

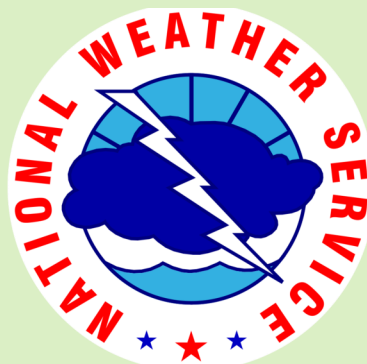
**Under the Big Sky**

**e-Letter**

**April 2022**

Photo Credit: Ryan Bernhart

**National Weather Service  
Glasgow, MT**



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**National Weather Service**  
←————→  
**Glasgow, MT**



## A Tale of Two Blizzards in 2022

A Colorado low tracking NE into the Dakotas brought blizzard conditions across parts of SE Montana into North Dakota, Tuesday to Wednesday April 12-13 shutting down many state interstates and highways. As early as Tuesday evening, the Department of Transportation in Montana and North Dakota had shut down 513 miles of Interstate 94 ranging from Billings, MT to Jamestown, ND. The storm dumped heavy snow across this region as well, up to 36 inches of snow in the Minot, ND area. There was considerably blowing and drifting, making measuring difficult. The official COOP measurement in Minot, ND for example, was 20.0" for the event. There was a sharp gradient in the accumulations, however, with locations across North-Central MT receiving very little precipitation.

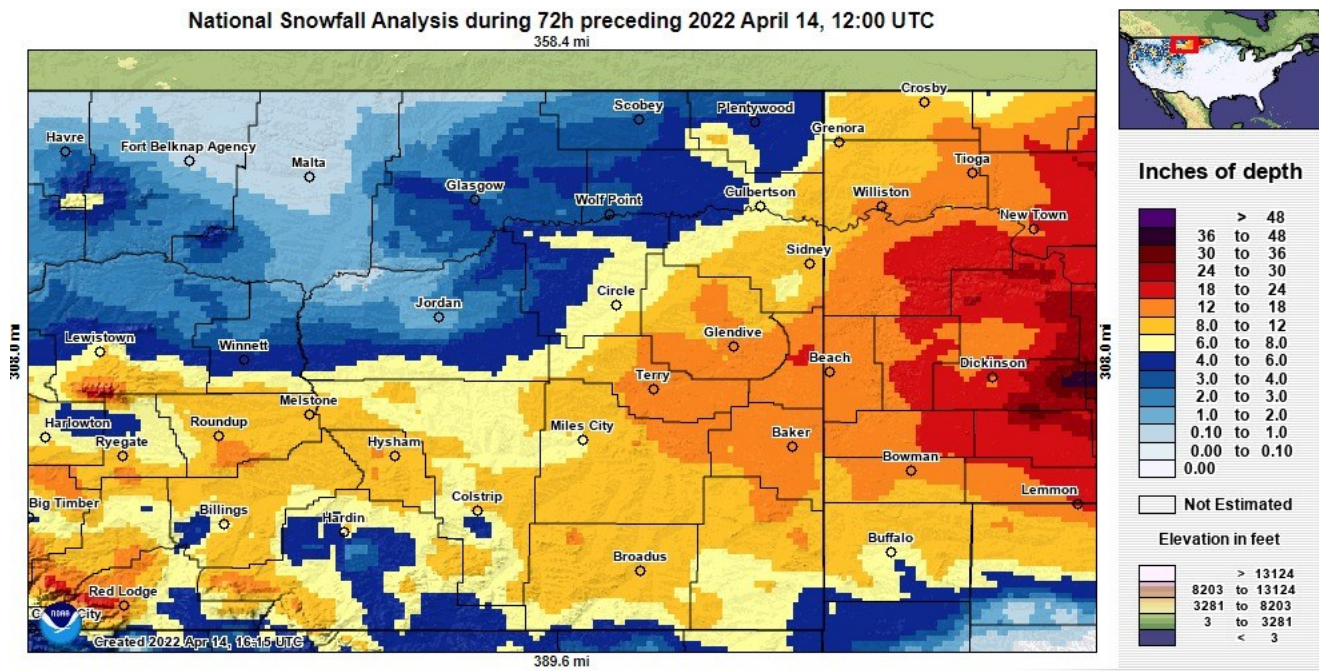


Figure 1: Total Snowfall Analysis for the April 12-13 Blizzard across portions of MT and ND.

A second storm with a similar track prompted additional blizzard warnings for a similar area the weekend of April 23-24. This was a warmer storm, with more places seeing a wintry mix of rain and snow, and a wetter snow in general. Still, some places received up to 18 inches of accumulation in NE Montana, and wind gusts were reported as high as 67 mph with this storm. This led to highway shutdowns as well as numerous power outages across the region, and in some cases power not being restored for days. In fact, on Sunday morning (4/24), Sheridan Electric posted on social media that power in Westby and Fortuna could be out for a week. This second system also produced a sharp gradient in precipitation across NE Montana, contributing to little relief in drought conditions for those areas missing out.

