

Total carbon dioxide, total alkalinity and pH from RVIB Nathaniel B. Palmer, R/V Roger Revelle NBP-96-4A, NBP-97-3, KIWI6, KIWI7 cruises in the Southern Ocean, 1997-1998 (U.S. JGOFS AESOPS project)

Website: <https://www.bco-dmo.org/dataset/2741>

Version: May 8, 2001

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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)

Contributors	Affiliation	Role
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Table of Contents

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

Dataset Description

Total carbon dioxide, total alkalinity and pH

Methods & Sampling

PI: Frank Millero
of: Rosenstiel School of Marine and Atmospheric Science
at the University of Miami
dataset: Total carbon dioxide, total alkalinity and pH

[Methodology](#)

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

Parameters

Parameter	Description	Units
event	event number from event log	
sta	station number from event log	
cast	cast number	
bot	CTD rosette bottle number	
depth_n	nominal depth of sample	meters
TCO2	Total carbon dioxide	micromoles C/kilogram
TALK	Total alkalinity	micromoles/kilogram
pH_sw	pH in sea water, pH scale described in DOE CO2 handbook (see Methodology for complete citation)	sea water scale

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

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.

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

Deployments

NBP-96-04A

Website	https://www.bco-dmo.org/deployment/57718
Platform	RVIB Nathaniel B. Palmer
Report	http://usjgofs.who.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: Frank Millero of: Rosenstiel School of Marine and Atmospheric Science at the University of Miami dataset: Total carbon dioxide, total alkalinity and pH dates: October 17, 1996 to November 06, 1996 location: N: -76.4733 S: -78.0175 W: 169.0185 E: -175.9053 project/cruise: AESOPS/NBP96-4A - Ross Sea Process Cruise 1 ship: Nathaniel B. Palmer Methodology</p>

NBP-97-03

Website	https://www.bco-dmo.org/deployment/57721
Platform	RVIB Nathaniel B. Palmer
Report	http://usjgofs.who.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: Frank Millero of: Rosenstiel School of Marine and Atmospheric Science at the University of Miami dataset: Total carbon dioxide, total alkalinity and pH dates: April 12, 1997 to May 05, 1997 location: N: -65.0055 S: -77.9319 W: 168.9281 E: -176.1451 project/cruise: AESOPS/NBP97-3 - Ross Sea Process Cruise 3 ship: Nathaniel B. Palmer Methodology</p>

KIWI6

Website	https://www.bco-dmo.org/deployment/57724
Platform	R/V Roger Revelle
Report	http://usjgofs.who.edu/aesops/RRs1.html
Start Date	1997-10-20
End Date	1997-11-24
Description	<p>Polar Front Survey I</p> <p>Methods & Sampling PI: Frank Millero of: Rosenstiel School of Marine and Atmospheric Science at the University of Miami dataset: Total carbon dioxide, total alkalinity and pH dates: October 23, 1997 to November 18, 1997 location: N: -56.9998 S: -62.341 W: -170.6927 E: -168.1587 project/cruise: AESOPS KIWI-6, APFZ Polar Front Survey 1 cruise ship: Roger Revelle 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</p> <p>Methods & Sampling PI: Frank Millero of: Rosenstiel School of Marine and Atmospheric Science at the University of Miami dataset: Total carbon dioxide, total alkalinity and pH dates: December 04, 1997 to December 30, 1997 location: N: -52.9143 S: -64.7418 W: -174.7303 E: -168.8302 project/cruise: AESOPS KIWI-7, APFZ Polar Front Process 1 cruise ship: Roger Revelle 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.

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

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).

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