

Under the Big Sky

e-Letter
National
Weather
Service

December 2022

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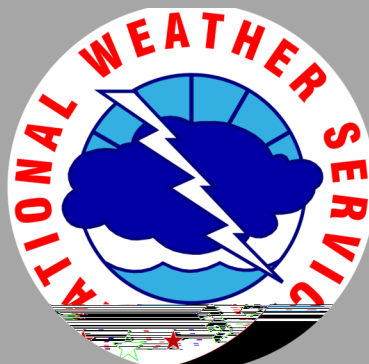
January 2023

National Weather Service

Glasgow, MT



Photo Credit: Julianna Glinskas,
Meteorologist at NWS Glasgow.

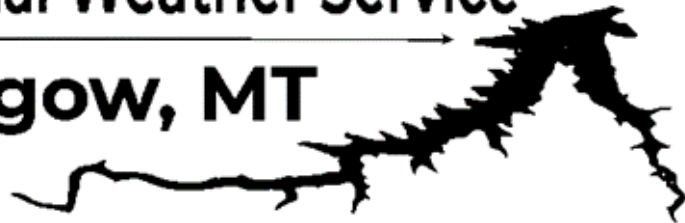


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National Weather Service

←————→
Glasgow, MT



2022 Northeast Montana Highlights by Ryan Bernhart

- 1. Ongoing Drought:** Drought conditions lasted most of the year—briefly improved in early July but returned in September and lasted the rest of the year.
- 2. January 4-6th Cold Spell:** Widespread wind chills below of 50 below with peak wind chills of 55 below in Sheridan County.
- 3. April 4-5th Wind Event:** High winds frequently gusted over 70 mph with a peak wind gust of 79 mph measured in Garfield County at Jordan Airport. A Rodeo Grandstand Roof was blown off at the Phillips County Fairgrounds in Dodson, in northern Phillips County. The Port of Morgan reported aluminum signs ripped off poles and a cattle windbreak was blown over east of Whitewater.

4. April 12-13th Blizzard:

Heavy snow was reported in eastern counties of the forecast area. Wibaux County received as much as 10" of snow, Prairie and Dawson Counties as much as 14", Richland County as much as 18." Blizzard conditions were observed in Dawson, Wibaux, Richland, Sheridan, and Eastern Roosevelt Counties.

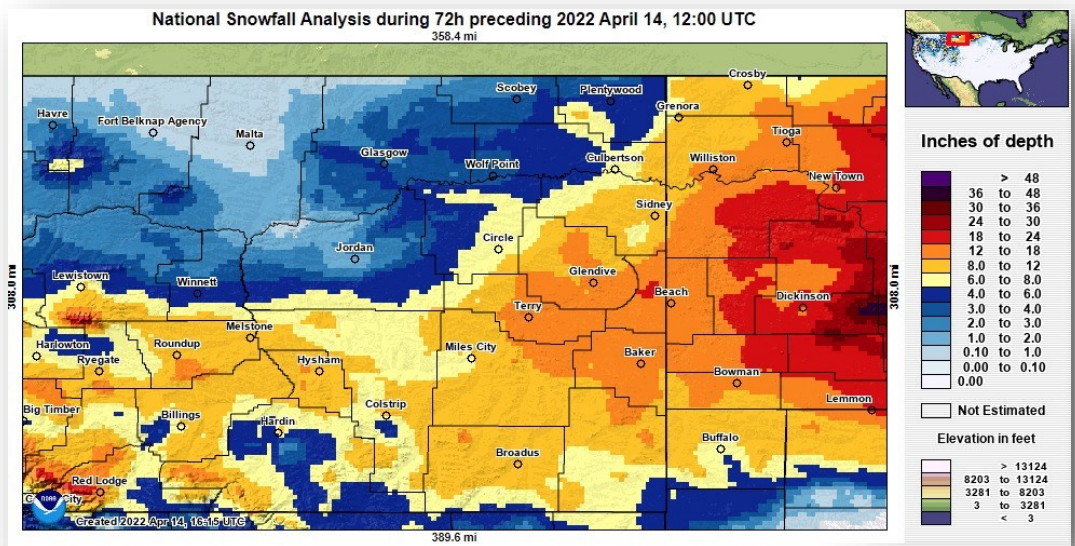


Figure 1: This image is a snowfall analysis during the 72h preceding 2022 April 14, 12:00 UTC. This shows the axis of very heavy snowfall across portions of Montana and Western North Dakota that occurred with the first of two April blizzards associated with Colorado low pressure systems that tracked through the region.

