

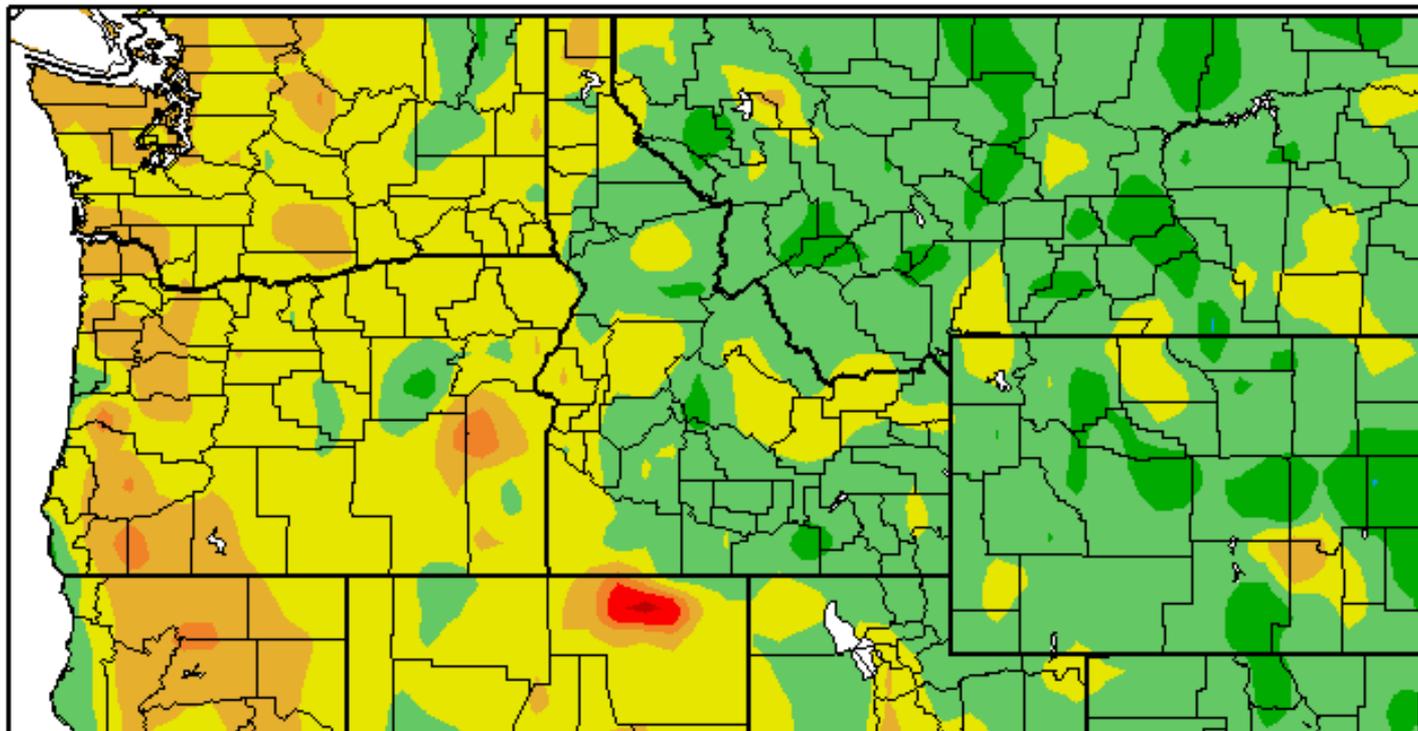


# The Month In Review

August 2016

National Weather Service  
Pendleton, Oregon

# Departure from Normal Temperature (F) 8/1/2016 – 8/31/2016

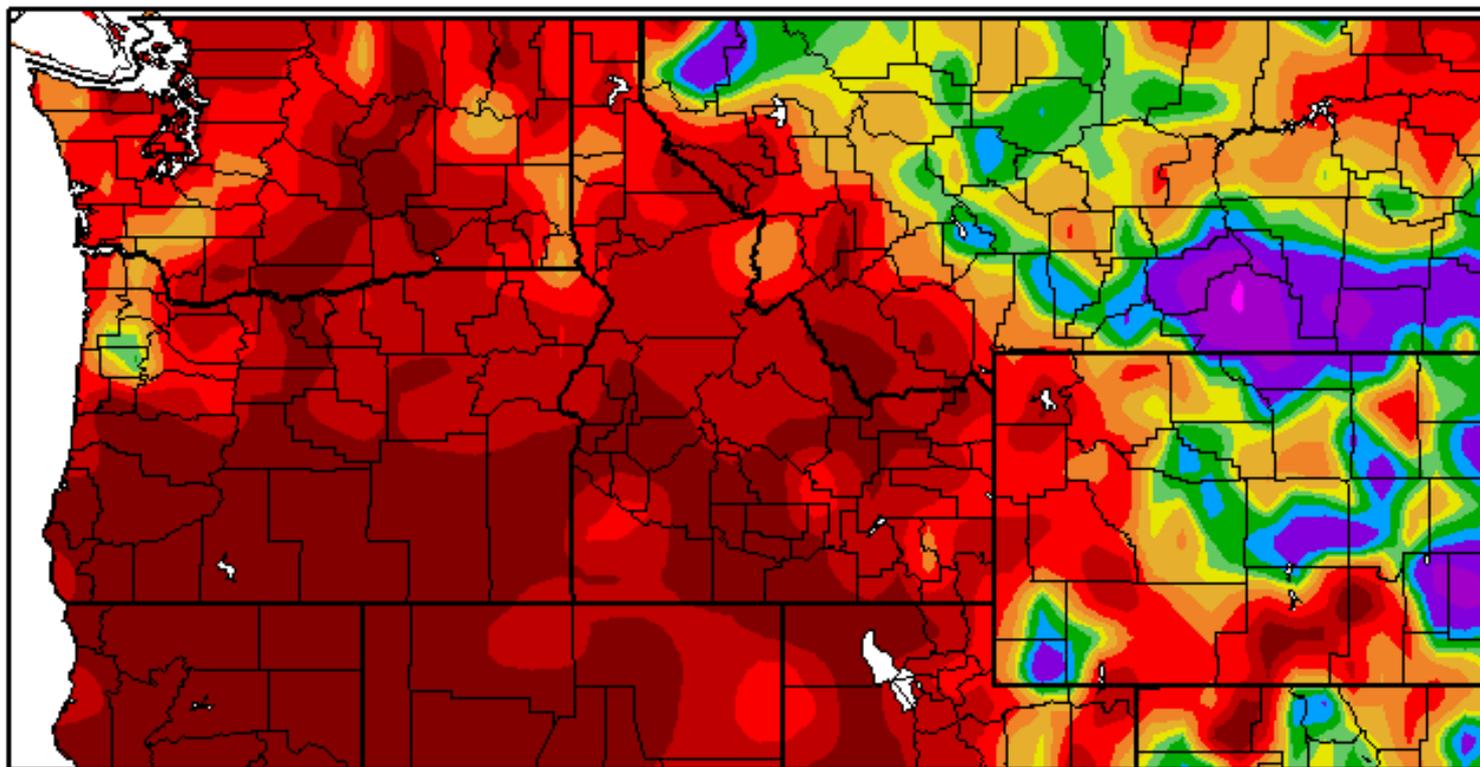


Generated 9/5/2016 at HPRCC using provisional data.

