VOLUME 4, ISSUE 1

FALL 2007-WINTER 2008

Sage Winds

Serving Southwest Idaho and Southeast Oregon Spotters and Cooperative Observers

"The National Weather Service (NWS) provides weather, hydrologic and climate forecasts and warnings for the United States, its territories, adjacent waters and ocean areas, for the protection of life and property and the enhancement of the national economy. NWS data and products form a national information database and infrastructure which can be used by other governmental agencies, the private sector, the public, and the global community."

INSIDE THIS ISSUE:

SKYWARN SPOTTER RECOGNITION DAY IS DECEMBER 1ST !!!

The National Weather Service in Boise, Idaho is looking for licensed Amateur Radio operators to join licensed meteorologists and man the radios during SkyWarn Recognition Day. We have radios that cover the entire radio wavelength spectrum from 70 cm to 80 meters. Talk-in will be on 147.3800MHz+ DCS 174. SkyWarn Recognition day runs from 5pm Friday December 1 through 5pm Saturday December 2. If you would like to be here the entire 24 hours, we would be glad to host you. But if your interest is only for an hour or two, please come.

SkyWarn Recognition Day was developed in 1999 by the National Weather Service and the American Radio Relay League. It celebrates the contributions that volunteer SkyWarn radio operators make to the National Weather Service. During the day SkyWarn operators are encouraged to contact other radio operators across the world and spread the word about how amateur radio can be used for the protection of life and property.

If you would like to volunteer, contact Paul Flatt or Dawn Fishler at (208) 334-9861 (paul.flatt@noaa.gov or dawn.fishler@noaa.gov). Come for the day, come for an hour. Get a personalized tour of the NWS Forecast office while you use our radios to contact other SkyWarn spotters from across the country. A contest could be set up, just for fun, to see how many contacts can be made.

More information on SkyWarn Recognition day can be found at http://www.crh.noaa.gov/hamradio/index.php

Those SkyWarn Spotters who are not radio operators are welcome to visit the Boise weather office for a personalized tour during an open house we will be having from 11 am to 3 pm on Saturday, December 2. Snacks will be provided.

SHARE YOUR SEVERE WEATHER STORY!

Have you experienced a severe weather event that impacted your life while living in Southeast Oregon or Southwest Idaho? Do you want to share you story with others? Then send us your story! It may be published in upcoming spotter newsletters.

We are looking for extreme severe weather stories, including wind storms, tornadoes, flooding (both flash floods and river floods), heavy snowfall, large hail, etc.

These are not your ordinary thunderstorms or snowstorms, but storms that are extremely rare and have a significant impact.

If you are interested in sharing please send either a letter or an email with your story to the contact information listed on the back of the newsletter. State whether or not you would like your name to be shared or remain anonymous.

Event details:

- **Saturday, December 1**
- **11am—3 pm**
- **National Weather Service, Boise**
  3833 S Development Ave.
  Bldg 3807
  Boise, ID 83705
- **Snacks will be provided**

(We are co-located with the National Interagency Fire Center, next to the Airport)

IMPROVEMENTS IN DOPPLER RADAR

BY STEPHEN PARKER, LEAD FORECASTER

Radar is a fantastic tool in the hands of a well-trained professional meteorologist. Your NWS meteorologists undergo approximately 150 hours of training initially, and then about 20 additional hours of training per year. This means we understand how the radar works – both the good and the not-so-good. Two recent changes in software helped the radar overcome some of the not-so-good situations.

Radar basically sends out an electronic pulse (burst of energy) in a certain direction and then listens for a while (the "listening time") before sending out another pulse. If the pulse hits something, part of it will bounce off and get returned to the radar. When this happens, we call it a "radar return". During the first "listening time", the first pulse has had time to go out a certain distance, hit something, and return, all before another pulse is sent. Let's call this distance the "first pulse distance". Now we send out a second pulse, and give it the same amount of time to go out and come back (the same "listening time", so the "first pulse distance" and the "second pulse distance" are the same). What if some of the *first* pulse's energy bounces off something very far away (after the first listening time is over) and comes back *after* we send the second pulse? This would result in returns coming back from the *second* pulse (from nearby objects) while we still have returns coming back from the *first* pulse (from far away objects). What would the radar think? How could it tell these returns apart? To make matters even worse, sometimes energy returning from the first pulse (from far away) arrives at the same time as energy returning from the second pulse (from nearby). Historically, the radar has not done as well as we would like in these situations. If it can't figure out what it is "seeing", then we don't get to see what is really happening, either.

