

# Fluorometric chlorophyll-a and phaeopigments from RVIB Nathaniel B. Palmer NBP-96-4A, NBP-97-1, NBP-97-3, NBP-97-8, NBP-98-2 cruises in the Southern Ocean in 1997 (U.S. JGOFS AESOPS project)

**Website:** <https://www.bco-dmo.org/dataset/2745>

**Version:** final

**Version Date:** 2002-04-12

## 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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## Dataset Description

Fluorometric chlorophyll-a & phaeopigments

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## Parameters

Parameter	Description	Units
event	event number from event log	
sta	station number from event log	
cast	cast number	
cast_type	CTD = CTD rosette TM = trace metal rosette	
bot	bottle number	
depth_n	nominal depth	meters
Fo_to_Fa	ratio of fluorometer readings, where: Fo = sample reading before acidification Fa = sample reading after acidification	
chl_a_fluor	chlorophyll-a, fluorometric method	micrograms/liter
phaeo	phaeopigments, fluorometric method	micrograms/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.whoi.edu/aesops/p1.html">http://usjgofs.whoi.edu/aesops/p1.html</a>
<b>Start Date</b>	1996-10-02
<b>End Date</b>	1996-11-08
<b>Description</b>	<p>Ross Sea Process Study 1</p> <p><b>Methods &amp; Sampling</b> PI: Walker O. Smith of: University of Tennessee dataset: Fluorometric chlorophyll-a &amp; phaeopigments dates: October 17, 1996 to November 06, 1996 location: N: -76.4623 S: -78.0348 W: 168.9967 E: -175.9047 project/cruise: AESOPS/NBP96-4A - Ross Sea Process 1 Cruise ship: R/V Nathaniel B. Palmer Methodology: Please see Chapter 14 of the JGOFS protocols (1994), "Measurements of Chlorophyll a and Phaeopigments by Fluorometric Analysis" PI-Notes on Methodology: 25mm GF/F filters Extracted volume = 7mL in 90% Acetone 1.2M HCl = 3 drops ASA's 10-AU fluorometer. Blank=0. Calibrated by Scott Polk (ASA: Antarctic Support Associates) DMO Note on multiple-bottle events</p>

### 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.whoi.edu/aesops/p2.html">http://usjgofs.whoi.edu/aesops/p2.html</a>
<b>Start Date</b>	1997-01-13
<b>End Date</b>	1997-02-11
<b>Description</b>	<p>Ross Sea Process Study 2</p> <p><b>Methods &amp; Sampling</b>  PI: Walker O. Smith of: University of Tennessee dataset: Fluorometric chlorophyll-a &amp; phaeopigments dates: January 13, 1997 to February 09, 1997 location: N: -73.9972 S: -78.043 W: 163.3950 E: -175.9906 project/cruise: AESOPS/NBP97-1 - Ross Sea Process 2 Cruise ship: R/V Nathaniel B. Palmer Methodology: Please see Chapter 14 of the JGOFS protocols (1994), "Measurements of Chlorophyll a and Phaeopigments by Fluorometric Analysis" PI-Notes on Methodology: 25mm GF/F filters Extracted volume = 7mL in 90% Acetone 1.2M HCl = 3 drops ASA's 10-AU fluorometer. Blank=0. Calibrated by A.M. White (ASA: Antarctic Support Associates)</p>

### 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.whoi.edu/aesops/p3.html">http://usjgofs.whoi.edu/aesops/p3.html</a>
<b>Start Date</b>	1997-04-04
<b>End Date</b>	1997-05-11
<b>Description</b>	<p>Ross Sea Process Study 3</p> <p><b>Methods &amp; Sampling</b>  PI: Walker O. Smith of: University of Tennessee dataset: Fluorometric chlorophyll-a &amp; phaeopigments dates: April 12, 1997 to April 29, 1997 location: N: -73.9602 S: -77.9486 W: 168.9281 E: -176.1155 project/cruise: AESOPS/NBP97-3 - Ross Sea Process Cruise 3 ship: R/V Nathaniel B. Palmer Methodology: Please see Chapter 14 of the JGOFS protocols (1994), "Measurements of Chlorophyll a and Phaeopigments by Fluorometric Analysis" PI-Notes on Methodology: 25mm GF/F filters Extracted volume = 7mL in 90% Acetone 1.2M HCl = 3 drops ASA's 10-AU fluorometer. Blank=0. Calibrated by K. Hanson (ASA: Antarctic Support Associates) DMO Note on multiple-bottle events</p>

### 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: Walker O. Smith of: University of Tennessee dataset: Fluorometric chlorophyll-a &amp; phaeopigments dates: November 15, 1997 to December 11, 1997 location: N: -73.5048 S: -77.888 W: 168.9257 E: -177.9562 project/cruise: AESOPS/NBP97-8 - Ross Sea Process 4 Cruise ship: R/V Nathaniel B. Palmer Methodology: Please see Chapter 14 of the JGOFS protocols (1994), "Measurements of Chlorophyll a and Phaeopigments by Fluorometric Analysis" PI-Notes on Methodology: 25mm GF/F filters Extracted volume = 7mL in 90% Acetone 1.2M HCl = 3 drops ASA's 10-AU fluorometer. Blank=0. Calibrated by S. Mathot and J. Seward (ASA: Antarctic Support Associates) DMO Note on multiple-bottle events DMO Note on discrepancies with TMBottle data</p>

#### NBP-98-2

<b>Website</b>	<a href="https://www.bco-dmo.org/deployment/57723">https://www.bco-dmo.org/deployment/57723</a>
<b>Platform</b>	RVIB Nathaniel B. Palmer
<b>Report</b>	<a href="http://usjgofs.whoi.edu/aesops/nbp-bp_mr.html">http://usjgofs.whoi.edu/aesops/nbp-bp_mr.html</a>
<b>Start Date</b>	1998-02-25
<b>End Date</b>	1998-04-03
<b>Description</b>	<p>Benthic Process and Moorings Recovery</p> <p><b>Methods &amp; Sampling</b>  PI: Walker O. Smith of: University of Tennessee dataset: Fluorometric chlorophyll-a &amp; phaeopigments dates: February 26, 1998 to March 29, 1998 location: N: -53.0437 S: -76.4962 W: 176.8417 E: -169.6257 project/cruise: AESOPS/NBP98-2 - Ross Sea Benthic Process and Mooring Recovery Cruise ship: R/V Nathaniel B. Palmer Methodology: Please see Chapter 14 of the JGOFS protocols (1994), "Measurements of Chlorophyll a and Phaeopigments by Fluorometric Analysis" PI-Notes on Methodology: 25mm GF/F filters Extracted volume = 7mL in 90% Acetone 1.2M HCl = 3 drops ASA's 10-AU fluorometer. Blank=0. Calibrated by S. Mathot &amp; J. Seward (ASA: Antarctic Support Associates)</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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