JANUS RESEARCH GROUP

Arctic Oscillation and Polar Vortex Analysis and Forecasts

January 26, 2026

Dr. Judah Cohen from Atmospheric and Environmental Research (AER) embarked on an experimental process of regular research, review, and analysis of the Arctic Oscillation (AO) and Polar Vortex (PV). This analysis is intended to provide researchers and practitioners real-time insights on one of North America's and Europe's leading drivers for extreme and persistent temperature patterns.

During the winter schedule the blog is updated once every week. Snow accumulation forecasts replace precipitation forecasts. Also, there is renewed emphasis on ice and snow boundary conditions and their influence on hemispheric weather. In late Spring, we transition to a spring/summer schedule, which is once every two weeks. Snow accumulation forecasts will be replaced by precipitation forecasts. Also, there will be less emphasis on ice and snow boundary conditions and their influence on hemispheric weather.

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The AO/PV blog is partially supported by NSF grant AGS: 1657748

Summary

- The Arctic Oscillation (AO) is currently negative and is predicted to remain negative the next two weeks as pressure/geopotential height anomalies across the Arctic are currently mostly positive and are predicted to remain mostly positive the next two weeks. The North Atlantic Oscillation (NAO) is currently negative with positive pressure/geopotential height anomalies dominant across Greenland, and the NAO is predicted to remain negative the next two weeks as pressure/geopotential height anomalies are predicted to remain mostly positive across Greenland the next two weeks.
- Ridging/positive geopotential height anomalies across Greenland will support troughing/negative geopotential height anomalies across Europe the next two weeks. This pattern will favor a near classical negative NAO pattern with normal to below normal temperatures across Northern Europe with including the United Kingdom (UK) normal to above normal temperatures across Southern Europe the next two weeks. However in early February strengthing Greenland blocking will pull the cold air west into the UK.
- The general pattern across Asia the next two weeks is ridging/positive geopotential height anomalies stretching from Greenland to across the Eurasian sector of the Arctic including Eastern Siberia supporting troughing/negative geopotential height anomalies across much of Northern Asia with more ridging mostly confined to Central Asia. This pattern favors widespread normal to below normal temperatures across much of Northern Asia with

normal to above normal temperatures across Eastern Siberia and most of Southern Asia including the Tibetan Plateau. A transient trough this week will also bring below normal temperatuers to southwest Asia.

- The general pattern across North America the next two weeks is ridging/positive geopotential height anomalies across Alaska, Western Canada and the Western United States (US) will support deep troughing/negative geopotential height anomalies across eastern Canada and the Eastern US. This patten will support the next two weeks widespread normal to below normal temperatures stretching across parts of Canda and Eastern US with normal to above normal temperatures across Alaska, Western Canada and the Western US.
- I have been discussing how the polar vortex (PV) can walk through three doors and therefore the weather. I have favored "rinse, lather, repeat" or door number three but door number two is increasingly likely. My thoughts below.

Plain Language Summary

So far this winter, cold temperatures have dominated northern Scandinavia, parts of Eastern Europe, much of Russia, Alaska, much of Canada and the Northeastern US (see **Figure**). In contrast mild temperatures have dominated Western and Southern Europe, Western, Central and Eastern Asia, Eastern Siberia, Northeast Canada and much of the US (see **Figure**). The forecast for the next two weeks can be summarized as widespread cold both across Northern Eurasia including Europe and eastern North America thanks to impressive high-laittude blocking (see **Figures 3, 6** and **9**). The polar vortex (PV) has so far this winter been ping ponging between circular and strong, which favors relatively mild temperatures mostly in North America and Asia and stretched or more elongated that favors cold temperatueers in East Asia and eastern North America. I am still riding the "rinse, lather, repeat" PV and weather pattern into early February. Basically, alternating stretched PVs (cold) and relaxation to a more circular PV (mild). We have one stretched PV ongoing currently and another one for early February. A bigger polar vortex disruption is possible that could result in a different pattern, which I discuss below in more detail.

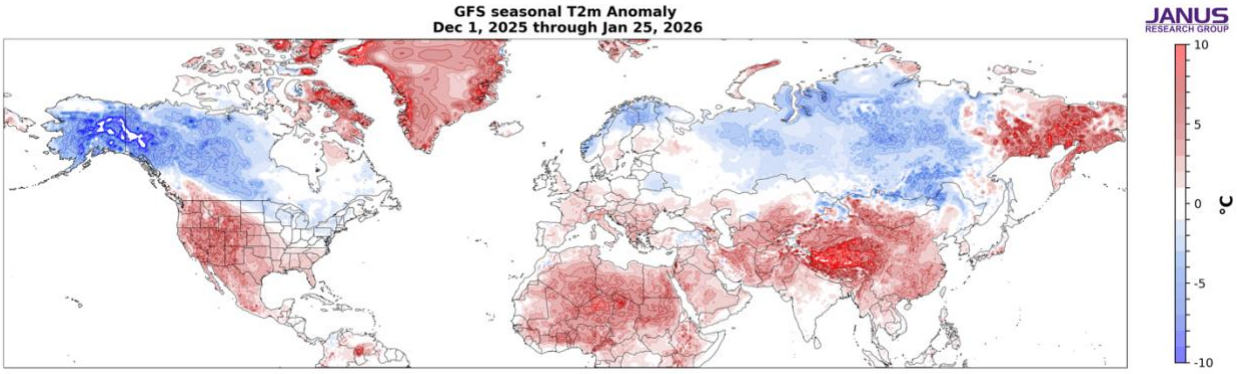

Figure. Estimate of the observed surface temperatures (°C; shading) from 01 Dec 2025 to 25 Jan 2026 based on GFS initializations and the GFS forecast from the 26 Jan 2026 run.

Impacts

Last week I discussed the bountiful snow in Japan and Kamchatka and the dearth of snow in Europe and esepcailly the US. Well this weekend did a lot to erase deficits here in the Eastern US. I certainly can attest to that. I show the snowfall from this storm in **Figure i**. It is impressively widespread and has resulted in the most widespread positive snow cover anomaly in the entire Northern Hemisphere (NH; not shown). It will also help to further cool the US in the coming weeks. To all snow lovers in the Eastern US just know that I took one for the team. My snowblower was not working, I dared not get it serviced and I paid the price! The amount of time shoveling led to a delay in posting the blog.

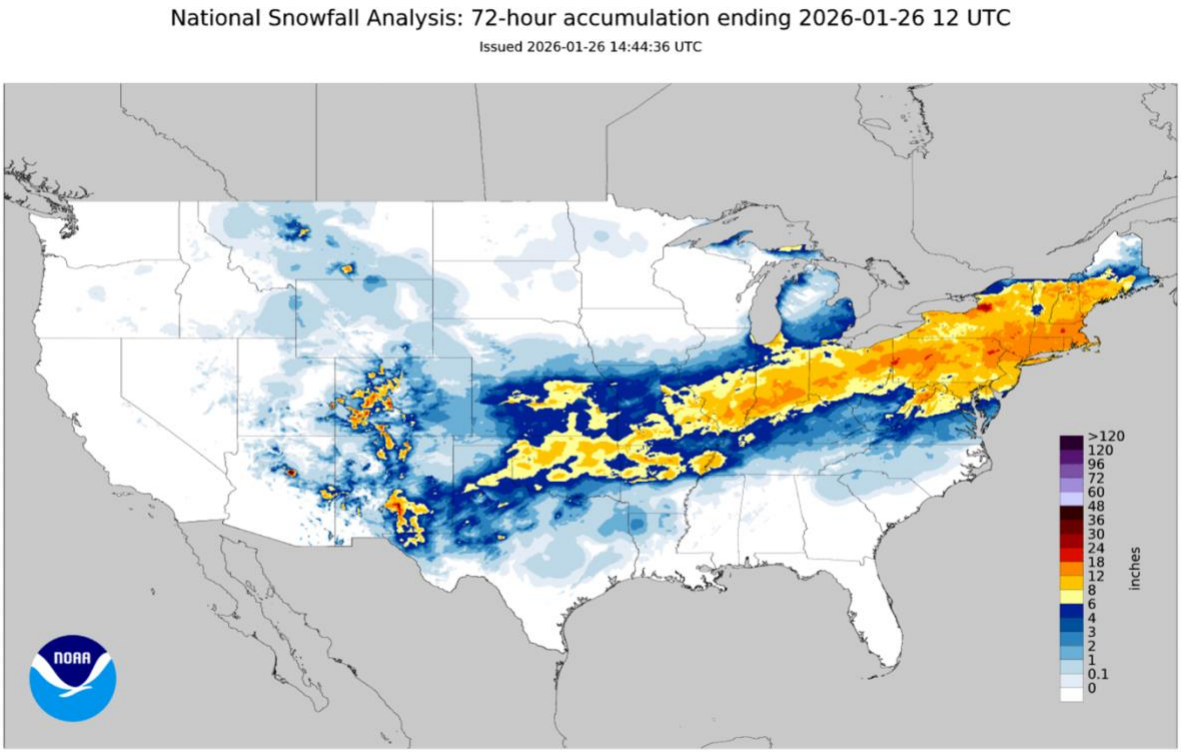

Figure i. 72 hour snowfall in inches through 26 Jan Jan 2026. Plot taken from: https://www.nohrsc.noaa.gov/snowfall_v2/.

As has been habit all winter, I first discuss the two-week forecast for the mid-tropospheric circulation, which helps set the table for what I am expecting with the PV and our weather. However there is no avoiding the 800 pound gorilla in the room and that is a possible polar vortex (PV) split. This seems to be the one PV event that gets weather weenies across the NH most excited, deserved or not. Though I do think that stretched PV s are underappreciated. I do admit that PV splits make for the most dramatic PV animations, and I can watch them all day.

Once again, for most of the two weeks the mid-tropospheric circulation is characterized by low pressure centered near the North Pole and high-pressure ridging floating around the mid- to high-

latitudes (see **Figure ii**). However currently and for much of this week strong high pressure centered over the East Siberian Sea extends to the North Pole splitting any low pressure centers to the coastal waters of the Barents-Kara Seas and the Beaufort Sea. The predicted strong high pressure over the Barents-Kara Seas from two weeks ago never really materialized as predicted. I think this resulted in two changes to the forecast. The first, the cold across Europe was not as extensive as first predicted and two early forecasts of a sudden stratosperhic warming (SSW - defined as a reversal of the wind from westerly to easterly at 60°N and 10 hPa) were at best premature.

