

*International workshop at **GeoBremen 2017***

Tropical coral archives

Reconstructions of climate and environment beyond the instrumental record at society-relevant timescales

September 28, 2017

09:00 – 17:00, room MARUM 2070, MARUM – University of Bremen

Organization:

Thomas Felis (MARUM U Bremen), Miriam Pfeiffer (RWTH Aachen U), Jens Zinke (FU Berlin)

Scope of workshop

Shallow-water coral archives provide precisely-dated annually to monthly-resolved reconstructions of marine climate and environmental change from across the global tropics to subtropics. They are a key archive to constrain past seasonal, interannual and decadal variability – the time scales most relevant to human societies – beyond the start of systematic reef monitoring programs and instrumental observations of climate. This workshop aims at the exchange of ideas, the identification of key scientific priorities for the coming decades, and the promotion of future joint research activities, in order to understand the long-term context and impacts of future changes in the tropical to subtropical oceans, reef ecosystems, and adjacent continents.

Participants

Alyssa Atwood (UC Berkeley), **Thomas Brachert** (Leipzig U), **Will Brocas** (MARUM U Bremen), **Sri Yudawati Cahyarini** (LIPI Bandung), **Kristine DeLong** (Louisiana State U), **Nicolas Duprey** (MPI Chemistry Mainz), **Nicholas Farley** (U Geneva), **Thomas Felis** (MARUM U Bremen), **Christoph Gey** (FU Berlin), **Nikolaus Gussone** (WWU Münster), **Ed Hathorne** (GEOMAR Kiel), **Steffen Hetzinger** (U Hamburg), **Monica Ionita** (AWI Bremerhaven), **Saori Ito** (Hokkaido U), **Diego Kersting** (FU Berlin), **Martin Kölling** (MARUM U Bremen), **Laura Lehnhof** (U Bremen), **Volker Liebetrau** (GEOMAR Kiel), **Manfred Mudelsee** (CRA Heckenbeck), **Simon Müller** (U Erlangen), **Ruy Kenji Papa de Kikuchi** (U Bahia), **Miriam Pfeiffer** (RWTH Aachen U), **Markus Reuter** (U Graz), **Norel Rimbu** (AWI Bremerhaven), **Elias Samankassou** (U Geneva), **Hussein Sayani** (Georgia Tech), **Patrick Schläfli** (U Leipzig), **Philipp Spreter** (U Leipzig), **Takaaki Watanabe** (Hokkaido U), **Tsuyoshi Watanabe** (Hokkaido U), **Tianyi Wu** (U Bremen), **Atsuko Yamazaki** (Hokkaido U), **Yang Yu** (GEOMAR Kiel), **Jens Zinke** (FU Berlin)

Program

09:00-09:10	Welcome	Felis/Pfeiffer/Zinke
<u>09:10-10:15 Topic 1: PAGES 2k – what will follow?</u>		
09:10-09:30	<i>Lessons learnt from PAGES Ocean2k</i>	Jens Zinke
09:30-09:45	<i>The new PAGES CoralHydro2k project - Tropical ocean hydroclimate and temperature from coral archives of the last 2 millennia</i>	Thomas Felis
09:45-10:15	Discussion Topic 1	
10:15-10:45 TEA/COFFEE BREAK		
<u>10:45-12:00 Topic 2: Coral replication/inter- and intra-colony variability</u>		
10:45-11:00	<i>What can we learn from multi-core coral reconstructions? Are they worth the effort?</i>	Miriam Pfeiffer
11:00-11:15	<i>Intercolony $\delta^{18}O$ and Sr/Ca variability and the fidelity of coral-based climate records</i>	Hussein Sayani
11:15-11:30	<i>Lessons learned from intra- and inter-colony replication-calibration studies</i>	Kristine DeLong
11:30-12:00	Discussion Topic 2	
12:00-13:30 BREAK		
<u>13:30-14:30 Topic 3: Challenges with fossil corals</u>		
13:30-13:45	<i>The challenge of coral temperature reconstructions through glacial-interglacials - Short records, seasonal vs. mean calibrations, between-colony offsets</i>	Thomas Felis
13:45-14:00	<i>Controlling factors of Ca and Sr isotope fractionation in scleractinian corals evaluated by culture experiments and downcore records</i>	Nikolaus Gussone
14:00-14:30	Discussion Topic 3	
14:30-15:00 TEA/COFFEE BREAK		
<u>15:00-16:15 Topic 4: Environmental proxies from corals</u>		
15:00-15:15	<i>Corals as environmental change indicators - river runoff, nutrients, pollution - how well are they constrained?</i>	Jens Zinke
15:15-15:30	<i>The JCp-1 story: What one Porites coral has taught us</i>	Ed Hathorne
15:30-15:45	<i>Coral nitrogen isotopes as new tool for reconstruction of nutrient dynamics in tropical oceans</i>	Atsuko Yamazaki
15:45-16:15	Discussion Topic 4	
<u>16:15-17:00 Topic 5: Data and material sharing/Data management</u>		
16:15-16:30	<i>Collecting and sharing coral cores for international collaborative research</i>	Tsuyoshi Watanabe
16:30-17:00	Final Discussion incl. Topic 5	
19:00 DINNER		