

Montana Weather/Precipitation Summary

January 2010 by NOAA's National Weather Service Great Falls Montana

After one of the coldest December's of record, January's temperatures were mostly above normal across Montana. A more typical El Nino pattern (Fig. 1) produced a mean ridge of high pressure along the west coast of North America. Even so, the El Nino pattern did not strongly influence Montana. As already noted, statewide average temperatures were slightly above normal. The coolest areas were over the north central and eastern portions of the state. Inversions over portions of the north central caused temperatures to average as much as 4°F below normal. The northwest saw mild temperatures, averaging 8°F above normal. Precipitation was variable. Though heavier amounts fell over the northwest, the greatest positive deviation from normal was across the north central and northeast.

Jan 1-4

Mild temperatures continued from the end of December. Temperatures averaged as much as 15-20 degrees above normal.

Jan 5-8

Very cold temperatures spread across the state behind a strong cold front. Heavy snow fell over much of the state ahead of the cold air. Up to a foot of snow fell over portions of northwest Montana, and the mountains in southern portion of the state. Bitterly cold air followed with temperatures as low as -43°F in the West Yellowstone area on the 7th. Even in central Montana, the Roundup area recorded lows as cold as -38°F.

Jan 9-21

The cold spell was short-lived as gusty winds returned east of the divide. Winds increased on the east side of the divide during this period. At the same time, freezing rain produced major travel problems west of the divide on the 12th. Sweet grass recorded winds to 55 mph on the 9th, while some damage was reported when winds gusted over 80 mph near Babb on the 15th. Winds peaked at 98 mph at Logan Pass on the 15th. Other locations just east of the Rocky Mountain Front recorded gusts from 70 to 80 mph on the 16th. A location west of Dupuyer gusted to 80 mph on the 16th.

Jan 21-31

A strong cold front brought a return to colder air on the 21st. This preceded a major winter storm that dumped two to three feet of snow over central portions of the state from the 22nd-24th. Lewistown recorded about two feet, while three feet of snow fell in the Highwood Mountains. Lesser amounts fell over the northwest and western Mountains. As the storm moved to the east, gusty winds to 50 mph in eastern Montana produced blizzard conditions and blocked roads on the 24th. Afterwards, temperatures fell to -27F at Poplar on the 28th. This period of near to below temperatures persisted to the end of the month. Periods of lighter snow also continued.

New Temperature Records for Jan 2010

Station	Record Type	New Record	Date	Previous Record	Year of Previous Record
Glasgow	Low Daily Max	-16	7	-14	1937

Precipitation

Severe weather occurred on zero days in January. Precipitation was generally below normal across the state. The heaviest precipitation fell along the hi-line and northeastern portions of the state.

New Precipitation Records for Jan 2010

Station	Record Type	New Record	Date	Previous Record	Year of Prev Record
Billings	Daily Max Snowfall	6.9	5	4.3	1980
Great Falls	Daily Max Snowfall	7.0	23	5.6	1982
Havre	Daily Max Snowfall	8.5	23	4.2	1943

Other Information

Bozeman tied for their calmest January of record with an average speed of 3.2 mph.
Butte recorded their calmest January of record with an average speed of 2.6 mph. The previous record low was 2.7 mph in January 2001.

Helena recorded their calmest January of record with an average speed of 2.9 mph. The previous record low was 3.6 mph in January 2005.

The January statewide average wind speed of 7.4 mph as the 3rd lowest of record, and the lowest since 1981.

January summary information:

