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## 1.0 Introduction

As part of Rogers Surveying's Indefinite Delivery Contract with The United States Army Corps of Engineers. Rogers Surveying was tasked with surveying the HARS (Historic Area Remediation Site). The HARS, which was re-designated as a remediation site in September 1977 was formerly known as the Mud Dump Site (MDS), and was used for the deposit of sediments dredged from the New York / New Jersey Harbor Estuary. The remediation consists of placing a one-meter "cap" layer of uncontaminated dredged material on top of the existing surface sediments within the nine Priority Remediation Areas (PRA's) of the HARS.

## 2.0 Objective

The primary objective of this task order is to obtain current high-accuracy multibeam bathymetry of the site, to be used in the monitoring and planning of dredge placement. The site limits being bounded by North latitude of 40º 25.757, a South latitude of 40º 21.189' and East longitude of 73º 48.798, a West longitude of 73º 54.075'. The total survey coverage area being approximately 24.6 square miles. (Figure 2.0-1). Rogers Surveying was given a scope of work and proceeded to perform survey operations on 9/16/09 (Table 2.0-1).

## 3.0 Procedure

The survey data was collected utilizing multibeam technology, and collected in accordance with The U.S. Army Corps of Engineers Manual 1110-2-1003. All survey data was collected with the survey vessel "Red Rogers" (Table 3.0-1). The "Red Rogers" is a 36' long catamaran with a beam of 12' that has berthing for 2. Survey operations were run when fuel, weather and crew staffing permitted. The vessel is equipped with a *RESON* 8101 multibeam sonar. Vessel motion corrections are supplied by an *APPLANIX* 320 (POS/MV), Differential GPS corrections are supplied by a *TRIMBLE* Pro-Beacon receiver, and when available RTK corrections provided to the POS/MV with the addition of a USB cellular modem. Speed of sound profiles are recorded thru the water column with a *SEABIRD* SBE19 Plus CTD profiler V2 (Table 3.0-1).

A seabed mounted water pressure gauge was installed at latitude N 40 º22' 38.9677" and longitude W 73º 50' 54.9287". It was anchored in approximately 40' of water (Figures 3.0-1 and 3.0-2). An acoustic release system was incorporated for retrieval of the tide gauge. The gauge was preset to record data for 60 seconds every 5 minutes. The Real Time Kinematic GPS, which augmented the POS/MV position also provided real time water levels. The RTK and VRS corrections were provided via a cellular Internet GPS Network operated by Keystone Precision of PA.

**Figure 2.0-1**
Historic Area Restoration Site (HARS).

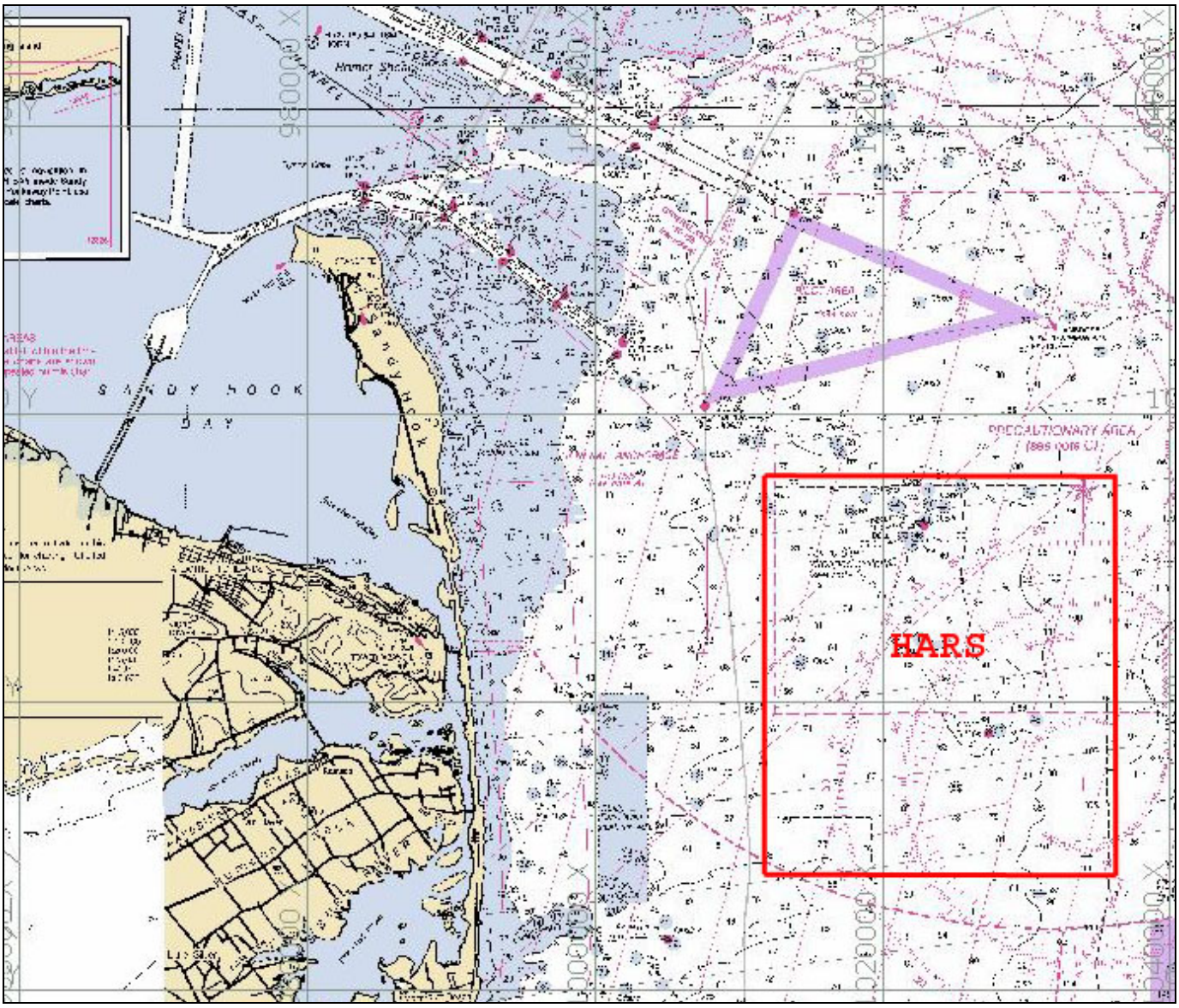


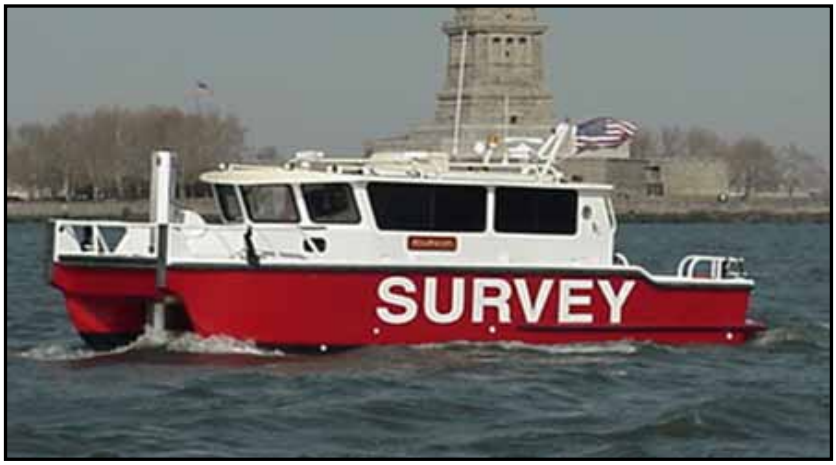
**Table 2.0-1**
Summary of survey operations on board survey vessel Red Rogers for the Fall 2009 multibeam survey at the HARS.

| DATE | Operations |
|---|---|
| 07/29/09 | Patch Test performed on survey vessel Red Rogers for multibeam system calibration. |
| 09/16/09 | Deployed submersible tide recorder, checked RTK network coverage on site. |
| 09/23/09 | Mobilization to HARS. Commenced multibeam survey of HARS. |
| 09/24/09 | Continued Survey from previous day. |
| 10/01/09 | Continued Survey from 09/24/09. |
| 10/06/09 | Continued Survey from 10/01/09. |
| 10/20/09 | Bar check for multibeam system calibration performed. |
| 10/21/09 | Continued Survey from 10/06/09. |
| 10/22/09 | Continued Survey from previous day. |
| 11/04/09 | Continued Survey from 10/22/09. |
| 11/05/09 | Continued Survey from previous day. |
| 11/07/09 | Continued Survey from 11/05/09. |
| 12/01/09 | Continued Survey from 11/07/09. |
| 12/02/09 | Continued Survey from previous day. |
| 12/07/09 | Continued Survey from 12/02/09. |
| 12/08/09 | Continued Survey from previous day. |
| 12/14/09 | Continued Survey from 12/08/09. Survey completed. Demobilize. |

**Table 3.0-1**
Equipment used during the Fall 2009 multibeam survey at the HARS.

| System | Model | *Accuracy |
|---|---|---|
| Multibeam | Reson Seabat 8101 (150/210 deg)<br>240 kHz, beam width 1.5 degree along and across track, 101 horizontal beams. | 4 cm Nadir, 5 cm 45 degrees,<br>1.25 range resolution. |
| **Position** | | |
| Differential GPS | Trimble Pro Beacon | 3-5 meters DGPS USCG,<br>3 meters DGPS WAAS |
| Inertial Navigation System | TSS POS M/V 320 Motion (HPR) & Heading | Roll Pitch 0.02 (1 sigma DGPS, 2 sigma RTK)<br>Heave 5cm or 5% 20 seconds or less<br>Heading 0.02 (1 sigma)<br>Position 0.5 - 2m (DGPS), 0.02 - 0.10 (RTK)<br>Velocity 0.03 m/s horizontal |
| Data Acquisition<br>and Navigation | Hypack 2009a Hysweep Survey<br>Running on a Super Logic computer, with dual Aptec Raid removable disk drives . | |
| Sound Velocity | SeaBird SBE 19plusV2 | |
| **Tide Gauges** | | |
| Submersible Pressure Gauge | Valeport MiniTide<br>(Deployed at HARS) | Range –5 to +35 deg (C).<br>+/-0.01 deg (C) |

| **Survey Vessel** | |
|---|---|
| M/V Red Rogers | LOA= 36', Beam= 10', Draft= 2.5, Max Speed 25kts |
| Propulsion | Twin Volvo KAD 44P-C Turbo Diesel Engines with DPE Stern Drives |
| Power | Onan 6.5 kilowatt Generator with UPS & DC power supplies |




R/V *Red Roger*

**Figure 3.0-1**
Attaching Acoustic Release Buoy to Submersible Tide Gauge

**Figure 3.0-2**
Final multibeam coverage of the HARS, with submersible Tide Gauge location.

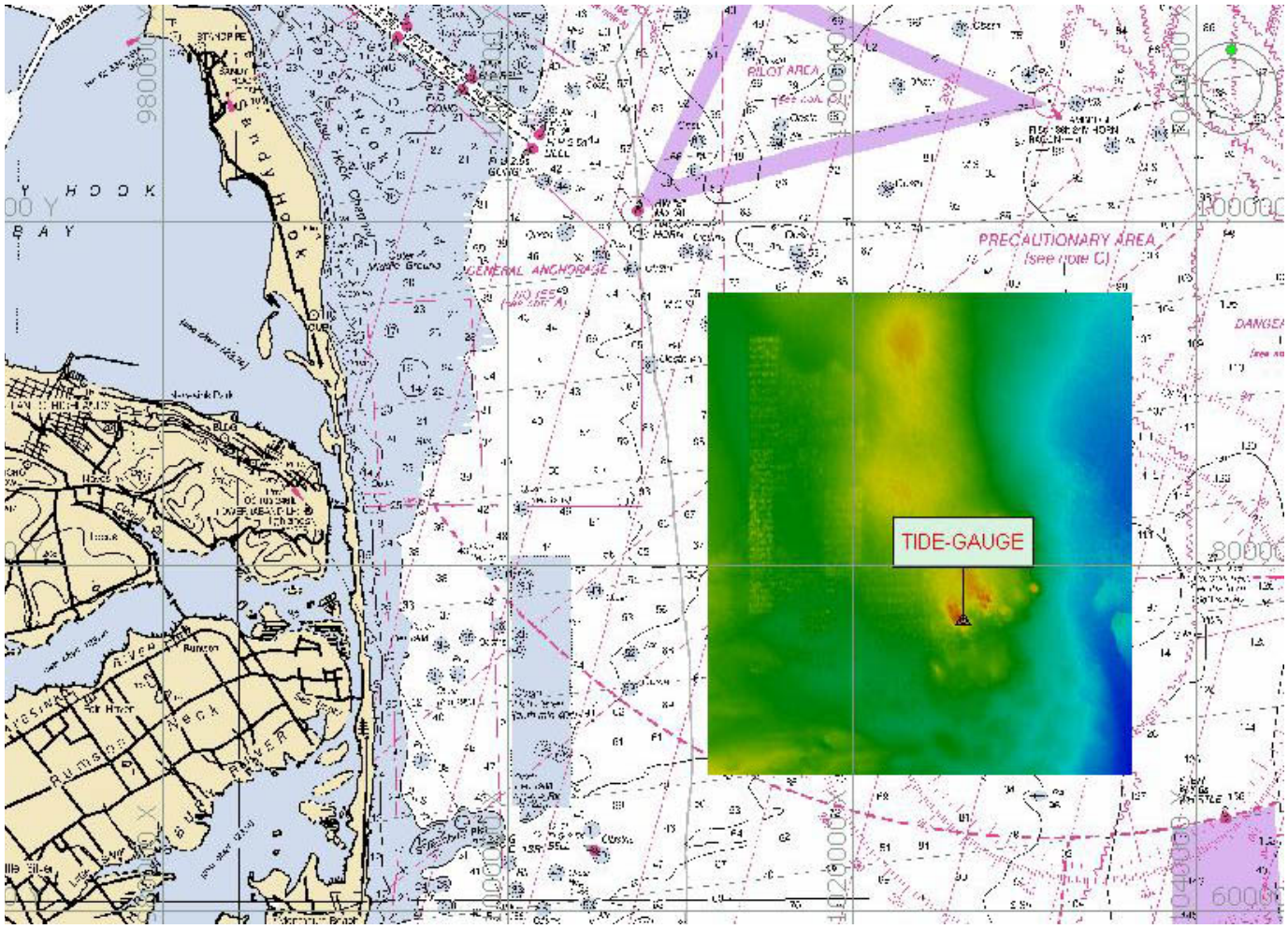


**Figure 3.1-1**

Portion of NGS Data Sheet for survey control disk KV0233 used at Elizabeth Marina.

```
KV0233  DESIGNATION -  PBM 65 33 USE
KV0233  PID         -  KV0233
KV0233  STATE/COUNTY-  NJ/UNION
KV0233  USGS QUAD   -  ELIZABETH (1995)
KV0233
KV0233                        *CURRENT SURVEY CONTROL
KV0233  ______________________________________________________________________
KV0233* NAD 83(1986)-  40 39 07.     (N)    074 11 11.     (W)     SCALED
KV0233* NAVD 88     -         7.441  (meters)      24.41   (feet)  ADJUSTED
KV0233  ______________________________________________________________________
KV0233  GEOID HEIGHT-          -32.35  (meters)                     GEOID09
KV0233  DYNAMIC HT  -            7.438 (meters)       24.40  (feet)  COMP
KV0233  MODELED GRAV-      980,222.8   (mgal)                       NAVD 88
KV0233
KV0233  VERT ORDER  -  FIRST     CLASS II
```

**Figure 4.1-1**

Sandy Hook Tidal Station information, used during the Fall 2009 multibeam survey at the HARS.

Sandy Hook, NJ

Station ID: 8531680

Station Information

*Latitude:* 40° 28.0' N

*Longitude:* 74° 0.6' W

*Established:* Jan 7 1910

*Present Installation:* Sep 26 1989

*NOAA Chart #:* 12327

*Time Meridian:* 75

Mean Range: 4.70 ft.

Diurnal Range: 5.22 ft.

Click image for larger image.

*Minimum Water Level:*

-4.71 ft. below MLLW

(02/02/1976)

*Maximum Water Level:*

4.86 ft. above MHHW

(09/12/1960)

Data Types Available:

Primary Water Level
Backup Water Level
Wind
Air Temperature
Water Temperature
Barometric Pressure
Barometric Pressure
Conductivity

Station and Bench Mark Drawing

Click HERE for Drawing
(Not for navigational use)

Station Location Chartlet

Click HERE for Map
(Not for navigational use)

## 3.1 Data Acquisition

The survey vessel *Red Rogers* is permanently berthed in Elizabeth, New Jersey. The voyage from the vessels homeport to the HARS is approximately 1.5 hours. Prior to multibeam survey operations a float test was performed to confirm that the RTK GPS tide reading from the POS M/V on the survey vessel agreed with the tide board at the dock at Elizabeth Marina, which had previously been referenced to National Geodetic Survey (NGS) disk KV0233 (Figure 3.1-1). This having been done the survey vessel transited to the HARS for commencement of multibeam data collection at the HARS site.

Once at the HARS the initial task was to lower the multibeam transducer head and perform a sound velocity profile (SVP). The information from the SVP was used to provide the Reson 8101 multibeam processor with a sound velocity surface value used for beam steerage. In addition the sound velocity profile was used in the Hypack data acquisition and processing software to correct for speed of sound through the water column to be applied to the multibeam data.

Having performed and applied the SVP correction, multibeam data collection began. Survey lines were run in a general North-South direction with cross check lines (see Section 5.0) being run in an East-West direction.

Constant monitoring of the Reson 8101 screen and adjustment of range, transmit/ receive power settings were made if required to accurately map and encompass the swath width needed. The swath width was set to 60 deg. either side of nadir (center beam of multibeam) and lines were run to provide a 60% swath data coverage. In addition to monitoring the Reson 8101, it was also necessary to monitor the Hypack navigation software, which provided quality information on GPS and inertial navigation sensors, motion reference unit sensor and the multibeam data from the Reson 8101.

## 3.2 Sound Velocity Profiles

Sound velocity profiles were taken during the course of the survey using a SeaBird SBE 19plus Version 2 CTD. Casts were obtained before, during and after each survey period. During survey operations casts were taken not less than three hours apart and at opposite ends of the days survey area, to account for any spatial water column speed of sound changes. The SeaBird SBE 19plus was last calibrated by the manufacturer on 05/25/07 and is periodically checked against our Odom Digibar Pro velocity profiler. A total of 66 SVP casts were taken over the course of the multibeam survey (Table 3.2-0). Plots of all SVP casts are shown in Figures 3.2-1 to 3.2-65.

## 3.3 Survey Line Report

Multibeam survey lines were run in a North-South direction primarily to best facilitate vessel operation under wave and current conditions at the time of the survey. Table 3.3-1 lists survey line start times with location and direction run.

## Table 3.2-0

Sound Velocity Profiles (SVP's) taken during the Fall 2009 multibeam survey at the HARS

| Date | Time | CTD File # | NAD83 NY LI (Feet) | | Water Depth | Latitude | Longitude |
|---|---|---|---|---|---|---|---|
| | | | Easting | Northing | Feet | N | W |
| 09/23/09 | 10:08 | 092309_1008 | 1036175 | 95932 | 94 | 40.42983276 | 73.81349065 |
| 09/23/09 | 11:54 | 092309_1154 | 1034837 | 86446 | 93 | 40.40380305 | 73.81836724 |
| 09/23/09 | 14:00 | 092309_1400 | 1033242 | 95886 | 88 | 40.42972315 | 73.82402599 |
| 09/23/09 | 16:15 | 092309_1615 | 1031055 | 86413 | 91 | 40.40373319 | 73.83194672 |
| 09/23/09 | 17:08 | 092309_1708 | 1030786 | 95674 | 82 | 40.42915445 | 73.83284911 |
| 09/24/09 | 9:30 | 092409_0930 | 1036489 | 86488 | 113 | 40.40390878 | 73.81243543 |
| 09/24/09 | 11:31 | 092409_1131 | 1034448 | 77128 | 110 | 40.37822894 | 73.81983276 |
| 09/24/09 | 14:42 | 092409_1442 | 1032053 | 77068 | 94 | 40.37807744 | 73.82842913 |
| 09/24/09 | 15:50 | 092409_1550 | 1031348 | 86862 | 96 | 40.40496407 | 73.83089159 |
| 09/24/09 | 17:05 | 092409_1705 | 1030151 | 86869 | 91 | 40.40498955 | 73.83518944 |
| 10/01/09 | 8:03 | 100109_0803 | 1036141 | 77154 | 99 | 40.37829058 | 73.81375617 |
| 10/01/09 | 10:16 | 100109_1016 | 1034588 | 67471 | 109 | 40.35172131 | 73.81940174 |
| 10/01/09 | 12:17 | 100109_1217 | 1032888 | 67820 | 98 | 40.35268871 | 73.82549834 |
| 10/01/09 | 14:24 | 100109_1424 | 1031506 | 77449 | 90 | 40.37912615 | 73.83038972 |
| 10/01/09 | 16:18 | 100109_1618 | 1029771 | 67839 | 88 | 40.35275736 | 73.83668124 |
| 10/06/09 | 11:30 | 100609_1130 | 1029963 | 77308 | 74 | 40.37874720 | 73.83592876 |
| 10/06/09 | 13:41 | 100609_1341 | 1027884 | 67871 | 81 | 40.35285465 | 73.84345114 |
| 10/06/09 | 15:52 | 100609_1552 | 1027314 | 77330 | 55 | 40.37882081 | 73.84543629 |
| 10/06/09 | 17:07 | 100609_1707 | 1026192 | 76849 | 52 | 40.37750590 | 73.84946629 |
| 10/21/09 | 8:55 | 102109_0855 | 1026482 | 77317 | 53 | 40.37878911 | 73.84842255 |
| 10/21/09 | 10:57 | 102109_1057 | 1024051 | 68813 | 80 | 40.35545826 | 73.85719754 |
| 10/21/09 | 12:32 | 102109_1232 | 1029983 | 86688 | 92 | 40.40449360 | 73.83579387 |
| 10/21/09 | 14:10 | 102109_1410 | 1029000 | 77180 | 64 | 40.37840076 | 73.83938596 |
| 10/21/09 | 16:25 | 102109_1625 | 1027917 | 77278 | 53 | 40.37867513 | 73.84327236 |
| 10/21/09 | 18:01 | 102109_1801 | 1026167 | 86339 | 61 | 40.40355447 | 73.84949749 |
| 10/22/09 | 9:01 | 102209_0901 | 1024264 | 86711 | 58 | 40.40458432 | 73.85632799 |
| 10/22/09 | 11:09 | 102209_1109 | 1025152 | 77102 | 63 | 40.37820519 | 73.85319741 |
| 10/22/09 | 12:16 | 102209_1216 | 1025630 | 86614 | 59 | 40.40431182 | 73.85142391 |
| 10/22/09 | 14:21 | 102209_1421 | 1026782 | 82645 | 60 | 40.39341215 | 73.84731247 |
| 11/04/09 | 9:51 | 110409_0951 | 1027369 | 81771 | 62 | 40.39101034 | 73.84521072 |
| 11/04/09 | 11:14 | 110409_1114 | 1024001 | 67550 | 76 | 40.35199176 | 73.85738431 |
| 11/04/09 | 13:08 | 110409_1308 | 1022648 | 77407 | 70 | 40.37905353 | 73.86218286 |
| 11/04/09 | 14:46 | 110409_1446 | 1021353 | 67843 | 70 | 40.35280743 | 73.86688300 |
| 11/04/09 | 16:51 | 110409_1651 | 1019520 | 77407 | 77 | 40.37906649 | 73.87340978 |
| 11/05/09 | 8:12 | 110509_0812 | 1018760 | 77298 | 78 | 40.37877029 | 73.87613810 |
| 11/05/09 | 10:00 | 110509_1000 | 1017763 | 67795 | 69 | 40.35268993 | 73.87976331 |
| 11/05/09 | 12:03 | 110509_1203 | 1016556 | 67842 | 65 | 40.35282341 | 73.88409351 |
| 11/05/09 | 14:11 | 110509_1411 | 1014832 | 77354 | 69 | 40.37893837 | 73.89023605 |
| 11/05/09 | 16:10 | 110509_1610 | 1013553 | 77379 | 69 | 40.37901130 | 73.89482649 |
| 11/07/09 | 8:57 | 110709_0857 | 1013004 | 77285 | 69 | 40.37875508 | 73.89679734 |
| 11/07/09 | 11:01 | 110709_1101 | 1011914 | 77354 | 69 | 40.37894793 | 73.90070924 |
| 11/07/09 | 12:10 | 110709_1210 | 1023763 | 77165 | 73 | 40.37838440 | 73.85818234 |
| 11/07/09 | 13:47 | 110709_1347 | 1023348 | 86660 | 56 | 40.40444841 | 73.85961722 |
| 12/01/09 | 23:01 | 120109_2301 | 1022670 | 86587 | 52 | 40.40425099 | 73.86205201 |
| 12/01/09 | 23:57 | 120109_2357 | 1021675 | 77132 | 71 | 40.37830285 | 73.86567663 |
| 12/02/09 | 1:52 | 120209_0152 | 1019948 | 77139 | 75 | 40.37832917 | 73.87187502 |
| 12/02/09 | 4:08 | 120209_0408 | 1017711 | 77080 | 75 | 40.37817592 | 73.87990420 |
| 12/02/09 | 6:11 | 120209_0611 | 1015726 | 77097 | 81 | 40.37822983 | 73.88702853 |
| 12/02/09 | 7:49 | 120209_0749 | 1014504 | 77058 | 77 | 40.37812702 | 73.89141462 |
| 12/02/09 | 10:07 | 120209_1007 | 1011798 | 77102 | 70 | 40.37825659 | 73.90112660 |
| 12/02/09 | 12:18 | 120209_1218 | 1013136 | 80332 | 63 | 40.38711816 | 73.89631063 |
| 12/07/09 | 6:51 | 120709_0651 | 1030860 | 95844 | 82 | 40.42962069 | 73.83258214 |
| 12/07/09 | 8:53 | 120709_0853 | 1028892 | 95909 | 82 | 40.42980921 | 73.83965053 |
| 12/07/09 | 11:02 | 120709_1102 | 1027052 | 95944 | 78 | 40.42991433 | 73.84625939 |
| 12/07/09 | 12:58 | 120709_1258 | 1025359 | 86203 | 58 | 40.40318495 | 73.85239943 |
| 12/07/09 | 15:06 | 120709_1506 | 1024019 | 86415 | 54 | 40.40377295 | 73.85720940 |
| 12/07/09 | 17:08 | 120709_1708 | 1022677 | 86425 | 51 | 40.40380630 | 73.86202779 |
| 12/08/09 | 8:43 | 120809_0843 | 1022659 | 95486 | 58 | 40.42867728 | 73.86204118 |
| 12/08/09 | 10:41 | 120809_1041 | 1021528 | 86196 | 56 | 40.40318263 | 73.86615453 |
| 12/08/09 | 12:54 | 120809_1254 | 1020264 | 86226 | 63 | 40.40327018 | 73.87069271 |
| 12/08/09 | 14:53 | 120809_1453 | 1020144 | 86231 | 64 | 40.40328439 | 73.87112354 |
| 12/08/09 | 16:47 | 120809_1647 | 1016907 | 95841 | 62 | 40.42967469 | 73.88269969 |
| 12/08/09 | 18:55 | 120809_1855 | 1014698 | 86369 | 70 | 40.40368350 | 73.89067662 |
| 12/14/09 | 8:29 | 121409_0829 | 1011868 | 95803 | 75 | 40.42958748 | 73.90079935 |
| 12/14/09 | 10:31 | 121409_1031 | 1013513 | 96011 | 71 | 40.43015314 | 73.89488981 |
| 12/14/19 | 12:25 | 121409_1225 | 1014297 | 92458 | 71 | 40.42039815 | 73.89208948 |

**Table 3.3-1**
Multibeam Survey Lines run during the Fall 2009 multibeam survey at the HARS

| LINE # | DATE | TIME | LAT | LONG | DIRECTION |
|---|---|---|---|---|---|
| 000_1016 | 9/23/09 | 10:16 | N40 25.79006728 | W073 48.80933729 | South |
| 000_1040 | 9/23/09 | 10:40 | N40 24.22524765 | W073 48.86699683 | North |
| 000_1042 | 9/23/09 | 10:42 | N40 24.22779571 | W073 48.87205236 | North |
| 000_1101 | 9/23/09 | 11:01 | N40 25.77207227 | W073 48.92033668 | South |
| 000_1118 | 9/23/09 | 11:18 | N40 24.22461637 | W073 48.98274222 | North |
| 000_1134 | 9/23/09 | 11:34 | N40 25.77546676 | W073 49.00042643 | South |
| 000_1158 | 9/23/09 | 11:58 | N40 24.228324 | W073 49.10185466 | North |
| 000_1214 | 9/23/09 | 12:14 | N40 25.78578602 | W073 49.10975137 | South |
| 000_1240 | 9/23/09 | 12:40 | N40 24.23374578 | W073 49.2137201 | North |
| 000_1256 | 9/23/09 | 12:56 | N40 25.78393032 | W073 49.22919735 | South |
| 000_1311 | 9/23/09 | 13:11 | N40 24.21803292 | W073 49.34730238 | North |
| 000_1327 | 9/23/09 | 13:27 | N40 25.77739384 | W073 49.35040642 | South |
| 000_1343 | 9/23/09 | 13:43 | N40 4.22646366 | W073 49.48556515 | North |
| 000_1404 | 9/23/09 | 14:04 | N40 25.78349427 | W073 49.44146955 | South |
| 000_1420 | 9/23/09 | 14:20 | N40 24.2235468 | W073 49.60170791 | North |
| 000_1435 | 9/23/09 | 14:35 | N40 25.78207484 | W073 49.55384015 | South |
| 000_1451 | 9/23/09 | 14:51 | N40 24.27081022 | W073 49.70695251 | East (Cross-Line) |
| 000_1505 | 9/23/09 | 15:05 | N40 24.22602896 | W073 49.70550866 | North |
| 000_1520 | 9/23/09 | 15:20 | N40 25.7921365 | W073 49.66804309 | South |
| 000_1538 | 9/23/09 | 15:38 | N40 24.23097516 | W073 49.82276454 | North |
| 000_1555 | 9/23/09 | 15:55 | N40 25.78043827 | W073 49.78136187 | South |
| 000_1620 | 9/23/09 | 16:20 | N40 24.22399328 | W073 49.91673811 | North |
| 000_1635 | 9/23/09 | 16:35 | N40 25.78257223 | W073 49.87941652 | South |
| 000_1652 | 9/23/09 | 16:52 | N40 24.22553647 | W073 50.02219465 | North |
| 000_1708 | 9/23/09 | 17:08 | N40 25.74936286 | W073 49.9708181 | East (Cross-Line) |
| 004_0936 | 9/24/09 | 9:36 | N40 24.24871836 | W073 48.79904112 | South |
| 002_0951 | 9/24/09 | 9:51 | N40 22.68924795 | W073 48.85801349 | North |
| 002_1006 | 9/24/09 | 10:06 | N40 24.26618927 | W073 48.90733826 | South |
| 003_1022 | 9/24/09 | 10:22 | N40 22.6893296 | W073 48.96585391 | North |
| 004_1039 | 9/24/09 | 10:39 | N40 24.28319103 | W073 49.02543446 | South |
| 002_1056 | 9/24/09 | 10:56 | N40 22.68739385 | W073 49.08413262 | North |
| 002_1112 | 9/24/09 | 11:12 | N40 24.27681594 | W073 49.14291162 | South |
| 003_1137 | 9/24/09 | 11:37 | N40 22.69384404 | W073 49.18979797 | North |
| 004_1154 | 9/24/09 | 11:54 | N40 24.27483792 | W073 49.2569275 | South |
| 002_1211 | 9/24/09 | 12:11 | N40 22.67199837 | W073 49.30842801 | North |
| 002_1229 | 9/24/09 | 12:29 | N40 24.21713814 | W073 49.40730073 | East (Cross-Line) |

| | | | | | |
|---|---|---|---|---|---|
| 003_1239 | 9/24/09 | 12:39 | N40 24.27190526 | W073 49.37248294 | South |
| 004_1255 | 9/24/09 | 12:55 | N40 22.67292579 | W073 49.43830223 | North |
| 002_1313 | 9/24/09 | 13:13 | N40 24.29378687 | W073 49.52336886 | South |
| 002_1330 | 9/24/09 | 13:30 | N40 22.69039706 | W073 49.53958786 | North |
| 000_1337 | 9/24/09 | 13:37 | N40 23.15273045 | W073 49.57773217 | North |
| 000_1350 | 9/24/09 | 13:50 | N40 24.27583862 | W073 49.63860519 | South |
| 000_1406 | 9/24/09 | 14:06 | N40 22.69056157 | W073 49.64574761 | North |
| 000_1423 | 9/24/09 | 14:23 | N40 24.27183686 | W073 49.74429651 | South |
| 000_1448 | 9/24/09 | 14:48 | N40 22.6844503 | W073 49.73427872 | North |
| 000A1505 | 9/24/09 | 15:05 | N40 24.26902512 | W073 49.85134897 | South |
| 000_1521 | 9/24/09 | 15:21 | N40 22.6914517 | W073 49.85204863 | North |
| 000A1538 | 9/24/09 | 15:38 | N40 24.2089128 | W073 49.96276839 | East (Cross-Line) |
| 000_1552 | 9/24/09 | 15:52 | N40 24.26437337 | W073 49.93815764 | South |
| 000_1608 | 9/24/09 | 16:08 | N40 22.70045354 | W073 49.9443673 | North |
| 000_1610 | 9/24/09 | 16:10 | N40 22.6983898 | W073 49.9422133 | North |
| 000_1627 | 9/24/09 | 16:27 | N40 24.26878445 | W073 50.04004818 | South |
| 000_1644 | 9/24/09 | 16:44 | N40 22.68172592 | W073 50.03140605 | North |
| 000_1707 | 9/24/09 | 17:07 | N40 24.21208366 | W073 50.14125533 | East (Cross-Line) |
| 005_0811 | 10/1/09 | 8:11 | N40 22.72639066 | W073 48.79362672 | South |
| 002_0828 | 10/1/09 | 8:28 | N40 21.16835375 | W073 48.84538148 | North |
| 002_0845 | 10/1/09 | 8:45 | N40 22.73175088 | W073 48.89901496 | South |
| 003_0903 | 10/1/09 | 9:03 | N40 21.16462574 | W073 48.97287799 | North |
| 004_0919 | 10/1/09 | 9:19 | N40 22.73180244 | W073 48.99164525 | South |
| 005_0937 | 10/1/09 | 9:37 | N40 21.16256829 | W073 49.09407705 | North |
| 002_0954 | 10/1/09 | 9:54 | N40 22.73238446 | W073 49.11243732 | South |
| 002_1018 | 10/1/09 | 10:18 | N40 21.16563296 | W073 49.22117065 | North |
| 003_1035 | 10/1/09 | 10:35 | N40 22.73024227 | W073 49.2193185 | South |
| 004_1053 | 10/1/09 | 10:53 | N40 21.15796786 | W073 49.34921442 | North |
| 005_1111 | 10/1/09 | 11:11 | N40 22.68269322 | W073 49.3382018 | East (Cross-Line) |
| 002_1122 | 10/1/09 | 11:22 | N40 22.73966436 | W073 49.34636587 | South |
| 002_1140 | 10/1/09 | 11:40 | N40 21.15689811 | W073 49.46766674 | North |
| 003_1158 | 10/1/09 | 11:58 | N40 22.73490733 | W073 49.46961355 | South |
| 004_1221 | 10/1/09 | 12:21 | N40 21.16295587 | W073 49.57966659 | North |
| 005_1239 | 10/1/09 | 12:39 | N40 22.73308306 | W073 49.57059391 | South |
| 002_1256 | 10/1/09 | 12:56 | N40 21.15745349 | W073 49.67487953 | North |
| 002A1313 | 10/1/09 | 13:13 | N40 22.74408018 | W073 49.67767585 | South |
| 003_1330 | 10/1/09 | 13:30 | N40 21.16405281 | W073 49.78480345 | North |
| 004_1347 | 10/1/09 | 13:47 | N40 22.74115883 | W073 49.77444065 | South |
| 005_1405 | 10/1/09 | 14:05 | N40 21.16208794 | W073 49.89099469 | North |

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| 002_1426 | 10/1/09 | 14:26 | N40 22.697395 | W073 49.88521196 | East (Cross-Line) |
| 002_1435 | 10/1/09 | 14:35 | N40 22.71646839 | W073 49.89422586 | South |
| 003_1452 | 10/1/09 | 14:52 | N40 21.15899161 | W073 49.99518419 | North |
| 000A1521 | 10/1/09 | 15:21 | N40 22.73213922 | W073 49.98638545 | South |
| 000_1539 | 10/1/09 | 15:39 | N40 21.16708692 | W073 50.10215611 | North |
| 000_1556 | 10/1/09 | 15:56 | N40 22.73947894 | W073 50.06806983 | South |
| 000_1618 | 10/1/09 | 16:18 | N40 21.16929008 | W073 50.20044854 | North |
| 000_1636 | 10/1/09 | 16:36 | N40 22.6975668 | W073 0.16586097 | East (Cross-Line) |
| 000_1138 | 10/6/09 | 11:38 | N40 22.72488111 | W073 50.15560816 | South |
| 000_1156 | 10/6/09 | 11:56 | N40 21.16067992 | W073 50.3040198 | North |
| 000_1212 | 10/6/09 | 12:12 | N40 22.72646584 | W073 50.24154451 | South |
| 000_1230 | 10/6/09 | 12:30 | N40 21.1646988 | W073 50.39977137 | North |
| 000_1246 | 10/6/09 | 12:46 | N40 22.73142577 | W073 50.32513767 | South |
| 000_1304 | 10/6/09 | 13:04 | N40 21.15831343 | W073 50.49696703 | North |
| 000_1320 | 10/6/09 | 13:20 | N40 22.73534101 | W073 50.39663392 | South |
| 000_1345 | 10/6/09 | 13:45 | N40 21.17134977 | W073 50.6070638 | North |
| 000_1402 | 10/6/09 | 14:02 | N40 22.73741762 | W073 50.47281842 | South |
| 000A1420 | 10/6/09 | 14:20 | N40 21.16487981 | W073 50.7047514 | North |
| 000_1437 | 10/6/09 | 14:37 | N40 22.68719583 | W073 50.56433692 | East (Cross-Line) |
| 000_1443 | 10/6/09 | 14:43 | N40 22.73196149 | W073 50.5356921 | South |
| 000_1501 | 10/6/09 | 15:01 | N40 21.160684 | W073 50.81795085 | North |
| 000_1517 | 10/6/09 | 15:17 | N40 22.7302522 | W073 50.64245274 | South |
| 000_1534 | 10/6/09 | 15:34 | N40 21.16485504 | W073 50.91066697 | North |
| 000A1556 | 10/6/09 | 15:56 | N40 22.73045131 | W073 50.72709457 | South |
| 000_1615 | 10/6/09 | 16:15 | N40 21.16768913 | W073 51.00659789 | North |
| 000_1631 | 10/6/09 | 16:31 | N40 22.74021284 | W073 50.82625775 | South |
| 000_1650 | 10/6/09 | 16:50 | N40 21.16537486 | W073 51.09429944 | North |
| 000_1716 | 10/6/09 | 17:16 | N40 22.65037136 | W073 50.96797105 | East (Cross-Line) |
| 003_0859 | 10/21/09 | 8:59 | N40 22.72747781 | W073 50.90528964 | South |
| 000_0917 | 10/21/09 | 9:17 | N40 21.16806899 | W073 51.19972929 | North |
| 002_0932 | 10/21/09 | 9:32 | N40 22.56500784 | W073 51.02050553 | South |
| 003_0948 | 10/21/09 | 9:48 | N40 21.16672386 | W073 51.29803063 | North |
| 000_1004 | 10/21/09 | 10:04 | N40 22.72213416 | W073 51.08924543 | South |
| 002_1022 | 10/21/09 | 10:22 | N40 21.1711942 | W073 51.39883124 | North |
| 003_1038 | 10/21/09 | 10:38 | N40 22.72831279 | W073 51.18243333 | South |
| 000_1103 | 10/21/09 | 11:03 | N40 21.32764907 | W073 51.43166176 | North |
| 002_1118 | 10/21/09 | 11:18 | N40 22.73388117 | W073 51.26467923 | South |
| 003_1127 | 10/21/09 | 11:27 | N40 22.09591198 | W073 51.43891972 | North |
| 000_1135 | 10/21/09 | 11:35 | N40 22.73184283 | W073 51.35411528 | South |

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| 002_1141 | 10/21/09 | 11:41 | N40 22.18117051 | W073 51.44547685 | East (Cross-Line) |
| 000_1157 | 10/21/09 | 11:57 | N40 22.45317416 | W073 51.44429545 | North |
| 000_1203 | 10/21/09 | 12:03 | N40 22.71883233 | W073 51.07908312 | South |
| 000_1206 | 10/21/09 | 12:06 | N40 22.54882202 | W073 50.98878185 | North |
| 000A1212 | 10/21/09 | 12:12 | N40 22.69720931 | W073 50.08014684 | North |
| 000_1236 | 10/21/09 | 12:36 | N40 24.25707125 | W073 50.19629387 | South |
| 000_1252 | 10/21/09 | 12:52 | N40 22.69056345 | W073 50.17130303 | North |
| 000A1311 | 10/21/09 | 13:11 | N40 24.26282322 | W073 50.29609843 | South |
| 000_1328 | 10/21/09 | 13:28 | N40 22.69139184 | W073 50.27590753 | North |
| 000_1341 | 10/21/09 | 13:41 | N40 23.45881161 | W073 50.28941529 | North |
| 000A1350 | 10/21/09 | 13:50 | N40 24.26662787 | W073 50.42539103 | South |
| 000_1410 | 10/21/09 | 14:10 | N40 22.70416433 | W073 50.36305603 | North |
| 000_1432 | 10/21/09 | 14:32 | N40 22.98175934 | W073 50.32523297 | North |
| 000_1447 | 10/21/09 | 14:47 | N40 24.26937208 | W073 50.52857536 | South |
| 000_1504 | 10/21/09 | 15:04 | N40 22.70033687 | W073 50.4420236 | North |
| 000_1522 | 10/21/09 | 15:22 | N40 24.27015081 | W073 50.62987146 | South |
| 000A1540 | 10/21/09 | 15:40 | N40 22.74665042 | W073 50.49318499 | East (Cross-Line) |
| 000_1547 | 10/21/09 | 15:47 | N40 22.68598339 | W073 50.49219701 | North |
| 000_1604 | 10/21/09 | 16:04 | N40 24.26740506 | W073 50.72623021 | South |
| 000_1628 | 10/21/09 | 16:28 | N40 22.6998872 | W073 50.56329496 | North |
| 000_1646 | 10/21/09 | 16:46 | N40 24.26410999 | W073 50.81892165 | South |
| 000_1705 | 10/21/09 | 17:05 | N40 22.69966711 | W073 50.63604254 | North |
| 000_1723 | 10/21/09 | 17:23 | N40 24.26288128 | W073 50.89500507 | South |
| 000_1742 | 10/21/09 | 17:42 | N40 22.69572971 | W073 50.70938459 | North |
| 000_1802 | 10/21/09 | 18:02 | N40 24.21336141 | W073 50.96973931 | East (Cross-Line) |
| 000_0906 | 10/22/09 | 9:06 | N40 24.25890188 | W073 51.4215805 | South |
| 000_0924 | 10/22/09 | 9:24 | N40 22.69839916 | W073 51.39776288 | North |
| 000_0940 | 10/22/09 | 9:40 | N40 24.26435316 | W073 51.35715768 | South |
| 000_0958 | 10/22/09 | 9:58 | N40 22.69561429 | W073 51.31459927 | North |
| 000_1014 | 10/22/09 | 10:14 | N40 24.26307097 | W073 51.28067148 | South |
| 000_1032 | 10/22/09 | 10:32 | N40 22.69961229 | W073 51.22270088 | North |
| 000_1048 | 10/22/09 | 10:48 | N40 24.25930871 | W073 51.2073571 | South |
| 000_1114 | 10/22/09 | 11:14 | N40 22.69582433 | W073 51.16131963 | North |
| 000_1130 | 10/22/09 | 11:30 | N40 24.26486694 | W073 51.13380899 | South |
| 000_1148 | 10/22/09 | 11:48 | N40 22.69433016 | W073 51.09779928 | North |
| 000_1205 | 10/22/09 | 12:05 | N40 24.22546833 | W073 51.06780000 | West (Cross-Line) |
| 000_1227 | 10/22/09 | 12:27 | N40 24.2597138 | W073 51.08668137 | South |
| 000_1245 | 10/22/09 | 12:45 | N40 22.70028616 | W073 51.03621541 | North |
| 000_1300 | 10/22/09 | 13:00 | N40 24.1382325 | W073 51.01419734 | South |

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| 000_1308 | 10/22/09 | 13:08 | N40 24.08872978 | W073 51.02737504 | North |
| 000_1310 | 10/22/09 | 13:10 | N40 24.26271627 | W073 50.98399495 | South |
| 000A1328 | 10/22/09 | 13:28 | N40 22.70349935 | W073 51.03969365 | North |
| 000_1332 | 10/22/09 | 13:32 | N40 22.69806887 | W073 50.9843417 | North |
| 000_1351 | 10/22/09 | 13:51 | N40 23.87746467 | W073 50.91772634 | South |
| 000_1407 | 10/22/09 | 14:07 | N40 22.70082497 | W073 50.90419735 | North |
| 000_1424 | 10/22/09 | 14:24 | N40 23.60681363 | W073 50.83949664 | South |
| 000_1436 | 10/22/09 | 14:36 | N40 22.78844634 | W073 50.86080861 | South |
| 000_1438 | 10/22/09 | 14:38 | N40 22.70071577 | W073 50.84356338 | North |
| 000A1448 | 10/22/09 | 14:48 | N40 23.49660969 | W073 50.75317193 | West (Cross-Line) |
| 004_0959 | 11/4/09 | 9:59 | N40 23.49713597 | W073 50.74419197 | South |
| 000_1007 | 11/4/09 | 10:07 | N40 22.70496531 | W073 50.76136596 | North |
| 002_1015 | 11/4/09 | 10:15 | N40 23.47104682 | W073 50.7575784 | South |
| 003_1023 | 11/4/09 | 10:23 | N40 22.69560536 | W073 50.81823132 | North |
| 004_1029 | 11/4/09 | 10:29 | N40 22.99212479 | W073 50.78648888 | South |
| 000A1032 | 11/4/09 | 10:32 | N40 22.82806261 | W073 50.82704476 | East (Cross-Line) |
| 002_1034 | 11/4/09 | 10:34 | N40 22.81604673 | W073 50.52347525 | North-East (Fill-in) |
| 003_1036 | 11/4/09 | 10:36 | N40 22.85991112 | W073 50.61197524 | West (Fill-in)) |
| 000_1039 | 11/4/09 | 10:39 | N40 22.71780505 | W073 50.91362971 | South |
| 000_1041 | 11/4/09 | 10:41 | N40 22.54110993 | W073 51.00132839 | North |
| 000_1043 | 11/4/09 | 10:43 | N40 22.72700667 | W073 50.9958526 | South |
| 000_1045 | 11/4/09 | 10:45 | N40 22.63834474 | W073 50.95612785 | North |
| 000_1047 | 11/4/09 | 10:47 | N40 22.72722394 | W073 50.94679428 | South |
| 000A1048 | 11/4/09 | 10:48 | N40 22.67776249 | W073 50.91069485 | West (Cross-Line) |
| 000_1057 | 11/4/09 | 10:57 | N40 22.72185939 | W073 51.420917 | South |
| 000_1115 | 11/4/09 | 11:15 | N40 21.17104988 | W073 51.47534211 | North |
| 000A1133 | 11/4/09 | 11:33 | N40 22.7257846 | W073 51.49790869 | South |
| 000A1148 | 11/4/09 | 11:48 | N40 21.16174126 | W073 51.57201513 | North |
| 000A1206 | 11/4/09 | 12:06 | N40 22.72611914 | W073 51.58433288 | South |
| 000_1220 | 11/4/09 | 12:20 | N40 21.1642234 | W073 51.66841193 | North |
| 000_1235 | 11/4/09 | 12:35 | N40 22.72994379 | W073 51.66930977 | South |
| 000_1250 | 11/4/09 | 12:50 | N40 21.16772526 | W073 51.76515533 | North |
| 000_1312 | 11/4/09 | 13:12 | N40 22.72682568 | W073 51.7570983 | South |
| 000B1328 | 11/4/09 | 13:28 | N40 21.16268376 | W073 51.85771354 | North |
| 000_1346 | 11/4/09 | 13:46 | N40 22.6929527 | W073 51.8428623 | East (Cross-Line) |
| 000_1353 | 11/4/09 | 13:53 | N40 22.73388859 | W073 51.83815666 | South |
| 000_1409 | 11/4/09 | 14:09 | N40 21.15966932 | W073 51.95981178 | North |
| 000_1426 | 11/4/09 | 14:26 | N40 22.73253829 | W073 51.9389373 | South |
| 000_1446 | 11/4/09 | 14:46 | N40 21.17312707 | W073 52.04315034 | North |

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| 000A1504 | 11/4/09 | 15:04 | N40 22.73232343 | W073 52.03465562 | South |
| 000B1521 | 11/4/09 | 15:21 | N40 21.16767623 | W073 52.13579866 | North |
| 000_1537 | 11/4/09 | 15:37 | N40 22.73566105 | W073 52.13705375 | South |
| 000A1555 | 11/4/09 | 15:55 | N40 21.1716415 | W073 52.22231482 | North |
| 000_1611 | 11/4/09 | 16:11 | N40 22.73717499 | W073 52.3270423 | South |
| 000D1631 | 11/4/09 | 16:31 | N40 21.16653814 | W073 52.30664104 | North |
| 000_1653 | 11/4/09 | 16:53 | N40 22.68873643 | W073 52.43281521 | East (Cross-Line) |
| 000_1701 | 11/4/09 | 17:01 | N40 22.72665701 | W073 52.15532592 | South |
| 000_1706 | 11/4/09 | 17:06 | N40 22.42127888 | W073 52.25899896 | North |
| 000_1711 | 11/4/09 | 17:11 | N40 22.72545266 | W073 52.41794967 | South |
| 000_1727 | 11/4/09 | 17:27 | N40 21.16971394 | W073 52.3899061 | North |
| 000_1743 | 11/4/09 | 17:43 | N40 22.73036593 | W073 52.51818716 | South |
| 000A1802 | 11/4/09 | 18:02 | N40 21.28348372 | W073 52.46700215 | East (Cross-Line) |
| 004_0819 | 11/5/09 | 8:19 | N40 22.72626381 | W073 52.56822935 | South |
| 005_0835 | 11/5/09 | 8:35 | N40 21.16833703 | W073 52.53326474 | North |
| 006_0856 | 11/5/09 | 8:56 | N40 22.72569504 | W073 52.6769619 | South |
| 000_0912 | 11/5/09 | 9:12 | N40 21.17243636 | W073 52.61384613 | North |
| 002_0919 | 11/5/09 | 9:19 | N40 21.64254215 | W073 52.63365191 | South |
| 003_0924 | 11/5/09 | 9:24 | N40 21.16522731 | W073 52.70085421 | North |
| 004_0942 | 11/5/09 | 9:42 | N40 22.7338242 | W073 52.75953217 | South |
| 005_1004 | 11/5/09 | 10:04 | N40 21.16152433 | W073 52.78576285 | North |
| 006_1023 | 11/5/09 | 10:23 | N40 22.72983489 | W073 52.87259079 | South |
| 000_1044 | 11/5/09 | 10:44 | N40 21.16305793 | W073 52.86763163 | North |
| 002_1102 | 11/5/09 | 11:02 | N40 22.73298767 | W073 52.98002243 | South |
| 003_1119 | 11/5/09 | 11:19 | N40 21.16398626 | W073 52.96185716 | North |
| 004_1136 | 11/5/09 | 11:36 | N40 22.69663929 | W073 53.08359322 | East (Cross-Line) |
| 005_1144 | 11/5/09 | 11:44 | N40 22.73272075 | W073 53.0484107 | South |
| 006_1206 | 11/5/09 | 12:06 | N40 21.16946372 | W073 53.04559367 | North |
| 000_1223 | 11/5/09 | 12:23 | N40 22.73337469 | W073 53.17133785 | South |
| 002_1240 | 11/5/09 | 12:40 | N40 21.16016081 | W073 53.12651307 | North |
| 003_1257 | 11/5/09 | 12:57 | N40 22.73715924 | W073 53.26231636 | South |
| 004_1313 | 11/5/09 | 13:13 | N40 21.16394461 | W073 53.20097491 | North |
| 005_1331 | 11/5/09 | 13:31 | N40 22.72577971 | W073 53.36244913 | South |
| 006_1347 | 11/5/09 | 13:47 | N40 21.16318795 | W073 53.28161417 | North |
| 000A1402 | 11/5/09 | 14:02 | N40 22.15102827 | W073 53.42418175 | North |
| 000_1415 | 11/5/09 | 14:15 | N40 22.72418798 | W073 53.45446236 | South |
| 000_1431 | 11/5/09 | 14:31 | N40 21.16374666 | W073 53.36118845 | North |
| 000A1447 | 11/5/09 | 14:47 | N40 22.7294751 | W073 53.55967952 | East (Cross-Line) |
| 000_1454 | 11/5/09 | 14:54 | N40 22.73018273 | W073 53.52855891 | South |

