

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.

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I find this paper very interesting, and laboratory work on the topic of solar radiation management very promising. However, I have a comment regarding the discussion on sulfate geoengineering (SG) in the Introduction. In particular, while on line 34-35 effects on ozone depletion by SG are mentioned, in the following lines only old papers discussing ozone measurements after the Pinatubo eruption are mentioned, and from that comes the conclusion that those result are "showing sulphate aerosols to be unsuitable for solar radiation management". However, in recent years many papers regarding possible SG consequences on ozone depletion have been published. Even

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if this would not change the scope of the paper itself, since it focuses on TiO₂ particles, I would suggest adding some updated citations on the matter just to represent in an objective way the ongoing discussion of solar radiation management methods.

I include some possible papers to be cited regarding SG, its effectiveness and its indirect effects on ozone:

- Pitari, G., Aquila, V., Kravitz, B., Robock, A., Watanabe, S., Cionni, I., De Luca, N., Di Genova, G., Mancini, E., and Tilmes, S.: Stratospheric ozone response to sulfate geoengineering: Results from the Geoengineering Model Intercomparison Project (GeoMIP), *J. Geophys. Res.-Atmos.*, 119, 2629–2653, 2014.

- Tilmes, S., Kinnison, D. E., Garcia, R. R., Salawitch, R., Canty, T., Lee-Taylor, J., Madronich, S., and Chance, K.: Impact of very short-lived halogens on stratospheric ozone abundance and UV radiation in a geo-engineered atmosphere, *Atmos. Chem. Phys.*, 12, 10945–10955, doi:10.5194/acp-12-10945-2012, 2012

- Visioni, D., Pitari, G., and Aquila, V.: Sulfate geoengineering: a review of the factors controlling the needed injection of sulfur dioxide, *Atmos. Chem. Phys.*, 17, 3879–3889, doi:10.5194/acp-17-3879-2017, <http://www.atmos-chem-phys.net/17/3879/2017/>, 2017.

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

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