

Guided Tour 05.05.2022 Building C Room C-101

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¹⁴C dating laboratory (MICADAS)

Many areas of scientific research use radiocarbon (¹⁴C) measurements to determine the age of carbon-containing materials. In the Earth and Environmental sciences, ¹⁴C analyses are mainly used a) for age determination of paleoclimate records and b) to study carbon cycling on various spatial and temporal scales.

The MICADAS, a "**Mi**niature **Ca**rbon **Da**ting **S**ystem" installed at AWI in November 2016, is an accelerator mass spectrometer exclusively dedicated for ¹⁴C analysis.

The system is equipped with a "hybrid ion source", which allows, beside the measurement of graphitized samples, the introduction of CO_2 gas, enabling dating of very small samples (down to ~10 µg C). This allows a multitude of applications of the method in the polar and marine sciences, including the determination of ages in sediments poor in carbonate micro-fossils, compound-specific radiocarbon analysis, and development of novel methods for small samples of the important carbon pools of dissolved inorganic or organic carbon, or even CO_2 and CH_4 sampled from the environment.

During this tour, we will show our facilities, explain the advantages and disadvantages the setup comes with, and discuss our latest methods developments. We hope for lots of questions, discussions, and potentially new ideas.

http://www.awi.de/en/science/geosciences/marinegeochemistry/micadas.html