

scientific researcher (m/f/d) in tropical ecosystem modelling

Stellenanbieter: Goethe Universität Frankfurt am Main

The **Institute for Physical Geography** of Goethe University Frankfurt, in collaboration with the Senckenberg Biodiversity and Climate Research Centre (SBiK-F), is seeking to fill a position as soon as possible as a

scientific researcher (m/f/d) in tropical ecosystem modelling PostDoc (E 13 TV-G-U)

The contract is limited to two years. The salary grade is based on the job characteristics of the collective agreement applicable to Goethe University (TV-G-U).

This project is part of collaborative Research Unit funded by the German Science foundation entitled „Environmental changes in biodiversity hotspot ecosystems of South Ecuador: RESponse and feedback effEECTs (RESPECT)”

(https://vhrz669.hrz.uni-marburg.de/tmf_respect/home.do). During this third funding phase the focus is on integrating field data (e.g. plant traits, carbon and water cycling) into a version of the LPJ-GUESS Dynamic Global Vegetation Model that includes trait diversity and has already been parameterized for parts of the study region and general project synthesis. The work builds on unique field data from the last two decades that describes the species diversity of plants, soil nutrient cycles, vegetation growth and structure and ecosystem carbon and water flows along an elevational and a drought gradient in a region with exceptional biodiversity.

Your tasks:

- use the latest field data to parameterize the model for the mountain dry forest in the study region (the rainforest site has been parameterized)
- integration of developments into the land surface version of LPJ-GUESS, which includes a state-of-art representation of land-surface-atmosphere exchange processes
- regionalization of the model using existing land use maps and integration of a simplified representation of the most important land use types in the study region
- application of the model in collaboration with project partners to investigate the central RESPECT hypotheses concerning the role of plant functional trait diversity and biotic interactions (e.g. insect herbivory, which has been assessed in field experiments) for ecosystem resistance and resilience to climate change
- contribute to the further development of another land surface modelling framework, which also includes LPJ-GUESS and was developed for the plot scale in our study region

- visiting field sites near Podocarpus National Park (rainforest) and Laipuna (dry forest) to familiarize oneself with the ecosystems
- participation in science communication activities
- publication of results in scientific journals with the highest standards and RESPECT-specific outlets, which also address local stakeholders

Required Qualifications:

- master's degree and PhD degree in ecology, environmental modelling, geography, environmental physics or related fields
- strong interest in ecology, ecosystem research and climate change
- strong expertise in data analyses and statistics
- good programming skills in C++, the language of the LPJ-GUESS code or another fundamental programming language such as C or Fortran
- experience in ecological or environmental modelling
- documented ability to publish scientific papers in international journals
- experience in interdisciplinary research contexts is an advantage
- excellent written and spoken English skills

Please send your application with the usual documents (letter of motivation including statement about your primary research interests, CV, certificates, teaching experience and publication list if applicable), reference "postdoc in tropical ecosystem modelling" **until 16.09.2025** per e-mail to Prof. Dr. Thomas Hickler, Institute of Physical Geography, Altenhöferallee 1, 60438 Frankfurt/Main, Germany, e-mail: thomas.hickler@senckenberg.de.

Weblink, including German version: https://www.uni-frankfurt.de/48794896/FB11_Geowissenschaften_Geographie

Bewerbungsschluss: 16.09.2025

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