

NBP0812

Multibeam

End of Cruise Report

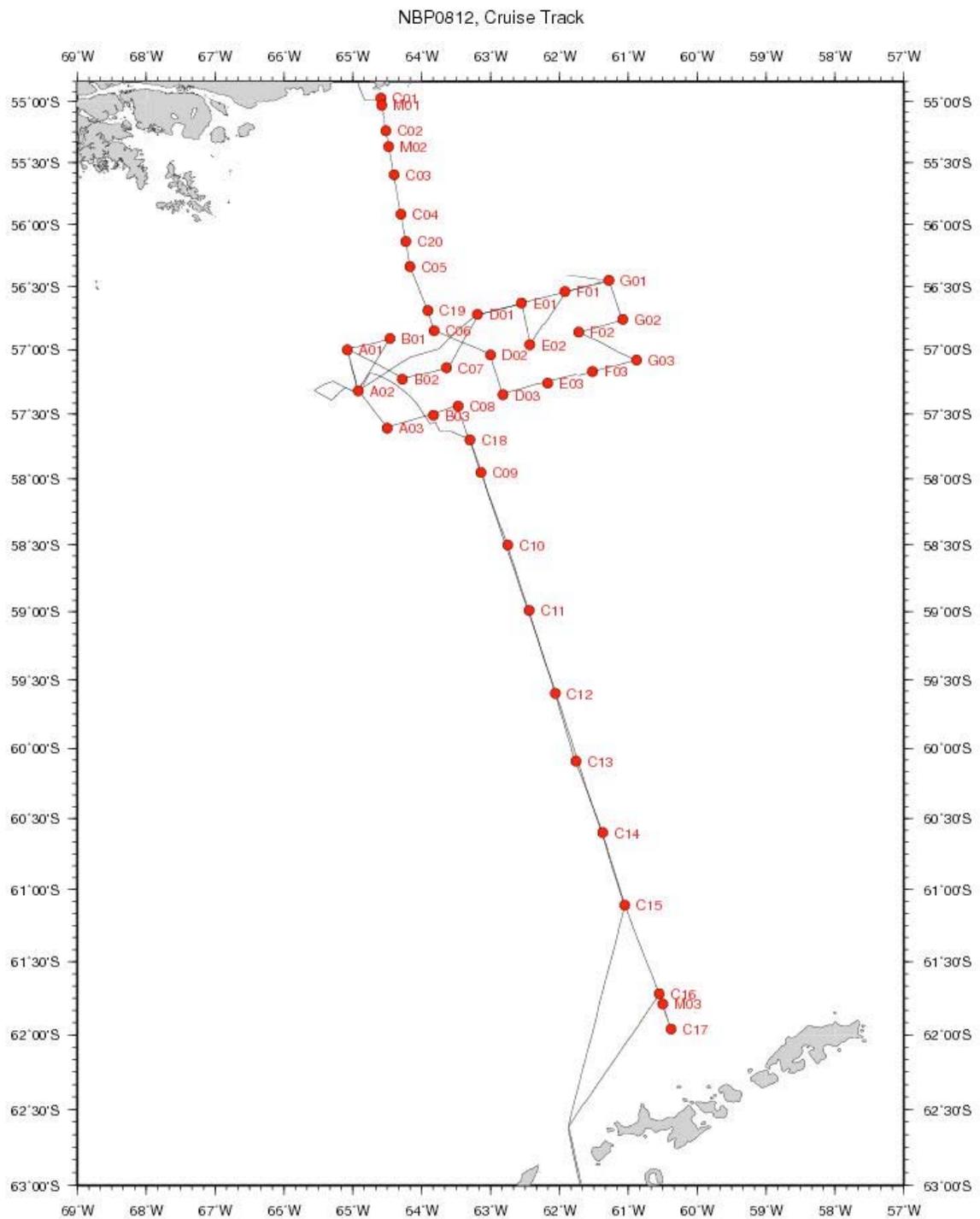


Prepared By Chris Linden
December 14, 2008

