YOUR NATIONAL WEATHER SERVICE SPOKANE QUARTERLY REPORT

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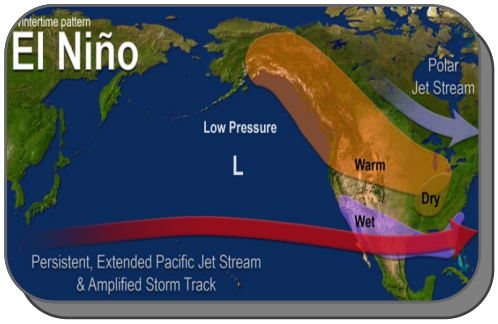
The Weather Watcher

of the Inland Northwest

www.weather.gov/Spokane

El Niño Winter Outlook

Weak El Niño conditions are expected to develop and continue through the Northern Hemisphere winter and into the 2019 Spring. Warming in the equatorial Pacific waters off the coast of South America increased last fall, yet there has been a lag in the overall coupling of the ocean-atmosphere system, but confidence is growing that this should change through the winter.



So what does that mean? El Niño has a tendency for a stronger jet stream and wetter storms taking aim on California. It also means milder weather for the Inland NW, and possibly not as much snow. Taking a look at our snowpack reports so far, snow has been slow to accumulate across the region, ranging 50% to 70% of normal. The weather looks to remain active for December, but things may change for the start of the new year.

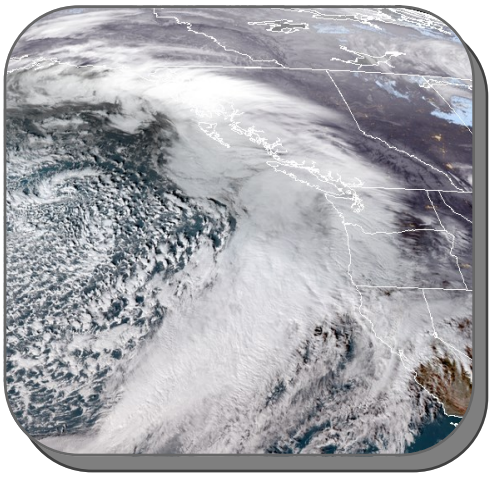
Looking at previous weak El Niño winters over the past 65 years has helped forecasters with the long range outlook. The winters examined include: 2014-15, 2006-07, 2004-05, 1977-78, 1976-77 and 1958-59. In each case, these winters have trended above normal for temperatures, while precipitation have varied. Although over the last 15 years, the weak El Niño winters have brought a better chance for below normal precipitation. One thing to keep in mind is hazardous weather is possible during El Niño winters. Storms have and will continue to bring the potential for heavy snow, gusty winds, freezing rain and heavy rain. So be prepared and stay current on the weather forecast. For the latest on the long range outlook, see *http://www.cpc.ncep.noaa.gov/* ☼ *Jeremy Wolf*

GOES 17 Satellite

The newest weather satellite, GOES 17, will move into place over the western U.S in January 2019 and become officially operational. GOES 17 is one of the next generation weather satellites, similar to GOES 16 which is operational over the eastern U.S. Two additional satellites are currently in development. The advanced instrument technology used on these satellites will contribute to more timely and accurate weather forecasts and warnings across the country.

The GOES 17 has the ability to give updated high definition imagery every 5 minutes, including 16 different channels along with various satellite products and composites. Satellite lightning sensors will aid in identifying thunderstorms.

There have been a few issues with GOES 17 that caused delays, specifically in its cooling system. Work is being done to determine the cause and identify actions to prevent this in future developments. For more information on GOES 17, please visit *https://www.nesdis.noaa.gov/* ☼



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

INSIDE THIS ISSUE:

Editor's Notes

The winter weather can be treacherous, especially when dealing with freezing temperatures and changing precipitation. This can cause havoc on roadways and sidewalks with ice, slush and snow. Icy roadways is major concern across the region, whether it comes from freezing rain, freezing fog or just the freeze/thaw cycle. Drivers and pedestrians need to be aware of temperatures before they venture outside. Remember the coldest temperatures usually occur right near sunrise. Be alert even when temperatures are 35°F, since ground surfaces maybe even near freezing or colder.

