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Comprehensive Modeling of Air Pollution and Its Weather Effects

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Message from the Guest Editors

Dear Colleagues,

Air pollution, originating from anthropogenic activities. Particles suspended in a polluted atmosphere absorb or scatter sunlight, depending on particle composition and their optical properties, and ultimately warm or cool the atmosphere. The energy imbalance induced by both aerosol–radiation interactions and aerosol–cloud interactions leads to changes in the local or even regional circulation and boundary layer structure, which can, in turn, affect the dilution of air pollution. However, more effort is still needed to improve the model skills in representing the air pollution–weather interactions in conjunction with a wide range of atmospheric observations.

This Special Issue aims to publish new research on the modeling of air pollution and its weather effect. We welcome papers on air pollution modeling, the boundary layer and precipitation modulated by particulate matters and ozone, aerosol–cloud–weather interactions, aerosol effects on tropical storms or typhoons, and the development of new modules or the parameterizations of relevant chemical and microphysical processes.

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Message from the Editor-in-Chief

Continued developments in instrumentation and modeling have driven atmospheric science to become increasingly more complex with a deeper understanding of concepts, mechanisms, and interactions. This is the field that innovation built and it has led to a better appreciation for the complexity with atmosphere. Human life is intertwined in this complexity as we strive to better understand our atmosphere. Climate change is constantly stretching the limits of our thinking and forcing new ideas and concepts to be played out. Welcome to the Anthropocene!

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