

The authors have responded constructively to the first-round reviews. The additions of Fig. 14, the revised uncertainty table (Table 5), the corrected  $\delta^{18}\text{O}$  uncertainty for ALOMAR, and the new spatial representativeness discussion in Section 7 are all welcome improvements. However, several issues remain that require attention.

1) The  $R^2$  values reported in Figs. 14c-d are derived from only five data points. For  $n = 5$ ,  $R^2 = 0.60$  corresponds to a p-value of approximately 0.13, which is not statistically significant at the conventional  $\alpha = 0.05$  level. The authors must report p-values and confidence intervals for both regressions, and soften the conclusion regarding a "local INP source" if the relationship is not significant. Additionally, alternative explanations for the anticorrelation (e.g., air mass origin shifts, wind-driven resuspension) should be briefly acknowledged.

2) The +1.65‰ bias correction applied to site Coast  $\delta^{18}\text{O}$  (Section 5.1) carries its own statistical uncertainty, the authors should either incorporate this uncertainty into the budget or provide a brief quantitative justification for why it is negligible.

3) Section 5.4 notes a ~20‰ positive d-excess bias in surface snow samples relative to box samples but dismisses the cause as "currently unclear." For a data description paper, this is insufficient. The authors should clarify whether the bias is consistent across all transects, add an explicit cautionary statement for data users, and briefly discuss plausible physical mechanisms.

4) Fifty-seven radiosonde ascents are included in the PANGAEA dataset, yet neither Table 1 nor Section 2.4 provides any description of the instrument type, measured variables, or vertical resolution. A brief description should be added.

5) The distance to Bergen is stated as "1100 km" in Line 142 but as "1000 km" in line 688 and in the abstract. Please use a consistent value throughout.

6) Line 685 refers to "W-shape variations during IOP5" without a specific panel or time reference. Please add a pointer to help readers locate this feature.

7) The archived PANGAEA data should clearly state whether the +1.65‰ Coast  $\delta^{18}\text{O}$  bias correction has been pre-applied to the deposited data or must be applied by users. The current manuscript text is ambiguous on this point.

8) Line 411: "obtained by from the squared sum", please delete "by."

9) Please confirm that the correction to Fig. 13 panel labels (a-e) noted in the response to Reviewer 1 has been fully implemented, including a complete caption description of all five panels.