

General Review:

This is a technically strong and generally well-written manuscript presenting a rare dual-frequency airborne SAR experiment with coincident field observations. The comparison of C- and L-band full-resolution interferometry, Delta-k processing, and simulated geosynchronous C-band observations is valuable. The two snowfall events provide a useful contrast between low and high accumulation. The manuscript also gives a balanced negative result for backscatter ratio and co-polarized phase difference as direct indicators of fresh-snow amount.

I recommend **cutting down the manuscript by 20%**.

Major comments

- The manuscript would benefit from a clearer separation between campaign-specific evidence and broader mission-level implications. The demonstrated results apply to two dry-snow accumulation events in three above-treeline RoIs with gentle to moderate terrain. Steep slopes, layover, wet snow, forest cover, and seasonal-scale temporal evolution were not evaluated. Please temper the operational-monitoring claims accordingly and consolidate these limitations in the Discussion and Conclusion.
- Please add a compact performance-summary table that compares all three interferometric configurations for SE1 and SE2. At minimum, report observed and retrieved Δ SWE, bias, MAE/RMSD, coherence, valid-pixel fraction, estimated uncertainty, cell size, and number of independent validation observations. The current presentation relies heavily on three RoI means and makes it difficult to distinguish spatial validation from agreement among regional averages.
- A major result of the uncertainty analysis is that reference-phase uncertainty from the corner reflectors is larger than the random phase uncertainty of the snow pixels. This is therefore not a secondary technical detail; it is one of the main limitations of the retrieval. In other words, reference-phase uncertainty appears to dominate the retrieval error, but its estimation from the maximum deviation among a small number of corner reflectors is insufficiently justified. Please provide reflector-specific phase statistics, evaluate sensitivity to the chosen reflector/reference average, and discuss how representative reference phases would be obtained in satellite applications without dedicated corner reflectors or nearby snow-free coherent surfaces.
- The manuscript is well written but excessively long relative to its principal contribution. Please shorten the campaign chronology, detailed backscatter/CPD descriptions, standard methodological derivations, and repeated configuration-by-configuration discussion. The main paper should emphasize the comparative performance and limitations of full-resolution C-band, full-resolution L-band, Delta-k, and simulated geosynchronous processing, with secondary diagnostics transferred to the Supplement.

Minor Comment

Line 65-70: The discussion about Hydraterra comes out of nowhere. You talk about many other missions and only explain Hydraterra in detail, why? Maybe it can be very brief or go in supplement.

Line 72: What is F-SAR system? Explain before you use it.

Overall a careful language and formatting edit is needed to correct typographical errors such as inconsistent “Wörgetal” and “Woergetal”, inconsistent place-name spelling, flight numbering, equation notation, and citation formatting.