

# TOP 5 WEATHER EVENTS OF 2023



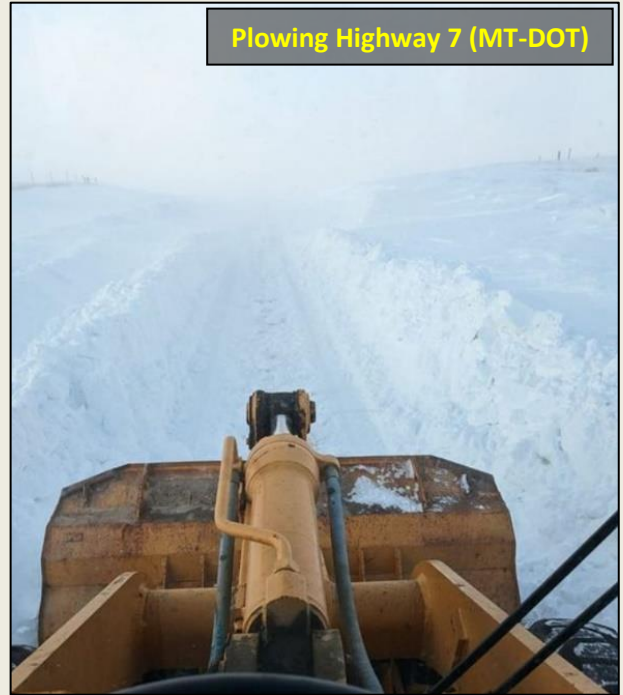
Near Roberts in early-June (Devries)

## National Weather Service – Billings, MT

*In what was a fairly quiet year for impactful weather, these events were voted upon by several of our meteorologists and deemed the five most intriguing in our forecast area in 2023. Enjoy!*

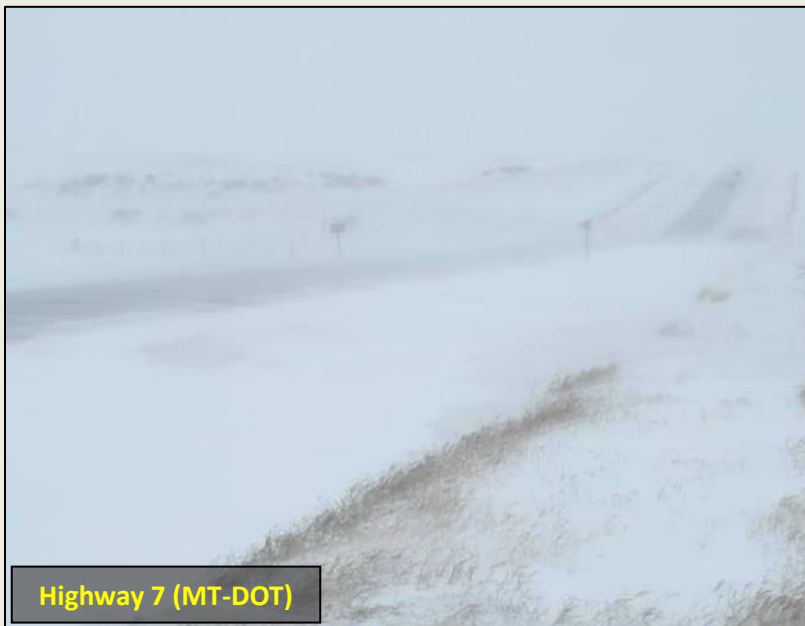
# #5: March 11: Fallon County Blizzard

The combination of light snow, strong northwest winds and blowing/drifting snow produced blizzard conditions across Fallon County for much of the day. Numerous roads (including Highways 12 & 7) were closed. The Baker airport reported visibility to a quarter mile or less frequently from 8am to 5pm. A few peak wind gusts included: Baker 61 mph, Plevna 58 mph and Cannonball Creek Raws 57 mph. Wind chill temperatures were in the single digits below zero. Blowing and drifting snow impacted travel across other parts of southeast Montana, but the most hazardous conditions were in Fallon County.



