

Analogous Response of the North Pacific Intermediate Water to 20th Century and Glacial Age Climate Changes.

Dr. Guillermo Auad

Scripps Institution of Oceanography - UCSD
guillo@ucsd.edu 858-822-1564

Dr. James P. Kennett

University of California, Santa Barbara
kennett@geol.ucsb.edu 805-893-3103

Dr. Arthur J. Miller

Scripps Institution of Oceanography - UCSD
ajmiller@ucsd.edu 858-534-8033

Abstract: Using observations of salinity, oxygen and nitrates along with an isopycnal ocean model, we investigate the response of the North Pacific intermediate water (NPIW) to the 1976-1977 regime shift. The model reasonably reproduces the NPIW, e.g., geographical location, depth, potential temperature and salinity. Its changes during that regime shift are compared to much larger, and also abrupt, changes in oceanic conditions that characterized the termination of the last glacial period about 16,000 years ago (as found in the literature). It is suggested that both climate shifts (small and large) induce similar qualitative changes in the NPIW. Several analogies between glacial age termination climate changes and the relatively smaller 1976-1977 climate shift will be presented. For instance, in both epochs, changes in the trade winds, the development of a poleward current along the basin's eastern boundary, among a few other features, preceded warming episodes off California. Implications for the oceanic environment off California, will be analyzed and discussed.