Call for Proposals

No. 71 **12 October 2020**

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 proposals for the first 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. 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 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,

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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 and millennium, Holocene, last interglacial(s), Pliocene, Eocene
Methods: coral proxy reconstructions of climate and 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 and environment reconstructions
- Topic B: Coral and reef-scale response to current environmental stress
- Topic C: Climate, reef and proxy modelling – climate and proxy advanced statistics

For details on research questions, key variables and methods of the three research topics, see the proposal to establish this Priority Programme, available from the coordinator.

To foster cooperation between research topics, **Joint Projects** of two to three principal investigators, which should pursue an interdisciplinary approach, are invited. 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** with 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 Focus Projects and especially the Joint Projects. Independent projects from outstanding young scientists eligible for funding by the DFG are invited (temporary positions for principal investigators).

The Priority Programme will hold status seminars, topical meetings, teleconferences, as well as sessions and workshops at international conferences. In addition, the programme will actively promote young scientists at various stages of their careers, by specific workshops and summer schools. The programme is dedicated to the promotion of female scientists and to family friendly policies for both men and women.

Preparatory Meeting
Scientists interested in submitting a project proposal are invited to a preparatory meeting hosted by the programme committee to be held on **18 November 2020.** This meeting provides an opportunity to present the organisational structure of the Priority Programme and for networking of potential applicants. Given the current situation, this will be an online meeting using a video conferencing tool. Please note that participation in this meeting is not mandatory for the submission of project proposals. Scientists who are interested in joining this meeting are requested to register with the coordinator of the Priority Programme by **10 November 2020.**

Proposal Submission

Proposals must be written in English and submitted to the DFG by **1 March 2021.** 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/Draft Proposal – Priority Programmes and select "SPP 2299" from the current list of calls.

In preparing your proposal, please review the programme guidelines (form 50.05, section B) and follow the proposal preparation instructions (form 54.01). These forms can either be downloaded from our website or accessed through the elan portal. In addition to submitting your proposal through elan, please send an electronic copy to the programme coordinator.

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 **17 February 2021** 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 process.

Further Information

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

DFG forms 50.05 and 54.01 can be downloaded at:
www.dfg.de/formulare/50_05
www.dfg.de/formulare/54_01

For scientific enquiries please contact the Priority Programme coordinator:
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Questions on the DFG proposal process can be directed to:
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