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| 000_1511 | 11/5/09 | 15:11 | N40 21.16567849 | W073 53.44338429 | North |
| 000_1516 | 11/5/09 | 15:16 | N40 21.45493065 | W073 53.42921657 | South |
| 000_1519 | 11/5/09 | 15:19 | N40 21.17392859 | W073 53.5233564 | North |
| 000_1535 | 11/5/09 | 15:35 | N40 22.72982958 | W073 53.6407225 | South |
| 000A1552 | 11/5/09 | 15:52 | N40 21.15862263 | W073 53.60051374 | North |
| 000_1613 | 11/5/09 | 16:13 | N40 22.73377084 | W073 53.72787073 | South |
| 000E1631 | 11/5/09 | 16:31 | N40 21.17320678 | W073 53.68530913 | North |
| 000_1648 | 11/5/09 | 16:48 | N40 22.6824052 | W073 53.81802592 | East (Cross-Line) |
| 000_0919 | 11/7/09 | 9:19 | N40 22.72537853 | W073 53.80779966 | South |
| 000_0936 | 11/7/09 | 9:36 | N40 21.17253923 | W073 53.75130968 | North |
| 000_0954 | 11/7/09 | 9:54 | N40 22.72902891 | W073 53.90787108 | South |
| 000_1010 | 11/7/09 | 10:10 | N40 21.16638653 | W073 53.82417695 | North |
| 000_1028 | 11/7/09 | 10:28 | N40 22.72784102 | W073 54.00370016 | South |
| 000A1044 | 11/7/09 | 10:44 | N40 21.16957779 | W073 53.90047982 | North |
| 000_1108 | 11/7/09 | 11:08 | N40 22.72615514 | W073 54.08267183 | South |
| 000_1111 | 11/7/09 | 11:11 | N40 22.37509367 | W073 54.07956282 | South |
| 000_1124 | 11/7/09 | 11:24 | N40 21.16879993 | W073 54.02546687 | North |
| 000A1135 | 11/7/09 | 11:35 | N40 21.51344517 | W073 53.98963075 | South |
| 000A1139 | 11/7/09 | 11:39 | N40 21.16662811 | W073 53.9609406 | North |
| 000_1142 | 11/7/09 | 11:42 | N40 21.43251246 | W073 53.91816836 | South |
| 000_1147 | 11/7/09 | 11:47 | N40 21.19418875 | W073 54.08457141 | East (Cross-Line) |
| 000_1219 | 11/7/09 | 12:19 | N40 22.69828149 | W073 51.42768569 | North |
| 000A1240 | 11/7/09 | 12:40 | N40 24.25375419 | W073 51.44314071 | South |
| 000_1257 | 11/7/09 | 12:57 | N40 22.69844211 | W073 51.50260201 | North |
| 000_1315 | 11/7/09 | 13:15 | N40 24.25424744 | W073 51.53640842 | South |
| 000_1331 | 11/7/09 | 13:31 | N40 22.71011186 | W073 51.61209184 | North |
| 000B1350 | 11/7/09 | 13:50 | N40 24.25197498 | W073 51.60926825 | South |
| 000_1408 | 11/7/09 | 14:08 | N40 22.70075102 | W073 51.69200844 | North |
| 000_1425 | 11/7/09 | 14:25 | N40 24.26208137 | W073 51.6856349 | South |
| 000_1444 | 11/7/09 | 14:44 | N40 22.72413866 | W073 51.77842907 | East (Cross-Line) |
| 000_2319 | 12/1/09 | 23:19 | N40 24.24932309 | W073 51.72030266 | South |
| 000_2332 | 12/1/09 | 23:32 | N40 22.69419811 | W073 51.82507571 | North |
| 000_2345 | 12/1/09 | 23:45 | N40 24.25186101 | W073 51.77758286 | South |
| 000_0001 | 12/2/09 | 0:01 | N40 22.69823345 | W073 51.94059202 | North |
| 000_0015 | 12/2/09 | 0:15 | N40 24.26105533 | W073 51.84489226 | South |
| 000_0027 | 12/2/09 | 0:27 | N40 22.69991843 | W073 52.01467284 | North |
| 000_0040 | 12/2/09 | 0:40 | N40 24.22302754 | W073 51.82529856 | South |
| 000_0043 | 12/2/09 | 0:43 | N40 24.26373926 | W073 51.8898239 | South |
| 000_0056 | 12/2/09 | 0:56 | N40 22.68894226 | W073 52.11386448 | North |

| | | | | | |
|---|---|---|---|---|---|
| 000_0108 | 12/2/09 | 1:08 | N40 24.26128819 | W073 51.97989132 | South |
| 000_0121 | 12/2/09 | 1:21 | N40 22.69046724 | W073 52.21082214 | North |
| 000_0134 | 12/2/09 | 1:34 | N40 24.22150057 | W073 52.0677375 | East (Cross-Line) |
| 000_0139 | 12/2/09 | 1:39 | N40 24.25759841 | W073 52.06083359 | South |
| 000_0156 | 12/2/09 | 1:56 | N40 22.69781479 | W073 52.31210722 | North |
| 000_0208 | 12/2/09 | 2:08 | N40 24.26056823 | W073 52.14176686 | South |
| 000_0221 | 12/2/09 | 2:21 | N40 22.6947295 | W073 52.40477911 | North |
| 000_0234 | 12/2/09 | 2:34 | N40 24.25839154 | W073 52.2182203 | South |
| 000_0247 | 12/2/09 | 2:47 | N40 22.69925096 | W073 52.51395389 | North |
| 000_0259 | 12/2/09 | 2:59 | N40 24.25655595 | W073 52.29407634 | South |
| 000_0312 | 12/2/09 | 3:12 | N40 22.70047335 | W073 52.61377242 | North |
| 000_0324 | 12/2/09 | 3:24 | N40 24.2629129 | W073 52.37855789 | South |
| 000_0337 | 12/2/09 | 3:37 | N40 22.69193836 | W073 52.69617017 | North |
| 000_0350 | 12/2/09 | 3:50 | N40 24.20776914 | W073 52.45602833 | East (Cross-Line) |
| 000_0355 | 12/2/09 | 3:55 | N40 24.2495059 | W073 52.44722534 | South |
| 000_0415 | 12/2/09 | 4:15 | N40 22.69070938 | W073 52.79411498 | North |
| 000_0427 | 12/2/09 | 4:27 | N40 24.24478016 | W073 52.55088692 | South |
| 000_0440 | 12/2/09 | 4:40 | N40 22.69518425 | W073 52.89935275 | North |
| 000_0453 | 12/2/09 | 4:53 | N40 24.25112092 | W073 52.64771484 | South |
| 000_0506 | 12/2/09 | 5:06 | N40 22.69548419 | W073 53.00557981 | North |
| 000_0514 | 12/2/09 | 5:14 | N40 23.41928859 | W073 52.83993783 | North |
| 000_0521 | 12/2/09 | 5:21 | N40 24.2524944 | W073 52.72978359 | South |
| 000_0536 | 12/2/09 | 5:36 | N40 22.69780577 | W073 53.10824251 | North |
| 000_0549 | 12/2/09 | 5:49 | N40 23.76842906 | W073 52.78374687 | North |
| 000_0555 | 12/2/09 | 5:55 | N40 24.25348007 | W073 52.82057711 | South |
| 000_0616 | 12/2/09 | 6:16 | N40 22.69382832 | W073 53.22170033 | North |
| 000_0624 | 12/2/09 | 6:24 | N40 23.55664982 | W073 52.97121203 | North |
| 000_0629 | 12/2/09 | 6:29 | N40 24.00525201 | W073 52.83591148 | North |
| 000_0632 | 12/2/09 | 6:32 | N40 24.18269192 | W073 52.91829097 | East (Cross-Line) |
| 000_0638 | 12/2/09 | 6:38 | N40 24.25220068 | W073 52.89421667 | South |
| 000_0652 | 12/2/09 | 6:52 | N40 22.69849381 | W073 53.30328295 | North |
| 000_0706 | 12/2/09 | 7:06 | N40 24.24880979 | W073 52.98947802 | South |
| 000_0721 | 12/2/09 | 7:21 | N40 22.70297212 | W073 53.40347386 | North |
| 000_0735 | 12/2/09 | 7:35 | N40 24.26125753 | W073 53.08535344 | South |
| 000_0753 | 12/2/09 | 7:53 | N40 22.68777649 | W073 53.48482055 | North |
| 000_0808 | 12/2/09 | 8:08 | N40 24.26284502 | W073 53.14237335 | South |
| 000_0822 | 12/2/09 | 8:22 | N40 22.69020187 | W073 53.57409354 | North |
| 000_0837 | 12/2/09 | 8:37 | N40 24.25645072 | W073 53.24237696 | South |
| 000_0851 | 12/2/09 | 8:51 | N40 22.68974888 | W073 53.66996742 | North |

| | | | | | |
|---|---|---|---|---|---|
| 000_0907 | 12/2/09 | 9:07 | N40 24.19850233 | W073 53.33909736 | East (Cross-Line) |
| 000_0913 | 12/2/09 | 9:13 | N40 24.25023338 | W073 53.32712138 | South |
| 000_0929 | 12/2/09 | 9:29 | N40 22.70018343 | W073 53.7562612 | North |
| 000_0951 | 12/2/09 | 9:51 | N40 24.26319317 | W073 53.42098323 | South |
| 000A1014 | 12/2/09 | 10:14 | N40 22.69387931 | W073 54.06661162 | North |
| 000_1029 | 12/2/09 | 10:29 | N40 4.25235835 | W073 54.02728979 | South |
| 000A1043 | 12/2/09 | 10:43 | N40 22.68657474 | W073 53.98486385 | North |
| 000A1057 | 12/2/09 | 10:57 | N40 24.25425138 | W073 53.93735582 | South |
| 000_1109 | 12/2/09 | 11:09 | N40 22.69794577 | W073 53.91592837 | North |
| 000_1121 | 12/2/09 | 11:21 | N40 24.2536715 | W073 53.85325075 | South |
| 000B1133 | 12/2/09 | 11:33 | N40 22.69444766 | W073 53.85211906 | North |
| 000_1146 | 12/2/09 | 11:46 | N40 24.26217976 | W073 53.75288065 | South |
| 000A1158 | 12/2/09 | 11:58 | N40 23.04713497 | W073 53.94557036 | North |
| 000_1200 | 12/2/09 | 12:00 | N40 23.1612201 | W073 53.73833315 | North |
| 000_1210 | 12/2/09 | 12:10 | N40 24.25815438 | W073 53.66110674 | South |
| 000A1220 | 12/2/09 | 12:20 | N40 23.22714555 | W073 53.77843401 | West (Cross-Line) |
| 000_1224 | 12/2/09 | 12:24 | N40 23.2247971 | W073 53.76903023 | North |
| 000A1235 | 12/2/09 | 12:35 | N40 24.25420289 | W073 53.59035185 | South |
| 000A1245 | 12/2/09 | 12:45 | N40 23.55272052 | W073 53.28106177 | North (Fill-in) |
| 000A1246 | 12/2/09 | 12:46 | N40 23.61758911 | W073 53.33769639 | North West (Fill-in) |
| 000_1248 | 12/2/09 | 12:48 | N40 23.77763437 | W073 53.55972005 | North |
| 000_1253 | 12/2/09 | 12:53 | N40 24.25397223 | W073 53.51003077 | South |
| 000A1256 | 12/2/09 | 12:56 | N40 24.0747344 | W073 53.42929048 | North |
| 000_1258 | 12/2/09 | 12:58 | N40 24.12309495 | W073 53.48919053 | South |
| 000B1300 | 12/2/09 | 13:00 | N40 23.96294384 | W073 53.55663145 | North |
| 000_1305 | 12/2/09 | 13:05 | N40 24.17384593 | W073 53.33704146 | West (Cross-Line) |
| 000_1309 | 12/2/09 | 13:09 | N40 24.1457644 | W073 53.84153764 | East (Cross-Line) |
| 000_0659 | 12/7/09 | 6:59 | N40 25.77734069 | W073 49.95488289 | South |
| 000_0712 | 12/7/09 | 7:12 | N40 24.22082629 | W073 50.14197458 | North |
| 000_0728 | 12/7/09 | 7:28 | N40 25.7784792 | W073 50.06011073 | South |
| 000_0740 | 12/7/09 | 7:40 | N40 24.21859722 | W073 50.26367123 | North |
| 000_0756 | 12/7/09 | 7:56 | N40 25.78614018 | W073 50.15775804 | South |
| 000A0808 | 12/7/09 | 8:08 | N40 24.21521872 | W073 50.37308603 | North |
| 000_0824 | 12/7/09 | 8:24 | N40 25.78595428 | W073 50.26993721 | South |
| 000A0837 | 12/7/09 | 8:37 | N40 24.22858141 | W073 50.50260775 | North |
| 000_0856 | 12/7/09 | 8:56 | N40 25.78870788 | W073 50.3788821 | South |
| 000_0910 | 12/7/09 | 9:10 | N40 24.21775723 | W073 50.5996866 | North |
| 000_0926 | 12/7/09 | 9:26 | N40 25.74194354 | W073 50.49134261 | East (Cross-Line) |
| 000_0934 | 12/7/09 | 9:34 | N40 25.7777155 | W073 50.48289522 | South |

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|---|---|---|---|---|---|
| 000_0948 | 12/7/09 | 9:48 | N40 24.22588623 | W073 50.70417349 | North |
| 000_1003 | 12/7/09 | 10:03 | N40 25.77883583 | W073 50.60575431 | South |
| 000_1017 | 12/7/09 | 10:17 | N40 24.2199218 | W073 50.79999386 | North |
| 000_1033 | 12/7/09 | 10:33 | N40 25.78724363 | W073 50.70979165 | South |
| 000A1047 | 12/7/09 | 10:47 | N40 24.21896334 | W073 50.8906281 | North |
| 000A1108 | 12/7/09 | 11:08 | N40 25.7683698 | W073 50.81448467 | South |
| 000_1122 | 12/7/09 | 11:22 | N40 24.22187467 | W073 50.97901587 | North |
| 000_1137 | 12/7/09 | 11:37 | N40 25.78296591 | W073 50.90845366 | South |
| 000_1151 | 12/7/09 | 11:51 | N40 24.2120924 | W073 51.06237272 | North |
| 000_1207 | 12/7/09 | 12:07 | N40 25.74621303 | W073 51.01149176 | East (Cross-Line) |
| 000_1215 | 12/7/09 | 12:15 | N40 25.78336633 | W073 51.0150051 | South |
| 000_1229 | 12/7/09 | 12:29 | N40 24.21720876 | W073 51.15899071 | North |
| 000_1244 | 12/7/09 | 12:44 | N40 25.77783197 | W073 51.11606673 | South |
| 000_1302 | 12/7/09 | 13:02 | N40 24.20892091 | W073 51.20694356 | North |
| 000_1318 | 12/7/09 | 13:18 | N40 25.78473222 | W073 51.18814554 | South |
| 000A1332 | 12/7/09 | 13:32 | N40 24.21878872 | W073 51.29920836 | North |
| 000_1348 | 12/7/09 | 13:48 | N40 25.78497807 | W073 51.26682827 | South |
| 000B1402 | 12/7/09 | 14:02 | N40 24.22389065 | W073 51.38105338 | North |
| 000_1417 | 12/7/09 | 14:17 | N40 25.78314511 | W073 51.33809302 | South |
| 000A1431 | 12/7/09 | 14:31 | N40 24.22081349 | W073 51.42726212 | North |
| 000B1447 | 12/7/09 | 14:47 | N40 25.7366908 | W073 51.43899876 | East (Cross-Line) |
| 000A1453 | 12/7/09 | 14:53 | N40 25.77003889 | W073 51.41304682 | South |
| 000_1509 | 12/7/09 | 15:09 | N40 24.22643411 | W073 51.43238987 | North |
| 000_1525 | 12/7/09 | 15:25 | N40 25.78344074 | W073 51.46345346 | South |
| 000B1538 | 12/7/09 | 15:38 | N40 24.22672073 | W073 51.50919315 | North |
| 000_1554 | 12/7/09 | 15:54 | N40 25.78643069 | W073 51.52814707 | South |
| 000A1608 | 12/7/09 | 16:08 | N40 24.22351078 | W073 51.58648832 | North |
| 000_1624 | 12/7/09 | 16:24 | N40 25.78070911 | W073 51.58937199 | South |
| 000_1638 | 12/7/09 | 16:38 | N40 24.21541301 | W073 51.65099307 | North |
| 000_1654 | 12/7/09 | 16:54 | N40 25.7746143 | W073 51.65896535 | South |
| 000A1711 | 12/7/09 | 17:11 | N40 24.2284696 | W073 51.72159072 | North |
| 000A1727 | 12/7/09 | 17:27 | N40 25.73526115 | W073 51.71603537 | East (Cross-Line) |
| 000_0853 | 12/8/09 | 8:53 | N40 25.78717427 | W073 51.74363769 | South |
| 000A0907 | 12/8/09 | 9:07 | N40 24.2223311 | W073 51.79642795 | North |
| 000A0924 | 12/8/09 | 9:24 | N40 25.79144981 | W073 51.80268161 | South |
| 000_0938 | 12/8/09 | 9:38 | N40 24.20509025 | W073 51.83769611 | North |
| 000_0955 | 12/8/09 | 9:55 | N40 25.78771507 | W073 51.86801973 | South |
| 000_1009 | 12/8/09 | 10:09 | N40 24.22072183 | W073 51.91316676 | North |
| 000A1028 | 12/8/09 | 10:28 | N40 25.78779331 | W073 51.93577139 | South |

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|---|---|---|---|---|---|
| 000B1044 | 12/8/09 | 10:44 | N40 24.21268317 | W073 51.99540254 | North |
| 000A1103 | 12/8/09 | 11:03 | N40 25.79117044 | W073 52.01387133 | South |
| 000_1119 | 12/8/09 | 11:19 | N40 24.21333744 | W073 52.07781304 | North |
| 000_1136 | 12/8/09 | 11:36 | N40 25.74925894 | W073 52.12136681 | East (Cross-Line) |
| 000A1142 | 12/8/09 | 11:42 | N40 25.78443318 | W073 52.09310074 | South |
| 000A1156 | 12/8/09 | 11:56 | N40 24.21920037 | W073 52.16230747 | North |
| 000_1211 | 12/8/09 | 12:11 | N40 25.78784391 | W073 52.20178833 | South |
| 000_1225 | 12/8/09 | 12:25 | N40 24.21473173 | W073 52.23519639 | North |
| 000_1239 | 12/8/09 | 12:39 | N40 25.79713127 | W073 52.28864023 | South |
| 000_1259 | 12/8/09 | 12:59 | N40 24.21578099 | W073 52.30852893 | North |
| 000_1314 | 12/8/09 | 13:14 | N40 25.79203749 | W073 52.37607255 | South |
| 000_1329 | 12/8/09 | 13:29 | N40 24.21572221 | W073 52.39094829 | North |
| 000C1350 | 12/8/09 | 13:50 | N40 25.79100889 | W073 52.45175122 | South |
| 000A1404 | 12/8/09 | 14:04 | N40 24.21261839 | W073 52.48666867 | North |
| 000_1418 | 12/8/09 | 14:18 | N40 25.72497616 | W073 52.53466577 | East (Cross-Line) |
| 000A1424 | 12/8/09 | 14:24 | N40 25.78447713 | W073 52.53694513 | South |
| 000B1438 | 12/8/09 | 14:38 | N40 24.2195669 | W073 52.57460554 | North |
| 000_1455 | 12/8/09 | 14:55 | N40 25.79257492 | W073 52.61573496 | South |
| 000_1508 | 12/8/09 | 15:08 | N40 24.22330475 | W073 52.65811309 | North |
| 000C1521 | 12/8/09 | 15:21 | N40 25.78896125 | W073 52.7028273 | South |
| 000A1534 | 12/8/09 | 15:34 | N40 24.22296639 | W073 52.76361133 | North |
| 000_1548 | 12/8/09 | 15:48 | N40 25.78248488 | W073 52.80122023 | South |
| 000_1601 | 12/8/09 | 16:01 | N40 24.2210923 | W073 52.85393738 | North |
| 000_1614 | 12/8/09 | 16:14 | N40 25.7828957 | W073 52.88492419 | South |
| 000A1627 | 12/8/09 | 16:27 | N40 24.22057265 | W073 52.96098824 | North |
| 000_1641 | 12/8/09 | 16:41 | N40 25.75013856 | W073 52.97523167 | East (Cross-Line) |
| 000_1649 | 12/8/09 | 16:49 | N40 25.78204066 | W073 52.96016943 | South |
| 000_1704 | 12/8/09 | 17:04 | N40 24.22290133 | W073 53.06697023 | North |
| 000_1718 | 12/8/09 | 17:18 | N40 25.78542969 | W073 53.05862863 | South |
| 000_1733 | 12/8/09 | 17:33 | N40 24.21661399 | W073 53.15761282 | North |
| 000_1747 | 12/8/09 | 17:47 | N40 25.78372802 | W073 53.1481891 | South |
| 000_1801 | 12/8/09 | 18;01 | N40 24.21999255 | W073 53.2548724 | North |
| 000_1815 | 12/8/09 | 18:15 | N40 25.79462776 | W073 53.23222087 | South |
| 000_1830 | 12/8/09 | 18:30 | N40 24.22914699 | W073 53.35011713 | North |
| 000_1842 | 12/8/09 | 18:42 | N40 25.78461019 | W073 53.31019736 | South |
| 000_1857 | 12/8/09 | 18:57 | N40 24.22114849 | W073 53.44040505 | North |
| 000_1911 | 12/8/09 | 19:11 | N40 25.73925667 | W073 53.39977097 | East (Cross-Line) |
| 000_0836 | 12/14/09 | 8:36 | N40 25.77522222 | W073 54.0479723 | South |
| 000_0849 | 12/14/09 | 8:49 | N40 24.22118944 | W073 54.0191396 | North |

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|---|---|---|---|---|---|
| 000_0904 | 12/14/09 | 9:04 | N40 25.78474497 | W073 53.98584231 | South |
| 000A0917 | 12/14/09 | 9:17 | N40 24.21498876 | W073 53.92691802 | North |
| 000_0932 | 12/14/09 | 9:32 | N40 25.78258063 | W073 53.88294561 | South |
| 000_0945 | 12/14/09 | 9:45 | N40 24.21985156 | W073 53.83591534 | North |
| 000_0947 | 12/14/09 | 9:47 | N40 24.2859645 | W073 53.81337953 | North |
| 000_1002 | 12/14/09 | 10:02 | N40 25.78548231 | W073 53.77856231 | South |
| 000A1016 | 12/14/09 | 10:16 | N40 24.21890349 | W073 53.73731574 | North |
| 000A1033 | 12/14/09 | 10:33 | N40 25.77994347 | W073 53.66626651 | South |
| 000B1047 | 12/14/09 | 10:47 | N40 24.20967712 | W073 53.64121815 | North |
| 000B1103 | 12/14/09 | 11:03 | N40 25.74159816 | W073 53.57736294 | West (Cross-Line) |
| 000A1109 | 12/14/09 | 11:09 | N40 25.77985739 | W073 53.62449867 | South |
| 000_1123 | 12/14/09 | 11:23 | N40 24.21792024 | W073 53.54703151 | North |
| 000_1140 | 12/14/09 | 11:40 | N40 25.79022966 | W073 53.52179568 | South |
| 000_1155 | 12/14/09 | 11:55 | N40 24.49249644 | W073 53.31789491 | North (Fill-in) |
| 000A1157 | 12/14/09 | 11:57 | N40 24.65436586 | W073 53.42716743 | North |
| 000A1210 | 12/14/09 | 12:10 | N40 25.78520572 | W073 53.42083393 | South |
| 000_1213 | 12/14/09 | 12:13 | N40 25.39468943 | W073 53.3791688 | South |
| 000A1219 | 12/14/09 | 12:19 | N40 25.17790453 | W073 53.33586607 | North (Fill-in) |
| 000_1221 | 12/14/09 | 12:21 | N40 25.3312171 | W073 53.3330558 | West (Cross-Line) |
| 000A1223 | 12/14/09 | 12:23 | N40 25.22614951 | W073 53.52560422 | South (Fill-in) |
| | | | | | |

**Figure 3.2-1**
SVP 092309_1008 taken during the Fall 2009 multibeam survey at the HARS.

| | |
|---|---|
| 1514.68 | 0.59 |
| 1514.97 | 1.36 |
| 1515.29 | 2.16 |
| 1515.92 | 2.93 |
| 1516.22 | 3.66 |
| 1516.32 | 4.35 |
| 1516.65 | 5.00 |
| 1517.19 | 5.61 |
| 1517.44 | 6.21 |
| 1517.48 | 6.81 |
| 1517.38 | 7.38 |
| 1517.35 | 7.93 |
| 1517.35 | 8.47 |
| 1517.35 | 9.01 |
| 1517.37 | 9.57 |
| 1517.38 | 10.15 |
| 1517.37 | 10.73 |
| 1517.30 | 11.31 |
| 1517.23 | 11.90 |
| 1517.16 | 12.49 |
| 1517.13 | 13.07 |
| 1517.11 | 13.66 |
| 1517.07 | 14.26 |
| 1517.05 | 14.87 |
| 1517.10 | 15.49 |
| 1517.10 | 16.09 |
| 1517.02 | 16.71 |
| 1516.97 | 17.34 |
| 1516.88 | 17.98 |
| 1516.73 | 18.63 |
| 1516.54 | 19.28 |
| 1516.37 | 19.94 |
| 1516.11 | 20.59 |
| 1515.63 | 21.25 |
| 1514.15 | 21.90 |
| 1512.87 | 22.56 |
| 1511.76 | 23.20 |
| 1510.32 | 23.86 |
| 1509.43 | 24.51 |
| 1508.78 | 25.17 |
| 1507.75 | 25.82 |
| 1507.00 | 26.46 |
| 1506.67 | 27.14 |
| 1506.54 | 27.81 |
| 1506.53 | 28.37 |
| 1506.68 | 28.57 |

**CTD PROFILE # 092309_1008**

| Date | Time | NAD83 NY LI (Feet) | | Water Depth | Latitude | Longitude |
|---|---|---|---|---|---|---|
| | | Easting | Northing | Feet | N | W |
| 09/23/09 | 10:08 | 1036175 | 95932 | 94 | 40.42983276 | 73.81349065 |

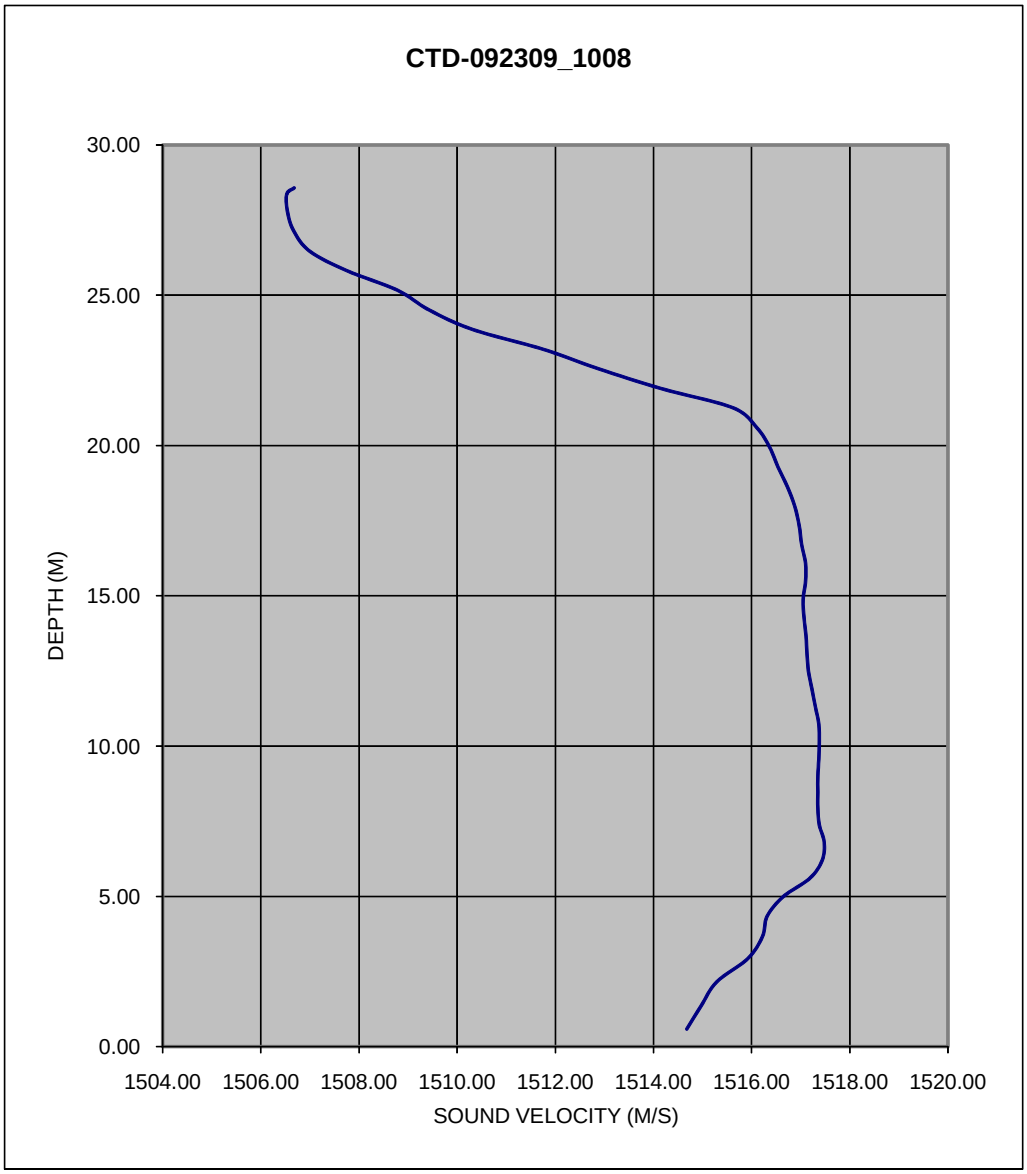


**Figure 3.2-2**
SVP 092309_1154 taken during the Fall 2009 multibeam survey at the HARS.

| | |
|---|---|
| 1518.39 | 0.45 |
| 1518.22 | 1.19 |
| 1518.01 | 1.89 |
| 1517.82 | 2.53 |
| 1517.72 | 3.13 |
| 1517.69 | 3.70 |
| 1517.68 | 4.26 |
| 1517.66 | 4.83 |
| 1517.65 | 5.39 |
| 1517.65 | 5.95 |
| 1517.66 | 6.50 |
| 1517.66 | 7.06 |
| 1517.62 | 7.61 |
| 1517.56 | 8.16 |
| 1517.50 | 8.70 |
| 1517.45 | 9.25 |
| 1517.38 | 9.81 |
| 1517.33 | 10.36 |
| 1517.31 | 10.92 |
| 1517.32 | 11.49 |
| 1517.31 | 12.07 |
| 1517.27 | 12.68 |
| 1517.18 | 13.30 |
| 1517.11 | 13.93 |
| 1517.07 | 14.58 |
| 1517.04 | 15.25 |
| 1516.99 | 15.94 |
| 1516.97 | 16.61 |
| 1516.91 | 17.29 |
| 1516.78 | 17.97 |
| 1516.72 | 18.65 |
| 1516.71 | 19.33 |
| 1516.66 | 20.01 |
| 1516.51 | 20.69 |
| 1516.28 | 21.37 |
| 1516.06 | 22.05 |
| 1515.84 | 22.74 |
| 1515.52 | 23.43 |
| 1515.14 | 24.14 |
| 1514.52 | 24.85 |
| 1513.53 | 25.56 |
| 1512.12 | 26.26 |
| 1510.72 | 26.97 |
| 1509.48 | 27.67 |
| 1508.66 | 28.31 |
| 1508.66 | 28.36 |

**CTD PROFILE # 092309_1154**

| Date | Time | NAD83 NY LI (Feet) | | Water Depth | Latitude | Longitude |
|---|---|---|---|---|---|---|
| | | Easting | Northing | Feet | N | W |
| 09/23/09 | 11:54 | 1034837 | 86446 | 93 | 40.40380305 | 73.81836724 |

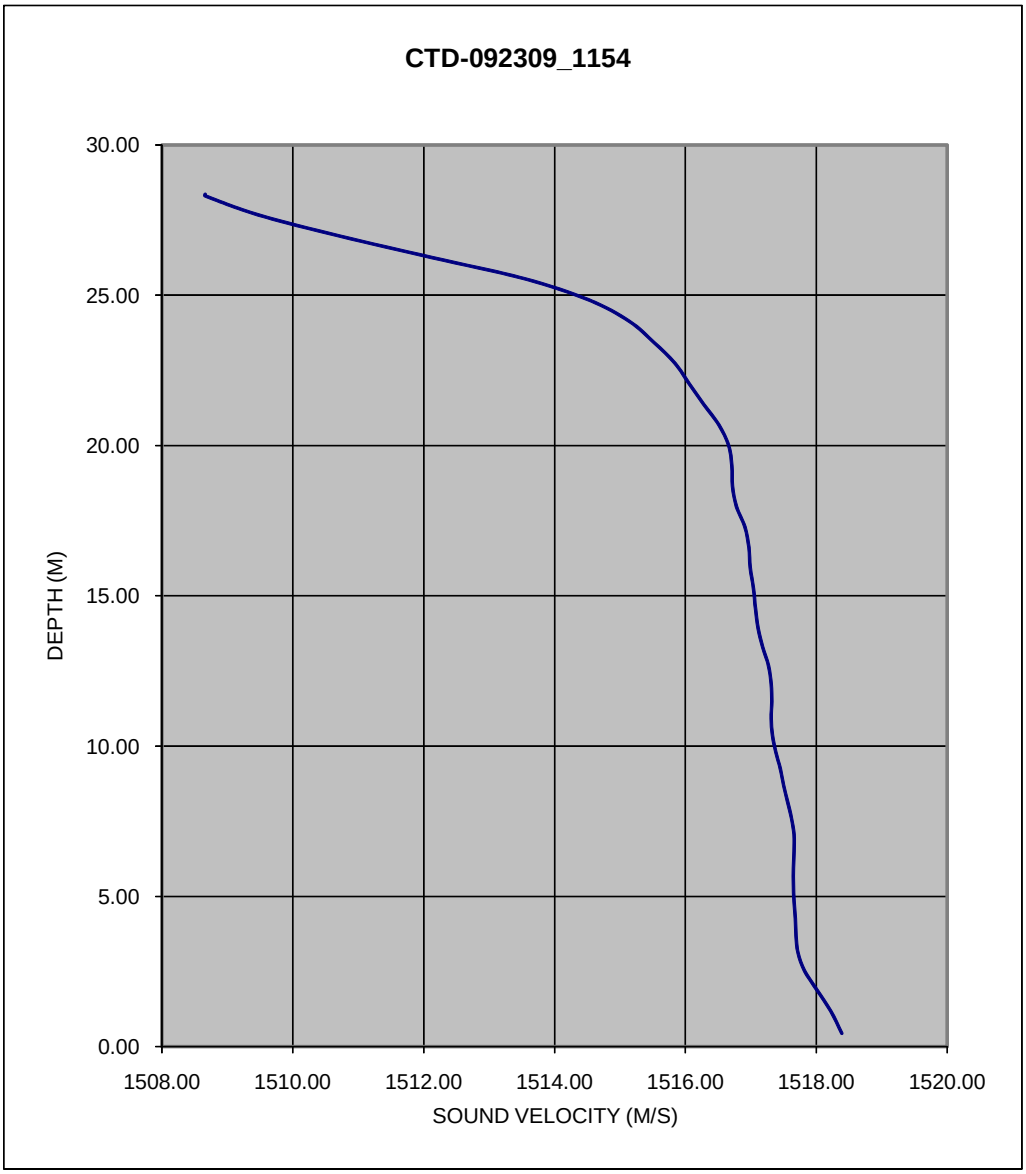


**Figure 3.2-3**
SVP 092309_1400 taken during the Fall 2009 multibeam survey at the HARS.

| | |
|---|---|
| 1516.34 | 0.43 |
| 1515.89 | 1.19 |
| 1515.87 | 1.98 |
| 1516.14 | 2.71 |
| 1516.33 | 3.40 |
| 1516.61 | 4.06 |
| 1516.94 | 4.65 |
| 1517.09 | 5.22 |
| 1517.22 | 5.79 |
| 1517.37 | 6.34 |
| 1517.51 | 6.89 |
| 1517.63 | 7.44 |
| 1517.67 | 7.99 |
| 1517.62 | 8.54 |
| 1517.53 | 9.10 |
| 1517.48 | 9.68 |
| 1517.45 | 10.25 |
| 1517.43 | 10.84 |
| 1517.33 | 11.43 |
| 1517.24 | 12.02 |
| 1517.18 | 12.62 |
| 1517.13 | 13.24 |
| 1517.10 | 13.88 |
| 1517.08 | 14.53 |
| 1517.04 | 15.20 |
| 1516.98 | 15.88 |
| 1516.95 | 16.56 |
| 1516.95 | 17.23 |
| 1516.82 | 17.89 |
| 1516.69 | 18.56 |
| 1516.52 | 19.23 |
| 1516.26 | 19.91 |
| 1515.54 | 20.58 |
| 1514.32 | 21.25 |
| 1513.14 | 21.92 |
| 1512.15 | 22.59 |
| 1511.16 | 23.26 |
| 1509.73 | 23.94 |
| 1508.60 | 24.61 |
| 1508.09 | 25.29 |
| 1507.87 | 25.97 |
| 1507.79 | 26.61 |
| 1507.95 | 26.86 |

**CTD PROFILE # 092309_1400**

| Date | Time | NAD83 NY LI (Feet) | | Water Depth | Latitude | Longitude |
|---|---|---|---|---|---|---|
| | | Easting | Northing | Feet | N | W |
| 09/23/09 | 14:00 | 1033242 | 95886 | 88 | 40.42972315 | 73.82402599 |

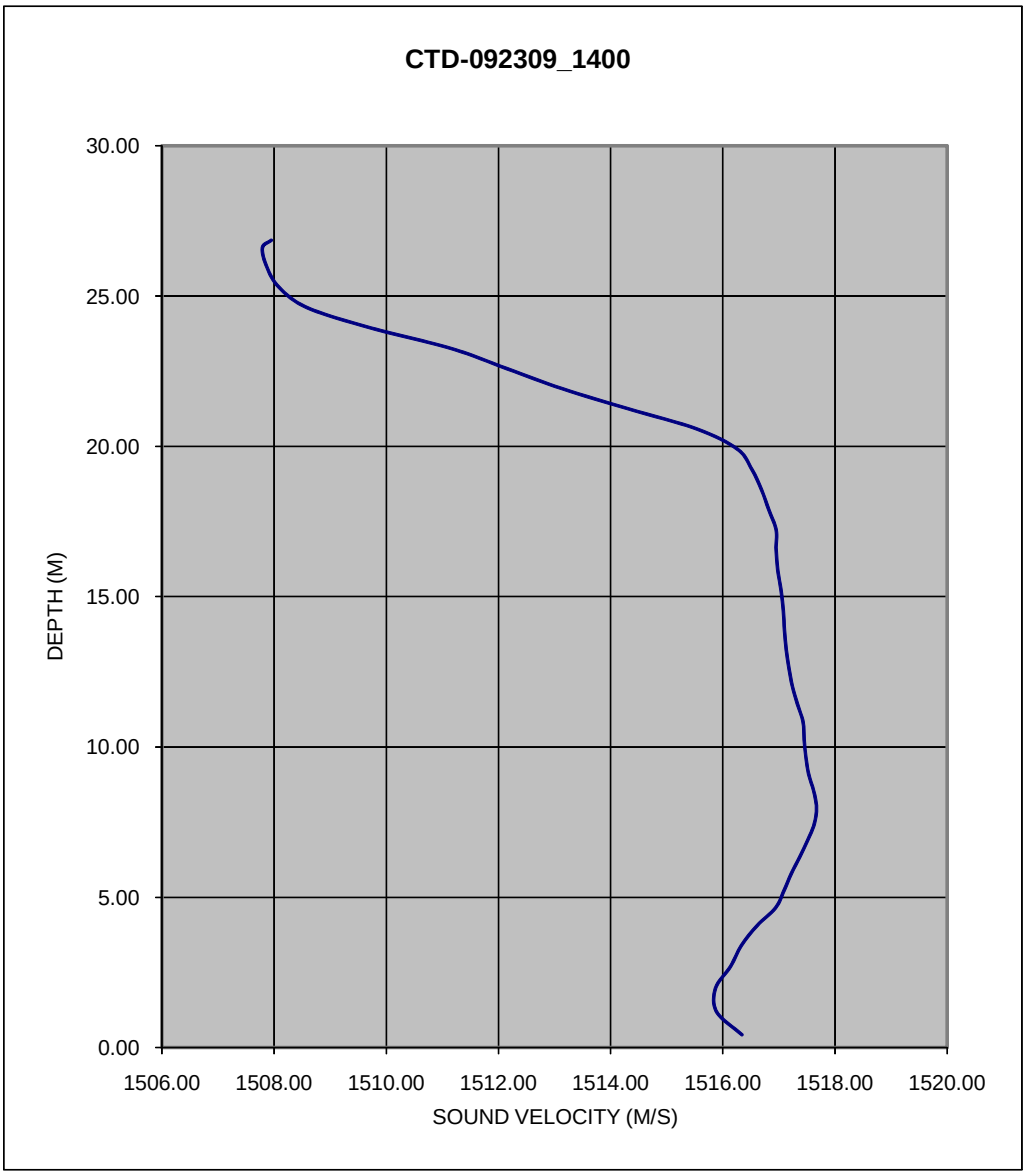


**Figure 3.2-4**
SVP 092309_1615 taken during the Fall 2009 multibeam survey at the HARS.

| | |
|---|---|
| 1518.76 | 0.62 |
| 1518.69 | 1.36 |
| 1518.67 | 2.07 |
| 1518.65 | 2.72 |
| 1518.62 | 3.36 |
| 1518.59 | 3.98 |
| 1518.57 | 4.58 |
| 1518.55 | 5.19 |
| 1518.52 | 5.80 |
| 1518.46 | 6.42 |
| 1518.43 | 7.05 |
| 1518.40 | 7.70 |
| 1518.40 | 8.35 |
| 1518.38 | 9.00 |
| 1518.28 | 9.65 |
| 1518.13 | 10.30 |
| 1517.99 | 10.95 |
| 1517.77 | 11.61 |
| 1517.52 | 12.27 |
| 1517.29 | 12.93 |
| 1517.11 | 13.58 |
| 1517.00 | 14.25 |
| 1516.82 | 14.91 |
| 1516.59 | 15.58 |
| 1516.43 | 16.25 |
| 1516.34 | 16.91 |
| 1516.32 | 17.57 |
| 1516.26 | 18.23 |
| 1516.09 | 18.89 |
| 1515.73 | 19.54 |
| 1515.47 | 20.21 |
| 1515.28 | 20.86 |
| 1514.50 | 21.52 |
| 1513.22 | 22.18 |
| 1512.31 | 22.85 |
| 1511.72 | 23.52 |
| 1511.30 | 24.19 |
| 1510.83 | 24.87 |
| 1510.20 | 25.54 |
| 1509.36 | 26.13 |
| 1508.43 | 26.69 |
| 1508.09 | 27.07 |
| 1507.74 | 27.44 |
| 1507.81 | 27.67 |

**CTD PROFILE # 092309_1615**

| Date | Time | NAD83 NY LI (Feet) | | Water Depth | Latitude | Longitude |
|---|---|---|---|---|---|---|
| | | Easting | Northing | Feet | N | W |
| 09/23/09 | 16:15 | 1031055 | 86413 | 91 | 40.40373319 | 73.83194672 |

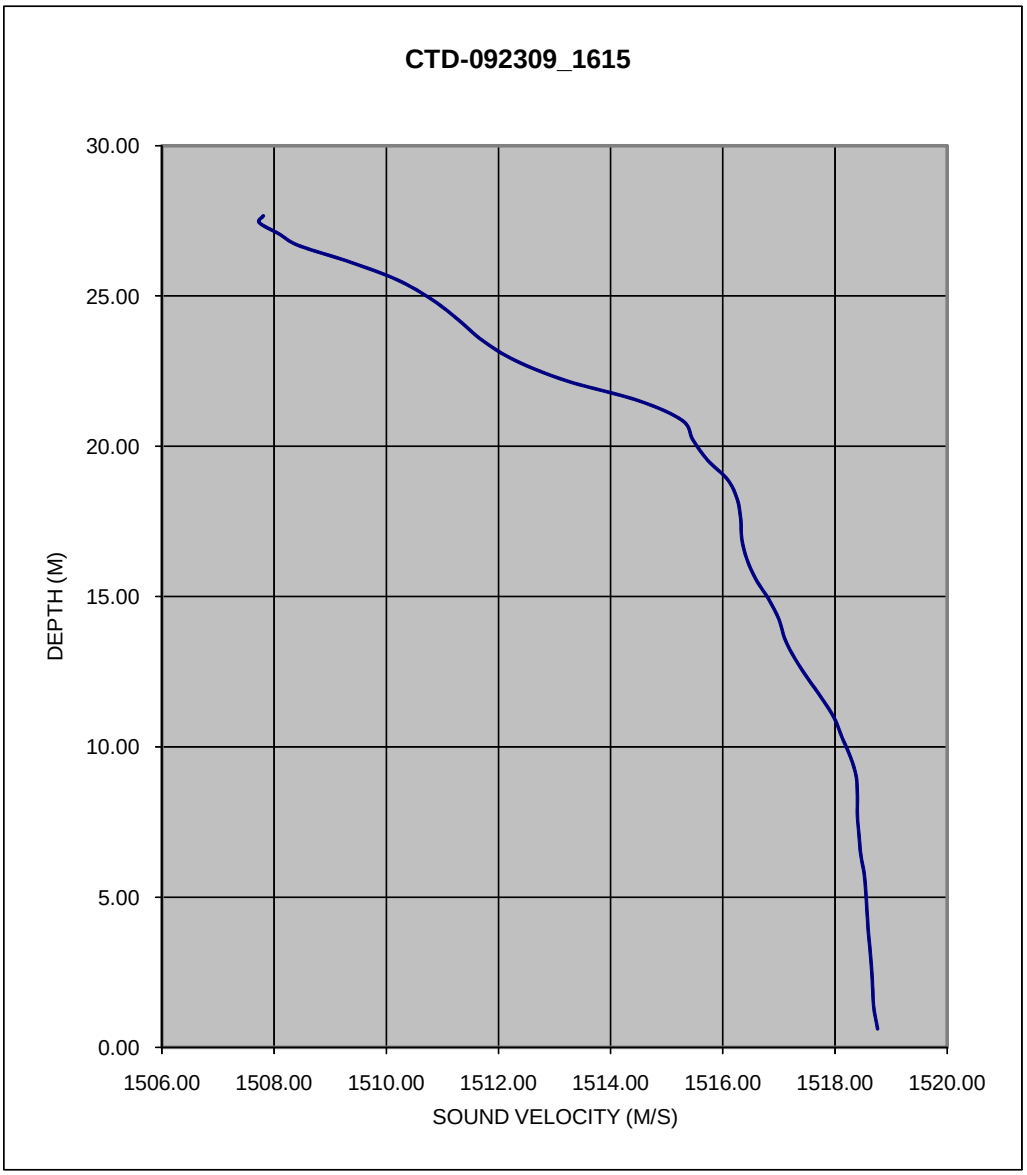


**Figure 3.2-5**
SVP 092309_1708 taken during the Fall 2009 multibeam survey at the HARS.

| | |
|---|---|
| 1517.49 | 0.28 |
| 1517.41 | 0.91 |
| 1517.36 | 1.53 |
| 1517.32 | 2.10 |
| 1517.30 | 2.61 |
| 1517.37 | 3.13 |
| 1517.33 | 3.65 |
| 1517.43 | 4.18 |
| 1517.69 | 4.72 |
| 1517.78 | 5.28 |
| 1517.75 | 5.84 |
| 1517.71 | 6.39 |
| 1517.70 | 6.95 |
| 1517.69 | 7.51 |
| 1517.66 | 8.08 |
| 1517.63 | 8.66 |
| 1517.61 | 9.24 |
| 1517.64 | 9.81 |
| 1517.66 | 10.39 |
| 1517.56 | 10.95 |
| 1517.44 | 11.55 |
| 1517.32 | 12.17 |
| 1517.19 | 12.77 |
| 1517.04 | 13.39 |
| 1516.83 | 14.01 |
| 1516.66 | 14.64 |
| 1516.57 | 15.28 |
| 1516.52 | 15.92 |
| 1516.51 | 16.56 |
| 1516.51 | 17.21 |
| 1516.34 | 17.87 |
| 1516.09 | 18.53 |
| 1515.87 | 19.19 |
| 1514.96 | 19.86 |
| 1514.00 | 20.55 |
| 1513.47 | 21.24 |
| 1513.07 | 21.93 |
| 1512.81 | 22.62 |
| 1512.18 | 23.32 |
| 1511.46 | 24.02 |
| 1511.06 | 24.64 |
| 1511.07 | 24.95 |

**CTD PROFILE # 092309_1708**

| Date | Time | NAD83 NY LI (Feet) | | Water Depth | Latitude | Longitude |
|---|---|---|---|---|---|---|
| | | Easting | Northing | Feet | N | W |
| 09/23/09 | 17:08 | 1030786 | 95674 | 82 | 40.42915445 | 73.83284911 |

**Figure 3.2-6**
SVP 092409_0903 taken during the Fall 2009 multibeam survey at the HARS

| | |
|---|---|
| 1517.54 | 0.16 |
| 1517.54 | 0.92 |
| 1518.12 | 1.66 |
| 1518.10 | 2.35 |
| 1517.96 | 2.98 |
| 1517.93 | 3.59 |
| 1517.95 | 4.20 |
| 1518.00 | 4.80 |
| 1518.05 | 5.40 |
| 1518.05 | 6.02 |
| 1518.02 | 6.65 |
| 1517.96 | 7.29 |
| 1517.79 | 7.95 |
| 1517.48 | 8.62 |
| 1517.19 | 9.29 |
| 1517.05 | 9.97 |
| 1516.92 | 10.65 |
| 1516.77 | 11.33 |
| 1516.69 | 12.00 |
| 1516.68 | 12.66 |
| 1516.70 | 13.33 |
| 1516.73 | 14.01 |
| 1516.72 | 14.69 |
| 1516.72 | 15.38 |
| 1516.64 | 16.08 |
| 1516.58 | 16.78 |
| 1516.57 | 17.47 |
| 1516.53 | 18.18 |
| 1516.48 | 18.89 |
| 1516.45 | 19.61 |
| 1516.41 | 20.34 |
| 1516.29 | 21.06 |
| 1516.02 | 21.77 |
| 1515.14 | 22.48 |
| 1513.93 | 23.19 |
| 1512.62 | 23.89 |
| 1511.88 | 24.59 |
| 1511.16 | 25.31 |
| 1510.02 | 26.00 |
| 1509.01 | 26.72 |
| 1508.02 | 27.44 |
| 1507.05 | 28.14 |
| 1506.35 | 28.86 |
| 1505.89 | 29.57 |
| 1505.56 | 30.28 |
| 1505.35 | 30.99 |
| 1505.25 | 31.71 |
| 1505.21 | 32.44 |
| 1505.18 | 33.18 |
| 1505.17 | 33.91 |
| 1505.29 | 34.29 |

