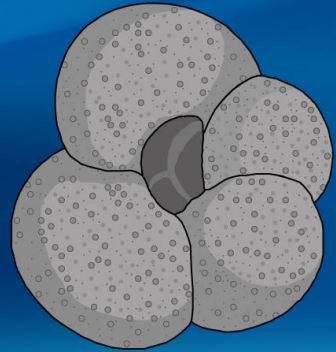




$\delta^{11}\text{B}$ determination in low [B] biocarbonates by microsublimation and MC-ICPMS with direct injection: Application

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Ruchen Tian^{2,4}, Markus Raitzsch^{2,5}, Jelle Bijma^{2,6} and Claire Rollion-Bard¹

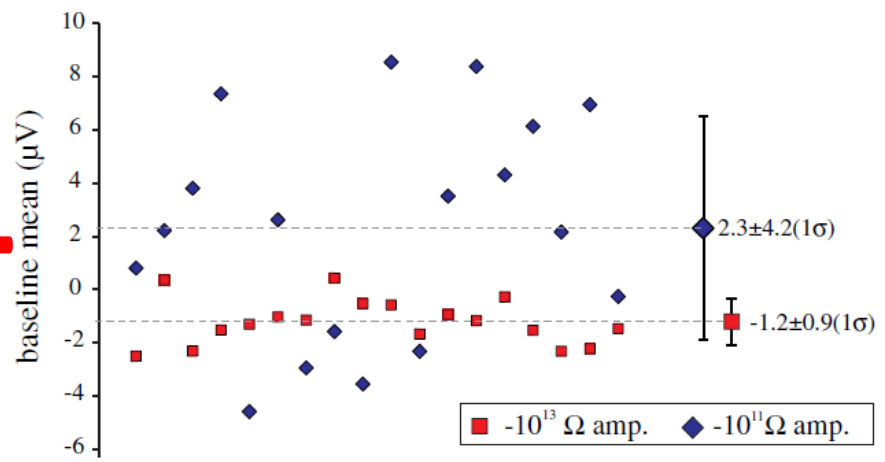
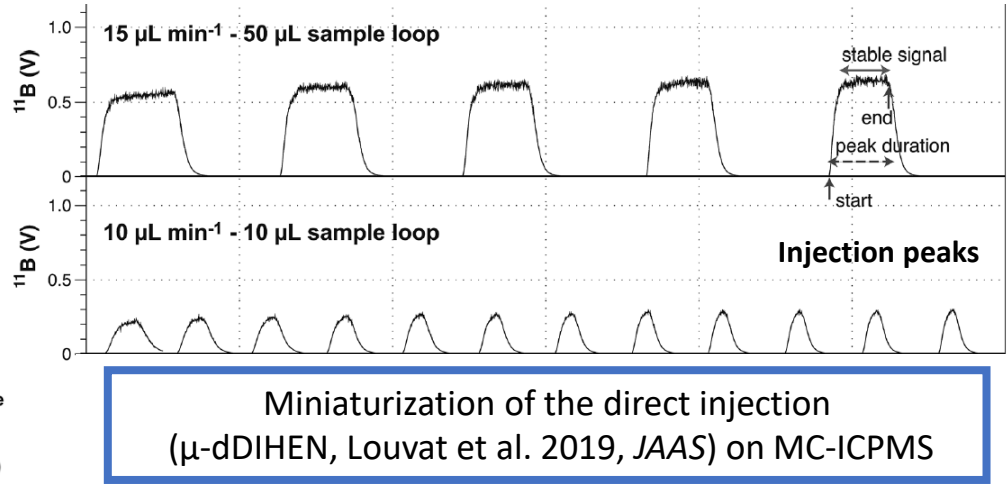
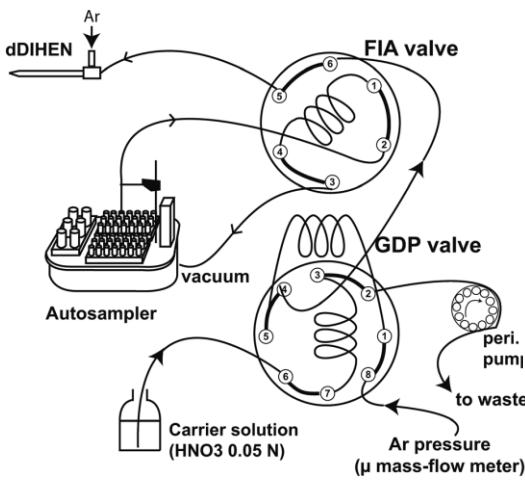
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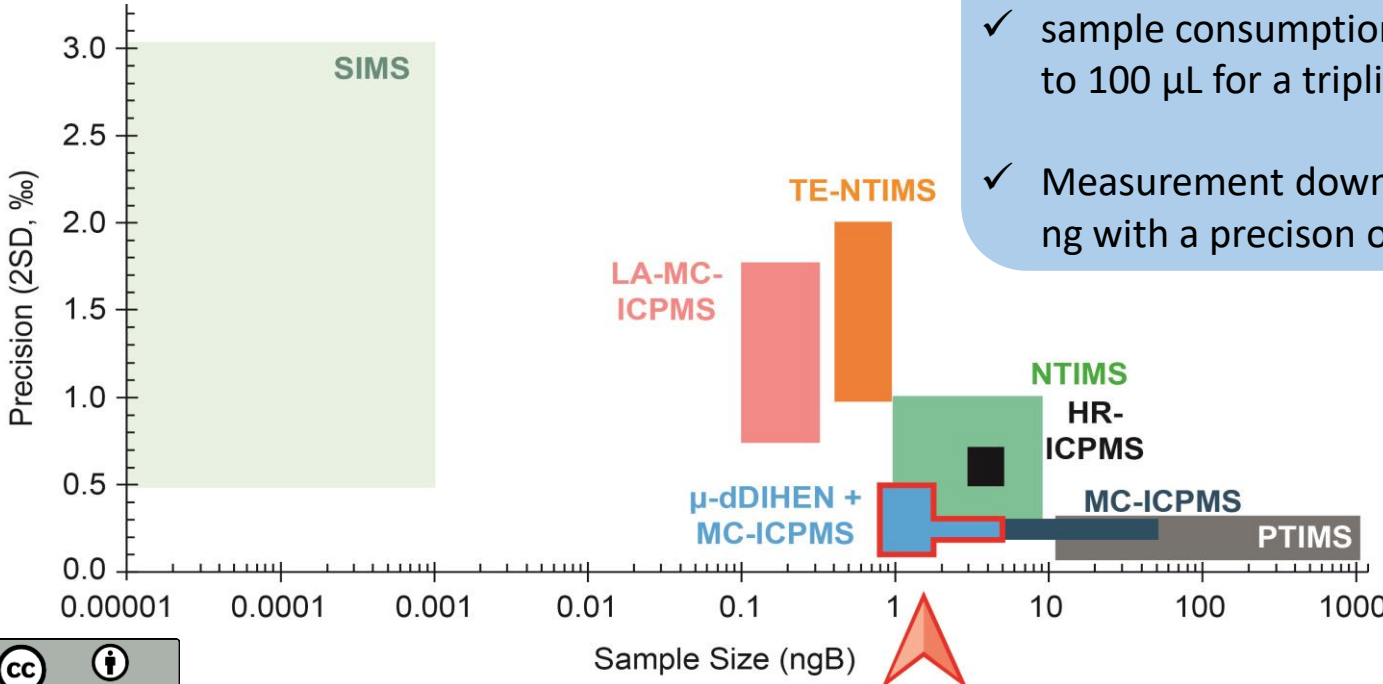
Session SSP1.5: (Bio)mineral archives of past environmental conditions: from the Precambrian to the present



