Merged hydrographic, nutrient and Carbon/Nitrogen data from R/V Atlantis II cruises AII-119-4, AII-119-5 in the North Atlantic in 1989 (U.S. JGOFS NABE project)

Website: https://www.bco-dmo.org/dataset/2577
Version: final
Version Date: 2003-01-14

Project
» U.S. JGOFS North Atlantic Bloom Experiment (NABE)

Program
» U.S. Joint Global Ocean Flux Study (U.S. JGOFS)

Contributors	Affiliation	Role
Brewer, Peter	Monterey Bay Aquarium Research Institute (MBARI)	Principal Investigator
Ducklow, Hugh W.	Marine Biological Laboratory Ecosystems Center (MBL - Ecosystems)	Principal Investigator
McCarthy, James J.	Harvard University	Principal Investigator
Takahashi, Taro	Lamont-Doherty Earth Observatory (LDEO)	Principal Investigator
Williams, Robert	University of California-San Diego Scripps (UCSD-SIO)	Principal Investigator
Chandler, Cynthia L.	Woods Hole Oceanographic Institution (WHOI BCO-DMO)	BCO-DMO Data Manager

Table of Contents

- Dataset Description
  - Methods & Sampling
- Data Files
- Parameters
- Instruments
- Deployments
- Project Information
- Program Information
- Funding

Dataset Description

Merged hydrographic, nutrient and Carbon/Nitrogen chemistries from several investigators

Methods & Sampling

Peter Brewer - Total alkalinity, total carbon dioxide

Hugh Ducklow - Particulate organic carbon and particulate nitrogen

James McCarthy - Ammonium

Taro Takahashi - Partial pressure of CO2, total CO2 and total alkalinity

Robert Williams - Pressure, temperature, salinity, oxygen, nutrients

[table of contents | back to top]

Data Files

File
bottle.csv (Comma Separated Values (.csv), 110.22 KB) MD5:f3458c2af8b7ede1365a8cd5c0465265 Primary data file for dataset ID 2577

[table of contents | back to top]

Parameters

Parameter	Description	Units
year	year (as YYYY)	dimensionless
event	event number from event log	dimensionless
sta	station number from event log	dimensionless
cast	cast number from event log	dimensionless
bot	bottle number	dimensionless
press	depth reported as pressure	decibars
depth	depth reported in meters	meters
temp	temperature of water (IPTS-68)	degrees C
potemp	potential temperature as calculated by Williams	degrees C
sal_bot	bottle salinity (Autosal; PPS-78)	dimensionless
sigma_t	sigma-t as calculated by Williams	kilogram/meter^3
O2_ml_L	oxygen by Williams	milliliter/liter
NO3	nitrate by Williams	micromoles/liter
NO2	nitrite by Williams	micromoles/liter

PO4	phosphate by Williams	micromoles/liter
SiO4	silicate by Williams	micromoles/liter
NH4_orig	ammonium as originally received from McCarthy	nanomoles/liter
NH4	ammonium from McCarthy, units converted by JGOFS Data Management Office	micromoles/liter
TPC	total particulate carbon by Ducklow	micromoles/liter
PON	particulate organic nitrogen by Ducklow	micromoles/liter
TALK_b	total alkalinity by Brewer	micromoles/kilogram
TCO2_b	total carbon dioxide by Brewer	micromoles/kilogram
TCO2_t	total carbon dioxide by Takahashi	micromoles/kilogram
pCO2_20	partial pressure of CO2 at 20 degrees C by Takahashi	microatmospheres
TALK_t	total alkalinity calculated by Takahashi	micromoles/kilogram

[table of contents | back to top]

Instruments

Dataset-specific Instrument Name	MkIIICTD
Generic Instrument Name	CTD Neil Brown Mark III
Dataset-specific Description	An ODF-modified NBIS Mark 3 CTD was mounted on the rosette frame.
Generic Instrument Description	The Neil Brown Instrument Systems Mark III Conductivity, Temperature, Depth (CTD) instrument is an integral unit containing pressure, temperature and conductivity sensors with an optional dissolved oxygen sensor in a pressure-hardened casing. Developed in the 1970s, the Neil Brown CTD unit was able to digitize conductivity, temperature and pressure measurements at sufficient speeds to permit oceanographers to study 10 cm features at winch lowering speeds of 30 meters per minute. The most widely used variant in the 1980s and 1990s was the MK3B. The MK3C fitted with an improved pressure sensor to reduce hysteresis was developed to meet the requirements of the WOCE project. The instrument is no longer in production, but is supported (repair and calibration) by General Oceanics.

Dataset-specific Instrument Name	Niskin Bottle
Generic Instrument Name	Niskin bottle
Dataset-specific Description	30-liter PVC Niskin bottles mounted on the rosette frame were used to collect samples for salinity, dissolved oxygen and nutrient analyses.
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.

