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Discussions

Interactive comment on "Validation, comparison, and integration of GOCI, AHI, MODIS, MISR, and VIIRS aerosol optical depth over East Asia during the 2016 KORUS-AQ campaign" *by* Myungje Choi et al.

Anonymous Referee #1

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This work describes validation results of aerosol retrievals from several polar-orbiting and geostationary sensors over the east Asia. The results indicate the accuracy of those aerosol products are quite good and similar. The content and topic of this manuscript is comprehensive, however, due to the wide coverage of different AOD retrievals from many satellites, the detail of the data selection and validation method is not fully described and some of the conclusions needs more discussion or proof to be reliable. Therefore, some major comments are suggested before it can be accepted.

1. Some revisions are necessary for the Introduction, the authors should add some de-

scription of the main concerns of this campaign, then link this goal with the experiments and analysis appeared in the following sections. 2. I was confused by the additional cloud masking used for GOCI Yonsei aerosol products. Since the goal of this study is to validate the aerosol properties from different satellites, the authors add additional cloud masking procedure to avoid the bias is not fair. Could you please discuss with this issue and give some description about how is the accuracy if no additional cloud masking is used. 3. It is surprising to find the number of AOD pixels (fig.7) for different sensors are of significant difference, the underlying reason is not fully discussed in Section 5.3. Besides, the impact of AOD sampling numbers on the analysis in fig.6 should be further discussed. 4. In Section 3.1, the authors discussed the indicators used to assess the performance of the AOD products, please add some necessary discussion on the criteria in using these indicators. 5. The references used for the description of the necessity of aerosol studies in the Introduction part is biased. 6. I suggest the author add some quantitative results of the validation in the Abstract. Please try to avoid sentences like "The AOD products analyzed here generally have high accuracy", which make no sense to the readers. 7. Why the authors only use the GOCI measurements in analyzing the case in Section 4.2? 8. Line5-10, the sentence "and high accuracy of other optical properties such as particle size or absorptivity beyond high accuracy of AOD to obtain more accurate ground level PM2.5 concentration and its species (Diner et al., 2018)" is difficult to understand. 9. The font of figure legends in fig.2 and 7 is too small, the quality of these figures should improve as well. 10. Please remove the lines between those points with no observations in figure 3

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