Particulate Organic Carbon from MULVFS casts from R/V Thomas G. Thompson cruises TT007, TT011 in the Equatorial Pacific in 1992 during the U.S. JGOFS Equatorial Pacific (EqPac) project

Website: https://www.bco-dmo.org/dataset/2631
Version: December 9, 1998
Version Date: 1998-12-09

Project
» U.S. JGOFS Equatorial Pacific (EqPac)

Program
» U.S. Joint Global Ocean Flux Study (U.S. JGOFS)

Contributors	Affiliation	Role
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Dataset Description

POC from MULVFS casts

Methods & Sampling

See Platform deployments for cruise specific documentation

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Data Files

File
mulvfs_POC_TT007.csv (Comma Separated Values (.csv), 3.70 KB) MD5:0497624dec11011c54dae2b91749be29 version December 9, 1998 James Bishop data revision: April 5, 1994 Multiple Unit Large Volume in-situ Filtration System (MULVFS) Particulate organic carbon (POC) Thomas Thompson TT007
mulvfs_POC_TT011.csv (Comma Separated Values (.csv), 4.92 KB) MD5:a9d7850a2824fc8dff10107cd89bd487 version December 9, 1998 James Bishop data revision: April 5, 1994 Multiple Unit Large Volume in-situ Filtration System (MULVFS) Particulate organic carbon (POC) Thomas Thompson TT011

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Related Datasets

IsSourceOf

Bishop, J. K., Lam, P. J. (2022) **Compilation of MULVFS size-fractionated POC, PIC, and bSi data from 17 cruises conducted between 1973 and 2005.** Biological and Chemical Oceanography Data Management Office (BCO-DMO). (Version 1) Version Date 2022-11-21 doi:10.26008/1912/bco-dmo.884057.1 [view at BCO-DMO]
Relationship Description: Dataset 884057, "Compilation of MULVFS size-fractionated POC, PIC, and bSi data" (contributed by Phoebe Lam) includes some data from 2631, "mulvfs_POC" (contributed by James K.B. Bishop). Dataset 2631 is reference number 9 in the "References" column of 884057.

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Parameters

Parameter	Description	Units
event	event number from event log	
sta	station number from event log	
cast	MULVFS cast # from event log	
depth	sample depth, corrected	meters
temp	temperature from STD-12 data logger	degrees C
wt_dry_l	greater than 53 micron particulate dry weight	milligrams
poc_s	sum of POC in 1-53 micron and less than 1 micron fractions, (_s denotes small)	nmoles per liter
poc_l	greater than 53 micron POC, estimated gravimetrically, (_l denotes large)	micrograms per liter

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Instruments

Dataset-specific Instrument Name	Multi Unit Large Volume Filtration System
Generic Instrument Name	Multiple Unit Large Volume Filtration System
Dataset-specific Description	MULVFS(Multiple Unit Large Volume in situ Filtration System) was used to collect water samples.
Generic Instrument Description	The Multiple Unit Large Volume Filtration System (MULVFS) was first described in Bishop et al., 1985 (doi: 10.1021/ba-1985-0209.ch009). The MULVFS consists of multiple (commonly 12) specialized particulate matter pumps, mounted in a frame and tethered to the ship by a cable (Bishop et al., 1985; Bishop and Wood, 2008). The MULVFS filters particulates from large volumes of seawater, although the exact protocols followed will vary for each project.

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Deployments

TT007

Website	https://www.bco-dmo.org/deployment/57728
Platform	R/V Thomas G. Thompson
Start Date	1992-01-30
End Date	1992-03-13
Description	Purpose: Spring Survey Cruise; 12°N-12°S at 140°W TT007 was one of five cruises conducted in 1992 in support of the U.S. Equatorial Pacific (EqPac) Process Study. The five EqPac cruises aboard R/V Thomas G. Thompson included two repeat meridional sections (12°N - 12°S), 2 equatorial surveys, and a benthic survey (all at 140° W). The scientific objectives of this study were to observe the processes in the Equatorial Pacific controlling the fluxes of carbon and related elements between the atmosphere, euphotic zone, and deep ocean. As luck would have it, the survey window coincided with an El Nino event. A bonus for the research team. **Methods & Sampling** PI: James K. Bishop of: University of Victoria dataset: Particulate Organic Carbon from MULVFS casts dates: February 08, 1992 to March 07, 1992 location: N: 8.9933 S: -12.035 W: -140.9418 E: -135.0167 project/cruise: EQPAC/TT007 - Spring Survey ship: Thomas Thompson Methodology PI-Note References: Bishop, J.K.P., Edmond, J.M., Ketten, D.R., Bacon, M.P., and Silker, W.B. (1977). The chemistry, biology and vertical flux of particulate matter from the upper 400 m of the equatorial Atlantic Ocean. Deep-Sea Research, 24: 511-548. Bishop, J.K.B. (1999) Transmissometer Measurement of POC. Deep-Sea Research I. 46(2) 353-369. (for a comparison of EqPac MULVFS POC data with bottle POC and transmissometer results)

