



VOLUME
VIII
ISSUE 2, SUMMER 2015

Sage Winds

NATIONAL WEATHER SERVICE BOISE

AUTUMN Spotter Checklist

When should you call us?

SNOWFALL: 1" or greater, or causing road closures.

HAIL: Pea size or larger.

REDUCED VISIBILITY: from fog, blowing dust, rain.

WIND: 40 mph+ or damage.

HEAVY RAIN: 1/2" or greater.

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

@NWSBoise

facebook.com/NWSBoise

boise.weather@noaa.gov

Trivia:

When was the last strong El Niño Winter?

Season in Review

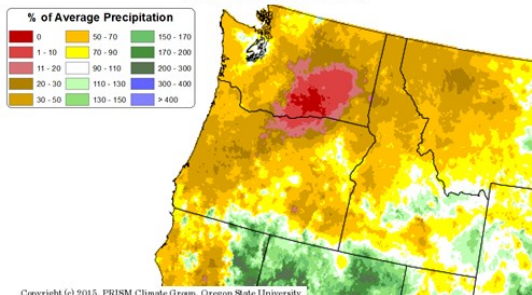
Joel Tannenholz

Summer 2015 started early, and it was much warmer and generally drier than normal. Only parts of the central mountains in Idaho, and Baker County and areas near the Nevada border in Oregon, had above normal precipitation.

With temperatures averaging 4 to 8 degrees above normal and very little precipitation, June resembled a typical July. In fact it was the warmest June on record at the Boise Air Terminal.

Rainfall was less than 25 percent of normal across wide expanses of southeast Oregon and southwest Idaho. During the first week of June, two Pacific weather systems brought meager amounts of rain. It was the only measurable precipitation for the entire month at many locations. For the rest of the month dry westerly flow dominated.

Total Precipitation Anomaly: June 2015 - August 2015
Period ending 7 AM EST 31 Aug 2015
Base period: 1981-2010
(Map created 15 Sep 2015)



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Then during the last week of June a very warm high pressure ridge blossomed over the Great Basin and expanded north over southeast Oregon and southwest Idaho. Temperatures rose into the triple digits at many lower elevation locations.

At Boise, the high of 110°F on June 28th, was the hottest temperature of the summer. On average, temperatures this hot occur once every 10 years.

Monsoon moisture circulating within the ridge fueled daily afternoon and evening showers and thunderstorms over the mountains. But these storms brought little more than gusty outflow winds to the valleys.

Like June, July was a month of unusual weather patterns, although for most of our region temperatures averaged close to normal.

July and August are normally the driest months of the year. But this year July precipitation was two to three times normal across roughly half the area. Very few locations reported below normal rainfall.

By July 5, a low pressure system which had been stalled off the California coast, began to move inland, reaching our area on July 8. Saturated with very moist subtropical air originating off the northwest coast of Mexico, it brought the first significant rain in a month, amounting to most of July's precipitation.

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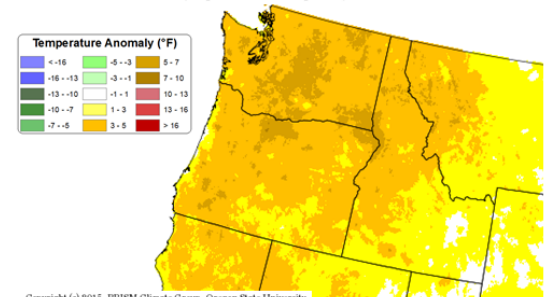
For most of the last half of July, airflow around a high pressure ridge centered between Alaska and Hawaii maintained a drier pattern, hindering the northward drift of monsoon moisture into our area.

Like June, August was warmer than normal. At Boise August was actually warmer than July, which is unusual but not rare. On average August is the warmer month in one out of four years. August started out very hot, with a high pressure ridge covering most of the western and southern states south of the Canadian border. On the first two days of the month temperatures soared into the triple digits at many valley locations for the first time since July 4th.

A few days of cooler weather followed as low pressure systems from the Gulf of Alaska attempted to dislodge the ridge. By the 11th, the ridge regained control, returning high temperatures to the triple digits in the lower valleys.

