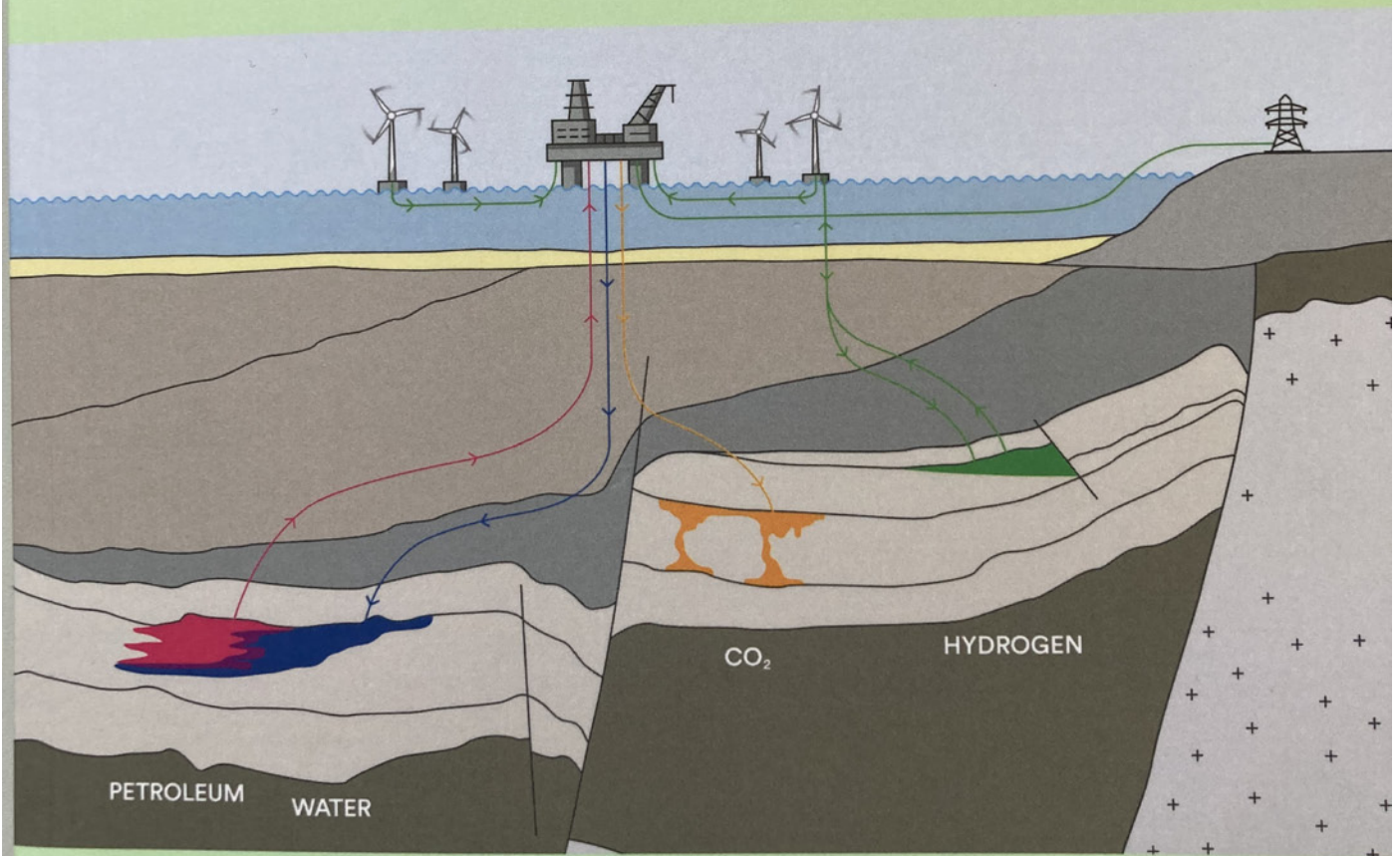


Annual report 2022

Centre for Sustainable Subsurface Resources



Centre for Sustainable
Subsurface Resources

The University of Stuttgart

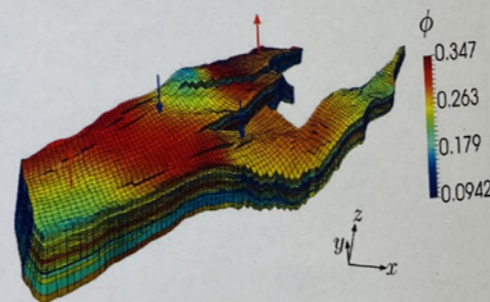
Contact: Rainer Helmig

The University of Stuttgart is one of the leading technically oriented universities in Germany with internationally recognised research activities in simulation sciences. For CSSR, two of our research centres are the main cooperation partners: the Collaborative Research Centre "Interface-Driven Multifield Processes in Porous Media – Flow, Transport, and Deformation" (SFB 1313) and the Cluster of Excellence "Data-Integrated Simulation Science (SimTech)".

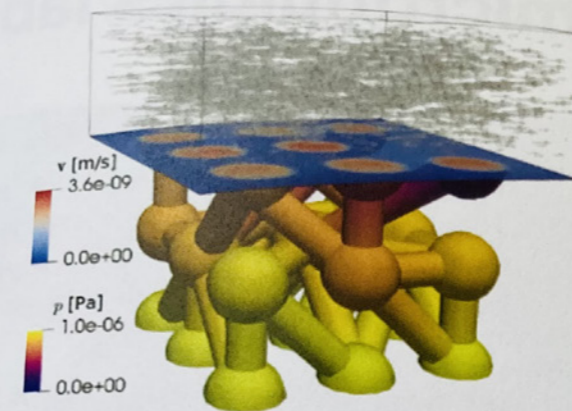
In SFB 1313 we are focused on developing a fundamental understanding of how interfaces affect flow, transport, and deformation processes in systems with porous media. Reaching this goal requires the quantification of how the dynamics of fluid-fluid, fluid-solid, and solid-solid interfaces in porous media systems are governed by pore geometry, heterogeneity, and fractures. It also requires the development of mathematical and computational models that describe the effective behaviour of the systems.

We see a broad overlap between the research interest of SFB 1313 and CSSR, particularly within geochemical parameters under rapid withdrawal/injection cycles and the storage of green gas. But also within data-driven models, data management and research software engineering.

The University of Bergen and the University of Stuttgart cooperated for more than 20 years. With CSSR, we are sure that we can continue this success. We are honoured to host doctoral researchers in Stuttgart, organize workshops, and exchange knowledge on the important CSSR-topics.



Norne field model



Coupling free-porous media



Rainer Helmig is head of the Department of Hydromechanics and Modelling of Hydrosystems in the Faculty of Civil and Environmental Engineering at the University of Stuttgart. He is the spokesperson of SFB 1313 and his research covers ground-water hydrology, multi-phase flow in porous media, numerical modelling, and the analysis of coupled processes between the unsaturated zone and the atmosphere.



Bernd Flemisch, holds a PhD in mathematics and is associate professor in the Department of Hydromechanics and Modelling of Hydrosystems at the University of Stuttgart. His research interests encompass computational models for porous media flow, transport and deformation phenomena, model coupling and decoupling as well as advanced discretization and solution techniques.