APPENDIX 1.0 Science Party and Ship Crew for MGL0812

Science Party

1	*John Mutter*	*Chief Scientist*	*LDEO, Columbia University*
2	*Suzanne Carbotte*	*Co-Chief Scientist*	*LDEO, Columbia University*
3	*Juan Pablo Canales*	*Co-Chief Scientist*	*WHOI*
4	*Mladen Nedimovic*	*Co-Chief Scientist*	*Dalhousie University*
5	*Helene Carton*	*Scientist*	*LDEO, Columbia University*
6	*Kori Newman*	*Scientist Graduate Student*	*LDEO, Columbia University*
7	*Milena Marjanovic*	*Scientist Graduate Student*	*LDEO, Columbia University*
8	*Min Xu*	*Scientist Graduate Student*	*WHOI*
9	*Omid Aghaei*	*Scientist Graduate Student*	*Dalhousie University*
10	*Lucy Stowe*	*Scientist Undergraduate Student*	*LDEO, Columbia University*

Shipboard Technical Staff

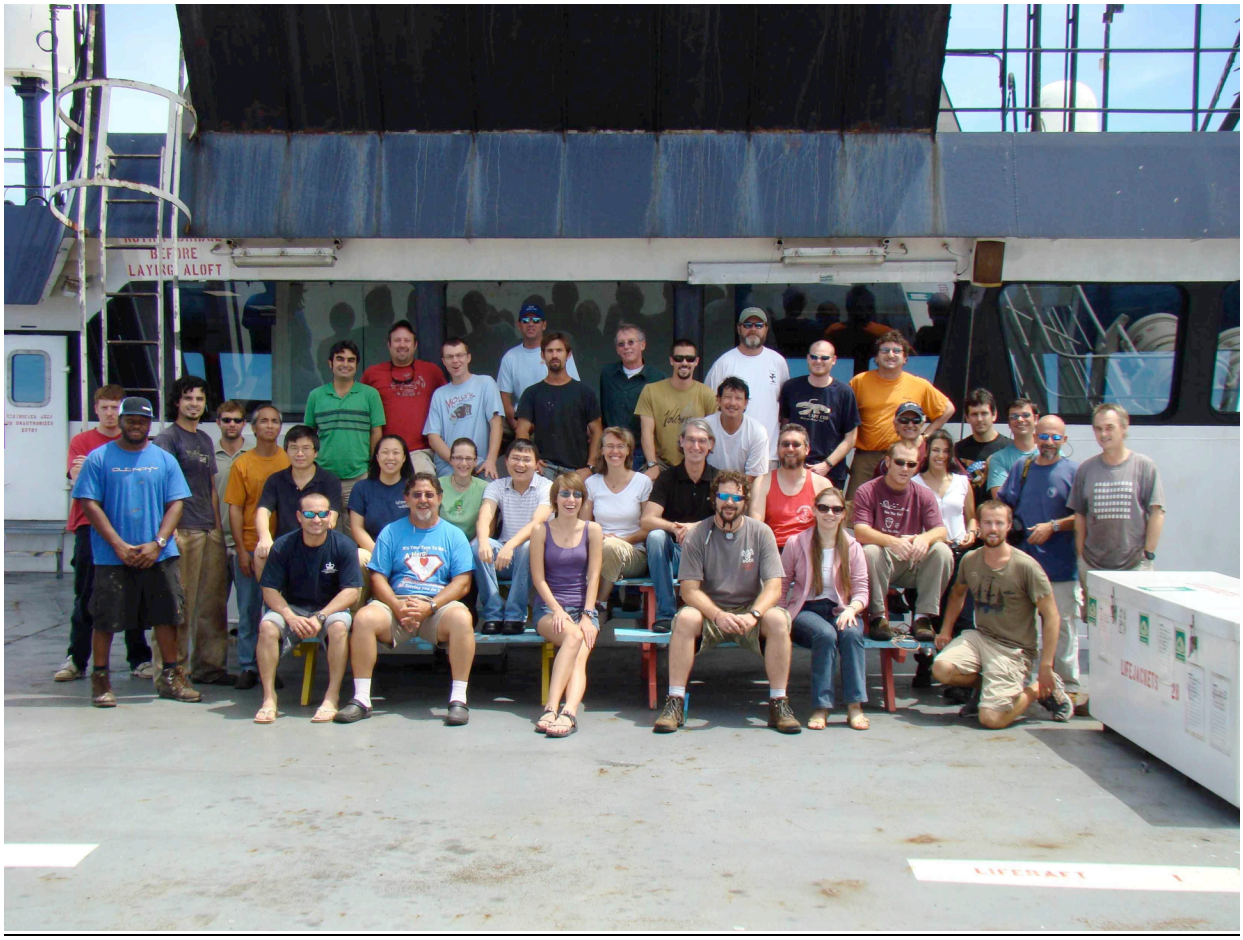
1	*Robert Steinhaus*	*Senior Science Officer/Technician-in-charge*
2	*Anthony Johnson*	*2nd Technician-in-charge*
3	*Michael Zhang*	*IT*
4	*David M. Martinson*	*Watch leader/Navigation/IT Leader*
5	*Michael C. Martello*	*Navigation/IT Leader*
6	*Thomas Spoto*	*Chief Sound Source*
7	*Bern McKiernan*	*Watch Leader/Acq Leader*
8	*Michael Tatro*	*Acquisition Watch Leader*
9	*Robert Gunn*	*Sound Source Watch Leader*
10	*Carlos Gutierrez*	*Sound Source*
11	*Ryan Eaton*	*IT/Nav Watch Stander*
12	*Lance Conrad*	*Acquisition Watch Stander*
13	*Luis Villalobos*	*Sound Source*
14	*Brian Goodick*	*Sound Source*
15	*Maikol Badilla*	*Sound Source*
16	*Scott Upper*	*Acquisition Watch Stander (Intern)*
17	*Kaori Kobayashi*	*IT/Nav Watch Stander (Intern)*
18	*Joseph Beland*	*MMO, Lead Observer*
19	*Giovanni Caltavuturo*	*MMO, Lead PAM Observer*
20	*Nicholas Engelmann*	*MMO,Observer*
21	*Bradley Dawe*	*MMO, Observer*

22	*Brendan Hurley*	*MMO, Observer*

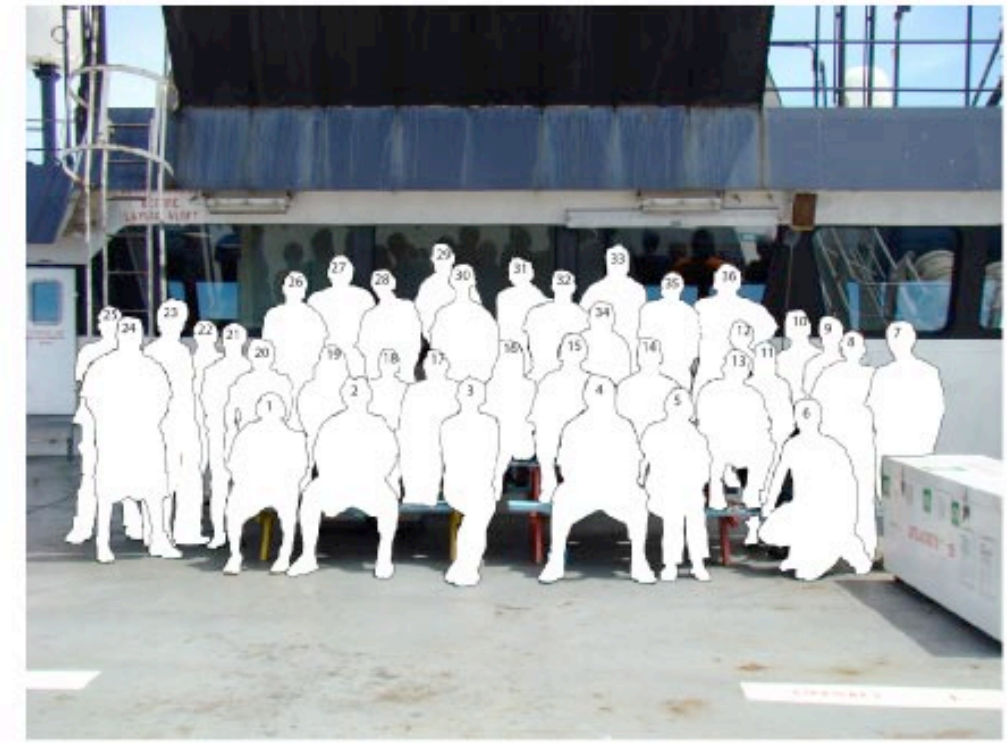
Ship's Crew

1	*Mark Landow*	*Master*
2	*Stanley Zeigler*	*Chief Mate*
3	*David Wolford*	*2nd Mate*
4	*Clint Acoutin*	*3rd Mate*
5	*Jason Woronowicz*	*Bosun*
6	*George Cereno*	*AB*
7	*Salvador Oboza*	*AB*
8	*Petronio Paragas*	*AB*
9	*Nicky Applewhite*	*OS*
10	*Jeromie Webster*	*OS*
11	*Steve Pica*	*Chief Engineer*
12	*Peter Chizmar*	*1st Asst. Engineer*
13	*Thidiane Kanoute*	*2nd Asst. Engineer*
14	*Zachary Gallant*	*3rd Asst. Engineer*
15	*Jack Schwartz*	*Electrician*
16	*Fernando Uribe*	*Oiler*
17	*Charles Billips*	*Oiler*
18	*Isaias Sanchez*	*Oiler*
19	*Gary Brodock*	*Steward*
20	*Ricky Rios*	*Cook*

