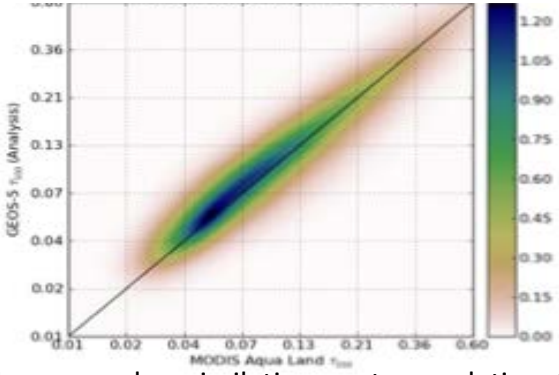
GEOS-5 Aerosol Analysis for the SEAC^{4}RS Field Campaign

Global Modeling and Assimilation Office

GEOS-5 chemical constituent forecasts were used for flight planning in NASA's SEAC^{4}RS mission. Post-mission, aerosol optical depth observations from MODIS, AERONET, and MISR were assimilated into GEOS-5, to help interpret *in situ* data in the larger space-time context. The integrity of these aerosol analyses supports the use of GEOS-5 for global and regional studies of aerosol impacts on the Earth System.

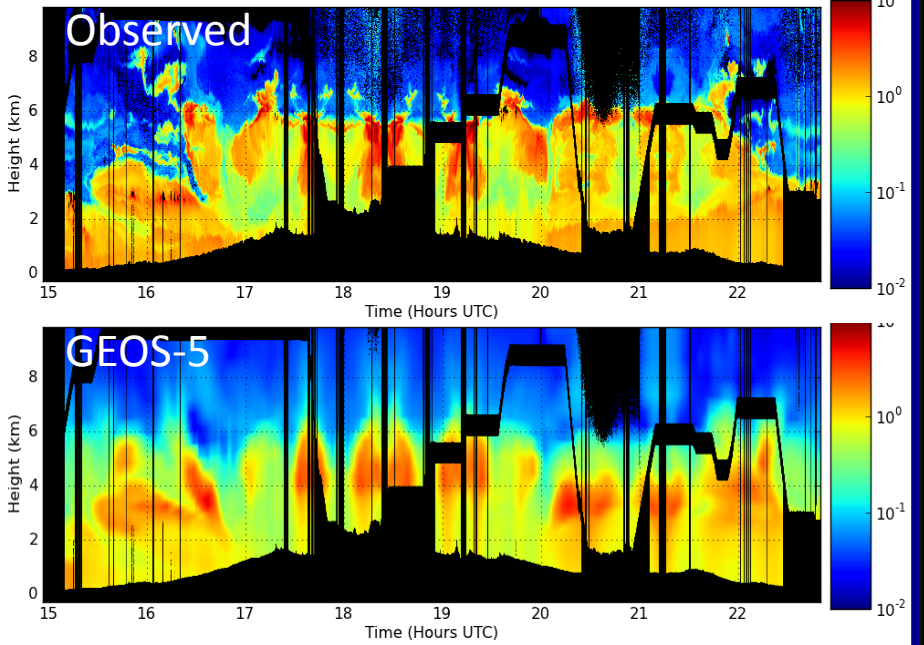
Observed-vs-Assimilated AOD over CONUS

MODIS Terra Land ana
R^2 = 0.86
Slope = 0.89
Intercept = -0.21
StdErr = 0.47



The performance of the aerosol assimilation system relative to satellite and aircraft measurements shows agreement between observed aerosol optical depth (AOD) from MODIS and the assimilation over land for the continental United States (CONUS).

532nm Aerosol Backscatter



Aerosol backscatter observed (top) by the DIAL-HSRL instrument on NASA's DC8 and computed from the GEOS-5 aerosol analysis (bottom). The GEOS-5 data are sampled along the aircraft track.