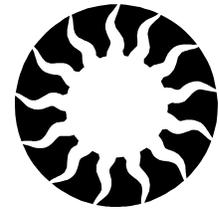


The Weather Watcher

of the Inland Northwest

www.wrh.noaa.gov/Spokane



Dust in the Wind

In a matter of minutes, visibilities from Waterville to Coeur d'Alene dropped to near zero on the afternoon of September 25th. Strong southerly winds ripped through eastern Washington and parts of north Idaho, stirring up clouds of dust and dirt. A few hours later, storm clouds rolled in with scattered rain showers. This rain helped cleanse the atmosphere and improve visibilities, but it deposited a film of dust on everything outdoors from vehicles to buildings and plants. An autumnal dust storm had hit the Inland Northwest.

The weather pattern prior to the dust storm was characterized by a strong ridge parked over the Rockies and a dry, southerly flow spreading warm air across Oregon and Washington. Temperatures were running 10-15 degrees above normal with readings in the 80s to lower 90s. A change was in the making by the morning of the 25th as a dynamic upper level disturbance was kicked inland from the California coast across southern Oregon. At the same time, a surface low developed over the Lower Columbia Basin ahead of this upper feature. As the day progressed, both "lows" lifted northward over the Inland Northwest. The passage of the surface low and associated cold front allowed a southerly pressure gradient to

develop and increase over the area. Windy conditions spread rapidly across the Columbia Basin, the Waterville Plateau, the Palouse, the Lewiston and Clarkston area, along with the Spokane and Couer d'Alene area. Wind gusts of 30-40 mph were widespread from late morning and through the afternoon. Due to the prevailing arid conditions across the region and the freshly plowed agricultural fields, blowing dust was widespread and caused visibilities to drop to less than a mile with hazardous air quality in many locations.

The upper low pressure system reached the Columbia Basin late in the afternoon and lifted into southern British Columbia during the evening. This feature generated scattered light showers and isolated thunderstorms, which helped quell the blowing dust problems. The winds gradually tapered off in the evening with a cooler, more stable and fresher air mass setting up over the Inland Northwest overnight. Fortunately, there were no reports of storm damage or serious injuries associated with the passing dust storm. ☀ *Robin Fox*

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Editor's Notes

From blowing dust to blowing snow, the seasons change quickly especially as we move from autumn to winter. Many locations already saw their first dusting of snow in October, but more is certain to come in the coming months. In this edition of the newsletter, we tried to acquaint our users and observers to winter terminology and techniques. For NWS Spokane, winter is usually our busy time of the year with one snowfall after another - so remember, we want your snow reports!

If there is something you would like to see in the next newsletter or if you have comments about a previous issue, please contact:

Robin Fox or Ken Holmes
(509) 244-0110

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

All articles are written by the NWS staff. A special thanks to Ron Miller, John Livingston, Andy Haner and Jon Fox for their contributions. ☀



Dust in the skies over Spokane. These pictures were taken near the Spokane Arena. The one on the left was taken around 2:30 pm, while the one on the right was taken just 2 hours later around 4:30 pm. Courtesy of SCAPCA, the Spokane County Air Pollution Control Authority.

Changing Seasons

TRIVIA ANSWER: January 1, 1979. The Inland NW saw highs ranging from -1 to +13 after morning lows in the single digits to 20s below zero!

September continued where the summer left off, namely, dry and warm. All sites had below normal precipitation for this month, with temperatures well above average. Just about all the rain for the month occurred with a storm that moved into the area on the 25th. This storm was unusual in how strong it was as it moved directly over eastern Washington. While the rainfall was welcome, the storm also brought strong winds and blowing dust.

The completion of September means the end of the "water year". For the period 1 Oct through 30 Sept, the table at the right shows how this year compared to normal. Spokane had the second driest year (in parenthesis) ever with records going back to 1881, while Lewiston and Wenatchee were not far behind.

	2000-2001	Normal	Driest Ever
Wenatchee	5.24" (5th)	8.59"	4.20" (76-77)
Lewiston	9.39" (6th)	13.26"	7.08" (65-66)
Spokane	9.67" (2nd)	16.30"	8.79" (28-29)

But the looming question still remains if the drought will continue for a second winter. October seemed to indicate that things were taking a turn for the wetter. Both Lewiston and Spokane were about 1 inch above normal in precipitation, with a fairly frequent procession of storms from the Pacific. Spokane also had just under an inch of snow on the morning of the 12th. Temperatures were also cooler than normal for the month of October.

