



## Season in Review

Joel Tannenholz

Fall 2015 was warm and relatively benign until November, when the weather became much more interesting.

September fluctuated between mid-summer and early fall conditions, but summer dominated in southwest Idaho and southern areas of southeast Oregon, resulting in above or much above average temperatures. By contrast most of eastern Oregon was near or cooler than average.

Because of the convective nature of warm-season precipitation, there were areas of below average, as well as above average precipitation. Only the central Idaho mountains and Steens Mountain in Oregon were wetter than average.

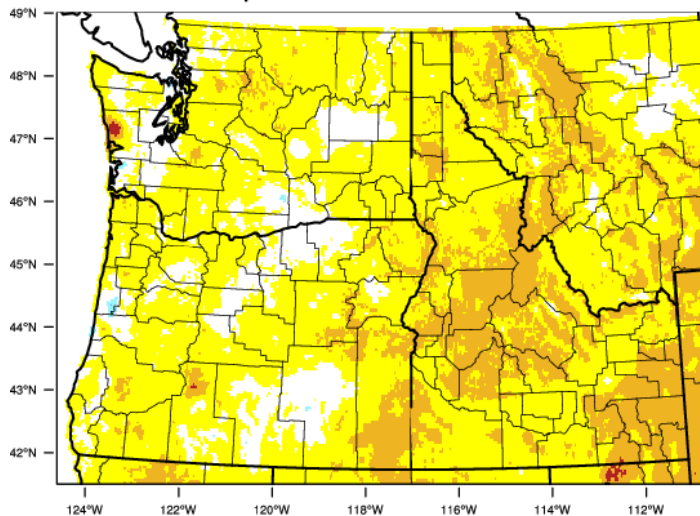
Contrary to the usual September trend, the coolest weather came early in the month under an upper level low pressure trough which originated in the Gulf of Alaska. Local light frost was observed at sunrise on the 6th at a few spots in the upper Treasure Valley; low temperatures at Burns from the 6th through the 8th were below freezing; and Baker City had its first freeze of the season on the 4th with a low of 27 degrees.

A warm ridge of high pressure aloft centered over Nevada and the southwest U.S. brought a return to summer from the 8th through the 14th.

As the ridge weakened, another cold low pressure trough deepened southward from British Columbia, reaching as far south as central California on the 16th. Picking up subtropical moisture from off the California coast, the trough brought measurable precipitation to most of our region on the 14th through the 17th. At some locations, including Boise, this was the only measurable rain of the month.

## Pacific Northwest - Mean Temperature

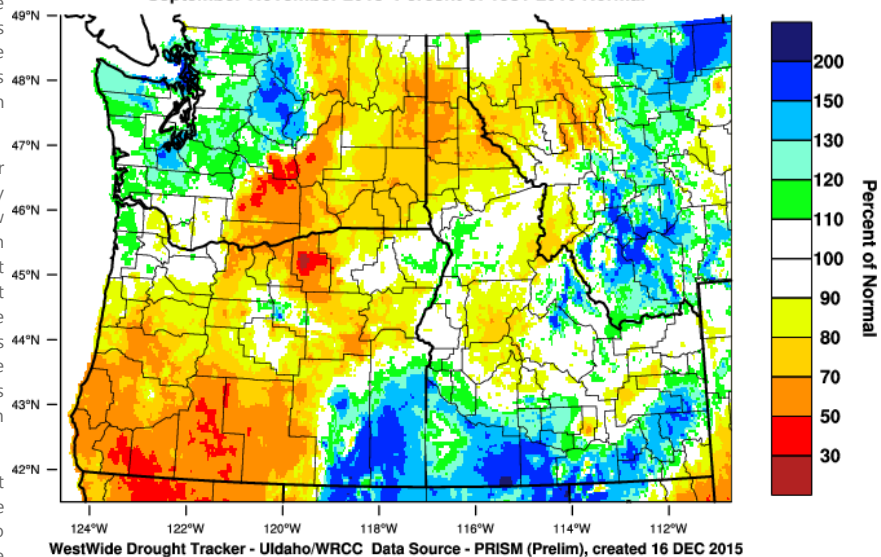
September-November 2015 Percentile



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## Pacific Northwest - Precipitation

September-November 2015 Percent of 1981-2010 Normal



The trough moved east over Idaho on the 17th. A combination of unseasonably cold air aloft and surface heating under partly cloudy skies destabilized the atmosphere triggering late afternoon thunderstorms. Local strong gusty winds, brief heavy showers, and small hail were reported in Burns, in the Treasure Valley, and in the Jerome area.

Behind the trough dry westerly flow aloft over southern Idaho became southwesterly as a very warm high pressure ridge built north from Utah and the four corners area. This brought several days of benign weather and rising temperatures. Throughout the Snake River Valley, highs were in the mid to upper 90s. In eastern Oregon, Burns and Baker City warmed into the upper 80s.

Following a cold front on the 26th, highs were 10 to 15 degrees lower.

An upper level ridge provided warmer weather and mostly clear skies for the 28th and 29th. However, as the ridge shifted east on the 30th, southwest flow aloft brought cloud cover from a trough off the coast, preventing temperatures from warming above the upper 70s.

Continued page 2...

