Under the Big Sky e-Letter

September 2022

Photo Credit: Jacob Zanker, Meteorologist at NWS Glasgow.

National Weather Service

Glasgow, MT

A Peak Inside:

National Weather Service

Glasgow, MT

NEW Meteorologist In Charge at NWS Glasgow:

Effective August 28, Patrick Gilchrist has been promoted to Meteorologist-In-Charge at the National Weather Service in Glasgow, MT. He has served as Warning Coordination Meteorologist at Glasgow since 2016 and was a Lead Forecaster before that. We look forward to moving ahead as an office under his leadership as we all begin a new chapter together.

Join CoCoRaHS Today!

CoCoRaHS is a grassroots organization with a network of highly committed observers who report daily precipitation such as rain, hail, or snow from all across the country. The data are used by meteorologists, insurance adjusters, mosquito control, and even by those in academia.

Participating in the CoCoRaHS program is a great way to make a difference in your community. Check out the CoCoRaHS main page to learn more! We are still accepting new observers so feel free to join through the main CoCoRaHS website today. All you'll need is a ruler and a rain gage to get started!

Cold Season Season Training 2022: Coming Soon!

We'll soon be announcing the details of our cold season CoCoRaHS training for 2022, so be on the lookout for that! Meanwhile, check out the training we did for the warm season and then sign up to join via the CoCoRaHS website to get started as a new observer!

Percent of Normal Precipitation (Montana)

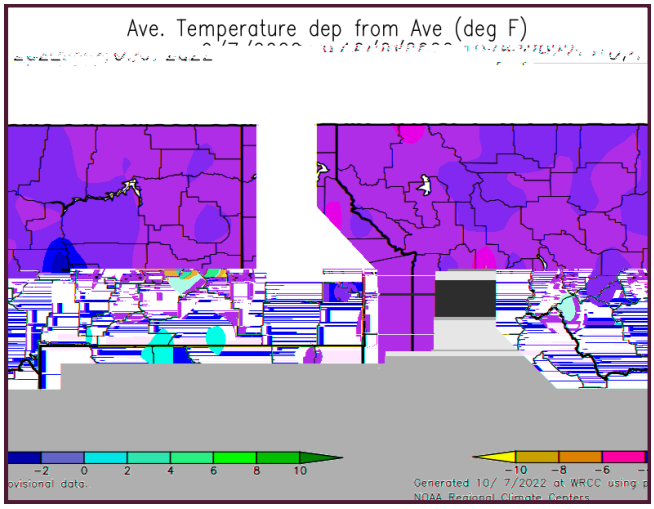

Figure 2: 30-day percent of normal precipitation across Montana.

Avg. Temp Departure from Normal (Montana)

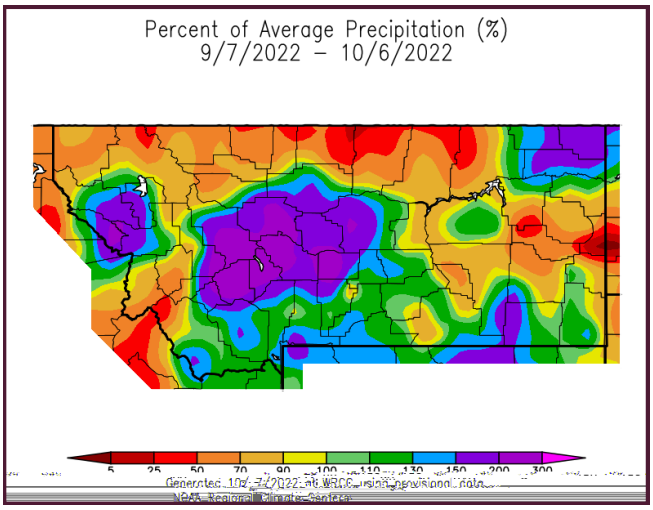

Figure 1: 30-day temperature anomalies across Montana.

Summary: The last 30 days brought warmer than normal temperatures across the state of Montana. Meanwhile, precipitation trends varied across the state. Far NE Montana and portions of southern and central Montana experienced wetter than normal conditions. On the other hand, much of northern Montana and southeast parts of the state saw below average precipitation.

