

Montana Weather/Precipitation Summary

August 1-14 2007 By NOAA's National Weather Service Great Falls Montana

Respite from the continuous heat of July has come in the first two weeks of August. Some areas in Montana have recorded above normal precipitation, but temperatures still continue on the warm side. Dryness continues to affect most of the state. There have been a few days of severe weather, but smoke from the many large fires has dominated Montana's skies in August (Figure 3). The few thunderstorms brought severe weather, and have started additional fires across the state.

The warmth of July continued for the first few days of the month. Glendive recorded 105F on the 1st and nearby Pine Hill recorded 107. This warmth continued until a strong cold front brought the first day of below normal temperatures to Montana on the 5th, the first day of cooler-than-normal temperatures to portions of the state in a month. Isolated severe thunderstorms accompanied this cold front, bringing wind gusts over 70 mph in the Lima area, destroying a shed. On the 5th strong thunderstorms affected the southwest, bringing nearly $\frac{3}{4}$ of an inch of rain to the Bozeman area. Much cooler temperatures followed for the next few days, with lows in the 40s in many areas. Thunderstorms across the southwest caused very strong winds on the 9th. Dillon set a new August peak wind gust record, reaching 66 mph. Warmer temperatures returned with temperatures rebounding into the 90s by the 10th. A strong cold front brought widespread severe weather to eastern Montana on the 10th. Wind gusts from thunderstorms exceeded 70 mph at several locations. A tornado produced some damage in the Opheim area. Afterwards, cooler air moved in with new record lows established at several locations in western Montana on the morning of the 11th. Gates Park dropped to 23F, with Kalispell reaching 38F.

A strong warm-up and windy conditions returned on the 12th, with high temperatures back into the 90s. Bozeman airport topped out at 101F, for a new record high.

Precipitation remained below normal across most of the state. Many areas of northwest, central and east central Montana have received little or no rain for the month. Above normal areas include the southwest, southeast and portions of the northeast (Figure 2). Temperatures continue above normal in most areas. The northwest has recorded temperatures near to slightly below normal, ranging as high as 5F above normal in the southeast (Figure 4). The upper flow pattern has dictated this with a mean trough over the western US and a ridge over the central (Figure 1).

Severe weather has occurred on 5 days. The average for all of August is 7 days. A tornado occurred near Opheim on the 10th, with 1 inch hail near Glasgow on the same day. Wind gusts reached 81 mph at Monida and 75 mph near Brockton on the 10th. Fires continue to produce large plumes of smoke, affecting large portions of the state. Winds are averaging near normal. Soil moisture conditions still show dry to very dry conditions at most reporting locations across the state. There has been some recovery in the Moccasin and Zortman areas, reflecting recent rains.

Month's summary information:

High Temperature	105°F at Glendive and (107°F) Pine Hill (1 st)	Greatest Precip	1.54" at Broadus
Low Temperature	23°F at Gates Park (11 th)		
Warmest Ave Temp	80.5°F at Glendive	Peak Wind Gust	81 mph at Monida (10 th)
Coollest Ave Temp	58.7°F at Wisdom		
Range of Temp departures	-1.7°F at Haugen to 6.8°F at Glendive	Highest Ave Wind	11.5mph at Cut Bank

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

Location	Aug 1-14	% of Norm	Oct1 – Aug 14	% of norm	Years
Baker	0.61	126%	14.03	140%	9
Billings	0.05	12%	15.12	116%	98
Bozeman	0.80	140%	12.69	100%	66
Butte	0.43	63%	11.05	100%	112
Cut Bank	0.11	13%			99
Dillon	0.07	13%	10.57	125%	67
Glasgow	0.12	19%	14.23	148%	107
Great Falls	0.07	8%	10.92	85%	114
Havre	0.03	5%	11.02	112%	127
Helena	0.26	40%	9.19	95%	129
Jordan	0.19	26%	13.50	137%	6
Kalispell	0.03	5%	11.01	72%	113
Lewistown	0.20	21%	16.33	105%	111
Livingston	0.44	65%	14.76	109%	101
Miles City	0.00	0%	11.04	94%	130
Missoula	0.00	0%	10.84	89%	121
Mullan Pass	0.06	8%	41.59	127%	65
Wolf Point	0.32	46%	12.15	121%	9
Glendive	0.02	3%	10.58	91%	104
Sidney	0.02	3%	8.89	73%	66
BZN-MSU	0.61	82%	22.15	132%	122

