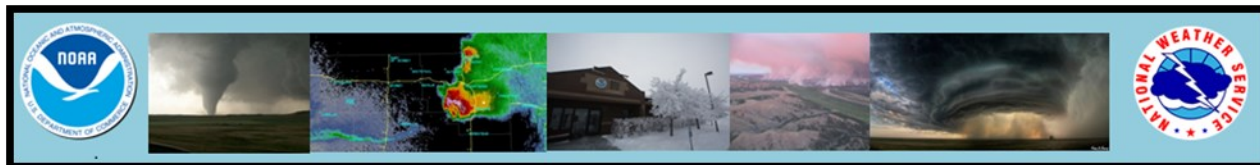


# Under the Big Sky e-Letter

## June 2019



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**Join CoCoRaHS:** This time of year it is not uncommon for someone to pick up heavy rainfall from a thunderstorm, when their



neighbor observes nothing at all. We can get estimations from radar imagery and other data sources, but our various types of weather observers help us to get further

ground truth. One network is called CoCoRaHS, The Community, Collaborative, Rain, Hail, & Snow Network. If you or someone you know is interested in reporting daily precipitation, please pass this information along. Becoming a CoCoRaHS observer is a great way to make a difference in your community! Check out the national CoCoRaHS [webpage](#) to learn more.

### 30 Day Percent of Normal Precipitation (Montana)

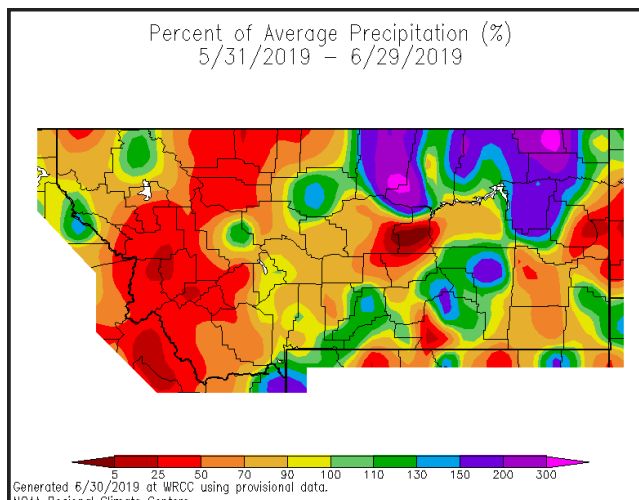


Figure 1: 30-day percent of normal precipitation across Montana.

### 30 Day Temperature Anomalies (Montana)

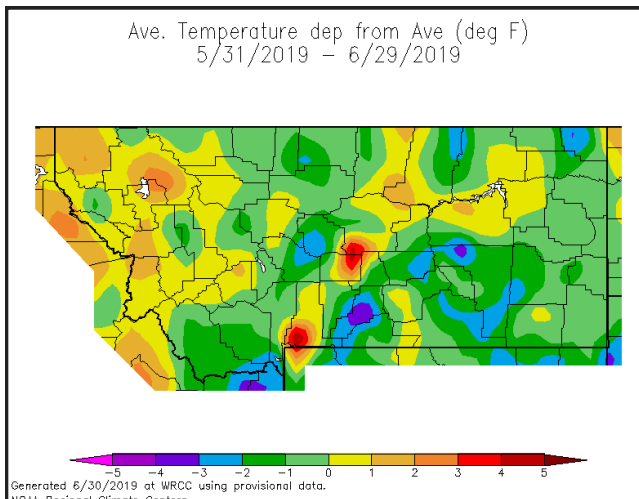


Figure 2: 30-day temperature anomalies across Montana.

**Summary:** Over the last 30 days, covering much of June, northeast Montana has experienced largely wetter than average conditions. This has been particularly true thanks to a series of thunderstorm episodes in the last week of the month that have tracked through the area. On the other hand, temperatures have ranged on either side of normal over that time.

