

Montana Weather/Precipitation Summary

April 2014 by NOAA's National Weather Service Great Falls Montana

Temperatures averaged below normal across most of the state in April. A flat ridge of high pressure just off the west coast of North America brought sustained northwest flow to Montana, while a trough of low pressure over central North America was stronger than normal (Figure 1). This trough brought periods of colder air to the state during the month.

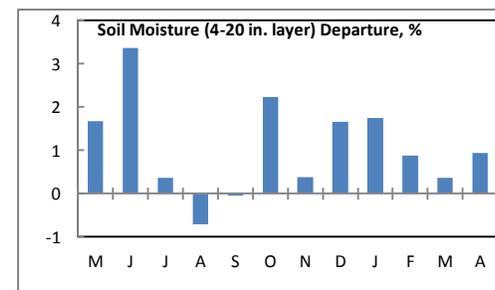
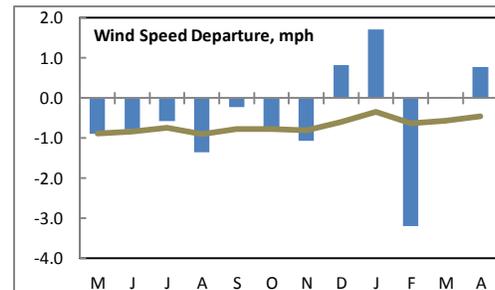
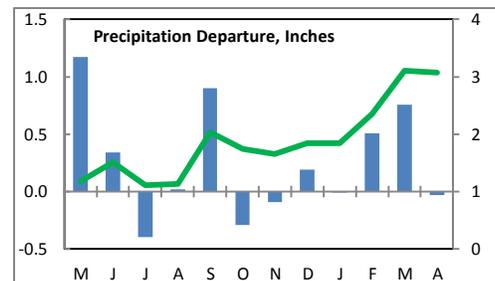
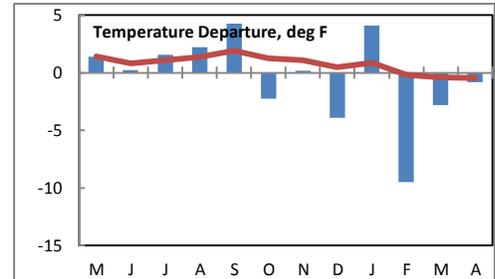
Statewide composite temperatures averaged 0.8°F below normal for the month. Figure 2 shows the areas of temperature anomalies. The greatest negative anomaly was in the northeast and around West Yellowstone. Temperatures were as much as 4°F below normal in the northeast. The greatest positive departure was in the Choteau area. The warmest average April temperature was 46.8°F at Thompson Falls, and the coolest was 32.4°F at West Yellowstone. For the past 12-months, the statewide composite average temperature is 0.4°F below normal. Five of the past 12 months have had temperature averages below normal.

The monthly departure from normal for precipitation across Montana is shown in Figure 3. This figure shows that above normal precipitation amounts were scattered across the state. A drier than normal area covered much of central and southeast Montana, along with portions of the southwest. The heaviest precipitation fell along the western border, with another higher area around West Yellowstone. Amounts up to 6.5 inches fell along the western border. The precipitation figure to the right shows that this month had a 0.03-inch negative departure from normal. The statewide composite precipitation for the past 12 months is 3.08-inches above normal. While some portions of the state continue to see precipitation deficits, the statewide average for the first three months is the 9th highest of record.

Snowfall was generally below average statewide. There were pockets with above normal values, especially along the northern Rocky Mountain Front and West Yellowstone areas, but overall, the statewide average was 3.6 inches, or 3.2 inches below normal. This continues to be the snowiest water-year since 2011, and the snowiest year (Jan-Apr) since 2011.

On a statewide average, winds were above this month. Below normal values were restricted to portions of central Montana. The statewide composite average was 10.6 mph, with the 12-month average running 0.5 mph below average. The fastest average speed was 23.2 mph at Logan Pass, with a location in the Sweet Grass Hills recording an average of 15.8 mph. The fastest measured gust of the month, 139 mph, occurred at Logan Pass. This was a new all-time high gust in the state for April, and was the highest gust recorded in Montana since 2009. The highest gust at lower elevations was 13 miles west of Bynum, a gust of 80 mph occurred on the 10th.

The statewide soil moisture values for April are the third highest of record for the month. These are the highest average values since 2011. See the soil moisture plot to the right. The values are about one-percentage point above normal.



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

April started cold, with areas of snowfall. The lowest temperature of the month occurred at West Yellowstone on the first (-13°F). With increasing winds, temperatures warmed. The period from the fourth through eleventh generally had above normal temperatures. A few thunderstorms pushed across central Montana on the sixth. Some 70°F values were observed on the 8th. This was also one of the windier periods of April, with the highest gusts of the month recorded during an event on the 9th and 10th. A brief cold snap brought snow to portions of the state on the 12th. Temperatures dropped to near below zero along the northern Rocky Mountain Front. This system brought over six inches of snow to the plains of the northern Rocky Mountain Front. Another warm period with above normal temperatures persisted from the 17th-25th. Temperatures pushed to 80°F at a few locations in central and southeastern Montana on the 22nd. A cold front that pushed through the state brought thunderstorms with isolated severe wind gusts to southwest Montana, and somewhat cooler air. A cooler period with near to below normal temperatures settled in for the rest of the month. Another bout of heavy snowfall came to the northern plains adjacent to the Rocky Mountains on the 26th.

