

# The Weather Watcher

## of the Inland Northwest

[www.weather.gov/Spokane](http://www.weather.gov/Spokane)

### Strong Winter Storms of December 1-3, 2007

A series of strong winter storms struck the Inland Northwest starting on Saturday, December 1st and continued through Monday, December 3rd. On Saturday morning, a deep cold air mass covered much of eastern Washington and north Idaho. Temperatures ranged from the single digits near the Canadian border to the teens and lower 20s in the Columbia Basin and the Lewiston/Clarkston valley.

A low pressure center developed off the Washington coast on Saturday. Light snow began during the afternoon, mainly north of Interstate 90. By Sunday morning 2-3" of light fluffy snow had fallen north of I-90, with as much as 6-8" of snow in the valleys near the Canadian border.

A much stronger series of storms were approaching the Pacific Northwest at this time. These storms were due to arrive from the southwest bringing subtropical moisture and warmer air to the region. Pacific satellite images indicated the remnants of a typhoon off the coast of Japan. The moisture from this system got caught up in the jet stream and tracked across the Pacific into the Northwest US.

The result was a typical shoving match. The cold air in place, slowly pushed to the north as this warm Pacific air invaded the area. When this collision occurs, the result is heavy precipitation. While most of the precipitation started as snow, it gradually changed to rain on Sunday as the warmer air moved northward. The locations that remained snowing the longest were in the Cascades as well as the valleys near the Canadian border. Some of the valley locations in the Cascades received up to 3 feet of snow during these storms! The Wenatchee area also received some freezing

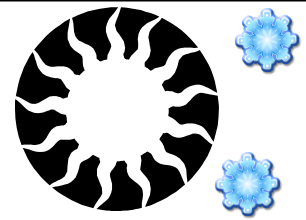
rain before the temperatures warmed above freezing.

The heavy snow followed by rain caused minor flooding in southeast Washington and the southern Idaho Panhandle areas. Even more rain fell over western Washington where flooding was widespread. A section of Interstate 5 was closed due to flooding. The heavy snow and rain also caused avalanches in the Cascades. The Washington state DOT reported that avalanches closed Highway 2 east of Stevens Pass early Monday morning. Three semi trucks and a state trooper were trapped between the snow slides between 2-3 am. DOT crews were able to clear enough snow to free the motorists. The picture below shows a semi stuck in a 17 foot snow slide near Tumwater canyon in the Cascades. For more information and graphics on this storm, visit <http://www.weather.gov/Spokane> and check out the top news. ☼ Ron Miller



### SKYWARN Recognition Day

December 1st marked the 9<sup>th</sup> year of the annual SKYWARN Recognition Day across the country. Beginning in 1999 between the National Weather Service and the American Radio Relay League, this event celebrates the contributions that volunteer Skywarn radio operators make to the NWS. During the day, Skywarn operators visit the NWS offices and contact other radio operators across the world. The importance of amateur radios is their increased communication capability during times of crisis or disaster when normal communication can be disrupted. The local ARES/RACES group of Spokane county set up their radios at the Spokane NWS office on Friday afternoon and worked for 24 hours until Saturday afternoon on December 1<sup>st</sup>. They made over 77 contacts including locations in California and Florida. The Spokane weather office also has several amateur radio operators on staff, including Kerry Jones, Royce Fontenot, Bob Tobin, Laurie Nisbet, Steve Bodnar, and Robin Fox. Visit <http://www.crh.noaa.gov/hamradio/index.php> for more information. ☼ Robin Fox



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#### Editor's Notes

Thanks for all the great snow reports! The telephone is still the easiest and fastest way to inform the NWS office of hazardous weather. Just call our local or toll free number and you will speak to a forecaster or a technician, any time of the day or night. Ham radio reports are also available with daily information each morning. Espotter is growing in popularity. If you are internet savy, you can register online and send spotter reports directly to the NWS office. Reminder, the Spokane espotter system is reserved only for those in the spotter database at NWS Spokane.

For any questions or comments on the newsletter, please contact Robin or Kerry at (509) 244-0110 extension 223 or email [nws.spokane@noaa.gov](mailto:nws.spokane@noaa.gov).

