Seq# 001

Line Name: MGL1902OB01
Line Brg : 78.3 °

NAVIGATION LINE LOGS

DATE: 2019-05-05
JULIAN DAY: 125

Lamont-Doherty Earth Observatory
COLUMBIA UNIVERSITY | EARTH INSTITUTE

CLIENT: NSF - Shillington
SURVEY: Emperor Sea Mounts

DC SOL :	-9802.0 m	DEPTH SOL :	5582.3 m
DC EOL :	48.5 m	DEPTH EOL :	4504.9 m
BSP SOL:	4.5 kts	FEATHER SOL:	N/A
BSP EOL:	4.4 kts	FEATHER EOL:	N/A °
WEATHER		MAX FEATHER:	N/A
WIND SOL:	NW 25 kts		
WIND EOL:	NW 21 kts		
SEAS SOL:	3.0 m		
SEAS EOL:	1.5 m		

NAVIGATION SYSTEM USED: C-Nav3050 - Primary
NAVIGATION SYSTEM USED: SeaPath 200
NAVIGATION SYSTEM USED: C-Nav2000
NAVIGATION SYSTEM USED: POSMV
GRAVITY METER: BMG-II: used, SN213
MAGNETOMETER: GeoMetrics: used

shift hours	watch personnel	shift hours	watch personnel	shift hours	watch personnel
12:00 - 24:00	Shaun Shaver	00:00 - 12:00	Alan Thompson		
12:00 - 24:00	Shaun Shaver	00:00 - 12:00	Chris Abdouch		

SP	UTC	EVENT	COMMENTS
899	22:01	SOL	Start of line - 300m shot spacing, source only to OBS
950	00:00	Midnight	
1596	00:00	Midnight	
1641	01:36	Source	Likely start of autofiring of S3G6
1684	03:09	EOL	End of line - early EOL d/t autofiring gun

VESSEL POSITION

	Shotpoints	Latitude (N / +)	Longitude (E / +)
FSP	899	45° 44' 15.885"	165° 59' 53.926"
LSP	1684	46° 03' 11.593"	168° 59' 36.340"

NAVIGATION OFFSET APPLIED

NRP - Stern	29.5m
NRP – COS	230.0m
NRP – CNG	NA
COS – CNG	NA
NRP – CMP	NA

Posnet locations & remarks: good - none - intermittent

				acoustics
Tailbuoy #1	none	Gun string #1	GOOD	Good
Tailbuoy #2	none	Gun string #2	GOOD	Good
Tailbuoy #3	none	Gun string #3	none	None
Tailbuoy #4	none	Gun string #4	Failed	Failed

SP spacing: 300m

line status: Complete

Seq# 002

Line Name: MGL1902OB01B
Line Brg : 78.3 °

NAVIGATION LINE LOGS

DATE: 2019-05-07
JULIAN DAY: 127

Lamont-Doherty Earth Observatory
COLUMBIA UNIVERSITY | EARTH INSTITUTE

CLIENT: NSF - Shillington
SURVEY: Emperor Sea Mounts

DC SOL :	538.8 m	DEPTH SOL :	6978.1 m	NAVIGATION SYSTEM USED:	C-Nav3050 - Primary
DC EOL :	-2.1 m	DEPTH EOL :	5816.8 m	NAVIGATION SYSTEM USED:	SeaPath 200
BSP SOL:	4.0 kts	FEATHER SOL:	N/A	NAVIGATION SYSTEM USED:	C-Nav2000
BSP EOL:	4.5 kts	FEATHER EOL:	N/A °	NAVIGATION SYSTEM USED:	POSMV
WEATHER		MAX FEATHER:	N/A	GRAVITY METER:	BMG-II: used, SN213
WIND SOL:	NW 25 kts			MAGNETOMETER:	GeoMetrics: used
WIND EOL:	0 kts				
SEAS SOL:	3.0 m				
SEAS EOL:	1.0 m				

shift hours	watch personnel	shift hours	watch personnel	shift hours	watch personnel
12:00 - 24:00	Shaun Shaver	00:00 - 12:00	Alan Thompson		
12:00 - 24:00	Shaun Shaver	00:00 - 12:00	Chris Abdouch		

SP	UTC	EVENT	COMMENTS
2661	05:22	SOL	Start of line - 300m shot spacing, source only to OBS
3172	00:00	Midnight SP	Midnight Shotpoint
3549	13:38	EOL	End of line, complete

VESSEL POSITION

	Shotpoints	Latitude (N / +)	Longitude (E / +)
FSP	2661	46° 02' 17.524"	168° 54' 24.127"
LSP	3549	46° 24' 20.509"	172° 19' 08.543"

