Under the Big Sky e-Letter
August/September 2018

A Peak Inside:

CoCoRaHS Training:

If you are interested in serving your community by reporting your daily precipitation to NWS Glasgow, the CoCoRaHS program may be right for you. We will be doing an online training in October. Here are the details:

When: Tuesday October 16, 2018

Time: 12:00-12:30 PM MDT

Join the training: https://global.gotomeeting.com/join/331948645

For Audio: 1-(877)-929-2703,

Passcode: 8072342#

Join 10 minutes before we get started.

60 Day Percent of Normal Precipitation (Montana)

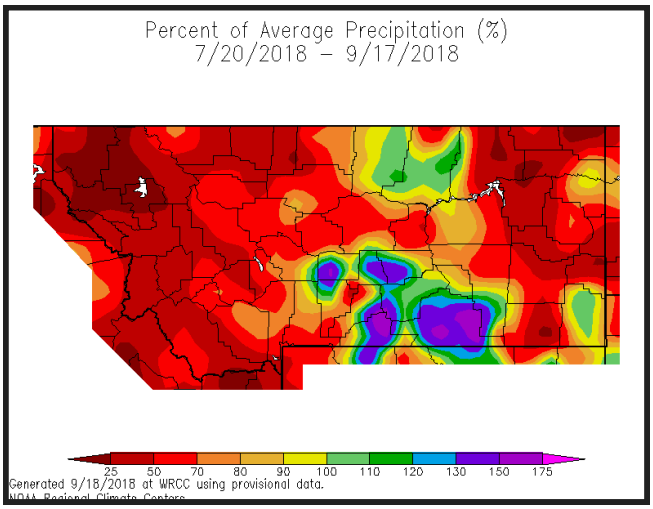

Figure 1: 60-day percent of normal precipitation across Montana.

60 Day Temperature Anomalies (Montana)

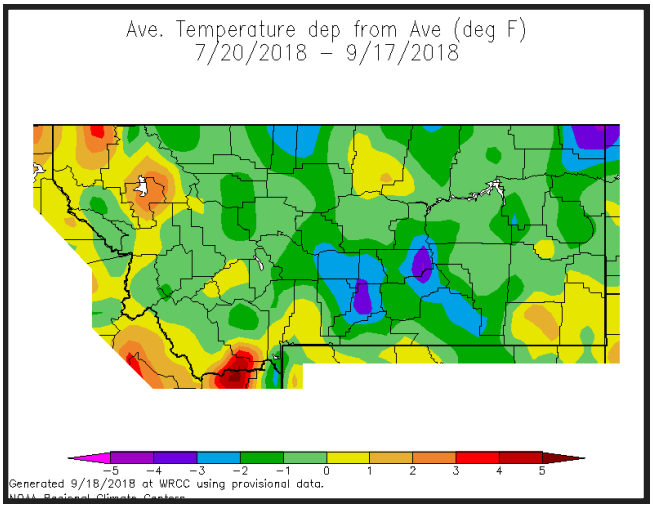

Figure 2: 60-day temperature anomalies across Montana.

Did You Know?: By the fall season, El Niño conditions are expected to develop, which may impact our winter season. The CPC three month outlook for December-February so far calls for odds favoring warmer than usual temperatures and below normal precipitation, typical of our impacts from an El Niño year.

Meet the Staff:

This Month's Portrait: Kandis Lawrence, ITO Pathways Student, NWS Glasgow

Figure 3: Photo of Kandis Lawrence, ITO Pathways Student for the summer 2018 while at NWS Glasgow.

1) What did you think of your overall summer ITO Pathways experience with NWS Glasgow? What do you think is the most important thing that you have learned while you were here?

Overall, I think it was pretty great. I learned a bit about meteorology, electronics, IT...It was a good mix of information and experience. And, the most important thing, or two, I've learned is to continue learning and that I won't always have the answer. I won't always know a thing, but I will always have the room to learn about it and incorporate it into my work. Any new piece of knowledge can and will always be applied to whatever work I am doing.

2) What did you do before your summer experience here?

I was, and currently am, a full time student at the George Washington University, in Washington, D.C.

3) Is there anything about northeast Montana that you particularly enjoyed during your stay?

The weather. I will always enjoy dry heat and I'm glad I got to experience it.