## Spotter Checklist

### When should you call us?

**HAIL:** pea size or larger.

**SNOW:** 1" per hour or greater OR storm total 4"+ OR snow causing road closures.

**REDUCED VISIBILITY:** For any reason.

**WIND:** Greater than 40 mph or damage.

**HEAVY RAIN:** 1/2"+ in 1 hour

**FREEZING RAIN:** Any amount.

**FLOODING:** Any water where it shouldn't be, or overflowing river/creek.

**TORNADO or FUNNEL CLOUD**

ANY WEATHER RELATED DAMAGE, DEATH, OR INJURY

### How to contact us:

1-800-882-1428

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boise.weather@noaa.gov

October 2015 was much warmer than average across the region. At Boise it was the 2nd warmest October in 76 years of airport records. The above-average temperatures were partly a reflection of a warm upper level high pressure ridge which resided over the western U.S. through much of the month.

At Boise the 90-degree high on the 10th was the warmest ever recorded so late in the season. Highs in the lower 90s were common throughout the Snake River Valley that day, and eastern Oregon was in the 80s. The late summer warmth might have lasted another week, had it not been for the Walker Fire in the mountains northeast of Boise. Smoke blanketed the Treasure Valley from the 11th through the 17th, scattering enough sunlight to prevent temperatures from warming much above the 70s, while smoke-free areas enjoyed 80-degree weather.

Normally most of our region sees the first frost of the season in October. But this year the temperature failed to drop to freezing in the Magic Valley, as well as in Boise and Ontario. Precipitation was above average in some areas and below average in others. Low pressure troughs managed to push inland at the beginning, middle, and end of the month, temporarily displacing the ridge. A wedge-shaped area from the Nevada border to Ontario benefited from these weather systems, with more than double the average October rainfall in southern Harney County, southern Malheur County, and the Owyhee Mountains. The Burns and Baker areas and the Snake River Valley east of Boise were drier than average.

During the first three-and-a-half weeks of November, most valley areas experienced typical late fall weather. But the month ended with a trial run of winter, resulting in a below-average temperature for the month at most locations. At Boise this was the first colder-than-average month since November 2014.

Prior to the cold snap, changeable weather typical of late fall brought mostly clear skies and mild temperatures, alternating with cool showery weather. A series of low pressure troughs rapidly deepened over the west coast states on the 3rd, 10th, and 15th; much of their energy pushed south to southern California and Arizona, so southeast Oregon and southwest Idaho did not see widespread precipitation. There was, however, significant rainfall, and even snow, at some locations.

The Magic Valley was drenched with an inch and a half of rain on the first three days of the month. The same storm brought up to two feet of snow to higher elevations of Owyhee County. On the 9th, McCall picked up nearly three quarters of an inch of precipitation. A third of an inch of rain was measured at the Boise airport from the same storm. The last system pushed a cold front across the region on the night of the 15th. The front was followed by strong west to northwest winds. Wind speeds over 40 mph were measured in the Magic Valley and in Glens Ferry, with over 50 mph winds reported in Owyhee County.

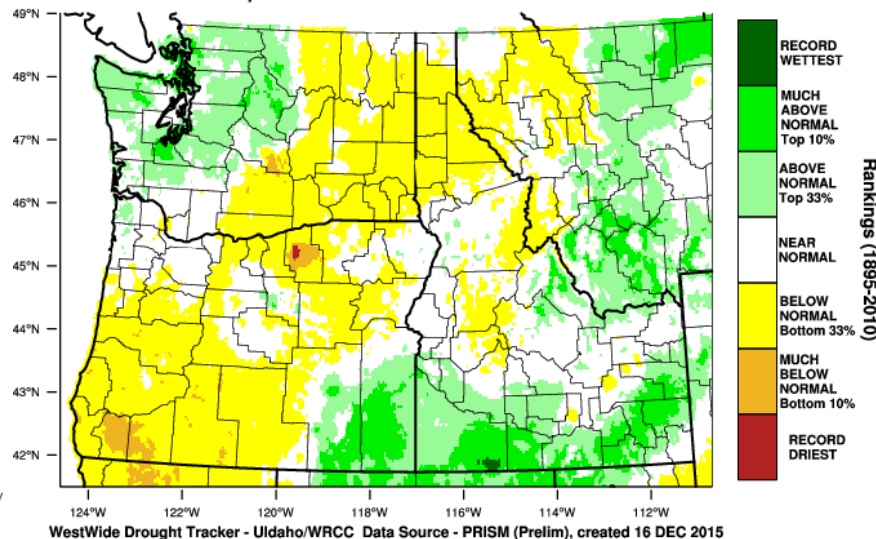
On the 18th, a weather system from Alaska pushed a strong cold front across the region, initiating a pattern change to northwest flow aloft over Idaho. This brought cooler air to the region, along with moderate precipitation in the form of rain and snow at northern locations. Snowfall was mainly in the 3 to 4 inch range in the west central Idaho Mountains and in Baker County, Oregon, but McCall measured 7 inches. Ahead of the cold front, strong south winds from 35 mph to 60 mph were measured in Baker, Malheur, and Owyhee counties, as well as in the Magic Valley.