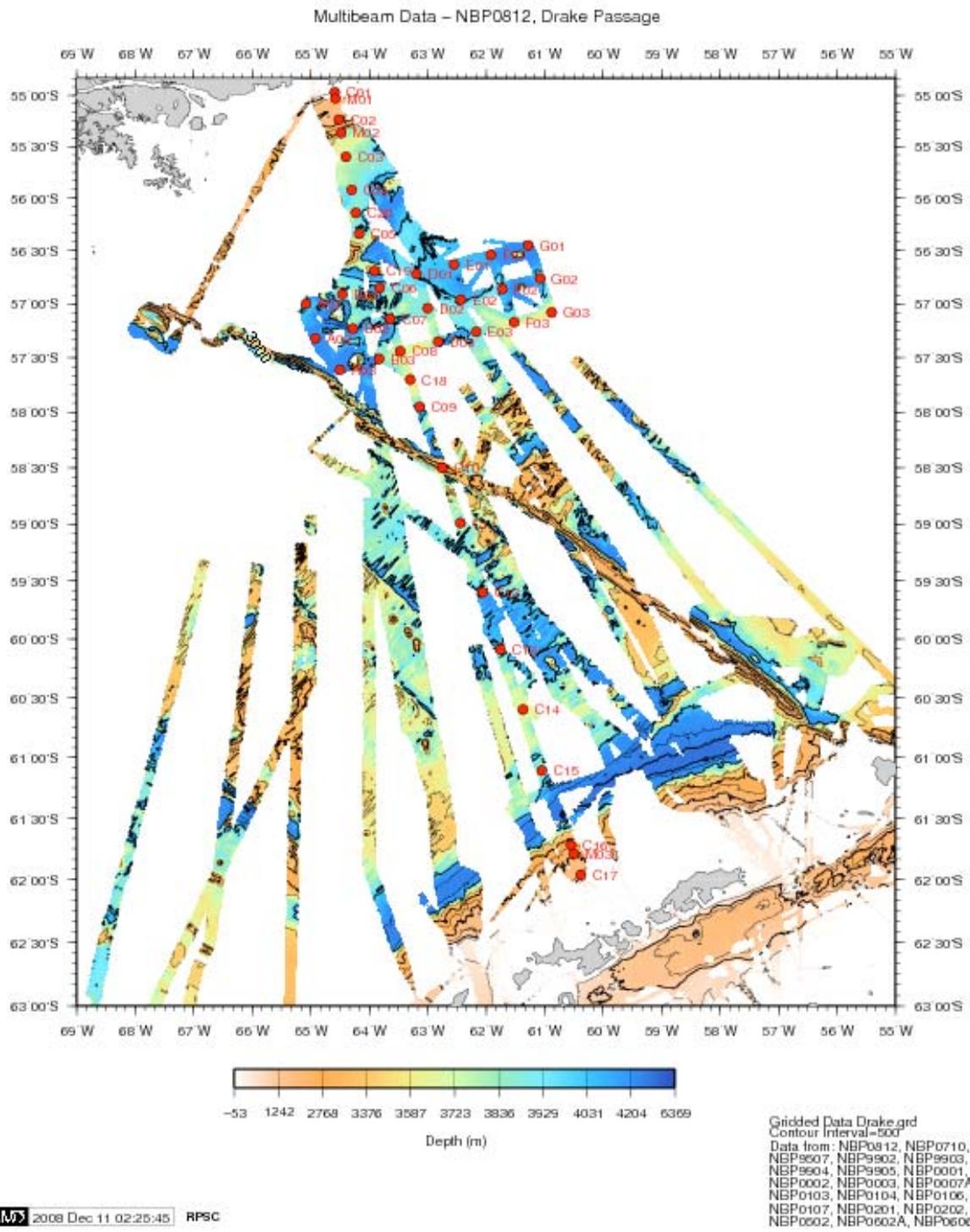
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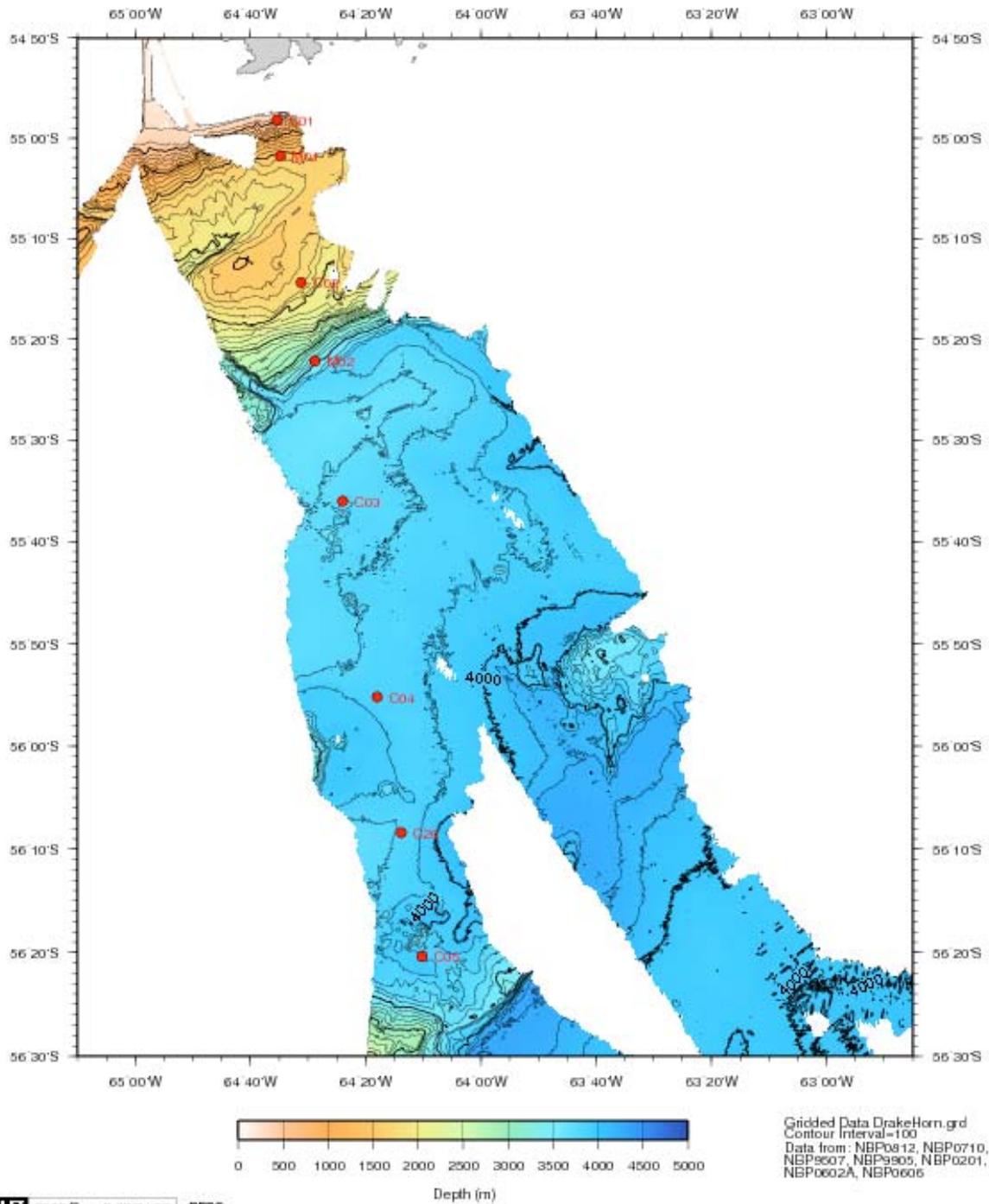
Cruise Track Plot