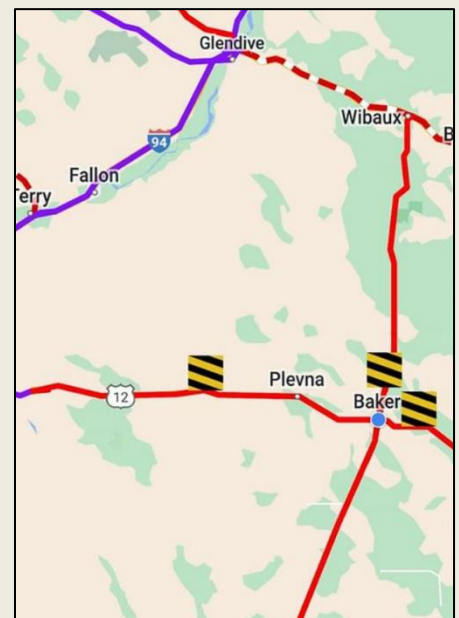
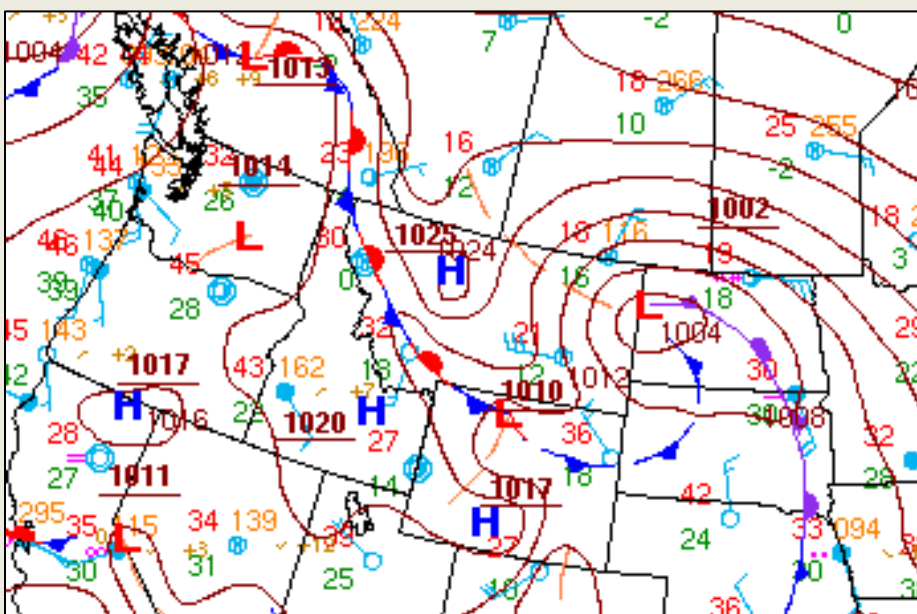
Plowing Highway 7 (MT-DOT)

The surface analysis (bottom left) taken at midday on March 11<sup>th</sup> shows low pressure along the MT/ND border and cold high pressure building into central MT. This weather system brought light snow and strong northwest winds



Highway 7 (MT-DOT)

across eastern MT. The map at bottom right is from MT-DOT and shows road closures (in red).

