Special Issue

Recent Advances in Heavy Oil Reservoir Simulation and Fluid Dynamics

Message from the Guest Editors

The aim of the present collection is to explore advanced simulation techniques for heavy oil reservoirs and the study of their fluid dynamics, which are critical for optimizing extraction methods and enhancing oil recovery.

We welcome contributions of research and review articles that cover a broad range of topics related to the advanced simulation of heavy oil reservoirs and their fluid dynamics, including (but not limited to) the following areas:

- Novel modeling of heavy oil phase behavior and flow in the reservoir.
- The simulation of thermal recovery processes, such as steam-assisted gravity drainage (SAGD), cyclic steam stimulation (CSS), and other thermal and non-thermal heavy oil recovery methods.
- The influence of heterogeneities and other aspects of reservoirs on fluid dynamics and heavy oil mobility.
- Advanced numerical methods and algorithms in heavy oil recovery optimization.
- Fluid dynamics studies, specifically with a view on phase behavior, flow assurance, and enhanced oil recovery techniques.
- Integration of real-field data with simulation models for better predictability and performance

Guest Editors

Prof. Dr. Farshid Torabi

Petroleum Systems Engineering, Faculty of Engineering and Applied Science, University of Regina, Regina, SK S4S 0A2, Canada

Dr. Kamran Foroutan

Energy Systems Engineering, University of Regina, Regina, SK S4S 0A2, Canada

Deadline for manuscript submissions

31 August 2026

Processes

an Open Access Journal by MDPI

Impact Factor 2.8
CiteScore 5.5

mdpi.com/si/227265

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

mdpi.com/journal/processes

Processes

an Open Access Journal by MDPI

Impact Factor 2.8
CiteScore 5.5

mdpi.com/journal/processes

About the Journal

Message from the Editor-in-Chief

You are invited to contribute either a research article or a comprehensive review for consideration and publication in *Processes* (ISSN 2227-9717). *Processes* is published in open access format – research articles, reviews, and other content are released on the internet immediately after acceptance. The scientific community and the general public have unlimited, free access to the content. As an open access journal, *Processes* is supported by the authors and their institutes through the payment of article processing charges (APCs) for accepted papers. We would be pleased to welcome you as one of our authors.

Editor-in-Chief

Prof. Dr. Giancarlo Cravotto
Department of Drug Science and Technology, University of Turin, Via P. Giuria 9, 10125 Turin, 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, AGRIS, and other databases.

Journal Rank:

CiteScore - Q2 (Chemical Engineering (miscellaneous))