

The Leibniz Centre for Tropical Marine Research (ZMT) GmbH (www.leibniz-zmt.de) is an independent research and teaching institute that provides scientific knowledge for the protection and sustainable use of tropical coastal ecosystems. To this end, we work in an inter- and transdisciplinary manner with our partners in the tropics. The ZMT is a member of the Leibniz Association.

The project is part of a new institute initiative called TropEcS "Modelling socio-economic dimensions across Tropical Coastal Ecosystems and the Earth System", which attempts to investigate how socio-economic processes impact Earth system components and vice versa. For the project outline above we seek a motivated early career scientist not afraid to cross disciplinary boundaries to join our recently established research group on Biogeodynamics modelling in Bremen, Germany. The planned duration (subject to release of funds) of the position is until December 31st, 2028 starting on the January 1st, 2026.

Postdoc (gn)

(Reference: 24-STB-PB4-PD)

Understanding how different Earth system components affect the variation of life forms and how this diversity of life impacts tectonic, geomorphic, and climatic processes at various scales continues to be a fundamental area of research, particularly, considering the rapid changes humans induce. The development of numerical models together with the increased availability of observations have allowed us to make advances in unravelling some of these interactions, such as the tectonic controls on diversity at global and regional scales. However, not many models exist that couple eco-evolutionary dynamics of vegetation to geodynamics and even fewer investigate biogeodynamic interactions of tropical coastal wetland systems to evaluate the potential impacts of human-induced changes. We propose to develop a biogeodynamic model, by coupling a trait-based eco-evolutionary model (e.g. AdaScape) into a reduced-complexity river delta model (e.g. DeltaRCM). We will use the model to synthesise information on the functional diversity of tropical wetland vegetation and model its interactive effects on erosion and sediment transport. Ultimately, we seek to evaluate the effects of potential human-induced changes to river discharge and land use in tropical coastal environments, such as those in Indonesia.

Your tasks:

- to couple an eco-evolutionary model (e.g. AdaScape) to a reduced-complexity river delta model (e.g. DeltaRCM).
- to design and test scenarios based on observational constraints for tropical coastal wetland systems, in particular mangrove forests, with a case of Indonesia.
- to collaborate with members of ZMT to design scenarios and analyse their data to validate the coupled biogeodynamic model.
- to interact with members of the biogeodynamics modelling group and program area 4 at regular meetings as well as with others from the new TropEcS team.
- to present results at scientific meetings and in publications in peer-review journals, and to support proposal-writing.

Requirements:

- Doctoral degree (or close to finish) in theoretical ecology, geosciences, applied mathematics, environmental physics, or a related field.
- Research experience in numerical modelling, preferably with knowledge of either eco-evolutionary models and/or river delta models.
- Demonstrable ability to use programming languages such as Python, Julia, C, C++ or Fortran.
- Familiarity analysing functional diversity and/or geomorphological information.
- Curiosity-driven, creative, and critical thinker with the ability to articulate ideas into original and innovative manuscripts.
- Good communication and writing skills in English.
- Ability to work collaboratively in an international working environment.

Further information:

For questions, please contact Dr. Esteban Acevedo-Trejos,
email: esteban.acevedo@leibniz-zmt.de

Details of position:

Salary will be paid according to the German TV-L (EG 13). The position is available for full-time employment starting January 1st, 2026 with a duration until December 31, 2028. The fixed term is for academic qualification according to § 2 (1) WissZeitVG (Wissenschaftszeitvertragsgesetz). Accordingly, only applicants who still have the relevant qualification periods according to § 2 (1) WissZeitVG can be considered. The position is intended to provide further academic qualification.

ZMT is an equal opportunity employer. Applicants with a migration background are welcome. Persons with severe disabilities are given special consideration if they have the same professional and personal qualifications. The ZMT values its diverse workforce and pursues the goal of providing equal opportunity, which incorporates gender neutrality (gn). We will be happy to accept your documents without a photo.

We offer:

- A challenging and varied job in an international, dynamic and interdisciplinary research environment
- A motivated and committed team from different countries and cultures
- An open and cooperative working atmosphere
- Opportunities for personal and professional development
- Interesting, varied and challenging tasks and family-friendly working conditions
- Company pension plan (VBL)
- Company health promotion and the opportunity to participate in company fitness with EGYM Wellpass

Submission of application:

Please submit your complete application documents (cover letter, CV, references, job references, certificates and attestations) and a letter of motivation **by 15.10.2025 as a single pdf file** with the reference number **"24-STB-PB4-PD"** to Ms. Lena de Carné-Oehlmann, email: bewerbung@leibniz-zmt.de.

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