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## **Postdoctoral stipend (2 years) in the area of Mercury Biogeochemistry**

**Umeå University - with its 33,000 students and over 4,000 employees - is an organisation in constant change and development. Umeå University conducts groundbreaking research within several areas - several in which we are among the best in the world - within others regarded as the leaders in Sweden. We are one of Sweden's largest providers of education and offer a broad and attractive range of courses and programmes. Our campus constitutes an inspiring environment for everyone that studies and works here. We wish to co-operate with companies and organisations throughout the Umeå region and all over the world.**

The Trace Element Speciation Analysis Research group, within the Department of Chemistry, develops and implement novel and advanced analytical methods and experimental strategies to study chemical and biological processes of trace metal compounds in ecosystems and biological systems. A major part of the research program is focused on advancing the molecular level understanding of methyl mercury formation in aquatic ecosystems.

The transformation of inorganic mercury to highly bioavailable and toxic methyl mercury has attracted recent attention and concern. The methylation process is microbially mediated and is stimulated under oxygen deficient conditions in soils, wetlands and sediments, and as a consequence mercury is accumulated in organisms. The knowledge about factors affecting methyl mercury production and degradation is still limited. Experimental results suggest that dissolved neutral mercury-sulfide complexes are the species available to methylating bacteria. There are however several uncertainties concerning how the concentration of these species vary depending on environmental conditions.

We now seek a postdoctoral researcher to conduct fundamental studies on mercury-sulfide chemistry in controlled model systems. The project includes design and measurement on model systems in a controlled laboratory environment, and chemical modelling of the results. The aim is to increase the knowledge about mercury-sulfide speciation, and thereby decrease uncertainties regarding the concentrations of bioavailable Hg species under different chemical conditions. Applicants should possess a doctoral (Ph.D) degree, preferably not more than three years old, within Hg biogeochemistry or closely related fields.

Experimental work in the laboratory will include the use of analytical techniques for the determination of mercury species in aqueous and solid phases, based on GC-ICPMS and synchrotron based X-ray Absorption Spectroscopy (XAS), respectively. Chemical speciation modelling will be used to further assess the speciation of dissolved mercury. Mercury isotope tracer experiments to quantify rates of methylation and demethylation may also be applied. Experience from Hg speciation analysis with isotope tracers, IDA, synchrotron based XAS techniques, and chemical speciation modelling is therefore considered meritorious.

We also demand a documented capability of autonomous scientific research work and skills in writing scientific publications and reports in English. In addition, the postdoctoral researcher is expected to participate in other current research projects within the research group and a willingness to develop research funding possibilities within the research group is encouraged. Very good command of the English language, both written and spoken, is required.

The position will be based on a stipend for a duration of two (2) years.

Your application should contain a cover letter summarizing your research interests and motives to why you are interested in this particular position. It should also include: (1) a curriculum vitae, (2) a publication list, (3) transcripts of degree certificates, and (4) names and contact details of 1-3 references. The application should not include separate articles or theses.

For further information, please contact Assoc. Prof. Erik Björn, Department of Chemistry, Umeå University, [erik.bjorn@chem.umu.se](mailto:erik.bjorn@chem.umu.se)

Union information is available from SACO, +46-(0)90-786 53 65, SEKO, +46-(0)90-786 52 96 and ST, +46-(0)90-786 54 31.

Documents sent electronically should be in MS Word or PDF format.

Your complete application, marked with **reference number 223-1606-10**, should be sent to [medel@diarie.umu.se](mailto:medel@diarie.umu.se) (state the reference number as subject) or to the Registrar, Umeå University, SE-901 87 Umeå, Sweden to arrive **September 30, 2010** at the latest. Also forward a copy of your application directly to Erik Björn ([erik.bjorn@chem.umu.se](mailto:erik.bjorn@chem.umu.se)).

**We look forward to receiving your application!**

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| Umeå University | Postal Address: SE-901 87, Umeå, Sweden | Tel: +46 90-786 50 00 | [Contact Us](#) | [About the Website](#) |