

***Interactive comment on “Sensitivity study of dimethylsulphide (DMS) atmospheric concentrations and sulphate aerosol indirect radiative forcing to the DMS source representation and oxidation” by O. Boucher et al.***

**Anonymous Referee #2**

Received and published: 10 October 2002

Comments on ms. acp 2002-41

General comments

The paper describes and compares, in a nice way, calculations of DMS emissions and atmospheric DMS concentrations from different versions of a global sulfur cycle model. The results are of interest but somewhat inconclusive, mainly because of the sparsity of relevant observations (of DMS, DMSO, NO<sub>3</sub> and BrO) to test the models. A brief review should be included of previous attempts to model the global distribution of atmospheric DMS and to compare it with observations. The section on indirect radiative forcing

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is very brief and out of context. I suggest that it be left out. The comparison with observations at Amsterdam Island and Cape Grim could be better utilized to describe the shortcomings of the models.

Specific details - The abstract is too brief. It is misleading to say that the global DMS flux is well constrained at 24-27 Tg S/yr. An uncritical reader may be misled to believe that we know this flux so exactly. - p. 4, line 3: What do you mean by "to some extent sulphate aerosols can .."? - p. 4, l. 16: The fact that it is widely used doesn't prove that it is correct. - p. 5, next but last line: Why "convergence"? I think that the similarity may well be fortuitous. - p. 6, l. 1-2: the expression "usually accepted" needs a reference. - p. 6, l. 15: The numbers should be rounded off. Also in Table 2. - p. 6, last para.: I feel uncertain about the usage of the word "constrained" here. - Figures 5a-c: More could be said about the implications of the differences between models and observations. Conclusions, item 3: Here and in many other places you use the term "significant". What is the meaning of it? - Figure 8: Use hPa rather than Pa.

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Interactive comment on Atmos. Chem. Phys. Discuss., 2, 1181, 2002.

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