

Montana Weather/Precipitation Summary

May 2015 by NOAA's National Weather Service Great Falls Montana

Again, there were no real cool or warm periods in May. The greatest temperature departure from normal occurred mid-month, when temperatures averaged 10 to 15 degrees above normal. The upper level flow pattern changed to a ridge over Alaska and a trough along the California coast as shown in Figure 1. This kept temperatures close to normal across the state, with near normal precipitation.

Statewide composite temperatures averaged 0.6°F below normal for the month. This was the smallest monthly temperature anomaly since September. The temperature anomalies ranged from -5.1°F at Mystic Lake to +2.7°F at Heron (Fig. 2). The warmest average monthly temperature was 57.9°F at Thompson Falls, and the coolest was 36.3°F at Porphory Peak. This was the 47th coolest May of record,

and the coolest since 2012. For the past 12-months, the statewide composite average temperature is 1.6°F above normal. This is the first month since November to record a cooler-than-normal departure, and 7 of the last 12 months have had warmer than normal temperatures. The temperature range of 86°F for May (87 to 1) was the smallest since 2012.

The monthly departure from normal for precipitation across Montana is shown in Figure 3. Above normal precipitation was across central Montana, and scattered across southern Montana. Kalispell recorded their driest May of record. The previously driest May was in 2001, when only 0.23" fell. The highest amount was 8.80-inches at Burnt Mountain (Carbon County) and 6.82-inches near Livingston. Statewide, this month averaged 2.16-inches, or 0.09-inches below normal. The statewide composite precipitation for the past 12 months is 1.41-inches above normal.

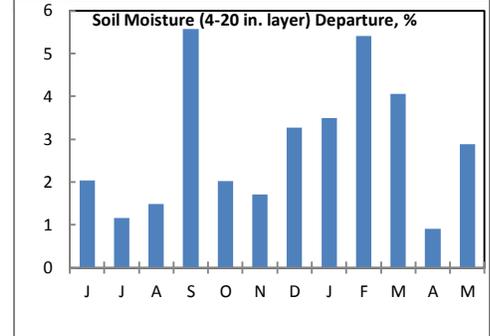
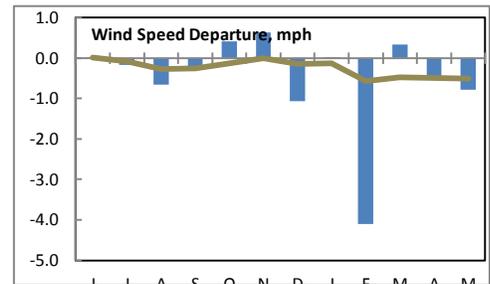
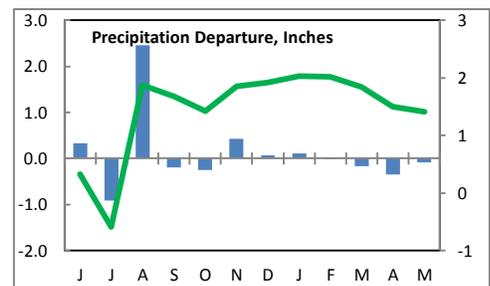
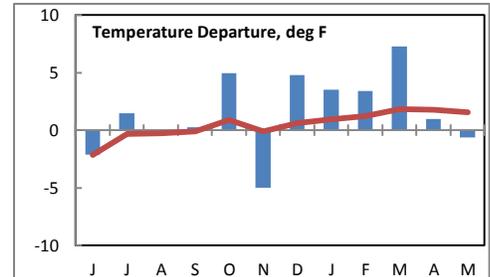
Snowfall was below normal. The statewide average was 0.2-inches, or 1.5-inches below normal. The heaviest amount was 9.0-inches near Mystic Lake. Statewide seasonal (Oct-May) snowfall averages are 11.8 inches below normal.

The statewide average winds were below normal this month, ranking as the 9th calmest May of record. The statewide composite average was 8.9 mph, 0.8 mph below normal. The 12-month average is running 0.5-mph below average. The fastest average speed was 11.7 mph at Baker. The fastest measured gust of the month, 70 mph, occurred at Deep Creek RAWS on the 2nd.

Soil moisture recharged over most areas of the state. The May average was 2.9 points above the monthly normal. This month ranks as the 5th wettest of record. Records began in 1995.

Refer to NCDC's State of the Climate report for the latest monthly discussion:

<http://www.ncdc.noaa.gov/sotc/>.



