

# Temperature, salinity, nutrients from Trace Metal casts from RVIB Nathaniel B. Palmer and R/V Roger Revelle cruises in the Southern Ocean, 1997-1998 (U.S. JGOFS AESOPS project)

Website: <https://www.bco-dmo.org/dataset/2738>

Version: final

Version Date: 2002-12-18

## Project

» [U.S. JGOFS Antarctic Environment and Southern Ocean Process Study](#) (AESOPS)

## Program

» [U.S. Joint Global Ocean Flux Study](#) (U.S. JGOFS)

Contributors	Affiliation	Role
<a href="#">Codispoti, Louis A.</a>	Old Dominion University (ODU)	Principal Investigator
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## Dataset Description

Temperature, salinity, nutrients from Trace Metal casts

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## Data Files

File
<b>TMbottle_KIW16.csv</b> (Comma Separated Values (.csv), 10.02 KB) MD5:9340f61df23b14ce4a30fec59a0dc2ed  version May 13, 2002 (original version January 11, 1999) Louis Codispoti hydrographic data (temperature, salinity and nutrients) from TM (trace metal free rosette) casts AESOPS RR_KIW06, Survey 1  DMO note (020513): add depth calculated from pressure

**File**

**TMbottle\_KIW17.csv** (Comma Separated Values (.csv), 26.41 KB)  
MD5:af0a16af54ee10cd6a3cfa097ec6520c

version May 7, 2002  
(original version October 12, 1999)  
Louis Codispoti  
Hydrographic data from TM casts (salinity and nutrients)  
Note: no CTD with this TM rosette package  
AESOPS RR\_KIW07, Process 1

**TMbottle\_KIW18.csv** (Comma Separated Values (.csv), 16.77 KB)  
MD5:d418dda3f6d333ff0d1552f37f8411d

version May 13, 2002  
(original version January 15, 1999)  
Louis Codispoti  
hydrographic data (temperature, salinity and nutrients)  
from TM (trace metal free rosette) casts  
AESOPS RR\_KIW08, Survey Cruise 2  
  
DMO note (020513): add depth calculated from pressure

**TMbottle\_KIW19.csv** (Comma Separated Values (.csv), 49.75 KB)  
MD5:60736917e9049ea05ec7e9ffef68dfce

version May 13, 2002  
(original version July 8, 1999)  
Louis Codispoti  
hydrographic data (temperature, salinity and nutrients)  
from TM (trace metal free rosette) casts  
AESOPS/RR\_KIW09, APFZ Process Cruise 2  
  
DMO note (020513): add depth calculated from pressure

**TMbottle\_NBP-96-04A.csv** (Comma Separated Values (.csv), 17.43 KB)  
MD5:f528286da456889cbce9dedcb0fa3efd

version May 13, 2002  
(original version October 1, 1998)  
Louis Codispoti  
hydrographic data (temperature, salinity and nutrients)  
from TM (trace metal free rosette) casts  
AESOPS NBP96-4A, Process Cruise 1  
  
DMO note (020513): add depth calculated from pressure

**TMbottle\_NBP-97-01.csv** (Comma Separated Values (.csv), 43.36 KB)  
MD5:11d8cd3cd6b4fcd8f17b46d27d8e4573

version December 18, 2002  
(original version August 19, 1998)  
Louis Codispoti  
hydrographic data (temperature, salinity and nutrients)  
from TM (trace metal free rosette) casts  
AESOPS NBP97-1, Process Cruise 2  
  
DMO note (020513): add depth calculated from pressure

**File**

**TMbottle\_NBP-97-03.csv** (Comma Separated Values (.csv), 23.68 KB)  
MD5:8a06bb40cc286515868b76e66428b0d0

version May 13, 2002  
(original version October 1, 1998)  
Louis Codispoti  
hydrographic data (temperature, salinity and nutrients)  
from TM (trace metal free rosette) casts  
AESOPS NBP97-3, Process Cruise 3

DMO note (020409): add several events to facilitate bottleTM merge:  
added events: 04121818, 04141658 and 04201924  
For these events ONLY, depth is nominal depth (depth\_n) and pressure  
was calculated from depth\_n

