

## ***Interactive comment on “Aerosol profile information from high resolution oxygen A-Band measurements from space” by A. Geddes and H. Bösch***

### **Anonymous Referee #2**

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It's a good manuscript that easy to read and follow. Actually, I enjoyed reading it (which doesn't happened very often) and learned quite a bit from it. The paper definitely deserves to be published in the AMT. I'm sure it will be well cited by everyone who uses O2 A-band aerosol retrievals. I don't have any specific comments but have a suggestion that might help a reader to get a broader picture.

As it was mentioned in Introduction, “there are a number of satellite instruments that ... provide measurements of the O2 A-band” but the paper discusses only 4 of them. What's about GOME satellite? I'm not aware of any aerosol-profile related studies using GOME data. Are there any? The authors also mentioned that SCIAMACHY

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observations could resolve only 3 aerosol layers. Is this because of a low spectral resolution? Both GOME and SCIAMACHY have a very low spatial resolution comparing to the four instruments chosen for comparison. In addition to the detailed comparison of the four instruments, I would like to see a more general physically-based statement about other satellite instruments with the O<sub>2</sub> A-band measurements.

Here is a technical question. There is a lack of monotonicity in the total AOD error around 3 km for S-5P in Fig. 8 and all satellites in Fig. 9. Why is that?

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