Under the Big Sky e-Letter
March & April 2018

A Peak Inside:

60 Day Percent of Normal Precipitation (Montana)

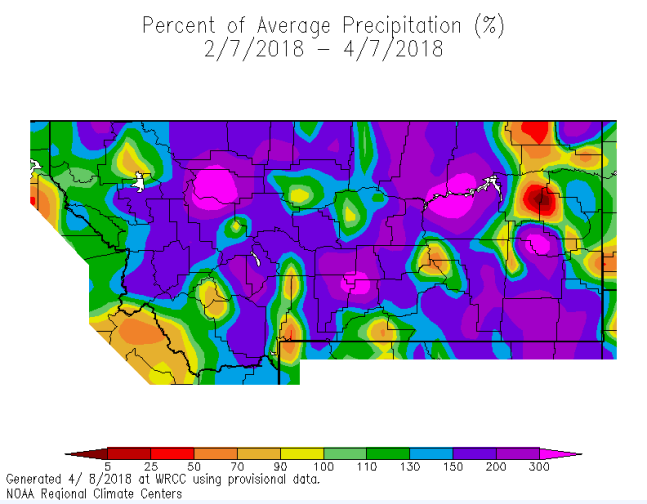


Figure 1: 60-day percent of normal precipitation across Montana.

SKYWARN 2018: Become a SKYWARN spotter and share your hail, wind, and other severe weather reports with us by attending a training near you! This is a great way to serve your community! Check out the remaining in-person training sessions below.

Date	Time	Location
~~4/12~~	~~1:00 PM~~	~~Sidney MT. Richland County Extension Office 1499 N Central Ave.~~
4/19	6:00 PM	Malta, MT. Library Basement Meeting Room.
5/3	6:00 PM	Wibaux, MT. New Fire Hall, off Old Hwy 10.
5/7	6:00 PM	Bainville, MT. New Fire Hall, 201 Clinton St.
5/9	6:00 PM	Poplar, MT Phase 3 building at Tribal Complex
5/14	6:00 PM	Bloomfield, MT School 2285 Fas 470
5/30	6:00 PM	Scobey, MT Nemont Friendship Room.

Flooding Concerns This Season: This past winter featured colder than normal temperatures and above average snowfall for much of the region. In fact, Glasgow, MT is on track to see its third snowiest season on record. Now that spring has arrived, ice is breaking up on area rivers and streams. Ice jam flooding was prevalent in March and led to flooding along the Musselshell River near Mosby, especially from March 19 to 23. Ice jam flooding occurred on the Yellowstone River from Glendive to Sidney from March 20 to 29. Now that we're in mid April, and we are starting to see temperatures trending back toward near normal (at least for now), much of the snow pack has melted or is in the process of doing so. This is leading to water rises along area rivers, creeks, and streams, and locations along the Milk River will likely experience flooding concerns through at least the early part of May. In fact, check out the river forecast for the Milk River near Glasgow over the next couple of weeks. Water levels are on the way up and the river is expected to crest near 31 feet over the next few days, potentially lingering in moderate flood stage into the beginning of May.

