



National Weather Service  
Weather Forecast Office • Lincoln, IL



# Central IL Winter 2023-24 Outlook

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# Topics Covered Today

1. Brief lesson on winter weather and it's forecasting challenges
2. What is typical for Central Illinois in the winter
3. What will this winter potentially look like?
4. What is El Niño and what it means for Central Illinois?
5. How to properly measure snow



# Winter Weather

How we forecast it 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 track

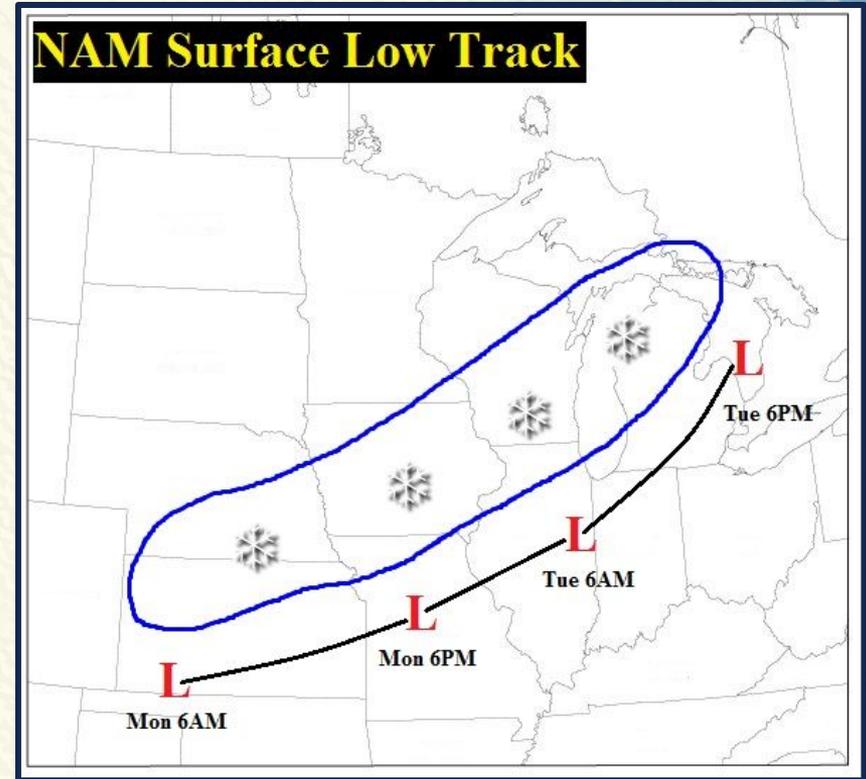
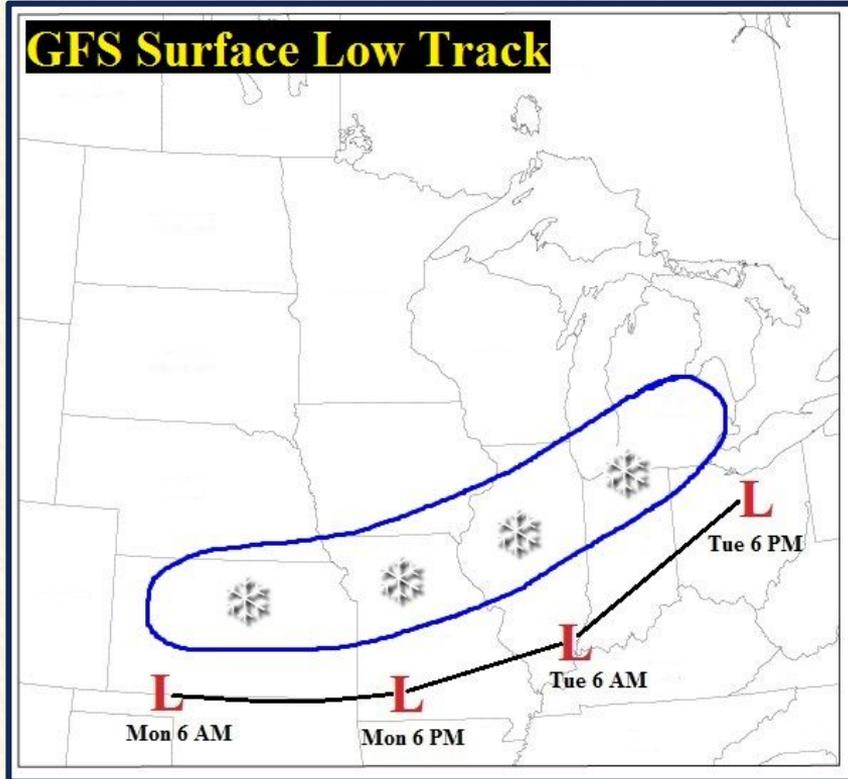


