

Simulations under recent projects on aerosol model intercomparisons

Toshihiko TAKEMURA¹

¹ *Research Institute for Applied Mechanics, Kyushu University, Fukuoka, Japan*

Some aerosol model intercomparisons (e.g., AeroCom (Aerosol Model Intercomparison Project (<http://aerocom.met.no>) and ACCMIP (Atmospheric Chemistry and Climate Model Intercomparison Project)) have been implemented to understand uncertainties in processes, consequent distributions, and radiative forcing of aerosols as well as compare simulated results with satellite and in-situ observations. These intercomparisons contributed to the Fourth and Fifth Assessment Reports of the Intergovernmental Panel on Climate Change (IPCC). Because there are still large uncertainties in estimations of climate change due to aerosols, several aerosol model intercomparisons are being implemented, e.g., AeroCom Phase III, PDRMIP (Precipitation Driver and Response Model Intercomparison Project), and AerChemMIP (Aerosols and Chemistry Model Intercomparison Project). AeroCom Phase III includes HTAP2 (Hemispheric Transport of Air Pollution Phase II), biomass burning, nitrate, aerosol-cloud interaction, and aerosol lifetime experiments. PDRMIP is a project to analyze effects of aerosols and ozone on precipitation change. AerChemMIP is endorsed by CMIP6 (Coupled Model Intercomparison Project Phase 6). In this presentation, simulated results by MIROC-SPRINTARS (Takemura et al. 2005, 2009) in accordance with protocols of each intercomparison are discussed.

Acknowledgments: Simulations in this study were executed with the supercomputer system of the National Institute for Environmental Studies, Japan. This study is partly supported by the Environment Research and Technology Development Fund (S-12-3) of the Ministry of the Environment, Japan and JSPS KAKENHI Grant Number 15H01728 and 15K12190.

Key words: aerosol, model, intercomparison, climate change

References

Takemura, T., and Coauthors, 2005: *J. Geophys. Res.*, **110**, D02202.

Takemura, T., and Coauthors, 2009: *Atmos. Chem. Phys.*, **9**, 3061-3073.