AKE 1: Renewable Energy - Geothermal Energy

Time: Monday 11:00–11:30 Location: DÜL

Invited Talk AKE 1.1 Mon 11:00 DÜL

Geothermal Energy: Risks and benefits in utilizing fluids from the deep underground — •Simona Regenspurg and Ernst Huenges — Helmholtz Centre Potsdam GFZ German Research Centre for Geosciences Section 4.8 Geoenergy Telegrafenberg, D-14473 Potsdam, Germany

Within the geothermal fluid loop, formation water is pumped from a deep reservoir through the production well to the surface, where the heat is extracted and used for heating or electricity production. The cooled fluid is injected into another well back into the reservoir. The geological formations that are suitable for geothermal energy exploitation need to show two main characteristics: High temperature and high permeability. Typically geothermal energy is exploited in areas with high geothermal gradient which are mainly located along tectonic plate boundaries. However, nowadays, the exploitable geothermal resources are found throughout the world and are utilized in 83 countries. Because of the lower temperatures in German geothermal plants, here most geothermal wells provide heat (about 1.49 GWh/a; source: www.Geotis.de). One of the main challenges when operating a geothermal plant is the correct handling of the geothermal fluids that carry the heat from the deep reservoirs to the surface. The high salinity and high amount of dissolved gasses of formation waters results in a variety of chemical reactions during fluid processing such as mineral precipitation and corrosion. However, fluid chemistry is not only considered as a risk for operation but might represent also a benefit if the dissolved components are of economic values.