Total CO2 and delta 13C of seawater from surface seawater line from RVIB Nathaniel B. Palmer and R/V Roger Revelle cruises in the Southern Ocean, 1997-1998 (U.S. JGOFS AESOPS project)

Website: https://www.bco-dmo.org/dataset/2727
Version: February 18, 2000
Version Date: 2000-02-18

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

Total CO2 and delta 13C of seawater from surface seawater line

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Data Files

File
delta_13C_surface.csv (Comma Separated Values (.csv), 14.34 KB) MD5:a25762835bb7413330d97aa5ea8ebbe3 Primary data file for dataset ID 2727

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Parameters

Parameter	Description	Units
cruise_id	cruise designation	
date	date sample collected (YYYYMMDD)	
lat	latitude, negative=south	decimal degrees
lon	longitude, negative=west	decimal degrees
tco2	manometric total CO2 in seawater	micromoles C per kilogram
delta13C	C13/C12 ratio of tco2	per mil

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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.

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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	Site Survey Cruise **Methods & Sampling** PI: Paul Quay of: University of Washington dataset: Total CO2 and delta 13C of seawater from surface seawater line project/cruise: AESOPS/NBP-96-4 ship: Nathaniel B. Palmer References: 1. Kroopnick, P.M. (1974), The dissolved O2-CO2-13C system in the eastern equatorial Pacific. Deep-Sea Research, 21, 211-227. 2. Quay, P.D., B. Tilbrook and C.S. Wong (1992), Oceanic uptake of fossil fuel CO2: Carbon-13 evidence. Science, 256, 74-79.

NBP-96-5

Website	https://www.bco-dmo.org/deployment/57719
Platform	RVIB Nathaniel B. Palmer
Report	http://usjgofs.whoi.edu/aesops/m1.html
Start Date	1996-11-11
End Date	1996-12-01
Description	Moorings Deployment **Methods & Sampling** PI: Paul Quay of: University of Washington dataset: Total CO2 and delta 13C of seawater from surface seawater line project/cruise: AESOPS/NBP-96-5 ship: Nathaniel B. Palmer References: 1. Kroopnick, P.M. (1974), The dissolved O2-CO2-13C system in the eastern equatorial Pacific. Deep-Sea Research, 21, 211-227. 2. Quay, P.D., B. Tilbrook and C.S. Wong (1992), Oceanic uptake of fossil fuel CO2: Carbon-13 evidence. Science, 256, 74-79.

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	Ross Sea Process Study 2 **Methods & Sampling** PI: Paul Quay of: University of Washington dataset: Total CO2 and delta 13C of seawater from surface seawater line project/cruise: AESOPS/NBP-97-1 ship: Nathaniel B. Palmer References: 1. Kroopnick, P.M. (1974), The dissolved O2-CO2-13C system in the eastern equatorial Pacific. Deep-Sea Research, 21, 211-227. 2. Quay, P.D., B. Tilbrook and C.S. Wong (1992), Oceanic uptake of fossil fuel CO2: Carbon-13 evidence. Science, 256, 74-79.

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	Ross Sea Process Study 3 **Methods & Sampling** PI: Paul Quay of: University of Washington dataset: Total CO2 and delta 13C of seawater from surface seawater line project/cruise: AESOPS/NBP-97-3 ship: Nathaniel B. Palmer References: 1. Kroopnick, P.M. (1974), The dissolved O2-CO2-13C system in the eastern equatorial Pacific. Deep-Sea Research, 21, 211-227. 2. Quay, P.D., B. Tilbrook and C.S. Wong (1992), Oceanic uptake of fossil fuel CO2: Carbon-13 evidence. Science, 256, 74-79.

