Special Issue

Hydrogen and Combustion Emissions: Atmospheric Pathways, NO Impacts, and Clean Energy Futures

Message from the Guest Editors

Hydrogen is increasingly recognized as a cornerstone in the transition to clean and low-carbon energy systems. However, its expanded production, distribution, and utilization—particularly through combustion applications—introduce significant environmental challenges that must be addressed. This Special Issue seeks to bring together interdisciplinary research exploring hydrogen's role in atmospheric chemistry, with a focus on sustainable hydrogen technology, hydrogen emissions, combustion emissions, NO formation, hydrogen leakage, and interactions with trace atmospheric species. We invite contributions examining hydrogen-related emissions across production technologies (green, blue, or gray), their impacts on ozone and radical species, and the implications for air quality and climate. Both experimental and modeling are welcome, especially those that integrate life cycle assessments, emission monitoring, and environmental policy frameworks. Special attention will be given to studies addressing NO emissions from hydrogen combustion and the broader climate alongside the ecosystem consequences of large-scale hydrogen deployment.

Guest Editors

Dr. Omar I. Awad

Dr. Xiao Ma

Prof. Dr. Kumaran Kadirgama

Deadline for manuscript submissions

31 March 2026

Atmosphere

an Open Access Journal by MDPI

Impact Factor 2.3
CiteScore 4.9

mdpi.com/si/242884

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

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))