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Atmospheric Chemistry and Physics Discussions

Interactive comment on "Carbonyl sulfide in air extracted from a South Pole ice core: a 2000 year record" *by* M. Aydin et al.

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General Comment

As the authors mention, Notholt et al. [2003] reported very high OCS volume mixing ratios within the tropical latitudes, which were attributed to biomass burning. However, recent work by Barkley et al. [2008] using OCS profiles retrieved by the Atmospheric Chemistry Explorer satellite instrument [Bernath et al. 2005] over 2004-2006, did not observe mixing ratios as high those shown by Notholt et al. [2003]. This difference could simply reflect year-to-year variability of biomass burning within the tropics, or it could indicate that biomass burning may in fact be a weaker source of OCS than previously reported, and that the OCS flux into the stratosphere is not underestimated. Without further observational and model studies it is difficult to clarify.

Furthermore, Barkley et al. [2008] also showed that the sullfur flux (in the form of OCS) transported into the stratosphere, inferred from the ACE OCS observations, is at the lower range of the estimated flux necessary needed to sustain the background stratospheric sulfate aerosol layer (consistent with studies cited in the text).

References

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Interactive comment on Atmos. Chem. Phys. Discuss., 8, 16763, 2008.