Bottle data along the US GEOTRACES North Atlantic Transect from the R/V Knorr KN204-01 cruise in the subtropical N. Atlantic during 2011 (U.S. GEOTRACES NAT project)

Website: https://www.bco-dmo.org/dataset/3687
Data Type: Cruise Results
Version: 2
Version Date: 2013-01-30

Project
» U.S. GEOTRACES North Atlantic Transect (U.S. GEOTRACES NAT)

Program
» U.S. GEOTRACES (U.S. GEOTRACES)

Contributors	Affiliation	Role
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Abstract
Bottle data along the US GEOTRACES North Atlantic Transect from the R/V Knorr KN204-01 cruise in the subtropical N. Atlantic during 2011.

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Coverage

Spatial Extent: **N**:39.7007 **E**:-24.5 **S**:17.4 **W**:-69.813
Temporal Extent: 2011-11-07 - 2011-12-10

Dataset Description

CTD bottle data from GT-C (GEOTRACES Carousel) for GT11 Transect

Acquisition Description

Refer to the KN204-01 Cruise Report for detailed descriptions of acquisition and processing methodologies.

Processing Description

Refer to the KN204-01 Cruise Report for detailed descriptions of acquisition and processing methodologies.

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Parameters

Parameter	Description	Units
cruise_part	Identifier for a segment of a cruise leg, where a leg may have been broken into parts	text
EXPOCODE	EXPOCODE	text
SECT_ID	SECT ID	text
STNNBR	STNNBR	integer
CASTNO	CASTNO	integer
GEOTRC_EVENTNO	GEOTRACES Event Number	integer
DATE	Date	YYYYMMDD
TIME	Time	HHMM

LATITUDE	Latitude (South is negative)	decimal degrees
LONGITUDE	Longitude (West is negative)	decimal degrees
GEOTRC_SAMPNO	GEOTRC SAMPNO	integer
SAMPNO	SAMPNO	integer
BTLNBR	BTLNBR	text
BTLNBR_FLAG_W	bottle number FLAG W	integer
BTL_DATE	bottle date, UTC	YYYYMMDD
BTL_TIME	bottle time, UTC	HHMM
BTL_LAT	BTL LAT (South is negative)	decimal degrees
BTL_LON	BTL LON (West is negative)	decimal degrees
BTMDEPTH	BTMDEPTH	CORR.M
CTDPRS	Pressure measured from the CTD	DBARS
CTDDEPTH	Depth in meters from the CTD	METERS
CTDTMP	CTDTMP	ITS-90
CTDSAL	CTDSAL	PSS-78
CTDSAL_FLAG_W	CTDSAL FLAG W	integer
SALNTY	SALNTY	PSS-78
SALNTY_FLAG_W	SALNTY FLAG W	integer
CTDOXY	CTDOXY	UMOL/KG
CTDOXY_FLAG_W	CTDOXY FLAG W	integer
OXYGEN	OXYGEN	UMOL/KG
OXYGEN_FLAG_W	OXYGEN FLAG W	integer
SILCAT	SILCAT	UMOL/KG
SILCAT_FLAG_W	SILCAT FLAG W	integer
NITRAT	NITRAT	UMOL/KG
NITRAT_FLAG_W	NITRAT FLAG W	integer
NITRIT	NITRIT	UMOL/KG

