

***Interactive comment on “Two instruments based on differential optical absorption spectroscopy (DOAS) to measure accurate ammonia concentrations in the atmosphere” by H. Volten et al.***

**A. Neftel (Referee)**

albrecht.neftel@art.admin.ch

Received and published: 7 September 2011

The paper presents an improved version of a compact DOAS system to measure path integrated concentration of NH<sub>3</sub>, NO, NO<sub>2</sub> and SO<sub>2</sub> in the UV range 204 to 230 nm. The use of DOAS to measure these compounds is not new. Commercially available systems e.g. from OPSIS do exist since more than 20 years. The paper is clearly structured and well written. It reports convincing results from laboratory measurements and field applications. It contains a comparison between two realization of DOAS systems,

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both custom made, and an interesting field intercomparison with a “state of the art” NH<sub>3</sub> monitor based on a wet chemistry method. The results show a clearly improved performance compared to former DOAS systems. I see the potential that the presented type of instrument might become the new state of the art instrument for ambient NH<sub>3</sub> concentration measurements.

Nevertheless it is necessary to further develop the system in order to get from a typical “lab table system” to a fully operational system. It is my experience that the successful operation of early beta versions is closely related to the treasure trove of experience of the developers and tend to show less favorable performances in case less experienced people tried to use them. In this respect I am looking forward to future application and intercomparison with other instruments, such as cavity ring down analysers.

I do fully support the publication of this paper in AMT.

Albrecht Neftel Agroscope Reckenholz Tänikon Research Station CH - 8046 Zürich, Switzerland

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Interactive comment on Atmos. Meas. Tech. Discuss., 4, 5037, 2011.