

Arctic Oscillation and Polar Vortex Analysis and Forecasts

February 17, 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.

Subscribe to our email list or follow me on Twitter (@judah47) for notification of updates.

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

Summary

- The Arctic Oscillation (AO) is currently positive and is predicted and then trend to neutral as pressure/geopotential height anomalies across the Arctic are currently mostly negative and are predicted to turn mostly mixed the next two weeks. The North Atlantic Oscillation (NAO) is currently near neutral with mixed pressure/geopotential height anomalies across Greenland, and the NAO is predicted to remain near neutral to positive the next two weeks as pressure/geopotential height anomalies are predicted to turn mostly mixed to negative across Greenland the next two weeks.
- The pattern across Europe looks stable the next two weeks with troughing/negative geopotential height anomalies across Northern Europe and ridging/positive geopotential height anomalies across Southern Europe. This mostly zonal pattern will favor normal to above normal temperatures across Western and Southern Europe including the United Kingdom (UK) with normal to below normal temperatures across Northern and Eastern Europe due to low geopotential heights the next two weeks.
- The general pattern across Asia over the next two weeks is ridging/positive geopotential height anomalies across Southern Asia and Eastern Siberia with troughing/negative geopotential height anomalies across Northern Asia. This pattern favors mostly normal to above normal temperatures across much of Asia including Eastern Siberia with normal to below normal temperatures across much of Russia and next week into Northeast Asia.

- The general pattern across North America the next two weeks is troughing/negative geopotential height anomalies Alaska, Western Canada and the Western United States (US) with ridging/positive geopotential height anomalies across Eastern Canada and the Eastern US. However next week troughing will become more widespread across Canada and extend into the Eastern US. This pattern will support normal to below normal temperatures in Alaska, Western Canada and the Western US with normal to above normal temperatures across Eastern Canada and the Eastern US. However next week colder temperatures will spread across much of Canada and the Eastern US.
- Polar vortex (PV) is undergoing a bigger disruption than all winter that is most consistent with a Canadian warming but what comes next? My thoughts below.
- Due to travel, expect disruptions in publishing of the blog.

Plain Language Summary

So far this winter, cold temperatures have dominated Scandinavia, Northeastern Europe, much of Russia, Northeastern Asia, Alaska, much of Canada and the Northeastern US (see **Figure**). In contrast mild temperatures have dominated Western and Southern Europe, Western, Central and Southeastern Asia, Eastern Siberia, Northeast Canada and the Western US (see **Figure**). The forecast for the next two weeks can be summarized as a retraction of the cold across Eurasia, including Northeastern Europe, and eastern North America thanks to weakening high-latitude blocking (see **Figures 3 and 6**). 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 temperatures in East Asia and eastern North America. However a Canadian Warming is ongoing that is related to the pattern change across the Northern Hemisphere (NH). Possibly the largest change will be cooler temperatures in western North America and milder temperatures in eastern North America (see **Figure 9**). I am still expecting that this will be followed up a stretched PV that should return relatively colder weather to Eastern Canada and the Eastern US next week and I am still looking for one more stretched PV in early March.

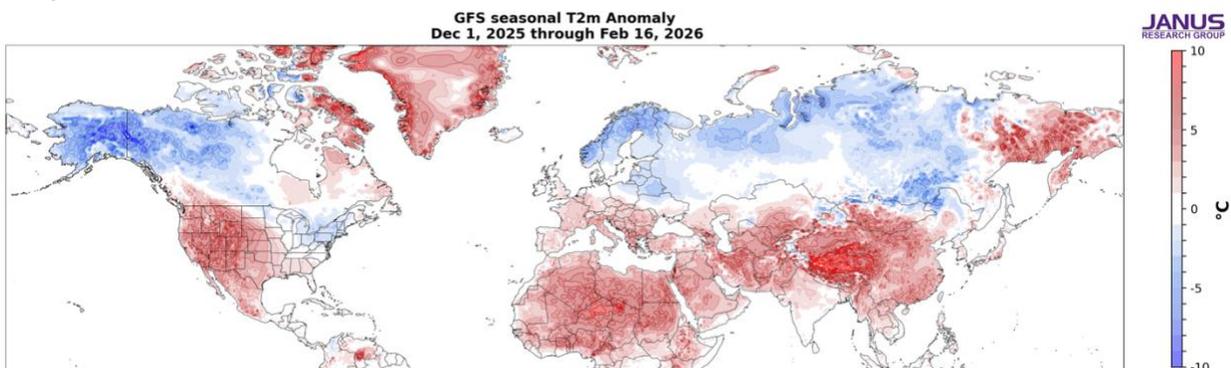


Figure. Estimate of the observed surface temperatures (°C; shading) from 01 Dec 2025 to 16 Feb 2026 based on GFS initializations and the GFS forecast from the 17 Feb 2026 run.

Impacts

I will be traveling the next three weeks in a row so there will definitely be disruptions to publishing of the blog. I have arrived to the happiest place on earth (not Japan, which might be my happiest place with the crazy amount of snow; though heavy snow has returned to the Alps and the Sierras). Then it is on to Germany next week for a conference and some meetings on the relationship between a warming Arctic and mid-latitude weather. A hot topic of late given the abundance of cold and snow (not everywhere of course).

As has been my 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. 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 i**). Overall this week there is less high-latitude blocking than we have seen for much of the winter but it could increase next week, something to watch. Over the next two weeks the dominant high latitude blocking will be centered in the North Pacific sector. Currently the models have the North Pacific blocking first near the Aleutians and then drifting westward first toward the Dateline and then eventually Eastern Siberia. Then next week ridging should increase in the North Atlantic sector with the models predicting that ridging will first develop over Western Europe and then Eastern North America. A return of high-latitude blocking is also predicted for the Barents-Kara Seas in early March. Models have performed poorly with this feature as of late but if verified, it could favor yet more PV stretching as discussed below.

Initialized 00Z 500 hPa HGT/HGTa 17-Feb-2026

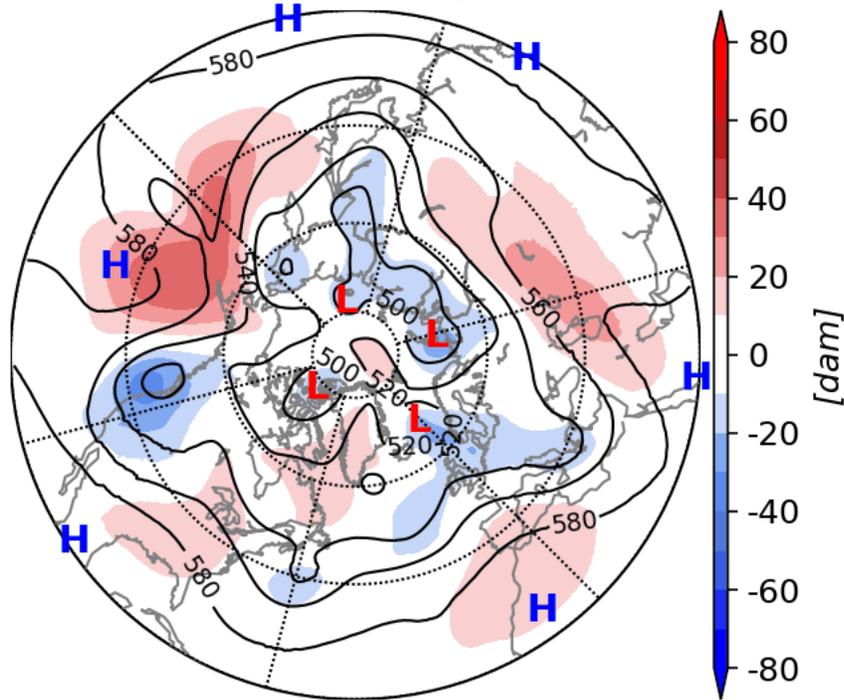


Figure i. Initialized 500 mb geopotential heights (dam; contours) and decameter anomalies (dam; shading) across the Northern Hemisphere for 9 Feb 2026 and forecasted from 17 Feb 2026 and forecasted from 18 Feb 2026 to 4 Mar 2026. The forecasts are from the 00Z 17 Feb 2026 GFS model.

Figure ii presents the latest polar vortex (PV) animation. Interestingly, initially the PV is elongated or stretched across northern Eurasia with high pressure and warming over Canada and Western Asia. This “stretched” PV differs from the classical stretched PV that extends from Siberia to Canada that has been so frequent the past two winters. Not sure that the stretched PV is at all dynamically related to the more classical stretched PV but interesting to note. Clustering analysis from my long-time collaborator Matt Barlow shows this PV configuration is consistent with cold temperatures in Northeastern Europe. Also the low heights in the polar stratosphere over Northeastern Europe seem to be related to the cold surface temperatures in the same region. But regardless I am treating the PV perturbation this week as a Canadian warming. This is supportive of the pattern change across North America with milder weather across eastern North America and colder, wetter weather across Western North America.

