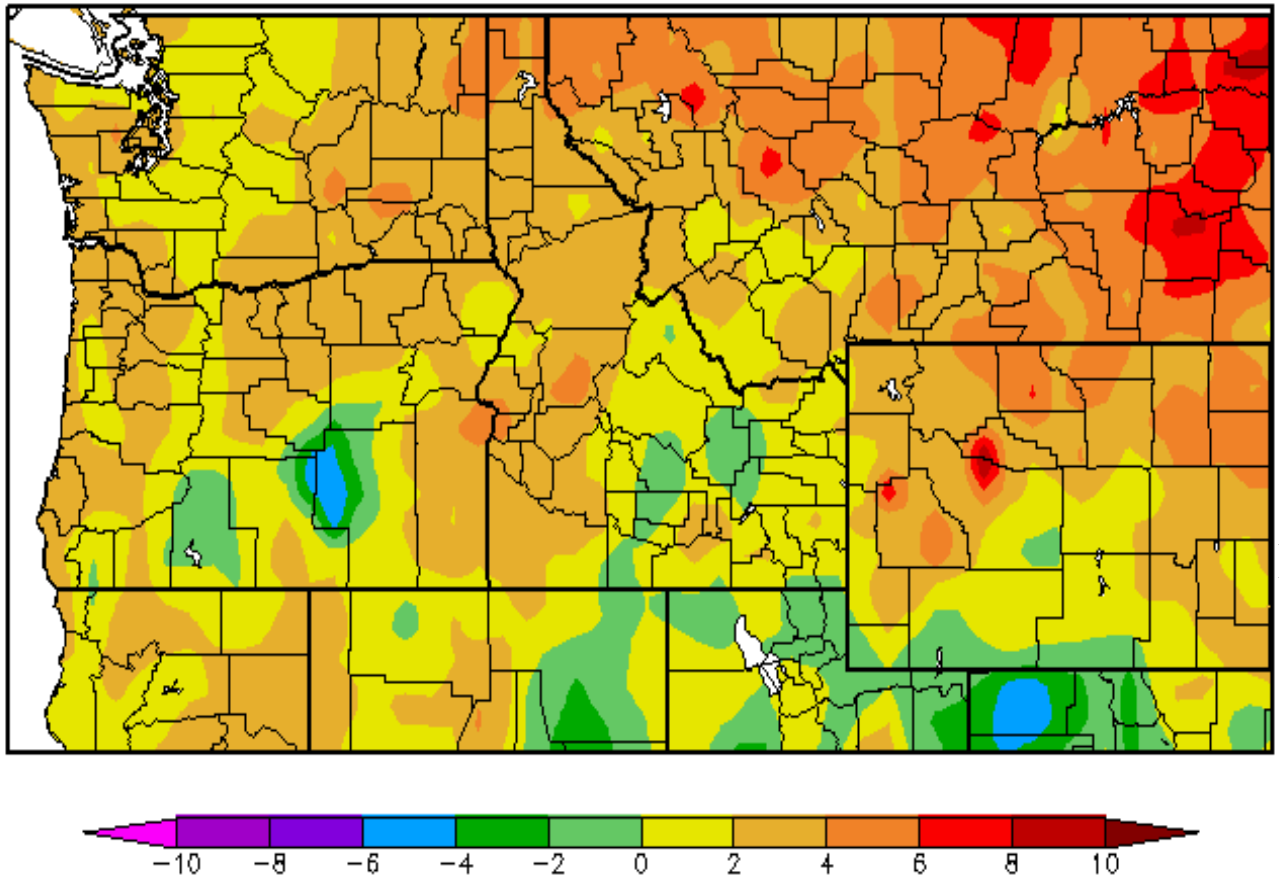
Season In Review
Winter 2015-2016

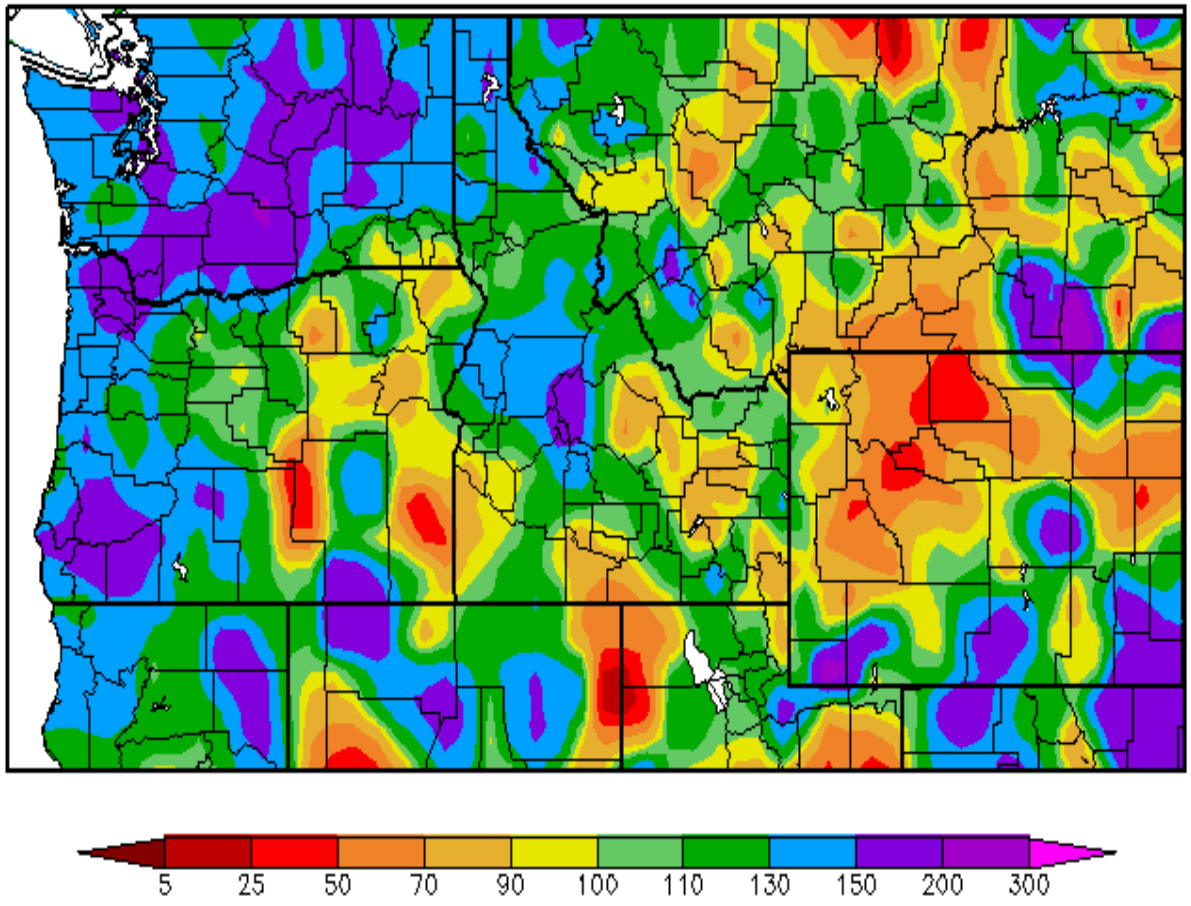
National Weather Service Pendleton, OR

Departure from Normal Temperature (F)
12/1/2015 – 2/29/2016



Temperatures Averaged between +1 to +5°F for the winter season over much of the region. A small portion of south-central Oregon (near Burns) did have below average temperatures for the winter.

