NBP1203
Multibeam
End of Cruise Report
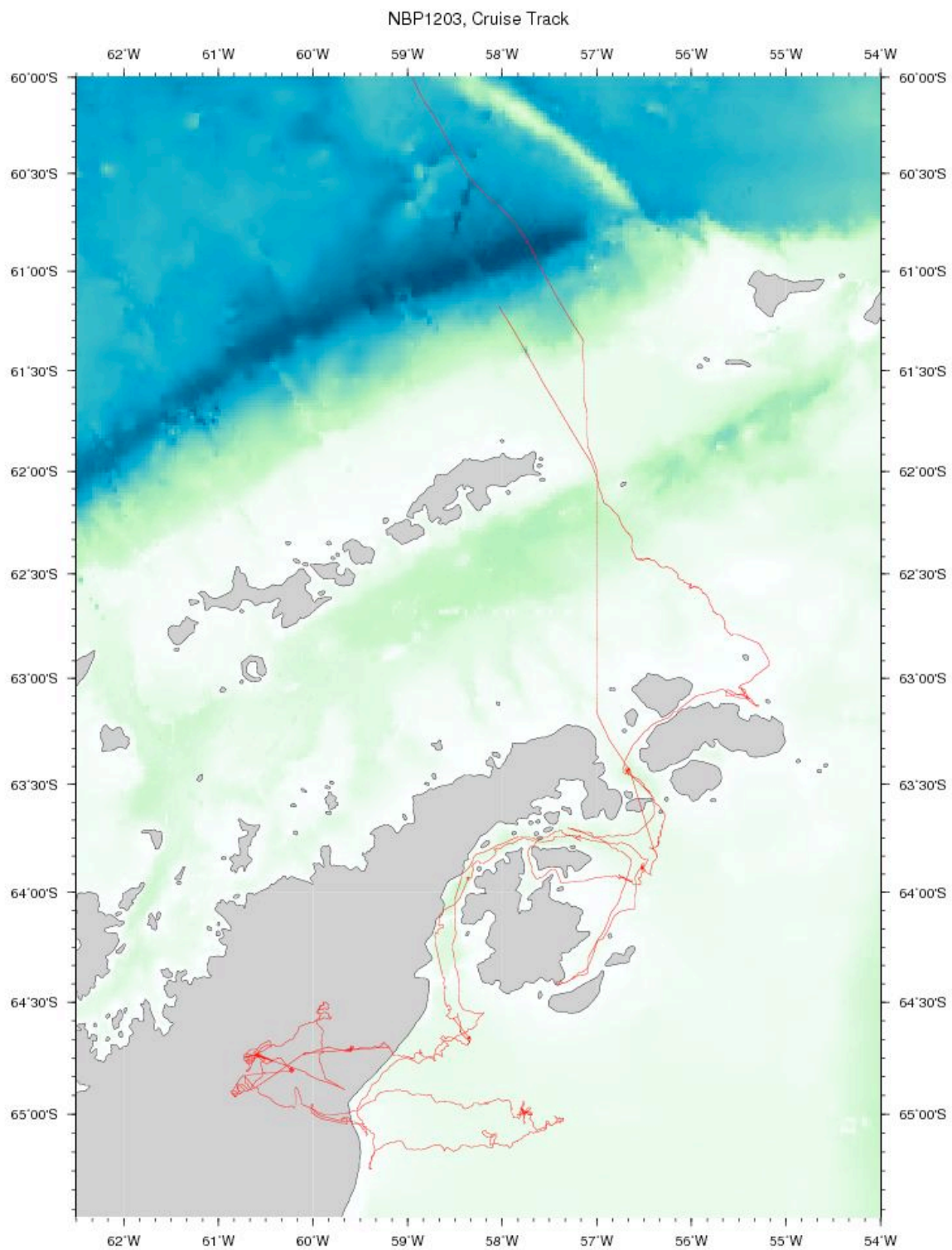
Prepared By Kathleen Gavahan
April 18, 2012