Initialized 00Z 10 hPa HGT/HGTa 17-Feb-2026

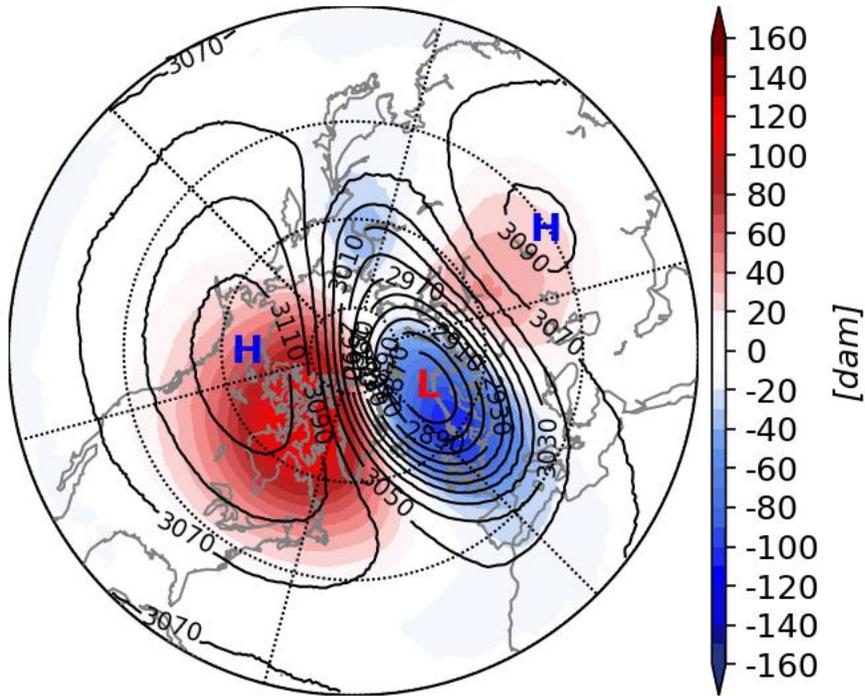


Figure ii. Forecasted average 10 mb geopotential heights (dam; contours) and geopotential height anomalies (m; shading) across the Northern Hemisphere for 17 Feb 2026 and forecasted from 18 Feb 2026 to 4 Mar 2026. The forecasts are from the 00Z 17 Feb 2026 GFS model.

We see the PV will transition out of the Canadian Warming next week. Many of the operational model runs show a general weakening of the PV that is suggestive of a possible sudden stratospheric warming (SSW - defined as a reversal of the wind from westerly to easterly at 60°N and 10 hPa) including in **Figure ii**. However most of the ensembles are showing the wound up configuration of the PV eventually stretching out to North America (see **Figure 12b**) resembling a muted stretched PV.

As I have been discussing, I think of Canadian warmings more of a transitory stage and as we showed Canadian warmings overwhelmingly transition to either SSWs or stretched PVs. I do concede an SSW seems plausible and is at least suggested in some model forecasts. However I continue to favor yet another stretched PV, the timing now looking to be next week and possibly again in early March. One other signal that keeps me believing that we have one more stretched PV this season (after next week) is the predicted cold air outbreak into Northeast Asia next week. That is usually the precursor to a stretched PV that delivers cold air east of the Rockies across North America.

Though none of the models are showing a stretched appearance to the PV (at least stretched towards North America) at 10hPa in late February, it does turn colder in the Northeastern US. And the EPS (an now other models as well) shows much more widespread region of below normal temperatures in the Eastern US. And this seems to be related to wave energy reflection that is the signature of stretched PVs.

So as expected, I present the wave diagnostics in **Figure iii**. I do think that regardless, a Canadian Warming is supportive of wave reflection (and hence Canadian warmings are mostly likely to be followed by a stretched PV), the diagnostics continue to display wave reflection for this week. So once again this week, wave energy goes up and east over Asia, reflects off the stratospheric PV (or at least a reflective layer in the polar stratosphere) and then heads down and east over North America where the energy (see **Figure iii**) is re-absorbed amplifying the standing wave over North America and delivers cold air south across North America including the Eastern US. It even suggests an eastward tilting wave with the trough over North America tilting eastward to connect with the stratospheric PV.

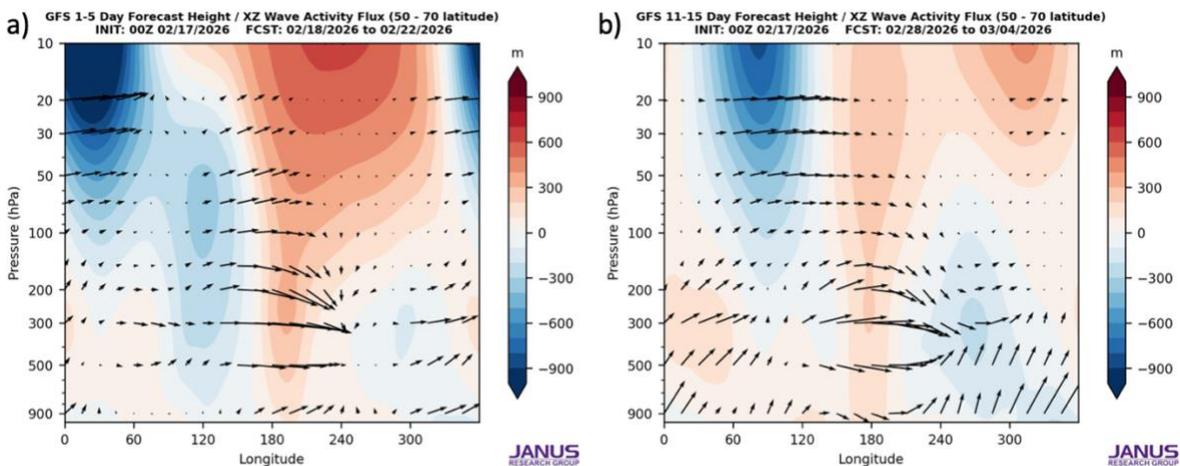


Figure iii. a) Predicted longitude-height cross section of geopotential eddy height anomalies (shading) and wave activity flux (vectors) for 18 February through 22 February 2026 **b)** same as **a)** but forecast from 28 February through 4 March 2026. The forecast is from the 00Z 17 February 2026 GFS operational.

Wave reflection seems to pause for the fourth week of February. Then for the very end of February and into early March the wave diagnostics seem to suggest a return of wave reflection as seen in **Figure iiib**. The trough axis over North America is shifted well west compared to previous events and consistent of most forecasts having the cold temperatures focused in western North America for this period. The plot itself is quite busy so hard to pinpoint on what is most important. I do want to emphasize that these diagnostics can be very volatile and could change quite a bit over the coming days.

As far as the elongated or stretched PV appearance, it is important to remember we identified and defined stretched PVs on the PV in the lower stratosphere (100hPa) and not the mid-stratosphere (10hPa. e.g., Kretschmer, et. al. 2018: The different stratospheric influences on

cold extremes in northern Eurasia and North America, *npj Climate and Atmospheric Science*, doi: 10.1038/s41612-018-0054-4.). I do recall from last winter individual events where wave reflection would first appear in the models and PV stretching only later on. Therefore I have been looking for a stretched appearance in the PV at 100 hPa since last week related to the predicted wave reflection and the return of cold next week in the Northeastern US (now predicted to be more widespread). We don't produce diagnostics at 100hPa but there are some limited forecasts on the web. Here are two forecasts from this morning's GFS presented in **Figure iv**. This week the lower stratospheric PV is stretched much like its mid-stratosphere counterpart from Asia to Northern Europe, not a classical stretched PV (but does occur). In addition the Eastern US is under a mild southwesterly flow of air this week. However next week the lower stratospheric PV is once again stretched from Siberia to Canada suggestive of cold air driving south across Canada, and the Eastern US is once again in a cold, northerly flow of air.

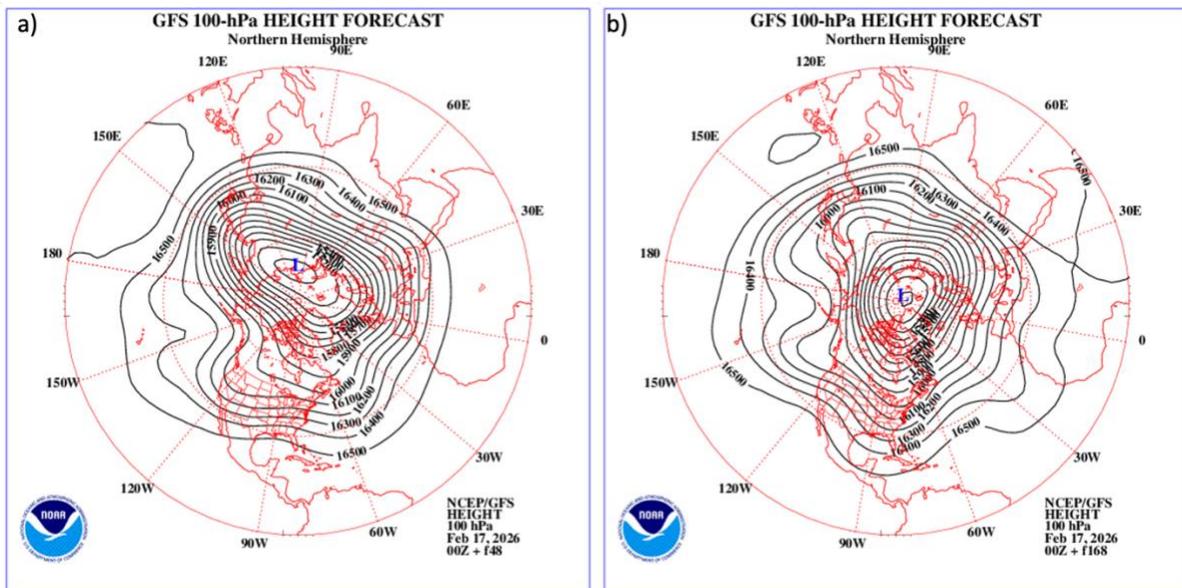


Figure 12. (a) Predicted 100 mb geopotential heights (m; contours) across the Northern Hemisphere for 19 Feb 2026. (b) Same as (a) except forecasted for 24 Feb 2026. The forecasts are from the 00Z 17 February 2026 GFS operational model. Plots taken from: https://www.cpc.ncep.noaa.gov/products/stratosphere/strat_a_f/.