Material and methods: a new protocol developped at IPGP to measure $\delta^{11}\text{B}$ in small samples at very low [B]

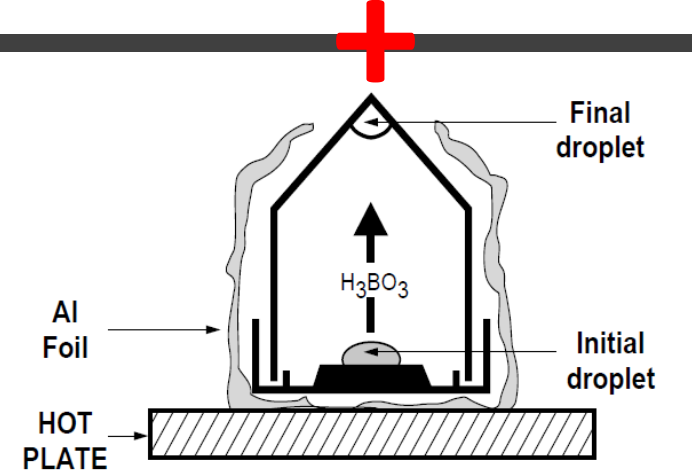


Sample size vs precision (2SD, ‰)
(modified from Foster et al. 2018, *Boron Isotope Analysis of Geological Materials*)



