

# N15 Uptake Rates from RVIB Nathaniel B. Palmer, R/V Roger Revelle NBP-96-4A, NBP-97-1, NBP-97-3, NBP-97-8, KIWI7, KIWI9 cruises in the Southern Ocean, 1997-1998 (U.S. JGOFS AESOPS project)

**Website:** <https://www.bco-dmo.org/dataset/2736>

**Version:** final

**Version Date:** 2001-11-28

## 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
<a href="#">Cochlan, William P.</a>	San Francisco State University (SFSU)	Principal Investigator
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## Dataset Description

N15 Uptake Rates

## Methods & Sampling

W.Cochlan,D.Bronk: N-15 absolute uptake rates

R.Sambrotto: N15 Uptake rates for nitrate, ammonium and urea, POC, PON

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## Parameters

Parameter	Description	Units
event	event number from event log	
sta_name	unique station identifier	
sta	station number from event log	
cast	rosette cast number	
cast_type	CTD = CTD rosette TM = Trace Metal rosette	
bot	rosette bottle number	
depth_n	nominal sample depth	meters
pNH4	ammonium uptake rate	nanogram atoms N/liter/day
pNO3	nitrate uptake rate	nanogram atoms N/liter/day
pUrea	urea uptake rate	nanogram atoms N/liter/day
pNO2	nitrite uptake rate	nanogram atoms N/liter/day
pNH4_uncorr	ammonium uptake rate, uncorrected for isotope dilution effect	micromoles N/liter/day
dfaa	dissolved free amino acid concentration	micromoles/liter
Urea	urea concentration (as nitrogen)	micromoles N/liter
POC	particulate organic carbon concentration	micromoles/liter
PON	particulate nitrogen concentration	micromoles/liter

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## Instruments

<b>Dataset-specific Instrument Name</b>	Niskin Bottle
<b>Generic Instrument Name</b>	Niskin bottle
<b>Dataset-specific Description</b>	CTD clean rosette (Niskin) bottles were used to collect water samples.
<b>Generic Instrument Description</b>	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.

<b>Dataset-specific Instrument Name</b>	Trace Metal Bottle
<b>Generic Instrument Name</b>	Trace Metal Bottle
<b>Dataset-specific Description</b>	Trace metal (TM) clean rosette bottles were used to collect water samples.
<b>Generic Instrument Description</b>	Trace metal (TM) clean rosette bottle used for collecting trace metal clean seawater samples.

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## Deployments

### NBP-96-04A

<b>Website</b>	<a href="https://www.bco-dmo.org/deployment/57718">https://www.bco-dmo.org/deployment/57718</a>
<b>Platform</b>	RVIB Nathaniel B. Palmer
<b>Report</b>	<a href="http://usjgofs.who.edu/aesops/p1.html">http://usjgofs.who.edu/aesops/p1.html</a>
<b>Start Date</b>	1996-10-02
<b>End Date</b>	1996-11-08
<b>Description</b>	Ross Sea Process Study 1 <b>Methods &amp; Sampling</b> PI: William Cochlan and Deborah Bronk of: San Francisco State University (Cochlan), University of Georgia (Bronk) dataset: N-15 absolute uptake rates dates: October 23, 1996 to November 02, 1996 location: N: -76.4943 S: -76.5642 W: 169.0945 E: -177.8620 project/cruise: AESOPS/NBP-96-4A - Ross Sea Process 1 Cruise ship: R/V Nathaniel B. Palmer Methodology

### NBP-97-01

<b>Website</b>	<a href="https://www.bco-dmo.org/deployment/57720">https://www.bco-dmo.org/deployment/57720</a>
<b>Platform</b>	RVIB Nathaniel B. Palmer
<b>Report</b>	<a href="http://usjgofs.who.edu/aesops/p2.html">http://usjgofs.who.edu/aesops/p2.html</a>
<b>Start Date</b>	1997-01-13
<b>End Date</b>	1997-02-11
<b>Description</b>	Ross Sea Process Study 2 <b>Methods &amp; Sampling</b> PI: William Cochlan and Deborah Bronk of: San Francisco State University (Cochlan), University of Georgia (Bronk) dataset: N-15 absolute uptake rates dates: January 13, 1997 to January 27, 1997 location: N: -76.4927 S: -76.5153 W: 168.9581 E: 176.9902 project/cruise: AESOPS/NBP-97-1 - Ross Sea Process 2 Cruise ship: R/V Nathaniel B. Palmer Methodology

