# Special Issue

# Explainable Artificial Intelligence for Atmospheric Research

## Message from the Guest Editor

Historically, AI has been predominantly associated with robotics and the human effort to develop robots with outstanding capabilities, and, of course, reaching the target of developing humanoid robots. Nowadays, AI has been expanded to other directions, such as in environmental research, climate dynamics, and atmospheric research. It is vital that new tools, such as AI and its subsets, e.g., machine learning (ML), become available to scientists because they provide us with the chance to try new things and study our fields of research in more detail. However, in the case of AI, there is also danger. The danger is associated with the AI's self-development characteristic. For example, I can "feed" a neural network with air temperature and other data of a specific location to create a model tool that can forecast the temperature in this area. How do I treat this model tool? Can I use it, as it is, for further research or should I firstly shay light in this "black box", in order to understand the modeled mechanisms, and use it afterwards?

## Guest Editor

Dr. John Christodoulakis

Climate Research Group, Division of Environmental Physics and Meteorology, Faculty of Physics, National and Kapodistrian University of Athens, University Campus Bldg. Phys. V, 15784 Athens, Greece

## Deadline for manuscript submissions

closed (30 September 2022)

MDPI

# 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

Dr. Daniele Contini
Institute of Atmospheric Sciences and Climate (ISAC), National Research Council (CNR), Str. Prv. Lecce-Monteroni km 1.2, 73100 Lecce, Italy

### Author Benefits

**Open Access:**
free for readers, with article processing charges (APC) paid by authors or their institutions.

**High Visibility:**
indexed within Scopus, SCIE (Web of Science), Ei Compendex, GEOBASE, GeoRef, Inspec, CAPlus / SciFinder, Astrophysics Data System, and other databases.

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