The main purpose of this publication is to keep our readers informed about our services and programs, and to recognize those who help us with our mission, including weather spotters, co-op observers, media, and emergency management.

All articles are written by the NWS staff. A special thanks to Ron Miller, Kerry Jones, and Robert Bonner for their help.

## Autumn 2007 in Review

It was another beautiful autumn across the Inland Northwest this year, with mild temperatures and lots of sunshine during the first half of the season. This was followed by cool and wet weather for the second half.

**September** began in its usual fashion, with temperatures in the 80s and even lower 90s as summer tried to hold on for a few more days. This weather lasted until the middle of the month when our first Pacific front moved into the area. While there wasn't a lot of precipitation with this system, the temperatures dropped considerably. Readings in the 80s were replaced by 60s and upper 50s. This event really marked an end to the warm summer temperatures and ushered in autumn weather. Then a couple of colder and wetter fronts arrived by the end of the month. Ahead of these fronts, temperatures warmed back up into the 70s and lower 80s but were quickly replaced by 50s and 60s. The mountains received their first dusting of snow as the freezing levels dropped to around 4500 feet. September wound up very close to average for temperatures but on the dry side with precipitation.

The cool showery weather continued into the first part of **October**. Temperatures hovered in the 50s with rain showers. There was even some graupel (small hail) from the showers on the 4<sup>th</sup>. This is fairly common in March, but a rare sight for October. The rain was also quite heavy for early October. Chelan picked up ¾ of an inch on the 1<sup>st</sup> and Bonners Ferry received 0.62" of rain on the 4<sup>th</sup>. A break in the Pacific storms allowed the area to dry out and warm up a bit. Lewiston reached 87°F on the 9<sup>th</sup> with Pullman topping out at 81°F. More cold and wet weather arrived in the middle of the month. Daytime temperatures stayed in the 40s in some locations. Meanwhile the mountains picked up some significant snow, with 5-10" falling in the Cascades and Panhandle mountains. Any thoughts of an early ski season were dashed as valley temperatures once again rebounded into the 60s and 70s, melting all of the mountain snow. Ritzville set a new record high on the 23<sup>rd</sup> with a maximum temperature of 78°F. But just as quickly as it warmed up, cooler air came in from the north. Nighttime temperatures dropped into the teens in the northern valleys. When it was all said and done, October came in a bit cooler and wetter than normal.

The first few days of **November** were dry and sunny, but that didn't last. Wet weather set in on the 7<sup>th</sup> and continued through the 19<sup>th</sup>. This round of storms ended with a strong low pressure system moving across northern Oregon. This storm brought the first real snow to the lowlands. Spokane picked up less than ½ inch, but southeast Washington and the southern Idaho panhandle were the big winners. Winchester, ID (south of Lewiston) received 14.1" of the white stuff, and Pomeroy, WA received 6.5". All of the clouds and storminess actually kept temperatures rather mild, then the first wintry air mass moved in behind this last storm. Nighttime temperatures dropped into the teens while daytime temperatures stayed below freezing in most locations for the rest of the month. More storms moved into the area at the end of the month bringing more snow. Valley locations north and east of Spokane received 4-8" of snow on the 27<sup>th</sup>. Then just about every location picked up 1-3" of snow on

the 29<sup>th</sup>. So at the end of the month, the Inland Northwest was covered in a blanket of white. ☼ *Ron Miller*

