



# The Inland Northwest Informer

Information For Storm Spotters, Cooperative Observers And Everyone

A Publication Of WFO Pendleton, Oregon

Fall/Winter 2014 - Volume 15

## Severe Weather Rattles Northwest

By Mary Wister, Science and Operations Officer

Widespread damaging winds, blowing dust, large hail, heavy rain, and even an EF0 tornado were reported across eastern Washington and eastern Oregon on August 12-13, 2014. Two significant upper-level waves associated with a large low pressure system off the Oregon coast tracked east of the Cascades, and each disturbance encountered an unstable atmosphere. This resulted in thunderstorms that were severe in many areas. Severe weather is defined as thunderstorms that produce wind gusts of 58 mph or stronger and/or hail of one inch or larger in diameter.

The severe weather reports on August 12 were primarily associated with damaging winds; some winds created considerable blowing dust. Figure 1 shows the locations where wind damage or wind gusts of at least 58 mph or greater occurred. The highest gust measured was 68 mph from an automated weather station located 14 miles northwest of Richland,

Washington. The Pasco Airport (PSC) received a 63-mph wind gust, and another gust to 63 mph was measured in Long Creek, Oregon. Numerous weather spotters and social media reports conveyed heavy downpours that day, but no flooding was reported.

Prediction Center (SPC) in Norman, OK were also keeping a close eye on the situation. SPC issued mesoscale forecast discussions earlier that day that provided details on their storm-scale prognosis.

As thunderstorms developed, SPC and NWS Pendleton determined that a severe thunderstorm watch was necessary for south central and southeast Washington and northeast Oregon. Based on radar images, it was clear that damaging outflow winds were likely. Figure 2 (next page) is a mosaic of radar reflectivity across the Pacific Northwest. As you can see from the image, the line of convective cells formed a "bow echo" from south central Washington into Idaho. This type of storm structure is

indicative of strong winds, as there is a strong wind flow at the rear of the system pushing the convective cells in a form of an archer's bow. The next upper-level wave on August 13, 2014 arrived during the afternoon

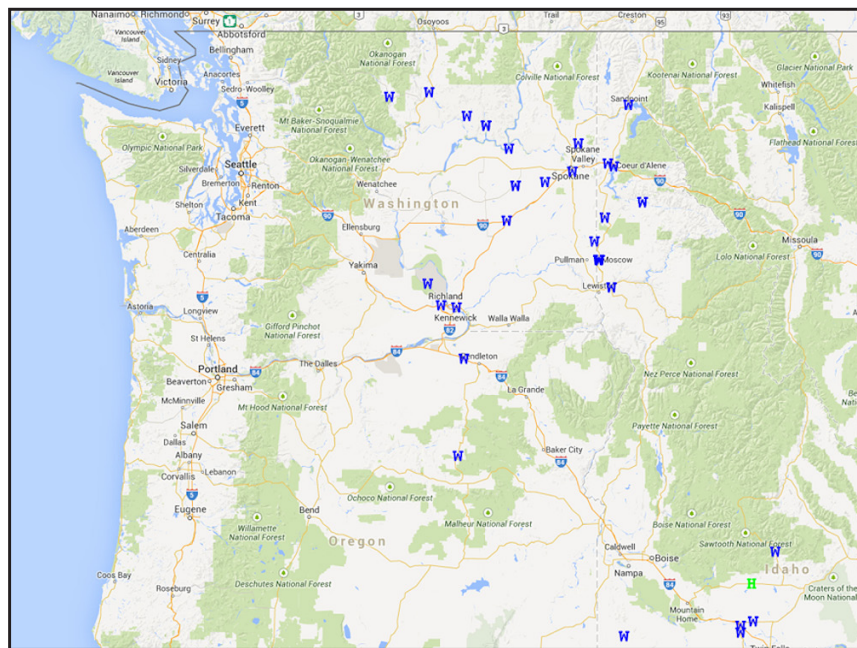


Figure 1. Severe wind reports on August 12, 2014. Locations with a "W" denote damaging winds or wind gusts at 58 mph or greater. Image: NOAA Storm Prediction Center.