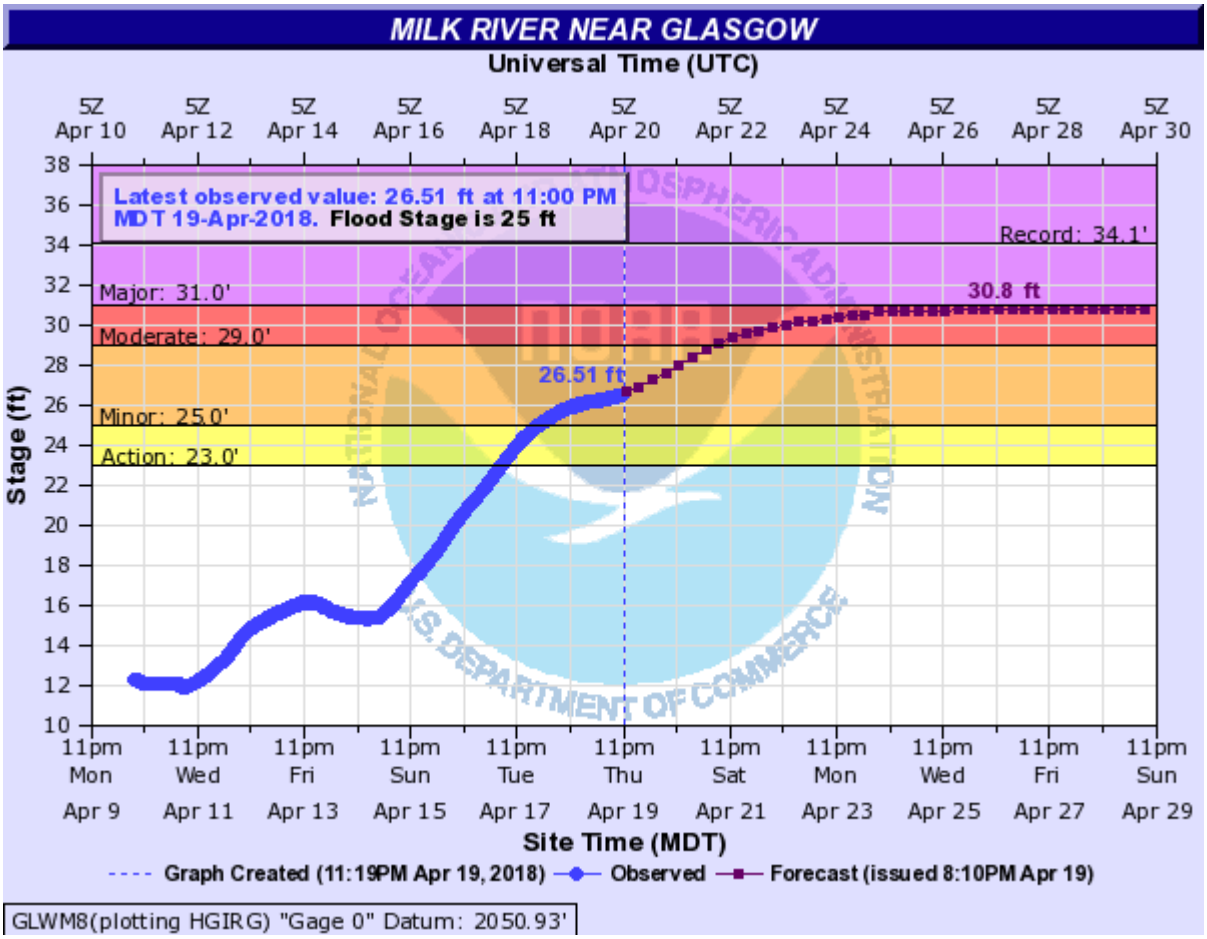


Figure 2: Milk River forecast near Glasgow through the next few weeks.

Weather conditions in the next few weeks, including wide swings in temperatures and/or any significant precipitation events can considerably influence the hydrology concerns presently underway across northeast Montana. Those with interests in the area can monitor the river levels as well as find the latest forecasts here.

CPC Three Month Outlook: The Climate Prediction Center released its three month outlook for temperature and precipitation for May 2018 through July 2018 on April 19, 2018. The three month outlook calls for equal chances for normal, above average, and below average temperatures and precipitation for most of Montana for the period. Perhaps there will be a break from the cold and wet pattern that we have been experiencing, or perhaps northeast portions of the region can find some drought relief. Right now there are no clear indications one way or the other. 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 May 2018 through July 2018.

Updated U.S. Drought Monitor: The latest U.S. Drought Monitor was released on Thursday April 12, 2018. Drought conditions continue to improve overall across portions of the state thanks to above average precipitation this past winter and so far this spring. The most common storm track has led to the highest precipitation amounts over central and southwest portions of the forecast area, so northeast portions of Montana are still in moderate to severe drought. However, with the CPC outlook calling for above average precipitation chances continuing, hopefully some relief will occur for the rest of the area that has thus far been left out.