The ridge survived through the 14th. But by the 15th it had retreated to our south and east, allowing northwest flow to bring a temporary respite from above-normal temperatures. By the 23rd, the ridge had returned for a week-long encore of hot weather. But this time the heat was less intense than earlier in the month. On the 30th, a trough which had stalled offshore swung inland, bringing measurable rain to northern Idaho and northeast Oregon, but leaving our area dry and ending the month with slightly below normal temperatures.

Daily Mean Temperature Anomaly: June 2015 - August 2015
Period ending 7 AM EST 31 Aug 2015
Base period: 1981-2010
(Map created 16 Sep 2015)



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Meet & Greet

Aviva Braun

We at the National Weather Service in Boise, Idaho, strive to keep the citizens of Southwest Idaho and Southeast Oregon safe at all times. One of the ways we achieve this goal is by working closely with the Emergency Managers in each county we serve. In this edition of Sage Winds, we spoke to Crash Marusich, the Emergency Planner for Ada County.

NWS: Tell me about yourself and how you moved into the emergency management sector.

Crash: I'm from Arizona originally, where I was a Desert Guide for many years, and then became a Park Ranger. I really loved both of these jobs, but my family and I really wanted to move to the Boise area. I had a background in public speaking and community outreach, so the Emergency Management Department offered me this job 8 years ago and I took it! I didn't know too much about the job when I first started, but I've loved every minute of it. It's been a great crossover. I'm really glad I started out in community outreach – having to learn about emergency management and how to translate the information into layman's terms. That has been very helpful.

I am now moving into more of a planning role at my office. I'll be working with the responders more, which I'm very excited about. It's an interesting new perspective. I'm moving from how do I get John Q. Public prepared properly for disaster, to how do all of these agencies work together to protect 400,000 people. This new shift has been exciting and I'm enjoying it. Actually, I received big news this week! I'm now a certified emergency manager with the International Association of Emergency Managers.

NWS: Hurrah! That's great news! Congratulations.

Crash: Thanks. There are about 2,600 of us certified internationally. So, now I've gone from a certified Parks and Recreation professional to a certified Emergency Manager. My background has really helped me picture what is going on outside of the urban environment. It's a good place to come from; I have a good understanding of where I want to go, especially in mitigation – how can we reduce the effects of these hazards, how can we build smarter homes, are there places we shouldn't build, etc.

NWS: Would you describe the nature of your work for us?

Crash: I do mitigation and response planning for the county. We are also currently reviewing our standard operating procedures and emergency operations plans for the county. We want to make sure that our staff is capable of doing their job in any given emergency. We are also working on a wildfire mapping project. We're going to get a LIDAR (Light Detection and Ranging) into the foothills and we're going to do some multispectral photography over the entire county. The goal is to clearly define the entire wildland-urban interface. This mapping will hopefully include a number of factors that will assist with both response and mitigation planning.

NWS: What has been the highest impact weather event for Ada County this season?

Crash: That would have to be when that wet thunderstorm hit on July 8th, where the North End and the Bench experienced areas of flooding. We just got a report from the Ada County Highway District detailing all of the calls they received and the responses they took. The storm drains were overwhelmed by the sudden volume, became clogged, and ended up flooding a lot of places where it normally wouldn't have otherwise.

NWS: What year was it that the big wind event took place at the Ada County Fair?

Crash: August 2010. There was a microburst at the Fair; there quite a few minor injuries sustained due to the winds. A lot of the tents got whipped up and blown away. It was totally unexpected.

NWS: So, how did your office respond in these events?

Crash: We are a coordination and support agency. We try to get the community ready before the disaster so that we sustain as little damage as possible. We coordinate with agencies responding to an event, and after all of that, we plan for the "new normal." We work in the background, always learning from each event so that we can respond more effectively next time.

NWS: So, when do you use the Emergency Operations Center?

Crash: During a major event we would have it up and running. We will open it as an exercise during the Western Idaho Fair this year. We also had it open for the Special Olympics that were held here in 2009. The National Weather Service was there giving daily morning briefings!

NWS: How does your office get in touch with the public other than through the media?