Percent of Normal Precipitation (%)
12/1/2015 – 2/29/2016

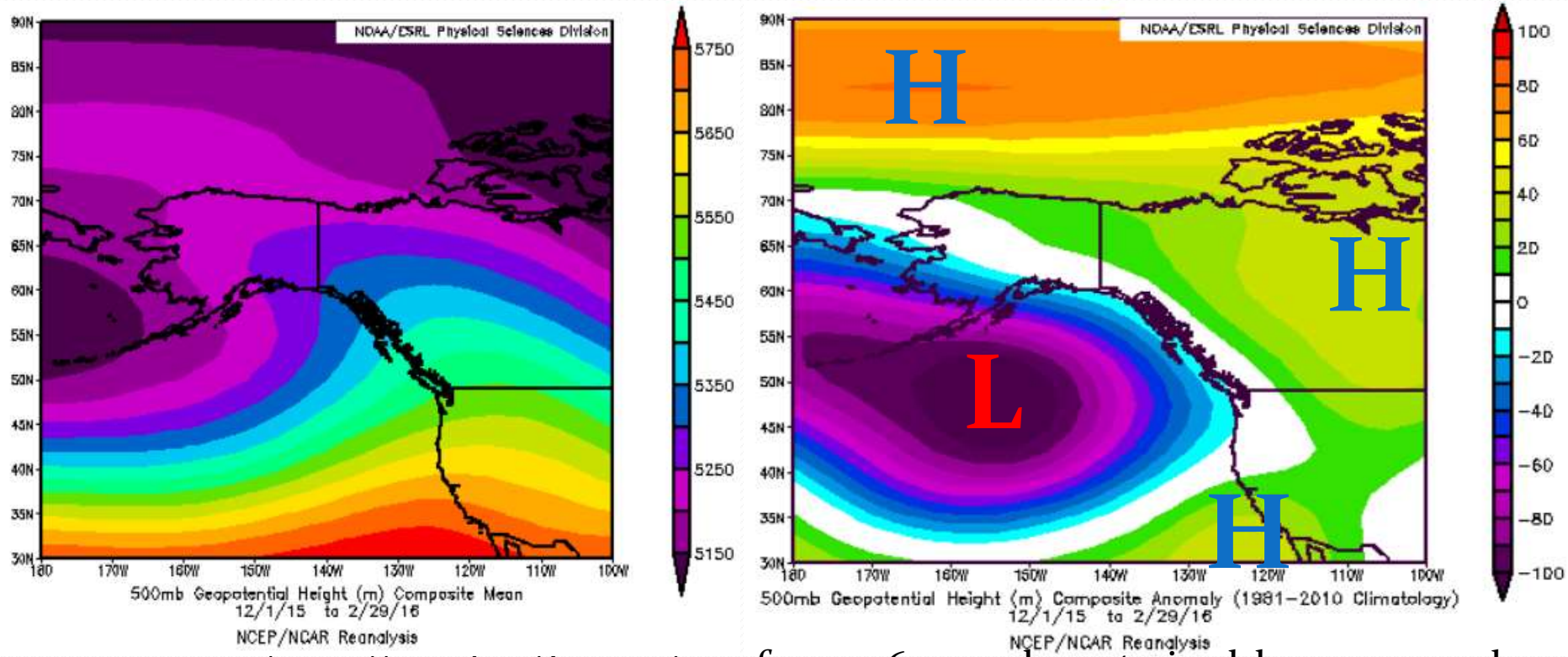


Generated 3/11/2016 at HPRCC using provisional data.

Regional Climate Centers

Precipitation was variable across the region this winter…ranging from about 70 – 110% of average in North-Central Oregon. In South-Central Washington precipitation ranged from 130 – 200 % of normal, with Southeast Washington closer to 100 %.

Winter 2015-16
Synoptic Weather Pattern



The mean synoptic pattern for the winter of 2015-16 was characterized by an anomalous upper level low pressure system south of Alaska, which extended right along the Pacific Northwest coastline. There was also a large, and expansive area of higher than normal heights/pressure over much of west-central Canada extending north over the Arctic. There was a weaker ridge of higher than normal pressure over the Intermountain West and across Southern California. This pattern allowed for generally warmer and wetter than average conditions to prevail across the Pacific NW through the winter months.

Winter 2015-16 Data and Departure From Normal For Selected Cities (Dec – Feb)

	Max Temp	Dep Norm	Min Temp	Dep Norm	Ave Temp	Dep Norm	Pcpn Totl	Dep Norm	Snow Totl	Dep Norm
La Grande	41.8	+1.9	27.1	+2.1	34.5	+2.1	4.20	-0.71	5.1	-9.4
Pendleton	46.0	+3.6	30.9	+2.5	38.4	+2.9	4.65	+0.48	2.5	-11.0
Redmond	46.5	+2.9	25.6	+2.7	36.0	+2.8	3.22	+0.47	4.3	-8.3
The Dalles	46.9	+3.2	34.0	+3.6	40.4	+3.3	10.11	+3.17	4.0	-3.0
Kennewick	46.2	+3.4	33.1	+4.9	39.6	+4.2	3.53	+0.60	M	M
Walla Walla	46.1	+3.6	33.0	+2.8	39.6	+3.2	5.86	-0.31	4.5	-7.6
Yakima	44.1	+3.6	27.4	+4.2	35.8	+3.9	6.19	+2.83	28.4	+9.7

Top 10 Warmest December – February Average Max T

City	Rank	Dec – Feb Avg Max T	Current Dec – Feb Avg Max T Record
Meacham, OR	#3	39.1	42.3 in 2014
Hermiston, OR	#4	46.8	48.8 in 1998
Pasco, WA	#5	46.1	47.9 in 1998
Walla Walla, WA	#7	46.1	49.0 in 1966
Yakima, WA	#8	44.1	48.5 in 1966
Redmond, OR	#9	46.5	47.9 in 1962
The Dalles, OR	#10	46.9	49.9 in 1966

Top 10 Warmest December – February Average Min T

City	Rank	Dec – Feb Avg Min T	Current Dec – Feb Avg Min T Record
Hermiston, OR	#2	31.1	31.6 in 2002
Pasco, WA	#3	30.3	32.4 in 2002
Long Creek, OR	#6	26.0	28.5 in 1991
Prineville, OR	#7	27.3	28.9 in 1957
Bend, OR	#7	27.0	30.7 in 1933
Ellensburg, WA	#9	24.8	30.0 in 2014
Meacham, OR	#9	24.0	27.8 in 1957
The Dalles, OR	#10	34.0	35.6 in 1991
Yakima, WA	#10	27.4	31.9 in 1980
Kennewick, WA	#10	33.1	35.7 in 1952
Mt. Adams R.S.	#10	27.4	29.8 in 1933

Top 10 Warmest December – February Average T

City	Rank	Dec – Feb Avg T	Current Dec – Feb Avg T Record
Hermiston, OR	#3	38.9	39.4 in 1998
Pasco, WA	#4	38.2	39.7 in 2002
Redmond, OR	#6	36.0	38.6 in 1957
Meacham, OR	#6	31.6	34.1 in 2014
Long Creek, OR	#6	35.0	37.3 in 1957
Bend, OR	#7	35.7	40.2 in 1933
Yakima, WA	#8	35.8	38.6 in 1966
Prineville, OR	#8	37.4	42.5 in 1901
Walla Walla, WA	#9	39.6	42.2 in 1966
The Dalles, OR	#10	40.4	42.4 in 1966
Ellensburg, WA	#10	32.0	37.5 in 2014

Top 10 Wettest December – February On Record

City	Rank	Dec – Feb Precipitation	Highest Dec – Feb Precipitation
Ellensburg, WA	#2	5.64	5.86 in 2002
Moxee City, WA	#3	4.89	5.66 in 1977
Pasco, WA	#4	3.30	4.98 in 2002
Yakima, WA	#5	6.19	7.28 in 1955
Easton, WA	#5	23.27	27.13 in 2005
Hermiston, OR	#6	3.28	5.08 in 2003
Meacham, OR	#7	16.47	20.35 in 1974

Snow Records December – February

Top 15 Snowiest Dec – Feb

- Yakima, WA had its 13th snowiest December – February period on record, with 28.4 inches of snow. The record stands at 53.2 inches of snow in December 1955 – February 1956.
- Easton, WA had its 14th snowiest December – February period on record, with 90.0 inches of snow. The record stands at 191.0 inches of snow in December 2007 – February 2008.

