

2020 Weather in Review



Buffalo Fire (Powder River County) in late July

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.

Overall, 2020 leaned on the warm and dry side. January was relatively quiet weather-wise, but very warm/dry/windy conditions occurred on February 1st, when Billings hit a whopping 68°, and a wildfire closed Highway 191 between Harlowton and Judith Gap for a few hours. The latter half of the 2019-20 winter was not particularly snowy, especially compared to some recent seasons, but much of February saw significant snowfall along the southern foothills (such places as Red Lodge & Story). A very cold air mass settled over the region in early April, when some locations saw record cold for the time of year.

The first severe thunderstorm of the season occurred on May 3, when golf ball sized hail fell near Ridgeway. The severe season of 2020 was a quiet one. Our office issued only 71 Severe Thunderstorm Warnings and zero Tornado Warnings. One of the more memorable thunderstorms was a nocturnal severe storm that produced tennis ball sized (2.5") hail in Lavina at 1:19 am on May 20th. July 6th and 7th were also active severe weather days. There were several reports of large hail, and Miles City airport measured a 74 mph wind gust which caused some tree damage.

Relatively dry weather through the summer led to a busy fire season and increasing drought conditions. The Buffalo Fire in southern Powder River County was ignited on July 23 and burned over 11,000 acres in just two days. The fire season became busy in early September courtesy of some very warm and dry days. Some of the more notable wildfires were Bobcat (south of Roundup, 30000 acres), Sarpy (northeast of Crow Agency, 52000 acres), Rice/Snider (north of Ashland, 47000 acres), Bridger Foothills (northwest of Livingston, 8200 acres). Drought conditions were classified as severe to extreme over portions of southeast Montana by the beginning of fall.

A dramatic swing in weather occurred in early September. Billings (102°), Livingston (102°) and Sheridan (103°) each experienced their latest 100° day on record on September 5th. A couple days later, on the 7-8th, snow fell over the mountains and foothills, and some locations broke record low temperatures on the 9th.

In mid to late October, an 11-day period of snowy and cold weather affected the region. Many locations from Billings westward and southward saw around 20" of snowfall. Mystic Lake received almost 50". The Billings airport recorded 12 consecutive days with snow depth of at least an inch, an October record. Dry and mild weather persisted in November and most of December.

Below are 2020 statistics for each of our four main climate stations.

	Average Temp	Total Precipitation	Warmest Temp	Coldest Temp	Wettest Day	Peak Wind
Billings	49.1° + 0.9° 14 th warmest	13.24" - 0.42" 35 th driest	102° (September 5)	-11° (January 15)	1.10" (June 29)	67 mph (August 3)
Livingston	46.8° + 2.0° 13 th warmest	11.09" - 3.72" 6 th driest	102° (September 5)	-9° (January 15)	0.85" (May 23)	83 mph (November 13)
Miles City	47.1° + 1.0° 27 th warmest	10.77" - 1.67" 27 th driest	102° (July 22)	-14° (January 14)	0.90" (May 7)	74 mph (July 7)
Sheridan	46.9° + 1.7° 13 th warmest	10.82" - 3.34" 11 th driest	103° (July 12, July 22, September 5)	-10° (October 26)	1.06" (September 7)	63 mph (March 3)

2020 saw many daily temperatures either broken or tied, as a result of several cold and warm spells. Sheridan set or tied a whopping 17 record high temperatures! 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	56° on January 4
	68° on February 1
	92° on May 31
	100° on August 17
	102° on September 5
	92° on September 24
	88° on October 6
	72° on November 2
	74° on November 5
Record Low Temps	15° on April 13
	22° on October 18
	20° on October 22
	10° on October 23
	7° on October 24
	5° on October 25
	9° on October 26
Record Precipitation	1.10" on June 29
	1.08" on August 3
Record Snowfall	2.5" on February 2
	2.6" on March 15
	5.2" on October 17
	4.6" on October 24

