

Sediment trap data from Deep Water Horizon measured from R/V Cape Hatteras cruise CH0710 and the RR1 M2 VK02 Mooring at the Gulf of Mexico, Visoca Knoll site VK826 in 2010 (GoMX Sed Trap project)

Website: <https://www.bco-dmo.org/dataset/511712>

Version: 22 April 2014

Version Date: 2014-04-22

Project

» [RAPID Response in Gulf of Mexico: Sediment Trap Investigations](#) (GoMX Sed Trap)

Program

» [Gulf of Mexico - Deepwater Horizon Oil Spill](#) (GoMX - DHOS)

Contributors	Affiliation	Role
German, Christopher R.	Woods Hole Oceanographic Institution (WHOI)	Principal Investigator
Manganini, Steven	Woods Hole Oceanographic Institution (WHOI)	Contact
Rauch, Shannon	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

Mass flux data from sediment trap deployed near the Deep Water Horizon site. The trap was deployed from 25-June-2010 to 07-January-2011.

Note (05 May 2014): Additional data (POC, PIC, H, N, Si_bio, Al, Ba, Ca, Fe, Mg, Mn, Si, Sr, Ti) will be made available upon completion of further analyses and manuscript publication.

Methods & Sampling

Time-series sampling (from 25-June-2010 to 07-Jan-2011, at a sampling interval of 15 days) was undertaken using a standard McLane PARFLUX Mk8 sediment trap. All data were generated in the WHOI PARFLUX laboratory following standard procedures (Eggiman et al., 1980; Honjo et al., 1995). Samples were processed through a 10-position sample splitter and aliquots dried and weighed to obtain mass flux data. Further samples were then digested using standard methods to obtain concentrations per known mass of sample.

Data Processing Description

Sample concentrations (mass/mass) have been multiplied by mass flux results (mass/area/time) to obtain

fluxes of different chemical species. Thus concentration of parameter X, is multiplied by mass flux (F-mass) to obtain flux of parameter X (F-X): $F-X = F\text{-mass} \times [X]$

BCO-DMO Processing Notes:

- modified parameter names to conform to BCO-DMO naming conventions;
- replaced spaces with underscores;
- changed format of dates to mm/dd/yyyy;
- changed lat and lon from degrees and decimal minutes to decimal degrees.

[[table of contents](#) | [back to top](#)]

Data Files

File
sed_trap.csv (Comma Separated Values (.csv), 1.40 KB) MD5:0e7e81927945947d424da5e2071476ca Primary data file for dataset ID 511712

[[table of contents](#) | [back to top](#)]

Parameters

Parameter	Description	Units
funding_agency	Name of funding agency.	text
site	Name of the site.	text
lat	Latitude of the sediment trap.	decimal degrees
lon	Longitude of the sediment trap.	decimal degrees
depth_w	Depth of the water (seafloor).	meters (m)
trap_depth	Depth of the sediment trap.	meters (m)
trap_id	Trap identifier.	text
sample	Sample number.	integer
date_open	Date the sample cup was opened.	mm/dd/yyyy
date_closed	Date the sample cup was closed.	mm/dd/yyyy
interval	Sampling interval (number of days open).	days
trap_area	Trap area.	square meters (m ²)
lt_1mm_wt	Weight of particles less than 1 millimeter (mm).	milligrams (mg)
lt_1mm_flux	Flux of particles less than 1 millimeter (mm).	milligrams per square meter per day (mg/m ² /d)

[[table of contents](#) | [back to top](#)]

Instruments

Dataset-specific Instrument Name	McLane PARFLUX Mk 8
Generic Instrument Name	McLane PARFLUX Mark 8 Sediment Trap
Generic Instrument Description	The Mark 8 Sediment Trap is a time-series instrument that autonomously collects the flux of settling particles on an operator-defined schedule. The wide top funnel accumulates particulate specimens into individual sample bottles. The cone interior is natural polyethylene. Deploys from a stand-alone mooring or a large high-tension vertical array. McLane Mark 8 Data Sheet (PDF) McLane website: http://www.mclanelabs.com/master_page/product-type/samplers/sediment-traps

[[table of contents](#) | [back to top](#)]

Deployments

CH0710

Website	https://www.bco-dmo.org/deployment/511716
Platform	R/V Cape Hatteras
Start Date	2010-06-21
End Date	2010-06-25
Description	Sediment trap deployment at Viosca Knoll site VK826, Northern Gulf of Mexico. This cruise was funded by NSF award OCE-1044289. Original cruise data are available from the NSF R2R data catalog

Viosca Knoll VK826_2010

Website	https://www.bco-dmo.org/deployment/511762
Platform	RR1 M2 VK02 Mooring
Start Date	2010-06-25
End Date	2010-12-22
Description	RR1 M2 VK02 mooring deployed at Viosca Knoll site VK826, Northern Gulf of Mexico: 29°09.62'N, 88°01.13'W, 426m water depth.