APPENDIX 2.1 Group photo for MGL0812

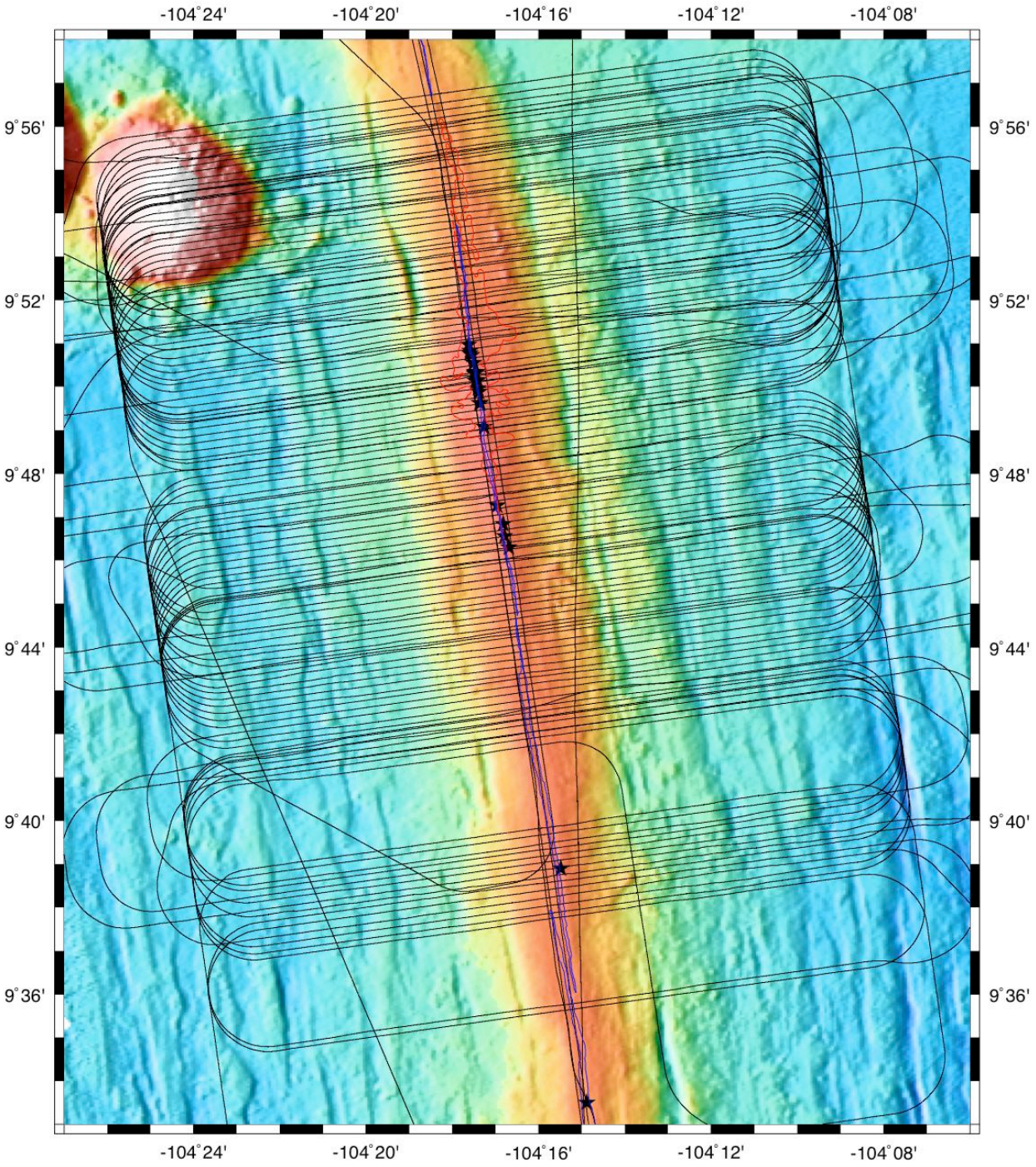


APPENDIX 2.2 Cruise Photo- Who's Who

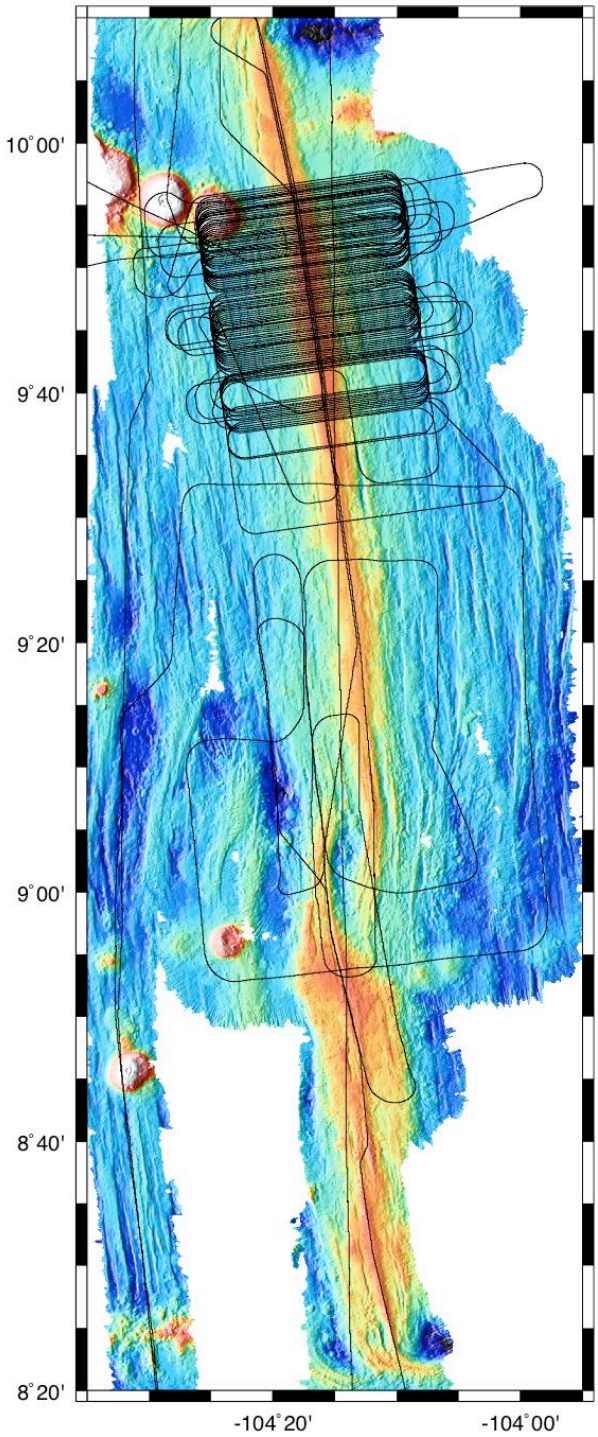


1. Luis Villalobos
2. Mike Martello
3. Lucy Stowe
4. Bern McKiernan
5. Helene Carton
6. Nick Engelmann
7. Robbie Gunn
8. Giovanni Caltavutro
9. Juan Pablo Canales
10. Brian Goodick
11. Kaori Kobayashi
12. Carlos Guitierrez
13. Brendan Hurley
14. Mladen Nedimovic
15. John Mutter
16. Suzanne Carbotte
17. Min Xu
18. Milena Marjanovic
19. Kori Newman
20. Michael Zhang
21. Ping Paragas
22 Pete Chizmar
23. Maikol Badilla
24. Jeromie Webster
25. Mike Tatro
26. Omid Aghaei
27. Scott Upper
28. Ryan Eaton
29. Lance Conrad
30. Jason Woronowicz
31. David Martinson
32. Clint Acoutin
33. Bradley Dawe
34. George Cereno
35. Joseph Beland
36. Tom Spoto

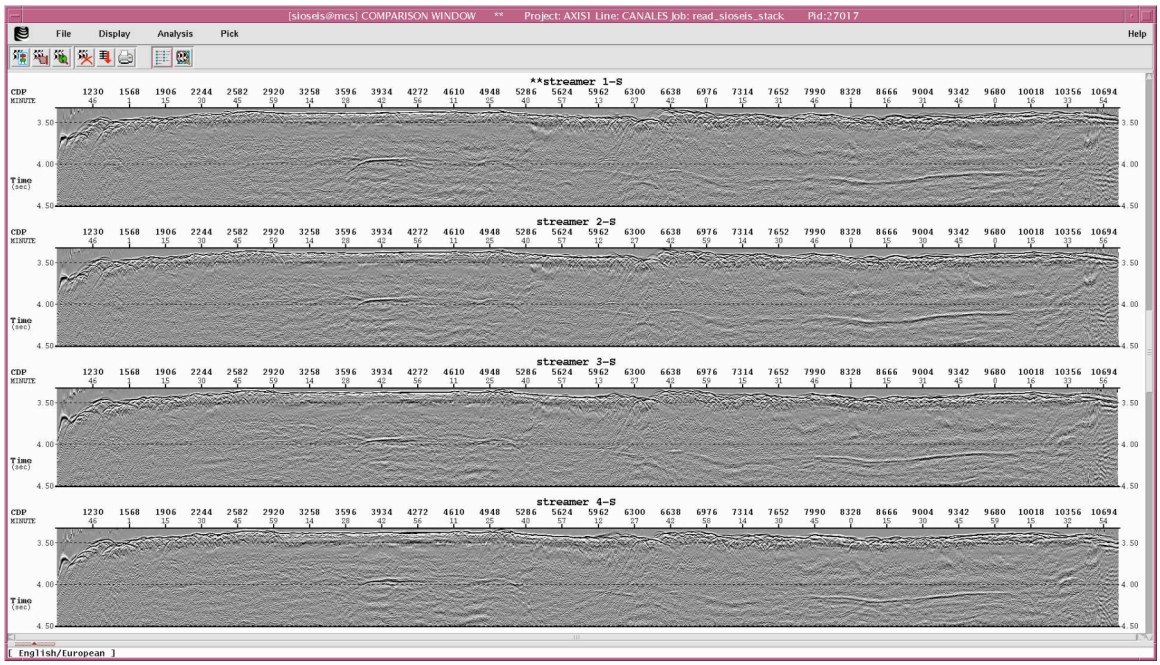
APPENDIX 3.1. Track map for the main 3D survey superimposed on the newly collected multibeam bathymetry.



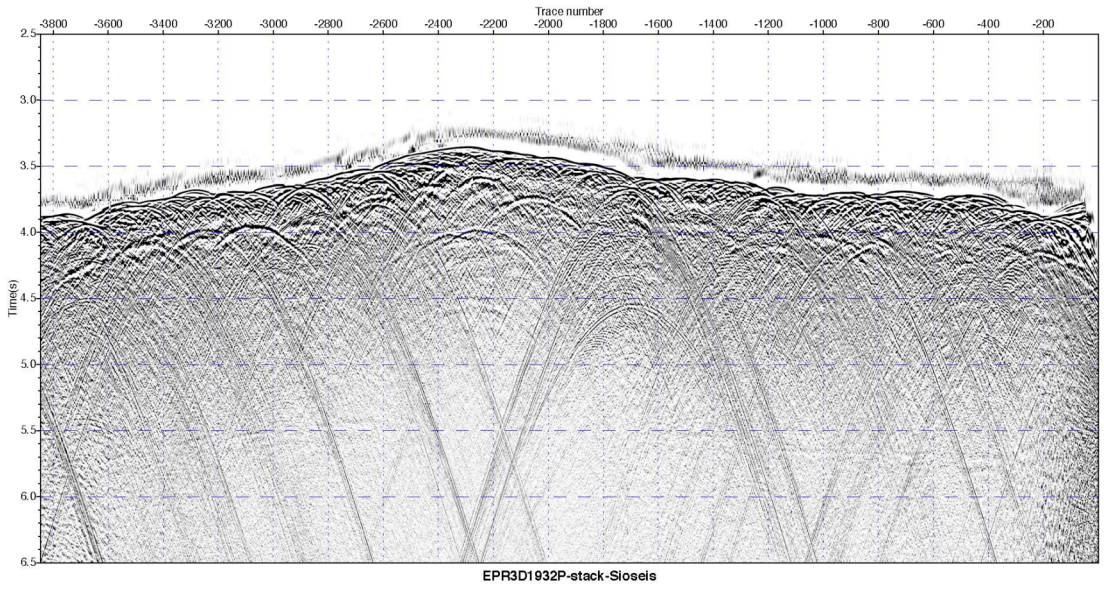
APPENDIX 3.2 Track map for full survey region superimposed on the newly collected multibeam bathymetry.



APPENDIX 4.1 Example stack section for all 4 streamers, line Axis 1



APPENDIX 4.2 Example Brute Stack – Line 1932



APPENDIX 5.0 Source drop out specifications used for survey

Consistency of the seismic source is a key factor contributing to overall data quality and is of particular importance for 4D studies. As a result, preplanning of acceptable levels of deviation of the source from the nominal source signature due to gun failures is required. Gun drop-out specs are provided to the shipboard science technical support staff by the visiting science party in the form of guidelines on when spares should be turned on and when a gun needs to be pulled in for maintenance and repair. Drop-out specs are designed based on modeling of the source signature expected for different combinations of failed guns and comparison of the peak source level and peak-to-bubble (P/B) amplitude ratio of the source without these gun combinations to that expected for all guns firing.

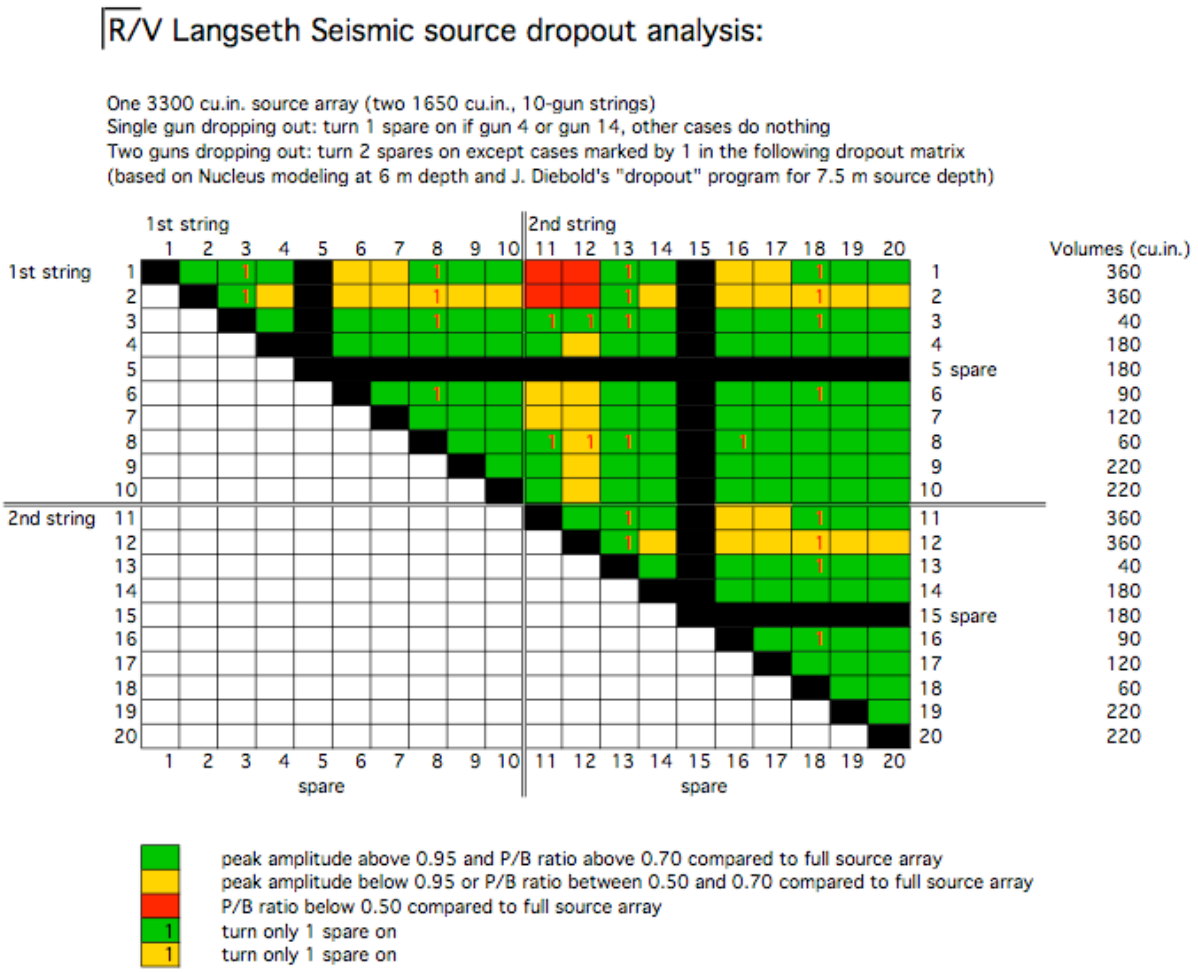
The Langseth seismic source comprises four identical linear arrays ("strings") of ten airguns each - nine active and one spare. The nominal volume for one string is 1650 cu.in., with individual volumes ranging from 40 to 360 cu.in. and a 180 cu.in. volume for the spare. During the MGL0812 survey, two identical arrays were used (each one with two strings totaling 3300 cu.in. volume) and triggered alternately.

