National Weather Service, Boise ID

Sage Winds

Serving Southwest Idaho and Southeast Oregon Spotters and Cooperative Observers

Volume 3, Issue 1

Spring/Summer 2007

INSIDE THIS ISSUE:

NWS Boise Goes Live!

Can Strong tornadoes hit Idaho? What is the snowiest day in Idaho's history? How do tornadoes form? Have you ever had a weather question that you always wanted to ask a meteorologist? Do you have something you want our forecasters to discuss with you? Now is your chance. Just email us at: w-boi.webmaster@noaa.gov and we will answer you during a live NOAA All-Hazards Radio Broadcast. Joining our staff to broadcast on this night will be Scott Dorval from KIVI in Boise.

This live broadcast will be in conjunction with Severe Weather Awareness Week! Please join us on Tuesday, May 8th from 7-8 pm on the following frequencies:

Boise NWR	WXK-68	162.55 MHz
McCall NWR	WWF-58	162.475 MHz
Payette NWR	WXK-88	162.40 MHz
Twin Falls NWR	WXL-35	162.40 MHz
Burns Butte	KHB30	162.475 MHz

National Weather Service Cooperative Observer Program

By: Larry Holt, Cooperative Observer Program Manager and Observation Program Leader

Our Nation's cooperative weather observers come from all walks of life. They are local citizens located throughout the country, and the vast majority of these volunteers receive no monetary compensation for their efforts.

Volunteer weather reporters date back to 1776 in Virginia. By 1800, volunteers were located in five states. By 1890 the volunteer force stretched across most of the country. The COOP (cooperative observer) program was initially under the supervision of the Smithsonian Institution and in 1953 became part of what was then the United States Weather Bureau.

There are approximately 11,000 cooperative observers nationwide and several hundred in the state of Idaho. These dedicated volunteers record daily weather related information including temperature, precipitation, wind, snowfall, and other meteorological parameters. Climatological normals, means, and extremes for local areas are often computed directly from the long term information supplied by these observers.

Their data are used in a wide variety of ways. Applications include architecture, agriculture, commerce, engineering, aviation, industry, and litigation. They serve a vital role in the National Weather Service's mission of protecting life and property through watch and warning products.

Idaho has many long term participants in the COOP program. Several of the present observers have been doing the observations for more than 50 years. Several institutions involved in the program have been actively involved for nearly 100 years!

The National Weather Service COOP program and climatological service is one of the most extraordinary services ever developed anywhere, and probably nets the public more dollars expended than any other government service in the world.

If you or someone you know would be interested in becoming a cooperative observer please email Larry: Larry.Holt@noaa.gov or give us a call on the spotter line: 1-800-882-1428

NATIONAL WEATHER SERVICE MISSION:

"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."

Weather Safety

By: Simone Lewis, Meteorologist

As springtime approaches, it is important to take a moment to review some potentially life saving weather safety tips. Severe weather can strike at any time, and any place. Proper knowledge of what to do in an emergency is crucial in order to protect both life and property during a hazardous weather situation. Southwest Idaho and southeast Oregon are particularly vulnerable to many types of severe weather including severe thunderstorms, tornadoes, flooding, and dangerous heat.

It is important to understand the difference between a watch and a warning. A watch means that conditions are favorable for the development of a severe weather phenomenon, and that precautions should be taken to protect both life and property. A warning means that severe weather is occurring or imminent, and that action should be taken immediately to prevent personal injury.

Severe thunderstorms are one of the most common severe weather hazards, producing damaging winds, dangerous lightning, large hail, tornadoes, and flash flooding. A thunderstorm is considered severe when hail ¾" or more in diameter, and/or wind gusts of 58mph or more are present. When a severe thunderstorm threatens your area, seek shelter immediately in a building or hard-top vehicle. Wait at least 30 minutes after hearing the last clap of thunder to resume outdoor activities. Picnic shelters and trees are not good sources of shelter, due to their lack of protection from deadly lightning and high winds. Furthermore, it is a good idea to stay away from windows, avoid using the telephone, and avoid contact with objects that can conduct electricity such as pipes and fences.

Tornadoes, which spawn from severe thunderstorms, can occur with little or no warning, and sometimes occur in situations when there is no tornado watch in effect. Tornadoes on average kill approximately 70 people, and cause over 1500 injuries a year in the United States. A tornado can occur anywhere, and at anytime, including mountainous regions, over water, and in valleys. If caught in a tornado, the safest place to be is in the basement of a sturdy structure. If a basement is not available, seek shelter in an interior room such as a closet or bathroom. Cover your body with either a mattress, or lie underneath a sturdy table to protect yourself from debris, and do not waste time opening windows. If caught outside and no shelter is available, lie in a culvert or ditch, and avoid seeking shelter underneath highway overpasses.

