

A winter-themed illustration with a light blue background. It features stylized evergreen trees, one on the left with white scribbles and one on the right with white snowflakes. There are also red berries on white stems, white clouds, and white snowflakes scattered throughout. The ground is depicted as a white, snow-covered hill.

# CENTRAL IL WINTER 2024-25 OUTLOOK

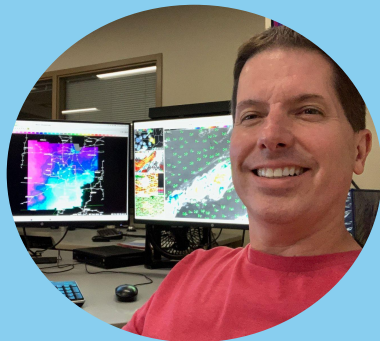
Matt Barnes & Rebekka Copple  
NWS Central Illinois Meteorologists



# WELCOME!

We are so glad you are here!

# OUR TEAM



MATT BARNES

SWOP Focal Point  
Meteorologist



REBEKKA COPPLE

SWOP Team Member  
Meteorologist

# TOPICS COVERED TODAY

01

## WINTER WEATHER

Winter weather lesson & forecasting challenges

02

## OBSERVATIONS

How to properly measure and report snow

03

## IL WINTER CLIMATE

What's typical for central/SE IL

04

## ENSO PHASE

El Niño, La Niña, or neutral this winter?

01

# WINTER WEATHER

How wintry weather is forecast and its challenges





# THE MANY TOOLS WE USE

These are very similar to summer weather forecasting, just with different applications.



Deterministic computer models and the NBM

- GFS, Euro, NAM, etc



Probabilistic ensembles

- GEFS, HREF, LREF, etc



Upper air soundings

(forecast and observed)



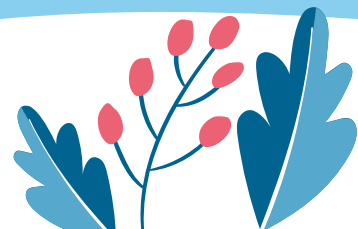
Radar



Satellite



Observations





# 3 FACTORS WE CONSIDER



## LOW PRESSURE

The track of low pressure systems across the Midwest




## MOISTURE

Is the air mass dry or moist?

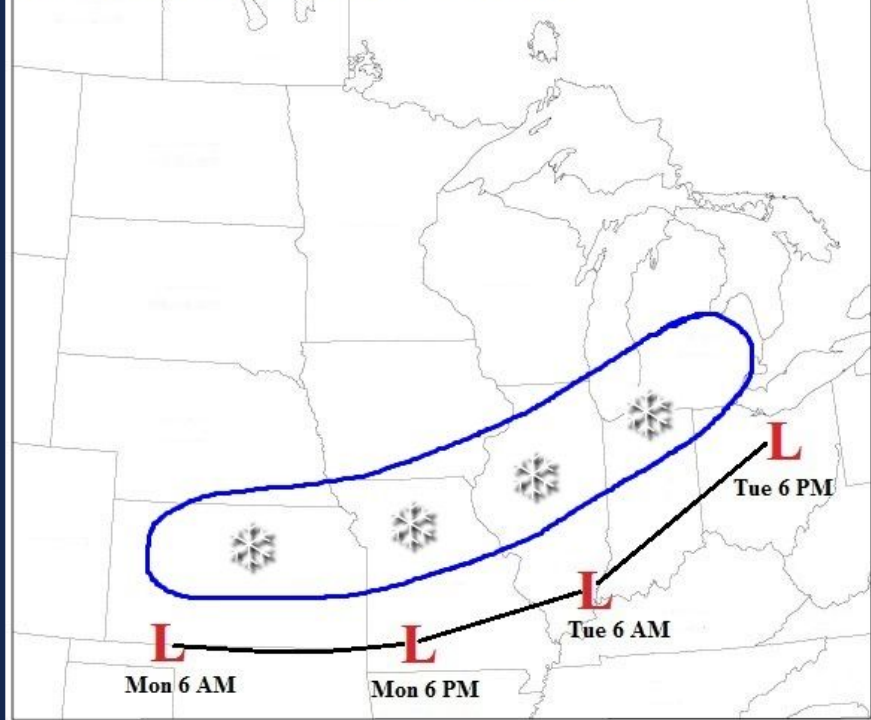


## TEMPERATURE

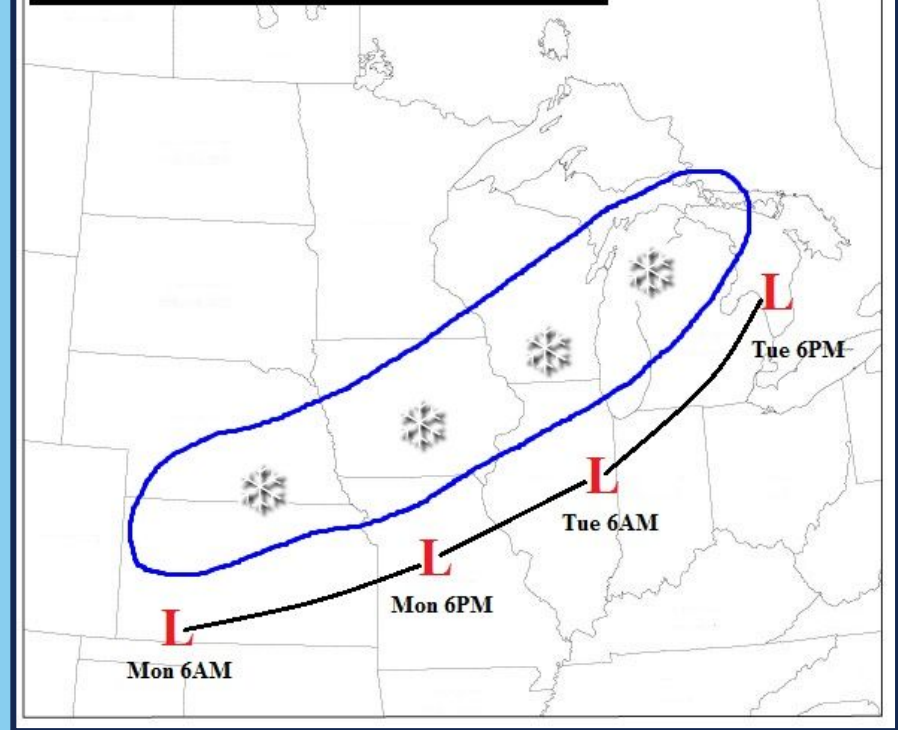
Where are temperatures colder than 32 degrees?