The stage was set for November's main event, which started life as a weak trough over the Aleutians on the 21st. The trough deepened as it crossed the Gulf of Alaska and arrived over the British Columbia coast on the 23rd. It drifted south and further intensified off the Washington coast, picking up additional moisture from the abnormally warm water before swinging inland over southwest Oregon and northern California on the 24th. As the storm settled over Nevada and Utah, precipitation began as rain in the lower valleys on the 24th. By dawn on the 25th, snow was falling at all elevations. By the end of the day, 3 to 5 inches had accumulated in Harney County. Snow continued in Idaho into the 26th, with the heaviest amounts recorded east and south of Boise. By that afternoon, 8 inches had fallen in the Magic Valley. As the snow was ending, modified arctic air filtered into the area from high pressure centers in British Columbia and western Montana. From the 26th through the 30th, daily temperatures were averaging from 10 to 20 degrees below normal. Lows as cold as 15 below zero were reported in Burns. Lows in the single digits below zero were observed at a number of other locations, including Baker City, McCall, Twin Falls, and Rome, Oregon.

But the cold air was shallow, and warming aloft soon created a temperature inversion. Although the storm had ended, enough moisture remained to form a stratus deck at the base of the inversion in the Snake River Valley. This prevented temperatures from falling as low as they would have under clear skies.

The November storms pushed precipitation totals for the fall season to above average across most of the region. Temperatures for the season were above average, due mainly to the warm October.

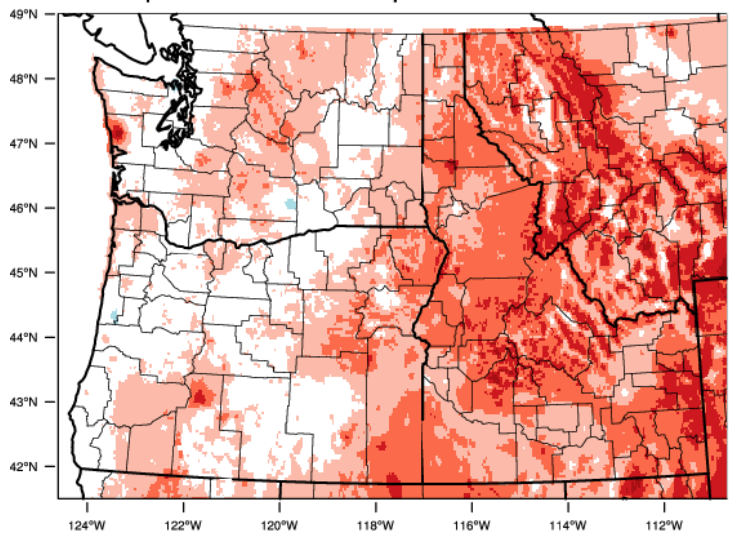
### Pacific Northwest - Precipitation September-November 2015 Percentile



Rankings (1895-2010)

### Pacific Northwest - Mean Temperature

#### September-November 2015 Departure from 1981-2010 Normal



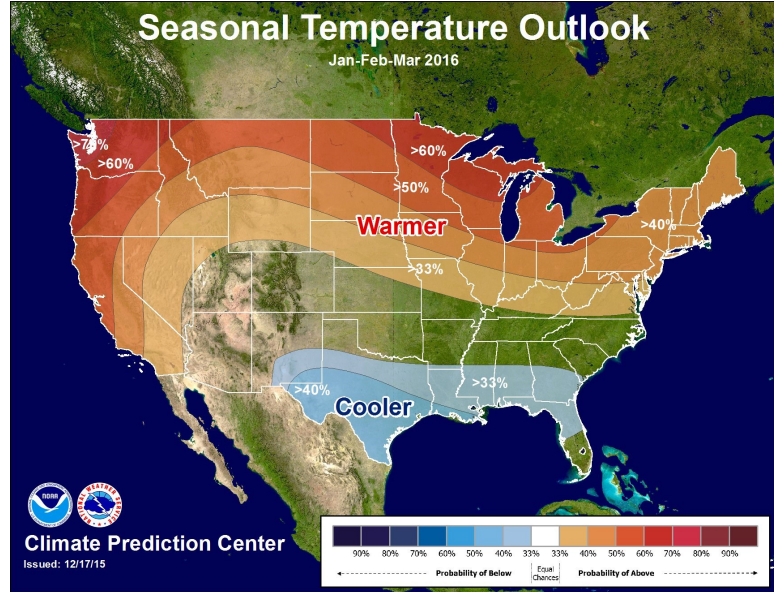
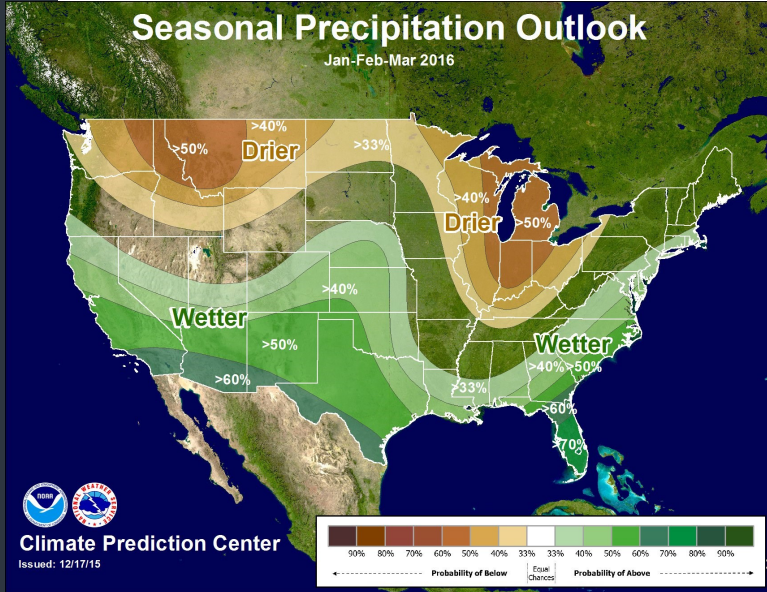


