



## **Sea surface temperature derived coral Sr/Ca ratios from western Pacific Warm Pool and central Pacific**

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Sea surface temperature (SST) is known to be one of the most important parameters in climate variability. Many studies shows that Sr/Ca in coral aragonite is solely influenced by SST, therefore Sr/Ca is a promising temperature proxy for reconstructing past climate variations. The western Pacific Warm Pool and central Pacific are the best places to study climate phenomena such as the El Nino Southern Oscillation (ENSO). In this study, corals from the tropical Pacific Warm Pool (Kupang, Timor Island Indonesia) and from the central tropical Pacific (Tahiti, French Polynesia) were drilled and analyzed for the Sr/Ca ratio. The SST is reconstructed based on the instrumental SST vs. coral Sr/Ca regression equation. The monthly variation of the single Sr/Ca records correlates well with SST. The average Sr/Ca records from several coral cores provide better correlation with SST. The annual variation of Sr/Ca from single records show low correlation with SST, but higher correlation between annual Sr/Ca vs. SST are achieved by averaging the Sr/Ca records. The Sr/Ca vs SST calibration is also done by averaging the proxy from Tahiti and a published records Rarotonga. Averaging Sr/Ca records from different colonies, different locations and still have the same climatic impact result in better correlation coefficients, low reconstructed SST's variance as well as low residual SST. It is suggested that reconstructing SSTs from average proxy records from different locations can better approximate the large scale grid SST.