

Atmos. Meas. Tech. Discuss., referee comment RC3
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Comment on amt-2021-19

Anonymous Referee #3

Referee comment on "Intercomparison of IBBCEAS, NitroMAC and FTIR analyses for HONO, NO₂ and CH₂O measurements during the reaction of NO₂ with H₂O vapour in the simulation chamber CESAM" by Hongming Yi et al., Atmos. Meas. Tech. Discuss., <https://doi.org/10.5194/amt-2021-19-RC3>, 2021

This manuscript reports an open path setup established at the CESAM simulation chamber in Paris, which is based on Incoherent Broadband Cavity Enhanced Absorption Spectroscopy (IBBCEAS). This instrument for the detection of HONO, NO₂ and H₂CO is compared with other experimental approaches "NitroMac" and more conventional chemoluminescence detection as well as FT-IR spectroscopy. The performance of the instruments is characterized, and aspects of the instruments' advantages and drawbacks is discussed on basis of measurements taken in the course of a 3-day campaign.

The content of the manuscript is quite appropriate for the special issue on Atmospheric Simulation Chamber Research, instrument intercomparisons should be of general interest to the respective community. The manuscript is however not particularly well written as far as the use of the English language is concerned. In many sentences it was not very clear what the authors were trying to say. This should be improved in the final version of the submission (see the attached file, where also more comments can be found for the benefit of the authors).

Other shortcomings are: There is a lack of detail in some parts. E.g. the retrieval of data (from the NitroMac machine and FTIR spectrometer) could have been discussed somewhat better. The discussion of systematic errors and of errors in general are of interest to the community and could have been done in more detail and more quantitatively. The role of aerosol was not even mentioned in the discussion – it is important in the context of the data retrieval and limits of detection. There is certainly not enough reference made to the relevant literature. The citations appear to be incomplete. The manuscript exclusively describes technical aspects of the detection setups for HONO, NO₂ and H₂CO and does not report or discuss any new atmospheric or gas phase processes in the context of HONO formation or destruction, in other words, the advancement of science is minimal, but this was obviously not the main objective of this work.

Please also note the supplement to this comment:

<https://amt.copernicus.org/preprints/amt-2021-19/amt-2021-19-RC3-supplement.pdf>