Under the Big Sky e-Letter February 2021

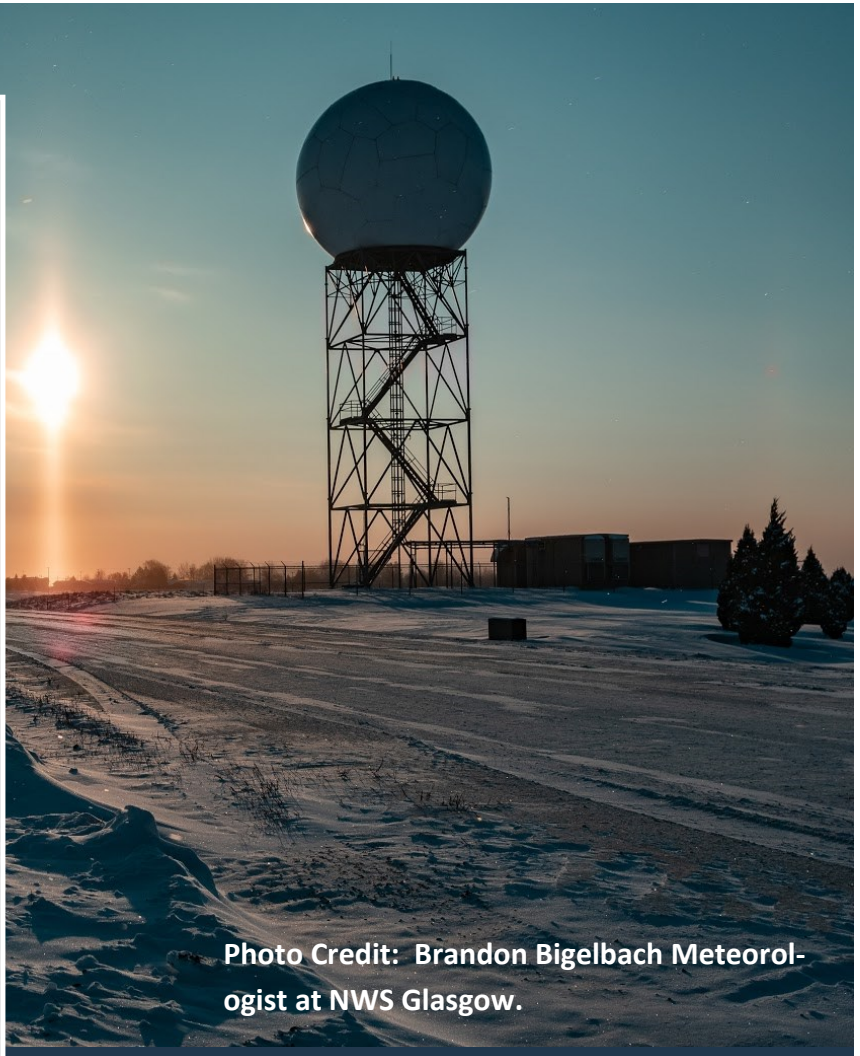


Photo Credit: Brandon Bigelbach Meteorologist at NWS Glasgow.

National Weather Service Glasgow, MT

Welcome to the February 2021 Edition of the NWS Glasgow Under the Big Sky E-Letter!

Each month we issue the latest Under the Big Sky newsletter in which we provide you with important weather, climate, and water information. Routinely included are the latest three month outlooks, the latest U.S. Drought Monitor, COOP precipitation reports, summaries of important weather events, trivia, and more. In addition, we also try to shed light on local office NWS Glasgow happenings from time to time such as keeping you up to date on any staffing changes.

We hope that you find these regularly issued newsletters both fun and informative and we thank you for allowing us the opportunity to serve!

As always, we continue to welcome any feedback that you may have so feel free to share with us what you think!

A Peak Inside:

Fort Peck Lake Ice Stats and Facts

By Tanja Fransen

Thanks to the Fort Peck US Army Corps of Engineers office, we have the annual lake ice on/ice out dates. We love looking at data and trends, and we thought we'd share some fun facts and stats that may be of interest to outdoor enthusiasts (and other weather geeks) in the region.

The earliest the lake has ever been declared frozen was Nov 29, 1955, and the latest was Feb 24, 2006. There were actually two years the lake never fully froze, the winter of 1986-87, and 1991-92. Those were years when we had a strong El Niño event, where the equatorial area in the Pacific Ocean is warmer than normal, sending the jet stream farther north and bringing warmer weather.

The earliest the ice was declared "out" is March 8, 2000, and the latest the ice lingered to was May 9, 1950.