Hydrologic Summary for September 2022, By Greg Forrester, Lead Forecaster at NWS Glasgow:

September was a warm and dry month over northeast Montana. Once again, most areas had less than 50 percent of their normal precipitation. The wet spots for the month were Winnett 6NNE with 0.87 inch, Mosby with 0.77 inch, and Port of Morgan and Wolf Point 29 ENE with 0.67 inch. The dry spots included Fort Peck with 0.05 inch, Cohagen 22SE and Hoyt with 0.06 inch, and Sidney airport with 0.10 inch. Glasgow received 0.13 inch which was 12 percent of normal. Temperatures varied from 4 to 8 degrees above normal across the region. Glasgow averaged 65.9 degrees which was 6.0 degrees above normal. It was Glasgow's warmest September on record beating 1998 which averaged 65.8 degrees. On September 7, several locations set all time record highs for the month of September.

The dry weather allowed for the drought to expand across northeast Montana. At the end of September, moderate to extreme drought covered the entire region.

The Milk River had near record low stream flow for the entire month. The Yellowstone, Poplar, and Missouri Rivers had below normal streamflow for the entire month.

The Fort Peck Reservoir elevation fell to 2219.7 feet during the month. The reservoir was at 64 percent of capacity and 81 percent of the mean pool.

CPC Outlook:

The Climate Prediction Center released its latest three month outlook for temperature and precipitation for October through December on September 15, 2022. The outlook shows equal chances for normal, below normal, or above normal temperatures for most of Montana. Warmer than normal conditions are favored only across far southwest portions of the state. Meanwhile, above normal precipitation chances favored across the Pacific Northwest extending into western Montana. Equal chances of normal, below normal, or above normal precipitation across eastern Montana exist according to the outlook. Looking ahead to winter, while the official winter outlook hasn't been released just yet, we can say that odds favor La Niña will be present. This generally will mean cooler and wetter conditions across the region. That said, patterns can still fluctuate from year to year and there certainly have been seasons that have gone against an expected trend.

The latest outlook 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.

