

Under the Big Sky e-Letter

August 2019



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Join CoCoRaHS: As summer turns to fall, scattered showers can produce a wide variety of precipitation amounts over just short distances across north-east Montana. That is why we need CoCoRaHS weather observers to help provide some ground truth. We can get estimations from radar imagery and other sources, but our weather observers help us to validate the data. CoCoRaHS stands for The Community, Collaborative, Rain, Hail, & Snow Network. If you are interested in reporting daily precipitation, becoming a CoCoRaHS observer is easy! It is also a great way to make a difference in your community! Check out the national CoCoRaHS [webpage](#) to learn more.



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30 Day Percent of Normal Precipitation (Montana)

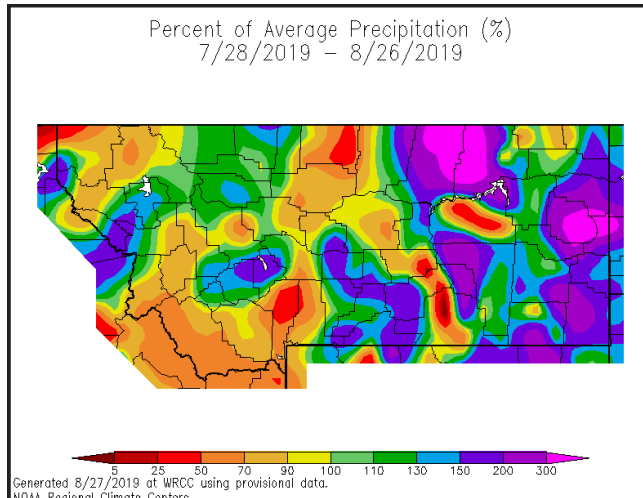


Figure 1: 30-day percent of normal precipitation across Montana.

30 Day Temperature Anomalies (Montana)

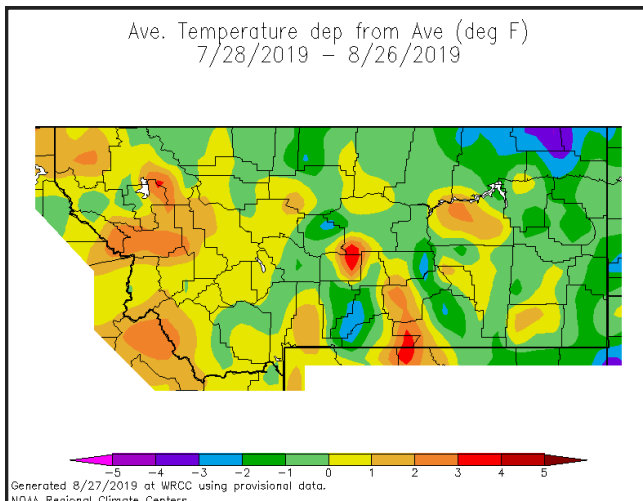


Figure 2: 30-day temperature anomalies across Montana.

Summary: Over the prior 30 days, Much of eastern Montana received above normal precipitation, expressed as a percent of average. In particular, 1 to 4 inches of rain fell west of Glasgow from slow moving storms beginning August 22. However, spotty locations were drier than average (i.e., Garfield County). Western Montana saw above normal temperatures in the period, while far northeast Montana trended cooler.

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

It was a near normal month for temperatures over most of Northeast Montana. Temperatures varied between 2 degrees above normal and 2 degrees below normal. Glasgow averaged 71.7 degrees which was 0.6 degrees above normal.

Precipitation varied from above normal along the North Dakota border to below normal across Northern Phillips and Valley Counties. The wet spots for the month were Sidney with 4.66 inches, Plentywood with 3.73 inches, and Glendive with 3.37 inches. The dry spots were Opheim 10N with 0.35 inch, Opheim 12SSE with 0.38 inch, and Port of Morgan with 0.77 inch. Glasgow received 1.54 inches which was 87 percent of normal.

Heavy rain on July 30 produced flash flooding in the Terry area.

