

Special Issue

Numerical Modeling Applications of Extreme Weather Events and Climate Change

Message from the Guest Editors

Numerical models are essential tools for understanding the complex interactions between the atmosphere, land, and marine surfaces, offering vital insights into extreme events like storms, floods, heatwaves, and droughts. As the frequency and intensity of such events increase due to climate change, understanding their underlying physical mechanisms and predicting their development have become more important and challenging than ever. This Special Issue will focus on the application of numerical modeling to extreme weather events and their broader implications for climate change. We expect contributions to explore various types of models, ranging from global and regional climate models to high-resolution, process-based simulations. Topics might include advancements in model accuracy, uncertainty quantification, the role of coupled systems, and the integration of artificial intelligence and ensemble approaches to enhance model capabilities. The Special Issue is anticipated to demonstrate how these models not only improve forecasting but also assess climate change risks, inform policy, and guide adaptation strategies.

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About the Journal

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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