

Bacterial abundance, cell volume, thymidine & leucine incorporation from RVIB Nathaniel B. Palmer and R/V Roger Revelle cruises in the Southern Ocean, 1997-1998 (U.S. JGOFS AESOPS project)

Website: <https://www.bco-dmo.org/dataset/2739>

Version: February 27, 2002

Version Date: 2002-02-27

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
Ducklow, Hugh W.	Marine Biological Laboratory Ecosystems Center (MBL - Ecosystems)	Principal Investigator
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Dataset Description

Bacterial abundance, cell volume, thymidine & leucine incorporation

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Data Files

File
bacteria_KIW17.csv (Comma Separated Values (.csv), 12.51 KB) MD5:f69f0f5abb992ba234225cc22555ccd6
Version February 27, 2002 (previous version July 9, 2001)
PI: Hugh Ducklow
of: College of William and Mary, Virginia
dataset: Bacterial abundance, cell volume and activity
cruise: AESOPS/KIW07 - APFZ Process Cruise 1
ship: R/V Nathaniel B. Palmer

File	
bacteria_KIWI9.csv	(Comma Separated Values (.csv), 16.12 KB) MD5:7af9c018a3a0f20cac4546caec1d2d35
Version February 27, 2002 (previous version July 9, 2001) PI: Hugh Ducklow of: College of William and Mary, Virginia dataset: Bacterial abundance, cell volume and activity cruise: AESOPS/KIWI09 - APFZ Process Cruise 2 ship: R/V Nathaniel B. Palmer	
bacteria_NBP-96-04A.csv	(Comma Separated Values (.csv), 9.28 KB) MD5:7907b9e2df809445590013e6126b7d37
Version February 27, 2002 (original version April 21, 1998) PI: Hugh Ducklow of: College of William and Mary, Virginia dataset: Bacterial abundance, cell volume and activity cruise: AESOPS/NBP-96-4A - Ross Sea Process 1 Cruise ship: R/V Nathaniel B. Palmer	
bacteria_NBP-97-01.csv	(Comma Separated Values (.csv), 9.16 KB) MD5:035f48578b6a00377efc70b50658fca4
Version February 27, 2002 (original version October 19, 1998) PI: Hugh Ducklow of: College of William and Mary, Virginia dataset: Bacterial abundance, cell volume and activity cruise: AESOPS/NBP-97-1 - Ross Sea Process 2 Cruise ship: R/V Nathaniel B. Palmer	
bacteria_NBP-97-03.csv	(Comma Separated Values (.csv), 6.96 KB) MD5:3f8981b4dc7e523a1c9ed859aa19b0e8
Version February 27, 2002 (original version October 19, 1998) PI: Hugh Ducklow of: College of William and Mary, Virginia dataset: Bacterial abundance, cell volume and activity cruise: AESOPS/NBP-97-3 - Ross Sea Process 3 Cruise ship: R/V Nathaniel B. Palmer	
bacteria_NBP-97-08.csv	(Comma Separated Values (.csv), 12.98 KB) MD5:e42de5d9f63ddb757e6ba7ffe486b3a8
Version February 27, 2002 (previous version July 9, 2001) PI: Hugh Ducklow of: College of William and Mary, Virginia dataset: Bacterial abundance, cell volume and activity cruise: AESOPS/NBP-97-8 - Ross Sea Process 4 Cruise ship: R/V Nathaniel B. Palmer	

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Parameters

Parameter	Description	Units
event	event number, from event log	YYYYMMDD
sta	station number, from event log	dimensionless
cast	CTD cast number consecutive within station	dimensionless
bot	CTD rosette bottle number	dimensionless
depth_n	nominal depth	decibars
bact_het_orig	heterotrophic bacteria abundance, original units; microscopy	cells/liter *10 ⁹
bact_het_mic	heterotrophic bacteria abundance; DMO converted units; microscopy	cells/milliliter
bact_het_cellv	heterotrophic bacteria mean cell volume	cubic micrometers
thy_incorp	rate of incorporation of 3H-thymidine	picomoles/liter/hr
thy_sd	standard deviation of replicate 3H-thymidine incorp assays	picomoles/liter/hr
leuc_incorp	rate of incorp of 3H-leucine	picomoles/liter/hr
leuc_sd	standard deviation of replicate 3H-leucine incorp assays	picomoles/liter/hr

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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

