

## Mountain snowpacks continue to build



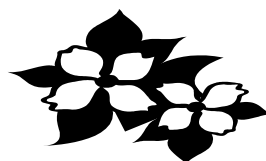
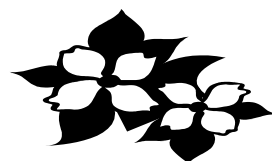
Snowpacks continue to be above normal throughout the mountains of north Idaho and eastern Washington. As of the 23rd of February, snowpacks in the Idaho Panhandle averaged over 129%, ranging from 70% of normal in the St Maries River drainage to around 160% in the Pend Oreille basin. This suggests the possibility of some flooding, or at least high water, in the Panhandle this spring.

On the east slopes of the Cascades, snowpacks were well above normal. Snow water equivalent amounts varied from 145% of normal in the Chelan, Entiat and Wenatchee basins to 180% of normal in the Methow and Okanogan drainages. Depending on runoff patterns, some spring flooding is possible on these rivers, especially on the Okanogan and Similkameen Rivers.

It's important to remember that above normal snowpacks do not necessarily imply flooding. The rate of runoff determines the flood potential, and it is dependent on temperature and precipitation patterns. However, for those who live in flood-prone areas, it is probably a good idea to be prepared for the possibility of flooding this spring.

## Spring Outlook

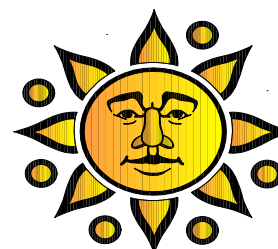
So, what's the outlook for the spring and summer of 1999? Based on the NWS Climate Prediction Center's forecast, the Inland Northwest temperature and precipitation should be near or above normal this spring, and near normal during the summer. Remember, these are 3 month averages. For example, a forecast of warmer than normal for 3 months does not preclude the possibility of colder than normal periods during that time. The CPC's website can be accessed at [www.nic.fb4.noaa.gov:80](http://www.nic.fb4.noaa.gov:80).



### A NEW Look

Surf the Web and visit the new design of our homepage!

[www.wrh.noaa.gov/spokane](http://www.wrh.noaa.gov/spokane)



# WEATHER WATCHER

National Weather Service Quarterly Report

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Editor Robin Fox  
Assistant Editor Jann Walker

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### Editor's Notes

We are excited to publish this edition of the *Weather Watcher*. There have been many changes in the last several months – including taking the official responsibility of all the weather forecasts and warnings for the Inland NW. The focus of this issue is the review of the winter, with information and articles ranging from NWR 2000 to the 1998 fire season.

The main purpose of this publication is to keep weather spotters and others informed about our services and programs, and to recognize spotters and observers who help us accomplish our mission. We will continue to see many exciting changes in weather observing and forecasting over the coming months and years. Weather spotters and our friends in the emergency management and media communities will continue to be an extremely valuable part of our mission as well.

If there is something you would like to see in the next newsletter, or have comments about a previous issue, please let us know.

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All articles are written by the Spokane NWS staff. A special thanks to Brian Avery, Bob Bonner, Roger Buckman, Robin Fox, Ken Holmes, John Livingston and Ron Miller for their contributions.

## NWS Modernization Milestone Reached

On Wednesday January 13, 1999 the National Weather Service (NWS) in Spokane passed the last major milestone in a multi-year modernization journey. At this time, the Weather Forecast Office (WFO) in Spokane completed the assumption of all products and services for much of eastern Washington and north Idaho. While various programs were phased in over the past four years, this final changeover included assumption of the routine daily "zone" forecasts, and all winter weather watches, warnings and advisories.

In 1994, the NWS Spokane office staff of 8 issued short fused warnings, took surface and upper air observations and served the public of northeast Washington and parts of the Idaho Panhandle. Intermittent poor quality satellite data, no weather radar, low speed data communications and aging computer systems from the late 70s hampered our ability to effectively serve our public. While part of the products and services were done in Spokane, the remainder of the warning and forecast information came from state level offices in Seattle and Boise. Other offices in Lewiston and Wenatchee served parts of the area as well.

In 1999, the WFO Spokane staff of 25 completes a full range of warning, forecast and support functions for much of eastern Washington and north Idaho, including the Lewiston and Wenatchee areas. We use up-to-date computer systems that ingest vast amounts of data by direct satellite feed. We operate and use the only Doppler weather radar system in the area. These resources along with high resolution satellite data, more frequent surface observations, access to external data sources and a solid network of volunteer weather spotters are used to create our products.