4) Do you have any hobbies or interests that you would like to share?

I'm a very casual gamer, but my strongest hobbies right now are sleeping and watching Netflix & Hulu whenever I can. I do, moreover, have an interest in minimalism at the moment. I'm starting to learn about it. Oh, and white water rafting. I never thought I'd say that...lol.

5) What is something that you would say truly inspires you?

Seeing women persevere and be successful in their field or life in general.

6) When you think about your future, what do you see?

Mostly me and my little dog on another whirlwind adventure!

NWS Glasgow Staff Changes:

Kandis Lawrence will soon be returning to the George Washington University to finish her studies . We thank her for her service to our office this summer with ITO Pathways and wish her great success in her future!

Alan Hickford, current Meteorologist at NWS Glasgow, has accepted a position for a General Forecaster with Fairbanks, AK. We send him our congrats & offer best wishes for his future as well!

CPC Three Month Outlook: The Climate Prediction Center released its three month outlook for temperature and precipitation for September 2018 through November 2018 on August 16, 2018. The three month outlook calls for increased chances for above normal temperatures for most all Montana. Meanwhile, expect equal chances for normal, above average, and below average precipitation through the period. The latest outlook in full detail is always available here for anyone wanting further information.

Figure 4: Climate Prediction Center three month temperature (left) and precipitation (right) outlook for September 2018 through November 2018.

Updated U.S. Drought Monitor: The latest U.S. Drought Monitor was released on Thursday September 13, 2018. While much of southern Montana is void of drought conditions, sections of northern and western Montana have been abnormally dry at least. The northern two-thirds of Phillips and Valley Counties as well as far southwest Roosevelt County are all in moderate drought at the moment. Additionally, far northern Phillips and northwestern Valley County (right along the Canadian border) are presently experiencing a severe drought. The wet period in mid September will help, but precipitation trends over the next several months will undoubtedly have an impact on how present drought conditions evolve with time.

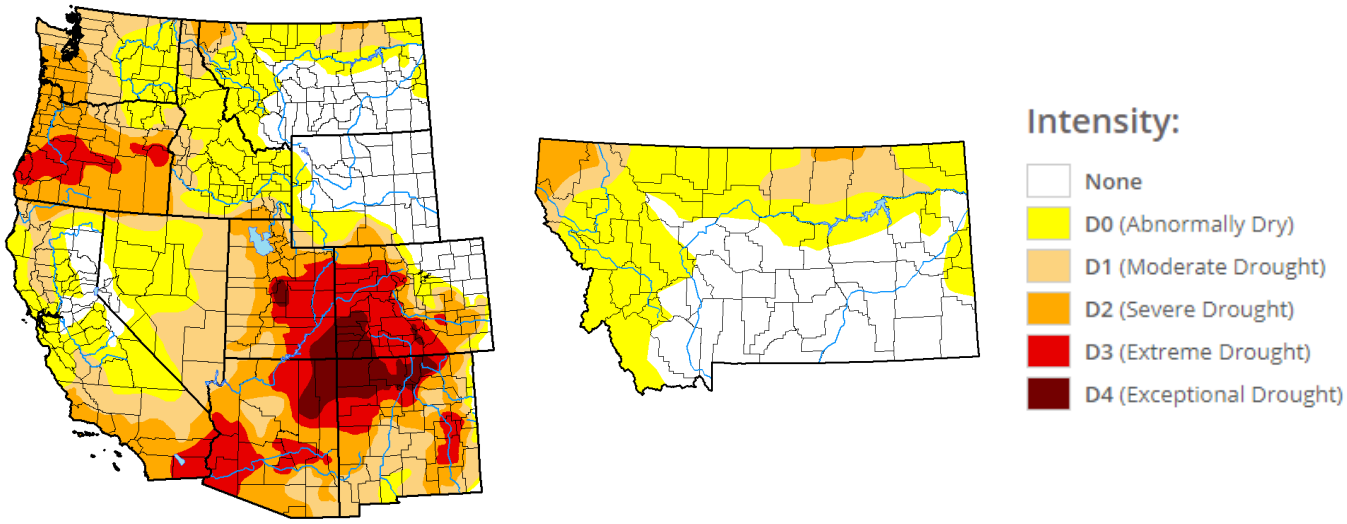

Figure 5: Latest Drought Monitor for the western U.S. (left) and Montana (right) released Thursday September 13, 2018.

