Trapping mechanisms in CO2 geological sequestration

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Several key questions need to be answered when the CO2 storage is to be undertaken worldwide (IPCC, 2005). Such as how is CO2 stored underground? What happens to the CO2 when it is injected? What are the physico-chemical and chemical processes involved? Injection of CO2 into the pore space and fractures of a permeable formation can displace the in situ fluid or the CO2 may dissolve in or mix with the fluid or react with the mineral grains or there may be some combination of these processes. This paper presents the results obtained from both field and laboratory to examine these processes and their influence on geological storage of CO2 at the Nagaoka site. In this paper, we present the results of geophysical and geochemical observations at the Nagaoka site, where the first Japanese project on CO2 geological storage is currently underway. We will briefly introduce how trapping mechanisms, such as Physical trapping, Solubility and Ionic trapping,Mineral trapping,Residual gas trapping are working in the subsurface.