# Winter Outlook

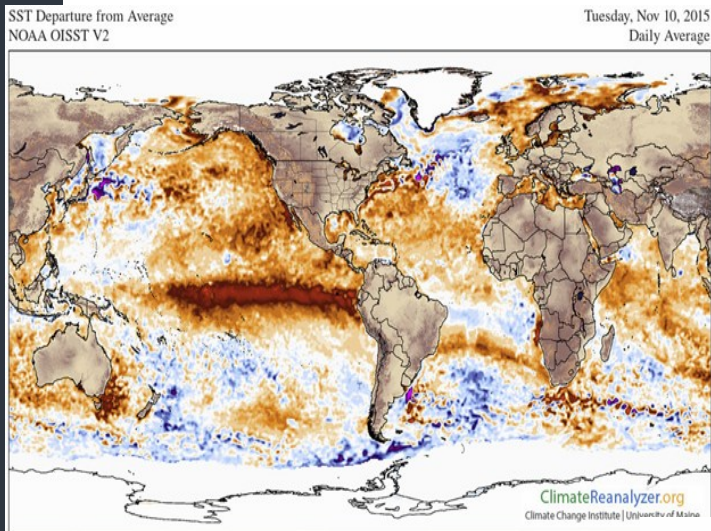
Stephen Parker

The following graphics show the official three-month outlook for Dec-Jan-Feb for the winter of 2015-16. The outlook for temperatures for the country is for a better chance of above-normal temperatures across the west and north, with below-normal in and near most of Texas.

For precipitation, there are better chances for below-normal amounts across most of the northern U.S., and above-normal amounts across California, most of the south, and the Atlantic coast.

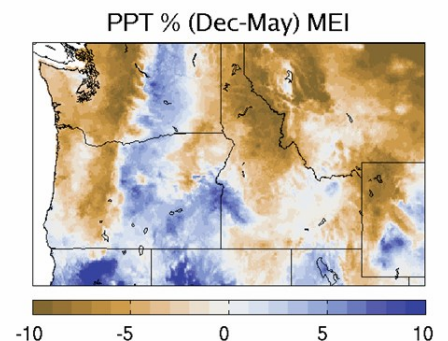
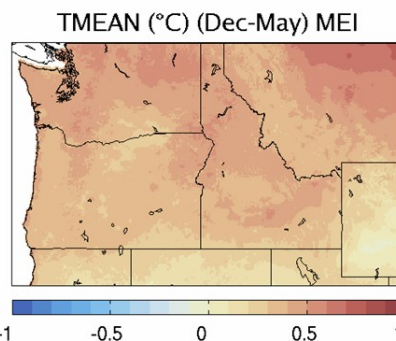
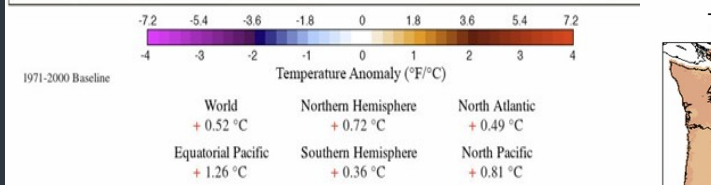


For our area, these charts indicate a better chance of above-normal temperatures and below-normal precipitation. This forecast is mostly based on our current strong El Nino. The graphic below shows sea surface temperature (SST) departures from average, indicating strong El Nino conditions. The deep red band of color extending west from the west coast of South America shows temperatures around 3.0 deg C above average. This is as far above normal as we have ever reliably measured (dependable satellite measurements only go back to about 1982).



Independent and more detailed research from Dr. John Abatzoglou at the University of Idaho indicates that even though the overall area will most likely have below-normal precipitation, certain areas - such as the Lower Treasure Valley and much of southeast Oregon - may actually see above-normal precipitation. The following graphic shows expected departure from normal for temperature (below left, TMEAN) and precipitation (below right, PPT %). The precipitation map has blue color where above-normal precipitation is expected based on his statistical analysis. Here we see that his analysis indicates the mountains should see below-normal precipitation (brown areas), but a few generally lower-elevation areas should see above-normal precipitation (blue areas). The graphic on the left (TMEAN) shows that the entire region should expect above-normal temperatures.

