

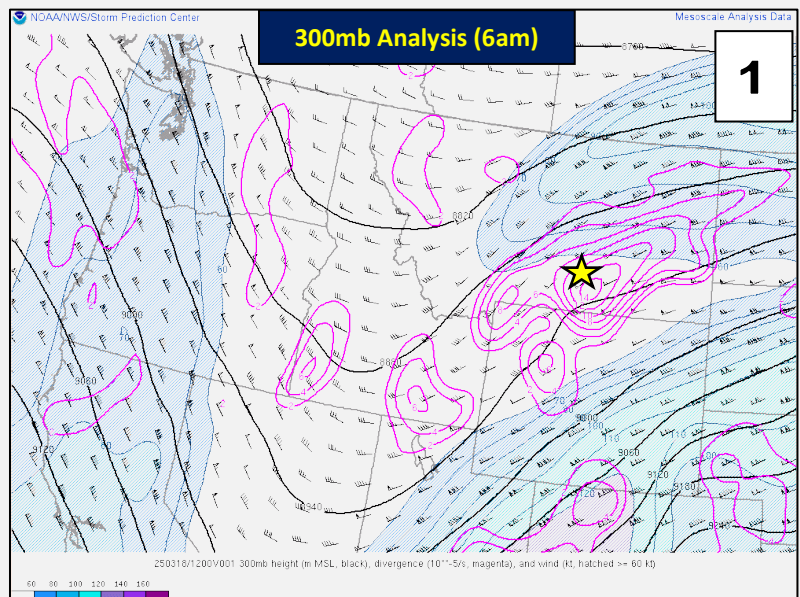
# Heavy Wet Snow

March 18, 2025

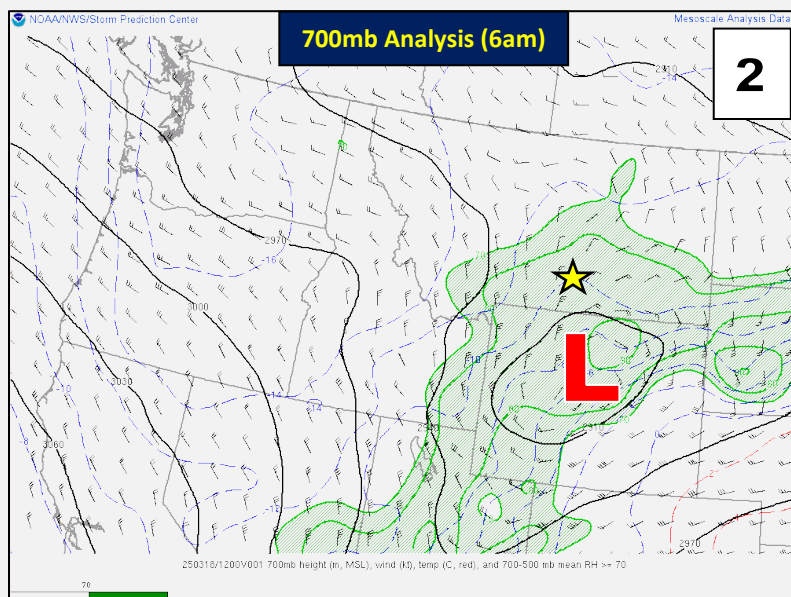
National Weather Service – Billings, MT

**OVERVIEW:** A dynamic weather system moving through the central Rockies brought a period of heavy wet snow to portions of south central and southeast Montana, and northern Wyoming. Heaviest snow was along southern mountains & foothills, where northerly winds provided “upslope” enhancement to the precipitation, and across far southeast Montana near the Wyoming state line. Billings (0.42”) and Sheridan (0.93”) each set daily precipitation records for the 18<sup>th</sup>. For Sheridan, it was the 5<sup>th</sup> wettest March day on record.

