

Montana Weather/Precipitation Summary

October 2008 by NOAA's National Weather Service Great Falls Montana

October 2008 could be characterized as a month that produced near normal temperatures, but widely variable precipitation across Montana. The first week of the month saw temperatures above normal, reaching 87F at Hardin on the 3rd. A week of below normal conditions followed, with heavy snow falling over the southwest mountains, and portions of eastern Montana. After this, a period of near normal temperatures and precipitation dominated the state, with a swing from cold and windy, to very warm near the end of the month. The upper air pattern (Fig. 1) showed a weak ridge of high pressure over western North America. These conditions were slightly anomalous for October, with higher than normal pressures (Fig. 2). First snows occurred at many areas around the 10th, with the coldest temperature of the month occurring at Elk Park (-11F) on the morning of the 13th. Windier conditions returned, with the highest gust recorded at Logan Pass on the 14th (106 mph). A frontal system moving through the state produced a gust to 83 mph at Cut Bank on the 7th.

The biggest event of the month was the snowstorm from the 10th-12th. Up to 62 inches of snow fell in the Tobacco Root Mountains in Madison County. Snowfall totals of over 40 inches were also reported in the Red Lodge area. Billings received 22 inches, Glasgow had 14 inches, and Great Falls received nearly 7 inches. Precipitation amounts totaled 4-6 inches in the mountains of Madison County. At lower elevations, the snow melted off rapidly, with little, if any snow on the ground by the 14th. Very cold air accompanied the snow event. High temperatures did not climb out of the 20s over portions of the southwest on the 12th.

The last one-half of the month produced temperatures near normal through the 24th, then a strong cold front brought very strong winds and colder temperatures on the 25th. Wind gusts over 60 mph were seen on the hi-line, with strong sustained winds across the state. Temperatures were in the 30s, which produced a very chilly day. Temperatures warmed rapidly to the 70s by the 28th, with temperatures 15 to 20 degrees above normal for the rest of the month.

The statewide mean temperature at 18 cities in October was 44.2F, slightly cooler than the normal of 44.6F. The precipitation average was 0.83 inches or 87 percent of normal. The normal value is 0.95 inches. Precipitation was below normal over most of the western half of the state. The wind average of 8.8 mph was slightly below the long-term average of 8.9 mph. At Butte, this was the 2nd calmest October of record (4.7 mph), and Kalispell recorded their 3rd calmest October of record (3.9 mph).

October summary information:

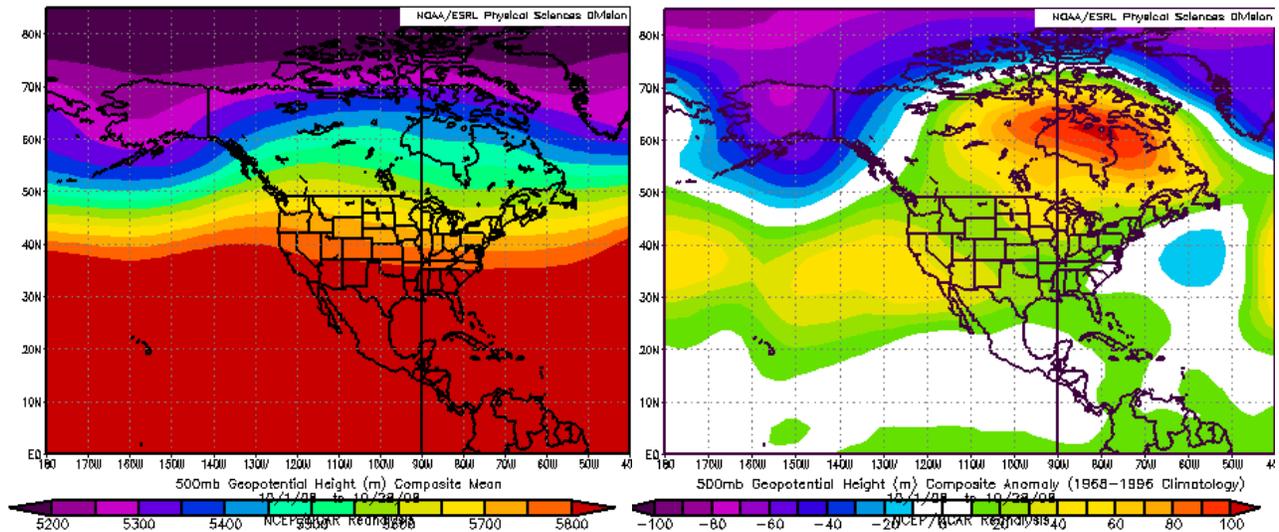
High Temperature	87°F at Hardin (3 rd)	Greatest Precip	2.16" at Bull Lake
Low Temperature	-11°F at Elk Park (13 th)		6.8" at Albro Lake SNOTEL
Warmest Ave Temp	49.6°F at Thompson Falls	Peak Wind Gust	106 mph at Logan Pass (14 th) & 83 mph at Cut Bank (7 th)
Coollest Ave Temp	38.1°F at Wisdom		
Range of Temp departures	-1.6°F at Westby to +1.9°F at Kalispell	Highest Ave Wind	14.7 at Livingston and Harlowton and 19.7 mph at Deep Creek
18 city mean monthly Temperature/Normal	44.2/44.6	18 city mean monthly wind speed/Normal	8.8 mph/8.9 mph
18 city mean monthly precipitation/Normal	0.83"/0.95" – 87% of normal		

