May 2017

Weather Watch

Northern Rockies

NWS Missoula, Montana

What a Winter and Spring!

Contributed by Trent Smith

Did it feel like this winter would never end? Were you chilled to the bone? More so than any other winter? Well you were not alone. This was an intriguing winter to say the least. The Northern Rockies had one of the wettest falls on record, followed by a cold and snowy winter for the valleys. Then the spring remained cool and wet for the months of March and April. Many days passed without the sun being seen, making for gloomy conditions for many residents of the Northern Rockies.

Photo credit NWS Employee

October turned out to be a record breaking wet month for the Northern Rockies. Weather systems tapped into significant plumes of subtropical moisture. When the precipitation had ended for the month of October, 19 stations had top ten wettest October's. Fourteen stations achieved their wettest October ever. Three stations reached the all-time wettest month on record. If you would like to know more about the rain in October, we produced a YouTube video: https://www.youtube.com/watch?v=wbUyTAI0rx8.

November was a fairly nice month with maximum temperatures averaging 48 degrees and precipitation being below normal for most stations around the region.

Inside this issue:

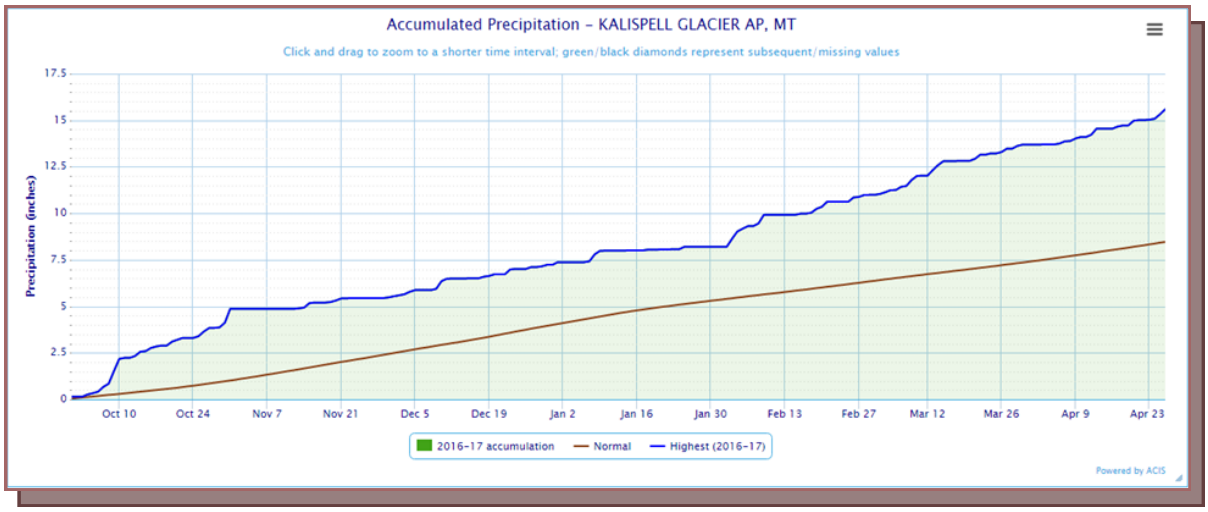
What a Winter and Spring! continued

A prolonged deep freeze began in December that did not end until February. This was a persistent cold that had not been experienced since at least 1993, and in a few locations not since 1979. Average three month mean temperatures ranked in the top ten for coldest in places such as Missoula, Kalispell, Orofino and May (south of Salmon, ID). This persistent cold air allowed snow to accumulate in the valleys as storm systems moved through the region, instead of experiencing the usual down sloping effects off of the mountains. Missoula received 64.6 inches of snow while the average is 37.8 inches. Orofino Idaho recorded 32.4 inches (normally they receive 16.6 inches). Kalispell had 89.8 inches of snow with the average being 55.6 inches. Despite the heavy valley snow, mountains generally only had slightly above normal snow.

Minimum 3-Month Mean Avg Temperature for MISSOULA INTL AP, MT

Click column heading to sort ascending, click again to sort descending.

Rank	Value	Ending Date	Missing Days
1	12.9	1949-02-28	0
2	15.3	1979-02-28	0
3	15.9	1979-01-31	0
4	16.7	1949-01-31	0
5	17.7	1993-02-28	0
6	19.1	1949-03-31	0
7	20.0	2017-02-28	0
8	20.1	1969-02-28	0
9	20.3	1950-02-28	0
10	20.4	1962-02-28	0



Temperatures started to become more normal for the months of March and April across much of the Northern Rockies, but the precipitation did not end. Of the 61 days in March and April, only 11 days were dry in Missoula, 10 days in Kalispell and 14 days in Orofino, Idaho. This persistent rainfall combined with melting valley snow, caused significant flooding and rock/mud slides across the Northern Rockies. Clearwater county Idaho experienced the blunt of the damage from these events as Orofino Creek reached flood stage and many roads throughout the county were impassable at times due to debris and water on the roadways. Even though temperatures were in the normal range these past two month, Missoula did break a record of longest stretch without a 60 degree day.

