# Under the Big Sky e-Letter
# November 2019

**A Peak Inside:**



## CoCoRaHS Training Announcement:

NWS Glasgow will be doing a winter season online CoCoRaHS (Community Collaborative Rain, Hail, & Snow Network) training. If you're tired of feeling like you can't do anything about the winter weather, join this observation network to help make a difference in your community. Share your daily snow and precipitation reports, help NWS meteorologists with warning decisions and verification, and number of other industries (agriculture, education, insurance, mosquito control, etc.) with your valuable data. Maybe you can't change the snow in the forecast, but this is one way you can do something about it! Check out the CoCoRaHS webpage to learn more.

**Training Details**

**When:** Friday 1/3/2020 at 12PM MST.
**Training Link:** https://global.gotomeeting.com/join/331948645
**Dial into the training:** 877-929-2703
**Passcode:** 8072342#

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

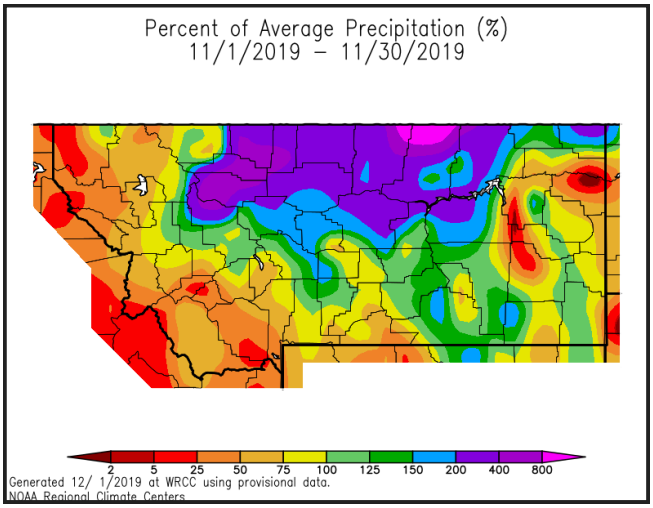


Figure 1: 30-day percent of normal precipitation across Montana.

**30 Day Temperature Anomalies (Montana)**

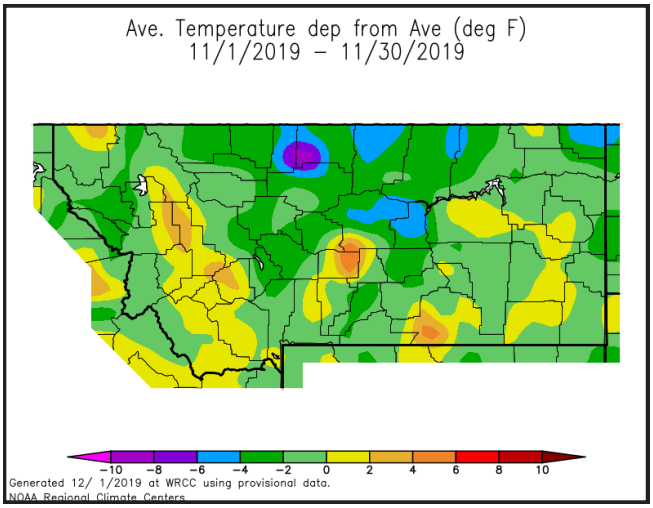


Figure 2: 30-day temperature anomalies across Montana.

**Summary:** We can see that in general, precipitation has trended significantly above average for North Central Montana while western, eastern, and southern parts of the state saw generally below average precipitation over the last 30 days, inclusive of the most recent winter storm which trended south. Meanwhile, temperatures have trended within a couple degrees of average for much of the state.

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

It was a colder than normal month over Northeast Montana. Temperatures averaged between 3 and 7 degrees below normal. Glasgow averaged 40.1 degrees which was 4.6 degrees below normal.