In the past, lack of personnel did not allow us to do the necessary background work to improve products and services. Today, considerable time is spent on learning about our weather, training our personnel, getting out into the community, soliciting and listening to users concerns and other critical tasks needed to continually improve our service.

Where the forecast and warning function for much of eastern Washington and north Idaho were divided amongst various offices, WFO Spokane now issues all products including public warnings and forecasts, detailed aviation forecasts, river warnings and forecasts and specialized fire weather products for land management agencies.

Trivia: What was the coldest temperature ever recorded in eastern Washington or north Idaho?

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ON THE INSIDE .....  
NWR 2000  
Winter Recap,  
Snowpack... and much more

## A new VOICE on the NOAA Weather Radio

The Weather Forecast Office (WFO) in Spokane, WA will be changing and improving the way NOAA Weather Radio broadcasts are made over the next several weeks. The nationwide modernization of the NWS is bringing "NOAA Weather Radio 2000" to every forecast office in the country. Our office began implementing this new system late last year. On Monday February 22nd, all products on NWR were converted to broadcast with this new voice. The voice may sound different, but the quality of service and speed of access for new forecasts and warnings will be greatly enhanced.

With NWR 2000, forecasts and statements will automatically and instantaneously go directly from the National Weather Service forecaster to NOAA Weather Radio, saving 5 to 10 minutes or more for each product. There will be no more waiting for hourly roundups or the most up to date forecast. As soon as they are issued, they are broadcast. Warnings and watches will eventually be incorporated into NWR 2000 as well. Again, the second a tornado or any kind of weather warning is issued, you will hear it first on NOAA Weather Radio.

This system, combined with new personal weather radios which can be programmed to alarm for your home county, will ensure that you are warned as soon as possible, while leaving out the warnings that don't directly apply to you. When you hear the NOAA Weather Radio alarm, it will be something that directly affects you and that you need to know!

Another bonus is that NOAA Weather Radio 2000 will allow us to acquire and broadcast on more radio transmitters for the region. This means that we will have better reception and coverage for all of eastern Washington and northern Idaho. As an example, a new NWR transmitter was recently installed on Black Mountain, south of Bonners Ferry. This station serves residents of the north Idaho Panhandle.

NWR 2000 uses an automated voice that will take a little getting used to since it doesn't sound the same as the voices of the people you are used to hearing. However, it will improve the speed of getting a weather warning that may give you needed time to save lives or reduce property damage. In addition, the NWS will continually work to improve the quality and soften the automated voice.

As always, for the most up to date weather information you can rely on NOAA Weather Radio. It is there for you 24 hours a day, seven days a week. Without concerns for other programming or commercials, you get weather and warnings instantaneously and reliably.



### Cooperative Observers

Just a few reminders for our co-op observers. As we approach late winter, some of the Fisher/Porter rain gauges are nearing the point where they should be emptied and recharged with new antifreeze and oil. If you have not been trained to do this, leave it for our servicing cooperative maintenance person. If you do empty and recharge the Fisher/Porter tank, please remember to raise and lower the tank slowly. One quart of antifreeze and 1/3 quart of oil is what you need to replace in the tank after emptying.

One other note on the Fisher/Porter rain gauge, is the monthly removal of the tape. When installing a new tape, please remember to punch up to the present time and then draw the line across the tape and write in your station name and number, city and state, and date and time on. When removing the tape, just draw a line across the tape.

We are giving out two 50 year awards this first quarter of 1999. One to the FAA at Ephrata, WA Airport and the other to the Corps of Engineers at Chief Joseph Dam at Bridgeport, WA.

We, at the National Weather Service in Spokane, would like to extend an invitation to all of our cooperative observers to visit our office when you are in Spokane. We are located west of town on Rambo Road which is about two miles west of Airway Heights on state Highway 2.

