Under the Big Sky e-Letter November 2022

Photo Credit: Jacob Zanker, Meteorologist at NWS Glasgow.

National Weather Service

Glasgow, MT

A Peak Inside:

National Weather Service

Glasgow, MT

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 continue to work on a date that we can hold our cold season CoCoRaHS training, so be on the lookout for details shortly. 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)

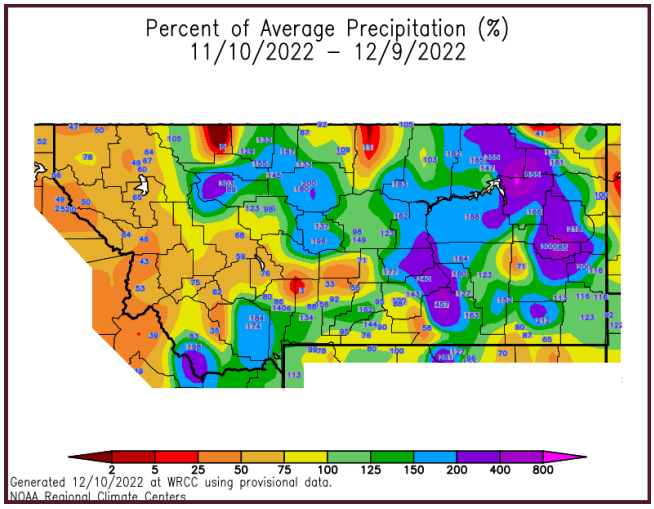

Figure 1: 30-day percent of normal precipitation across Montana.

Avg. Temp Departure from Normal (Montana)

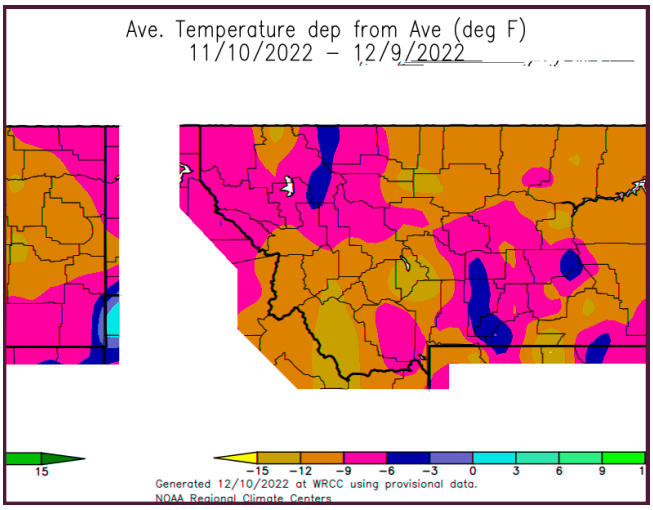

Figure 2: 30-day temperature anomalies across Montana.

Summary: The last 30 days brought near or above normal precipitation to much of central and eastern portions of Montana. Meanwhile, far northeastern, north central, and western parts of the state saw near to above normal precipitation. Temperatures were generally below average for the last 30 days.

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

November was a cold month over northeast Montana. Most areas were above normal in precipitation. The wet spots for the month were Mildred with 1.23 inches, Plentywood with 1.03 inches, and Vida with 0.99 inch. The dry spots included Scobey with 0.13 inch, Wolf Point with 0.26 inch, and Brockway with 0.44 inch. Glasgow received 0.67 inch which was 137 percent of normal. Temperatures varied from 6 to 11 degrees below normal across the region. Glasgow averaged 21.9 degrees which was 8.3 degrees below normal.

There was modest improvement in the drought across northeast Montana. At the end of November, 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 had below normal streamflow for the entire month. The Milk and Poplar Rivers froze in the middle of the month from the cold weather.

The Fort Peck Reservoir elevation remained steady near 2219.6 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 December 2022 through February 2023 on November 17, 2022. The outlook shows below normal temperatures as the most likely outcome across much of Montana for the three month period. Meanwhile, precipitation is favored to be above normal. Having said that, stronger signals for above normal precipitation are showing up for western and central 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.

