

Research and Development of a Simulation Support System for Evaluating Air Pollution Measures

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[Abstract]

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Based on the knowledge obtained from the Environment Research and Technology Development Fund and other sources, we have developed a simulation support system for air pollution simulation to facilitate the use of multiscale air quality models. The simulation support system allows users to generate emissions data and calculation setup files necessary for simulations by selecting and specifying calculation setups, etc. via a user-friendly interface. In parallel with the development of the simulation support system, we developed a data assimilation system for ground and satellite observation data such as air quality monitoring data and created a data set for analyzing air pollutant concentrations for photochemical oxidants and PM_{2.5} concentrations. We also developed an inverse estimate system for NO_x emissions in Japan based on ground and satellite observation data, and verified and improved the accuracy of domestic NO_x emissions. Case studies by several municipalities were conducted using numerical simulations to contribute to the study of measures to solve air pollution problems in their regions, while also verifying and demonstrating the simulation support system.