DMO note (020513): add depth calculated from pressure

**TMbottle\_NBP-97-08.csv** (Comma Separated Values (.csv), 63.62 KB)  
MD5:486e2bd9991fdb3fae7fe7681a6e0fac

version May 13, 2002  
(original version November 10, 1998)  
Louis Codispoti  
hydrographic data (temperature, salinity and nutrients)  
from TM (trace metal free rosette) casts  
AESOPS NBP97-8, Process Cruise 4

DMO note (020513): add depth calculated from pressure

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**Parameters**

Parameter	Description	Units
event	event number from event log	
sta	station number from event log	
cast	TM cast number	
date	date (YYYYMMDD) decoded as follows YYYY = year, MM = month, DD = day. Date converted to GMT.	
time_begin	starting time of cast in UTC	decimal hours
time_end	ending time of cast in UTC	decimal hours
lat_begin	starting latitude of cast, negative = south	decimal degrees
lon_begin	starting longitude of cast, negative = west	decimal degrees

lat_end	ending latitude of cast	decimal degrees
lon_end	ending longitude of cast	decimal degrees
bot	TM rosette bottle sequence number	
press	depth of sample reported as pressure	decibars
depth	depth calculated from pressure	meters
temp	temperature from CTD probe when sampling bottle tripped	degrees C
sal_ctd	CTD salinity (PSS-78) when bottle tripped	dimensionless
sal_bot	bottle salinity (Autosal; PSU)	dimensionless
O2_ml_L	oxygen (winkler)	milliliters/liter
O2_umol_kg	oxygen (winkler)	micromoles/kilogram
O2_umol_L	oxygen (winkler)	micromoles/liter
NO3	nitrate	micromoles/liter
PO4	phosphate	micromoles/liter
SiO4	silicate	micromoles/liter
NO2	nitrite	micromoles/liter
NH4	ammonium	micromoles N/liter
lat	latitude of cast, negative = south	decimal degrees
lon	longitude of cast, negative = west	decimal degrees
depth_n	nominal sample depth	meters

## Instruments

<b>Dataset-specific Instrument Name</b>	Niskin Bottle
<b>Generic Instrument Name</b>	Niskin bottle
<b>Dataset-specific Description</b>	CTD clean rosette (Niskin) bottles were used to collect water samples.
<b>Generic Instrument Description</b>	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.

<b>Dataset-specific Instrument Name</b>	Trace Metal Bottle
<b>Generic Instrument Name</b>	Trace Metal Bottle
<b>Dataset-specific Description</b>	Trace metal (TM) clean rosette bottles were used to collect water samples.
<b>Generic Instrument Description</b>	Trace metal (TM) clean rosette bottle used for collecting trace metal clean seawater samples.

## Deployments

### NBP-96-04A

<b>Website</b>	<a href="https://www.bco-dmo.org/deployment/57718">https://www.bco-dmo.org/deployment/57718</a>
<b>Platform</b>	RVIB Nathaniel B. Palmer
<b>Report</b>	<a href="http://usjgofs.whoi.edu/aesops/p1.html">http://usjgofs.whoi.edu/aesops/p1.html</a>
<b>Start Date</b>	1996-10-02
<b>End Date</b>	1996-11-08
<b>Description</b>	<p>Ross Sea Process Study 1</p> <p><b>Methods &amp; Sampling</b>            PI: Louis Codispoti of: Old Dominion University dataset: Temp, salinity, nutrients from Trace Metal casts dates: October 08, 1996 to November 05, 1996 location: N: -63.454 S: -77.9638 W: 168.9967 E: -170.5822 project/cruise: AESOPS/NBP-96-4A - Ross Sea Process Cruise 1 ship: R/V Nathaniel B. Palmer Sampling Methodology DMO note on calculated depth AESOPS Investigators, Please note: Begin and end parameters for time, latitude and longitude are used in the core CTD, Bottle and TM bottle data. Investigators submitting data related to CTD/Bottle/TM casts are urged to use the single lat/lon entry from the Chief Scientist's event log. DMO note (020513): add depth calculated from pressure</p>