NITRIT_FLAG_W	NITRIT FLAG W	integer
PHSPHT	PHSPHT	UMOL/KG
PHSPHT_FLAG_W	PHSPHT FLAG W	integer
NITRAT_NM	NITRAT NM	NMOL/L
NITRAT_NM_FLAG_W	NITRAT NM FLAG W	integer
NITRIT_NM	NITRIT NM	NMOL/L
NITRIT_NM_FLAG_W	NITRIT NM FLAG W	integer
PHSPHT_NM	PHSPHT NM	NMOL/L
PHSPHT_NM_FLAG_W	PHSPHT NM FLAG W	integer
FE_UH	FE UH	NMOL/L
FE_UH_FLAG_W	FE UH FLAG W	integer
AL_UH	AL UH	NMOL/L
AL_UH_FLAG_W	AL UH FLAG W	integer
MN_UH	MN UH	NMOL/L
MN_UH_FLAG_W	MN UH FLAG W	integer
ZN_UH	ZN UH	NMOL/L
ZN_UH_FLAG_W	ZN UH FLAG W	integer
DISS_MN_USM	DISS MN USM	NMOL/KG
DISS_MN_USM_FLAG_W	DISS MN USM FLAG W	integer
DISS_V_USM	DISS V USM	NMOL/KG
DISS_V_USM_FLAG_W	DISS V USM FLAG W	integer
DISS_GA_USM	DISS GA USM	PMOL/KG
DISS_GA_USM_FLAG_W	DISS GA USM FLAG W	integer
REE_LA_USM	REE LA USM	PMOL/KG
REE_LA_USM_FLAG_W	REE LA USM FLAG W	integer
REE_CE_USM	REE CE USM	PMOL/KG
REE_CE_USM_FLAG_W	REE CE USM FLAG W	integer
REE_PR_USM	REE PR USM	PMOL/KG
REE_PR_USM_FLAG_W	REE PR USM FLAG W	integer
REE_ND_USM	REE ND USM	PMOL/KG

REE_ND_USM_FLAG_W	REE ND USM FLAG W	integer
REE_PM_USM	REE PM USM	PMOL/KG
REE_PM_USM_FLAG_W	REE PM USM FLAG W	integer
REE_SM_USM	REE SM USM	PMOL/KG
REE_SM_USM_FLAG_W	REE SM USM FLAG W	integer
REE_EU_USM	REE EU USM	PMOL/KG
REE_EU_USM_FLAG_W	REE EU USM FLAG W	integer
REE_GD_USM	REE GD USM	PMOL/KG
REE_GD_USM_FLAG_W	REE GD USM FLAG W	integer
REE_TB_USM	REE TB USM	PMOL/KG
REE_TB_USM_FLAG_W	REE TB USM FLAG W	integer
REE_DY_USM	REE DY USM	PMOL/KG
REE_DY_USM_FLAG_W	REE DY USM FLAG W	integer
REE_HO_USM	REE HO USM	PMOL/KG
REE_HO_USM_FLAG_W	REE HO USM FLAG W	integer
REE_ER_USM	REE ER USM	PMOL/KG
REE_ER_USM_FLAG_W	REE ER USM FLAG W	integer
REE_TM_USM	REE TM USM	PMOL/KG
REE_TM_USM_FLAG_W	REE TM USM FLAG W	integer
REE_YB_USM	REE YB USM	PMOL/KG
REE_YB_USM_FLAG_W	REE YB USM FLAG W	integer
REE_LU_USM	REE LU USM	PMOL/KG
REE_LU_USM_FLAG_W	REE LU USM FLAG W	integer
PB_CONC	PB CONC	PMOL/KG
PB_CONC_FLAG_W	PB CONC FLAG W	integer
PB206_to_PB207	PB-206/PB-207	RATIO
PB206_to_PB207_FLAG_W	PB-206/PB-207_FLAG_W	integer
PB208_to_PB207	PB-208/PB-207	RATIO
PB208_to_PB207_FLAG_W	PB-208/PB-207_FLAG_W	integer
PB206_to_PB204	PB-206/PB-204	RATIO

