

Deadline: 10 March 2023



APPLY 05-2023

# Researcher in integrated modeling of environmental impacts from land and water use

INTEGRATED BIOSPHERE FUTURES (IBF) RESEARCH GROUP

The **IBF Research Group**, part of the **IIASA Biodiversity and Natural Resources (BNR) Program**, is looking for a highly motivated applied Earth system modeler or ecologist to lead research on the environmental impacts from land and water use, as well as pathways towards the safe and just planetary space.

## BACKGROUND

The IBF Research Group adopts an integrated approach to sustainable land use and ecosystems modeling taking into account i) interactions between different economic sectors, including agriculture, forestry, bioenergy, and fisheries, ii) synergies and trade-offs between multiple societal objectives, including, but not limited to, GHG emissions and climate change mitigation, climate change impacts and adaptation, food security, sustainable nutrient and water management, and biodiversity, iii) across different spatial and temporal scales, going from pixel through the country level up to the global scale, and from annual to a hundred year time horizon.

The group is strongly connected to the international academic community, placing emphasis on transdisciplinary synergies and applied approaches. The work accomplished has long been recognized through regular publications in high-ranking scientific journals, and the team includes Top 1% highly cited researchers. In addition, IBF is recognized as a reliable partner in support of policy making, such as EU policies or CBD's Kunming-Montreal Global Biodiversity Framework"

## THE POSITION

IBF is offering a **research position in the integrated modeling of resource use and environmental impacts** to advance the understanding and development of land and water use systems compatible with the Sustainable Development Goals (SDGs) and planetary boundaries. Within a vibrant multi-disciplinary research team, the successful candidate will consolidate and expand the representation in the iBIOM integrated modeling platform around the **GLOBIOM** model of the environmental impacts (e.g., GHG, nutrient and water cycles, biodiversity), safe boundaries (e.g., level of pressures compatible with planetary boundaries) and contributions to people (e.g., material, regulation and non-material contributions) associated with the management of the land and freshwater resources for the agriculture, forestry, bioenergy and aquaculture sectors. This will include innovative interfacing of the GLOBIOM model to several datasets and models from a wide range of disciplines (e.g., ecology, agronomy and forestry, hydrology, nutrient cycling), requiring strong appeal for and versatility in multidisciplinary approaches, data analysis and coding.

In the frame of projects such as the BRIGHTSPACE, LAMASUS, RAINFOREST, CLEVER Horizon Europe project, the

successful candidate will contribute to/lead cutting-edge analysis in collaboration with international partners on defining implications of a safe and just space goal for the land and water sectors and exploring options to evolve towards such a target. Examples of recent work to be furthered by the new hire includes Leclere et al. (2020; DOI: 10.1038/s41586-020-2705-y), Chang et al. (2021; DOI: 10.1038/s43016-021-00366-x).

## MAIN TASKS AND RESPONSIBILITIES

- Employ external datasets and outputs of (and occasionally run and contribute to the development of) process-based and statistical models to:
  - translate GLOBIOM model outputs of land and water use and management into indicators of multiple environmental impacts and nature contributions to people, either as small module internal to the GLOBIOM model or as interfaces between GLOBIOM model outputs and models available on the iBIOM platform,
  - generate simplified relationships and constraints in the GLOBIOM model related to land and water use and management compatible with planetary and regional boundaries,
  - produce harmonized datasets characterizing land and water resource and use as well as sustainable land and water use and management options.
- Contribute to methodological and structural development of the GLOBIOM model and the iBIOM integrated modeling platform, through interfacing biophysical, biodiversity and economic models
- Apply the GLOBIOM and iBIOM integrated modeling platform in the context of research and policy projects
- Publish relevant results in peer-reviewed journals and participate in scientific conferences and workshops
- Contribute to project deliverables, reports, stakeholder communication.
- 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

- Master's or PhD degree, or a master's degree combined with relevant research experience in either Earth system science, environmental science, macroecology, ecosystem services modeling, forestry and agronomy (enrolment in a PhD program for Master degree holders will be supported).
- Experience in applied modeling of macroecology, biogeochemical and/or water cycles, crop, pasture and/or forest systems.
- Strong analytical, quantitative and programming skills with good knowledge of R, GitHub/Lab, GIS and version control tools, and familiarity with at least some of the following languages: Julia, Python, C/C++, PSQL, Fortran.
- Knowledge of GAMS programming language is an advantage.
- Capacity to take upon novel topics and lead them to successful completion within strict timelines.

## APPOINTMENT TERMS

The selected candidate should be available to take up the position as soon as possible in 2023. We offer an initial fixed-term, two year, full-time (40 hours per week) employment contract 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](#). The salary is exempt from income tax in Austria and negotiable, based on the qualifications, skills and experience of the selected individual.

## WE OFFER

A gross annual, full-time salary of *minimum*:

EUR 36,875.00 for R1 Researchers

EUR 48,050.00 for R2 Research Scholars

- Excellent command of English, both in spoken and written form.
- 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](#).

In addition, IIASA salaries are:

- 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 to Austria with visa, work and residency permit applications.
- Support finding accommodation in Austria.

## 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 [National Member Organization](#) (NMO).

## Further Information

For further information about this opportunity please contact

[David Leclere](#), Senior Research Scholar, IBF  
[Michael Le Gohebel](#), Program and Project Officer, IBF or  
[Petr Havlik](#), Interim Program Director, BNR and Research Group Leader, IBF

For general information about working at IIASA, contact: [recruitment@iiasa.ac.at](mailto: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
- The names, addresses (including e-mail), and telephone numbers of two work-related reference givers.

**Deadline for receipt of applications: 10 March 2023**

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