

Paul Scherrer Institut
5232 Villigen PSI
Switzerland

+41 56 310 21 11
www.psi.ch

Dmitrii Kulik
Laboratory for Waste Management
OFLA/201A

direct +41 56 310 47 42
dmitrii.kulik@psi.ch

Villigen PSI, 04 November 2016

A solid grey square is positioned to the left of the main title.

Invitation to Extraordinary LES Palaver

Referent: Professor Ralf Haese

Peter Cook Centre for CCS Research, University of Melbourne, Australia

Title: Uncertainties in the prediction of fluid-rock reactions in a CO₂ storage reservoir

Time: Monday, November 21, 16:00

Location: Meeting room OFLG/402

Abstract

Geological carbon storage is considered to be a major CO₂ abatement technology contributing to the energy transition over coming decades. The injection and storage of CO₂ has profound implications for sedimentary basins in many ways, one of which is the change in formation water composition and its reactions with reservoir rocks. Natural CO₂ reservoirs, so called natural analogues, provide an opportunity to study petrographic and petrophysical changes after a new geochemical equilibrium has been reached over geological time. However, the prediction of fluid-rock reactions during CO₂ injection and storage requires accurate predictions of the dynamic CO₂ plume migration, CO₂ dissolution and the rate of geochemical reactions. Experimental and modelling studies will be discussed relating geochemical reaction rates to reactive mineral surface area and lithological heterogeneity from the pore to 100-meter scale. Overall, low reaction rates are attributed to low reactive surface areas and preferential flow paths, which constitute only a small proportion of the total pore volume.

Sincerely

Dmitrii Kulik