



Aircraft, satellite, and model intercomparisons of aerosol and cloud properties during NASA ORACLES

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Aerosols, clouds, and their interactions with radiation remain highly uncertain, burdening the reconstruction of past climate and prognosis of future climate change. The prevalent coexistence of African biomass burning aerosols and clouds during Austral winters in the southeast Atlantic presents a natural laboratory for investigating aerosol-cloud-radiation interactions. The NASA Observations of Aerosols above Clouds and their interactions (ORACLES) field campaign has provided a unique opportunity to validate satellite products. Specifically, the retrieval of above-cloud aerosol optical depths (AODs) and below-aerosol cloud optical depths (CODs) from the Spinning Enhanced Visible and Infrared Imager (SEVIRI) and Moderate Resolution Imaging Spectroradiometer (MODIS) are compared against the Spectrometers for Sky-Scanning, Sun-Tracking Atmospheric Research (4STAR) and Solar Spectral Flux Radiometer (SSFR). Aerosol and cloud properties from regional climate models with aerosol schemes are also compared against airborne and satellite retrievals to evaluate the current model deficiencies in the southeast Atlantic.