Special Issue

Sustainability and Challenges of Underground Gas Storage Engineering

Message from the Guest Editors

- With intermittent renewable energy integration and rising energy demands, UGS ensures supply stability, reduces emissions, and supports strategic reserves. However, complex geological conditions, leakage risks, material corrosion, and wellbore integrity issues threaten long-term sustainability, demanding innovative solutions.
- This special issue aims to advance multidisciplinary research on sustainable UGS engineering, focusing on safety, efficiency, and environmental impact. It aligns with journals covering energy storage, geomechanics, and civil engineering.
- In this Special Issue, original research articles and reviews are welcome. Research areas may include (but not limited to) the following:

- Geostorage Integrity: Fault activation, multi-scale leakage mechanisms, and caprock stability
- Wellbore & Seal Integrity: Corrosion control, microbial degradation, and risk quantification
- Smart UGS Systems: AI-driven monitoring, reservoir digital twins, and cluster management16.
- Low-Carbon Technologies: H_2/CO_2 storage, methane purification materials, and repurposed mines
- Regulatory Frameworks: Safety standards and lifecycle sustainability assessments

Guest Editors

Dr. Xuerui Wang

Dr. Jianbo Zhang

Dr. Yang Zhao

Dr. Fengyuan Zhang

Deadline for manuscript submissions

30 June 2026

Applied Sciences

an Open Access Journal by MDPI

Impact Factor 2.5
CiteScore 5.5

mdpi.com/si/245710

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

mdpi.com/journal/applsci

Applied Sciences

an Open Access Journal by MDPI

Impact Factor 2.5
CiteScore 5.5

mdpi.com/journal/applsci

MDPI

About the Journal

Message from the Editor-in-Chief

As the world of science becomes ever more specialized, researchers may lose themselves in the deep forest of the ever increasing number of subfields being created. This open access journal *Applied Sciences* has been started to link these subfields, so researchers can cut through the forest and see the surrounding, or quite distant fields and subfields to help develop his/her own research even further with the aid of this multi-dimensional network.

Editor-in-Chief

Prof. Dr. Giulio Nicola Cerullo
Dipartimento di Fisica, Politecnico di Milano, Piazza L. da Vinci 32, 20133 Milano, 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, Inspec, Embase, CAPlus / SciFinder, and other databases.

Journal Rank:

JCR - Q2 (Engineering, Multidisciplinary) / CiteScore - Q1 (General Engineering)