



Max-Planck-Institut  
für Biogeochemie



MAX-PLANCK-GESELLSCHAFT

The Max Planck Institute for Biogeochemistry (MPI-BGC) in Jena is dedicated to interdisciplinary basic research in the field of Earth system sciences with a focus on climate and ecosystems. The internationally renowned institute, which currently employs around 230 people, will celebrate 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. For the department of Biogeochemical Signals as of 01.03.2022 we are looking for a

## PostDoc (m/f/d)

(full-time, limited until 28.02.2026)

### Background and Job Description:

As part of several collaborative research projects funded by the BMBF, various research disciplines will contribute to setting up the Integrated Greenhouse Gas Monitoring System for Germany (ITMS). The aim of the ITMS is to enable Germany to monitor the sources and sinks of the three most important long-lived greenhouse gases (CO<sub>2</sub>, CH<sub>4</sub>, N<sub>2</sub>O) operationally and with the help of independent measurements. The joint project ITMS-M is concerned with the further development of atmospheric modelling that is required, with the participation of the DWD, the KIT, the University of Heidelberg, and the MPI-BGC.

The quantification of anthropogenic as well as biogenic greenhouse gas emissions from atmospheric observation data with the help of inverse modelling is the focus of the project carried out in the ATM research group within the Biogeochemical Systems Department at the MPI-BGC. The inversion system CarboScope-Regional, which combines a Lagrangian regional atmospheric transport model (STILT, Stochastic Time-Inverted Lagrangian Transport), a global transport model, and an iterative optimization algorithm, is used to estimate the spatio-temporal distribution of sources and sinks from atmospheric measurements of CO<sub>2</sub> and CH<sub>4</sub> and from a priori information on flux distribution, and serves as a prototype for testing further developments. In this context, mixed layer heights play a crucial role as they control the dilution of emissions from surface sources within the atmosphere.

### Your tasks:

- Implementing the use of observation-based mixed layer heights in the CarboScope regional inversion system
- Development and evaluation of methods for the determination of mixed layer heights from observations (ceilometer, radiosondes, AMDAR)
- Generation of optimized mixed layer heights based on ICON fields and ceilometer-based mixed layer heights
- Writing and publishing manuscripts for publication in high-ranking journals
- Close cooperation with other project members to enable synergetic analyses and publications
- Presentation of results at national and international conferences
- Supervision of students and doctoral candidates in their final theses

### Your professional profile:

- Successfully completed university studies in natural sciences, meteorology, geosciences or mathematics and information technology
- Doctorate (Dr./PhD)
- Experience with weather forecast models or atmospheric transport models is helpful

- Experience with inverse modelling or statistical analysis is desirable
- Knowledge in at least one of the programming languages R, Python or Fortran, further knowledge in e.g. CDO or Bash is an advantage

#### **Your personal Profile:**

- strong teamwork and intercultural skills as well as self-initiative and sense of responsibility
- a goal-oriented, committing, structured way of working
- very good knowledge of written and spoken English (other language skills are welcome)

#### **Our offer:**

- Work in the attractive international environment of an interdisciplinary research institute of the Max Planck Society as well as in a friendly and team-oriented working environment
- Wide range of opportunities for personal development
- Childcare through partnership with a nearby childcare facility
- Use of company prevention offers in the health sector
- Use of our job ticket, the Dual Career Network and other campus offers

Part-time work is possible in principle. The grouping takes place with fulfilment of the tariff conditions after TVöD federation, with expected grouping in E13; in addition we grant a pension scheme in the style of the public service (VBL).

The Max Planck Society strives for gender equality and diversity. It 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:**

If you have any questions, please contact Dr. habil. Christoph Gerbig ([cgerbig@bgc-jena.mpg.de](mailto:cgerbig@bgc-jena.mpg.de)) will be happy to answer your questions. Have we aroused your interest? Then please send us your application with cover letter, curriculum vitae as well as names and contact information of two references by e-mail summarized in a PDF file (max. 10 MB) by December 15, 2021, quoting the reference number **28/2021** to [bewerbung@bgc-jena.mpg.de](mailto:bewerbung@bgc-jena.mpg.de) or to the

Max-Planck-Institut für Biogeochemie  
Personalbüro: Kennwort "Wissenschaftliche/r Mitarbeiter/in AP4"  
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07745 Jena

We kindly ask you not to use application folders, but to submit copies only, as your documents will be destroyed after the application process has been completed in accordance with data protection regulations.

We look forward to receiving your application!