## Meet the Staff:

**This Month's Portrait:** Virginia Rux, Meteorologist.

### 1) What is the best part about working for the National Weather Service?

Being around awesome people with similar interests and sharing a love for weather. Working here always allows me new opportunities to learn about all of the aspects of the atmosphere, meet a wide array of people, and understand how weather affects people's lives.

### 2) How do you like living in NE Montana? What made you decide that you wanted to come to Glasgow?

Living in NE Montana is overall very peaceful and the people are very friendly! Montana is big sky country for sure! It is amazing to see so much sky and experience all types of weather. Another thing— I absolutely adore seeing all the baby calves! There are several reasons why I decided to move to Montana but to name a couple, there is a lot of natural beauty in this state with diverse landscape and all the seasons. Another reason is that my daughter loves dinosaurs/fossils and what better place on Earth to appreciate prehistory than NE MT?!

### 3) Do you have any hobbies or interests outside of work that you'd like to share?

I enjoy gardening, art, rally racing, star gazing, and traveling.

### 4) Is there anything that you can think of that truly inspires you?

The sky and travel. Curiosity toward new experiences and adventure. My love for my family and empathy for others has also been a part of what motivates me.

### 5) What's your favorite kind of weather? It's not 20 below, is it?

I generally like any kind of new experience. Change can be really refreshing. Being from western Washington, we didn't get storms or lowland snow very often so whenever I do, I get very excited. What I am definitely fascinated with is cloud formations, especially those affected by terrain. Clouds are physical indicators in our sky where you can watch and analyze air motion and evolution—a time you can see science at work.

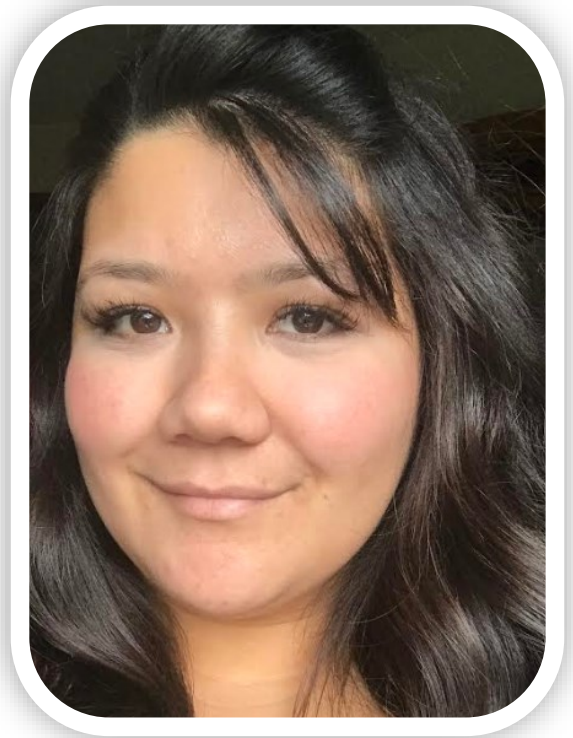


Figure 3: Virginia Rux, Meteorologist at NWS Glasgow

## Hydrologic Summary (May) by Greg Forrester, Lead Forecaster at NWS Glasgow:

It was a drier than normal month of most areas north of the Missouri River. The driest area was near the Canadian border where Plentywood had 0.41 inch, Scobey had 0.46 inch, and Raymond had 0.50 inch. Most areas south of the Missouri River had near normal precipitation. A few areas like Petroleum County were much wetter than normal which included the wet spot for the month, Flatwillow, with 4.87 inches. That location received 2.2 inches of rain on May 27. The heavy rain in that area combined with heavy rain upstream in Fergus County produced flooding on May 28. The other wet spots for the month were Wibaux with 3.85 inches and Malta with 2.68 inches. Glasgow had 1.20 inches which was 63 percent of normal.

Temperatures averaged from 2 to 6 degrees below in most areas. Glasgow averaged 52.7 degrees which was 2.4 degrees below normal.