Crash: For now we have something called "ISAWS" (Idaho State Warning System) that the public needs to sign up for. Communication has been really hard ever since we started moving away from landline phones! There's nothing linking cellphone numbers to an address, so if we wanted to evacuate a certain area, we would be hard pressed to do so solely using the phone as the main line of communication. We're currently in the process of moving our County Mass Notification System to a program called "Code Red." We just hired a new employee whose job will include working on getting our social media outlet established. Now, I do encourage everyone to own a NOAA Weather Alert Radio – that'll alert you to that 3 AM warning that you probably wouldn't see or heard anywhere otherwise. It includes all threats and all hazards. It's a great resource.

NWS: Does the Spotter Network have an impact on the work your office does?

Crash: Yes. A lot of the damage reports that we get are from them through your office; it's important to track what goes on and why. It helps immensely that you have this network set up and that we have such a great relationship with your office. The open communication that we can call on when needed is fabulous!

NWS: I know that we do a lot of collaborative work, such as our joint river mapping work, which is featured on our website.

Crash: Yes, that is a great example. Because of our work together, one can plot possible minor, moderate, or major flooding events on an Ada County map and see where the river would go. It's a great resource for everyone.

NWS: Well Crash, that is all I have for you! Thank you for your time!

Crash: Thank you for having me.



Crash Marusich (right), the Ada County Emergency Planner, with Jay Briedenbach (left), the NWS Boise Warning Coordination Meteorologist.

2015 Heavy Rain Events in the Boise Forecast Area

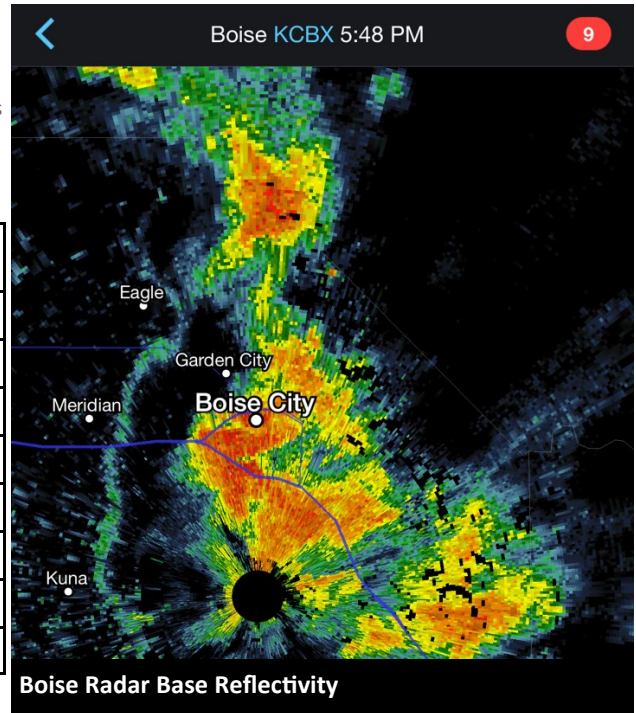
Aviva Braun, Elizabeth Padian and Korri Anderson

On July 8th, 2015 we had a "classic" heavy rain event in Boise. We had three incredible reports from that day: 0.52 inches of rain in seven minutes, 1.28 inches of total rain at the Boise ASOS (Automated Surface Observing System), and 0.64 inches of rain in nine minutes at the McCall Airport! Many reports came in describing local street flooding and general visibility issues. We even had some home and business flood damage reports.

There were many atmospheric factors that culminated in slow moving, wet storms which produced isolated heavy rain. Some of these factors include a generally unstable environment, a high atmospheric moisture content, and a stationary front that set up over Southwest Idaho in the early afternoon.

An outflow boundary coming out of the northeast served as the forcing mechanism for thunderstorm development, allowing for several systems to develop in its wake across the region. In terms of what we saw in Boise, pre-thunderstorm northwesterly flow in the Treasure Valley combined with this outflow boundary, causing vertical lift and thunderstorm development as the two systems collided. As the outflow boundary pushed east, thunderstorms developed along the front of the boundary, leaving the newly developed storm systems behind - moving at a slow 11 mph pace.