**CTD PROFILE # 092409_0903**

| Date | Time | NAD83 NY LI (Feet) | | Water Depth | Latitude | Longitude |
|---|---|---|---|---|---|---|
| | | Easting | Northing | Feet | N | W |
| 09/24/09 | 9:03 | 1036489 | 86488 | 113 | 40.40390878 | 73.81243543 |

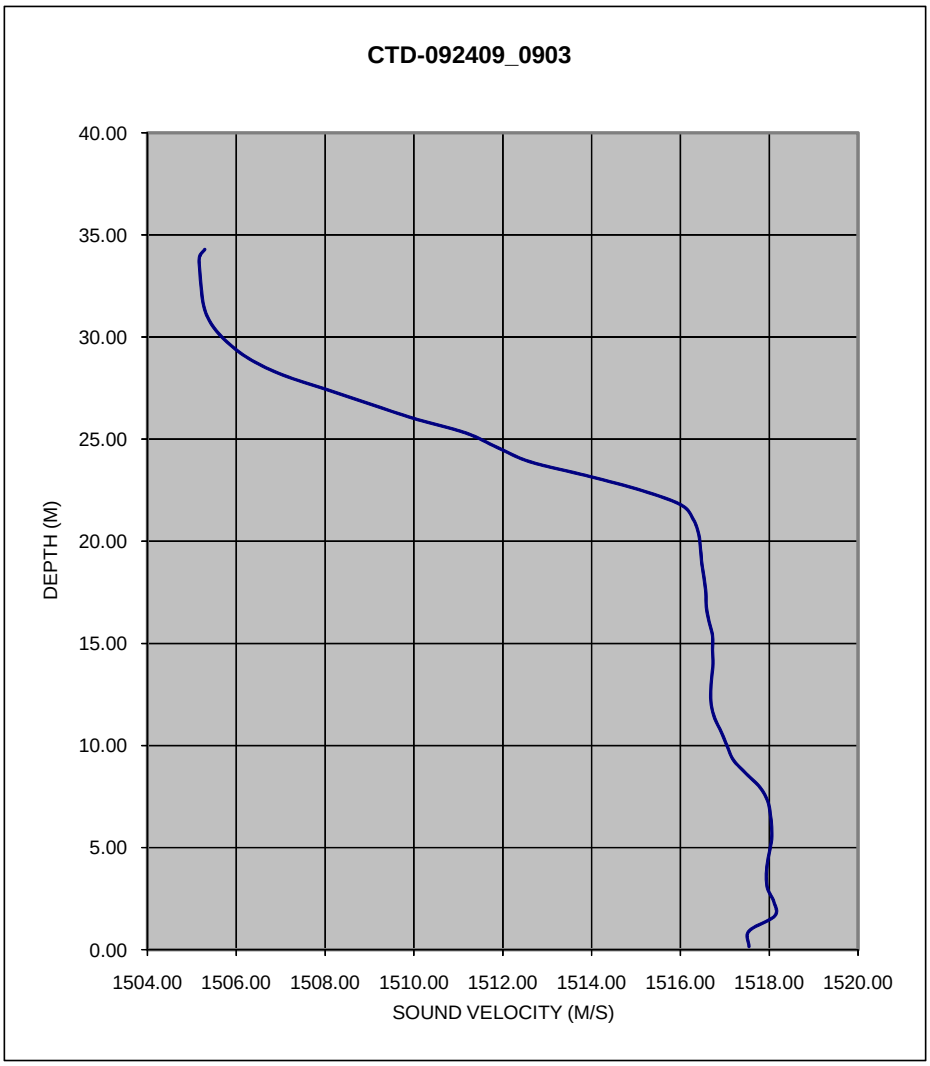


**Figure 3.2-7**
SVP 092409_1131 taken during the Fall 2009 multibeam survey at the HARS

| | |
|---|---|
| 1519.52 | 0.30 |
| 1519.10 | 1.00 |
| 1518.87 | 1.72 |
| 1518.68 | 2.42 |
| 1518.56 | 3.09 |
| 1518.52 | 3.76 |
| 1518.49 | 4.44 |
| 1518.45 | 5.12 |
| 1518.35 | 5.79 |
| 1518.29 | 6.48 |
| 1518.19 | 7.19 |
| 1517.92 | 7.89 |
| 1517.42 | 8.59 |
| 1516.92 | 9.30 |
| 1516.61 | 10.01 |
| 1516.49 | 10.72 |
| 1516.52 | 11.42 |
| 1516.52 | 12.13 |
| 1516.55 | 12.84 |
| 1516.47 | 13.55 |
| 1516.42 | 14.26 |
| 1516.40 | 14.97 |
| 1516.37 | 15.69 |
| 1516.38 | 16.39 |
| 1516.44 | 17.10 |
| 1516.52 | 17.81 |
| 1516.66 | 18.51 |
| 1516.79 | 19.23 |
| 1516.83 | 19.95 |
| 1516.84 | 20.66 |
| 1516.84 | 21.38 |
| 1516.85 | 22.10 |
| 1516.86 | 22.82 |
| 1516.88 | 23.56 |
| 1516.90 | 24.27 |
| 1516.82 | 25.00 |
| 1514.81 | 25.72 |
| 1511.68 | 26.44 |
| 1509.82 | 27.16 |
| 1508.46 | 27.90 |
| 1507.64 | 28.63 |
| 1507.08 | 29.36 |
| 1506.51 | 30.08 |
| 1506.06 | 30.79 |
| 1505.74 | 31.53 |
| 1505.57 | 32.26 |
| 1505.49 | 32.94 |
| 1505.67 | 33.23 |

**CTD PROFILE # 092409_1131**

| Date | Time | NAD83 NY LI (Feet) | | Water Depth | Latitude | Longitude |
|---|---|---|---|---|---|---|
| | | Easting | Northing | Feet | N | W |
| 09/24/09 | 11:31 | 1034448 | 77128 | 110 | 40.37822894 | 73.81983276 |

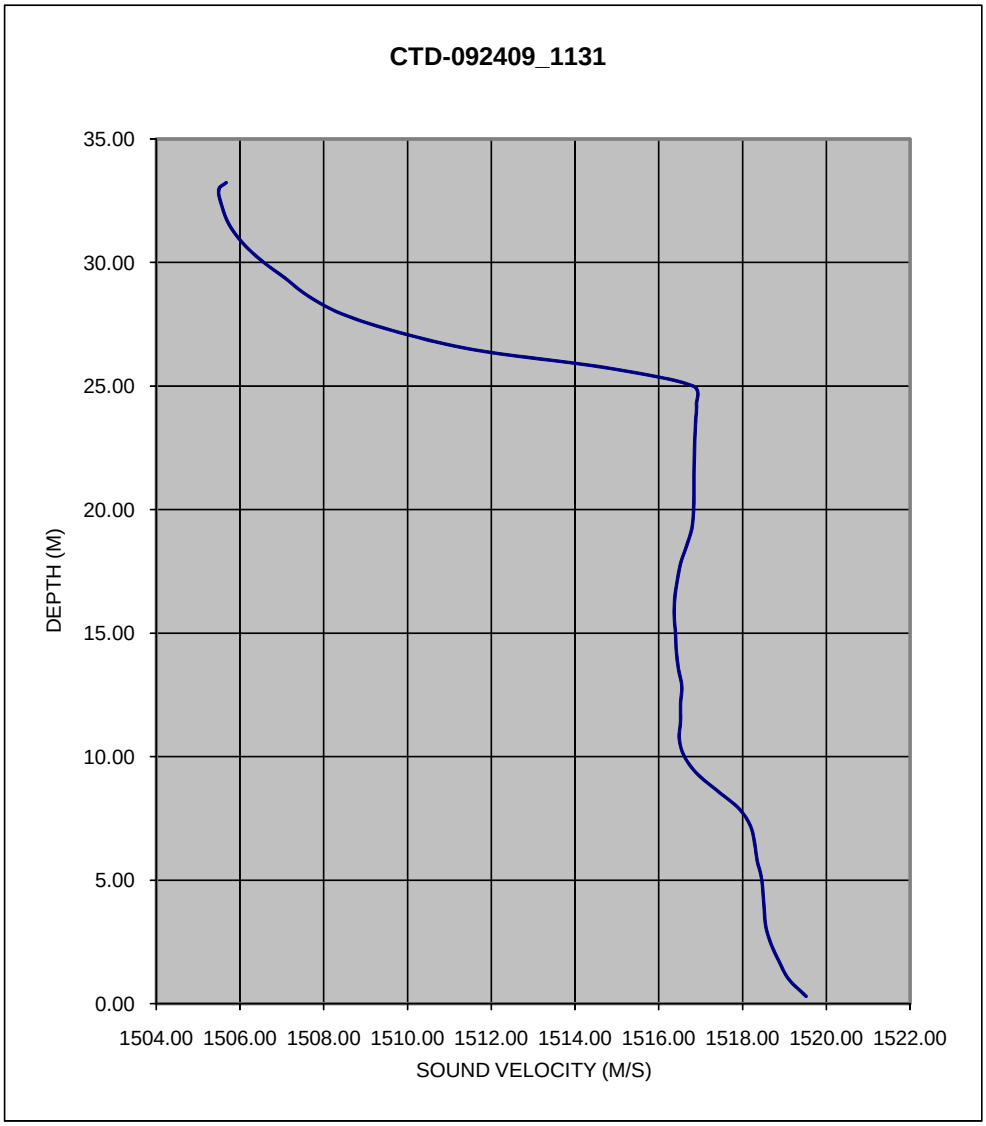


**Figure 3.2-8**
SVP 092409_1442 taken during the Fall 2009 multibeam survey at the HARS

| | |
|---|---|
| 1520.58 | 0.47 |
| 1520.06 | 1.20 |
| 1519.68 | 1.94 |
| 1519.33 | 2.64 |
| 1519.12 | 3.30 |
| 1518.95 | 3.96 |
| 1518.82 | 4.61 |
| 1518.72 | 5.25 |
| 1518.62 | 5.89 |
| 1518.54 | 6.53 |
| 1518.37 | 7.16 |
| 1518.09 | 7.80 |
| 1517.51 | 8.44 |
| 1517.15 | 9.09 |
| 1516.95 | 9.74 |
| 1516.80 | 10.40 |
| 1516.71 | 11.05 |
| 1516.61 | 11.68 |
| 1516.54 | 12.32 |
| 1516.54 | 12.98 |
| 1516.56 | 13.64 |
| 1516.59 | 14.30 |
| 1516.59 | 14.96 |
| 1516.56 | 15.61 |
| 1516.50 | 16.28 |
| 1516.49 | 16.95 |
| 1516.50 | 17.63 |
| 1516.49 | 18.29 |
| 1516.51 | 18.97 |
| 1516.59 | 19.64 |
| 1516.63 | 20.31 |
| 1516.62 | 20.98 |
| 1516.62 | 21.65 |
| 1516.64 | 22.32 |
| 1516.64 | 22.98 |
| 1516.64 | 23.65 |
| 1516.62 | 24.30 |
| 1516.56 | 24.95 |
| 1516.53 | 25.60 |
| 1516.52 | 26.26 |
| 1516.38 | 26.93 |
| 1514.11 | 27.60 |
| 1510.25 | 28.28 |
| 1508.09 | 28.58 |
| 1506.92 | 28.65 |
| 1506.53 | 28.66 |

**CTD PROFILE # 092409_1442**

| Date | Time | NAD83 NY LI (Feet) | | Water Depth | Latitude | Longitude |
|---|---|---|---|---|---|---|
| | | Easting | Northing | Feet | N | W |
| 09/24/09 | 14:42 | 1032053 | 77068 | 94 | 40.37807744 | 73.82842913 |

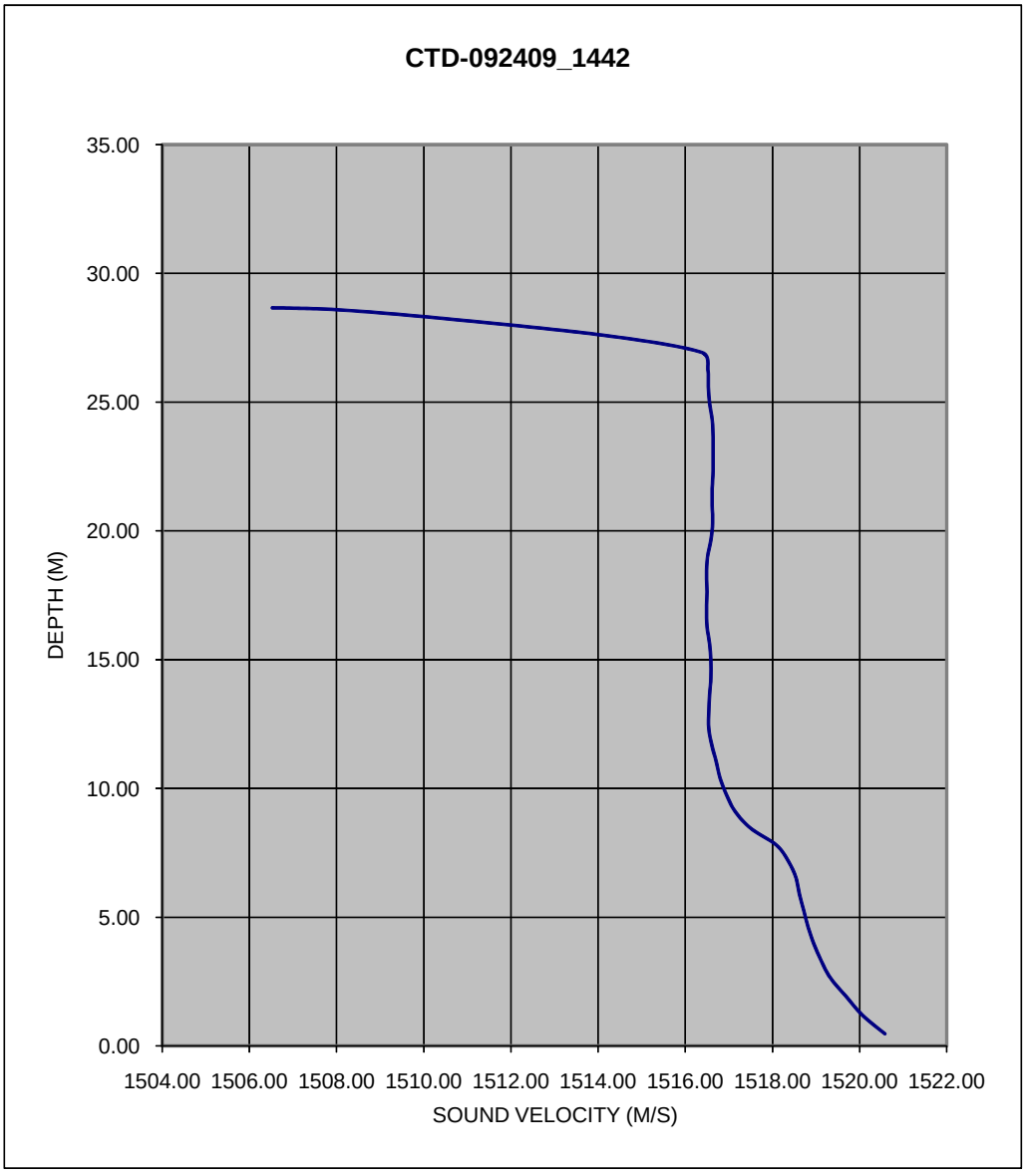


**Figure 3.2-9**
SVP 092409_1550 taken during the Fall 2009 multibeam survey at the HARS

| | |
|---|---|
| 1519.37 | 0.30 |
| 1519.58 | 1.04 |
| 1519.60 | 1.82 |
| 1519.16 | 2.60 |
| 1518.87 | 3.36 |
| 1518.71 | 4.14 |
| 1518.60 | 4.90 |
| 1518.49 | 5.64 |
| 1518.18 | 6.38 |
| 1517.45 | 7.13 |
| 1516.96 | 7.88 |
| 1516.77 | 8.62 |
| 1516.70 | 9.33 |
| 1516.67 | 10.04 |
| 1516.59 | 10.73 |
| 1516.50 | 11.40 |
| 1516.47 | 12.04 |
| 1516.47 | 12.68 |
| 1516.50 | 13.30 |
| 1516.54 | 13.92 |
| 1516.56 | 14.54 |
| 1516.57 | 15.16 |
| 1516.55 | 15.76 |
| 1516.54 | 16.36 |
| 1516.52 | 16.97 |
| 1516.50 | 17.59 |
| 1516.36 | 18.23 |
| 1516.13 | 18.87 |
| 1515.67 | 19.52 |
| 1514.59 | 20.19 |
| 1513.63 | 20.86 |
| 1513.02 | 21.52 |
| 1512.59 | 22.19 |
| 1512.04 | 22.85 |
| 1511.58 | 23.52 |
| 1511.22 | 24.18 |
| 1510.75 | 24.84 |
| 1510.02 | 25.48 |
| 1509.27 | 26.12 |
| 1508.60 | 26.76 |
| 1507.98 | 27.40 |
| 1507.45 | 28.04 |
| 1507.03 | 28.68 |
| 1506.91 | 29.12 |
| 1507.10 | 29.23 |
| 1507.25 | 29.25 |

**CTD PROFILE # 092409_1550**

| Date | Time | NAD83 NY LI (Feet) | | Water Depth | Latitude | Longitude |
|---|---|---|---|---|---|---|
| | | Easting | Northing | Feet | N | W |
| 09/24/09 | 15:50 | 1031348 | 86862 | 96 | 40.40496407 | 73.83089159 |

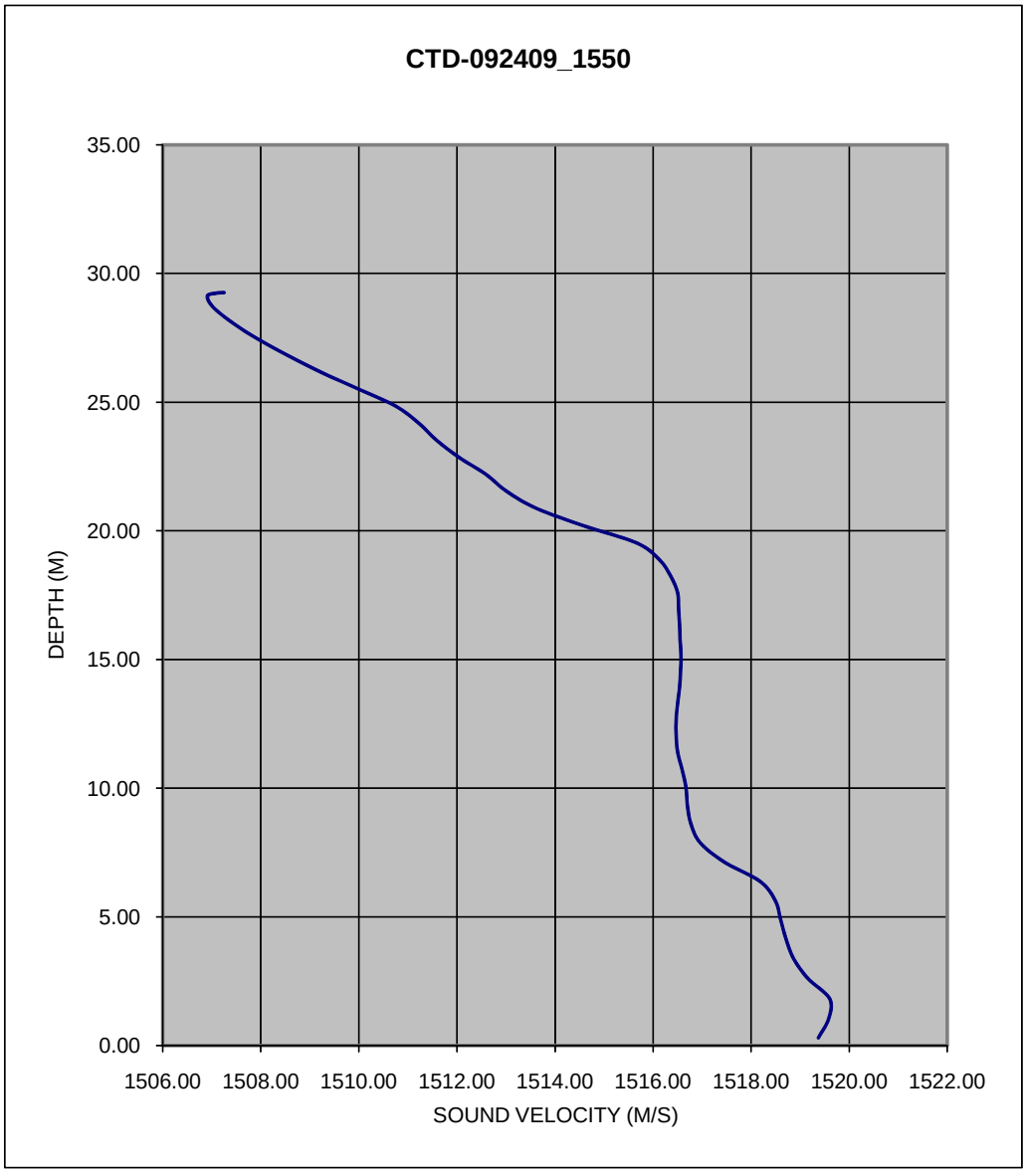


**Figure 3.2-10**
SVP 092409_1705 taken during the Fall 2009 multibeam survey at the HARS

| | |
|---|---|
| 1519.59 | 0.66 |
| 1520.25 | 1.47 |
| 1519.54 | 2.30 |
| 1518.97 | 3.15 |
| 1518.69 | 3.99 |
| 1518.52 | 4.82 |
| 1518.05 | 5.61 |
| 1517.35 | 6.36 |
| 1516.98 | 7.08 |
| 1516.83 | 7.79 |
| 1516.75 | 8.50 |
| 1516.64 | 9.20 |
| 1516.58 | 9.91 |
| 1516.55 | 10.62 |
| 1516.55 | 11.32 |
| 1516.57 | 12.03 |
| 1516.59 | 12.74 |
| 1516.61 | 13.44 |
| 1516.67 | 14.14 |
| 1516.73 | 14.83 |
| 1516.81 | 15.53 |
| 1516.73 | 16.22 |
| 1516.32 | 16.91 |
| 1516.08 | 17.61 |
| 1515.88 | 18.32 |
| 1514.85 | 19.04 |
| 1513.66 | 19.75 |
| 1512.88 | 20.47 |
| 1512.30 | 21.20 |
| 1511.78 | 21.92 |
| 1511.29 | 22.64 |
| 1510.76 | 23.37 |
| 1510.25 | 24.09 |
| 1509.61 | 24.81 |
| 1508.87 | 25.52 |
| 1508.43 | 26.23 |
| 1508.23 | 26.94 |
| 1508.14 | 27.56 |
| 1508.21 | 27.69 |

**CTD PROFILE # 092409_1705**

| Date | Time | NAD83 NY LI (Feet) | | Water Depth | Latitude | Longitude |
|---|---|---|---|---|---|---|
| - | - | Easting | Northing | Feet | N | W |
| - | - | - | - | - | - | - |
| 09/24/09 | 17:05 | 1030151 | 86869 | 91 | 40.40498955 | 73.83518944 |

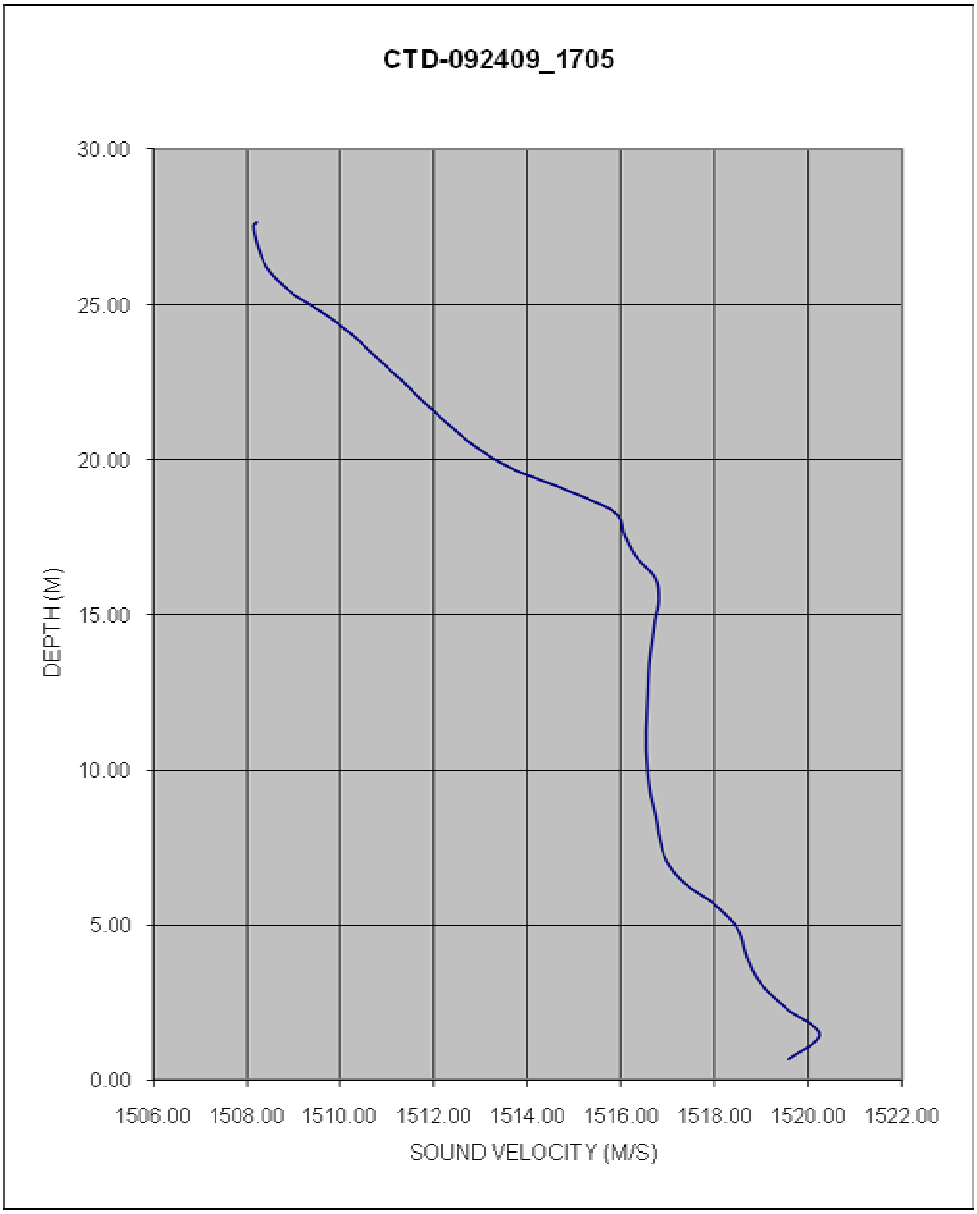


**Figure 3.2-11**
SVP 10/01/09_0803 taken during the Fall 2009 multibeam survey at the HARS

| | |
|---|---|
| 1513.99 | 0.42 |
| 1514.28 | 1.07 |
| 1514.39 | 1.73 |
| 1514.44 | 2.35 |
| 1514.46 | 2.97 |
| 1514.50 | 3.60 |
| 1514.52 | 4.24 |
| 1514.54 | 4.87 |
| 1514.56 | 5.49 |
| 1514.58 | 6.09 |
| 1514.61 | 6.71 |
| 1514.63 | 7.34 |
| 1514.65 | 7.94 |
| 1514.67 | 8.55 |
| 1514.69 | 9.16 |
| 1514.71 | 9.79 |
| 1514.73 | 10.42 |
| 1514.74 | 11.05 |
| 1514.78 | 11.68 |
| 1514.80 | 12.30 |
| 1514.83 | 12.94 |
| 1514.86 | 13.58 |
| 1514.89 | 14.23 |
| 1514.91 | 14.87 |
| 1514.94 | 15.52 |
| 1514.99 | 16.17 |
| 1515.04 | 16.81 |
| 1515.15 | 17.46 |
| 1515.39 | 18.10 |
| 1515.58 | 18.76 |
| 1515.70 | 19.42 |
| 1515.65 | 20.08 |
| 1515.14 | 20.72 |
| 1514.29 | 21.37 |
| 1513.39 | 22.04 |
| 1512.71 | 22.69 |
| 1511.03 | 23.35 |
| 1508.03 | 24.03 |
| 1504.05 | 24.69 |
| 1500.71 | 25.33 |
| 1499.25 | 25.99 |
| 1498.79 | 26.63 |
| 1498.61 | 27.30 |
| 1498.53 | 27.96 |
| 1498.50 | 28.63 |
| 1498.48 | 29.28 |
| 1498.52 | 29.90 |
| 1498.72 | 30.15 |

**CTD PROFILE # 100109_0803**

| Date | Time | NAD83 NY LI (Feet) | | Water Depth | Latitude | Longitude |
|---|---|---|---|---|---|---|
| | | Easting | Northing | Feet | N | W |
| 10/01/09 | 8:03 | 1036141 | 77154 | 99 | 40.37829058 | 73.81375617 |

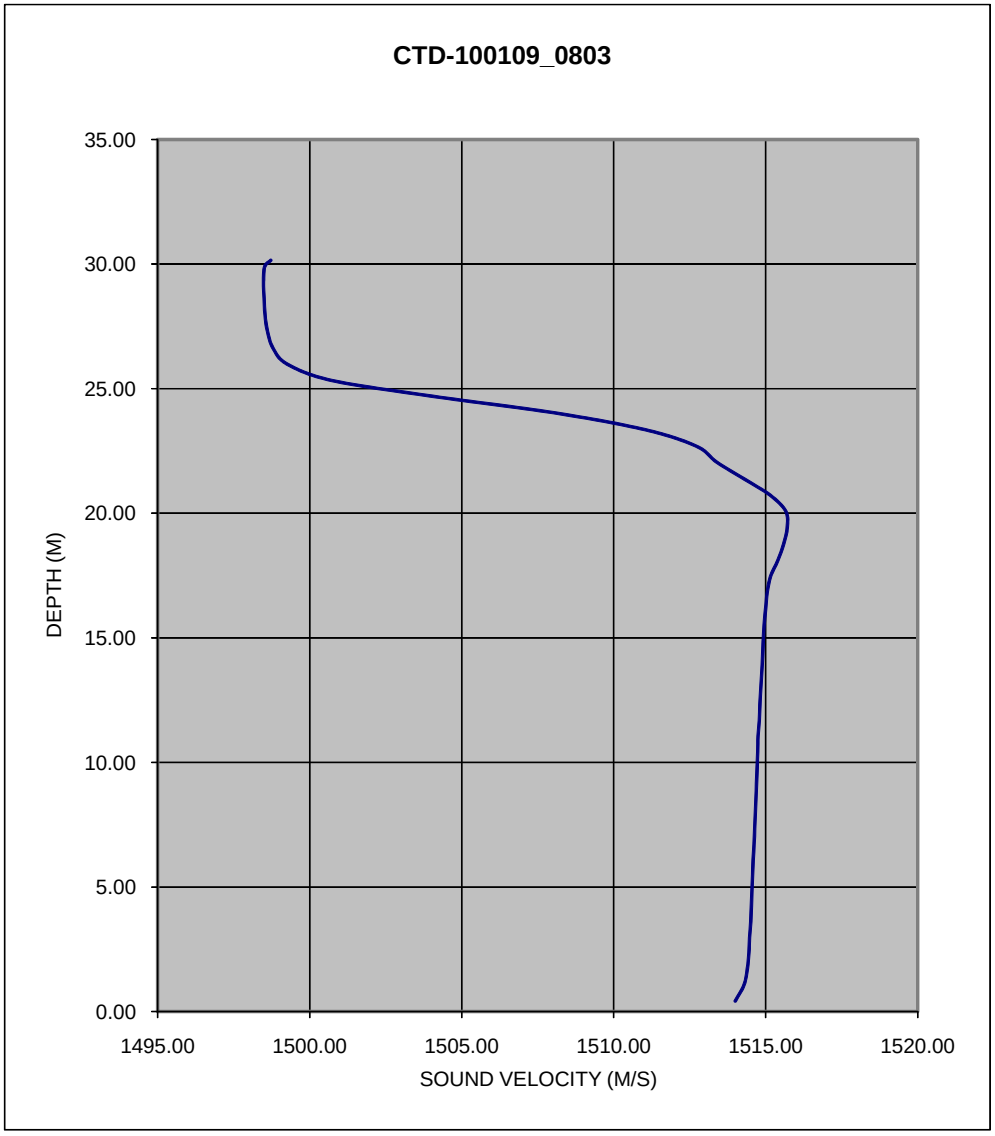


**Figure 3.2-12**
SVP 10/01/09_1016 taken during the Fall 2009 multibeam survey at the HARS

| | |
|---|---|
| 1514.11 | 0.17 |
| 1514.31 | 0.85 |
| 1514.36 | 1.55 |
| 1514.37 | 2.24 |
| 1514.41 | 2.95 |
| 1514.46 | 3.66 |
| 1514.55 | 4.38 |
| 1514.65 | 5.09 |
| 1514.71 | 5.78 |
| 1514.78 | 6.47 |
| 1514.83 | 7.16 |
| 1514.88 | 7.84 |
| 1514.92 | 8.52 |
| 1514.96 | 9.19 |
| 1515.00 | 9.87 |
| 1515.03 | 10.56 |
| 1515.05 | 11.26 |
| 1515.07 | 11.96 |
| 1515.12 | 12.66 |
| 1515.19 | 13.36 |
| 1515.23 | 14.05 |
| 1515.23 | 14.73 |
| 1515.27 | 15.41 |
| 1515.29 | 16.11 |
| 1515.33 | 16.81 |
| 1515.36 | 17.49 |
| 1515.38 | 18.18 |
| 1515.41 | 18.87 |
| 1515.43 | 19.57 |
| 1515.46 | 20.27 |
| 1515.53 | 20.96 |
| 1514.96 | 21.66 |
| 1512.83 | 22.34 |
| 1510.14 | 23.02 |
| 1507.25 | 23.71 |
| 1504.60 | 24.41 |
| 1502.61 | 25.11 |
| 1500.91 | 25.81 |
| 1499.50 | 26.51 |
| 1498.55 | 27.20 |
| 1498.05 | 27.90 |
| 1497.78 | 28.59 |
| 1497.49 | 29.30 |
| 1497.28 | 30.00 |
| 1497.19 | 30.70 |
| 1497.15 | 31.39 |
| 1497.13 | 32.10 |
| 1497.13 | 32.80 |
| 1497.24 | 33.29 |

**CTD PROFILE # 100109_1016**

| Date | Time | NAD83 NY LI (Feet) | | Water Depth | Latitude | Longitude |
|---|---|---|---|---|---|---|
| | | Easting | Northing | Feet | N | W |
| 10/01/09 | 10:16 | 1034588 | 67471 | 109 | 40.35172131 | 73.81940174 |

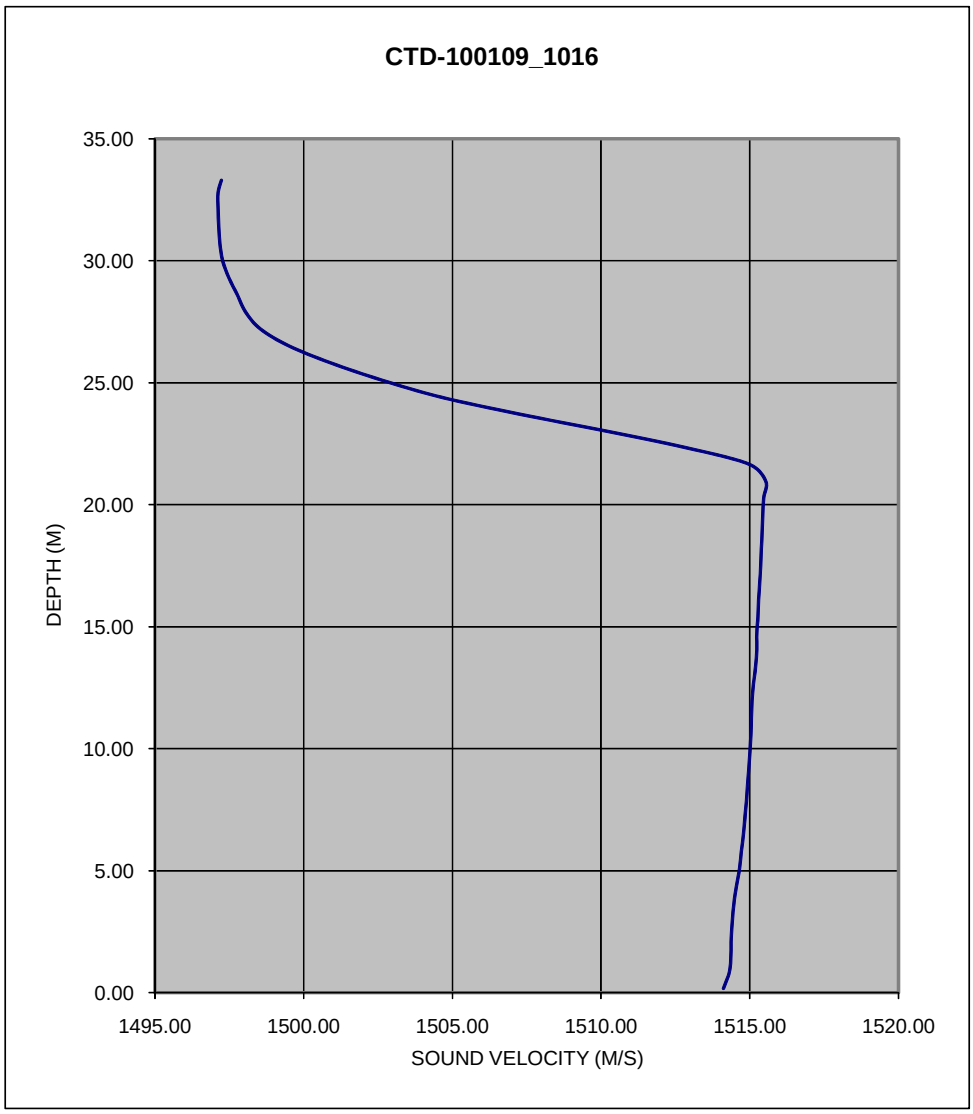


**Figure 3.2-13**
SVP 10/01/09_1217 taken during the Fall 2009 multibeam survey at the HARS

| | |
|---|---|
| 1515.13 | 0.12 |
| 1514.89 | 0.93 |
| 1514.84 | 1.80 |
| 1514.82 | 2.55 |
| 1514.81 | 3.27 |
| 1514.80 | 3.97 |
| 1514.79 | 4.68 |
| 1514.77 | 5.40 |
| 1514.76 | 6.12 |
| 1514.78 | 6.84 |
| 1514.85 | 7.57 |
| 1514.91 | 8.31 |
| 1514.98 | 9.04 |
| 1515.05 | 9.76 |
| 1515.15 | 10.47 |
| 1515.24 | 11.16 |
| 1515.33 | 11.85 |
| 1515.38 | 12.54 |
| 1515.44 | 13.25 |
| 1515.49 | 13.97 |
| 1515.50 | 14.69 |
| 1515.51 | 15.41 |
| 1515.50 | 16.12 |
| 1515.55 | 16.84 |
| 1515.59 | 17.55 |
| 1515.68 | 18.26 |
| 1515.65 | 19.00 |
| 1515.20 | 19.71 |
| 1513.87 | 20.42 |
| 1512.71 | 21.13 |
| 1511.80 | 21.86 |
| 1510.57 | 22.57 |
| 1507.74 | 23.28 |
| 1504.15 | 24.01 |
| 1501.20 | 24.72 |
| 1499.02 | 25.44 |
| 1497.92 | 26.16 |
| 1497.53 | 26.89 |
| 1497.35 | 27.61 |
| 1497.27 | 28.36 |
| 1497.23 | 29.12 |
| 1497.36 | 29.65 |
| 1497.70 | 29.71 |

**CTD PROFILE # 100109_1217**

| Date | Time | NAD83 NY LI (Feet) | | Water Depth | Latitude | Longitude |
|---|---|---|---|---|---|---|
| | | Easting | Northing | Feet | N | W |
| 10/01/09 | 12:17 | 1032888 | 67820 | 98 | 40.35268871 | 73.82549834 |

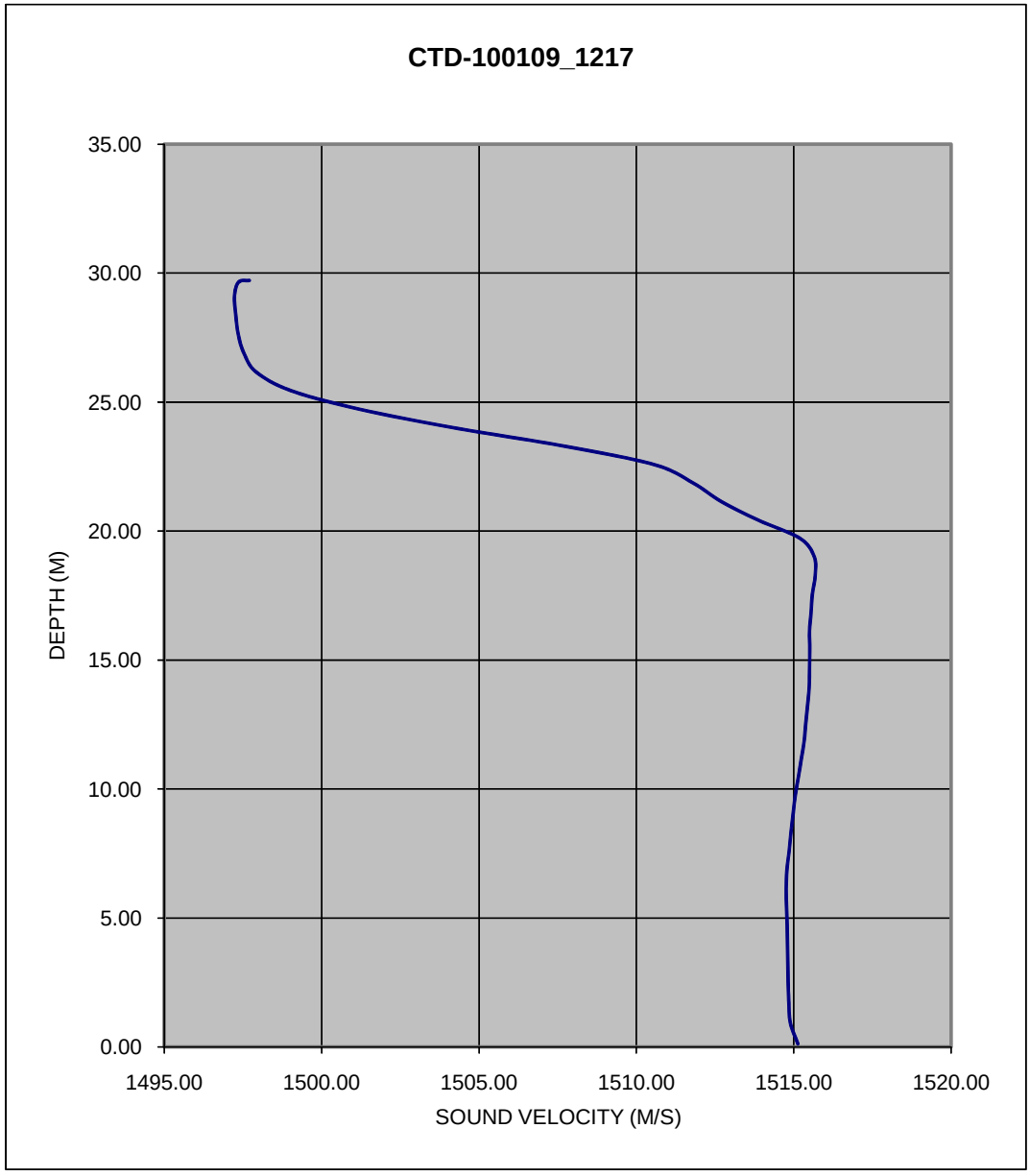


**Figure 3.2-14**
SVP 10/01/09_1424 taken during the Fall 2009 multibeam survey at the HARS

**CTD PROFILE # 100109_1424**

| Date | Time | NAD83 NY LI (Feet) | | Water Depth | Latitude | Longitude |
|---|---|---|---|---|---|---|
| | | Easting | Northing | Feet | N | W |
| 10/01/09 | 14:24 | 1031506 | 77449 | 90 | 40.37912615 | 73.83038972 |

| | |
|---|---|
| 1514.58 | 0.40 |
| 1514.62 | 1.13 |
| 1514.64 | 1.84 |
| 1514.66 | 2.55 |
| 1514.68 | 3.27 |
| 1514.69 | 3.99 |
| 1514.74 | 4.70 |
| 1514.80 | 5.40 |
| 1514.90 | 6.08 |
| 1515.00 | 6.76 |
| 1515.08 | 7.43 |
| 1515.17 | 8.11 |
| 1515.31 | 8.82 |
| 1515.41 | 9.52 |
| 1515.45 | 10.22 |
| 1515.47 | 10.91 |
| 1515.50 | 11.61 |
| 1515.53 | 12.30 |
| 1515.56 | 12.98 |
| 1515.58 | 13.67 |
| 1515.62 | 14.33 |
| 1515.69 | 15.01 |
| 1515.66 | 15.68 |
| 1515.45 | 16.36 |
| 1514.66 | 17.05 |
| 1513.51 | 17.74 |
| 1512.68 | 18.42 |
| 1511.88 | 19.11 |
| 1510.88 | 19.80 |
| 1509.70 | 20.47 |
| 1508.51 | 21.14 |
| 1507.17 | 21.78 |
| 1504.24 | 22.45 |
| 1501.26 | 23.13 |
| 1499.80 | 23.79 |
| 1499.12 | 24.50 |
| 1498.54 | 25.17 |
| 1498.22 | 25.85 |
| 1498.13 | 26.46 |
| 1498.08 | 27.12 |
| 1498.23 | 27.52 |

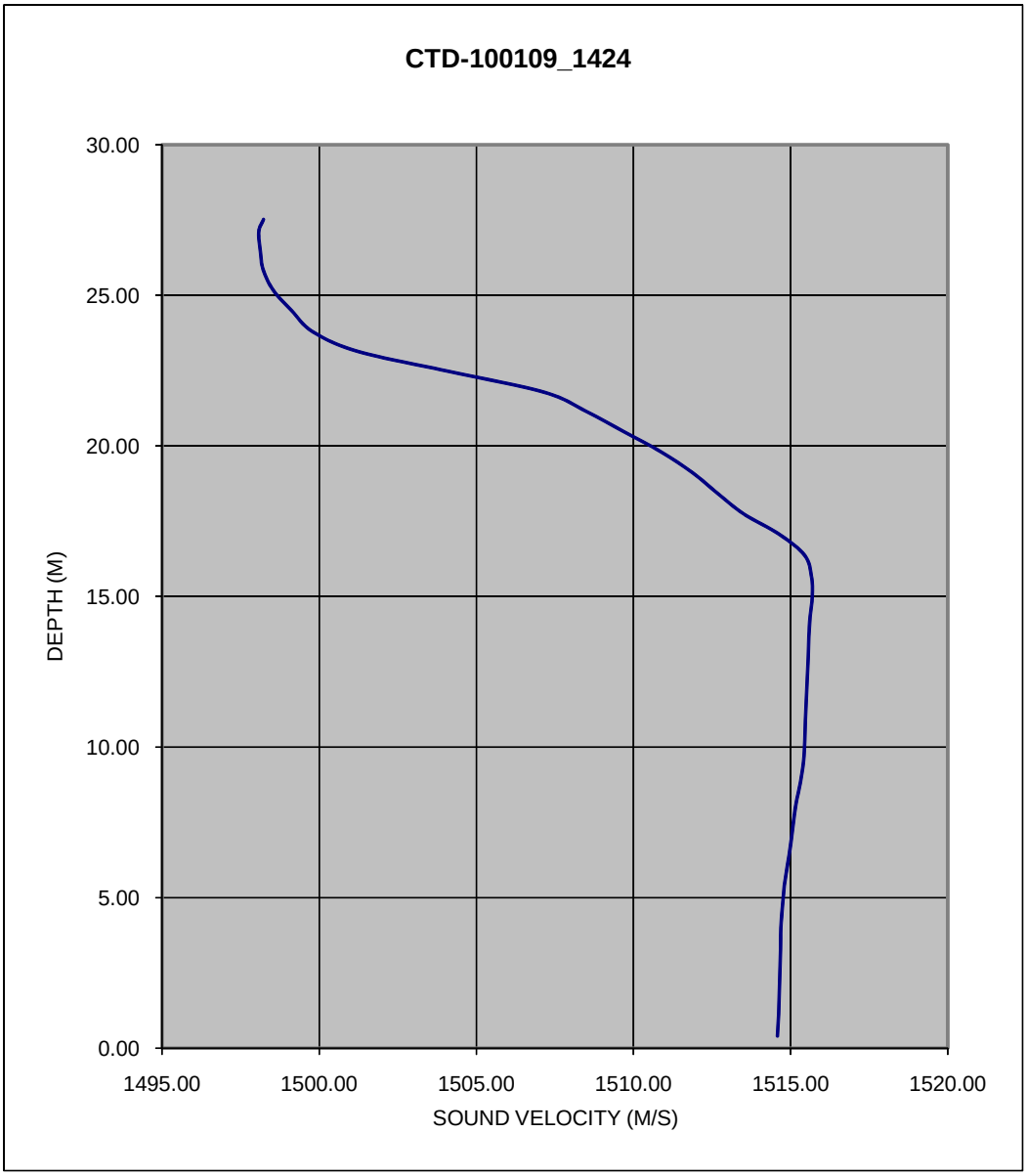


**Figure 3.2-15**
SVP 10/01/09_1618 taken during the Fall 2009 multibeam survey at the HARS

**CTD PROFILE # 100109_1618**

| Date | Time | NAD83 NY LI (Feet) | | Water Depth | Latitude | Longitude |
|---|---|---|---|---|---|---|
| | | Easting | Northing | Feet | N | W |
| 10/01/09 | 16:18 | 1029771 | 67839 | 88 | 40.35275736 | 73.83668124 |

| | |
|---|---|
| 1514.65 | 0.25 |
| 1514.65 | 0.99 |
| 1514.67 | 1.78 |
| 1514.68 | 2.62 |
| 1514.69 | 3.45 |
| 1514.72 | 4.27 |
| 1514.73 | 5.10 |
| 1514.79 | 5.94 |
| 1514.86 | 6.76 |
| 1514.94 | 7.54 |
| 1514.99 | 8.28 |
| 1515.01 | 9.02 |
| 1515.05 | 9.74 |
| 1515.09 | 10.45 |
| 1515.14 | 11.14 |
| 1515.22 | 11.83 |
| 1515.35 | 12.51 |
| 1515.45 | 13.22 |
| 1515.47 | 13.93 |
| 1515.48 | 14.64 |
| 1515.50 | 15.35 |
| 1515.53 | 16.06 |
| 1515.58 | 16.77 |
| 1515.66 | 17.47 |
| 1515.60 | 18.18 |
| 1515.07 | 18.88 |
| 1514.52 | 19.60 |
| 1513.11 | 20.30 |
| 1510.79 | 21.00 |
| 1507.99 | 21.70 |
| 1504.89 | 22.42 |
| 1502.44 | 23.13 |
| 1500.85 | 23.87 |
| 1499.89 | 24.61 |
| 1499.26 | 25.35 |
| 1498.75 | 26.07 |
| 1498.59 | 26.69 |

