

NBP1103

Multibeam

End of Cruise Report

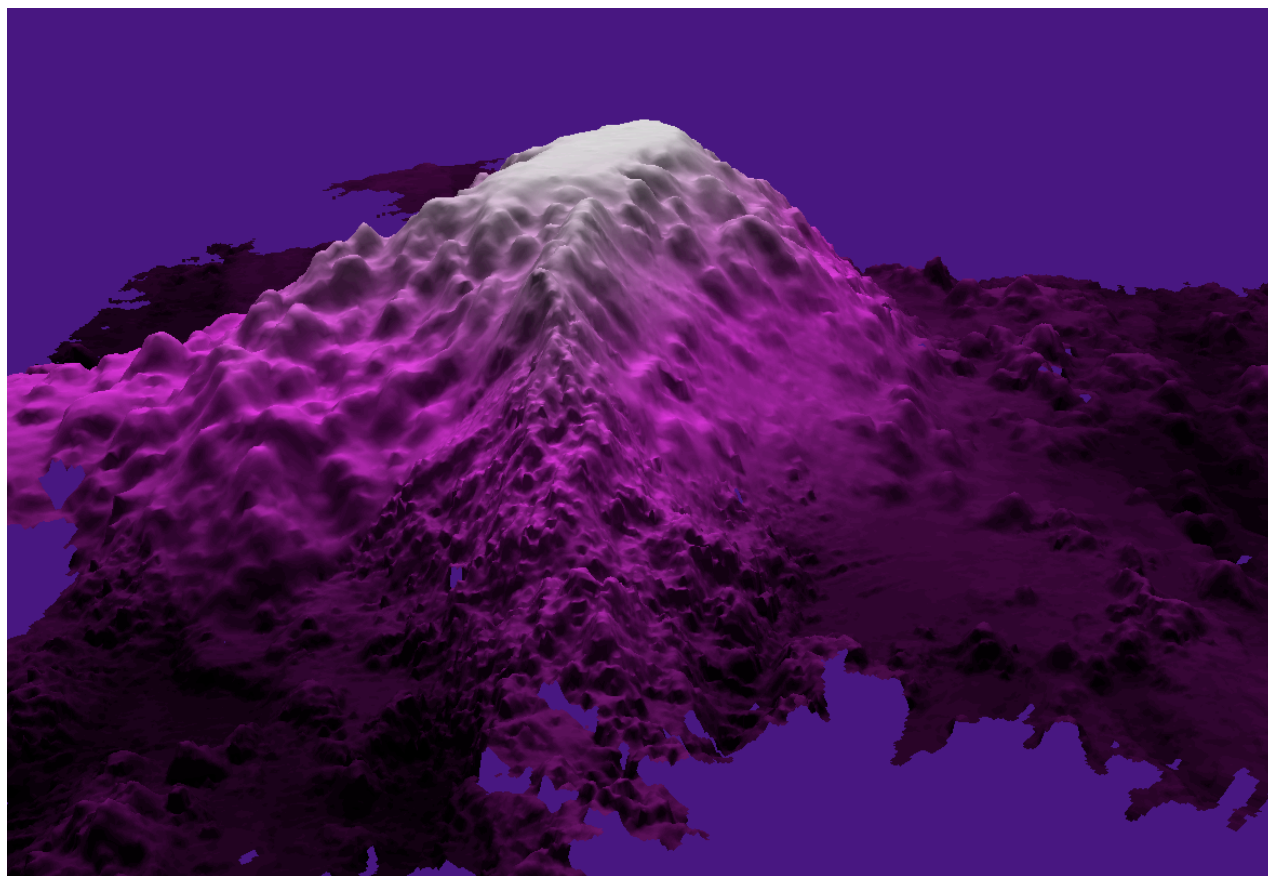


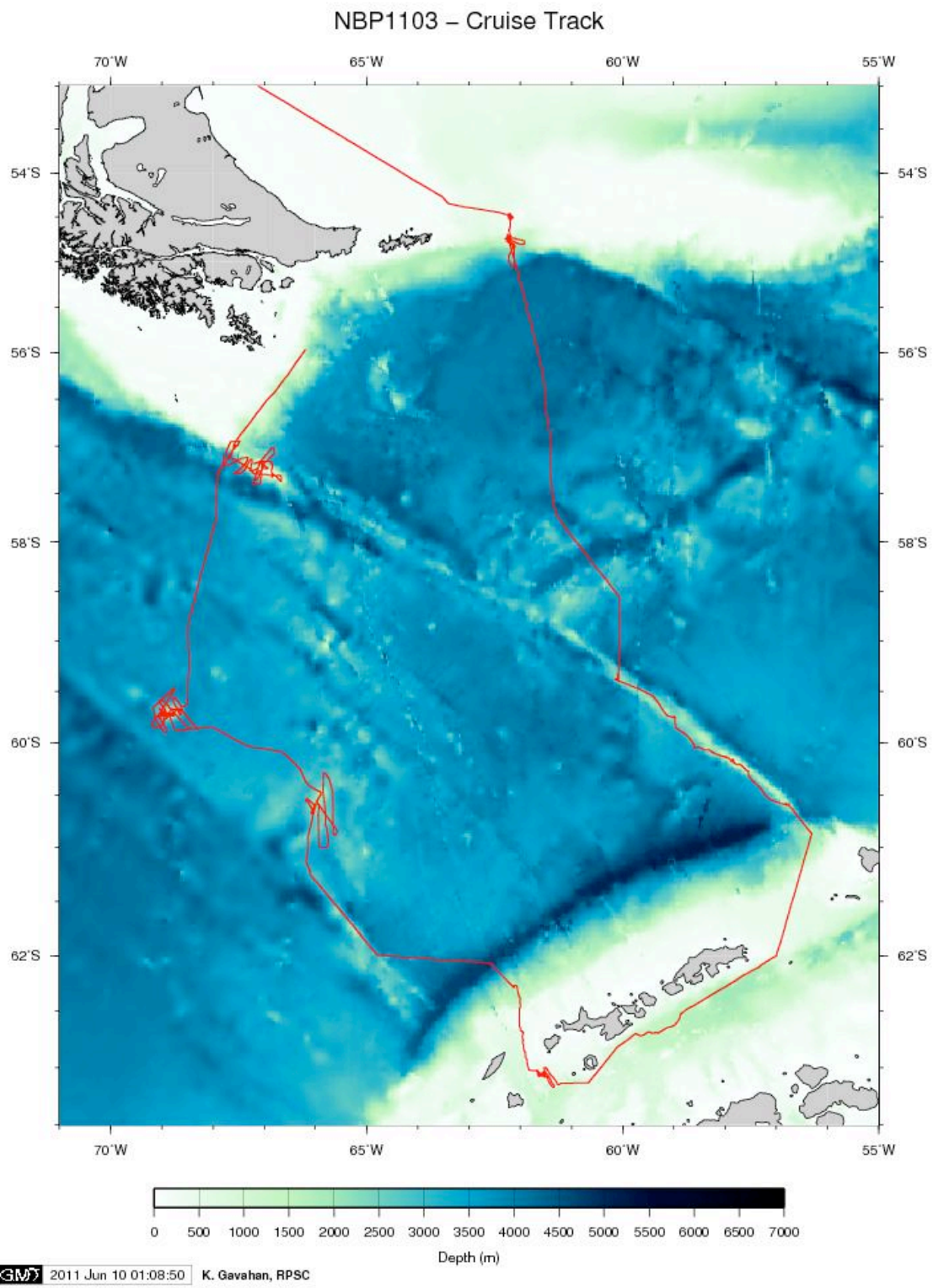
Image generated by Shannon Hoy using Caris HIPS7.0©

