

Under the Big Sky e-Letter

April 2019



A Peak Inside:

- [30-Day precip & temps/Join CoCoRaHS...Page 1](#)
- [Skywarn Schedule...Page 2](#)
- [Meet the staff...Page 3](#)
- [CPC Outlook/Drought Monitor...Page 4](#)
- [Climate Highlights...Page 5](#)
- [Monthly COOP Precipitation...Page 6](#)
- [Monthly Trivia, Winter 18-19 Summary...Page 7](#)

Join CoCoRaHS: Spring convective season is



on the way across northeast Montana. This is a time of year when there can be a great spread in precipitation amounts over really short distances. You may get

a downpour while your neighbor sees very little (if any) precipitation. Help us get some ground truth this year by reporting your daily precipitation reports through CoCoRaHS! It is a fantastic way to make a difference in your community, and getting involved can even help save lives! Check out the national CoCoRaHS [webpage](#) and click on **join** on the upper right to create your weather station today!

30 Day Percent of Normal Precipitation (Montana)

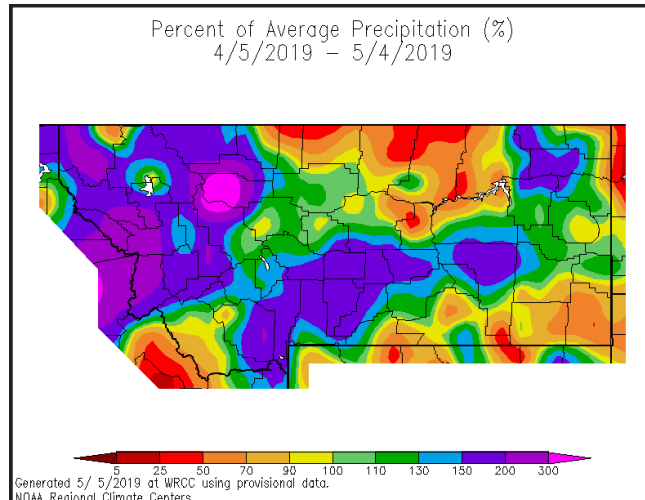


Figure 1: 30-day percent of normal precipitation across Montana.

30 Day Temperature Anomalies (Montana)

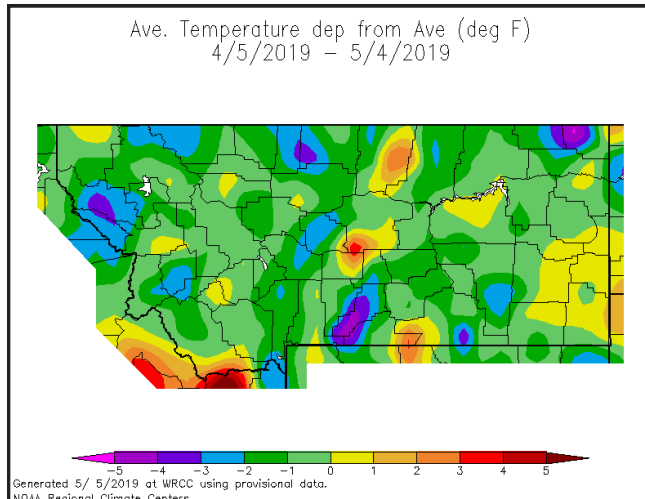




Figure 2: 30-day temperature anomalies across Montana.

Summary: 30 day precipitation has trended above or near normal for eastern and southern portions of the forecast area, and western MT. North-Central MT has seen below normal precipitation. Temperatures have generally been near normal with a few exceptions in our forecast area. Eastern Daniels and Western Sheridan Counties, for example, have been below normal.

