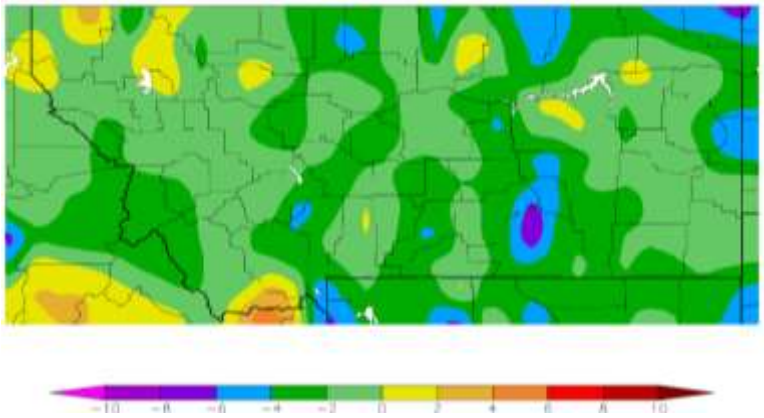
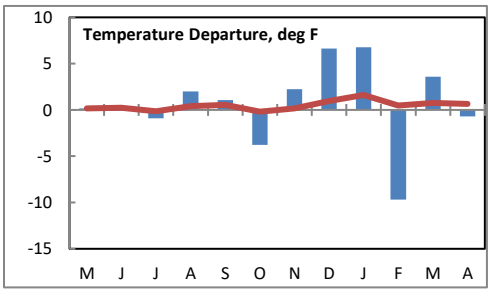
Montana Weather/Precipitation Summary

April 2021 NOAA's National Weather Service Great Falls Montana

Upper level flow was from the northwest during April (Fig. 1). Typically a weak ridge of high pressure dominates during April. In Montana temperatures averaged below normal and with precipitation largely below normal. Generally, winds averaged below normal speeds, except along the Rocky Mountain Front.

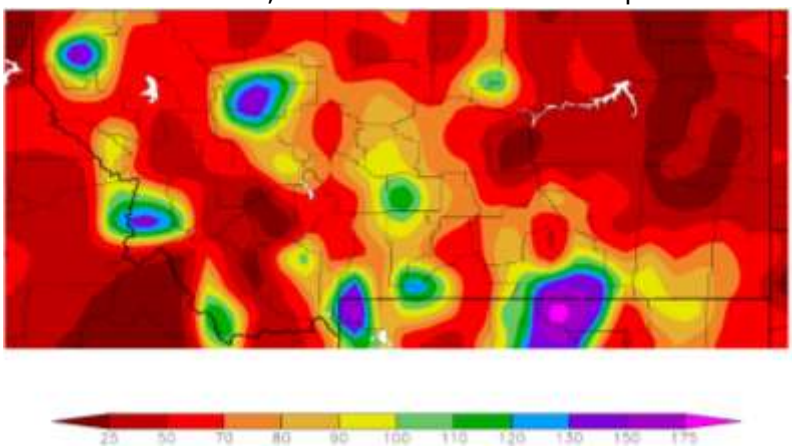
April temperature anomalies ranged from 3.5°F below normal at Sidney to 1.5°F above normal at Mullan Pass. The map below shows the variation in departures. The warmest average temperatures were in central and northeast Montana. The warmest average temperature of 47.1°F was at Thompson Falls, while the coolest was 25.9°F at Yellow Mule (Gallatin). The highest temperature was 90°F at Wibaux on the 30th. This was the warmest April temperature in Montana since 2012, and earliest 90°F in the season since 2012. The median first date is May 18. The coldest temperature was -13°F at Placer Basin on the 21st. This range of 103°F is above the April average range of 95°F. The statewide temperature average of 41.6°F was 0.7°F below normal and the 46th coolest. The red line on the graph shows the cumulative 12-month departure from normal, which was right at normal. See the state summary and temperature tables below for more details.

