

2019 Weather in Review



Yellowstone River Ice near Hysham in March

The following is a weather review for the Billings forecast area, which includes southeast Montana, parts of south central Montana, and Sheridan County in Wyoming.

2019 began with a mild January, then turned brutally cold from early February through the first half of March. It was the coldest February on record at Livingston and Miles City, 2nd coldest at Billings, and 3rd coldest at Sheridan. Frigid conditions extended into the first part of March. Livingston (-32°) and Miles City (-31°) each established their coldest March temps on record. Brandenburg reached a remarkable -41° on the morning of March 3rd. There were also several snow events, and snow cover piled up across the region. Conditions moderated by the middle of the March, and by the 3rd week there was some flooding due to snow melt runoff and ice jams.

April was a wet month, and in fact, Livingston had its wettest April on record with a total of 3.44 inches of precipitation. The first severe thunderstorm of the season occurred on May 13th, as a storm produced a 61 mph wind gust, nickel size hail and some street flooding in Miles City. It was a busy severe weather season that extended well into August. Our office issued a total of 185 Severe Thunderstorm Warnings, the most in any year since 2013. Perhaps the most memorable severe storms of the season were two separate thunderstorms that produced large hail and damaging wind in the Billings metro area on August 11th and again on August 22nd. Many homes and vehicles were damaged by these storms. Other significant events were flash flooding on Fly and Woody Creeks by an intense stationary thunderstorm southeast of Billings on May 26th, and a nighttime tornado that caused some damage on a ranch near Ridgeway on July 19th. It was also a wet summer, and as a result, the wildfire season was one of the quietest in recent memory.

The first lower elevation snowfall occurred along the western foothills on September 28-29th, with Judith Gap picking up 3 inches of wet snow and Melville nearly 9 inches. October and November were chilly with above normal snowfall. A significant early season cold snap sent temperatures plummeting at the end of October. Livingston's low temp of -12° on the 29th was a record low for October. In true high plains fashion, December turned mild with below normal snowfall.

As is typical, several new records were established across the region during the course of the year. The following is a list of daily records either tied or broken at our four main climate sites. Records go back to 1934 at Billings, 1937 at Miles City, 1907 at Sheridan and 1948 at Livingston.

Billings	
Record High Temps	95° on September 15
	94° on September 16
Record Low Temps	-19° on March 3
	-19° on March 4
	32° on May 18
	16° on October 10
	13° on October 27
	0° on October 29
Record Precipitation	0.52 inches on January 21
	0.34 inches on February 15
	0.29 inches on February 26
	0.45 inches on June 30
	0.53 inches on August 11
	0.97 inches on August 22
	0.68 inches on September 20
	0.40 inches on September 28
	0.28 inches on November 30
Record Snowfall	6.3 inches on January 21
	4.0 inches on February 15
	5.6 inches on October 9
	5.1 inches on November 30

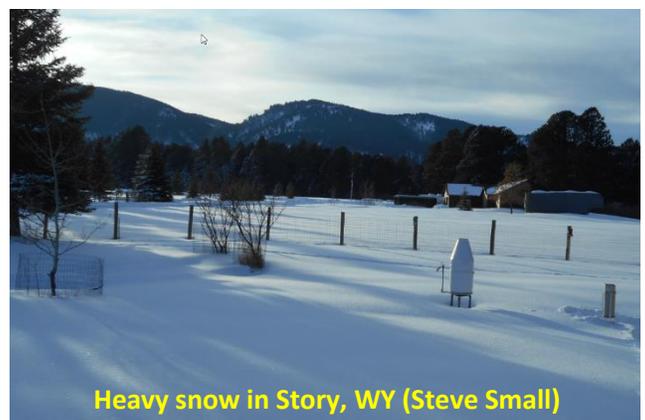
Livingston	
Record High Temps	
Record Low Temps	-28° on March 3
	-32° on March 4
	-16° on March 5
	10° on April 29
	39° on July 20
	10° on October 27
	-12° on October 29
Record Precipitation	0.80 inches on April 8
	0.54 inches on April 9
	0.96 inches on April 20
	0.31 inches on April 21
	0.72 inches on September 6
	1.08 inches on September 20

