

## Interstate Fair

The 2000 Spokane Interstate Fair runs from September 8-17th, and the NWS Spokane will be there! We will have a booth set up in the main building on the fairgrounds, containing displays of our programs, thunderstorm video footage, a tornado simulator and our web page online. We will also be having a forecast contest throughout the duration of the fair where you can guess the official high temperature each day. If you plan on attending the fair, stop by and say

## Open House

NWS Spokane office will be opening its doors and inviting the public to take a look. On Saturday, October 14<sup>th</sup>, the NWS will be hosting an Open House from 10 am to 4pm. Mark your calendars to pay us a visit. Office tours will be provided, including the radar and other weather instruments. Stick around til 4pm and watch the balloon go off. The staff will be on hand to answer any questions. Refreshments will be available. ©

## The Autumn Outlook

The NWS's Climate Prediction Center forecasts for the period of September through November, an increased chance of above normal temperatures and an equal chance of above, near and below normal precipitation. ©

# WEATHER WATCHER

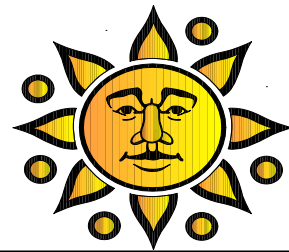
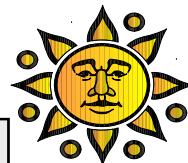
National Weather Service  
2601 North Rambo Road  
Spokane, WA 99224-9164

TRIVIA: What are some of the longest dry spells on record for Spokane?

## Northern Lights

In the past several weeks, night skies have been splashed with waves of color - green, yellow and even purple – called the Northern Lights. The Northern Lights, or aurora, occur around the earth's geomagnetic poles. In the northern hemisphere, they are called *aurora borealis* and the prime viewing locations include Fairbanks, Alaska, eastern Canada, Iceland and northern Scandinavia. Residing at our latitude in eastern Washington and north Idaho, there is a 5-10% chance of seeing the aurora each year. A dark sky that is cloud, haze, and smoke free is also helpful in seeing the aurora, especially around midnight. The best time to view the aurora is after a solar activity maximum, which can be quite variable.

The aurora occurs because the earth's magnetic field interacts with the solar wind, a mass of charged particles blowing away from the sun. We are protected from the solar wind's direct effects by the earth's magnetosphere. The electrical energy, generated by the charged particles blowing across the earth's magnetic field, send charged particles down into the earth's upper atmosphere. It takes 3 to 6 days for particles from the sun to reach earth. The number of particles and the intensity of the solar wind depends on how active the sun is. Some examples of solar activity include sunspots and solar flares. For more information of the Northern Lights, you can check out *The Aurora Watcher's Handbook* by T. Neil Davis or visit [www.geo.mtu.edu/weather/aurora/](http://www.geo.mtu.edu/weather/aurora/) and [sec.noaa.gov/pmap/index.html](http://sec.noaa.gov/pmap/index.html). ©



# WEATHER WATCHER

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Editor Robin Fox

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## Editor's Notes

Many updates have been done to the NWS database in the past month. This database contains the mailing addresses of all the recipients of this newsletter. Please let us know if you have recently moved or your address on your newsletter is incorrect.

Our newsletter, along with more information on the spotter program, is available on the NWS Spokane web page. If you prefer reading the newsletter online and don't require a paper copy, please contact [robin.fox@noaa.gov](mailto:robin.fox@noaa.gov) and we will remove you from our mailing list.

The main purpose of this publication is to keep our users informed about our services and programs, and to recognize those who help us accomplish our mission. Weather spotters and observers, in addition to our friends in the media and emergency management, will continue to be an extremely valuable part of the NWS mission.

All articles are written by the NWS. A special thanks to Ron Miller, Bob Bonner, Jon Fox, John Livingston and Ken Holmes for their contributions.