I have occasionally been including forecasts from our best-in-competition AI subseasonal forecast model. This is really pushing what can be credibly believed from the model, but for the second forecast period of the second week of March it is predicting high pressure ridging in the Gulf of Alaska (see **Figure va**) coupled with, probably not extreme cold, but at least an elevated risk of below normal temperatures in the Northeastern US and Southeastern Canada (see **Figure vb**). This would be consistent with a stretched PV. This is consistent with the wave energy diagnostics shown in **Figure iii** and my own thinking. Though I do think the return of colder weather to the Eastern US could be even sooner than predicted in our model.

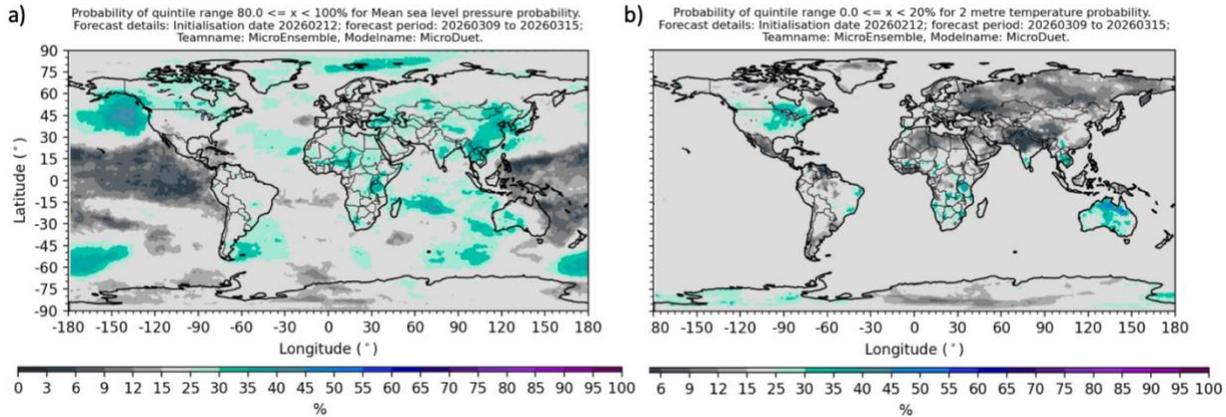


Figure v. a) Predicted probability of highest 20 percent or top quintile for mean sea level pressure for the week of 9 March to 15 March 2026. b) Predicted probability of lowest 20 percent or bottom quintile for surface temperature for the week of 9 March to 15 March 2026.

In conclusion, I will end (and likely the last time) with my 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. I think I can claim with some confidence that door number three or this pattern of “rinse, lather, repeat” has gone the entire length of winter 2025/26 with one last stretched PV next week. Though that will be the last stretched PV of the winter, I do think that there is a good chance of at least one more in early March. Model forecasts are predicting a weak overall PV into March and probably time to start thinking of the Final Warming, though even an SSW is still possible.

Near-Term

This week

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

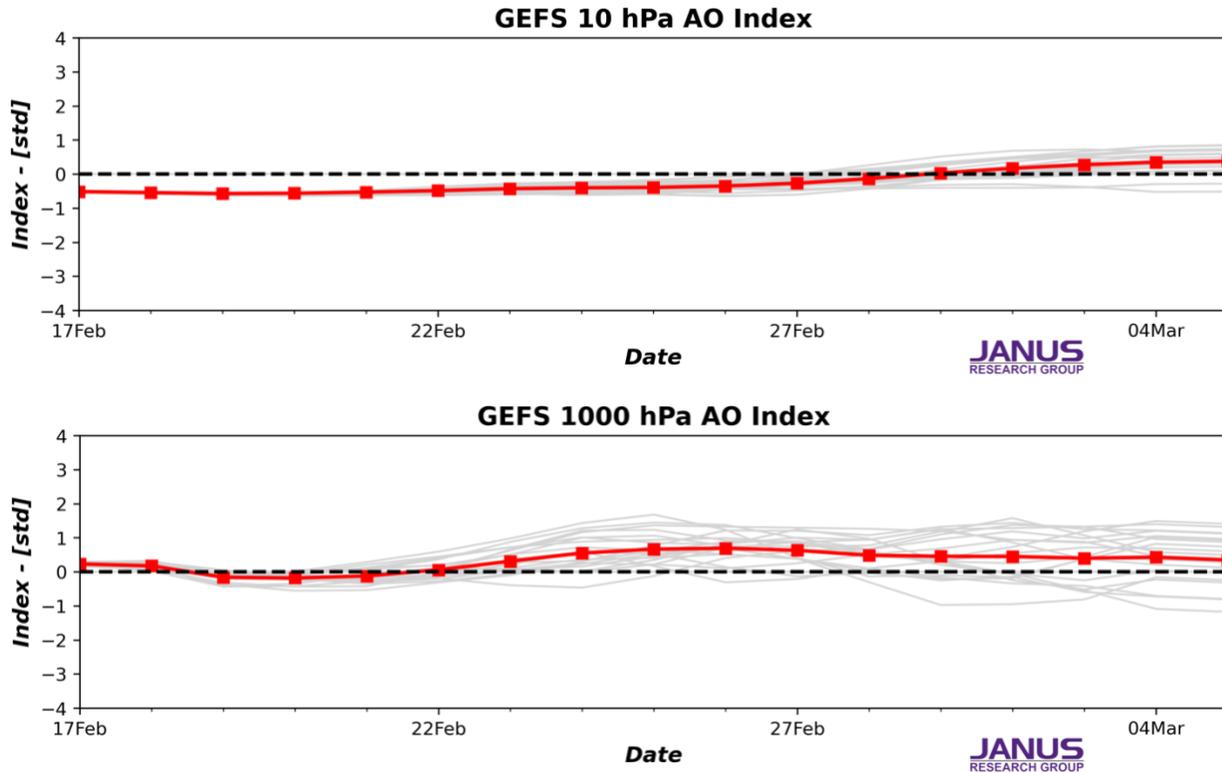


Figure 1. The predicted daily-mean AO at a) 10 hPa and b) 1000 hPa from the 00Z 09 Feb 2026 GFS ensemble. Gray lines indicate the AO index from each individual ensemble member, with the ensemble mean AO index given by the red line with squares.

The predicted pattern this week across Europe is ridging/positive geopotential height anomalies across Western and Southern Europe with troughing/negative geopotential height anomalies across Northern and Eastern Europe (**Figure 2**). This pattern will support normal to above normal temperatures across Western and Southern including the UK, however low geopotential heights will support normal to below temperatures across across Northern and Eastern Europe this week (**Figure 3**). This week the general pattern across Asia is ridging/positive geopotential height anomalies across much of Asia centered on Southwestern Asia with troughing/negative geopotential height anomalies across most of Northern Siberia and centered on Western Siberia this week (**Figure 2**). This pattern favors normal to below normal temperatures across much of Northern Siberia and near the Urals with normal to above normal temperatures across most of Asia this week (**Figure 3**).

GEFS 1-5 Day Forecast 500 hPa Anomaly
INIT: 00Z 02/17/2026 FCST: 02/18/2026 to 02/22/2026

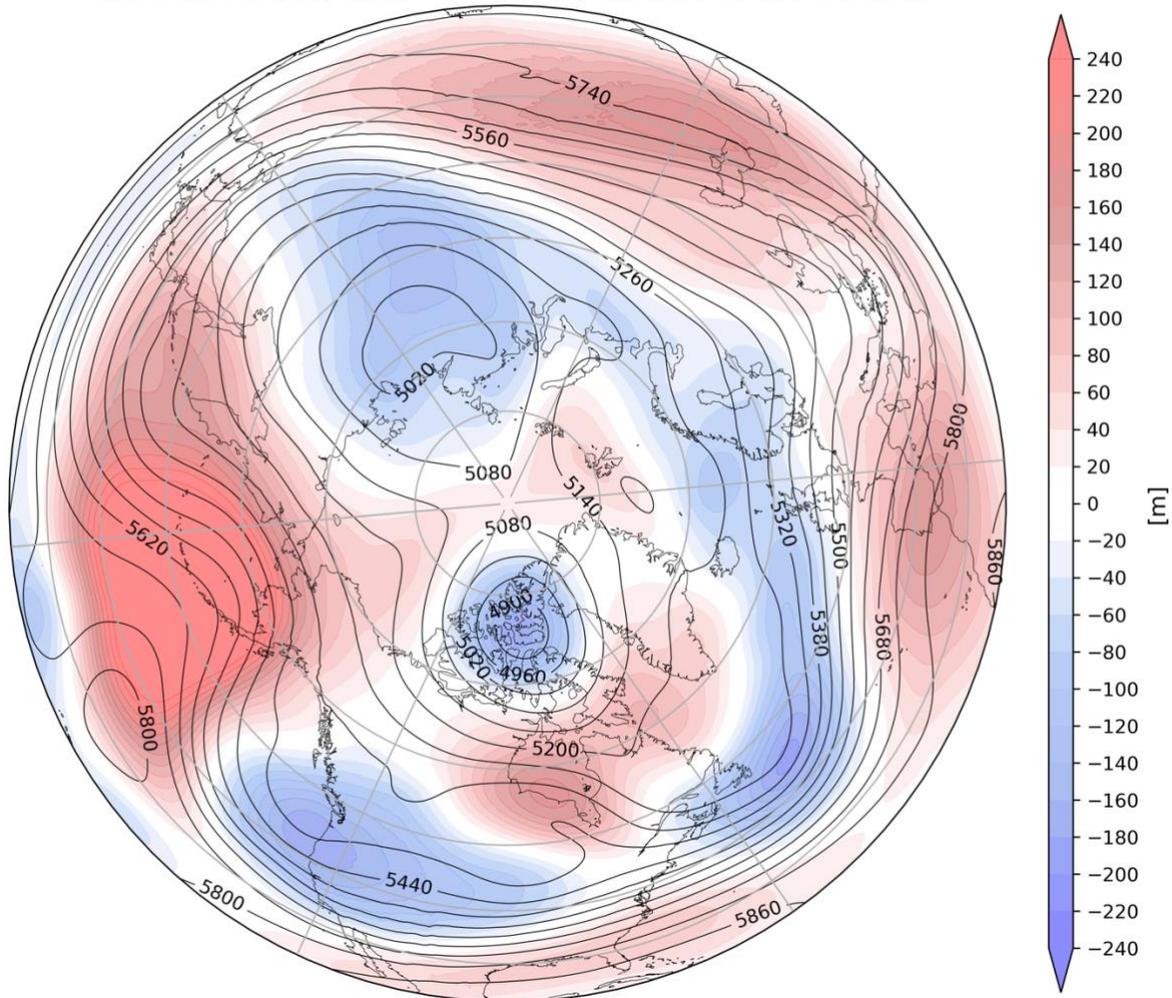


Figure 2. Forecasted average 500 mb geopotential heights (dam; contours) and geopotential height anomalies (m; shading) across the Northern Hemisphere from 18 Feb 2026 to 22 Feb 2026. The forecasts are from the 00Z 17 Feb 2026 GFS ensemble.