SKYWARN 2019 Schedule:



2019 Skywarn Schedule for Northeast Montana

Date	Time	Location
4/4	7:00 PM CDT/ 6:00 PM MDT	Grenora, ND. Fire Hall, 15060 Hwy 50.
4/15	6:00 PM	Beach, ND. Community Center, 153 Main St.
5/1	6:00 PM	Jordan, MT. The Summit Corral. Hwy 200.
5/2	6:00 PM	Outlook, MT. Civic Center.
5/8	6:00 PM	Vida, MT. Vida School, 200 Shell St.
5/9	6:00 PM	Froid, MT. Library / Fire Hall 101 2 nd St. N.
5/14	6:00 PM	Winnett, MT. Courthouse basement.
5/20	4:00 PM	Terry, MT. Courthouse, 217 Park St.
5/29	6:00 PM	Glasgow, MT. Cottonwood Inn, 54250 US-2.
5/30	6:00 PM	Savage, MT. Fire hall, 101 Main St.





Photo: July 9, 2018 Plentywood Tornado courtesy Alexa Olson

Figure 3: Skywarn schedule for 2019.

It's not too late to become a SKYWARN spotter for NWS Glasgow by attending one of the remaining training sessions in May. There are several classes remaining, and becoming a spotter is a great way to serve your community. Learn how to report severe weather such as damaging winds and large hail and how your information can help us with our warnings and even save lives. Not only will you learn how to report to us, but you'll also take home with you important weather safety information that can help you keep yourself, your family, and your friends safe from a variety of weather hazards. It's a valuable, and fun learning experience for all who attend and well worth your time. We hope to see you there.

Can't make a training in person? Don't fret! You can also take the class [online](#). And, you can still take an in-person class in the near future to garner new information or simply as a refresher.

Meet the Staff:

This Month's Portrait: Cory Mottice, Lead Forecaster, NWS Glasgow

1. How do you like working for the National Weather Service?

I love working for the National Weather Service. You get to connect with people all over the country and make life-long friends—and all of that is just a bonus on top of providing potentially life-saving warnings to the general public.

2. What's your impression of living in NE MT? How did you decide that you wanted to come to Glasgow?

I decided to apply for this position in Northeast Montana for the incredible hunting and fishing opportunities this part of the country has to offer. On top of that, many National Parks are within driving distance and severe storms during the summer can be incredible in this area. All of this just fuels my desires for adventure and photography!

3. Can you name something that truly inspires you?

I am inspired by the many entrepreneurs across the world and am in awe at just what they are able to accomplish when they really set their mind to something. I try to mimic many of these qualities in my everyday life in the hope that it will help me perform my job to the best of my ability. It also drives me to never stop learning.

4. If you could name something that truly inspires you, what would that be?

I love hot weather with endless sunshine. Throw in a couple of isolated late-afternoon thunderstorms and it doesn't get much better than that!



Figure 4: Cory Mottice, Lead Forecaster at NWS Glasgow.

Hydrologic Summary for March by Greg Forrester, Lead Forecaster at NWS Glasgow:

It was a cold and dry month across Northeast Montana. The bitter cold of February continued into the first week of March. Temperatures gradually warmed later in March which lead to fast snow melt and flooding. Temperatures averaged 8 to 15 degrees below normal in most areas. Glasgow averaged 22.6 degrees which was 9.1 degrees below normal.

Lindsay and Sidney had no precipitation for the month. Several locations only had a trace which included Brockton 20S, Brockway, Culbertson, Medicine Lake, Plentywood, Saint Marie, Savage, Scobey, and Wolf Point. Parts of Phillips County had above normal Precipitation which included Content with 0.90 inch, Malta with 0.73 inch, and Malta 7E with 0.48 inch. Glasgow had 0.19 inch which was 45 percent of normal.

Snow melt and ice jams brought flooding to several rivers and creeks in late March. This included the Yellowstone, Red Water, Missouri, Milk, and Poplar Rivers as well as the Peoples, Beaver, Frenchman, and Big Muddy Creeks. Several small streams also flooded in late March.

After the ice broke up in late March, Stream flow on the Milk, Missouri, Poplar, and Yellowstone Rivers was well above normal.

