

Under the Big Sky

e-Letter

January 2022



Photo Credit: Julianna Glinskas

National Weather Service

Glasgow, MT

Did you know?: Sundogs are spots of light that develop due to refraction of light through ice crystals. Depending on the location of the ice crystals, they can appear on either the left, the right, or both sides of the sun. Learn more about sun dogs and optimal phenomenon [here](#).



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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!

Were you unable to attend our recent Montana CoCoRaHS Virtual Winter Training held on December 1? No problem, you can check it out [here](#)!

Percent of Normal Precipitation (Montana)

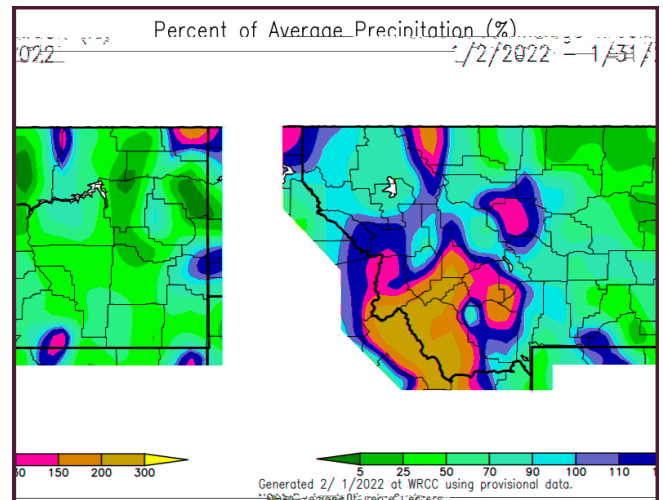


Figure 1: 30-day percent of normal precipitation across Montana.

Avg. Temp Departure from Normal (Montana)

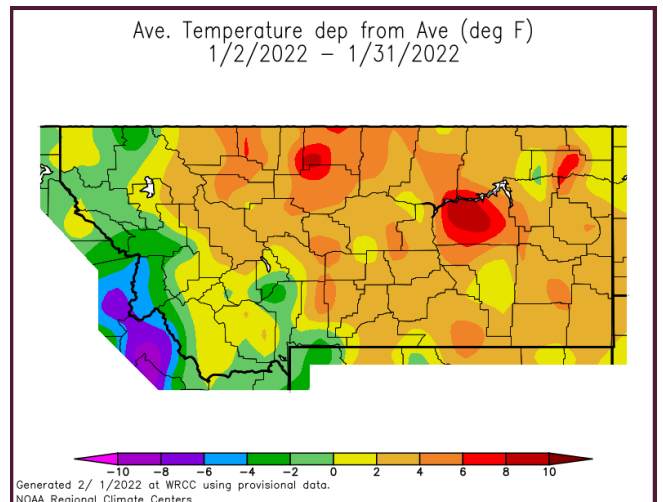


Figure 2: 30-day temperature anomalies across Montana.

Summary: The recent 30 day history across most of eastern and central Montana has trended toward milder and drier than average, with only a few spotty locations bucking the trend. Western and Southwestern parts of the state have experienced near or below normal temperatures and precipitation through the month of January.

Hydrologic Summary for December 2021, By Greg Forrester, Lead Forecaster at NWS Glasgow:

It was a cold and wet month across Northeast Montana. The wet spots for the month were Glasgow 46SW with 2.19 inches, Plentywood with 1.62 inches, and Zortman with 1.00 inches. The dry spots were Sidney 2S with 0.33 inch, Malta with 0.36 inch, and Wolf Point with 0.37 inch. Glasgow received 0.86 inch which was 200 percent of normal. Temperatures varied from 5 to 9 degrees below normal across the region. Glasgow averaged 11.9 degrees which was 6.6 degrees below normal.

The above normal precipitation was not enough to diminish the severe to exceptional drought across the area.

