

MARUM / GLOMAR Basic Knowledge Course

Foraminiferal Proxies for Paleoceanographic Reconstructions

Dr. Heather Johnstone, Dr. Lukas Jonkers

MARUM – Center for Marine Environmental Sciences, University of Bremen

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Objectives

Planktonic foraminifera are arguably the most important proxy carriers in paleoceanography. Their skeletal remains as well as the chemical composition of their shells have provided a wealth of information about past oceans. However, 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) simple numerical exercises with transfer functions and interpretation of sedimentary proxy signals.

Location and Time

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

09.00 – 12.30 hrs.

Registration

To register for this course, please visit the [course webpage](#).

Please note that your registration will be binding.

The registration deadline for this course is **13 February 2018**.

Any enquiries regarding the course should be addressed to early-career@marum.de.