

# Montana Weather/Precipitation Summary

**February 2007** By NOAA's National Weather Service Great Falls Montana

February 2007 was again somewhat of a month that had roller-coaster temperatures and mostly above normal precipitation. From a winter viewpoint, it was a "normal" winter month. Some portions of the state had 3 to 4 times their normal monthly precipitation, with the northeast and portions of the northwest coming up short. Temperatures widely varied from below normal east, to above normal in the west and southwest. Westby was 8.5°F below normal and Wisdom was 4.5°F above normal. The average February upper air flow (Fig. 1) illustrates the cooler air flow over eastern Montana, with the anomaly plot showing the below normal conditions over the northeastern US. This pattern allowed more storms to affect Montana (Fig. 3). These storms also deposited a typical winter mix of precipitation. Figure 2 shows the monthly temperature departure from normal.

The first couple of days of February were cold, with temperatures 10 to 20°F below average. West Yellowstone recorded the month's lowest temperature on the 2<sup>nd</sup>, dropping to 36°F below zero. A storm moving through southern Montana dropped a feet of snow over the Snowys and 15" in the Highwoods. Up to 7" fell in the Roundup area. Warming with stronger winds moved in on the 5<sup>th</sup> and 6<sup>th</sup>, with Bozeman and Huntley reaching 68°F, for the month's warmest reading. A week of snow followed this warmth. Eastern Montana received nearly daily snowfall through the 14<sup>th</sup>. Great Falls picked up 13" of snow during the week. Much colder temperatures returned on the 12<sup>th</sup>. Accompanying the colder air was another dumping of snow. Lodge Grass received 12" with 4 foot drifts. Three to six inches of snow were common across western Montana, with 4-9" common across the east.

A big warm-up commenced on the 14<sup>th</sup>, spreading statewide on the 15<sup>th</sup>. Before the warming, Opheim fell to -34°F on the 14<sup>th</sup>, and Alzada to -34°F on the 15<sup>th</sup>. After being up to 30 degrees below normal in the east, temperatures rebounded by some 50 degrees. Usually, with warmer temperatures in the wintertime, strong winds accompany. The 16<sup>th</sup> and 17<sup>th</sup> brought one of the windiest periods of the month. Gusts over 80 mph occurred over south central Montana. Near Chico gusted to 87 mph on the 16<sup>th</sup>. The highest gust of the month occurred on the 15<sup>th</sup> at Logan Pass (128 mph). At the same time, the northwestern mountains received heavy snow. Six to 10 inches of snow were common, with 20" falling in Glacier National Park. General westerly flow with a series of disturbances continued to produce snow over the western mountains through the 20<sup>th</sup>. From six to 20 inches of snow collected over higher western mountains on the 19<sup>th</sup> and 20<sup>th</sup>. Another stronger system moved into central Montana on the 23<sup>rd</sup>, dropping 4" of snow at Great Falls, and nearly a foot over the Little Belts. Dense fog prevailed along the eastern slopes at the end of the month.

The heavy snowfall produced several new monthly snowfall records in central and southwest Montana. Millegan picked up over 50 inches of snow, and Shonkin recorded over 40 inches. Monthly precipitation records were established at Grass Range (1.62"), Millegan (1.89"), Sweet Grass (1.03"), and Townsend (0.96"). Monthly snowfall records were established at Chester (12.1"), Culbertson (11.0"), Ekalaka (13.2"), Ennis (15.4"), Gold Butte (32.1"), Grass Range (28.9"), Millegan (53.5"), Shelby (19.5") and Sweet Grass (19.5"). Several snotel locations reported more than 100 inches of snow on the ground at the end of the month. Over 50" accumulated at Black Bear (in the southwest), with 114" on the ground at month's end. On the last day, the higher elevations of the Bridgers picked up over 18 inches of snow. Figure 4 shows the precipitation departures from normal.

Other than the windy period mid-month, winds averaged on the lighter side during February. Havre did record their 6<sup>th</sup> windiest February of record, and their 4<sup>th</sup> windiest winter period. Otherwise, winds were below average statewide.

