Open Access

Earth System
Science
Data

Discussions

ESSDD

Interactive
comment

Interactive comment on "Validation of GRASP algorithm product from POLDER/PARASOL data and assessment of multi-angular polarimetry potential for aerosol monitoring" *by* Cheng Chen et al.

Otto Hasekamp (Referee)

o.hasekamp@sron.nl

Received and published: 8 September 2020

The paper describes a thorough evaluation of aerosol products retrieved by the GRASP algorithm (in different configurations) from POLDER-3/PARASOL. First, a comparison to AERONET for the full data set is presented. Second, a comparison with MODIS aerosol products is performed. It is concluded that the GRASP/Models AOD product is at least as good as (and probably better than) the MODIS AOD products and that the GRASP/HP product is superior for retrieving SSA and AE.

Printer-friendly version

Discussion paper

Overall, the paper is well written and the conclusions are sound. The part on the comparison with MODIS is quite detailed and sometimes a bit hard to follow (because of the comparison of 3 GRASP products with 3 MODIS products). I think this part can be shortened by removing the part of fine- and coarse mode AOD as I believe the AOD+AE comparison already tells the story.

I recommend publication of this paper after addressing my comments I added to the pdf file of the manuscript, most of which are minor.

Two comments I'd like to highlight here: - It seems that the GRASP/Models product has significantly less valid retrievals than the GRASP/HP product (~31000 vs ~44000). What is the reason? Is the filter for GRASP/Models stricter? This is not clear from the text (in fact the opposite is suggested). May this be the reason for the better performance? Some discussion is needed here. - The evaluation puts large focus on the correlation coefficient when comparing the performance of different products. This is not always a good metric because it is heavily influenced by the range, i.e. a limited number of points at the end of the range can have large effect on the correlation. I recommend to put more emphasis on other metric such as RMSE and MAE (Mean Absolute Error).

Please also note the supplement to this comment:
https://essd.copernicus.org/preprints/essd-2020-224/essd-2020-224-RC1-supplement.pdf

---

Interactive comment on Earth Syst. Sci. Data Discuss., https://doi.org/10.5194/essd-2020-224, 2020.