

Atmos. Meas. Tech. Discuss., referee comment RC2
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Comment on amt-2021-291

Anonymous Referee #1

Referee comment on "Detection of nitrous acid in the atmospheric simulation chamber SAPHIR using open-path incoherent broadband cavity-enhanced absorption spectroscopy and extractive long-path absorption photometry" by Sophie Dixneuf et al., Atmos. Meas. Tech. Discuss., <https://doi.org/10.5194/amt-2021-291-RC2>, 2021

Dixneuf et al., present an inter-comparison of nitrous acid by open path IBBCEAS and LOPAP instrument in SAPHIR chamber in 2011. They show a good performance of this cavity enhanced absorption technique in measuring HONO, they also compared the measured NO₂ and MACR with CLS and PTR. This paper is well written and I only have the follow comments need to be addressed.

- The measurement of MACR by IBBCEAS should also be mentioned in Abstract.
- With respect to the sensitivity change of IBBCEAS in 11 July, is it possibly caused by the unknown vibration and changed the coupled optical system, that means the effective reflectivity may be decreased largely, maybe you can use the retrieved O₄ as a tracer to make it clear. If the Reflectivity changed, the intensity of the spectrum before and after the time point of 09:15 maybe also have a large difference.
- Line 285 please provide more details of the calculation of effective reflectivity in the text to make this section easier to follow.
- The open path IBBCEAS can calibrate alone by an anti-reflection coated optics, why the authors calibrated again by the CLS NO_x and then compared with the result of CLS NO_x?
- How about the stability of Reflectivity day by day?
- Line 326, "see Table in the AMT..." please rewrite it with more professional form and cite the Reference.