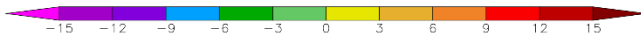
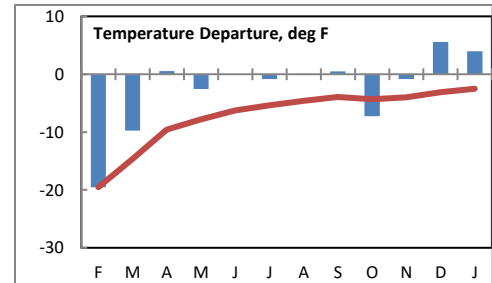
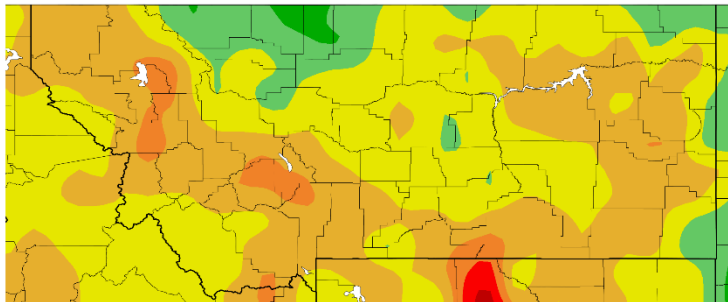


Montana Weather/Precipitation Summary

January 2020 NOAA's National Weather Service Great Falls Montana

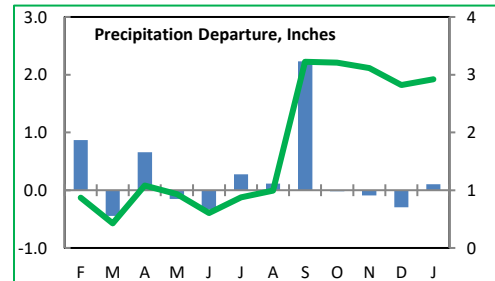
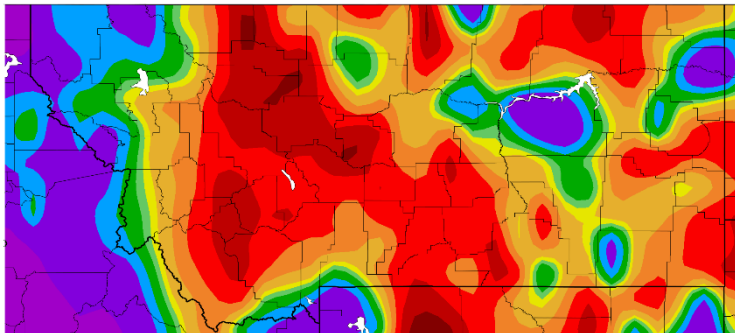
For January, the upper level flow over Montana was generally from the west. There was a weak ridge over the western United States, which brought the westerly flow to the state (Fig. 1). The flow is more typically from the northwest. January's average temperatures were near to above normal. Precipitation amounts were variable, with large areas of dry conditions over eastern Montana. Winds averaged near to below normal.

January temperature anomalies ranged from 0.9°F below normal at Cut Bank to 6.3°F above normal at Helena. The map below shows the variation. The warmest average temperatures were in west and south central Montana. The warmest average temperature was at Yellowtail Dam, with an average of 34.8°F, while the coolest was 10.4°F at Plentywood. The highest temperature was 60°F at Ingomar on the 4th. The coldest temperature was -36°F at Simpson (Hill) on the 15th. The absolute range of 96°F was below January's average of 104°F. The statewide temperature average of 24.4°F was the 27th warmest of record, and warmest average since 2014. The red line on the graph shows the cumulative 12-month departure from normal, which is 2.5°F below normal. See the state summary and temperature tables below for more details.



Temperature departure from normal

Precipitation was heaviest over the mountains of northwest Montana. The highest amount (15.30-inches) fell at Poorman Creek SNOTEL (Lincoln). Libby 28 SSW recorded the most at a lower elevation location (7.69"). The statewide composite of 0.87-inches was 0.10" above normal. This ranks as the 64th wettest January of record for Montana. The green line on the precipitation graph shows the cumulative 12-month departure from normal, which is 2.92" above normal. See state summary and precipitation tables below for more details. Snowfall was relatively light – especially in the east. The heaviest monthly snowfall was 56.8-inches at West Glacier.



