

INVESTMENTS IN EDUCATION DEVELOPMENT

Postdoctoral research fellow position (tutor Josef Hejzlar)

Project title: **Catchment-Lake Ecosystem Modelling**

**Department of Hydrochemistry and Ecosystem Modelling, Institute of Hydrobiology,
Biology Centre of the Academy of Sciences, Czech Republic**

The position will be supported by the European social fund and the Czech state budget.

Workplace:

The Department of Hydrochemistry and Ecosystem Modelling studies abiotic factors and biotic components of aquatic ecosystems including their coupling to the outer environment, i.e. the catchment and atmosphere, to elucidate processes that control (i) terrestrial export of elements to surface waters on a long term and (ii) distribution and cycling of nutrients and other substances in water bodies. The most valuable studies include analyses and modelling of atmospheric acidification of mountain lakes and their recoveries, origin and transformation of nutrients in lakes, and evaluation of point and diffuse sources of anthropogenic pollution in heterogeneous catchments. Besides basic research in aquatic chemistry and ecology these studies have also significant implications for water management and surface water quality control.

Position summary:

Inland waters are under considerable anthropogenic and climatic pressures. It is important to understand and predict their effects – particular in lakes and reservoirs, where all processes in the catchment and climate variability are integrated.

The aim of the project is to adopt a framework for modelling of catchment-lake systems that will enable predictions of hydrology, water quality, and ecology needed for the analysis of processes both in the terrestrial part of the catchment (land use, point sources) and the aquatic ecosystems (rivers, reservoirs). The postdoc will select suitable models and calibrate them with long-term series of ecosystem data from middle European reservoirs and lakes (Slapy Res., Rimov Res., Bohemian Forest lakes etc.). The modelling system will simulate the precipitation-runoff process together with materials (nutrients, erosion particles) transport in the river network (e.g., HSPF, INCA, SWAT models) and biochemical processes (phytoplankton and macrophyte growth, sediment diagenesis etc.) and hydrodynamics of the lake ecosystem (e.g., DYRESM, CE-QUAL-W2 models). Then, the convenient modelling system will be used within the European project of REFRESH (<http://www.refresh.ucl.ac.uk>) in scenario studies for predicting impacts of future development of land use and climate on hydrology and ecological state in large catchments. The position will include a 6-month stay at the University of Reading, Aquatic Environments Research Centre, UK. Candidates should have knowledge of biological and chemical processes in aquatic systems and experience in numerical modelling. Skills in programming, software engineering (e.g., Fortran, R, Matlab) and constructing complex models are invited.

Duration of contract:

The position is for up to 34 months starting from September 1st, 2012. The salary is about 1800 EUR brutto per month and this amount corresponds to a good living standard in the Czech Republic. Extension of the contract beyond 34 months may be possible, depending on renewed funding.

Qualifications:

Interested candidates must have successfully obtained their Ph.D. degree in a relevant discipline after March 29th, 2008. A good knowledge of English language (corresponding to CAE or equivalent) is required. Some knowledge of the Czech language will prove useful.

How to apply:

Interested candidates should apply no later than July 31st, 2012, by submitting the following documents and information to J. Hejzlar (hejzlar@hbu.cas.cz) and CC to A. Navrátilová (navratilova@bc.cas.cz): (1) Cover letter explaining the candidate's research interests; (2) Detailed CV including a list of publications and other achievements; (3) Certified academic transcripts and diplomas (scanned copies); (4) List of minimally two referees who can testify on the candidate's character and performance; (5) Declaration of the candidate's proficiency in English.

Announcement of results:

The Evaluation Committee will convene in August 2012 and candidates will be immediately informed of the results.



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The position will be co-financed by the European Social Fund and the state budget of the Czech Republic.