Most areas had below normal precipitation. The dry spots were Scobey 4 NW and Whitewater with 0.17 inch, Content with 0.19 inch, and Opheim 10N and Brockway with 0.23 inch. The wet spots were Carlyle 13 NW with 1.28 inches, Sidney 2S with 1.08 inches, and Cohagen with 0.90 inch.

Glasgow had 0.62 inch of precipitation which was 83 percent of normal.

Stream flow remained above normal during the month on the Milk, Yellowstone, Missouri, and Poplar Rivers.

The Fort Peck Reservoir elevation fell to 2240.7 feet during the month. The reservoir was at 88 percent of capacity and 110 percent of the mean pool.

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## Winter Safety Reminders

Winter weather conditions can threaten your travel plans with low visibility, snow covered or icy roads, as well as other impacts. If you get stuck along your way, bitter cold wind chills and prolonged exposure to the cold can leave you and those you care about at risk to things like frostbite and hypothermia. **One of the most proactive things that you can do** ahead of time is to pack a winter safety kit in your vehicle. It is also a good idea to let someone know before you travel, and be sure to provide them with details such as when you expect to leave, where you are going, and when you are expected to arrive at your destination. We will continue to provide you with additional winter safety information all season long to help you be weather ready before the storm hits.


Figure 3: Graphical depiction of a vehicle safety kit ahead of winter travel.

**CPC Three Month Outlook:** The Climate Prediction Center released its three month outlook for temperature and precipitation for December 2019 through February 2020 on November 21, 2019. The outlook calls for increased odds of above normal temperatures across western Montana, though equal chances for above normal, normal, and below normal temperatures for eastern and central portions of the state. Meanwhile, odds favor a wetter than normal three month period across the state. That doesn't mean there can't be drier periods at times, but when taken as a whole, conditions are forecast to be wetter than average. 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 December 2019 through February 2020.

**Updated U.S. Drought Monitor:** The latest U.S. Drought Monitor was released on Wednesday November 27, 2019. At this point in time, Montana was void of any drought or abnormally dry conditions. This is the first time that Montana was completely drought free since September 19, 2011. If the three month outlook verifies, it looks like we'll remain drought free for the foreseeable future.

