Special Issue

Advances in Subseasonal to Seasonal Climate Prediction in South America

Message from the Guest Editors

Subseasonal to seasonal (S2S) climate predictions are essential for supporting decision-making across agriculture, water management, energy, disaster risk reduction, and public health in South America. The region is highly exposed to hydroclimatic extremes such as droughts, floods, and heatwaves, making reliable forecasts crucial for resilience, adaptation, and sustainable development. Recent advances in dynamic, statistical, hybrid, and AI-based models, along with tools, platforms, and methodologies for prediction development and delivery offer new opportunities to enhance forecast skill and usability. Progress in data assimilation, ensemble forecasting, and machine learning further improves predictability. Challenges remain, however, in addressing model biases, downscaling, regionalization, and integrating forecasts into decision-making. This Special Issue seeks contributions that cover the full spectrum of S2S climate prediction research and practice—from model development and methodological innovations to applications in climate-sensitive sectors and societal- and policy-relevant dimensions of forecast use.

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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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