Miles City	
Record High Temps	58° on January 4
	73° on March 7
	94° on September 24
	75° on November 3
	74° on November 5
	67° on December 8
Record Low Temps	6° on April 2
	2° on April 3
	11° on April 12
	12° on April 13
	41° on June 19
	49° on July 9
	47° on July 15
	41° on August 31
	30° on September 8
	30° on September 9
	9° on October 22
	7° on October 23
	1° on October 25
-3° on October 26	
13° on October 27	
Record Precipitation	0.08" on February 29

Sheridan	
Record High Temps	65° on January 4
	72° on March 7
	92° on May 31
	95° on June 12
	98° on June 13
	103° on July 22
	101° on August 17
	100° on August 18
	103° on September 5
	93° on September 24
	85° on October 6
	77° on November 2
	81° on November 3
	78° on November 5
	67° on December 7
	72° on December 8
	60° on December 20
Record Low Temps	2° on April 13
	6° on April 14
	25° on September 9
	0° on October 23
	-9° on October 25
	-10° on October 26
Record Precipitation	0.45" on February 2
	0.63" on June 30
	1.06" on September 7

Livingston		
Record High Temps	68° on March 6	
	65° on March 7	
	101° on August 17	
	96° on August 18	
	102° on September 5	
	94° on September 14	
	84° on October 6	
	84° on October 8	
	74° on November 2	
	74° on November 3	
	71° on November 4	
	73° on November 5	
	54° on December 7	
	61° on December 8	
	62° on December 9	
	Record Low Temps	4° on April 13
		15° on April 16
38° on July 14		
37° on July 15		
26° on September 9		
7° on October 22		
3° on October 23		
6° on October 24		
-7° on October 25		
-7° on October 26		
Record Precipitation	0.17" on March 15	
	0.64" on June 28	
	0.33" on November 7	

The following is a chronological list of significant or noteworthy weather events that occurred across the region in 2020.

January 4: Strong winds impacted much of the region, especially the west. Peak gusts included: Livingston 70 mph, Greycliff 63 mph, Harlowton 63 mph, Judith Gap 61 mph, Broadview 6ENE 66 mph, Rapelje 5N 63 mph, Roundup 13NW 63 mph. This was also a very warm day, with record highs set or tied at Sheridan (65°), Miles City (58°) and Billings (56°).

January 10: A minor snow event during an otherwise warm & dry month. The Sheridan area picked up 3-6 inches, and Red Lodge received 2-4 inches.

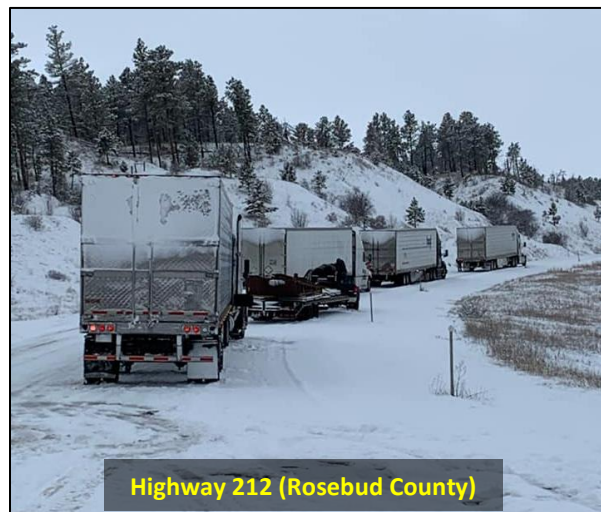
February 1: A very warm and dry day with strong southwest to west winds. Billings set a record high with a balmy 68°^o. A grass fire (Lode Road Fire) near Judith Gap and Harlowton closed Highway 191 for a few hours due to windblown smoke and near zero visibility. The fire burned 3680 acres and ran nine miles.

