# NBP1101
## Multibeam
## End of Cruise Report

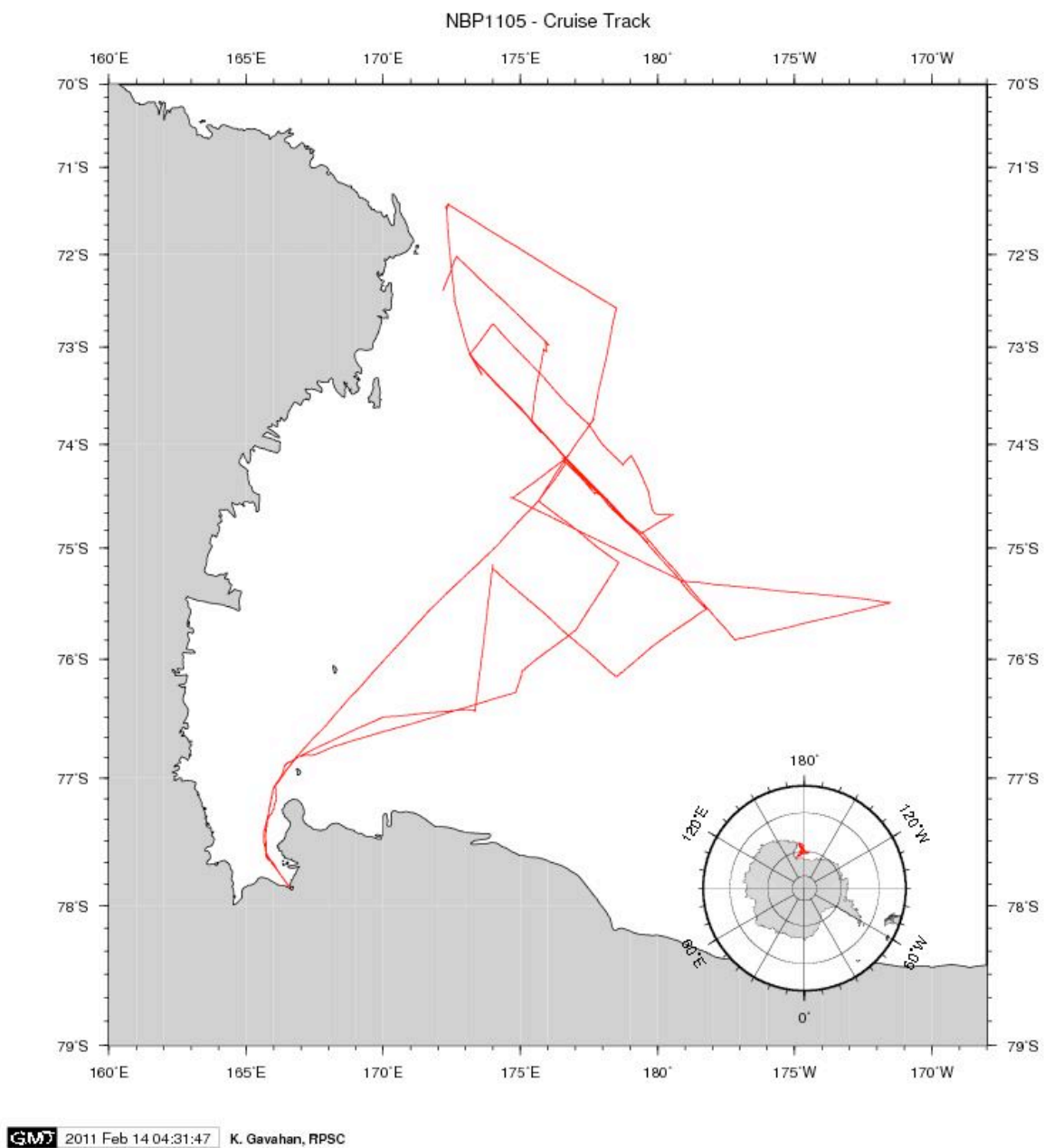Prepared By Kathleen Gavahan
February 15, 2011