In addition to travel disruption and the impacts already discussed, these harsh winter storms also led to significant impacts to newborn and young livestock during calving season this year.

## When is it Windiest in Glasgow?

Ted Jamba, Lead Forecaster

Wind has been a topic of conversation lately with the ongoing drought. It seems that what little precipitation we receive, the wind quickly evaporates it. We know that this can be troublesome as we are in planting season and you need rain on your fields, not wind.

Unfortunately, April historically (since 1942) has been our windiest month followed by May:

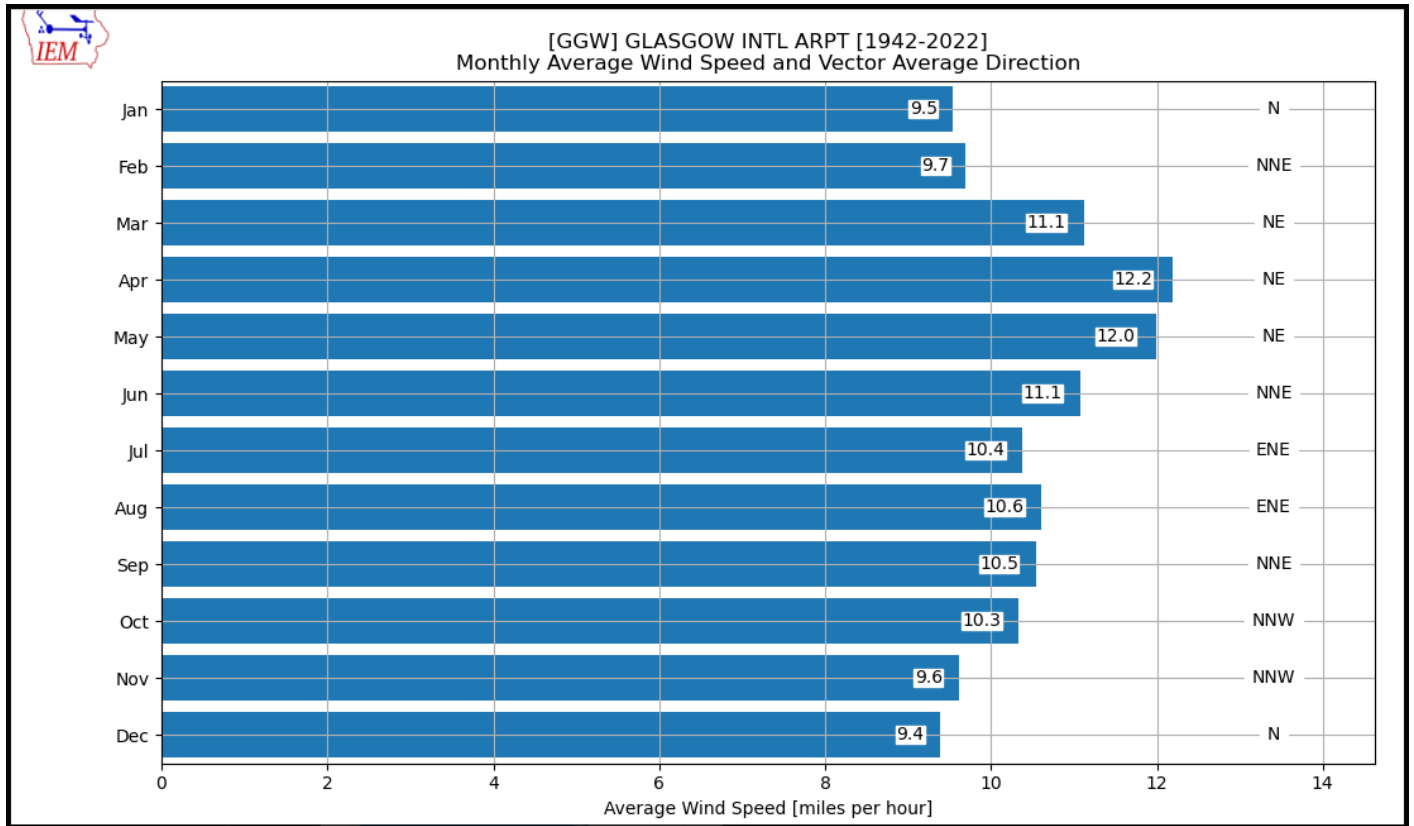


Figure 2: Monthly average wind speed and vector average direction for Glasgow, MT.