5. April 22-24th Blizzard:

Heavy snow was reported in southeastern counties of the forecast area. Prairie and Richland Counties reported up to 12" of snow, 15" fell in Wibaux County. Dawson County reported as much as 18" of snow. Blizzard conditions were observed in Wibaux and Richland Counties which resulted in power outages in both counties.

- 6. June Severe Weather:** A peak wind gust of 84 mph was measured at the South Sawmill Creek RAWs site in Garfield County in the early morning of June 19th. On June 28th, trees with diameters of 36" were blown down, thunderstorm gusts in the area were measured as high as 71 mph.
- 7. July 18th EF-2 Tornado:** An EF-2 Tornado touched down in Glentana with an 8 mile path. Damage included grain hopper bins and farm machine buildings being destroyed, large blue spruce trees uprooted, power poles snapped, and the roof of a house being blown off.

2022 Northeast Montana Highlights (Continued) by Ryan Bernhart

8. Multiple July Severe Weather

Events: July 3rd featured a lightning strike in Glasgow that burned the siding off of a house. Winds in Garfield County gusted to 78 mph. Wind gusts in Prairie County measured at 70 mph. On July 6th, Zortman reported hail the size of baseballs. A wind gust of 80 mph was estimated in Roosevelt County. On July 8th, lightning struck and damaged the Radome at NWS Glasgow, knocking out the radar for a few days. Wind gusts of 73 mph were reported in Phillips and Garfield Counties. Wolf Point Airport measured a wind gust of 72 mph. On July 9th, Malta Airport measured a wind gust of 78 mph. A wind gust of 78 mph was also reported in



Figure 2: Image was created by and featuring Brandon Bigelbach, Meteorologist at NWS Glasgow, asking for ground truth and observations while our radar was down following a lightning strike on July 8th.

Roosevelt County. Dawson and Prairie Counties reported wind gusts of 75 mph. Valley County had wind gusts up to 73 mph at St. Marie. July 13th brought wind gusts to 70 mph in Garfield County. And on July 18th, power pole lines snapped in Daniels County, the Quonset Hut destroyed in Phillips County, a camper was overturned and pushed up against a house in Valley County with wind gusts to 70 mph.

9. **August Severe Weather:** On August 4th, a wind gust in Valley County at 70 mph partially uprooted a tree.
10. **November Wind Storm:** On November 6th, a high wind event occurred with wind gusts up to 81 mph recorded in Valley County. A camper in Northern Valley County was rolled over and destroyed.
11. **Early Season Winter Storm November 9th-10th:** Widespread snowfall amounts over 6" were reported with 12" reported in Garfield County.
12. **December Blizzards:** Blizzard conditions occurred on December 15th-16th, 22nd, and the 25th.
13. **Wind Chill Warning December 21st to 23rd:** The coldest temperatures in 3 years occurred with Glasgow recording a low of -31 , the first sub -30 reading in 3 years. Wind chills were as low as -63 in Dawson County.

What significant weather events will you remember about 2022?

January 2023 Fog by Ted Jamba, Lead Forecaster at NWS Glasgow

It's been quite foggy across the area, especially along and north of the Milk and Missouri Rivers this month. This has been impactful in the northern parts of our area as hoarfrost has weighed heavily on power lines.



Figure 3: This photo was posted on Facebook from NorVal Electric January 19th.

January 2022 Fog (Continued) by Ted Jamba, Lead Forecaster at NWS Glasgow

January is typically the foggiest month in Glasgow with an average of about 7.5 days (where visibility reaches a half mile or less). So far this month (as of January 22) Glasgow has seen about twice that!



[GGW] GLASGOW INTL ARPT:: Fog (FG) Events
(1973-2023) Distinct Calendar Dates with 'FG' Reported with at least one hourly report

