Partial pressure of carbon dioxide along ship track from R/V Thomas G. Thompson cruises TT007, TT011, TT012 in the Equatorial Pacific in 1992 during the U.S. JGOFS Equatorial Pacific (EqPac) project

Website: https://www.bco-dmo.org/dataset/2637
Version: final
Version Date: 1997-06-10

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

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

Contributors	Affiliation	Role
Goyet, Catherine	Universite de Perpignan	Principal Investigator
Chandler, Cynthia L.	Woods Hole Oceanographic Institution (WHOI BCO-DMO)	BCO-DMO Data Manager

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Dataset Description

Partial pressure of carbon dioxide along ship track

Methods & Sampling

See Platform deployments for cruise specific documentation

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Data Files

File	
pco2_TT007.csv	(Comma Separated Values (.csv), 89.41 KB) MD5:e961c097baf6954040208b5921abf671
version June 1996 Catherine Goyet Partial pressure of CO2 underway EqPac Thomas Thompson cruise TT007	
pco2_TT011.csv	(Comma Separated Values (.csv), 79.26 KB) MD5:15b56d8cfa4dfff88a91fac6e30554c1
version June, 1996 Catherine Goyet Partial pressure of CO2 underway Eqpac Thomas Thompson cruise TT011 NOTE: Ship's recording system for position, surface temp., surface salinity failed at Julian date 255.4930.	
pco2_TT012.csv	(Comma Separated Values (.csv), 88.13 KB) MD5:0684ff3e90a53a5d7ddc4ad20112d276
version June 10, 1997 Catherine Goyet Partial pressure of CO2 underway Eqpac Thomas Thompson cruise TT012 Note: From day 277.05 thru 296.39 corrections applied to temperature, salinity and pCO2_sea per C. Goyet, June 10, 1997.	

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Parameters

Parameter	Description	Units
yrday	day of year 1992 (GMT)	decimal day
lat	latitude, ship's position at the time of pCO2 measurement (- denotes south)	decimal degrees
lon	longitude, ship's position at the time of pCO2 measurement (- denotes west)	decimal degrees
pCO2_air	partial pressure of CO2 in sea surface air, measured at ship's bow while underway (corrected to 100% humidity)	microatmospheres
pCO2_sea	partial pressure of CO2 in surface seawater, pumped at ship's bow while underway (corrected to 100% humidity)	microatmospheres
temp	sea surface temperature measured underway via the ship's thermo-salinometer	degrees Celsius
sal	sea surface salinity measured underway via the ship's thermo-salinometer	parts per thousand

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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: Catherine Goyet of: Woods Hole Oceanographic Institution dataset: Partial pressure of carbon dioxide underway dates: February 20, 1992 to February 26, 1992 location: N: 1.4567 S: -0.0448 W: -140.5331 E: -139.6992 project/cruise: EQPAC/TT007 - Spring Survey ship: Thomas Thompson Sampling Protocols

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: Catherine Goyet of: Woods Hole Oceanographic Institution dataset: Partial pressure of carbon dioxide along ship track dates: August 5, 1992 to September 18, 1992 location: N: 2.999 S: -7.014 W: -141.758 E: -104.392 project/cruise: EQPAC/TT011 - Fall Survey ship: Thomas Thompson Please Note: Ship's recording system for position, surface temp., surface salinity failed at Julian date 255.4930. Sampling Protocols

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: Catherine Goyet of: Woods Hole Oceanographic Institution dataset: Partial pressure of carbon dioxide along ship track dates: September 24, 1992 to October 21, 1992 location: N: 0.125 S: -12.864 W: -146.293 E: -139.765 project/cruise: EQPAC/TT012 - Fall Time Series ship: Thomas Thompson Note: Data updated June 10, 1997 From day 277.05 thru 296.39 corrections applied to temperature, salinity and pCO2_sea per C. Goyet. Sampling Protocols

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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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