Notes on MV1014 seismic acquisition and processing.

Chirp subbottom profiler data were collected using a Knudsen 3260 chirp system on the Melville, using a 3.5 kHz transducer. Data were recorded in seg-y format, with time and position in the header.

High-resolution seismic reflection data were collected in 3 surveys and 9 transits on MV1014.

Surveys were acquired with dual 45-105 ci GI guns as seismic source and using a 40-channel Geometrics Geo-Eel. Surveys were shot at a nominal speed of 6 knots, and a 10-second interval between shots. Data were recorded for 7 seconds with no delay and a 1-millisecond digital sample rate. Offset to the near channel (channel 1) from the source is 81.25 m, and channels are spaced at 12.5 m on the streamer.

Transits also used the dual GI source, but used a 16 channel Geo-eel streamer. Offset to the near channel (ch 1) is 71.25 m, with channels spaced 12.5 m. Data were recorded for 7 seconds with no delay and a 1-millisecond digital sample rate. Nominal speed for the transits was 8 knots, and 10-second shot spacing.

The surveys were done the following order:

1. Cocos Ridge
2. Carnegie Ridge
3. Peru Basin

See the maps in the MV1014_CruiseRept pdf file for locations of surveys and survey lines.

Transits were shot as the ship traveled between surveys, and the transit number was increased after each stop for a station, e.g. a hydrocast. Between the Cocos Ridge and Carnegie Ridge survey, Transits 1 through 4 were recorded. Transits 5 to 7 occurred between the Carnegie and Peru Basin surveys, while Transits 8 and 9 were from the Peru Basin survey toward Chile until seismic acquisition was stopped.

Processing: Data were acquired in SEG-D format and then grouped into survey and transit lines in SEG-Y format. The data were processed using ProMAX 2D v. 2003 software. The unstacked data were bandpass filtered using a zero-phase butterworth filter with 20-40-300-600 Hz filter window. Three sets of processed data are supplied, In the 'geom' files, the data were assigned CDP's (see **table 1** for source-CDP tie) and sorted by CDP. 'Stack' files were first sorted by source-receiver offset, then normal moveout was applied (1535 m/s sound velocity), and traces were median-summed in the stack. The 'migstack' files were then migrated using Stolt F-K migration, with a migration velocity of 1200 m/s.

Seismic Line	FFID of 1st shot on line	CDP-tie to shot
Cocos Ridge Survey		
Line 1	1001	2002
Line 1a	1228	2456
Line 2	4932	9864
Line 3	8825	17650
Line 4	12665	25330
Line 5	18042	37200
Line 6	18605	37210
Line 7	18651	37302
Line 8	20446	40892
Line 9	23400	46800
Line 10	25128	50256
Transit 1	27798	55596
Transit 2	32428	64856
Transit 3	35461	70922
Transit 4	38114	76228
Carnegie Ridge Survey		
Line 1	41399	82798
Line 2	42477	84954
Line 3	46139	92278
Line 4	47996	95992
Line 5	51395	102790
Line 6	54894	109788
Line 7	58057	116114
Line 8	60403	120806
Line 9	61779	123558
Line 10	64782	129564
Line 11	66182	132364
Line 12	67089	134178
Line 13	68743	137486
Transit 5	70489	140978
Transit 6	74771	149542
Transit 7	79047	158094
Peru Basin Survey		
Line 1	82151	164302
Line 2	85399	170798
Line 3	87655	175310
Transit 8	89006	178012
Transit 9	92796	185592