

## ***Interactive comment on “Global distributions and trends of atmospheric ammonia (NH<sub>3</sub>) from IASI satellite observations” by M. Van Damme et al.***

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Received and published: 9 December 2013

This is an very clear and interesting paper, with some very nice results. I do have some questions on the retrieval scheme and results I hope the authors will be willing to address.

1. Is the Jacobian in equation 2 obtained from perturbing one representative profile? Doesn't the choice of this profile affect the results? How about the thermal contrast chosen to calculate K?

2. The HRI approach is simple and powerful, but I would think it requires large quantities of data to average in order to produce the quality of the results shown here. Our experience with the Walker et al. (2011) approach is that it is sensitive to the back-  
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ground profile chosen to obtain K and to some extent to the surface emissivity. Can you comment?

3. I may have missed the definition, but it is not clear what "sigma" is at the bottom of page 24311.

4. Do you have any ideas of the source of the high NH<sub>3</sub> values Greenland and Antarctica in Figure 6? Similar high values occasionally show up in the TES data also; we have eliminated these by requiring the surface temperature to be above 278K for a valid retrieval.

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Interactive comment on Atmos. Chem. Phys. Discuss., 13, 24301, 2013.