

Montana Weather/Precipitation Summary

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

January was typical of many winter months in Montana. One half of the month was warm, while the other half was very cold. This can be seen in the departure from normal temperature trace at Great Falls (Fig. 4). In all, temperatures averaged close to normal, with isolated areas having deviations of up to five degrees. The moderate-strength La Nina continued to influence weather patterns this month, especially during the latter half. Again, heavy snow fell over the higher mountains, with some western Mountain locations recording over 140 inches on the ground at the end of the month. Water equivalent in this heavier snowpack was above the long-term normal. Over the plains and some western valleys, precipitation was also variable. Some areas were very dry, while some areas saw their wettest January in over 10 years. Figure 1 shows the mean flow over the northern hemisphere. The northwesterly flow over the western United States was a bit unusual. Typically in January, a stronger ridge sits over the west coast. This northwest flow allowed more storms to move across the state and deposit the heavy snow in the mountains. Some areas have seen their greatest snowpack since 1997. Figures 2 and 3 show the precipitation and temperature departures from normal. Precipitation was below average over much of the east, though the western mountains collected significant snow. Temperatures ranged from 5 degrees above to 5 degrees below average. Several significant storms passed through depositing scattered areas of heavy snow. On several days, roads were closed in various parts of the state due to inclement weather conditions.

The first half of January was relatively warm, accompanied by windy conditions. Record high temperatures were set at several locations on the 3rd, 4th and 5th. The warmth on the 4th was also accompanied by very windy conditions in the southwest. Nye reported a gust of 78 mph and a semi was blown over in the Livingston area. Windy conditions continued with a gust to 78 mph reported at Livingston on the 10th. After another week of mild weather, the weather pattern changed.

On the 17th, a large storm system brought heavy snow to the south central mountains and southeast Montana. Broadus reported 6 inches from this storm. The cool and stormy conditions continued, with another storm bringing snow to a larger area. Portions of central Montana reported from 10 to 18 inches from a storm around the 20th. Just ahead of this storm, as cold air poured into the Missoula valley, a station in the Hellgate canyon recorded a gust to 72 mph on the 19th. The coldest temperature of the month was recorded during this brief extreme cold spell. Whiskey Creek Snotel reported -43 on the 22nd. After this storm passed through central Montana, temperatures warmed and another storm brought near blizzard conditions to central Montana on the 22nd. Roads were closed in the Great Falls area on the afternoon of the 22nd. As this warm-up continued, Bozeman airport tied a record high of 50 degrees on the 26th. With very mild temperatures, winds again picked up. While freezing rain and heavy snow were falling west of the divide, winds gusted to 83 mph at Babb on the 25th and 80 mph at Nye on the 27th. Roads were again closed in portions of western Montana due to the freezing rain on the 27th.

This storm brought heavy snowfall to much of western Montana. Twelve to 18 inch amounts were common, with 32 inches reported at Mullan Pass. Roads were closed with strong winds and whiteout conditions accompanying the snowfall. Another cold spell after this storm brought temperatures as cold as -37 to Gold Butte on the 29th. Then, warmer air returned. With the warmer air, the wind also returned. On the 31st, gusts to 75 mph at Livingston and 82 mph at Fort Smith again caused accidents on I-90 in the Livingston area. As winds were blowing along the east slopes, western Montana picked up additional snow. The Troy and St. Regis areas reported up to a foot of snow. Libby reported 38 inches of snow on the ground at the end of the month.

Other record or notable information for January:

- Glasgow had their 2nd windiest January of record (11.6 mph).
- Great Falls recorded their wettest and snowiest January since 1993.
- Havre has recorded their 3rd driest water year to date (0.64 inches).

January summary information:

High Temperature	60°F at Valentine (14 th)	Greatest Precip	6.18" at Mullan Pass
Low Temperature	-43°F at Whiskey Ck Snotel (22 nd)		11.1" at Noisy Basin Snotel
Warmest Ave Temp	25.3°F at Billings	Peak Wind Gust	81 mph near East Glacier (14 th)
Coollest Ave Temp	9.2°F at Westby		
Range of Temp departures	-5°F at Big Sky to 4.4°F at Turner	Highest Ave Wind	23.7 mph near Livingston
14 city mean monthly Temperature/Normal	19.9/19.9	14 city mean monthly wind speed/Normal	10.3mph/9.9mph
14 city mean monthly precipitation/Normal	0.37"/0.63" – 59% of normal		

