

Answer to Referee comments

Referee 1, round 2

Comments by the Referee are written in bold font, answers by the authors are written in normal font

I would like to thank the authors for carefully considering my comments and providing clear responses and clarifications, and the corresponding revisions.

My only remaining suggestion is to still add some indications of the instrument's performance during the deployment to the manuscript, in particular regarding sensitivity and ion transmission. My respective comments were answered well, and reference is made to an upcoming paper that I expect discusses those issues in depth. But I believe that a short discussion (on the order of 2 sentences) is also warranted in this paper -- if necessary only qualitative and of course it can be specific to the particular deployment.

We added the information in the manuscript as suggested by the Referee according to the answers we have provided previously.

The instrument description in Sect. 2.1 now reads as follows:

p. 5, ll. 135ff.: “[...]. Between the inlet line and the mass spectrometer, two pressure stages regulated by mass flow controllers and critical orifices allowed for a constant pressure of 200 hPa in the ion source (in the APi mode, the ion source can be considered as a pressure-controlled pre-chamber in front of the MS). Our inlet system was designed to minimise wall losses; this is beneficial for both chemical ionisation and the ambient ion mode. Nevertheless, certain losses of ions to the inlet walls or in the pressure stages are unavoidable. It can be assumed, however, that the different ions are affected similarly. [...] The TOF-MS records data at a 1 Hz acquisition frequency in an m/z range from 4 to 1121, with a mass resolution of $\Delta m/m = 2500$ to 3000 and a mass accuracy of 5 ppm for NO_3^- . From studies on the mass-dependent transmission of the same mass spectrometer (Heinritzi et al., 2016), using a different corona-induced nitrate CI source (Kürten et al., 2011), we estimate a scaling factor of maximum 2 for the transmission difference between NO_3^- and HSO_4^- which is within our overall experimental uncertainty.”

Moreover, we added the following sentence to the discussion in Sect. 3.1.1:

p. 12, ll. 290f.: “After the CAFE-EU/BLUESKY campaign, we found that the internal voltage settings of the MS can be further improved in order to detect especially the ion clusters with larger m/z values more efficiently.”