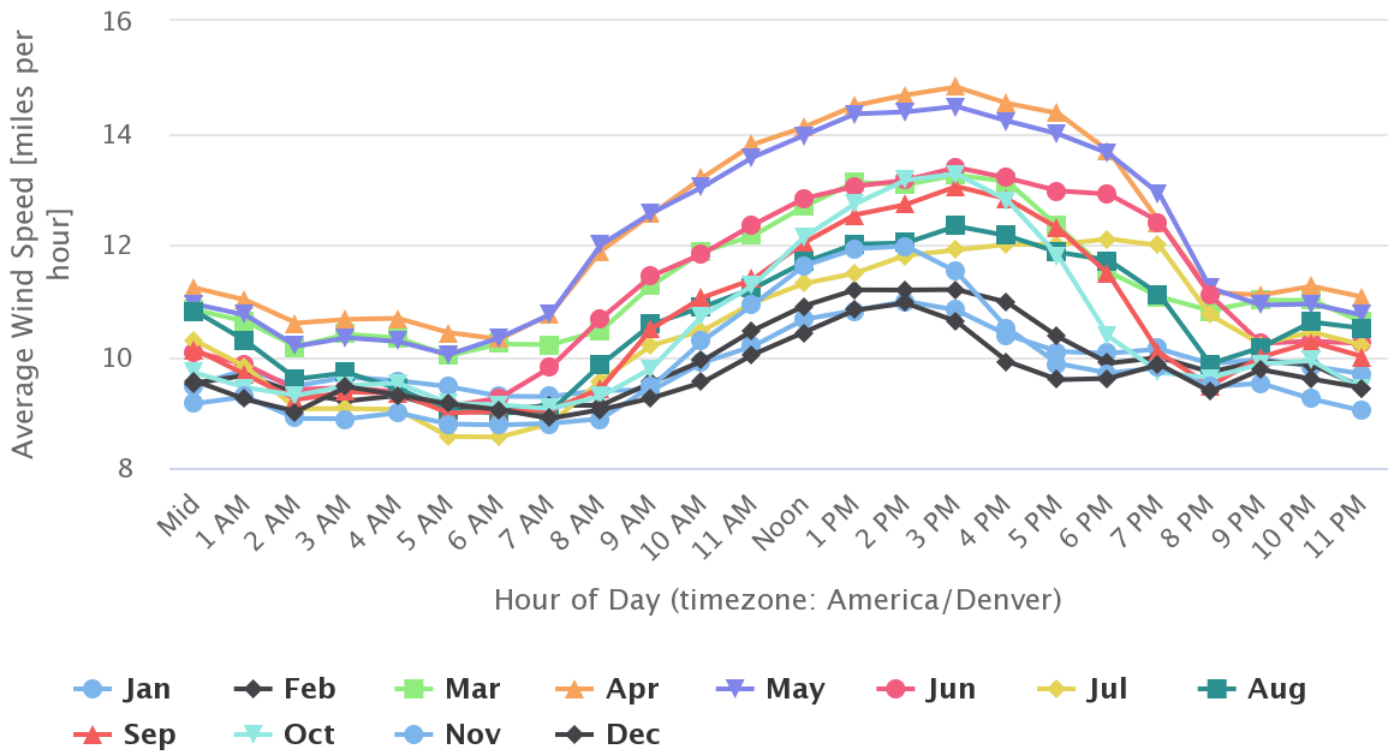
## When is it Windiest in Glasgow? (Continued)

Ted Jamba, Lead Forecaster

Breaking it down by hour, it should be no surprise that those winds in April and May ramp up during the late morning hours and peak in the mid-afternoon.

### [GGW] GLASGOW INTL ARPT [1942-2022]

Monthly Average Wind Speed by Hour



Highcharts.com

Figure 3: Monthly Average Wind Speed by hour for Glasgow, MT

May and June are historically our wettest months. May's normal rainfall is 2.22 inches and June is 2.83 inches. Let's hope that our rainfall this year will not have to encounter too much wind.

## SKYWARN 2022 Schedule

Are you interested in becoming a SKYWARN spotter and sending in your severe weather reports to the National Weather Service? NWS Glasgow's training schedule for this season has been released:



The poster features a background of a cloudy sky with a lightning bolt. The title "2022 NORTHEAST MONTANA SKYWARN WEATHER SPOTTER CLASSES" is prominently displayed in a large, bold, black serif font. To the right of the title is the National Weather Service logo, which is a circular emblem with a blue and white design and the words "NATIONAL WEATHER SERVICE" around the perimeter. Below the title, a list of training sessions is provided, each preceded by a small red square bullet point. The sessions are: May 16, 2022 5:30 PM at STAT Air Hangar 81 Airport Rd, Glasgow, MT; May 17, 2022 5:00 PM at Sidney Fire Hall 1105 3rd St NW, Sidney, MT; May 25, 2022 5:30 PM at Dawson County Courthouse 207 W Bell St, Glendive, MT; and May 26, 2022 5:00 PM at Phase 3 Building 501 Medicine Bear Rd, Poplar, MT. At the bottom of the list, a question mark is followed by the email address Patrick.Gilchrist@noaa.gov. In the bottom right corner, there is a logo consisting of a stylized orange eye shape with a black outline, and the word "SKYWARN" in a bold, black, sans-serif font below it. A small credit line "Photo courtesy Cindy Tusler" is visible in the bottom left corner of the poster.