The Milk, Poplar, Yellowstone, and Missouri Rivers all froze during the month. Streamflow was below normal before the rivers froze.

The Fort Peck Reservoir elevation fell to 2225.0 feet during the month. The reservoir was at 70 percent of capacity and 88 percent of the mean pool.

CPC Three Month Outlook:

The Climate Prediction Center released its latest three month outlook on January 20, 2022 for the months of February through April 2022.

The outlook favors below normal temperatures across the region over the period with decreasing probabilities further east. Note that NE Montana is on the eastern edge of this outline. Meanwhile, above normal precipitation is favored across the Pacific Northwest, extending into western Montana. For NE Montana the outlook calls for equal chances for above normal, normal, or below normal precipitation over the three month period.

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.

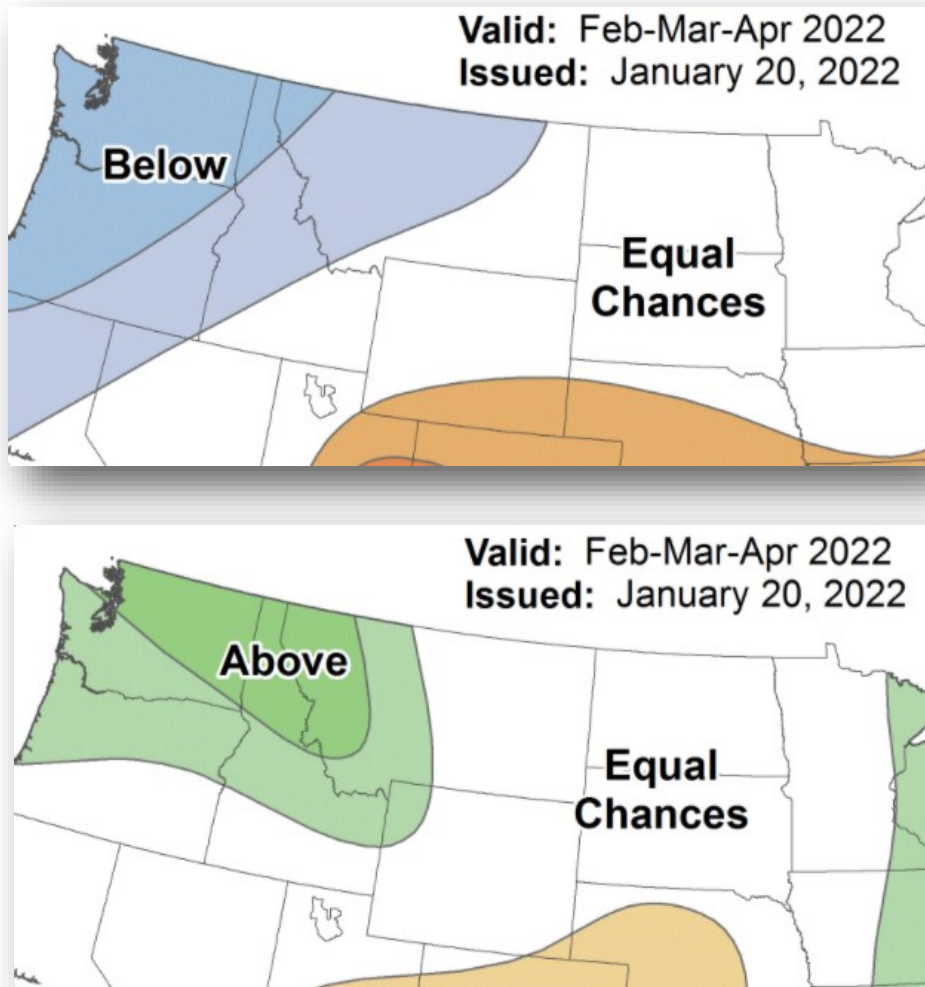


Figure 3: Climate Prediction Center three month temperature (top) and precipitation (bottom) outlook for February through April 2022.