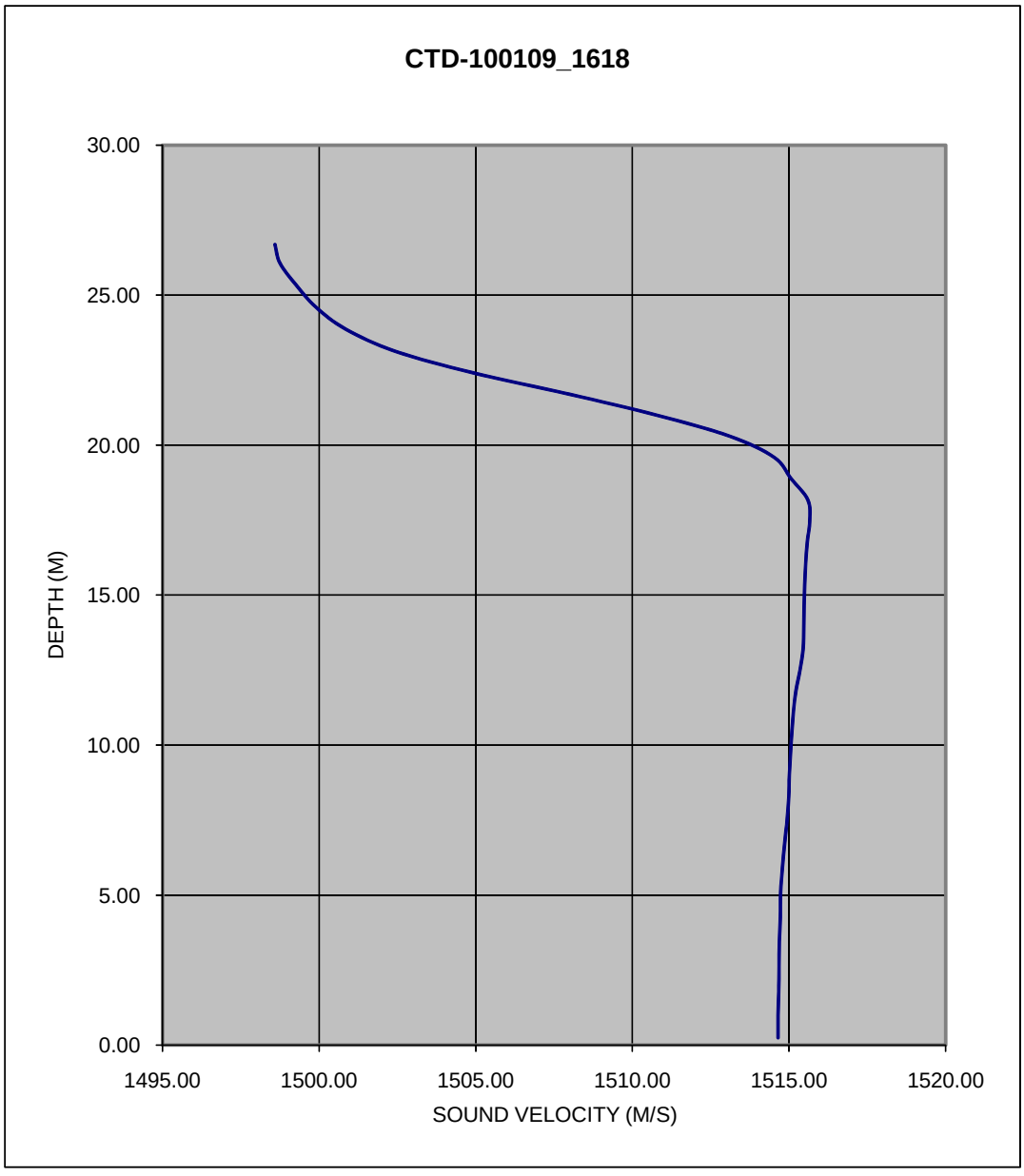


**Figure 3.2-16**
SVP 10/06/09_1130 taken during the Fall 2009 multibeam survey at the HARS

**CTD PROFILE # 100609_1130**

| Date | Time | NAD83 NY LI (Feet) | | Water Depth | Latitude | Longitude |
|---|---|---|---|---|---|---|
| | | Easting | Northing | Feet | N | W |
| 10/06/09 | 11:30 | 1029963 | 77308 | 74 | 40.37874720 | 73.83592876 |

| | |
|---|---|
| 1513.54 | 0.30 |
| 1513.86 | 1.08 |
| 1513.97 | 1.89 |
| 1513.98 | 2.66 |
| 1513.98 | 3.41 |
| 1513.97 | 4.13 |
| 1513.95 | 4.85 |
| 1513.95 | 5.53 |
| 1513.94 | 6.20 |
| 1513.94 | 6.89 |
| 1513.93 | 7.58 |
| 1513.93 | 8.27 |
| 1513.94 | 8.97 |
| 1513.95 | 9.67 |
| 1513.97 | 10.38 |
| 1513.99 | 11.08 |
| 1514.01 | 11.79 |
| 1514.01 | 12.50 |
| 1513.92 | 13.23 |
| 1513.79 | 13.95 |
| 1513.76 | 14.66 |
| 1513.79 | 15.38 |
| 1513.82 | 16.10 |
| 1513.87 | 16.82 |
| 1513.90 | 17.54 |
| 1513.92 | 18.27 |
| 1513.94 | 19.02 |
| 1513.95 | 19.77 |
| 1514.01 | 20.53 |
| 1514.08 | 21.29 |
| 1513.80 | 22.05 |
| 1513.07 | 22.62 |

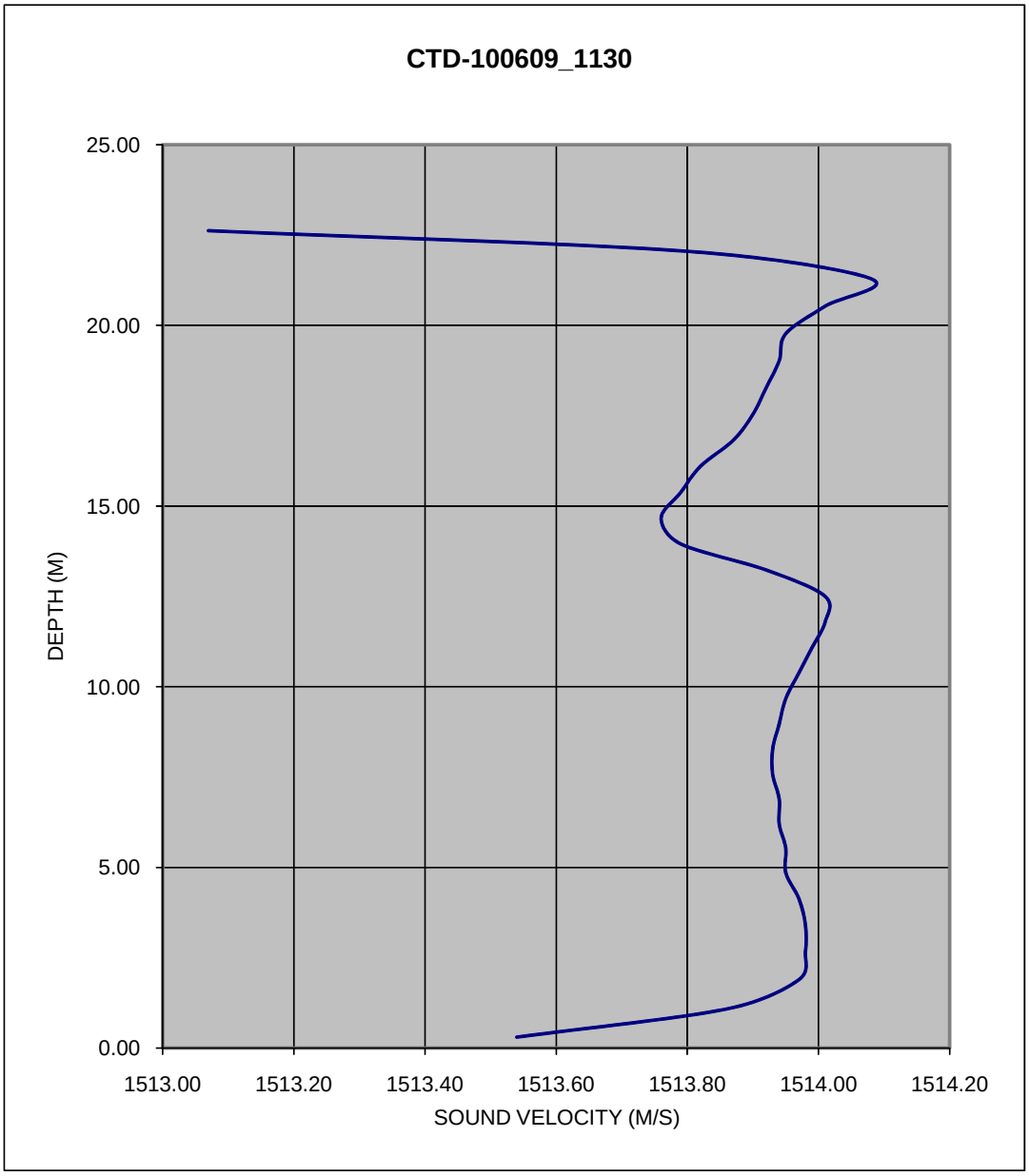


**Figure 3.2-17**
SVP 10/06/09_1341 taken during the Fall 2009 multibeam survey at the HARS

**CTD PROFILE # 100609_1341**

| Date | Time | NAD83 NY LI (Feet) | | Water Depth | Latitude | Longitude |
|---|---|---|---|---|---|---|
| | | Easting | Northing | Feet | N | W |
| 10/06/09 | 13:41 | 1027884 | 67871 | 81 | 40.35285465 | 73.84345114 |

| | |
|---|---|
| 1514.74 | 0.59 |
| 1514.37 | 1.31 |
| 1514.18 | 2.01 |
| 1514.10 | 2.66 |
| 1514.07 | 3.29 |
| 1514.06 | 3.91 |
| 1514.05 | 4.55 |
| 1514.02 | 5.22 |
| 1513.98 | 5.88 |
| 1513.96 | 6.55 |
| 1513.95 | 7.20 |
| 1513.93 | 7.85 |
| 1513.90 | 8.50 |
| 1513.89 | 9.14 |
| 1513.88 | 9.80 |
| 1513.87 | 10.46 |
| 1513.87 | 11.13 |
| 1513.87 | 11.79 |
| 1513.87 | 12.45 |
| 1513.88 | 13.11 |
| 1513.88 | 13.77 |
| 1513.89 | 14.43 |
| 1513.90 | 15.08 |
| 1513.90 | 15.74 |
| 1513.98 | 16.41 |
| 1514.27 | 17.09 |
| 1514.81 | 17.77 |
| 1515.28 | 18.46 |
| 1515.46 | 19.15 |
| 1515.28 | 19.84 |
| 1514.32 | 20.53 |
| 1513.02 | 21.21 |
| 1510.81 | 21.90 |
| 1507.95 | 22.57 |
| 1506.04 | 23.24 |
| 1505.06 | 23.92 |
| 1504.69 | 24.56 |
| 1504.80 | 24.75 |

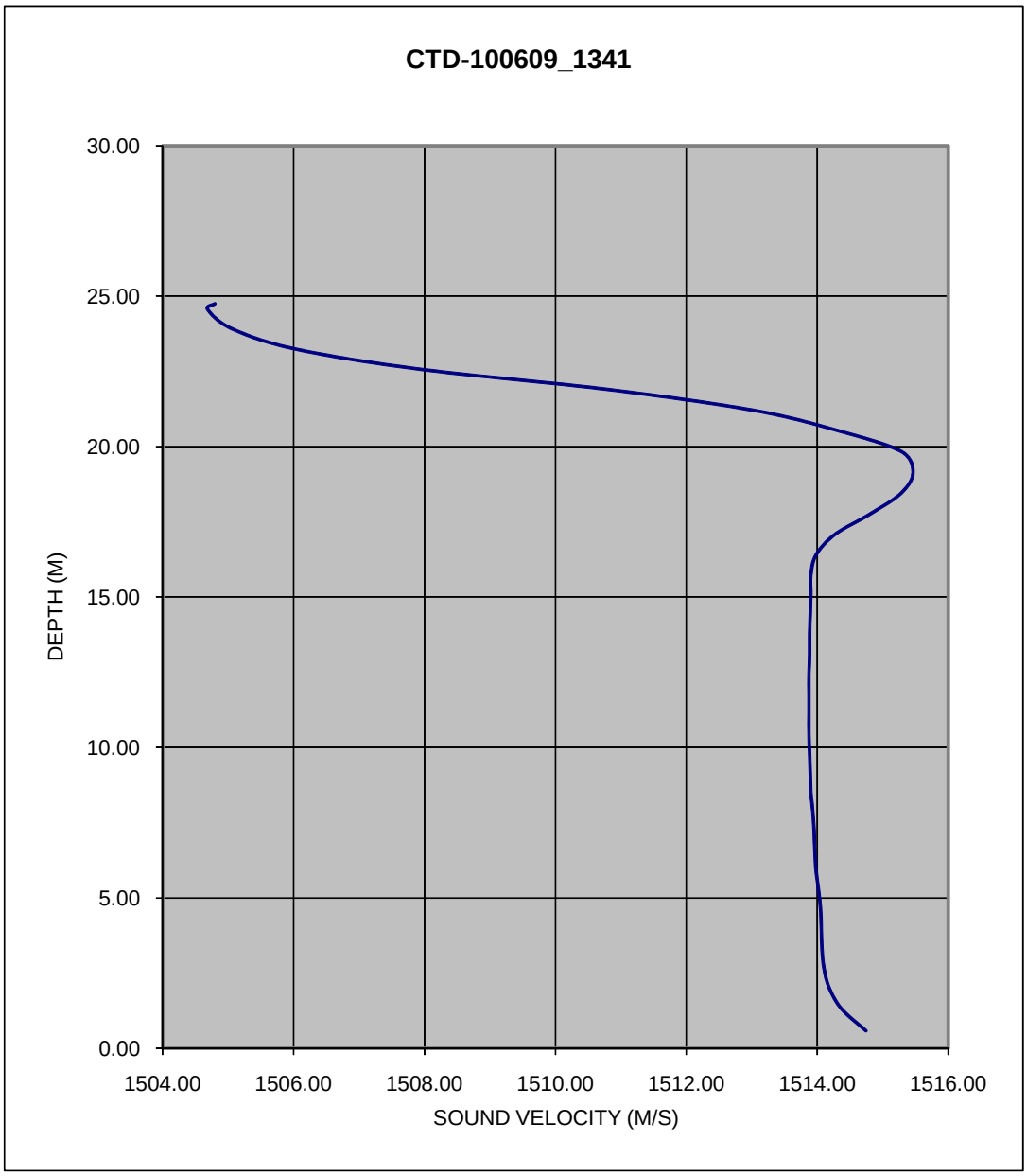


**Figure 3.2-18**
SVP 10/06/09_1552 taken during the Fall 2009 multibeam survey at the HARS

**CTD PROFILE # 100609_1552**

| Date | Time | NAD83 NY LI (Feet) | | Water Depth | Latitude | Longitude |
|---|---|---|---|---|---|---|
| | | Easting | Northing | Feet | N | W |
| 10/06/09 | 15:52 | 1027314 | 77330 | 55 | 40.37882081 | 73.84543629 |

| | |
|---|---|
| 1514.64 | 0.65 |
| 1514.63 | 1.33 |
| 1514.63 | 1.98 |
| 1514.59 | 2.62 |
| 1514.53 | 3.25 |
| 1514.41 | 3.87 |
| 1514.32 | 4.49 |
| 1514.25 | 5.10 |
| 1514.18 | 5.72 |
| 1514.10 | 6.35 |
| 1514.04 | 6.97 |
| 1513.98 | 7.60 |
| 1513.92 | 8.25 |
| 1513.91 | 8.90 |
| 1514.01 | 9.57 |
| 1514.00 | 10.23 |
| 1513.97 | 10.89 |
| 1513.92 | 11.55 |
| 1513.86 | 12.21 |
| 1513.82 | 12.88 |
| 1513.78 | 13.55 |
| 1513.73 | 14.21 |
| 1513.70 | 14.88 |
| 1513.70 | 15.54 |
| 1513.70 | 16.20 |
| 1513.71 | 16.62 |

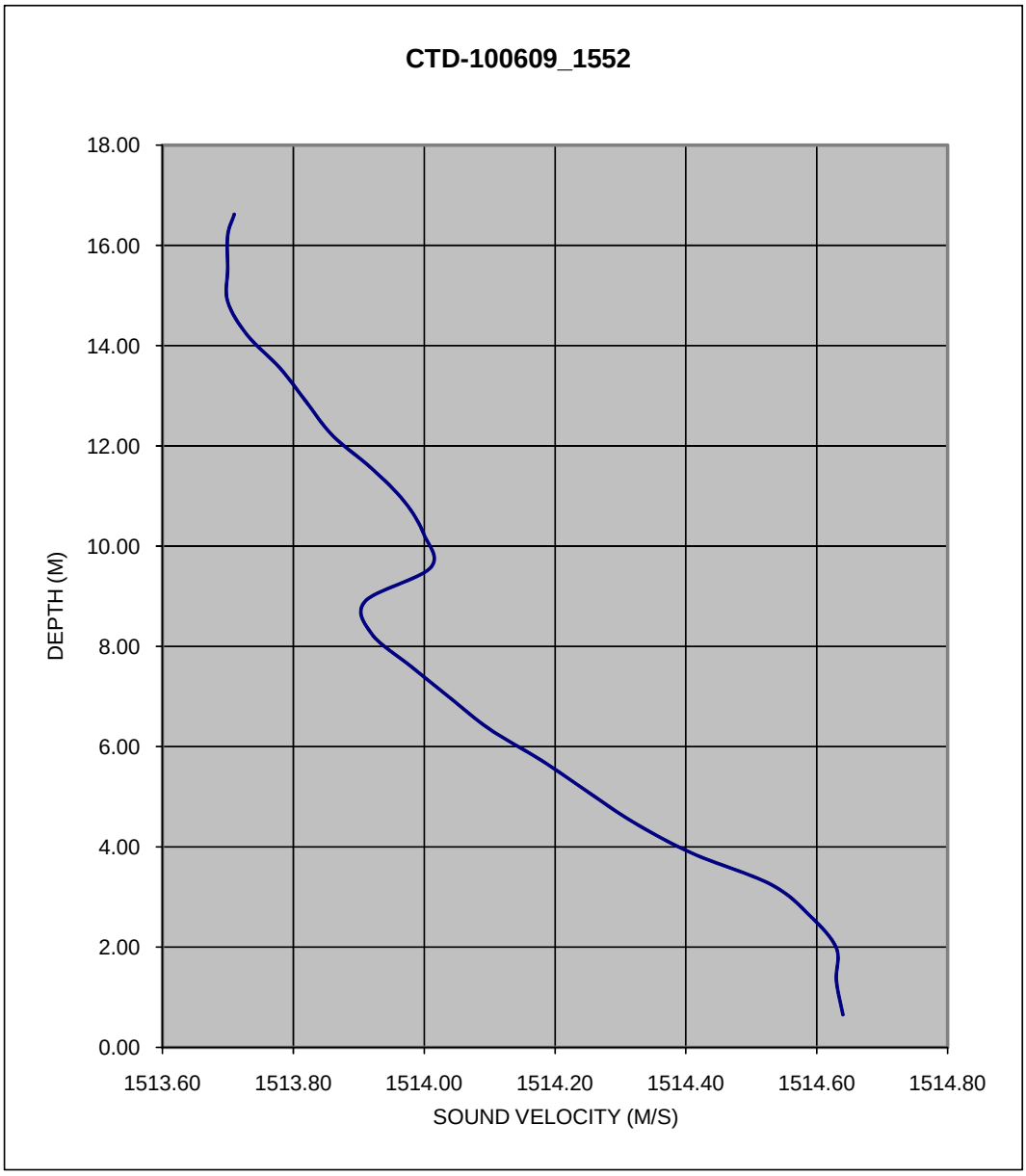


**Figure 3.2-19**
SVP 10/06/09_1707 taken during the Fall 2009 multibeam survey at the HARS

**CTD PROFILE # 100609_1707**

| Date | Time | NAD83 NY LI (Feet) | | Water Depth | Latitude | Longitude |
|---|---|---|---|---|---|---|
| | | Easting | Northing | Feet | N | W |
| 10/06/09 | 17:07 | 1026192 | 76849 | 52 | 40.37750590 | 73.84946629 |

| | |
|---|---|
| 1514.08 | 0.05 |
| 1514.03 | 0.77 |
| 1514.03 | 1.51 |
| 1514.04 | 2.23 |
| 1514.03 | 2.88 |
| 1513.96 | 3.47 |
| 1513.90 | 4.05 |
| 1513.88 | 4.60 |
| 1513.83 | 5.16 |
| 1513.76 | 5.75 |
| 1513.76 | 6.33 |
| 1513.81 | 6.88 |
| 1513.89 | 7.45 |
| 1514.01 | 8.05 |
| 1514.02 | 8.62 |
| 1513.90 | 9.20 |
| 1513.82 | 9.82 |
| 1513.74 | 10.40 |
| 1513.65 | 10.99 |
| 1513.57 | 11.61 |
| 1513.53 | 12.26 |
| 1513.52 | 12.89 |
| 1513.51 | 13.52 |
| 1513.59 | 14.16 |
| 1513.56 | 14.82 |
| 1513.49 | 15.45 |
| 1513.48 | 15.77 |

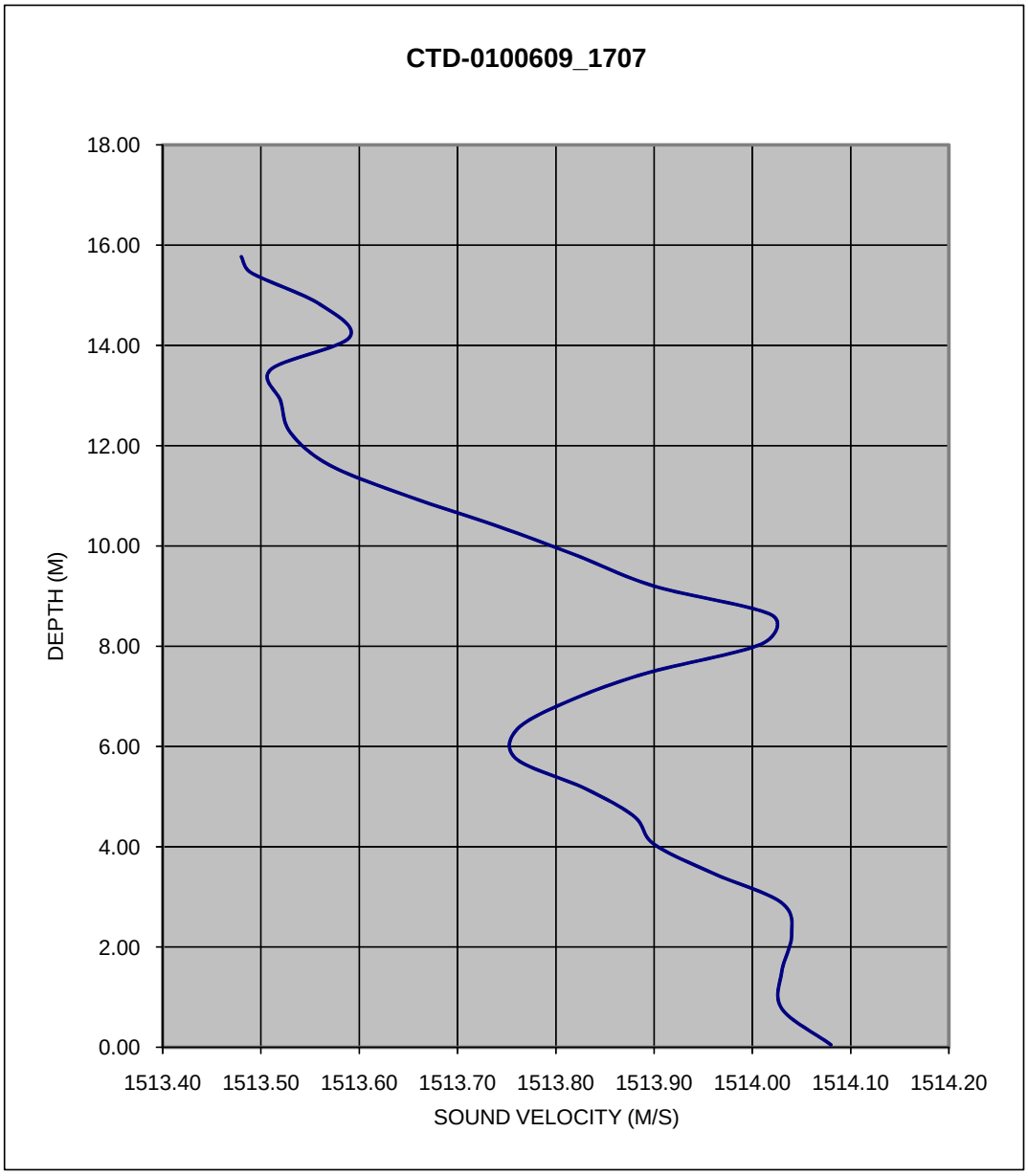


**Figure 3.2-20**
SVP 10/21/09_0855 taken during the Fall 2009 multibeam survey at the HARS

**CTD PROFILE # 102109_0855**

| Date | Time | NAD83 NY LI (Feet) | | Water Depth | Latitude | Longitude |
|---|---|---|---|---|---|---|
| | | Easting | Northing | Feet | N | W |
| 10/21/09 | 8:55 | 1026482 | 77317 | 53 | 40.37878911 | 73.84842255 |

| | |
|---|---|
| 1501.24 | 0.09 |
| 1501.44 | 0.91 |
| 1502.26 | 1.79 |
| 1502.70 | 2.69 |
| 1503.36 | 3.57 |
| 1504.11 | 4.43 |
| 1505.01 | 5.27 |
| 1505.57 | 6.07 |
| 1505.84 | 6.83 |
| 1505.94 | 7.55 |
| 1505.98 | 8.27 |
| 1505.99 | 8.97 |
| 1506.00 | 9.71 |
| 1506.00 | 10.43 |
| 1506.00 | 11.16 |
| 1506.02 | 11.86 |
| 1506.02 | 12.58 |
| 1506.01 | 13.29 |
| 1506.01 | 14.02 |
| 1506.01 | 14.75 |
| 1506.02 | 15.49 |
| 1505.99 | 15.93 |
| 1505.96 | 16.05 |
| 1505.93 | 16.10 |
| 1505.90 | 16.15 |

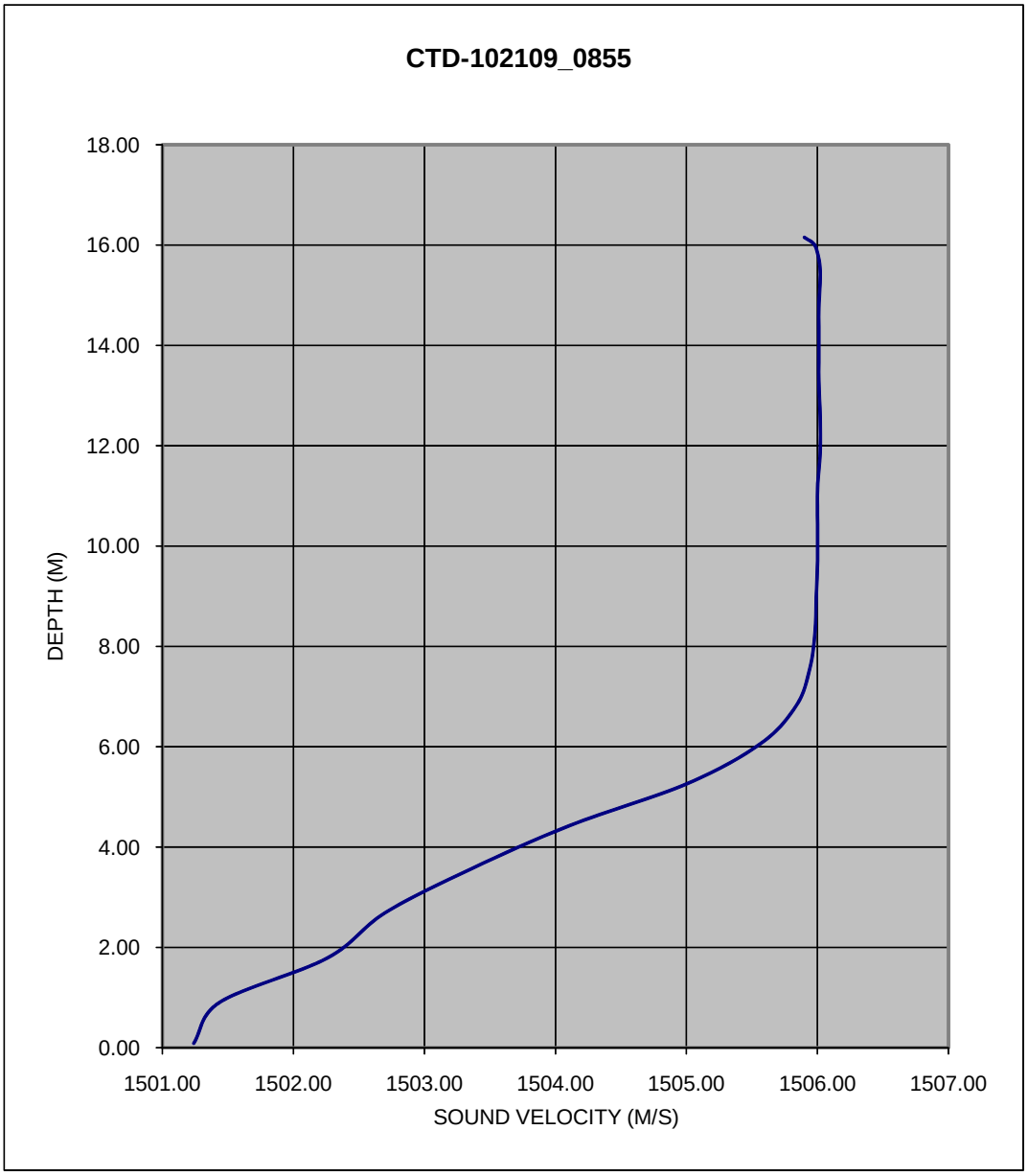


**Figure 3.2-21**
SVP 10/21/09_1057 taken during the Fall 2009 multibeam survey at the HARS

**CTD PROFILE # 102109_1057**

| Date | Time | NAD83 NY LI (Feet) | | Water Depth | Latitude | Longitude |
|---|---|---|---|---|---|---|
| | | Easting | Northing | Feet | N | W |
| 10/21/09 | 10:57 | 1024051 | 68813 | 80 | 40.35545826 | 73.85719754 |

| | |
|---|---|
| 1505.68 | 0.11 |
| 1505.42 | 0.71 |
| 1505.30 | 1.41 |
| 1505.29 | 2.13 |
| 1505.37 | 2.85 |
| 1505.59 | 3.58 |
| 1505.76 | 4.30 |
| 1505.88 | 5.00 |
| 1506.00 | 5.69 |
| 1506.07 | 6.36 |
| 1506.11 | 7.02 |
| 1506.12 | 7.69 |
| 1506.13 | 8.38 |
| 1506.14 | 9.06 |
| 1506.14 | 9.76 |
| 1506.12 | 10.46 |
| 1506.09 | 11.15 |
| 1506.04 | 11.84 |
| 1505.98 | 12.53 |
| 1505.91 | 13.22 |
| 1505.88 | 13.90 |
| 1505.87 | 14.59 |
| 1505.88 | 15.28 |
| 1505.89 | 15.97 |
| 1505.90 | 16.65 |
| 1505.91 | 17.33 |
| 1505.92 | 18.02 |
| 1505.93 | 18.70 |
| 1505.94 | 19.39 |
| 1505.95 | 20.08 |
| 1505.96 | 20.78 |
| 1505.98 | 21.48 |
| 1506.02 | 22.18 |
| 1506.05 | 22.88 |
| 1506.07 | 23.60 |
| 1506.09 | 24.19 |

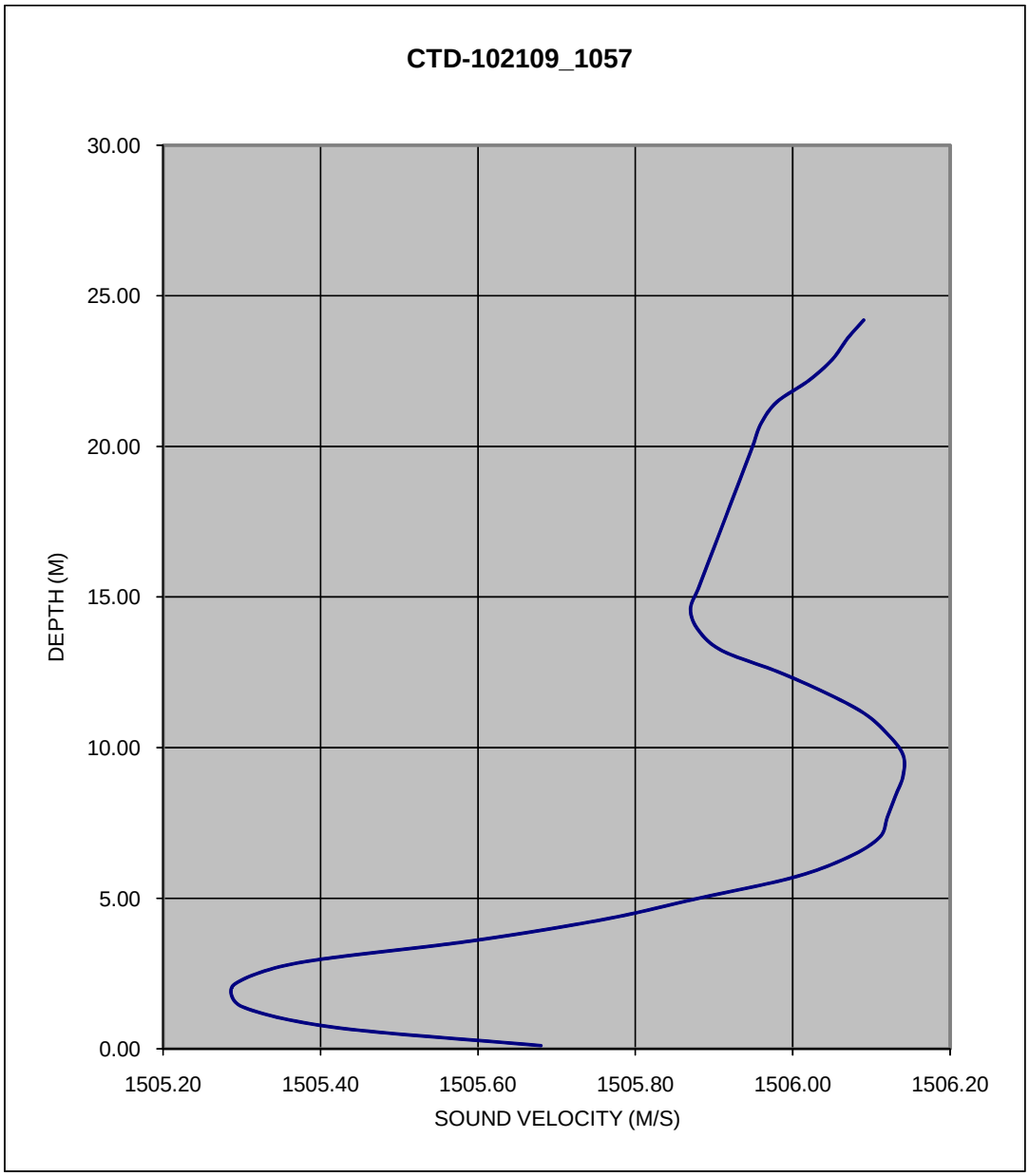


**Figure 3.2-22**
SVP 10/21/09_1232 taken during the Fall 2009 multibeam survey at the HARS

**CTD PROFILE # 102109_1232**

| Date | Time | NAD83 NY LI (Feet) | | Water Depth | Latitude | Longitude |
|---|---|---|---|---|---|---|
| | | Easting | Northing | Feet | N | W |
| 10/21/09 | 12:32 | 1029983 | 86688 | 92 | 40.40449360 | 73.83579387 |

| | |
|---|---|
| 1501.12 | 0.30 |
| 1500.80 | 1.01 |
| 1501.00 | 1.80 |
| 1501.18 | 2.67 |
| 1501.84 | 3.56 |
| 1502.56 | 4.41 |
| 1502.69 | 5.24 |
| 1502.70 | 6.05 |
| 1502.67 | 6.84 |
| 1502.66 | 7.53 |
| 1502.84 | 8.21 |
| 1503.00 | 8.87 |
| 1503.11 | 9.49 |
| 1503.18 | 10.12 |
| 1503.25 | 10.78 |
| 1503.36 | 11.47 |
| 1503.71 | 12.16 |
| 1504.02 | 12.80 |
| 1504.18 | 13.48 |
| 1504.25 | 14.18 |
| 1504.28 | 14.86 |
| 1504.29 | 15.57 |
| 1504.31 | 16.28 |
| 1504.33 | 16.96 |
| 1504.34 | 17.65 |
| 1504.34 | 18.33 |
| 1504.34 | 19.03 |
| 1504.34 | 19.74 |
| 1504.35 | 20.42 |
| 1504.35 | 21.10 |
| 1504.36 | 21.78 |
| 1504.36 | 22.47 |
| 1504.36 | 23.16 |
| 1504.37 | 23.88 |
| 1504.35 | 24.56 |
| 1504.34 | 25.25 |
| 1504.35 | 25.94 |
| 1504.37 | 26.62 |
| 1504.37 | 27.30 |
| 1504.37 | 27.91 |
| 1504.39 | 28.08 |

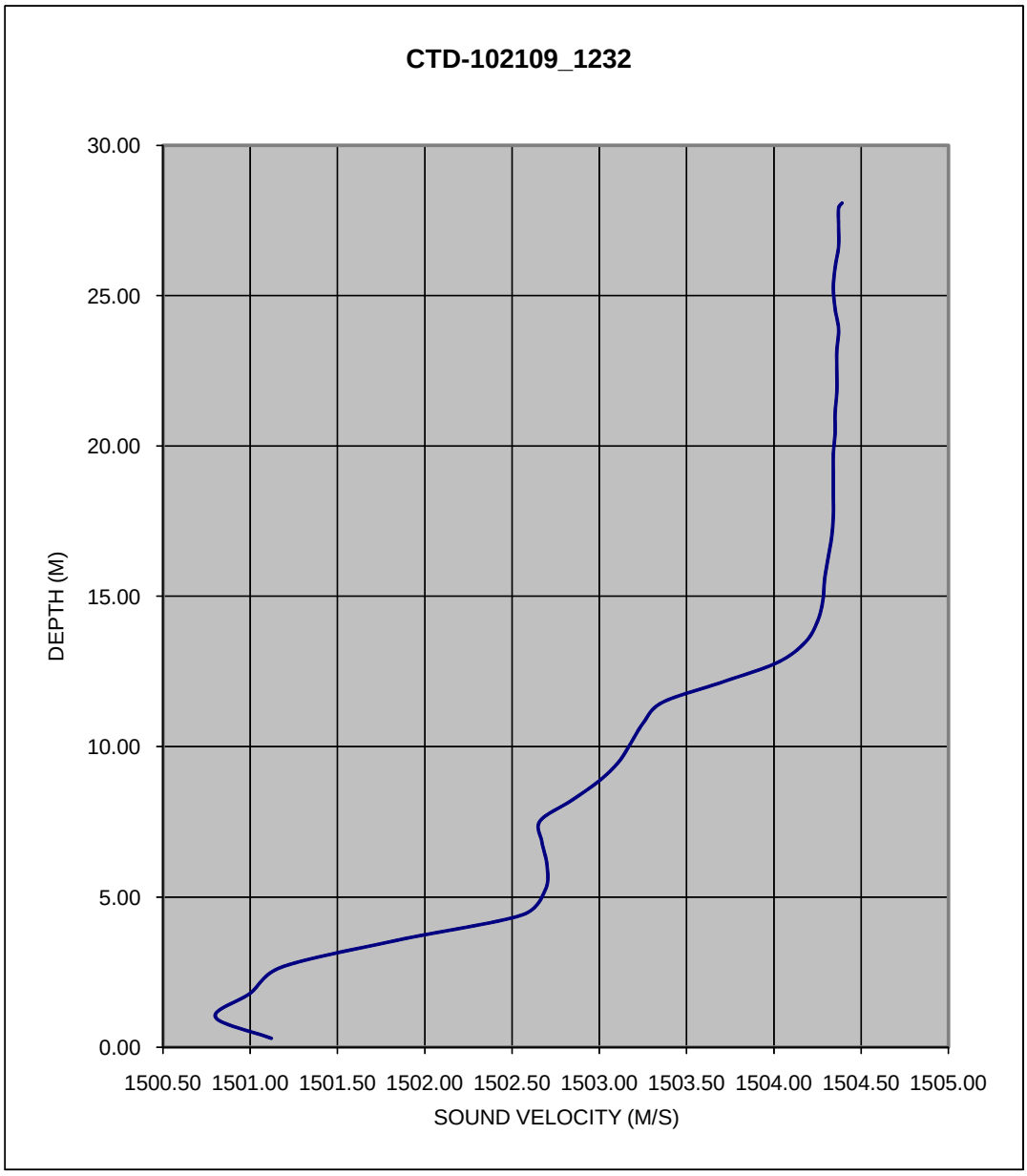


**Figure 3.2-23**
SVP 10/21/09_1410 taken during the Fall 2009 multibeam survey at the HARS

**CTD PROFILE # 102109_1410**

| Date | Time | NAD83 NY LI (Feet) | | Water Depth | Latitude | Longitude |
|---|---|---|---|---|---|---|
| | | Easting | Northing | Feet | N | W |
| 10/21/09 | 14:10 | 1029000 | 77180 | 64 | 40.37840076 | 73.83938596 |

| | |
|---|---|
| 1503.33 | 0.53 |
| 1503.03 | 1.32 |
| 1503.13 | 2.07 |
| 1503.42 | 2.77 |
| 1503.59 | 3.39 |
| 1503.70 | 3.98 |
| 1503.78 | 4.52 |
| 1504.21 | 5.08 |
| 1504.92 | 5.64 |
| 1505.36 | 6.21 |
| 1505.63 | 6.80 |
| 1505.82 | 7.39 |
| 1506.01 | 7.97 |
| 1506.20 | 8.54 |
| 1506.31 | 9.10 |
| 1506.32 | 9.66 |
| 1506.27 | 10.22 |
| 1506.24 | 10.77 |
| 1506.23 | 11.35 |
| 1506.22 | 11.93 |
| 1506.23 | 12.52 |
| 1506.24 | 13.11 |
| 1506.25 | 13.70 |
| 1506.26 | 14.32 |
| 1506.27 | 14.94 |
| 1506.29 | 15.56 |
| 1506.31 | 16.19 |
| 1506.33 | 16.81 |
| 1506.34 | 17.43 |
| 1506.36 | 18.06 |
| 1506.37 | 18.68 |
| 1506.39 | 19.30 |
| 1506.43 | 19.57 |

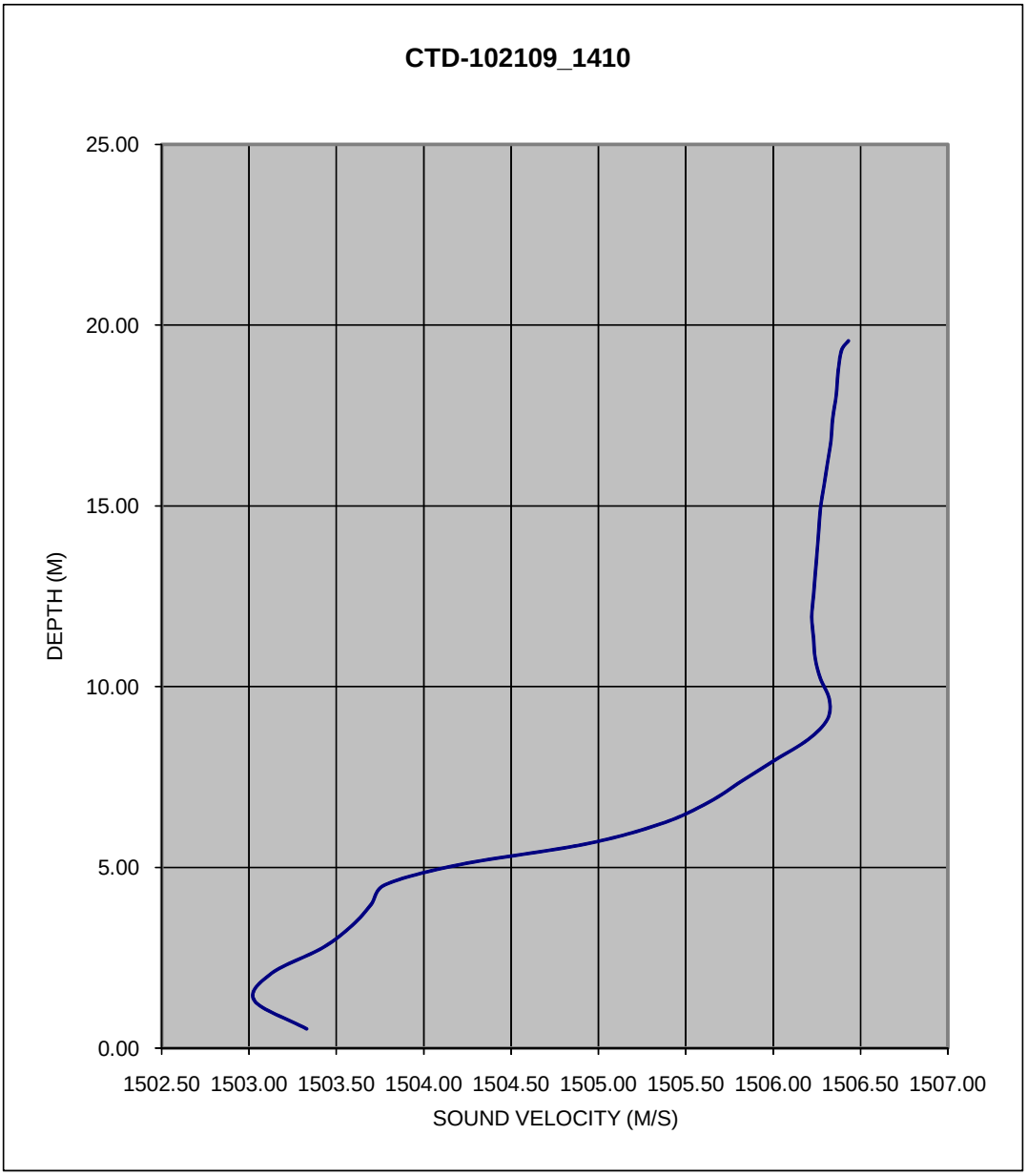


**Figure 3.2-24**
SVP 10/21/09_1625 taken during the Fall 2009 multibeam survey at the HARS

**CTD PROFILE # 102109_1625**

| Date | Time | NAD83 NY LI (Feet) | | Water Depth | Latitude | Longitude |
|---|---|---|---|---|---|---|
| | | Easting | Northing | Feet | N | W |
| 10/21/09 | 16:25 | 1027917 | 77278 | 53 | 40.37867513 | 73.84327236 |

| | |
|---|---|
| 1503.64 | 0.54 |
| 1502.92 | 1.28 |
| 1502.42 | 2.00 |
| 1502.10 | 2.68 |
| 1501.94 | 3.33 |
| 1501.91 | 3.98 |
| 1501.92 | 4.63 |
| 1502.03 | 5.29 |
| 1502.46 | 5.94 |
| 1502.88 | 6.63 |
| 1503.53 | 7.31 |
| 1504.24 | 8.02 |
| 1504.87 | 8.73 |
| 1505.45 | 9.44 |
| 1505.80 | 10.15 |
| 1505.96 | 10.86 |
| 1506.01 | 11.58 |
| 1506.02 | 12.31 |
| 1506.04 | 13.03 |
| 1506.06 | 13.76 |
| 1506.08 | 14.46 |
| 1506.09 | 15.17 |
| 1506.11 | 15.84 |
| 1506.17 | 16.12 |

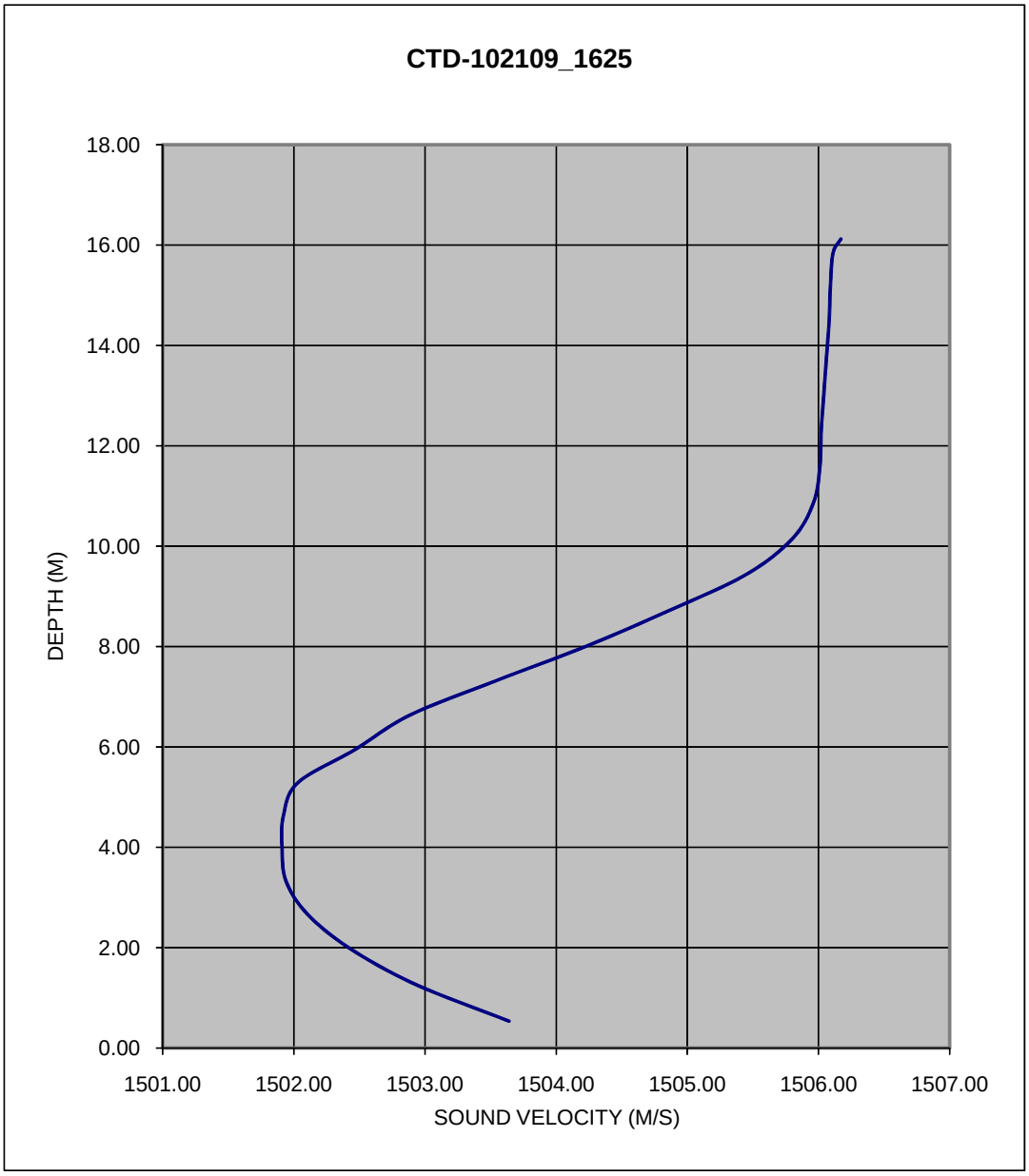


**Figure 3.2-25**
SVP 10/21/09_1801 taken during the Fall 2009 multibeam survey at the HARS

**CTD PROFILE # 102109_1801**

| Date | Time | NAD83 NY LI (Feet) | | Water Depth | Latitude | Longitude |
|---|---|---|---|---|---|---|
| | | Easting | Northing | Feet | N | W |
| 10/21/09 | 18:01 | 1026167 | 86339 | 61 | 40.40355447 | 73.84949749 |

| | |
|---|---|
| 1501.63 | 0.35 |
| 1501.43 | 1.07 |
| 1501.28 | 1.74 |
| 1501.21 | 2.37 |
| 1501.31 | 3.01 |
| 1501.39 | 3.65 |
| 1501.39 | 4.29 |
| 1501.37 | 4.92 |
| 1501.35 | 5.55 |
| 1501.29 | 6.18 |
| 1501.23 | 6.84 |
| 1501.27 | 7.55 |
| 1501.43 | 8.20 |
| 1501.66 | 8.82 |
| 1502.47 | 9.51 |
| 1503.44 | 10.21 |
| 1503.87 | 10.93 |
| 1504.05 | 11.67 |
| 1504.13 | 12.38 |
| 1504.18 | 13.07 |
| 1504.21 | 13.77 |
| 1504.24 | 14.49 |
| 1504.26 | 15.20 |
| 1504.27 | 15.89 |
| 1504.28 | 16.58 |
| 1504.30 | 17.32 |
| 1504.31 | 18.08 |
| 1504.38 | 18.43 |

