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Atmospheric Chemistry and Physics Discussions

Interactive comment on "Closing the Dimethyl Sulfide Budget in the Tropical Marine Boundary Layer during the Pacific Atmospheric Sulfur Experiment" *by* S. A. Conley et al.

Anonymous Referee #1

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This paper reports the results of aircraft measurements combined with a systematic study of the atmospheric DMS budget in the tropical MBL near Christmas Island. The authors are well known experts in atmospheric DMS measurements and micrometeorology/eddy flux studies. The results nicely show the relative contributions of DMS emission flux, entrainment flux, and vertical flux divergence, and by difference the chemical loss rate of DMS via OH oxidation which compares well with actual measured average OH levels and a corresponding derivation of the chemical loss rate. I recommend publication of the paper in ACP subject to some minor revisions which are addressed as follows. 1. Correction of the APIMS eddy covariance measurements of DMS should be briefly outlined. The Blomquist et al. 2009 paper has not yet been

published. 2. Preceding eq. (4) it should say Figure 2 (not Figure 1). 3. An overbar is missing in eq. (7). 4. In section 4 it should be defined what is meant by "daytime" mean. 5. The Conley et al. (2009) and Bailey et al. (2008) references are not listed. 6. Bottom of section 4.2 should explain what is meant by "diametrically out of phase". 7. Section 4.4 should provide equation for calculating kw.

Interactive comment on Atmos. Chem. Phys. Discuss., 9, 17265, 2009.