The Weather Service Doppler Radar

Over the past two years, however, new software has allowed the radar to overcome most of these problems. The first improvement allows the radar to change the listening time between pulses. This means that the "first pulse distance" is now different from the "second pulse distance"! The radar uses a long listening time to tell where most of the returns are located, because the long listening time allows the pulse to go very far away and come back before the second pulse is sent. Then it uses a short listening time (even though a short listening time by itself isn't very useful) and gets a *different*

Doppler Weather Radar in Norman, OK with a rain shaft in the background.

presentation of the returns. The differences in returns are very valuable, and can be used to fix some of the problems that occur when returns from different pulses arrive together. But because we still don't know *exactly* which return is from which pulse, some bad data remain.

Thankfully, the second improvement takes care of this. Briefly, the new software can also vary what is known as the "phase" of each pulse. This is like giving each one an identification marker. As the radar receives returns, it determines which return came from which pulse by matching the phase of the return with the phase of the pulse. By using two different listening times *while* varying the phase of each pulse, the radar is able to make sense of virtually all the returns. And that helps us understand more of what is happening out where *you* are. If you have a desire to learn more about the radar, the following link is a good place to start: http://en.wikipedia.org/wiki/Weather_radar

MEASURING SNOWFALL

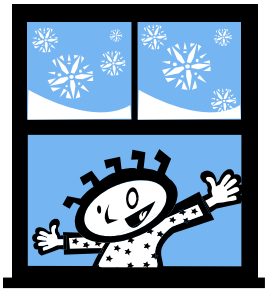
BY SIMONE LEWIS, METEOROLOGIST

Winter is fast approaching, and with it comes the onset of snow. This article will briefly discuss the proper snow measurement guidelines for National Weather Service Cooperative Observers. It is pertinent that these guidelines are followed closely, or inconsistencies in the data can result.

At the beginning of each snowfall season, remove the funnel and inner measuring tube on the standard 8-inch rain gauge. Ensure that the rain gauge is in good condition, and that no leaks are observed (if damage or leaks are present, contact the office). Place a snowboard in an open location, away from obstructions such as trees and buildings, and away from the north side of structures in the shadows. It is also a good idea to mark the snowboard with a flag or other device, so that it can easily be found.

There are three values that should be recorded when reporting solid precipitation: snowfall, snow depth, and water equivalent. Snowfall is the amount of snow that has fallen since the previous observation. Snow depth is the total depth of snow, sleet, or ice on the ground at the time of observation. Water equivalent is a measure of the amount of water in a sample of melted snow.

Snowfall measurements are to be taken once every 24 hours at observation time. Snowfall is a measurement of the greatest depth of new snow that has occurred since the last observation, and is measured in whole inches and tenths (4.1, for example). If snowfall melts either partially or completely, an estimate of the total depth of snowfall is recorded as the total snowfall for the 24 hour period (a remark should be made that snowfall melted during the observation period). Always clear the snowboard after the observation is taken.



Snow depth is recorded once every 24 hours at observation time and is rounded to the nearest whole inch. Snow depth measurements are taken from either a permanently mounted snow stake or from the average of several locations where the snow has been undisturbed (least affected by the wind or obstacles). If faced with a situation where part of the location is bare, and part is snow covered, take an average of the bare ground (0 inches) and the snow covered ground. If less than half of the location is covered by snow, snow depth is recorded as a trace (T), even if significant snow depth still exists in snow covered spots.

