

Beam attenuation, transmissometer data, 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/2630>

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)

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Dataset Description

Beam attenuation, transmissometer data, MULVFS casts

Methods & Sampling

See Platform deployments for cruise specific documentation

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Parameters

Parameter	Description	Units
event	event number from event log format (MMDDhhmm) - time is local time	
sta	station number from event log	
cast	MULVFS cast number	
data_rev	revision date of station data (format YYYYMMDD)	
lat	latitude at time of start of downcast negative numbers south	
lon	longitude at time of start of downcast negative numbers west	
cast_type	downcast or upcast	
press	insitu pressure, accuracy +/- 3dBar	decibars
temp	in-situ temperature, accuracy +/- 0.01	degrees C
sal	salinity, accuracy +/- 0.01 psu	psu
beam_c	beam attenuation coefficient (calibrated) 1-m pathlength SeaTech transmissometer @675 nm data are reproducible to better than 0.001 in deep water between TT007 and TT011. clear water value for beamc is 0.364.	meters ⁻¹
beamc	beam attenuation coefficient (calibrated) 1-m pathlength SeaTech transmissometer @675 nm data are reproducible to better than 0.001 in deep water between TT007 and TT011. clear water value for beamc is 0.364.	meters ⁻¹

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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.

Dataset-specific Instrument Name	SeaTech Transmissometer
Generic Instrument Name	Sea Tech Transmissometer
Generic Instrument Description	The Sea Tech Transmissometer can be deployed in either moored or profiling mode to estimate the concentration of suspended or particulate matter in seawater. The transmissometer measures the beam attenuation coefficient in the red spectral band (660 nm) of the laser lightsource over the instrument's path-length (e.g. 20 or 25 cm). This instrument designation is used when specific make and model are not known. The Sea Tech Transmissometer was manufactured by Sea Tech, Inc. (Corvallis, OR, USA).

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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	<p>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.</p> <p>Methods & Sampling PI: James K. Bishop of: University of Victoria dataset: Beam attenuation, transmissometer data from MULVFS casts dates: February 02, 1992 to March 09, 1992 location: N: 13.1796 S: -12.1134 W: -142.0973 E: -135.0167 project/cruise: EQPAC/TT007 - Spring Survey ship: Thomas Thompson Reference: Bishop, J.K.B. (1986). The correction and suspended mass calibration of Sea Tech transmissometer data. Deep-Sea Research, 33: 121-134.</p>

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	<p>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.</p> <p>Methods & Sampling PI: James K. Bishop of: University of Victoria dataset: Beam attenuation, transmissometer data from MULVFS casts dates: August 09, 1992 to September 14, 1992 location: N: 12.6667 S: -11.865 W: -142.3183 E: -134.94 project/cruise: EQPAC/TT011 - Fall Survey ship: Thomas Thompson Reference: Bishop, J.K.B. (1986). The correction and suspended mass calibration of Sea Tech transmissometer data. Deep-Sea Research, 33: 121-134.</p>

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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 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).