

Preface to the Proceedings for the 2nd International Conference on Energy Geotechnics (ICEGT2020)

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Abstract. With ever increasing energy demand and related climate change implications, the development of sustainable energy systems based on integrated schemes of energy production, transport, transfer, and storage is an important challenge to society. The broad and emerging area of Energy Geotechnics has the potential to address this challenge from multiple perspectives by integrating concepts from geotechnical engineering and geomechanics with cross-disciplinary concepts from geology, hydrology, geophysics, geochemistry, petroleum engineering, and energy policy. The 2nd International Conference on Energy Geotechnics is organized by the members of the International Society of Soil Mechanics and Geotechnical Engineering (ISSMGE) Technical Committee 308 on Energy Geotechnics, and is the main international venue for interaction, communication, and technology transfer for academic and non-academic parties, including researchers and practitioners, in the broad areas within Energy Geotechnics

1 Introduction

The 2nd International Conference on Energy Geotechnics was originally planned for September 20-23, 2020, but has been delayed until April 10-13, 2022 due to the COVID-19 pandemic. The conference organizers have chosen to publish these proceedings in 2020 so that the research work in energy geotechnics is shared with the broader engineering community while it is at the cutting edge and relevant. This published work along with any new updates will be shared and discussed during the in-person conference in 2022.

2 Proceedings Scope

The proceedings are comprised of a total of 140 technical papers including 3 keynote papers and 1 ISSMGE Bright Spark lecture. The proceedings were organized into 11 topic areas that span the breadth of topics in the area of energy geotechnics. Seven of these topic areas were organized as minisymposia, where TC308 members recruited papers from the technical community within different themes. The 11 topic areas in the proceedings include:

- CO₂ Sequestration and Deep Geothermal Energy
- Hydraulic Fracturing and Unconventional Hydrocarbons
- Thermo-Hydro-Mechanical Properties of Geomaterials
- Issues Related to Energy Piles
- Minisymposium: Advances in Energy Geostructures Research (Fleur Loveridge, Guillermo Narsilio)
- Minisymposium: Geothermal use of built urban infrastructures and the shallow subsurface for energy

storage and production (Frank Wuttke, Thomas Nagel, Sebastian Bauer, David Smeulders)

- Minisymposium: Solid-Fluid Interactions in Emerging Energy Geo-Systems (Shahrazad Roshankhah, Seunghee Kim)
- Minisymposium: Engineered Geomaterials for Energy and Environmental Sustainability (Alessandro Rotta Loria)
- Minisymposium: Shale and Clay Behavior for Energy Production and Nuclear Waste Disposal (Alessio Ferrari, Russell T. Ewy)
- Minisymposium: Physical and Numerical Modeling of Hydrate-Bearing Sediments (Sheng Dai)
- Minisymposium: Low Carbon Geotechnical Engineering (Alessandro Tarantino, Enrique Romero, Alessio Ferrari)

3 Note of Appreciation

The conference organizers would like to sincerely thank the authors for their contributions to this proceedings. They are also grateful to the peer-reviewers who carefully assessed each paper and provided constructive criticism to the authors to improve their work. This was a major time commitment necessary to make these proceedings have a lasting impact. The conference organizers are grateful to the international advisory board for the conference, who provided useful insights on how to navigate the challenges associated with the pandemic. Finally, the conference organizers would like to thank TC 308 Chairman Marcelo Sanchez for his leadership and vision in setting our committee on a path for lasting scholarship and research innovation.

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