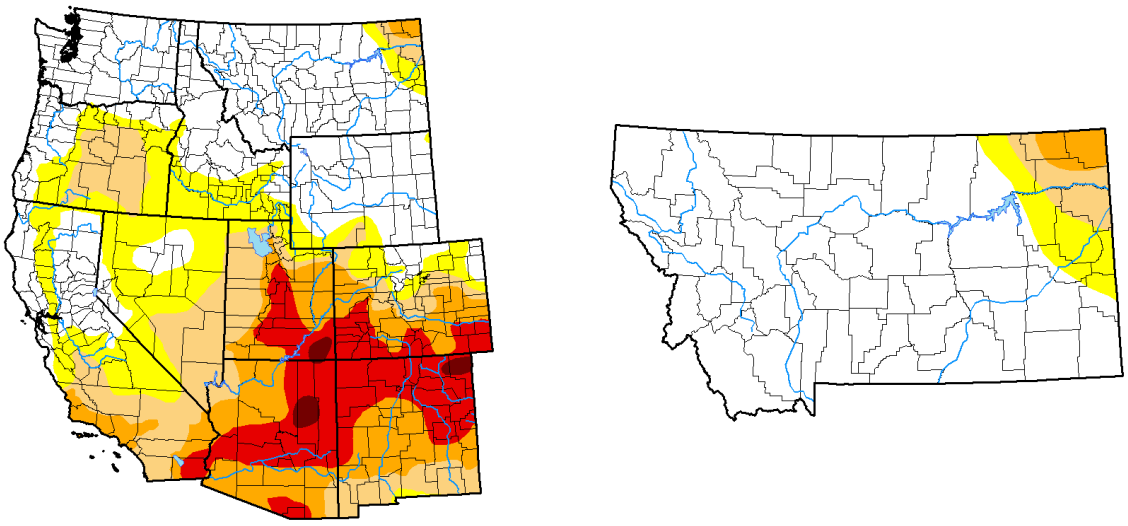


Figure 4: Latest Drought Monitor for the western U.S. (left) and Montana (right) released Thursday April 5, 2018.

U.S. & Global Climate Highlights (February): The latest U.S. and global climate highlights for February 2018 are now available. A few points for you to take home are provided below.