May 1-5

May started out warmer than normal. Gusty winds developed along the east slopes of the Rockies, with gusts to 60 mph at Two Medicine on the first, and 70 mph at Deep Creek on the second. With a change to below normal conditions, thunderstorms pushed across northeast Montana on the fifth, with nickel size hail reported at Landusky.

May 6-25

An extended period of below normal temperatures and periods of precipitation dominated during this period. Strong thunderstorms pushed across southern Montana on the 13th and 14th, with an 3-4 day period of rain over much of the state (except southeast) from the 14th-17th. Amounts ranged from 1.5 to over 4 inches of rain. The heaviest amount was 4.22" in the Adel Mountains of southwest Cascade County. As the storm wound down, two inches of snow fell at West Yellowstone on the 16th.

May 26-31

The rest of the month brought a gradual warm-up. Thunderstorms became more common as well. Thunderstorms on the 26th and 27th brought small hail to southern Montana, with the largest 0.50" stones at Marysville. Another round of thunderstorms pushed across the state on the 20th. Nickel-size hail fell at DeBorgia and dime-size hail fell at Fairfield.

Precipitation/convection

Severe convective weather occurred on zero days in May. The normal for May is five days. No severe thunderstorms have been observed in Montana through the end of May. The last time this occurred was 27 years ago, in 1988.

Spring March through May

The spring average temperature was above normal. The average of 45.2°F is the 18th warmest of record, and the warmest since 2012. Precipitation averaged 3.85", and the 52nd driest of record. This 0.61" below normal. Spring snowfall of 4.2" is the 2nd lowest of record, and the lowest since 1910. Winds averaged 9.4 mph, or the 11th calmest of record. This is the calmest such period since 2013.

October through May

The water-year-to-date average temperature was above normal. The average of 35.9°F is the 13th warmest of record, and the warmest since 2011-2012. Precipitation averaged 8.28", and the 58th driest of record. This is close to the mean, 0.27" below normal. Seasonal snowfall of 44.0" is the 34th lowest of record, and the lowest since 2005. Winds averaged 9.1 mph, or the 16th calmest of record. This is the calmest such period since 2013-14.

May summary information:

High Temperature	87°F at Troy (22 nd)	Greatest Precip	3.17" at Norris Madison
Low Temperature	1°F at Placer Basin (10 th)		5.20" at Brackett Creek SNOTEL (Gallatin)
Warmest Ave Temp	57.9°F at Thompson Falls	Peak Wind Gust	66 mph near Ingomar (14 th)
Coollest Ave Temp	36.3°F at Porphory Peak		
Range of Temp departures	-5.1°F at Mystic Lake to +2.7°F at Heron	Highest Ave Wind	13.8 mph at Poplar 15.8 mph at Deep Creek
21 city mean monthly Temperature/Normal	51.4/52.0F 0.6F below normal. 47 th coolest of record (since 1880). 35 th percentile. Oct-May 35.9/33.4 2.5F above normal. 13 th warmest of record.	20 city mean monthly wind speed/Normal	8.9 mph/9.7 mph; 9 th calmest of record (since 1936). 11 th percentile. Oct-May 9.1 mph/9.8 0.7-mph below normal. 16 th calmest of record.
22 city mean monthly precipitation/Normal	2.16/2.25" – 96% of normal. 58 th wettest of record (since 1880). 57 th percentile. Oct-May 8.28"/ 8.55" – 0.27" below normal. 58 th driest of record.		

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

Location	May	% of Norm	Rank	Pcntl	Oct 1 – May 31	% of norm	Rank	Pcntl	Years
Baker	1.40	89%			4.67	84%			17
Billings	2.43	98%	84	71	7.24	77%	55	48	114
Belgrade	3.33	135%	74	94	7.89	95%	44	56	78
Butte	1.76	85%	61	50	5.74	84%	42	34	121
Cut Bank	1.61	83%	53	49	5.66	122%	72	66	108
Dillon	2.86	148%	68	89	5.55	103%	50	66	75
Glasgow	1.32	69%	52	44	5.58	104%	65	56	115
Great Falls	3.42	141%	103	82	8.75	113%	81	66	123
Havre	1.58	91%	73	53	5.64	110%	65	48	135
Helena	2.36	126%	105	76	6.34	112%	66	48	137
Jordan	1.40	61%			4.75	80%			17
Kalispell	0.22	11%	1	1	11.84	112%	95	78	121
Lewistown	2.64	93%	59	49	9.00	103%	63	53	119
Livingston	4.08	153%	98	87	8.77	102%	61	55	110
Miles City	1.82	83%	77	55	3.73	59%	11	7	138
Missoula	0.76	38%	26	18	9.24	106%	78	58	134
Mullan Pass	2.21	82%	34	44	33.44	107%	50	67	74
Wolf Point	1.69	95%			3.82	73%			17
Glendive	2.23	100%	76	63	6.22	93%	59	51	114
Sidney	1.31	65%	23	29	4.28	65%	19	24	75
BZN-MSU	3.03	95%	84	60	11.26	91%	70	51	136

