

# Response to comment of the editor on “Restoring the top-of-atmosphere reflectance during solar eclipses: a proof of concept with the UV Absorbing Aerosol Index measured by TROPOMI” by Victor Trees et al.

Victor Trees<sup>1,2</sup>, Ping Wang<sup>1</sup>, and Piet Stammes<sup>1</sup>

<sup>1</sup>Royal Netherlands Meteorological Institute (KNMI), De Bilt, The Netherlands

<sup>2</sup>Delft University of Technology, Delft, The Netherlands

**Correspondence:** Victor Trees (victor.trees@knmi.nl)

We thank the editor for the suggestion to add a reference to Gil et al. (2000). We have added the following sentences to the Introduction, page 2:

Unambiguous increases in local NO<sub>2</sub> concentration have been measured from the ground during solar eclipses resulting from the reduced photodissociation of NO<sub>2</sub> in the stratosphere (see e.g. Gil et al., 2000; Adams et al., 2010). Unlike ozone, NO<sub>2</sub> reacts on a timescale of several minutes directly responding to the eclipse obscuration (Herman, 1979; Wuebbles and Chang, 1979). Although similar information could be obtained during sunrise and sunset, Wuebbles and Chang (1979) pointed out that the relatively short time durations of solar eclipses allow for a more clear identification of the major photochemical cycles in the stratosphere, due to the smaller bias from atmospheric transport, mixing and interfering chemical reactions throughout the diurnal cycle.

## References

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