Special Issue

Advances in Aerosol–Cloud Interactions: From Microphysical Processes to Earth System Model Evaluation

Message from the Guest Editor

Aerosol–cloud interactions (ACIs) are a significant topic in climate change research. However, due to the complexity of these processes and limitations in the observational and modeling tools, ACI remains the primary source of uncertainty in climate change projections. This Special Issue aims to encourage authors to share their latest findings in aerosol–cloud interactions through innovative investigations of the associated microphysical processes. We invite submissions of model-based studies on multiple scales, from large eddy simulations and cloud resolving modeling to Earth System Model development and evaluation. We also welcome contributions from laboratory experiments, in situ measurements, remote sensing studies, and artificial intelligence studies that provide process-level insights to constrain the representation of ACI in models. Through this Special Issue, we seek to advance the fundamental understanding of ACI and reduce uncertainty in climate change projections.

Guest Editor

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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!

Editor-in-Chief

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