For more information about El Niño, see the following: <http://www.cpc.ncep.noaa.gov/products/precip/CWlink/MJO/enso.shtml>



# A Weather Pattern for Heavy Snow in Southwest Idaho and Southeast Oregon

Les Colin

Forecasters have long recognized similarities in conditions that lead to heavy snowfall in southwest Idaho and southeast Oregon. Unlike the nor'easters that bring heavy snow and high winds to the Atlantic Coast, our storms usually come from the Pacific as warm fronts with much less wind. Before the storm's arrival there is usually a very cold and dry air mass over the area, perhaps from a previous arctic outbreak with the formation of a temperature inversion. In the upper atmosphere there is typically a strong northerly flow from northern Canada and a ridge of high pressure along the west coast. The ridge then either shifts inland or breaks down, and a storm in the Pacific is then directed inland toward our area. Meanwhile, the cold dry air remains in place, unable to be mixed out by winds aloft. The Pacific storm then comes inland and its moist air is forced to move over the cold air which, due to its density, is difficult to dislodge, especially in mountainous terrain. The moist air rises high enough to cool and condense out its moisture in the form of snow. Very gradually the Pacific air nudges the cold air out, a process that may take many hours. This is the warm front, so temperatures typically rise while the snow is falling. If it rises too far above freezing, the snow will change to rain, so it is important for the pre-storm air mass to be very cold in order for the storm to bring only snow.

Some of the more memorable snowfalls in the Boise area included the big snow of Christmas 1983, when 13 inches fell after the temperature had been 18 below zero; a 7.5 inch snowfall in December 1998, after the temperature had been 2 below zero; and a 10 inch snowfall in December 1996, after the temperature had been 14 degrees.

The main thing to remember is that after a very cold outbreak, often the only way the air warms and the inversion breaks is through a heavy snowfall with a Pacific warm front. Once the storm ends the air is usually much milder.

## Avalanche Forecast, the Snow-Down

Elizabeth Padian

Many of you may remember Highway 21 between Boise and Lowman closing in March of 2014 due to an avalanche. You may also recall the few times each winter that a portion of the road is closed due to an increased risk of an avalanche. Some people refer to the avalanche prone areas of that highway as "avalanche alley" and for good reason. Who makes the decisions about this dangerous part of the highway, and how do they do it?

Decisions are made by a team of avalanche specialists who work for the Idaho Transportation Department and reside in Lowman. They monitor the snowpack and each of the snow layers on a daily basis, looking for weak areas that could potentially break and create an avalanche. A large part of what makes a weak or strong snowpack is weather conditions. That is where the National Weather Service steps in. Our office provides weather forecasts to the avalanche forecasters twice daily. These forecasts not only include snowfall, but temperatures and winds, which also greatly affect the snowpack's layers and behavior. From that, the avalanche forecasters can predict how the weather conditions will affect the existing snowpack and what new layers will be added with any incoming storm. When conditions become dangerous, they close the highway to ensure no one gets hurt when an avalanche looks imminent. While these forecasters in Lowman have a good understanding of the weather, they have established a partnership with the National Weather Service as a way to get the most detailed and site-specific information possible to help make the decisions they face every day. As our mission is to protect life and property, we are happy to provide this service in their decisions to protect the public.

## History of Weather Observations at Boise

Josh Smith

Weather observations began less than a year after the city of Boise was founded in 1863. The post surgeon at Fort Boise, renamed Boise Barracks in 1879, began taking observations at the Post Hospital (just north of downtown Boise) on February 1, 1864. This new practice was due to the U.S. Army Medical Department's belief that there was a possible link between human disease and weather, and required all post doctors to take daily weather observations of temperatures, wind, and precipitation. The observations were taken continuously at the post hospital until November 30, 1898.

The U.S. Signal Service, the predecessor to the National Weather Service, assumed official responsibility for weather observations in the 1870s. The Signal Service took observations in downtown Boise between July 1, 1877 and June 30, 1890 at three different locations: the Overland Hotel, the Davis Building and the Perrault Building. Only the Perrault Building remains today. Budget shortfalls and the belief that other weather observations in the Northwest would be more valuable to forecasters in Washington D.C., led to the closure of the Signal Service station in Boise in 1890. The station was moved to Baker City, Oregon, where it operated until 1949.

The U.S. Weather Bureau, now known as the National Weather Service, opened an office in the Sonna Building in downtown Boise on December 1, 1898. Samuel Mudd Blandford, the nephew of the infamous Dr. Samuel Mudd<sup>1</sup>, was placed in charge of the office and became the first official meteorologist in Boise. In 1904, the office was moved to the fourth floor of the U.S. Federal Building (in front of the Capitol Building). The first weather balloon flight took place from that roof on November 17, 1926. Weather observations were briefly taken at the first Boise airport, now Boise State University, between 1933 and 1939, then moved to Gowen Field in December of 1939. The office later moved from the Boise Airport Terminal to the National Interagency Fire Center in June of 1969, where it remains today.

<sup>1</sup>Samuel Alexander Mudd was an American physician who was imprisoned for conspiring with John Wilkes Booth in the assassination of U.S. President Abraham Lincoln.



PIBAL Launch at the U.S. Federal Building, May 1931. Photograph Credit: Johnson & Son. Source: The Idaho Statesman (1931).