2/1/2020	Max Temp	Peak Wind Gust	Min RH
Baker	53°	36 mph	38 %
Billings	68°	41 mph	12 %
Harlowton	62°	62 mph	12 %
Livingston	59°	78 mph	20 %
Miles City	58°	36 mph	32 %
Sheridan	64°	52 mph	16 %

February 2-3: A winter storm brought heavy snow to the southern mountains and foothills. Amounts included: Story area 17-23 inches, Mystic Lake 19 inches, Red Lodge area 15-20 inches, Big Horn 12 inches, Fort Smith & Fishtail 10 inches, Sheridan area 8-11 inches, Nye 8.5 inches.

February 6: More snow for southern areas: Pray 14 inches, Red Lodge 13 inches, Belfry 12 inches, Bridger 8 inches, Gardiner 8 inches, Story area 6-8 inches.

February 8-9: A clipper system brought widespread snow, gusty winds and some blowing snow. A few roads were closed, including I-90 from Sheridan southward, US-191 from Harlowton to Eddie's Corner (7 hours), US-212 from Lame Deer to Ashland (5 ½ hours), and Highway 308 east of Red Lodge. Snow amounts were greatest along the southern foothills. As of early morning on the 9th, Red Lodge Mountain reported a weekly snow total of 49" (the northerly flow pattern was favorable). Some snow amounts: Story area 10-13 inches, Red Lodge area 6-8 inches, Wilsall 6 inches, Big Horn 5 inches, and Colstrip 5 inches.



As of early morning on the 9th, Red Lodge Mountain reported a weekly snow total of 49" (the northerly flow pattern was favorable). Some snow amounts: Story area 10-13 inches, Red Lodge area 6-8 inches, Wilsall 6 inches, Big Horn 5 inches, and Colstrip 5 inches.

February 11-13: More snow fell along the southern foothills. The Story area received up to 25 inches, with 16 inches just southwest of Red Lodge.

February 1-19: Persistent northerly flow aloft resulted in significant snowfall along the southern mountains and foothills for the first 2/3 of February. The mountains above Red Lodge picked up a whopping 6 feet or more of snowfall.

February 24-25: Accumulating snowfall occurred along the

Beartooth foothills and in the east. Up to 14 inches of snow fell just west of Red Lodge, with 8 inches near Ridge in the higher terrain of southwest Powder River County. Otherwise, 1-4 inches was common across southeast Montana.

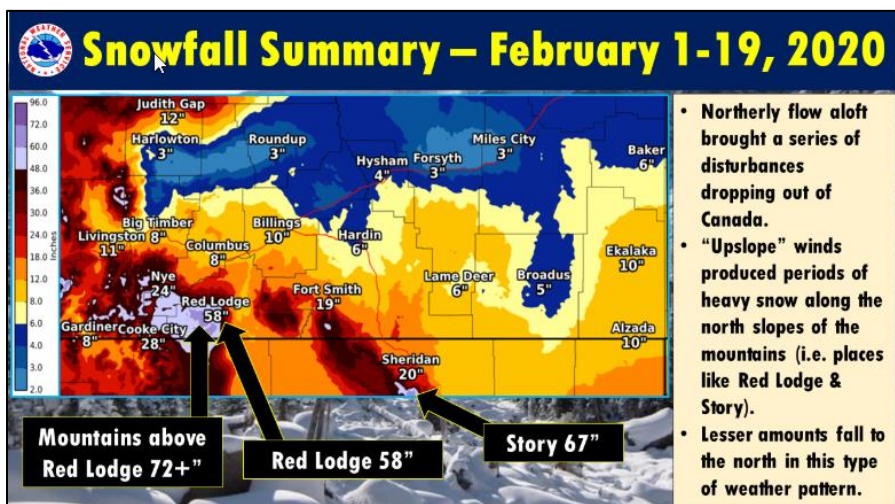
February 29: Miles City's 0.08 inches of precipitation during the evening actually tied a weak leap day record.

March 2-4: A windy period, especially along the foothills. Peak gusts included: Livingston 74 mph, Big Timber 71 mph, 66 mph near Rapelje, 63 mph near Reed Point, Sheridan 63 mph, Hardin 10N 63 mph, Billings 62 mph, Ingomar 9NE 60 mph, Laurel 60 mph.

