

Overview of VOC emissions and chemistry from PTR-TOF-MS measurements during the SusKat-ABC campaign: high acetaldehyde, isoprene and isocyanic acid in wintertime air of the Kathmandu Valley

by C. Sarkar et al., 2015 (ACPD)

We thank Dr. Pokhrel for his appreciation, time and efforts in reading the paper.

Please find below the Dr. Pokhrel's comments in black and our point wise replies in blue for easy perusal.

Short comments from A. Pokhrel:

Thanks for this new data set from new sampling site of Nepal. Data set are very interesting.

1. Author should improve explanation of Introduction, Discussion, and Conclusion. For instance, Page 25026 and lines 13-17 are unnecessary. Similar ways many speculations can be observed in discussion section.

We have made significant revisions to the Discussion and Conclusion section. As Dr. Pokhrel has not been specific regarding why and what changes he would like in the Introduction, we do not think any changes to the Introduction are required. We also note that none of the two referees had any such suggestions regarding the Introduction.

P25026 L13-17: We have removed the lines pertaining to health impacts of isocyanic acid but retain the lines pertaining to nitromethane and benzene as they have been recognized by WHO to be human carcinogens.

2. What is the duplicate and triplicate error of data set?

It appears that Dr. A. Pokhrel is not familiar with online ambient air measurements.

Duplicate and triplicate error are not very relevant for high temporal resolution (online) ambient measurements which are even able to capture the short term variability (seconds to minutes) of chemical concentrations due to changing ambient conditions.

The measurement uncertainty for interpreting the VOC measurements reported using the PTR-TOF-MS technique has already been described on P25034, L1-11.

3. Author might read the following papers of VOCs and/or SOA tracers and isoprene SOA tracers for exact mechanism, and he can improve the discussion and conclusion.

For example, Claeys et al., Surratt et al., Nozair et al., Faiola, et al., Guenther et al., Fu et al., Hallquist et al..

Specifically (at least),

Nozière et al., Chem. Rev., 115, 3919-3983, 2015.

Surratt et al., Proc. Natl. Acad. Sci. U.S.A., 107, 6640-6645, 2010.

Carlton et al., Atmos. Chem. Phys., 9, 4987-5005, 2009.

Surratt et al., J. Phys. Chem. A, 110, 9665-9690, 2006.

Claeys et al., 2004 and 2007.

4. Similar ways, author should read some specific literature of acetaldehyde and/or formaldehyde. For instance, Jacobi et al., JGR, 2012. Domine et al., JGR, 2011 and other papers from the same group. It gives another aspect to explain the acetaldehyde and related compounds.

We note that the Domine group mentioned here works on snow chemistry and processes relevant to the Arctic environment (http://www.takuvik.ulaval.ca/team/florent_domine.php). The Kathmandu Valley is different from the Arctic and there was no snowfall or snow during our study period at the measurement site. Hence, we do not regard this suggestion to be at all relevant for interpreting our work.

The authors are aware of the excellent works being referred to and where relevant in the present work, had already included the works (e.g. Guenther et al and Claeys et al. were already cited). However, we do not think all the works listed by Dr. Pokhrel are of relevance in the context of the present work which is focused on VOC speciation in the Kathmandu Valley environment.