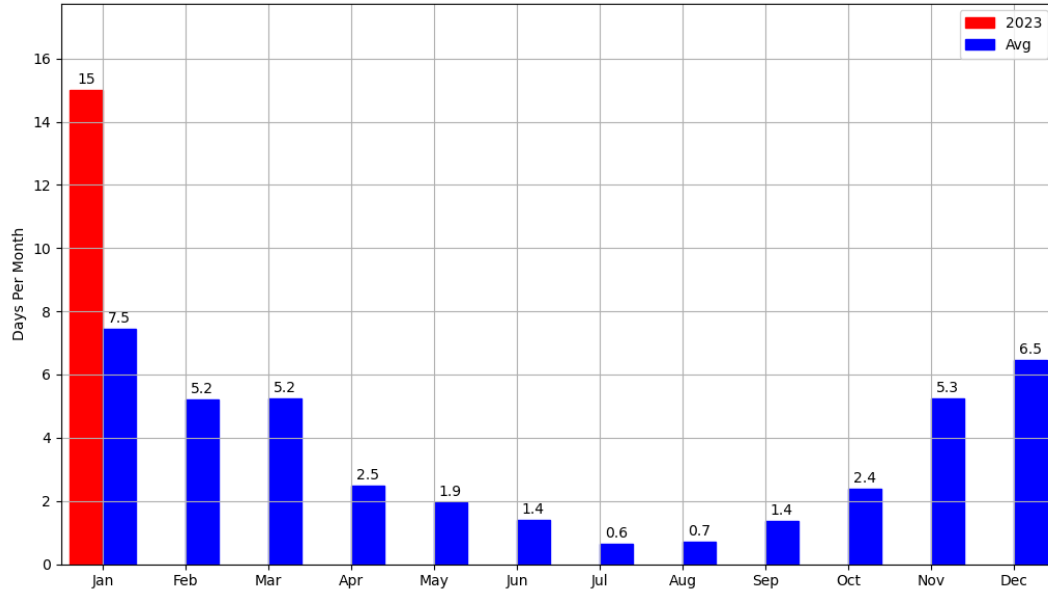


Figure 4: Graphic showing frequency of fog events for Glasgow, MT.

As you can see, Wolf Point and Sidney have experienced more fog than normal as well:



[OLF] WOLF POINT INTL:: Fog (FG) Events
(1973-2023) Distinct Calendar Dates with 'FG' Reported with at least one hourly report

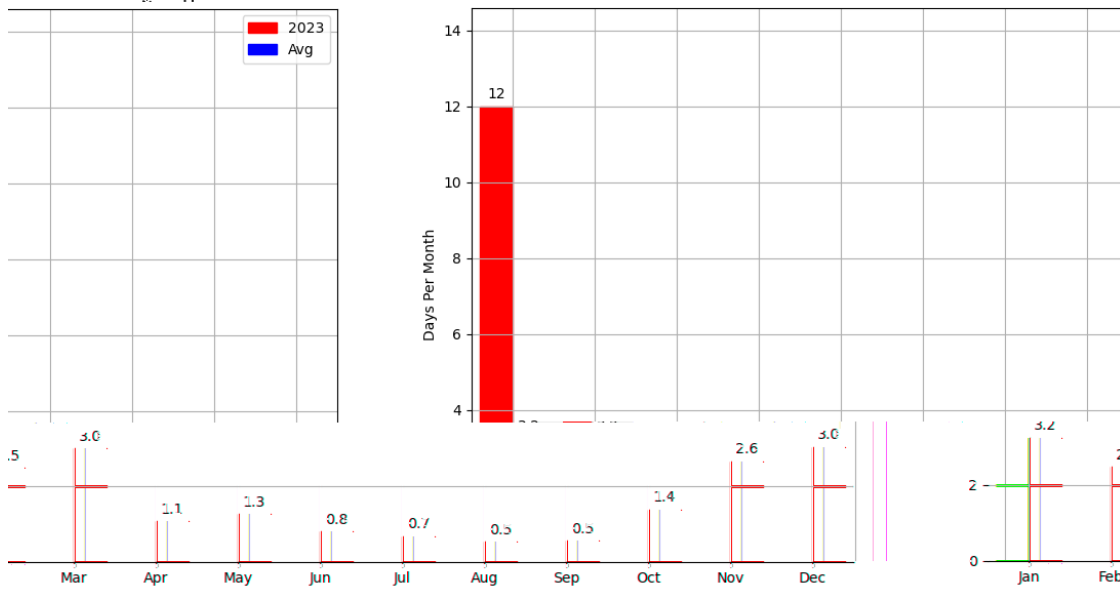


Figure 5: Graphic showing frequency of fog events for Wolf Point, MT.

