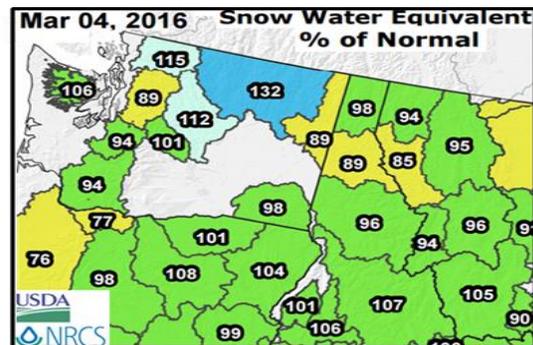
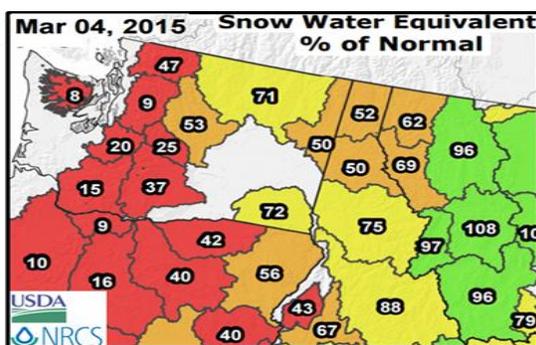


# 2016 Eastern Washington and North Idaho Weather Review

Produced by NWS Spokane, WA

Winter: December 2015 through February 2016

The winter of 2015-2016 was notable for the dramatically healthier mountain snowpack conditions than the anemic 2014-2015 winter. The figures below compare the snow water equivalent conditions for the winter of 2014-2015 with the conditions in early March for 2015-2016.



The East Slopes of the Cascades and the Okanogan Highlands in particular received well above normal snowpack, with the north Idaho and northeast Washington mountains very close to normal. In north central Washington even many of the valley locations received enough precipitation to place them in the top 10 wettest winters. The table shows some of the stations that received this precipitation and where they rank for precipitation for this time period from the start of the Water Year on October 1<sup>st</sup> of 2015.

Station	Precipitation Oct 1 – March 9	Rank	Length of Station Record
Wenatchee, WA	9.84"	1 <sup>st</sup>	85 years
Waterville, WA	13.76"	1 <sup>st</sup>	123 years
Holden Village, WA (Lake Chelan)	46.4"	2 <sup>nd</sup>	54 years
Stehekin, WA	43.29"	3 <sup>rd</sup>	110 years
Winthrop, WA	15.61"	3 <sup>rd</sup>	110 years
Leavenworth, WA	30.37"	4 <sup>th</sup>	101 years
Boundary Dam, WA	18.45"	5 <sup>th</sup>	48 years
Republic, WA	11.14"	8 <sup>th</sup>	117 years

Most of this precipitation fell as snow with Wenatchee Water Plant recording 30.8 inches of snow for the winter which is 18.4 inches above normal.

Over the eastern Columbia Basin low elevation snow fall was generally below normal although the total precipitation was above normal for the winter period. Spokane Airport recorded 34.2 inches of snow which was 10.7 inches below the average of 44.9 inches, however the total water equivalent precipitation (rain and melted snow) was 7.91 inches or 2.49 inches above normal through the end of February. Even the normally dry Lewiston area received a half inch above normal precipitation but again with slightly less than normal snowfall.

Spring: March through May 2016

March was warmer than normal and significantly wetter than normal for most locations in eastern Washington and North Idaho. A concentrated period of wet weather during the first half of the month brought low elevation rain to the tune of 3 to 5 inches in the North Idaho Panhandle and 4 to nearly 6 inches in the Cascades East Slopes. At higher elevations and in the protected Methow Valley this precipitation fell as mostly snow with Holden Village receiving 43 inches of snow during this period. The low elevation rain promoted rockslides and debris flows in some of the valleys of the Cascades and the Bonners Ferry area.