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>

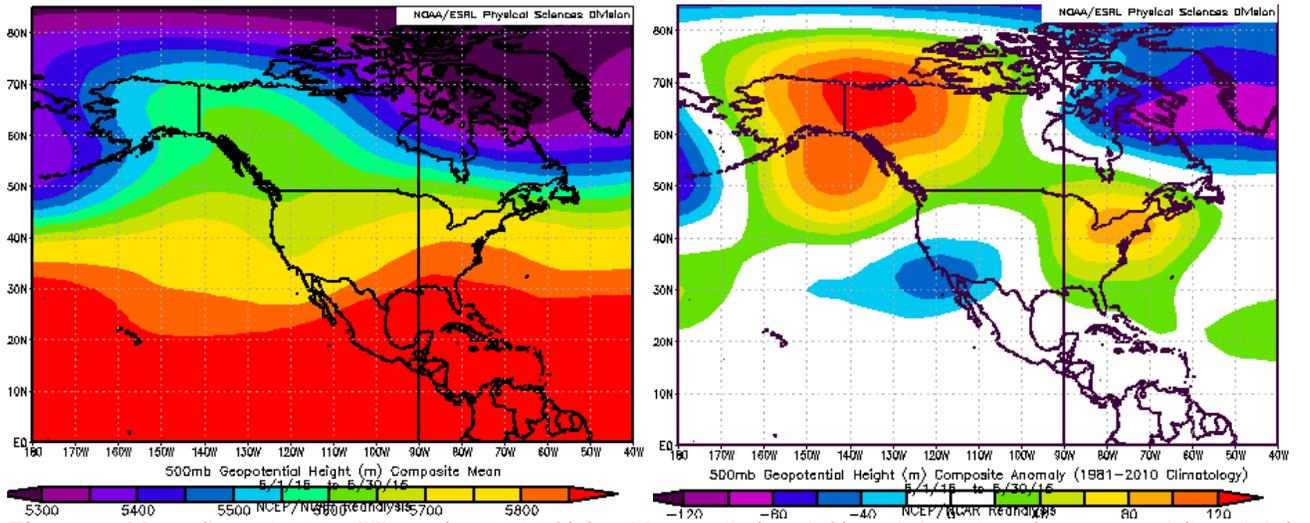


Figure 1. Mean flow at 500 millibars (~18,000 ft) for this month (top-left) and departure from normal (top-right).