The **shortest amount of time there was ice on the lake was 23 days**, from Feb 14, 2000 to Mar 8, 2000. Here were the temperatures in February and March 2000:

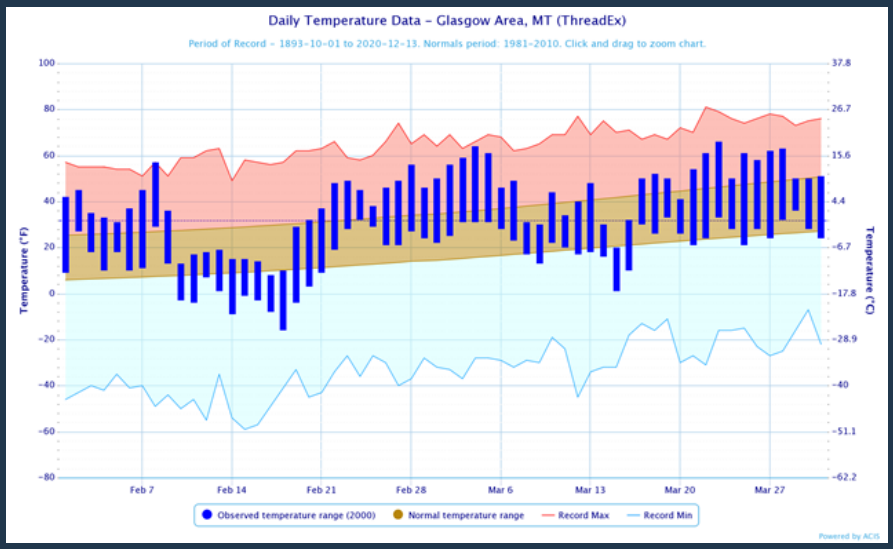


Figure 1: Glasgow, MT climate graphs of February 14, 2000 to March 8, 2000.

The **longest there was ice on the lake was 144 days** from Nov 29, 1955 to April 21, 1956. Here were the temperatures that winter, some pretty prolonged cold spells in there, many days the high temperature for the day was well below the normal low temperature for the day:

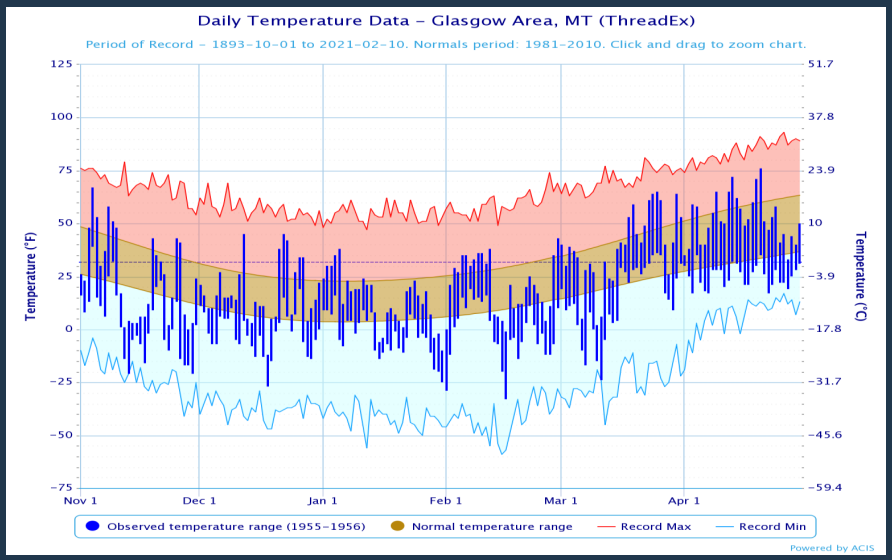


Figure 2: Glasgow, MT climate graphs from November 29, 1955 to April 21, 1956.

Fort Peck Lake Ice Stats and Facts (Continued)

By Tanja Fransen

On average, counting the two years the lake didn't freeze, there is ice cover for 90 days. When we are in an **El Niño** pattern, the average is **86.5 days**, and in a **La Niña** pattern (colder than normal equatorial Pacific Ocean temperatures) the average is **101 days**.

From Climate.gov:
https://climate.gov/news-features/understanding-climate/2020-arctic-report-card-climategov-visual-highlights
https://climate.gov/news-features/understanding-climate/january-2021-brought-contrasting-climate-patterns-northern

Optional:

https://toolkit.climate.gov/regions/alaska-and-arctic

Cold Advisory for Newborn Livestock (CANL)

As calving season gets underway across NE Montana, hazardous weather impacts such as wind chills, rain/snow, high humidity, etc., can lead to concerns during the late winter and early spring. NWS Glasgow uses this criteria based on research and feedback from the ranching community for the CANL product. Online via our website, you can also find additional background information on this product. The latest CANL forecasts are updated daily.