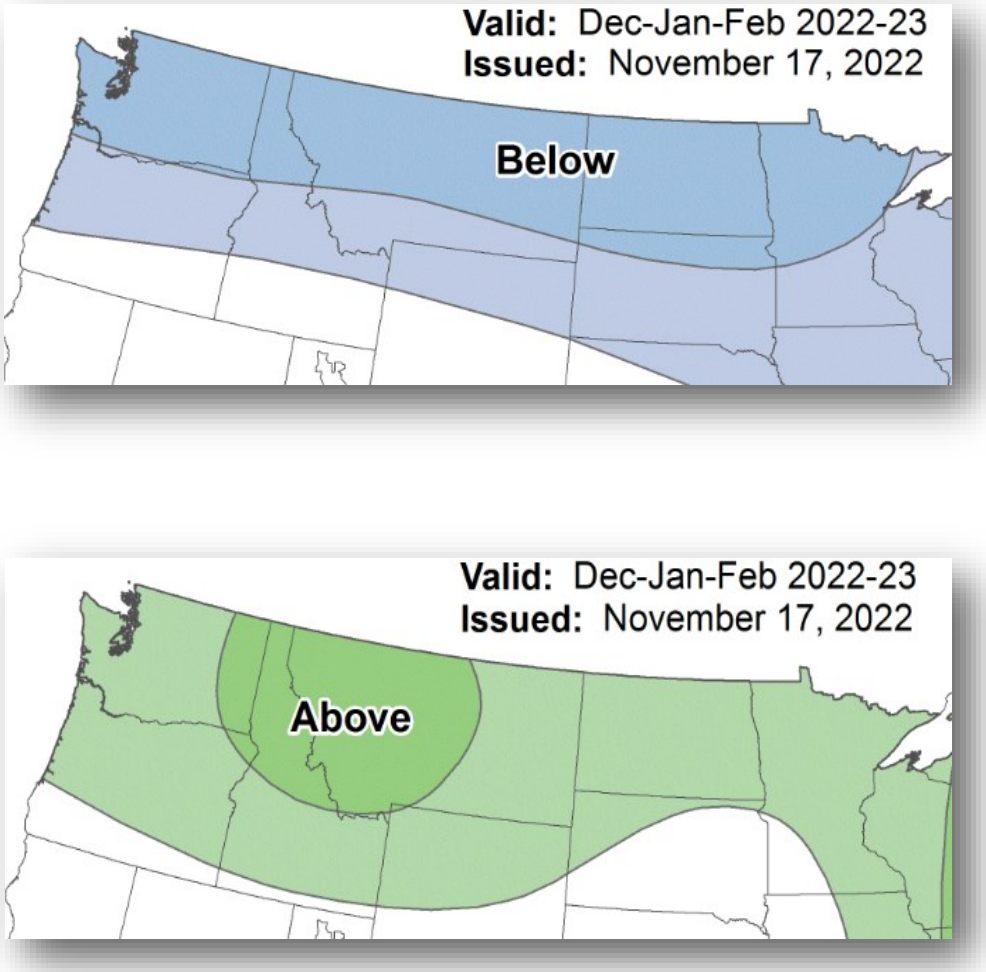

Figure 3: Climate Prediction Center three month outlook (December 2022 to February 2023) for temperature (top) and precipitation (bottom).

U.S. Drought Monitor:

The latest U.S. Drought Monitor was released on Thursday December 8, 2022. Drought continues across much of the state with this update. Only far southern Montana is indicated by a void of drought conditions at this time. Much of the Hi-line is experiencing severe to extreme drought. The recent trend in precipitation as well as above normal precipitation outlook for the next three months are welcome news for those that have endured this persistent drought. Having said that, this outlook was likely influenced by the expectation for La Niña, and patterns can vary from one season to the next, so this forecast should be considered within the context of uncertainty.