U.S. Drought Monitor:

The latest U.S. Drought Monitor was released on Thursday February 3, 2022. Much of NE Montana currently sits under severe to extreme drought conditions. Only far NW parts of the state are void of any drought conditions at this time. Some central parts of Montana are currently under exceptional drought. This outlook is updated weekly. Please feel free to check out the latest [here](#).

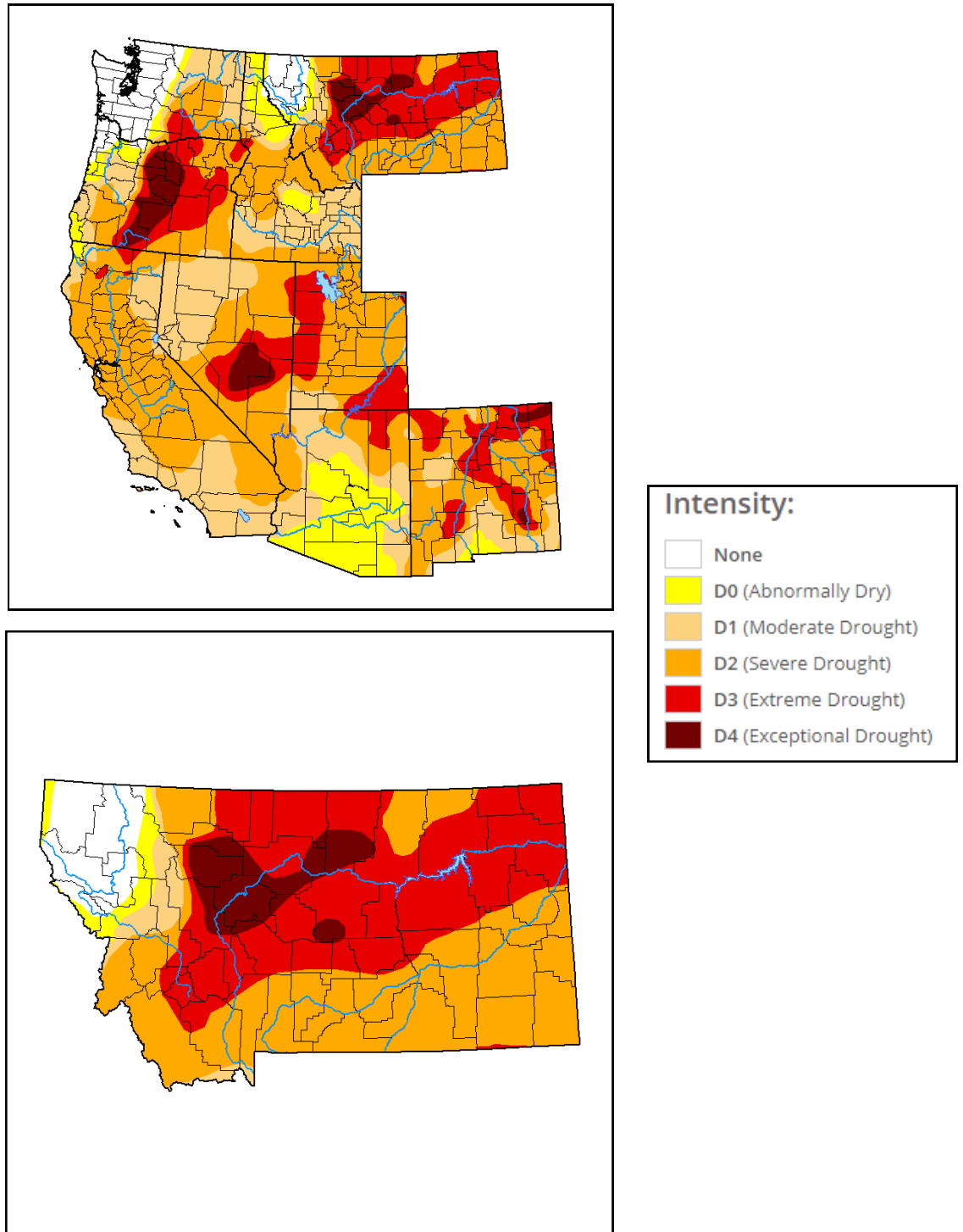


Figure 4: U.S. Drought Monitor updated February 3, 2022.