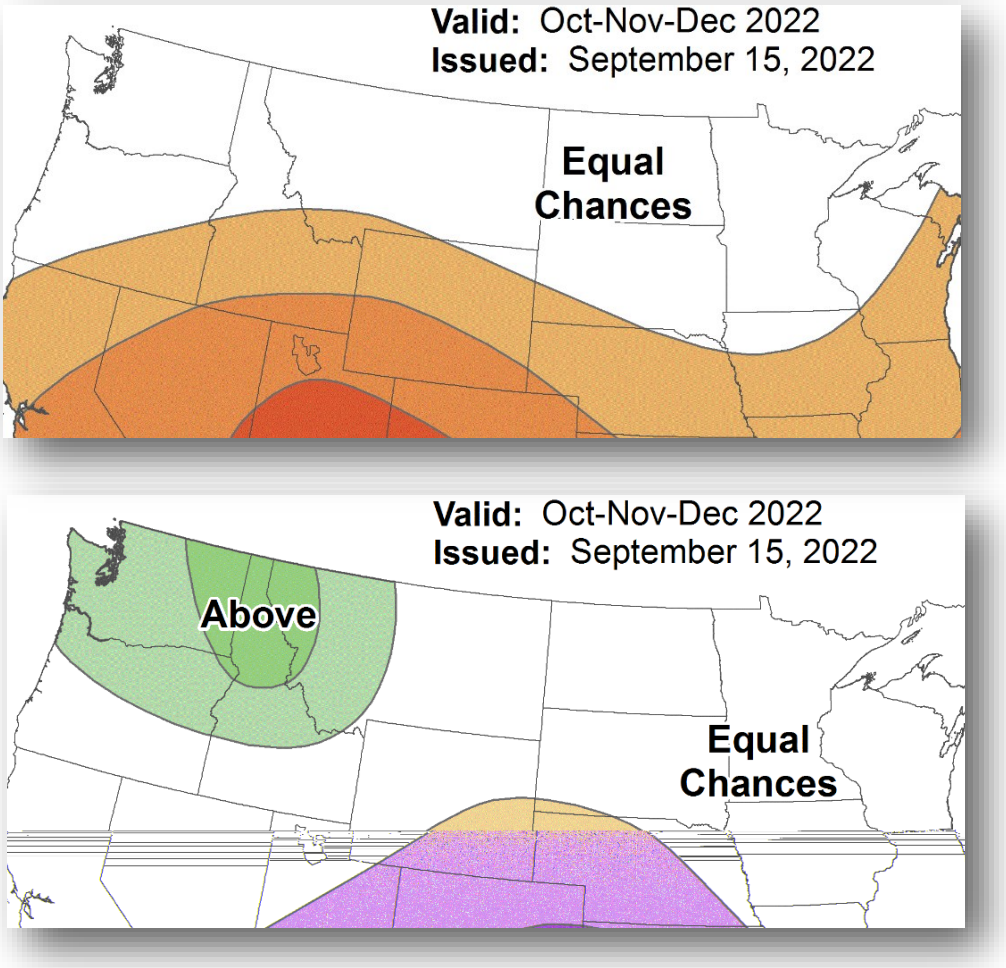

Figure 2: Climate Prediction Center three month outlook (October to December 2022) for temperature (top) and precipitation (bottom).

U.S. Drought Monitor:

The latest U.S. Drought Monitor was released on Thursday October 13, 2022. The drought persists across much of Montana. Severe to extreme drought conditions continue to be commonplace over much of North Central and Northeast Montana as of the latest update. This outlook is updated each Thursday. Please feel free to check out the latest **here.**