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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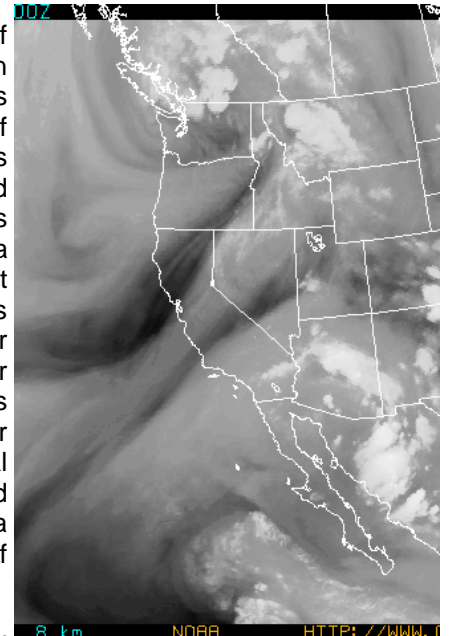
(509) 244-0110

## Thunder & Ice in the Hills

The summer of 2000 was relatively quiet in terms of strong thunderstorms over eastern Washington and north Idaho. Perhaps one of the reasons for this lack of thunderous activity was the absence of monsoonal moisture. Monsoonal moisture originates over northern Mexico and the desert southwest and brings much needed precipitation to those areas. This moisture can also bring precipitation to our area if a strong trough of low pressure moves onto the coast and turns our wind flow to a southerly direction. This situation will typically occur several times per summer over our region, with a much higher likelihood over eastern Oregon and southern Idaho. Most of this summer over our area featured a weak zonal or westerly flow pattern which kept the monsoonal moisture far to our south. Although the flow remained out of the west for most of the summer, there was a good infiltration of monsoonal moisture at the end of July.

The third week of July saw the prerequisite trough of low pressure develop off the west coast, with the flow turning more southerly through the week. Each subsequent day saw the monsoonal moisture creep farther and farther north. Finally on July 22<sup>nd</sup> the moisture crept into eastern Washington. This moisture, combined with temperatures in the upper 80s and 90s and a very cold pocket of air about 20,000 feet above the ground, provided the necessary ingredients for a powerful round of atmospheric pyrotechnics.

The majority of these thunderstorms were relegated to the east slopes of the Cascades, near the towns of Winthrop and Malott in western Okanogan county. The thunderstorms initially formed over the Puget Sound area during mid-afternoon. Then they moved into Okanogan county around 500 PM. They continued to buffet the area with frequent lightning, brief heavy rains, gusty winds, and hail through 630 PM. One of the storms dropped the largest hail stone reported this year in our area, a one inch diameter ball of ice. This hail stone was reported by a spotter, Robert Smith in Malott. Although the storms began to weaken over Washington after 630 PM, they were just beginning to grow more menacing over the Okanogon valley in southern British Columbia. Interestingly enough, our radar showed the makings of a strong mesocyclone or rotating storm between the towns of Osoyoos and Penticton. These rotating storms are often the precursor to severe thunderstorms or tornadoes. What makes this storm even more interesting though was the fact that our radar depicted this feature so well, even though it was about 140 miles away. After coordination with the weather office in southern British Columbia, it was determined that this radar feature indeed correlated well with a large swath of damage to the little town of Oliver, British Columbia. According to our Canadian counterparts, strong winds downed numerous trees and even destroyed a few roofs as the storms raged through the area. - Jon Fox ©



Water Vapor Image at 6 pm on 7/22. Notice the thunderstorm cloud tops over the Washington-British Columbia border and the flow of monsoon across Arizona and Idaho.

**ON THE INSIDE .....**  
NWS supports Wildfires  
Summer Review &  
Spotter corner

## NWS Support Wildfires

National Weather Service meteorologists play a vital role in support of the efforts to control wildfires that rage across the United States each year. They have been doing this since 1914. NWS meteorologists provide site-specific forecasting for wildfires of all sizes, from half an acre to many thousand of acres.

Once a fire starts, up-to-date weather information becomes especially critical. Weather and fuels are the key ingredients in fire behavior. Accurate forecasts of wind direction and speed strongly influence fire strategy and help incident commanders make the best possible decisions on controlling wildfires. The NWS has a small group of experienced fire weather forecasters, approximately 45 nationwide, known as Incident Meteorologists (IMETs). The IMETs are sent to remote locations throughout the U.S. to support wildfire operations. IMETs are there for fire crew safety and tactical support to the fire management team. The IMETs receive special training in microscale forecasting, fire behavior and fire operations which makes these fire weather forecasters a key member of the fire management team. In the NWS Spokane office, there are two trained IMETS, Gary Bennett and Todd Carter. Just this year, Gary has been dispatched to Washington wildfires at Handford and Nespelem in addition to western Montana. The wildfires Todd has been sent to include New Mexico, central Idaho and the Grand Tetons of Wyoming.

