

Simplified technique for $^{87}\text{Sr}/^{86}\text{Sr}$ measurement in limestones by MC-ICP-MS

B.PUENTE^{1*}, D.BALLESTEROS², A.PAINCHAULT³
C.NEHME², D.MOURALIS², J.I.GARCÍA-ALONSO¹

¹ Department of Physical and Analytical Chemistry/SCTs, University of Oviedo, Spain.

(*correspondence:puentebeatriz@uniovi.es, jiga@uniovi.es)

²UMR 6266 IDEES, Université of Rouen-Normandie/CNRS, Mont Saint-Aignan CEDEX, France.

(daniel.ballesteros@univ-rouen.fr, carole.nehme@univ-rouen.fr, damase.mouralis@univrouen.fr)

³Laboratoire du GRHIS EA 3831, UFR des Lettres et Sciences Humaines, Université de Rouen-Normandie, Mont-Saint-Aignan Cedex, France

(aude.painchault0@univ-rouen.fr)

Analytical procedure and preliminary results

A simplified methodology is proposed for the $^{87}\text{Sr}/^{86}\text{Sr}$ isotope ratio measurements in presence of Rb and a Ca-rich matrix composition. The method is based on an on-line cation exchange chromatography separation coupled to MC-ICP-MS detection using HNO_3 as mobile phase. Under this conditions Ca, Sr and Rb elute sequentially obtaining a chromatogram in under 20 minutes (Figure 1a.b.). Multiple linear regression is applied to the Sr peak for data processing.

This technique is being employed to correlate late cretaceous limestones from French medieval monuments and quarries. Preliminary results (Figure 1c.) in dedomolitized limestone (55% CaO, 400-550 ppm Sr and 1-2 ppm Rb) tie in with the $^{87}\text{Sr}/^{86}\text{Sr}$ curve proposed by McArthur *et al.* [1], stratigraphic, petrographic and geochemical analysis.

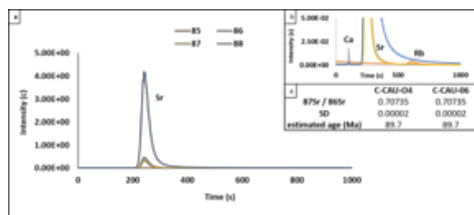


Fig1 a,b.Chromatographic separation of Ca, Sr and Rb. c. $^{87}\text{Sr}/^{86}\text{Sr}$ isotopes ratios of samples CAU-4 and CAU-6 from Caumont quarry

[1] McArthur *et al.* (1993) *Geol. Soc. London Spec.Publ* 70,195-209.