YOUR NATIONAL WEATHER SERVICE SPOKANE QUARTERLY REPORT

VOL XXI, ISSUE 3
SEPTEMBER 2016

The Weather Watcher

of the Inland Northwest

www.weather.gov/Spokane

INSIDE THIS ISSUE:

Long Range Outlook	2
Spotter Training	2
Summer in Review	3
Hazards Simplified	4

Fire and Water

Through early September, the 2016 fire season was definitely much less intense as last year. The acreage burned was significantly lower and the number of fires were 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. 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 cleanup and recovery for these communities will take months if not years. Weather concerns will be heightening in these freshly burned areas, along with other past season burns. In these burn scar areas that have lost their all of the vegetation, intense rainfall can lead to flooding. The bare soils that remain are not able to absorb the water and runoff increases. In steep slopes, the runoff increases even more, leading to debris flows, mud slides and flash flooding. The NWS Spokane will be monitoring rainfall amounts in these burn scar areas for the coming fall and winter seasons, and inform you on the potential for any flooding.

Just remember, the wild fire threat may not be over this year. Wind storms are still concern this fall, especially if they coincide with dry conditions. This October marks the 25th anniversary as the original Firestorm of 1991. Stay fire wise and be prepared! ☼ *Katherine Rowden & Jon Fox*

Inland Northwest Tornado Facts

For a region that doesn't see much severe weather, there was an increased number of tornadoes reported this year. On July 22nd, there were two separate reports of EF0 tornadoes in eastern Washington. One near Mold, WA in Douglas County around 12:30 pm, and then another seen in Airway Heights, WA around 3:30 pm. Neither one had reports of damage, but many pictures were taken of the two tornadoes. Then on August 9th, another EF0 tornado was spotted in Airway Heights at about 5:30 pm with no reports of damage. The weather pattern for both of these days featured an upper level trough over the region with cold air aloft and plenty of instability. These weather elements helped support thunderstorms and tornadoes. According to the NWS Spokane tornado database, this region has experienced at least 61 tornadoes in the last 80 years. The majority of the tornadoes reported being EF0 on Enhanced Fujita Scale, which is the weakest type of tornado with winds up to 85 mph. The last time 3 or more tornadoes were reported in a year was in 2009 across Lincoln County. Tornadoes have been reported as early as March and as late as October. Since 2000, there have been 16 tornadoes reported in the Inland Northwest, or roughly an average of one a year. There have been 2 reports of EF3 tornadoes! One on April 5, 1972 that touched down in Lincoln County, and another on June 7, 1936 in Nez Perce County. ☼ *Joey Clevenger & Robin Fox*

July 22nd Tornado near Mold, WA

Editor's Notes

As the days get shorter and temperatures fall, a new round of weather hazards are on the rise. This transitional season often features hazards from both the warm and cold season, including thunderstorms, wildfires, strong winds, flooding & even early season snow.

It is important to be weather-ready before the next storm or disaster strikes. This is a good time to get emergency supplies ready and set up a family communication plan.

The Autumn Equinox will be September 22nd at 7:21 am. Then the length of the darkness will increase into December.

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 Jeremy Wolf, Joey Clevenger, Jon Fox and Katherine Rowden for their contributions.

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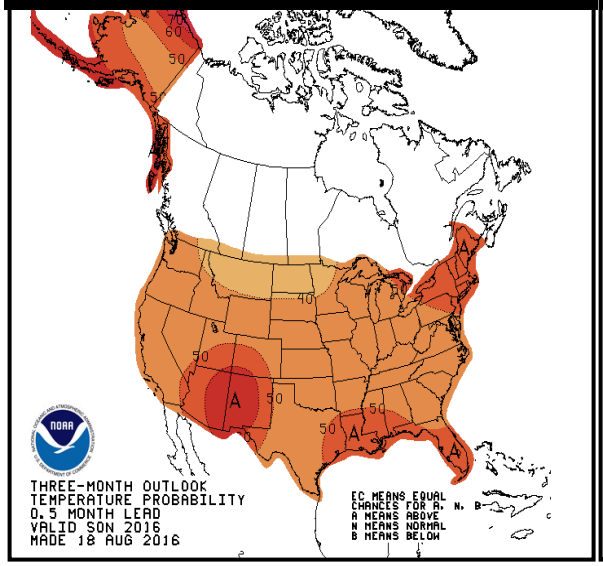
Long Range Forecast