Not only did forecasters at the National Weather Service (NWS) in Pendleton anticipate an active thunderstorm day on August 12, the forecasters at the Storm

of an archer's bow. The next upper-level wave on August 13, 2014 arrived during the afternoon

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Banner Image by T.W. Earle

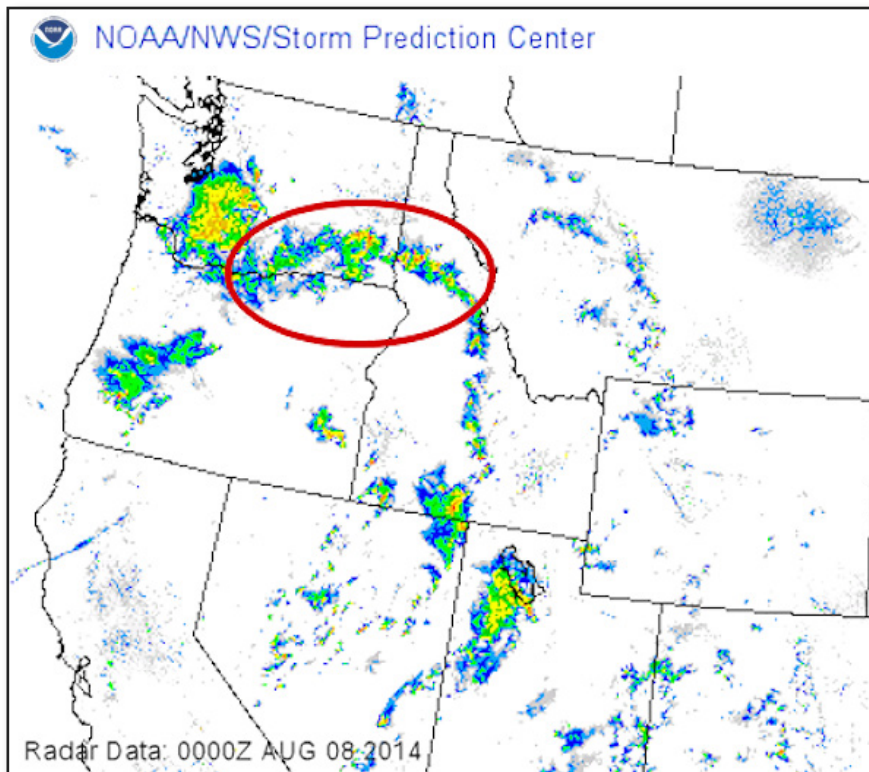


Figure 2. Mosaic composite reflectivity image at 5 PM August 12. The red circle indicates the bow echo that is an excellent indicator of strong outflow winds.

and brought another round of thunderstorms to the region. A few thunderstorms produced dime-to nickel-sized hail, and one storm brought golf ball-sized hail near Meacham. Although storms were not as numerous as the previous day, there was a confirmed EFO tornado about 10 miles east of Sunnyside at 6:30 PM. Fortunately, the tornado developed in an open area with no damage to any structures (figure 3).

The reports provided by NWS storm spotters and the SKYWARN amateur radio network have been critical to getting the word out to the public of hazardous weather. Social media sites such as Facebook and Twitter have become advantageous in warning coordination and situational awareness as well. The reports, photos, and video we received during these two events were greatly appreciated. Keep up the great work! ❖



Figure 3. Tornado image taken 10 miles east of Sunnyside along the Rattlesnake Mountains at 6:30 PM on August 13, 2014. Photo by Michelle Bemis Muford, posted on KNDU-TV Facebook page.

# NWS Pendleton Holds Advanced Weather Spotter Training

By Dennis Hull, Warning Coordination Meteorologist

Deschutes County Emergency Manager Nathan Garibay hosted the National Weather Service's Advanced Storm Spotter Training on October 6, at the Deschutes County 911 Center in Bend, Oregon. The training concentrated on winter storm spotting techniques and additional cloud clues for detecting the potential for damaging winds.