**2022 NORTHEAST MONTANA SKYWARN  
WEATHER SPOTTER CLASSES**

- May 16, 2022 5:30 PM
  - STAT Air Hangar 81 Airport Rd, Glasgow, MT
- May 17, 2022 5:00 PM
  - Sidney Fire Hall 1105 3rd St NW, Sidney, MT
- May 25, 2022 5:30 PM
  - Dawson County Courthouse 207 W Bell St, Glendive, MT
- May 26, 2022 5:00 PM
  - Phase 3 Building 501 Medicine Bear Rd, Poplar, MT
- Questions? Email: Patrick.Gilchrist@noaa.gov

Photo courtesy Cindy Tusler

**SKYWARN**

Figure 4: 2022 NE Montana SKYWARN Spotter Training Schedule.

We hope to see you at one of our classes! Can't attend but still interested in helping out and learning more about the program? Try taking the [training online](#) to get started.

## 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!

Stay alert for updates on our Spring CoCoRaHS Training in the near future! We will be focusing on warm season reporting where you'll learn how to submit rain and hail reports.

## Percent of Normal Precipitation (Montana)

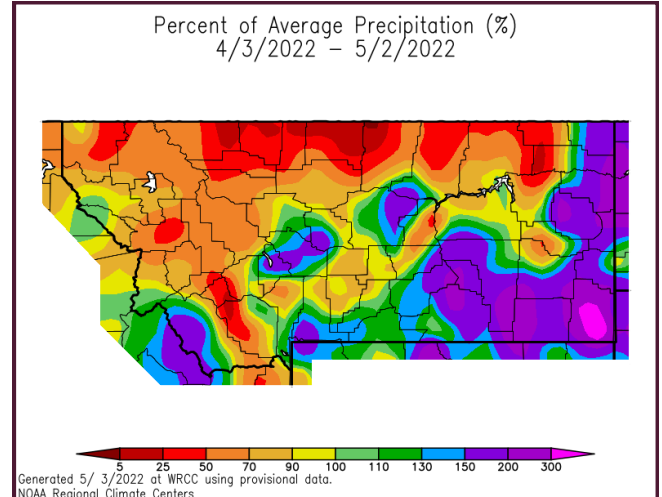


Figure 5: 30-day percent of normal precipitation across Montana.

## Avg. Temp Departure from Normal (Montana)

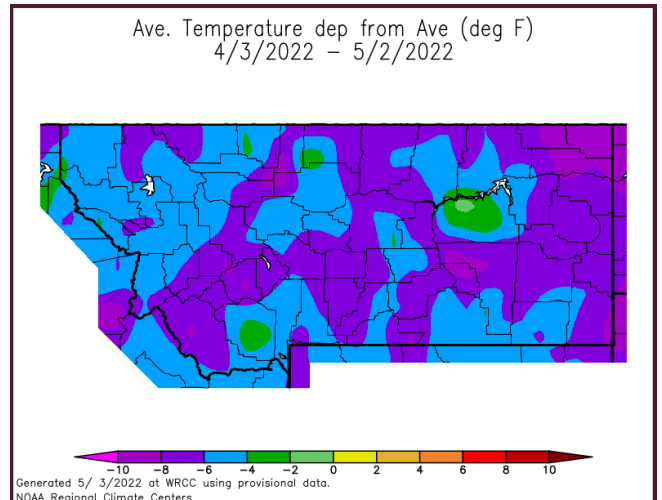


Figure 6: 30-day temperature anomalies across Montana.

**Summary:** The prior 30 days brought below normal temperatures across the state of Montana. Meanwhile, a series of low pressure systems tracking NE from Colorado into the Dakotas has lead to above normal precipitation across the southeast, but much of northern and western Montana missed out on much appreciable precipitation.



## Hydrologic Summary for April 2022, By Ted Jamba, Lead Forecaster at NWS Glasgow:

As far as precipitation is concerned, it was much wetter than normal across the southern areas but drier than normal over the north. The dry spots included Wolf point with 0.26 inches, Scobey 4 NW with 0.29 inches, and Malta 7E with 0.38 inches. The wet spots were Glasgow 46 SW with 2.85 inches, Savage with 3.55 inches and Carlyle 13 NW with 3.97 inches. Glasgow received 0.94 inches which was 93 percent of normal. Temperatures ranged from 2.8 degrees (Jordan Airport) to 8.1 degrees (Plentywood) cooler than normal. Glasgow averaged 39.8 degrees which was 5.0 degrees below normal.

Despite the precipitation, the drought continued with extreme conditions over the west and near the Missouri River Valley with Moderate to Severe conditions elsewhere.

The Poplar and Yellowstone Rivers had flows near normal but the Missouri and Milk Rivers had below to near normal flows.

The Fort Peck Reservoir elevation fell to 2222.6 feet during the month.