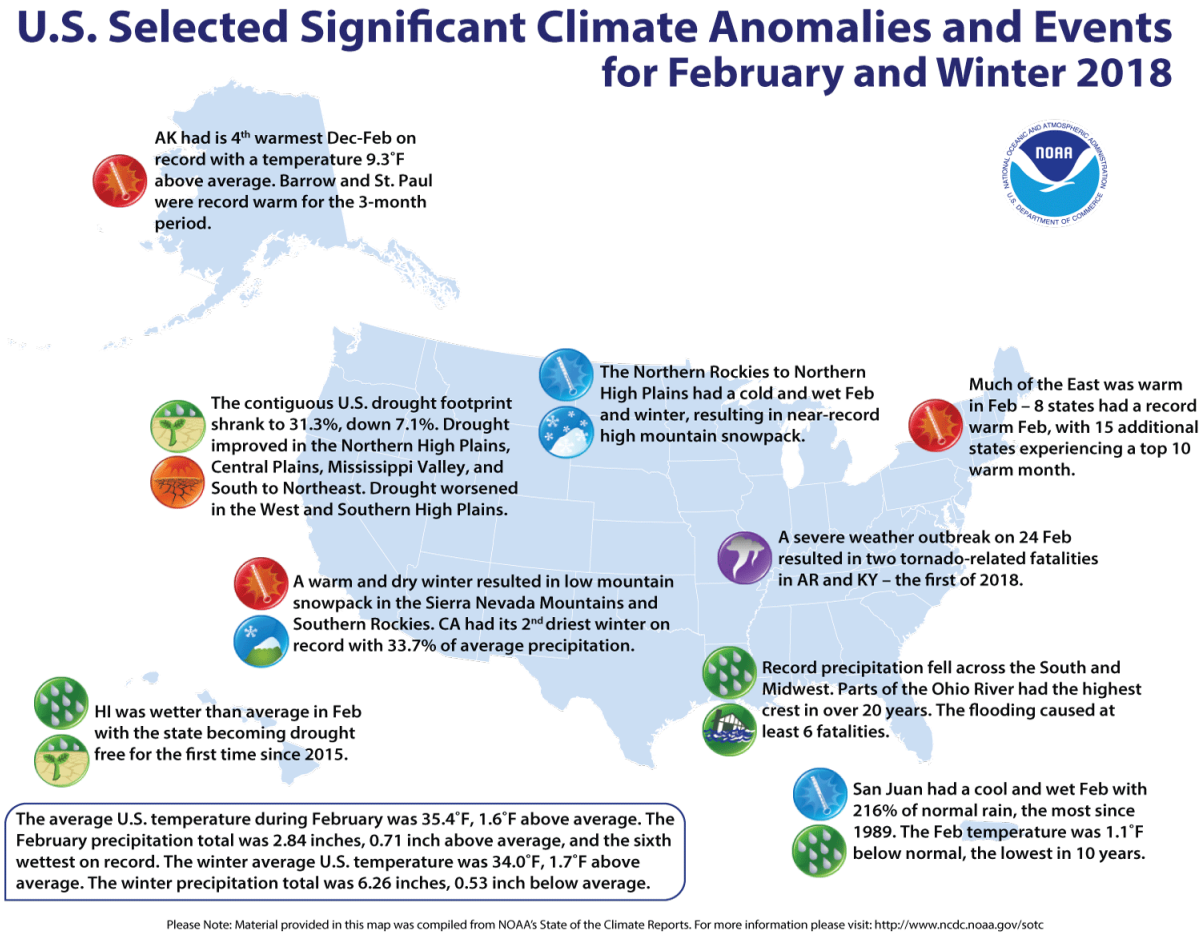


Figure 5: Climate Highlights for February 2018.

U.S. Highlights for February 2018

1) The contiguous U.S. average temperature for February 2018 was 35.4 °F, ranking among the warmest third on record.

2) The average February precipitation total for the contiguous U.S. came in at 2.84 inches, or 0.71 inch above normal.

3) According to the U.S. Drought Monitor, 31.3% of the contiguous U.S. was in drought.

Global Highlights for February 2018

1) The average temperature across global land and ocean surfaces was the 11th warmest February on record.

2) The February global oceans had their lowest February temperature since 2013, but this was still the seventh highest on record.

3) La Niña conditions weakened during February 2018, paving the way for ENSO-Neutral conditions to develop over the spring months in the Northern Hemisphere.

U.S. Climate Highlights (March):

