

Post-Doctoral Fellowship in Mercury Marine Biogeochemistry

The Analytical, Environmental and Geochemistry (AMGC) at VUB offers a Post-doctoral Fellowship position. The position lasts for four years within the framework of FWO Lead bilateral project with Slovenian ARRS Research Agency “BioavailablE MERcury Methylation in the ADriatic sea (BE MERMAiD)”.

The project investigates mechanisms transforming inorganic mercury (Hg) to methylmercury (MeHg) in the open ocean water. MeHg concentrates in living organisms and it eventually builds up to very dangerous concentrations in fish and higher animals in sea food webs, damaging both human and ecosystem health. However, we do not know exactly how the methylation occurs, which microorganisms do it and especially exactly which fraction of Hg is available to them. This is termed chemically labile or bioavailable fraction of Hg, it represents a small percentage of total Hg and its chemical identity is largely unknown. The bioavailability aspect will be the focus of investigations on the Belgian part of the project and will be combined with Hg stable isotope analysis and their distribution in labile Hg species on the Slovenian part. We will use the passive sampling technique of Diffusive Gradients in Thin Films (DGT) to determine Hg bioavailable fraction, the strength with which it is bonded, the processes that control its abundance and transformations, and the likelihood of methylation. To that end, we will be the first to measure Hg stable isotopes of bioavailable fraction, collected with DGTs onboard an automatic submarine in the Adriatic Sea. By this innovative combination of advanced analytical methodology, we will tackle one of the outstanding questions in the Hg biogeochemistry: Hg methylation in the open marine environments.

What we offer:

AMGC is leading laboratory in the field of developing DGT theory and practical methodology, with decades of experience and available support to freely and autonomously develop DGT research. It has access to clean room, several mass spectrometers, laser ablation, as well as sampling equipment for waters and sediments. For Hg speciation analysis there are available AMA254, PSA Merlin system, sector-field ICP-MS and head-space coupled to GC-AFS. For DGT deployment at sea, the AMGC group has a unique autonomous glider (SeaExplorer) adapted for trace metal work. Besides the analytical capacity, AMGC and VUB are a vibrant international community that offers opportunities for professional and personal development. Situated in Brussels, centre of EU institutions and a multicultural capital of Belgium, the candidate will be ideally positioned to develop his/her career.

What we look for:

The ideal candidate* will have a doctoral degree in analytical chemistry or marine environmental science and technology. Experiences in passive sampling techniques for bioavailable species measurements, as well as mercury speciation analysis are preferable. Candidates with shipboard experiences are also strongly encouraged to apply. Previous international experiences are advantageous, but not required, although very good written and spoken English is necessary. We are looking for an independent and motivated person that will conduct the research and develop their own research ideas within the framework of the project and beyond. We expect the candidate to be able to publish scientific papers and disseminate the results on international conferences. The chosen candidate will need to have a high degree of mobility with frequent trips to the sampling area.

Candidates are invited to describe their specific interest and view on the research in their motivation letter. The letter and a CV, detailing their scientific outputs should be sent to the email address below. Two recommendation letters should be sent under separate cover to the same email address: yue.gao@vub.be and mleermak@vub.be before February 28 2019.