IMETS can deploy rapidly with portable forecast and communications equipment, such as laptop computers and cell phones. The Advanced Technology Meteorological Units (ATMUs) is system which enables forecasters to operate at the incident command post, providing close meteorological support to the suppression efforts. The ATMU weighs approximately 250 pounds. The forecaster sets up his portable unit and provides critical information that helps managers decide where to move fire crews.

Every year, IMETS are deployed to support hundreds of fires nationwide. Though fire weather is a concern in the summer and fall across the Inland Northwest, it can last all year from southern California to Florida. Forecasters help the on-scene fire management teams obtain and interpret weather information, train fire personnel on how weather may affect their operations during critical fire situations and ensure the safety of fire fighters. For further fire weather information, visit [www.noaa.gov/fireweather](http://www.noaa.gov/fireweather) or our homepage [www.wrh.noaa.gov/spokane/fire.htm](http://www.wrh.noaa.gov/spokane/fire.htm) ®

## Coop Observer Corner

With the changing seasons, it's time to think about snow. On October 1st, please start sending in your snowfall and snow depth groups with your ROSA observations. Avoid coding it as missing, use 0 or 0.0 instead. The snow groups will be required through March 31st.

On the same note, it is important to always include your 24 hour precipitation total in your observations, even if it is 0.00.

Thank you for all your hard work. The cooperative observers do a super job with taking and keeping weather records. Remember, please send in your forms as soon as possible after the end of the month. Any questions or comments can be sent to Bob Bonner at [robert.bonner@noaa.gov](mailto:robert.bonner@noaa.gov) ®

## A Cool and Dry Summer

The cool weather of May continued into June across the Inland Northwest. Spokane finally reached 80° for the first time this year on June 4<sup>th</sup>. This was well past the average date of 11 May, and only a week shy of the all time record for latest 80° day (11 June 1932). Overall the month of June was on the cool side, with most days below normal. Finally in the last week of the month, some warmer weather arrived with Wenatchee and Lewiston reaching the 90s for the first time of the summer.

This was short lived as the weather took a marked turn for the 4<sup>th</sup> of July weekend. Temperatures were as much as 15 degrees below normal during the holiday period. At the NWS Office in Spokane, we've become accustomed to stating that summer doesn't really begin in the Inland Northwest until after the 4<sup>th</sup> of July. This year was no exception. July 6<sup>th</sup> ended the cool showery weather and the area warmed up into consistent 80s and 90s for the remainder of the month. July 30<sup>th</sup> and 31st were the hottest days of the summer with Lewiston hitting 103°, Wenatchee topping out at 100°, and Spokane reaching 99°. Even so, the average temperatures for the month wound up a bit below normal.

The warm weather continued into the first 10 days of August. For the middle of the month, the weather remained relatively warm, but a few degrees below normal. There was one more hot spell remaining for the latter part of August, with Lewiston reaching 99° on the 23<sup>rd</sup>. After that though, a significant shift in the weather pattern ended the month on the cool side.

When the rain ended on July 6<sup>th</sup>, little did anyone realize that there would be virtually no rain for the remainder of the summer. While those of us in the western U.S. are used to dry summers, this was one of the drier ones. Spokane airport did not have measurable rain from 7/7 to 9/2, a total of 57 consecutive days. This tied for 6<sup>th</sup> place on the all time list of consecutive dry days. The summer of 1988 had the same number of consecutive dry days. The record of 73 days was set in the summer of 1917. Wenatchee's dry spell ended at 60 days with rain on September 2<sup>nd</sup>. But this pales in comparison to the record of 102 days in 1974. Lewiston had a couple of showers to break their consecutive streak of dry days, but the overall rainfall for July and August of 0.08" tied as the 7<sup>th</sup> driest summer on record. - Ron Miller ®