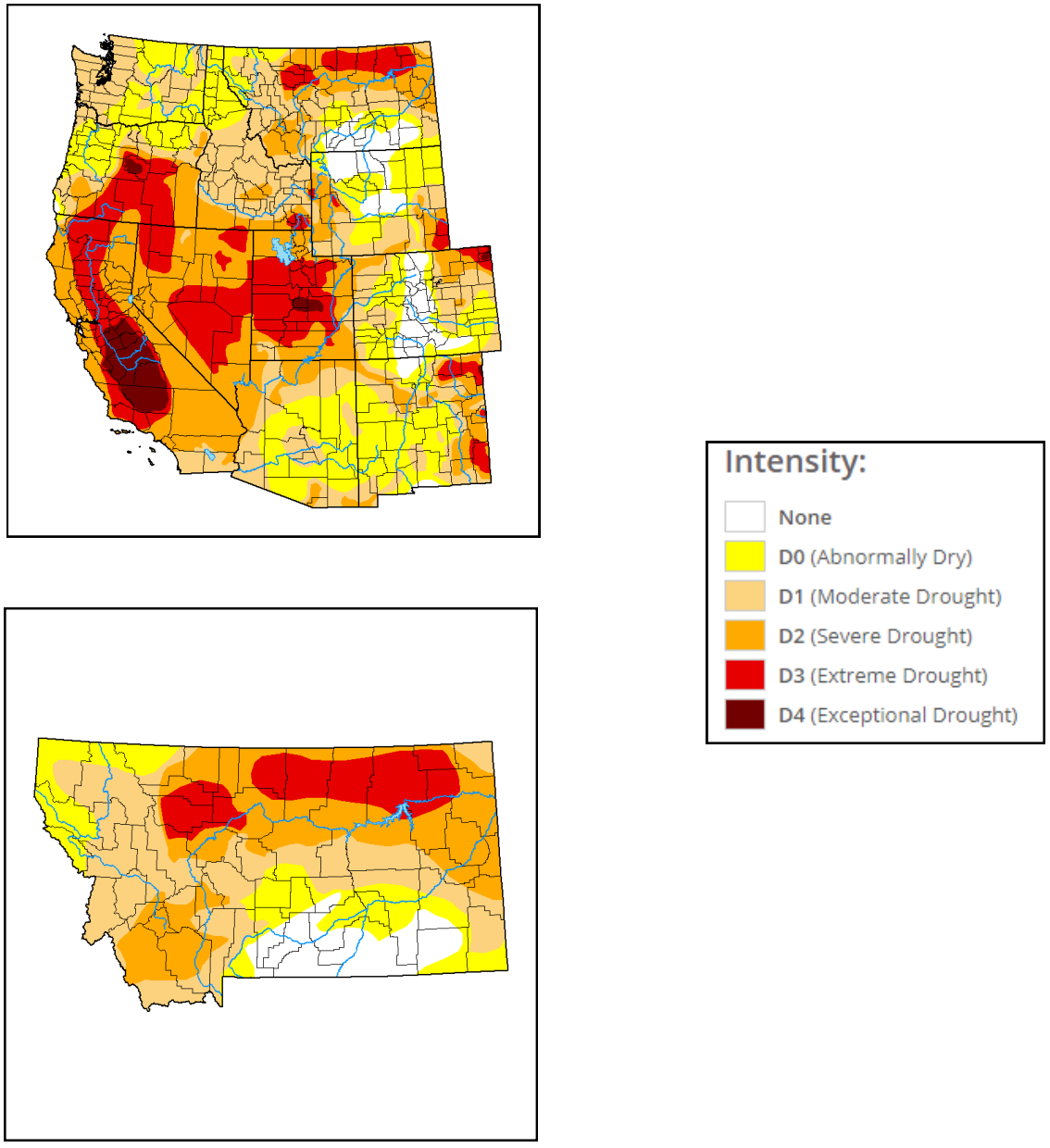

Figure 3: U.S. Drought Monitor updated October 13, 2022.

U.S. & Global Climate Highlights (August): The U.S. & Global climate highlights for August 2022 have been released, the latest month for which data was available. A few points for you to take home are provided below.