U.S. & Global Climate Highlights (December): The [U.S.](#) & [Global](#) climate highlights for December 2021 have been released, the latest month for which data was available. A few points for you to take home are provided below.

Precipitation Percent of Average

December 2021

Average Period: 20th Century

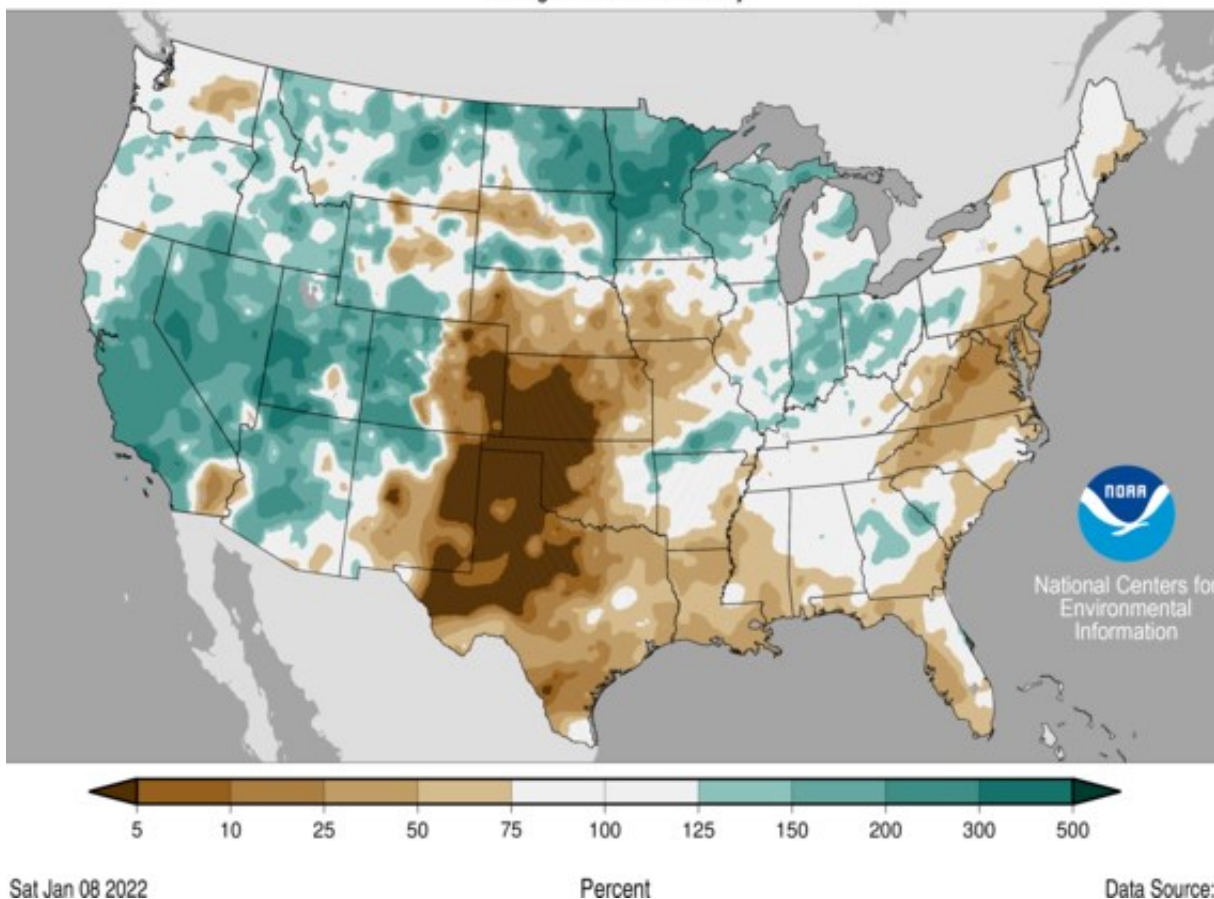


Figure 5: December 2021 Percent of Average Precipitation (U.S.).

U.S. Highlights for December 2021

- 1) The contiguous U.S. average temperature for December 2021 was 39.3 °F, the warmest on record.
- 2) The average December precipitation total for the contiguous U.S. came in at 2.38 inches. This ranks within the middle third of the period of record.

Global Highlights for December 2021

- 1) The December 2021 global surface temperature tied with the fifth highest on record.
- 2) Eight out of the ten warmest Decembers have all unfolded since 2014.
- 3) Precipitation anomalies varied considerably around the world in December 2021, which is fairly typical.

Winter Safety Travel Kit

- ◆ We're currently midway through the winter season, but that doesn't mean that safety gets to have a backseat before you travel. Before you head out, check the [latest forecast](#), [road reports](#), and be sure to have your safety travel kit handy (include: mobile phone and charger, batteries, blankets, flashlights, first-aid