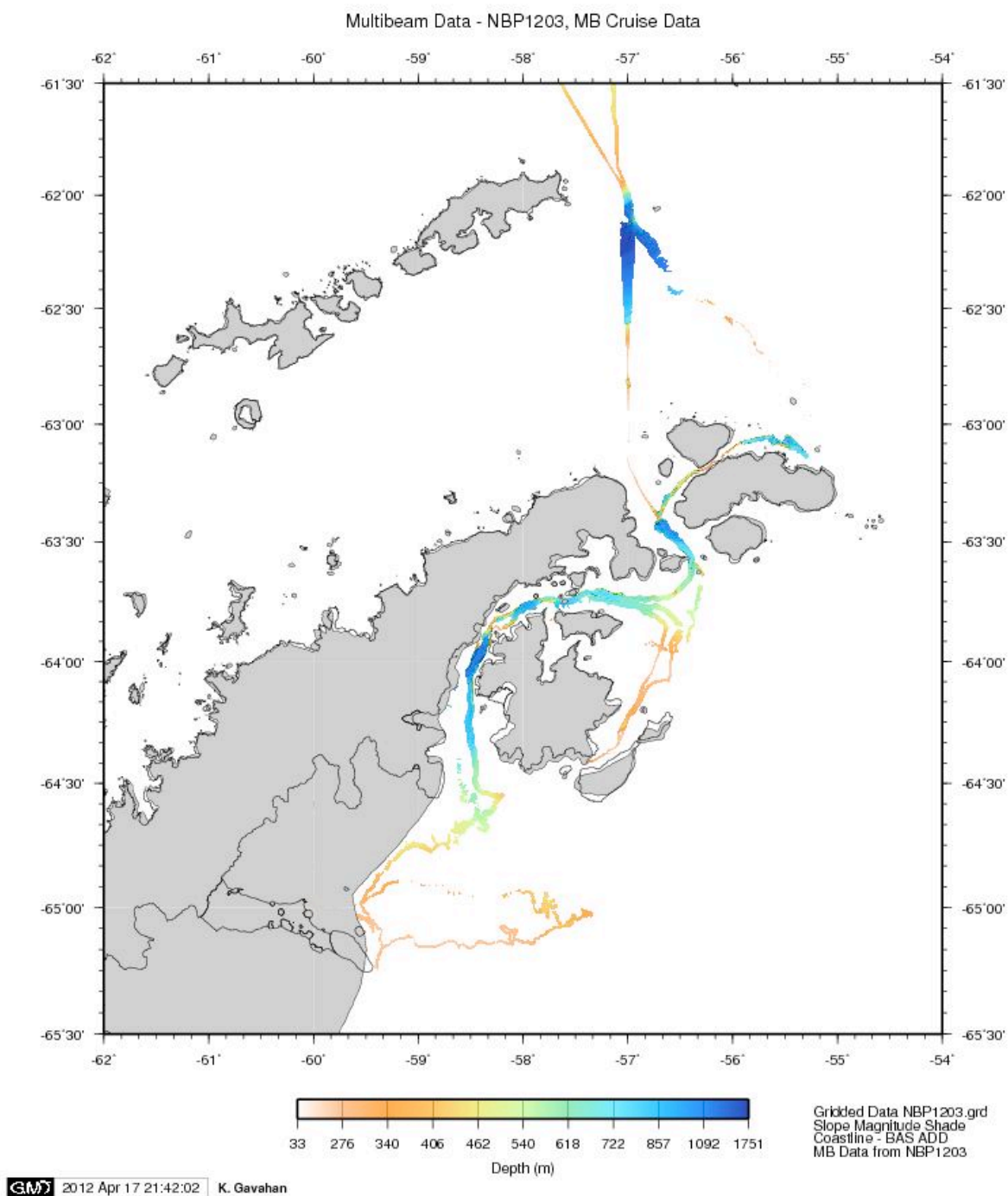
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NBP1203 Multibeam Description of Work

