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DATA COLLECTOR

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DATASET TITLE

Ocean measurements in the Ross and Amundsen Seas, NB Palmer Cruise 07-02, 03 February - 26 March 2007

DATASET ABSTRACT

We are reporting ocean CTD/O profiles and salinity, dissolved oxygen and nutrient measurements from rosette water bottles at 190 stations occupied from the western Ross Sea to the west Antarctic Peninsula. These late austral summer observations, most extending from within a few meters of the sea surface to a few meters of the sea floor, comprise the major portion of several related data sets obtained during cruise NBP07-02, McMurdo Station to Punta Arenas, Chile. Additional sampling was undertaken for several geochemical and biological parameters, and ocean currents, along with continuous underway mapping of sea surface properties, meteorological variables and bathymetry.

DATASET PURPOSE

These data were acquired primarily in support of a project designed to study ocean-ice shelf interactions in the Amundsen Sea, and its downstream impacts.

DATASET COLLECTION DATES

03 February 2007- 21 March 2007

DATASET LOCATION

Northernmost Latitude: -67 40.65
Southernmost Latitude: -74 58.51
Easternmost Longitude: -73 20.22
Westernmost Longitude: -163 54.64
Ocean/sea area names: Ross Sea, Amundsen Sea, Bellingshausen Sea.

PLATFORM USED TO COLLECT THESE DATA

Nathaniel B Palmer, Research Icebreaker.

INSTRUMENTS USED TO COLLECT THE DATA

Seabird 911+ CTD, Autosal Salinometer (standard seawater batch # P147), Automated Amperometric Oxygen Titrator (Langdon), LaChat Nutrient Analyzer.

PARAMETERS MEASURED

Pressure (depth), temperature, conductivity (salinity), dissolved oxygen, silicate, phosphate, nitrate, nitrite, ammonia. CTD data acquired with a Seabird 911 plus, processed with SeaBird data processing software, with subsequent curve fitting and bias adjustments, as necessary.

PROJECT NAME

The Amundsen Continental Shelf and the Antarctic Ice Sheet.

ORIGINAL CRUISE NAME

NBP07-02

FUNDING AGENCY

Supported mainly by grant ANT-04-40775 from National Science Foundation, Division of Polar Programs.

DATA FILES

nbp0702_ctd_D.nnn: CTD data (downcast) where nnn is station number (nnn = 001 to 190).

nbp0702_ctd_U.nnn: CTD data (upcast).

nbp0702_ros.nnn: bottle data.

DESCRIPTION OF DATA FILES

All data files are written in ASCII format, separated by blanks (spaces).

In the first and second lines of the CTD and bottle files we report parameters measured at the beginning of the cast (downcast); when the cast was near bottom (bottles) and at the end (upcast) of the cast.

The first line of data files is in the format:

TPPCC SSS C SDD.DDDD SDDD.DDDD YYYY/MM/DD YDA HH:MM CRUISE_ID

T - Data type (C: CTD; B: Bottle).

PP - NODC platform code.

CC - NODC country code of the platform.

SSS - Station number.

C - Cast number.

SDD.DDDD - latitude in decimal degrees (S: sign, negative in the Western and Southern hemispheres).

SDDD.DDDD - longitude in decimal degrees (S: sign, negative in the Western and Southern hemispheres).

YYYY/MM/DD – date; year/month/day.

YDA - Julian day for year of collection.

HH:MM - time, hour:minutes (GMT).

CRUISE_ID – internal (LDEO) cruise name NBP0702.

The second line is preceded by the "&" character and contains additional cast information:

ZC: Corrected bottom depth in meters.

ZM: Closest approach of the CTD to the bottom in meters.

TA: Air temperature in °C;

PA: Barometric pressure in milibars;

WD: Wind direction in degrees from North.

WS: Wind speed in meters/sec.

For CTD:

The third line begins with "@" where each data column is identified by a two letter mnemonic:

PR Pressure [decibars].
TE In-situ temperature [°C] (IPTS-68).
SA Salinity (PSS-78).
OX Oxygen [ml/l].

For bottles:

The third line begins with @ where each data column is identified by a two/three letter mnemonic:

RN bottle number
PR Pressure [decibars].
TE In situ temperature [°C] (IPTS-68).
SA Salinity (PSS-78).
OX Oxygen [ml/l].
RS Rosette salinity (PSS-78).
RO Rosette oxygen [ml/l].
PO Phosphate [umol/kg].
SI Silicate [umol/kg].
N3 Nitrite
N2 Nitrate
AM Ammonia
O18 Oxygen-18
CFC CFC-11, 12 and 113
HE Helium
TR Tritium

Number of stations and files:

CTD downcasts: 190 files (nbp0702_ctd_D.nnn, nnn = 001 to 190).

CTD upcasts: 187 files (nbp0702_ctd_U.nnn, nnn = 001 to 190; no uptraces for stations: 140, 141 and 142).

Bottle files: 166 files (nbp0702_ros.nnn, nnn = 001 to 190; no bottle data for stations: 27, 161, 168-189).

Notes:

• In most bottle data files, PR, TE, SA and OX are obtained from CTD upcast data. On stations 140-142 we only report downcast CTD data due to problems with upcast profiling. The bottle files for those stations contain CTD downcast data.

• Missing data is reported as a -9 or -9.000.

• O18, CFC, HE and TR have either a “-9” (no sample was taken) or a “1” (one) meaning that samples were taken but processed values are not yet available.

General Comments:

A cruise report, data report and other supporting documents will be available later this year at:
<http://www.ldeo.columbia.edu/~claudiag/NBP0702/>.