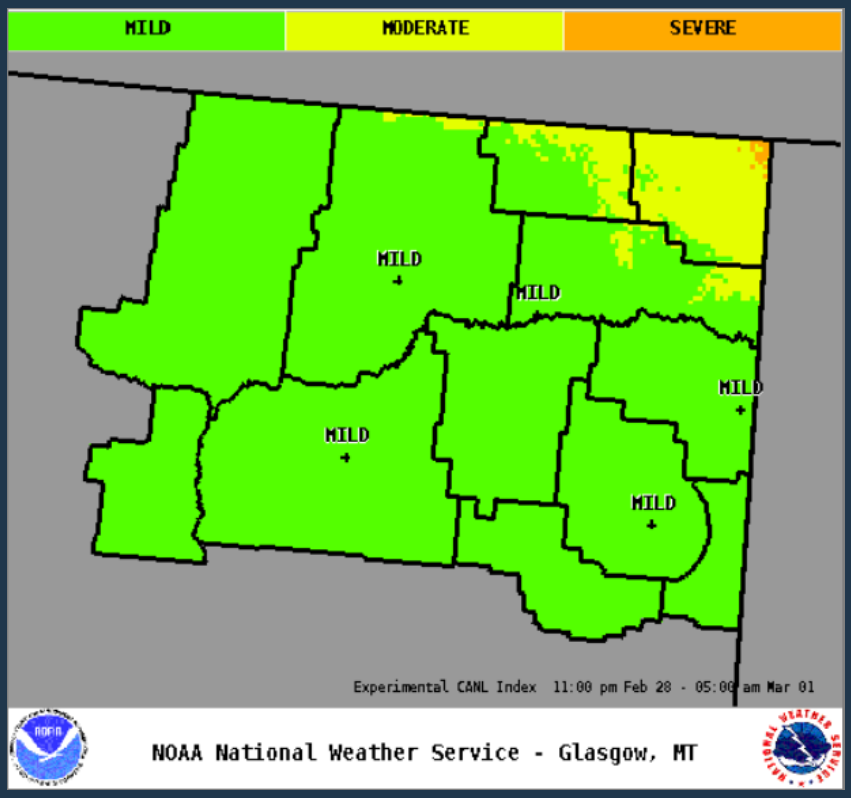


Figure 3: Here is an example of a CANL forecast valid 11PM 2/28 through 5am 3/1/2021. Note the "severe" conditions over NE Sheridan County.

Become a Weather Observer for CoCoRaHS:

NWS Glasgow is looking for new CoCoRaHS volunteers to send in daily precipitation reports.

CoCoRaHS is a grassroots organization with a network of dedicated observers who report daily precipitation such as rain, hail, or snow from all across the country. The data are used by meteorologists, insurance adjusters, mosquito control, and even by those in academia.

Participating in the CoCoRaHS program is a great way to make a difference in your community. And the best part is that you only need a couple of things to get started such as a 4 inch rain gauge and a ruler or yardstick. Why not give it a try today? All you have to do is check out the CoCoRaHS main page, hit the join button in the upper right, fill out the form, and take some initial training. Once you have your rain gage and ruler you are ready to get started!

Did you miss our recent CoCoRaHS training session: Check it out **here**.

30 Day Percent of Normal Precipitation (Montana)

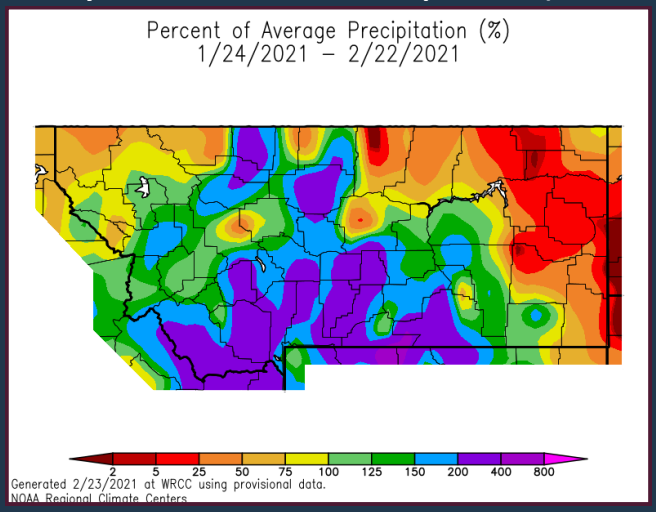


Figure 4: 30-day percent of normal precipitation across Montana.

