

2010 Annual Summary

If there were any thoughts that El Niño wouldn't pan out this winter, those were quickly put to rest in **January**. The month started off rather mild, with temperatures reaching the lower 40s for many locations. One last cold air mass moved in on the 5th, bringing some light snowfall. Heavy rain coupled with frozen ground brought localized flooding to the Palouse area. Temperatures for the next few days remained in the teens and 20s. Little did we know it then, but that was about it for winter. Temperatures rebounded into the 40s and lower 50s for the remainder of the month. Every day for the rest of the month had above normal temperatures. The month wound up being one of the 10 warmest January's ever, but was still a bit cooler than the mild January of 2006. While the temperatures were mild, there were still a number of rain events. The Cascades actually received above-normal precipitation for the month. The 1.4" of snowfall at Spokane was the 4th lowest snowfall total for any January.

The mild El Niño weather continued into **February**, with daytime temperatures in the 40s and lower 50s common place, and nighttime lows often remaining above freezing. The average January and February temperatures at Spokane were the 4th warmest ever, just slightly behind the strong El Niño winter of 1982/83. Pacific fronts on the 5th, 11th, 14th, and 26th brought rain to most of the lower elevations. The front on the 26th was rather impressive, bringing 1.27" of rain to Wenatchee Airport, which was a 24-hour precipitation record for the month of February. The month ended with Spokane's official snow total at 13.7". The least snowy winter at the Spokane Airport is 14.2" which means that the snowiest winter ever in Spokane (2008/09) was followed by the one of the least snowiest winters (2009/10).

As we've said before, spring is the longest season in the Inland Northwest. Ignore what your calendar says, since it's based on the astronomical and not the climatological. In our part of the world, spring starts around President's Day and doesn't end until the 4th of July. Just about every warm spell that starts to "look like summer" is followed by a cool spell. And this year was no different. Coming out of a mild winter, the question was whether we would see a warm and dry spring. Initially, that looked to be the case.

March was a rather uneventful month, weather-wise. Temperatures hovered in the 50s and lower 60s for the most part, with a few cold spells. The first came on the 8th as a colder unstable air mass moved into the area. This didn't bring widespread precipitation as much as it did showers, and if the showers occurred at night, valley snow accumulations were possible. An observer near Boyds in Ferry county picked up 4.5" of snow on the 12th. The 13th brought heavy rain and high elevation snow to many locations. Winchester, ID had 6.8" of snow by the morning of the 13th, while Republic picked up nearly an inch of rain. Temperatures moderated a bit, reaching the 60s for most every location on the 16th. Pullman had a record high for the day of 65 degrees. The weather would remain seasonal until the end of the month when another wet and

cool Pacific storm arrived. By the morning of the 30th, rainfall totals of 0.5-1" were observed in most locations with up to 3" in the northern Panhandle and northeast Washington. But aside from these 2 events, March was warmer and drier than average.

The weather in early **April** was more March-like. Temperatures ran 5 to 10 degrees below normal and snow showers were common, even during the afternoon in the lower elevations. Omak only reached 39 degrees on the 2nd, setting a record for the day. Spokane Airport officially measured 0.6" of snow on the 2nd. This pushed the seasonal total up to 14.3", which meant that this wasn't the least-snowy winter on record (14.2" in 1980/81 is the record). This past winter was characterized by rather weak storms, and thus, not much wind. The strongest front of the winter (at that point) pushed through the Inland Northwest on the 8th. Widespread strong winds were observed. The wind at the Spokane and Pullman airports gusted to 53 mph, with a 47 mph gust reported at Wenatchee. Some trees were damaged, leading to some power outages.

The first spring-like warm spell arrived in mid-April. Many locations saw their first daytime temperature in the 70s on the 16th. On the 19th Lewiston, Moses Lake, and Ephrata all hit the 80 degree mark for the first time this spring, setting records for the day, and Colville reached 85 degrees. But the warmth was short-lived, as a cold front brought widespread rain and cooler temperatures on the 21st. The month would finish out with a colder and wetter storm system. Rainfall on the 28th was generally ¾ to 1" in many locations, with 7-10" of snow in the mountains above 4500 feet. The weather remained unsettled through the 30th with numerous showers.

May started off on a windy note. A very strong cold front ripped through the region on the 3rd bringing high winds to all locations. Wind gusts into the 50-60 mph range were commonplace knocking down trees and power lines. Semi trucks were knocked over near Vantage and in Lewiston. The cool trend of late April continued into the first week of May. Daytime temperatures struggled to make it into the lower 50s in some locations. 6.9 inches of snow fell in Winchester (elevation 4000 feet) during the evening of the 5th. Gradually the temperatures warmed into the 80s by the 15th and 16th. Yet another strong Pacific front blew through the area on the 19th, bringing an end to the warm temperatures. A weak tornado touched down northeast of Moses Lake causing some damage to a farm. Thunderstorm winds also caused damage to a roof in Moscow, injuring one person.

