

ABSTRACT

Records of Sr/Ca Mg/Ca Ba/Ca and $\delta^{18}\text{O}$ in modern *Porites* Microatolls have been used to reconstruct sea-surface temperature (SST) of Society Islands in French Polynesia. The signal calibration was obtained using the Optimum Interpolation Sea Surface Temperature (OISST) dataset determined to be the most representative of the sea-surface temperature of the region. The Sr/Ca ratio appears as a reliable and representative proxy of SST variations, both at large scale (pluri-annual) and small scale (interannual). Although it is also dependent on seawater salinity, $\delta^{18}\text{O}$ signal also records the main seasonal temperature variations.

On a monthly scale, the average of Sr/Ca records of the three microatolls shows a better correlation with OISST than Sr/Ca records of each individual microatolls. This observation is also true for $\delta^{18}\text{O}$ signals. Thus, SST reconstruction from multi-coral records gives a better reliability and representation of SST variations of the Society Islands. The regression equations provided in this study can be used as reconstruction tools of paleo-SST from fossil microatolls.