### Autumn Weather Statistics

Wenatchee Airport	Sep	Oct	Nov	Total
Avg High Temp	76.7	59.2	44.5	60.1
Departure from Norm	+0.2	-2.5	+0.6	-0.6
Avg Low Temp	52.9	49.5	30.8	44.4
Departure from Norm	+2.0	-0.6	+0.4	+0.6
Total Precip	0.11	0.39	0.68	1.18
Departure from Norm	-0.32	-0.06	-0.31	-0.69
Lewiston Airport	Sep	Oct	Nov	Total
Avg High Temp	78.6	62.8	47.4	62.9
Departure from Norm	+1.9	+0.9	+0.6	+1.1
Avg Low Temp	50.4	41.8	32.3	41.5
Departure from Norm	-0.5	+0.6	-1.8	-0.6
Total Precip	0.10	1.08	1.65	2.83
Departure from Norm	-0.71	+0.12	+0.44	-0.15
Total Snowfall	0.0	0.0	3.3	3.3
Departure from Norm	0.0	-0.1	+1.3	+1.2
Spokane Airport	Sep	Oct	Nov	Total
Avg High Temp	72.1	56.4	41.8	56.7
Departure from Norm	-0.4	-2.1	+0.7	-0.6
Avg Low Temp	46.4	37.3	28.1	37.3
Departure from Norm	+0.5	+1.5	-0.6	+0.4
Total Precip	0.37	1.18	1.53	3.08
Departure from Norm	-0.39	+0.12	-0.71	-0.98
Total snowfall	0.0	T	3.8	3.8
Departure from Norm	0.0	-0.3	-2.6	-2.9

### Winter Outlook

La Niña conditions will continue to strengthen during the winter season, leading to a forecasted moderate La Niña event. This event in combination with current warm trends were the main factors in the winter outlook. The Climate Prediction Center indicates that the Inland Northwest will have a greater chance of above normal precipitation and near normal temperatures for December through February. Please visit <http://www.cpc.ncep.noaa.gov/> for more details on the long range forecast and La Niña. ☼ *Robin Fox*

**Answer: 63°F on 2/20/95**

## NWS Spokane

### Meteorologist In Charge

John Livingston

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Meg Layh

### Warning Coordination Meteorologist

Kerry Jones

### Science Operations Officer

Ron Miller

### Data Acquisition Program Manager

Robert Bonner

### Service Hydrologist

Royce Fontenot

### Information Technology Officer

Todd Carter

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Matt Fugazzi  
Bob Tobin  
Greg Koch  
Paul Bos

### General Forecasters

Robin Fox  
Rocco Pelatti  
Laurie Nisbet  
Jeremy Wolf  
Jeffrey Coté  
Mike Fries Ellie Kelch

### Hydro-Meteorological Technicians & Intern

Stan Savoy Milt Maas  
Verne Ballard  
Steve Bodnar

### Electronic System Analyst

Dwight Williams

### Electronic Technicians

Paul Kozsan Ray Grant

### Facilities Technician

Mike Belarde

## The Dangers of Carbon Monoxide

With the onset of colder weather, most people stay indoors and find ways to keep warm. Running gas heaters, wood stoves, generators, and even automotive exhaust can lead to increased levels of a deadly, odorless and colorless gas—carbon monoxide. It is known as the silent, cold weather killer!

Unfortunately, carbon monoxide (CO) poisoning has already made headlines in the Pacific Northwest this season. The tragic loss of three children in Royal City in November 2007 due to CO poisoning highlight the dangers of improperly using generators during power outages. In that case, the power outage lasted only about three hours. More recently, twenty people, including a small child, were treated for CO poisoning at a grocery store in Ocean Shores, WA due to a faulty generator following a power outage during the December 2-3 winter storm. Nationwide, it is estimated that 200 people die from CO poisoning each year and upwards of several thousand are treated at hospital emergency rooms. It can be easy to misdiagnosed as the initial symptoms of CO poisoning are similar to the flu, but without the fever.

What makes CO especially dangerous is that you can neither see nor smell it. At high levels, CO can kill you in a matter of minutes often before you realize that it is present. CO is a by-product of incomplete burning of solid, liquid, and gaseous fuels. Appliances fueled with natural gas, liquefied petroleum (LP gas), oil, kerosene, coal, or wood may produce CO. Burning charcoal produces CO. If appliances that burn fuel are maintained and used properly, the amount of CO produced is usually not hazardous. However, if appliances are not working properly or are used incorrectly, dangerous levels of CO can result. For more, please visit <http://www.epa.gov/iaq/co.html> for details. ☼ *Kerry Jones*

#### Symptoms of CO poisoning:

- Severe headaches
- Shortness of breath
- Nausea
- Dizziness, fainting
- Mental confusion