PB206_to_PB204_FLAG_W	PB-206/PB-204_FLAG_W	integer
CR_III	CR III	NMOL/KG
CR_III_FLAG_W	CR III FLAG W	integer
DELCR_III	DELCR III	/MILLE
DELCR_III_FLAG_W	DELCR III FLAG W	integer
CR_TOTAL	CR TOTAL	NMOL/KG
CR_TOTAL_FLAG_W	CR TOTAL FLAG W	integer
DELCR_TOTAL	DELCR TOTAL	/MILLE
DELCR_TOTAL_FLAG_W	DELCR TOTAL FLAG W	integer
POL_ZN	POL ZN	NMOL/KG
POL_ZN_FLAG_W	POL ZN FLAG W	integer
L1_ZN	L1 ZN	NMOL/L
L1_ZN_FLAG_W	L1 ZN FLAG W	integer
K1_ZN	K1 ZN	(tbd)
K1_ZN_FLAG_W	K1 ZN FLAG W	integer
L2_ZN	L2 ZN	NMOL/L
L2_ZN_FLAG_W	L2 ZN FLAG W	integer
K2_ZN	K2 ZN	(tbd)
K2_ZN_FLAG_W	K2 ZN FLAG W	integer
L3_ZN	L3 ZN	NMOL/L
L3_ZN_FLAG_W	L3 ZN FLAG W	integer
K3_ZN	K3 ZN	(tbd)
K3_ZN_FLAG_W	K3 ZN FLAG W	integer
SOLUBLE_FE	SOLUBLE FE	NMOL/KG
SOLUBLE_FE_FLAG_W	SOLUBLE FE FLAG W	integer
COLLOIDAL_FE	COLLOIDAL FE	NMOL/KG
COLLOIDAL_FE_FLAG_W	COLLOIDAL FE FLAG W	integer
ARSENATE	ARSENATE	/NMOL/L
ARSENATE_FLAG_W	ARSENATE FLAG W	integer
ARSENITE	ARSENITE	/NMOL/L

ARSENITE_FLAG_W	ARSENITE FLAG W	integer
MM_AS	MM AS	NMOL/L
MM_AS_FLAG_W	MM AS FLAG W	integer
DM_AS	DM AS	NMOL/L
DM_AS_FLAG_W	DM AS FLAG W	integer
SB_III	SB III	NMOL/L
SB_III_FLAG_W	SB III FLAG W	integer
SELENATE	SELENATE	/NMOL/L
SELENATE_FLAG_W	SELENATE FLAG W	integer
SELENITE	SELENITE	/NMOL/L
SELENITE_FLAG_W	SELENITE FLAG W	integer
ORG_SELENIDE	ORG SELENIDE	/NMOL/L
ORG_SELENIDE_FLAG_W	ORG SELENIDE FLAG W	integer
TOT_DISS_SE	TOT DISS SE	/NMOL/L
TOT_DISS_SE_FLAG_W	TOT DISS SE FLAG W	integer
DISS_FE_II	DISS FE II	NMOL/L
DISS_FE_II_FLAG_W	DISS FE II FLAG W	integer
DISS_FE	DISS FE	NMOL/L
DISS_FE_FLAG_W	DISS FE FLAG W	integer
L1_FE_FRZ	L1 FE FRZ	NMOL/L
L1_FE_FRZ_FLAG_W	L1 FE FRZ FLAG W	integer
LOG_K1_FE_FRZ	LOG K1 FE FRZ	(tbd)
LOG_K1_FE_FRZ_FLAG_W	LOG K1 FE FRZ FLAG W	integer
L2_FE_FRZ	L2 FE FRZ	NMOL/L
L2_FE_FRZ_FLAG_W	L2 FE FRZ FLAG W	integer
LOG_K2_FE_FRZ	LOG K2 FE FRZ	(tbd)
LOG_K2_FE_FRZ_FLAG_W	LOG K2 FE FRZ FLAG W	integer
AL_BRUL	AL BRUL	NMOL/KG
AL_BRUL_FLAG_W	AL BRUL FLAG W	integer
CD_BRUL	CD BRUL	PMOL/KG

