

Call for Proposals

No. 107

15 November 2024

Priority Programme “Tropical Climate Variability and Coral Reefs. A Past to Future Perspective on Current Rates of Change at Ultra-High Resolution” (SPP 2299)

In May 2020, the Senate of the Deutsche Forschungsgemeinschaft (DFG, German Research Foundation) established the Priority Programme “Tropical Climate Variability and Coral Reefs. A Past to Future Perspective on Current Rates of Change at Ultra-High Resolution” (SPP 2299). The programme is designed to run for six years. The present call invites new or renewal proposals for the second three-year funding period.

Aims and Scope of the Programme

Climate change, in particular the rise in tropical sea surface temperatures, is the greatest threat to coral reef ecosystems today and causes climatic extremes affecting the livelihood of tropical societies. In 2023–2024, record sea surface temperatures caused the fourth global coral bleaching event, the unprecedented severity of which required a revision of previously defined bleaching thresholds. Assessing how future warming will change coral reef ecosystems and tropical climate variability is therefore of extreme urgency. Ultra-high-resolution coral geochemistry provides a tool to understand the temporal response of corals and coral reefs to ongoing climate and environmental change, to reconstruct past tropical climate and environmental variability and to use these data in conjunction with advanced statistical methods, earth system modelling and observed ecosystem responses for improved projections of future changes in tropical climate and coral reef ecosystems.

The Priority Programme aims to enhance our current understanding of tropical marine climate variability and its impact on coral reef ecosystems in a warming world by quantifying climatic and environmental changes during both the ongoing warming and past warm periods on timescales relevant for society. The programme aims to provide an ultra-high-resolution past-to-future perspective on current rates of change in order to project how tropical marine climate variability and coral reef ecosystems will change in a warming world.

Successful proposals contribute to the overall scientific questions of the Priority Programme:

- Can we understand the interaction between global climate change and modes of tropical climate variability, and their combined impact on coral reef ecosystems and tropical societies in a warming world?
- Can we identify and understand rapid changes and transitions, their precursors and thresholds on seasonal, interannual and decadal timescales during the current and past

warm climates – in coral proxy records of climate and environment, coral reef ecosystems and earth system model simulations?

- Can monthly climatic and environmental information extracted from coral skeletons by novel geochemical and isotopic analysis tools, combined with advanced statistical methods, earth system modelling and observed ecosystem responses quantify rates of change to project future coral reef ecosystem and tropical marine climate change?
- What are the future risks associated with the impact of increasing tropical sea surface temperature on dominant tropical climate modes, regional climate extremes, long-term precipitation trends, tropical societies and in particular coral reef ecosystems?

Study area: global tropical to subtropical oceans.

Timescales of interest: seasonal, interannual and decadal variability.

Time intervals of interest: current anthropogenic changes, last centuries & millennium, Holocene, last interglacial(s), Pliocene, Eocene.

Methods: coral proxy reconstructions of climate & environment, coral response to stress events (geochemistry, calcification), earth system models, advanced statistical methods.

Structure of the Programme

The Priority Programme is organised around three major research topics in order to fuel interdisciplinary collaboration among various disciplines and to successfully address the overall scientific objectives:

- **Topic A:** large-scale ocean, climate & environment reconstructions
- **Topic B:** coral & reef-scale response to current environmental stress
- **Topic C:** climate, reef & proxy modelling – climate & proxy advanced statistics

For general information, details on research questions, key variables and methods of the three research topics, see the SPP 2299 website under the below mentioned link. The proposal to establish this Priority Programme can be downloaded under the link mentioned below under “Further Information”.

To foster cooperation between research topics, joint projects of two to three principal investigators are invited, which should pursue an interdisciplinary approach. **Joint projects** should focus on one common goal that is crucial for the overall objectives of the programme and that can only be achieved by synergies of the proponents involved. In addition, **focus projects** by single principal investigators are invited, which concentrate on one topic or provide specific expertise or service. Focus projects will allow in-depth study of a key topic and provide essential baseline information for other projects. Collaboration between individual focus projects and joint projects across different topics is encouraged. Independent projects by outstanding researchers in early career phases who are eligible for funding by the DFG are invited (temporary positions for principal investigators).

