CLICKABLE LINKS TO THE DESIGNATED PRODUCTS ARE AVAILABLE ON SOME SLIDES

Potential Snow and Hazardous Cold January 23rd-25th (Friday-Sunday)

National Weather Service
Springfield, MO

Snow Possible - Hazardous Cold Likely

January 20, 2026
6:17 AM

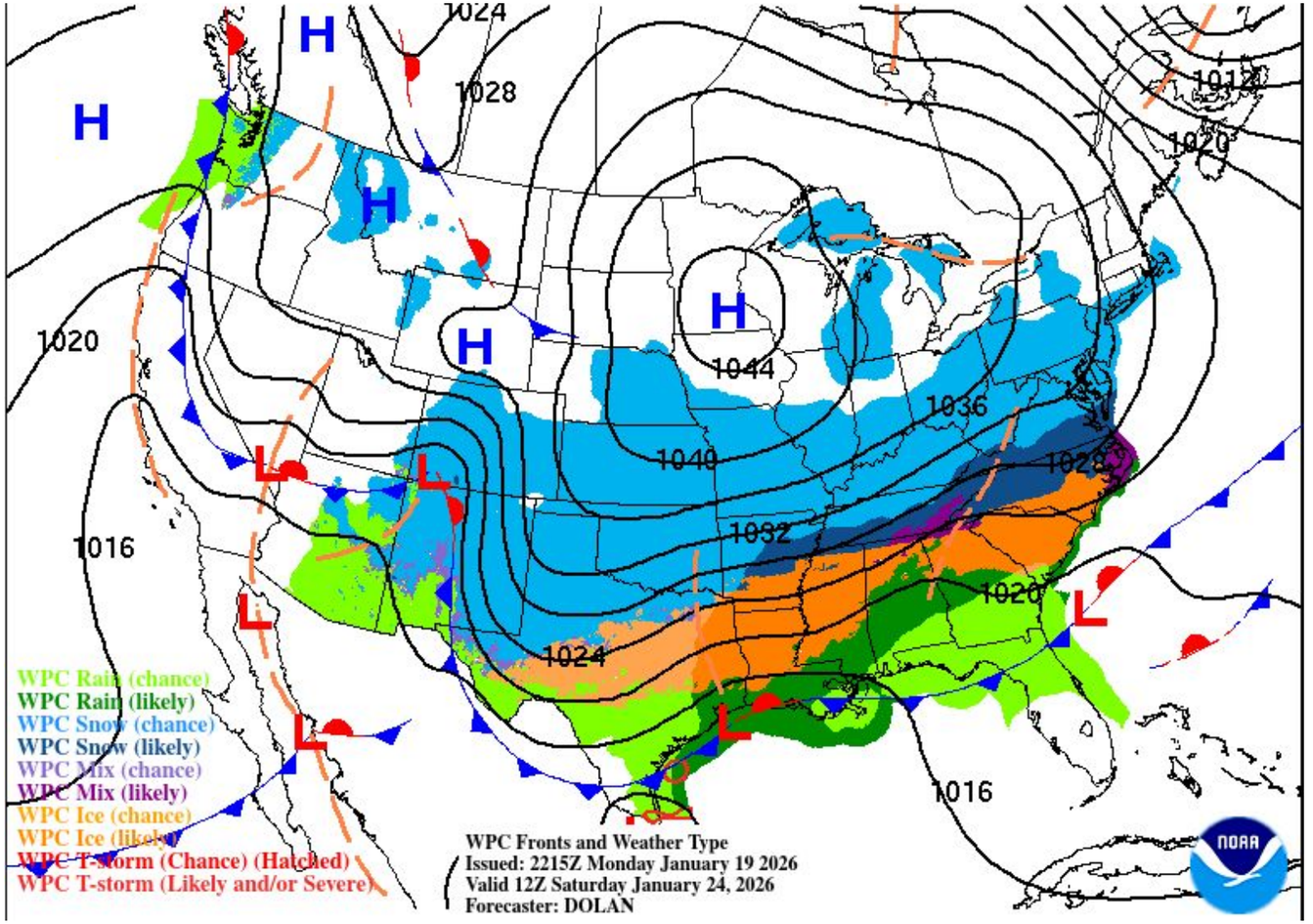
Beginning Friday, with cold lasting through Sunday, potentially longer

What we know so far:

- An expansive system is forecast to overspread much of the southern and eastern U.S. Friday through Sunday.
- Confidence is increasing in any precipitation that occurs to be in the form of snow.
  - Expect general winter weather driving conditions at some point during the weekend (70-90% chance of at least minor impacts).
- Greater confidence in hazardous cold weather conditions. Chances are high (60-80% chance) for at least single digit low temperatures and below zero wind chills.

Remaining Uncertainties (Mainly Snow Related):

- The exact track and strength of the system is still uncertain, resulting in low confidence in snow amounts.
- Two **main** scenarios that hinge on the evolution of an eastern Pacific closed low.
  - One scenario could mean little to no snow for our area, the other scenario could mean greater accumulations.
- Magnitude of low temperatures also in flux based on system evolution.

