

Paul Quay (U. Washington)- Statement of Interest for GEOTRACES Expedition in S. Pacific Ocean

Objectives: Improving our understanding of the ocean processes that control the distribution of dissolved inorganic carbon (DIC), $\delta^{13}\text{C}$ of DIC, nutrients and biologically active trace elements in the ocean. Understanding these processes in the modern ocean will improve our ability to use $\delta^{13}\text{C}$ and trace element measurements in the sedimentary record as tracers of past changes in the ocean circulation and carbon cycling.

Fit with GEOTRACES Goals: The proposed research addresses two basic goals of the GEOTRACES program. First, to determine global ocean distributions of selected trace elements and isotopes and evaluate the sources, sinks, and internal cycling of these species to characterize more completely the physical, chemical and biological processes regulating their distributions. Second, to understand the processes that control the concentrations of geochemical species used for proxies of the past environment.

Planned Measurements: I would like to participate in the first (southward) leg of the two GEOTRACES cruises in the S. Pacific. I plan to measure the depth distribution of the $^{13}\text{C}/^{12}\text{C}$ of the dissolved inorganic carbon (DIC). The $\delta^{13}\text{C}$ -DIC has been designated a *key parameter* with the highest measurement priority in GEOTRACES.