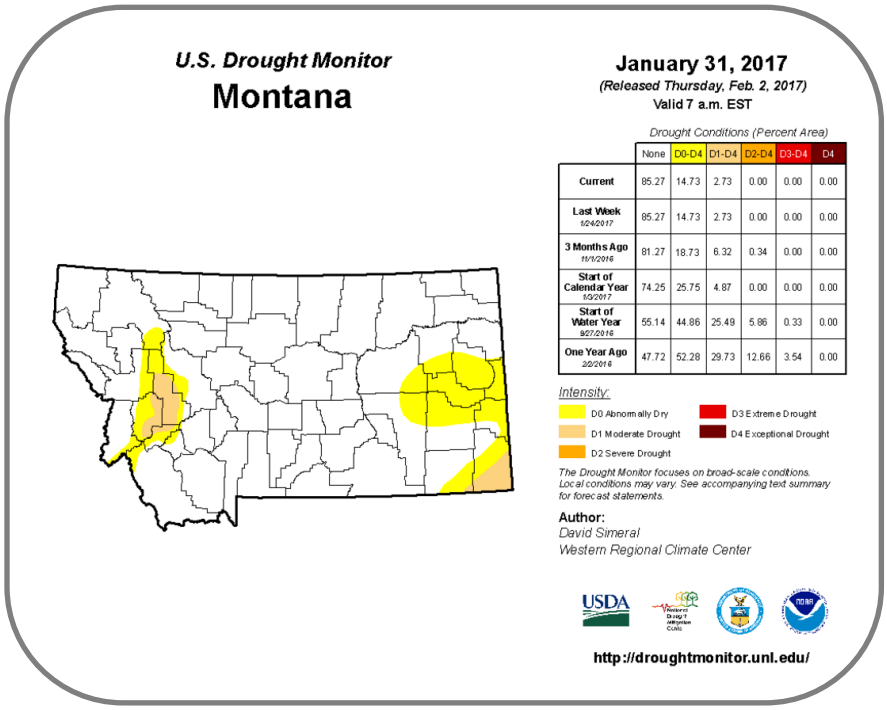
Drought Impacts and Outlook

Montana
January 2017

Montana — *Current Drought Conditions*



	None	D0-D4	D1-D4	D2-D4	D3-D4	D4
Current	85.27	14.73	2.73	0.00	0.00	0.00
Last Week 1/24/2017	85.27	14.73	2.73	0.00	0.00	0.00
3 Months Ago 11/1/2016	81.27	18.73	6.32	0.34	0.00	0.00
Start of Calendar Year 1/3/2017	74.25	25.75	4.87	0.00	0.00	0.00
Start of Water Year 9/27/2016	55.14	44.86	25.49	5.86	0.33	0.00
One Year Ago 2/2/2016	47.72	52.28	29.73	12.66	3.54	0.00

The U.S. Drought Monitor, is a weekly map of drought conditions produced jointly by the National Oceanic and Atmospheric Administration, the U.S. Department of Agriculture, and the National Drought Mitigation Center (NDMC) at the University of Nebraska-Lincoln. The U.S. Drought Monitor website is hosted and maintained by the NDMC. http://droughtmonitor.unl.edu

Highlights for the State

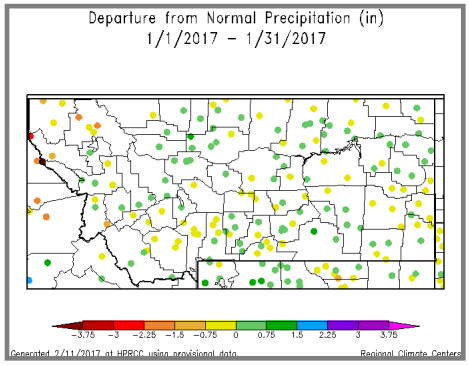
January can be summarized as cold and dry. Precipitation ranged from 50-70 percent of average for the majority of the state. Some pockets of above average precipitation were seen in the south central and south east, as well as along the southeast part of the Highline. One major anomaly was in the upper Rocky Mountain Front area where 200-300 percent of average precipitation was seen for the month. The driest areas were concentrated west of the Divide, the east central part of the state near the Musselshell basin, and in parts of the southeast.

