



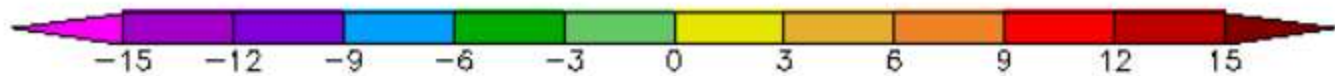
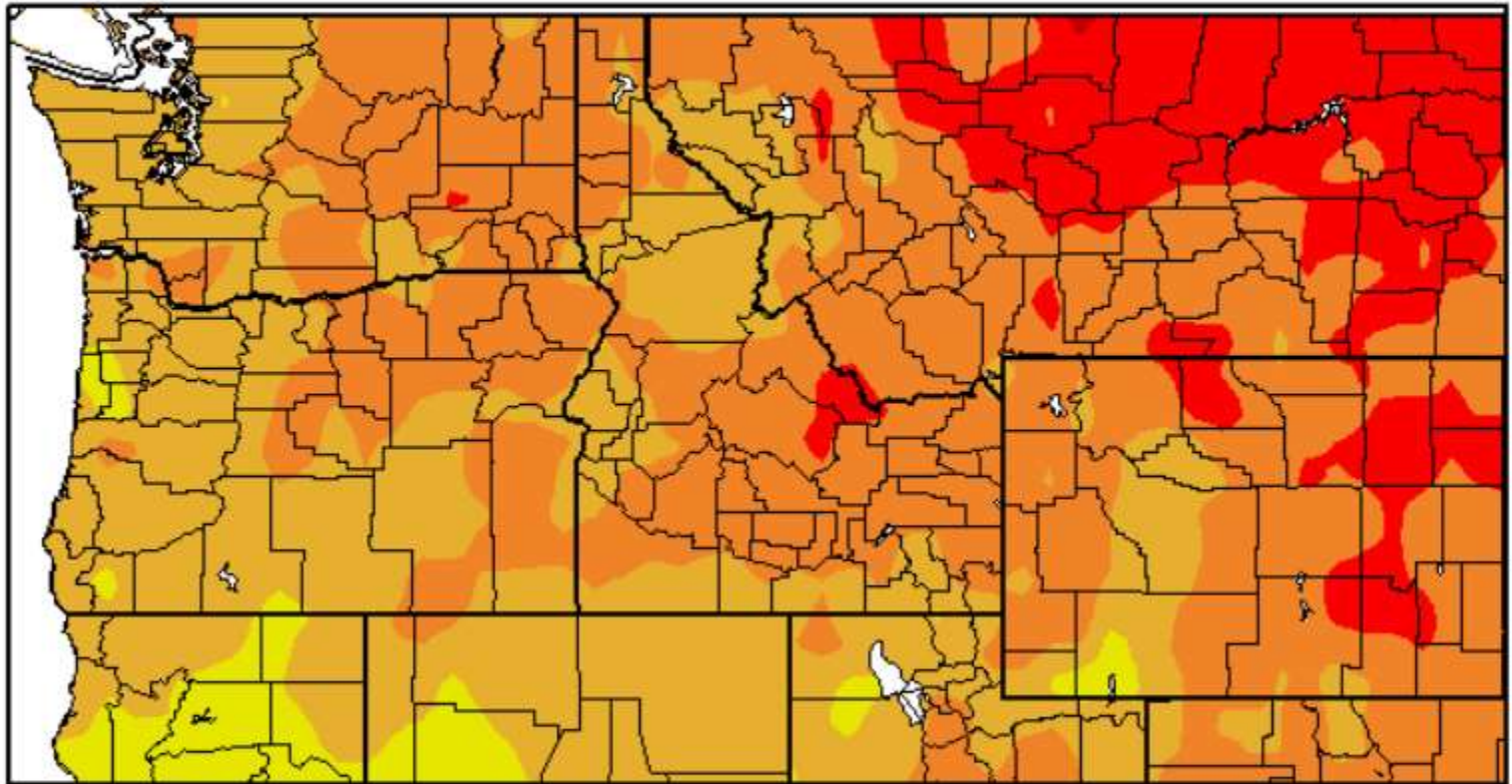
The Month In Review

November 2016

National Weather Service
Pendleton, Oregon

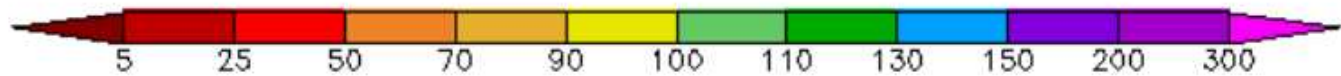
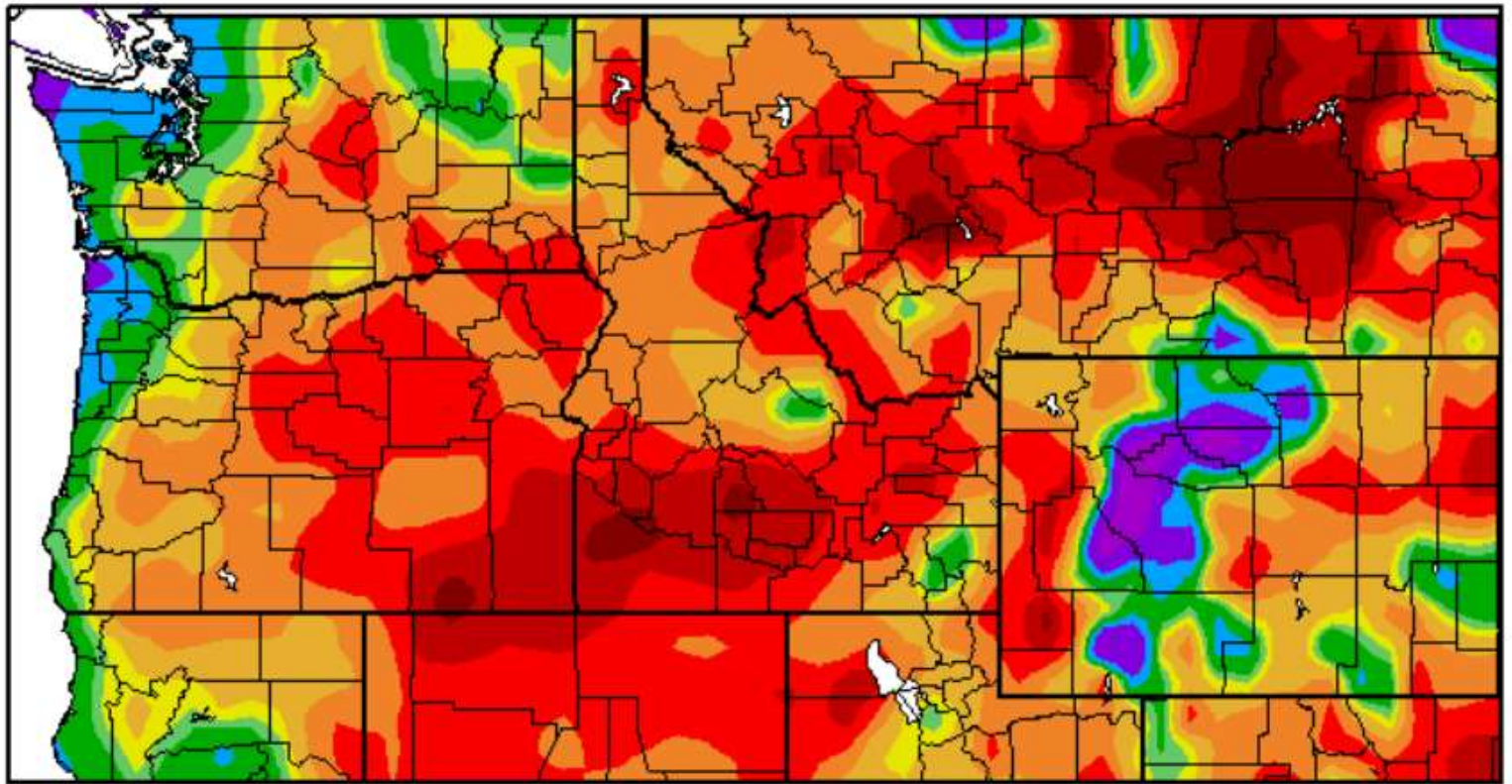
Departure from Normal Temperature (F)