Prepared By Kathleen Gavahan
June 10, 2011

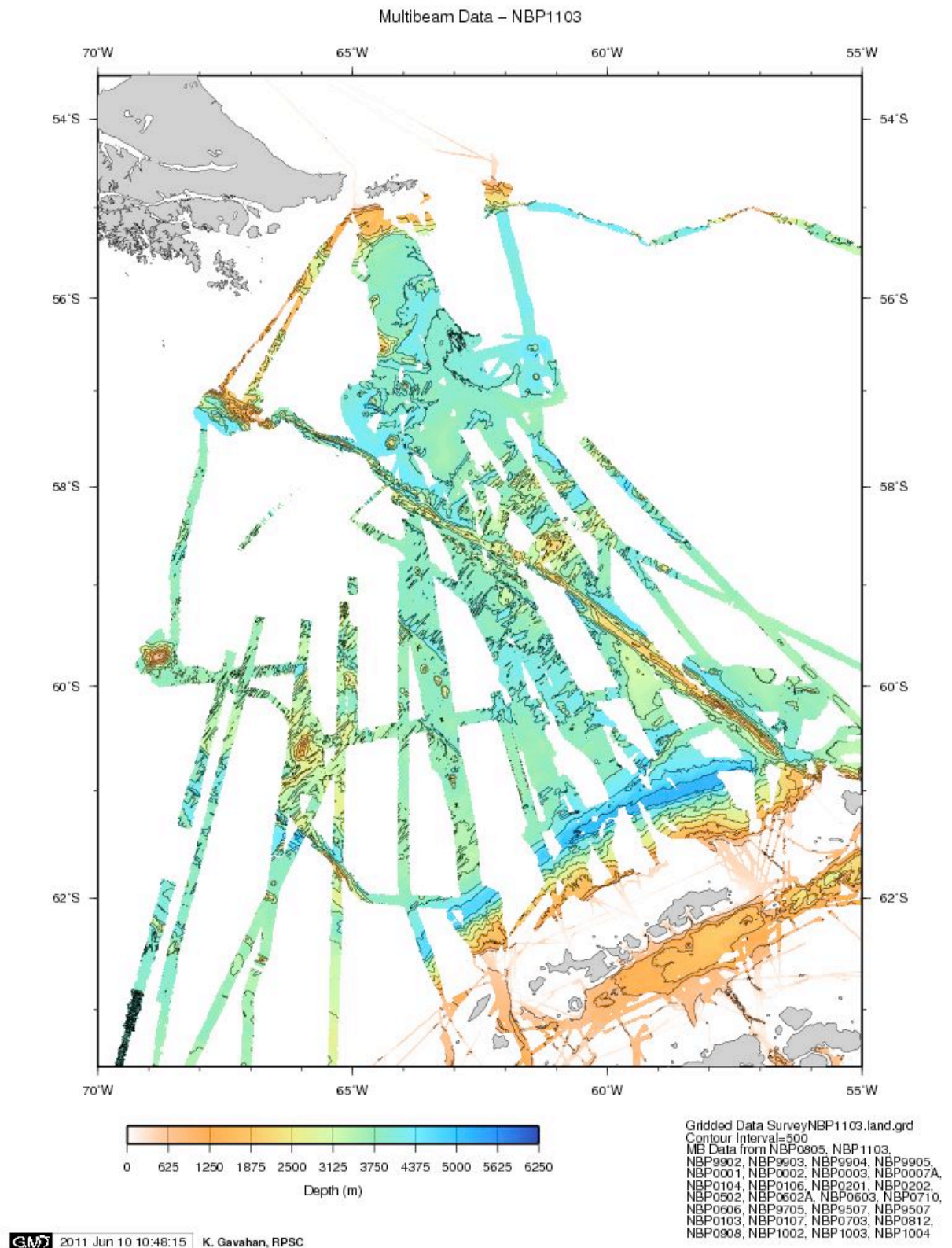
Contents

NBP1103	1
Contents	2
Cruise Track Plot	3
Multibeam Plots	4
NBP1103 Multibeam Description of Work	24
Speed of Sound Corrections	24
NBP1103 Data Distribution	25
Data Distribution Information:	26

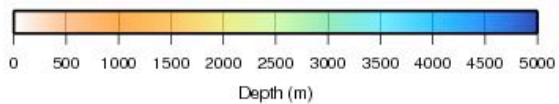
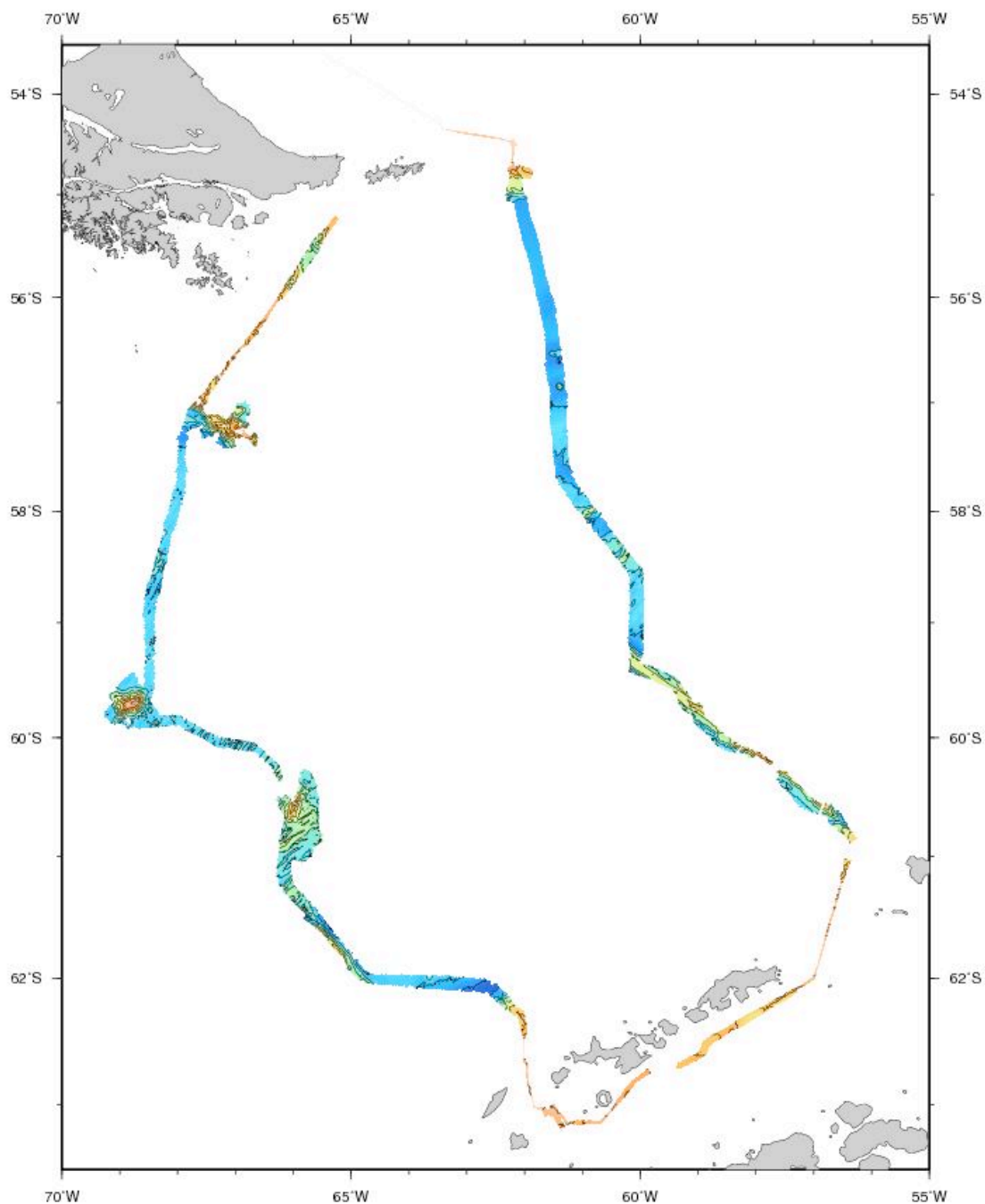
Cruise Track Plot



Multibeam Plots

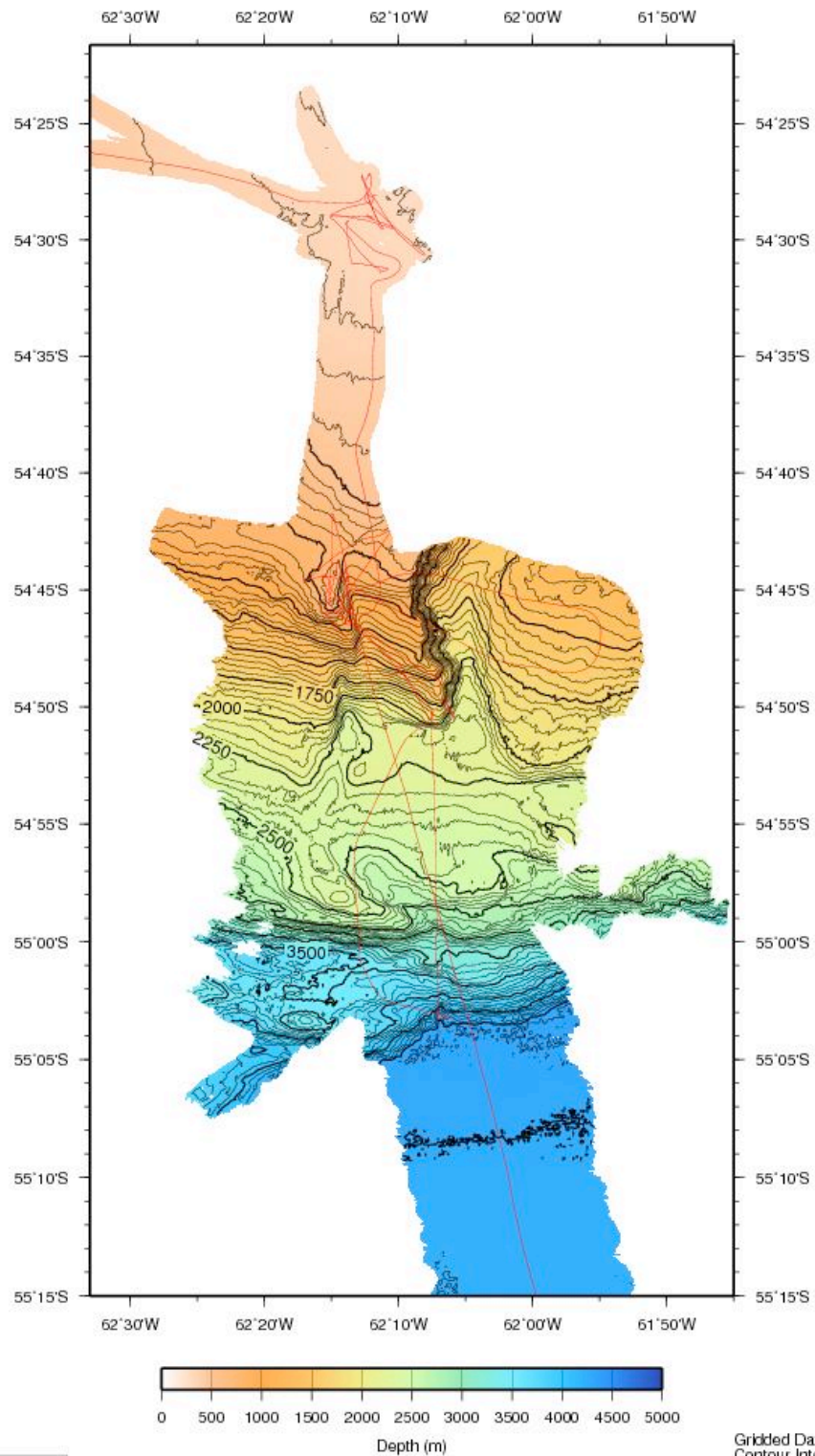


Multibeam Data – NBP1103



Gridded Data SurveyNBP1103only.land.grd
 Contour Interval=500
 MB Data from NBP1103,

