

Special Issue

Non-Equilibrium Processes in Earth and Environmental Systems: Dynamics, Feedbacks, and Modeling Approaches

Message from the Guest Editors

Earth and environmental systems are inherently dynamic and often operate far from thermodynamic or dynamic equilibrium. External forcings, such as solar radiation, human activities, natural variability and stochastic processes, continuously drive these systems away from a steady state, resulting in complex, nonlinear, and often abrupt responses. Understanding non-equilibrium phenomena is crucial for predicting system behavior, assessing resilience, and informing sustainable management practices. This Special Issue invites original research articles, reviews, and perspectives that investigate non-equilibrium processes across varied Earth and environmental science domains, with a focus on their underlying mechanisms, feedbacks, spatiotemporal dynamics, and model-data integrated approaches, including those leveraging artificial intelligence (AI) and machine learning (ML).

Topics of Interest:

- Global and Local Temperature Fluctuations and Energy Imbalances
- Theoretical frameworks for non-equilibrium phenomena in environmental sciences
- Climate Extremes and Tipping Points
- Hydrological, Geophysical and Ecohydrological Processes
- Modeling Non-equilibrium Systems

Guest Editors

Dr. Jun Yin

Dr. Matteo Colangeli

Dr. Kailiang Yu

Dr. Bei Gao

Deadline for manuscript submissions

30 September 2026



Entropy

an Open Access Journal
by MDPI

Impact Factor 2.0
CiteScore 5.2
Indexed in PubMed



mdpi.com/si/263479

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

[mdpi.com/journal/
entropy](https://mdpi.com/journal/entropy)





Entropy

an Open Access Journal
by MDPI

Impact Factor 2.0
CiteScore 5.2
Indexed in PubMed



[mdpi.com/journal/
entropy](https://mdpi.com/journal/entropy)



About the Journal

Message from the Editor-in-Chief

The concept of entropy is traditionally a quantity in physics that has to do with temperature. However, it is now clear that entropy is deeply related to information theory and the process of inference. As such, entropic techniques have found broad application in the sciences.

Entropy is an online open access journal providing an advanced forum for the development and/or application of entropic and information-theoretic studies in a wide variety of applications. *Entropy* is inviting innovative and insightful contributions. Please consider *Entropy* as an exceptional home for your manuscript.

Editor-in-Chief

Prof. Dr. Kevin H. Knuth

Department of Physics, University at Albany, 1400 Washington Avenue,
Albany, NY 12222, USA

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), Inspec, PubMed, PMC, Astrophysics Data System, and other databases.

Journal Rank:

JCR - Q2 (Physics, Multidisciplinary) / CiteScore - Q1 (Mathematical Physics)