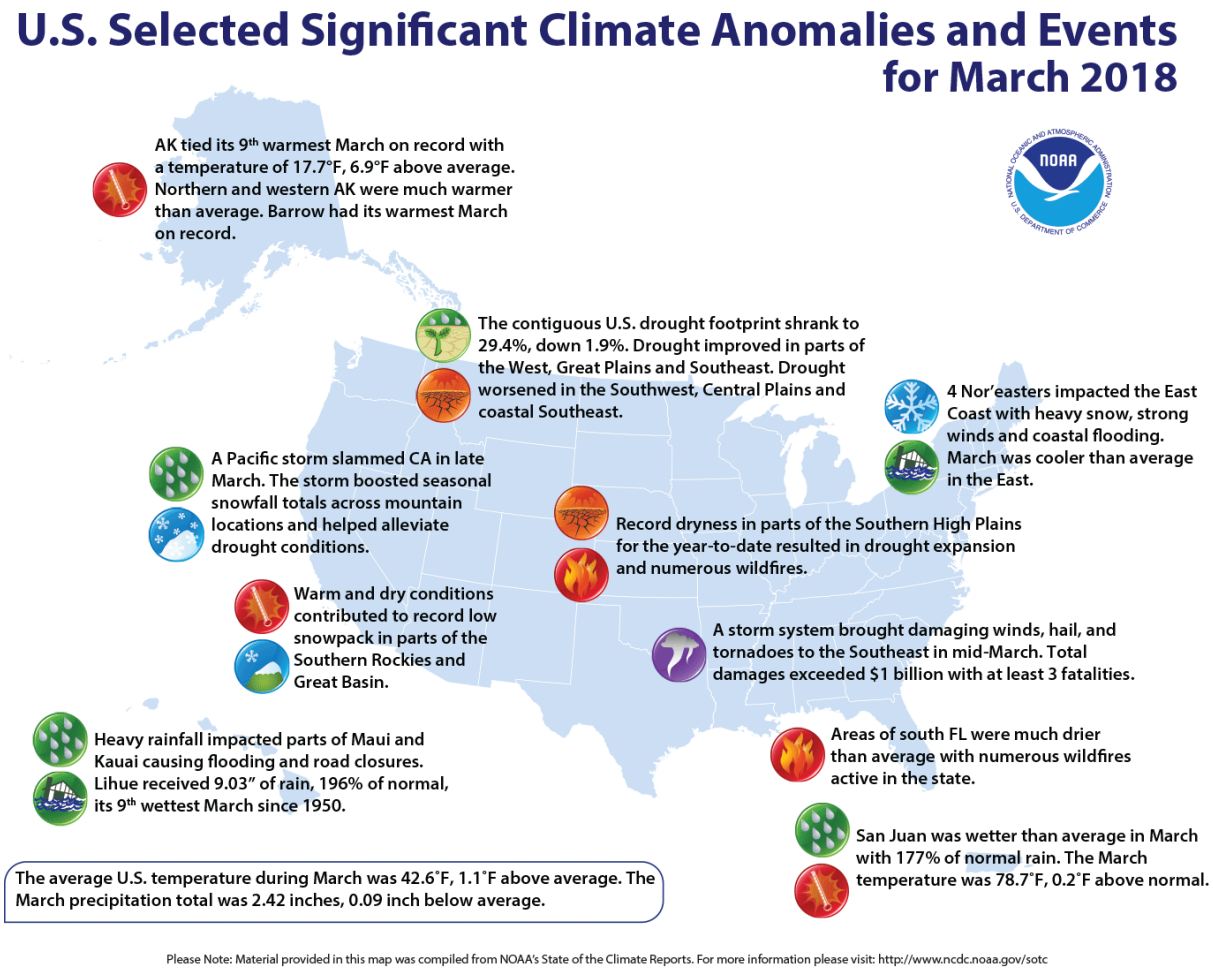


Figure 6: Highlights of U.S. climate events for March 2018.

U.S. Highlights for March 2018

1) The contiguous U.S. average temperature for March 2018 was 42.6°F.

2) The average March precipitation total for the contiguous U.S. came in at 2.42 inches, or 0.09 inch below normal.

3) According to the U.S. Drought Monitor, 29.4% of the contiguous U.S. was in drought.

4) March snow cover extent as analyzed by Rutgers Global Snow Lab was ranked as the sixth highest value over a 52 year period of record. This was also the highest March snow cover extent since 1979.

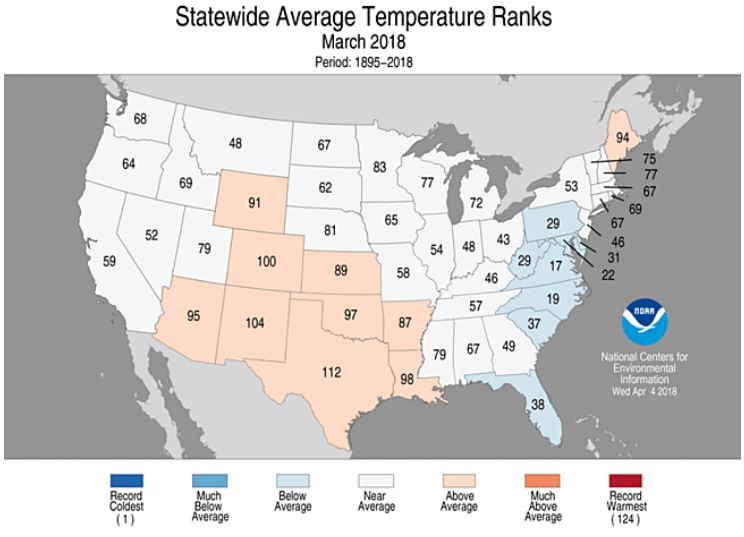


Figure 7: Statewide average temperature ranks across the U.S. for March 2018.

