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Atmospheric Measurement Techniques Discussions

Interactive comment on "Comparison of OH reactivity measurements in the atmospheric simulation chamber SAPHIR" *by* Hendrik Fuchs et al.

Anonymous Referee #2

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The paper presents the results of a comprehensive intercomparison of major instruments to measure ambient kOH. The intercomparison measurement was held in SAPHIR chamber to give a controlled environment for all the instruments. The results given are significant and provide significant evidence of the ability to measure OH reactivity in the ambient air. The manuscript gives a brief but informative introduction on different instruments of kOH measurements. Detailed data of the intercomparison are present and the results from different instruments show good consistency. It's also clear that all nine instruments based on four techniques do have interferences and limitations, either from the individual setup or from techniques. All instruments need careful correction and characterization in high NO environments. The paper is well written and

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Discussion paper

I have a few minor comments for the authors to consider before publication.

Both FZJ instruments should be briefly introduced in section 3.2. The FZJS instrument is used as the reference for the measurement with secondary reactions. It will be helpful to state the reason of the choice in more detail.

The accuracy and the precision of PSU LIF instrument used in the intercomparison was not as good as other LIF-based instrument. In line 18 on Page 15, the authors stated the reason was probably due to the dilution flow and the interference could be at least a factor of 5. More explanation will be expected, either in the paper or in the supplement materials.

The sampling flow rates are quite different for all the instrument. The flow rates of DWD-CIMS and LP-LIF/FT-LIF are 2280 LPM and 10$\sim$20 LPM which the sample flow of CRM from SAPHIR chamber is not mentioned. Will it cause any interference on the measurement results?

The summary ad conclusion gives a few nice points on various technology. It will be helpful if this sections can be separated into several parts.

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