

Interactive comment on “Heterogeneous reaction of HO₂ with airborne TiO₂ particles and its implication for climate change mitigation strategies” by Daniel R. Moon et al.

Anonymous Referee #2

Received and published: 15 August 2017

The authors present an aerosol flow tube and modeling study of HO₂ uptake onto TiO₂ particles. These particles have been proposed as solar geoengineering aerosols. The experiments were conducted very carefully but I question the authors' choice to study this reaction at room temperature when the relevant temperatures for solar geoengineering aerosol would be much lower. They did a careful study of the impact of adsorbed water on the reaction but this is irrelevant for stratospheric conditions. This dataset is valuable, even for our understanding of mineral dust chemistry in the troposphere, but the relevance for the stratosphere is in question.

In the comparison to existing datasets, instead of comparing the reactive uptake coef-

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ficient for HO₂ on TiO₂ to other species on TiO₂, which is like comparing to apples to oranges, you can perhaps look at trends (ClONO₂ on H₂SO₄ vs. TiO₂ and HO₂ on H₂SO₄ vs. TiO₂, etc)

Interactive comment on Atmos. Chem. Phys. Discuss., <https://doi.org/10.5194/acp-2017-439>, 2017.

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