

# Aerosol data from multiple cruises from Reykjavik, Iceland to Natal Brazil Atlantic Ocean and Central Pacific Ocean from January to February 2005 (CLIVAR AEROSOL project)

**Website:** <https://www.bco-dmo.org/dataset/3413>

**Data Type:** Cruise Results

**Version:** 13 June 2013

**Version Date:** 2013-06-13

## Project

» [Collaborative Research: Global Ocean Survey of Dissolved Iron and Aluminum and Aerosol Iron and Aluminum Solubility Supporting the Repeat Hydrography \(CO2\) Project](#) (CLIVAR AEROSOL)

## Program

» [U. S. Climate Variability and Predictability](#) (U.S. CLIVAR)

Contributors	Affiliation	Role
<a href="#">Landing, William M.</a>	Florida State University (FSU - EOAS)	Principal Investigator
<a href="#">Measures, Christopher L.</a>	University of Hawaii at Manoa (SOEST)	Co-Principal Investigator
<a href="#">Resing, Joseph A.</a>	National Oceanic and Atmospheric Administration (NOAA-PMEL)	Co-Principal Investigator
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## Coverage

**Spatial Extent:** N:62.81 E:178.445333 S:-71 W:-179.217

**Temporal Extent:** 2003-06-20 - 2006-03-28

## Dataset Description

Atmospheric aerosol samples collected during selected legs of the Repeat Hydrography CO2 cruises. Samples recovered during these cruises have been analyzed for Fe and Al. In addition, aerosol samples have been subjected to an ultrapure water leach to assess the fractional solubility of Fe and Al.

The U.S. CLIVAR DAC at CCHDO manages the data from the Repeat Hydrography sections. Most of the data sets from these cruises, referenced using the EXPOCODE as opposed to cruise ID, are available from the CCHDO:

## EXPOCODE

33RO200306\_01 [Data catalog at CCHDO](#)

318M200406 [Data catalog at CCHDO](#)

325020060213 [Data catalog at CCHDO](#)

33RR200501 [Data catalog at CCHDO](#)

## Methods & Sampling

### For methods see:

C.Buck et al., 2006, GEOCHEMISTRY GEOPHYSICS GEOSYSTEMS, doi:10.1029/2005GC000977

C.Buck et al., 2010, Mar. Chem., doi:10.1016/j.marchem.2008.08.003

Data Set Information/General:	Parameter	Explanation
Name	Name of data originator	
Address	Institute, address and e-mail of data originator	
Ship	Name of vessel sampling was carried out on	
Cruise_ID	Cruise Identifier e.g. AMT15	
Cruise_Track	Course followed by vessel during sampling	
Data_Centre	Name and/or web address of Data Centre holding other relevant (e.g. oceanographic) cruise data	
Data_Publication	Citation(s) for journal article(s) relevant to dataset. Please include publications with method information in 'Method_Publication'	
Sampler_Locate	Location of sampler e.g. atmospheric sampling mast, wheelhouse roof, foredeck, etc.	
Sampler_Type	Aerosol sampler type	
Sampler_Flow	Flow rate of sampler (give units)	
Substrate_Type	Type of filter/substrate used to collect aerosol	
Substrate_Pretreat	Pretreatment of filters/substrates (if any)	
Size_Seg_Method	Method used for aerosol size segregation (if any)	
Method_Publication	Citation(s) for journal article(s) giving analytical method information, or description of method	
DL_Value	Description of how values below analytical detection limit are recorded in the dataset, e.g. Value of 70% of detection limit might be used	

Sample Specific Information:	Parameter	Explanation
Sample_#	Sample Number	
Start_Day	Sampling start day	
Start_Month	Sampling start month	
Start_Year	Sampling start year	
Start_Time	Sampling start time	
Start_Lat	Sampling start Latitude (decimal degrees)	
Start_Long	Sampling start Longitude (decimal degrees)	
End_Day	Sampling end day	
End_Month	Sampling end month	
End_Year	Sampling end year	
End_Time	Sampling end time	
End_Lat	Sampling end Latitude (decimal degrees)	
End_Long	Sampling end Longitude (decimal degrees)	
Air_Vol_Chan_1	Volume of air sampled in Chan 1	
Air_Vol_Chan_2	Volume of air sampled in Chan 2	

### Total Data Specific

Fe_Total	Total aerosol Fe concentration	
Fe_Total_var	Total aerosol Fe concentration, variance	
Fe_Total_QF	Total aerosol Fe concentration, data quality flag, e.g. Highlight any inserted DL values, improbable values, contamination etc.	
Al_Total	Total aerosol Al concentration	
Al_Total_var	Total aerosol Al concentration, variance	
Al_Total_QF	Total aerosol Al concentration, data quality flag, e.g. Highlight any inserted DL values, improbable values, contamination etc.	
Si_Total	Total aerosol Si concentration	
Si_Total_var	Total aerosol Si concentration, variance	

Si\_Total\_QF Total aerosol Si concentration, data quality flag,  
e.g. Highlight any inserted DL values, improbable values, contamination etc.

Ti\_Total Total aerosol Ti concentration

Ti\_Total\_var Total aerosol Ti concentration, variance

Ti\_Total\_QF Total aerosol Ti concentration, data quality flag,  
e.g. Highlight any inserted DL values, improbable values, contamination etc.

V\_Total Total aerosol V concentration

V\_Total\_var Total aerosol V concentration, variance

V\_Total\_QF Total aerosol V concentration, data quality flag,  
e.g. Highlight any inserted DL values, improbable values, contamination etc.

Mn\_Total Total aerosol Mn concentration

Mn\_Total\_var Total aerosol Mn concentration, variance

Mn\_Total\_QF Total aerosol Mn concentration, data quality flag,  
e.g. Highlight any inserted DL values, improbable values, contamination etc.

Pb\_Total Total aerosol Pb concentration

Pb\_Total\_var Total aerosol Pb concentration, variance

Pb\_Total\_QF Total aerosol Pb concentration, data quality flag,  
e.g. Highlight any inserted DL values, improbable values, contamination etc.

### **Soluble Data Specific**

Fe\_SW\_Soluble Seawater soluble aerosol Fe concentration

Fe\_SW\_Soluble\_Var Seawater soluble aerosol Fe concentration, variance

Fe\_SW\_Soluble\_QF Seawater soluble aerosol Fe concentration, data quality flag,  
e.g. Highlight any inserted DL values, improbable values, contamination etc.

Fe(II)\_SW\_Soluble Seawater soluble aerosol Fe(II) concentration

Fe(II)\_SW\_Soluble\_Var Seawater soluble aerosol Fe(II) concentration, variance

Fe(II)\_SW\_Soluble\_QF Seawater soluble aerosol Fe(II) concentration, data quality flag,  
e.g. Highlight any inserted DL values, improbable values, contamination etc.

Fe\_DI\_Soluble DI water soluble aerosol Fe concentration

Fe\_DI\_Soluble\_Var DI water soluble aerosol Fe concentration, variance

Fe\_DI\_Soluble\_QF DI water soluble aerosol Fe concentration, data quality flag,  
e.g. Highlight any inserted DL values, improbable values, contamination etc.

Al\_DI\_Soluble DI water soluble aerosol Al concentration

Al\_DI\_Soluble\_Var DI water soluble aerosol Al concentration, variance

Al\_DI\_Soluble\_QF DI water soluble aerosol Al concentration, data quality flag,  
e.g. Highlight any inserted DL values, improbable values, contamination etc.

Si\_DI\_Soluble DI water soluble aerosol Si concentration

Si\_DI\_Soluble\_Var DI water soluble aerosol Si concentration, variance

Si\_DI\_Soluble\_QF DI water soluble aerosol Si concentration, data quality flag,  
e.g. Highlight any inserted DL values, improbable values, contamination etc.