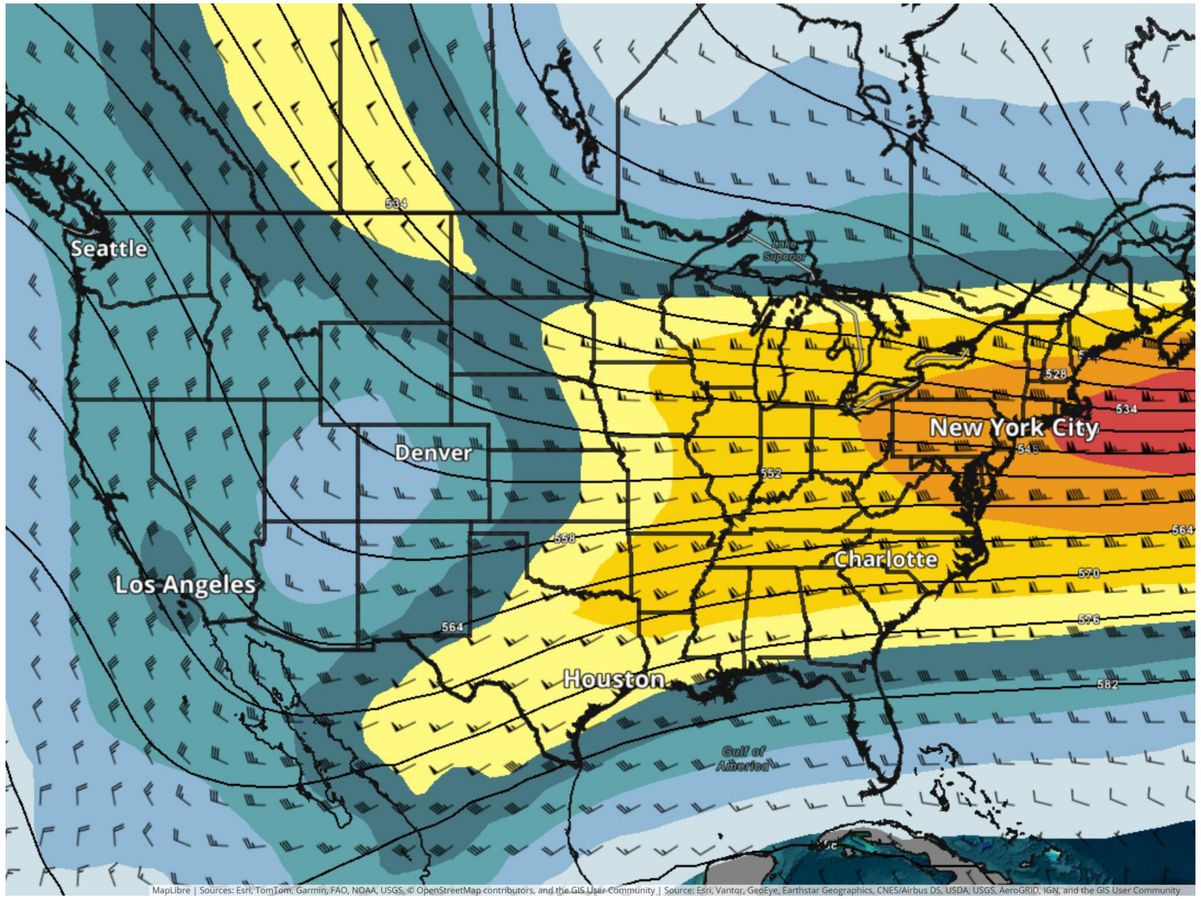


Forecast for 6 AM Saturday

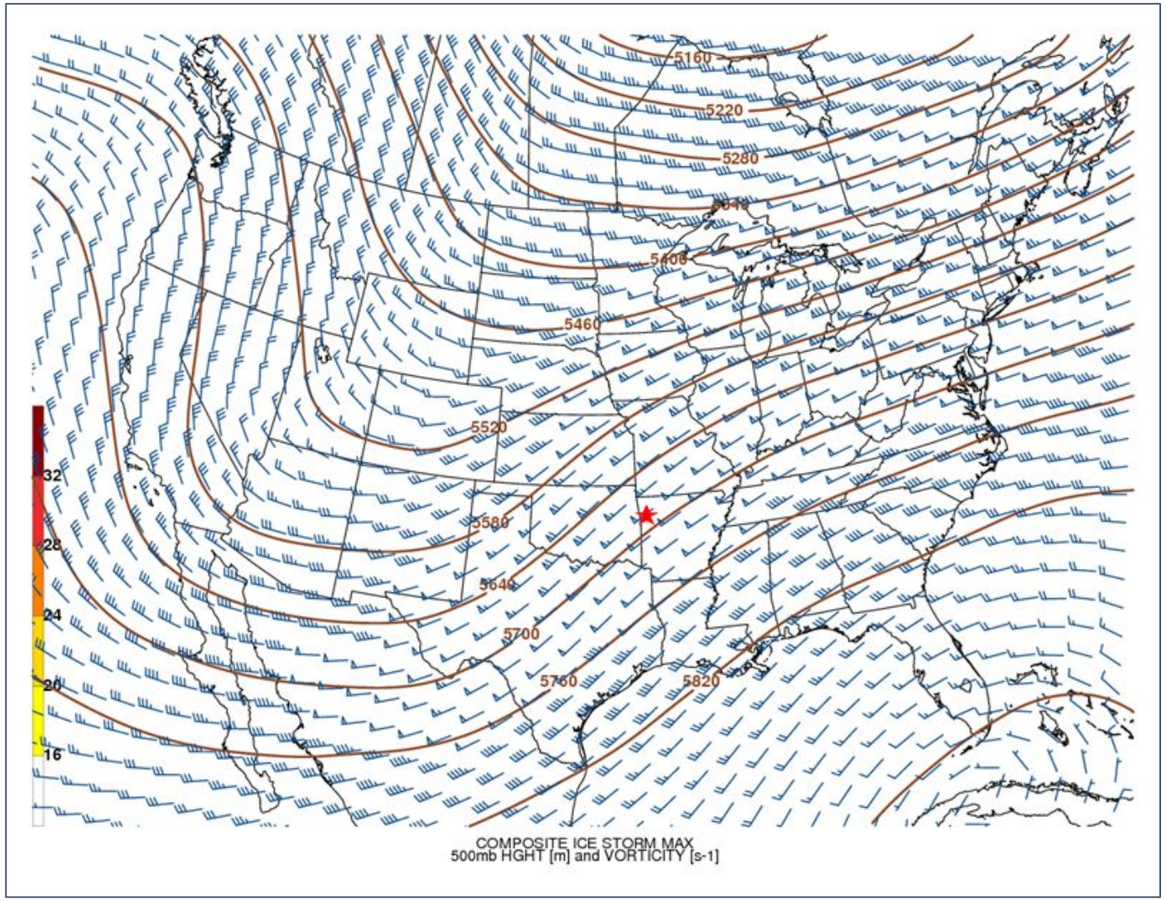
Upper-Level Pattern Climatology

January 20, 2026
6:17 AM

Upper-level pattern shows some aspects of matching ice storm climatology



[1/24 @ 12PM: LREF Mean 500mb Heights/Winds]



Ozarks Ice Storm Climatology: 500 mb Heights/Winds

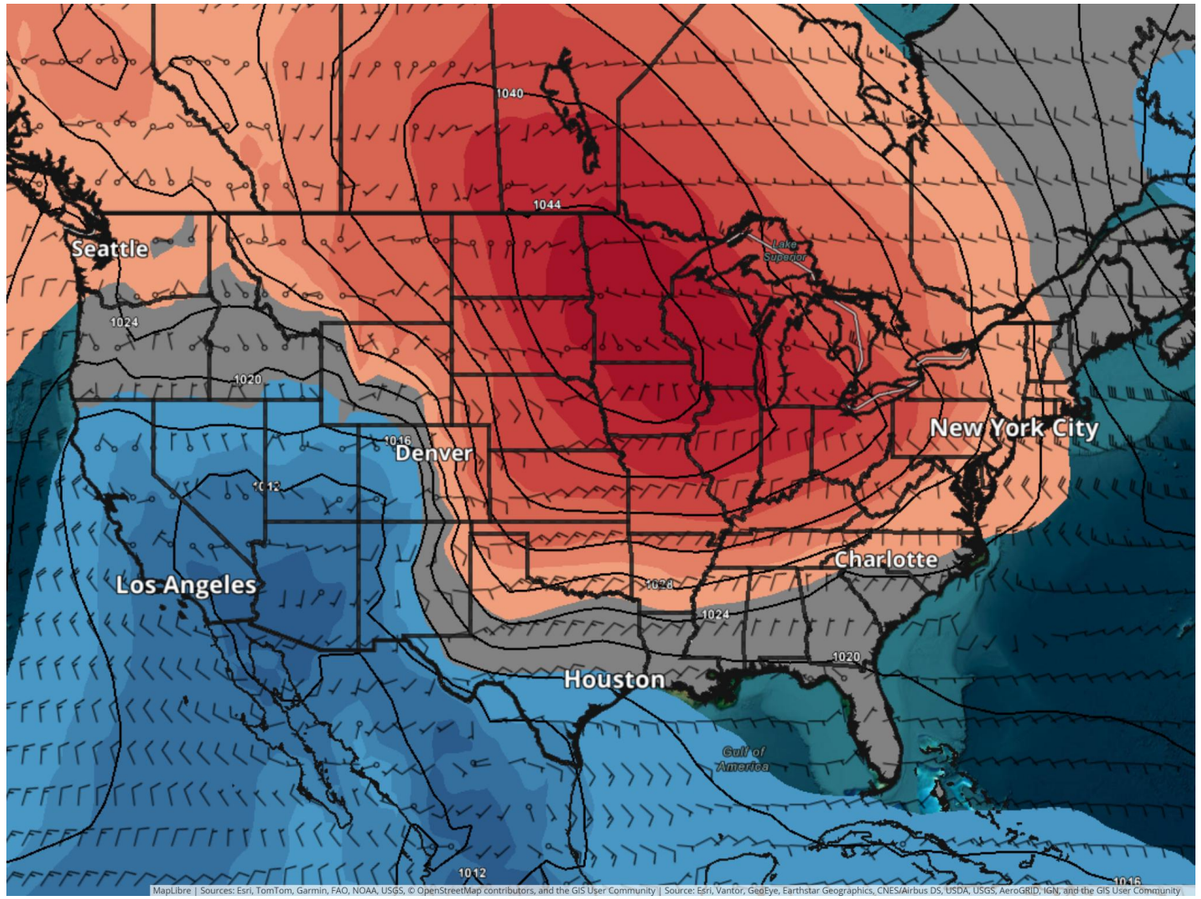
Key Point:

- ➔ The ice storm climatology matches a bit better with the positively-tilted trough off to the west.
- ➔ The forecast depicts more zonal flow aloft than the climatology would like to see.

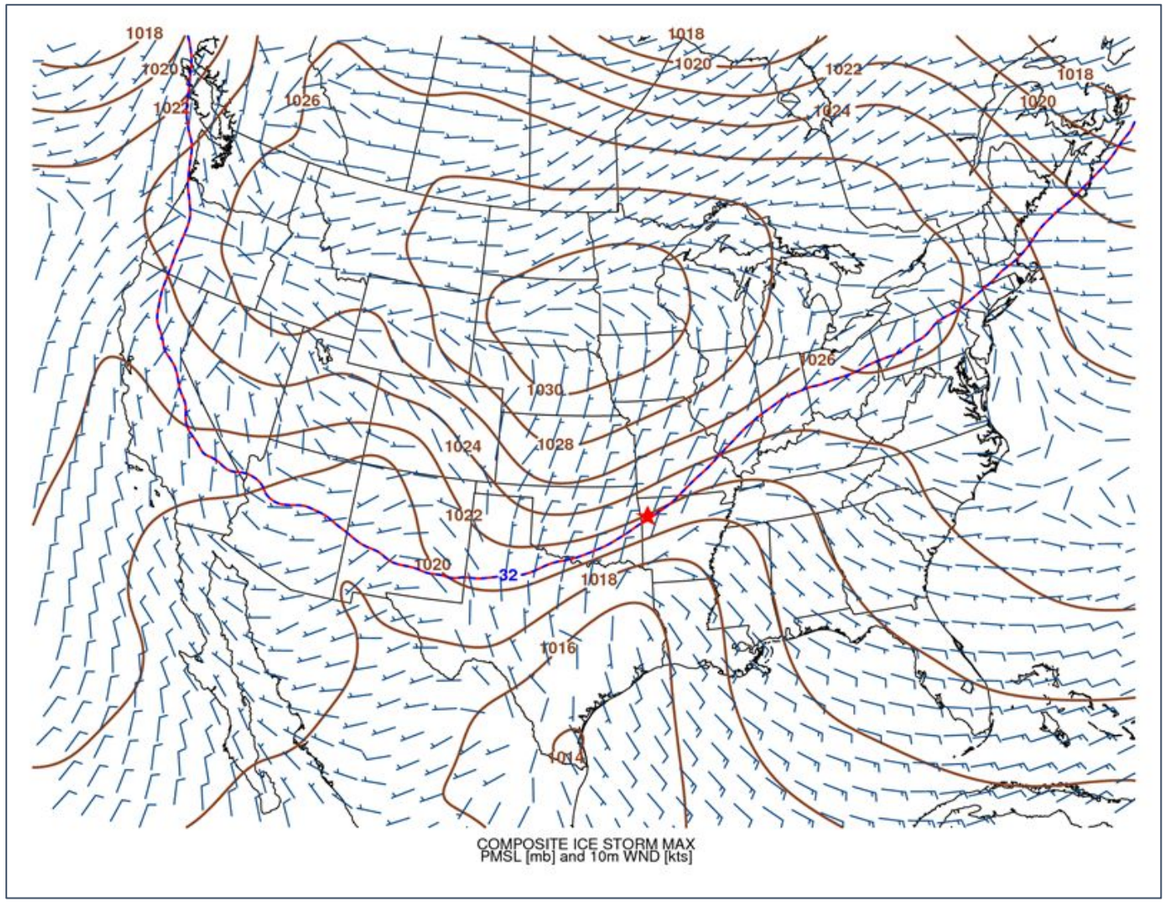
Surface Pattern Climatology

January 20, 2026
6:17 AM

Surface pattern also loosely matches with ice storm climatology



[1/23 @ 6PM: LREF Mean MSLP/Winds]