January 2022 Fog (Continued) by Ted Jamba, Lead Forecaster at NWS Glasgow

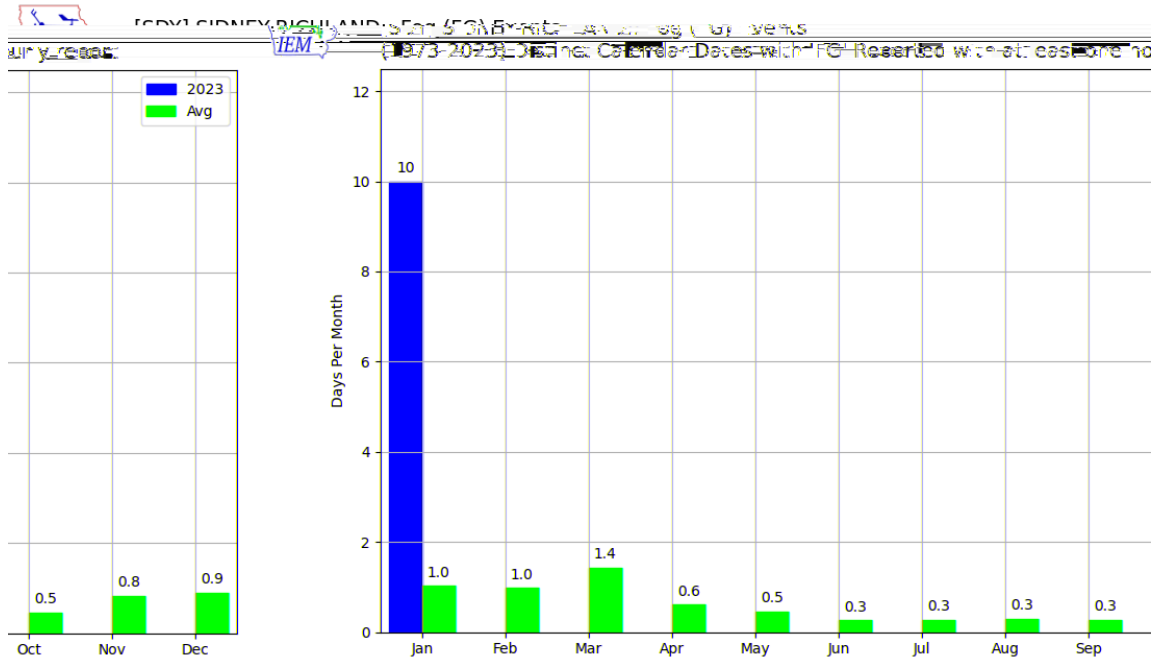


Figure 6: Graphic showing frequency of fog events for Sidney, MT.

We have received questions lately if there will be rain after 90 days following this fog. From the research that we have done, this is an old wife's tale; but that doesn't mean it's not possible! We're hoping that a normal spring rain occurs across northeast Montana this year as we are still in the grips of a two year drought!

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!

Need a refresher?:

Are you new to CoCoRaHS and need help getting started? Or, maybe you need help remembering how to take certain kinds of observations. The [CoCoRaHS](#)



[webpage](#) has a

number of available slide presentations that you can check out to learn more about these topics and more!

Are you looking to become a new CoCoRaHS observer? Then sign up to [join](#) today to get started! Just fill out the electronic form and the CoCoRaHS Coordinator from NWS Glasgow will follow up with you to help you get underway.

Percent of Normal Precipitation (Montana)

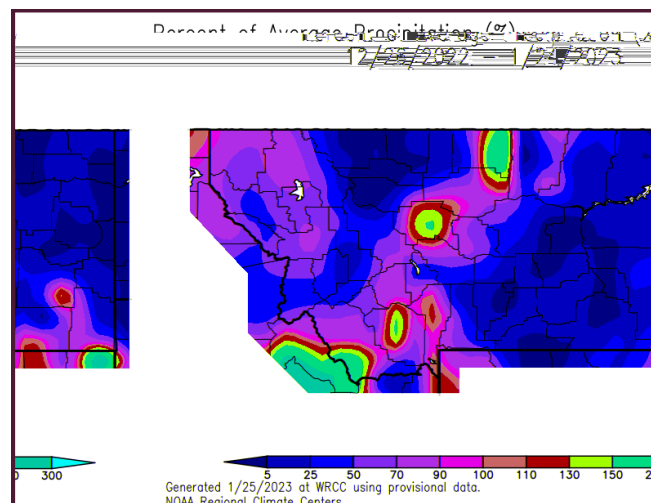


Figure 7: 30-day percent of normal precipitation across Montana.