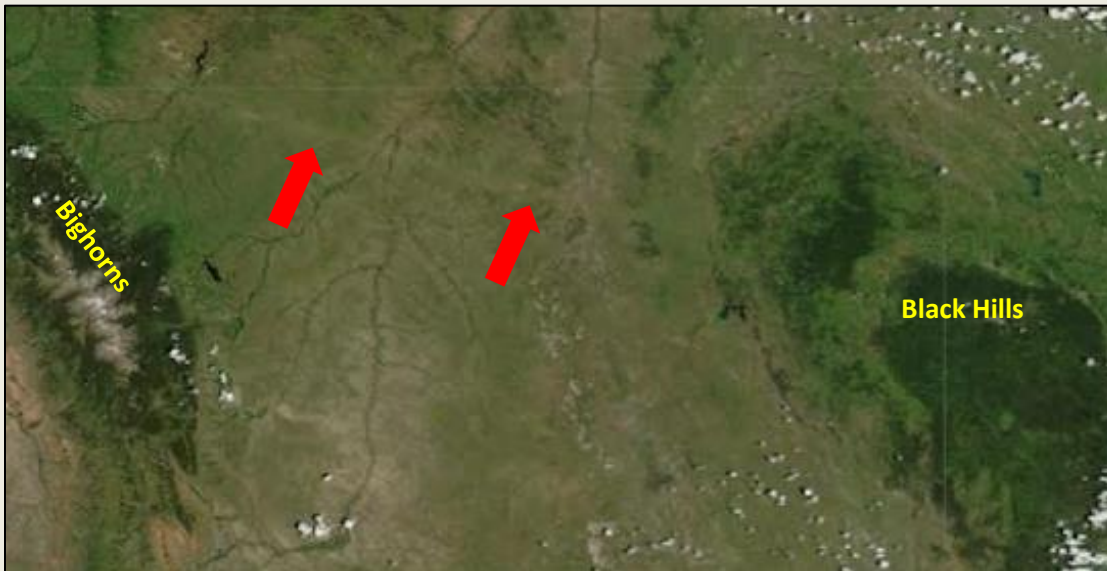


# #4: July 11: Severe Thunderstorms

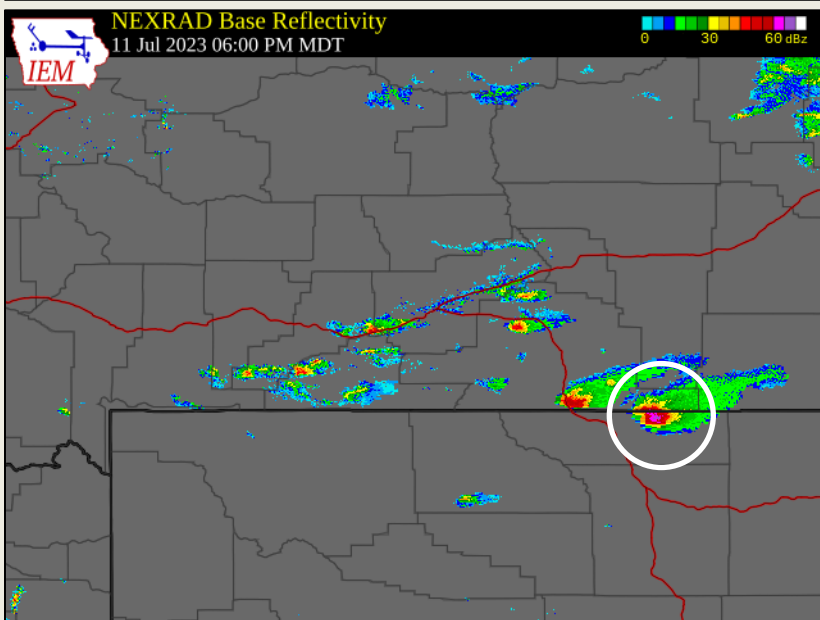
Severe thunderstorms impacted the region. The table below shows a few reports we received.

Location	Severe Report
9 miles north of Leiter, 14 miles NNE of Sheridan	2.75" (baseball size) hail
Decker	2.5" hail
20 miles NNE of Baker	1.5" hail
Wyarno	1.50" hail & broken windows
Cannonball Creek Raws (13 miles NE of Baker)	74-mph wind gust
3 miles south of Miles City	1" hail
Ingomar	74-mph wind gust & 1.75" hail (damaged coop observer equipment)

The supercell which produced baseball size hail in eastern Sheridan County was long-lived and tracked across northeast WY toward the Black Hills. The swath of hail damage was significant



enough to be seen on NASA's Aqua Satellite imagery the following days. On the bottom left is a 6pm radar image, showing the severe thunderstorm in northeastern Sheridan County near the MT line.



