

2018-19 Winter Season Recap

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Early season snowfall favored the mountains around Bozeman and Big Sky. For much of November, Brackett Creek Snotel site in the Bridger Range was at a record high for total SWE (snow water equivalent). By the end of November, Brackett Creek was recording 7.7" of SWE totaling 29" of snow. Shower Falls Snotel site in the northern Gallatin Range recorded 9" of SWE by the end of November. This was the fifth highest recording in 54 years. The mountains around Big Sky (northern Madison Range) also recorded above average snowfall through November.

The southern ranges had a much drier start. Madison Plateau Snotel site near West Yellowstone recorded 3.8" of SWE at the end of November, well below average. Fisher Creek Snotel site outside of Cooke City and Carrot Basin Snotel site in the southern Madison Range were also well below average at the end of November.

A prolonged dry spell consumed all of southwest Montana during the first 7-10 days of December. During this period, Shower Falls Snotel site recorded 0.1" of SWE totaling 1" of snow. Fisher Creek Snotel site near Cooke City, which is the snowiest location in the GNFAC forecast area, picked 0.3" of SWE totaling 3" of snow. This prolonged dry spell was accompanied by very cold temperatures. On December 5th, West Yellowstone recorded a temperature of -26 degrees F.

This period of cold, dry weather wreaked havoc on the snowpack. The Lionhead area near West Yellowstone formed a very weak layer of facets near the ground. In areas where the snowpack was deeper and stronger, a well-developed layer of near surface facets and/or surface hoar formed on many slopes. A series of small storms from the 11th to 14th of December capped these persistent weak layers. A strong wind event on the 15th of December added additional weight to these buried weak layers and created unstable conditions. From the 15th to the 17th of December numerous natural and human triggered avalanches were reported across the forecast area, but nobody was caught or injured.

The final ten days of December were active with small storms which added load to buried persistent weak layers. On December 30th, the GNFAC issued the first avalanche warning of the season. This warning included the southern Madison and southern Gallatin Ranges, the Lionhead area near West Yellowstone and the Centennial Range. The warning only lasted 24 hours, but the snowpack remained under stress for an extended period of time both in the northern and southern portions of the forecast area. Signs of instability such as cracking/collapsing and avalanche activity occurred every day during the first two weeks of January, but no serious avalanche incidents occurred over this time.

Incremental loading in the second half of January continued to keep buried weak layers grumpy. On January 25th, a group of four skiers were caught in an avalanche in the Tobacco Root Mountains west of the GNFAC forecast area. One skier died from his injuries, one was seriously injured and two escaped without harm. The slide broke 3-5 feet deep and failed on a layer of well-developed facets formed in December. The slope had a southeast aspect and was heavily wind loaded.

Following the avalanche fatality, a widespread avalanche cycle occurred across the forecast area from January 26th to January 29th. A break in the weather from January 29th to February 2nd gave the snowpack time to adjust and avalanche activity subsided. This break was short lived as another series of storms impacted the area. Snow totals the first week of February were highest in the southern ranges. On February 4th, the GNFAC issued an avalanche warning for the Southern Madison and Gallatin Ranges, the Lionhead area, and the Centennial Range. Heavy snow continued through February favoring the mountains near West Yellowstone and Cooke City. Black Bear Snotel site near West Yellowstone recorded 19" of SWE during the month of February while Madison Plateau recorded 14.3". Fisher Creek Snotel site near Cooke City recorded 12" of SWE. The mountains around Bozeman and Big Sky received less but still impressive snow totals. Brackett Creek Snotel site in the Bridger Range and Lone Mountain Snotel site near Big Sky both recorded just over 6" of SWE during the month of February.

Avalanche danger peaked when the GNFAC issued a four day avalanche warning from the 26th of February to the 1st of March for mountains near West Yellowstone and Cooke City. Snow totals weren't as high in the mountains around Bozeman and Big Sky, but dangerous avalanche conditions existed. Sadly, on February 26th a local skier was killed in an avalanche outside of Bridger Bowl Ski Resort in Truman Gulch on the west side of the Bridger Range during a considerable avalanche danger.

Snow let up during the first week of March, which allowed avalanche activity to gradually decrease. A stretch of high pressure was a welcomed change and consumed the forecast area for nearly three weeks. This allowed the snowpack to gain strength and transition to a more wet snow regime. On March 17th, the GNFAC issued a LOW avalanche danger for the entire forecast area for the first time in nearly two months. The low danger did not last long as above freezing temperatures continued to have a negative impact on stability. By March 20th a wet snow avalanche cycle was under way. On March 21st, a timber sled rider was caught and partially buried in a wet slab avalanche in the southern Madison Range. The slide occurred at 3 p.m. on a south facing slope that had turned isothermal and weak. Fortunately, the rider was unharmed. Wet slab activity continued through the weekend of March 23rd-24th with a small skier triggered wet slab in the Bridger Range and natural wet slabs near Big Sky and in Hyalite. Temperatures cooled the following week and wet avalanche activity ended.

The last week of March and beginning of April were quiet. Unsettled weather brought alternating sun and small snowfall events. A wet storm beginning on April 5th brought a combination of valley rain and mountain snow across the advisory area. A handful of avalanches were triggered in the new snow, but avalanche activity was minimal. The GNFAC issued its last advisory on Sunday, April 7th.

On April 8th, an inch or more of rain/snow fell with a snowline around 8,500 ft. Bridger Bowl did not open for their planned closing day (April 8th) due to wet slab avalanche concerns. Large natural wet slab and wet loose avalanches were observed in the Bridger Range and near Cooke City. By April 11th 2-3" of rain fell below 8,000 ft. before temperatures dropped on April 11th and snow fell at all elevations. Below average temperatures and above average precipitation remained in place until the 17th of April. By April 19th the sun was shining and valley temperatures climbed into the 60s F.

Seasonal SWE totals were slightly above average for most of the advisory area (100-120% of median) and well above average near West Yellowstone (130% of median at the Madison Plateau Snotel site).