Special Issue

Mathematical Modeling and Advanced Statistics of Climate Change

Message from the Guest Editor

Climate variability, which operates across diverse timescales that range from seasons to millennia, presents complex patterns that require rigorous statistical analysis to differentiate natural fluctuations from anthropogenic signals and to improve predictive capabilities. This Special Issue focuses on the application of advanced statistical methodologies for the characterization, modeling, and prediction of climate variability. We welcome contributions that explore novel statistical techniques for analyzing climate data, including time series analysis, change point detection, the minimum description length principle, Tikhonov's regularization, the penalty function method, spatiotemporal statistics, statistical information theory, ordinal symbolic mapping, principal component analysis, and machine learning. The scope of this Special Issue encompasses the detection and attribution of climate variability drivers, the development of statistical climate models, the analysis of climate extremes and their statistical properties, and the use of statistical approaches to enhance climate forecasts and projections across different spatiotemporal scales.

Guest Editor

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About the Journal

Message from the Editor-in-Chief

Climate (ISSN 2225-1154) was established in 2013 to provide an open-access outlet for innovative research, review articles, new direction papers, and short communications relevant to all disciplines related to climate at all scales. The journal encourages papers ranging from climate change detection and attribution and Earth system modeling to ecosystem, hydrologic, and socioeconomic impacts and climate mitigation and adaptation measures. The influence of *Climate* is strong and growing (IF 3.2 in 2024, CiteScore 5.7 in 2024).

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