This week begins a pattern change across North America with deepening troughing/negative geopotential height anomalies across Western US, Western Canada and Alaska that will support building ridging/positive geopotential height anomalies across Eastern Canada and the Eastern US this week (**Figure 2**). This pattern will favor normal to above normal temperatures across Eastern Canada and the Eastern US with normal to below normal temperatures across Alaska, Western Canada and the Western US this week (**Figure 3**).

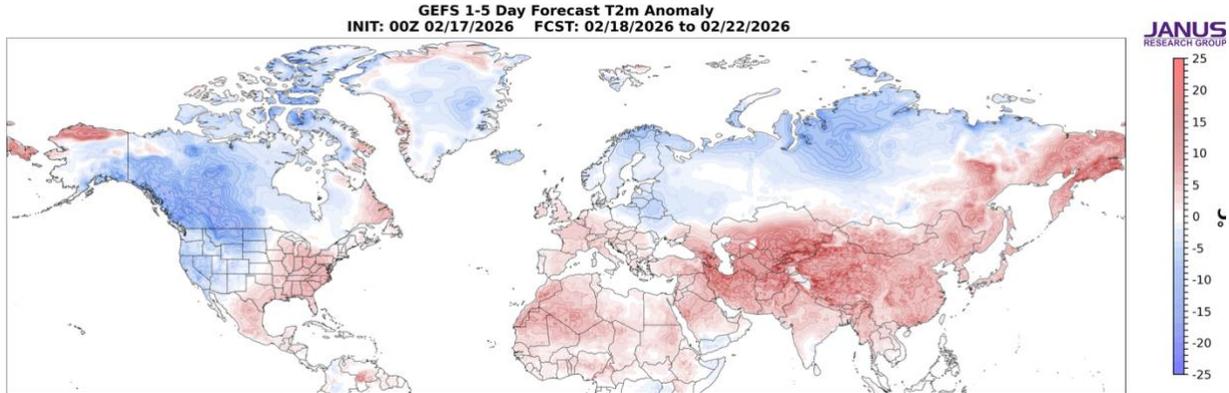


Figure 3. Forecasted surface temperature anomalies ($^{\circ}\text{C}$; shading) from 18 Feb 2026 to 22 Feb 2026. The forecasts are from the 00Z 17 Feb 2026 GFS ensemble.

Trouching and/or cold temperatures will support new snowfall across parts of Eastern Europe and Siberia while milder temperatures will support snowmelt across the Alps, the Baltic States, Western Russia, Central Asia and parts of Siberia this week (**Figure 4**). Trouching and/or cold temperatures will support new snowfall across western Alaska, the higher elevations of Western Canada, the Canadian Plains, the Northern US Plains and the higher elevations of the Western US while milder temperatures will support snowmelt across parts of Southeastern Canada and the Northeastern US this week (**Figure 4**).

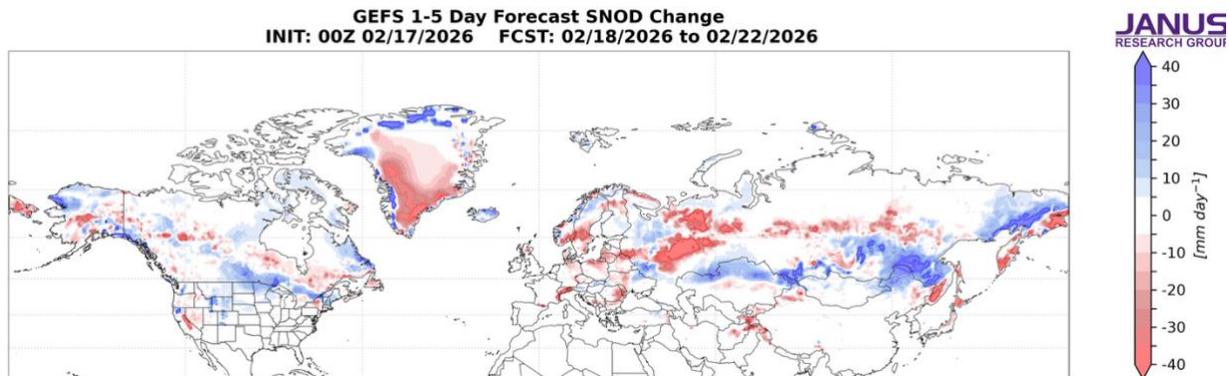


Figure 4. Forecasted snowfall (mm/day ; shading) from 18 Feb 2026 to 22 Feb 2026. The forecasts are from the 00Z 17 Feb 2026 GFS ensemble.

Near-Mid Term

Next week

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

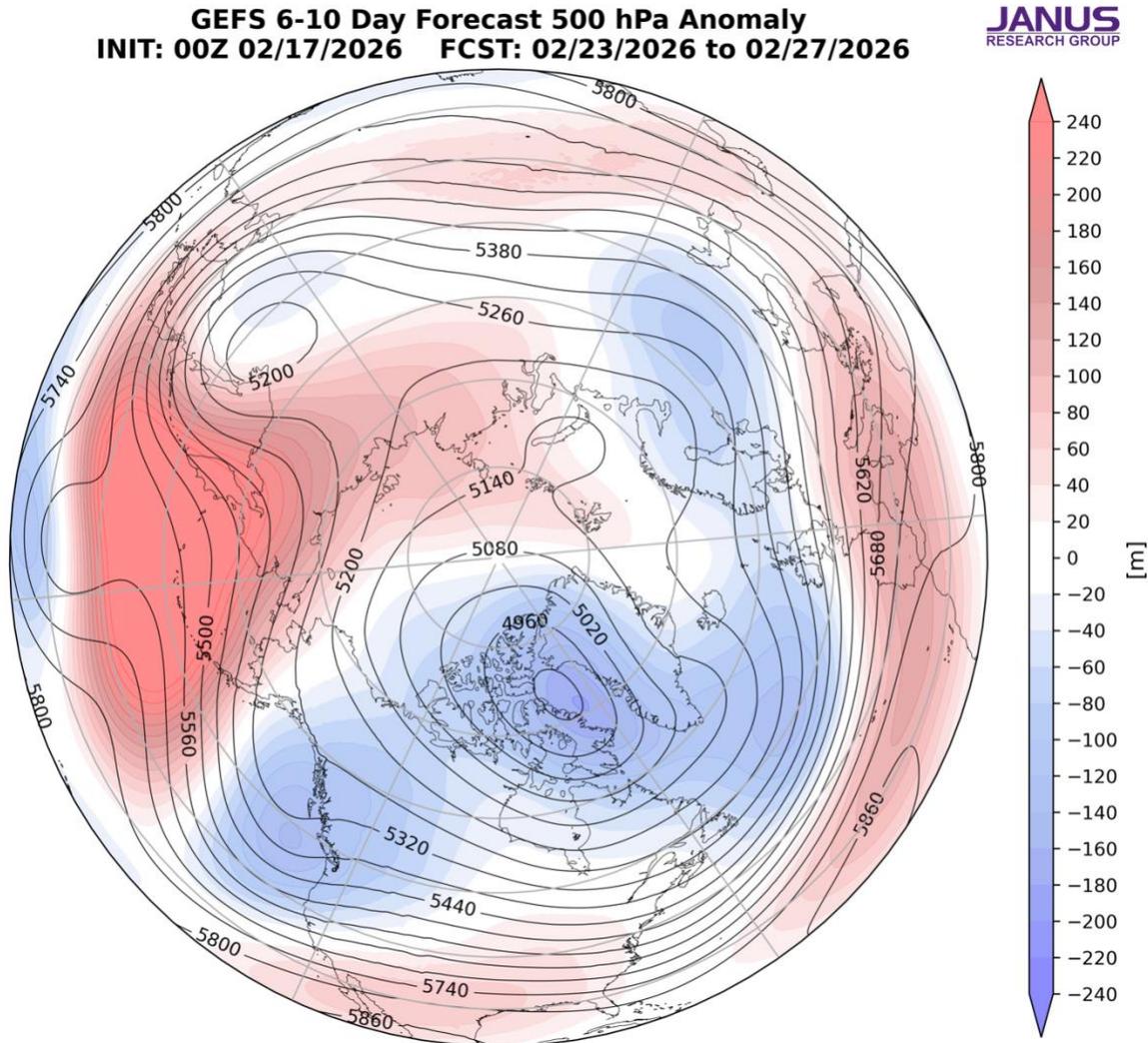


Figure 5. Forecasted average 500 mb geopotential heights (dam; contours) and geopotential height anomalies (m; shading) across the Northern Hemisphere from 23 Feb 2026 to 27 Feb 2026. The forecasts are from the 00Z 17 Feb 2026 GFS ensemble.

