Total Organic Carbon from Niskin bottle casts from R/V Thomas G. Thompson cruises TT007, TT008, TT011, TT012 in the Equatorial Pacific in 1992 during the U.S. JGOFS Equatorial Pacific (EqPac) project

Website: https://www.bco-dmo.org/dataset/2658
Version: September 05, 2002
Version Date: 2002-09-05

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

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

Contributors	Affiliation	Role
Ducklow, Hugh W.	Marine Biological Laboratory Ecosystems Center (MBL - Ecosystems)	Principal Investigator
Peltzer, Edward T.	Monterey Bay Aquarium Research Institute (MBARI)	Principal Investigator
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Dataset Description

Total Organic Carbon from Niskin bottle casts

Methods & Sampling

See Platform deployments for cruise specific documentation

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Data Files

File

toc_TT007.csv (Comma Separated Values (.csv), 17.67 KB)
MD5:6e28b940d4179a6f73f686e3bc60451e

version version September 05, 2002
(original version November 21, 1994)
Edward Peltzer, Woods Hole Oceanographic Institution
TOC data determined using a HTC/DI-DOC analyzer
R/V Thomas Thompson, TT007 Feb-Mar 92

These samples were NOT filtered; ergo they are TOTAL ORGANIC CARBON analyses.

Samples were analyzed at-sea by ETP between 8 February to 10 March 1992.
All samples were corrected for instrument blank measured using CFDW and
adjusted to a common background consistent with other cruises.

This dataset contains all test stations and duplicate casts.
Data are sorted by station-cast-bottle in ascending order.

toc_TT008.csv (Comma Separated Values (.csv), 9.15 KB)
MD5:c67bf56b544137c380b0de227320f4c6

version September 03, 2002
(original version April 18, 1994)
Hugh Ducklow
Total particulate Carbon, particulate organic Nitrogen,
and total organic Carbon
Thomas Thompson, cruise tt008

toc_TT011.csv (Comma Separated Values (.csv), 16.46 KB)
MD5:8aad532d9afc9e64b98b031d21274683

version September 5, 2002
(original version November 21, 1994)
Edward Peltzer, Woods Hole Oceanographic Institution
TOC data determined using a HTC/DI-DOC analyzer
R/V Thomas Thompson, TT011 Aug-Sep 92

These samples were NOT filtered; ergo they are TOTAL ORGANIC CARBON analyses.

Samples were analyzed at-sea by ETP between 11 August to 15 September 1992.
All samples were corrected for instrument blank measured using Milli-Q H2O
and adjusted to a common background consistent with other cruises.

This data-set includes all casts and all depths.
Data are sorted by station-cast-bottle in ascending order.

DMO QC note (020905):
event number 09141159 corrected to 09141158 to agree with event log

toc_TT012.csv (Comma Separated Values (.csv), 9.01 KB)
MD5:89dec68beb1af901fc82a88a0b5fed4d

version September 05, 2002
(original version April 18, 1994)
Hugh Ducklow
Total particulate Carbon, particulate organic Nitrogen,
and total organic Carbon
Thomas Thompson, cruise tt012

DMO QC note (020905):
bottle numbers corrected per PI request for event=10191159,sta=05,cast=83

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Parameters

Parameter	Description	Units
event	operation number per event log	as MMDDhhmm
sta	station number per event log	
cast	CTD cast number per event log	
bot	CTD rosette bottle number	
depth	sample depth	meters
TOC	total organic carbon (volume basis)	micromoles C/liter
TOC_kg	total organic carbon (mass basis)	micromoles C/kilogram
depth_n	nominal depth of sample	meters
TPC	total particulate carbon	micromoles/liter
PON	particulate organic nitrogen	micromoles/liter

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Instruments

Dataset-specific Instrument Name	Niskin Bottle
Generic Instrument Name	Niskin bottle
Dataset-specific Description	CTD clean rosette (Niskin) bottles were used to collect water samples.
Generic Instrument Description	A Niskin bottle (a next generation water sampler based on the Nansen bottle) is a cylindrical, non-metallic water collection device with stoppers at both ends. The bottles can be attached individually on a hydrowire or deployed in 12, 24, or 36 bottle Rosette systems mounted on a frame and combined with a CTD. Niskin bottles are used to collect discrete water samples for a range of measurements including pigments, nutrients, plankton, etc.

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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: Edward Peltzer of: Woods Hole Oceanographic Institution dataset: Total Organic Carbon dates: February 02, 1992 to March 07, 1992 location: N: 12.0063 S: -12.014 W: -140.4455 E: -134.9816 project/cruise: EQPAC/TT007 - Spring Survey ship: Thomas Thompson Methodology: Peltzer, Edward T. (1993). Shipboard determination of total organic carbon by a high temperature combustion/direct injection technique. U.S. Joint Global Ocean Flux Study - Equatorial Pacific Protocols, 1993, section 21A. DMO cautionary note: Dr. Peltzer has corrected his data to reflect the bottle cast tripping problems reported by Dr. Murray. Events 02180600 and 02261720 report bottles 24 and 1 tripped at the same depth.

TT008

Website	https://www.bco-dmo.org/deployment/57729
Platform	R/V Thomas G. Thompson
Start Date	1992-03-19
End Date	1992-04-15
Description	Purpose: Spring Time Series; Equator, 140°W TT008 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: Hugh Ducklow of: Horn Point Environmental Laboratory dataset: Particulate carbon & nitrogen & total organic carbon dates: March 23, 1992 to April 09, 1992 location: N: 0.032 S: -0.0145 W: -140.048 E: -139.9543 project/cruise: EQPAC/TT008 - Spring Time Series ship: Thomas Thompson Methodology: U.S. JGOFS Equatorial Pacific Process Study Sampling and Analytical Protocols (section 18) Reference: Carlson, C.A. and H.W. Ducklow, 1995. Dissolved organic carbon in the upper ocean of the central equatorial Pacific Ocean, 1992: Daily and finescale vertical variations. Deep-Sea Research II, vol 42, No. 2-3, pp 639-656.

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: Edward Peltzer of: Woods Hole Oceanographic Institution dataset: Total Organic Carbon dates: August 10, 1992 to September 15, 1992 location: N: 12.025 S: -11.9667 W: -140.8833 E: -134.9117 project/cruise: EQPAC/TT011 - Fall Survey ship: Thomas Thompson Methodology: Peltzer, Edward T. (1993). Shipboard determination of total organic carbon by a high temperature combustion/direct injection technique. U.S. Joint Global Ocean Flux Study - Equatorial Pacific Protocols, 1993, section 21A. DMO QC note (020905): event number 09141159 corrected to 09141158 to agree with event log

TT012

Website	https://www.bco-dmo.org/deployment/57731
Platform	R/V Thomas G. Thompson
Start Date	1992-09-24
End Date	1992-10-21
Description	Purpose: Fall Time Series; Equator, 140°W TT012 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: Hugh Ducklow of: Horn Point Environmental Laboratory dataset: Particulate carbon and nitrogen, total organic carbon dates: October 02, 1992 to October 21, 1992 location: N: 0.079 S: -0.1278 W: -140.1502 E: -139.8927 project/cruise: EQPAC/TT012 - Fall Time Series ship: Thomas Thompson Methodology: U.S. JGOFS Equatorial Pacific Process Study Sampling and Analytical Protocols (section 18) Reference: Carlson, C.A. and H.W. Ducklow, 1995. Dissolved organic carbon in the upper ocean of the central equatorial Pacific Ocean, 1992: Daily and finescale vertical variations. Deep-Sea Research II, vol 42, No. 2-3, pp 639-656.

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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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