Supplement of

Using the OMI aerosol index and absorption aerosol optical depth to evaluate the NASA MERRA Aerosol Reanalysis

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Fig. S1. Comparison of MERRAero SSA at 440 nm over the Saharan dust region using the OPAC dust optics in black and the observation-based dust optics in green with AERONET inversion products for the period June to October 2007.
**Fig. S2.** Comparison of 550 nm MERRAero AOD to MODIS NNR retrievals over the south African (top) and South American (bottom) biomass burning regions for the period JJA 2007.

**Fig. S3.** Comparison of MERRAero and AERONET 440 nm AOD (middle) and AAOD (right) at 4 South American AERONET sites shown on the map (left) for the period June to October 2007. The one-to-one line is indicated by the black line.
**Fig. S4.** Comparison of MERRAero simulated AI (left) and AAOD at 388nm (right) to OMI retrievals for the period JJA 2007 over the South American region.

**Fig. S5.** Comparison of MERRAero SSA at 440 nm to AERONET inversion products over the south African region.
**Fig. S6.** Same as Fig. S5 but for the South American region.

**Fig. S7.** Same as Fig. S2 but for the Asian region during AMJ 2007.
Fig. S8. Same as Fig. S5 but for the Asian region.