Special Issue

Machine Learning for Climate Modeling: Current State and Future Developments

Message from the Guest Editors

This Issue focuses on the current state of machine learning (ML) applications in climate modeling. It aims to provide a comprehensive overview of how ML techniques are currently being employed to enhance climate simulations, forecast climate change impacts, and develop more accurate climate models. The scope of this Special Issue extends to various ML methodologies, including deep learning, reinforcement learning, and supervised/unsupervised learning techniques, as they have been applied to different aspects of climate modeling. This includes, but is not limited to, data analysis, pattern recognition in climate variables, predictive modeling, and uncertainty quantification in climate projections. The purpose of this Special Issue is to present a clear picture of where the field stands today and to identify promising areas for future research and development. The Issue aims to foster discussion and collaboration among climate scientists and machine learning experts, highlighting challenges, successes, and potential pathways forward.

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