



Fundamentals of CO₂ Storage in Geological Formations

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Message from the Guest Editors

Dear Colleagues,

Geological storage of CO₂ is widely considered as a promising option to reduce the CO₂ emissions released into the atmosphere; thus, reducing the detrimental effects of greenhouse gases on global climate. Secure storage of CO₂ in geological formations can be achieved through thermo-hydro-mechanical-chemical (THMC) processes, such as solubility, residual, and mineral trapping that ultimately lead to permanent trapping of CO₂. This Special Issue aims at collecting high quality papers addressing recent advances in fundamental aspects of miscible and immiscible CO₂ transport, trapping, dissolution and mineralization, modeling and quantification over the range of scales relevant to geological storage of CO₂. We intend to focus on the interplay of trapping mechanisms (i.e., solubility, residual, mineral) and their quantification, coupling of THMC processes, upscaling of theoretical and experimental results from pore and core scales to field scale, and addressing the challenge of field-scale modeling considering heterogeneity and uncertainties associated with storage formations.





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