## Montana Weather/Precipitation Summary

June 2020 NOAA's National Weather Service Great Falls Montana
West to southwest flow aloft dominated for much of June over Montana, which was close to normal (Fig. 1). June's average temperatures were a little below normal west and a little above normal in the southeast. Precipitation amounts were mostly below normal, with areas of above normal in the west and swaths in the east. Winds averaged above normal.

June temperature anomalies ranged from $1.9^{\circ} \mathrm{F}$ below normal at West Yellowstone to $3.1^{\circ} \mathrm{F}$ above normal at Jordan. The map below shows the variation. The warmest average temperatures were in southeast Montana. The warmest average temperature was at Broadus, with an average of $69.4^{\circ} \mathrm{F}$, while the coolest was $42.2^{\circ} \mathrm{F}$ at Point Six (Missoula). The highest temperature was $102^{\circ} \mathrm{F}$ at Brandenberg on the $13^{\text {th }}$. The coldest temperature was $21^{\circ} \mathrm{F}$ at Yellow Mule (Gallatin) on the $8^{\mathrm{th}}$. The statewide temperature average of $60.5^{\circ} \mathrm{F}$ was the $65^{\text {th }}$ coolest of record. The red line on the graph shows the cumulative 12 -month departure from normal, which was $0.1^{\circ} \mathrm{F}$ below normal. See the state summary and temperature tables below for more details.



## Temperature departure from normal




## Percent of normal precipitation

Precipitation was heaviest over the portions of western Montana. The highest amount (9.40inches) fell at Darkhorse Lake SNOTEL. A location near Anaconda recorded the most at a lower elevation location ( $6.05^{\prime \prime}$ ). The statewide composite of 2.90 -inches was 0.40 " above normal. This ranks as the $58^{\text {th }}$ wettest June of record for Montana, and wettest since 2018. The green line on the precipitation graph shows the cumulative 12 -month departure from normal, which is $2.08^{\prime \prime}$ above normal. See state summary and precipitation tables below for more details. Snow did fall on a couple of days. In the Butte area, up to 16 -inches fell on the $8^{\text {th }}$, while an event later in the month ( $17^{\text {th }}-18^{\text {th }}$ ) brought up to 17 -inches to the mountains of southwest Montana.

Wind speed averages were near normal. Statewide, the month ranked as the $33^{\text {rd }}$ windiest June, with an average speed of $8.9-\mathrm{mph}$. The strongest averages were in along the Rocky Mountain Front. The composite statewide average was $0.1-\mathrm{mph}$ above 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 at normal.

Statewide soil moisture averages continued above normal for May (right). This data is from 33 NRCS SCAN and SNOTEL, NOAA CRN and MT Mesonet stations. For June, this was the second wettest of record. June 2011 was wetter. The record began in
 1995.

Refer to NCEI's State of the Climate report for the latest monthly discussion: http://www.ncdc.noaa.gov/sotc/