Regional Climate Centers

# Percent of Normal Precipitation (%)

## 8/1/2016 – 8/31/2016



Generated 9/5/2016 at HPRCC using provisional data.

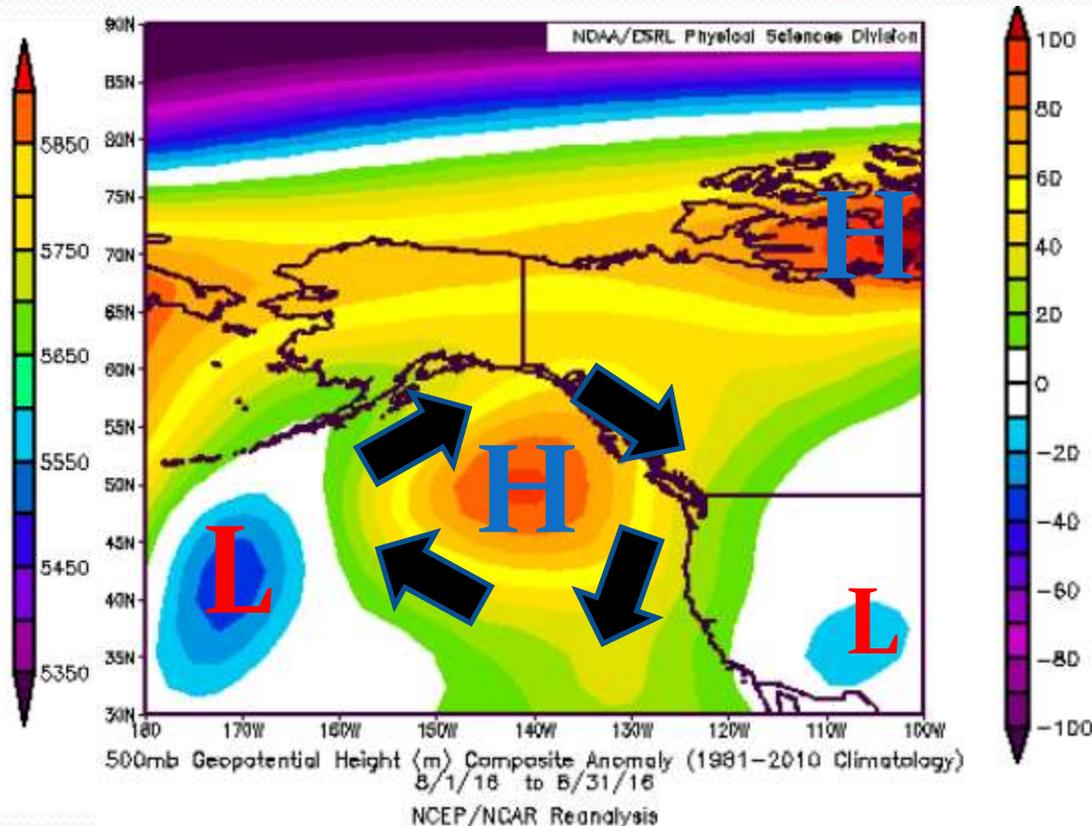
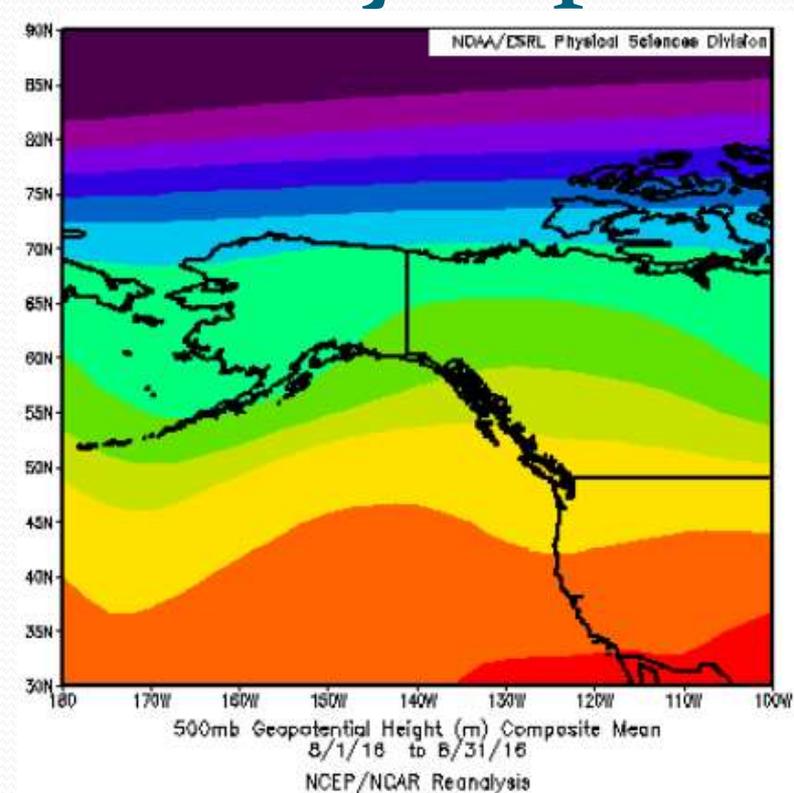
Regional Climate Centers