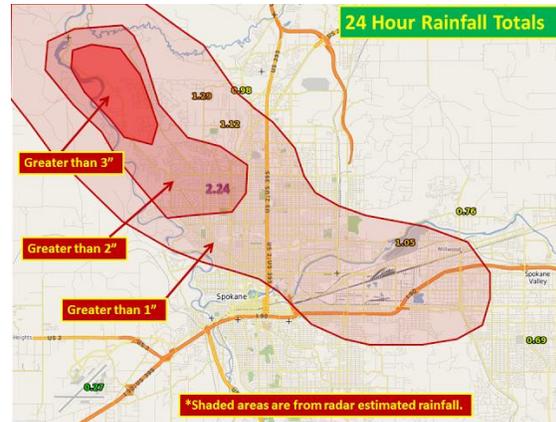
April was notable for being an unusually warm month for the region with near normal to slightly drier than normal precipitation. Here is a list of stations that recorded the warmest April on record:

Station	April 2016 Avg temp	Rank	Previous record	Year
Wenatchee Water plant	59.1 F	1 <sup>st</sup>	58.5 F	1934
Bayview	48.2 F	1 <sup>st</sup>	46.8 F	1987
Bonners Ferry	53.5 F	1 <sup>st</sup>	52.2 F	1941
Boundary Dam	52.3 F	1 <sup>st</sup>	49.5 F	1987
Grand Coulee	56.3 F	1 <sup>st</sup>	54.0 F	1977
La Crosse	54.7 F	1 <sup>st</sup>	54.1 F	1934
Mazama	52.1 F	1 <sup>st</sup>	49.7 F	1977
Plain	51.7 F	1 <sup>st</sup>	48.7 F	1941
Priest Rapids	61.6 F	1 <sup>st</sup>	60.2 F	1977
Pullman 2 NW	53.2 F	1 <sup>st</sup>	51.8 F	1987
Republic	51.6 F	1 <sup>st</sup>	51.4 F	1934

One of the ramifications of the warm spell of April was the rapid melt off of the mountain snowpack.

May brought typical spring weather, with several swings between cool and showery weather and mild, dry weather. In between these air mass changes thunderstorms

resulted. One of the most notable thunderstorm cases occurred on May 21st, when strong and largely stationary thunderstorms dumped heavy rain around the Spokane area, with the northwest side of town and Nine Mile Road hardest hit where 2-3 inches of rain in a short period of time led to water, debris and significant standing and running water on area roads.



The month of May also brought the first report of a funnel cloud in a year that would see an unusually high number of reported tornadoes and funnel clouds for eastern Washington. This photo of a funnel cloud near the Pullman Airport was taken by Doug Gadwa on the afternoon of May 16<sup>th</sup>.



Summer: June through August 2016

After a record hot summer in 2015 and a very active fire season where over 900,000 acres were burned across central and eastern Washington into north Idaho, temperatures this summer were close to normal but with below normal precipitation at most locations.

June and July brought several rounds of wet thunderstorms to the region, some of them severe, most notably with golf ball sized hail in Craigmont . Summer time precipitation around the inland northwest is highly dependent on random and localized wet thunderstorms running over any particular location. A series of thunderstorms over a two day period over southeastern Washington and central Idaho dumped 1.26 inches of rain on Lewiston allowing that station to become one of the few areas to receive higher than average rainfall for the summer. A very wet thunderstorm in Winthrop dumped 1.22 inches making it the third wettest July day on record. Slow moving wet thunderstorms were also responsible for producing Flash Floods and debris flows over the Cascades east slopes on July 19th and again on the 22nd.

The thunderstorm outbreak of July 22<sup>nd</sup> produced the area's first and second of three confirmed tornadoes in eastern Washington this year. As is generally the case in the Inland Northwest these twisters were short lived and weak EF0 whirlwinds. One of them touched down near Mold, Washington in Douglas County and another in Airway Heights.



**Tornado 5 miles NNW Mold WA  
Douglas County, WA  
Luc Weaver: Facebook**

On average eastern Washington and north Idaho receive one tornado per year. The summer of 2016 featured three of these, with Airway Heights receiving another EF0 tornado on August 9<sup>th</sup>. No damage or injuries were reported from any of these twisters.

During the month of August the occasional thunderstorms became drier and windier with abundant dry lightning and gusty outflow winds triggering wildfires and aggravating their spread across the range land and forests of the region.