Flooding is the number one killer associated with severe thunderstorms, killing approximately 140 people each year. If flooding is occurring in your area, immediately move to higher ground, and leave or avoid areas prone to flooding such as canyons. Never drive into water even if it appears to only be a few inches deep, as it is difficult to estimate both its depth, and the condition of the road underneath it. A water depth of only two feet can sweep a vehicle away, and as little as six inches of water can knock you off your feet. If you are caught in rising flood waters, abandon your vehicle immediately, and seek higher ground.

Extreme heat is a severe weather phenomenon that is given little attention, but can be extremely deadly. On average, 175 people die each year in the United States from extreme heat. The elderly, small children, people with weight or alcohol problems, and those with chronic medical conditions are extremely vulnerable to the effects of extreme heat. People suffering from the ill effects of the heat display symptoms such as extreme fatigue, vomiting, cramps, fainting, and extreme sweating. To avoid heat related illnesses, it is important to take frequent breaks when working outdoors, seek air conditioned places, drink plenty of non-alcoholic fluids, wear lightweight, light colored clothing, and avoid excessive exposure to the sun.

Finally, it is important to develop a disaster plan with your family in case of an emergency. Prepare a disaster kit including basic necessities such as preserved food, at least 3 days worth of water for each member of your family, prescription medicines, a weather radio, a flashlight with extra batteries, and extra clothing, and bandages. Also, be sure to periodically practice drills with your family to ensure each member is aware of proper safety procedures. Lastly, check emergency supplies at least once every 6 months to ensure your kit is ready for a sudden disaster.

For additional information, please visit: http://www.nws.noaa.gov/

News from your Boise NWS

This past January, six National Weather Service (NWS) employees took an amateur radio class voluntarily taught by one of our very own SkyWarn spotters. On February 6th, we all successfully passed our technician license test. This has brought the total number of Boise NWS amateur radio licensed employees to seven.

Although there is not usually long-lived severe weather within the Boise NWS warning area, we wanted to try to incorporate the services that amateur radio can provide into our warning operations. Many of our spotters lived in remote locations where power and phone lines may be knocked down during a severe storm, cutting off the communication to the area. Often times in this situation, HAM radio is the only means of communication available.

We do not have a dedicated frequency that we will listen on, but will continue to monitor local repeaters for reports during times of severe weather. We are in the process of expanding our amateur radio capabilities within the office and I will give updates in the next newsletter.

I have been asked on many occasions why there is not an extensive HAM network in place within the Boise office's area of responsibility and the answer is simply that we do not have enough severe weather to justify it. While we will not solicit HAM operators to come into the office during times of severe weather, if you are in the area and wish to set up a network from our office, you are welcome to. Please call ahead to get clearance.

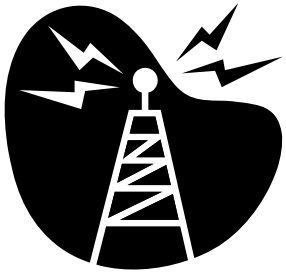
If you are an amateur radio operator and do not think that we have your call sign on file, then please feel free to email me with it. I am still trying to compile a list of HAMs who are interested in sharing information via radio and/or email. I will NOT share anyone's information without consent, but if you are interested in this option, please send an email to me and I will compile a list of those who want to share. In your email state if you only want your call sign or email address to be shared, or if both can be shared. Also, let me know if I can share your name, whether it is only first name or if it is first and last. Once I have a group established I will send out an email with the information that you want shared to all who responded. HAM operators can then share their weather reports with each other on their radios while the event is occurring.

Attention HAM radio operators!

Thank you for all the support the amateur radio community has offered to our office!

-Dawn Fishler

Dawn.Fishler@noaa.gov



Please Remember to Keep Your Contact Information up to Date!!!

If any of your contact information has changed please let us know either by email (Dawn.Fishler@noaa.gov) or call our spotter line 1-800-882-1428. Also, if you are receiving this newsletter in paper form, it means we do not have your email address. If you do have an email address and would like to receive correspondence that way (including full-color newsletters!) please send it to me. If you do not have one or wish to still receive a paper copy we will still send one to you.

