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Atmospheric Chemistry and Physics Discussions

Interactive comment on "Evaluation of the MERIS aerosol product over land with AERONET" *by* J. Vidot et al.

Anonymous Referee #1

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This paper presented by Vidot et al. talks about MERIS aerosol product over land using AERONET data. It presents a simple and globally robust approach to retrieve the AOT over land. All in all, even if it's not the best aerosol product available actually, it can be useful for the MERIS community or, more generally, for studies on air quality. This paper can be then published in ACP.

In this paper, authors try to validate the aerosol optical thicknesses derived over land from MERIS by using AERONET data. The importance of the aerosol optical loading is well known for its direct relation to the air quality and to the radiative impact studies. MERIS channels have not been really designed for observations and aerosol retrieval over land. Moreover, the aerosol retrieval exercise over land is more complicated than over ocean.

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So, using Junge's model, authors retrieved AOT (aerosol optical thicknesses) over land using the well known Dark Target concept. At the end, they compared their AOT product to AOT from the AERONET network. The first comparison is unsatisfactory. So, authors applied improvements to aerosols models to better fit results particularly in the red. Unfortunately, even if the improvement is visible, the effect is not totally sufficient. Results could be probably (or slightly) better if other aerosol models were used (like Dubovik's ones which are more representative than Junge's ones). The simple approach used presents the advantage to be robust regarding the treatment of global data (more treatments but a lower quality).

The Biomes used for dark targets seems sometime geographically too large. It's clear that the biomes can be improved but, again, there is no way to define pixel identification maps with MERIS. Authors could use albedo maps or other identification maps, but I'm not sure of the gain on the aerosol optical thicknesses retrieval.

The English and the construction of the text are satisfactory.

Interactive comment on Atmos. Chem. Phys. Discuss., 8, 3721, 2008.