

## ***Interactive comment on “Evolution of stratospheric ozone during winter 2002/2003 as observed by a ground-based millimetre wave radiometer at Kiruna, Sweden” by U. Raffalski et al.***

### **Anonymous Referee #1**

Received and published: 23 March 2005

The paper reports measurements performed using a microwave radiometer operating near 200 GHz. This frequency range is not common for an ozone sensor. The instrument is only very briefly characterised, unfortunately the performance of measuring other atmospheric constituents is not discussed, only one comment is made concerning a baseline problem. Very little details of the technical concept are given, and the reader is advised that more information will be made available in a paper “to be published”. Also the profile retrieval is only discussed very briefly. In summary both the

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instrument design and operation and the retrieval procedure are quite standard. Therefore I would suggest to either describe the instrument and the data analysis in more detail if it is felt that some new and interesting results can be presented, this section could replace the “to be published” paper, or to shorten this part considerably.

The dynamic and chemical analysis of the winter is straight forward and the found ozone depletion compares with similar data obtained by the SMR instrument on Odin. In fact the analysis makes extensive use of Odin data and the overall impression of the paper is rather a cross validation of the Odin SMR instrument and the ground based sensor in Kiruna. Such a validation effort has its merits and should be published. However the paper needs to be revised by either concentrating on the data analysis and intercomparison only, or to present a detailed discussion of the instrument in Kiruna.

Note:

- The text should be carefully edited to improve the English, and to remove some typographical errors.
- The x-axis in the right panel in figure 1 is not correct.
- In figure 2 the text in the figure (1993–200) and the text in the caption (1992/1993–2001/2002) are not consistent.
- Figure 3, the grey lines are extremely hard to see.
- Figure 4, according to the text total ozone above 10 km is plotted, but the instrument only reaches down to 15 km. Has a mean ozone profile been assumed below 15 km? In this case it would be better to plot total ozone above 15 km only.

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Interactive comment on Atmos. Chem. Phys. Discuss., 5, 131, 2005.

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