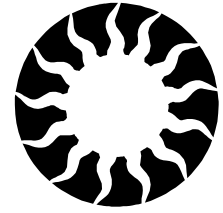


The Weather Watcher

of the Inland Northwest

www.wrh.noaa.gov/Spokane



A Whirl-Wind Week in Eastern Washington

East Wenatchee Tornado

On May 19th, strong thunderstorms developed over the foothills of the eastern Cascades. With a light easterly flow aloft, the storm motion was slow. Additional lift provided by the upslope motion into the mountains helped to sustain the storms. Instability was high with cold air aloft. There were several reports of the storms producing heavy downpours and half inch size hail.



One such storm grabbed the attention of numerous people around East Wenatchee. Around 4 pm, a brief tornado was spotted in the Fancher Heights/Canyon Hills area. It touched down in an open field behind a row of newer homes. Luckily no damage was sustained and the duration of the tornado was only a few minutes. Spotter Douglas #42, Kurt Sandbloom, was one of many observers of this event. Hail was reported nearby, ranging from pea to penny size and lasting for about 10 minutes. According to an observer, Krista Kauffman, "it came down fast and really hard. It looked like popcorn on the grass!"

Post analysis of the event suggests this was an example of a landspout, or a non-supercell tornado in a weak wind shear environment. They are not an unusual occurrence; one was sited near Moses Lake just last spring. Essentially, a landspout forms when a broad, weak area of rotation in the low levels of the atmosphere is caught up in the updraft of a developing

cumulus cloud or thunderstorm. The effect is similar to that of a figure-skater pulling in her arms to spin faster. As the area of rotation is stretched and constricts, it spins faster until condensation occurs and the funnel becomes visible. In this case, the landspout was in contact with the ground as seen by the debris cloud. Thus, by definition, it was a tornado. ☼ Robin Fox

Spokane Tornado

On May 21st, more thunderstorm activity developed over extreme eastern Washington and north Idaho. The weak upper flow had switched to the west. A dynamic cold front was sliding down from British Columbia. Ahead of the front, the atmosphere was unstable with cold air aloft and warm air at the surface. There were numerous reports of heavy rain and half inch size hail.



National Weather Service (NWS) Doppler radar indicated two strong storms merging a few miles west of Fairchild Air Force Base. Weak rotation in the storms was detected. At around 4:15 pm, a tornado was sighted just north of Sunwest Avenue near South Brooks Road. Although its path was only about 300 yards long and it lasted just a few minutes, it was capable of producing damage to a mobile home and a new barn while tearing shingles from a home. A trampoline was tossed in the air and landed on a power line where it ignited. Hail, ranging in size from marbles to quarters, pelted the ground in the storms path. Along Highway 2 from Airways Heights to Deep Creek, the hail was 6-8 inches deep on the road surface.

The NWS conducted a storm survey after the event. Based on the eyewitness accounts and radar images, this was not a classic supercell tornado as seen in the Midwest. It was more of a hybrid case dominated by a bowing line which interacted with a pre-existing outflow boundary.

The damage was consistent of an F0 tornado on the Fujita Scale. The Fujita Scale is used to rate the intensity of a tornado by examining the damage after it has passed over a man-made structure. An F0 tornado is defined as a weak tornado with winds estimated up to 72 miles per hour and no discernable path left on the ground. ☼ Robin Fox & Paul Bos

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Editor's Notes

Active spring weather will be winding down soon. We have about one more month before the cool and showery conditions wane, and the summer heat is upon us. It is important to keep an eye to the sky when embarking on any outdoor activity. The threat of thunderstorms will linger through the summer, whether the storms be wet or dry. Remember National Lightning Safety Awareness Week is from June 20-26, 2004.

If there is something you would like to see in the next newsletter or if you have comments about a past issue of the Weather Watcher, please contact Robin Fox or Ken Holmes (509) 244-0110 extension 223.

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. A special thanks to Ron Miller, Paul Bos, Charles Ross & Bob Tobin for their contributions.

Agilent Technologies Becomes StormReady

For its severe weather safety plans, the National Weather Service (NWS) in Spokane has presented Agilent Technologies Inc. with a certificate recognizing it as the nation's first "NWS StormReady Supporter" location. A ceremony was held on Wednesday, June 16th. They are commended for their efforts to enhance their hazardous weather safety operations plans and for assisting the NWS in developing a new prototype program which is scheduled to become operational later this year.

With their 28,000 total employees across the globe, Agilent has the infrastructure to support a diverse work environment. The Securitas Security Services, Agilent's safety department staff in Liberty Lake, has put together a comprehensive program that ensures their employees are aware of the weather safety requirements for their specific location. Their program will be a model for other large employers to follow who have a large staff working at multiple locations. Agilent serves customers in more than 110 countries and delivers innovative technologies, solutions and services to a wide range of customers in communications, electronics, life sciences, and chemical analysis ☼ *Ken Holmes*

Staff News

☉ Administrative Assistant, Rose Tibbits, has decided to become a full time mom and will resign from the NWS. This is great for Rose and her family, but sad for the NWS. Rose is a fantastic employee and will be missed!