# August 2016

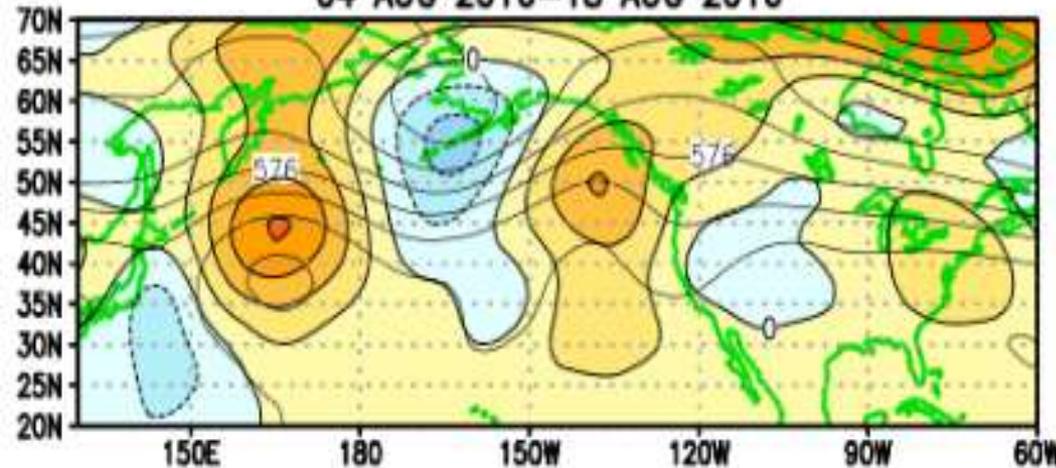
## Synoptic Weather Pattern



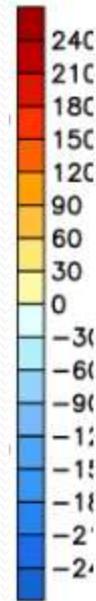
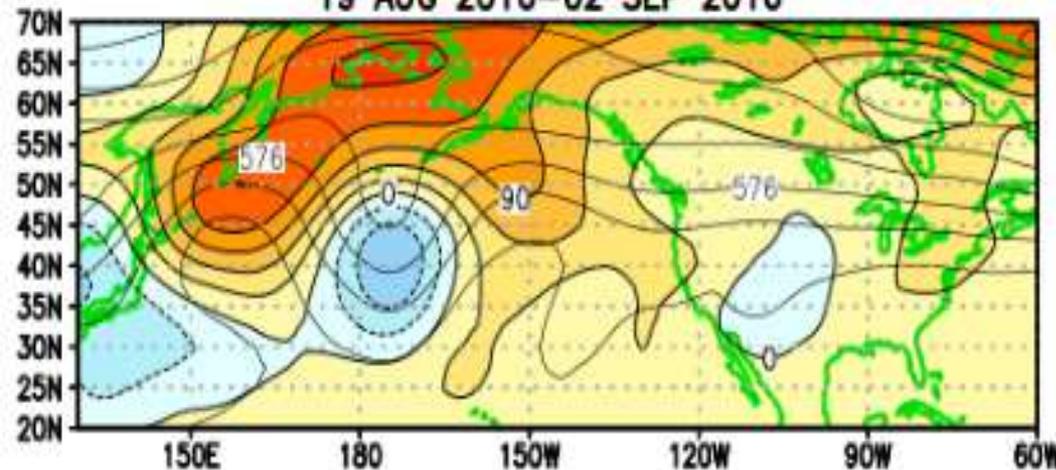
The mean synoptic pattern for the month of August 2016 was characterized by a large ridge of high pressure extending across the Gulf of Alaska and much of the northeastern Pacific. The Pacific Northwest was on the eastern flank of this ridge, with a north to northwest flow dominating our weather pattern through the month. There was a weak area of below average heights over the southwest US and also south of the Aleutians. This overall pattern kept temperatures near average for our area through the month, with well below average precipitation amounts for many locations.

# August 2016 Detailed Upper Level Pattern Analysis

04 AUG 2016–18 AUG 2016



19 AUG 2016–02 SEP 2016



- ❖ The first two weeks of the month featured a moderately strong offshore ridge over the eastern Gulf of Alaska, leaving the Pacific Northwest in a northerly flow pattern.
- ❖ The next two weeks saw more of a zonal westerly flow pattern develop over the Pacific Northwest. 500mb heights still remained slightly above average levels.



# Daily Record Highs During August

City	New Record Max T	Previous Max T Record
Easton, WA	91 on 8/19 (T)	91 on 8/19/2012
Satus Pass, WA	97 on 8/19	95 on 8/19/1977
Ellensburg, WA	93 on 8/29	92 on 8/29/1949
Sunriver, OR	92 on 8/22	89 on 8/22/2003
Pasco, WA	100 on 8/21 (T)	100 on 8/21/2005

With temperatures near to slightly above average over much of the region through the month only a few records were set. There were both records for hotter and cooler conditions through the month. The most significant records set were for the lack of precipitation through the month. More details on the following slides.



