

Montana Weather/Precipitation Summary

April 2010 by NOAA's National Weather Service Great Falls Montana

In April, temperatures were near normal across most of the state. Western portions tended a bit below average, while the east was a bit above normal. As a whole, precipitation was a little above normal, with some areas in central Montana receiving record amounts of precipitation and snowfall for the month. Areas of below normal precipitation were across the west and scattered in the southeast. A weak ridge of high pressure dominated central North America. Lower than normal 500 hPa heights persisted along the west coast of North America (Fig. 1). This contributed to the below normal temperatures over western Montana.

Apr 1-11

A storm that began March 31 continued on April 1 across southern Montana. Up to 17 inches of snow fell over the higher elevations of south central Montana. Placer Basin SNOTEL (Sweet Grass Co) reported 17 inches. Lower elevation reports included six to eight inches from Wyola through Red Lodge. After this system moved through, colder temperatures moved in. Placer Basin dropped to -8F on the morning of the 2nd. Another weather system moved across central Montana on the 3rd. Gusty winds to near 70 mph caused some damage to a chair lift at Showdown on the 3rd. On the sixth and seventh, yet another storm brushed southwest and southern Montana. Though higher elevations picked up the highest snow amounts, up to seven inches fell at Ennis and six inches near Livingston. At the same time, a stronger cold front started to sweep into northwest Montana. Temperatures dropped below zero in higher southwest valleys after the snowfall. Whiskey Creek fell to -6F on the 7th. On the 8th, widespread reports of trees blown down came from western Montana, as gusts in the 50 mph range were common. As this front moved across Montana, gusts to 70 mph were reported near Galata, Rudyard, Circle and Sidney. The highest gust was at Logan Pass, 114 mph. This exceeded the previous April record of 106 mph set in 2006. After the winds died down, high pressure again brought cooler temperatures with several record lows set across western Montana on the 10th. Georgetown Lake fell to -4F on the 10th.

Apr 12-14

One of the biggest storms of the month affected southwest and central Montana. A large low-pressure area moved through central Montana and produced heavy precipitation during this period. Strong thunderstorms occurred over central and eastern Montana, with penny-sized hail in the Winnett and Mosby areas on the 13th. Heavy snowfall was accompanied by thunder at Lewistown. Several daily precipitation records were also exceeded during this storm. Great Falls received 13.2 inches of snow. This was the ninth highest two-day amount at Great Falls. The 12.8" that fell on the 13th and 14th was the 5th highest 24-hour amount. Up to 17 inches of snow fell across the mountains of the southwest.

Apr 15-22

After a brief cool period after the snowfall, temperatures rebounded to above normal. This rapidly melted the snow. On the 20th, a new record high temperatures was set at Kalispell when they reached 80F. Superior reached 84F, for the month's highest temperature. Ahead of another cold front, thunderstorms moved across the state. On the 21st, hail to 7/8 inch was observed near Bannack. The system continued into central and eastern Montana on the 22nd. Thunderstorms brought over 2.50 inches of rain near Roundup, and over one to 1.5" from south central through southeastern Montana. Webster (Fallon Co) received 1.48 inches. On the south side of Helena, 3/4 inch hail was observed.

Apr 23-27

Gusty winds returned to Montana on the 24th. Gusts to 54 mph occurred at Cut Bank, with a gust to 68 mph at Logan Pass. Temperatures again fell below normal on the 25th and 26th, when low temperatures in the teens occurred over higher valleys of the southwest. Placer Basin fell to 6F

on the 26th. A warmer period returned with temperatures back in the 60s and 70s on the 27th. This was ahead of one of the larger storms of the month.

