

## APPENDIX 1.0 Science Party and Ship Crew for MGL0812

### Science Party

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

### Shipboard Technical Staff

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

22      *Brendan Hurley*                      *MMO, Observer*

**Ship's Crew**

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

## APPENDIX 2.1 Group photo for MGL0812



## APPENDIX 2.2 Cruise Photo- Who's Who

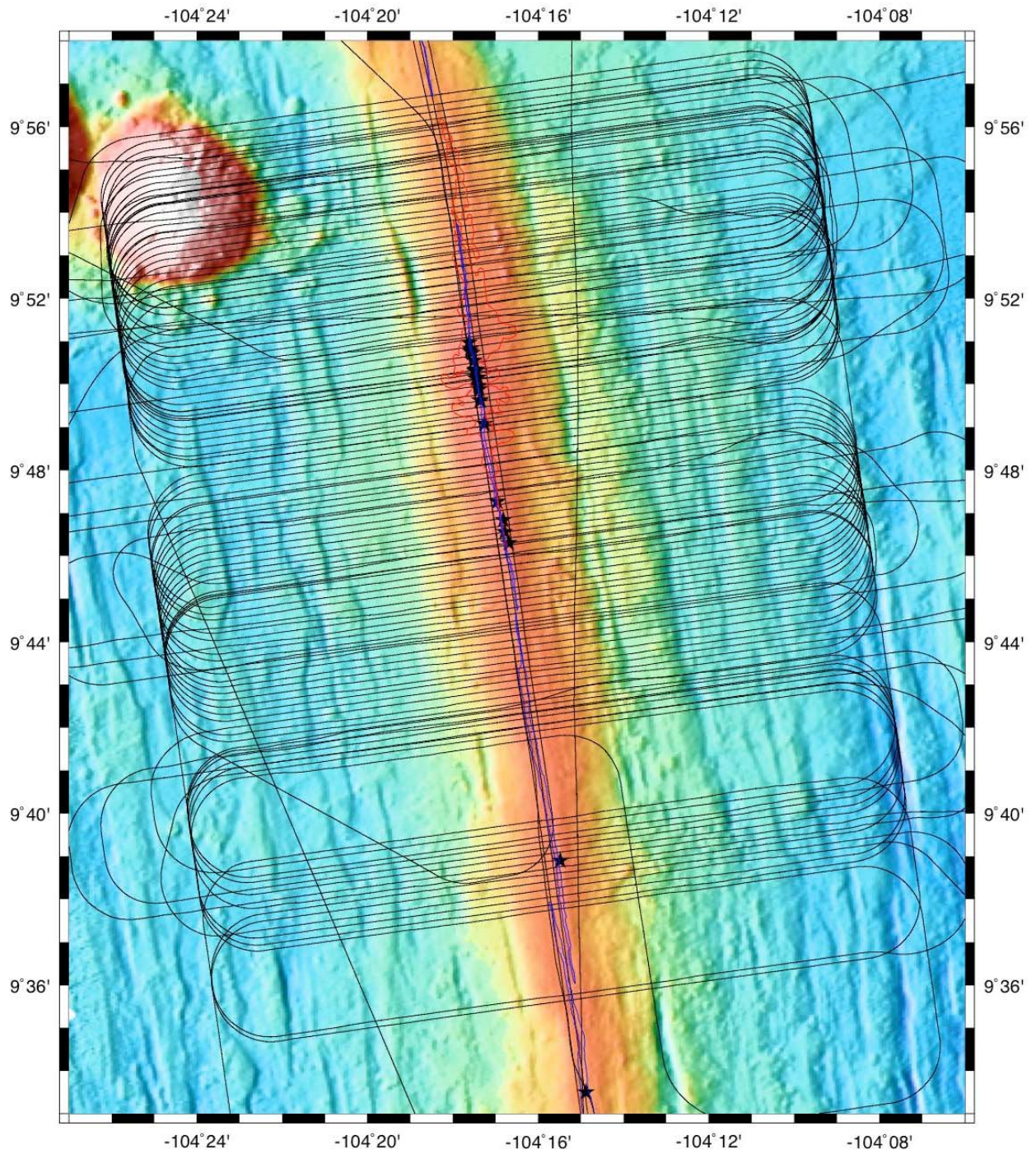


1. Luis Villalobos
2. Mike Martello
3. Lucy Stowe
4. Bern McKiernan
5. Helene Carton
6. Nick Engelmann
7. Robbie Gunn
8. Giovanni Caltavutro
9. Juan Pablo Canales
10. Brian Goodick
11. Kaori Kobayashi
12. Carlos Guitierrez
13. Brendan Hurley
14. Mladen Nedimovic
15. John Mutter
16. Suzanne Carbotte
17. Min Xu
18. Milena Marjanovic