Miles City	
Record High Temps	57° on December 7
Record Low Temps	-28° on March 2
	-31° on March 3
	26° on May 9
	46° on August 18
	19° on October 13
Record Precipitation	0.80 inches on April 8
	0.54 inches on April 9
	0.96 inches on April 20
	0.31 inches on April 21
	0.72 inches on September 6
	1.08 inches on September 20

Sheridan	
Record High Temps	
Record Low Temps	-17° on March 4
	32° on June 9
	35° on June 22
	14° on October 11
Record Precipitation	1.52 inches on May 27
	0.60 inches on July 8
	0.99 inches on September 11
	0.45 inches on November 10

The following is a chronological list of significant or noteworthy weather events that occurred across the region in 2019.

January 21: Heavy snow fell west of Forsyth and Lame Deer, and south of Harlowton and Roundup. The city of Billings saw heavy snow in the morning, picking up around 6 inches between 5 and 10 am, causing travel problems during the morning commute. Overall amounts included: Story area 10-17 inches, Red Lodge area 7-11 inches, Fort Smith 9 inches, Joliet 8 inches, Billings area 5-9 inches, Absarokee 7 inches, Busby 7 inches, Sheridan 6 inches, Rapelje 6 inches, Bull Mountains 3-6 inches.



January 23: Another winter storm brought more heavy snowfall to west and central parts, south of Harlowton and Roundup, mostly during the afternoon and evening. Amounts included: Story area 15-17 inches, Edgar 11.5 inches, Red Lodge 9.5 inches, Joliet 9 inches, Sheridan area 5-8 inches, Billings area 5-8 inches, Fort Smith 7 inches, Reed Point 7 inches, Bridger 6 inches, Park City 5 inches.

January 27-28: A strong cold front brought areas of snow and strong winds to much of the region. The combination of strong winds and blowing snow caused whiteout conditions at Judith Gap, and MT-3 was shut down the night of the 27th. Red Lodge saw power outages and Red Lodge Mountain closed lifts on the 27th. Power poles were downed at Billings as well, w/ a peak wind of 61 mph reported at the airport. I-90 south of Sheridan was closed during the morning of the 28th due to blowing and drifting snow. Peak wind reports included: Aberdeen Hill 64 mph, Livingston 61 mph, Big Timber 59 mph, Sheridan 58 mph, Judith Gap 58 mph. Snow reports included: Story 8 inches, Red Lodge area 4-7 inches, Sheridan area 1-3 inches.

January 29: Breezy NW winds with air temperatures near or below zero produced wind chills of 20 to 35 below zero in Fallon and Carter counties.

February 3-4: A general 1 to 3 inch snowfall (locally higher) impacted the region, along with very cold temperatures. High temps on the 4th: Melville -9, Red Lodge -5, Baker -4, and Billings -3. This was the coldest air mass of the season so far.

February 3 – March 6: A remarkably cold stretch of weather, with several snow events that built up snow cover across the region. Average temps and ranks: Miles City -1.2° (coldest on record), Billings 5.0° (coldest on record), Sheridan 9.1° (coldest on record), Livingston 6.8° (coldest on record). Billings also had its 3rd snowiest February on record with 29.4 inches of snow. The top three snowiest Februaries at Billings have all occurred in the past six years.

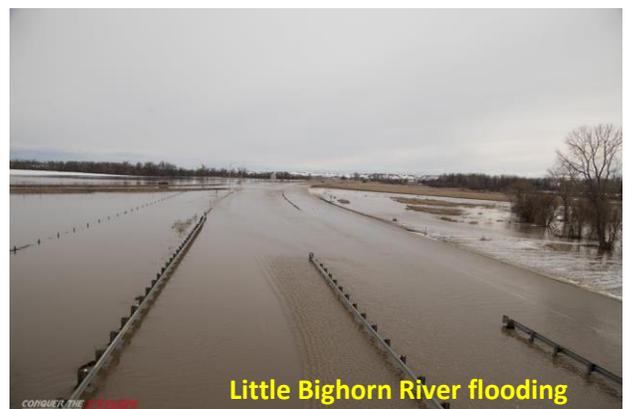
February 16-18: Heavy snow fell in southeast Montana: Baker 14 inches, Broadus area 8-14 inches, Miles City 12 inches, Ollie 12 inches, Ismay 11 inches, and Ridge 9 inches.

