Thorium 234 activity in particulate and dissolved phases from R/V Atlantis II cruises AII-119-4, AII-119-5 in the North Atlantic in 1989 (U.S. JGOFS NABE project)

Website: https://www.bco-dmo.org/dataset/2580
Version: November 07, 2002
Version Date: 2002-11-07

Project
» U.S. JGOFS North Atlantic Bloom Experiment (NABE)

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

Contributors	Affiliation	Role
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Dataset Description

Thorium 234 activity in particulate and dissolved phases

Methods & Sampling

PI: Ken Buesseler
of: Woods Hole Oceanographic Institution
dataset: Thorium 234 activity in particulate and dissolved phases
dates: April 19, 1989 to June 5, 1989
location: N: 46.8317 S: 46.24 W: -18.3717 E: -17.68
project/cruise: North Atlantic Bloom Experiment/Atlantis II 119, leg 4 and 5
ship: R/V Atlantis II

Methodology:

Comments:
Data collected via in-situ pumping and gamma counting techniques referenced in:

Livingston, H.D. and J.K. Cochran (1987) Determination of transuranic and thorium isotopes in ocean water in solution and in filterable particles. J. Radioanal. Nucl. Chem., vol. 115 (2), 299-308.

Buesseler, K.O., M.P. Bacon, J.K. Cochran and H.D. Livingston (1990) Shipboard measurement of Th-234 during the JGOFS Spring Bloom Experiment. EOS, vol. 71 (2), 139.

All data decay corrected to mid-point of sampling time
Contacts: Ken O. Buesseler, Michael P. Bacon, Hugh D. Livingston (WHOI) and J. Kirk Cochran (SUNY)

Data:
Thorium-234 activities reported as Dpm/l (disintegration per minute per liter) Data for dissolved and particulate (0.5 micron nominal pore size) 234-Th reported with a one sigma error. This error is propagated from errors due to counting statistics, standardization and in-situ pump collection efficiency.

A data quality code is assigned to each measurement.
a = Highest confidence level (ie. lowest error);
c = Poorest confidence level

This quality code is determined by a combination of sampling and analytical factors, and is included in the reported error estimate.

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Data Files

File
th234activity.csv (Comma Separated Values (.csv), 5.42 KB) MD5:40b5dc5fd97eb8a3a5d584f2f0d6c464
Primary data file for dataset ID 2580

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Parameters

Parameter	Description	Units
year	year reported as YYYY	
sta	station number from event log	dimensionless
cast	cast number, numbered consectively within station, from event log	dimensionless
event	event number from event log	dimensionless
depth	sample depth	meters
Th234_d_lt0.5	thorium 234 activity in dissolved phase, less then 0.5 microns	Dpm/l
Th234_d_lt0.5_err	estimated error, thorium 234 activity in dissolved phase, one sigma	Dpm/l
Q_code	originator assigned quality code Highest confidence level = a (ie. lowest error) Poorest confidence level = c This quality code is determined by a combination of sampling and analytical factors, and is included in the reported error estimate.	
Th234_p_gt0.5	thorium 234 activity in particulate phase, greater then 0.5 microns	Dpm/l
Th234_p_gt0.5_err	estimated error, thorium 234 activity in particulate phase, one sigma	Dpm/l

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Instruments

Dataset-specific Instrument Name	Ken Buesseler's Slurper pump
Generic Instrument Name	Slurper Pump
Dataset-specific Description	Ken Buesseler's Slurper pump
Generic Instrument Description	The 'Slurper' is a custom designed in situ pumping system that pumps seawater in a way that allows large-volume sampling of pre-determined depth intervals. The 'Slurper' was used during US JGOFS cruises to acquire samples for 234-Thorium and POC/PON analysis (Buesseler et al., 1988). The 'Slurper' sampling system comprised a positive displacement pump coupled to a DC motor. Pump speed and sample volume were controlled via shipboard laptop computer. References: Buesseler, K. O., L. Ball, J. Andrews, C. Benitez-Nelson, R. Belastock, F. Chai and Y.Chao. 1998. Upper Ocean Export of Particulate Organic Carbon in the Arabian Sea derived from Thorium-234. Deep-Sea Res. II, Arabian Sea Volume, Vol. 45, No. 10-11, 2461-2488.

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Deployments

AII-119-5

Website	https://www.bco-dmo.org/deployment/57738
Platform	R/V Atlantis II
Start Date	1989-05-15
End Date	1989-06-06
Description	late bloom cruise; 31 locations; 61N 22W to 41N 17W

AII-119-4

Website	https://www.bco-dmo.org/deployment/57737
Platform	R/V Atlantis II
Start Date	1989-04-17
End Date	1989-05-11
Description	early bloom cruise; 17 locations; 60N 21W to 46N 18W

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Project Information

U.S. JGOFS North Atlantic Bloom Experiment (NABE)

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

Coverage: North Atlantic

One of the first major activities of JGOFS was a multinational pilot project, North Atlantic Bloom Experiment

(NABE), carried out along longitude 20° West in 1989 through 1991. The United States participated in 1989 only, with the April deployment of two sediment trap arrays at 48° and 34° North. Three process-oriented cruises where conducted, April through July 1989, from R/V *Atlantis II* and R/V *Endeavor* focusing on sites at 46° and 59° North. Coordination of the NABE process-study cruises was supported by NSF-OCE award # 8814229. Ancillary sea surface mapping and AXBT profiling data were collected from NASA's P3 aircraft for a series of one day flights, April through June 1989.

A detailed description of NABE and the initial synthesis of the complete program data collection efforts appear in: Topical Studies in Oceanography, JGOFS: The North Atlantic Bloom Experiment (1993), Deep-Sea Research II, Volume 40 No. 1/2.

The U.S. JGOFS Data management office compiled a preliminary NABE data report of U.S. activities: Slagle, R. and G. Heimerdinger, 1991. U.S. Joint Global Ocean Flux Study, North Atlantic Bloom Experiment, Process Study Data Report P-1, April-July 1989. NODC/U.S. JGOFS Data Management Office, Woods Hole Oceanographic Institution, 315 pp. (out of print).

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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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Funding

Funding Source	Award
National Science Foundation (NSF)	unknown NABE NSF

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