Response to the Editor for EGUSPHERE-2026-1017

We would like to express my sincere gratitude to both reviewers for their thoughtful and constructive feedback and the Editor for considering the original manuscript. We offer our response with a number of substantive changes that remedy the editor and Reviewers' comments and concerns. We have made substantive changes to the manuscript in response to each Reviewer comment, which can be found below. We believe that the feedback we received and the new results and discussion that prompted have substantially improved the manuscript.

Editor and Reviewer comments are shown in plain text**. Author responses are shown in bold text. Quotations from the revised manuscript are shown in *bold italics*. A bibliography for references cited is at the end of the document. <u>The revised manuscript and the version of tracked changes will be uploaded with the editor's decision</u> about the further handling of the manuscript.**

I would like to thank two anonymous reviewers for providing constructive comments and suggestions. Based on the review results, my current impression of this manuscript is positive. I expect the authors to consider the review carefully and revise the manuscript appropriately.

In addition, I have the following technical comments, which I would like to ask the authors to consider.

: Thank you very much for considering our original manuscript. Please refer to our responses to your comments below.

Figure 8 caption: The first sentence here is a bit confusing in my opinion. For example, the unit "(gpm/10% SC)" that includes gpm is indicated before 500hPa geopotential height (gpm) is introduced. Suggest rephrasing this part to "Results of linear regression slope between December 500hPa geopotential height (gpm) and October (a) snow cover (gpm/10% SC) as well as (b) surface albedo (gpm/0.1 albedo)."

: Thank you for your comment. We changed Figure 8 caption as suggested.
Figure 8: Results of linear regression slope between December 500hPa geopotential height (gpm) and October (a) snow cover (gpm/10% SC) as well as (b) surface albedo (gpm/0.1 albedo). (c-d) Same as (a) and (b), but variables have been detrended. Hatched areas indicate regions statistically significant at the 90% confidence level.

L. 329: It seems to me that the definition of "EAWM" is missing in this manuscript.

: We added the full name of EAWM, as East Asian Winter Monsoon.

Figure 9: I understand you want to indicate geopotential height using the abbreviation "GPH"; however, this abbreviation is not used in the running text. It is necessary to define the abbreviation in the caption of Fig. 9 or in the running text.

: At the end of Figure 9 caption, we added the following definition.
Note that GPH stands for geopotential height.

References of figures in the running text: Throughout the manuscript, the abbreviation "Fig." should be used when it appears in running text and should be followed by a number unless it comes at the beginning of a sentence, e.g.: "The results are depicted in Fig. 5. Figure 9 reveals that...". More detailed information can be found in the following link:

https://www.the-cryosphere.net/submission.html#figurestables

: Changed accordingly. Thank you!

Additional editorial modification

In this revision, we found a type error in Table 1. The criterion 2 of the revised cold day index used in this study has been changed as follows.

Table 1: From "Tmin is −12°C or lower for more than two consecutive days" to "Tmin falls to −12°C or lower".

We also revised the sentence in L128 of original manuscript as follows.

L128: Therefore, we modified the KMA cold day index and cold wave advisory criteria…

Please note that there are no changes in the actual results, such as National-PC1.