

XBT depth, temperature, sound velocity from R/V Oceanus OC404-01, OC404-04, OC415-01, OC415-02, OC415-03 cruises in the Sargasso Sea, 2004-2005 (EDDIES project)

Website: <https://www.bco-dmo.org/dataset/3058>

Version: 02 March 2006

Version Date: 2006-03-02

Project

» [Eddies Dynamics, Mixing, Export, and Species composition](#) (EDDIES)

Program

» [Ocean Carbon and Biogeochemistry](#) (OCB)

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Dataset Description

XBT depth, temperature and sound velocity from EDDIES R/V Oceanus cruises

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Parameters

Parameter	Description	Units
Xseq	XBT sequence number	dimensionless
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
depth_xbt	depth, from XBT	meters
temp_xbt	temperature, from XBT	degrees Celsius
snd_vel	sound velocity	meters/second

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Deployments

OC404-01

Website	https://www.bco-dmo.org/deployment/57956
Platform	R/V Oceanus
Report	http://ocb.whoi.edu/EDDIES/CRUISES/2004/OC404-1_Draft_Cruise_Report.pdf
Start Date	2004-06-11
End Date	2004-07-03
Description	<p>EDDIES 2004 Survey 1 cruise Funded by: NSF OCE-0241310 Original cruise data are available from the NSF R2R data catalog (Cruise DOI: 10.7284/900337)</p> <p>Methods & Sampling PI: Dennis McGillicuddy of: Woods Hole Oceanographic Institution (WHOI) dataset: XBT depth, temperature, sound velocity dates: 13 June 2004 to 02 July 2004 (20040613-20040702) location: N: 36.020 S: 28.641 W: -67.465 E: -58.975 project/cruise: EDDIES/OC404-1 2004 Survey 1 platform: R/V Oceanus Methodology Change history: YMMDD 050623: downloaded original data from EDDIES data web site; added to OCB database by Cyndy Chandler, OCB DMO</p>

OC404-04

Website	https://www.bco-dmo.org/deployment/57961
Platform	R/V Oceanus
Report	http://ocb.whoi.edu/EDDIES/CRUISES/2004/OC404-4_Draft_Cruise_Report.pdf
Start Date	2004-07-25
End Date	2004-08-12
Description	<p>EDDIES project 2004 Survey 2 cruise Funded by: NSF OCE-0241310 Original cruise data are available from the NSF R2R data catalog</p> <p>Methods & Sampling PI: Dennis McGillicuddy of: Woods Hole Oceanographic Institution (WHOI) dataset: XBT depth, temperature, sound velocity dates: 25 July 2004 to 11 August 2004 (20040725-20040811) location: N: 32.499 S: 29.959 W: -66.602 E: -59.454 project/cruise: EDDIES/OC404-4 2004 Survey 2 platform: R/V Oceanus Methodology Change history: YMMDD 060301: downloaded original data from EDDIES data web site; added to OCB database by Cyndy Chandler, OCB DMO</p>

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	<p>EDDIES project 2005 Survey 1 cruise Funded by: NSF OCE-0241310 Original cruise data are available from the NSF R2R data catalog</p> <p>Methods & Sampling PI: Dennis McGillicuddy of: Woods Hole Oceanographic Institution (WHOI) dataset: XBT depth, temperature, sound velocity dates: 21 June 2005 to 14 July 2005 location: N: 37.097 S: 28.559 W: -68.077 E: -62.129 project/cruise: EDDIES/OC415-1 2005 Survey 1 platform: R/V Oceanus Methodology Change history: YMMDD 051222: downloaded original data from EDDIES data web site; added to OCB database by Cyndy Chandler, OCB DMO</p>

OC415-02

Website	https://www.bco-dmo.org/deployment/57964
Platform	R/V Oceanus
Start Date	2005-07-18
End Date	2005-08-04
Description	<p>EDDIES project 2005 Tracer 1 cruise Funded by: NSF OCE-0241310 Original cruise data are available from the NSF R2R data catalog</p> <p>Methods & Sampling PI: Jim Ledwell (Chief Scientist) of: Woods Hole Oceanographic Institution (WHOI) dataset: XBT depth, temperature, sound velocity dates: 18 July 2005 to 19 July 2005 (20050718-20050719) location: N: 31.254 S: 30.469 W: -67.215 E: -65.840 project/cruise: EDDIES/OC415-2 2005 Tracer 1 platform: R/V Oceanus Methodology Change history: YYMMDD 060301: downloaded original data from EDDIES data web site; added to OCB database by Cyndy Chandler, OCB DMO</p>

OC415-03

Website	https://www.bco-dmo.org/deployment/57965
Platform	R/V Oceanus
Report	http://ocb.whoi.edu/EDDIES/CRUISES/2005/OC415-3_CrRptDraft_091405.pdf
Start Date	2005-08-07
End Date	2005-08-26
Description	<p>EDDIES project 2005 Survey 2 cruise Funded by: NSF OCE-0241310 Original cruise data are available from the NSF R2R data catalog</p> <p>Methods & Sampling PI: Dennis McGillicuddy of: Woods Hole Oceanographic Institution (WHOI) dataset: XBT depth, temperature, sound velocity dates: 07 August 2005 to 24 August 2005 (20050807-20050824) location: N: 33.243 S: 29.459 W: -69.290 E: -63.376 project/cruise: EDDIES/OC415-3 2005 Survey 2 platform: R/V Oceanus Methodology Change history: YYMMDD 060302: downloaded original data from EDDIES data web site; added to OCB database by Cyndy Chandler, OCB DMO</p>

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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.

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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.

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