Atmos. Chem. Phys. Discuss., 15, C9470–C9471, 2015
www.atmos-chem-phys-discuss.net/15/C9470/2015/

Atmospheric Chemistry and Physics Discussions

Interactive comment on "Mediterranean desert dust outbreaks and their vertical structure based on remote sensing data" *by* A. Gkikas et al.

Anonymous Referee #2

Received and published: 18 November 2015

The paper is clearly written and previous works on the paper's subject have been accounted for. However, I believe that main paper results have already been reported in Gkikas et al., 2013, as one can observe by comparing the summary of the submitted manuscript with the one of Gkikas et al., 2013. Therefore the paper is not suitable for publication in ACP.

Indeed, an updated version of the algorithm introduced in Gkikas et al. (2009, 2013) for the identification of strong and extreme desert dust episodes, over the period March 2000–February 2013, was applied in the submitted manuscript.

Moreover, for the identified DD episodes, collocated CALIOP-CALIPSO vertical feature mask and total backscatter coefficient retrievals have also been considered in the submitted manuscript, to describe the annual and seasonal variability of dust outbreaks'

vertical extension over the Mediterranean.

However, CALIOP-CALIPSO data have not been well exploited. Consequently, the results reported in the manuscript have not added any new scientific result with respect to the ones reported in the many references cited in the manuscript.

To my opinion, CALIOP-CALIPSO data could have been used, for example, to understand the weak correlation AOD-PM. Note that quite often dust particles remain confined above the PBL and consequently do not affect the PM at the ground level.

Interactive comment on Atmos. Chem. Phys. Discuss., 15, 27675, 2015.