Ozarks Ice Storm Climatology: MSLP/Winds

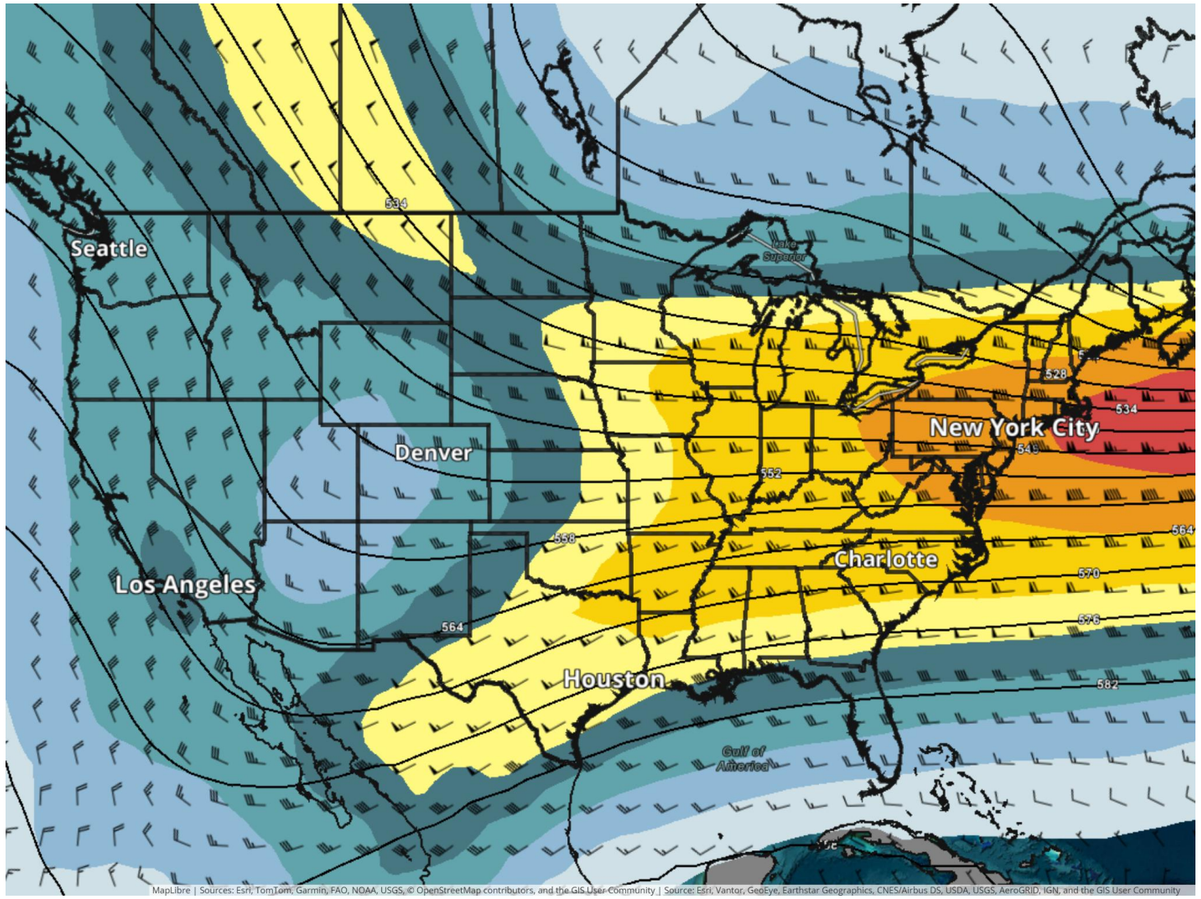
Key Point:

- ➔ Surface pattern with the Arctic High also loosely matches ice storm climatology.
- ➔ Main difference is an elongated center and flatter/more south pressure gradient. **This is important for the forecast going forward**

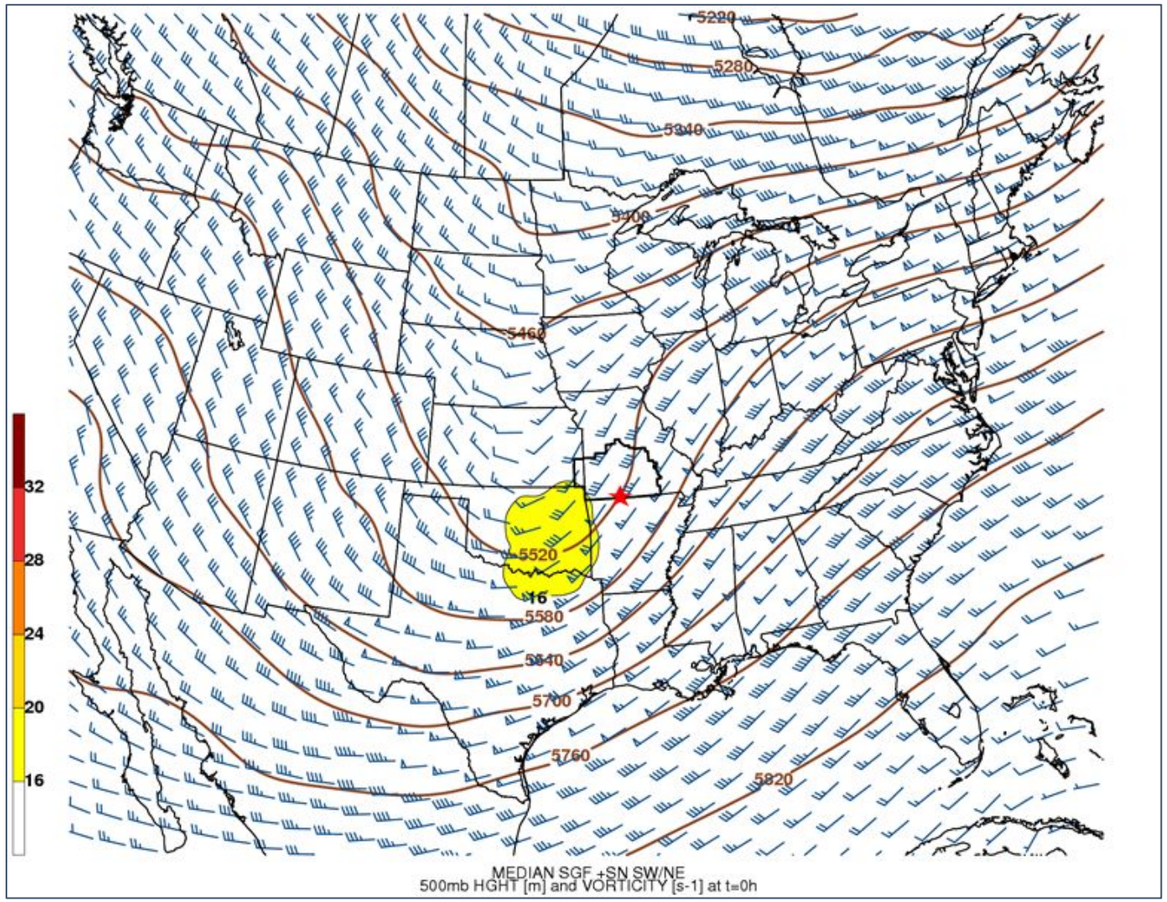
Climatology Mismatch

January 20, 2026
6:17 AM

Upper-level pattern does not match heavy snow climatology



[1/24 @ 12PM: LREF Mean 500mb Heights/Winds]



Ozarks Heavy Snow Climatology: 500 mb Heights/Winds

Key Point:

- ➔ The heavy snow climatology is less of a match with the forecast. Snow is expected but may lean toward the lighter side.
- ➔ The surface pattern also does not match, but will choose not to show to save space :)

What Makes This Different?