11/1/2016 – 11/30/2016



Percent of Normal Precipitation (%)

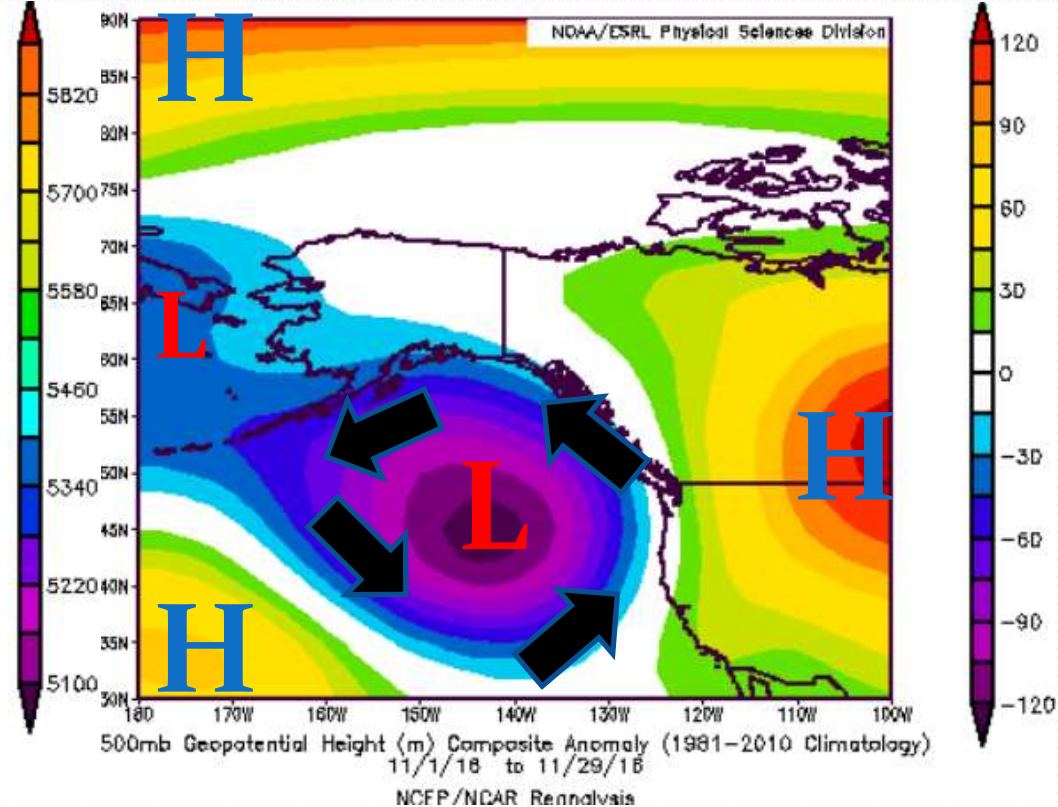
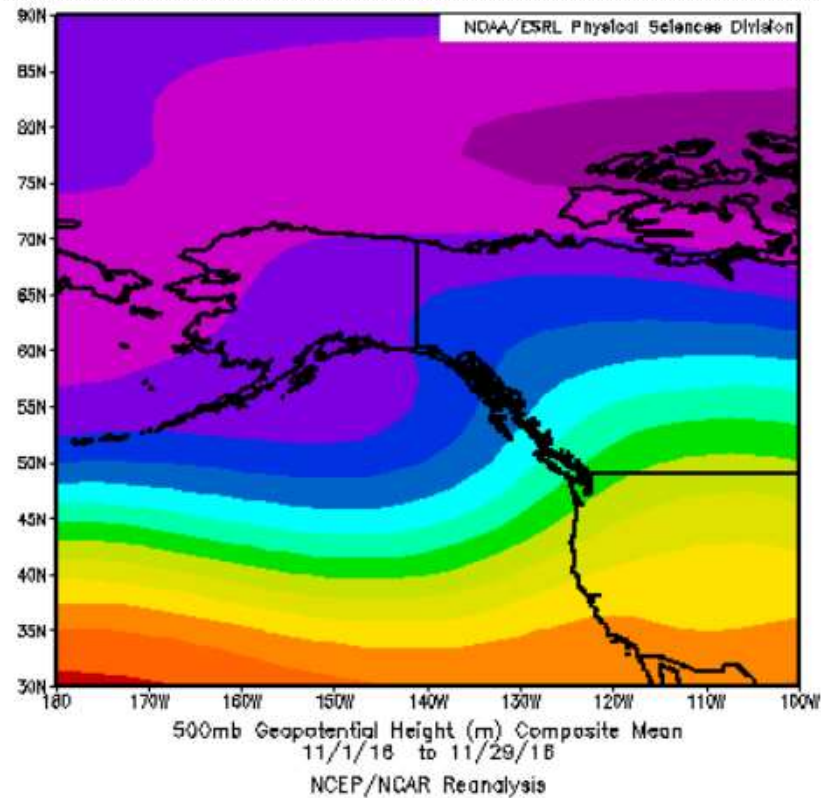
11/1/2016 – 11/30/2016





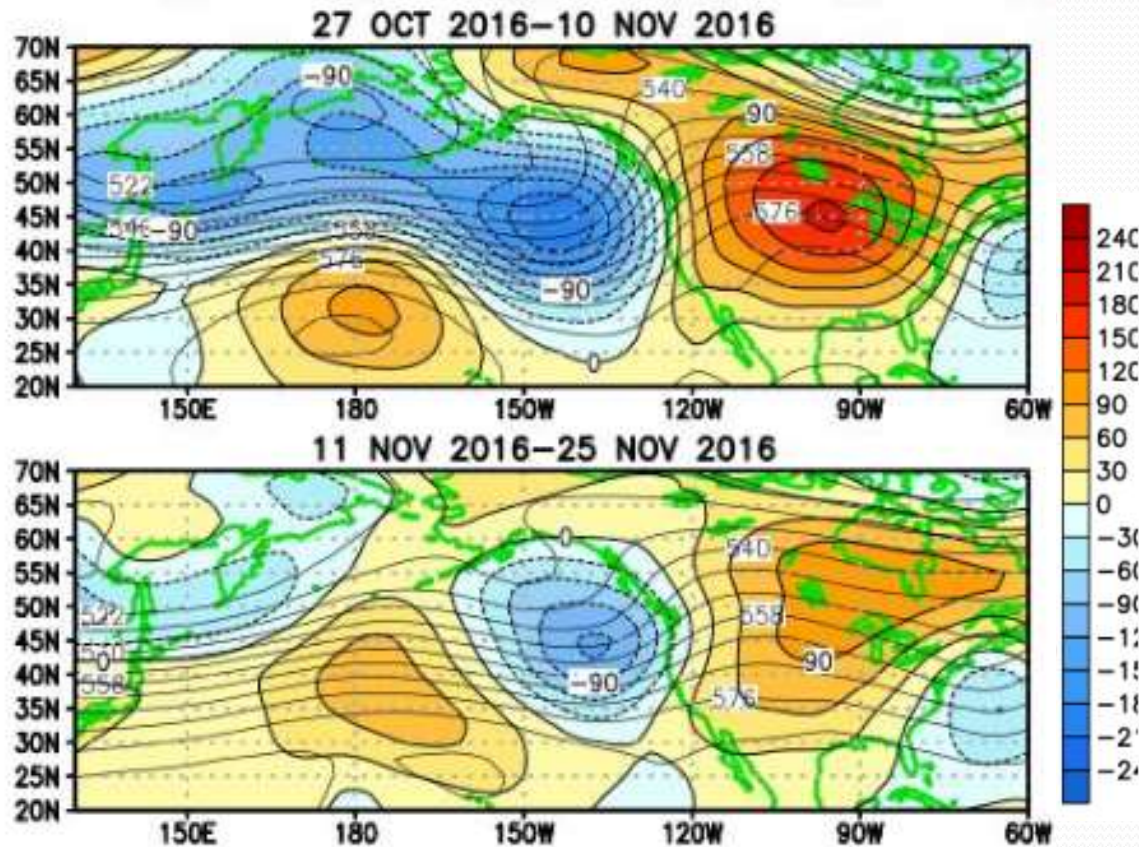
November 2016

Synoptic Weather Pattern



The mean synoptic pattern for the month of November 2016 was characterized by a deep trough of abnormally low pressure in the southern and central Gulf of Alaska, which extended westward into the Aleutians and parts of Alaska. A large ridge of abnormally high pressure was centered over the northern Great Plains, and this extended back west almost to the west coast. The Pacific Northwest was in-between these two aforementioned pressure anomalies, but did have a general southwest flow through the month. This flow kept temperatures very mild, and well above average through the month. Occasional weather systems did bring precipitation to the area, but monthly totals still ended below average area wide. During the second half of the month temperatures were just cold enough that snow began to fall and accumulate in the higher mountains. Snow depths have increased rapidly the first 10 days of December.

