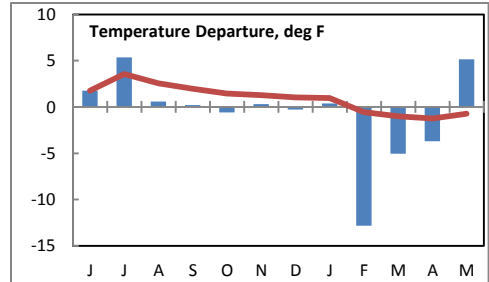
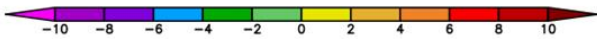
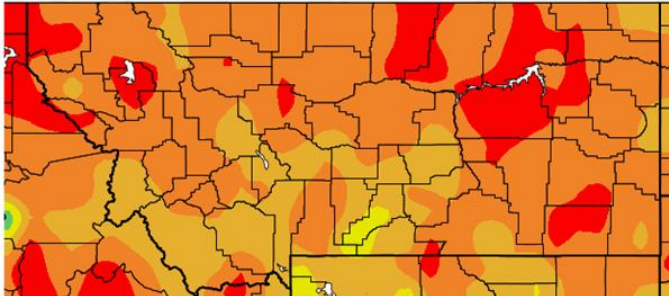


# Montana Weather/Precipitation Summary

**May 2018** NOAA's National Weather Service Great Falls Montana

The upper level flow averaged a west-northwest component as a strong ridge of high pressure was over the western North America coast (Fig. 1). As a result, temperatures averaged above normal. Precipitation was mixed, with below normal values across northern Montana and areas of the southwest and extreme southeast. Winds averaged much below normal.

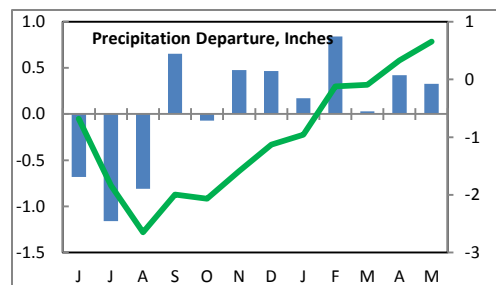
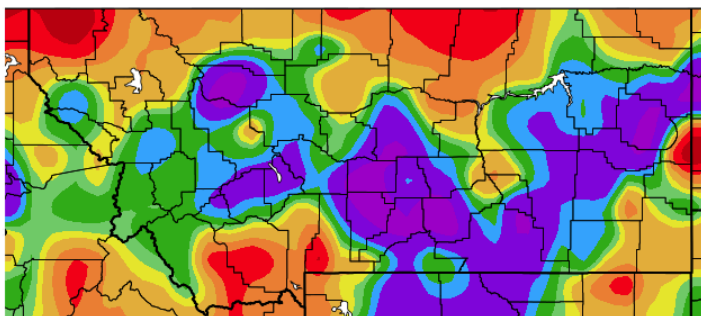
May temperature anomalies ranged from about one degree to nearly seven degrees above normal across the state. The warmest averages were in the eastern third of Montana. The highest temperature was 94°F at several locations on the 26th, including Biddle, Moorhead, Broadus, and Powderville. The coldest temperature was 17° at Yellow Mule RAWs (Gallatin) on the 2<sup>nd</sup>. The state wide temperature average of 57.2° was 5.2°F above normal, and the warmest



May since 1958. The red line on the graph shows the cumulative 12-month departure from normal, which is 0.7°F below normal.

See the state summary and temperature tables below for more details.

Precipitation was heaviest over the central mountains, southward into Carbon County. The accompanying map shows that precipitation was below normal over the northern quarter of the state, along with portions of southwest and southeast Montana. Elsewhere it was above to much above normal. The statewide composite of 2.73-inches was 0.33-inches above normal. The green line on the precipitation graph shows the cumulative 12-month departure from normal, which is 0.65" below normal. Five the past 12 months have recorded below normal precipitation. See state summary and precipitation tables below for more details.



Snowfall was below normal, with most areas seeing none. normal. Mystic Lake recorded the highest snowfall, with a

total of 9.0-inches. West Yellowstone melted out their snow on the 6<sup>th</sup>. Their average last day for an inch or more of snow on the ground is May 3.

