

# Referee 1:

This study of filter stability before the analysis has been long overdue, and I am really happy the authors found the time to do it, and do it well! The conclusion is something people suspected but had no proof for: filters and extracts stored at room temperature change in composition significantly on a times scale of a day or so. This is important, and I expected many offline studies of aerosols to cite this study in the future. I recommend publishing after minor revisions.

I do not think this has to be a technical note, it can also be a regular paper, especially if the authors can offer a hypothesis or a possible explanation for why aging processes in solution are different from those on a filter (Figures 1 and 3).

Although more work needs to be done to explain the different aging processes during storage on filters and in extracts, a possible explanation is now added to the conclusion section L 359-361.

Technical:

If it is practical I would make the X- and Y-scales on all PCA figures (Figures 1, 3, 5, S2, S5, S6, S7, S8) the same

In principle we agree that the same axis scales would make it easier to compare figures 1, 3, 5. However, because the y- and x-axis scales of these 3 figures vary by almost a factor of 10, this would compress a lot some of the data and especially figure 5 would be hard to read. Hence, we left the axis scales as they were.

Legend labels in Figures 5, S6, S7, S8 should say -20C and -80C instead of 20 and 80 (as they do in the rest of the PCA figures)

Thank you for noticing, all labels were changed in all these Figures.

Line 166 and line 236: Intensity of 7E5 is not too meaningful – it is better to specify it in relationship to the peak signal (such as X% of the largest observed peak). Similar comment for line 292.

We agree with this comment and added the percentage of the largest observed peak to lines 168, 240-241 and 300-301.

Figure 3: this figure can be much improved – the traces can be split into separate stacked panels, the text labels can be more readable, and the four most intense peaks mentioned in line 192 of the paper can be explicitly identified.

We assume the reviewer meant Figure S3. We separated the Chromatograms in Figure S3 (now Fig. S4) and added labels for the most intense peaks in the beta-pinene and naphthalene plot.