

Environmental reconstruction in the Southwestern Pacific by fossil corals obtained from IODP Exp. 325

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Sea-level during the Last Glacial Maximum (LGM) has been observed as much as ca. 130 m below its present value for sites remote from former ice sheet (far-field sites). Regions far from areas of previous glaciation are sensitive to glacial meltwater influx and have therefore provided useful constraints on the temporal variation and magnitude of this influx from the LGM to the present day. Fossil coral records contain evidence of a dramatic sea level rise in excess 20 m within the last deglaciation, termed meltwater pulse 1A (mwp-1A). Although this event would have had a significant effect on global climate, the relationship between mwp-1A and the climate system remains a subject of debate. In addition, climatic variations such as seasonality and/or an El Nino/Southern Oscillation (ENSO) variation during Holocene and the LGM have been still open to question, especially in tropical to sub-tropical regions. IODP Great Barrier Reef Environmental Changes Expedition (Exp. 325) collected coral samples which covered around the LGM to the early Holocene. In this study, geochemical tracers, such as $\delta^{18}\text{O}$, Sr/Ca and Mg/Ca, contained in skeletons of fossil corals were analyzed and we will discuss past marine environments in the Southwestern Pacific reconstructed by fossil corals.

Keywords: IODP, Great Barrier Reef, coral, climate change