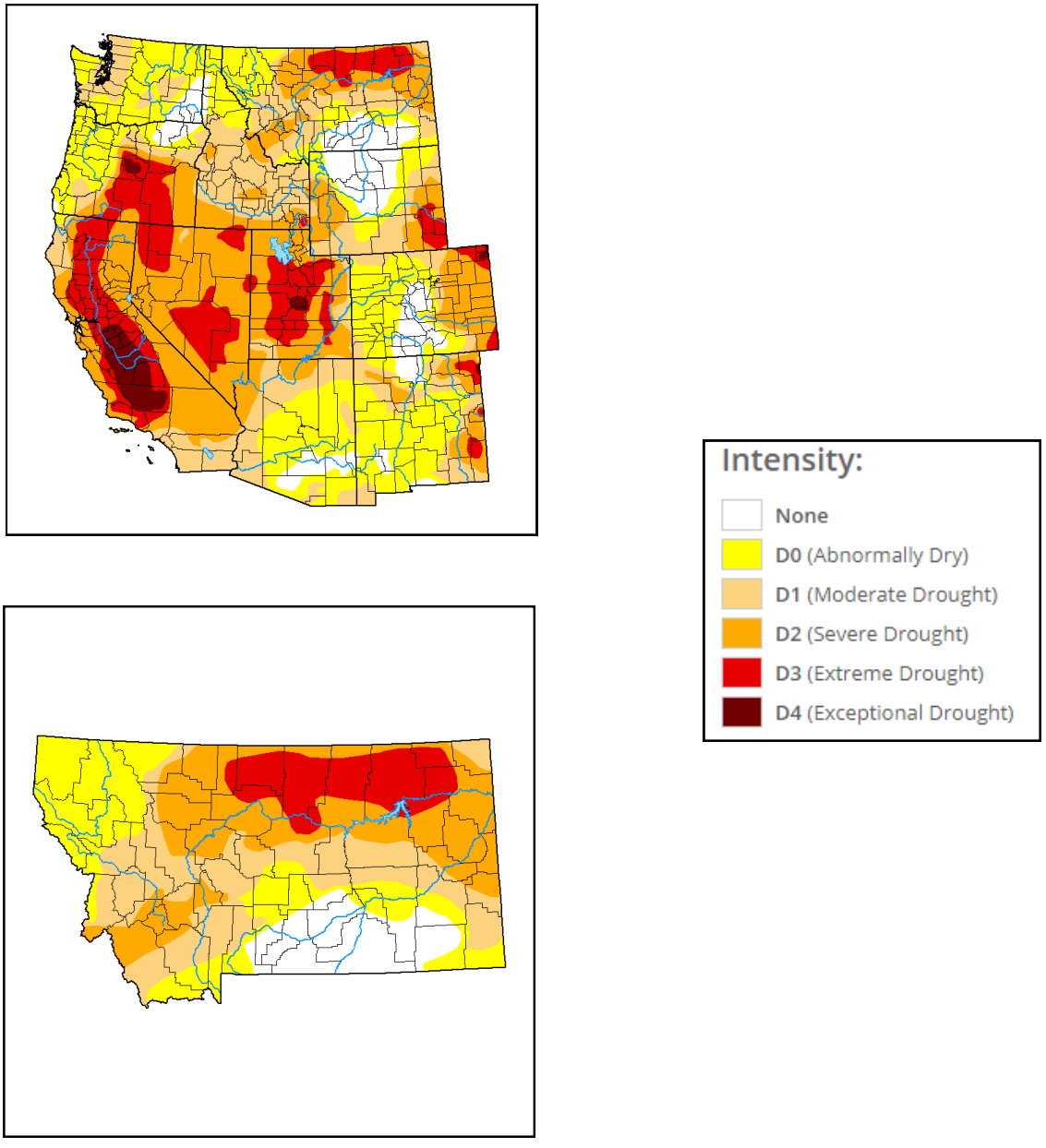

Figure 4: U.S. Drought Monitor updated December 8, 2022.