The water equivalent of snow is measured once a day at the regular observation time. This measurement is taken by melting the snow accumulated in the 8-inch can, pouring the liquid into the 2-inch tube, and measuring the amount. It can also be measured by first pouring warm water into the inner measuring tube of your standard rain gage, and using the NWS provided measuring stick, measure the amount of liquid to the nearest hundredth of an inch, and record. Empty this warm water into the 8-inch gage can to melt the snow. After the snow is melted, pour the liquid back into the inner measuring tube of the standard rain gage (use the funnel to ensure that no liquid is lost). Now, take a second measurement using the measuring stick, and record to the nearest hundredth of an inch. Subtract the first measurement from the second and record the value in the precipitation column on your form.

It is important to note that during high winds, less snowfall will collect in the gage than will land on the ground. When this happens, it may be necessary to take your measurements from snow on the ground, and not in the gage. Empty the snow inside the 8 inch cylinder, and cut a “biscuit” with the can where the snow on the ground is near average depth. Gather this snow in the can, and repeat the above procedures for measuring the water equivalent.

As always, you are encouraged to call in significant snowfall reports to the National Weather Service Office in Boise, ID using the spotter hotline (1-800-882-1428). This number can also be used in case you have any questions or concerns with your snow observations. Happy Snow!!!

Source: Snow Measurement Guidelines for National Weather Service Cooperative Observers, May 1997.

THE SPECIAL OLYMPIC WORLD WINTER GAMES ARE COMING TO BOISE, ID IN 2009!!!

The Eighth Special Olympic World Winter Games (SOWWG) will be held in Boise, February 6-13, 2009. This is the first return of the games to the United States since 2001.

Approximately 3000 athletes from 85 countries will be coming to the Boise area during this week to compete in Alpine Skiing, Cross Country Skiing, Figure Skating, Floor Hockey, Snowboarding, Snowshoeing, and Speed Skating.

This is a great event to show local pride and support the hard work of these many talented athletes.

An event of this magnitude could not be put together without the dedication of thousands of volunteers. If you are interested in being part of this once-in-a-lifetime opportunity, volunteers are needed to help with communications during the games. Training will be provided by the Southwest Idaho ARES (Amateur Radio Emergency Services) Organization. If you are interested, please contact Brian Adams, brian.adams@2009worldgames.org or Chuck Robertson, chuck.robertson@2009worldgames.org

Special Olympics

http://www.2009WorldGames.org

http://www.idahoares.org

Volunteer Deadlines:

- 2009 Special Olympics World Winter Games – Sept. 15, 2008
- 2008 Special Olympics Invitational World Games – Nov. 15, 2007

"The mission of the Special Olympics is to provide year-round training and athletic competition in a variety of Olympic-type sports to children and adults with intellectual disabilities in order to develop physical fitness, demonstrate courage, experience joy and participate in a sharing of gifts, skills and friendship with their families, other Special Olympics athletes and the community."

WE'RE LOOKING FOR SPOTTERS!

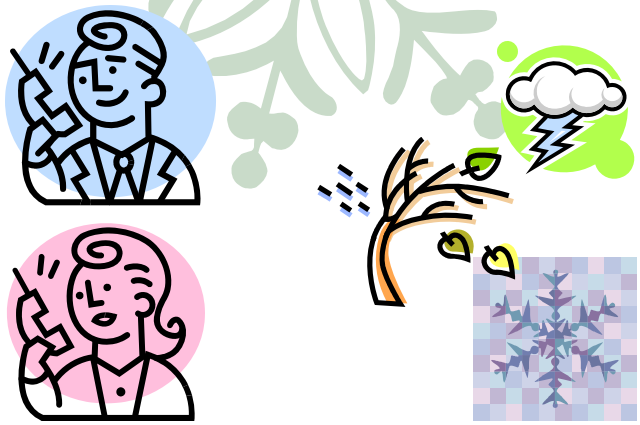
Tell you friends! While we always welcome spotters from anywhere, we are especially looking for spotters in:

Idaho:

Ada County: Southern half
Adams, Boise, Camas, Gooding, Jerome, Owyhee Counties: Anywhere
Elmore County: Outside of Mountain Home
Gem County: Outside of Emmett
Payette County: Outside of Fruitland, New Plymouth and Payette
Twin Falls County: West and SW of Kimberly, Cottonwood Creek, and Rock Creek Basin
Valley County: Rural areas (away from Hwy 55)
Washington County: Rural areas (away from Hwy 95)