U.S. & Global Climate Highlights (July): The latest U.S. and global climate highlights for July 2018 are now available. A few points for you to take home are provided below.

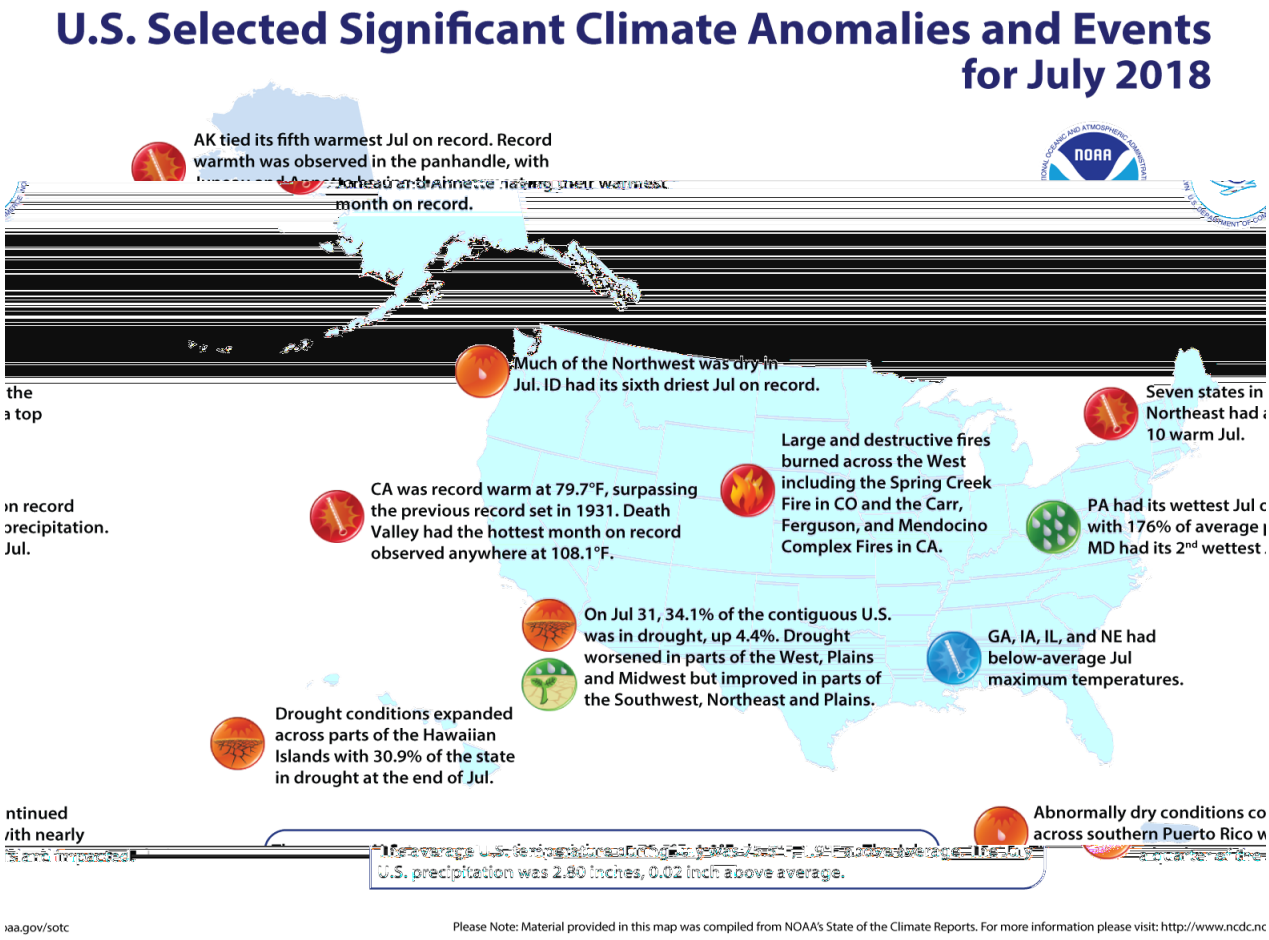

Figure 6: Climate Highlights for July of 2018.