Very cold and dry air moved in behind the front. Temperatures dropped below freezing in many areas on the 21st. Deer Park had a low of 25 degrees and Priest Lake dropped to 26 degrees. On the 24th, the low temperature at Spokane was 32 degrees, which was only one day shy of the latest freezing temperature ever in Spokane. Only a few days later, a very wet and slow moving low pressure system took up residence over the Pacific Northwest bringing heavy rain to the area. Spokane received 0.98" of rain on

the 27th, breaking the record for the day. Nespelem picked up 1.87" of rain in 24 hours. For the month, May was wetter and colder than normal. In Omak, it tied 1974 as the coldest May on record, and it was the 4th wettest May ever.

June continued the wet pattern that had set up in late May. Nearly every day in the first two-thirds of the month saw temperatures at or below normal. Daily rainfall records were set at several sites. Widespread heavy rain fell on the 2nd. More than 2" of rain fell in the Panhandle Mountains and Lewiston had 0.87" of rain. After temperatures had warmed into the 70s and lower 80s on the 13th, a cold storm system dropped temperatures into the 50s on the 16th. Spokane only reached a high of 52 degrees while Pullman topped out at 51 degrees as widespread rain once again fell. Yet another wet storm system brought heavy rain to the region on the 20th and 21st, this many locations receiving more than a half inch of rain. As the weather warmed again, thunderstorms developed. One complex moved through the Hartline area (north of Moses Lake) on the 23rd, bringing Quarter-sized hail, strong winds and flash flooding.

The common saying of "summer doesn't start until after the 4th of **July**" was once again put to the test this year. Cool temperatures and showery weather prevailed for the first few days of July. By the 6th, temperatures saw a noted warming trend, reaching the upper 80s to mid 90s for the first time in the summer. Lewiston reached 99 degrees on the 9th while La Crosse (on the Washington Palouse) touched 100 degrees. Like all of the hot spells this summer, the hot weather was short lived. A strong dry cold front blew in on the 12th, causing blowing dust in the Columbia Basin as winds gusted to 53 mph at Vantage, WA. Daytime temperatures cooled into the 70s by the 13th. Pullman and Omak set record lows on the 14th of 38 and 44 degrees respectively. Another dry cold front brought gusty winds on the 22nd. The front also caused some strong thunderstorms in the northern Panhandle, knocking down some trees. The hottest temperatures of the summer arrived around the 26th with Lewiston reaching 102 degrees. Thunderstorms on the 28th brought heavy rain to parts of the Columbia Basin as well as the Wenatchee area. Number 1 and 2 Canyon roads washed out in places while in Wenatchee the flooding was pushing up the manhole covers. A mudslide closed highway 97A near Entiat. The month ended with thunderstorms dropping golf ball-sized hail in Kamiah.

August in general was a quiet month, weather-wise, with near-normal temperatures. Thunderstorms on the 6th brought 1.5" hail to Asotin, WA. Yet another strong summer cold front moved across the region on the 26th, once again causing very low visibilities due to blowing dust. Lake Chelan reported a wind gust to 52 mph while Lewiston Airport gusted to 51 mph. The winds also caused several wild fires.

So how cool was the summer of 2010? Here's a few numbers to help quantify it:

- Spokane's average high temperature for Jun-Aug was the coolest since 1995.
- Spokane had 90+ degrees for a high only 9 times, compared to an average of 17.
- Lewiston had 100+ degrees for a high only 2 times, compared to an average of 8.

Our typically beautiful Fall weather did not disappoint this year. But winter did come a little earlier than normal, with quite a vengeance.

September started on a warm note, with temperatures reaching the mid 80s to lower 90s on the 3rd. But that came to a quick end with a strong dry cold front. Blowing dust in the Columbia Basin on the 4th closed some roads for awhile due to poor visibilities. Behind the front temperatures were below normal for about a week. A very wet weather system moved through the area on the 19th, bringing moderate to heavy rain to just about everyone. Daily rainfall records were set from Wenatchee and Omak across to Pullman. Ephrata picked up 0.51" of rain while La Crosse received 0.57". Heavy rain washed out a road near Tonasket. But September had one more taste of summer-like weather at the end of the month, with temperatures once again warming into the 80s on the 28th.