November 2016 Detailed Upper Level Pattern Analysis



- ❖ The first ten days of the month featured a large, strong ridge of high pressure centered over the central US. The Pacific Northwest was in a transition zone between this large ridge, and a deep trough of low pressure just offshore.
- ❖ The next two weeks had a similar upper level pattern overall. However, the offshore trough shifted east slightly, now moving into parts of Washington and Oregon. This allowed for a more active weather pattern.



Top 10 Warmest Daily November Highs

City	Rank	Nov 2016 Daily High	Current or Previous Nov Record Daily High
Long Creek, OR	#2	74 on 11/11	75 11/04/1980
Pendleton Exp Sta	#3	76 on 11/06	81 on 11/02/1965
Antelope, OR	#3(T)	74 on 11/09	76 on 11/04/1939
La Grande, OR	#3(T)	70 on 11/14	71 on 11/06/2010
Meacham, OR	#4	67 on 11/11	71 on 11/13/1999
Ellensburg, WA	#4(T)	64 on 11/08	67 on 11/03/2007
Redmond, OR	#4(T)	75 on 11/08	76 on 11/05/1997
Pendleton (City)	#4(T)	75 on 11/03	83 on 11/13/1999
Pasco, WA	#7(T)	70 on 11/02	77 on 11/13/1999
Whitman Mission	#7(T)	73 on 11/03	82 on 11/13/1999
Walla Walla, WA	#9(T)	72 on 11/02	81 on 11/13/1999



Top 10 Warmest Daily November Lows

City	Rank	Nov 2016 Daily Low	Current or Previous Nov Record Daily Low
Long Creek, OR	#2	56 11/12	57 11/12/1999
Meacham, OR	#2	51 11/08	11/06/2006
Bend, OR	#4	49 11/12	11/07/2006
Satus Pass, WA	#5(T)	45 11/15	11/06/2006
Easton, WA	#7(T)	44 11/12	11/23/1933
Sisters, OR	#7(T)	47 11/12	11/06/2006
Satus Pass, WA	#5(T)	45 11/15	11/06/2006
John Day, OR	#10	47 11/15	11/15/1966



Top 5 Warmest Average November Monthly Max T

City	Rank	Nov 2016 Avg Max T	Current or Previous Warmest Nov Avg Max T
Walla Walla, WA	#1	56.5	55.2 in 1999
The Dalles, OR	#1	57.0	55.7 in 1949
Ellensburg, WA	#1	53.2	50.3 in 1949
Hermiston, OR	#1	57.0	54.8 in 1999
Pasco, WA	#1	57.2	55.6 in 1999
Yakima, WA	#1	56.8	55.1 in 1949
Arlington, OR	#1	56.7	56.2 in 1949
La Grande, OR	#1	54.7	53.1 in 1999
Moxee City, WA	#1	55.1	53.4 in 1990
Pendleton Exp Sta.	#1	57.3	57.1 in 1941
Whitman Mission	#1	58.0	55.9 in 1999



Top 5 Warmest Average November Monthly Max T (Cont'd)

City	Rank	Nov 2016 Avg Max T	Current or Previous Warmest Nov Avg Max T
Pendleton (Arpt)	#2	55.7	57.0 in 1932
Easton, WA	#2	47.6	50.0 in 1933
Long Creek, OR	#2	55.2	55.4 in 1999
Meacham, OR	#3	50.2	52.6 in 1949
Redmond, OR	#3	56.8	59.6 in 1999
Sisters, OR	#3	53.0	55.4 in 1959
Satus Pass, WA	#3	49.9	50.8 in 1989
Antelope, OR	#4	56.7	59.0 in 1949
Kennewick ,WA	#4	57.8	58.9 in 1899
Grizzly, OR	#4	53.9	57.6 in 1949
Heppner, OR	#5	57.2	58.5 in 1909



Top 5 Warmest Average November Monthly Min T

City	Rank	Nov 2016 Avg Min T	Current or Previous Warmest Nov Avg Min T
Ellensburg, WA	#1	35.4	33.5 in 2012
Yakima, WA	#1	35.3	34.9 in 1965
Condon, OR	#1	36.4	35.5 in 1999
Grizzly, OR	#1	34.4	32.7 in 1999
La Grande, OR	#1	34.9	34.9 in 1995
Monument, OR	#1	35.6	34.3 in 1973
Moxee City, WA	#1	37.7	34.6 in 1999
Pendleton Exp Sta.	#1	37.4	37.3 in 1983
Walla Walla, WA	#2	40.8	41.6 in 1983
Meacham, OR	#2	34.1	36.1 in 1949
The Dalles, OR	#2	39.9	41.3 in 1983



Top 5 Warmest Average November Monthly Min T (Cont'd)

City	Rank	Nov 2016 Avg Min T	Current or Previous Warmest Nov Avg Min T
Hermiston, OR	#2	36.9	37.1 in 1998
Pasco, WA	#2	36.4	38.0 in 1998
Prineville, OR	#2	34.5	34.9 in 2008
Satus Pass, WA	#2	33.5	34.4 in 2012
Pelton Dam, OR	#2	36.3	36.8 in 1999
Long Creek, OR	#2	35.4	35.5 in 1999
Heppner, OR	#3	38.4	39.1 in 1934
Kennewick, WA	#3	40.9	41.3 in 1934
Richland, WA	#3	39.1	40.0 in 1965
Sisters, OR	#3	29.9	30.9 in 1995
Bend, OR	#3	33.7	34.9 in 1999



Top 3 Warmest Average November Monthly Temperature

City	Rank	Nov 2016 Avg T	Current or Previous Warmest Nov Avg T
Walla Walla, WA	#1	48.7	47.4 in 1983
The Dalles, OR	#1	48.5	47.5 1954
Ellensburg, WA	#1	44.3	41.2 in 1954
Hermiston, OR	#1	47.0	45.7 in 1998
Pendleton, OR	#1	46.9	46.8 in 1932
Pasco, WA	#1	46.8	46.1 in 1998
Yakima, WA	#1	46.1	43.8 in 1966
Antelope, OR	#1	48.1	45.3 in 1976
Easton, WA	#1	41.6	41.6 in 1933
Grizzly, OR	#1	44.2	43.9 in 1999
La Grande, OR	#1	44.8	43.9 in 1999



Top 3 Warmest Average November Monthly Temp (Cont'd)

