

Session title

21st Century Groundwater Quality Challenges

Description

Groundwater quality is a defining challenge of the 21st century, with direct implications for environmental sustainability, societal well-being, and economic development. As the world's largest freshwater resource, groundwater underpins ecosystems, agriculture, industry, and drinking-water supply. Increasing pressures from pollution, industrialization, agriculture, urbanization, and climate-driven stressors-such as drought and salinization-are intensifying groundwater-quality risks worldwide. This session will explore the complexity of groundwater-quality processes and management challenges while highlighting innovative advances in hydrogeology, monitoring, modeling, and data-driven approaches. Panelists will emphasize collaboration for novel concepts, integrated data-model frameworks, and actionable solutions. Selected contributions from this session will be invited for publication in a special issue of a peer-reviewed journal.

Keywords

Groundwater quality; contamination; society; innovation; data-model integration

Session Chair

Gualbert Oude Essink

Conveners

Jeeban Panthi

Melissa Lenczewski

Dan Lapworth

Thomas Boving

David Kreamer