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

The Fort Peck Reservoir elevation rose to 2246.2 feet during the month. The reservoir was at 94 percent of capacity and 118 percent of the mean pool.

Did You Know?: A cold frontal passage can be detected on radar. Northwest winds behind the front are often enough to lift small debris such as insects which become lofted and show up as a band of reflectivity called a thin line. Thin lines also show up with gust fronts and outflow boundaries associated with thunderstorms as well, so we can track when we expect to see a wind direction shift, or a general increase in winds. It looks like mosquitos have a purpose after all!

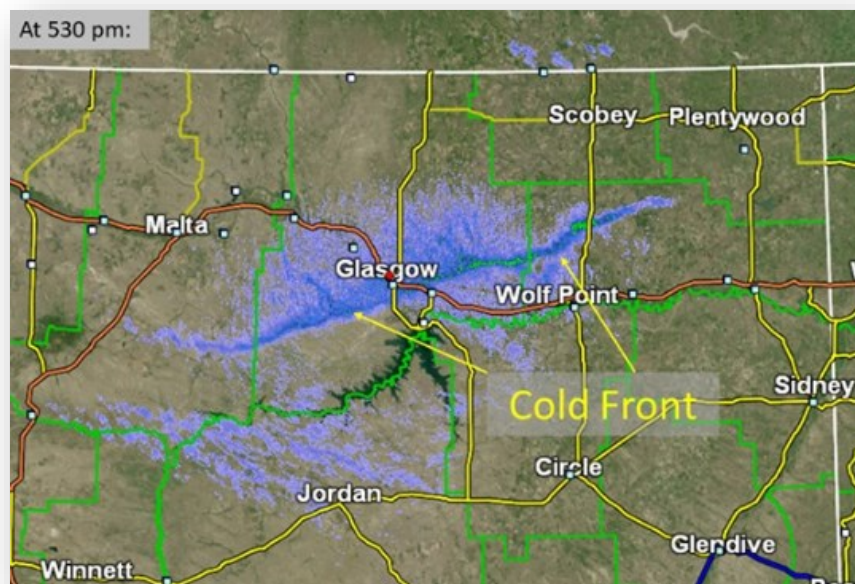


Figure 3: Radar "thin line" associated with a cold frontal passage on Wednesday 8/28/2019. Wind gusts up to 40 MPH were expected at that time. Image as shared on NWS Glasgow Facebook Page.

CPC Three Month Outlook: The Climate Prediction Center released its three month outlook for temperature and precipitation for September 2019 through November 2019 on August 15, 2019. The outlook calls for increased odds of above normal temperatures across Montana, especially western portions of the state, during that period. In addition, the three month outlook suggests that precipitation will more likely trend above average for eastern and central Montana. That doesn't mean that there won't be cooler and drier periods at times, but collectively, that's what's expected over the period. 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 September through November 2019.

Updated U.S. Drought Monitor: The [latest U.S. Drought Monitor](#) was released on Thursday August 29, 2019. Most of Montana remains absent of any drought conditions, however, portions of northwest Montana have been included in abnormally dry to moderate drought conditions. This is fairly consistent with conditions over the last few outlooks.