# Top 10 Record Coolest Average Minimum Temperature for August

City	Rank	Aug 2016 Avg Min T	Current Aug Avg Min T Record
John Day, OR	#8	44.8	42.4 in 1959
Pasco, WA	#8	55.4	52.9 in 2002
Hermiston, OR	#8	54.8	52.4 in 2002
Meacham, OR	#9	38.9	34.5 in 2002



# Top 10 Warmest Average Maximum Temperature for August

City	Rank	Aug 2016 Avg Max T	Warmest Aug Avg Max T Record
Hermiston, OR	#6	91.6	92.0 in 2012
Easton, WA	#7	77.0	79.9 in 1933
Ellensburg, WA	#8	88.6	90.4 in 2012
Yakima, WA	#8(T)	91.0	93.0 in 1967
Pasco, WA	#9(T)	91.3	93.4 in 1998
Sisters, OR	#10	86.9	91.5 in 1977



# Top 10 Record Warmest Average Temperature for August

City	Rank	Aug 2016 Avg T	Current, Warmest Aug Avg T Record
Easton, WA	#8	62.6	66.3 in 2014
Yakima, WA	#8	72.8	74.2 in 1977
Ellensburg, WA	#9	72.0	73.9 in 2004



# Top 10 Driest Augusts on Record

City	Rank	Aug 2016 Precip Total	Current or previous Aug Min Precip
The Dalles, OR	#1 (T)	0.00"	0.00" in 1998 *(3X)
Antelope, OR	#1 (T)	0.00"	0.00" in 2012 *(10X)
Bend, OR	#1 (T)	0.00"	0.00" in 2015 *(10X)
Goldendale, WA	#1 (T)	0.00"	0.00" in 2012 *(10X)
Kennewick, WA	#1 (T)	0.00"	0.00" in 2006 *(10X)
Moxee City, WA	#1 (T)	0.00"	0.00" in 2012 *(9X)
Ellensburg, WA	#2	Trace	0.00" in 1955 (1X)

\* Number of times (years) the record low precip occurred at a given location\*



# Top 10 Driest Augusts on Record (Cont'd)

City	Rank	Aug 2016 Precip Total	Current or previous Aug Min Precip
Yakima, WA	#2 (T)	Trace	0.00" in 1955 *(1X)
Pasco, WA	#6	0.04"	0.01" in 2006 *(3X)
Dayville, WA	#7 (T)	0.02"	0.00" in 2012 *(2X)
Long Creek, OR	#7 (T)	Trace	0.00" in 2012 *(6X)
Hermiston, OR	#8 (T)	0.05"	Trace in 2011 *(4X)
Easton, WA	#9	0.36"	0.02" in 2012 *(1X)

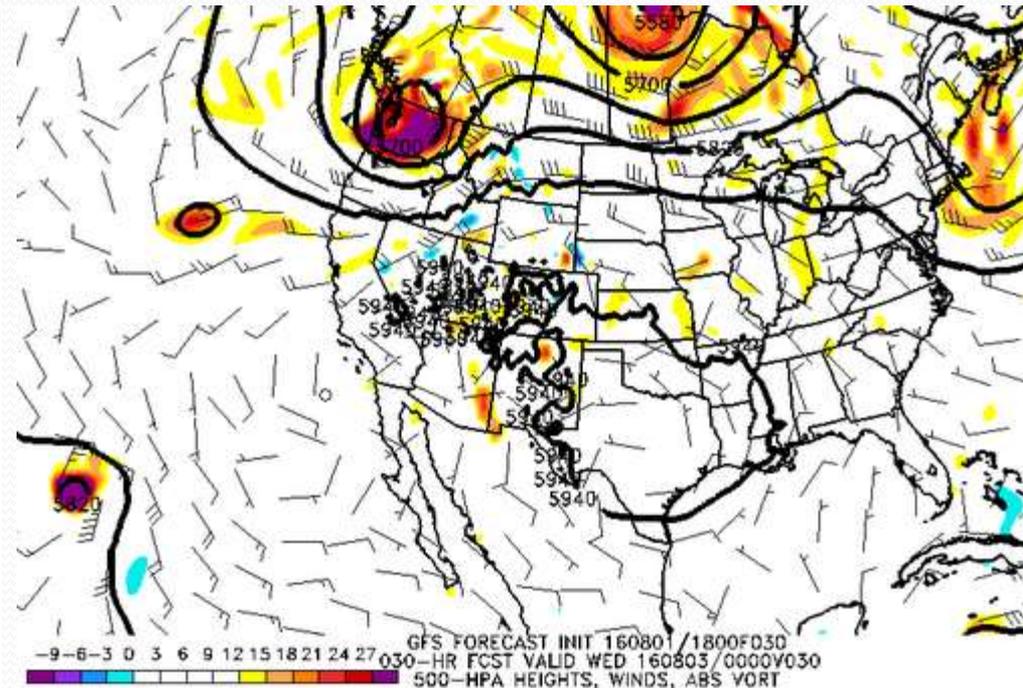
\* Number of times (years) the record low precip occurred at a given location\*



# August Significant Weather

# August 2<sup>nd</sup> Windy & Cooler

Location	Peak Wind	Coolest Temp
Pendleton, OR	49 MPH	59°
Meacham, OR	21 MPH	39°
Redmond, OR	33 MPH	43°
Pasco, WA	40 MPH	56°
Walla Walla, WA	36 MPH	60°
Yakima, WA	40 MPH	53°
Hermiston, OR	49 MPH	60°
Ellensburg, WA	44 MPH	56°
The Dalles, OR	37 MPH	61°
Easton, WA	N/A	52°