Top 10 Least Snowy Dec – Feb

- Heppner, OR had its 2nd least snowy December – February period on record, with only a trace of snow. The record still stands with 0.0 inches of snow from December 1930 – February 1931.
- La Grande, OR had its 10th least snowy December – February on record, with only 5.1 inches of snow. The record still stands at 0.0 inches of snow from December 1987 – February 1988.

December Significant Weather

December 6 – 11th Warm Up, Heavy Rainfall, Flooding & Landslides

Location	6 Day Rain Totals	Highest Temperature
Walla Walla	1.45 Inches	67 Degrees
Meacham	3.33 Inches	56 Degrees
The Dalles	2.65 Inches	66 Degrees
Ellensburg	1.58 Inches	52 Degrees
Hermiston	0.74 Inches	72 Degrees
Pendleton	1.23 Inches	66 Degrees
Pasco	1.05 Inches	69 Degrees
Yakima	1.47 Inches	64 Degrees
Cle Elum	4.28 Inches	46 Degrees
Easton	6.67 Inches	48 Degrees
Goldendale	3.50 Inches	61 Degrees

Flooding on South Naches Road, Wednesday, December 9th, 2015 (Courtesy: Steven Mack)

A strong jet stream combined with multiple fast moving weather systems and ample Pacific moisture to produce periods of moderate to heavy rain across the region. In the maritime flow temperatures also surged into the 60s and even lower 70s, leading to many record highs. The heavy rain and snow melt lead to significant rises on area rivers with minor to moderate flooding being reported on the Yakima and Naches rivers. A dangerous landslide also occurred on highway 12 near White Pass which washed out the roadway rendering it impassable for days.

December 12 – 13th Mtn Snow Event

A series of low pressure systems, with a cold frontal passage, a warm frontal passage and a final cold front moved through the area on the 12th & 13th . This complex weather pattern lead to fluctuating snow levels during the event. A moist northwest upslope flow allowed accumulating snow to continue onto the 13th in the Blue Mountains. Highest totals were above 3500-4500 feet in elevation where the precipitation remained all snow.

Location	Snowfall Total
Mt. Bachelor	20.0 Inches
5NNW La Pine	16.0 Inches
6S Sunriver	15.0 Inches
Tollgate	14.0 Inches
13SW Mitchell	12.0 Inches
Ski BlueWood	12.0 Inches
Seneca	8.0 Inches
1SE Flora	7.0 Inches
6ESE Paulina	6.9 Inches
1.5 WSW Bend	3.5 Inches
1S Bend	3.0 Inches
4NW Meacham	3.0 Inches
2WNW Sisters	2.0 Inches
Snowden	2.0 Inches
1.8 WSW Redmond	0.8 Inches

December 17 – 23rd Significant Snow & Wind Events

Location	7 Day Snowfall
Easton, WA	52.0 Inches
Cle Elum, WA	30.0 Inches
2WNW Sisters	28.6 Inches
Snowden, WA	26.5 Inches
5N La Pine, OR	19.0 Inches
Sunriver, OR	18.3 Inches
4NW Meacham	17.4 Inches
6ESE Paulina	16.5 Inches
Joseph, OR	12.1 Inches
Yakima, WA	12.0 Inches
2S Bend, OR	10.9 Inches
White Salmon	9.0 Inches

Image Credit: Pedro Quintana KTVZ Bend, OR

Location	Peak Wind Gust
6SSE Joseph	73 MPH
11SSE Waitsburg	72 MPH
Pendleton, OR	69 MPH
Madras Airport	68 MPH
4WNW Shaniko	68 MPH
Redmond, OR	64 MPH
Hermiston, OR	64 MPH
5W Condon	60 MPH
Lexington, OR	59 MPH
7W College Pl.	59 MPH
Grass Valley, OR	55 MPH
Sisters, OR	55 MPH

A series of powerful storm systems impacted the interior Pacific Northwest during this time period as a deep upper level trough developed over the region. Seven day snowfall totals were very impressive, especially along the East Slopes of the Cascades. Many of the Cascade passes were impacted and some were even closed at times due to deep snow. Very strong, and even damaging winds occurred on December 21st with gusts between 60 to 70 MPH being quite common.

January Significant Weather

January 1 – 3rd Cold Start to the New Year

A deep, cold, upper level trough moved over the region during this time. Combined with the lingering snowpack from ample December snowfall overnight lows were able to plummet during the first few days of the month.

Location	Coldest Temperature
Seneca	-21
Sunriver	-13
Meacham	-9
Bend	-8
Sisters	-6
Cle Elum	-6
Joseph	-4
Ellensburg	-4
John Day	-2
Long Creek	-1
La Grande	-1
Yakima	0
Redmond	1
Prineville	2
Goldendale	3

January 3 – 5th
Snow & Light Freezing Rain

Location	Snow Total	Maximum Snow Depth
Trout Lake, WA	7.0”	33”
Cle Elum, WA	6.0”	16”
Yakima, WA	5.0”	11”
White Salmon, WA	4.2”	M
Goldendale, WA	4.0”	11”
Ellensburg, WA	3.7”	10”
Easton, WA	3.0”	41”
Prosser, WA	1.5”	1.5”
Richland, WA	1.0”	1.0”
Kennewick, WA	0.5”	0.5”
Echo, OR	0.3”	T
Pendleton, OR	0.2”	T

Shoveling Snow in Yakima, WA. Photo courtesy of KNDU

A storm system with abundant moisture moved over our area from January 3rd through the 5th. This storm system moved over lingering cold air, and was therefore able to produce some significant snowfall totals across parts of the region. The heaviest snow fell along the East Slopes of the Cascades, The Yakima Valley, and Kittitas Valley region. Light snow, mixed with freezing rain also affected the Columbia Basin and Blue Mtn Foothills.

January 16 – 20th Rain & Snow

A series of low pressure systems once again moves through the forecast area. These storm system brought ample amounts of precipitation to the entire area…even more than the previous storm system just days before. Moderate to even heavy snow amounts were once again observed near Yakima, Ellensburg, Easton and into the Blue Mountains. Other locations were spared the snow, but received a moderate rainfall.

