

Montana Weather/Precipitation Summary

June 2008 by NOAA's National Weather Service Great Falls Montana

June 2008 brought welcome rains to many parts of the state, but wide areas remained dry. A storm near the 11th dropped up to 9 inches of snow in the Great Falls area. Overall, the month's temperatures averaged near to below normal (Fig. 1), with precipitation widely variable (Fig. 2). The average upper level flow for June was from a westerly direction (Fig. 3), but a weak upper level trough of low pressure over central North America contributed to below normal temperatures across the state.

The first two weeks of June brought periods of precipitation and generally below normal temperatures. Hail to the size of golf balls fell on five days. With the period of cool temperatures, record low temperatures occurred at Great Falls on the 9th, Kalispell on the 10th, and again at Great Falls and Dillon on the 11th. The strongest wind gust occurred on the 10th during a thunderstorm near Laurel. Winds gusted to 70 mph. This period was capped by a spring storm that dropped over 6 inches of snow at Great Falls, and up to 9 inches in the vicinity. Forty inches of snow fell at Badger Pass, with over 4 inches of water equivalent. Heavy snows fell at many of the higher points across western Montana. Several thousand homes were without power in the Great Falls area for up to three days as the heavy, wet snow snapped power poles. At the end of the month, Badger Pass still had 47 inches of snow on the ground, after recording 111 inches on the ground on June 12.

Precipitation largely ceased across the state after this large event. Temperatures gradually warmed through the rest of the month, reaching 95F at Plains on the 21st. A cold front brought another round of severe thunderstorms on the 22nd. Local cloudbursts produced up to two inches of rain in 30 minutes near Vida. A few wildfires were sparked in south central Montana from some of these isolate thunderstorms. After a brief cooler spell, when Havre set a new record low on the 28th (dropping to 38F), very warm temperatures with strong upper level high pressure returned for the last couple of days. A temperature of 102F was recorded near Trout Creek on the 29th.

After the heavy rain, soil moisture conditions improved over most of the state. Soil moisture then decreased across most of the state by the end of the month. Figure 4 shows the trend at Great Falls.

Severe weather occurred on 15 days. The average for June is 10 days. The statewide mean temperature at 18 cities in June was 58.3F, with the normal of 60.2. The precipitation average was 2.19 inches or 95 percent of normal, with a normal value of 2.30. The wind average of 8.1 mph was below the long-term average of 9.2 mph.

Other record or notable information for June:

- Billings had their driest June since 1961, and the 4th driest of record.
- Bozeman recorded their 4th calmest June of record with an average of 5.7 mph – normal is 6.3 mph.
- Butte recorded their 2nd calmest June of record with an average of 6.1 mph – normal is 7.3 mph.
- Dillon had their driest June since 1979, and the 6th driest of record. For the period January through June, Dillon has recorded 3.81 inches of precipitation, which is the 5th driest of record.
- Great Falls had the second greatest June snowfall of record. The record is 11.1 inches in 1950. The last time measurable snow fell in June in Great Falls was in 1999. The 32F low temperature on the 11th is the third latest date of freezing temperatures in the spring at Great Falls. The latest date is June 13 in 1969.
- Missoula had their 3rd calmest June with an average of 5.1 mph – normal is 7.3 mph.

June summary information:

High Temperature	102°F at Trout Creek (29 th) and Troy and Roundup (30 th)	Greatest Precip	5.51" at South Sawmill Creek
Low Temperature	24°F at Lolo Hot Springs (7 th) and Big Sky (11 th) & 19°F at Placer Basin SNOTEL (11 th)		9.7" at Warm Springs SNOTEL
Warmest Ave Temp	64.1°F at Glendive	Peak Wind Gust	70 mph near Laurel (10 th)
Coollest Ave Temp	49.2°F at Wisdom		
Range of Temp departures	-4.4°F at Mystic Lake to +0.6°F at Helena	Highest Ave Wind	12.7 mph at Highwood
18 city mean monthly Temperature/Normal	58.3/60.2	18 city mean monthly wind speed/Normal	8.1mph/9.2mph
18 city mean monthly precipitation/Normal	2.19"/2.30" – 95% of normal		