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

Location	Jan	% of Norm	Rank	Pcntl	Oct 1 – Jan 31	% of norm	Rank	Pcntl	Years
Baker	0.01	5%			0.73	34%			10
Billings	0.35	43%	38	38	3.50	100%	73	74	99
Belgrade	0.32	53%	20	28	3.41	110%	46	69	67
Butte	0.56	106%	66	58	2.18	89%	50	44	114
Cut Bank	M				M				101
Dillon	0.05	19%	12	17	2.32	156%	59	88	67
Glasgow	0.44	126%	65	58	2.14	118%	69	63	110
Great Falls	0.84	124%	80	70	2.40	84%	47	41	114
Havre	0.11	23%	11	9	0.64	31%	3	2	128
Helena	0.49	94%	59	45	2.09	99%	46	35	130
Jordan	0.23	95%			3.07	175%			9
Kalispell	1.03	70%	35	30	3.79	69%	28	25	114
Lewistown	0.37	42%	21	19	2.46	70%	27	24	112
Livingston	0.01	2%	4	4	2.82	79%	51	49	104
Miles City	0.01	2%	3	2	0.52	20%	2	2	131
Missoula	0.43	41%	18	14	2.60	65%	19	15	128
Mullan Pass	6.18	188%	48	73	26.76	174%	62	93	67
Wolf Point	0.02	9%			1.10	72%			10
Glendive	0.08	20%	14	12	1.20	53%	21	19	108
Sidney	0.20	49%	20	29	1.52	60%	23	35	66
BZN-MSU	0.94	112%	85	66	6.44	148%	116	90	129

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>

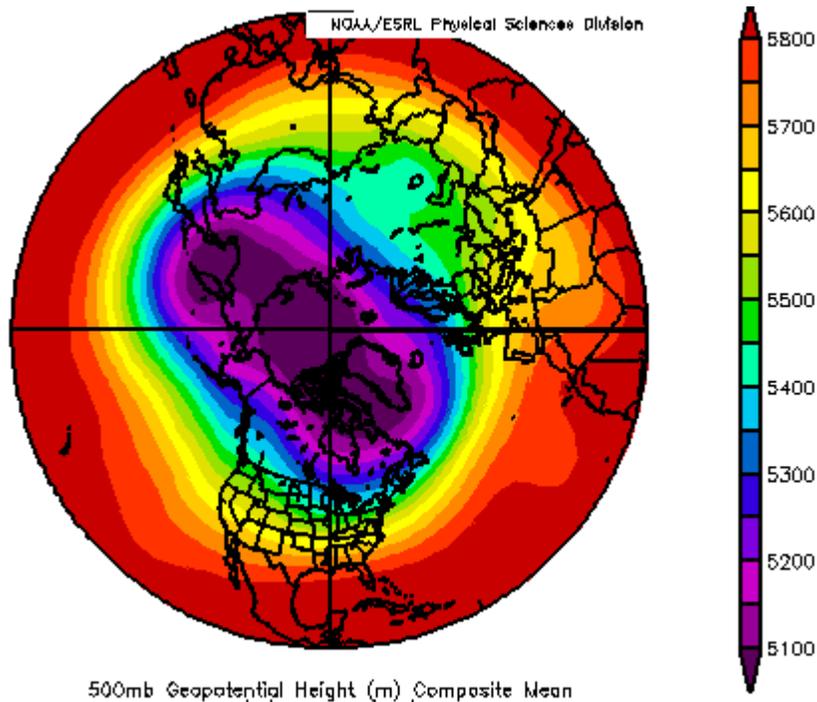


Figure 1. Mean flow at 500 millibars (~18,000 ft) January 2008. The weak trough of low pressure over western North America contributed to the near to below average temperatures over Montana.