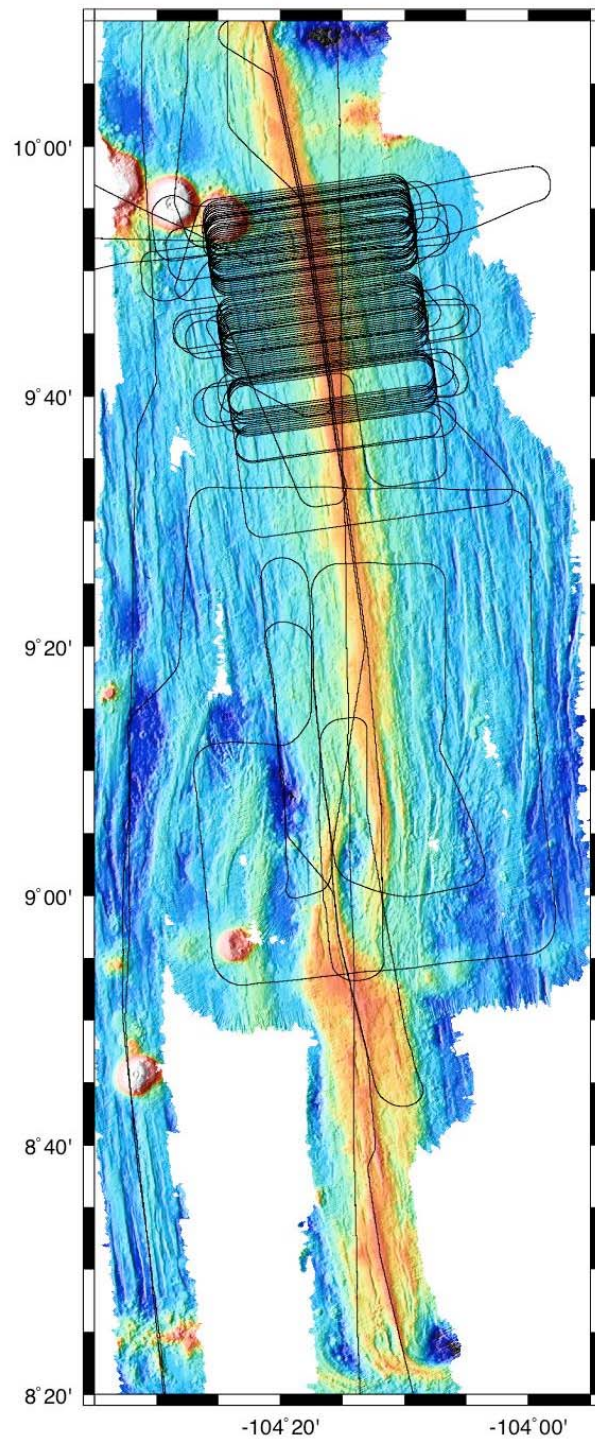
19. Kori Newman
20. Michael Zhang
21. Ping Paragas
22. Pete Chizmar
23. Maikol Badilla
24. Jeromie Webster
25. Mike Tatro
26. Omid Aghaei
27. Scott Upper
28. Ryan Eaton
29. Lance Conrad
30. Jason Woronowicz
31. David Martinson
32. Clint Acoutin
33. Bradley Dawe
34. George Cereno
35. Joseph Beland
36. Tom Spoto



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

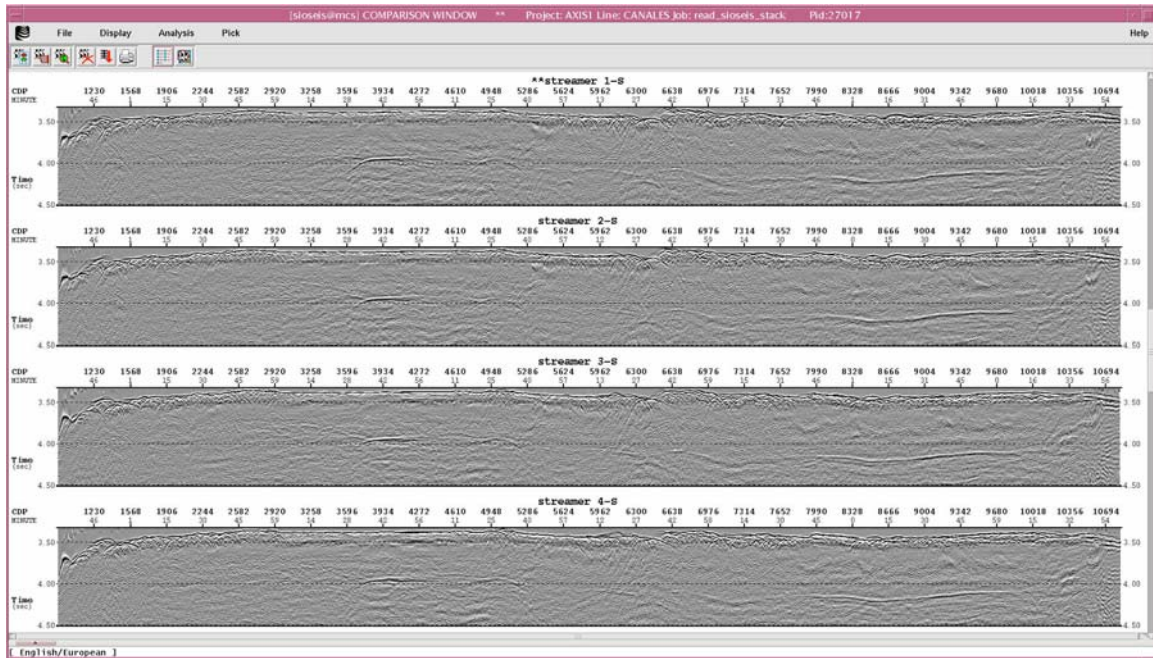


APPENDIX 3.2 Track map for full survey region superimposed on the newly collected multibeam bathymetry.

