

# Gross and net oxygen production rates from RVIB Nathaniel B. Palmer, R/V Roger Revelle NBP-96-4A, NBP-97-1, NBP-97-3, KIWI7, KIWI9 cruises in the Southern Ocean, 1997-1998 (U.S. JGOFS AESOPS project)

**Website:** <https://www.bco-dmo.org/dataset/2731>

**Version:** April 28, 1999

**Version Date:** 1999-04-28

## 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
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## Table of Contents

- [Dataset Description](#)
- [Parameters](#)
- [Instruments](#)
- [Deployments](#)
- [Project Information](#)
- [Program Information](#)

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## Dataset Description

Gross and net Oxygen production rates

[ [table of contents](#) | [back to top](#) ]

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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	cast number	
cast_type	TM=trace metal rosette CTD=ctd rosette	
bot	rosette bottle number	
depth_n	nominal sample depth	meters
o2_gross	gross oxygen production	micromoles/liter/day
o2_gross_err	standard error for gross O2 production	
o2_net	net oxygen production	micromoles/liter/day
o2_net_err	standard error for net O2 production	
o2_dark_respir	oxygen dark respiration rates (oxygen consumption)	micromoles/liter/day
o2_dark_respir_err	standard error for O2 dark respiration	micromoles/liter/day

[ [table of contents](#) | [back to top](#) ]

## 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.

[ [table of contents](#) | [back to top](#) ]

## 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: Michael Bender and Mary-Lynn Dickson of: University of Rhode Island dataset: Gross and net Oxygen production rates dates: October 18, 1996 to November 02, 1996 location: N: -76.487 S: -76.5667 W: 169.0347 E: -177.9728 project/cruise: AESOPS/NBP-96-4A - Ross Sea Process 1 Cruise ship: R/V Nathaniel B. Palmer PI-Notes on 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: Michael Bender and Mary-Lynn Dickson of: University of Rhode Island dataset: Gross and net Oxygen production rates dates: January 13, 1997 to February 06, 1997 location: N: -74.0027 S: -78.043 W: 163.3482 E: -176.0241 project/cruise: AESOPS/NBP97-1 - Ross Sea Process Cruise 2 ship: R/V Nathaniel B. Palmer PI-Notes on 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: Michael Bender and Mary-Lynn Dickson of: University of Rhode Island dataset: Gross and net Oxygen production rates dates: April 12, 1997 to April 30, 1997 location: N: -73.9141 S: -77.9486 W: 168.9630 E: -176.1155 project/cruise: AESOPS/NBP97-3 - Ross Sea Process Cruise 3 ship: R/V Nathaniel B. Palmer PI-Notes on Methodology:

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: Michael Bender and Mary-Lynn Dickson of: University of Rhode Island dataset: Gross and net Oxygen production rates dates: December 05, 1997 to December 30, 1997 location: N: -52.9823 S: -64.696 W: -174.7135 E: -168.8333 project/cruise: AESOPS/RR_KIWI-7 - APFZ Polar Front Process Cruise 1 ship: R/V Roger Revelle PI-Notes on 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: Michael Bender and Mary-Lynn Dickson of: University of Rhode Island dataset: Gross and net Oxygen production rates dates: February 16, 1998 to March 14, 1998 location: N: -52.9668 S: -70.4002 W: -174.7317 E: -165.9148 project/cruise: AESOPS/RR_KIWI-9 - APFZ Polar Front Process Cruise 2 ship: R/V Roger Revelle PI-Notes on Methodology:</p>

[ [table of contents](#) | [back to top](#) ]

## 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.

## **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).