The Fort Peck Reservoir elevation rose to 2238.1 feet during the month. The reservoir was at 85 percent of capacity and 105 percent of the mean pool.

CPC Three Month Outlook: The Climate Prediction Center released its three month outlook for temperature and precipitation for May 2019 through July 2019 on April 18, 2019. The three month outlook indicates that there is a greater likelihood for above average temperatures across western MT, and equal chance for above, normal, or below normal temperatures over central and eastern portions of the state. Through this same period, odds favor above normal precipitation across Montana, especially for southern portions of the state. The latest outlook in full detail is always available [here](#) for anyone seeking additional details. 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.

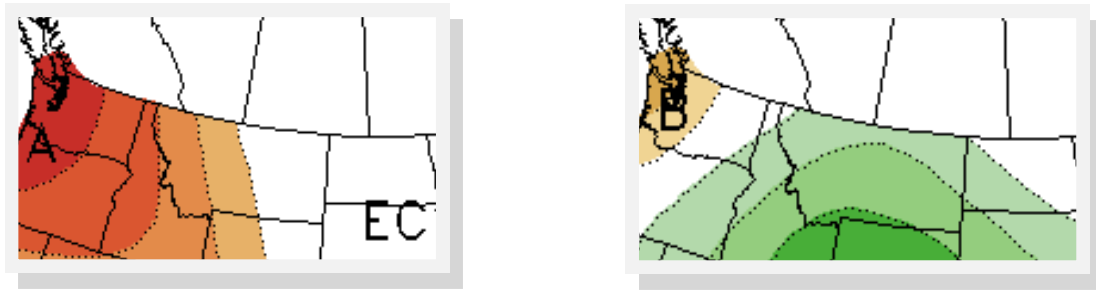


Figure 5: Climate Prediction Center three month temperature (left) and precipitation (right) outlook for April through June 2019.

Updated U.S. Drought Monitor: The [latest U.S. Drought Monitor](#) was released on Thursday May 2, 2019. Most of Montana is currently void of any drought conditions, however, portions of northwest and far northeast Montana are currently experiencing abnormally dry conditions.

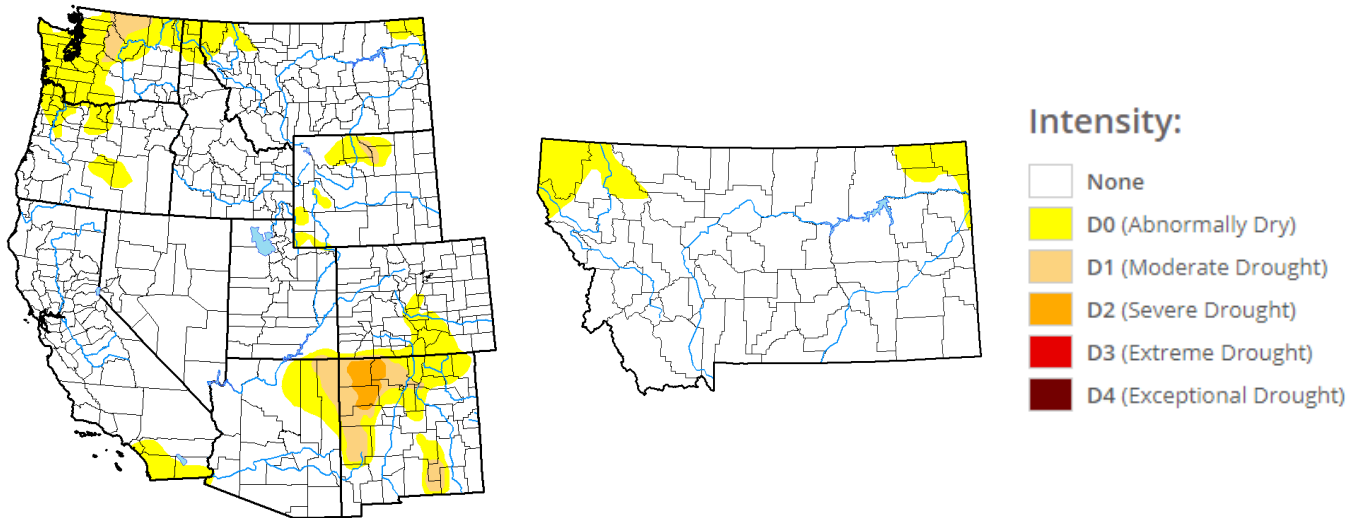


Figure 6: Latest Drought Monitor for the western U.S. (left) and Montana (right) released Thursday May 2, 2019.