Moisture

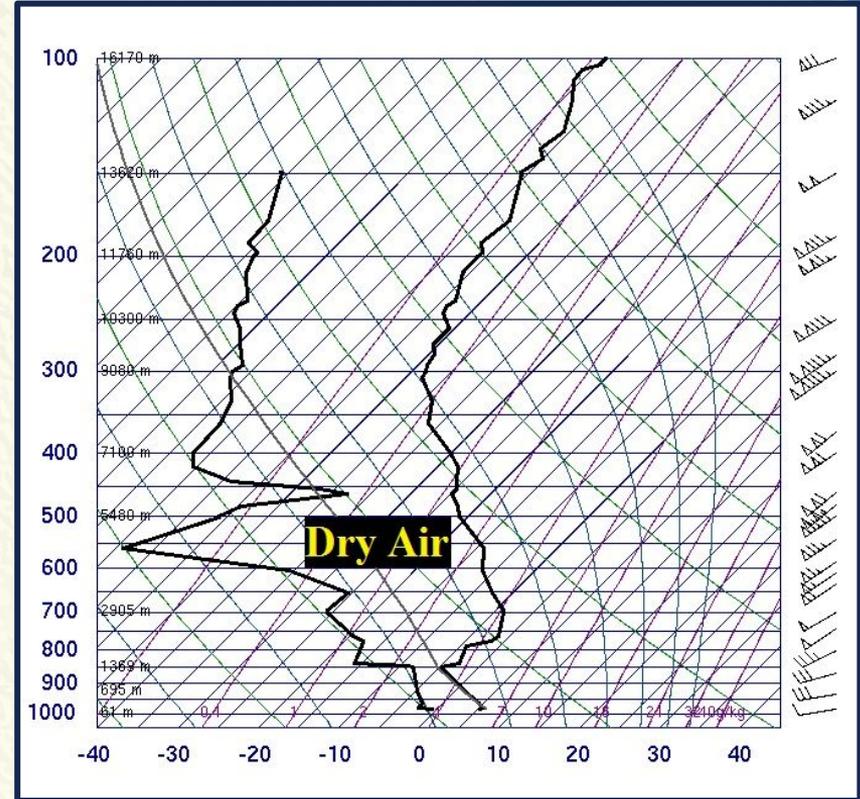
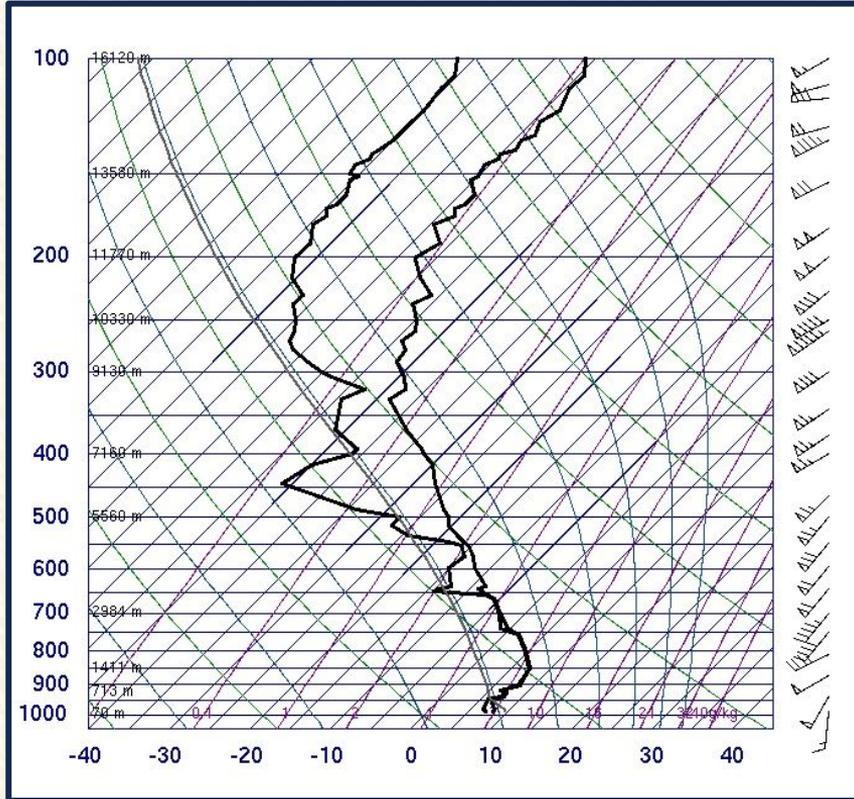


