Artificial Intelligence and Statistical Techniques to Advance Weather Forecasting and Impact Modeling

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Message from the Guest Editors

Accurate estimation of weather variables is critical for impact modeling applications. Remote sensing observations are the primary source of weather variables direct estimation. Assessing and adjusting the sources of error in remote sensing hydrometeorological variable estimation is essential for extending the use of these estimates for water resources application. Artificial intelligence techniques are used to improve variable estimates by merging multisource datasets. This Special Issue aims at presenting state-of-the-art techniques in data science and machine/deep learning to correct radar and satellite-based observations for hydrometeorological applications. Moreover, since improvements in weather variables estimation have a direct effect on impact modeling accuracy, we therefore welcome contributions which quantitatively describe the relationships between weather variables and their impact through explainable artificial intelligence. We also believe that this Special Issue will provide AI-based high-performance methods for weather variable estimation and weather impact modeling for future advancements in the domain.

Special Issue

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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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