

Dear Editor, dear Dr. Andrew Sayer,

Thank you for giving me the opportunity to revise and resubmit this manuscript. Many thanks for the valuable comments. The detailed replies are addressed point by point and we have modified the paper in response to the reviewer comments.

Best regards,

Yahui Che on behalf of all authors

2019-6-27

Response to Dr. Andrew Sayer:

1. Section 2.2.1 – the text reads like the Xue and Deep Blue AVHRR data sets are the only land ones (e.g. page 5 lines 17). But there's also some (in various states of availability) by groups including Mei et al, Gao et al, Hauser et al, etc.

Response: We have revised this sentence by adding more citations in the revised version of manuscript. The related statement in the revised draft is as follow: "Several AOD retrieval algorithms applied to AVHRR observations over land were published, including Hauser et al., (2005), Li et al., (2011), Mei et al., (2014), Xue et al. (2017), Sayer et al. (2017), Hsu et al (2017), and Gao et al., (2018)."

2. Page 9 line 24: I would not described 0.06 as a "small" bias, and suggest removing that word.

Response: We have deleted "small" in this line in the revised version of manuscript.

3. Figure 2 (and later): Should the middle column say "ATSR_ADV" instead of "AVHRR_ADV"? It would also be better to have captions without underscores, e.g. write "AVHRR ADL AOD, JJA" instead of "AVHRR_ADL_AOD_JJA". The algorithm abbreviations could also be dropped, since only one algorithm is applied to each sensor here.

Response: Thank you for pointing out this typo. We have corrected all errors in subtitles and adjusted them as you suggested in Fig. 2 and 9.

4. Figure 3: The caption refers to least squares fit parameters. This text should be removed because these are not shown in the figure (to be clear: they should not be added to the figure; the caption should just be shortened).

Response: We put LSQ equation onto each scatter panel in the first version of manuscript, but later we thought EE should be emphasized for each scatter. So we removed relevant parameters but didn't remove least squares words. "LSQ fit" has been deleted in the current revision of manuscript. We have shortened the caption by moving part into the text.

5. Table 2: likewise "for a LSQ fit to all data points" can be deleted.

Response: We have deleted "for a LSQ fit to all data points" in the new version of the manuscript.