

Research topic

Modelling of fouling and corrosion in geothermal heat exchangers

Case studies

Alsace

Massif Central

Leader and consortium

BRGM, CFG Services, Electerre de France, Enertime, Fonroche Géothermie, Univ. de Pau et des Pays d'Adour, Univ. des Antilles

Budget

3,4 M€

Funding

47 %

Timescale

06/2016 - 05/2019

Contact

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TECHNOLOGICAL BARRIERS

Uncertainties related to fouling and corrosion phenomena during the exploitation of a new geothermal resource lead to decisions, often based on return on experience majored by extra-margins, impacting the performances and the economics of an Organic Rankine Cycle (ORC) type electricity generation process: oversizing of the evaporator, limitation of the geothermal fluid outlet temperature and use of high-grade material. Those decisions impact lead to consequent cost increase as well as sub-optimal ORC cycle designs.

SHORT TERM MARKETABLE DELIVRABLES

The CARPHYMCHEAU project aims to increase the understandings of the fouling and corrosion phenomena in geothermal applications. Lab scale experiments will be carried out in order to :

- Develop a state of the art deposits formation model allowing the assessment of the fouling according to the brine composition and the exploitation conditions;
- Study corrosion of different heat exchanger materials.

Those experiments and models will be validated against data from two dedicated pilot plant installations (in Alsace and in Massif Central).