Ti\_DI\_Soluble DI water soluble aerosol Ti concentration

Ti\_DI\_Soluble\_Var DI water soluble aerosol Ti concentration, variance

Ti\_DI\_Soluble\_QF DI water soluble aerosol Ti concentration, data quality flag,  
e.g. Highlight any inserted DL values, improbable values, contamination etc.

V\_DI\_Soluble DI water soluble aerosol V concentration

V\_DI\_Soluble\_var DI water soluble aerosol V concentration, variance

V\_DI\_Soluble\_QF DI water soluble aerosol V concentration, data quality flag,  
e.g. Highlight any inserted DL values, improbable values, contamination etc.

Mn\_DI\_Soluble DI water soluble aerosol Mn concentration

Mn\_DI\_Soluble\_var DI water soluble aerosol Mn concentration, variance

Mn\_DI\_Soluble\_QF DI water soluble aerosol Mn concentration, data quality flag,  
e.g. Highlight any inserted DL values, improbable values, contamination etc.

NO3\_DI\_Soluble DI water soluble aerosol Nitrate concentration

NO3\_DI\_Soluble\_QF DI water soluble aerosol Nitrate concentration, data quality flag,  
e.g. Highlight any inserted DL values, improbable values, contamination etc.

nss-SO4\_DI\_Soluble DI water soluble aerosol non-sea salt Sulfate concentration

nss-SO4\_DI\_Soluble\_QF DI water soluble aerosol non-sea salt Sulfate concentration, data quality flag,  
e.g. Highlight any inserted DL values, improbable values, contamination etc.

Na\_DI\_Soluble DI water soluble aerosol Na concentration

Na\_DI\_Soluble\_QF DI water soluble aerosol Na concentration, data quality flag,  
e.g. Highlight any inserted DL values, improbable values, contamination etc.

Oxalate\_DI\_Soluble DI water soluble aerosol Oxalate concentration

Oxalate\_DI\_Soluble\_QF DI water soluble aerosol Oxalate concentration, data quality flag,  
e.g. Highlight any inserted DL values, improbable values, contamination etc.

### **Quality Flag Codes:**

Codes in the Quality Flag columns to indicate any data quality concerns.  
Includes any values substituted for cases below the detection limit.

BDL - below detection limit (include description of how these values are dealt with in cell C23, DATA sheet)

ADL - concentration in excess of value

C - contamination suspected

FDV - Filters damaged, value considered valid

FDI - Filters damaged, value considered invalid

NS - No sample taken

Note: BCO-DMO standard for no data value "nd" entered into blank fields during BCO-DMO processing srg/25January2011

## Data Processing Description

### For methods see:

C.Buck et al., 2006, GEOCHEMISTRY GEOPHYSICS GEOSYSTEMS, doi:10.1029/2005GC000977

C.Buck et al., 2010, Mar. Chem., doi:10.1016/j.marchem.2008.08.003

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## Data Files

File
<b>Aerosol_all.csv</b> (Comma Separated Values (.csv), 52.60 KB) MD5:96a8d798f12a6eaa97f4fc67caa96d0c
Primary data file for dataset ID 3413

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## Parameters

Parameter	Description	Units
Sample_Number	Sample Number	integer
YrDay	Year day (Julian day) of sample	integer
Year	Year of sample	YYYY
Date_Start	Sampling start date (UTC)	YYYYMMDD
Time_Start	Sampling start time (UTC)	HHMM
Lon_Start	Sampling start Longitude (West is negative)	decimal degrees
Lat_Start	Sampling start Latitude (South is negative)	decimal degrees
Date_End	Sampling End date (UTC)	YYYYMMDD
Time_End	Sampling End time (UTC)	HHMM
Lon_End	Sampling End Longitude (West is negative)	decimal degrees
Lat_End	Sampling End Latitude (South is negative)	decimal degrees
Air_Vol_Chan_1	Volume of air sampled	m3
Fe_Total	Total aerosol Fe concentration	pmole/m3
Fe_Total_var	Total aerosol Fe concentration; variance	pmole/m3

Fe_Total_QF	Total aerosol Fe concentration; data quality flag	text
Al_Total	Total aerosol Al concentration	pmole/m3
Al_Total_var	Total aerosol Al concentration; variance	pmole/m3
Al_Total_QF	Total aerosol Al concentration; data quality flag	text
Si_Total	Total aerosol Si concentration	pmole/m3
Si_Total_var	Total aerosol Si concentration; variance	pmole/m3
Si_Total_QF	Total aerosol Si concentration; data quality flag	text
Ti_Total	Total aerosol Ti concentration	pmole/m3
Ti_Total_var	Total aerosol Ti concentration; variance	pmole/m3
Ti_Total_QF	Total aerosol Ti concentration; data quality flag	text
V_Total	Total aerosol V concentration	pmole/m3
V_Total_var	Total aerosol V concentration; variance	pmole/m3
V_Total_QF	Total aerosol V concentration; data quality flag	text
Mn_Total	Total aerosol Mn concentration	pmole/m3
Mn_Total_var	Total aerosol Mn concentration; variance	pmole/m3
Mn_Total_QF	Total aerosol Mn concentration; data quality flag	text
Fe_SW_Soluble	Seawater soluble aerosol Fe concentration	pmole/m3
Fe_SW_Soluble_Var	Seawater soluble aerosol Fe concentration; variance	pmole/m3
Fe_SW_Soluble_QF	Seawater soluble aerosol Fe concentration; data quality flag	text
Fe_DI_Soluble	DI water soluble aerosol Fe concentration	pmole/m3
Fe_DI_Soluble_Var	DI water soluble aerosol Fe concentration; variance	pmole/m3
Fe_DI_Soluble_QF	DI water soluble aerosol Fe concentration; data quality flag	text
Al_DI_Soluble	DI water soluble aerosol Al concentration	pmole/m3
Al_DI_Soluble_Var	DI water soluble aerosol Al concentration; variance	pmole/m3
Al_DI_Soluble_QF	DI water soluble aerosol Al concentration; data quality flag	text
Si_DI_Soluble	DI water soluble aerosol Si concentration	pmole/m3
Si_DI_Soluble_Var	DI water soluble aerosol Si concentration; variance	pmole/m3
Si_DI_Soluble_QF	DI water soluble aerosol Si concentration; data quality flag	text
Ti_DI_Soluble	DI water soluble aerosol Ti concentration	pmole/m3
Ti_DI_Soluble_Var	DI water soluble aerosol Ti concentration; variance	pmole/m3
Ti_DI_Soluble_QF	DI water soluble aerosol Ti concentration; data quality flag	text
V_DI_Soluble	DI water soluble aerosol V concentration	pmole/m3
V_DI_Soluble_var	DI water soluble aerosol V concentration; variance	pmole/m3
V_DI_Soluble_QF	DI water soluble aerosol V concentration; data quality flag	text
Mn_DI_Soluble	DI water soluble aerosol Mn concentration	pmole/m3
Mn_DI_Soluble_var	DI water soluble aerosol Mn concentration; variance	pmole/m3
Mn_DI_Soluble_QF	DI water soluble aerosol Mn concentration; data quality flag	text
NO3_DI_Soluble	DI water soluble aerosol Nitrate concentration	nmole/m3
NO3_DI_Soluble_QF	DI water soluble aerosol Nitrate concentration; data quality flag	text
nss_SO4_DI_Soluble	DI water soluble aerosol non-sea salt Sulfate concentration	nmole/m3

nss_SO4_DI_Soluble_QF	DI water soluble aerosol non-sea salt Sulfate concentration; data quality flag	text
Na_DI_Soluble	DI water soluble aerosol Na concentration	nmole/m3
Na_DI_Soluble_QF	DI water soluble aerosol Na concentration; data quality flag	text
Oxalate_DI_Soluble	DI water soluble aerosol Oxalate concentration	nmole/m3
Oxalate_DI_Soluble_QF	DI water soluble aerosol Oxalate concentration; data quality flag	text
Cruise_Track	CLIVAR Cruise_Track (Transect) Id	text
Air_Vol_Chan_2	Volume of air sampled (Channel 2)	m3
Pb_Total	Total aerosol Pb concentration	pmole/m3
Pb_Total_var	Total aerosol Pb concentration; variance	pmole/m3
Pb_Total_QF	Total aerosol Pb concentration; data quality flag	text
Fe_II_SW_Soluble	Seawater soluble aerosol Fe(II) concentration	pmole/m3
Fe_II_SW_Soluble_Var	Seawater soluble aerosol Fe(II) concentration; variance	pmole/m3
Fe_II_SW_Soluble_QF	Seawater soluble aerosol Fe(II) concentration; data quality flag	text

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## Instruments

<b>Dataset-specific Instrument Name</b>	Atmospheric Sampling Mast
<b>Generic Instrument Name</b>	Atmospheric Sampling Mast
<b>Dataset-specific Description</b>	Florida State University 4 channel sampler
<b>Generic Instrument Description</b>	Atmospheric Sampling Mast - used to collect airborne samples for analysis such as in aerosol studies.