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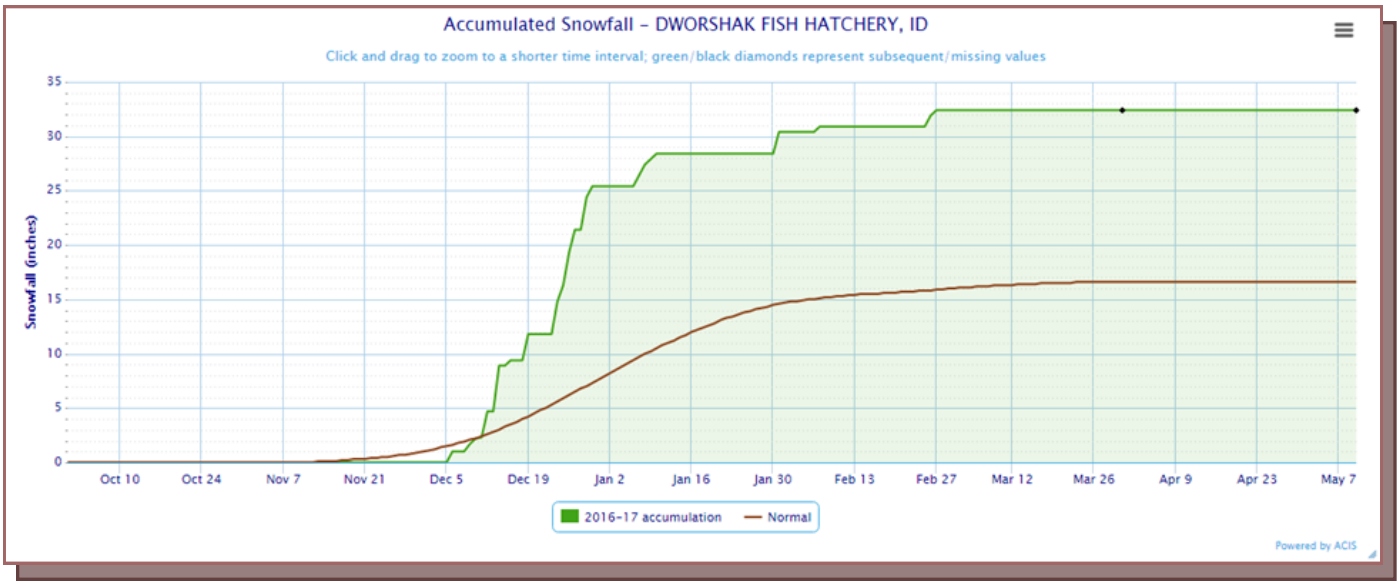
What a Winter and Spring! continued



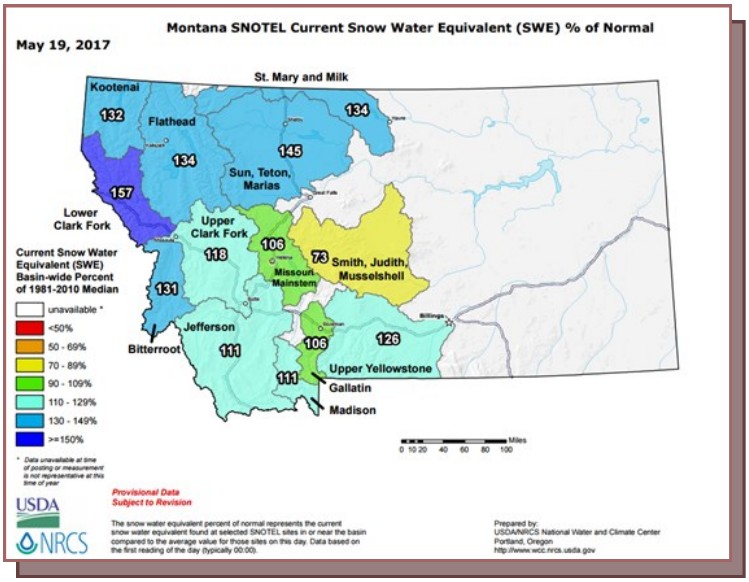
The previous record was 174 days set in 1971, but on April 4th 2017 Missoula went 177 days (nearly a half a year) without reaching that 60 mark. This wet March and April allowed the mountains to steadily increase snowpack to above normal readings. So far this May, temperatures have rebounded with periods of above normal temperatures and less precipitation.