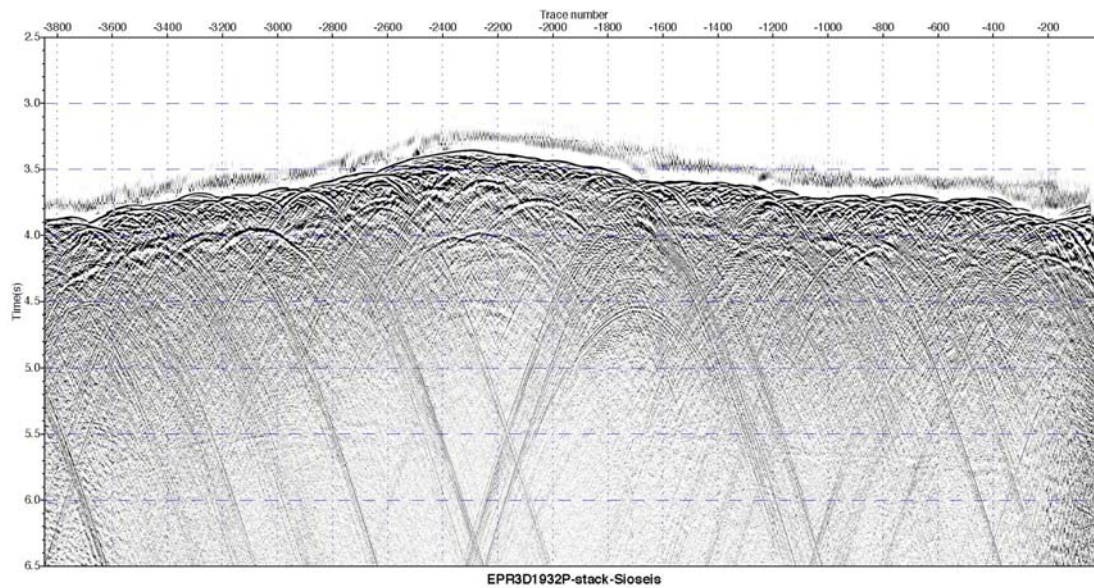




## APPENDIX 4.1 Example stack section for all 4 streamers, line Axis 1



## 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).

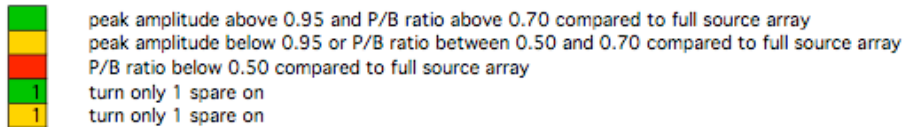
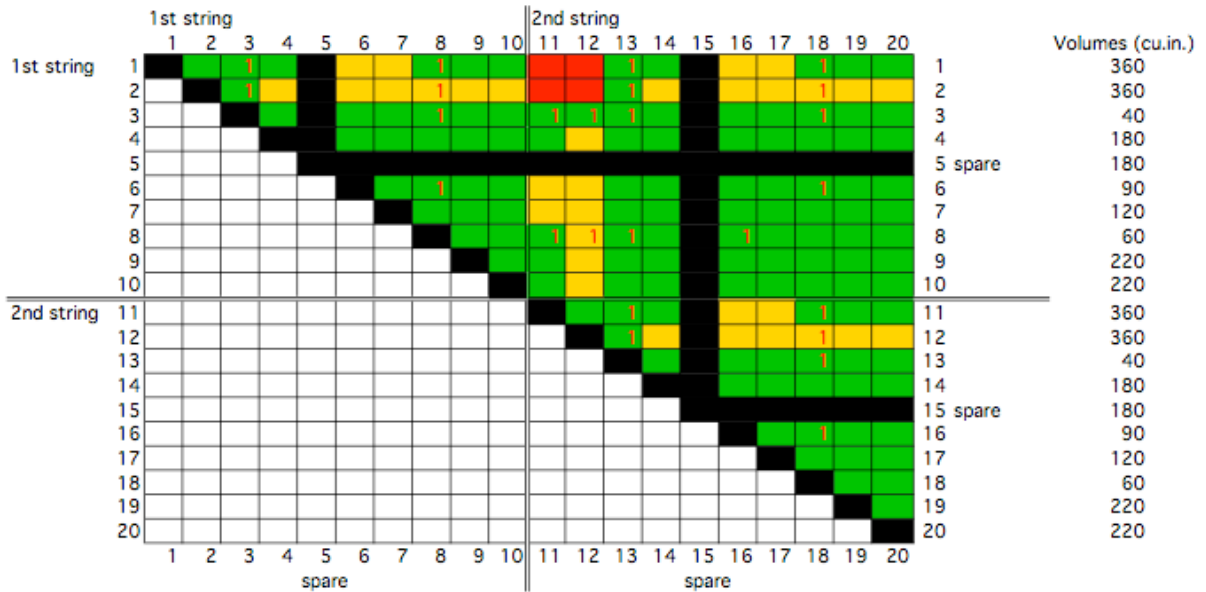
### R/V Langseth Seismic source dropout analysis:

One 3300 cu.in. source array (two 1650 cu.in., 10-gun strings)

Single gun dropping out: turn 1 spare on if gun 4 or gun 14, other cases do nothing

Two guns dropping out: turn 2 spares on except cases marked by 1 in the following dropout matrix

(based on Nucleus modeling at 6 m depth and J. Diebold's "dropout" program for 7.5 m source depth)



## 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/SEGYP/$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/SEGYP/$LINENO-stack.segy
end
end

prout
    fno 0 lno 999999 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 -lt $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 SEG-D data into Focus, merging with seismic P190 navigation files, QC and writing to disk.

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 SEG-D files are stored:

```
cd /remote/nas/raw/SEG-D/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/SEG-D_LISTS/
```

type:

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

where ???? is the tape #.

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

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 SEG-D 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 $\geq 1000$ : Open an existing job from the job directory; for

example: read\_segd\_file\_part2\_TAPE0031\_shotabove1000.dat

In the SEG-D 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 # $\leq 999$

Job: (e.g., read\_seg\_d\_file\_part2\_TAPE0031\_shotbelow1000.dat)

.....

Output filename: (e.g.,shotsbelow1000\_TAPE0031)

.....

Comments

Save (✓): ....

Run (✓): ....

##### 2.3. Read SEG-D job for shot # $\geq 1000$

Job: (e.g., read\_seg\_d\_file\_part2\_TAPE0031\_shotabove1000.dat)

.....

Output filename: (e.g.,shotsabove1000\_TAPE0031)

.....

Comments

Save (✓): ....

Run (✓): ....

##### 2.4. Merge Files

Output filename: (e.g.,allshots\_epr2132\_TAPE0031)

.....

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

Comments

Save (✓): ....

---

## 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      EPR3DWELLLINE1
*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
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      EPR3DWELLLINE1
*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
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      EPR3DWELLNE1
*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  UK00A90 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 Multibeam 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 \*.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 SEG-D 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 <b>2132P</b>	31	25	875	1539	1	665	875-1539	875-1539	1-665
EPR3D <b>1940P</b>	32	24.3	1539	894	1	646	894-1538	894-1538	2-646
EPR3D <b>2124P</b>	33	24.3	894	1539	1	646	895-1539	895-1539	2-646
EPR3D <b>1932P</b>	34	24.2	1537	894	1	644	894-1537	894-1536	2-644
EPR3D <b>2316P</b>	35	25.6	859	1539	1	681	860-1539	861-1539	3-681
EPR3D <b>2116P</b>	36	24.3	1539	894	1	646	894-1539	894-1539	1-646
EPR3D <b>2308P</b>	37	24.3	894	1539	1	646	894-1539	895-1539	2-646
EPR3D <b>2108P</b>	38	24.3	1539	894	1	646	894-1539	894-1538	2-646
EPR3D <b>2300P</b>	39	24.2	897	1539	1	643	894-1539	898-1539	2-643
EPR3D <b>2100P</b>	40	24.3	1539	894	1	646	894-1539	894-1539	1-646
EPR3D <b>2292P</b>	41	24.3	894	1539	1	646	894-1539	895-1539	2-646
EPR3D <b>2092P</b>	42	24.3	1539	894	1	646	894-1538	894-1538	2-646
EPR3D <b>2284P</b>	43	24.3	894	1539	1	646	894-1539	895-1384	2-491
EPR3D <b>2084P</b>	44	24.3	1539	894	1	646	894-1539	895-1538	2-645
EPR3D <b>2276P</b>	45	24.3	894	1539	1	646	894-1539	895-1539	2-646
EPR3D <b>2076P</b>	46	22.2	1483	894	1	590	894-1482	894-1411	73-590