This warmth continued into early **October**, with temperatures running 15 degrees above normal on the first 2 days of the month. Five days later, high temperatures were 25 degrees cooler, but the air was rather moist so the nighttime lows stayed rather mild. The 7th saw a rather rare occurrence of a tornado on the Camas Prairie southeast of Lewiston. While it did no damage, it was very unusual for October. This was actually spawned by the same storm system that produced several tornadoes in the Flagstaff, AZ area the day before. Quiet weather set in for the middle part of the month, before another wet storm system passed through on the 24th. Ephrata and Moses Lake both set daily rainfall records with 0.26" and 0.23" respectively. Meanwhile, with snow levels down to around 5000 feet, the mountains picked up their first heavy accumulation of snow, with some reports of up to 20". Overall, October was a rather mild and wet month. The mercury dropped below freezing only twice at the Spokane Airport, compared to an average of 7 times.

The mild weather of October gave way to a much harsher **November**. Colder air lowered snow levels to bring the first low elevation snow to the valleys of the eastern Cascades. The last gasp of mild fall weather came in the middle of November, as Wenatchee set a record high temperature on the 14th of 61 degrees. A very impressive cold front moved into the Inland Northwest bringing with it strong winds and nocturnal thunderstorms. Lewiston Airport gusted to 63 mph, a record for the month of November. Pullman-Moscow Airport recorded a gust to 85 mph. Wind gusts in excess

of 60 mph were common throughout the area. Meanwhile heavy rain in northeast Washington brought nearly an inch of rain to many locations, with 1.18" observed at Chattaroy. Mountain ski resorts received considerable snowfall.

An equally impressive storm approached the area from the northwest on the 22nd, and prompted the issuance of blizzard warnings for many locations. The combination of heavy snow and strong winds caused many Columbia Basin roads to drift shut. Some snowfall reports included 9.7" at Newport, 11" at Anatone, 9" at Colfax, and 12" at Moscow. In its wake, cold air dropped the temperatures below zero at many locations. Record low temperatures on the 24th were set at Lewiston (-1), Omak (-6), Ephrata (-14) and Pullman (-10). More snow was on the way for the Thanksgiving holiday weekend through the end of the month. The storm on the 30th brought 10" to Sandpoint, 7.6" to Palouse, and 6.6" to North Spokane. Spokane set a snowfall record for the month of November with 25.9".

After a very cold and snowy end of November, the stage was set for a big winter. But inspection of past winters with strong La Nina conditions indicated that the heavy November snowfall might not survive until Christmas. And in **December** 2010, this was once again the case. The weather pattern during the first part of December was anything but snowy for most of the area. A few locations in the Cascades picked up 6-8" of snow on the 8th. A heavier snow event on the 11th and 12th dumped up to 2 feet of snow in the Cascades and Waterville Plateau area. A spotter in East Wenatchee received 13.8" of snow in 24 hours, while Mazama picked up 21". But then the temperatures warmed as a wet and windy storm moved through on the 14th. A peak gust of 51 mph was measured in Spangle, south of Spokane. This combination of wind and warmth melted most of the snow in the Basin and Palouse. The warm spell was brief and light amounts of snow started once again accumulating, bringing a white Christmas for most folks. A somewhat stronger storm brought up to 7" of snow to the Spokane area on the 29th. But the big winner was the town of Clark Fork, ID which received 28.5" of snow from the storm. In the wake of this storm, temperatures dropped into the teens with sub-zero lows for New Years Day.

Site: Wenatchee, WA (Water Plant)

| | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP | OCT | NOV | DEC | AVG |
|-------------------|------|------|------|------|------|------|------|------|------|------|------|------|------|
| Average High Temp | 38.6 | 47.0 | 57.0 | 62.2 | 67.6 | 76.0 | 88.2 | 86.0 | 74.4 | 64.9 | 43.9 | 35.6 | 61.8 |
| Dep from Normal | +3.5 | +4.2 | +2.1 | -2.4 | -5.5 | -4.1 | +0.4 | -1.2 | -3.3 | +1.2 | -2.0 | -0.1 | +1.1 |

| | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP | OCT | NOV | DEC | AVG |
|------------------|------|------|------|------|------|------|------|------|------|------|------|------|------|
| Average Low Temp | 30.5 | 32.2 | 34.2 | 39.9 | 45.7 | 53.4 | 60.9 | 59.9 | 52.4 | 42.7 | 29.9 | 28.2 | 42.5 |
| Dep from Normal | +7.3 | +4.8 | +0.3 | -0.9 | -2.9 | -2.1 | 0.0 | -0.4 | +1.2 | +1.9 | -2.3 | +3.0 | +0.7 |

| | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP | OCT | NOV | DEC | Total |
|-----------------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
| Precipitation | 1.99 | 1.49 | 0.28 | 0.60 | 1.51 | 1.30 | 0.89 | 0.06 | 0.94 | 0.29 | 1.02 | 2.06 | 12.43 |
| Dep from Normal | +0.64 | +0.55 | -0.36 | +0.09 | +1.00 | +0.61 | +0.59 | -0.35 | +0.54 | -0.20 | -0.34 | +0.54 | +3.93 |

| | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP | OCT | NOV | DEC | Total |
|-----------------|------|------|------|-----|-----|-----|-----|-----|-----|-----|------|------|-------|
| Snowfall | 3.9 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 5.2 | 9.6 | 18.7 |
| Dep from Normal | -5.4 | -4.2 | -0.9 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | +2.8 | -1.0 | -8.6 |