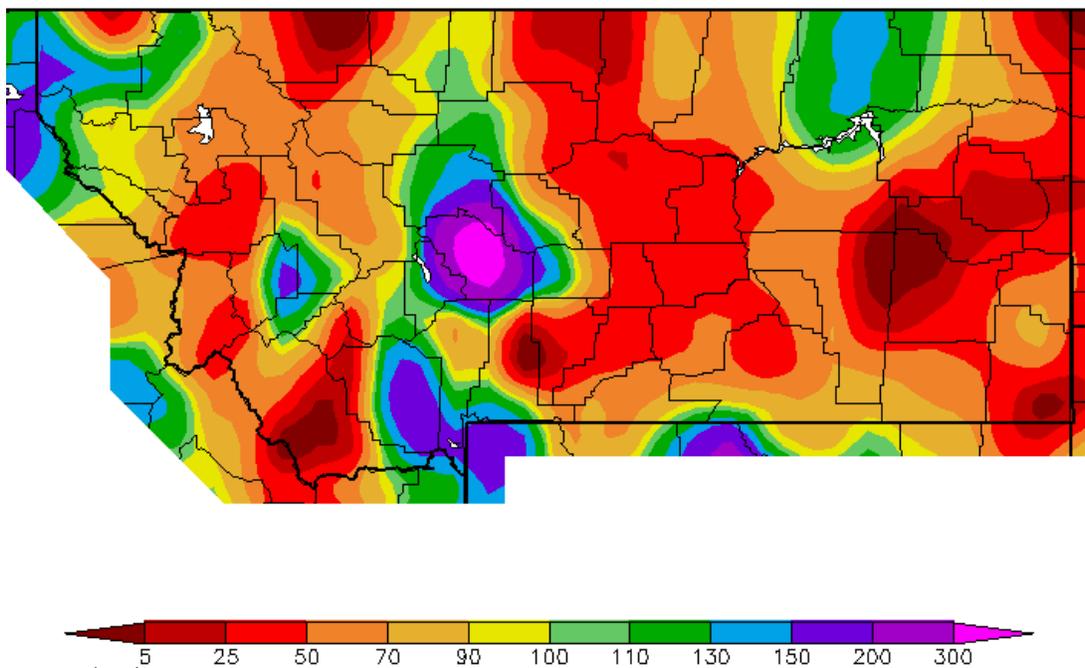


Figure 2. Precipitation anomaly (% of normal) for January. The precipitation was highly variable, with many areas having below average precipitation (Western Regional Climate Center)

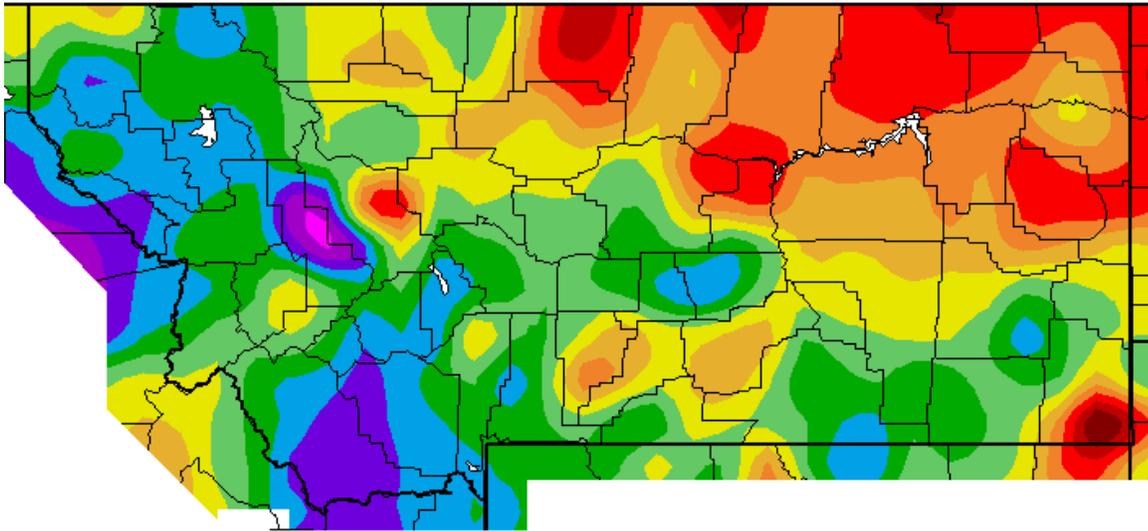


Figure 3. Temperature anomaly for January. The largest contiguous area of above normal temperatures was over northeast Montana. Otherwise, pockets of cooler than normal temperatures were observed. (Western Regional Climate Center).

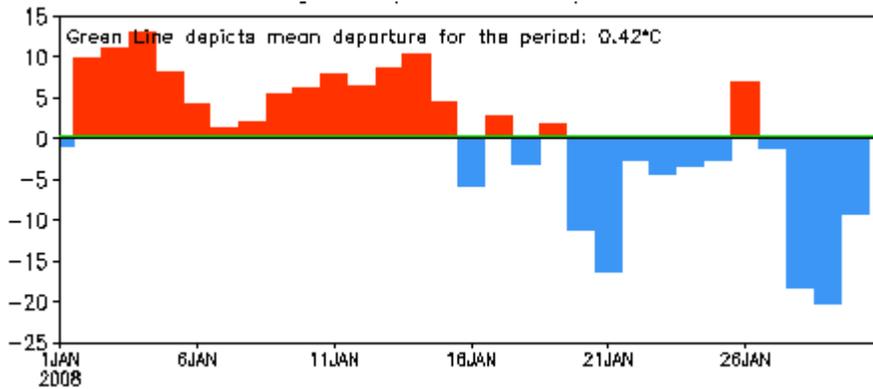


Figure 4. Daily temperature departures from normal in January at Great Falls, MT. The first half of the month had temperatures above normal, with generally below normal in the last half. Temperatures shown are in degrees Celsius.

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>

All reported data is preliminary. 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>