Oregon:

Baker, Harney, and **Malheur Counties:** Anywhere



NEW THINGS COMING TO AMATEUR RADIO

BY STEPHEN PARKER, LEAD FORECASTER

Recently, a fantastic Amateur Radio Emergency Service (ARES) group formed in southwest Idaho (http://www.idahoares.org/). They have been instrumental in bringing the National Weather Service Office up to speed in Ham radio communications. The benefits of this upgrade should become apparent over the next several months. We are planning to have Skywarn Nets when bad weather approaches. This will take place on a devoted ARES repeater (147.3800MHz + DCS 174) that is open to the public for public safety use. This repeater covers much of our area of responsibility. It gets into Baker City to the northwest… to McCall to the north and well into the mountains to the northeast…to around Glenns Ferry or Bliss to the southeast…and to much of Malheur County to the southwest and west. In addition, this will give us another way to receive reports from the field. I know we have a number of Hams who are also trained spotters. We want to become more responsive to you and the unique ability you have to get information to us in times when all other communication avenues are down. We also want to be able to deliver information to the field via amateur radio when our other outlets are down. Finally, the wonderful folks at ARES have made the All Hazards Radio (formerly known as NOAA Weather Radio) available over the ARES repeater. Whenever we issue a watch or warning that triggers the tone alert, the repeater will be "captured" by our radio and it will broadcast the radio stream. This will give some of you away to hear the All Hazards Radio even if you have never been able to receive the broadcast before. It also means there is only one radio site you need to monitor for weather information. Finally, we encourage you to give us feedback on how we can best serve your amateur radio needs.

Thank You

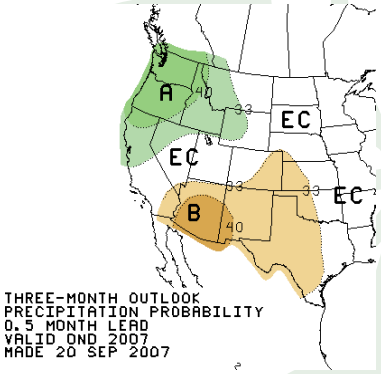
The NWS Boise Fire weather staff express their gratitude to the following spotters and observers during the intense fire season of 2007. These folks were evacuated from their homes and businesses because of wildfires. Thank you for your dedication and patience.

Warren
Deadwood
Wapiti Meadows
Yellowpine 7S/Johnson Creek
Jarbidge
Murphy Hot Springs

LA NIÑA ARRIVES

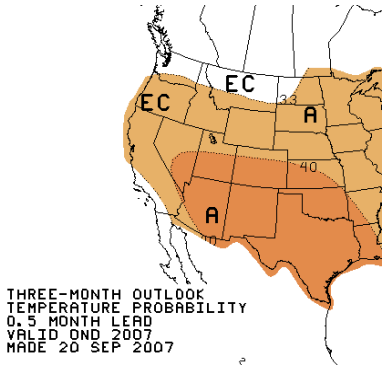
BY VALERIE MILLS, LEAD FORECASTER

LA NIÑA HAS RETURNED AND MAY STRENGTHEN THROUGH THE END OF NOVEMBER.



Diagrams left and right: EC = Equal Chances, A= Above Normal Chances, and B = Below Normal chances.

La Niña influenced weather patterns combined with long term temperature and precipitation trends give a tilt of the odds toward a milder and wetter winter across southwest Idaho and southeast Oregon.

