

Injection of Carbon dioxide included micro-nano bubble water into late Pleistocene sediments and its chemical reaction

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The distributed CO₂ storage, which is neutralizing CO₂ and sediment in the shallow aquifer, is small-scale storage and is located around emission areas. Carbon dioxide (CO₂) included micro-nano bubbles is one approach in neutralizing CO₂ and sediments by increasing CO₂ volume per unit volume of water and accelerating the chemical reaction. However, the thorough investigation on the behavior of micro-nano bubble water in sediments has yet not been ventured. In order to design underground treatment for CO₂ gas in the subsurface, it is required to elucidate the behavior of CO₂ included micro-nano bubbles such as trapping, advection and so on. In this study, the in-situ test was carried out by injecting CO₂ included micro-nano bubble water into the injection well while simultaneously sampling and analyzing the underground water quality from the viewpoint of the neutralizing CO₂ and sediments. Additionally, the electrical resistivity tomography test was tried to monitor the moving micro-nano bubble water between wells.

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