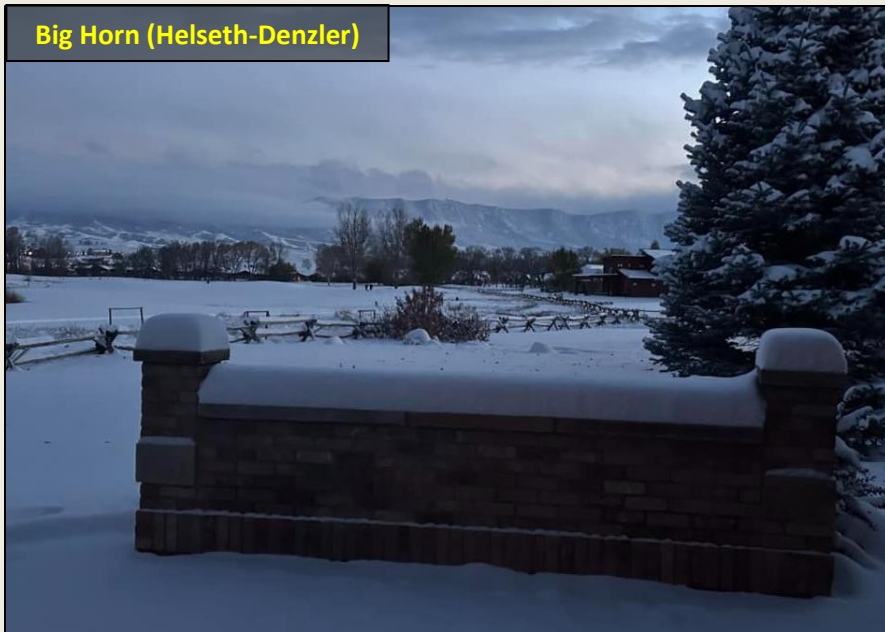
### #3: October 24-30: Snow, Light Freezing Drizzle & Cold

Periods of snow impacted the region from the 24<sup>th</sup> through the 27<sup>th</sup>. This was followed by cold temperatures as an air mass originating in the arctic settled in from the 27<sup>th</sup> to 30<sup>th</sup>. At the weather system's onset, many areas saw a period of light freezing drizzle before the snow began (especially Billings eastward), resulting in widespread icy roads and many slide offs.

Location	Snowfall
Mystic Lake	22"
Livingston area	12-16"
Big Timber	13"
Ashland 12E	12"
Melville	12.6"
Big Horn	10.5"
Baker 25SSE	10"
Wilsall	10"
Harlowton	8"
Sheridan area	6-9"
Ekalaka	8.7"
Red Lodge	6"
Billings area	3-5"

SNOW: Greatest amounts were in the west, southern foothills and east. Amounts are summarized in the table at left. COLD: Livingston's low of -12° on the 28<sup>th</sup> was a daily record, and the coldest so early in the fall (previous first occurrence of -12° was Oct 27). Daily record cold highs were set at Billings (20°), Miles City (16°) and Livingston (17°) on the 27<sup>th</sup>.

Location	Min Temp
Livingston	-12°
Harlowton 11NW	-12°
Ingomar 9E	-11°
Brandenberg	-10°
Baker	-10°
Plevna	-9°
Melstone	-8°
Busby	-7°
Ryegate	-6°
Ekalaka	-5°
Melville	-5°
Broadus	-4°
Miles City	-3°



Big Horn (Helseth-Denzler)