## GFS Surface Low Track

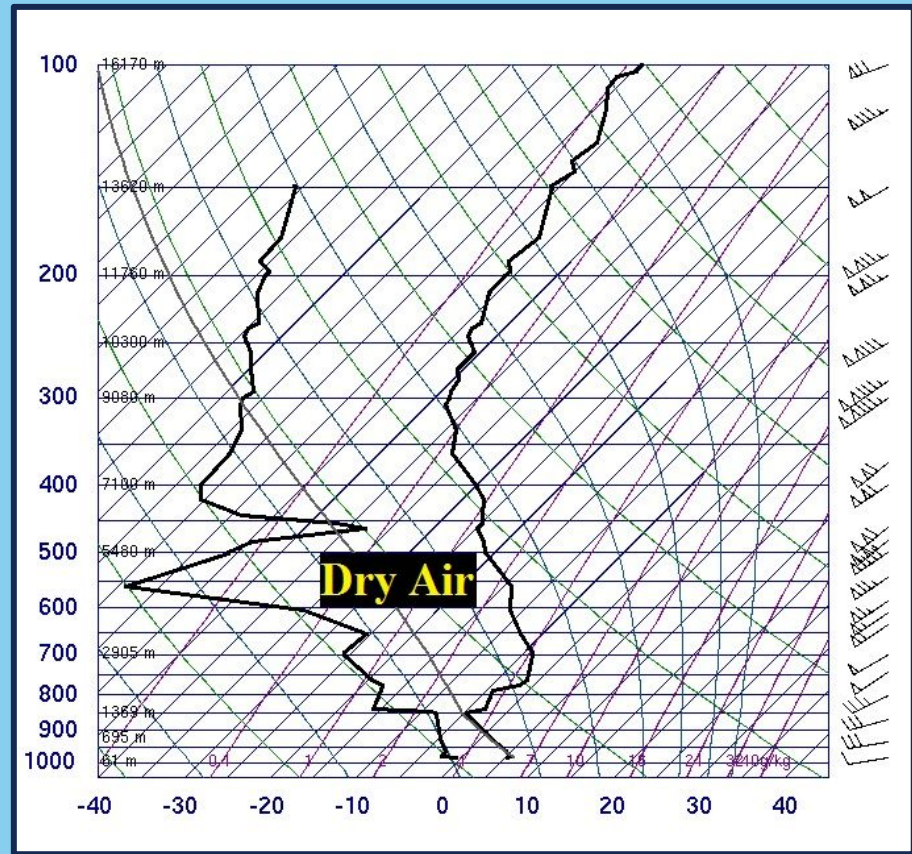
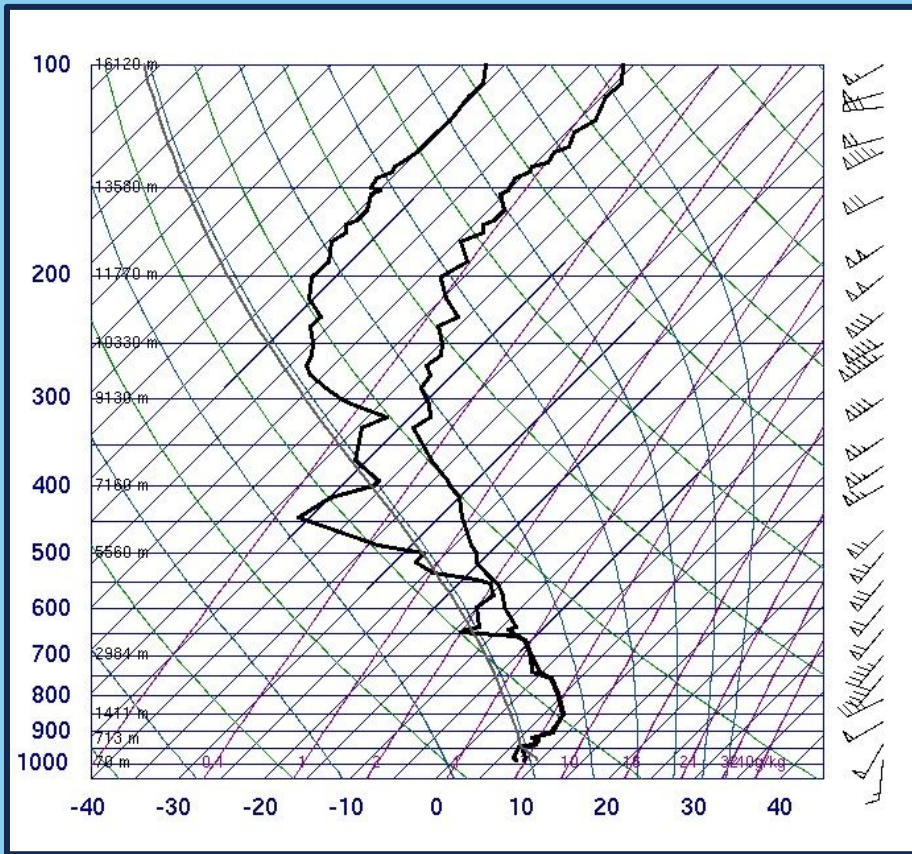


