Under the Big Sky e-Letter
January & February 2018

A Peak Inside:

Frigid February: If you thought it's been colder this year than it's been in awhile, you may be on to something! Glasgow Airport just had its 5th coldest February on record. Here's how the top ten have stacked up (1-Month Mean Avg. Temp):

Rank	Value	Ending Date
1	-15.8	1936-02-29
2	-2.2	1922-02-28
3	-0.9	1899-02-28
4	0.3	1904-02-29
5	1.0	2018-02-28
6	1.5	1979-02-28
7	2.5	1929-02-28
8	2.8	1917-02-28
9	3.1	1959-02-28
10	3.2	1905-02-28

60 Day Percent of Normal Precipitation (Montana)

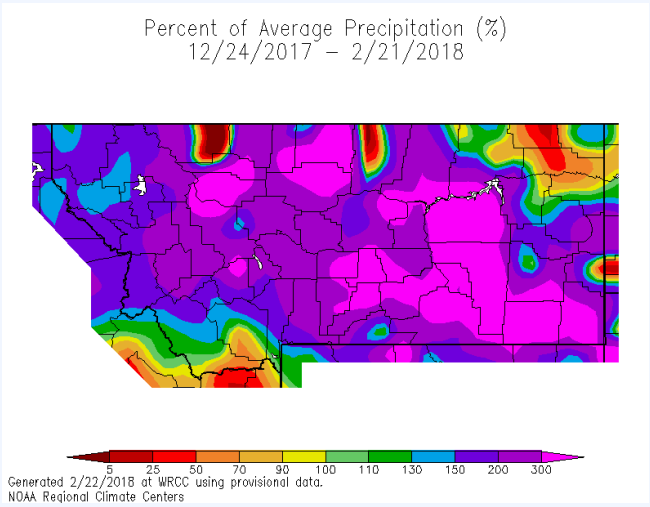

Figure 1: 60-Day Percent of Normal Precipitation. Although the central third or so of the state has had well above average precipitation, far northeast Montana has been generally left out.

60 Day Temperature Anomalies (Montana)

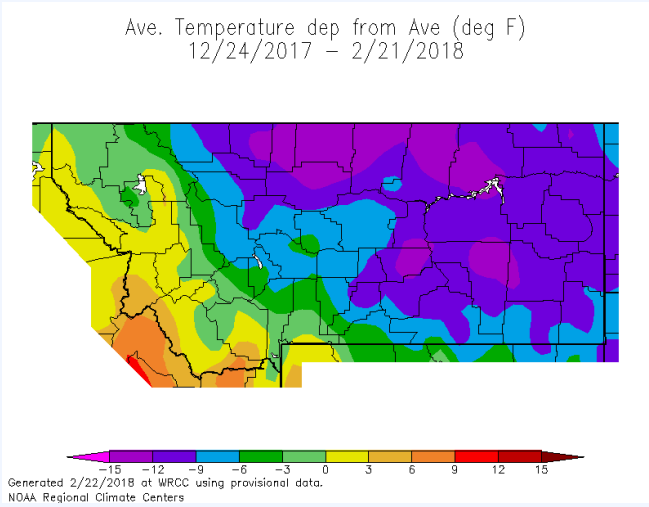

Figure 2: 60-Day Temperature Anomalies. Aside from far southwest sections of Montana, much of Central and eastern Montana has experienced below average temperatures on average over the past couple of months.

CPC Three Month Outlook: The Climate Prediction Center released its three month outlook for temperature and precipitation for March 2018 through May 2018 on February 15, 2018. The three month outlook calls for below average temperatures for all of Montana and above average precipitation for the period. This does not mean that there won't be warmer than average or drier than average days, but on the whole this is what is expected. If the timing is right, hopefully this will be welcome news for those with interests in this year's growing season. Additionally, perhaps we can continue to chip away at the drought! The latest outlook in full detail is available here for anyone wanting additional details.

Figure 3: Climate Prediction Center three month temperature (left) and precipitation (right) outlook for March 2018 through May 2018.

