

***Interactive comment on “Direct comparisons of GOMOS and SAGE III NO<sub>3</sub> vertical profiles” by J. Hakkarainen et al.***

**Anonymous Referee #3**

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This short manuscript presents a comparison between two datasets of vertical NO<sub>3</sub> profiles measured from space, GOMOS/ENVISAT and SAGE III. NO<sub>3</sub> is difficult to measure because it exists only during night and it has a signature only in the visible spectrum. It is worthwhile to perform such a comparison even if the number of coincidences is not very high.

I have a major issue concerning the error analysis. The accuracy of Sage III data is not given and the consistency between the the observed differences and the error budget of both instruments is not discussed. The manuscript cannot be published without this error analysis.

The other issue concerns the measurement local time. The local time of GOMOS measurements is not given. It may vary depending on the azimuth of the star and

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the latitude. NO<sub>3</sub> is decreasing during night due to its conversion in N<sub>2</sub>O<sub>5</sub>. It is then important to take into account in the comparison the local time difference in even if coincidences have been limited to local time differences smaller than 2h. It is important to know the average local time difference between the two datasets.

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Interactive comment on Atmos. Meas. Tech. Discuss., 5, 1497, 2012.