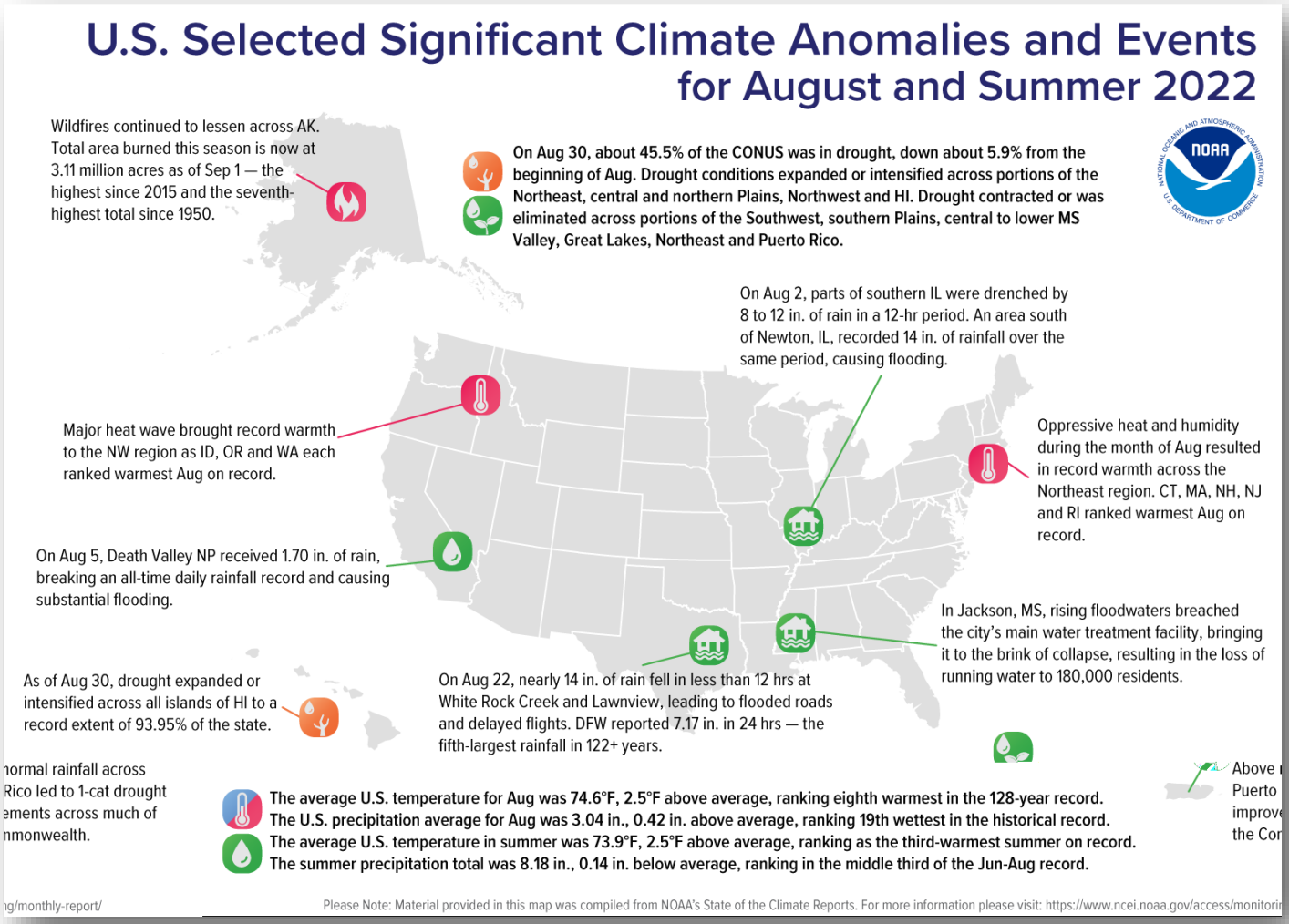

Figure 4: Significant Climate anomalies and events in August 2022

U.S. Highlights for August2022

1) The contiguous U.S. average temperature for August 2022 was 74.6 °F, ranking 8rd warmest on record.
2) The average August precipitation total for the contiguous U.S. came in at 3.04 inches, ranking as the 19th wettest on record.

Global Highlights for August 2022

1) The August 2022 global surface temperature anomaly came in as the 6th highest for August on record.
2) Interestingly, as much as 8.2% of the world's surface experienced a record high temperature in August, and this is the third highest July percentage on record.
3) Precipitation anomalies varied considerably around the world in May 2022, which is fairly typical.

Winter Weather Safety

- Winter often comes early in NE Montana. That means sub-freezing temperatures and frozen precipitation may soon be on the way. The National Weather Service is ready to help keep you safe all season long. Check out our **winter safety page** to learn more.

Figure 5: NOAA First Snow infographic.

Links You May Like:

ENSO Update

ENSO influence in Multiple Ocean Basins

Heat Risk Messaging

Climate Change and Wildfires

Citizen Science and Drought Detection and Monitoring

Climate Change Outpacing Drought Assessment

COOP 2021 Precipitation Totals for September 2022 (Preliminary)

Station	Precipitation	Location
BAYM8	0.35	Baylor
BRDM8	M	Bredette
BTNM8	M	Brockton 17 N
BKNM8	0.26	Brockton 20 S
BKYM8	0.15	Brockway 3 WSW
BRSM8	M	Brusette
CLLM8	0.21	Carlyle 13 NW
CIRM8	0.22	Circle
CHNM8	0.31	Cohagen
COM8	0.06	Cohagen 22 SE
CNTM8	0.39	Content 3 SSE
CULM8	0.42	Culbertson
DSNM8	M	Dodson 11 N
FLTM8	1.17	Flatwillow 4 ENE
FPKM8	0.05	Fort Peck PP
GLAM8	0.12	Glasgow 14 NW
GGWM8	0.13	Glasgow WFO
GGSM8	0.56	Glasgow 46 SW
GNDM8	0.16	Glendive WTP
HRBM8	M	Harb
HINM8	M	Hinsdale 4 SW
HNSM8	M	Hinsdale 21 SW
HOMM8	0.22	Homestead 5 SE
HOYM8	0.06	Hoyt
JORM8	M	Jordan
LNDM8	0.14	Lindsay
MLAM8	0.67	Malta
MLTM8	0.45	Malta 7 E
MTAM8	M	Malta 35 S