Pre-survey dropout modeling was carried out by J. Diebold using Nucleus software for a source array at 6m depth: this modeling explored the permutations of two guns dropping out and assumed the two spares would be turned on. The spare provides compensation for loss in peak amplitude, while the effect on P/B ratio is largely dependent on how closely the spare's volume matches that of the failed gun. Based on this analysis, it was felt that the source signature and therefore data quality would be only very mildly affected if peak levels were maintained at > 95% of peak amplitude and P/B ratio of > 70% of nominal source value ("green" flag). Furthermore, configurations with peak amplitudes between 50 and 90% or P/B ratios between 50 and 70% were flagged "orange", and P/B ratios of < 50% were flagged "red".

To complement this study, we used John Diebold's "dropout" program for a 7.5m source depth (the actual tow depth for the whole MGL0812 experiment) to provide further guidelines as to when to turn spares on, in case of single and two-gun gun dropout. For a single gun dropping out, the only case when the resulting signature falls out of spec (< 95% peak amplitude) is when the 180-cu.in. gun fails, which can be fully compensated by turning the (identical) spare on. For two guns dropping out, there are cases when it may be beneficial to turn only one spare on - not surprisingly when failing guns are a combination of one of the smallest with one of the largest airguns. In such cases, turning only one spare on allows preservation of a higher P/B ratio at the expense of a slight degradation in peak amplitude, with respect to turning two spares on.

A summary table was compiled based on all modeling results and was used by the technical staff during the survey. Although shots fired with "orange" and "red" flagged source configurations were not rejected (i.e., that portion of the line was not re-shot), this was generally a signal that the string should be pulled in for maintenance and repair at the next line change. Shot points for the portions of the lines affected by two or more gun failures should be carefully examined during data processing for variations in peak

amplitude and signature shape, and methods for at least partially compensating for these variations should be investigated (in the absence of far-field source signature recordings that would allow shot-by-shot designature).



APPENDIX 6.1. SIOSEIS brute stack routine.

```
#!/bin/csh -f
#
#   Remember to run script "init" (sioseis-seisnet daemon)
#
#if( $#argv < 2 ) then
#    echo "Usage: stack line-name plot-direction(ltr/rtl)"
#    exit 1
#endif
set LINENO = $1
set DIR = $2

#sioseis << eof
/export/home/sioseis/bin/sioseis << eof

procs segddin prout geom  wbt gather nmo mute stack diskoa avenor agc filter plot end

segddin
   ftr 235 ltr 468
   fcset 2 lcset 2
   secs 10
   stack /tmp/latest
   logpath /remote/nas/working/MGL0812/stack/SEGY/$LINENO-stack.log
   end
end

wbt
    vel 1500 end
end

geom
  type 9 # Use realtime GPS
  fs 1 ls 999999  # all shot have the same parameters (preset)
  gxp 468 -250   # RESET the closest group only.
  ggx -12.5         # Used to extrapolate gxp!
# dfls 37.5   # ignored with type 9
  dbrps 6.25
  rpadd 1000 end
end

diskoa   # Write out disk file
  opath /remote/nas/working/MGL0812/stack/SEGY/$LINENO-stack.segy
end
end

prout
 fno 0 lno 9999999 ftr 468 ltr 468 noinc 10  end
end

gather
#   maxtrs 78  maxrps 480 END
   maxtrs 40  maxrps 250 END # half the streamer
end

mute
   fno 1 lno 999999
   addwb yes xtp 200 -.1 2500 -.1 4000 1 end
end

nmo
# real time nmo, replace interpolation by RP to WB depth in Meters.
# If water depth changes by > 500 m, use previous value. Water-depth
# velocity functions derived from ESP5, interpolation by iso-velocity layering
 vtrkwb 1000 stretc 1.50

fno 1000 lno 1000
vtp 1500 1.333
 1557 1.414
 1607 1.443
 1789 1.492
```

```
 2346 1.645
 2638 1.746
 2900 1.846
 2971 1.872
 3150 1.983
 3141 2.102
 3264 2.362
 4228 3.742
 4343 3.892
 4898 4.393
 7181 13.470 end
fno 1500 lno 1500
vtp 1500 2.0
 1539 2.081
 1574 2.110
 1705 2.159
 2137 2.312
 2379 2.413
 2603 2.513
 2665 2.539
 2827 2.650
 2834 2.769
 2967 3.029
 3939 4.409
 4053 4.559
 7181 13.470 end
fno 2000 lno 2000
vtp 1500 2.667
 1529 2.748
 1557 2.777
 1659 2.826
 2012 2.979
 2218 3.080
 2414 3.180
 2468 3.206
 2614 3.317
 2629 3.436
 2761 3.696
 3711 5.076
 3823 5.226
 4351 5.727
 7122 14.269 end
fno 2500 lno 2500
vtp 1500 3.333
 1524 3.414
  1546 3.443
 1629 3.492
 1928 3.645
 2108 3.746
 2282 3.846
 2330 3.872
 2463 3.983
 2481 4.102
 2608 4.362
 3526 5.742
 3636 5.892
 4146 6.393
 7244 13.829 end
fno 3000 lno 3000
vtp 1500 4.000
 1520 4.080
 1538 4.110
 1609 4.159
 1868 4.312
 2028 4.413
 2184 4.513
 2228 4.539
 2350 4.650
 2368 4.769
 2489 5.029
 3373 6.409
 3479 6.559
 3972 7.060
```

```
 7064 14.051 end
end

stack
    end
end

filter
    pass 5 40 ftype 0 dbdrop 48 end
end

avenor
   hold 300
   addwb yes sets 0 .5 5 6 end
end

agc
   winlen 0.5 end
end


 plot
   dir $DIR
  scalar 5.e-07
  stime 3.0 nsecs 3.5
  tlines 0.5 1 nibs 7225 ann gmtint anninc 5 ann2 shotno
  def 0.01 trpin 80 wiggle 0
  vscale 5 clip .04
  opath /remote/nas/working/MGL0812/stack/SEGY/$LINENO-stack.atlantek
  end
end

end
eof
```

APPENDIX 6.2

Perl script init.pl. This is run prior to starting Brute Stack job.

```
#!/usr/bin/perl
#  script set_latest lists the last two files in directory
#         /export/home/public/seisnet_tmp
#  The list is written to file "latest" in the current directory
#

my $path = "/remote/nas/working/MGL0812/stack/";
my $flist = "/tmp/latest";

while (1) {
        @dir = `ls -1t $path`;
        @files = grep (/^R/,@dir);
        if (scalar(@files) >= 2) {
                $fname = shift @files;
                $output = "$path$fname";
                $fname = shift @files;
                $output.= "$path$fname";


        open(FLIST, ">$flist") or die "can't open file list $flist\n";
        print FLIST $output;
        #print $output;
        close FLIST;
        } else {
                print "waiting for files..\n";
        }
        sleep 2;
        }
```

APPENDIX 6.3 **Data Preprocessing Instructions for Cruise MGL0812**

The following describes seismic data pre-processing conducted routinely during MGL0812 which included reading raw SEGD data into Focus, merging with seismic P190 navigation files, QC and writing to dsk.

All work done on computer **mcs**.

1. DATA INFO.

1.1. Check the profile number, the direction of the profile (shot east-to-west or west-to-east), and the TAPE number. This should be available in the Observer's Log (must be copies in the black binder). Write down this info in the preprocessing log.

1.2. Go to the directory where the SEGD files are stored:

```
cd /remote/nas/raw/SEGD/MGL0812/TAPE????
```

Each shot file has a name like R000507_1216442067.RAW, where 000507 indicates FFID.

Check the headers of the first and last FFID. To do this type:

```
strings filename | head
```

The output should be an ASCII header followed by binary characters. The shot # is at the end of the first record (1360 in the example below):

```
$110860000203043304.31688520080720UTC001360      EPR3D2316P0009.95...
```
etc etc.

If FFID #1 has no visible ASCII header, get the info for FFID #2 and extrapolate the shot #.

Do the same to localize the FFIDs corresponding to shot# 999 and shot# 1000.

Write down all this information in the preprocessing log.

All across-axis lines should have ~646 segd files, with min/max shot # ~894/1539. If severe departure from these numbers is found (e.g., due to line interruptions), check in preprocessing log potential problems in the line.

2. SEG-D to FOCUS Database.

2.1. First create a list of the segd files. Go to the directory where file lists are kept:

```
cd /remote/nas/working/MGL0812/Focus/SEGD_LISTS/
```

type:

```
ls /remote/nas/raw/SEGD/MGL0812/TAPE????.REEL/R*.RAW | awk '{print NR,$0}' > list_TAPE????
```

where ???? is the tape #.

2.2. Read SEG-D for shot #s ≤ 999 (run this only if shot# for first FFID is ≤ 999):

Launch FOCUS (type `focus` in any window). Select project EPR3DWEL or EPR3DEWL, depending on the direction of the line. Select Focus Line (so far we are working only in LINE1). Write down this info in the preprocessing log. Focus jobs for this sequence are and should be stored in:

```
/remote/nas/working/MGL0812/Focus/JOB_FILES/EPR3DWEL/LINE1
```

(or, depending on the project and direction of line:)

`/remote/nas/working/MGL0812/Focus/JOB_FILES/EPR3DEWL/LINE1`

Make sure you don't overwrite existing jobs or output data files; double check job and file names before saving it.

Open an existing job from the job directory; for example:
`read_segd_file_part2_TAPE0031_shotbelow1000.dat`

In the SEGD module, change the file-listname in the TAPEOPT parameters.

In the RECORD parameters set:

REELID to the minimum FFID of shot # ~1 and 999, which ever FFID is lowest;

REELTO to the maximum FFID of shot # ~1 and 999, which ever FFID is highest.

In the DSOUT module, change the LABEL (output filename) to
`shotsbelow1000_TAPE????`

Save the job in the jobs directory with a new name:
`read_segd_file_part2_TAPE????_shotbelow1000.dat`

Run job and check down all the steps in the preprocessing log, adding comments if something doesn't work as expected.

2.3. Read SEG-D for shot #s ≥ 1000: Open an existing job from the job directory; for example: `read_segd_file_part2_TAPE0031_shotabove1000.dat`

In the SEGD module, change the file-listname in the TAPEOPT parameters.

In the RECORD parameters set:

REELID to the minimum FFID of shot # 1000 and ~1539, which ever FFID is lowest;

REELTO to the maximum FFID of shot # 1000 and ~1539, which ever FFID is highest.

In the DSOUT module, change the LABEL (output filename) to
`shotsabove1000_TAPE????`

Save the job in the jobs directory with a new name:
`read_segd_file_part2_TAPE????_shotabove1000.dat`

Run job and check down all the steps in the preprocessing log, adding comments if something doesn't work as expected.

If either job fails at reading FFID 1, click restart, then change REELID to FFID 2, save job, and run job again.

2.4. Merge files: Open the Focus File Manager utility (under Data Management tab in the main window). Select both files, and merge them using `Options→Merge files`. Give output filename:

`allshots_eprXXXXp_TAPE????`

where XXXX is the profile number.

Open `Applications→View Data` and select the new merged file. Browse through a few shots to make sure they look ok. Check down all these steps in the preprocessing log.

2.5. Header manipulation: Open an existing job from the job directory; for example:
`read_allshots_modifyheaders_eprXXXXp.dat`

In module DSIN select the new line, all shots. In module DSOUT set LABEL to the output file name:

`allshots_eprXXXXp_modifiedheaders`

Save job with appropriate name in job's directory and run. Write down this info in the preprocessing log.

3. P190 Navigation File.

This step is done in a different Focus project. In Focus Main Window open PROJECT EPRCROSS, and then LINE CROSS3D.

Job files for this step are kept in:

`/remote/nas/working/MGL0812/Focus/JOB_FILES/NAV`

The P190 files are in:

`/remote/nas/working/MGL0812/NAV/P190`

which is actually a symbolic link to:

`/remote/nas/data/Cruisedata/MGL0812/processed/sprint_nav`

P190 files are named (with XXXX being the profile #):

`EPR3DXXXXP.p190`

3.1. Open a job to read the P190 file, for example:

`navdisk_XXXXP.dat`

In the NAVDSK module, change the FILE parameter to the name of the P190 file.

In the NAVWRT module, change the FILE parameter to the name of the output Focus navigation file (keep the directory and extension .fmt unchanged):

`/remote/nas/working/MGL0812/NAV/EPR3DXXXXP.fmt`

Save and run the job, and check down these steps in the preprocessing log.

3.2. Check Focus geometry. In the main Focus window, select the 3D TOOLS tab, and then GEOMETRY. In the geometry window, change the button MODE to QC (BINNING is the default). Select `File→Select Navigation`, and choose the `EPR3DXXXX.fmt` file you made before.

Set `No. cables/Shot` to 4 in the slide button in the lower left corner.

Click `Marine Display` button on the lower left side. You will see a display of all the shots and receiver positions. Zoom in to check it. Zoom out. Make sure it displays the line name correctly (check down this in the preprocessing log).

Select `Single Cable`, then `Marine Display`. In the shot selection window, see the first and last shot # and write them down in the preprocessing log.

Now select one shot and click `APPLY` to display it. Repeat this for more shots, approx. every 50 shots or so, to make sure that geometries look ok. Check down and write comments, if any, in the preprocessing log. Exit the geometry window.

