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Artificial Intelligence in Atmospheric Modelling, Prediction, and Data Assimilation

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Deadline for manuscript submissions:
closed (15 October 2021)

Message from the Guest Editors

Dear Colleagues,

To date, several computer-aided techniques have been developed for modeling, prediction, and data assimilation of atmospheric systems. These methods range from numerical models developed based on physical laws of the problem to statistical methods and data-driven techniques which are generally focused on associations between inputs and outputs. These techniques can help researchers in solving problems in atmospheric systems such as dynamic systems prediction, ensemble weather forecasting, climate data downscaling, etc. In the past two decades, through improvements in computing power, artificial intelligence techniques have attracted a lot of attention due to their automatic repetitive learning and recognition through data, unique capability in capturing complex associations between variables, and their power in analyzing big data.

This Special Issue aims to present some of the latest achievements in using AI techniques, including artificial neural networks (ANN), neurofuzzy systems (NFS), support vector machines (SVM), fuzzy reasoning, evolutionary computation techniques, etc. in atmospheric modeling, prediction, and data assimilation.

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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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Journal Rank: CiteScore - Q2 (Environmental Science (miscellaneous))

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