Multibeam Data – NBP1103, Burdwood Bank



2011 May 16 20:06:05 K. Gavahan, RPSC

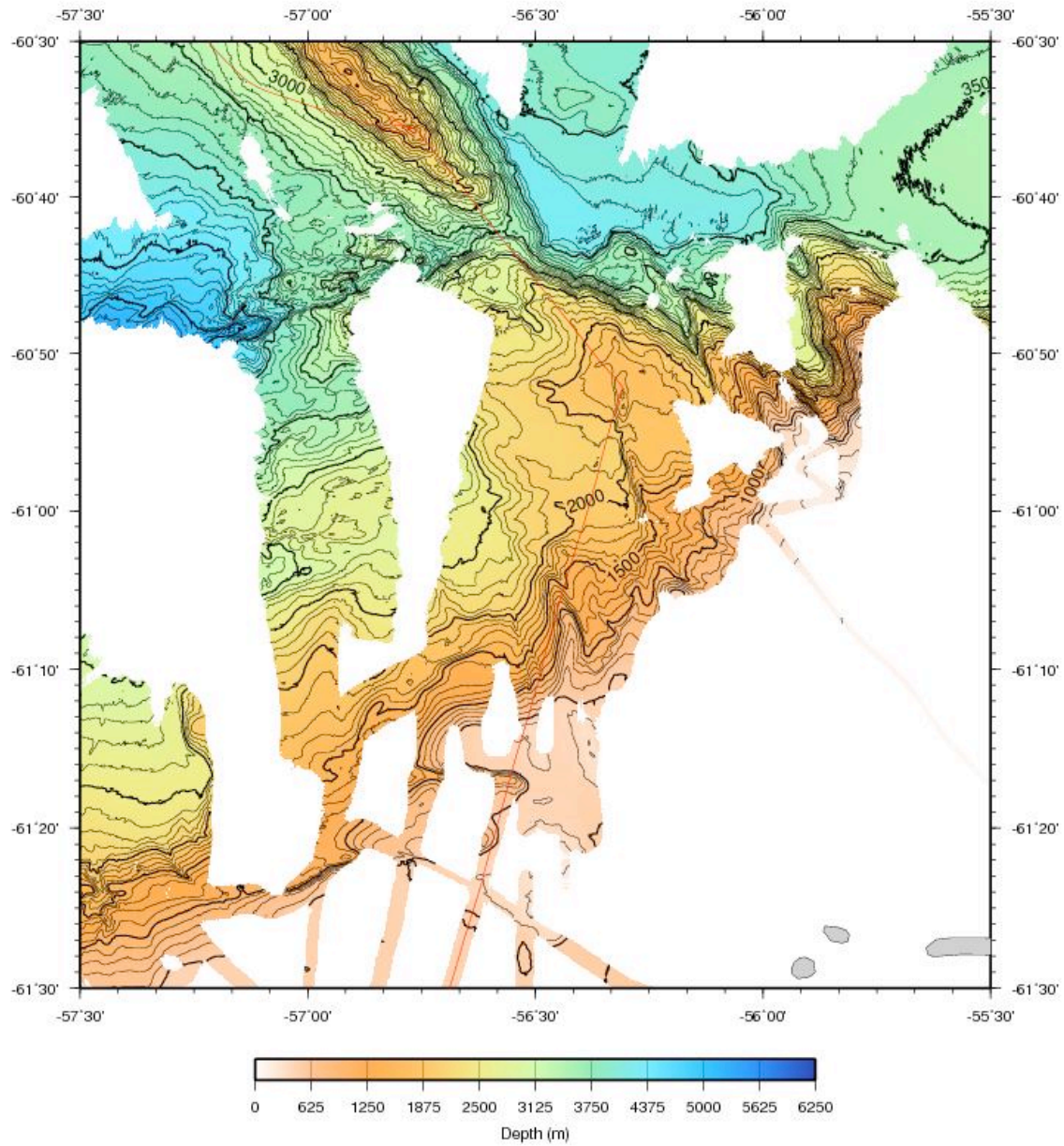
Gridded Data Burdwood.land.grd
Contour Interval=50
MB Data from NBP0805, NBP1103

Gridded Data_SFZregion_land.grd
Contour Interval=200
MB Data from NBP0805, NBP1103,
NBP9507, NBP9604, NBP9905,
NBP0002, NBP0003, NBP0007A,
NBP0201, NBP0502, NBP0602A,
NBP0603, NBP0606, NBP0703,
NBP0908, NBP1003

Depth (m)

GM 2011 May 22 23:28:28 K. Gavahan, RPSC

Multibeam Data - NBP1103, Elephant Island Area

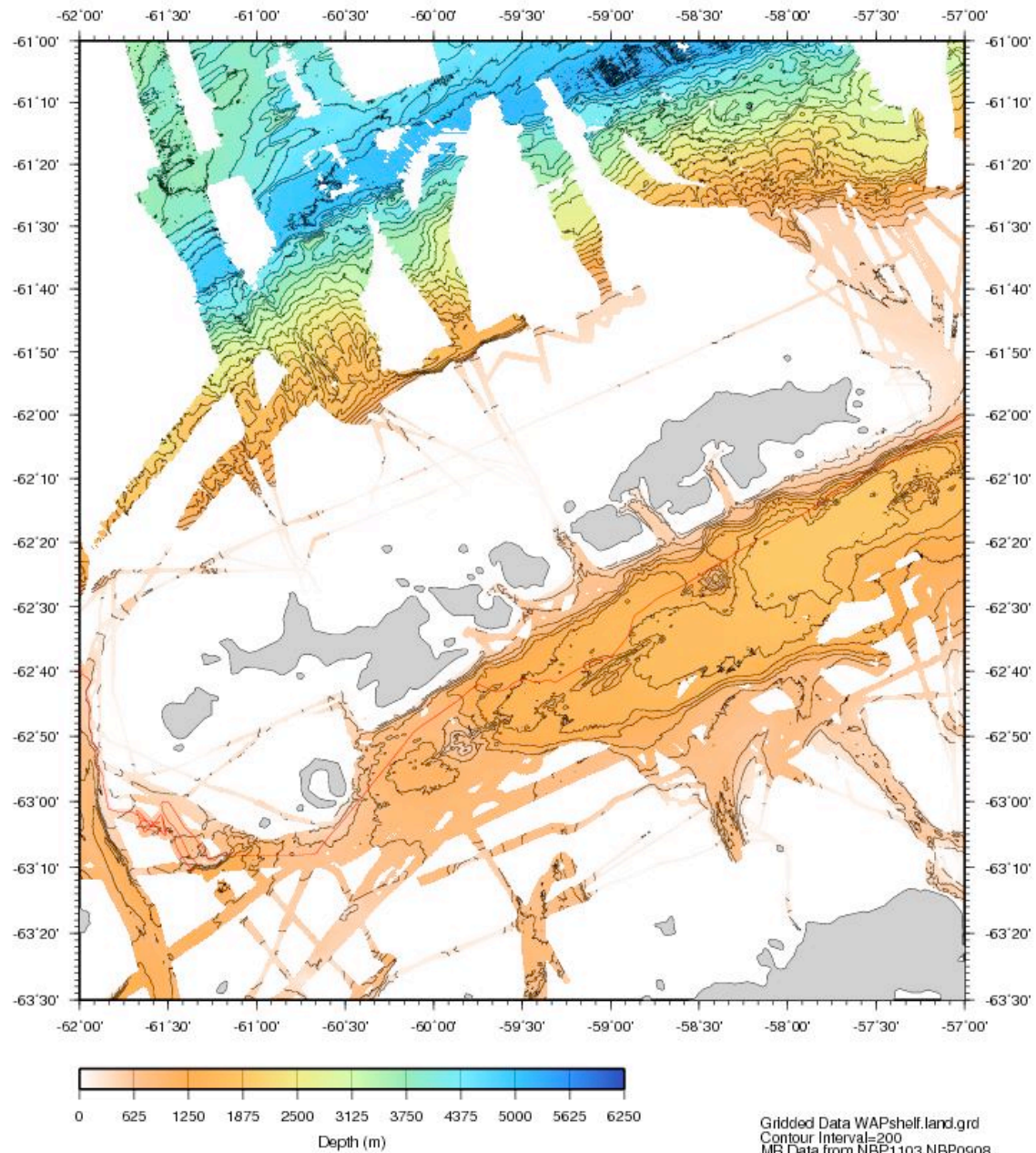


Gridded Data EIArea.land.grd
 Contour Interval=100
 MB Data from NBP0805, NBP1103,
 - NBP9507, NBP9905, NBP0002,
 - NBP0003, NBP0007A, NBP0502A,
 - NBP0606, NBP0603, NBP0703,

Gridded Data WAPOverview.land.grd
Contour Interval=200m
MIB Data from NBP1103 NBP0508,
- NBP9507, NBP9902, NBP9903,
- NBP9904, NBP9905, NBP0002,
- NBP0003, NBP0007A, NBP0602A,
- NBP0603, NBP0606, NBP0703,
- NBP0106, NBP0107, NBP0201,
- NBP0502, NBP0710, NBP0812,
- NBP1001, NBP1003, NBP1004,
- NBP0805

