

Winter Outlook 2021-22

NWS Quad Cities





Upfront - The Takeaways

What's Currently Expected This Winter

CPC Temperature Outlook:

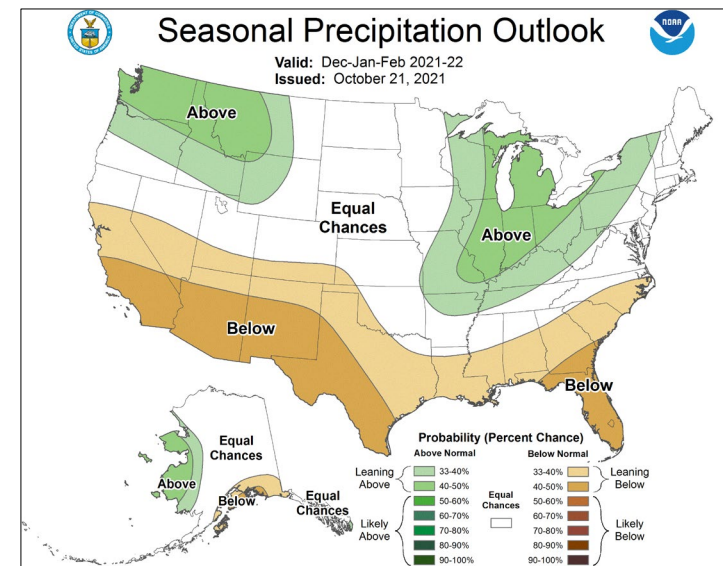
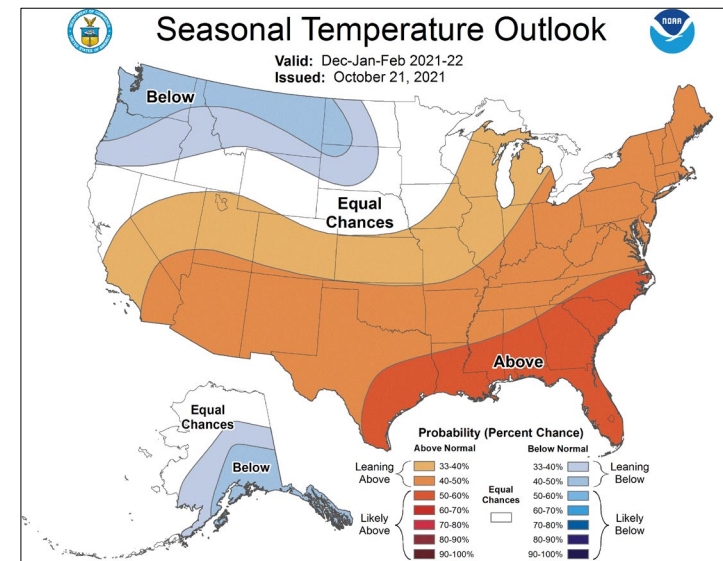
- Enhanced chances for **above-normal** temperatures across southern and eastern United States.
- Enhanced chances for **below-normal temperatures** in the Northern Plains to Pacific Northwest.

CPC Precipitation Outlook:

- Enhanced chances for **wetter-than-normal** conditions in the Pacific Northwest to northern Rockies, and from Kentucky-Missouri north into the Great Lakes.
- Enhanced chances for **drier-than-normal** in southern Colorado and southwest Kansas and the southern tier of states.
- Equal chances of **above-, near-, and below-normal** precipitation from eastern Wyoming and northern Colorado east into Kansas, western Iowa and Minnesota.

What's Uncertain

- La Niña will **not** be the only player this winter. Temperatures could be highly variable throughout the winter. Snow storms will likely occur at times this winter. However, the frequency, number, and intensity of these events cannot be predicted on a seasonal timescale.



The **CPC winter forecasts above show only the most likely outcome** where there is greater confidence, but this is **not** the only possible outcome.