Stream flow on the Milk, Missouri, Poplar, and Yellowstone Rivers was near normal for the month.

The Fort Peck Reservoir elevation rose to 2243.8 feet during the month. The reservoir was at 90 percent of capacity and 111 percent of the mean pool.

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### Boating Safety:

If you're headed out to Fort Peck Lake this summer, make sure to check out the latest forecast from NWS Glasgow. We'll keep you in the know when it comes to thunderstorm chances, as well as when winds may make conditions a bit less than ideal. Anytime we expect persistent sustained wind speeds at or above 20 mph or any wind gusts over 30 mph, we issue a Lake Wind Advisory for that area. So, if you're boating, or just headed out for some summertime fun, we've got you covered! Check out [this resource](#) for more information and important safety reminders before you head out on the water this year.

Get the latest forecast for the Fort Peck Lake area [here](#).

**CPC Three Month Outlook:** The Climate Prediction Center released its three month outlook for temperature and precipitation for July 2019 through September 2019 on June 20, 2019. Overall, expect increased chances for above normal temperatures through the three month period across the state. An exception exists for southeast Montana where equal chances exist for below normal, normal, or above normal temperatures. For central and southern Montana, expect odds to favor above normal precipitation over the three month period, with equal chances for below normal, normal, or above normal precipitation along the Canadian border. 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.

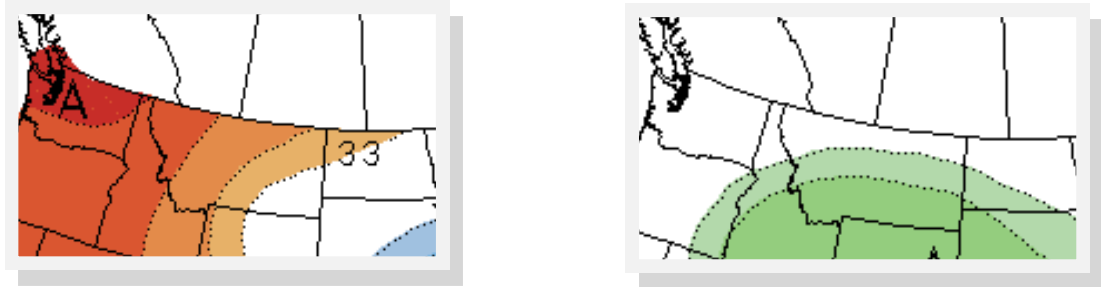


Figure 4: Climate Prediction Center three month temperature (left) and precipitation (right) outlook for July through September 2019.

**Updated U.S. Drought Monitor:** The [latest U.S. Drought Monitor](#) was released on Thursday June 27, 2019. Most of Montana remains absent of any drought conditions, however, portions of far northwest Montana have been included in moderate to severe drought. Additionally, portions of northeast Montana, mainly along or north of Highway 2, have been abnormally dry. Given precipitation trends at the end of June, and the three month CPC outlook, we will have to see if improvement can occur in these conditions with time.

