Interactive comment on "Organic aerosol source apportionment in Zurich using extractive electrospray ionization time-of-flight mass spectrometry (EESI-TOF): Part I, biogenic influences and day/night chemistry in summer" *by* Giulia Stefenelli et al.

Anonymous Referee #1

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This paper presents the first field observations using the EESI-TOF, a new online ESI-MS instrument for aerosols. Factorisation is applied to the data and is compared against the equivalent factorisation products from an AMS. While the prevalence of cigarette smoke would throw into question the representativeness of the measurement site, it provides an interesting insight into the instrument function. Also, the separation of four different SOA factors adds an additional dimension to the AMS analysis, which typically only breaks it down into two factors.

While this paper has a technical theme, I would consider there to be enough atmospheric science to warrant publication in ACP rather than AMT. It is also very well written and presented. This work will no doubt form the foundation for many future papers using this technique, much as the Lanz et al. papers did for PMF-AMS using data obtained in Zurich. I recommend publication subject to minor comments, however I only have a few of these to make.

Page 5, line 8: It should be specified that the resolution being reported is m/dm. Also, this quantity is normally presented dimensionless; Th/Th isn't really a unit.

Page 10, line 6: Why is the average of the bootstrap runs used as a solution? Bootstrapping is normally used to investigate the robustness of a solution, not to provide the solution itself. While the process is explained in greater detail in section 3.2.5, I still don't see why the average should be considered a more reliable solution than the base case (if it was because of the constraint on the cooking factor, couldn't the optimal a-value simply be applied to the base case?). Regardless, I would have liked to have seen the technical explanation in 3.2.5 given before the presentation of results.

Page 10, line 26: How can you say that there were negligible local influences? The primary factors alone would indicate that local sources were very significant.

Page 12, line 20: Please refrain from using the term 'significant' in a statistical context unless a particular test (e.g. p-test) has been applied.