# Contents

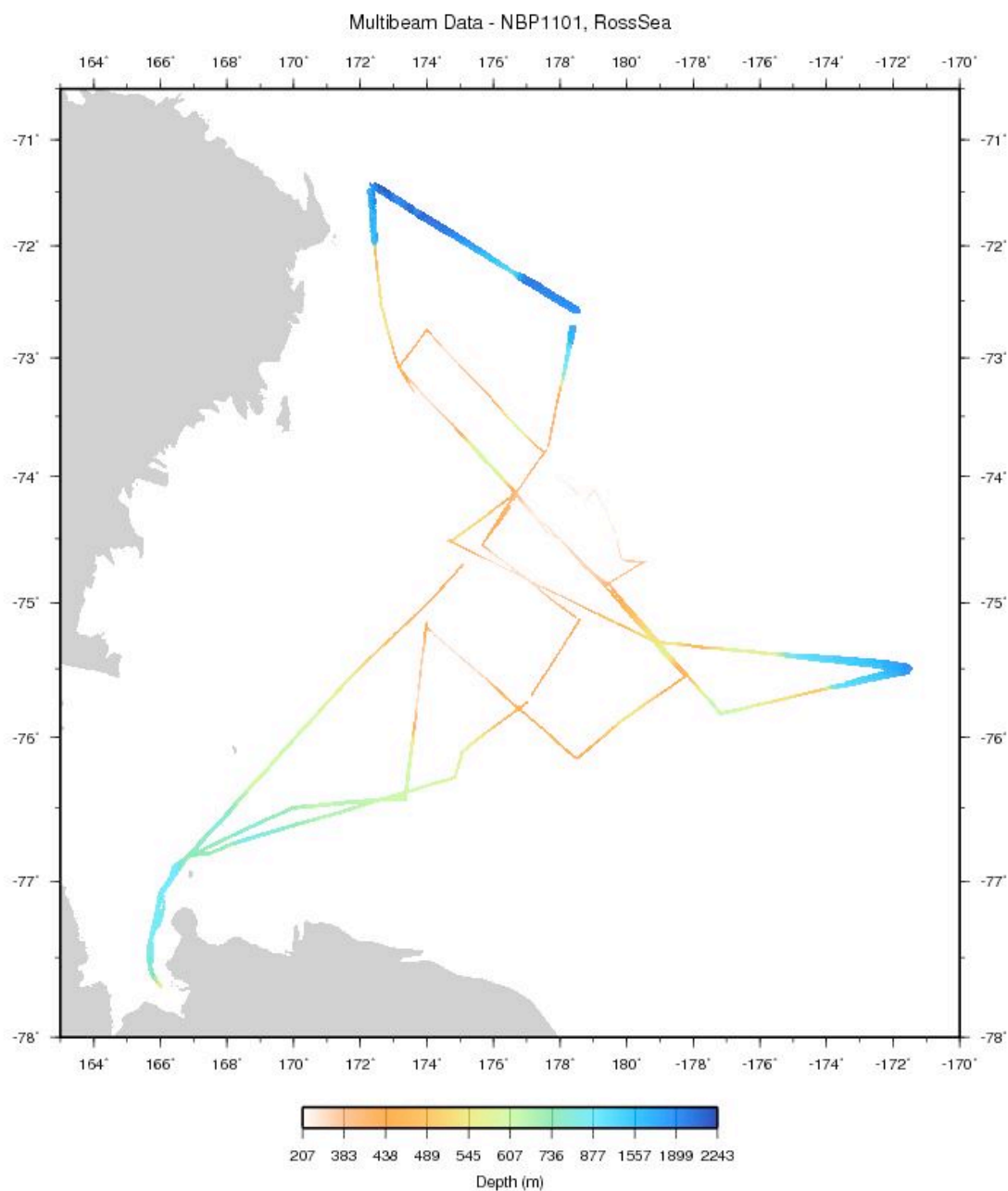# Cruise Track Plot



NBP1105 - Cruise Track

# Multibeam Work Plots



Multibeam Data - NBP1101, RossSea

Depth (m)

