# Inverse numerical modelling to correct temperature profiles from well log data

Alexander Prinz (1), Thomas Kempka (1,2), Michael Kühn (1,2)

(1) University of Potsdam, Institute of Earth and Environmental Science, Potsdam, Germany, (2) GFZ German Research Centre for Geosciences, Fluid Systems Modelling, Potsdam, Germany (kempka@gfz-potsdam.de)

In the present study, a problem that we have recently experienced in the scope of a temperature logging campaign in a geothermal reservoir is addressed by means of inverse numerical modelling. Due to an equilibration time delay of up to 20 minutes of the applied thermal probe, down hole and up hole temperature logs exhibit a significant deviation. This issue has been first recognized in the analysis of the recorded data at the end of the field campaign. A repeat of the campaign is not feasible any time soon. Consequently, we have developed an approach taking into account inverse numerical modelling to revise the data series, and hence to turn these into useful and reliable temperature profiles. For that purpose, a thermal simulation tool has been employed with the PEST++ parameter estimation framework. Using the recorded data, we have been able to reconstruct seven thermal well profiles and validate our inverse modelling results against data recorded in a former successful well logging campaign.