January 20, 2026
6:17 AM

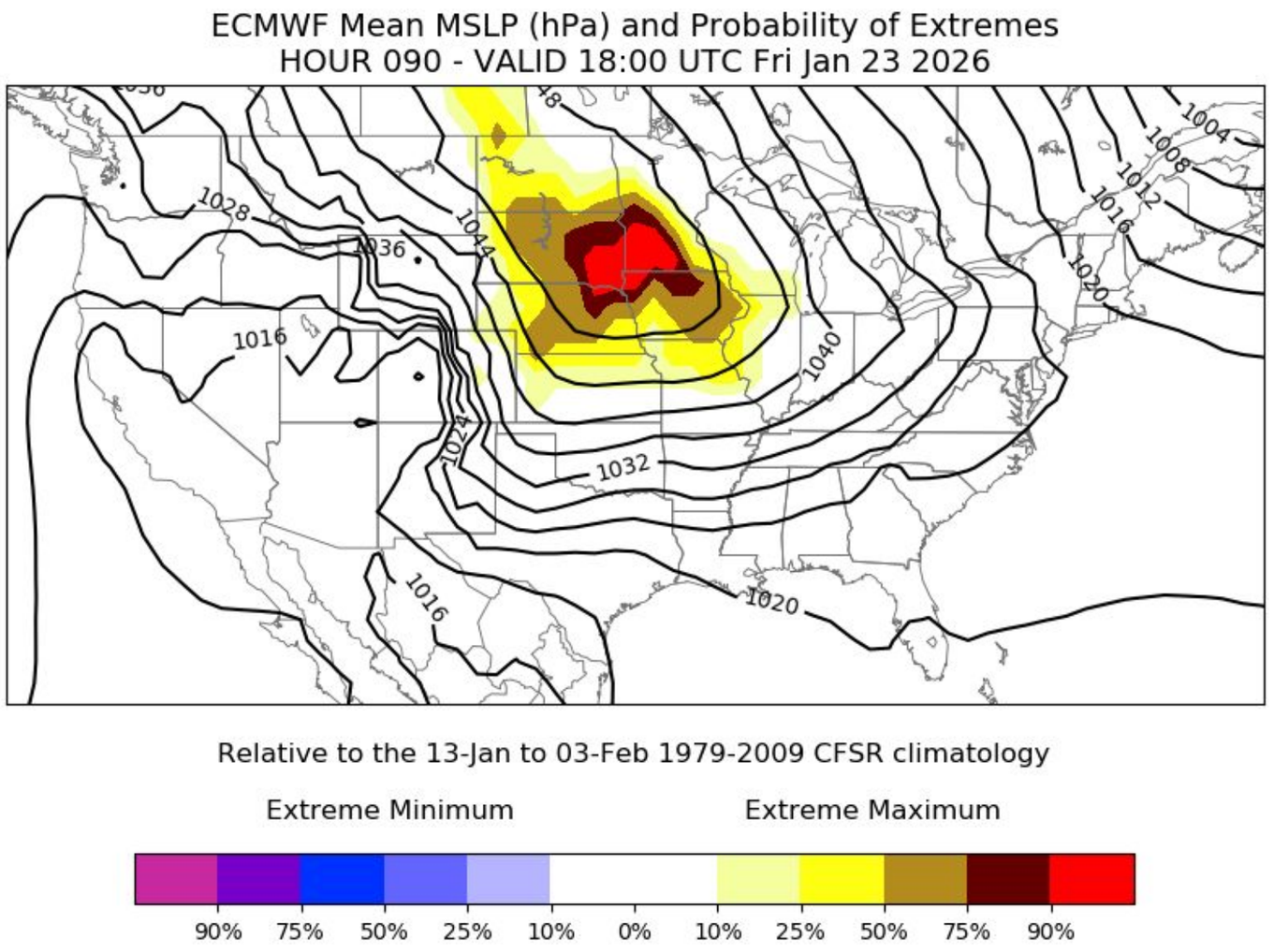
Climatologically anomalous Arctic High suppresses ice storm to the south

Key Points:

- Comparing the climatology to the current forecast, the main differences that pop out are an anomalously strong Arctic high.
  - The strength of the high pushes the pressure gradient and temperature gradient/baroclinic zone further south, resulting a further south jet streak.
  - This pushes freezing rain southward, leaving snow for southeast Kansas/southwest Missouri.

- In fact, 96% of ENS members and ~50% of GEFS members forecast a surface high pressure higher than any 30-year climatology reforecasts for late January.

- This very strong Arctic high will push hazardous cold into the region.



1/23 @ 12 PM: ECMWF ESAT Probability of “Extreme” MSLP

Track Uncertainty: Two Main Scenarios

January 20, 2026
6:17 AM

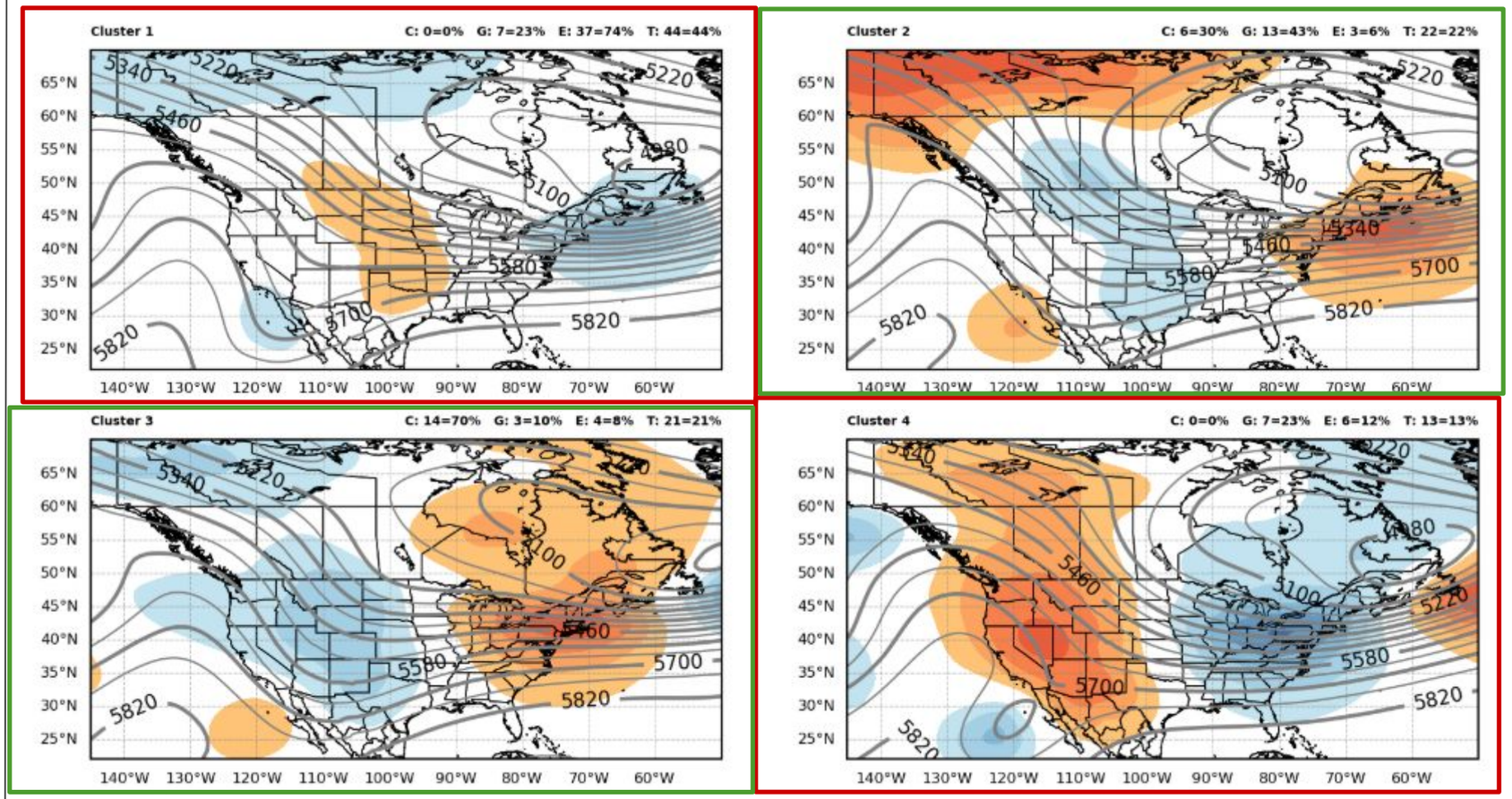
Track and amounts depends heavily on evolution of Arctic wave and Eastern Pacific closed low

Key Points:

- With general pattern now favoring snow, main uncertainty is in track and exact amounts.

- Ensemble clusters are shown on the right.
  - Clusters are ensemble members grouped together based on similar forecasted patterns.
  - Blue colors are lower heights from the mean, orange colors are higher heights from the mean

- These show two main scenarios:
  - Red: Weaker phasing of the Eastern Pacific closed low (more detached).
  - Green: Stronger phasing of the closed low (resulting in stronger wave).