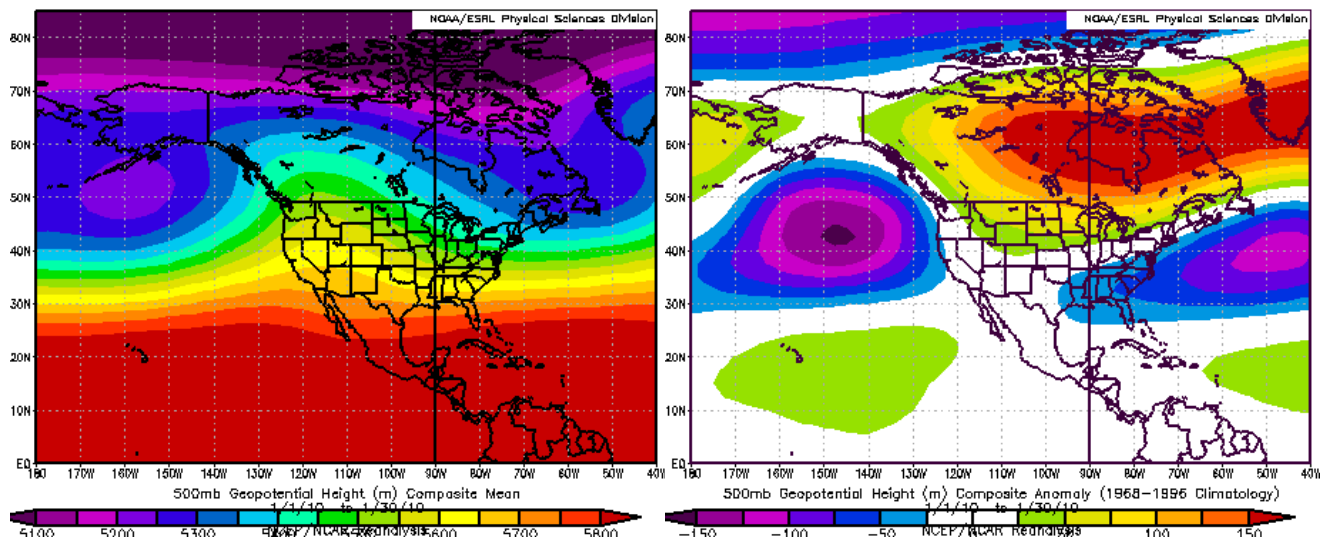
High Temperature	57°F at Great Falls (12 th)	Greatest Precip	2.72" at Heron
Low Temperature	-43F at Whiskey Creek SNOTEL (8 th)		8.30" at Noisy Basin SNOTEL
Warmest Ave Temp	33.9°F at Thompson Falls	Peak Wind Gust	98 mph at Logan Pass (14 th) and 82 mph at Babb (14 th)
Coollest Ave Temp	9.4°F at Westby		
Range of Temp departures	-4.0°F at Fort Benton to +7.7°F at Troy	Highest Ave Wind	18.5 mph at Norris
18 city mean monthly Temperature/Normal	19.7/18.5	18 city mean monthly wind speed/Normal	7.4 mph/9.3 mph
18 city mean monthly precipitation/Normal	0.57"/0.70" – 81% 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	0.10	53%			1.68	78%			12
Billings	1.09	135%	85	84	3.36	96%	69	68	101
Belgrade	0.34	57%	25	33	2.55	83%	31	42	73
Butte	0.72	136%	82	70	2.10	86%	45	38	116
Cut Bank	0.06	15%	20	18	0.42	26%	5	4	103
Dillon	0.30	115%	43	60	1.92	129%	50	71	70
Glasgow	0.57	163%	85	74	1.74	96%	44	39	112
Great Falls	1.24	182%	99	83	3.51	122%	90	76	118
Havre	0.30	64%	49	37	1.74	85%	45	34	130
Helena	0.50	96%	62	46	1.83	86%	37	27	132
Jordan	0.39	141%			2.84	159%			12
Kalispell	1.58	107%	73	62	4.59	83%	28	23	116
Lewistown	0.42	47%	31	26	3.14	89%	51	44	114
Livingston	0.14	26%	22	19	1.99	56%	21	19	107
Miles City	0.29	58%	48	36	1.44	55%	36	27	133
Missoula	0.73	69%	50	37	2.23	56%	10	7	130
Mullan Pass	1.00	30%	2	1	7.46	49%	2	1	68
Wolf Point	0.08	37%			1.10	72%			12
Glendive	0.63	158%	91	78	3.22	142%	96	86	111
Sidney	0.56	137%	52	72	3.59	141%	62	90	69
BZN-MSU	0.90	107%	80	61	4.96	114%	95	72	131

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 1a (left) and 1b (right). Mean flow at 500 millibars (~18,000 ft) for January (left). A strong ridge persisted over western North America, with a strong trough dominated the northeast portion of the continent. This produced slightly above average heights (right) over the region. This also contributed to the above normal temperatures across much of the state. Colder than average temperatures were felt in the north central and east.

