

Dry Lightning



Rain is sometimes good news to firefighters battling wild land blazes. But the threat of summer thunderstorms in the western US often puts firefighters on the alert. In the dry West, the humidity is often so low that rain falling from thunderstorms evaporates before reaching the ground. This phenomenon is called "virga." Even though the rain doesn't make it to the ground, flashes of lightning streak from the clouds to the ground. This lightning can start fires in dry woods with no rain to extinguish or slow the blazes. Lightning accounts for a large number of the forest fires in the West. *Courtesy of USA Today*

Weather Spotter Checklist

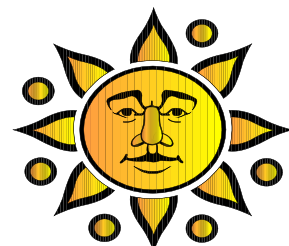
- ◆ **FUNNEL CLOUD or TORNADO**....Watch for rotation in cloud and damage
- ◆ **HAIL**....Pea-sized or larger
- ◆ **HEAVY RAIN**....1/2 inch in 1 hr; 1 inch in 12 hrs; 1.5 inches in 24 hrs.
- ◆ **HEAVY SNOW**...4 inches in 12 hrs; 6 inches in 24 hrs
- ◆ **FLOODING**...Of any kind. Is the water level rising or falling?
- ◆ **POOR VISIBILITY**....1/2 mile or less in blowing dust, rain, 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 40 mph. Or winds that produce any damage. Estimate using Beaufort chart.
- ◆ **ANY DAMAGE, INJURY OR LOSS OF LIFE DUE TO WEATHER**...Be sure to 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 or 1-800-483-4532

WEATHER WATCHER

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



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National Weather Service Quarterly Report

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Editor's Notes

Summer finally arrived - or did it? In a matter of weeks, we will be moving into autumn with the start of school and gardens maturing. This has prompted us to release the fall edition of the *Weather Watcher*. In this issue, we highlight fire weather and give an overview of our brief severe weather season. We also have several staff changes which we would like to announce.

The main purpose of this publication is to keep weather spotters and our users informed about our services and programs, and to recognize those who help us accomplish our mission. We will continue to see many exciting changes in weather observing and forecasting in the near future. Weather spotters and observers, in addition to our friends in the media and emergency management, will continue to be an extremely valuable part of our mission.

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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Fire exerts a powerful fascination. It conjures up thoughts of flames leaping forward and skyward, engulfing a tree or a grove of trees in a matter of minutes with intense heat and energy. A raging forest fire is among the most awesome of natural phenomena.

In general, fire is the common physical process resulting from the instantaneous combination of oxygen with a fuel, whether it be grass, wood or litter. Besides a physical process, fire is also a chemical process which rapidly breaks up plant substances. Decaying organisms accomplish the same end result as fire, only at a much slower rate. In this sense, fire has its natural place in the forest environment. It is the imbalances in the forest caused by the time, location and intensity of the fire, that lead to concern for the need of control. Despite fire's destructive capabilities, fire can be carefully and selectively used to manage forests. A wildfire is an unenclosed and freely spreading combustion which consumes the natural fuels of a forest; opposed to a controlled fire that remains carefully confined within a set boundary.

Fire weather pertains to the state of the weather with respect to its effect upon the ignition and spread of fires. The weather factors that contribute the most to fire starts and growth include low humidities, low precipitation, high winds and lightning. Twice daily, fire weather forecasts are issued to focus on these factors during fire season, roughly from late spring through early fall. The Spokane Weather Office has the fire weather forecast responsibility for most of the protected forest lands in eastern Washington.

So far, the 1999 fire season in eastern Washington has not been as active as previous years. Several fires did break out along the Cascade east slopes the first week of August due to dry lightning over very dry fuels. The larger fires were near Lake Wenatchee and Lake Chelan.

The Spokane office has issued several red flag warnings and fire weather watches this season. These watches and warnings are issued to heighten the concern and readiness of land management agencies when areas have low to critically low fuel moisture and when weather plays a factor in the spread or ignition of wild fires. This season's watches and warnings have been for possible thunderstorms that contained lightning but very little rain and gusty winds along the East Slopes and western Columbia Basin. Other critical fire weather factors that cause alarm are: minimum humidity values under 25% and a combination of a high Haines index, factor of fire growth, with a low humidity.

