

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

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I am not posting a scientific review, but only a short comment on the use of MODIS Deep Blue data in the analysis as described in section 2.1.3 of the manuscript. I am a part of the team who are responsible for the MODIS Deep Blue data products.

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

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

Note the references for the original version of the Deep Blue algorithm, Hsu et al. (2004, 2006), may be of interest for background reading and example applications. Hsu et al. (2013) also describes the Deep Blue algorithm as applied to SeaWiFS data (that record covers the period 1997–2010), which is another data product the authors may wish to consider.

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.)

The latest versions of the MODIS aerosol products are available from the NASA LAADS (<http://ladsweb.nascom.nasa.gov/data/>), which is the main repository for these data products, and should always contain the most recent data version. File

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specifications and other information for the MODIS Atmosphere products can be found at <http://modis-atmos.gsfc.nasa.gov/>.

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 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?

The authors should feel free to contact me if they have any questions or need assistance reading the MODIS data.

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References:

Hsu, N. C., S.-C. Tsay, M. D. King, and J. R. Herman (2004), Aerosol properties over bright-reflecting source regions, *IEEE Trans. Geosci. Remote Sens.*, 42(3), 557–569, doi:10.1109/TGRS.2004.824067.

Hsu, N. C., S.-C. Tsay, M. D. King, and J. R. Herman (2006), Deep Blue retrievals of Asian aerosol properties during ACE-Asia, *IEEE Trans. Geosci. Remote Sens.*, 44(11), 3180–3195, doi:10.1109/TGRS.2006.879540.

Hsu, N. C., M. -J. Jeong, C. Bettenhausen, A. M. Sayer, R. Hansell, C. S. Seftor, J. Huang, and S. -C. Tsay (2013), Enhanced Deep Blue aerosol retrieval al-

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gorithm: The second generation, *J. Geophys. Res. Atmos.*, 118, 9296–9315, doi:10.1002/jgrd.50712.

Sayer, A. M., N. C. Hsu, C. Bettenhausen, and M.-J. Jeong (2013), Validation and uncertainty estimates for MODIS Collection 6 “Deep Blue” aerosol data, *J. Geophys. Res. Atmos.*, 118, 7864–7872, doi:10.1002/jgrd.50600.

Sayer, A. M., L. A. Munchak, N. C. Hsu, R. C. Levy, C. Bettenhausen, and M.-J. Jeong (2014), MODIS Collection 6 aerosol products: Comparison between Aqua’s e-Deep Blue, Dark Target, and “merged” data sets, and usage recommendations, *J. Geophys. Res. Atmos.*, 119, 13,965–13,989, doi:10.1002/2014JD022453.

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