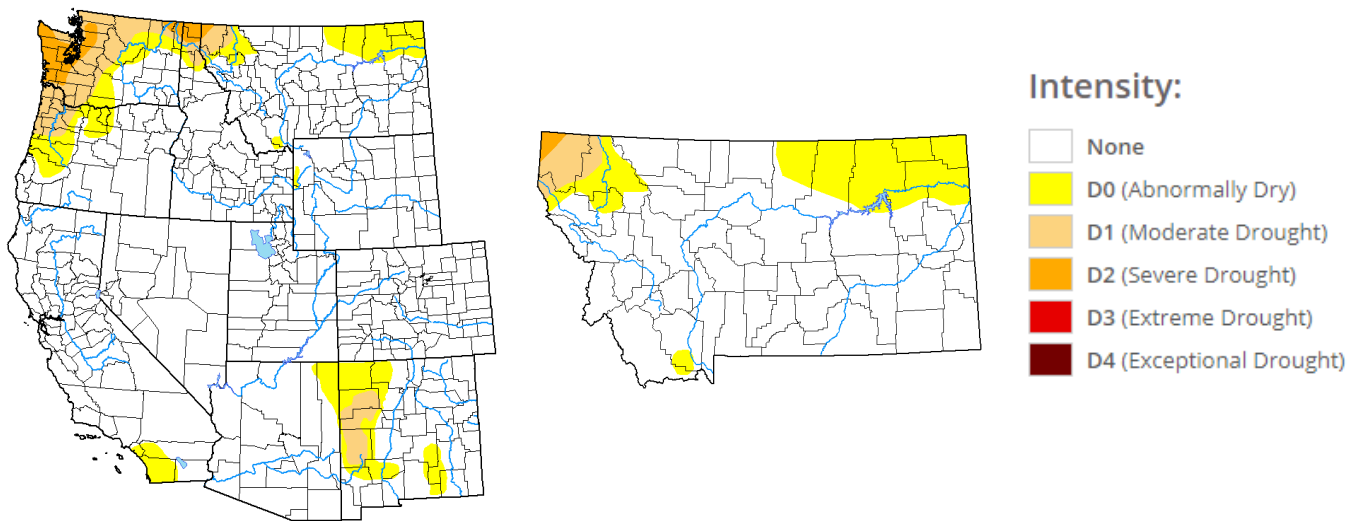


Figure 5: Latest Drought Monitor for the western U.S. (left) and Montana (right) released Thursday June 27, 2019.