Percent of normal precipitation

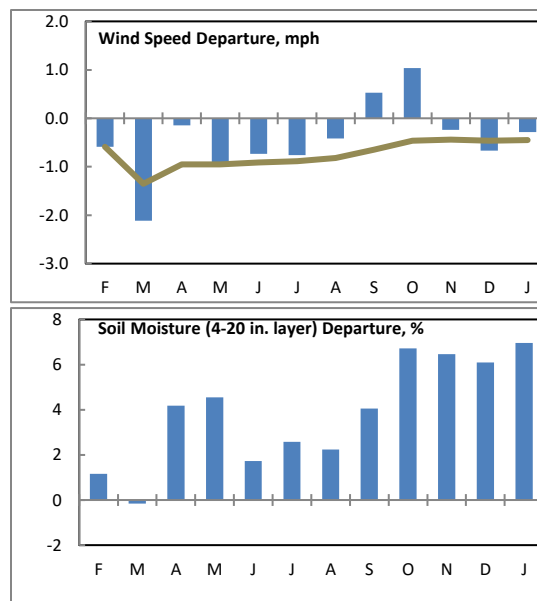
Wind speed averages were near to below normal. Statewide, the month ranked as the 25th calmest January, with an average speed of 8.9-mph. The strongest averages were in along the

Rocky Mountain Front and Livingston areas. The composite statewide average was 0.3-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 0.4-mph below normal.

Statewide soil moisture averages continued above normal for January (right). This data is from 33 NRCS SCAN and SNOTEL, NOAA CRN and MT Mesonet stations. For January, this was the wettest of record, replacing 2018. 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/>



The first week of January had above normal temperatures. Precipitation from December 31 continued over western and higher elevations of central Montana on the 1st. One and one-half to two inches of precipitation fell over higher elevations in western Montana. Six to 12 inches of snow fell over higher elevations of southwest and north central Montana. Windy conditions across the eastern portion of the state produced gusts to 66 mph at Glasgow and 68 mph in eastern Dawson County on the 2nd. Winds spread over most of the state on the 4th. Gusts over 70 mph were reported at Hornet Mountain (73 mph) (Flathead), Deep Creek (78), Cut Bank (76), Fort Belknap (74) and near Emigrant (72 mph) (Park). On the 6th, heavy snow fell over western Montana. Lookout Pass reported 21-inches, Polebridge 18-inches, Seeley Lake 14-inches, and 10 inches at Heron. Some heavy snow fell over central Montana on the 8th, with 12-inches at Kings Hill and 10-inches at Lincoln. Heavy snow fell over western Montana again on the 12th, with a foot reported at Martin City and Lookout Pass, and 9-inches at Marias Pass. Another 10" fell at Marias Pass on the 15th. Cold air settled over the state from the 13th through 18th. Wind chill values as low as -48°F were felt at Glentana and Comertown on the 18th. They were as low as -41°F at Sweet Grass and Havre. Milder conditions prevailed for the rest of the month. Some freezing rain was reported in the Missoula area on the 25th. Very strong winds set in on the 31st, and continued on February 1. Gusts on the 31st reached 97 mph at Deep Creek RAWs and 91 mph at Babb. On February 1st, even stronger gusts of 106 mph were reported at Deep Creek and many gusts over 80 mph were reported from Livingston through the northern Rocky Mountain front. More will be reported on this in the February summary.

Precipitation/convection

Severe convective weather occurred on zero days in January, which is normal.

New Snowfall Records established this season...

Although December and January have had little additional snowfall, several locations have exceeded their seasonal average snowfall. Snowfall in September, October and November was heavy. Following is a table showing several sites with their snowfall through January, along with their seasonal normal snowfall. If they have already exceeded their seasonal normal, it is denoted with an *.

Location	Current Season Snow	Normal for whole season	Record for season (inches)
Bozeman	21.2"	40.2"	97.8 (1947-48)
Bozeman MSU	44.3	91.0"	158.5 (1996-97)
Chinook	30.0	31.2"	66.0 (2010-11)
Choteau*	70.7*	39.8"	92.9 (2017-18)
Cut Bank*	67.2*	33.6"	76.2 (1946-47)
Dillon	36.4	37.9"	90.8 (1988-89)
East Glacier	174.8	176.6"	319.0 (1971-72)
Gold Butte	53.0	82.5"	130.0 (2010-11)
Great Falls	63.5*	63.5"	117.5 (1988-89)
Havre	47.4*	39.5"	93.3 (1981-82)
Helena	20.7	38.1"	112.8 (1880-81)
Lewistown	43.6	63.1"	111.1 (1927-28)
W Yellowstone	87.3	162.7"	316.6 (1994-95)

Water-year-to-Date (Oct-Jan)

The water-year average temperature for Montana was 29.2°F and 0.4°F above normal. This was the 68th warmest coolest of record.

