

## Climate Extremes of the Western Pacific Warm Pool

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Today, the Western Pacific Warm Pool (WPWP) is a stable body of warm water because of the strong Trade Winds and constricted ocean circulation due to the narrow Indonesian sea passage. This study's focus was to compare the WPWP structure between interglacial times, like today, and the last glacial maximum (LGM) 18,000 years ago when sea level was much lower, and ocean and atmospheric circulation were stronger. This study was also conducted to determine if there was an increase in primary production during the glacial period as observed elsewhere in the ocean. Two levels of Ocean Drilling Program Hole 806B were analyzed: the LGM and the penultimate interglacial period about 125,000-130,000 years ago. In each sample, population structure of planktonic foraminifera (single celled protists with a carbonate shell) and multi-species discrete size fraction stable isotope analyses were conducted. During glacial and interglacial periods, planktic species generally follow the same isotopic pattern from juvenile to adult. Stable isotopic analyses show a shift in  $\delta^{18}\text{O}$  toward the heavier values during the LGM reflecting greater ice volume and perhaps cooler surface water temperatures in the tropics. There is also a shift towards heavier  $\delta^{13}\text{C}$  values indicating higher productivity in surface waters during the LGM. In the population analyses, *Neogloboquadrina dutertrei* is much more common in the LGM sample. This tropical high productivity species indicates greater oceanic divergence at the equator. Therefore, both the population structure and the carbon isotope analyses indicate that productivity was higher during the LGM.