NAVIGATION OFFSET APPLIED

NRP - Stern	29.5m
NRP – COS	230.0m
NRP – CNG	NA
COS – CNG	NA
NRP – CMP	NA

Posnet locations & remarks: good - none - intermittent

				acoustics
Tailbuoy #1	none	Gun string #1	GOOD	Good
Tailbuoy #2	none	Gun string #2	GOOD	Good
Tailbuoy #3	none	Gun string #3	none	None
Tailbuoy #4	none	Gun string #4	Failed	Failed

SP spacing: 300m

line status: Complete

Seq# 003

Line Name: MGL1902MC04
Line Brg : 14.62 °

NAVIGATION LINE LOGS

DATE: 2019-05-12
JULIAN DAY: 132

Lamont-Doherty Earth Observatory
COLUMBIA UNIVERSITY | EARTH INSTITUTE

CLIENT: NSF - Shillington
SURVEY: Emperor Sea Mounts

DC SOL :	6.3 m	DEPTH SOL :	6517.0 m	NAVIGATION SYSTEM USED:	C-Nav3050 - Primary
DC EOL :	412.5 m	DEPTH EOL :	5490.1 m	NAVIGATION SYSTEM USED:	SeaPath 200
BSP SOL:	3.6 kts	FEATHER SOL:	-19.6 °	NAVIGATION SYSTEM USED:	C-Nav2000
BSP EOL:		FEATHER EOL:	-08.6 ° °	NAVIGATION SYSTEM USED:	POSMV
WEATHER		MAX FEATHER:	-19.6 °	GRAVITY METER:	BMG-II: used, SN213
WIND SOL:	11 kts			MAGNETOMETER:	GeoMetrics: used
WIND EOL:	6.4 kts				
SEAS SOL:	3.5 m				
SEAS EOL:	3.5 m				

shift hours	watch personnel	shift hours	watch personnel	shift hours	watch personnel
12:00 - 24:00	Shaun Shaver	00:00 - 12:00	Alan Thompson		
12:00 - 24:00	Shaun Shaver	00:00 - 12:00	Chris Abdouch		

SP	UTC	EVENT	COMMENTS
4027	0345	SOL	Start of line - 62.5m shot spacing
4641	0949	EOL	End of line, complete

VESSEL POSITION

	Shotpoints	Latitude (N / +)	Longitude (E / +)
FSP	4027	45° 21' 55.739"	166° 14' 24.796"
LSP	4641	45° 41' 58.428"	166° 21' 51.798"

NAVIGATION OFFSET APPLIED

NRP - Stern	29.5m
NRP – COS	230.0m
NRP – CNG	437.70m
COS – CNG	207.70m
NRP – CMP	333.90m

Posnet locations & remarks: good - none - intermittent

				acoustics
Tailbuoy #1	Failed	Gun string #1	GOOD	Good
Tailbuoy #2	none	Gun string #2	GOOD	Good
Tailbuoy #3	none	Gun string #3	none	None
Tailbuoy #4	none	Gun string #4	Good	None

SP spacing: 62.5m

line status: Complete

Seq# 004

Line Name: MGL1902MC01
Line Brg : 78.239 °

NAVIGATION LINE LOGS

DATE: 2019-05-12
JULIAN DAY: 132

Lamont-Doherty Earth Observatory
COLUMBIA UNIVERSITY | EARTH INSTITUTE

CLIENT: NSF - Shillington **SURVEY:** Emperor Sea Mounts

DC SOL :	37.4 m	DEPTH SOL :	6654.4 m	NAVIGATION SYSTEM USED:	C-Nav3050 - Primary
DC EOL :	360.5 m	DEPTH EOL :	5765.7 m	NAVIGATION SYSTEM USED:	SeaPath 200
BSP SOL:	3.6 kts	FEATHER SOL:	53.9 °	NAVIGATION SYSTEM USED:	C-Nav2000
BSP EOL:	4.2 kts	FEATHER EOL:	03.5 ° °	NAVIGATION SYSTEM USED:	POSMV
WEATHER		MAX FEATHER:	53.9 °	GRAVITY METER:	BMG-II: used, SN213
WIND SOL:	6.6 kts			MAGNETOMETER:	GeoMetrics: used
WIND EOL:	11 kts				
SEAS SOL:	3.5 m				
SEAS EOL:	2.5 m				

shift hours	watch personnel	shift hours	watch personnel	shift hours	watch personnel
12:00 - 24:00	Shaun Shaver	00:00 - 12:00	Alan Thompson		
12:00 - 24:00	Shaun Shaver	00:00 - 12:00	Chris Abdouch		