### NBP-97-03

<b>Website</b>	<a href="https://www.bco-dmo.org/deployment/57721">https://www.bco-dmo.org/deployment/57721</a>
<b>Platform</b>	RVIB Nathaniel B. Palmer
<b>Report</b>	<a href="http://usjgofs.who.edu/aesops/p3.html">http://usjgofs.who.edu/aesops/p3.html</a>
<b>Start Date</b>	1997-04-04
<b>End Date</b>	1997-05-11
<b>Description</b>	Ross Sea Process Study 3 <b>Methods &amp; Sampling</b> PI: William Cochlan and Deborah Bronk of: San Francisco State University (Cochlan), University of Georgia (Bronk) dataset: N-15 absolute uptake rates dates: April 12, 1997 to April 17, 1997 location: N: -73.9629 S: -76.4649 W: 169.0574 E: -177.9587 project/cruise: AESOPS/NBP-97-3 - Ross Sea Process 3 Cruise ship: R/V Nathaniel B. Palmer Methodology

### NBP-97-08

<b>Website</b>	<a href="https://www.bco-dmo.org/deployment/57722">https://www.bco-dmo.org/deployment/57722</a>
<b>Platform</b>	RVIB Nathaniel B. Palmer
<b>Report</b>	<a href="http://usjgofs.whoi.edu/aesops/p4.html">http://usjgofs.whoi.edu/aesops/p4.html</a>
<b>Start Date</b>	1997-11-05
<b>End Date</b>	1997-12-13
<b>Description</b>	<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><b>Methods &amp; Sampling</b>  PI: William Cochlan and Deborah Bronk of: San Francisco State University (Cochlan), University of Georgia (Bronk) dataset: N-15 absolute uptake rates dates: November 16, 1997 to December 06, 1997 location: N: -76.4762 S: -76.563 W: 169.1610 E: -177.9637 project/cruise: AESOPS/NBP97-8, Ross Sea Process 4 cruise ship: R/V Nathaniel B. Palmer Methodology</p>

#### KIWI7

<b>Website</b>	<a href="https://www.bco-dmo.org/deployment/57725">https://www.bco-dmo.org/deployment/57725</a>
<b>Platform</b>	R/V Roger Revelle
<b>Report</b>	<a href="http://usjgofs.whoi.edu/aesops/RRp1.html">http://usjgofs.whoi.edu/aesops/RRp1.html</a>
<b>Start Date</b>	1997-12-02
<b>End Date</b>	1998-01-03
<b>Description</b>	<p>Polar Front Process I</p> <p><b>Methods &amp; Sampling</b>  PI: Raymond Sambrotto of: Lamont Doherty Earth Observatory dataset: N-15 uptake rates for nitrate, ammonium and urea, particulate N and particulate C dates: December 03, 1997 to December 30, 1997 location: N: -52.9388 S: -64.696 W: -174.7217 E: -168.8332 project/cruise: AESOPS/KIWI07 - APFZ Polar Front Process Cruise 1 ship: R/V Roger R. Revelle Sampling Methodology</p>

#### KIWI9

<b>Website</b>	<a href="https://www.bco-dmo.org/deployment/57727">https://www.bco-dmo.org/deployment/57727</a>
<b>Platform</b>	R/V Roger Revelle
<b>Report</b>	<a href="http://usjgofs.whoi.edu/aesops/RRp2.html">http://usjgofs.whoi.edu/aesops/RRp2.html</a>
<b>Start Date</b>	1998-02-13
<b>End Date</b>	1998-03-19
<b>Description</b>	<p>Polar Front Process II</p> <p><b>Methods &amp; Sampling</b>  PI: Raymond Sambrotto of: Lamont Doherty Earth Observatory dataset: N-15 uptake rates for nitrate, ammonium and urea, particulate N and particulate C dates: February 16, 1998 to March 14, 1998 location: N: -52.9668 S: -71.3072 W: -174.7317 E: -165.9148 project/cruise: AESOPS/KIWI09 - APFZ Polar Front Process Cruise 2 ship: R/V Roger A. Revelle Sampling 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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