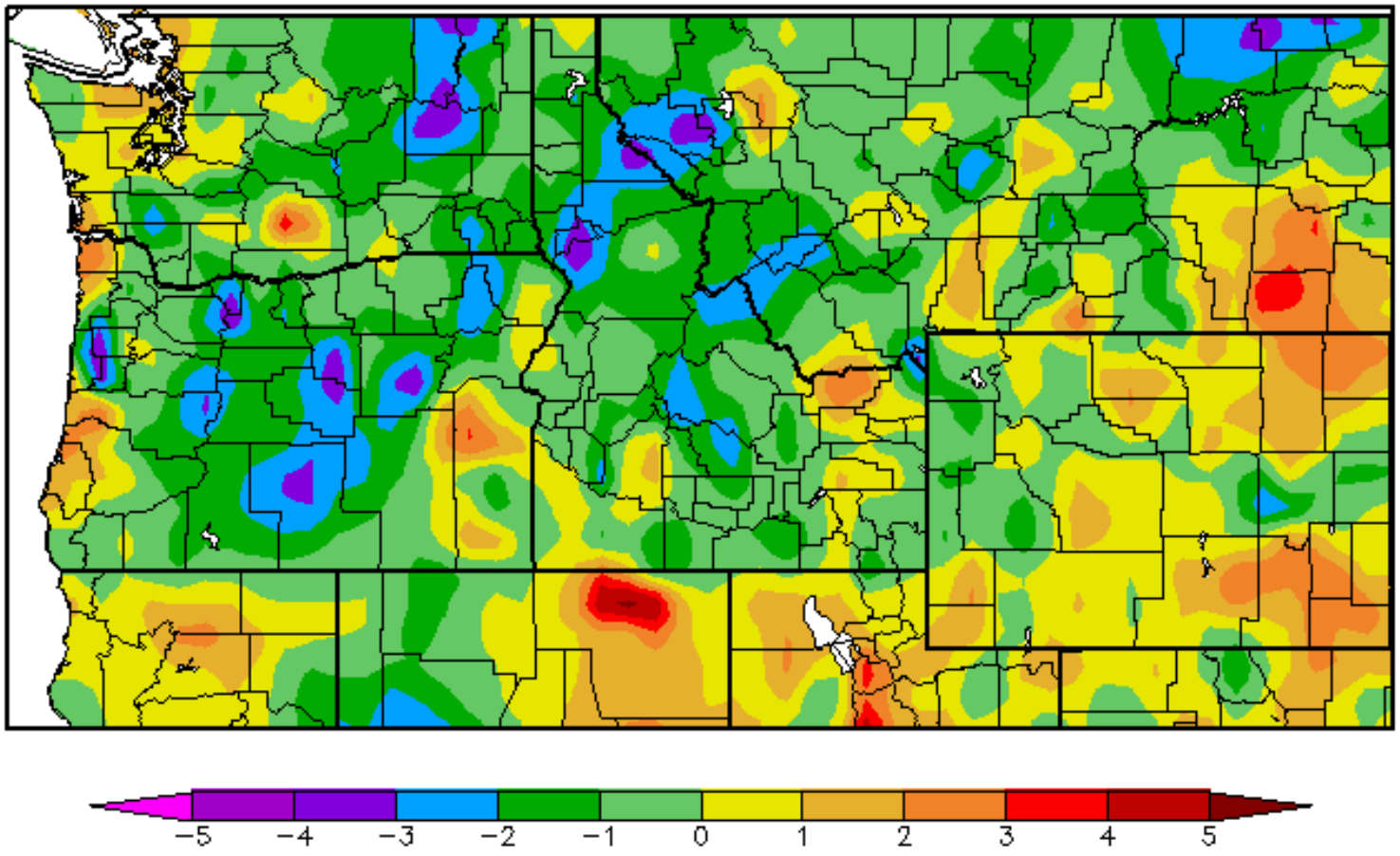
The Month In Review

July 2016

National Weather Service
Pendleton, Oregon

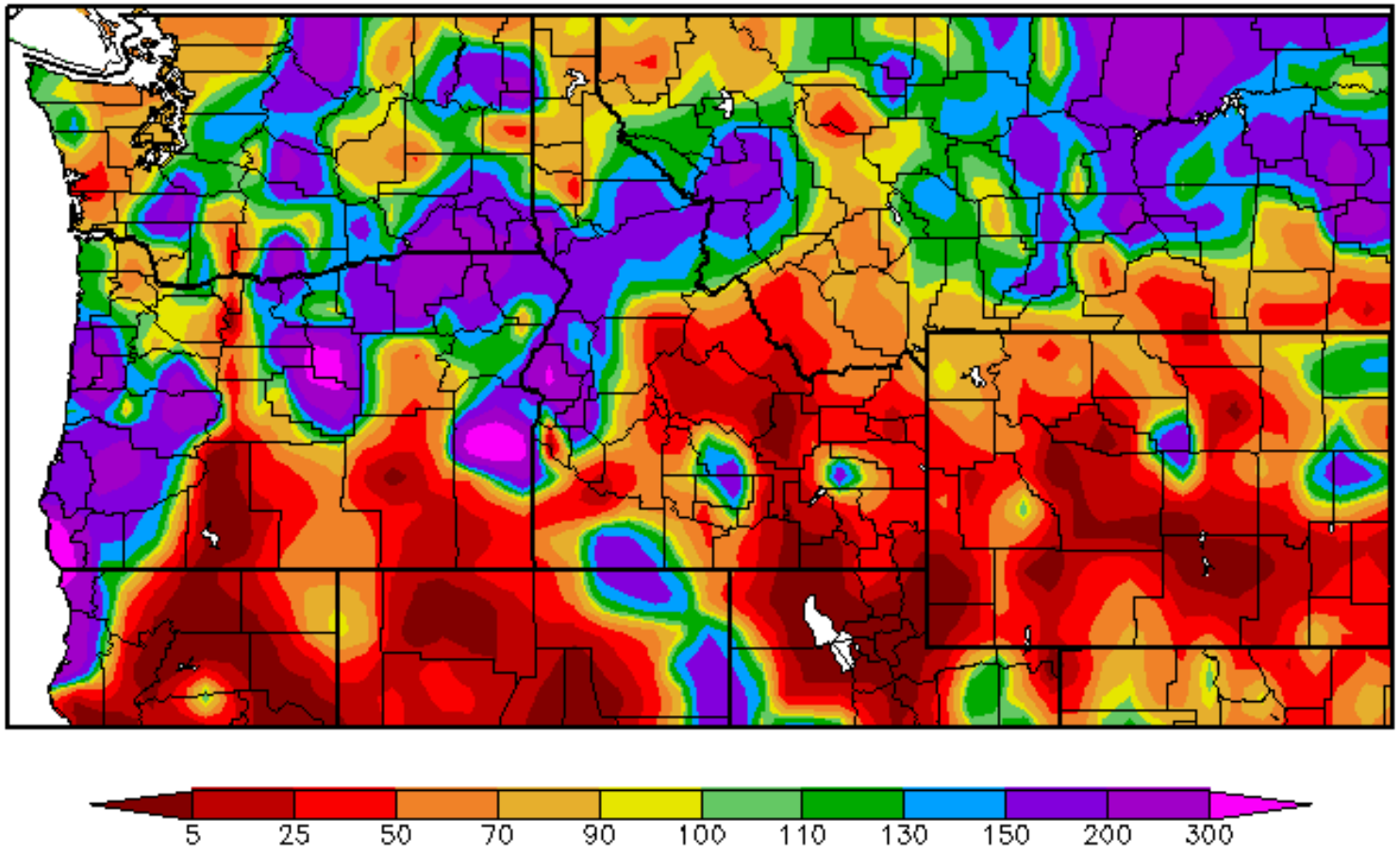
Departure from Normal Temperature (F)
7/1/2016 – 7/31/2016