U.S. & Global Climate Highlights (September): 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.

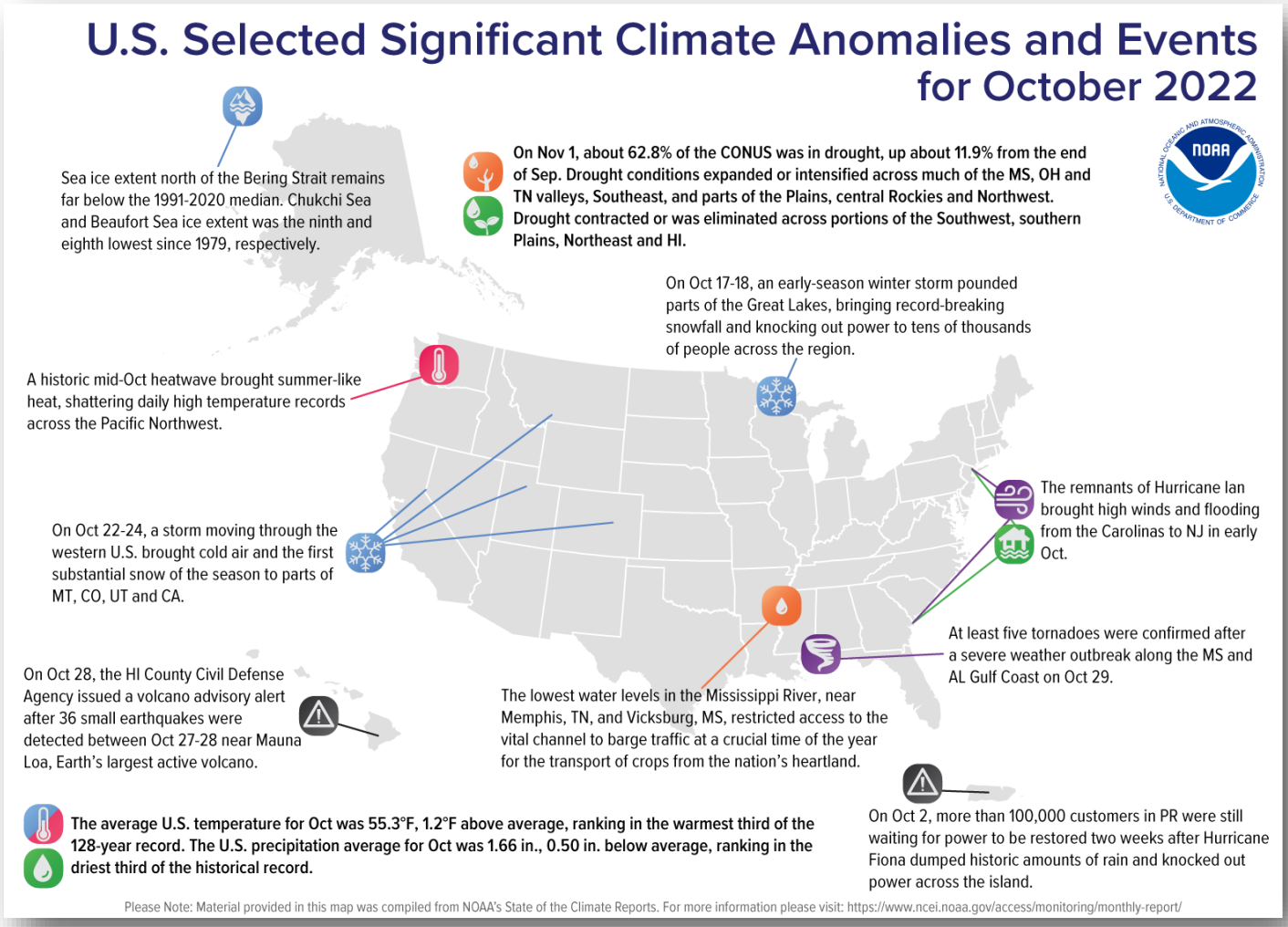

Figure 5: Significant Climate anomalies and events in October 2022.