Updated U.S. Drought Monitor: The latest U.S. Drought Monitor was released on Thursday March 1, 2018. While drought conditions have been improving overall across portions of the state thanks to above average precipitation this winter, a notable exception exists across far northeast Montana. That's because the most common storm track has led to the highest precipitation amounts over central and southwest portions of the forecast area. In other words, this winter was very different for folks in Plentywood, MT as compared with the Little Rockies. With the CPC outlook calling for above average precipitation chances continuing, however, hopefully some relief will occur for the rest of the state that has thus far been left out.

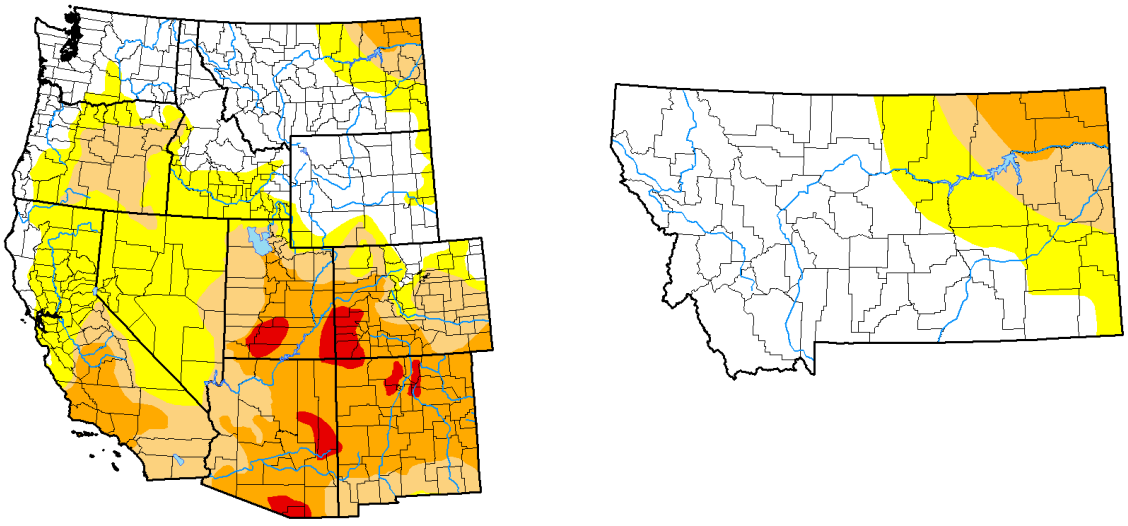

Figure 4: Latest Drought Monitor for the western U.S. (left) and Montana (right) released Thursday March 1, 2018.

U.S. & Global Climate Highlights (December): The latest U.S. and global climate highlights for December 2017 are now available. A few points for you to take home are provided below.