### NBP-97-01

<b>Website</b>	<a href="https://www.bco-dmo.org/deployment/57720">https://www.bco-dmo.org/deployment/57720</a>
<b>Platform</b>	RVIB Nathaniel B. Palmer
<b>Report</b>	<a href="http://usjgofs.whoi.edu/aesops/p2.html">http://usjgofs.whoi.edu/aesops/p2.html</a>
<b>Start Date</b>	1997-01-13
<b>End Date</b>	1997-02-11
<b>Description</b>	<p>Ross Sea Process Study 2</p> <p><b>Methods &amp; Sampling</b>  PI: Louis Codispoti of: Old Dominion University dataset: Temp, salinity, nutrients from Trace Metal casts dates: January 15, 1997 to February 08, 1997 location: N: -73.9972 S: -78.043 W: 163.3482 E: -175.9906 project/cruise: AESOPS/NBP-97-1 - Ross Sea Process Cruise 2 ship: R/V Nathaniel B. Palmer Sampling Methodology DMO note on calculated depth AESOPS Investigators, Please note: Begin and end parameters for time, latitude and longitude are used in the core CTD, Bottle and TM bottle data. Investigators submitting data related to CTD/Bottle/TM casts are urged to use the single lat/lon entry from the Chief Scientist's event log. DMO note (020513): add depth calculated from pressure</p>

### NBP-97-03

<b>Website</b>	<a href="https://www.bco-dmo.org/deployment/57721">https://www.bco-dmo.org/deployment/57721</a>
<b>Platform</b>	RVIB Nathaniel B. Palmer
<b>Report</b>	<a href="http://usjgofs.whoi.edu/aesops/p3.html">http://usjgofs.whoi.edu/aesops/p3.html</a>
<b>Start Date</b>	1997-04-04
<b>End Date</b>	1997-05-11
<b>Description</b>	<p>Ross Sea Process Study 3</p> <p><b>Methods &amp; Sampling</b>  PI: Louis Codispoti of: Old Dominion University dataset: Temp, salinity, nutrients from Trace Metal casts dates: April 09, 1997 to April 24, 1997 location: N: -67.6378 S: -77.9962 W: 169.0144 E: -176.0121 project/cruise: AESOPS/NBP-97-3 - Ross Sea Process Cruise 3 ship: R/V Nathaniel B. Palmer Sampling Methodology DMO note on calculated depth AESOPS Investigators, Please note: Begin and end parameters for time, latitude and longitude are used in the core CTD, Bottle and TM bottle data. Investigators submitting data related to CTD/Bottle/TM casts are urged to use the single lat/lon entry from the Chief Scientist's event log. DMO note (020409): add several events to facilitate bottleTM merge: added events: 04121818, 04141658 and 04201924 For these events ONLY, depth is nominal depth (depth_n) and pressure was calculated from depth_n DMO note (020513): add depth calculated from pressure</p>

### NBP-97-08

<b>Website</b>	<a href="https://www.bco-dmo.org/deployment/57722">https://www.bco-dmo.org/deployment/57722</a>
<b>Platform</b>	RVIB Nathaniel B. Palmer
<b>Report</b>	<a href="http://usjgofs.whoi.edu/aesops/p4.html">http://usjgofs.whoi.edu/aesops/p4.html</a>
<b>Start Date</b>	1997-11-05
<b>End Date</b>	1997-12-13
<b>Description</b>	<p>Ross Sea Process Study 4 SeaWiFS transmits images to U.S. JGOFS scientists aboard the Palmer, for first time on November 23, 1997.</p> <p><b>Methods &amp; Sampling</b>  PI: Louis Codispoti of: Old Dominion University dataset: Temp, salinity, nutrients from Trace Metal casts dates: November 14, 1997 to December 11, 1997 location: N: -71.4372 S: -76.6287 W: 168.9257 E: -177.9637 project/cruise: AESOPS/NBP-97-8 - Ross Sea Process Cruise 4 ship: R/V Nathaniel B. Palmer Sampling Methodology DMO note on calculated depth AESOPS Investigators, Please note: Begin and end parameters for time, latitude and longitude are used in the core CTD, Bottle and TM bottle data. Investigators submitting data related to CTD/Bottle/TM casts are urged to use the single lat/lon entry from the Chief Scientist's event log. DMO note (020513): add depth calculated from pressure</p>