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## Deployments

### RB-03-04B

<b>Website</b>	<a href="https://www.bco-dmo.org/deployment/58639">https://www.bco-dmo.org/deployment/58639</a>
<b>Platform</b>	NOAA Ship Ronald H. Brown
<b>Report</b>	<a href="http://bcodata.whoi.edu/CLIVAR_AEROSOL/CLIVAR_A16N_2003ado.pdf">http://bcodata.whoi.edu/CLIVAR_AEROSOL/CLIVAR_A16N_2003ado.pdf</a>
<b>Start Date</b>	2003-06-19
<b>End Date</b>	2003-07-10

<b>Description</b>	<p>The A16N cruise took place from June 4 to August 11, 2003 aboard the NOAA Ship RONALD H. BROWN under auspices of the National Oceanic and Atmospheric Administration (NOAA). The first hydrographic leg (June 19-July 10) was from Reykjavik to Funchal, Madeira along the 20 W meridian and the second leg (July 15-August 11) continued operations from Funchal to Natal, Brazil on a track southward and ending at 6 S, 25 W. The research was the first in a decadal series of repeat hydrography sections jointly funded by NOAA-OGP and NSF-OCE as part of the CLIVAR/CO2/hydrography/tracer program. Samples were taken from up to 34 depths at 150 stations. EXPOCODE 33RO200306_01 was confirmed with the CLIVAR CCHDO (June 2011) and the other data sets from this cruise are available from the U.S. CLIVAR DAC at CCHDO from URL <a href="http://cchdo.ucsd.edu/data_access/show_cruise?ExpoCode=33RO200306_01">http://cchdo.ucsd.edu/data_access/show_cruise?ExpoCode=33RO200306_01</a>. Cruise Track Image NOAA Cruise Ids (BROWN/2003)</p> <p><b>Methods &amp; Sampling</b>  Data Set Information/A16N: Parameter Entry Name Clifton S. Buck, <a href="mailto:cliftonsuck@gmail.com">cliftonsuck@gmail.com</a> Address 117 N. Woodward Ave. Tallahassee FL 32306 PI_Name William Landing, Florida State University, <a href="mailto:wlanding@fsu.edu">wlanding@fsu.edu</a> Co_PI_Name Joe Resing, NOAA/PMEL Funding OCE-0223378, OCE-0550317, OCE-223504, OCE-0649505 Ship NOAA Ronald Brown Cruise_ID 33RO200306_02 Cruise_Track A16N Data_Centre CCHDO Data_Publication(s) C.Buck et al., 2010, Mar. Chem., doi:10.1016/j.marchem.2008.08.003 Sampler_Locate atmospheric sampling mast on 02 deck Sampler_Type Florida State University 4 channel sampler Sampler_Flow 40 L/min Substrate_Type polycarbonate(PC)/polypropylene(PP) Substrate_Pretreat PC were acid cleaned/PP not pretreated Size_Seg_Method Bulk Method_Publication C.Buck et al., 2006, G<sup>3</sup>, doi:10.1029/2005GC000977 C.Buck et al., 2010, Mar. Chem., doi:10.1016/j.marchem.2008.08.003 DL_Value Data below Detection Limit recorded as BDL, no value reported Detection Limits/A16N: Note on detection limits: Includes air volume used to calculate representative detection limits. Parameter Explanation Units Detection Limit DL Air Vol. Air_Vol Volume of air sampled m3 pmole/m3 Fe_Total Total aerosol Fe concentration pmole/m3 29.6 15 m3 Al_Total Total aerosol Al concentration pmole/m3 245.3 Si_Total Total aerosol Si concentration pmole/m3 156.1 Ti_Total Total aerosol Ti concentration pmole/m3 12.1 V_Total Total aerosol V concentration pmole/m3 6.5 Mn_Total Total aerosol Mn concentration pmole/m3 9.0 Fe_SW_Soluble Seawater soluble aerosol Fe concentration pmole/m3 2.3 40 m3 Fe_DI_Soluble DI water soluble aerosol Fe concentration pmole/m3 1.5 Al_DI_Soluble DI water soluble aerosol Al concentration pmole/m3 65 Si_DI_Soluble DI water soluble aerosol Si concentration pmole/m3 17 Ti_DI_Soluble DI water soluble aerosol Ti concentration pmole/m3 2.1 V_DI_Soluble DI water soluble aerosol V concentration pmole/m3 0.6 Mn_DI_Soluble DI water soluble aerosol Mn concentration pmole/m3 0.2 NO3_DI_Soluble DI water soluble aerosol Nitrate concentration nmole/m3 5.2 nss-SO4_DI_Soluble DI water soluble aerosol non-sea salt Sulfate concentration nmole/m3 20.7 Na_DI_Soluble DI water soluble aerosol Na concentration nmole/m3 0.4 Oxalate_DI_Soluble DI water soluble aerosol Oxalate concentration nmole/m3 0.7</p> <p><b>Processing Description</b>  BCO-DMO Processing Notes Generated from original spreadsheet "Aerosol Data Report CLIVAR A16N.xlsx" contributed by Clifton Buck BCO-DMO Edits - "Cruise_Track" (A16N) variable added to data - Parameter names modified to conform to BCO-DMO convention - Spaces in parameter names replaced with "-" (underscores) - Station # changed to Station_Number - Julian Day changed to YrDay - Start_Day, Start_Month, Start_Year combined into Date_Start and o/p as YYYYMMDD - Start_Time_UTC changed to Time_Start and o/p as HHMM - Start_Lat, Start_Lon changed to Lat_Start, Lon_Start - End_Day, End_Month, End_Year combined into Date_End and o/p as YYYYMMDD - End_Time_UTC changed to Time_End and o/p as HHMM - End_Lat, End_Lon changed to Lat_End, Lon_End - BCO-DMO standard of "nd" for no data value entered into blank fields - "(lt symbol)DL" values changed to "BDL" for consistency and to agree with data quality flags codes</p>
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**VANC32MV**

<b>Website</b>	<a href="https://www.bco-dmo.org/deployment/58646">https://www.bco-dmo.org/deployment/58646</a>
<b>Platform</b>	R/V Melville
<b>Report</b>	<a href="http://bcodata.whoi.edu/CLIVAR_AEROSOL/CLIVAR_P02_2004ado.pdf">http://bcodata.whoi.edu/CLIVAR_AEROSOL/CLIVAR_P02_2004ado.pdf</a>

