

Interactive comment on “The impact of the ozone effective temperature on satellite validation using the Dobson spectrophotometer network” by M. E. Koukouli et al.

V. Savastiouk

vl@dimir.ca

Received and published: 23 January 2016

A referee has already mentioned the fact that no clear statement exists in the text about which ozone cross-section set(s) are used in the calculations. I'd like to add to this that every time I see a good agreement between satellite and Dobson/Brewer or an improved agreement after some correction I always wonder how Bass&Paur for Dobson/Brewer, which we know is internally inconsistent (especially in regard to T dependence), can produce a good agreement with some other cross-section set that the satellite community use. In fact, different satellite platforms potentially use different cross-sections. Also, the formula that is used for correcting the Dobson data is attributed to van der A. et.al (2010), but in that paper the authors simply refer to Kerr (2002) for this correction and Kerr's paper only mentions this correction in a discussion section as a possibility with several "if" statements.

Response by M. E. Koukouli and co-authors.

mariliza@auth.gr

Tuesday, April 05, 2016

We would like to thank Dr Sevastiouk for making this important distinction. In the revised version, it is now made clear which ozone cross-section data set is used in the various data sets inter-compared and validated. Furthermore, a discussion on the effective temperature dependency on each of the ozone cross-section data set was added. Concerning the comparisons between satellite and ground-based data these mostly aim to examine the consistency between the two sets of observations; it is a true fact that there could be differences not only in the cross sections employed but also in the algorithm principles followed by each type of instrument. Traditionally, when comparing satellite to ground TOCs, we try to identify the reasons for *good* or *bad agreement*, and when changes are applied to the satellite algorithms we can quantify the effect and the sign of these changes. In this work, we have turned the case on its head, as it may; i.e. we introduce a documented change in the ground-based TOC and discuss its effect on the *comparisons* between ground and satellite. Of course all this work is limited by known, as well as unknown, uncertainties on both platforms (ground-based and satellite). Finally, the corrective equation we employed is the one used by van Roozendaal et al., 1998 as well as van der A et al., 2010, we did not mean to imply anything on its provenance.