

# Exploring Coral Skeletal $\delta^{18}\text{O}$ as a Tracer of Past Tropical Cyclone Thermal Wakes

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## **Abstract:**

In this pilot project I am proposing to use coral skeletal  $\delta^{18}\text{O}$  from sequential samples milled at either 0.1 or 0.2mm intervals to search for evidence of tropical cyclone thermal wakes in Fiji, Tonga and American Samoa. Tropical cyclones generate anomalously cool thermal wakes that are ~200km wide and up to 5°C cooler than surrounding sea surface temperature (SST). Although the temperature anomalies in the wakes peak several days after the storm passes and dissipate over several weeks, certain rapidly growing corals should be able to record these thermal events if sampled at high enough resolution. I am currently targeting cyclones Kina (1993 category 2), Cora (1999 cat. 2) in Fiji and Tonga, and cyclones Urmil (2006 cat. 1), Vaianu (2006 cat. 1), Percy (2005 cat. 5), Nancy (2005 cat. 5) and Val (1991 cat. 4) in Samoa. If we can successfully document cyclone impacts then we can potentially begin the development of longer-term records to document past variability in cyclone frequency at different sites.