## NAM Surface Low Track

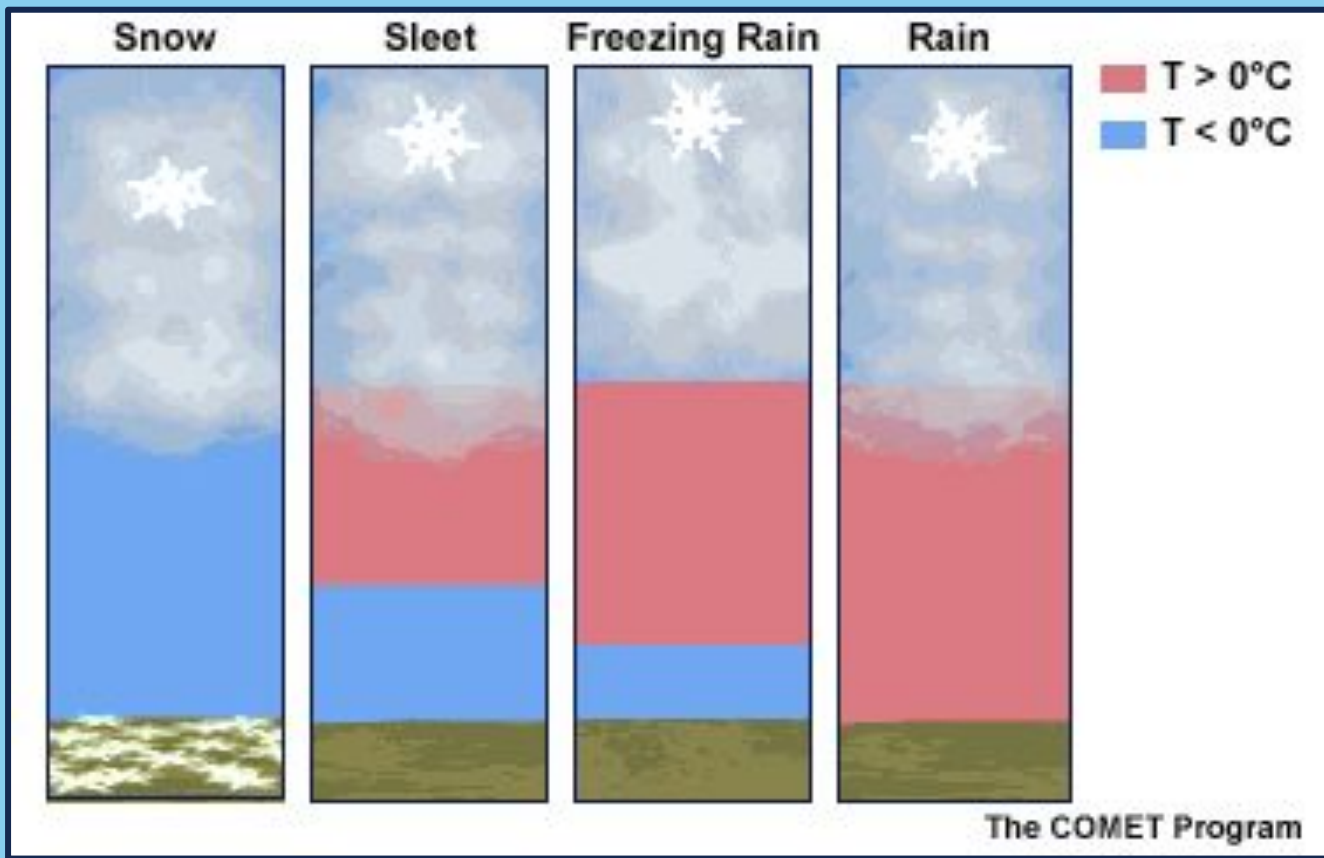


# LOW PRESSURE TRACKS





# MOISTURE



- Temperature plays a vital role in precipitation type determination that reaches the ground
- A change of just 2-3 degrees can mean the difference between cold rain and icing issues

# TEMPERATURE

# EXTREME COLD WATCH

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An Extreme Cold Watch is issued when dangerously cold air, with or without wind, is **possible**.

Check the forecast, and be prepared in case a Warning is issued.

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## Be Prepared

# EXTREME COLD WARNING

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An Extreme Cold Warning is issued when dangerously cold air, with or without wind, is **expected**.

Conditions could lead to frostbite or hypothermia. Limit time outside, dress in layers, and cover up exposed skin.

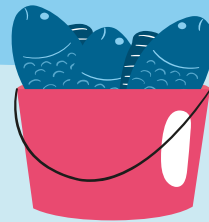
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## Take Action!

02

# OBSERVATIONS

How to properly measure snow &  
reporting guidelines





## TIPS & TRICKS

1. Choose a good location
2. Keep your grass clipped short
3. Make a snowboard out of a 2ftx2ft piece of plywood painted white
4. Take multiple measurements
5. **DO NOT** measure drifts
6. Use an NWS snowstick...or a standard yardstick or ruler to measure
7. Report your measurement to [nws.lincoln@noaa.gov](mailto:nws.lincoln@noaa.gov) in tenths of an inch
8. If the snow is blown around overnight, find a spot that is representative of the actual amount in an area that hasn't been blown around





### How to Measure:

1. Push the yardstick straight into the snow, perpendicular to the ground, until the yardstick reaches the snowboard.
2. Record the measurement to the nearest tenth of an inch; e.g. 3.3 inches. Keep track of all your measurements for the duration of the storm so you can report the storm total amount.
3. After you record the measurement, clear off the snowboard (then place it on top of the snow), or whatever surface you have used, so it is ready for more snow!

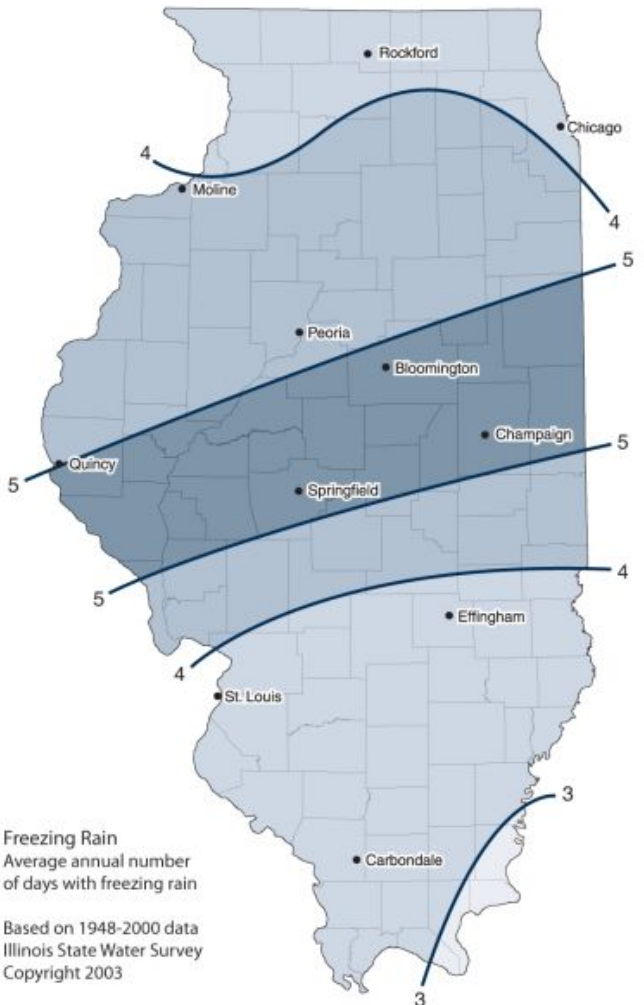


03

# CENTRAL IL WINTER CLIMATE

What is typical for central/SE IL?