U.S. Highlights for July 2018

1) The contiguous U.S. average temperature for July 2018 was 75.5 °F. This ties with 1998 as the 11th warmest July in the record books.
2) The average July precipitation total for the contiguous U.S. came in at 2.80 inches, or 0.02 inch above the normal.
3) According to the U.S. Drought Monitor, 34.1% of the contiguous U.S. was in drought.

Global Highlights for July 2018

1) The average temperature across global land and ocean surfaces was the 4th highest on record.
2) The global oceans also tied with the sixth warmest July temperatures on record.
3) ENSO-Neutral conditions prevailed in July.

U.S. & Global Climate Highlights (August): The latest U.S. and global climate highlights for August 2018 are now available. A few points for you to take home are provided below.

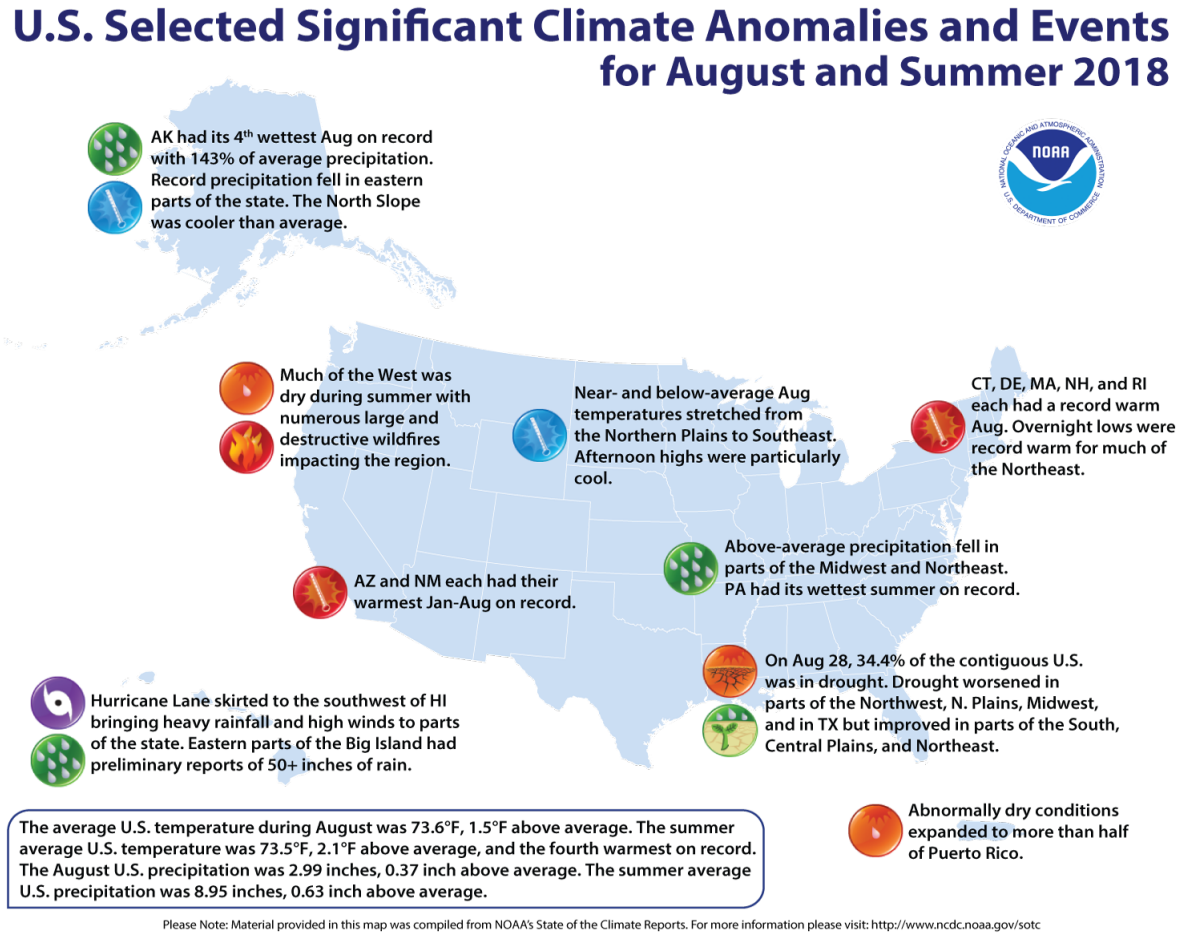

Figure 7: Climate Highlights for August of 2018.

