YOUR NATIONAL WEATHER SERVICE SPOKANE QUARTERLY REPORT

VOL XXI, ISSUE 1
MARCH 2016

The Weather Watcher

of the Inland Northwest

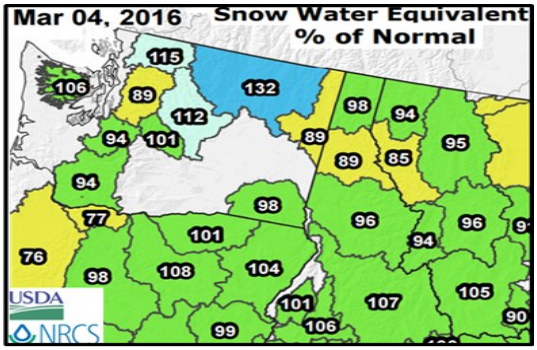
www.weather.gov/Spokane

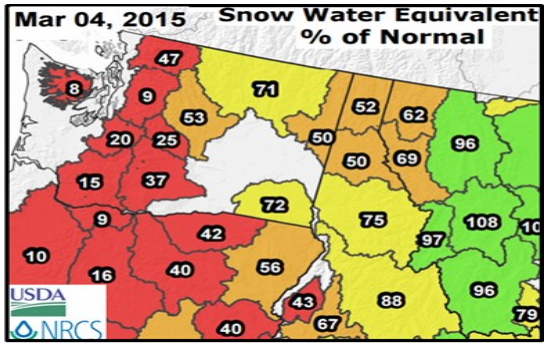
WOW what a Difference! 2016 Snow & Water Supply

After suffering through the historically dry, hot, wildfire-and-drought-filled summer of 2015, that just happened to follow a record-low-snowpack winter and record early snowmelt, it felt at times that we may never see another rain drop or snowflake. Thankfully, fall and winter 2015 arrived with a significant pattern change that began to bring us plentiful precipitation: starting in October and November in the east Cascades, and spreading region-wide by December. The shift was so pronounced that several of our cooperative observer stations in north-central and northeastern Washington recorded record and near-record wet conditions between October 1st – March 9th .The table shows some of stations that got the bullseye of precipitation and where they rank for precipitation for this time period from the start of the Water Year on October 1st.

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

Currently, the mountain snowpack is doing best in the east Cascades (over 100% of average) and north-central Washington (over 130% of average). The northeast corner of Washington and the Coeur d'Alene/Spokane basins are the lowest in the area, with 89% of their average mountain snowpack. Southeast Washington and the other basins in northern Idaho and the southern Panhandle are hovering above 95% of average snowpack. While these numbers look great at the moment, in a typical winter we would continue to build snowpack through the end of March and there are indications that we may start to lose our snowpack early this year. Even with this early-melt off possibility, let's remember where we were at with our snowpack this time last year. The images below are percent of average snow water equivalent, measured in the mountains at NRCS SNOTELs: this year on the left and last year on the right. Quite a difference! ☼ *Katherine Rowden*





Follow NWS Spokane on Facebook and Twitter!

INSIDE THIS ISSUE:

Editor's Notes

Spring is in the air. The snow is melting. The grass is greening. The birds are everywhere. Spring is also a time of thunderstorms which bring hail, gusty winds, heavy rain and even tornadoes. It's important to remember that when you see lightning or hear thunder, go indoors immediately. If you can't find a safe shelter, a vehicle will do. You don't want to be gazing at the sky and get caught in the heart of a storm. Remember to share your thunderstorm reports with the NWS.

We are always looking for new ideas and stories for our publication. Please send any submissions to nws.spokane@ noaa.gov.

This newsletter & past issues are available on the NWS Spokane web page.

The main purpose of this publication is to keep our readers informed about NWS services and programs, and recognize those who help us with our mission, including weather spotters, observers, media, emergency managers, and government agencies.

All articles are written by the NWS staff. A special thanks goes to Katherine Rowden, Mark Turner and Jeremey Wolf for their contributions.

ANSWER: For Tornadoes, 15% occur in April and 35% occur in May. Compared to severe wind/hail—less then 10% occur in April & 15% occur in May.