CD_BRUL_FLAG_W	CD BRUL FLAG W	integer
CO_BRUL	CO BRUL	PMOL/KG
CO_BRUL_FLAG_W	CO BRUL FLAG W	integer
CU_BRUL	CU BRUL	NMOL/KG
CU_BRUL_FLAG_W	CU BRUL FLAG W	integer
GA_BRUL	GA BRUL	PMOL/KG
GA_BRUL_FLAG_W	GA BRUL FLAG W	integer
FE_BRUL	FE BRUL	NMOL/KG
FE_BRUL_FLAG_W	FE BRUL FLAG W	integer
PB_BRUL	PB BRUL	PMOL/KG
PB_BRUL_FLAG_W	PB BRUL FLAG W	integer
MN_BRUL	MN BRUL	NMOL/KG
MN_BRUL_FLAG_W	MN BRUL FLAG W	integer
NI_BRUL	NI BRUL	NMOL/KG
NI_BRUL_FLAG_W	NI BRUL FLAG W	integer
SC_BRUL	SC BRUL	PMOL/KG
SC_BRUL_FLAG_W	SC BRUL FLAG W	integer
AG_BRUL	AG BRUL	PMOL/KG
AG_BRUL_FLAG_W	AG BRUL FLAG W	integer
TI_BRUL	TI BRUL	PMOL/KG
TI_BRUL_FLAG_W	TI BRUL FLAG W	integer
ZN_BRUL	ZN BRUL	NMOL/KG
ZN_BRUL_FLAG_W	ZN BRUL FLAG W	integer
PART_AL_TWI	PART AL TWI	PMOL/L
PART_AL_TWI_FLAG_W	PART AL TWI FLAG W	integer
PART_P_TWI	PART P TWI	PMOL/L
PART_P_TWI_FLAG_W	PART P TWI FLAG W	integer
PART_MN_TWI	PART MN TWI	PMOL/L
PART_MN_TWI_FLAG_W	PART MN TWI FLAG W	integer
PART_FE_TWI	PART FE TWI	PMOL/L

PART_FE_TWI_FLAG_W	PART FE TWI FLAG W	integer
PART_CO_TWI	PART CO TWI	PMOL/L
PART_CO_TWI_FLAG_W	PART CO TWI FLAG W	integer
PART_NI_TWI	PART NI TWI	PMOL/L
PART_NI_TWI_FLAG_W	PART NI TWI FLAG W	integer
PART_CU_TWI	PART CU TWI	PMOL/L
PART_CU_TWI_FLAG_W	PART CU TWI FLAG W	integer
PART_ZN_TWI	PART ZN TWI	PMOL/L
PART_ZN_TWI_FLAG_W	PART ZN TWI FLAG W	integer
PART_CD_TWI	PART CD TWI	PMOL/L
PART_CD_TWI_FLAG_W	PART CD TWI FLAG W	integer
PHYTO_AL_to_P_TWI	PHYTO AL/P TWI	RATIO
PHYTO_AL_to_P_TWI_FLAG_W	PHYTO AL/P TWI FLAG W	integer
PHYTO_MN_to_P_TWI	PHYTO MN/P TWI	RATIO
PHYTO_MN_to_P_TWI_FLAG_W	PHYTO MN/P TWI FLAG W	integer
PHYTO_FE_to_P_TWI	PHYTO FE/P TWI	RATIO
PHYTO_FE_to_P_TWI_FLAG_W	PHYTO FE/P TWI FLAG W	integer
PHYTO_CO_to_P_TWI	PHYTO CO/P TWI	RATIO
PHYTO_CO_to_P_TWI_FLAG_W	PHYTO CO/P TWI FLAG W	integer
PHYTO_NI_to_P_TWI	PHYTO NI/P TWI	RATIO
PHYTO_NI_to_P_TWI_FLAG_W	PHYTO NI/P TWI FLAG W	integer
PHYTO_ZN_to_P_TWI	PHYTO ZN/P TWI	RATIO
PHYTO_ZN_to_P_TWI_FLAG_W	PHYTO ZN/P TWI FLAG W	integer
PHYTO_CD_to_P_TWI	PHYTO CD/P TWI	RATIO
PHYTO_CD_to_P_TWI_FLAG_W	PHYTO CD/P TWI FLAG W	integer
MN_LAND	MN LAND	NMOL/L
MN_LAND_FLAG_W	MN LAND FLAG W	integer
FE_LAND	FE LAND	NMOL/L
FE_LAND_FLAG_W	FE LAND FLAG W	integer
CO_LAND	CO LAND	NMOL/L

