Cruise Tracks from R/V Oceanus, R/V Islandia OC449-03, OC449-02,and ISL0109 in the Eastern Atlantic and Indian Oceans and TENATSO (Tropical Eastern North Atlantic Time-Series Observatory) station from 2008 to 2009 (SIRENA project)

Website: https://www.bco-dmo.org/dataset/3468
Version: 04 May 2011
Version Date: 2011-05-04

Project
» Sources of Iron to the EasterN tropical Atlantic (SIRENA)

Program
» Ocean Carbon and Biogeochemistry (OCB)

Contributors	Affiliation	Role
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Dataset Description

Cruise tracks generated from WHOI Athena daily files (.csv's) and CTD data headers (ISL0109)
Cruise Id, Date, Time, Lat, Lon
1 minute fixes for OCEANUS cruises

Methods & Sampling

Generated by BCO-DMO staff from WHOI Athena daily files (.csv's) and CTD data headers (ISL0109)

Data Processing Description

Generated by BCO-DMO staff from WHOI Athena daily files (.csv's) and CTD data headers (ISL0109)

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Data Files

File
CruiseTracks.csv (Comma Separated Values (.csv), 2.34 MB) MD5:62eaa41f5b57be4b26600c0526d4354c Primary data file for dataset ID 3468

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Parameters

Parameter	Description	Units
date	date (GMT)	YYYYMMDD
time	time (GMT)	HHMMSS
lon	Station longitude (West is negative)	decimal degrees
lat	Station latitude (South is negative)	decimal degrees
cruise_id	cruise_id	text

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Instruments

Dataset-specific Instrument Name	Global Positioning System Receiver
Generic Instrument Name	Global Positioning System Receiver
Dataset-specific Description	R/V OCEANUS - Scientific Equipment/Navigation Equipment The Primary GPS source is currently the Furuno GP1850-WD GPS.
Generic Instrument Description	The Global Positioning System (GPS) is a U.S. space-based radionavigation system that provides reliable positioning, navigation, and timing services to civilian users on a continuous worldwide basis. The U.S. Air Force develops, maintains, and operates the space and control segments of the NAVSTAR GPS transmitter system. Ships use a variety of receivers (e.g. Trimble and Ashtech) to interpret the GPS signal and determine accurate latitude and longitude.

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Deployments

OC449-03

Website	https://www.bco-dmo.org/deployment/58663
Platform	R/V Oceanus
Start Date	2008-09-08
End Date	2008-09-18
Description	R/V Oceanus Voyage #449, Leg III was a Coastal transect between Cape Verde and the Mauritanian coast (17N/24.5W to 20N/17.3W). The main scientific objective was to test the hypothesis that the continental margin of northwest Africa provides a significant subsurface supply of iron to the open eastern tropical Atlantic. The planned scientific activities include CTD casts, In Situ Water Pump casts for large volume water collection, Gravity Coring, and Aerosol sampling. Scientific personnel: Dr. Phoebe Lam, Chief Scientist, Woods Hole Oceanographic Institution Dr. Henrieta Dulaiova, Woods Hole Oceanographic Institution Mr. Steven Pike, Woods Hole Oceanographic Institution Mr. James Saenz, Woods Hole Oceanographic Institution Dr. Aron Stubbins, Old Dominion University Ms. Hongmei Chen, Old Dominion University Dr. Edward Michael Perdue, Georgia Institute of Technology Mr. Nelson Green, Georgia Institute of Technology Mr. Péricles Silva, Instituto Nacional de Desenvolvimento das Pescas (INDP) Dr. Anibal Medina, Instituto Nacional de Desenvolvimento das Pescas (INDP) Mr. Alexander Dorsk, Woods Hole Oceanographic Institution WHOI cruise planning synopsis> Cruise information and original data are available from the NSF R2R data catalog. **Methods & Sampling** Collected by WHOI Athena shipboard logging system as daily files **Processing Description** WHOI Athena daily .csv files converted to date, time, latitude and longitude using awk script "OC449-03_Make_CruiseTrack_from_Athena_csv.awk" Data from gravity files used to fill in gap in Athena data from 17 Sep/~17:40 - 18 Sep/~03:40 Only date, time, latitude and longitude preserved. All other data ignored. No filtering applied to the data.