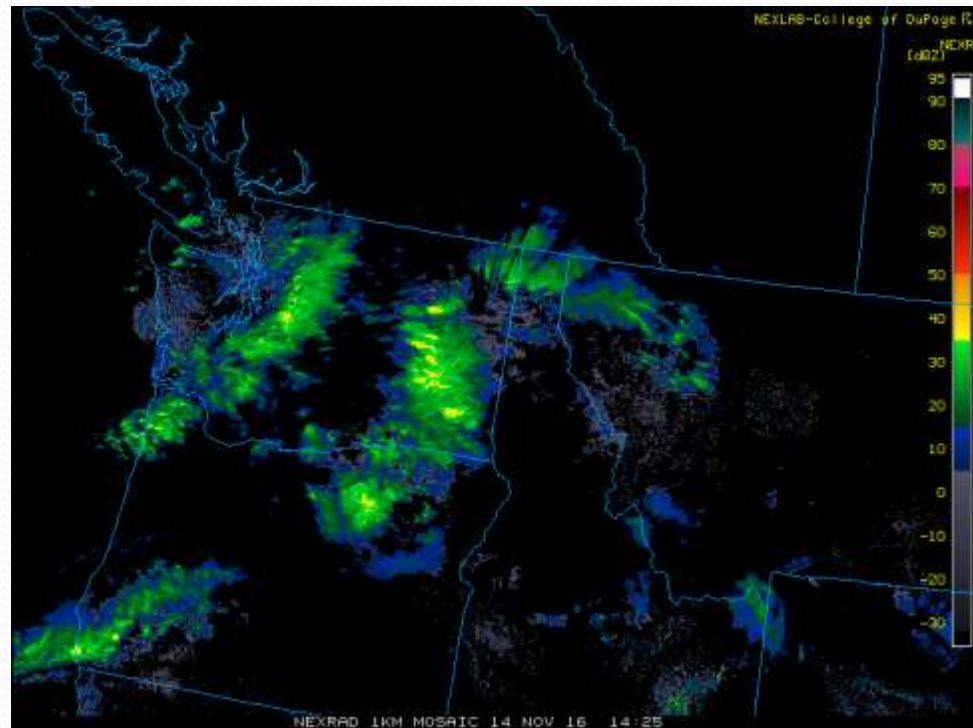
City	Rank	Nov 2016 Avg T	Current or Previous Warmest Nov Avg T
Monument, OR	#1	47.1	45.6 in 1999
Moxee City, WA	#1	46.4	43.5 in 1999
Meacham, OR	#2	42.1	44.3 in 1949
Arlington, OR	#2	48.1	48.3 in 1954
Condon, OR	#2	44.9	45.0 in 1999
Heppner, OR	#2	47.8	48.2 in 1899
Redmond, OR	#3	44.3	46.5 in 1999
Bend, OR	#3	44.0	44.6 in 1999
Cle Elum, WA	#3	41.2	42.6 in 1899
Goldendale, WA	#3	43.6	44.0 in 1908
Prineville, OR	#3	46.0	47.5 1901



November Significant Weather

November 12 – 15th Rain & Windy

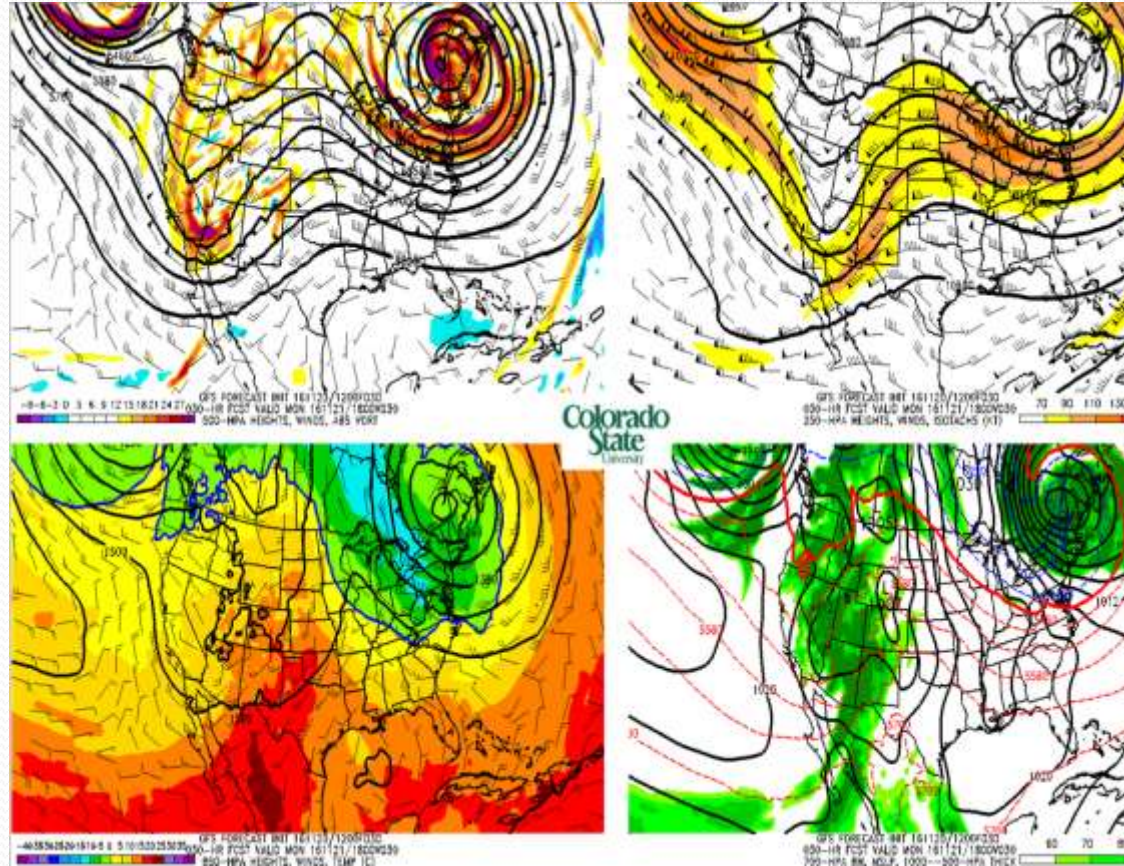
Location	Peak Wind	4-Day Precip
Pendleton, OR	34 MPH	0.16"
Meacham, OR	14 MPH	0.49"
Redmond, OR	40 MPH	0.12"
Pasco, WA	41 MPH	0.37"
Walla Walla, WA	28 MPH	0.44"
Yakima, WA	33 MPH	0.32"
Hermiston, OR	33 MPH	0.20"
Ellensburg, WA	33 MPH	0.31"
The Dalles, OR	36 MPH	0.62"
Easton, WA	N/A	1.51"



A frontal boundary moved into southern Washington and eventually north-central Oregon from November 12th through the 15th. This system brought periods of rain and gusty winds to much of the area. Snow levels were very high...mainly above 5000-6000 feet.

November 19 – 24th Rain & Wind

Location	Peak Wind	Total Precip
Pendleton, OR	41 MPH	0.43"
Meacham, OR	25 MPH	0.81"
Redmond, OR	29 MPH	Trace
Pasco, WA	36 MPH	0.13"
Walla Walla	53 MPH	0.40"
Yakima, WA	31 MPH	0.07"
Hermiston, OR	36 MPH	0.30"
Ellensburg, WA	NA	0.06"
The Dalles, OR	28 MPH	0.08"
Easton, WA	NA	0.27"
Madras, OR	38 MPH	0.01"
Bend, OR	31 MPH	Trace
Dayville, OR	NA	0.25"
Joseph, OR	37 MPH	0.16"



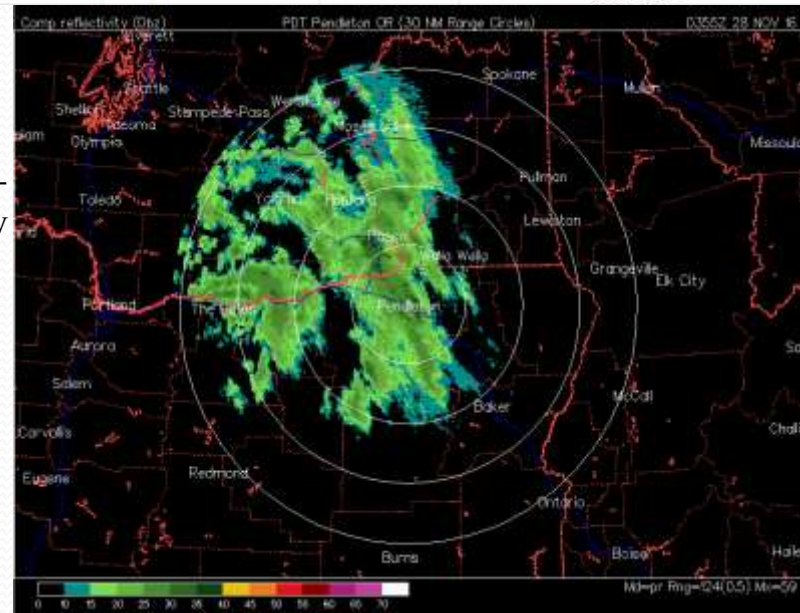
A series of fronts brought periods of rain and very gusty winds to the region during this time. The heaviest precipitation fell over the Blue Mountains, and Blue Mountain Foothills. Snow levels lowered to just below 4000 feet, bringing several inches of snow to the higher mountains, especially on the 23rd and 24th.