Elapsed Time	Actual Time	Accumulated Rain Amounts
	5:39 pm	T
3	5:42 pm	0.05 in
10	5:49 pm	0.57 in
14	5:53 pm	0.71 in
18	5:57 pm	0.79 in
25	6:04 pm	0.94 in
40	6:19 pm	1.09 in
1:14	6:53 pm	1.25 in



Amazing Rain Rates
0.52" fell in 7 minutes from 5:42-5:49pm at Boise Airport.
0.64" fell in 9 minutes at from 2:55-3:04pm at McCall Airport.



Street Flooding in Downtown Boise
 Photo: Elizabeth Padian

On July 11th, 2015 the same system produced heavy rain amounts in Baker County, Oregon. The Baker City Airport received 2.03 inches in under 5 hours, making it the second wettest day in local recorded history. Flash flooding occurred, damaging culverts, fields, fences, and roads across the county.

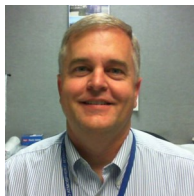


Flash Flooding Damage in Baker County
 Photo: Wendee Morrissey / The Baker County Press

Now fully staffed at National Weather Service Boise!



Robert Diaz—Meteorologist in Charge: Bob grew up in Northern Idaho and attended Boise State University where he completed his BS in Math. He then attended the University of Wisconsin for Meteorology and was hired some 30 years ago by the National Weather Service, where he began his career in Redwood City, California. He has been in ten different positions within the NWS. He is a huge Boise State Football fan and loves to golf and travel.



Tim Barker—Science and Operations Officer: Tim is originally from Phoenix, Arizona. He came here via Salt Lake City, Utah and Missoula, Montana. In his spare time he likes to hike, geocache, and do landscaping.



Troy Lindquist—Senior Service Hydrologist: Troy is originally from Nebraska and attended the University of Nebraska in Lincoln to study meteorology. He has worked at NWS offices in California, Colorado, Kentucky, Maryland, Indiana and Idaho. Outside of work, he enjoys spending time with his family, a variety of recreational sports, gardening and other projects around the home.



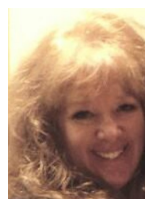
Jason Baker—Information Technology Officer: Jason grew up in Las Vegas, NV. He has been the NWS Information Technology Officer in Boise for almost 15 years. In his free time he likes camping, ATVing and fishing with his wife.



Jay Briedenbach—Warning Coordination Meteorologist: Jay is originally from Florida and attended Florida State University for his BS and MS degrees in Meteorology. For fun, he enjoys hiking in the summer and skiing in the winter. He loves living in Idaho!



Travis Mayer— Electronic Systems Analyst: Travis has enjoyed working on computers and electronics since he was in the Marine Corps. He is always amazed at how electronics are integrating with each other. There are many different types of electronics that keep our weather office running so each day is an adventure for the electronics shop. He has lived in Boise almost his entire life. He enjoys camping, fishing and ATVing with his family. Featherhille and Island Park are his two favorite recreation destinations but he continues to explore new areas of the state. Travis just went over the 10 year mark of federal service, with six of those years working for the Boise weather office.



Kelly Jardine—Administrative Support: Kelly has lived in Idaho since her senior year of high school and has enjoyed life in Idaho with her kids, family and friends! NWS is the fourth federal agency she has worked for during her career, having also worked for the VA, BLM and the Forest Service. In her free time, she likes to ski, hike, garden and travel.

Senior Meteorologists



Les Colin: Les was born in New York City and arrived at Boise via New Jersey, Minnesota, and California. He has a BA in Math from the University of Minnesota and an MS in Meteorology from San Jose State University. His hobbies include blitz chess, travel, and hitting baseballs.



Valerie Mills: Valerie is "from all over" having grown up in an Air Force family. She holds a Master's Degree in Meteorology from the University of Maryland, College Park. For summer 2015 fun she took a locomotive driving lesson and swam the McCall Parks & Recreation one mile open water swim.



Dave Groenert: David is a Navy child, so he has moved around quite a bit, but eventually settled in the Washington DC area. He has been a forecaster at NWS Boise for 12 years. In his free time he enjoys getting outdoors.



