# Niskin bottle chlorophyll, phaeopigments and oxygen from R/V Oceanus OC415-01 in the Sargasso Sea in 2005 (EDDIES project)

**Website**: https://www.bco-dmo.org/dataset/3041
**Version**: 18 June 2007
**Version Date**: 2007-06-18

**Project**
» Eddies Dynamics, Mixing, Export, and Species composition (EDDIES)

**Program**
» Ocean Carbon and Biogeochemistry (OCB)

| Contributors | Affiliation | Role |
|---|---|---|
| Bates, Nicholas | Bermuda Biological Station for Research (BBSR) | Principal Investigator |
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| Chandler, Cynthia L. | Woods Hole Oceanographic Institution (WHOI BCO-DMO) | BCO-DMO Data Manager |

## Table of Contents



## Dataset Description

**PI:** Nick Bates
**of:** Bermuda Biological Station for Research (BBSR)
**dataset:** Niskin bottle chlorophyll, Phaeo and oxygen
**dates:** 20 June 2005 to 14 July 2005
**location:** N: 40.753 S: 28.733 W: -70.546 E: -61.920
**project/cruise:** EDDIES/OC415-1 2005 Survey 1
**platform:** R/V Oceanus

Methodology: U.S. JGOFS BATS Method Manual Version 4 (1997). Bermuda Atlantic Time-Series Study April 1997. Anthony H. Knap, Anthony F. Michaels et al., 136 pp. (link to BATS Method Manual version 4 local copy)

Technician: Rod Johnson (rod@sargasso.bbsr.edu)

Change history: YYMMDD
051219: downloaded oce415_hydro.dat file from EDDIES data web site;
added to OCB database by Cyndy Chandler, OCB DMO
060210. Station 1-3 depth_n corrected per Olga Kosnyreva email
these were test stations for watchstander training
with all bottles fired at a nominal depth of 20 meters
070313: change parameter names to be consistent within EDDIES
070618: added event, date, time, lon and lat from cruise event log

[ table of contents | back to top ]

## Data Files

| File |
|---|
| **pigments_oxy.csv** (Comma Separated Values (.csv), 101.36 KB)<br>MD5:c206a130fe0cc22a102ae7824dc0276d<br>Primary data file for dataset ID 3041 |

[ table of contents | back to top ]

## Parameters

| Parameter | Description | Units |
|---|---|---|
| event | unique sampling event number composite of GMT date and time | YYYYMMDDhhmm |
| date | start date of event (GMT) | YYYYMMDD |
| time | start time of event (GMT) | hhmm |
| lon | longitude, negative denotes West | decimal degrees |
| lat | latitude, negative denotes South | decimal degrees |
| sta | station number | dimensionless |
| Nis | Niskin bottle order number | dimensionless |
| depth_n | sample depth, nominal | meters |
| O2_ml_L | oxygen, dissolved | milliliters/liter |
| chl_a_ugL | chlorophyll-a | micrograms/liter |
| phaeo | Phaeopigments | micrograms/liter |
| chla_phaeo | Chl_a + Phaeo | micrograms/liter |

[ table of contents | back to top ]

## Deployments

**OC415-01**

| | |
|---|---|
| **Website** | https://www.bco-dmo.org/deployment/57962 |
| **Platform** | R/V Oceanus |
| **Report** | http://ocb.whoi.edu/EDDIES/CRUISES/2005/OC415_Draft_Cruise_Report_050722.pdf |
| **Start Date** | 2005-06-20 |
| **End Date** | 2005-07-15 |
| **Description** | EDDIES project 2005 Survey 1 cruise Funded by: NSF OCE-0241310 Original cruise data are available from the NSF R2R data catalog |

[ table of contents | back to top ]

## Project Information

**Eddies Dynamics, Mixing, Export, and Species composition (EDDIES)**

**Website**: http://science.whoi.edu/users/olga/eddies/EDDIES_Project.html

**Coverage**: Sargasso Sea

The original title of this project from the NSF award is: Collaborative Research: Impacts of Eddies and Mixing on Plankton Community Structure and Biogeochemical Cycling in the Sargasso Sea".

Prior results have documented eddy-driven transport of nutrients into the euphotic zone and the associated accumulation of chlorophyll. However, several key aspects of mesoscale upwelling events remain unresolved by the extant database, including: (1) phytoplankton physiological response, (2) changes in community structure, (3) impact on export out of the euphotic zone, (4) rates of mixing between the surface mixed layer and the base of the euphotic zone, and (5) implications for biogeochemistry and differential cycling of carbon and associated bioactive elements. This leads to the following hypotheses concerning the complex, non-linear biological regulation of elemental cycling in the ocean:

H1: Eddy-induced upwelling, in combination with diapycnal mixing in the upper ocean, introduces new nutrients into the euphotic zone.

H2: The increase in inorganic nutrients stimulates a physiological response within the phytoplankton community.

H3: Differing physiological responses of the various species bring about a shift in community structure.

H4: Changes in community structure lead to increases in export from, and changes in biogeochemical cycling within, the upper ocean.

**Publications**


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[ table of contents | back to top ]

## Program Information

**Ocean Carbon and Biogeochemistry (OCB)**

**Website**: http://us-ocb.org/

**Coverage**: Global

The Ocean Carbon and Biogeochemistry (OCB) program focuses on the ocean's role as a component of the global Earth system, bringing together research in geochemistry, ocean physics, and ecology that inform on and advance our understanding of ocean biogeochemistry. The overall program goals are to promote, plan, and coordinate collaborative, multidisciplinary research opportunities within the U.S. research community and with international partners. Important OCB-related activities currently include: the Ocean Carbon and Climate Change (OCCC) and the North American Carbon Program (NACP); U.S. contributions to IMBER, SOLAS, CARBOOCEAN; and numerous U.S. single-investigator and medium-size research projects funded by U.S. federal agencies including NASA, NOAA, and NSF.

The scientific mission of OCB is to study the evolving role of the ocean in the global carbon cycle, in the face of environmental variability and change through studies of marine biogeochemical cycles and associated ecosystems.

The overarching OCB science themes include improved understanding and prediction of: 1) oceanic uptake and release of atmospheric CO2 and other greenhouse gases and 2) environmental sensitivities of biogeochemical cycles, marine ecosystems, and interactions between the two.

The OCB Research Priorities (updated January 2012) include: ocean acidification; terrestrial/coastal carbon fluxes and exchanges; climate sensitivities of and change in ecosystem structure and associated impacts on biogeochemical cycles; mesopelagic ecological and biogeochemical interactions; benthic-pelagic feedbacks on biogeochemical cycles; ocean carbon uptake and storage; and expanding low-oxygen conditions in the coastal and open oceans.

[ table of contents | back to top ]