**Month's summary information (to date):**

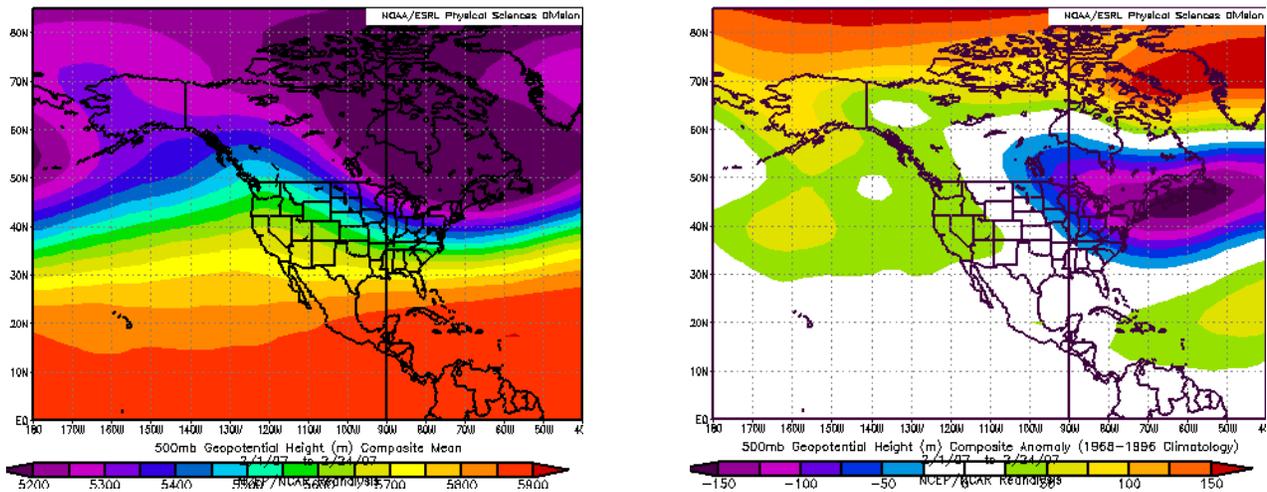
<b>High Temperature</b>	68°F at Bozeman (5 <sup>th</sup> ) and Huntley (6 <sup>th</sup> )	<b>Greatest Precip</b>	5.46" Mullan Pass 2.48" West Glacier
<b>Low Temperature</b>	-36°F at West Yellowstone (2 <sup>nd</sup> )		8.50" Noisy Basin (Flathead R Basin)
<b>Warmest Ave Temp</b>	35.8°F at Thompson Falls	<b>Peak Wind Gust</b>	128 mph at Logan Pass (15 <sup>th</sup> )
<b>Coollest Ave Temp</b>	6.1°F at Westby		
<b>Range of Temp departures</b>	-8.5°F at Westby to +4.5°F at Wisdom	<b>Highest Ave Wind</b>	21.0 mph near East Glacier 15.4 mph at Norris Hill