Generated 8/2/2016 at HPRCC using provisional data.

Regional Climate Centers

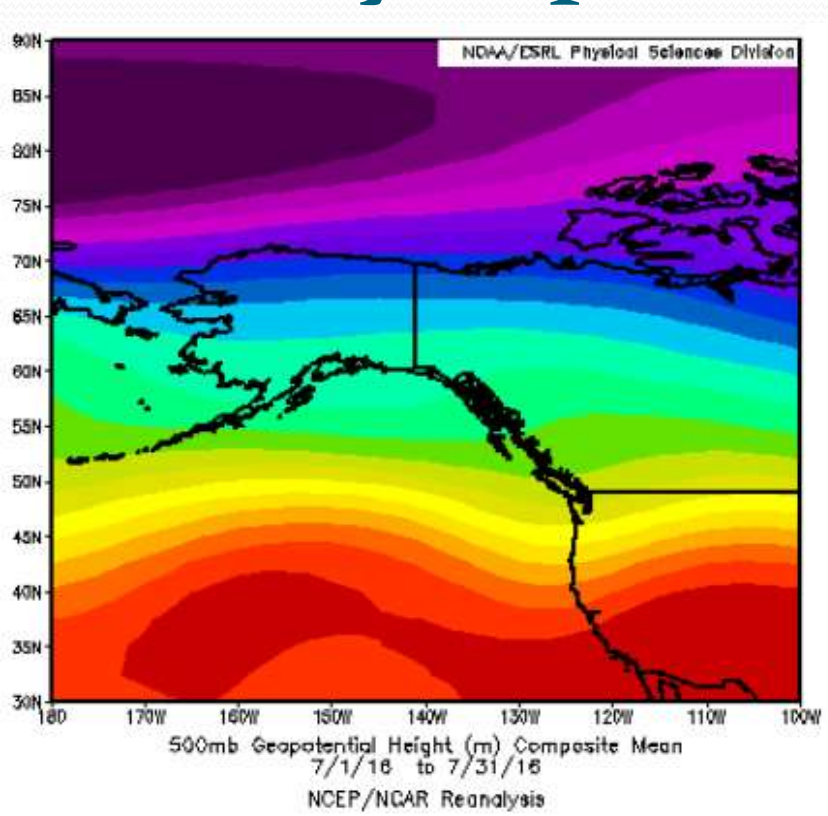
Percent of Normal Precipitation (%)
7/1/2016 – 7/31/2016

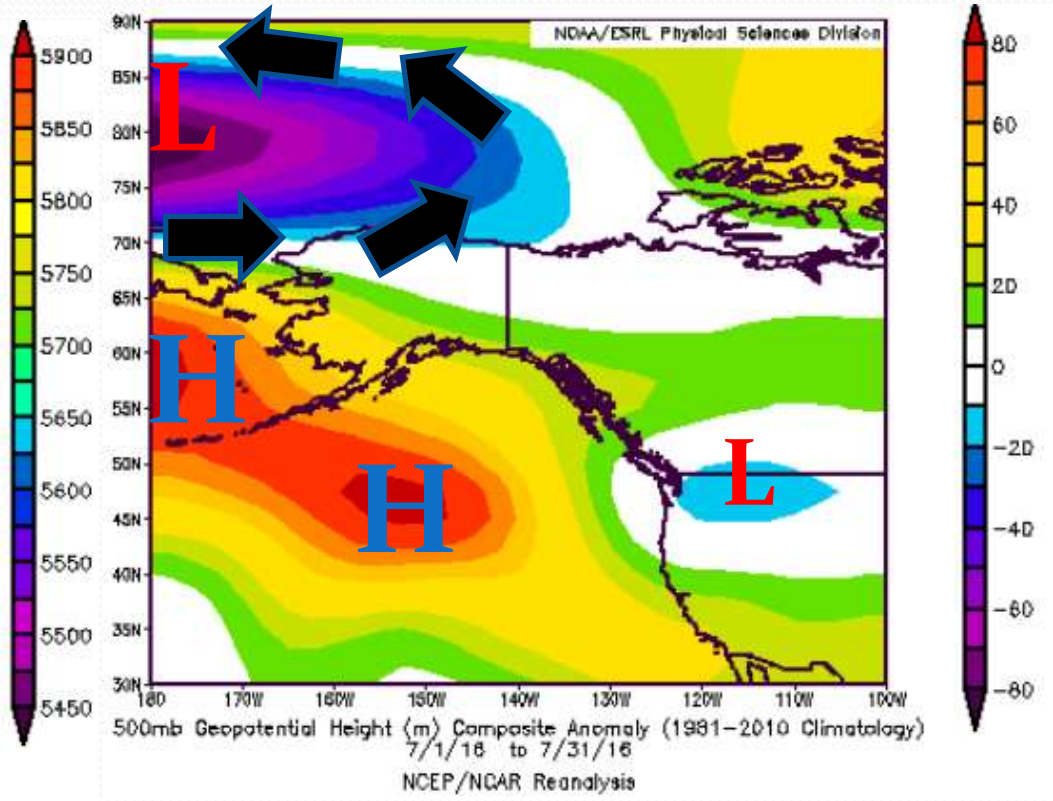


Generated 8/2/2016 at HPRCC using provisional data.

