CTD data from the CMarZ 1m2 MOCNESS tows and ancillary tow infomation from NOAA Ship Ronald H. Brown and R/V Polarstern RHB0603 in the Sargasso Sea and Southeast North Atlantic Ocean from 2006-2007 (CMarZ_2004-2010 project)

Website: https://www.bco-dmo.org/dataset/2514
Version:
Version Date: 2010-11-01

Project
» Census of Marine Zooplankton-2004-2010 (CMarZ_2004-2010)

Program
» Census of Marine Life (CoML)

Contributors	Affiliation	Role
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Dataset Description

The MOCNESS is based on the Tucker Trawl principle (Tucker, 1951). The particular MOCNESS system from which these CTD data came is one of three net systems. The MOCNESS-1 has nine rectangular nets (1m x 1.4 m) which are opened and closed sequentially by commands through conducting cable from the surface (Wiebe *et al.*, 1976).

In all three systems, "the underwater unit sends a data frame, comprised of temperature, depth, conductivity, net-frame angle, flow count, time, number of open net, and net opening/closing, to the deck unit in a compressed hexadecimal format every 2 seconds and from the deck unit to a microcomputer every 4 seconds... Temperature (to approximately 0.01 deg C) and conductivity are measured with SEABIRD sensors. Normally, a modified T.S.K.-flowmeter is used... Both the temperature and conductivity sensors and the flowmeter are mounted on top of the frame so that they face horizontally when the frame is at a towing angle of 45deg... Calculations of salinity (to approximately 0.01 o/oo S), potential temperature (theta), potential density (sigma), the oblique and vertical velocities of the net, and the approximate volume filtered by each net are made after each string of data has been received by the computer." (Wiebe *et al.*, 1985) In addition, data were collected from three other sensors attached to the frame: the Transmissometer, the Fluorometer, and the Downwelling light sensor. A SeaBird underwater pump was also included in the sensor suite.

It should be noted that whenever the data are of questionable value, "50.000" was written in the particular data field. As of July 22, 2008, these values are converted to the value of "nd" (meaning "no data"). If the value of temperature is set to "nd", then the values of theta, sigma and sal are also set to "nd". If the value of salinity is set to "nd", then the value of sigma is set to "nd". Also, as of July 22, 2008, values of latitude and longitude of -999.00000 are also changed to "nd".

Unless otherwise indicated, these data have not been post-processed.

Note: Some variables have been eliminated from the display because they were not collected on this cruise or are redundant but are nevertheless available. These variables include: oxycurrent, oxytemp, tempco, echo, time_gmt_alt; lite; station_std; brief_desc; tvel.

Any questions should be directed to the CMarZ Data Management Office.

References

Fofonoff and Millard, 1983, UNESCO technical papers in Marine Sciences, #44

Tucker, G.H., 1951. Relation of fishes and other organisms to the scattering of underwater sound. *Journal of Marine Research*, **10:** 215-238.

Wiebe, P.H., K.H. Burt, S. H. Boyd, A.W. Morton, 1976. The multiple opening/closing net and environmental sensing system for sampling zooplankton. *Journal of Marine Research*, **34(3):** 313-326

Wiebe, P.H., A.W. Morton, A.M. Bradley, R.H. Backus, J.E. Craddock, V. Barber, T.J. Cowles and G.R. Flierl, 1985. New developments in the MOCNESS, an apparatus for sampling zooplankton and micronekton. *Marine Biology*, **87:** 313-323.

Methods & Sampling

The MOCNESS is based on the Tucker Trawl principle (Tucker, 1951). The particular MOCNESS system from which these CTD data came is one of three net systems.The MOCNESS-1 has nine rectangular nets (1m x 1.4 m) which are opened and closed sequentially by commands through conducting cable from the surface (Wiebe et al., 1976). 'the underwater unit sends a data frame, comprised of temperature, depth, conductivity, net-frame angle, flow count, time, number of open net, and net opening/closing, to the deck unit in a compressed hexadecimal format every 2 seconds and from the deck unit to a microcomputer every 4 seconds... Temperature (to approximately 0.01 deg C) and conductivity are measured with SEABIRD sensors. Normally, a modified T.S.K.-flowmeter is used... Both the temperature and conductivity sensors and the flowmeter are mounted on top of the frame so that they face horizontally when the frame is at a towing angle of 45deg... Calculations of salinity (to approximately 0.01 o/oo S), potential temperature (theta), potential density (sigma), the oblique and vertical velocities of the net, and the approximate volume filtered by each net are made after each string of data has been received by the computer.' (Wiebe et al., 1985) In addition, data were collected from three other sensors attached to the frame: the Transmissometer, the Fluorometer, and the Downwelling light sensor. A SeaBird underwater pump was also included in the sensor suite.