February 23-28: Several snow events occurred during this 6-day period. Total amounts included: Mystic Lake 70 inches, McLeod 36 inches, Melville 33.5 inches, Fishtail 33 inches, Livingston 28.9 inches, Big Timber 28.5 inches, Columbus 24.3 inches, Joliet 23 inches, Red Lodge 22.5 inches, Judith Gap 22 inches, Clyde Park 18 inches, Hardin 15 inches, Billings airport 14.7 inches, Hysham 13 inches.

March 3-4: A very cold air mass settled over the region, which with the abundant snow cover resulted in record low temperatures. Livingston set an all-time record low for March with -28° on the 3rd, then broke the record again with -32° on the 4th. Miles City also set a March record with -31° on the 3rd. A few other lows on the 3rd: Brandenburg -41°, Mizpah -40°, Ingomar -38°, Broadus & Hysham -36°, Forsyth -31. On the 4th: Clyde Park -39°, Columbus -33°, Big Timber -32°, Joliet -32°. Hardin -30°.

March 8-9: Heavy snow impacted far southeast Montana. 8-10 inches of snow fell near Ridgeway, Broadus and Ridge. Ekalaka picked up 7 inches. Travel in Powder River and Carter counties was very hazardous.

March 20-27: The combination of lower elevation snow melt, frozen ground promoting run off, and ice jams on area rivers & streams, caused low land flooding across much of the region. Some impacts: I-90 from Hardin to the WY state line was closed due to water on the Interstate (Mar 23-26). Highway 323 in Carter County was also closed between Ekalaka and Alzada due to flooding on the Little Missouri River and other streams. The Yellowstone River was affected by ice jams between Pompey's Pillar and Miles City. The Powder and Little Powder Rivers experienced flooding in Powder River County.



April 9-10: A weather system brought rain and wet snow to the region. Rain amounts of an inch or more fell near Columbus, Reed Point, Big Timber, Twodot, Ryegate, Roundup, Hysham, Forsyth, Billings, and Big Horn, WY. Snowfall of 10-13 inches fell over parts of southeast MT near Albion and Ridge, and Story picked up 11 inches.

April 20-22: A slow-moving weather system brought widespread rainfall of 0.50-1.50 inches across the region. Just under two inches of rain fell near Reed Point and McLeod. Livingston airport set daily precipitation records on the 20th (0.96 inches) and 21st (0.31 inches).

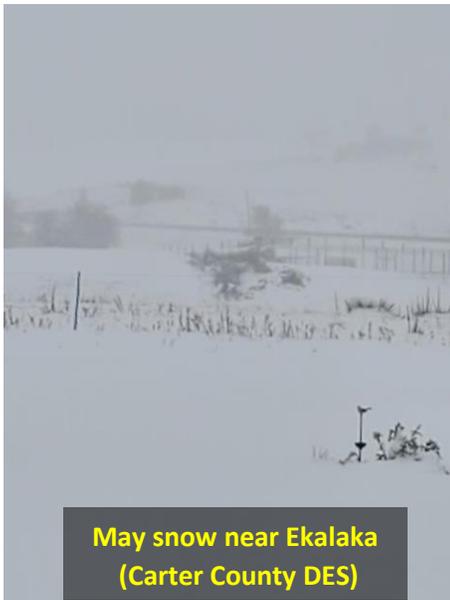
April 28: A very windy day across the area. Peak gusts: Big Timber 70 mph, Reed Point 66 mph, Judith Gap 61 mph, Sheridan 61 mph, Billings 57 mph.

April 29: Livingston fell to 10°, the latest in the spring that Livingston has ever been so cold.

April 30 – May 1: Heavy wet snow fell along the foothills, and over some higher hills in southeast MT. Amounts included: Story 8-11 inches, Luther 10 inches, Red Lodge 9 inches, Big Horn (WY) 6 inches, Springdale 5 inches, Ridge 4.5 inches, Dayton 4 inches.

May 13: The first severe thunderstorm of the season produced a 61 mph wind gust, nickel size hail, and minor street flooding in Miles City.

