

Montana Weather/Precipitation Summary

August 1-16 2012 by NOAA's National Weather Service Great Falls Montana

For the first half of August, temperatures have cooled a little over what July delivered. However, a large area of central and western Montana has had temperature averages of two to three degrees above normal. The eastern tier counties have had temperatures averages up to three degrees below normal (Fig. 1). This is a strong departure to the temperature pattern of July. While areas of southeast Montana had departures of over eight degrees above normal in July, the same regions have seen slightly cooler than normal readings in August. For the most recent 60-day period, the entire state remains in an above normal temperature regime (Fig. 2).

Much of western Montana has had below normal precipitation in August, but the eastern portion of the state (generally northeast of a Chinook-Miles City-Broadus line) has had above normal precipitation (Fig. 3). This is also the general area that has experienced below normal temperatures for the month. Isolated areas in central Montana have had above normal precipitation. This is reflective of isolated thunderstorms that occurred in these regions. Figure 5 shows the upper air patterns, which contributed to the cooler and wetter conditions east, and warmer, drier conditions west.

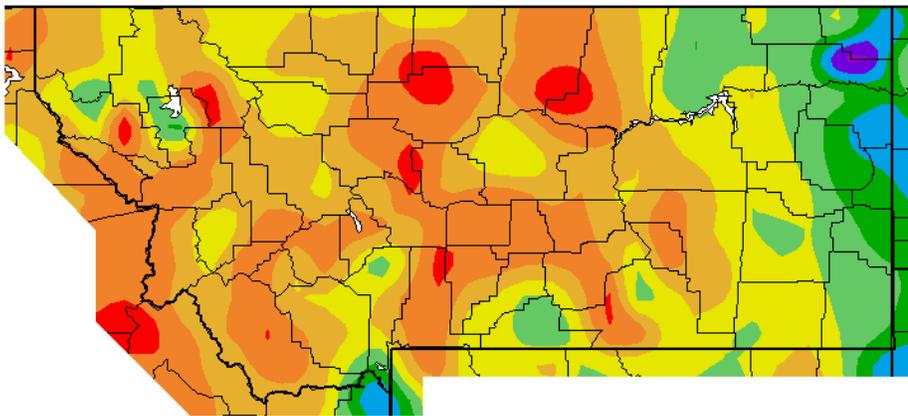


Figure 1. August 1-15, 2012 temperature departures from normal (Western Region Climate Center).

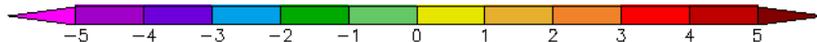
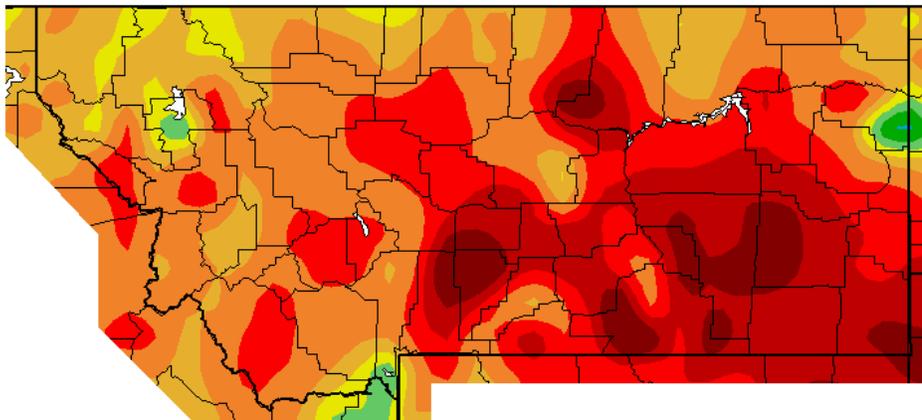


Figure 2. June 16 – August 15, 2012 temperature departures from normal (Western Region Climate Center).

