



Noble gas isotopes as low-budget exploration and monitoring tool for high- and low-temperature geothermal systems in extensional tectonic regimes

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Since viable geothermal systems in extensional settings are sparse compared to those situated in subduction zone environments, a specifically adapted exploration methodology of the former is currently not fully established. Standardized exploration methods applicable to geothermal systems related to subduction zones do not always deliver reliable or even deliver misleading results (e.g. Ochmann et al. 2010).

The identification of promising prospects at the beginning of surface exploration studies is saving time and money of the project developer and investor. Noble gas isotope analyses can provide a low-budget tool for assessing the quality of the prospect in a very early exploration phase. Case studies of high- and low-temperature prospects situated in the East African Rift System and the Upper Rhine Graben, Germany will be presented and compared to other extensional areas like the Basin and Range Province, U.S.A. (Kraml et al. 2016a,b). Noble gas isotopes are also a versatile tool for monitoring of geothermal reservoirs during the production/exploitation phase.

References

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