Regional Climate Centers

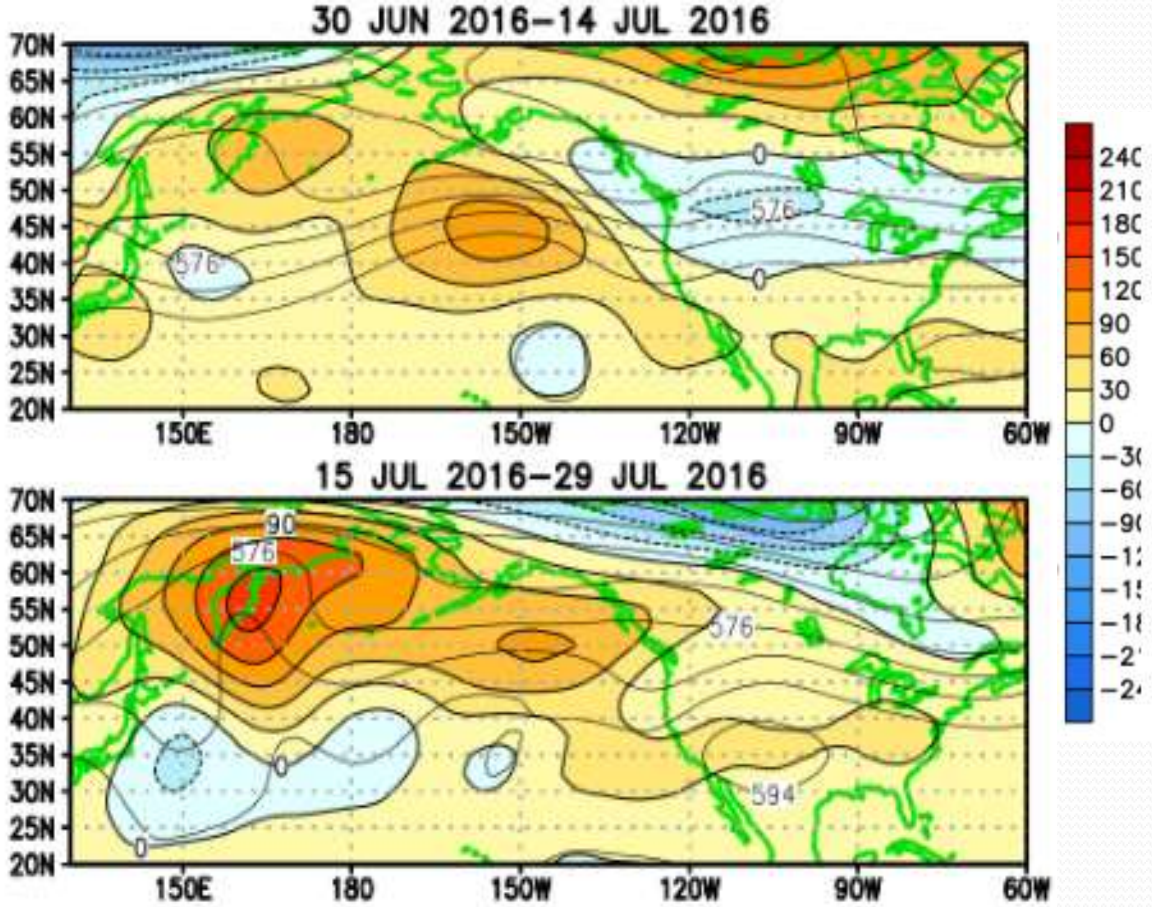
July 2016
Synoptic Weather Pattern





The mean synoptic pattern for the month of July 2016 was characterized by a large ridge of high pressure extending across the Central Pacific Ocean, south of Alaska, across much of California and into the Southwest US. There was a strong upper level low pressure system located north of Alaska/eastern Russia over the Arctic sea. There was a weaker trough, or area of lower than average heights over the Pacific Northwest during the month of July. This upper level trough, although weak, was enough to keep temperatures near to below average for the month and precipitation amounts generally above average region wide.

July 2016 Detailed Upper Level Pattern Analysis



- The first two weeks of the month featured lower than average heights over the Northwest, as a mean trough settled over the area. During this time a large upper level low moved over Washington and Oregon.
- The next two weeks saw heights rising to near or slightly above average levels over the Northwest. A stronger upper level ridge also developed over the southwest US, and across the Gulf of Alaska during this time period. A hot and dry stretch of weather developed late in the month.

Daily Record Highs During July

City	New Record Max T	Previous Max T Record
Antelope, OR	102 on 7/30	101 on 7/30/2003
Mcnary, OR	105 on 7/30	104 on 7/30/2014
Yakima, WA	102 on 7/25 (T)	102 on 7/25/2013

With temperatures near to slightly below 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 excessive precipitation amounts that fell at some locations. More details on the following slides.

Top 10 July Record Warm Daily Minimum Temperatures

City	Rank	July 2016 Min T	Current July Min T Record
Yakima, WA	#3(T)	73 on 7/26	76 on 7/03/2015
Hermiston, OR	#4(T)	73 on 7/26	75 on 7/13/2002

Top 10 Record Warmest Average Minimum Temperature for July

City	Rank	July 2016 Avg Min T	Current July Avg Min T Record
Monument, OR	#3	51.8	55.2 in 1975
Hermiston, OR	#5	59.7	61.6 in 1998
Yakima, WA	#6	58.0	60.6 in 2015
Mt. Adams R.S.	#7	50.7	56.4 in 1931
Easton, WA	#8	49.9	54.6 in 2015
Pasco, WA	#10	57.9	62.0 in 1945

Top 10 Record Coolest Average Maximum Temperature for July

City	Rank	July 2016 Avg Max T	Current, Coolest July Avg Max T Record
Easton, WA	#2	71.6	69.1 in 2011
Pasco, WA	#3	89.4	87.7 in 2011
Hermiston, OR	#4	89.5	86.4 in 2011
La Grande, OR	#4	80.7	72.2 in 1993
Pelton Dam, OR	#8	88.6	83.9 in 1993
Pendleton Exp Station	#9	85.9	79.1 in 1993
John Day, OR	#9	83.6	74.8 in 1993
Walla Walla, WA	#10	86.0	80.0 in 1993