Picture taken from HWY 12 near Lowell, ID. Rye Patch Creek

Snowpack Above Normal For Western Montana And North Central Idaho

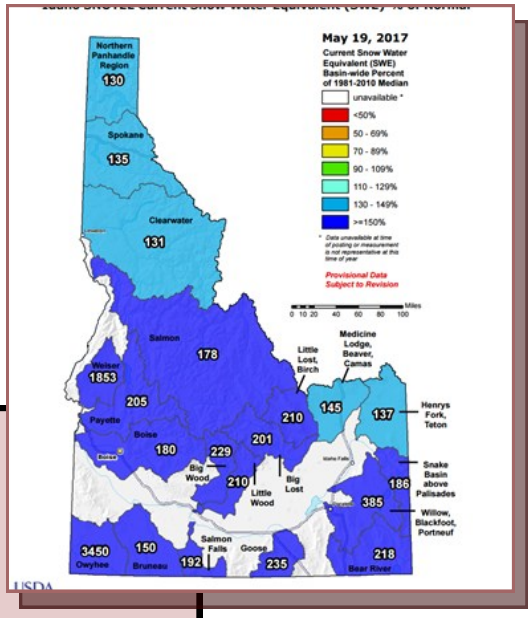
Contributed by Ray Nickless

The winter and spring of 2016-2017 produced an above normal snowpack for western Montana and north central Idaho. May 19 snowpack percentages continue to climb at the higher elevations. What does the above normal snowpack mean for MT & ID rivers and streams? Most rivers and streams have been well above normal flows for the month of March and April due to above normal low elevation snowmelt. Water supply forecasts for the rivers of western MT and north central ID range from 110 to 195 percent of normal.



Western Montana & North Central Idaho (Flood Forecasts)

The above normal snowpack may lead to flooding on many rivers across western MT and north central ID. The rivers that have the highest chance for additional flooding are the Flathead River in northwest MT and the Salmon River in ID.



The following forecasts are from hydrologic computer model analysis made on April 27, 2017

Salmon River at Salmon, ID (Flood stage = 7.5 feet)

60% chance of exceeding the 7.5 foot level

25% chance of exceeding the 8.0 foot level

Flathead River at Columbia Falls, MT (Flood stage = 13 feet)

95% chance of exceeding the 13 foot level

40% chance of exceeding the 14 foot level

Supercell Thunderstorm in Kalispell, MT

Contributed by Dave Noble

What happens when you combine an incoming Pacific weather system, strong southwest flow aloft and summer-time warmth over the Northern Rockies? Supercell thunderstorm development becomes very possible.

The weather system (upper level trough of low pressure) contains much colder air in the higher atmosphere while the air temperatures near the surface can approach the 80s and 90s. This strong temperature difference between the surface and up to around 30,000 feet MSL creates very unstable conditions. If you have enough Pacific moisture available aloft and you have a lifting mechanism, thunderstorms can fire up rather quickly.

Supercell thunderstorms differ from ordinary air-mass thunderstorms in that they can be self-sustaining, long-lasting and can be strongly rotating. Large hail stones are the beneficiaries of a strongly rotating supercell. The reason being is that once a baby hail stone completes its twisty trip up into the fast and rising column of air, called the "updraft", it begins to fall down only to be picked up by the updraft again to have another go around. Some hail stones will make it down to the ground while others can complete the up and down cycle several times. This is one of the reasons why you will find varying sizes of hailstones.

Thank you Madeline Steeley, from Kalispell, who emailed this photo of 1" hail to our mso.media@noaa.gov address. This is a great example of quality photos that help us ascertain how big the hail was from this storm.