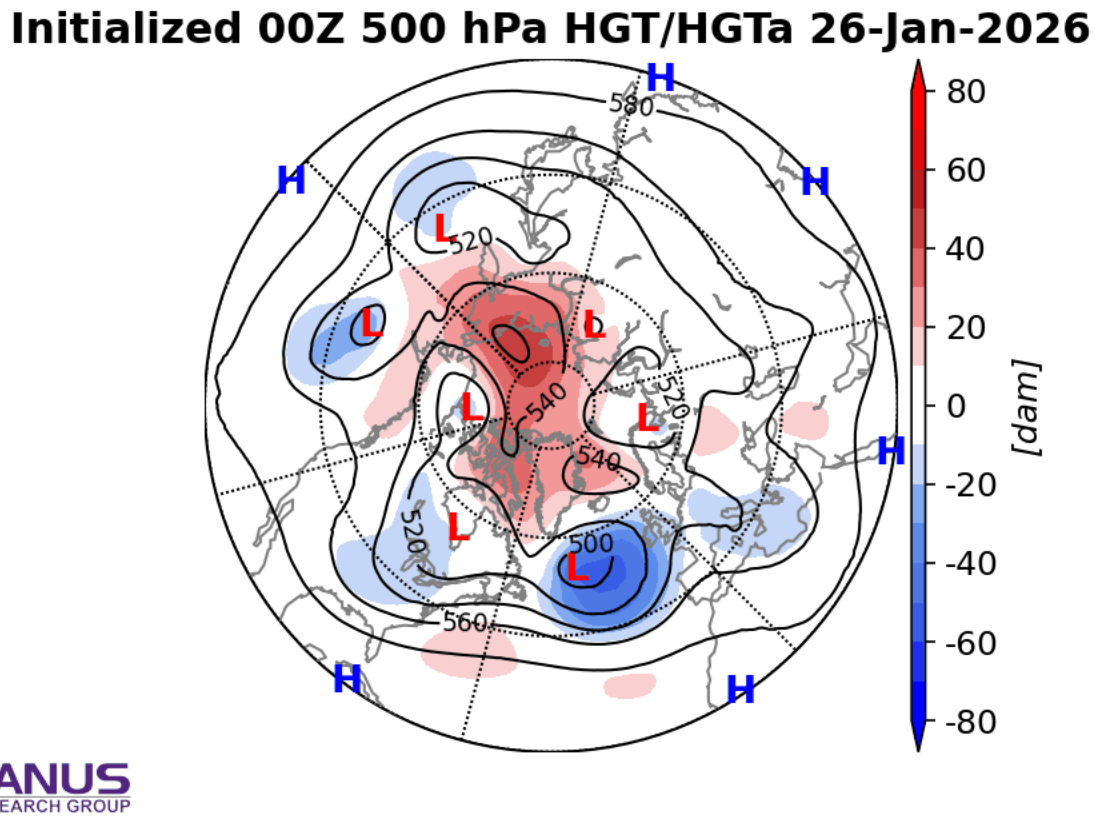

Figure ii. Initialized 500 mb geopotential heights (dam; contours) and decameter anomalies (dam; shading) across the Northern Hemisphere for 19 Jan 2026 and forecasted from 20 Jan 2026 to 03 Feb 2026. The forecasts are from the 00Z 19 Jan 2026 GFS model ensemble.

Over most of the two weeks there are two dominant high latitude blocking high pressure centers one centered over Alaska and/or Eastern Siberia and the other centered over Greenland. These two high-latitude blocking centers shift around but otherwise persist for the next two weeks. These two blocking centers will support the recent expansion of cold temperatures that has already occurred across Eurasia and North America with some of that cold likely to be extreme.

But blocking over Greenland is often a precursor for a stetched polar vortex (PV) while over the Barents-Kara Seas is also supportive of a stretched PV (see **Figure 5**)but possibly even a bigger PV disruption i.e., a sudden stratospheric warming (SSW). In contrast, the high latitude blocking

in Eastern Siberia throws a wrench in the gears of trying to weaken the PV and in my opinion contributes uncertainty to what will happen to the PV in early February, wil it just continue to stretch or will we finally see a true PV split, that could have very different impacts on our weather.

As seen in **Figure iii** (and also **Figure 12**) the PV has an elongated shape in appearance for much of the next two weeks in contrast to the more circular PV of early January. The PV has a "split" appearance this week and into next week, a character trait or signature of a more extreme stretched PV. I think the more extreme nature of the stretched PV is consistent with the model forecasts of extreme cold in the US and even potential snowstorms. But then at least in this animation there is a clear PV split with two distinct and independent PV centers.

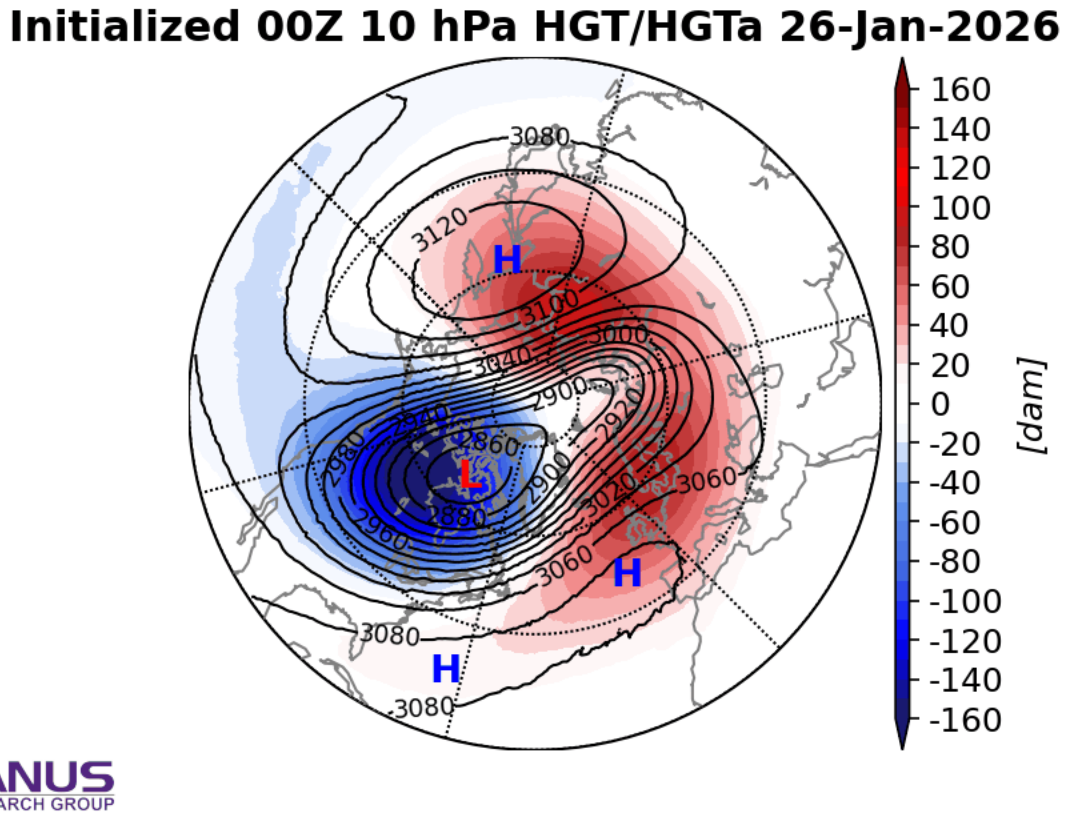

Figure iii. Forecasted average 10 mb geopotential heights (dam; contours) and geopotential height anomalies (m; shading) across the Northern Hemisphere for 19 Jan 2026 and forecasted from 20 Jan 2026 to 03 Feb 2026. The forecasts are from the 00Z 19 Jan 2026 GFS model ensemble.

As seen in **Figure iii** (and also **Figure 12b**) the PV for the most part maintains its elongated shape in appearance rather than a clean PV split. Most ensembles don't predict a PV split though there are more often predicted in the operational runs.

And as I have been routinely doing, looking at the wave diagnostics in **Figure iva** continues to display wave reflection next week. Once again, wave energy goes up and east over Asia, reflects

off the stratospheric PV and then heads down and east over North America where the energy is re-absorbed amplifying the standing wave over North America and delivers cold air from the Arctic south, east of the Rockies. There is westward wave tilt with height over Asia and an eastward wave tilt with height over North America that is a classic signature of wave reflection. Though the eastward tilt is less pronounced than in some previous events this winter. This signature of wave reflection is typical of stretched PVs.

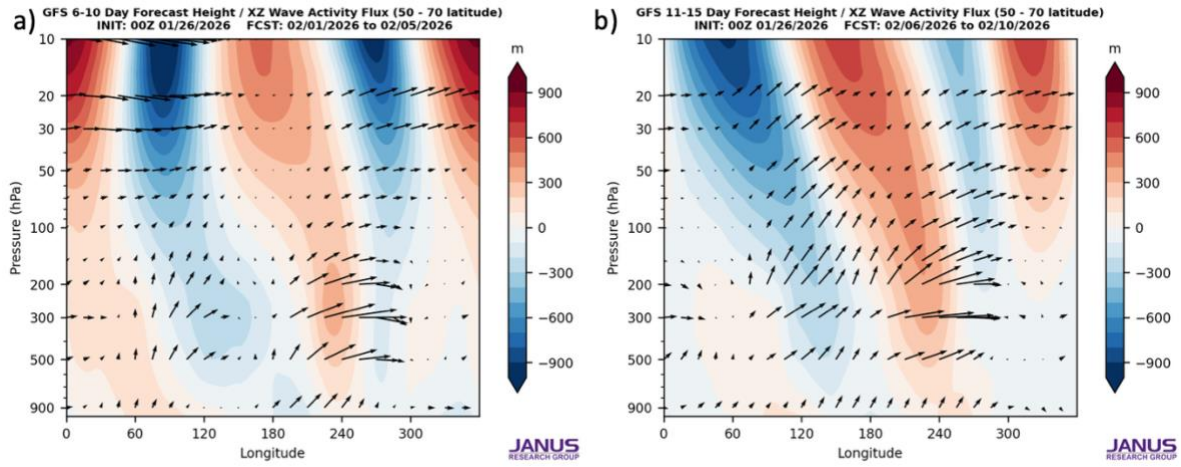

Figure iv. **a)** Predicted longitude-height cross section of geopotential eddy height anomalies (shading) and wave activity flux (vectors) for 20 January through 24 January 2026 **b)** same as **a)** but forecast from 30 January through 3 February 2026. The forecast is from the 00Z 19 January 2026 GFS operational.

However for the the second period shown in **Figure ivb** there is no obvious wave reflection. Instead the wave energy only goes up leading to absorption of the wave energy in the PV and hence the full PV split. Models ar doing their best "she loves me, she loves me not" on whether we have just another stretched PV or an SSW/PV split.

I include some recent PV splits and one near PV split over the years in **Figure v**. The winters include 2001, 2003, 2009, 2010, 2013, 2015 (close but wasn't officially a PV split) and 2018. There was one in 2019 that I didn't include mostly because of time and right now I don't think it is a good analog. You can look at the different events and decide what you think looks most likely for early Feb 2026. I want to focus on three events, Feb 2010, Feb 2018 and Jan 2015, which was a near PV split but not fully.