Spreadsheet for 3D box SEGD data

EPR3D2268P	47	24.3	893	1539	1	647	895-1539	895-1539	3-647
EPR3D2068P	48	24.3	1539	894	1	646	894-1539	894-1538	2-646
EPR3D2260P	49	24.2	896	1539	1	644	896-1539	897-1539	2-644
EPR3D2060P	50	24.3	1539	894	1	646	894-1538	894-1538	2-646
EPR3D2252P	51	24.3	894	1539	1	646	895-1538	895-1538	2-646
EPR3D2052P	52	24.3	1537	894	1	644	894-1537	894-1536	2-644
EPR3D2244P	53	4.3	894	1007	1	114	894-1026	None	
EPR3D2044P	54	29.6	1690	904	1	787	894-1689	894-1689	2-796
	55	0.3	902	894	788	796		Missing SP: 903	
EPR3D2244R	56	24.3	894	1539	1	646	894-1539	894-1539	1-646
EPR3D2036P	57	24.3	1539	894	1	646	894-1539	894-1538	2-646
EPR3D2236P	58	24.3	894	1539	1	646	894-1381	895-1380	2-487
							Missing SP: 1086-1106		
EPR3D2028P	59	22.1	1480	894	1	587	894-1416	894-1416	65-587
EPR3D2228P	60	24.2	898	1539	1	642	898-1539	898-1539	1-642
EPR3D2020P	61	23	1505	894	1	612	894-1432	894-1432	74-612
EPR3D2228I	62	24.3	894	1539	1	646	894-1539	894-1539	1-646
EPR3D2012P	63	29.6	1539	753	1	787	734-1538	734-1538	2-805
	64	0.7	751	734	788	805			
EPR3D2220P	65	29.6	734	1520	1	787	735-1539	735-1539	2-805
	66	0.7	1522	1539	788	805		Missing SP: 1521	
EPR3D2004P	67	24.3	1539	894	1	646	894-1539	894-1538	2-646
EPR3D2212P	68	23.9	906	1539	1	634	906-1539	908-1539	3-634
EPR3D1996P	69	24.3	1539	894	1	646	894-1538	894-1538	2-646
EPR3D2204P	70	24.3	894	1540	1	646			1-646
EPR3D1988P	71	24.3	1539	894	1	646	894-1538	894-1538	2-646
EPR3D2204R	72	24.3	894	1546	1	646	895-1539	895-1539	2-646
EPR3D1988I	73	24.3	1539	894	1	646	894-1539	894-1538	2-646
EPR3D2196P	74	24.3	894	1539	1	646	894-1539	895-1539	2-646
EPR3D1980P	75	24.3	1539	894	1	646	894-1539	894-1538	2-646
EPR3D2188P	76	24.3	894	1539	1	646	894-1539	895-1539	2-646
EPR3D1972P	77	21.3	1460	894	1	567	894-1460	894-1459	2-567
EPR3D2180P	78	24.2	894	1537	1	644	894-1539	894-1537	1-644