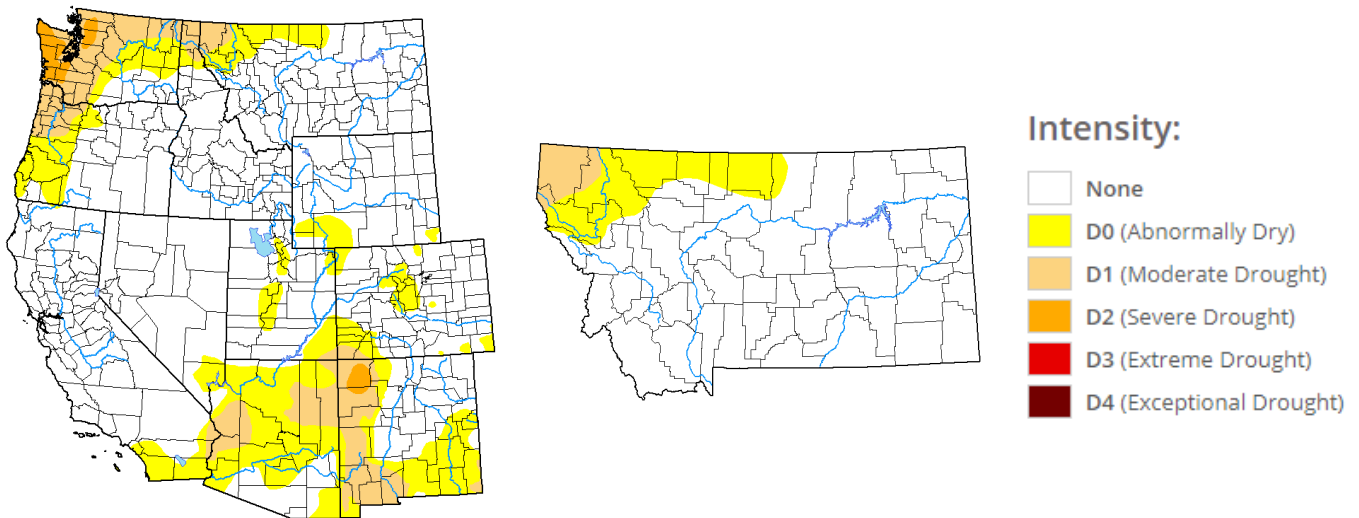


Figure 5: Latest Drought Monitor for the western U.S. (left) and Montana (right) released Thursday August 29, 2019.

