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Advances in Severe Weather Forecast

Guest Editor:

Dr. Massimo Milelli
Meteorology and Climatology Department, CIMA Research Foundation, 17100 Savona, Italy

Deadline for manuscript submissions:
closed (22 January 2024)

Message from the Guest Editor

Dear Colleagues,

One of the most important challenges in atmospheric science is extreme weather event forecast. This issue is not the relation with climate change but the study of the phenomena from the very-short-range to the medium-range point of view, considering both deterministic and probabilistic approaches. High-resolution numerical weather prediction models or global models may be considered. Sensitivity studies on data assimilation and physical parametrizations are welcome, together with analysis of the performance of operational simulations in selected case studies. Moreover, a crucial point is the objective validation of the forecast which can be performed with various types of observations.

Summarizing, this Special Issue aims to provide an overview of the most recent applications of NWP in the following (not exhaustive) list of topics:

Extreme precipitation (both rain and snow);

Heatwaves;

Windstorms;

Dust Storms;

Thunderstorms;

Mediterranean/tropical cyclones;

Typhoons, Hurricanes, Tornadoes;

Hailstorms.

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Editor-in-Chief

Prof. Dr. Ilias Kavouras
Environmental, Occupational, and Geospatial Health Sciences, CUNY School of Public Health, New York, NY 10027, USA

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!

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Journal Rank: CiteScore - Q2 (*Environmental Science (miscellaneous)*)

Contact Us

Atmosphere Editorial Office
MDPI, St. Alban-Anlage 66
4052 Basel, Switzerland

Tel: +41 61 683 77 34
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mdpi.com/journal/atmosphere
atmosphere@mdpi.com
𝕏@Atmosphere_MDPI