U.S. Climate Highlights (March): The latest [U.S.](#) & [Global](#) climate highlights for March 2019 are now available. A few points for you to take home are provided below.

U.S. Selected Significant Climate Anomalies and Events for March 2019

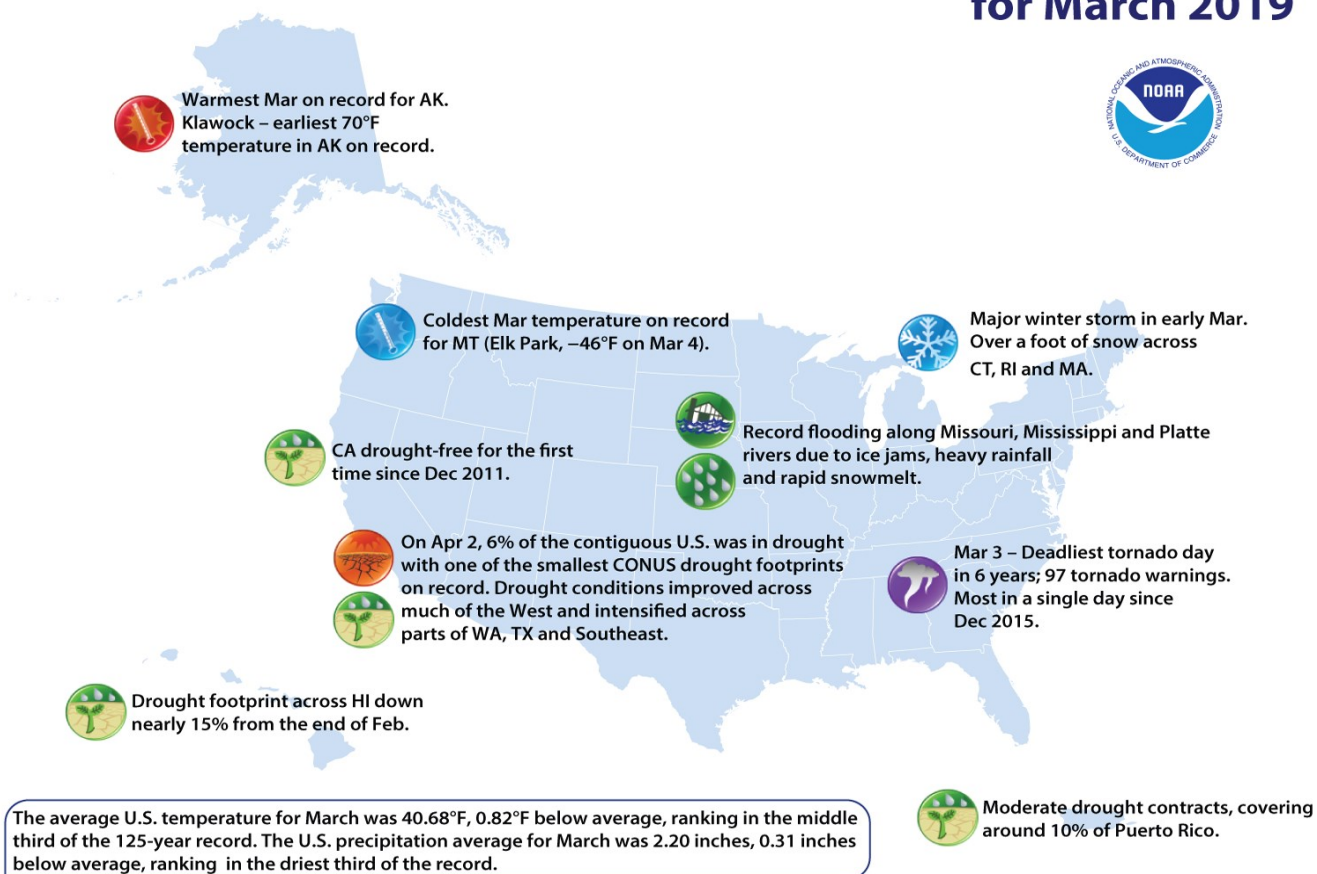


Figure 7: Climate Highlights for March of 2019.

U.S. Highlights for March 2019

- 1) The contiguous U.S. average temperature for March 2019 was 40.7 °F.
- 2) The average March precipitation total for the contiguous U.S. came in at 2.22 inches. This ranks within the driest third of the period of record.
- 3) According to the U.S. Drought Monitor, 6 of the contiguous U.S. was in drought.

Global Highlights for March 2019

- 1) The March 2019 global land and ocean surface temperature was 1.91 °F above average. This makes it the second warmest March on the record books.
- 2) The global ocean surface temperature specifically for March was also the second warmest on record, coming in at 1.31 °F above average
- 3) El Niño conditions were present in March 2019 and this is likely to continue through the Northern Hemisphere summer.

Precipitation Data (March 2019):

Station	Precipitation	Location
BAYM8	0.08	Baylor
BRDM8	0.10	Bredette
BTNM8	M	Brockton 17 N
BKNM8	T	Brockton 20 S
BKYM8	T	Brockway 3 WSW
BRSM8	M	Brusette
CLLM8	0.07	Carlyle 13 NW
