

Thorium-234 activity in particulate and dissolved phases from R/V Thomas G. Thompson cruises TT008, TT012 in the Equatorial Pacific in 1992 during the U.S. JGOFS Equatorial Pacific (EqPac) project

Website: <https://www.bco-dmo.org/dataset/2679>

Version: May, 1996

Version Date: 1996-05-01

Project

» [U.S. JGOFS Equatorial Pacific](#) (EqPac)

Program

» [U.S. Joint Global Ocean Flux Study](#) (U.S. JGOFS)

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Dataset Description

Thorium-234 activity in particulate and dissolved phases

Methods & Sampling

See Platform deployments for cruise specific documentation

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Parameters

Parameter	Description	Units
lat_n	nominal latitude with hemisphere label	whole degrees
event	event number from event log	
sta	station number from event log	
cast	pumping cast number from event log	
depth_n	nominal depth of wire out	meters
Th234_p_d7to1	particulate Thorium-234 activity in the size fraction between 0.7 and 1 microns	dpm (disintegrations per minute)/liter
err_Th234_p_d7to1	error of particulate Thorium-234 analysis in size fraction between 0.7 to 1 microns	+/- dpm/liter
Th234_p_1to53	particulate Thorium-234 activity in the size fraction between 1 and 53 microns	dpm/liter
err_Th234_p_1to53	error of particulate Thorium-234 analysis in size fraction between 1 and 53 microns	+/- dpm/liter
Th234_p_gt_53	particulate Thorium-234 activity in the size fraction greater than 53 microns	dpm/liter
err_Th234_p_gt_53	error of particulate Thorium-234 analysis in size fraction greater than 53 microns	+/- dpm/liter
Th234_p_tot	total particulate Thorium-234 activity from all size fractions	dpm/liter
err_Th234_p_tot	error total particulate Thorium-234 analyses from all size fractions	+/- dpm/liter
Th234_d_tot	total dissolved Thorium-234 activity from all size fractions	dpm/liter
err_Th234_d_tot	error total dissolved Thorium-234 activity from all size fractions	+/- dpm/liter
Th234_p_d_tot	total Thorium-234 activity in both particulate and dissolved phases	dpm/liter
err_Th234_p_d_tot	error total Thorium-234 activity in both particulate and dissolved phases	+/- dpm/liter
comment	indication of where 0.5 micron polypropylene fiber cartridge filter was used. See PI-NOTES.	

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Instruments

Dataset-specific Instrument Name	Go-flo Bottle
Generic Instrument Name	GO-FLO Bottle
Dataset-specific Description	30-l Go-Flo bottles used to collect seawater.
Generic Instrument Description	GO-FLO bottle cast used to collect water samples for pigment, nutrient, plankton, etc. The GO-FLO sampling bottle is specially designed to avoid sample contamination at the surface, internal spring contamination, loss of sample on deck (internal seals), and exchange of water from different depths.

Deployments

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	<p>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.</p> <p>Methods & Sampling PI: James Kirk Cochran of: State University of New York, Stony Brook dataset: Thorium-234 activity in particulate and dissolved phases dates: March 22, 1992 to April 14, 1992 location: N: 9.0875 S: -1.9703 W: -140.1323 E: -139.8383 project/cruise: EQPAC/TT008 - Spring Time Series ship: Thomas Thompson Methodology: Buesseler, K.O., J.K. Cochran, M.P. Bacon, H.D. Livingston, S.A. Casso, D. Hirschberg, M.C. Hartman and A.P. Fler (1992). Determination of thorium isotopes in seawater by non-destructive and radiochemical procedures. Deep-Sea Res. 39, 1103-1114.</p>

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	<p>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.</p> <p>Methods & Sampling PI: James Kirk Cochran of: State University of New York, Stony Brook dataset: Thorium-234 activity in particulate and dissolved phases dates: September 26, 1992 to October 21, 1992 location: N: 0.0217 S: -11.9897 W: -145.403 E: -139.965 project/cruise: EQPAC/TT012 - Fall Time Series ship: Thomas Thompson PI-NOTES Date: Wed, 29 May 1996 From: James K Cochran "0.5 micron cartridge PF" refers to particulate Th-234 retained on a 0.5 micrometer-equivalent pore size wound polypropylene fiber cartridge. These cartridges were used throughout this work. The most appropriate reference to methodology is: Buesseler, K.O., J.K. Cochran, M.P. Bacon, H.D. Livingston, S.A. Casso, D. Hirschberg, M.C. Hartman and A.P. Fler (1992). Determination of thorium isotopes in seawater by non-destructive and radiochemical procedures. Deep-Sea Res. 39, 1103-1114.</p>

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 Baldrige 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.

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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