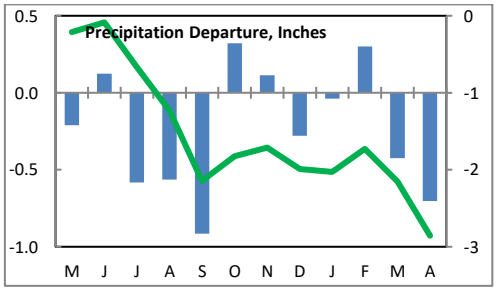




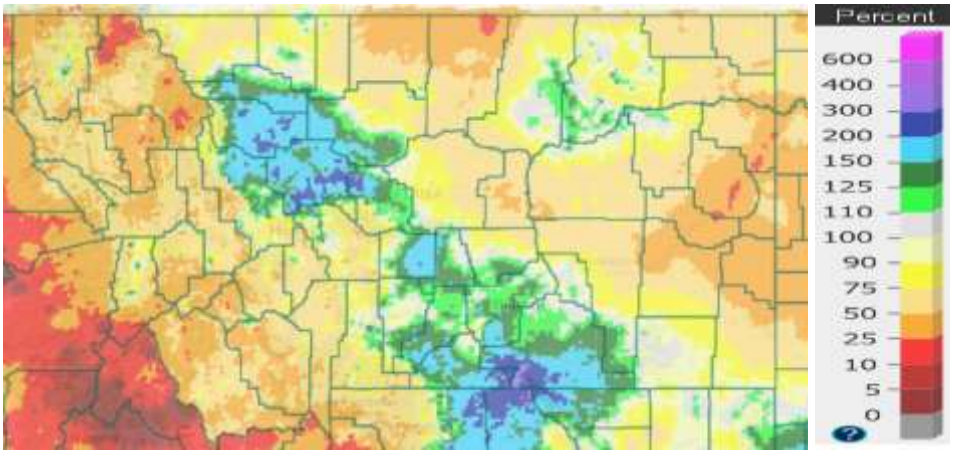
Temperature departure from normal (HPRCC)

Precipitation was heaviest the northern Rocky Mountain Front and scattered areas in south central Montana. Most other areas were very dry. The highest amount (4.90-inches) fell at North Fork Jocko SNOTEL (Missoula), with the highest amount at a lower elevation at Mystic Lake (3.02-in) (Stillwater). The month's statewide composite of 0.74" was 0.72" below normal. This ranks as the 20th driest April of record for Montana, and the driest since 1987. Portions of the northeast were very dry, recording a quarter of an inch or less. The green line on the precipitation graph (right) shows the cumulative 12-month departure from normal, which is now 2.87" below normal, and the driest 12-month period since 2001.





Precipitation percent of normal (gauge only)

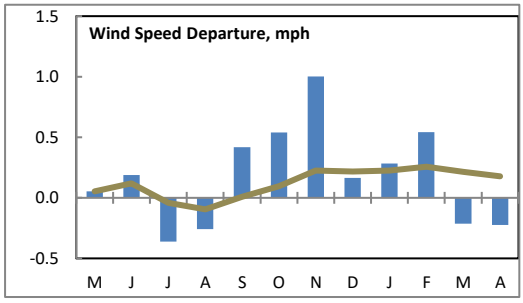


Precipitation percent of normal (gauge and radar)

The radar and gauge map above shows that the heavier than normal precipitation extended from south of Cut Bank southeast to the Big Horns in south central Montana. Much of the state was dry.

Snowfall was below normal as well. The statewide average of 3.0-inches was the 46th lowest for April and lowest since 2019. See state summary and precipitation tables below for more details.

Wind speed averages were generally near to slightly above normal. Statewide, the month ranked as the 19th calmest April, with an average speed of 9.5-mph, or 0.3-mph below normal. The strongest averages were along the Rocky Mountain Front and Livingston areas. The brown line of the wind graph to the right shows the 12-month cumulative statewide wind departure from normal. All but four of the past 12-months have had above normal wind speed averages.



As we approach the growing season, soil moisture values are above normal. At the end of April, the state soil moisture composite ranked third wettest (since 1995).

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

April was generally dry and mild. The month started with record high temperatures on the 1st and 4th. A record high of 77°F was observed at Billings on the 4th. Very dry air produced very low relative humidity values on the 1st and 3rd. Some of the notable recorded values are listed in the following table. A cold front on the 5th ushered in a colder period through the 27th, with occasions of snow. Up to 13-inches of snow fell at Beagle Springs (Beaverhead) on the 5th and 6th. Elsewhere 7-inches fell at West Yellowstone. Strong winds prevailed across the state on the 7th. Gusts reached 73-mph at Deep Creek RAWS (Glacier) and 71-mph at Sioux Pass (Richland). Meanwhile, heavy precipitation fell over higher elevations in south central Montana. Red Lodge recorded 8-inches of snow and Livingston reported 1.20-inches of precipitation. Colder air pushed low temperatures into single digits and even below zero from the 10th-12th. A low of -5°F was reported at Georgetown Lake on the 12th. Another storm brought heavy snow over northeast Montana on the 13th and 14th. Zortman reported 11-inches, while 7-inches fell at Vida (McCone) and Plentywood. A weather system moved through southwest Montana on the 18th and 19th. This produced 15-inches of snow near Wolf Creek and 6-inches at Brackett Creek SNOTEL (Gallatin).