[[table of contents](#) | [back to top](#)]

Project Information

RAPID Response in Gulf of Mexico: Sediment Trap Investigations (GoMX Sed Trap)

Coverage: Gulf of Mexico

Description from NSF award abstract:

In September 2009, two time-series sediment trap and current meter moorings were deployed in the northern Gulf of Mexico to investigate biogenic fluxes settling to the seafloor (and larval recruitment) at two well-characterized and significant sites of combined deep-water coral and chemosynthetic tube-worm colonies (Fisher et al., 2007). Each of these traps, set just above the seabed and in water depths of 400-450 m, have

been collecting a new sample of settling material every two weeks since 11 September 2009 and will continue to do so until 2nd July 2010 when their last sample bottle will be rotated shut and the traps will await recovery as part of an already-funded field program (NOAA-MMS) scheduled for November. Serendipitously, however, these two traps are located just 32 nmiles to the NE and 81 nmiles to the WSW of the recent Deepwater Horizon incident and continuing oil release from the seafloor. Continuous monitoring by NOAA has shown that at least one of these two study sites became overlain by oil discharge at the ocean surface by the end of April and that both sites are now overlain by at least light to medium concentrations of hydrocarbons \pm dispersant. What remains unestablished at this point, however, is what is happening at depth and what impacts there may be at the Gulf of Mexico seafloor and, specifically, its pristine and unique deepwater coral/chemosynthetic tube-worm colonies. The purpose of this proposal, therefore, is two-fold. First we seek to join a rapid response research cruise to the area to deploy two additional short sediment trap and current meter moorings to ensure that we maintain continuity in the sampling that began 6 months before the incident and remains ongoing at each of the two sites that we had previously targeted as being of most significance in terms of deepwater coral/chemosynthetic tubeworm ecosystems. If we do not achieve that, our time series will end on July 2nd. Second, and anticipating that there will be a wealth of additional studies that many other PIs will wish to pursue, we seek sufficient funds to conduct initial characterization from these samples (plus those from our earlier deployments) as soon as they are recovered (already-funded cruise in November 2010). Specifically, we anticipate generating a suite of archived samples with coregistered information on mass and biogenic flux (to include inorganic and organic carbon content) and preliminary "finger-printing" of any hydrocarbon signatures present in each sample.

Publications resulting from this research:

H.K.White, P-Y.Hsing, W.Cho, T.M.Shank, E.E.Cordes, A.M.Quattrini, R.K.Nelson , R.Camilli, A.W.J.Demopoulos, C.R.German, J.M.Brooks, H.H.Roberts, W.Shedd, C.M.Reddy and C.R.Fisher. 2012. Impact of the Deepwater Horizon oil spill on a deep-water coral community in the Gulf of Mexico. *PNAS*, v.109, p. 20303-203.

[[table of contents](#) | [back to top](#)]

Program Information

Gulf of Mexico - Deepwater Horizon Oil Spill (GoMX - DHOS)

Coverage: Northern Gulf of Mexico

Grants for Rapid Response Research (RAPID)

The RAPID funding mechanism is used for proposals having a severe urgency with regard to availability of, or access to data, facilities or specialized equipment, including quick-response research on natural or anthropogenic disasters and similar unanticipated events.

GOM - Broader Impacts

The need to understand the impact of this largest oil spill to date on ecosystems and biochemical cycling is self evident. The consequences of the disaster and accompanying clean up measures (e.g. the distribution of dispersants) need to be evaluated to guide further mediating measures and to develop and improve responses to similar disasters in the future. Would it be advantageous if such oil aggregates sink, or should it rather remain suspended? Possibly measures can be developed to enhance sinking or suspension (e.g. addition of ballast minerals) once we understand their current formation and fate. Understanding the particle dynamics following the input of large amounts of oil and dispersants into the water is a prerequisite to develop response strategies for now and in the future.

[[table of contents](#) | [back to top](#)]

Funding

Funding Source	Award
NSF Division of Ocean Sciences (NSF OCE)	OCE-1044289

Funding Source	Award
----------------	-------

[[table of contents](#) | [back to top](#)]