Special Issue

Minerals Impact on CO2 Geo-sequestration in Deep Reservoirs

Message from the Guest Editors

CO2 geo-sequestration is one potential method to dispose of excess CO2 in the atmosphere. Deeply buried reservoirs such as saline aquifers, unmineable coal seams, tight shale reservoirs, and depleted oil reservoirs are often studied. When CO2 is injected into these reservoirs, it interferes with the initial equilibrium, and chemical interactions occur between the injected CO2 and reservoir rocks, specifically, the minerals in the reservoirs or in the nearby strata (caprock). The dissolution of CO2 into strata brine generates an acidic environment, and the original carbonate minerals, such as quartz, biotite, etc. dissolve into the acid fluid. The concentration of chemical elements Ca, Mg, and K in the brine increases with the injection of CO2. The enhancement of reservoir porosity due to the dissolution of the minerals is dependent on the geochemical properties of the reservoir rocks. Reservoir permeability is improved due to the increase in porosity. On the other hand, the precipitation of these minerals during transportation blocks the fluid migration channels and reduces permeability.

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About the Journal

Message from the Editor-in-Chief

Minerals welcomes submissions that report basic and applied research in mineralogy. Research areas of traditional interest are mineral deposits, mining, mineral processing and environmental mineralogy. The journal footprint also includes novel uses of elemental and isotopic analyses of minerals for petrology, geochronology and thermochronology, thermobarometry, ore genesis and sedimentary provenance. Contributions are encouraged in emerging research areas such as applications of quantitative mineralogy to the oil and gas, manufacturing, forensic science, climate change, geohazard and health sectors.

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