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

## U.S. Selected Significant Climate Anomalies and Events May and Spring 2019

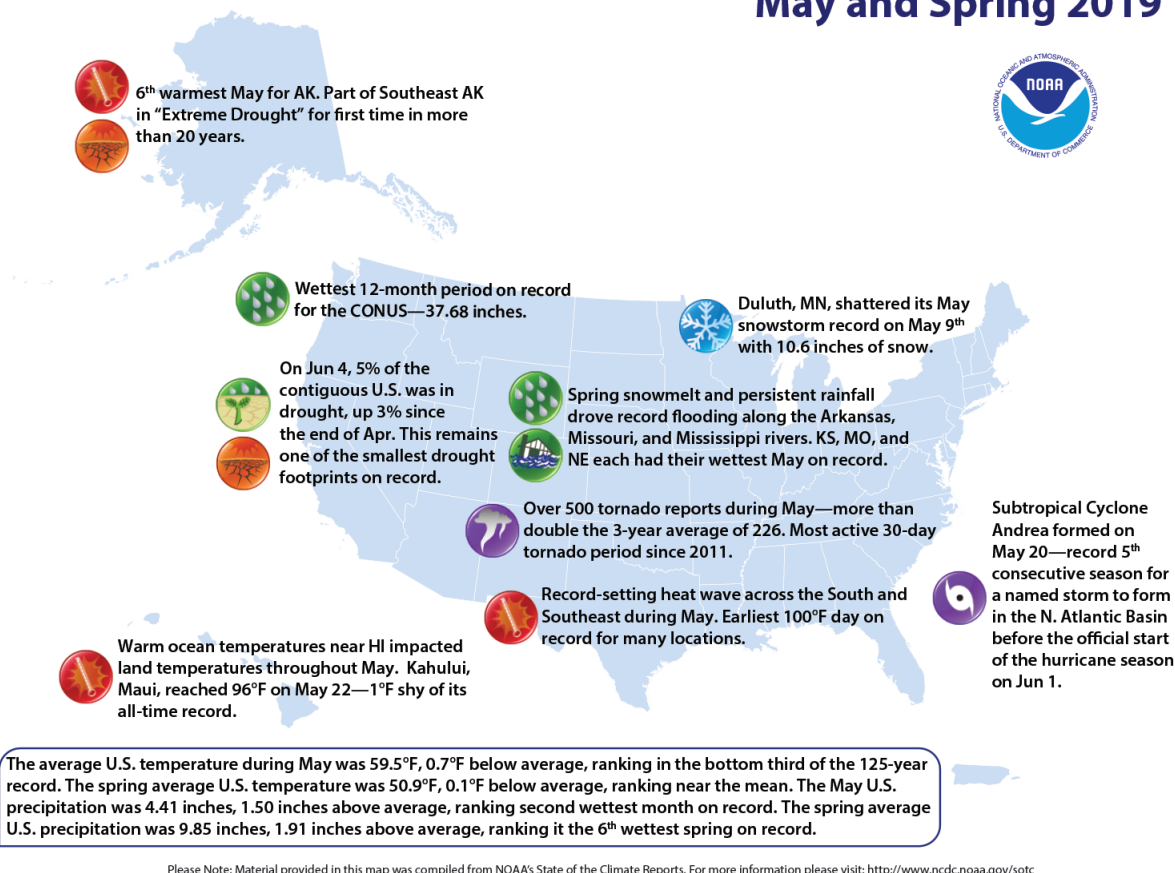


Figure 6: Climate Highlights for May of 2019.

### U.S. Highlights for May 2019

- 1) The contiguous U.S. average temperature for May 2019 was 59.5 °F.
- 2) The average May precipitation total for the contiguous U.S. came in at 4.41 inches. This ranks as the second wettest for May and for all months since January 1895.
- 3) According to the U.S. Drought Monitor, 5% of the contiguous U.S. was in drought.

### Global Highlights for May 2019

- 1) The April 2019 global land and ocean surface temperature was the fourth highest for May on record.
- 2) The global ocean surface temperature was 2nd highest for May, coming in at 1.31 °F above average
- 3) El Niño conditions were present in May 2019 and this is likely to continue through the Northern Hemisphere summer.

## Precipitation Data (May 2019):

Station	Precipitation	Location
BAYM8	0.82	Baylor
BRDM8	0.42	Bredette
BTNM8	M	Brockton 17 N
BKNM8	1.86	Brockton 20 S
BKYM8	2.27	Brockway 3 WSW
BRSM8	2.23	Brusette
CLLM8	2.38	Carlyle 13 NW
CIRM8	2.36	Circle
CHNM8	2.22	Cohagen
COM8	2.07	Cohagen 22 SE
CNTM8	1.66	Content 3 SSE
CULM8	1.18	Culbertson
DSNM8	1.17	Dodson 11 N
FLTM8	4.87	Flatwillow 4 ENE
FPKM8	1.20	Fort Peck PP
GLAM8	M	Glasgow 14 NW
GGWM8	1.20	Glasgow WFO
GGSM8	1.70	Glasgow 46 SW
GNDM8	2.55	Glendive WTP
HRBM8	M	Harb
HINM8	1.16	Hinsdale 4 SW
HNSM8	1.40	Hinsdale 21 SW
HOMM8	0.42	Homestead 5 SE
HOYM8	2.57	Hoyt
JORM8	M	Jordan
LNDM8	2.04	Lindsay
MLAM8	2.68	Malta
MLTM8	1.75	Malta 7 E
MTAM8	2.23	Malta 35 S

Station	Precipitation	Location
MDCM8	0.25	Medicine Lake 3 SE
MLDM8	M	Mildred 5 N
MSBM8	2.58	Mosby 4 ENE
OPNM8	0.44	Opheim 10 N
OPMM8	0.79	Opheim 12 SSE
PTYM8	0.41	Plentywood
PTWM8	0.35	Plentywood 1 NE
POGM8	0.40	Port of Morgan
RAYM8	0.50	Raymond Border Station
SAOM8	0.90	Saco 1 NNW
SMIM8	0.69	St. Marie
SAVM8	2.26	Savage
SCOM8	0.46	Scobey 4 NW
SDYM8	2.05	Sidney
SIDM8	2.07	Sidney 2S
TERM8	2.56	Terry
TYNM8	M	Terry 21 NNW
VIDM8	1.40	Vida 6 NE
WSBM8	0.71	Westby
WTRM8	0.75	Whitewater
WHIM8	M	Whitewater 18 NE
WBXM8	3.85	Wibaux 2 E
WTTM8	2.94	Winnett
WNEM8	3.39	Winnett 6 NNE
WNTM8	3.88	Winnett 8 ESE
WITM8	5.17	Winnett 12 SW
WLFM8	1.88	Wolf Point
ZRTM8	2.49	Zortman