- ✓ Chemistry blank < 10 pgB
- ✓ sample consumption down to 100 μL for a triplicate
- ✓ Measurement down to 0.8 ng with a precision of 0.5 ‰

Improvement of the signal/noise ratio with 10¹³ Ω amplifiers (Lloyd et al. 2018, *Rapid Commun. Mass Spectrom.*)

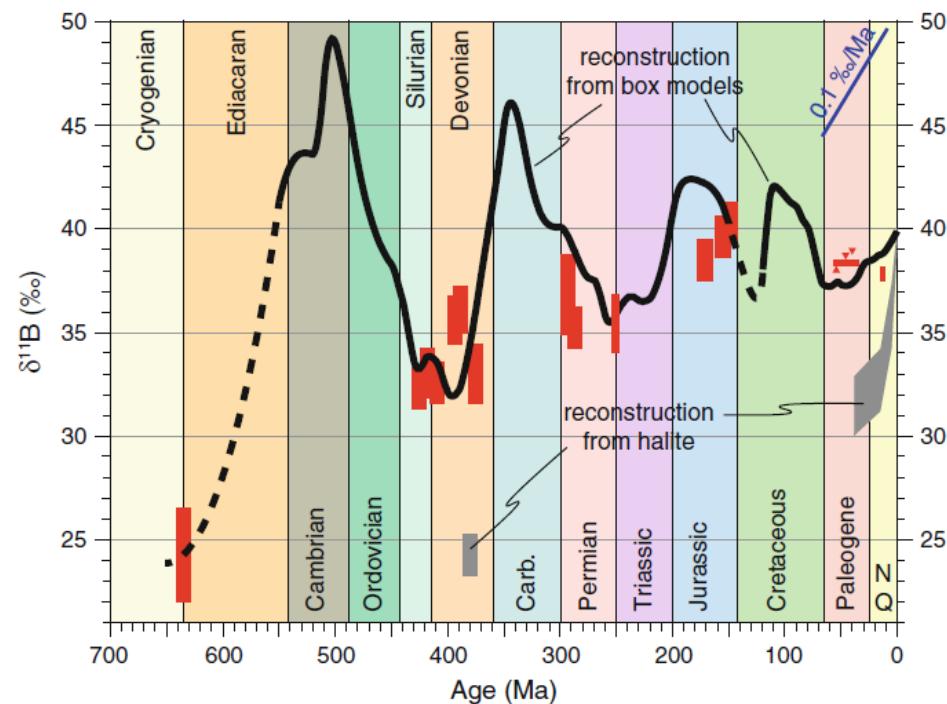


Development of the microsublimation technic to extract boron (Gaillardet et al. 2001, *GGR*)