This season's composite precipitation was 3.16-inches and 0.30-inches below normal. This was the driest such period since 2005 and the 44th driest of record.

Seasonal snowfall was 42.6-inches and 6.2-inches above normal. This was the 31st highest amount for the season and snowiest since 2018.

Winds averaged 8.9-mph, which was 0.1-mph below normal. This was the 19th calmest such period, but windiest since 2018.

January information:

High Temperature	60°F near Ingomar (4 th)	Greatest Precip	7.69" near Libby
Low Temperature	-36°F near Simpson (15 th)		15.30" at Poorman Creek SNOTEL (Lincoln)
Warmest Ave Temp	34.8°F at Yellowtail Dam	Peak Wind Gust	97 mph at Deep Creek RAWS and 91 mph at Babb (31 st)
Coollest Ave Temp	10.4°F at Plentywood (Sheridan)		
Range of Temp departures	-0.9°F at Cut Bank to +6.3°F at Helena	Highest Ave Wind	24.0 mph at Deep Creek RAWS 20.7 mph at Livingston
21 city mean monthly Temperature/Normal	24.4/20.5F normal. 27 th warmest of record (since 1880). 81 st percentile.	20 city mean monthly wind speed/Normal	8.9 mph/9.2 mph; 25 th calmest of record (since 1936). 31 st percentile.
22 city mean monthly precipitation/Normal	0.87"/0.76" – 114% of normal. 64 th wettest of record (since 1880). 54 th percentile.	20 city mean monthly snowfall/Normal	6.5"/11.1" 23 rd lowest of record.

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

Location	Jan	% of Norm	Rank	Pcntl	Oct 1 – Jan 31	% of norm	Rank	Pcntl	Years
Baker	0.20	61%			1.74	73%			22
Billings	0.22	46%	95	78	2.16	77%	79	66	119
Belgrade	0.19	39%	70	83	1.82	64%	72	87	83
Butte	0.09	19%	121	96	0.72	31%	113	90	126
Cut Bank	0.06	30%	93	81	2.34	195%	22	19	113
Dillon	0.01	4%	77	95	1.23	77%	52	65	80
Glasgow	0.29	78%	46	36	2.13	111%	51	41	122
Great Falls	0.07	14%	122	95	2.77	110%	68	53	128
Havre	0.36	109%	83	59	2.51	144%	52	37	140
Helena	0.10	28%	136	95	1.95	101%	99	70	141
Jordan	0.41	178%			2.65	147%			22
Kalispell	1.77	133%	37	29	4.62	87%	82	65	126
Lewistown	0.42	74%	92	73	3.07	100%	74	59	124
Livingston	0.26	53%	80	66	2.31	81%	85	72	117
Miles City	0.21	66%	103	72	0.68	35%	138	96	143
Missoula	0.80	94%	82	57	2.97	78%	109	78	140
Mullan Pass	9.84	175%	7	8	18.83	105%	41	51	79
Wolf Point	0.12	39%			0.95	52%			22
Glendive	0.19	53%	94	74	1.74	77%	72	59	122
Sidney	0.43	105%	29	35	1.75	68%	50	62	80
BZN MSU	0.58	70%	103	72	4.15	89%	78	54	143
W Yellowst	2.39	122%	37	33	6.35	78%	68	63	107

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	Jan	Normal	Rank	Pcntl	Oct 1 – Jan 31	Normal	Rank	Pcntl	Years
Baker	21.1	17.5	28	25	27.8	27.4	58	53	108
Billings	29.8	27.1	23	26	34.5	34.4	47	54	86
Belgrade	29.2	21.1	3	2	29.7	28.3	28	32	85
Butte	25.1	19.6	26	20	27.0	26.4	71	56	126
Cut Bank	21.2	22.1	53	47	27.1	29.4	79	71	111
Dillon	25.4	22.7	22	28	28.1	29.4	63	83	76
Glasgow	18.2	13.8	27	21	26.7	26.0	48	38	125
Great Falls	26.7	25.2	54	42	31.6	32.2	82	66	123
Havre	20.2	18.0	46	32	27.0	27.9	77	55	140
Helena	29.4	23.1	14	9	32.4	30.8	47	33	140
Jordan	22.4	17.2	31	29	29.3	27.6	43	42	100
Kalispell	28.8	23.8	13	10	31.7	30.1	46	38	121
Lewistown	26.5	23.6	31	25	29.9	30.7	80	67	119
Livingston	32.1	27.0	19	15	34.6	33.1	54	46	117
Miles City	22.9	19.5	38	26	30.2	29.6	64	46	138
Missoula	31.6	25.8	6	4	32.8	32.0	35	27	127
Mullan Pass	24.2	22.2	14	31	27.3	26.8	21	48	43
Wolf Point	17.0	11.9			25.6	24.6			22
Glendive	23.7	18.9	24	19	31.7	30.1	29	23	124
Sidney	19.0	17.3	27	28	26.6	28.8	52	54	97
W Yellowst	18.7	12.5	6	6	21.3	19.9	52	54	97