NBP-96-04A

Website	https://www.bco-dmo.org/deployment/57718
Platform	RVIB Nathaniel B. Palmer
Report	http://usjgofs.whoi.edu/aesops/p1.html
Start Date	1996-10-02
End Date	1996-11-08
Description	Ross Sea Process Study 1 Methods & Sampling PI: Hugh Ducklow of: Virginia School of Marine Science dataset: Bacterial abundance, cell volume, thymidine & leucine incorporation dates: October 17, 1996 to November 06, 1996 location: N: -76.4733 S: -78.0175 W: 169.0185 E: -175.9053 project/cruise: AESOPS/NBP-96-4A - Ross Sea Process 1 Cruise ship: Nathaniel B. Palmer Methodology

NBP-97-01

Website	https://www.bco-dmo.org/deployment/57720
Platform	RVIB Nathaniel B. Palmer
Report	http://usjgofs.whoi.edu/aesops/p2.html
Start Date	1997-01-13
End Date	1997-02-11
Description	Ross Sea Process Study 2 Methods & Sampling PI: Hugh Ducklow of: Virginia School of Marine Science dataset: Bacterial abundance, cell volume, thymidine & leucine incorporation dates: January 14, 1997 to February 06, 1997 location: N: -74.0029 S: -78.0498 W: 168.8956 E: -175.9927 project/cruise: AESOPS/NBP-97-1 - Ross Sea Process 2 Cruise ship: Nathaniel B. Palmer Methodology

NBP-97-03

Website	https://www.bco-dmo.org/deployment/57721
Platform	RVIB Nathaniel B. Palmer
Report	http://usjgofs.whoi.edu/aesops/p3.html
Start Date	1997-04-04
End Date	1997-05-11
Description	<p>Ross Sea Process Study 3</p> <p>Methods & Sampling PI: Hugh Ducklow of: Virginia School of Marine Science dataset: Bacterial abundance, cell volume, thymidine & leucine incorporation dates: April 12, 1997 to April 28, 1997 location: N: -73.9602 S: -77.9319 W: 168.9281 E: -176.1451 project/cruise: AESOPS/NBP-97-3 - Ross Sea Process 3 Cruise ship: Nathaniel B. Palmer Methodology</p>

NBP-97-08

Website	https://www.bco-dmo.org/deployment/57722
Platform	RVIB Nathaniel B. Palmer
Report	http://usjgofs.whoi.edu/aesops/p4.html
Start Date	1997-11-05
End Date	1997-12-13
Description	<p>Ross Sea Process Study 4 SeaWiFS transmits images to U.S. JGOFS scientists aboard the Palmer, for first time on November 23, 1997.</p> <p>Methods & Sampling PI: Hugh Ducklow of: Virginia School of Marine Science dataset: Bacterial abundance, cell volume, thymidine & leucine incorporation dates: November 10, 1997 to December 11, 1997 location: N: -60.1627 S: -77.888 W: 168.9228 E: -169.8918 project/cruise: AESOPS/NBP-97-8 - Ross Sea Process 4 Cruise ship: Nathaniel B. Palmer Methodology</p>

KIWI7

Website	https://www.bco-dmo.org/deployment/57725
Platform	R/V Roger Revelle
Report	http://usjgofs.whoi.edu/aesops/RRp1.html
Start Date	1997-12-02
End Date	1998-01-03
Description	<p>Polar Front Process I. Additional information about this cruise can be found at https://usjgofs.whoi.edu/aesops/aboutrr7.html</p> <p>Methods & Sampling PI: Hugh Ducklow of: Virginia School of Marine Science dataset: Bacterial abundance, cell volume, thymidine & leucine incorporation dates: December 04, 1997 to December 29, 1997 location: N: -52.9467 S: -64.1535 W: -174.7303 E: -168.8333 project/cruise: AESOPS/KIWI07 - APFZ Polar Front Process 1 ship: Roger R. Revelle Methodology</p>

KIWI9

Website	https://www.bco-dmo.org/deployment/57727
Platform	R/V Roger Revelle
Report	http://usjgofs.whoi.edu/aesops/RRp2.html
Start Date	1998-02-13
End Date	1998-03-19
Description	<p>Polar Front Process II. Additional information about this cruise can be found at https://usjgofs.whoi.edu/aesops/aboutrr9.html</p> <p>Methods & Sampling PI: Hugh Ducklow of: Virginia School of Marine Science dataset: Bacterial abundance, cell volume, thymidine & leucine incorporation dates: February 15, 1998 to March 13, 1998 location: N: -52.9678 S: -70.4103 W: -174.7693 E: -165.9145 project/cruise: AESOPS/KIW109 - APFZ Polar Front Process 2 ship: Roger R. Revelle Methodology</p>

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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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