NBP-97-08

Website	https://www.bco-dmo.org/deployment/57722
Platform	RVIB Nathaniel B. Palmer
Report	http://usjgofs.whoi.edu/aesops/p4.html
Start Date	1997-11-05
End Date	1997-12-13
Description	Ross Sea Process Study 4 SeaWiFS transmits images to U.S. JGOFS scientists aboard the Palmer, for first time on November 23, 1997. **Methods & Sampling** PI: Paul Quay of: University of Washington dataset: Total CO2 and delta 13C of seawater from surface seawater line project/cruise: AESOPS/NBP-97-8 ship: Nathaniel B. Palmer References: 1. Kroopnick, P.M. (1974), The dissolved O2-CO2-13C system in the eastern equatorial Pacific. Deep-Sea Research, 21, 211-227. 2. Quay, P.D., B. Tilbrook and C.S. Wong (1992), Oceanic uptake of fossil fuel CO2: Carbon-13 evidence. Science, 256, 74-79.

NBP-98-2

Website	https://www.bco-dmo.org/deployment/57723
Platform	RVIB Nathaniel B. Palmer
Report	http://usjgofs.whoi.edu/aesops/nbp-bp_mr.html
Start Date	1998-02-25
End Date	1998-04-03
Description	Benthic Process and Moorings Recovery **Methods & Sampling** PI: Paul Quay of: University of Washington dataset: Total CO2 and delta 13C of seawater from surface seawater line project/cruise: AESOPS/NBP-98-2 ship: Nathaniel B. Palmer References: 1. Kroopnick, P.M. (1974), The dissolved O2-CO2-13C system in the eastern equatorial Pacific. Deep-Sea Research, 21, 211-227. 2. Quay, P.D., B. Tilbrook and C.S. Wong (1992), Oceanic uptake of fossil fuel CO2: Carbon-13 evidence. Science, 256, 74-79.

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	Polar Front Process I. Additional information about this cruise can be found at https://usjgofs.whoi.edu/aesops/aboutrr7.html **Methods & Sampling** PI: Paul Quay of: University of Washington dataset: Total CO2 and delta 13C of seawater from surface seawater line project/cruise: AESOPS/KIWI-7 ship: Roger A. Revelle References: 1. Kroopnick, P.M. (1974), The dissolved O2-CO2-13C system in the eastern equatorial Pacific. Deep-Sea Research, 21, 211-227. 2. Quay, P.D., B. Tilbrook and C.S. Wong (1992), Oceanic uptake of fossil fuel CO2: Carbon-13 evidence. Science, 256, 74-79.

KIWI8

Website	https://www.bco-dmo.org/deployment/57726
Platform	R/V Roger Revelle
Report	http://usjgofs.whoi.edu/aesops/RRs2.html
Start Date	1998-01-08
End Date	1998-02-08
Description	Polar Front Survey II. Additional information about this cruise can be found at https://usjgofs.whoi.edu/aesops/aboutrr8.html **Methods & Sampling** PI: Paul Quay of: University of Washington dataset: Total CO2 and delta 13C of seawater from surface seawater line project/cruise: AESOPS/KIWI-8 ship: Roger A. Revelle References: 1. Kroopnick, P.M. (1974), The dissolved O2-CO2-13C system in the eastern equatorial Pacific. Deep-Sea Research, 21, 211-227. 2. Quay, P.D., B. Tilbrook and C.S. Wong (1992), Oceanic uptake of fossil fuel CO2: Carbon-13 evidence. Science, 256, 74-79.

KIWI9

Website	https://www.bco-dmo.org/deployment/57727
Platform	R/V Roger Revelle
Report	http://usjgofs.whoi.edu/aesops/RRp2.html
Start Date	1998-02-13
End Date	1998-03-19
Description	Polar Front Process II. Additional information about this cruise can be found at https://usjgofs.whoi.edu/aesops/aboutrr9.html **Methods & Sampling** PI: Paul Quay of: University of Washington dataset: Total CO2 and delta 13C of seawater from surface seawater line project/cruise: AESOPS/KIWI-9 ship: Roger A. Revelle References: 1. Kroopnick, P.M. (1974), The dissolved O2-CO2-13C system in the eastern equatorial Pacific. Deep-Sea Research, 21, 211-227. 2. Quay, P.D., B. Tilbrook and C.S. Wong (1992), Oceanic uptake of fossil fuel CO2: Carbon-13 evidence. Science, 256, 74-79.

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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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