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

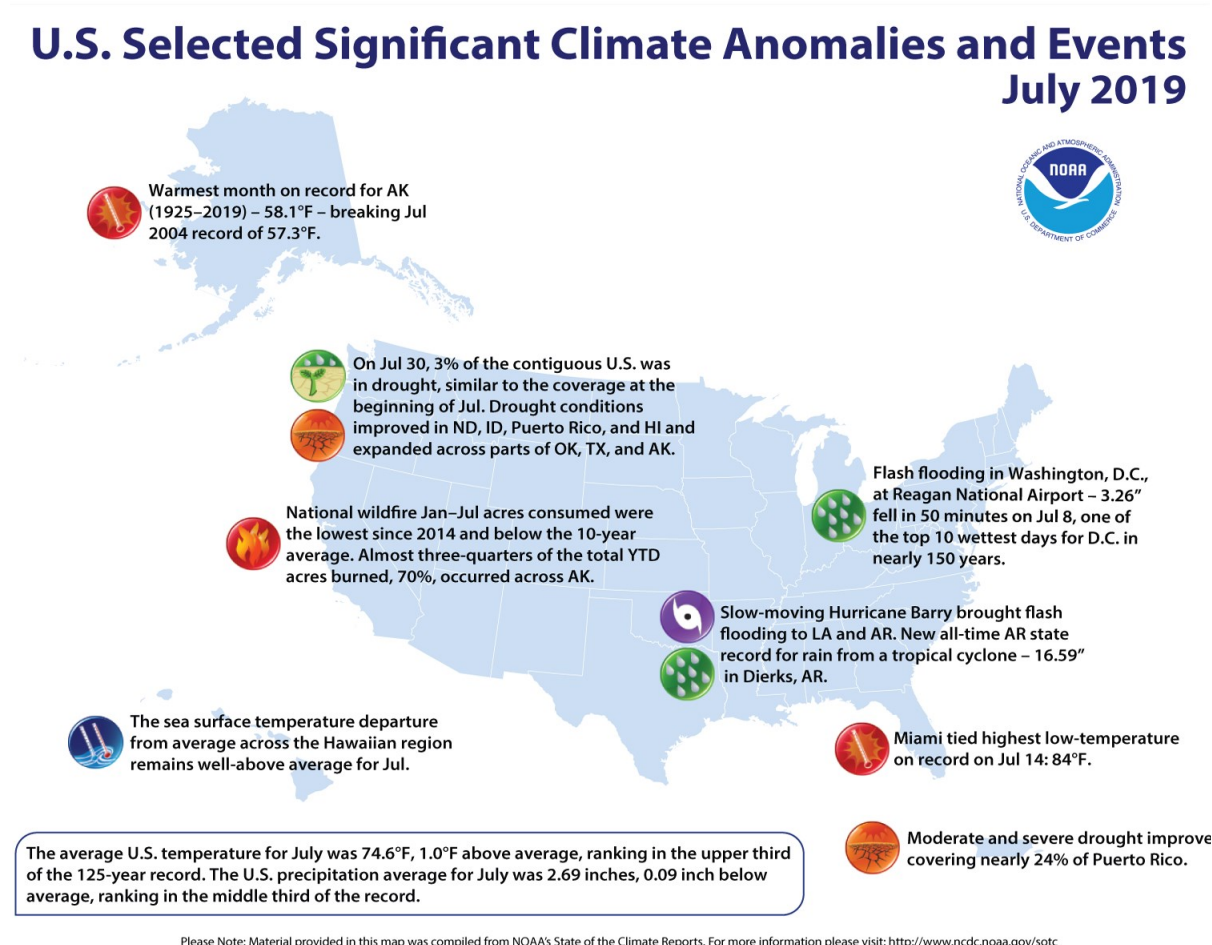


Figure 6: Climate Highlights for July 2019.

U.S. Highlights for July 2019

- 1) The contiguous U.S. average temperature for July 2019 was 74.6 °F.
- 2) The average July precipitation total for the contiguous U.S. came in at 2.69 inches. This ranks within the middle third wettest for June throughout the 125 year period of record.
- 3) According to the U.S. Drought Monitor, 3% of the contiguous U.S. was in drought.

Global Highlights for July 2019

- 1) The July 2019 global land and ocean surface temperature departure from average was the warmest on record.
- 2) The global land only surface temperature for July 2019 was the second highest on record for July, coming in at 2.23 °F above average (topped only by 2017).
- 3) ENSO neutral conditions were present during July 2019. This will likely continue to be the case through the Northern Hemisphere Winter.

Precipitation Data (July 2019):

Station	Precipitation	Location
BAYM8	0.40	Baylor
BRDM8	2.34	Bredette
BTNM8	M	Brockton 17 N
BKNM8	2.68	Brockton 20 S
BKYM8	1.28	Brockway 3 WSW
BRSM8	1.97	Brusette
CLLM8	3.22	Carlyle 13 NW
CIRM8	2.25	Circle
CHNM8	2.14	Cohagen
COM8	2.34	Cohagen 22 SE
CNTM8	1.45	Content 3 SSE
CULM8	1.23	Culbertson
DSNM8	0.92	Dodson 11 N
FLTM8	1.72	Flatwillow 4 ENE
FPKM8	1.76	Fort Peck PP
GLAM8	1.54	Glasgow 14 NW
GGWM8	1.54	Glasgow WFO
GGSM8	2.69	Glasgow 46 SW
GNDM8	3.37	Glendive WTP
HRBM8	M	Harb
HINM8	1.40	Hinsdale 4 SW
HNSM8	1.17	Hinsdale 21 SW
HOMM8	2.23	Homestead 5 SE
HOYM8	1.38	Hoyt
JORM8	M	Jordan
LNDM8	3.08	Lindsay
MLAM8	1.48	Malta
MLTM8	1.64	Malta 7 E
MTAM8	2.29	Malta 35 S