### CPC Three Month Outlook:

The Climate Prediction Center released its latest three month outlook on April 21, 2022 for the months of May through July 2022.

The outlook favors above normal temperatures across the state of Montana with the highest probabilities over the south. Meanwhile, below normal precipitation chances are favored for western and central Montana and equal chances for below normal, normal, or above normal precipitation across the east.

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.

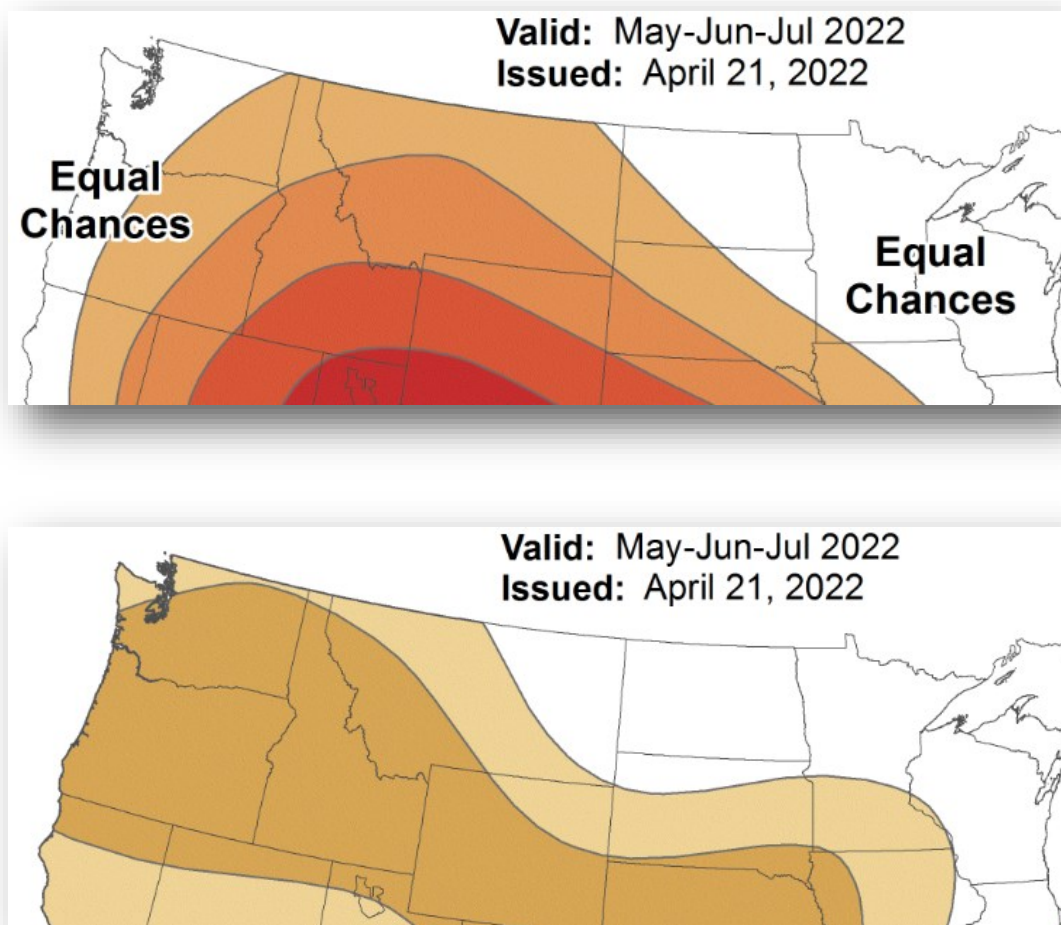


Figure 7: Climate Prediction Center three month temperature (top) and precipitation (bottom) outlook for May through July 2022.

## U.S. Drought Monitor:

The latest U.S. Drought Monitor was released on Thursday May 5, 2022. A series of low pressure systems in April delivered much needed precipitation to especially southeast portions of Montana. There was a sharp gradient in precipitation; with places further northwest receiving far less. The bottom line is that much of NE Montana remains in severe drought. Parts of North-Central Montana remain in extreme drought. Only far northwest Montana is void of any drought conditions. This outlook is updated each Thursday. Please feel free to check out the latest [here](#).

