Montana Weather/Precipitation Summary

April 2006 By NOAA's National Weather Service Great Falls Montana

April brought above normal precipitation and near to above normal temperatures to most of the state. The northeast portion of the state stayed dry until the 18th, then received precipitation that pushed totals to above normal for the month. During the first week heavy snow fell over higher elevations, with several locations across the west and southwest receiving over a foot. The largest storm totals were near Marysville (16") on the 5th and near Stockett (18") on the 1st. Another round of heavy snow in higher elevations occurred around the 17th. Over one foot of snow fell at the highest points, with over one inch of precipitation common. Several daily precipitation records fell during the first few days of the month. Missoula received 1.87" on the 6th, which is the largest daily amount on record. The heavy rains did cause some flooding of smaller streams during the first week, with an ice jam on the Big Hole. The high precipitation values resulted from a sustained southwest flow that moved moisture and storms into the state during the early part of the month. This was a somewhat anomalous pattern for this time of the year, with a deep trough of low pressure off the west coast. The average upper level flow for the month is shown in Figure 1.

During the second week, the weather was a bit more benign. A storm over the 8th-9th dropped 10" of snow over the Bull Mountains and up to 1.50" of rain across south central and southeast Montana. After this storm, conditions dried and winds picked up. Logan Pass recorded a new April record for the state with gusts of 106 mph on the 12th and 13th. The old state record was 90 mph. At lower elevations, winds gusted to 72 mph near Babb on the 12th. Even so, winds have been below average across the state.

The third week again produced precipitation. Thunderstorms with hail and gusty winds occurred on the evening of the 19th over northeastern Montana. The cold front that brought the storms then ushered in colder air, with snow common over much of the western half of the state by the morning of the 20th. This storm system continued eastward and brought over 2 inches of rain to much of northeast Montana. Blizzard conditions occurred in the extreme east on the 18-20th. Up to 3 feet of snow fell over extreme southeast Montana. Fresh snowcover and high pressure caused temperatures to drop to as low as 7°F near Cascade on the 24th. Figure 3 shows the distribution of the snow across extreme eastern Montana.

The last week again brought scattered rain and warmer temperatures. Several locations recorded among the 10 wettest April's of record. At Butte, it was the wettest April of record. Helena and Missoula saw their 2nd wettest Aprils, and Bozeman and Sidney saw their 3rd wettest April's of record. Sidney has had their wettest water-year of record. The month's warmest temperature was 82°F at Hardin on the 5th and at Culbertson on the 15th, with the coldest at Placer Basin, recording 2°F on the 19th. Temperatures were generally above average for the month. Anomalies have been from near normal in the northwest, to 8°F above normal in the northeast. For precipitation, most of the state has fared very well for the water year-to-date. Small areas in the south central and along the northern Rocky Mountain Front still have below normal pockets (Figure 2).

High precipitation amounts have produced the following (through April 30):

Wettest water year-to-date since:		Wettest calendar year-to-date since:	
Sidney - since records began		Sidney	1967
Glendive	1971	Miles City	1991
Miles City	1988		
Great Falls and Helena	1992		
Bozeman	1994		

Month's summary information (to date):

High Temperature	82°F at Hardin and Culbertson	Greatest Precipitation	5.61" at Ekalaka
Low Temperature	2°F at Placer Basin		8.10" at Black Bear
Warmest Average Temperature	52.8°F at Glendive	Peak Wind Gust	106 mph at Logan Pass
Coolest Average Temperature	34.1°F at Mullan Pass		
Range of Temperature Departures	0.3°F at Thompson Falls +7.6°F at Glendive	Highest Average Winds	15.9 mph near East Glacier

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

Location	Apr	% of Norm	Rank	Pcntl	Oct 1 - MM	% of norm	Rank	Pcntl	Years
Baker	2.56	286%			5.70	143%			8
Billings	1.50	86%	62	64	8.13	117%	84	87	97
Belgrade	2.61	186%	66	96	7.59	125%	61	94	65
Butte	3.14	308%	113	100	7.03	147%	96	86	113
Cut Bank	0.50	56%	29	29	1.92	57%	18	18	99
Dillon	2.01	212%	62	94	4.48	141%	58	88	66
Glasgow	1.16	155%	73	68	4.20	127%	73	69	106
Great Falls	2.88	206%	111	97	8.40	145%	108	95	114
Havre	0.88	101%	68	54	3.88	97%	53	42	126
Helena	2.95	324%	127	99	6.35	157%	107	84	128
Jordan	2.38	240%			6.10	176%			7
Kalispell	1.69	139%	102	90	9.76	108%	15	13	112
Lewistown	2.42	175%	98	88	8.18	123%	97	88	110
Livingston	1.75	122%	80	75	6.74	101%	70	68	103
Miles City	2.58	184%	118	91	7.26	148%	115	89	129
Missoula	3.10	284%	128	99	10.13	149%	114	91	125
Mullan Pass	2.91	107%	39	60	34.05	137%	51	78	65
Wolf Point	1.23	144%			3.31	121%			8
Glendive	2.21	181%	98	88	7.04	159%	101	95	106
Sidney	3.61	337%	67	100	8.61	190%	65	100	65
BZN-MSU	3.53	171%	126	97	12.09	142%	121	95	127