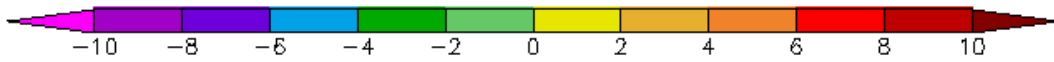
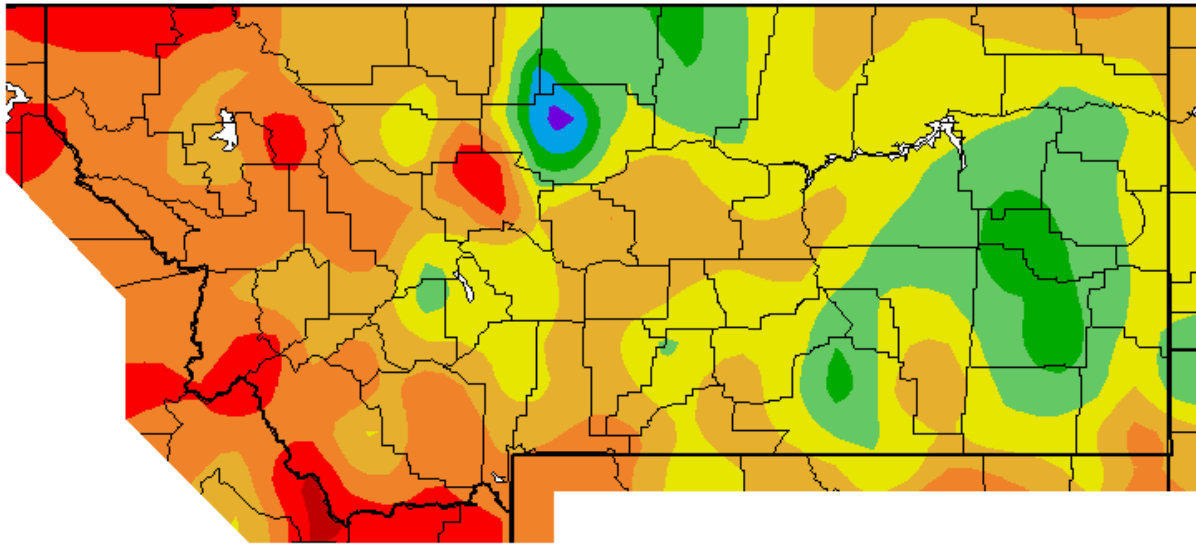


Figure 2. Temperature anomaly for January. Temperatures were above normal most areas, except the northeast. (Western Region Climate Center).

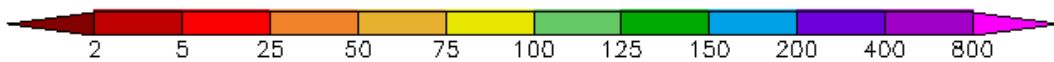
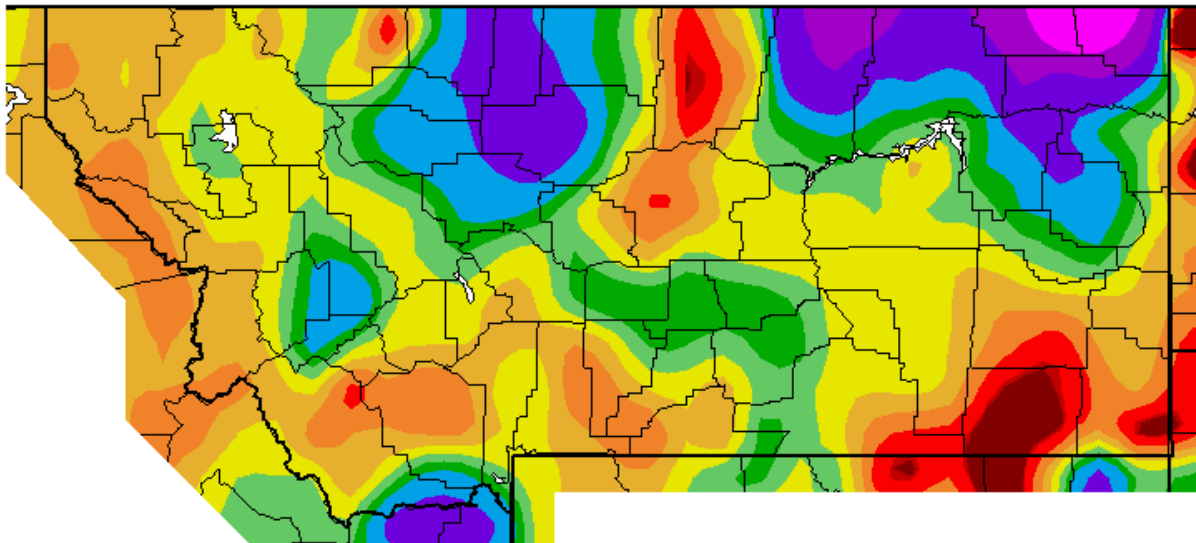


Figure 3. Precipitation anomaly (% of normal) for January. (Western Region Climate Center).

