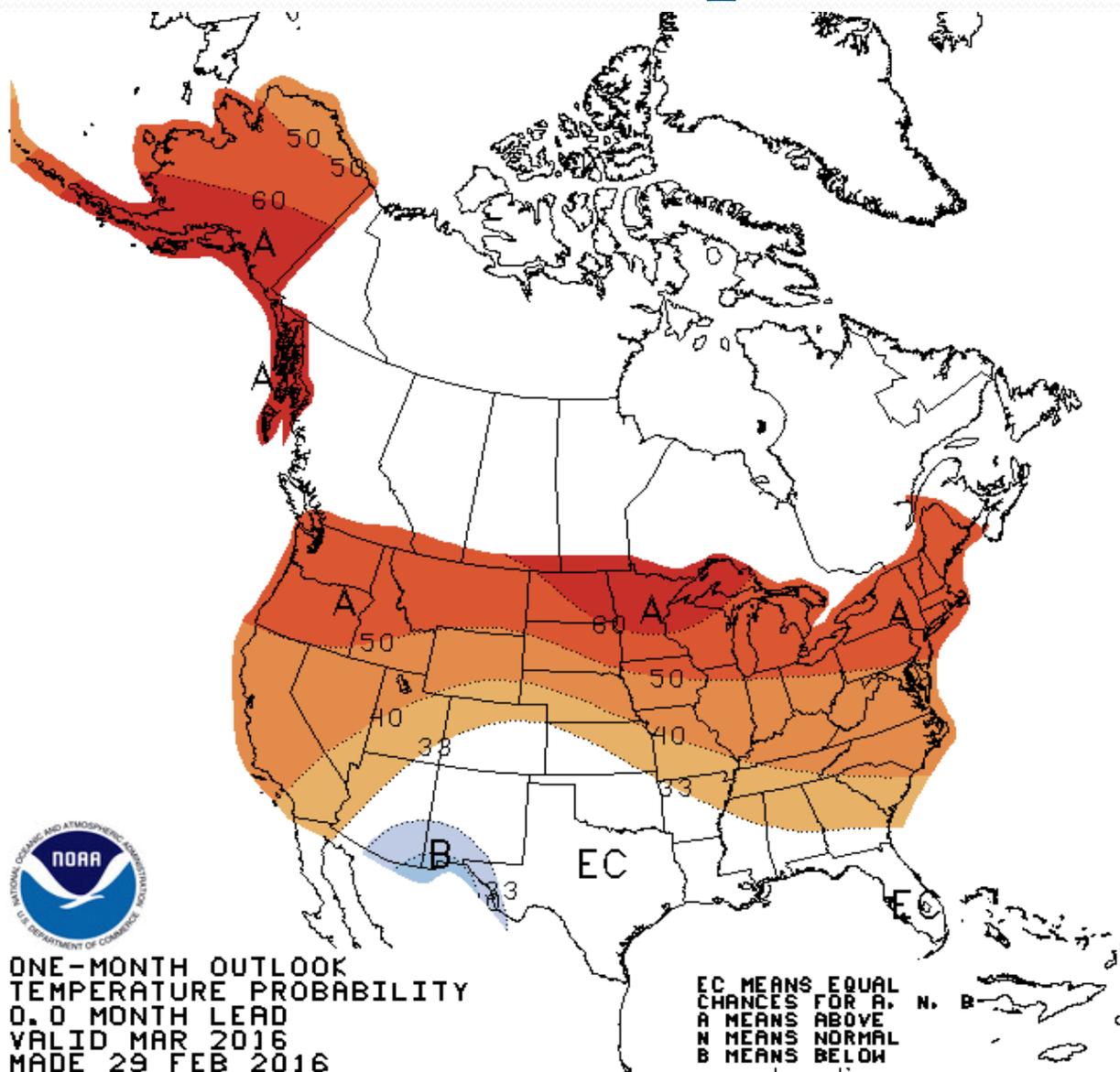


March 1st 2016: 87 to 119 percent SWE



March Outlook

March Temperature Outlook



This graphic is issued by the Climate Prediction Center or CPC and is the Temperature Outlook for the month of March. The cool colors indicate a greater chance of below normal temperatures and the warm colors represent a greater chance of above normal temperatures. The time period for the normals runs from 1981-2010. Most of the Inland Pacific Northwest has a 50 – 60 percent chance for above average in the month of March. This higher probability for warmth extends down the entire West Coast into California, north to most of Alaska, and across the entire northern tier of the US.

