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Recent Advances in Air Quality Modeling, Forecasting and Data Assimilation

Guest Editors:

Prof. Myong-In Lee

Ulsan National Institute of
Science and Technology, 50
UNIST-gil, Eonyang-eup, Ulju-
gun, Ulsan, South Korea

Dr. Daisuke Goto

National Institute for
Environmental Studies (NIES),
16-2 Onogawa, Tsukuba, Ibaraki
305-0053, Japan

Dr. Dan Chen

Institute of Urban Meteorology,
China Meteorological
Administration, Beijing 100886,
China

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Message from the Guest Editors

Air quality prediction using numerical models exhibits large forecast errors with systematic model biases. There are major uncertainties in the representations of meteorological and chemical processes in models along with inaccurate anthropogenic emissions and initial and boundary conditions used for model simulations. Recent advances in data assimilation techniques, which effectively imbed observations into numerical model predictions, provide unprecedented opportunities to significantly improve forecast capability. In particular, observations from geostationary satellites, as well as polar-orbiting satellites cover wide areas and fill the spatial gap in the existing ground-based observation networks.

This Special Issue proposes to document recent advances and improvements in air quality modeling and forecasting techniques and the development of aerosol data assimilation methods for utilizing surface and satellite observations for gases and aerosols.



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Editors-in-Chief

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Western Geographic Science
Center (WGSC), 2255, N. Gemini
Dr., Flagstaff, AZ 86001, USA

Prof. Dr. Dongdong Wang

Institute of Remote Sensing and
Geographic Information Systems,
Peking University, Beijing, China

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Remote Sensing Editorial Office
MDPI, Grosspeteranlage 5
4052 Basel, Switzerland

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