Special Issue

Lightning and Energetic Radiation

Message from the Guest Editors

Exactly 100 years ago, Nobel laureate C.T.R. Wilson predicted the occurrence of runaway electrons in atmospheric electrical discharges in our atmosphere. Over the next 75 years, many researchers attempted to determine whether thunderstorms or lightning produced such energetic radiation, with mixed results. However, over the past two decades, the number of papers in this field has increased. It is now established that electrical discharges generate energetic radiation in gases at atmospheric pressure. Yet the precise mechanism for the production of high-energy runaway electrons responsible for the X-ray emissions from these discharges and their energy spectral properties are not understood. The aim of this Special Issue is to update current research in electrical discharges and energetic radiation. Accordingly, the Special Issue will cover all areas of electrical discharges in high-pressure gases, including modeling, simulations, field measurements, laboratory measurements, and reviews. Hopefully, this Special Issue will gather some review articles describing different aspects of this important phenomenon, which will not only summarize previous work but also show new directions.

Guest Editors

Dr. Mahbubur Rahman

Ångström Laboratory, Division of Electricity, Department of Electrical Engineering, Uppsala University, Uppsala, Sweden

Prof. Dr. Vernon Cooray

Ångström Laboratory, Division of Electricity, Department of Electrical Engineering, Uppsala University, Uppsala, Sweden

Deadline for manuscript submissions

1 June 2026

Atmosphere

an Open Access Journal by MDPI

Impact Factor 2.3
CiteScore 4.9

mdpi.com/si/249194

Atmosphere
Editorial Office
MDPI, Grosspeteranlage 5
4052 Basel, Switzerland
Tel: +41 61 683 77 34
atmosphere@mdpi.com

mdpi.com/journal/atmosphere

Atmosphere

an Open Access Journal by MDPI

Impact Factor 2.3
CiteScore 4.9

mdpi.com/journal/atmosphere

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))

MDPI