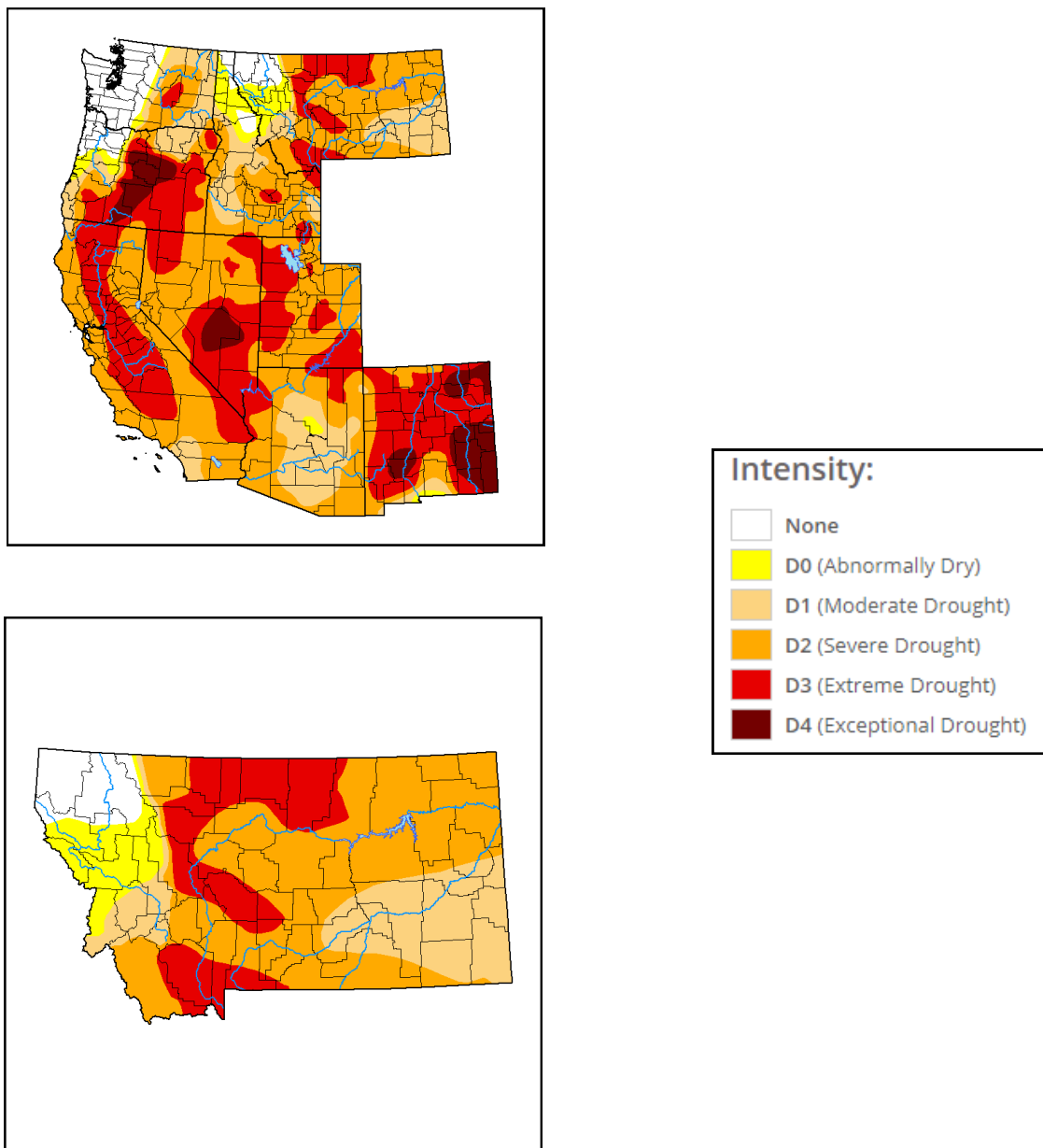


Figure 8: U.S. Drought Monitor updated May 5, 2022.