Rationale for the CPC Winter Outlook Issued on October 21, 2021

- ✓ La Niña conditions have developed and are expected to continue with an **87% chance of La Niña in December 2021- February 2022 (meteorological winter)**.
- ✓ La Niña is anticipated to affect temperature and precipitation across the United States during the upcoming months, so the **CPC temperature and precipitation outlooks reflect La Niña impacts**.
- ✓ **Greatest La Niña impacts typically occur in February and March.**
- ✓ The last time that there was a La Niña winter was 2020-21 (moderate strength). Since 1949-50, 50% (9 out of 18) of La Niña winters have been followed up by another one.
- ✓ **Sea surface temperatures are currently not as cold as last year at this time, but the atmospheric response is far stronger, which means this La Niña could be potentially stronger during the winter than the 2020-21 La Niña which was weakening during the winter.** Stronger La Niñas can shift the storm track further northwest. This may impact the Upper Mississippi River Valley and northern Great Lakes, so enhanced chances for wetter-than-normal were expanded further north and west than what is typically in La Niña composites.
- ✓ **Recent temperature and precipitation trends were also considered.** Since 1990, La Niñas have been highly variable with winter temperatures in the Northern Plains, so some uncertainty there.



La Niña- What is it?

La Niña is anomalously cool water in the central and eastern tropical Pacific Ocean. During these events...

- 1) The normal easterly winds (trade winds) along the equator become even stronger, so they push more warm water toward Asia.
- 2) Meanwhile off the west coast of the Americas, an increase in upwelling sends cold water toward the surface.
- 3) Cold waters cause the Pacific jet stream to meander further north more frequently than normal, guiding winter storms into the northern tier of the country.

