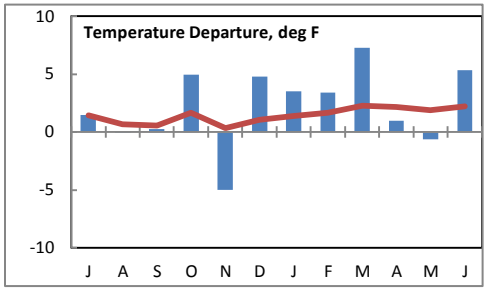
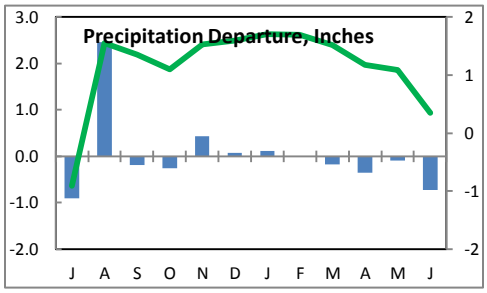
Montana Weather/Precipitation Summary

June 2015 by NOAA's National Weather Service Great Falls Montana

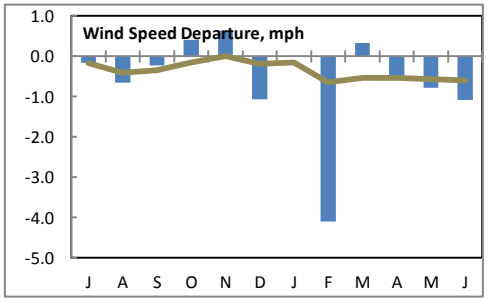
June had a warm period around the 9th, a cool period with a few record lows from the 13th-15th, and a hot period at the end of the month. Temperatures were close to 20 degrees above normal during the hottest period. The upper air pattern was dominated by a strong upper level ridge over the western US.

Statewide composite temperatures averaged 5.4°F above normal for the month. This was the largest warm June temperature anomaly since 1988. The temperature anomalies ranged from +0.2°F at Plentywood to +10.4°F at Mullan Pass (Fig. 2). The warmest average monthly temperature was 71.0°F at Roundup, and the coolest was 48.3°F at Placer Basin. This was the 12th warmest June of record, and the warmest since 1988. For the past 12-months, the statewide composite average temperature is 2.2°F above normal. Nine of the last 12 months have had warmer than normal temperatures.

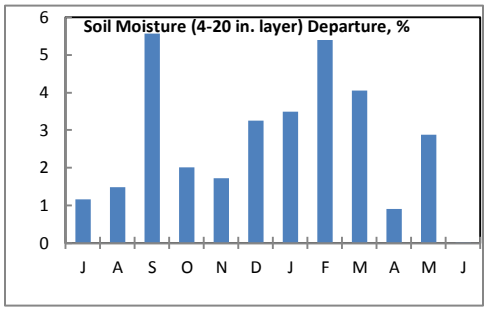




The monthly departure from normal for precipitation across Montana is shown in Figure 3. Above normal precipitation was over southeast Montana, while the western half was dry. Great Falls recorded their driest June of record. The previously driest June was in 1960, when only 0.52" fell. The highest amount was 5.70-inches at Belltower and 5.10-inches at Crystal Lake. Statewide, this month averaged 1.68-inches, or 0.73-inches below normal. The statewide composite precipitation for the past 12 months is 0.35-inches above normal.



The statewide average winds were below normal this month, ranking as the 3rd calmest June of record. The statewide composite average was 7.6 mph, 1.1 mph below normal. The 12-month average is running 0.6-mph below average. The fastest average speed was 10.4 mph at Ekalaka. The fastest measured gust of the month, 79 mph, occurred near Otter on the 18th.



Soil moisture significantly dried out across the state. The June average had a zero point departure, so was at the month's normal value. This month ranks as the 8th wettest of record. Records began in 1995.

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

June 1-5

June started out with near normal temperatures and periods of precipitation. Thunderstorms produced gusts to 70 mph near Two Dot on the first. Heavy rain on the second caused flash flooding at Hardin and Sidney. Again on the 5th, heavy rain produced flooding around Broadus. Thunderstorm gusts to 70 mph were reported at Mizpah (Custer).