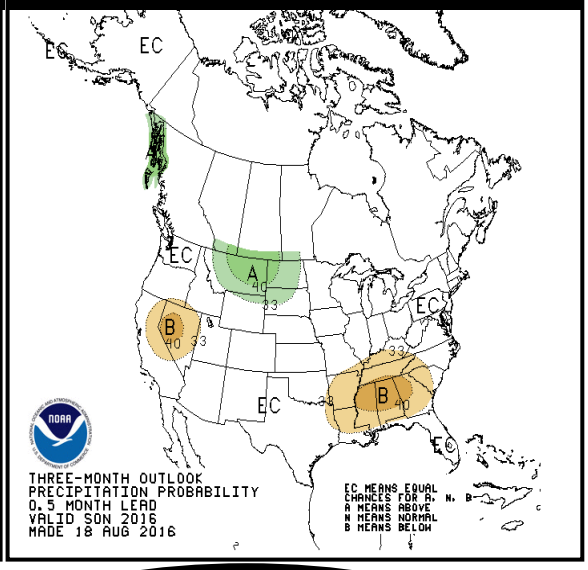
The NWS Climate Prediction Center is predicting an autumn forecast with a better chance of above normal temperatures, and with equal chances of above or below normal precipitation for the Inland Northwest. Taking a peek into the winter season, confidence is not strong but the trends are aligning toward a more typical winter under ENSO Neutral conditions. The long range winter outlook is leaning toward a better chance of above normal precipitation and a better chance of below normal temperatures, especially for the later half of the winter. Updates on the winter outlook will be in the next newsletter, but until then follow along at www.cpc.ncep.noaa.gov.

Funnel Cloud near Stateline, June 11th Courtesy of Robert Hamilton

Fall Temperature Outlook



Fall Precipitation Outlook



Hail on South Hill Spokane, July 22nd

ANSWER: ***Wenatchee: 1934 with 5.44", Lewiston: 1940 with 9.08", Spokane: 1927 with 11.45", Sandpoint: 1927 with 18.47"***

Flash flooding & debris flows in Cascades, July 22nd

Fall Reminders

Observers: When below freezing temperatures are expected, please winterize your rain gauge by removing the funnel and inner tube and bring it indoors. Review the rules on observing and measuring snow through the training shows @ www.cocorahs.org

Spotters: Please report your first snow fall and then any snow that is significant for you and your travel. Let us know when you experience strong gusty winds and/ or wind damage.

Weather Spotter Training

NWS Spokane hosted an online virtual weather spotter training seminar on a quiet summer evening. We had great success and had over 50 volunteers attending from all corners of the Inland Northwest. Due to its popularity, we plan to host another virtual weather spotter seminar in the coming months and emphasize winter weather. In the meantime, there are video recordings of the training session available on the NWS Spokane page. To view them, simply go the Spotter Information section and click on the Virtual Online Training August 2016. It will take you to our NWS Spokane YouTube page where you can view the 4 part session. Once you complete the viewing, please email us @ *nws.spokane@noaa.gov* and we will mark you down as a Trained Weather Spotter. ☼ *Robin Fox*

Summer 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, many were wondering how this summer would end up. Thankfully, temperatures this summer were close to normal but with below normal precipitation. The exception was in portions of the Columbia Basin, Methow Valley, Okanogan Valley, and Lewiston area where some stations reported above normal amounts of precipitation.

June started off with summer like conditions with high temperatures in the 90s from the 4th through the 7th. The pattern changed after that with several weather systems tracking through the region bringing scattered showers and isolated thunderstorms. During this transition to cooler weather a few severe thunderstorms developed on the Camas Prairie and Central Panhandle Mountains with golf ball size hail in Craigmont, and quarter size hail in Winchester and Avery. Just three days after the heat, Spokane and Pullman only topped out in the upper 50s on the 10th. High pressure returned at the very end of the month with temperatures warming back up into the upper 80s to mid 90s.

July was an active month across the Inland NW with several rounds of showers and thunderstorms. One system on the 10th brought cool and rainy conditions to Lewiston with a high of only 60°, making it the 3rd coldest July high temperature on record. A two day rain total of 1.26 inches was measured in Lewiston as well. On the 19th a storm about five miles east of Chelan produced flash flooding and debris flows. This flooding impacted McNeil Canyon Road and Highway 97 causing road closures and damage to private property. The strongest storms occurred on the 22nd and 26th. On the 22nd a low pressure system tracked across northern Washington and Idaho producing abundant lightning, severe thunderstorms, and even two weak tornadoes on the Waterville Plateau and in Airway Heights. Downed trees and nickel size hail from thunderstorms was also reported in Spokane and Mead. Storms in the North Cascades resulted in mud and debris on SR 153 and also on roads near Methow and Brewster. On the 26th strong thunderstorms near the Canadian border sent out an outflow boundary with downed trees between Addy and Chewelah. A very wet thunderstorm in Winthrop dumped 1.22 inches making it the third wettest July day on record.