March 7: A very warm day. Miles City (73°) and Sheridan (72°) each set daily record highs.

March 11-12: Heavy snow fell along the foothills. Red Lodge and Story each picked up 11 inches. The rest of the area had much less snowfall.

March 13-15: Much of the region was impacted by accumulating snowfall, but it was heaviest in the west. Amounts included: 21 inches in the mountains near Cooke City, Melville area 10-15 inches, Gardiner 12 inches, Mystic Lake 10



- Northerly flow aloft brought a series of disturbances dropping out of Canada.
- "Upslope" winds produced periods of heavy snow along the north slopes of the mountains (i.e. places like Red Lodge & Story).
- Lesser amounts fall to the north in this type of weather pattern.

inches, Big Timber & Nye 9 inches, Harlowton area 6-8 inches, Pine Creek 7 inches, Livingston area 5-7 inches, Billings area 2-5 inches.

March 31 – April 2: Periods of snow impacted the region over this 3-day period. Mountains picked up one to two feet. Red Lodge and Story areas received 8-12 inches, Big Horn 11 inches, Pine Creek 11 inches, Sheridan 9 inches, Ridge 9 inches.

April 2-3: It was very cold on the 2nd and morning of the 3rd, record-setting at some locations. Miles City's high of 17° on the 2nd and low of 2° on the 3rd were each record cold temps for the month of April. Billings' high of 20° on the 2nd was a daily record. Coldest temps were found in Sheridan County and in southeast Montana on the morning of the 3rd. Some low temps: Alzada -11°, Biddle -8°, Sheridan & Baker -2°.



April 10-12: More snow and unseasonable cold impacted the region. Heaviest snow occurred over the mountains and foothills. The mountains above Red Lodge picked up 2 feet of snow, while Red Lodge itself saw about a foot. The Story area saw 17-22 inches. Other reports: Mystic Lake 13 inches, Big Horn/Dayton/Harlowton/Judith Gap 11 inches, Melville 10 inches, Melstone 6E 9.7 inches, Bull Mountains 6-8 inches, Fort Smith 7 inches, Sheridan area 4-7 inches, Livingston & Lame Deer 6 inches, Billings area 3-5 inches. On the 12th, several daily record cold high temps were set: Billings 27°, Livingston 27°, Miles City 26°, Sheridan 24° (a record cold so late in the spring). Miles City's low of 11° was also a daily record.

April 14: Sheridan set a daily record low with a chilly 6° above zero.

April 16: More heavy snow fell along the foothills. The Red Lodge area picked up 12-18 inches, while the Story area had 10-15 inches. Mystic Lake had 8 inches.

May 3: The first severe thunderstorm of the season produced up to golf ball size hail near Ridgeway. Elsewhere, a thunderstorm produced a wind gust of 60 mph at Rock Springs in extreme northern Rosebud County, and another storm dropped quarter size hail near Alzada.



May 6-7: Judith Gap received 2-4 inches of wet snow, while Mystic Lake saw 4 inches.

May 19: A severe thunderstorm produced hail to the size of golf balls (1.75") 23 miles north of Lavina, on the south side of the Snowy Mountains.



May 20: More widespread severe weather occurred on this day. It began with a storm that produced 2.50" (tennis ball) size hail in Lavina at 1:19 am (picture at left). Severe storms ramped up that afternoon. Some reports included: 2" hail near Garland, 1.25" hail near Volborg, numerous reports of 1.50-2.50" hail and cracked windshields east and northeast of Miles City (including Kinsey). There were also reports of damaging wind, including a semi tipped over on I-94 northeast of Miles City, along with large trees downed. Elsewhere, a 72 mph gust was reported near Lame Deer Divide, and a 75 mph gust occurred at Rock Springs.