<b>Start Date</b>	2004-06-15
<b>End Date</b>	2004-07-25
<b>Description</b>	<p>SIOGDC_Cruise_CruiseID: VANC32MVSIOGDC_Cruise_Name: VANCOUVER Expedition (VANC)  The immediate goal of the "P02" expedition was to carry out a trans-Pacific transect along 30°N, angling north to Japan and California at the ends. This was a repeat of the WOCE-era "P02" transect, carried out via four 1993-1994 cruises led by Japanese oceanographers. The principal program of measurements was reference quality CTDO casts with bottle sampling for salinity, oxygen, nutrients, a host of carbon parameters, CFCs, helium and tritium, and radiocarbon, plus a suite of underway measurements, as part of the NSF and NOAA supported US Global Ocean Carbon and Repeat Hydrography program. There were also CTD/rosette casts with separate equipment for an NSF-funded trace metals program, ARGO float deployments, and plankton tows for an SIO investigator. EXPOCODE 318M200406 was confirmed with the CLIVAR CCHDO (June 2011) and the other data sets from this cruise are available from the U.S. CLIVAR DAC at CCHDO from URL: <a href="http://cchdo.ucsd.edu/data_access/show_cruise?ExpoCode=318M200406">http://cchdo.ucsd.edu/data_access/show_cruise?ExpoCode=318M200406</a>. Cruise Track Image</p> <p><b>Methods &amp; Sampling</b>  Data Set Information/P02: Parameter Entry Name Clifton S. Buck, <a href="mailto:cliftonsuck@gmail.com">cliftonsuck@gmail.com</a>  Address 117 N. Woodward Ave. Tallahassee FL 32306 PI_Name William Landing, Florida State University, <a href="mailto:wlanding@fsu.edu">wlanding@fsu.edu</a> Co_PI_Name Joe Resing, NOAA/PMEL Co_PI_Name Chris Measures, Univ of Hawaii Funding OCE-0223378 Ship R/V Melville Cruise_ID 318M200406  Cruise_Track P02 Data_Centre CCHDO Data_Publication(s) Sampler_Locate atmospheric sampling mast on 02 deck Sampler_Type Florida State University 4 channel sampler  Sampler_Flow 40 L/min Substrate_Type polycarbonate(PC)/polypropylene(PP)  Substrate_Pretreat PC were acid cleaned/PP not pretreated Size_Seg_Method Bulk  Method_Publication C.Buck et al., 2006, G<sup>3</sup>, doi:10.1029/2005GC000977 C.Buck et al., 2010, Mar. Chem., doi:10.1016/j.marchem.2008.08.003 DL_Value Data below Detection Limit recorded as BDL, no value reported Parameter Explanation Units Detection Limit DL Air Vol. Air_Vol Volume of air sampled m3 pmole/m3 Fe_Total Total aerosol Fe concentration pmole/m3 44.4 15 m3 Al_Total Total aerosol Al concentration pmole/m3 735.0 15 m3 Si_Total Total aerosol Si concentration pmole/m3 468.0 15 m3 Ti_Total Total aerosol Ti concentration pmole/m3 36.3 15 m3 V_Total Total aerosol V concentration pmole/m3 19.5 15 m3 Mn_Total Total aerosol Mn concentration pmole/m3 27.1 15 m3 Pb_Total Total aerosol Pb concentration pmole/m3 6.0 15 m3 Fe_SW_Soluble Seawater soluble aerosol Fe concentration pmole/m3 1.5 60 m3 Fe(II)_SW_Soluble Seawater soluble aerosol Fe(II) concentration pmole/m3 0.03 60 m3 Fe_DI_Soluble DI water soluble aerosol Fe concentration pmole/m3 1.0 60 m3 Al_DI_Soluble DI water soluble aerosol Al concentration pmole/m3 43.3 60 m3 Si_DI_Soluble DI water soluble aerosol Si concentration pmole/m3 11.3 60 m3 Ti_DI_Soluble DI water soluble aerosol Ti concentration pmole/m3 1.4 60 m3 V_DI_Soluble DI water soluble aerosol V concentration pmole/m3 0.4 60 m3 Mn_DI_Soluble DI water soluble aerosol Mn concentration pmole/m3 0.1 60 m3 NO3_DI_Soluble DI water soluble aerosol Nitrate concentration nmole/m3 3.5 60 m3 nss-SO4_DI_Soluble DI water soluble aerosol non-sea salt Sulfate concentration nmole/m3 13.8 60 m3 Na_DI_Soluble DI water soluble aerosol Na concentration nmole/m3 0.3 60 m3 Oxalate_DI_Soluble DI water soluble aerosol Oxalate concentration nmole/m3 0.5 60 m3</p> <p><b>Processing Description</b>  BCO-DMO Processing Notes Generated from original spreadsheet "Aerosol Data Report CLIVAR P02.xlsx" contributed by Clifton Buck BCO-DMO Edits - "Cruise_Track" (P02) variable added to data - Parameter names modified to conform to BCO-DMO convention - Spaces in parameter names replaced with "-" (underscores) - Station # changed to Station_Number - Julian Day changed to YrDay - Start_Day, Start_Month, Start_Year combined into Date_Start and o/p as YYYYMMDD - Start_Time_UTC changed to Time_Start and o/p as HHMM - Start_Lat, Start_Lon changed to Lat_Start, Lon_Start - End_Day, End_Month, End_Year combined into Date_End and o/p as YYYYMMDD - End_Time_UTC changed to Time_End and o/p as HHMM - End_Lat, End_Lon changed to Lat_End, Lon_End - BCO-DMO standard of "nd" for no data value entered into blank fields - "(lt symbol)DL" values changed to "BDL" for consistency and to agree with data quality flags codes - Updated 12June2013 with updated data contributed by Clifton Buck</p>