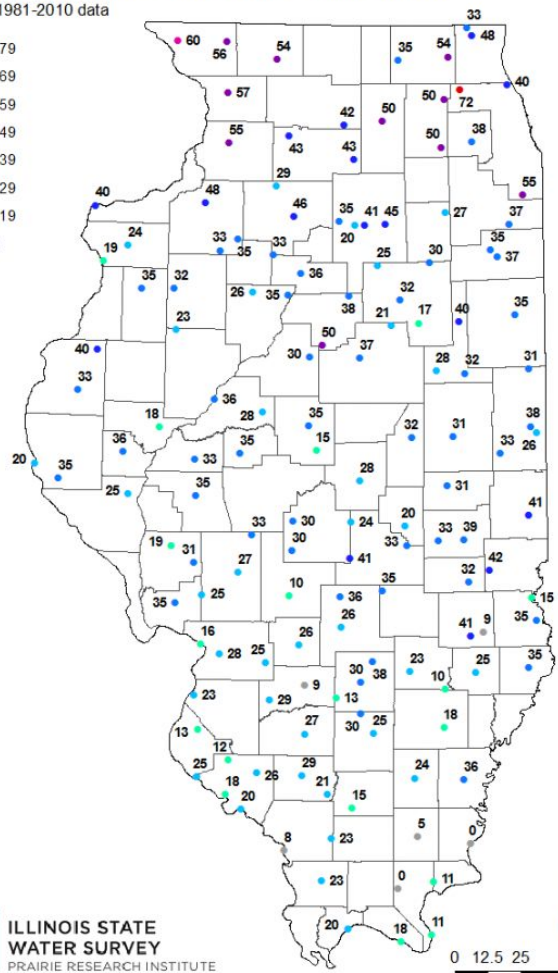




### Percent Chance of a White Christmas

Based on 1981-2010 data

- 70 - 79
- 60 - 69
- 50 - 59
- 40 - 49
- 30 - 39
- 20 - 29
- 10 - 19
- 0 - 9

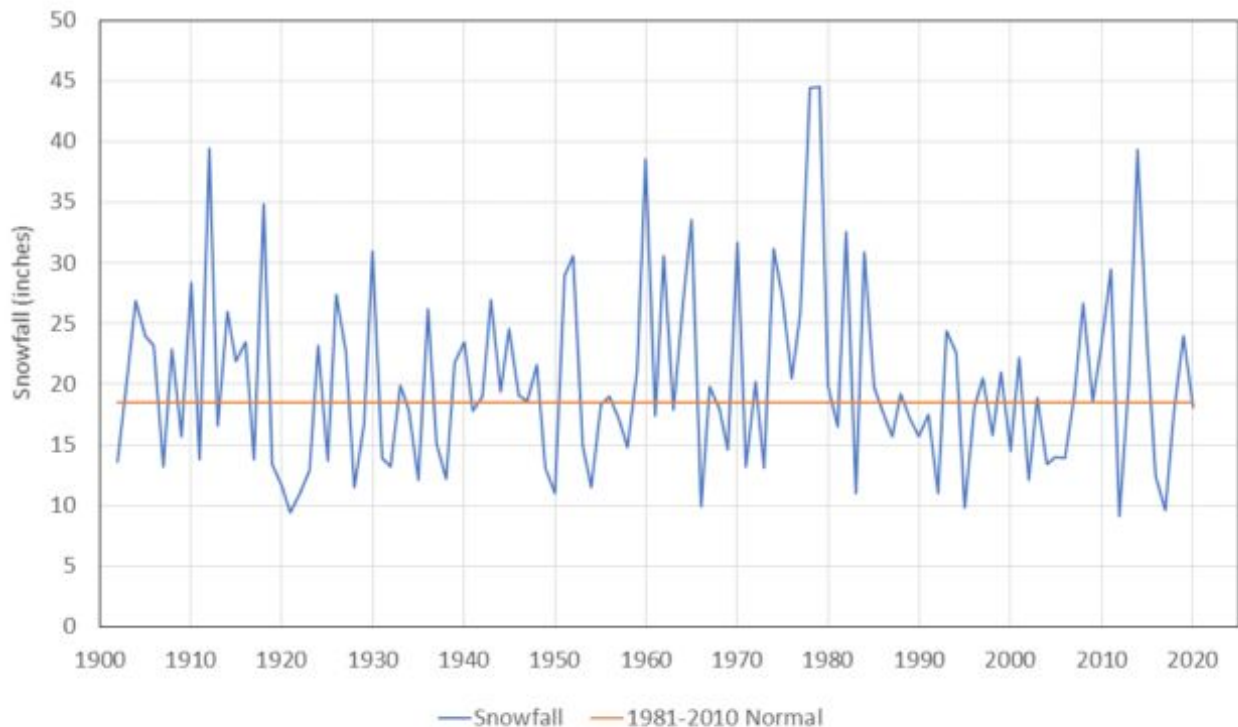


Central IL is more likely to see freezing rain days than either southern or northern IL.

In general, the odds are about 20-40% in central Illinois for a white Christmas



Statewide average Snowfall for Illinois



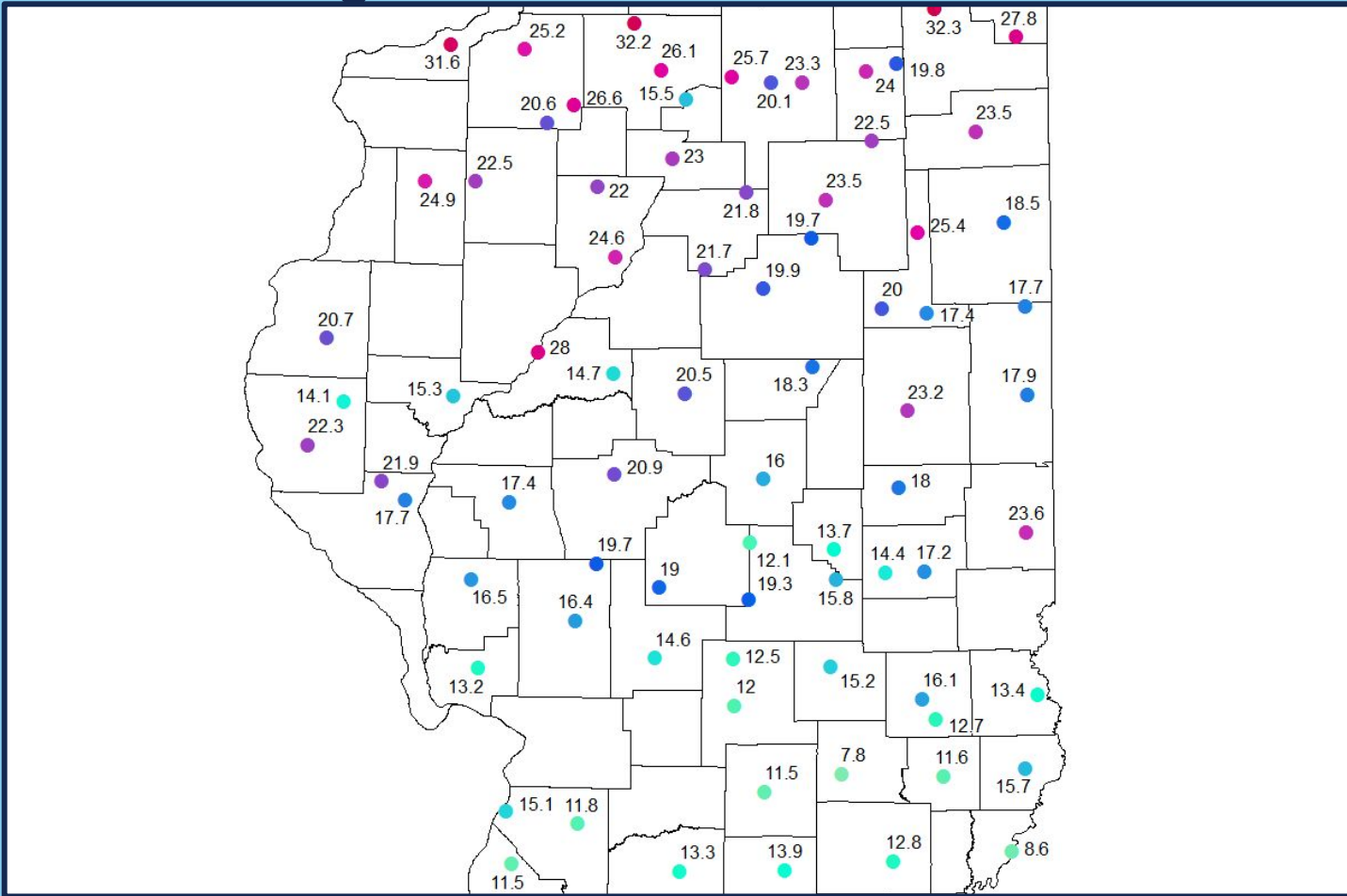
Here are the 5 snowiest winters on record:

1. 1979 with 44.5 inches
2. 1978 with 44.4 inches
3. 1912 with 39.5 inches
4. 2014 with 39.4 inches
5. 1960 with 38.6 inches

- \* Snowfall is quite variable year-to-year.
- \* In general, the average since 1900s is ~18 inches/season for the state of Illinois.