Avg. Temp Departure from Normal (Montana)

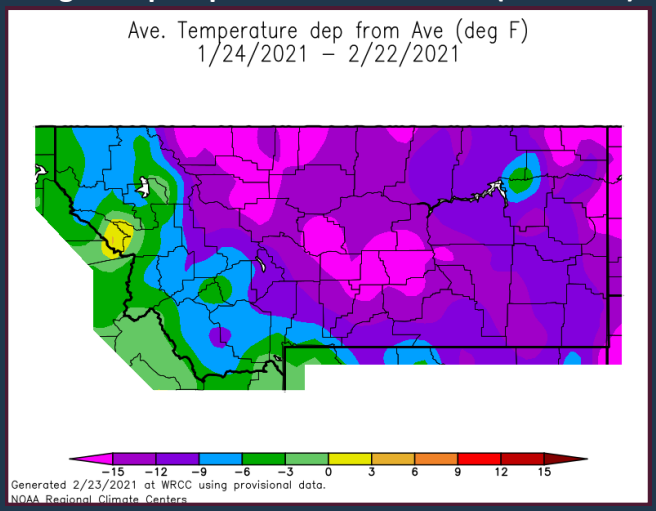


Figure 5: 30-day temperature anomalies across Montana.

Summary: Precipitation trended below normal for eastern Montana over the last 30 days as well as places over toward the northwest part of the state. Southern Montana and portions of Central Montana saw above normal Precipitation. Temperatures trended well below normal for most of the state. Far western Montana saw temperatures still below the average, but not as drastic as the departures further to the east.

What is “Normal”?

By Ted Jamba, Climate Program Manager

What is the normal high temperature for February 1st or July 4th? Our office uses information from the National Center for Environmental Information (NCEI) to answer these questions. This office calculates normal temperatures, precipitation and snow for many stations across the 50 United States and its territories. They are located in Asheville, North Carolina and are considered the primary official holder of the world’s climate information.

Every 10 years, the NCEI issues a new set of “Normals” for our area. Later this year we will begin using normals that were calculated from 1991 to 2020. For the past 10 years we have been using the normals from 1981 to 2010.

One of the changes that a climatologist in Alaska recognized was when the snowiest month occurs. This can be very important for local water users, farmers, ranchers, etc. According to his maps, this hasn’t changed much in northeast Montana, but has in other parts of the state. For instance to our west along Montana’s Front Range (area near Cut Bank to Great Falls), this has shifted from mainly March to January.

