



Tropical Climate Variability and Coral Reefs - A Past to Future Perspective on Current Rates of Change at Ultra-High Resolution

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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 (monthly, weekly) 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 recently established Priority Programme “Tropical Climate Variability and Coral Reefs - A Past to Future Perspective on Current Rates of Change at Ultra-High Resolution” (SPP 2299, <https://www.spp2299.tropicalclimatecorals.de/>) of the German Research Foundation (DFG) 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. Information on the organisational structure and research topics of this collaborative programme, which involves ten universities and five research centres from all over Germany, will be provided.

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