1/23 @ 6 PM to 1/24 @ 6 PM: Cluster Mean 500 mb Height Differences

Scenarios Affecting Snow Amounts

January 20, 2026
6:17 AM

Track and amounts depends heavily on evolution of Arctic wave and Eastern Pacific closed low

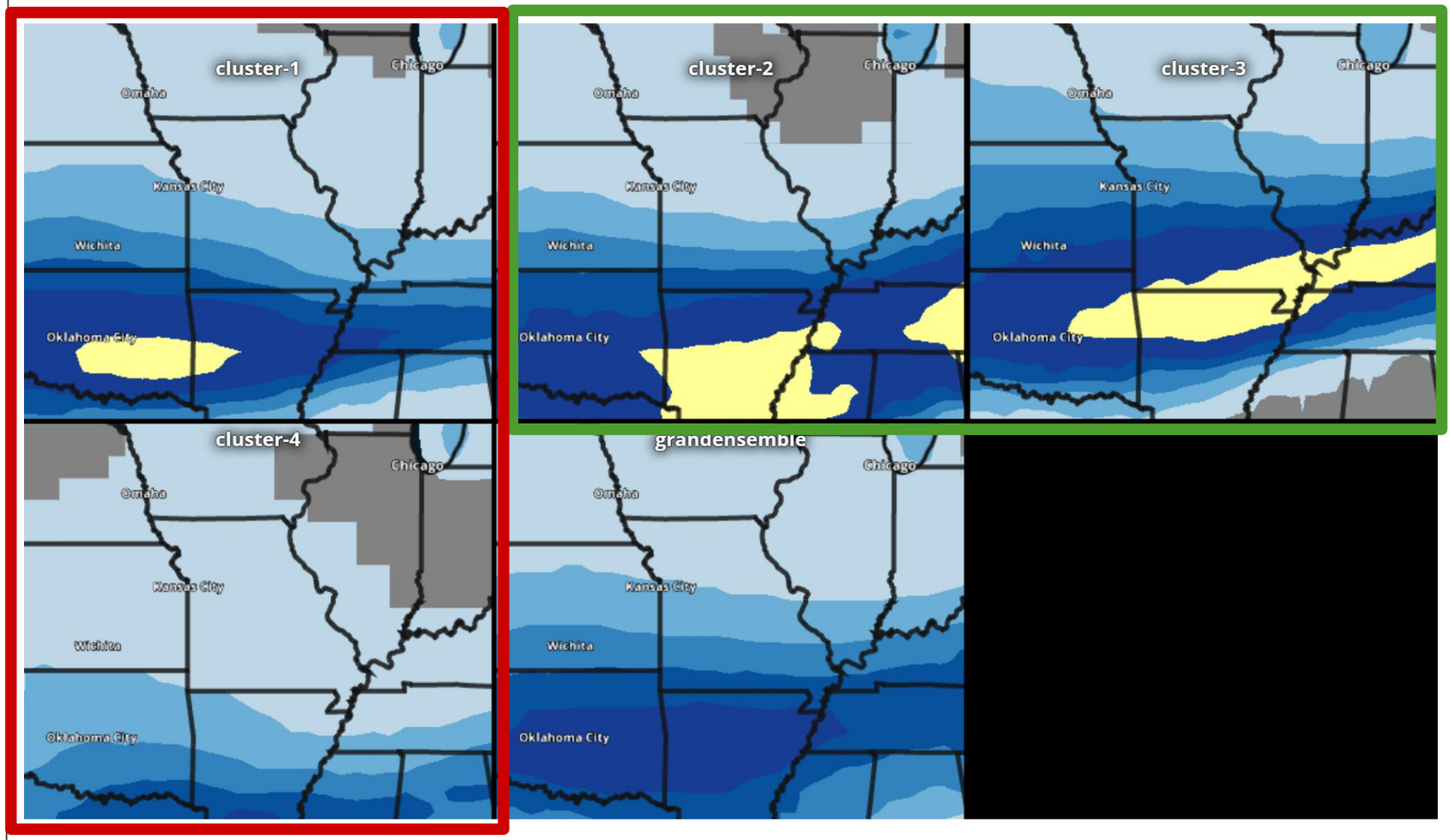
Key Points:

- Results of two main scenarios:
  - Red: Weaker phasing of the Eastern Pacific closed low (more detached).
  - Green: Stronger phasing of the closed low (resulting in stronger wave).

- Notice how the stronger phasing of the low/wave scenario (Green) results in greater forecast snow amounts and a more northern track.

- A weaker phasing could lead to a much further south track with little to no snow over the area

- **NOTE:** The amounts shown are based on 10:1 Snow-Liquid Ratios (SLRs). SLRs will likely be different than shown.



[1/24 @ 6 PM: Cluster Mean 24-Hour Snowfall Accumulation 10:1]

Additional Uncertainty Notes

January 20, 2026
6:17 AM

Ensemble mean tracks will likely fluctuate between now and Friday

Key Points:

- ➔ Eastern Pacific closed lows traversing into the southwest U.S. are notoriously difficult for models to resolve due to poor sampling over the ocean, as well as the track being sensitive to small fluctuations in atmospheric dynamics.

- ➔ Therefore, expect even ensemble means to shift shift north and/or south between now and then as each run attempts to resolve the evolution of the closed low/Arctic wave. This leads to low confidence in any particular scenario.
  - ◆ For example, a weaker phase could lead to a more suppressed southerly track with no snow. Or, if the closed low ejects much slower, the event could be more prolonged leading to greater amounts.

- ➔ Other micro sources of uncertainty could also stem from the evolution of the Arctic high. *If it's impinging far enough south, we could see a sharp precipitation gradient where there's a short distance between no snow and lots of snow.*

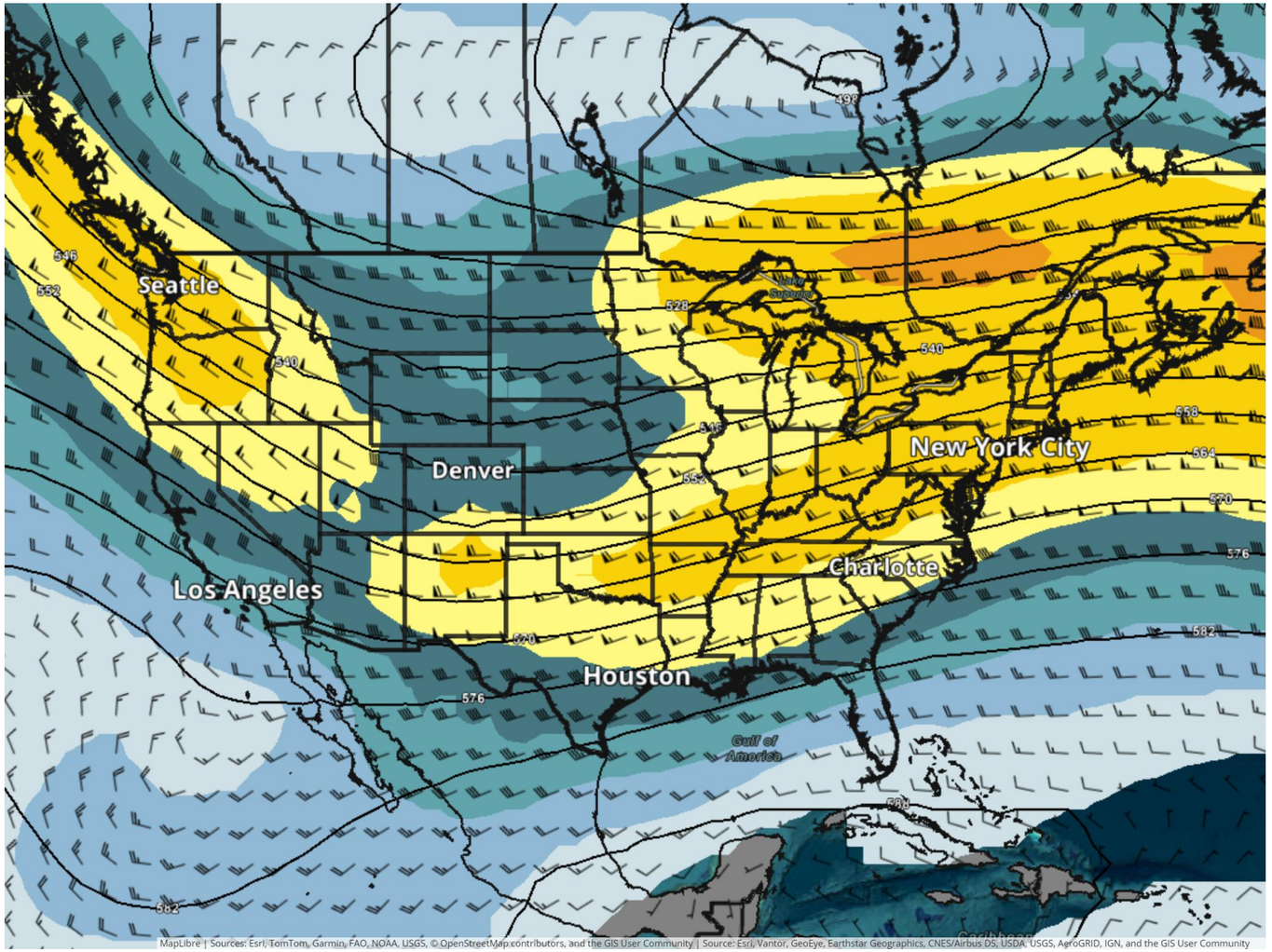
A Note on New AI Models

January 20, 2026
6:17 AM

More research and evaluation is needed to confirm hypotheses…

Key Points:

- A few days ago, AIGEFS/AIGFS were showing a much further north storm track while dynamic models started trending south
- NOAA/NWS research has shown that the AIGEFS has provided comparable, and in some cases better, forecast skill to GEFS.
- However, AI models are trained on past datasets. Theoretically, this means they may have a more difficult time latching onto climatologically anomalous events since they've never "seen" events like this before.
  - The AIGEFS forecasted a much weaker Arctic high
- The latest 00Z AI models have now trended much further south, aligning with dynamic models' initial forecasts

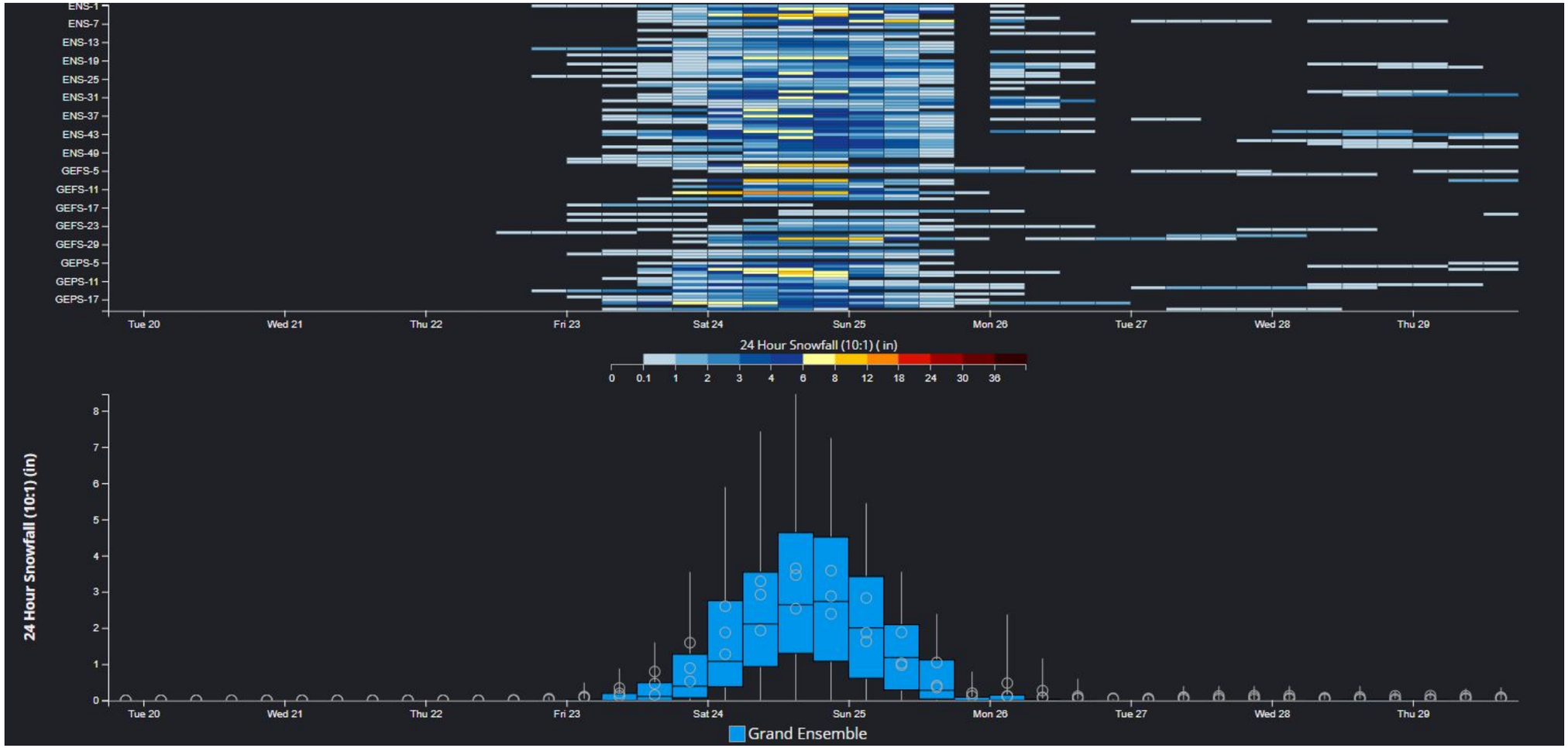


1/24 @ 12 PM: AIGEFS (1/18 00Z Run) 500mb Heights/Winds

Scenarios Affecting Snow Amounts

January 20, 2026
6:17 AM

Most models show at least some snow for the Ozarks



Key Points:

- ➔ With the latest 00Z LREF run, 97 out of 100 members produce at least a little bit of snow to the area. **But the mean track can still shift**
- ➔ A 10th-90th percentile range of 0-8 inches (which is 0-12 inches with 15:1 SLRs) means any scenario could pan out.

ECMWF Extreme Forecast Index

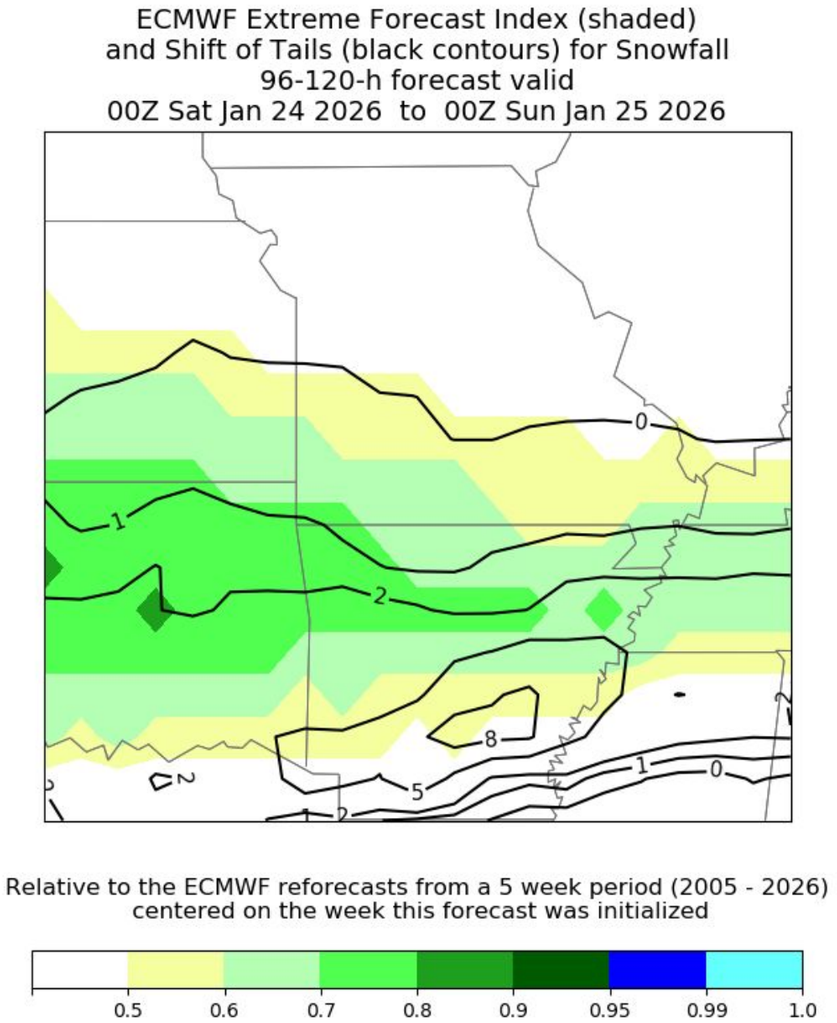
January 20, 2026
6:17 AM

Potential for anomalous snowfall event in southern Missouri and southeast Kansas

Key Points:

- On the right depicts the ECMWF Extreme Forecast Index (EFI) for snow. The shading shows the percent of ECMWF members that are above the climatology distribution of snow reforecasts for late January. Generally, 0.5-0.8 signify a potentially anomalous event.
  - The contours show a “shift of the tail” which essentially corresponds to members showing extreme solutions. An EFI Shift of Tail of 8 in Arkansas means there are a few models showing extreme snowfall accumulations relative to Arkansas climatology for late January.

- Essentially, this shows the potential for an anomalous snow even in southern Missouri, but the better chance for very high snow amounts is to our south.



