

Optical Plankton Counter data, MOCNESS Tows from RVIB Nathaniel B. Palmer cruises: NBP-96-4, NBP-96-4A, NBP-97-1, NBP-97-3 in the Southern Ocean in 1997 (U.S. JGOFS AESOPS project)

Website: <https://www.bco-dmo.org/dataset/2725>

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Project

» [U.S. JGOFS Antarctic Environment and Southern Ocean Process Study](#) (AESOPS)

Program

» [U.S. Joint Global Ocean Flux Study](#) (U.S. JGOFS)

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Dataset Description

Optical Plankton Counter data - MOCNESS Tows

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Parameters

Parameter	Description	Units
event	event number from event log	
sta	station number from event log	
depth_r	depth range sampled lt_150 = zero to 150 meters gt_150 = greater than 150 meters	
vol_filt	water volume filtered	m ³
counts_tot	total counts	
opc_class	class number	
opc_wt_mid	middle value of each weight class	ugC
opc_wt_biomass	normalized biomass spectra - weight classes	1/m ³
opc_wt_abund	normalized abundance spectra - weight classes	1/ugC*m ³
opc_size_mid	middle value of each ESD size class	mm
opc_size_abund	normalized abundance spectra - ESD size classes	1/mm*m ³
opc_size_biovol	normalized bio-volume spectra - ESD size classes	mm ³ /mm*m ³
opc_vol_mid	middle value of each volume class	mm ³
opc_vol_biovol	normalized bio-volume spectra - volume classes	1/m ³

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Instruments

Dataset-specific Instrument Name	MOCNESS
Generic Instrument Name	MOCNESS
Dataset-specific Description	MOCNESS (Multiple Opening and Closing Nets Environment Sampling System)
Generic Instrument Description	The Multiple Opening/Closing Net and Environmental Sensing System or MOCNESS is a family of net systems based on the Tucker Trawl principle. There are currently 8 different sizes of MOCNESS in existence which are designed for capture of different size ranges of zooplankton and micro-nekton. Each system is designated according to the size of the net mouth opening and in two cases, the number of nets it carries. The original MOCNESS (Wiebe et al, 1976) was a redesigned and improved version of a system described by Frost and McCrone (1974). (from MOCNESS manual) This designation is used when the specific type of MOCNESS (number and size of nets) was not specified by the contributing investigator.

Dataset-specific Instrument Name	Optical Plankton Counter
Generic Instrument Name	Optical Plankton Counter
Generic Instrument Description	An OPC provides quantitative measurements of abundance and sizes of mesozooplankton ranging between approximately 0.25 and 14 mm in Equivalent Spherical Diameter (ESD), and has the capability to integrate measurements from other sensors such as a CTD, fluorometer and Global Positioning System (GPS). It can be deployed on a variety of instruments such as SeaSoar, Aries, Scanfish, MOCNESS, a bongo net or simple towing frame. The data from an OPC are typically transmitted to a data acquisition computer through two conducting wires in a towing cable at real time, but it can also be modified to have an internal memory. Large amounts of data are produced. The procedures employed by OPC users vary from; i) estimating integrated biomass by integrating the OPC size distributions, ii) comparing size distributions between OPC and net samples, and iii) simply isolating a size region in the OPC size distribution which correspond solely to specific taxa, eg. Calanus spp.. from: Zhou, M., Tande, K., 2002. Optical Plankton Counter Workshop. GLOBEC Report 17, University of Tromso, Tromso

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Deployments

NBP-96-4

Website	https://www.bco-dmo.org/deployment/57717
Platform	RVIB Nathaniel B. Palmer
Report	http://usjgofs.whoi.edu/aesops/ss.html
Start Date	1996-08-30
End Date	1996-09-24
Description	<p>Site Survey Cruise</p> <p>Methods & Sampling PI: Mark Huntley and Meng Zhou of: Scripps Institution of Oceanography (Huntley) and University of Minnesota, Duluth (Zhou) dataset: Optical Plankton Counter data - MOCNESS Tows dates: September 08, 1996 to September 17, 1996 location: N: -56.9167 S: -61.9572 W: -170.1833 E: -169.9667 project/cruise: AESOPS/NBP-96-4 - Site Survey Cruise ship: R/V Nathaniel B. Palmer Sampling Methodology Note 1: The class will not show up if nothing were counted within that class. Note 2: OPC data is reported on a Log10 basis.</p>

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	<p>Ross Sea Process Study 1</p> <p>Methods & Sampling PI: Mark Huntley and Meng Zhou of: Scripps Institution of Oceanography (Huntley) and University of Minnesota, Duluth (Zhou) dataset: Optical Plankton Counter data - MOCNESS Tows dates: October 18, 1996 to November 05, 1996 location: N: -76.3635 S: -77.9553 W: 171.9613 E: -175.7857 project/cruise: AESOPS/NBP-96-4A - Ross Sea Process 1 Cruise ship: R/V Nathaniel B. Palmer Sampling Methodology Note 1: The class will not show up if nothing were counted within that class. Note 2: OPC data is reported on a Log10 basis.</p>

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	<p>Ross Sea Process Study 2</p> <p>Methods & Sampling PI: Mark Huntley and Meng Zhou of: Scripps Institution of Oceanography (Huntley) and University of Minnesota, Duluth (Zhou) dataset: Optical Plankton Counter data - MOCNESS Tows dates: January 14, 1997 to February 09, 1997 location: N: -74.0265 S: -78.0207 W: 163.4075 E: -176.0478 project/cruise: AESOPS/NBP-97-1 - Ross Sea Process 2 Cruise ship: R/V Nathaniel B. Palmer Sampling Methodology Note 1: The class will not show up if nothing were counted within that class. Note 2: OPC data is reported on a Log10 basis.</p>

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: Mark Huntley and Meng Zhou of: Scripps Institution of Oceanography (Huntley) and University of Minnesota, Duluth (Zhou) dataset: Optical Plankton Counter data - MOCNESS Tows dates: April 14, 1997 to April 29, 1997 location: N: -73.999 S: -77.9385 W: 168.9599 E: -176.1732 project/cruise: AESOPS/NBP-97-3 - Ross Sea Process 3 Cruise ship: R/V Nathaniel B. Palmer Sampling Methodology Note 1: The class will not show up if nothing were counted within that class. Note 2: OPC data is reported on a Log10 basis.</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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