

# Event log for GEOTRACES Southwestern Atlantic Transect cruise RSS/James Cook JC057 leg 3, March 2011 (GEOTRACES-SWAT project)

**Website:** <https://www.bco-dmo.org/dataset/672511>

**Data Type:** Cruise Results

**Version:** 1

**Version Date:** 2017-01-05

## Project

» [A Critical Test of the Nd Paleocirculation Proxy \(GA02\)](#) (Nd Paleocirculation Proxy)

## Program

» [U.S. GEOTRACES](#) (U.S. GEOTRACES)

Contributors	Affiliation	Role
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## Abstract

Event log for GEOTRACES Southwestern Atlantic Transect cruise RSS/James Cook JC057 leg 3, March 2011 (GEOTRACES-SWAT project).

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## Coverage

**Spatial Extent:** N:-2.6385 E:-27.9988 S:-49.5475 W:-52.6885

**Temporal Extent:** 2011-03-05 - 2011-03-26

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## Dataset Description

This dataset was created by extracting the event log from the [JC057 cruise report](#).

## Data Processing Description

### BCO-DMO Processing notes:

- extracted from Cruisereport\_Geotraces\_leg3\_250511.pdf
- added conventional header with dataset name, PI name, version date
- modified parameter names to conform with BCO-DMO naming conventions
- changed date format from dd-Mon-yyyy to yyyy-mm-dd

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## Data Files

File
<b>JC057_eventlog.csv</b> (Comma Separated Values (.csv), 5.27 KB) MD5:c4c7c337328cc56bdcef0bd7d1c8c821
Primary data file for dataset ID 672511

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## Parameters

Parameter	Description	Units
cruise_id	cruise identifier	unitless
station	consecutive station number	unitless
cast	cast number	unitless
instrument	type of instrument used for event: UCC = Ultra Clean Cast; CTD25L = high volume 25 liter CTD; ISP = in situ pump	unitless
action	start or end of event	unitless
date	date formatted as yyyy-mm-dd	unitless
time	time of day formatted as HH:MM	unitless
lat	latitude; north is positive	decimal degrees
lon	longitude; east is positive	decimal degrees

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## Deployments

### JC057

<b>Website</b>	<a href="https://www.bco-dmo.org/deployment/672215">https://www.bco-dmo.org/deployment/672215</a>
<b>Platform</b>	RRS James Cook
<b>Report</b>	<a href="http://dmoserv3.bco-dmo.org/data_docs/GEOTRACES/SWAT/JC057_eventlog/Cruisereport_Geotraces_leg3_250511.pdf">http://dmoserv3.bco-dmo.org/data_docs/GEOTRACES/SWAT/JC057_eventlog/Cruisereport_Geotraces_leg3_250511.pdf</a>
<b>Start Date</b>	2011-02-03
<b>End Date</b>	2011-06-03

## Project Information

### A Critical Test of the Nd Paleocirculation Proxy (GA02) (Nd Paleocirculation Proxy)

**Coverage:** SW Atlantic Ocean

*Extracted from the NSF award abstract:*

Neodymium (Nd) isotopes are increasingly used in paleoceanographic studies as "quasi-conservative" water mass tracers. However, the limitations of this proxy are not yet fully understood. The proposed work aims to address this uncertainty by critically evaluating the behavior of Nd isotopes as tracers of water mass mixing. The project, led by researchers at Columbia University's Lamont-Doherty Earth Observatory, will analyze in-hand seawater and surface sediment samples collected along a meridional transect in the southwest Atlantic (0 to 50 degrees S) during a GEOTRACES cruise. The sample suite will be used to test 1) whether Nd isotope ratios deviate from expected values for mixing along circulation transport paths, 2) whether Nd isotopes behave quasi-conservatively away from continental margins, 3) whether seafloor features (e.g., continental shelf, volcanic seamounts) add significant external Nd to the system, and 4) whether the Southern Hemisphere wind zones impact Nd isotope values through aeolian deposition. The relationship between Nd isotopes in authigenic surface sediments and those in the overlying seawater will be calibrated for the first time.

By testing an emerging tool in the study of past ocean dynamics, this research will enable a more accurate understanding of changes in the ocean-climate system. The project will support an early-career researcher and a graduate student. Undergraduate students will be involved through an NSF-supported summer internship program at LDEO.

## Program Information

### U.S. GEOTRACES (U.S. GEOTRACES)

**Website:** <http://www.geotraces.org/>

**Coverage:** Global

**GEOTRACES** is a [SCOR](#) sponsored program; and funding for program infrastructure development is provided by the [U.S. National Science Foundation](#).

GEOTRACES gained momentum following a special symposium, S02: Biogeochemical cycling of trace elements and isotopes in the ocean and applications to constrain contemporary marine processes (GEOSECS II), at a 2003 Goldschmidt meeting convened in Japan. The GEOSECS II acronym referred to the Geochemical Ocean Section Studies To determine full water column distributions of selected trace elements and isotopes, including their concentration, chemical speciation, and physical form, along a sufficient number of sections in each ocean basin to establish the principal relationships between these distributions and with more traditional hydrographic parameters;

\* To evaluate the sources, sinks, and internal cycling of these species and thereby characterize more completely the physical, chemical and biological processes regulating their distributions, and the sensitivity of these processes to global change; and

\* To understand the processes that control the concentrations of geochemical species used for proxies of the past environment, both in the water column and in the substrates that reflect the water column.

GEOTRACES will be global in scope, consisting of ocean sections complemented by regional process studies. Sections and process studies will combine fieldwork, laboratory experiments and modelling. Beyond realizing the scientific objectives identified above, a natural outcome of this work will be to build a community of marine scientists who understand the processes regulating trace element cycles sufficiently well to exploit this knowledge reliably in future interdisciplinary studies.

Expand "Projects" below for information about and data resulting from individual US GEOTRACES research projects.

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## Funding

Funding Source	Award
<a href="#">NSF Division of Ocean Sciences (NSF OCE)</a>	<a href="#">OCE-1260514</a>

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