Deep sea sediment trap pigment data from US JGOFS Sediment Traps in the Southern Ocean, 1996-1998 (U.S. JGOFS AESOPS project)

Website: https://www.bco-dmo.org/dataset/2714
Version: 17 March 2009
Version Date: 2009-03-17

Project
» U.S. JGOFS Antarctic Environment and Southern Ocean Process Study (AESOPS)

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

Contributors	Affiliation	Role
Lee, Cindy	Stony Brook University (SUNY Stony Brook)	Principal Investigator
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Dataset Description

Deep sea sediment trap pigment data

Methods & Sampling

PI: Cindy Lee
of: SUNY Stony Brook
dataset: Deep sea sediment trap pigment data
dates: August 30, 1996 to March 19, 1998
location: N: -53.0305 S: -76.49542 W: 176.88623 E: -168.6723
project/cruise: AESOPS/Southern Ocean 1996-1997 Mooring Deployment
Deployment: NBP 96-5
Recovery: NBP 98-2 Benthic Cruise
ship: R/V Nathaniel B. Palmer

References: Amino acids and chloropigments were analyzed according to methods in: Lee, C., S.G. Wakeham and J.I. Hedges (2000) Composition and flux of particulate amino acids and chloropigments in equatorial Pacific seawater and sediments. Deep-Sea Research I, 47: 1535-1568.

Modification history: YYMMDD
090317: latitude and longitude values changeded to negative to indicate West and South

DMO note: During the EqPac and Arabian Sea sampling programs, the preferred units for pigment data were micrograms/m2/day. The preferred unit of measurement in September 2002 is picomol/m2/day.

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Data Files

File
sedtrap_pigments.csv (Comma Separated Values (.csv), 9.88 KB) MD5:9d02ba212d474b6d1de159bcc2a3bff5 Primary data file for dataset ID 2714

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Parameters

Parameter	Description	Units
site	Southern Ocean site designation	
mooring	Mooring identification	
trap_type	particle interceptor (xs area 0.017 m2) IRS=indented rotating sphere valve in line C=sample carousel in line	
deploy	Deployment number	
depth_trap	Depth of trap	meters
date_begin	Date of trap deployment	YYYYMMDD
lat	Latitude	decimal degrees
lon	Longitude	decimal degrees
carousel	Identification number of sample carousel on multi-trap arrays	
cup	Sample cup number (position) in carousel	
date_open	Date sample cup opened	YYYYMMDD
time_open	Time sample cup opened	hhmm
days_open	Elapsed time sample tube colleted particle flux	days
sample	Unique analytical ID# given to each sample	
chl_a_f_mol	chlorophyll-a flux	picomol/m2/day
pp_phorbide_f_mol	pyrophaeophorbide-a flux	picomol/m2/day
p_phorbide_f_mol	phaeophorbide-a flux	picomol/m2/day
p_phytin_f_mol	phaeophytin-a flux	picomol/m2/day
fucox_f_mol	fucoxanthin flux	picomol/m2/day

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Instruments

Dataset-specific Instrument Name	IRS Sediment Trap
Generic Instrument Name	Sediment Trap - IRS
Generic Instrument Description	Sediment traps are specially designed containers deployed in the water column for periods of time to collect particles from the water column falling toward the sea floor. In general a sediment trap has a jar at the bottom to collect the sample and a broad funnel-shaped opening at the top with baffles to keep out very large objects and help prevent the funnel from clogging. The Indented Rotating Sphere (IRS) Sediment Trap is described in Peterson et al. (Field evaluation of a valved sediment trap. 1993. Limnology and Oceanography, 38, pp. 1741-1761 and Novel techniques for collection of sinking particles in the ocean and determining their settling rates. 2005. Limnology and Oceanography Methods 3, pp. 520-532). The IRS trap consists of four cylindrical modules; a particle interceptor, an IRS valve; a skewed funnel, and an eleven sample carousel (designated IRSC trap). The key to the trap design is the patented IRS valve located between the particle interceptor and particle accumulator portions of the trap. The valve and carousel are regulated by a TattleTale IVA (manufactured by Onset Computer Corp.) microprocessor and custom software. The IRS sediment trap was specifically designed to exclude zooplankton (Trull et al. 2008. Deep-Sea Research II v.55 pp. 1684-1695).