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

Location	Oct	% of Norm	Rank	Pcntl	Oct 1 – Oct 31	% of norm	Rank	Pcntl	Years
Baker	1.13	94%			1.13	94%			11
Billings	1.82	144%	83	83	1.82	144%	83	83	100
Belgrade	0.33	30%	7	8	0.33	30%	7	8	68
Butte	0.42	53%	35	30	0.42	53%	35	30	114
Cut Bank	0.11	23%	19	18	0.11	23%	19	18	102
Dillon	0.16	25%	13	18	0.16	25%	13	18	69
Glasgow	1.29	182%	95	85	1.29	182%	95	85	112
Great Falls	0.53	57%	43	36	0.53	57%	43	36	114
Havre	0.03	5%	5	3	0.03	5%	5	3	128
Helena	0.38	58%	46	35	0.38	58%	46	35	128
Jordan	1.25	132%			1.25	132%			10
Kalispell	0.43	45%	91	79	0.43	45%	91	79	115
Lewistown	0.82	77%	45	39	0.82	77%	45	39	112
Livingston	0.59	40%	23	21	0.59	40%	23	21	104
Miles City	1.68	149%	113	87	1.68	149%	113	87	131
Missoula	0.64	77%	47	36	0.64	77%	47	36	129
Mullan Pass	1.69	57%	17	24	1.69	57%	17	24	69
Wolf Point	0.99	109%			0.99	109%			10
Glendive	1.34	135%	92	81	1.34	135%	92	81	112
Sidney	0.88	86%	41	61	0.88	86%	41	61	69
BZN-MSU	0.64	40%	22	16	0.64	40%	22	16	130

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/tx/dx.php?wfo=tx&type=&loc=products&fx=PCPNTOTALS>



Figures 1 (left) and 2 (right). Mean flow at 500 millibars (~18,000 ft) for October (left). A weak, broad ridge prevailed over western North America, with average westerly flow over most of the continent. This produced higher than normal heights (right) over most of North America. This also contributed to the slightly above normal temperatures across the state.

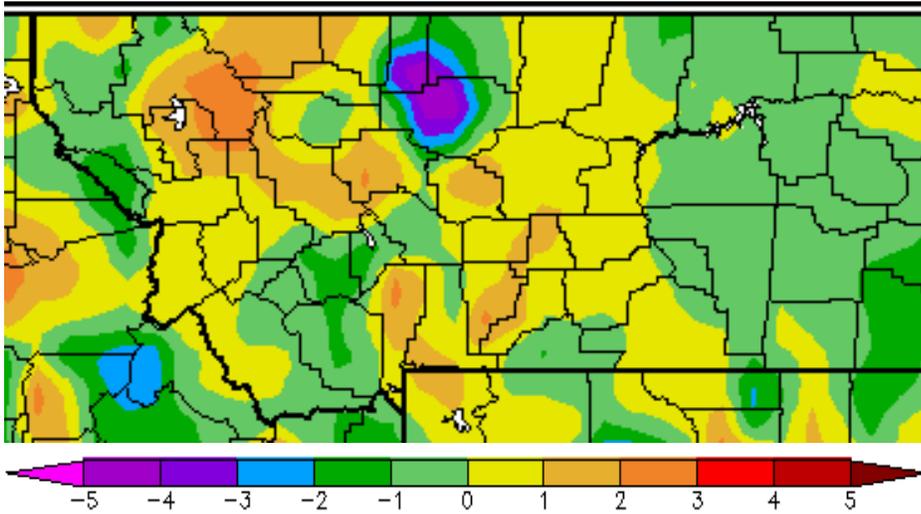


Figure 2. Temperature anomaly for October. Temperatures averaged a degree or two on either side of normal across most of the state. (High Plains Regional Climate Center).

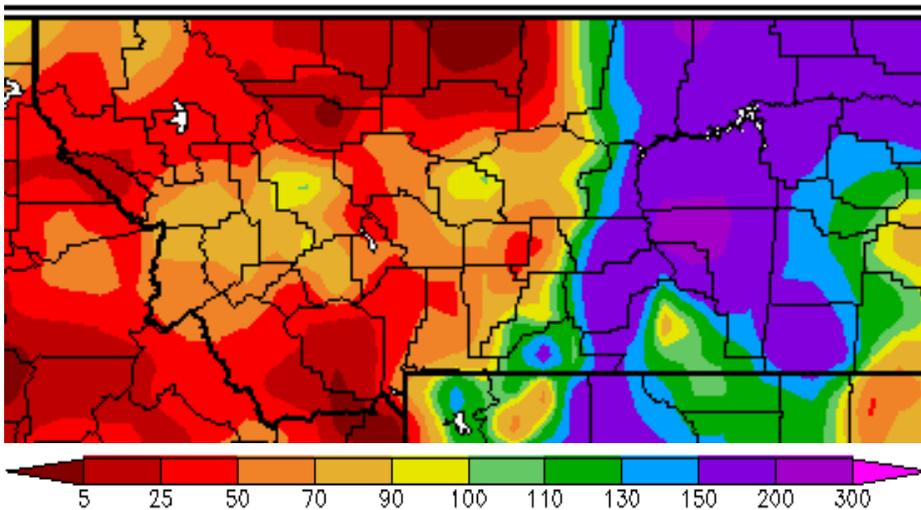


Figure 3. Precipitation anomaly (% of normal) for October. (High Plains Regional Climate Center).

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=txf&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=txf>