
Professional Development Programme

Expert Course

Foraminiferal Proxies for Palaeoceanographic Reconstructions

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MARUM – Center for Marine Environmental Sciences, University of Bremen

17 – 19 January 2024

09.00 – 13.00 hrs.

Objectives

Planktonic foraminifera are arguably the most important proxy carriers in palaeoceanography. Their skeletal remains as well as the chemical composition of their shells have provided a wealth of information about past oceans. However, the use of planktonic foraminifera as environmental indicators is far from trivial, and reconstructions may reflect a combination of environmental information, ecological preferences of the foraminifera, archive-specific biases and analytical noise. This course will provide an introduction to planktonic foraminifera and the use of both assemblage-based and chemical proxies. Lectures will provide a broad overview as well as hands-on information about the application and uncertainty of planktonic foraminiferal proxies.

Topics

- Introduction: evolution, ecology and biomineralisation of planktonic foraminifera
- Assemblage-based proxies: environmental controls on distribution, transfer function methods, caveats
- Geochemical proxies: stable oxygen and carbon isotopes, minor elements with a focus on the Mg/Ca temperature proxy, inferring salinity (seawater $\delta^{18}\text{O}$) from temperature and isotopes using paleotemperature equations
- Influence of ecology on proxy signals: effects of life cycle, depth and seasonal habitat imprints, proxy models

Methods

The course will consist mainly of presentations with two practical components:

- i) a short microscopy session, and
- ii) a simple numerical exercise with transfer functions and interpretation of sedimentary proxy signals.

Target Group

Everyone interested in the topic

Previous knowledge of planktic foraminifera is not needed

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Venue

MARUM, University of Bremen, Leobener Str. 8, 28359 Bremen, Germany
MARUM I (main) building, room 2060

Registration

To register for this course, please visit the course web page:

<https://www.marum.de/en/education-career/professional-development/2024/2024-01-17.html>

Please note that your registration will be binding.

The registration deadline for this course is **9 January 2024**.

Any enquiries regarding this event can be addressed to early-career@marum.de.