PhD position: Climate change effects on greenhouse gas balances of shallow lakes

Institute for Water and Wetland Research, Faculty of Science, Radboud University
Department of Aquatic Ecology & Environmental Biology

Water has been identified as the major environmental issue of the 21st century. Weather extremes increase incidences of drought and flooding while poor water quality is a threat for human society as well as for natural eco-systems. Environmental changes have resulted in stress responses of all living biota and impose major challenges to individuals, populations and the ecosystem as a whole. With a focus on aquatic ecosystems and wetlands, research of the Institute for Water and Wetland Research tackles these problems in an original way. The IWWR studies the mechanisms of adaptation to these changes of micro-organisms, plants and animals at the level of the molecule, the cell, the organism and the ecosystem. The tight coupling of fundamental scientific research to application, distinguishes the IWWR from other national and international institutes on water research. The novel applications for current water problems are developed from innovative

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A position for a PhD student is available at the Department of Aquatic Ecology & Environmental Biology (Institute for Water and Wetland Research, Radboud University Nijmegen). The project will focus on the interacting effects of global warming and shifts in primary producer dominance on greenhouse gas balances of shallow lakes.

Although shallow lakes occupy only a small fraction of the Earth’s surface, they play a significant role in the global carbon (C) cycle. Although they may function as net C sinks through C sedimentation, they often become supersaturated with CO₂ and CH₄ and then act as hot spots of greenhouse gas emission to the atmosphere. Their functioning depends on a suite of interacting physical and biogeochemical processes such as diffusion, ebullition, respiration and primary production. All processes are sensitive to climate change, and as a result warmer lakes tend to emit significantly more CO₂. In addition, climate change can cause shifts in competitive strength and concomitant dominance among phytoplankton, submerged and floating vegetation, which strongly impacts the C biogeochemistry of lakes. Future climate conditions will likely be unfavorable for submerged vegetation, which affects ecosystem functioning. We hypothesize that this will imply a substantial further increase in CO₂ and CH₄ emissions from shallow lakes.

Aquatic Ecology & Environmental Biology serves as an integral department that anchors the core mission of the IWWR, as it connects research efforts of the other departments within the institute. Collectively, the complementary and interdisciplinary research projects of the IWWR departments focus on key ecological drivers and processes that explain the functioning of wetlands and the ecosystem services that they provide. A large part of the main experiments of this project will be conducted in the Limnotron experimental units at the Netherlands Institute of Ecology (NIOO-KNAW), a top research institute of the Royal Netherlands Academy of Arts and Sciences (KNAW).

Expected qualifications of the PhD position:
We are looking for an enthusiastic and bright experimental ecologist with a strong and proven interest in freshwater ecosystems and biogeochemistry who has a MSc degree (or equivalent) in ecology or a related field. A multidisciplinary interest, the ability to collaborate in a group, and a strong motivation to obtain a PhD degree are essential.

The salary will be between EURO 2.083 and 2.664 gross per month on a full-time basis, depending on qualifications and experience.

You will be appointed for an initial period of 18 months, after which your performance will be evaluated. If the evaluation is positive, the contract will be extended by 2.5 years.

It is Radboud University Nijmegen’s policy to only accept applications by e-mail. Please merge your motivation letter, CV and the names and addresses of two references into one PDF document, with Vacancy number: 62.53.13, and send it, until 14 October 2013 to pz@science.ru.nl.

More information:
For more information on the vacancy you can contact:
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