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Interactive comment on "Development of an OMI AI data assimilation scheme for aerosol modeling over bright surfaces – a step toward direct radiance assimilation in the UV spectrum" *by* Jianglong Zhang et al.

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We thank the executive editor for the comment. We will add the version number in the revised version of the paper as suggested.

The OMI data assimilation scheme (V1.0) is constructed using VLIDORT and NAVDAS-AOD for NAAPS analyses and forecasts. The VLIDORT radiative transfer code is a property of RT Solutions Inc. The distribution of the full VLIDORT package is publicly available, and comes with a standard GNU public license, through direct

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contact with RT Solutions Inc. (http://www.rtslidort.com/mainprod_vlidort.html). Both NAAPS and NAVDAS-AOD are proprietary to the Naval Research Laboratory, United States Department of the Navy. Given their association with a defense system, they are not available publicly. This situation is similar to that in other major centers such as ECMWF, JMA, and UKMO. Nevertheless, both NAAPS and NAVDAS-AOD are well documented in past studies (e.g. Lynch et al., 2016; Zhang et al., 2008; 2011; 2014; Rubin et al., 2017) and we have made every effort to thoroughly report our methods so that they may be replicated. In addition, AOD fields from the NAAPS OMI AI DA runs and natural runs over the study region and for the study period will be shared in the supplement.

We have revised the code and data availability section to read: Code and data availability: The OMI data assimilation scheme (V1.0) is constructed using VLIDORT and NAVDAS-AOD for NAAPS analyses and forecasts. The VLIDORT radiative transfer mode is a property of RT Solutions Inc. The VLIDORT code is publicly available, and comes with a standard GNU public license, through direct contact with RT Solutions Inc. (http://www.rtslidort.com/mainprod_vlidort.html). Both NAAPS and NAVDAS-AOD are proprietary to Naval Research Laboratory, United States Department of the Navy. Nevertheless, both NAAPS and NAVDAS-AOD are well documented in past studies (e.g. Lynch et al., 2016; Zhang et al., 2008; 2011; 2014; Rubin et al., 2017) and we have made every effort to thoroughly report our methods so that they may be replicated. AOD fields from the NAAPS OMI AI DA and natural runs over the study region and period are shared as the supplement to the paper for readers who are interested. The NAAPS reanalysis data are available from the USGODAE web site (https://nrlgodae1.nrlmry.navy.mil/cgi-bin/datalist.pl?dset=nrl_naaps_reanalysis&summary=Go. The OMI OMAERUV data are available from the NASA's Goddard Earth Sciences Data and Information Services Center (GES DISC; https://disc.gsfc.nasa.gov/datasets/OMAERUV_003/summary). AERONET data are obtained from the NASA AERONET webpage (https://aeronet.gsfc.nasa.gov/).

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