Special Issue

Modeling and Monitoring of Air Quality: From Data to Predictions

Message from the Guest Editor

Spatial modeling of air quality relies on diverse environmental and meteorological datasets to analyze and predict pollution levels across different regions. By integrating data from meteorological stations, remote sensing technologies, and sensor networks, these models evaluate the transport, transformation, and dispersion of pollutants such as nitrogen dioxide, sulfur dioxide, ozone, and particulate matter. Computational simulations provide insights into pollutant distribution and trends, facilitating early warning systems and policy interventions. Despite advancements in predictive modeling, challenges remain, including the need for more comprehensive data integration, the inclusion of emerging pollutants, and the expansion of models into underrepresented regions. Strengthening interdisciplinary approaches and leveraging artificial intelligence can further enhance the accuracy and applicability of air quality assessments, contributing to improved urban air quality management and public health outcomes.

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Deadline for manuscript submissions

27 February 2026

Atmosphere

an Open Access Journal by MDPI

Impact Factor 2.3
CiteScore 4.9

mdpi.com/si/230676

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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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