CO_LAND_FLAG_W	CO LAND FLAG W	integer
NI_LAND	NI LAND	NMOL/L
NI_LAND_FLAG_W	NI LAND FLAG W	integer
CU_LAND	CU LAND	NMOL/L
CU_LAND_FLAG_W	CU LAND FLAG W	integer
ZN_LAND	ZN LAND	NMOL/L
ZN_LAND_FLAG_W	ZN LAND FLAG W	integer
CD_LAND	CD LAND	NMOL/L
CD_LAND_FLAG_W	CD LAND FLAG W	integer
PB_LAND	PB LAND	NMOL/L
PB_LAND_FLAG_W	PB LAND FLAG W	integer
TOT_DISS_CU	TOT DISS CU	NMOL/L
TOT_DISS_CU_FLAG_W	TOT DISS CU FLAG W	integer
FREE_CU2plus_CONC	FREE CU2+ CONC	MOL/L
FREE_CU2plus_CONC_FLAG_W	FREE CU2+ CONC FLAG W	integer
L_CU	L CU	NMOL/L
L_CU_FLAG_W	L CU FLAG W	integer
K_CU	K CU	(tbd)
K_CU_FLAG_W	K CU FLAG W	integer
TOT_DISS_CO	TOT DISS CO	PMOL/L
TOT_DISS_CO_FLAG_W	TOT DISS CO FLAG W	integer
LABILE_CO	LABILE CO	PMOL/L
LABILE_CO_FLAG_W	LABILE CO FLAG W	integer
D56FE	D56FE	PERMIL
D56FE_FLAG_W	D56FE FLAG W	integer
D57FE	D57FE	PERMIL
D57FE_FLAG_W	D57FE FLAG W	integer
DISS_FE_WU	DISS FE WU	NMOL/L
DISS_FE_WU_FLAG_W	DISS FE WU FLAG W	integer
DISS_AL_WU	DISS AL WU	NMOL/L

DISS_AL_WU_FLAG_W	DISS AL WU FLAG W	integer
DISS_ZN_WU	DISS ZN WU	NMOL/L
DISS_ZN_WU_FLAG_W	DISS ZN WU FLAG W	integer
DISS_CD_WU	DISS CD WU	NMOL/L
DISS_CD_WU_FLAG_W	DISS CD WU FLAG W	integer
DISS_MN_WU	DISS MN WU	NMOL/L
DISS_MN_WU_FLAG_W	DISS MN WU FLAG W	integer
OS	OS	FMOL/KG
OS_FLAG_W	OS FLAG W	integer
OS187_to_OS188	OS-187/OS-188	RATIO
OS187_to_OS188_FLAG_W	OS-187/OS-188 FLAG W	integer
HG_TOTAL	HG TOTAL	PMOL/L
HG_TOTAL_FLAG_W	HG TOTAL FLAG W	integer
HG0	HG0	PMOL/L
HG0_FLAG_W	HG0	integer
MM_HG	MM HG	PMOL/L
MM_HG_FLAG_W	MM HG FLAG W	integer
DM_HG	DM HG	PMOL/L
DM_HG_FLAG_W	DM HG FLAG W	integer
DISS_TI	DISS TI	PMOL/KG
DISS_TI_FLAG_W	DISS TI FLAG W	integer
ZR_CONC	ZR CONC	PMOL/KG
ZR_CONC_FLAG_W	ZR CONC FLAG W	integer
HF_CONC	HF CONC	PMOL/KG
HF_CONC_FLAG_W	HF CONC FLAG W	integer

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Instruments

Dataset-specific Instrument Name	GO-FLO Bottle
Generic Instrument Name	GO-FLO Bottle
Dataset-specific Description	Rapid sampling system for trace elements
Generic Instrument Description	GO-FLO bottle cast used to collect water samples for pigment, nutrient, plankton, etc. The GO-FLO sampling bottle is specially designed to avoid sample contamination at the surface, internal spring contamination, loss of sample on deck (internal seals), and exchange of water from different depths.

