CTD station locations from R/V Atlantic Explorer and R/V Cape Hatteras multiple cruises in the Sargasso Sea, Bermuda Atlantic Time Series area, and Hydrostation "S" from 2007 to 2008 (ON DEQUE project)

Website: https://www.bco-dmo.org/dataset/3398
Version: 25 July 2011
Version Date: 2011-07-25

Project
» Optical and Nutrient Dependence of Quantum Efficiency (ON DEQUE)

Program
» Ocean Carbon and Biogeochemistry (OCB)

Contributors	Affiliation	Role
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Dataset Description

CTD Stations List for all OnDeque cruises
Project, Cruise Id, Station Id, Cast Id, Location Description, date/time, lat/lon of CTD stations

Methods & Sampling

Generated by BCO-DMO staff from data contained within file: "ONDEQUE Database_v1.0.xlsx"

Data Processing Description

Generated by BCO-DMO staff from data contained within file: "ONDEQUE Database_v1.0.xlsx"

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Data Files

File
CTD_Stations.csv (Comma Separated Values (.csv), 3.77 KB) MD5:7fb411ce18192b48943b9b003bc32a74 Primary data file for dataset ID 3398

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Parameters

Parameter	Description	Units
ProjectId	ON DEQUE Project Id	text
CruiseId	ON DEQUE Cruise Id	text
StationId	ON DEQUE Station Id	text
Cast_Id	ON DEQUE Cast Id	text
Location_Description	Location description	text
date_utc	Station Date (UTC)	YYYYMMDD
time_utc	Station Time (UTC)	HHMM
date_local	Station Date (local)	YYYYMMDD
time_local	Station Time (local)	HHMM
lon	Station longitude (West is negative)	decimal degrees
lat	Station latitude (South is negative)	decimal degrees

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Deployments

GF222_BATS

Website	https://www.bco-dmo.org/deployment/58135
Platform	R/V Atlantic Explorer
Start Date	2007-04-14
End Date	2007-04-20

GF226_BATS

Website	https://www.bco-dmo.org/deployment/58136
Platform	R/V Atlantic Explorer
Start Date	2007-08-11
End Date	2007-08-19

CH-05-08

Website	https://www.bco-dmo.org/deployment/58137
Platform	R/V Cape Hatteras
Start Date	2008-07-05
End Date	2008-07-22
Description	**Processing Description** BCO-DMO Edits - Longitude degree value of -75 for station 28, cast 28 corrected to -72

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Project Information

Optical and Nutrient Dependence of Quantum Efficiency (ON DEQUE)

Coverage: Western North Atlantic Ocean. Sargasso Sea, Gulf stream, slope waters, shelfbreak front, continental shelf, mid-Atlantic bight

The control of photosynthetic quantum yield of phytoplankton by light intensity and diapycnal nutrient flux

Primary production in the ocean is probably the least known part of the ocean's carbon cycle. One reason that primary production is little known is the lack of understanding of the geographical and temporal variability in phytoplankton physiology. For example it is only recently that the importance has been revealed, of the so-called photoprotectant pigments, pigments that, in effect, shield the photosynthetic apparatus from too much sunlight. This project will investigate the geographic and temporal variability of a fundamental property of oceanic photosynthesis: the quantum yield, or the ratio of the available light to the amount of carbon fixed in photosynthesis. The PIs propose an hypothesis based on earlier measurements, that in the lower parts of the euphotic zone in the stratified ocean, the upward flux of nutrients regulates the value of the quantum yield, while in the upper parts, irradiance governs its value, through the pigment composition of the phytoplankton. This hypothesis will be tested by making estimates of the quantum yield's maximum value through very careful and comprehensive measurements of the bio-optical properties and species composition of the phytoplankton, as well as the submarine light environment, hydrography, and nutrients. These measurements will be along both temporal and spatial gradients in the ocean to create the basis for environmental regulation of quantum yield. These measurements will be used to establish precisely how the maximum value of the quantum yield is regulated by solar flux and plant nutrients. This research provides a mechanism to understand how the processes of nutrient supply and light affect the physiology of natural populations of phytoplankton, a long-standing problem in biological oceanography. It also provides a means for improving the modeling primary productivity, including estimating productivity in the global ocean from space.

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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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Funding

Funding Source	Award
NSF Division of Ocean Sciences (NSF OCE)	OCE-0550725

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