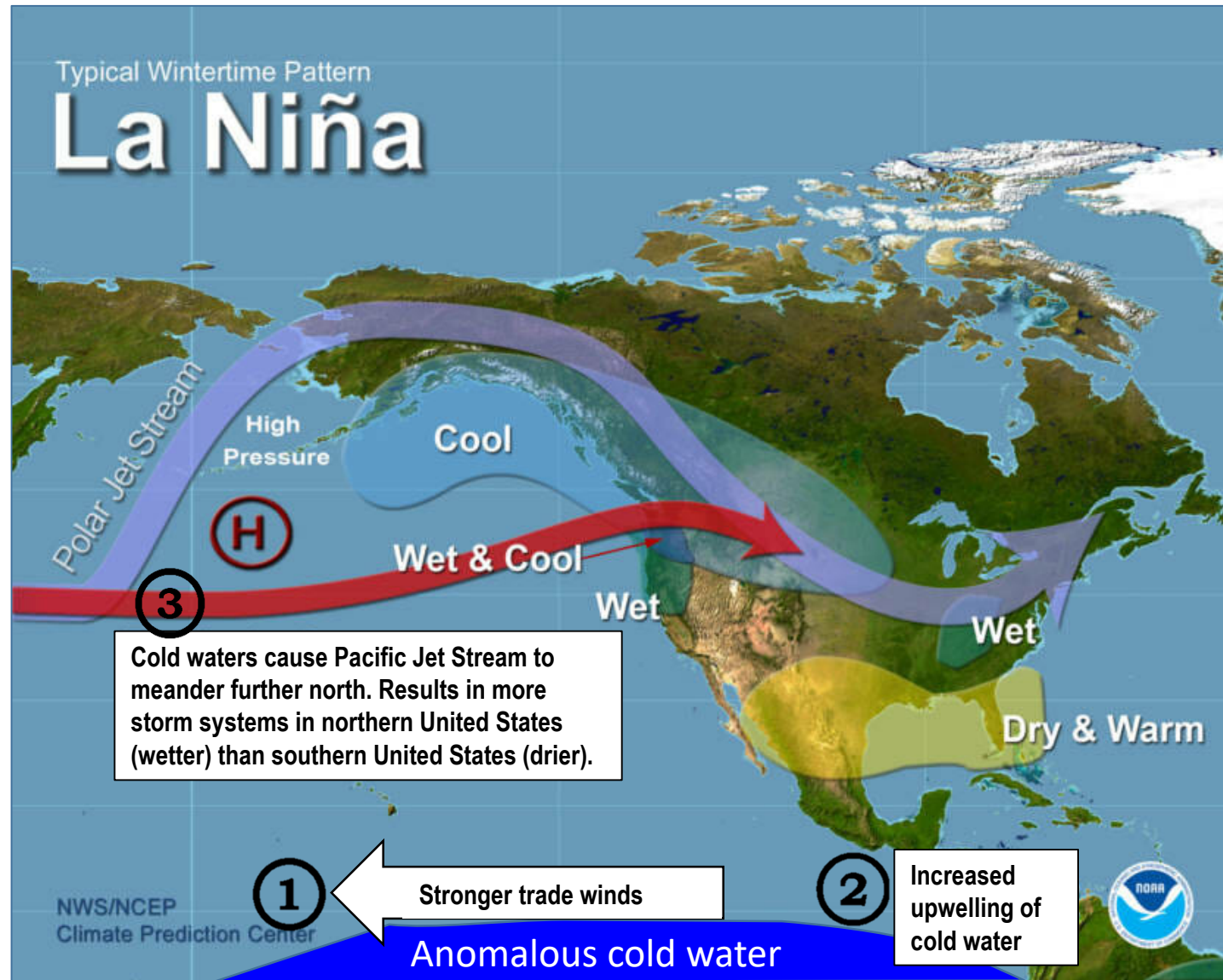


Image courtesy of NWS/NCEP Climate Prediction Center



La Niña – What’s Expected This Winter

Strength:

Moderate

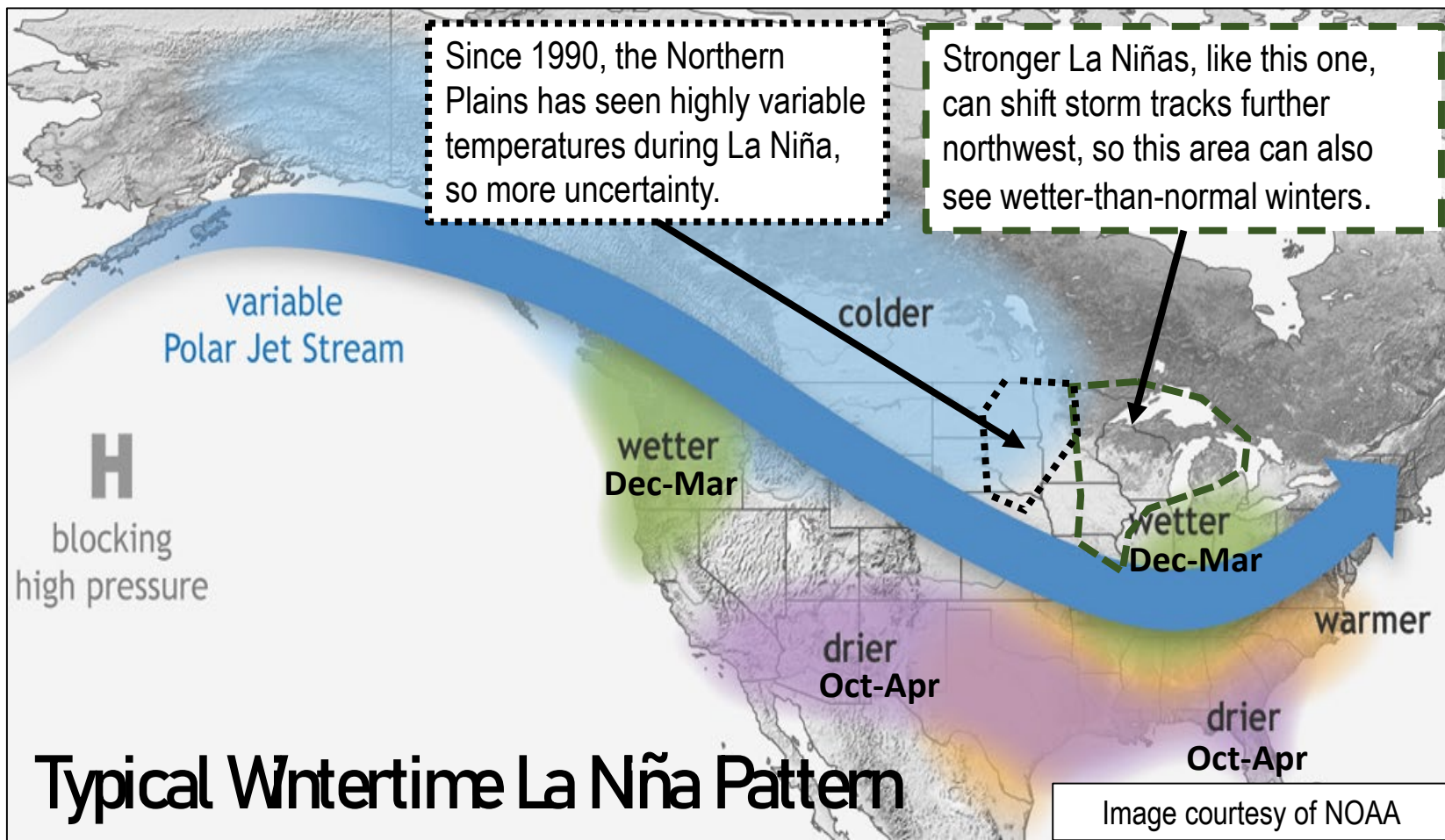
Typical Impacts

Temperatures:

- ✓ Strong tendency for **colder-than-normal** from southeast Alaska southeast into the Northern Plains.
- ✓ Strong tendency for **warmer-than-normal** conditions across the southern and eastern United States.

Precipitation:

- ✓ Strong tendency for **wetter-than-normal** from the Tennessee/Ohio River Valleys into southern Great Lakes and Pacific Northwest
- ✓ Strong tendency **drier-than-normal** across the southern United States.

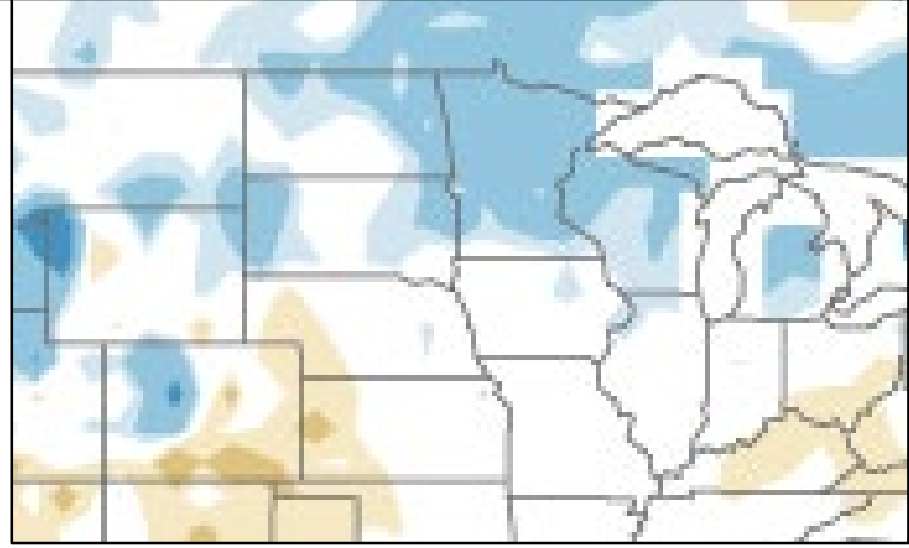


Moderate La Niña Winters: 1955-56, 1970-71, 1984-85, 2010-11, & 2020-21.