Workplace:

The Department of Hydrochemistry and Ecosystem Modelling studies biogeochemical cycles and processes that control composition and quality of surface waters. This interdisciplinary research is focused on the structure, functions, problems and management of aquatic environments like reservoirs, natural lakes and their catchments. The staff also provides lecturing of aquatic and environment sciences at the University of South Bohemia and are engaged in advisory services on water quality and aquatic ecosystem functioning for water policy and water management. See <http://www.hydrochem.cz> for details.

Position summary:

The Postdoc Fellow will pursue research within the framework of catchment-lake system modelling. It is expected that the successful candidate will develop her/his own research programme, as well as will collaborate with members of the Department. The Fellow will adopt suitable models and undertake analyses of ecosystem data series from the long-term ecological research (LTER) sites of the Institute of Hydrobiology (Bohemian Forest lakes, Slapy and Rimov Reservoirs). The modelled subsystems might include any part of the system, e.g., precipitation-runoff process, materials transport in the river network (nutrients, erosion particles, etc.), hydrology and hydrodynamics of lakes (residence time, stratification, currents etc.), ecological issues (biodiversity, food webs, sediment diagenesis etc.). The fellow will be also engaged in studies for the REFRESH project (<http://www.refresh.ucl.ac.uk>) that evaluates impacts of predicted land use and climate changes on hydrology and ecological state along a gradient of European catchments. The position includes a fully subsidised six-month stay abroad. There may be some small teaching load associated with this position (mainly mentorship to graduate and undergraduate students).

Skills required: Candidates should have good insight into principles of chemical and biological processes in aquatic systems and experience in ecological models. Abilities in programming and constructing of models are invited.

Duration of contract:

The position is for 34 months starting from September, 2012. The salary is about 1800 EUR brutto per month and this amount corresponds to a good living standard in the Czech Republic. Extension of the contract beyond 34 months may be possible, depending on renewed funding.

Qualifications:

Interested candidates must have successfully obtained their Ph.D. degree in a relevant discipline after March 29th, 2008. A good knowledge of English language (corresponding to CAE or equivalent) is required. Some knowledge of the Czech language will prove useful.

How to apply:

Interested candidates should apply no later than September 10th, 2012, by submitting the following documents and information to J. Hejzlar (hejzlar@hbu.cas.cz) and CC to A. Navrátilová (navratilova@bc.cas.cz): (1) Cover letter explaining the candidate's research interests; (2) Detailed CV including a list of publications and other achievements; (3) Certified academic transcripts and diplomas (scanned copies); (4) List of minimally two referees who can testify on the candidate's character and performance; (5) Declaration of the candidate's proficiency in English.

Announcement of results:

The Evaluation Committee will convene in September 2012 and candidates will be immediately informed of the results.



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Skills required: Candidates should have an insight into principles of chemical and biological processes in aquatic systems and experience in ecological models. Abilities in programming and constructing of models are invited.

Duration of contract:

The position is for 33 months starting from October 2012. The salary is about 1800 EUR brutto per month and this amount corresponds to a good living standard in the Czech Republic. Extension of the contract beyond 34 months may be possible, depending on renewed funding.

Qualifications:

Interested candidates must have successfully obtained their Ph.D. degree in a relevant discipline after March 29th, 2008. A good knowledge of English language (corresponding to CAE or equivalent) is required. Some knowledge of the Czech language will prove useful.

How to apply:

Interested applicants should apply no later than October 24th, 2012, submit the following documents and information to J. Hejzlar (hejzlar@hbu.cas.cz) and CC to A. Navrátilová (navratilova@bc.cas.cz):

- (1) Cover letter explaining the candidate's research interests;
- (2) Detailed CV including a list of publications and other achievements;
- (3) Certified academic transcripts and diplomas (scanned copies);
- (4) List of minimally two referees who can testify on the candidate's character and performance;
- (5) Declaration of the candidate's proficiency in English.

Announcement of results:

The Evaluation Committee will convene shortly after application deadline and candidates will be immediately informed of the results.