May 14: Another early season severe thunderstorm produced hail up to the size of golf balls near Roundup. Some roof and siding damage was reported, and at least six solarium windows were broken.



**May snow near Ekalaka
(Carter County DES)**

May 18-19: A cool & wet weather system produced some snow accumulation in southeast MT, including: Ekalaka 7 inches, Ridge 5.5 inches, 4.5 inches in the hills near Broadus, and Plevna 3 inches. Billings saw its final measurable snow of the 2018-19 season with 0.4 inches.

May 20-23: Heavy snow fell along the foothills: Red Lodge area 10-20 inches, Mystic Lake 16 inches, Story area 5-10 inches, Big Horn 4 inches, Fishtail 4 inches, and Livingston 3 inches.

May 26: Severe thunderstorms and flash flooding impacted parts of the region. Hail reports included: 2 inch diameter and broken windshield at Biddle, 2 inch hail near Alzada, golf ball size hail a



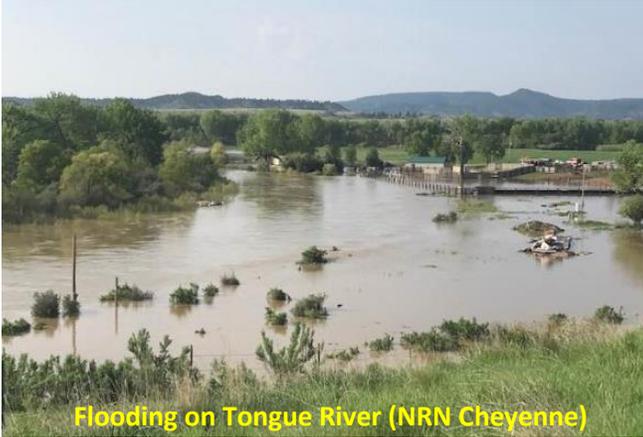
Flooding on Woody Creek (Rhett Gibson)

few miles northeast of Billings (near Shepherd), 1.5 inch hail at Rapelje. A funnel cloud was observed near Boyd. Storms also produced very heavy rainfall. Sixshooter Creek in Rapelje flooding highway 306. An observer north

of Pompey's Pillar picked up 3.68 inches of rain in a short period of time. There was flooding at a construction area a few miles west of Two Dot, closing Highway 12. A stationary thunderstorm S/SE of Billings over rural country produced an unknown amount of very heavy rain (radar estimated to be 5-7 inches); this storm produced significant flash flooding into the 27th along Fly Creek to its confluence with the Yellowstone River at Pompey's Pillar, and Woody Creek to its confluence with the Bighorn River. A resultant rise in approximately 10,000 to 12,000 CFS was observed on the Yellowstone River through Sidney (all from this one storm).

May 24-29: This was a wet period of weather. The majority of the region had at least an inch of rain, and a few locations had as much as 5 inches. A few totals over this 6-day period: Dayton 8.4WSW 4.80 inches, Pompey's Pillar 15N 4.01

inches, Story area 3.50-4.00 inches, Park City 6WSW 3.90 inches, Fort Smith 3.79 inches, Rapelje & Delphia 3.10 inches, Luther 2.60 inches.



Flooding on Tongue River (NRN Cheyenne)

May 28-31: Some southern areas experienced flooding due to recent heavy rains, including along the Tongue River from the Dayton and Ranchester to Birney (where the stage reached a record height of 9.58 feet), Goose Creek in the Sheridan area, and the Powder River in Powder River and southern Custer Counties.

June 7: A severe thunderstorm produced hail up to the size of golf balls near Broadus.

June 7-8: A cold weather system produced snow over the mountains and some foothills. Mystic Lake picked up 6 inches, Red Lodge 1 inches. One spotter reported 9.5 inches of snow in

the mountains southeast of Livingston.

June 18: A severe thunderstorm produced a 65 mph wind gust on Highway 12 at Ingomar.

June 25: A severe thunderstorm produced half dollar hail near Fort Smith, and golf ball size hail a few miles north of Lodge Grass.

June 26: A severe thunderstorm produced very large hail in southwest Powder River County: baseball size hail near Moorhead and golf balls near Otter and Sayle. Some windows were broken. Further east, wind gusts of 65-70 mph and torrential rainfall were reported near Biddle. Some 5-6 inches diameter tree limbs were downed. Highway 212 was impacted by this storm. Another severe storm near Powderville produced up to baseball size hail and destroyed a pasture and at least one alfalfa field.