Location	Precipitation (Storm Total)	Snowfall (Storm Total)
Walla Walla	0.66 Inches	0.0 Inches
Meacham	1.41 Inches	5.0 Inches
The Dalles	1.09 Inches	0.0 Inches
Ellensburg	0.87 Inches	6.6 Inches
Hermiston	0.57 Inches	0.0 Inches
Pendleton	0.62 Inches	0.0 Inches
Pasco	0.53 Inches	Trace
Yakima	0.98 Inches	3.0 Inches
Cle Elum	1.39 Inches	8.0 Inches
Easton	1.69 Inches	12.5 Inches
Goldendale	1.27 Inches	0.0 Inches
Redmond	0.47 Inches	0.0 Inches
Bend	0.61 Inches	Trace
John Day	0.32 Inches	0.0 Inches
La Grande	0.16 Inches	0.0 Inches

February Significant Weather

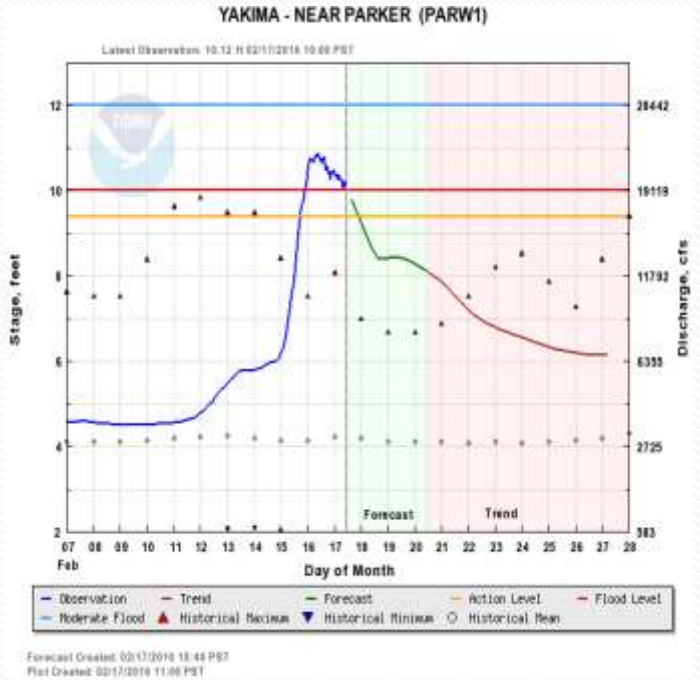
February 3 – 4th Rain and Wet Snow Event

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”

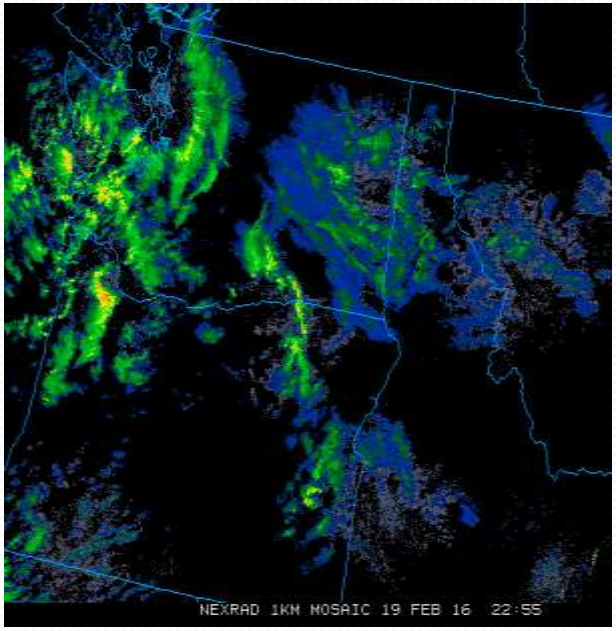


Flooding 40th Ave & Fruitvale. Courtesy of Yakima PD Twitter. 8:19 PM 2/15/2016

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 Walla, 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

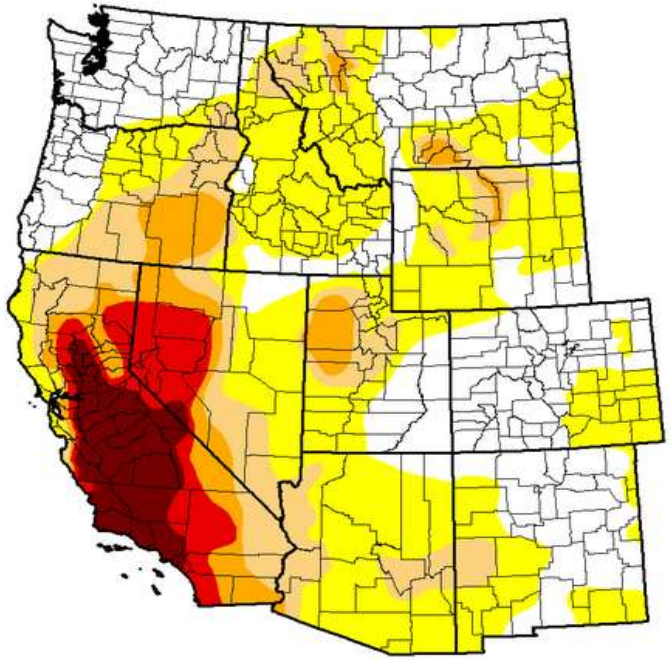
data valid as of Sun 4:45 pm - NWS Pendleton

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



Download: PNG PDF JPG

March 15, 2016

(Released Thursday March 17, 2016)

Valid 8 a.m. EDT

Statistics type: Traditional Percent Area

Export table: PNG CSV XLS

Week	None	D0-D4	D1-D4	D2-D4	D3-D4	D4
Current 2016-03-15	32.27	67.73	30.28	16.37	9.54	4.74
Last Week 2016-03-08	33.33	66.67	30.83	18.80	10.28	5.55
3 Months Ago 2015-12-15	30.80	69.20	47.25	33.26	16.71	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 2015-03-17	29.93	70.07	60.29	31.01	16.62	7.04

Estimated Population in Drought Areas: **39,423,455**

View More Statistics

Intensity:

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

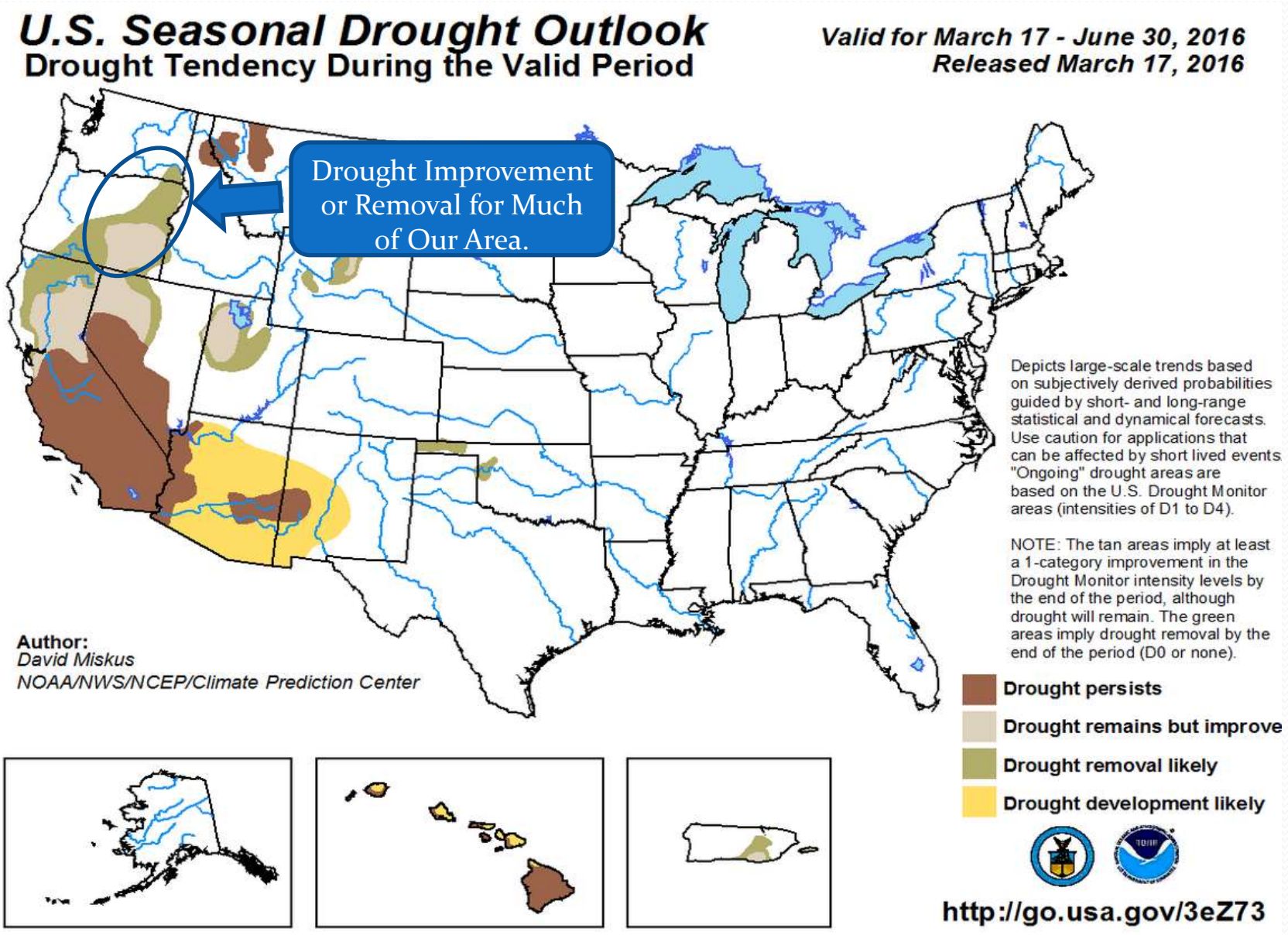
The Drought Monitor focuses on broad-scale conditions. Local conditions may vary. See accompanying text summary for forecast statements.