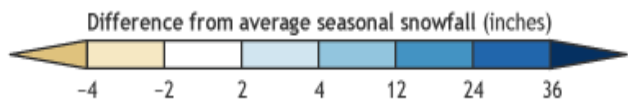


La Niña – What’s Expected This Winter

Difference All La Niña Snow Seasons from Avg. Snowfall



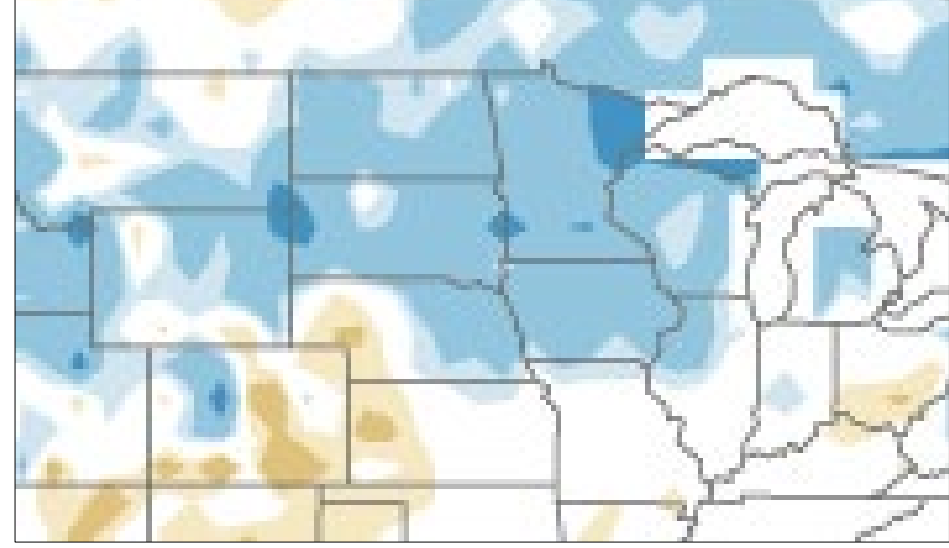
October-April
1950-51 to 2008-09



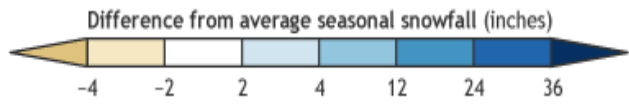
NOAA Climate.gov
Data: Rutgers GSL

La Niña favors increased snowfall from October to April over the Northwest and northern Rockies, as well as in the upper Midwest-Great Lakes region. Reduced snowfall is observed over parts of the central-southern Plains, Southwest, and mid-Atlantic.

Difference All Weak La Niña Snow Seasons from Avg. Snowfall



October-April
1950-51 to 2008-09



NOAA Climate.gov
Data: Rutgers GSL

Weaker La Niña events tend to be snowier from October to April over the Northeast and northern and central Plains on average.

Source: <https://www.climate.gov/news-features/blogs/enso/what-about-snow-during-la-ni%C3%B1a-winters>



WINTER OUTLOOK 2021-22

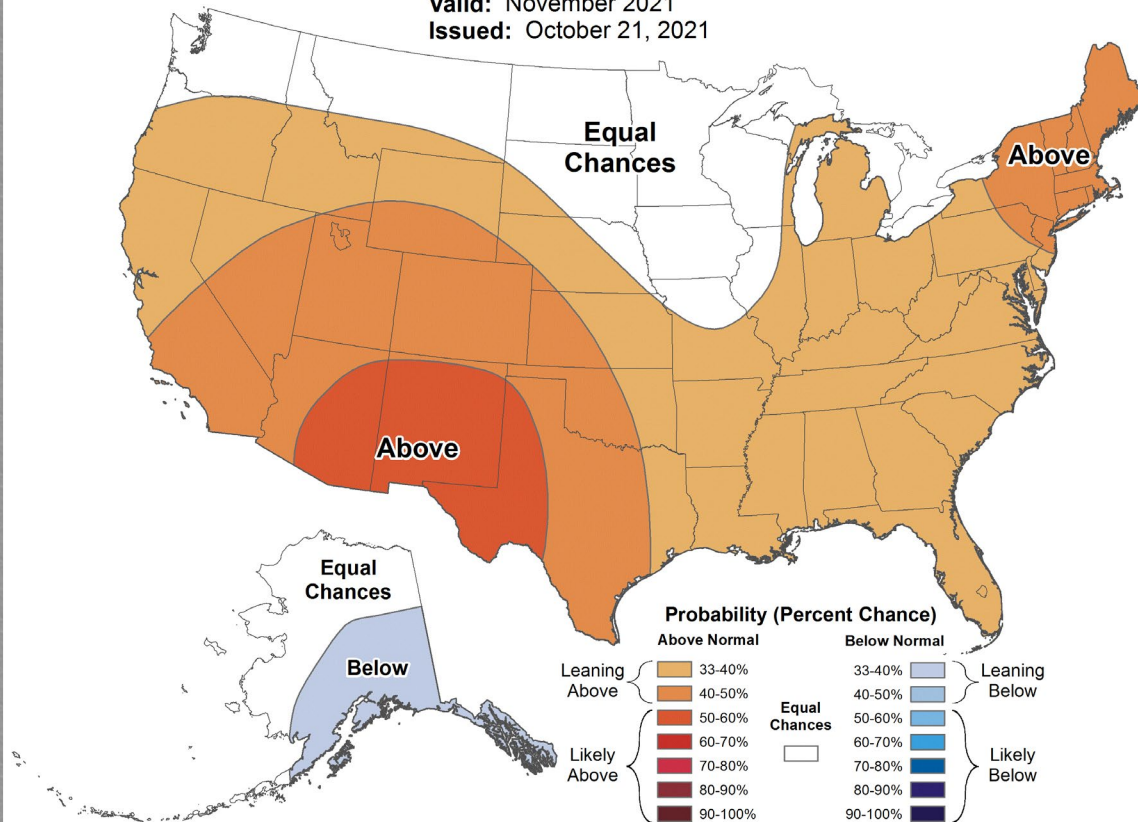
Climate Prediction Center November Outlook



