

Montana Weather/Precipitation Summary

January 2007 By NOAA's National Weather Service Great Falls Montana

January 2007 showed influences from the moderate-strength El Nino pattern (Figure 1) that dominated during this period. Generally dry conditions prevailed with below normal precipitation recorded statewide at lower elevations. Isolated points in the northwestern mountains recorded near to slightly above average January precipitation. Storms generally avoided the state as the storm track map in Figure 2 shows. A map of precipitation departures from normal is shown in Figure 3. Temperatures were much above normal across most of the state east of the divide. Up to 9°F warm anomalies occurred across northern and northeastern sections. Below normal areas were limited to regions that had persistent snow cover. This was in the southwest valleys and portions of western Montana. Temperatures ranged to 10°F below normal in these areas.

The first 10 days of January saw temperatures as much as 30 degrees above normal. Windy conditions accompanied the warmth. Mild temperatures produced a record high at Missoula on the 2nd. High winds blew across much of eastern Montana on the 1st and 2nd. Winds peaked at 110 mph at Heart Butte on the 2nd, with homes damaged on the Blackfeet Reservation and power poles snapped off in Cascade and Glacier counties. The warm temperatures continued to produce record high temperatures on the 2nd and 3rd. Bozeman, Bredette and Culbertson all saw record highs on the 3rd. With the strong, westerly-flow pattern, some snow did fall in the western mountains (4-8 inches). The southwest mountains picked up a bit more, up to a foot on the 4th. Warm temperatures pushed the temperature to 57°F at Yellowtail Dam on the 4th. The winds picked up again on the 6th and 7th as warm conditions continued. Wind gusts to 76mph occurred at Cut Bank, 74 mph at Loma and 59 mph at Great Falls. On the 7th, the highest wind gust of the month was recorded at Logan Pass (118 mph). Also, Nye recorded 93 mph, Browning 79 mph and 94 mph at East Glacier Park. Whiteout conditions forced the closure of Highway 2 from Browning to East Glacier Park. Snow again fell in the western mountains during this period. Ten inches of snow collected near Lincoln, and 8 inches at Marias Pass.

Winds spread across the state on the 8th-10th. Comerstown (in the northeast) recorded gusts to 61 mph on the 8th, while Nye saw gusts to 76 mph on the 9th and East Glacier Park again gusted to 81 mph. An arctic air mass pushed into the state on the 10th. Sharply colder temperatures were seen in all but the southeast. This system also brought some of the most significant snows of the month to south central Montana. Absarokee measured 9 inches of snow on the 10th, with Laurel and Red Lodge recording up to 6 inches. Even Billings measured 3 inches. This cold front also ushered in the coldest period of the month. On the 12th, Billings fell to -18°F, the coldest temperature in Billings in nearly 10 years. At West Yellowstone, the low temperature of -51°F was a record low, *and the coldest January temperature in Montana since 1972*. West Yellowstone continued to set daily record low temperatures through the 15th. As the state's temperatures moderated by the 20th, 3-6 inches of snow fell over the western Mountains. Havre set a daily precipitation record of nearly ¼ inch of liquid equivalent on the 20th. The cold brought some respite from the wind, but the winds returned with the warmer temperatures. Two Medicine recorded a gust to 70 mph on the 22nd. Temperatures continued to warm during the final full week of the month. The highest temperatures of the month occurred on the 25th. Central Montana recorded temperatures in the upper 60s on the 25th, the warmest 68°F at Stanford. Bozeman tied a record high temperature on the 26th. During this warm period, temperatures were 15 to 25 degrees above normal east of the continental divide.

The final two days of the month again brought snow and cooler temperatures across the state. Some higher elevations of central and south central Montana picked up around a foot of snow. Lower elevations saw between one and four inches of snow.

The persistent windy conditions of early in the month produced some high wind averages. At Great Falls, the 16.6 mph average wind speed was the highest in January since 1992. At Cut Bank, a 79 mph wind gust was the highest January gust since 1992. Havre experienced their windiest January since 1947. It has been the windiest water-year-to-date period since 1978-79 at Havre. Because of the strong winds, average speeds for the month were 1 to 4 mph above the norm.

Figure 2 shows the monthly departures from normal for precipitation. At several locations scattered throughout the state, January 2007 ranked among the 10 driest Januaries of record. At Sidney, it was the 2nd driest of record, Lewistown and Miles City recorded their 3rd driest January of record, at Bozeman it was the 4th driest January, and at Butte it was the 5th driest January of record.

Month's summary information (to date):

High Temperature	68°F at Stanford (25 th)	Greatest Precip	4.18" Mullan Pass
Low Temperature	-51°F at West Yellowstone (12 th)		9.90" Flattop Mtn
Warmest Ave Temp	28.4°F at Flat Willow	Peak Wind Gust	118 mph at Logan Pass (7 th)
Coollest Ave Temp	2.8°F at W Yellowstone		
Range of Temp departures	-10.3°F at West Yellowstone to +8.9°F at Chinook	Highest Ave Wind	24.8 mph near East Glacier 20.7 mph at Livingston

