Special CALL FOR SCIENTISTS:
Carbonate Sedimentologist with
special expertise in Crustose Coralline Algal Taxonomy
IODP Expedition 389: Hawaiian Drowned Reefs - Onshore Science Party (OSP)
6 – 26 Feb 2024, MARUM, Bremen (Germany)

An IODP Mission Specific Platform Expedition organised by the ECORD Science Operator (ESO)
www.ecord.org

DEADLINE 8 December 2023

Applications are invited from scientists in countries participating in IODP to join the Science Party for IODP Expedition 389: Hawaiian Drowned Reefs. Any scientist from an IODP member country with expertise relevant to the objectives of the proposal may apply.
Please note that this call supersedes the previous Calls for Scientists in October 2018. We are not carrying over previous applications, and we welcome fresh applications from both new and previous applicants.
The Co-chief Scientists for this Expedition are Prof. Jody Webster (University of Sydney, Australia) and Prof. Ana Christina Ravelo (University of California, Santa Cruz, USA).
The proposal upon which this expedition is based was submitted as IODP Proposal #716 'Hawaiian Drowned Reefs'. The proposal describing the primary drill sites, as well as up-to-date expedition information, can be found on the Expedition 389 webpage http://www.ecord.org/expedition389/. You may also find it useful to consult a science article on the expedition by the Co-chief Scientists and others in ECORD Newsletter #35 (Dec 2021) (pages 20-23).

Background and Objectives

The overall goal of the drilling campaign is to sample a unique succession of drowned coral reefs around Hawaii now at -134 to -1155 m below sea level. As a direct result of Hawaii's rapid (2.5- 2.6/kyr) but nearly constant subsidence, a thick (100-200 m) expanded sequence of shallow coral reef dominated facies is preserved within the reefs. These reefs span important periods in Earth climate history, either not available or highly condensed on stable (Great Barrier Reef, Tahiti) and uplifted margins (Papua New Guinea, Barbados) due to a lack of accommodation space and/or unfavourable shelf morphology. Specifically, these data show that the reefs grew (for ~90-100 kyrs, albeit episodically) into, during and out of the majority of the last five to six glacial cycles.

Therefore, scientific drilling through these reefs will generate a new record of sea-level and associated climate variability during several controversial and poorly understood periods over the last 500 kyr.

The project has four major objectives:

1. To define the nature of sea level-change in the central Pacific over the last 500 kyr, we will construct a new, more complete sea level curve from the drowned Hawaiian reefs that will allow: a) more detailed testing of Milankovitch climate theory predictions and; b) improved constraints on millennial-scale sea-level changes over the last 500 kyr.
2. To identify critical processes that determine paleoclimate variability of the central Pacific over the last 500 kyr, we will: (a) reconstruct the mean and seasonal/interannual climate variability from massive coral samples; and (b) use these records to investigate how high latitude climate (e.g., ice sheet volume), pCO2, and seasonal solar radiation impact subtropical Pacific climate. This approach can be used to test theoretical predictions of climate response and sensitivity to changes in boundary conditions and climate forcing.
3. To establish the geologic and biologic response of coral reef systems to abrupt sea-level and climate changes, we will: (a) establish the detailed stratigraphic and geomorphic evolution of the reefs in response to these changes; (b) test ecologic theories about coral reef resilience and vulnerability to extreme, repeated environmental stress over interglacial/glacial to millennial time scales; and (c) establish the nature of living and ancient microbial communities in the reefs and their role in reef building.
4. To elucidate the subsidence and volcanic history of Hawaii, we will: (a) refine the variation through space and time of the subsidence of Hawaii, and; (b) improve the understanding of the volcanic evolution of the island.

Timing

The offshore phase of the expedition took place within a from mid-August to end October 2023 (https://expedition389.wordpress.com/), with only a subset of the Science Party participating. Offshore activities focussed on core recovery, curation, sampling for ephemeral properties, microbiology, ancient DNA (aDNA), biostratigraphy, physical properties, preliminary lithostratigraphy (whole core observed at core ends and through plastic liners), and downhole logging. The cores will not be split at sea.

Subsequently, an Onshore Science Party (OSP) will be held at the MARUM - Center for Marine Environmental Sciences, University of Bremen, Germany, in 6 – 26 Feb 2024 , where the cores will be split. The OSP will be a maximum of 4 weeks long, the exact length dependent on core recovery. All members of the Science Party must attend the Onshore Science Party. Please see http://www.ecord.org/expeditions/msp/ (and linked pages within) for an overview of Mission Specific Platforms in IODP.

Expertise sought

We seek a carbonate sedimentologist with special expertise in crustose coralline algal taxonomy. Extensive skills and experience in the analysis and the paleoenvironmental interpretation of coralline algae in Quaternary fossil coral reef deposits across the Indo-Pacific, including Hawaii, is necessary. This scientist will oversee the analysis of the coralline algal deposits throughout the Exp. 389 cores, contributing to the paleo-ecologic and stratigraphic objectives, while also providing precise paleowater depths for the reconstruction of past sea level changes..

Information webinar

To learn more about the scientific objectives of this expedition, life at sea, and how to apply to participate, please watch the recorded webinar held in 2022 https://www.youtube.com/watch?v=A5mEkzZgfA0

For further details from ESO, please contact: David McInroy, ESO Science Manager, dbm@bgs.ac.uk

APPLICATION DEADLINE: 8 December 2023

WHO SHOULD APPLY: We encourage applications from all qualified scientists. ECORD is committed to a policy of broad participation and inclusion, and to providing a safe, productive, and welcoming environment for all program participants. Good working knowledge of the English language is required.

The Application Process is open to scientists in all ECORD member countries. Please download the *Apply to Sail* general application form from the ESSAC webpage:

http://www.ecord.org/expeditions/apply-to-sail/

Please, fill out all applicable fields and send the form to the ESSAC office by email (essac@ogs.it) with the following additional documents by the deadline of **8 December 2023**:

1. **A letter of interest** outlining your specific expertise, previous involvement in DSDP/ ODP/ IODP expeditions, research interests, primary research goals of your proposed participation.
2. **CV** and **publication list**.
3. **Early career researchers** must additionally provide a **letter of support** from their host institution, including information on post-cruise science support.

All applications should state how you intend to achieve your proposed scientific objectives, with information on the funding scheme and support from your institution or national funding agencies. More information can be found under: http://www.ecord.org/expeditions/apply-to-sail/

In addition to the ESSAC application, all applicants *must inform their national office or national delegate* and send them a copy of their application documents. The national offices or national delegates can also provide information regarding travel support, post-cruise funding opportunities, etc.
See http://www.ecord.org/about-ecord/about-us/ for a list of the national contact persons.

For further information or questions, please contact the ESSAC Office:

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