In addition to the unique winter weather information, the training was also available live on the internet. Around 8 spotters attended in person and 7 spotters followed the session

remotely via on-line stream.

The National Weather Service thanks Sgt. Nathan Garibay and the Deschutes County 911 for hosting the Advanced Spotter Training.

Next Spring's regular spotter training schedule will be posted at the end of February. Check [weather.gov/Pendleton](http://weather.gov/Pendleton) for details at that time. ❖



*Dennis Hull, NWS Warning Coordination Meteorologist, covers advanced topics in severe weather, and provides guidance to local spotters.  
Photo by Dylan J. Darling, The Bulletin (Bend, Oregon)*

# Winter 2014 Outlook

By Diana Hayden, Meteorologist

The Climate Prediction Center (CPC) issued an El Niño Watch for the winter of 2014-2015. An El Niño Watch is issued when conditions are favorable for the development of El Niño conditions within the next six months.

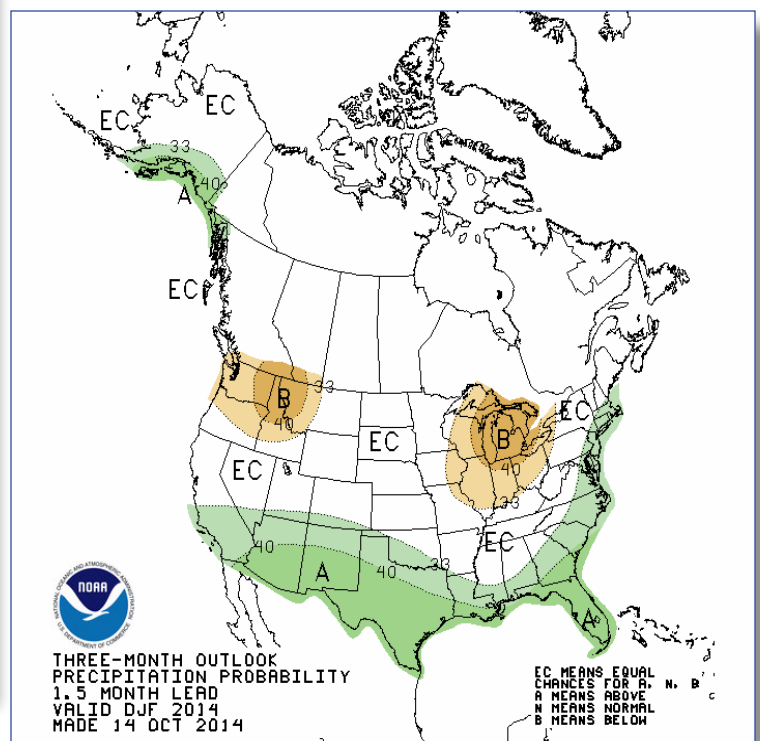
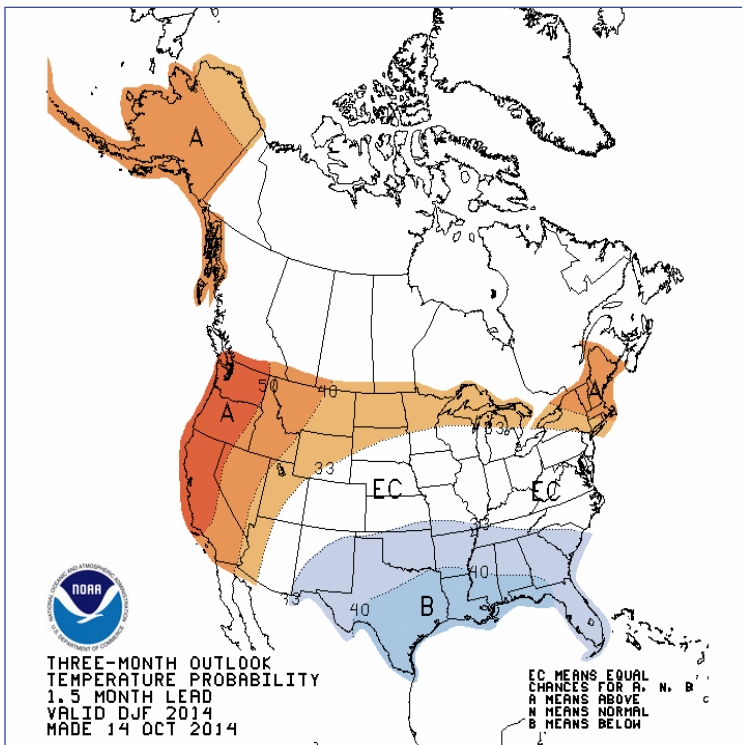
The definition of “El Niño conditions” is when the one-month positive sea surface temperature anomaly is 0.5 degrees Celsius or greater in the Niño-3.4 region of the equatorial Pacific Ocean and that the 3-month average sea-surface temperature departure will exceed 0.5 degrees Celsius in the east-central equatorial Pacific. To be classified as an El Niño event, there must be 5 consecutive 3-month average sea-surface temperature departures exceeding 0.5 degrees Celsius in the east-central equatorial Pacific. In addition, the atmospheric response typically associated with El Niño must also be observed over the equatorial Pacific Ocean. The current ENSO forecast indicates that there is a greater than 65% chance of an El Niño developing by the winter of 2014-2015.