**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	0.04	21%			2.05	95%			9
Billings	0.34	42%	36	37	3.94	113%	82	84	98
Belgrade	0.14	23%	4	6	3.48	113%	48	73	66
Butte	0.09	17%	5	4	2.90	118%	71	63	113
Cut Bank	0.12	31%	28	28	0.39	24%			100
Dillon	0.04	15%	7	10	2.00	134%	50	75	67
Glasgow	0.08	23%	10	9	2.03	112%	59	54	109
Great Falls	0.28	41%	22	19	2.78	97%	59	52	114
Havre	0.37	79%	55	43	1.78	87%	45	35	127
Helena	0.09	17%	7	5	2.34	110%	61	47	129
Jordan	0.18	74%			1.65	94%			7
Kalispell	0.69	47%	10	9	4.27	77%	27	24	113
Lewistown	0.08	9%	3	3	3.41	97%	63	57	111
Livingston	0.08	15%	11	10	4.13	116%	86	83	104
Miles City	0.02	4%	3	2	1.07	41%	15	12	130
Missoula	0.32	30%	10	8	4.68	117%	82	65	127
Mullan Pass	4.18	127%	29	45	26.27	171%	60	91	66
Wolf Point	0.02	9%			0.79	52%			9
Glendive	0.06	15%	9	8	1.40	62%	29	27	108
Sidney	0.02	5%	1	1	0.83	33%	4	6	66
BZN-MSU	0.68	81%	46	36	7.31	168%	122	95	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>

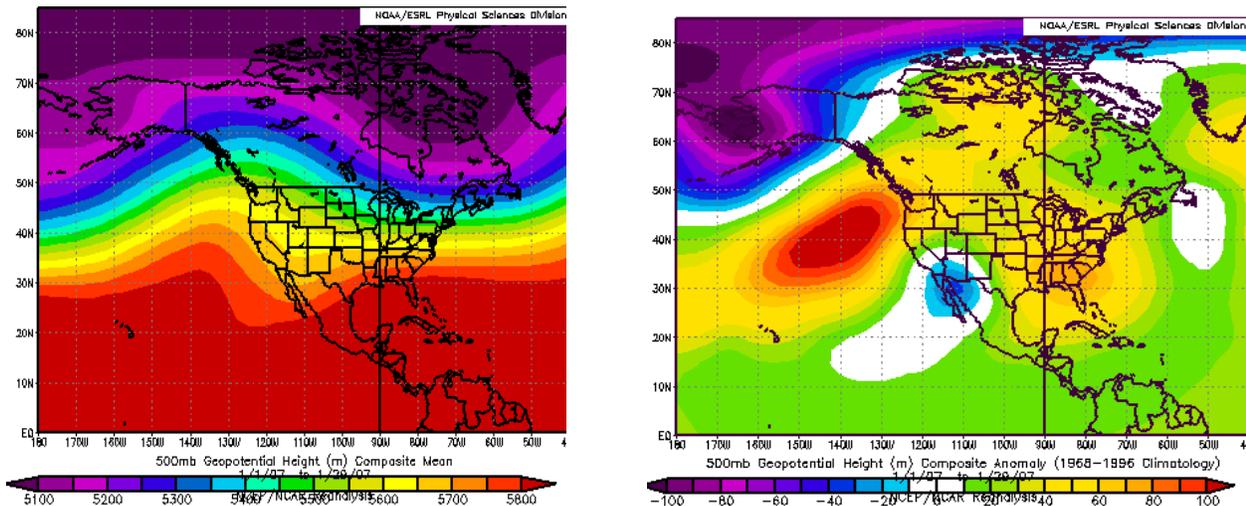


Figure 1. Mean flow at 500 millibars (~18,000 ft) January 2007 (left). The heights were above normal across the state, consistent with a moderate strength El Nino signature. The plot on the right show the above normal area – centered over the northern Pacific Ocean (red area). This anomaly contributed to the above normal temperatures and below normal precipitation in Montana.

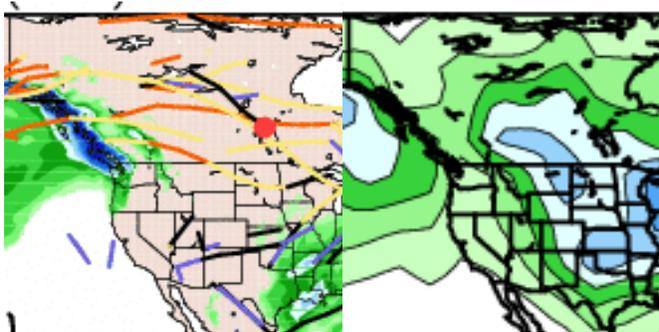


Figure 2. Storm tracks in January 2007 (left), compared with winter (Jan-Mar) climatology. Note that only one weak storm passed in the vicinity of Montana during the month of January 2007 (courtesy NOAA’s Climate Prediction Center).

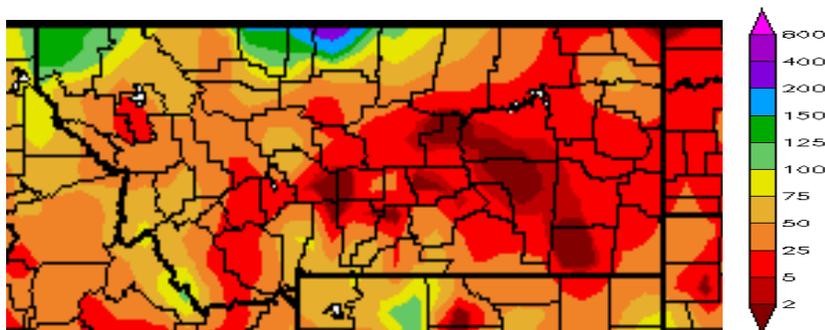


Figure 3. Precipitation anomaly (% of normal) for January (courtesy High Plains Climate Center).

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>

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>