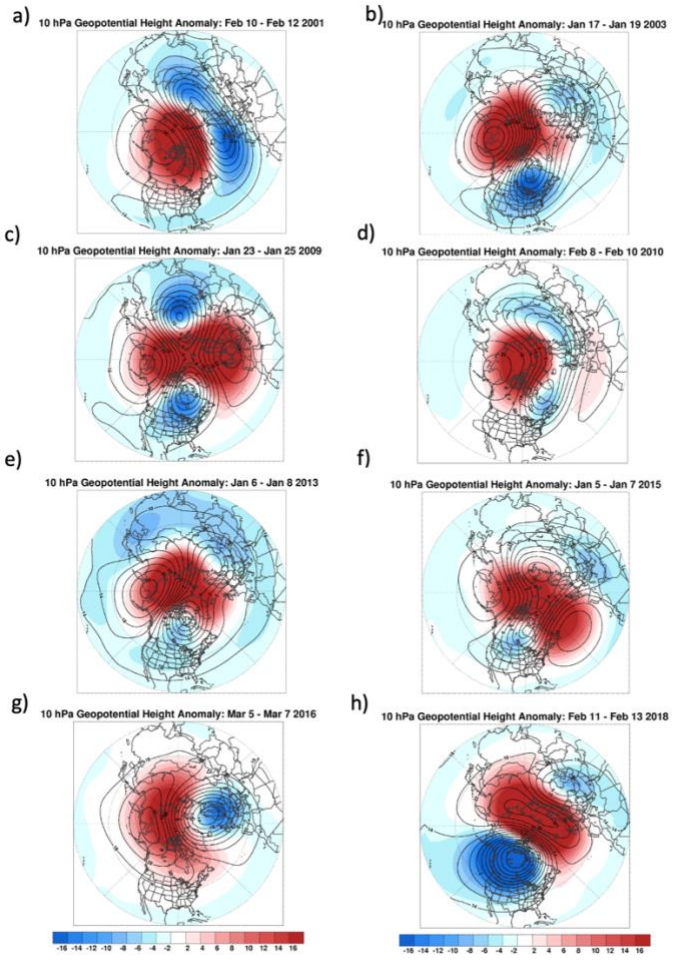

Figure v. Observed 10 mb geopotential heights (dam; contours) and anomalies (meters) across the Northern Hemisphere averaged for a) 10-12 Feb 2001, b) 17-19 Jan 2003, c) 23-25 Jan 2009, d) 8-10 Feb 2010, e) 6-8 Jan 2013, f) 5-7 Jan 2015, g) 5-7 Mar 2016 and h) 11-13 Feb 2018.

Now in **Figure vi** I show the surface temperature anomalies for the two weeks immediately following each PV split. There are many different scenarios but for the three that I highlighted earlier, In Feb 2010 it was cold in the Eastern US and Europe and Asia, in Feb 2018 it was cold in Europe and the Western US but very mild in the Eastern US. And in the near miss of Jan 2015 it was cold in the Eastern US but overall mild in Europe. Right now I am leaning towards a Feb 2010 or Jan 2015 (in pattern and not magnitude) scenario but I think all are on the table. With the predicted Greenland blocking predicted, I think that it would likely be colder in Northern Europe, at least, than in Jan 2015.

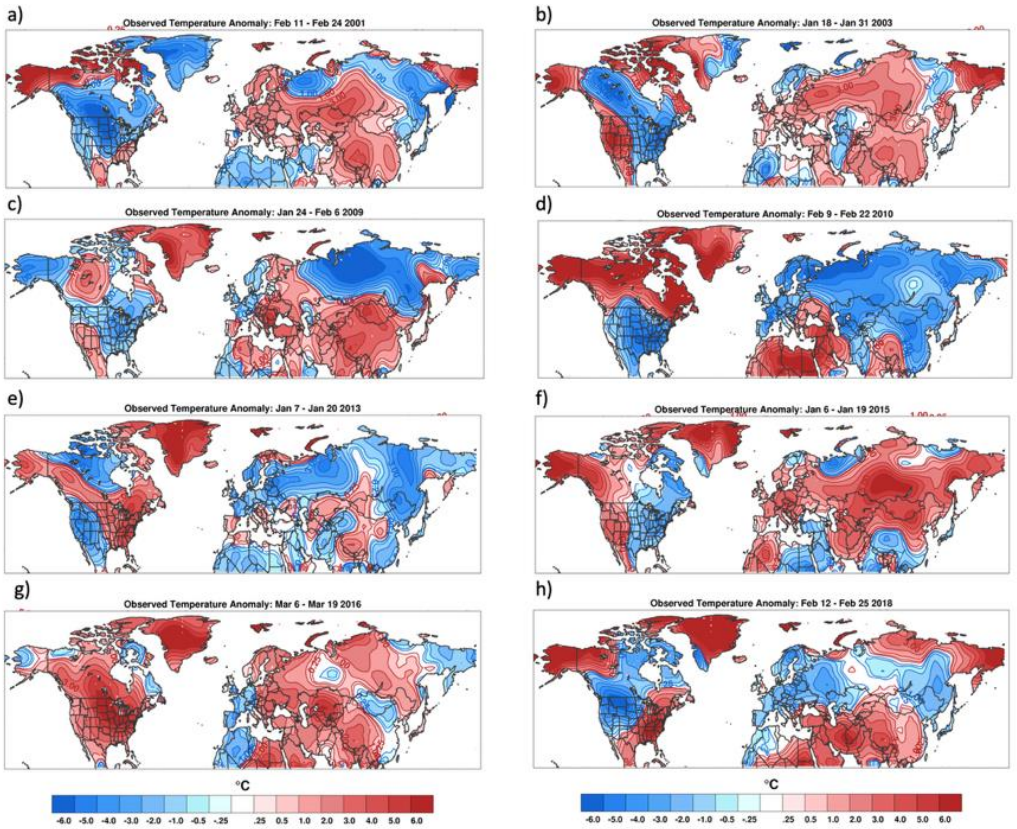

Figure vi. Observed surface temperature anomalies (°C; shading) across the Northern Hemisphere averaged for a) 11-24 Feb 2001, b) 18-31 Jan 2003, c) 24 Jan – 6 Feb 2009, d) 9-22 Feb 2010, e) 7-20 Jan 2013, f) 6-19 Jan 2015, g) 6-19 Mar 2016 and h) 12-25 Feb 2018.

One reason whay I am leaning towards February 2010 as an analog is because of the polar cap geopotential height anomalies (PCHs) from winter 2009/10 (**Figure vii**). During the PV split in early February the PCHs give the impression of a bottom up event rather than a up down event as other PV splits (including Feb 2018 and especially Jan 2019). Looks similar to the PCH forecast in **Figure 11**.

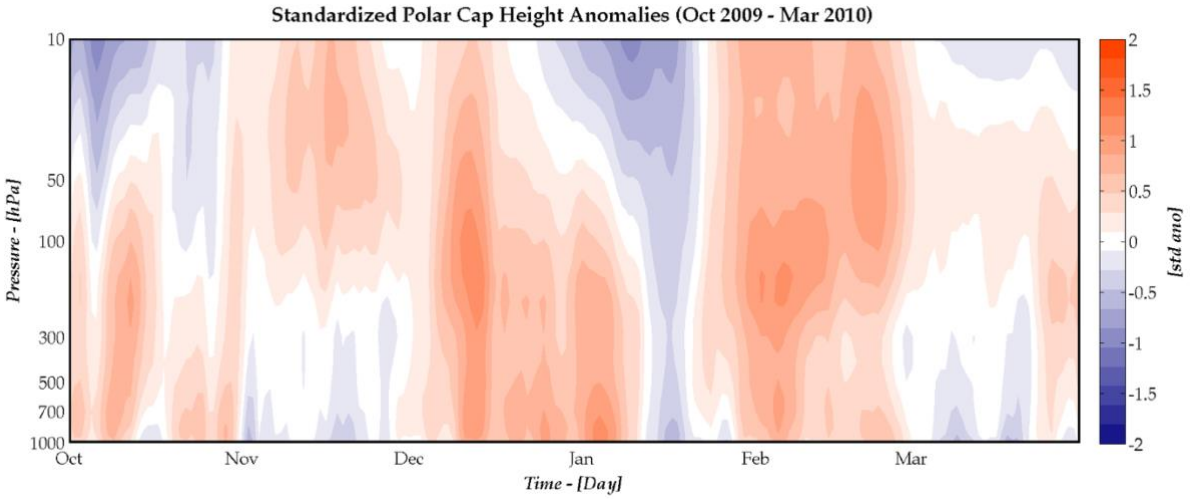

Figure vii. Observed daily polar cap height (i.e., area-averaged geopotential heights poleward of 60°N) standardized anomalies from 1 Oct 2009 through 31 March 2010.

As I did last week I include the vertical Wave Activity Flux (WAFz) from the troposphere to the stratosphere or poleward heat transport in the stratosphere has been relatively quiet this season (**Figure viii**). As I argued last week the pulse of upward WAF last week followed by negative (downward) anomalies this week is a signature of wave reflection or a stretched PV. And that seems to have been a good call. But then we have another pulse of upward WAF the second week of February with unkown what follows. Will it be enough to trigger an SSW? I think hard to know as of today.

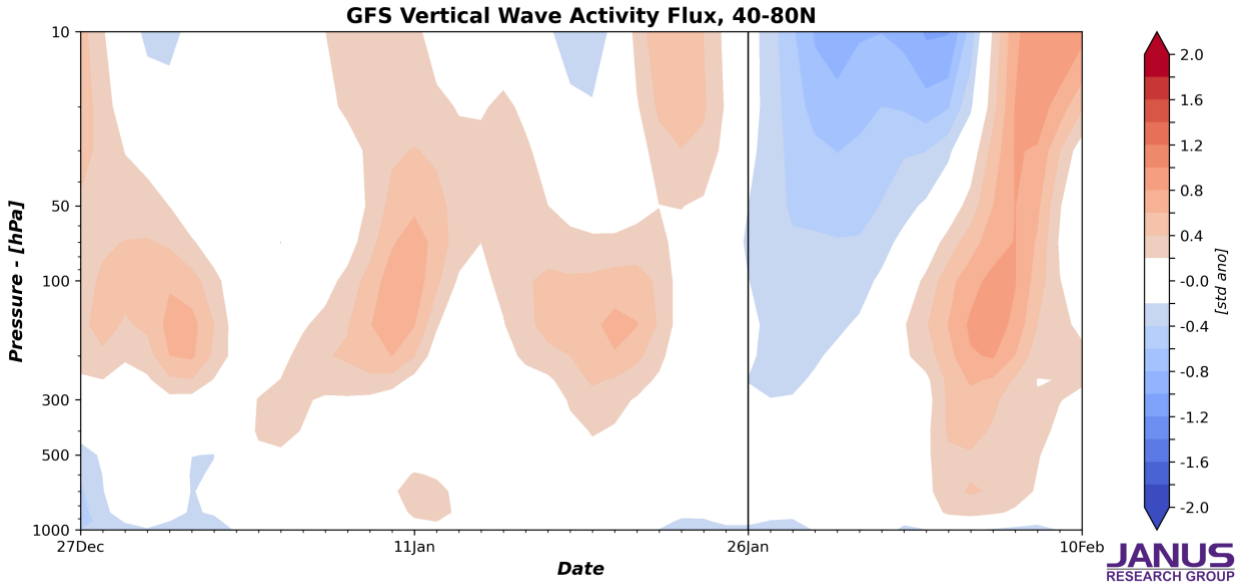

Figure viii. Observed and predicted daily vertical component of the wave activity flux (WAFz) standardized anomalies, averaged poleward of 40-80°N. The forecast is from the 00Z 26 January 2026 GFS ensemble.

As I have been doing for many weeks now, I will end doing my best Monty Hall from "Let's Make a Deal" impression. The three doors are: door number one - the reflective layer in the stratosphere that gave rise to the stretched PV also protects the PV from subsequent upwelling energy from the troposphere and allows the PV to strengthen. The second door is, though there is short-term strengthening of the PV, high-latitude blocking resumes its assault on the PV and we see more stretched PVs and/or Canadian Warmings (that often transition to stretched PVs) until finally there is knockout punch and a true sudden stratospheric warming (SSW) either in January or February. And finally, the third scenario is that the stretched PVs just keep repeating for much of the winter punctuated or separated by a relatively strong PV and or Canadian warmings.