## Meet & Greet

Aviva Braun

Over the last four and a half years, the Boise office has been managed by Mr. Robert (Bob) Diaz, our Meteorologist in Charge (MIC). Since he was first hired into the National Weather Service (NWS), he's held several positions within NWS all over the country; but he's always wanted to return to Boise, where he attended college. Now, after 30 years, Bob has chosen to retire from this office, and he will be sorely missed!

**NWS:** Hi Bob! Tell me, how did you get into the Weather Service?

**Bob:** When I was a little kid, I had a weather kit that I used to take weather observations. I loved to watch the thunderstorms, I loved lightning. I used to stand outside in the rain and my mother would yell at me to come inside. I didn't really want to be on TV, and I didn't know about the Weather Service. I went to Boise State for college and got a tour of the Forecast Office. I saw what they did and got to know more about the Weather Service. So I switched! I originally started college in pre-law, switched to statistics, then math. Ultimately, I went to graduate school in meteorology to become a meteorologist.

**NWS:** What is your educational background?

**Bob:** I was always good at math; it always came easily to me. I had a really good math teacher in junior high who encouraged me to become versed in calculus in preparation for college. I also really like my science classes; English, not so much. Everything science or math related, I loved as a kid! When I went to Boise State, I was planning on majoring in pre-law, but somehow I was convinced of majoring in mathematics. The great thing about a math degree is that you can branch into anything from there; I went into meteorology. I graduated BSU with an undergraduate degree in mathematics, with an emphasis in computer science. Later, I attended the University of Wisconsin where I started my MS in meteorology. Soon after, I was offered a job at the NWS.

**NWS:** Where has your career taken you?

**Bob:** I started as an Intern in Redwood City, CA, the one that is now in Monterey, CA. I left to become a General Aviation Forecaster in Seattle. I was there for about three years and then one morning my MIC asked if I'd ever considered Alaska, which I had not! So I looked into it and went on to become a Program Manager at the Anchorage Office. I was there for two years and then thawed out in Hawaii as a Systems Integrations Branch Chief. I was there for six and a half years. That was my first position as a supervisor. Then when I saw that a temporary position had opened for a Deputy MIC in Monterey, CA, I bid on the position and got it. I was there for two years before I had the opportunity to become a MIC in Billings, MT. I was there for about three and a half years before I was asked to return as Acting MIC at the Monterey Office. That was for about three months. I returned to Billings afterwards and bid on the Monterey MIC position, which I got! I was there a few years before I bid on a Region Division Systems Operations Division Chief position at the Regional Office in Salt Lake City. I was there for eight years and thought I was going to retire from there, when something interesting happened! The man who had been my MIC in Seattle came by to see me in Salt Lake and told me that he was going to be retiring soon from the Boise MIC position. I jumped on the opportunity and have been here for about four and a half years now! I'll be retiring January 3rd, 2016. The Forecast Office that I toured as a college student, is the office I will be retiring from!

**NWS:** Wow! What an amazing journey and you've been everywhere! So tell me, where was your favorite station?

**Bob:** Boise! It has to be – it's where I first learned of the Weather Service and where I'm retiring! Second would be Hawaii – I mean seriously! It was great there and the job was interesting. We had an international focus, so I got to travel a bit to places like Tokyo, Guam and Washington DC. We also had a pact to help the Pacific Island countries with their weather stations, so I had the opportunity to travel to all of those exotic islands. It was a great job, always interesting. But in all honesty, there wasn't a station I didn't like. I have been lucky in my career.

**NWS:** What do you like the most about NWS?

**Bob:** I would have to say, the people and their dedication to our mission. It's really easy to identify with our mission and take pride in it because we are protecting lives and property. Seeing our staff at their best, when the weather gets critical, is really a pleasure.

**NWS:** Of all your forecasts issued, which one sticks out the most in your mind?

**Bob:** That's easy! I was the MIC in Billings at the time, maybe 1996, and I'd been there close to a year, when I got a call from Region – Monterey was short-staffed. They were having a lot of rain and flooding issues and their forecasters had been working multiple shifts in a row – they were taxed! They asked if I go and help. I flew out to CA and as soon as I got to the office, the lead turned to me and asked me to work the radar, which I did. They had been more flood-focused, but I soon realized that we were going to get a severe thunderstorm event with large hail; we would have to put out a warning. So, I told the lead what I thought and he thought I was crazy! I put out the warning and within 15 minutes, we got reports of large hail!

**NWS:** You've been in the Weather Service for over 30 years. Has the Weather Service significantly changed over your career? If yes, how?

**Bob:** It's changed quite a bit! When I was first hired, one of my tasks was to manually plot weather information on a map of the Pacific that the marine forecaster could then hand-analyze. We used 8-track tapes to do NOAA Weather Radio, our animation was spinning a wheel, and so on. We weren't nearly as technologically advanced as we are now. Now, we are providing more decision support services and getting critical information to our partners. We have always done this, but the focus is growing and expanding. This is great! We are growing in the right direction and we continue to find new ways of providing information to our partners and customers. It keeps us relevant and helps us provide the best services possible.

**NWS:** What do you view as your greatest accomplishment?

**Bob:** Well, I hope that I've helped others to succeed and to move in their career. I've always strived to do that because when I look back on my own career, I can pick out exactly who it was who helped me move on to the next step. There was always at least one person that voluntarily took me under their wing or gave me good advice. I can always pin-point someone who went above and beyond for me, to help me move forward, and that has stuck with me. I hope that I have done the same for others.

