# Special Issue

# Advancements in Geological Fluid Flow and Mechanical Properties

## Message from the Guest Editors

This Special Issue aims to highlight recent advancements in the understanding and modeling of geological fluid flow and the advanced mechanical behavior of rocks under varying subsurface conditions. Subsurface environments are increasingly significant for applications such as carbon capture and storage, hydrogen storage, and geothermal energy. These processes involve complex interactions between fluid flow, rock deformation, and thermal or chemical effects, which require integrated, multidisciplinary approaches for effective characterization and prediction. Topics of interest include, but are not limited to, the following:

- Applications in CO2 sequestration, hydrogen storage, petroleum recovery, geothermal energy, and geotechnical engineering.
- Coupled hydro-mechanical and thermo-hydro-mechanical processes.
- Multiphase and reactive fluid flow in porous and fractured media.
- Fracture propagation, fault activation, and permeability evolution.
- Experimental and numerical studies of rock mechanical behavior.
- Machine learning and data-driven approaches in geo-fluid and rock mechanics.

## Guest Editors

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## Deadline for manuscript submissions

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# About the Journal

## Message from the Editor-in-Chief

Understanding the Earth's origin and its bio-geological evolution, the multiple implications of the geosciences (as a coherentset of interconnected disciplines), and the sociocultural and ethical interdisciplinary approaches, will be crucial for a better understanding of Nature, and also for undertaking scientifically based political decisions.
We are committed to drive *Geosciences* to a position in which it is recognized for its high-quality, cutting-edge research and scientific influence, and strongly encourage and invite your participation and manuscripts.

## Editor-in-Chief

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