Spreadsheet for 3D box SEGD data

EPR3D1964P	79	24.3	1539	894	1	646	894-1539	894-1538	2-646
EPR3D2172P	80	24.3	894	1539	1	646	895-1539	895-1539	2-646
EPR3D1956P	81	24.3	1540	894	1	647	894-1539	894-1538	3-647
EPR3D2164P	82	23.1	927	1539	1	614	926-1539	927-1539	1-614
EPR3D2156P	83	24.5	889	1539	1	650	890-1539	890-1539	2-650
EPR3D1948P	84	24.2	1537	894	1	644	894-1539	894-1536	2-644
EPR3D2148P	85	24.3	894	1539	1	646	895-1539	895-1539	2-646
EPR3D1996I	86	20.6	1508	894	1	548	894-1507	Missing SP: 1318-1349 894-1507	2-548
EPR3D2140P	87	24.3	894	1539	1	646	895-1539	895-1539	2-646
EPR3D1940I	88	24.3	1539	894	1	646	894-1538	894-1538	2-646
EPR3D2284R	89	24.3	894	1539	1	646	894-1539	895-1539	2-646
EPR3D2116I	90	24.3	1539	894	1	646	894-1539	894-1538	2-646
EPR3D2252I	91	1.8	894	940	1	47			2-410
EPR3D2252J	92	15.5	1129	1539	1	411	1128-1538	1130-1538[2]	
EPR3D2092I	93	24.3	1539	894	1	646	894-1538	895-1538	2-645
EPR3D2140I	94	24.8	881	1539	1	660	880-1539	881-1539	2-660
EPR3D1988J	95	24.3	1539	894	1	646	894-1538	894-1538	2-646
EPR3D2236R	96	24.3	894	1539	1	646	894-1539	895-1539	2-646
EPR3D2076I	97	24.1	1535	894	1	642	894-1534	894-1533	3-642
EPR3D1780P	105	24.3	894	1539	1	646	894-1539	895-1539	2-646
EPR3D1924P	106	24.3	1539	894	1	646	894-1538	894-1538	2-646
EPR3D1772P	107	24.3	894	1539	1	646	895-1539	895-1539	2-646
EPR3D1916P	108	21.3	1458	894	1	565	894-1458	894-1457	2-565
EPR3D1764P	109	24.3	894	1539	1	646	894-1539	895-1539	2-646
EPR3D1908P	110	23.7	1524	894	1	631	894-1523	894-1523	2-631
EPR3D1756P	111	24.3	894	1539	1	646	895-1539	895-1539	2-646
EPR3D1900P	112	24.3	1539	894	1	646	894-1538	894-1538	2-646
EPR3D1748P	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 <b>1892P</b>	115	24.3	1539	894	1	646	895-1539	937-1537[2]	3-603
EPR3D <b>1740P</b>	116	24.3	894	1539	1	646	895-1539	895-1539	2-646
EPR3D <b>1884P</b>	117	24.3	1539	894	1	646	894-1539	894-1538	2-646
EPR3D <b>1732P</b>	118	24.3	895	1539	1	646	894-1539	895-1539	2-646
EPR3D <b>1876P</b>	119	24.3	1539	894	1	646	895-1539	895-1515	2-646
EPR3D <b>1724P</b>	120	29.6	697	1484	1	787	698-1539	699-1539	2-841
EPR3D <b>1868P</b>	121	2	1486	1539	788	841		Missing SP: 1002-1030, 1485	
EPR3D <b>1868P</b>	122	24.3	1539	894	1	646	894-1539	894-1538	2-646
EPR3D <b>1716P</b>	123	24.3	894	1539	1	646	894-1539	895-1539	2-646
EPR3D <b>1868I</b>	124	24.3	1539	894	1	646	894-1539	894-1538	2-646
EPR3D <b>1708P</b>	125	24.3	894	1539	1	646	895-1539	895-1539	2-646
EPR3D <b>1860P</b>	126	3.1	1539	1447	1	83	894-1538	894-1538	2-end
EPR3D <b>1700P</b>	127	5	1281	1122	1	133		Missing SP: 981-983, 116-1121, 1282-1446	
EPR3D <b>1700P</b>	128	4.6	1115	984	1	122			
EPR3D <b>1700P</b>	129	3.1	980	894	1	81			
EPR3D <b>1700P</b>	130	4.8	852	996	1	127	853-1539	853-1539	2-end
EPR3D <b>1700P</b>	131	3.8	1064	1176	1	101		Missing SP: 1297, 1299, 1301, 1303, 1305, 997-1063, 1177-1204, and 1307-1359	
EPR3D <b>1860R</b>	132	3.4	1205	1306	1	91			
EPR3D <b>1860R</b>	133	6.7	1360	1539	1	177	894-1539	894-1539	all
EPR3D <b>1860R</b>	134	3.5	1539	1435	1	93		Missing SP: 995, 996, 1090, 1280, 1281, 1342, 1433, 1322, 1341, 1434, 1466	
EPR3D <b>1860R</b>	135	3.2	1432	1343	1	86			
EPR3D <b>1860R</b>	136	2	1340	1282	1	54			
EPR3D <b>1860R</b>	137	6.9	1279	1091	1	184			
EPR3D <b>1860R</b>	138	3.3	1089	997	1	88			
EPR3D <b>1692P</b>	139	3.7	994	894	1	99	894-1539	894-1539	all
EPR3D <b>1692P</b>	140	2.4	894	963	1	65		Missing SP: 964, 965, 1061-1063, 1163, 1165, 1166	
EPR3D <b>1692P</b>	141	3.4	966	1060	1	90			
EPR3D <b>1692P</b>	142	3.6	1064	1164	1	96			
EPR3D <b>1692P</b>	143	14	1167	1539	1	372			

Spreadsheet for 3D box SEGD data

EPR3D1852P	144	24.3	1539	894	1	646	894-1539	894-1539	1-646
EPR3D1684P	145	24.3	895	1539	1	646	894-1539	895-1539	2-646
EPR3D1844P	146	27.5	1625	894	1	732	894-1624	894-1624	2-end
EPR3D1676P	147	24.3	896	1539	1	644	894-1539	897-1539	2-644
EPR3D1836P	148	24.3	1538	894	1	646	894-1539	894-1538	2-646
EPR3D1668P	149	24.3	895	1539	1	646	894-1539	895-1539	2-646
EPR3D1828P	150	24.3	1539	894	1	646	894-1538	894-1538	2-646
EPR3D1660P	151	24.3	894	1539	1	646	894-1539	895-1539	2-646
EPR3D1820P	152	24.2	1537	894	1	644	894-1537	894-1536	2-644
EPR3D1652P	153	24.3	894	1539	1	646	895-1539	895-1539	2-646
EPR3D1812P	154	24.3	1539	894	1	646	894-1538	894-1538	2-646
EPR3D1644P	155	24.3	895	1539	1	646	894-1539	895-1539	2-646
EPR3D1804P	156	29.6	1731	946	1	787	894-1673	894-1673	60-838
	157	1.9	944	894	788	838			
EPR3D1636P	158	24.3	894	1539	1	646	894-1539	894-1539	1-646
EPR3D1796P	159	27.7	1629	984	1	736	894-1629	894-1628	2-736
EPR3D1700R	160	29.6	701	1487	1	787	702-1539	702-1539	2-838
	161	1.9	1489	1539	788	838	Missing SP: 1488		
EPR3D1468P	162	26.1	1539	845	1	693	845-1539	845-1539	1-693
EPR3D1628P	163	24.3	894	1539	1	646	894-1539	894-1539	1-646
EPR3D1788P	164	17.5	1539	1076	1	646	894-1538	1125-1537	3-415
EPR3D1620P	165	24.3	894	1539	1	646	895-1539	895-1539	2-646
EPR3D1788R	166	24.3	1539	894	1	646	894-1538	894-1538	2-646
EPR3D1612P	167	27.7	894	1629	1	737	895-1630	895-1629	2-736
							Missing SP: 1186-1227		
EPR3D1460P	168	27.6	1627	894	1	734	894-1626	894-1612	16-734