500mb heights, winds and vorticity. Valid 8/2/16 5 PM PDT

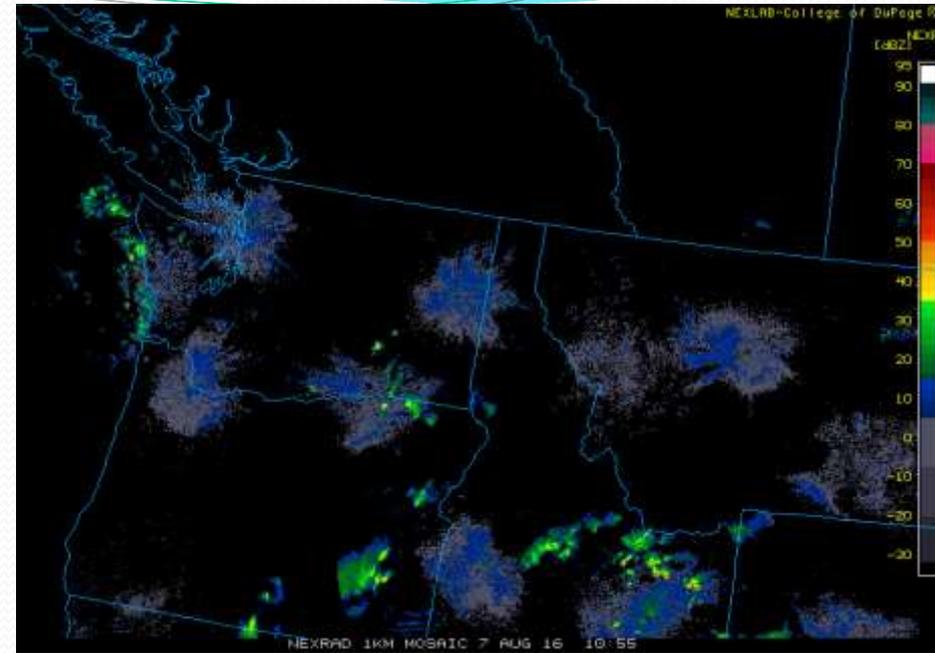


A deep upper level low pressure system moved directly over eastern Washington and Oregon during the day on August 2<sup>nd</sup>. This upper level low brought clouds, windy conditions and much cooler weather to the region.

# August 5 – 8<sup>th</sup> Thunderstorms & Rain

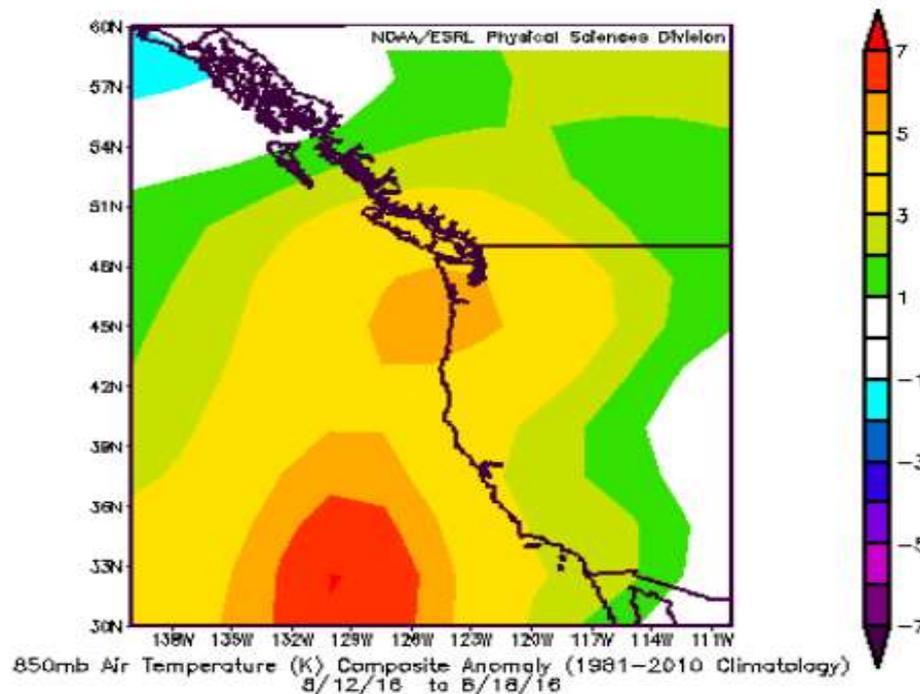
Location	Total Precip	Thunder ?
Pendleton, OR	0.07"	Y
Meacham, OR	0.18"	N
Redmond, OR	0.02"	Y
Pasco, WA	0.04"	N
Walla Walla, WA	0.16"	Y
Yakima, WA	Trace	N
Hermiston, OR	0.05"	N
Ellensburg, WA	Trace	N
The Dalles, OR	0.00"	N
Easton, WA	0.02"	Y

A storm system moved through the area during the August 5<sup>th</sup> through the 8<sup>th</sup> time period. This weather system brought showers and even thunderstorms to the region. No severe weather was reported.



# August 12 – 18<sup>th</sup> Heatwave

Location	Peak Temperature
Pendleton, OR	98 Degrees
Meacham, OR	87 Degrees
Redmond, OR	97 Degrees
Pasco, WA	100 Degrees
Walla Walla, WA	98 Degrees
Yakima, WA	100 Degrees
Hermiston, OR	101 Degrees
Ellensburg, WA	99 Degrees
The Dalles, OR	103 Degrees
Dayville, OR	101 Degrees
Bend, OR	92 Degrees
Heppner, OR	94 Degrees
La Grande, OR	96 Degrees
Madras, OR	94 Degrees



# August 21<sup>st</sup> & 27<sup>th</sup> Windy & Fire Weather

Location	Peak Wind	Lowest Humidity
Pendleton, OR	43 MPH	6 Percent
Meacham, OR	20 MPH	8 Percent
Redmond, OR	30 MPH	4 Percent
Pasco, WA	29 MPH	13 Percent
Walla Walla, WA	36 MPH	6 Percent
Yakima, WA	36 MPH	9 Percent
Hermiston, OR	40 MPH	8 Percent
Ellensburg, WA	48 MPH	20 Percent
The Dalles, OR	43 MPH	22 Percent
John Day, OR	23 MPH	7 Percent



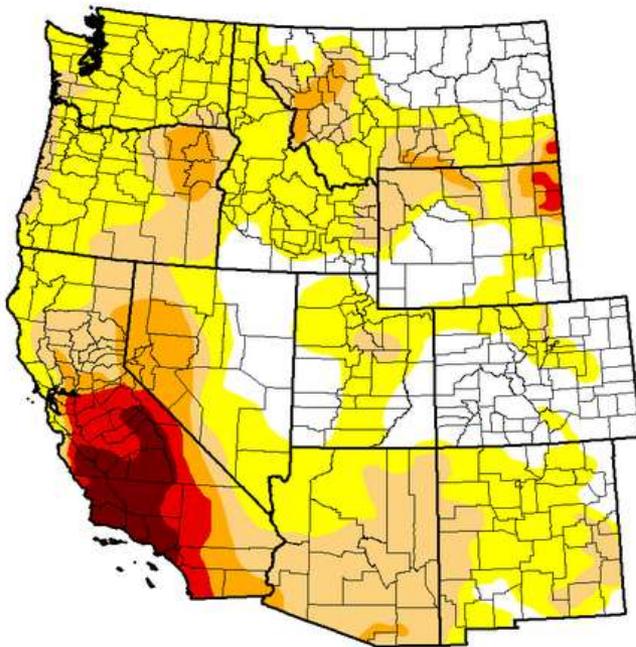
Two separate storm systems moved into the area, first on August 21<sup>st</sup> then again on the 27<sup>th</sup>. Conditions were very hot and dry on the 21<sup>st</sup>, with extremely low relative humidity reported across the region. Humidity values were slightly higher on the 27<sup>th</sup>, but winds remain gusty. Several wildfires spread across the area in the dangerous fire weather conditions.