June began with temperatures a little above normal.
 Severe thunderstorms swept over the east on the $4^{\text {th }}$ and again on the $6^{\text {th }}$. Gusts reached 77 mph at Saint Marie from a thunderstorm on the $6^{\text {th }}$. Thunderstorms also produced a gust to 57 mph , which was their strongest June gust since 2000. This second event ushered in a period of cooler air and precipitation. Snow fell over portions of the west, with up to 19 inches at Albro Lake, 16 -inches at higher elevations near Georgetown. The Butte area received nearly 14 -inches, with 8 -inches at Deer Lodge. Precipitation amounts ranged as high as two inches over portions of central and western Montana. On the $9^{\text {th }}$, Bozeman set a new record low temperature, dropping to $33^{\circ} \mathrm{F}$. Warmer air returned with high temperatures in the 90 s on the $12^{\text {th }}$ and $13^{\text {th }}$. Brandenberg reached $102^{\circ} \mathrm{F}$ on the $13^{\text {th }}$, the state's highest temperature for the month. A cold front swept across the state on the $13^{\text {th }}$ bringing strong winds with many of the thunderstorms. The southwest had a sustained period of high winds. Gusts reached 63 mph at Butte and 71 mph near Radersburg. Another storm system brought cool air and heavy precipitation to the area again from the $16^{\text {th }}-19^{\text {th }}$. Darkhorse Lake SNOTEL reported 17-inches of snow, with one to two inches of rain over much of the southwest. Bozeman reached only $49^{\circ} \mathrm{F}$ on the $17^{\text {th }}$, tying their coolest maximum temperature for the day, and one of their coolest late-June high temperatures of record. Temperatures warmed rapidly again, with highs in the 90 s over much of eastern Montana on the $24^{\text {th }}$. Thunderstorms spread over western and central Montana, with gusts of 74 mph at Twin Bridges and $65-\mathrm{mph}$ at Floweree. Hail of 1.74 -inches fell at Kila with trees blown over from thunderstorm winds in the Eureka area. Temperatures cooled for the rest of the month as a large storm affected the state. This late June storm was unusual for Montana for the amount of precipitation so late in the spring season. With a combination of stratiform and thunderstorm precipitation, the highest amounts from the $27^{\text {th }}-30^{\text {th }}$ were 4.40 -inches at Wood Creek and 4.1 -inches near Roundup. The port of Raymond reported 3.5 -inches, with 2.70 -inches in the mountains of Granite County. Thunderstorm winds reached $63-\mathrm{mph}$ in Havre on the $27^{\text {th }}$. The largest hail of the month fell on the $29^{\text {th }}$, with 2.5 -inch hail at Hodges (Dawson). The cold air pushed low temperatures to near freezing over portions of southwest Montana on the $30^{\text {th }}$.

## Precipitation/convection

Severe convective weather occurred on eight days in June, which is 4 days below normal. This was the lowest number of days in June since 1998. On the $6{ }^{\text {th }}$, thunderstorm gusts reached 77 mph at Saint Marie. Ekalaka had 1.75 -inch hail on the $7^{\text {th }}$. On the $13^{\text {th }}, 1.5$-inch hail fell near Browning and Chester, and gusts of 71 mph occurred near Wibaux. Hail to 1.5 -inches fell near Power and 1.75 -inches near Kila on the $24^{\text {th }}$, with thunderstorm gusts of $65-\mathrm{mph}$ near Floweree. Trees were blown over in the Eureka area. Thunderstorm dropped hail to 2.5 -inches in the Hodges area (Dawson) on the $29^{\text {th }}$.

## Water-year-to-Date (Oct-May)

The water-year average temperature for Montana was $33.3^{\circ} \mathrm{F}$, which was $0.1^{\circ} \mathrm{F}$ below normal. This was the $67^{\text {th }}$ coolest of record.
This season's composite precipitation was 7.65 -inches, 0.95 -inches below normal. This was the driest such period since 2002 and the $39^{\text {th }}$ driest of record.
Seasonal snowfall (Jul-May) was 62.9 -inches and 6.1 -inches above normal. This was the $28^{\text {th }}$ highest amount for the season and snowiest since 2017-18.
Winds averaged $9.3-\mathrm{mph}$, which was $0.1-\mathrm{mph}$ above normal. This was the $29^{\text {th }}$ calmest such period, but windiest since 2013.

## Spring Season (Mar-May)

The average temperature for Montana was $41.4^{\circ} \mathrm{F}$, which was $1.3^{\circ} \mathrm{F}$ below normal. This was the $51^{\text {st }}$ coolest spring season of record.
This year's composite precipitation was 3.69 -inches, which was 0.89 -inches below normal. This was the driest such period since 2001 and the $41^{\text {st }}$ driest of record.
The season's snowfall averaged 16.1 -inches, which was $0.2^{\prime \prime}$ below normal. This was the $51^{\text {st }}$ snowiest of record.
Winds averaged $9.7-\mathrm{mph}$, which was $0.1-\mathrm{mph}$ above normal. This was the $36^{\text {th }}$ calmest such period, but windiest since 2012.

