

I wanted to get some feedback from a subset of the referees as to their opinions on whether the revisions were sufficient. So in order to save time I initiated an email discussion on several specific points instead of sending for another full round of review. In particular the revised discussion of particle scavenging is not yet convincing. Rather than engaging in a protracted discussion, the referees suggested a softening of the stated confidence related to the statements made about particle scavenging, as suggested below. Overall the collective opinion is that the revision is worthy of publication. However, there are a few additional comments that we would like to see before the manuscript is accepted. These points are listed briefly below:

Figure 2: Separate sea salt and biological particles into separate sub-plots, because the bottom panel is somewhat misleading as currently formulated.

*Sea salt and biological particles were separated into separate sub-plots as suggested.*

Figure 4: Both (a) and (b) panels contain multiple y-axes, but the lack of legend makes the plots difficult to understand quickly for readers unfamiliar with these plots. In some way make the interpretation of separate traces/bars unambiguous. For example, please either: (i) add a legend, or (ii) change the color of the vertical axes to match the color of the plots.

*There was a legend present at the very top of the figure with all traces from (a) and (b), but to avoid confusion, the colors of the axes labels were changed to match each trace. This was done in remaining figures for consistency.*

Line 94: Change to “while Pratt et al. (2009) observed biological IN in ice residues from one orographic cloud via in situ aircraft measurements.”

*Sentence was changed as suggested.*

Line 213: The mass spectra of the atomization samples were interpreted manually. Were they also run through the same algorithm as the ambient samples to see if the results were consistent? There could be a bias in particle assignment between the fundamentally different methods. If the double-check was performed, please mention this fact. If not, please state this as a possible interpretation bias.

*We did complete a check between the manually classified residues versus the residues classified by ART-2a. This is now clarified at the end of the paragraph (lines 223-226 in track changes version): “The same ART-2a algorithm was applied to the precipitation residues; the residue percentages per sample for each particle type were within 6-10% of the manually classified results. Thus, the ambient and precipitation residues, although classified by different methods, are comparable to each other.”*

Line 382-385: The correlation between cloud top height and %Dust+Bio is not convincing as currently plotted. Please add a correlation plot associated with this correlation in an online supplement. It would also be worthwhile to include similar plots for other important correlations for which you report Spearman’s coefficients (e.g. Line 353).

*The correlation plot for cloud top height versus %Dust+Bio, along with correlation plots of % ice-induced precipitation versus %Dust+Bio, % cloud ice versus %Dust+Bio, and precipitation deviation versus %OC are now provided in a supplementary figure (uploaded with revision). We pointed out the availability of this figure on lines 358-361 and lines 415-416.*

Line 279: Change “we cannot determine with great certainty” to “we cannot determine directly”

*Sentence was changed as suggested.*

Line 297: Change “suggests” to “may suggest”

*Sentence was changed as suggested.*

Line 355: Change “would” to “might”

*Sentence was changed as suggested.*