SP	UTC	EVENT	COMMENTS
5014	0957	SOL	Start of line - 62.5m shot spacing
6543	0:00	MSP	Midnight shot point May 13
9469	0:00	MSP	Midnight shot point May 14
12528	0:00	MSP	Midnight shot point May 15
12750	01:45	Autofire	Gun 4-5 started autofiring, secure strings 3&4 for recovery, volume 3120 cubic inches 18 guns
	02:05	recovery	moving string 3 and recovering string 4 to fix autofire
	02:25	recovery	string 4 on deck and autofire stopped
13011	03:51	Source	String 3 and 4 in position and firing, 6420 cubic inches
13026	03:59	EOL	End of line, complete

VESSEL POSITION

	Shotpoints	Latitude (N / +)	Longitude (E / +)
FSP	5014	45° 42' 13.772"	166° 22' 15.053"
LSP	13026	46° 26' 29.855"	172° 45' 38.963"

NAVIGATION OFFSET APPLIED

NRP - Stern	29.5m
NRP – COS	230.0m
NRP – CNG	437.70m
COS – CNG	207.70m
NRP – CMP	333.90m

Posnet locations & remarks: good - none - intermittent

				acoustics
Tailbuoy #1	Failed	Gun string #1	GOOD	Good
Tailbuoy #2	none	Gun string #2	GOOD	Good
Tailbuoy #3	none	Gun string #3	none	None
Tailbuoy #4	none	Gun string #4	Good	None

SP spacing: 62.5m

line status: Complete

Seq# 005

Line Name: MGL1902MC03
Line Brg : 293.89 °

NAVIGATION LINE LOGS

DATE: 2019-05-15
JULIAN DAY: 135

Lamont-Doherty Earth Observatory
COLUMBIA UNIVERSITY | EARTH INSTITUTE

CLIENT: NSF - Shillington
SURVEY: Emperor Sea Mounts

DC SOL :	3688.5 m	DEPTH SOL :	5876.4 m
DC EOL :	422.0 m	DEPTH EOL :	2899.0 m
BSP SOL:	3.5 kts	FEATHER SOL:	16.8 °
BSP EOL:	3.9 kts	FEATHER EOL:	-02.7 ° °
WEATHER		MAX FEATHER:	19.8 °
WIND SOL:	19 kts WNW kts		
WIND EOL:	14 N kts		
SEAS SOL:	1.5m		
SEAS EOL:	3.0 m		

NAVIGATION SYSTEM USED: C-Nav3050 - Primary
NAVIGATION SYSTEM USED: SeaPath 200
NAVIGATION SYSTEM USED: C-Nav2000
NAVIGATION SYSTEM USED: POSMV
GRAVITY METER: BMG-II: used, SN213
MAGNETOMETER: GeoMetrics: used

shift hours	watch personnel	shift hours	watch personnel	shift hours	watch personnel
12:00 - 24:00	Shaun Shaver	00:00 - 12:00	Alan Thompson		
12:00 - 24:00	Shaun Shaver	00:00 - 12:00	Chris Abdouch		

SP	UTC	EVENT	COMMENTS
14099	10:09	SOL	Start of line - 62.5m shot spacing
15559	0:00		Midnight Shot 16 May
18227	22:48	EOL	EOL - Line ended early to make inside turn onto strike line

VESSEL POSITION

	Shotpoints	Latitude (N / +)	Longitude (E / +)
FSP	14099	46° 17' 27.903"	172° 19' 41.243"
LSP	18227	47° 09' 11.103"	169° 11' 46.208"

NAVIGATION OFFSET APPLIED

NRP - Stern	29.5m
NRP – COS	230.0m
NRP – CNG	437.70m
COS – CNG	207.70m
NRP – CMP	333.90m

Posnet locations & remarks: good - none - intermittent

				acoustics
Tailbuoy #1	Failed	Gun string #1	GOOD	Good
Tailbuoy #2	none	Gun string #2	GOOD	Good
Tailbuoy #3	none	Gun string #3	none	None
Tailbuoy #4	none	Gun string #4	Good	None

SP spacing: 62.5m

line status: Complete

Seq# 006

Line Name: MGL1902MC02
Line Brg : 164 °

NAVIGATION LINE LOGS

DATE: 2019-05-16
JULIAN DAY: 136

Lamont-Doherty Earth Observatory
COLUMBIA UNIVERSITY | EARTH INSTITUTE

CLIENT: NSF - Shillington **SURVEY:** Emperor Sea Mounts

DC SOL :	140.7 m	DEPTH SOL :	2587.0 m	NAVIGATION SYSTEM USED:	C-Nav3050 - Primary
DC EOL :	2.3 m	DEPTH EOL :	4974.0 m	NAVIGATION SYSTEM USED:	SeaPath 200
BSP SOL:	4.9 kts	FEATHER SOL:	-87.6 °	NAVIGATION SYSTEM USED:	C-Nav2000
BSP EOL:	4.4 kts	FEATHER EOL:	00.1 ° °	NAVIGATION SYSTEM USED:	POSMV
WEATHER		MAX FEATHER:	-87.6 °	GRAVITY METER:	BMG-II: used, SN213
WIND SOL:	12 N kts			MAGNETOMETER:	GeoMetrics: used
WIND EOL:	20 NNW kts				
SEAS SOL:	3.0 m				
SEAS EOL:	1.5 m				