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

February was a bitter cold month across Northeast Montana. Several locations had their coldest February since 1936. Temperatures were between 15 and 20 degrees below normal for the month. Glasgow averaged 1.0 degree which was 18.1 degrees below normal.

The southwest half of Glasgow's hydrologic service area once again was much wetter than normal. The wet spots included Glasgow 46SW with 3.51 inches, Zortman with 2.00 inches, and Brusett with 1.88 inches. The northeast half of the region was much drier with only a trace of precipitation at Brockway, 0.05 inch at Raymond, and 0.06 inch at Medicine Lake. Glasgow had 0.78 inch which was 300 percent of normal. The northeast half of the region remained in severe drought at the end of February. The southwest half has improved to abnormally dry during the month with the recent heavy snow.

Deep snow pack continued to increase over the southwest half of the area during the month. Snow water equivalent was estimated to be between 5 and 8 inches at the end of February.

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

The Fort Peck Reservoir elevation fell to 2233.88 feet. The reservoir was at 80 percent of capacity and 100 percent of the mean pool.

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

March was a much colder than normal month across Northeast Montana. Most locations had temperatures between 5 and 10 degrees below normal for the month. Glasgow averaged 23.9 degrees which was 7.8 degrees below normal.

It was a wetter than normal month in most areas. The wet spots included Malta 35S with 2.05 inches, Zortman with 1.69 inches, and Hinsdale 4SW with 1.58 inches. The dry spots were Hoyt with 0.06 inch, Circle with 0.15 inch, and Medicine Lake with 0.27 inch. Glasgow has 1.26 inches which was 302 percent of normal. The northeast corner of the state remained in severe drought at the end of March. The southwest half of the region was no longer in drought with the recent heavy snow.

While a deep snow pack remained over Phillips County with 4 to 6 inches of snow water equivalent at the end of March, most of the snow over Garfield and Petroleum Counties melted. An ice jam and snow melt brought flooding to the Musselshell River between March 19 and 23. Ice jam flooding occurred on the Yellowstone River as ice broke up between March 20 and March 29.

The Milk, Poplar, and Missouri Rivers were frozen the entire month so stream flow information was not available. The Yellowstone River was frozen the first 3 weeks of the month, then it had well above normal stream flow the remainder of the month.

The Fort Peck Reservoir elevation rose to 2235.98 feet. The reservoir was at 82 percent of capacity and 102 percent of the mean pool.

Precipitation Data (February):

Station	Precipitation	Location
BAYM8	0.08	Baylor
BRDM8	0.34	Bredette
BTNM8	0.20	Brockton 17 N
BKNM8	0.52	Brockton 20 S
BKYM8	T	Brockway 3 WSW
BRSM8	1.88	Brusette
CLLM8	0.73	Carlyle 13 NW
CIRM8	0.59	Circle
CHNM8	0.85	Cohagen
COM8	0.75	Cohagen 22 SE
CNTM8	0.92	Content 3 SSE
CULM8	0.40	Culbertson
DSNM8	M	Dodson 11 N
FLTM8	2.26	Flatwillow 4 ENE
FPKM8	0.62	Fort Peck PP
GLAM8	M	Glasgow 14 NW
GGWM8	0.78	Glasgow WFO
GGSM8	3.51	Glasgow 46 SW
GNDM8	0.74	Glendive WTP
HRBM8	M	Harb
HINM8	0.86	Hinsdale 4 SW
HNSM8	0.50	Hinsdale 21 SW
HOMM8	0.30	Homestead 5 SE
HOYM8	0.11	Hoyt
JORM8	1.,12	Jordan
LNDM8	0.58	Lindsay
MLAM8	1.28	Malta
MLTM8	0.76	Malta 7 E
MTAM8	0.98	Malta 35 S