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

Location	Jun	% of Norm	Rank	Pcntl	Oct 1 – Jun 30	% of norm	Rank	Pcntl	Years
Baker	1.96	77%			8.69	107%			10
Billings	0.31	16%	4	3	9.33	83%	51	51	99
Belgrade	2.89	120%	45	62	12.01	110%	55	82	67
Butte	2.34	113%	67	58	7.38	83%	33	29	113
Cut Bank	3.06	123%	71	71	8.75	109%	70	70	100
Dillon	0.39	22%	6	7	6.08	90%	22	31	68
Glasgow	3.37	153%	81	73	10.45	145%	85	79	108
Great Falls	3.08	138%	72	63	11.59	110%	70	61	114
Havre	2.83	149%	80	62	7.25	94%	40	31	128
Helena	1.63	90%	50	38	7.26	95%	36	27	130
Jordan	2.34	92%			10.71	145%			9
Kalispell	2.22	97%	68	59	9.23	69%	78	68	114
Lewistown	3.75	128%	70	62	12.65	101%	60	53	112
Livingston	1.02	46%	13	11	10.68	93%	54	52	102
Miles City	2.65	110%	75	58	6.80	71%	20	15	131
Missoula	2.58	149%	91	70	8.92	85%	28	22	126
Mullan Pass	1.75	64%	16	22	33.18	109%	30	44	67
Wolf Point	1.23	45%			5.58	76%			10
Glendive	1.77	69%	27	23	6.43	71%	14	13	104
Sidney	0.65	23%	3	3	3.68	39%	1	1	66
BZN-MSU	3.92	138%	106	81	16.82	115%	107	83	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>

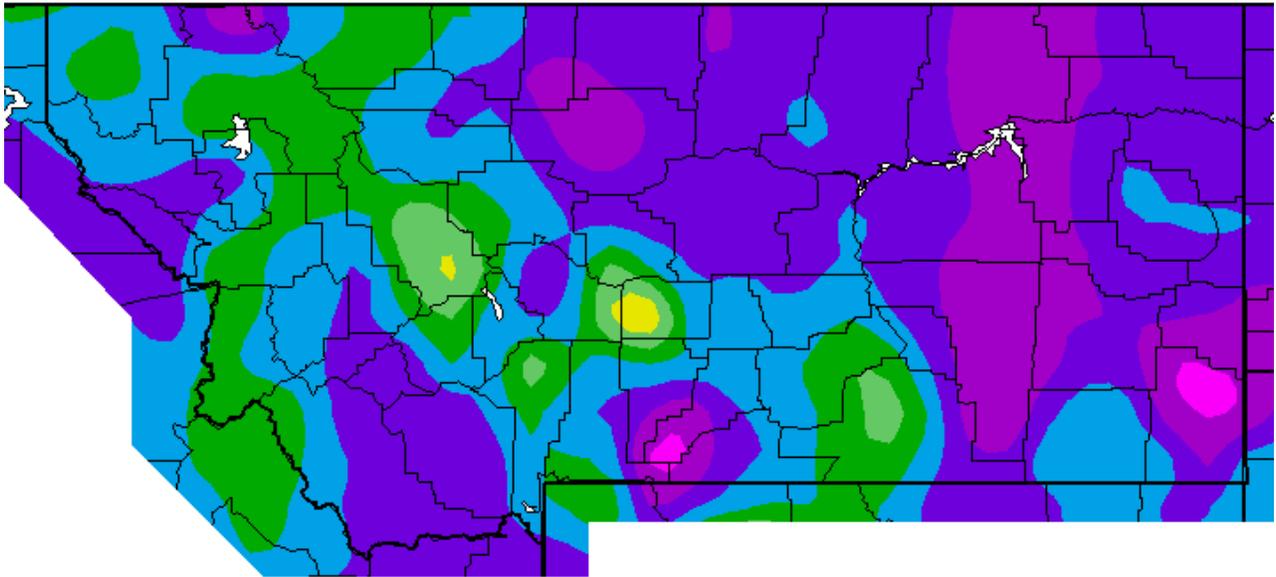


Figure 1. Temperature anomaly for June. Montana experienced temperatures below normal across most of the state. (Western Regional Climate Center).

