Referee: #1

We appreciate the reviewer's insights and helpful comments/suggestions, which helped improve the scientific quality of our manuscript. Basically, we reflected all the comments and suggestions. And, new references were added in revised manuscript.

1. General comments

This manuscript updates the Yonsei aerosol retrieval (YAER) version 1 to version 2 to overcome the errors related to uncertainties in surface reflectance and simple could masking and the current version is capable of near-real-time processing. The updated version has been compared to previous version and validated using multiple observations, including MODIS, VIIRS, AERONET and SONET data. This upgration is meaningful and will also be useful to improve model predicitons through data assimilation because it has lower error and is capable of NRT processing. This manuscript is well organized and wrriten. I would strongly recomend publication after some minor corrections.

2. Detailed comments

- Line 9: a role of to "the role of "

Ans.) A following sentence were revised in p.2/l.8–9 of revised manuscript:

"Thus, accurate AOP retrievals are important for quantifying the role of aerosols in climate change."

Line 12: sulfates nitrates to "sulfate nitrate"

Ans.) Following other reviewer's comment, a part of discussion about PM was shortened and that word was removed.

- Line 11: delete "The"

Ans.) The word was removed and a following sentence was revised in p.2/l.9−11 of revised manuscript:

"With respect to air pollution, ambient fine particulate matter (PM) affects respiratory and pulmonary systems, resulting in an increased incidence of heart disease, stroke, and lung cancer (Lim et al., 2012)."

- Line 25: add "This manuscript is organized as follows" before "in section2 "

Ans.) Following sentences were revised in p.3/l.22−26 of revised manuscript:

"The remainder of this paper is organized as follows. In section 2, improvements in the GOCI YAER V2 algorithm are summarized and a quantitative comparison with other satellite AODs is presented. In Section 3, the GOCI YAER V2 AOD is validated using ground-based sun-photometer observations along with other satellite AOD measurements. In Section 4, GOCI YAER V2 AOD errors are analyzed in relation to various parameters and expected errors are estimated. Finally, a summary and conclusions are presented in Section 5."

- Line 29: Delete "qualitative" since many quantative values are used in this section 6

Ans.) The word was removed in revised manuscript.

- Line 31: Please add description of the differences between All QA and QA of 3.

Ans.) Following sentences were revised/added in p.6/l.4−14 and p.8/l.20−22 of revised manuscript:

"The quality assurance (QA) value of the V1 algorithm was determined based on the range of retrieved AOD and the remaining number of pixels in a 12-pixel × 12-pixel block after all masking procedures were performed. A QA value of 0, 1, 2, or 3 for the V1 AOD was assigned for 6, 15, 22, or 36 remaining pixels, respectively. In addition, retrieved AOD values between −0.05 and 3.6 were assigned a QA value of 1, 2, or 3, and retrieved AOD values between −0.1 and −0.05 or between 3.6 and 5.0 were assigned a QA value of 0. The lower of these two QA values for each pixel was used as the final QA value."

"To evaluate the new masking techniques and climatological data used in the V2 algorithm, a retrieved dataset of GOCI YAER V2 AOD for 5 May 2015 is compared with that of the V1 algorithm under two scenarios: using all the quality assured (all QA; QA = 0, 1, 2, or 3) pixels and using only the highest quality assured (QA = 3) pixels."