Scientific sampling event logs from R/V Atlantis and R/V F.G. Walton Smith cruises AT18-02 and WS1010 in the Gulf of Mexico Macondo wellhead area in 2010 (DWH_Deep_Microbes project)

Website: https://www.bco-dmo.org/dataset/3726
Data Type: Cruise Results
Version: 1
Version Date: 2012-09-24

Project
» RAPID Deepwater Horizon Oil Spill: Deep pelagic and benthic impacts of the oil spill (DWH_Deep_Microbes)

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

Contributors	Affiliation	Role
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Abstract
Scientific sampling event logs from R/V Atlantis and R/V F.G. Walton Smith cruises AT18-02 and WS1010 in the Gulf of Mexico Macondo wellhead area in 2010.

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Coverage

Spatial Extent: **N**:28.8592 **E**:-88.30973 **S**:27.3652 **W**:-90.56708
Temporal Extent: 2010-05-26 - 2010-12-02

Dataset Description

Sampling event logs from cruises WS1010 and AT18-02 in the Gulf of Mexico during 2010.

Methods & Sampling

AT18-02 Notes:
11/27/10 Operations: Brine Microbial Observatory Project (included in another data submission).
11/30/10: Subsequent MUC/CTD operations were not completed due to the bad weather.

WS1010 Notes:
There were no stations numbered 65 and 74.
There was no CTD cast number 78.
Personnel transfers took place on 5/29/10 and 6/2/10 to 6/3/10.

Data Processing Description

BCO-DMO made the following modifications to the original event logs:
For both cruises:
- Changed parameter names to conform with BCO-DMO convention.
- Replaced blanks with 'nd' to indicate 'no data'.

AT18-02:
- Dates and time were assumed to be local (based on dates/times in the CTD data).
- Added the 'comment' column for misc. sampling notes.
- Separated the original 'event_description' column into 'instr', 'cast', and 'action'.
- Added event numbers ending in 'b' for instrument recovery events.
- Added event numbers for transit events.
- Added the following events: 11.07, 12.07, 15.03 (these events were recorded in the original event log, but did not have distinct event numbers).
-Corrected event number of event 12.08 (was originally recorded as 12.06, creating a duplicate event number).
-For events 15.01b, 15.02, and 15.02b, changed date from 12/1 to 12/2, based on time passing midnight.

WS1010:
-Dates and times were assumed to be UTC (based on dates/times in the CTD data).

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Data Files

File
eventlogs.csv (Comma Separated Values (.csv), 17.27 KB)   MD5:0d51c4906719444ba01371b8af7e7d41
Primary data file for dataset ID 3726

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Parameters

Parameter	Description	Units
cruiseid	Unique identifier for the cruise.	text
platform	Name of the ship.	text
year	Year of the cruise in YYYY format.	unitless
event	Unique event number. The first one or two digits (before the decimal) are the station number. The two digits after the decimal are the consecutive cast number at that station.	unitless
instr	Name of the instrument.	text
cast	Consecutive cast number of the instrument.	unitless
action	Identifies whether the event was the start or end of a cast/dive/deployment. Originally named 'start_end'.	text
sta	Station number (also called Site ID).	unitless
sta_desc	Station name/description. Originally called 'Site Name' on WS1010 cruise and 'Lease Block Station Name' on AT18-02 cruise.	unitless
sta_cast	Consecutive cast number of the instrument at a particular station.	unitless
time_local	Local time, 24-hour clock. (AT18-02 event log was provided in local time. Converted to UTC using time zone difference of +6).	HHMM
month_utc	2-digit (mm) month of year; UTC.	mm (01 to 12)
day_utc	2-digit (dd) day of month; UTC.	dd (01 to 31)
time_utc	UTC time, 24-hour clock.	HHMM
lat	Latitude; positive values = North.	decimal degrees
lon	Longitude; negative values = West.	decimal degrees
depth	Sampling depth.	meters
depth_max	Maximum depth of water.	meters
bottles_fired	Indicates whether or not bottles were fired from the CTD. Y = yes; N = no.	Y or N
si	Last name of the investigator recording the event (originally called responsible science party member or PI).	text
comment	Free-text comments related to the event.	text
date_local	Date, local time. (AT18-02 event log was provided in local time. Converted to UTC using time zone difference of +6) in mm/dd/YYYY format.	unitless
time_diff	The number of hours added to local time to convert to UTC. For cruise AT18-02, time_diff = +6 (DST not in effect).	hours

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Deployments

AT18-02

Website	https://www.bco-dmo.org/deployment/58735
Platform	R/V Atlantis
Start Date	2010-11-08
End Date	2010-12-03
Description	The AT18-02 cruise sailed from Galveston, Texas and returned to Gulfport, Mississippi. Operations consisted of sediment sampling using the DSV ALVIN, hydrographic characterizations of the water column and sampling of water for geochemical and microbiological characterization using a standard CTD/Rosette, and additional sampling using a multiple corer. See more information from the WHOI cruise planning synopsis. Cruise information and original data are available from the NSF R2R data catalog.

WS1010

Website	https://www.bco-dmo.org/deployment/58739
Platform	R/V F.G. Walton Smith
Start Date	2010-05-21
End Date	2010-06-11
Description	The WS1010 cruise departed from Gulfport, Mississippi. Operations consisted of hydrographic characterizations of the water column and sampling of water for geochemical and microbiological characterization using a standard CTD/Rosette. See more information from the R2R Cruise Catalog.

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Project Information

RAPID Deepwater Horizon Oil Spill: Deep pelagic and benthic impacts of the oil spill (DWH_Deep_Microbes)

Coverage: Gulf of Mexico; 26.9N, 90.7W

During late spring and summer of 2010, the Northern Gulf of Mexico (GoM) was exposed to an oil spill different in magnitude and scope from any previous spill. The Deepwater Horizon, an ultra-deep, offshore drilling platform, began working GoM oil fields in 2001. While working a well in Mississippi Canyon on April 20, 2010, a bolus of methane gas ascended the drill pipe and exploded at the surface. Two days later the platform sank and since then, substantial quantities of oil and gas have leaked from the damaged wellhead. This work addressed the offshore oceanic impacts of the BP spill.

Sediment microbial mediated processes are capable of oxidizing oil and methane in the environment. The PI's examined the impacts of the Deepwater Horizon Oil Spill on microbially mediated processes in the deep waters and sediments in the vicinity of the spill site. The work complemented several funded or planned geochemical and microbiological sampling programs focused on the oil spill response. PI's evaluated rates of water column methane oxidation and sediment sulfate reduction and methanogenesis at multiple sites around the spill site. Additional experiments quantified the impact of nutrients, oxygen and substrate concentrations on these important microbially mediated processes.

The Joye group participated in six research cruises during 2010 and received samples from another six cruises from the study area. On all cruises, water samples were collected using a CTD rosette and Niskin or Go-Flo bottles. Sediment samples were obtained by box coring, multi-coring, or using the manned submersible ALVIN.

The PI's extended the monitoring/assessment program that was initiated through the NOAA National Institute of Undersea Science and Technology (NIUST) funded cruise and further leveraged by NOAA/NIUST (cruises in July 2010, October 2010) by conducting three major expeditions in 2010. This RAPID project directly supported

the PI's efforts for cruises in May/June 2010 (NSF Joye chief scientist); August 2010 (NSF Montoya, chief scientist); November/December 2010 (NSF Joye chief scientist); and July 2011 (NSF Montoya, chief scientist)

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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.

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Funding

Funding Source	Award
NSF Division of Ocean Sciences (NSF OCE)	OCE-1043225

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