# Drought Redevelops

## U.S. Drought Monitor West

August 30, 2016  
(Released Thursday September 1, 2016)  
Valid 8 a.m. EDT

Statistics type: Traditional Percent Area Export table:   



Week	None	D0-D4	D1-D4	D2-D4	D3-D4	D4
Current <a href="#">2016-08-30</a>	24.36	75.64	34.75	12.84	5.99	2.81
Last Week <a href="#">2016-08-23</a>	23.76	76.24	33.92	12.95	5.99	2.81
3 Months Ago <a href="#">2016-05-31</a>	45.16	54.84	27.17	10.00	6.23	2.81
Start of Calendar Year <a href="#">2015-12-29</a>	33.17	66.83	45.07	29.30	15.92	6.85
Start of Water Year <a href="#">2015-09-29</a>	22.77	77.23	57.81	42.42	26.50	7.62
One Year Ago <a href="#">2015-09-01</a>	25.33	74.67	59.67	42.69	26.73	7.62

Estimated Population in Drought Areas: **42,663,991**

[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):

Chris Fenimore, NOAA/NESDIS/NCEI

Download:   

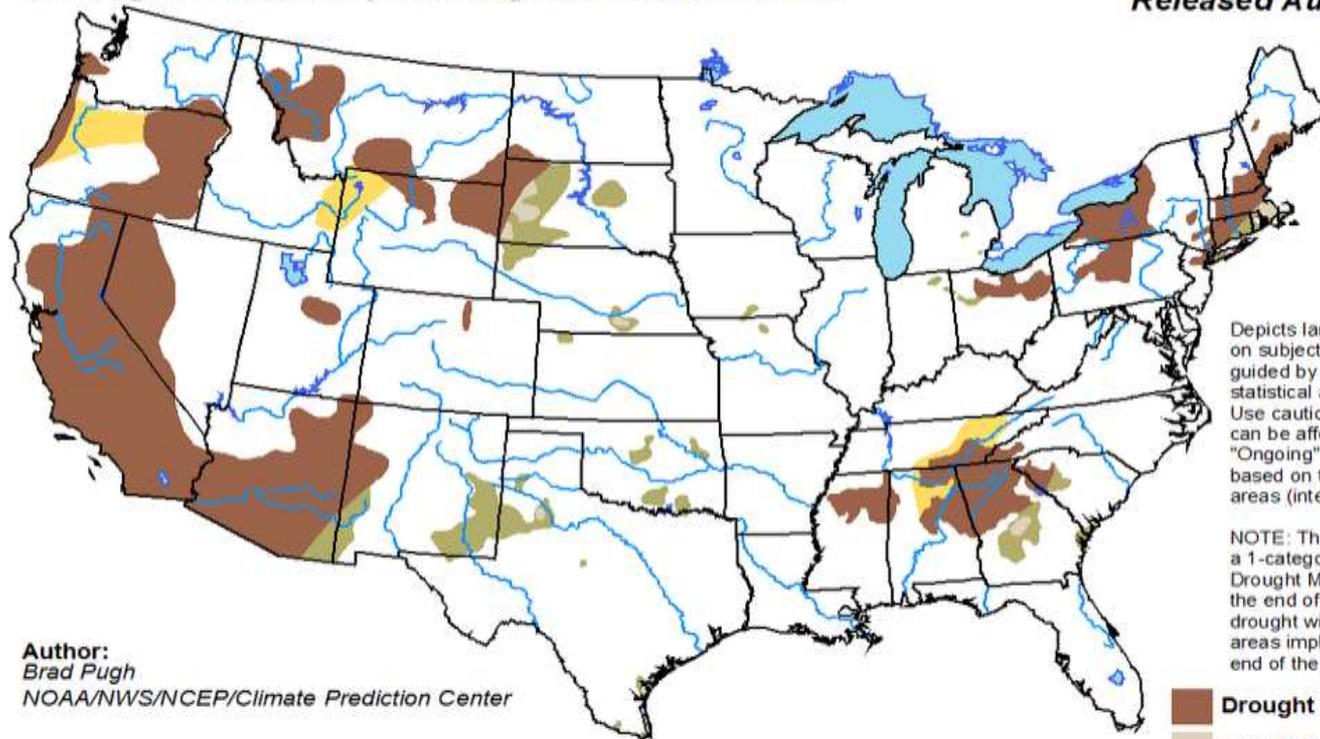
The latest drought monitor shows some minor degradation in the drought conditions, with all of Oregon and Washington now back in the D0, or abnormally dry category. Much of Eastern Oregon is now back in the D1, or moderate drought category. A small portion of Northeast Oregon is now experiencing a D2, or severe drought.