Heavy Snowfall Trends

Are heavy snows becoming more common over portions of Montana? Data from Great Falls and Bozeman indicate that this is not the case. The following graphs (Figure 4) show the number of two-day snows of 10 and 12 inches at Great Falls and Bozeman. While memory would indicate that Great Falls is getting more heavy snowfalls in recent years, this may be only because the period from 1990 through 2004 (15 years) had no heavy snowfall periods. While this was not the case at Bozeman, the recent trend is somewhat close to the longer-term average.

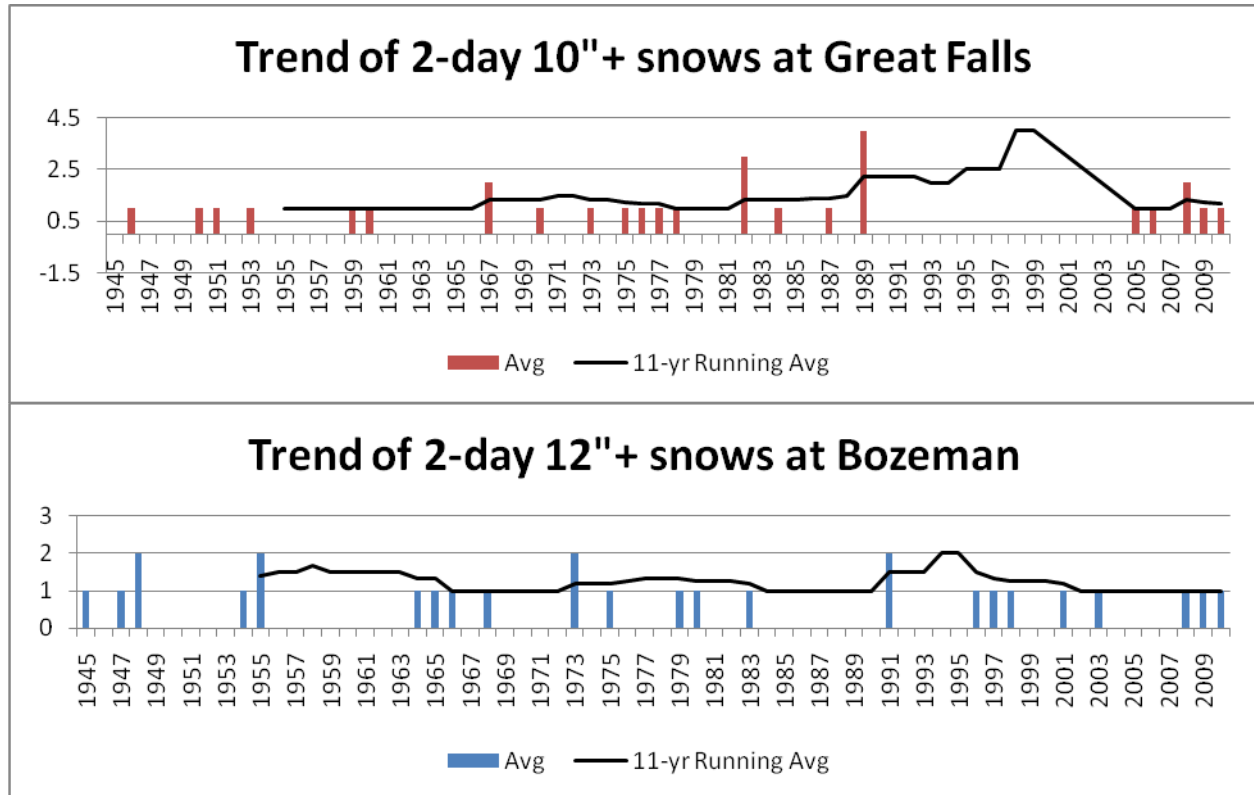


Figure 4. Trends of two day snowfalls of 10 and 12 inches at Great Falls and Bozeman (since 1945).

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>

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>