OC449-02

Website	https://www.bco-dmo.org/deployment/58665
Platform	R/V Oceanus
Start Date	2008-08-06
End Date	2008-09-04
Description	R/V Oceanus Voyage #449, Leg II was a trans-Atlantic transect from Bridgetown, Barbados to Porto Grande, Cape Verde (5-20 degrees North, 20-58 degrees West). The main scientific objective was to test the hypothesis that the continental margin of northwest Africa provides a significant subsurface supply of iron to the open eastern tropical Atlantic. Measurements include: CTD profiles, U/W Tow Fish Water Sampler, Trace Metal Profiles mostly in upper 1000 meters and one cast to 6000 meters, SeaSoar SeaMac Winch to deploy eleven battery-operated in-situ pumps with sci-provided non-metallic wire off the 01 deck using the side A-frame and SSSG non-metallic block and Gravity Coring WHOI cruise planning synopsis Cruise information and original data are available from the NSF R2R data catalog. **Methods & Sampling** Collected by WHOI Athena shipboard logging system as daily files **Processing Description** WHOI Athena daily .csv files converted to date, time, latitude and longitude using awk script "OC449-02_Make_CruiseTrack_from_Athena_csv.awk" Only date, time, latitude and longitude preserved. All other data ignored. No filtering applied to the data.

ISL0109

Website	https://www.bco-dmo.org/deployment/58664
Platform	R/V Islandia
Start Date	2009-03-10
End Date	2009-03-11
Description	*/ TENATSO (Tropical Eastern North Atlantic Time-Series Observatory) time series station 16°N, 24°W, North-east of Mindelo, Sao Vicente, Cape Verde TENATSO Home */ Science party: Phoebe J. Lam, WHOI Daniel C. Ohnemus, WHOI Kanchan Maiti, WHOI Pericles Silva, Instituto Nacional de Desenvolvimento das Pescas (INDP) **Methods & Sampling** Lat/Lon positions are CTD station locations provided by Pericles Silva from originall CTD cast sheets Approx lat/lon for Porto Grande added as start/end **Processing Description** Lat/Lon positions are CTD station locations provided by Pericles Silva from originall CTD cast sheets Approx lat/lon for Porto Grande added as start/end

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Project Information

Sources of Iron to the EasterN tropical Atlantic (SIRENA)

Website: http://www.whoi.edu/sbl/liteSite.do?litesiteid=24492

Coverage: Tropical North Atlantic, focusing on a Cape Verde to Mauritanian Coast transect

We will test the hypothesis that the continental margin of northwest Africa provides a significant subsurface supply of iron to the open eastern tropical Atlantic that supplements dust.

We will test our continental margin hypothesis with a wintertime visit to the new Tropical Eastern North Atlantic Time-Series Observatory (TENATSO) near Cape Verde, located in the eastern tropical Atlantic about 850 km downstream of Mauritanian coastal upwelling, and a summertime cross-shelf transect from the Mauritanian coast to TENATSO with Ed Boyle, who is already funded to study iron in the tropical Atlantic. Our cross-shelf transect will closely examine the potential lateral source of Fe, and evaluate it against an atmospheric source of Fe. Our proposal takes advantage of a novel combination of measurements to uniquely determine the importance of lateral transport vs. dust inputs and subsurface remineralization as Fe sources to the surface ocean. These measurements include:

1) synchrotron x-ray analysis of particulate iron "hotspots": micron-size particles of iron detected with a synchrotron x-ray fluorescence microprobe have been previously shown to exhibit maxima at depths of continental margin input in two ocean basins. Further, the Ti:Fe ratios and the mineralogy of these particles of iron can distinguish dust-derived vs. continental margin iron. This is a qualitative tracer for a dust vs continental margin source of Fe.

2) radium isotopes: the major source of 228Ra into the study area is by diffusion from 232Th-bearing near shore and continental shelf sediments. An open-ocean to coastal transect of 228Ra activities will allow us to determine horizontal mass transfer. 228Ra will be used to quantify the lateral flux of iron from the shelf.

3) 234Th profiles: high vertical resolution 234Th profiles can be used to determine the depth of particle remineralization. This will be used to determine whether or not putative subsurface Fe maxima are from remineralization of Fe-bearing particles.

TENATSO (Tropical Eastern North Atlantic Time-Series Observatory) time series station
16°N, 24°W, North-east of Mindelo, Sao Vicente, Cape Verde

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-0726367

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