In the event you need service or replacement parts please call or leave a message using this number.  
(509) 244-0110 ext. 251

**Trivia Answer:**  
**-48 degrees F**

Mazama 12/30/68  
and 12/30/69  
Winthrop 12/30/68



## Another Wimpy Winter in the Lowlands



The biggest question we hear lately is "what happened to La Niña?" The answer is, La Niña is still here. La Niña refers to a cold water anomaly in the equatorial Pacific. This anomaly strengthened during the month of December and is now classified as "moderate to strong." However, as was stated in our previous newsletter, the weather that results from La Niña isn't as clear cut as El Niño. As we stated, only 3 of the last 8 La Niña winters in the Inland Northwest were colder than normal. Six of the last 8 have been wetter than normal, and 5 of the last 8 were snowier than average. Thus, the best "signal" (i.e., highest forecast confidence) was the above-normal precipitation.

As the table below shows, the precipitation in our area has indeed been above normal this winter. However, temperatures were near to slightly above normal, especially in November. December was also quite mild. Temperatures are somewhat deceptive, since the cold spell before Christmas brought the average temperatures down, but there was no precipitation at this time. As a result, snowfall has been much below normal in the valleys. Meanwhile the mountains have received above normal snowfall this year. At the end of February, the snowpack along the east slopes of the Cascades was around 145% of normal, while the snowpack in the Panhandle and the northeast mountains of Washington was about 129% of normal.

The winter of 98-99 did have a few memorable moments. After a mild November and early December, our first (and only) arctic airmass moved in from the north. Nighttime temperatures plunged into the single digits and below. This seemed especially cold given the recent warmth. Wenatchee tied a record high with 51 degrees F on Dec 17th, and then dropped to 7 degrees F by the 20<sup>th</sup>. The cold temperatures lasted for a week when nearly everyone received some snowfall on Christmas and over the holiday weekend. But by the end of the month, we were back in the warmth with Wenatchee tying or setting record highs on the last 2 days of the year.

theme of mild weather. Aside from a few days toward the end of the month, nearly every day in January saw above normal temperatures. Precipitation remained above normal except in the Lewiston area where the strong southwesterly flow over the Blue Mountains kept the Lewiston-Clarkston valley protected and dry.

Speaking of which, wind was one of the more remarkable aspects of this past winter. The average winds for November, December, and January were all windier than normal. The Lewiston Airport measured a wind gust of 52 mph on December 26th, while the wind gusted to 49 mph at Spokane and 55 mph at Pullman. However, the strongest winds of the winter occurred in the first week of February. A wind gust of 77 mph was measured at Foss Maritime on Lake Coeur d'Alene on Feb 2<sup>nd</sup>, with a gust of 56 mph and 46 mph at Lewiston and Wenatchee, respectively.



| Wenatchee (Airport)   | Oct   | Nov   | Dec   | Jan   | Total |
|-----------------------|-------|-------|-------|-------|-------|
| Average High Temp     | 60.5  | 47.4  | 34.5  | 38.9  | 45.3  |
| Departure from Normal | -0.9  | +3.4  | +1.4  | 5.6   | +2.4  |
| Average Low Temp      | 39.9  | 34.4  | 22.7  | 27.9  | 31.2  |
| Departure from Normal | +0.3  | +3.6  | -0.2  | +6.8  | +2.6  |
| Total Precip          | 0.12  | 1.74  | 1.16  | 1.53  | 4.55  |
|                       | -0.24 | +0.37 | +0.38 | +0.37 | +0.38 |
| Lewiston (Airport)    | Oct   | Nov   | Dec   | Jan   | Total |
| Average High Temp     | 60.2  | 49.5  | 40.5  | 42.9  | 48.3  |
| Departure from Normal | +3.1  | +1.4  | +0.4  | +3.3  | +2.1  |
| Average Low Temp      | 39.7  | 37.5  | 28.4  | 32.2  | 34.5  |
| Departure from Normal | -1.4  | +3.4  | +0.2  | +5.1  | +1.8  |
| Total Precip          | 0.62  | 2.67  | 1.00  | 0.58  | 4.87  |
| Departure from Normal | -0.28 | +1.52 | -0.20 | -0.70 | +0.34 |
| Spokane (Airport)     | Oct   | Nov   | Dec   | Jan   | Total |
| Average High Temp     | 58.2  | 45.1  | 33.6  | 37.1  | 43.5  |
| Departure from Normal | -0.3  | +3.8  | +0.8  | +5.0  | +2.3  |
| Average Low Temp      | 34.8  | 34.6  | 23.6  | 27.3  | 30.1  |
| Departure from Normal | -1.3  | +5.9  | +2.0  | +6.5  | +3.3  |
| Total Precip          | 0.27  | 3.78  | 3.28  | 1.86  | 7.33  |
| Departure from Normal | -0.72 | +1.63 | +0.68 | -0.12 | +1.42 |
| Total Snow            | Trace | 0.8   | 11.2  | 8.7   | 20.7  |
| Departure from Normal | -0.4  | -5.7  | -4.3  | -7.0  | -17.1 |