Apr 28-30

April ended with one of the most intense storms in years. Strong winds and heavy precipitation affected most of the state. Heavy snow fell across the western and central Mountains, with up to four feet of snow falling in the Mission Mountains and Little Belts. Wind gusts to 60 mph packed the snow into drifts as high as nine feet. Precipitation totals exceeding six inches also occurred during this period, with Shonkin (in the Highwoods) picking up 61 inches of snow. Crystal Lake SNOTEL collected 5.50 inches of precipitation in a 24-hour period on the 28th and 29th. Power and phone outages were widespread across central Montana during and in the wake of the storm. The lowest sea-level pressure readings in 60 years in April were measured during the height of the storm. Strong winds produced the strongest daily wind average at Cut Bank since 1943. The winds averaged 38 mph on 29 April at Cut Bank.

New Temperature Records for April 2010

Station	Record Type	New Record	Date	Previous Record	Year of Previous Record
Kalispell	Low Daily Min	18	7	20	1972
Missoula	Low Daily Min	20	7	20	1999
Kalispell	High Daily Max	80	20	78	1980

Precipitation

Severe convective weather occurred on one day in April. A thunderstorm produced wind gusts to 59 mph near Ismay (Custer County) on the 28th.

Precipitation was generally above normal across the state (Fig. 3). It was the 23rd wettest April of record. Statewide, the water year average has been 4.91 inches, which is 1.02 inches below normal. This ranks as the seventh driest of record and the driest water-year-to-date since 1930. For the calendar-year-so-far, the statewide average precipitation is 2.91 inches, which is about 0.45 inches below normal. Of note though, 13.10 inches of precipitation fell in April at Noisy Basin in the Swan Range. This was the highest amount since 13.7 was recorded in 1993. Also, 6.90 inches of precipitation fell at Deadman SNOTEL in the Little Belts. This is the highest amount of record for April (records began in 1979).

New Precipitation Records for April 2010

Station	Record Type	New Record (in)	Date	Previous Record	Year of Prev Record
Miles City	Daily Max Precip	0.53	1	0.16	2000
Butte	Daily Max Precip	0.36	13	0.19	2000
Great Falls	Daily Max Precip	0.84	13	0.38	1912
Great Falls	Daily Max Snowfall	8.2	13	5.0	1912
Havre	Daily Max Precip	0.98	13	0.89	1912
Lewistown	Daily Max Precip	0.73	13	0.45	1986
Missoula	Daily Max Precip	0.67	13	0.44	2000
Miles City	Daily Max Precip	1.02	23	0.64	1961
Great Falls	Daily Max Precip	1.02	29	0.87	2009
Gold Butte	High Monthly Precip	3.64		3.52	1978
Lewistown 11SSE	High Monthly Precip	6.95		4.44	1991
Neihart 7NW	High Monthly Precip	5.07		4.94	1991
Raynesford	High Monthly Precip	9.21		4.44	2006
Shonkin	High Monthly Precip	6.60		6.20	1973
Sunburst	High Monthly Precip	4.03		2.74	1975
Warrick	High Monthly Precip	6.74		4.60	1991

New Snowfall Records for April and the Season-to-date

Station	Record Type	New Record (in)	Date	Previous Record	Year of Prev Record
Millegan	High Monthly Snow	56		33	2007
Raynesford	High Monthly Snow	49		39	1973
Shonkin	High Monthly Snow	84		64	1973
Warrick	High Monthly Snow	52		21	1989
Millegan	High Seasonal Snow	224		179	2007-08
Neihart	High Seasonal Snow	178		156	1981-82
Raynesford	High Seasonal Snow	153		127	1971-72
Shonkin	High Seasonal Snow	229		183	1974-75
Warrick	High Seasonal Snow	103		84.1	1998-99

The monthly total of 84 inches at Shonkin is the second highest monthly total of record. The only month with a greater amount was December 1967 when 86 inches fell.

Other Information

April saw a turn-around in average wind speeds. Wind speeds averaged 11 mph, or 0.9 mph higher than normal. This was the first above normal wind average since October 2009. Also, this was the strongest statewide wind average in April since 1985 and the strongest monthly wind average since May 2001. Havre recorded their third highest April wind average, while Lewistown had their fourth strongest April wind average. For the water-year-to-date, considering the light winds of the past several months, the statewide wind average ranks as the second calmest of record.