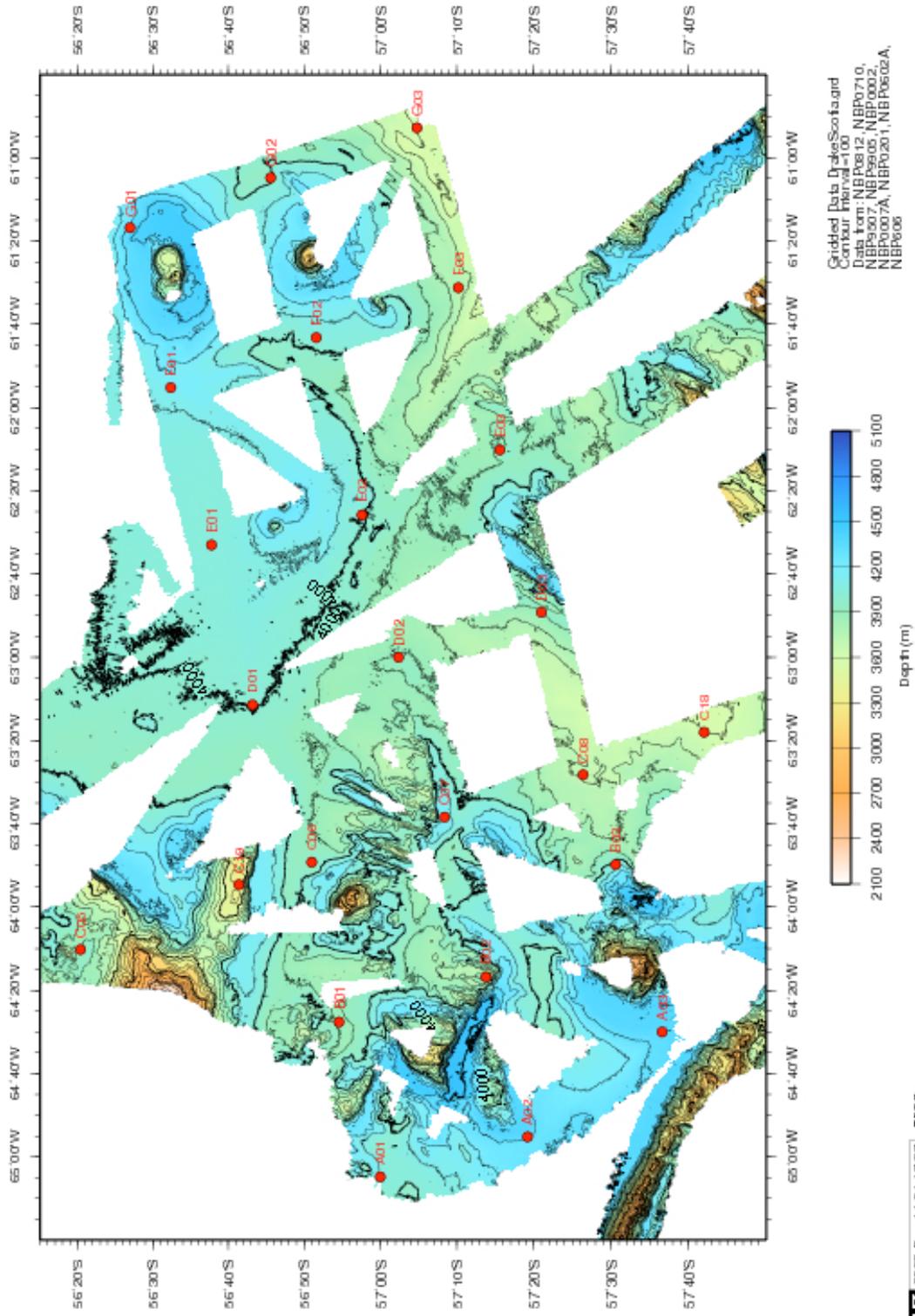
Multibeam Work Area Plots