# September Drought Outlook

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

Valid for September 2016  
Released August 31, 2016

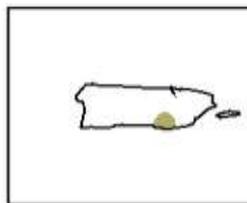
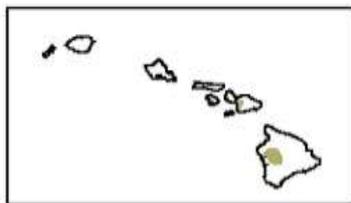


Author:  
Brad Pugh  
NOAA/NWS/NCEP/Climate Prediction Center

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 improve
-  Drought removal likely
-  Drought development likely



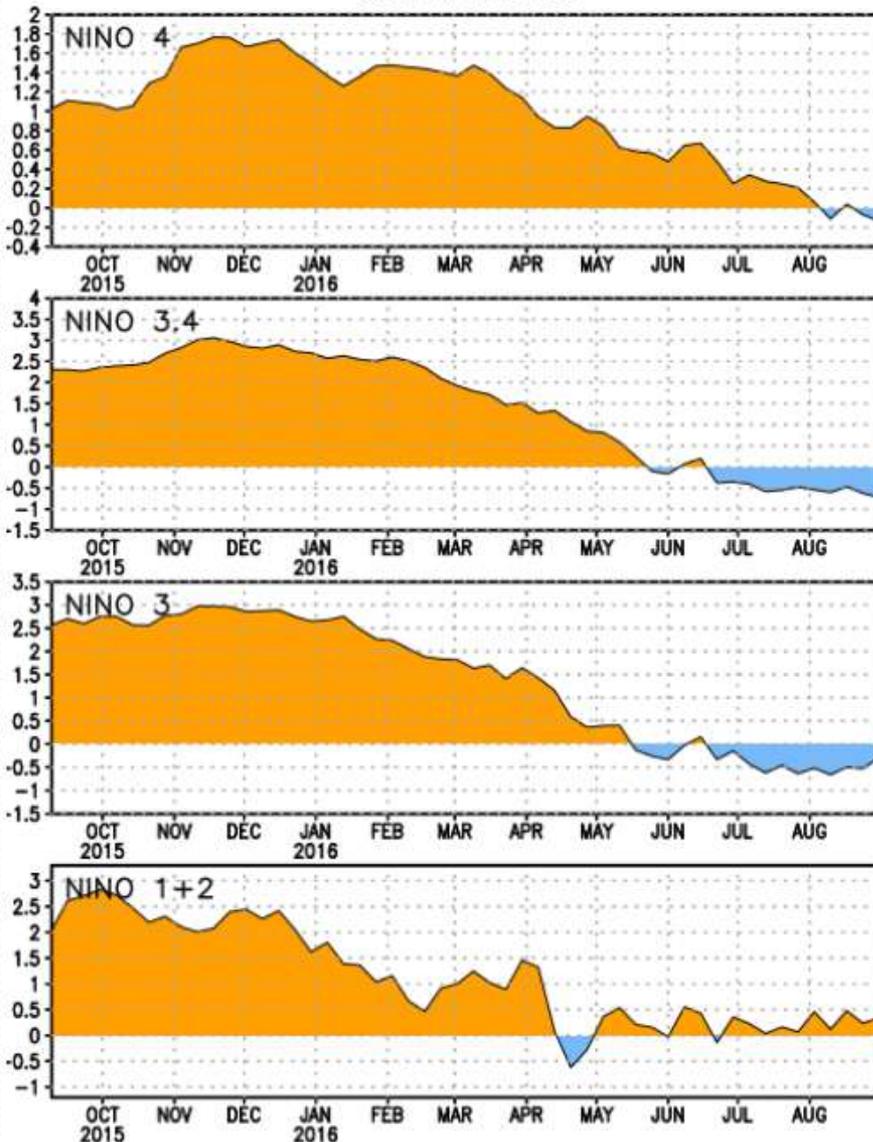
<http://go.usa.gov/3eZGd>

The monthly drought outlook for September from CPC indicates drought persisting across eastern Oregon, with drought development likely across north-central Oregon.



# Neutral ENSO Favored

SST Anomalies



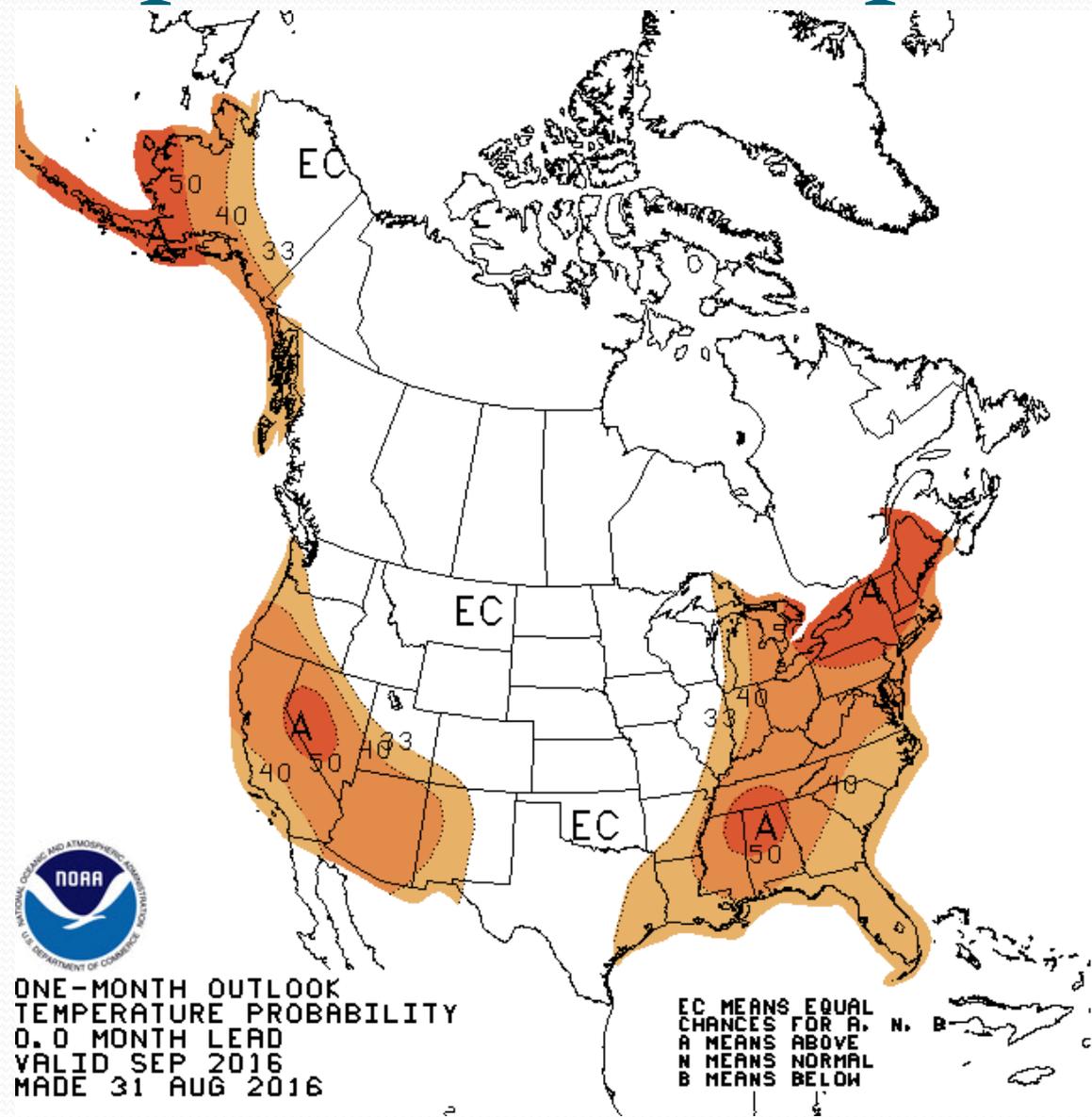
- ❖ Currently, cooler than average sea surface temperatures were observed in the Nino 3 and 3.4 regions. Nino 1+2 continues to have warmer than average sea surface temperatures.
- ❖ The La Niña watch has now been cancelled. ENSO neutral conditions are slightly favored through the upcoming winter months.
- ❖ This probability of La Nina development is now lower than last month's update, around 40 percent through the winter months.