The persistent pattern across Europe is predicted to continue with ridging/positive geopotential height anomalies across Western and Southern Europe with troughing/negative geopotential height anomalies across Northern and Eastern Europe this period (**Figure 5**). The pattern will support normal to above normal temperatures across

Western and Southern Europe including the UK with normal to below normal temperatures across Northern and Eastern Europe under low heights this period (**Figure 6**). Across Asia ridging/positive geopotential height anomalies will dominate Asia centered over Central Asia with troughing/negative geopotential height anomalies across most of Siberia and into Northeast Asia (**Figure 5**). This pattern favors widespread normal to above normal temperatures widespread across much of Asia especially Central Asia and including Eastern Siberia with normal to below normal temperatures across much of Russia and into Northeast Asia this period (**Figure 6**).

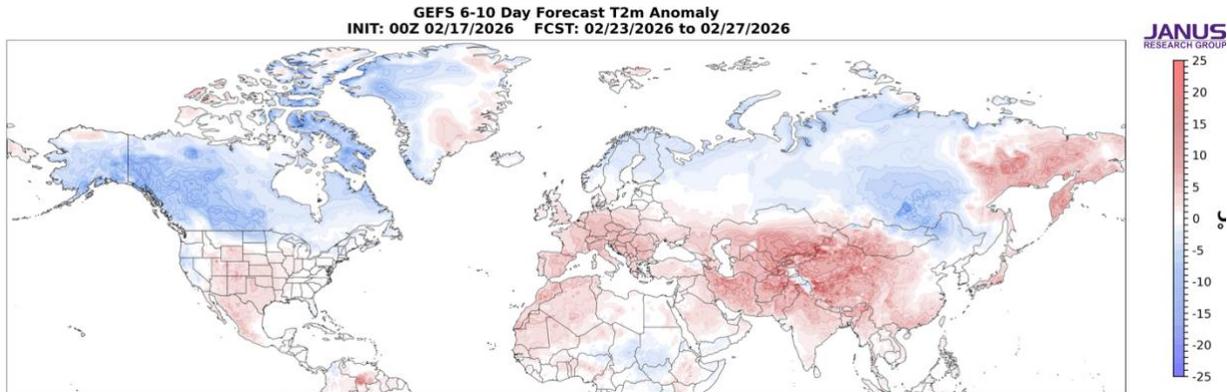


Figure 6. Forecasted surface temperature anomalies (°C; shading) from 23 Feb 2026 to 27 Feb 2026. The forecasts are from the 00Z 17 Feb 2026 GFS ensemble.

Troughing/negative geopotential height anomalies will persist across Alaska, Western Canada and the Western US but now extend into Eastern Canada and the Northeastern US with ridging/positive geopotential height anomalies mostly limited to the Central US this period (**Figure 5**). This pattern will favor normal to below normal temperatures across Alaska, much of Canada and the Western and Northeastern US with normal to above normal temperatures mostly limited to the Central US (**Figure 6**).

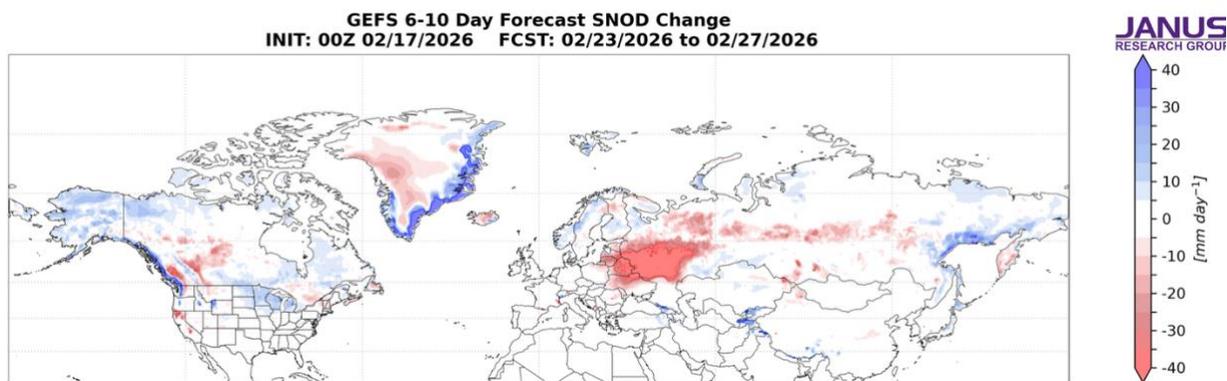


Figure 7. Forecasted snowfall rate (mm/day; shading) from 23 Feb 2026 to 27 Feb 2026. The forecasts are from the 00Z 17 Feb 2026 GFS ensemble.

Troughing and/or cold temperatures will support new snowfall in Scandinavia, Turkey, parts of Siberia, Northeast Asia and the Tibetan Plateaus while milder temperatures will support

snowmelt in parts of Eastern Europe, Western Russia, and Kamchatka this period (**Figure 7**). Troughing and/or cold temperatures will support new snowfall in Alaska, Western and Southern Canada and the Northeastern US while milder temperatures will support snowmelt in and the higher elevations of Western Canada and the Western US this period (**Figure 7**).

Mid Term

Week Two

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

GEFS 11-15 Day Forecast 500 hPa Anomaly
INIT: 00Z 02/17/2026 FCST: 02/28/2026 to 03/04/2026

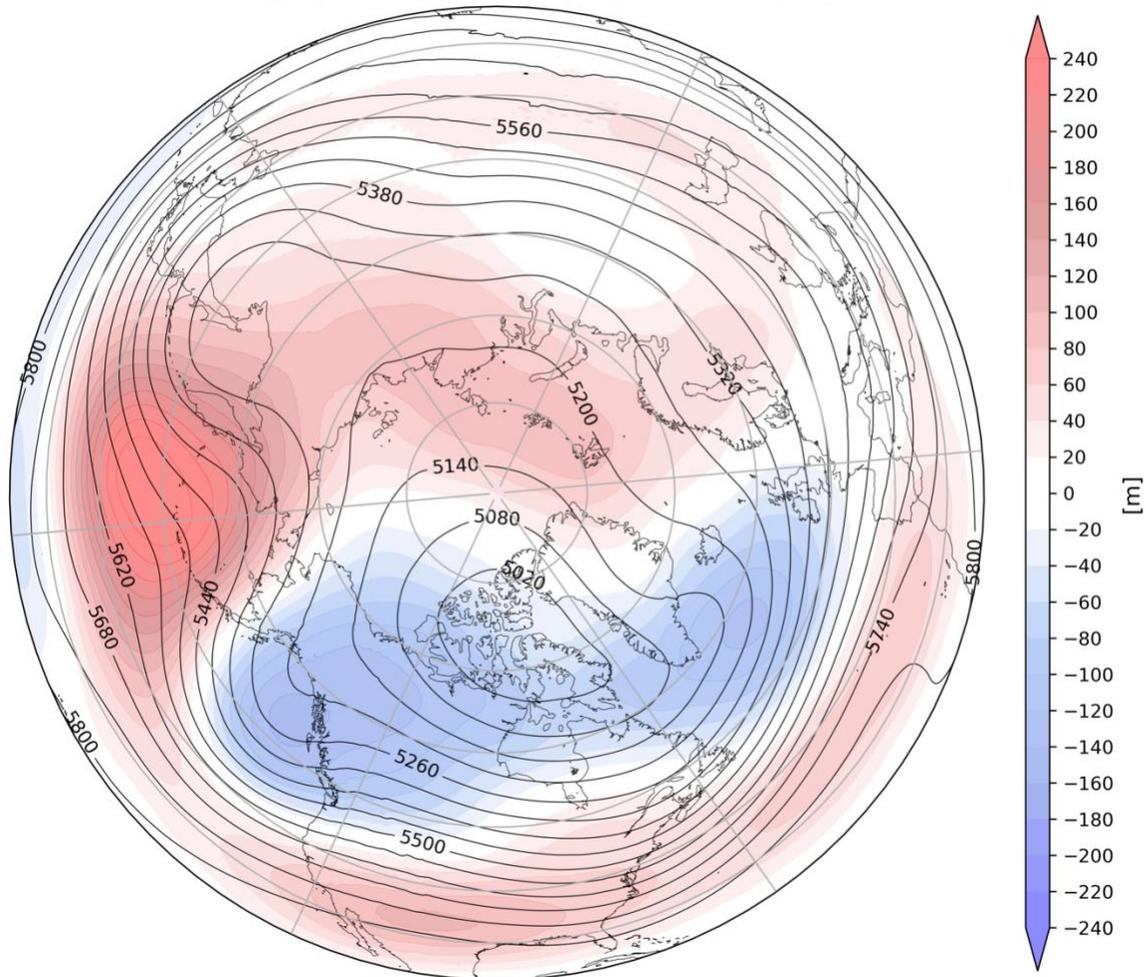


Figure 8. Forecasted average 500 mb geopotential heights (dam; contours) and geopotential height anomalies (m; shading) across the Northern Hemisphere from 28 Feb to 4 Mar 2026. The forecasts are from the 00Z 17 Feb 2026 GFS ensemble.