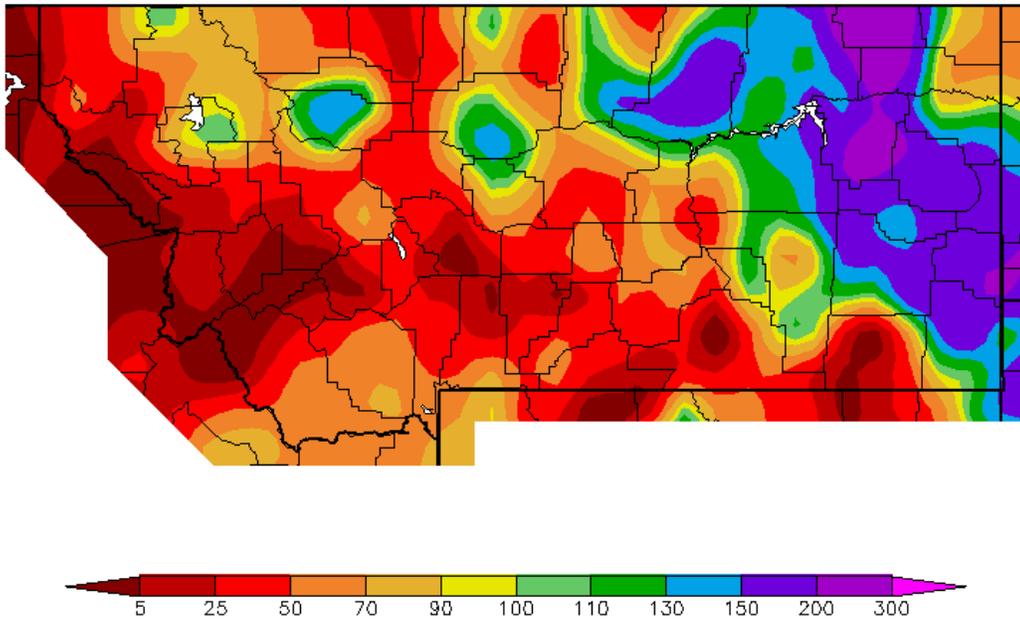


Figure 3. August 1-15, 2012 precipitation anomalies (Western Region Climate Center).

August 1-4

Near seasonal temperatures occurred on the first and second, with thunderstorms scattered throughout the state. Some severe convective weather occurred across eastern Montana, with golf-ball size hail reported in Daniels, Roosevelt and Powder River Counties. Up to three-quarters of an inch of rain fell at Zortman and Opheim. A cold front passed through the state on the third, producing below normal temperatures on the third. Some locations did not reach 70F for daytime highs on the third. Bozeman started the day with a record low temperature on the fourth. They dropped to 37F. The lowest in the state on the fourth was 28F at West Yellowstone.

August 5-13

Temperatures rebounded back into the above-normal range over most of the state. The far eastern counties were did have periods of above normal temperatures from the fifth through tenth, but cooler air on the 11th through 14th produced near to slightly below normal temperatures. The warmest temperature in the state occurred on the sixth, when Moorhead reached 104F. The warmer air retreated westward, and on the eighth, Great Falls, Missoula and Bozeman all recorded record high temperatures. Great Falls reached 102F, for the warmest in the state on the eighth. Afternoon thunderstorms across central Montana produced many reports of wind gusts between 60 and 65 mph. A cold front moved through eastern Montana on the thirteenth. Some golf-ball size hail was reported near Miles City and Brusett (Garfield), and just before the storms moved into North Dakota, a wind gust to 72 mph was recorded at Glendive.

August 14-16

One of the strongest Canadian cold fronts in a decade passed through central and western Montana during the late afternoon and evening of the 14th. After some severe convective winds were reported over the hi-line east of Cut Bank, the front passed through Cut Bank producing a wind gust of 72 mph. This was the highest gust of record in August at Cut Bank. Gusts reached 62 mph at Great Falls and 86 mph at Millegan (Cascade). Severe tree damage occurred around Great Falls. Downed power lines also caused a few fires in the area. The strong winds brought two to three hours of blowing dust and reduced visibilities due to the dust and smoke over portions of central Montana. As the front moved through the Flathead Lake area, northeast winds to 43 mph caused damage to several boats on the west and southwest shores of the lake. Precipitation behind the front amounted to nearly one-half inch over portions of northwest and central Montana. Even a little snow fell at 8400 feet (Swiftcurrent Lookout) in Glacier National Park. Many locations did not warm above 60F on the 15th, as the cool air and cloudy conditions

prevailed over central Montana. Havre saw a record low on the morning of the 16th, falling to 38F. The coolest location in the state on the 16th was 29F at St Mary.