4. Merging Data and Navigation.

4.1. Since the data and navigation are indifferent Focus projects, you need to link the data to the navigation project. Open Focus PROJECT EPR3DWEL (or EPR3DEWL), then LINE1. In `Data Management` tab select `File Manager`. Select the file created in step 2.5, for example:

`allshots_eprXXXXp_modifiedheaders`

Then select `Edit`→`Link File` (or the "chain" button), select the navigation project EPRCROSS, then line CROSS3D, and make the link. Exit the File Manager. Check down these steps in the preprocessing log.

4.2. Now go back to the navigation Focus project: EPRCROSS, Line CROSS3D. Jobs for merging the data with navigations are kept in:

`/remote/nas/working/MGL0812/Focus/JOB_FILES/NAV_MERGE`

Open an existing job, for example:

`merge_XXXXP.dat`

In the DSIN module select the newly linked data file, all records. Check that all shot numbers readable are consistent with the range of shots that were available in the geometry.

In the PROTAPE module, change FILE parameter to the path and name of the navigation file in Focus format, for example:

`/remote/nas/working/MGL0812/NAV/EPR3DXXXXP.fmt`

In the DSKWRT module set the FILE parameter for the output file. Keep the directory as it is:

`/remote/nas/working/MGL0812/DSKWRT/EPR3DXXXXP.dsk`

Save job (with new name) and run. Check down these steps in the preprocessing log.

APPENDIX 6.4

Checklist for Seismic and Navigation Data Preprocessing during Cruise MGL0812

CRUISE MGL0812 PROFILE EPR3D ..... P

1. DATA INFO	**Comments**
Direction (EW, WE): ..... TAPE #: ..... First FFID (reel): ..... Shot: ..... FFID (reel): ..... Shot: 999 FFID (reel): ..... Shot: 1000 Last FFID (reel):..... Shot:	

2. SEG-D to FOCUS Database

Focus Project: EPR3D..... **Focus Line: LINE1**

Job Directory: /remote/nas/working/MGL0812/Focus/JOB_FILES/EPR3D??L/LINE1

2.1. Create SEG-D file list: (✓): ....

List file:

2.2. Read SEG-D job for shot # ≤ 999

Job: (e.g., read_segd_file_part2_TAPE0031_shotbelow1000.dat)

..... Save (✓): ....

Output filename: (e.g.,shotsbelow1000_TAPE0031)

..... Run (✓): ....

Comments

2.3. Read SEG-D job for shot # ≥ 1000

Job: (e.g., read_segd_file_part2_TAPE0031_shotabove1000.dat)

..... Save (✓): ....

Output filename: (e.g.,shotsabove1000_TAPE0031)

..... Run (✓): ....

Comments

2.4. Merge Files

Output filename: (e.g.,allshots_epr2132_TAPE0031)

..... Save (✓): ....

Check Merged File, display a few shots (✓): ....

Comments

2.5. Header modification

Job: (e.g., read_allshots_modifyheaders_epr2132.dat)

..... Save (✓): ....

Output filename: (e.g., allshots_epr2284p_modifiedheaders)

..... Run (✓): ....

Comments

3. P190 Navigation File

Focus Project: EPRCROSS Focus Line: CROSS3D

Job Directory: /remote/nas/working/MGL0812/Focus/JOB_FILES/NAV/

P190 Directory: /remote/nas/working/MGL0812/NAV/P190/

3.1. Read P190 file

Job: (e.g., navdisk_2132P.dat)

..... Save (✓): ....

Output filename: (e.g., EPR3D2132P.fmt)

..... Run (✓): ....

Comments

3.2. Check geometry

Line name (✓): ....

Marine Display, single cable (set # cables = 4)

Shots range (✓): .... Display every ~50 shots (✓): ....

Comments

4. Merge Data and Navigation

4.1. Link data file

File linked(✓): ....

Focus Project: EPR3D..... Focus Line: LINE1

4.2. Merge data and navigation

Focus Project: EPRCROSS Focus Line: CROSS3D

Job Directory: /remote/nas/working/MGL0812/Focus/JOB_FILES/NAV_MERGE/

Job: (e.g., merge_2132P.dat)

..... Save (✓): ....

Output filename: (e.g., EPR3D2132P.dsk)

..... Run (✓): ....

Comments

APPENDIX 6.5

SEG-D Raw Format File Created with Focus SEGD job (part 1) and Extracted From Focus Database

```
SEGD database file version 2.1
Maximum number of channels is :          1872
Maximum record length in seconds is: 10.2400
Block size limit in bytes is :         131072
Additional blocks in Gen Header is :        2
Extended header in blocks is :            516
External header in blocks is :             63
The size of header in bytes is :        18752
The SEG-D revision level is :               1
The format number is :                   8058
The format description is :   (Demultiplexed)
32-bytes general header extensions :        2
The manufacturers code is :                34
Number of bytes/scan is :                   0
Number of scan types/record is :            1
Record length in seconds is :         10.2400
Base scan interval in ms. is :         2.0000
Number of scans/block is :                  0
Number of channel sets per scan type        4
Skew block count is :                       0
General trailer block count is :            0
Trace trailer length in samps is :          0
**************** Scan type number :         1
The total number of seismic channels    1872
 -------------------------       Channel Set  1        Channel Set  2
 Number of channels          :                468 |                468 |
 Channel set type            :             Seismic |             Seismic |
 Sample interval in msec     :                2.00 |                2.00 |
 Start time in msec          :                   0 |                   0 |
 End time in msec            :               10240 |               10240 |
 Descale multiplier          :       0.1250000E+00 |       0.1250000E+00 |
 Channel gain type           :    IFP gain control |    IFP gain control |
 Extended trace header blks  :                   1 |                   1 |
 Physical record length      :               20500 |               20500 |
 -------------------------       Channel Set  3        Channel Set  4
 Number of channels          :                468 |                468 |
 Channel set type            :             Seismic |             Seismic |
 Sample interval in msec     :                2.00 |                2.00 |
 Start time in msec          :                   0 |                   0 |
 End time in msec            :               10240 |               10240 |
 Descale multiplier          :       0.1250000E+00 |       0.1250000E+00 |
 Channel gain type           :    IFP gain control |    IFP gain control |
 Extended trace header blks  :                   1 |                   1 |
 Physical record length      :               20500 |               20500 |
```

APPENDIX 6.6

Focus job read_segd_file_part2_TAPE0145_shotsbelow1000.dat

```
*JOB    EPR3DWELLINE1
*CALL   SEGD                            8058
RECORD  2               INCR    106

READ    format_raw_epr3d
TAPEOPT /flist="/remote/nas/working/MGL0812/Focus/SEGD_LISTS/list_TAPE0145"
EHDEF
12      7       ASCII   STATIME
26      8       ASCII   YMD
54      4       ASCII   LINENUM
81      4       ASCII   CBDEPTH
90      1       ASCII   SPLAT
98      4       ASCII   SPLON
EHDEF           FLOAT
19      7       ASCII   DECSEC
85      2       ASCII   DECCBDEP
91      7       ASCII   DECSPLAT
102     7       ASCII   DECSPLON
FHDRDEF
SHOT            EXTERNAL40      3       ASCII
*CALL   DSOUT
LABEL   shotsbelow1000_TAPE0145
*END
```

APPENDIX 6.7

Focus job read_segd_file_part2_TAPE0145_shotsabve1000.dat

```
*JOB    EPR3DWELLINE1
*CALL   SEGD                            8058
RECORD  107             INCR    646

READ    format_raw_epr3d
TAPEOPT /flist="/remote/nas/working/MGL0812/Focus/SEGD_LISTS/list_TAPE0145"
EHDEF
12      7       ASCII   STATIME
26      8       ASCII   YMD
54      4       ASCII   LINENUM
81      4       ASCII   CBDEPTH
90      1       ASCII   SPLAT
98      4       ASCII   SPLON
EHDEF           FLOAT
19      7       ASCII   DECSEC
85      2       ASCII   DECCBDEP
91      7       ASCII   DECSPLAT
102     7       ASCII   DECSPLON
FHDRDEF
SHOT            EXTERNAL39      4       ASCII
*CALL   DSOUT
LABEL   shotsabove1000_TAPE0145
*END
```

APPENDIX 6.8

Spectra Header Definition from LangsethNavManual.pdf

RV Langseth Navigation Manual

Spectra Header Definition

Navigation Section:

Definition	Format	Description
Header ID	aa	'$1'
Length	nnnn	Length of header excluding this field and the 'Header ID' field
Program Revision	aaaa	'0001' or '0002'
Line Status	nn	01=Offline 02=Approach 03=Online 04=Runout
Shot Time:	nn nn nn .nnnnnn nnnn nn nn	Hours Minutes Seconds Microseconds Year Month Day
Time Ref	aaa	'UTC'
Shot Number	nnnnnn	
Line Name	aaaaaaaaaaaaaaaa	
Master Latitude	nnnn.nnnnnn	In degrees
Master Longitude	nnnn.nnnnnn	In degrees
Water Depth	nnnn.n	In meters
Source Latitude	nnnn.nnnnnn	In degrees
Source Longitude	nnnn.nnnnnn	In degrees
Master Gyro	nnn.n	In degrees
Master CMG	nnn.n	In degrees
Master Speed	nn.n	In knots

Referenced from:
Header Outputs Reference
headers.pdf
Spectra User Manual
Vicki Jarret
Concept Systems Ltd.

APPENDIX 6.9

Focus job read_allshots_modifyheaders_epr1660p.dat

```
*JOB    EPR3DWELLINE1
*CALL   DSIN
LABEL   allshots_epr1660P_TAPE0151
FILEID  0000400508a00bc1.000000.00000153
PKEYLST
895     1539
*CALL   HEADPUT LINETYPE        INTEGER
INPUT   FFID
DATA    1000    1
*CALL   HEADDEL
ENTRIES
JULDAY  DAY
*CALL   HDRMATH
DEFINE  MONTH
DEFINE  DAY
DEFINE  JULDAY
HCSUB   YMD     20080000TMP1
HCDIV   TMP1    100     MONTH
HCMUL   MONTH   100     TMP2
HHSUB   TMP1    TMP2    DAY
HCSUB   MONTH   7       TMP3
HCMUL   TMP3    31      TMP4
HCADD   TMP4    182     TMP5
HHADD   TMP5    DAY     JULDAY
*CALL   HEADDEL
ENTRIES
TMP1    TMP2    TMP3    TMP4    TMP5
*CALL   HDRMATH
DEFINE  STATUS
DEFINE  HR
DEFINE  MN
DEFINE  SEC
HCDIV   STATIME 1000000 STATUS
HCMUL   STATUS  1000000 TMP1
HHSUB   STATIME TMP1    TMP2
HCDIV   TMP2    10000   HR
HCMUL   HR      10000   TMP3
HHSUB   TMP2    TMP3    TMP4
HCDIV   TMP4    100     MN
HCMUL   MN      100     TMP5
HHSUB   TMP4    TMP5    SEC
*CALL   HEADDEL
ENTRIES
TMP1    TMP2    TMP3    TMP4    TMP5
*CALL   DSOUT
LABEL   allshots_modifiedheaders_epr1660P
*END
```

APPENDIX 6.10

Focus job navdisk_2036P.dat

```
*JOB    EPRCROSSCROSS3D
*CALL   NAVDSK  UKOOA90 1872    4       10
FILE    /remote/nas/working/MGL0812/NAV/p190/EPR3D2036P.p190
*CALL   NAVPRNT ALL
*CALL   NAVWRT  1       5000    1872
FILE    /remote/nas/working/MGL0812/NAV/EPR3D2036P.fmt
*END
```

APPENDIX 6.11

Focus job merge_2036P.dat

```
*JOB    EPRCROSSCROSS3D
```

```
*CALL   DSIN
LABEL   allshots_modifiedheaders_epr2036p
FILEID  0000400504a00bc1.000000.00000035
PKEYLST
894     1538
*CALL   PROTAPE                         5
FILE    /remote/nas/working/MGL0812/NAV/EPR3D2036P.fmt
*CALL   DSKWRT  /remote/nas/working/MGL0812/DSKWRT/2036.dsk
*END
```

APPENDIX 6.12

Focus job 1708P_fk1.dat (f-k filtering of shot gathers).

```
*JOB    EPR_AXISAXIS2
*CALL   DSIN
LABEL   1708P cable2
FILEID  0000400500a00bc1.000000.0000000e
ORDER   SHOT    OFFSET
PKEYLST
1150    1150
*CALL   FKBUILD FK1
DESIGN  50
KF
-500    10      -500    0       500     0       500     10
20      2       -20     2       -500    10
*CALL   FKAPPLY FK1
*CALL   DSOUT   OVERWRT
LABEL   1708P FK1
*END
```

APPENDIX 6.13

Focus job 1708P_lfaf1.dat (f-x filtering of shot gathers).

```
*JOB    EPR_AXISAXIS2
*CALL   DSIN
LABEL   1708P cable2
FILEID  0000400500a00bc1.000000.0000000e
ORDER   SHOT    OFFSET
PKEYLST
1150    1150
*CALL   LFAF            30              12.5    7
*CALL   DSOUT   OVERWRT
LABEL   1708P lfaf 0 30
*END
```

APPENDIX 7.0 Daily Mulitbeam Processing

1. First copy all Multibeam files for the day into the working directory. Create a list of files for each day with full directory path to files and run mbdatalist on these files

```
mbdatalist -F-1  -IDatalistJuly01 -N
```