Weak troughing/negative geopotential height anomalies across Greenland will support ridging/positive geopotential height anomalies becoming more widespread across Europe with weak troughing/negative geopotential height anomalies across Northwestern Europe this period (**Figure 8**). This pattern should favor expanding normal to above normal temperatures across much of Europe including the UK with normal to below normal temperatures limited to Scandinavia this period (**Figures 9**). Predicted ridging/positive geopotential height anomalies across Eastern Siberia and the Barents Kara Seas will support troughing/negative geopotential height anomalies across Northern and Northeastern Asia (**Figure 8**). This pattern favors normal to below normal temperatures across much of Russia and into Northeastern Asia with normal to above normal temperatures widespread across Asia including Eastern Siberia, the Middle East and the Tibetan Plateau this period (**Figure 9**).

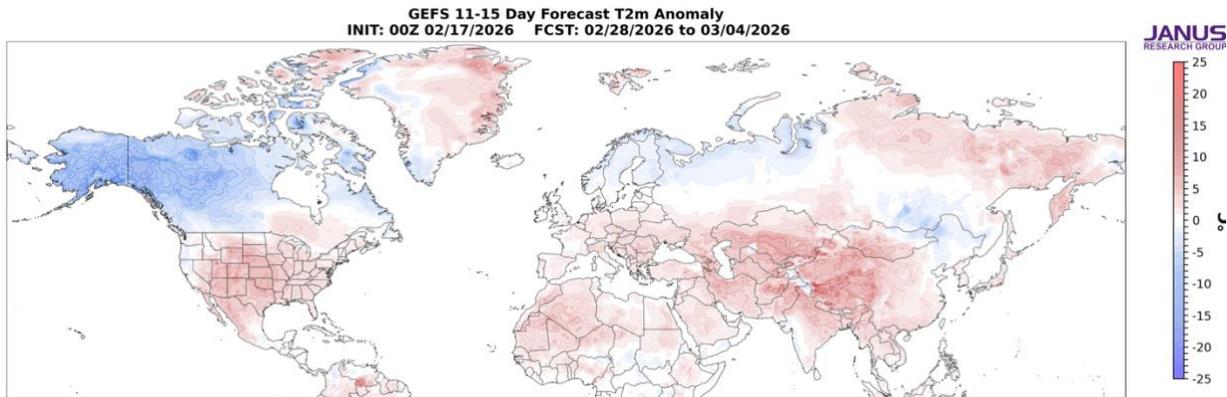


Figure 9. Forecasted surface temperature anomalies (°C; shading) from 28 Feb to 4 Mar 2026. The forecasts are from the 00Z 17 Feb 2026 GFS ensemble.

Persistent ridging/positive geopotential height anomalies over Eastern Siberia and near the Dateline are predicted to anchor troughing/negative geopotential height anomalies across Alaska, Western Canada and the Western US with more ridging across the Eastern US this period (**Figure 8**). This pattern supports normal to below normal temperatures across Alaska, Northern and Western Canada and the Western US with normal to above normal temperatures across Southeastern Canada and the Central and Eastern US this period (**Figure 9**).

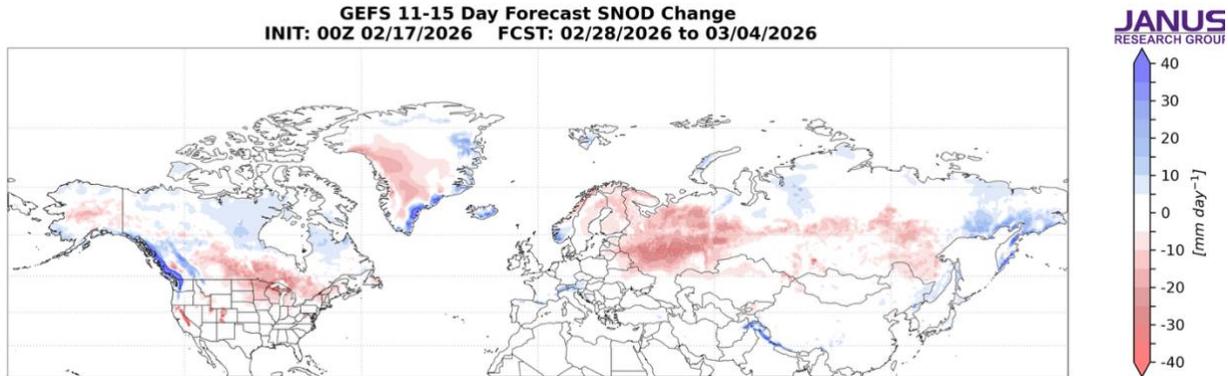


Figure 10. Forecasted snowfall (mm/day; shading) from 28 Feb to 4 Mar 2026. The forecasts are from the 00Z 17 Feb 2026 GFS ensemble.

Trouging and/or cold temperatures will support some possible new snowfall in the Alps, parts of Norway, parts of Siberia and the Tibetan Plateau while milder temperatures will support snowmelt in parts of Scandinavia, Eastern Europe, Western Russia and Southern Siberia this period (**Figure 10**). Trouging and/or cold temperatures will support new snowfall across the higher elevations of Western Canada and Eastern Canada while milder temperatures will support snowmelt in Alaska, Southern Canada, the higher elevations of the Southwestern US, the Great Lakes and the Northeastern US this period (**Figure 10**).

Longer Term

30-day

Today's polar cap geopotential height anomalies (PCHs) plot currently shows warm/positive PCHs throughout the stratosphere with cold/negative PCHs in the troposphere (**Figure 11**). Then next week tropospheric PCHs will flip only briefly warm/positive while PCHs in the stratosphere are predicted to persist warm/positive.

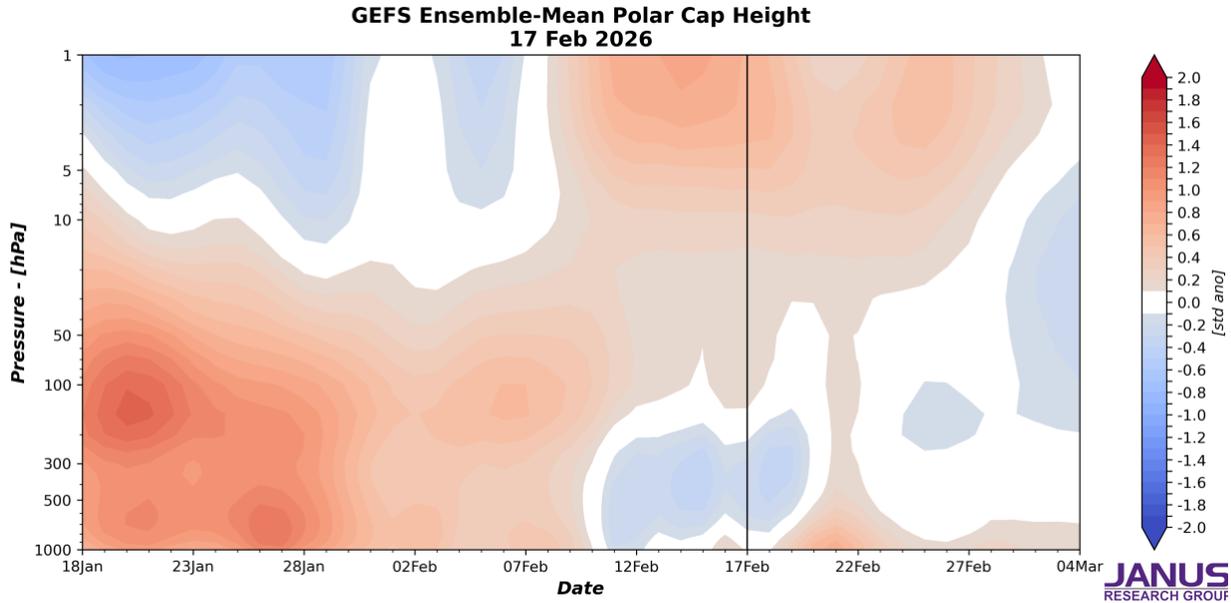


Figure 11. Observed and predicted daily polar cap height (i.e., area-averaged geopotential heights poleward of 60°N) standardized anomalies. The forecast is from the 00Z 17 Feb 2026 GFS ensemble.

The predicted cold/negative PCHs in the lower troposphere this week (**Figure 11**) are consistent with the predicted positive to neutral AO this week (**Figure 1**). Then next week the forecast of warm/positive PCHs in the lower troposphere (**Figure 11**) are consistent with a near neutral AO (**Figure 1**). However with the return of warm/positive PCHs to the lower troposphere the third week of February could bias the AO negative.

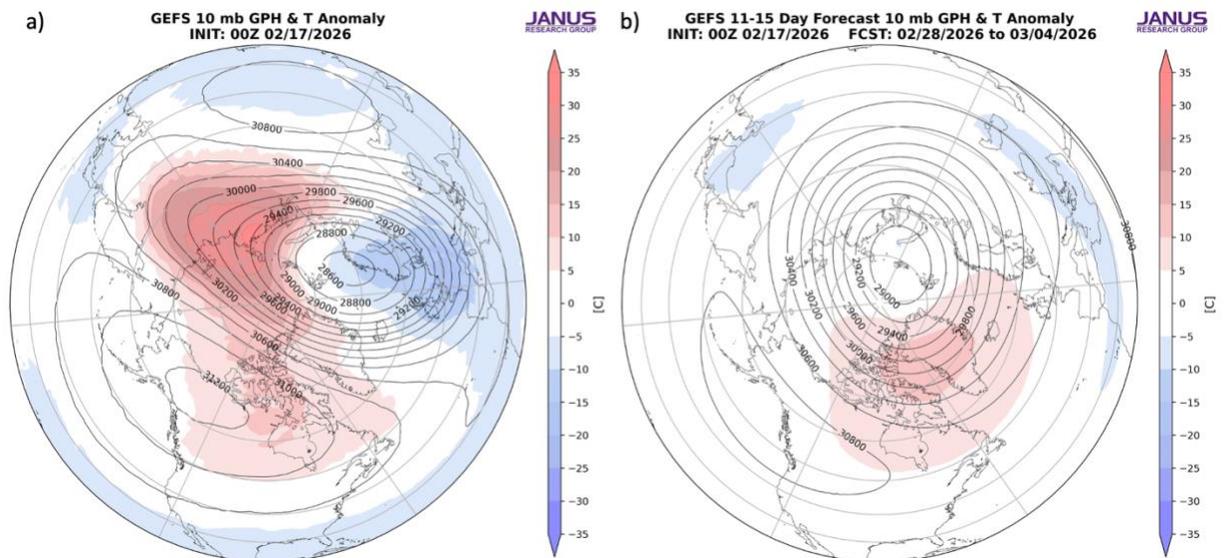


Figure 12. (a) Observed 10 mb geopotential heights (dam; contours) and temperature anomalies (°C; shading) across the Northern Hemisphere for 17 Feb 2026. (b) Same

as (a) except forecasted averaged from 28 Feb to 4 Mar 2026. The forecasts are from the 00Z 17 Feb 2026 GFS ensemble.