The outlook for the rest of the fire weather season in eastern Washington and the Cascades indicates temperatures to be above normal with near normal precipitation. This may cause fuels to dry out even more, allowing fire activity to increase if critical fire weather patterns move into our area.

All articles are written by the Spokane NWS staff. A special thanks to Robin Fox, Ron Miller, Bob Bonner, Brenda Rheinecker and Gary Bennett for their contributions.

ON THE INSIDE
Summer Recap, Severe Weather, Staff changes, Trivia... much more Coop News... and more

Severe Weather Review

Due to the dry and cool weather pattern, there were relatively few thunderstorms during the first half of the summer. In June, there were only two thunderstorm days with reports of severe weather - both of which occurred in extreme southeast Washington and adjacent areas of northern Idaho. During the early evening on June 15th, a severe thunderstorm tracked across Garfield county, WA and produced dime size hail in Dodge. Dime size hail was also reported in Craigmont in Lewis county, ID in the late afternoon on June 24th, while hail the size of golf balls pelted nearby Grangeville.

The weather remained tranquil through July. But by the first week of August, thunderstorms returned and persisted over eastern Washington and north Idaho. The weather culminated on the 6th of August with a few storms reaching severe strengths. These storms produced heavy downpours, small hail and wind gusts to 40 mph. Frequent lightning also lead to countless fire starts.

A warm thanks to the many spotters, sheriffs, HAMS, observers and emergency managers who called in with their timely reports. Ground truth is vital when the weather takes a turn for the worse. Your reports help the NWS keep public well informed on approaching severe and hazardous weather.

Dry and Cool Summer

The dry and cool weather pattern over the Inland Northwest during the spring continued into the middle of summer. Temperatures in all three of the past months have been below normal by about 3°F. All but 8 days in May were colder than normal for the area. The Spokane Airport received snow on five days in early May. By the end of the month, things were warming up. But aside from a warm spell in the middle of the month (including record high temperatures on the 15th at Spokane and Lewiston), June also turned out to be cooler than normal. The cool spell continued into July. Record low temperatures were set at Spokane on the 3rd and 4th of July with temperatures of 40 and 42 degrees respectively. By the end of the month, temperatures had climbed to above normal readings, with Lewiston reaching 103°F on both the 27th and 28th.

In addition to being cooler than normal, the past three months have also been on the dry side. While Lewiston and Spokane received above normal precipitation in June, Wenatchee saw little more than sprinkles. Rainfall in July was sparse at all locations.

The Climate Prediction Center (CPC) of the National Weather Service makes the long-range seasonal forecasts for the likelihood of above, near or below normal temperatures and precipitation. The outlook for this fall is near normal temperatures and above normal precipitation. Looking a bit farther into the future, CPC notes that the La Niña (the cold water opposite of El Niño) which was in place last winter, has persisted through the summer and will likely influence this winter's weather. At this point, we can expect a

similar winter to last year. The CPC forecasts can be viewed on their website at www.cpc.ncep.noaa.gov.

AREA WX STATISTICS

Wenatchee	May	Jun	Jul	Avg/Total
Avg High Temp	66.7	75.6	83.3	75.2
Departure from Norm	-4.2	-3.5	-3.4	-3.7
Avg Low Temp	43.4	52.0	57.8	51.0
Departure from Norm	-3.4	-2.4	-2.2	-2.7
Total Precip	0.34	0.02	0.11	0.47
Departure from Norm	-0.19	-0.55	-0.13	-0.87
Lewiston	May	Jun	Jul	Avg/Total
Avg High Temp	67.0	75.5	86.9	76.5
Departure from Norm	-3.8	-4.3	-2.1	-3.4
Avg Low Temp	43.5	52.1	56.8	50.8
Departure from Norm	-3.0	-1.8	-2.4	-2.4
Total Precip	1.31	1.50	0.20	3.01
Departure from Norm	0.00	+0.25	-0.47	-0.22
Spokane	May	Jun	Jul	Avg/Total
Avg High Temp	63.4	71.9	80.6	72.0
Departure from Norm	-2.5	-2.8	-2.5	-2.6
Avg Low Temp	37.8	47.9	51.7	45.8
Departure from Norm	-4.3	-1.8	-3.0	-3.2
Total Precip	0.73	1.36	0.13	2.22
Departure from Norm	-0.68	+0.10	-0.54	-1.12

THE COOP CORNER

Summer will be winding down in about a month. This would be a good time to start thinking about SNOW. In particular the correct procedures for measuring and reporting snowfall and snow depth.