Spreadsheet for 3D box SEG-D data

EPR3D1604P	169	13.8	1173	1539	1	367	1174-1539	1174-1539	2-367
EPR3D1452P	170	24.2	1537	894	1	644	894-1537	894-1537	1-644
EPR3D1604R	171	24.3	894	1539	1	646	894-1539	895-1539	2-646
EPR3D1444P	172	24.3	1539	894	1	646	894-1538	907-1538	2-633
EPR3D1596P	173	29	769	1539	1	771	770-1539	770-1539	2-771
EPR3D1436P	174	24.3	1539	894	1	646	894-1538	894-1538	2-646
EPR3D1596I	175	24.3	894	1539	1	646	894-1539	895-1539	2-646
EPR3D1428P	176	35.1	1682	751	1	932	751-1682	751-1681	2-932
								Shots 1680-1494 [2] not loaded	
EPR3D1588P	177	29.7	751	1539	1	789	751-1539	752-1539	2-789
EPR3D1420P	178	27.8	1632	894	1	739	894-1631	894-1631	2-739
EPR3D1588R	179	24.3	894	1539	1	646	895-1539	895-1539	2-646
EPR3D1412P	180	24.3	1539	894	1	646	894-1538	957-1538	2-646
								Shots 1537-1239[2] not loaded	
EPR3D1268P	181	22.8	933	1539	1	607	933-1539	960-1539	28-607
EPR3D1476P	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			
EPR3D1276P	185	24.3	894	1539	1	646	894-1539	894-1539	1-646
EPR3D1404P	186	24.3	1539	894	1	646	894-1539	894-1538	2-646
EPR3D0972P	187	34.1	895	1800	1	906	896-1800	897-1800	3-906
								Missing SP: 896-950[2]	
EPR3D1396P	189	24.8	1551	894	1	658	894-1551	894-1550	2-658
EPR3D1580P	190	24.3	894	1539	1	646	894-1539	895-1539	2-646
EPR3D1388P	191	24.3	1539	894	1	646	894-1539	894-1538	2-646
EPR3D1596R	192	24.3	894	1539	1	646	894-1539	895-1539	2-646
EPR3D1380P	193	24.3	1539	894	1	646	894-1539	894-1539	1-646
EPR3D1572P	194	14.9	894	1288	1	395	895-1288	895-1288	2-395
EPR3D1372P	196	24.3	1539	894	1	646	894-1539	894-1539	1-646

Spreadsheet for 3D box SEG-D data

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

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 SEG-D 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 <b>2132P</b>	82 (WE)		9.8678	-104.4122	9.8991	-104.1873
EPR3D <b>1940P</b>	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 <b>2124P</b>	82 (WE)		9.866	-104.405	9.8968	-104.187
EPR3D <b>1932P</b>	262 (EW)	SP 954-894 gun S2G04 autofire	9.8018	-104.3909	9.8323	-104.1735
EPR3D <b>2316P</b>	82 (WE)	P190 has no SP 860 - skipped this SP	9.9289	-104.4261	9.9604	-104.1959
EPR3D <b>2116P</b>	262 (EW)		9.8642	-104.3998	9.8948	-104.1812
EPR3D <b>2308P</b>	82 (WE)		9.9277	-104.4137	9.9572	-104.1955
EPR3D <b>2108P</b>	262 (EW)		9.8611	-104.3993	9.8913	-104.1811
EPR3D <b>2300P</b>	82 (WE)		9.9255	-104.4124	9.9543	-104.1951
EPR3D <b>2100P</b>	262 (EW)		9.8583	-104.3989	9.8887	-104.1804
EPR3D <b>2292P</b>	82 (WE)		9.9218	-104.413	9.9519	-104.1948
EPR3D <b>2092P</b>	262 (EW)		9.8557	-104.3985	9.8859	-104.1803
EPR3D <b>2284P</b>	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 <b>2084P</b>	262 (EW)	SP 894 (file 646) bad (as if seafloor reflection duplicated) hence not loaded Noise on streamer 1 from SP 1186: one entire section is affected, also channel 53 is bad	9.854	-104.3979	9.8827	-104.18
EPR3D <b>2276P</b>	82 (WE)		9.9144	-104.4123	9.9472	-104.194
EPR3D <b>2076P</b>	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 SEG-D data

EPR3D2268P	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
EPR3D2068P	262 (EW)		9.8485	-104.3975	9.8778	-104.1793
EPR3D2260P	82 (WE)		9.9115	-104.4108	9.9417	-104.1933
EPR3D2060P	262 (EW)					
EPR3D2252P	82 (WE)	P190 has no SP 1539 - skipped this SP	9.9093	-104.4112	9.9393	-104.193
EPR3D2052P	262 (EW)					
EPR3D2244P	82 (WE)	EOL due to compressor failure; no data loaded				
EPR3D2044P	262 (EW)		9.8399	-104.3962	9.8782	-104.1271
	262 (EW)					
EPR3D2244R	82 (WE)		9.9071	-104.4112	9.9376	-104.1927
EPR3D2036P	262 (EW)		9.8375	-104.3959	9.8654	-104.1778
EPR3D2236P	82 (WE)	Gap (SP 1086-1106) due to turtle sighting LGSP=1380 due to turtle sighting	9.9032	-104.4102	9.9283	-104.2464
EPR3D2028P	262 (EW)	FGSP=1416 - no explanation	9.835	-104.3957	9.8598	-104.219
EPR3D2228P	82 (WE)		9.9037	-104.4094	9.9324	-104.192
EPR3D2020P	262 (EW)	FGSP=1432 - no explanation	9.8324	-104.3952	9.8582	-104.2131
EPR3D2228I	82 (WE)		9.9008	-104.4103	9.9292	-104.1917
EPR3D2012P	262 (EW)					
EPR3D2220P	82 (WE)		9.891	-104.4639	9.9263	-104.1912
EPR3D2004P	262 (EW)		9.8268	-104.3943	9.858	-104.1764
EPR3D2212P	82 (WE)	SP 907 skipped while merging with P190 (otherwise merge failed)	9.8969	-104.4048	9.924	-104.1909
EPR3D1996P	262 (EW)		9.8241	-104.3939	9.8555	-104.176
EPR3D2204P	82 (WE)	Port source firing every 37.5 m from SP 1000 onwards (not a 3D line) - no data loaded				
EPR3D1988P	262 (EW)		9.822	-104.3937	9.853	-104.1757
EPR3D2204R	82 (WE)		9.8924	-104.4088	9.9219	-104.1906
EPR3D1988I	262 (EW)		9.8204	-104.3935	9.8502	-104.1753
EPR3D2196P	82 (WE)		9.8899	-104.4084	9.9194	-104.1902
EPR3D1980P	262 (EW)		9.8177	-104.3931	9.8487	-104.1751
EPR3D2188P	82 (WE)		9.8875	-104.4081	9.9163	-104.1898
EPR3D1972P	262 (EW)	Why SOL at SP 1460?	9.8148	-104.3927	9.8418	-104.2014
EPR3D2180P	82 (WE)		9.8853	-104.4082	9.9138	-104.1901