☉ Electronics Technician, Paul Kozsan, has recently joined the NWS Spokane staff. He arrived from the Hanford office in the San Joaquin Valley of California. He and his wife are excited to make their home in Spokane. Welcome Paul!

Television with Warning Features Now in Stores

A new television set equipped with NOAA Weather Radio warning features appears to be popular with consumers, according to manufacturer Thomson, Inc. The RCA Alert Guard TVs provide on-screen text and/or audio alarms when the television is tuned to a cable channel, playing a VHS tape or DVD disc, viewing a satellite channel, or playing a video game. The sets are sold at Target stores nationwide, and are expected to be sold by two other national retailers soon. ☼

Spotter Corner

A Spotter Training session was held in Lewiston on the evening of March 31st. There were 29 spotters in attendance with four new spotters. It was held at the Nez Perce County Courthouse. The spotters represented Nez Perce, Lewis, Latah and Whitman counties.

Another Spotter Training session was held in Spokane on the evening of May 20st. It was one the largest sessions with over 60 in attendance and 15 new spotters. It was held in the Avista conference center. The thunderstorms and heavy rainfall during that afternoon and evening stirred considerable interest in the program. The spotters came from several surrounding counties including: Spokane, Kootenai, Bonner, Lincoln, Whitman and Stevens. Spotter packets with IDs have been sent to all new spotters and those with changes. If you were expecting a packet and did not receive one, please contact us.

More spotter training sessions will be scheduled in the near future. Please watch for the dates and times on the front of our web page. We will also continue to mail post cards to spotters who are in the local vicinity of the training locations.

Thanks for all the timely spotter reports, especially of the last month from hail to funnel clouds. Keep up the great work! ☼ *Ken Holmes & Robin Fox*

Abrupt Climate Change?

As the movie "The Day After Tomorrow" hit area theatres, there has been an increased discussion on climate change. Abrupt climate change is the earth's climate system shifting into a new climate state over a period of years to decades. A new climate state lasts long enough to distinguish it from a singular extreme event. Weather is described as the day-to-day changes in the atmosphere that happen in short-term increments from seconds to minutes to weeks. Climate, on the other hand, is the synthesis of this short-term weather information and a description of any variations in weather at a given place for a specified time frame, like months, years, decades and centuries. Climate scientists look for trends or cycles of variability and study them in context of the bigger picture and over the long term. Studies have shown that abrupt climate change cannot happen in days. Paleoclimatological records show that the most rapid changes in our climate happen in the span of years to decades. ☼

A "Backwards" Spring ?

While spring is often known for unique and wacky weather, this spring was rather unique in that it was somewhat backwards. Typically March and April are cool, while May is the start of the warmer spring weather. This was not the case this year!

MARCH began with a late-season snow on the first week of the month. Spokane picked up 2.4" from the storm, but some locations such as Sandpoint received more than 8" over a four day period. After that initial event, nearly every remaining day of March was warmer and drier than normal. High pressure kept the skies sunny, instead of the usual March showers. A rainstorm on the 25th gave Wenatchee 0.40" to put them above normal for the month, but most locations in the region saw below normal precipitation for March.

In **APRIL**, the warm and dry trend continued for much of the month. Showers and thunderstorms were few and far between as temperatures warmed well-above normal by the 12th. The mercury reached 80° for the first time this year in Lewiston on the 12th, about 2 weeks ahead of normal. This was quickly followed by a

cool, showery spell for the middle month. The region picked up most of its April precipitation during this period. While some locations such as Lewiston actually received the normal amount of rainfall for April, most sites did not. By the end of the month, much of the area was significantly below normal for the total precipitation for the water year, which began in October 2003.

MAY started off much in the way that April ended: warm and dry. Temperatures were in the 70s to lower 80s for the first few days of the month, but then came a significant change in the weather pattern. The persistent western U.S. high pressure ridge moved off the coast and allowed storms to drop down from Canada. These storms coupled with a moist atmosphere already in place gave the Inland Northwest a dose of Midwest-style weather. Heavy rain showers became the rule and brought much-needed rain to the region. At first the storm track was primarily across southern Washington and the southern Idaho Panhandle. Eventually the entire region got into the act as the storm track lifted north. This wet episode culminated on the 19th-21st of the month. A weak tornado touched down briefly near East Wenatchee on the afternoon of the 19th. Heavy rain and large hail was also observed with this storm. On the 20th, 1" hail fell on the Waterville Plateau and 3/4" hail was recorded at Potholes Reservoir near Moses Lake. Another tornado occurred on the 21st, this time just west of Spokane. Very heavy rain and 3/4"-1" hail was also reported. Spokane Airport picked up 2.19" in 24 hours. This was only 0.03" shy of the all-time record dating back to 1888. Preliminary monthly totals were also impressive!