January  continued the

# EASTERN WASHINGTON 1998 FIRE SEASON



Weather-wise, the fire season for 1998 across Eastern Washington turned out to be a typical fire weather year. The global weather pattern known as El Nino began to wane the first of the year as precipitation and snowfall increased in January and February. The transition months of April, May and June saw temperatures warming, but there was an excess of rain in May. All weather reporting stations measured above normal rainfall for May. This contributed to the slow curing of finer fuels until late in July. By June, temperatures and precipitation began to approach seasonal averages. July was hot across all of eastern Washington as temperatures soared into the 90s and lower 100s. Average temperatures at both Spokane and Wenatchee rose into the much above normal category. The fire season peaked in August and continued through the months of September and October with below normal precipitation and above normal temperatures.

The total number of fires in Eastern Washington for the 1998 fire season was near the long term average. Lightning caused fires, however, were well above the long term average. The increase in lightning caused fires came after three seasons in a row in which the total number of lightning caused fires was below normal. This increase in lightning fires caused the total acreage burned this season to be well above average. In fact, the total acreage burned this season was the fourth highest since 1970 and the highest following the record breaking 1994 season.

The increase in total acreage burned was mainly due to the large number of open grass fires. This was especially true for the Yakima Indian Agency, where the total open grass acreage burned increased by over ten fold from the 1997 fire season.

The total number of fires on the national forests was near the long term average. The largest of which, was the 8500 acre North 25 fire on the Wenatchee National Forest near Lake Chelan. In contrast, only a total of 37 acres burned on the Colville National Forest.

Although nearly half of the fires in Eastern Washington were human caused, human caused fires attributed to less than 20% of the total acres burned.

The changeover from the El Nino event of last winter/spring to the La Nina event of this winter/spring has been slow to materialize in the Pacific Northwest. However, the upper level wind patterns are beginning to direct the jet stream more over the State and the expected greater than normal snow pack is materializing. As of the end of January, snow pack is at or above 140% for the Cascades and near 125% for the northern mountains. This is almost double the snow pack at the end of January 1998. We will have to wait until this Summer to see if this added snow pack has lasting implications for the 1999 fire season.

# Weather Spotter Checklist

Anytime you observe any of the weather conditions listed in this column or observe any other significant or unusual weather event that you feel may be important, call the National Weather Service Office in Spokane at **(509) 244-0435**....I identify yourself as a weather spotter. These are unlisted numbers and are for your use only! Be sure to include the time that you observed the weather event along with the location and direction of movement, if known!

- FUNNEL CLOUD or TORNADO**.....Watch for rotation in cloud and damage.
- HAIL**.....Pea-sized or larger.
- HEAVY RAIN**.....One half inch in one hour; 1 inch in 12 hrs; 1.5 inches in 24 hrs.
- HEAVY SNOW**.....4 inches in 12 hrs; 6 inches in 24 hrs.
- FLOODING**.....Of any kind. Is water still rising or is it falling?
- POOR VISIBILITY**.....1/2 mile or less in blowing dust or snow.
- TRAVEL PROBLEMS**.....Any conditions where poor or hazardous travel conditions observed or reported.
- STRONG OR DAMAGING WINDS**.....Any winds estimated to be over about 40 mph. Or winds that produce any damage. Estimate using chart.
- ANY DAMAGE, INJURY OR LOSS OF LIFE DUE TO WEATHER**...Be sure to include location, time and specific cause.

## Spring Outlook

So, what's the outlook for the spring and summer of 1999. Based on the NWS Climate Prediction Center's forecast, the Inland Northwest should be cooler and wetter than normal for the next 3 months (Feb, Mar, Apr). Looking farther into the future, temperatures and precipitation should be near or above normal in the late spring, and near normal during the summer. Remember, these are 3 month averages. A forecast of, for example, warmer than normal for 3 months does not preclude the possibility of colder than normal periods during that time. The CPC's website can be accessed at [nic.fb4.noaa.gov:80](http://nic.fb4.noaa.gov:80).

