



UNIVERSITY
OF WYOMING
Wyoming State Climate Office
Dept 3943, 1000 E. University Ave.
Laramie, Wyoming 82071
Phone: (307) 766-6651
Email: stateclim@wrds.uwyo.edu

Wyoming's Climate: May 2011

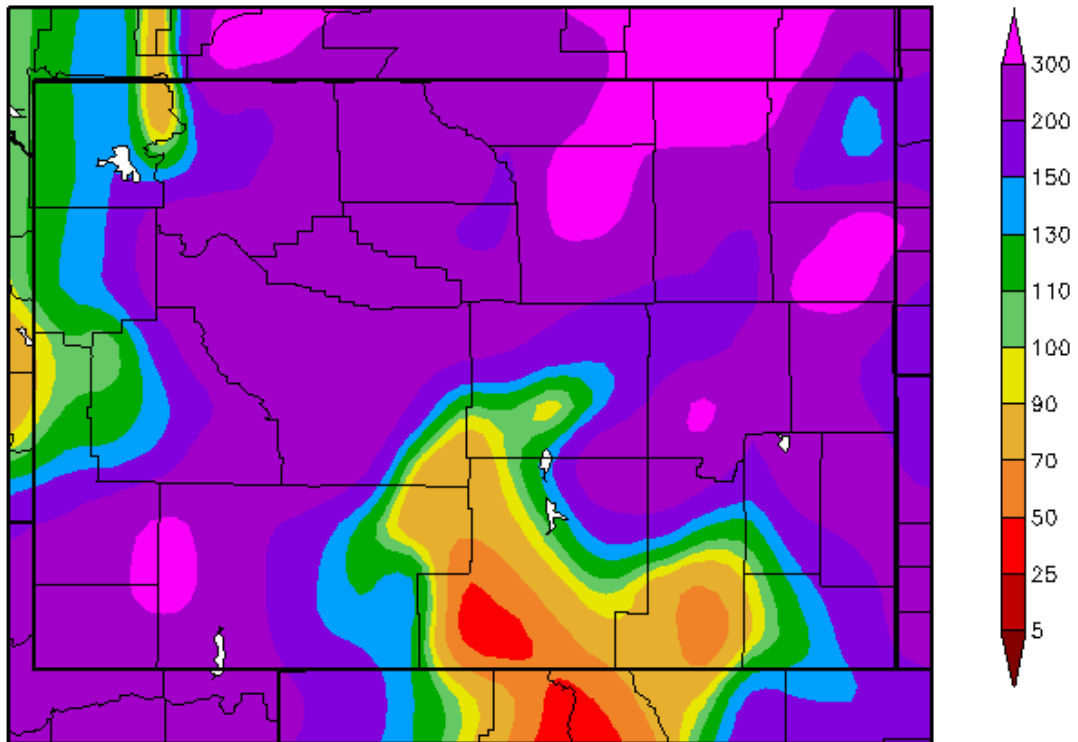
Mountain snowpack continued to be the major story in Wyoming this month. By the end of May, statewide snow water equivalent (SWE) topped an astounding 327% of historical average (compared to 1971-2000). These end-of-May numbers also represent a noticeable increase over observations in April 2011. In many cases these gains in percent of average SWE resulted from cooler temperatures having delayed the onset of melt-off. However, in several of Wyoming's mountain ranges new precipitation over the month of May also added to the snowpack. In any case, our mountain snowpack situation has led to significant concerns over potential flooding.

The importance of both temperature and precipitation in driving the current snowpack situation can be seen when one compares percent of average SWE values for the state's major river basins against percent of average water year (October through September) precipitation at the same sites. In the Wind River drainage, for example, percent of average precipitation (vs. 1971-2000) stood at ~120% for the water year, whereas SWE came in at ~315%. In the simplest terms, this is because 1) the snowpack going into early-to-mid May was relatively high to begin with, and 2) cooler temperatures delayed melting beyond the range of most historical years. In this context the Bear River basin is of particular note. Historically speaking, the Bear is well into the runoff season by this time of year, and several monitoring sites are often near melt-out by end of May. Yet lingering snowpack has now pushed percentage of average SWE values over 500%! Of course, to some degree these wild numbers are an artifact of how we report SWE, but the fact remains that multiple snow monitoring sites across Wyoming still hold > 50 of liquid water equivalent. Overall, the Powder-Tongue Basin reported the state's highest end-of-May SWE values at 575% of historical average. The Shoshone River watershed, the basin with the state's lowest end-of-May SWE, still reported > 200% of average.