This report covers the Simrad EM120 Multibeam data collection and processing for the RVIB Nathaniel B. Palmer cruise NBP1203. This cruise started in Punta Arenas, Chile on March 11, 2012 and ended in Punta Arenas, Chile on April 19, 2012. The Chief Scientist was Maria Vernet and co-chief scientist was Bruce Huber. The principal investigators were Amy Leventer, Julia Wellner, Craig Smith, Scott Ishman, Eugene Domack, Stefanie Brachfeld, Cindy VanDover and Mike McCormick. Dr. Julia Wellner directed multibeam data acquisition. Caroline Lavoie and Kathleen Gavahan (RPSC/ASC) were responsible for Multibeam data acquisition, processing, editing and editing quality control.

The first day of Multibeam data collection was March 13 and the last day was April 17, 2012. Data quality was poor to good depending on the sea ice coverage and sea state.   4105 km of data were collected which consisted of 933801 pings.

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-System software package or Caris HIPS Version 7.1 © may be used to access the files if additional work is to be done with the 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 data storage and the Caris Software processing machine.

All data files were edited while at sea using the Caris HIPS processing system (Version 7.1). Caroline Lavoie and Kathleen Gavahan edited and supervised other science party members editing the bad data points outside the valid depth range for each hour of data. When the data were judged acceptable, the data was exported from Caris as XYZ (longitude, latitude, depth) files. These files were used to create grids containing the new multibeam data, pre-existing released NBP multibeam data and British Antarctic Survey data .   The edited files are named NBP1203_NBP_EM_120_2012-DDD_xxxx_yyyymmdd_hhmmssp_raw.txt where DDD is the julian day of the year, 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.

At the end of the cruise, the data was copied to a portable hard drive or DVD, or the UNIX tar command was used to write the digital data to DDS tapes. The different media were checked for quality before distribution. The distributions contain the raw and edited data for the entire cruise. The processing scripts and gridded data for each survey are included in the maps directory. The contents of these distributions 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 or XTBs, 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 profiles and plots are in the svp directory in this multibeam data distribution.

NBP1203 Data Distribution

Multibeam data has been provided on DDS 4mm tapes, DVDs or portable hard drives to the science party and ASC. Below is a data distribution list. The distribution also includes a printed copy of this data report.

The tapes were created on Linux computers using the command tar cvf /dev/st0 and verified to be sound before they were distributed. The portable hard drives and USB memory sticks are format FAT32.

The contents of the different distribution are described below. It might not be accurate as things are changing at press time.

Domack (Portable Hard Drive)
1. Raw multibeam files
2. Complete ArcView project
3. Caris H… data files for NBP1203, NBP0003, NBP0603_RAW, NBP0107_RAW, NBP1001, JR071 (BAS), and the NBP EM120 Vessel Configuration file
4. Caris exported XYZ files
5. Grids created for ArcView
6. Maps created in ArcView
7. SVP
8. Maps directory containing MBsystem/GMT scripts for creating grids and working maps
9. Copy of this report

Wellner (Portable Hard Drive)
1. Raw multibeam files
2. Complete ArcView project
3. Caris H… data files for NBP1203, NBP0201, NBP0502, NBP0602A, NBP0703, NBP1001, JR071 (BAS), and the NBP EM120 Vessel Configuration file
4. Caris exported XYZ files
5. Grids created for ArcView
6. Maps created in ArcView
7. SVP
8. Maps directory containing MBsystem/GMT scripts for creating grids and working maps
Copy of this report

NBP, ASC office (DDS-4 DAT tape)
1. Raw multibeam files
2. Complete ArcView project
3. Caris HDCS data files for NBP120 and the NBP EM120 Vessel Configuration file
4. Caris exported XYZ files

5. Grids created for ArcView
6. Maps created in ArcView
7. SVP
8. Maps directory containing MBsystem/GMT scripts for creating grids and working maps
9. Copy of this report

MGDS (DDS-4 DAT tape)
1. Raw multibeam files
2. Caris exported XYZ files for NBP1203
3. SVP
4. Maps directory containing MBsystem/GMT scripts for creating grids and working maps
5. Copy of this report

