

Interactive comment on “New retrieval of BrO from SCIAMACHY limb: an estimate of the stratospheric bromine loading during April 2008” by J. P. Parrella et al.

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The authors would like to thank D. Degenstein for his helpful comments and suggestions. In the text below, we provide our responses to the points brought up and describe the changes we have made to the text.

The reviewer's comments and questions are copied here in block quotes. Our responses are written in regular font below each comment.

D. Degenstein: "I think the paper is lacking some context with respect to the existing BrO retrievals that also use very similar, if not identical, SCIAMACHY data. Figure 2

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and Section 4 would have benefitted from the inclusion of data retrieved by other methods from SCIAMACHY data. These profiles are of necessity coincident and should be readily available. Similarly the data shown in Figure 6 would tell a better story if data from the existing retrievals were placed alongside it to provide contrast or perhaps show a similar picture."

Response:

Though the authors agree that detailed profile comparisons with existing SCIAMACHY retrievals of limb BrO would be very interesting and useful, we believe that this is outside the scope of our current paper. The authors believe that the algorithm description and current body of work in this paper should be substantial enough to stand on its own, and that an intercomparison with existing SCIAMACHY retrievals would be best as a followup paper.

The first reason we would like to give in support of our position is that all of the methods we use in our algorithm are well established - so our estimates should stand alone as valid and independent contributions to the community. A second important reason we would like to highlight is that our BrO and Bry estimates reported in the current paper should provide a rough basis for comparison between our algorithm and others that have been used to make these same estimates. We agree that profile comparisons are the best way to establish a relative difference between our retrievals and existing ones. We just think that this is a different goal for a paper than what ours set out to do, which was to introduce a new algorithm and produce an independent estimate on the stratospheric loading of Bry. For these reasons, we believe that profile comparisons to existing retrievals of SCIAMACHY BrO should be the topic of future research, and should not need to be included in our current paper that is under review.

D. Degenstein: "I can't figure out what Figure 7 is trying to tell me."

Response:

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Here, we wanted show that fewer spectral observations pass our data quality tests at tangent heights above 30 km. This is because the signal to noise decreases with increasing height at these altitudes. The point was to demonstrate why we don't have as much information in our BrO retrievals above 30 km. We have added this explanation to the figure caption to make it clearer. However, if the reviewer feels this figure is unnecessary, the authors would consider removing it.

D. Degenstein: "The authors mention DOFS in Figure 2 but I cannot find a discussion of them in the text that surrounds the figure."

Response:

We have changed DOFS to DOF and added a parenthetical "(Degrees of Freedom)" to clarify.

Interactive comment on Atmos. Meas. Tech. Discuss., 5, 8017, 2012.