I have since the late fall favored door number three or what I like to call a "rinse, lather, repeat" PV and weather pattern for the foreseeable future. Basically, alternating stretched PVs and relaxation to a more circular PV and oscillating or alternating cold and mild periods for East Asia and or North America, that can feature some wild temperature swings. Eventually the pattern could transition to either door number one, persistently strong PV or door number two, a major SSW. I believe that door number one can be disgarded for the remainder of the winter (28 Feb).

After the first week of February I think either just more stretched PVs or a bigger disruption. Until the ensembles are on board with a full SSW PV split I am not going with door number two but it has certainly gained momentum this week. Looking more for a Jan 2015 scenario with a near miss. But my confidence is very low. I wish that I could be more certain, but wise to recognize your limits. It can be nuanced the difference between a stretched PV and a PV split. My work is not done.

Near-Term

This week

The AO is predicted to be negative this week **(Figure 1**) with mostly positive geopotential height anomalies currently across the Arctic and mixed geopotential height anomalies across the mid-latitudes of the NH (**Figure 2**). With predicted positive geopotential height anomalies across Greenland (**Figure 2**), the NAO is predicted to be negative this week.

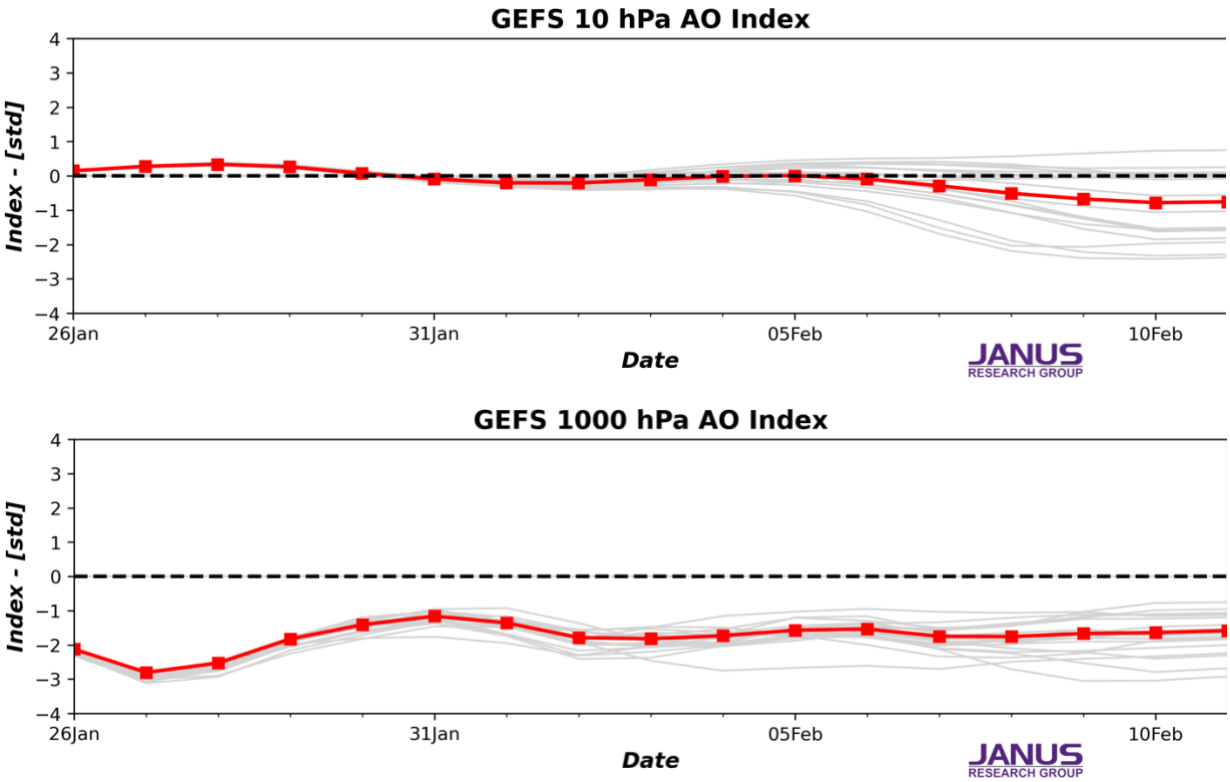

Figure 1. The predicted daily-mean AO at a) 10 hPa and b) 1000 hPa from the 00Z 26 Jan 2026 GFS ensemble. Gray lines indicate the AO index from each individual ensemble member, with the ensemble mean AO index given by the red line with squares.

Ridging/positive geopotential height anomalies centered on Greenland will support widespread troughing/negative geopotential height anomalies across Europe (**Figure 2).** This pattern will support normal to below normal temperatures across Northern Europe including the UK, however a more maritime flow will support normal to above temperatures across Southern Europe this week (**Figure 3**). This week the general pattern across Asia is ridging/positive geopotential height anomalies stretching from Greenland across the Eurasian Arctic supporting troughing/negative geopotential height anomalies across Northern Asia with more ridging across Central Asia this week (**Figure 2**). This pattern favors normal to below normal temperatures across much of Russia, Northeastern and Southwestern Asia with normal to below normal temperatures around the Tibetan Plateau into Southeast Asia and Eastern Siberia this week **(Figure 3**).

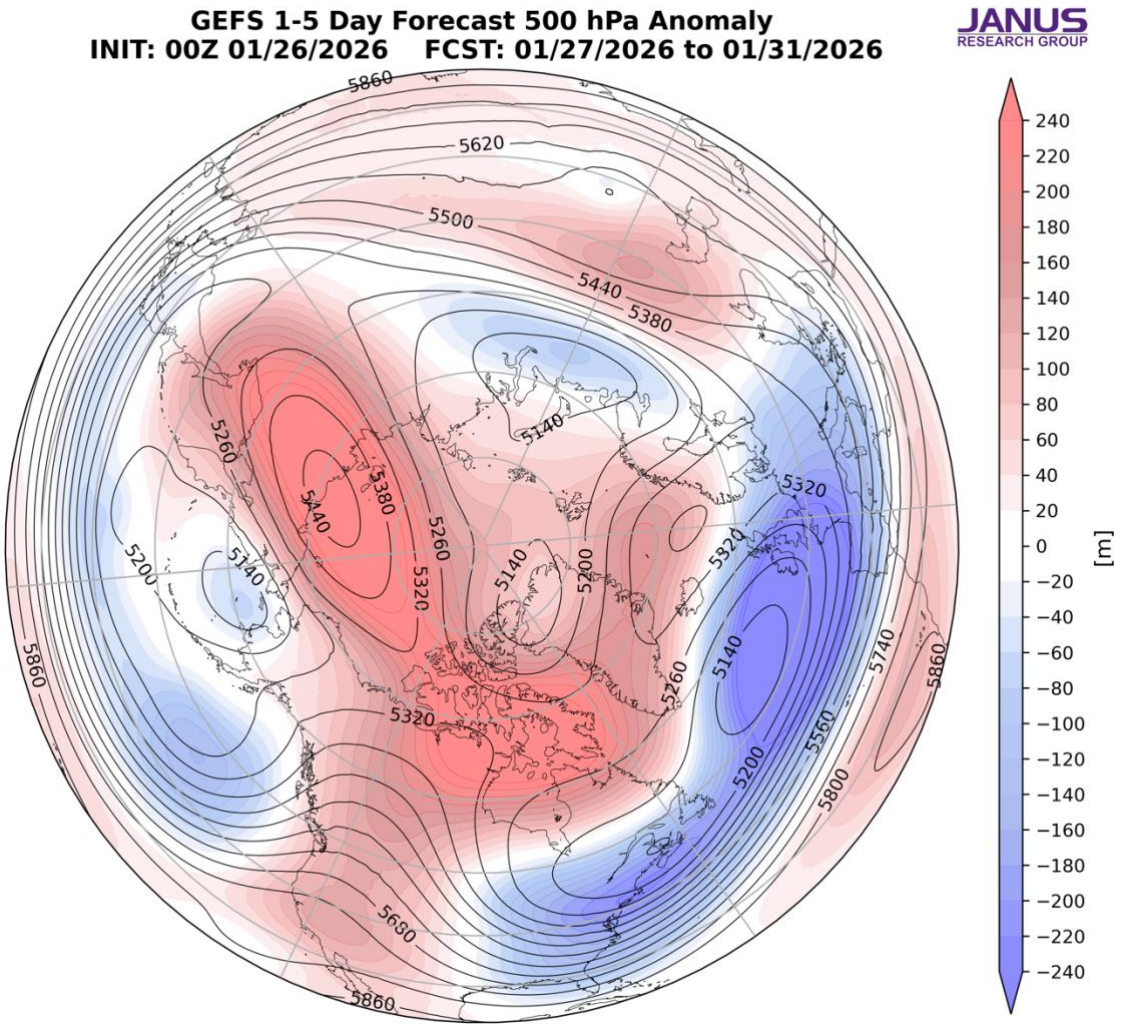

Figure 2. Forecasted average 500 mb geopotential heights (dam; contours) and geopotential height anomalies (m; shading) across the Northern Hemisphere from 27 Jan 2026 to 31 Jan 2026. The forecasts are from the 00Z 26 Jan 2026 GFS ensemble.

This week ridging/positive geopotential height anomalies in the Western US, Western Canada and Alaska will support troughing/negative geopotential height anomalies across Eastern Canada and the Eastern US this week (**Figure 2**). This patten will favor normal to above normal temperatures across Alaska, Northern and Western Canada and the Western US with normal to below normal temperatures across Southeastern Canada and the Eastern US this week (**Figure 3**).

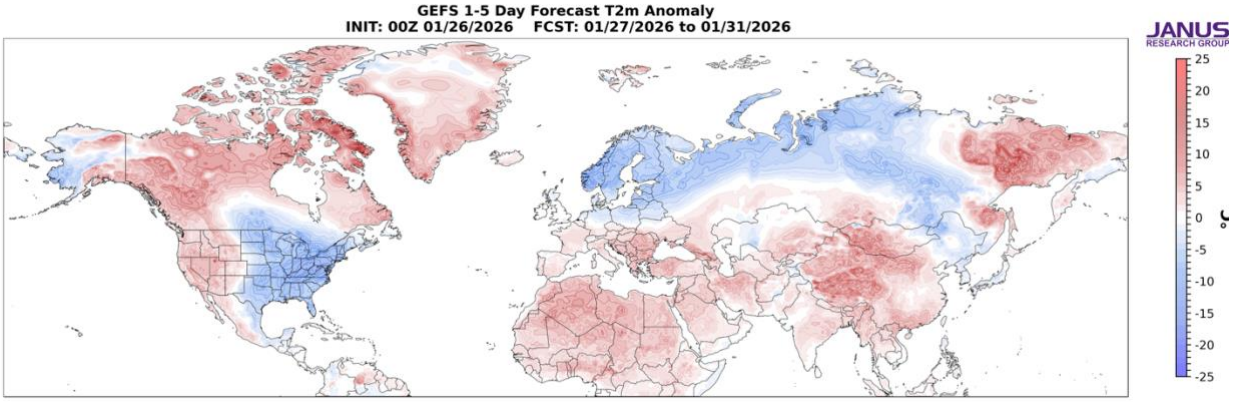

Figure 3. Forecasted surface temperature anomalies (°C; shading) from 27 Jan 2026 to 31 Jan 2026. The forecasts are from the 00Z 26 Jan 2026 GFS ensemble.