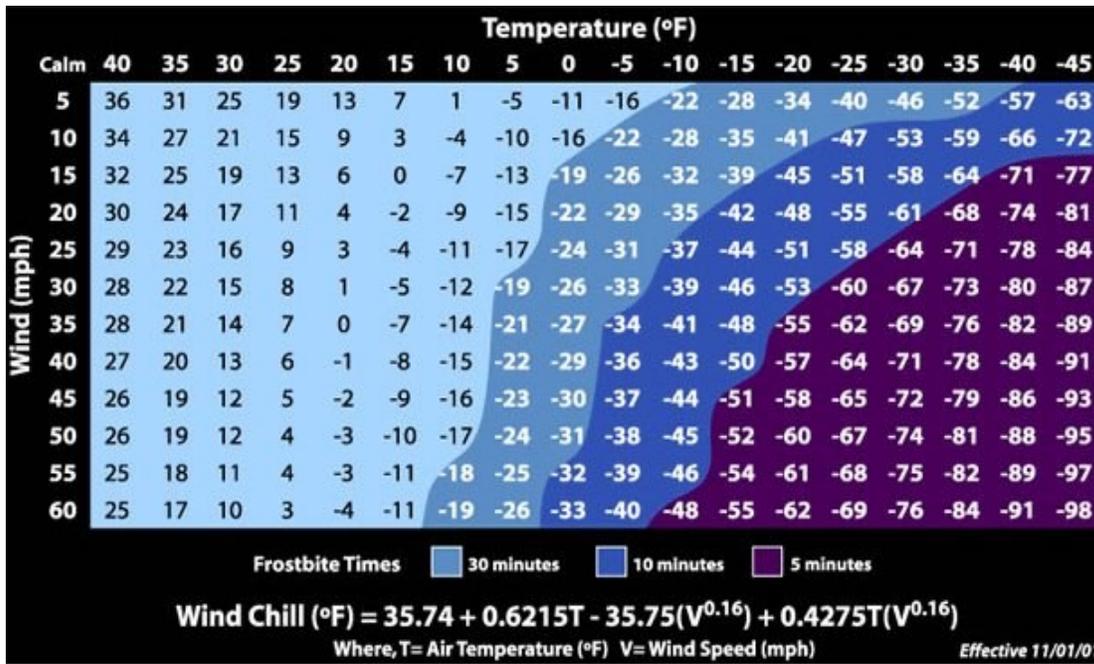
But that cool spell didn't last into November. Temperatures were quite mild, running more than 10° above normal by mid month. Our wet October was beginning to look like a fluke, as the first 12 days of November were largely dry. But then the storms started rolling in again, and the rainfall totals were on the rise. The storms continued to be warm with even the highest mountain peaks getting rain instead of snow. The ski resorts remained closed for the Thanksgiving weekend.

Autumn Weather Statistics

Wenatchee Airport	Sept	Oct	Nov	Total
Avg High Temp	79.0	59.5	46.9	61.8
Departure from Norm	+2.8	-1.9	+2.9	+1.3
Avg Low Temp	54.2	39.6	33.9	42.6
Departure from Norm	+3.0	-0.6	+3.1	+1.8
Total Precip	0.08	0.17	1.01	1.26
Departure from Norm	-0.32	-0.28	-0.15	-0.75
Lewiston Airport	Sept	Oct	Nov	Total
Avg High Temp	82.8	61.4	51.2	65.1
Departure from Norm	+5.5	-1.9	+3.1	+2.2
Avg Low Temp	53.4	42.1	37.1	44.2
Departure from Norm	+2.9	+1.0	+3.0	+2.3
Total Precip	0.19	1.86	1.23	3.28
Departure from Norm	-0.47	+0.99	+0.08	+0.60
Spokane Airport	Sept	Oct	Nov	Total
Avg High Temp	77.8	56.2	46.2	60.1
Departure from Norm	+5.7	-2.3	+4.9	+2.8
Avg Low Temp	48.7	35.6	33.6	39.3
Departure from Norm	+2.8	-0.5	+4.9	+2.4
Total Precip	0.17	2.18	2.61	4.96
Departure from Norm	-0.56	+1.11	+0.47	+1.02
Total Snowfall	0	0.7	12.5	13.2
Departure from Norm	0	+0.6	+6.1	+6.7

By the end of the November, the weather pattern changed markedly with the jet stream diving south across the western U.S. This left the Inland Northwest in the cold air. As a result, the precipitation started falling in the form of snow over the entire area. A very large Pacific storm moved into the Inland Northwest on the 28th depositing heavy snow. Spokane picked up a total of 9.6", while locations to the north and east received up to 3 feet and the Basin and East Slopes picked up 5-15". ☀
Ron Miller

The New Wind Chill Index



The new wind chill formula is the product of a year-long effort by scientists and wind chill experts from the academic community and the U.S. and Canadian governments to create a more realistic wind chill. It was developed after extensive analysis of the factors that impact wind chill using the latest advances in science and technology. The new formula makes adjustments for actual wind speeds at the height of an average adult face. It also accounts for the shape of a human face and the resistance of standard skin tissue. These new considerations will help provide more specific warn-

As temperatures plummet and the wind howls, we are bound to hear more about "wind chill." The wind chill index combines the temperature and wind speed to tell you how cold the wind makes it "feel." Even though wind chill is given as a temperature, it is not a different kind of temperature. Low wind-chill numbers shouldn't keep you from going out, although they should encourage you to dress properly when you do go outside.