Station	Precipitation	Location
MDCM8	0.06	Medicine Lake 3 SE
MLDM8	0.58	Mildred 5 N
MSBM8	1.54	Mosby 4 ENE
OPNM8	0.39	Opheim 10 N
OPMM8	0.09	Opheim 12 SSE
PTYM8	0.55	Plentywood
POGM8	0.79	Port of Morgan
RAYM8	0.05	Raymond Border Station
SAOM8	0.81	Saco 1 NNW
SMIM8	1.04	St. Marie
SAVM8	0.62	Savage
SCOM8	0.14	Scobey 4 NW
SDYM8	0.42	Sidney
SIDM8	0.37	Sidney 2S
TERM8	1.13	Terry
TYNM8	M	Terry 21 NNW
VIDM8	0.36	Vida 6 NE
WSBM8	0.29	Westby
WTRM8	0.63	Whitewater
WHIM8	M	Whitewater 18 NE
WBXM8	0.70	Wibaux 2 E
WTTM8	0.97	Winnett
WNEM8	1.20	Winnett 6 NNE
WNTM8	1.79	Winnett 8 ESE
WITM8	2.24	Winnett 12 SW
WLFM8	0.43	Wolf Point
ZRTM8	2.00	Zortman

REMINDER! 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 (March):

Station	Precipitation	Location
BAYM8	0.03	Baylor
BRDM8	1.17	Bredette
BTNM8	0.47	Brockton 17 N
BKNM8	0.84	Brockton 20 S
BKYM8	0.67	Brockway 3 WSW
BRSM8	1.54	Brusette
CLLM8	1.33	Carlyle 13 NW
CIRM8	0.15	Circle
CHNM8	0.75	Cohagen
COM8	M	Cohagen 22 SE
CNTM8	1.24	Content 3 SSE
CULM8	0.76	Culbertson
DSNM8	M	Dodson 11 N
FLTM8	1.20	Flatwillow 4 ENE
FPKM8	0.77	Fort Peck PP
GLAM8	M	Glasgow 14 NW
GGWM8	1.26	Glasgow WFO
GGSM8	1.10	Glasgow 46 SW
GNDM8	0.71	Glendive WTP
HRBM8	M	Harb
HINM8	1.58	Hinsdale 4 SW
HNSM8	0.25	Hinsdale 21 SW
HOMM8	0.98	Homestead 5 SE
HOYM8	0.06	Hoyt
JORM8	0.90	Jordan
LNDM8	0.45	Lindsay
MLAM8	1.25	Malta
MLTM8	1.20	Malta 7 E
MTAM8	1.76	Malta 35 S

Station	Precipitation	Location
MDCM8	0.27	Medicine Lake 3 SE
MLDM8	0.61	Mildred 5 N
MSBM8	0.97	Mosby 4 ENE
OPNM8	1.01	Opheim 10 N
OPMM8	0.57	Opheim 12 SSE
PTYM8	1.58	Plentywood
POGM8	0.76	Port of Morgan
RAYM8	1.43	Raymond Border Station
SAOM8	0.89	Saco 1 NNW
SMIM8	0.54	St. Marie
SAVM8	1.01	Savage
SCOM8	0.33	Scobey 4 NW
SDYM8	1.28	Sidney
SIDM8	1.35	Sidney 2S
TERM8	0.63	Terry
TYNM8	M	Terry 21 NNW
VIDM8	0.67	Vida 6 NE
WSBM8	1.38	Westby
WTRM8	1.33	Whitewater
WHIM8	M	Whitewater 18 NE
WBXM8	0.49	Wibaux 2 E
WTTM8	M	Winnett
WNEM8	0.88	Winnett 6 NNE
WNTM8	M	Winnett 8 ESE
WITM8	1.55	Winnett 12 SW
WLFM8	0.37	Wolf Point
ZRTM8	1.69	Zortman

Links You May Like:

March ENSO Update

All About Ice

Links to Satellite Data

GOES-16 & Spider Lightning!