June 6-10

During this period, temperatures pushed into the lower 90s over portions of Montana. Some record high temperatures were set. Heavy rain in the Terry area produced flooding as over five inches fell. Scattered thunderstorms were also observed on the 9th and 10th.

June 11-25
This was a period with near normal temperatures. Thunderstorms were observed on a regular basis – primarily in eastern Montana. Golf ball size hail fell on the 16th at Rapelje, 2-inch hail fell on the 17th at Broadus. On the 18th, wind gusts reached 79 mph near Otter (Powder River) as thunderstorms moved across southeast Montana. On the 19th, a microburst destroyed a barn near Wooley (Richland), while wind gusts reached 78 mph in Billings. Softball-size hail fell near Hammond (Carter). On the 21st, tennis-ball size hail and wind gusts to 70 mph were observed in southeast Montana near Ismay and Baker.

June 26-30
The rest of the month delivered hot temperatures. Record warmth was seen across the state. Temperatures peaked at 109 at Troy on the 28th, with temperatures over 100F reported at Helena from the 27th-29th. Thunderstorm wind gusts reached 63 mph at Livingston and 64 mph at Dillon on the 29th. On the 30th, golf-ball size hail and 2-inch hail were seen in Sidney. Smoke from fires in Saskatchewan drifted into north central Montana on the 30th. Visibility dropped to less than ¼ mile at Fort Belknap, Saco and Malta.

Precipitation/convection

Severe convective weather occurred on 14 days in June. The normal for June is 14 days. Most severe weather occurred in southeast Montana

June summary information:

High Temperature	109°F at Troy (28th)	**Greatest Precip**	5.70" at Belltower
Low Temperature	27°F at Wisdom (14th)		
Warmest Ave Temp	71.0°F at Roundup	**Peak Wind Gust**	79 mph near Otter (18th)
Coolest Ave Temp	48.3°F at Placer Basin		
Range of Temp departures	+0.2°F at Plentywood to +10.4°F at Mullan Pass	**Highest Ave Wind**	10.4 mph at Ekalaka 11.3 mph at Deep Creek
21 city mean monthly Temperature/Normal	65.7/60.3F 5.4F below normal. 12th warmest of record (since 1880). 90th percentile. Oct-Jun 39.2/36.4 2.8F above normal. 12th warmest of record.	**20 city mean monthly wind speed/Normal**	7.6 mph/8.7 mph; 3rd calmest of record (since 1936). 4th percentile. Oct-Jun 9.0 mph/9.6 0.6-mph below normal. 15th calmest of record.
22 city mean monthly precipitation/Normal	1.68/2.41" – 69% of normal. 25th driest of record (since 1880). 19th percentile. Oct-Jun 9.97"/10.96" – 0.99" below normal. 39th driest of record.		

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

Location	Jun	% of Norm	Rank	Pcntl	Oct 1 – Jun 30	% of norm	Rank	Pcntl	Years
Baker	5.22	206%			9.89	122%			17
Billings	1.60	85%	57	48	8.84	78%	48	42	114
Belgrade	0.60	24%	3	3	8.49	79%	16	19	78
Butte	0.93	41%	20	16	6.67	74%	24	19	121
Cut Bank	1.20	47%	20	18	6.90	96%	44	41	107
Dillon	0.71	36%	11	13	6.26	85%	29	38	75
Glasgow	2.58	111%	69	58	8.16	106%	56	48	115
Great Falls	0.44	17%	1	1	9.19	90%	38	30	123
Havre	0.43	20%	4	2	6.07	83%	21	15	135
Helena	0.50	24%	10	7	6.84	88%	29	21	137
Jordan	4.07	163%			8.82	105%			17
Kalispell	0.60	23%	9	7	12.44	94%	69	57	121
Lewistown	1.61	52%	17	13	10.61	90%	37	31	119
Livingston	0.92	38%	11	9	9.69	88%	40	36	110
Miles City	2.68	107%	79	57	6.41	73%	18	12	138
Missoula	0.51	24%	7	4	9.75	90%	42	31	133
Mullan Pass	1.23	47%	12	14	34.67	102%	40	53	74
Wolf Point	1.49	55%			5.31	67%			17
Glendive	3.31	138%	69	58	9.53	105%	62	55	112
Sidney	3.98	142%	60	79	8.26	88%	26	34	75
BZN-MSU	0.58	19%	4	2	11.84	77%	23	16	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=tfx&type=&loc=products&fx=PCPNTOTALS