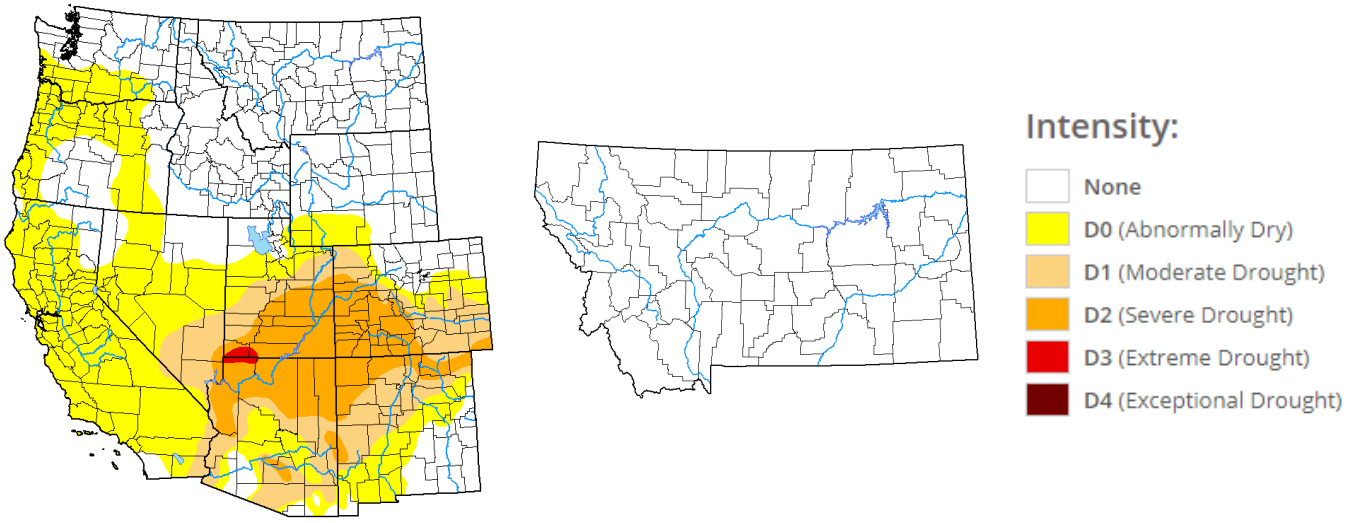


Figure 5: Latest Drought Monitor for the western U.S. (left) and Montana (right) released Wednesday November 27, 2019.

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

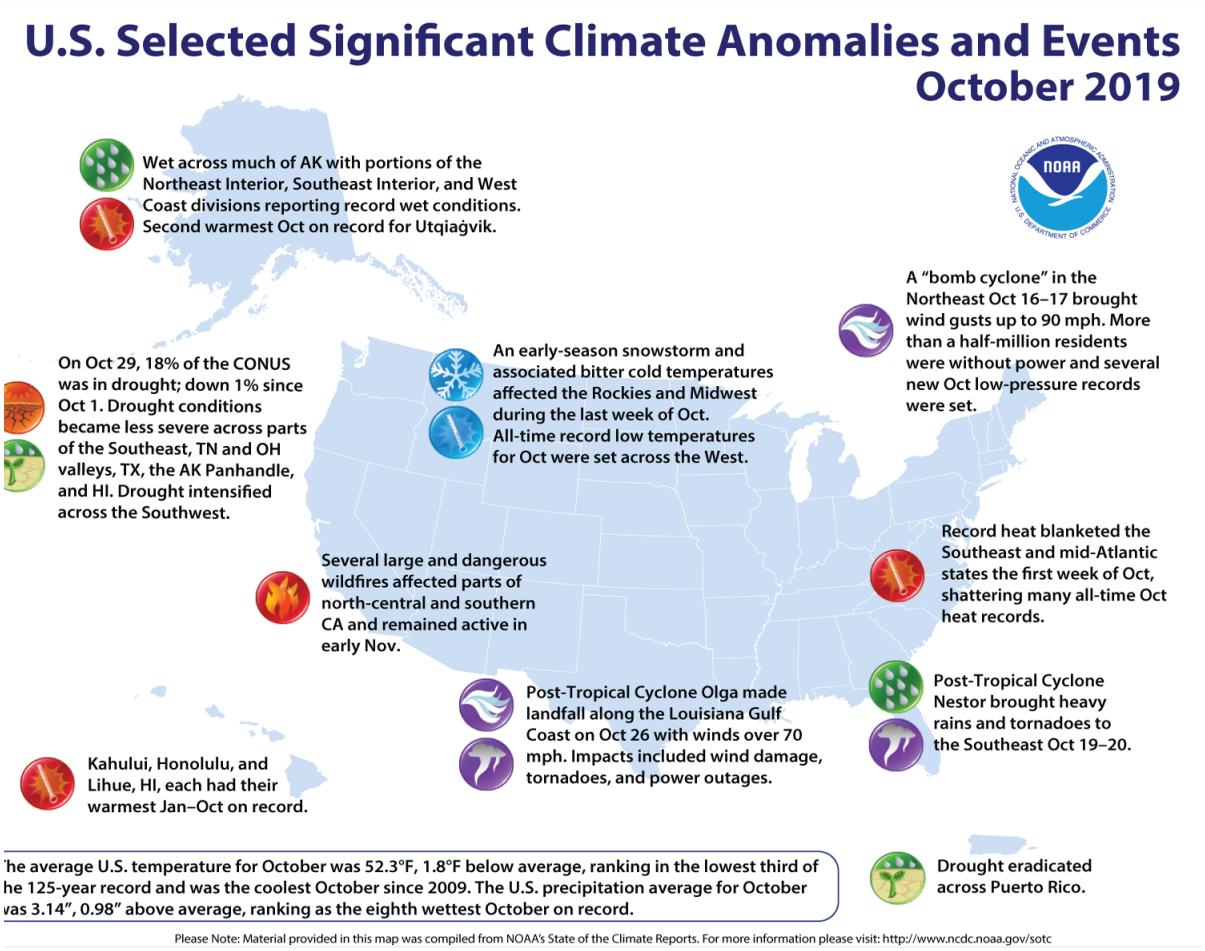


Figure 6: Climate Highlights for October 2019.

