

# In-situ Ca isotope measurements in foraminifera

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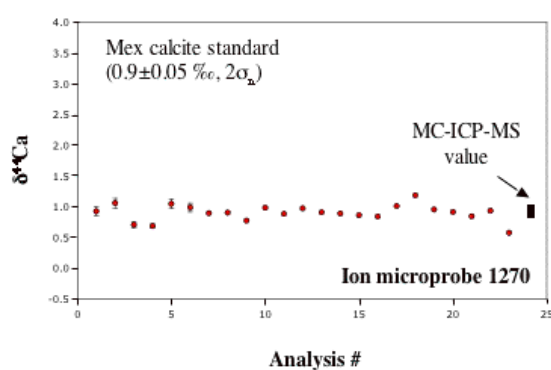
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Many studies on calcium isotopes in carbonates have been performed during the last ten years. But until now, no consensus exists on calcium isotope fractionation with temperature. For the same species slopes ranging between 0.02 ‰/°C [1] and 0.2 ‰/°C [2] are found.

Here we present a new technique for the in-situ measurements of Ca isotopes by 1270 ion microprobe. The reproducibility on calcite standards is  $\pm 0.1$  ‰ (see figure).

This technique allows us to perform multiple isotopic analyses in a single test of foraminifera. It was applied on a benthic foraminifera, *Cibicidoides*. We performed 20 in-situ analyses in one *Cibicidoides* test and we observe a  $\approx 3\%$  sinusoidal variation of the  $\delta^{44}\text{Ca}$  values from the first chamber to the last one. This variation could be due to (1) ontogenic variation of the Ca isotope fractionation, (2) to variation in the precipitation rates [3] or (3) differences between primary and secondary calcite [4]. Comparison with  $\delta^{18}\text{O}$  in-situ analyses is envisioned.



## References

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