U.S. Highlights for August 2018

1) The contiguous U.S. average temperature for August 2018 was 73.6 °F. This was the 17th warmest June on record.

2) The average August precipitation total for the contiguous U.S. came in at 2.99 inches, or 0.37 inch above the normal.

3) According to the U.S. Drought Monitor, 34.4% of the contiguous U.S. was in drought.

Global Highlights for August 2018

1) The average August temperature across global land and ocean surfaces was the 5th highest August since records have been kept.

2) The global oceans also had their fifth warmest August temperatures on record.

3) ENSO-Neutral conditions prevailed in August. There is a 50% to 55% chance of El Niño conditions developing this fall.

July Report of Hydrologic Conditions by Greg Forrester, Lead Forecaster at NWS Glasgow:

July was a near normal month for temperatures across Northeast Montana. Temperatures were between 3 degrees below normal and 3 degrees above normal in most areas for the month. Glasgow averaged 73.4 degrees which was 2.3 degrees above normal.

Precipitation was highly dependent on thunderstorms across the region. The northeast part of the area was above normal in precipitation. The wet spots were Plentywood with 4.65 inches, Culbertson with 3.39 inches, and Raymond with 3.25 inches. Most of the remainder of the region had below normal precipitation. The dry spots were Wolf Point with 0.15 inch, Winnett 6 NNE with 0.16 inch, and Vida with 0.40 inch. Glasgow had 0.92 inch which was 52 percent of normal. With the dry weather, moderate drought expanded across Phillips and Valley Counties in July.

Stream flow on the Milk and Poplar Rivers was below normal for the month. The flow on the Yellowstone and Missouri Rivers was above normal for the entire month.

The Fort Peck Reservoir elevation peaked at 2247.87 feet on July 4 and fell gradually to 2245.78 feet at the end of the month. The reservoir was at 96 percent of capacity and 119 percent of the mean pool.

August Report of Hydrologic Conditions by Greg Forrester, Lead Forecaster at NWS Glasgow:

August was a near normal month for temperatures across Northeast Montana. Temperatures were between 1 degree below normal and 2 degrees above normal in most areas for the month. Glasgow averaged 71.5 degrees which was 1.1 degrees above normal.

Precipitation was highly dependent on thunderstorms across the region. Areas south of the Missouri River and Phillips County had near normal precipitation. The remainder of the region had below normal precipitation. The wet spots were Zortman with 2.14 inches, Glendive with 1.72 inches, and Malta with 1.68 inches. The dry spots were Plentywood with 0.03 inch, Raymond with 0.05 inch, and Medicine Lake with 0.11 inch. Glasgow had 0.58 inch which was 45 percent of normal. With the dry weather, moderate drought expanded across Phillips and Valley Counties in August.

Stream flow on the Milk and Yellowstone Rivers was near normal for the month. The Poplar River had below normal stream flow for the month. The flow on the Missouri River was above normal for the entire month.

The Fort Peck Reservoir elevation fell to 2243.50 feet at the end of the month. The reservoir was at 94 percent of capacity and 115 percent of the mean pool.

Precipitation Data (July):

Station	Precipitation	Location
BAYM8	0.89	Baylor
BRDM8	2.21	Bredette
BTNM8	4.27	Brockton 17 N
BKNM8	0.66	Brockton 20 S
BKYM8	1.03	Brockway 3 WSW
BRSM8	0.96	Brusette
CLLM8	1.81	Carlyle 13 NW
CIRM8	0.79	Circle
CHNM8	0.67	Cohagen
COM8	0.92	Cohagen 22 SE
CNTM8	0.85	Content 3 SSE
CULM8	3.39	Culbertson
DSNM8	0.47	Dodson 11 N
FLTM8	0.97	Flatwillow 4 ENE
FPKM8	0.98	Fort Peck PP
GLAM8	M	Glasgow 14 NW
GGWM8	0.92	Glasgow WFO
GGSM8	0.69	Glasgow 46 SW
GNDM8	1.51	Glendive WTP
HRBM8	1.46	Harb
HINM8	1.01	Hinsdale 4 SW
HNSM8	1.70	Hinsdale 21 SW
HOMM8	2.13	Homestead 5 SE
HOYM8	1.46	Hoyt
JORM8	M	Jordan
LNDM8	1.65	Lindsay
MLAM8	0.52	Malta
MLTM8	0.74	Malta 7 E
MTAM8	0.76	Malta 35 S