Avg. Temp Departure from Normal (Montana)

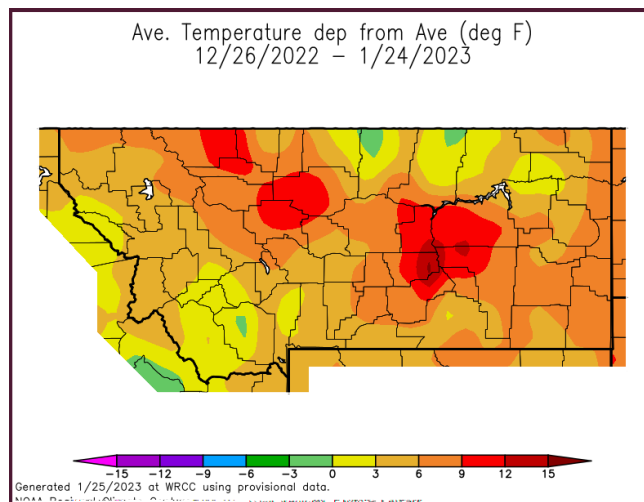


Figure 8: 30-day temperature anomalies across Montana.

Summary: Conditions across much of the state have trended drier and warmer than normal in a recent 30 day period. Note that much of NE Montana has had less than 50 percent of normal precipitation and temperatures several degrees above average.

Preliminary Hydrologic Summary for December 2022, By Greg Forrester Lead Forecaster at NWS

Glasgow:

December was a cold and snowy month over northeast Montana. Most areas were above normal in precipitation. The wet spots for the month were Carlyle 13NW with 1.69 inches, Zortman with 1.53 inches, and Terry with 1.30 inches. The dry spots included Scobey with 0.41 inch, Opheim 12SE with 0.44 inch, and Cohagen with 0.50 inch. Glasgow received 0.89 inch which was 202 percent of normal. Temperatures varied from 8 to 14 degrees below normal across the region. Glasgow averaged 7.4 degrees which was 11.1 degrees below normal.

Modest improvement in the drought across northeast Montana continued during December. At the end of December, extreme drought still covered most areas north of the Missouri River while moderate to severe drought covered the areas south of the Missouri River.

The Milk River, Yellowstone, Poplar, and Missouri Rivers were frozen. Streamflow information was not available.

The Fort Peck Reservoir elevation fell to 2218.8 feet during the month. The reservoir was at 63 percent of capacity and 80 percent of the mean pool.

CPC Outlook:

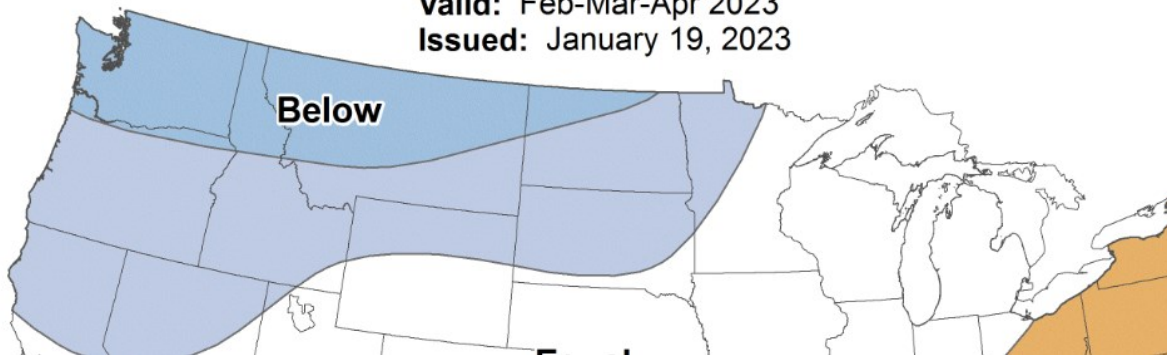
The Climate Prediction Center released its latest three month outlook for temperature and precipitation for February through April 2023 on January 19, 2023. The outlook shows below normal temperatures as the most likely outcome across all of Montana for the three month period. Meanwhile, precipitation is favored to be above normal across all but far southeastern portions of the state.

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.