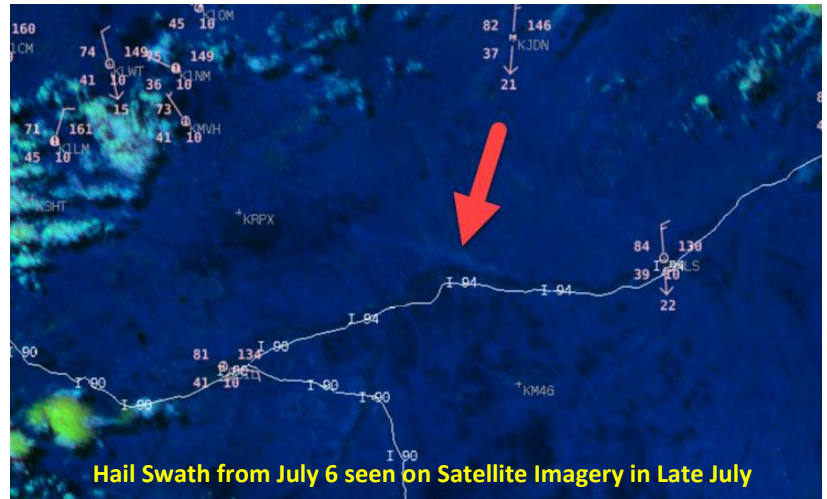
May 31: A severe thunderstorm produced a 64 mph wind gust and nickel size hail in Miles City. Quarter size hail (and hail covering the ground) occurred just east of Miles City.

June 7: A severe thunderstorm produced golf ball size (1.75") hail near Ekalaka.

June 28-30: Widespread rainfall occurred as a slow-moving upper level low pressure system moved through the region. Rainfall amounts of 1-2 inches were common, especially over west and central areas.

July 3: There were a few reports of severe weather on this day, including a 63 mph wind gust west of Hardin, 60 mph gust at Baker, 59 mph gust at Ingomar, and 1" diameter hail south of Broadus.

July 6: More widespread severe weather occurred on this day. Large hail (1.5-2") caused crop and some property damage from Sanders to Forsyth, and further north near Musselshell and Melstone. Other reports included: 2" hail near Belle Creek, 1.75" hail at Plevna, and 1-1.5" hail near Biddle. Just under 3" of rain was reported from a thunderstorm in Broadus. To the right is a July 25 satellite image showing a swath of hail damage (light blue line) from the Bull Mountains to Hysham (north of I-94).



July 7: More severe weather: Golf ball hail near Twodot, wind damage (grain bins downed and trees stripped) east of Judith Gap, 2" hail southwest of Ryegate, up to 2" hail near Lavina, 2.5" hail southwest of Roundup, 1.75" hail near Delphia, 2" hail at Shepherd, 1.5" hail near Broadus, 1.25" hail near Ekalaka. Wind gusts near 60 mph at Reed Point, Columbus, Birney, Emigrant, Laurel. The Miles City airport measured a 74 mph gust, and large tree branches were reported to be downed along I-94 near Tusler.

July 9: A severe thunderstorm produced a 71 mph wind gust at Molt.

July 22: Sheridan tied a daily record high temp with 103°. Other highs on this day: Brandenburg 104°, Broadus/Powderville/Mizpah 103°, Dayton/Miles City/Billings NWS 102°, Forsyth 100°.

July 23: A severe thunderstorm produced up to 1.5" hail and a 75 mph wind gust near Baker. Another severe storm produced a 61 mph gust at Big Timber.

July 22-23: The Buffalo Fire ignited and burned over 11000 acres in just two days (mostly on the 23rd). The fire was in southern Powder River County.

July 29: Very heavy rain fell over southern Carter County. Alzada and Albion received 4 to 4 ½ inches of rain, and radar estimated nearly 7 inches of rain west of Albion. Flooding was reported in the area.



July 29 Flooding near Albion (Courtney)

July 30: A severe thunderstorm produced gusts of 64 mph and 68 mph at the Miles City airport during the evening. No damage was reported in the city.

August 3: Thunderstorms produced some strong outflow winds, including peak gusts of 75 mph at Livingston and 67 mph at Billings. A few power lines were downed in Billings. The Billings airport received 1.08 inches of rain, a daily record.