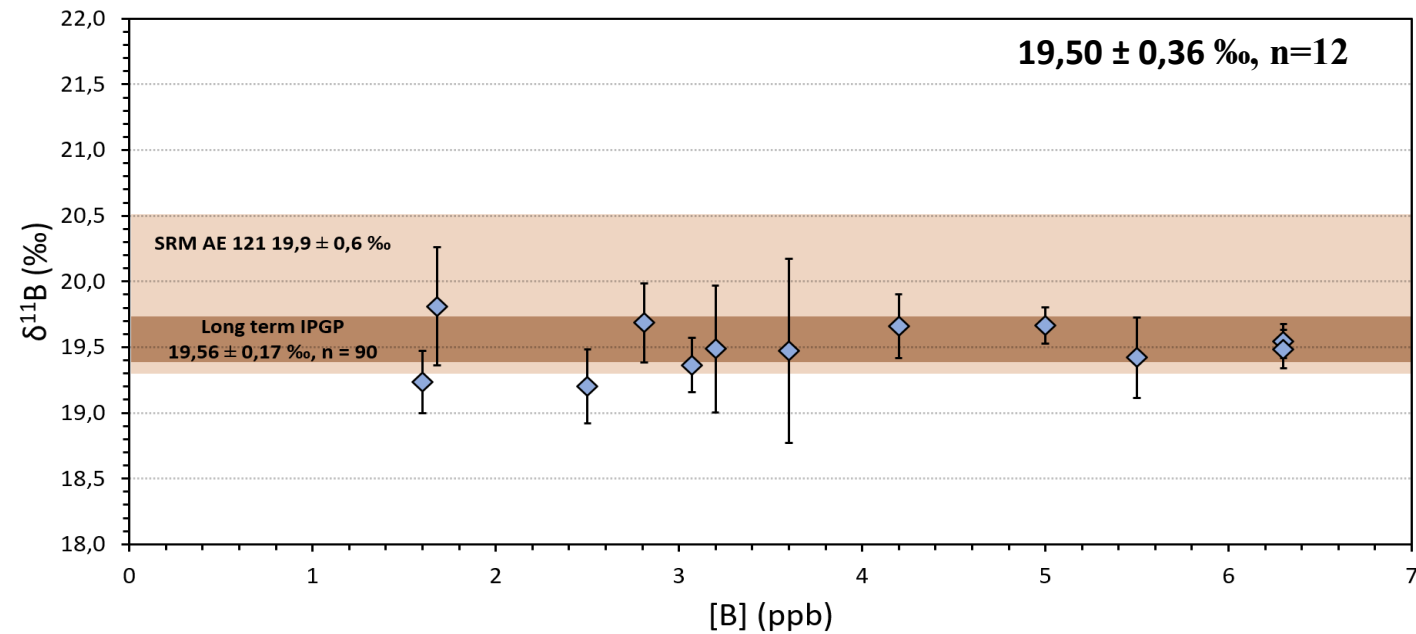
Applications: $\delta^{11}\text{B}$ in primary fluid inclusions of marine halites and in foraminifera

Development of the foraminifera cleaning protocol at IPGP and investigation on the $\delta^{11}\text{B}$ ontogenetic variability within *Globigerina bulloides* (core PS97-122, Chilean margin): comparison of three size fractions (250-315, 315-400 & >400 μm)

Reference material ERM-AE121: reproducibility at different low [B] during the foraminifera measurement sessions

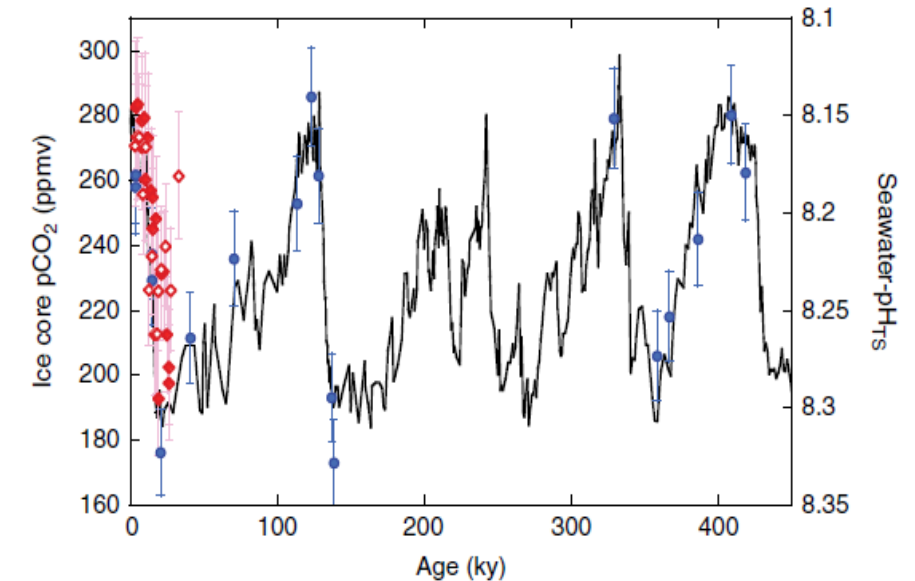


$\delta^{11}\text{B}_{\text{sw}}$ through the Phanerozoic, Marshall 2018, *Boron Isotopes in the Ocean Floor Realm and the Mantle*



$\delta^{11}\text{B}$ measurements in primary fluid inclusions of marine halites to reconstruct seawater $\delta^{11}\text{B}$ through the Phanerozoic

Paleoceanographic and paleoclimatic reconstructions across the Plio-Pleistocene



Paleo-pH estimations from $\delta^{11}\text{B}$ of planktic foraminifera in the Pleistocene (Hönisch et al. 2018, *Boron proxies in Paleoceanography and paleoclimatology*)

I am looking for a postdoctoral position by early 2021

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