Station	Precipitation	Location
MDCM8	0.31	Medicine Lake 3 SE
MLDM8	0.20	Mildred 5 N
MSBM8	0.77	Mosby 4 ENE
OPNM8	M	Opheim 10 N
OPMM8	0.55	Opheim 12 SSE
PTYM8	M	Plentywood
PTWM8	0.27	Plentywood 1 NE
POGM8	0.67	Port of Morgan
RAYM8	M	Raymond Border Station
SAOM8	0.41	Saco 1 NNW
SMIM8	M	St. Marie
SAVM8	M	Savage
SCOM8	0.78	Scobey 4 NW
SDYM8	0.42	Sidney
SIDM8	0.46	Sidney 2S
TERM8	0.10	Terry
TYNM8	M	Terry 21 NNW
VIDM8	M	Vida 6 NE
WSBM8	M	Westby
WTRM8	M	Whitewater
WHIM8	M	Whitewater 18 NE
WBXM8	M	Wibaux 2 E
WTTM8	M	Winnett
WNEM8	0.87	Winnett 6 NNE
WNTM8	M	Winnett 8 ESE
WITM8	M	Winnett 12 SW
WLFM8	0.67	Wolf Point
ZRTM8	0.45	Zortman

Monthly Trivia:

Last time we asked…

Several of you may have seen our recent aurora which was visible across portions of NE Montana on Saturday September 3rd. Our question this month, what causes the aurora borealis?

Answer: The Space Weather Prediction Center provides detailed information on the Aurora Borealis (Northern Lights) as well as viewing tips, and a 30 minute forecast. In short, the Northern Lights occur due to negatively charged particles called electrons colliding with the upper atmosphere. Electrons follow the magnetic field down to the Poles (North and South Pole). Here, they interact with oxygen and nitrogen atoms in the upper atmosphere. These collisions excite the molecules in the upper atmosphere, but when that state is lowered , energy is released in the form of light. The process that occurs is similar to how a neon light operates.

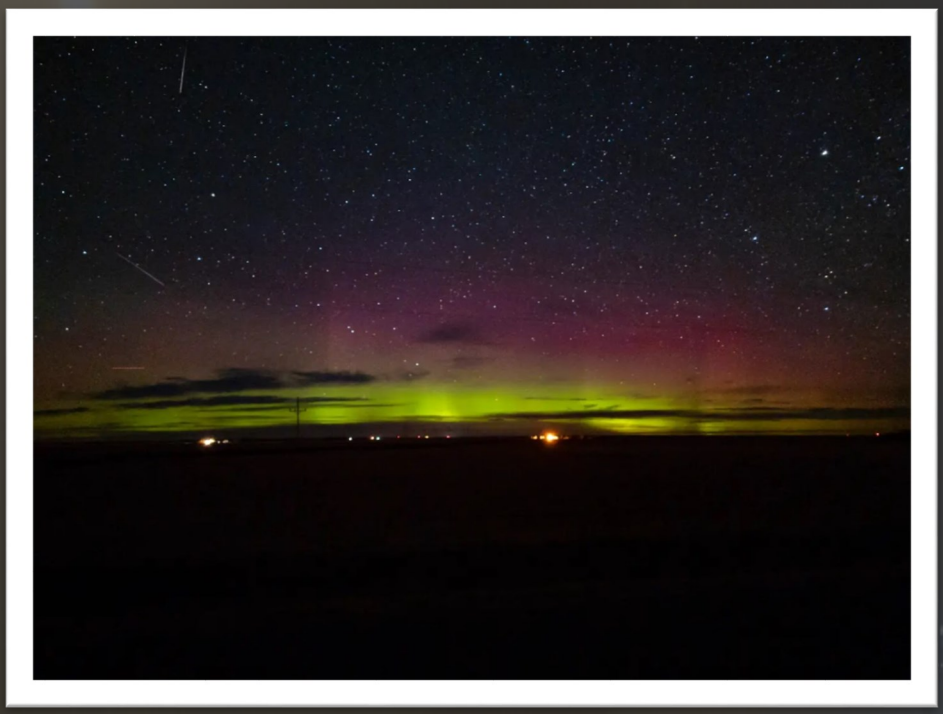

Figure 6: Photo of the Aurora (Northern Lights) taken by Angel Enriquez, meteorologist at the NWS Glasgow office.

New Question: October often means the first snow is right around the corner for much of NE Montana, which brings us to this month's trivia question. What is the earliest measurable first snowfall on record for Glasgow, MT?

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