Troughing and/or cold temperatures will support new snowfall across southern parts of Central and Eastern Europe, the Alps, parts of Western Russia, Central and Northeast Asia and Japan while milder temperatures will support snowmelt across Southeastern Europe, Western Russia and parts of southern Siberia this week (**Figure 4**). Troughing and/or cold temperatures will support new snowfall across Northern and Eastern Canada, and the higher elevations of West Coast Canada while milder temperatures will support snowmelt across parts of Alaska, Western Canada, the Southern Plains, the Northeastern US and the higher elevations of the Western US this week (**Figure 4**).

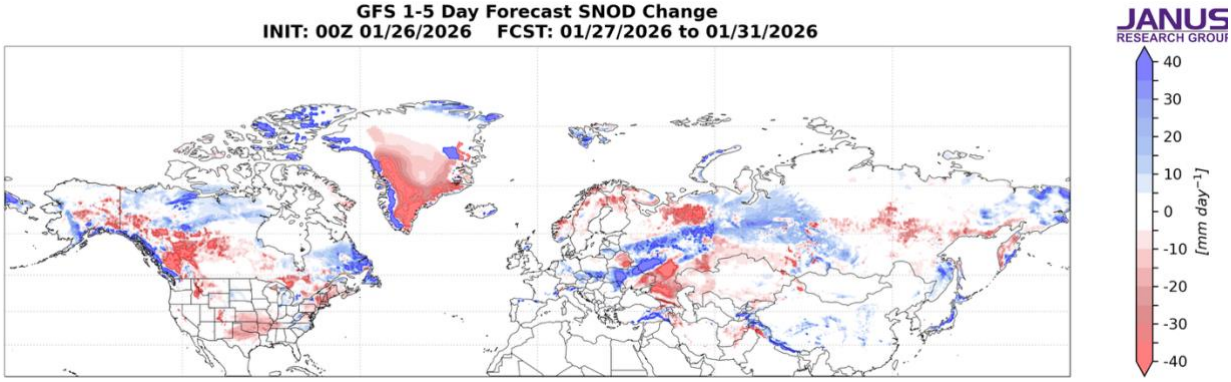

Figure 4. Forecasted snowfall (mm/day; shading) from 27 Jan 2026 to 31 Jan 2026. The forecasts are from the 00Z 26 Jan 2026 GFS ensemble.

Near-Mid Term

Next week

With geopotential height anomalies remaining mostly positive across the Arctic and with mixed geopotential height anomalies across the mid-latitudes this period (**Figure 5**), the AO will likely remain negative this period (**Figure 1**). With positive pressure/geopotential height anomalies across Greenland (**Figure 5**), the NAO will likely be negative this period.

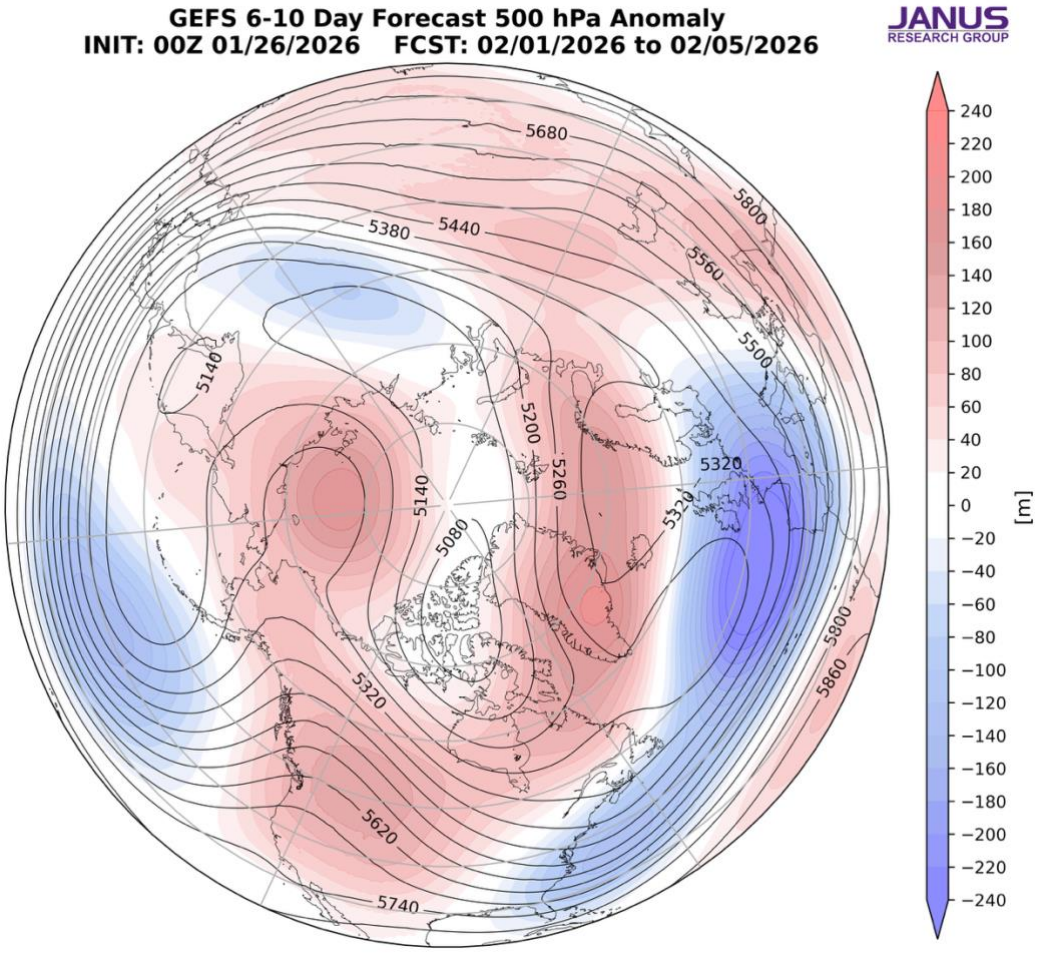

Figure 5. Forecasted average 500 mb geopotential heights (dam; contours) and geopotential height anomalies (m; shading) across the Northern Hemisphere from 1 Feb to 5 Feb 2026. The forecasts are from the 00Z 26 Jan 2026 GFS ensemble.

Persistent ridging/positive geopotential height anomalies across Greenland will support troughing/negative geopotential height anomalies across much of Europe this period (**Figure 5**). The pattern will support normal to below normal temperatures across Northern Europe including the UK, however a mostly westerly flow will support normal to above normal temperatures across Southern Europe this period (**Figure 6**). Across Asia ridging/positive geopotential height anomalies centered across Greenland and Eastern

Siberia will support troughing/negative geopotential height anomalies across Northern Asia with more ridging/positive geopotential height anomalies across Central Asia (**Figure 5**). This pattern favors widespread normal to below normal temperatures widespread across much of Russia and into Northeastern Asia with normal to above normal temperatures across Eastern Siberia and Southern Asia this period (**Figure 6**).

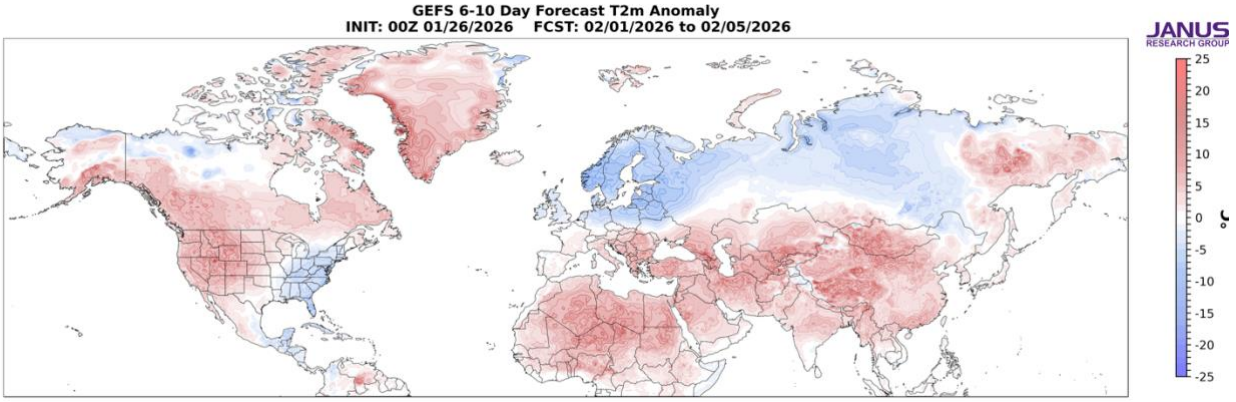

Figure 6. Forecasted surface temperature anomalies (°C; shading) from 1 Feb to 5 Feb 2026. The forecasts are from the 00Z 26 Jan 2026 GFS ensemble.

Persistent ridging/positive geopotential height anomalies across Alaska and western North America are predicted to support troughing/negative geopotential height anomalies in Eastern Canada and the Eastern US this period (**Figure 5**). This pattern will favor normal to above normal temperatures across Alaska, much of Canada and the Western US with normal to below normal temperatures mostly limited to the Eastern US (**Figure 6**).

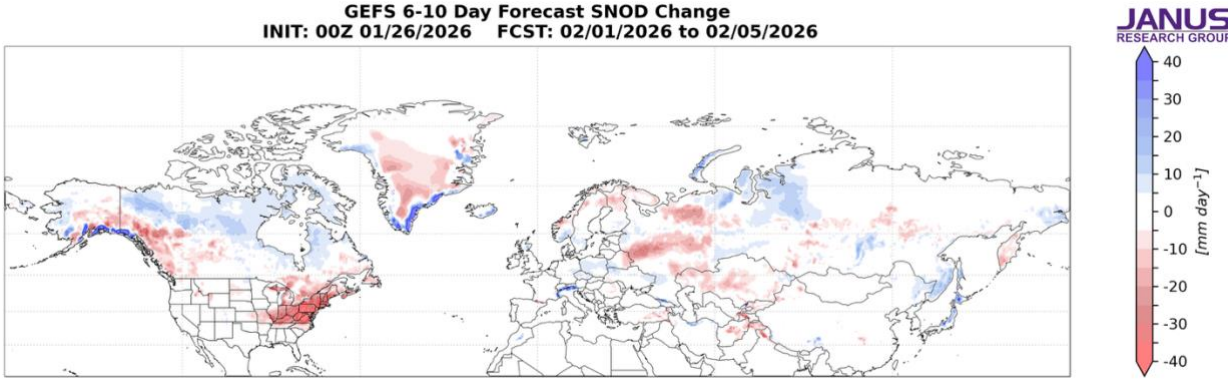

Figure 7. Forecasted snowfall rate (mm/day; shading) from 1 Feb to 5 Feb 2026. The forecasts are from the 00Z 26 Jan 2026 GFS ensemble.

Troughing and/or cold temperatures will support new snowfall in the Alps, parts of Central Europe, parts of Siberia and Northeast Asia while milder temperatures will support snowmelt in Eastern Europe, parts of Western Russia and Central Asia this period (**Figure 7**). Troughing and/or cold temperatures will support new snowfall in western Alaska, Western and Northern Canada while milder temperatures will support snowmelt in Western Canada and the Northeastern US this period (**Figure 7**).

Mid Term

Week Two

With predicted mostly positive geopotential height anomalies across the Arctic and mixed geopotential height anomalies across the mid-latitudes this period (**Figure 8**), the AO will likely remain negative this period (**Figure 1**). With predicted positive pressure/geopotential height anomalies across Greenland (**Figure 8**), the NAO will likely remain negative this period.