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>

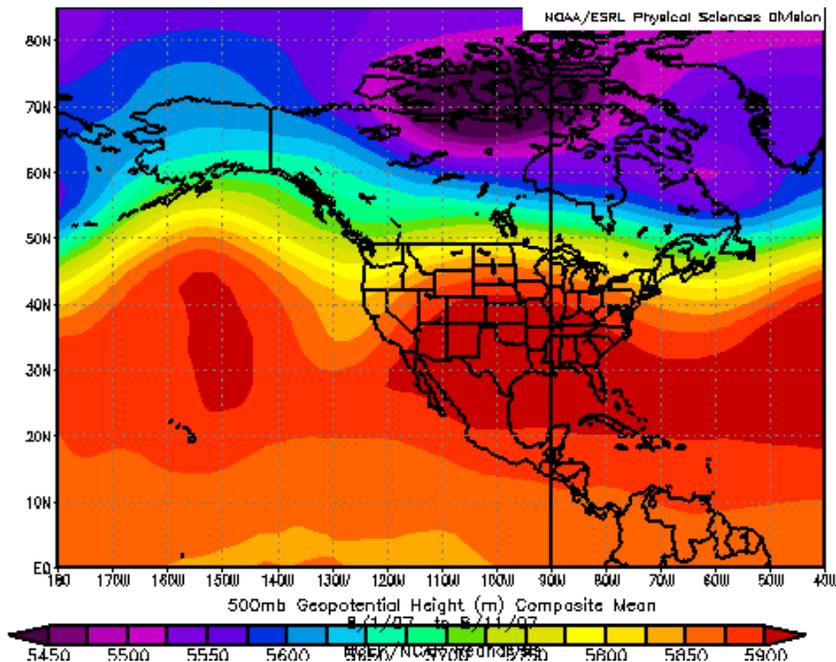


Figure 1. Mean flow at 500 millibars (~18,000 ft) August 1-13 2007. The ridge over central North America and trough over the west contributed to the warmer than average temperatures in eastern Montana, and cooler than average across the west (Fig. 4).

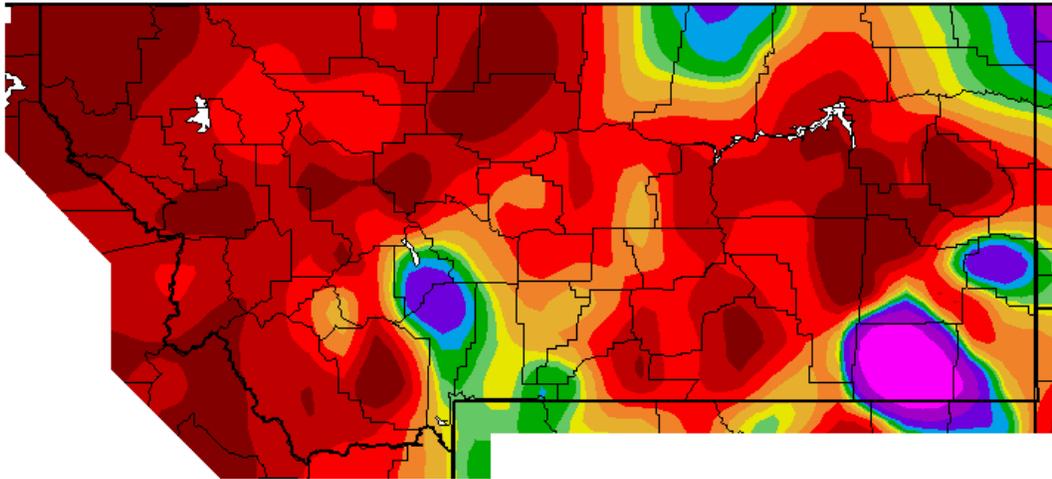


Figure 2. Precipitation anomaly (% of normal) for August 1-14. Only small pockets of above normal precipitation occurred. Most of the state was below to much below average (courtesy Western Region Climate Center).