#### Actions to take:

- Get fresh air immediately
- Go to the emergency room and tell the doctor you suspect CO poisoning

### The Bottom Line (courtesy of the Consumer Product Safety Commission)

- Never burn charcoal inside a home, garage, vehicle, or tent.
- Never use portable fuel-burning camping equipment inside a home, garage, vehicle, or tent.
- Never use gas appliances such as ranges, ovens, or clothes dryers for heating your home.
- Never operate unvented fuel-burning appliances in any room with closed doors or windows or in any room where people are sleeping.
- Do not use gasoline-powered generators, tools and engines indoors.
- Place portable outdoor generators away from windows, doors, and vents that could allow CO to come indoors.

## What is CoCoRaHs?

This is exciting, not only for meteorologists, but for weather enthusiasts of all walks of life. It is similar to a spotter report and a coop observation. It is a way to collect precipitation data and share with others. CoCoRaHs, the Community Collaborative Rain, Hail, and Snow Network, is a unique, non-profit, community-based, high density network of individual and family volunteers of all ages and backgrounds, who take daily measurements of rain, hail and snow in their backyards. All a volunteer needs is a rain gauge and a snow board or a flat area to measure snow. This program started in Fort Collins, CO over ten years ago and the network has spread across the country. It is based at the state level, and Oregon and Montana have networks in place. Washington and Idaho are currently setting up each of their systems, but are not yet ready to begin collecting data. We will keep you posted! For more, visit <http://www.cocorahs.org>. ☼ *Robin Fox*

**SPOTTER REPORTS: please call the NWS at (509) 244-0435  
Or send Online at <http://spotter.weather.gov>**

## Remember your Winter Spotter Checklist

- Snow:** 2" in the valleys  
6" in the mountains
- Any mixed or freezing precipitation**
- Reduced Visibility:**  
under a mile due to rain, dust or fog, etc.
- Any Flooding**
- Strong Winds:**  
30 mph+ or damage
- Hail:** pea size or larger
- Heavy Rain:**  
Showery— 1/2"+ an hour  
Steady Rain- 1" in 12 hrs  
or 1.5"+ in 24 hrs
- Travel Problems or Any Damage:** due to hazardous weather.

## Co-op Corner

For the cooperative observers who are sending their observations to the National Weather Service via WxCoder2, we will be transitioning to **WxCoder3** on January 29, 2008. WxCoder3 offers a number of improvements for the observers and the NWS. The updated web interface including new help menus and real time quality control checks will be a welcome change.

Before the transition date each observer will receive instructions and a password via email on the specifics of the transition to WxCoder3. Nothing will change for those observers that send in their observations by telephone as there are no anticipated changes to IVROCS. ☼ *Bob Bonner*

## Upcoming Dates

- 12/21: Winter Solstice at 10:08 pm
- 1/25: Preparedness Fair—Quincy, WA
- 2/2: Groundhog's Day
- 2/5-7: Ag Expo—Spokane Convention Center
- 2/9: Kids love Clean Air —Mobius Spokane
- 2/21: Spotter Training—Kamiah, ID

## Measuring Snow

Now that we are well into the winter season, this might be a good time to remind observers and other on the proper way to measure snow.

- When snow is anticipated, you should remove the funnel and tube from the 8 inch rain gauge, so that falling snow can collect in the large overflow can. The snow in the overflow can needs to melt and then poured into the smaller measuring tube to measure the water equivalent of the snow (SWE).
- The fastest way to do this is to pour hot water into the measuring tube, enough to melt the snow in the larger can. After a few times it will become easier to estimate the amount of hot water you will need.
- Measure the amount of hot water in the measuring tube and write it down, then pour the hot water into the large can and make sure all the snow has melted.
- Now pour the water and melted snow from the large can back into the measuring tube. Now measure again the amount—subtracting the amount of hot water that you measured and wrote down. This is the water equivalent of the snow that fell into the rain gage.

If you have any questions, please contact us at National Weather Service. ☼ *Bob Bonner*

## The Weather Watcher Of the Inland Northwest



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**Trivia: What is the warmest winter temperature in Spokane?**