Station	Precipitation	Location
MDCM8	2.98	Medicine Lake 3 SE
MLDM8	M	Mildred 5 N
MSBM8	1.95	Mosby 4 ENE
OPNM8	0.35	Opheim 10 N
OPMM8	0.38	Opheim 12 SSE
PTYM8	3.73	Plentywood
PTWM8	3.61	Plentywood 1 NE
POGM8	0.77	Port of Morgan
RAYM8	3.10	Raymond Border Station
SAOM8	1.97	Saco 1 NNW
SMIM8	1.91	St. Marie
SAVM8	2.38	Savage
SCOM8	1.53	Scobey 4 NW
SDYM8	4.66	Sidney
SIDM8	3.23	Sidney 2S
TERM8	2.38	Terry
TYNM8	M	Terry 21 NNW
VIDM8	2.97	Vida 6 NE
WSBM8	3.23	Westby
WTRM8	0.92	Whitewater
WHIM8	M	Whitewater 18 NE
WBXM8	2.73	Wibaux 2 E
WTTM8	M	Winnett
WNEM8	1.02	Winnett 6 NNE
WNTM8	2.69	Winnett 8 ESE
WITM8	M	Winnett 12 SW
WLFM8	2.73	Wolf Point
ZRTM8	2.91	Zortman

Links You May Like:

[Heatwave Causes Extensive Greenland Ice Sheet Melt Event](#)

[July 2019 Hottest Month Ever for Earth](#)

[NOAA Revises Atlantic Hurricane Season Upward](#)

[Latest ENSO Update](#)

Monthly Trivia: Last month we asked...

As the wet season comes to an end across northeast Montana, things start to dry out climatologically, the risk for wildfires starts to increase across the area. Low relative humidity in the presence of strong, gusty winds can raise the risk, and lightning from thunderstorms in the late convective season can contribute as well. One such example of a wildfire occurred recently, initiated by thunderstorm lightning. It started on July 10-11, 2017 and is referred to as the Lodgepole Complex. This month's trivia asks: How did this particular wildfire rank historically across Montana?

Answer: The Lodgepole Complex was the second largest wildfire in Montana state history, with over a quarter of a million acres burned.

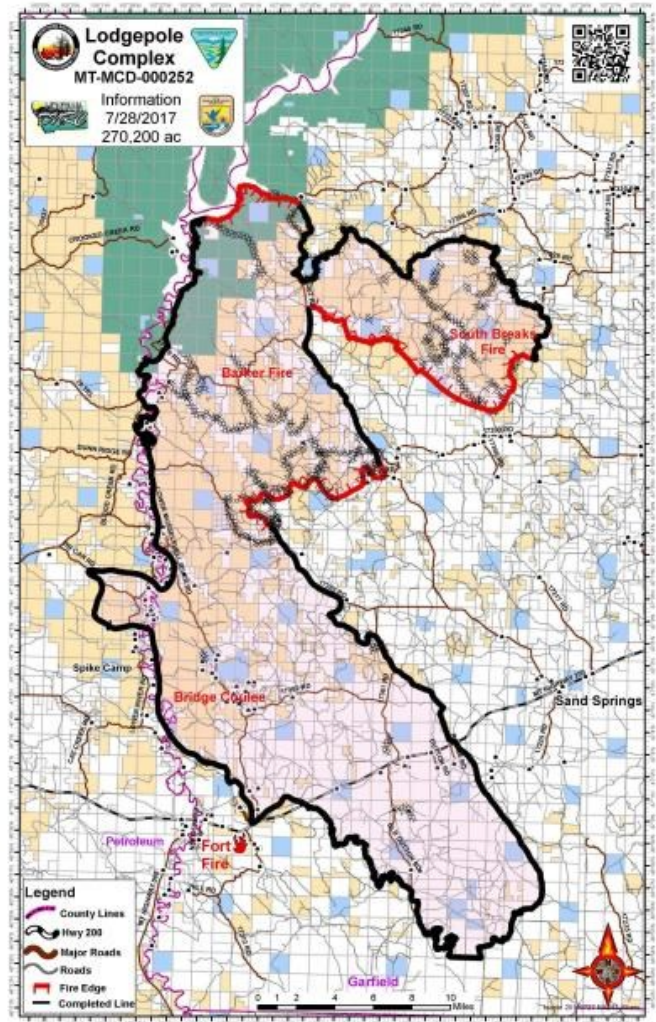


Figure 7: Outline of Lodgepole Complex.

? **New Question:** How did the Summer Season of 2019 stack up across northeast Montana compared with normal? Next month we'll share some key highlights!

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