Temperature

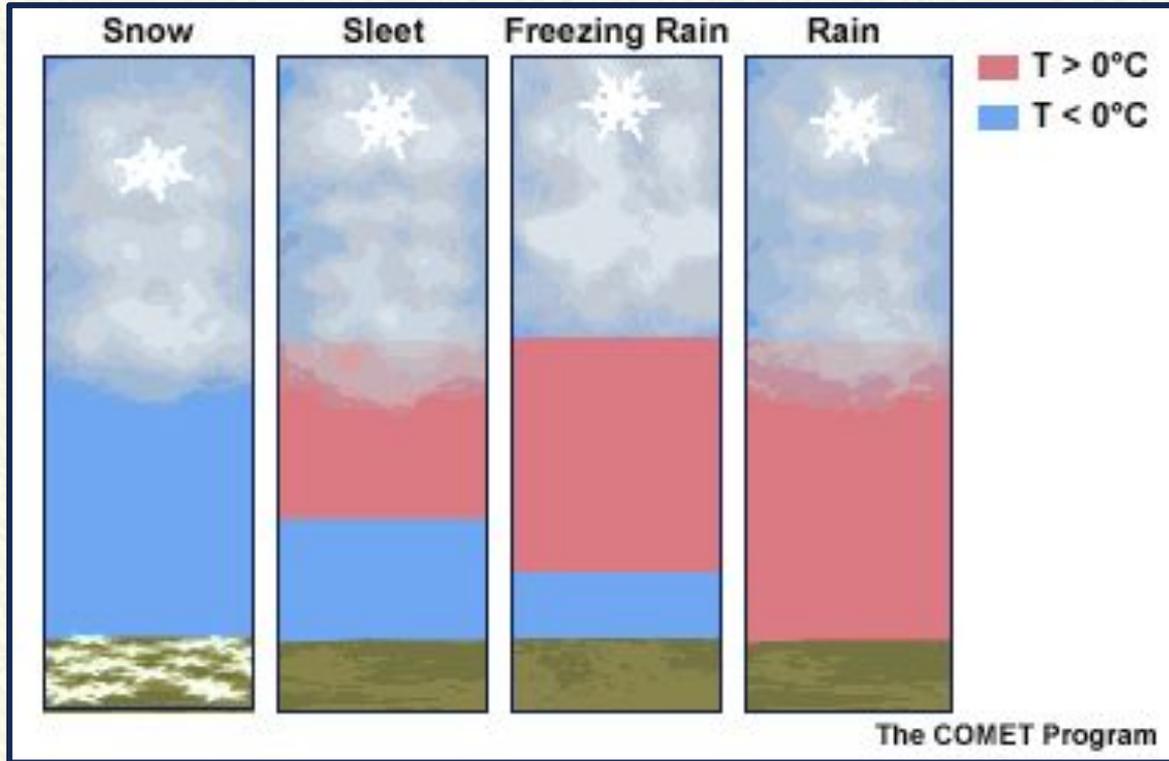
# Low Pressure Track



# Moisture



# Temperature



- 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



# Measuring Snowfall

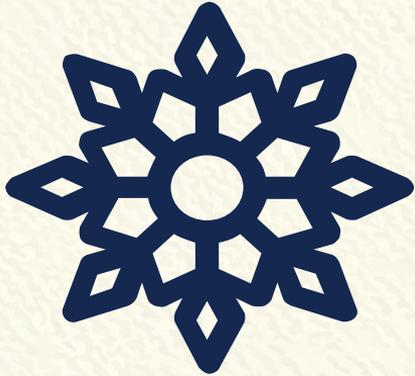


# Tips and Tricks

1. Choose a good location
2. Keep your grass low
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 issued snowstick to measure
7. Report your measurement to [nwslilx@noaa.gov](mailto:nwslilx@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!



1.



2.



3.



