

## ***Interactive comment on “Submicron aerosol composition in the world’s most polluted megacity: The Delhi Aerosol Supersite campaign” by Shahzad Gani et al.***

### **Anonymous Referee #3**

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The authors present valuable data from the first long-term characterization of PM<sub>1</sub> composition in Delhi. ACSM, SMPS, and aethalometer measurements are reported from January 2017 to April 2018. The paper is very well written and the data provide important insights into the sources of PM in Delhi. This work should be published in ACP after minor revisions.

- The ACSM was not functioning for part of the intense autumn pollution period (Oct 17-Jan 18), creating issues for the reporting of annual averages etc. Could the assumptions made to compensate for the missing data be checked or constrained using data from Autumn 2018?

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- page 9 line 16 - delete 'perhaps'

- page 9 line 26 - I think it could be misleading to say that high levels of chloride observed don't exist elsewhere in S. Asia, given the data available. The measurements in other locations you cite here were not obtained with ACSM. Filter-based sampling can lead to revolatilization of PM components so it's possible the chloride existed but was not detected due to a sampling artifact. DeCarlo et al. detected high particulate chloride in Kathmandu using AMS. So, the discussion here should be framed differently - this is the first published report of high chloride, but it may actually be common across S. Asia, we don't know given the available data.

- The statements that more than half of Delhi's PM1 are secondary in origin are powerful and have a lot of significance (e.g. abstract, first full paragraph of page 12), but not enough information is given in this paper to support them. I guess the issue is that the PMF analysis has been saved for another paper which is not yet published. The paper probably would have been stronger if the two manuscripts were combined, but given the urgency and novelty of this data, I understand the decision to publish separately. I suggest that the discussion of the sources, except in cases where an obvious correlation between a source and the observations can be made (e.g. the Lohri fires discussion), should be removed or downplayed.

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