CO2 sequestration into geothermal field by direct injection of flue gas - Ogachi experiment in 2006 -

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Although CO2 sequestration into saline aquifer is well recognized worldwide, it is costly because it requires pure CO2 separation. Therefore we are investigating a new technology that uses geothermal energy (geo-reactor) to store and mineralize CO2 from directly injected flue gas. Key features are that CO2 and rock-mass reaction and subsequent carbonate precipitations are more progressed under higher temperature. We performed field experiments at Ogachi geothermal test site, Akita prefecture, in 2006, and the results will be presented.

We injected 360 L/min water into injection well (˜1000 m in length) until enough hot water came back via production well (˜1000 m in length). Then 15 tons of CO2 saturated water of 0.2w%, in the same condition of direct flue gas injection, were injected. The injected CO2 was pushed down by subsequent injection of 360 L/min water. We performed geochemical monitoring including tracer tests, calcite precipitation and rock chips reaction tests under recovered hot water in a vessel that was attached to the top of the production well, and simulation tests using TOUHG2 code. These results will be discussed together with our 2007 experiment plan.

Acknowledgements: This research was supported by the grants of the Programmed Research 'Development of evaluation technology for the CO2 in the exhaust gas sequestration into geothermal fields' of RITE under the fund from METI (Ministry of Economy, Trade and Industry). It was performed with the help of people from Mitsubishi Material Co., Chuo kaihatsu Co., and Geothermal Energy Research & Development Co. We sincerely thank all of them.