The New Enhanced Fujita Scale

By: Josh Smith, Meteorologist

On February 1, 2007, the National Weather Service implemented the new Enhanced Fujita Scale (EF-Scale) to rate the intensity of tornadoes, replacing the Fujita Scale (F-Scale). The EF-Scale will continue to rate the intensity of tornadoes on a 0 to 5 scale, but with two significant improvements over the F-Scale. First, the wind speeds have been more accurately adjusted based on storm damage research and, second, 28 damage indicators such as homes, buildings, and trees will allow for more accurate tornado ratings.

The F-Scale, developed by Dr. Theodore Fujita in 1971 uses damage caused by a tornado and relates that damage to the fastest 1/4-mile wind at the height of a damaged structure. Though the F-Scale has been in use by the NWS for over 33 years, meteorologists and engineers alike have noted several limitations of the F-Scale. These include no account of construction quality and no definitive correlation between damage and wind speed thus leading to inconsistent tornado ratings.

Engineering studies have shown that winds speeds on the original F-Scale were too high. Based on these studies, the EF-Scale wind speeds have been adjusted to more accurately represent the associated damage (see table below).

The EF-Scale also incorporates more damage indicators and degrees of damage for better correlation between damage and wind speed. A set of 28 damage indicators like houses, types of buildings and trees were assigned wind speed estimates required to cause certain degrees of damage. Each damage indicator has up to 12 degrees of damage ranging from the beginning of visible damage to complete destruction of the damage indicator. Additional information on the EF-Scale including a list of damage indicators can be found at the Storm Predication Center's web site: http://www.spc.noaa.gov/efscale/

Original F Scale		Enhanced F Scale	
Rating	3 second gust (MPH)	Rating	3 second gust speed (MPH)
F0	45-78	EF0	65-85
F1	79-117	EF1	86-110
F2	118-161	EF2	111-135
F3	162-209	EF3	136-165
F4	210-261	EF4	166-200
F5	262-317	EF5	>200

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

National Severe Weather Workshop Notes

By Stephen Parker, Lead Forecaster

Each year, a National Severe Weather Workshop is held in Norman, Oklahoma. This year's was held from March 1st to the 3rd. The workshop is designed so that folks from the National Weather Service (NWS), the Emergency Manager (EM) and Spotter communities, and Broadcast Meteorologists can come together, share information, and discuss ways to better serve the public through enhanced communication. This year 420 people attended. They came from 36 different states and several foreign countries. The author attended as the Western Region Coordinator for the workshop.

It was a fast and interesting three days. Talks about severe weather ranged from tornadoes to fires to floods, and they were presented from perspectives ranging from NWS offices to TV stations to EM offices. It is always beneficial to "walk a mile in someone else's shoes" and learn what they go through during severe weather events. What follows is a short summary of some of the more interesting talks presented at the workshop.

Les Lemon (world-famous radar meteorologist) spoke on the threat to large venues from severe weather and other natural and manmade disasters. He stated that it is just a matter of time before a stadium, for example, holding on the order of 100,000 people, gets hit with some type of disaster. He encouraged all EMs to increase planning for this type of calamity.

Jim Purpura (Meteorologist in Charge at the San Diego NWS office) described state of the art ways for the deaf and hard of hearing to receive weather warnings. He and a researcher at the National Severe Storm Laboratory pioneered using new communications technologies to get visual alerts to this community.

Vern Preston (Warning Coordination Meteorologist at the Pocatello NWS office) talked about the importance of enlarging spotter networks, even in locations not "famous" for getting tornado outbreaks. He had established solid relationships with several governmental agencies in fairly unpopulated parts of the Snake River Plain. Subsequently, this area was hit by the largest tornado outbreak in the history of Idaho (Oct 4th, 2006). The work done before the event led to excellent spotter information, which in turn helped the office achieve large lead-times with their warnings.

Phased array radar (PAR) will not replace NEXRAD for about 10 more years, but early research has proven its value. Improvements include: gathers data 5 times faster than NEXRAD; ability to direct the radar to scan areas with storms while ignoring areas that are clear; better resolution; and fewer breakdowns (because there are virtually no moving parts). A significant factor in the delay of getting PAR into use has been cost. However, many of the parts for PAR have come down in price recently due to the demand for similar technology for wireless communications. It is likely that we will actually save money when we finally implement a nationwide network of multifunction (used for both aviation and meteorology) PARs (MPARs).