Gridded Data NBP1101mb.land.grd
Slope Magnitude Shade
MB Data from NBP1101

GMT  2011 Feb 13 23:43:14   K. Gavahan, RPSC

Multibeam Data - NBP1101, RossSea



Depth (m)

GMT  2011 Feb 14 03:12:46   K. Gavahan, RPSC
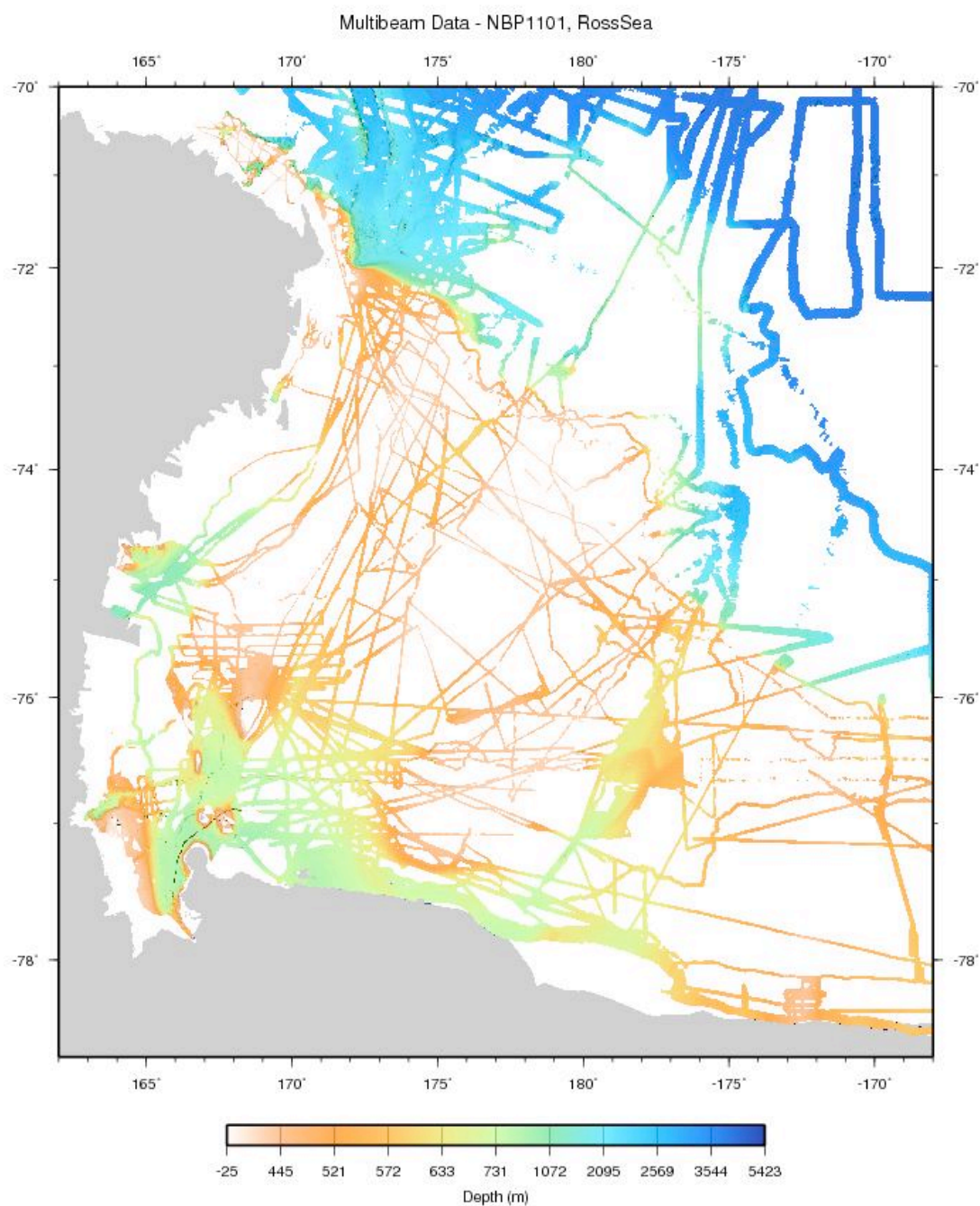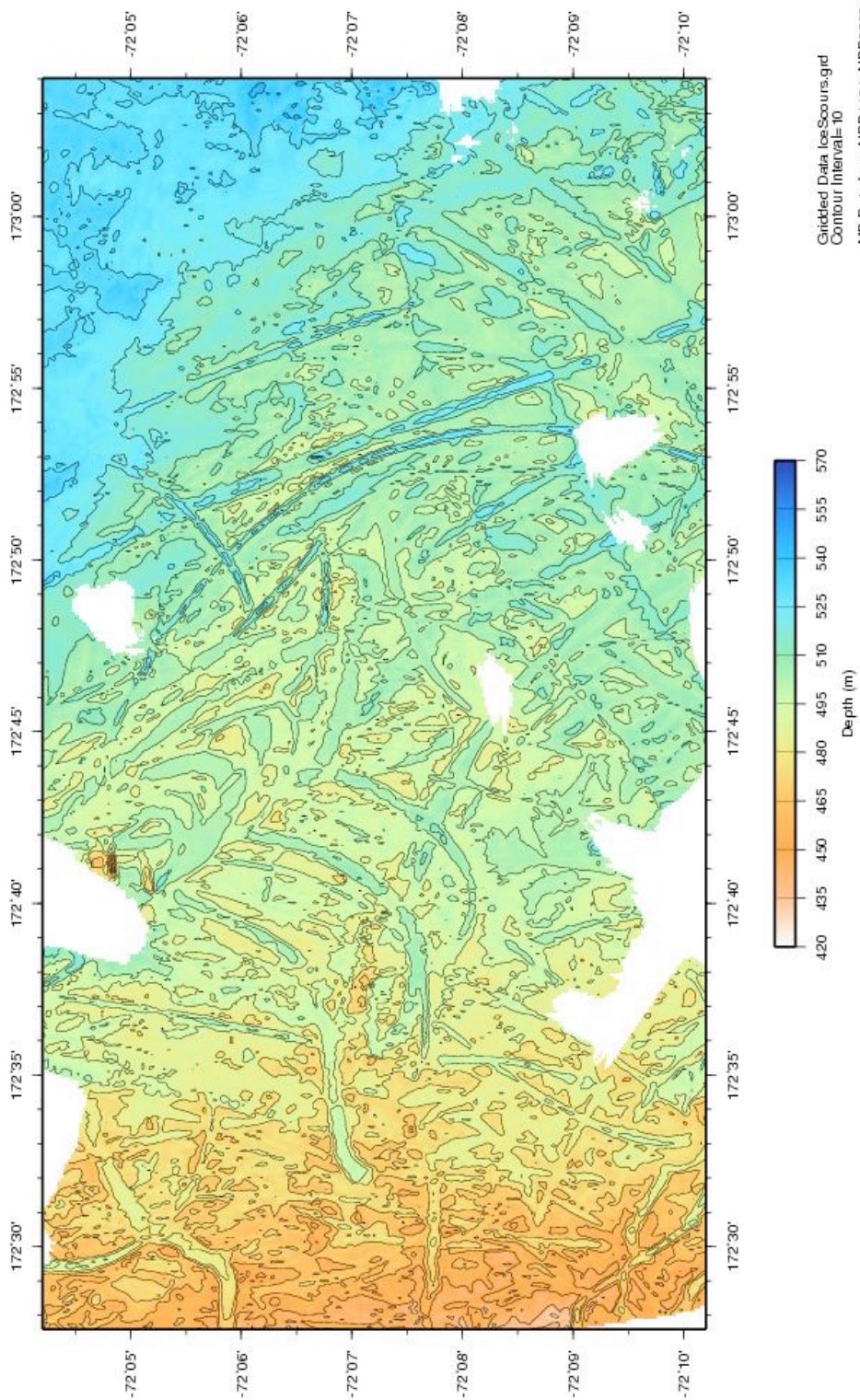
Gridded Data RossSea.land.grd
Slope Magnitude Shade
MB Data from NBP1101, NBP1005, NBP9407, NBP9601, NBP9602,
- NBP9605, NBP9702, NBP9801, NBP9802, NBP0702, NBP0801, NBP0802,
- NBP9902, NBP9909, NBP0001, NBP0209, NBP0501, NBP0601A, NBP0602,
- NBP0301, NBP0301A, NBP0301B, NBP0302, NBP0305A, NBP0306, NBP0401,
- NBP0305A, NBP0306, NBP0401, NBP0402, NBP0803, NBP0701, NBP0402

