

Session title

Hydrogeochemical and Isotopic Fingerprinting of Groundwater Systems: From Water-Rock Interaction to Human Impacts

Description

This session focuses on how hydrogeochemistry and isotopes can be used to decode groundwater system functioning across scales from mineral dissolution/precipitation and redox evolution to mixing between shallow and deep components. We welcome studies that use major ions, trace elements, isotopes (stable/radiogenic), and geochemical modelling to quantify recharge sources, flow paths, residence times, and water-rock interaction. Contributions addressing anthropogenic fingerprints (agriculture, urbanization, mining, wastewater) and emerging contaminants through geochemical tracers are encouraged. We also invite integrative works combining geochemistry with numerical/transport modelling, monitoring strategies, and uncertainty assessment. Case studies from diverse hydrogeological settings (karst, fractured rock, coastal aquifers, sedimentary basins) are particularly welcome.

Keywords

Hydrogeochemistry; Isotopes; Water-rock interaction; Mixing & residence time; Redox processes; Anthropogenic impacts

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Conveners

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