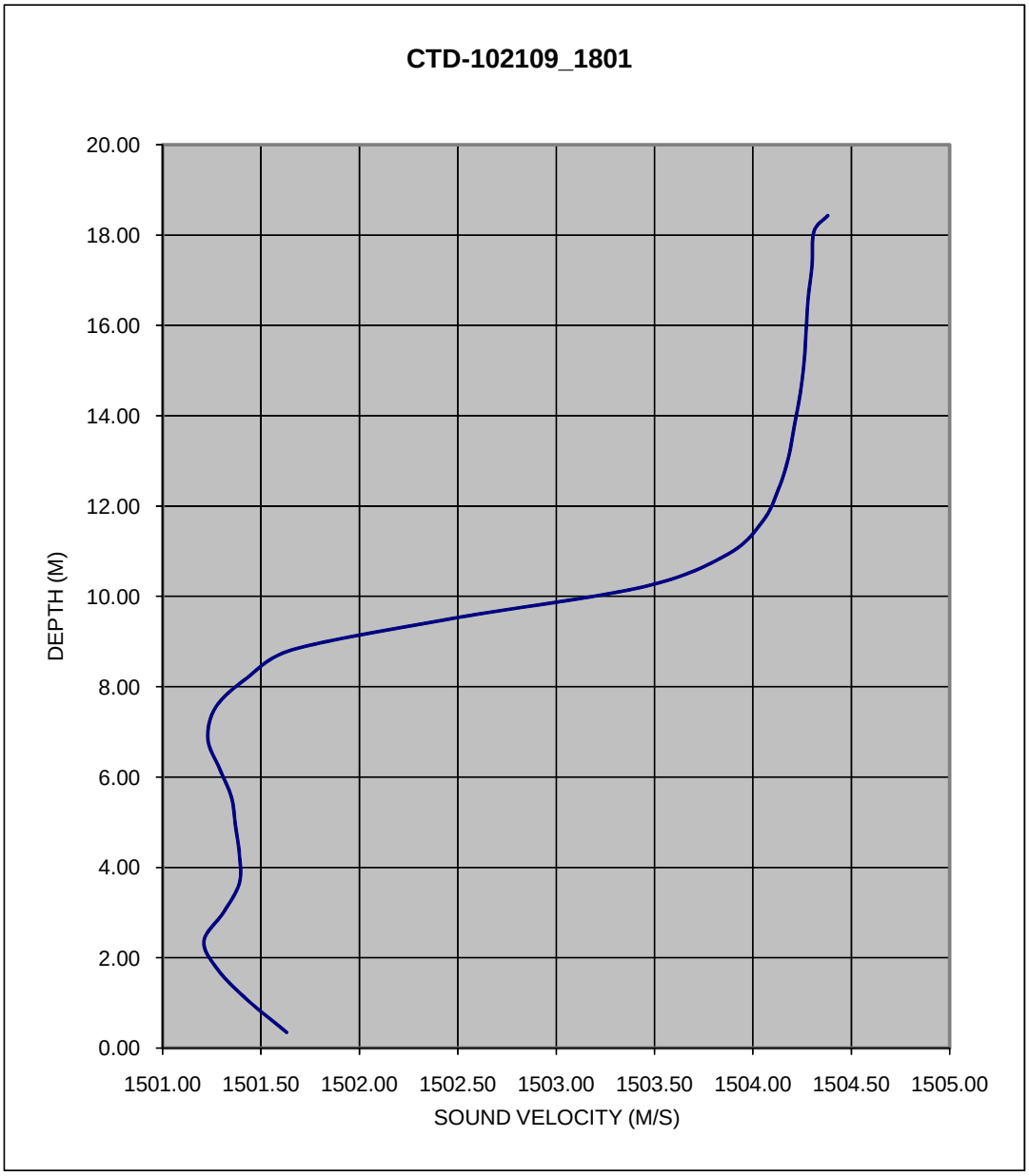


**Figure 3.2-26**
SVP 10/22/09_0901 taken during the Fall 2009 multibeam survey at the HARS

**CTD PROFILE # 102209_0901**

| Date | Time | NAD83 NY LI (Feet) | | Water Depth | Latitude | Longitude |
|---|---|---|---|---|---|---|
| | | Easting | Northing | Feet | N | W |
| 10/22/09 | 9:01 | 1024264 | 86711 | 58 | 40.40458432 | 73.85632799 |

| | |
|---|---|
| 1496.85 | 0.73 |
| 1496.80 | 1.50 |
| 1496.95 | 2.20 |
| 1497.99 | 2.88 |
| 1499.03 | 3.54 |
| 1498.84 | 4.16 |
| 1499.03 | 4.75 |
| 1499.18 | 5.35 |
| 1499.25 | 5.96 |
| 1499.36 | 6.56 |
| 1499.72 | 7.18 |
| 1500.22 | 7.79 |
| 1500.62 | 8.41 |
| 1501.34 | 9.04 |
| 1502.17 | 9.67 |
| 1502.80 | 10.31 |
| 1503.15 | 10.95 |
| 1503.50 | 11.61 |
| 1503.90 | 12.30 |
| 1504.20 | 12.97 |
| 1504.47 | 13.64 |
| 1504.70 | 14.31 |
| 1504.85 | 15.00 |
| 1504.93 | 15.68 |
| 1504.98 | 16.36 |
| 1505.02 | 17.03 |
| 1505.01 | 17.50 |

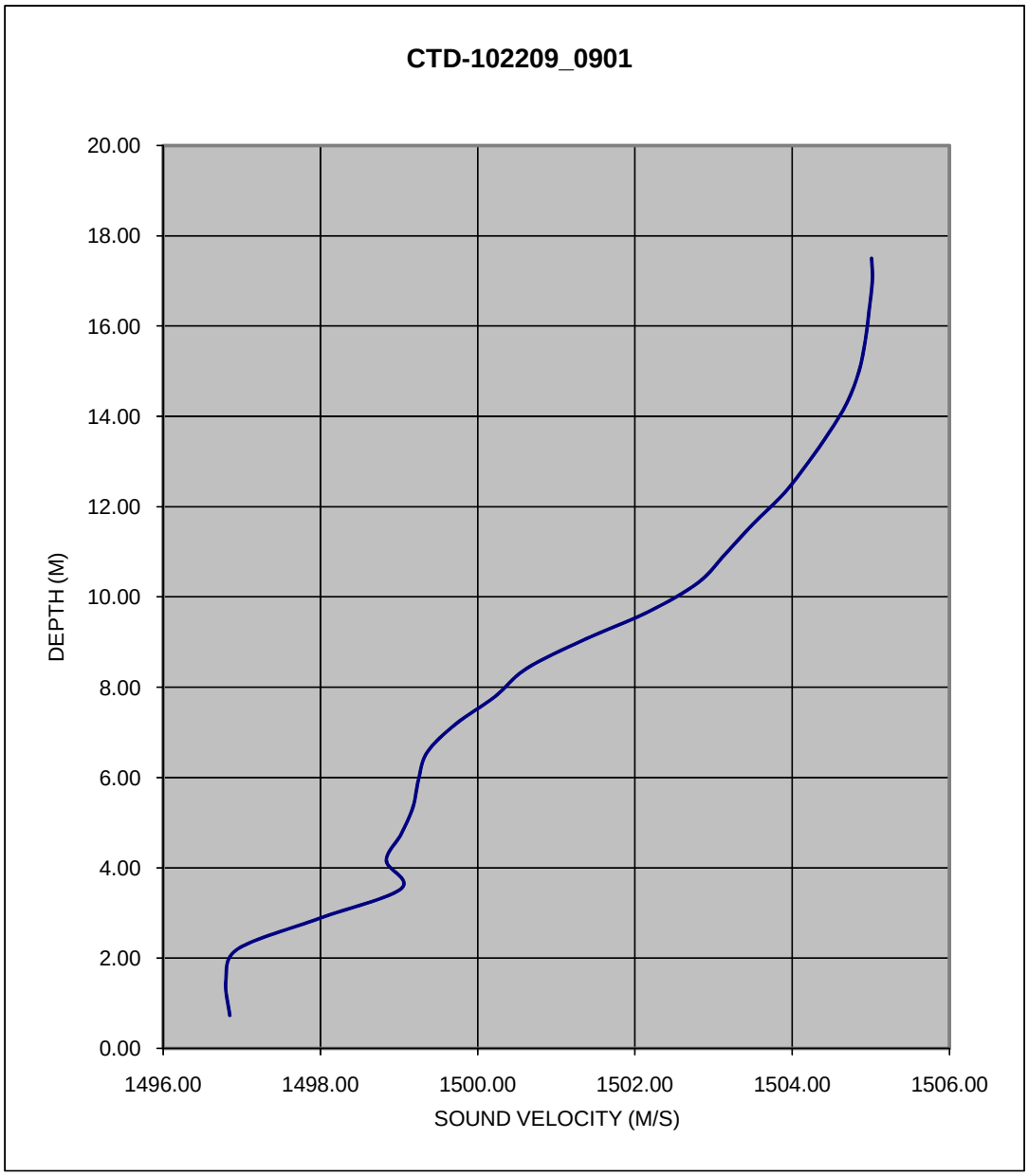


**Figure 3.2-27**
SVP 10/22/09_1109 taken during the Fall 2009 multibeam survey at the HARS

**CTD PROFILE # 102209_1109**

| Date | Time | NAD83 NY LI (Feet) | | Water Depth | Latitude | Longitude |
|---|---|---|---|---|---|---|
| | | Easting | Northing | Feet | N | W |
| 10/22/09 | 11:09 | 1025152 | 77102 | 63 | 40.37820519 | 73.85319741 |

| | |
|---|---|
| 1501.75 | 0.04 |
| 1501.52 | 0.74 |
| 1501.71 | 1.47 |
| 1502.30 | 2.18 |
| 1502.56 | 2.86 |
| 1502.71 | 3.52 |
| 1502.82 | 4.18 |
| 1502.89 | 4.85 |
| 1503.04 | 5.52 |
| 1503.23 | 6.18 |
| 1503.40 | 6.84 |
| 1503.59 | 7.51 |
| 1503.76 | 8.17 |
| 1503.89 | 8.85 |
| 1504.05 | 9.54 |
| 1504.19 | 10.24 |
| 1504.32 | 10.93 |
| 1504.71 | 11.60 |
| 1505.21 | 12.27 |
| 1505.50 | 12.92 |
| 1505.71 | 13.57 |
| 1505.92 | 14.24 |
| 1506.07 | 14.92 |
| 1506.17 | 15.58 |
| 1506.23 | 16.22 |
| 1506.27 | 16.86 |
| 1506.38 | 17.50 |
| 1506.45 | 18.11 |
| 1506.49 | 18.70 |
| 1506.51 | 19.19 |
| 1506.53 | 19.28 |

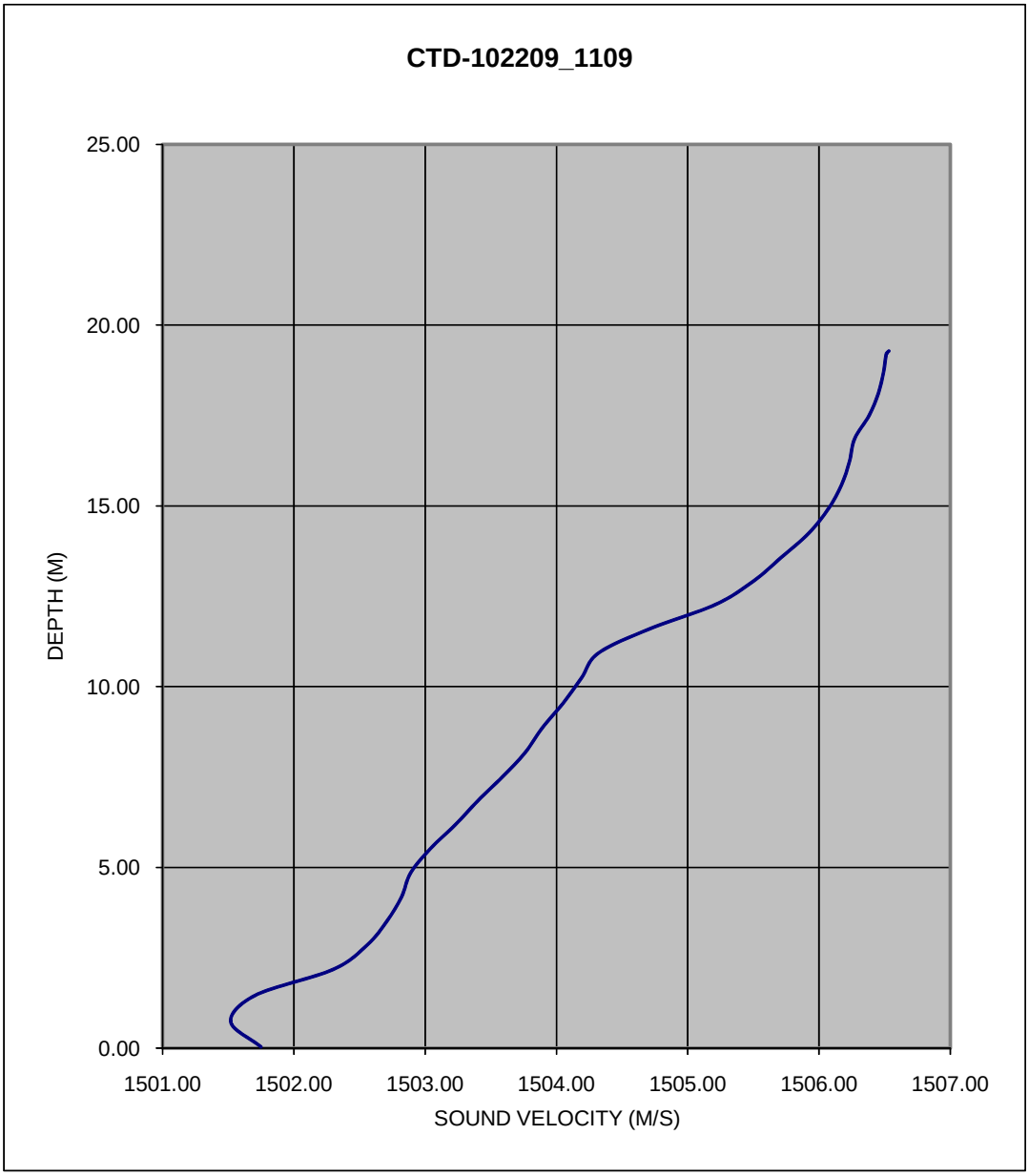


**Figure 3.2-28**
SVP 10/22/09_1216 taken during the Fall 2009 multibeam survey at the HARS

**CTD PROFILE # 102209_1216**

| Date | Time | NAD83 NY LI (Feet) | | Water Depth | Latitude | Longitude |
|---|---|---|---|---|---|---|
| | | Easting | Northing | Feet | N | W |
| 10/22/09 | 12:16 | 1025630 | 86614 | 59 | 40.40431182 | 73.85142391 |

| | |
|---|---|
| 1497.28 | 0.42 |
| 1497.13 | 1.22 |
| 1497.00 | 2.01 |
| 1496.89 | 2.75 |
| 1496.85 | 3.48 |
| 1496.96 | 4.22 |
| 1497.39 | 4.95 |
| 1498.54 | 5.68 |
| 1500.13 | 6.40 |
| 1501.51 | 7.11 |
| 1502.08 | 7.84 |
| 1502.42 | 8.58 |
| 1502.71 | 9.29 |
| 1502.87 | 10.04 |
| 1502.90 | 10.75 |
| 1502.91 | 11.45 |
| 1502.96 | 12.15 |
| 1503.08 | 12.86 |
| 1503.43 | 13.56 |
| 1504.20 | 14.29 |
| 1504.74 | 15.04 |
| 1505.03 | 15.75 |
| 1505.17 | 16.47 |
| 1505.27 | 17.21 |
| 1505.33 | 17.76 |
| 1505.35 | 17.84 |

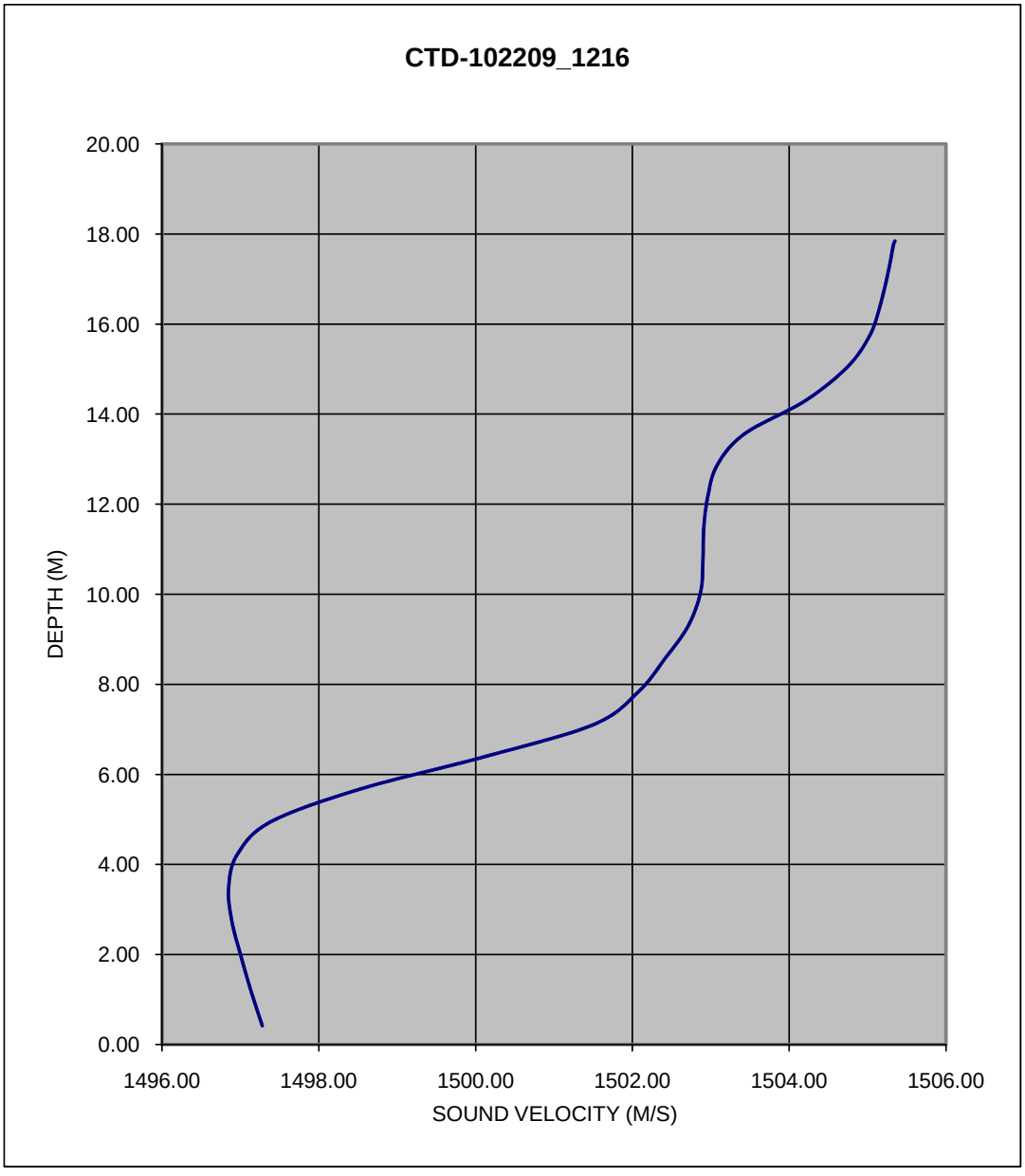


**Figure 3.2-29**
SVP 10/22/09_1421 taken during the Fall 2009 multibeam survey at the HARS

**CTD PROFILE # 102209_1421**

| Date | Time | NAD83 NY LI (Feet) | | Water Depth | Latitude | Longitude |
|---|---|---|---|---|---|---|
| | | Easting | Northing | Feet | N | W |
| 10/22/09 | 14:21 | 1026782 | 82645 | 60 | 40.39341215 | 73.84731247 |

| | |
|---|---|
| 1498.91 | 0.05 |
| 1498.37 | 0.82 |
| 1498.14 | 1.55 |
| 1498.10 | 2.23 |
| 1498.56 | 2.90 |
| 1499.19 | 3.55 |
| 1499.63 | 4.16 |
| 1500.01 | 4.73 |
| 1500.36 | 5.25 |
| 1500.85 | 5.79 |
| 1501.52 | 6.33 |
| 1502.14 | 6.90 |
| 1502.35 | 7.50 |
| 1502.44 | 8.11 |
| 1502.52 | 8.68 |
| 1502.69 | 9.28 |
| 1503.10 | 9.89 |
| 1503.63 | 10.50 |
| 1504.12 | 11.11 |
| 1504.50 | 11.71 |
| 1504.75 | 12.30 |
| 1504.89 | 12.88 |
| 1504.96 | 13.48 |
| 1505.02 | 14.11 |
| 1505.04 | 14.73 |
| 1505.06 | 15.36 |
| 1505.08 | 16.00 |
| 1505.09 | 16.62 |
| 1505.10 | 17.23 |
| 1505.12 | 17.85 |
| 1505.16 | 18.13 |

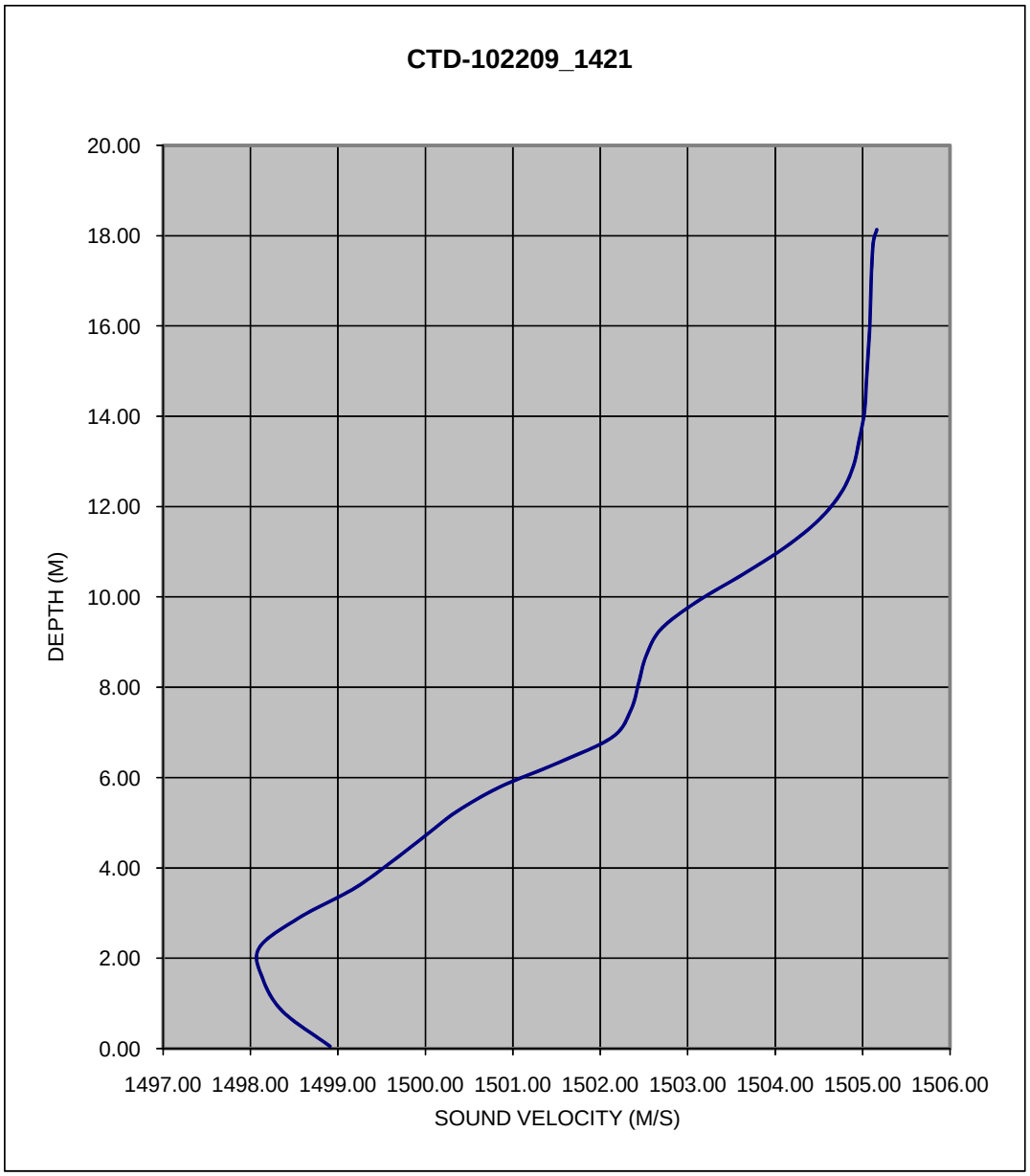


**Figure 3.2-30**
SVP 11/04/09_0951 taken during the Fall 2009 multibeam survey at the HARS

**CTD PROFILE # 110409_0951**

| Date | Time | NAD83 NY LI (Feet) | | Water Depth | Latitude | Longitude |
|---|---|---|---|---|---|---|
| | | Easting | Northing | Feet | N | W |
| 11/04/09 | 9:51 | 1027369 | 81771 | 62 | 40.39101034 | 73.84521072 |

| | |
|---|---|
| 1499.70 | 0.59 |
| 1499.76 | 1.25 |
| 1499.78 | 1.88 |
| 1499.80 | 2.60 |
| 1499.84 | 3.33 |
| 1499.88 | 4.04 |
| 1499.94 | 4.89 |
| 1500.07 | 5.78 |
| 1500.20 | 6.57 |
| 1500.39 | 7.33 |
| 1500.60 | 8.07 |
| 1500.78 | 8.77 |
| 1500.96 | 9.52 |
| 1501.46 | 10.26 |
| 1501.82 | 10.96 |
| 1501.95 | 11.67 |
| 1502.02 | 12.37 |
| 1502.14 | 13.08 |
| 1502.25 | 13.78 |
| 1502.37 | 14.49 |
| 1502.47 | 15.21 |
| 1502.57 | 15.91 |
| 1502.65 | 16.56 |
| 1502.70 | 17.23 |
| 1502.74 | 17.91 |
| 1502.77 | 18.56 |
| 1502.76 | 18.83 |

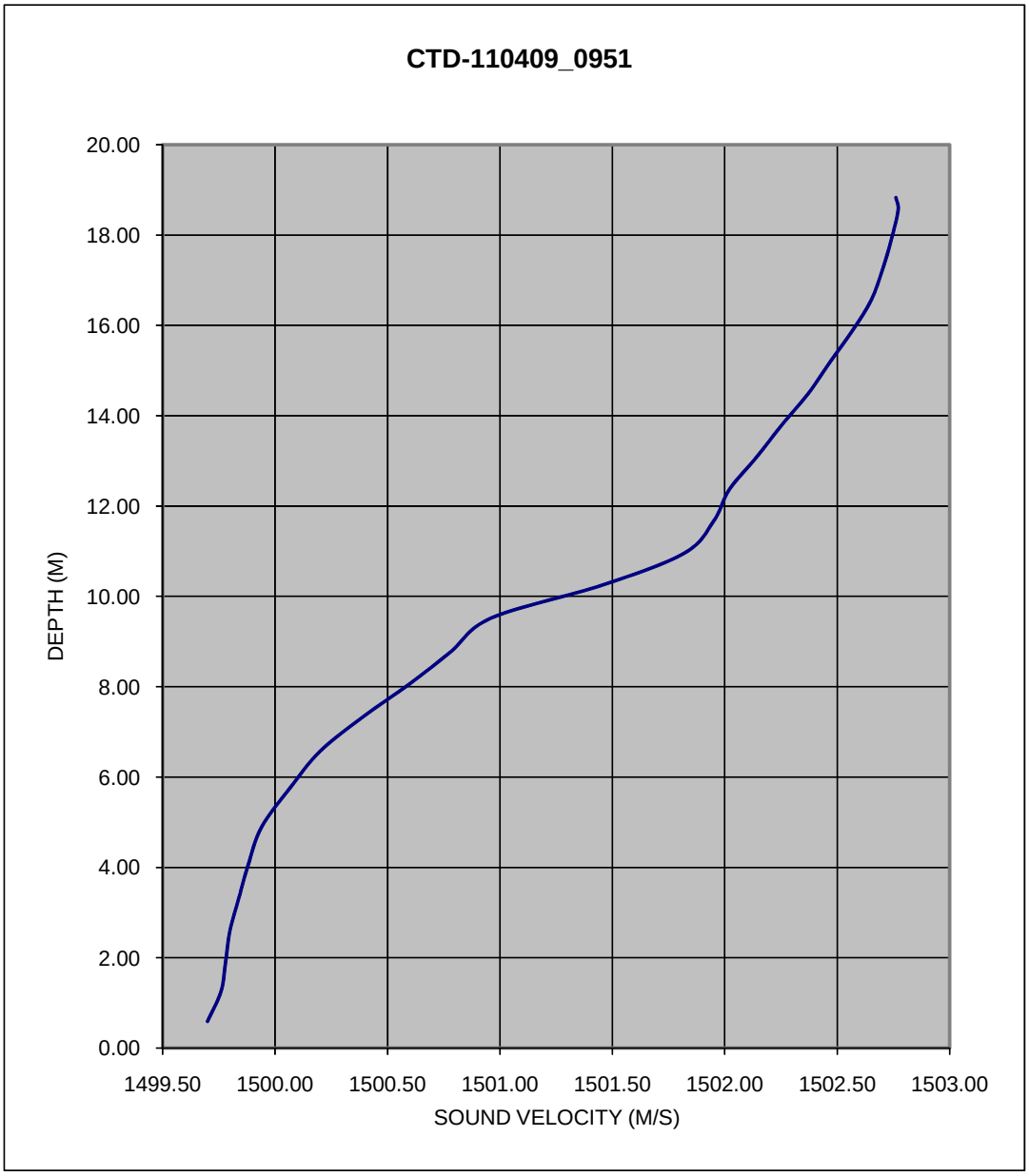


**Figure 3.2-31**
SVP 11/04/09_1114 taken during the Fall 2009 multibeam survey at the HARS

**CTD PROFILE # 110409_1114**

| Date | Time | NAD83 NY LI (Feet) | | Water Depth | Latitude | Longitude |
|---|---|---|---|---|---|---|
| | | Easting | Northing | Feet | N | W |
| 11/04/09 | 11:14 | 1024001 | 67550 | 76 | 40.35199176 | 73.85738431 |

| | |
|---|---|
| 1499.97 | 0.65 |
| 1499.96 | 1.34 |
| 1499.94 | 2.01 |
| 1499.90 | 2.65 |
| 1499.87 | 3.26 |
| 1499.87 | 3.85 |
| 1499.88 | 4.48 |
| 1499.89 | 5.12 |
| 1499.90 | 5.80 |
| 1499.91 | 6.44 |
| 1499.93 | 7.08 |
| 1499.99 | 7.71 |
| 1500.12 | 8.36 |
| 1500.26 | 8.99 |
| 1500.38 | 9.65 |
| 1500.47 | 10.29 |
| 1500.55 | 10.91 |
| 1500.72 | 11.58 |
| 1500.95 | 12.27 |
| 1501.25 | 12.97 |
| 1501.54 | 13.69 |
| 1501.85 | 14.43 |
| 1502.05 | 15.19 |
| 1502.13 | 15.91 |
| 1502.22 | 16.60 |
| 1502.49 | 17.29 |
| 1502.74 | 17.97 |
| 1503.00 | 18.66 |
| 1503.22 | 19.33 |
| 1503.45 | 19.99 |
| 1503.66 | 20.64 |
| 1503.77 | 21.29 |
| 1503.92 | 21.96 |
| 1504.04 | 22.64 |
| 1504.07 | 23.16 |
| 1504.05 | 23.21 |

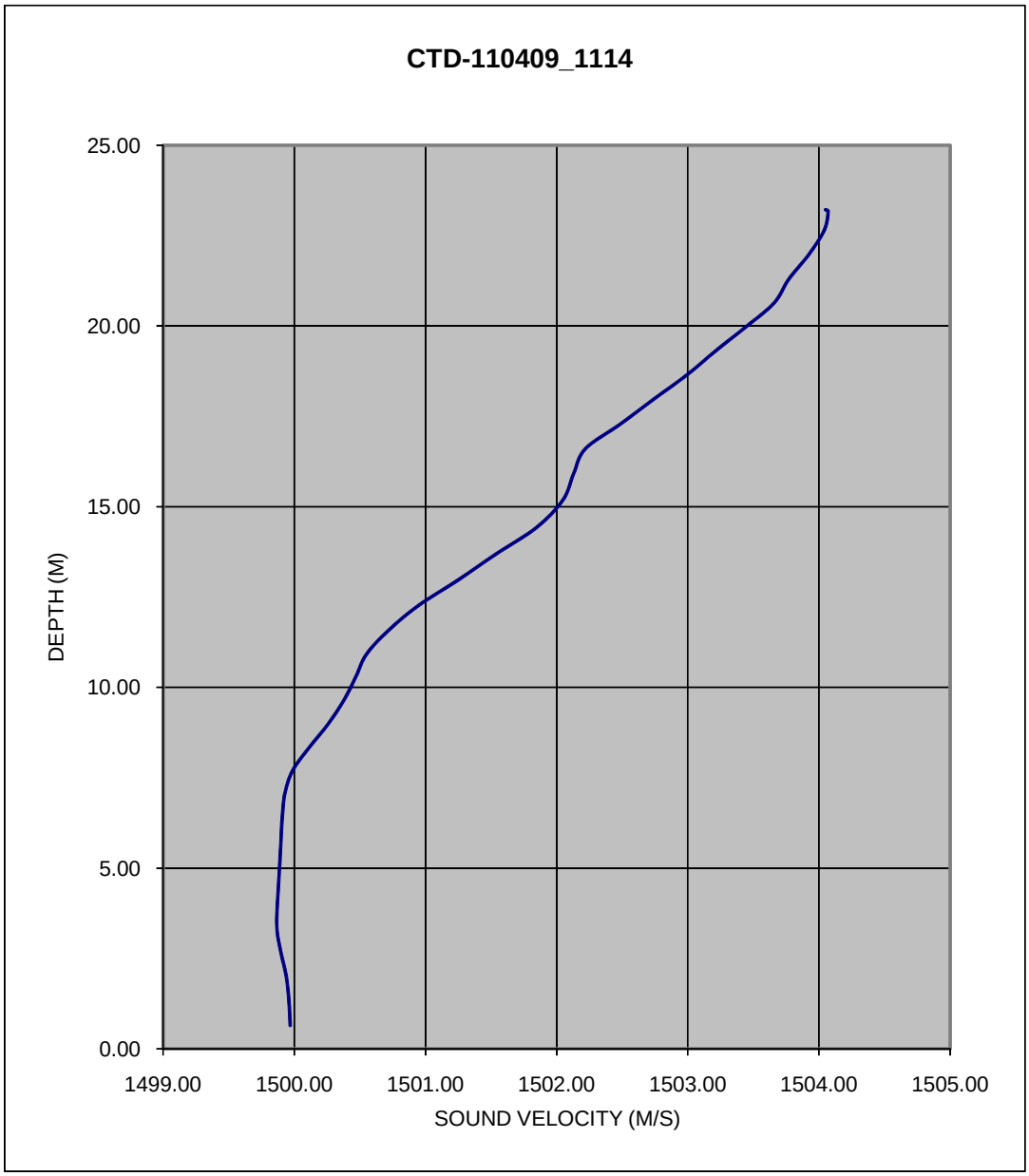


**Figure 3.2-32**
SVP 11/04/09_1308 taken during the Fall 2009 multibeam survey at the HARS

**CTD PROFILE # 110409_1308**

| Date | Time | NAD83 NY LI (Feet) | | Water Depth | Latitude | Longitude |
|---|---|---|---|---|---|---|
| | | Easting | Northing | Feet | N | W |
| 11/04/09 | 13:08 | 1022648 | 77407 | 70 | 40.37905353 | 73.86218286 |

| | |
|---|---|
| 1499.96 | 0.14 |
| 1499.73 | 0.93 |
| 1499.58 | 1.78 |
| 1499.57 | 2.61 |
| 1499.61 | 3.38 |
| 1499.67 | 4.14 |
| 1499.73 | 4.89 |
| 1499.78 | 5.59 |
| 1499.83 | 6.29 |
| 1499.89 | 6.98 |
| 1499.98 | 7.68 |
| 1500.08 | 8.37 |
| 1500.20 | 9.05 |
| 1500.33 | 9.71 |
| 1500.61 | 10.39 |
| 1501.10 | 11.09 |
| 1501.57 | 11.82 |
| 1501.85 | 12.52 |
| 1501.98 | 13.25 |
| 1502.42 | 13.95 |
| 1502.96 | 14.65 |
| 1503.25 | 15.38 |
| 1503.42 | 16.17 |
| 1503.52 | 16.92 |
| 1503.58 | 17.67 |
| 1503.61 | 18.40 |
| 1503.64 | 19.13 |
| 1503.75 | 19.88 |
| 1503.83 | 20.63 |
| 1503.85 | 21.13 |
| 1503.81 | 21.19 |

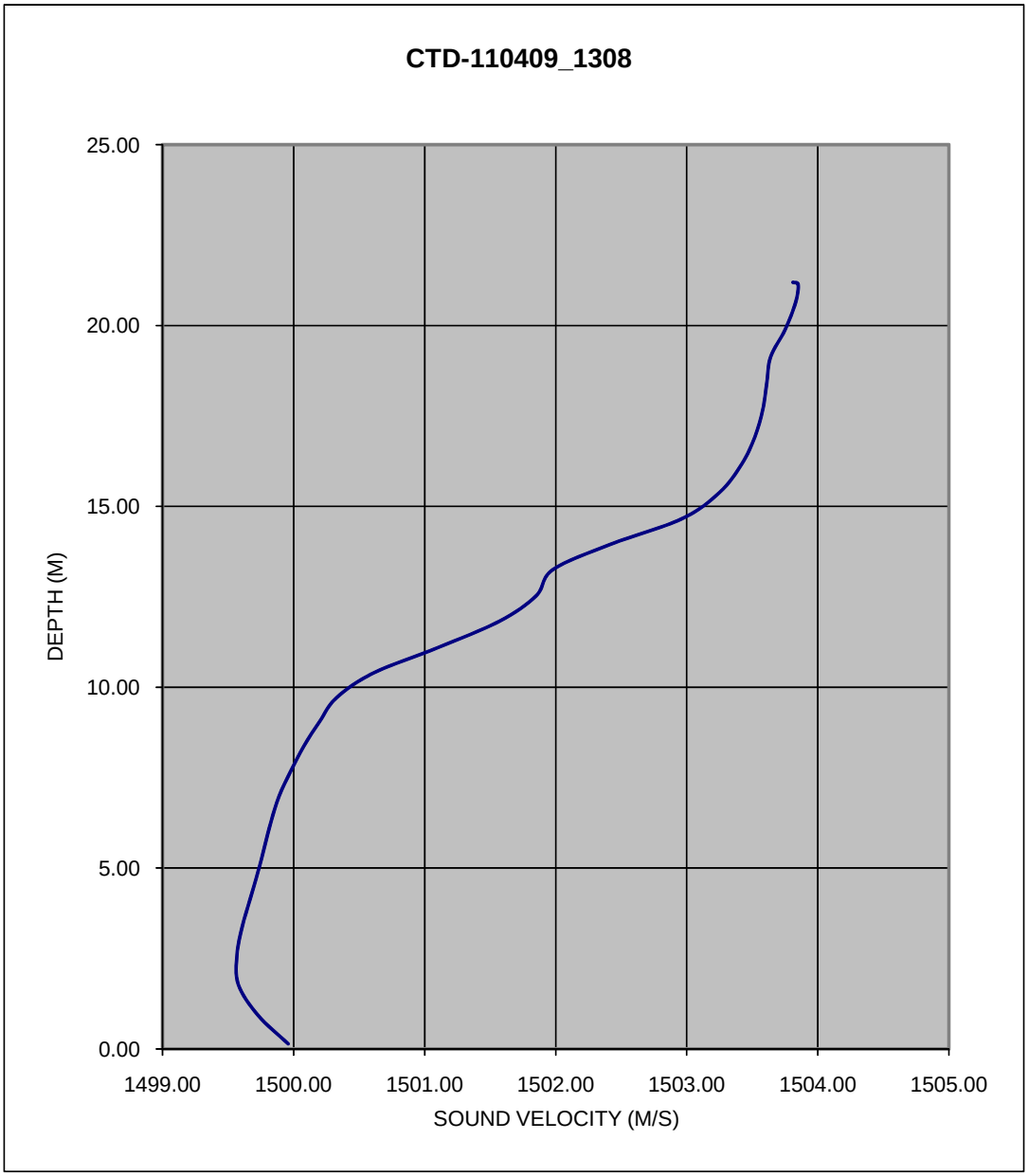


**Figure 3.2-33**
SVP 11/04/09_1446 taken during the Fall 2009 multibeam survey at the HARS

**CTD PROFILE # 110409_1446**

| Date | Time | NAD83 NY LI (Feet) | | Water Depth | Latitude | Longitude |
|---|---|---|---|---|---|---|
| | | Easting | Northing | Feet | N | W |
| 11/04/09 | 14:46 | 1021353 | 67843 | 70 | 40.35280743 | 73.86688300 |

| | |
|---|---|
| 1500.36 | 0.45 |
| 1500.10 | 1.23 |
| 1499.99 | 2.04 |
| 1499.91 | 2.87 |
| 1499.84 | 3.65 |
| 1499.81 | 4.40 |
| 1499.82 | 5.15 |
| 1499.83 | 5.86 |
| 1499.84 | 6.47 |
| 1499.86 | 7.06 |
| 1499.87 | 7.67 |
| 1499.89 | 8.25 |
| 1499.92 | 8.84 |
| 1499.94 | 9.42 |
| 1499.98 | 10.01 |
| 1500.12 | 10.61 |
| 1500.49 | 11.21 |
| 1500.75 | 11.80 |
| 1500.96 | 12.40 |
| 1501.42 | 13.01 |
| 1502.11 | 13.61 |
| 1502.40 | 14.19 |
| 1502.51 | 14.76 |
| 1502.58 | 15.33 |
| 1502.70 | 15.89 |
| 1502.88 | 16.44 |
| 1502.99 | 17.02 |
| 1503.07 | 17.64 |
| 1503.13 | 18.27 |
| 1503.22 | 18.93 |
| 1503.45 | 19.62 |
| 1503.62 | 20.30 |
| 1503.72 | 20.98 |
| 1503.77 | 21.28 |
| 1503.80 | 21.36 |
| 1503.81 | 21.43 |

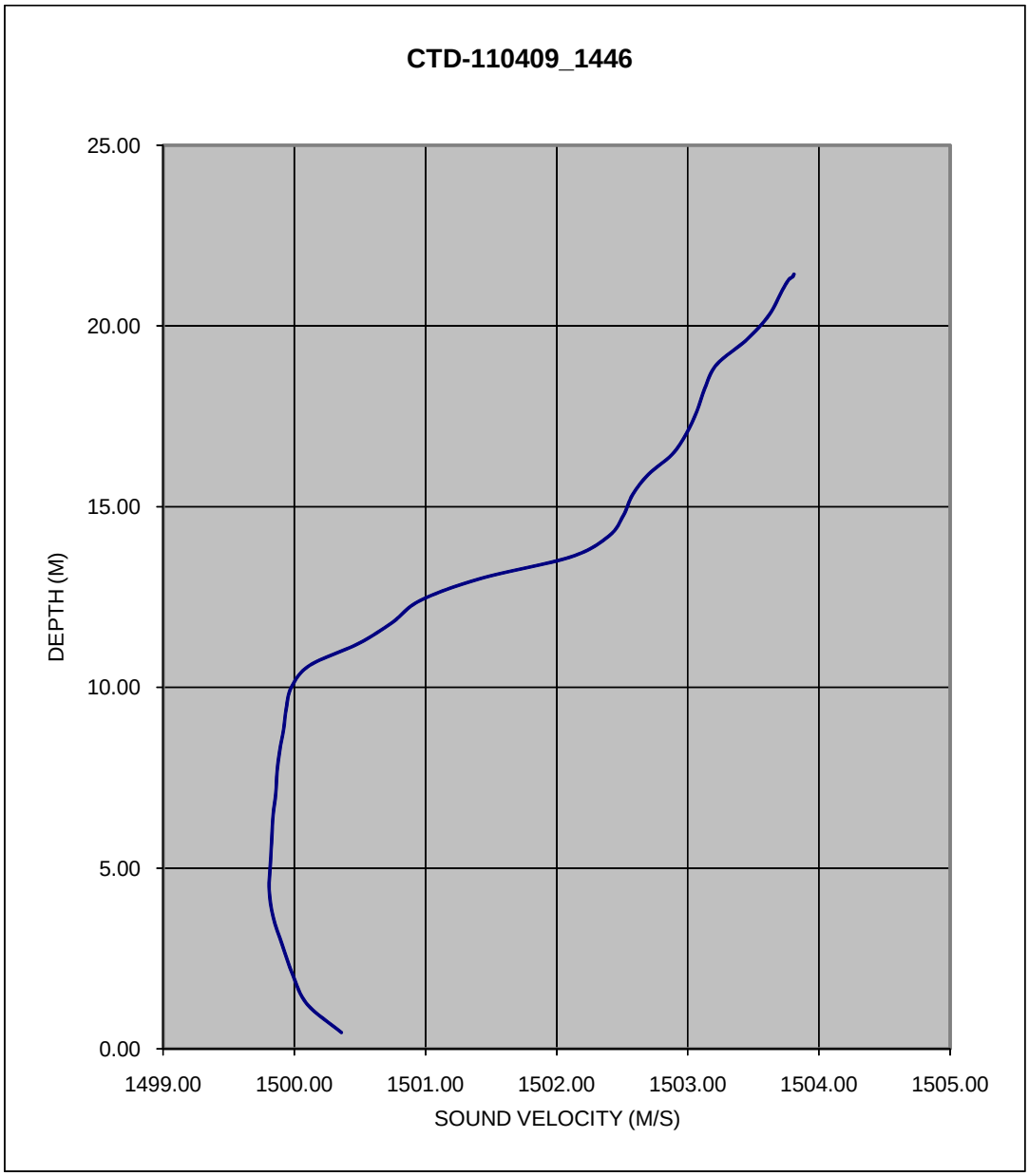


**Figure 3.2-34**
SVP 11/04/09_1651 taken during the Fall 2009 multibeam survey at the HARS

**CTD PROFILE # 110409_1651**

| Date | Time | NAD83 NY LI (Feet) | | Water Depth | Latitude | Longitude |
|---|---|---|---|---|---|---|
| | | Easting | Northing | Feet | N | W |
| 11/04/09 | 16:51 | 1019520 | 77407 | 77 | 40.37906649 | 73.87340978 |

| | |
|---|---|
| 1494.86 | 0.02 |
| 1495.58 | 0.69 |
| 1496.99 | 1.43 |
| 1498.07 | 2.20 |
| 1498.54 | 2.91 |
| 1498.71 | 3.60 |
| 1498.81 | 4.28 |
| 1498.96 | 4.95 |
| 1499.11 | 5.63 |
| 1499.29 | 6.33 |
| 1499.50 | 7.09 |
| 1499.57 | 7.79 |
| 1499.60 | 8.49 |
| 1499.63 | 9.21 |
| 1499.70 | 9.92 |
| 1499.75 | 10.63 |
| 1499.78 | 11.33 |
| 1499.80 | 12.05 |
| 1499.82 | 12.81 |
| 1499.85 | 13.52 |
| 1499.93 | 14.23 |
| 1500.01 | 14.96 |
| 1500.41 | 15.69 |
| 1501.12 | 16.44 |
| 1502.05 | 17.21 |
| 1502.63 | 17.97 |
| 1502.92 | 18.72 |
| 1503.06 | 19.49 |
| 1503.32 | 20.24 |
| 1503.75 | 20.98 |
| 1503.93 | 21.72 |
| 1504.00 | 22.50 |
| 1504.03 | 23.18 |
| 1504.04 | 23.37 |