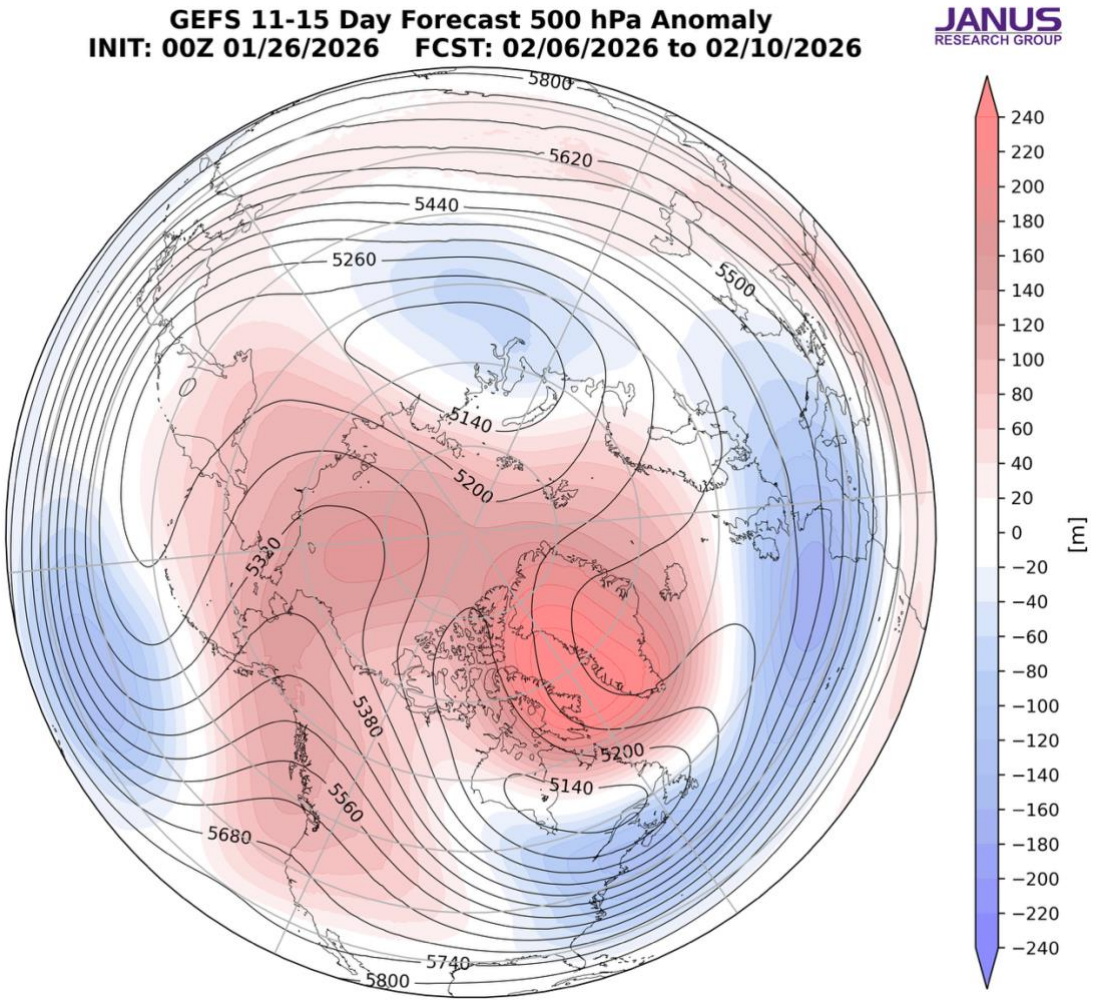

Figure 8. Forecasted average 500 mb geopotential heights (dam; contours) and geopotential height anomalies (m; shading) across the Northern Hemisphere from 6 Feb to 10 Feb 2026. The forecasts are from the 00Z 26 Jan 2026 GFS ensemble.

Persistent ridging/positive geopotential height anomalies across Greenland will continue to support troughing/negative geopotential height anomalies across much of Europe this period (**Figure 8**). This pattern should favor normal to below normal temperatures across Northern Europe including the UK while a milder westerly flow will support normal to above normal

temperatures across Southern Europe this period (**Figures 9**). Yet again this period ridging/positive geopotential height anomalies centered across Greenland and Eastern Siberia will support troughing/negative geopotential height anomalies across Northern Asia with more ridging across Southern Asia (**Figure 8**). This pattern favors normal to below normal temperatures widespread across much of Russia into Northeast Asia with normal to below normal temperatures across Eastern Siberia and Southern Asia including the Middle East and the Tibetan Plateau this period (**Figure 9**).

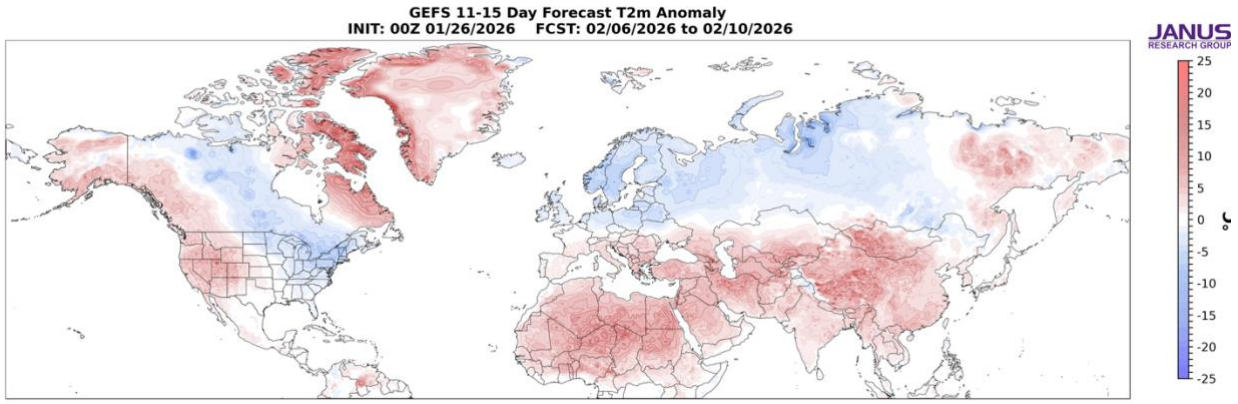

Figure 9. Forecasted surface temperature anomalies (°C; shading) from 6 Feb to 10 Feb 2026. The forecasts are from the 00Z 26 Jan 2026 GFS ensemble.

Ridging/positive geopotential height anomalies in Alaska and much of western North America will supporting downstream troughing/negative geopotential height anomalies across Easern Canada and the Eastern US this period (**Figure 8**). This pattern supports normal to above normal temperatures across Alaska, Western and Northeastern Canada and the Western US with normal to below normal temperatures across Central and Southeastern Canda and Eastern US this period (**Figure 9**).

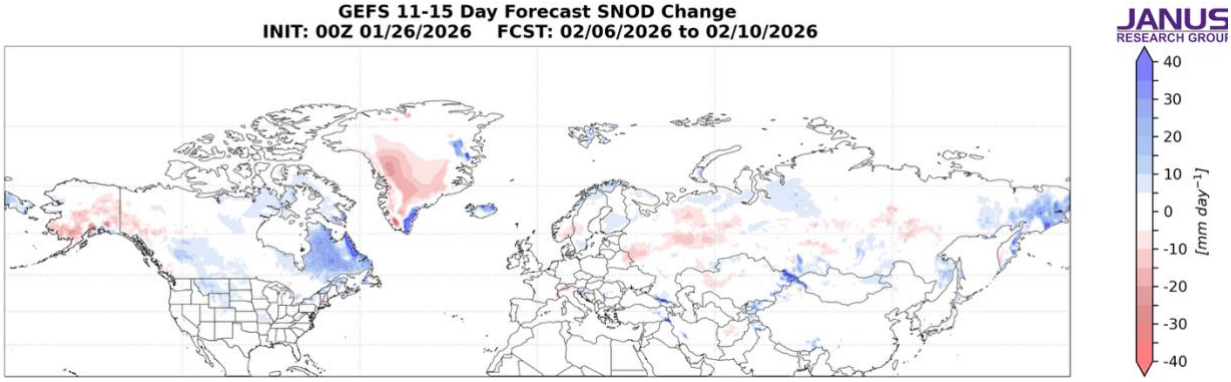

Figure 10. Forecasted snowfall (mm/day; shading) from 6 Feb to 10 Feb 2026. The forecasts are from the 00Z 26 Jan 2026 GFS ensemble.

Troughing and/or cold temperatures will support some possible new snowfall in parts of Scandinavia, the Balkans, parts of Siberia and Central Asia while milder temperatures will support snowmelt in parts of the Baltic States, Western Russia and Southern Siberia this period (**Figure 10**). Troughing and/or cold temperatures will support new snowfall in and much of Northern and Eastern Canada and the US Northern Plains while milder temperatures will support snowmelt in southern Alaska and the West Coastal mountains of Western Canada this period (**Figure 10**).

Longer Term

30–day

Today's polar cap geopotential height anomalies (PCHs) did not generate so I include the one from Sunday. The plot shows warm/positive PCHs in the mid to lower stratosphere and throughout the troposphere with cold/negative PCHs in the upper stratosphere (**Figure 11**). Then for the next two weeks cold/negative PCHs in the upper stratosphere are predicted to weaken and eventually flip warm/positive while PCHs in the lower stratosphere and troposphere are predicted to persist and peak this week.

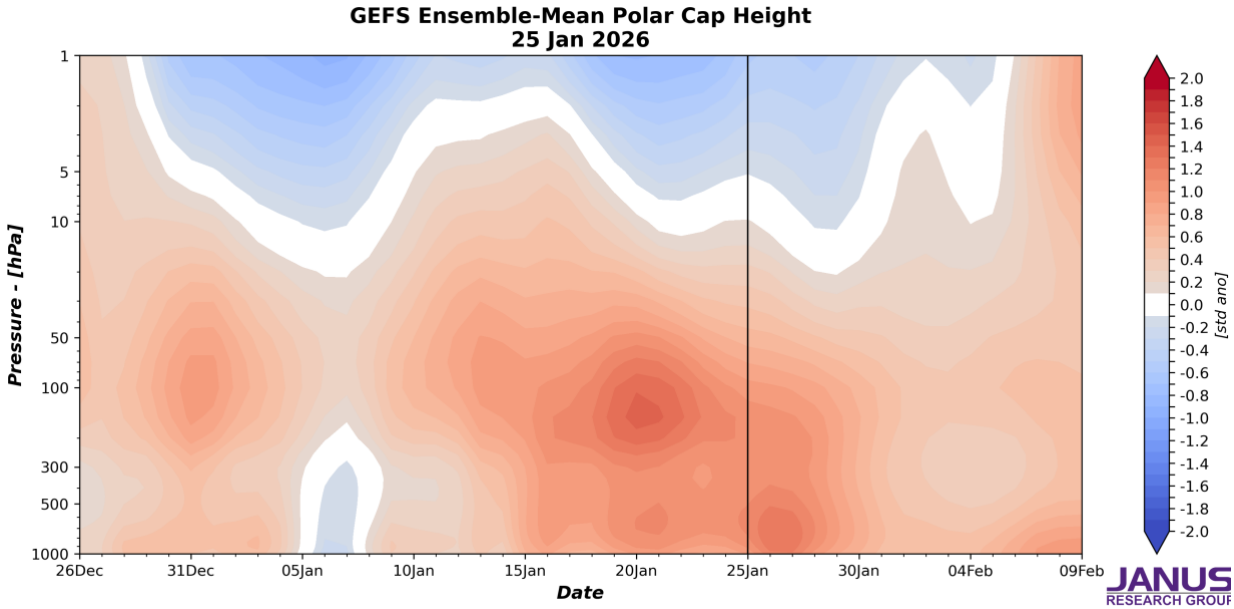

Figure 11. Observed and predicted daily polar cap height (i.e., area-averaged geopotential heights poleward of 60°N) standardized anomalies. The forecast is from the 00Z 25 Jan 2026 GFS ensemble.