kit, non-perishable food, candle to melt snow for drinking water, a sack of sand for traction, a shovel, scraper, battery booster cables, etc.) It's also a good idea to let someone know when you're heading out and check in with them so they know you arrived at your destination safely. Taking these simple steps will help keep you safe all winter long.



Figure 6: Safety graphic on what to do before heading out this season.

Links You May Like:

[ENSO Update](#)

[ENSO, Climate Change, and Colorado's Marshall Fire](#)

[Next Generation of Extreme Weather Prediction](#)

[Representing Ozone in Wildfire Smoke](#)

[COVID and CO2 Concentrations](#)

COOP 2021 Precipitation Totals for December 2021 (Updated)

Station	Precipitation	Location
BAYM8	M	Baylor
BRDM8	0.41	Bredette
BTNM8	M	Brockton 17 N
BKNM8	0.44	Brockton 20 S
BKYM8	0.25	Brockway 3 WSW
BRSM8	M	Brusette
CLLM8	0.67	Carlyle 13 NW
CIRM8	0.57	Circle
CHNM8	0.40	Cohagen
COM8	M	Cohagen 22 SE
CNTM8	0.65	Content 3 SSE
CULM8	0.40	Culbertson
DSNM8	M	Dodson 11 N
FLTM8	0.93	Flatwillow 4 ENE
FPKM8	M	Fort Peck PP
GLAM8	0.70	Glasgow 14 NW
GGWM8	0.86	Glasgow WFO
GGSM8	2.19	Glasgow 46 SW
GNDM8	0.59	Glendive WTP
HRBM8	M	Harb
HINM8	0.78	Hinsdale 4 SW
HNSM8	M	Hinsdale 21 SW
HOMM8	0.65	Homestead 5 SE
HOYM8	0.16	Hoyt
JORM8	M	Jordan
LNDM8	0.97	Lindsay
MLAM8	0.36	Malta
MLTM8	0.69	Malta 7 E
MTAM8	0.35	Malta 35 S