**TN191A**

<b>Website</b>	<a href="https://www.bco-dmo.org/deployment/58659">https://www.bco-dmo.org/deployment/58659</a>
<b>Platform</b>	R/V Thomas G. Thompson
<b>Report</b>	<a href="http://bcodata.whoi.edu/CLIVAR_AEROSOL/CLIVAR_P16N_2006ado.pdf">http://bcodata.whoi.edu/CLIVAR_AEROSOL/CLIVAR_P16N_2006ado.pdf</a>
<b>Start Date</b>	2006-02-14
<b>End Date</b>	2006-03-03
<b>Description</b>	<p>R2R Cruiselds: TN191A, TN191B A hydrographic survey in the Central Pacific Ocean, nominally along 151-152°W between 22°S and 55°N. This CLIVAR repeat section was done during two cruises aboard Thomas Thompson, TN191A and TN191B. EXPOCODE 325020060213 was confirmed with the CLIVAR CCHDO (June 2011) and the other data sets from this cruise are available from the U.S. CLIVAR DAC at CCHDO from: <a href="https://cchdo.ucsd.edu/cruise/325020060213">https://cchdo.ucsd.edu/cruise/325020060213</a>. Cruise Track Image Cruise information and original data are available from the NSF R2R data catalog.</p> <p><b>Methods &amp; Sampling</b> Data Set Information/P16N: Parameter Entry Name Clifton S. Buck, <a href="mailto:cliftonsuck@gmail.com">cliftonsuck@gmail.com</a> Address 117 N. Woodward Ave. Tallahassee FL 32306 PI_Name William Landing, Florida State University, <a href="mailto:wlanding@fsu.edu">wlanding@fsu.edu</a> Co_PI_Name Joe Resing, NOAA/PMEL Co_PI_Name Chris Measures, Univ of Hawaii Funding OCE-0223378 Ship R/V THOMPSON Cruise_ID 325020060213 Cruise_Track P16N Data_Centre CCHDO Data_Publication(s) Sampler_Locate atmospheric sampling mast on 02 deck Sampler_Type Florida State University 4 channel sampler Sampler_Flow 40 L/min Substrate_Type polycarbonate(PC)/polypropylene(PP) Substrate_Pretreat PC were acid cleaned/PP not pretreated Size_Seg_Method Bulk Method_Publication C.Buck et al., 2006, G<sup>3</sup>, doi:10.1029/2005GC000977 C.Buck et al., 2010, Mar. Chem., doi:10.1016/j.marchem.2008.08.003 DL_Value Data below Detection Limit recorded as BDL, no value reported Detection Limits/P16N: Note on detection limits: Includes air volume used to calculate representative detection limits. Parameter Explanation Units Detection Limit DL Air Vol. Air_Vol Volume of air sampled m3 pmole/m3 Fe_Total Total aerosol Fe concentration pmole/m3 44.7 15 m3 Al_Total Total aerosol Al concentration pmole/m3 245.0 15 m3 Si_Total Total aerosol Si concentration pmole/m3 469.0 15 m3 Ti_Total Total aerosol Ti concentration pmole/m3 4.2 15 m3 V_Total Total aerosol V concentration pmole/m3 19.3 15 m3 Mn_Total Total aerosol Mn concentration pmole/m3 0.1 15 m3 Pb_Total Total aerosol Pb concentration pmole/m3 7.7 15 m3 Fe_SW_Soluble Seawater soluble aerosol Fe concentration pmole/m3 0.37 60 m3 Fe(II)_SW_Soluble Seawater soluble aerosol Fe(II) concentration pmole/m3 0.41 60 m3 Fe_DI_Soluble DI water soluble aerosol Fe concentration pmole/m3 2.1 60 m3 Al_DI_Soluble DI water soluble aerosol Al concentration pmole/m3 27.2 60 m3 Si_DI_Soluble DI water soluble aerosol Si concentration pmole/m3 83.1 60 m3 Ti_DI_Soluble DI water soluble aerosol Ti concentration pmole/m3 0.35 60 m3 V_DI_Soluble DI water soluble aerosol V concentration pmole/m3 0.59 60 m3 Mn_DI_Soluble DI water soluble aerosol Mn concentration pmole/m3 0.18 60 m3 NO3_DI_Soluble DI water soluble aerosol Nitrate concentration nmole/m3 3.5 60 m3 nss-SO4_DI_Soluble DI water soluble aerosol non-sea salt Sulfate concentration nmole/m3 13.8 60 m3 Na_DI_Soluble DI water soluble aerosol Na concentration nmole/m3 0.3 60 m3 Oxalate_DI_Soluble DI water soluble aerosol Oxalate concentration nmole/m3 0.5 60 m3</p> <p><b>Processing Description</b> BCO-DMO Processing Notes Generated from original spreadsheet "Aerosol Data Report CLIVAR P16N.xlsx" contributed by Clifton Buck BCO-DMO Edits - "Cruise_Track" (P16N) variable added to data - Parameter names modified to conform to BCO-DMO convention - Spaces in parameter names replaced with "-" (underscores) - Station # changed to Station_Number - Julian Day changed to YrDay - Start_Day, Start_Month, Start_Year combined into Date_Start and o/p as YYYYMMDD - Start_Time_UTC changed to Time_Start and o/p as HHMM - Start_Lat, Start_Lon changed to Lat_Start, Lon_Start - End_Day, End_Month, End_Year combined into Date_End and o/p as YYYYMMDD - End_Time_UTC changed to Time_End and o/p as HHMM - End_Lat, End_Lon changed to Lat_End, Lon_End - BCO-DMO standard of "nd" for no data value entered into blank fields - "(lt symbol)DL" values changed to "BDL" for consistency and to agree with data quality flags codes - Updated 13June2013 with updated data contributed by Clifton Buck</p>

**ZHNG02RR**

<b>Website</b>	<a href="https://www.bco-dmo.org/deployment/58662">https://www.bco-dmo.org/deployment/58662</a>
<b>Platform</b>	R/V Roger Revelle
<b>Report</b>	<a href="http://bcodata.whoi.edu/CLIVAR_AEROSOL/CLIVAR_P16S_2005ado.pdf">http://bcodata.whoi.edu/CLIVAR_AEROSOL/CLIVAR_P16S_2005ado.pdf</a>
<b>Start Date</b>	2005-01-09
<b>End Date</b>	2005-02-19

SIOGDC\_Cruise\_CruiseID: ZHNG02RRSIOGDC\_Cruise\_Name: ZHENG HE Expedition (ZHNG) A hydrographic/carbon/tracer survey in the South Pacific Ocean was carried out from R/V Roger Revelle from 9 January through 19 February 2005. The cruise departed from Papeete, Tahiti on 9 January, 2005. A meridional transect from 16 to 71 degrees South along 150 degrees West was completed. 111 full-depth CTD/rosette/LADCP casts (at one-half degree spacing), 4 shallow CDOM rosette casts, and 58 trace metals CTD/rosette casts were completed from 10 January to 11 February. Salinity, dissolved oxygen, and nutrients were analyzed for up to 36 water samples from each cast of the principal CTD/rosette program. Other parameters sampled included CFCs, helium, total inorganic carbon, alkalinity, radiocarbon, tritium, several parameters related to dissolved organic matter, and nitrogen-15. Additional deployments included 12 ARGOS floats and 21 Bio-Optics casts. The cruise ended in Wellington, New Zealand on 19 February 2005. EXPOCODE 33RR200501 was confirmed with the CLIVAR CCHDO (June 2011) and the other data sets from this cruise are available from the U.S. CLIVAR DAC at CCHDO from: <https://cchdo.ucsd.edu/cruise/33RR200501> Cruise Track Image Cruise information and original data are available from the NSF R2R data catalog.

**Methods & Sampling**

Data Set Information/P16S: Parameter Entry Name Clifton S. Buck, [cliftonsuck@gmail.com](mailto:cliftonsuck@gmail.com) Address 117 N. Woodward Ave. Tallahassee FL 32306 PI\_Name William Landing, Florida State University, [wlanding@fsu.edu](mailto:wlanding@fsu.edu) Co\_PI\_Name Joe Resing, NOAA/PMEL Co\_PI\_Name Chris Measures, Univ of Hawaii Funding OCE-0223378 Ship R/V Roger Revelle Cruise\_ID 33RR200501 Cruise\_Track P16S Data\_Centre CCHDO Data\_Publication(s) Sampler\_Locate atmospheric sampling mast on 02 deck Sampler\_Type Florida State University 4 channel sampler Sampler\_Flow 40 L/min Substrate\_Type polycarbonate(PC)/polypropylene(PP) Substrate\_Pretreat PC were acid cleaned/PP not pretreated Size\_Seg\_Method Bulk Method\_Publication C.Buck et al., 2006, G<sup>3</sup>, doi:10.1029/2005GC000977 C.Buck et al., 2010, Mar. Chem., doi:10.1016/j.marchem.2008.08.003 DL\_Value Data below Detection Limit recorded as BDL, no value reported Detection Limits/P16S: Note on detection limits: Includes air volume used to calculate representative detection limits. Parameter Explanation Units Detection Limit DL Air Vol. Air\_Vol Volume of air sampled m3 pmole/m3 Fe\_Total Total aerosol Fe concentration pmole/m3 44.7 15 m3 Al\_Total Total aerosol Al concentration pmole/m3 245.0 15 m3 Si\_Total Total aerosol Si concentration pmole/m3 469.0 15 m3 Ti\_Total Total aerosol Ti concentration pmole/m3 4.2 15 m3 V\_Total Total aerosol V concentration pmole/m3 19.3 15 m3 Mn\_Total Total aerosol Mn concentration pmole/m3 0.1 15 m3 Pb\_Total Total aerosol Pb concentration pmole/m3 7.7 15 m3 Fe\_SW\_Soluble Seawater soluble aerosol Fe concentration pmole/m3 0.37 60 m3 Fe(II)\_SW\_Soluble Seawater soluble aerosol Fe(II) concentration pmole/m3 0.41 60 m3 Fe\_DI\_Soluble DI water soluble aerosol Fe concentration pmole/m3 2.1 60 m3 Al\_DI\_Soluble DI water soluble aerosol Al concentration pmole/m3 27.2 60 m3 Si\_DI\_Soluble DI water soluble aerosol Si concentration pmole/m3 83.1 60 m3 Ti\_DI\_Soluble DI water soluble aerosol Ti concentration pmole/m3 0.35 60 m3 V\_DI\_Soluble DI water soluble aerosol V concentration pmole/m3 0.59 60 m3 Mn\_DI\_Soluble DI water soluble aerosol Mn concentration pmole/m3 0.18 60 m3 NO3\_DI\_Soluble DI water soluble aerosol Nitrate concentration nmole/m3 3.5 60 m3 nss-SO4\_DI\_Soluble DI water soluble aerosol non-sea salt Sulfate concentration nmole/m3 13.8 60 m3 Na\_DI\_Soluble DI water soluble aerosol Na concentration nmole/m3 0.3 60 m3 Oxalate\_DI\_Soluble DI water soluble aerosol Oxalate concentration nmole/m3 0.5 60 m3