So what happens during a typical El Niño event? During El Niño, the easterly trade winds that blow across the tropical Pacific

Ocean become weaker than usual and sea surface temperatures in the central and eastern Pacific become warmer than usual. These warmer waters lead to an increase in thunderstorms in the eastern tropical Pacific, contributing at times to well above normal precipitation on the West coast. El Niño events also increase the odds of unusually wet and cold winter across the southern tier of the United States, while the Pacific Northwest tends to experience milder winter temperatures than usual.

Leading up to this winter, Climate.gov will be posting a new blog that will discuss the upcoming El Niño, including forecasts, interviews with scientists and other topics.

The current three-month outlook put out by the Climate Prediction Center for December through February indicates that most of the Pacific Northwest has a greater chance of above normal temperatures and a slightly better chance of below normal precipitation. These outlooks take into consideration a wide variety of climate variables, including the El Niño – Southern Oscillation. Please remember, that these are probabilities of averages and that the day-to-day weather can still vary throughout the winter. ❖



# Water Year Precipitation October 2013 - September 2014

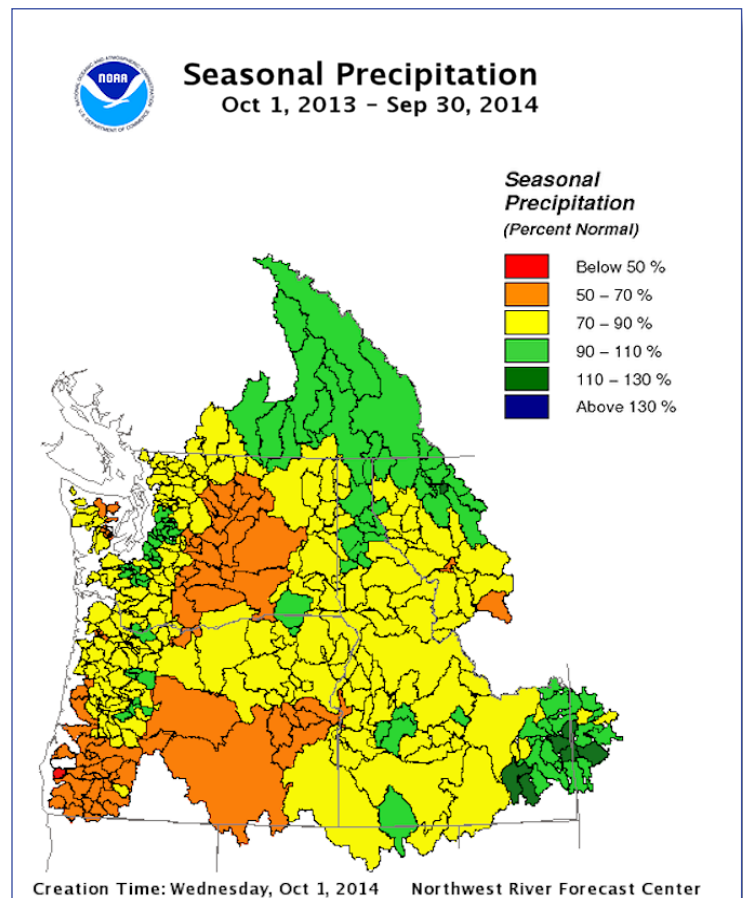
By Marilyn Lohmann, Service Hydrologist

Location	Amount In Inches	Percent of Normal
Bend.....	8.23.....	72%
Condon.....	13.39.....	92%
Dayville.....	8.80.....	67%
Dufur.....	11.23.....	81%
Heppner.....	10.98.....	78%
John Day City.....	10.99.....	83%
La Grande.....	19.31.....	117%
McNary Dam.....	5.41.....	64%
Madras.....	7.53.....	72%
Meacham.....	38.43.....	120%
Milton-Freewater.....	11.17.....	68%
Mitchell 2NE.....	11.81.....	85%
Moro.....	9.61.....	84%
Pelton Dam.....	7.82.....	70%
Pendleton Airport.....	10.54.....	81%
Pilot Rock.....	14.36.....	99%
Prineville.....	7.28.....	68%
Redmond Airport.....	6.13.....	69%
Walla Walla.....	20.35.....	116%
Wickiup Dam.....	17.53.....	82%
Cle Elum.....	21.42.....	96%
Dayton.....	12.97.....	68%
Ellensburg.....	5.32.....	59%
Hanford.....	5.26.....	75%
Mill Creek Dam.....	14.98.....	80%
Mt Adams RS.....	45.53.....	99%
Prosser.....	4.69.....	52%
Sunnyside.....	5.46.....	73%
Whitman Mission.....	10.63.....	73%
Yakima Airport.....	5.25.....	64%

precipitation, making it the 10th driest water year. Walla Walla Washington had 13.14 inches of precipitation, making it the 4th driest water year on record. The driest water year is 12.5 inches set during the 1972-1973 water year.

