

APPLY 49-2023

Postdoctoral Researcher in water quality modeling and assessment

WATER SECURITY (WAT) RESEARCH GROUP

The **WAT Research Group**, part of the **IIASA Biodiversity and Natural Resources (BNR) Program** is offering a research position at the postdoctoral level in water quality modeling and assessment.

BACKGROUND

The Water Security (WAT) Research Group is one of four groups within the IIASA Biodiversity and Natural Resources (BNR) Program. WAT works across various water-related sectors and management scales by incorporating water science into integrated assessment and planning studies. The group has about 20 scientific staff and (co-)hosts 5-10 visiting PhD students each year through the IIASA [Young Scientists Summer Program \(YSSP\)](#).

THE POSITION

The successful candidate will contribute to developing and employing a spatial, macro-scale hydrologic model to assess water quality, and evaluate the impacts of climate and socio-economic changes, and related policies and management options on water quality. A key focus of the role will be on developing and improving methods for assessing management options at different spatial scales, particularly those associated with managing water quality. This involves working with other specialists such as economists, ecologists, hydrologists, modelers, stakeholders and social scientists to explore how linkages can be developed. They will also work on integrating a water quality model into a nexus Water-Energy-Food modeling framework, that is also linked to water allocation and economic models. The incumbent will use a systems approach in the analysis of water quality, such as salinity and eutrophication. This will include site-specific (point source e.g., wastewater) as well as regional land based (non-point source e.g. agriculture) components.

THE PROJECT

The research project Sustainable Water Quality Management supporting Uganda's development ambitions ([SWAQ-Uganda](#)) is funded by the Austrian Development Agency (ADA) and implemented jointly by IIASA, the University of Natural Resources and Applied Life Sciences (BOKU) and the Directorate of Water Resources Management (DWRM) of the Uganda Ministry of Water and Environment. The objective of the project is to contribute to the sustainable management of water resources in Uganda, integrating water, health, agriculture, industry and environmental sectors. This is in line with the integrated water resources management approach stipulated in the Ugandan National Water Policy and the Uganda Catchment Management Guidelines. The expected outcome is to improve knowledge and enhance the institutional capacity in sustainable water quality management in Uganda in support of policymaking and effective water resources management.

MAIN TASKS AND RESPONSIBILITIES

- Assist in developing the WAT Community Water Model ([CWatM](#)).
- Develop water quality modules within CWatM.
- Collaboratively develop model code that is version-controlled, documented, and reproducible, at different spatial and temporal resolutions.
- Assist in the development and analysis of databases of interest to water quality worldwide.
- Assist in the development of methods for scaling and incorporating policy and management options into macro-scale hydrologic and water quality models.
- Perform statistical analysis of the gridded output of global hydrologic and water quality model(s).
- Present methods and results to both technical and non-technical audiences.
- Write scientific papers in peer reviewed journals to communicate findings.
- In line with the team spirit that prevails at IIASA, the incumbent may occasionally work on other tasks assigned by their superiors, that might not be directly related to this appointment but where the post holder has relevant experience and skills, and/or a shortage of immediate personnel capabilities requires such.

REQUIREMENTS

- PhD degree in hydrology, environmental science, environmental chemistry, engineering or a related field.
- Proven analytical skills and ease in manipulating large data sets and complex modeling systems.
- Experience with both river basin scale and global scale spatial hydrologic and water quality models.
- Strong interest and background in integrative systems analysis and development of tools to support water management decisions.
- Programming knowledge and proficiency (PCRaster, Python, Fortran, C/C++, or Java).
- Experience with geographic information systems (ArcGIS, or QGIS).
- Experience with concepts of subversioning, Git, GitHub, Jupyter Notebook and similar state of the art software development tools.
- Experience with specific domain knowledge on large-scale water quality modeling and assessment, water pollution management measures and remote sensing for water quality is an asset.
- Previous working or studying experience in East Africa is an asset.
- Ability to write reports independently, complying with donor requirements.
- Fluency in English is essential together with good presentation skills, and experience writing

APPOINTMENT TERMS

The selected candidate should be available to take up the position in December 2023, or as soon as possible thereafter. We offer an initial fixed-term, full-time (40 hours per week) employment contract for one year, with the possibility of extension thereafter. Eligible applicants wishing to work part-time hours may be considered.

Duties will be carried out at the IIASA premises in Laxenburg, near Vienna in Austria.

The successful candidate will be appointed in accordance with the [IIASA profiles for research careers](#).

WE OFFER

- An international atmosphere and pleasant working environment in a historic market town surrounded by green areas.
- The possibility to contribute to environmental sciences for sustainability and global wellbeing.
- The opportunity to deepen and improve knowledge and scientific profile.
- Career development perspectives.
- **An attractive salary which is exempt from income tax in Austria and negotiable, based on the qualifications, skills and experience of the selected individual and at least:**

EUR 48,050.00 for R2 Research Scholars.

EUR 36,875.00 for R1 Researchers.

In addition, IIASA salaries are:

publications.

- IIASA offers an interdisciplinary and international workplace, and the possibility to interact with researchers of different nationalities, with strong ties to a world-wide network of research institutions engaged in environmental systems research. The successful candidate must be able to work in, and have respect for, an intercultural environment, and [IIASA core values](#).

- Subject to deductions for health insurance and/or social security.
- Not directly comparable with other employers in Austria, due to the unique legal status and privileges granted to IIASA.
- Subject to the principle of income aggregation (Progressionsvorbehalt in German).

OTHER BENEFITS

- Educational subsidies for children of school age enrolled in private schools in Austria.
- A generous annual leave entitlement.
- Moving and settlement allowances and paid home leave for employees in scientific and professional categories hired from international locations.
- The possibility to work up to 100 days per year in home office (within Austria)
- Assistance for newcomers or as soon as possible to Austria with visa, work and residency permit applications.
- Support finding accommodation in Austria.

Further details [here](#).

About IIASA

IIASA is committed to a working environment that promotes equality, diversity, tolerance and inclusion within its workforce. This is reflected in our [IIASA core values](#). We encourage qualified candidates from all religious, ethnic, and social backgrounds to apply. In the case that candidates are equally qualified, preference will be given to applicants from countries where IIASA has a [Member Organization](#).

Further Information

For further information about this opportunity please contact [Taher Kahil](#), WAT Research Group Leader.

For general information about working at IIASA, contact: recruitment@iiasa.ac.at

Applications

In order to apply for this opportunity, you will need to provide the following documents:

- A cover letter outlining your motivation for and fit to the position,
- A detailed Curriculum Vitae including list of publications,
- The names, addresses (including e-mail), and telephone numbers of two work-related reference givers.

Deadline for receipt of applications: until filled

APPLY