Top 10 Record Coolest Average Temperature for July

City	Rank	July 2016 Avg T	Current, Coolest July Avg T Record
Easton, WA	#3	60.7	58.4 in 2011
Pasco, WA	#5(T)	73.6	70.5 in 2011
La Grande, OR	#5	66.7	60.3 in 1993
John Day, OR	#7	65.4	59.8 in 1993
Hermiston, OR	#8	74.6	69.7 in 2011
Meacham, OR	#10	59.3	56.1 in 1999

Top 10 July Record Daily Precipitation Totals

City	Rank	July 2016 Daily Precip Total	Current or previous July Max Daily Precip
Hermiston, OR	#1	0.28" on 7/08	0.23" on 7/14/2012
Pendleton Exp Sta	#1	1.14" on 7/09	0.89" on 7/09/1974
Whitman Mission	#1	0.77" on 7/09	0.74" on 7/03/1966
La Grande, OR	#2	1.20" on 7/11	1.43" on 7/03/1998
Pendleton City	#5	0.92" on 7/09	2.00" on 7/03/1904
Ellensburg, WA	#7(T)	0.22" on 7/19	0.43" on 7/18/1948
Easton, WA	#9(T)	0.23" on 7/22	0.48" on 7/24/2014
Monument, OR	#9(T)	0.56" on 7/18	1.35" on 7/25/1991
Pendleton Airport	#10	0.45" on 7/08	1.18" on 7/05/1948

Top 10 July Record Monthly Precipitation Totals

City	Rank	July 2016 Precip Total	Current or previous July Max Precip
Ellensburg, WA	#2	0.57"	0.65" in 2012
Hermiston, OR	#2	0.31"	0.45" in 2012
Pendleton Exp Sta	#2	1.35"	1.74" in 1992
Pendleton City	#3	1.63"	2.47" in 1904
Pasco, WA	#4	0.33"	0.60" in 2012
Walla Walla, WA	#7	1.10"	4.73" in 1992
Pendleton Airport	#7	0.80"	1.45" in 1993
Whitman Mission	#8	0.90"	1.66" in 1966
La Grande, OR	#8	1.33"	2.58" in 1998
Antelope, OR	#9	0.94"	1.47" in 1978
Dayville, OR	#10	0.80"	2.91" in 1992

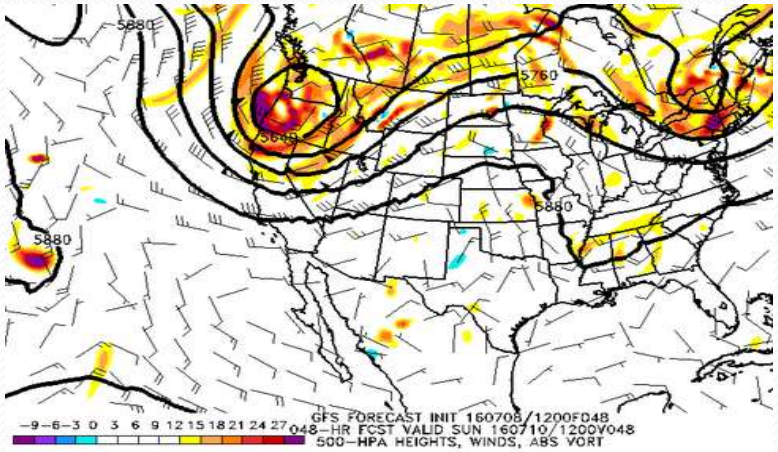
July
Significant Weather

July 6 – 10th Cooler, Rain, Storms & Wind

Location	5 Day Precip	Peak Wind	Coolest Temp
Pendleton, OR	0.73”	34 MPH	55 Degrees
Meacham, OR	0.56”	16 MPH	38 Degrees
Redmond, OR	0.28”	30 MPH	42 Degrees
Pasco, WA	0.29”	46 MPH	55 Degrees
Walla Walla, WA	0.93”	33 MPH	57 Degrees
Yakima, WA	0.15”	32 MPH	47 Degrees
Hermiston, OR	0.30”	36 MPH	55 Degrees
Ellensburg, WA	0.11”	41 MPH	53 Degrees
The Dalles, OR	0.20”	33MPH	56 Degrees
Easton, WA	0.22”	N/A	50 Degrees

A deep upper level low pressure system moved directly over eastern Washington and Oregon during the July 6 – 10 period. This upper level low brought clouds, showers, thunderstorms and much cooler weather to the region. In fact, some higher elevations snow was even reported above about 6000 feet!

A cloudy and showery July day. Even some July snow noted near the summit! Looking south from Halls Hill about 4PM Sunday July 10th. *Credit: Logan Wood*