Seasonal Temperature Outlook

Valid: Feb-Mar-Apr 2023
Issued: January 19, 2023



Seasonal Precipitation Outlook

Valid: Feb-Mar-Apr 2023
Issued: January 19, 2023

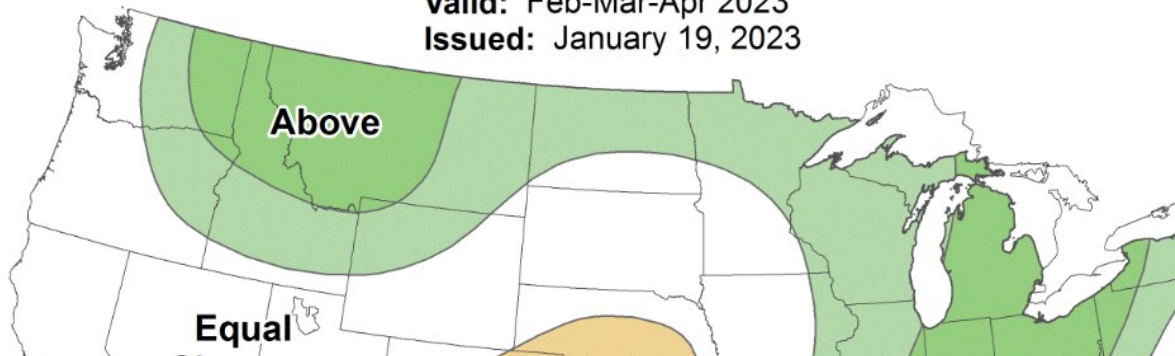


Figure 9: Climate Prediction Center three month outlook (February through April 2023) for temperature (top) and precipitation (bottom).

U.S. Drought Monitor:

The latest U.S. Drought Monitor was released on Thursday January 26, 2023. Severe to extreme drought conditions persist across much of Northeast and North Central Montana. Abnormally dry conditions are present across northwest portions of the state and only far southeast portions of Montana are currently void of drought concerns.

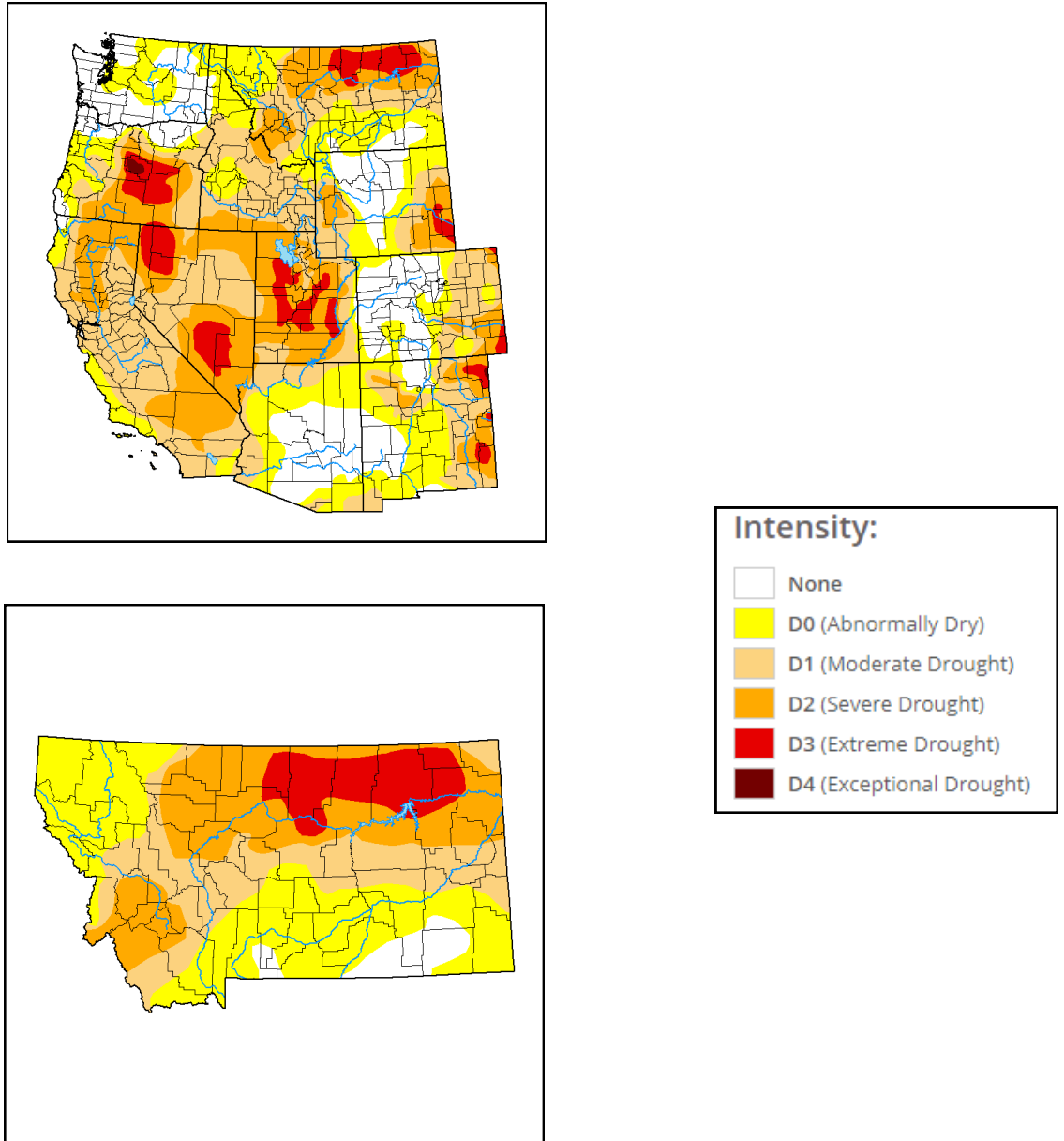


Figure 10: U.S. Drought Monitor updated January 26, 2022.