Here is a look at the water year, month by month. October and November were drier and cooler than normal. December was cold and much drier than normal, leading to very low snowpack, only 30 to 60 percent of normal in the mountains. January was also drier than normal, but slightly better than December with mountain snowpack increasing to 50 to 75 percent of normal. February was cooler and much wetter than normal with the mountain snowpack showing a substantial increase, especially in Washington State, where amounts were near normal. In Oregon, the snowpack increases to 60 to 90 percent of normal during February. March was warmer and much wetter than normal, with the mountain snowpack remaining nearly steady.

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Yes, it was a dry year. The water year ended September 30th, and much of area had well below normal precipitation for the period October 2013 – September 2014. Kennewick, Washington had their driest water year on record with 3.81 inches. The previous record was 3.91 inches set during the 1963-1964 water year. Redmond Oregon reported 6.13 inches of

# Extremely Active 2014 Fire Season

By Rachel Trimarco, Incident Meteorologist / Fire Weather Program Leader

Fire season in the interior Pacific Northwest began around June 11th, which was about three weeks earlier than usual. This was preceded by a very dry spring with below normal precipitation amounts and an ongoing drought. But as usual, the greatest activity was seen in July and August, diminishing in September, and ending in October. By October 23rd, there had been 3659 wildfires in Washington and Oregon for 1,407,066 acres burned. Approximately 456,000 acres burned were located in the Pendleton National Weather Service's local area of responsibility. These statistics represent wildfires that burned four times as many acres in 2014 as compared to 2013.

The first large fire to occur in the local area was the Two Bulls Fire 10 miles northwest of Bend, OR beginning June 7th. This fire was originally two human caused fires that burned together in the Deschutes National Forest and on other public and private lands. 6,908 acres burned as the fire was driven by strong winds and steep terrain, prompting evacuations. Fortunately, no homes were lost due to the preparation of defensible space by homeowners, and the fire was contained June 14th. Also in June, four brush fires pushed by gusty winds south of Kennewick, Washington, forced road closures on the 29th of the month.