**METEOROLOGY:** One of the keys in setting up this significant precipitation event was the cold front that produced some rain and wet snow the previous day. This allowed for cooler air to be already in place when the stronger weather system arrived. The combination of strong synoptic scale ascent (Figure 1 shows significant upper divergence in the pink contours between a “coupled” jet structure), and moist/cyclonic flow at mid-levels (Figure 2 shows 700mb low over northern WY along with upslope N-NE winds) generated widespread precipitation in our region. Heavier bands of precipitation developed along a north-to-south oriented convergence axis. A band of heavy snow impacting Billings can be seen on a 530am radar image (Figure 3). This convergent band drifted east over time and impacted northeast Yellowstone, Treasure, and northern Rosebud Counties as well. Not shown is the healthy plume of Pacific moisture wrapping into this system.

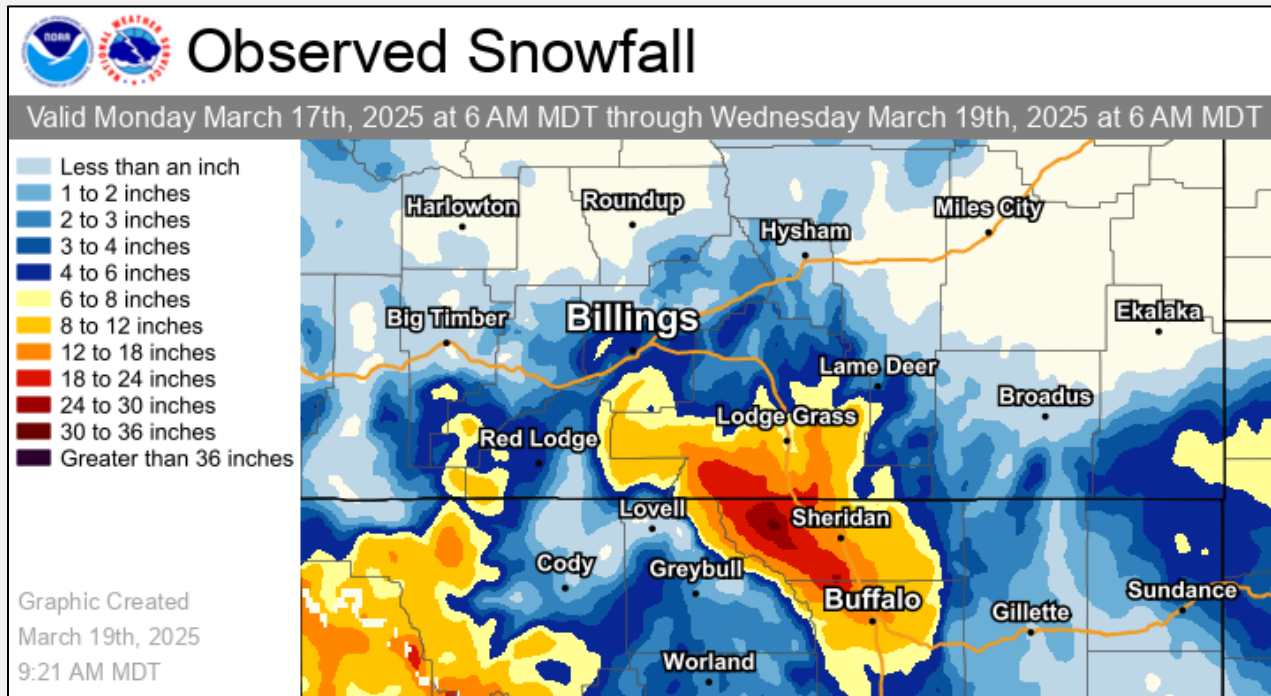
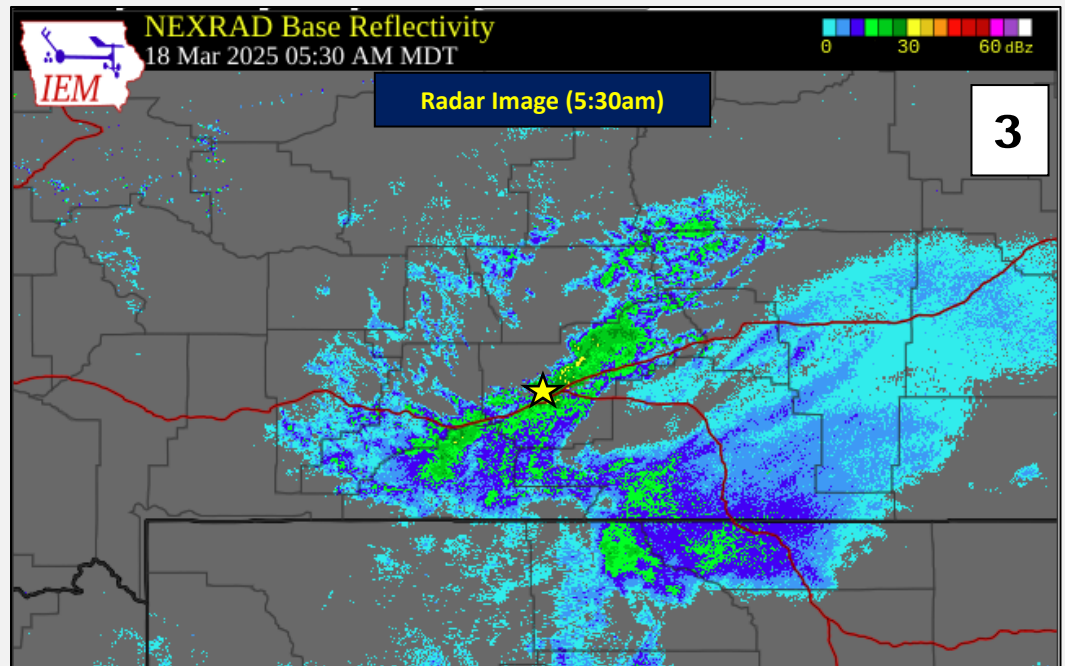