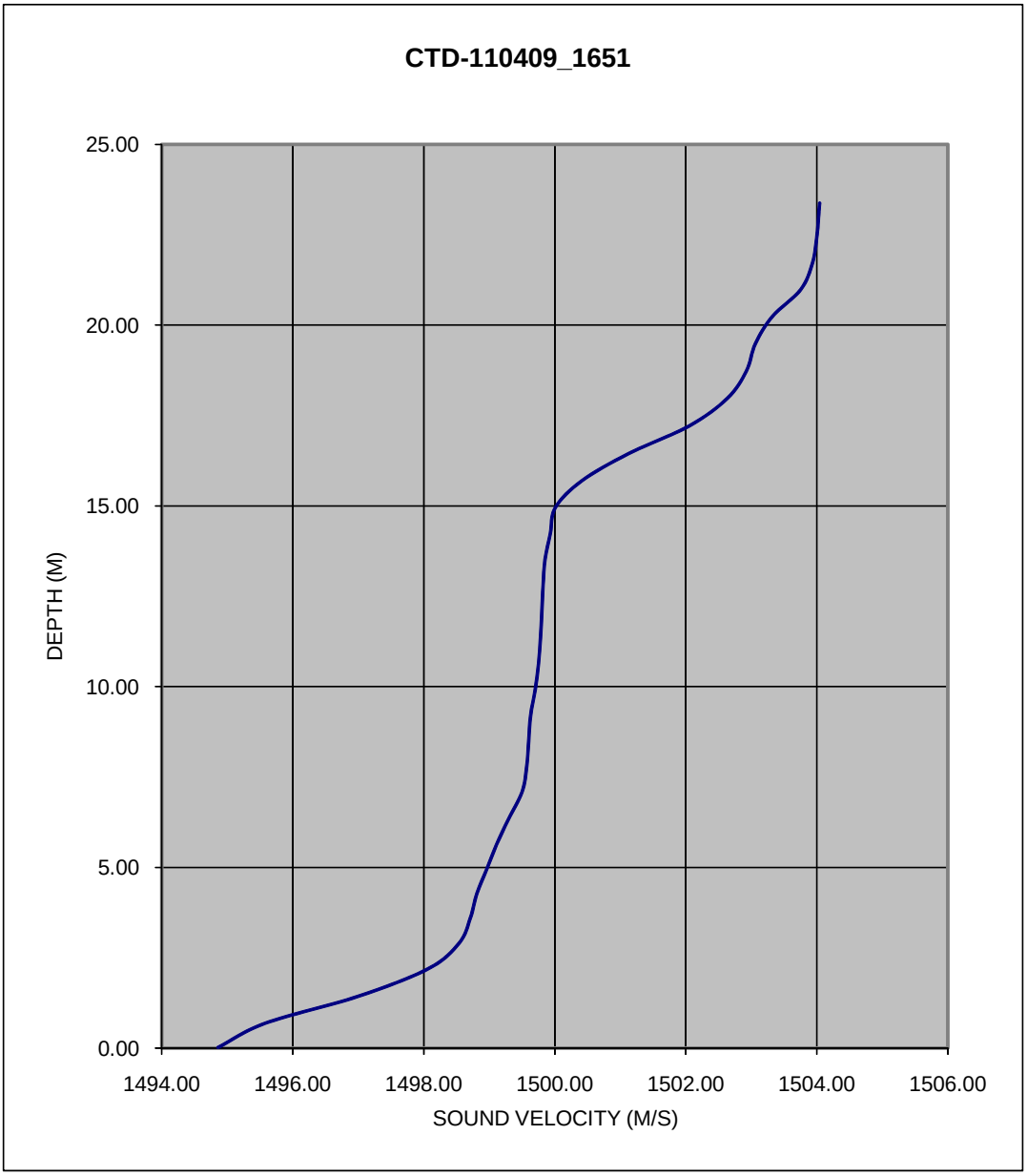


**Figure 3.2-35**
SVP 11/05/09_0812 taken during the Fall 2009 multibeam survey at the HARS

**CTD PROFILE # 110509_0812**

| Date | Time | NAD83 NY LI (Feet) | | Water Depth | Latitude | Longitude |
|---|---|---|---|---|---|---|
| | | Easting | Northing | Feet | N | W |
| 11/05/09 | 8:12 | 1018760 | 77298 | 78 | 40.37877029 | 73.87613810 |

| | |
|---|---|
| 1493.49 | 0.68 |
| 1493.60 | 1.40 |
| 1493.90 | 2.12 |
| 1494.25 | 2.81 |
| 1494.67 | 3.50 |
| 1495.56 | 4.16 |
| 1496.62 | 4.79 |
| 1497.32 | 5.42 |
| 1498.08 | 6.07 |
| 1499.01 | 6.73 |
| 1499.65 | 7.36 |
| 1500.05 | 8.02 |
| 1500.34 | 8.69 |
| 1500.53 | 9.35 |
| 1500.69 | 10.01 |
| 1500.89 | 10.68 |
| 1501.08 | 11.33 |
| 1501.28 | 11.97 |
| 1501.42 | 12.63 |
| 1501.58 | 13.28 |
| 1501.86 | 13.93 |
| 1502.03 | 14.57 |
| 1502.27 | 15.22 |
| 1502.73 | 15.88 |
| 1503.14 | 16.54 |
| 1503.30 | 17.21 |
| 1503.36 | 17.88 |
| 1503.41 | 18.56 |
| 1503.53 | 19.27 |
| 1503.62 | 19.97 |
| 1503.71 | 20.68 |
| 1503.81 | 21.41 |
| 1503.93 | 22.13 |
| 1504.00 | 22.82 |
| 1504.03 | 23.46 |
| 1504.01 | 23.76 |

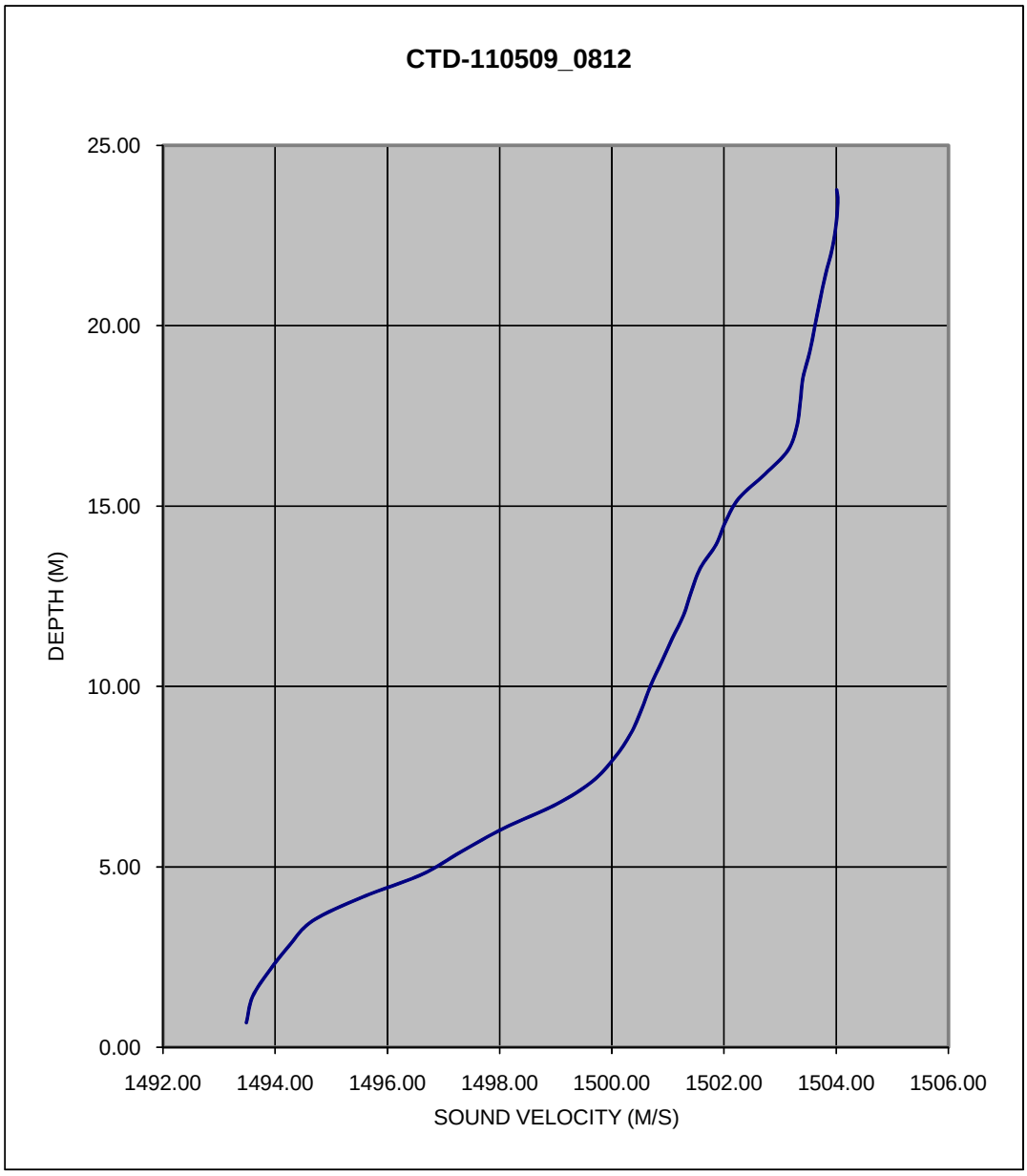


**Figure 3.2-36**
SVP 11/05/09_1000 taken during the Fall 2009 multibeam survey at the HARS

**CTD PROFILE # 110509_1000**

| Date | Time | NAD83 NY LI (Feet) | | Water Depth | Latitude | Longitude |
|---|---|---|---|---|---|---|
| | | Easting | Northing | Feet | N | W |
| 11/05/09 | 10:00 | 1017763 | 67795 | 69 | 40.35268993 | 73.87976331 |

| | |
|---|---|
| 1496.74 | 0.47 |
| 1497.12 | 1.30 |
| 1497.63 | 2.09 |
| 1498.18 | 2.75 |
| 1498.68 | 3.35 |
| 1499.29 | 3.90 |
| 1500.08 | 4.46 |
| 1500.55 | 5.03 |
| 1500.85 | 5.61 |
| 1501.11 | 6.20 |
| 1501.23 | 6.76 |
| 1501.30 | 7.32 |
| 1501.34 | 7.94 |
| 1501.37 | 8.55 |
| 1501.37 | 9.14 |
| 1501.39 | 9.71 |
| 1501.46 | 10.28 |
| 1501.55 | 10.88 |
| 1501.73 | 11.48 |
| 1502.07 | 12.08 |
| 1502.58 | 12.68 |
| 1502.81 | 13.29 |
| 1502.87 | 13.90 |
| 1502.89 | 14.50 |
| 1502.91 | 15.15 |
| 1502.92 | 15.81 |
| 1502.94 | 16.50 |
| 1502.95 | 17.18 |
| 1502.97 | 17.88 |
| 1502.99 | 18.57 |
| 1503.00 | 19.25 |
| 1503.02 | 19.94 |
| 1503.04 | 20.65 |
| 1503.04 | 21.10 |

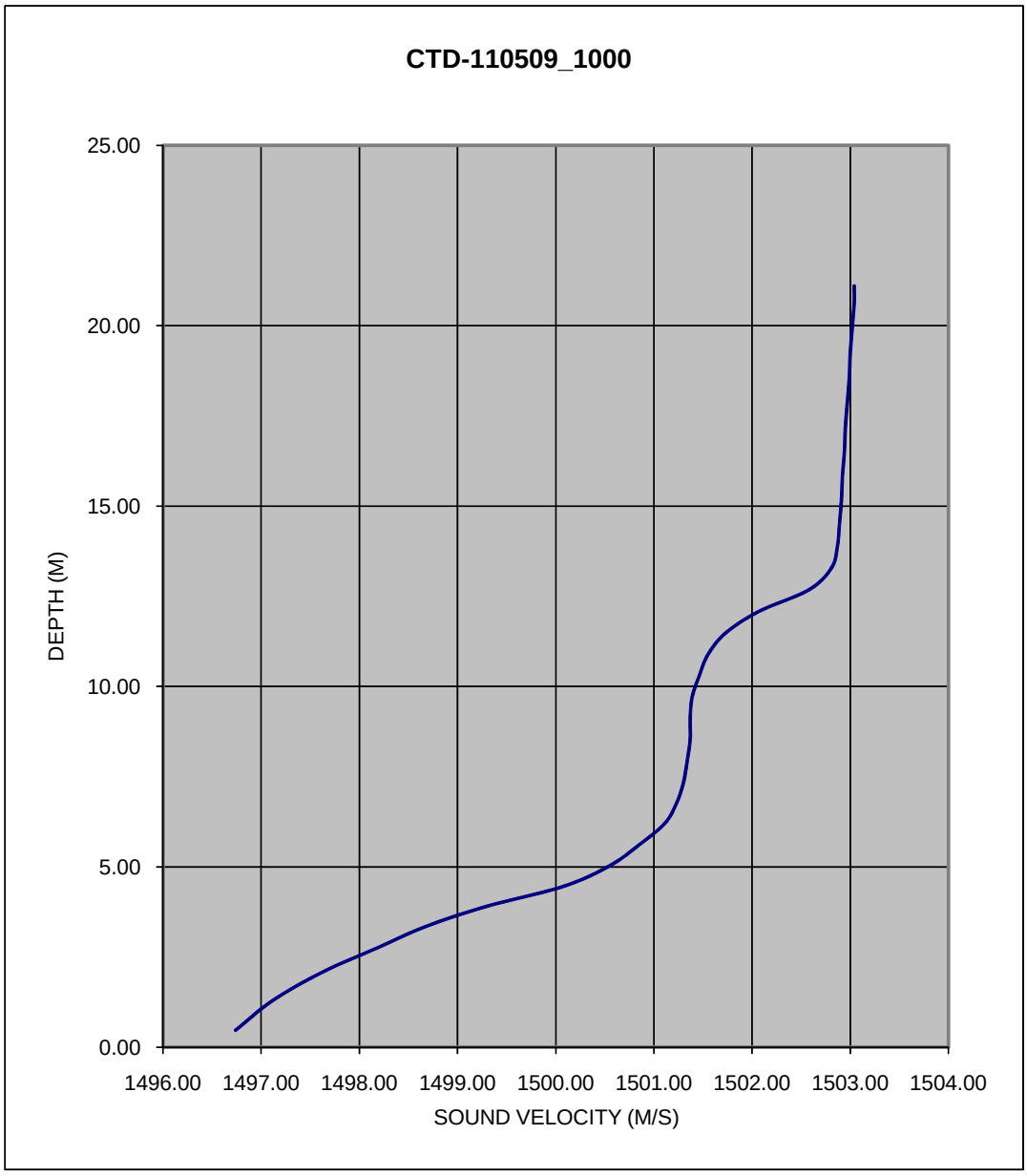


**Figure 3.2-37**
SVP 11/05/09_1203 taken during the Fall 2009 multibeam survey at the HARS

**CTD PROFILE # 110509_1203**

| Date | Time | NAD83 NY LI (Feet) | | Water Depth | Latitude | Longitude |
|---|---|---|---|---|---|---|
| | | Easting | Northing | Feet | N | W |
| 11/05/09 | 12:03 | 1016556 | 67842 | 65 | 40.35282341 | 73.88409351 |

| | |
|---|---|
| 1499.86 | 0.37 |
| 1499.63 | 1.25 |
| 1499.54 | 2.09 |
| 1499.55 | 2.91 |
| 1499.68 | 3.68 |
| 1499.93 | 4.51 |
| 1500.24 | 5.31 |
| 1500.36 | 6.02 |
| 1500.59 | 6.67 |
| 1500.81 | 7.31 |
| 1501.03 | 7.99 |
| 1501.17 | 8.65 |
| 1501.25 | 9.29 |
| 1501.30 | 9.91 |
| 1501.40 | 10.52 |
| 1501.52 | 11.14 |
| 1501.49 | 11.78 |
| 1501.58 | 12.41 |
| 1501.83 | 13.07 |
| 1501.98 | 13.72 |
| 1502.30 | 14.39 |
| 1502.80 | 15.05 |
| 1503.04 | 15.73 |
| 1503.12 | 16.38 |
| 1503.15 | 17.03 |
| 1503.17 | 17.69 |
| 1503.18 | 18.35 |
| 1503.19 | 18.98 |
| 1503.22 | 19.58 |
| 1503.29 | 19.78 |

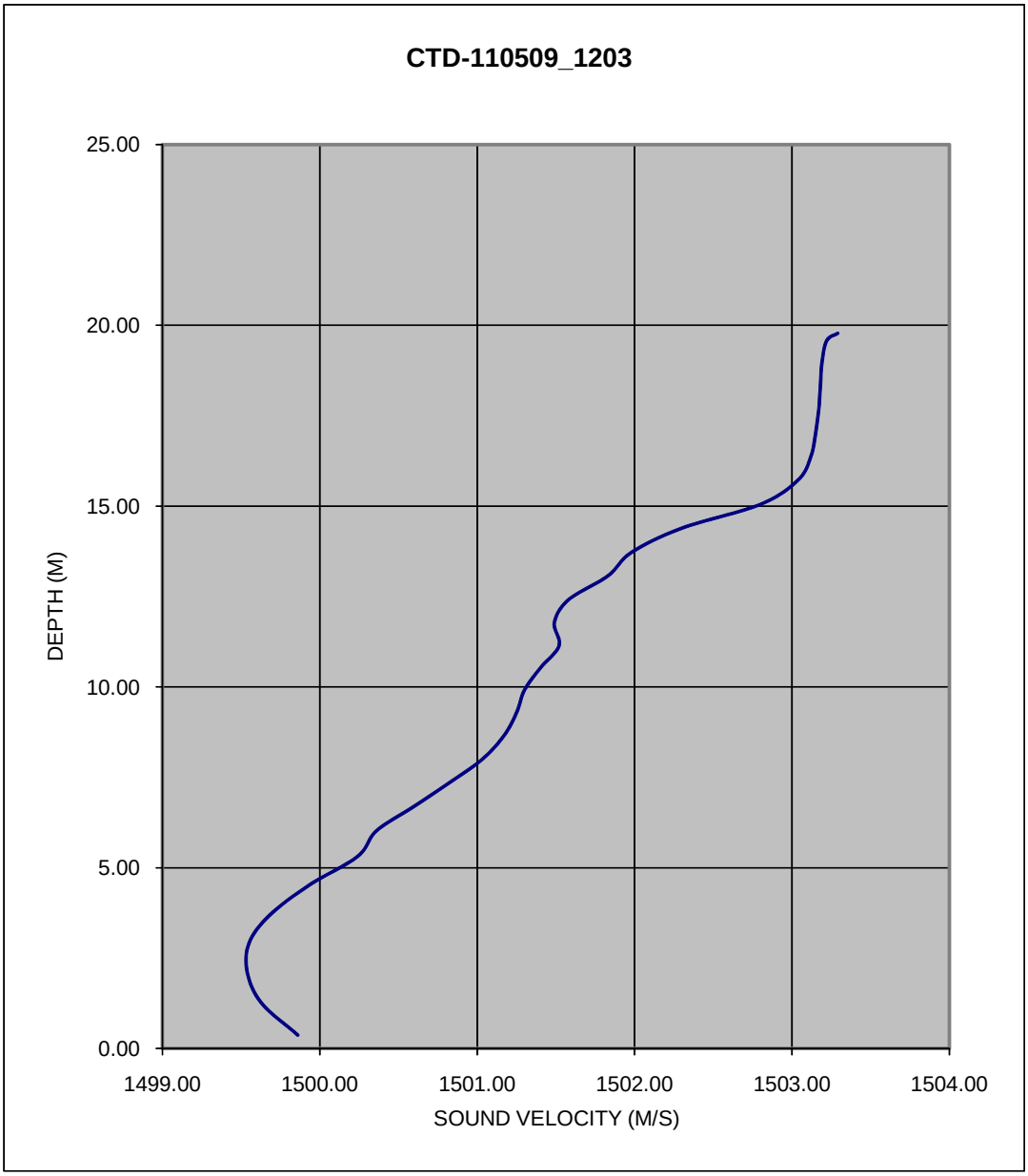


**Figure 3.2-37**
SVP 11/05/09_1411 taken during the Fall 2009 multibeam survey at the HARS

**CTD PROFILE # 110509_1411**

| Date | Time | NAD83 NY LI (Feet) | | Water Depth | Latitude | Longitude |
|---|---|---|---|---|---|---|
| | | Easting | Northing | Feet | N | W |
| 11/05/09 | 14:11 | 1014832 | 77354 | 69 | 40.37893837 | 73.89023605 |

| | |
|---|---|
| 1496.88 | 0.43 |
| 1496.94 | 1.26 |
| 1496.97 | 1.96 |
| 1497.01 | 2.53 |
| 1497.09 | 3.09 |
| 1497.21 | 3.64 |
| 1497.32 | 4.19 |
| 1497.53 | 4.77 |
| 1497.82 | 5.36 |
| 1498.28 | 5.93 |
| 1498.70 | 6.49 |
| 1498.97 | 7.06 |
| 1499.10 | 7.65 |
| 1499.39 | 8.28 |
| 1499.96 | 8.88 |
| 1500.33 | 9.47 |
| 1501.15 | 10.06 |
| 1501.99 | 10.67 |
| 1502.33 | 11.29 |
| 1502.63 | 11.96 |
| 1502.84 | 12.70 |
| 1503.00 | 13.42 |
| 1503.19 | 14.09 |
| 1503.27 | 14.73 |
| 1503.31 | 15.38 |
| 1503.34 | 16.06 |
| 1503.37 | 16.74 |
| 1503.48 | 17.40 |
| 1503.64 | 18.07 |
| 1503.77 | 18.77 |
| 1503.82 | 19.45 |
| 1503.87 | 20.16 |
| 1503.89 | 20.79 |
| 1503.85 | 20.96 |

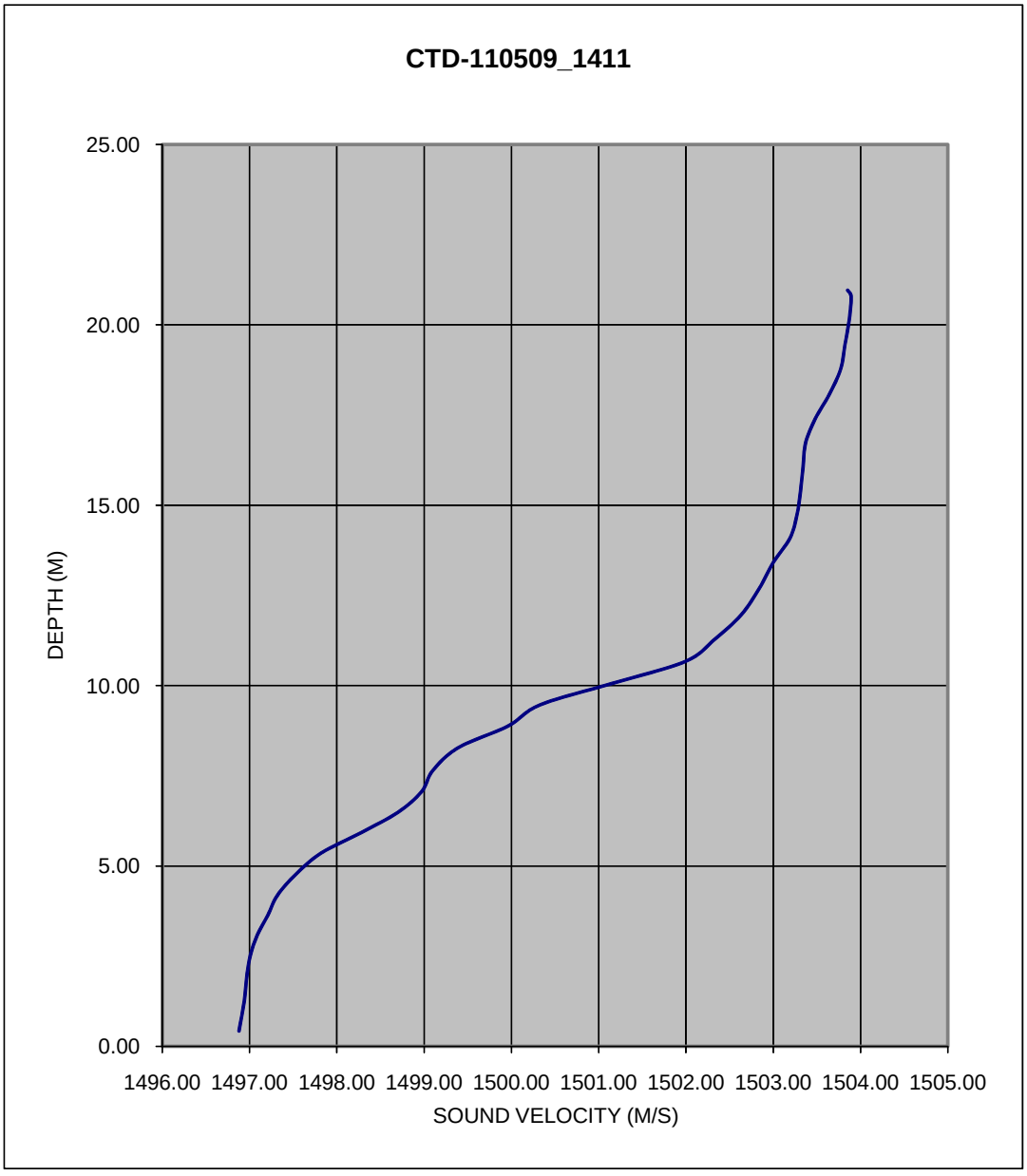


**Figure 3.2-38**
SVP 11/05/09_1610 taken during the Fall 2009 multibeam survey at the HARS

**CTD PROFILE # 110509_1610**

| Date | Time | NAD83 NY LI (Feet) | | Water Depth | Latitude | Longitude |
|---|---|---|---|---|---|---|
| | | Easting | Northing | Feet | N | W |
| 11/05/09 | 16:10 | 1013553 | 77379 | 69 | 40.37901130 | 73.89482649 |

| | |
|---|---|
| 1496.66 | 0.00 |
| 1496.53 | 0.74 |
| 1496.50 | 1.52 |
| 1496.56 | 2.30 |
| 1496.66 | 3.02 |
| 1496.73 | 3.65 |
| 1496.81 | 4.25 |
| 1497.13 | 4.81 |
| 1497.92 | 5.38 |
| 1498.60 | 5.89 |
| 1499.23 | 6.44 |
| 1499.66 | 7.02 |
| 1500.00 | 7.58 |
| 1500.21 | 8.15 |
| 1500.54 | 8.74 |
| 1501.39 | 9.34 |
| 1502.16 | 9.97 |
| 1502.63 | 10.61 |
| 1502.87 | 11.24 |
| 1502.98 | 11.83 |
| 1503.04 | 12.41 |
| 1503.10 | 13.00 |
| 1503.14 | 13.63 |
| 1503.16 | 14.26 |
| 1503.18 | 14.88 |
| 1503.19 | 15.53 |
| 1503.22 | 16.15 |
| 1503.27 | 16.75 |
| 1503.34 | 17.36 |
| 1503.39 | 18.01 |
| 1503.43 | 18.60 |
| 1503.53 | 19.21 |
| 1503.66 | 19.82 |
| 1503.77 | 20.44 |
| 1503.82 | 20.98 |
| 1503.85 | 21.11 |

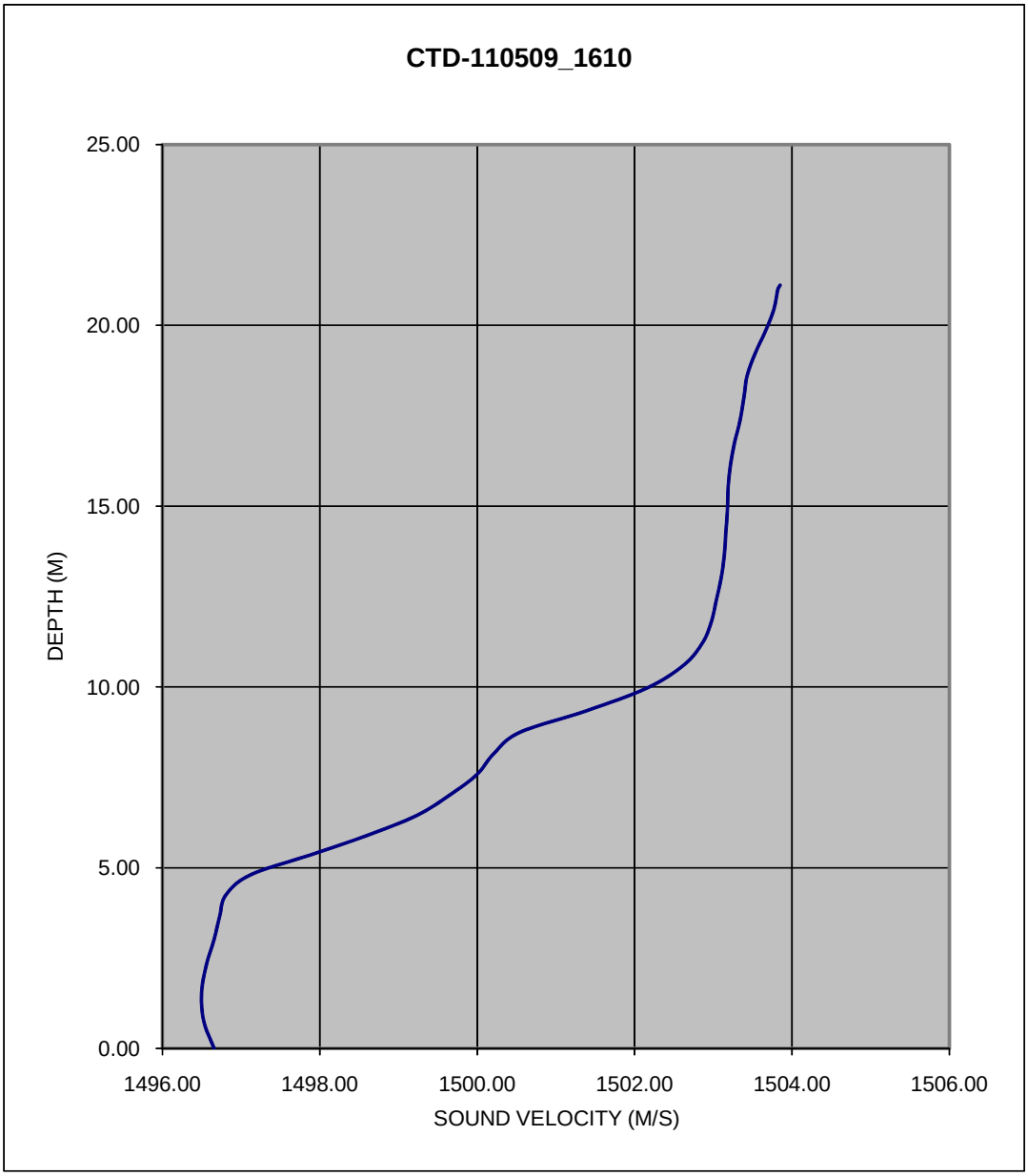


**Figure 3.2-39**
SVP 11/07/09_0857 taken during the Fall 2009 multibeam survey at the HARS

**CTD PROFILE # 110709_0857**

| Date | Time | NAD83 NY LI (Feet) | | Water Depth | Latitude | Longitude |
|---|---|---|---|---|---|---|
| | | Easting | Northing | Feet | N | W |
| 11/07/09 | 8:57 | 1013004 | 77285 | 69 | 40.37875508 | 73.89679734 |

| | |
|---|---|
| 1490.11 | 0.37 |
| 1490.35 | 1.16 |
| 1491.66 | 1.97 |
| 1492.61 | 2.75 |
| 1492.91 | 3.47 |
| 1493.27 | 4.16 |
| 1493.65 | 4.80 |
| 1494.05 | 5.42 |
| 1494.84 | 6.00 |
| 1495.66 | 6.58 |
| 1496.21 | 7.15 |
| 1496.51 | 7.74 |
| 1496.89 | 8.34 |
| 1497.38 | 8.97 |
| 1498.97 | 9.62 |
| 1500.62 | 10.28 |
| 1501.52 | 10.94 |
| 1501.91 | 11.60 |
| 1502.10 | 12.27 |
| 1502.21 | 12.93 |
| 1502.32 | 13.60 |
| 1502.42 | 14.27 |
| 1502.46 | 14.91 |
| 1502.50 | 15.55 |
| 1502.53 | 16.18 |
| 1502.55 | 16.79 |
| 1502.57 | 17.39 |
| 1502.59 | 17.98 |
| 1502.61 | 18.57 |
| 1502.64 | 19.16 |
| 1502.66 | 19.75 |
| 1502.67 | 20.36 |
| 1502.66 | 20.82 |
| 1502.59 | 20.89 |
| 1502.52 | 20.94 |
| 1502.49 | 21.02 |
| 1502.47 | 21.09 |
| 1502.46 | 21.17 |

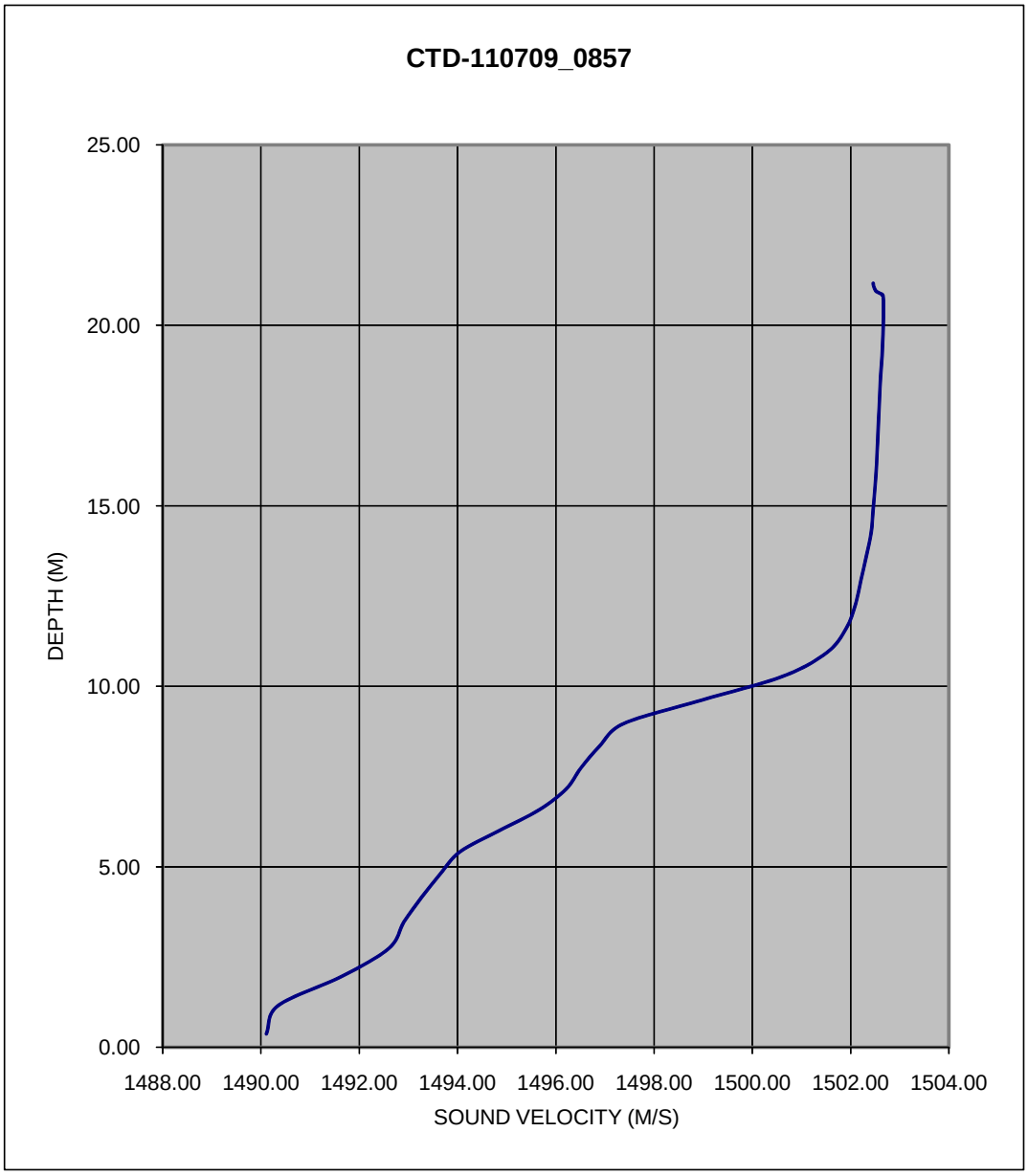


**Figure 3.2-40**
SVP 11/07/09_1101 taken during the Fall 2009 multibeam survey at the HARS

**CTD PROFILE # 110709_1101**

| Date | Time | NAD83 NY LI (Feet) | | Water Depth | Latitude | Longitude |
|---|---|---|---|---|---|---|
| | | Easting | Northing | Feet | N | W |
| 11/07/09 | 11:01 | 1011914 | 77354 | 69 | 40.37894793 | 73.90070924 |

| | |
|---|---|
| 1490.58 | 0.88 |
| 1491.87 | 1.69 |
| 1492.93 | 2.45 |
| 1493.96 | 3.11 |
| 1494.57 | 3.72 |
| 1494.94 | 4.28 |
| 1495.13 | 4.82 |
| 1495.28 | 5.34 |
| 1495.39 | 5.86 |
| 1495.46 | 6.40 |
| 1495.50 | 6.95 |
| 1495.66 | 7.51 |
| 1496.06 | 8.08 |
| 1496.52 | 8.65 |
| 1496.87 | 9.24 |
| 1497.46 | 9.83 |
| 1498.69 | 10.41 |
| 1499.89 | 10.98 |
| 1500.73 | 11.54 |
| 1501.53 | 12.10 |
| 1502.04 | 12.65 |
| 1502.27 | 13.20 |
| 1502.37 | 13.74 |
| 1502.41 | 14.28 |
| 1502.43 | 14.82 |
| 1502.46 | 15.36 |
| 1502.48 | 15.90 |
| 1502.50 | 16.46 |
| 1502.52 | 17.03 |
| 1502.54 | 17.63 |
| 1502.56 | 18.25 |
| 1502.58 | 18.89 |
| 1502.60 | 19.56 |
| 1502.61 | 20.24 |
| 1502.61 | 20.83 |
| 1502.53 | 21.03 |

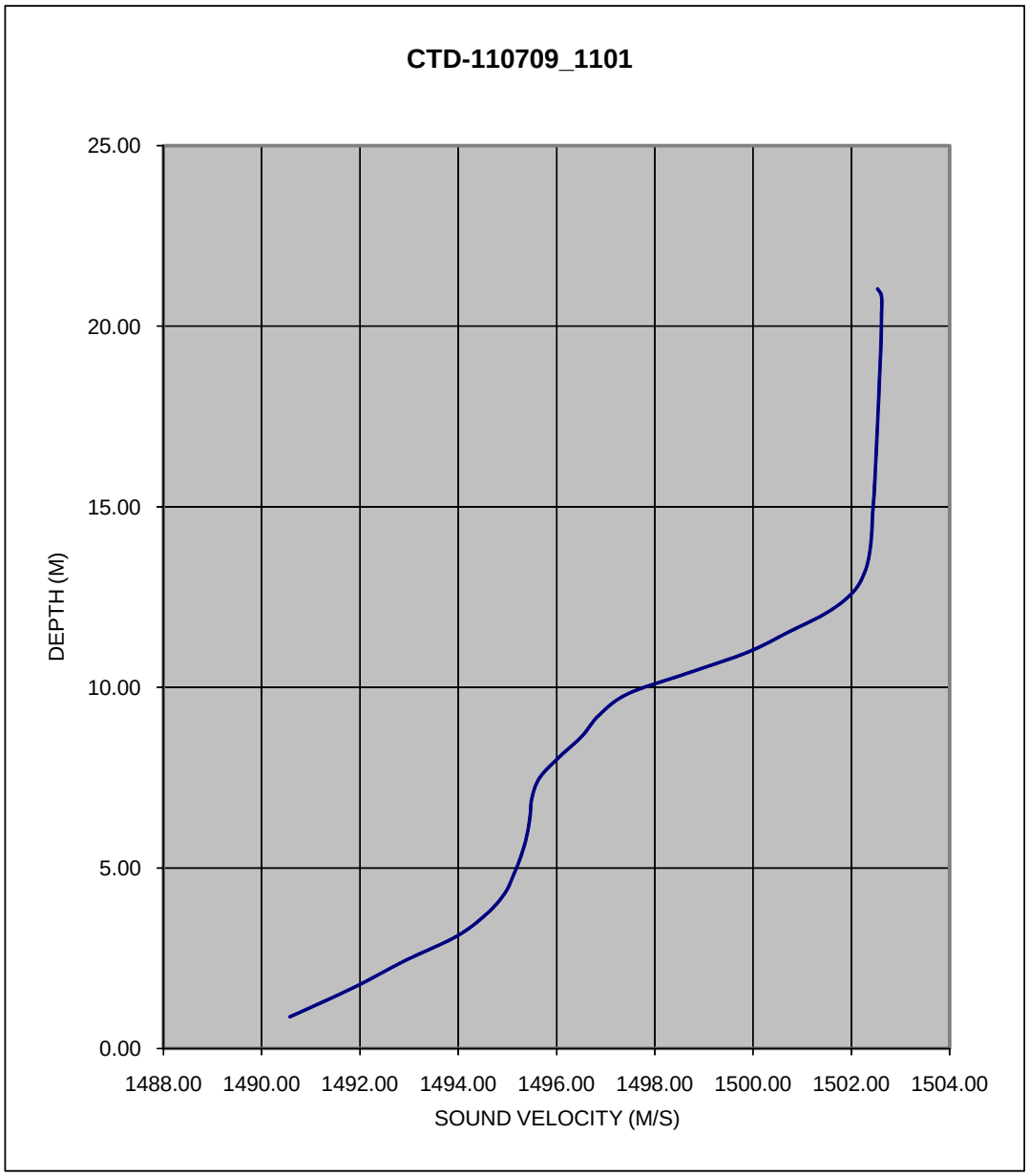


**Figure 3.2-41**
SVP 11/07/09_1210 taken during the Fall 2009 multibeam survey at the HARS

**CTD PROFILE # 110709_1210**

| Date | Time | NAD83 NY LI (Feet) | | Water Depth | Latitude | Longitude |
|---|---|---|---|---|---|---|
| | | Easting | Northing | Feet | N | W |
| 11/07/09 | 12:10 | 1023763 | 77165 | 73 | 40.37838440 | 73.85818234 |

| | |
|---|---|
| 1493.13 | 0.65 |
| 1494.28 | 1.46 |
| 1496.10 | 2.31 |
| 1496.87 | 3.15 |
| 1497.16 | 4.00 |
| 1497.34 | 4.85 |
| 1497.70 | 5.62 |
| 1498.18 | 6.35 |
| 1498.53 | 7.03 |
| 1498.93 | 7.68 |
| 1499.24 | 8.33 |
| 1499.61 | 8.97 |
| 1500.15 | 9.66 |
| 1500.54 | 10.36 |
| 1500.67 | 11.08 |
| 1501.00 | 11.77 |
| 1501.65 | 12.45 |
| 1502.24 | 13.13 |
| 1502.53 | 13.78 |
| 1502.75 | 14.45 |
| 1502.97 | 15.12 |
| 1503.07 | 15.79 |
| 1503.14 | 16.46 |
| 1503.19 | 17.12 |
| 1503.23 | 17.77 |
| 1503.27 | 18.43 |
| 1503.30 | 19.09 |
| 1503.33 | 19.75 |
| 1503.34 | 20.42 |
| 1503.36 | 21.10 |
| 1503.39 | 21.75 |
| 1503.41 | 21.99 |
| 1503.42 | 22.04 |
| 1503.44 | 22.09 |
| 1503.45 | 22.14 |
| 1503.46 | 22.19 |
| 1503.48 | 22.25 |

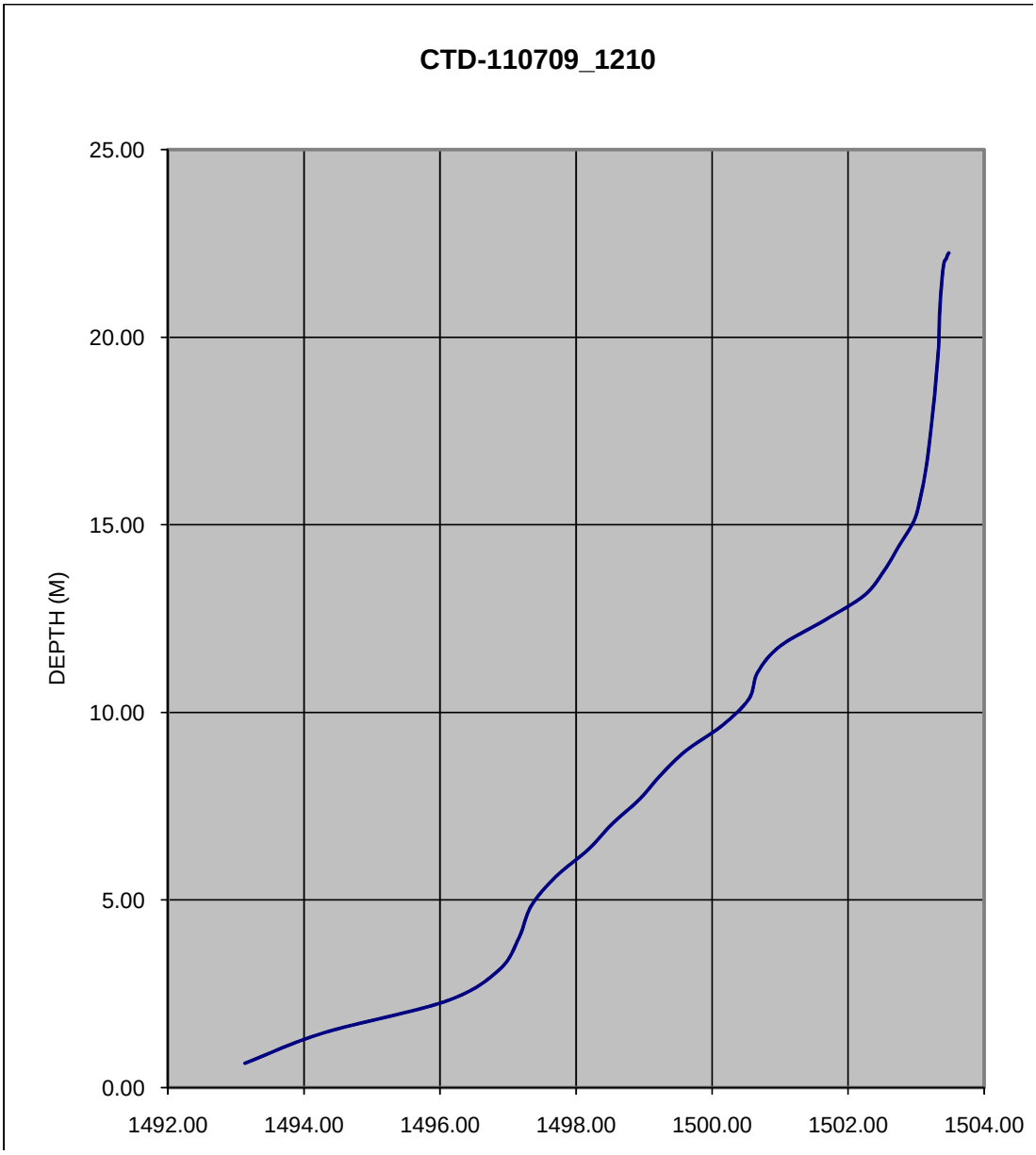


**Figure 3.2-42**
SVP 11/07/09_1347 taken during the Fall 2009 multibeam survey at the HARS

**CTD PROFILE # 110709_1347**

| Date | Time | NAD83 NY LI (Feet) | | Water Depth | Latitude | Longitude |
|---|---|---|---|---|---|---|
| | | Easting | Northing | Feet | N | W |
| 11/07/09 | 13:47 | 1023348 | 86660 | 56 | 40.40444841 | 73.85961722 |

| | |
|---|---|
| 1494.97 | 0.36 |
| 1494.44 | 1.12 |
| 1495.32 | 1.86 |
| 1495.62 | 2.54 |
| 1495.85 | 3.20 |
| 1496.27 | 3.84 |
| 1496.98 | 4.48 |
| 1497.71 | 5.15 |
| 1498.49 | 5.81 |
| 1499.44 | 6.49 |
| 1499.59 | 7.19 |
| 1499.23 | 7.87 |
| 1499.39 | 8.56 |
| 1499.80 | 9.24 |
| 1499.99 | 9.95 |
| 1500.10 | 10.67 |
| 1500.21 | 11.40 |
| 1500.29 | 12.13 |
| 1500.36 | 12.87 |
| 1500.44 | 13.58 |
| 1500.48 | 14.31 |
| 1500.49 | 15.05 |
| 1500.51 | 15.79 |
| 1500.53 | 16.51 |
| 1500.56 | 17.08 |
| 1500.61 | 17.16 |

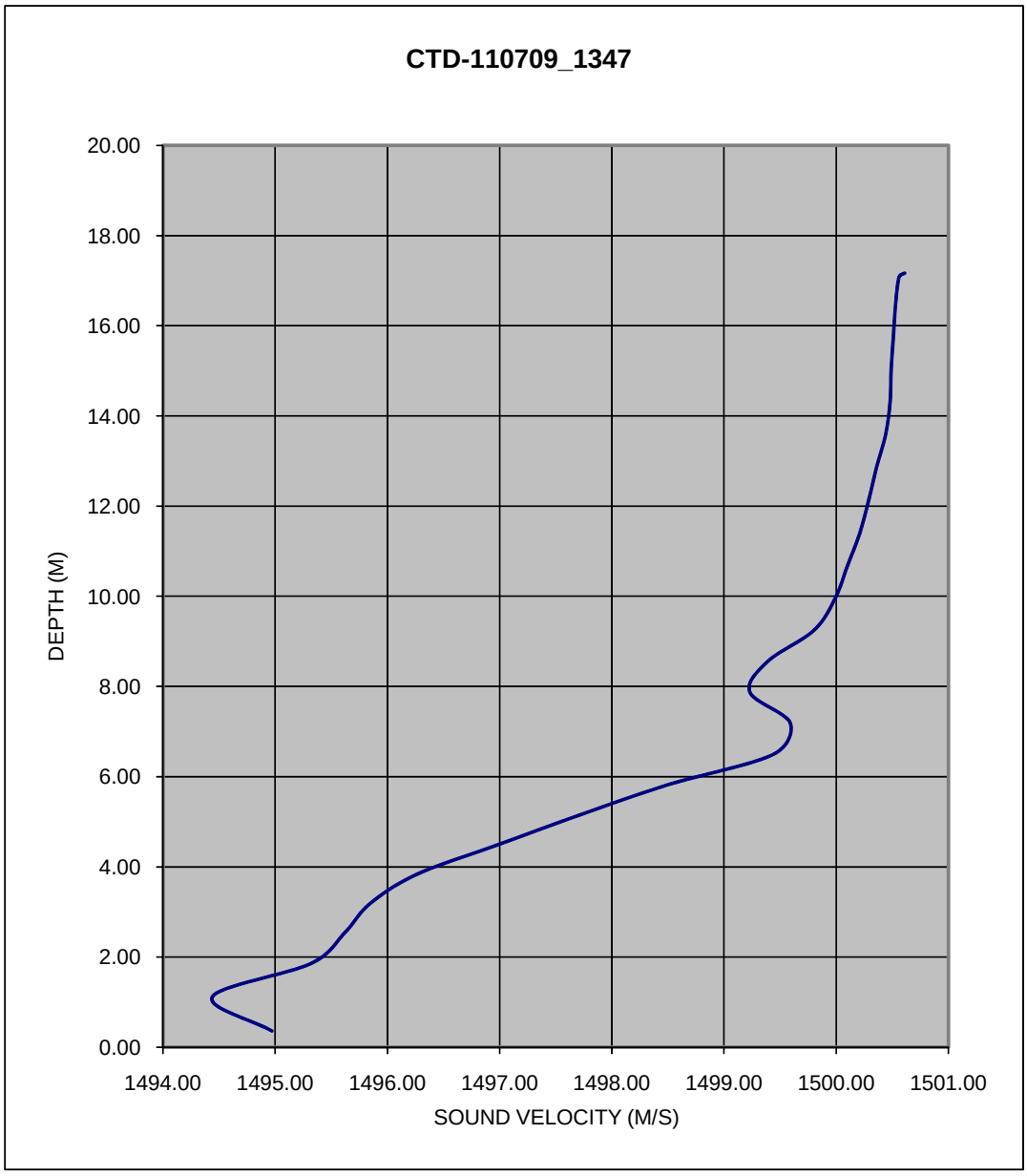


**Figure 3.2-43**
SVP 12/01/09_2301 taken during the Fall 2009 multibeam survey at the HARS

**CTD PROFILE # 120109_2301**

| Date | Time | NAD83 NY LI (Feet) | | Water Depth | Latitude | Longitude |
|---|---|---|---|---|---|---|
| | | Easting | Northing | Feet | N | W |
| 12/01/09 | 23:01 | 1022670 | 86587 | 52 | 40.40425099 | 73.86205201 |

| | |
|---|---|
| 1488.15 | 0.43 |
| 1488.11 | 1.19 |
| 1488.10 | 1.97 |
| 1488.23 | 2.76 |
| 1488.51 | 3.52 |
| 1488.78 | 4.20 |
| 1489.08 | 4.86 |
| 1489.56 | 5.50 |
| 1489.99 | 6.12 |
| 1490.31 | 6.71 |
| 1490.55 | 7.30 |
| 1490.78 | 7.88 |
| 1491.12 | 8.47 |
| 1491.46 | 9.06 |
| 1491.67 | 9.67 |
| 1491.99 | 10.27 |
| 1493.07 | 10.86 |
| 1494.38 | 11.47 |
| 1495.10 | 12.06 |
| 1495.42 | 12.66 |
| 1495.53 | 13.27 |
| 1495.58 | 13.87 |
| 1495.61 | 14.50 |
| 1495.63 | 15.14 |
| 1495.62 | 15.62 |
| 1495.55 | 15.72 |