## September is NOAA Weather Radio Awareness Month in Washington

The goal is to have NOAA Weather Radios become as common as smoke alarms in homes and businesses statewide to help save lives and property from natural and technological hazards. Governor Locke has proclaimed September as Weather Radio Awareness Month in Washington. Visit [www.wa.gov/wsem/3-peet/pubed/weather/wxradio-month.htm](http://www.wa.gov/wsem/3-peet/pubed/weather/wxradio-month.htm) for more information. ®

## Summer Weather Statistics

Wenatchee Airport	Jun	Jul	Aug	Total
Average High Temp	78.9	85.7	84.8	83.1
Departure from Normal	-0.2	-1.0	-0.9	-0.7
Average Low Temp	54.7	58.8	58.9	57.5
Departure from Normal	+0.3	-1.0	-0.8	-0.5
Total Precip	0.15	0.07	0.00	0.22

Lewiston Airport	Jun	Jul	Aug	Total
Average High Temp	79.5	88.4	88.9	85.6
Departure from Normal	-0.3	-0.6	+0.6	-0.1
Average Low Temp	52.5	58.8	58.3	56.5
Departure from Normal	-1.4	-0.4	-0.6	-0.8
Total Precip	1.27	0.03	0.12	1.42
Departure from Normal	+0.02	-0.64	-0.66	-1.28

Spokane Airport	Jun	Jul	Aug	Total
Average High Temp	73.5	82.2	82.4	79.4
Departure from Normal	-1.2	-0.9	-0.1	-0.7
Average Low Temp	48.4	53.5	52.9	51.6
Departure from Normal	-1.1	-1.2	-1.6	-1.3
Total Precip	0.91	0.35	Trace	1.26
Departure from Normal	-0.35	-0.32	-0.72	-1.39

## WEATHER SPOTTER CHECKLIST

- ◆ **FUNNEL CLOUD**...Watch for cloud rotation aloft
- ◆ **TORNADO**...Watch for rotation & damage on the ground
- ◆ **HAIL**....Pea-sized or larger
- ◆ **HEAVY RAIN**....1/2 inch in 1 hr; 1.5+ inches in 24 hrs
- ◆ **HEAVY SNOW**...4 inches in 12 hrs; 6+ inches in 24 hrs
- ◆ **PRECIPITATION CHANGES**...rain to snow, freezing rain
- ◆ **FLOODING**...Of any kind. Report changing water levels
- ◆ **POOR VISIBILITY**....1/2 mile or less
- ◆ **TRAVEL PROBLEMS**...Any conditions due to weather
- ◆ **STRONG WINDS**...40 mph +, or any damage
- ◆ **ANY DAMAGE, INJURY OR LOSS OF LIFE DUE TO WEATHER**...Include location, time and specific cause.

If you observe any of these conditions, please call the NWS in Spokane and make a report at **(509) 244-0435**

## Spotter Corner

Two spotter training seminars were held this summer. One seminar was held in Wenatchee on July 24<sup>th</sup> and another was in Bonners Ferry on July 27<sup>th</sup>. In each seminar Warning Coordination Meteorologist Ken Holmes provided information on reporting procedures for spotters in addition to describing the unique weather found in the Inland Northwest. Twenty new spotters joined our growing network and will aid in giving the NWS ground truth during significant weather situations. If you are interested in having a spotter training seminar in your area, please contact Ken Holmes on the spotter phone line or at [kenneth.holmes@noaa.gov](mailto:kenneth.holmes@noaa.gov).

We are always looking for more weather spotters. Weather spotters are the eyes and ears of the NWS. According to our records, NWS Spokane office has more than 400 weather spotters across eastern Washington and north Idaho. That is an outstanding number! Many of our spotters are concentrated in metropolitan areas leaving the rural areas rather thin. Please let us know if you are aware of any weather enthusiast who resides in a rural location and would be interested in giving us reports on the weather. Contact Robin Fox on the spotter phone line or at [robin.fox@noaa.gov](mailto:robin.fox@noaa.gov). ®

### Trivia answer:

1. 73 days in 1917
2. 65 days in 1973 & 1883
3. 62 days in 1969
4. 58 days in 1967
5. 57 days in 1988 & 2000!