Thunderstorms at the beginning of July were responsible for several wildfires in central Oregon. Of note are the Kipuka Fire, which was 26 acres near Lava Butte, and then the much larger Camp Creek Fire. The Camp Creek Fire was 26 miles northeast of Madras on Prineville BLM lands and consumed 3,078 acres. Farther north, the Manastash Ridge Fire southeast of Ellensburg, Washington, also occurred on July 3rd. However,

there was no lightning in this area and cause of the 1,996 acre brush fire that closed a portion of I-82 was under investigation.

On July 13th, several fires were started by lightning as monsoon moisture brought scattered thunderstorms to most of eastern Oregon. This event kicked off the most active portion of the fire season and prompted the Pacific Northwest Geographic Area Coordination Center to elevate the fire resource Preparedness

Level to 5 for nearly a month. Many of the fires made major runs on July 15th and 16th due to strong winds, prompting evacuations. Very hot and dry conditions then followed through July 19th, but wetting rain accompanied more thunderstorms July 22nd and 23rd. Warming and drying again occurred July 25th and 26th followed by very unstable conditions with many days reaching Haines 5. Monsoon flow then brought more thunderstorms July 29th

through August 3rd. Warm and dry weather commenced August 3rd through 7th, but several marine pushes also brought strong winds during this period.

One such group of fires near Mitchell, Oregon formed the Waterman Complex and burned 12,570 acres. This complex included the Bailey Butte, Tony Butte, and Junction Springs fires burning on Ochoco National Forest and private lands. Another fire was the White River Fire which burned 652 acres of private forestland 15 miles west of Maupin, Oregon.

Then there was the much larger Shaniko Butte Fire on the Warm Springs Reservation. This fire spread very quickly in light, dry, grassy fuels to consume 42,044 acres, including two structures. And another complex of fires was formed during



*An MD-87 tanker drops flame retardant on the Two Bulls fire near Bend, Oregon, on June 7, 2014. Photo by Jim Hansen, Central Oregon Fire Management Service*

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this time near Antelope, Fossil and Grass Valley, Oregon. This complex was referred to as the Pine Creek Fire but included the Jack Knife Fire at 13,263 acres where 3 structures were lost, the Donnybrook Fire at 22,763 acres, the Black Rock Fire at 35,938 acres, and the Pine Creek Fire at 30,245 acres.

Many more fires also originated out of the July 13th lightning storm. There was the Bridge 99 Complex in the Deschutes National Forest northwest of Sisters, Oregon. This complex spanned 5,721 acres and was comprised of the Bridge 99, Castle, and Bear Butte 2 fires. Additionally, on the Ochoco National Forest and Prineville BLM land was the Ochoco Complex made up of the Lava, Antelope Springs, Broadway, Fox, and Oscar Canyon fires for 12,520 acres. Then there was the Service Creek Fire at 375 acres 15 miles southeast of Fossil, Oregon, and the Sunflower Fire 10 miles north-northeast of Monument, Oregon which burned 7,175 acres into the Umatilla National Forest. The Pittsburg fire was then found on July 14th in the Hells Canyon Recreational Area, 21 miles south-southwest of Grangeville, Idaho. The hot and dry conditions of July 15th through 19th, where temperatures exceeded 100 degrees and relative humidity was in the single digits, helped this fire quickly grow to 8,288 acres. The Gumbboot Fire was also found on the 14th, which burnt 4,420 acres 35 miles west of Burns, Oregon. In the Eagle Cap Wilderness, on the backside of Chief Joseph Mountain, the Hurricane Creek fire burnt 1,780 acres. Lastly, the Logging Unit Complex was formed on July 16th on the Warm Springs Reservation. This 10,447 acre complex contained the Skyline, Haily Butte, North Pinhead, Logging Unit, Camas Prairie, and Bear Butte 2 fires. Also of mention is the Center Fire from July 19th that burned 2,800 acres 3 miles north of Post, Oregon on

BLM and private lands.

