Looking for MSCA postdoctoral fellows to work on the BASANITE project: "Ultra-fast ascent of CO_2-rich magmas from the mantle to the surface: Experimental developments and application to basanites in the French Massif Central"

Université Clermont Auvergne is looking for applications from candidates interested in submitting a project to the MSCA POSTDOCTORAL FELLOWSHIP (MSCA-PF) 2026 call for proposals (**Deadline: 09/09/26**). See §3 for eligibility criteria.

Candidates will also have the unique opportunity to participate in the first MSCA-PF Master Class (**apply before 13/03/2026**, see §4 below)

(1) About the research project

Supervisor : Didier Laporte, senior researcher at Laboratoire Magmas et Volcans, Clermont Auvergne University, CNRS, IRD, Clermont-Ferrand, France (Laboratoire Magmas et Volcans – Laboratoire Magmas et Volcans).

The postdoctoral research project will be part of a larger project entitled **BASANITE: "Ultra-fast ascent of CO_2-rich magmas from the mantle to the surface: Experimental developments and application to basanites in the French Massif Central"**. There is increasing evidence that the primary magmas at the origin of low-silica alkaline volcanism, such as basanites, are very rich in CO_2 and that they can rise rapidly, directly from the mantle to the Earth's surface. Such volcanic systems are numerous in intraplate oceanic and continental settings, including the French Massif Central (FMC), and are remarkable for the abundance of large mantle-derived xenoliths. These volcanic systems are of great magmatological interest because they provide an open window on the upper mantle, enabling us to get a closer look at the composition of primary magmas, the conditions of partial melting in the mantle, the magmatic processes operating at depth or the deep CO_2 cycle.

This project aims to develop a general scheme for the eruption of CO_2-rich basanitic magmas, from their roots in the mantle to the surface, by coupling experimental petrology, physical modeling and the analysis (Raman, EPMA, LA-ICPMS, SIMS) of natural samples from the FMC. We have just documented exceptional CO_2 contents (up to 4.8 wt%) in melt inclusions of Bas-Vivarais basanites, making FMC the perfect target for studying low-silica alkaline volcanism in a continental intraplate setting (Buso et al., 2025. Melt inclusions reveal massive carbon dioxide emissions from continental intraplate volcanism. *Communications Earth & Environment*, 6: 1002). The project is very broad and there are various research directions that could be developed as part of a postdoctoral fellowship, including the following (other directions are possible depending on the postdoctoral fellow's interests and areas of expertise):

- characterize the storage conditions and the state of the magma in the deeper parts of the volcanic system, and better constrain the pressures of olivine crystallization and melt inclusion entrapment.
- study experimentally how magma reacts to rapid decompression during ascent and apply the experimental results to natural samples to determine the conditions of ascent of basanitic magmas from the FMC.
- characterize the composition of primary magmas in FMC basanites and their storage depth in the mantle by studying melt inclusions and host olivines, and deduce the melting conditions in the mantle (nature of sources, pressure, temperature).

(2) About the host institution and the research unit

Université Clermont Auvergne (UCA) is a multidisciplinary higher education institution located in Clermont-Ferrand, France. The university is composed of 20 faculties, 5 doctoral schools and 39 research laboratories working in the fields of fundamental and engineering sciences, life and health sciences as well as law, human and social sciences.

With 40 000 students, including almost 5 500 (14%) international ones and 3.800 staff, it plays a key role in the territorial structuration and the building of a European level region.

On March 2019, UCA received a grant the "HR Excellence in Research" label for its European Strategy Human Resources for Researchers, also called HRS4R (Human Resources Strategy for Researchers). The quality of foreign students' hosting at UCA has also been recognized with the award of the French label « Bienvenue en France » (Welcome in France) in March 2020.

The postdoctoral fellow will be hosted at the **Laboratoire Magmas & Volcans (LMV)**. The Laboratoire Magmas & Volcans is a joint research unit of Clermont Auvergne University (UCA), the French National Center for Scientific Research (CNRS), and the French National Research Institute for Sustainable Development (IRD). The laboratory has over 140 members: 82 permanent staff and 53 non-permanent members (PhD students, post-docs, etc.), plus six emeritus professors. The main areas of research are volcano system science, from deep processes within the Earth's mantle to volcanic eruptions, and the formation and evolution of the Earth. The LMV is structured into three research teams (volcanology, petrology, and geochemistry) that have access to high-performance instruments for observation, experimentation (particularly high-pressure/high-temperature experimentation), and the chemical and physical characterization of rocks, minerals and glasses.

(3) European Postdoctoral Fellowships (EF): eligibility

We are looking for a candidate for a 2-year European Postdoctoral Fellowship. Applicants must:

- be in possession of a doctoral degree or have successfully defended their doctoral thesis at the date of the call deadline (9th September 2026),
- have a maximum of 8-year experience in research from the date of award of the doctoral degree at the date of the call deadline,
- not have resided or carried out their main activity (work, studies, etc.) in France for more than 12 months in the 3 years at the date of the call deadline.

(4) Application to the Master Class

For the first time, a Master Class will be organised in Clermont-Ferrand during the week of the 8th of June 2026. The aim is to host candidates for the MSCA PF grant for 3 days so that they can visit the town, the lab and work together with their supervisors on the project proposal, with the mentoring of european support services from UCA, CNRS, INSERM and INRAE.

Once the candidate and their supervisor have agreed, expressions of interest must be completed and sent to cap-europe@uca.fr before the 13th of March 2026.

More information on CAP Europe website here.