2011 May 31 16:12:36 K. Gavahan, RPSC

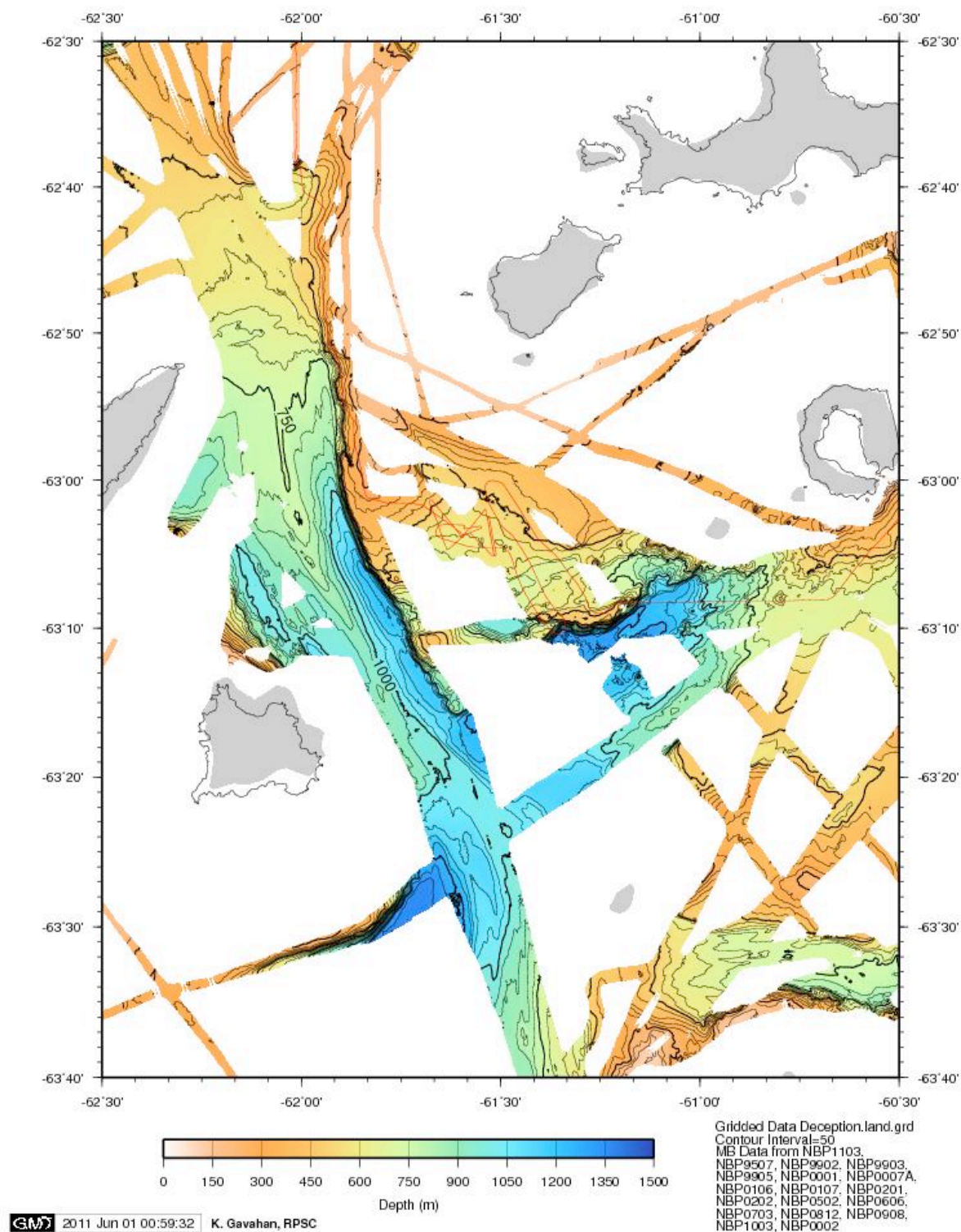
Multibeam Data - NBP1103, WAP Shelf



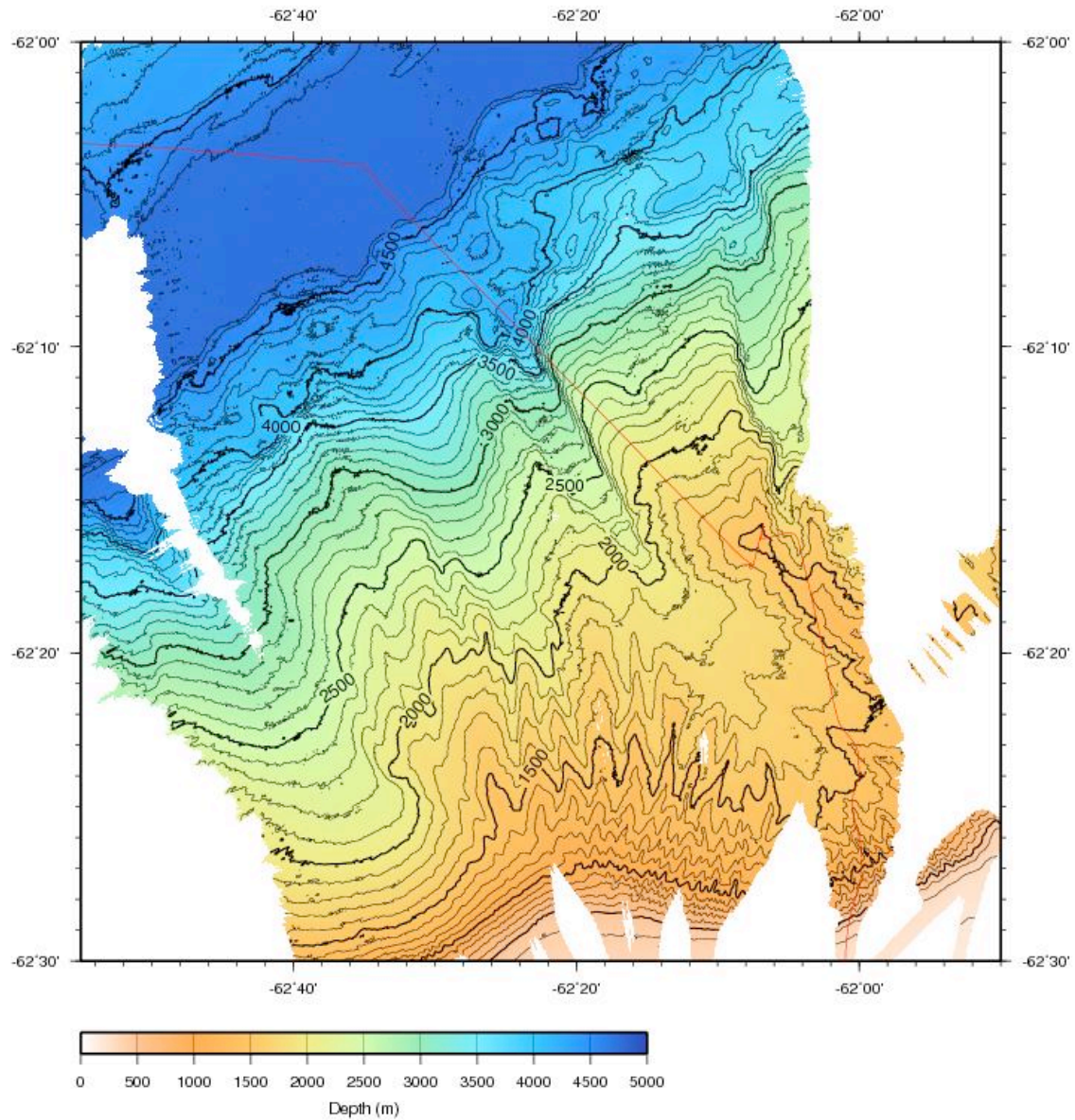
Gridded Data WAPshelf.land.grd
 Contour Interval=200
 MB Data from NBP1103,NBP0908,
 NBP9507, NBP9905, NBP0002,
 NBP0003, NBP0007A, NBP0602A,
 NBP0606, NBP0603, NBP0703,
 NBP9902, NBP9903, NBP9904,
 NBP0106, NBP0107, NBP0201,
 NBP0502, NBP0710, NBP0812,
 NBP0202, NBP1003, NBP1004

GM 2011 May 31 15:16:42 K. Gavahan, RPSC

Multibeam Data - NBP1103, Deception Area



Multibeam Data - NBP1103, WAP Slope



Gridded Data WAPslope.land.grd
 Contour Interval=100
 MB Data from NBP1103,
 NBP9902, NBP9903, NBP9905,
 NBP0007A, NBP0201, NBP0202,
 NBP0606


