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Interactive comment on “Online atmospheric pressure chemical ionization ion trap mass spectrometry (APCI-IT-MSⁿ) for measuring organic acids in concentrated bulk aerosol – a laboratory and field study” by A. L. Vogel et al.

Anonymous Referee #3

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This paper presents a novel combination of the commercial atmospheric pressure chemical ionization ion trap mass spectrometer with a recently developed mVACES aerosol concentrator. Using the aerosol concentrator improves the detection limit of the APCI-IT-Mass spectrometer and makes on-line analysis of atmospheric aerosols possible. Application of this technique for analysis of laboratory generated aerosols as well as field measurements in Hyytiälä were demonstrated. This technique extends the ability of the APCI-IT- MS and makes it a valuable tool for on-line analysis of atmo-

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spheric organic aerosols. The article is clearly written and should be published after revision.

Results from the laboratory study of aerosols formed by ozonolysis of alpha-pinene presented in figure 4 shows that the amount of dimers is about an order of magnitude higher than the amount of monomers. Alpha-pinene ozonolysis products have been intensively studied, but to the best of my knowledge dimers were lower or equal to the amount of monomers (see for example fig.7 in (Hoffmann et al., 2002), or Fig. 3. (Geddes et al., 2010)). Authors should discuss in more detailed why their result is different. It seems that it is not due to the application of the concentration step, since this ratio is about the same when the concentration is on and off. Is it because of the particular ionization technique used? In another words were higher dimer signals observed during the calibration with pinic and pinonic acid? It also can be due to tuning of the ion trap mass spectrometer to the specific m/z 215. If this is the case then the calibration coefficient received with pinic and pinonic acids cannot be applied to the whole mass range of 150-500 Da without corrections. Were such high ratios found in the field measurements?

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