Special Issue

Observational and Model-Based Extreme Precipitation Analysis

Message from the Guest Editor

Hydrological extreme events (including heavy precipitation) have the potential to cause disruption in ecosystem function, compromise infrastructure, and public safety. Impacts from such extreme events include significant damage to bridges, culverts, levees, and other national infrastructure, resulting in economic losses, population displacements, and a variety of public health issues. Furthermore, extreme precipitation is expected to intensify with global warming. To this end, understanding the observed changes in extreme precipitation events and anticipating future risks are critical in developing ecosystems resilient to extremes. This Special Issue of *Atmosphere* focuses on extreme precipitation analysis using innovative statistical methods focused on trends, modeling, and dynamics. Particularly, we welcome topics of observational and model-based studies that could provide useful information on extreme precipitation under changing climate, as well as dynamical and synoptic characteristics. Studies are welcome across global to local scales, whether methodological or applied, focusing on physical principle-based and/or data analysis-based research (including machine learning).

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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