The next major dry lightning event occurred July 29th through August 3rd. But first there was a human error, wind driven grass fire 7 miles west of Condon, Oregon named the Sniption Fire. This fire burned 25,937 acres and one structure on mostly Prineville BLM land. Then the Haystack Complex began near Monument, Spray, and Dayville, Oregon. This complex started with the Street, Haystack, and Throop fires, later adding the Hogback, School House, Beard Canyon, and Stahl fires for 1,740 acres. In the Eagle Cap Wilderness was the 1,000 acre China Cap Fire. The South Fork Complex, 20 miles southwest of John Day, Oregon, was then formed in the Malheur National Forest. In this complex, four fires, the Bald Sisters, South Fork, Murderers Creek South, and Buck Fork, burned 66,179 acres before it was contained in September. Two seasonal cabins were also lost by this complex. Another much smaller complex of only 12 acres was the Mt. Ireland Complex, 23 miles northwest of Baker, Oregon, in the North Fork John Day Wilderness. Then there were two much larger fires in Wallowa County. The 5 Mile Fire, 1 mile south of Imnaha, in the Wallowa-Whitman National Forest, burned 4,524 acres of timber, and the Somers Fire, 15 miles east of Imnaha, in the Hells Canyon Recreation Area, burned 36,185 acres. One structure was also lost in the Somers Fire, and the terrain was so difficult to traverse that fire crews had to be flown in. Furthermore, there was so much smoke from the fires that an Air Quality Monitoring Group had to be deployed on August 10th. Air quality did not improve until wetting rain fell on August 14th and 15th.

Several other fires also began the first week of August. There was the Nene Creek Fire that burned 335 acres on the Warm

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Fire hits Ponderosa pines on a bluff above the South Fork John Day River on The South Fork Complex on August 9, 2014.  
Photo by Les Zaitz, The Oregonian.

April was warmer than normal with near to above normal precipitation. May was much warmer than normal with well below normal precipitation and much of the mountain snowpack melting out. June had near to above normal temperatures and generally below normal precipitation, with the exception of northeast Oregon. July was much warmer, with part of central

Oregon and Washington seeing above normal precipitation, while the rest of the area was quite dry. August was much warmer than normal with widely varying precipitation due to thunderstorms. September was warmer than normal and much drier than normal. ❖

Springs Reservation. There was also the Rowena Fire, 6 miles west of The Dalles, Oregon. This fire consumed 3,680 acres, forced the evacuation of 75 residences, and took 6 structures before it was contained on August 12th. Additionally, a less severe fire, the Katy Mountain Fire, occurred in the Eagle Cap Wilderness and burned 257 acres.

The remainder of the fire season saw only a handful of new large fires. On August 13th, the Fifteen Cent Fire, 27 miles northwest of Burns, Oregon, was ignited and burned 1,598 acres of grass and brush on BLM land. Then in Washington, on August 21st, the Sandy Ridge Fire, 8 miles east of Bickleton, burned 1,900 acres of private land and threatened at least 15 residences. Back in Oregon, the Lost Hubcap Fire began on August 29th, 8 miles southwest of Monument, and burned 2,712 acres of BLM and private lands. Not to leave out Idaho, the Freezeout Ridge Fire began on September 6th in the Hells Canyon Recreation Area. This fire, 11 miles southwest of Riggins, burned 3,624 acres in steep, inaccessible terrain. Like many wildfires in this part of the country, it was allowed to burn, and take its natural

role in the ecosystem as a low intensity fire that would restore the landscape and prompt new growth. Sadly, one firefighter was seriously injured by a falling tree snag, but he is expected to recover. Another fire that was being monitored was the West Fork Fire, which began September 8th, 3 miles south of Wallowa Lake, in 135 acres of the Eagle Cap Wilderness. Then on September 18th, the Glass Butte Fire began 35 miles west of Burns, Oregon and burned 450 acres. Finally, on October 4th, the Mt. Harris 14 Fire burned 260 acres 12 miles northeast of LaGrande, Oregon.