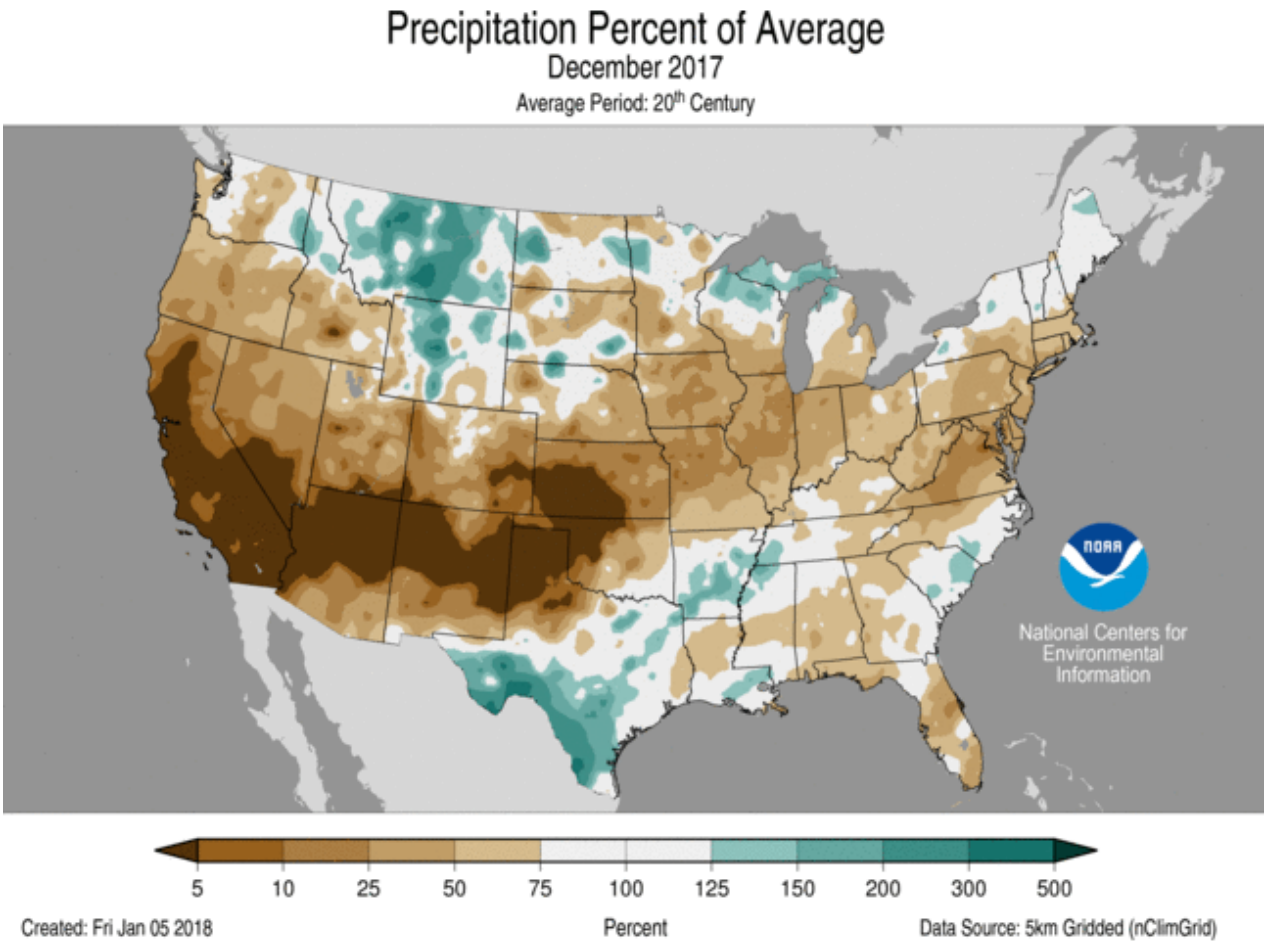

Figure 5: Precipitation compared with normal in December 2017.

U.S. Highlights for December 2017

1) The contiguous U.S. average temperature for December 2017 was 34.8 °F, ranking among the warmest third on record.

2) The average December precipitation total for the contiguous U.S. came in at 1.55 inches, or 0.80 inch below normal.

3) According to the U.S. Drought Monitor, 27.7% of the contiguous U.S. was in drought.

Global Highlights for December 2017

1) The average temperature across global land and ocean surfaces for December 2017 tied with December 2016 as the 3rd warmest December on record.

2) The December global ocean average temperature was 1.01 °F above the 20th century average. This is the 6th highest global ocean temperature for December on record.

3) La Niña conditions continued in December 2017.

U.S. & Global Climate Highlights (January): The latest U.S. and global climate highlights for November 2017 are now available. A few points for you to take home are provided below.