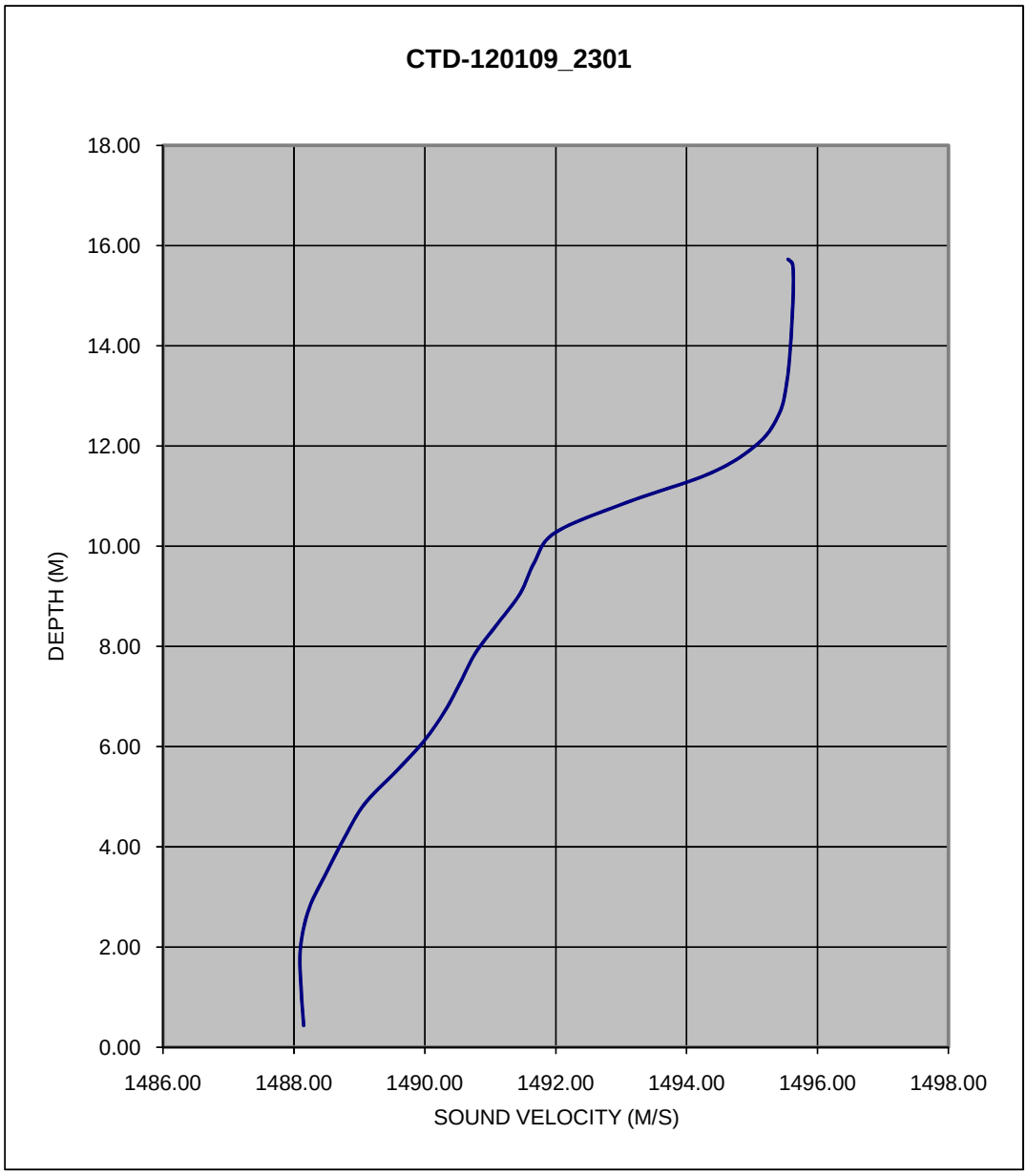


**Figure 3.2-44**
SVP 12/01/09_2357 taken during the Fall 2009 multibeam survey at the HARS

**CTD PROFILE # 120109_2357**

| Date | Time | NAD83 NY LI (Feet) | | Water Depth | Latitude | Longitude |
|---|---|---|---|---|---|---|
| | | Easting | Northing | Feet | N | W |
| 12/01/09 | 23:57 | 1021675 | 77132 | 71 | 40.37830285 | 73.86567663 |

| | |
|---|---|
| 1489.13 | 0.34 |
| 1488.98 | 1.05 |
| 1488.94 | 1.84 |
| 1488.95 | 2.65 |
| 1488.99 | 3.49 |
| 1489.11 | 4.33 |
| 1489.52 | 5.14 |
| 1489.98 | 5.91 |
| 1490.33 | 6.59 |
| 1490.68 | 7.25 |
| 1490.83 | 7.89 |
| 1490.86 | 8.52 |
| 1490.90 | 9.15 |
| 1490.93 | 9.78 |
| 1491.06 | 10.43 |
| 1491.33 | 11.08 |
| 1491.75 | 11.73 |
| 1492.16 | 12.38 |
| 1493.04 | 13.04 |
| 1494.75 | 13.70 |
| 1495.39 | 14.38 |
| 1495.67 | 15.05 |
| 1495.87 | 15.74 |
| 1496.00 | 16.38 |
| 1496.18 | 16.97 |
| 1496.79 | 17.60 |
| 1497.42 | 18.24 |
| 1497.97 | 18.89 |
| 1498.36 | 19.55 |
| 1498.63 | 20.21 |
| 1498.80 | 20.89 |
| 1498.84 | 21.47 |
| 1498.79 | 21.61 |

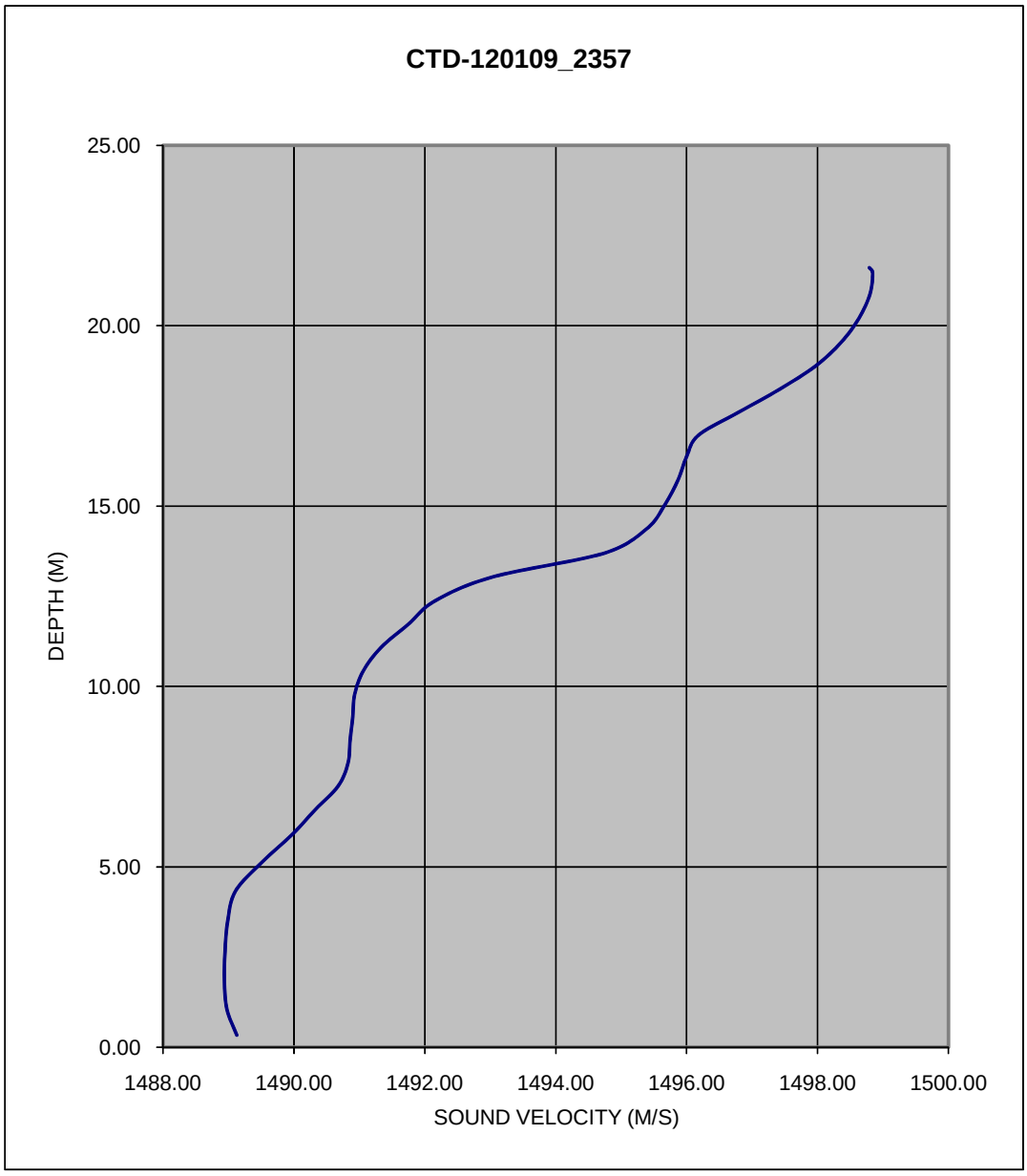


**Figure 3.2-45**
SVP 12/02/09_0152 taken during the Fall 2009 multibeam survey at the HARS

**CTD PROFILE # 120209_0152**

| Date | Time | NAD83 NY LI (Feet) | | Water Depth | Latitude | Longitude |
|---|---|---|---|---|---|---|
| | | Easting | Northing | Feet | N | W |
| 12/02/09 | 1:52 | 1019948 | 77139 | 75 | 40.37832917 | 73.87187502 |

| | |
|---|---|
| 1486.77 | 0.14 |
| 1486.24 | 0.83 |
| 1486.69 | 1.57 |
| 1487.76 | 2.31 |
| 1488.31 | 3.00 |
| 1488.66 | 3.66 |
| 1488.96 | 4.28 |
| 1489.53 | 4.90 |
| 1490.05 | 5.51 |
| 1490.38 | 6.09 |
| 1490.53 | 6.64 |
| 1490.61 | 7.19 |
| 1490.72 | 7.73 |
| 1490.82 | 8.27 |
| 1490.92 | 8.82 |
| 1491.04 | 9.38 |
| 1491.16 | 9.95 |
| 1491.36 | 10.52 |
| 1491.94 | 11.11 |
| 1493.95 | 11.69 |
| 1495.23 | 12.28 |
| 1495.68 | 12.88 |
| 1495.87 | 13.48 |
| 1495.98 | 14.09 |
| 1496.03 | 14.70 |
| 1496.03 | 15.31 |
| 1496.05 | 15.92 |
| 1496.14 | 16.54 |
| 1496.27 | 17.16 |
| 1496.46 | 17.79 |
| 1496.80 | 18.42 |
| 1497.39 | 19.04 |
| 1498.25 | 19.66 |
| 1498.80 | 20.27 |
| 1499.05 | 20.88 |
| 1499.18 | 21.52 |
| 1499.25 | 22.18 |
| 1499.29 | 22.79 |
| 1499.25 | 22.98 |

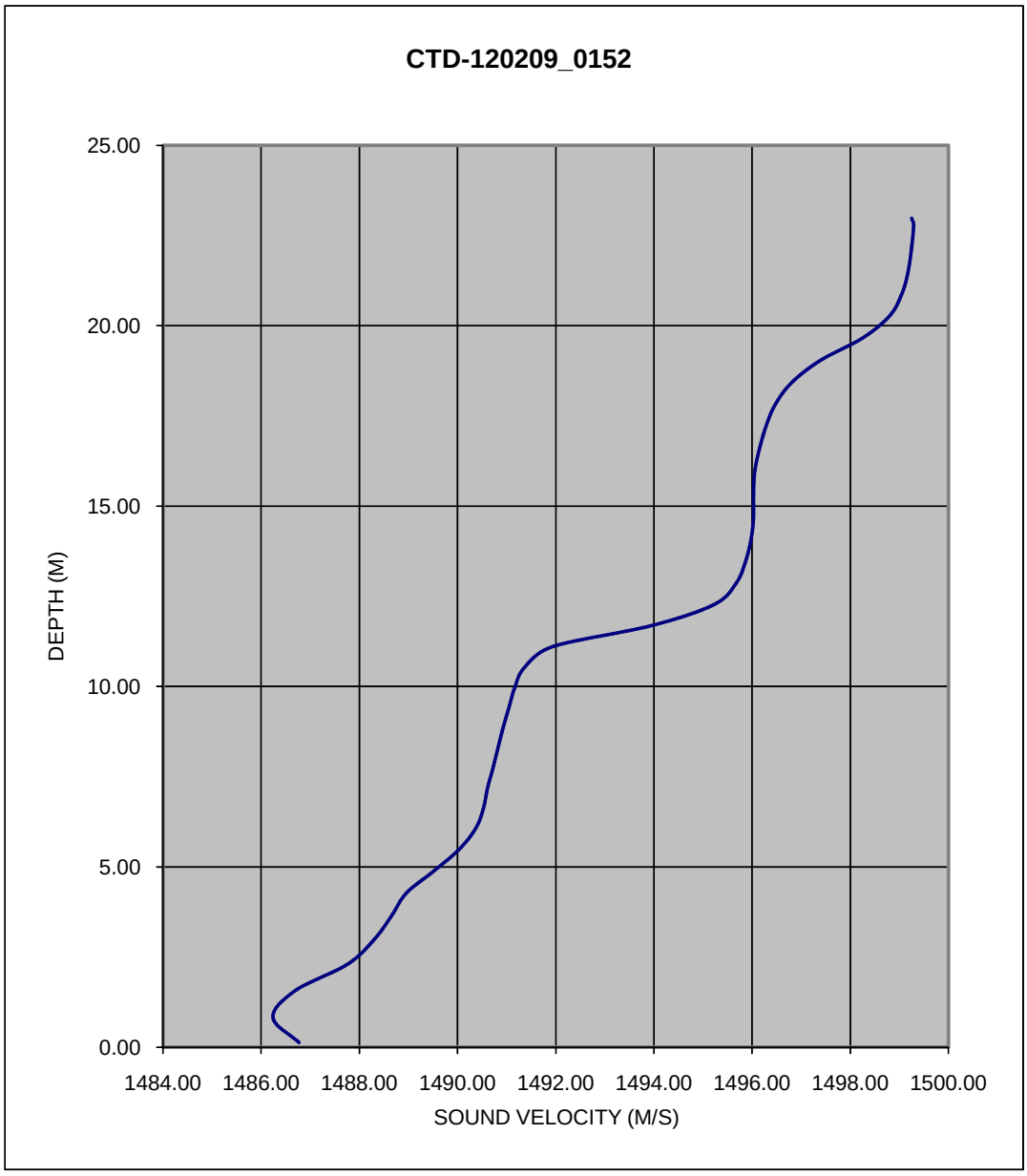


**Figure 3.2-46**
SVP 12/02/09_0408 taken during the Fall 2009 multibeam survey at the HARS

**CTD PROFILE # 120209_0408**

| Date | Time | NAD83 NY LI (Feet) | | Water Depth | Latitude | Longitude |
|---|---|---|---|---|---|---|
| | | Easting | Northing | Feet | N | W |
| 12/02/09 | 4:08 | 1017711 | 77080 | 75 | 40.37817592 | 73.87990420 |

| | |
|---|---|
| 1487.29 | 0.57 |
| 1487.20 | 1.26 |
| 1487.70 | 1.98 |
| 1488.12 | 2.69 |
| 1488.28 | 3.39 |
| 1488.35 | 4.08 |
| 1488.50 | 4.74 |
| 1488.97 | 5.39 |
| 1489.67 | 6.05 |
| 1490.09 | 6.71 |
| 1490.28 | 7.36 |
| 1490.39 | 7.99 |
| 1490.49 | 8.61 |
| 1490.74 | 9.22 |
| 1491.05 | 9.85 |
| 1491.34 | 10.46 |
| 1491.78 | 11.08 |
| 1492.82 | 11.69 |
| 1494.60 | 12.32 |
| 1495.37 | 12.94 |
| 1495.66 | 13.58 |
| 1495.80 | 14.22 |
| 1495.86 | 14.86 |
| 1495.89 | 15.50 |
| 1495.92 | 16.13 |
| 1495.96 | 16.77 |
| 1496.05 | 17.42 |
| 1496.09 | 18.08 |
| 1496.17 | 18.75 |
| 1496.82 | 19.42 |
| 1497.64 | 20.09 |
| 1498.15 | 20.75 |
| 1498.42 | 21.41 |
| 1498.56 | 22.09 |
| 1498.63 | 22.71 |
| 1498.60 | 22.94 |

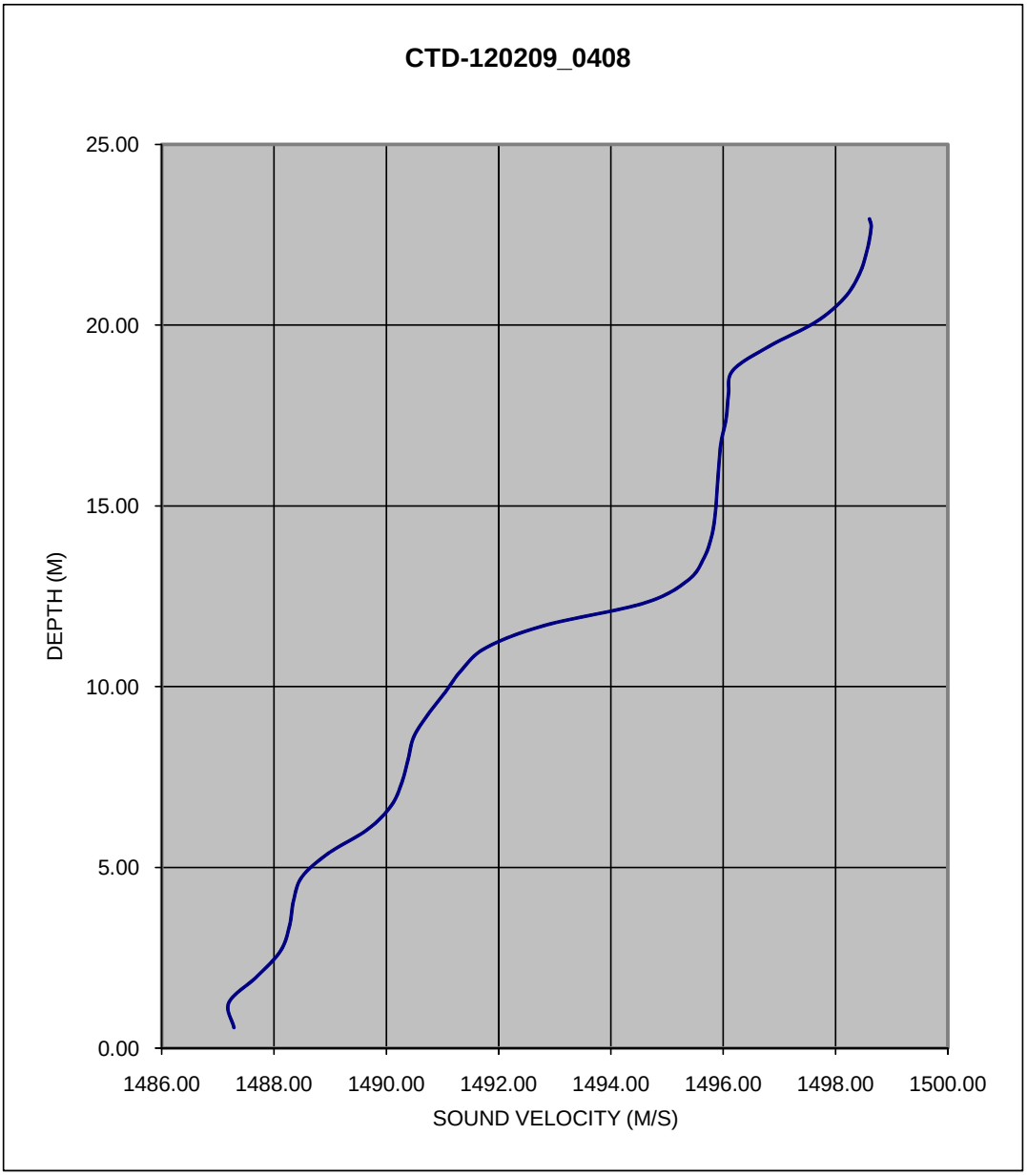


**Figure 3.2-47**
SVP 12/02/09_0611 taken during the Fall 2009 multibeam survey at the HARS

**CTD PROFILE # 120209_0611**

| Date | Time | NAD83 NY LI (Feet) | | Water Depth | Latitude | Longitude |
|---|---|---|---|---|---|---|
| | | Easting | Northing | Feet | N | W |
| 12/02/09 | 6:11 | 1015726 | 77097 | 81 | 40.37822983 | 73.88702853 |

| | |
|---|---|
| 1487.08 | 0.12 |
| 1486.82 | 0.86 |
| 1486.96 | 1.59 |
| 1488.38 | 2.24 |
| 1489.65 | 2.86 |
| 1490.36 | 3.45 |
| 1490.96 | 4.03 |
| 1491.24 | 4.60 |
| 1491.41 | 5.17 |
| 1491.61 | 5.73 |
| 1491.83 | 6.29 |
| 1492.11 | 6.85 |
| 1492.43 | 7.43 |
| 1492.83 | 8.03 |
| 1493.34 | 8.63 |
| 1493.93 | 9.22 |
| 1494.46 | 9.77 |
| 1494.82 | 10.33 |
| 1494.96 | 10.91 |
| 1495.05 | 11.51 |
| 1495.24 | 12.13 |
| 1495.40 | 12.78 |
| 1495.48 | 13.42 |
| 1495.54 | 14.07 |
| 1495.58 | 14.72 |
| 1495.62 | 15.37 |
| 1495.72 | 16.01 |
| 1495.94 | 16.64 |
| 1496.13 | 17.27 |
| 1496.26 | 17.90 |
| 1496.38 | 18.51 |
| 1496.70 | 19.11 |
| 1497.39 | 19.71 |
| 1497.85 | 20.31 |
| 1498.08 | 20.92 |
| 1498.20 | 21.52 |
| 1498.29 | 22.13 |
| 1498.36 | 22.73 |
| 1498.42 | 23.33 |
| 1498.46 | 23.94 |
| 1498.49 | 24.46 |
| 1498.47 | 24.58 |

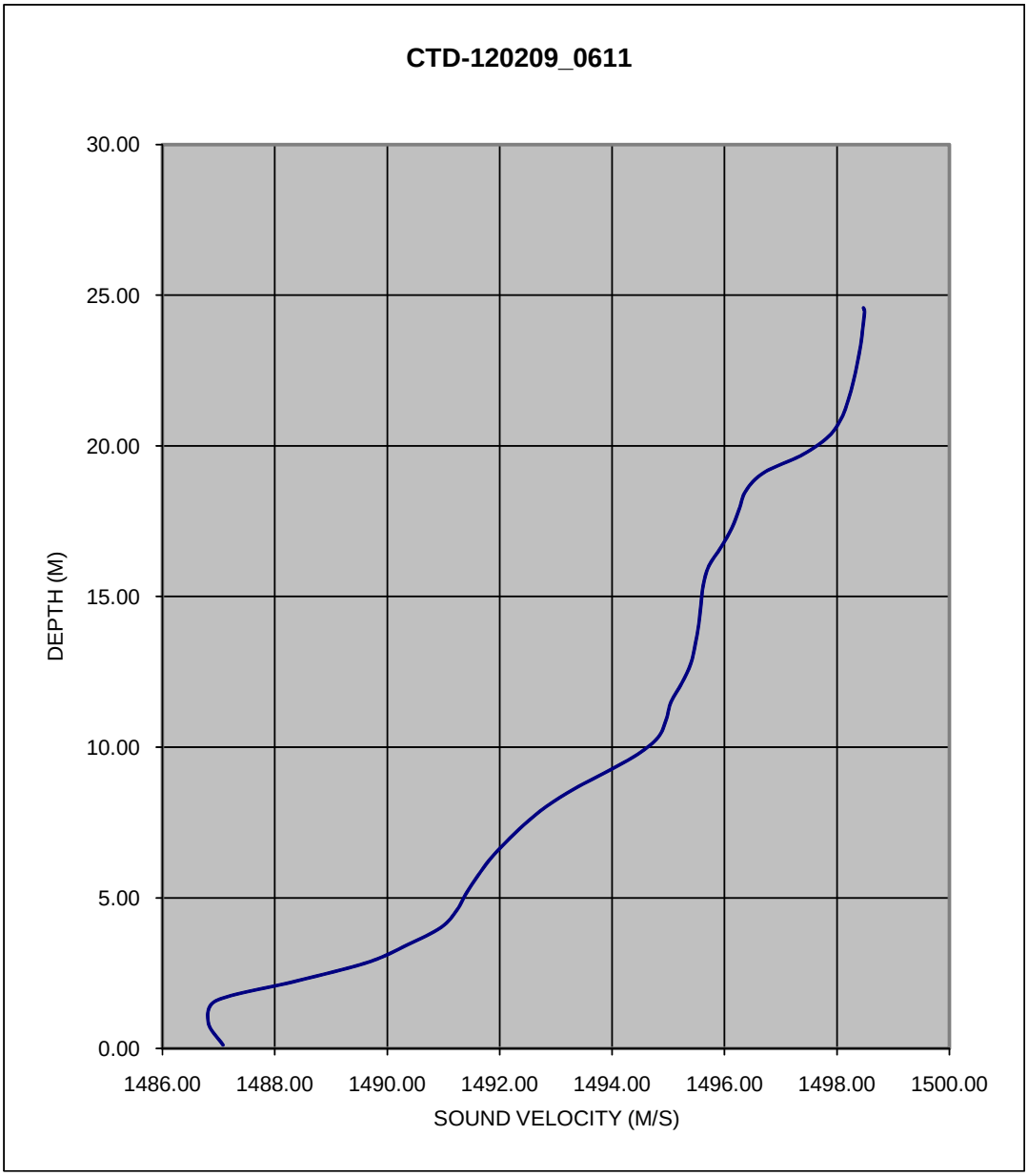


**Figure 3.2-48**
SVP 12/02/09_0749 taken during the Fall 2009 multibeam survey at the HARS

**CTD PROFILE # 120209_0749**

| Date | Time | NAD83 NY LI (Feet) | | Water Depth | Latitude | Longitude |
|---|---|---|---|---|---|---|
| | | Easting | Northing | Feet | N | W |
| 12/02/09 | 7:49 | 1014504 | 77058 | 77 | 40.37812702 | 73.89141462 |

| | |
|---|---|
| 1486.44 | 0.71 |
| 1486.40 | 1.51 |
| 1487.67 | 2.33 |
| 1489.23 | 3.14 |
| 1490.01 | 3.91 |
| 1490.47 | 4.65 |
| 1490.89 | 5.34 |
| 1491.14 | 6.00 |
| 1491.27 | 6.62 |
| 1491.78 | 7.25 |
| 1492.21 | 7.91 |
| 1492.67 | 8.58 |
| 1493.07 | 9.25 |
| 1493.31 | 9.94 |
| 1493.53 | 10.63 |
| 1493.85 | 11.32 |
| 1494.45 | 12.02 |
| 1494.98 | 12.70 |
| 1495.23 | 13.41 |
| 1495.36 | 14.12 |
| 1495.44 | 14.83 |
| 1495.52 | 15.54 |
| 1495.58 | 16.26 |
| 1495.67 | 16.95 |
| 1495.93 | 17.61 |
| 1496.19 | 18.27 |
| 1496.42 | 18.94 |
| 1496.68 | 19.59 |
| 1497.19 | 20.23 |
| 1497.82 | 20.89 |
| 1498.15 | 21.54 |
| 1498.29 | 22.21 |
| 1498.34 | 22.87 |
| 1498.35 | 23.45 |

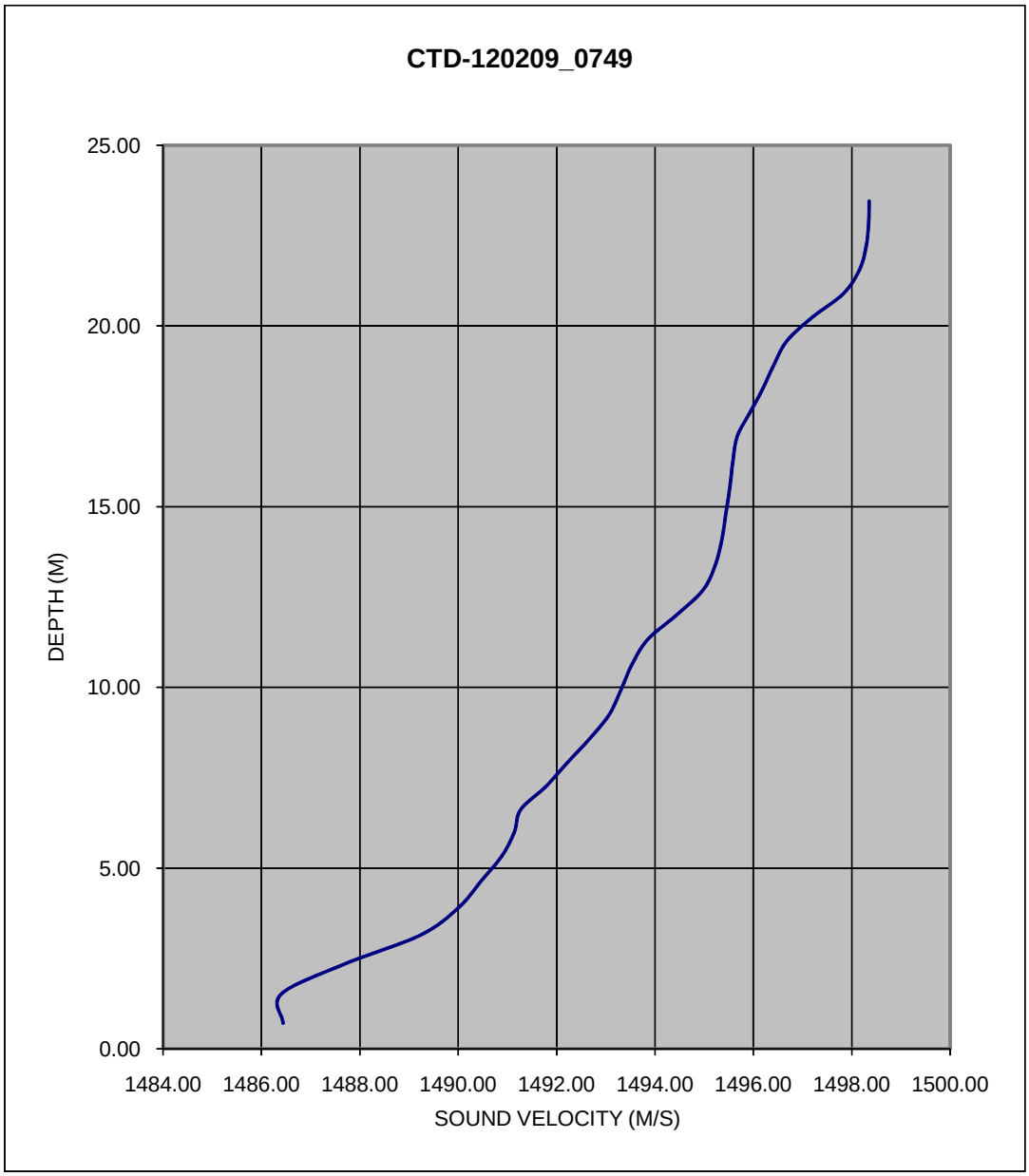


**Figure 3.2-49**
SVP 12/02/09_1007 taken during the Fall 2009 multibeam survey at the HARS

**CTD PROFILE # 120209_1007**

| Date | Time | NAD83 NY LI (Feet) | | Water Depth | Latitude | Longitude |
|---|---|---|---|---|---|---|
| | | Easting | Northing | Feet | N | W |
| 12/02/09 | 10:07 | 1011798 | 77102 | 70 | 40.37825659 | 73.90112660 |

| | |
|---|---|
| 1484.73 | 0.21 |
| 1484.66 | 1.00 |
| 1484.68 | 1.77 |
| 1484.76 | 2.52 |
| 1484.88 | 3.26 |
| 1485.03 | 3.96 |
| 1485.49 | 4.61 |
| 1486.30 | 5.26 |
| 1486.97 | 5.91 |
| 1487.50 | 6.57 |
| 1488.15 | 7.24 |
| 1488.89 | 7.89 |
| 1489.38 | 8.50 |
| 1489.75 | 9.09 |
| 1490.15 | 9.69 |
| 1490.59 | 10.28 |
| 1491.16 | 10.87 |
| 1491.94 | 11.45 |
| 1492.81 | 12.03 |
| 1493.89 | 12.60 |
| 1494.61 | 13.20 |
| 1495.04 | 13.81 |
| 1495.25 | 14.43 |
| 1495.38 | 15.03 |
| 1495.53 | 15.63 |
| 1495.81 | 16.25 |
| 1496.10 | 16.89 |
| 1496.47 | 17.55 |
| 1497.33 | 18.21 |
| 1497.92 | 18.87 |
| 1498.15 | 19.53 |
| 1498.23 | 20.17 |
| 1498.27 | 20.81 |
| 1498.26 | 21.32 |

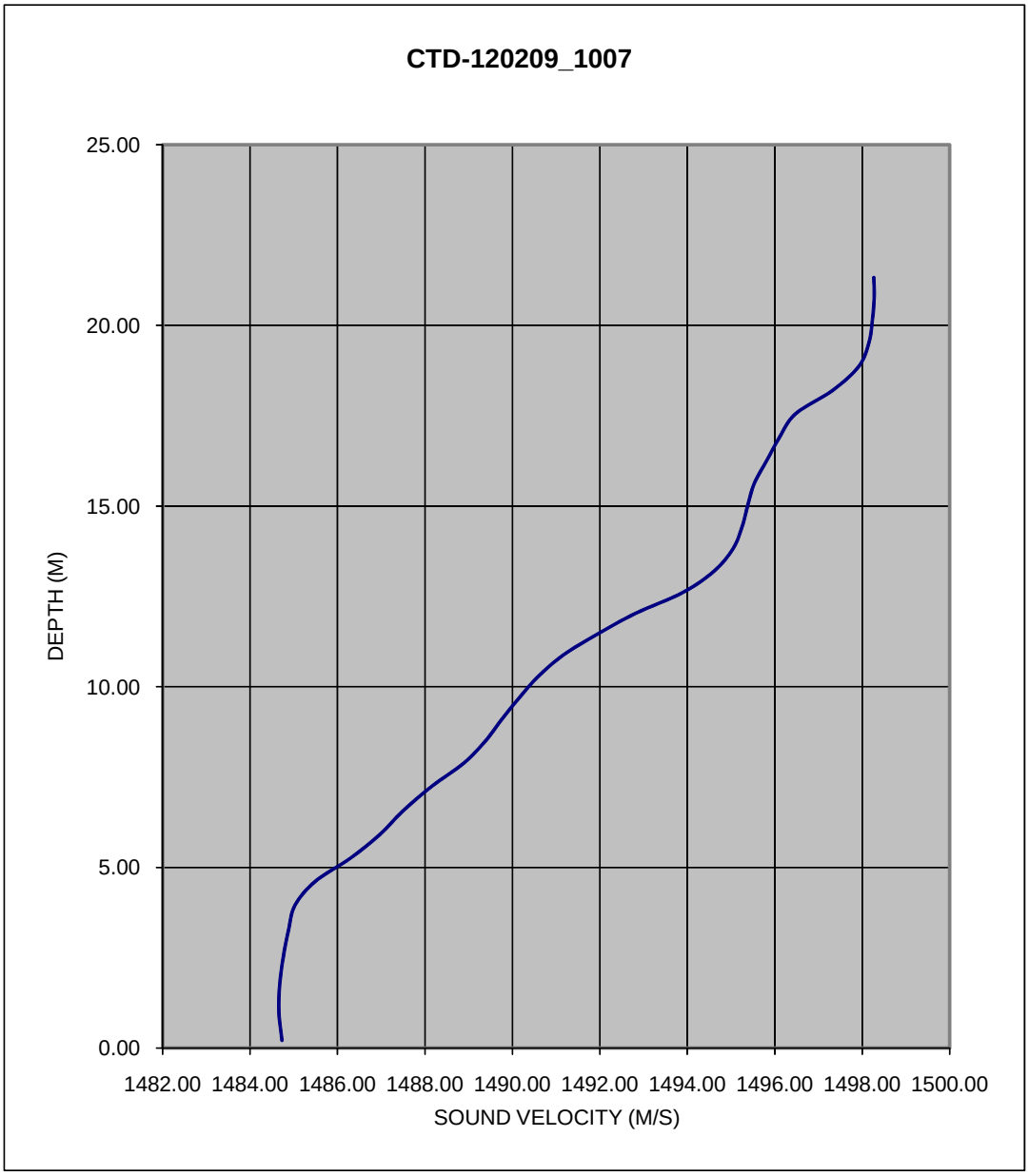


**Figure 3.2-50**
SVP 12/02/09_1218 taken during the Fall 2009 multibeam survey at the HARS

**CTD PROFILE # 120209_1218**

| Date | Time | NAD83 NY LI (Feet) | | Water Depth | Latitude | Longitude |
|---|---|---|---|---|---|---|
| | | Easting | Northing | Feet | N | W |
| 12/02/09 | 12:18 | 1013136 | 80332 | 63 | 40.38711816 | 73.89631063 |

| | |
|---|---|
| 1485.54 | 0.25 |
| 1485.35 | 0.97 |
| 1485.29 | 1.80 |
| 1485.31 | 2.65 |
| 1485.55 | 3.44 |
| 1486.54 | 4.15 |
| 1487.64 | 4.82 |
| 1488.46 | 5.46 |
| 1489.16 | 6.06 |
| 1489.78 | 6.63 |
| 1490.34 | 7.19 |
| 1491.25 | 7.76 |
| 1492.07 | 8.36 |
| 1493.25 | 8.96 |
| 1494.42 | 9.55 |
| 1494.96 | 10.13 |
| 1495.17 | 10.73 |
| 1495.30 | 11.33 |
| 1495.46 | 11.93 |
| 1495.68 | 12.53 |
| 1495.82 | 13.15 |
| 1495.94 | 13.81 |
| 1496.44 | 14.47 |
| 1496.83 | 15.13 |
| 1497.05 | 15.78 |
| 1497.24 | 16.42 |
| 1497.37 | 17.07 |
| 1497.50 | 17.71 |
| 1497.64 | 18.35 |
| 1497.73 | 19.01 |
| 1497.73 | 19.35 |

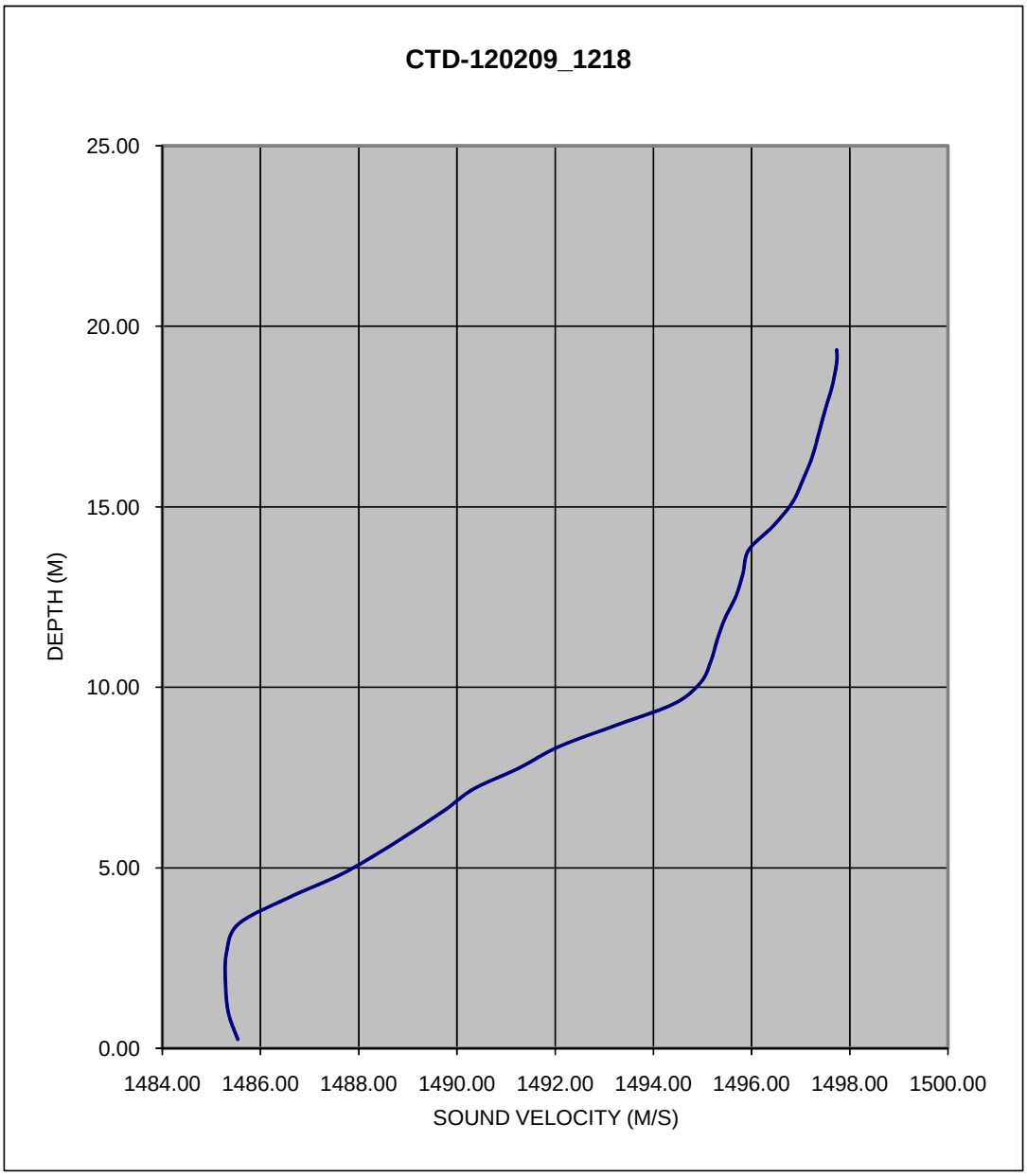


**Figure 3.2-51**
SVP 12/07/09_0651 taken during the Fall 2009 multibeam survey at the HARS

**CTD PROFILE # 120709_0651**

| Date | Time | NAD83 NY LI (Feet) | | Water Depth | Latitude | Longitude |
|---|---|---|---|---|---|---|
| | | Easting | Northing | Feet | N | W |
| 12/07/09 | 6:51 | 1030860 | 95844 | 82 | 40.42962069 | 73.83258214 |

| | |
|---|---|
| 1480.59 | 0.66 |
| 1482.06 | 1.40 |
| 1483.86 | 2.10 |
| 1485.14 | 2.77 |
| 1485.84 | 3.45 |
| 1486.39 | 4.12 |
| 1487.06 | 4.79 |
| 1487.57 | 5.46 |
| 1487.95 | 6.14 |
| 1488.17 | 6.84 |
| 1488.39 | 7.51 |
| 1488.75 | 8.18 |
| 1489.16 | 8.86 |
| 1489.40 | 9.53 |
| 1489.54 | 10.23 |
| 1489.64 | 10.94 |
| 1489.75 | 11.63 |
| 1490.04 | 12.33 |
| 1490.34 | 13.02 |
| 1490.44 | 13.71 |
| 1490.63 | 14.41 |
| 1490.78 | 15.10 |
| 1490.85 | 15.79 |
| 1491.12 | 16.47 |
| 1491.99 | 17.15 |
| 1493.71 | 17.81 |
| 1497.18 | 18.47 |
| 1502.08 | 19.14 |
| 1505.60 | 19.80 |
| 1506.90 | 20.47 |
| 1507.34 | 21.13 |
| 1507.53 | 21.81 |
| 1507.61 | 22.48 |
| 1507.67 | 23.17 |
| 1507.72 | 23.85 |
| 1507.74 | 24.53 |
| 1507.57 | 24.84 |
| 1507.19 | 24.90 |

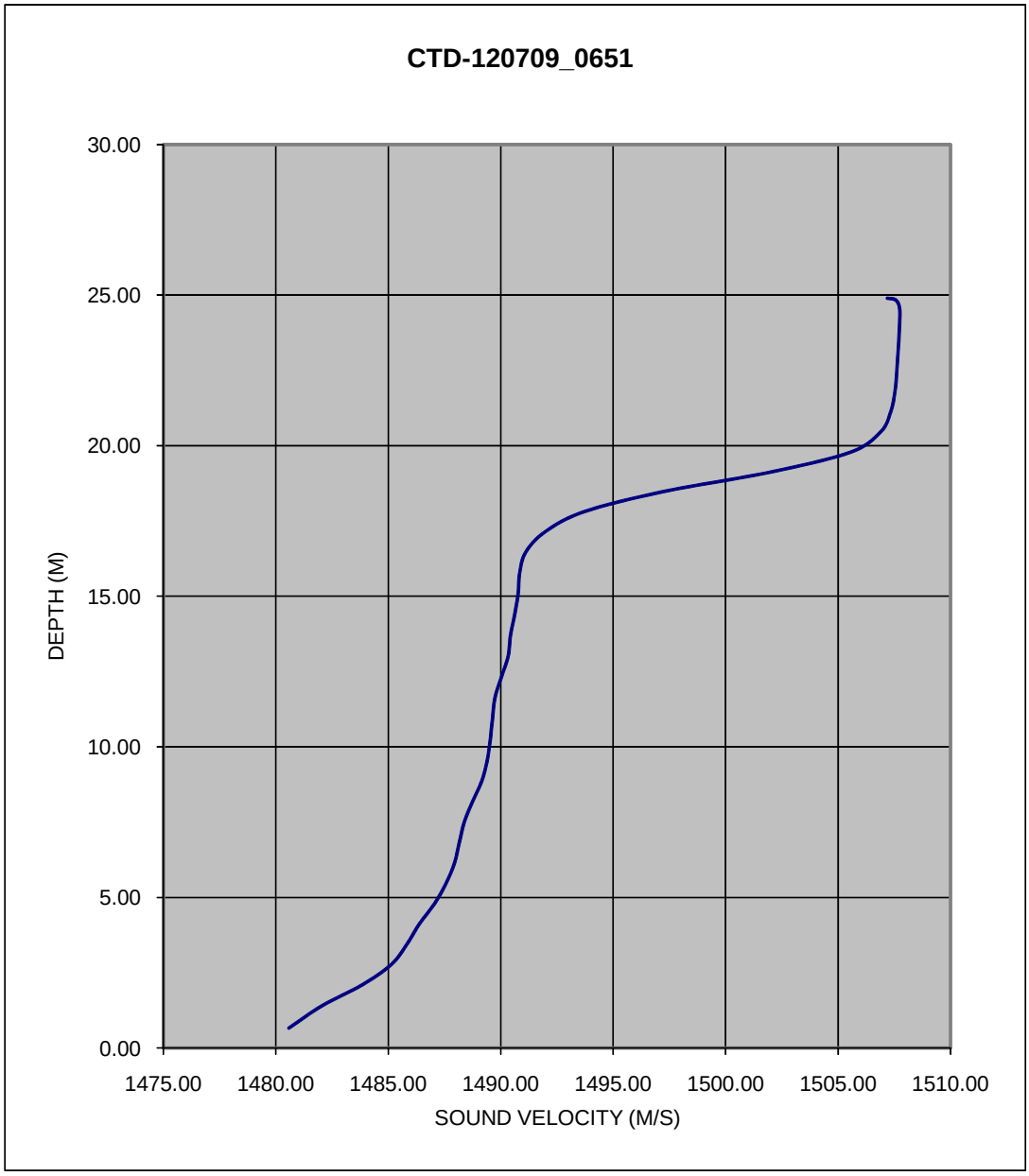


**Figure 3.2-52**
SVP 12/07/09_0853 taken during the Fall 2009 multibeam survey at the HARS

**CTD PROFILE # 120709_0853**

| Date | Time | NAD83 NY LI (Feet) | | Water Depth | Latitude | Longitude |
|---|---|---|---|---|---|---|
| | | Easting | Northing | Feet | N | W |
| 12/07/09 | 8:53 | 1028892 | 95909 | 82 | 40.42980921 | 73.83965053 |

| | |
|---|---|
| 1483.33 | 0.41 |
| 1483.47 | 1.22 |
| 1483.98 | 2.02 |
| 1484.81 | 2.76 |
| 1485.78 | 3.46 |
| 1486.65 | 4.15 |
| 1487.32 | 4.82 |
| 1487.76 | 5.45 |
| 1488.00 | 6.07 |
| 1488.24 | 6.67 |
| 1488.70 | 7.26 |
| 1489.29 | 7.84 |
| 1489.63 | 8.43 |
| 1489.82 | 9.02 |
| 1490.03 | 9.62 |
| 1490.34 | 10.21 |
| 1490.68 | 10.79 |
| 1490.97 | 11.37 |
| 1491.22 | 11.96 |
| 1491.53 | 12.56 |
| 1491.82 | 13.16 |
| 1492.42 | 13.76 |
| 1493.36 | 14.37 |
| 1493.88 | 14.99 |
| 1494.37 | 15.63 |
| 1496.03 | 16.26 |
| 1497.78 | 16.89 |
| 1499.46 | 17.52 |
| 1502.44 | 18.16 |
| 1505.46 | 18.81 |
| 1506.89 | 19.46 |
| 1507.39 | 20.12 |
| 1507.58 | 20.78 |
| 1507.66 | 21.45 |
| 1507.71 | 22.13 |
| 1507.75 | 22.80 |
| 1507.78 | 23.47 |
| 1507.81 | 24.15 |
| 1507.83 | 24.81 |
| 1507.71 | 25.06 |

