



Universität Stuttgart

Institute for Modelling Hydraulic
and Environmental Systems

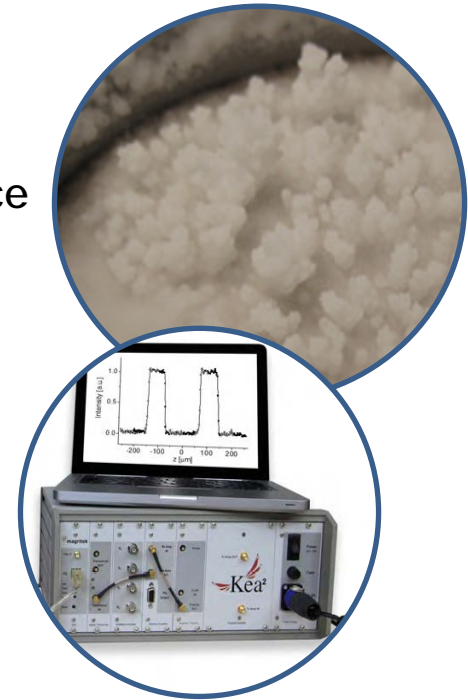


Department of Hydrology
und Geohydrology
Prof. Dr. András Bárdossy

MSc. Thesis

Monitoring the effect of salt crusts on evaporation using nuclear magnetic resonance

The topsoil is a critical transition zone between soil and atmosphere, where important processes like infiltration and evaporation take place that control the water balance in the soil-(plant)-atmosphere continuum. For evaporation from saline soils, the formation of salt crusts is known to have a considerable effect on the evaporation rate. Since salt crusts are relatively thin (up to a few cm only), the investigation of water content profiles across this layer requires a non-invasive monitoring technique with high resolution, as is provided by single-sided nuclear magnetic resonance (NMR) measurements.



Tasks:

- Perform laboratory experiments to determine evaporation and topsoil moisture dynamics from saline soil samples with salt crusts using NMR
- Data analysis using Matlab or Python

General Information:

- Advisors: Dr. Andreas Pohlmeier and Prof. Sander Huisman
- Thesis within the excellent SFB1313 team
- Willingness to work at Forschungszentrum Jülich (www.fz-juelich.de) located between Aachen and Köln
- Financial support through student-assistant position available

Apply now:



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