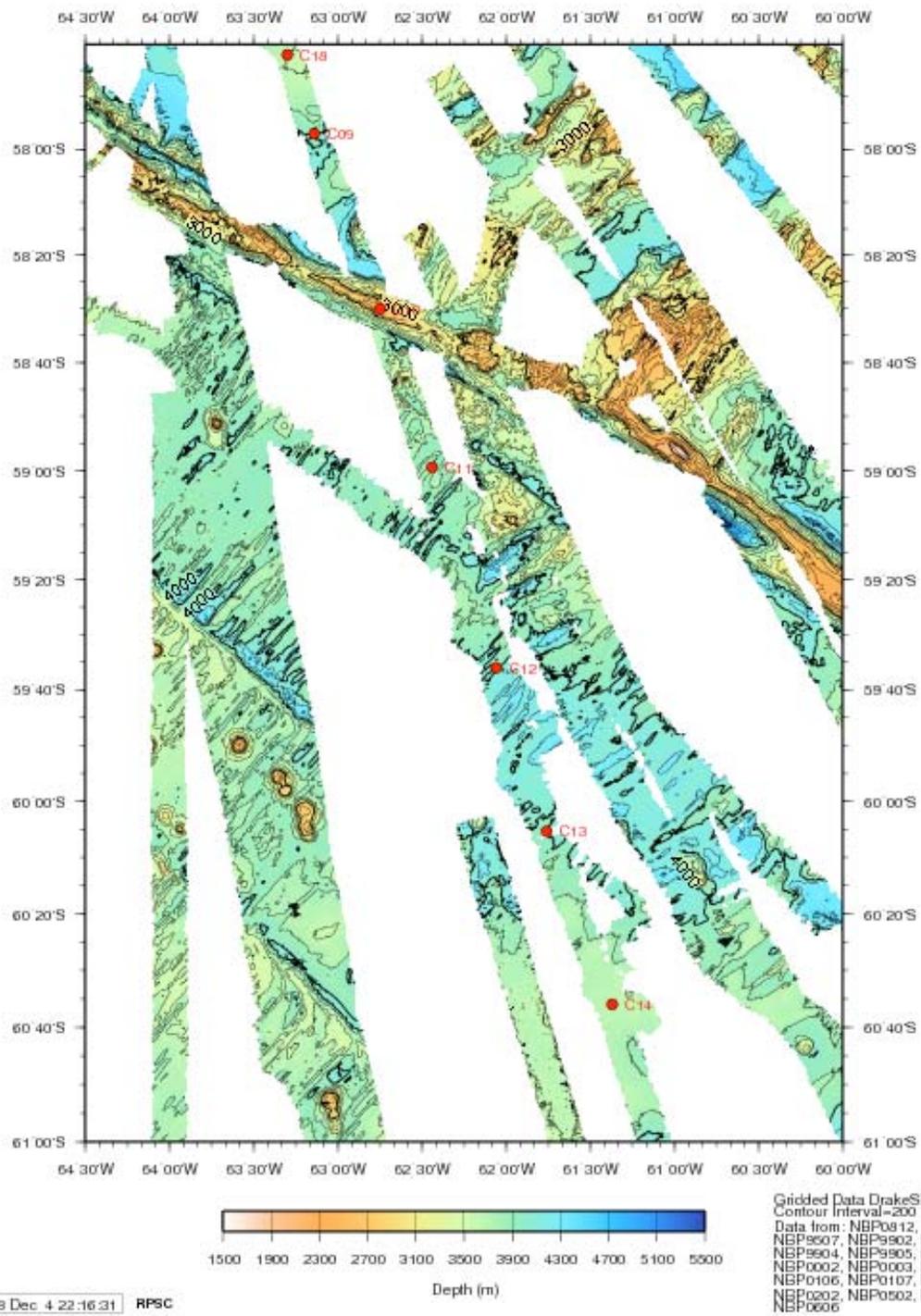
Multibeam Data – NBP0812, North Drake