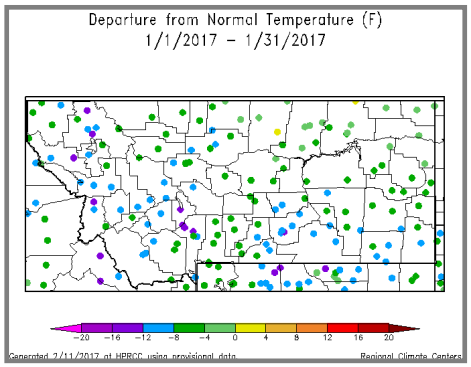
Temperatures for the majority of the state were –5 to –8° F below normal. According to the NRCS Montana Water Supply Outlook Report as of February 1st, 2017, cooler temperatures across the state were caused by a cold high pressure system from the north, which "blocked moisture from entering most parts of the state, and resulted in well below normal snowfall during the month."

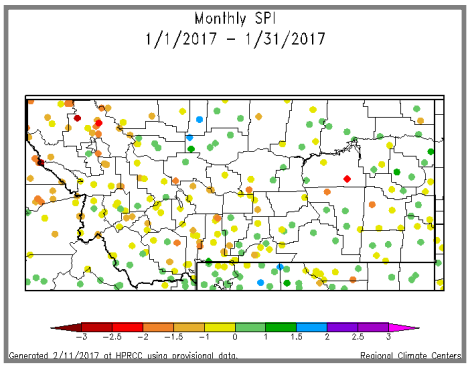
Snowpack levels across the state were only benefitted by two meaningful storms during the month. The northern plains remained "high and dry" due to that high pressure ridge that pushed moisture south. The NRCS Snow Survey reports that, "Northern basins east and west of the divide saw significant decreases in snowpack percentages from January 1st due to the lack of snowfall during January." The southern basins along the Yellowstone River are an exception with Snow Water Equivalent (SWE) levels at 115% of normal.

Montana — *Climate Overview for Last 60 Days*

Temperature and Precipitation Anomalies







Precipitation across the state was within normal range, with some areas showing just below normal precipitation, particularly in the Northwest part of the state. January 2017 was 105th wettest, with the wettest December occurring in 1969 and the driest in 1985.

Temperatures over the 30-day period from January 1 to January 31 were below to much below average. Minimum temperatures were on average –0.09°F and it was the 46th coolest January since 1997 and the 77th warmest since 2016. In total, Water Year 2017 is so far the 7th warmest on record and the 19th wettest.

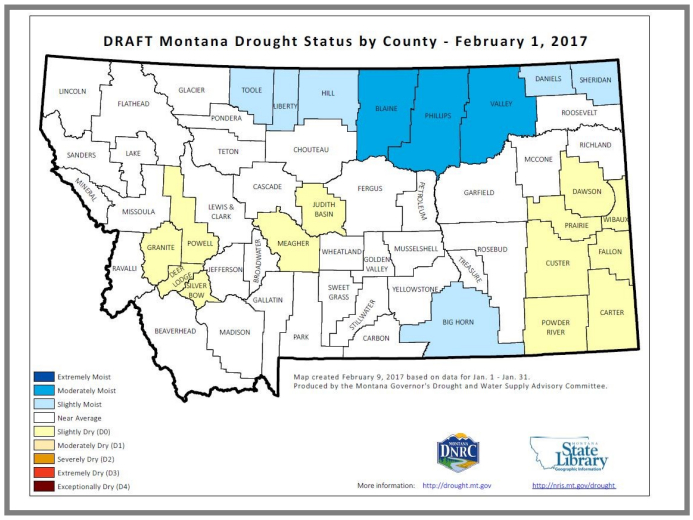
SNOTEL sites in the Muselshell Watershed were showing a 62% below normal SWE as of February 1, 2017. Learn more about all of Montana river basins with SNOTEL sites by creating a report at the following site: https://wcc.sc.egov.usda.gov/reports/SelectUpdateReport.html

Contact: Ada Montague
(amontague@mt.gov)

