First of all, we would like to thank the Reviewer for once again taking the time to evaluate our work and help us to improve it. We have reconsidered below the two comments that required our attention and revised the manuscript accordingly.

## **Regarding Comment 1.b**

We have followed the advice of the Reviewer to investigate further the peaks present on the C4 amines signal and the unidentified compounds showing the same peculiarity. In particular, we have plotted the mass defect (MD) plot corresponding to the data presented in Fig 6.a (shown below and also included in supplement, Fig. S11). We are very grateful to the Reviewer for his/her insistence on this point, since the complementary view provided by the MD plot and the additional analysis we carried out in this context enabled us to highlight a similarity in the behaviour of C4 amines and identified fluorinated compounds. This suggests that the signal of C4 amines is (at least to some extent) affected by a contamination, and we have therefore decided to exclude these compounds from the analysis proposed in section 4.2.2 (consequently, slight modifications have also been made to the abstract and conclusion).



Figure S11 Mass defect plot (corresponding to the data shown in Fig. 6.a) showing the identified species (marked by their chemical composition) as well as non-identified compounds associated to major peaks in the spectrum (marked by their mass, in bold). The size of the markers is related to the signal intensity (logarithmic scale).

The main changes made to the text (Sect. 4.2.1) in connection with this point are indicated below:

P13 : "In order to offer a different perspective on the data, Fig. S11 presents in addition the mass defect plot (corresponding to the data presented in Fig. 6.a) highlighting the abovementioned species as well as the signals of the non-identified compounds associated to major peaks which are briefly discussed at the end of the section."

P18: "In contrast, while similar behaviour is observed by Brean et al. (2021) for C2 and C4 amines, there is no marked diurnal cycle in C4 amines signal at Maïdo (which constitute an even larger fraction of the identified signal, on average 28.6% and 27.2% in the FT and in the BL, respectively, Fig. 7.b); sporadic peaks, which are further discussed below, are observed instead."

P18-19: "In the absence of blanks, in particular, the risk of a contamination in the measurements cannot be excluded. In the case of C4 amines, it appears that the peaks mentioned above are in fact similar to

those present in the signal of the identified fluorinated compounds (Fig. S12), and more generally there is a strong correlation between the signal of C4 amines and that of  $H(CF_2)_4COOH\cdot NO_3^-$  ( $R^2 = 0.60$ ) and  $H(CF_2)_5COOH\cdot NO_3^-$  ( $R^2 = 0.70$ ). The suspicion of a contamination is therefore high for these compounds, which will not be investigated further. For C2 amines, in contrast, there is no such correlation with fluorinated compounds, and there is also no correlation with temperature (Fig. 10), which further rules out the possibility that these compounds are the result of a temperature modulated contamination by the instrument or the sampling line (volatilization-related)."

P20: "The other masses (UMR 246, 260, 310, 344 and 362 Th) have a different behaviour (Fig. S15.b), which is actually comparable to that observed for the peaks attributed to C4 amines (Figs. 8 and 9) and fluorinated compounds (Fig. S12), suggesting that these compounds could once again be the result of a contamination. In particular, as illustrated on the mass defect plot shown in Fig. S11, the peaks identified at UMR 260 and 310 Th have a mass difference corresponding to the mass of the  $CF_2$  group, suggesting that these compounds may actually be fluorinated species."

## **Regarding Comment 3**

In order to avoid introducing any approximations in the nomenclature, we have followed the Reviewer's recommendations and proscribed the use of the expression "molecular clusters" or completed it where it was not the most relevant (including in the title). We have also removed the sentence added at the previous review stage (and mentioned by the Reviewer in this new comment), whose purpose was to warn of the use of the approximation that we have finally avoided.