**NWS:** That's all I have! Thank you for your time. **Bob:** Thank you.



Bob Diaz

# National Weather Service Boise Staff

## Meteorologist In Charge

Robert Diaz

## Science Operations Officer

Tim Barker

## Warning Coordination Meteorologist

Jay Breidenbach

## Service Hydrologist

Troy Lindquist

## Information Technology Officer

Jason Baker

## Electronic Systems Analyst

Travis Mayer

## Electronics Technicians

George Buckwold

Eric Johnson

## Observing Program Leader

David Decker

## Administrative Support

Kelly Jardine

## Senior Meteorologists

Les Colin

Dave Groenert

Valerie Mills

Stephen Parker

Bill Wojcik

## Meteorologists

Jeanne Allen

Korri Anderson

Elizabeth Padian

Josh Smith

Joel Tannenholz

## Fire Weather Meteorologists

Chuck Redman

Megan Thimmesch

## Hydrometeorological Technician

Wasyli Hewko

## Meteorologist Interns

Aviva Braun

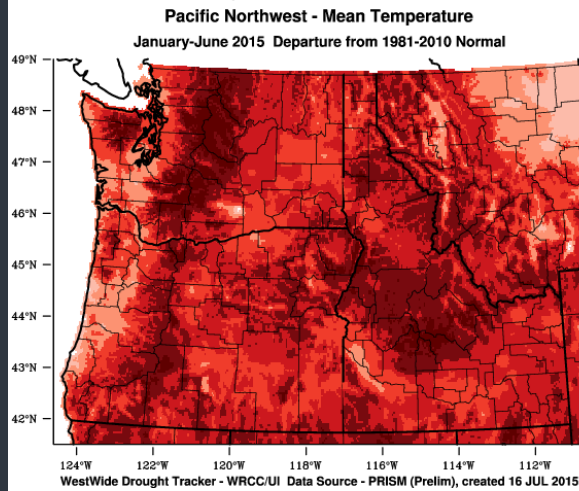
Jessica Caubre

# Review of the 2015 Fire Season

Chuck Redman

The 2015 fire season was a year with both significant temperature and precipitation anomalies across eastern Oregon and southwest Idaho. Average temperatures were well above normal, especially during the winter months. January through March anomalies of 4 to 8 degrees above normal were observed. This was largely due to a large, nearly stationary, upper ridge across

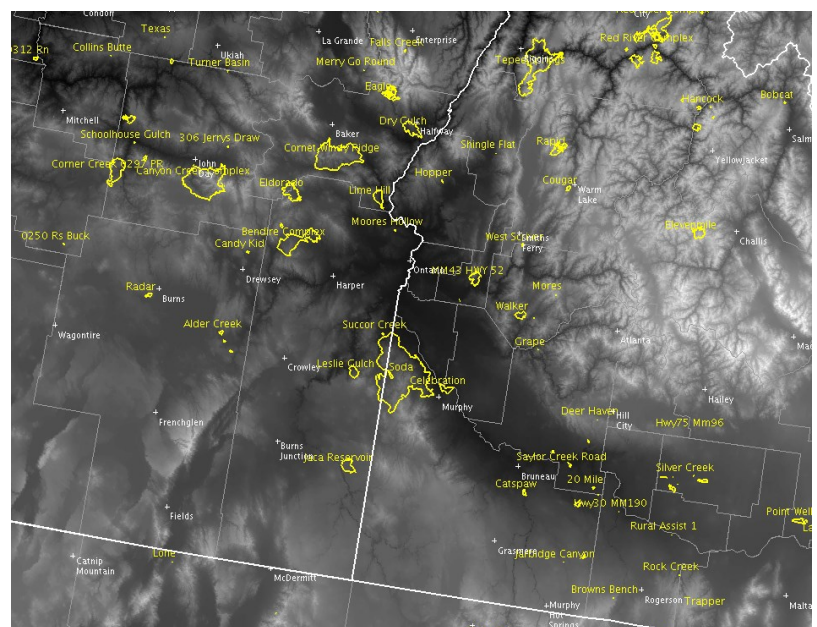
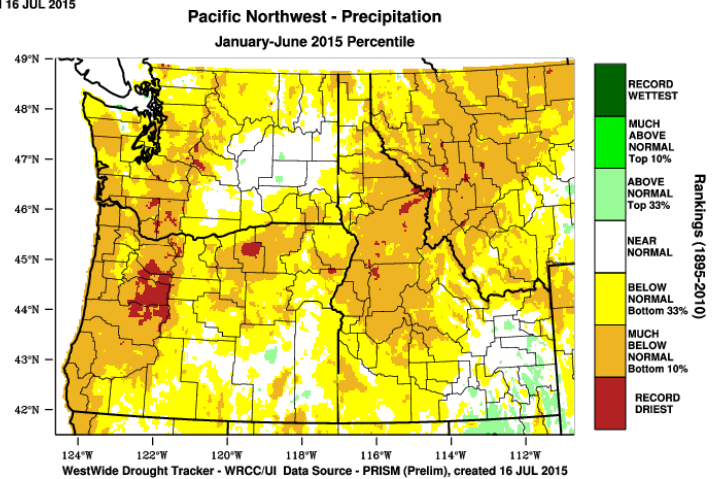
the western United States and above normal sea surface temperatures off the West Coast. This ridge acted as a double-edged sword by keeping the storm track north of the region. If a storm did move in, it moved over above normal water temperatures which helped to raise snow levels. Precipitation that would normally have fallen in the form of snow, fell as rain and ended up as reservoir storage. As a result, water storage increased by almost 200,000 acre-feet in the Boise River Reservoir system and 10,000 acre-feet in the Unity Reservoir during the month of February! So looking at the winter and early spring, precipitation amounts were near or slightly below normal and temperatures remained above normal. Later in the spring, this ridge allowed for an early snow-melt.