#### KIWI6

<b>Website</b>	<a href="https://www.bco-dmo.org/deployment/57724">https://www.bco-dmo.org/deployment/57724</a>
<b>Platform</b>	R/V Roger Revelle
<b>Report</b>	<a href="http://usjgofs.whoi.edu/aesops/RRs1.html">http://usjgofs.whoi.edu/aesops/RRs1.html</a>
<b>Start Date</b>	1997-10-20
<b>End Date</b>	1997-11-24
<b>Description</b>	<p>Polar Front Survey I. Additional information about this cruise can be found at <a href="https://usjgofs.whoi.edu/aesops/aboutrr6.html">https://usjgofs.whoi.edu/aesops/aboutrr6.html</a></p> <p><b>Methods &amp; Sampling</b>  PI: Louis Codispoti of: Old Dominion University dataset: Temp, salinity, nutrients from Trace Metal casts dates: October 24, 1997 to November 04, 1997 location: N: -57 S: -62.3658 W: -170.0765 E: -168.9993 project/cruise: AESOPS/KIWI06 - APFZ Polar Front Survey Cruise 1 ship: R/V Roger Revelle Sampling Methodology DMO note on calculated depth AESOPS Investigators, Please note: Begin and end parameters for time, latitude and longitude are provided in the core CTD and Bottle data. Investigators submitting data related to CTD/Bottle casts are urged to use the single lat/lon entry from the Chief Scientist's event log. DMO note (020513): add depth calculated from pressure</p>

#### KIWI7

<b>Website</b>	<a href="https://www.bco-dmo.org/deployment/57725">https://www.bco-dmo.org/deployment/57725</a>
<b>Platform</b>	R/V Roger Revelle
<b>Report</b>	<a href="http://usjgofs.whoi.edu/aesops/RRp1.html">http://usjgofs.whoi.edu/aesops/RRp1.html</a>
<b>Start Date</b>	1997-12-02
<b>End Date</b>	1998-01-03
<b>Description</b>	<p>Polar Front Process I. Additional information about this cruise can be found at <a href="https://usjgofs.whoi.edu/aesops/aboutrr7.html">https://usjgofs.whoi.edu/aesops/aboutrr7.html</a></p> <p><b>Methods &amp; Sampling</b>  PI: Louis Codispoti of: Old Dominion University dataset: Temperature, salinity, nutrients from TM cast bottles dates: December 05, 1997 to December 30, 1997 location: N: -52.9388 S: -64.696 W: -174.7217 E: -168.8332 project/cruise: AESOPS/KIWI07 - APFZ Polar Front Process Cruise 1 ship: R/V Roger Revelle Sampling Methodology Please note: The trace metal clean rosette on this leg was equipped with 6, 30-l Go-Flo bottles and did NOT include a CTD. It was a temporary replacement for the 8-bottle, CTD equipped system that was lost on 13 November 1997.</p>

#### KIWI8

<b>Website</b>	<a href="https://www.bco-dmo.org/deployment/57726">https://www.bco-dmo.org/deployment/57726</a>
<b>Platform</b>	R/V Roger Revelle
<b>Report</b>	<a href="http://usjgofs.whoi.edu/aesops/RRs2.html">http://usjgofs.whoi.edu/aesops/RRs2.html</a>
<b>Start Date</b>	1998-01-08
<b>End Date</b>	1998-02-08
<b>Description</b>	<p>Polar Front Survey II. Additional information about this cruise can be found at <a href="https://usjgofs.whoi.edu/aesops/aboutrr8.html">https://usjgofs.whoi.edu/aesops/aboutrr8.html</a></p> <p><b>Methods &amp; Sampling</b>  PI: Louis Codispoti of: Old Dominion University dataset: Temp, salinity, nutrients from Trace Metal casts dates: January 16, 1998 to January 28, 1998 location: N: -60 S: -67.7842 W: -170.1283 E: -170.1 project/cruise: AESOPS/KIWI08 - APFZ Polar Front Survey Cruise 2 ship: R/V Roger Revelle Sampling Methodology DMO note on calculated depth PI Note: PROBLEMS WERE ENCOUNTERED WITH THE AMMONIUM ANALYSIS AT THE BEGINNING OF THIS CRUISE. THUS, AMMONIUM DATA ARE NOT REPORTED UNTIL STATION 4, CAST 2. AESOPS Investigators, Please note: Begin and end parameters for time, latitude and longitude are provided in the core CTD and Bottle data. Investigators submitting data related to CTD/Bottle casts are urged to use the single lat/lon entry from the Chief Scientist's event log. DMO note (020513): add depth calculated from pressure</p>

