Supplemental Material for "Assessing VIIRS aerosol data assimilation as a MODIS successor in the NASA GEOS system"

Virginie Buchard[1,2], Patricia Castellanos[2], Arlindo M. da Silva[2,3,4], Ravi Govindaraju[5,2], Matthew A. Thompson[5,2], Rob Levy[6], Jaehwa Lee[6,7], Vincent Kim[8,9], Pawan Gupta[10]

[1]Goddard Earth Sciences Technology and Research II (GESTAR II), University of Maryland Baltimore County, Baltimore, Maryland, USA
[2]Global Modeling and Assimilation Office, NASA Goddard Space Flight Center, Greenbelt, Maryland, USA
[3]Center for Research on Sustainable Forests, University of Maine, Orono, Maine, USA
[4]Asticou Earth Systems LLC, Bar Harbor, Maine, USA
[5]Science Systems and Applications, Inc., Lanham, Maryland, USA
[6]Climate and Radiation Laboratory, NASA Goddard Space Flight Center, Greenbelt, Maryland, USA
[7]Earth System Science Interdisciplinary Center, University of Maryland, College Park, Maryland, USA
[8]Entarian, Greenbelt, Maryland, USA
[9]NOAA Weather Prediction Center - Extended Prediction Division, College Park, MD, USA
[10]Biospheric Science Laboratory, NASA Goddard Space Flight Center, Greenbelt, Maryland, USA