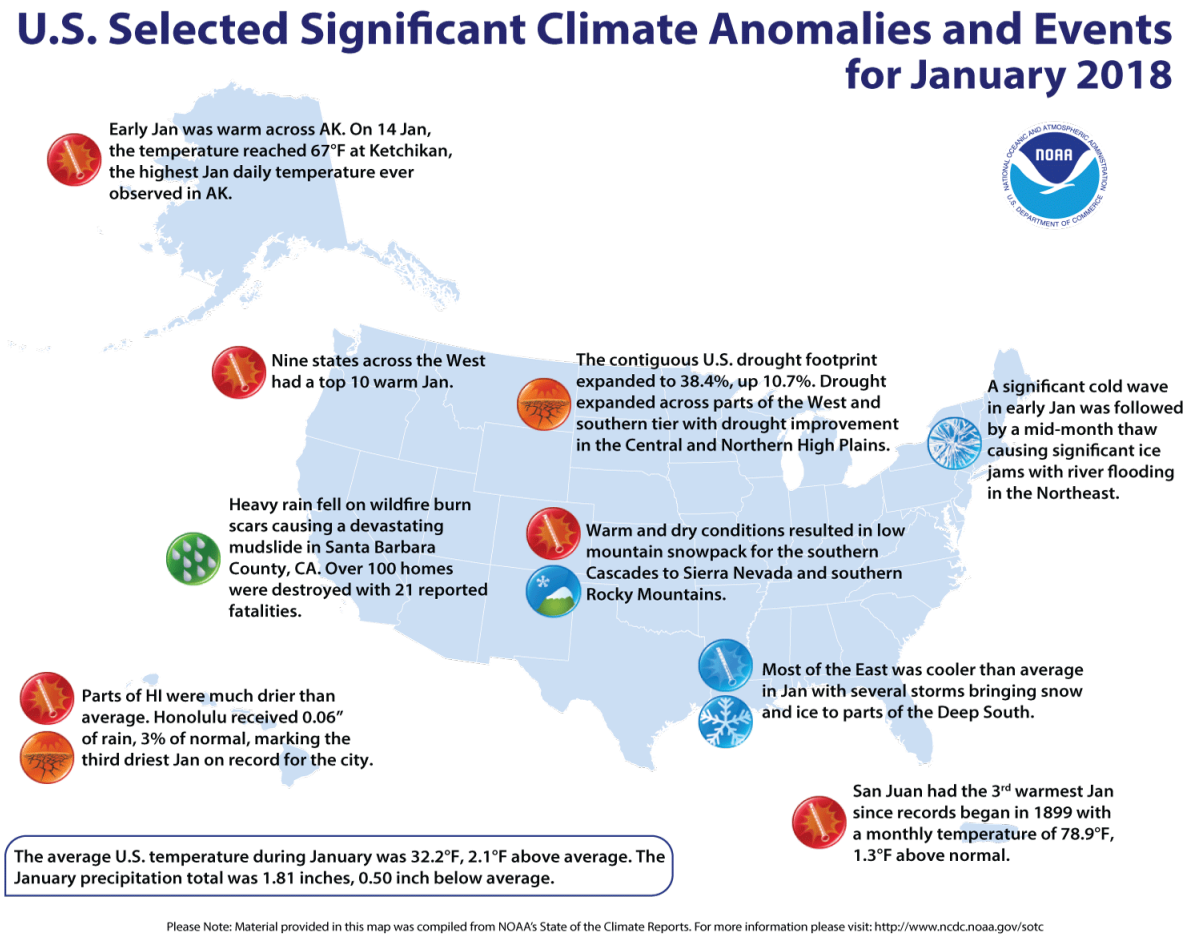

Figure 6: Highlights of U.S. climate events for January 2018.

U.S. Highlights for January 2018

1) The contiguous U.S. average temperature for January 2018 was 32.2 °F, placing it among the warmest third on record.

2) The average January precipitation total for the contiguous U.S. came in at 1.81 inches, or 0.50 inch below normal.

3) According to the U.S. Drought Monitor, 38.4% of the contiguous U.S. was in drought.

Global Highlights for January 2018

1) The average temperature across global land and ocean surfaces for January 2018 was the 5th warmest such January on record.

2) The January global ocean average temperature was 1.01 °F above the 20th century average. This is the 5th highest global ocean temperature for January on record.

3) La Niña conditions continued in January 2018, though a transition to ENSO-neutral conditions is expected in the Northern Hemisphere spring.

December Report of Hydrologic Conditions by Greg Forrester, Lead Forecaster at NWS Glasgow:

December started warm and dry and finished cold and wet. The wet spots were Zortman with 2.08 inches, Glasgow 46SW with 1.99 inches, and Flatwillow with 1.50 inches. The dry spots were Hoyt with 0.07 inch, Scobey with 0.11 inch, and Raymond with 0.16 inch. Glasgow had 0.72 inch which was 180 percent of normal. The prolonged period of below normal precipitation most of the year has kept Northeast Montana in severe to extreme drought at the end of December.

The first 19 days of the month were much warmer than normal, then there were a few days with temperatures near normal, and the final week of the month was much colder than normal. Glasgow averaged 17.1 degrees which was 0.8 degree above normal.