Yu (Koreans) (Portable hard drive)
1. Raw multibeam files
2. Caris HDCS data files for NBP1203, NBP1001and the NBP EM120 Vessel Configuration file
3. Caris exported XYZ files
4. Grids created for ArcView
5. Maps created in ArcView
6. Maps directory containing MBsystem/GMT scripts for creating grids and working maps
7. Copy of this report

Vernet (USB memory stick)
1. Caris exported XYZ files
2. Grids created for ArcView
3. Maps created in ArcView

Huber (Portable hard drive)
1. Raw multibeam files
2. Caris exported XYZ files
3. Grids created for ArcView
4. Maps created in ArcView
5. Maps directory containing MBsystem/GMT scripts for creating grids and working maps

All others (RVDAS distribution DVD)
1. Maps created in ArcView

A copy of the Multibeam backup 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

Credits

Data used to generate the grids and maps comes from the following NBP cruises and the British Antarctic Survey (BAS) cruise JR071. If using any of this data in publications, please credit the following.

USAP NBP cruises:

NBP0003
NBP0603
NBP0107
NBP0201
NBP0502
NBP0602A
NBP0703
NBP1001
NBP1201

BAS cruise:

JR071

Below is information from the BAS website to be used:

BAS Data Information and Terms of Use:

Cruise: JR071
Season: 2001/2002 Start date: 2002-02-09 End date: 2002-03-20
Location: West Adelaide continental shelf, Larsen Ice Shelf A/B/C, Weddell Sea
Title: Marine geology and geophysics
PI: C.J. Pudsey (BAS)/J. Dowdeswell (SPRI)

Terms of use

Under the Antarctic Treaty of 1961 (http://www.scar.org/treaty/) data collected south of 60ºS are to be made freely available to enable the global scientific community to gain a greater

understanding of the importance of Antarctica and its surrounding seas in the Earth System, through international co-operation.

In line with NERC policy, data will be made available to others (under suitable constraints, and at no more than the direct costs involved in supplying the data) for further bona fide research only. The Intellectual Property Rights to the data are not transferred. For commercial use of data it is NERC policy to charge at a rate which reflects the value of the data and the cost it has incurred in data acquisition, custody and retrieval.

By downloading or consulting data from this website, the visitor acknowledges that he/she agrees with the NERC data policy (http://www.nerc.ac.uk/research/sites/data/policy.asp), and agrees to the following:

I. If data are extracted from the BAS-GDP, the British Antarctic Survey should be cited, as appropriate:

For the BAS Website:
Deen, T.J. (Editor). [date accessed]. The British Antarctic Survey
Geophysics Data Portal. British Antarctic Survey, Cambridge, UK.
World Wide Web electronic publication. Available online at:
http://geoportal.nerc-bas.ac.uk/GDP

For Data used:
Author (cruise PI), initials. Database title. Retrieved [date accessed]
from: http://geoportal.nerc-bas.ac.uk/GDP
Edited by T.J. Deen: British Antarctic Survey, Cambridge, UK.

Where citing a paper is more appropriate, this will be made explicit on the download page.
Example(for data from a particular cruise):
Crew of James Clark Ross cruise JR141. 2005. Multibeam Swath bathymetry Data.
Cambridge, UK: British Antarctic Survey. Data set accessed 2009-01-01 at
http://geoportal.nerc-bas.ac.uk/GDP/

II. For information purposes, please provide to BAS(aedc@bas.ac.uk) the full citation of any publication (printed or electronic) that cites the GDP or any constituent part.

III. The user recognizes the limitations of data in the BAS-GDP. Your use ofthe data is at your own risk, and there is no warranty as to the quality oraccuracy of any data, or the fitness of the data for your intended use. The data are not necessarily fully quality assured and cannot be expected to be free from measurement uncertainty, systematic biases, or errors of interpretation or analysis, and may include inaccuracies in error margins quoted with the data.