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Data Files

File
ctd_mocness.csv (Comma Separated Values (.csv), 9.42 MB) MD5:e77a86a96025fe14808e53e3a64bbe04 Primary data file for dataset ID 2514

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Parameters

Parameter	Description	Units
cruiseid	Cruise identification, e.g. RHB0603 for Ronald H. Brown, cruise 06-03	
year	Four digit year, local time	
brief_desc	Brief cruise description, such as: broad-scale, process, mooring, etc.,	
tow	Tow number	
day_local	Day of month, local time, 1 - 31	
month_local	Month of year, local time 1 - 12	
station	station number, from event log	
station_std	standard station number, from event log	
yrday_local	year day, Julian Calendar local time	decimal day
time_local	time of day; local time using 24 hour clock.	HHmm.m
press	depth of sample	decibars
temp	temperature	degrees C.
potemp	potential temperature[1]	degrees C.
sal	salinity calculated from conductivity; if salinity exceeds 50 or is less than 0 o/oo, salinity is set to 50.	
sigma_0	potential density[1] at the surface	kg/m3-1000
flvolt	fluorescence (0-5 volts)	volts
angle	angle of net frame relative to vertical (0-89 dgrees)	
flow	consecutive flow counts	
hzvel	horizontal net velocity m/min	meters/minute
vtvel	vertical net velocity m/min	meters/minute
vol_filt	volume filtered	meters3
trans_v	light transmission (0-5 volts)	volts
net	sequential MOCNESS net number	
lat	latitude, negative = South	decimal degrees
lon	longitude, negative = West	decimal degrees

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Deployments

RHB0603

Website	https://www.bco-dmo.org/deployment/57686
Platform	NOAA Ship Ronald H. Brown
Report	http://www.cmarz.org/CMarZ_RHBrown_April06/Cruise_Report/working.htm
Start Date	2006-04-10
End Date	2006-04-30
Description	**Methods & Sampling** The MOCNESS is based on the Tucker Trawl principle (Tucker, 1951). The particular MOCNESS system from which these CTD data came is one of three net systems.The MOCNESS-1 has nine rectangular nets (1m x 1.4 m) which are opened and closed sequentially by commands through conducting cable from the surface (Wiebe et al., 1976). 'the underwater unit sends a data frame, comprised of temperature, depth, conductivity, net-frame angle, flow count, time, number of open net, and net opening/closing, to the deck unit in a compressed hexadecimal format every 2 seconds and from the deck unit to a microcomputer every 4 seconds... Temperature (to approximately 0.01 deg C) and conductivity are measured with SEABIRD sensors. Normally, a modified T.S.K.-flowmeter is used... Both the temperature and conductivity sensors and the flowmeter are mounted on top of the frame so that they face horizontally when the frame is at a towing angle of 45deg... Calculations of salinity (to approximately 0.01 o/oo S), potential temperature (theta), potential density (sigma), the oblique and vertical velocities of the net, and the approximate volume filtered by each net are made after each string of data has been received by the computer.' (Wiebe et al., 1985) In addition, data were collected from three other sensors attached to the frame: the Transmissometer, the Fluorometer, and the Downwelling light sensor. A SeaBird underwater pump was also included in the sensor suite.

ANT-XXIV_1

Website	https://www.bco-dmo.org/deployment/57857
Platform	R/V Polarstern
Report	http://epic.awi.de/28985/1/Sch2009ad.pdf
Start Date	2007-10-26
End Date	2007-11-27

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Project Information

Census of Marine Zooplankton-2004-2010 (CMarZ_2004-2010)

Website: http://www.cmarz.org/

Coverage: Global ocean

The Census of Marine Zooplankton (CMarZ) is a field project of the Census of Marine Life (see www.CoML.org). CMarZ is working toward a taxonomically comprehensive assessment of biodiversity of animal plankton throughout the world ocean. The project goal is to produce accurate and complete information on zooplankton species diversity, biomass, biogeographical distribution, genetic diversity, and community structure by 2010. Our taxonomic focus is the animals that drift with ocean currents throughout their lives (i.e., the holozooplankton, Fig. 1). This assemblage currently includes ~6,800 described species in fifteen phyla; our expectation is that at least that many new species will be discovered as a result of our efforts. The census encompasses unique marine environments and those likely to be inhabited by endemic and undescribed zooplankton species.

