Towards Net-Zero – CO$_2$-disposal in the Geosphere

Illustrating the risks for humans and life on Earth the IPCC special report (IPCC, 2018) warns of the impacts of a 1.5 °C warming until 2100, i.e. 0.5 °C less than the target of the Paris Agreement. The report also shows that limitation of global warming to 1.5°C compared to pre-industrial levels is possible, if we act now to reach globally net-zero CO$_2$ emissions by mid-century requiring substantial removal of CO$_2$ from the atmosphere. While circular carbon approaches involving carbon capture and utilization (CCU) concerns short- to intermediate term removal of CO$_2$ from the atmosphere, a considerable amount CO$_2$ needs to be finally disposed. Herein, the geosphere provides a major storage capacity.

The objective of the planned seminar is the identification of the multi-disciplinary aspects with regard to net-zero emissions in 2050, such as

1) Potential of CCS/CCU in geosphere
2) Future technologies for CO$_2$ disposal in the geosphere
3) Social acceptance of CCS/CCU

A major goal is to discuss the potential for storage and mineralization in the Upper Rhine Graben

Introduction

Wednesday, 11 a.m.

| March 3$^{rd}$, 2021 | Jonathan Banks (University of Alberta) | High-temperature heat storage: thermodynamic equilibrium models for the DeepStor site in the Upper Rhine Graben, Germany |

March 2021

Tuesdays, 5 p.m.

| March 9$^{th}$, 2021 | Dorothee Siefert (EnBW) | CO$_2$ handling in binary geothermal systems – a modelling approach for different CO2 contents, TDS and p-T conditions with implications on the geothermal power plant in Bruchsal, Germany |
| March 16$^{th}$, 2021 | Martin Saar (ETH Zürich) | Turning CO$_2$ into electrons, while permanently storing the CO$_2$ |
| March 23$^{rd}$, 2021 | Cornelia Schmidt-Hattenberger (GFZ Potsdam) | The Ketzin CO2 pilot site - Europe’s first and longest operating onshore CO2 storage |
| March 30$^{th}$, 2021 | Sigurður Reynir Gíslason (University of Iceland) | CO$_2$ capture and mineralisation in basaltic rocks |

LINK to the Meeting

https://kit-lecture.zoom.us/j/62315402392?pwd=c25sYWJrMXBBRejRGYkpwRVNyNXNMQT09

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