Spring Outlook

The NWS Climate Prediction Center forecasts that the strong El Niño conditions of the winter will weaken through the spring and early summer. There is the potential for the return of La Niña later this year. The warming trend of the past several months is expected to persist through the spring with a better chance of above normal temperatures. Precipitation chances will be closer to seasonal normals for March, April and May. ☼ *Robin Fox*

Winter Weather Statistics

Wenatchee Water Plant	Dec	Jan	Feb	Total
Avg High Temp	36.2	35.2	47.8	39.7
Departure from Norm	+1.4	-0.7	+4.4	+1.7
Avg Low Temp	27.4	27.9	30.2	28.5
Departure from Norm	+2.2	+2.5	+2.5	+2.4
Total Precip	3.59	2.42	0.40	6.41
Departure from Norm	+2.03	+1.09	-0.60	2.52
Total Snowfall	16.7	13.1	1.0	30.8
Departure from Norm	+10.0	+9.1	-1.7	+18.4
Lewiston Airport	**Dec**	**Jan**	**Feb**	**Total**
Avg High Temp	42.8	43.6	53.0	46.5
Departure from Norm	+3.3	+2.0	+6.5	+3.9
Avg Low Temp	31.6	31.3	35.7	32.9
Departure from Norm	+3.6	+1.7	+4.8	+3.4
Total Precip	1.75	0.93	0.65	3.33
Departure from Norm	+0.78	-0.15	-0.13	+0.50
Total Snowfall	5.7	0.5	0.2	6.4
Departure from Norm	+2.2	-1.9	-1.9	-0.5
Spokane Airport	**Dec**	**Jan**	**Feb**	**Total**
Avg High Temp	35.5	35.4	45.7	38.9
Departure from Norm	+3.3	+1.0	+6.1	+3.5
Avg Low Temp	25.9	26.5	32.0	28.1
Departure from Norm	+3.4	+1.8	+5.6	+4.3
Total Precip	4.45	2.74	0.72	7.91
Departure from Norm	+2.15	+0.95	-0.61	+2.49
Total snowfall	24.1	6.7	1.3	32.1
Departure from Norm	+9.5	-4.7	-5.5	-0.7

Co-Op Corner

(L-R) Joey Clevenger—NWS Meteorologist, Greg Galbreath—COOP observer Ritzville, WA, Ellie Kelch—NWS Meteorologist

Recognizing 50 years of service to America, the National Weather Service presented a 50 year Family Heritage Award to Greg Galbreath, the third generation CO-OP observer from the Galbreath Family of Ritzville, WA. The Galbreath Family has taken an unbroken string of daily weather observations since November of 1965. The award was presented by WFO Spokane representatives Mark Turner, Joey Clevenger and Ellie Kelch at the Galbreath homestead in Ritzville. ☼ *Mark Turner*

A Look Back 20 years ago…

After a rather bitter cold spell, February 1996 brought heavy rain, warmer temperatures and snowmelt to the Inland Northwest. This led to big floods to eastern Washington and the Idaho Panhandle. Presidential Disaster Declarations were issued for Boundary, Bonner, Kootenai, Shoshone, Benewah, Latah, Nez Perce, Lewis, Clearwater, and Idaho Counties as well as the Nez Perce Tribe. Record river crests were observed on the Palouse, Orofino and Lapwai Creeks. The Coeur d'Alene and St Joe Rivers experienced their 2nd highest crests on record during this event. In addition, the NWS Spokane Doppler Radar installation was completed and the first radar images were received at the new NWS weather office.

By April 1996, more heavy rain lead to small stream flooding on Pine Creek in Shoshone county. A flash flood on Gold Creek near Colville caused damage to roads and bridges, including portions of Highway 395.

Then in May 1996, rounds of thunderstorms brought hail to Post Falls and Colville, heavy rain to Priest River, Ione, Mead and Lewiston by the middle of the month. Lightning struck homes in Moscow and Wilbur leading to house fires. The NWS Spokane held its radar dedication ceremony. Since then, the NWS radar in Spokane has been detecting the rain, snow, and thunderstorms across the Inland Northwest for over 20 years. ☼ *Robin Fox*

2015-16 Winter in Review

After a record low snow pack year for several mountain sites during the previous winter and a drought winter the previous year, some were wondering if this year would be any better—given one of the strongest El Niño episodes on record. Every El Niño year is different and some have been wet while others dry. Thankfully, this El Niño was one of those wet years with mountain snow finally reaching near to even above normal. For some areas near the Cascades, this winter ranked in the top 10 for the wettest on record. The table below summaries how this precipitation ranked historically for the Winter Season of 2015-16.