Under the Priority Programme, status seminars, topical meetings, teleconferences as well as sessions and workshops at international conferences will be held. In addition, the programme will actively promote researchers in early career phases by offering specific workshops and summer

schools. The programme is dedicated to equity and diversity. This includes the promotion of female researchers and measures to promote the compatibility of research and family. Anti-bias workshops are offered to all participants to promote equity and diversity.

DFG Roundtable Discussion

A DFG roundtable discussion will be held in Kiel on **15 and 16 January 2025** for invited participants and further interested researchers (if you are interested, please get in touch with the coordinator). This meeting will present the organisational structure of the Priority Programme and provide a networking opportunity for potential applicants. Please note that participation in this meeting is not mandatory for the submission of project proposals. Researchers who are interested in submitting a proposal but are unable to join this meeting are encouraged to contact the programme committee of the Priority Programme for further information (for contact details see below).

Proposal Submission

Proposals must be written in English and submitted to the DFG by **1 April 2025**. The maximum funding period is 36 months. Please note that proposals can only be submitted via elan, the DFG's electronic proposal processing system. To enter a new project within the existing Priority Programme, go to Proposal Submission – New Project – Priority Programmes and select “SPP 2299” from the current list of calls. To enter a renewal proposal, go to Proposal Submission – Proposal Overview/Renewal Proposal and select the project for which you want to submit a renewal proposal.

When preparing your proposal, please review the “Guidelines Priority Programmes” (DFG form 50.05-03/24) and “Guidelines Research Grants Programme” (DFG form 50.01-06/23). Please follow the proposal preparation instructions (DFG form 54.01-03/24) using the “Project Description – Project Proposal” template (DFG form 53.01-03/24). These forms can be accessed through the elan portal of the DFG.

Applicants must be registered in elan prior to submitting a proposal to the DFG. If you have not yet registered, please note that you must do so by **24 March 2025** to submit a proposal under this call; registration requests received after this time cannot be considered. You will normally receive confirmation of your registration by the next working day. Note that you will be asked to select the appropriate Priority Programme call during both the registration and the proposal submission process.

The DFG strongly welcomes proposals from researchers of all genders and sexual identities, from different ethnic, cultural, religious, ideological or social backgrounds, from different career stages, types of universities and research institutions, and with disabilities or chronic illness. With regard to the subject specific focus of this call, the DFG encourages female researchers in particular to submit proposals.

Further Information

More information on the SPP 2299 is available at:
www.spp2299.tropicalclimatecorals.de

The proposal to establish this Priority Programme can be downloaded at:
www.spp2299.tropicalclimatecorals.de/objectives

The elan system can be accessed at:
<https://elan.dfg.de/en>

DFG forms can be downloaded at:

Guidelines Priority Programmes (DFG form 50.05 – 03/24):
www.dfg.de/formulare/50_05

Guidelines Research Grant Programme (DFG form 50.01 – 06/23):
www.dfg.de/formulare/50_01

Proposal Preparation Instructions – Project Proposals (DFG form 54.01 – 03/24):
www.dfg.de/formulare/54_01

Project Description – Project Proposal (DFG form 53.01 – 03/24):
www.dfg.de/formulare/53_01_elan

For scientific enquiries, please contact the coordinator of phase 2:

Professor Dr. Miriam Pfeiffer, Christian-Albrechts-Universität zu Kiel, Institut für Geowissenschaften,
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And the programme committee (coordinator phase 1):

Dr. Thomas Felis, Universität Bremen, MARUM – Zentrum für Marine Umweltwissenschaften, Leobener Str. 8,
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Questions on the DFG proposal process can be directed to:

Programme contact: Dr. Ismene Seeberg-Elverfeldt, phone +49 228 885-2825,
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