

## ***Interactive comment on “New approach to monitor transboundary particulate pollution over northeast Asia” by M. E. Park et al.***

### **Anonymous Referee #1**

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This is a clearly written paper describing the assimilation of aerosol optical depth (AOD) from an imager (GOCI) on the Korean geostationary satellite (COMS). There is great uncertainty in simulating pollutants over east Asia and this paper presents the results of using a new data set to improve aerosol simulations over the Korean peninsula. The various components of the study are all described well, including the regional model CMAQ, the satellite observations, the data assimilation procedure, and the independent comparison data from AERONET. The figures and tables present the results well.

The only suggestion for modifying the content is regarding Figure 7. It is a nice summary of the results of the assimilation and the effects of long-range transport. But the discussion of it on p.15885 is rather brief. Perhaps the implications of these findings, or discussion of the representativeness of the results, could be added here.

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In general the English is satisfactory, but there are a few instances of typos or grammar errors:

p.15875, l.14: 'have equipped' -> 'are equipped'

p.15876, l.22: 'applying for' -> 'applied to'

p.15880, l.4: satellite-retrieving -> satellite retrieval; l.5-6: change to: ... assimilation of the AOD data from the GOCI sensor into the CMAQ model; l.10: apply to seasonal -> apply seasonal; l.15: have been focused -> have been the focus.

Several places: 'particulate matters' -> 'particulate matter'

Also, in the Introduction, the same list of references is used 3 times (Levy ... Yamaji). It would be nice to alter that a bit - pick the most appropriate as an example in the 2nd and 3rd cases.

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