U.S. Highlights for October 2022

1) The contiguous U.S. average temperature for October 2022 was 55.3 °F, ranking within the warmest third on record.
2) The average September precipitation total for the contiguous U.S. came in at 1.66 inches, ranking within the driest third on record.

Global Highlights for October 2022

1) October 2022 was the fourth warmest October in the 143 year period of record maintained by NOAA.
2) There were no areas with record-cold October temperatures that occurred this monthf.
3) Precipitation deficits were common across North America with the exception of Arizona and New Mexico.

Reminder: Winter Weather Safety

- Winter months mean multiple weather hazards ranging from dangerously cold wind chills to heavy snow and even freezing rain. Below is an info graphic on how to "shovel smart" after a a winter storm. While this one focuses on wet, heavy snow, many of these tips apply to us as well following a larger event. Strong winds during the storm can lead to significant blowing and drifting, which can lead to a heavy load when trying to remove it later. Also check out our **winter safety page** to learn more winter safety information.

Figure 6: NOAA safety info graphic for shoveling snow after a winter storm.

Alt-Text: *Shovel smart! Shoveling heavy, wet snow can cause back injuries and heart attacks. Don't push yourself! Dress warmly, making sure to cover your head, fingers and toes. Stay hydrated, but avoid heavy meals right before or after shoveling. Move only small amounts of snow with each pass of the shovel. Take frequent breaks. Stop shoveling entirely if you feel exhausted! .*

Links You May Like:

ENSO Update

Stratospheric Ozone

CO2 Removal to Mitigate Climate Change

2022 Atlantic Hurricane Season In Review

COOP 2021 Precipitation Totals for November 2022 (Preliminary)

Station	Precipitation	Location
BAYM8	M	Baylor
BRDM8	0.61	Bredette
BTNM8	M	Brockton 17 N
BKNM8	0.47	Brockton 20 S
BKYM8	0.44	Brockway 3 WSW
BRSM8	M	Brusette
CLLM8	M	Carlyle 13 NW
CIRM8	0.57	Circle
CHNM8	M	Cohagen
COM8	M	Cohagen 22 SE
CNTM8	M	Content 3 SSE
CULM8	0.43	Culbertson
DSNM8	M	Dodson 11 N
FLTM8	0.99	Flatwillow 4 ENE
FPKM8	M	Fort Peck PP
GLAM8	0.50	Glasgow 14 NW
GGWM8	0.67	Glasgow WFO
GGSM8	0.41	Glasgow 46 SW
GNDM8	0.60	Glendive WTP
HRBM8	M	Harb
HINM8	M	Hinsdale 4 SW
HNSM8	0.55	Hinsdale 21 SW
HOMM8	M	Homestead 5 SE
HOYM8	0.26	Hoyt
JORM8	M	Jordan
LNDM8	M	Lindsay
MLAM8	0.46	Malta
MLTM8	0.36	Malta 7 E
MTAM8	M	Malta 35 S

Station	Precipitation	Location
MDCM8	M	Medicine Lake 3 SE
MLDM8	1.23	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	0.58	Saco 1 NNW
SMIM8	0.52	St. Marie
SAVM8	M	Savage
SCOM8	0.16	Scobey 4 NW
SDYM8	0.49	Sidney
SIDM8	0.28	Sidney 2S
TERM8	0.56	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	0.15	Winnett 6 NNE
WNTM8	M	Winnett 8 ESE
WITM8	0.38	Winnett 12 SW
WLFM8	0.26	Wolf Point
ZRTM8	0.87	Zortman

Monthly Trivia:

Last time we asked…

Winter can bring a number of winter weather hazards ranging from snow to freezing rain, and mixed precipitation. That brings us to this month's trivia question. What determines the type of precipitation that hits the ground? We'll share the answer in the next newsletter.