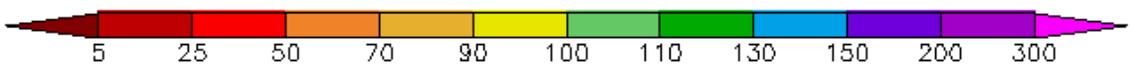
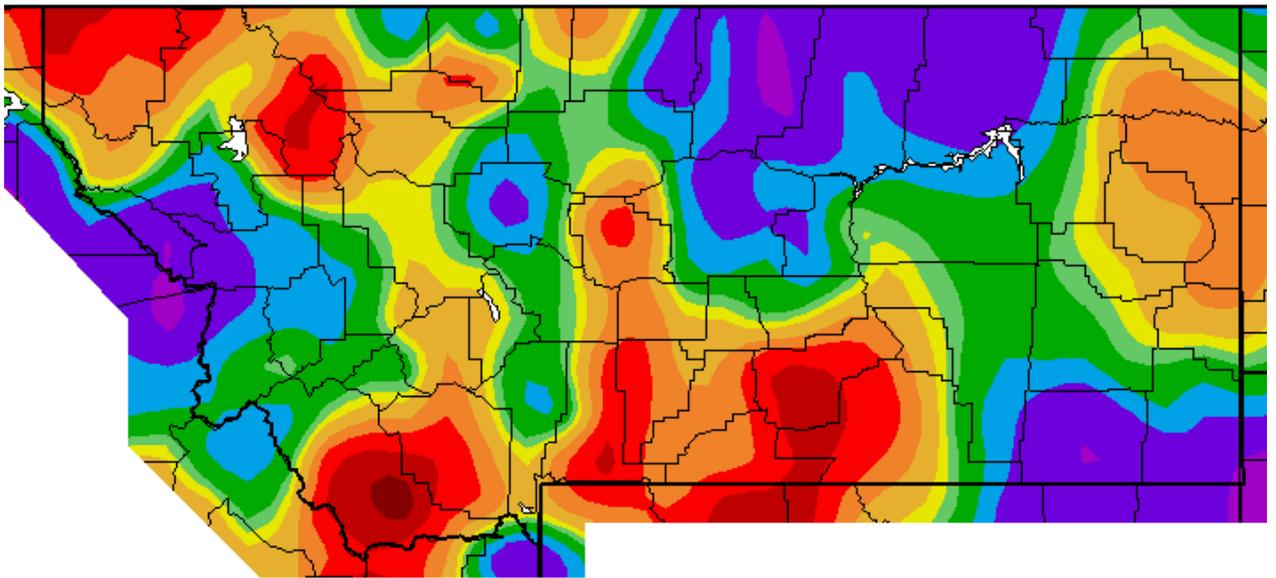


Figure 2. Precipitation anomaly (% of normal) for June. (Western Regional Climate Center).

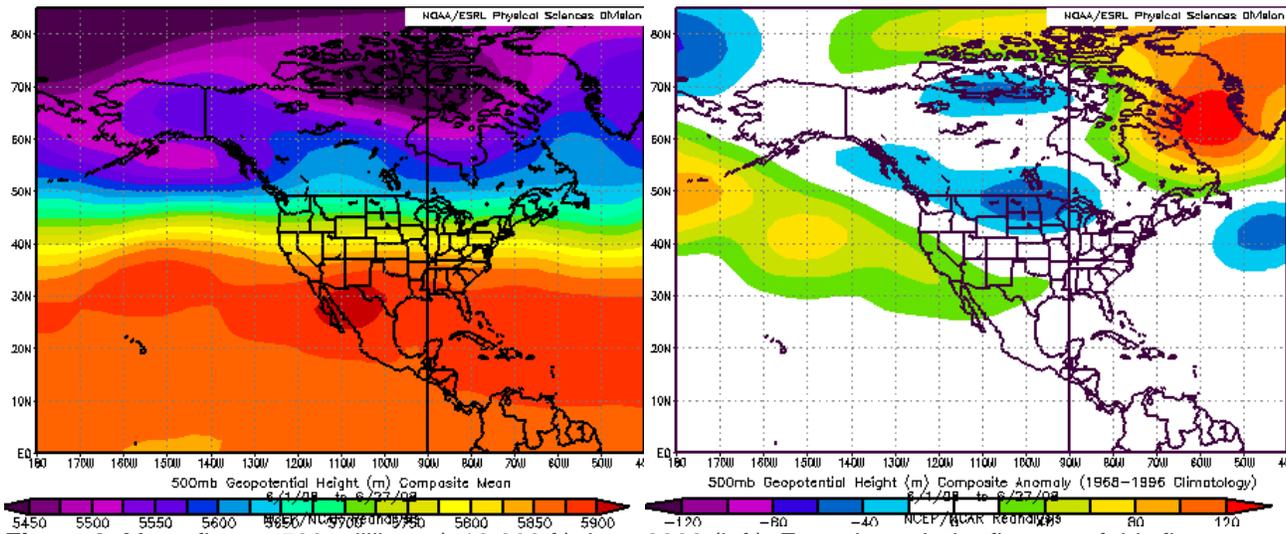


Figure 3. Mean flow at 500 millibars (~18,000 ft) June 2008 (left). Even through the flow was fairly flat (westerly), the weak trough through the Great Lakes was stronger than normal for June. This contributed to the below normal temperatures across the state.

