

Montana Weather/Precipitation Summary

January 2011 by NOAA's National Weather Service Great Falls Montana

January continued the winter of regular doses of wintry weather. Northwest flow aloft (Fig. 2) produced regular disturbances to provide snowfall and polar air to the state. Temperatures in Montana during January were below average, with precipitation and snowfall also above average.

Temperatures across the state (Fig. 1) for January were averaged 20.0F, they were a little above average(+0.5-degree departure). This was close to the middle in the 131 years of record. Temperatures were coldest over the southwest and snow-covered areas of the north central and northeast (Fig. 3). Temperatures averaged near to below normal across all but a swath from the northwest – southeast to Billings. The coldest areas were in northeast Montana (Fig. 2).

Precipitation and snowfall amounts for the month were above average (Fig. 1). The statewide average of 1.11 inches was a 0.41-inch surplus or 158 percent of average for the month. This was the 35th wettest of record, and the third consecutive month of above normal precipitation. Snow and precipitation were heaviest over the western mountains and northeast Montana. A broad area from the Rocky Mountain Front through southwest and south central Montana had below normal precipitation. Precipitation was above normal in most areas (Fig. 4). In some areas of northeast Montana, this was one of the wettest Januarys of record. Heavy snow over the northern Rockies produced snow-on-ground totals near 120 inches at a few locations in the Mission and Swan Ranges.

Wind speeds broke from the longer-term trend of below average speeds. The January average of 10 mph was 0.7 mph above normal. This was the first in eight months to record above average wind speeds, and was the 33rd windiest of record.

January 1-7

Temperatures started out a little below normal across the state. Meanwhile, winds gusted along the Rocky Mountain Front. A gust to 71 occurred at Deep Creek, with windy conditions over the northern plains. A rapidly moving storm dumped 1.5 feet of snow over the Bears Paws on the second, with blizzard conditions closing highways in the Malta area. Milder air produced gusty winds again on the 5th and 6th. Gusts reached 85 mph at Heart Butte. As a cold front pushed across the state on the 6th, gusts to 60 mph were recorded near Malta. Temperatures reached 54°F at Columbus ahead of the cold front. With cooler air in place by the 7th, an area of freezing rain occurred across central Montana.

January 8-19

One of the coolest periods of the month also saw the wettest period. Snow fell across much of the state on the 8th and 9th, with freezing rain across north central Montana. Up to seven inches of snow fell around Glasgow (Valley) and Wyola (Big Horn), while eight inches fell in Glacier

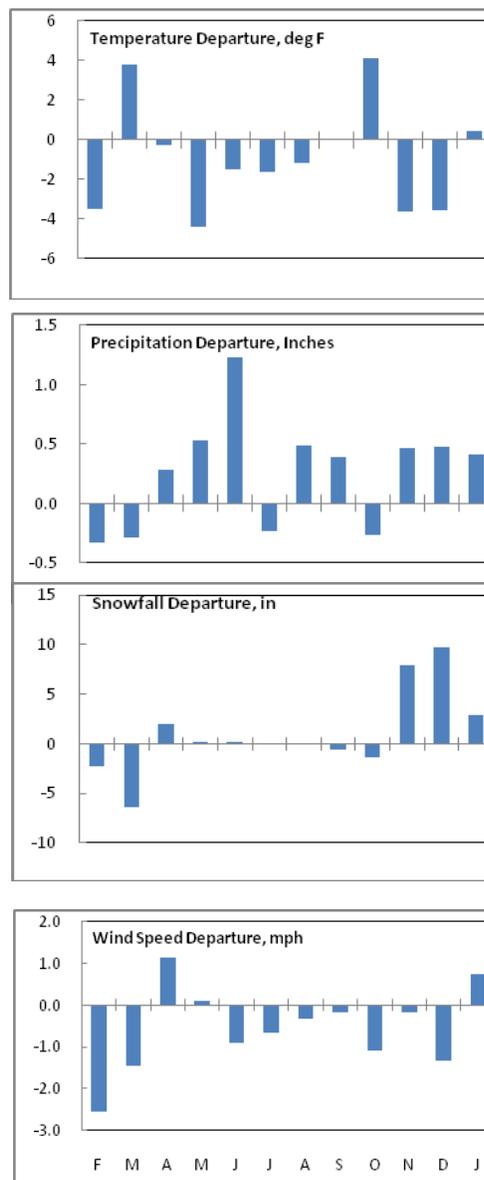


Figure 1. Statewide departures from normal for 18 locations.

