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Data Mining and Machine Learning Techniques for Atmospheric and Climate-Related Challenges at Different Time-Scales

Guest Editor:

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Deadline for manuscript submissions:
closed (17 April 2020)

Message from the Guest Editor

Dear Colleagues,

Traditionally, standard statistical methods have been used to solve many of the problems that arise in climate research. Nevertheless, the enormous volume of data that have been made available during the last decade (in situ and/or satellite records, reanalysis, ESM simulations, etc.), and the rapid development of powerful computing resources have motivated the adaptation and use of more complex and sophisticated tools, namely, data mining and machine learning techniques, which allow to extract useful knowledge by directly operating on the data.

This Special Issue of *Atmosphere* focuses on the application of data mining and machine learning techniques (association rules, classification/regression trees, random forests, Gaussian mixture models, artificial neural networks, support vector machines, Bayesian networks, etc.) which may help to overcome different types of problems that still constitute key challenges for the climate science community (e.g., diagnosis, classification, forecasting, downscaling, etc.).

Dr. Rodrigo Manzanas
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!

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

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