The predicted warm/positive PCHs in the lower troposphere this week (**Figure 11**) are consistent with the predicted negative AO this week (**Figure 1**). Then next week the forecast of persistent warm/positive PCHs in the lower troposphere (**Figure 11**) should persist the negative AO next week (**Figure 1**) though it may not be as negative as this week.

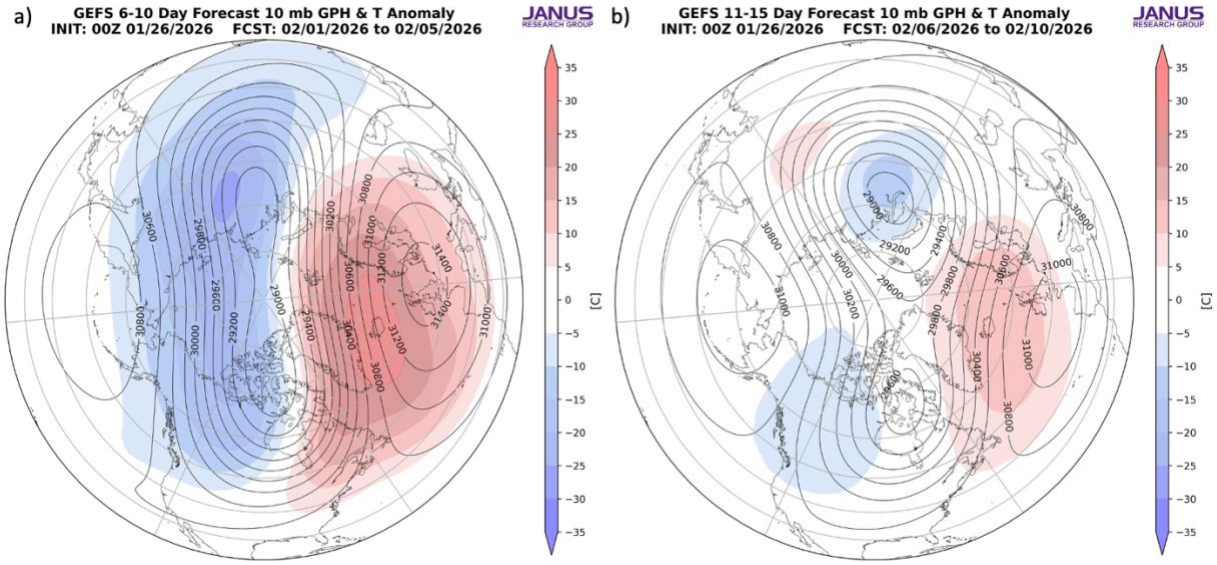

Figure 12. (a) Predicted 10 mb geopotential heights (dam; contours) and temperature anomalies (°C; shading) across the Northern Hemisphere averaged for 1 Feb to 5 Feb 2026. (b) Same as (a) except forecasted averaged from 6 Feb to 10 Feb 2026. The forecasts are from the 00Z 26 January 2026 GFS model ensemble.

Next week the polar vortex (PV) is predicted to be elongated in shape from the Urals to central North America with two PV centers with one center over the Urals and the other center over Baffin Bay with relatively cold temperatures focused from the stretching from East Asia to western North America and with high pressure centered near the Dateline and relatively warm temperatures across the North Atlantic sector in the polar stratosphere (**Figure 12a**). This is not a split PV but rather the elongated shape in appearance, signals yet another stretched PV that favors relatively cold in Asia and North America east of the Rockies. Then during the second week of February two PV centers are predicted to persist with one center over the Urals and the other over Baffin Bay with high pressure centered near the Dateline with cold temperatures over the Urals and Western Canada with relatively warm temperatures over the North Atlantic in the polar stratosphere (**Figure 12b**). This once again resembles a stretched PV configuration, however some models are predicting a bigger PV disruption that would fit the definition of a PV split. The stratospheric AO in **Figure 1** this week is predicted to remain close to neutral but then turn negative next week.

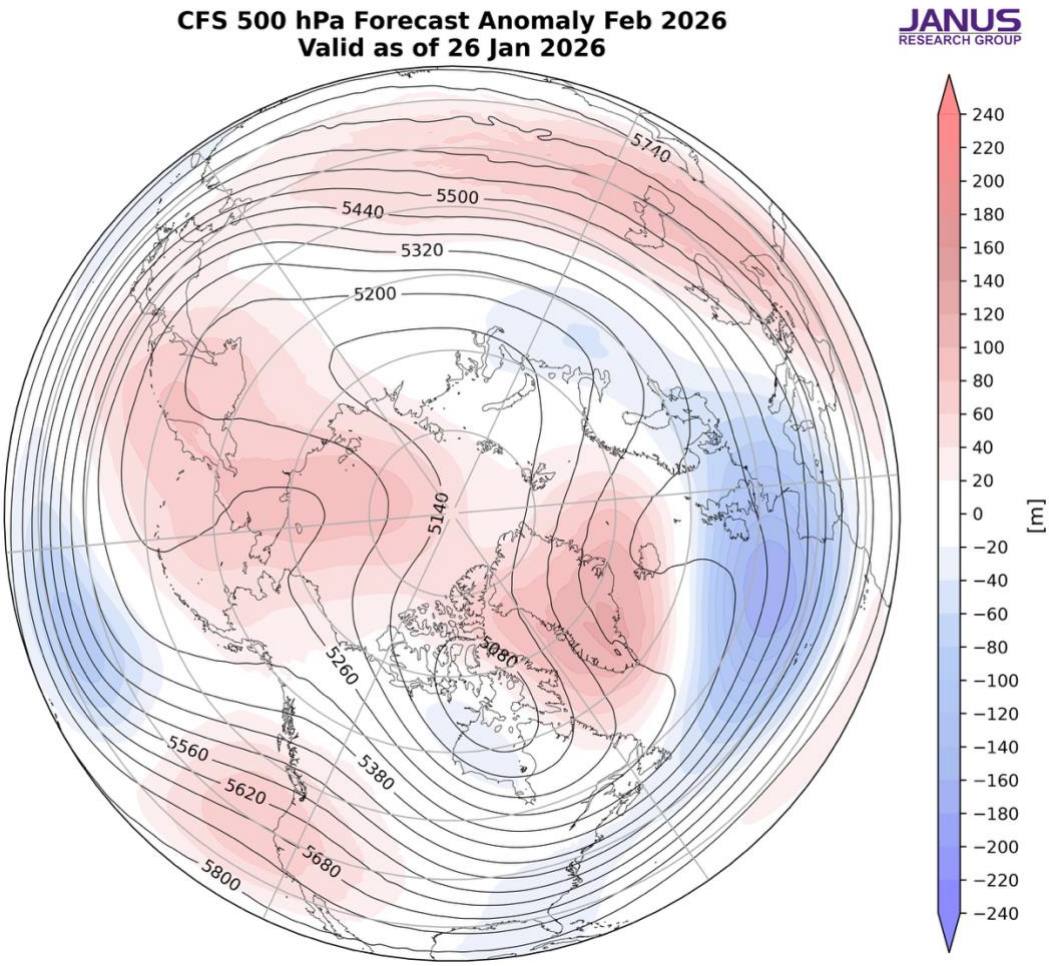

Figure 13. Forecasted average 500 mb geopotential heights (dam; contours) and geopotential height anomalies (m; shading) across the Northern Hemisphere for February 2026. The forecasts are from the 00Z 26 Jan 2025 CFS.

I include in this week's blog the monthly 500 hPa geopotential heights (**Figure 13**) and surface temperatures for February (**Figure 14**) from the Climate Forecast System (CFS; the plots represent yesterday's four ensemble members). I do want to emphasize unless I say otherwise, I find the CFS forecasts of low confidence and most often don't match my own thinking. The forecast for the troposphere is ridging widespread across the Arctic including Greenland, western North America including Alaska and into eastern Siberia with troughing across Europe, Northern and Eastern Asia, Eastern Canada and the Eastern US (**Figure 13**). This pattern favors seasonable to relatively warm temperatures across Southern Europe, Western, Southern and Central Asia, including the Middle East, eastern China the Tibetan Plateau, Pakistan and Afghanistan, Eastern Siberia, Alaska, Western Canada and the Western US with seasonable to relatively cool temperatures across Northern Europe, Siberia into Northeast Asia, Central andSoutheastern Canada and the Eastern US (**Figure 14**).

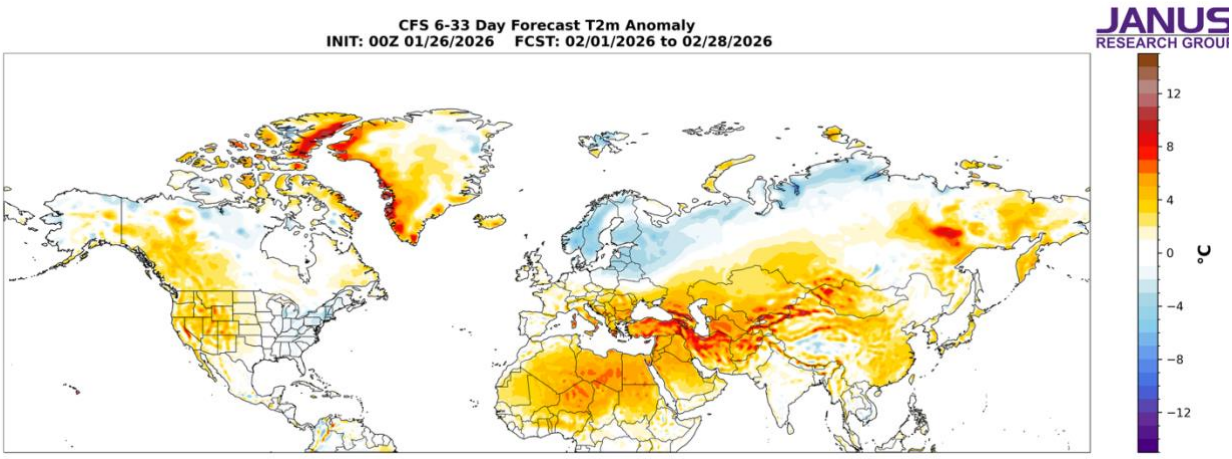

Figure 14. Forecasted average surface temperature anomalies (°C; shading) across the Northern Hemisphere for February 2026. The forecasts are from the CFS 00Z 26 Jan 2025.