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Program Information

Census of Marine Life (CoML)

Website: http://www.coml.org/

Coverage: global

The Census of Marine Life is a global network of researchers in more than 80 nations engaged in a 10-year scientific initiative to assess and explain the diversity, distribution, and abundance of life in the oceans. The world's first comprehensive Census of Marine Life - past, present, and future - will be released in 2010.

The stated purpose of the Census of Marine Life is to assess and explain the diversity, distribution, and abundance of marine life. Each plays an important role in what is known, unknown, and may never be known about what lives in the global ocean.

First, diversity. The Census aims to make for the first time a comprehensive global list of all forms of life in the sea. No such unified list yet exists. Census scientists estimate that about 230,000 species of marine animals have been described and reside in jars in collections in museums of natural history and other repositories. Since the Census began in 2000, researchers have added more than 5600 species to the lists. They aim to add many thousands more by 2010. The database of the Census already includes records for more than 16 million records, old and new. By 2010, the goal is to have all the old and the new species in an on-line encyclopedia with a webpage for every species. In addition, we will estimate how many species remain unknown, that is, remain to be discovered. The number could be astonishingly large, perhaps a million or more, if all small animals and protists are included. For comparison, biologists have described about 1.5 million terrestrial plants and animals.

Second, distribution. The Census aims to produce maps where the animals have been observed or where they could live, that is, the territory or range of the species. Knowing the range matters a lot for people concerned about, for example, possible consequences of global climate change.

Third, abundance. No Census is complete without measures of abundance. We want to know not only that there is such a thing as a Madagascar crab but how many there are. For marine life, populations are being estimated either in numbers or in total kilos, called biomass.

To complete the context, it is important to understand the top motivations for the Census of Marine Life. Most importantly, much of the ocean is unexplored. Most of the records in its database are for observations near the surface, and down to 1000 meters. No observations have been made in most of the deep ocean, while most of the ocean is deep.

Another important issue is that diversity varies in space. Marine hot spots, like the rain forests of the land, exist off for large fish off the coasts of Brazil and Australia. The goal is to know much more about marine hot spots, to help conserve these large fish. Their abundance and thus their diversity is changing, especially for commercially important species. Between 1952 and 1976, for example, fishermen and their customers emptied many areas of the ocean of tuna.

The Census has evolved a strategy of 14 field projects to touch the major habitats and groups of species in the global ocean. Eleven field projects address habitats, such as seamounts or the Arctic Ocean. Three field projects look globally at animals that either traverse the seas or appear globally distributed: the top predators such as tuna and the plankton and the microbes. The projects employ a mix of technologies. These include acoustics or sound, optics or cameras, tags placed on individual animals that store or report data, and genetics, as well as some actual capture of animals. The technologies complement one another. Sound can survey large areas in the ocean, while light cannot. Light can capture detail and characters that sound cannot. And genetics can make identifications from fragments of specimens or larvae where pictures tell little.

This mix of curiosity, need to know, technology, and scientists willing to investigate the unexplored and undiscovered will result in a Census of Marine Life in 2010 that provides a much clearer picture of what lives below the surface around the globe. Several reasons make such a report timely, indeed urgent. Crises in the sea are reported regularly. One recent study predicted the end of commercial fishery globally by 2050, if current trends persist. Better information is needed to fashion the management that will sustain fisheries, conserve diversity, reverse losses of habitat, reduce impacts of pollution, and respond to global climate change. Hence, there are biological, economic, philosophical and political reasons to push for greater exploration and understanding of the ocean and its inhabitants. Indeed, the United Nations Convention on Biological Diversity requires signatories to collect information on living resources, but, as yet, no nation has a complete baseline of such information. The Census of Marine Life's global network of researchers will help to fill this knowledge gap, providing critical information to help guide decisions on how to manage global marine resources for the future.

[Text copied from the CoML web site, November 5, 2008]

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