



Institut des Sciences de la Terre

Postdoctoral Research Position:

Field exploration of Helium (He) and Hydrogen (H₂) – geophysics and geochemistry

The recent development of new exploration projects focusing on natural hydrogen (H₂) and helium (He) requires the implementation of specific strategies based on robust methodologies and pathfinders. Therefore, it is important to develop exploration guides that are not only focused on surface gas monitoring, but that also consider both the local environmental and geological settings, integrating the entire H₂/He systems from source(s) to trap or leakage into the atmosphere.

Our multidisciplinary team at [ISTerre laboratory](#) is committed to address every facet of the H₂ and He systems (sources, migration, sinks and seeps) in order to define specific exploration strategies. We develop a holistic approach encompassing water-rock hydrothermal experiments, reactive transport modelling, geodynamic and geophysics. All this knowledge is then transposed into the field where we deploy a state of the art [mobile laboratory](#) specially designed to explore H₂ and He migration.

The hired postdoctoral researcher will develop innovative methodologies to document He/H₂ migration in the field combining geology, geophysics and geochemistry. Several targets in France with proven presence of He and/or H₂ have been already identified by our team. The first task, will consist in defining a couple of sites gathering optimal conditions to carry out a geophysical survey (accessibility, low background noises), and ideal lithological/structural configurations to assess fluid migration in both the basement and the adjacent/overlying basin. Then, a geophysical (EM, MT eventually passive seismic), geochemical and geological field survey will be carried out. Depending on her/his background, the hired researcher is expected to manage at least one of these tasks and undertake collaborations when necessary. The objective will be to track He/H₂ migration paths and to reveal eventual geological/structural/topographic control. The obtained results will be co-processed with other sets of data pertaining to (bio)geochemistry and geodynamic.

Profile: The applicant should hold a PhD in one of the following fields: geophysics, geochemistry (fluid-rock interactions, isotopes geochemistry, noble gases), or geology (basin modeling, geodynamic, rock dating, mineral/energy resources). The candidate is expected to be proficient in English, and to enjoy teamwork.

Conditions: position of **18 months**. Expected date of employment: **November – December 2024**.

Wage: net monthly salary starting from 2100€ and depending on the candidate's experience.

Application: send your CV, motivation letter, and letter of reference to 1) Laurent Truche (Pr, Univ. Grenoble Alpes, laurent.truche@univ-grenoble-alpes.fr) and 2) Frederic-Victor Donzé (Pr, Univ. Grenoble Alpes, ISTerre), frederic.donze@univ-grenoble-alpes.fr

Application deadline: **November 1st 2024**.