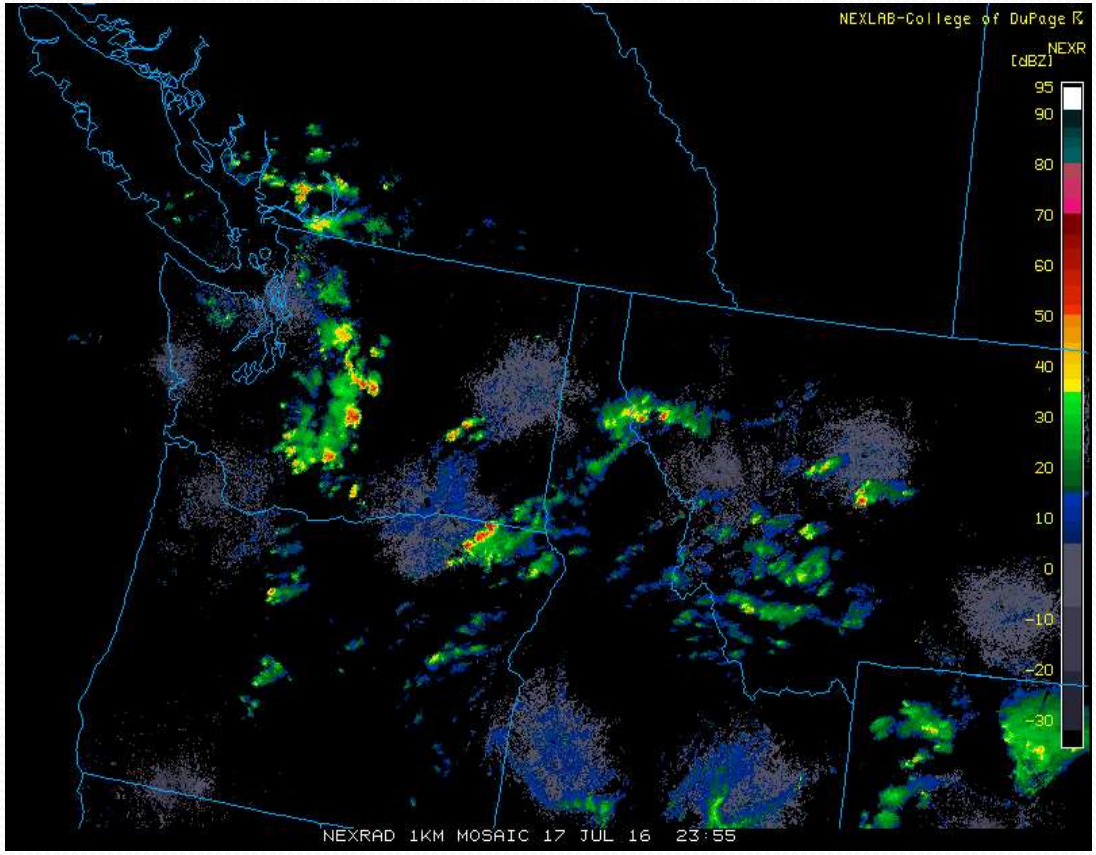


Wallowa County Tornado July 12th

A tornado was photographed over Zumwalt Prairie at approximately 4:58PM on July 12th. The tornado stayed on the ground for about 3-5 minutes as it was moving NNE. There were no reports of any damage from this tornado as it remained out over an open field. *Photo Courtesy of: Ed Grover*

July 17 – 19th Scattered Strong T'Storms

1" diameter hail, 15 hours after the storm hit. Was likely near golf ball size as it fell. Northeast Wallowa County on 7/19. Photo *courtesy of: Ed Grover*

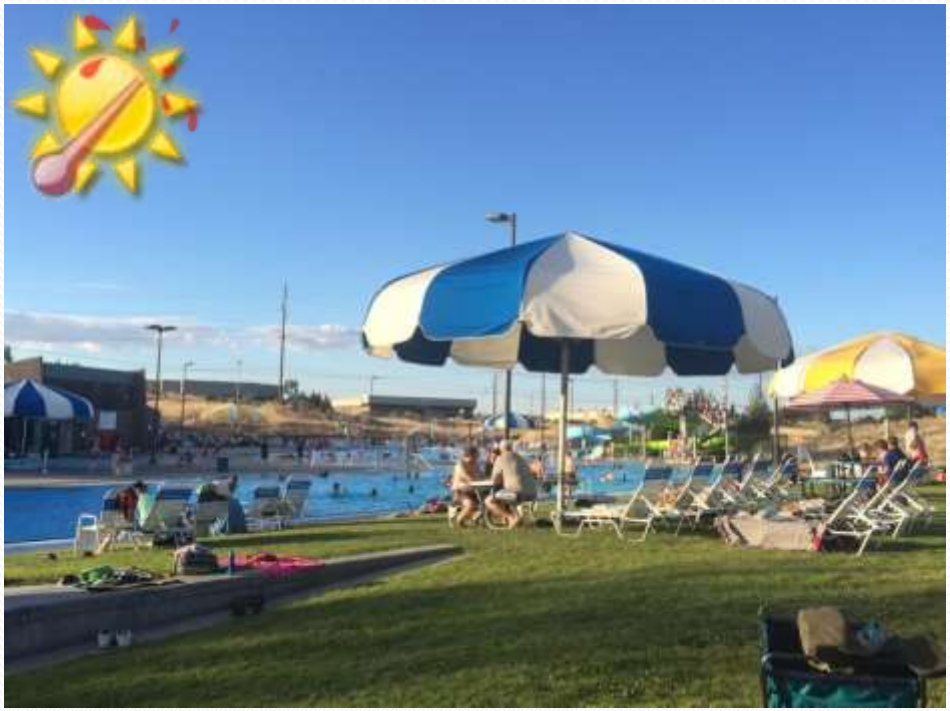


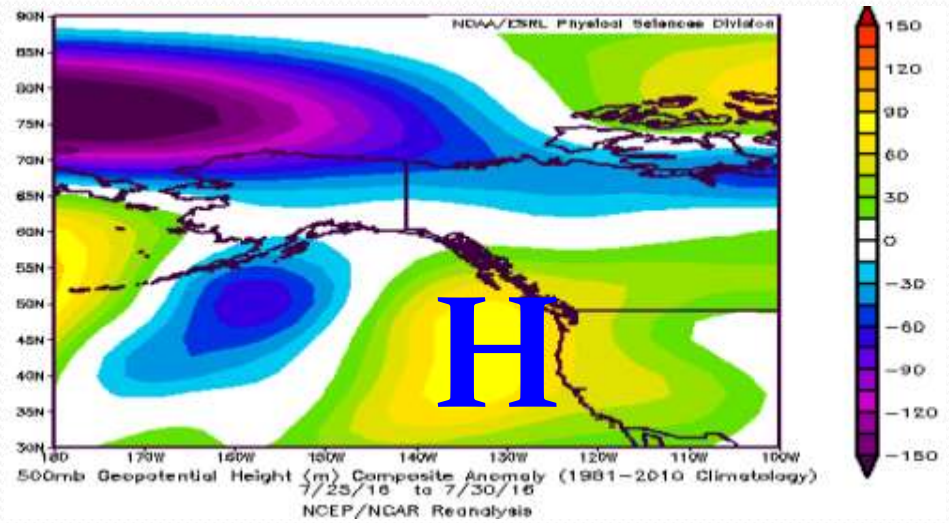
Local Storm Reports on 7/18 & 7/19 2016

VALID2	MAG	TYPETEXT	CITY	STATE	SOURCE	REMARK
7/18/2016 1:40	0.5	HAIL	12 E GOLDENDALE	WA	AMATEUR RADIO	DIME SIZE HAIL. AMATEUR RADIO CALL SIGN K7EVI.
7/18/2016 15:36	0.94	HEAVY RAIN	1 N PRINEVILLE	OR	TRAINED SPOTTER	NEARLY ONE INCH OF RAIN /0.94/ IN ONE HOUR.
7/18/2016 16:54	0.65	HEAVY RAIN	1 N PRINEVILLE	OR	TRAINED SPOTTER	0.65 INCHES OF RAIN SINCE 730 AM PDT.
7/19/2016 0:45	1.25	HAIL	SUMMERVILLE	OR	PUBLIC	
7/20/2016 0:00	0.75	HAIL	6 SSW DALE	OR	CO-OP OBSERVER	HAIL OBSERVED AT MEADOWBROOK SUMMIT ON HWY 395
7/20/2016 1:17	0.75	HAIL	LOSTINE	OR	PUBLIC	
7/20/2016 1:30	None	TSTM WND DMG	8 NNW IMNAHA	OR	PUBLIC	12 LARGE TREES DOWNED ALONG FENCE LINE CREEK ROAD. OBSERVED 1 INCH HAIL IN DIAMETER 15 HOURS