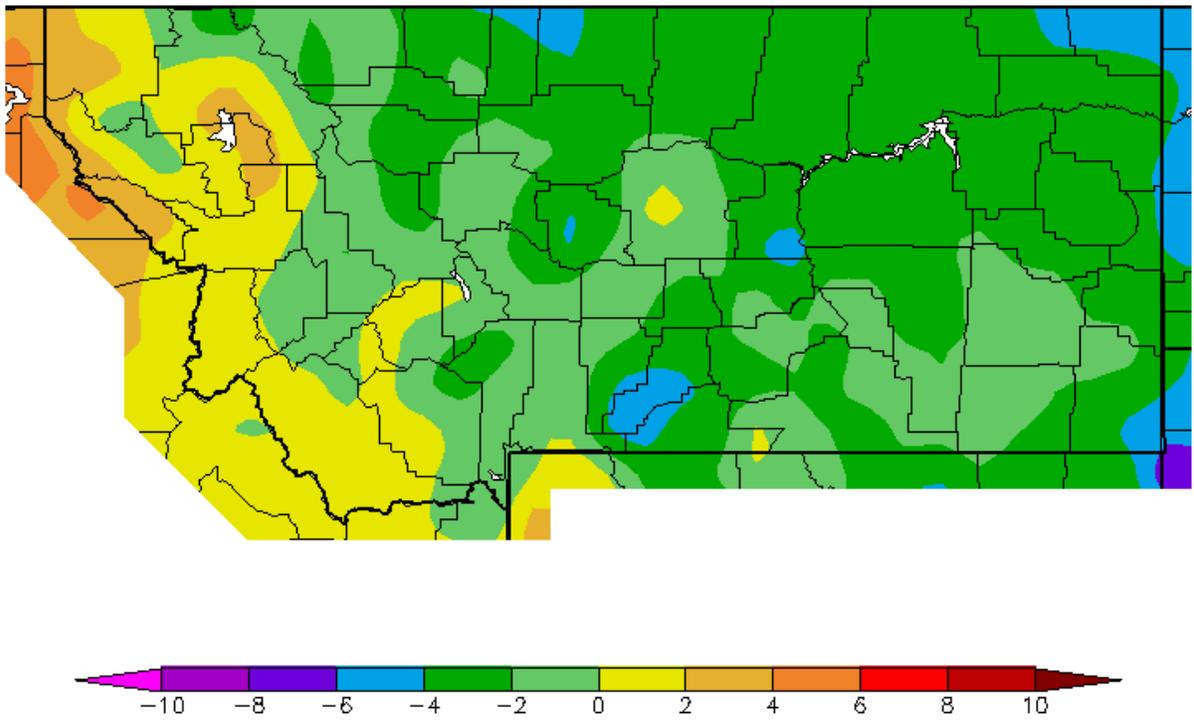


Figure 2. May 2015 temperature departures from normal (°F) (Western Region Climate Center).

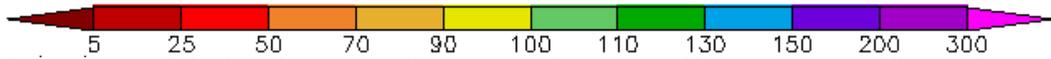
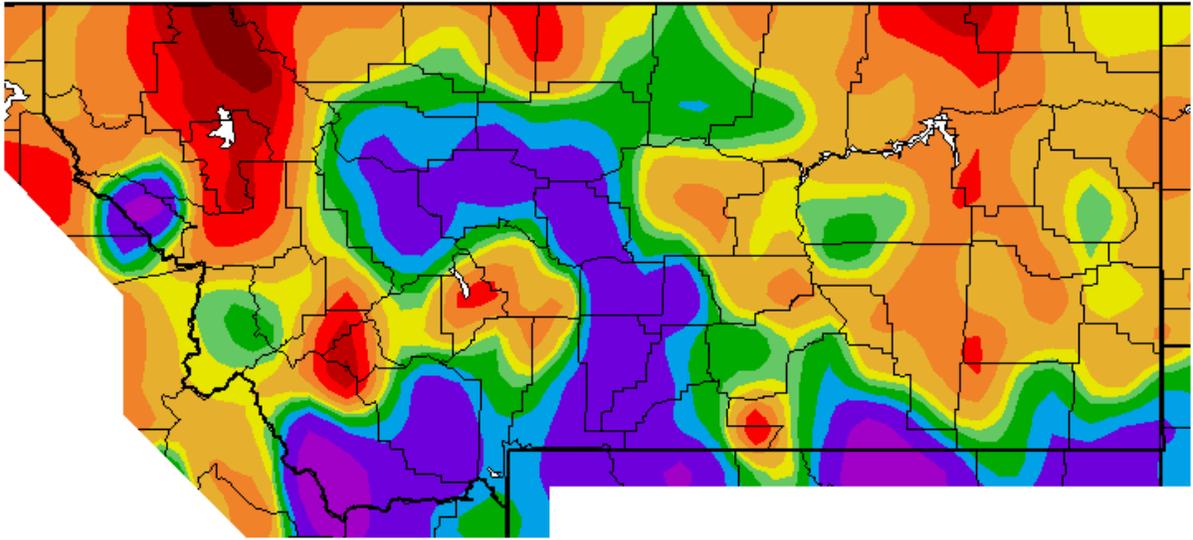


Figure 3. May 2015 precipitation departures from normal (percent) (Western Region Climate Center).

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/climate/monthlysum/climatesum.php?wfo=tx>

For the latest information on mountain snowpack from the NRCS, go to: <http://www3.wcc.nrcs.usda.gov/snow/index.html>

For the latest U.S. Drought Monitor, issued weekly by the National Drought Mitigation Center, USDA and NOAA, go to: <http://droughtmonitor.unl.edu/>

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>. The climatological record for normals is 1981-2010. 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.