

## An experimental study on the residual gas behavior in aquifer

# Koji Takahashi[1]; Yasuhiro Yamada[2]; Kei Baba[3]; Sumihiko Murata[2]; Toshifumi Matsuoka[4]

[1] Global Engineering, Kyoto Univ; [2] Civ. Earth Res. Eng., Kyoto Univ.; [3] Japex Reserch Center; [4] Kyoto Univ

### 1. Background & Purpose

Residual gas is recently expected as an effective concept of underground sequestration of CO<sub>2</sub>. It is injected gas into aquifer then trapped into pores as its residuals.

Purpose of this study is to examine to relations between properties of reservoirs and residual gas saturation by injecting gas into modeled aquifer.

### 2. Experiments

We used glass beads as porous media to construct three reservoir models that have various porosities and permeabilities. The packed glass beads in our experimental apparatus were filled with water, then air was injected from the bottom. At this stage, the distribution of residual gas was observed the maximum gas saturation was measured. Then, water was injected from the bottom to replace the gas in the pore space. We measured the residual gas after the injection.

### 3. Results

The experimental results showed that reservoirs with high permeability and low porosity may have large distribution and high saturation of residual gas. It is suggests that the distribution, pattern, and saturation of residual gas are effected by the properties of the aquifer and the flow rate (injection pressure).