Author(s):

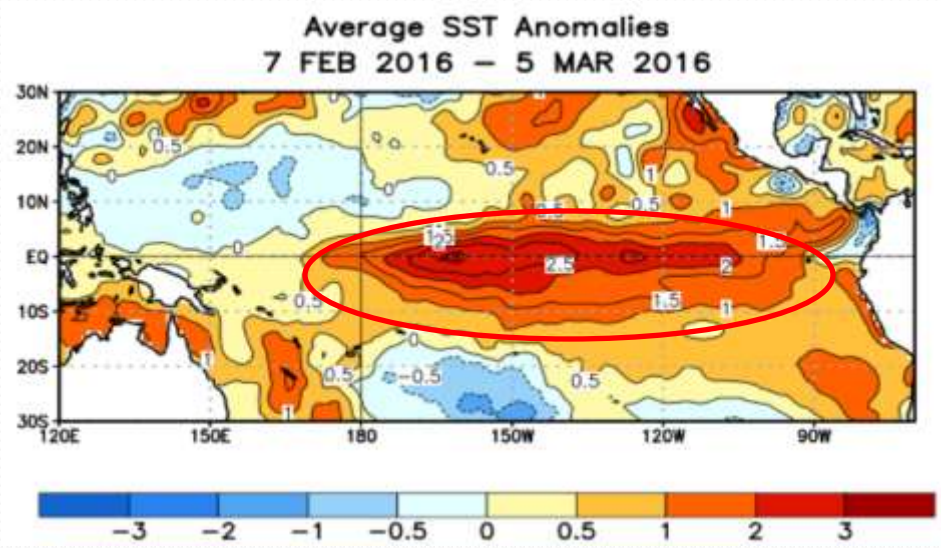
Richard Heim, NOAA/NCEI

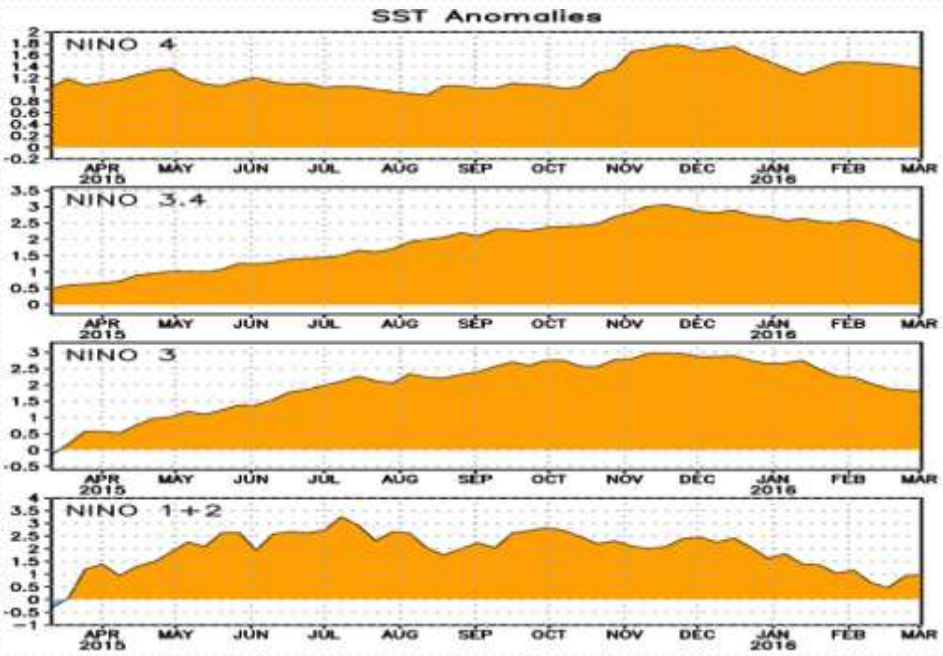
The latest drought monitor shows improvement across the Pacific Northwest, with only a small area of D1, or moderate drought lingering in southeastern Washington. All of Eastern Oregon has now been reduced to only D2 or lower drought status. In fact, portions of Central and North-Central Oregon have now been reduce to category D0, or just 'abnormally dry' conditions.

