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A NOAA global Aerosol ReAnalysis (NARA) product is being produced at NOAA/OAR/GSL for the years 2018-2022 as an extension of our initial aerosol reanalysis product for the year 2016 only (Wei et al., 2024). In our extended NARA product, the forecast model adopts the NOAA United Forecast System-Aerosols (UFS-Aerosols) that is coupled with NASA second-generation Goddard Chemistry Aerosol Radiation and Transport (GOCART) model. The data assimilation system is based on the three-dimensional ensemble-variational (3DEnVar) framework built in the Joint Efforts for Data Assimilation (JEDI). The Aerosol Optical Depth (AOD) retrievals at 550 nm derived from the Visible/Infrared Imager Radiometer Suite (VIIRS) instrument on the Suomi National Polar-orbiting Partnership (SNPP) satellite are assimilated to provide the reanalysis of aerosol mass mixing ratios in UFS-Aerosols. Compared to the model free run without AOD assimilation, the aerosol reanalysis shows significantly improved agreement with both assimilated VIIRS AOD retrievals and independent Aerosol Robotic Network (AERONET) AOD. Such improvement of the aerosol reanalysis was extended to the subsequent forecasts beyond five days. System development and description and evaluation of NARA will be presented at the workshop.
Presentation file
Huang-Bo.pdf
Meeting homepage
S2S Community Workshop
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