April summary information:

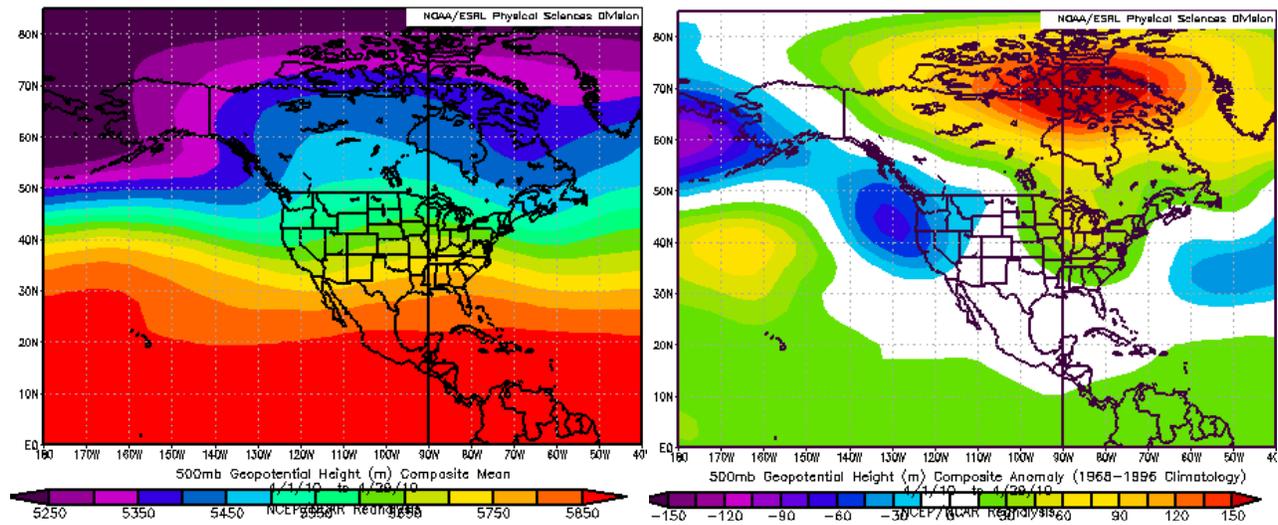
High Temperature	84°F at Superior (20 th)	Greatest Precip	9.21" at Raynesford
Low Temperature	-8°F at Placer Basin (2 nd)		13.10" at Noisy Basin SNOTEL
Warmest Ave Temp	50.4°F at Billings Water Treatment Plant	Peak Wind Gust	114 mph at Logan Pass (8 th) and 73 mph near Rudyard (8 th)
Coollest Ave Temp	30.7°F at West Yellowstone		
Range of Temp departures	-3.7°F at Polson to +3.3°F at Glendive	Highest Ave Wind	18.4 mph at Logan Pass; 15.9 mph at McDonalds
18 city mean monthly Temperature/Normal	40.6/40.8; 51 st coolest of record	18 city mean monthly wind speed/Normal	11.0 mph/10.1 mph; 15 th windiest of record
18 city mean monthly precipitation/Normal	1.55"/1.25" – 124% of normal; 23 rd wettest		