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Deployments

NBP-96-5

Website	https://www.bco-dmo.org/deployment/57719
Platform	RVIB Nathaniel B. Palmer
Report	http://usjgofs.whoi.edu/aesops/m1.html
Start Date	1996-11-11
End Date	1996-12-01
Description	Moorings Deployment **Methods & Sampling** PI: Cindy Lee of: SUNY Stony Brook dataset: Deep sea sediment trap pigment data dates: August 30, 1996 to March 19, 1998 location: N: -53.0305 S: -76.49542 W: 176.88623 E: -168.6723 project/cruise: AESOPS/Southern Ocean 1996-1997 Mooring Deployment Deployment: NBP 96-5 Recovery: NBP 98-2 Benthic Cruise ship: R/V Nathaniel B. Palmer References: Amino acids and chloropigments were analyzed according to methods in: Lee, C., S.G. Wakeham and J.I. Hedges (2000) Composition and flux of particulate amino acids and chloropigments in equatorial Pacific seawater and sediments. Deep-Sea Research I, 47: 1535-1568. Modification history: YYMMDD 090317: latitude and longitude values changeded to negative to indicate West and South DMO note: During the EqPac and Arabian Sea sampling programs, the preferred units for pigment data were micrograms/m2/day. The preferred unit of measurement in September 2002 is picomol/m2/day.

NBP-98-2

Website	https://www.bco-dmo.org/deployment/57723
Platform	RVIB Nathaniel B. Palmer
Report	http://usjgofs.whoi.edu/aesops/nbp-bp_mr.html
Start Date	1998-02-25
End Date	1998-04-03
Description	Benthic Process and Moorings Recovery **Methods & Sampling** PI: Cindy Lee of: SUNY Stony Brook dataset: Deep sea sediment trap pigment data dates: August 30, 1996 to March 19, 1998 location: N: -53.0305 S: -76.49542 W: 176.88623 E: -168.6723 project/cruise: AESOPS/Southern Ocean 1996-1997 Mooring Deployment Deployment: NBP 96-5 Recovery: NBP 98-2 Benthic Cruise ship: R/V Nathaniel B. Palmer References: Amino acids and chloropigments were analyzed according to methods in: Lee, C., S.G. Wakeham and J.I. Hedges (2000) Composition and flux of particulate amino acids and chloropigments in equatorial Pacific seawater and sediments. Deep-Sea Research I, 47: 1535-1568. Modification history: YYMMDD 090317: latitude and longitude values changeded to negative to indicate West and South DMO note: During the EqPac and Arabian Sea sampling programs, the preferred units for pigment data were micrograms/m2/day. The preferred unit of measurement in September 2002 is picomol/m2/day.

AESOPS_Array

Website	https://www.bco-dmo.org/deployment/57753
Platform	JGOFS Sediment Trap
Start Date	1996-11-28
End Date	1998-01-27
Description	AESOPS sediment trap and current meter moorings Mooring M1 was set at 53.031°S 174.730°W in 5441 meters of water during cruise NBP 96-5 and recovered during cruise NBP 98-2. Mooring M2 was set at 56.895°S 170.165°W in 4924 meters of water during cruise NBP 96-5 and recovered during cruise NBP 98-2. Mooring M3 was set at 60.283°S 170.056°W in 3958 meters of water during cruise NBP 96-5 and recovered during cruise NBP 98-2. Mooring M4 was set at 63.149°S 169.897°W in 2886 meters of water during cruise NBP 96-5 and recovered during cruise NBP 98-2. Mooring M5 was set at 66.161°S 168.672°W in 3016 meters of water during cruise NBP 96-5 and recovered during cruise NBP 98-2. Mooring M6 was set at 73.543°S 176.886°E in 566 meters of water during cruise NBP 96-5 and recovered during cruise NBP 98-2. Mooring M7a was set at 76.491°S 177.872°W in 567 meters of water during cruise NBP 96-5 and recovered during cruise NBP 98-2. Mooring M7b was set at 76.495°S 178.022°W in 582 meters of water during cruise NBP 96-5 and recovered during cruise NBP 98-2. View a graphic showing the location of AESOPS mooring arrays, courtesy of Suzanne O'Hara of Lamont-Doherty Earth Observatory, Columbia University.

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Project Information

U.S. JGOFS Antarctic Environment and Southern Ocean Process Study (AESOPS)

Website: http://usjgofs.whoi.edu/research/aesops.html

Coverage: Southern Ocean, Ross Sea

The U.S. Southern Ocean JGOFS program, called Antarctic Environment and Southern Ocean Process Study

(AESOPS), began in August 1996 and continued through March 1998. The U.S. JGOFS AESOPS program focused on two regions in the Southern Ocean: an east/west section of the Ross-Sea continental shelf along 76.5°S, and a second north/south section of the Southern Ocean spanning the Antarctic Circumpolar Current (ACC) at ~170°W (identified as the Polar Front). The science program, coordinated by Antarctic Support Associates (ASA), comprised eleven cruises using the R.V.I.B Nathaniel B. Palmer and R/V Roger Revelle as observational platforms and for deployment and recovery of instrumented moorings and sediment-trap arrays. The Ross-Sea region was occupied on six occasions and the Polar Front five times. Mapping data were obtained from SeaSoar, ADCP, and bathymetric systems. Satellite coverage was provided by the NASA SeaWiFS and the NOAA/NASA Pathfinder programs.

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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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