

Interactive comment on “Understanding the kinetics of the ClO dimer cycle” by M. von Hobe et al.

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It has come to our attention that shortly after submission of our article, the IUPAC Subcommittee for Gas Kinetic Data Evaluation has updated the data sheet with its recommendation for the Cl_2O_2 photolysis reaction (http://www.iupac-kinetic.ch.cam.ac.uk/datasheets/photol/PCl5_cl2o2+hv.pdf). In this latest recommendation, dated 20 July 2006, the photolysis cross sections published by Huder and DeMore (1995) are given as preferred values, together with plausible arguments that lead to this conclusion.

In the light of this new IUPAC recommendation, and with the Pope et al. study (that obviously points into the same direction) not even taken into account yet (at least it is not referenced on the IUPAC website), it seems even more important to discuss the possible implications of these low cross sections. If we assume that they are correct, then

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we have to reconsider our understanding of stratospheric chlorine chemistry (unless there is a problem with most atmospheric ClO and Cl₂O₂ observations) and consequently polar ozone loss: only recently, Frieler et al. (Geophys. Res. Lett. 33, L10812, doi:10.1029/2005GL025466, 2006) noted that large observed ozone loss rates, especially in cold Arctic Januaries, are better reproduced by models using larger Cl₂O₂ photolysis cross sections than given by the JPL 2002 recommendation.

In a revised version of our manuscript, we will hence give a more detailed discussion on the implications of IUPAC 2006 and Pope et al. than currently included (Page 7923, lines 18-22).

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