



Assessment of paleothermometry using coral microatolls: Record from Bora Bora, French Polynesia.

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The importance of this work for the coral paleo-community is that it provides an independent assessment of the newly proposed paleothermometry techniques and directly compares with long relied upon Sr/Ca and $\delta^{18}\text{O}$ temperature proxies. As part of a collaborative project, we are using modern *Porites* microatoll corals from French Polynesia to calibrate methods in temperature reconstructions. For this purpose, we compare the geochemical signals - specifically $\delta^{18}\text{O}$, Sr/Ca, Mg/Ca, Ba/Ca, Li/Ca, U/Ca and B/Ca - obtained from coral skeleton with instrumental data (MeteoFrance and satellite) to independently test the accuracy and reliability of the methods currently used for temperature reconstructions. These include the recently proposed Sr-U thermometer proposed by DeCarlos et al. (2016) and the Li/Mg thermometer proposed by Hathorne et al. (2013) and developed by Montagna et al. (2014). Data presented will focus on two *Porites* coral from Bora-Bora (each five years long) for which the most instrumental data are available. Analyses were conducted at monthly resolution using ICP-OES and ICP-MS for the element to Ca ratios and a GasBench II for C and O isotopes. Current results indicate that Sr/Ca and $\delta^{18}\text{O}$ best correspond with the instrumental data. We are also applying these methods to different islands from French Polynesia with ultimate aim to calibrate our methods for environmental reconstructions using *Porites* microatolls back in time (Farley et al., this volume).

References

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