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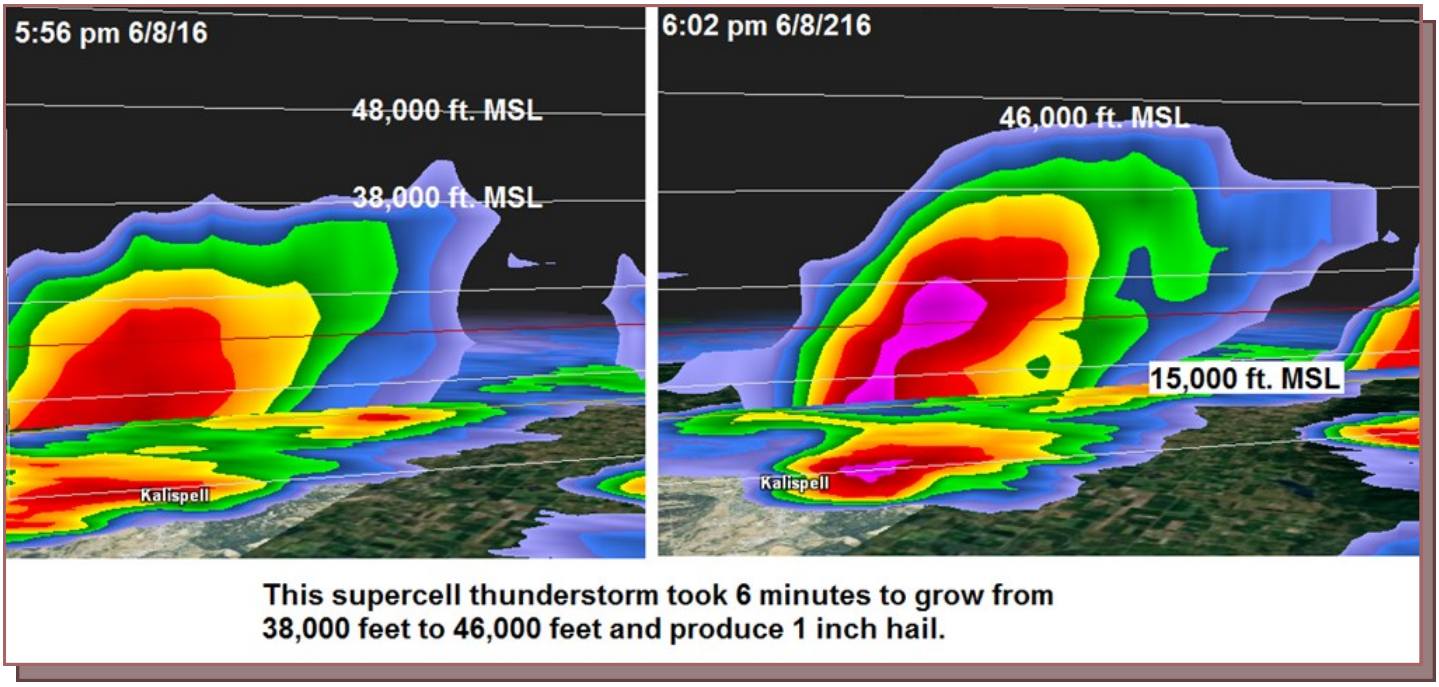
Supercell Thunderstorm in Kalispell, MT continued



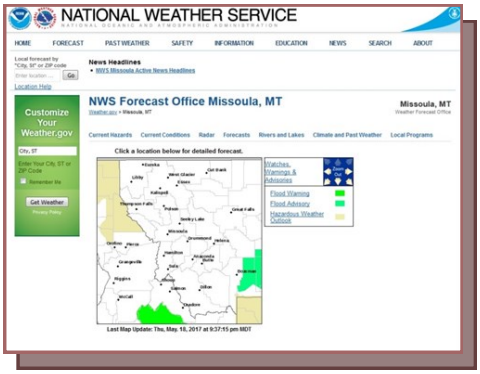
This supercell thunderstorm took 6 minutes to grow from 38,000 feet to 46,000 feet and produce 1 inch hail.

On June 8, 2016 our region experienced a severe thunderstorm outbreak. Most of the storms fired up over central Idaho and tracked northeast into northwest Montana. A few storms affected southwest Montana with mainly wind issues. There was one supercell that explosively grew up as it neared the Kalispell area unleashing mainly 1 inch diameter hail. But by the time it reached Evergreen, the hail had grown to the size of a half-dollar coin (1.25"). Look at the radar cross-section through this storm. Note how fast it grew upward in 6 minutes! By 6:02 pm the storm was approximately 8 miles high. Just think, the hail stones had to travel a long distance before falling out of the cloud.

Social Media Platforms

We are located on several Social Media Platforms, plus our website!

Website: www.weather.gov/mso



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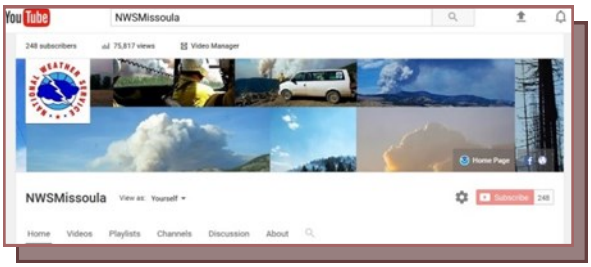
YouTube:



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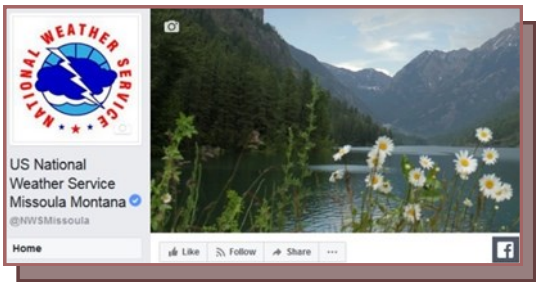

Instagram: