Sediment composition from cores from R/V Thomas G. Thompson TT041, TT047 cruises in the Arabian Sea in 1995 (U.S. JGOFS Arabian Sea project)

Website: https://www.bco-dmo.org/dataset/2590
Data Type: Other Field Results
Version: December 16, 2002
Version Date: 2002-12-16

Project
» U.S. JGOFS Arabian Sea (Arabian Sea)

Program
» U.S. Joint Global Ocean Flux Study (U.S. JGOFS)

Contributors	Affiliation	Role
Prell, Warren	Brown University	Principal Investigator
Chandler, Cynthia L.	Woods Hole Oceanographic Institution (WHOI BCO-DMO)	BCO-DMO Data Manager

Table of Contents

- Dataset Description
  - Methods & Sampling
  - Data Processing Description
- Data Files
- Parameters
- Instruments
- Deployments
- Project Information
- Program Information
- Funding

Dataset Description

Sediment Composition from Cores

Methods & Sampling

See Platform deployments for cruise specific documentation

Data Processing Description

U.S. JGOFS Arabian Sea Process Study

Sediment Composition

jgofs.whoi.edu/images/greendot.gif" alt="-- line--">

Processing notes:

December 2002, Warren Prell

1. Data for -1 to O interval are measure on unconsolidated phytodetritus layer

sitting on top of sediment water interface

2. Letter for each core refers to a multicore section

3. Opal determined using Mortlock and Froelich (1989, DSR, vol 36, 1415-1426)

4. CaCO3 detemined on automated Carbonate rig similar to Ostermann et al. (1990)

5. CaCO3-ICP = 2.5* Ca determined from ICP.

6. Corg and N% determined using technique of Verardo et al. (1990, DSR, 37, 157-165)

7. Ca, Mn, Fe, Al, Ti, and P determined on ICP-AES using technique of

Murray and Leinen (1996, GCA, 3869-3878)

8. Density calculated from dried weight of known volume of sample extruded from subcore

9. Sedimentation rates estimated from C-14 dating of monospecific foraminifer shells

from sampled depths. For all but JGOFS-1, both menardii and sacculifer (when available)

ages were used to calculate sedimentation rate. In practice JGOFS-5 had one sacculifer

and 5 menardii and Owen Ridge 2 had 8 menardii and 6 sacculifer, the rest have only

menardii. For JGOFS-1, the data on the 2 species measured were significantly different

so two separate rates were calculated- one for each species (C14_sed_rate calculated

from G. menardii, and C14_sed_rate_2 from G. sacculifer).

jgofs.whoi.edu/images/greendot.gif" alt="-- line--">

References:

Mortlock, R.A., and Froelich, P.N., 1989. A simple method for the rapid determination of biogenic opal in pelagic marine sediments. Deep-Sea Res., 36:1415-1426.

Ostermann, D.R., Karbott, D., and Curry, W.B., 1990. Automated system to measure carbonate concentration of sediments. Woods Hole Oceanog. Inst. Tech. Rept., WHOI-90-03.

Verardo, D., Froelich, P.N., and McIntyre, A., 1990. Determination of organic carbon and nitrogen in marine sediments using the Carlo Erba NA-1500 analyzer. Deep-Sea Research, 37: 157-165.

Murray, R. W. and Leinen, M. 1996. Scavenged excess aluminum and its relationship to bulk titanium in biogenic sediment from the central equatorial Pacific Ocean. Geochimica et Cosmochimica Acta, 60 (20): 3869-3878.

[table of contents | back to top]

Data Files

File
sed_comp.csv (Comma Separated Values (.csv), 6.07 KB) MD5:4b3a15aaef72648e79a218b41255661a Primary data file for dataset ID 2590

[table of contents | back to top]

Parameters

Parameter	Description	Units
site	Arabian Sea site designation	
core_id	core identification	
lat	latitude	decimal degrees
lon	longitude	decimal degrees
depth_w	ocean depth	meters
depth_core	average depth (from core top) of sediment sampling interval. -1 to 0 interval refers to unconsolidated phytodetritus layer	centimeters
depth_core_sd	standard deviation of interval	centimeters
Si_opal	opal	percent
CaCO3	calcium carbonate	percent
CaCO3_ICP	calcium carbonate by ICP	percent
C_org	organic carbon	percent
N	nitrogen	percent
Al	aluminum	percent
Fe	iron	percent

Ti	titanium	percent
Mn	manganese	percent
P	phosphorus	percent
density	calculated from dried weight of known volume	grams per cubic centimeter
C14_sed_rate	sedimentation rate estimated from C14 dating of forams	centimeters per 1000 years
C14_sed_rate_2	sedimentation rate estimated from C14 dating of forams	centimeters per 1000 years

[table of contents | back to top]

Instruments

Dataset-specific Instrument Name	Multi Corer
Generic Instrument Name	Multi Corer
Generic Instrument Description	The Multi Corer is a benthic coring device used to collect multiple, simultaneous, undisturbed sediment/water samples from the seafloor. Multiple coring tubes with varying sampling capacity depending on tube dimensions are mounted in a frame designed to sample the deep ocean seafloor. For more information, see Barnett et al. (1984) in Oceanologica Acta, 7, pp. 399-408.

Dataset-specific Instrument Name	Piston Corer
Generic Instrument Name	Piston Corer
Generic Instrument Description	The piston corer is a type of bottom sediment sampling device. A long, heavy tube is plunged into the seafloor to extract samples of mud sediment. A piston corer uses a "free fall" of the coring rig to achieve a greater initial force on impact than gravity coring. A sliding piston inside the core barrel reduces inside wall friction with the sediment and helps to evacuate displaced water from the top of the corer. A piston corer is capable of extracting core samples up to 90 feet in length.

[table of contents | back to top]

Deployments

TT041

Website	https://www.bco-dmo.org/deployment/57702
Platform	R/V Thomas G. Thompson
Start Date	1994-10-28
End Date	1994-11-21
Description	**Methods & Sampling** PI: Warren Prell of: Brown University dataset: Sediment Composition dates: November 1994 and May 1995 location: N: 17.812 S: 10.0345 W: 57.5058 E: 65.0852 project/cruise: Arabian Sea ship: R/V Thomas Thompson PI Notes and Methodology Some additional undocumented information was submitted with this data and is available for download as Excel files: -- core meta data -- fauna flux data -- C14 data for G.menardii and G.sacculifer **Processing Description** U.S. JGOFS Arabian Sea Process Study Sediment Composition References: Mortlock, R.A., and Froelich, P.N., 1989. A simple method for the rapid determination of biogenic opal in pelagic marine sediments. Deep-Sea Res., 36:1415-1426. Ostermann, D.R., Karbott, D., and Curry, W.B., 1990. Automated system to measure carbonate concentration of sediments. Woods Hole Oceanog. Inst. Tech. Rept., WHOI-90-03. Verardo, D., Froelich, P.N., and McIntyre, A., 1990. Determination of organic carbon and nitrogen in marine sediments using the Carlo Erba NA-1500 analyzer. Deep-Sea Research, 37: 157-165. Murray, R. W. and Leinen, M. 1996. Scavenged excess aluminum and its relationship to bulk titanium in biogenic sediment from the central equatorial Pacific Ocean. Geochimica et Cosmochimica Acta, 60 (20): 3869-3878.

TT047

Website	https://www.bco-dmo.org/deployment/57708
Platform	R/V Thomas G. Thompson
Start Date	1995-05-03
End Date	1995-05-22
Description	Sediment Trap Servicing, Coring, Process 3 **Methods & Sampling** PI: Warren Prell of: Brown University dataset: Sediment Composition dates: November 1994 and May 1995 location: N: 17.812 S: 10.0345 W: 57.5058 E: 65.0852 project/cruise: Arabian Sea ship: R/V Thomas Thompson PI Notes and Methodology Some additional undocumented information was submitted with this data and is available for download as Excel files: -- core meta data -- fauna flux data -- C14 data for G.menardii and G.sacculifer **Processing Description** U.S. JGOFS Arabian Sea Process Study Sediment Composition References: Mortlock, R.A., and Froelich, P.N., 1989. A simple method for the rapid determination of biogenic opal in pelagic marine sediments. Deep-Sea Res., 36:1415-1426. Ostermann, D.R., Karbott, D., and Curry, W.B., 1990. Automated system to measure carbonate concentration of sediments. Woods Hole Oceanog. Inst. Tech. Rept., WHOI-90-03. Verardo, D., Froelich, P.N., and McIntyre, A., 1990. Determination of organic carbon and nitrogen in marine sediments using the Carlo Erba NA-1500 analyzer. Deep-Sea Research, 37: 157-165. Murray, R. W. and Leinen, M. 1996. Scavenged excess aluminum and its relationship to bulk titanium in biogenic sediment from the central equatorial Pacific Ocean. Geochimica et Cosmochimica Acta, 60 (20): 3869-3878.

[table of contents | back to top]

Project Information

U.S. JGOFS Arabian Sea (Arabian Sea)

Website: http://usjgofs.whoi.edu/research/arabian.html

Coverage: Arabian Sea

The U.S. Arabian Sea Expedition which began in September 1994 and ended in January 1996, had three major components: a U.S. JGOFS Process Study, supported by the National Science Foundation (NSF); Forced Upper Ocean Dynamics, an Office of Naval Research (ONR) initiative; and shipboard and aircraft measurements supported by the National Aeronautics and Space Administration (NASA). The Expedition consisted of 17 cruises aboard the R/V Thomas Thompson, year-long moored deployments of five instrumented surface buoys and five sediment-trap arrays, aircraft overflights and satellite observations. Of the seventeen ship cruises, six were allocated to repeat process survey cruises, four to SeaSoar mapping cruises, six to mooring and benthic work, and a single calibration cruise which was essentially conducted in transit to the Arabian Sea.

[table of contents | back to top]

Program Information

U.S. Joint Global Ocean Flux Study (U.S. JGOFS)

Website: http://usjgofs.whoi.edu/

Coverage: Global

The United States Joint Global Ocean Flux Study was a national component of international JGOFS and an integral part of global climate change research.

The U.S. launched the Joint Global Ocean Flux Study (JGOFS) in the late 1980s to study the ocean carbon cycle. An ambitious goal was set to understand the controls on the concentrations and fluxes of carbon and associated nutrients in the ocean. A new field of ocean biogeochemistry emerged with an emphasis on quality measurements of carbon system parameters and interdisciplinary field studies of the biological, chemical and physical process which control the ocean carbon cycle. As we studied ocean biogeochemistry, we learned that our simple views of carbon uptake and transport were severely limited, and a new "wave" of ocean science was born. U.S. JGOFS has been supported primarily by the U.S. National Science Foundation in collaboration with the National Oceanic and Atmospheric Administration, the National Aeronautics and Space Administration, the Department of Energy and the Office of Naval Research. U.S. JGOFS, ended in 2005 with the conclusion of the Synthesis and Modeling Project (SMP).

[table of contents | back to top]

Funding

Funding Source	Award
National Science Foundation (NSF)	unknown Arabian Sea NSF

[table of contents | back to top]