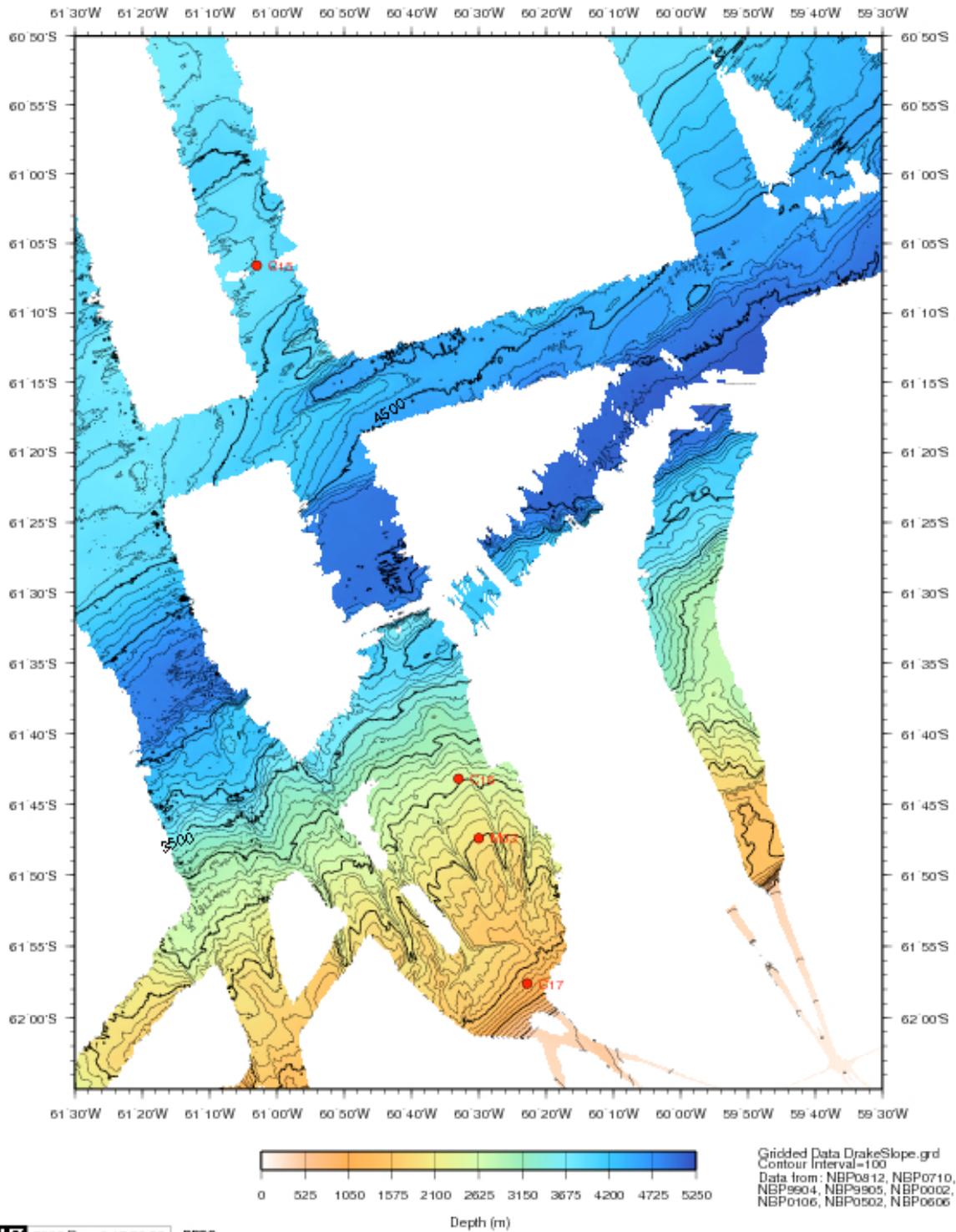
Multibeam Data - NBPO812, Drake Scotia Plate