**Description**

**Processing Description**

BCO-DMO Processing Notes Generated from original spreadsheet "Aerosol Data Report CLIVAR P16S.xlsx" contributed by Clifton Buck BCO-DMO Edits - "Cruise\_Track" (P16S) variable added to data - Parameter names modified to conform to BCO-DMO convention - Spaces in parameter names replaced with "-" (underscores) - Station # changed to Station\_Number - Julian Day changed to YrDay - Start\_Day, Start\_Month, Start\_Year combined into Date\_Start and o/p as YYYYMMDD - Start\_Time\_UTC changed to Time\_Start and o/p as HHMM - Start\_Lat, Start\_Lon changed to Lat\_Start, Lon\_Start - End\_Day, End\_Month, End\_Year combined into Date\_End and o/p as YYYYMMDD - End\_Time\_UTC changed to Time\_End and o/p as HHMM - End\_Lat, End\_Lon changed to Lat\_End, Lon\_End - BCO-DMO standard of "nd" for no data value entered into blank fields - "(lt symbol)DL" values changed to "BDL" for consistency and to agree with data quality flags codes - Updated 13June2013 with updated data contributed by Clifton Buck

**RB-03-04C**

<b>Website</b>	<a href="https://www.bco-dmo.org/deployment/58782">https://www.bco-dmo.org/deployment/58782</a>
<b>Platform</b>	NOAA Ship Ronald H. Brown
<b>Report</b>	<a href="http://bcodata.whoi.edu/CLIVAR_AEROSOL/CLIVAR_A16N_2003ado.pdf">http://bcodata.whoi.edu/CLIVAR_AEROSOL/CLIVAR_A16N_2003ado.pdf</a>
<b>Start Date</b>	2003-07-15
<b>End Date</b>	2003-08-10
<b>Description</b>	<p>The A16N cruise took place from June 4 to August 11, 2003 aboard the NOAA Ship RONALD H. BROWN under auspices of the National Oceanic and Atmospheric Administration (NOAA). The first hydrographic leg (June 19-July 10) was from Reykjavik to Funchal, Madeira along the 20 W meridian and the second leg (July 15-August 11) continued operations from Funchal to Natal, Brazil on a track southward and ending at 6 S, 25 W. The research was the first in a decadal series of repeat hydrography sections jointly funded by NOAA-OGP and NSF-OCE as part of the CLIVAR/CO2/hydrography/tracer program. Samples were taken from up to 34 depths at 150 stations. EXPCODE 33RO200306_01 was confirmed with the CLIVAR CCHDO (June 2011) and the other data sets from this cruise are available from the U.S. CLIVAR DAC at CCHDO from URL <a href="http://cchdo.ucsd.edu/data_access/show_cruise?ExpoCode=33RO200306_01">http://cchdo.ucsd.edu/data_access/show_cruise?ExpoCode=33RO200306_01</a>. Cruise Track Image NOAA Cruise Ids (BROWN/2003)</p> <p><b>Methods &amp; Sampling</b>          Data Set Information/A16N: Parameter Entry Name Clifton S. Buck, <a href="mailto:cliftonsuck@gmail.com">cliftonsuck@gmail.com</a> Address 117 N. Woodward Ave. Tallahassee FL 32306 PI_Name William Landing, Florida State University, <a href="mailto:wlanding@fsu.edu">wlanding@fsu.edu</a> Co_PI_Name Joe Resing, NOAA/PMEL Funding OCE-0223378, OCE-0550317, OCE-223504, OCE-0649505 Ship NOAA Ronald Brown Cruise_ID 33RO200306_02 Cruise_Track A16N Data_Centre CCHDO Data_Publication(s) C.Buck et al., 2010, Mar. Chem., doi:10.1016/j.marchem.2008.08.003 Sampler_Locate atmospheric sampling mast on 02 deck Sampler_Type Florida State University 4 channel sampler Sampler_Flow 40 L/min Substrate_Type polycarbonate(PC)/polypropylene(PP) Substrate_Pretreat PC were acid cleaned/PP not pretreated Size_Seg_Method Bulk Method_Publication C.Buck et al., 2006, G<sup>3</sup>, doi:10.1029/2005GC000977 C.Buck et al., 2010, Mar. Chem., doi:10.1016/j.marchem.2008.08.003 DL_Value Data below Detection Limit recorded as BDL, no value reported Detection Limits/A16N: Note on detection limits: Includes air volume used to calculate representative detection limits. Parameter Explanation Units Detection Limit DL Air Vol. Air_Vol Volume of air sampled m3 pmole/m3 Fe_Total Total aerosol Fe concentration pmole/m3 29.6 15 m3 Al_Total Total aerosol Al concentration pmole/m3 245.3 Si_Total Total aerosol Si concentration pmole/m3 156.1 Ti_Total Total aerosol Ti concentration pmole/m3 12.1 V_Total Total aerosol V concentration pmole/m3 6.5 Mn_Total Total aerosol Mn concentration pmole/m3 9.0 Fe_SW_Soluble Seawater soluble aerosol Fe concentration pmole/m3 2.3 40 m3 Fe_DI_Soluble DI water soluble aerosol Fe concentration pmole/m3 1.5 Al_DI_Soluble DI water soluble aerosol Al concentration pmole/m3 65 Si_DI_Soluble DI water soluble aerosol Si concentration pmole/m3 17 Ti_DI_Soluble DI water soluble aerosol Ti concentration pmole/m3 2.1 V_DI_Soluble DI water soluble aerosol V concentration pmole/m3 0.6 Mn_DI_Soluble DI water soluble aerosol Mn concentration pmole/m3 0.2 NO3_DI_Soluble DI water soluble aerosol Nitrate concentration nmole/m3 5.2 nss-SO4_DI_Soluble DI water soluble aerosol non-sea salt Sulfate concentration nmole/m3 20.7 Na_DI_Soluble DI water soluble aerosol Na concentration nmole/m3 0.4 Oxalate_DI_Soluble DI water soluble aerosol Oxalate concentration nmole/m3 0.7</p> <p><b>Processing Description</b>          BCO-DMO Processing Notes Generated from original spreadsheet "Aerosol Data Report CLIVAR A16N.xlsx" contributed by Clifton Buck BCO-DMO Edits - "Cruise_Track" (A16N) variable added to data - Parameter names modified to conform to BCO-DMO convention - Spaces in parameter names replaced with "-" (underscores) - Station # changed to Station_Number - Julian Day changed to YrDay - Start_Day, Start_Month, Start_Year combined into Date_Start and o/p as YYYYMMDD - Start_Time_UTC changed to Time_Start and o/p as HHMM - Start_Lat, Start_Lon changed to Lat_Start, Lon_Start - End_Day, End_Month, End_Year combined into Date_End and o/p as YYYYMMDD - End_Time_UTC changed to Time_End and o/p as HHMM - End_Lat, End_Lon changed to Lat_End, Lon_End - BCO-DMO standard of "nd" for no data value entered into blank fields - "(lt symbol)DL" values changed to "BDL" for consistency and to agree with data quality flags codes</p>