[1/23 @ 6 PM to 1/24 @ 6 PM: ECMWF Extreme Forecast Index]

Winter Storm Severity Index

January 20, 2026
6:17 AM

There is medium-high confidence in at least minor impacts from snow

Probabilities of Reaching Minor Impact Threshold Saturday and Saturday Night

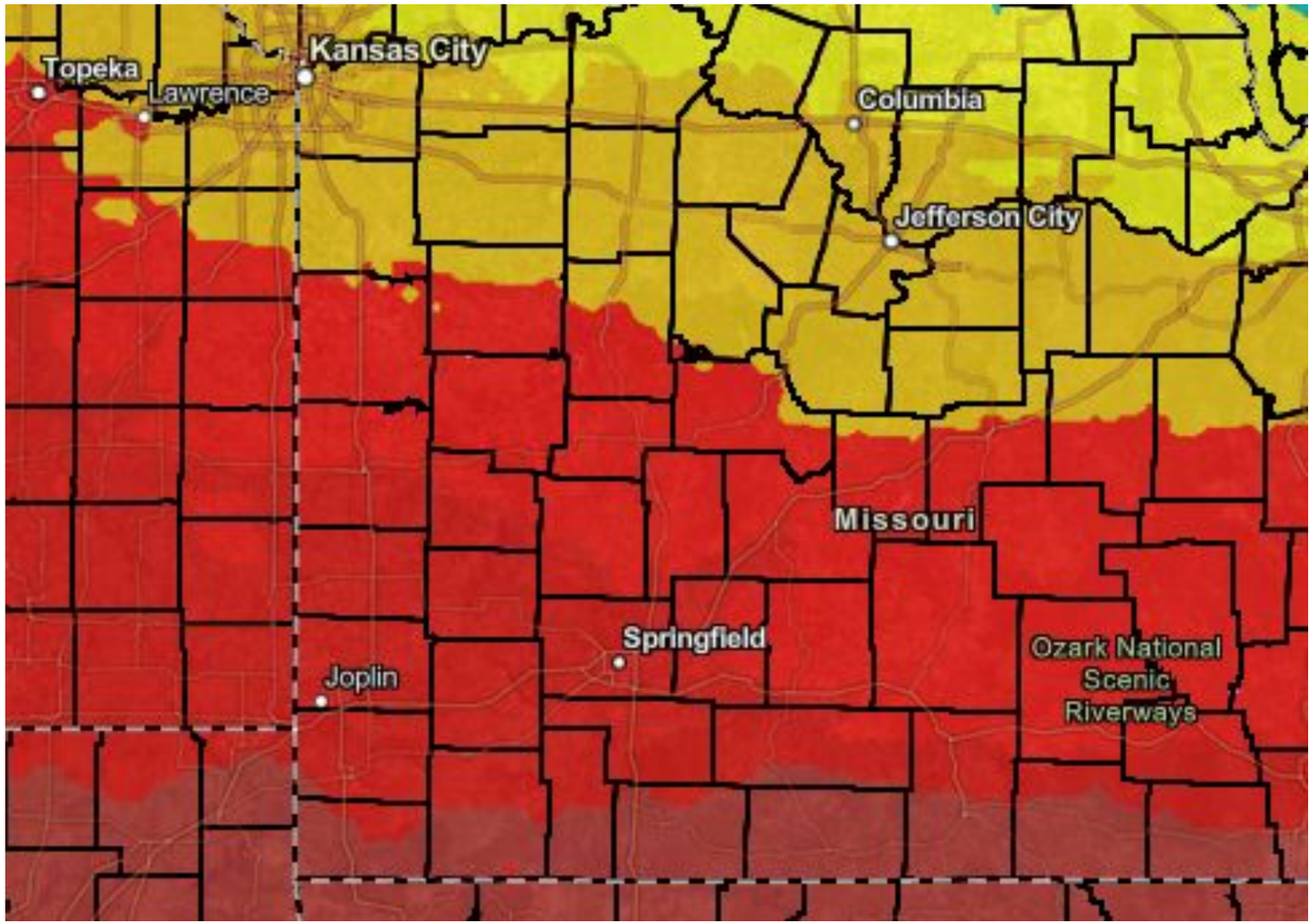
LIMITED IMPACTS
Typically results in little inconveniences.

MINOR IMPACTS
Typically results in an inconvenience to daily life.

MODERATE IMPACTS
Typically results in disruptions to daily life.

MAJOR IMPACTS
Will likely result in major disruptions to daily life.

EXTREME IMPACTS
Results in extreme disruptions to daily life.



Likelihood of Impact

< 5% | 5% | 10% | 20% | 30% | 40% | 50% | 60% | 70% | 80% | 90% | > 95%

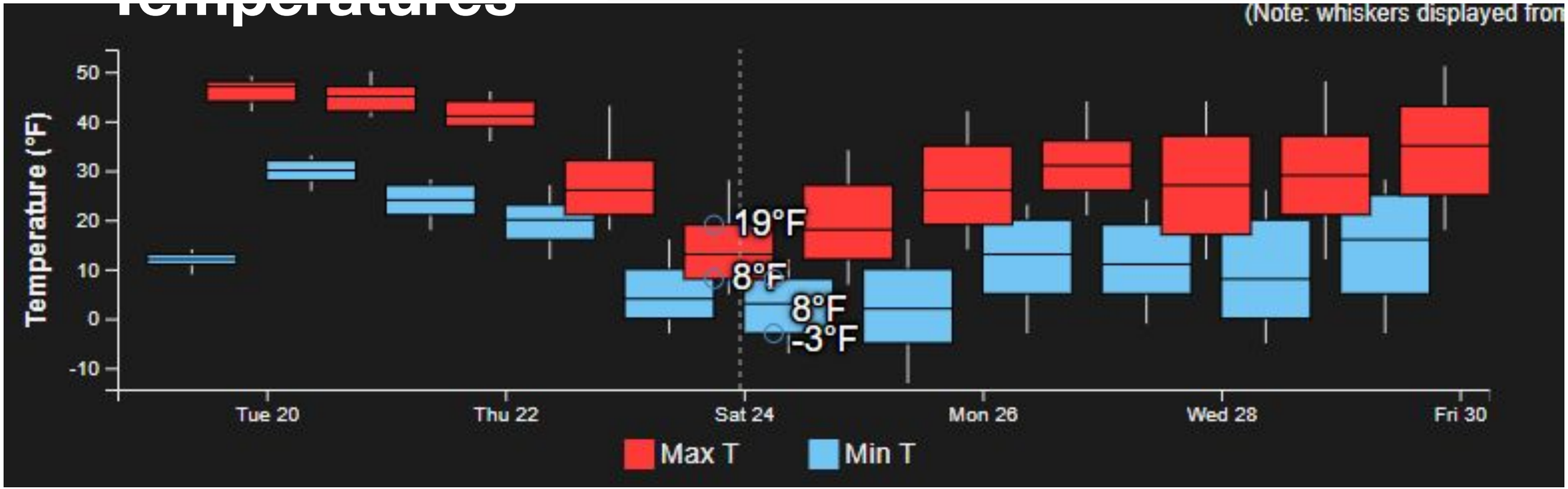
National Oceanic and Atmospheric Administration
U.S. Department of Commerce

National Weather Service
Springfield, MO

Range of Potential Cold

January 20, 2026
6:17 AM

Still a large spread in potential temperatures



[NBM Max and Min Temperature Spreads]

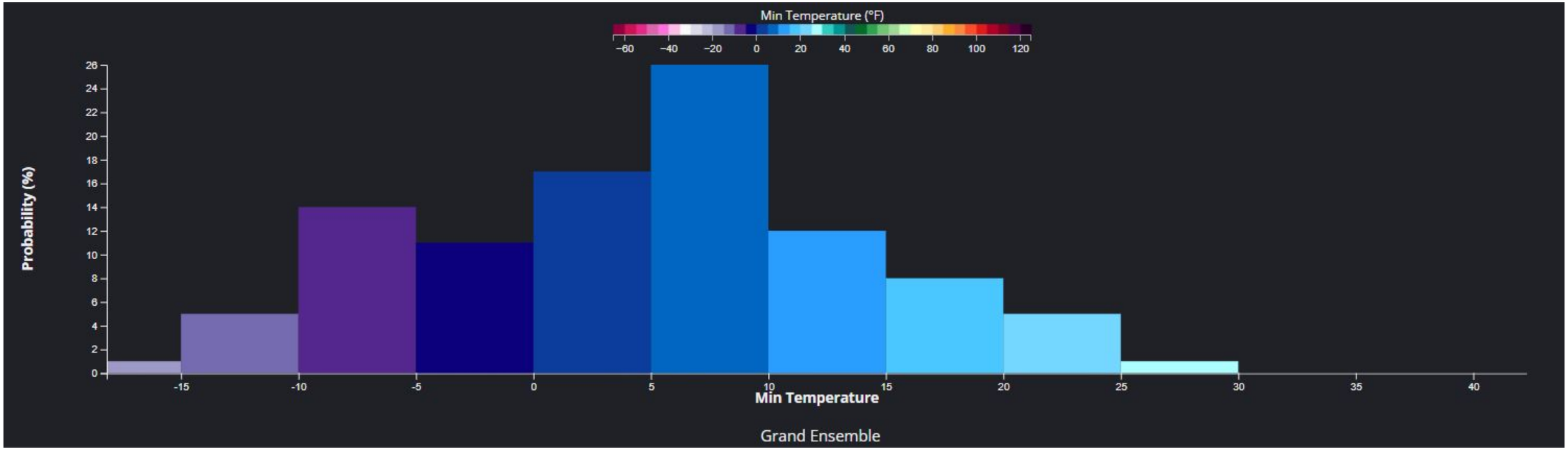
Key Points:

- ➔ NBM interquartile spreads show potential for single digit highs and negative lows, potentially for multiple days.
  - ◆ But the spread ranges anywhere from highs between 5 and 25 F, and lows between -5 and 15 F
  - ◆ The large spread is due to remaining uncertainty and system and high pressure track