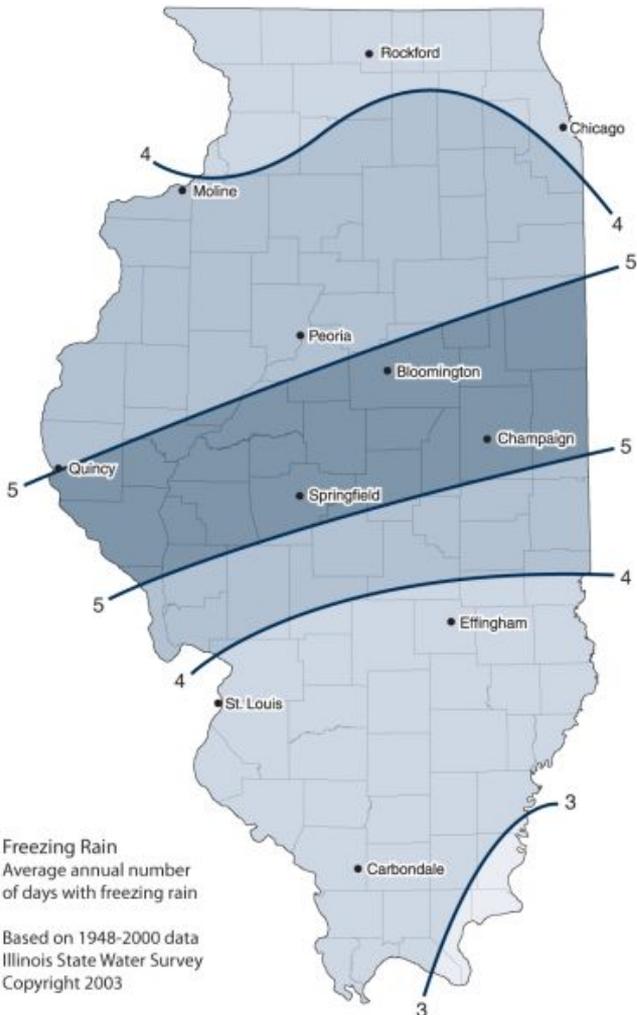


# Climatology of Central IL Winters



What we typically see in a winter





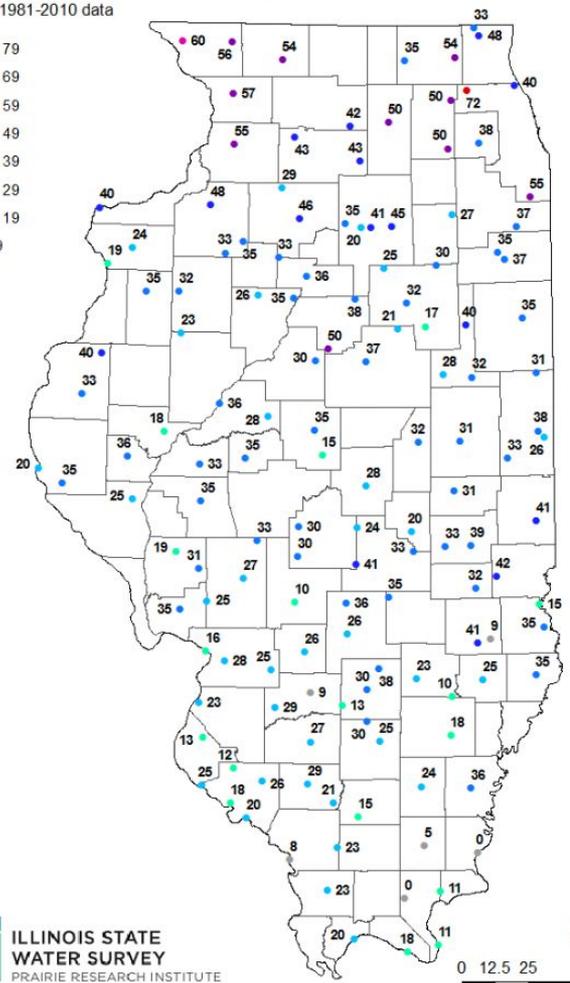
Central IL is more likely to see freezing rain days than either southern or northern IL.

