

The effect of growth rate on trace elements and isotopes in coral skeletons

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The trace element composition of coral skeletons is commonly used as a proxy of past environments, where tracers like Sr/Ca, Li/Mg, $\delta^{13}\text{C}$, $\delta^{18}\text{O}$ and stable strontium isotopes ($\delta^{88/86}\text{Sr}$), can potentially provide information about oceans of the past¹⁻³. A number of studies has determined that the trace element composition of aragonite is affected by the growth rate of the mineral. In coral skeletons, it has also been demonstrated that the zones of fast and slow growth rate have different trace element composition⁴. We therefore expect that fast- and slow-growing corals show differences in their trace element and isotopic composition. Here, we identified coral genera and species that grow at different rates and analyzed trace elements and isotopes, to explore and identify new proxies for coral growth rate, which can be used in modern and fossil corals.

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