Precipitation/convection

Severe convective weather has occurred on 5 days in August. Severe thunderstorms produced up to 72 mph winds (Dawson County) and golf-ball size hail.

August 1-16 summary information:

High Temperature	104°F near Moorhead (Powder River) (6 th)	Greatest Precip	1.38" near Wibaux (Wibaux)
Low Temperature	27°F at West Yellowstone (4 th)		
Warmest Ave Temp	74.5°F at Roundup (1.3F above normal)	Peak Wind Gust	86 mph at Millegan (Cascade) (14 th)
Coolest Ave Temp	56.6°F at West Yellowstone (3.4F below normal)		
Range of Temp departures	-2.9°F at Wibaux to +2.8°F at Mullan Pass	Highest Ave Wind	10.7 mph at Fort Belknap 11.4 mph at Deep Creek RAWS
21 city mean monthly Temperature/Normal	68.6/67.5F (normal)	20 city mean monthly wind speed/Normal	7.5 mph/8.3 mph; 4th calmest of record. (since 1936) 13 th percentile
22 city mean monthly precipitation/Normal	0.36/0.61" – 59% of normal; 42 nd driest of record. (since 1880) 31 st percentile		

**Historical Rank of Precipitation (inches)
for the Current Month and Water Year to Date**

Location	Aug 1-16	% of Norm	Oct1 – Aug 16	% of norm	Years
Baker	0.92	134%	9.66	76%	14
Billings	0.30	80%	7.41	62%	108
Bozeman	0.15	28%	8.30	67%	75
Butte	0.06	9%	8.47	76%	118
Cut Bank	0.39	67%	9.56	106%	104
Dillon	0.25	47%	5.82	64%	72
Glasgow	0.75	121%	12.61	125%	112
Great Falls	0.36	46%	12.58	100%	120
Havre	0.23	41%	10.86	114%	132
Helena	0.39	65%	7.59	80%	134
Jordan	0.09	15%	7.42	68%	14
Kalispell	0.25	51%	17.10	113%	118
Lewistown	0.39	45%	16.21	111%	116
Livingston	0.07	13%	8.85	68%	106
Miles City	0.81	178%	5.78	53%	135
Missoula	0.05	8%	14.25	114%	126
Mullan Pass	0.00	0%	45.13	126%	14
Wolf Point	0.78	122%	10.46	99%	14
Glendive	1.18	171%	12.76	110%	109
Sidney	0.80	138%	7.73	62%	71
BZN-MSU	0.25	35%	14.63	83%	127

Rankings and Percentiles are 1=driest, higher numbers=wetter.

For an automated version of this chart, updated daily, go to

<http://www.wrh.noaa.gov/tfx/dx.php?wfo=tfx&type=&loc=products&fx=PCPNTOTALS>

For the water year, the southern one-half and the Rocky Mountain Front of Montana remains the driest. Some areas have received less than 50 percent of normal precipitation for this period (Fig. 5). So far this year, Miles City has had 17 days of 100F or warmer. This is the highest amount since 2003.

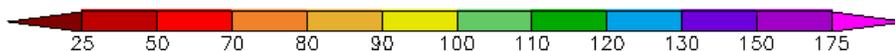
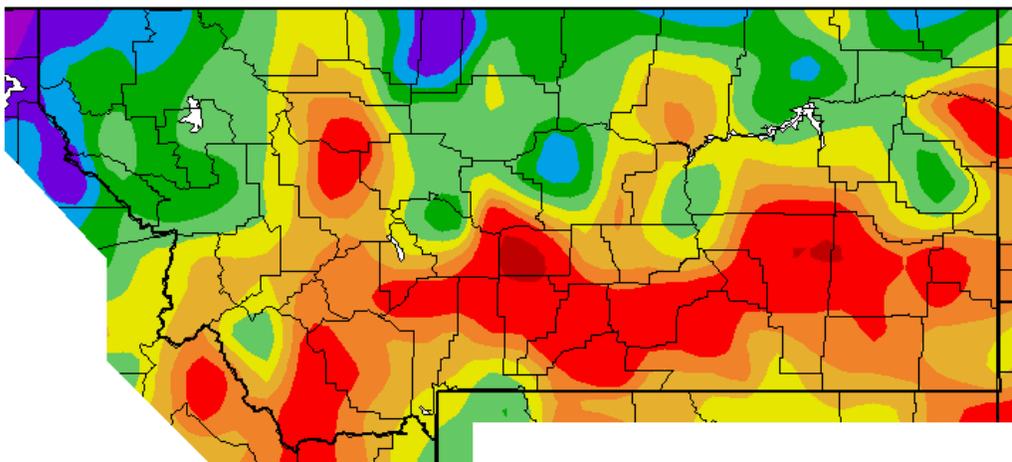