Precipitation/convection

Severe convective weather occurred on one day in April. This is normal for the month.

April summary information:

High Temperature	80°F at Brandenburg, Forsyth & Loma (22 nd)	Greatest Precip	3.67" at Mullan Pass
Low Temperature	-13°F at West Yellowstone (1 st)		8.00" at North Fork Jocko SNOTEL
Warmest Ave Temp	46.8°F at Thompson Falls	Peak Wind Gust	80 mph 13W of Bynum (8 th)
Coollest Ave Temp	32.4°F at West Yellowstone		139 mph at Logan Pass (9 th)
Range of Temp departures	-4.0°F at Sidney to 2.5°F at Livingston	Highest Ave Wind	23.2 mph at Logan Pass 15.8 mph near Whitlash
21 city mean monthly Temperature/Normal	42.0/42.8F 0.8F below normal. 53 rd coldest of record (since 1880). 39 th percentile. Oct-Apr 28.6/30.8 2.2F below normal. 36 th coolest of record.	20 city mean monthly wind speed/Normal	10.6 mph/9.8 mph; 25 th windiest of record (since 1936). 66 th percentile. Oct-Apr 9.5mph/9.8 0.3-mph below normal. 35 th calmest of record.
22 city mean monthly precipitation/Normal	1.29/1.32" – 98% of normal. 55 th wettest of record (since 1880). 57 th percentile Oct-Apr 7.48"/6.43" 1.05" above normal. 24 th wettest of record.	20 city mean monthly snowfall and normal	3.6/6.7" – 3.1" below normal. 43 rd lowest. 32 nd percentile. Oct-Apr 71.5"/58.2" 13.3" above normal. 12 th highest.

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	1.10	123%			4.69	118%			16
Billings	1.18	68%	57	49	10.47	151%	109	96	113
Belgrade	1.60	100%	48	62	5.09	87%	32	41	77
Butte	1.35	115%	88	73	4.50	95%	56	46	120
Cut Bank	1.23	158%	88	81	3.91	145%	84	78	107
Dillon	1.16	108%	51	68	2.22	64%	12	15	74
Glasgow	0.93	109%	70	60	3.44	100%	50	43	114
Great Falls	1.76	124%	89	72	7.54	142%	107	88	122
Havre	0.92	110%	75	55	4.73	139%	94	70	134
Helena	0.87	89%	77	56	5.20	137%	87	64	136
Jordan	0.33	31%			4.01	110%			16
Kalispell	1.17	94%	73	60	10.50	122%	101	84	120
Lewistown	1.01	72%	50	42	5.84	99%	52	44	118
Livingston	1.64	93%	82	72	7.01	117%	84	75	111
Miles City	0.33	24%	22	15	3.57	87%	39	28	137
Missoula	0.73	60%	53	38	7.55	113%	90	67	133
Mullan Pass	3.67	122%	56	76	36.75	128%	61	83	73
Wolf Point	1.02	109%			1.96	57%			16
Glendive	0.75	59%	47	39	4.59	103%	63	55	114
Sidney	0.35	33%	18	23	3.46	76%	27	36	73
BZN-MSU	2.22	97%	95	69	10.93	120%	121	90	135

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=txf&type=&loc=products&fx=PCPNTOTALS>