## Links You May Like:

[Climate Stripes](#)

[May 2019: 4th Hottest](#)

[NOAA: U.S. Global Weather Forecast Model Gets Boost](#)

[Atmospheric CO2 Levels Soar, Reach Record Highs](#)

[Latest ENSO Update](#)



**Monthly Trivia:** Last month we asked...

When looking at our forecasts, what is the difference between POP (Probability of Precipitation) vs. CWR (Chance of Wetting Rain)?

**Answer:** POP, or Probability of Precipitation, represents the probability that 0.01" or more of precipitation will occur at any point. This is only about the same as a thickness of a playing card. Chance of Wetting Rain, or CWR, represents the chance that precipitation will occur in the amount of at least 0.10." Depending on the application, one value may be more useful than another. If someone is just wondering the chance that there will be measurable precipitation, POP may be preferred. On the other hand, if there is a wildfire nearby, those tending to the incident may find the CWR more useful as that amount of precipitation is more likely to influence the efforts of containment than that which only amounts to a hundredth.

**New Question:** Climatologically speaking, we are entering the peak of our severe weather convective season. Severe thunderstorms can produce damaging winds, large hail, and sometimes tornadoes. Depending on the overall environment, some storms can produce heavy rainfall as well. All thunderstorms produce dangerous lightning. This takes us to this month's question, which asks: Which is hotter, the surface of the sun, or thunderstorm lightning? Find out the answer in next month's newsletter when we'll also dive into some additional safety tips and information. Meanwhile, you can read ahead on some general severe thunderstorm safety tips [here](#).

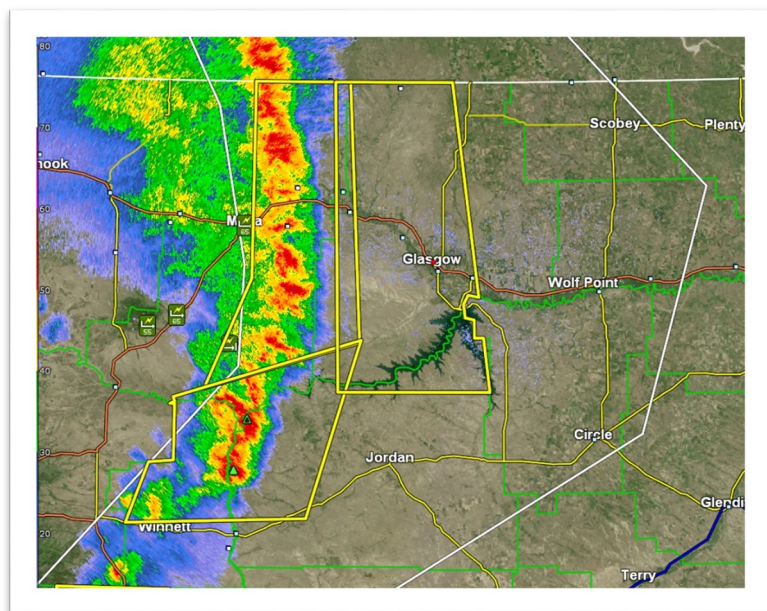


Figure 7: Radar image taken about 8:25 PM MDT on 6/27 as a line of strong to severe thunderstorms approached the Glasgow, MT area.



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