The 2016 fire season was definitely much less intense than last year. The acreage burned was significantly lower and the number of fires was not as numerous as in previous years. Yet there were many wild fires. Aside from various fast moving grass fires, the bulk of the fires did not make the news until late August, especially in northeast Washington.

Periods of breezy winds with dry conditions can make any wild fire spread quickly, and that's what happened on August 21st in and around the Spokane area as a dry cold front passed through. The Yale Fire, the Beacon Hill Fire, the Hart Fire, the Cayuse Fire and many more erupted on this day and charred hundreds of acres in several days. The Cayuse/Hart fire was the most destructive of the season with 14 homes and numerous other buildings destroyed. The Range 12 fire near Hanford Reach was the largest in areal extent burning 176,600 acres of range land. Overall the 2016 fire season features 843 fires burning about 251,000 acres over Eastern Washington and north Idaho. This was a far cry from the 1372 fires torching over 900,000 acres in the region during 2015.

Fall: September through November 2016:

September was a relatively quiet month with slightly below normal temperatures and drier than normal conditions across the region.

October however was just the opposite with lots of cloudy and rainy days setting new October rainfall records at most locations. Spokane even recorded its wettest month ever with 6.23 inches with measurable rain recorded over 22 days. The cloudy skies resulted in cooler than normal high temperatures but warmer than normal low temperatures. Freezing temperatures were uncommon. Here is a table of the monthly rainfall records that were set during the month of October.

<b>Site</b>	<b>Rain total (inches)</b>	<b>Previous record (year)</b>
Priest River, ID	10.64"	8.31" (1947)
St. Maries, ID	9.19"	6.31" (1955)
Kellogg, ID	8.79"	7.23" (1950)
Boundary Dam, WA	8.76"	3.97" (1968)
Bonnors Ferry, ID	7.99"	7.64" (1947)
Spokane Airport, WA	6.23"	5.41" (1947)
Moscow, ID	6.17"	4.51" (1994)
Potlatch, ID	6.07"	5.25" (1955)
Rosalia, WA	5.90"	4.42" (1951)
Colville, WA	5.82"	4.81" (1947)
Pullman 2 NW, WA	5.69"	4.29" (1950)
Davenport, WA	5.06"	3.94" (1947)
Republic, WA	4.87"	4.27" (1950)
Ritzville, WA	4.86"	3.94" (1947)
Grand Coulee Dam, WA	3.98"	2.95" (1947)
Chief Joseph Dam, WA	3.80"	2.04" (1956)
Winthrop, WA	3.72"	3.13" (2003)
Waterville, WA	3.47"	2.94" (1947)
Ephrata, WA	2.52"	1.92" (1950)

Priest Rapids Dam, WA	2.22"	1.92" (1957)
Wenatchee Airport, WA	2.03"	1.72" (1962)

After a record wet October, the weather pattern changed in November. The first half of the month was much warmer and drier than normal with high temperatures in the 50s to mid 60s common with below freezing temperatures at night still hard to find. The pattern then turned cooler and wetter although temperatures still remained slightly above normal for most locations through the rest of the month. The month as a whole in terms of average temperatures finished as the warmest November on record in Ephrata, Wenatchee, Mazama, Ritzville, Chewelah, and Bonners Ferry. Lewiston came in 3rd warmest, and Spokane 4th warmest. Lewiston finally recorded its first freeze of the season on Nov 16th which was the 3rd latest first freeze on record.

How this winter is shaping up: December 2016

The winter of 2016-2017 has arrived in the Inland Northwest and so far conditions are on track for normal to above normal precipitation leading into 2017. Lewiston in particular has been hit hard by Old Man Winter so far with over 19 inches of snow, 16 inches above normal for this time of year (through December 28). Spokane has received over 22 inches which is slightly above average, with Wenatchee Water Plant recording 8.5 inches, just 0.1 inch below average for the end of December.

The Climate Prediction Center's three month outlook for January, February and March of 2017 implies that the odds moderately favor a cooler and wetter than normal upcoming winter period for the Inland Northwest.