Spreadsheet for 3D box SEG-D data

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

Spreadsheet for 3D box SEG-D data

EPR3D <b>1892P</b>	262 (EW)	Only shots fired by source 1 were loaded	9.7912	-104.3745	9.82	-104.1714
EPR3D <b>1740P</b>	82 (WE)		9.7373	-104.3868	9.7665	-104.1686
		SP 1510-1511 (FFID 116-115) have bad CBDEPTH info - interpolated to 2875.5 and 2888.1				
EPR3D <b>1884P</b>	262 (EW)		9.7875	-104.3888	9.8175	-104.1706
EPR3D <b>1732P</b>	82 (WE)		9.7341	-104.3863	9.7642	-104.1683
EPR3D <b>1876P</b>	262 (EW)		9.7853	-104.3881	9.815	-104.1783
		Power down (SP 1002-1030 = FFID 305-333) due to MMO sighting				
EPR3D <b>1724P</b>	82 (WE)		9.7232	-104.4523	9.7615	-104.1679
EPR3D <b>1868P</b>	262 (EW)		9.7824	-104.3884	9.8129	-104.17
		SP 1033 (FFID 140) not loaded: as if source did not fire?				
EPR3D <b>1716P</b>	82 (WE)		9.729	-104.3856	9.759	-104.1675
EPR3D <b>1868I</b>	262 (EW)		9.7799	-104.3877	9.8102	-104.1696
EPR3D <b>1708P</b>	82 (WE)		9.7264	-104.3852	9.7563	-104.1672
EPR3D <b>1860P</b>	262 (EW)	Seisnet crash	9.7775	-104.3874	9.8147	-104.1703
EPR3D <b>1700P</b>	82 (WE)	Syntrak problems	9.7222	-104.3992	9.7536	-104.1668
EPR3D <b>1860R</b>	262 (EW)	Syntrak problems 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	9.7773	-104.3873	9.8078	-104.169
		Syntrak problems				
EPR3D <b>1692P</b>	82 (WE)		9.7218	-104.3849	9.7519	-104.1665

Spreadsheet for 3D box SEG-D data

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

Spreadsheet for 3D box SEG-D data

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

Spreadsheet for 3D box SEGD data

EPR3D <b>17881</b>	82 (WE)		9.7536	-104.3888	9.7859	-104.1713
EPR3D <b>20281</b>	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 <b>2132P</b>	9.8678	-104.4122	9.8991	-104.1873	merged
EPR3D <b>1940P</b>	9.8049	-104.3913	9.8353	-104.1732	merged
EPR3D <b>2124P</b>	9.866	-104.405	9.8968	-104.1869	merged
EPR3D <b>1932P</b>	9.8019	-104.3909	9.8331	-104.1732	merged
EPR3D <b>2316P</b>	9.9283	-104.4255	9.9604	-104.1959	merged
EPR3D <b>2116P</b>	9.8642	-104.3997	9.8947	-104.1812	merged
EPR3D <b>2308P</b>	9.9277	-104.4138	9.9572	-104.1955	merged
EPR3D <b>2108P</b>	9.8611	-104.3993	9.8913	-104.1811	merged
EPR3D <b>2300P</b>	9.9255	-104.4124	9.9543	-104.1951	merged
EPR3D <b>2100P</b>	9.8584	-104.3989	9.8895	-104.1805	merged
EPR3D <b>2292P</b>	9.9219	-104.413	9.9519	-104.1948	merged
EPR3D <b>2092P</b>	9.8558	-104.3985	9.8859	-104.1804	merged
EPR3D <b>2284P</b>	9.9213	-104.4129	9.943	-104.2471	merged
EPR3D <b>2084P</b>	9.854	-104.3979	9.8835	-104.1797	merged
EPR3D <b>2276P</b>	9.9162	-104.4121	9.9472	-104.194	merged
EPR3D <b>2076P</b>	9.8507	-104.3979	9.8762	-104.2228	merged

Spreadsheet for 3D box SEGD data

EPR3D2268P	9.9138	-104.4117	9.9445	-104.1937	merged
EPR3D2068P	9.8485	-104.3975	9.8778	-104.1793	merged
EPR3D2260P	9.9115	-104.4108	9.9417	-104.1733	merged
EPR3D2060P	9.8456	-104.397	9.8752	-104.1788	merged
EPR3D2252P	9.9093	-104.4112	9.94	-104.1935	merged
EPR3D2052P	9.8425	-104.3967	9.8729	-104.1792	merged
EPR3D2244P					
EPR3D2044P	9.8399	-104.3962	9.8782	-104.1271	merged
EPR3D2244R	9.907	-104.4112	9.9376	-104.1927	merged
EPR3D2036P	9.8375	-104.3959	9.8654	-104.1778	merged
EPR3D2236P	9.9032	-104.4102	9.9283	-104.2463	merged
EPR3D2028P	9.8351	-104.3957	9.8599	-104.219	
EPR3D2228P	9.9037	-104.4094	9.9325	-104.192	merged
EPR3D2020P	9.8325	-104.3952	9.8583	-104.2131	
EPR3D2228I	9.9008	-104.4103	9.9292	-104.1916	merged
EPR3D2012P	9.8222	-104.4489	9.8611	-104.1768	merged
EPR3D2220P	9.891	-104.4639	9.9263	-104.191	merged
EPR3D2004P	9.8268	-104.3943	9.8581	-104.1764	merged
EPR3D2212P	9.8967	-104.4048	9.924	-104.1909	merged
EPR3D1996P	9.8241	-104.394	9.8555	-104.176	merged
EPR3D2204P					
EPR3D1988P	9.822	-104.3937	9.853	-104.1757	merged
EPR3D2204R	9.8186	-104.3314	9.9388	-104.1933	merged
EPR3D1988I	9.8205	-104.3935	9.8502	-104.1753	merged
EPR3D2196P	9.89	-104.4084	9.9194	-104.1902	merged
EPR3D1980P	9.8177	-104.3931	9.8487	-104.1751	merged
EPR3D2188P	9.8875	-104.4081	9.9164	-104.1898	merged
EPR3D1972P	9.8148	-104.3927	9.8418	-104.2014	merged
EPR3D2180P	9.8853	-104.4082	9.9138	-104.1901	merged