2.Use mbm_plot to make a quick color shaded relief plot and make one plot for each file

```
mbm_plot -G2 -F56 -I0000_20080630_194037_MGL.all -
ORawSwathBath0630_1940 -N -V
```

View the output using gs RawSwathBath0630_1940.ps

3. Generate an initial grid of the data for the whole day

```
mbm_grid -F-1  -IJune30DataList -C2 -E100/100 -N -S2 -ORawBathGridJune30
-P1 -A1 –V
```

Edit the resulting .cmd file June30DataList.grd.cmd to remove the contouring if desired

4. To clean the multibeam: run mbclean on your list of files for the day

```
mbclean -F-1 -IJune30DataList -X7 -U10 -V -M3
```

5. Run mbedit - make sure to accept the existing edits when you open file with mbedit

```
mbedit -F56 -Ifilename
```

6. Run mbprocess, this will generate a new set of files with extension *p.56

```
mbprocess -F-1  -IJune30DataList -V
```

7. Make a new datalist file with names/paths of processed data and plot

```
mbm_plot -G2 -F-1  -IJune30DataListp -OBathEditJune30p -N -V
```

8. Grid the processed data for the day

```
mbm_grid -F-1  -IJune30DataListp -C2 -E100/100 -N -S2 -OBathGridJune30p -
P1 -A1 -V
```

APPENDIX 8.0 Final Navigation Processing

Final nav files by day are named: cnav.f.y2008d[182-233]

See readme with final navigation files which describes the intermediate products and the processing steps. In summary:

1. C-Nav data is used, as cnav is the spectra primary gps.

2. Data is restamped with the internal GPS timestamp.

3. GMT's sample1D is used to linear interpolate cnav fixes every 30 seconds (same as Ewing).

4. GMT's sample1D is used to linear interpolate seapath heading every 30 seconds.

5. C-Nav is merged with seapath heading.

6. Each fix is translated to the vessel reference using the surveyed antenna offsets (same offsets as in spectra) and the seapath heading. (the C-Nav antenna is 9.417m from the vessel ref)

7. cnav.f output includes timestamp, antenna lat/long, seapath heading, and vessel reference lat/long

APPENDIX 9.0 Summary of Logs Provided by Shipboard Technical Staff Documenting Operations

- **Job BookWith Nav & Technical Support Final Rpt - MGL 0.doc**
- **MGL0812_drawings_corrected.xls**: (includes documentation of offsets for seismic operations)
- **MGL0812_DataReport.doc**: Data Report for underway data: includes instrument summary, data filenames and formats, gaps in instrument recording, gravity tie information.
- Summary Seismic Acquisition Parameters (included in Data Report)
- **MGL0812_ReelLog.xls**: Incomplete, Information captured in science SeismicLineLog
- **MGL0812_Sequence_Report.xls**: Sequence#, Line Name, JDay, Direction, FGSP, LGSP, gun depth, cable depth, Lat/Long for first/last shot point.
- MGL0812_Navlog-s001_EPR3DAXIS1.xls: Navigation Logs – One file per line
- MGL0812_Obs_Log_s001_AXIS1.xls: Observer Logs – One file per line
- **XBT_Data_Table.xls**: Summary of XBT casts

APPENDIX 9.1 Seismic Line Logs for 3D Box and N-S Lines

Spreadsheet for 3D box SEGD data

Line name	Reel number	Size of reel (Gb)	First SP in reel	Last SP in reel	First file in reel	Last file in reel	SP range in P1/90	SP range loaded in Focus (.dsk file)	Corresponding FFID range
EPR3D**2132P**	31	25	875	1539	1	665	875-1539	875-1539	1-665
EPR3D**1940P**	32	24.3	1539	894	1	646	894-1538	894-1538	2-646
EPR3D**2124P**	33	24.3	894	1539	1	646	895-1539	895-1539	2-646
EPR3D**1932P**	34	24.2	1537	894	1	644	894-1537	894-1536	2-644
EPR3D**2316P**	35	25.6	859	1539	1	681	860-1539	861-1539	3-681
EPR3D**2116P**	36	24.3	1539	894	1	646	894-1539	894-1539	1-646
EPR3D**2308P**	37	24.3	894	1539	1	646	894-1539	895-1539	2-646
EPR3D**2108P**	38	24.3	1539	894	1	646	894-1539	894-1538	2-646
EPR3D**2300P**	39	24.2	897	1539	1	643	894-1539	898-1539	2-643
EPR3D**2100P**	40	24.3	1539	894	1	646	894-1539	894-1539	1-646
EPR3D**2292P**	41	24.3	894	1539	1	646	894-1539	895-1539	2-646
EPR3D**2092P**	42	24.3	1539	894	1	646	894-1538	894-1538	2-646
EPR3D**2284P**	43	24.3	894	1539	1	646	894-1539	895-1384	2-491
EPR3D**2084P**	44	24.3	1539	894	1	646	894-1539	895-1538	2-645
EPR3D**2276P**	45	24.3	894	1539	1	646	894-1539	895-1539	2-646
EPR3D**2076P**	46	22.2	1483	894	1	590	894-1482	894-1411	73-590

Spreadsheet for 3D box SEGD data

EPR3D**2268P**	47	24.3	893	1539	1	647	895-1539	895-1539	3-647
EPR3D**2068P**	48	24.3	1539	894	1	646	894-1539	894-1538	2-646
EPR3D**2260P**	49	24.2	896	1539	1	644	896-1539	897-1539	2-644
EPR3D**2060P**	50	24.3	1539	894	1	646	894-1538	894-1538	2-646
EPR3D**2252P**	51	24.3	894	1539	1	646	895-1538	895-1538	2-646
EPR3D**2052P**	52	24.3	1537	894	1	644	894-1537	894-1536	2-644
EPR3D**2244P**	53	4.3	894	1007	1	114	894-1026	None	
EPR3D**2044P**	54	29.6	1690	904	1	787	894-1689	894-1689	2-796
	55	0.3	902	894	788	796		Missing SP: 903	
EPR3D**2244R**	56	24.3	894	1539	1	646	894-1539	894-1539	1-646
EPR3D**2036P**	57	24.3	1539	894	1	646	894-1539	894-1538	2-646
EPR3D**2236P**	58	24.3	894	1539	1	646	894-1381	895-1380	2-487
								Missing SP: 1086-1106	
EPR3D**2028P**	59	22.1	1480	894	1	587	894-1416	894-1416	65-587
EPR3D**2228P**	60	24.2	898	1539	1	642	898-1539	898-1539	1-642
EPR3D**2020P**	61	23	1505	894	1	612	894-1432	894-1432	74-612
EPR3D**2228I**	62	24.3	894	1539	1	646	894-1539	894-1539	1-646
EPR3D**2012P**	63	29.6	1539	753	1	787	734-1538	734-1538	2-805
	64	0.7	751	734	788	805			
EPR3D**2220P**	65	29.6	734	1520	1	787	735-1539	735-1539	2-805
	66	0.7	1522	1539	788	805		Missing SP: 1521	
EPR3D**2004P**	67	24.3	1539	894	1	646	894-1539	894-1538	2-646
EPR3D**2212P**	68	23.9	906	1539	1	634	906-1539	908-1539	3-634
EPR3D**1996P**	69	24.3	1539	894	1	646	894-1538	894-1538	2-646
EPR3D**2204P**	70	24.3	894	1540	1	646			1-646
EPR3D**1988P**	71	24.3	1539	894	1	646	894-1538	894-1538	2-646
EPR3D**2204R**	72	24.3	894	1546	1	646	895-1539	895-1539	2-646
EPR3D**1988I**	73	24.3	1539	894	1	646	894-1539	894-1538	2-646
EPR3D**2196P**	74	24.3	894	1539	1	646	894-1539	895-1539	2-646
EPR3D**1980P**	75	24.3	1539	894	1	646	894-1539	894-1538	2-646
EPR3D**2188P**	76	24.3	894	1539	1	646	894-1539	895-1539	2-646
EPR3D**1972P**	77	21.3	1460	894	1	567	894-1460	894-1459	2-567
EPR3D**2180P**	78	24.2	894	1537	1	644	894-1539	894-1537	1-644

Spreadsheet for 3D box SEGD data

EPR3D**1964P**	79	24.3	1539	894	1	646	894-1539	894-1538	2-646
EPR3D**2172P**	80	24.3	894	1539	1	646	895-1539	895-1539	2-646
EPR3D**1956P**	81	24.3	1540	894	1	647	894-1539	894-1538	3-647
EPR3D**2164P**	82	23.1	927	1539	1	614	926-1539	927-1539	1-614
EPR3D**2156P**	83	24.5	889	1539	1	650	890-1539	890-1539	2-650
EPR3D**1948P**	84	24.2	1537	894	1	644	894-1539	894-1536	2-644
EPR3D**2148P**	85	24.3	894	1539	1	646	895-1539	895-1539 Missing SP: 1318-1349	2-646
EPR3D**1996I**	86	20.6	1508	894	1	548	894-1507	894-1507	2-548
EPR3D**2140P**	87	24.3	894	1539	1	646	895-1539	895-1539	2-646
EPR3D**1940I**	88	24.3	1539	894	1	646	894-1538	894-1538	2-646
EPR3D**2284R**	89	24.3	894	1539	1	646	894-1539	895-1539	2-646
EPR3D**2116I**	90	24.3	1539	894	1	646	894-1539	894-1538	2-646
EPR3D**2252I**	91	1.8	894	940	1	47			2-410
EPR3D**2252J**	92	15.5	1129	1539	1	411	1128-1538	1130-1538[2]	
EPR3D**2092I**	93	24.3	1539	894	1	646	894-1538	895-1538	2-645
EPR3D**2140I**	94	24.8	881	1539	1	660	880-1539	881-1539	2-660
EPR3D**1988J**	95	24.3	1539	894	1	646	894-1538	894-1538	2-646
EPR3D**2236R**	96	24.3	894	1539	1	646	894-1539	895-1539	2-646
EPR3D**2076I**	97	24.1	1535	894	1	642	894-1534	894-1533	3-642
EPR3D**1780P**	105	24.3	894	1539	1	646	894-1539	895-1539	2-646
EPR3D**1924P**	106	24.3	1539	894	1	646	894-1538	894-1538	2-646
EPR3D**1772P**	107	24.3	894	1539	1	646	895-1539	895-1539	2-646
EPR3D**1916P**	108	21.3	1458	894	1	565	894-1458	894-1457	2-565
EPR3D**1764P**	109	24.3	894	1539	1	646	894-1539	895-1539	2-646
EPR3D**1908P**	110	23.7	1524	894	1	631	894-1523	894-1523	2-631
EPR3D**1756P**	111	24.3	894	1539	1	646	895-1539	895-1539	2-646
EPR3D**1900P**	112	24.3	1539	894	1	646	894-1538	894-1538	2-646
EPR3D**1748P**	113	29.6	680	1466	1	787	680-1539	681-1539	2-859
	114	2.7	1468	1539	788	859		Missing SP: 1467	

Spreadsheet for 3D box SEGD data

EPR3D**1892P**	115	24.3	1539	894	1	646	895-1539	937-1537[2]	3-603
EPR3D**1740P**	116	24.3	894	1539	1	646	895-1539	895-1539	2-646
EPR3D**1884P**	117	24.3	1539	894	1	646	894-1539	894-1538	2-646
EPR3D**1732P**	118	24.3	895	1539	1	646	894-1539	895-1539	2-646
EPR3D**1876P**	119	24.3	1539	894	1	646	895-1539	895-1515	2-646
EPR3D**1724P**	120	29.6	697	1484	1	787	698-1539	699-1539	2-841
	121	2	1486	1539	788	841		Missing SP: 1002-1030, 1485	
EPR3D**1868P**	122	24.3	1539	894	1	646	894-1539	894-1538	2-646
EPR3D**1716P**	123	24.3	894	1539	1	646	894-1539	895-1539	2-646
EPR3D**1868I**	124	24.3	1539	894	1	646	894-1539	894-1538	2-646
EPR3D**1708P**	125	24.3	894	1539	1	646	895-1539	895-1539	2-646
EPR3D**1860P**	126	3.1	1539	1447	1	83	894-1538	894-1538	2-end
	127	5	1281	1122	1	133		Missing SP: 981-983,	
	128	4.6	1115	984	1	122		116-1121, 1282-1446	
	129	3.1	980	894	1	81			
EPR3D**1700P**	130	4.8	852	996	1	127	853-1539	853-1539	2-end
	131	3.8	1064	1176	1	101		Missing SP: 1297, 1299, 1301, 1303,	
	132	3.4	1205	1306	1	91		1305, 997-1063, 1177-1204,	
	133	6.7	1360	1539	1	177		and 1307-1359	
EPR3D**1860R**	134	3.5	1539	1435	1	93	894-1539	894-1539	all
	135	3.2	1432	1343	1	86		Missing SP: 995, 996, 1090, 1280,	
	136	2	1340	1282	1	54		1281, 1342, 1433, 1322, 1341,	
	137	6.9	1279	1091	1	184		1434, 1466	
	138	3.3	1089	997	1	88			
	139	3.7	994	894	1	99			
EPR3D**1692P**	140	2.4	894	963	1	65	894-1539	894-1539	all
	141	3.4	966	1060	1	90		Missing SP: 964, 965, 1061-1063,	
	142	3.6	1064	1164	1	96		1163, 1165, 1166	
	143	14	1167	1539	1	372			

