Event Logs for CTD data from R/V Seward Johnson and R/V Knorr cruises collected in the Tropical Eastern Pacific from 2007-2009 (ETP project)

Website: https://www.bco-dmo.org/dataset/652580
Data Type: Cruise Results
Version: final
Version Date: 2016-07-25

Project
» Collaborative Research: Zooplankton in the Redoxcline of the Cariaco Basin: Impact on Biogeochemical Cycling (ETP)

Program
» Ocean Carbon and Biogeochemistry (OCB)

Contributors	Affiliation	Role
Daly, Kendra L.	University of South Florida (USF)	Principal Investigator, Contact
York, Amber D.	Woods Hole Oceanographic Institution (WHOI BCO-DMO)	BCO-DMO Data Manager

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Coverage

Spatial Extent: **N**:13.127667 **E**:-89.93982 **S**:8.92533 **W**:-105.50618
Temporal Extent: 2007-10-15 - 2008-12-30

Dataset Description

Event log data are from cruises :
KN195-02: Eastern Tropical Pacific CTD Event Log: 8 December 2008 - 6 January 2009
SJ07: Eastern Tropical Pacific CTD Event Log: 18 October - 17 November 2007

Related datasets:
CTD data - Eastern Tropical Pacific
Chlorophyll a data

Data Processing Description

BCO-DMO Processing Notes:
Station for event K08.033 was changed to 1 where blank, with PI validation.

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Data Files

File
etp_event_logs.csv (Comma Separated Values (.csv), 16.05 KB) MD5:597fc9136b980a3df413b78bc3e221c9 Primary data file for dataset ID 652580

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Parameters

Parameter	Description	Units
event	event number	unitless
instrument	instrument and deployment type	unitless
castno	cast number	unitless
station	station number	unitless
action	Activity performed with an instrument (start or end)	unitless
month_local	Month (local) when event occurred.	unitless
day_local	Date (local) when the event occurred.	unitless
time_local	Time (local) when the event occurred; in format hh:mm.	unitless
lat	Latitude in decimal degrees at the time the event occurred. North = positive.	decimal degrees
lon	Longitude in decimal degrees at the time the event occurred. East = positive.	decimal degrees
depth_w	Water depth	meters
depth_n	Nominal depth of sample.	meters
si	Scientific investigator responsible for log entry	unitless
ISO_DateTime_UTC	Date/Time (UTC) formatted to ISO 8601 standard.	unitless
comment	comments	unitless

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Deployments

SJ07

Website	https://www.bco-dmo.org/deployment/651160
Platform	R/V Seward Johnson
Start Date	2007-10-18
End Date	2007-11-17
Description	Cruise from Panama City to Panama City Figure 1. Station locations in the eastern tropical north Pacific overlaid on a MODIS (Moderate-resolution Imaging Spectroradiometer) image of ocean color during October 2007. Image courtesy of Inia Soto (USF). SJ07 Cruise Summary (ROSCOP)

KN195-02

Website	https://www.bco-dmo.org/deployment/651161
Platform	R/V Knorr
Start Date	2008-12-08
End Date	2009-01-06
Description	Figure 1. Station locations in the eastern tropical north Pacific overlaid on a MODIS (Moderate-resolution Imaging Spectroradiometer) image of ocean color during December 2008. Image courtesy of Inia Soto (USF). KN195-02 Cruise Summary (ROSCOP) See additional information from R2R: https://www.rvdata.us/search/cruise/KN195-02

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Project Information

Collaborative Research: Zooplankton in the Redoxcline of the Cariaco Basin: Impact on Biogeochemical Cycling (ETP)

Coverage: Eastern tropical Pacific

This project aims to characterize the spatial and interannual variability of physical, chemical, and biological properties between low productivity and high productivity regions of the eastern tropical Pacific. In particular, we will investigate the physiology of bacteria, phytoplankton, and zooplankton and food web interactions in relation to the oxygen minimum zone. Our results also will provide information on how marine carbon and nitrogen cycles are modified in suboxic regions of the ocean. Measurements include: ADCP, temperature, salinity, O2, pH, total DIC, fCO2, nutrients, CDOM, POC/N, methane oxidation rates, denitrification rates, chlorophyll, phytoplankton C&N uptake rates, bacteria abundance/growth rates/molecular fingerprinting, lipid biomarkers, microzooplankton grazing rates, mesozooplankton abundance, distribution, and physiology, and particle flux rates.

NSF abstract:

The CARIACO (CArbon Retention In A Colored Ocean) Program is a time-series programs, with the central goal to better understand seasonal to decadal time-scales of processes governing ocean biogeochemistry. The CARIACO site is situated in the tropics on a productive continental margin off Venezuela, the basin is anoxic, and the site is strongly connected to paleoclimate investigations. Thus, CARIACO has the additional goal of relating modern oceanographic processes with the production, transformation, and preservation of particulate matter in the sediment record.