There were many other large fires in other portions of the Pacific Northwest this year, and fire season did not end until the week of October 20th when cooler, moister weather set in. During this extremely active season, to help forecast the weather affecting these fires, there were a record-breaking 17 Incident Meteorologist dispatches from other National Weather Service offices into Pendleton's area of responsibility. ❖



Michael Murphy

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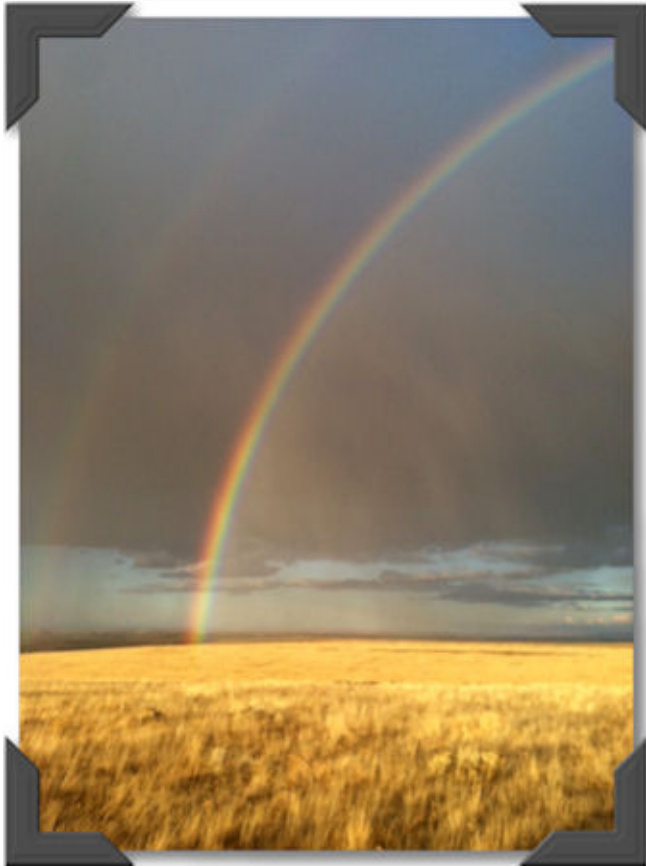
## Staff Spotlight

Mike recently joined the weather forecasting team in Pendleton after moving to the area from Northwestern New Jersey. Previously, Mike spent most of his life living in Central, Upstate New York. He attended the State University of New York at Oswego where he graduated with a degree in Meteorology; he also completed a minor in mathematics. In addition to his education, Mike gained extensive experience in the meteorology field while working for a private weather forecasting company in New Jersey. While working for this company Mike had the opportunity to create forecasts for several NFL football teams, stadium venues, government facilities, and state road departments. Mike also participated in a volunteer summer internship with the National Weather Service office in Binghamton, NY where he learned the ins-and-outs of being a National Weather Service forecaster; he was even lucky enough to participate in several severe thunderstorm damage surveys during this time.

Mike spends much of his free time outdoors; whether he is running, hiking, skiing, playing sports or going for a swim there is nothing more that he enjoys. Since moving to the area Mike has visited Multnomah Falls, Mount Rainier National Park, Mount Hood and Mount Adams; and he cannot wait for the opportunity to explore more of the area. He also hopes to do some powder skiing in the area this winter, if the weather cooperates. When not enjoying the great outdoors you can find Mike either at the gym getting a workout in, watching NFL football (his favorite team is the New York Giants, of course) or spending time with his fiancé, family, and friends. ❖



# Photo Album



*Double rainbow "touches down" in a field near Franklin Hill Summit, Morrow County. Photo by M. Murphy.*



*Clouds reflecting in Lake Penland, Umatilla National Forest. Photo by M. Murphy.*



*Columbia Basin sunset, taken from Cabbage Hill, Umatilla County. Photo by T.W. Earle*