The winds averaged much weaker than normal over the state. Statewide, the month ranked as the calmest May of record, with an average speed of 7.7-mph. The old record of 7.8-mph was set in May 1940. The strongest averages were primarily along the Rocky Mountain Front and Livingston area. The composite statewide average was 1.8-mph below normal. The brown line of

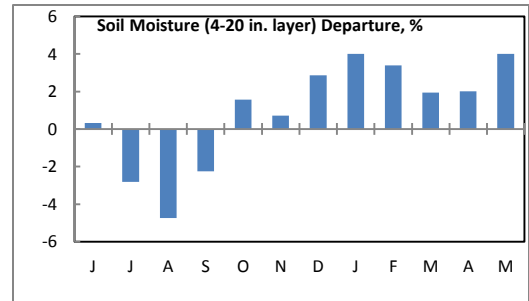
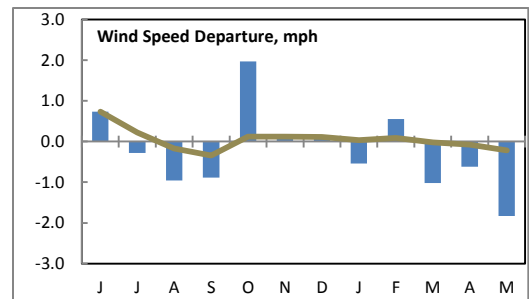
the wind graph to the right shows the 12-month cumulative statewide wind departure from normal. The 12-month average is running near normal. Eight of the past 12 months have had below normal average speeds.

Statewide soil moisture averages are the wettest of record, 4.0-percentage points above average. The graph to the right shows the trends in departures from normal over the past 12 months.

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

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

The first week of May was very quiet. Some thunderstorms moved through the southwest on the 6<sup>th</sup>, with gusts to 61 mph at Antelope in Beaverhead County. Another round of thunderstorms and heavy rain moved over the state from the 9<sup>th</sup>-12<sup>th</sup>. A small tornado was spotted near Moore on the 9<sup>th</sup>, along with golf-ball size hail at Fishtail. Rain amounts over one-inch were common from the Rocky Mountain Front into central Montana. After this brief cool period, temperatures again warmed and thunderstorms moved through eastern Montana on the 16<sup>th</sup> and 17<sup>th</sup>. Wind gusts reached 79 mph at Hilldale Colony north of Havre, while hail to golf ball size was reported at Weldon (McCone). Heavy rain fell from the 17<sup>th</sup>-19<sup>th</sup>. Amounts ranged to over two inches at Molt (Stillwater). On the 23<sup>rd</sup>, severe thunderstorms dropped 1.75-inch hail at Mildred (Prairie), while thunderstorm gusts reached 60 mph at Ridgeway. Another round of thunderstorms and heavy rain occurred on the 23<sup>rd</sup> and 24<sup>th</sup>. Joliet (Carbon) measured over 3-inches of rain, while Reed Point (Stillwater) received over 4-inches. On the 26<sup>th</sup>, thunderstorm gusts reached 66 mph at Sidney, while 2.5-inch hail fell at the Nelson Creek Recreation Area on Fort Peck. The warmest temperatures of the month were also observed on the 26<sup>th</sup>. Strong and severe thunderstorms occurred on the 30<sup>th</sup> and 31<sup>st</sup> as well. Heavy rain was reported over portions of eastern Montana. Busby (Bighorn) received 3.9-inches on the 30<sup>th</sup>. Snowmelt flooding dominated the weather news during May.



### Precipitation/convection

Severe convective weather occurred on ten days in May, while normal is 11 days. One tornado was reported, while hail to 2.5-inches was observed on Fort Peck. Thunderstorm wind gusts reached 79 mph at Hilldale Colony (north of Havre) and 72 mph at Ekelaka on the 16<sup>th</sup>.

### Spring (March-May) and Water-year-to-date

Temperatures averaged 41.5°F, which was the 51<sup>st</sup> coolest of record and the coolest spring since 2013. For the water-year, temperature averages are 31.4°F, the 31<sup>st</sup> coolest of record and coolest since 2011.

Average spring precipitation was 5.65-inches, which is 15<sup>th</sup> wettest of record and the wettest spring since 2011. For the water-year precipitation has been 11.70-inches, the second wettest of record and wettest since 2011.

Average spring winds were 8.4-mph, 1.2-mph below normal. This was the second calmest spring of record. The record is 8.2-mph set in 1941.

Average spring snow was 19.9-inches, which was the 19<sup>th</sup> highest of record. This was the highest value since 2011. For the water year, snowfall has been 83.5-inches, the third highest of record and highest since 2011.