Multibeam Data - NBP1101, Cape Adare Ice Berg Scours

Gridded Data IceScours.grd
Contour Interval= 10

MB Data from NBP1101, NBP0209,
- NBP0302, NBP0402, NBP0501,
- NBP0701, NBP0702

Depth (m)

420  435  450  465  480  495  510  525  540  555  570

2011 Jan 27 22:33:01    K. Gavahan, RPSC

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# NBP1101 Multibeam Description of Work

This report covers the Simrad EM120 Multibeam data collection and processing for the RVIB Nathaniel B. Palmer cruise NBP1101.  This cruise started in McMurdo, Antarctica on January 19, 2011 and ended in McMurdo, Antarctica on February 16, 2011.  The Chief Scientists were Dr. Josh Kohut and Dr. Adam Kustka.  Kathleen Gavahan (RPSC) was responsible for Multibeam data acquisition, processing and editing quality control.

The first day of Multibeam data collection was January 19 and the last day was February 13, 2011. Data quality was generally very good as most of the data was acquired in calm waters.  The only really poor data was acquired wile transiting through the fast ice channel to and from McMurdo.

Approximately 4900 km of multibeam data was recorded.  This consisted of 329 hour long files containing 395202 records.  Of these, 322 files were edited.  No data was recorded on February 11$^{th}$.

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 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.  Some data files were edited while at sea.  The Multibeam data files were edited using the Caris HIPS  processing system (Version 7).  Kathleen Gavahan edited 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 of the new and pre-existing multibeam data. The edited files are named NBP1101_NBP_EM_120_2011-018_xxxx_yyyymmdd_hhmmssp_raw.txt 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 Caris software package cannot handle Simrad multibeam files that cross the international dateline (+/-180).  The MBSystem program mbcopy was used to split these lines into two pieces which were then able to be imported into Caris.  An 'a' or a 'b' was appended to the consecutive line number in the name.

The following files were not edited: 0288, 0296-0300, 0307-0310, and 0313-0329.

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 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 CTD casts, which were combined with the Levitus historical database. The 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.

## NBP1101 Data Distribution

Multibeam data has been provided on DDS 4mm tapes to the science party, RPSC and the MGDS database.  The dataset consists of 1 dds-4 tape and contains the raw data, Caris exported XYZ edited data and working maps directory.  Six copies were created.  The distribution also includes a printed copy of this data report.

The tapes were created on a Linux computer 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

Each Multibeam Backup DDS4 Data Set Includes:
1. DDS4  Tape 1
    a) Simrad Raw (mbio format 56) multibeam files.
    b) Caris edited XYZ files
    c) Maps and svp process directory.
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 | Kohut 1 | Raw, maps, Jan 19 – Feb 13 | DDS4 |
| 2 | Kohut 2 | Raw, maps, Jan 19 – Feb 13 | DDS4 |
| 3 | Kustka | Raw, maps, Jan 19 – Feb 13 | DDS4 |
| 4 | NBP | Raw, maps, Jan 19 – Feb 13 | DDS4 |
| 5 | RPSC | Raw, maps, Jan 19 – Feb 13 | DDS4 |
| 6 | MGDS | Raw, maps, Jan 19 – Feb 13 | DDS4 |