November 27 – 30th Rain/Snow/Wind

Location	Precip	Peak Wind
Pendleton	0.10"	47 MPH
Meacham	1.07	18 MPH
Redmond	0.06	35 MPH
Pasco	0.01"	33 MPH
Walla Walla	0.21"	29 MPH
Yakima	0.02"	32 MPH
Hermiston	0.05"	38 MPH
Ellensburg	0.09"	43 MPH
The Dalles	0.22"	32 MPH
Easton	0.72"	1" Snow
Kennewick	0.01"	NA
Heppner	0.05"	NA
John Day	0.13"	24 MPH
Madras	0.03"	35 MPH

Location	County	Report Time	ST	Event Type	Mag. Inches	Remark
7 SSW GOOSE PRAIRIE	YAKIMA	11/28/16 3:00	WA	SNOW	6.00	BUMPING RIDGE SNOTEL MEASURED 6.0 INCHES OF SNOW IN THE LAST 24 HOURS. ELEVATION 4600 FEET.
11 SE SENECA	GRANT	11/28/16 4:00	OR	SNOW	4.00	ROCK SPRINGS SNOTEL MEASURED 4.0 INCHES OF SNOW IN THE LAST 24 HOURS. ELEVATION 5900 FEET.
2 NNW SKI BLUEWOOD	COLUMBIA	11/28/16 7:00	WA	SNOW	4.00	TOUCHET SNOTEL MEASURED 4.0 INCHES OF SNOW IN THE LAST 24 HOURS. ELEVATION 5530 FEET.
18 SSE PRAIRIE CITY	GRANT	11/28/16 7:00	OR	SNOW	6.00	BLUE MOUNTAIN SPRINGS SNOTEL MEASURED 6.0 INCHES OF SNOW IN THE LAST 24 HOURS.
1 SE FLORA	WALLOWA	11/28/16 7:00	OR	SNOW	6.00	COCORAH'S OBSERVER AT FLORA REPORTED 6.0 INCHES OF SNOW IN THE LAST 24 HOURS.
5 WNW BLEWETT PASS	CHELAN	11/28/16 8:00	WA	SNOW	4.00	BLEWETT PASS SNOTEL MEASURED 4.0 INCHES OF SNOW IN THE LAST 24 HOURS. ELEVATION 4240 FEET.
10 N ROSLYN	KITTITAS	11/28/16 8:00	WA	SNOW	5.00	SASSE RIDGE SNOTEL MEASURED 5.0 INCHES OF SNOW IN THE LAST 24 HOURS. ELEVATION 4200 FEET.
9 SW SKI BLUEWOOD	WALLOWA	11/28/16 8:00	OR	SNOW	5.00	MILK SHAKES SNOTEL MEASURED 5.0 INCHES OF SNOW IN THE LAST 24 HOURS. ELEVATION 5600 FEET.
SKI BLUEWOOD	COLUMBIA	11/28/16 9:00	WA	SNOW	8.00	SKI BLUEWOOD RECEIVED 8.0 INCHES OF SNOW IN THE LAST 24 HOURS. ELEVATION 4545 FEET.

A storm system moved through the area bringing rain, mountain snow and gusty winds from Nov 27th – 30th. Up to 6 inches of snow fell in the higher Blue Mtns. Winds peaked up to 50 MPH, especially in the Blue Mountain Foothills.

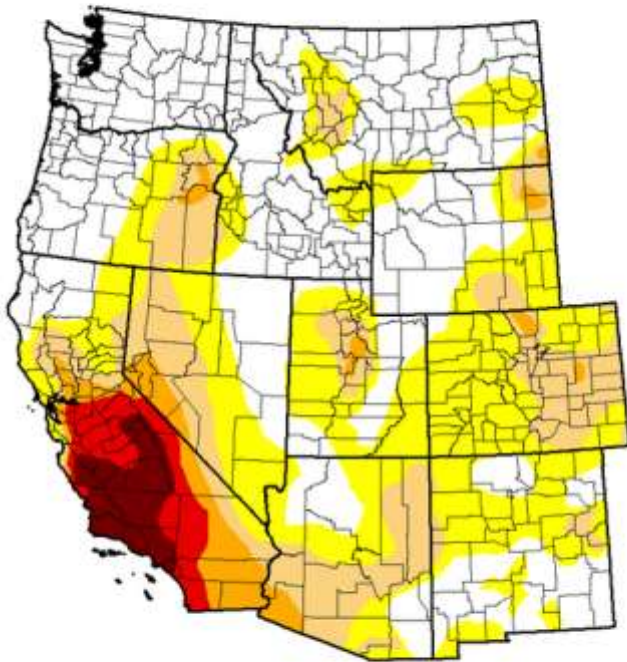


Drought Improves

U.S. Drought Monitor West

November 29, 2016
(Released Thursday December 1, 2016)
Valid 7 a.m. EST

Statistics type: Traditional Percent Area Export table:   




Week	None	D0-D4	D1-D4	D2-D4	D3-D4	D4
Current 2016-11-29	43.28	56.72	25.58	9.90	5.73	2.81
Last Week 2016-11-22	43.92	56.08	25.58	9.90	5.73	2.81
3 Months Ago 2016-08-30	24.36	75.64	34.75	12.84	5.99	2.81
Start of Calendar Year 2015-12-29	33.17	66.83	45.07	29.30	15.92	6.85
Start of Water Year 2016-09-27	27.78	72.22	30.95	13.45	5.77	2.81
One Year Ago 2015-12-01	28.98	71.02	48.88	37.23	21.16	6.85

Estimated Population in Drought Areas: **44,766,854**

[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):

Richard Heim, NOAA/NCEI

Download:   

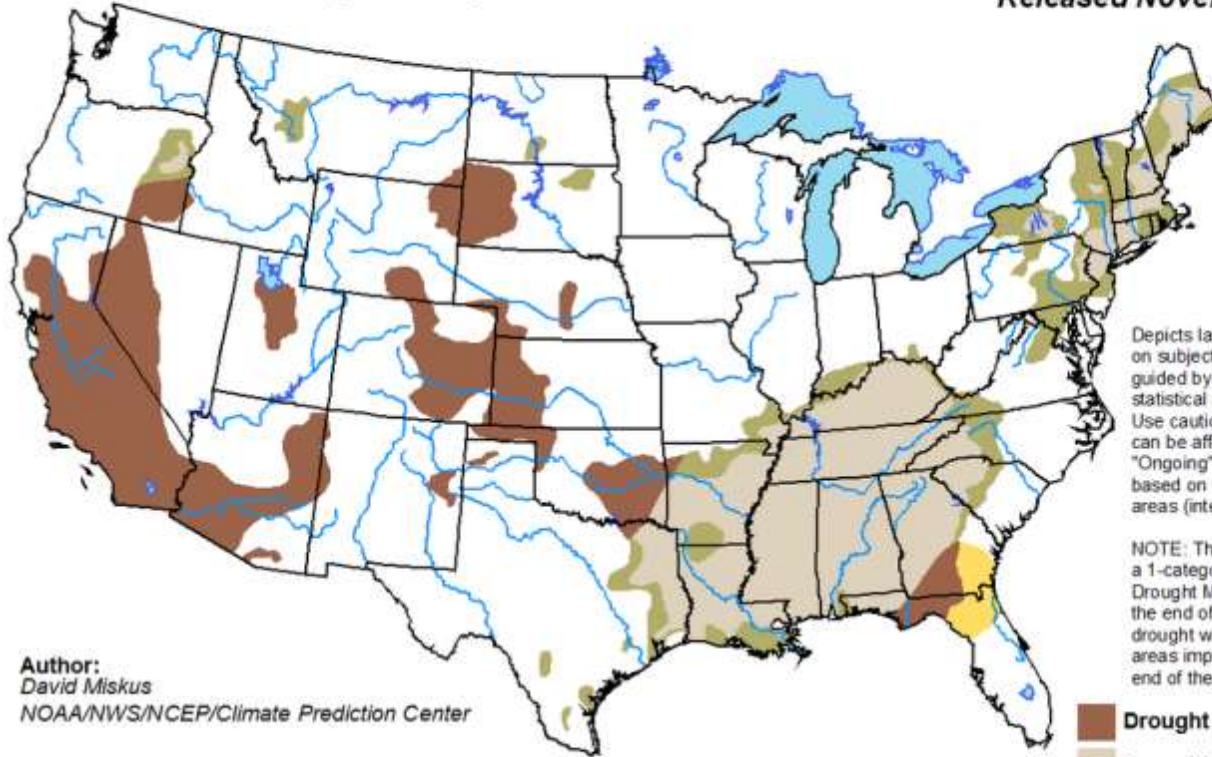
The latest drought monitor shows some improvement over much of the region. Some D1 and even a very small area of D2 drought is lingering over eastern, and especially southeastern Oregon. The substantial October rainfall, and periods of rain through November allowed much of the area to be removed from any drought categories. Snow is now beginning to accumulate in the mountains.