Drought Outlook Through June 30th



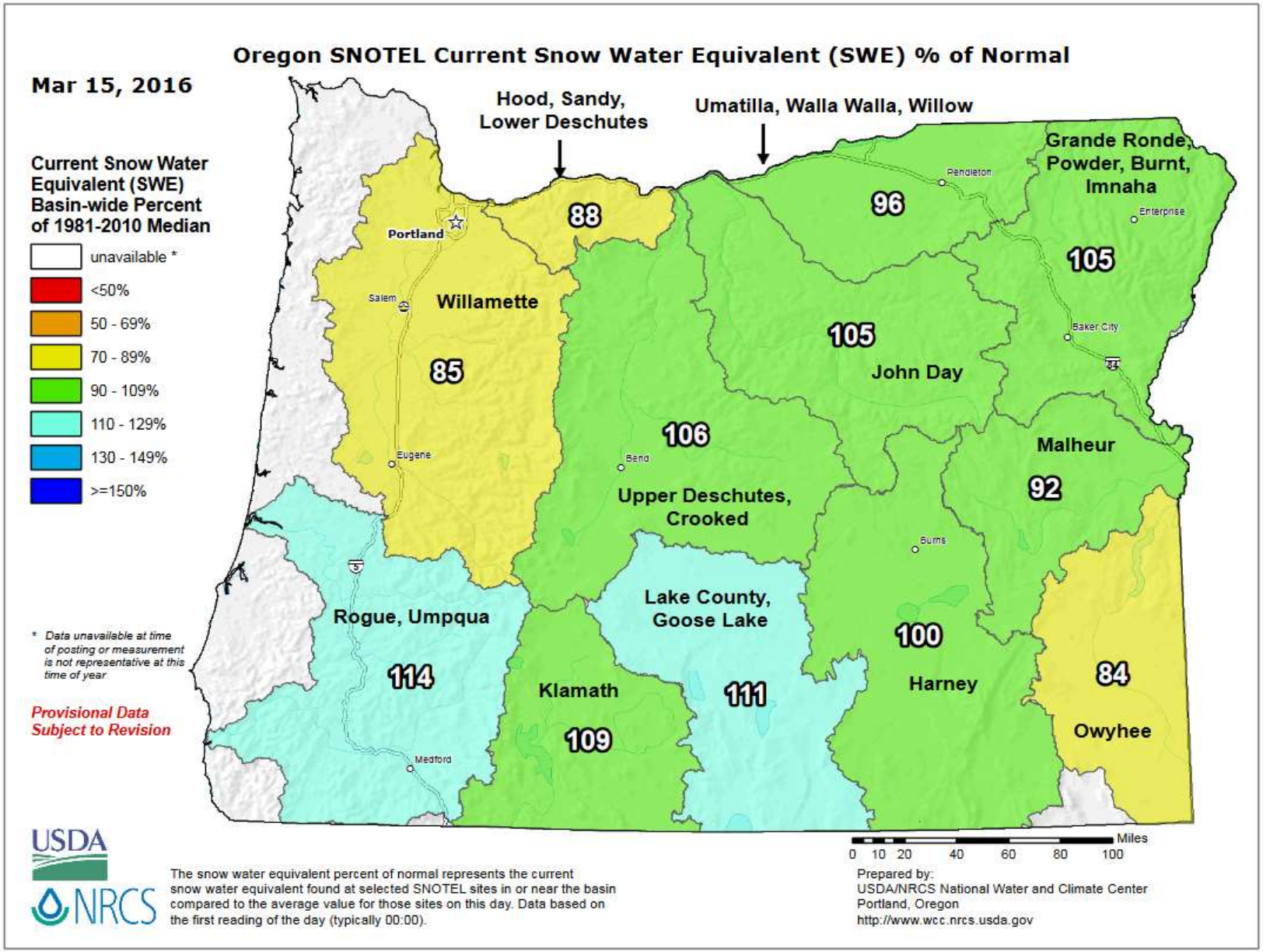
El Niño Continues



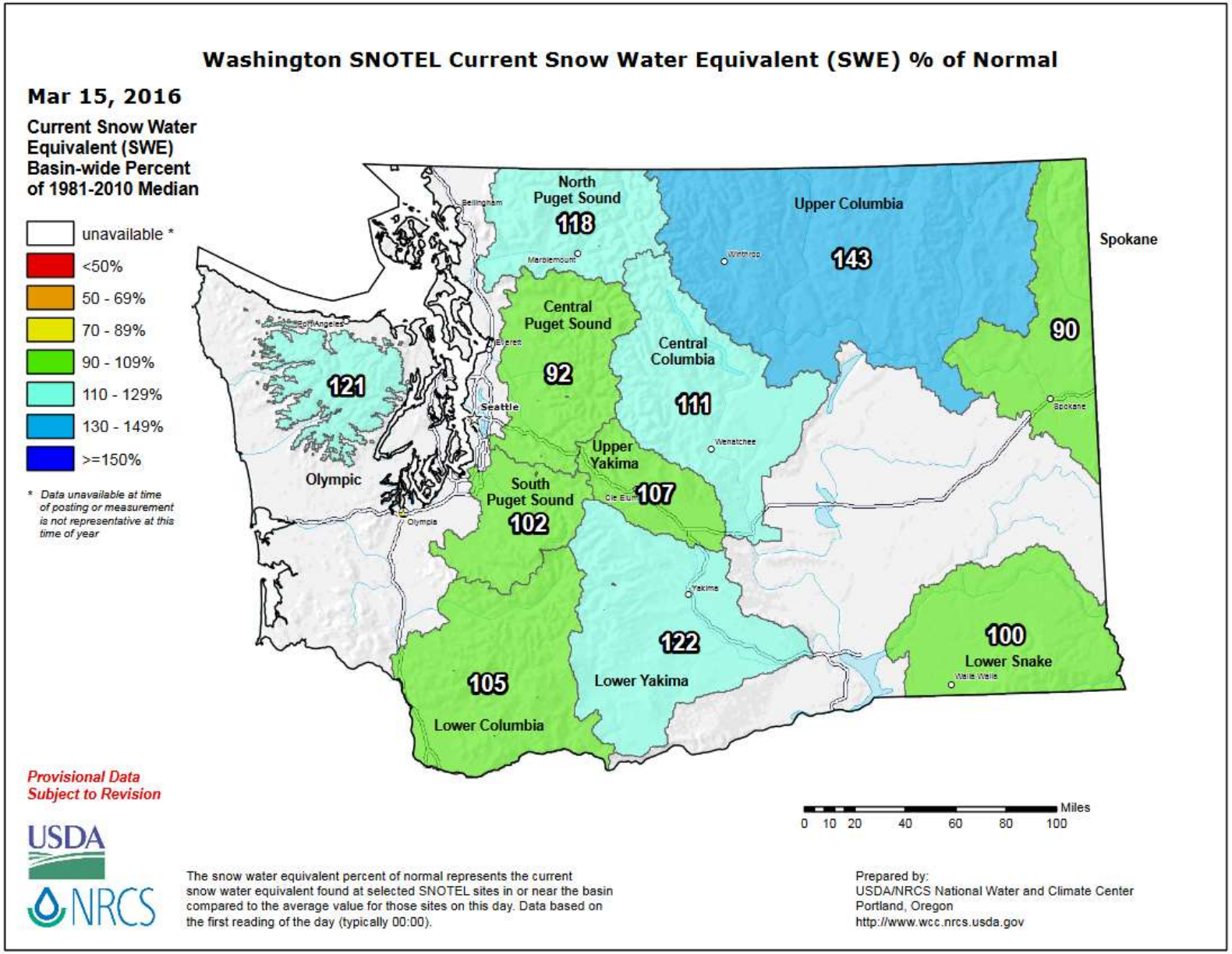


- An El Niño Advisory has been issued by the Climate Prediction Center, with the warmest Ocean temperature anomalies noted just east of The Date-Line along the Equator.
- The Climate Prediction Center has stated that a transition to ENSO neutral is likely during late Northern Hemisphere spring or early summer 2016, with a possible transition to La Niña conditions during the fall.