Multibeam Data – NBP0812, Drake Shackleton Fracture Zone



Multibeam Data – NBP0812, Drake Shelf Slope



NBP0812 Multibeam Description of Work

This report covers the Simrad EM120 Multibeam data collection and processing for the RVIB Nathaniel B. Palmer cruise NBP0812. This cruise started in Punta Arenas, Chile on November 19, 2008 (GMT) and ended in Punta Arenas, Chile on December 13, 2008. The Chief Scientist was Teresa Chereskin (Scripps.) The principal investigators were Kathleen Donohue (URI) and Randy Watts (URI.) Chris Linden (RPSC) was responsible for Multibeam data acquisition, processing, and ping editing quality control.

The first day of Multibeam data collection was November 20 and the last day was December 10, 2008. Data quality was mixed. None of the data files for December 3rd, 4th, 5th, 6th or 10th was edited. No data was collected on December 7th. In addition the following files were corrupted, non-existent or unedited: 24, 27, 45, 59, 60, 63, 84, 122-123, 129, 134-138, 192-210 and 226. Much of the data collected covered areas where good previous data exists. Some of the unedited files may contain some useful data, but most of the unedited data was of poor quality due to poor weather. The datalists for the individual days have some of the above files commented-out.

The raw Multibeam data were logged in approximately one hour-long files in the Kongsberg-Simrad EM120 raw format. This is a complex format that is not described in this report. The MB-System¹ software package may be used to access the files if additional work is to be done with the data. MB-System version 5.0.7 was used for processing of data on this cruise. Later MBSYSTEM versions are available, but some of these newer distributions do not correctly handle sidescan data for the EM120 system. It is recommended that users who are interested in this data continue to use MBSYSTEM 5.0.7 until a later distribution is verified to correctly handle the EM120 sidescan data. These raw data files are named xxxx_yyyymmdd_hhmmss_raw.all where xxxx is a consecutive line number within the survey, yyyy is the year, mm is the month, dd is the day, hh is the hour, mm is the minute, and ss is the seconds that the file was started.

The logged Multibeam data files were transferred from the data acquisition computer to a data storage area just after the end of each day. The raw hourly data files were converted from MB-System format 56 (the raw Simrad format) to format 57 using mbcopy and made available for manual editing. The format 57 files are named xxx_yyyymmdd_hhmmss.mb57 where the first part of the name is identical to the raw file. All data files were edited while at sea.