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=tfx&type=&loc=products&fx=PCPNTOTALS

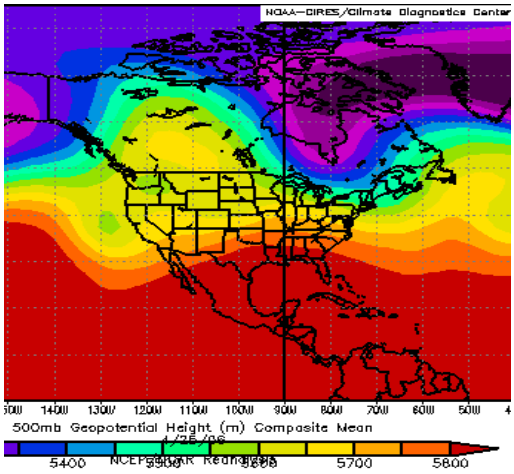
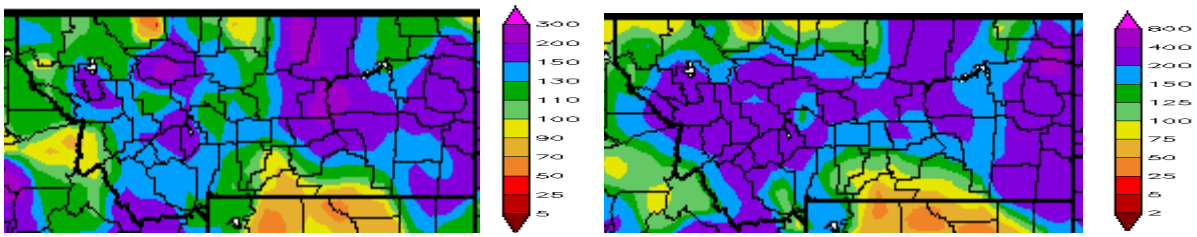
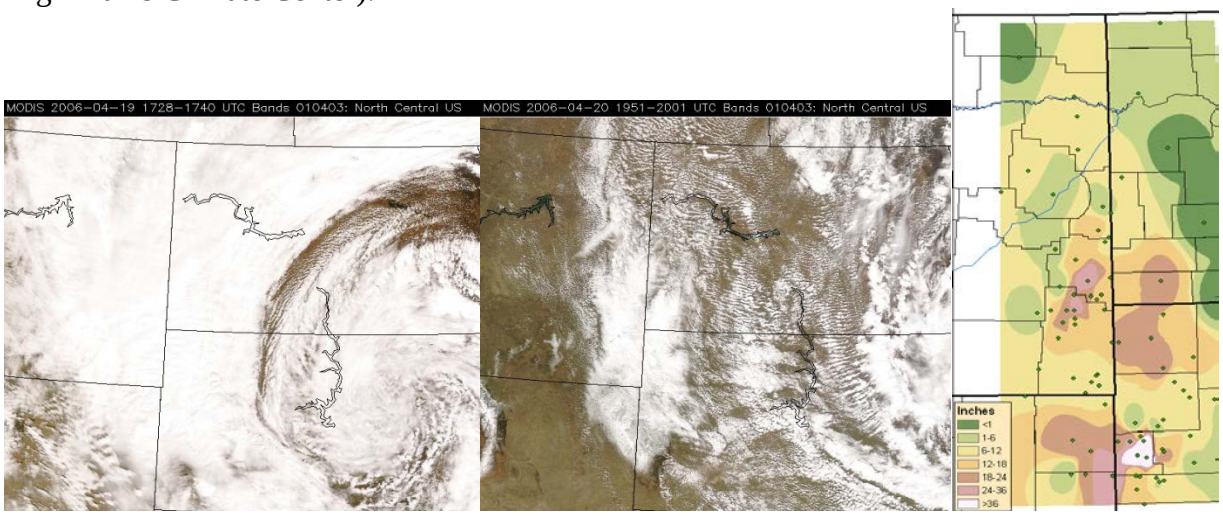


Figure 1. Mean flow at 500 millibars (~18,000 ft)



a. Apr 1-30 b. Oct 1-Apr 30

Figure 2. Precipitation anomaly (% of normal) for the month (a) and water-year-to-date (b) (courtesy High Plains Climate Center).



A B C

Figure 3. MODIS satellite imagery from (A) April 19, 2006, showing the large storm that produced the snowfall over eastern Montana. (B) shows the snow on the ground over eastern Montana from MODIS on April 20, 2006. (C) shows a plot of snowfall as reported across eastern Montana, Wyoming and the Dakotas.

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

All reported data is preliminary. Further inquiries about the moisture conditions can be directed to Dave Bernhardt or Gina Loss at (406) 453-2081. Many more links can be found on the Drought Information Page of the NWS Great Falls web site at http://www.wrh.noaa.gov/tfx/main/drought.php?wfo=tfx