Stephen Parker: Stephen is originally from a small town in Virginia, and came here by way of Oklahoma, Texas, Nebraska, and Tennessee. He enjoys spending time with family and friends, learning how to increase the amount of love and peace in his life, staying healthy, and following the SF Giants and 49ers, the Virginia Tech Hokies, and of course, the BSU Broncos!



Bill Wojcik: Bill was born and raised in Buffalo, NY – renowned for prolific lake-effect snow storms. His passion for meteorology was developed at a young age due in part to the wild snow storms. He studied meteorology at Oswego State University and SDSM&T. His career with the NWS began in Phoenix, followed by Pocatello and Boise. He enjoys the outdoors and spending time with his family.

Meteorologists



Jeanne Allen: Jeanne earned her Meteorology degree at SUNY Oswego, NY. Her first weather job was a summer job while still attending college and worked on the Fire Weather Program at the Fairbanks, AK NWS office. After college Jeanne spent a few years as a civilian weather observer for the Air Force in Niagara Falls, NY. Jeanne then joined the National Weather Service and spent a year in Glasgow, MT before being transferred to Boise,

ID. Jeanne has been at the Boise National Weather Service office for almost 25 years. In her spare time Jeanne likes to go hiking and doing photography, but really enjoys spending time with her dogs and doing dog agility.



Korri Anderson: Korri was born in Seattle and raised in eastern Washington. He became fascinated in meteorology at a young age while experiencing the erratic weather of the Palouse, and watching his mother take weather observations for Horizon Air. Korri completed his meteorology degree at MSU of Denver and his MS Civil Engineering at Boise State. He has worked at the Anchorage, Alaska and Boise NWS forecast offices as a student. He enjoys photography, skiing, hiking, traveling, cooking and staying active.

OVER...

Meteorologists



Elizabeth Padian: Elizabeth has been with the NWS for 4.5 years. She grew up in Phoenix and has worked at the Phoenix and Pocatello NWS offices. Her and her husband arrived in Boise for her promotion to forecaster in October of 2014. In her spare time she fosters animals and enjoys the art and culture of Boise.



Josh Smith: Josh is from Vermont and received his degrees in Meteorology and Computer Science from Lyndon State College. He has worked in the Burlington, Vermont and Grand Forks, North Dakota NWS offices before moving to the Boise office as a forecaster in 2005. He enjoys getting outside.



Joel Tannenholz: Joel is originally from Battle Creek, Michigan, where he developed an interest in weather at an early age. He and his family have lived in Boise since 1983. He is a University of Utah graduate in Meteorology. His many interests include hiking, Celtic music, and art, mainly watercolor painting.

Fire Weather Meteorologists



Chuck Redman: Chuck was born and raised in Albuquerque, New Mexico. He earned his BS in Meteorology from San Jose State University in 1935. (And doesn't he look great for 102!?) Chuck's been the Fire Weather Program Lead here at Boise WFO since 2001. Chuck's hobbies include swinging golf clubs, mowing the lawn, and discussing the advantages and disadvantages of various protein bars.

(But in all seriousness, Chuck was busy forecasting on a wildfire near Omak, Washington and I took some liberties here. – Megan)

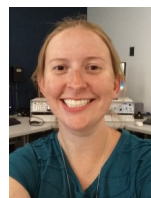


Megan Thimmesch: A born and raised Minnesotan, Megan prides herself on her cold-weather resilience and pronunciation of the word 'about'. Her love of weather was spurred early on when she discovered the power of the winter storm, i.e. snow days! Megan attended the aptly named St. Cloud State University in St. Cloud, Minnesota; earning her BS in Meteorology in 2004. Her career path with the National Weather Service has included a summer internship in Juneau, Alaska and three different forecasting positions at NWS Boise. Fire weather is now her primary focus.

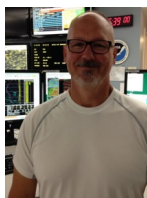
Entry-Level Meteorologists



Aviva Braun: Aviva is originally from Maryland. After earning a BS in Earth Systems from UMA, Amherst, and her MS in Meteorology from Penn State U., she served in Senegal as a Peace Corps agriculture volunteer. She has now returned to her love for meteorology, and is having a blast living in Boise! In her spare time, she loves hiking, backpacking, camping, whitewater rafting, and general outdoor adventuring!



