



Comparaison of last centuries variability in the eastern and central Pacific reconstructed from massive coral geochemical tracers

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The tropical Pacific is under the influence of different climate modes (from the seasonal to the decadal scale) and, through teleconnections, affects the global climate. At the seasonal scale the latitudinal migration of the Intertropical Convergence Zone (ITCZ) drive the hydrological dynamic of the tropical zone. The tropical Pacific is also a place of strong and variable zonal gradients due to the El Niño Southern Oscillation phenomenon (ENSO) at the interannual scale. A good amount of data is available in the western and the central part of the Pacific to reconstruct climatic parameters such as sea surface temperature (SST) and sea surface salinity (SSS) while there is a striking lack of data in the eastern part. To better estimate the zonal gradients in the tropical Pacific and the different climatic processes in the last two centuries, we present geochemical results (Sr/Ca and $\delta^{18}\text{O}$) obtained from aragonitic coral skeletons (*Porites* genus) from Clipperton atoll (10°N, 109°W) and the Marquesas Islands (10°S, 140°W). Clipperton being the only atoll located in the northern part of the ITCZ latitudinal migration area, information about eastern Pacific hydrological cycle and advection can be obtained. On the other hand, the precise chronology of the Clipperton coral and the comparison with the records from the Marquesas Islands allows us to calculate SST gradients between the eastern and central Pacific. We will discuss about the recent theory of an El Niño-like condition triggered by a slowdown of the equatorial Walker circulation under global warming. We will also discuss about the evolution (frequency and intensity) of the two different “flavours” of El Niño (e.g. the canonical eastern El Niño and the central El Niño Modoki) through the 20th century. Indeed the canonical El Niño is characterised by a maximum SST anomaly in the eastern Pacific while the El Niño Modoki is characterised by a maximum SST anomaly persisting in the central Pacific. A better comprehension of the evolution of the both kind of El Niño is a major issue because each of them have distinct global impacts.