Atmos. Chem. Phys. Discuss., 13, C514–C515, 2013
www.atmos-chem-phys-discuss.net/13/C514/2013/

Atmospheric Chemistry and Physics Discussions

Interactive comment on "Estimate of surface direct radiative forcing of desert dust from atmospheric modulation of the aerosol optical depth" *by* A. di Sarra et al.

Anonymous Referee #1

Received and published: 11 March 2013

This work attempts to correlate variations in downwelling solar flux with those of aerosol optical depth AOD and hence derive the corresponding radiative forcing of aerosols on the solar radiation. The paper is reasonably well written but the English can be improved.

My general comment is that the authors have assumed that only the aerosol layer is the cause of the radiation modulations. It is possible that part of the radiation modulation is due to gravity wave modulation of atmospheric ozone.

Further, little has been explained regarding the link between gravity wave effects and the modulations observed.

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Interactive Discussion

Discussion Paper

The authors may wish to explore the literature on the subject and include references to existing work on gravity waves and aerosols.

Equation 1 should be removed as it is neither used or validated.

Interactive comment on Atmos. Chem. Phys. Discuss., 13, 527, 2013.