Oregon Snow Water Equivalent



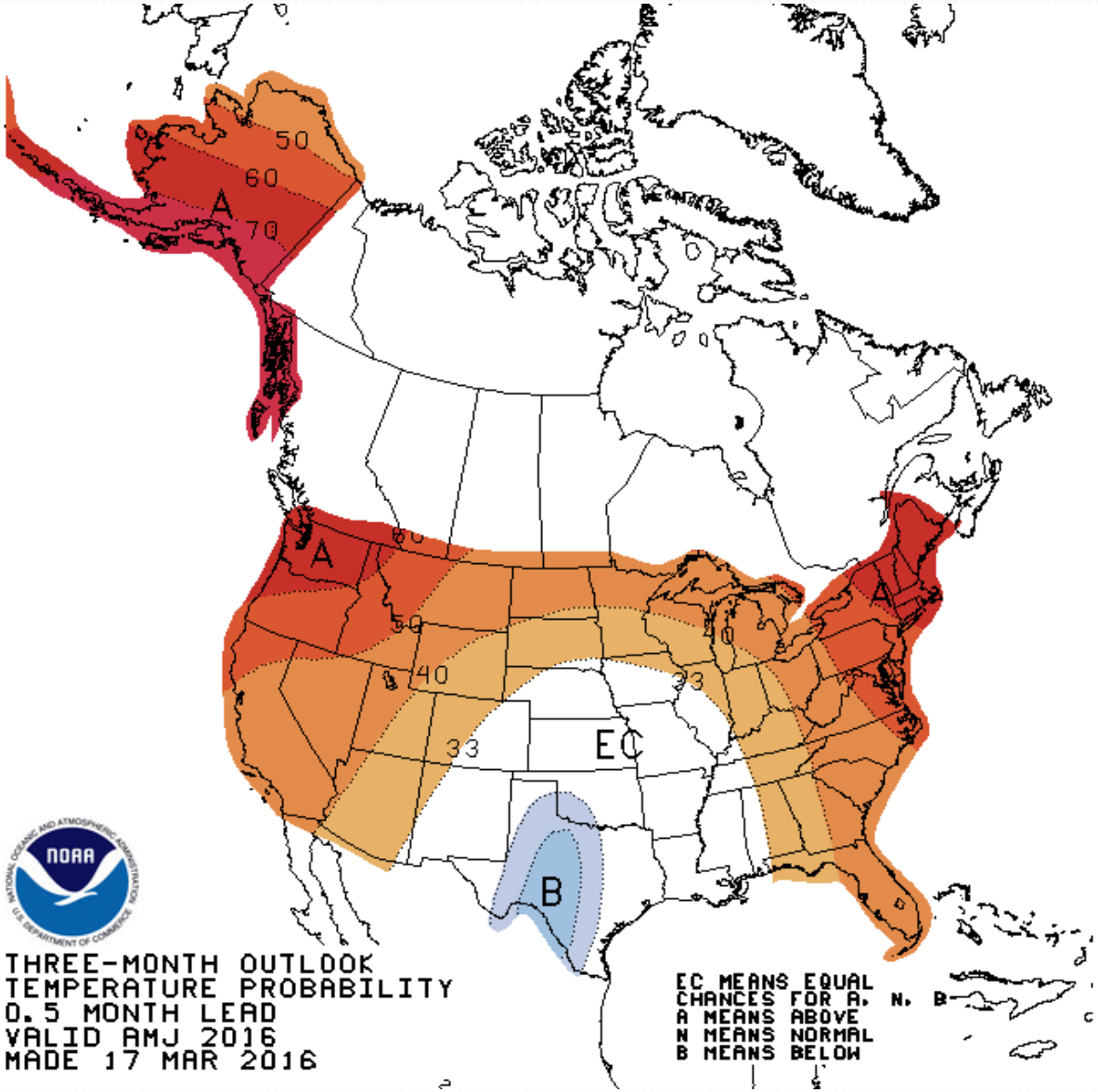
Washington Snow Water Equivalent



Three Month Outlook
Spring

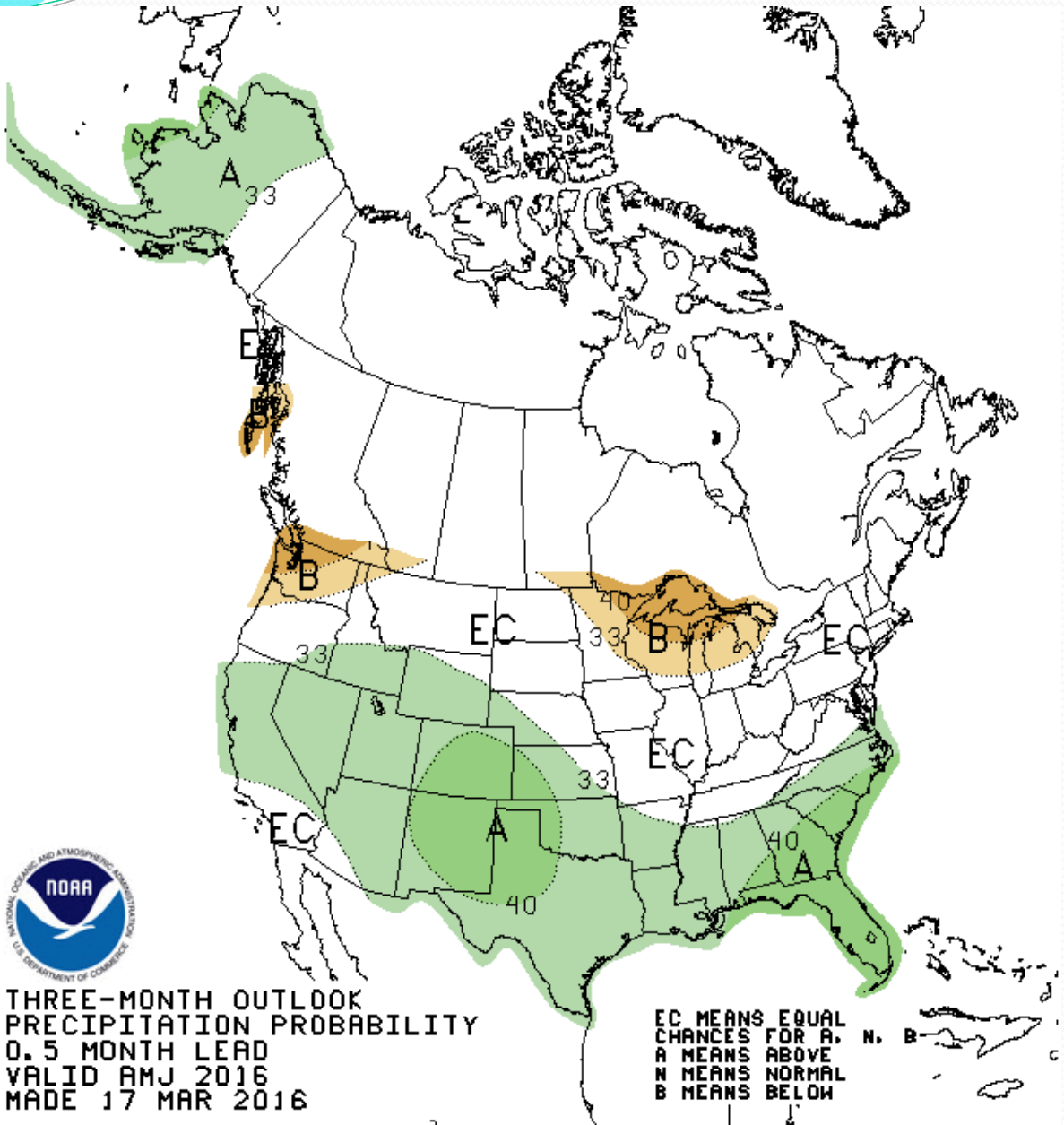
April – June

Apr - June Temperature Outlook



This graphic is issued by the Climate Prediction Center or CPC and is the Temperature Outlook for the months of April, May and June. 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 temperatures during this three-month period.