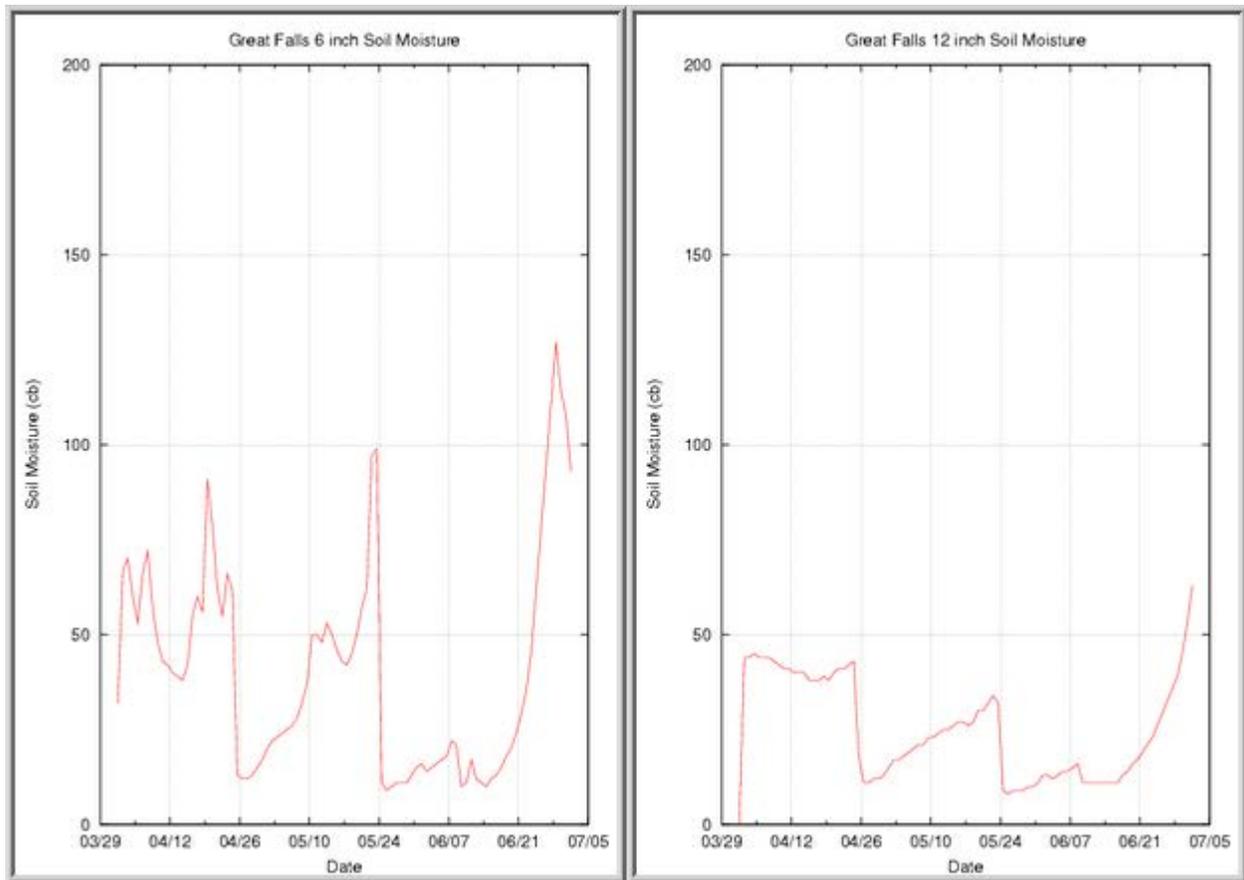


Figure 4. Soil moisture (centibars) at Great Falls at the 6 inch (left) and 12 inch (right) depths from the end of March through the end of June 2008. Note how rapidly the soil moisture dried out after the snow and rain around June 11th. Values near zero are wet soils, with values increasing relating to drying conditions.

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_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>

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>