



## **Estimation of the formation temperature around the deep Icelandic geothermal well RN-15/IDDP-2**

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The estimation of the formation temperature around the deep well RN-15/IDDP-2 in Reykjanes (Iceland) is a task of the ongoing EU Horizon 2020 DEEPEGS project.

Usually, rock temperature around wells is estimated using the Horner method and requires measuring the warming of the fluid in the well under static conditions. This logging prevents from doing any other operations in the well for several days. In the context of the very hot well RN-15/IDDP-2, such a standard static temperature logging is not possible since continuous cooling of the instrument while measuring is necessary. Hence, the estimation of the formation temperature is very challenging.

In this work, we apply the WellboreKIT simulator to estimate the formation temperature around RN-15/IDDP-2 from temperature data measured under dynamic conditions. This modelling tool allows simulation of heat transfer between rock and fluid in the well, pressure drop along the borehole and two-phase flow effects under dynamic conditions. To derive the formation temperature profile, the misfit of the simulated and observed fluid temperature in the well is minimized. A probabilistic approach is proposed to account for uncertainties of the observations and modelling, and several a priori information tested. The first results associated with these assumptions are presented here.