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

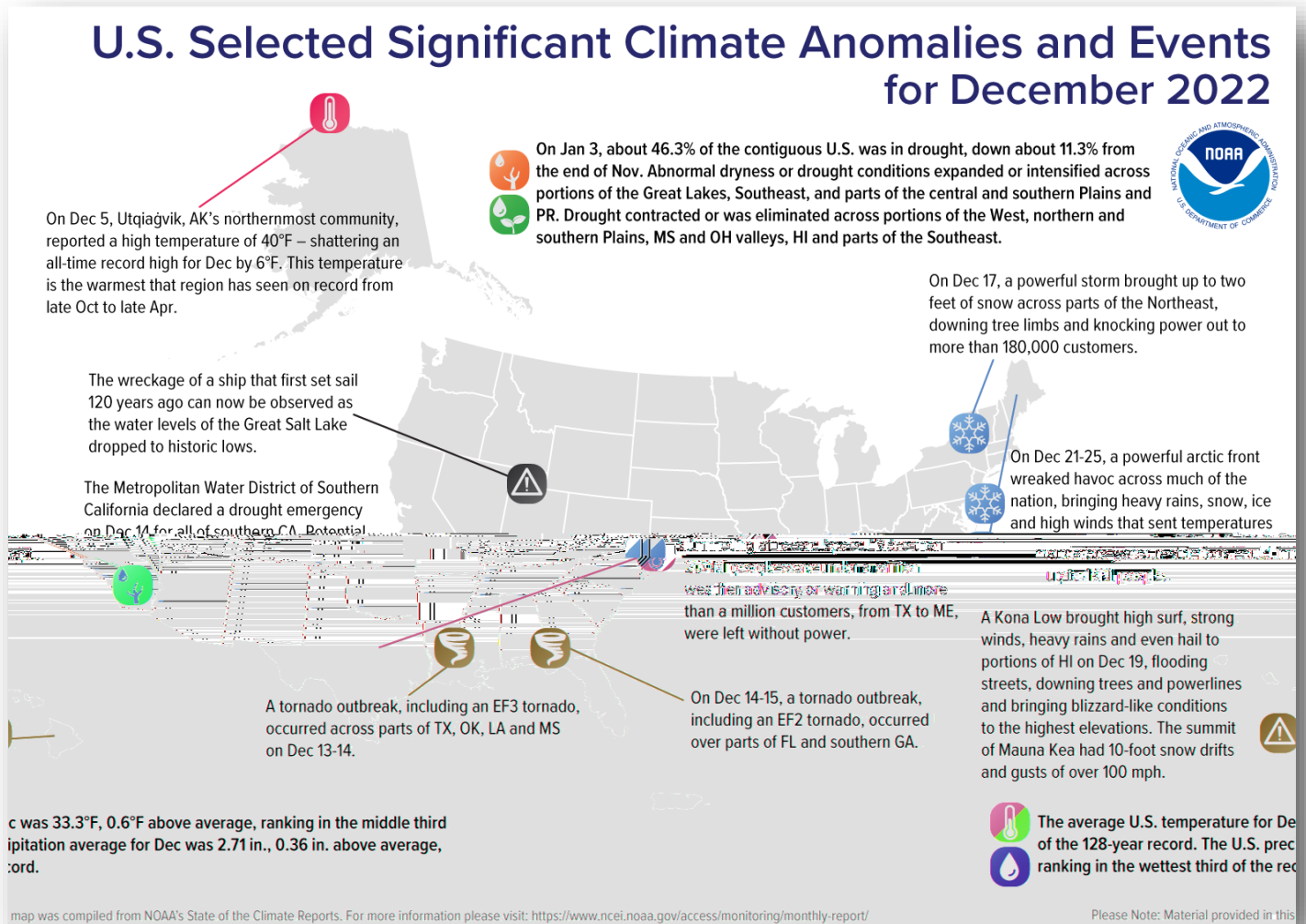


Figure 11: Significant Climate anomalies and events in December 2022.