July 25 – 30th Heatwave

Location	Peak Temperature
Pendleton, OR	103 Degrees
Meacham, OR	91 Degrees
Redmond, OR	100 Degrees
Pasco, WA	105 Degrees
Walla Walla, WA	102 Degrees
Yakima, WA	104 Degrees
Hermiston, OR	106 Degrees
Ellensburg, WA	101 Degrees
The Dalles, OR	104 Degrees
Dayville, OR	104 Degrees
Bend, OR	95 Degrees
Heppner, OR	99 Degrees
La Grande, OR	96 Degrees
Madras, OR	98 Degrees

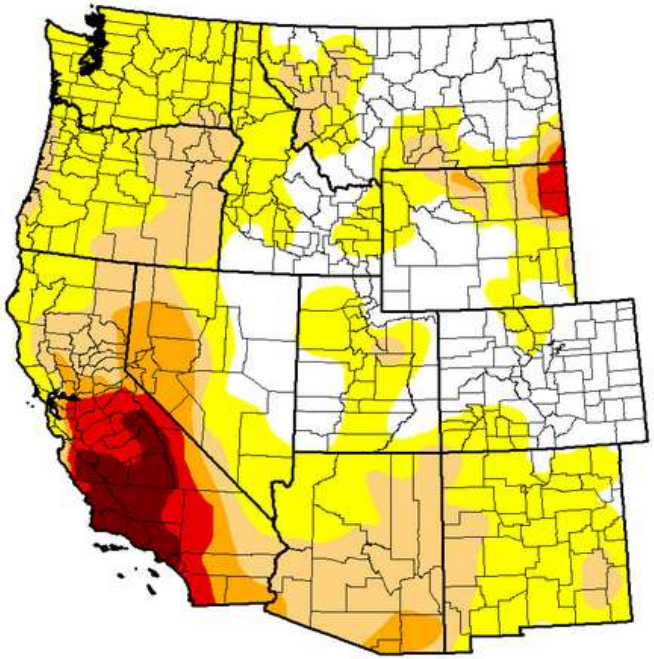




Drought Conditions Update

U.S. Drought Monitor

West



Download:

July 26, 2016

(Released Thursday July 28, 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 2016-07-26	27.68	72.32	31.64	11.60	6.18	2.81
Last Week 2016-07-19	31.17	68.83	29.17	11.44	6.18	2.81
3 Months Ago 2016-04-26	38.85	61.15	34.76	14.79	8.71	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 2015-09-29	22.77	77.23	57.81	42.42	26.50	7.62
One Year Ago 2015-07-28	26.53	73.47	60.09	42.99	22.24	7.17

Estimated Population in Drought Areas: **41,615,509** View More Statistics

Intensity:

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

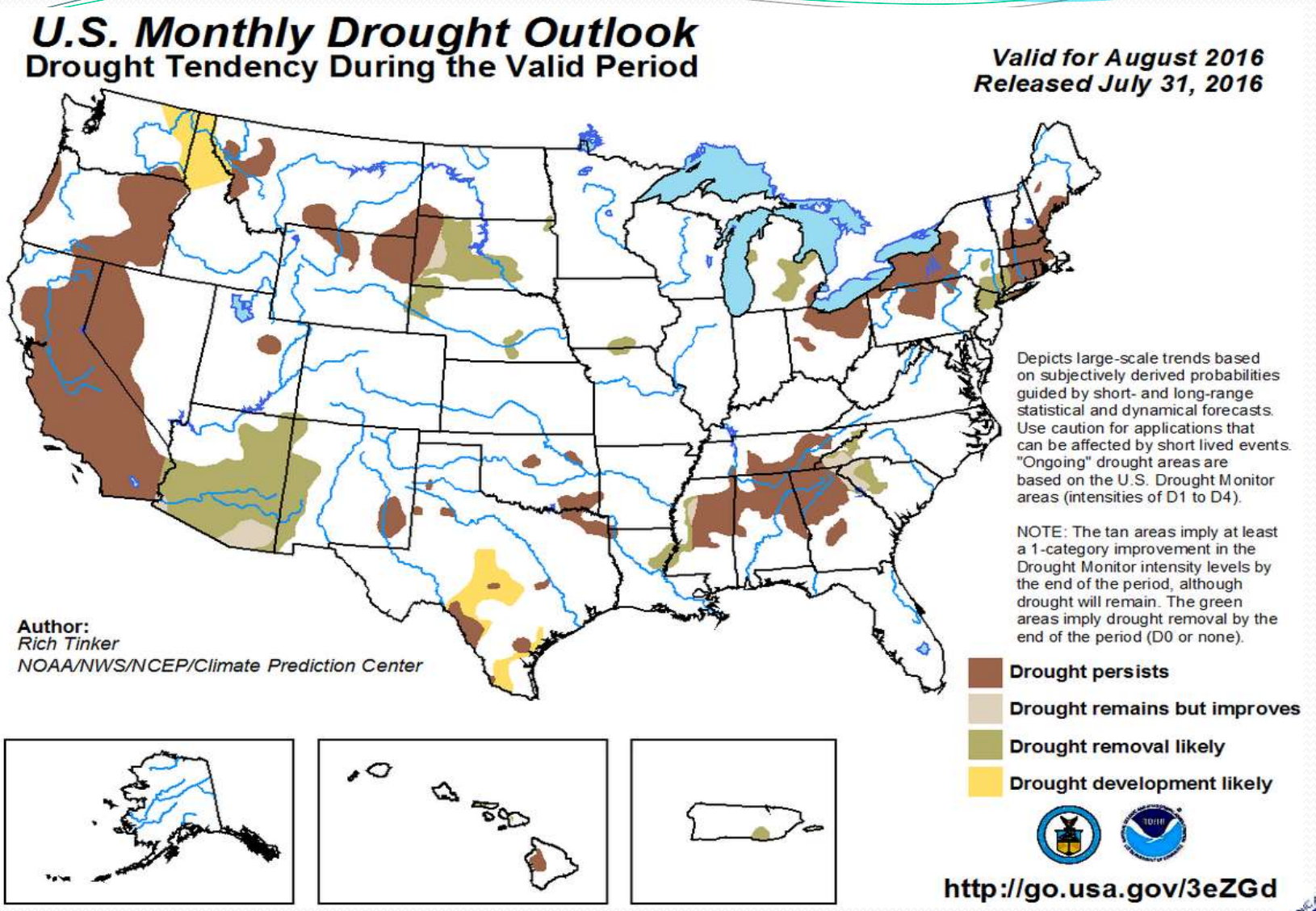
The Drought Monitor focuses on broad-scale conditions. Local conditions may vary. See accompanying text summary for forecast statements.

