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Collecting geochemical data of deep formation fluids for Geothermal Fluid Atlas for Europe

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Most problems in deep geothermal operations are related to the chemistry of the geothermal fluid, which might cause deleterious physical and chemical reactions such as degassing and mineral precipitation or corrosion. However, data related the fluid properties are still scarce, largely as a consequence of the difficulty in determining these properties at in situ geothermal conditions, and the fact that those data are scattered across countries and often the “property” of commercial operators of geothermal power plants.

The EU H2020 project REFLECT aims to collect existing and new data on geothermal fluids across Europe through field measurements, detailed lab experiments simulating in situ conditions, and by calculations. These data will be implemented in case-specific predictive models simulating reactions at geothermal sites, as well as in a European geothermal Fluid Atlas.

To harmonize the metadata information for different fluid samples, REFLECT partners plan to register IGSNs (International Geo Sample Numbers) for fluid and reservoir rock samples collected and analysed within the project. The IGSN is a unique sample identifier, i.e. it is the equivalent to a DOI for publications. It was originally developed for drill cores and extended for various sample types, including fluid samples (seawater, river or lake water, hydrothermal fluids, porewater). Registration of fluid and rock samples with an IGSN will help to allow making the data accessible and re-usable even if the fluid sample itself is destroyed.

All data produced and collected within REFLECT form the base of the European Geothermal Fluid Atlas, which will include query and filtering tools to explore the database with a GIS based map visualization. The Atlas makes the data accessible to the geothermal community and the general public. The aim is to create a database, which can easily be integrated into other databases, such that the Fluid Atlas can be an addition to already existing initiatives of geological data collection.