



Seasonally resolved Mid-Holocene paleoclimate records derived from fossil giant clam shells (*Tridacna squamoza*) a calibration study and contribution to a global coral and bivalve database.

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Fossil shells of marine bivalves such as giant *Tridacna* provide information on past environments with seasonal resolutions. Similarly to corals, changes in mean seasonal cycles and inter-annual variability can be reconstructed by sequentially analyzing the annual layers of calcium carbonate. Previous inter-comparison studies conducted on modern material have shown that seasonally resolved records derived from marine bivalves (*Tridacna gigas*) and corals (*Porites*) provide similar information. This step has been necessary in order to combine these data sets into global databases. In this study, we have conducted a new calibration study of modern *Tridacna squamosa* which have been collected in several localities around Indonesia. Stable isotope (δ -18O) and trace element profiles (Mg/Ca, Ba/Ca) have been measured and compared to local hydrology : sea surface temperature, rainfall and productivity. Mg/Ca and SST exhibit a clear linear relationship with similar equations regardless of the area of sampling. Additionally, comparison of measured and estimated δ -18O confirm that this species precipitates their shells in isotopic equilibrium. The results from the calibration experiments are used to compare modern and fossil samples collected from Belitung Island located in the heart of the Java Sea. Our study shows that the mid-Holocene period, around 6ka, was slightly colder (mean temperature difference was 1°C) and lower salinity compared to modern conditions. These results are compared to model studies and other coral based data collected from locations further North in the South China Sea which show a northward displacement of the Intertropical Convergence zone during this period increasing rainfall rates over land and reducing precipitation in the Southern region of the South China Sea. We will finally illustrate how these data will be integrated in a global data base that is being compiled for the Holocene period and can serve for future data – model inter-comparison studies.