Apr – June Precipitation Outlook



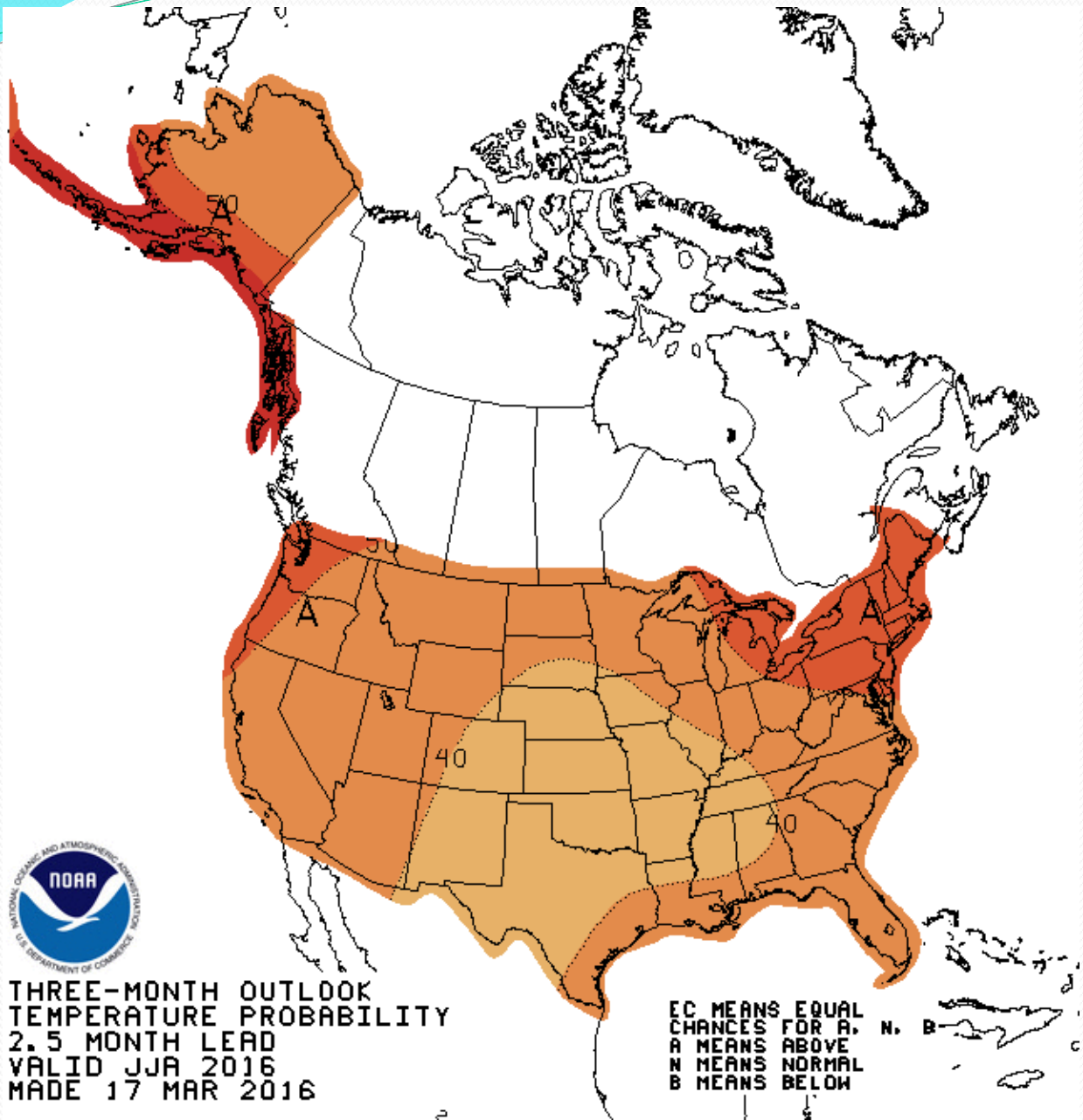
This graphic is CPC's Precipitation Outlook for the months of April, May and June. The green colors represent a greater chance of above normal precipitation, and the brown colors represent a greater chance of below normal precipitation. Much of Oregon has equal chances for above, below or near normal precipitation amounts during this three month period. Further south the odds are tilted slightly toward above average precipitation amounts over extreme southeast Oregon. Over Washington odds are tilted in favor of below average precipitation amounts in this period. Please remember that these are probabilities of averages, and that the day-to-day weather will still vary during the period.

Three Month Outlook

Early Look at Summer

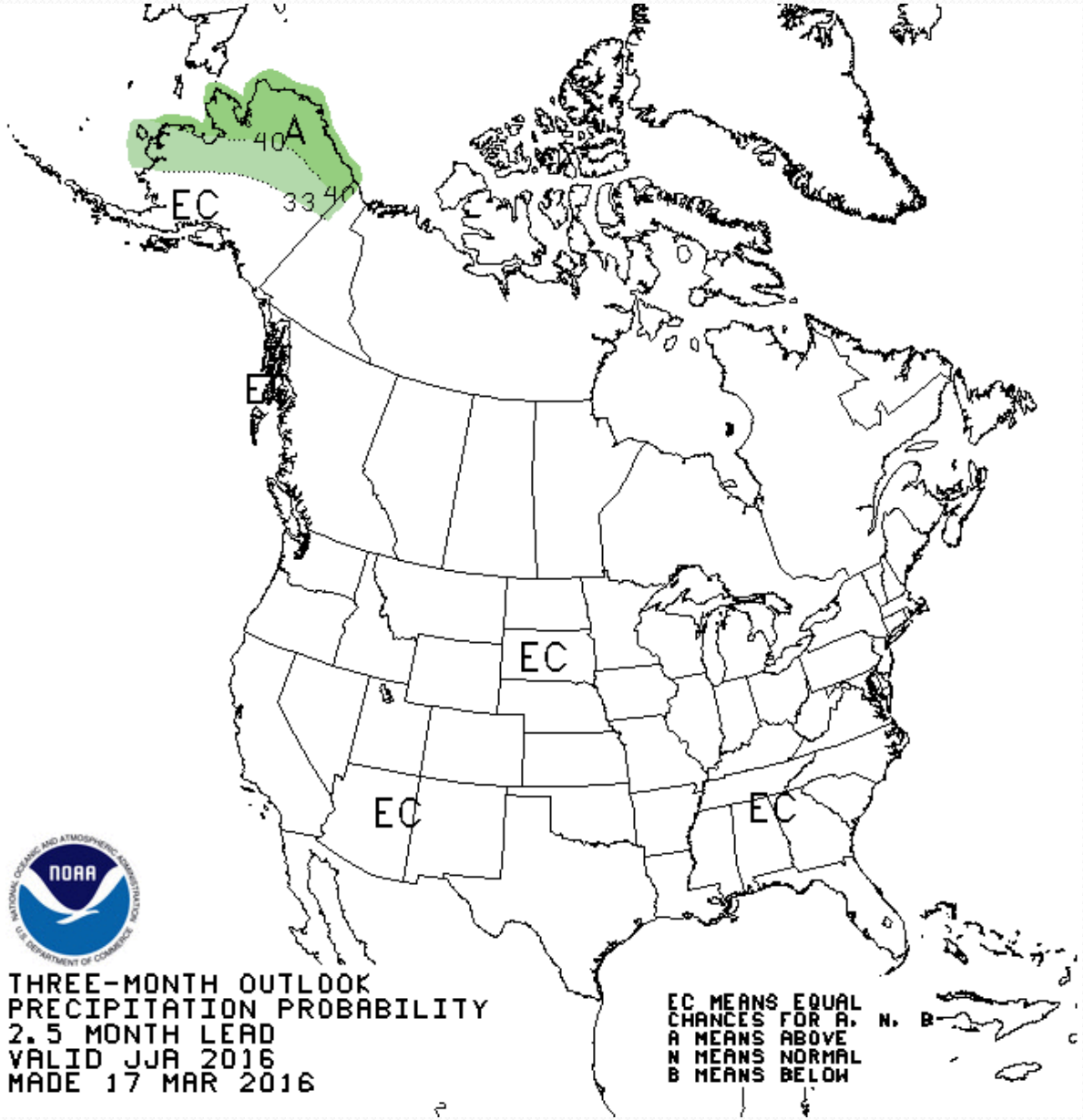
June – August

June - Aug Temperature Outlook



This graphic is issued by the Climate Prediction Center or CPC and is the Temperature Outlook for the months of June, July and August. The cool colors indicate a greater chance of below normal temperatures (none) 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 40-50+ percent chance for above average temperatures during this three-month period.

June – Aug Precipitation Outlook



This graphic is CPC's Precipitation Outlook for the months of June, July and August. The green colors represent a greater chance of above normal precipitation, and the brown colors represent a greater chance of below normal precipitation (none). Without much in the way of a strong climatic signal the entire Pacific Northwest has equal chances for above, below, or near average precipitation totals through the summer months. Please remember that these are probabilities of averages, and that the day-to-day weather will still vary during the period.

Thank You!