Montana — *Drought Indicators*

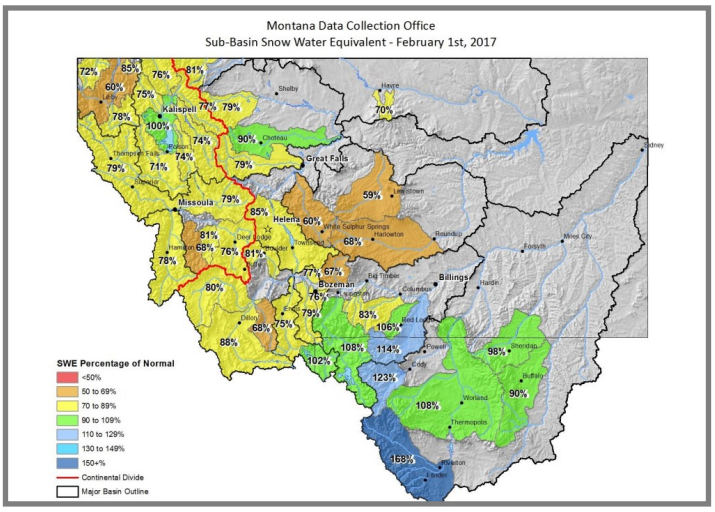
The Montana Drought Status by County is a monthly assessment tool used to monitor the moisture at a county level for the state. Temperature, precipitation, snowpack, reservoirs status, surface water gages, groundwater, crop reports, and field reports are compiled to create this map. To see a historical record go here: https://mslservices.mt.gov/Geographic_Information/Maps/drought/

Do you have impacts to report? We need your on-the-ground reports and you can send them to amontague@mt.gov



Water Resources

The map below shows sub-basin SWE levels, which gives an indication of how much water is stored in the snowpack in comparison to normal. The Lower Clark Fork and Sun-Judith-Muselshell basins are both below 65% for this time of year. At the sub-basin level the mountain snowpack is below average for the majority of the state with the exceptions of Polson, Choteau and sub-basins in the southern part of the state. In contrast, valley snow accumulation of SWE are in the range of 2-4 inches, according to the National Hydrologic Remote Sensing Center.



Montana — *Short– and Long-term Outlooks*

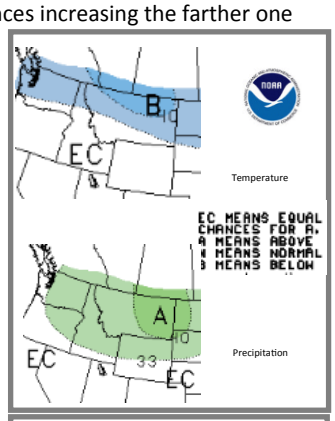
Weather and Drought Outlooks

For the next month there is a 33% chance of above average temperatures and a 50-40% chance of above average precipitation for the state, with chances increasing the farther one heads west.

Looking further out, the Feb-Apr period holds a 10% chance of below-normal temperature for the northern 2/3. As for precipitation, the entire state is likely to experience a 33% chance of elevated precipitation, with the western third likely to see a 40% chance of elevated precipitation.

Although there is less certainty when looking at predictions beyond the next three months, the pattern is expected to shift to equal chances for above, normal or below temperature and precipitation for the entire state.

Drought conditions are expected to improve, but should remain closely monitored in 2017 to ensure the lingering effects of the last two years do not persist. Read the National Drought Mitigation Center's Drought and Climate for January 2017 Report to learn more about the drought outlook nationally, as well as insight on precipitation and temperature outlooks.



Need a Forecast?

Visit your local National Weather Service Weather Forecast Office for the most up-to-date forecast at: http://www.weather.gov

Stay Tuned and In Touch

The next Montana Drought Impacts and Outlook Summary will be released around March 9th. If you need information in the meantime, please reach out to any of the partners listed to the right or contact Ada Montague directly at amontague@mt.gov.

Read the NOAA National Drought Overview at: https://www.ncdc.noaa.gov/sotc/drought/201611#detailed-discussion

Heard Around the State

Valley snow depths have been higher than normal in certain regions of the state, causing concern for low elevation flooding during snowmelt events. In some areas snowbanks are trapping melting snow and blocking roadways.

Ice jams are a frequent winter hazard in Montana. For general information on ice jams, check out this info from NOAA: http://www.wrh.noaa.gov/tfx/icejam/

Partners

Montana State Climate Office
www.climate.umt.edu
National Weather Service
- **Great Falls Weather Forecast Office**
  www.wrh.noaa.gov/tfx/
- **Missoula Weather Forecast Office**
  www.wrh.noaa.gov/mso/
- **Billings Weather Forecast Office**
  www.wrh.noaa.gov/byz/

Natural Resource Conservation Service, Snow Survey and Water Supply Forecasting
www.nrcs.usda.gov/wps/portal/nrcs/main/mt/snow/
Montana Bureau of Mines and Geology
data.mbmg.mtech.edu/mapper/
Montana State Library
mslservices.mt.gov
United States Geologic Survey
http://wy-mt.water.usgs.gov/
Bureau of Reclamation, AGRImet
www.usbr.gov/pn/agrimet/h2ouse.html
National Agricultural Statistics Service
www.nass.usda.gov/Statistics_by_State/Montana/

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