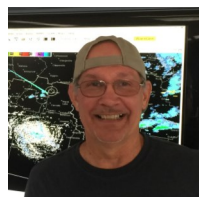
Jessica Caubre: Jessica grew up in Belfair, Washington. She joined the Air Force as a Weather Technician after high school and always dreamed of getting out and working with the NWS. After the Air Force, she attended the University of Washington where she received a BS in Atmospheric Science while working at KOMO News 4 with Steve Poole, before being hired on in lovely Boise, ID.



David Decker—Observing Program Leader: Dave is originally from Terre Haute, Indiana, and has lived in various places across the country and world, while in the U.S. Air Force. He has over 25 years of experience as a weather forecaster and program manager. In his spare time he enjoys golf and tennis.



George Buckwold—Electronic Technician: George grew up in Southern California before he joined the U. S. Air Force. George served all across the country and in Vietnam as a radar technician. After retiring from the Air Force, George moved to Boise where he has been maintaining our electronic systems since 1995. George is an avid archery hunter.



Wasyl Hewko—Hydrometeorological Technician: Wasyl hales from western Pennsylvania, from a humble upbringing in one of America's well known steel towns. He attended Penn State University for three years, joined the military, where he acquired 27 years of weather experience, after which he received a BS degree in IT from Capella University in 2007. He signed on with the NWS in 2009, starting with an interesting tour on Saint Paul Island, Alaska. Wasyl's hobbies include sports and fitness training of all types, playing the guitar, and periodically studying math and statistics.

Eric Johnson—Electronic Technician: Eric's career in electronics started in 1990 in the U. S. Air Force as an Avionics Technician on C-130E aircraft. After his enlistment, he attended Boise State University while also enlisting into the Idaho Air National Guard as an avionics technician. Eric graduated from BSU with an AS in Electronics Technology and a BS in Communication and Management. He holds a master certificate in spark adaptive theory for spark plug gap maintenance. He has worked at the National Interagency Fire Center for 13 years; 10 years for the BLM working in Remote Weather in wildland fire and the remaining three for the NWS. He is still in the Air National Guard and is a maintenance officer for the 124FW's A-10C maintenance group. In his spare time, he likes to camp and ATV in the mountains; he really likes the outdoors! He enjoys the customer service part of the NWS, and looks forward to implementing new technology to help in the protection of life and property.



Want to help NOAA weather scientists with research?

If you own a smartphone or tablet download the free **mPING** app in the App Store or Google Play.

Trivia Answer: 1997-1998. Boise received 6.2" of snow, and 4.77in of precipitation from December 1997 through February 1998.

CoCoRAHS observers needed!

Calling all weather enthusiasts in southeastern Oregon and southern Idaho! We need more weather observers interested in taking daily measurements of precipitation or snowfall.

If you would like to participate in CoCoRAHS, please contact us at: boise.weather@noaa.gov or visit <http://www.cocorahs.org/>

It's hard to believe, but it's time to brush off the snow board and snow stick. Snow measurement time is right around the corner!

BE PREPARED! Fall Safety Tips

Make sure you and your family are prepared for an emergency, whether it be flash flooding, wildfires, floods, winds, winter storms or power outages. Here is a simple list of what you can do to prepare for an emergency:

- Prepare a **Disaster Supply Kit** with a week's worth of food and water.
- Create a **Family Emergency Plan**, so you know how to communicate to others.
- Obtain a **NOAA Weather Radio**.
- Check **weather.gov** every morning before you leave home to make sure you are prepared for what the weather might bring.
- Inspire others to **take action** by showing your friends and family how you are prepared. You can tell them over the phone or in person, or tweet, or post about it.

**Questions? Comments?
Suggestions?**

Email:

boi.spotter@noaa.gov

2015-2016 El Niño Outlook

Stephen Parker

By now, most folks have heard that El Niño conditions are present in the equatorial eastern Pacific Ocean. This means there is warmer-than-normal sea surface temperatures (SST) along and near the equator from roughly 180° W longitude all the way eastward to the coast of South America. Officially, the departure from normal (anomaly) needs to be at least 0.5 °C to be considered El Niño conditions. The latest weekly average temperature departure from normal in the most critical region of the Pacific (the so-called 3.4 region), is 2.1 °C, well above the 0.5° threshold. The figure below shows the anomalies in SST for the week centered on Sep 2, 2015. This has the potential to become a strong El Niño event.