The 2018 Winter Solstice takes place on December 21st at 2:23 pm PST, the shortest day of the year.

We're always looking for new ideas and stories for our publication. Please send to nws.spokane@ noaa.gov. Newsletters 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 Jeremy Wolf & Bob Tobin for their help.

Fall 2018 in Review

September lived up to its reputation as being a very quiet month and very dry. Spokane, Lewiston, and Wenatchee all picked up less than .05" of rain for the month. This dry weather was an extension of the dry summer where Wenatchee tied for the driest July through September on record while Spokane came in 3rd driest. The main event for the month occurred on the 7th with a strong cold front passage which brought thunderstorms, strong winds, and blowing dust. A couple of strong storms occurred around Winthrop with abundant lightning, while a second one tracked from Conconully to Tonasket with 40-50 mph wind gusts causing power outages. As the front moved east strong winds kicked up significant blowing dust in the Columbia Basin with visibility as low as 1/16 of a mile in Ritzville, and 1 mile in Spokane. Winds gusted to 54 mph at Fairchild Air Force Base. Another round of blowing dust arrived on the 29th as northeast winds gusted to 30 to 35 mph in the Columbia Basin.

October started off on an active note as a robust cold front passage brought strong winds, thunderstorms, blowing dust, and even mountain snow. The strongest winds occurred near the Canadian border as well as in North Central Washington where thunderstorms near the Canadian border may have enhanced the wind gusts. Numerous trees were blown down in and north of the Colville area. Wind gusts include 70 mph Oroville, 64 mph Chelan, 53 mph Omak, 52 mph Ephrata, 50 mph Wenatchee, and 46 mph Moses Lake. These winds also created blowing dust in the Columbia Basin reducing visibility down to 2 to 5 miles with one report as low as 1/16 of a mile in Othello. Lastly, rain changed to snow over Stevens Pass bringing an early season snowfall. Strong high pressure brought a prolonged stretch of dry weather from the 10th through the 24th before the wet season kicked in on the 25th.

November started off with spring like conditions with temperatures in the 50s to lower 60s, a couple of wind events near the Cascades, and even isolated thunderstorms. A strong cold front on the 2nd brought a burst of heavy rain to Wenatchee late in the evening with a 58 mph wind gust. On the 4th another wind event brought localized tree damage and power outages around Leavenworth with gusts to 55 mph in the mountains, 48 mph Chelan, and 45 mph Wenatchee. On the 5th a thunderstorm just south of Spokane tracked from Medical Lake and Cheney east into Rockford producing occasional lightning and small hail. High pressure then brought a couple weeks of dry weather with several rounds of low clouds and fog. The pattern turned much more active on Thanksgiving Day. A wintry mix fell in Central Washington with Wenatchee receiving its first snow of the season as a weak system passed through. Slick roads contributed to a bus rollover near George involving the University of Washington marching band with around 40 people taken to the hospital for evaluation. A cold and unstable system on the 23rd brought heavy snow to the mountains with a closure of Snoqualmie Pass and chains required over Stevens Pass where around a foot of snow fell. Rain changed to snow between Spokane and Pullman making for a memorable Apple Cup where 1 to 3 inches was reported. Rosalia picked up 4 inches from the storm. This was all after a mild afternoon when Pullman reached 48°F. ☼ *Jeremy Wolf*