# Average Annual Snowfall (inches)



04

# EL-NINO/SOUTHERN OSCILLATION (ENSO)

El Niño, La Niña, or neutral this winter?



# EL NIÑO/LA NIÑA BASICS



Sea-surface temperature (SST) fluctuations in equatorial Pacific Ocean

- ❄ El Niño: warmer than normal
- ❄ La Niña: colder than normal

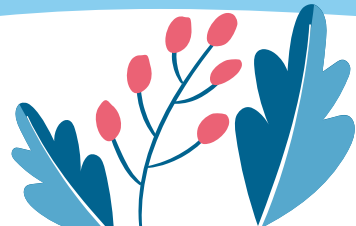
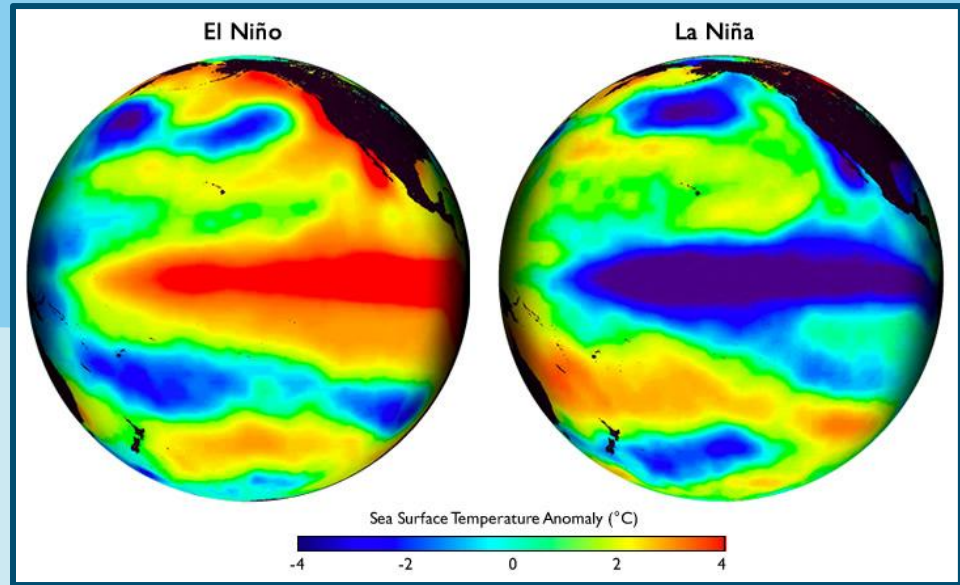


Changes:

- ❄ Tropical precipitation (locations)
- ❄ Position and intensity of jet streams

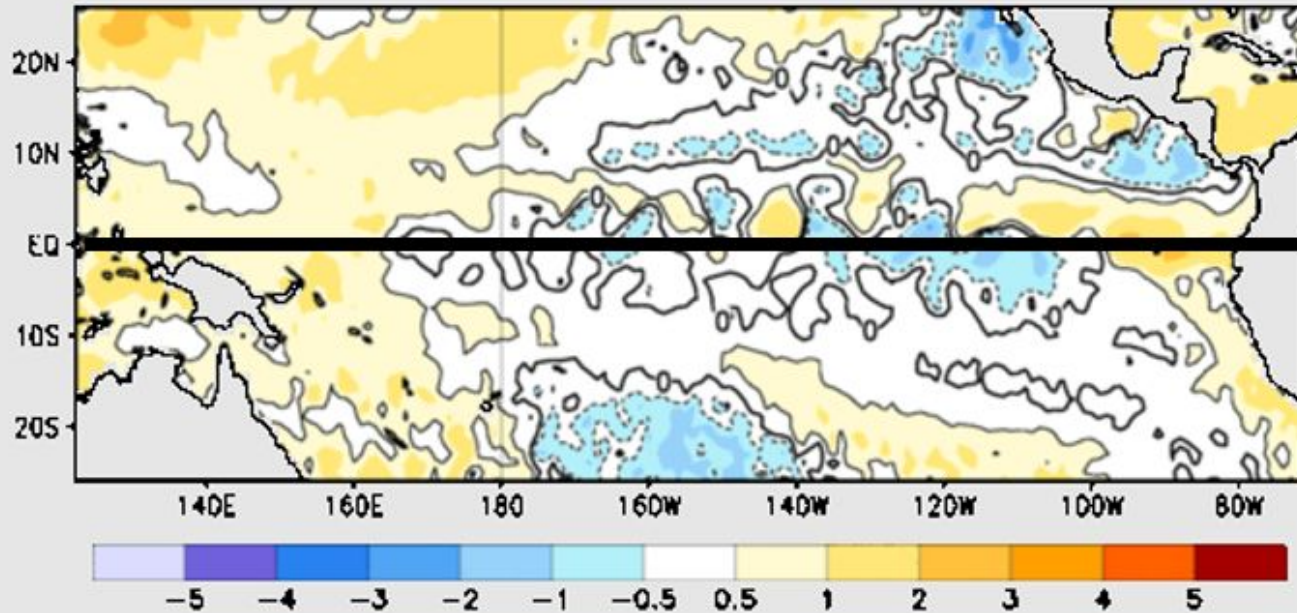


Affects mid-latitude weather patterns, especially in winter



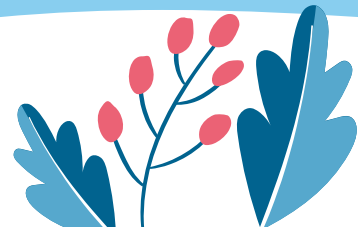
# CURRENT SEA SURFACE TEMPERATURE ANOMALIES

Observed Sea Surface Temperature Anomalies (°C)

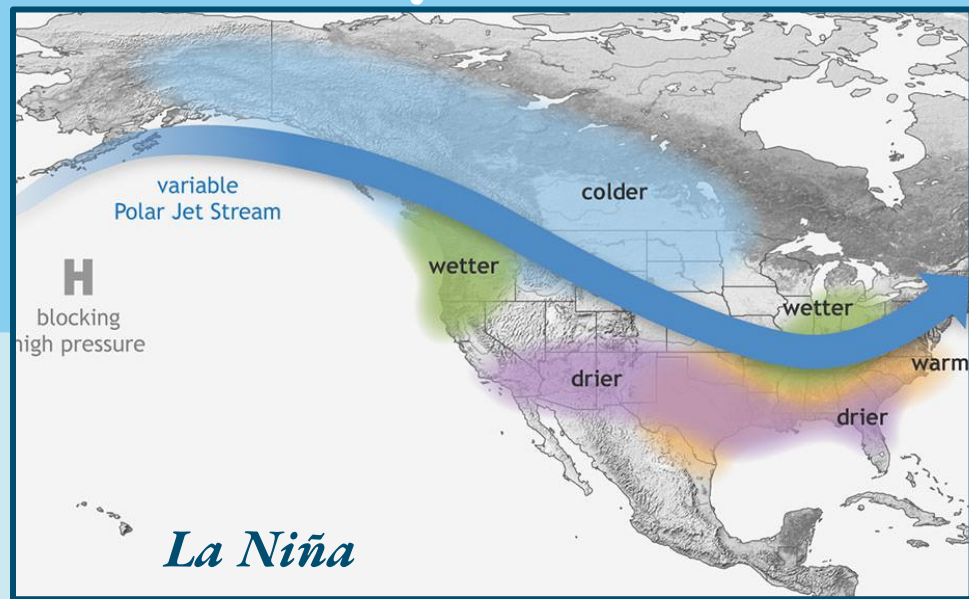


7-day Average Centered on 20 November 2024

- \* No strong signal yet..so **ENSO Neutral**
- \* Forecast suggests weak La Niña development