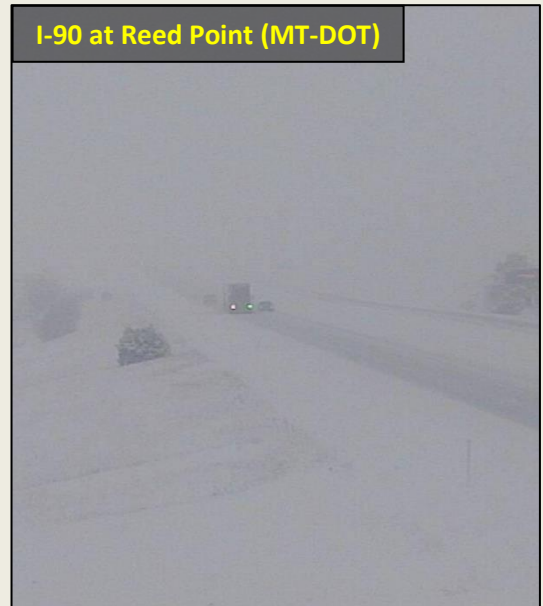
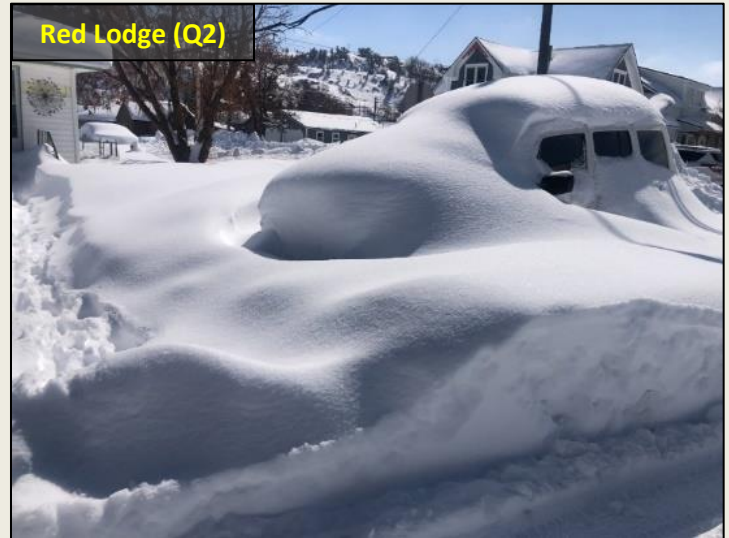
Near Ashland (Burek)

## #2: March 24-27: Foothills Snow (including Red Lodge)

A slow-moving weather system with easterly upslope winds produced heavy snowfall from Billings westward and southward. The mountains above Red Lodge picked up around 5 FEET of snow, while a coop observer in Red Lodge reported 34.0 inches on the 25<sup>th</sup>, and a 3-day total

of a whopping 44.5 inches! The observer reported a snow depth of 59 inches on the 27<sup>th</sup>, which was the highest since April 1991.

Location	March 24-27 Snowfall
Red Lodge	44.5"
Nye 14W	40"
Joliet	26"
Pine Creek	23.8"
Big Timber	23.5"
Fishtail	23"
Sheridan	20"
Story	19"
Livingston	18"
Mystic Lake	18"
Bridger	16"
Fort Smith	16"
Wyarno 9NNE	16"
Park City	15"
Reed Point 5SE	14"
Big Horn	13"
Melville	13"
Springdale	13"
Billings area	8-12"
Busby	11"
Dayton	11"
Huntley	11"
Hardin	10"
Columbus	9.4"



# #1: June Flooding

In a year without many significant weather events, the flooding that occurred during June was the obvious choice for top spot on our list. It was the 2<sup>nd</sup> consecutive June with significant flooding, but whereas the flooding in 2022 resulted from rain and wet snow in the Beartooth-Absarokas, the 2023 flooding was in the form of more localized flash flooding from slow-moving thunderstorms and abundant atmospheric moisture. It was the 3<sup>rd</sup> wettest June on



East Parrot Road near Roundup (Merison)

record at Billings and Sheridan, and 4<sup>th</sup> wettest at Livingston. For Billings, it was the wettest June since 1944. Below is a chronological summary of some of the more significant flooding that occurred during the month.