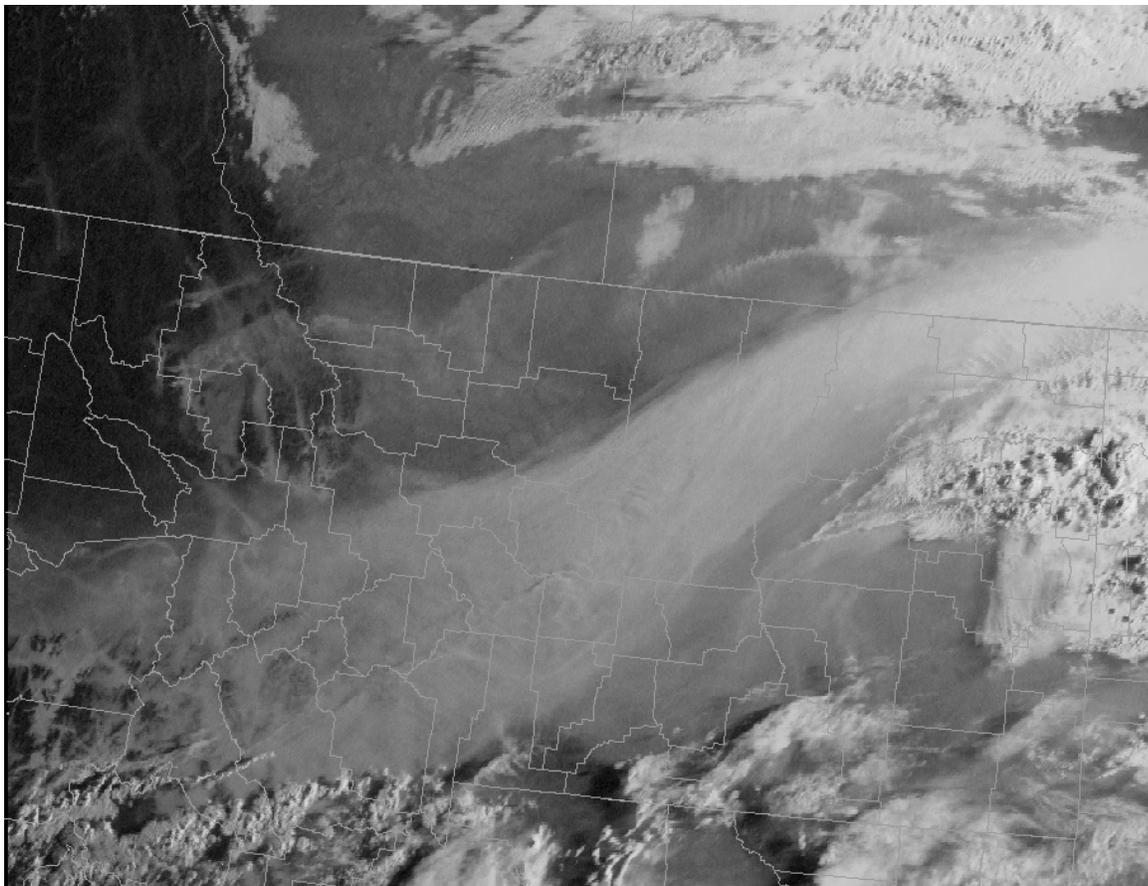


Figure 3. Visible satellite image from August 14 2007 at 745 am MDT. Note the haze (smoke) across southwest through northeast Montana. There are also plumes rising from fires in the Kalispell area. Also note the lighter gray in western valleys depicting smoke trapped in the valleys.

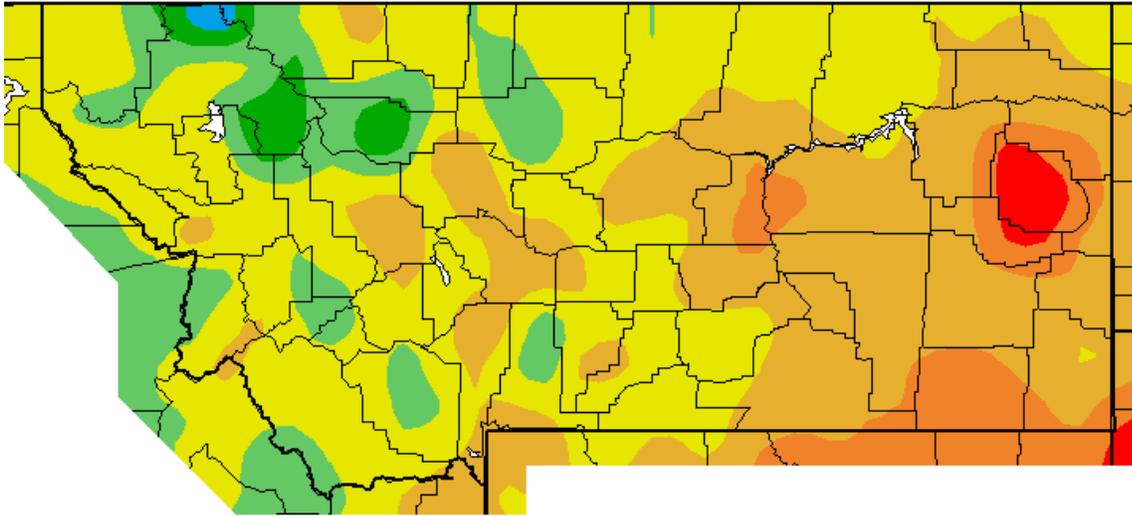


Figure 4. Mean August 1-14 2007 temperature departure from normal for Montana. (courtesy Western Region Climate Center).

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=txf&type=data&loc=hydro&fx=watyr_pcbtnorm.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. 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=txf>