December Drought Outlook

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



Valid for December 2016
Released November 30, 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).

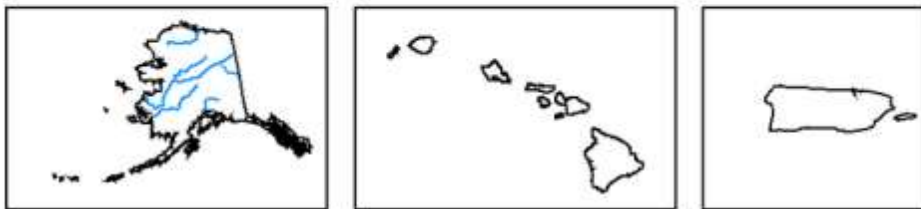
NOTE: The tan areas imply at least a 1-category improvement in the Drought Monitor intensity levels by the end of the period, although drought will remain. The green areas imply drought removal by the end of the period (D0 or none).

Author:
David Miskus
NOAA/NWS/NCEP/Climate Prediction Center

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



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

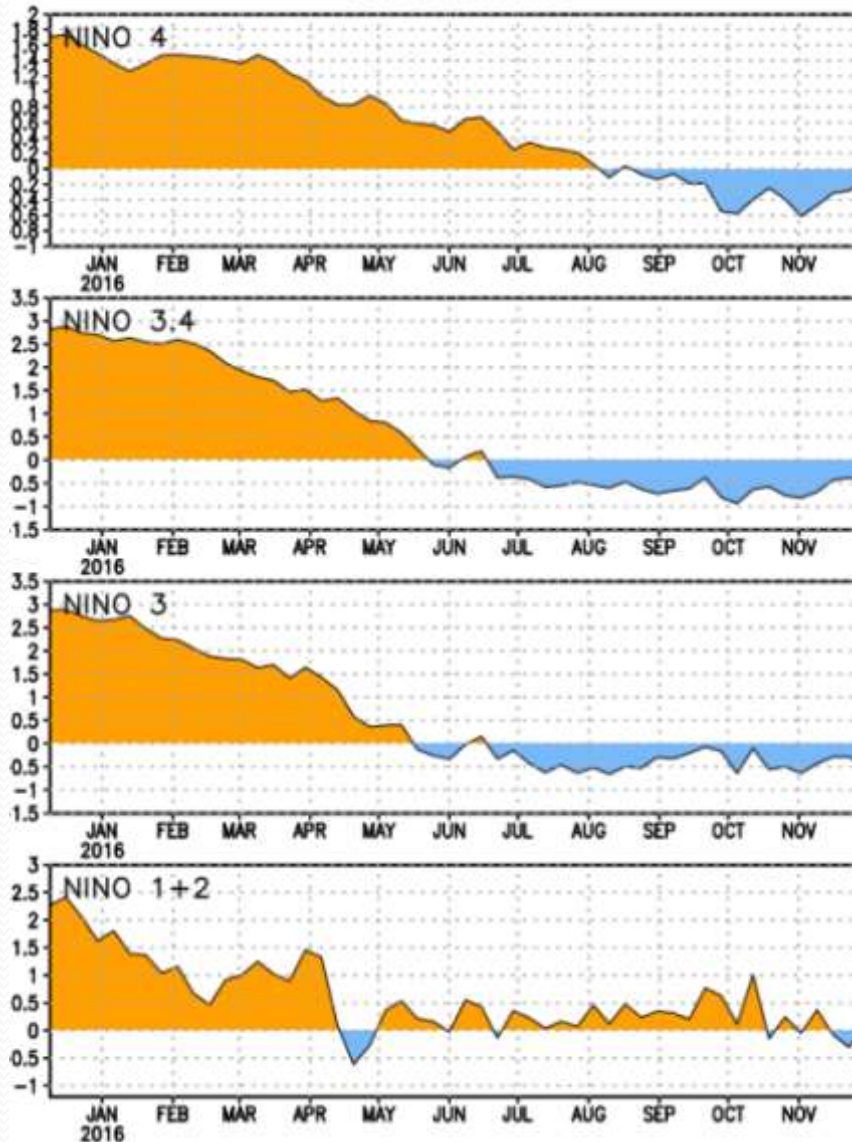


The monthly drought outlook for December from CPC indicates drought removal likely across most of eastern Oregon. A small area, mainly in Baker County, and far southeast Oregon may see drought improving, but still persisting.



La Nina Advisory Issued

SST Anomalies

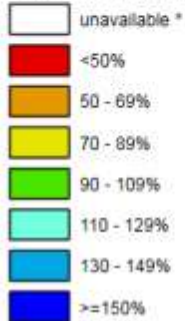


- ❖ Currently, cooler than average sea surface temperatures were observed in all Niño regions.
- ❖ A La Nina Advisory has been issued, which means La Nina Conditions are now present.
- ❖ La Nina is slightly favored (55%) to persist through the upcoming winter months
- ❖ This La Nina is expected to remain weak, but will still likely have an impact on the atmospheric weather patterns into the winter months.

