Company : LDEO
Vessel : Marcus G.Langseth
Client : NSF

Project : E-TOMO MGL0910
Area : Endeavour Ridge
Start Date : 19 August 2009

LAMONT-DOHERTY EARTH OBSERVATORY
THE EARTH INSTITUTE AT COLUMBIA UNIVERSITY

**Vessel Sensor Offsets**

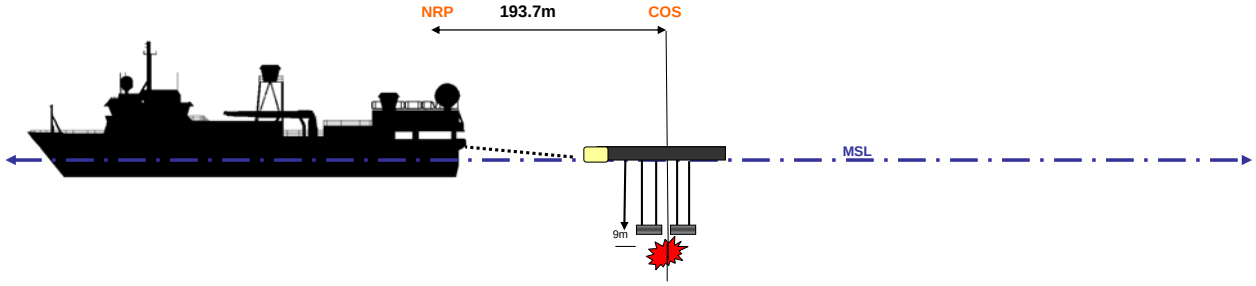
**Towing Offsets**

**Acoustic Offsets**

**Gun Array Offsets**

**Gun Configuration**

## R/V Marcus G. Langseth - Towing Offsets




Source depth for Line 03,04,05, & 06 was 15 meters, all remaining data was acquired at a source depth of 9 meters

***** Offsets used for acquisition *****

| | | | |
|---|---|---|---|
| NRP-Stern | 4.20 | m | |
| NRP-COS | 193.70 | m | |
| NRP-CNG | N/A | m | |
| COS-CNG | N/A | m | |
| NRP-CMP | N/A | m | |

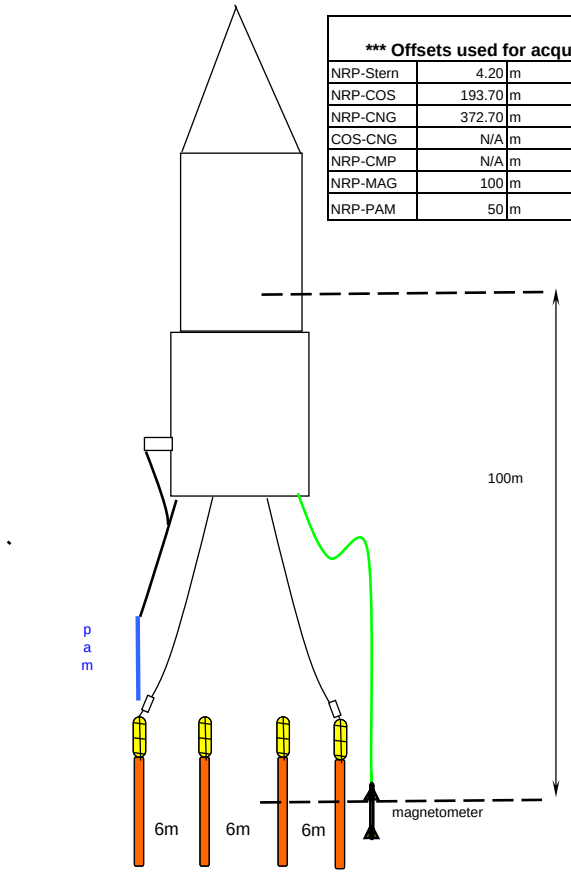
| | |
|---|---|
| **NRP** | **N**av **R**eference **P**oint |
| **COS** | **C**entre of **S**ource |
| **CNG** | **C**entre of **N**ear **G**roup (Trace # 468) |
| **CMP** | **C**ommon **M**id-**P**oint |
| **MSL** | **M**ean **S**ea **L**evel |