Dataset-specific Instrument Name	Niskin bottle
Generic Instrument Name	Niskin bottle
Generic Instrument Description	A Niskin bottle (a next generation water sampler based on the Nansen bottle) is a cylindrical, non-metallic water collection device with stoppers at both ends. The bottles can be attached individually on a hydrowire or deployed in 12, 24 or 36 bottle Rosette systems mounted on a frame and combined with a CTD. Niskin bottles are used to collect discrete water samples for a range of measurements including pigments, nutrients, plankton, etc.

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Deployments

KN204-01

Website	https://www.bco-dmo.org/deployment/58786
Platform	R/V Knorr
Report	http://bcodata.whoi.edu/US_GEOTRACES/AtlanticSection/STS_Prelim_GT11_Doc.pdf
Start Date	2011-11-06
End Date	2011-12-11
Description	The US GEOTRACES North Atlantic cruise aboard the R/V Knorr completed the section between Lisbon and Woods Hole that began in October 2010 but was rescheduled for November-December 2011. The R/V Knorr made a brief stop in Bermuda to exchange samples and personnel before continuing across the basin. Scientists disembarked in Praia, Cape Verde, on 11 December. The cruise was identified as KN204-01A (first part before Bermuda) and KN204-01B (after the Bermuda stop). However, the official deployment name for this cruise is KN204-01 and includes both part A and B. Science activities included: ODF 30 liter rosette CTD casts, ODU Trace metal rosette CTD casts, McLane particulate pump casts, underway sampling with towed fish and sampling from the shipboard "uncontaminated" flow-through system. Full depth stations are shown in the accompanying figure (see below). Additional stations to sample for selected trace metals to a depth of 1000 m are not shown. Standard stations are shown in red (as are the ports) and "super" stations, with extra casts to provide large-volume samples for selected parameters, are shown in green. Station spacing is concentrated along the western margin to evaluate the transport of trace elements and isotopes by western boundary currents. Stations across the gyre will allow scientists to examine trace element supply by Saharan dust, while also contrasting trace element and isotope distributions in the oligotrophic gyre with conditions near biologically productive ocean margins, both in the west, to be sampled now, and within the eastern boundary upwelling system off Mauritania, sampled last year. The cruise was funded by NSF OCE awards 0926204, 0926433 and 0926659. Additional information may be available from the vessel operator site, URL: http://www.whoi.edu/cruiseplanning/synopsis.do?id=1662. Cruise information and original data are available from the NSF R2R data catalog. ADCP data are available from the Currents ADCP group at the University of Hawaii at the links below:KN204-01A (part 1 of 2011 cruise; Woods Hole, MA to Bermuda)KN204-01B (part 2 of 2011 cruise; Bermuda to Cape Verde) **Acquisition Description** **Processing Description**

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Project Information

U.S. GEOTRACES North Atlantic Transect (U.S. GEOTRACES NAT)