This year's high water threat comes on the heels of significant flooding in 2010. However, it is important to note that the floods of 2010 occurred within the context of an end-of-May snowpack that was only 125% of average SWE. By any measure current snowpack will present challenges for dam operations and other aspects of water management. Unfortunately, it is also true that the right combination of warm temperatures and additional precipitation on top of this snowpack could lead to catastrophic flooding in some areas.

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 Riverton Office and the NRCS Casper Office for supplying much of the data used in this report.

Percent of Normal Precipitation (%)
5/1/2011 – 5/31/2011

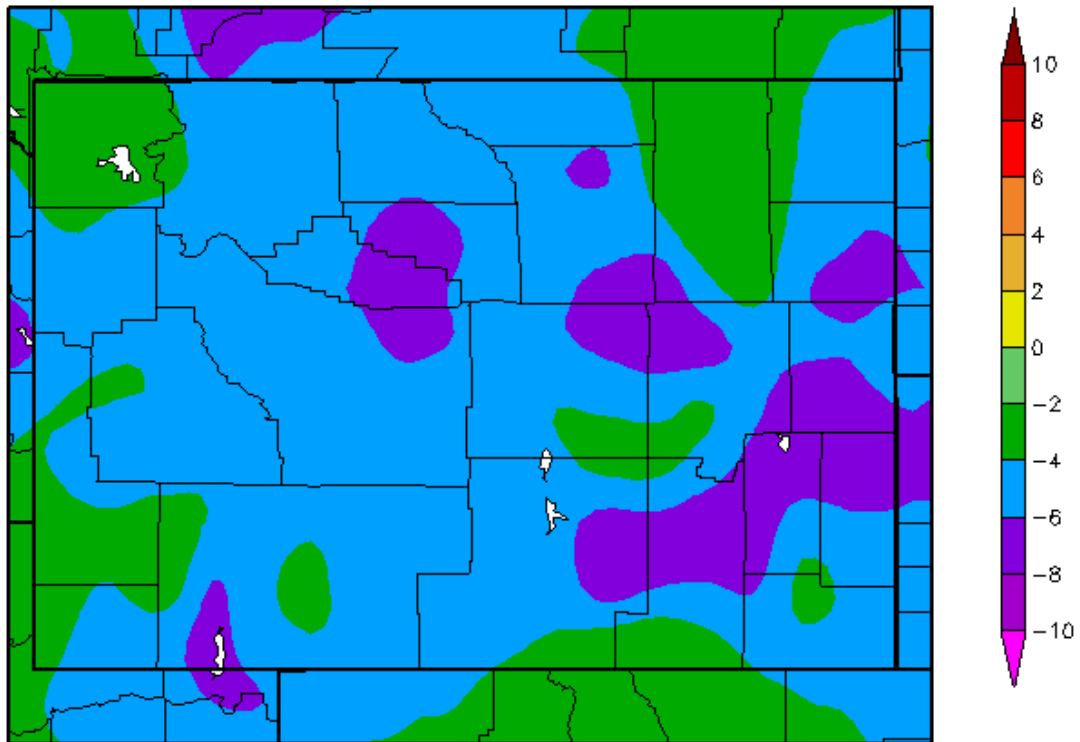


Generated 6/1/2011 at HPRCC using provisional data.

Regional Climate Centers

Map showing May 2011 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)
5/1/2011 – 5/31/2011



Generated 6/1/2011 at HPRCC using provisional data.

Regional Climate Centers

Map showing mean May 2011 temperatures as departures from historical averages (vs. 1971-2000 “normal period) for Wyoming. Courtesy of the High Plains Regional Climate Center.