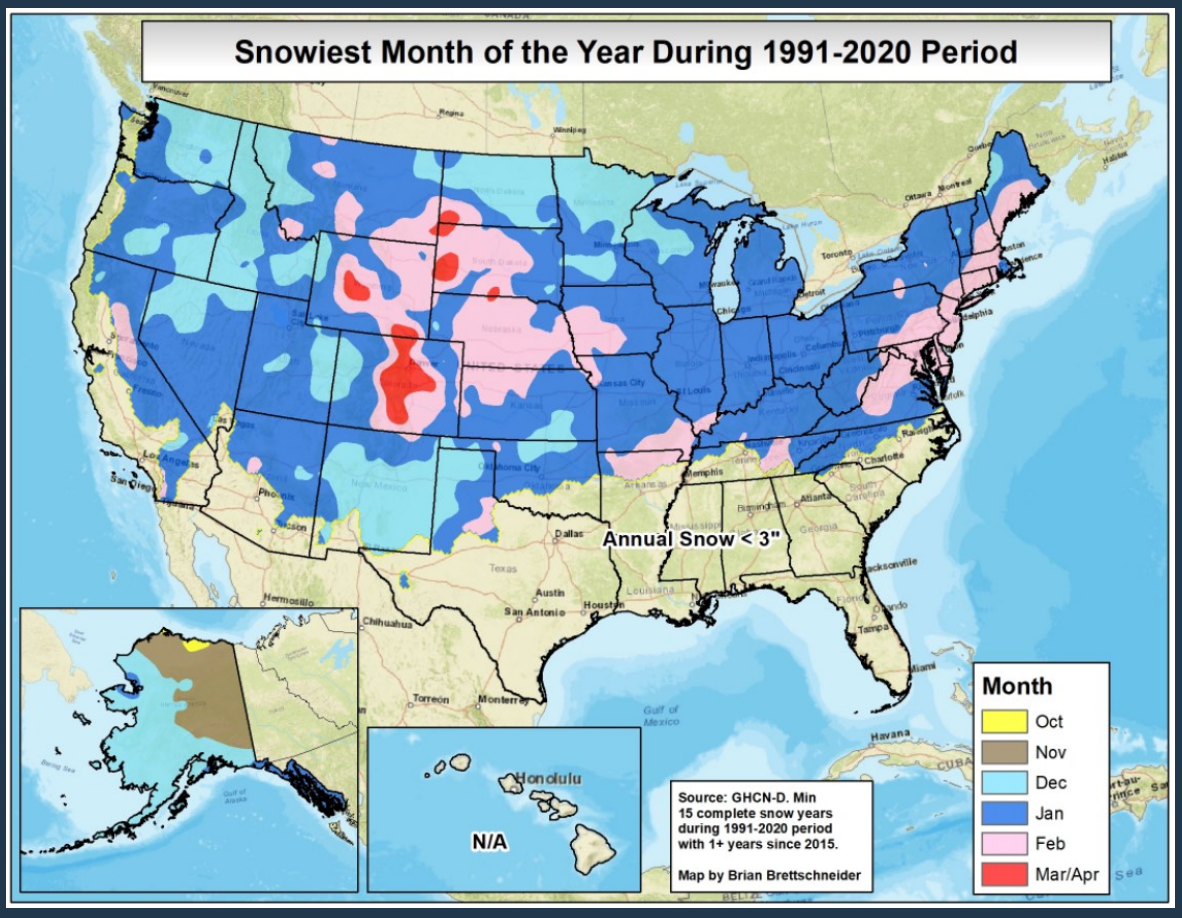


Figure 6: Map image of U.S. showing climatological snowiest month during the year during the 1991-2020 period, created by Brian Brettschneider, Climatologist at the University of Alaska.

What is “Normal”? (Continued)