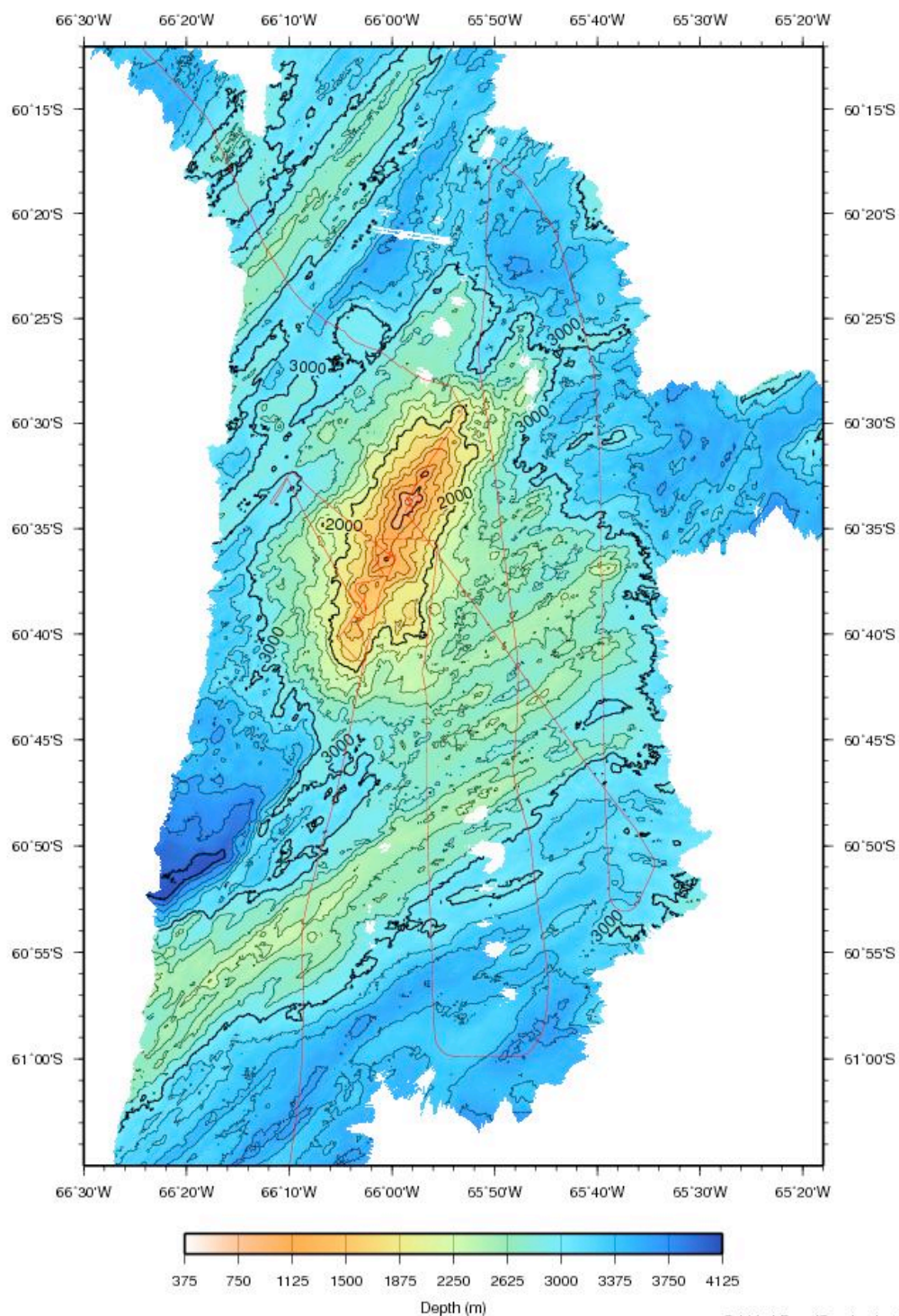
 2011 May 31 19:06:14 K. Gavahan, RPSC

Figure 1 is a bathymetric map of the study area in the South Atlantic Ocean. The map displays depth contours in meters, with colors ranging from light blue (shallow) to dark blue (deep). A red line indicates the cruise track, which starts near 61°40'W, 63°05'S and moves generally eastward and southward. The map is bounded by 61°00'W to 61°40'W and 63°00'S to 63°10'S. The bathymetry shows a deep-sea environment with various seafloor features, including a prominent ridge or seamount near 61°30'W, 63°05'S.

Gridded Data AAsite.land.grd
Contour Interval=50
MB Data from NBP0805, NBP9903,
NBP1103, NBP9902, NBP9905,
NBP0007A, NBP0106, NBP0201,
NBP0202, NBP0606, NBP0812

2011 Jun 01 01:47:50 K. Gavahan, RPSC

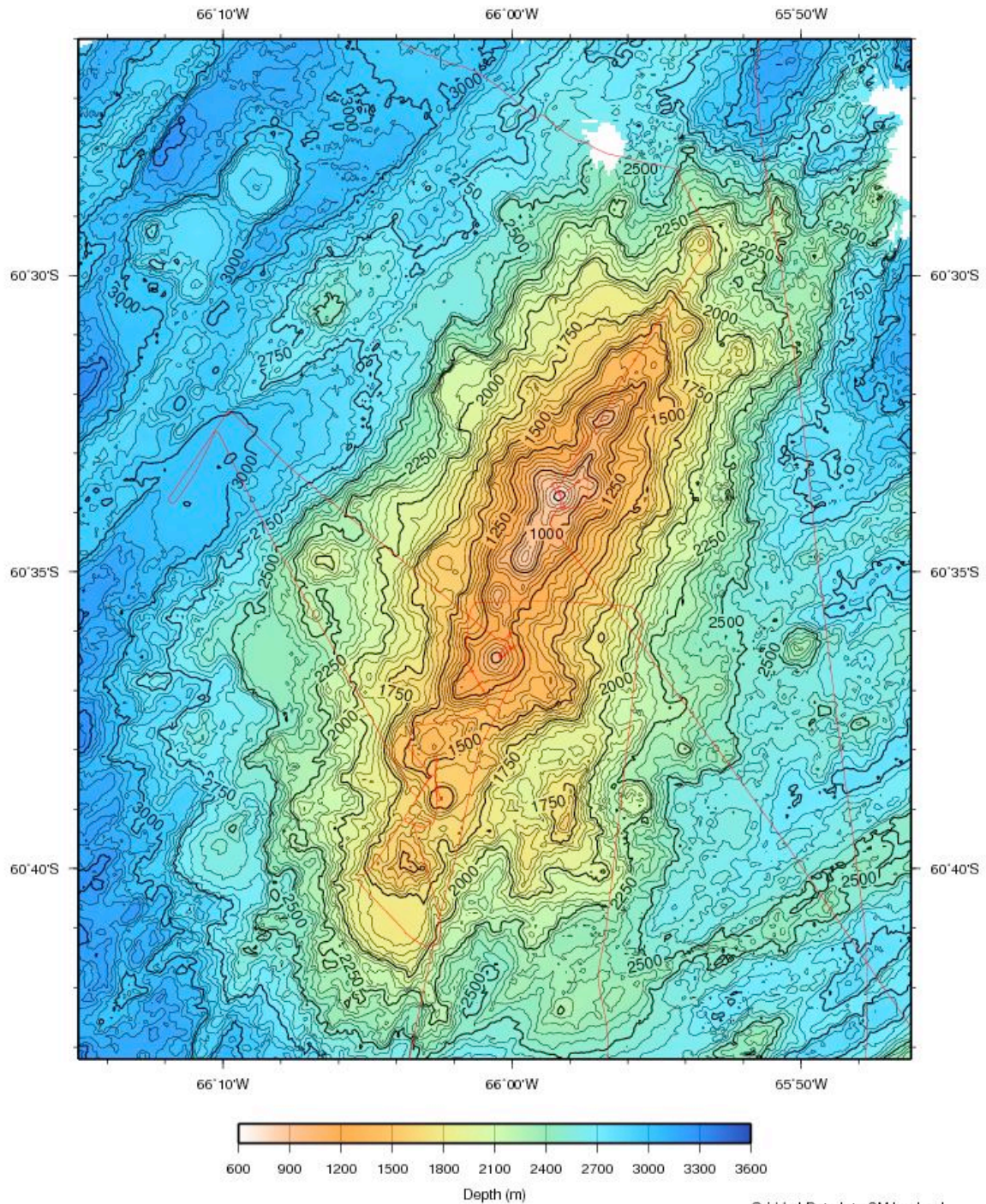
Multibeam Data – NBP1103, Interim Seamount Region



2011 Jun 01 20:56:01 K. Gavahan, RPSC

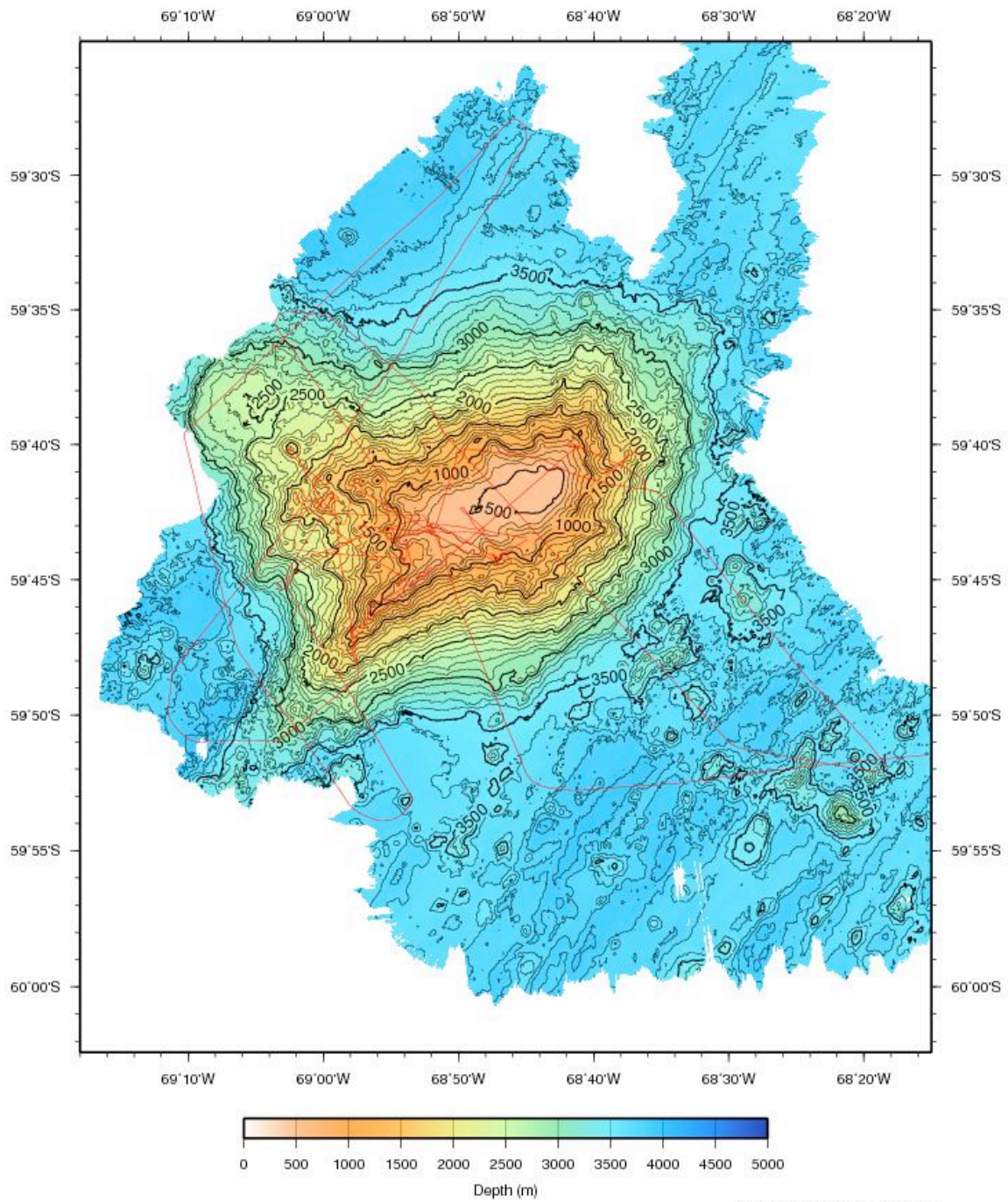
Gridded Data ISregion.land.grd
Contour Interval=200
MB Data from NBP0805, NBP9903,
– NBP1103