# September Outlook

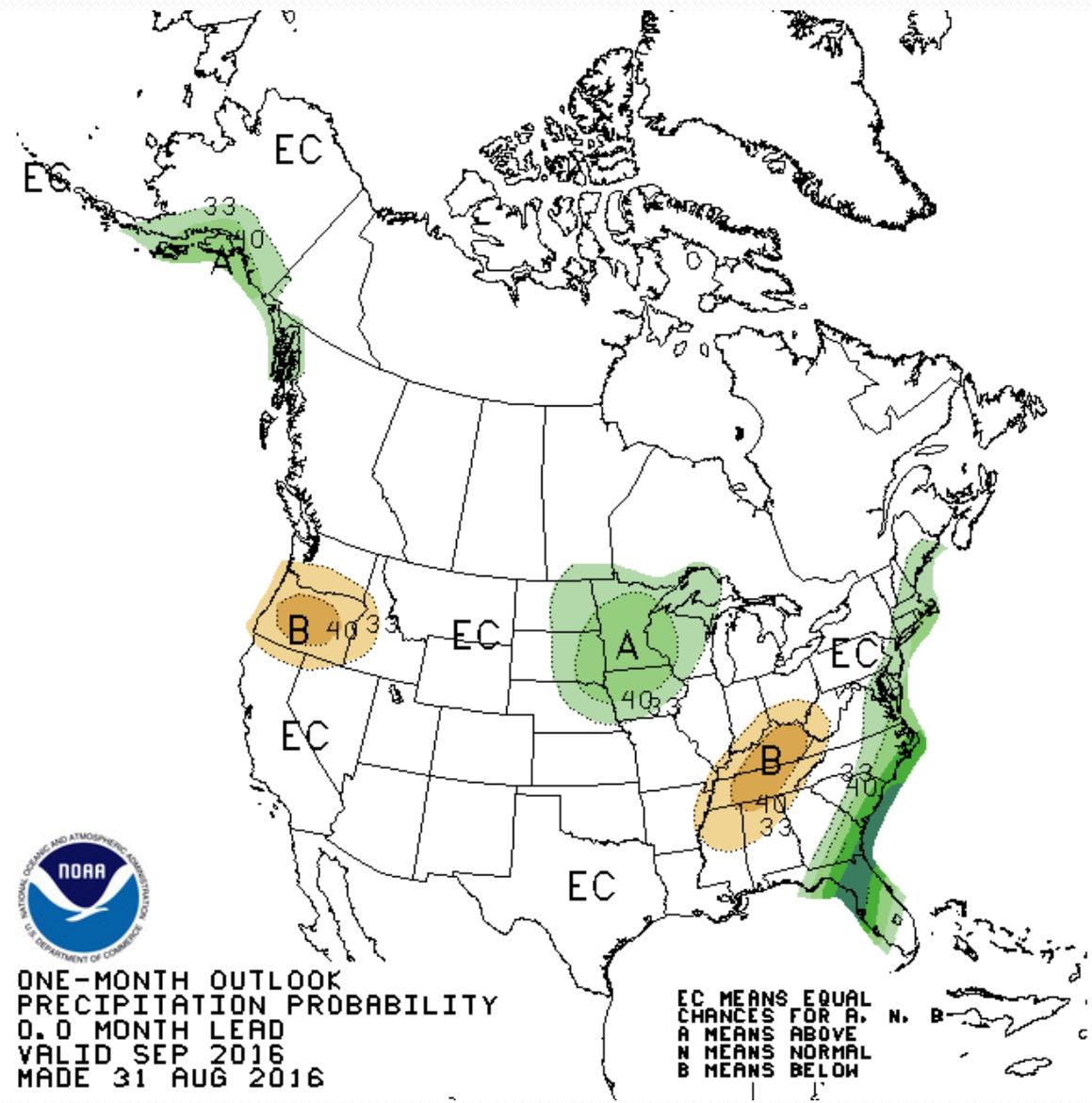
# September Temperature Outlook

This graphic is issued by the Climate Prediction Center or CPC and is the Temperature Outlook for the month of September. 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 the odds tilted slightly (34 - 39 percent) toward above average temperatures in September.



ONE-MONTH OUTLOOK  
TEMPERATURE PROBABILITY  
0.0 MONTH LEAD  
VALID SEP 2016  
MADE 31 AUG 2016

# September Precipitation Outlook



This graphic is CPC's Precipitation Outlook for the month of September. 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 below average precipitation totals in September. Northern Washington has equal chances for above, below or near average precipitation amounts in September.



ONE-MONTH OUTLOOK  
PRECIPITATION PROBABILITY  
0.0 MONTH LEAD  
VALID SEP 2016  
MADE 31 AUG 2016



Thank You!