National Park. Cold air settled in across the state by the 12th, with Poplar dropping to -29°F. While bitter cold air gripped the northeast, snow fell across the west and southwest. Lolo Pass recorded 15 inches of snow. Gusty winds plagued the Livingston area, with gusts to 72-mph. Warmer air overspread the southwest, while cold air remained across the northeast. Bozeman set a warm low temperature record on the 14th, dropping only to 37°F. The warmer air helped produce a mixture of precipitation as a storm system moved through on the 16th and 17th. With temperatures in the 50s in the west, rain fell at lower elevations, with over one inch falling at many locations. Some mountain locations recorded nearly five inches. Poorman Creek (in the southern Cabinets of Lincoln County), recorded 4.80 inches of precipitation. Freezing rain again occurred across north central Montana while snow fell across central and south central portions. Lame Deer (Rosebud) collected 8 inches. Another, weaker storm passed through the state on the 18th and 19th, producing nearly a foot of snow in the Livingston area.

January 20-28

The warmest period of the month was also the windiest. This period started out with winds gusting to 100 mph at Deep Creek (Pondera), and gusts to 92 mph at Babb. These winds caused a semi trailer to blow over near Browning. Snow moved into southern portions of the state on the 21st, with four inches at Ekalaka (Carter) and 14 inches at Fisher Creek (Park). As a cold front pushed through central Montana, winds gusted to 52 mph near Marysville and to 66 mph near Helena. By the 22nd, the cold front had pushed across much of the state, with heavy snow and blizzard conditions over the east. A wind gust to 57 mph occurred at Sweet Grass. Snow amounts ranged up to eight inches across north central Montana. Winds continued along the Rocky Mountain front on the 23rd and 24th. Babb reported a gust to 91 mph on the 23rd, with Deep Creek gusting to 81 mph on the 24th. Yet another storm system brought heavy snow to western and central Montana on the 25th. Millegan (Meagher) picked up six inches, while Lost Trail Pass (Ravalli) measured 12 inches. Very windy conditions persisted along Rocky Mountain Front and plains on the 26th and 27th. Cut Bank recorded a gust to 66 mph on the 26th, with gusts to 73 mph at Deep Creek on the 26th and 70 mph near Cascade on the 27th. The warmest temperatures of the month also occurred on the 27th. Hamilton reached 60°Fm with 50s common across western and central Montana. The mild conditions ended on the 28th, as a strong cold front brought the coldest air of the month to the state.

January 29-31

A strong storm system moved across the state on the last weekend of January. Up to seven inches of snow fell over the northern Rockies, with six to 10 inches in north central and northeast Montana. Gusty winds produced drifts to three feet near Glasgow. As the cold air poured west of the divide, 13 inches of snow fell at Columbia Falls, with winds to 50 mph. This produced cold wind chills and drifts to three feet. The cold air settled in across the state, with low temperatures of -41°F north of Havre on the 31st. The heaviest snow of the month fell during the last three days. A daily snowfall record was set at Great Falls and Havre on the 29th. A foot to three feet of snow fell at scattered locations from western, through central Montana. Again, blizzard conditions occurred in northeast Montana, where up to 11 inches of snow fell.

New Temperature Records for the current month

Station	Record Type	New Record	Date	Previous Record	Year of Previous Record
Bozeman	High Daily Min	34	5	34	1983
Bozeman	High Daily Min	37	14	35	1943
Cut Bank	High Daily Min	36	26	35	1993
Cut Bank	High Daily Min	40	27		

Precipitation

Severe convective weather occurred on zero days in January.

Precipitation totals were mixed across the state, from much above normal northeast, to areas of below normal from the Rocky Mountain front through the southwest and south central (Fig. 4).