**All measurements in meters**

# R/V Marcus G. Langseth "tow" configuratiion

**R/V Marcus Langseth**
**1 x 6000**
**4 Gunstrings**

**NOT to Scale**

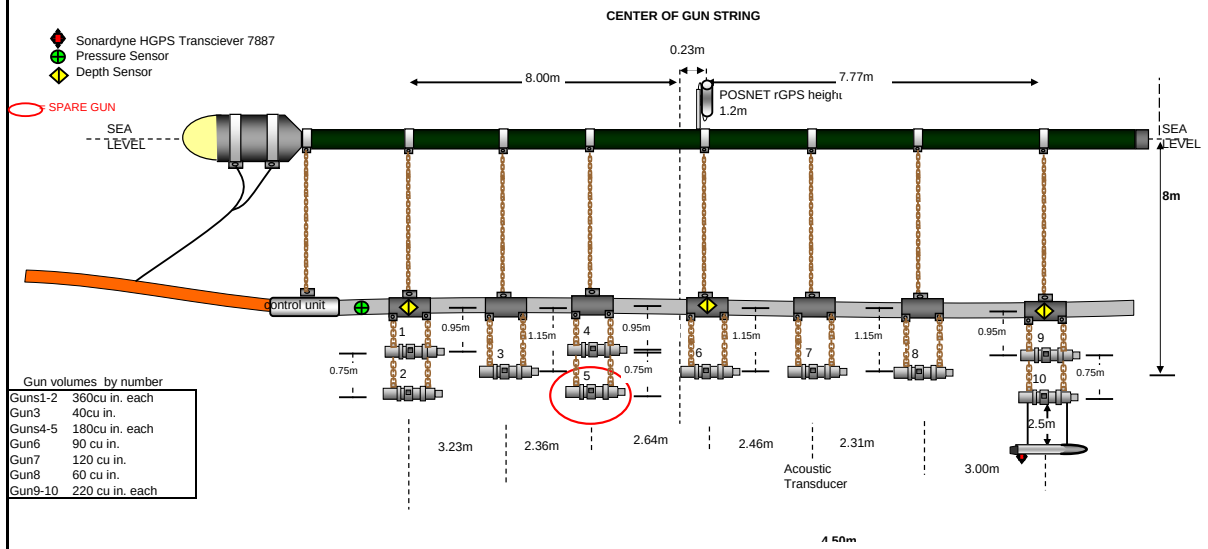



***** Offsets used for acquisition *****

| | | | |
|---|---|---|---|
| NRP-Stern | 4.20 | m | |
| NRP-COS | 193.70 | m | |
| NRP-CNG | 372.70 | m | |
| COS-CNG | N/A | m | |
| NRP-CMP | N/A | m | |
| NRP-MAG | 100 | m | X = -20m |
| NRP-PAM | 50 | m | X = 20m |

| | |
|---|---|
| **NRP** | **N**av **R**eference **P**oint |
| **COS** | **C**entre of **S**ource |
| **CNG** | **C**entre of **N**ear **G**roup (Trace # 468) |
| **CMP** | **C**ommon **M**id-**P**oint |
| **MSL** | **Mean Sea Level** |
| | |
| | |

## R/V Marcus G. Langseth - Gun Array Offsets




Gun volumes by number

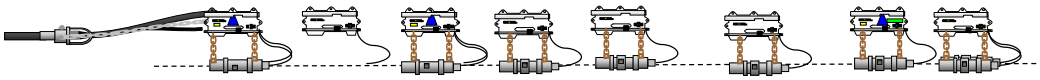
| | |
|---|---|
| Guns1-2 | 360cu in. each |
| Gun3 | 40cu in. |
| Guns4-5 | 180cu in. each |
| Gun6 | 90 cu in. |
| Gun7 | 120 cu in. |
| Gun8 | 60 cu in. |
| Gun9-10 | 220 cu in. each |