**VANC33MV**

<b>Website</b>	<a href="https://www.bco-dmo.org/deployment/58783">https://www.bco-dmo.org/deployment/58783</a>
<b>Platform</b>	R/V Melville
<b>Report</b>	<a href="http://bcodata.whoi.edu/CLIVAR_AEROSOL/CLIVAR_P02_2004ado.pdf">http://bcodata.whoi.edu/CLIVAR_AEROSOL/CLIVAR_P02_2004ado.pdf</a>
<b>Start Date</b>	2004-07-29
<b>End Date</b>	2004-08-27

<b>Description</b>	<p>SIOGDC_Cruise_CruiseID: VANC33MVSIOGDC_Cruise_Name: VANCOUVER Expedition (VANC)  The immediate goal of the "P02" expedition was to carry out a trans-Pacific transect along 30°N, angling north to Japan and California at the ends. This was a repeat of the WOCE-era "P02" transect, carried out via four 1993-1994 cruises led by Japanese oceanographers. The principal program of measurements was reference quality CTDO casts with bottle sampling for salinity, oxygen, nutrients, a host of carbon parameters, CFCs, helium and tritium, and radiocarbon, plus a suite of underway measurements, as part of the NSF and NOAA supported US Global Ocean Carbon and Repeat Hydrography program. There were also CTD/rosette casts with separate equipment for an NSF-funded trace metals program, ARGO float deployments, and plankton tows for an SIO investigator. EXPOCODE 318M200406 was confirmed with the CLIVAR CCHDO (June 2011) and the other data sets from this cruise are available from the U.S. CLIVAR DAC at CCHDO from URL: <a href="http://cchdo.ucsd.edu/data_access/show_cruise?ExpoCode=318M200406">http://cchdo.ucsd.edu/data_access/show_cruise?ExpoCode=318M200406</a>. Cruise Track Image</p> <p><b>Methods &amp; Sampling</b>  Data Set Information/P02: Parameter Entry Name Clifton S. Buck, <a href="mailto:cliftonsuck@gmail.com">cliftonsuck@gmail.com</a>  Address 117 N. Woodward Ave. Tallahassee FL 32306 PI_Name William Landing, Florida State University, <a href="mailto:wlanding@fsu.edu">wlanding@fsu.edu</a> Co_PI_Name Joe Resing, NOAA/PMEL Co_PI_Name Chris Measures, Univ of Hawaii Funding OCE-0223378 Ship R/V Melville Cruise_ID 318M200406  Cruise_Track P02 Data_Centre CCHDO Data_Publication(s) Sampler_Locate atmospheric sampling mast on 02 deck Sampler_Type Florida State University 4 channel sampler  Sampler_Flow 40 L/min Substrate_Type polycarbonate(PC)/polypropylene(PP)  Substrate_Pretreat PC were acid cleaned/PP not pretreated Size_Seg_Method Bulk  Method_Publication C.Buck et al., 2006, G<sup>3</sup>, doi:10.1029/2005GC000977 C.Buck et al., 2010, Mar. Chem., doi:10.1016/j.marchem.2008.08.003 DL_Value Data below Detection Limit recorded as BDL, no value reported Parameter Explanation Units Detection Limit DL Air Vol. Air_Vol Volume of air sampled m3 pmole/m3 Fe_Total Total aerosol Fe concentration pmole/m3 44.4 15 m3 Al_Total Total aerosol Al concentration pmole/m3 735.0 15 m3 Si_Total Total aerosol Si concentration pmole/m3 468.0 15 m3 Ti_Total Total aerosol Ti concentration pmole/m3 36.3 15 m3 V_Total Total aerosol V concentration pmole/m3 19.5 15 m3 Mn_Total Total aerosol Mn concentration pmole/m3 27.1 15 m3 Pb_Total Total aerosol Pb concentration pmole/m3 6.0 15 m3 Fe_SW_Soluble Seawater soluble aerosol Fe concentration pmole/m3 1.5 60 m3 Fe(II)_SW_Soluble Seawater soluble aerosol Fe(II) concentration pmole/m3 0.03 60 m3 Fe_DI_Soluble DI water soluble aerosol Fe concentration pmole/m3 1.0 60 m3 Al_DI_Soluble DI water soluble aerosol Al concentration pmole/m3 43.3 60 m3 Si_DI_Soluble DI water soluble aerosol Si concentration pmole/m3 11.3 60 m3 Ti_DI_Soluble DI water soluble aerosol Ti concentration pmole/m3 1.4 60 m3 V_DI_Soluble DI water soluble aerosol V concentration pmole/m3 0.4 60 m3 Mn_DI_Soluble DI water soluble aerosol Mn concentration pmole/m3 0.1 60 m3 NO3_DI_Soluble DI water soluble aerosol Nitrate concentration nmole/m3 3.5 60 m3 nss-SO4_DI_Soluble DI water soluble aerosol non-sea salt Sulfate concentration nmole/m3 13.8 60 m3 Na_DI_Soluble DI water soluble aerosol Na concentration nmole/m3 0.3 60 m3 Oxalate_DI_Soluble DI water soluble aerosol Oxalate concentration nmole/m3 0.5 60 m3</p> <p><b>Processing Description</b>  BCO-DMO Processing Notes Generated from original spreadsheet "Aerosol Data Report CLIVAR P02.xlsx" contributed by Clifton Buck BCO-DMO Edits - "Cruise_Track" (P02) variable added to data - Parameter names modified to conform to BCO-DMO convention - Spaces in parameter names replaced with "-" (underscores) - Station # changed to Station_Number - Julian Day changed to YrDay - Start_Day, Start_Month, Start_Year combined into Date_Start and o/p as YYYYMMDD - Start_Time_UTC changed to Time_Start and o/p as HHMM - Start_Lat, Start_Lon changed to Lat_Start, Lon_Start - End_Day, End_Month, End_Year combined into Date_End and o/p as YYYYMMDD - End_Time_UTC changed to Time_End and o/p as HHMM - End_Lat, End_Lon changed to Lat_End, Lon_End - BCO-DMO standard of "nd" for no data value entered into blank fields - "(lt symbol)DL" values changed to "BDL" for consistency and to agree with data quality flags codes - Updated 12June2013 with updated data contributed by Clifton Buck</p>
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<b>Website</b>	<a href="https://www.bco-dmo.org/deployment/58784">https://www.bco-dmo.org/deployment/58784</a>
<b>Platform</b>	R/V Thomas G. Thompson
<b>Report</b>	<a href="http://bcodata.whoi.edu/CLIVAR_AEROSOL/CLIVAR_P16N_2006ado.pdf">http://bcodata.whoi.edu/CLIVAR_AEROSOL/CLIVAR_P16N_2006ado.pdf</a>
<b>Start Date</b>	2006-03-10
<b>End Date</b>	2006-03-30
<b>Description</b>	<p>R2R Cruiselds: TN191A, TN191B A hydrographic survey in the Central Pacific Ocean, nominally along 151-152°W between 22°S and 55°N. This CLIVAR repeat section was done during two cruises aboard Thomas Thompson, TN191A and TN191B. EXPOCODE 325020060213 was confirmed with the CLIVAR CCHDO (June 2011) and the other data sets from this cruise are available from the U.S. CLIVAR DAC at CCHDO from: <a href="https://cchdo.ucsd.edu/cruise/325020060213">https://cchdo.ucsd.edu/cruise/325020060213</a>. Cruise Track Image Cruise information and original data are available from the NSF R2R data catalog.</p> <p><b>Methods &amp; Sampling</b>  Data Set Information/P16N: Parameter Entry Name Clifton S. Buck, <a href="mailto:cliftonsuck@gmail.com">cliftonsuck@gmail.com</a> Address 117 N. Woodward Ave. Tallahassee FL 32306 PI_Name William Landing, Florida State University, <a href="mailto:wlanding@fsu.edu">wlanding@fsu.edu</a> Co_PI_Name Joe Resing, NOAA/PMEL Co_PI_Name Chris Measures, Univ of Hawaii Funding OCE-0223378 Ship R/V THOMPSON Cruise_ID 325020060213 Cruise_Track P16N Data_Centre CCHDO Data_Publication(s) Sampler_Locate atmospheric sampling mast on 02 deck Sampler_Type Florida State University 4 channel sampler Sampler_Flow 40 L/min Substrate_Type polycarbonate(PC)/polypropylene(PP) Substrate_Pretreat PC were acid cleaned/PP not pretreated Size_Seg_Method Bulk Method_Publication C.Buck et al., 2006, G<sup>3</sup>, doi:10.1029/2005GC000977 C.Buck et al., 2010, Mar. Chem., doi:10.1016/j.marchem.2008.08.003 DL_Value Data below Detection Limit recorded as BDL, no value reported Detection Limits/P16N: Note on detection limits: Includes air volume used to calculate representative detection limits. Parameter Explanation Units  Detection Limit DL Air Vol. Air_Vol Volume of air sampled m3 pmole/m3 Fe_Total Total aerosol Fe concentration pmole/m3 44.7 15 m3 Al_Total Total aerosol Al concentration pmole/m3 245.0 15 m3 Si_Total Total aerosol Si concentration pmole/m3 469.0 15 m3 Ti_Total Total aerosol Ti concentration pmole/m3 4.2 15 m3 V_Total Total aerosol V concentration pmole/m3 19.3 15 m3 Mn_Total Total aerosol Mn concentration pmole/m3 0.1 15 m3 Pb_Total Total aerosol Pb concentration pmole/m3 7.7 15 m3 Fe_SW_Soluble Seawater soluble aerosol Fe concentration pmole/m3 0.37 60 m3 Fe(II)_SW_Soluble Seawater soluble aerosol Fe(II) concentration pmole/m3 0.41 60 m3 Fe_DI_Soluble DI water soluble aerosol Fe concentration pmole/m3 2.1 60 m3 Al_DI_Soluble DI water soluble aerosol Al concentration pmole/m3 27.2 60 m3 Si_DI_Soluble DI water soluble aerosol Si concentration pmole/m3 83.1 60 m3 Ti_DI_Soluble DI water soluble aerosol Ti concentration pmole/m3 0.35 60 m3 V_DI_Soluble DI water soluble aerosol V concentration pmole/m3 0.59 60 m3 Mn_DI_Soluble DI water soluble aerosol Mn concentration pmole/m3 0.18 60 m3 NO3_DI_Soluble DI water soluble aerosol Nitrate concentration nmole/m3 3.5 60 m3 nss-SO4_DI_Soluble DI water soluble aerosol non-sea salt Sulfate concentration nmole/m3 13.8 60 m3 Na_DI_Soluble DI water soluble aerosol Na concentration nmole/m3 0.3 60 m3 Oxalate_DI_Soluble DI water soluble aerosol Oxalate concentration nmole/m3 0.5 60 m3</p> <p><b>Processing Description</b>  BCO-DMO Processing Notes Generated from original spreadsheet "Aerosol Data Report CLIVAR P16N.xlsx" contributed by Clifton Buck BCO-DMO Edits - "Cruise_Track" (P16N) variable added to data - Parameter names modified to conform to BCO-DMO convention - Spaces in parameter names replaced with "-" (underscores) - Station # changed to Station_Number - Julian Day changed to YrDay - Start_Day, Start_Month, Start_Year combined into Date_Start and o/p as YYYYMMDD - Start_Time_UTC changed to Time_Start and o/p as HHMM - Start_Lat, Start_Lon changed to Lat_Start, Lon_Start - End_Day, End_Month, End_Year combined into Date_End and o/p as YYYYMMDD - End_Time_UTC changed to Time_End and o/p as HHMM - End_Lat, End_Lon changed to Lat_End, Lon_End - BCO-DMO standard of "nd" for no data value entered into blank fields - "(lt symbol)DL" values changed to "BDL" for consistency and to agree with data quality flags codes - Updated 13June2013 with updated data contributed by Clifton Buck</p>