Histogram of Temperatures

January 20, 2026
6:17 AM

Minimum temperature for Sunday night into Monday morning



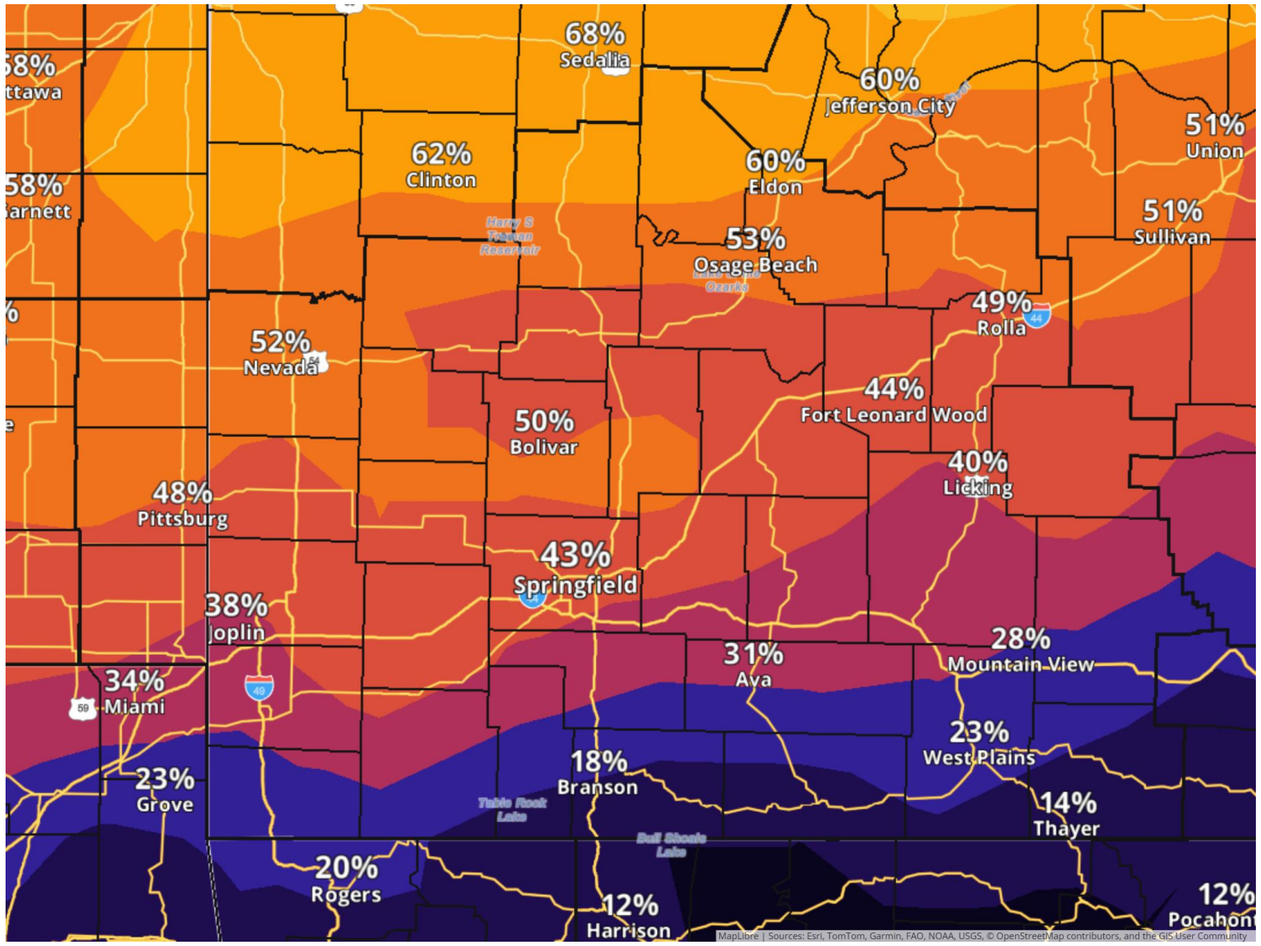
Key Points:

- ➔ LREF histogram of forecasted temperatures from each member.
  - ◆ Very high spread, but certainly a good bunch of models below 0 F.

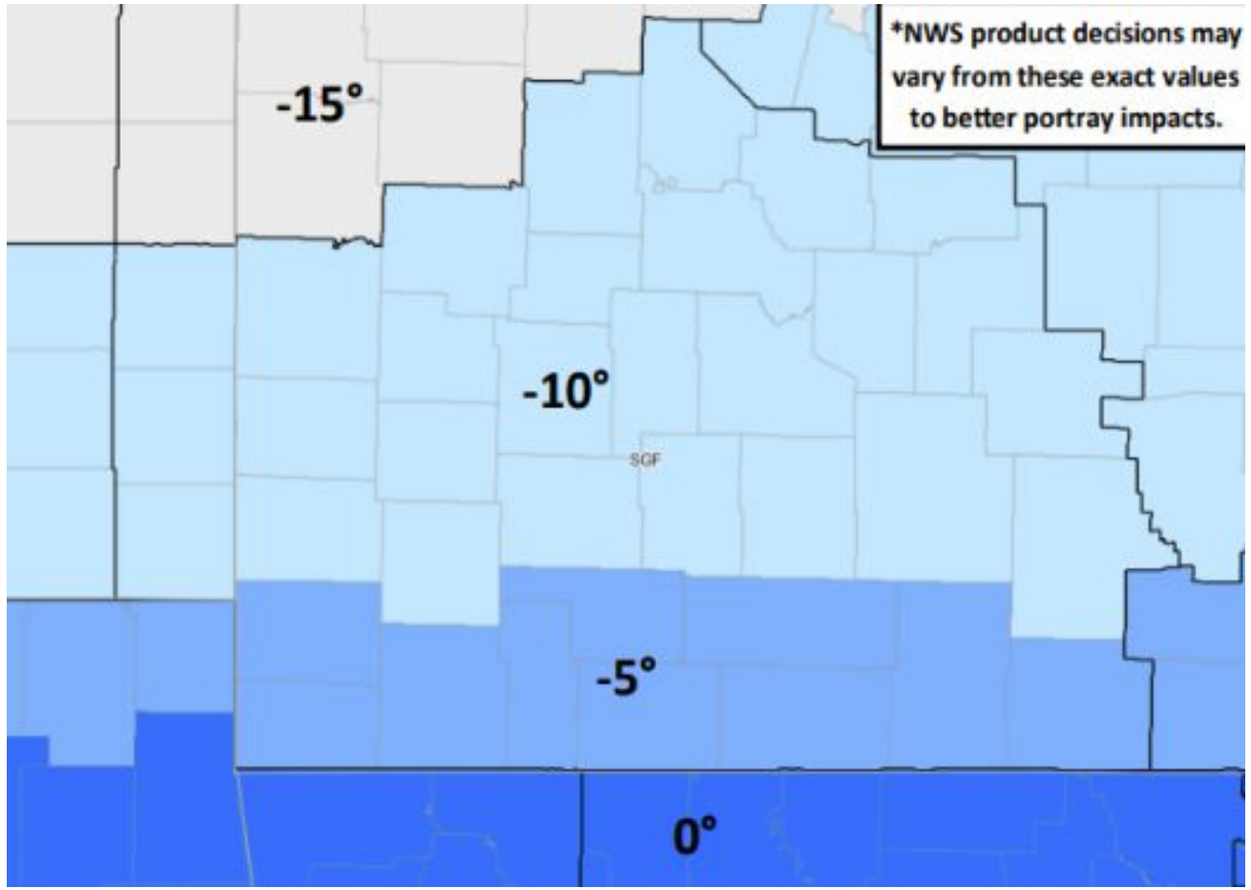
Probability of Cold Weather Advisory

January 20, 2026
6:17 AM

Friday night into Sunday morning



LREF Probability of <-10 F Wind Chills



SGF Cold Weather Advisory Criteria (Temps or Wind Chills)

National Oceanic and Atmospheric Administration
U.S. Department of Commerce

National Weather Service
Springfield, MO

Summary

January 20, 2026
6:17 AM

At least some snow expected; Hazardous cold expected

- ➔ While most models depict some snow for the area, north and southward shifts in the models are still possible as we move forward, especially with the anomalous nature of the forecast.
- ➔ Two main scenarios exist for the track of the system and subsequent snowfall amounts. Expect fluctuations to continue!
- ➔ More research and evaluation is still needed, but AI is generally trained well on events within climatological bounds.
- ➔ Despite a wide range in temperatures, hazardous cold is still expected with a 30-60% chance of reach Cold Weather Advisory criteria at least one of the days this weekend.

Additional Resources

January 20, 2026
6:18 AM

- WPC Probabilistic Winter Precipitation Guidance
- WPC EXPERIMENTAL Probabilistic Precipitation Portal (PPP)
- North American Ensemble Forecast System Situational Awareness Table
- ECMWF ENS Precipitation Type Meteogram
- ECMWF Extreme Forecast Index and Shift of Tails
- WPC Cluster Analysis
- GEFS Probability Plots
- GFS Atmospheric Rivers
- Weather in Context Tool (WPC)
- NBM Records
- Short Range Ensemble Forecast (SREF-SPC)
- Warn on Forecast (WoFS) Seasonal Only
- High Resolution Ensemble Forecast (HREF-SPC)
- HREF Version 3
- SREF Plume Viewer
- NBM Text Bulletins

Please Contact Us with Any Questions!

NWS Springfield Information

weather.gov/springfield

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