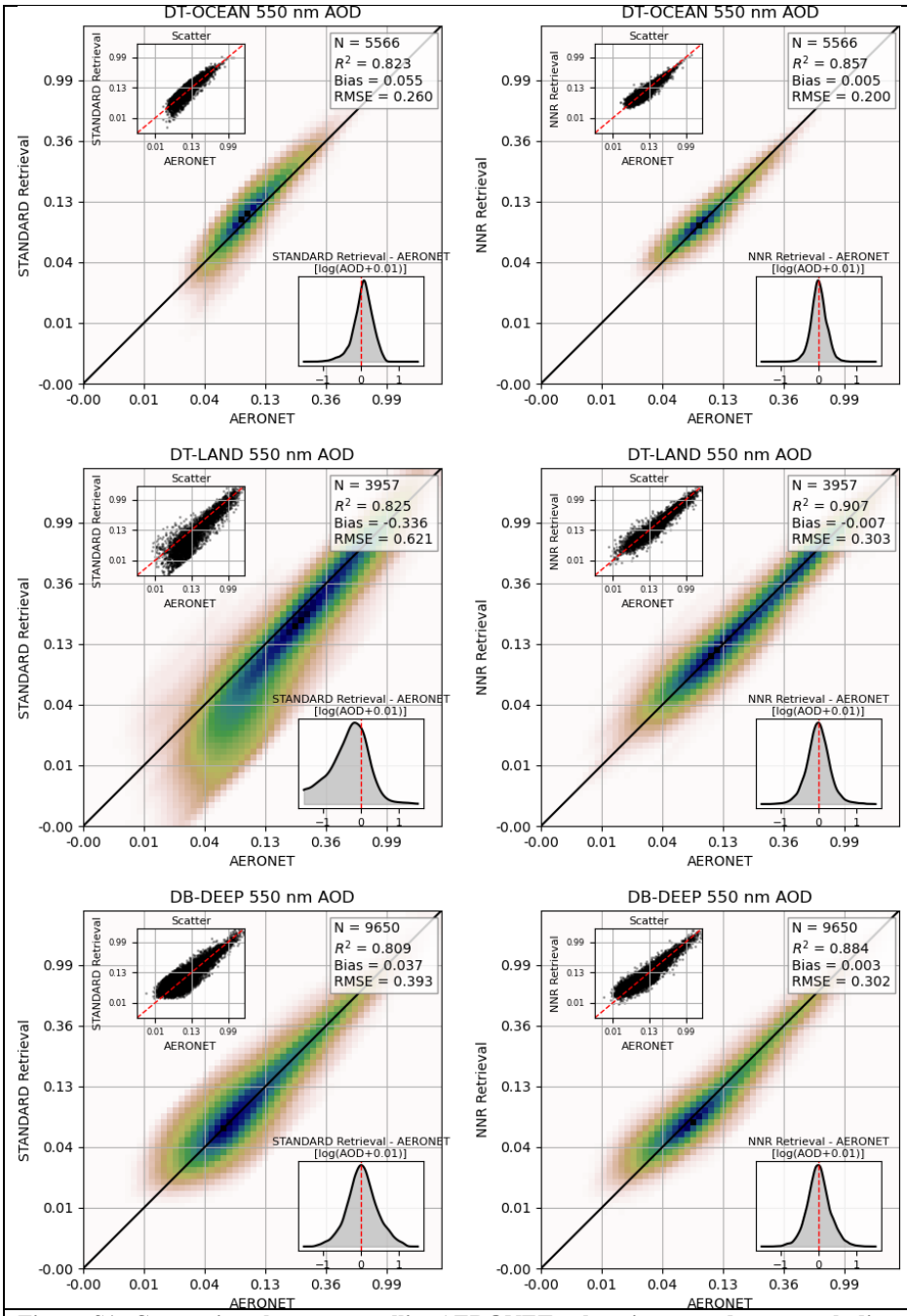

Figure S1: Comparison between satellite-AERONET colocations test dataset excluding outlier data covering the time period of 2019-2024 used during model development for the three VIIRS retrieval algorithms. Figures on the left compare the standard AERDT and AERDB AOD products to AERONET, and figures on the right compare the NNR AOD predictions to AERONET.

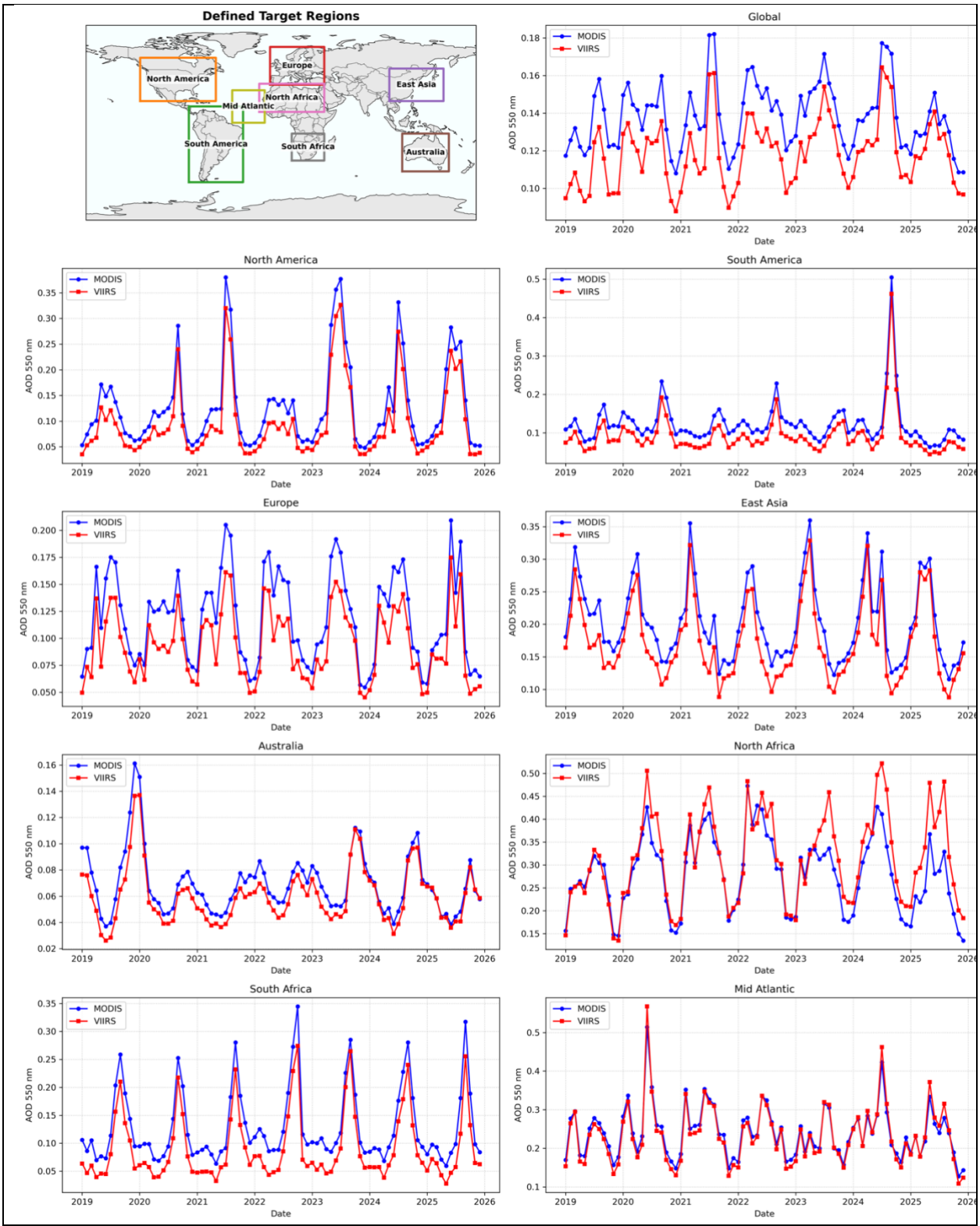

Figure S2. Monthly mean MODIS and VIIRS standard retrieval AOD at 550 nm from 2019-2025 over selected global regions.