Japan Geoscience Union Meeting 2013
(May 19-24 2013 at Makuhari, Chiba, Japan)

HRE29-08 Room:103 Time:May 22 11:00-11:15

X-ray CT visualization of CO2 microbubbles migration in Berea sandstone

Shinya Tsuji[1*], Ziqiu Xue[2], NISIO, Susumu[3], KAMEYAMA, Hirotatsu[3], Matsuoka Toshifumi[1]

[1]Graduate School of Engineering, Kyoto University, [2]Research Institute of Innovative Technology for the Earth, [3]Tokyo Gas

Laboratory core flooding experiment was run to investigate supercritical CO_2 migration in brine saturated sandstone. The sample was cylindrical Berea sandstone measuring 35mm in diameter and 70mm in length. A grooved disc and a special porous filter were set to the sample ends. Superciritical CO_2 was injected into the sample under same pressure and temperature conditions. X-CT system was used to visualize migrations of CO_2 injected from different filters. When injecting CO_2 from the special porous filter the CO_2 was microbubble and through the grooved disc the CO_2 was normal bubble. CO_2 saturation estimated from CT values and the CO_2 distribution clearly showed advantages of microbubble CO_2 injection and the experimental results suggest the usefulness of microbubble CO_2 injection in both saline aquifer storage and enhanced oil recovery.

Keywords: microbubble CO2, Berea sandstone, X-ray CT, Visualization, enhanced oil recovery, saline aquifer storage