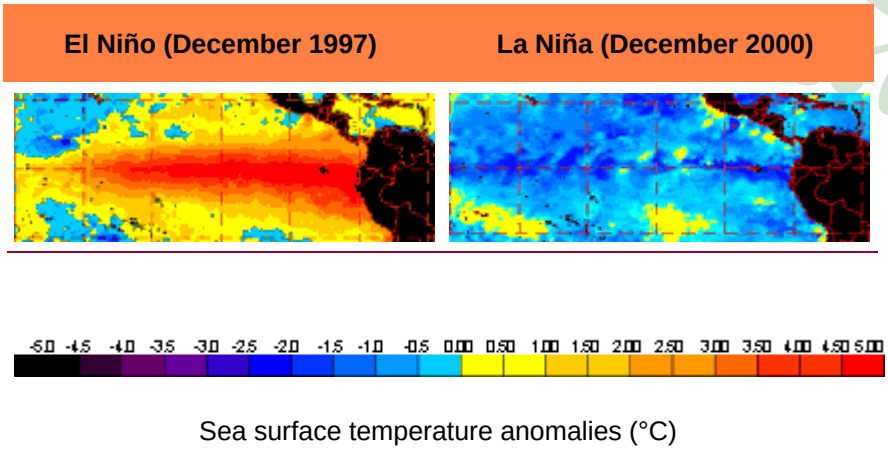


The Impacts of La Niña are not limited to winter weather across the Boise National Weather Service's area. Says Ray Fukanaga of the Northwest River Forecast Center, "Ensemble stream flow model predictions for southern Idaho rivers including the Snake, Boise, Payette, and Weiser show a good chance of returning to normal volumes in the 2008 water year." Adds Jay Breidenbach, Idaho's Senior Service Hydrologist, "This means that some improvement in the drought situation is possible over the next several months, but the area has a long way to go before precipitation and reservoir deficits can be erased."

La Niña refers to the periodic cooling of ocean surface temperatures in the central and east-central equatorial Pacific that occurs every 3-5 years or so.

El Niño and La Niña are naturally occurring phenomena that result from interactions between the ocean surface and the atmosphere over the tropical Pacific. Changes in the ocean surface temperature affect tropical rainfall patterns and the atmospheric winds over the Pacific Ocean, which in turn impact the ocean temperatures and currents. The El Niño and La Niña related patterns of tropical rainfall cause changes in the weather patterns around the globe.

"The El Niño and La Niña related patterns of tropical rainfall cause changes in the weather patterns around the globe."



Left: Examples of the sea surface temperature anomalies in the equatorial pacific in degrees Celsius during an extreme El Niño and an extreme La Niña.

WHAT PRODUCTS SHOULD I LOOK FOR TO ALERT ME TO UPCOMING WINTER WEATHER?

Outlook: Issued 2-4 days in advance of an upcoming system when it looks like conditions will be meeting warning or advisory criteria. Good chance that the event will occur, but lower forecaster confidence than in a watch or warning situation.

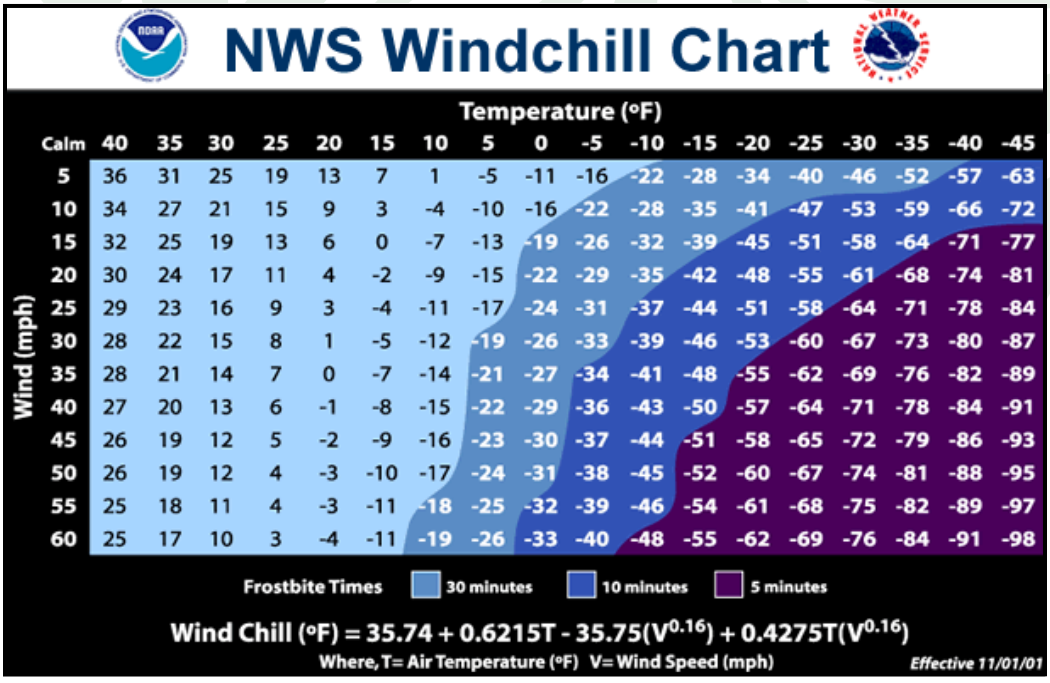
Watch: Issued when confidence is 50% or greater that an event will meet warning criteria. Generally there is a 12 to 48 hour lead time frame.