Oregon SNOTEL Current Snow Water Equivalent (SWE) % of Normal

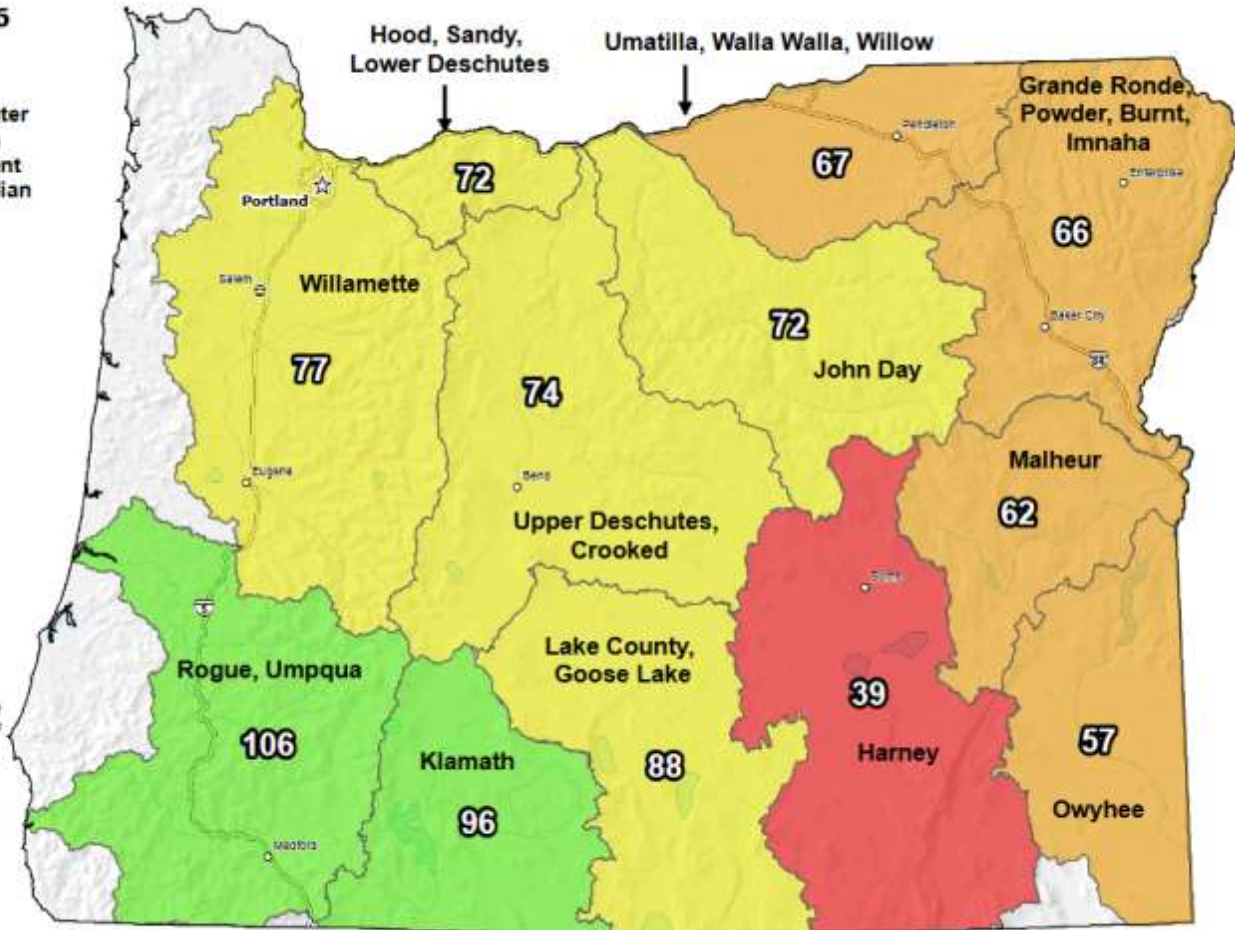
Dec 01, 2016

Current Snow Water Equivalent (SWE) Basin-wide Percent of 1981-2010 Median



* Data unavailable at time of posting or measurement is not representative at this time of year

Provisional Data
Subject to Revision



The snow water equivalent percent of normal represents the current snow water equivalent found at selected SNOTEL sites in or near the basin compared to the average value for those sites on this day. Data based on the first reading of the day (typically 00:00).

0 10 20 40 60 80 100 Miles

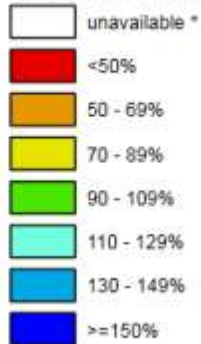
Prepared by:
USDA/NRCS National Water and Climate Center
Portland, Oregon
<http://www.wcc.nrcs.usda.gov>

Snow pack was still mainly below normal across the state of Oregon by December 1st. The southwestern parts of the state were right around average for this time of year.

Oregon SNOTEL Current Snow Water Equivalent (SWE) % of Normal

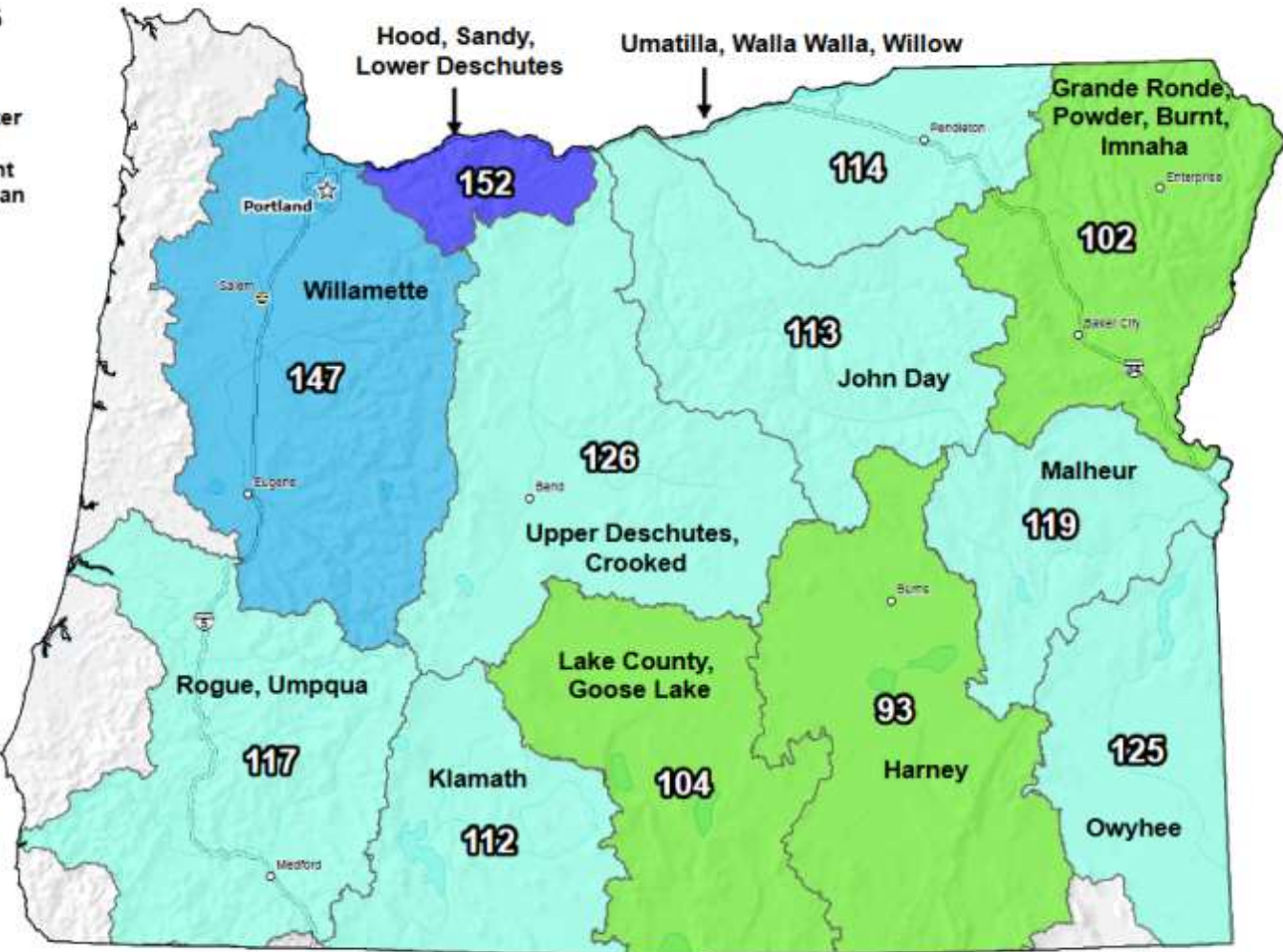
Dec 12, 2016

Current Snow Water Equivalent (SWE) Basin-wide Percent of 1981-2010 Median



* Data unavailable at time of posting or measurement is not representative at this time of year

Provisional Data
Subject to Revision



The snow water equivalent percent of normal represents the current snow water equivalent found at selected SNOTEL sites in or near the basin compared to the average value for those sites on this day. Data based on the first reading of the day (typically 00:00).

