

LABEX Diversités biologiques et culturelles : Origines, Evolution, Interactions, Devenir, Muséum National d'Histoire Naturelle, Paris

Post-doctoral project: SULFOR « Impact of SULfur dioxide on bio-calcification of FORaminifera: experimental approach to better understand the mechanisms of the past mass extinction and biocalcification crises»

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Foraminifera with calcareous tests are among the largest producers of calcium carbonate on the planet, and play a primary role in the global carbon cycle and regulation of the climate. Presently, Foraminifera and other calcium carbonate shell/skeletal forming organisms are affected by ocean acidification, a phenomenon that might have contributed to the past mass extinction and biocalcification crises. A major part of these crises coincides with massive volcanic eruptions responsible for the emission of large quantities of CO₂ and SO₂ into the ocean-atmosphere system. Although, current research focuses mainly on the effects of CO₂, as the principal factor, on ocean acidification and biomineralisation crisis of the past and present, the inherent challenge of this project is to explore and understand the impact of SO₂ in this context.

The two principal objectives of the project are: (i) analyze the impact of the variation in sulfate concentration on the biology and bio-calcification of the foraminifers; (ii) contribute to the knowledge about the incorporation of sulfur in the tests of foraminifera.

[Sulfur geochemical analyses coupled with morphology analyses](#) will be carried out using living organisms and later to foraminifers dating back to the Cretaceous-Paleogene major biological crisis.

This project has an important method development component pertaining the setting up of foraminifera cultures and their biological monitoring in a controlled environment. In addition, the candidate will carry out investigations using techniques related to morphology and biogeochemistry (micro CT-scan, laser ablation ICP-MS, nano-SIMS, proteomics, etc.). The candidate should be motivated to explore simultaneously the biogeochemical aspect of sulfur in both organic and mineral compartments and the variation in shell morphology. The project is essentially multi-disciplinary and the candidate is expected to have experience in at least one of the following disciplines: biochemistry, geochemistry and micropaleontology of foraminifers.

To apply for this position, the candidates should have obtained their doctoral degree (PhD) before 1st September 2016. The applicants should send (as pdf files) a detailed CV, motivation letter and two referees to Annachiara Bartolini (bartolini@mnhn.fr) before 20th May 2016. The selected candidates will be called for an oral presentation between 9th-17th June. The project will start from 1st September 2016 and is a fixed-term contract awarded by the CNRS (24 months). [Salary will be adapted to the professional experience of the successful candidate.](#)