

Primary production (carbon assimilation) from R/V Endeavor, R/V Atlantis II cruises EN198, AII-119-4, AII-119-5 in the North Atlantic in 1989 (U.S. JGOFS NABE project)

Website: <https://www.bco-dmo.org/dataset/2573>

Version: December 14, 1994

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Project

» [U.S. JGOFS North Atlantic Bloom Experiment](#) (NABE)

Program

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

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Table of Contents

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

Dataset Description

Primary Production (Carbon Assimilation)

Methods & Sampling

dataset: Primary Production (Carbon Assimilation)

project/cruise: North Atlantic Bloom Experiment cruises

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

Parameters

Parameter	Description	Units
sta	station number from event log	dimensionless
event	event number from event log composite of month, day, hour, minutes	MMDDhhmm
date	date reported as YYYYMMDD	YYYYMMDD
depth	sample depth	meters
time_inc	incubation time	hours
pp	primary productivity	micromoles C/liter/incubation period
pp_int	integrated productivity	milligrams C/meter ² /day

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

Instruments

Dataset-specific Instrument Name	Go-flo Bottle
Generic Instrument Name	GO-FLO Bottle
Dataset-specific Description	Acid-cleaned 20 and 30 liter Go-Flo sampling bottles were used to collect the water samples during AII-119-4.
Generic Instrument Description	GO-FLO bottle cast used to collect water samples for pigment, nutrient, plankton, etc. The GO-FLO sampling bottle is specially designed to avoid sample contamination at the surface, internal spring contamination, loss of sample on deck (internal seals), and exchange of water from different depths.

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

Deployments

EN198

Website	https://www.bco-dmo.org/deployment/57739
Platform	R/V Endeavor
Start Date	1989-06-28
End Date	1989-07-07
Description	<p>post bloom cruise; 7 locations; 63°N 25°W to 59°N 14°W</p> <p>Methods & Sampling PI: Steve Fitzwater and John Martin of: Moss Landing Marine Laboratories dataset: Primary Production dates: June 30, 1989 to July 04, 1989 location: N: 59.535 S: 59.4667 W: -21.01 E: -20.9383 project/cruise: North Atlantic Bloom Experiment/Endeavor 198 ship: Endeavor Sampling methodology and analytical procedures: Martin, J.M., S.F. Fitzwater, R.M. Gordon, C.N. Hunter, S.J. Tanner, 1993. Iron, primary production and carbon-nitrogen flux studies during the JGOFS North Atlantic Bloom Experiment. Deep-Sea Research II, Vol. 40, No. 1/2, pp. 115-134. PI-Notes: The primary productivity values are the mean values of two to three samples.</p>

All-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	<p>early bloom cruise; 17 locations; 60N 21W to 46N 18W</p> <p>Methods & Sampling PI: John Marra, C.A. Knudson, W.S. Chamberlin of: Lamont-Doherty Earth Observatory dataset: Primary Production (Carbon Assimilation) dates: April 25, 1989 to May 08, 1989 location: N: 47.0957 S: 46.3067 W: -20.2383 E: -19.0228 project/cruise: North Atlantic Bloom Experiment/Atlantis II 119, leg 4 ship: R/V Atlantis II Marra Primary Production Methodology C. Knudson, W.S. Chamberlin, J. Marra Lamont-Doherty Geological Observatory Methods reported below were extracted from: Knudson, C., W.S. Chamberlin, J. Marra, 1989. Primary production and irradiance data for U.S. JGOFS (leg 2) ATLANTIS II (Cruise 119-4). Technical Report LDGO-89.4. Lamont-Doherty Geological Observatory, Palisades, NY. Primary production measurements were made using the ¹⁴C technique. Water samples were collected before dawn each day from acid-cleaned 20 and 30 liter Go-Flo sampling bottles. Each sample was inoculated with 9.0 uCi sterile NaH¹⁴CO₃ solution and incubated in 265 ml polystyrene tissue culture flasks. New sterile flasks were used for each sample and a teflon liner was placed in the cap of each flask prior to incubation. There were four replicates at each depth. Dawn to dusk incubations were carried out in situ (except for 28 April when we performed a 4 h experiment about local noon). The two replicates that were incubated for 24 h were stored in an on deck surface water-cooled incubator from dusk to the following dawn. After the incubation period the samples were filtered onto Millipore HA filters. The filters were then soaked in a few drops of 10% HCl in scintillation vials. After 3-4 h, fluor was added, and the samples were counted on the ship's Beckman LS 100 scintillation counter. A subsequent count was conducted at L-DGO. The data shows the average of the two replicates for the dawn-to- dusk (14 h) (or, in the case of 28 April, the 4 h experiment) and dawn-to-dawn incubations. The variation about these replicates is less than 15%. Sampling methodology and analytical procedures: Chipman, D.W., J. Marra, T.Takahashi, 1993. Primary production at 47N and 20W in the North Atlantic Ocean: a comparison between 14°C incubation method and the mixed layer carbon budget. Deep-Sea Research II, vol. 40, No. 1/2, pp. 151-169</p>

All-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	<p>late bloom cruise; 31 locations; 61N 22W to 41N 17W</p> <p>Methods & Sampling PI: Steve Fitzwater and John Martin of: Moss Landing Marine Laboratory dataset: Primary Production dates: May 18, 1989 to June 06, 1989 location: N: 59.5433 S: 46.3067 W: -20.7983 E: -17.69 project/cruise: North Atlantic Bloom Experiment/Atlantis II 119, leg 5 ship: R/V Atlantis II Sampling methodology and analytical procedures: Martin, J.M., S.F. Fitzwater, R.M. Gordon, C.N. Hunter, S.J. Tanner, 1993. Iron, primary production and carbon-nitrogen flux studies during the JGOFS North Atlantic Bloom Experiment. Deep-Sea Research II, Vol. 40, No. 1/2, pp. 115-134. PI-Notes: The primary productivity values are the mean values of two to three samples. Station 27, event 05200530 The productivity array was left out for 2 days due to storm.</p>

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 were 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).

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).

Funding

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

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