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Atmospheric Chemistry and Physics Discussions

Interactive comment on "Estimating the maritime component of aerosol optical depth and its dependency on surface wind speed using MODIS and QuikSCAT data" *by* Y. Lehahn et al.

Anonymous Referee #2

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This study estimates the maritime component of aerosol optical depth (AOD) and suggests a dependence of maritime component AOD on surface wind speed. The idea and the employed methodology are interesting and clearly presented. The analysis benefits the global character of satellite observation, however it has to face limitations of retrieval accuracy. The authors make an effort and examine their methodology for 1) possible dust "contamination" (comparison of MODIS derived AOD coarse fraction and QuikSCAT derived wind speed in a region affected by dust), and 2) possible uncertainty in satellite retrievals (comparison with ground-based measurements in the Midway Island AERONET site). However, low values of marine aerosol optical depth, which are on the level of MODIS accuracy, invite more attention to possible influence of

data accuracy. Also, the accuracy of the QuikSCAT derived wind speed and its possible influence have to be mentioned. A discussion on estimation of sensitivity of the presented results and methodology to uncertainties in MODIS and QuikSCAT data has to be added. Also, I would suggest indicating the literature values of the slopes AOD vs. wind speed (data superimposed in figure 6, Smirnov et al; Huang et al). This also could be helpful for comparison and strength the presented results. Besides, the presented methodology and the obtained results show consistency, agree with other studies and after addressing the mentioned above issues will be valuable for the community and worth of publication.

Other comments

Number 3 in Summary and conclusions: I would suggest indicating the value for "threshold wind" for dust emission along with the value for triggering emission of maritime aerosol. It can be an interesting comparison.

Page 1986: "...is possible by the spectral dependence that is linked to the aerosol size..." Spectral dependence of AOD, I guess? It is missing in the text.

There is also a typo on page 1992: "...linking W with tauc and tauc...", I guess it should be "...tau and tauc..."

Interactive comment on Atmos. Chem. Phys. Discuss., 10, 1983, 2010.