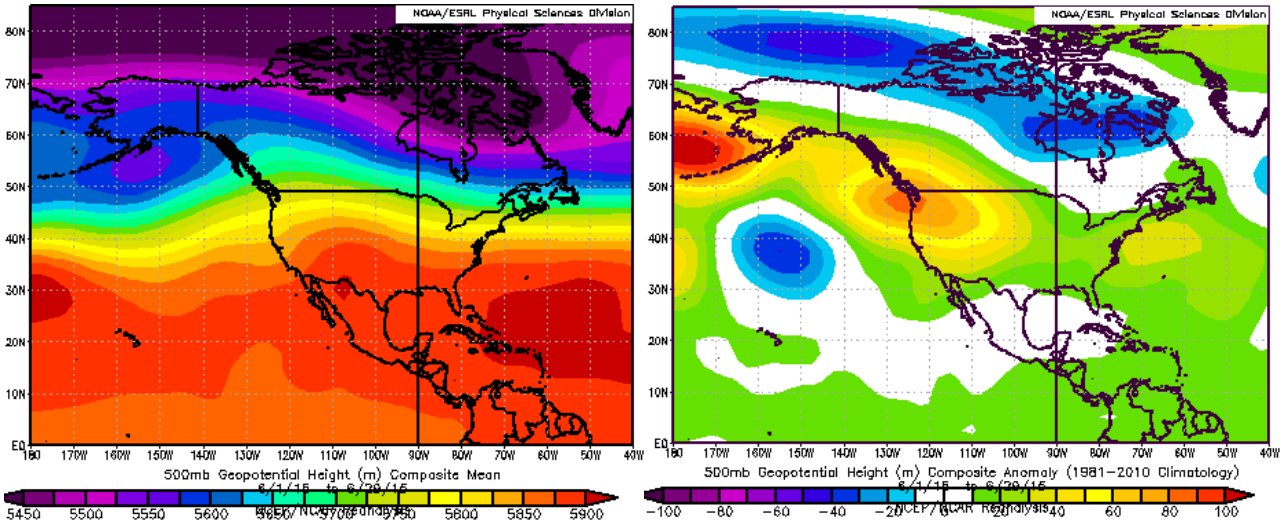


Figure 1. Mean flow at 500 millibars (~18,000 ft) for this month (top-left) and departure from normal (top-right).