Kim Runk (Meteorologist in Charge at the Las Vegas NWS office) spoke on supercells that formed and split over the Mojave Desert. This shows, once again, that supercells can form over any type of terrain, in any part of the country. He used graphics (including excellent animations) that made supercell development understandable for all.

Todd Chambers (Forecaster at the NWS office in Missoula) spoke on what can happen to fires that are "hit" by thunderstorm gust fronts (rapid increases in wind speed and/or changes in wind direction produced by rain-cooled air rushing away from the thunderstorm). The amount of growth in the fire and the speed of its movement when impacted by gust fronts is incredible.

If you are interested in attending next year's workshop, March 6th through 8th, 2008, please contact Stephen Parker at the NWS office in Boise. It will be a great learning experience, and an awful lot of fun, too.

Storm-Based Warnings

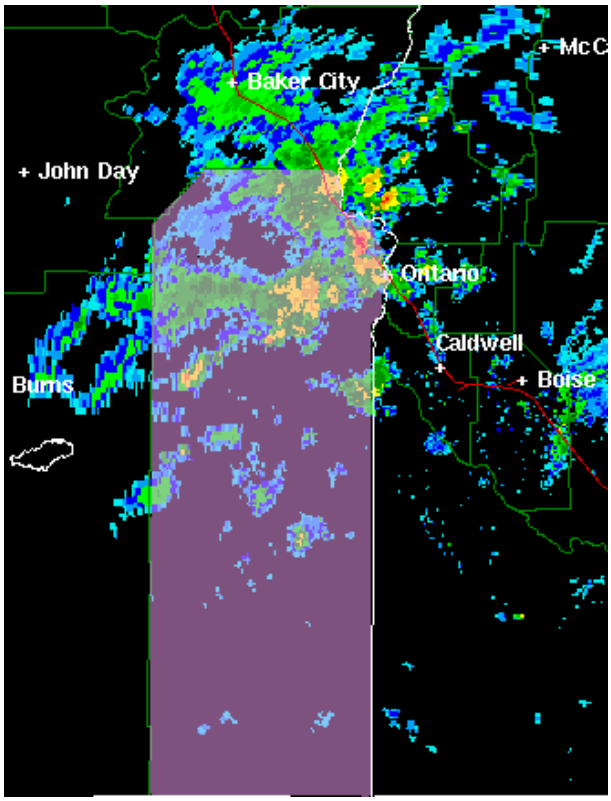
By: Paul Flatt, Warning Coordination Meteorologist

In October 2007, the National Weather Service will introduce Storm-Based Warnings for all Severe Thunderstorm, Flash Flood, and Tornado Warnings. Currently these warnings are county based. This change will more accurately show where the threat of severe weather is located, particularly in large counties which cover much of the western United States.

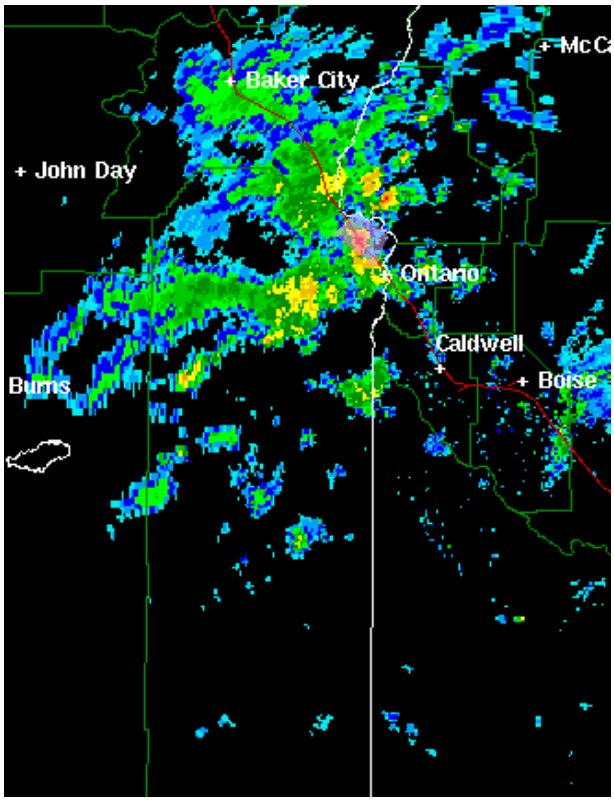
"Weather doesn't follow geopolitical boundaries," said retired Air Force Brig. Gen. David L. Johnson, Director of the NOAA National Weather Service. "Storm-based warnings provide the public with more specific information about the location of severe weather and the direction it is expected to move. Seconds count during tornadoes and flash floods. We want to provide the public with the most accurate description of what's happening in their neighborhood. We also want to avoid warning non-threatened portions of the county." All warnings will contain commonly known landmarks such as highways, rivers, cities, and towns.

