Special Issue

Applications of Artificial Intelligence in Atmospheric Sciences

Message from the Guest Editors

Currently, artificial intelligence (AI) techniques are used for this purpose with improved forecasting performance, but with a fraction of the computational cost of traditional techniques. Therefore, this Special Issue aims to explore the intersection of AI and atmospheric sciences to tackle pressing challenges in climate change, weather forecasting, clean air, and renewable energy. Authors are invited to submit original research articles and reviews that highlight the transformative potential of novel AI techniques in various aspects of atmospheric sciences, including (but not limited to) the following:

- Weather and extreme weather event forecasting;
- Air pollution monitoring, management, and forecasting;
- Renewable energy prediction and optimisation;
- Regional downscaling;
- Physics-informed neural networks to simulate atmospheric flow;
- Foundation models for atmospheric challenges;
- Climate change and resilience;
- Indoor and outdoor modelling;
- The airborne dispersion of contaminants and their impact on indoor and outdoor environments;
- Land use change assessment;
- Impacts of air quality on human health;
- Other related areas.

Guest Editors

Dr. Erick G. Sperandio Nascimento
Dr. Taciana Toledo De Almeida Albuquerque
Prof. Dr. Prashant Kumar

Deadline for manuscript submissions

closed (30 May 2025)

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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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