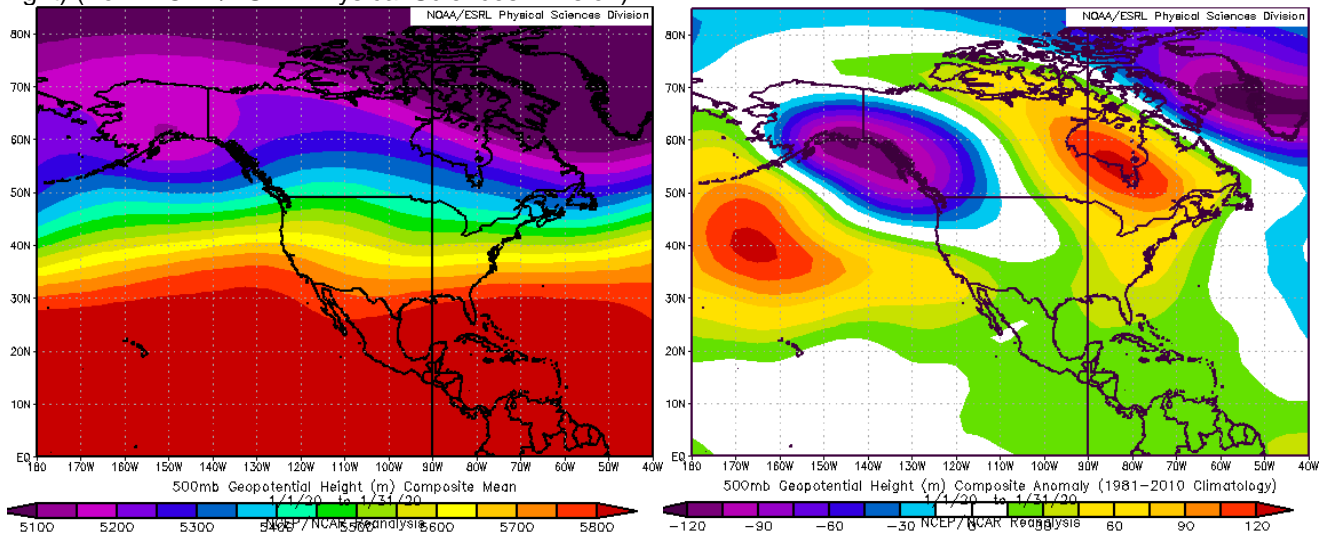
Rankings and Percentiles are 1=coldest, higher numbers=warmier.

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

Location	Jan	Normal	Rank	Pcntl	Oct 1 – Jan 31	Normal	Rank	Pcntl	Years
Baker	10.3	11.0			10.8	10.9			22
Billings	12.5	13.0	48	57	12.7	11.9	26	30	84
Belgrade	5.8	5.0	15	25	5.0	5.2	31	56	55
Butte	4.8	5.3	30	53	4.4	5.6	48	85	56
Cut Bank	13.7	14.4	47	61	14.6	13.9	25	31	78
Dillon	11.2	10.0	22	32	9.6	9.3	30	45	66
Glasgow	10.3	9.5	13	16	9.7	9.7	37	49	75
Great Falls	14.2	14.5	44	52	13.4	13.9	53	64	82
Havre	10.5	9.4	37	27	10.8	9.3	14	10	131
Helena	5.7	5.9	107	76	5.7	6.1	118	84	140
Jordan	7.1	7.3	21	59	7.9	7.4	14	37	36
Kalispell	4.7	4.6	75	62	4.4	4.5	113	93	121
Lewistown	10.2	10.4	44	57	9.9	10.0	45	57	78
Livingston	20.7	20.0	23	41	19.2	17.8	16	28	54
Miles City	9.2	9.6	46	36	9.6	9.7	40	30	129
Missoula	4.5	4.3	45	52	3.8	4.5	68	80	85
Mullan Pass	5.5	5.6	20	66	5.0	5.8	28	96	29
Wolf Point	7.3	7.5			7.6	7.4			22
Glendive	8.0	10.0	27	96	9.7	10.1	16	57	28
Sidney	5.0	9.4	33	100	8.13	9.1	28	90	31
W Yellowst	6.6	7.1			5.78	6.2			6

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

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

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.