

# Montana Weather/Precipitation Summary

February 2013 by NOAA's National Weather Service Great Falls Montana

A ridge of high pressure aloft along the west coast dominated the weather across much of Montana during February (Fig. 1). This pattern produced warmer and drier conditions statewide. Usually, the ridge of high pressure is shifted slightly eastward and not as strong during February.

The ridge of high pressure produced temperatures that averaged near to above normal across the state. The cooler than normal areas were in the south central and southwest. Average temperature anomalies ranged from 1.6-degrees below normal at Mystic Lake, to nearly eight-degrees above normal at Miles City (Fig. 2). This was the sixth consecutive month to record above normal temperatures for the state, and the tenth of the past twelve months with above normal temperatures. For the past 12-months, the statewide composite average temperature is 1.9°F above normal. The monthly accumulated precipitation across Montana is shown in Figure 3. It shows an area from near

Cut Bank through Great Falls with above normal precipitation. Otherwise, below normal conditions persisted across the state. The wettest areas were over portions of the west and mountainous areas, and the seventh in the past 12 months to have below normal precipitation. For the past 12-months, there is a 1.42-inch negative anomaly for the state.

Snowfall was on the light side for February. Outside of isolated areas recording slightly above normal snowfall, most areas were below to much below normal. The statewide average of 3.8-inches was 4.3-inches below average. This February recorded the lowest average snowfall since February 2005.

On a statewide average, winds were above average in February. Portions of the west and extreme east had below average winds. This is the second month in a row to record above average winds. For the past 12-months, however, winds are running 0.4-mph below average. Refer to NCDc's State of the Climate report for the latest monthly discussion: <http://www.ncdc.noaa.gov/sotc/>.

## February 1-8

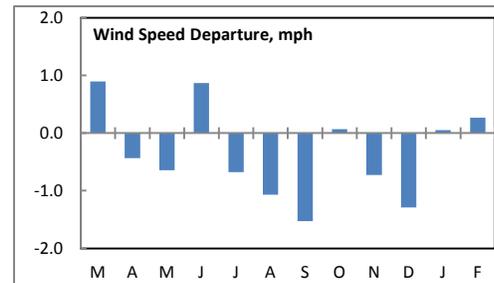
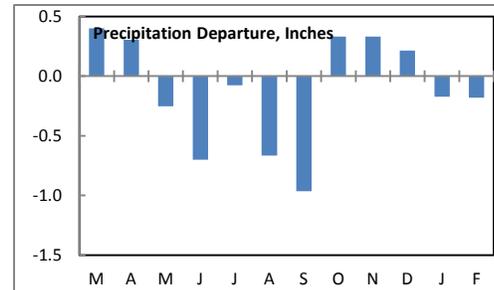
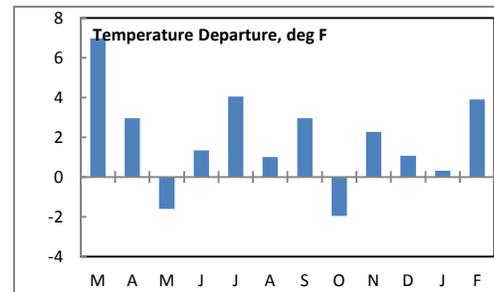
Generally mild and dry conditions prevailed for the first eight days of February. Windy conditions along the Rocky Mountain Front produced gusts to 60 mph at Heart Butte on the third. Temperatures were 10-15 degrees above normal on the fourth through sixth.

## February 8-11

A storm system brought cooler air and snow to much of the state. Though heavy snowfall was restricted to central and southern mountains, lighter snow did fall over a large part of the state. Close to a foot of snow fell in the central and southern Mountains. This was also the period with the coldest temperatures in the state. West Yellowstone dropped to -25 on the 11<sup>th</sup>, while nearby Whiskey Creek fell to -27F.