Many locations, mainly at lower elevations, lost their snow-pack up to six weeks early.

A key component to this fire season was that during the spring months of April through June, the flow into the Pacific Northwest was split, with part of the energy riding north into Canada and a portion dropping into southern Nevada. As a result, eastern Oregon and southwest Idaho reported below normal precipitation with continued above normal temperatures.

Agencies reported fire activity at 50-90 percent of average (over a 5 year average) across eastern Oregon and southwest Idaho by the end of the 2015 fire season. One might think that a poor winter snowpack would lead to above normal fire activity. There are several reasons why this may not have happened. It could have been that winter rains soaked the ground enough to prevent fire starts. Or it could have been the wet and above normal precipitation during the month of May. It could also have been that the abnormally cool and moist system which dropped out of the Gulf of Alaska in early September, moved through the region at the right time to boost fuel moistures (a measure of the amount of water in a fuel [vegetation] available to a fire). Whatever the reason for the low fire activity in our region, there were enough fires elsewhere to keep firefighters busy through the spring and summer.



2015 fire perimeters (yellow) across portions of Idaho and Oregon.



Want to help NOAA weather scientists with research?

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**FOLLOW US on Twitter @NWSBoise and LIKE US on Facebook!**



## WINTER is HERE!

*Friendly reminders on keeping you and your family safe*

### Keeping Pets Safe

- If possible, keep pets indoors.
- Routinely check outdoor water dishes to make sure they don't freeze.
- Keep food dishes well stocked; it takes lots of energy to stay warm.
- Keep antifreeze where pets cannot access it.
- Protect paws from salt and other anti-icing chemicals, or wipe paws with damp towel to remove these irritating compounds.

**Questions? Comments? Suggestions? Email:**

**boi.spotter@noaa.gov**

## CoCoRaHS Founder, Nolan Doesken visits Idaho

Valerie Mills

The 2015 Veteran's Day holiday brought a special visitor to the Boise National Weather Service (NWS) forecast office.

Nolan Doesken is the founder of the Community Collaborative Rain, Hail & Snow (CoCoRaHS) Network, (<http://www.cocorahs.org/>) and the Colorado State Climatologist. CoCoRaHS is now the largest provider of daily precipitation observations in the United States. Nolan was in Idaho to attend an agricultural conference in Parma, visit the Boise NWS forecast office, meet several staff members, enjoy dinner with a few observers, and attend a water resources meeting in Boise.

The southwest Idaho and southeast Oregon CoCoRaHS local coordinator, Valerie Mills, was thrilled to have finally met Nolan after many years of working with him on this very important work. She is excited to continue her work and grow the observing network across the region! We need more weather observers interested in taking daily measurements of precipitation or snowfall.

If you would like to participate in CoCoRaHS, please contact Valerie Mills at: [valerie.mills@noaa.gov](mailto:valerie.mills@noaa.gov) or visit <http://www.cocorahs.org/>

Nolan Doesken (in the blazer), examines, then launches the 5:00 pm radiosonde weather instrument on November 11, 2015, with the help of Observing Program Leader, David Decker (bottom, holding the balloon). The yellow arrow points to the radiosonde as it begins its flight into the atmosphere. Radiosondes reach about 110,000 feet above ground on average!



### Safe Winter Driving

National Weather Service Boise

- **Winterize your Car**
  - ✓ Check tire **pressure, tread and traction**
  - ✓ Check car **battery**
- **DO NOT use Cruise Control**
- Keep gas tank **at least half full**
- **Allow extra time** to reach destination
- **Slow down**
- Let someone **know your timetable and route**

**ICE & SNOW TAKE IT SLOW**

Always check the latest weather forecast [weather.gov](http://weather.gov)

### Have an Emergency Car Kit

- Food and Water
- Shovel
- Ice & Snow Brush or Scraper
- Flashlight
- Waterproof Matches, Candles
- Gloves
- First Aid Kit
- Jumper Cables
- Warning Flares
- Blanket, Extra Clothing (Warm)

## WATCH/WARNING/ADVISORY What is the Difference?

**WATCH** – Conditions are **favorable for a severe weather event** in the near future. **Be Prepared!**

**WARNING** – Weather is occurring or imminent and **is threatening life or property**. **Take Action!**

**ADVISORY** – Weather that will cause a **significant inconvenience**, and if caution is not taken, may be threatening to life or property. **Be Aware!**