Author(s):

Brad Rippey, U.S. Department of Agriculture

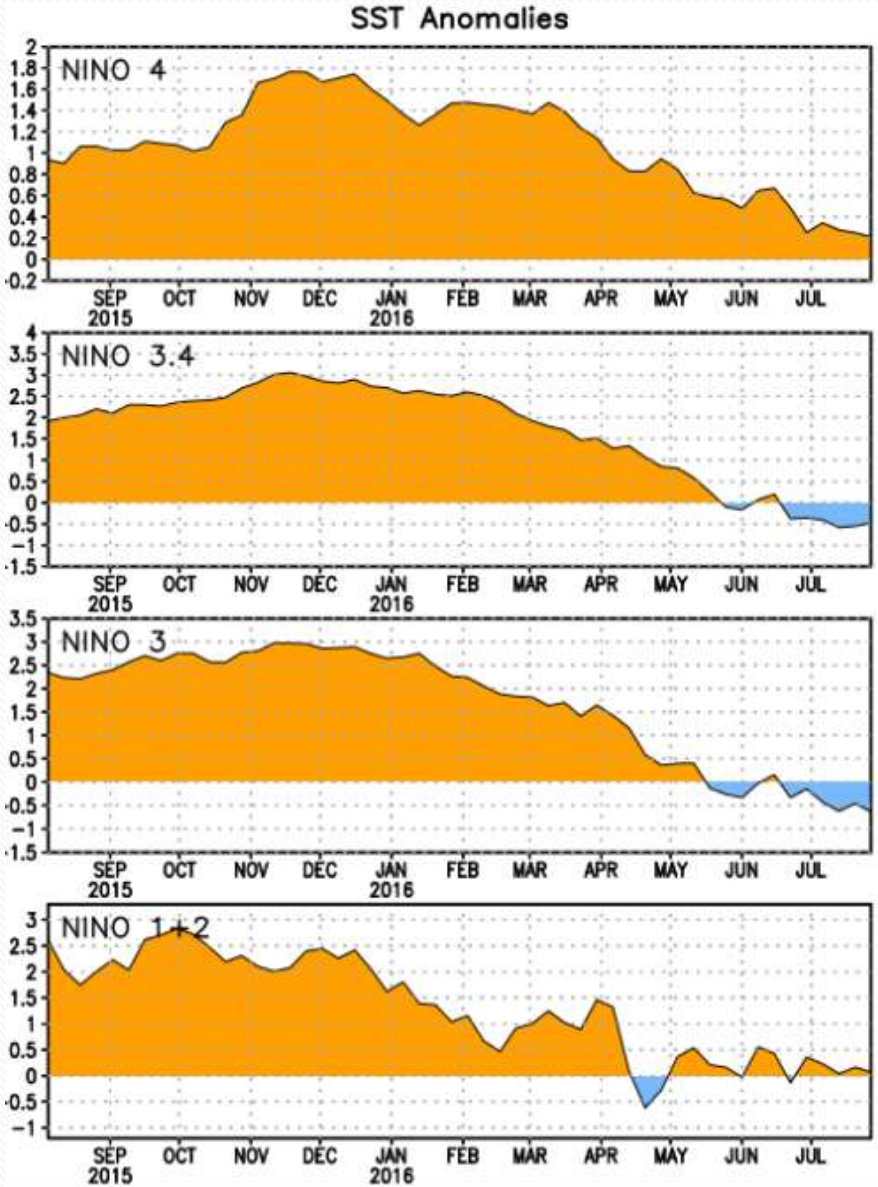
The latest drought monitor shows some minor degradation in the drought conditions, with all of Oregon now back in the Do, or abnormally dry category. Much of Eastern Oregon is now back in the D1, or moderate drought category.

August Drought Outlook



The monthly drought outlook for August from CPC indicates drought persisting across eastern Oregon, with drought development likely across northeast Washington.