TT011

Website	https://www.bco-dmo.org/deployment/57730
Platform	R/V Thomas G. Thompson
Start Date	1992-08-05
End Date	1992-09-18
Description	Purpose: Fall Survey; 12°N-12°S at 140°W TT011 was one of five cruises conducted in 1992 in support of the U.S. Equatorial Pacific (EqPac) Process Study. The five EqPac cruises aboard R/V Thomas G. Thompson included two repeat meridional sections (12°N - 12°S), 2 equatorial surveys, and a benthic survey (all at 140° W). The scientific objectives of this study were to observe the processes in the Equatorial Pacific controlling the fluxes of carbon and related elements between the atmosphere, euphotic zone, and deep ocean. As luck would have it, the survey window coincided with an El Nino event. A bonus for the research team. **Methods & Sampling** PI: James K. Bishop of: University of Victoria dataset: Particulate Organic Carbon from MULVFS casts dates: August 11, 1992 to September 14, 1992 location: N: 12.01 S: -11.8483 W: -141.3483 E: -134.9533 project/cruise: EQPAC/TT011 - Fall Survey ship: Thomas Thompson Methodology PI-Note References: Bishop, J.K.P., Edmond, J.M., Ketten, D.R., Bacon, M.P., and Silker, W.B. (1977). The chemistry, biology and vertical flux of particulate matter from the upper 400 m of the equatorial Atlantic Ocean. Deep-Sea Research, 24: 511-548. Bishop, J.K.B. (1999) Transmissometer Measurement of POC. Deep-Sea Research I. 46(2) 353-369. (for a comparison of EqPac MULVFS POC data with bottle POC and transmissometer results)

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Project Information

U.S. JGOFS Equatorial Pacific (EqPac)

Website: http://usjgofs.whoi.edu/research/eqpac.html

Coverage: Equatorial Pacific

The U.S. EqPac process study consisted of repeat meridional sections (12°N -12°S) across the equator in the central and eastern equatorial Pacific from 95°W to 170°W during 1992. The major scientific program was focused at 140° W consisting of two meridional surveys, two equatorial surveys, and a benthic survey aboard the R/V Thomas Thompson. Long-term deployments of current meter and sediment trap arrays augmented the survey cruises. NOAA conducted boreal spring and fall sections east and west of 140°W from the R/V Baldridge and R/V Discoverer. Meteorological and sea surface observations were obtained from NOAA's in place TOGA-TAO buoy network.

The scientific objectives of this study were to determine the fluxes of carbon and related elements, and the processes controlling these fluxes between the Equatorial Pacific euphotic zone and the atmosphere and deep ocean. A broad overview of the program at the 140°W site is given by Murray et al. (Oceanography, 5: 134-142, 1992). A full description of the Equatorial Pacific Process Study, including the international context and the scientific results, appears in a series of Deep-Sea Research Part II special volumes:

Topical Studies in Oceanography, A U.S. JGOFS Process Study in the Equatorial Pacific (1995), Deep-Sea Research Part II, Volume 42, No. 2/3.

Topical Studies in Oceanography, A U.S. JGOFS Process Study in the Equatorial Pacific. Part 2 (1996), Deep-Sea Research Part II, Volume 43, No. 4/6.

Topical Studies in Oceanography, A U.S. JGOFS Process Study in the Equatorial Pacific (1997), Deep-Sea Research Part II, Volume 44, No. 9/10.

Topical Studies in Oceanography, The Equatorial Pacific JGOFS Synthesis (2002), Deep-Sea Research Part II, Volume 49, Nos. 13/14.

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Program Information

U.S. Joint Global Ocean Flux Study (U.S. JGOFS)

Website: http://usjgofs.whoi.edu/

Coverage: Global

The United States Joint Global Ocean Flux Study was a national component of international JGOFS and an integral part of global climate change research.

The U.S. launched the Joint Global Ocean Flux Study (JGOFS) in the late 1980s to study the ocean carbon cycle. An ambitious goal was set to understand the controls on the concentrations and fluxes of carbon and associated nutrients in the ocean. A new field of ocean biogeochemistry emerged with an emphasis on quality measurements of carbon system parameters and interdisciplinary field studies of the biological, chemical and physical process which control the ocean carbon cycle. As we studied ocean biogeochemistry, we learned that our simple views of carbon uptake and transport were severely limited, and a new "wave" of ocean science was born. U.S. JGOFS has been supported primarily by the U.S. National Science Foundation in collaboration with the National Oceanic and Atmospheric Administration, the National Aeronautics and Space Administration, the Department of Energy and the Office of Naval Research. U.S. JGOFS, ended in 2005 with the conclusion of the Synthesis and Modeling Project (SMP).

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