U.S. Highlights for October 2019

1) The contiguous U.S. average temperature for October 2019 was 52.3 °F.
2) The average October precipitation total for the contiguous U.S. came in at 3.14 inches. This ranks as the eight wettest October on record.
3) According to the U.S. Drought Monitor, 18% of the contiguous U.S. was in drought.

Global Highlights for October 2019

1) The October 2019 global land and ocean surface temperature departure from average was the second warmest on record.
2) The global land only surface temperature for October 2019 was also the second highest on record for October, coming in at 2.63 °F above average (topped only by 2015).
3) The globally averaged sea surface temperature was also the second highest for October in the record books, topped by only 2015.

## Precipitation Data (October 2019):

| Station | Precipitation | Location |
|---|---|---|
| BAYM8 | 0.52 | Baylor |
| BRDM8 | 0.62 | Bredette |
| BTNM8 | M | Brockton 17 N |
| BKNM8 | 0.66 | Brockton 20 S |
| BKYM8 | 0.23 | Brockway 3 WSW |
| BRSM8 | 0.71 | Brusette |
| CLLM8 | 1.28 | Carlyle 13 NW |
| CIRM8 | 0.52 | Circle |
| CHNM8 | 0.78 | Cohagen |
| COM8 | 0.90 | Cohagen 22 SE |
| CNTM8 | 0.19 | Content 3 SSE |
| CULM8 | 0.66 | Culbertson |
| DSNM8 | 0.27 | Dodson 11 N |
| FLTM8 | 0.70 | Flatwillow 4 ENE |
| FPKM8 | 0.66 | Fort Peck PP |
| GLAM8 | 0.53 | Glasgow 14 NW |
| GGWM8 | 0.62 | Glasgow WFO |
| GGSM8 | 0.80 | Glasgow 46 SW |
| GNDM8 | 0.76 | Glendive WTP |
| HRBM8 | M | Harb |
| HINM8 | 0.58 | Hinsdale 4 SW |
| HNSM8 | 0.35 | Hinsdale 21 SW |
| HOMM8 | 0.42 | Homestead 5 SE |
| HOYM8 | 0.79 | Hoyt |
| JORM8 | M | Jordan |
| LNDM8 | 0.68 | Lindsay |
| MLAM8 | 0.36 | Malta |
| MLTM8 | 0.28 | Malta 7 E |
| MTAM8 | 0.30 | Malta 35 S |

| Station | Precipitation | Location |
|---|---|---|
| MDCM8 | 0.44 | Medicine Lake 3 SE |
| MLDM8 | M | Mildred 5 N |
| MSBM8 | 0.54 | Mosby 4 ENE |
| OPNM8 | 0.23 | Opheim 10 N |
| OPMM8 | 0.42 | Opheim 12 SSE |
| PTYM8 | 0.46 | Plentywood |
| PTWM8 | 0.32 | Plentywood 1 NE |
| POGM8 | 0.24 | Port of Morgan |
| RAYM8 | M | Raymond Border Station |
| SAOM8 | 0.44 | Saco 1 NNW |
| SMIM8 | 1.83 | St. Marie |
| SAVM8 | 0.61 | Savage |
| SCOM8 | 0.17 | Scobey 4 NW |
| SDYM8 | 0.73 | Sidney |
| SIDM8 | 1.08 | Sidney 2S |
| TERM8 | 0.47 | Terry |
| TYNM8 | M | Terry 21 NNW |
| VIDM8 | 0.32 | Vida 6 NE |
| WSBM8 | 0.26 | Westby |
| WTRM8 | 0.17 | Whitewater |
| WHIM8 | M | Whitewater 18 NE |
| WBXM8 | 0.78 | Wibaux 2 E |
| WTTM8 | 0.40 | Winnett |
| WNEM8 | 0.30 | Winnett 6 NNE |
| WNTM8 | 0.83 | Winnett 8 ESE |
| WITM8 | M | Winnett 12 SW |
| WLFM8 | 0.45 | Wolf Point |
| ZRTM8 | 0.79 | Zortman |