## February 12-18

Strong westerly flow brought heavy snowfall to some of the western and southern mountains, and gusty winds to the Rocky Mountain Front. On the 13<sup>th</sup>-14<sup>th</sup>, up to 10 inches of snow fell in the Red Lodge area, with about one-half foot in the Rockies. Again on the 17<sup>th</sup> and 18<sup>th</sup>, heavy snow fell over the Rockies and central mountains. Badger Pass and Blacktail (Flathead) picked up



nearly a foot of snow, while eight inches fell south of Ulm and at Neihart (Cascade). Great Falls also measured 5.4 inches of snow during this event. Gusty winds along the Rocky Mountain Front produced gusts to 89 mph at Babb on the 12<sup>th</sup>. Deep Creek RAWS recorded a gust to 81 mph on the same day. These were the highest gusts of the month. Additionally, the winds brought warm temperatures. On the 16<sup>th</sup>, several locations in central Montana recorded a high temperature of 59F.

### February 19-28

Mostly mild and dry conditions prevailed through the rest of the month. On the 22<sup>nd</sup>, winds gusted to 63 mph at Heart Butte, while gusts reached 81 mph at Deep Creek RAWS. Stronger winds on the 24<sup>th</sup> produced a gust to 74 mph near East Glacier. Otherwise, minimal precipitation amounts were recorded during this period.

### Precipitation/convection

Severe convective weather occurred on zero days in February. The normal for the month is zero days.

Snow depths at lower elevations were near normal at the end of the month. At higher elevations, Flattop Mountain had 126 inches on the ground (112), Badger Pass 84 inches (76), Spur Park 61 inches (55), Black Bear 94 inches (102), and Noisy Basin 104 inches (97). Normal values for each location are in parentheses.

### February summary information:

<b>High Temperature</b>	59°F at Roundup and Hysham (16 <sup>th</sup> )	<b>Greatest Precip</b>	2.43" at Summit
<b>Low Temperature</b>	-27°F at Whiskey Creek (11 <sup>th</sup> ) (Gallatin)		7.20" at Flattop Mountain (Flathead)
<b>Warmest Ave Temp</b>	36.4°F at Troy	<b>Peak Wind Gust</b>	89 mph at Babb (12 <sup>th</sup> ) (Glacier) 81 mph at Deep Creek RAWS (4 <sup>th</sup> and 23 <sup>rd</sup> )
<b>Coollest Ave Temp</b>	15.2°F at Hebgen Dam		
<b>Range of Temp departures</b>	-1.6°F at Mystic Lake to +7.7°F at Miles City	<b>Highest Ave Wind</b>	18.1 mph at Livingston (Park) 24.9 mph at Deep Creek (Glacier)
<b>21 city mean monthly Temperature/Normal</b>	28.2/24.3F 3.9F above normal. 26 <sup>th</sup> warmest of record (since 1880). 80 <sup>nd</sup> percentile.	<b>20 city mean monthly wind speed/Normal</b>	9.3 mph/9.0 mph; 37 <sup>th</sup> calmest of record (since 1936). 48 <sup>th</sup> percentile
<b>22 city mean monthly precipitation/Normal</b>	0.37/0.54" – 68% of normal. 13 <sup>th</sup> driest of record (since 1880). 9 <sup>th</sup> percentile	<b>19 city mean monthly snowfall/Normal</b>	3.8-in/8.1-in; 14 <sup>th</sup> lowest of record (since 1880). 11 <sup>th</sup> percentile

For the past winter season (December through February), the statewide mean temperature was 23.5F, 1.7°F above normal. This is the 34<sup>th</sup> warmest of record. Statewide precipitation has averaged 2.00-inches, 0.12-inches below normal. This is the 38<sup>th</sup> driest of record. Mean wind speeds were 8.9-mph, or 0.3-mph below normal. This has been the 12<sup>th</sup> calmest winter season. Statewide snowfall for the winter season averaged 25.7-inches, 1.9-inches below normal. This has been the 47<sup>th</sup> least snowiest winter period of record.