After the snow ended, on the 21st the last sub-zero low temperature occurred in Montana. Placer Basin SNOTEL recorded a low of -13°F. This is 10-days later than the median date of April 11. Snow returned over southern Montana on the 21st with Red Lodge recording 21-inches of snow, and Melville (Sweet Grass) and near Molt (Yellowstone) reporting 9-inches of new snow. Cold air

after the snow caused a new record low of 14°F at Bozeman airport on the 22nd. Thunderstorms moved through southwest Montana on the 24th, with some pea-sized hail reported in Madison and Beaverhead Counties. This system also produced an inch of precipitation at Carrot Basin SNOTEL. The last day of the month was the warmest, with a temperature of 90°F recorded at Wibaux.

Table of low Relative Humidity values and possible records in early April

Location	Date	RH	Old record	Comments
Bozeman	1st	8.3%		Second earliest lowest relative humidity so early in the season. Record is 7% March 15, 1994.
Butte	3rd	8.9%		Second earliest lowest relative humidity so early in the season. Record is 8.7% March 31, 1994.
Cut Bank	1st	9.1%	8.4% - Apr 10, 1988	Earliest lowest relative humidity so early in the season.
Dillon	3rd	8.8%		Earliest lowest relative humidity so early in the season. 7.1% was recorded Apr 8, 2016.
Glasgow	1st	10.1%		Earliest lowest relative humidity so early in the season. 8.1% was recorded Apr 6, 1977.
Glendive	1st	11%	12.9% - May 13, 1985	Earliest and lowest relative humidity so early in the season.
Great Falls	1st	10%		Seventh lowest relative humidity so early in the season. 9.8% was recorded Mar 17, 1995 and 6.5% Mar 21, 1959.
Havre	1st	10.2%	10.4% - Mar 12, 2012	Earliest and lowest relative humidity so early in the season.
Helena	1st	6.5%	10% - Mar 20, 2010	Earliest and lowest relative humidity so early in the season. 12th lowest of record.
Jordan	1st	8.3%		Third lowest relative humidity so early in season. 7.9% was recorded Mar 24, 2008.
Lewistown	1st	6.3%		Second lowest relative humidity so early in season and sixth lowest of record. 5.9% was recorded Mar 30, 2004.
Livingston	1st	9.7%		Seventh lowest relative humidity so early in the season. 6.3% was recorded Mar 4, 2016.
Miles City	1st	8.5%		Second lowest relative humidity so early in the season. 5.9% was recorded Mar 24, 2008.
Sidney	3rd	10%	10.3% - Sept 7, 1994	Lowest of record. Records began 1991.
Wolf Point	1st	9.9%	10.4% - Mar 24, 2007	Lowest relative humidity so early in season and 12th lowest of record.

The highest daily temperatures in April occurred on eight days at Troy. Placer Basin SNOTEL had the state's lowest temperature on eight days. For the year through April, Alberton has been the state's warmest on 22 days and West Yellowstone has been coolest on 28 days.

Water Year-to-date

For the water-year through April, composite temperatures averaged 31.6°F, which was 0.8°F above normal. This has been the warmest water year since 2016. Precipitation tallied 5.90-inches, which was 0.72" above normal. The southwest continues dry with Dillon continuing to have their driest water-year of record. Statewide average snowfall since July has been 49.9-inches or 5.1-inches below normal. This is the lowest water-year value since 2016. Winds averaged 9.4-mph, which is 0.3-mph higher than normal. This was the highest average since 2014 and 28th lowest of record.

Calendar Year-to-date
The calendar year has produced a composite temperature average of 29.9°F, which was normal. Precipitation totaled 2.85-inches, which was 0.88" below normal and driest since 2013. For this period, Dillon has their driest of record, and driest since 2013 (23% of normal and 1.63-inches below normal. Snowfall averaged almost 9-inches below normal, at 23.6-inches. Winds averaged 9.3-mph, which is normal. This was the 22nd lowest of record.

Precipitation/convection
Severe convective weather occurred on zero days in April, which is normal.

