EGU22-11017
https://doi.org/10.5194/egusphere-egu22-11017
EGU General Assembly 2022

Exploration, utilization and monitoring of conventional and unconventional geothermal resources

Berker Polat, Volker Wittig, Jascha Boerner, Niklas Geissler, Sebastian Krusenbaum, and Marian Bunk
Fraunhofer IEG, Innovative Drilling, Bochum, Germany

Geothermal energy out of deep and thus, hot reservoirs do pose viable means to supply and well support the changeover to renewables and still increasing energy demand worldwide as it is virtually available everywhere 24/7, having a carbon neutral footprint and being so-called baseload capable. Therefore, application of enhanced geothermal and petrothermal systems do require the exploitation of such deep geothermal resources to provide more and better geothermal energy. The EU ZoDrEx project and consortium recently demonstrated that installation and exploitation of such geothermal resources can be done safely and economically. Fraunhofer IEG and project partners proved superb hydraulic improvement between wellbore and surrounding reservoir, via Fraunhofer´s high pressure jetting and milling operation, leading to subsequent, much improved reservoir flow by further micro well enhancing measures of Partner GES and others. A variety of high-pressure based water jet technologies for general mineral and rock weakening, erosion and destruction via ultra-short radius deviation were field tested in downhole operation to better connect main wellbore with surrounding reservoir through micro sidetracking and notching. The incorporation of these rock penetration type measures into a functional, downhole EGS system constituted the field work being done in ETH's Bedretto Underground Laboratory with partners from the ZODREX consortium.