# LA NIÑA BASICS



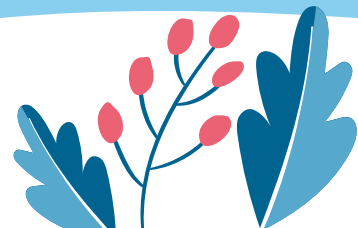
Increased opportunities for precipitation across the Pacific Northwest and the Ohio River Valley



Increased chances for Arctic air mass intrusion into southern Canada and the Northern Plains



With the storm track well to the north, the Southern Plains and Gulf Coast tend to be warmer and drier than normal



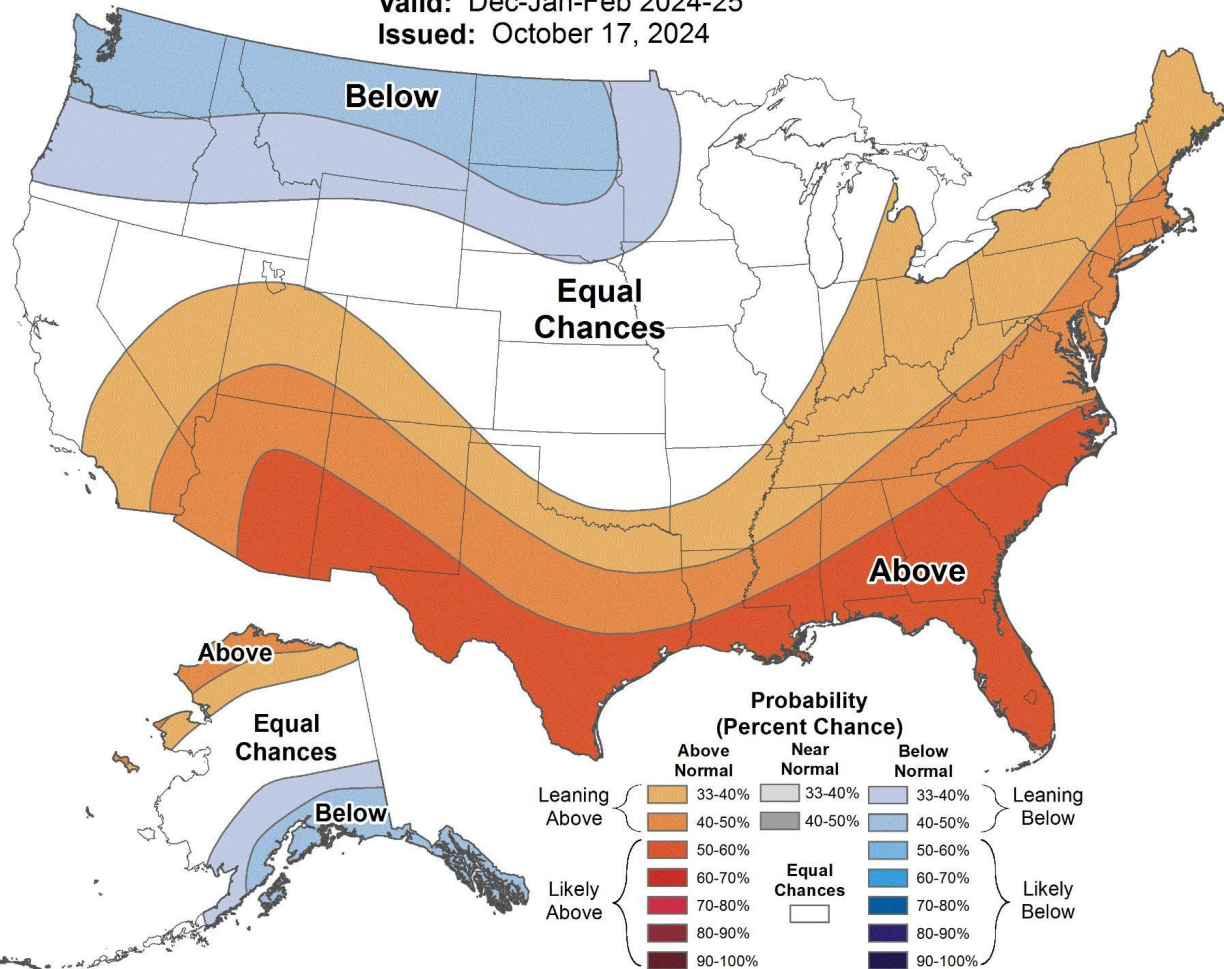


# Seasonal Temperature Outlook



Valid: Dec-Jan-Feb 2024-25

Issued: October 17, 2024



## TEMPERATURE OUTLOOK

Equal Chances of Above-Below-Near Normal



Equal Chances



# Seasonal Precipitation Outlook

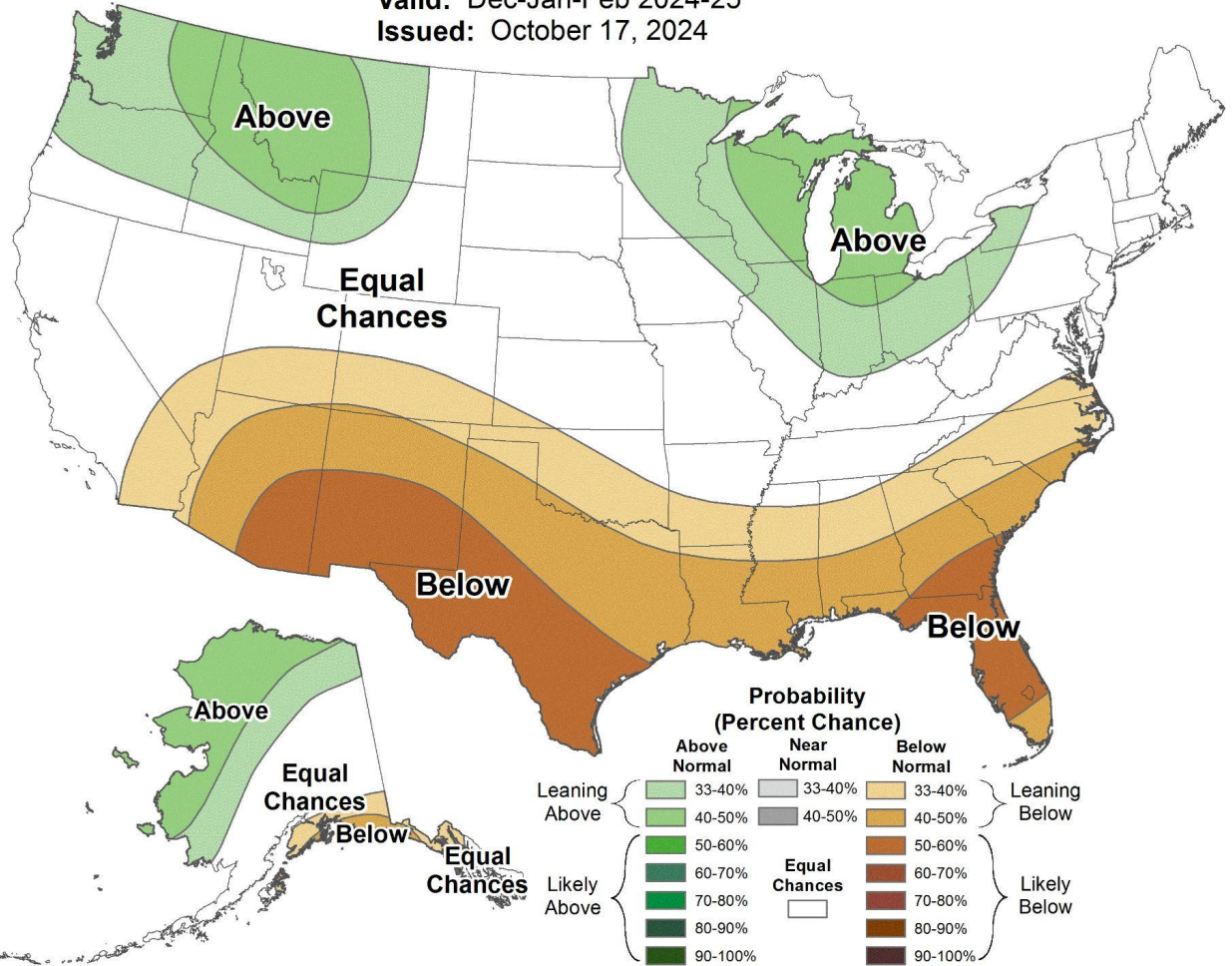


Valid: Dec-Jan-Feb 2024-25

Issued: October 17, 2024

## PRECIPITATION OUTLOOK

Equal Chances of  
Above-Below-Near Normal &  
Leaning Above Normal





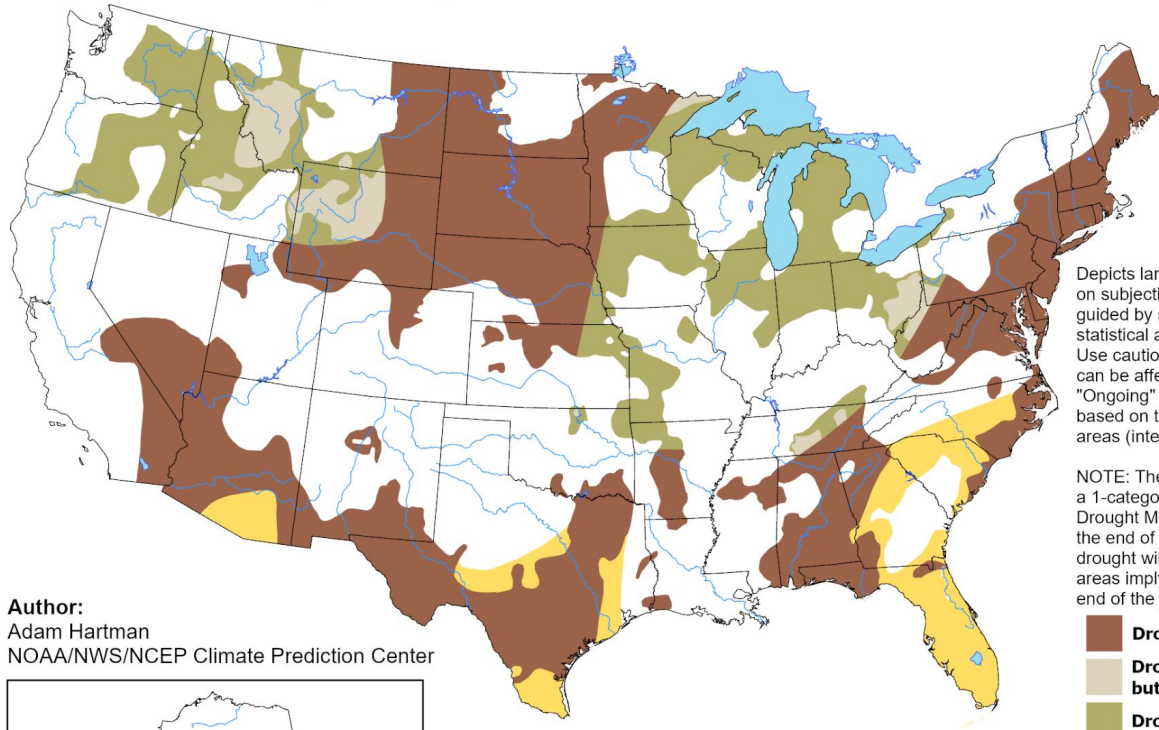
# U.S. Seasonal Drought Outlook Valid for November 21, 2024 - February 28, 2025

## Drought Tendency During the Valid Period

Released November 21, 2024

# DROUGHT OUTLOOK

No drought with areas of  
persisting drought conditions

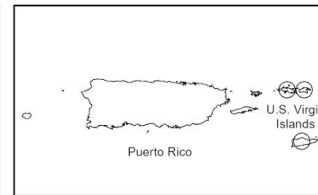
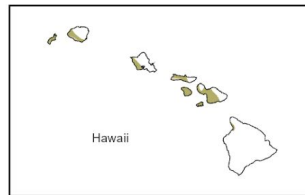


Depicts large-scale trends based on subjectively derived probabilities guided by short- and long-range statistical and dynamical forecasts. Use caution for applications that can be affected by short lived events. "Ongoing" drought areas are based on the U.S. Drought Monitor areas (intensities of D1 to D4).

NOTE: The tan areas imply at least a 1-category improvement in the Drought Monitor intensity levels by the end of the period, although drought will remain. The green areas imply drought removal by the end of the period (D0 or none).

