

Interactive comment on “The development of a nitrogen dioxide sonde” by W. W. Sluis et al.

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Received and published: 22 July 2010

This paper is interest and really gives me some new insights into the NO₂ sonde. Here are some comments for this paper.

- 1.The acidification of luminol solution will significantly reduce the response of the luminal solution to NO₂. Even the recycle of luminol solution can only reduce the speed of the acidification. Do you ever think to just discard the used luminal solution? Does discarding the used solution cause any problem in your design?
- 2.Why the NO₂ sonde can only expect to measure NO₂ in the range 1-100 ppb. Will lower or higher concentrations of NO₂ cause any problem in your system?
- 3.The increase of temperature per degree in the luminal solution will decrease 2% of

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the reaction rate of luminol-NO₂ reaction, scaling factor, as described by the authors. Do you make any correction for this effect? Does the temperature inside the box are the same as the solution? I wonder the temperature of the solution is much lower than the temperature in the box because the solution is mixed the sampling (ambient) air. Notably, the temperature of the sampling air may be quite low because the ambient temperature is expected to reduce 6K when the balloon ascending each 1000 m.

4. Do you think the temperature used in Eq (5) by the pump temperature has any problem?

5. Figure 2 and 3 may be more easily to read if the gas and liquid pathways are expressed in different colors of styles?

6. The comparison of the depth of boundary layer may be straightforward in Fig. 10 if the meteorological parameters measured by the RS 92 radiosonde are plotting simultaneously.

7. Can Vaisala standard software for their ozonesonde directly deal with the signals of your NO₂ sonde?

Interactive comment on Atmos. Meas. Tech. Discuss., 3, 2805, 2010.

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