

Post-Doctoral position at Pau University (France) “Btex Isotopic fractionation for Gas Storage in aquifers Monitoring”

Duration: 18 months possibly extended

Location: IPREM and LFCR, [Université de Pau et des Pays de l'Adour](#) (Pau, France)

Beginning: ASAP

Compensation: About 2 200 Euros net per month

Description of the Position:

The management of groundwater quality is a major concern when storing natural gas in aquifers [1]. As a key contribution, the monitoring of Benzene, Toluene, Ethylbenzene and Xylenes (BTEX) natural attenuation by bio-chemical processes, $\delta^{13}\text{C}$ and δD isotope fractionation measurements is very promising [2]. However, to use such an approach on *in situ* samples, ones need a robust and accurate measurements chain (not standardized yet), and an adequate interpretation framework which is still subject to some debates.

To deal with these problems, researchers of two labs hosted at the [Université de Pau et des Pays de l'Adour](#) (LFCR and IPREM) and of one industrial partner, [STORENGY](#), have developed collaborations and obtained a support from [E2S UPPA](#) to fund a two years Post-Doctoral Research Associate position.

Thus, the recruited PDRA will have to tackle some of the above questions related to the BTEX isotopic fractionation for gas storage in aquifers monitoring. To do so, the PDRA will contribute:

- First, to the establishment of an accurate database on some samples of natural gases and brine coming from underground gas storage in aquifer sites managed by STORENGY,
- Second, to the development of dedicated experiments, molecular simulations and thermodynamic modelling to quantify possible BTEX isotopes fractionation due to physical mechanisms (solubility and diffusion).

References:

[1] Hunkeler D., R.U. Meckenstock, B. Lollar, T.C. Schmidt, J.T. Wilson, U.S. Environmental Protection Agency, Washington D.C., 2009.

[2] Mancini S.A., A.C. Ulrich, G. Lacrampe-Couloume, B. Sleep, E.A. Edwards, B. Sherwood Lollar, Applied and Environmental Microbiology, 191, 2003.

[3] Wanner P., D. Hunkeler, Chemosphere 219, 1032, 2019.

Required qualification:

PhD in Geochemistry, Analytical Chemistry, Chemical Engineering or related domain.

Profile sought:

Candidate capable of developing experimental protocols, with experience in numerical simulations or motivated to strengthen his/her skills in this field.

Application:

C.V. + Motivation letter to (deadline 15 February 2021) to

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