June 27: A tornado was observed for a brief time in a rural area about 12 miles west of Judith Gap (no damage reported). This well-organized storm tracked east and produced large hail: ping pong ball size (1.50 inch) 13 miles east of Judith Gap.



Tornado west of Judith Gap (Ron Teig)



Supercell near Sayle (John Hurd)

July 1: A severe thunderstorm produced hail up to golf ball size near Melstone.

July 2: A severe thunderstorm produced a measured 78 mph wind gust at Biddle, and an estimated 65 mph gust northwest of Alzada.

July 5: Thunderstorms produced areas of very heavy rain and some flash flooding in southeast Montana. A thunderstorm produced 5.70 inches of rain a few miles WNW of Powderville, and 4 inches of rain one mile north of Powderville. Flash flooding was reported (including Corral Creek). Flash flooding also occurred with another storm, on Hackberry Creek near Capitol. Another storm produced over 3 inches of rain and flash flooding near Sayle.

July 6: A severe thunderstorm produced hail up the size of baseballs (2.75 inch) 15 miles north of Leiter, WY. Skylights were broken.

July 8-9: One to three inches of rain fell in many areas from near Crow Agency to Colstrip, Miles City, Baker and Ekalaka. Miles City set a daily precipitation record on the 8th with 1.17 inches of rain. Ping pong ball size (1.50 inch) hail was reported near Lodge Grass. Miles City had a 65 mph wind gust, and Baker a 70 mph gust during the evening of the 8th.

July 11: A severe thunderstorm produced hail up to the size of golf balls (1.75 inch) 12 miles northwest of Lavina.

July 14: A 65 mph wind gust was reported w/ a thunderstorm near Lockwood. Thunderstorm wind damage occurred in Miles City (trees downed, smashed fence, damage to street light, power outage). A 62 mph wind gust occurred near Rock Springs.

July 16: A severe thunderstorm produced 1.75 inch hail near Moorhead, and a funnel cloud was sighted near Decker.

July 19: During the early morning of July 19 (at 12:44 am), a tornado briefly touched down 4 miles northeast of Ridgeway in Carter County. The tornado was approximately 50 yards wide and on the ground for nearly 200 yards. The tornado was classified as an EF-1 (winds 86-110 mph). There was considerable damage to buildings on a local ranch. Several 1-foot diameter trees were snapped.

July 21: During the early morning (around 3 am), flash flooding was reported due to torrential rain near Albion. 3.70 inches of rain fell. 3 to 4 feet of water was over Little Missouri Road, and a temporary bridge was washed out. Water covered much of the bulldozers that were putting in pipeline.



Tree damage from tornado near Ridgeway

July 30: A severe thunderstorm produced golf ball size (1.75 inch) hail near Ismay.



Large hail in Shepherd (Asha Franzen)

August 11: An intense severe thunderstorm produced large hail (golf ball to baseball size) and damaging winds (peak gust of 71 mph at the airport) in Billings. Areas from Molt and Acton to Shepherd, Huntley and Worden were impacted by this storm. Downed large trees and damage to vehicles and homes were widespread. Other locations also experienced severe weather on this day, including 2 inch diameter hail at Big Timber and near Reed Point, 60 mph wind gust at Forsyth and Miles City.

August 14: Severe thunderstorms produced 1.25 inch hail near Broadus, and 1.5 inch hail near Hammond.

August 22: The 2nd severe storm in less than two weeks caused significant wind and hail damage in Billings, along

with torrential rainfall, especially in the Heights with this storm. The storm intensified rapidly over the metro area as it interacted with an existing surface boundary. The Billings airport recorded a peak wind gust of 67 mph. Wind driven large hail (up to golf ball size) broke windows and damaged cars, roofs and siding. Street flooding occurred due to the very heavy rain. The Billings airport set a daily precipitation record with 0.97 inches.

September 1: A late season severe thunderstorm produced 1.50 inch hail near Mizpah, and 60 mph wind gusts near Ekalaka.