Multibeam Data – NBP1103, Interim Seamount



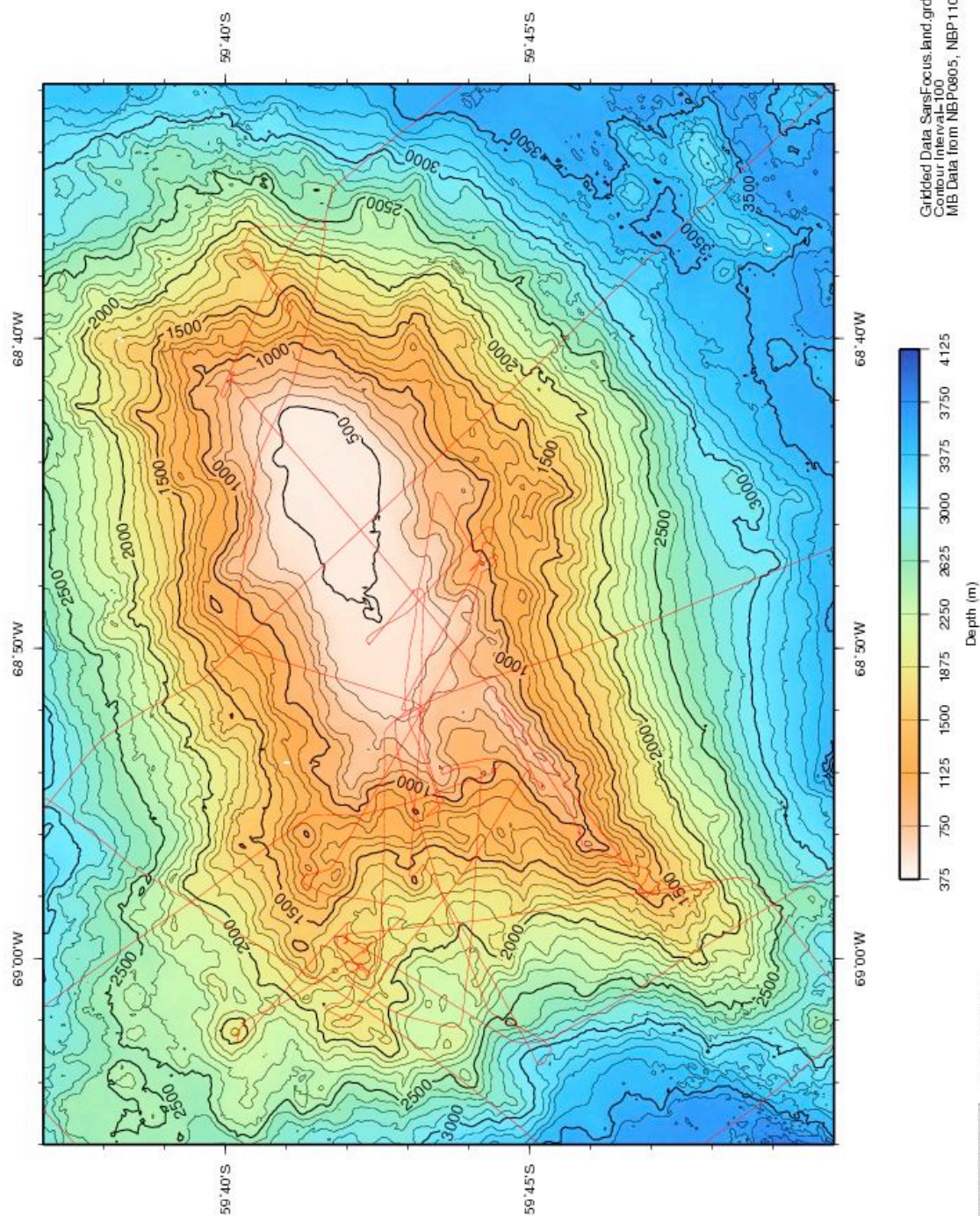
2011 Jun 01 21:54:58 K. Gavahan, RPSC

Multibeam Data – NBP1103, Sars Seamount



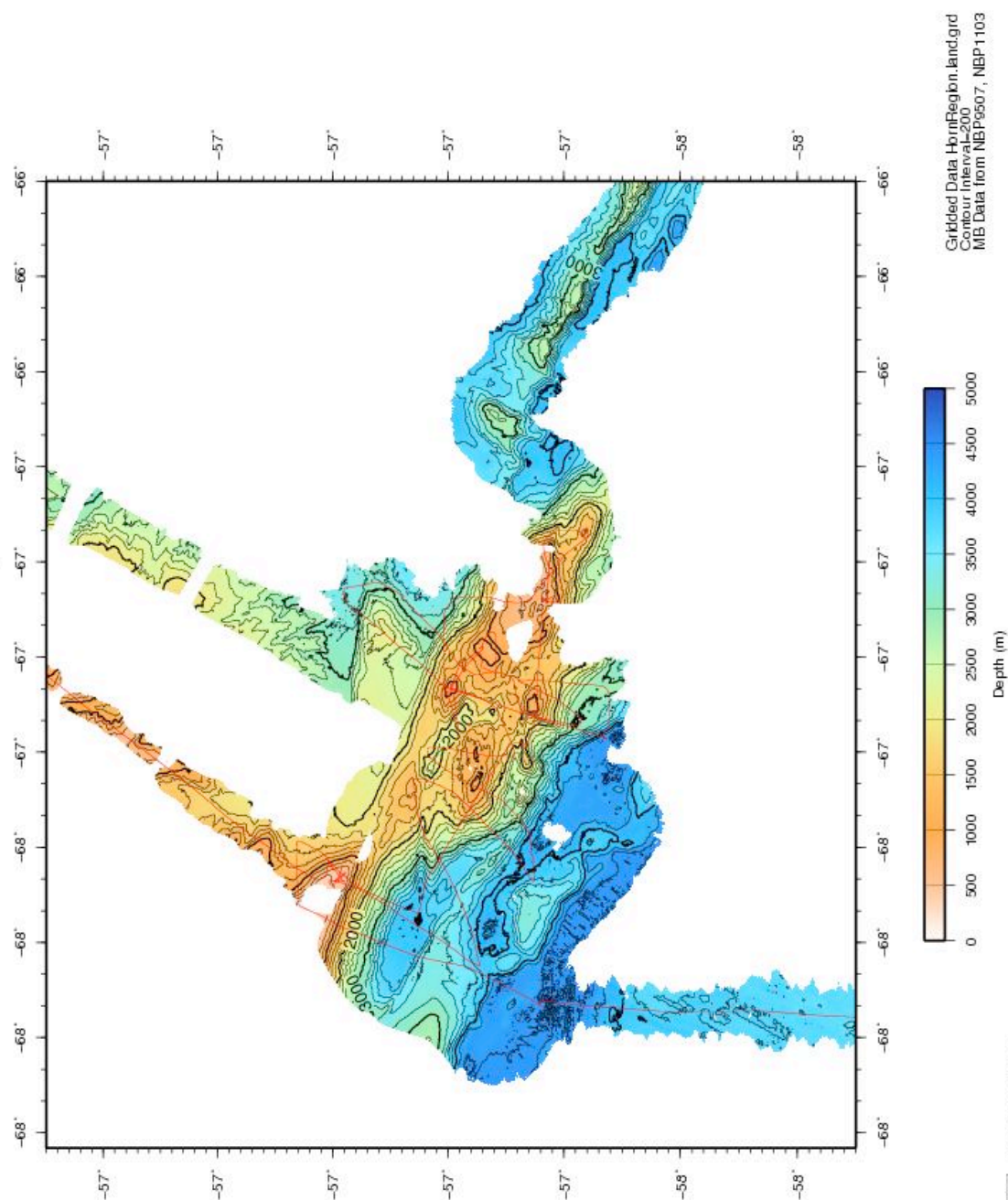
Gridded Data SarsSM.land.grd
 Contour Interval=100
 MB Data from NBP0805, NBP1103

Multibeam Data – NBP1103, Sars Seamount (Focus)