Stream flow on the Milk River was near normal for the first half of the month. The Milk River froze over on December 17 so stream flow information was not available for the remainder of the month. The Yellowstone and Missouri Rivers had above normal streamflow for most of the month. The Yellowstone and Missouri Rivers froze over the last week of December. The Poplar River was frozen most of the month so stream flow information was not available.

The Fort Peck Reservoir elevation fell to 2235.84 feet. The reservoir was at 84 percent of capacity and 103 percent of the mean pool.

January Report of Hydrologic Conditions by Greg Forrester, Lead Forecaster at NWS Glasgow:

January was a wet and snowy month across the southwest half of its hydrologic service area. The wet spots included Flatwillow with 2.63 inches, Glasgow 46W with 1.11 inches, and Mosby with 0.87 inch. The northeast half of the region was much drier with only a trace of precipitation at Raymond and Brockton 17N an 0.01 inch at Brockton 20s and Opheim 12SSE. Glasgow has 0.37 inch which was equal to normal for the month. The prolonged period of below normal precipitation during 2017 has kept Northeast Montana in severe drought at the end of January.

Deep snow pack has developed over the southwest half of the area during the month. Snow water equivalent was estimated to be between 2 and 4 inches at the end of January.

The temperatures were colder than normal for the month. Glasgow averaged 10.9 degrees which was 2.9 degrees below normal.

The Milk, Poplar, Missouri, and Yellowstone were frozen the entire month so streamflow information was not available.

The Fort Peck Reservoir elevation fell to 2234.88 feet. The reservoir was at 82 percent of capacity and 101 percent of the mean pool.

Links You May Like:

February ENSO Update

U.S. Temperatures for 2060-2069

Precipitation Data (December):

Station	Precipitation	Location
BAYM8	0.37	Baylor
BRDM8	0.70	Bredette
BTNM8	0.75	Brockton 17 N
BKNM8	0.77	Brockton 20 S
BKYM8	0.70	Brockway 3 WSW
BRSM8	0.82	Brusette
CLLM8	0.69	Carlyle 13 NW
CIRM8	0.41	Circle
CHNM8	0.31	Cohagen
COM8	0.66	Cohagen 22 SE
CNTM8	0.87	Content 3 SSE
CULM8	0.51	Culbertson
DSNM8	0.65	Dodson 11 N
FLTM8	1.50	Flatwillow 4 ENE
FPKM8	0.68	Fort Peck PP
GLAM8	M	Glasgow 14 NW
GGWM8	0.72	Glasgow WFO
GGSM8	1.99	Glasgow 46 SW
GNDM8	0.43	Glendive WTP
HRBM8	M	Harb
HINM8	1.42	Hinsdale 4 SW
HNSM8	0.42	Hinsdale 21 SW
HOMM8	0.32	Homestead 5 SE
HOYM8	0.07	Hoyt
JORM8	0.59	Jordan
LNDM8	0.18	Lindsay
MLAM8	1.24	Malta
MLTM8	0.79	Malta 7 E
MTAM8	0.60	Malta 35 S

Station	Precipitation	Location
MDCM8	0.20	Medicine Lake 3 SE
MLDM8	0.34	Mildred 5 N
MSBM8	0.75	Mosby 4 ENE
OPNM8	0.83	Opheim 10 N
OPMM8	0.36	Opheim 12 SSE
PTYM8	0.38	Plentywood
POGM8	0.78	Port of Morgan
RAYM8	0.16	Raymond Border Station
SAOM8	0.72	Saco 1 NNW
SMIM8	0.52	St. Marie
SAVM8	0.31	Savage
SCOM8	0.11	Scobey 4 NW
SDYM8	0.79	Sidney
SIDM8	0.65	Sidney 2S
TERM8	0.51	Terry
TYNM8	M	Terry 21 NNW
VIDM8	M	Vida 6 NE
WSBM8	0.45	Westby
WTRM8	1.05	Whitewater
WHIM8	M	Whitewater 18 NE
WBXM8	0.48	Wibaux 2 E
WTTM8	0.89	Winnett
WNEM8	0.84	Winnett 6 NNE
WNTM8	M	Winnett 8 ESE
WITM8	0.95	Winnett 12 SW
WLFM8	0.28	Wolf Point
ZRTM8	2.08	Zortman