Station	Precipitation	Location
MDCM8	0.57	Medicine Lake 3 SE
MLDM8	0.55	Mildred 5 N
MSBM8	0.57	Mosby 4 ENE
OPNM8	0.21	Opheim 10 N
OPMM8	0.19	Opheim 12 SSE
PTYM8	1.01	Plentywood
PTWM8	0.27	Plentywood 1 NE
POGM8	0.65	Port of Morgan
RAYM8	0.50	Raymond Border Station
SAOM8	0.43	Saco 1 NNW
SMIM8	0.15	St. Marie
SAVM8	M	Savage
SCOM8	0.21	Scobey 4 NW
SDYM8	0.48	Sidney
SIDM8	0.33	Sidney 2S
TERM8	0.51	Terry
TYNM8	M	Terry 21 NNW
VIDM8	M	Vida 6 NE
WSBM8	M	Westby
WTRM8	0.30	Whitewater
WHIM8	M	Whitewater 18 NE
WBXM8	M	Wibaux 2 E
WTTM8	0.68	Winnett
WNEM8	0.63	Winnett 6 NNE
WNTM8	1.17	Winnett 8 ESE
WITM8	0.63	Winnett 12 SW
WLFM8	0.37	Wolf Point
ZRTM8	1.00	Zortman

COOP 2021 Precipitation Totals for January 2022 (Preliminary)

Station	Precipitation	Location
BAYM8	M	Baylor
BRDM8	0.07	Bredette
BTNM8	M	Brockton 17 N
BKNM8	0.08	Brockton 20 S
BKYM8	0.05	Brockway 3 WSW
BRSM8	M	Brusette
CLLM8	0.92	Carlyle 13 NW
CIRM8	0.11	Circle
CHNM8	0.11	Cohagen
COM8	M	Cohagen 22 SE
CNTM8	0.13	Content 3 SSE
CULM8	0.07	Culbertson
DSNM8	M	Dodson 11 N
FLTM8	0.20	Flatwillow 4 ENE
FPKM8	M	Fort Peck PP
GLAM8	0.11	Glasgow 14 NW
GGWM8	0.26	Glasgow WFO
GGSM8	0.16	Glasgow 46 SW
GNDM8	0.17	Glendive WTP
HRBM8	M	Harb
HINM8	0.20	Hinsdale 4 SW
HNSM8	M	Hinsdale 21 SW
HOMM8	0.10	Homestead 5 SE
HOYM8	M	Hoyt
JORM8	M	Jordan
LNDM8	0.32	Lindsay
MLAM8	0.03	Malta
MLTM8	0.12	Malta 7 E
MTAM8	M	Malta 35 S

Station	Precipitation	Location
MDCM8	M	Medicine Lake 3 SE
MLDM8	0.11	Mildred 5 N
MSBM8	M	Mosby 4 ENE
OPNM8	M	Opheim 10 N
OPMM8	0.04	Opheim 12 SSE
PTYM8	0.34	Plentywood
PTWM8	M	Plentywood 1 NE
POGM8	0.17	Port of Morgan
RAYM8	0.18	Raymond Border Station
SAOM8	0.27	Saco 1 NNW
SMIM8	0.10	St. Marie
SAVM8	M	Savage
SCOM8	0.02	Scobey 4 NW
SDYM8	0.09	Sidney
SIDM8	0.01	Sidney 2S
TERM8	0.04	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	M	Winnett 6 NNE
WNTM8	M	Winnett 8 ESE
WITM8	M	Winnett 12 SW
WLFM8	0.03	Wolf Point
ZRTM8	0.31	Zortman

Monthly Trivia:

Last time we asked...

Winter is on the way and that means colder temperatures and more snow. Snow ratio is the percentage of water within a sample of snow. This month we ask: what are the variables that affect snow ratio?

Answer: Ice is never 100% safe. If you're unsure, it's best to be cautious and stay off the ice. In general, it takes 4" of ice to support activities such as walking or ice fishing, 9" will support basic cars, and it takes upwards of a foot of ice to support medium sized trucks. To read up more on winter safety in general, go [here](#).



Figure 7: Ice safety graphic showing what is supported by ice at various thicknesses.

? **New Question:** This month we ask, what is the Cold Advisory for Newborn Livestock (CANL)? We'll share some important details on this product and how to use it during the late winter and spring season in the next newsletter.

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