By Ted Jamba, Climate Program Manager

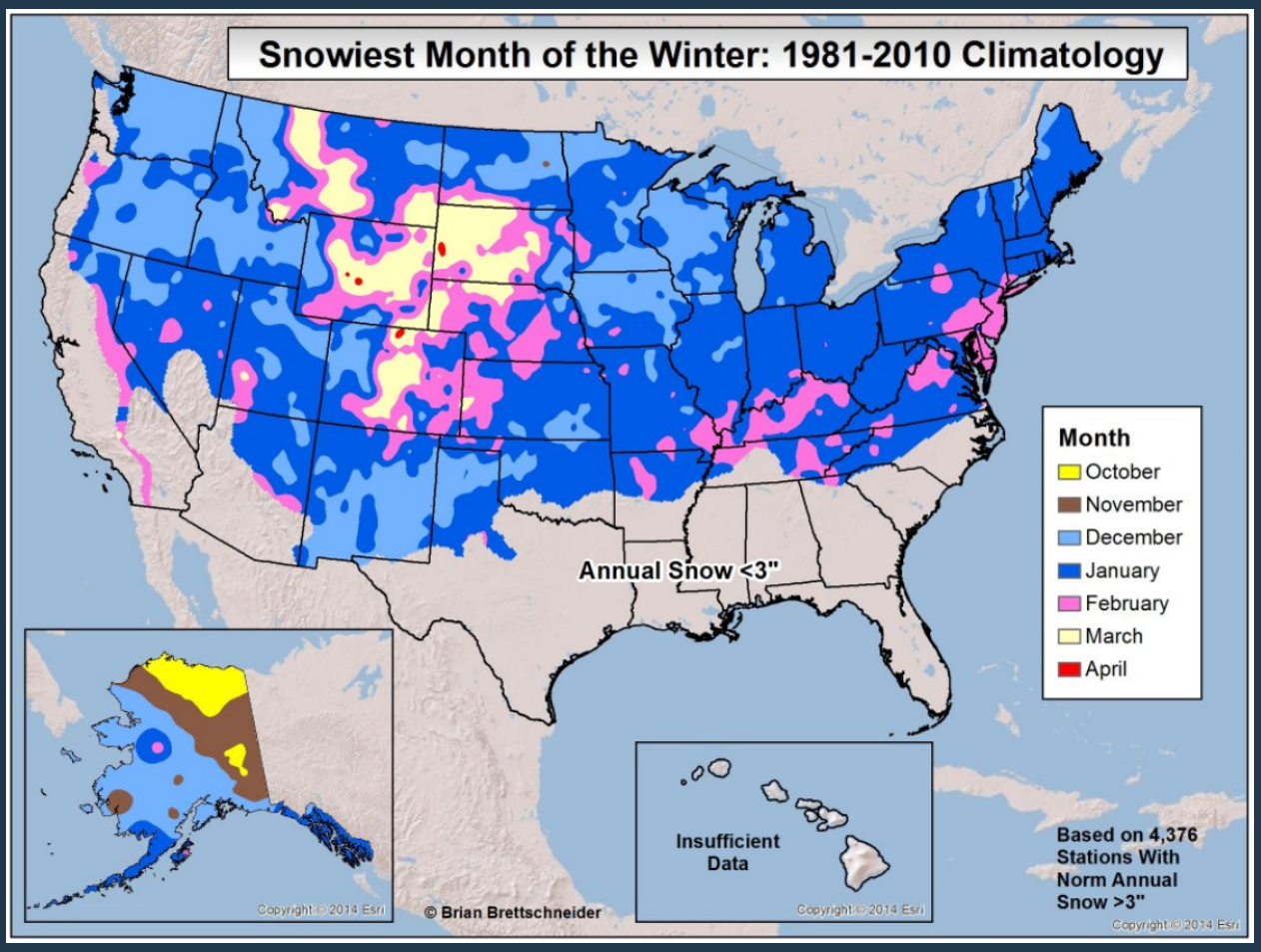


Figure 7: Map image of U.S. showing climatological snowiest month of the winter based off of 1981-2010 period, created by Brian Brettschneider, Climatologist at the University of Alaska.

If you want more information on the history of NCEI: https://www.ncdc.noaa.gov/about

For more information on the creator of the maps, Brian Brettschneider, you can visit his Twitter page: https://twitter.com/Climatologist49

Hydrologic Summary for February 2021 by Greg Forester, Lead Forecaster at NWS Glasgow:

It was a very dry and much warmer than normal month for temperatures over Northeast Montana. Most locations received less than half of their normal precipitation for the month. Three locations, Opheim 12SE, Scobey, and Whitewater only received a trace of precipitation for the month. Opheim 10N and Port of Morgan only received 0.01 inch and Brockway and Glasgow 14NW only received 0.02 inch for the month. The wet spots were Zortman with 0.33 inch, Plentywood and Flatwillow with 0.28 inch, and Jordan with 0.26 inch. Glasgow had 0.07 inch which was 19 percent of normal. Temperatures averaged between 9 degrees and 15 degrees above normal across the region. Glasgow averaged 27.3 degrees which was 13.5 degrees above normal.

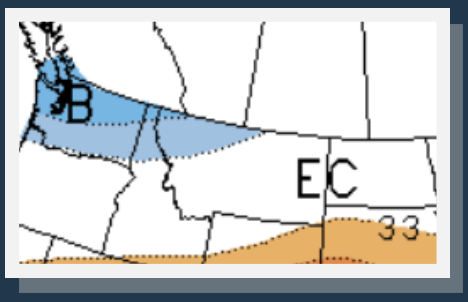
The dry weather has allowed severe drought to develop in the eastern part of the region which includes east of Scobey, Wolf Point, and Glendive. Moderate drought is now occurring over the remainder of the region.

Stream flow on the Milk, Yellowstone, Missouri and Poplar Rivers was not available due to the rivers being partly frozen.

The Fort Peck Reservoir elevation fell to 2234.3 feet during the month. The reservoir was at 80 percent of capacity and 100 percent of the mean pool.

CPC Three Month Outlook:

The Climate Prediction Center released an update of its three month outlook for temperature and precipitation for March through May on February 18, 2021. The outlook calls for equal chances for above normal, normal, and below normal temperatures over the three month period across northwest most parts of the state. Below normal temperatures are favored across northwestern Montana. Meanwhile, above average precipitation is favored across northwestern Montana over the period with equal chances for above average, average, or below average precipitation across the rest of the state. The latest outlook in full detail is always available here. In addition, you can check out the Climate Prediction Center Interactive site! You can zoom in on our area, and navigate to see the climate outlook for your specific location. The pie charts on the left hand side can be particularly useful for assessing the outlook at your specific location.



