The Max Planck Institute for Biogeochemistry (MPI-BGC) in Jena is dedicated to interdisciplinary fundamental research in the field of Earth system sciences with a focus on climate and ecosystems. The internationally renowned institute, which currently employs around 250 people, celebrated its 25th anniversary in 2022. Jena is known for high-tech industry, internationally renowned research institutions and a modern university, but it also has a beautiful natural setting in the green Saale valley with steep limestone slopes. The city of Jena has an active student scene and a diverse cultural life. The Terrestrial Biosphere Modelling group in the Biogeochemical Signals department is seeking to recruit a

**PostDoc (m/f/d)**

(3 years, starting as soon as possible)

**Background and position description:**

The project “ICON for coupled carbon cycle climate modelling (ICON-4C4M)” funded through the Extramural Funding programme of the German Weather Service (DWD) aims to integrate state-of-the-art representations of terrestrial (project part land at MPI-BGC) and marine (project part ocean at University Hamburg) biogeochemistry into the ICON Earth system model. The project will contribute to an enhanced representation of key Earth system components in ICON for climate science applications and thereby provide new insights into the transient climate response of the Earth system to anthropogenic emissions.

The project part at MPI-BGC will focus on enhancing the land component of the ICON Earth system model by further integrating the TBM group’s previous developments of the QUINCY model (Thum et al. 2019, GMD) within ICON-Land. The key innovation of this new land component is to seamlessly couple biogeochemical processes (e.g. nutrient limitation of carbon uptake) to biogeophysical land processes (e.g. leaf area development and effect on surface energy partitioning), permitting to simulate both, the fast responses of vegetation to diurnal and seasonal extremes and the long-term responses of ecosystem structure and carbon storage to climate change.

The incumbent will closely collaborate with the ocean biogeochemistry group of Prof. T. Ilyana (https://www.tatianailyina.earth) as well as scientists at the DWD to develop a fully interactive carbon cycle for ICON and study carbon-cycle climate feedbacks in the 21st century.

**Your tasks:**

- Test the coupling of the QUINCY model to the ICON atmosphere, based on the already realised coupling of JSBACH4 (Schneck et al. 2022, GMD)
- Evaluate the performance of ICON-Land driven by reanalyses, and when coupled to ICON-Atmosphere using available benchmarking tools
- Estimate carbon-cycle climate feedbacks for the carbon-only, carbon-nitrogen and carbon-nitrogen-phosphorus configurations of ICON-Land in concentration-driven setting using the C4MIP protocol
- Develop and apply an emission-driven configuration of ICON with a fully interactive carbon cycle configuration, in close collaboration with the ocean biogeochemistry group of Prof. T. Ilyana
- Present and publish project results in conferences and scientific journals
Your profile:

- Successfully completed PhD-thesis in environmental science or environmental engineering, bioinformatics, climate or Earth system science, environmental physics, or comparable fields
- Background in terrestrial biogeochemical cycles, terrestrial ecology, land-atmosphere interactions and/or numerical modelling
- Experience in at least one higher programming languages (e.g. FORTRAN, c++), and scripting language (e.g. Python, R) is required
- Experience in the development and application of (preferably global) process-based ecosystem models and high-performance computing systems is highly desired
- Ability to work independently as well as in a team
- Demonstrated record of scientific output
- Very good written and spoken English

Our offer:

This three years full time PostDoc position is to be filled as soon as possible. Part-time work is generally possible. The position will be evaluated and graded following the collective agreement according to TVöD Bund; in addition, we will provide a pension plan based on the public service (VBL).

The Max Planck Society (MPS) strives for gender equality and diversity. The MPS aims to increase the proportion of women in areas where they are underrepresented. Women are therefore explicitly encouraged to apply. We welcome applications from all fields. The Max Planck Society has set itself the goal of employing more severely disabled people. Applications from severely disabled persons are expressly encouraged.

Your application:

Are you interested? Please send us your application with cover letter, curriculum vitae as well as names and contact information of two references summarised in a PDF file (max. 10 MB) by e-mail to bewerbung@bgc-jena.mpg.de or to the

Max-Planck-Institut für Biogeochemie
Personalbüro: Kennwort “PostDoc”
Hans-Knöll-Straße 10
07745 Jena

by 07 January 2024, quoting the reference number 26/2023. We ask that you do not use application folders, but only submit copies, as your documents will be destroyed in accordance with data protection regulations after the application process has been completed.

We look forward to receiving your application!