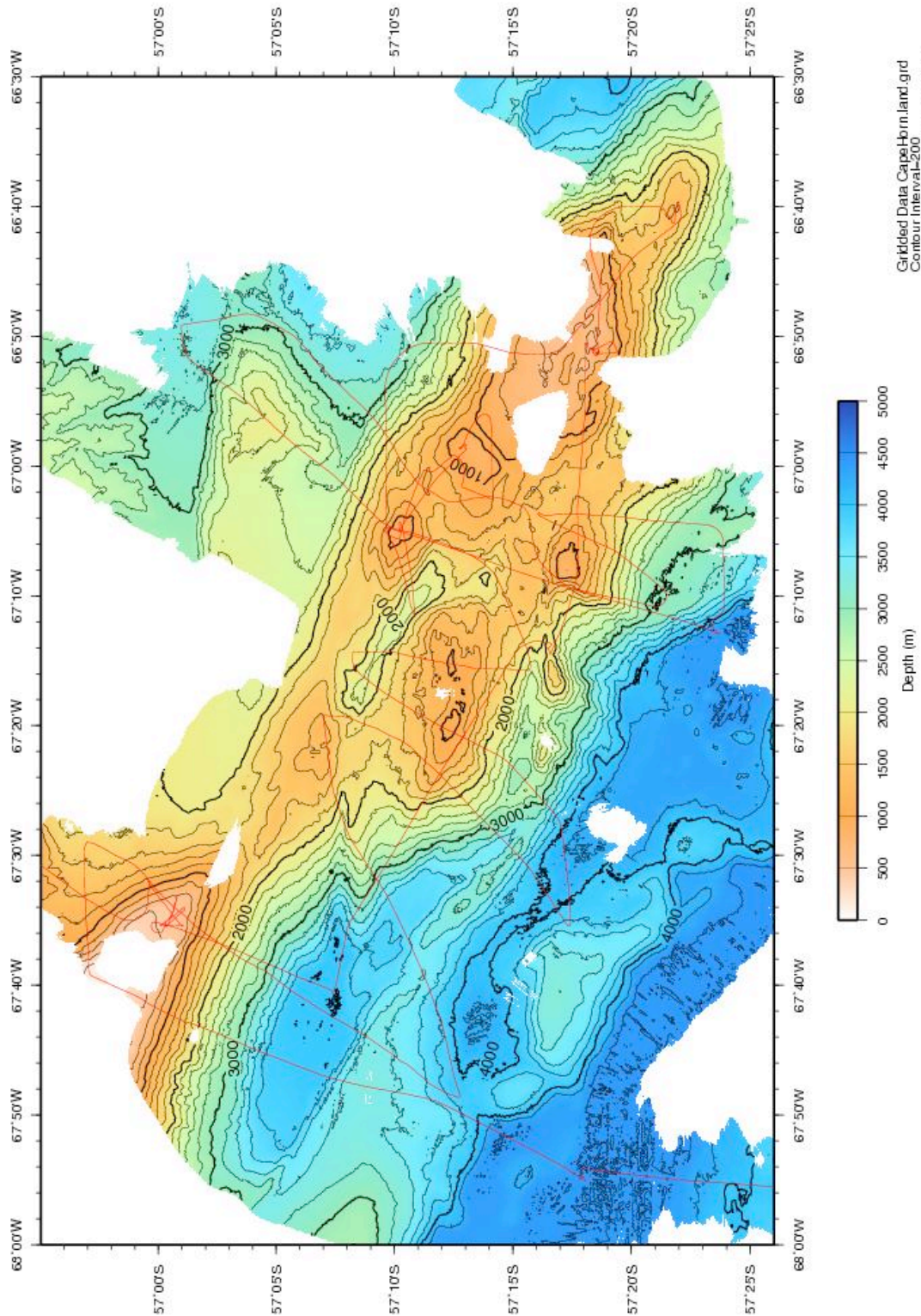
2011 Jun 04 22:57:28 K. Gavahan, RPSC

Multibeam Data – NBP1103, Cape Horn Region

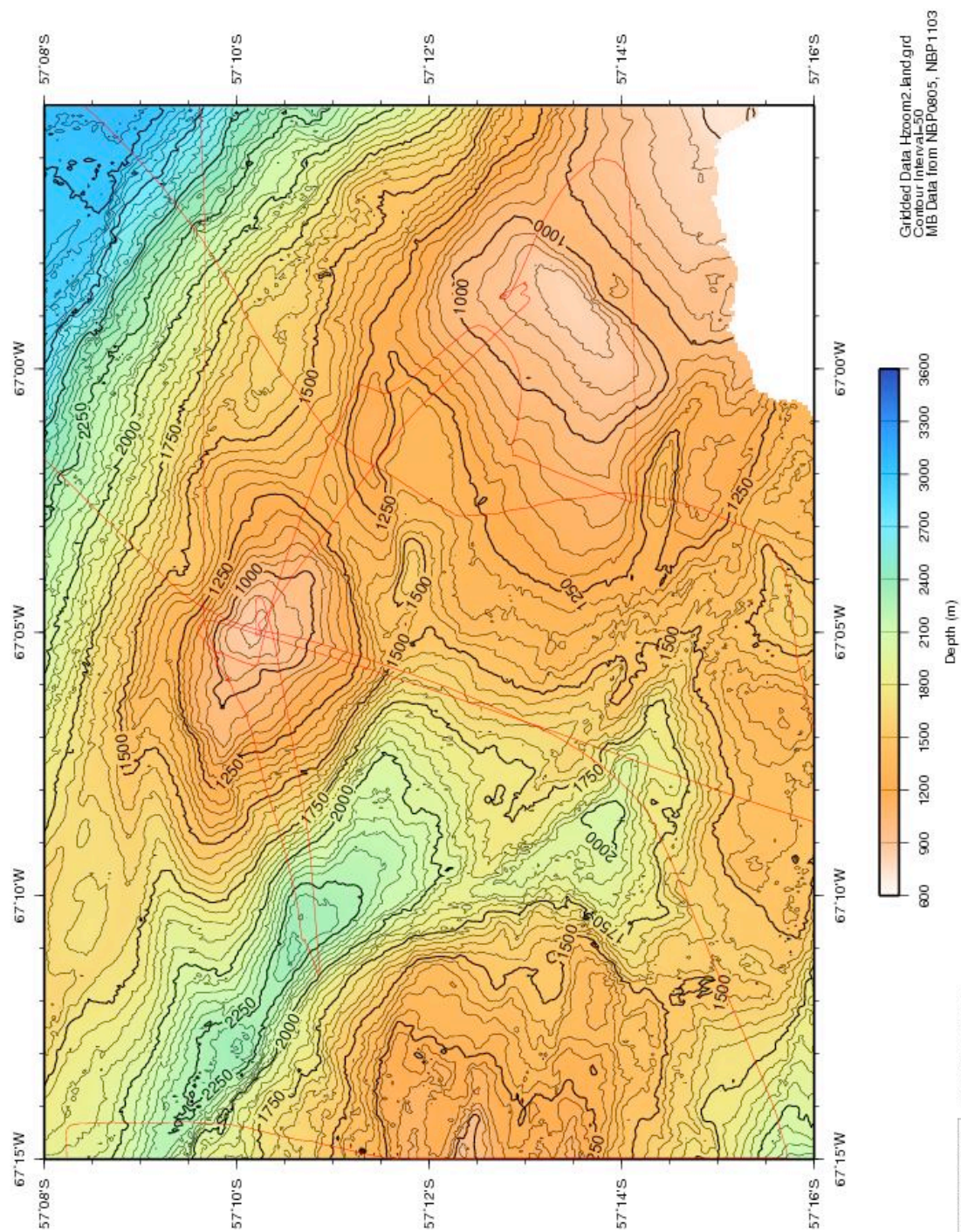


2011 Jun 10 00:42:48 K. Gavahan, RPSC

Multibeam Data – NBP1103, Cape Horn

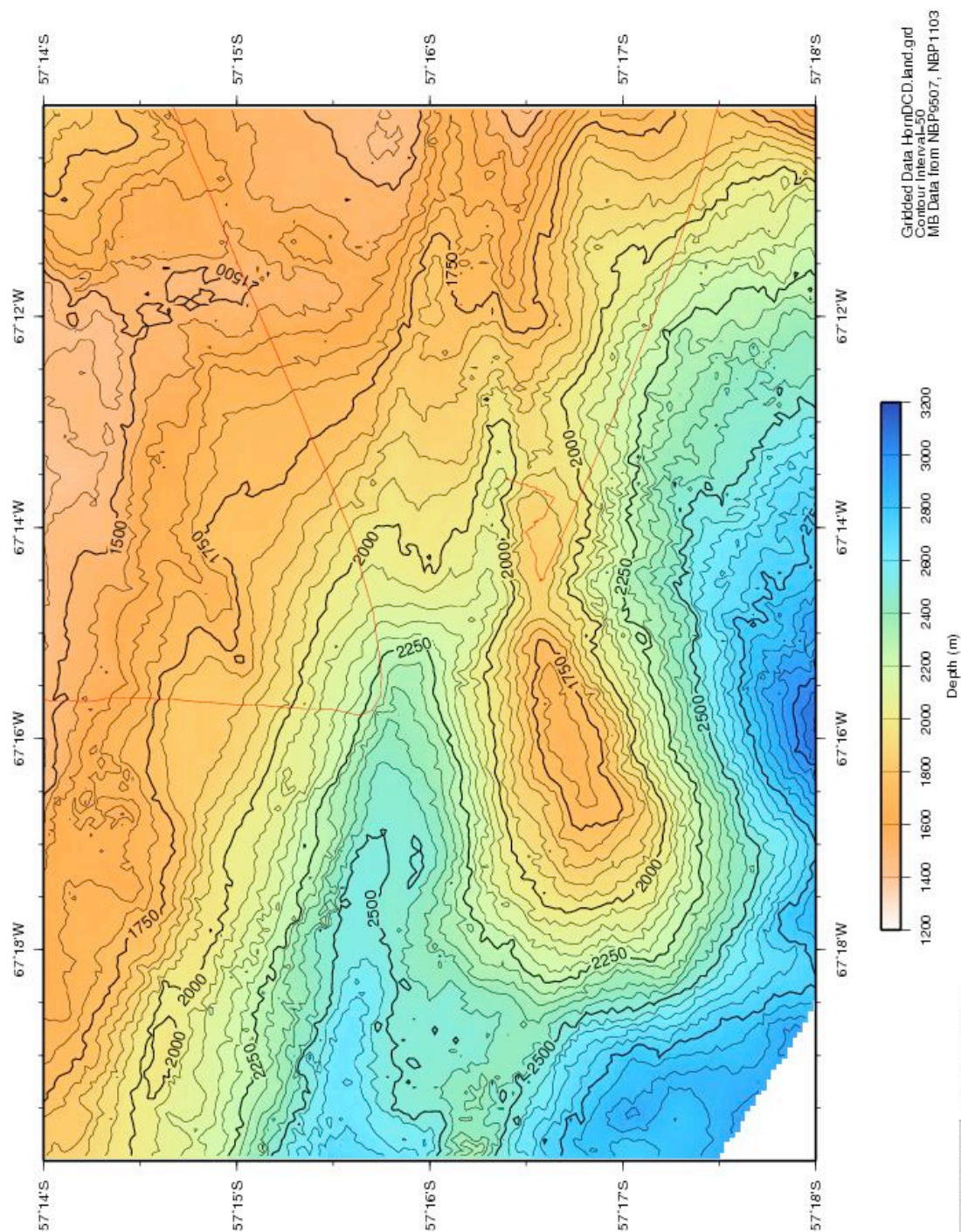


Multibeam Data – NBP1103, Cape Horn Zoom 2



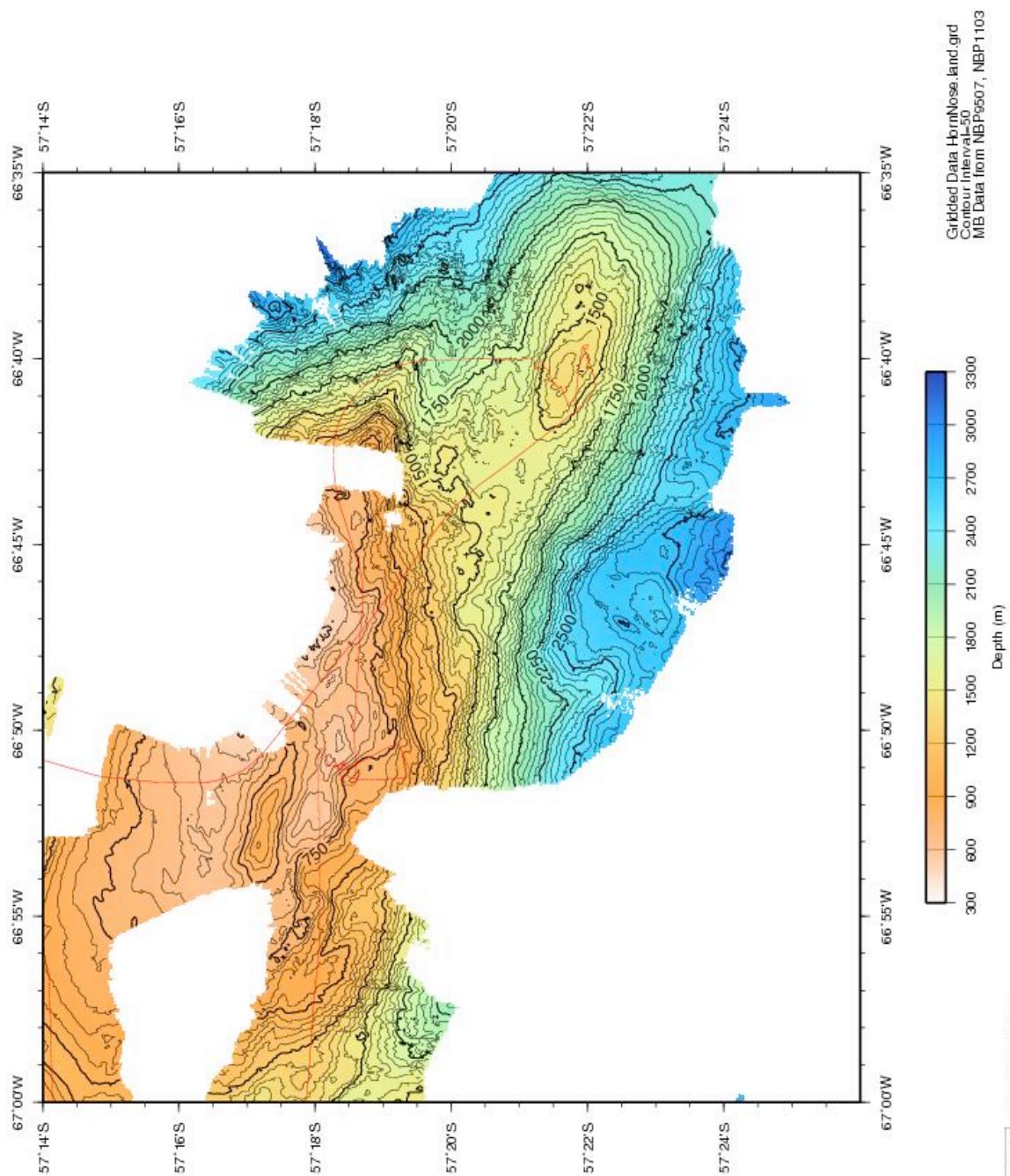
2011 Jun 09 18:27:39 K. Gavahan, RPSC

Multibeam Data – NBP1103, Cape Horn DCD Site



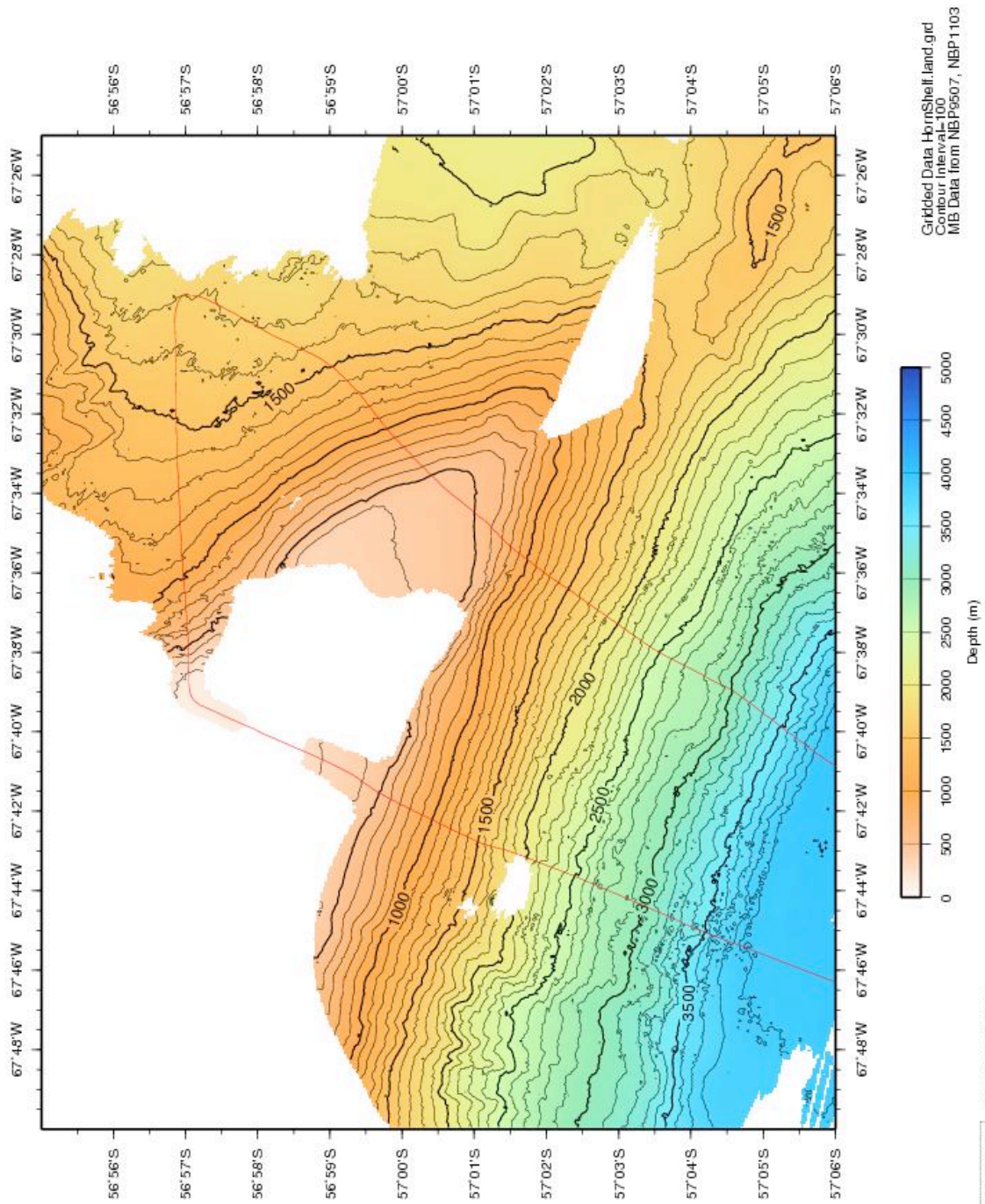
2011 Jun 09 19:15:34 K. Gavahan, RPSC

Multibeam Data – NBP1103, Cape Horn Nose



2011 Jun 09 17:29:36 K. Gavahan, RPSC

Multibeam Data – NBP1103, Cape Horn Shelf



2011 Jun 09 20:37:57 K. Gavahan, RPSC

NBP1103 Multibeam Description of Work

This report covers the Simrad EM120 Multibeam data collection and processing for the RVIB Nathaniel B. Palmer cruise NBP1103. This cruise started in Punta Arenas, Chile on May 9, 2011 and ended in Punta Arenas, Chile on June 11, 2011. The Chief Scientist was Dr. Laura Robinson (WHOI). The principal investigators were, Dr. Laura Robinson and Dr. Rhian Waller. Shannon Hoy (College of Charleston) and Kathleen Gavahan (RPSC) were responsible for Multibeam data acquisition, processing and editing quality control.

The first day of Multibeam data collection was May 10 and the last day was June 10, 2011. Data quality was fair to good depending on the sea state. 4210 km of data were collected.

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 © 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. The raw hourly data files were converted from MB-System format 56 (the raw Simrad format) to format 57 using `mbcopy` but were not edited. 