PROJECT COORDINATOR

Helmholtz Zentrum Potsdam Deutsches Geoforschungszentrum (GFZ)

COORDINATING TEAM

Katrin Kieling (katrin.kieling@gfz-potsdam.de)
Simona Regenspurg (regens@gfz-potsdam.de)

The REFLECT Consortium

-Technische Universiteit Delft, The Netherlands
-Bureau de Recherches Geologiques et Minieres, France
-Universite de Neuchatel, Switzerland
-Institutt for Energiteknikk, Norway
-Nederlandse Organisatie voor Toegepast Natuurwetenschappelijk Onderzoek TNO, The Netherlands
-British Geological Survey, United Kingdom Research and Innovation, UK
-Islenskar Orkurannsoknir, Iceland
-Miskolci Egyetem, Hungary
-Izmir Institute of Technology, Turkey
-European Federation of Geologists, Belgium
-Hydroisotop GmbH Laboratorium zur Bestimmung von Isotopen in Umwelt und Hydrologie, Germany
-Landsvirkjun, Iceland
-Pfalzwerke Geofuture GmbH, Germany

MORE INFORMATION

www.reflect-h2020.eu

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Redefining Geothermal Fluid Properties at Extreme Conditions

REFLECT

Photos: Courtesy Alper Baba from the Izmir Institute of Technology and Simona Regenspurg from GFZ

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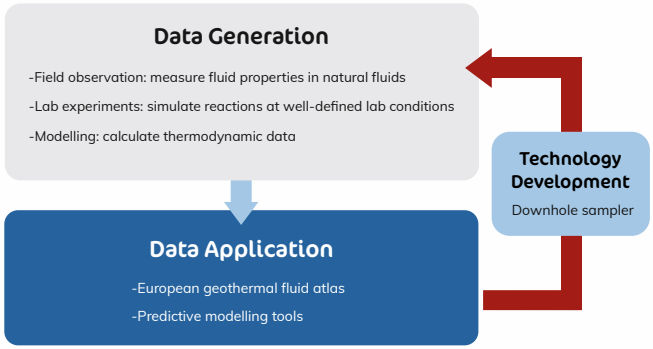
FROM REACT TO REFLECT

The efficiency of geothermal utilisation largely depends on the behaviour of fluids that transfer heat between the geosphere and the engineered components of a power plant. The Horizon 2020 funded project REFLECT aims to **avoid problems related to fluid chemistry rather than treat them**. Fluid physical and chemical properties are often poorly defined, as *in situ* sampling and measurements at extreme conditions have proved difficult to date. Therefore, large uncertainties in current model predictions prevail, which will be tackled in REFLECT by **collecting new, high-quality data in critical areas**. The data can be implemented in (1) a **European geothermal fluid atlas** and (2) in **predictive models** to allow recommendations on how to best operate geothermal sites sustainably and to enhance geothermal technology development.

METHODOLOGICAL APPROACH



EXPECTED OUTCOMES

- **Extend databases** for mineral precipitation to higher temperatures and higher salinities (lab, modelling)
- Determine the extent and location of the **degasification** front of geothermal fluids during production (field, lab, and modelling)
- Determine types of **organic matter and microorganisms** in various geothermal fluids and their effect on scaling and biofilm formation (lab)
- Determine heat capacity, density, electrical and thermal conductivity, sonic velocity, and viscosity at various pressures, temperatures and salinities (lab, modelling)
- Develop a **downhole sampling** technique suitable to collect fluid at chosen depth in hot and super-hot systems (proof of principle prototype)
- Verification of the dataset by application in **reactive transport modelling**
- Set up a **European geothermal fluid atlas**