#### KIWI9



<b>Website</b>	<a href="https://www.bco-dmo.org/deployment/57727">https://www.bco-dmo.org/deployment/57727</a>
<b>Platform</b>	R/V Roger Revelle
<b>Report</b>	<a href="http://usjgofs.who.edu/aesops/RRp2.html">http://usjgofs.who.edu/aesops/RRp2.html</a>
<b>Start Date</b>	1998-02-13
<b>End Date</b>	1998-03-19
<b>Description</b>	<p>Polar Front Process II. Additional information about this cruise can be found at <a href="https://usjgofs.who.edu/aesops/aboutrr9.html">https://usjgofs.who.edu/aesops/aboutrr9.html</a></p> <p><b>Methods &amp; Sampling</b>  PI: Louis Codispoti of: Old Dominion University dataset: Temp, salinity, nutrients from Trace Metal casts dates: February 18, 1998 to March 14, 1998 location: N: -54.3333 S: -71.3072 W: -173.3333 E: -165.9132 project/cruise: AESOPS/KIWI09 - APFZ Polar Front Process Cruise 2 ship: R/V Roger Revelle Sampling Methodology DMO note on calculated depth AESOPS Investigators, Please note: Begin and end parameters for time, latitude and longitude are provided in the core CTD and Bottle data. Investigators submitting data related to CTD/Bottle casts are urged to use the single lat/lon entry from the Chief Scientist's event log. DMO note (020513): add depth calculated from pressure</p>

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## Project Information

### U.S. JGOFS Antarctic Environment and Southern Ocean Process Study (AESOPS)

**Website:** <http://usjgofs.who.edu/research/aesops.html>

**Coverage:** Southern Ocean, Ross Sea

The U.S. Southern Ocean JGOFS program, called Antarctic Environment and Southern Ocean Process Study (AESOPS), began in August 1996 and continued through March 1998. The U.S. JGOFS AESOPS program focused on two regions in the Southern Ocean: an east/west section of the Ross-Sea continental shelf along 76.5°S, and a second north/south section of the Southern Ocean spanning the Antarctic Circumpolar Current (ACC) at ~170°W (identified as the Polar Front). The science program, coordinated by Antarctic Support Associates (ASA), comprised eleven cruises using the R.V.I.B Nathaniel B. Palmer and R/V Roger Revelle as observational platforms and for deployment and recovery of instrumented moorings and sediment-trap arrays. The Ross-Sea region was occupied on six occasions and the Polar Front five times. Mapping data were obtained from SeaSoar, ADCP, and bathymetric systems. Satellite coverage was provided by the NASA SeaWiFS and the NOAA/NASA Pathfinder programs.

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## Program Information

### U.S. Joint Global Ocean Flux Study (U.S. JGOFS)

**Website:** <http://usjgofs.who.edu/>

**Coverage:** Global

The United States Joint Global Ocean Flux Study was a national component of international JGOFS and an integral part of global climate change research.

The U.S. launched the Joint Global Ocean Flux Study (JGOFS) in the late 1980s to study the ocean carbon cycle. An ambitious goal was set to understand the controls on the concentrations and fluxes of carbon and associated nutrients in the ocean. A new field of ocean biogeochemistry emerged with an emphasis on quality measurements of carbon system parameters and interdisciplinary field studies of the biological, chemical and physical process which control the ocean carbon cycle. As we studied ocean biogeochemistry, we learned that our simple views of carbon uptake and transport were severely limited, and a new "wave" of ocean science was born. U.S. JGOFS has been supported primarily by the U.S. National Science Foundation in collaboration with the National Oceanic and Atmospheric Administration, the National Aeronautics and Space Administration, the Department of Energy and the Office of Naval Research. U.S. JGOFS, ended in 2005 with the conclusion of the Synthesis and Modeling Project (SMP).

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