

Paleoclimate reconstructions using clumped isotope thermometry

“Join the carbonate clumped isotope group”

Department: Earth Science

Research group: Paleoclimate

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Project description

Carbonate clumped isotope thermometry is a relatively new tool in the Geosciences. The major goal of the clumped isotope group at Utrecht is to accurately reconstruct past changes in temperature and paleoclimate variability. We measure the ordering (or ‘clumping’) of ^{13}C and ^{18}O isotopes in the carbonate molecule. This solely depends on the formation temperature of the carbonate and is based on thermodynamic principles. This makes clumped isotopes potentially the ideal method for deep-time paleoclimate research and to pin down accurate paleo-seawater temperatures, but also for many other geoscientific problems.

The bright-mind student will be a fully integrated member of the clumped isotope group and will work with a new and recently installed state of the art mass-spectrometer. We work on a variety of projects and samples, related to paleoclimate research, but also on modern and on projects in collaboration with industry partners. The labwork will include preparation of samples for clumped isotope measurements (e.g. foraminifera) and the analysis on the instrument. The student will further work on data processing and the interpretation of the clumped isotope measurements and join our efforts to further improve the methodology.

Job requirements

Background and affection to statistics, isotope geochemistry and paleoceanography. The student should be motivated to work in the laboratory.