Website: http://www.geotraces.org/

Coverage: Subtropical western and eastern North Atlantic Ocean

Much of this text appeared in an article published in OCB News, October 2008, by the OCB Project Office. The first U.S. GEOTRACES Atlantic Section will be specifically centered around a sampling cruise to be carried out in the North Atlantic in 2010. Ed Boyle (MIT) and Bill Jenkins (WHOI) organized a three-day planning workshop that was held September 22-24, 2008 at the Woods Hole Oceanographic Institution. The main goal of the workshop, sponsored by the National Science Foundation and the U.S. GEOTRACES Scientific Steering Committee, was to design the implementation plan for the first U.S. GEOTRACES Atlantic Section. The primary cruise design motivation was to improve knowledge of the sources, sinks and internal cycling of Trace Elements and their Isotopes (TEIs) by studying their distributions along a section in the North Atlantic (Figure 1). The North Atlantic has the full suite of processes that affect TEIs, including strong meridional advection, boundary scavenging and source effects, aeolian deposition, and the salty Mediterranean Outflow. The North Atlantic is particularly important as it lies at the "origin" of the global Meridional Overturning Circulation. It is well understood that many trace metals play important roles in biogeochemical processes and the carbon cycle, yet very little is known about their large-scale distributions and the regional scale processes that affect them. Recent advances in sampling and analytical techniques, along with advances in our understanding of their roles in enzymatic and catalytic processes in the open ocean provide a natural opportunity to make substantial advances in our understanding of these important elements. Moreover, we are motivated by the prospect of global change and the need to understand the present and future workings of the ocean's biogeochemistry. The GEOTRACES strategy is to measure a broad suite of TEIs to constrain the critical biogeochemical processes that influence their distributions. In addition to these "exotic" substances, more traditional properties, including macronutrients (at micromolar and nanomolar levels), CTD, bio-optical parameters, and carbon system characteristics will be measured. The cruise starts at Line W, a repeat hydrographic section southeast of Cape Cod, extends to Bermuda and subsequently through the North Atlantic oligotrophic subtropical gyre, then transects into the African coast in the northern limb of the coastal upwelling region. From there, the cruise goes northward into the Mediterranean outflow. The station locations shown on the map are for the "fulldepth TEI" stations, and constitute approximately half of the stations to be ultimately occupied. Figure 1. The proposed 2010 Atlantic GEOTRACES cruise track plotted on dissolved oxygen at 400 m depth. Data from the World Ocean Atlas (Levitus et al., 2005) were plotted using Ocean Data View (courtesy Reiner Schlitzer). [click on the image to view a larger version] Hydrography, CTD and nutrient measurements will be supported by the Ocean Data Facility (J. Swift) at Scripps Institution of Oceanography and funded through NSF Facilities. They will be

providing an additional CTD rosette system along with nephelometer and LADCP. A trace metal clean Go-Flo Rosette and winch will be provided by the group at Old Dominion University (G. Cutter) along with a towed underway pumping system. The North Atlantic Transect cruise began in 2010 with KN199 leg 4 (station sampling) and leg 5 (underway sampling only) (Figure 2). KN199-04 Cruise Report (PDF) Figure 2. The red line shows the cruise track for the first leg of the US Geotraces North Atlantic Transect on the R/V Knorr in October 2010. The rest of the stations (beginning with 13) will be completed in October-December 2011 on the R/V Knorr (courtesy of Bill Jenkins, Chief Scientist, GNAT first leg). [click on the image to view a larger version] The section completion effort resumed again in November 2011 with KN204-01A,B (Figure 3). KN204-01A,B Cruise Report (PDF) Figure 3. Station locations occupied on the US Geotraces North Atlantic Transect on the R/V Knorr in November 2011. [click on the image to view a larger version] Data from the North Atlantic Transect cruises are available under the Datasets heading below, and consensus values for the SAFe and North Atlantic GEOTRACES Reference Seawater Samples are available from the GEOTRACES Program Office: Standards and Reference Materials ADCP data are available from the Currents ADCP group at the University of Hawaii at the links below:KN199-04 (leg 1 of 2010 cruise; Lisbon to Cape Verde)KN199-05 (leg 2 of 2010 cruise; Cape Verde to Charleston, NC)KN204-01A (part 1 of 2011 cruise; Woods Hole, MA to Bermuda)KN204-01B (part 2 of 2011 cruise; Bermuda to Cape Verde)

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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
NSF Division of Ocean Sciences (NSF OCE)	OCE-0926423
NSF Division of Ocean Sciences (NSF OCE)	OCE-0926092

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