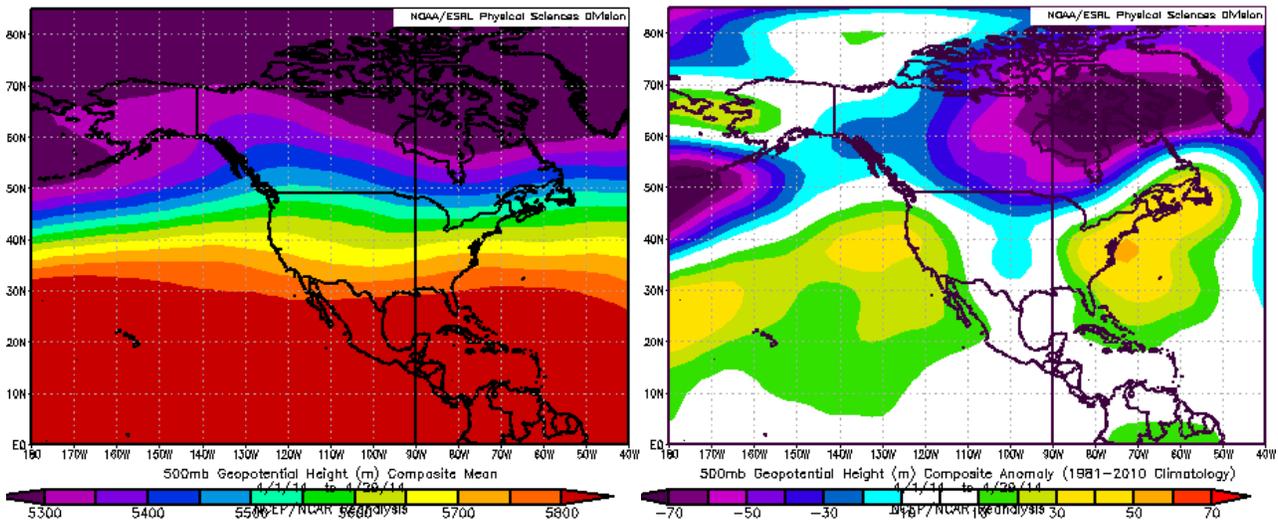


Figure 1. Mean flow at 500 millibars (~18,000 ft) for this month (left) and departure from normal (right). The trough over North America was stronger than normal.

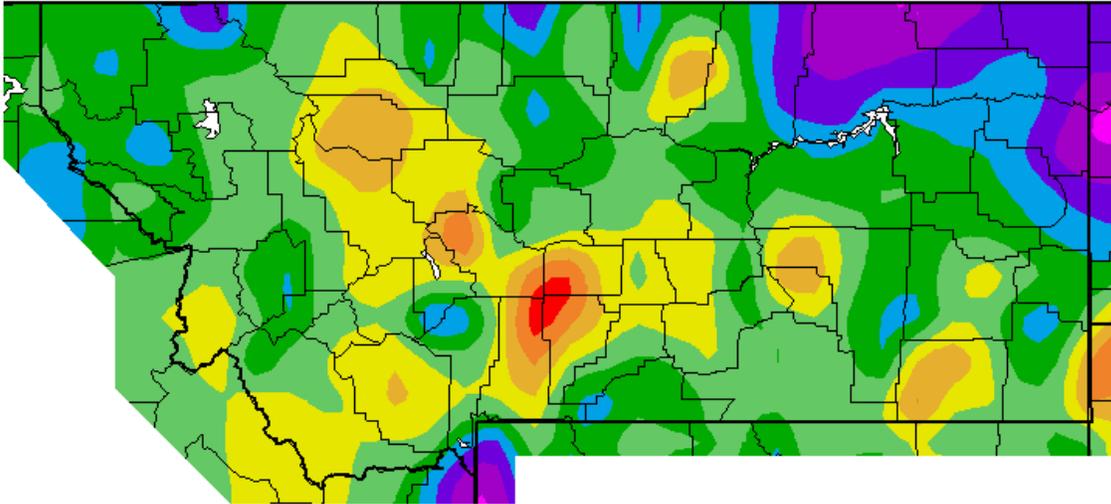


Figure 2. April 2014 temperature departures from normal (°F) (Western Region Climate Center).

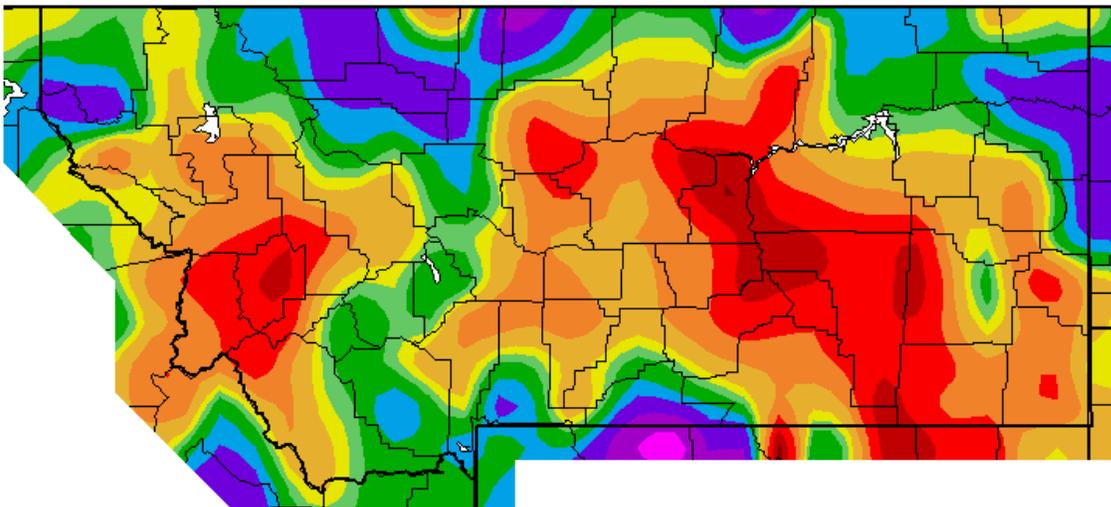


Figure 3. April 2014 precipitation departures from normal (percent) (Western Region Climate Center).

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=tfx&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=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.