Station	Precipitation Dec 15-Feb 16	Rank	Record
Wenatchee Water Plant	6.41"	2nd	6.42" (1996-1997)
Winthrop	9.58"	7th	11.88" (1968-1969)
Stehekin	26.14"	5th	32.69" (1933-1934)
Chelan	7.45"	8th	8.35" (1939-1940)

December started off on a wet note as a prolonged atmospheric river brought in abundant moisture from the subtropics from the 6th through the 9th. In the Cascades, Stehekin reported nearly six inches of rain with 4.63" in Leavenworth. In North Idaho, Pritchard received 4.49" of rain with 3.52" near Spirit Lake. The heavy rain led to minor small stream flooding in the north Idaho Panhandle. This pattern also brought mild temperatures with several records tied or broken. The second half of the month the pattern changed with cooler storms dropping in from the northwest. On the 17th and 18th snow changed to freezing rain with light ice accumulations. The strongest storm went through on the 21st and 22nd. Leavenworth, Wenatchee, Quincy, and Waterville areas were hardest hit where 5 to 9 inches of snow fell. A prolonged period of heavy wet snow in north Idaho contributed to scattered power outages. It even was cold enough for snow in Lewiston on the 23rd where 2.6" fell.

January started off on a cold note. With fresh snow on the ground and clearing skies, nighttime lows dropped to around zero with daytime highs in the teens to lower 20s. But this was quickly replaced with milder and moister air mass by the 4th. This transition resulted in 4 to 7 inches of snow over North Central Washington on the 4th. A more significant storm on the 12th dumped 5 to 12 inches of snow for the Leavenworth area. More snow fell in this part of the region on the 18th with another 2 to 7 inches of snow. Impressive snow depth measurements in a few areas to finish out the month with 40" in Mazama, 30" in Stehekin, and 27" in Winthrop and Waterville.

Otherwise for most of the region daytime temperatures consistently made it above freezing each day and nighttime lows weren't all that cold. Weak weather systems moved through the area on a regular basis, bringing rain or wet snow just about every day. Spokane Airport recorded at least a trace of rain or snow on 25 of the 31 days of the month. The biggest snow event for northeast Washington and north Idaho was on the 16th where a widespread 2" to 5" fell. For the last ten days of the month, temperatures were very mild with readings into the 40s with even some low to mid 50s. This warmth coupled with the frequent rain reduced the snow on the ground significantly except locally near the Cascade valleys and Waterville Plateau where a deep snow pack remained. On the 29th a small low pressure system moved across the Palouse bringing wind gusts of 50 mph in Genessee and 55 mph to Thorton.

The first few days of **February** started off slightly on the cool side but then mild weather dominated the remainder of the month. Several weather systems tracked through during the month bringing wet weather for the Cascade crest and mountains of NE Washington and north Idaho. Westerly flow resulted in below normal precipitation for most of central and eastern Washington. The mild temperatures brought mostly rain to the valleys with snow in the mountains. Windy conditions also occurred on the Palouse with gusts to 45 mph in Pullman on the 6th…15th…18th…and 19th. ☼ *Jeremy Wolf*

A view from Mount Spokane in January 2016

Want to report precipitation? Check out CoCoRaHS at *http://www.cocorahs.org*

Remember your Spring Spotter Checklist

Tornado or **Funnel Cloud**
Hail: pea size or larger
Strong Winds: 30mph+ or damage
Reduced Visibility: under a mile due to fog, snow...
Heavy Rain: Showery: 1/2" + in 1hr Steady: 1"+ in 12hr/1.5"+ in 24hr
Snow: 2"+ valleys & 4"+ mountains
Any Flooding
Any **Mixed Precipitation**
Travel Problems or Damage: due to severe/hazardous weather

Spring Freeze Dates

Despite the mild winter weather and long string of above normal temperatures, remember that nights will still get chilly with sub freezing temperatures possible. The potential of sub freezing temperatures continues through the spring. Here is a list of average last freeze dates across the region. Please keep these in mind as you plan your gardens this year. ☼ *Robin Fox*

Station	Avg Last Freeze
Lewiston	April 11
Wenatchee Airpt	April 13
Ephrata	April 23
Entiat	April 30
Moses Lake	May 7
Spokane Airpt	May 4
Omak	May 10
Pullman	May 11
Coeur d'Alene	May 11
Waterville	May 15
Kellogg	May 18
Colville	May 18
Odessa	May 19
Sandpoint	May 20
Colville	May 18
Twisp	June 8

Staff News

Jodi Fitts has officially accepted the Administrative Assistant position at NWS Spokane. She transferred from the US Army Corps of Engineers at Fairchild AFB. Welcome aboard Jodi!

Watch : Conditions are favorable for severe or hazardous weather around the watch area. **CAUTION—Watch the Sky!**

Warning : Severe or hazardous weather is likely or is occurring in the warned area. **DANGER—ACT NOW!**

The Weather Watcher
Of the Inland Northwest

National
Weather Service
2601 N Rambo Rd
Spokane, WA 99224
(509)-244-0110

Trivia: Based on past reports, what are the chances of seeing tornadoes, severe wind & hail in the spring months?