- June 1-3: A slow-moving weather system brought a 3-day period of heavy rain and flooding in some areas. There were several reports of 5+ inches of rain from the west side of Billings to Laurel,

Rapelje and Molt. Over 4 inches of rain fell just southeast of Roundup in the Bull Mountains (where several rural roads were washed out). Urban flooding was widespread from Laurel to Billings, and Zimmerman Trail was closed due to rock slides. Total flood damage costs to the city were estimated to be \$1M. Billings' rainfall of 2.12 inches on the 2<sup>nd</sup> was a daily record, and tied for the 12<sup>th</sup> wettest day on record dating back to 1934.

- June 3-11: A remarkably moist air mass with instability and weak easterly flow aloft produced several days of thunderstorm activity, with locally heavy rain and flash flooding. The Billings airport reported a dew point of at least 60° on seven

consecutive days (June 3-9). NWS Billings issued a total of 19 flash flood warnings over these nine days, the most over such a short time in many years. Some of the flash flooding included:

- June 6: A county road washed out five miles north of Columbus due to flooding on Keyser Creek; street flooding in downtown Columbus.
- June 8: S-313 from MP 18 to 19 (south of Hardin) had water on the road.



29<sup>th</sup> and Broadwater in Billings (Ojeda)

- June 8: Numerous homes flooded in Lavina, water flowing down main street (not from the Musselshell River), flooding also in and near Ryegate.
- June 8: Flooding just east of Roberts, near Clear Creek and Cherry Springs Road.
- June 9: Rain pushed the Musselshell River at Roundup above flood stage for several hours.
- June 10: Heavy rain over the Bighorn Mountains caused flooding on Little Goose Creek (near Big Horn) and a portion of Big Goose Creek, County Road 66 closed due to water on it, water on Woodland Park Road at Little Goose Bridge.
- June 11: Flooded roads northwest of Forsyth along Big Porcupine Creek, included Hammond Valley Road; this water took time to reach Forsyth from the Ingomar area.



- June 15-16: Little Goose Creek had minor flooding in and around Sheridan and Big Horn, a result of heavy rain in the Bighorns the day before.
- June 23: Very heavy rain in the Rapelje area (estimated at over 7 inches) caused flash flooding, including on Keyser Creek which flows into the Yellowstone River at Columbus.
- June 24: Railroad bridge over the Yellowstone River just east of Reed Point collapsed and a train derailed, causing several cars to plunge into the water. The exact cause of the collapse remains unknown, but many years of high river flows may have eroded the river bottom and weakened the bridge structure over time. Though not caused directly by the flooding in



2023, river levels were high at the time of the accident.

Below is a summary of June precipitation at our main climate stations and several coop observer sites. Several coop observers reported their wettest June on record!

SITE	JUNE PRECIPITATION	Rank
Melville 4W	11.28"	#1 wettest
Ryegate	11.08"	#1 wettest
Burgess Junction	9.79"	#1 wettest
Columbus	8.19"	2 <sup>nd</sup> wettest
Huntley	8.10"	#1 wettest
Hardin	7.57"	#1 wettest
Roundup 15SW	7.20"	#1 wettest
Harlowton 11NW	7.18"	#1 wettest
Molt 6SW	7.12"	#1 wettest
Billings NWS	7.06"	#1 wettest
Red Lodge	6.92"	3 <sup>rd</sup> wettest
Springdale	6.92"	#1 wettest
Big Timber	6.84"	4 <sup>th</sup> wettest
Billings Airport	6.36"	3 <sup>rd</sup> wettest
Harlowton	6.14"	2 <sup>nd</sup> wettest
Sheridan	5.36"	3 <sup>rd</sup> wettest
Livingston	4.56"	4 <sup>th</sup> wettest

**Thanks for reading. We wish everyone a happy 2024!**