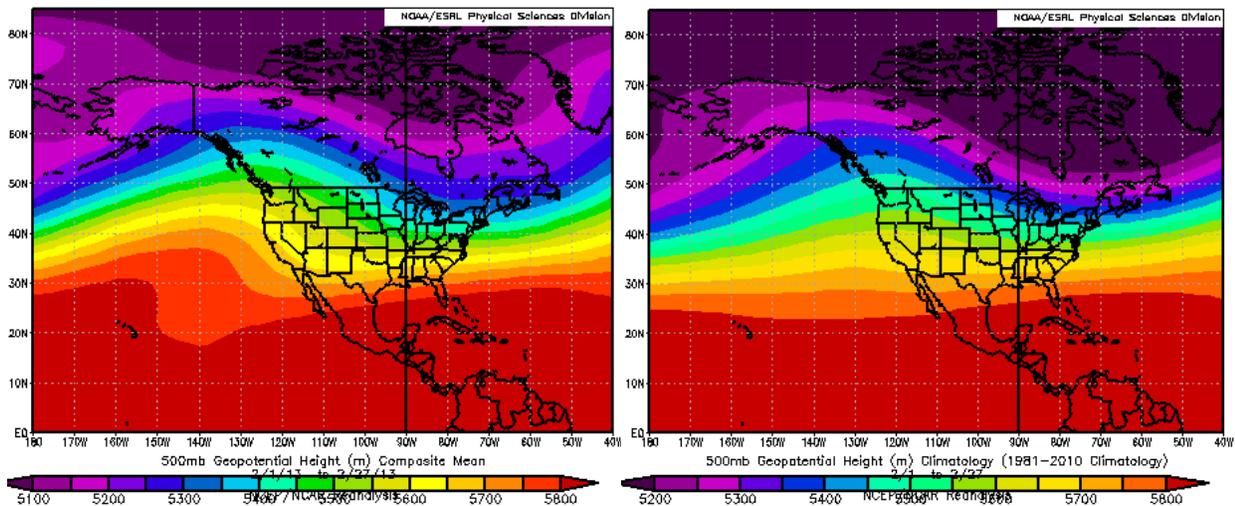
**Historical Rank of Precipitation (inches)  
for the Current Month and Water Year to Date**

Location	Feb	% of Norm	Rank	Pcntl	Oct 1 – Feb 28	% of norm	Rank	Pcntl	Years
Baker	0.02	6%			1.83	74%			15
Billings	0.29	50%	43	37	2.93	72%	45	40	112
Belgrade	0.07	16%	1	1	2.62	78%	23	29	76
Butte	0.13	30%	12	9	2.03	73%	29	24	119
Cut Bank	0.31	148%	64	59	2.90	206%	93	88	106
Dillon	0.08	33%	18	23	1.37	74%	22	29	73
Glasgow	0.10	38%	21	17	2.86	131%	84	73	114
Great Falls	0.43	91%	53	43	4.38	147%	99	82	121
Havre	0.42	150%	77	57	4.00	198%	119	89	133
Helena	0.32	107%	57	41	3.97	178%	108	80	135
Jordan	0.07	28%			2.66	130%			15
Kalispell	0.19	20%	4	3	6.44	102%	65	54	119
Lewistown	0.51	116%	51	43	4.01	114%	63	53	117
Livingston	0.43	86%	61	53	2.86	85%	39	35	110
Miles City	0.01	4%	3	1	1.72	80%	31	22	136
Missoula	0.32	46%	27	19	6.26	138%	103	77	133
Mullan Pass	3.28	104%	32	44	29.23	138%	61	85	72
Wolf Point	0.09	43%			1.26	62%			15
Glendive	0.13	50%	24	19	3.13	125%	85	74	114
Sidney	0.07	21%	5	5	4.25	146%	67	93	72
BZN-MSU	0.38	49%	25	18	3.99	73%	35	26	134