## June information:

| High Temperature | $102^{\circ} \mathrm{F}$ at Brandenberg $\left(13^{\text {th }}\right)$ | Greatest Precip | 6.05" near Anaconda |
| :---: | :---: | :---: | :---: |
| Low Temperature | $21^{\circ} \mathrm{F}$ at Yellow Mule ( $8^{\text {th }}$ ) |  | 9.40" at Darkhorse Lake SNOTEL |
| Warmest Ave Temp | $69.4{ }^{\circ} \mathrm{F}$ at Broadus | Peak Wind Gust | 77 mph at Saint Marie ( $6^{\text {th }}$ ) (tstm) |
| Coolest Ave Temp | $42.2^{\circ} \mathrm{F}$ at Point Six RAWS |  | 77 mph at Deep Creek RAWS ( $13^{\text {th }}$ ) |
| Range of Temp departures | $-1.6^{\circ} \mathrm{F}$ at West Yellowstone to +3.1 F at Jordan | Highest Ave Wind | 16.8 mph at Deep Creek RAWS <br> 13.6 mph at Cut Bank |
| 21 city mean monthly Temperature/Normal | 60.5/60.3F normal. $67^{\text {th }}$ coolest of record (since 1880). $46^{\text {th }}$ percentile. | 20 city mean monthly wind speed/Normal | $8.9 \mathrm{mph} / 8.8 \mathrm{mph}$; <br> $33^{\text {rd }}$ windiest of record (since <br> 1936). <br> $40^{\text {th }}$ percentile. |
| 22 city mean monthly precipitation/Normal | 2.90"/2.40" - 121\% of normal. $58^{\text {th }}$ wettest of record (since 1880). $59^{\text {th }}$ percentile. |  |  |

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

| Location | Jun | Norm of <br> Norm | Rank | Pcntl | Oct 1- <br> Jun | \% of <br> norm | Rank | Pcntl | Years |
| :--- | ---: | ---: | :---: | :---: | ---: | ---: | ---: | ---: | ---: |
| Baker | 1.45 | $53 \%$ |  |  | 6.87 | $69 \%$ |  |  | 22 |
| Billings | 4.35 | $205 \%$ | 14 | 11 | 9.74 | $95 \%$ | 57 | 47 | 119 |
| Belgrade | 3.30 | $136 \%$ | 20 | 23 | 8.65 | $82 \%$ | 65 | 78 | 83 |
| Butte | 4.41 | $195 \%$ | 10 | 7 | 8.15 | $90 \%$ | 71 | 56 | 126 |
| Cut Bank | 2.65 | $104 \%$ | 52 | 45 | 8.46 | $118 \%$ | 42 | 37 | 112 |
| Dillon | 2.10 | $107 \%$ | 29 | 35 | 4.50 | $61 \%$ | 77 | 96 | 80 |
| Glasgow | 2.17 | $93 \%$ | 68 | 55 | 8.89 | $115 \%$ | 53 | 44 | 120 |
| Great Falls | 4.73 | $187 \%$ | 18 | 13 | 12.87 | $125 \%$ | 30 | 23 | 128 |
| Havre | 2.64 | $121 \%$ | 58 | 41 | 7.81 | $107 \%$ | 79 | 56 | 140 |
| Helena | 3.15 | $153 \%$ | 31 | 21 | 8.54 | $110 \%$ | 67 | 47 | 141 |
| Jordan | 3.20 | $129 \%$ |  |  | 8.93 | $106 \%$ |  |  | 22 |
| Kalispell | 4.40 | $172 \%$ | 7 | 5 | 14.23 | $108 \%$ | 37 | 29 | 126 |
| Lewistown | 3.64 | $118 \%$ | 53 | 42 | 12.58 | $106 \%$ | 61 | 49 | 124 |
| Livingston | 2.33 | $97 \%$ | 49 | 41 | 8.66 | $79 \%$ | 87 | 75 | 115 |
| Miles City | 1.98 | $79 \%$ | 92 | 64 | 7.81 | $89 \%$ | 101 | 70 | 143 |
| Missoula | 2.53 | $118 \%$ | 45 | 31 | 11.18 | $103 \%$ | 56 | 40 | 138 |
| Mullan Pass | 2.63 | $101 \%$ | 39 | 47 | 36.13 | $107 \%$ | 27 | 33 | 79 |
| Wolf Point | 3.14 | $116 \%$ |  |  | 5.57 | $70 \%$ |  |  | 22 |
| Glendive | 1.80 | $75 \%$ | 95 | 76 | 7.70 | $85 \%$ | 82 | 69 | 118 |
| Sidney | 0.83 | $30 \%$ | 78 | 96 | 5.13 | $55 \%$ | 72 | 90 | 80 |
| BZN-MSU | 3.56 | $114 \%$ | 43 | 29 | 13.24 | $86 \%$ | 86 | 60 | 142 |
| W Yellowstone | 2.86 | $132 \%$ | 29 | 26 | 16.67 | $96 \%$ | 55 | 57 | 95 |

