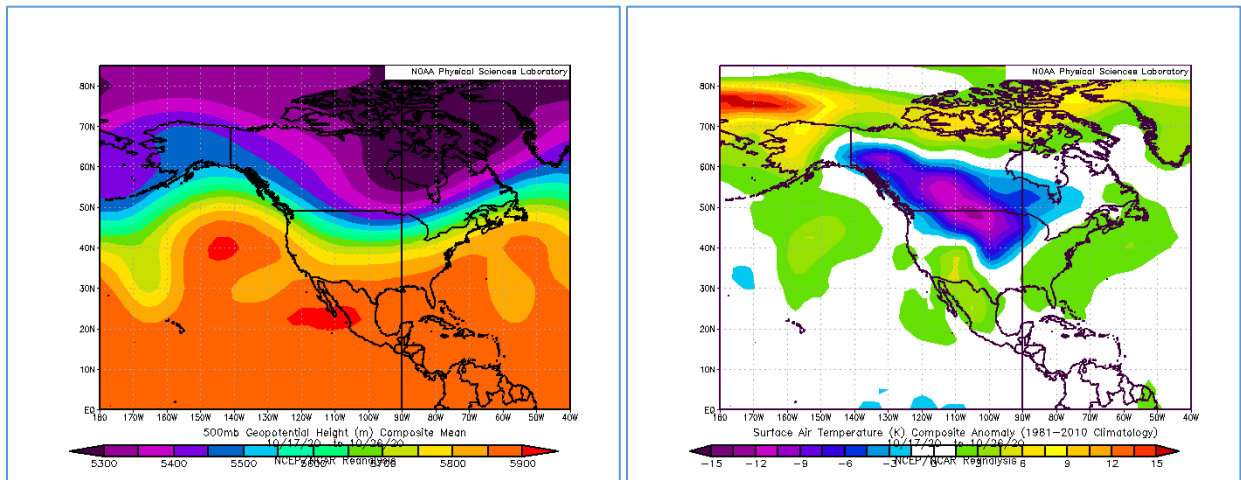


# October 17-27, 2020 Cold Spell

A remarkable stretch of cold and snowy weather impacted the region from the 17<sup>th</sup> through the 27<sup>th</sup> of October. The first half of the month was dry and very warm, with several days of temperatures into the 80s, so the shift in weather was dramatic. Many temperature and snowfall records were set during the second half of the month.

The weather pattern across North America during this cold stretch was characterized by strong high pressure over the North Pacific Ocean, and cold northerly flow dropping from Canada into the north central U.S. The following map on the left shows an average 500mb height (mid-level winds in the atmosphere) analysis from the 17<sup>th</sup> through the 26<sup>th</sup>. The cold pattern can be seen in the “troughing” over the north central U.S. On the right is the surface temperature anomaly over the same 10 days (note the very cold air extending from southwest Canada into our region).

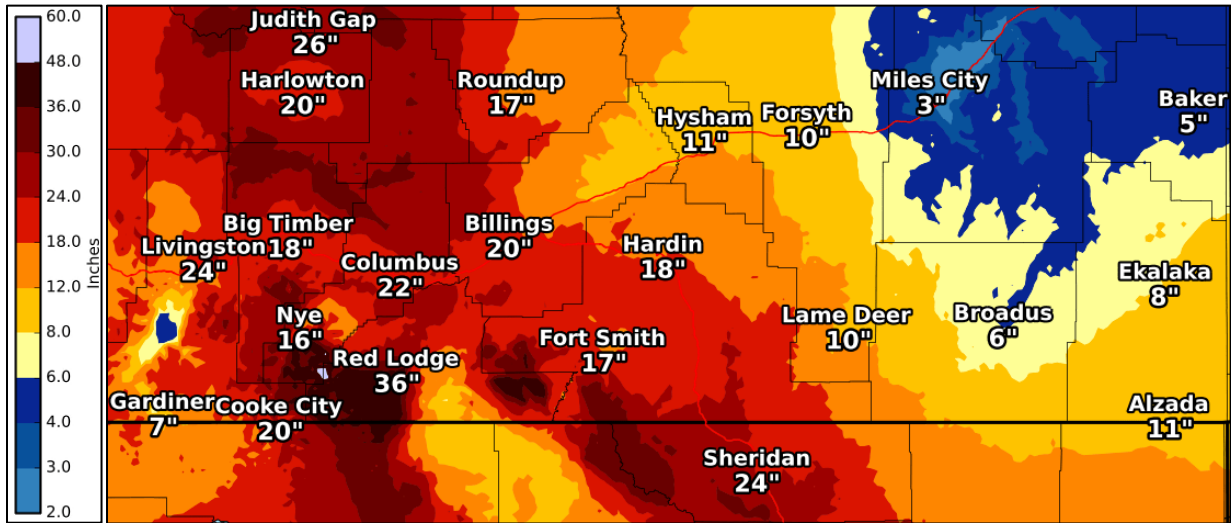


Temperatures from Oct 17-27 were well below normal, and many record low and cold high temperatures were broken. In fact, Livingston, Miles City and Sheridan each experienced the earliest occurrence of below zero temperatures on record! The following is a summary of temperature records at our four main climate stations:

October 17-27 Stats	Average Temp	Departure from Normal	Rank	Number of Record Lows	Number of Record Cold Highs	Coldest Temperature
Billings	24.5°	-23.0°	#1 coldest	6	5	5°
Livingston	23.7°	-22.1°	#1 Coldest	5	5	-7°
Miles City	23.3°	-22.4°	#1 Coldest	5	6	-3°
Sheridan	24.2°	-20.7°	#1 Coldest	3	4	-10°

Snowfall from Oct 17-26 was frequent and totaled some impressive amounts. Billings received 19.9” of snow during this time, ensuring the 2<sup>nd</sup> snowiest October on record (23.1” fell in 1949), and the 11 straight days with at least an inch of snow on the ground was an October record. Snowfall totals of 20 inches or more were common across the western half of our forecast area, with amounts in excess of three feet occurring along the foothills. Mystic Lake received a whopping 49.5 inches of snow. Least

amounts of snow occurred in the Miles City area. Below is a map of total observed snowfall across the region over these 10 days, based on the many reports we received.



By October 27<sup>th</sup>, there was significant snow cover not only in our region but across the northern Rockies and high plains. Below is a map of snow depth on the morning of the 27<sup>th</sup>. Much warmer temperatures into the first part of November will remove most if not all of the lower elevation snow cover.