Currently the polar vortex (PV) remains elongated in shape from Northern Europe to Siberia with the main PV center over the Barents-Kara Seas/Scandinavia with relatively cold temperatures focused inside the PV center over Northeastern Europe and with high pressure centered over Canada and relatively warm temperatures across the Arctic and Northern Canada in the polar stratosphere (**Figure 12a**). This PV configuration is consistent with a Canadian Warming. Then during late February the PV center is predicted to remain over the Barents-Kara Seas but now elongate towards Canada with high pressure centered over the Gulf of Alaska with cold temperatures over Eastern Asia with relatively warm temperatures stretching across Eastern Canada and Greenland in the polar stratosphere (**Figure 12b**). This to me resembles the PV transition from a Canadian Warming to a stretched PV but 10 hPa may not be the best pressure level to identify stretched PVs for these late winter events. The stratospheric AO in **Figure 1** this week and next week is predicted to remain close to neutral or negative. I do think the PV center and cold temperatures in the polar stratosphere over Northeastern Europe is supporting the cold temperatures in the same region at the surface as well.

**CFS 500 hPa Forecast Anomaly Apr 2026
Valid as of 17 Feb 2026**

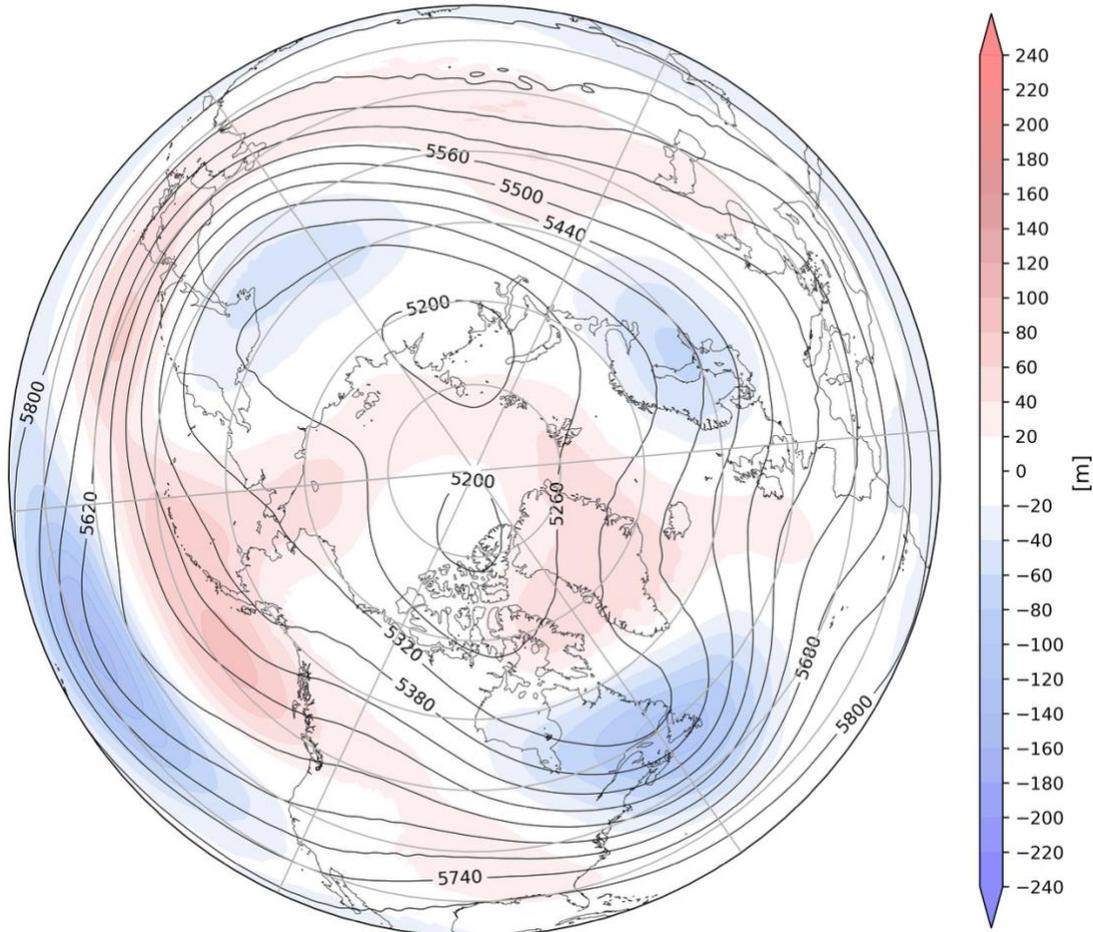


Figure 13. Forecasted average 500 mb geopotential heights (dam; contours) and geopotential height anomalies (m; shading) across the Northern Hemisphere for Mar 2026. The forecasts are from the 00Z 17 Feb 2025 CFS.

I include in this week's blog the monthly 500 hPa geopotential heights (**Figure 13**) and surface temperatures for March (**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 across Greenland to Iceland, East Asia, the Dateline to the Gulf of Alaska and the Southeastern US with troughing centered on Scandinavia, across Northern and into Northeastern Asia, Eastern Canada and the Northeastern US (**Figure 13**). This pattern favors seasonable to relatively warm temperatures across Europe, Southern, Central and Eastern Asia, including the Middle East, eastern China the Tibetan Plateau, Pakistan and Afghanistan, much of Siberia and the Central and Eastern US with seasonable to relatively cool temperatures across Eastern Europe, Western Russia, Alaska, much of Canada and the Western US (**Figure 14**).

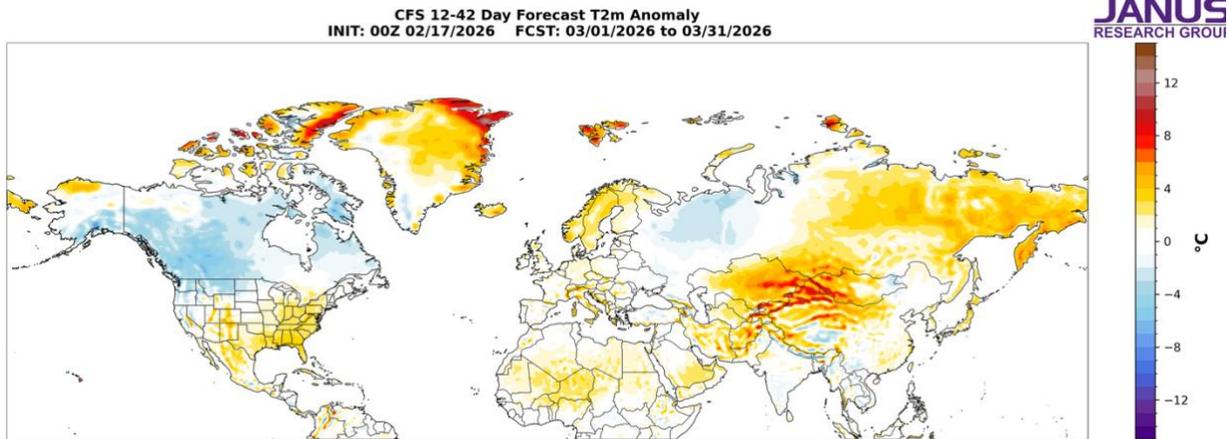


Figure 14. Forecasted average surface temperature anomalies (°C; shading) across the Northern Hemisphere for Mar 2026. The forecasts are from the CFS 00Z 17 Feb 2025.

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 past January but low sea ice near Greenland could be supporting blocking in the region as well. Large negative sea ice anomalies have also developed in the Sea of Okhotsk and could be a result of but also supporting blocking in the region.