Station	Precipitation	Location
MDCM8	M	Medicine Lake 3 SE
MLDM8	1.30	Mildred 5 N
MSBM8	0.42	Mosby 4 ENE
OPNM8	2.71	Opheim 10 N
OPMM8	1.05	Opheim 12 SSE
PTYM8	4.65	Plentywood
PTWM8	2.18	Plentywood 1 NW
POGM8	0.56	Port of Morgan
RAYM8	3.25	Raymond Border Station
SAOM8	1.24	Saco 1 NNW
SMIM8	0.53	St. Marie
SAVM8	2.40	Savage
SCOM8	2.50	Scobey 4 NW
SDYM8	1.95	Sidney
SIDM8	2.00	Sidney 2S
TERM8	2.10	Terry
TYNM8	M	Terry 21 NNW
VIDM8	0.40	Vida 6 NE
WSBM8	1.52	Westby
WTRM8	1.06	Whitewater
WHIM8	0.49	Whitewater 18 NE
WBXM8	1.24	Wibaux 2 E
WTTM8	0.67	Winnett
WNEM8	0.16	Winnett 6 NNE
WNTM8	0.31	Winnett 8 ESE
WITM8	0.20	Winnett 12 SW
WLFM8	0.15	Wolf Point
ZRTM8	0.81	Zortman

Links You May Like:

[El Niño Update]

[FIREX Field Campaign]

[No Global Warming Since 1998?]

[NOAA Initiative to Advance Modeling]

Precipitation Data (August):

Station	Precipitation	Location
BAYM8	0.53	Baylor
BRDM8	0.44	Bredette
BTNM8	0.14	Brockton 17 N
BKNM8	1.08	Brockton 20 S
BKYM8	0.42	Brockway 3 WSW
BRSM8	0.77	Brusette
CLLM8	1.33	Carlyle 13 NW
CIRM8	0.67	Circle
CHNM8	0.18	Cohagen
COM8	0.67	Cohagen 22 SE
CNTM8	1.58	Content 3 SSE
CULM8	0.81	Culbertson
DSNM8	0.81	Dodson 11 N
FLTM8	1.79	Flatwillow 4 ENE
FPKM8	1.10	Fort Peck PP
GLAM8	0.92	Glasgow 14 NW
GGWM8	0.56	Glasgow WFO
GGSM8	1.34	Glasgow 46 SW
GNDM8	1.72	Glendive WTP
HRBM8	1.62	Harb
HINM8	0.98	Hinsdale 4 SW
HNSM8	0.18	Hinsdale 21 SW
HOMM8	0.20	Homestead 5 SE
HOYM8	0.97	Hoyt
JORM8	M	Jordan
LNDM8	1.61	Lindsay
MLAM8	1.36	Malta
MLTM8	1.68	Malta 7 E
MTAM8	M	Malta 35 S

Station	Precipitation	Location
MDCM8	0.11	Medicine Lake 3 SE
MLDM8	1.64	Mildred 5 N
MSBM8	1.28	Mosby 4 ENE
OPNM8	0.65	Opheim 10 N
OPMM8	0.43	Opheim 12 SSE
PTYM8	0.03	Plentywood
PTWM8	0.80	Plentywood 1 NW
POGM8	0.86	Port of Morgan
RAYM8	0.05	Raymond Border Station
SAOM8	1.18	Saco 1 NNW
SMIM8	0.55	St. Marie
SAVM8	1.17	Savage
SCOM8	0.17	Scobey 4 NW
SDYM8	1.09	Sidney
SIDM8	1.19	Sidney 2S
TERM8	1.01	Terry
TYNM8	M	Terry 21 NNW
VIDM8	0.50	Vida 6 NE
WSBM8	0.37	Westby
WTRM8	1.68	Whitewater
WHIM8	M	Whitewater 18 NE
WBXM8	1.10	Wibaux 2 E
WTTM8	1.17	Winnett
WNEM8	1.45	Winnett 6 NNE
WNTM8	1.39	Winnett 8 ESE
WITM8	1.11	Winnett 12 SW
WLFM8	0.59	Wolf Point
ZRTM8	2.14	Zortman

Significant Rainfall Summary (September 19-20): We are still a couple of weeks away before we have all the final monthly rainfall totals for September, but we are off to a solid start following the significant rainfall that occurred Wednesday & Thursday (9/19-9/20). Here's a look at a **summary of rainfall totals** (for the period around the area. Some places along the Canadian border even picked up a coating of snow on elevated surfaces late Thursday as the precipitation came to an end!