Accumulating hail in Billings

September 10-12: A slow-moving weather system produced widespread rainfall, with many locations seeing between 1 & 3 inches (greatest east of Billings). Volborg had 3.06 inches of rain. Beartooth Highway was closed above Vista Point



due to snowfall. This was the first high elevation snow of the season, with accumulation above roughly 8000 feet. To the left is a view from the morning of the 12th.

September 20-21: Over two inches of rain fell over parts of Sweet Grass, Carbon, Stillwater and Golden Valley Counties (Rapelje 2.61 inches, Columbus 2.42 inches, Reed Point 2.42 inches, Absarokee 2.27 inches, Ryegate 2.08 inches, Red Lodge around 2 inches). Some other western areas received around an inch of rain, such as Livingston and Billings.

September 28-29: Widespread rain impacted the region, with snow along the western foothills. Melville picked up nearly 9 inches of wet snowfall.

October 8-10: A cold weather system brought snowfall to the entire region, heaviest along and west of a line from Ingomar to Billings to Pryor. Amounts included: Mystic Lake 17 inches, Red Lodge area 10-16 inches, McLeod & Rapelje 13 inches, Melstone & Judith Gap 11 inches, Big Timber 10 inches, Bull Mountains 7-10 inches, the Billings area 5-10 inches, Wilsall 9.5 inches, Absarokee 8.5 inches, Livingston 7 inches. The Billings airport's snowfall of 5.6 inches on the 9th was a daily record. Billings set a record low temp of 16° on the 10th, Sheridan had a record low of 14° on the 11th.



October 22: The combination of a strong cold front and shower activity produced some strong wind gusts across the region. Peak gusts included: Big Timber 70 mph, Billings airport 67 mph, Reed Point 55 66 mph, Judith Gap 64 mph, Livingston 64 mph, Sheridan 63 mph.

October 26-27: Heavy snow fell along the foothills. Story 16 inches, Red Lodge area 11-16 inches, Bridger 10 inches, Joliet 9.5 inches, Big Horn 8 inches, McLeod 7 inches, the Billings area 2-4 inches. The remaining lower elevations received 1-3 inches of snow.

October 27-29: A remarkably cold stretch of weather for late October. Livingston's low of -12° on the 29th was a record for October, and the high was only 12°. Billings' low of 0° and high of 16° on the 29th were each daily records. Sheridan's high of only 14° on the 29th was a daily record. Other low temps on the 29th included: Springdale -14°, Huntley -12°, Melville -11°, Big Timber and Sheridan -5°.

November 10-11: A weather system produced 1 to 5 inches of snow across much of the region. Higher amounts fell in Sheridan County, including 6-9 inches in the Sheridan area, 8 inches at Dayton, 7 inches at Story, and 5 inches at Big Horn. Sheridan's 0.45 inches of precipitation on the 10th broke a daily record.

November 24: A period of strong SW-W winds impacted the western foothills. Peak gusts included: Livingston 73 mph, Big Timber airport 69 mph, Judith Gap 61 mph, Nye 60 mph.

November 29-30: A winter storm system brought widespread snowfall to the region. 8 to 12 inches of snow were common along the western foothills. Difficult travel conditions were made worse from freezing drizzle and black ice before the heavier snow developed. Snowfall amounts: Red Lodge area 10-14 inches, Big Timber 13 inches, Story area 9-13 inches, Broadus 3S 12 inches, Ekalaka area 8-12 inches, Reed Point 11 inches, Absarokee/Emigrant 10 inches, Rapelje/Melville 9 inches, Colstrip/ McLeod 8 inches, Billings area 5-8 inches, Ryegate 7.5 inches, Livingston/Harlowton 7 inches, Ranchester 6.2 inches, Laurel 6 inches. Billings' snowfall of 5.1 inches on the 30th was a daily record.

December 13-14: Dense fog affected the Billings area. The airport reported visibility of a half mile or less for 20 consecutive HOURS, from 3 pm on the 13th through 11 am on the 14th. Many flights were delayed or cancelled due to the fog. Also, I-90 between Arrow Creek and Hardin was closed as the poor visibility and icy roads resulted in multiple accidents near Arrow Creek Hill. Photo of fog on the rims is courtesy of Billings Gazette.



Have a great 2020 everyone!!