Many models are run by the Climate Prediction Center, part of NOAA, to try to predict how strong and how long this El Niño will be. Results indicate a greater than 90% chance that El Niño conditions will last into the Winter of 2015-16, and an 85% chance they will last into the early Spring of 2016. In addition, multi-model averages indicate that the departure from normal in the critical Niño 3.4 region will be above +1.5°C (making this a "strong" El Niño) during late 2015 and into early 2016.

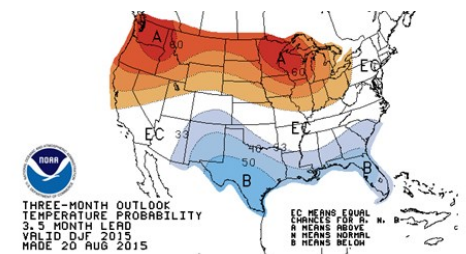
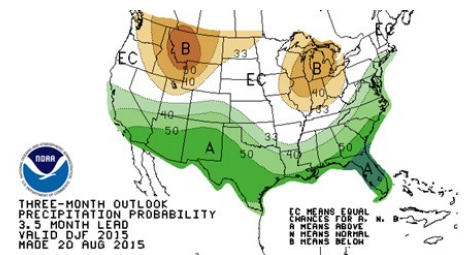
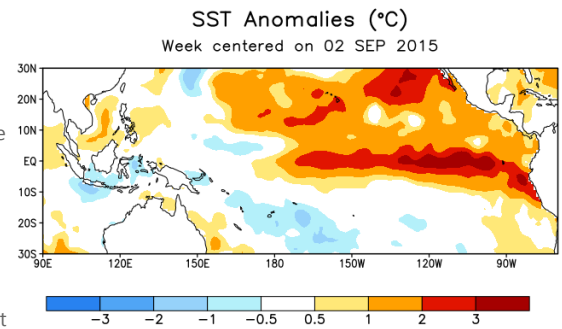
Historically, conditions here in southeast Oregon and southwest Idaho during an El Niño are slightly drier and warmer than normal. This winter's official outlook from the Climate Prediction Center is consistent with history, and calls for better chances of above-normal temperatures and below-normal precipitation (see figures to right).

However, it is important to note that these are only averages, and sometimes we end up cooler and wetter during El Niño events. This potential variation from "normal" El Niño patterns is a very important consideration. There are many factors that determine the overall weather pattern, and El Niño is just one of them. For example, right now the SST readings in the northern Pacific, well off the coast of Oregon and Washington, are well-above-normal. This is not always the case with El Niño events, and could lead to significant changes in the average El Niño weather pattern. While the odds favor warmer and drier, this is far and away from a sure thing.

For more information, check out these sites:

<http://www.cpcpara.ncep.noaa.gov/>

<https://www.climate.gov/news-features/blogs/enso/one-forecaster%E2%80%99s-view-extreme-el-ni%C3%B1o-eastern-pacific>



National Weather Service StormReady Program

Bill Wojcik

The Boise Forecast Office has an excellent relationship with the emergency management community in our forecast area, which includes all of southeast Oregon and southwest Idaho. Weather plays an important role in planning and responding to a severe weather event as an Emergency Manager works with their respective communities. One of the programs established by the NWS in cooperation with local emergency managers is called StormReady. Maybe you have seen one of the road signs. It is one way our office has formalized a working relationship with some of our county Emergency Managers. Recently, Aviva Braun and I had the privilege to give a presentation about the StormReady program at a LEPC (Local Emergency Planning Committee) meeting in Ontario, Oregon. Malheur County has been part of the StormReady program for over a decade. There we talked at length to a group of around 15 representatives of the emergency management community for Malheur County about the program and its advantages. One of these advantages is preparedness, which incorporates weather presentations, tabletop exercises, and spotter training classes. Want to know more about the StormReady program? It's on the web at www.stormready.noaa.gov.