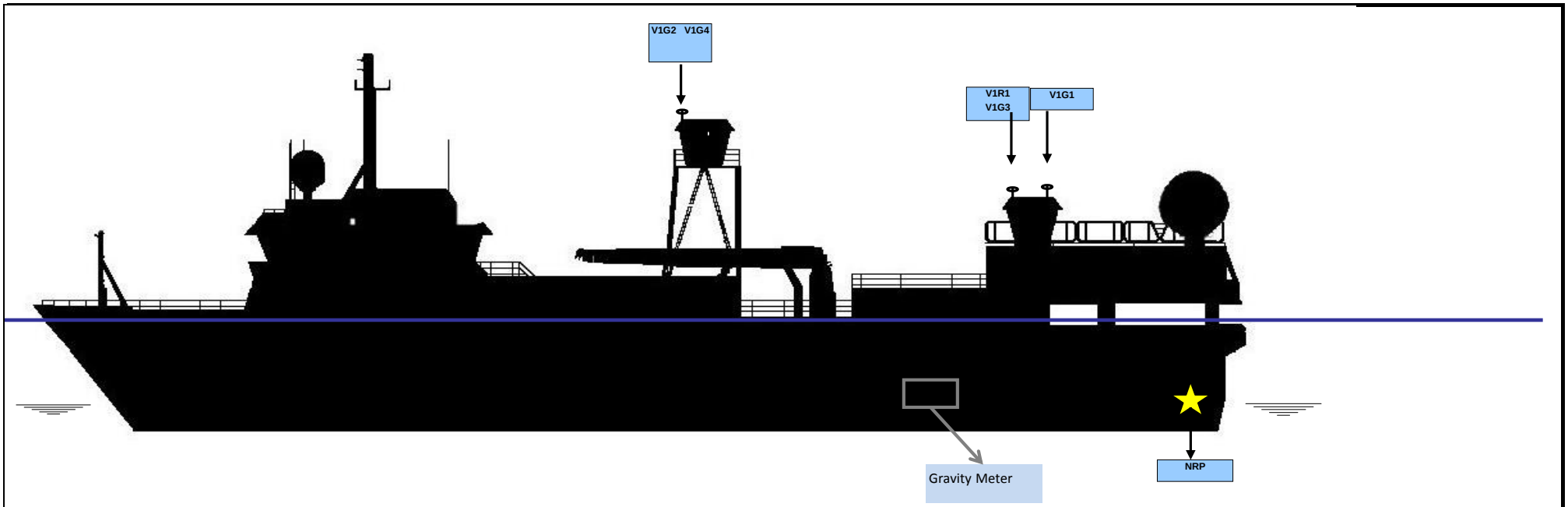
Array total volume (without spares) is 6600 cubic inches.
String 1 has guns 9 & 10 in a horizontal cluster; Strings 2, 3, 4, have all clusters hanging vertically.
Gun clusters have 0.75m between guns and hang 0.95m from center of hanger

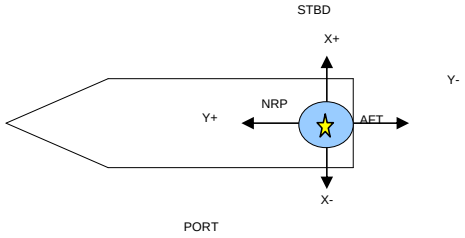
Total volume per string (without spare) 1650 cubic inches.
**Cluster Guns are 1m apart.** **NOTE: drawing not to scale**
Single guns hang from hanger 1.15m

**All measurements in meters**

All gun volumes, numbering, locations, and offsets were inspected and verified by Chief Source Mechanic.





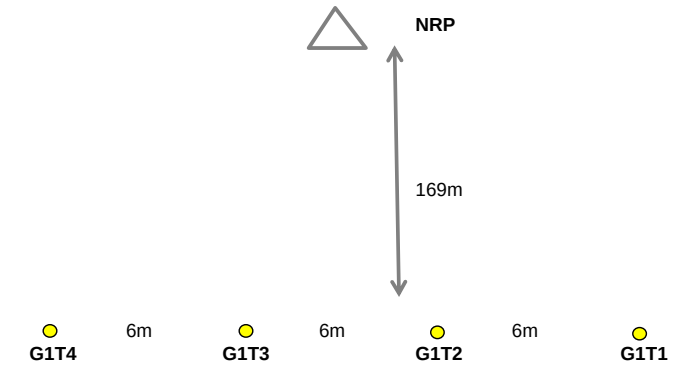

**Note: All Echosounders are used in Spectra with 6.6m ship's draft correction applied.**

**All measurements in meters**

| | | FORE/AFT (Y) | STBD/PORT (X) | UP/DOWN (Z) |
|---|---|---|---|---|
| **NRP** | NAVIGATION REFERENCE POINT | 0.00 | 0.00 | 0.00 |
| **V1G1** | C-Nav | 8.06 | 4.87 | 14.50 |
| **V1G2** | SeaPath 200 | 25.30 | 1.50 | 16.90 |
| **V1G3** | PosNet | 10.45 | 4.87 | 14.50 |
| **V1G4** | Pos MV | 22.30 | -1.50 | 16.90 |
| **V1R1** | PosNet | 10.45 | 4.87 | 14.50 |
| **EM120** | Multibeam | 49.70 | 8.50 | -6.60 |
| **BGM** | Bell Gravity Meter | 12.20 | 4.40 | -3.49 |

# R/V Marcus G. Langseth - Acoustic Offsets

## Sonardyne SIPS 1




HGPS Transciever 7887 & Shock Mounted Transducer 7660

**All measurements in meters**

# r/v Marcus G. Langseth - Gun Configuration