Authors' response to minor revisions for "Investigating the impact of reanalysis snow input on an observationally calibrated snow-on-sea-ice reconstruction", Cabaj et al., egusphere-2024-2562

We thank the reviewers for their helpful feedback and have made the minor revisions as suggested. Reviewer comments pertaining to these revisions are presented italicised in blue and our responses are in plain text. Other changes we have made include other minor phrasing adjustments for clarity/correctness, and fixing incorrect legend markers in Fig 11.

L261: (retrieved …; Liston et al. (2021)) >> (retrieved …; Liston et al., 2021) Changed as suggested
L482: (with … Meier and Stewart (2023)) >>(with … Meier and Stewart, 2023) Changed as suggested
L511: ("MCMC"))> ("MCMC") There are two parentheses here because the parentheses are nested (refer to the open parenthesis near the beginning of the sentence) so we leave this unchanged. We have, however, checked through the document for other instances of double parentheses just in case.
L807: sub-gridscale >> sub-grid scale Changed as suggested
L808: may not be coincident with>> may not align with? Changed to "may not align with" as suggested
L816: on differing sides of the threshold>> opposite sides? Changed to "opposite sides" as suggested
L826: This highlights the value of accounting for uncertainties due to >>
This highlights the importance of accounting for uncertainties arising from Changed as suggested
L827: spans a more reasonable 8-18% range >> ranges from 8% to 18%, which is more reasonable Changed as suggested
L830: due to the limited density range represented by the model >> because of the model's limited density range Changed as suggested
L832: This calls into question >> This challenges Changed as suggested
L834: An analogous >> A similar Changed as suggested
L853: The term "climate sensitivity" has a specific meaning in climate science. Revise to the sensitivity of sea ice variables to changes in snow depth? Thank you for catching this, we are familiar with the specific technical meaning of this phrasing and used it unintentionally. Revised to "[…] impacts on estimates of the sensitivity of sea ice variables to changes in snow depth."
L890: I find the connection between the two sentences unclear. The first sentence states that snow depth trends may align more closely between models even in regions where climatologies (e.g., average snow depth) disagree, suggesting that systematic biases persist but trends are less sensitive to model differences. However, the next sentence emphasizes that the choice of reanalysis snow input greatly impacts the magnitude and statistical significance of snow depth trends, implying that trends are indeed sensitive to reanalysis inputs. These statements appear contradictory. Could the authors clarify this? Or remove. We meant to state that trends can agree in regions where climatologies disagree (i.e. disagreement between climatologies does not necessarily imply disagreement in trends), but nevertheless, trends do not agree everywhere (and hence must be interpreted with caution). As suggested, we have rephrased to clarify as follows: "In regions where climatologies disagree between models, snow depth trends between models can sometimes show more agreement. In other cases, the choice of reanalysis snow input can still greatly impact the magnitude and statistical significance of snow depth trends, and thus, trends derived from reanalysis-based reconstructions of snow on sea ice must be treated with caution."

L956: (Tschudi et al., 2019)) >>(Tschudi et al., 2019) This was a closing parenthesis corresponding to the open parenthesis at L954; have removed the parentheses and rephrased slightly for added clarity