BCO-DMO

Biological and Chemical Oceanography Data Management Office

CARIACO Time-series Data Management

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http://bco-dmo.org

Abstract

The Carbon Retention in a Colored Ocean (CARIACO) Time Series site, located off the coast of Venezuela, has been conducting monthly ship-based data collection since November 1995. Because it is impossible to resample environmental data, proper management of those data sets is especially important to realize their full potential, to enable data re-use, and to facilitate integration of data from multiple disciplines and the synthesis of data from time-series collections. In recognition of this, in 2006 the US National Science Foundation funded the Biological and Chemical Oceanography Data Management Office (BCO-DMO) to serve the data management requirements of investigators funded by the NSF's Biological and Chemical Oceanography Sections. BCO-DMO staff members collaborate with investigators ensuring that data are documented, stored, disseminated, and protected long after the research is completed. Highlighting the available CARIACO project data and related biogeochemical data, we describe the capabilities of the BCO-DMO data system: geospatial and text-based data discovery and access systems; recent enhancements to data search tools; data export and download utilities; and strategic use of controlled vocabularies to facilitate data integration and improve interoperability.

See related BCO-DMO poster # 402 in Special Session 30 "Management of Plankton Distribution and Abundance Data"

BCO-DMO and CARIACO

The Biological and Chemical Oceanography Data Management Office (BCO-DMO) is located at Woods Hole Oceanographic Institution and is funded to serve the data management requirements of investigators funded by the NSF's Biological and Chemical Oceanography Sections and Office of Polar Programs (OPP) Antarctic Sciences (ANT) Organisms & Ecosystems Program. Data managers at BCO-DMO work closely with Laura Lorenzoni, one of the CARIACO project investigators, to create data sets from the data gathered during the monthly cruises aboard the R/V Hermano Gines to the CARIACO time-series site at 10.5° N, 64.67° W. Cruises have been conducted since November 1995 to examine the hydrography, primary production, zooplankton, biogeochemistry and settling flux of particulate material.

Because it is impossible to resample environmental data, proper management of those data sets is especially important to realize their full potential, to enable accurate re-use and to facilitate integration of data from many disciplines.

We work closely with CARIACO researchers to:

- generate consistent data products from the research data sets
- collect documentation, including sampling and analytical protocols
- record sufficient metadata to support accurate reuse of the data
- complement data quality control done by originating investigators
- ensure public availability and efficient access to the data
- ensure permanent archive of the data at the US National Oceanographic Data Center

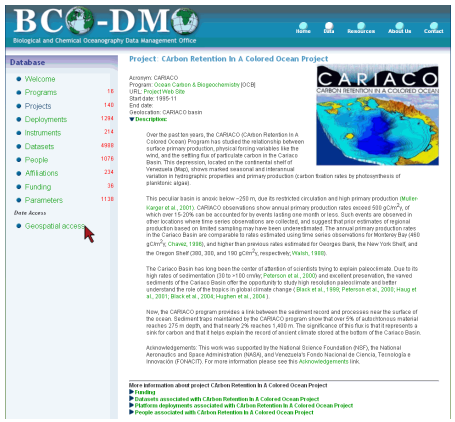
Acknowledgments

The BCO-DMO is funded by the National Science Foundation. We acknowledge the work done by each of the original investigators of the CARIACO project who are cited elsewhere in this poster and especially the efforts of Laura Lorenzoni (University of South Florida). The user interfaces to the BCO-DMO data system have been developed in collaboration with Charlton Galvarino (Second Creek Consulting), Julie Allen (Woods Hole Oceanographic Institution) and BCO-DMO programmer, Tobias Work.

Data Discovery

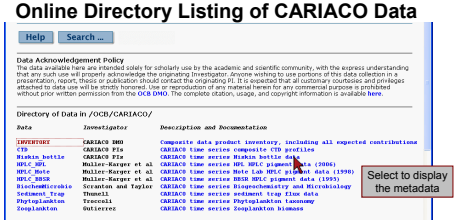
A variety of interfaces provide access to the data. All are driven by the metadata for each data set recorded in the BCO-DMO database. Documentation describing the who, what, where, when and why of each data set provides essential information used to discover the data in the BCO-DMO system.

Text-based Access to CARIACO Data

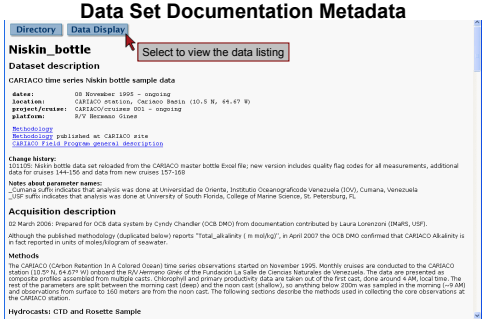


Data Access and Display

Online Directory Listing of CARIACO Data

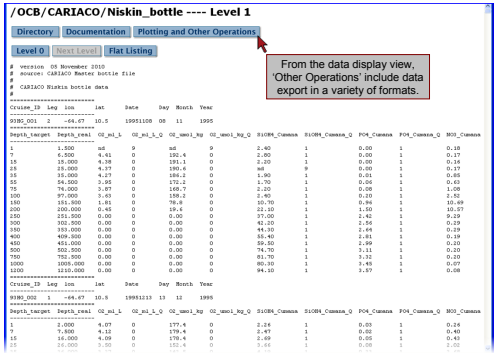


Data Set Documentation Metadata



Data Export

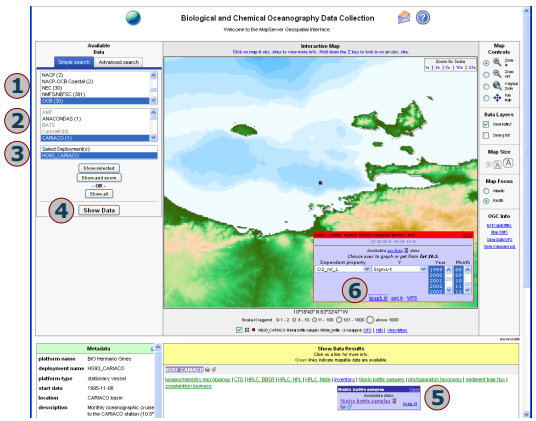
Data Listing



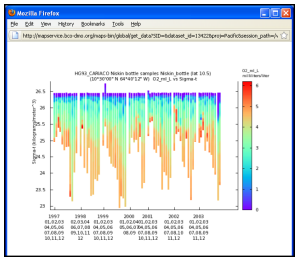
Data can be exported in a variety of user selected formats including comma or tab-separated values, Matlab, NetCDF, or Ocean Data View and then read into the display or analysis application of choice.

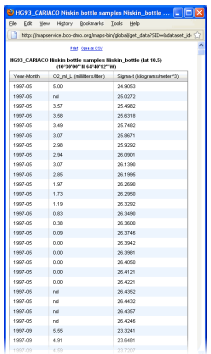
Geospatial MapServer for Data Discovery Access and Display

The Geospatial MapServer, shown below, provides data discovery (steps 1-4), data access (step 5) and data display (step 6: 'graph it' that generates the graph below and to the right or 'get it' to generate the data listing below, far right).



Locate the data of interest using the geospatial interface, then create 'quick-view' plots or listings.





Example of CARIACO Niskin bottle data exported from BCO-DMO and opened in Ocean Data View