The difference this makes can be seen in the two maps below.

The two maps are of the same thunderstorm northwest of Ontario, Oregon. On the left is a warning for Malheur County Oregon showing the whole county under a Severe Thunderstorm Warning due to this one storm. On the right is a Storm-Based Warning showing just the northeast part of Malheur County under the Severe Thunderstorm Warning. Storm Based Warnings will delineate just the area under the threat without regard to political boundaries.



Above: The County-Based Warning

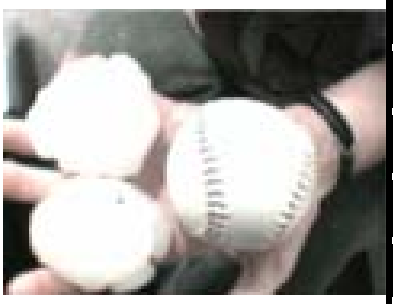


Above: The Storm-Based Warning

Wind Speed Estimators

MPH	Knots	Description	Specifications
< 1	< 1	Calm	Smoke rises vertically.
1-3	1-3	Light Air	Direction of wind shown by smoke drift but not by wind vanes.
4-7	4-6	Light Breeze	Wind felt on face; Leaves rustle; Wind vanes moved by wind
8-12	7-10	Gentle Breeze	Leaves and small twigs in constant motion; Wind extends light flag.
13-18	11-16	Moderate	Raises dust, loose paper; Small branches moved.
19-24	17-21	Fresh	Small trees begin to sway
25-31	22-27	Strong	Large branches in motion; Whistling heard in telephone wires; Umbrellas used with diffi-culty.
32-38	28-33	Near Gale	Whole trees in motion; Inconvenience felt walking against the wind.
39-46	34-40	Gale	Twigs break off trees; Wind generally impedes progress; Mobile homes may shake.
47-54	41-47	Strong Gale (Severe Criteria)	Slight structural damage occurs; Mobile homes, sheds, roofs, lanais, and RV's suffer minor damage.
55-63	48-55	Storm	Small trees uprooted; Moderate damage occurs to mobile homes and RV's; Brick and wood frame houses receive minor structural and roof damage; damage to TV antennas; Some signs blown down.
64-73	56-63	Violent Storm	Moderate sized trees uprooted; Large branches snapped off trees; Chimneys and road signs toppled; Significant mobile home damage; Power lines downed.
74-95	64-83	Hurricane Category 1	Mobile homes overturned; Large trees and branches downed; Moderate roof damage to wood and brick homes

Hail Size Estimators



Hail Size	Description
0.25 inch	Pea Size or Small Marble Size
0.50 inch	Dime Size
0.75 inch (Severe Criteria)	Penny Size
1.00 inch	Quarter Size
1.75 inch	Golf Ball Size
2.50 inch	Tennis Ball Size

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

Phone: 208-334-9860
Fax: 208-334-1662
E-mail: Boi.Spotter@noaa.gov

NATIONAL WEATHER SERVICE, BOISE ID

Working Together to Save Lives

We're on the Web!
weather.gov/boise

How to Contact Us:

The Spotter Line:

1-800-882-1428

US Postal Mail to:

National Weather Service

Attn: Dawn Fishler

3833 S. Development Ave. Bldg. 3807

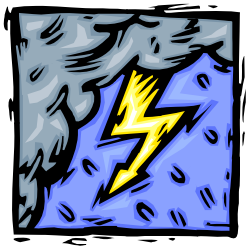
Boise, ID 83705-5354

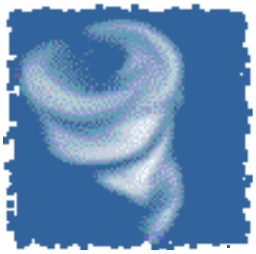
Email to:

Dawn.Fishler@noaa.gov

Reporting Criteria

Please Always Report!





SkyWarn Spotter Reporting Criteria

Call us when you observe:

- **Tornado—** All tornadoes
- **Funnel Cloud**— All funnel clouds, watch for rotation
- **Hail**— 1/2 inch 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 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 normally doesn't 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, let us know.