August 6: Thunderstorm wind damage in the Billings area included: a ride at the fair tipped over, large power pole snapped, and some tree damage.

August 25: A severe thunderstorm produced a measured 77 mph wind gust at Deadman's Basin Reservoir during the evening.

September 2: A hot, dry and windy day resulted in the development and rapid spread of several wildfires. Temps were in the low-mid 90s, with RHs of 9-15%, and wind gusts of 40-60 mph. Livingston had a peak gust of 63 mph. Fires started included the Bobcat Fire south of Roundup, Sarpy Fire northeast of Crow Agency, and Rice/Snider Fires north of Ashland.

September 5: Another unseasonably hot and dry day with breezy west winds. Billings (102°), Livingston (102°) and Sheridan (103°) all set daily record highs, and all were the latest it's ever been 100 degrees. For Livingston, it was the first 100° day in September. Other highs: Billings NWS 105°, Busby 103°, Hardin 103°, Broadus 101°. Hot and dry conditions (RHs less than 10% in spots) were problematic for wildfires, including the



Bridger Foothills Fire (shown on left) near Bozeman which grew from a small fire reported on the 4th, to several thousand acres on the 5th as it spread into Bridger Creek Canyon on the east side of the range.

September 7-8: A Canadian cold front was followed by widespread rain with mountains/foothills snow. RAIN: Most of the area picked up 0.50-1.00" of rain, but there was more in some locations, including Luther 2.10 inches and Dayton 2.52 inches. SNOW: Up to a foot fell on the northeast aspects of the Beartooth, Pryor and Bighorn Mountains; Red Lodge 5-10 inches, Story 4-8 inches, Nye 5 inches. On the morning of the 9th, several places fell below freezing and some daily records were broken,

including Livingston (26°), Miles City (30°) and Sheridan (25°).

September 24: A very hot day, and records were set at Miles City (94°), Sheridan (93°) and Billings (92°).

October 12: A very windy day, especially along the foothills. Peak gusts included: Crazy Mountain Raws 81 mph, Big Timber 68 mph, Banner (WY) 64 mph, Reed Point 63 mph, Harlowton 63 mph, Billings 62 mph, Livingston 62 mph.

October 14: More strong winds for the foothills. Peak gusts included: Big Timber 64 mph, Livingston 62 mph, Columbus 61 mph, Roundup 13NW 61 mph, Columbus 12S 61 mph, Big Horn 60 mph, Sheridan 59 mph.

October 17-27: A remarkable period of cold & snowy weather for October. Many temperature records were broken, including the earliest sub-zero temperatures on record at Livingston, Miles City and Sheridan. Many periods of snow occurred during this time. Mystic Lake picked up a total of 49.5 inches of snow, Billings 19.9 inches, many areas from Billings westward and southward around 20 inches. Billings had 12 straight days with a snow depth of at least an inch, an October record.

October 27: Strong west winds near Big Timber caused blowing & drifting snow, and severe driving conditions on I-90 and US-191. Peak wind gust at the Big Timber airport was 66 mph.



November 3: A very warm day. Sheridan reached 81°, only the 2nd time in history to hit 80 degrees in November. Other high temps included: Crow Agency 80°, Hardin 79°, Broadus 78°, Miles City 75°, Livingston 74°, and Billings 74°.

November 13: Strong winds occurred along the foothills, just prior to a cold frontal passage. Peak gusts included: Nye 84 mph, Livingston 83 mph, Big Timber 67 mph, Cooney Reservoir 66 mph, Red Lodge 62 mph, Sheridan 60 mph.

December 8: A very warm day: Sheridan reached 72°, only the 12th time that Sheridan has eclipsed 70 degrees in December. Other highs: Big Horn 71°, Story 69°, Brandenburg & Forsyth 68°, Hardin & Miles City 67°, Billings 64°.

December 11-14: A couple of minor snow events impacted the region, with lower elevations receiving 2-6" of snowfall.

Have a great 2021 everyone!!