**May information:**

<b>High Temperature</b>	94°F at Biddle, Moorhead, Broadus and Powderville (26 <sup>th</sup> )	<b>Greatest Precip</b>	8.56" near Columbus
<b>Low Temperature</b>	17°F at Yellow Mule RAWS (2 <sup>nd</sup> )		7.30" at Deadman Creek SNOTEL (Meagher)
<b>Warmest Ave Temp</b>	62.7°F at Glasgow	<b>Peak Wind Gust</b>	79 mph at Hilldale Colony (18NNW Havre) (16 <sup>th</sup> )
<b>Coollest Ave Temp</b>	42.0°F at Yellow Mule RAWS (Gallatin)		
<b>Range of Temp departures</b>	1.3°F at West Yellowstone to 7.6°F at Glasgow	<b>Highest Ave Wind</b>	12.1 mph at Browning 12.9 mph at Deep Creek RAWS
<b>21 city mean monthly Temperature/Normal</b>	57.2/52.0F normal. 9 <sup>th</sup> warmest of record (since 1880). 93 <sup>rd</sup> percentile.	<b>20 city mean monthly wind speed/Normal</b>	7.7 mph/9.5 mph; calmest of record (since 1936). 1 <sup>st</sup> percentile.
<b>22 city mean monthly precipitation/Normal</b>	2.73"/2.41" - 113% of normal. 30 <sup>th</sup> wettest of record (since 1880). 78 <sup>th</sup> percentile.		

**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	1.92	122%	12	55	5.03	90%			20
Billings	5.22	210%	6	4	13.99	149%	5	3	117
Belgrade	1.93	78%	46	56	10.78	129%	7	8	81
Butte	3.07	148%	13	10	8.03	118%	36	28	124
Cut Bank	1.61	83%	59	52	7.56	163%	7	5	111
Dillon	1.31	68%	56	71	5.88	109%	21	26	78
Glasgow	1.47	77%	54	44	6.11	114%	45	38	118
Great Falls	3.52	145%	20	15	10.61	137%	17	13	126
Havre	1.31	75%	73	52	8.21	160%	16	11	138
Helena	3.26	174%	14	9	10.81	191%	5	3	139
Jordan	3.25	142%	6	26	9.27	156%			20
Kalispell	1.42	72%	64	51	11.74	111%	32	25	124
Lewistown	5.10	179%	12	9	11.57	132%	22	17	122
Livingston	3.45	130%	26	22	12.40	144%	9	7	113
Miles City	4.19	192%	16	11	9.88	157%	17	11	141
Missoula	2.36	117%	32	22	11.66	134%	20	14	137
Mullan Pass	2.94	110%	25	31	49.53	158%	2	1	77
Wolf Point	2.08	117%	11	53	4.98	96%			20
Glendive	2.23	100%	45	36	6.79	102%	46	38	118
Sidney	2.03	100%	31	38	6.78	103%	32	40	78
BZN-MSU	3.26	103%	48	33	17.31	141%	6	4	139
W Yellowstone	3.20	143%	16	14	18.51	122%	17	17	95

Rankings and Percentiles are 1=driest, higher numbers=wetter.

For an automated version of this chart, updated daily, go to

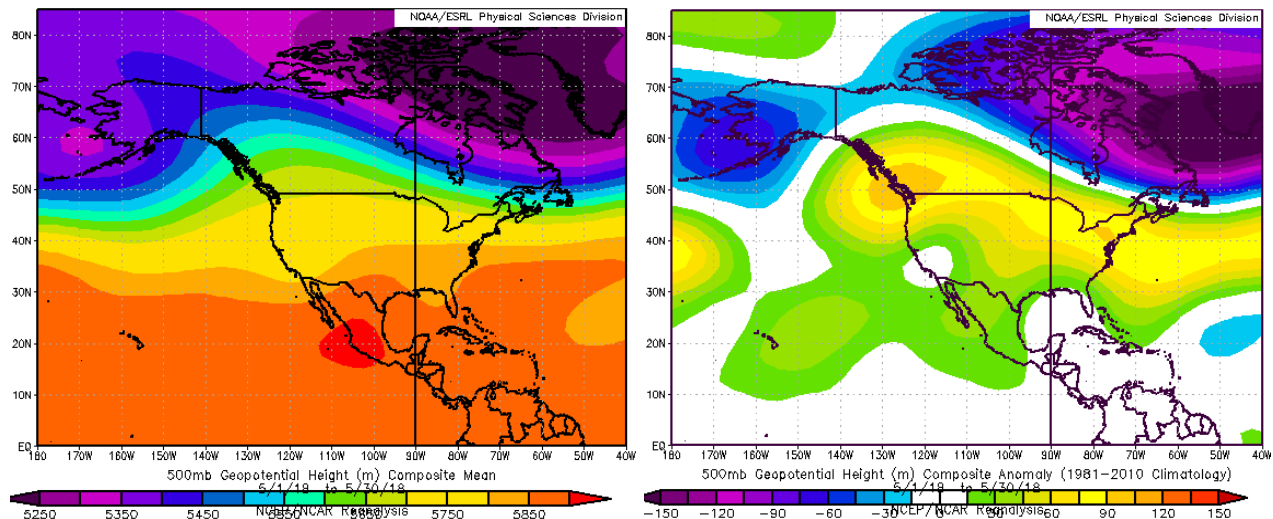
<http://www.wrh.noaa.gov/tfx/dx.php?wfo=tfx&type=&loc=products&fx=PCPNTOTALS>

