BiG RAPA Sediment Trap Lipids from R/V Melville MV1015 in the South Pacific from Arica, Chile to Easter Island. from November to December 2010 (C-MORE project)

Website: https://www.bco-dmo.org/dataset/3797
Data Type: Cruise Results
Version: 19 November 2012
Version Date: 2012-11-19

Project
» Center for Microbial Oceanography: Research and Education (C-MORE)

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Dataset Description

BiG RAPA Sediment Trap Lipids.

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Data Files

File
lipids_sedtrap.csv (Comma Separated Values (.csv), 611 bytes) MD5:0ef7937c780b70881c92c6fed24fa56e Primary data file for dataset ID 3797

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Parameters

Parameter	Description	Units
trap_type	sediment trap type	dimensionless
sta	station number	dimensionless
date_begin	date data collection begins	YYYYMMDD GMT
date_end	date data collection ends	YYYYMMDD GMT
lat	latitude	decimal degrees (South is negative)
lon	longitude	decimal degrees (West is negative)
depth	depth	meters
lipids_TAG	Triacylglycerols flux	milligrams/meter^2/day
lipids_WE_SE	steryl and wax esters flux	milligrams/meter^2/day
lipids_tot	total lipids flux	milligrams/meter^2/day

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Deployments

MV1015

Website	https://www.bco-dmo.org/deployment/58647
Platform	R/V Melville
Report	http://cmore.soest.hawaii.edu/cruises/big_rapa/
Start Date	2010-11-18
End Date	2010-12-14
Description	The South East Pacific (SEP) is characterized by very high nutrient concentrations in the waters adjacent to the Chilean coast, but very low nutrient concentrations (oligotrophic) in the mid- South Pacific Subtropical Gyre (SPSG), near Easter Island. The steep gradient in nutrient concentrations across the region affects the level of marine production, the composition of the microbial community, and the operation of major biogeochemical cycles in ways that are not fully understood. Despite the remarkable diversity of trophic conditions, strong gradients and even some unique singularities, the SEP is still the most sparsely sampled oceanic region of the global ocean from hydrodynamic, biological and biogeochemical points of view. The SPSG is also the most oligotrophic of all sub-tropical gyres. Previous expeditions and remote sensing studies have describes the nutrient and chlorophyll field, but there have been few simultaneous measurements of chemical properties with microbial community structure and function. This expedition is designed to investigate the impact of elemental nutrient (nitrogen, phosphorus, iron, silicon, carbon) ratios on marine productivity and microbial community composition. We propose to sample along a line extending from the Chilean coast near Arica to Easter Island. We will occupy three major "process" stations for up to five days each; a high productivity, near shore station, a mid-cruise station in the nutrient transition zone, and a low productivity, mid-gyre station near Easter Island. In between these stations, we will briefly sample at additional "survey" stations at lower intensity along the cruise track. Cruise information and original data are available from the NSF R2R data catalog. BiG RAPA Home project Web site with additional information

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Project Information

Center for Microbial Oceanography: Research and Education (C-MORE)

Website: http://cmore.soest.hawaii.edu/

Coverage: North Pacific Subtropical Gyre (large region around 22 45 N, 158 W)

Project summary

The **Center for Microbial Oceanography: Research and Education** (C-MORE) is a recently established (August 2006; NSF award: EF-0424599) NSF-sponsored Science and Technology Center designed to facilitate a more comprehensive understanding of the diverse assemblages of microorganisms in the sea, ranging from the genetic basis of marine microbial biogeochemistry including the metabolic regulation and environmental controls of gene expression, to the processes that underpin the fluxes of carbon, related bioelements and energy in the marine environment. Stated holistically, C-MORE's primary mission is: *Linking Genomes to Biomes*.

We believe that the time is right to address several major, long-standing questions in microbial oceanography. Recent advances in the application of molecular techniques have provided an unprecedented view of the structure, diversity and possible function of sea microbes. By combining these and other novel approaches with more well-established techniques in microbiology, oceanography and ecology, it may be possible to develop a meaningful predictive understanding of the ocean with respect to energy transduction, carbon sequestration, bioelement cycling and the probable response of marine ecosystems to global environmental variability and climate change. The strength of C-MORE resides in the synergy created by bringing together experts who traditionally have not worked together and this, in turn, will facilitate the creation and dissemination of new knowledge on the role of marine microbes in global habitability.

The new Center will design and conduct novel research, broker partnerships, increase diversity of human resources, implement education and outreach programs, and utilize comprehensive information about microbial life in the sea. The Center will bring together teams of scientists, educators and community members who otherwise do not have an opportunity to communicate, collaborate or design creative solutions to long-term ecosystem scale problems. The Center's research will be organized around four interconnected themes:

- (Theme I) microbial biodiversity,
- (Theme II) metabolism and C-N-P-energy flow,
- (Theme III) remote and continuous sensing and links to climate variability, and
- (Theme IV) ecosystem modeling, simulation and prediction.

Each theme will have a leader to help coordinate the research programs and to facilitate interactions among the other related themes. The education programs will focus on pre-college curriculum enhancements, in service teacher training and formal undergraduate/graduate and post-doctoral programs to prepare the next generation of microbial oceanographers. The Center will establish and maintain creative outreach programs to help diffuse the new knowledge gained into society at large including policymakers. The Center's activities will be dispersed among five partner institutions:

- Massachusetts Institute of Technology,
- Woods Hole Oceanographic Institution,
- Monterey Bay Aquarium Research Institute,
- University of California at Santa Cruz and
- Oregon State University

and will be coordinated at the University of Hawaii at Manoa.

Related Files:

Strategic plan (PDF file)

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Funding

Funding Source	Award
NSF Division of Biological Infrastructure (NSF DBI)	DBI-0424599

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