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Wyoming's Climate: December 2010

December 2010 was marked by heavy snowfall in the southern half of the state, and slightly warmer-than-average (compared to 1971-2000) temperatures. According to the U.S. Drought Monitor, December snows led to the removal of “moderate” or greater drought designations from all but extreme southeast Wyoming (see <http://www.drought.unl.edu/dm/monitor.html>). As a result, the state is now enjoying the smallest area in drought it has seen since late 2009. Statewide average snowpack was around 115% of historical average (compared to 1971-2000) at the end of December versus 80% at this time in 2009 (<http://www.wrds.uwyo.edu/wrds/nrcs/nrcs.html>). Of particular note was the Upper Bear River basin in far southwest Wyoming having ~175% of historical average snowpack through the end of December.

In terms of precipitation, many National Weather Service COOP stations in the southern half of Wyoming reported > 150% of historical average precipitation for December, with at least nine stations receiving greater than 200%. While one must also remember that many of these same stations see less than 0.5” of precipitation in an average December, this still represents a major step in the right direction as we build soil moisture and runoff for the coming year. Much of this precipitation resulted from two strong storms in the latter half of the month. In the Sierra Madre, Medicine Bow, and Laramie Mountains of southeastern Wyoming, a storm lasting from 12/18 through roughly 12/23 was particularly notable. Over this period several high-elevation NRCS SNOTEL stations reported snowfall totals of > 50”, with two stations (Blackhall Mtn. and Brooklyn Lake) receiving more than 5 ft of snow. Another storm from December 29th through the 31st brought multiple reports of > 12” of snowfall to the northwestern quadrant of the state, while relatively large amounts of snow were also seen in the southeast. Numerous daily snowfall records were set during this storm. In total, December 2010 was the fourth wettest December on record for the combined Green and Bear River drainages in southwestern Wyoming.

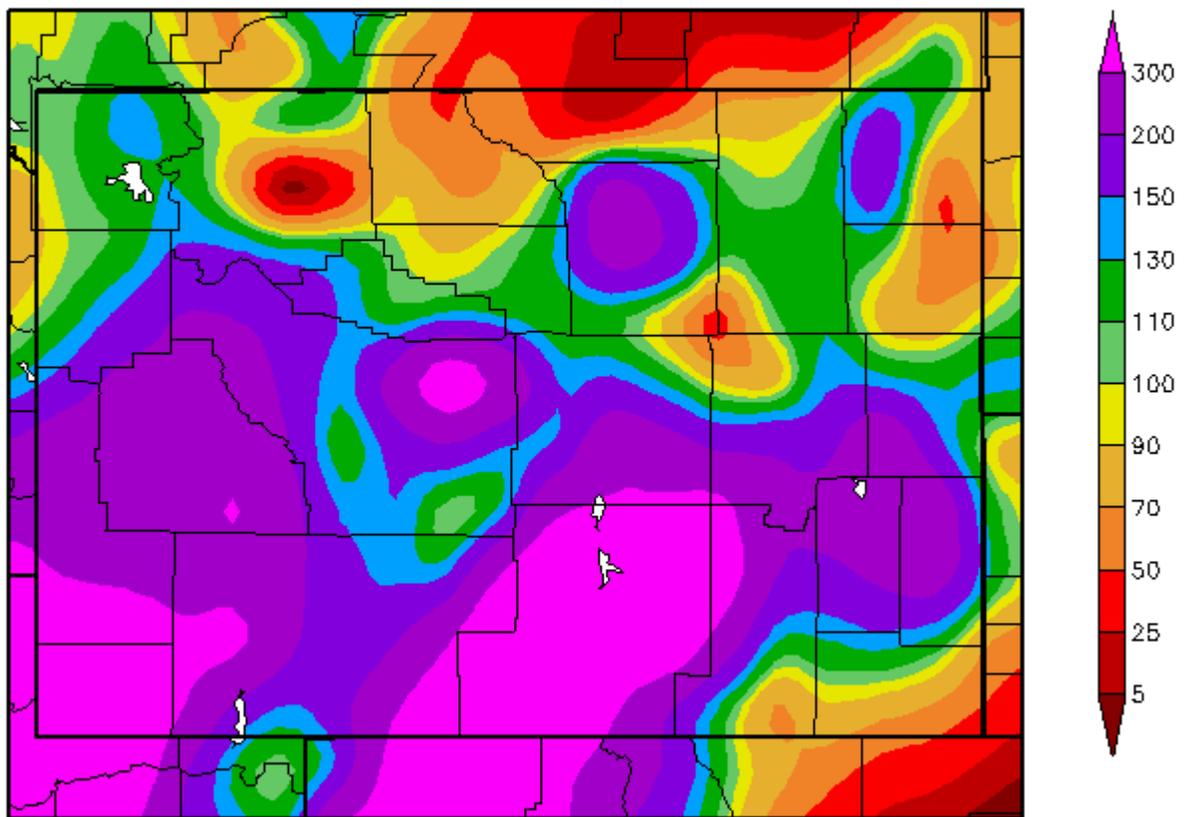
It must also be noted that several areas in Wyoming missed out on these December storms. Locations in the northern Bighorn Basin reported below normal precipitation for the month, and parts of Weston, Converse and Niobrara Counties within the Cheyenne and Niobrara River drainages were also noticeably dry. Likewise, apart from the strong storms reported above, many locations saw little or no snow for the month. The city of Riverton in west-central Wyoming, for example, received 75% of its precipitation for the month on December 29. Though it is still early in the water year (October – September) and December is a historically dry month for many Wyoming localities, this recent dryness warrants close monitoring in coming months.