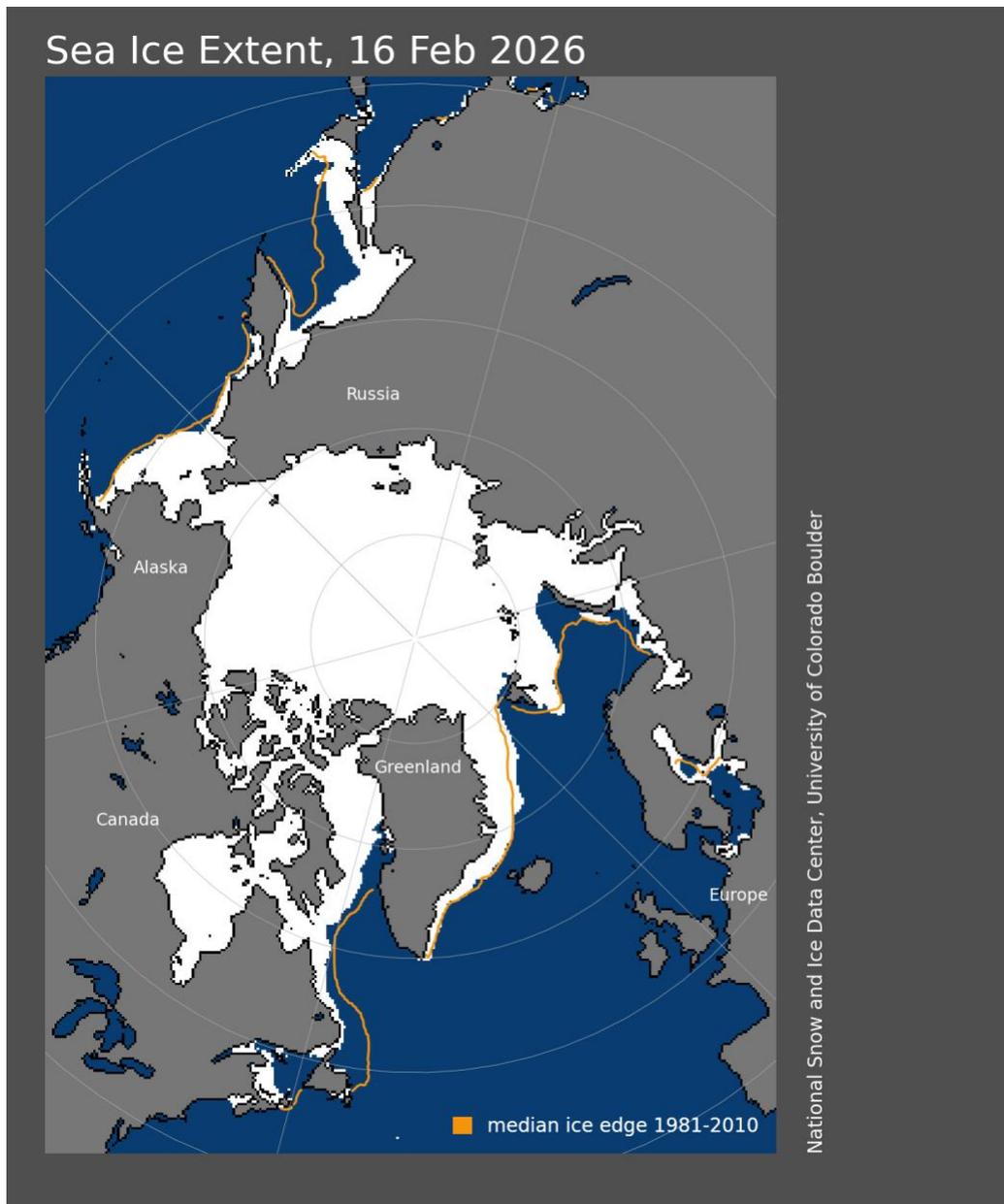


Figure 15. Arctic sea ice cover extent for 16 Feb 2026. White depicts ice covered areas and the orange contour the climatological extent of Arctic sea ice for the date. Plot taken from: <https://nsidc.org/sea-ice-today>

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, however warming has appeared near the South American coast and could be a sign of a developing El Niño conditions. 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 blocking in both basins.

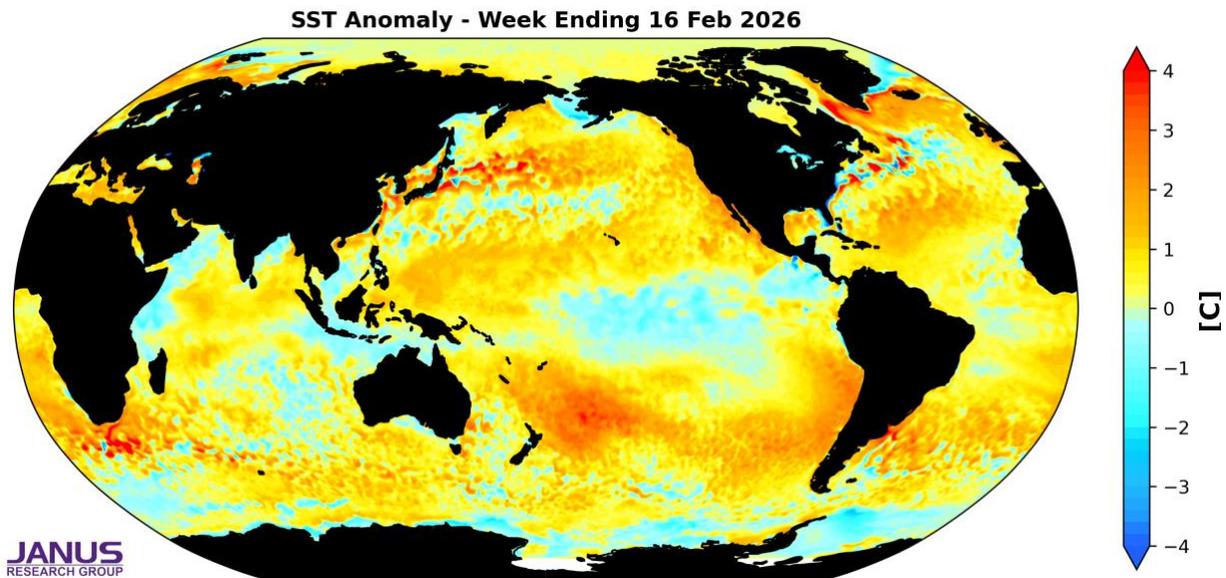


Figure 16. The latest daily-mean global SST anomalies for week ending 16 Feb 2026.

Madden Julian Oscillation

Currently the Madden Julian Oscillation (MJO) is currently in phase two (**Figure 17**) and the forecasts are for the MJO to once again quickly weaken to where no phase is favored (**Figure 17**). Phase two favor ridging in the Eastern US with troughing in western North America. Therefore, it seems that the MJO could be having some influence on North American weather this week but likely less so next week. But admittedly this is outside of my expertise.

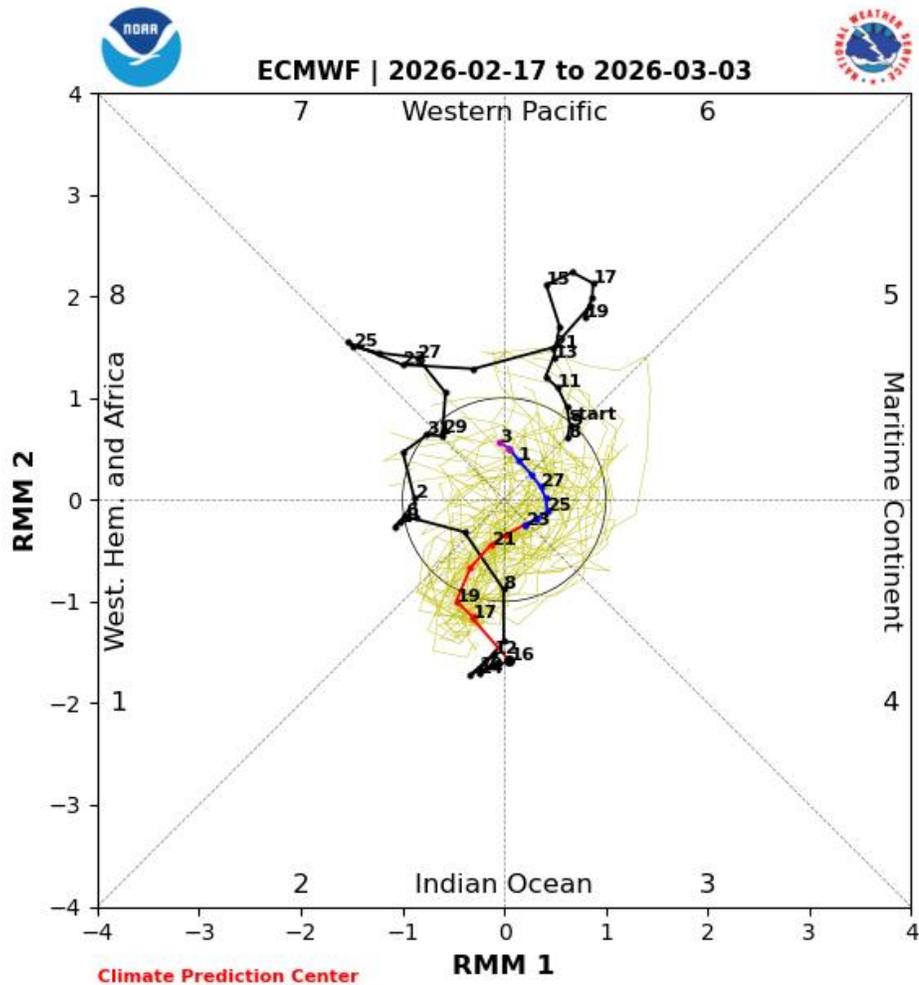


Figure 17. Past and forecast values of the MJO index. Forecast values from the 00Z 17 Feb 2026 ECMWF model. Yellow lines indicate individual ensemble-member forecasts, with the green line showing the ensemble-mean. A measure of the model 'spread' is denoted by the gray shading. Sector numbers indicate 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>

Get Detailed Seasonal Weather Intelligence with [sCast](#)

We appreciate your taking the time to read the public Arctic Oscillation blog from Dr. Judah Cohen and the AER Seasonal Forecasting team.

Dr. Cohen's detailed monthly seasonal forecast, sCast, is also available. [sCast](#) provides a monthly 30-60-90-180-day outlook into temperature and precipitation, solar flux and wind anomalies across the globe, and regional population weighted cooling and heating degree forecasts for the US.

Our sCast principal engineer, [Karl Pfeiffer](#), can help you use sCast and other AER seasonal forecast products to deliver important, long-lead time weather intelligence to your business. Please reach out to Karl today!