Spreadsheet for 3D box SEGD data

EPR3D**1852P**	144	24.3	1539	894	1	646	894-1539	894-1539	1-646
EPR3D**1684P**	145	24.3	895	1539	1	646	894-1539	895-1539	2-646
EPR3D**1844P**	146	27.5	1625	894	1	732	894-1624	894-1624	2-end
EPR3D**1676P**	147	24.3	896	1539	1	644	894-1539	897-1539	2-644
EPR3D**1836P**	148	24.3	1538	894	1	646	894-1539	894-1538	2-646
EPR3D**1668P**	149	24.3	895	1539	1	646	894-1539	895-1539	2-646
EPR3D**1828P**	150	24.3	1539	894	1	646	894-1538	894-1538	2-646
EPR3D**1660P**	151	24.3	894	1539	1	646	894-1539	895-1539	2-646
EPR3D**1820P**	152	24.2	1537	894	1	644	894-1537	894-1536	2-644
EPR3D**1652P**	153	24.3	894	1539	1	646	895-1539	895-1539	2-646
EPR3D**1812P**	154	24.3	1539	894	1	646	894-1538	894-1538	2-646
EPR3D**1644P**	155	24.3	895	1539	1	646	894-1539	895-1539	2-646
EPR3D**1804P**	156	29.6	1731	946	1	787	894-1673	894-1673	60-838
	157	1.9	944	894	788	838			
EPR3D**1636P**	158	24.3	894	1539	1	646	894-1539	894-1539	1-646
EPR3D**1796P**	159	27.7	1629	984	1	736	894-1629	894-1628	2-736
EPR3D**1700R**	160	29.6	701	1487	1	787	702-1539	702-1539	2-838
	161	1.9	1489	1539	788	838		Missing SP: 1488	
EPR3D**1468P**	162	26.1	1539	845	1	693	845-1539	845-1539	1-693
EPR3D**1628P**	163	24.3	894	1539	1	646	894-1539	894-1539	1-646
EPR3D**1788P**	164	17.5	1539	1076	1	646	894-1538	1125-1537	3-415
EPR3D**1620P**	165	24.3	894	1539	1	646	895-1539	895-1539	2-646
EPR3D**1788R**	166	24.3	1539	894	1	646	894-1538	894-1538	2-646
EPR3D**1612P**	167	27.7	894	1629	1	737	895-1630	895-1629	2-736
								Missing SP: 1186-1227	
EPR3D**1460P**	168	27.6	1627	894	1	734	894-1626	894-1612	16-734

Spreadsheet for 3D box SEGD data

EPR3D**1604P**	169	13.8	1173	1539	1	367	1174-1539	1174-1539	2-367
EPR3D**1452P**	170	24.2	1537	894	1	644	894-1537	894-1537	1-644
EPR3D**1604R**	171	24.3	894	1539	1	646	894-1539	895-1539	2-646
EPR3D**1444P**	172	24.3	1539	894	1	646	894-1538	907-1538	2-633
EPR3D**1596P**	173	29	769	1539	1	771	770-1539	770-1539	2-771
EPR3D**1436P**	174	24.3	1539	894	1	646	894-1538	894-1538	2-646
EPR3D**1596I**	175	24.3	894	1539	1	646	894-1539	895-1539	2-646
EPR3D**1428P**	176	35.1	1682	751	1	932	751-1682	751-1681	2-932
								Shots 1680-1494 [2] not loaded	
EPR3D**1588P**	177	29.7	751	1539	1	789	751-1539	752-1539	2-789
EPR3D**1420P**	178	27.8	1632	894	1	739	894-1631	894-1631	2-739
EPR3D**1588R**	179	24.3	894	1539	1	646	895-1539	895-1539	2-646
EPR3D**1412P**	180	24.3	1539	894	1	646	894-1538	957-1538	2-646
								Shots 1537-1239[2] not loaded	
EPR3D**1268P**	181	22.8	933	1539	1	607	933-1539	960-1539	28-607
EPR3D**1476P**	182	3.1	1539	1452	1	83	894-1538	894-1538	2-end
	183	5.8	1450	1293	1	153		Missing SP: 1451, 1292	
	184	14.8	1291	894	1	394			
EPR3D**1276P**	185	24.3	894	1539	1	646	894-1539	894-1539	1-646
EPR3D**1404P**	186	24.3	1539	894	1	646	894-1539	894-1538	2-646
EPR3D**0972P**	187	34.1	895	1800	1	906	896-1800	897-1800	3-906
								Missing SP: 896-950[2]	
EPR3D**1396P**	189	24.8	1551	894	1	658	894-1551	894-1550	2-658
EPR3D**1580P**	190	24.3	894	1539	1	646	894-1539	895-1539	2-646
EPR3D**1388P**	191	24.3	1539	894	1	646	894-1539	894-1538	2-646
EPR3D**1596R**	192	24.3	894	1539	1	646	894-1539	895-1539	2-646
EPR3D**1380P**	193	24.3	1539	894	1	646	894-1539	894-1539	1-646
EPR3D**1572P**	194	14.9	894	1288	1	395	895-1288	895-1288	2-395
EPR3D**1372P**	196	24.3	1539	894	1	646	894-1539	894-1539	1-646

Spreadsheet for 3D box SEGD data

EPR3D**1788I**	197	24.3	894	1539	1	646	896-1539	896-1539	3-646
EPR3D**2028I**	199	17.2	1537	1038	1	456	1038-1538	1038-1537 Missing SP:1479-1523	2-456

On W-E lines (82 degrees azimuth)
run-in = SP ~894 to 1000, run-out = SP 1433 to ~1539 hence FGSP=1001, LGSP=1539
On E-W lines (262 degrees azimuth)
run-in = SP ~1539 to 1433, run-out = SP 1000 to ~894 hence FGSP=1432, LGSP=894

Spreadsheet for 3D box SEGD data

			Lat/lon are from external header (hence unprocessed)			
Line Name	Azimuth	Comments	Latitude of min. SP# loaded in Focus	Longitude of min. SP# loaded in Focus	Latitude of max. SP# loaded in Focus	Longitude of max. SP# loaded in Focus
EPR3D**2132P**	82 (WE)		9.8678	-104.4122	9.8991	-104.1873
EPR3D**1940P**	262 (EW)	SP 1265 (FFID 275) has bad CBDEPTH info - interpolated to 2581.7 P190 has no SP 1539 - skipped this SP	9.8049	-104.3913	9.8362	-104.173
EPR3D**2124P**	82 (WE)		9.866	-104.405	9.8968	-104.187
EPR3D**1932P**	262 (EW)	SP 954-894 gun S2G04 autofire	9.8018	-104.3909	9.8323	-104.1735
EPR3D**2316P**	82 (WE)	P190 has no SP 860 - skipped this SP	9.9289	-104.4261	9.9604	-104.1959
EPR3D**2116P**	262 (EW)		9.8642	-104.3998	9.8948	-104.1812
EPR3D**2308P**	82 (WE)		9.9277	-104.4137	9.9572	-104.1955
EPR3D**2108P**	262 (EW)		9.8611	-104.3993	9.8913	-104.1811
EPR3D**2300P**	82 (WE)		9.9255	-104.4124	9.9543	-104.1951
EPR3D**2100P**	262 (EW)		9.8583	-104.3989	9.8887	-104.1804
EPR3D**2292P**	82 (WE)		9.9218	-104.413	9.9519	-104.1948
EPR3D**2092P**	262 (EW)		9.8557	-104.3985	9.8859	-104.1803
EPR3D**2284P**	82 (WE)	Gap (SP 1385-1509) due to turtle sighting hence SP 1384=last shot loaded	9.9212	-104.4129	9.9431	-104.247
EPR3D**2084P**	262 (EW)	SP 894 (file 646) bad (as if seafloor reflection duplicated) hence not loaded	9.854	-104.3979	9.8827	-104.18
EPR3D**2276P**	82 (WE)	Noise on streamer 1 from SP 1186: one entire section is affected, also channel 53 is bad	9.9144	-104.4123	9.9472	-104.194
EPR3D**2076P**	262 (EW)	SOL at SP 1483 (due to repairs on string4), hence FGSP=1411	9.8501	-104.397	9.8762	-104.2228

Spreadsheet for 3D box SEGD data

EPR3D**2268P**	82 (WE)	P190 has no SP 894 - skipped this SP; observer's log says file is spurious	9.9138	-104.4117	9.9445	-104.1936
EPR3D**2068P**	262 (EW)		9.8485	-104.3975	9.8778	-104.1793
EPR3D**2260P**	82 (WE)		9.9115	-104.4108	9.9417	-104.1933
EPR3D**2060P**	262 (EW)					
EPR3D**2252P**	82 (WE)	P190 has no SP 1539 - skipped this SP	9.9093	-104.4112	9.9393	-104.193
EPR3D**2052P**	262 (EW)					
EPR3D**2244P**	82 (WE)	EOL due to compressor failure; no data loaded				
EPR3D**2044P**	262 (EW)		9.8399	-104.3962	9.8782	-104.1271
	262 (EW)					
EPR3D**2244R**	82 (WE)		9.9071	-104.4112	9.9376	-104.1927
EPR3D**2036P**	262 (EW)		9.8375	-104.3959	9.8654	-104.1778
EPR3D**2236P**	82 (WE)	Gap (SP 1086-1106) due to turtle sighting LGSP=1380 due to turtle sighting	9.9032	-104.4102	9.9283	-104.2464
EPR3D**2028P**	262 (EW)	FGSP=1416 - no explanation	9.835	-104.3957	9.8598	-104.219
EPR3D**2228P**	82 (WE)		9.9037	-104.4094	9.9324	-104.192
EPR3D**2020P**	262 (EW)	FGSP=1432 - no explanation	9.8324	-104.3952	9.8582	-104.2131
EPR3D**2228I**	82 (WE)		9.9008	-104.4103	9.9292	-104.1917
EPR3D**2012P**	262 (EW)					
EPR3D**2220P**	82 (WE)		9.891	-104.4639	9.9263	-104.1912
EPR3D**2004P**	262 (EW)		9.8268	-104.3943	9.858	-104.1764
EPR3D**2212P**	82 (WE)	SP 907 skipped while merging with P190 (otherwise merge failed)	9.8969	-104.4048	9.924	-104.1909
EPR3D**1996P**	262 (EW)		9.8241	-104.3939	9.8555	-104.176
EPR3D**2204P**	82 (WE)	Port source firing every 37.5 m from SP 1000 onwards (not a 3D line) - no data loaded				
EPR3D**1988P**	262 (EW)		9.822	-104.3937	9.853	-104.1757
EPR3D**2204R**	82 (WE)		9.8924	-104.4088	9.9219	-104.1906
EPR3D**1988I**	262 (EW)		9.8204	-104.3935	9.8502	-104.1753
EPR3D**2196P**	82 (WE)		9.8899	-104.4084	9.9194	-104.1902
EPR3D**1980P**	262 (EW)		9.8177	-104.3931	9.8487	-104.1751
EPR3D**2188P**	82 (WE)		9.8875	-104.4081	9.9163	-104.1898
EPR3D**1972P**	262 (EW)	Why SOL at SP 1460?	9.8148	-104.3927	9.8418	-104.2014
EPR3D**2180P**	82 (WE)		9.8853	-104.4082	9.9138	-104.1901

EPR3D**1964P**	262 (EW)		9.8121	-104.3923	9.8425	-104.1764
EPR3D**2172P**	82 (WE)	Deviation towards South at SP 1420 due to fishing vessel	9.8818	-104.4073	9.8988	-104.1873
EPR3D**1956P**	262 (EW)		9.8093	-104.3919	9.8398	-104.1738
EPR3D**2164P**	82 (WE)		9.881	-104.3961	9.9088	-104.1887
EPR3D**2156P**	82 (WE)		9.8779	-104.4083	9.9058	-104.1883
EPR3D**1948P**	262 (EW)		9.8067	-104.3915	9.8377	-104.1742
EPR3D**2148P**	82 (WE)	Gap (SP 1317-1349 = FFID 424-456) due to turtle sighting	9.8746	-104.4063	9.9041	-104.1881
EPR3D**1996I**	262 (EW)		9.8239	-104.3939	9.8504	-104.186
EPR3D**2140P**	82 (WE)		9.8717	-104.4059	9.9016	-104.1877
EPR3D**1940I**	262 (EW)		9.8023	-104.3909	9.8342	-104.173
EPR3D**2284R**	82 (WE)		9.9191	-104.4126	9.9501	-104.1945
EPR3D**2116I**	262 (EW)		9.8642	-104.3997	9.894	-104.1815
EPR3D**2252I**		EOL 2252I due to problem on source 1				
EPR3D**2252J**	82 (WE)	2252J has source 2 firing only	9.9186	-104.3314	9.9388	-104.1933
EPR3D**2092I**	262 (EW)	Partial volume on either source for part of the line	9.8561	-104.3981	9.8849	-104.1803
EPR3D**2140I**	82 (WE)		9.87	-104.4105	9.9002	-104.1875
EPR3D**1988J**	262 (EW)		9.8205	-104.3935	9.8517	-104.1755
EPR3D**2236R**	82 (WE)		9.9041	-104.4105	9.9339	-104.1923
EPR3D**2076I**	262 (EW)	End of racetrack 1	9.849	-104.3975	9.8816	-104.1815
		Beginning of racetrack 2				
EPR3D**1780P**	82 (WE)		9.7501	-104.3885	9.7805	-104.1705
EPR3D**1924P**	262 (EW)		9.799	-104.3905	9.83	-104.1726
EPR3D**1772P**	82 (WE)		9.7473	-104.3881	9.7775	-104.1701
EPR3D**1916P**	262 (EW)	SP 950 (FFID 509) has bad CBDEPTH - interpolated to 2909.7	9.7962	-104.3901	9.824	-104.1995
EPR3D**1764P**	82 (WE)		9.7442	-104.3877	9.7749	-104.1698
EPR3D**1908P**	262 (EW)		9.794	-104.3892	9.8245	-104.1768
EPR3D**1756P**	82 (WE)		9.7419	-104.3874	9.772	-104.1694
EPR3D**1900P**	262 (EW)		9.7906	-104.3892	9.8221	-104.1713
EPR3D**1748P**	82 (WE)		9.7296	-104.4596	9.7692	-104.169

