

GEOTHERMAL ENERGY SESSION

Füsun Servin Tut Haklıdır, Mehmet Furkan Şener, Mehmet Şener

Geothermal energy holds an important place among renewable and sustainable energy sources, offering strategic opportunities for energy security, the transition to low-carbon energy systems, and regional development.

This session will address the geological, tectonic, and hydrogeological characteristics of geothermal systems; current methods used in geothermal resource exploration and assessment; geochemical and geophysical investigations; reservoir characterization and modeling; and the development of innovative data-driven approaches.

Furthermore, the session will discuss geothermal energy applications, including electricity generation, direct heat utilization, integrated applications, and enhanced geothermal systems (EGS), along with sustainable production, reinjection, reservoir management, and technological advancements. In this context, particular attention will be given to the use of data obtained from power plant operations and field activities to identify and address operational challenges, improve processes, and develop innovative data-driven solutions. The environmental impacts of geothermal activities, monitoring and risk assessment, and regulatory frameworks that support the sustainable development of geothermal resources will also be covered.

The session aims to explore the current and future applications of geothermal energy from scientific, technological, environmental, and governance perspectives, with a particular emphasis on geosciences. By bringing together scientific research, field applications, and innovative approaches, it seeks to discuss potential solutions that contribute to the energy transition and sustainable development.