

Universität Bremen
Heidelberger Akademie der Wissenschaften
Alfred-Wegener-Institut für Polar- und Meeresforschung Bremerhaven

25.10.2006

To
Deutsche Forschungsgemeinschaft
Kennedyallee 40
53170 Bonn

1. General Information (Allgemeine Angaben)

New application for a research grant within the "INTERDYNAMIK" priority program of the Deutsche Forschungsgemeinschaft (DFG).

1.1 Applicant(s) (Antragsteller)

Joint Proposal (Gemeinschaftsantrag)

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- Research Scientist, current contract ends on 30 June 2008
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- Augusto Mangini, Prof. Dr.,
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1.2 Topic

Control of seasonality and interannual to centennial climate in the Caribbean during the Holocene – Combining coral records, stalagmite records and climate models

1.2 Thema

Steuerungsmechanismen von Saisonalität und zwischenjährlicher bis jahrhundertjähriger Klimavariabilität in der Karibik während des Holozäns - Korallenzeitreihen, Stalagmitenzeitreihen und Klimamodelle

1.3 Code name (reference) (Kennwort)

CaribClim

5. Preconditions for carrying out the project (Voraussetzungen für die Durchführung des Vorhabens)

5.1 Our team (Zusammensetzung der Arbeitsgruppe)

Corals (University of Bremen)

Basic staff:

Dr. Monika Segl, stable isotopes

Dr. Jürgen Pätzold, paleoceanography/coral paleoclimatology

Prof. Dr. Gerold Wefer, paleoceanography

Stalagmites (Heidelberg Academy of Sciences)

Basic staff:

Christian Mühlinghaus, modelling of stalagmites

Dr. Pablo Verdes, time series analyses

Dr. Johann Ilmberger, hydrology

Prof. Dr. Christian Sonntag, stable isotopes

Rene Eichstädter, technician

Climate models (AWI Bremerhaven)

Basic staff:

Prof. Dr. Gerrit Lohmann, paleoclimate modelling and data analysis

Dr. Claudia Kubatzki, Earth System Modelling

Wolfgang Chors, system administrator

Dr. Norel Rimbu, statistical data analysis

5.2 Cooperation with other scientists (Zusammenarbeit mit anderen Wissenschaftlern)

Prof. Dr. Gerald Haug (Geoforschungszentrum Potsdam)

- Cariaco Basin climate record

Gerald Haug has extensively studied the high-resolution climate record of the anoxic Cariaco Basin. He will support us in placing our results into the ongoing work of Holocene climate reconstructions in the Caribbean region, especially with respect to interactions between climate and past civilizations.

Corals (University of Bremen)

PD Dr. Anja Scheffers, Dr. Sander Scheffers, Prof. Dieter Kelletat (Institute of Geography, University of Duisburg-Essen)

- Bonaire coastal geomorphology

Anja Scheffers, Sander Scheffers and Dieter Kelletat have a long experience in studying fossil and modern reefs on Bonaire in the context of coastal geomorphology. They will support the paleoclimatic interpretation of the fossil Bonaire corals, especially with respect to the original environmental setting during coral growth.

Dr. Henning Kuhnert (DFG-Research Center Ocean Margins, University of Bremen)

- trace element analysis of corals/coral paleoclimatology

Henning Kuhnert has a long experience in paleoclimatic interpretations of stable isotope and trace element records generated from annually-banded reef corals, as well as in trace element analyses of coral skeleton (Sr/Ca, U/Ca) using ICP-MS techniques. Henning Kuhnert will support the analytical and paleoclimatic aspects of the proposed research with his expertise.

Dr. Martin Kölling (Department of Geosciences, University of Bremen)

- Sr/Ca analyses of corals

Martin Kölling will support the Sr/Ca analyses of coral skeleton using ICP-OES techniques with his expertise.

Dr. Michael Zuther (Department of Geosciences, University of Bremen)

- X-ray powder diffraction analyses of corals

Michael Zuther will perform X-ray powder diffraction analyses of coral skeleton and will give support to the interpretation of the results.

Stalagmites (Heidelberg Academy of Sciences)

Dr. Jesus Pajon (Department of Archeology, Havana University)

- Jesus Pajon delivers the stalagmites from Cuba, enabling this study. He is a geochemist with long experience on stable isotopes and trace elements in stalagmites. He also delivers the basic geochemical information on the locations.

Prof. Dr. Christoph Spötl (Innsbruck University)

- Christoph Spötl has a long experience with the measurement and interpretation of stable isotopes in speleothems. We have a close and successful collaboration for nearly ten years.

Members of the Forschergruppe DAPHNE

- Most members of the Forschergruppe work in Heidelberg and are very interested in the results of this Project and will participate in the discussion of the results.

Climate models (AWI Bremerhaven)

Dr. Matthias Cuntz (Australian National University)

Dr. Martin Werner (Leibniz Association, Evaluation, Bonn)

- Implementation of water isotope code, interpretation of modelled isotopic signals

Dr. Johann Jungclaus, Dr. Helmuth Haak, Dr. Stephan Lorenz (Max-Planck-Institute for Meteorology, Hamburg)

- Collaboration and support for the model ECHAM5/MPI-OM

5.3 Foreign contacts and cooperations (Arbeiten im Ausland und Kooperation mit ausländischen Partnern)

We will analyze stalagmite samples put to our disposal by Cuban scientists (MSC. Rafael Robaina and Dr. Jesus Pajon) belonging to the “Centro de Antropología, del Consejo de Ciencias Sociales, Ministerio de Ciencia, Tecnología y Medio Ambiente, Amargura 203, Habana, Cuba”

Prof. Dr. Vladimir Alexeev, University of Alaska, Fairbanks, USA, atmospheric modelling

Prof. Dr. Henk Dijkstra, Institute for Marine and Atmosphere Research, Utrecht, ocean dynamics

Dr. Gilles Ramstein, Laboire des Sciences du Climat et d'Environnement, Gif-sur-Yvette, France, Modelling of past climate changes

Dr. Keith Rodgers, Princeton University, Princeton, USA, palaeoclimate analysis and modelling

Dr. Mihai Dima, University of Bucharest, Romania, statistical analysis, climate modes

Dr. Christian Franzke, Courant Institute at New York University, USA, stochastic modelling of climate variability, atmospheric teleconnections

Dr. Gavin Schmidt, Columbia University New York, USA, palaeoclimate modelling, proxy data