Monthly Temperature Outlook



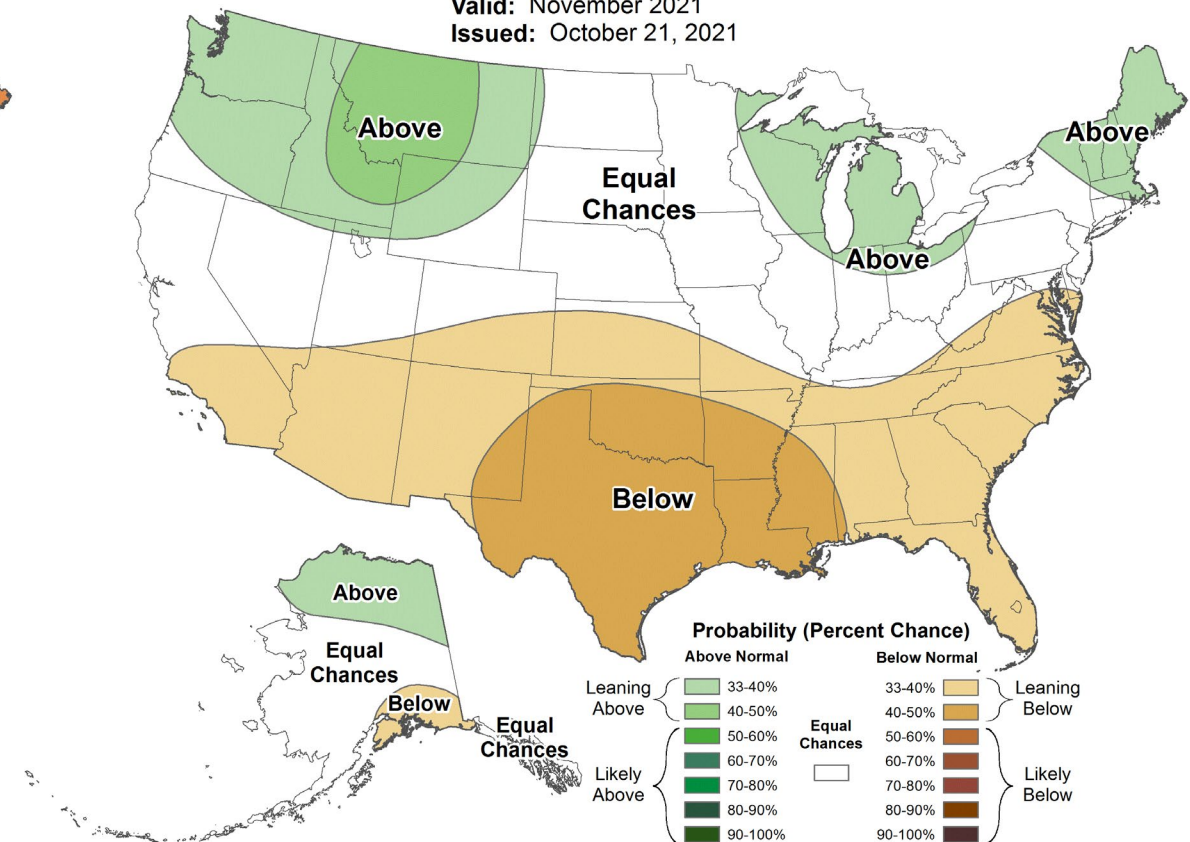
Valid: November 2021
Issued: October 21, 2021