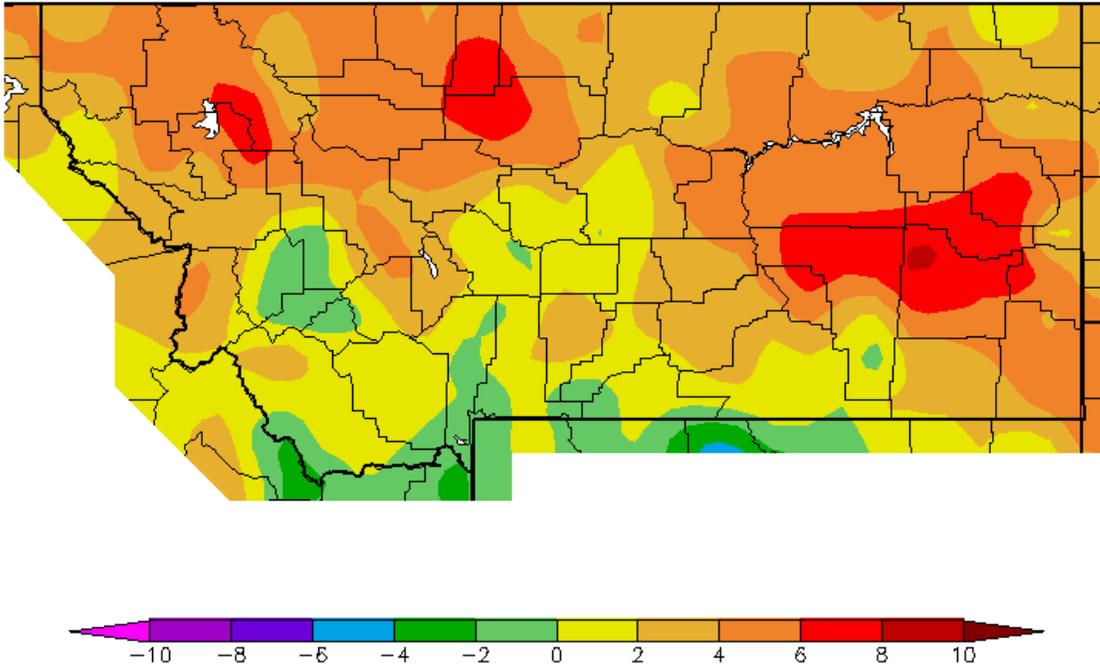
Rankings and Percentiles are 1=driest, higher numbers=wetter.

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

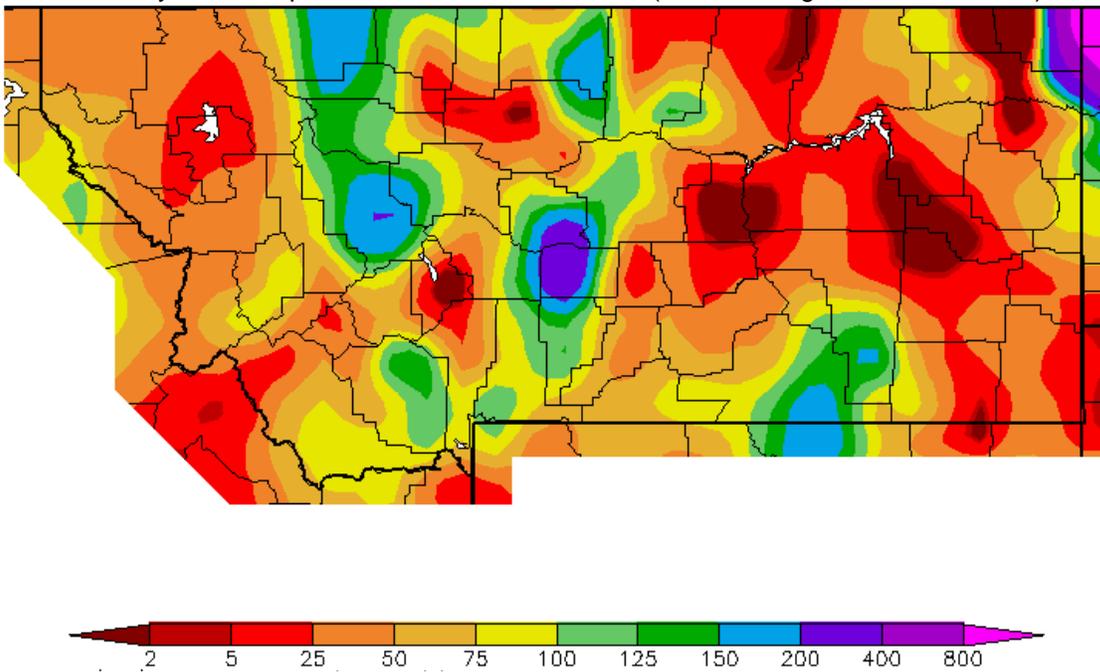
<http://www.wrh.noaa.gov/tfx/dx.php?wfo=tfx&type=&loc=products&fx=PCPNTOTALS>



**Figure 1a (left); 1b (right).** Mean flow at 500 millibars (~18,000 ft) for this month (left) and normal (right). The ridge over the west coast was somewhat stronger than normal.



**Figure 2.** February 2013 temperature anomalies (Western Region Climate Center).



**Figure 3.** February 2013 precipitation anomalies (Western Region 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=tfx&type=data&loc=hydro&fx=watyr\\_pcntnorm.png](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=tx>. 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.