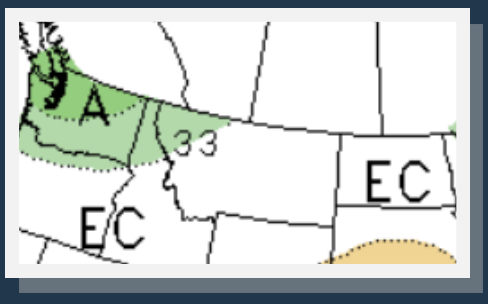
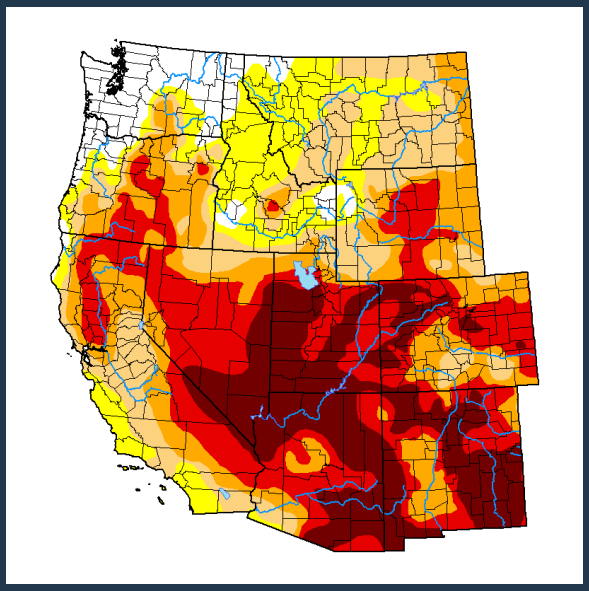
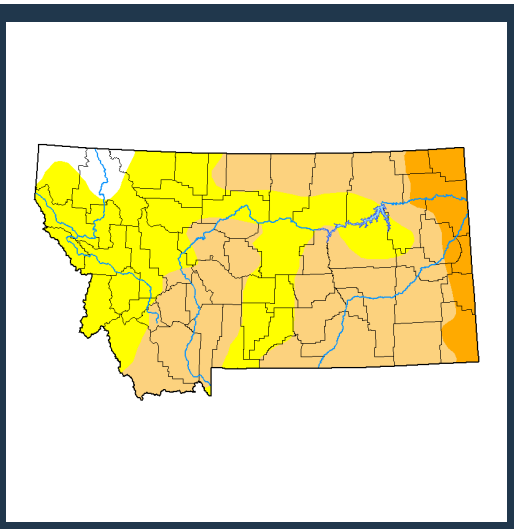


Figure 8: Climate Prediction Center three month temperature (top) and precipitation (bottom) outlook for December 2020 through February 2021.

U.S. Drought Monitor:

The latest U.S. Drought Monitor was released on Thursday February 18 2021. Eastern Montana has been placed in severe drought, much of central and southwestern portions of the state are under moderate drought conditions, and western Montana has abnormally dry conditions. Only far northwest portions of the state are void of any drought concerns.





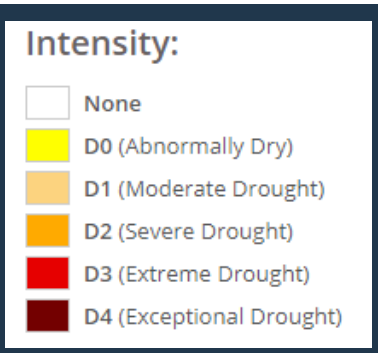


Figure 9: U.S. Drought Monitor updated February 18, 2021

U.S. & Global Climate Highlights (January): The U.S. & Global climate highlights for January 2021 have been released, the latest month for which data was available. A few points for you to take home are provided below.

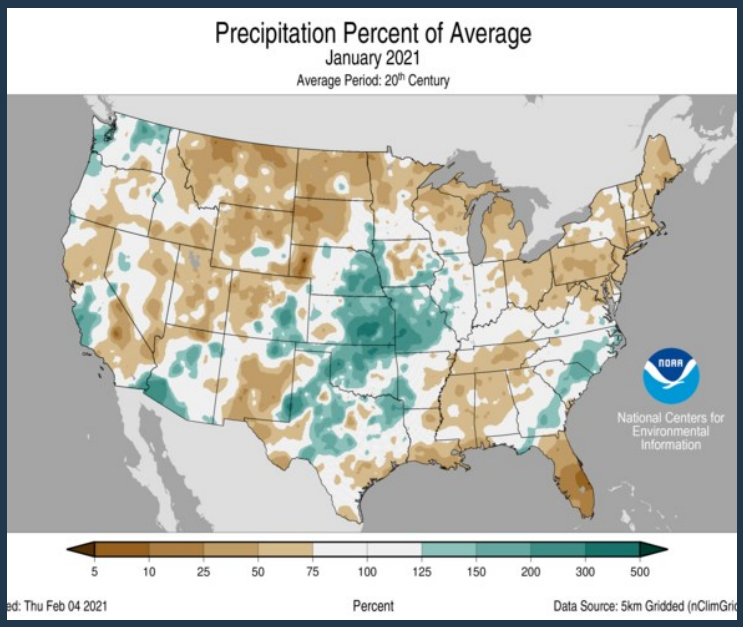


Figure 10: January 2021 Percent of Average Precipitation (U.S.).

U.S. Highlights for January 2021

1) The contiguous U.S. average temperature for January 2021 was 34.6 °F, ranking as the 9th warmest.
2) The average January precipitation total for the contiguous U.S. came in at 2.01 inches. This ranks within the driest third of the existing period of record.

Global Highlights for January 2021

1) The January 2021 global land and ocean surface temperature was the seventh highest for January on record.
2) The January 2021 global ocean only surface temperature departure was 1.04°F was the eighth highest on record.

