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Dear Dr. Maksym,

We are submitting our revised manuscript, "Antarctic Sea-Ice Freeboard from Envisat and CryoSat-2: Attributing Inter-Product Spread to Snow Assumptions and Radar-Retrieval Baselines," as a Research Article for consideration by *The Cryosphere*. This submission follows your in-principle agreement (received 2 May 2026) and formal confirmation (received 9 May 2026) that a *Research Article* revision is the most appropriate response to the open-discussion outcome of the original *Brief Communication* (egusphere–2026–662), subject to confirmation of the Copernicus Office Editor workflow with the editorial office. The manuscript has been restructured as a full Research Article rather than a *Brief Communication* because the revised analysis now includes a controlled snow-harmonisation attribution experiment, year-level bootstrap uncertainty estimates on every quantitative claim, and a sensitivity test on the choice of common snow reference. The decision to revise as a Research Article reflects the consensus of both reviewers of the *Brief Communication*: Reviewer 1 explicitly recommended expansion to a full-length paper, and Reviewer 2 considered the *Brief Communication* format insufficient for the analytical scope of the work. We agree with both reviewers that the contribution warrants the Research Article format, and we have used the opportunity provided by the open-discussion process to substantially extend the analysis along the directions both reviewers identified.

The Research Article extends the *Brief Communication* in the below respects, specifically. The time period is extended from 2013–2018 to 2003–2018 to span the full Envisat–CryoSat-2 multi-mission record. The snow propagation-speed correction $h_{sc}$ is added as an explicit third analytical variable alongside radar freeboard and sea-ice freeboard, with the snow propagation-speed equation given explicitly in the Methods. Four controlled snow-harmonisation experiments (Cases A–D), based on a $2 \times 2$ factorial design over snow thickness and snow density, decompose inter-product divergence into snow-related and non-snow-related components. The central finding is that snow assumptions explain 66–100% of the spread in $h_{sc}$ but only 7–21% of the total sea-ice freeboard spread (95% confidence intervals from year-level bootstrap), with the remainder (78–93%) attributable to non-snow elements of the retrieval chains, including floe and lead retracking, sea-surface-anomaly estimation, geophysical corrections, and product-specific sampling. Year-level bootstrap resampling (1,000 realisations) provides 95% confidence intervals on every reported reduction percentage, replacing the original point estimates that had been flagged by reviewers as falsely precise. An alternative-snow-reference sensitivity test (Appendix A) confirms that the harmonisation attribution is internally consistent under different choices of common snow reference, distinguishing the structural-consistency property of the experimental design from the coverage sensitivity that arises when the reference field has distinct spatial sampling. The cross-mission Envisat-to-CryoSat-2 inter-era difference is quantified sector-by-sector and recast as descriptive rather than causal, in recognition that the non-overlapping mission periods preclude unambiguous attribution to sensor change versus natural variability. The LEGOS I versus LEGOS II within-family comparison provides a natural sensitivity test on snow source within an otherwise unchanged retrieval framework. All six circumpolar Antarctic sectors are presented in the main body, with three deep-dive sectors (western Weddell Sea, Indian Ocean, Ross Sea) selected on *a priori* physical grounds. Product-level retrieval methodology is described in detail per product, covering retracker, snow source, snow density, and the snow propagation-speed correction formulation.

The author team has also been updated. Alexander D. Fraser (ADF) is added as a co-author in recognition of his substantive analytical contributions to the snow-harmonisation experimental design and the manuscript revision process; this addition was agreed by all co-authors prior to resubmission. Petra Heil (PH), a co-author of this manuscript, is a member of the *The Cryosphere* editorial board. PH has not been and will not be involved in the editorial handling of this submission, and this is declared explicitly in the Competing Interests statement of the manuscript.

We confirm that the manuscript is not under consideration elsewhere and that all authors have approved the submission. We thank you for your patience and editorial care during the open-discussion phase, and we look forward to the further review of the revised manuscript.

**Yours sincerely,**

**Xinlong Liu (lead and corresponding author)**

On behalf of all the co-authors: Rachel L. Tilling, Stuart P. Corney, Alexander D. Fraser, and Petra Heil.