Zooplankton composition, behavior, and physiological rates are important components of the biological pump. Recent findings from the Cariaco Basin and other regions with pelagic redoxclines (suboxic and anoxic interfaces) suggest that they are active regions of biogeochemical cycling, in which C may be directly transferred from bacterial production to zooplankton grazers.

The goals of this project are to determine the vertical and horizontal distributions of zooplankton in relation to the redoxcline during two seasons using discrete-depth net samples and a vertical-profiling laser-line scan camera system. Anaerobic and aerobic respiration and metabolites, excretion, and egestion rates will be experimentally determined for vertical migrators and resident species nearsurface and at suboxic and anoxic depths to determine whether zooplankton differ in their release of metabolic and egested products, due to differences in their metabolism and/or composition of food resources. Grazing experiments, in combination with lipid biomarkers and stable isotopic compositions, will be used to assess in situ diet and long-term feeding history of zooplankton. Fecal pellet composition will be compared with pellets in sediment traps. Time-series zooplankton samples also will be analyzed to obtain temporal information on zooplankton community dynamics and allow a seasonal estimate of the zooplankton contribution to elemental fluxes.

Intellectual Merit. One of the grand challenges of oceanography is to understand the processes that control the transformation and fate of organic carbon in marine systems. Meeting this challenge is hindered by a lack of basic information about factors that govern the response of biological activity to environmental forcing and climate change. In particular, the role of the marine biosphere in the global carbon cycle remains poorly constrained, in part due to uncertainties about biological controls on the quality and quantity of carbon export. This project will contribute to our knowledge of the role of mesozooplankton in biogeochemical cycles, especially in relation to how processes may be modified in regions with anoxic or suboxic layers and strong redox gradients, and will help to correctly understand the links between water column processes and climate history as recorded in the varved sediments of the Cariaco Basin.

Broader Impacts. The zooplankton time-series will provide information on patterns of marine biodiversity and ecological interactions from a poorly known region. The CARIACO Program has an ongoing impact in technology transfer and human resource development in Venezuela. This project will help train personnel in Venezuela and will support several graduate students. The lead investigators and students will develop materials on the project for dissemination through the NSF-Center for Ocean Science Education Excellence (COSEE) located at USF.

Note [2019-12-17]: BCO-DMO Project page updated to reflect information at nfs.gov for this collaborative award.
* Project tile changed from "Eastern Tropical Pacific" to the NSF award title "Collaborative Research: Zooplankton in the Redoxcline of the Cariaco Basin: Impact on Biogeochemical Cycling."
* The other award number in this collaborative award added to the page OCE-0526502
* Person roles on the page updated to reflect the NSF award roles (PI or Co-PI) all others on the page changed to "Scientist" from "Co-PI" if not listed as a Co-PI on the NSF award.

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Program Information

Ocean Carbon and Biogeochemistry (OCB)

Website: http://us-ocb.org/

Coverage: Global

The Ocean Carbon and Biogeochemistry (OCB) program focuses on the ocean's role as a component of the global Earth system, bringing together research in geochemistry, ocean physics, and ecology that inform on and advance our understanding of ocean biogeochemistry. The overall program goals are to promote, plan, and coordinate collaborative, multidisciplinary research opportunities within the U.S. research community and with international partners. Important OCB-related activities currently include: the Ocean Carbon and Climate Change (OCCC) and the North American Carbon Program (NACP); U.S. contributions to IMBER, SOLAS, CARBOOCEAN; and numerous U.S. single-investigator and medium-size research projects funded by U.S. federal agencies including NASA, NOAA, and NSF.

The scientific mission of OCB is to study the evolving role of the ocean in the global carbon cycle, in the face of environmental variability and change through studies of marine biogeochemical cycles and associated ecosystems.

The overarching OCB science themes include improved understanding and prediction of: 1) oceanic uptake and release of atmospheric CO2 and other greenhouse gases and 2) environmental sensitivities of biogeochemical cycles, marine ecosystems, and interactions between the two.

The OCB Research Priorities (updated January 2012) include: ocean acidification; terrestrial/coastal carbon fluxes and exchanges; climate sensitivities of and change in ecosystem structure and associated impacts on biogeochemical cycles; mesopelagic ecological and biogeochemical interactions; benthic-pelagic feedbacks on biogeochemical cycles; ocean carbon uptake and storage; and expanding low-oxygen conditions in the coastal and open oceans.

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Funding

Funding Source	Award
NSF Division of Ocean Sciences (NSF OCE)	OCE-0526545

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