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

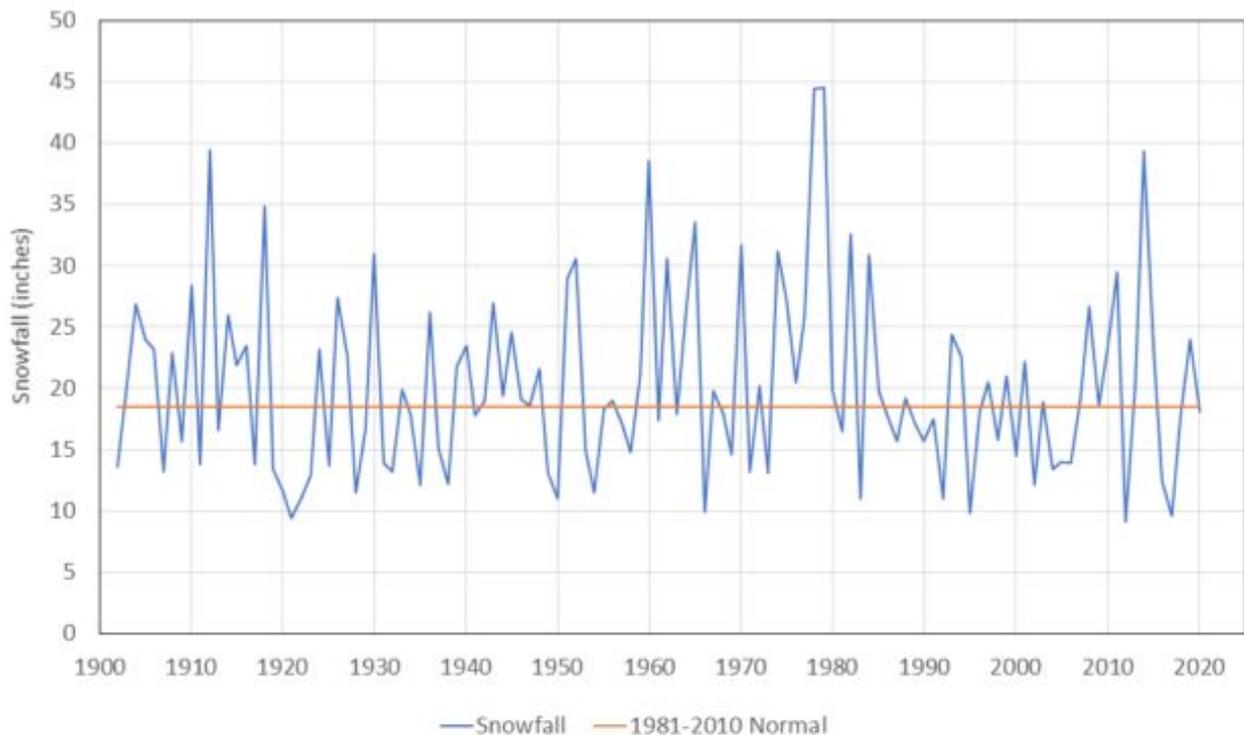
### Percent Chance of a White Christmas

Based on 1981-2010 data

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



Statewide average Snowfall for Illinois

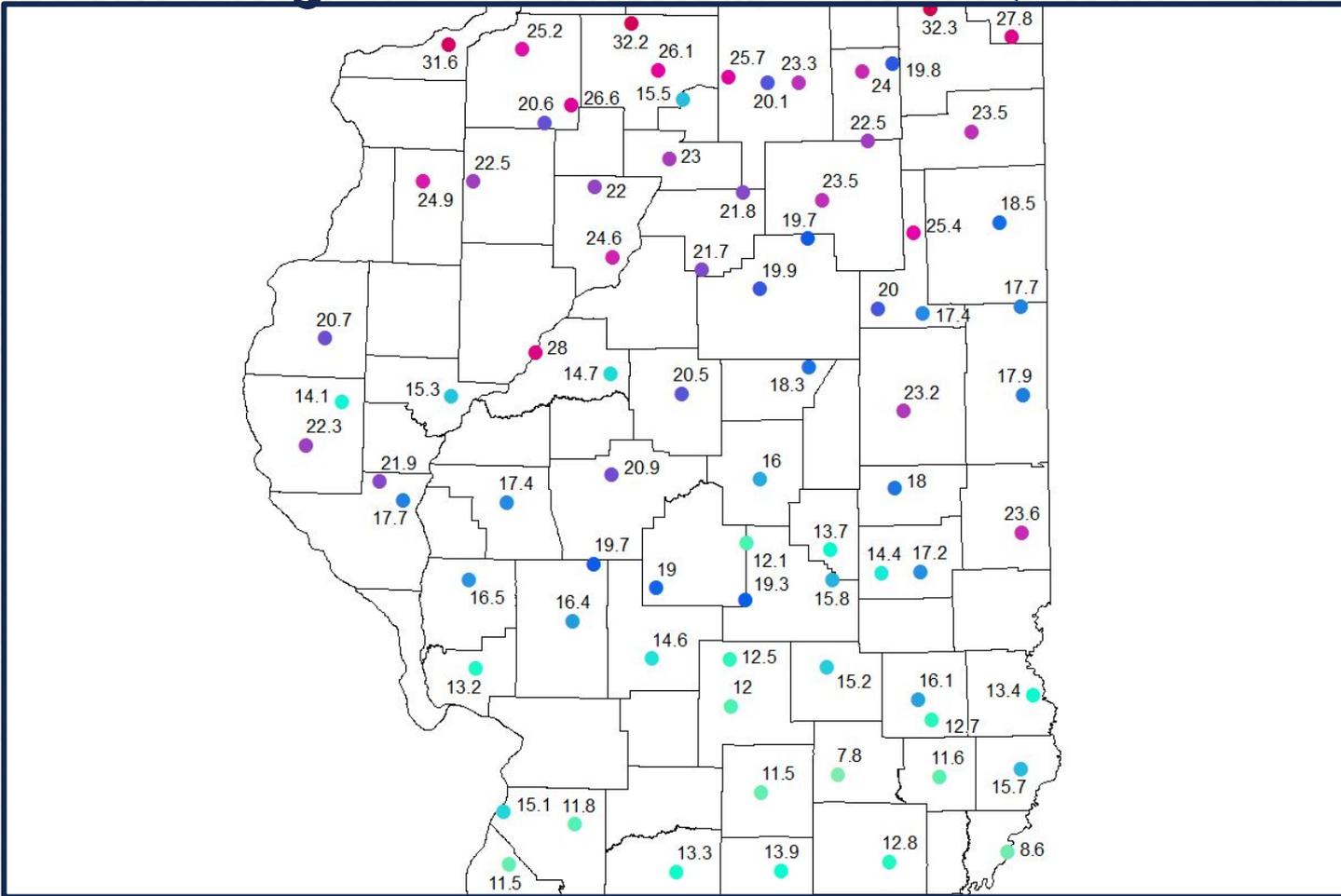