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	2.16	241%			4.23	106%			12
Billings	1.24	71%	54	53	5.42	78%	55	54	101
Belgrade	0.84	60%	21	28	4.37	72%	16	21	73
Butte	1.09	107%	66	56	3.96	83%	41	35	116
Cut Bank	0.25	28%	18	17	0.72	22%	1	0	103
Dillon	1.71	180%	63	90	4.24	134%	57	81	70
Glasgow	0.85	113%	63	56	2.87	87%	30	27	110
Great Falls	2.72	194%	113	95	7.01	121%	96	81	118
Havre	2.22	255%	123	94	4.57	115%	86	66	130
Helena	0.74	81%	58	44	2.95	73%	20	15	132
Jordan	0.82	83%			4.26	122%			12
Kalispell	1.95	160%	110	94	7.58	84%	16	13	116
Lewistown	1.73	125%	84	73	5.41	82%	43	37	114
Livingston	1.56	109%	71	64	4.58	69%	29	26	107
Miles City	1.99	142%	110	83	3.58	73%	37	27	133
Missoula	1.18	108%	90	67	4.63	68%	13	9	129
Mullan Pass	4.52	166%	67	67	16.17	65%	4	4	69
Wolf Point	0.34	40%			1.52	56%			12
Glendive	0.82	67%	50	43	4.64	105%	65	59	110
Sidney	0.83	78%	34	46	5.06	111%	48	69	69
BZN-MSU	2.27	110%	97	72	9.40	111%	93	71	131

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/tx/dx.php?wfo=tx&type=&loc=products&fx=PCPNTOTALS>



Figures 1a (left) and 1b (right). Mean flow at 500 millibars (~18,000 ft) for April (left). A weak ridge of high pressure dominated central North America, with a low-pressure trough along the west coast. The low-pressure trough was stronger than normal over western North America.

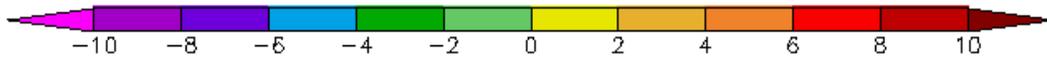
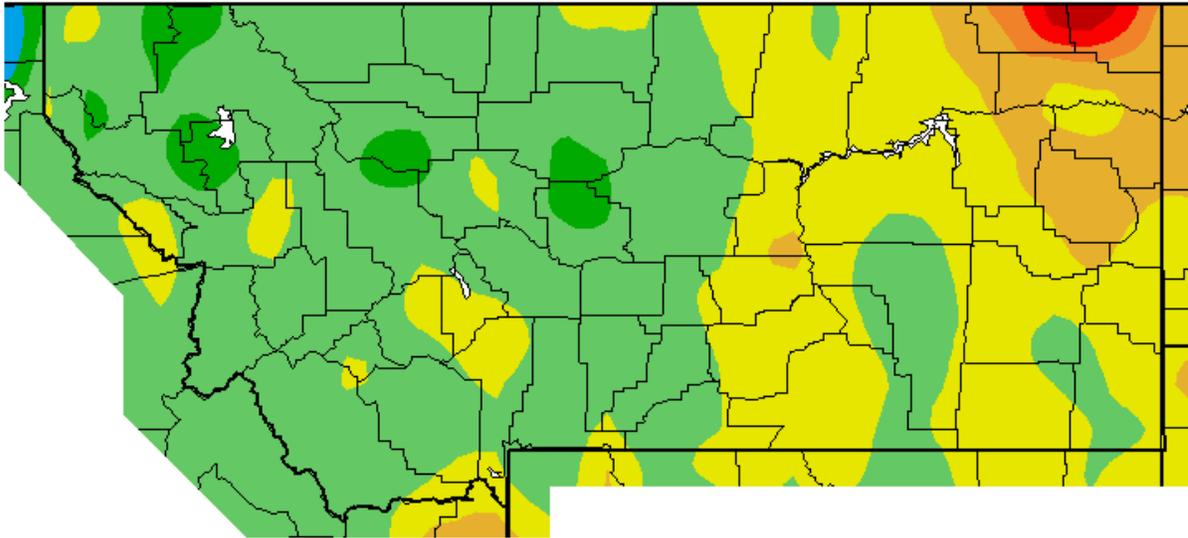


