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Foraminiferal boron isotope proxy for pH/atmospheric CO_2 reconstructions: evolving updates and new data

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Atmospheric carbon dioxide (CO_2) is a key environmental unknown of the geological past, but it directly links to our ability to understand Earth's climate sensitivity and the future trajectory of anthropogenic climate change. The boron isotope ($\delta^{11}B$) proxy is one of the most reliable for past CO_2 reconstructions[1]. Over the past 1.5 years we have been leading an effort to align the international $\delta^{11}B$ community and develop consensus of best practices for analytical methods, data processing and utilization guidelines. Here we will summarize our key conclusions and present our evolving synthesis of $\delta^{11}B$ derived, seawater pH and atmospheric CO_2 over the Phanerozoic, with implications for long term and short term carbon-climate links. In light of the current developments with the $\delta^{11}B$ proxy, new data from the late Eocene and Oligocene will be discussed. This work is partly supported by PAGES.

[1] IPCC, 2021*: WG I, AR6,* Cambridge University Press.