Radionuclides from moored sediment trap samples from RVIB Nathaniel B. Palmer cruises and JGOFS AESOPS Sediment Traps in the Southern Ocean in 1997 (U.S. JGOFS AESOPS project)

Website: https://www.bco-dmo.org/dataset/2763
Version: September 17, 2002
Version Date: 2002-09-17

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
Anderson, Robert F.	Lamont-Doherty Earth Observatory (LDEO)	Principal Investigator
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Dataset Description

Radionuclides from moored sediment trap samples

Methods & Sampling

PI: Bob Anderson
of: Lamont-Doherty Earth Observatory
dataset: Radionuclides from moored sediment trap samples
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

Methodology

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Data Files

File
sedtrap_rad.csv (Comma Separated Values (.csv), 6.74 KB) MD5:98402f5897ee57e2607254843e6a8efc Primary data file for dataset ID 2763

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Parameters

Parameter	Description	Units
mooring	mooring number	
lat	latitude, (negative = South)	decimal degrees
lon	longitude, (negative = West)	decimal degrees
depth_ocean	ocean depth	meters
depth_trap	depth of sediment trap	meters
date_mid	middle of collection period for an individual sample or middle of combined collection period for composite samples	YYYYMMDD
days_open	number of days trap remained open	days
cup	cup number(s) from which sample was collected	
pm_f	total particulate matter flux recovered, time-weighted for composite samples	milligrams/m2/day
U238_part_lt1mm	uranium-238, particulate < 1mm	dpm/gram
U238_err	uranium-238 error	dpm/gram
Pb210_part_lt1mm	lead-210, particulate < 1mm	dpm/gram
Pb210_err	lead-210 error	dpm/gram
Th232_part_lt1mm	thorium-232, particulate < 1mm	dpm/gram
Th232_err	thorium-232 error	dpm/gram

Th230_part_lt1mm	thorium-230, particulate < 1mm	dpm/gram
Th230_err	thorium-230 error	dpm/gram
Pa231_part_lt1mm	protactinium-231, particulate < 1mm	dpm/gram
Pa231_err	protactinium-231 error	dpm/gram
Be10_part_lt1mm	beryllium-10, particulate < 1mm	atoms/gram
Be10_err	beryllium-10 error	atoms/gram

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Instruments

Dataset-specific Instrument Name	Accelerator Mass Spectrometer
Generic Instrument Name	Accelerator Mass Spectrometer
Generic Instrument Description	An AMS measures "long-lived radionuclides that occur naturally in our environment. AMS uses a particle accelerator in conjunction with ion sources, large magnets, and detectors to separate out interferences and count single atoms in the presence of 1x1015 (a thousand million million) stable atoms, measuring the mass-to-charge ratio of the products of sample molecule disassociation, atom ionization and ion acceleration." AMS permits ultra low-level measurement of compound concentrations and isotope ratios that traditional alpha-spectrometry cannot provide. More from Purdue University: http://www.physics.purdue.edu/primelab/introduction/ams.html

Dataset-specific Instrument Name	Inductively Coupled Plasma Mass Spectrometry
Generic Instrument Name	Inductively Coupled Plasma Mass Spectrometer
Generic Instrument Description	An ICP Mass Spec is an instrument that passes nebulized samples into an inductively-coupled gas plasma (8-10000 K) where they are atomized and ionized. Ions of specific mass-to-charge ratios are quantified in a quadrupole mass spectrometer.

Dataset-specific Instrument Name	Sediment Trap
Generic Instrument Name	Sediment Trap
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. This designation is used when the specific type of sediment trap was not specified by the contributing investigator.

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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: Bob Anderson of: Lamont-Doherty Earth Observatory dataset: Radionuclides from moored sediment trap samples 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 Methodology

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: Bob Anderson of: Lamont-Doherty Earth Observatory dataset: Radionuclides from moored sediment trap samples 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 Methodology

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. **Methods & Sampling** PI: Bob Anderson of: Lamont-Doherty Earth Observatory dataset: Radionuclides from moored sediment trap samples 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 Methodology

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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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