New Precipitation Records for the current month

Station	Record Type	New Record	Date	Previous Record	Year of Previous Record
Glasgow	High Daily Precip	0.39	8	0.15	1917
Glasgow	High Daily Snow	6.5	8	2.3	1982
Glasgow	High Daily Snow	3.5	18	2.2	1954
Glasgow	High Daily Precip	0.51	29	0.29	1964
Glasgow	High Daily Snow	5.5	29	4.0	1971
Havre	High Daily Snow	3.0	29	2.6	1894
Glasgow	High Daily Snow	6.1	30	2.8	2004
Havre	High Daily Snow	6.0	30	5.8	1971

January summary information:

High Temperature	60°F at Hamilton (27 th)	Greatest Precip	7.00" at Libby 32SSE (Lincoln)
Low Temperature	-41°F at Havre 26N (31 st)		15.9" at Noisy Basin SNOTEL (Flathead)
Warmest Ave Temp	30.4°F at Hamilton	Peak Wind Gust	100 mph at Deep Creek (20 th) 92 mph at Babb
Coollest Ave Temp	5.6°F at Westby		
Range of Temp departures	-2.5°F at Simpson to +5.7°F at Sula	Highest Ave Wind	22.5 mph at Livingston and 25.2 mph at Deep Creek
18 city mean monthly Temperature/Normal	20.0/19.5; 64 th warmest of record (since 1880)	18 city mean monthly wind speed/Normal	10.0 mph/9.3 mph; 33 rd windiest of record (since 1936)
18 city mean monthly precipitation/Normal	1.11"/0.70" – 1.6 times normal; 35 th wettest of record (since 1880)		

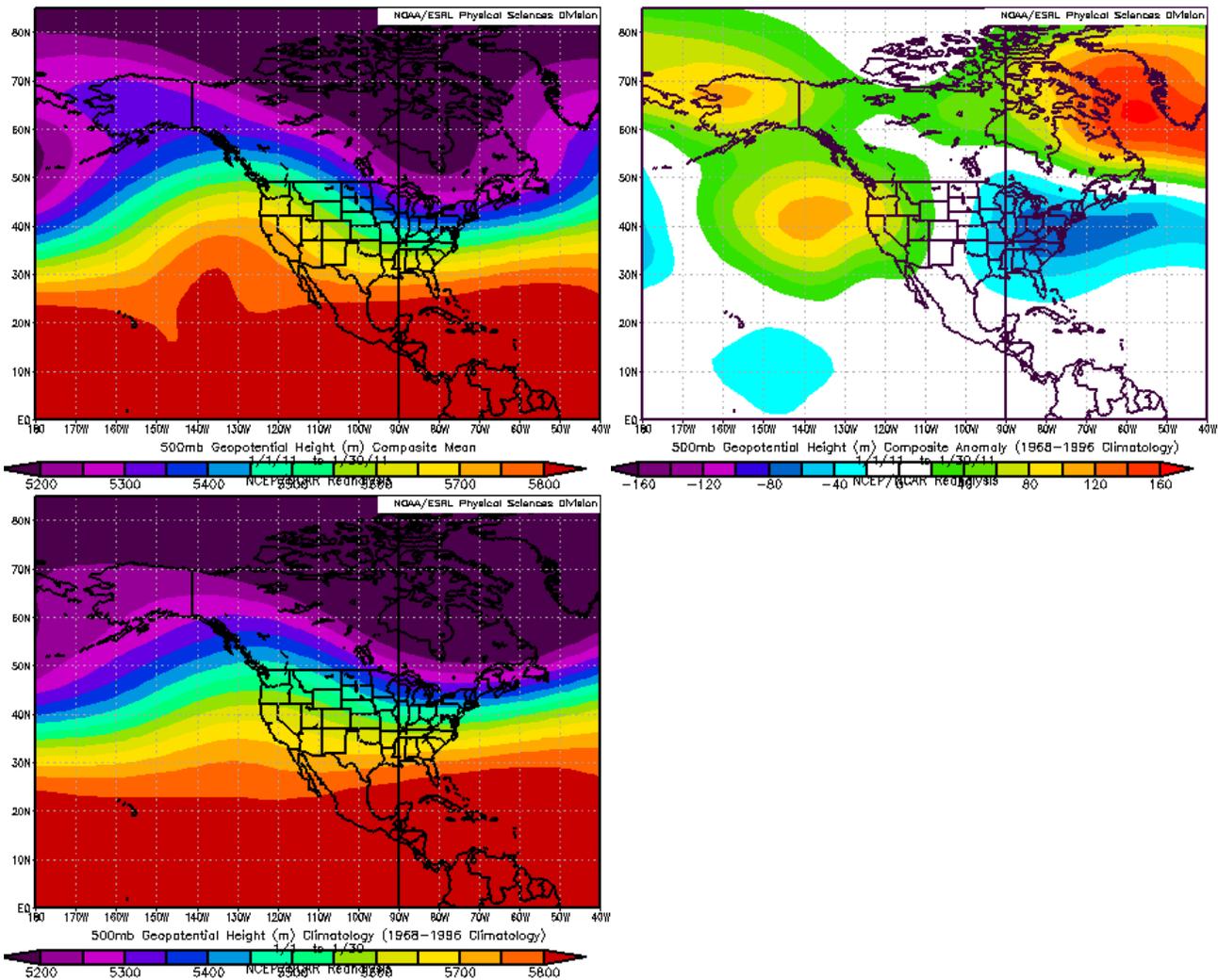
**Historical Rank of Precipitation (inches)
for the Current Month and Water Year to Date**