Rankings and Percentiles are $1=$ wettest, higher numbers=drier.
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 ( ${ }^{\circ} \mathrm{F}$ ) for the Current Month and Water Year to Date

| Location | Jun | Normal | Rank | PcntI | Oct 1 <br> Jun | Normal | Rank | Pcntı | Years |
| :--- | :--- | :--- | :--- | :--- | ---: | ---: | ---: | ---: | ---: |
| Baker | 64.7 | 59.1 | 37 | 34 | 35.9 | 35.7 | 50 | 47 | 106 |
| Billings | 65.4 | 64.7 | 30 | 34 | 41.0 | 41.4 | 43 | 49 | 86 |
| Belgrade | 58.7 | 59.1 | 41 | 48 | 36.4 | 36.1 | 33 | 38 | 85 |
| Butte | 55.0 | 55.7 | 68 | 53 | 33.7 | 33.5 | 63 | 50 | 126 |
| Cut Bank | 58.3 | 57.8 | 40 | 35 | 34.3 | 35.8 | 67 | 60 | 111 |
| Dillon | 56.6 | 58.1 | 52 | 67 | 35.0 | 36.4 | 61 | 80 | 76 |
| Glasgow | 65.9 | 64.0 | 30 | 24 | 36.4 | 35.4 | 34 | 27 | 124 |
| Great Falls | 60.2 | 59.8 | 74 | 58 | 37.6 | 38.3 | 84 | 68 | 123 |
| Havre | 63.4 | 62.2 | 48 | 34 | 35.8 | 36.4 | 67 | 47 | 140 |
| Helena | 61.8 | 62.1 | 44 | 31 | 39.5 | 38.7 | 21 | 14 | 140 |
| Jordan | 65.6 | 62.5 | 32 | 31 | 38.6 | 36.1 | 24 | 24 | 97 |
| Kalispell | 58.6 | 58.3 | 53 | 43 | 38.2 | 37.4 | 34 | 28 | 119 |
| Lewistown | 58.3 | 58.1 | 55 | 44 | 35.7 | 36.7 | 71 | 60 | 117 |
| Livingston | 59.9 | 58.7 | 50 | 42 | 39.6 | 38.7 | 54 | 46 | 115 |
| Miles City | 66.4 | 65.6 | 62 | 44 | 38.4 | 38.3 | 60 | 43 | 138 |
| Missoula | 59.9 | 60.9 | 59 | 46 | 39.7 | 39.7 | 30 | 23 | 126 |
| Mullan Pass | 49.3 | 49.7 | 19 | 43 | 31.4 | 31.6 | 23 | 52 | 43 |
| Wolf Point | 64.4 | 63.3 |  |  | 35.1 | 34.2 |  |  | 22 |
| Glendive | 65.4 | 66.5 | 74 | 59 | 38.2 | 38.8 | 52 | 43 | 120 |
| Sidney | 63.2 | 66.1 | 57 | 59 | 35.5 | 38.1 | 35 | 37 | 97 |
| W Yellowstone | 50.3 | 51.8 | 60 | 61 | 27.5 | 27.6 | 65 | 70 | 93 |