Figure 5. Water year 2012 precipitation anomalies (Western Region Climate Center).

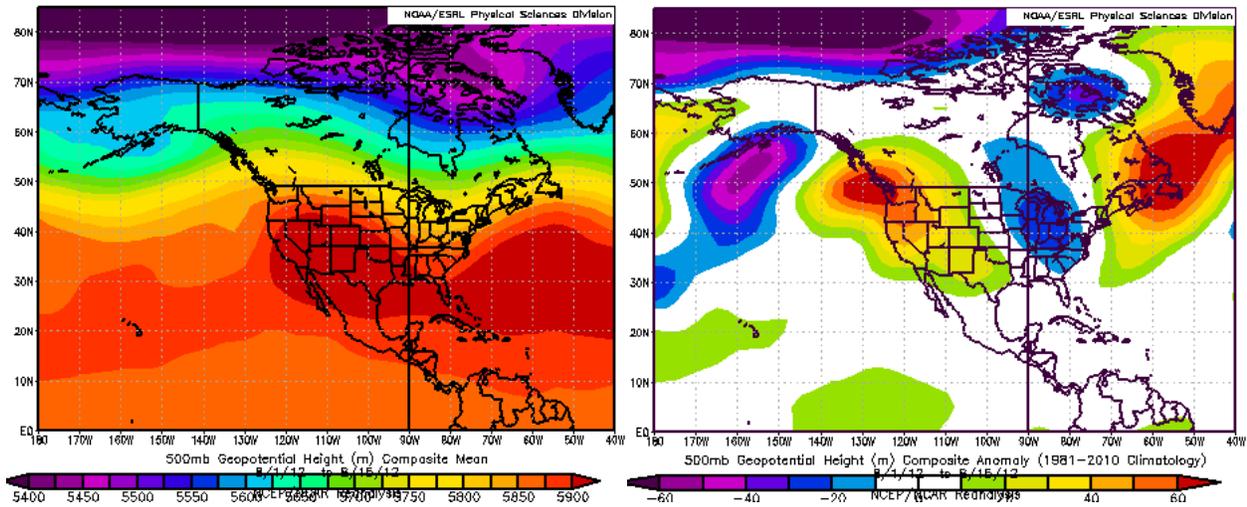


Figure 5a (left); 5b (right). Mean flow at 500 millibars (~18,000 ft) for August 1-15 2012 (left) and anomaly (right). Heights across Montana were above normal, especially west. This has contributed to the warmer than normal conditions across the west. The trough over the great lakes contributed to below normal temperatures and somewhat above normal precipitation in the east.

For a state map of % of normal water year precipitation (updated around the 7th of each month), go to: http://www.wrh.noaa.gov/tfx/image.php?wfo=tfx&type=data&loc=hydro&fx=watyr_pcntnorm.png

For the latest information on mountain snow pack from the NRCS, go to: <http://www.mt.nrcs.usda.gov/snow/index.html>

For the latest U.S. Drought Monitor, issued weekly by the Climate Prediction Center (CPC), go to: <http://www.drought.unl.edu/dm/monitor.html>

These data are preliminary and have not undergone final QC by NCDC. Therefore, these data are subject to revision. Final and certified climate data can be access at the National Climatic Data Center (NCDC) <http://www.ncdc.noaa.gov>. Many more links are on the Drought Information Page of the NWS Great Falls web site at <http://www.wrh.noaa.gov/tfx/main/drought.php?wfo=tfx>. The climatological record for normals is 1981-2010. The ranking period for temperature, precipitation and snowfall is since 1880. The ranking period for wind speeds is since 1936. The ranking period for soil moisture is since 1995.