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

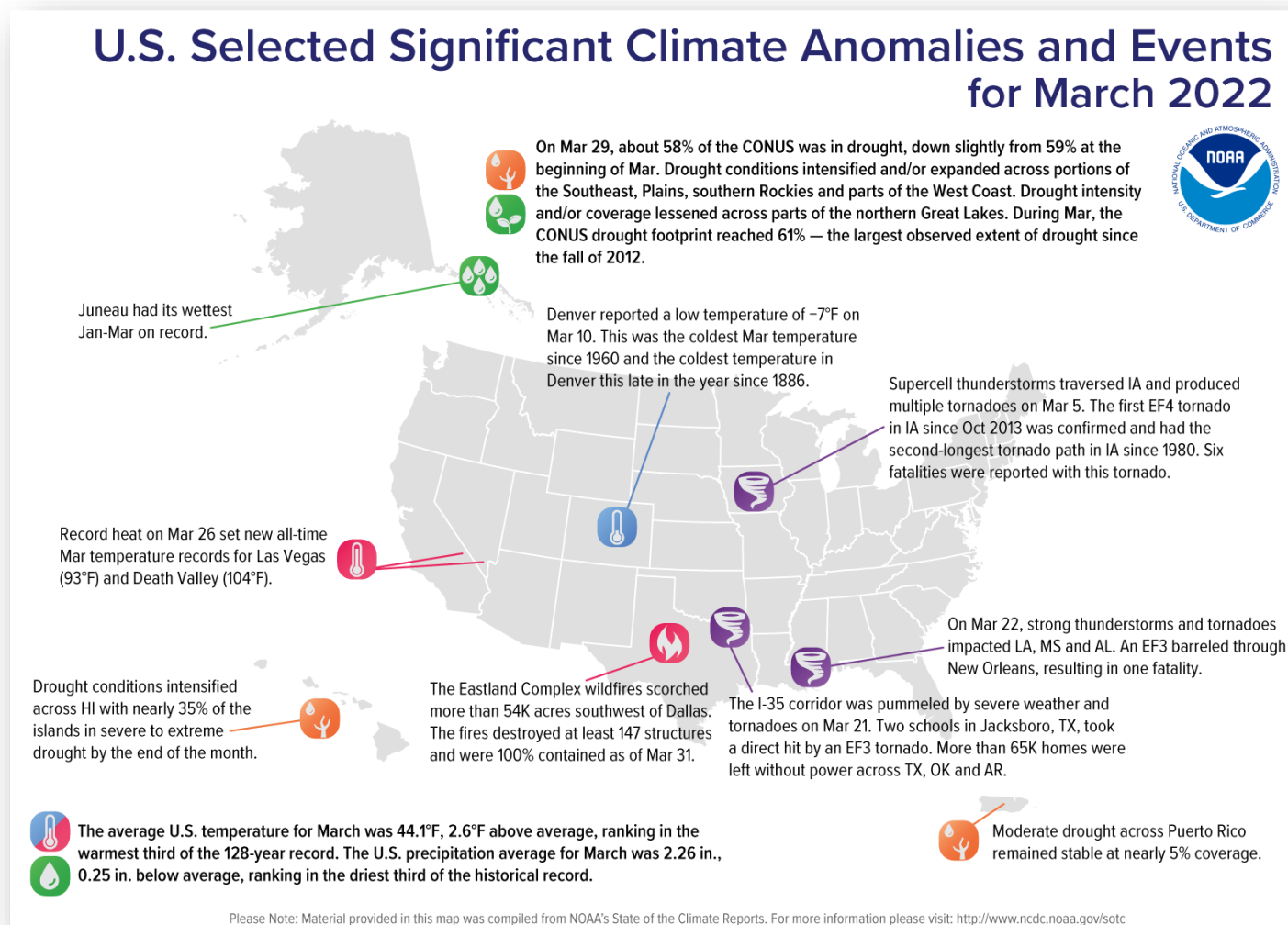


Figure 9: Significant Climate anomalies and events in March 2022

### U.S. Highlights for March 2022

- 1) The contiguous U.S. average temperature for March 2022 was  $44.1^{\circ}\text{F}$ , ranking in the warmest third on record.
- 2) The average March precipitation total for the contiguous U.S. came in at 2.26 inches, within the driest third of the period of record.

### Global Highlights for March 2022

- 1) The March 2022 global surface temperature came in as the fifth highest for March on record.
- 2) March 2022 was the 46th March in a row and the 447th consecutive month with temperatures above the 20th century average.
- 3) Precipitation anomalies varied considerably around the world in March 2022, which is fairly typical.



## Warm Season Boating Safety Reminders on Fort Peck Lake

- ♦ Warmer temperatures are on the way as spring turns to summer, and we wanted to give you a reminder to keep [boating safety](#) in mind before you head out on the lake this season. You can always get the latest forecast [here](#).



Figure 10: N OAA Safety graphic for weather-ready boating.

### Links You May Like:

[ENSO Update](#)

[U.S. Flash Flood Increase](#)

[Predictability Explained](#)

[Higher Fire Risk](#)

[Clouds & Climate](#)

[Record Methane Concentrations](#)

## COOP 2021 Precipitation Totals for March 2022 (Preliminary)

Station	Precipitation	Location
BAYM8	0.12	Baylor
BRDM8	0.06	Bredette
BTNM8	M	Brockton 17 N
BKNM8	0.07	Brockton 20 S
BKYM8	0.01	Brockway 3 WSW
BRSM8	M	Brusette
CLLM8	0.38	Carlyle 13 NW
CIRM8	0.16	Circle
CHNM8	0.06	Cohagen
COM8	0.15	Cohagen 22 SE
CNTM8	0.46	Content 3 SSE
CULM8	0.01	Culbertson
DSNM8	0.24	Dodson 11 N
FLTM8	0.11	Flatwillow 4 ENE
FPKM8	0.16	Fort Peck PP
GLAM8	0.34	Glasgow 14 NW
GGWM8	0.26	Glasgow WFO
GGSM8	0.51	Glasgow 46 SW
GNDM8	0.38	Glendive WTP
HRBM8	M	Harb
HINM8	M	Hinsdale 4 SW
HNSM8	0.48	Hinsdale 21 SW
HOMM8	0.01	Homestead 5 SE
HOYM8	0.18	Hoyt
JORM8	M	Jordan
LNDM8	0.11	Lindsay
MLAM8	0.33	Malta
MLTM8	0.58	Malta 7 E
MTAM8	M	Malta 35 S