The science party was responsible for editing the Multibeam data. Mbclean was used to flag bad data points outside the valid depth range for each hour of data. Mbedit was used to manually remove bad data points from these files. Some data files were edited with mbnedit to correct navigational problems. Navigation corrections were made after the files were edited. If the velocity was observed to be incorrect, a new sound velocity was generated using mbvelocitytool and was applied to the data.

The edited files were checked using mbedit, the statistics from mbinfo, and hourly contour plots. If these checks failed, the files were re-edited by Chris Linden. When the data quality was judged acceptable, the edits were applied to the data using mbprocess. The edited files are named

¹ The MB-System software package was used for all Multibeam data handling. This package was developed at Lamont-Doherty Earth Observatory. This system is designed to manipulate, process, list and display many kinds of Multibeam bathymetry, amplitude, and sidescan data. It has been successfully installed on many different computer platforms. To obtain more information about the MB-System programs or to obtain a copy of the current distribution, contact the authors David W. Caress (caress@mbari.org) and Dale N. Chayes (dale@lamont.ldeo.columbia.edu)

xxxx_yyyymmdd_hhmmssp.mb57 where the p in the dataset name denotes a processed file. Page size plots were produced of the edited data. Daily plots were also produced which showed one days worth of gridded data.

The UNIX tar command was used to write the digital data to DDS tapes at the end of the cruise. These tapes were checked before distribution. The tapes contain the raw and processed data for the entire cruise. The processing scripts and gridded data for each survey are included in the processed data directory. The contents of these tapes and an itemized distribution list are located on separate pages of this report.

Speed of Sound Corrections

The travel time of sound in water was corrected at the surface by a sound velocity calculated from the Thermosalinograph (TSG). This value was supplied directly to the EM120 system serial port and the data was transmitted by the RVDAS program rv_tsg. Sound velocity profiles were calculated from CTD casts and XBTs, which were combined with the Levitus historical database. The CTD and XBT data have been provided on the RVDAS data distribution. The calculated sound velocities files and plots are in the process/svp directory in this multibeam data distribution.

NBP0812 Data Distribution

Multibeam data has been provided on DDS 4mm tapes to the science party and RPSC. The distribution consists of one (1) tape and a copy of this data report. The tapes were created on Linux computers using the command `tar cvf /dev/st0` and verified to be sound on Linux and Sun computers before they were distributed.

The contents of the tapes are described below. The processed data is in mbio format 57 in the process directory. The raw data is in mbio format 56 in the Raw directory. The processed data includes gridded files, processing scripts and postscript plots divided into subdirectories for each day and map area.

Each Full DDS4 Data Set Includes:

1. DDS4

- a) **Raw** has raw data and ancillary files for November 20 through December 10, 2008. The files are divided into directories by days
- b) **process** has the edited data and daily processing divided into directories by days for November 20 through December 10, 2008.

Portions of this cruise took place in the EEZ (exclusive economic zone) of Argentina. Argentina has been provided with the complete distribution by the decision of the Chief Scientist.

All full data distributions also include a printed copy of this report.

A copy of the full data distribution will be sent to the Antarctic Multibeam Synthesis at the MGDS (<http://www.marine-geo.org/>). You can locate the all information for and download data from this cruise at the web site by selecting your cruise name from the data link tool. You can also download and use the java application GeoMapApp to interactively access multibeam and other data sets. Data sent to the database will not be downloadable until the Chief Scientist has released the proprietary hold.

You can contact the MGDS at:

MGDS Data Manager
 Lamont-Doherty Earth Observatory
 61 Route 9W
 Palisades NY 10964 USA
 845-818-3745 Phone/Fax
info@marine-geo.org

Data Distribution Information:

S/N	Who	Description	Type
1	Chereskin 1	20 Nov. – 10 Dec. 2008 raw, processed, maps	DDS4
2	Chereskin 2	20 Nov. – 10 Dec. 2008 raw, processed, maps	DDS4
3	Chereskin 3	20 Nov. – 10 Dec. 2008 raw, processed, maps	DDS4
4	NBP	20 Nov. – 10 Dec. 2008 raw, processed, maps	DDS4
5	RPSC	20 Nov. – 10 Dec. 2008 raw, processed, maps	DDS4
6	MGDS	20 Nov. – 10 Dec. 2008 raw, processed, maps	DDS4