EPR3D**1892P**	262 (EW)	Only shots fired by source 1 were loaded	9.7912	-104.3745	9.82	-104.1714
EPR3D**1740P**	82 (WE)		9.7373	-104.3868	9.7665	-104.1686
EPR3D**1884P**	262 (EW)	SP 1510-1511 (FFID 116-115) have bad CBDEPTH info - interpolated to 2875.5 and 2888.1	9.7875	-104.3888	9.8175	-104.1706
EPR3D**1732P**	82 (WE)		9.7341	-104.3863	9.7642	-104.1683
EPR3D**1876P**	262 (EW)		9.7853	-104.3881	9.815	-104.1783
EPR3D**1724P**	82 (WE)	Power down (SP 1002-1030 = FFID 305-333) due to MMO sighting	9.7232	-104.4523	9.7615	-104.1679
EPR3D**1868P**	262 (EW)		9.7824	-104.3884	9.8129	-104.17
EPR3D**1716P**	82 (WE)	SP 1033 (FFID 140) not loaded: as if source did not fire?	9.729	-104.3856	9.759	-104.1675
EPR3D**1868I**	262 (EW)		9.7799	-104.3877	9.8102	-104.1696
EPR3D**1708P**	82 (WE)		9.7264	-104.3852	9.7563	-104.1672
EPR3D**1860P**	262 (EW)	Seisnet crash	9.7775	-104.3874	9.8147	-104.1703
EPR3D**1700P**	82 (WE)	Syntrak problems	9.7222	-104.3992	9.7536	-104.1668
EPR3D**1860R**	262 (EW)	Syntrak problems	9.7773	-104.3873	9.8078	-104.169
		SP 1041-1042 (FFID 49-48 tape 138) have bad CBDEPTH info - interpolated to 2789.2 and 2788.5				
		SP 1179-1180 (FFID 100-99 tape 137) interpolated to 2565.0 and 2562.4				
		SP 1230-1231 (FFID 50-49 tape 137) interpolated to 2562.3 and 2560.0				
		SP 1321 (FFID 19 tape 136) interpolated to 2690.4				
		SP 1351-1354 (FFID 79-76 tape 135) interpolated to 2686.5, 2689.7, 2693.0, 2696.2				
		SP 1382-1383 (FFID 49-48 tape 135) interpolated to 2779.8 and 2786.4				
		SP 1465 and 1467 (FFID 70 and 69 tape 134) interpolated to 2837.9 and 2835.6, SP 1466 missing				
EPR3D**1692P**	82 (WE)	Syntrak problems	9.7218	-104.3849	9.7519	-104.1665

EPR2D**1852P**	262 (EW)	SP 1525 (FFID 15) has bad CBDEPTH info - interpolated to 2884.7; similarly SP 1025-1026 (FFID 515-514) interpolated to 2818.8 and 2816.2, SP 934-935 (FFID 606-605) to 2937.4 and 2936.7	9.7744	-104.387	9.8062	-104.1687
EPR3D**1684P**	82 (WE)		9.7182	-104.384	9.749	-104.1661
EPR3D**1844P**	262 (EW)	SP 1510-1511 have bad CBDEPTH info - interpolated to 2893.0	9.7714	-104.3865	9.8065	-104.1394
EPR3D**1676P**	82 (WE)		9.7163	-104.3831	9.7463	-104.1657
EPR3D**1836P**	262 (EW)	SP 1407 has bad CBDEPTH info - interpolated to 2792.5	9.7688	-104.3862	9.7994	-104.1681
EPR3D**1668P**	82 (WE)		9.7135	-104.3834	9.7434	-104.1653
EPR3D**1828P**	262 (EW)		9.7661	-104.3857	9.7966	-104.1677
EPR3D**1660P**	82 (WE)		9.7111	-104.3831	9.7403	-104.1649
EPR3D**1820P**	262 (EW)		9.7633	-104.3853	9.7935	-104.168
EPR3D**1652P**	82 (WE)		9.7085	-104.3827	9.7379	-104.1646
EPR3D**1812P**	262 (EW)		9.7607	-104.385	9.7912	-104.1669
EPR3D**1644P**	82 (WE)		9.7055	-104.3823	9.7351	-104.1641
EPR3D**1804P**	262 (EW)		9.7581	-104.3846	9.7951	-104.1209
EPR3D**1636P**	82 (WE)		9.7028	-104.3822	9.7326	-104.1638
EPR3D**1796P**	262 (EW)		9.7559	-104.3844	9.787	-104.1354
EPR3D**1700R**	82 (WE)		9.7207	-104.4503	9.7542	-104.1668
EPR3D**1468P**	262 (EW)		9.6445	-104.3854	9.6773	-104.1504
EPR3D**1628P**	82 (WE)		9.701	-104.382	9.7299	-104.1634
EPR3D**1788P**	262 (EW)	Power down for whales hence SP 894-1124 not loaded	9.7642	-104.3057	9.7838	-104.1662
EPR3D**1620P**	82 (WE)		9.6977	-104.3812	9.7269	-104.163
EPR3D**1788R**	262 (EW)	End of racetrack 2	9.752	-104.3837	9.7824	-104.1657
		Beginning of racetrack 3				
EPR3D**1612P**	82 (WE)	Gap (SP 1186-1227 = FFID 401-442) due to turtle sighting	9.6952	-104.3808	9.7286	-104.1322
EPR3D**1460P**	262 (EW)		9.6432	-104.3683	9.6783	-104.1254

Spreadsheet for 3D box SEGD data

EPR3D**1604P**	82 (WE)	Course diverted to the north following engine failure - actual data were collected north of planned 1604P track	9.7065	-104.2861	9.7229	-104.1624
EPR3D**1452P**	262 (EW)		9.6409	-104.368	9.6726	-104.1505
EPR3D**1604R**	82 (WE)		9.6923	-104.3804	9.7261	-104.1628
EPR3D**1444P**	262 (EW)	SP 894-906 "rejected" (Observer's log)	9.6396	-104.3633	9.6685	-104.1496
EPR3D**1596P**	82 (WE)	Gaps (SP 846-879 = FFID 79-111 and SP 1176-1260 = FFID 408-492) due to power down for turtles	9.6834	-104.4223	9.7207	-104.1621
EPR3D**1436P**	262 (EW)		9.6659	-104.1492	9.6659	-104.1492
EPR3D**1596I**	82 (WE)		9.687	-104.3796	9.7182	-104.1617
EPR3D**1428P**	262 (EW)	Source 1 only between SP 1493-1681 Data read without CBDEPTH info	9.6271	-104.4153		
EPR3D**1588P**	82 (WE)	Gap (SP 1221-1381 = FFID 471-631) due to power down for whales	9.6786	-104.4276	9.7154	-104.1614
EPR3D**1420P**	262 (EW)	Data read without CBDEPTH info	9.6308	-104.3666	9.6655	-104.1171
EPR3D**1588R**	82 (WE)		9.6848	-104.3793	9.7156	-104.1614
EPR3D**1412P**	262 (EW)	Source 1 only between SP 1238-1538 Data read without CBDEPTH info	9.6281	-104.3662	9.6584	-104.1482
EPR3D**1268P**	82 (WE)		9.582	-104.3423	9.6086	-104.1462
EPR3D**1476P**	262 (EW)	Data read without CBDEPTH info	9.6487	-104.3691	9.6791	-104.1512
EPR3D**1276P**	82 (WE)		9.5807	-104.3649	9.611	-104.1466
EPR3D**1404P**	262 (EW)	Data read without CBDEPTH info	9.6251	-104.3658	9.6551	-104.1477
EPR3D**0972P**	82 (WE)	Source 1 only between SP 897-951	9.4789	-104.3494	9.5222	-104.044
EPR3D**1396P**	262 (EW)	Data read without CBDEPTH info	9.622	-104.3653	9.6529	-104.1433
EPR3D**1580P**	82 (WE)		9.6822	-104.3789	9.7129	-104.161
EPR3D**1388P**	262 (EW)	Data read without CBDEPTH info	9.6193	-104.3649	9.6498	-104.147
EPR3D**1596R**	82 (WE)		9.7205	-104.1621	9.6901	-104.3801
EPR3D**1380P**	262 (EW)	SP 946 (FFID 594) has bad CBDEPTH info - interpolated to 2898.9	9.6165	-104.3645	9.6479	-104.1464
EPR3D**1572P**	82 (WE)		9.6807	-104.3788	9.6945	-104.244
EPR3D**1372P**	262 (EW)		9.614	-104.3642	9.6457	-104.146

EPR3D**1788I**	82 (WE)		9.7536	-104.3888	9.7859	-104.1713
EPR3D**2028I**	262 (EW)	SP 1479-1523 not recorded	9.8442	-104.3472	9.8662	-104.1779

Spreadsheet for 3D box SEGD data

Lat/lon are from P1/90 (hence processed)

Line Name	Latitude of min. SP# loaded in Focus	Longitude of min. SP# loaded in Focus	Latitude of max. SP# loaded in Focus	Longitude of max. SP# loaded in Focus	Status
EPR3D**2132P**	9.8678	-104.4122	9.8991	-104.1873	merged
EPR3D**1940P**	9.8049	-104.3913	9.8353	-104.1732	merged
EPR3D**2124P**	9.866	-104.405	9.8968	-104.1869	merged
EPR3D**1932P**	9.8019	-104.3909	9.8331	-104.1732	merged
EPR3D**2316P**	9.9283	-104.4255	9.9604	-104.1959	merged
EPR3D**2116P**	9.8642	-104.3997	9.8947	-104.1812	merged
EPR3D**2308P**	9.9277	-104.4138	9.9572	-104.1955	merged
EPR3D**2108P**	9.8611	-104.3993	9.8913	-104.1811	merged
EPR3D**2300P**	9.9255	-104.4124	9.9543	-104.1951	merged
EPR3D**2100P**	9.8584	-104.3989	9.8895	-104.1805	merged
EPR3D**2292P**	9.9219	-104.413	9.9519	-104.1948	merged
EPR3D**2092P**	9.8558	-104.3985	9.8859	-104.1804	merged
EPR3D**2284P**	9.9213	-104.4129	9.943	-104.2471	merged
EPR3D**2084P**	9.854	-104.3979	9.8835	-104.1797	merged
EPR3D**2276P**	9.9162	-104.4121	9.9472	-104.194	merged
EPR3D**2076P**	9.8507	-104.3979	9.8762	-104.2228	merged

Spreadsheet for 3D box SEGD data

EPR3D**2268P**	9.9138	-104.4117	9.9445	-104.1937	merged
EPR3D**2068P**	9.8485	-104.3975	9.8778	-104.1793	merged
EPR3D**2260P**	9.9115	-104.4108	9.9417	-104.1733	merged
EPR3D**2060P**	9.8456	-104.397	9.8752	-104.1788	merged
EPR3D**2252P**	9.9093	-104.4112	9.94	-104.1935	merged
EPR3D**2052P**	9.8425	-104.3967	9.8729	-104.1792	merged
EPR3D**2244P**					
EPR3D**2044P**	9.8399	-104.3962	9.8782	-104.1271	merged
EPR3D**2244R**	9.907	-104.4112	9.9376	-104.1927	merged
EPR3D**2036P**	9.8375	-104.3959	9.8654	-104.1778	merged
EPR3D**2236P**	9.9032	-104.4102	9.9283	-104.2463	merged
EPR3D**2028P**	9.8351	-104.3957	9.8599	-104.219	
EPR3D**2228P**	9.9037	-104.4094	9.9325	-104.192	merged
EPR3D**2020P**	9.8325	-104.3952	9.8583	-104.2131	
EPR3D**2228I**	9.9008	-104.4103	9.9292	-104.1916	merged
EPR3D**2012P**	9.8222	-104.4489	9.8611	-104.1768	merged
EPR3D**2220P**	9.891	-104.4639	9.9263	-104.191	merged
EPR3D**2004P**	9.8268	-104.3943	9.8581	-104.1764	merged
EPR3D**2212P**	9.8967	-104.4048	9.924	-104.1909	merged
EPR3D**1996P**	9.8241	-104.394	9.8555	-104.176	merged
EPR3D**2204P**					
EPR3D**1988P**	9.822	-104.3937	9.853	-104.1757	merged
EPR3D**2204R**	9.8186	-104.3314	9.9388	-104.1933	merged
EPR3D**1988I**	9.8205	-104.3935	9.8502	-104.1753	merged
EPR3D**2196P**	9.89	-104.4084	9.9194	-104.1902	merged
EPR3D**1980P**	9.8177	-104.3931	9.8487	-104.1751	merged
EPR3D**2188P**	9.8875	-104.4081	9.9164	-104.1898	merged
EPR3D**1972P**	9.8148	-104.3927	9.8418	-104.2014	merged
EPR3D**2180P**	9.8853	-104.4082	9.9138	-104.1901	merged

