

October Rockies & High Plains Snow Storm

10/23 - 10/25 2020

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Meteorological Overview:

A historic early season winter storm blanketed much of the Rockies and High Plains in heavy snow during late October, 2020. Daily and monthly snowfall records were broken for some as snowfall piled up spanning multiple days. In addition, an Arctic blast of bitterly cold temperatures engulfed much of the Intermountain West and the Nation's Heartland where many locations experienced record cold minimum and maximum temperatures. The origins of this winter storm began as a building upper level ridge over the northeast Pacific helped to amplify a downstream trough over southwestern Canada on Friday, October 23. Warm air advection and diffluent flow ahead of the trough aloft led to the development of widespread precipitation across northern Washington, northern Idaho, and much of Montana. Meanwhile, frigid Arctic air spilled south from northern Canada into the northwestern U.S., supporting not only a cold enough atmospheric column for mountain snow but at lower elevations as well. Snow broke out across the region on Friday and fell throughout the day and night.

By Saturday morning, the 12Z surface analysis showed the Arctic front draped from northern Oregon eastward into northern Wyoming. A tongue of 700-500mb moisture was funneled behind the front and upper level ascent fostered heavy snowfall from the northern Rockies to the northern Great Plains. The heaviest snowfall amounts on Saturday transpired in the north-central Rockies where upsloping winds aided in generating intense snowfall rates. The Tetons and the higher peaks of northern Colorado saw 24-hour snow totals in excess of two feet. Meanwhile, heavy snow fell over the north-central Plains where there was upper level divergence within the right entrance region of a 250mb jet.

The upper trough deepened over Intermountain West on Sunday and as sub-freezing temperatures plunged southward, periods of snow broke out from the central Rockies to the Midwest. The heaviest snowfall totals occurred in the Rockies with the strongest vertical motion and coldest temperatures. Record breaking cold temperatures for late October engulfed the northern Rockies and Plains and later pushed south into the Southern Plains for the start of the week.

Impacts:

Widespread travel impacts were felt from the Northwest and the Rockies into the High Plains with heavy snowfall causing treacherous driving conditions that included but were not limited to impassable roads, slick spots, and whiteout conditions leading to very low visibilities. Numerous snowfall totals broke daily and even monthly records. Spokane, WA recorded 6.9" of snow on Oct. 23, making it the single snowiest October day on record for the city. Missoula, MT picked up 13.8" of snow over a two day stretch from Oct 23-24, making it the first time since 1914 that

the city picked up over a foot of snow in a two day period in October. Lastly, Great Falls, MT also set a new single snowiest October day record by measuring 8.2”.

In addition to record snowfall there were also plenty of record cold temperatures from the Northwest to the Great Plains. From Saturday 10/24 through Monday 10/26 there were an astonishing reported 154 record low maximum temperatures and 107 record low minimum temperatures. Potomac, MT reported a minimum temp of -29°F, which became the lowest temperature measured at any official climate reporting station in the Lower 48 so early in the year. Also, Missoula, MT and Casper, WY on October 26 broke their daily record low temperatures by a remarkable 20 and 19 degrees respectively.

Closed and impassable roads were common throughout the hardest hit areas of the Intermountain West and High Plains. Numerous traffic accidents were reported throughout Colorado on Sunday, Oct 25 with I-70 westbound near Parachute, CO being closed during the afternoon hours. Flights were delayed or cancelled out of airports throughout the region and poor travel conditions persisted into the start of the work-week with the help of lingering frigid temperatures.