April information:

High Temperature	90°F at Wibaux (30th)	**Greatest Precip**	3.02" at Mystic Lake (Stillwater)
Low Temperature	-13°F at Placer Basin (21st)		4.90" at NF Jocko SNOTEL (Missoula)
Warmest Ave Temp	47.1°F at Thompson Falls	**Peak Wind Gust**	71 mph at Sioux Pass (Richland) (7th)
Coolest Ave Temp	25.9°F at Yellow Mule (Gallatin)		73 mph at Deep Creek RAWS (7th)
Range of Temp departures	-3.3°F at Sidney to 1.5°F at Mullan Pass	**Highest Ave Wind**	22.7 mph at Deep Creek RAWS 19.1 mph at Livingston
21 city mean monthly Temperature/Nrml	41.6/42.3F normal. 46th coolest of record (since 1880). 33rd percentile.	**20 city mean monthly wind speed/Nrml**	9.5 mph/9.7 mph; 19th calmest of record (since 1936). 23rd percentile.
22 city mean monthly precipitation/Nrml	0.74"/1.46" – 51% of normal. 20th driest of record (since 1880). 15th percentile.	**20 city mean monthly snowfall/Nrml**	2.5"/9.0" – 7th lowest of record (since 1880). 5th percentile

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

Location	Apr	% of Norm	Rank	Pcntl	Oct 1 – Apr 30	% of norm	Rank	Pcntl	Years
Baker	0.51	37%	83	54	1.71	36%	93	99	94
Billings	1.25	73%	57	46	6.19	99%	50	41	120
Belgrade	0.99	59%	56	65	4.03	70%	73	87	84
Butte	0.44	33%	107	83	3.00	63%	98	77	127
Cut Bank	0.40	42%	89	77	4.12	135%	25	21	114
Dillon	0.24	20%	76	93	0.77	22%	81	100	81
Glasgow	0.58	57%	62	48	3.60	88%	63	52	121
Great Falls	1.10	64%	65	50	5.46	94%	68	52	129
Havre	0.45	45%	100	70	3.00	76%	116	82	141
Helena	1.00	98%	54	37	5.01	120%	57	40	142
Jordan	0.48	36%	74	73	2.14	47%	88	92	96
Kalispell	0.69	51%	88	69	9.28	103%	46	36	127
Lewistown	1.04	61%	73	58	4.21	69%	109	87	125
Livingston	1.24	73%	68	55	5.52	94%	67	56	118
Miles City	0.36	23%	120	83	2.26	54%	135	94	144
Missoula	0.45	33%	123	85	6.50	86%	80	57	140
Mullan Pass	1.95	59%	52	64	37.24	123%	15	17	82
Wolf Point	0.10	11%	65	67	1.18	42%	74	99	75
Glendive	0.18	12%	116	91	1.80	39%	120	98	123
Sidney	0.38	32%	64	78	1.76	38%	80	99	81
BZN-MSU	1.74	69%	78	53	7.94	83%	82	57	144
W Yellowstone	0.68	38%	94	84	13.01	96%	44	42	103

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 (°F) for the Current Month and Water Year to Date

Location	Apr	Normal	Rank	Pcntl	Oct 1 – Apr 30	Normal	Rank	Pcntl	Years
Baker	41.8	42.2	70	63	31.9	30.3	22	20	108
Billings	45.2	45.8	70	56	36.3	36.0	40	33	120
Belgrade	41.1	42.2	50	58	31.1	30.8	30	34	86
Butte	37.2	38.7	90	70	28.8	28.6	57	44	127
Cut Bank	40.1	40.2	63	55	30.8	30.2	41	36	112
Dillon	40.1	40.1	52	66	30.8	30.5	50	64	77
Glasgow	44.4	44.8	61	50	31.4	29.1	11	8	125
Great Falls	41.5	42.4	96	75	33.7	33.2	64	51	124
Havre	43.6	44.0	81	57	31.8	30.2	36	25	141
Helena	44.5	44.5	55	38	34.6	33.2	19	13	141
Jordan	43.8	43.7	62	60	32.4	30.6	24	24	98
Kalispell	43.4	42.7	60	49	33.5	32.1	29	23	121
Lewistown	39.9	40.9	79	63	31.6	31.7	58	48	119
Livingston	43.2	42.2	57	47	35.4	34.8	49	41	118
Miles City	44.3	45.5	95	67	33.1	32.1	44	31	139
Missoula	44.5	44.2	66	50	34.4	33.7	41	31	128
Mullan Pass	34.7	33.3	17	37	28.3	27.8	13	28	44
Wolf Point	42.6	44.1	48	63	29.6	28.1	19	25	72
Glendive	43.4	46.3	97	76	31.3	32.2	54	44	124
Sidney	42.3	45.6	67	68	30.2	30.4	30	31	98
W Yellowstone	31.4	34.1	76	67	21.9	22.8	77	69	111