Station	Precipitation	Location
MDCM8	0.08	Medicine Lake 3 SE
MLDM8	0.34	Mildred 5 N
MSBM8	0.07	Mosby 4 ENE
OPNM8	M	Opheim 10 N
OPMM8	0.04	Opheim 12 SSE
PTYM8	0.07	Plentywood
PTWM8	0.08	Plentywood 1 NE
POGM8	0.45	Port of Morgan
RAYM8	M	Raymond Border Station
SAOM8	0.14	Saco 1 NNW
SMIM8	0.07	St. Marie
SAVM8	M	Savage
SCOM8	0.02	Scobey 4 NW
SDYM8	0.18	Sidney
SIDM8	0.06	Sidney 2S
TERM8	0.22	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	0.12	Winnett
WNEM8	0.11	Winnett 6 NNE
WNTM8	0.22	Winnett 8 ESE
WITM8	M	Winnett 12 SW
WLFM8	0.04	Wolf Point
ZRTM8	0.75	Zortman

## COOP 2021 Precipitation Totals for April 2022 (Preliminary)

Station	Precipitation	Location
BAYM8	M	Baylor
BRDM8	1.12	Bredette
BTNM8	M	Brockton 17 N
BKNM8	1.85	Brockton 20 S
BKYM8	1.17	Brockway 3 WSW
BRSM8	M	Brusette
CLLM8	M	Carlyle 13 NW
CIRM8	1.44	Circle
CHNM8	M	Cohagen
COM8	M	Cohagen 22 SE
CNTM8	M	Content 3 SSE
CULM8	1.72	Culbertson
DSNM8	M	Dodson 11 N
FLTM8	M	Flatwillow 4 ENE
FPKM8	M	Fort Peck PP
GLAM8	0.72	Glasgow 14 NW
GGWM8	0.94	Glasgow WFO
GGSM8	2.85	Glasgow 46 SW
GNDM8	2.68	Glendive WTP
HRBM8	M	Harb
HINM8	M	Hinsdale 4 SW
HNSM8	M	Hinsdale 21 SW
HOMM8	M	Homestead 5 SE
HOYM8	1.39	Hoyt
JORM8	M	Jordan
LNDM8	3.11	Lindsay
MLAM8	M	Malta
MLTM8	0.38	Malta 7 E
MTAM8	M	Malta 35 S

Station	Precipitation	Location
MDCM8	M	Medicine Lake 3 SE
MLDM8	0.07	Mildred 5 N
MSBM8	M	Mosby 4 ENE
OPNM8	M	Opheim 10 N
OPMM8	M	Opheim 12 SSE
PTYM8	M	Plentywood
PTWM8	M	Plentywood 1 NE
POGM8	M	Port of Morgan
RAYM8	M	Raymond Border Station
SAOM8	0.66	Saco 1 NNW
SMIM8	0.46	St. Marie
SAVM8	M	Savage
SCOM8	0.05	Scobey 4 NW
SDYM8	0.21	Sidney
SIDM8	2.29	Sidney 2S
TERM8	1.81	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	0.82	Winnett 6 NNE
WNTM8	M	Winnett 8 ESE
WITM8	M	Winnett 12 SW
WLFM8	0.26	Wolf Point
ZRTM8	2.14	Zortman



## Monthly Trivia:

Last time we asked...

With warmer weather on the way, that means more time spent outdoors. As people spend more time outside, exposure to the sun's UV radiation increases. This month, we ask: how do clouds, elevation, surface type, and aerosols affect UV radiation? We'll discuss the science here as well as how you can protect yourself from the harmful effects of the sun in the next newsletter.

**Answer:** As you plan outdoor activities under the summer sun, keep [safety](#) front and center. Remember sunscreen, protective clothing, and use extra caution near water and sand—surfaces that reflect the damaging rays of the sun and ramp up your chances for sunburn. When it comes to understanding the dangers of UV radiation, it can first be helpful to examine a little science.

A number of factors can affect how much UV radiation reaches the surface. These include clouds, air pollution, haze, and as previously discussed, surface type. As more atmosphere helps scatter UV radiation, it decreases in concentrations toward lower elevations. Clouds made of millions of water droplets transmit, reflect, and scatter UV radiation. Smog is formed as UV radiation and heat cause chemical reactions, reducing the UV radiation reaching the surface.

Understanding which [factors](#) affect how much UV radiation is reaching the surface and what is driving the UV index can help you make more informed decisions when it comes to summertime safety under the sun!



**New Question:** Summer isn't all just about fun in the sun. It's important to remember: when thunder roars, go indoors!

Some of those storms turn severe, and NWS Glasgow is ready to help you stay safe from lightning, large hail, damaging winds, and flash flooding with updated forecasts, and information on watches and warnings. Our trivia this month involves a refresher about our last severe weather season: In 2021, what was the largest hail stone diameter reported from a spotter or observer in NE Montana?



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