Rankings and Percentiles are $1=$ coldest, higher numbers=warmer.

| Historical Rank of Average Wind Speed (mph) for the Current Month and Water Year to Date |  |  |  |  |  |  |  |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| Location | Jun | Normal | Rank | Pent | $\begin{gathered} \text { Oct } 1- \\ \text { Jun } \end{gathered}$ | Normal | Rank | Pent | Years |
| Baker | 11.3 | 11.6 |  |  | 11.1 | 11.3 |  |  | 22 |
| Billings | 9.4 | 9.3 | 58 | 67 | 11.8 | 11.1 | 31 | 36 | 84 |
| Belgrade | 5.9 | 6.2 | 37 | 65 | 5.8 | 5.8 | 29 | 52 | 55 |
| Butte | 6.2 | 7.6 | 47 | 82 | 5.5 | 6.5 | 42 | 75 | 56 |
| Cut Bank | 13.6 | 12.2 | 16 | 20 | 14.6 | 13.3 | 12 | 14 | 78 |
| Dillon | 9.4 | 8.4 | 14 | 19 | 10.2 | 9.4 | 16 | 23 | 66 |
| Glasgow | 10.8 | 10.9 | 21 | 27 | 10.5 | 10.5 | 40 | 53 | 75 |
| Great Falls | 10.7 | 10.6 | 41 | 49 | 12.7 | 12.8 | 44 | 53 | 82 |
| Havre | 11.0 | 9.0 | 8 | 5 | 11.0 | 9.3 | 6 | 4 | 131 |
| Helena | 7.8 | 7.9 | 103 | 73 | 7.2 | 7.0 | 101 | 72 | 140 |
| Jordan | 9.3 | 8.8 | 13 | 34 | 8.8 | 8.1 | 7 | 17 | 36 |
| Kalispell | 6.3 | 6.2 | 67 | 55 | 5.8 | 5.5 | 110 | 91 | 121 |
| Lewistown | 8.5 | 8.6 | 47 | 60 | 10.0 | 9.7 | 31 | 39 | 78 |
| Livingston | 11.0 | 10.4 | 32 | 56 | 16.6 | 15.3 | 19 | 35 | 53 |
| Miles City | 10.0 | 10.2 | 43 | 33 | 10.0 | 10.3 | 47 | 36 | 129 |
| Missoula | 5.8 | 6.8 | 74 | 87 | 4.9 | 5.5 | 71 | 83 | 85 |
| Mullan Pass | 4.7 | 5.4 | 22 | 70 | 5.0 | 5.8 | 27 | 93 | 29 |
| Wolf Point | 8.1 | 8.5 |  |  | 8.1 | 8.2 |  |  | 22 |
| Glendive | 10.2 | 10.3 | 16 | 57 | 10.0 | 10.4 | 21 | 75 | 28 |
| Sidney | 9.9 | 8.9 | 5 | 14 | 9.0 | 9.3 | 23 | 74 | 31 |
| W Yellowstone | 7.1 | 6.7 |  |  | 6.4 | 6.6 |  |  | 6 |

Rankings and Percentiles are 1=windiest, higher numbers=calmer.

Figure 1. Mean flow at 500 millibars ( $\sim 18,000 \mathrm{ft}$ ) for this month (left) and climatology for the month (right) (from NOAA/ESRL Physical Sciences Division).




For the latest information on mountain snowpack from the NRCS, go to: https://www.wcc.nrcs.usda.gov/gis/snow.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/

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[^0]:    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=tfx. 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.