Site: Lewiston, ID

| | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP | OCT | NOV | DEC | AVG |
|-------------------|------|------|------|------|------|------|------|------|------|------|------|------|------|
| Average High Temp | 46.8 | 50.7 | 56.7 | 62.0 | 65.7 | 74.1 | 89.2 | 87.5 | 77.5 | 63.2 | 45.5 | 41.4 | 63.4 |
| Dep from Normal | +7.4 | +5.1 | +2.9 | +0.4 | -4.2 | -3.8 | +1.6 | -0.1 | +0.8 | +1.3 | -1.3 | +2.2 | +1.1 |

| | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP | OCT | NOV | DEC | AVG |
|------------------|------|------|------|------|------|------|------|------|------|------|------|------|------|
| Average Low Temp | 35.2 | 34.5 | 35.1 | 40.0 | 44.0 | 52.9 | 58.2 | 58.7 | 52.8 | 44.2 | 31.5 | 29.7 | 43.1 |
| Dep from Normal | +7.3 | +3.3 | -0.5 | -0.6 | -2.9 | -0.7 | -1.1 | -0.6 | +1.9 | +3.0 | -2.6 | +1.2 | +0.7 |

| | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP | OCT | NOV | DEC | Total |
|-----------------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
| Precipitation | 1.82 | 0.59 | 0.99 | 1.55 | 1.78 | 2.73 | 0.16 | 0.24 | 0.70 | 1.20 | 1.03 | 1.70 | 14.49 |
| Dep from Normal | +0.68 | -0.46 | -0.13 | +0.24 | +0.22 | +1.57 | -0.56 | -0.51 | -0.11 | +0.24 | -0.18 | +0.65 | +1.56 |

| | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP | OCT | NOV | DEC | Total |
|-----------------|------|------|------|------|-----|-----|-----|-----|-----|------|------|------|-------|
| Snowfall | Tr | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 6.7 | 4.7 | 11.4 |
| Dep from Normal | -5.7 | -2.2 | -1.1 | -0.1 | 0 | 0 | 0 | 0 | 0 | -0.1 | +4.7 | -0.1 | -4.6 |

Site: Spokane, WA

| | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP | OCT | NOV | DEC | AVG |
|-------------------|------|------|------|------|------|------|------|------|------|------|------|------|------|
| Average High Temp | 40.0 | 44.2 | 50.8 | 56.4 | 61.9 | 68.6 | 82.5 | 81.4 | 70.9 | 58.5 | 39.2 | 34.2 | 57.4 |
| Dep from Normal | +7.2 | +4.9 | +2.2 | -1.1 | -4.3 | -5.3 | 0.0 | -1.2 | -1.6 | 0.0 | -1.9 | +1.4 | +0.2 |

| | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP | OCT | NOV | DEC | AVG |
|------------------|------|------|------|------|------|------|------|------|------|------|------|------|------|
| Average Low Temp | 30.1 | 31.5 | 31.5 | 37.1 | 40.7 | 49.7 | 55.3 | 55.6 | 48.7 | 40.9 | 27.0 | 24.5 | 39.4 |
| Dep from Normal | +8.4 | +5.8 | +1.1 | +1.6 | -3.2 | +0.5 | +0.7 | +1.1 | +2.8 | +5.1 | -1.7 | +2.9 | +1.8 |

| | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP | OCT | NOV | DEC | Total |
|-----------------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
| Precipitation | 1.54 | 1.28 | 1.20 | 1.21 | 2.15 | 2.56 | 0.36 | 0.21 | 0.69 | 1.54 | 3.10 | 3.19 | 19.03 |
| Dep from Normal | -0.28 | -0.23 | -0.33 | -0.07 | +0.55 | +1.38 | -0.40 | -0.47 | -0.07 | +0.48 | +0.86 | +0.94 | +2.36 |

| | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP | OCT | NOV | DEC | Total |
|-----------------|-------|------|------|------|-----|-----|-----|-----|-----|------|-------|------|-------|
| Snowfall | 1.4 | 0.9 | Tr | 0.7 | 0 | 0 | 0 | 0 | 0 | Tr | 25.9 | 17.4 | 46.3 |
| Dep from Normal | -12.8 | -5.8 | -3.6 | -0.2 | 0 | 0 | 0 | 0 | 0 | -0.3 | +19.5 | +2.3 | -0.1 |