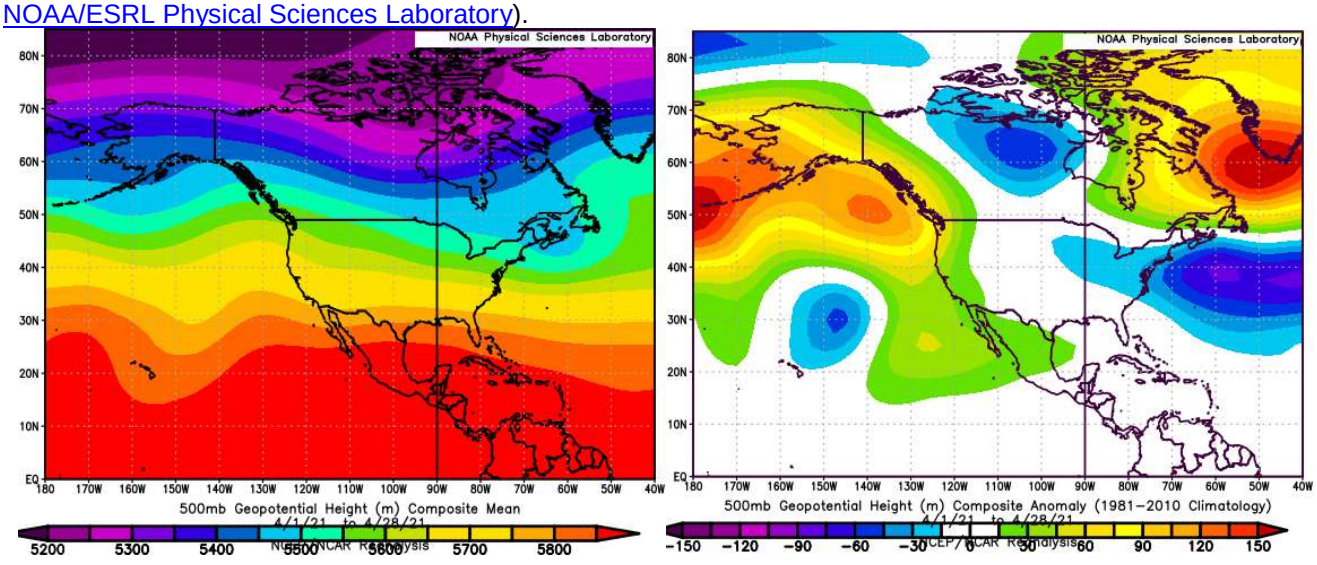
Rankings and Percentiles are 1=coldest, higher numbers=warmer.

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

Location	Apr	Normal	Rank	Pcntl	Oct 1 – Apr 30	Normal	Rank	Pcntl	Years
Baker	10.8	12.3	23	92	10.9	11.1	14	59	23
Billings	10.7	10.6	59	68	11.9	11.7	48	56	85
Belgrade	6.8	6.9	38	66	5.3	5.5	33	58	56
Butte	6.9	7.3	41	70	5.2	5.5	41	71	57
Cut Bank	13.3	13.7	44	57	14.7	14.2	29	36	79
Dillon	11.0	9.8	28	41	10.2	9.6	27	39	67
Glasgow	10.5	12.2	49	63	10.1	10.3	54	71	76
Great Falls	11.9	11.3	49	58	13.5	12.6	32	38	83
Havre	10.4	10.7	50	37	11.1	10.2	15	11	132
Helena	7.9	8.3	84	59	6.8	6.5	87	61	141
Jordan	9.5	9.5	16	42	8.7	8.0	5	11	37
Kalispell	7.1	6.8	48	39	5.3	4.9	105	86	122
Lewistown	8.4	9.9	74	95	10.1	10.0	50	63	79
Livingston	13.8	13.9	32	55	17.7	17.4	20	36	54
Miles City	10.3	11.3	68	52	9.7	10.1	57	43	130
Missoula	6.5	6.3	59	68	4.6	4.6	67	78	86
Mullan Pass	4.8	5.7	27	84	5.4	5.8	26	86	30
Wolf Point	8.6	9.9	23	100	7.7	8.0	19	82	23
Glendive	10.6	11.1	23	79	10.1	10.2	17	59	29
Sidney	9.3	10.0	23	71	9.2	9.1	14	44	32
W Yellowstone	M				M				6

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

Figure 1. Mean flow at 500 millibars (~18,000 ft) for this month (left) and climatology for the month (right) (from NOAA/ESRL Physical Sciences Laboratory).



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/

These data are preliminary and have not undergone final QC by NCEI. Therefore, these data are subject to revision. Final and certified climate data can be access at the National Centers for Environmental Information (NCEI) 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 1991-2020. 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.