- Drought persists**
- Drought remains, but improves**
- Drought removal likely**
- Drought development likely**
- No drought**

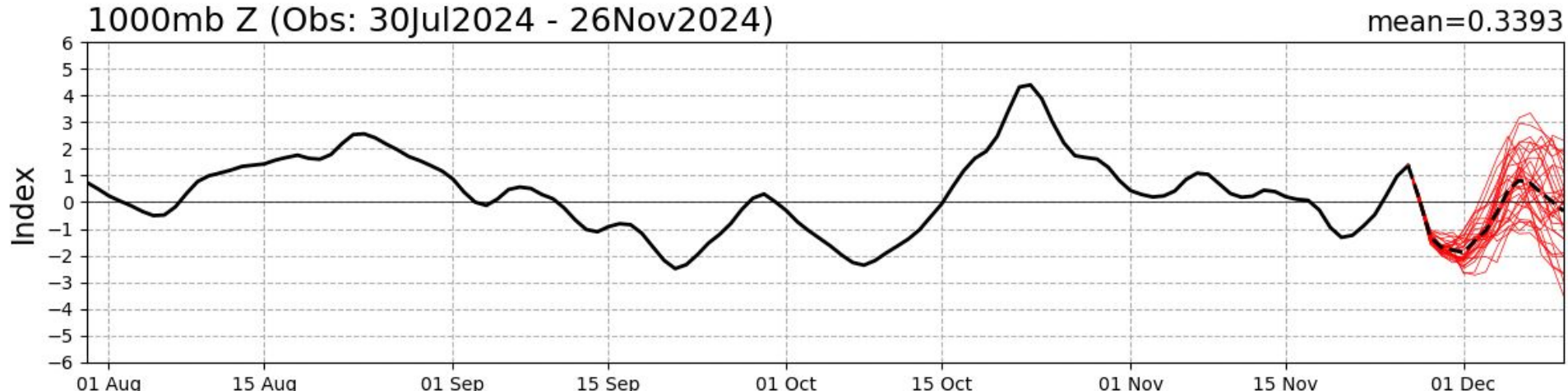
**Author:**  
Adam Hartman  
NOAA/NWS/NCEP Climate Prediction Center



# ARCTIC OSCILLATION (AO)

\* **Negative:** higher pressure over the North Pole, meaning cold air gets pushed southward

## AO Index: Observed & GEFS Forecasts



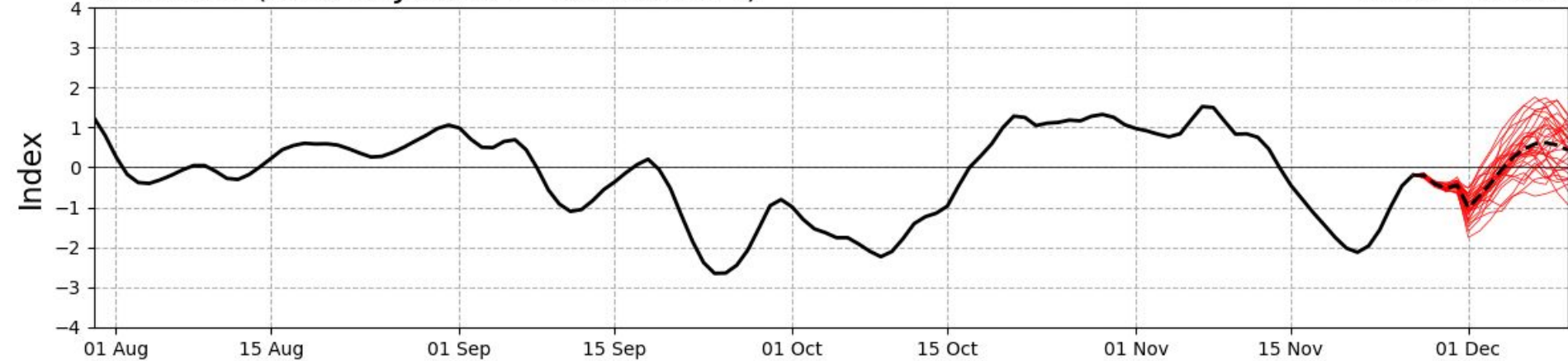
# NORTH ATLANTIC OSCILLATION (NAO)

❄️ **Negative:** strong Icelandic low and a highly amplified pattern, meaning cold air is able to spill due southward

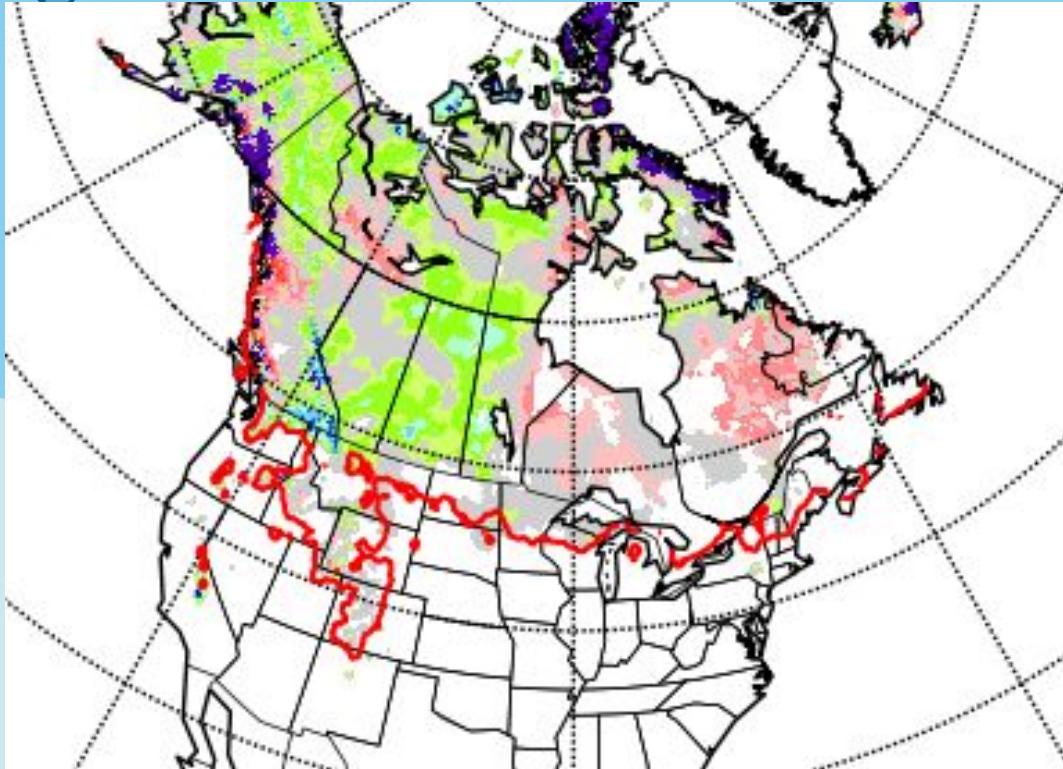
## NAO Index: Observed & GEFS Forecasts

500mb Z (Obs: 30Jul2024 - 26Nov2024)

mean=-0.1861



# CURRENT SNOW COVER



- ❄️ **Red Line:** Nov 26 climatological southern extent of snow cover
- ❄️ **White:** No snow cover
- ❄️ **Grey/Pink:** below normal
- ❄️ **Green:** above normal





# SHORT-TERM CONCLUSIONS

1. Negative AO and NAO signal colder than normal conditions for the next couple of weeks
2. Lack of snow cover upstream may temper the cold outbreak somewhat
3. As the AO and NAO become neutral or weakly positive, a return to milder weather is likely for the middle and end of December
4. The milder trend is supported by latest weeks 3-6 CFS data (Dec 10-Jan 7)



# 2024-25 WINTER CONCLUSIONS

1. ENSO-Neutral conditions presently
2. Weak La Niña likely for winter 2024-2025 (57% chance)
3. Odds slightly favor above normal winter precipitation in central/SE IL
4. No clear temperature trend in central/SE IL



# THANKS!

## DO YOU HAVE ANY QUESTIONS?

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(217) 732-3089

[weather.gov/ilx](http://weather.gov/ilx)



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