CIRM8	0.02	Circle
CHNM8	0.23	Cohagen
COM8	0.29	Cohagen 22 SE
CNTM8	0.90	Content 3 SSE
CULM8	T	Culbertson
DSNM8	0.25	Dodson 11 N
FLTM8	0.18	Flatwillow 4 ENE
FPKM8	0.24	Fort Peck PP
GLAM8	M	Glasgow 14 NW
GGWM8	0.19	Glasgow WFO
GGSM8	0.27	Glasgow 46 SW
GNDM8	0.06	Glendive WTP
HRBM8	M	Harb
HINM8	0.44	Hinsdale 4 SW
HNSM8	T	Hinsdale 21 SW
HOMM8	T	Homestead 5 SE
HOYM8	0.04	Hoyt
JORM8	M	Jordan
LNDM8	0.00	Lindsay
MLAM8	0.73	Malta
MLTM8	0.48	Malta 7 E
MTAM8	0.53	Malta 35 S

Station	Precipitation	Location
MDCM8	T	Medicine Lake 3 SE
MLDM8	0.18	Mildred 5 N
MSBM8	0.29	Mosby 4 ENE
OPNM8	0.08	Opheim 10 N
OPMM8	0.02	Opheim 12 SSE
PTYM8	T	Plentywood
PTWM8	0.01	Plentywood 1 NE
POGM8	0.16	Port of Morgan
RAYM8	T	Raymond Border Station
SAOM8	0.35	Saco 1 NNW
SMIM8	T	St. Marie
SAVM8	T	Savage
SCOM8	T	Scobey 4 NW
SDYM8	0.00	Sidney
SIDM8	0.01	Sidney 2S
TERM8	0.19	Terry
TYNM8	M	Terry 21 NNW
VIDM8	0.00	Vida 6 NE
WSBM8	T	Westby
WTRM8	0.05	Whitewater
WHIM8	M	Whitewater 18 NE
WBXM8	0.19	Wibaux 2 E
WTTM8	0.13	Winnett
WNEM8	0.25	Winnett 6 NNE
WNTM8	0.22	Winnett 8 ESE
WITM8	0.19	Winnett 12 SW
WLFM8	T	Wolf Point
ZRTM8	0.18	Zortman

Links You May Like:

[March 2019: Second Hottest Ever](#)

[Awesome Video on the Carbon Cycle](#)

[Antarctic Sea Ice Extent](#)

[\\$2B worth of disasters so far in 2019 in U.S.](#)

[ENSO Update](#)

Monthly Trivia: Last month we asked...

