



***Tarbellastraea*: a new archive for paleoenvironmental research**

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Low-diversity coral associations from the Miocene of Crete, ranging in age from the Tortonian to the Early Messinian, are dominated by the genera *Porites* and *Tarbellastraea*. Growth rates of massive *Porites* and *Tarbellastraea* were 4 mm/yr indicating stable sea surface temperatures (SST). Coral faunas from Crete are exceptional because many specimens have retained their original aragonite mineralogy, microstructure and skeletal porosity, the basic prerequisite for stable isotope analyses and paleoenvironmental reconstructions. For this study, we selected massive *Tarbellastraea* to complement $\delta^{18}\text{O}$ and $\delta^{13}\text{C}$ data from *Porites*. Not only *Porites*, but also *Tarbellastraea* was sampled for $\delta^{18}\text{O}$ and $\delta^{13}\text{C}$ with a quarterly resolution. $\delta^{18}\text{O}$ and $\delta^{13}\text{C}$ exhibit cyclic signals corresponding to the density banding visible in X-ray photographs. Maxima in $\delta^{18}\text{O}$ coincide with high-density bands, minima with low-density bands. Coral $\delta^{13}\text{C}$ values also show correlations with the density bands, but are systematically phase-shifted relative to $\delta^{18}\text{O}$. The mean $\delta^{18}\text{O}$ values and mean $\delta^{18}\text{O}$ seasonality of *Tarbellastraea* are compatible with those of *Porites* of same age and locality, respectively. The new data confirm a trend towards more positive $\delta^{18}\text{O}$ (or high salinity) in the Eastern Mediterranean Sea during the late Miocene prior to the Messinian salinity crisis (Mertz-Kraus et al. 2006). Our results imply that *Tarbellastraea* can provide relevant data for the reconstruction of environmental conditions in the Miocene and can, therefore, make important contributions to shallow water paleoceanography.

Mertz-Kraus R., et al. (2006) International Society for Reef Studies, 6th European Meeting Bremen, Programme and Abstracts, 170.