On November 1, 2001, the National Weather Service implemented a new method of computing wind chill temperature to provide more realistic wind chill values and better winter weather warnings. For the first time, the index will emphasize specific wind chill thresholds which produce frostbite danger given certain periods of exposure. The U.S. and Canadian weather services have both agreed to use the new index as their standards.

ings of time-to-frostbite at given wind chill values. The previous index had been used since 1973 and was based on 1945-era research in the Antarctic.

NWS Spokane is responsible for alerting the Inland Northwest of dangerously cold wind chills and will use this new formula in warning decisions. When wind chill levels are expected to drop to -20 F or colder with a wind of 10 mph or greater for one hour or more over a widespread area, a Wind Chill Warning will be in effect. Under these conditions, exposed skin will experience frostbite in 15 minutes or less.

For more information, go to www.noaanews.noaa.gov/stories/s800.htm or call NWS Spokane ☀.



Know your Winter Precipitation



- **FLURRIES** - Light snow falling for short durations. No accumulation or a light dusting is expected.
- **SNOW SHOWERS** - Snow falling at varying intensities for brief periods of time. Some accumulation is possible.
- **BLOWING SNOW** - Wind driven snow that reduces visibility and causes significant drifting. It can be snow that is falling and/or loose snow on the ground picked up by the wind.
- **BLIZZARD** - Winds of over 35 mph with snow and blowing snow that reduced visibilities to near zero.
- **SLEET** - Rain drops that freeze into ice pellets before reaching the ground. It usually bounces when hitting the ground and does not stick to objects. It can accumulate like snow.
- **FREEZING RAIN** - Rain drops that fall onto a surface with a temperature below freezing, causing the rain drops to freeze to surfaces such as trees, cars and roads, forming a coat of glaze or ice.

Remember, to make a Weather Spotter Report, please call the NWS Spokane
(509) 244-0435



Winter Outlook

For the period of December through February, expect at or below normal temperatures and near normal precipitation for the Inland NW.

Skywarn Day

Local HAM radio operators staffed the NWS Spokane office from 4 pm Fri., Nov 30th through 4 pm Sat., Dec 1st. They set up their towers and radio equipment to help provide additional communication support.

A big thanks to all that participated and volunteered in this great event. ☀

National Weather Association Meeting

NWS Spokane played a key role in hosting the National Weather Association 26th Annual Meeting at the Ridpath Hotel in downtown Spokane during the week of October 14th. The National Weather Association is an organization for meteorologists and weather professionals that fosters excellence in operational meteorology and related activities. Folks came from across the country to this meeting to exchange ideas, make new friends and renew old acquaintances. Sessions and topics of note included a day of presentations geared to the media, a free aviation workshop for pilots, talks on diversity, a severe thunderstorm symposium featuring leading experts on the topic, and a Pacific Northwest weather session with contributions from the University of Washington. There were a number of talks given by NWS Spokane personnel covering topics from the 2000-2001 drought to raising a family while pursuing a career in meteorology. Our local media participated fully with presentations, attendance and contributions to the daily weather briefings. For more information, visit www.nwas.org
☀ *John Livingston*

Winter Reminders

Weather spotters, please remember to contact the NWS when any of the following occurs at your location.

- SNOW**..... 2 in. + in valleys
6 in. + in mountains
- ICING**.....any amount
- THUNDER**.....any occurrence
- WIND**.....30 mph or more, damage
- TRAVEL**.....Problems due to blowing snow, poor visibility, ice or snow.

Cooperative observers, please remember to include your daily snowfall and snow depth in your observations and ROSA reports.

NWS Spokane has many copies of a video on snow measurement techniques. If you are a cooperative observer and interested in viewing one, it can be sent to you. Just contact Robert Bonner for details. (509) 244-0110 ext. 225☀
Robin Fox & Robert Bonner

The Weather Watcher Of the Inland Northwest



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TRIVIA: What is the coldest New Year's Day on record for the Inland Northwest?

Happy Holidays
from NWS Spokane