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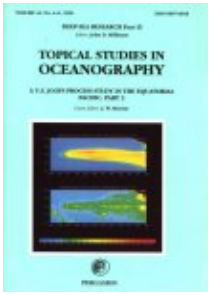
A U.S. JGOFS Process Study in the Equatorial Pacific, Guest Edited by J.W. Murray



Equatorial Pacific Carbon Cycle: A two-part special issue (Volume 42, Issue 2-3 and Volume 43, Issue 4-6) has been prepared summarizing the results from the JGOFS Process Study (EqPac) in the central and eastern equatorial Pacific. Most of the papers are from the US JGOFS study but the France and Australia JGOFS studies are also represented. The purpose of this study was to determine the fluxes of carbon and related elements, and processes controlling those fluxes, between the euphotic zone and the atmosphere and deep ocean. The US JGOFS study was conducted in 1992 and consisted of survey and time series cruises designed to observe a wide range of temporal and spatial scales. The dominant oceanographic event during this period was the 1991-1992 El Niño.

The equatorial Pacific plays an important role in the global carbon cycle. Because of upwelling, the CO_2 in the surface water is high and this region is the ocean's largest source to the atmosphere. It may also contribute a significant fraction of the ocean's new production. The magnitude of these fluxes varies interannually in association with the El Niño Southern Oscillation (ENSO). At the same time, it is considered a high nutrient-low chlorophyll (HNLC) regime, which means that the fluxes are low for the nutrient levels present. The record of how these fluxes changed in the past is preserved in the underlying sediments.