U.S. Highlights for December 2022

- 1) The contiguous U.S. average temperature for December 2022 was 33.3 °F, ranking within the middle third on record.
- 2) The average December precipitation total for the contiguous U.S. came in at 2.71 inches, ranking within the wettest third on record.

Global Highlights for December 2022

- 1) December 2022 average global surface temperatures came in as the 8th warmest for December on record.
- 2) Less than 1% of the world's surface experienced record cold December temperatures during December 2022.
- 3) Precipitation patterns were influenced by La Niña, though it is beginning to weaken.

Reminder: Dense Fog/Freezing Fog Safety

- ◆ Fog that occurs during the winter months often does so in the form of freezing fog. This can lead to build up of riming ice, making for slick travel conditions. The info graphic below depicts some safety reminders you can take when you encounter low visibility in fog. Also check out our [winter safety page](#) to learn more winter safety information.



Figure 12: NOAA safety info graphic for fog safety.

Alt-Text: *Fog Safety - Disabled Vehicle in Dense Fog: 1. Pull well onto the shoulder. 2. Turn off all lights except 'flashers'. 3. If possible leave your vehicle and move away from the road.*

Links You May Like:

[**ENSO Update**](#)

[**2022 Global Temperature Summary**](#)

[**Volcanos and Climate Impacts**](#)

[**2022 Weather and Climate Disasters**](#)

[**Arctic 2022: Early Snowmelt**](#)

COOP 2021 Precipitation Totals for December 2022 (Preliminary)

Station	Precipitation	Location
BAYM8	0.97	Baylor
BRDM8	0.72	Bredette
BTNM8	M	Brockton 17 N
BKNM8	0.77	Brockton 20 S
BKYM8	0.59	Brockway 3 WSW
BRSM8	M	Brusette
CLLM8	1.69	Carlyle 13 NW
CIRM8	0.68	Circle
CHNM8	0.50	Cohagen
COM8	M	Cohagen 22 SE
CNTM8	0.51	Content 3 SSE
CULM8	0.85	Culbertson
DSNM8	M	Dodson 11 N
FLTM8	0.24	Flatwillow 4 ENE
FPKM8	0.51	Fort Peck PP
GLAM8	0.91	Glasgow 14 NW
GGWM8	0.87	Glasgow WFO
GGSM8	1.11	Glasgow 46 SW
GNDM8	0.70	Glendive WTP
HRBM8	M	Harb
HINM8	0.76	Hinsdale 4 SW
HNSM8	0.80	Hinsdale 21 SW
HOMM8	0.43	Homestead 5 SE
HOYM8	0.14	Hoyt
JORM8	M	Jordan
LNDM8	1.07	Lindsay
MLAM8	1.05	Malta
MLTM8	0.80	Malta 7 E
MTAM8	0.52	Malta 35 S

Station	Precipitation	Location
MDCM8	M	Medicine Lake 3 SE
MLDM8	0.82	Mildred 5 N
MSBM8	0.51	Mosby 4 ENE
OPNM8	M	Opheim 10 N
OPMM8	0.44	Opheim 12 SSE
PTYM8	1.10	Plentywood
PTWM8	M	Plentywood 1 NE
POGM8	M	Port of Morgan
RAYM8	M	Raymond Border Station
SAOM8	0.67	Saco 1 NNW
SMIM8	0.61	St. Marie
SAVM8	M	Savage
SCOM8	0.41	Scobey 4 NW
SDYM8	1.39	Sidney
SIDM8	0.57	Sidney 2S
TERM8	1.30	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	0.28	Winnett
WNEM8	0.24	Winnett 6 NNE
WNTM8	0.59	Winnett 8 ESE
WITM8	M	Winnett 12 SW
WLFM8	0.55	Wolf Point
ZRTM8	1.53	Zortman

Monthly Trivia:

Last time we asked...

What are the common signs of hypothermia? How can you stay protected this winter from the dangers of cold temperatures and bitter cold wind chills?.

Answer: Check out the NOAA Safety Infographic below for the warning signs of hypothermia. Stay safe by limiting exposure to cold wind chills by dressing in warm layers which include a hat and gloves, monitoring the latest forecast, and paying attention to any wind chill advisories and warnings.



Figure 13: Info graphic showing the warning signs of hypothermia.

Alt text: *Warning signs of hypothermia: confusion, shivering, difficulty speaking, sleepiness, stiff muscles.*



New Question: As you go about outdoor winter plans, ice safety is important to keep in mind. The lake may *look* frozen, but how thick must the ice be to support activities like ice skating or snow mobil-ing? We'll explore this in more detail in the next newsletter.

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