



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. We are looking for a

Postdoctoral Researcher / Data Scientist in the field of geospatial data and/or remote sensing (m/f/d)

(full-time, for 2 years, extension possible)

Background and position description:

We are looking for an enthusiastic scientist to complement our team efforts in tackling current research questions in the field of data-driven estimates of European and global land ecosystem-atmosphere fluxes. The position involves integration and participation in multiple large projects from Horizon Europe and the European Space Agency

The Global Diagnostic Modelling group coordinates the FLUXCOM initiative (www.fluxcom.org, Jung et al. 2020) which develops approaches to integrate satellite remote sensing data, eddy-covariance flux observations, and machine learning to generate global products of land-atmosphere carbon and energy fluxes. FLUXCOM is developed by a diverse team with backgrounds in ecophysiology, data science, machine learning, and remote sensing.

We are looking for a team member who can integrate new and high spatial resolution observational datasets into the existing FLUXCOM workflow. This will involve building tailored data extraction and pre-processing pipelines to generate analysis ready data (ARD). Additionally, the person will implement a novel machine learning model structure that is able to account for the mismatch in observational supports (i.e. spatial footprints) between eddy covariance measurements and satellite observations. In practice, this will require characterising the dynamic nature of both types of footprints and evaluate the representativity of the matching area in both space and time.

Our new colleague will also have space to complement the research activities of the FLUXCOM team by developing and realizing own research ideas. These may focus on more technical or applied questions according to the applicant's interests. There will further be opportunities for collaboration and exchange beyond FLUXCOM, notably within the department of Biogeochemical Integration, and with external national and international colleagues. The candidate is encouraged to author and/or contribute to scientific publications of the group.

Your tasks:

- Develop tailored data workflows to extract and process satellite remote sensing datasets from existing EU infrastructures to make them ready for FLUXCOM and other applications

- Improve the consistency between on-the-ground measurements and remote sensing images via precision spatiotemporal sampling and developing/implementing methodologies for a consistent remote sensing-eddy covariance integration
- Analyse effects of new data streams and methodologies on the accuracy of the data-driven flux estimates
- Produce and/or contribute to scientific publications of the group

Your profile:

- completed PhD in remote sensing, geoinformatics, computer science, physics, meteorology, geoecology, or related field
- Experience with the programming language Python is an asset
- Experience with technology currently used by the FLUXCOM team is also an asset, i.e.: HPC computing, GIT version control, zarr data cubes
- A good understanding of the terrestrial carbon cycle and machine learning is an asset
- Very good written and spoken English is required
- Enjoy working collaboratively

Our offer:

This position is full-time and is to be filled as soon as possible, for two years and the possibility of extension. 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:

Dr. Jacob Nelson (jnelson@bgc-jena.mpg.de) will be happy to answer further questions. 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 "14/2024"
Hans-Knöll-Straße 10
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by **30th August 2024**, quoting the reference number **14/2024**. 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!