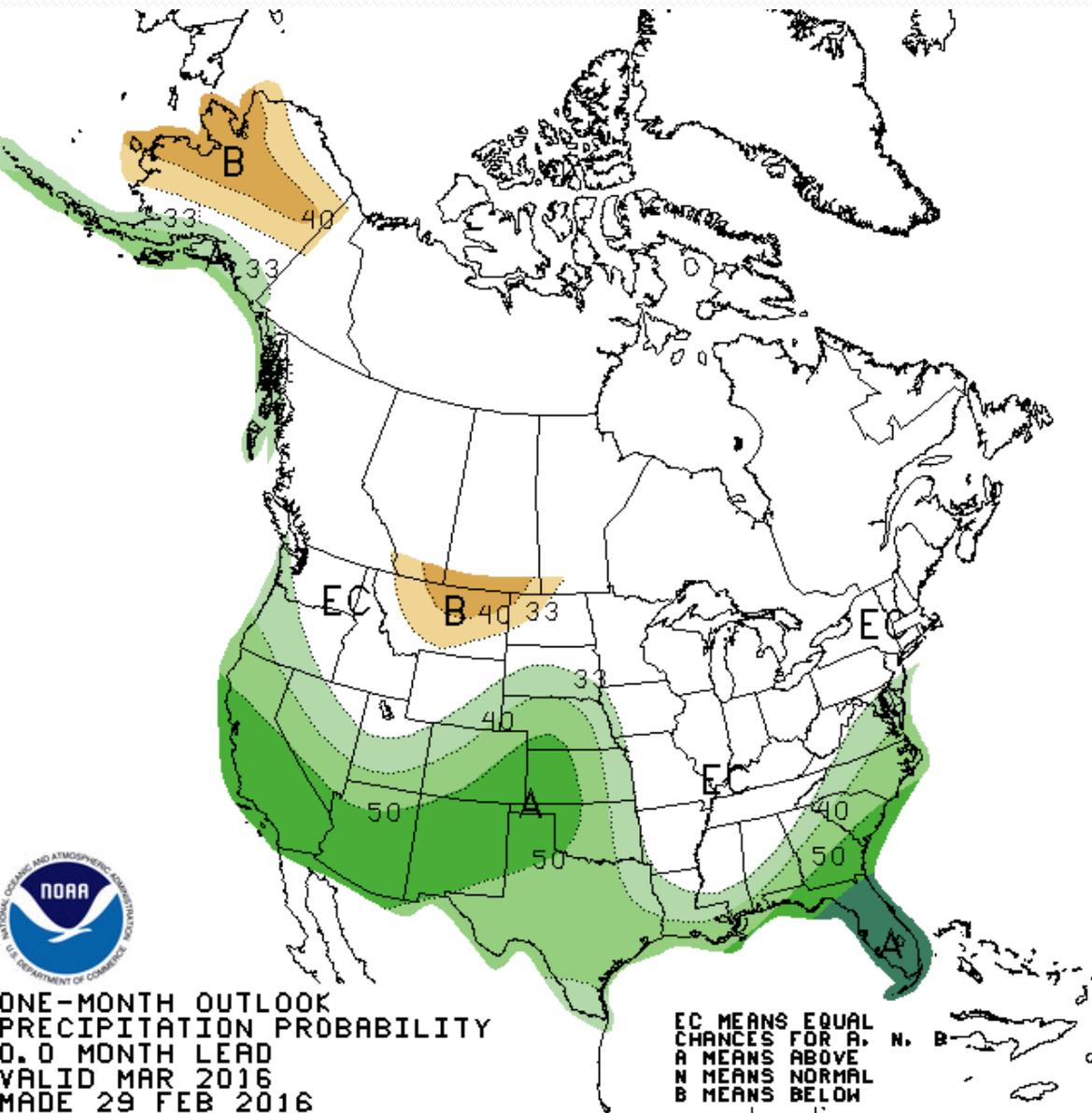


ONE-MONTH OUTLOOK
TEMPERATURE PROBABILITY
0.0 MONTH LEAD
VALID MAR 2016
MADE 29 FEB 2016

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

March Precipitation Outlook

This graphic is CPC's Precipitation Outlook for the month of March. The green colors represent a greater chance of above normal precipitation, and the brown colors represent a greater chance of below normal precipitation. Eastern Oregon and Washington have equal chances for above, below or near average precipitation amounts through the month. Meanwhile western and southern Oregon have greater probabilities to have above average precipitation amounts for the month of March. Please remember that these are probabilities of averages, and that the day-to-day weather will still vary for the month .



ONE-MONTH OUTLOOK
PRECIPITATION PROBABILITY
0.0 MONTH LEAD
VALID MAR 2016
MADE 29 FEB 2016

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



Thank You!