

Calibration of benthic foraminifera elemental ratios from the Northeastern Atlantic

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The geochemical composition of benthic foraminiferal tests reflects properties of surrounding water during calcification, allowing to reconstruct past variations in the chemistry and circulation of deep water masses based on the analysis of fossilized shells. The accurate calibration of these proxies is mandatory to obtain robust reconstructions of some water parameters such as temperature or carbonate ion concentration $[\text{CO}_3^{2-}]$. The present work is focused on the calibration of elemental ratios on modern benthic foraminifera from a key area for the climatic and oceanographic system: the Northeastern Atlantic Ocean. The faunal assemblages along the Bay of Biscaye BOB [1] and on the Portuguese margin PM [2] provide a high-quality study material, which covers a large range of environmental settings.

Based on core-top sediments from the BOB, the Mg/Ca and Sr/Ca ratios have been measured on 6 different species among which *Uvigerina peregrina*, *U. mediterranea* and *Hoeglundina elegans* (in aragonite). Similar Mg/Ca values are measured for living and dead specimens of *U. mediterranea*, but differences are observed for *U. peregrina*, and *H. elegans*. These differences may reflect preservation conditions. The Mg/Ca ratios seem to be positively controlled by the temperature, but the influence of the $[\text{CO}_3^{2-}]$ is not negligible for *U. peregrina*. The Sr/Ca ratios clearly covary with the temperature for *H. elegans*, whereas the Sr/Ca seems to be linked to $[\text{CO}_3^{2-}]$ for both *Uvigerina spp.*

Future analyses will allow to complete these preliminary observations. Moreover, the measurement of the U/Ca ratio as a proxy for the $[\text{CO}_3^{2-}]$ will help to decipher the role of the different environment factors on the studied proxies.

[1] Mojtahid et al. (2010) *Rev. de micropal.* **53** 139–162. [2] Dessandier et al. (2016) *JGR Biogeosc.* **121**, 1689–1714.