$3B in weather/climate disasters so far in 2018

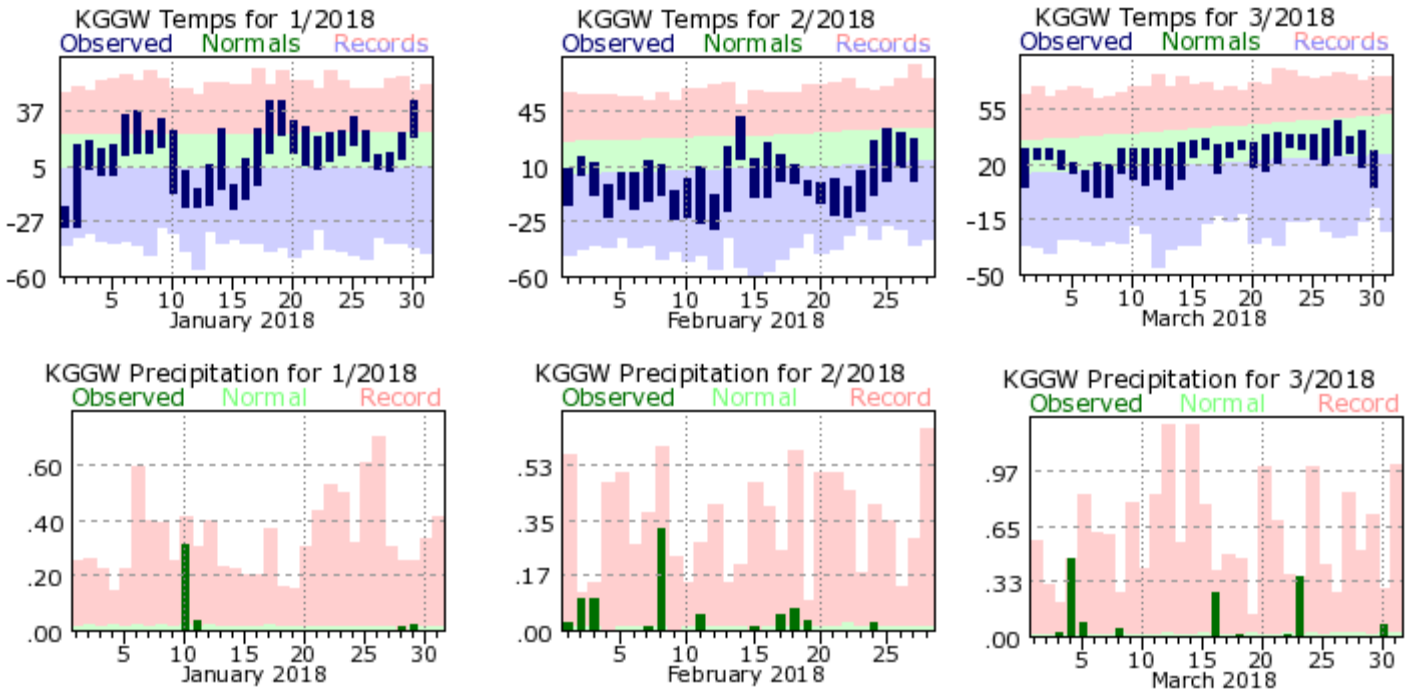
Monthly Trivia: Last month we asked…

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?

Answer: The answer is Montana! Montana has the highest number of reported ice jams in the lower 48 states and it also has the highest number of ice jam related deaths. Additionally, two-thirds of Montana's ice jams occur in February and March. Check out the Montana Ice Jam Awareness page for safety information, and more.

New Question: Severe weather convective season is right around the corner! The NWS offers a number of products to help you prepare, be safe, and be ready when severe weather strikes. This is a good time to refresh our memories on some of the differences between some of these products so that we understand what they mean. Do you remember what the difference is between a **watch** and a **warning**? We'll have the answer next month!

Winter Season Climate Highlights for Glasgow, MT for the 2017-2018 Season



At the NWS Glasgow office, the seasonal snowfall total as of April 19, 2018 was 63.4 inches. This is the 3rd snowiest winter on record for Glasgow. Of course, the all time record was 108.6" during the 2010-2011 season.

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