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 Multibeam data files were edited using the Caris HIPS processing system (Version 7). Shannon Hoy 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 and pre-existing released NBP multibeam data. The edited files are named `NBP1103_NBP_EM_120_2011-DDD_xxxx_yyyymmdd_hhmmss_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.

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 edited data for the entire cruise. The processing scripts and gridded data for each survey are included in the maps 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 XBT and CTD casts, which were combined with the Levitus historical database. The XBT and CTD data have been provided on the RVDAS data distribution. The calculated sound velocities profiles and plots are in the process/svp directory in this multibeam data distribution.

NBP1103 Data Distribution

Multibeam data has been provided on DDS 4mm tapes to the science party and RPSC. The data distribution consists of 1 tape which contains the raw and edited data, Caris exported XYZ edited data and working maps directory. The distribution also includes a printed copy of this data report and a DVD containing the maps directory.

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 tape is described below

Each Multibeam DDS4 Data Set Includes:

1. DDS4 Tape 1
 - a) Raw multibeam files.
 - b) Caris edited multibeam files.
 - c) Maps and grids
2. All full data distributions also include a printed copy of this report.

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

Data Distribution Information:

S/N	Who	Description	Type
1	Robinson 1	Raw, Edit, maps	DDS4
2	Robinson 2	Raw, Edit, maps	DDS4
3	Robinson 3	Raw, Edit, maps	DDS4
4	NBP	Raw, Edit, maps	DDS4
5	RPSC	Raw, Edit, maps	DDS4
6	MGDS	Raw, Edit, maps	DDS4