## Project Information

### **Collaborative Research: Global Ocean Survey of Dissolved Iron and Aluminum and Aerosol Iron and Aluminum Solubility Supporting the Repeat Hydrography (CO<sub>2</sub>) Project (CLIVAR AEROSOL)**

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

**Coverage:** Global

#### *NSF Award Abstract:*

A scientist from Florida State University in collaboration with colleagues from the University of Hawaii and the University of Washington will collect a suite of dissolved and particulate samples from surface waters and vertical profiles (12 depths), as well as atmospheric aerosol and rainwater samples during selected legs of the Repeat Hydrography CO<sub>2</sub> cruises. The PIs plan to participate in the following four cruises: (1) the North Atlantic Ocean meridional section (20-25°W) during 2003; (2) the Pacific Ocean zonal section at 30°N during 2004; (3) the South Atlantic Ocean meridional section (20-25°W) in 2005; and (4) the South Pacific Ocean meridional section (150°W) in 2005. Samples recovered during these cruises will be analyzed for Fe and Al. In addition, aerosol samples will be subjected to an ultrapure water leach to assess the fractional solubility of Fe and Al. This team of PIs also plans to collect and archive filtered and unfiltered water samples and aerosols for analysis by other scientists in the trace metal and tracer community. The primary objectives of this study is to generate an extensive database of Fe and Al concentrations in water and aerosol samples that can constrain global and regional dust deposition models and determine the role that atmospheric Fe depositions have in delivering Fe to surface waters in the major basins of the world's oceans.

Note: This project is related to the follow-on project titled, "[Collaborative Research: Global Ocean Survey of Dissolved Iron and Aluminum and Aerosol Iron and Aluminum Solubility Supporting the CLIVAR Repeat Hydrography Project \(2007-2009\)](#)"

## Program Information

### **U. S. Climate Variability and Predictability (U.S. CLIVAR)**

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

**Coverage:** global

Note: The official U.S. CLIVAR program description will be supplied by Steve Diggs.

A temporary description copied from the US CLIVAR Web site is:

CLIVAR (Climate Variability and Predictability) is an international, interdisciplinary research effort within the World Climate Research Programme (WCRP) focusing on the variability and predictability of the slowly varying components of the climate system. CLIVAR investigates the physical and dynamical processes in the climate system that occur on seasonal, interannual, decadal and centennial time-scales. CLIVAR recognizes that a critical measure of success in its research program is a transferal of insight and knowledge to routine production of climate forecasts, information and products.

The goals of U.S. CLIVAR include:

- Identifying and understanding the major patterns of climate variability on seasonal, decadal and longer time scales and evaluating their predictability;



- Expanding our capacity in short term (seasonal to interannual) climate predictability and searching for ways to predict decadal variability;
- Better documenting the record of rapid climate changes and the mechanisms for these events, and evaluating the potential for abrupt climate changes in the future;
- Evaluating and enhancing the models used to project climate change due to human activity, including anthropogenically induced changes in atmospheric composition, and:
- Detecting and describing any climate changes that may occur.

**Program Data:** The data from most projects associated with the US CLIVAR program are not managed by BCO-DMO. Information about these projects and their results are available from the Program and Data site URLs shown above. However, there are a few exceptions, and those projects are listed below when the project section is expanded.

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## Funding

Funding Source	Award
<a href="#">NSF Division of Ocean Sciences (NSF OCE)</a>	<a href="#">OCE-0550317</a>
<a href="#">NSF Division of Ocean Sciences (NSF OCE)</a>	<a href="#">OCE-0223504</a>
<a href="#">NSF Division of Ocean Sciences (NSF OCE)</a>	<a href="#">OCE-0649505</a>
<a href="#">NSF Division of Ocean Sciences (NSF OCE)</a>	<a href="#">OCE-0223378</a>
<a href="#">NSF Division of Ocean Sciences (NSF OCE)</a>	<a href="#">OCE-0223397</a>

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