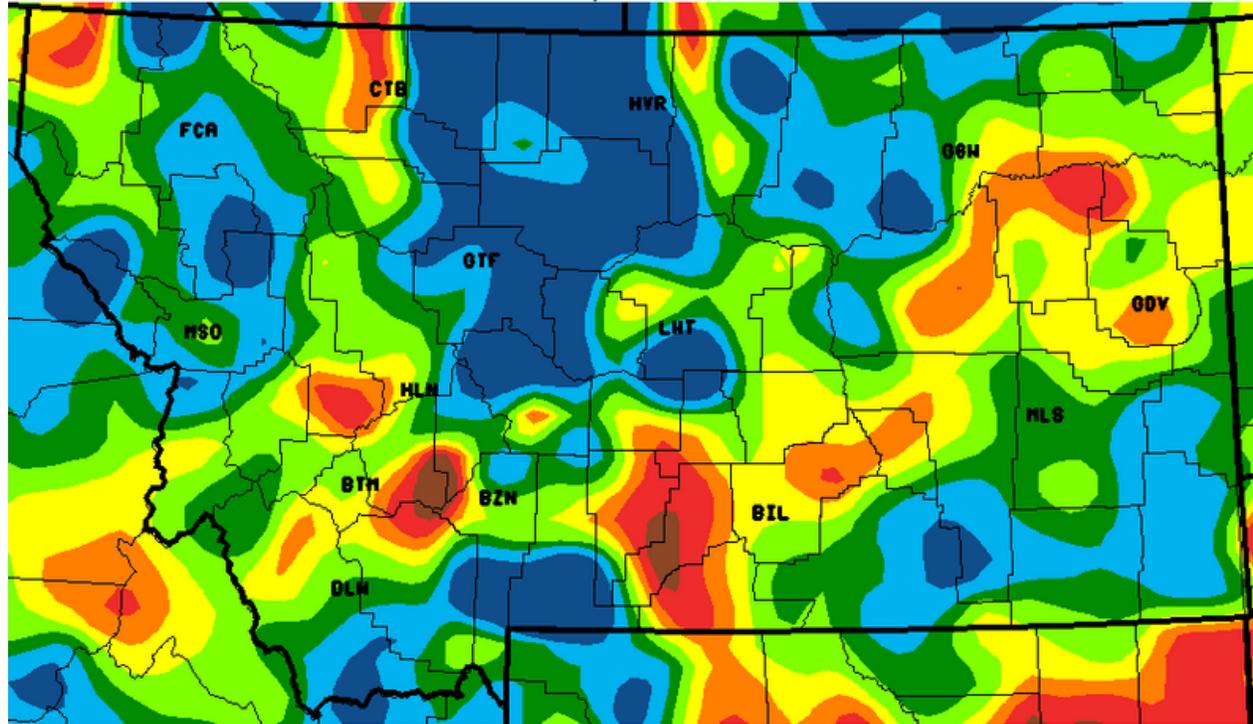
Figure 3. Temperature anomaly for April. Temperatures were near normal over most of the state. (Western Region Climate Center).



National Weather Service - Great Falls, MT



Montana Precipitation for the Month



April 2010 Percent of Normal Precipitation

Period of Normal: 1971-2000

20 40 60 85 115 150 200

NOTE: Data used to generate this image are PROVISIONAL AND SUBJECT TO CHANGE.

<http://www.wrh.noaa.gov/Greatfalls>

Figure 4. Precipitation anomaly (% of normal) for April. Areas of below normal precipitation were across the west and scattered in the southeast.

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/image.php?wfo=tx&type=data&loc=hydro&fx=watyr_pcntnorm.png

For the latest information on mountain snow pack from the NRCS, go to: <http://www.mt.nrcs.usda.gov/snow/index.html>

For the latest U.S. Drought Monitor, issued weekly by the Climate Prediction Center (CPC), go to: <http://www.drought.unl.edu/dm/monitor.html>

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>