Boundary Forcings

Arctic Sea Ice

I am and will continue to watch Arctic sea ice. Current conditions are shown in **Figure 15**. It has been shown that less sea ice in the North Atlantic sector of the Arctic weakens the polar vortex while less sea ice in the North Pacific sector strengthens the polar vortex. Arctic sea ice anomalies continue to show a strong focus or weighting of negative anomalies towards the North Atlantic sector relative to the North Pacific sector and this is a robust signal of an overall weaker PV this winter. The negative anomalies are distributed between the Eurasian sector, i.e., Barents Kara Seas and the North American sector, now mostly in Baffin Bay (see **Figure 15**). Therefore, I do think that low sea ice in the Barents-Kara Seas has supported Barents-Kara Seas blocking this January but low sea ice near Greenland could be supporting blocking in the region as well. Negative sea ice anomalies have also appeared in the Bering Sea and the Sea of Okhotsk and could be a result of but also supporting blocking in the region.

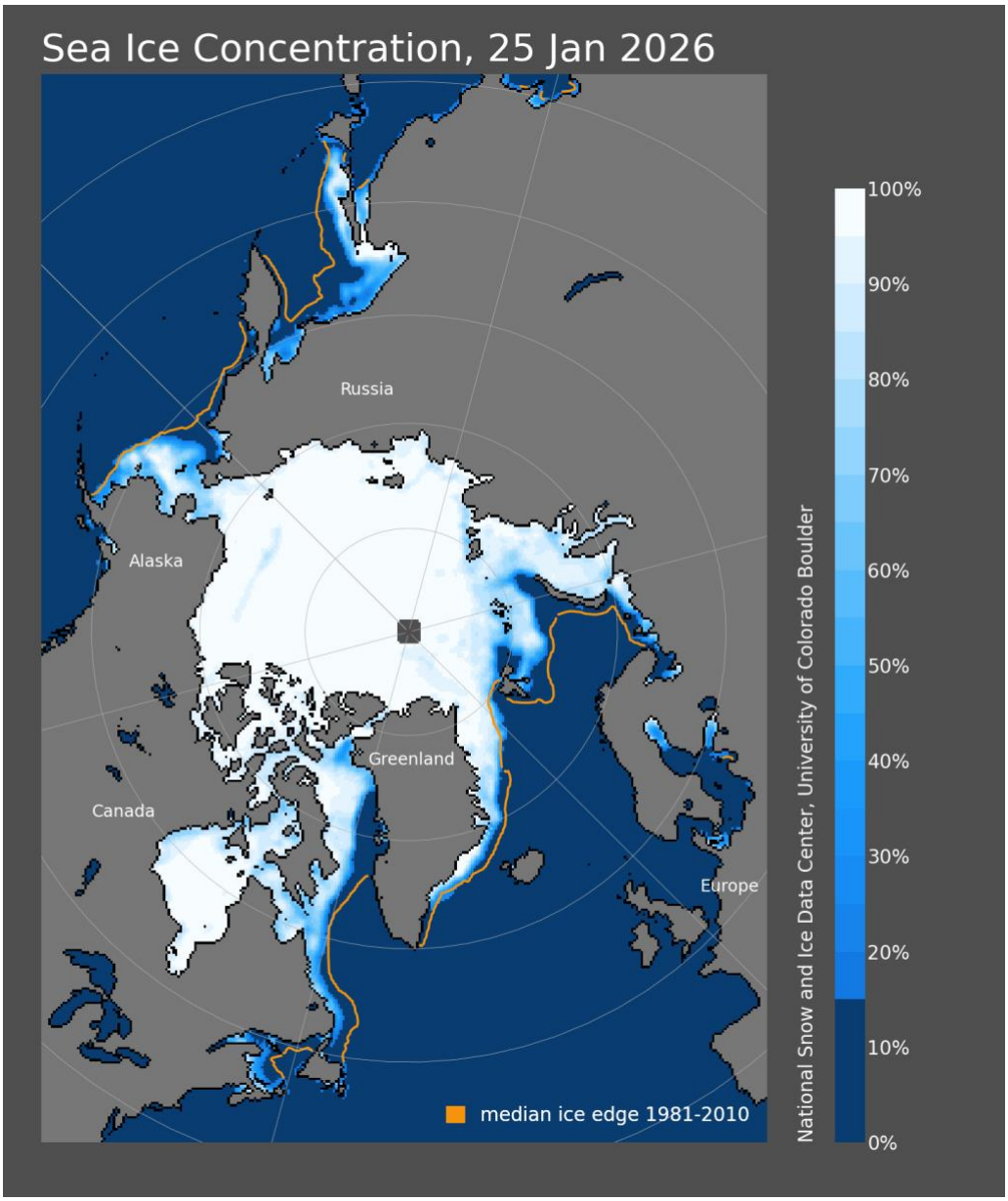

Figure 15. Arctic sea ice cover extent for 25 Jan 2026. White depicts ice covered areas and the orange contour the climatological extent of Arctic sea ice for the date. Plot taken from: https://nsidc.org/sea-ice-today

SSTs/El Niño/Southern Oscillation

Equatorial Pacific sea surface temperatures (SSTs) anomalies are below normal, along the equatorial Pacific (**Figure 15**) consistent with La Niña conditions for much of the winter but current forecasts show some uncertainty but for now mostly favor weak La Niña conditions this winter. Observed SSTs across the NH remain well above normal especially in the North Pacific and much of the North Atlantic, though below normal SSTs exist regionally especially

in the South Pacific. The very warm SSTs in both ocean basins could be supporting the predicted mid-ocean ridging in both basins.

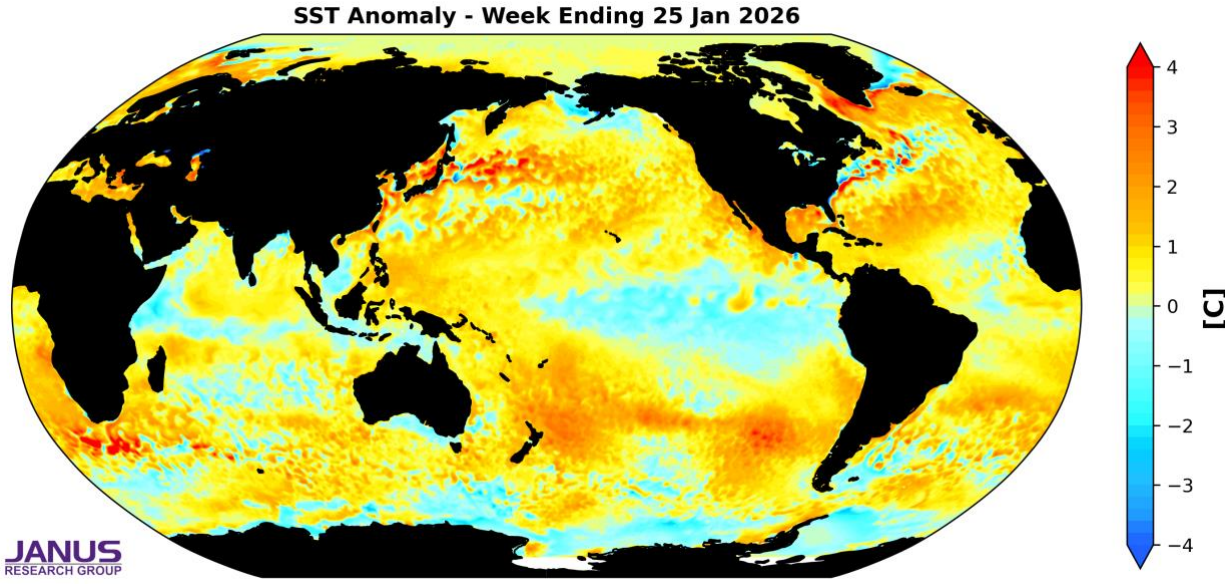

Figure 16. The latest daily-mean global SST anomalies for week ending 25 Jan 2025.

Madden Julian Oscillation

Currently the Madden Julian Oscillation (MJO) is currently in phase seven (**Figure 17**) and the forecasts are for the MJO to quickly move to phases eight and one (**Figure 17**). Phases seven and eight favor ridging in Canada and troughing in the US. Therefore, it seems that the MJO could be having some influence on North American weather in the next two weeks. But admittedly this is outside of my expertise.

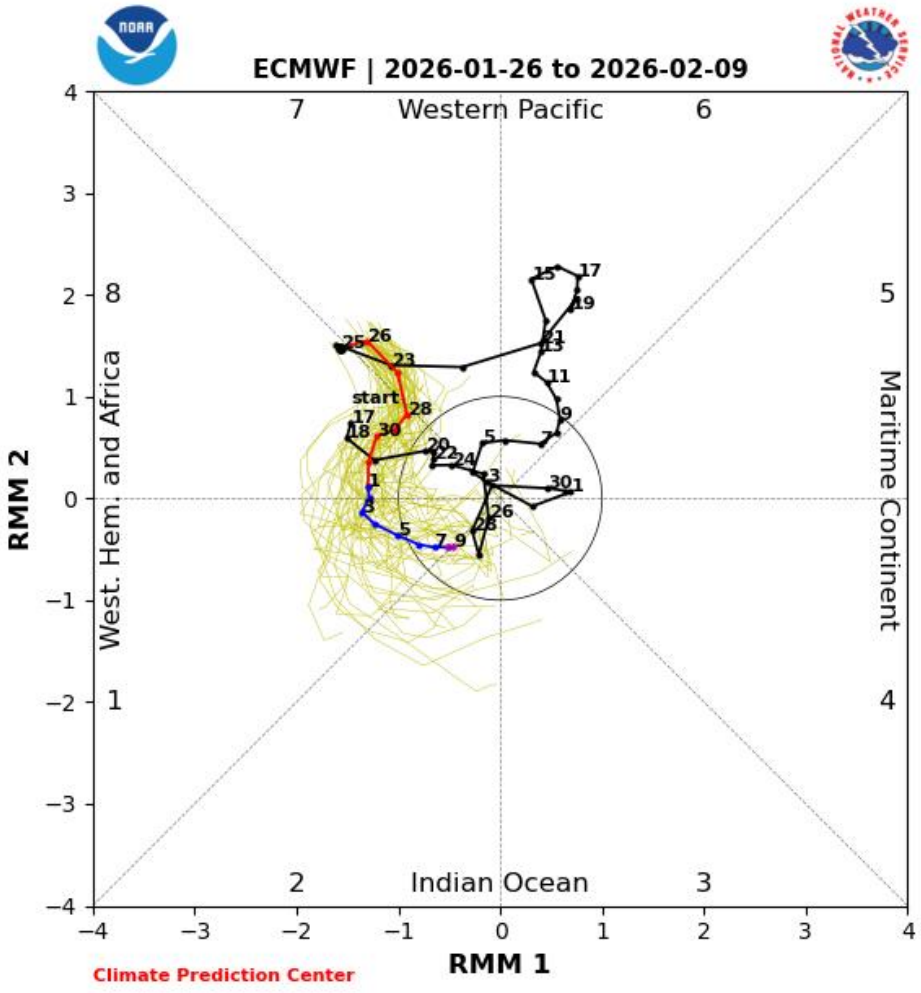

Figure 17. Past and forecast values of the MJO index. Forecast values from the 00Z 26 Jan 2026 ECMWF model. Yellow lines indicate individual ensemble-member forecasts, with the green line showing the ensemble-mean. A measure of the model 'spread' is denoted by the gray shading. Sector numbers indicate the phase of the MJO, with geographical labels indicating where anomalous convection occurs during that phase. Image source https://www.cpc.ncep.noaa.gov/products/precip/CWlink/MJO/CLIVAR/ecmf.shtml

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