Monthly Trivia: Last month we asked…

July and August often come with some of the hottest summertime weather conditions across northeast Montana. Sometimes it can even feel warmer than the actual temperature, and we refer to something called a heat index to better help people understand how heat combined with humidity will impact them. What is the heat index, how is it used, and why does humidity factor into how hot it feels in the first place? Find out in the next newsletter!

Answer: Heat Index represents how hot it really feels when relative humidity is factored in. During extremely hot and humid conditions, your body has a difficult time keeping itself cool. When the air is extremely humid, your sweat doesn't evaporate into the surrounding air as readily. If fluid and/or salt is lost over time through either dehydration or sweating, your body temperature will rise and this can lead to a number of heat related illnesses. Use this heat safety page for helpful reminders to you and your loved ones should we experience any late season warmth (admittedly, unlikely this year!), or, you can keep these tips in your pocket for next season!

New Question: With fall upon us, it is not uncommon for overnight temperatures to dip below freezing. Under the right circumstances, frost can form as well, which can be of impact to those with interests in agriculture, or even to someone who is doing a little late season gardening. This month we ask, what causes the formation of frost? Check out the next newsletter for the answer!

Glasgow, MT Summer 2018 Snapshot: The NWS Glasgow shared this image on social media highlighting some stats for the summer 2018 season. Overall, this will rank as the 16th warmest "meteorological summer (June-August)."

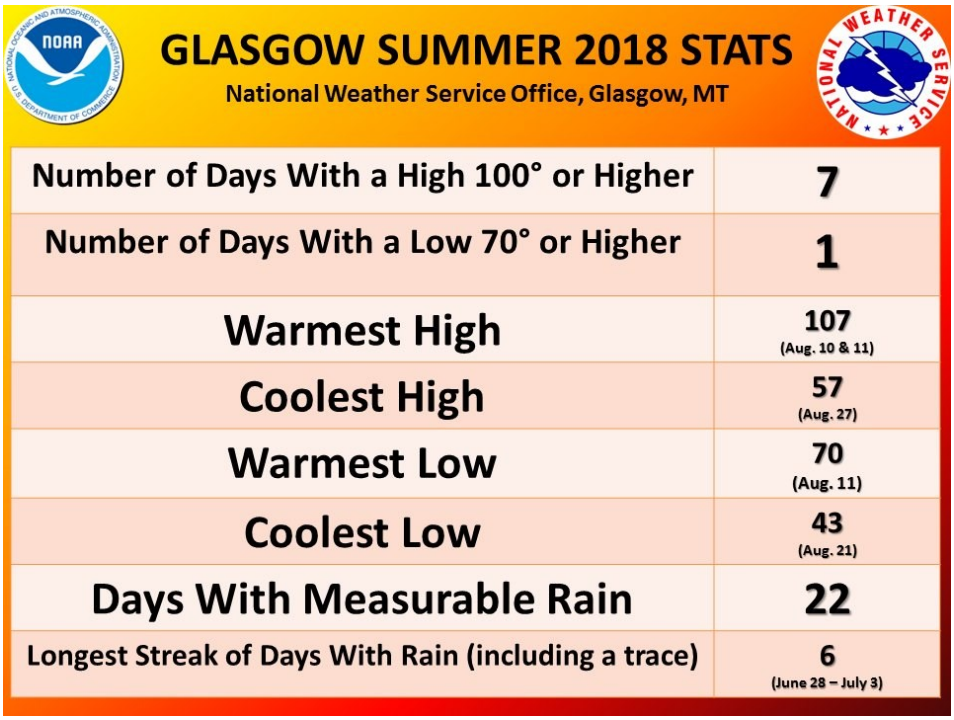

Figure 8: Image created by Mark Avery, Meteorologist at NWS Glasgow, showing a summary of statistics for Glasgow, MT during the summer of 2018.

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