Cold Advisory for Newborn Livestock (CANL): If you're busy calving, lambing, or preparing to raise newborn livestock, we are here for you to help you prepare for any weather impacts. The Cold Advisory for Newborn Livestock helps indicate weather conditions that are hazardous to newborn livestock such as wind chill, rain or wet snow, high relative humidity, as well as any combination thereof. It also factors in the impact of sunny vs. cloudy days. The impact areas are displayed on a map as either mild, moderate, severe, or extreme depending on the conditions. To see the current CANL forecasts or to read up further on the product, you can access more information here.

Precipitation Data (January):

Station	Precipitation	Location
BAYM8	0.30	Baylor
BRDM8	0.17	Bredette
BTNM8	T	Brockton 17 N
BKNM8	0.01	Brockton 20 S
BKYM8	T	Brockway 3 WSW
BRSM8	0.35	Brusette
CLLM8	0.48	Carlyle 13 NW
CIRM8	0.03	Circle
CHNM8	0.48	Cohagen
COM8	0.54	Cohagen 22 SE
CNTM8	0.23	Content 3 SSE
CULM8	0.08	Culbertson
DSNM8	0.11	Dodson 11 N
FLTM8	2.63	Flatwillow 4 ENE
FPKM8	M	Fort Peck PP
GLAM8	M	Glasgow 14 NW
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GGSM8	1.11	Glasgow 46 SW
GNDM8	0.30	Glendive WTP
HRBM8	M	Harb
HINM8	0.21	Hinsdale 4 SW
HNSM8	0.15	Hinsdale 21 SW
HOMM8	0.12	Homestead 5 SE
HOYM8	0.03	Hoyt
JORM8	0.27	Jordan
LNDM8	0.22	Lindsay
MLAM8	0.17	Malta
MLTM8	0.08	Malta 7 E
MTAM8	0.24	Malta 35 S

Station	Precipitation	Location
MDCM8	0.06	Medicine Lake 3 SE
MLDM8	0.22	Mildred 5 N
MSBM8	0.87	Mosby 4 ENE
OPNM8	0.22	Opheim 10 N
OPMM8	0.01	Opheim 12 SSE
PTYM8	0.21	Plentywood
POGM8	0.03	Port of Morgan
RAYM8	T	Raymond Border Station
SAOM8	0.12	Saco 1 NNW
SMIM8	0.10	St. Marie
SAVM8	0.24	Savage
SCOM8	0.08	Scobey 4 NW
SDYM8	0.36	Sidney
SIDM8	0.24	Sidney 2S
TERM8	0.50	Terry
TYNM8	M	Terry 21 NNW
VIDM8	0.16	Vida 6 NE
WSBM8	0.13	Westby
WTRM8	0.21	Whitewater
WHIM8	M	Whitewater 18 NE
WBXM8	0.26	Wibaux 2 E
WTTM8	0.54	Winnett
WNEM8	0.49	Winnett 6 NNE
WNTM8	0.85	Winnett 8 ESE
WITM8	0.74	Winnett 12 SW
WLFM8	0.60	Wolf Point
ZRTM8	0.72	Zortman

Late Winter Season Preparedness Tips: The calendar may say it is March, but we are still in winter mode in northeast Montana. Even early spring can bring a variety of winter-like impacts to the area such as snow, sleet, freezing rain, blowing and drifting conditions, and even hazardous wind chills. For a reminder on how to stay prepared for these hazards and more, you can visit our winter preparedness page.

Monthly Trivia: Last month we asked…

What is the fall velocity of a typical snowflake? (In other words, As a snowflake makes its journey from the cloud to the ground, how fast is it going?)

Answer: Check out the graphic below for the answer. You can learn more fun facts about snow, as well as important winter time safety information here.

Figure 7: Graphical depiction of snowfall velocity trivia solution.

New Question: Spring is right around the corner! For those of you tired of the colder than average winter we have been having, that may be some welcome news. However, along with warmer temperatures comes snowmelt, ice jams, and increasing chances for rainfall—all of which help increase the risk of stream flooding. This month's trivia question asks: Which of the lower 48 states has the highest number of reported ice jams?

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