New Question: Convective season is coming! This month, we ask, what are the different types of thunderstorms, and how do they form?

Answer: When the atmosphere becomes unstable, warm & moist air begins rising. As it cools, towering cumulus will, over time, become cumulonimbus, the hallmark cloud formation of an ordinary cell general thunderstorm. With increasing amounts of wind shear (changing speed and/or direction with height), thunderstorms can take on different forms, especially as the updraft into the storm remains separated from the downdraft. These are the storms, if the instability is great enough, that can evolve into squall lines, rotating supercells, etc. These storms in particular are what produce dangerous and damaging wind speeds and large hail, and on rare occasion, even a tornado. In short, what type of storm you get, and the associated hazards, are linked to the instability of the atmosphere and the presence of wind shear, as well as environmental properties (moisture, heating, lifting mechanism such as a front or terrain), etc. Remember, regardless of whether or not a storm becomes strong to severe, ALL thunderstorms are capable of producing dangerous cloud to ground lightning.



New Question: Now that we are approaching severe weather convective season, this is a good time to remind you that we have a number of ways to help keep you safe! This is a good point to offer up some trivia for a refresher. Do you remember the difference between a watch and a warning? We'll share the details of this very important information in the next newsletter, along with some helpful severe weather season safety tips and reminders!

A Look Back at Winter 2018-2019:

As we all look ahead to the dog days of summer, it's certainly worth looking back on this past winter's season for some key highlights of what took place for Glasgow, as well as northeast Montana. For Glasgow, the seasonal snowfall total topped 45.4" which ranks as 18th. A strong and prolonged Arctic push came through in early February (The 2nd to be exact), lingering through the first part of March. In fact, for Glasgow February was the 8th coldest month on record and the 2nd coldest February. It was also the first month to average below zero since January 1982. It was the snowiest February and the 5th snowiest month on record with 28.2 inches. It was also the third wettest February on record with 1.41 inches of precipitation. To the right, you can see how precipitation and temperature trended over the last six months. In general, much of the state was 2 to 4 degrees below average, including northeast Montana. Precipitation, taken as a whole over the last six months, has been on either side of average. So, at least over the past 6 months, that's how things have stacked up.

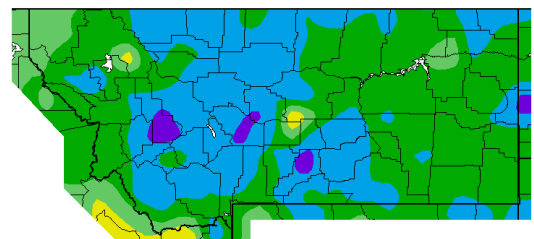
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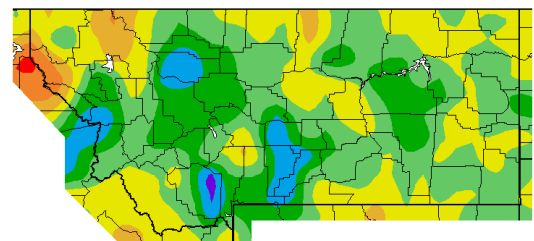
Ave. Temperature dep from Ave (deg F)
11/5/2018 – 5/4/2019



Generated 5/ 5/2019 at WRCC using provisional data.
NOAA Regional Climate Centers

Figure 8: Temperature anomalies last six months.

Precipitation Departure from Average (in.)
11/5/2018 – 5/4/2019



Generated 5/ 5/2019 at WRCC using provisional data.
NOAA Regional Climate Centers

Figure 9: Precipitation anomalies last six months.