Monthly Precipitation Outlook



Valid: November 2021
Issued: October 21, 2021



Images courtesy of the Climate Prediction Center (CPC)



Climate Prediction Center Winter (Dec-Feb) Outlook

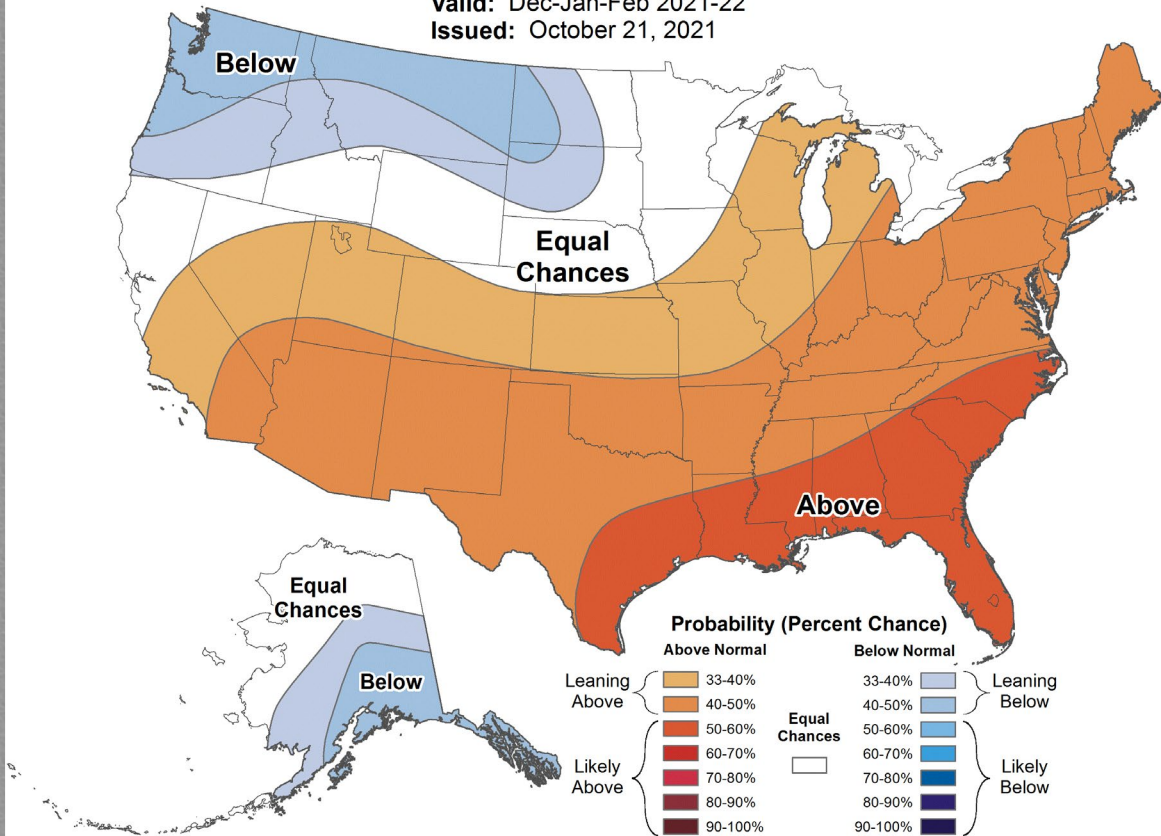
WINTER OUTLOOK 2021-22



Seasonal Temperature Outlook



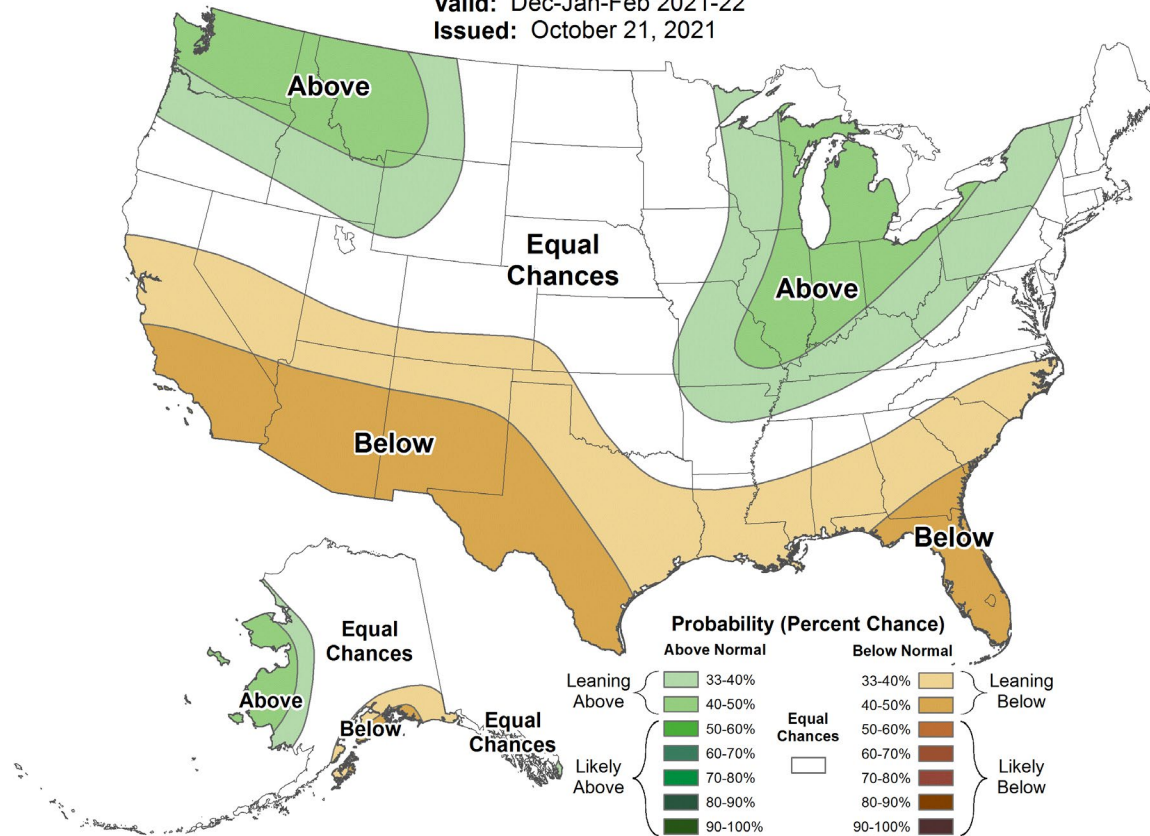
Valid: Dec-Jan-Feb 2021-22
Issued: October 21, 2021



Seasonal Precipitation Outlook



Valid: Dec-Jan-Feb 2021-22
Issued: October 21, 2021



Images courtesy of the Climate Prediction Center (CPC)



Summary

What's Currently Expected

- La Niña is expected to impact the 2021-22 Meteorological Winter (December 1-February 28).
- Enhanced chances for **above-normal** temperatures across southern and eastern United States.
- Enhanced chances for **below-normal temperatures** in the Northern Plains.
- Enhanced chances for **wetter-than-normal** conditions in northwest Wyoming, and from Kentucky and Missouri north into the Great Lakes.
- Enhanced chances for **drier-than-normal** in southern Colorado and southwest Kansas.

What's Uncertain

- On shorter time scales, other—less predictable—climate patterns can cancel out or amplify the typical influence of La Niña.
- Strong Arctic Oscillation episodes (like last February) typically last a few weeks and are difficult to predict more than 1 to 2 weeks in advance.
- Snow storms will likely occur at times this winter. However, the frequency, number, and intensity of these events cannot be predicted on a seasonal timescale.

Next Winter Outlook will be issued on Thursday, November 18, 2021.

Questions / Comments?

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