As for temperatures, December 2010 was generally warmer-than-average across the state. Parts of Fremont and Sweetwater Counties were particularly warm at 4-5° F above average (compared to 1971-2000) for the month. On December 13 and 14, strong west to southwesterly winds

brought very warm temperatures to some parts of the state. Riverton and Rock Springs, for example, both set record highs over this period. Peak wind gusts for these days often exceeded 50 mph.

This report was prepared by the Wyoming State Climate Office, which is a division of the Wyoming Water Resources Data System at the University of Wyoming. More information can be found at: <http://www.wrds.uwyo.edu> and http://www.wrds.uwyo.edu/sco/climate_office.html. Special thanks to the National Weather Service's Cheyenne and Riverton Offices and the NRCS Casper Office for supplying much of the data used in this report.

Percent of Normal Precipitation (%) 12/1/2010 - 12/31/2010

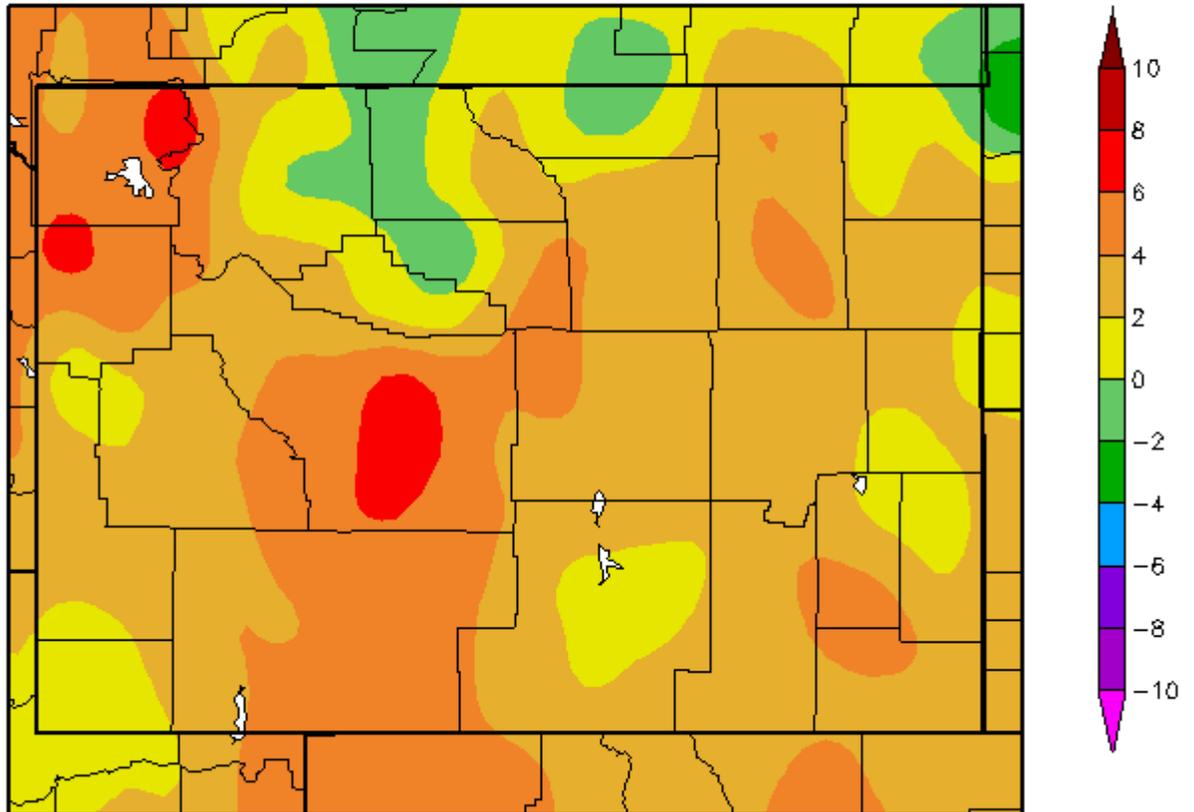


Generated 1/5/2011 at HPRCC using provisional data.

Regional Climate Centers

Map showing December 2010 precipitation as a percentage of historical averages (vs. 1971-2000 "normal period") for Wyoming. Courtesy of the High Plains Regional Climate Center.

Departure from Normal Temperature (F) 12/1/2010 - 12/31/2010



Generated 1/5/2011 at HPRCC using provisional data.

Regional Climate Centers

Map showing mean December 2010 temperatures as departures from historical averages (vs. 1971-2000 "normal period) for Wyoming. Courtesy of the High Plains Regional Climate Center.