Location	Jan	% of Norm	Rank	Pcntl	Oct 1 - Jan 31	% of norm	Rank	Pcntl	Years
Baker	0.48	256%			1.55	72%			13
Billings	0.24	30%	26	25	3.71	106%	78	76	102
Belgrade	0.12	20%	5	5	2.80	91%	38	51	73
Butte	0.31	58%	36	30	2.11	86%	45	38	117
Cut Bank	M				M				104
Dillon	0.04	15%	7	8	1.90	128%	50	70	71
Glasgow	1.97	563%	114	99	4.23	232%	110	97	113
Great Falls	0.46	68%	47	39	4.22	147%	107	90	119
Havre	1.14	243%	116	88	3.57	174%	117	89	131
Helena	0.22	42%	24	17	2.77	131%	85	64	133
Jordan	1.15	334%			3.46	186%			13
Kalispell	2.39	163%	109	92	7.67	139%	28	23	117
Lewistown	0.66	74%	61	52	3.95	112%	82	71	115
Livingston	0.41	76%	53	48	2.31	65%	34	31	108
Miles City	0.43	86%	69	51	1.44	55%	35	26	134
Missoula	1.80	170%	111	83	5.66	142%	108	82	131
Mullan Pass	6.91	211%	54	78	24.24	158%	57	81	70
Wolf Point	0.50	229%			1.63	106%			13
Glendive	1.24	310%	112	97	2.96	130%	88	78	112
Sidney	1.28	312%	73	101	4.29	168%	67	96	70
BZN-MSU	0.49	58%	30	22	3.97	91%	59	44	132

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>



Figures 2a (top-left), 2b (top-right) and 2c (bottom-right). Mean flow at 500 millibars (~18,000 ft) for January (top-left). A mean ridge of high pressure dominated the western mountainous region of the United States (1a). The ridge is in roughly the same location as climatologically (1c), but a little stronger. The trough over the eastern US was also a little stronger than normal (1b).

