



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<sub>2</sub> 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.

D. E. Harrison -- Vertical velocity in the central tropical Pacific: a circulation model perspective for JGOFS -- 687-705

Donald V. Hansen and Mark S. Swenson -- Mixed layer circulation during EqPac and some thermochemical implications for the equatorial cold tongue -- 707-724

Marie-Hélène Radenac and Martine Rodier -- Nitrate and chlorophyll distributions in relation to thermohaline and current structures in the western tropical Pacific during 1985-1989 -- 725-752

Eric S. Johnson -- A convergent instability wave front in the central tropical Pacific -- 753-778

D. E. Archer et al. -- Daily, seasonal and interannual variability of sea-surface carbon and nutrient concentration in the equatorial Pacific Ocean -- 779-808

Robert R. Bidigare and Michael E. Ondrusek -- Spatial and temporal variability of phytoplankton pigment distributions in the central equatorial Pacific Ocean -- 809-833

Francisco P. Chavez, Kurt R. Buck, Susan K. Service, Jan Newton and Richard T. Barber -- Phytoplankton variability in the central and eastern tropical Pacific -- 835-870

Michael R. Landry, Julie Kirshtein and John Constantinou -- Abundances and distributions of picoplankton populations in the central equatorial Pacific from 12°N to 12°S, 140°W -- 871-890

Michele D. Durand and Robert J. Olson -- Contributions of phytoplankton light scattering and cell concentration changes to diel variations in beam attenuation in the equatorial Pacific from flow cytometric measurements of pico-, ultra- and nanoplankton -- 891-906

Brian J. Binder, Sallie W. Chisholm, Robert J. Olson, Sheila L. Frankel and Alexandra Z. Worden -- Dynamics of picophytoplankton, ultraphytoplankton and bacteria in the central equatorial Pacific -- 907-931

Richard T. Barber et al. -- Primary productivity and its regulation in the equatorial Pacific during and following the 1991-1992 El Niño -- 933-969

William M. Balch and Katherine Kilpatrick -- Calcification rates in the equatorial Pacific along 140°W -- 971-993

Steve E. Fitzwater, Kenneth H. Coale, R. Michael Gordon, Kenneth S. Johnson and Michael E. Ondrusek -- Iron deficiency and phytoplankton growth in the equatorial Pacific -- 995-1015

Erik R. Zettler et al. -- Iron-enrichment bottle experiments in the equatorial Pacific: responses of individual phytoplankton cells -- 1017-1029

- Chai Fei, Steven T. Lindley and Richard T. Barber -- Origin and maintenance of a high nitrate condition in the equatorial Pacific -- 1031-1064
- James J. McCarthy, Chris Garside, John L. Nevins and Richard T. Barber -- New production along 140°W in the equatorial Pacific during and following the 1992 El Niño event -- 1065-1093
- James W. Murray et al. -- Export flux of particulate organic carbon from the central equatorial Pacific determined using a combined drifting trap-<sup>234</sup>Th approach -- 1095-1132
- M. P. Bacon, J. K. Cochran, D. Hirschberg, T. R. Hammar and A. P. Fler -- Export flux of carbon at the equator during the EqPac time-series cruises estimated from <sup>234</sup>Th measurements -- 1133-1153
- Edward T. Peltzer and Nancy A. Hayward -- Spatial and temporal variability of total organic carbon along 140°W in the equatorial Pacific Ocean in 1992 -- 1155-1180
- Peter J. Hernes, John I. Hedges, Michael L. Peterson, Stuart G. Wakeham and Cindy Lee -- Neutral carbohydrate geochemistry of particulate material in the central equatorial Pacific -- 1181-1204
- Pyo Chung Sung, Wilford D. Gardner, Mary Jo Richardson, Ian D. Walsh and Michael R. Landry -- Beam attenuation and micro-organisms: spatial and temporal variations in small particles along 140°W during the 1992 JGOFS EqPac transects -- 1205-1226
- Peter G. Verity, Diane K. Stoecker, Michael E. Sieracki and James R. Nelson -- Microzooplankton grazing of primary production at 140°W in the equatorial Pacific -- 1227-1255
- James M. Watkins, Alan C. Mix and June Wilson -- Living planktic foraminifera: tracers of circulation and productivity regimes in the central equatorial Pacific -- 1257-1282
- Jack Dymond and Robert Collier -- Particulate barium fluxes and their relationships to biological productivity -- 1283-1308
- Craig R. Smith et al. -- Phytodetritus at the abyssal seafloor across 10° of latitude in the central equatorial Pacific -- 1309-1338
- R. H. Pope, D. J. Demaster, C. R. Smith and H. Seltmann Jr -- Rapid bioturbation in equatorial Pacific sediments: evidence from excess <sup>234</sup>Th measurements -- 1339-1364
- D. E. Hammond, J. McManus, W. M. Berelson, T. E. Kilgore and R. H. Pope -- Early diagenesis of organic material in equatorial Pacific sediments: stoichiometry and kinetics -- 1365-1412
- Leigh A. Welling, Nicklas G. Pisias, Eric S. Johnson and Jacques R. White -- Distribution of polycystine radiolaria and their relation to the physical environment during the 1992 El Niño and following cold event -- 1413-1434
- N. R. Bates, A. F. Michaels and A. H. Knap -- Seasonal and interannual variability of oceanic carbon dioxide species at the U.S. JGOFS Bermuda Atlantic Time-series Study (BATS) site -- 1435-1435