Social Media Highlight of the Month

Meteorological winter (December-February) for 2020-2021 brought just 1.5 inches of snowfall to Glasgow, MT. Normal is 20.4 inches, for comparison. That means that this marks the driest meteorological winter on record for Glasgow, MT. Here's a depiction shared on our social media pages, highlighting this happening.

Minimum 3-Month Total Snowfall for Glasgow Area, MT (ThreadEx)

Click column heading to sort ascending, click again to sort descending.

Rank	Value	Ending Date	Missing Days
1	1.5	2021-02-28	1
2	1.9	1931-02-28	0
3	3.0	1933-02-28	0
4	3.4	1987-02-28	0
5	4.0	1944-02-29	0
6	4.3	1992-02-29	0
7	5.0	1913-02-28	0
8	5.8	1998-02-28	1
9	6.4	1927-02-28	0
-	6.4	1919-02-28	2

Figure 11: Table showing the top driest three month snowfall period ranging from December-February. This shows that 2020 December through February 2021 was the driest meteorological winter on record in Glasgow, MT.

Links You May Like:

ENSO Update

Groundhog vs. the Record

A Winter's Chill

Polar Vortex

Cooling Effect of Clouds

COOP Precipitation Data (*Preliminary* January 2021)

Station	Precipitation	Location
BAYM8	M	Baylor
BRDM8	0.15	Bredette
BTNM8	M	Brockton 17 N
BKNM8	0.12	Brockton 20 S
BKYM8	0.02	Brockway 3 WSW
BRSM8	M	Brusette
CLLM8	0.26	Carlyle 13 NW
CIRM8	0.15	Circle
CHNM8	0.14	Cohagen
COM8	0.09	Cohagen 22 SE
CNTM8	0.11	Content 3 SSE
CULM8	0.20	Culbertson
DSNM8	0.07	Dodson 11 N
FLTM8	0.28	Flatwillow 4 ENE
FPKM8	0.18	Fort Peck PP
GLAM8	0.02	Glasgow 14 NW
GGWM8	0.07	Glasgow WFO
GGSM8	0.21	Glasgow 46 SW
GNDM8	0.12	Glendive WTP
HRBM8	M	Harb
HINM8	0.11	Hinsdale 4 SW
HNSM8	0.03	Hinsdale 21 SW
HOMM8	0.05	Homestead 5 SE
HOYM8	0.07	Hoyt
JORM8	M	Jordan
LNDM8	0.14	Lindsay
MLAM8	M	Malta
MLTM8	0.03	Malta 7 E
MTAM8	M	Malta 35 S

Station	Precipitation	Location
MDCM8	0.07	Medicine Lake 3 SE
MLDM8	0.20	Mildred 5 N
MSBM8	0.16	Mosby 4 ENE
OPNM8	0.01	Opheim 10 N
OPMM8	T	Opheim 12 SSE
PTYM8	0.28	Plentywood
PTWM8	0.30	Plentywood 1 NE
POGM8	0.01	Port of Morgan
RAYM8	0.02	Raymond Border Station
SAOM8	0.05	Saco 1 NNW
SMIM8	0.01	St. Marie
SAVM8	0.17	Savage
SCOM8	T	Scobey 4 NW
SDYM8	0.08	Sidney
SIDM8	0.12	Sidney 2S
TERM8	0.09	Terry
TYNM8	M	Terry 21 NNW
VIDM8	M	Vida 6 NE
WSBM8	M	Westby
WTRM8	T	Whitewater
WHIM8	M	Whitewater 18 NE
WBXM8	0.22	Wibaux 2 E
WTTM8	M	Winnett
WNEM8	0.12	Winnett 6 NNE
WNTM8	0.26	Winnett 8 ESE
WITM8	0.07	Winnett 12 SW
WLFM8	0.05	Wolf Point
ZRTM8	0.33	Zortman

Monthly Trivia:

Last time we asked…

What causes an ice jam?

Answer: Ice jams are common during winter and spring along rivers and streams. As ice and debris push downstream, it can get caught on obstructions to the water flow. This leads to water being held back and can cause upstream flooding. As the ice jam breaks, flash flooding may occur downstream. Snowmelt often plays a role as well. Runoff into rivers associated with snowmelt can exert a sudden push on the ice, leading to jamming. A more detailed explanation as well as flood safety information can be found here. Check out the latest river forecasts and levels here.

New Question: During the spring flood season, we usually use the phrase "Turn Around, Don't Drown!" as part of our safety campaign each year. That's because many get caught off-guard when encountering flooded or washed out roads in their vehicles. Many individuals can underestimate how deep the water is across the road, or overestimate their ability to power through it. This leads us to the next trivia question for you to ponder: Just how much water does it take to lift a vehicle? We'll cover the details in the next newsletter!

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