Spring Weather Statistics

Wenatchee Airport	Mar	Apr	May	Total
Avg High Temp	57.9	67.2	70.4	65.2
Departure from Norm	+4.3	+4.3	-1.0	+2.5
Avg Low Temp	35.8	41.9	48.4	42.0
Departure from Norm	+2.2	+1.9	+1.1	+1.7
Total Precip	0.80	0.21	1.29	2.30
Departure from Norm	+0.12	-0.26	+0.68	+0.54
Lewiston Airport	Mar	Apr	May	Total
Avg High Temp	60.5	66.7	68.6	65.3
Departure from Norm	+6.7	+5.1	-1.4	+3.5
Avg Low Temp	37.8	41.3	48.5	42.3
Departure from Norm	+2.2	+0.7	+1.5	+1.5
Total Precip	0.44	1.34	3.13	4.91
Departure from Norm	-0.68	+0.03	+1.57	+0.92
Spokane Airport	Mar	Apr	May	Total
Avg High Temp	54.1	61.7	64.9	60.2
Departure from Norm	+5.5	+4.2	-1.3	+2.8
Avg Low Temp	32.4	37.4	44.3	38.0
Departure from Norm	+2.0	+1.9	+1.7	+1.9
Total Precip	0.67	0.57	3.67	5.01
Departure from Norm	-0.86	-0.71	+2.07	+0.50
Total Snow	2.7	T	0.4	3.1
Departure from Norm	-0.7	-0.9	+0.2	-1.4

Site	May 2004	Rank	All-Time May Record
Wenatchee	1.29"	7th	2.02" in 1998
Chief Joseph Dam	1.28"	12th	2.60" in 1990
Omak	1.85"	8th	4.42" in 1948
Lewiston	3.13"	7th	3.78" in 1998
Newport	3.22"	13th	5.73" in 1984
Avery, ID	6.85"	1st	5.53" in 1998
Cabinet, ID	3.29"	11st	6.56" in 1998
Kellogg	5.35"	4th	5.93" in 1941
Saint Maries	4.60"	5th	6.48" in 1948
Sandpoint	4.31"	8th	6.13" in 1941
Spokane	3.67"	3rd	5.71" in 1948

In the Inland Northwest, May can be a wet month. In fact, while the winter months of December and January are often the wettest of the twelve, May is wetter than March and April in most locations. On average, May is actually the wettest of all of the months in Lewiston. ☼ *Ron Miller*

Answer: Roughly 1 a year!

Remember your Summer Spotter Checklist

Tornado/ Funnel Cloud

Hail—pea size or larger

Strong Winds
30 mph+ or damage

Flooding—any kind

Heavy Rainfall
Showery— 1/2" an hour
Steady Rain- 1" in 12 hrs
or 1.5"+ in 24 hrs

Travel Problems or Any Damage due to weather!



Future Outlooks

SUMMER WEATHER

The National Weather Service Climate Prediction Center suggests that during the summer months of June, July and August there will be above normal temperatures and normal to below normal precipitation for the Inland Northwest. For more details on the seasonal forecasts, please visit <http://www.cpc.ncep.noaa.gov/products/forecasts>.

FIRE SEASON

Although the cool and showery pattern of the end of May was a welcome return to spring, it is not enough to alleviate the five plus years of drought conditions in the forests of the Inland Northwest. With normal temperature and precipitation conditions expected through June, it appears there will be a typical start of the fire season by mid July. The fire season is expected to be active with an elevated risk of long-duration timber fires through the summer. The wild card will be lightning. On average, the Inland Northwest experiences 2 to 3 episodes of significant lightning that result in numerous fire starts. Please visit <http://www.wrh.noaa.gov/spokane/fire.htm> for details and updates this fire season. ☀ *Bob Tobin*

WATER SUPPLY

After a promising start to the water year in December and January with plentiful mountain snowfall, the active winter storm track shifted in February. This left the Inland Northwest with warm and dry conditions from February through April. Mountain snow packs finished at below average levels, and the warm spring temperatures produced an early melt off. Fortunately, the month of May brought much needed precipitation to the area. This has improved the water picture for many areas, especially across southeast Washington and north central Idaho. However, more precipitation is still needed across many areas. One area still experiencing a large precipitation deficit is in the east slopes of the Washington Cascades. Please view the latest Water Supply Forecast at <http://www.wrh.noaa.gov/spokane/hydro.htm> for more information. ☀ *Charles Ross*

Apology:

Due to problems at the print shop, the spring issue suffered from truncated sentences at the end of most articles. We apologize for the error and the inconvenience. We have a corrected version available at <http://www.wrh.noaa.gov/spokane/news/news.htm> ☀

The Weather Watcher Of the Inland Northwest



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Trivia: How many tornadoes on average occur each year in the Inland Northwest?