

A model evaluation of global high-resolving simulated aerosol distributions

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We have been developing an atmospheric chemistry module coupled to non-hydrostatic icosahedral atmospheric model (NICAM by Tomita and Satoh, 2004, Satoh et al., 2008 and 2014) to properly simulate air pollutions in seamlessly covering global-to-regional scales. Using the model, NICAM-Chem, Goto et al. (2015) evaluated regionally simulated aerosol distributions over east Asia with high resolution of O(10km) using a stretched grid system (Tomita, 2008). In this study, we extend the regional simulation by NICAM-Chem to global simulation with O(10km) grid spacing using K-supercomputer system (proposal number of 140046 and 150156).

We successfully run the model in four seasons (January, April, July, and October) with 14-km grid spacing. In the presentation, we will show results of seasonal variations of the NICAM-Chem simulated global aerosol as well as cloud/precipitation fields and their validations using in-situ measurements (AERONET) and satellite observations (e.g., MODIS). Finally, we will summarize advantages of the use in the high-resolving model in terms of the air pollution issue.

Key words: Global aerosol modeling, NICAM, model validation

References

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