**IMPACTS:** Surface temperatures at lower elevations remained relatively warm (lower 30s) through the duration of this event, and most highways stayed wet or become slushy. However, travel impacts were greater where snow was heaviest, winds were gusty, and visibility was poor. Interstate 90 was closed from Sheridan to Buffalo for approximately 15 hours (18<sup>th</sup> @ 2:30pm to 29<sup>th</sup> @ 5:30am). US-14 from Sheridan through the east half of the county was also closed. The Sheridan airport reported visibility as low as ¼ mile frequently.



**PRECIPITATION & SNOWFALL:** Snowfall was wet and heavy through the course of this event. Water equivalent precipitation ranged from one to two inches over the Beartooth-Absaroka, Pryor, and Bighorn Mountains, yielding snowfall amounts of up to two feet (locally higher totals may have fallen

over north aspects of the northern Bighorn Mountains). Lower elevation precipitation varied due to the banded nature of the snowfall. Heaviest snow was along the southern foothills and across southeast Montana near the Wyoming state line. Below is a map of snowfall estimates around the area, and a summary of the higher snowfall reports that we received. Please note that due to poor radar coverage, the map shows unrealistically low amounts in and around Powder River County.



### MARCH 18, 2025 SNOWFALL TOTALS

Story 2WSW	26"	Lodge Grass 7W	9.1"
Cole Creek Snotel (near Red Lodge at 7850')	24"	Luther 3SSW	8.5"
Burgess Junction 7ESE	24"	Fox 3NNE	8.0"
Dayton 1SW	21"	Biddle 8SW	7.0"
Beckton 12SSW	18"	Quietus 8NNW	7.0"
Big Horn, WY	16.7"	Fishtail 2ESE	7.0"
Ranchester	14"	Limestone 10WSW	7.0"
Ridge 4NE	13"	Lame Deer 6ENE	4.4"
Red Lodge	11"	Crow Agency	2.8"
Sheridan	10"	Billings area	1-3"

**MARCH 19<sup>TH</sup> SATELLITE IMAGE:** Below is a “Day Cloud Phase” satellite image from 10am on the 19<sup>th</sup>. It shows snow cover in green, bare ground in dark blue, and low clouds in light blue. Notice the extensive new snow cover, especially south of I-90 and I-94. You can pick out some of the lower valleys where warmer temperatures limited snow accumulations, including the Clarks Fork south of Laurel, the Bighorn River through Hardin and St. Xavier, the Tongue River near Birney, and the Powder River through Broadus. It is not unusual to have widely varying snow accumulations dependent on elevation.

