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# ***Interactive comment on “The regime of aerosol asymmetry parameter over Europe, Mediterranean and Middle East based on MODIS satellite data: evaluation against surface AERONET measurements” by M. B. Korras-Carraca et al.***

## **Anonymous Referee #2**

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This paper aims at providing the geographical distribution and climatological information on the regime of the aerosol asymmetry parameter in a specific area in the globe, as derived from MODIS data. Also, it attempts to compare Terra with Aqua and evaluate the satellite products with AERONET data.

Having carefully read through the articles of Lyapoustin et al. 2014 and Levy et al., 2010; 2013, it comes out that even if there is no direct reference to the asymmetry parameter, the corrections needed for critical parameters in C5 data that are used

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to estimate the asymmetry parameter, are crucial for extracting a product trustful for interpreting its long term variability and characteristics.

Given the uncertainty of the aerosol asymmetry parameter from both datasets (MODIS and AERONET), even the evaluation via differences that may be well covered by the uncertainties, might be somewhat meaningless. Thus, a great part of the analyses presented in this paper is doubtful regarding the extent into which results reflect physical processes and trends rather than other artifacts.

Overall, I get the impression that this work is one step behind, which is partly understandable since progress in corrections and evaluations are rapid. However, still great parts of the paper are quite descriptive and no insight is provided on the new information that might be provided from this parameter (alone but also in conjunction with other parameters not addressed at all in this paper).

Statements in the summary and conclusions section like "The results are consistent with the theory and thus prove a good performance of the MODIS retrieval ..." and "The identified weaknesses may provide an opportunity to improve such satellite retrievals of aerosol asymmetry parameter in forthcoming data products like those of MODIS C006" probably support the points I am trying to raise.

In this line, the current paper does not meet substantial criteria of ACP regarding new insights, new or high quality data and methods and thus my recommendation is that it is not appropriate for publication in ACP. I am sure the authors will seize the opportunity to incorporate the new findings from the aforementioned works in their study or even use C6 data instead, and come back with an improved and more solid version of their either way very interesting work.

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Interactive comment on Atmos. Chem. Phys. Discuss., 14, 22677, 2014.

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