Warning: Issued when an event matching established criteria is occurring, imminent, or has a significant probability of occurrence within 36 hours.

Advisory: Issued for certain events that have a significant probability of occurrence in the first 36 hours. These events are not defined as life-threatening by themselves, but they could become life-threatening if caution is not exercised.

COMMON WINTER WARNINGS AND ADVISORIES

* **Winter Storm Warning:** Two or more winter events from a single storm including snow and blowing snow, or snow and sleet.
* **Heavy Snow Warning:** While this varies by location, generally four inches in 12 hours or six inches in 24 hours in the valleys, and 6 inches in 12 hours or ten inches in 24 hours in the mountains.
* **Blizzard Warning:** Sustained wind greater than or equal to 35 mph and visibility less than or equal to a quarter of a mile due to blowing and drifting snow lasting at least 3 hours.
* **Snow Advisory:** Also varies by location, but generally two inches in 12 hours or four inches in 24 hours in the valleys, and three inches in 12 hours or six inches in 24 hours in the mountains. Snow Advisories will not be issued for elevations above 6000 feet.
* **Blowing/Drifting Snow Advisory:** Intermittent visibility less than or equal to a quarter of a mile due to blowing/drifting snow.



The Windchill Temperature is how cold people and animals feel when outside. Windchill is based on the rate of heat loss from exposed skin caused by wind and cold. As the wind increases, it draws heat from the body, driving down skin temperature and eventually the internal body temperature. Therefore, the wind makes it FEEL much colder.

Serving Southwest Idaho and Southeast Oregon Spotters and Cooperative Observers

Working Together To Save Lives

National Weather Service-Boise
3833 S Development Ave
Bldg 3807
Boise, ID 83705

Phone: 208-334-9860
Fax: 208-334-1662
E-mail: Dawn.Fishler@noaa.gov

Always Report!

Every Report benefits the warning process that may save lives! Never assume that we already have the information you could provide.

WE'RE ON THE WEB!
WEATHER.GOV/BOISE

NOAA's All Hazards Radio

NOAA Weather Radio

Frequencies:

Boise: 162.550 MHz

McCall: 162.475 MHz

Payette: 162.400 MHz

Twin Falls: 162.40 MHz

SKYWARN

Skywarn Spotter Reporting Criteria:

Call us when your observe:

* *Tornado: All tornadoes*
* *Funnel Clouds: All funnel clouds, watch for rotation*
* *Hail: 1/2" in diameter and larger*
* *Near continuous Lightning*
* *Winds: All winds greater than 35 mph*
* *Heavy Rain: Falling at a rate of 1" per hour or greater (1/2" in 30 minutes), or more than 1" per day in the winter*
* *Freezing Rain: Any measurable freezing rain*
* *Heavy Snow: 1" per hour or greater, or storm total 4" or more, or snow causing road closures*
* *Flooding: Any water flowing where it doesn't normally or rivers flowing above their banks*
* *Low visibility: Visibility less than 1/4 mile for any reason*
* *Weather Related Damage, Death, or Injury: If weather causes damage, death or injury, please let us know*