shift hours	watch personnel	shift hours	watch personnel	shift hours	watch personnel
12:00 - 24:00	Shaun Shaver	00:00 - 12:00	Alan Thompson		
12:00 - 24:00	Shaun Shaver	00:00 - 12:00	Chris Abdouch		

SP	UTC	EVENT	COMMENTS
19935	23:53	SOL	Start of line - 62.5m shot spacing
19951	0:00		Midnight Shot May 17
22926	0:00		Midnight Shot May 18
25820	0:00		Midnight Shot May 19
26084	2:05	EOL	Last Shot Point - End of MCS portion of the survey - Recovering source and streamer

VESSEL POSITION

	Shotpoints	Latitude (N / +)	Longitude (E / +)
FSP	19935	47° 04' 43.415"	169° 11' 23.714"
LSP	26084	43° 44' 26.849"	170° 28' 21.687"

NAVIGATION OFFSET APPLIED

NRP - Stern	29.5m
NRP – COS	230.0m
NRP – CNG	437.70m
COS – CNG	207.70m
NRP – CMP	333.90m

Posnet locations & remarks: good - none - intermittent

				acoustics
Tailbuoy #1	Failed	Gun string #1	GOOD	Good
Tailbuoy #2	none	Gun string #2	GOOD	Good
Tailbuoy #3	none	Gun string #3	none	None
Tailbuoy #4	none	Gun string #4	Good	None

SP spacing: 62.5m

line status: Complete

Seq# 007

Line Name: MGL1902OB02
Line Brg : 164.3 °

NAVIGATION LINE LOGS

DATE: 2019-05-21
JULIAN DAY: 141

Lamont-Doherty Earth Observatory
COLUMBIA UNIVERSITY | EARTH INSTITUTE

CLIENT: NSF - Shillington
SURVEY: Emperor Sea Mounts

DC SOL :	156.8 m	DEPTH SOL :	2098.4 m	NAVIGATION SYSTEM USED:	C-Nav3050 - Primary
DC EOL :	-5.0 m	DEPTH EOL :	5341.7 m	NAVIGATION SYSTEM USED:	SeaPath 200
BSP SOL:	4.5 kts	FEATHER SOL:	NA	NAVIGATION SYSTEM USED:	C-Nav2000
BSP EOL:	4.5 kts	FEATHER EOL:	NA °	NAVIGATION SYSTEM USED:	POSMV
WEATHER		MAX FEATHER:	NA	GRAVITY METER: BMG-II: used, SN213	
WIND SOL:	25WNW kts			MAGNETOMETER: GeoMetrics: used	
WIND EOL:	8NNE kts				
SEAS SOL:	2.5 m				
SEAS EOL:	1.0 m				

shift hours	watch personnel	shift hours	watch personnel	shift hours	watch personnel
12:00 - 24:00	Shaun Shaver	00:00 - 12:00	Alan Thompson		
12:00 - 24:00	Shaun Shaver	00:00 - 12:00	Chris Abdouch		

SP	UTC	EVENT	COMMENTS
26994	3:38	SOL	Start of line - 400m shot spacing (Source Only)
27366	23:58		Midnight SP May 22
27808	0:00		Midnight SP May 23
27991	8:53	EOL	EOL Complete (Last line of cruise)

VESSEL POSITION

	Shotpoints	Latitude (N / +)	Longitude (E / +)
FSP	26994	47° 22' 07.145"	169° 04' 14.651"
LSP	27991	43° 54' 22.019"	170° 24' 46.453"

NAVIGATION OFFSET APPLIED

NRP - Stern	29.5m
NRP – COS	230.0m
NRP – CNG	437.70m
COS – CNG	207.70m
NRP – CMP	333.90m

Posnet locations & remarks: good - none - intermittent

				acoustics
Tailbuoy #1	NA	Gun string #1	GOOD	Failed
Tailbuoy #2	NA	Gun string #2	Failed	Failed
Tailbuoy #3	NA	Gun string #3	none	None
Tailbuoy #4	NA	Gun string #4	Good	None

SP spacing: 400.0m

line status: Complete