The Spokane weather office has booklets that explain the correct procedures for taking and reporting cooperative snow observations. If you would like one of these booklets, you can give us a call using the 1-800 number or send in one of the supply cards, WS Form B-27. We'll be glad to send one to any of the cooperative observers.

Remember to remove the 8-inch rain gage's funnel and measuring tube at the beginning of the snow season. This is normally done the first of October!

Thanks for your participation in the COOP program!

NWS Staff Changes

Just as the weather is changeable, so is the staff at the Spokane weather office. This was especially true over the last few months.

Roger Buckman, veteran fire weather forecaster, officially retired at the end of July. Roger worked at the Wenatchee office for almost eleven years before the fire weather duties transferred to the Spokane office in 1997. Before he joined the NWS, his career spanned from a forecaster for Continental Airlines to a Colonel in the US Air Force. Roger and his wife Janie still reside in Wenatchee and plan to devote more time to their growing book business. Roger also plans to catch up on his yard work besides enjoying a few retirement activities.

Forecaster Eric Martello recently received a promotion to Senior Forecaster in Jackson, Mississippi. After growing up in Texas, Eric and his wife Laura were excited to move back to the South. Eric's NWS career path has taken him to Brownsville, Texas and Goodland, Kansas prior to serving in Spokane.

Laurie Koch spent her second summer as a student intern at the Spokane office. She will return to her studies at the University of Arizona this fall. Laurie, originally from Spokane, will be starting her third year in the meteorology program and would like to join the ranks of the NWS after graduation. She has been a great help with many research projects in the office, in addition, to calling many of you to verify addresses and phone numbers.

Starting in September, a new forecaster will be joining the NWS Spokane team - Paul Bos. Paul and his wife Michelle will be moving from Omaha, Nebraska. A native to the Pacific Northwest, Paul grew up in Portland and spent time in the Air Force in Tacoma.

We wish Roger, Eric, Laurie, Paul and their respective spouses the best of luck in their recent moves and achievements!

THE ROSA CORNER

The ROSA (Remote Observation System Automation) observers also have to keep SNOW in mind as we venture into fall and winter. Please begin sending the snow groups with each observation by the first of October.

Use code figure '69' for new snow during the past 24 hours. This is entered to the nearest tenth of an inch. For example, if you measure 2.2 inches of snow at your observation, you would report 692*2#. A trace is reported as 69*001# and no snow is reported as 690*00#.

Use code figure '68' for snow depth. Snow depth is reported to the nearest whole inch. For example, if you measure 2.2 inches you would report 682# and 2.6 inches report 683#. If you measure less than 1/2 inch, report 68*001# for a trace. If there is no snow on the ground, please report a zero or 680#.

Enjoy the rest of the summer and fall before the snow flies, and thanks for your participation in the ROSA program!



TRIVIA: Where and when was the largest lightning-caused wildfire in eastern Washington?

National Weather Service Forecast Office - Spokane

Meteorologist In Charge
John Livingston

Administrative Assistant
Jann Walker

Warning Coordination Meteorologist
Ken Holmes

Science Operations Officer
Ron Miller

Data Acquisition Program Manager
Robert Bonner

Service Hydrologist
Charles Ross

Senior Forecasters
Gary Bennett Todd Carter
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General Forecasters
Lyle Hammer Daran Rife
Rocky Pelatti Paul Bos

Fire Weather Forecaster
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Hydro-meteorological Technicians
Verne Ballard Irv Haynes
Milt Maas Stan Savoy
Larry Sossaman

Electronic System Analyst
Bob Cummings

Electronic Technicians
Merri Wallace Jeff Collette

Facilities Technician
Mike Belarde

Trivia answer: Tyee wildfire in the Wenatchee Ntl Forest; July of 1994; over 145,000 acres burned.