Spreadsheet for 3D box SEGD data

EPR3D**1964P**	9.8122	-104.3923	9.8425	-104.1742	merged
EPR3D**2172P**	9.8819	-104.4073	9.8988	-104.1873	merged
EPR3D**1956P**	9.8093	-104.3919	9.8398	-104.1738	merged
EPR3D**2164P**	9.881	-104.3962	9.9088	-104.1887	merged
EPR3D**2156P**	9.8779	-104.4083	9.9058	-104.1883	merged
EPR3D**1948P**	9.8068	-104.3919	9.8377	-104.1742	merged
EPR3D**2148P**	9.8747	-104.4063	9.9041	-104.1881	merged
EPR3D**1996I**	9.8239	-104.3939	9.8504	-104.186	merged
EPR3D**2140P**	9.8717	-104.4059	9.9017	-104.1877	merged
EPR3D**1940I**	9.8023	-104.3909	9.8341	-104.173	merged
EPR3D**2284R**	9.9191	-104.4126	9.9501	-104.1945	merged
EPR3D**2116I**	9.8642	-104.3997	9.894	-104.1815	merged
EPR3D**2252I**					
EPR3D**2252J**	9.9186	-104.3314	9.9388	-104.1933	merged
EPR3D**2092I**	9.8565	-104.3983	9.8859	-104.1804	merged
EPR3D**2140I**	9.87	-104.4104	9.9003	-104.1875	merged
EPR3D**1988J**	9.8206	-104.3935	9.8517	-104.1755	merged
EPR3D**2236R**	9.9042	-104.4105	9.934	-104.1923	merged
EPR3D**2076I**	9.849	-104.3975	9.881	-104.181	merged
EPR3D**1780P**	9.7501	-104.3885	9.7805	-104.1705	merged
EPR3D**1924P**	9.799	-104.3905	9.83	-104.1725	merged
EPR3D**1772P**	9.7473	-104.3881	9.7775	-104.1701	merged
EPR3D**1916P**	9.7962	-104.3901	9.824	-104.1995	merged
EPR3D**1764P**	9.7442	-104.3877	9.7749	-104.3901	merged
EPR3D**1908P**	9.7939	-104.3897	9.8245	-104.1768	merged
EPR3D**1756P**	9.742	-104.3874	9.7721	-104.1694	merged
EPR3D**1900P**	9.7906	-104.3892	9.822	-104.1713	merged
EPR3D**1748P**	9.7296	-104.4596	9.7692	-104.169	merged

Spreadsheet for 3D box SEGD data

EPR3D**1892P**	9.7911	-104.3745	9.82	-104.1714	merged
EPR3D**1740P**	9.7373	-104.3868	9.7666	-104.1686	merged
EPR3D**1884P**	9.7875	-104.3888	9.8175	-104.1706	merged
EPR3D**1732P**	9.7341	-104.3863	9.7642	-104.1683	merged
EPR3D**1876P**	9.7853	-104.3881	9.815	-104.1783	merged
EPR3D**1724P**	9.7235	-104.4529	9.7615	-104.1679	merged
EPR3D**1868P**	9.7824	-104.388	9.8129	-104.17	merged
EPR3D**1716P**	9.729	-104.3856	9.759	-104.1675	merged
EPR3D**1868I**	9.7799	-104.3877	9.8102	-104.1696	merged
EPR3D**1708P**	9.7265	-104.3852	9.7563	-104.1672	merged
EPR3D**1860P**	9.7775	-104.3874	9.8147	-104.1703	merged
EPR3D**1700P**	9.7223	-104.3992	9.7536	-104.1668	merged
EPR3D**1860R**	9.7773	-104.3874	9.8078	-104.169	merged
EPR3D**1692P**	9.7218	-104.3849	9.7519	-104.1665	merged

Spreadsheet for 3D box SEGD data

EPR2D**1852P**	9.7744	-104.387	9.8062	-104.1687	merged
EPR3D**1684P**	9.7182	-104.384	9.749	-104.1661	merged
EPR3D**1844P**	9.795	-104.2193	9.8065	-104.1394	merged
EPR3D**1676P**	9.7163	-104.3831	9.7464	-104.1657	merged
EPR3D**1836P**	9.7688	-104.3861	9.7994	-104.168	merged
EPR3D**1668P**	9.7136	-104.3834	9.7434	-104.1653	merged
EPR3D**1828P**	9.7661	-104.3857	9.7966	-104.1677	merged
EPR3D**1660P**	9.7111	-104.3831	9.7403	-104.1649	merged
EPR3D**1820P**	9.7631	-104.3839	9.7935	-104.168	merged
EPR3D**1652P**	9.7085	-104.3827	9.7379	-104.1645	merged
EPR3D**1812P**	9.7607	-104.385	9.7912	-104.1669	merged
EPR3D**1644P**	9.7055	-104.3822	9.7351	-104.1641	merged
EPR3D**1804P**	9.7581	-104.3846	9.7951	-104.1209	merged
EPR3D**1636P**	9.7036	-104.3823	9.7326	-104.1638	merged
EPR3D**1796P**	9.7559	-104.3844	9.787	-104.1354	merged
EPR3D**1700R**	9.7207	-104.3854	9.7542	-104.1668	merged
EPR3D**1468P**	9.6444	-104.3854	9.6773	-104.1503	merged
EPR3D**1628P**	9.701	-104.382	9.7299	-104.1634	merged
EPR3D**1788P**	9.7524	-104.3838	9.783	-104.1658	merged
EPR3D**1620P**	9.6978	-104.3812	9.727	-104.163	merged
EPR3D**1788R**	9.752	-104.3837	9.7824	-104.1657	merged
EPR3D**1612P**	9.6952	-104.3808	9.7286	-104.1322	merged
EPR3D**1460P**	9.6432	-104.3683	9.6783	-104.1254	merged

Spreadsheet for 3D box SEGD data

EPR3D**1604P**	9.7065	-104.2861	9.723	-104.1624	merged
EPR3D**1452P**	9.6409	-104.3689	9.6726	-104.1505	merged
EPR3D**1604R**	9.6923	-104.3804	9.7261	-104.1628	merged
EPR3D**1444P**	9.6396	-104.3633	9.6685	-104.1496	merged
EPR3D**1596P**	9.6834	-104.4223	9.7207	-104.1621	merged
EPR3D**1436P**	9.6659	-104.1492	9.6659	-104.1492	merged
EPR3D**1596I**	9.687	-104.3796	9.7182	-104.1617	merged
EPR3D**1428P**	9.627	-104.4153	9.6678	-104.1001	merged
EPR3D**1588P**	9.6789	-104.4278	9.7154	-104.1614	merged
EPR3D**1420P**	9.6308	-104.3666	9.6655	-104.1171	merged
EPR3D**1588R**	9.6848	-104.3793	9.7156	-104.1614	merged
EPR3D**1412P**	9.6281	-104.3662	9.6584	-104.1482	merged
EPR3D**1268P**	9.582	-104.3423	9.6086	-104.1462	merged
EPR3D**1476P**	9.6487	-104.3691	9.6791	-104.1512	merged
EPR3D**1276P**	9.5807	-104.3649	9.6111	-104.1466	merged
EPR3D**1404P**	9.6251	-104.3658	9.6551	-104.1477	merged
EPR3D**0972P**	9.4789	-104.3494	9.5222	-104.044	merged
EPR3D**1396P**	9.622	-104.3653	9.6529	-104.1433	merged
EPR3D**1580P**	9.6823	-104.3789	9.7129	-104.161	merged
EPR3D**1388P**	9.6193	-104.3649	9.6498	-104.147	merged
EPR3D**1596R**	9.7206	-104.1621	9.6901	-104.3801	merged
EPR3D**1380P**	9.6166	-104.3645	9.6479	-104.1464	merged
EPR3D**1572P**	9.6807	-104.3788	9.6945	-104.2439	merged
EPR3D**1372P**	9.614	-104.3642	9.6456	-104.146	merged

EPR3D**1788I**	9.7536	-104.3888	9.7859	-104.1713	merged
EPR3D**2028I**	9.8442	-104.3472	9.8662	-104.1779	merged

Spreadsheet for N-S lines

Line name	Reel number	Size of reel (Gb)	First SP in reel	Last SP in reel	First file in reel	Last file in reel	SP range in P1/90
AXIS1	1	2.5	665	798	1	82	906-2514
	2	9.8	906	1238	1	327	
	3	9.8	1240	1566	328	654	
	4	9.8	1568	1896	655	981	
	5	9.8	1898	2224	982	1308	
	6	9.8	2226	2552	1309	1635	
	7	7.8	2554	2575	1636	1661	
AXIS3	8	4	3825	3700	1	107	915-3664
	10	0.3	?	3679	109	116	
	11	0.1	3677	3673	117	119	
	13	29.6	3667	2880	1	787	
	14	29.6	2878	2092	788	1574	
	15	29.6	2090	1304	1575	2361	
	16	14.6	1302	915	2362	2749	
AXIS2	17	10.6	942	1225	1	284	941-2026
	19	0.5	1232	1249	288	299	
	20	0.04	1257	1257	301	301	
	21	28.4	1272	2026	1	755	
AXIS2R1	22	29.6	878	1664	1	787	922-4471
	23	29.6	1666	2452	788	1574	
	24	29.6	2454	3240	1575	2361	
	25	29.6	3242	4028	2362	3148	
	26	12.4	4030	4359	3149	3478	
	27	0.04	4366	4366	3482	3482	
	28	1.5	4430	4471	2	42	
Transit1	29	5.7	1028	1264	1	151	1029-1610
	30	12.8	1267	1610	1	341	
Transit2	98	29.6	850	1639	1	787	857-1725

Spreadsheet for N-S lines

	99	3.2	1641	1725	788	872	
AXIS3P2	100	29.6	3260	4046	1	787	3260-4911
	101	29.6	4048	4834	788	1574	
	102	29.6	4836	4911	1575	1650	
AXIS4	103	29.6	5095	4309	1	787	3610-5095
	104	26.3	4307	3610	788	1485	
Transit3	188	16.5	1018	1455	1	438	1018-1455
AXIS5	195	12.7	1341	1005	1	337	1005-1341

Spreadsheet for N-S lines

	SP & FFID ranges loaded in Focus (.dsk file)	Azimuth	Comments
AXIS1	SP 906-2514 file 1 reel 2 to file 1597 reel 6	346.5 (S-N)	Bad SP (not loaded): 978 (spurious), 1610- 1640, 1643, 1867-1880, 2446-2460, 2481-2511 (all: no fire due to compressor problems) Missing SP: 917, 926, 928, 931, 933, 935, 1239, 1567, 1744, 1827, 1897, 2225
AXIS3	SP 915-3650 file 17 reel 13 to file 2749 reel 16	174.3 (N-S)	No reel 12 Missing SP: 1303, 2091, 2879 FGSP = 3511 on starboard, hence SP 3513-3649[2] not loaded
AXIS2	SP 943-2025 file 2 reel 17 to file 754 reel 21	348.9 (S-N)	Missing SP: 1226-1231, 1250-1271 SP 1666 (FFID 395) has bad CBDEPTH info - interpolated to 2602.6; similarly SP 1689 (FFID 418) interpolated to 2659.4 and SP 2006 (FFID 735) to 2626.1; bad header name : CBLDEPTH instead of CBDEPTH
AXIS2R1	SP 922-4471 file 45 reel 22 to file 341 reel 30	359.3 (S-N)	Missing SP: 1665, 2453, 3241, 4448, 4007-4029, 4360-4429 SP 4040 (FFID 3159) has bad CBDEPTH info interpolated to 2563.7 SP 3407 (FFID 3407) interpolated to 2517.0 Bad header name (CBLDEPTH instead of CBDEPTH)
Transit1	SP 1029-1610 file 2 reel 29 to file 341 reel 30	189 (N-S)	86 shots missing on reel 29, 3 shots missing on reel 30; P190 has no SP 1028 hence this shot not loaded SP 1722 (FFID 869) has bad CBDEPTH info - interpolated to 2806.9
Transit2	SP 879-1725	154 (NW-SE)	SP 1196 (FFID 344) has bad CBDEPTH info - interpolated to 2879.4

Spreadsheet for N-S lines

	file 27 reel 98 to file 872 reel 99		SP 1722 (FFID 869) interpolated to 2806.9
AXIS3P2	SP 3260-4911 file 1 reel 100 to file 1650 reel 102	351 (S-N)	Missing SP: 4047, 4835
AXIS4	SP3610-5094 file 2 reel 103 to file 1485 reel 104	171 (N-S)	Missing SP: 4308 SP 3732 (FFID 1363) has bad CBDEPTH info - interpolated to 2541.7, SP 4043 (FFID 1052)to 2532.7, SP 4196 (FFID 899) to 2536.8, SP 4219-4220 (FFID 876-875) to 2554.1 and 2554.0, SP 4298 (FFID 797) to 2558.8; SP 4500 (FFID 596) interpolated to 2573.1, SP 4823 (FFID 273) to 2563.5, SP 4880-4881 (FFID 216-215) to 2555.9-2554.7, SP 4917 (FFID 179) to 2559.7
Transit3	SP 1018-1455 file 2-438	318.5 (N-S)	
AXIS5	SP 1005-1341 file 1-337	171.2 (N-S)	Axis-parallel line. SP 1054-1056 (FFID 286-288) have bad CBDEPTH info - interpolated to 2723.3 and 2723.4