0 10 20 40 60 80 100 Miles

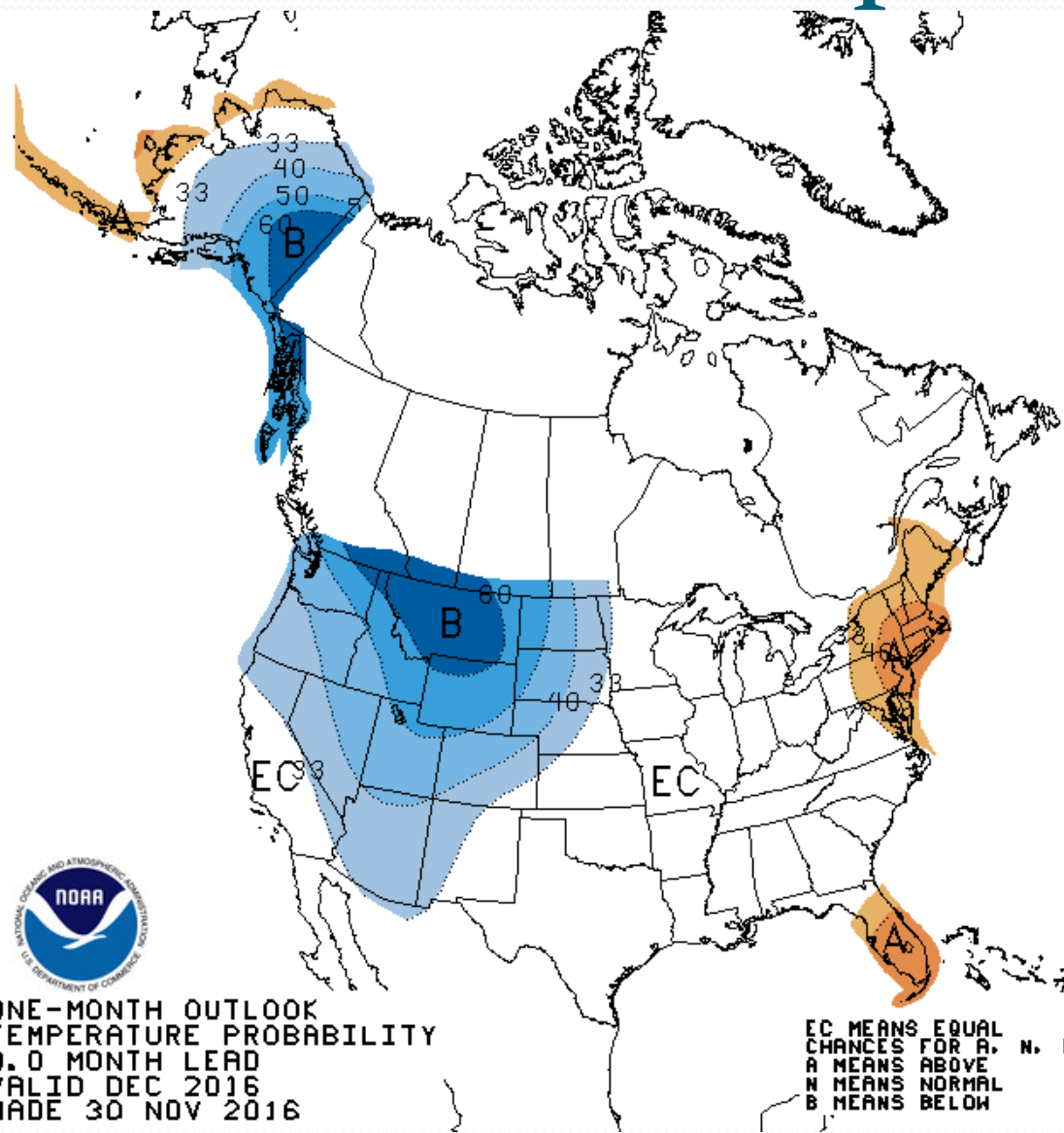
Prepared by:
USDA/NRCS National Water and Climate Center
Portland, Oregon
<http://www.wcc.nrcs.usda.gov>

Snow pack has rapidly increased to between 100-150 percent of normal across the state of Oregon by December 12th. The forecast calls for more snowy periods through December.



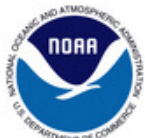
December Outlook

December Temperature Outlook



This graphic is issued by the Climate Prediction Center or CPC and is the Temperature Outlook for the month of December. 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.

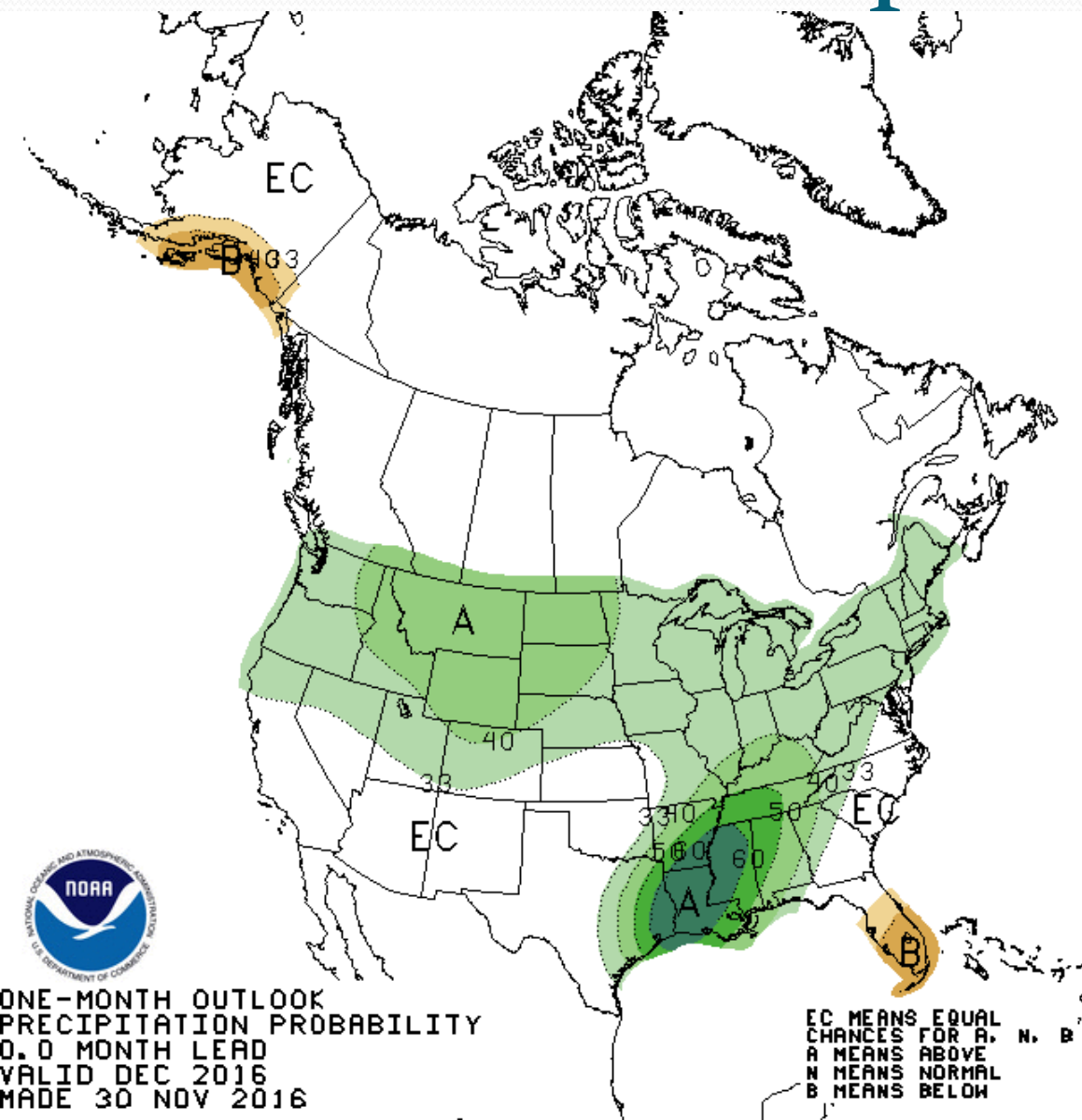
Temperatures in December are forecast to see a major flip compared to what occurred in November across the Northwest. The outlook calls for greater probabilities for below average temperatures in December for the entire Pacific Northwest. A few arctic outbreaks of very cold air will be possible mid month, especially in Washington. Portions of the East Coast are the only areas in the CONUS which have higher chances for above average temperatures.



ONE-MONTH OUTLOOK
TEMPERATURE PROBABILITY
0.0 MONTH LEAD
VALID DEC 2016
MADE 30 NOV 2016

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

December Precipitation Outlook



This graphic is CPC's Precipitation Outlook for the month of December. 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 eastern Washington and eastern Oregon have higher probabilities for above average precipitation totals in December. However, the highest probabilities for above average precipitation will be found over far eastern Washington and northeast Oregon. There will also be high chances for above average precipitation through the month over the Lower Mississippi Valley. South Florida and coastal Alaska have odds leaning toward drier than average weather.



Thank You!