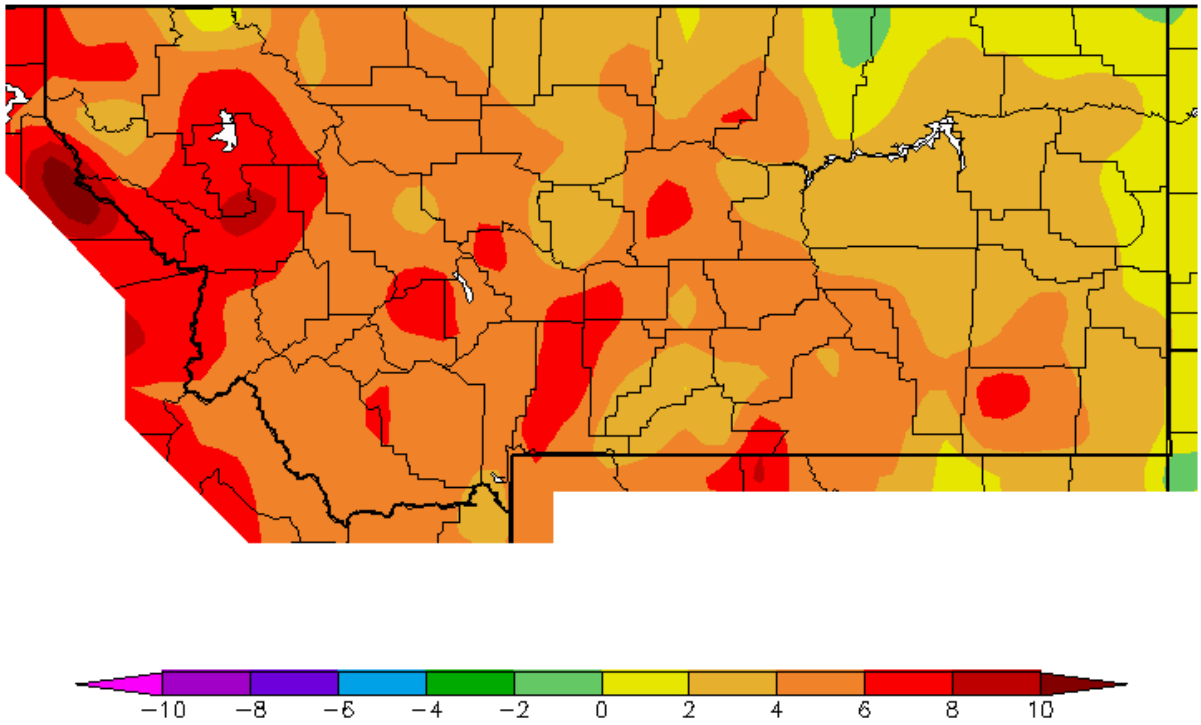


Figure 2. June 2015 temperature departures from normal (°F) (Western Region Climate Center).

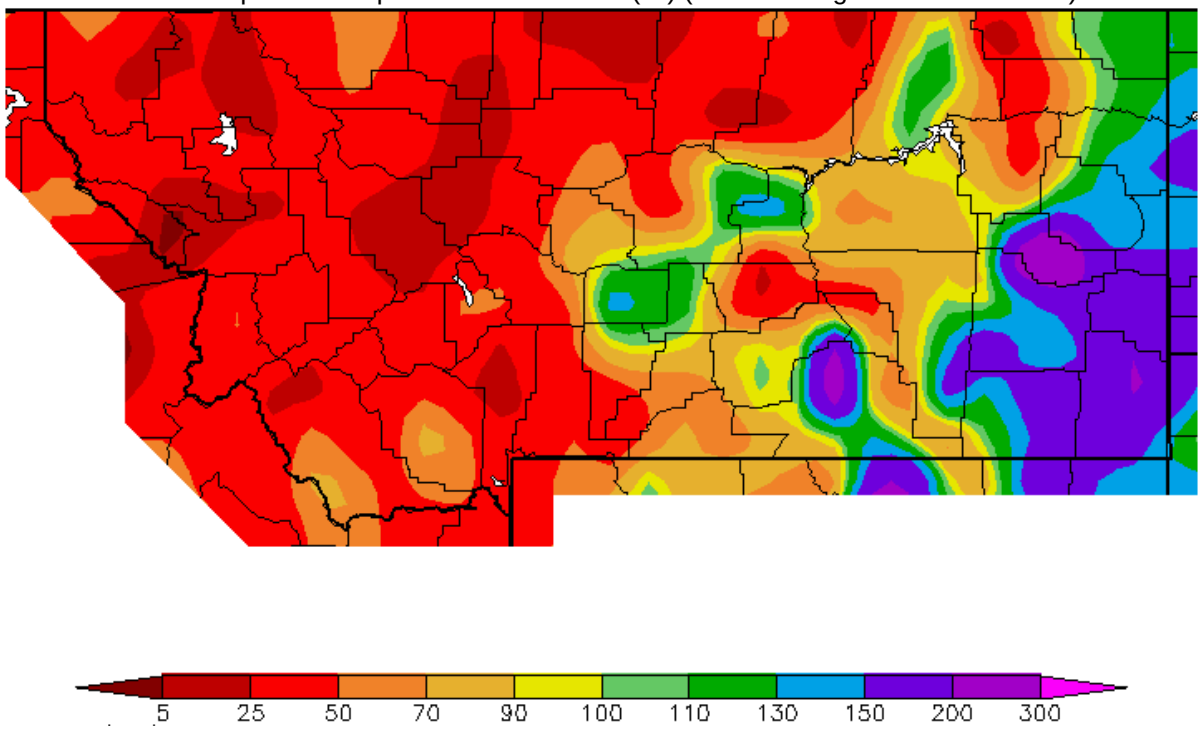


Figure 3. June 2015 precipitation departures from normal (percent) (Western Region Climate Center).

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/climate/monthlysum/climatesum.php?wfo=tfx

For the latest information on mountain snowpack from the NRCS, go to: http://www3.wcc.nrcs.usda.gov/snow/index.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 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.