Here are the 5 snowiest winters on record:

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)



# Official Winter 2023-24



## Outlook





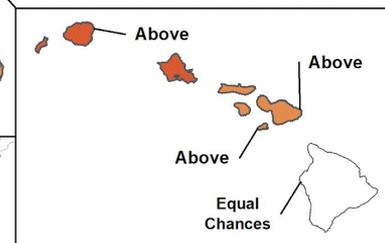
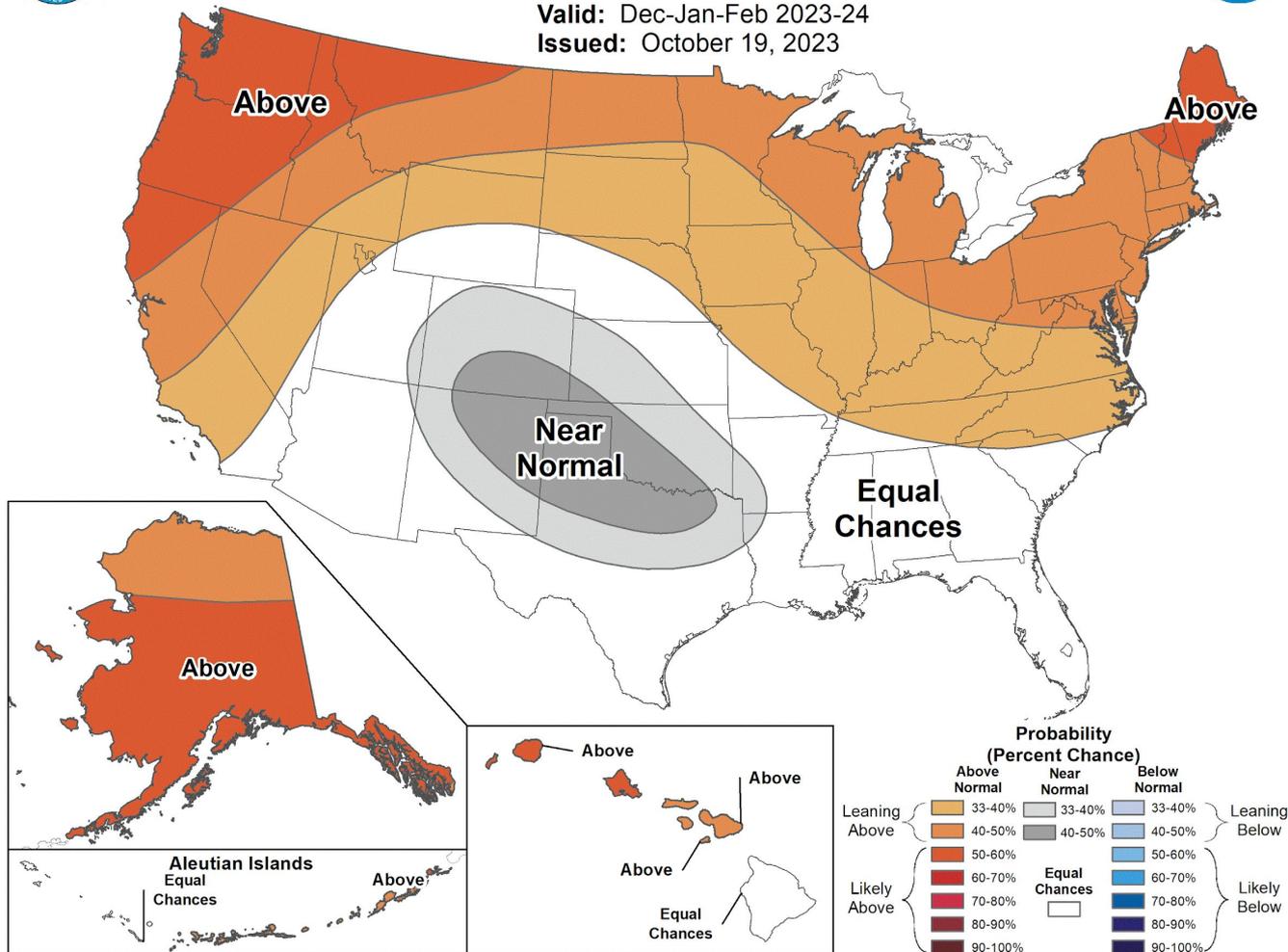
# Seasonal Temperature Outlook