Fall Weather Statistics

Wenatchee Water Plant	Sep	Oct	Nov	Total
Avg High Temp	76.8	62.7	48.5	62.7
Departure from Norm	-1.5	-0.8	+2.0	-0.1
Avg Low Temp	51.9	41.0	33.8	42.2
Departure from Norm	+0.2	-0.2	+1.6	+0.5
Total Precip	T	1.33	0.32	1.65
Departure from Norm	-0.30	+0.81	-1.06	-0.55
Total Snowfall	0.0	0.0	T	T
Departure from Norm	0.0	0.0	-1.8	-1.8
Lewiston Airport	**Sep**	**Oct**	**Nov**	**Total**
Avg High Temp	77.6	62.7	50.1	63.5
Departure from Norm	-0.6	+0.1	+1.9	+0.5
Avg Low Temp	49.6	41.1	34.5	41.7
Departure from Norm	-1.4	0.0	+0.4	-0.3
Total Precip	0.04	1.00	1.42	2.46
Departure from Norm	-0.63	+0.04	+0.24	-0.35
Total Snowfall	0.0	0.0	0.0	0.0
Departure from Norm	0.0	0.0	-1.8	-1.8
Spokane Airport	**Sep**	**Oct**	**Nov**	**Total**
Avg High Temp	71.0	58.1	42.9	58.1
Departure from Norm	-1.9	+0.1	+1.3	-0.2
Avg Low Temp	48.3	38.1	30.9	39.1
Departure from Norm	+0.9	+0.9	+1.1	+1.0
Total Precip	0.02	1.64	1.96	3.62
Departure from Norm	-0.65	+0.46	-0.34	-0.53
Total snowfall	0.0	0.0	2.6	2.6
Departure from Norm	0.0	-0.1	-4.8	-4.9

ANSWER: Spokane 12.7" 1/21/1954—Lewiston 11" 2/2/2016—Wenatchee 17.7" 12/9/1971—Sandpoint 19" 12/9/1922

Too much snow?
Here was the view on the morning of December 11th. Downed branches from heavy snow loading on a tree in Deer Park, WA. The snow amounts ranged from 4" to 6" around the region that morning. Thank you Spokane #58 for sharing!

Spotter Corner

NWS Spokane held annual fall spotter training in many locations around the region: including Pullman, Okanogan, Bonners Ferry and Coeur d'Alene. In addition, a virtual online weather spotter class was offered on Dec 4th. These free courses were open to those new to weather spotting or those who needed a refresher course. A recorded version and notes will be available under Spotter Resources on the NWS Spokane web page.

Over 40 weather spotters attended the in-person training, and close to 50 completed the virtual training. More classes will be scheduled in 2019. Please check our NWS web page for the current weather spotter training classes.

2018 marked the 20th year that the Spokane ARES/RACES group participated in the annual Skywarn Recognition Day on Dec 1st at NWS Spokane. Under the call sign WX7OTX, the group was able to reach 24 different NWS offices across the country, including Grey Maine, Midland Texas, Oxnard CA, and Minneapolis MN. At each location, they exchanged weather information. They even reached Anchorage AK and received current reports after the earthquake. The group started at 4 pm Friday afternoon and completed their exercise by Saturday afternoon. Overall they had a terrific turnout and look forward for next year. ☼ *Robin Fox*

Blowing Dust:
Strong gusty winds of 40-50+ mph on October 2nd produced blowing dust with visibilities to near 2 miles. Here was the view from Grand Coulee on that afternoon with the dust lofted in the air. ☼

CoCoRaHS Notes

NWS Spokane has seen an increase in observer sign ups this fall with 20 new observers. This was highlighted by a rain gauge give-away at the Spokane Interstate Fair. To enter the contest, new recruits signed up for the CoCoRaHS program and a name was drawn from this list. The winner was one of newest CoCoRaHS observer in WA-SP-59 Ms. Houk.

For those that still need of a rain gauge, you can order them online at *www.weatheryourway.com/cocorahs/store.html.* It's the official 4 inch standard rain gauge. What a great gift idea that can be used all year long! There are more great items available at the online CoCoRaHS store.