Dataset-specific Instrument Name	SeaTech Transmissometer
Generic Instrument Name	Sea Tech Transmissometer
Dataset-specific Description	A Seatech transmissometer was mounted on the rosette frame.
Generic Instrument Description	The Sea Tech Transmissometer can be deployed in either moored or profiling mode to estimate the concentration of suspended or particulate matter in seawater. The transmissometer measures the beam attenuation coefficient in the red spectral band (660 nm) of the laser lightsource over the instrument's path-length (e.g. 20 or 25 cm). This instrument designation is used when specific make and model are not known. The Sea Tech Transmissometer was manufactured by Sea Tech, Inc. (Corvalis, OR, USA).

[table of contents | back to top]

Deployments

AII-119-4

Website	https://www.bco-dmo.org/deployment/57737
Platform	R/V Atlantis II
Start Date	1989-04-17
End Date	1989-05-11
Description	early bloom cruise; 17 locations; 60N 21W to 46N 18W **Methods & Sampling** PI: 1) Peter Brewer, 2) Hugh Ducklow, 3) James McCarthy, 4)Taro Takahashi, 5) Robert Williams of: 1) University of South Florida, 2) Horn Point Environmental Laboratory 3) Harvard University, 4) Lamont-Doherty Earth Observatory, 5) Scripps Institute of Oceanography dataset: Basic hydrographic, nutrient and Carbon/Nitrogen chemistries dates: April 20, 1989 to June 06, 1989 location: N: 59.7418 S: 41.104 W: -23.022 E: -17.6433 project/cruise: North Atlantic Bloom Experiment/Atlantis II 119, leg 4 ship: R/V Atlantis II Methodology: Niskin/Rosette cast procedure (Williams) Pressure, temperature, salinity, oxygen, nutrients (Williams) Ammonium (McCarthy) Particulate organic carbon and particulate nitrogen (Ducklow) Total carbon dioxide (CO2) and total alkalinity (Brewer) Partial pressure of CO2, total CO2 and total alkalinity (Takahashi) References Note: DOC measurements were removed from this data by the data manager, at the request of Peltzer and Suzuki. Please see note from Edward Peltzer on DOC problems.

AII-119-5

Website	https://www.bco-dmo.org/deployment/57738
Platform	R/V Atlantis II
Start Date	1989-05-15
End Date	1989-06-06
Description	late bloom cruise; 31 locations; 61N 22W to 41N 17W **Methods & Sampling** PI: 1) Peter Brewer, 2) Hugh Ducklow, 3) James McCarthy, 4)Taro Takahashi, 5) Robert Williams of: 1) University of South Florida, 2) Horn Point Environmental Laboratory 3) Harvard University, 4) Lamont-Doherty Earth Observatory, 5) Scripps Institute of Oceanography dataset: Basic hydrographic, nutrient and Carbon/Nitrogen chemistries dates: April 20, 1989 to June 06, 1989 location: N: 59.7418 S: 41.104 W: -23.022 E: -17.6433 project/cruise: North Atlantic Bloom Experiment/Atlantis II 119, leg 4 ship: R/V Atlantis II Methodology: Niskin/Rosette cast procedure (Williams) Pressure, temperature, salinity, oxygen, nutrients (Williams) Ammonium (McCarthy) Particulate organic carbon and particulate nitrogen (Ducklow) Total carbon dioxide (CO2) and total alkalinity (Brewer) Partial pressure of CO2, total CO2 and total alkalinity (Takahashi) References Note: DOC measurements were removed from this data by the data manager, at the request of Peltzer and Suzuki. Please see note from Edward Peltzer on DOC problems.

[table of contents | back to top]

Project Information

U.S. JGOFS North Atlantic Bloom Experiment (NABE)

Website: http://usjgofs.whoi.edu/research/nabe.html

Coverage: North Atlantic

One of the first major activities of JGOFS was a multinational pilot project, North Atlantic Bloom Experiment (NABE), carried out along longitude 20° West in 1989 through 1991. The United States participated in 1989 only, with the April deployment of two sediment trap arrays at 48° and 34° North. Three process-oriented cruises where conducted, April through July 1989, from R/V *Atlantis II* and R/V *Endeavor* focusing on sites at 46° and 59° North. Coordination of the NABE process-study cruises was supported by NSF-OCE award # 8814229. Ancillary sea surface mapping and AXBT profiling data were collected from NASA's P3 aircraft for a series of one day flights, April through June 1989.

A detailed description of NABE and the initial synthesis of the complete program data collection efforts appear in: Topical Studies in Oceanography, JGOFS: The North Atlantic Bloom Experiment (1993), Deep-Sea Research II, Volume 40 No. 1/2.

The U.S. JGOFS Data management office compiled a preliminary NABE data report of U.S. activities: Slagle, R. and G. Heimerdinger, 1991. U.S. Joint Global Ocean Flux Study, North Atlantic Bloom Experiment, Process Study Data Report P-1, April-July 1989. NODC/U.S. JGOFS Data Management Office, Woods Hole Oceanographic Institution, 315 pp. (out of print).

[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]

Funding

Funding Source	Award
National Science Foundation (NSF)	unknown NABE NSF

[table of contents | back to top]