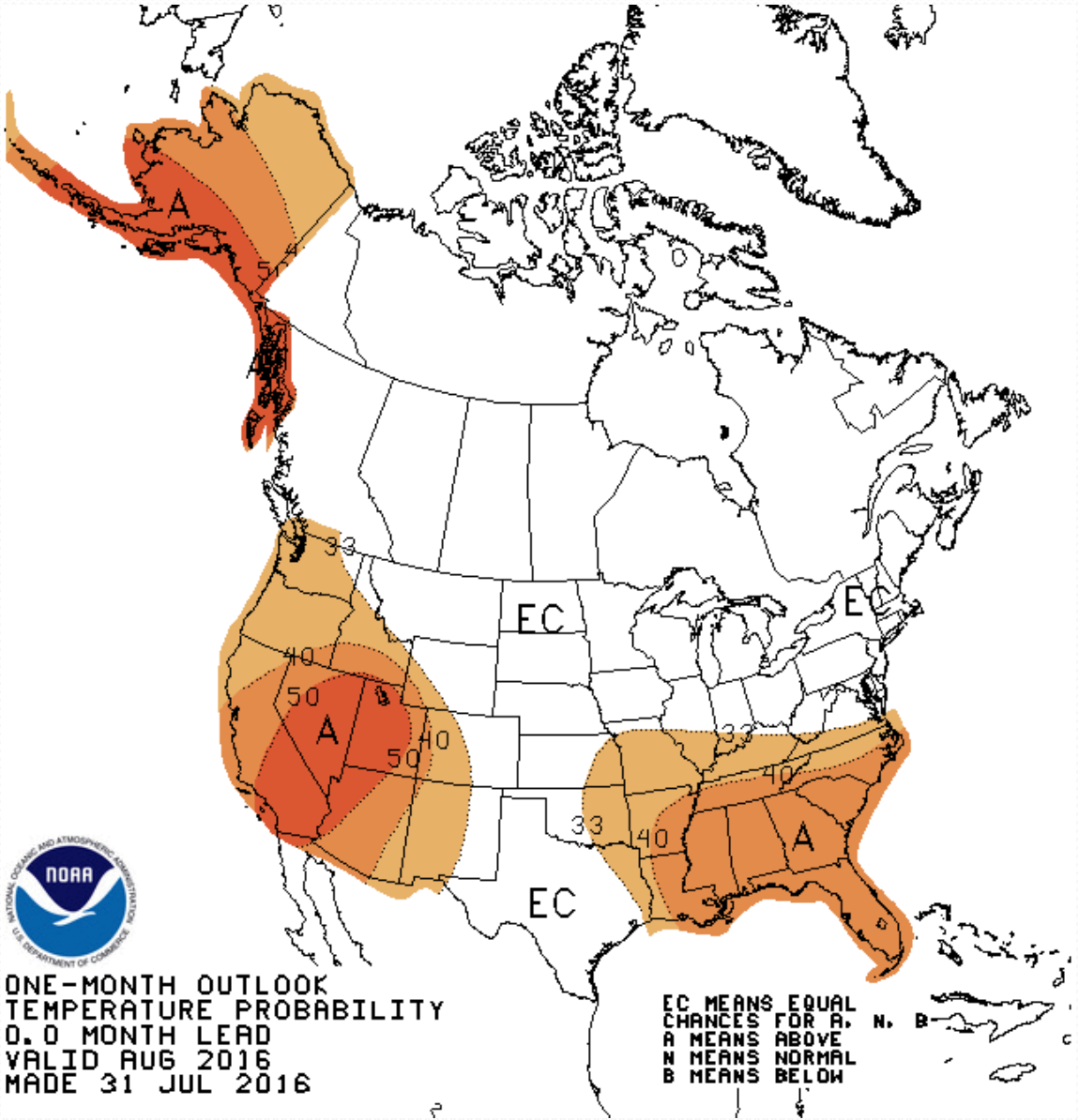
La Niña Development Still Favored



- Currently, cooler than average sea surface temperatures were observed in the Nino 3 and 3.4 regions. Nino 1+2 and 4 continue to have warmer than average sea surface temperatures.
- A La Niña watch remains in effect, as La Niña is now favored to develop during the Northern Hemisphere Summer, with about a 55-60% chance for La Niña development by the coming fall/winter.
- This probability of La Nina development is now lower than last month's update. Conditions in the tropical Pacific will need to be monitored closely in the coming month's to determine if a true La Nina will develop.

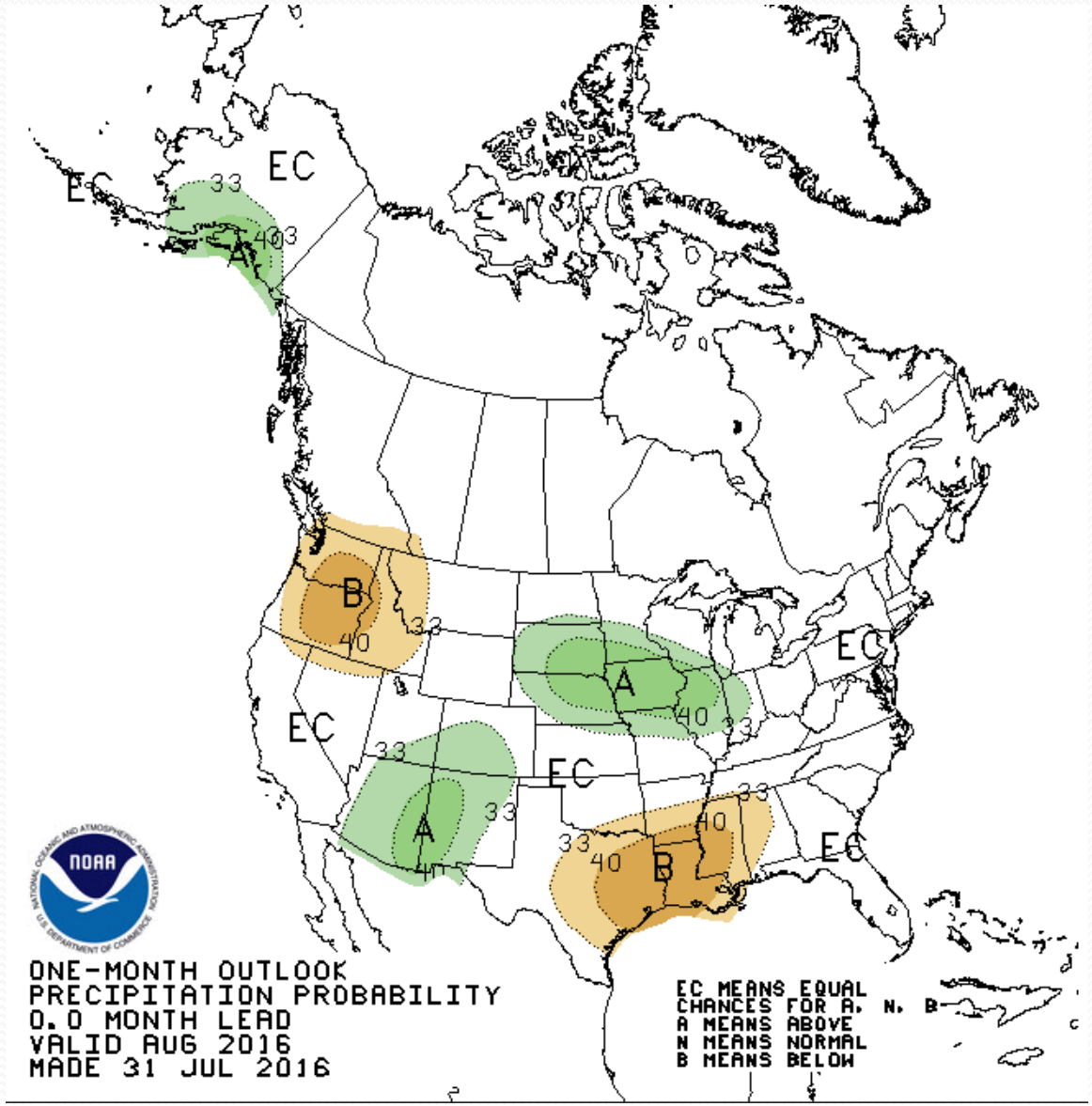
August Outlook

August Temperature Outlook



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

August Precipitation Outlook



This graphic is CPC's Precipitation Outlook for the month of August. 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 August. Southwestern Oregon has equal chances for above, below or near average precipitation amounts in August.

Thank You!