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

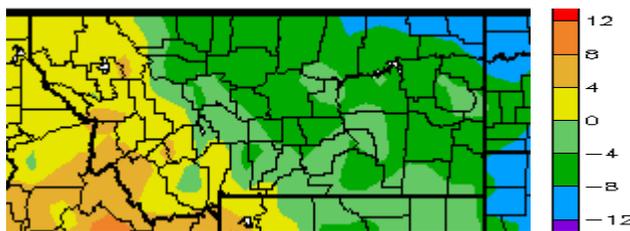
<b>Location</b>	<b>Feb</b>	<b>% of Norm</b>	<b>Rank</b>	<b>Pcntl</b>	<b>Oct 1 – Feb 28</b>	<b>% of norm</b>	<b>Rank</b>	<b>Pcntl</b>	<b>Years</b>
Baker	0.33	103%			2.38	96%			9
Billings	0.57	98%	67	68	4.51	111%	81	83	98
Belgrade	0.94	174%	64	90	4.42	122%	53	80	66
Butte	0.76	162%	88	78	3.66	125%	80	71	113
Cut Bank	M				M				100
Dillon	0.64	320%	61	90	2.64	156%	60	90	67
Glasgow	0.36	138%	66	60	2.39	115%	64	59	108
Great Falls	1.53	300%	113	99	4.31	128%	91	80	114
Havre	0.80	222%	116	91	2.58	107%	62	49	127
Helena	0.63	166%	95	73	2.97	119%	62	48	129
Jordan	0.55	156%			2.20	104%			7
Kalispell	1.29	112%	82	72	5.56	83%	13	12	113
Lewistown	0.73	128%	67	60	4.14	101%	67	60	111
Livingston	0.98	140%	99	93	5.11	120%	94	90	104
Miles City	0.38	112%	73	57	1.45	49%	20	15	130
Missoula	1.03	134%	91	69	5.71	120%	89	70	127
Mullan Pass	5.46	149%	54	83	31.73	167%	64	97	66
Wolf Point	0.14	120%			0.93	56%			9
Glendive	1.10	297%	111	98	2.50	95%	61	56	108
Sidney	0.34	94%	43	63	1.17	40%	5	8	66
BZN-MSU	1.87	267%	127	98	9.18	182%	126	98	128

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

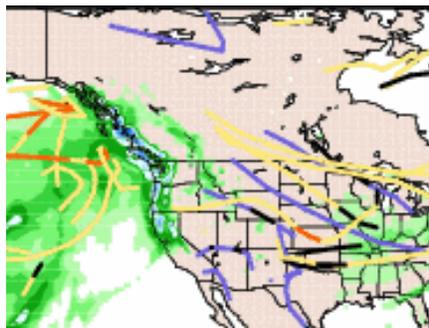
For an automated version of this chart, updated daily, go to <http://www.wrh.noaa.gov/tfx/dx.php?wfo=tfx&type=&loc=products&fx=PCPNTOTALS>



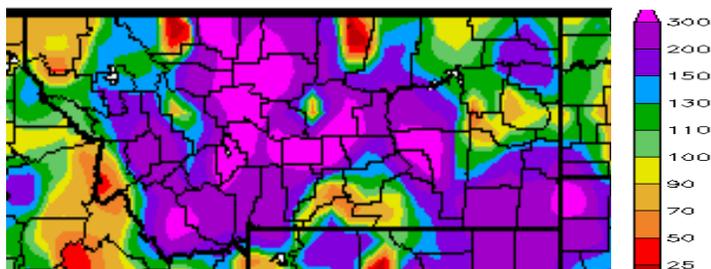
**Figure 1.** Mean flow at 500 millibars (~18,000 ft) February 2007 (left). The heights were above normal across the northwest US, with below normal across the northeast (right). Montana was split, which produced above normal temperatures west and below normal east, consistent with a moderate strength El Nino signature.



**Figure 2.** February temperature anomaly. The below normal pattern across the northeast and above normal in the west and southwest is consistent with the upper air pattern shown in Figure 1. (courtesy High Plains Climate Center)



**Figure 3.** Storm tracks in February 2007. While January was dry with only one major storm through Montana, the northwest flow brought several storm tracking near or across the state. (courtesy NOAA's Climate Prediction Center)



**Figure 4.** Precipitation anomaly (% of normal) for February (courtesy High Plains Climate Center).

For a state map of % of normal water year precipitation (updated around the 7<sup>th</sup> of each month), go to:  
[http://www.wrh.noaa.gov/tfx/image.php?wfo=tx&type=data&loc=hydro&fx=watyr\\_pctnorm.png](http://www.wrh.noaa.gov/tfx/image.php?wfo=tx&type=data&loc=hydro&fx=watyr_pctnorm.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. Further inquiries about the moisture conditions can be directed to Dave Bernhardt or Gina Loss at (406) 453-2081. 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=tx>