Valid: Dec-Jan-Feb 2023-24

Issued: October 19, 2023

Temperature outlook:  
Leaning Above Normal



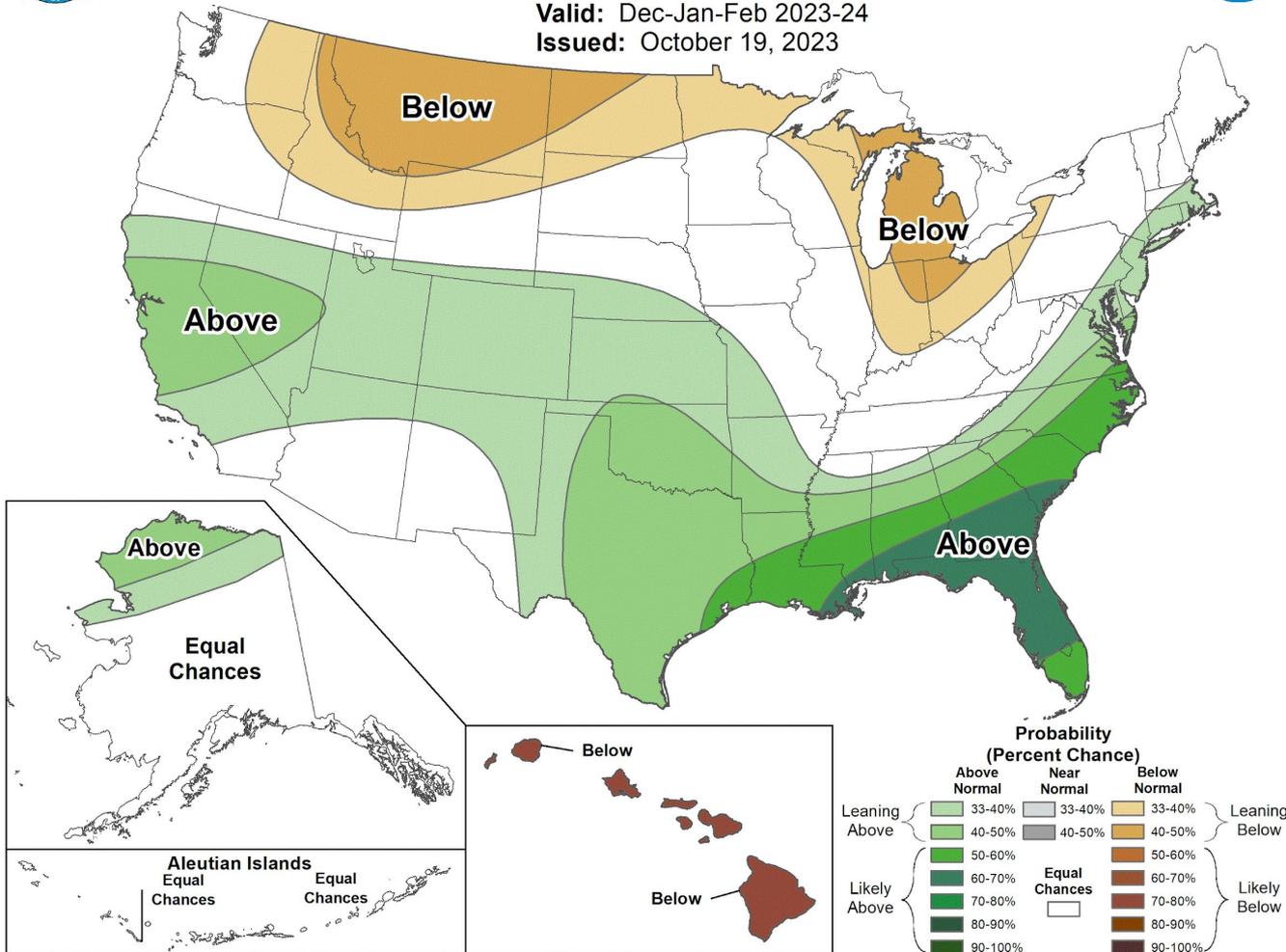


# Seasonal Precipitation Outlook



Valid: Dec-Jan-Feb 2023-24

Issued: October 19, 2023



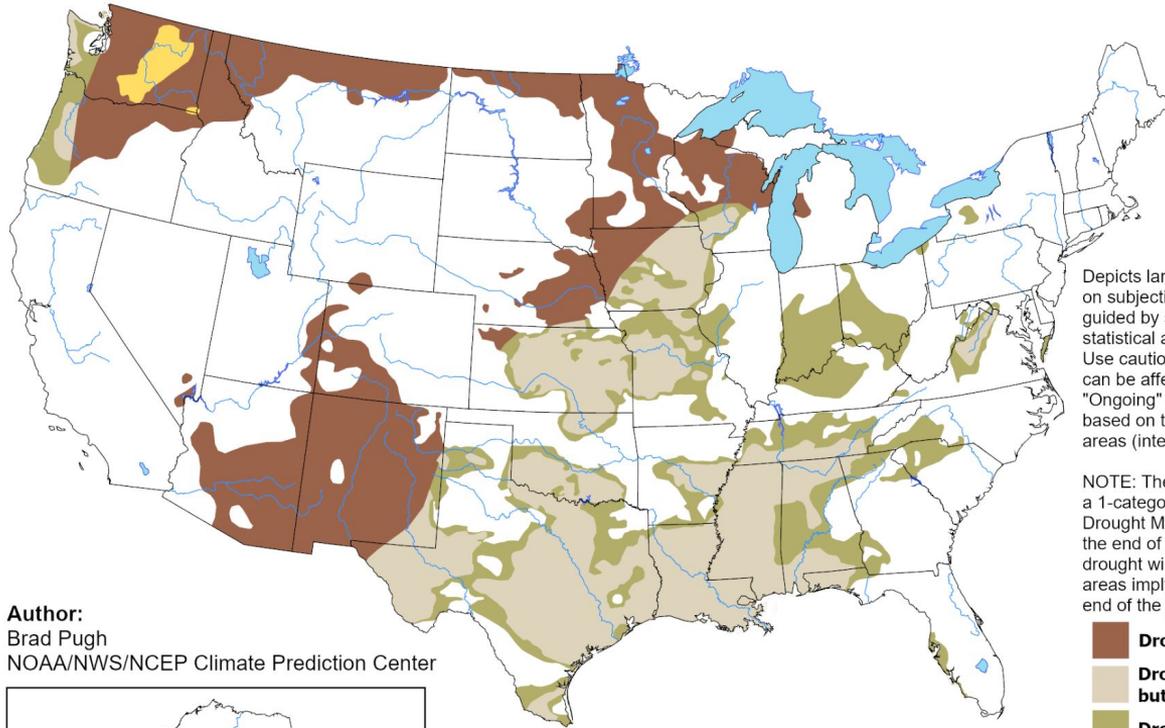
Precipitation outlook:  
Equal Chances of  
Above-Below-Near Normal

*\*below normal lingers just east  
of Central IL\**

# U.S. Seasonal Drought Outlook

## Drought Tendency During the Valid Period

Valid for October 19, 2023 - January 31, 2024  
Released October 19, 2023



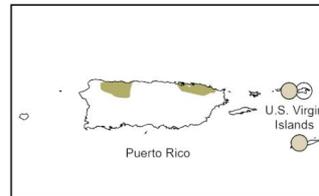
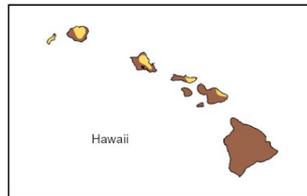
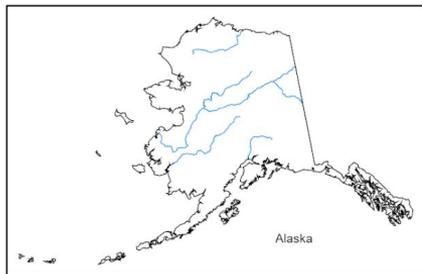
Depicts large-scale trends based on subjectively derived probabilities guided by short- and long-range statistical and dynamical forecasts. Use caution for applications that can be affected by short lived events. "Ongoing" drought areas are based on the U.S. Drought Monitor areas (intensities of D1 to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

