

Interactive comment on “The climatology of dust aerosol over the arabian peninsula” by A. Shalaby et al.

A. Shalaby et al.

ashalaby@ictp.it

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1-First, the references provided in this section (Abdou et al. 2005; Remer et al. 2005) deal with the MODIS Dark Target land and ocean data sets, not the Deep Blue data set. These three data sets are created from independent algorithms, so these references are incorrect. I expect that the authors mean to reference the Deep Blue papers, because the Dark Target data set does not provide coverage over bright land surfaces such as found in the Arabian peninsula (the study region) so it is likely that the text (stating Deep Blue is used, not Dark Target) is correct and the references are wrong. The main references for the current version (Collection 6) of the MODIS Deep Blue product are Hsu et al. (2013), which describes the algorithm, and Sayer et al. (2013), which

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validates the AOD retrievals. Sayer et al. (2014) provides some additional validation and also comparison with the Dark Target data sets.

Thank you for this correction and it was my mistake and I changed the manuscript accordingly

2-The next comment is about the data version. The authors state that they obtained data from the Giovanni visualisation website; however, at the present time, Giovanni still contains the older (now obsolete) Collection 5 MODIS data. The current data version is Collection 6 (released in stages beginning last year). Giovanni is not maintained by us and I don't know when they will have Collection 6 data up (I have asked and can post once I receive a reply). As detailed in the above references, the new Collection 6 is significantly improved upon Collection 5 in many aspects, and so I strongly recommend that the authors perform the analysis with the latest version, as results are likely to be different. (The authors may also want to check that they have the latest versions of the MISR and OMI data as well, although others would be better placed than I to comment on that.)

Thank you so much for this comment and guidance; it encourages us to download the MODIS Collection 6 data and to do the comparison again. We have implemented this new update in the manuscript and we have changed the tables, figures and the text accordingly. Also we have updated the list of references that are relevant to the new dataset

3-The authors also don't specify whether they are using MODIS Terra or Aqua (or both) in the analysis. Because of the time period I infer MODIS Aqua. Terra has the longer data record, although related to this it has also aged more, and our in-house analyses suggest that uncertainties on Aqua data are slightly smaller. I am also curious why the authors chose different and quite short time periods for the different data sets in their analysis (2006-2012 for MISR; 2008-2011 for MODIS; 2008-2011 for OMI) when the available data records are significantly longer (2000 to present for MISR; 2000 to

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present for MODIS Terra; 2002 to present for MODIS Aqua; 2004 to present for OMI). If the purpose is to present a climatology then wouldn't it make more sense to use the whole available data record, rather than a few years?

Yes we have used MODIS Aqua. The main issue about the data is due to some limitation in Giovanni site that could not provide longer time series related to Arabian Peninsula. It was a technical problem related to the site itself. Also there are limitations in home institute storage to download all the required dataset from the original repositories. However, We managed to download only the MODIS daily data (2003-2012) to update our analysis from http://ladsweb.nascom.nasa.gov/allData/6/MYD04_L2 I hope after such update, most of the data issue will be resolved and in the future we will deal with most updated and new data versions

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