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Aerosol Impact on Seasonal Prediction Using FIM-Chem-iHYCOM Coupled Model

Shan Sun (1,2), Georg A. Grell (2), Li Zhang (1,2), Benjamin W. Green (1,2)
(1) University of Colorado, CIRES, Boulder, Colorado, (2) NOAA/ESRL/GSD, Boulder, Colorado

The coupled atmosphere, ocean and chemistry system using the global FIM-Chem-iHYCOM model is applied to subseasonal to seasonal prediction to investigate the aerosol impact on the atmospheric and oceanic circulation. The sources and sinks for aerosols, fire and anthropogenic emissions are prescribed. We compare the model sensitivity with various chemistry emissions in several case studies with ensemble members. Additional emphasis of this work is on the effect of aerosols on cloudiness and precipitation, either directly or indirectly through changes in SST. The online chemistry options include a simple suite with bulk aerosols only, a more complex approach with gas-phase chemistry, and a package that has model aerosols as well as Secondary Organic Aerosols (SOA).