Answer: It often depends on the depth of the warm layer at and above the surface. Please see the info graphic below for a more complete visual explanation.

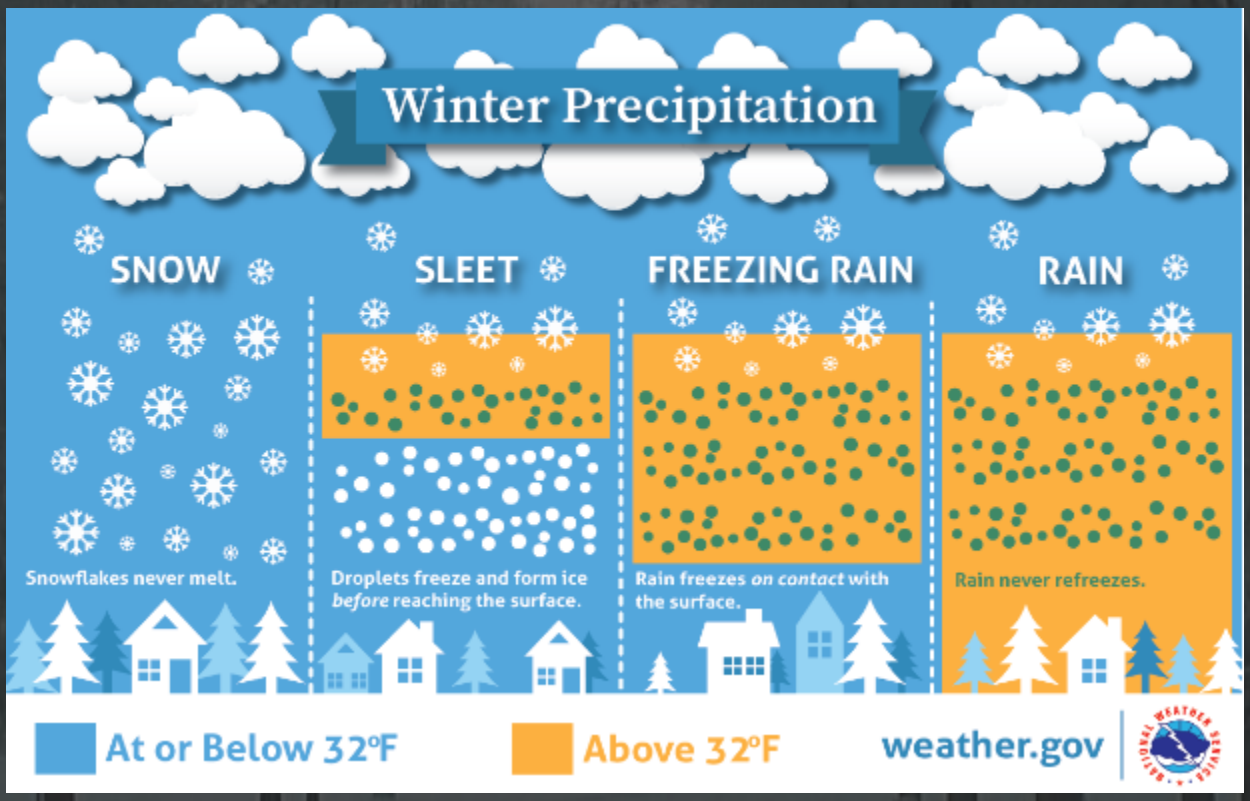

Figure 7: Info graphic showing the science of mixed precipitation.

Alt text: *Winter Precipitation: Below 32°F, snowflakes never melt. With sleet, droplets freeze and form ice before reaching the surface. Freezing rain is caused by rain, above 32°F in the sky, freezing on contact with the cold surface. If the surface temperature is above 32°F, rain will not freeze.*

New Question: 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?

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