**Historical Rank of Average Temperature (°F)  
for the Current Month and Water Year to Date**

Location	May	Normal	Rank	Pcntl	Oct 1 – May 31	Normal	Rank	Pcntl	Years
Baker	58.2	51.4	14	12	29.6	32.8	85	81	105
Billings	59.7	55.6	10	11	35.8	38.4	64	76	84
Belgrade	55.3	51.4	6	6	31.5	33.3	57	68	83
Butte	52.5	47.6	8	6	30.5	30.7	71	57	123
Cut Bank	55.3	49.9	6	5	29.4	33.0	90	82	109
Dillon	53.4	50.3	9	11	32.5	33.7	57	77	74
Glasgow	62.7	55.1	4	3	28.6	31.9	86	70	122
Great Falls	58.1	51.7	7	5	33.0	35.6	109	90	121
Havre	59.9	54.0	8	5	28.0	33.1	126	91	138
Helena	57.8	54.0	7	4	33.3	35.7	93	67	138
Jordan	59.7	52.7	13	12	29.6	32.9	84	88	95
Kalispell	57.4	51.8	4	3	34.3	34.8	28	23	117
Lewistown	54.7	50.0	11	8	31.7	34.1	94	82	115
Livingston	55.6	50.6	15	12	36.1	36.2	74	65	113
Miles City	61.0	55.9	17	12	31.4	34.9	112	82	136
Missoula	58.4	53.5	8	6	36.6	37.0	47	37	125
Mullan Pass	48.6	42.0	1	1	30.3	29.3	9	20	41
Wolf Point	61.4	54.2			28.2	30.6			20
Glendive	62.3	57.2	13	10	32.7	35.4	76	64	119
Sidney	61.0	58.0	7	7	29.9	34.6	30	31	95
W Yellowst	47.3	43.7	13	14	25.7	24.6	39	43	91

**Historical Rank of Average Wind Speed (mph)  
for the Current Month and Water Year to Date**

Location	May	Normal	Rank	Pcntl	Oct 1 – May 31	Normal	Rank	Pcntl	Years
Baker	9.8	12.4			11.3	11.3			20
Billings	9.0	9.9	79	94	11.4	11.3	57	69	82
Belgrade	5.7	6.8	52	98	5.5	5.7	34	63	53
Butte	5.8	8.0	59	107	5.1	6.4	50	92	54
Cut Bank	11.0	12.9	65	86	13.4	13.5	42	55	76
Dillon	8.7	9.3	47	72	9.6	9.5	37	57	64
Glasgow	9.6	11.9	34	45	10.2	10.4	47	64	73
Great Falls	9.3	11.2	69	89	12.3	13.0	58	73	79
Havre	8.9	9.9	82	63	10.8	9.4	13	9	129
Helena	6.6	8.2	138	100	6.1	6.9	132	96	138
Jordan	7.8	9.7	32	94	8.4	8.0	12	33	34
Kalispell	6.3	6.8	96	80	5.8	5.4	108	91	119
Lewistown	7.5	9.4	72	95	9.7	9.8	49	64	76
Livingston	10.3	11.8	47	88	16.3	15.9	30	58	51
Miles City	8.3	11.6	87	68	9.4	10.3	67	52	127
Missoula	5.2	6.8	78	94	4.9	5.3	65	78	83
Mullan Pass	4.2	5.4	27	93	5.4	5.8	23	85	27
Wolf Point	7.5	9.6			8.2	8.2			20
Glendive	8.0	11.6			10.2	10.5			26
Sidney	7.7	10.5			9.4	9.4			29
W Yellow	4.2	6.0			5.9	6.6			4



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

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 NEIC. Therefore, these data are subject to revision. Final and certified climate data can be access at the National Environmental Information Center (NEIC) <http://www.ncei.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=txf>. 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.