## Links You May Like:

**Winter Storms Impact Thanksgiving Travel**

**ENSO Update**

**Sunspots and Global Warming: What's the Link?**

**NOAA & Emerging Science**

**2019 Atlantic Hurricane Season Summary**

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

What is the difference between snowfall and snow depth? These are terms that are often thrown around during the fall and winter, or cold season months. Do you know the difference? Find out next month!

**Answer:**

Snowfall differs from snow depth by definition, and knowing the difference between the two can be useful when making your own measurements. Snow depth refers to the total snow on the ground of both the old snow and the new snow. If new snow that fell overnight amounted to 2 inches, and there is already 2 inches on the ground to begin with, the snow depth would be 4 inches (assuming no meting or settling of the snow). Snowfall itself in the context of a new accumulation is simply the amount of snow that occurred from a recent storm.

**New Question:** What does it take, for a snow storm to be considered a true blizzard? Imagine that following an unusual ten inch snowstorm, you overhear someone at the dinner table mention that she or he is exhausted after driving home in that "blizzard." Is this person necessarily correct in the characterization of the weather conditions that she or he went through on the commute home? Maybe. More information would be needed such as the wind conditions, visibility, etc. The take home is that it takes more than "a whole lot of snow" to produce a true blizzard. Whether or not something amounts to a true blizzard doesn't mean that travel conditions are not dangerous, but a blizzard is a very specific weather phenomenon. We'll have the complete answer next month, as well as a few fun winter weather facts!

October 2019 Summary (Glasgow, MT)

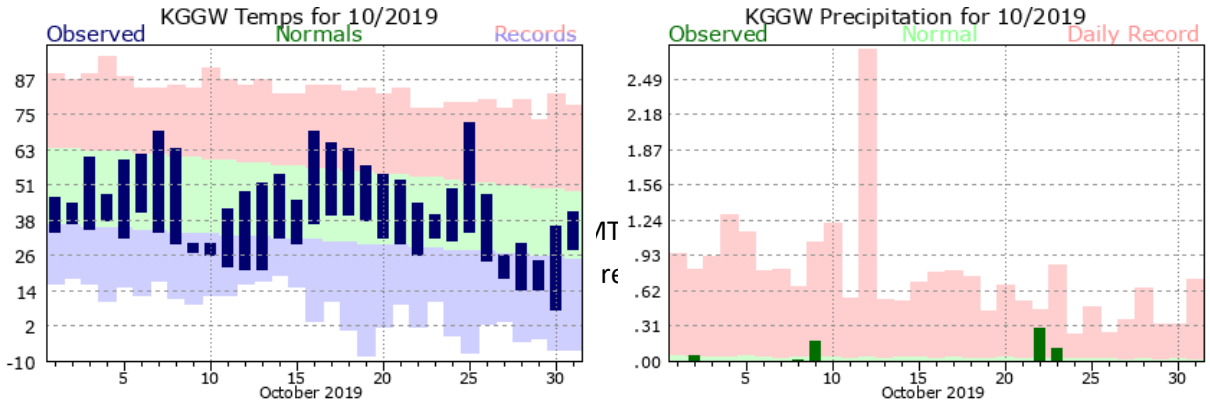


Figure 7: Observed temperature (left) for Glasgow, MT compared with normal and extremes as well as observed precipitation (right) for Glasgow, MT compared with normal and extremes in October 2019.

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