Spreadsheet for 3D box SEG-D data

EPR3D1964P	9.8122	-104.3923	9.8425	-104.1742	merged
EPR3D2172P	9.8819	-104.4073	9.8988	-104.1873	merged
EPR3D1956P	9.8093	-104.3919	9.8398	-104.1738	merged
EPR3D2164P	9.881	-104.3962	9.9088	-104.1887	merged
EPR3D2156P	9.8779	-104.4083	9.9058	-104.1883	merged
EPR3D1948P	9.8068	-104.3919	9.8377	-104.1742	merged
EPR3D2148P	9.8747	-104.4063	9.9041	-104.1881	merged
EPR3D1996I	9.8239	-104.3939	9.8504	-104.186	merged
EPR3D2140P	9.8717	-104.4059	9.9017	-104.1877	merged
EPR3D1940I	9.8023	-104.3909	9.8341	-104.173	merged
EPR3D2284R	9.9191	-104.4126	9.9501	-104.1945	merged
EPR3D2116I	9.8642	-104.3997	9.894	-104.1815	merged
EPR3D2252I					
EPR3D2252J	9.9186	-104.3314	9.9388	-104.1933	merged
EPR3D2092I	9.8565	-104.3983	9.8859	-104.1804	merged
EPR3D2140I	9.87	-104.4104	9.9003	-104.1875	merged
EPR3D1988J	9.8206	-104.3935	9.8517	-104.1755	merged
EPR3D2236R	9.9042	-104.4105	9.934	-104.1923	merged
EPR3D2076I	9.849	-104.3975	9.881	-104.181	merged
EPR3D1780P	9.7501	-104.3885	9.7805	-104.1705	merged
EPR3D1924P	9.799	-104.3905	9.83	-104.1725	merged
EPR3D1772P	9.7473	-104.3881	9.7775	-104.1701	merged
EPR3D1916P	9.7962	-104.3901	9.824	-104.1995	merged
EPR3D1764P	9.7442	-104.3877	9.7749	-104.3901	merged
EPR3D1908P	9.7939	-104.3897	9.8245	-104.1768	merged
EPR3D1756P	9.742	-104.3874	9.7721	-104.1694	merged
EPR3D1900P	9.7906	-104.3892	9.822	-104.1713	merged
EPR3D1748P	9.7296	-104.4596	9.7692	-104.169	merged

Spreadsheet for 3D box SEG-D data

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

Spreadsheet for 3D box SEGD data

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

Spreadsheet for 3D box SEG-D data

<b>EPR3D1604P</b>	9.7065	-104.2861	9.723	-104.1624	merged
<b>EPR3D1452P</b>	9.6409	-104.3689	9.6726	-104.1505	merged
<b>EPR3D1604R</b>	9.6923	-104.3804	9.7261	-104.1628	merged
<b>EPR3D1444P</b>	9.6396	-104.3633	9.6685	-104.1496	merged
<b>EPR3D1596P</b>	9.6834	-104.4223	9.7207	-104.1621	merged
<b>EPR3D1436P</b>	9.6659	-104.1492	9.6659	-104.1492	merged
<b>EPR3D1596I</b>	9.687	-104.3796	9.7182	-104.1617	merged
<b>EPR3D1428P</b>	9.627	-104.4153	9.6678	-104.1001	merged
<b>EPR3D1588P</b>	9.6789	-104.4278	9.7154	-104.1614	merged
<b>EPR3D1420P</b>	9.6308	-104.3666	9.6655	-104.1171	merged
<b>EPR3D1588R</b>	9.6848	-104.3793	9.7156	-104.1614	merged
<b>EPR3D1412P</b>	9.6281	-104.3662	9.6584	-104.1482	merged
<b>EPR3D1268P</b>	9.582	-104.3423	9.6086	-104.1462	merged
<b>EPR3D1476P</b>	9.6487	-104.3691	9.6791	-104.1512	merged
<b>EPR3D1276P</b>	9.5807	-104.3649	9.6111	-104.1466	merged
<b>EPR3D1404P</b>	9.6251	-104.3658	9.6551	-104.1477	merged
<b>EPR3D0972P</b>	9.4789	-104.3494	9.5222	-104.044	merged
<b>EPR3D1396P</b>	9.622	-104.3653	9.6529	-104.1433	merged
<b>EPR3D1580P</b>	9.6823	-104.3789	9.7129	-104.161	merged
<b>EPR3D1388P</b>	9.6193	-104.3649	9.6498	-104.147	merged
<b>EPR3D1596R</b>	9.7206	-104.1621	9.6901	-104.3801	merged
<b>EPR3D1380P</b>	9.6166	-104.3645	9.6479	-104.1464	merged
<b>EPR3D1572P</b>	9.6807	-104.3788	9.6945	-104.2439	merged
<b>EPR3D1372P</b>	9.614	-104.3642	9.6456	-104.146	merged

Spreadsheet for 3D box SEGD data

EPR3D <b>1788I</b>	9.7536	-104.3888	9.7859	-104.1713	merged
EPR3D <b>2028I</b>	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
<b>AXIS1</b>	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	
<b>AXIS3</b>	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	
<b>AXIS2</b>	17	10.6	942	1225	1	284	941-2026
	19	0.5	1232	1249	288	299	
	20	0.04	1257	1257	301	301	
<b>AXIS2R1</b>	21	28.4	1272	2026	1	755	922-4471
	22	29.6	878	1664	1	787	
	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	
<b>Transit1</b>	29	5.7	1028	1264	1	151	1029-1610
	30	12.8	1267	1610	1	341	
<b>Transit2</b>	98	29.6	850	1639	1	787	857-1725



## Spreadsheet for N-S lines

[illegible]

Spreadsheet for N-S lines

	SP & FFID ranges loaded in Focus (.dsk file)	Azimuth	Comments
<b>AXIS1</b>	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
<b>AXIS3</b>	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
<b>AXIS2</b>	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
<b>AXIS2R1</b>	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)
<b>Transit1</b>	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
<b>Transit2</b>	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
<b>AXIS3P2</b>	SP 3260-4911 file 1 reel 100 to file 1650 reel 102	351 (S-N)	Missing SP: 4047, 4835
<b>AXIS4</b>	SP3610-5094	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
<b>Transit3</b>	file 2 reel 103 to file 1485 reel 104		
	SP 1018-1455 file 2-438	318.5 (N-S)	
<b>AXIS5</b>	SP 1005-1341	171.2 (N-S)	Axis-parallel line. SP 1054-1056 (FFID 286-288) have bad CBDEPTH info - interpolated to 2723.3 and 2723.4
	file 1-337		