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Aerosol–Cloud–Precipitation Interactions: From Weather to Climate

Guest Editor:

Dr. Xianwen Jing
Department of Climate and Space Sciences and Engineering, University of Michigan, 2455 Hayward Street, Ann Arbor, MI, USA

Deadline for manuscript submissions:
closed (22 November 2021)

Message from the Guest Editor

Dear Colleagues,

Aerosols or their predecessors from human activities, with varying properties and geographical locations, can remarkably alter the microphysical characteristics of clouds and their propensity to generate precipitation, which affects not only the local weather characteristics, but also the radiation budget and climate on larger scales.

However, great uncertainties still persist in the modelling of aerosol–cloud–precipitation interaction (ACPI) in both numerical weather prediction and global climate models. Challenges arise largely from the broad span of scales: from submicrons to tens or hundreds of kilometers. It therefore warrants more intensive cross-scale research efforts, from both the observational and modeling approaches, in order to disentangle the role of aerosols in affecting weather and climate.

This Special Issue is expected to focus on studies on ACPI on various spatial and temporal scales. All studies that enhance our understanding of the mechanisms within and the impacts from ACPI are highly relevant to this Special Issue. Cross-scale studies that bridge the gap between the weather and climate effects of ACPI are especially welcome.

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Editor-in-Chief

Prof. Dr. Ilias Kavouras
Environmental, Occupational, and Geospatial Health Sciences, CUNY School of Public Health, New York, NY 10027, USA

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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Contact Us

Atmosphere Editorial Office
MDPI, Grosspeteranlage 5
4052 Basel, Switzerland

Tel: +41 61 683 77 34
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atmosphere@mdpi.com
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