

# **Validation and Analysis of the Aerosol Optical Depth Simulated by WRF-Chem during the DRAGON-Asia Observing Period**

Ganghan Kim<sup>1</sup>, and Myong-In Lee<sup>1</sup>

<sup>1</sup> *Climate-Environment Modeling Laboratory, Ulsan National Institute of Science and Technology, Ulsan, South Korea*

There are limited information about the concentration about the continuous observation of the aerosol optical depth. In February, 2012, NASA organized the campaign to monitor the aerosol using AERONET equipments over the several metropolitan cities in Northeast Asia (Holben et al., 2011). This focused observation provided sufficient information to improve and validate the transport model results. To analyze the chemical transport and dispersion patterns, Weather Research and Forecasting (WRF) meteorological model coupled with Chemistry (WRF-Chem) is adapted to simulate the emission and transport of aerosols. The reproduced Asian emission data for anthropogenic and biogenic had been produced from INTEX-B and MODIS respectively, by SMOKE model and MEGAN model (Han et al., 2011). From March 1 to April 31, of the DRAGON-Asia campaign period, the WRF-Chem result for the two-months data have been compared with the AERONET observation. The result showed that the WRF-Chem underestimates the AOD compared with the observed data. There are several issues about the underestimation of concentration by WRF-Chem model, the model bias will be diagnosed based on the transportation patterns of the aerosols.

**Key words:** DRAGON, WRF-Chem, Asian Dust, Aerosol Optical Depth, AERONET

## **References**

- Holben, B., Eck, T., Schafer, J., Giles, D., & Sorokin, M., 2011: *White Paper*.  
Han, K. M., Lee, C. K., Lee, J., Kim, J., & Song, C. H., 2011: *Atmospheric Environment*, **45**(17), 2962-2971.