The CoCoRaHS staff performs quality control and looks over all of the reports across the county. If they see a potential error, they will email the CoCoRaHS regional coordinators and ask for their assistance to reach the observer. There have been times that we have contacted our local observers to clear up any errors. In most cases, the errors are minor ranging from a misplaced decimal point or a report entered into the wrong spot. Our goal is to have the most complete precipitation reports possible and we appreciate the time you take to complete your CoCoRaHS reports, especially in the winter time when the weather can be active. Keep up the good work! ☼ *Robin Fox*

Staff News

We welcome two new staff members to NWS Spokane team. Eric Dizon accepted the position of Electronics Technician. He moved to Spokane from Virginia in late November. He joins the staff after retiring from the Coast Guard and he served 27 years between the U.S. Army and Coast Guard.

Amanda Young accepted the position of Meteorologist Intern. She served 22 years in the U.S. Navy as a weather analyst and forecaster. She obtained her B.S. in Aeronautics from Embry Riddle Aeronautical University, and her M.S. in Atmospheric Sciences from University of Nevada in Reno. Since her time in the U.S. Navy, Amanda has been working as a civilian for the Navy, doing weather research and operational forecasting at Fallon, NV and Monterey, CA. She is expected to move to Spokane in early January. Congratulations to Eric and Amanda! ☼

Remember your Winter Spotter Checklist

Snow:
2"+ valleys & 4"+ mountains

Strong Winds:
30mph+ or damage

Reduced Visibility:
under a mile due to fog, snow...

Hail: pea size or larger

Heavy Rain:
Showery: 1/2" + in 1hr
Steady: 1"+ in 12hr/1.5"+ in 24hr

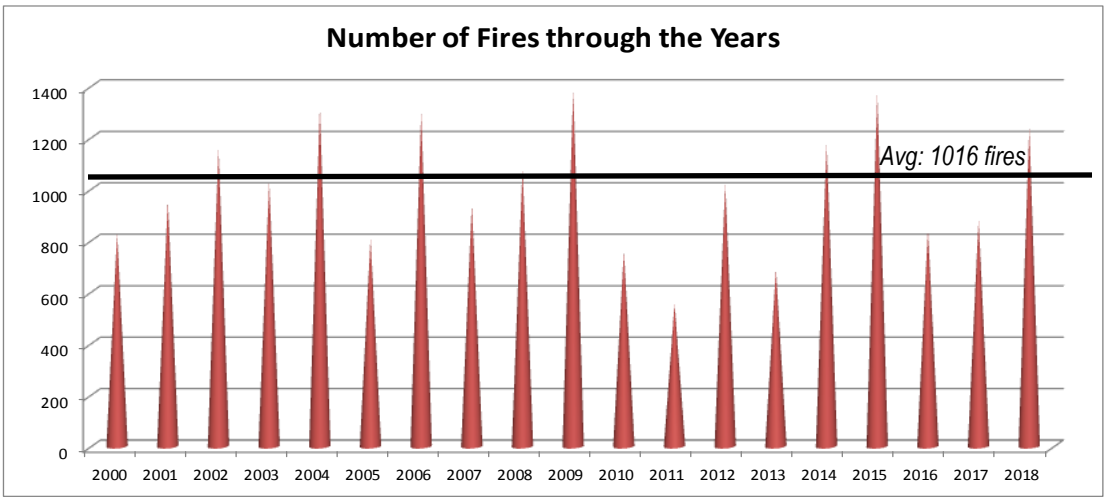
Any **Mixed Precipitation**

Any Flooding

Travel Problems or Damage:
due to severe/hazardous weather

Fire Season Review

The 2018 fire season was an active one, with 1237 wildfires and over 277,000 acres burned; both values were above average. Of the number of wildfires, only 320 were lightning caused. The first significant wildfire started in early June and the last was late September. Most of the fire activity occurred in late July with the hot and dry weather. The largest wildfire in the region was the Grass Valley fire in Grant county last August with over 75,000 acres burned. The next largest was Crescent Mountain fire in the Methow Valley with over 56,000 acres burned. See below the graph of wildfires through the years. ☼ *Bob Tobin*



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

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Trivia: What was the snowiest day across the Inland NW?