Pigment concentration determined by size fractionation method from cruises TT008, TT011, TT012, TT007 in the Equatorial Pacific in 1992 during the U.S. JGOFS Equatorial Pacific (EqPac) project

Website: https://www.bco-dmo.org/dataset/2677
Version: April 18, 1994
Version Date: 1994-04-18

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

Pigment concentration determined by size fractionation method.

Methods & Sampling

See Platform deployments for cruise specific documentation

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Data Files

File		
size_frac_TT007.csv	(Comma Separated Values (.csv), 11.49 KB) MD5:1574107525003c299f69bdd4804353af	version April 18, 1994 Bob Bidigare, pigment size fractionation Thomas Thompson cruise TT007

File

size_TT008.csv

(Comma Separated Values (.csv), 1.04 KB)
MD5:36c2ba66c3bf67140930154ca47dd3eb

version April 18, 1994
Bob Bidigare
pigment size fractionation
Thomas Thompson cruise TT008
File revised 1/31/93, Bidigare corrected
File revised 3/24/94, per phonecon w/ Bidigare corrected by G.Heimerdinger
sample = originator internal sample number
event = event/operation number from event log, a unique number composed of elements of date and time. Date/time decoded as follows (MMDDHHmm) where MM = month, DD = day, HH = hour mm = minutes. Date/time reported in local Hawaii time (+10 time zone).
sta = station number per event log
cast = CTD or TM cast number from event log
bot = CTD rosette bottle number
sizefrac = size fraction interval or range,units = microns
depth_n = nominal depth of sample, units = meters

all pigment units reported as nanagrams/liter
chl_c3 = chlorophyll c3
clid = chlorophyllide a
chl_c1_c2 = chlorophylls c1 and c2
per = peridinin
fucox_but = 19'-butanoyloxyfucoxanthin
fucox = fucoxanthin
fucox_hex = 19'-hexanoyloxyfucoxanthin
pras = prasinoxanthin
viol = violaxanthin
diad = diadinoxanthin
allox = alloxanthin
diatox = diatoxanthin
zea = zeaxanthin
chl_b = chlorophyll b
alloa = allomerized chlorophyll a
chl_a = chlorophyll a
c4 = phytolated chlorophyll c-like pigment
chl_a_prime = chlorophyll a'
carotene_a = alpha-carotene
carotene_b = beta-carotene
nd = missing data

size_TT011.csv

(Comma Separated Values (.csv), 5.56 KB)
MD5:80838fe9168ca882c3cfc2a175052115

version April 18, 1994
Bob Bidigare
pigment size fractionation
Thomas Thompson cruise TT011

File

size_TT012.csv (Comma Separated Values (.csv), 1.03 KB)
MD5:644ffc98cc61daa34c855ccc71bc8696

version April 18, 1994
Bob Bidigare
pigment size fractionation
Thomas Thompson cruise TT012
File revised 1/31/93, Bidigare corrected
file revised 3/24/94, per phoncon w/ Bidigare corrected by G.Heimerdinger
sample = originator internal sample number
event = event/operation number from event log, a unique number
composed of elements of date and time. Date/time decoded
as follows (MMDDHHmm) where MM = month, DD = day, HH = hour
mm = minutes. Date/time reported in local Hawaii time (+10
time zone).
sta = station number per event log
cast = CTD or TM cast number from event log
bot = CTD rosette bottle number
sizefrac = size fraction interval or range,units = microns
depth_n = nominal depth of sample, units = meters

all pigment units reported as nanagrams/liter
chl_c3 = chlorophyll c3
clid = chlorophyllide a
chl_c1_c2 = chlorophylls c1 and c2
per = peridinin
fucox_but = 19'-butanoyloxyfucoxanthin
fucox = fucoxanthin
fucox_hex = 19'-hexanoyloxyfucoxanthin
pras = prasinoxanthin
viol = violaxanthin
diad = diadinoxanthin
allox = alloxanthin
diatox = diatoxanthin
zea = zeaxanthin
chl_b = chlorophyll b
alloa = allomerized chlorophyll a
chl_a = chlorophyll a
c4 = phytolated chlorophyll c-like pigment
chl_a' = chlorophyll a'
carotene_a = alpha-carotene
carotene_b = beta-carotene
nd = missing data

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Parameters

Parameter	Description	Units
sample	originator internal sample number	
event	event/operation number from event log	
sta	station number from event log	
cast	CTD cast number from event log	

bot	CTD rosette bottle number	
sizefrac	size fraction interval or range	microns
depth_n	nominal depth of sample	meters
chl_c3	chlorophyll c3	nanograms/liter
clid	chlorophyllide a	nanograms/liter
chl_c1_c2	chlorophylls c1 and c2	nanograms/liter
per	peridinin	nanograms/liter
fucox_but	19'-butanoyloxyfucoxanthin	nanograms/liter
fucox	fucoxanthin	nanograms/liter
fucox_hex	19'-hexanoyloxyfucoxanthin	nanograms/liter
pras	prasinoxanthin	nanograms/liter
viol	violaxanthin	nanograms/liter
diad	diadinoxanthin	nanograms/liter
allox	alloxanthin	nanograms/liter
diatox	diatoxanthin	nanograms/liter
zea	zeaxanthin	nanograms/liter
chl_b	chlorophyll b	nanograms/liter
alloa	allomerized chlorophyll a	nanograms/liter
chl_a	chlorophyll a	nanograms/liter

c4	phytolated chlorophyll c-like pigment	nanograms/liter
chl_a_prime	chlorophyll a'	nanograms/liter
carotene_a	alpha-carotene	nanograms/liter
carotene_b	beta-carotene	nanograms/liter
chlide_a	chlorophyllide a	nanograms/liter
peridinin	peridinin	nanograms/liter
prasinox	prasinoxanthin	nanograms/liter
violax	violaxanthin	nanograms/liter
diadinox	diadinoxanthin	nanograms/liter
zeax	zeaxanthin	nanograms/liter
chl_a_allo	allomerized chlorophyll a	nanograms/liter
chl_c4	phytolated chlorophyll c-like pigment	nanograms/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

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: Robert Bidigare of: University of Hawaii dataset: Pigment size fractionation dates: March 31, 1992 to March 31, 1992 location: N: 0.0893 S: 0.0893 W: -139.8972 E: -139.8972 project/cruise: EQPAC/TT008 - Spring Time Series ship: Thomas Thompson

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: Robert Bidigare of: University of Hawaii dataset: Pigment size fractionation dates: August 11, 1992 to September 04, 1992 location: N: 12.02 S: -2.435 W: -140.4333 E: -139.7783 project/cruise: EQPAC/TT011 - Fall Survey ship: Thomas Thompson

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: Robert Bidigare of: University of Hawaii dataset: Pigment size fractionation dates: October 02, 1992 to October 02, 1992 location: N: -0.0062 S: -0.0062 W: -139.8927 E: -139.8927 project/cruise: EQPAC/TT012 - Fall Time Series ship: Thomas Thompson

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: Robert Bidigare of: University of Hawaii dataset: Pigment size fractionation dates: February 04, 1992 to March 08, 1992 location: N: 12.0102 S: -12.2083 W: -140.5219 E: -134.7269 project/cruise: EQPAC/TT007 - Spring Survey ship: Thomas Thompson

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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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