August brought breezy to windy conditions several times during the month as cold fronts swept through the region. These winds lead to the increased spread of large grass fires over the region. The most noteworthy of these fronts went through on the 21st with very warm, dry, and windy conditions during the afternoon and evening ahead of the front. Two large fires developed in the Spokane area with another north of Davenport, near Porcupine Bay, which jumped the Spokane River and headed towards Wellpinit. The fires burned several homes and structures. Another fire burned above several structures, near Deep Lake about eight miles southeast of Northport. Another strong front on the 18th came down from Canada, sending strong winds down the Purcell Trench in north Idaho with Sandpoint reporting a wind gust to 47 mph. This resulted in downed trees and power outages. The other noteworthy event was a low pressure system that tracked through the region from the 7th through the 9th bringing cool and showery conditions, isolated thunderstorms, with yet another weak brief tornado in Airway Heights. ☼ *Jeremy Wolf*

Summer Weather Statistics

Wenatchee Water Plant	Jun	Jul	Aug	Total
Avg High Temp	81.4	85.6	88.8	85.3
Departure from Norm	+1.6	-2.6	+1.2	+0.1
Avg Low Temp	56.6	61.7	61.2	59.8
Departure from Norm	+1.0	+0.2	+0.7	+0.6
Total Precip	0.41	0.30	0.00	0.71
Departure from Norm	-0.25	-0.04	-0.19	-0.48
Total Snowfall	0.0	0.0	0.0	0.0
Departure from Norm	0.0	0.0	0.0	0.0
Lewiston Airport	**Jun**	**Jul**	**Aug**	**Total**
Avg High Temp	83.1	87.2	90.8	87.0
Departure from Norm	+4.6	-2.1	+2.0	+1.5
Avg Low Temp	54.3	59.5	59.6	57.8
Departure from Norm	+0.9	-0.1	+0.3	+0.4
Total Precip	1.01	1.57	0.24	2.82
Departure from Norm	-0.23	+0.89	-0.45	+0.21
Total Snowfall	0.0	0.0	0.0	0.0
Departure from Norm	0.0	0.0	0.0	0.0
Spokane Airport	**Jun**	**Jul**	**Aug**	**Total**
Avg High Temp	76.8	81.0	84.6	80.8
Departure from Norm	+3.0	-2.3	+1.7	+0.8
Avg Low Temp	52.9	56.9	57.8	55.9
Departure from Norm	+2.5	+0.7	+2.0	+1.7
Total Precip	0.51	0.27	0.16	0.94
Departure from Norm	-0.74	-0.37	-0.43	-1.54
Total snowfall	0.0	0.0	0.0	0.0
Departure from Norm	0.0	0.0	0.0	0.0

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

Remember your Autumn Spotter Checklist

First Snow of the Season!!!
Snow: 2"+ valleys & 4"+ mountains
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
Any Flooding
Any **Mixed Precipitation**
Travel Problems or Damage: due to severe/hazardous weather

Hazards Simplified

For decades, the NWS has used the Watch, Warning, and Advisory (WWA) system to alert users of forecasted hazards. In many ways, the WWA system has been highly effective in protecting life and property. But many users find the WWA terms confusing.

NWS is exploring alternatives for more effectively communicating our hazard messages. No changes are expected at this time, but there are a few options in consideration, which include:

- Keep the current WWA system as is;
- Make small to moderate changes; or
- Make a transformational change to the WWA system.

Given that the WWA system has been in place for a very long time, it will be important to weigh any and all new ideas carefully. To support both efforts, NWS is collecting public comments on these options as we move forward. If want to learn more and cast your vote on Hazards Simplification, please check out *http://www.weather.gov/hazardsimplification/*

Emergency Kit

⇒ *Water—1 gallon/person for at least 3 days*

⇒ *Food—at least for 3 days*

⇒ *Battery powered (or hand cranked) radio & NOAA Wx Radio. Extra batteries*

⇒ *Flashlights—extra batteries*

⇒ *First Aid Kit*

⇒ *Whistle & Local maps*

⇒ *Dust mask, plastic sheeting & duct tape—shelter in place*

⇒ *Tools: Wrench & pliers—turn off utilities, can opener*

⇒ *Cell phone with charger(s)*

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: Typically the weather turns wetter in fall. What was the wettest fall across the Inland NW?