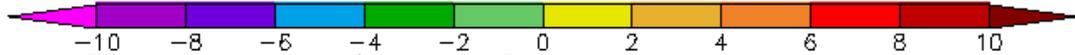
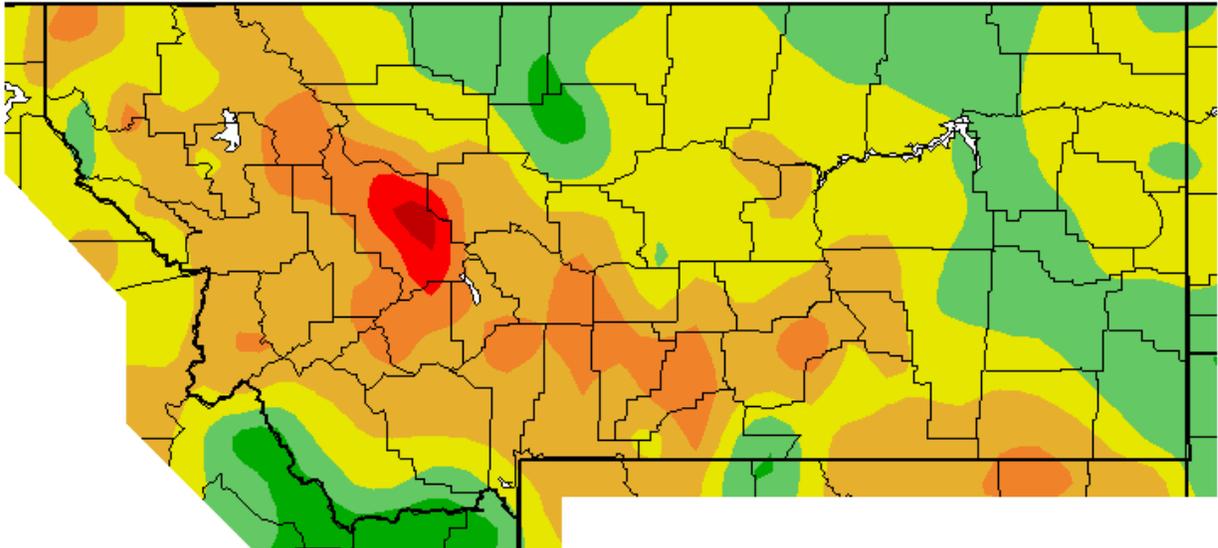


Figure 3. Temperature anomaly for January. Temperatures were near to below normal over portions of the east and southwest. The warmest anomaly was over Lewis and Clark County (Western Region Climate Center).

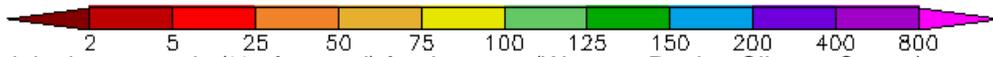
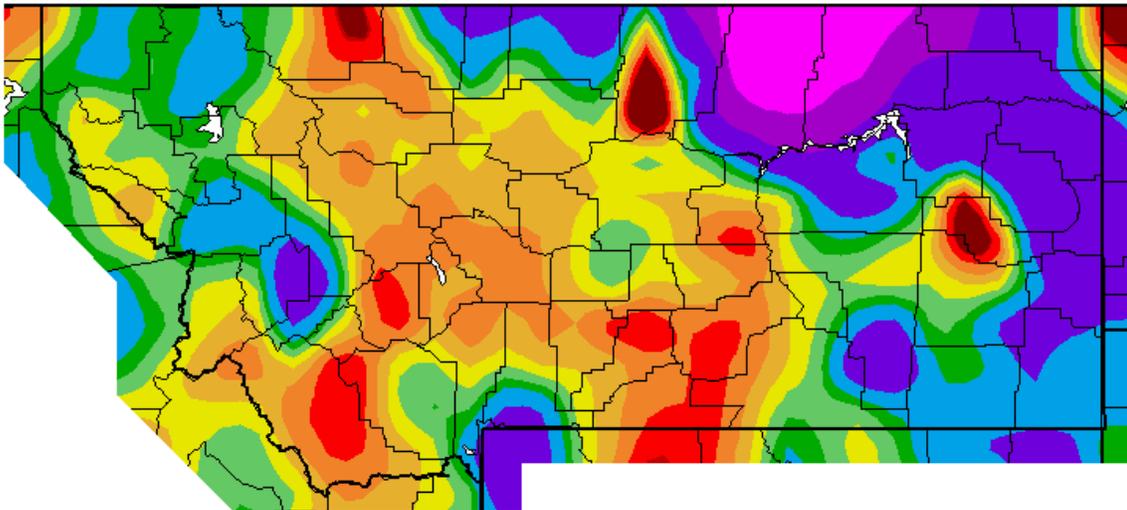


Figure 4. Precipitation anomaly (% of normal) for January. (Western Region Climate Center)

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=tx&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 1971-2000. 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.