**Drought outlook:  
Improvement/removal  
likely**

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<https://go.usa.gov/3eZ73>

# El Niño

& what that means for Central IL



# El Niño/La Niña Basics



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

- \* El Niño: warmer than normal
- \* La Niña: colder than normal

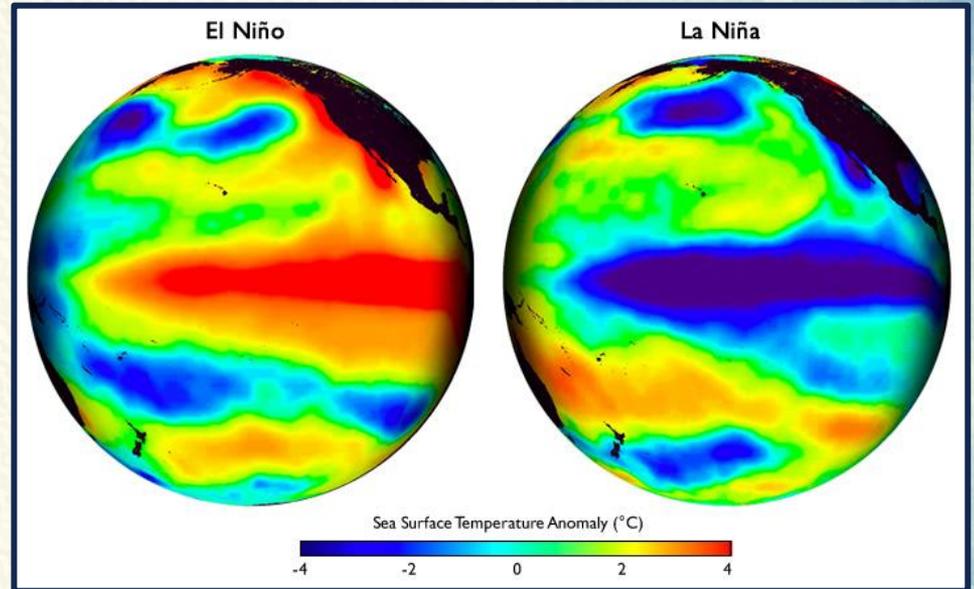


Changes:

- \* Tropical precipitation (locations)
- \* Position and intensity of jet streams
- \* Sea-level pressure distribution
- \* Low-level winds

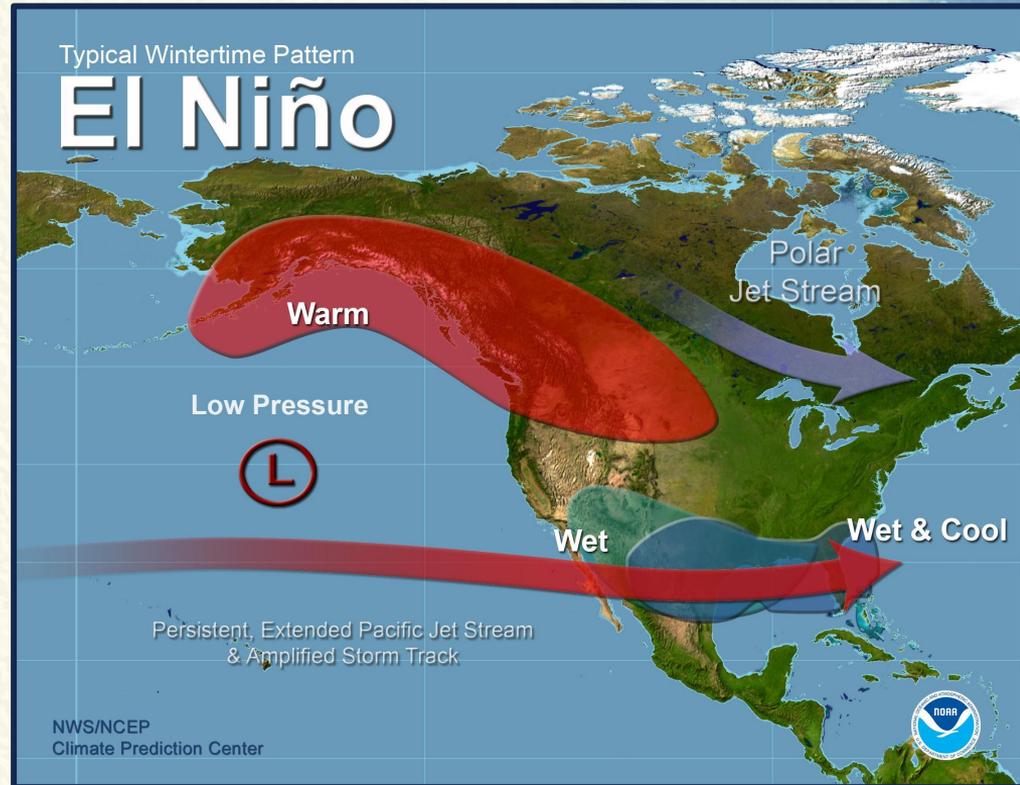


Affects mid-latitude weather patterns, especially in winter



# El Niño Basics

- ☀️ Decreased opportunities for precipitation across the northern U.S.
- ☀️ Increased flow of marine air into western U.S. and decreased northerly flow of cold into U.S., resulting in an increased chance for milder than normal temperatures across the northern U.S. and western Canada



# Conclusions for this winter

- ☀ Moderate to strong El Niño likely for winter 2023-2024 (84% chance). (56% chance of strong El Niño)
- ☀ Odds slightly favor below normal winter precipitation in central/SE IL
- ☀ Odds slightly favor above normal winter temperatures in central/SE IL



# Thanks

Do you have any questions?

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