The department of Biogeochemical Integration (BGI) at the MPI for Biogeochemistry in Jena, Germany, conducts research to better understand the manifold interactions between terrestrial biogeochemistry and climate. One focus is to study the coupled terrestrial carbon, nitrogen, and phosphorus cycles and their response to global change. The research in this area encompasses detailed studies of soil dynamics, field ecosystem experimentation, as well as theoretical and applied ecosystem/biosphere modelling.

The research of the terrestrial biosphere modelling group (TBM) in the BGI department focuses on the development and evaluation of large scale terrestrial biosphere models, and in particular the importance of the biogeochemical nutrient cycles for land-climate feedbacks. We contribute to a European-wide effort to improve the current generation of Earth System models within the H2020-funded international project "Coordinated Research in Earth Systems and Climate: Experiments, Knowledge, Dissemination and Outreach (CRESCENDO)"), in which we lead the work package on land model evaluation. Our main funding stems from an ERC consolidator grant ("Quantifying the effects of interacting nutrient cycles on terrestrial biosphere dynamics and their climate feedbacks"; QUINCY), in which we seek to develop the next-generation of nutrient-enabled land surface models.

To further advance the integration of observations and modelling, and in particular, our ability to simulate the ecosystem- and larger-scale effects of nutrient availability on soil organic matter dynamics and plant growth, we are looking to recruit

2 PostDocs (f/m) in soil and biosphere biogeochemical modelling and evaluation (2 years)

Your Job (ref #1) in the QUINCY project:
• investigate the feedback between increased plant-based rhizosphere inputs under higher levels of atmospheric CO₂ and soil organic matter decomposition and nutrient release.
• contribute to the further development of the process-based soil organic carbon model COMISSION (Ahrens et al. 2015), which has been updated to account for the effects of nitrogen and phosphorus availability on soil microbial dynamics and thus soil organic matter turnover. The soil model can be run coupled to the dynamic representation of vegetation growth and below-ground carbon allocation of the QUINCY vegetation model (a thoroughly updated version of the O-CN model; Zaehle & Friend, 2010).
• apply and evaluate the novel model using data from Free Air CO₂ Enrichment experiments.
• contribute to publications in international scientific journals and presentations on national and international meetings

Your Job (ref #2) in the CRESCENDO project:
• evaluate the representation of terrestrial carbon-nitrogen cycle coupling of the current generation of land surface schemes that will be used within the upcoming CMIP6 climate projection simulations.
• use existing site-level and global simulations, provided by the CRESCENDO project, to infer the adequacy of the implemented schemes for predicting future trends in the terrestrial carbon and nitrogen cycles (using e.g. data from Free Air CO$_2$ Enrichment experiments or fertiliser trails).
• contribute to the on-going development of a new land surface scheme within the QUINCY project simulating the coupled global terrestrial carbon, nitrogen and phosphorus cycles within the framework of the MPI-Earth System model.
• contribute to publications in international scientific journals and presentations on national and international meetings

Your profile

• PhD degree in a quantitative natural science (e.g. geo-ecology, environmental science, biology, or applied mathematics)
• profound knowledge of soil organic matter dynamics (job #1), model evaluation (job #2), as well as ecosystem modelling, and global biogeochemistry
• very good programming skills
• demonstrated ability to write publications in scientific journals, preferably in the field of soil and plant sciences
• good communication and organisational skills
• good knowledge of English

The work environment

The successful applicants will join a young and international team in a vibrant research environment, encompassing experimental and theoretical work on the role of the biogeochemical cycles of carbon, nitrogen and phosphorus in the Earth system. The department has established an extensive network of international collaborations in Europe, the U.S. and Australia.

Jena is not only famous for its high-tech industry, internationally renowned research institutions and a modern university, but also for its beautiful natural setting in the Saale valley with its steep limestone slopes. The city of Jena has a large active student scene supporting a diverse cultural life.

The conditions of employment, including upgrades and duration follow the rules of the Max Planck Society for the Advancement of Sciences and those of the German civil service (TVöD-Bund).

The Max-Planck Society is committed to increasing the number of individuals with disabilities in its workforce and therefore encourages applications from such qualified individuals. Furthermore, the Max Planck Society seeks to increase the number of women in those areas where they are underrepresented and therefore explicitly encourages women to apply.

Please send your inquiries and/or applications including a letter of interest, CV, and the names and contact information of two references to Dr. Sönke Zaehle (szaehle@bgc-jena.mpg.de), or directly to the institute’s address (S. Zaehle, Max-Planck-Institut für Biogeochemie, Postfach 10 01 64, 07701 Jena, Germany).

Review of applications will begin on the 31st of May 2017. Interviews are foreseen in Jena during June 2017.
Relevant links:

The Terrestrial Biosphere Modelling group in the Biogeochemical Integration department:

The QUINCY project:
https://www.bgc-jena.mpg.de/bgi/index.php/Projects/QUINCY

The H2020-funded international project “Coordinated Research in Earth Systems and Climate: Experiments, Knowledge, Dissemination and Outreach (CRESCENDO):
http://www.crescendoproject.eu