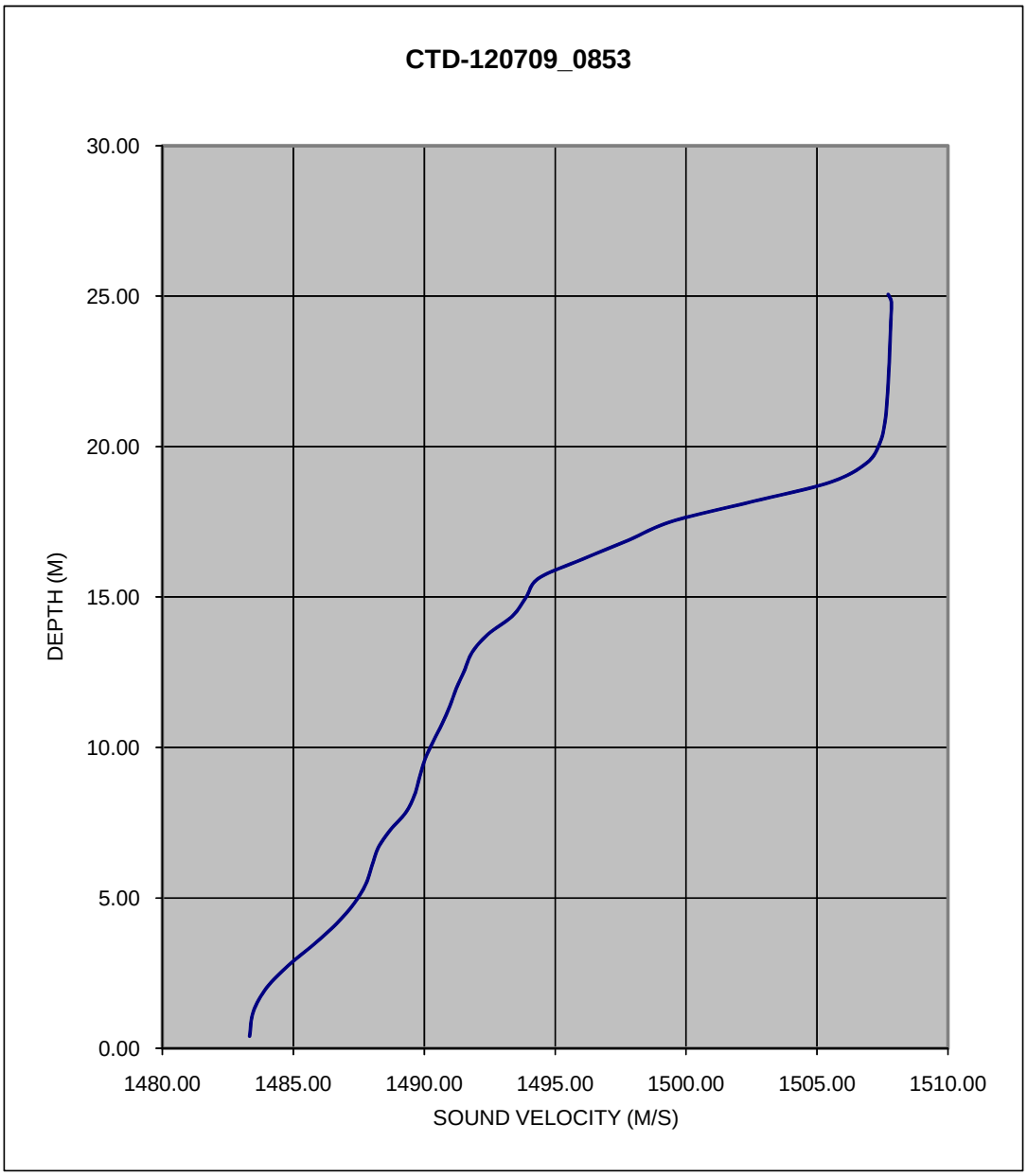


**Figure 3.2-53**
SVP 12/07/09_1102 taken during the Fall 2009 multibeam survey at the HARS

**CTD PROFILE # 120709_1102**

| Date | Time | NAD83 NY LI (Feet) | | Water Depth | Latitude | Longitude |
|---|---|---|---|---|---|---|
| | | Easting | Northing | Feet | N | W |
| 12/07/09 | 11:02 | 1027052 | 95944 | 78 | 40.42991433 | 73.84625939 |

| | |
|---|---|
| 1484.16 | 0.38 |
| 1484.23 | 1.07 |
| 1485.09 | 1.75 |
| 1486.09 | 2.38 |
| 1486.66 | 2.97 |
| 1487.00 | 3.51 |
| 1487.28 | 4.06 |
| 1487.72 | 4.59 |
| 1488.29 | 5.15 |
| 1488.94 | 5.73 |
| 1489.45 | 6.29 |
| 1489.72 | 6.84 |
| 1489.94 | 7.39 |
| 1490.12 | 7.95 |
| 1490.37 | 8.51 |
| 1490.58 | 9.08 |
| 1490.67 | 9.64 |
| 1490.71 | 10.19 |
| 1490.75 | 10.75 |
| 1490.78 | 11.32 |
| 1490.80 | 11.91 |
| 1490.81 | 12.51 |
| 1490.82 | 13.13 |
| 1490.89 | 13.76 |
| 1491.21 | 14.39 |
| 1491.66 | 15.03 |
| 1492.09 | 15.68 |
| 1492.73 | 16.32 |
| 1493.64 | 16.96 |
| 1497.26 | 17.59 |
| 1499.96 | 18.19 |
| 1501.68 | 18.80 |
| 1503.39 | 19.41 |
| 1505.45 | 20.01 |
| 1506.68 | 20.62 |
| 1507.17 | 21.22 |
| 1507.36 | 21.83 |
| 1507.45 | 22.45 |
| 1507.51 | 23.08 |
| 1507.46 | 23.54 |
| 1507.24 | 23.65 |

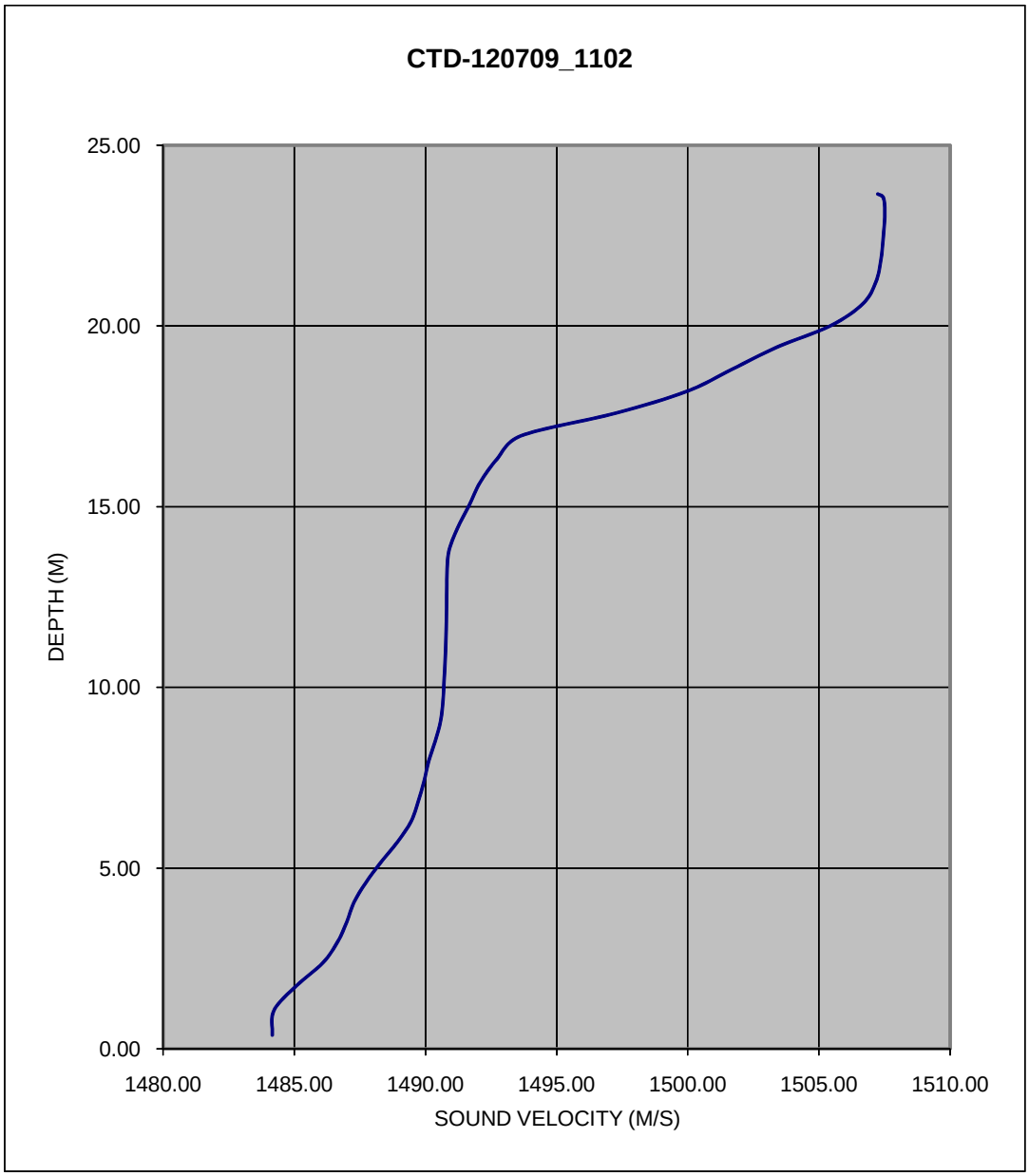


**Figure 3.2-54**
SVP 12/07/09_1258 taken during the Fall 2009 multibeam survey at the HARS

**CTD PROFILE # 120709_1258**

| Date | Time | NAD83 NY LI (Feet) | | Water Depth | Latitude | Longitude |
|---|---|---|---|---|---|---|
| | | Easting | Northing | Feet | N | W |
| 12/07/09 | 12:58 | 1025359 | 86203 | 58 | 40.40318495 | 73.85239943 |

| | |
|---|---|
| 1483.93 | 0.36 |
| 1483.94 | 1.00 |
| 1484.41 | 1.66 |
| 1485.31 | 2.31 |
| 1486.55 | 2.95 |
| 1487.66 | 3.56 |
| 1488.65 | 4.18 |
| 1489.23 | 4.81 |
| 1489.52 | 5.45 |
| 1489.67 | 6.10 |
| 1489.79 | 6.76 |
| 1489.91 | 7.41 |
| 1490.01 | 8.06 |
| 1490.09 | 8.73 |
| 1490.18 | 9.39 |
| 1490.25 | 10.05 |
| 1490.32 | 10.71 |
| 1490.39 | 11.37 |
| 1490.47 | 12.02 |
| 1490.58 | 12.67 |
| 1490.69 | 13.33 |
| 1490.85 | 14.00 |
| 1491.19 | 14.66 |
| 1491.53 | 15.32 |
| 1491.83 | 16.01 |
| 1492.12 | 16.69 |
| 1494.69 | 17.32 |
| 1496.43 | 17.54 |

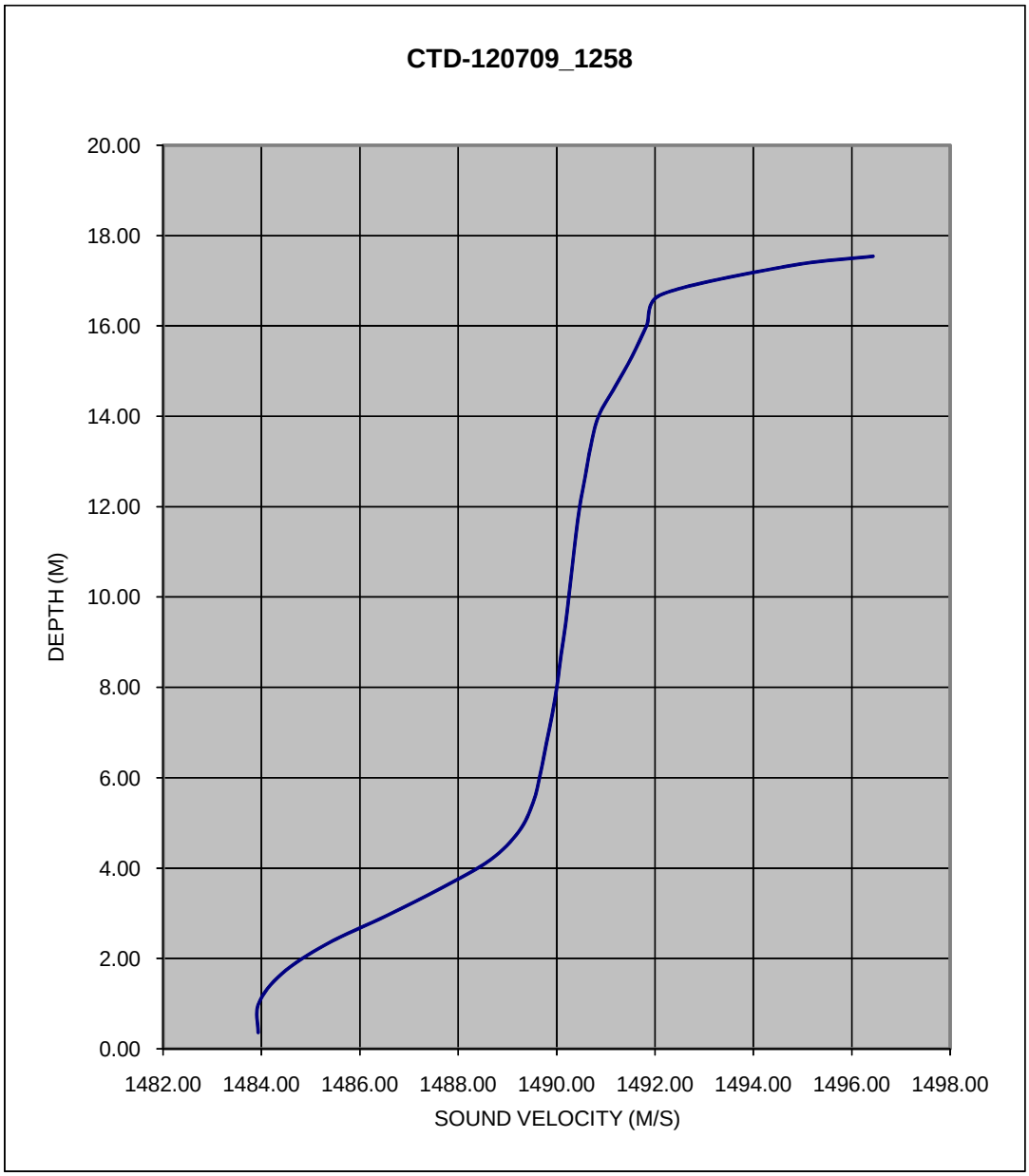


**Figure 3.2-55**
SVP 12/07/09_1506 taken during the Fall 2009 multibeam survey at the HARS

**CTD PROFILE # 120709_1506**

| Date | Time | NAD83 NY LI (Feet) | | Water Depth | Latitude | Longitude |
|---|---|---|---|---|---|---|
| | | Easting | Northing | Feet | N | W |
| 12/07/09 | 15:06 | 1024019 | 86415 | 54 | 40.40377295 | 73.85720940 |

| | |
|---|---|
| 1484.46 | 0.27 |
| 1484.05 | 1.06 |
| 1484.73 | 1.85 |
| 1485.30 | 2.55 |
| 1485.83 | 3.18 |
| 1486.45 | 3.76 |
| 1487.14 | 4.32 |
| 1488.06 | 4.88 |
| 1489.10 | 5.44 |
| 1489.62 | 6.00 |
| 1489.94 | 6.56 |
| 1490.14 | 7.11 |
| 1490.27 | 7.66 |
| 1490.37 | 8.22 |
| 1490.44 | 8.80 |
| 1490.50 | 9.37 |
| 1490.55 | 9.95 |
| 1490.61 | 10.53 |
| 1490.64 | 11.12 |
| 1490.66 | 11.71 |
| 1490.68 | 12.30 |
| 1490.71 | 12.91 |
| 1490.74 | 13.53 |
| 1490.76 | 14.14 |
| 1490.79 | 14.77 |
| 1490.84 | 15.41 |
| 1491.16 | 16.04 |
| 1491.87 | 16.39 |
| 1492.19 | 16.46 |

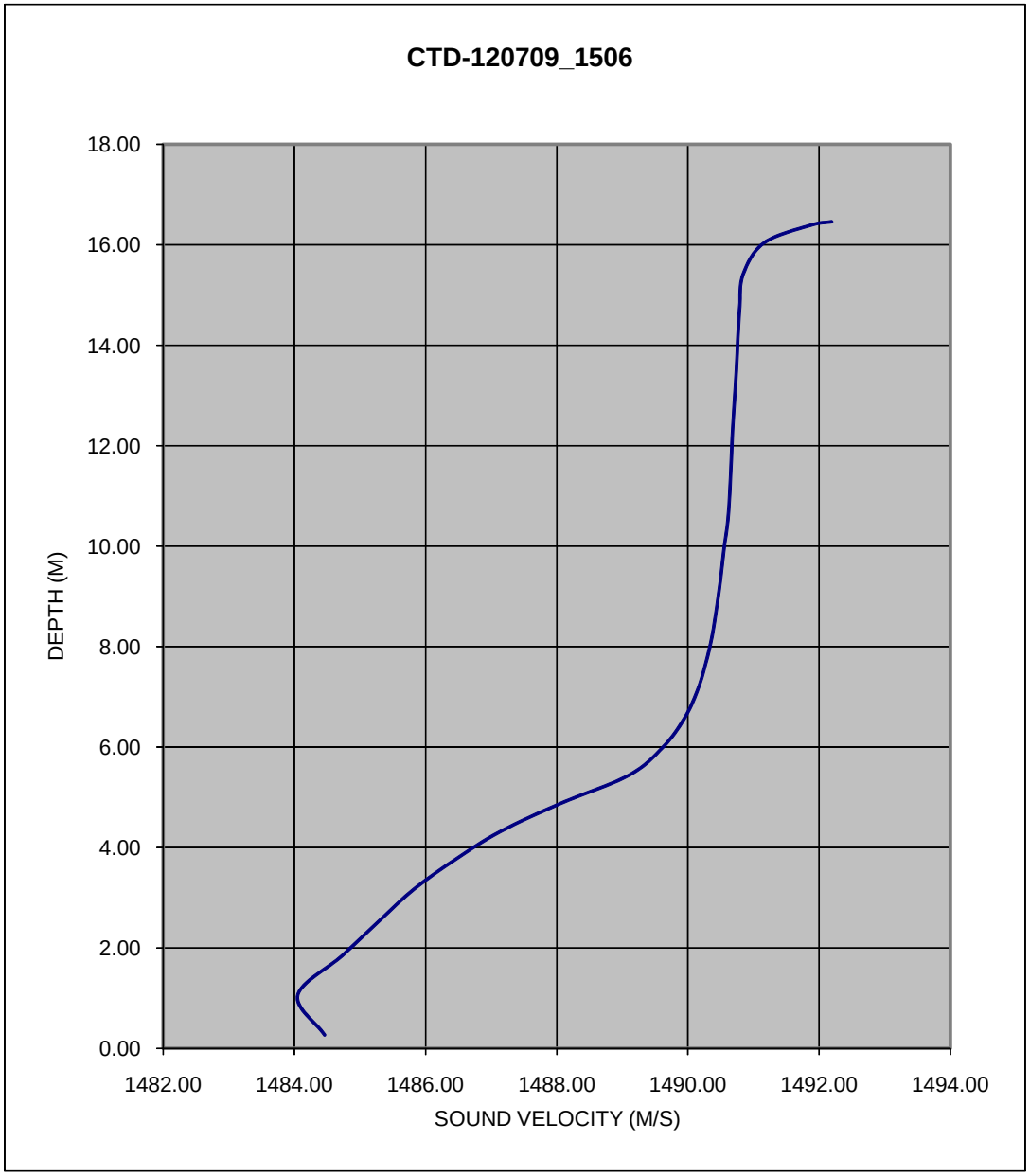


**Figure 3.2-56**
SVP 12/07/09_1708 taken during the Fall 2009 multibeam survey at the HARS

**CTD PROFILE # 120709_1708**

| Date | Time | NAD83 NY LI (Feet) | | Water Depth | Latitude | Longitude |
|---|---|---|---|---|---|---|
| | | Easting | Northing | Feet | N | W |
| 12/07/09 | 17:08 | 1022677 | 86425 | 51 | 40.40380630 | 73.86202779 |

| | |
|---|---|
| 1482.98 | 0.05 |
| 1482.70 | 0.86 |
| 1482.88 | 1.63 |
| 1483.12 | 2.41 |
| 1483.98 | 3.17 |
| 1485.86 | 3.93 |
| 1487.02 | 4.70 |
| 1487.66 | 5.45 |
| 1488.06 | 6.13 |
| 1488.45 | 6.78 |
| 1488.71 | 7.39 |
| 1488.98 | 7.97 |
| 1489.20 | 8.54 |
| 1489.45 | 9.13 |
| 1489.74 | 9.73 |
| 1490.08 | 10.36 |
| 1490.33 | 11.00 |
| 1490.44 | 11.65 |
| 1490.48 | 12.33 |
| 1490.57 | 13.02 |
| 1490.66 | 13.70 |
| 1490.70 | 14.36 |
| 1490.72 | 14.99 |
| 1490.75 | 15.40 |
| 1490.78 | 15.47 |
| 1490.81 | 15.50 |

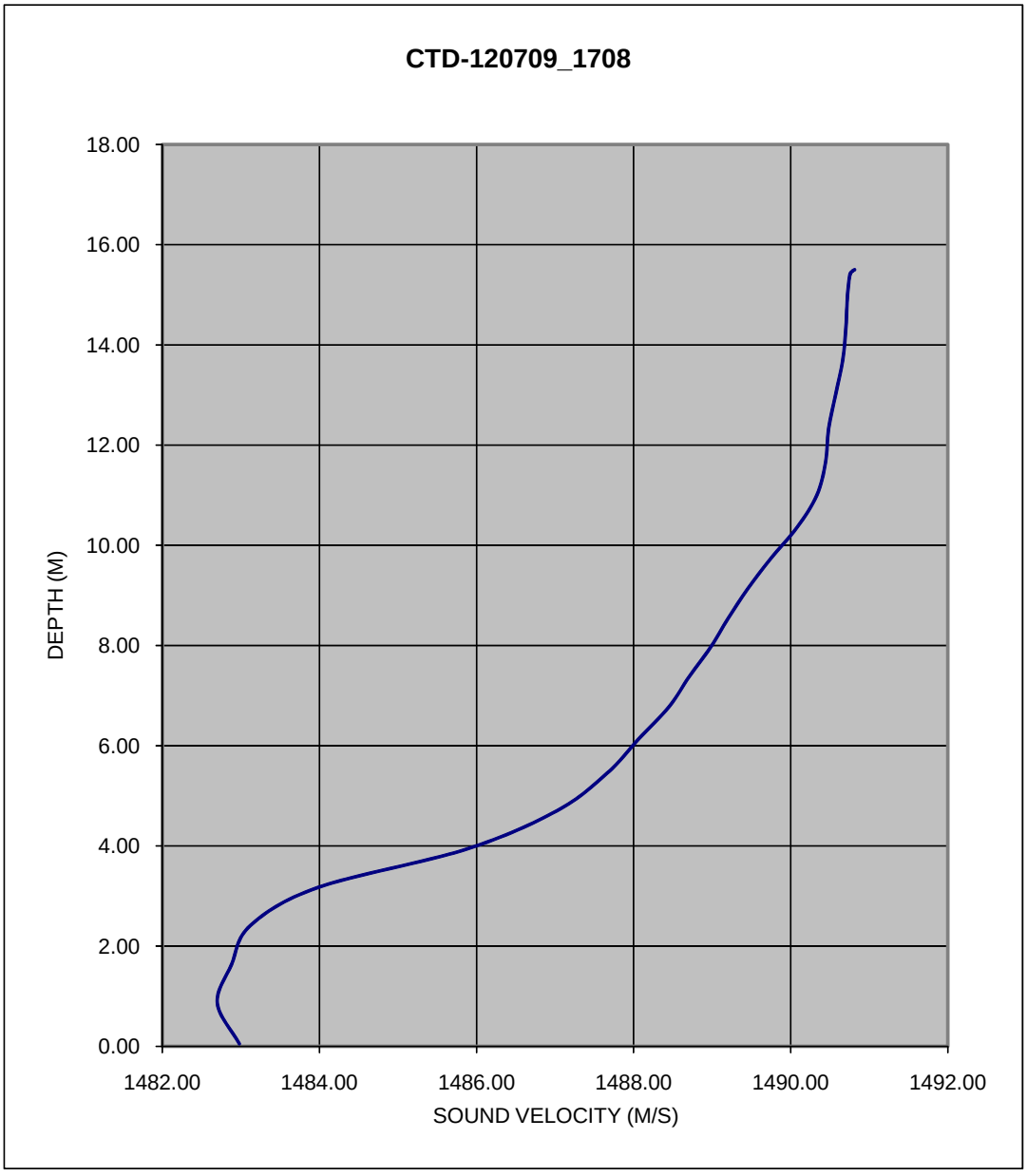


**Figure 3.2-57**
SVP 12/08/09_0843 taken during the Fall 2009 multibeam survey at the HARS

**CTD PROFILE # 120809_0843**

| Date | Time | NAD83 NY LI (Feet) | | Water Depth | Latitude | Longitude |
|---|---|---|---|---|---|---|
| | | Easting | Northing | Feet | N | W |
| 12/08/09 | 8:43 | 1022659 | 95486 | 58 | 40.42867728 | 73.86204118 |

| | |
|---|---|
| 1483.53 | 0.25 |
| 1483.74 | 0.94 |
| 1483.84 | 1.70 |
| 1483.91 | 2.48 |
| 1484.00 | 3.23 |
| 1484.06 | 3.94 |
| 1484.17 | 4.60 |
| 1484.34 | 5.20 |
| 1484.41 | 5.76 |
| 1484.44 | 6.34 |
| 1484.47 | 6.94 |
| 1484.52 | 7.55 |
| 1484.57 | 8.18 |
| 1484.61 | 8.78 |
| 1484.72 | 9.42 |
| 1484.80 | 10.04 |
| 1484.85 | 10.66 |
| 1484.89 | 11.29 |
| 1485.00 | 11.91 |
| 1485.21 | 12.54 |
| 1485.48 | 13.17 |
| 1485.80 | 13.80 |
| 1486.16 | 14.44 |
| 1486.55 | 15.07 |
| 1487.50 | 15.70 |
| 1489.84 | 16.33 |
| 1490.86 | 16.96 |
| 1491.12 | 17.44 |

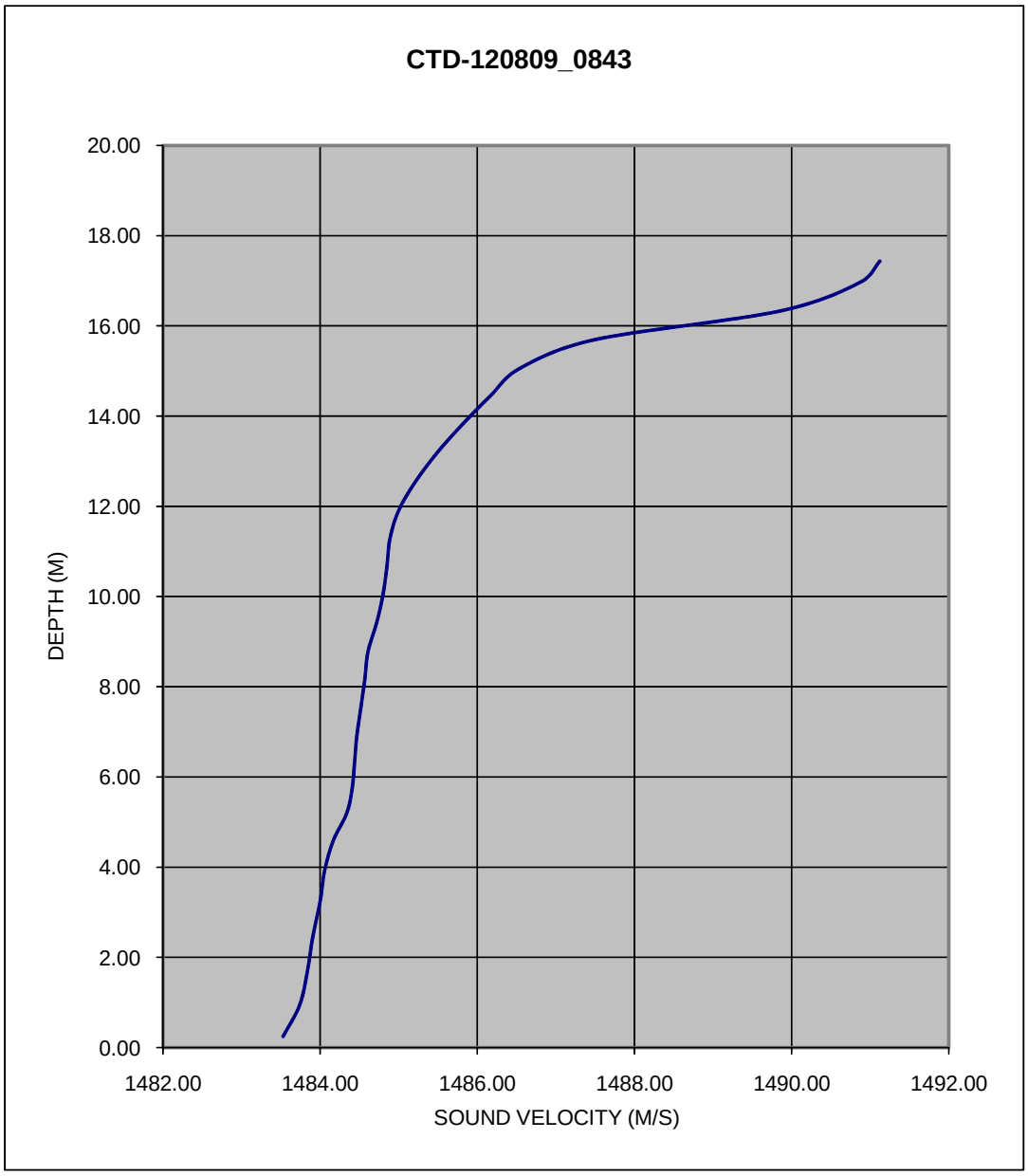


**Figure 3.2-58**
SVP 12/08/09_1041 taken during the Fall 2009 multibeam survey at the HARS

**CTD PROFILE # 120809_1041**

| Date | Time | NAD83 NY LI (Feet) | | Water Depth | Latitude | Longitude |
|---|---|---|---|---|---|---|
| | | Easting | Northing | Feet | N | W |
| 12/08/09 | 10:41 | 1021528 | 86196 | 56 | 40.40318263 | 73.86615453 |

| | |
|---|---|
| 1483.98 | 0.24 |
| 1484.00 | 0.96 |
| 1484.01 | 1.68 |
| 1484.03 | 2.32 |
| 1484.04 | 2.88 |
| 1484.04 | 3.45 |
| 1484.06 | 4.02 |
| 1484.07 | 4.61 |
| 1484.29 | 5.21 |
| 1484.56 | 5.78 |
| 1484.69 | 6.33 |
| 1484.87 | 6.88 |
| 1485.01 | 7.46 |
| 1485.13 | 8.05 |
| 1485.38 | 8.62 |
| 1485.81 | 9.18 |
| 1486.79 | 9.74 |
| 1487.26 | 10.33 |
| 1487.62 | 10.93 |
| 1487.96 | 11.53 |
| 1488.33 | 12.15 |
| 1488.84 | 12.76 |
| 1490.28 | 13.38 |
| 1491.97 | 13.99 |
| 1492.91 | 14.60 |
| 1493.27 | 15.21 |
| 1493.52 | 15.82 |
| 1493.65 | 16.43 |
| 1493.67 | 16.91 |

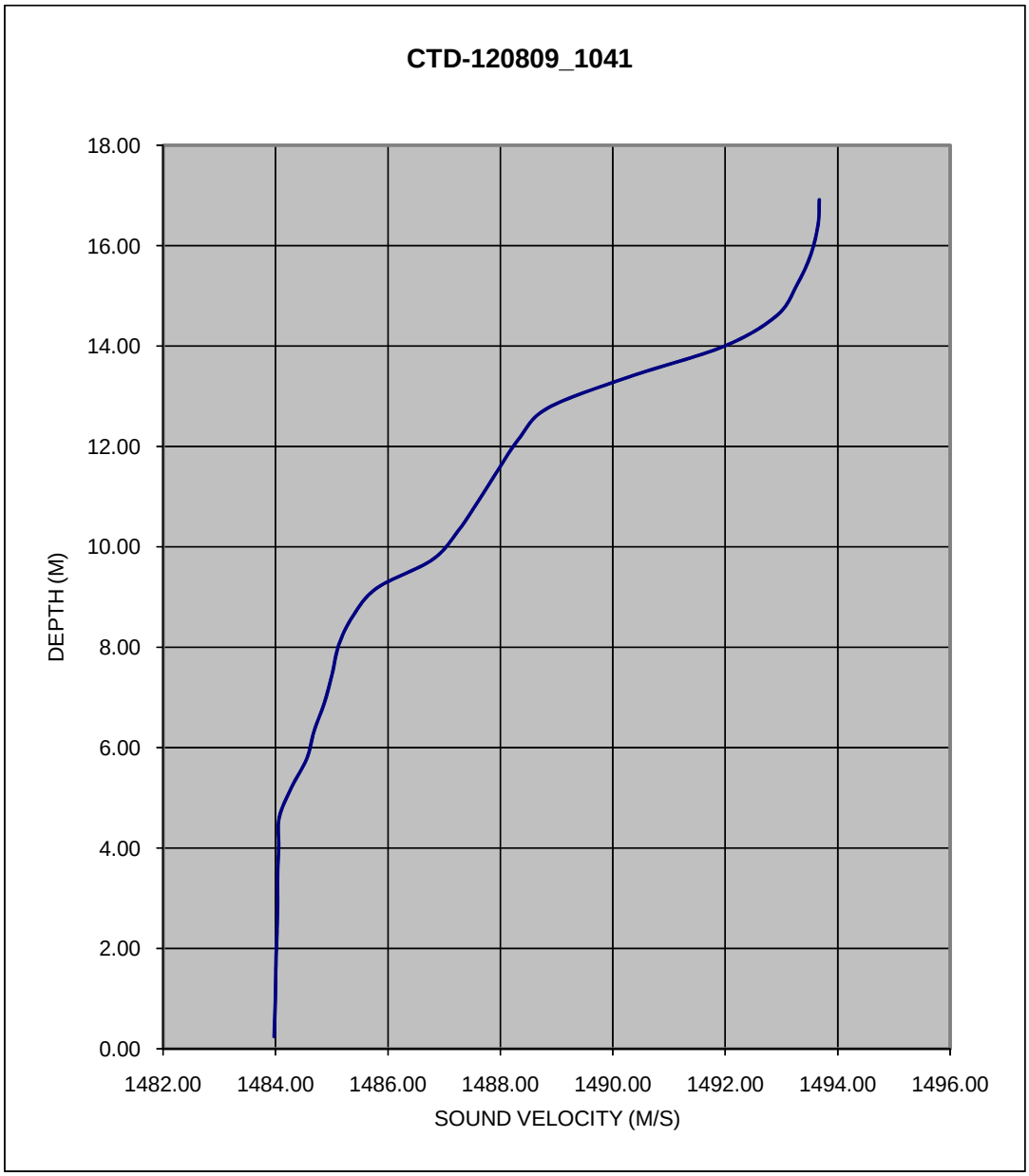


**Figure 3.2-59**
SVP 12/08/09_1254 taken during the Fall 2009 multibeam survey at the HARS

**CTD PROFILE # 120809_1254**

| Date | Time | NAD83 NY LI (Feet) | | Water Depth | Latitude | Longitude |
|---|---|---|---|---|---|---|
| | | Easting | Northing | Feet | N | W |
| 12/08/09 | 12:54 | 1020264 | 86226 | 63 | 40.40327018 | 73.87069271 |

| | |
|---|---|
| 1485.30 | 0.24 |
| 1484.56 | 0.95 |
| 1484.40 | 1.76 |
| 1484.40 | 2.53 |
| 1484.46 | 3.25 |
| 1484.58 | 3.91 |
| 1484.81 | 4.54 |
| 1485.00 | 5.16 |
| 1485.09 | 5.77 |
| 1485.25 | 6.36 |
| 1485.47 | 6.95 |
| 1485.73 | 7.52 |
| 1486.07 | 8.08 |
| 1486.41 | 8.64 |
| 1486.73 | 9.21 |
| 1487.01 | 9.79 |
| 1487.29 | 10.37 |
| 1487.52 | 10.95 |
| 1487.74 | 11.53 |
| 1487.97 | 12.11 |
| 1488.36 | 12.71 |
| 1489.02 | 13.32 |
| 1490.18 | 13.95 |
| 1491.67 | 14.58 |
| 1492.62 | 15.22 |
| 1493.09 | 15.86 |
| 1493.36 | 16.51 |
| 1493.54 | 17.17 |
| 1493.71 | 17.84 |
| 1493.81 | 18.51 |
| 1493.85 | 18.99 |
| 1493.83 | 19.08 |

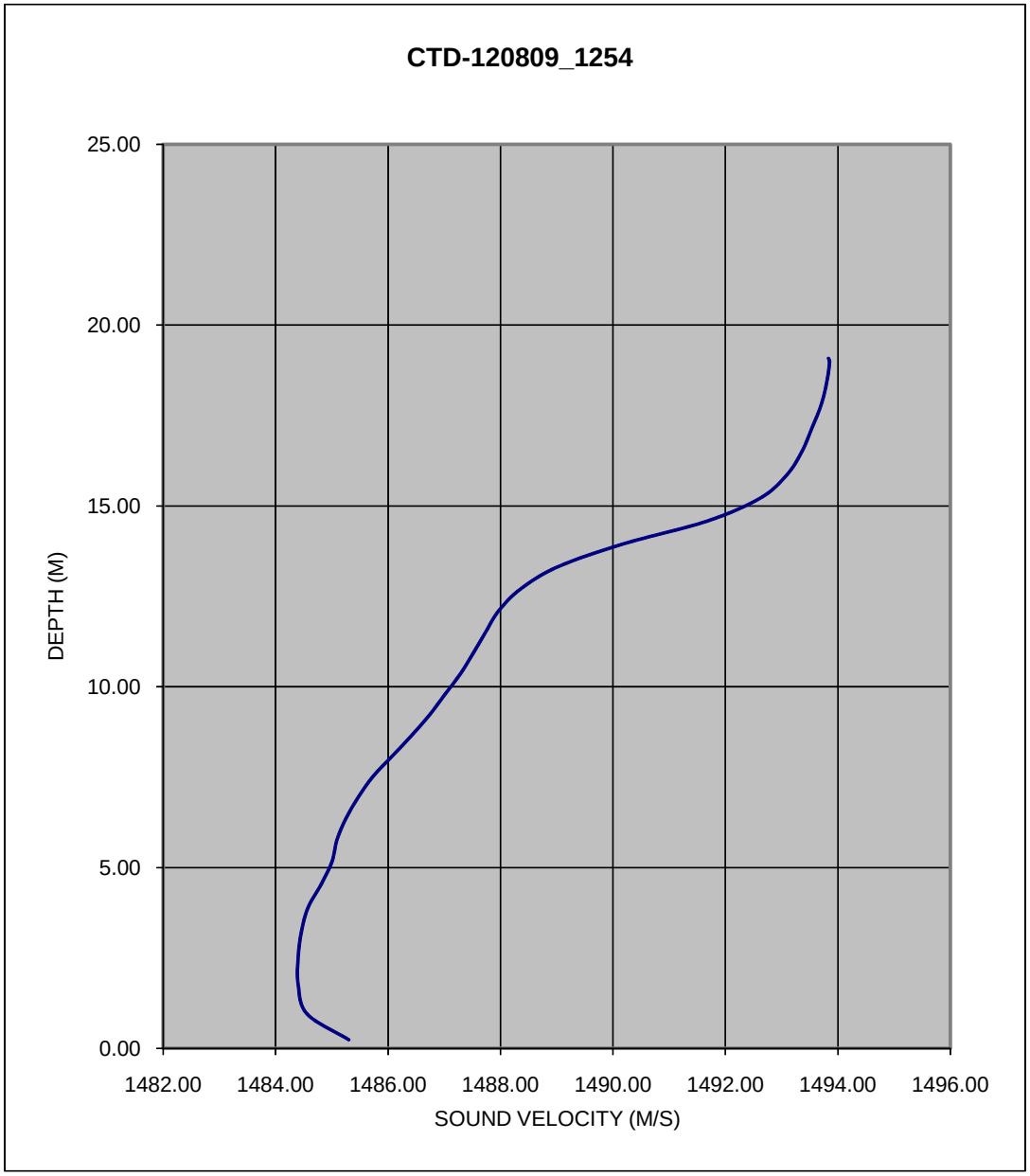


**Figure 3.2-60**
SVP 12/08/09_1453 taken during the Fall 2009 multibeam survey at the HARS

**CTD PROFILE # 120809_1453**

| Date | Time | NAD83 NY LI (Feet) | | Water Depth | Latitude | Longitude |
|---|---|---|---|---|---|---|
| | | Easting | Northing | Feet | N | W |
| 12/08/09 | 14:53 | 1020144 | 86231 | 64 | 40.40328439 | 73.87112354 |

| | |
|---|---|
| 1485.20 | 0.57 |
| 1484.79 | 1.42 |
| 1484.90 | 2.29 |
| 1485.18 | 3.11 |
| 1485.39 | 3.87 |
| 1485.58 | 4.55 |
| 1485.80 | 5.23 |
| 1485.95 | 5.88 |
| 1486.13 | 6.56 |
| 1486.38 | 7.25 |
| 1486.62 | 7.95 |
| 1486.92 | 8.65 |
| 1487.21 | 9.34 |
| 1487.81 | 10.03 |
| 1489.74 | 10.71 |
| 1490.87 | 11.39 |
| 1491.40 | 12.07 |
| 1491.59 | 12.76 |
| 1491.82 | 13.45 |
| 1491.99 | 14.14 |
| 1492.10 | 14.83 |
| 1492.24 | 15.51 |
| 1492.55 | 16.19 |
| 1493.09 | 16.87 |
| 1493.57 | 17.55 |
| 1493.87 | 18.24 |
| 1494.00 | 18.93 |
| 1494.03 | 19.39 |
| 1494.01 | 19.45 |

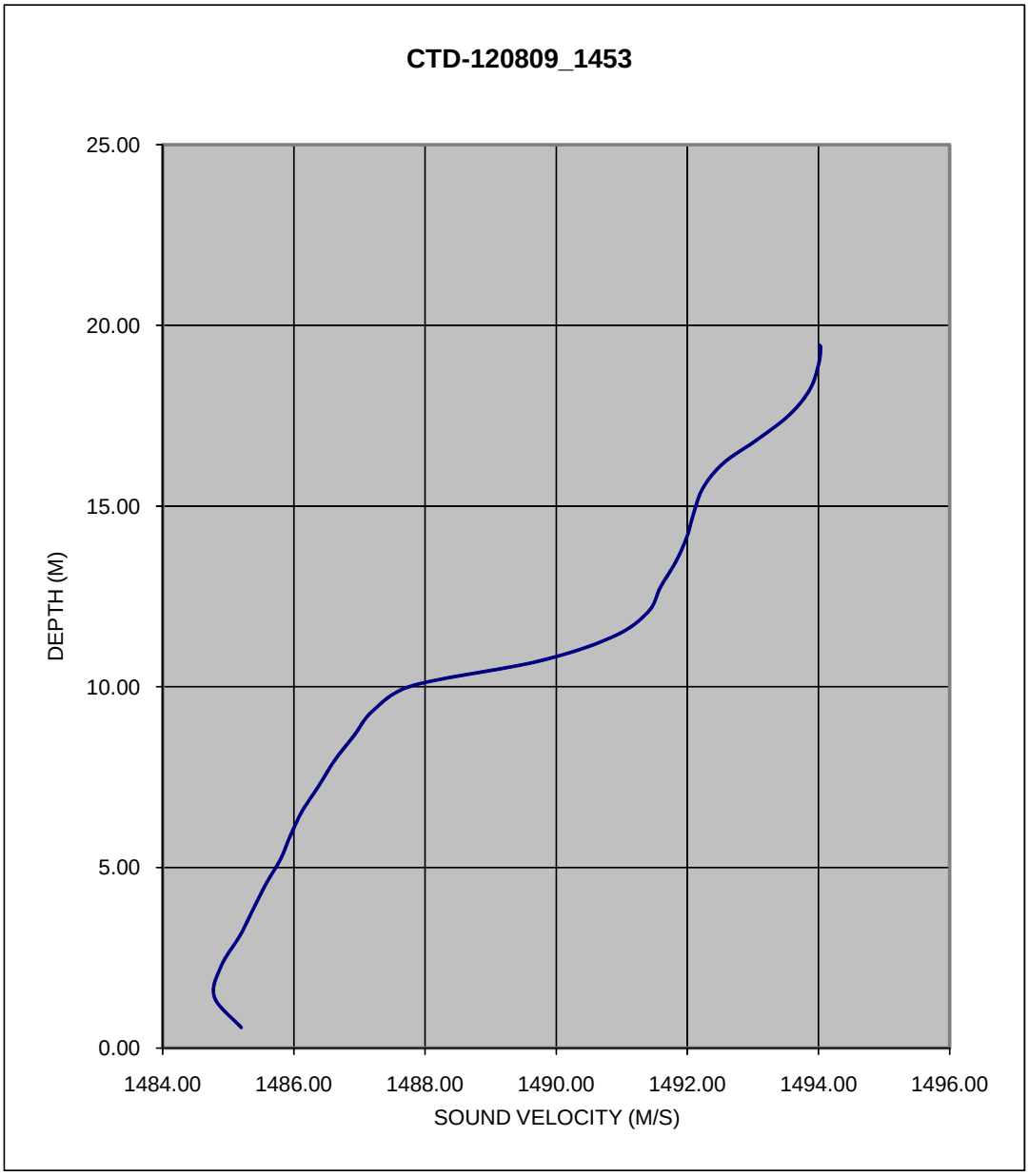


**Figure 3.2-61**
SVP 12/08/09_1647 taken during the Fall 2009 multibeam survey at the HARS

**CTD PROFILE # 120809_1647**

| Date | Time | NAD83 NY LI (Feet) | | Water Depth | Latitude | Longitude |
|---|---|---|---|---|---|---|
| | | Easting | Northing | Feet | N | W |
| 12/08/09 | 16:47 | 1016907 | 95841 | 62 | 40.42967469 | 73.88269969 |

| | |
|---|---|
| 1484.81 | 0.69 |
| 1484.81 | 1.47 |
| 1484.86 | 2.23 |
| 1484.87 | 2.96 |
| 1484.85 | 3.62 |
| 1484.97 | 4.22 |
| 1485.12 | 4.78 |
| 1485.24 | 5.34 |
| 1485.29 | 5.88 |
| 1485.27 | 6.45 |
| 1485.23 | 7.06 |
| 1485.20 | 7.66 |
| 1485.19 | 8.25 |
| 1485.23 | 8.84 |
| 1486.01 | 9.41 |
| 1488.41 | 9.98 |
| 1490.25 | 10.56 |
| 1491.51 | 11.15 |
| 1492.28 | 11.76 |
| 1492.64 | 12.37 |
| 1493.00 | 12.99 |
| 1493.38 | 13.63 |
| 1493.57 | 14.27 |
| 1493.68 | 14.92 |
| 1493.89 | 15.57 |
| 1494.22 | 16.22 |
| 1494.83 | 16.87 |
| 1496.04 | 17.51 |
| 1497.12 | 18.14 |
| 1497.79 | 18.76 |
| 1497.93 | 19.00 |

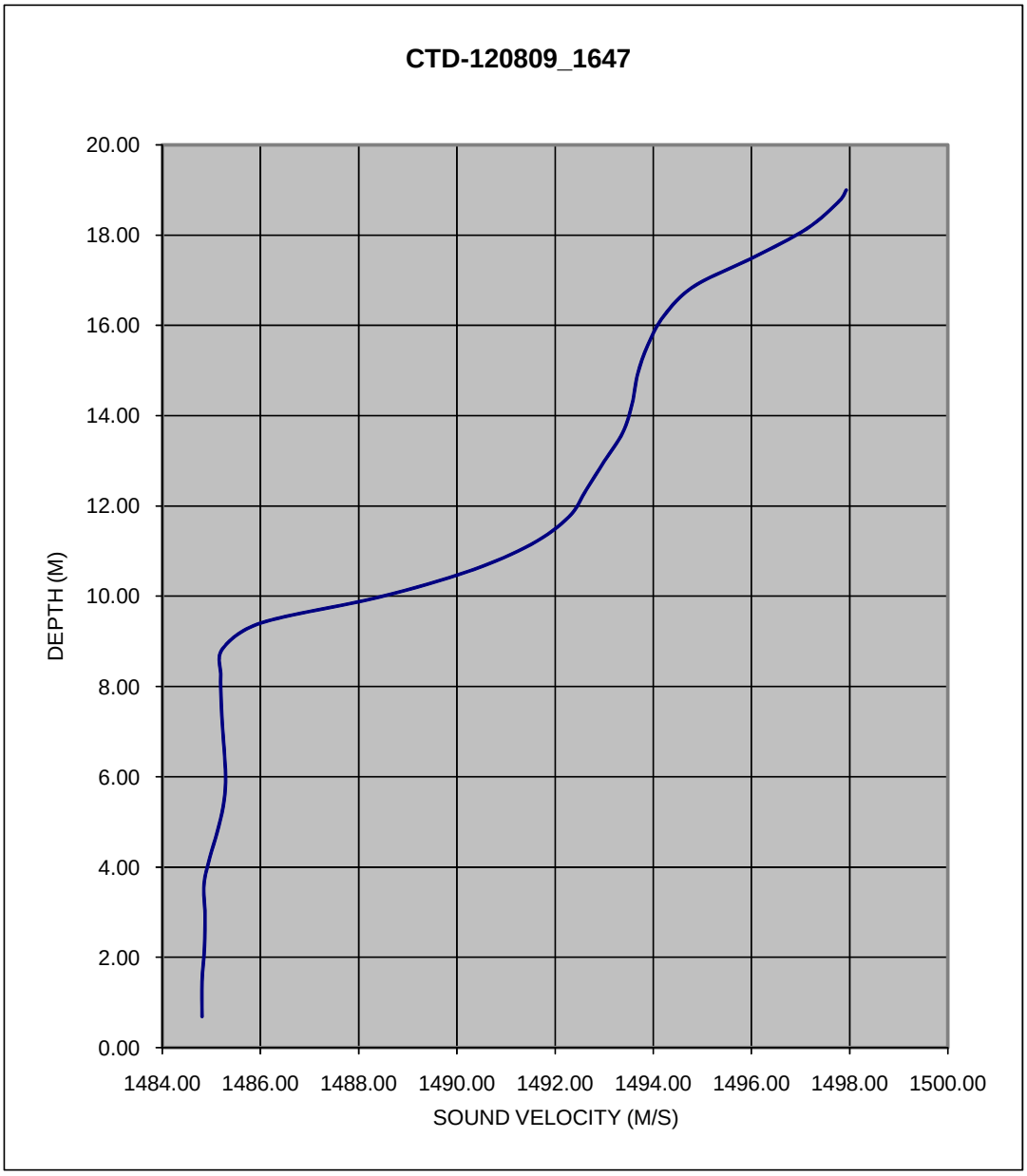


**Figure 3.2-62**
SVP 12/08/09_1855 taken during the Fall 2009 multibeam survey at the HARS

**CTD PROFILE # 120809_1855**

| Date | Time | NAD83 NY LI (Feet) | | Water Depth | Latitude | Longitude |
|---|---|---|---|---|---|---|
| | | Easting | Northing | Feet | N | W |
| 12/08/09 | 18:55 | 1014698 | 86369 | 70 | 40.40368350 | 73.89067662 |

| | |
|---|---|
| 1484.20 | 0.30 |
| 1484.03 | 1.04 |
| 1484.06 | 1.74 |
| 1484.27 | 2.39 |
| 1484.45 | 2.98 |
| 1484.64 | 3.54 |
| 1484.75 | 4.12 |
| 1484.92 | 4.69 |
| 1485.19 | 5.27 |
| 1485.34 | 5.86 |
| 1485.45 | 6.46 |
| 1485.55 | 7.04 |
| 1485.67 | 7.63 |
| 1485.82 | 8.22 |
| 1486.05 | 8.83 |
| 1486.79 | 9.45 |
| 1489.00 | 10.07 |
| 1490.50 | 10.68 |
| 1491.27 | 11.32 |
| 1491.54 | 11.95 |
| 1491.59 | 12.60 |
| 1491.59 | 13.26 |
| 1491.62 | 13.91 |
| 1491.66 | 14.56 |
| 1491.75 | 15.20 |
| 1491.91 | 15.85 |
| 1492.14 | 16.49 |
| 1492.81 | 17.14 |
| 1494.02 | 17.78 |
| 1494.81 | 18.43 |
| 1495.18 | 19.07 |
| 1495.42 | 19.71 |
| 1495.53 | 20.35 |
| 1495.55 | 20.86 |
| 1495.51 | 21.00 |
| 1495.48 | 21.09 |
| 1495.51 | 21.21 |

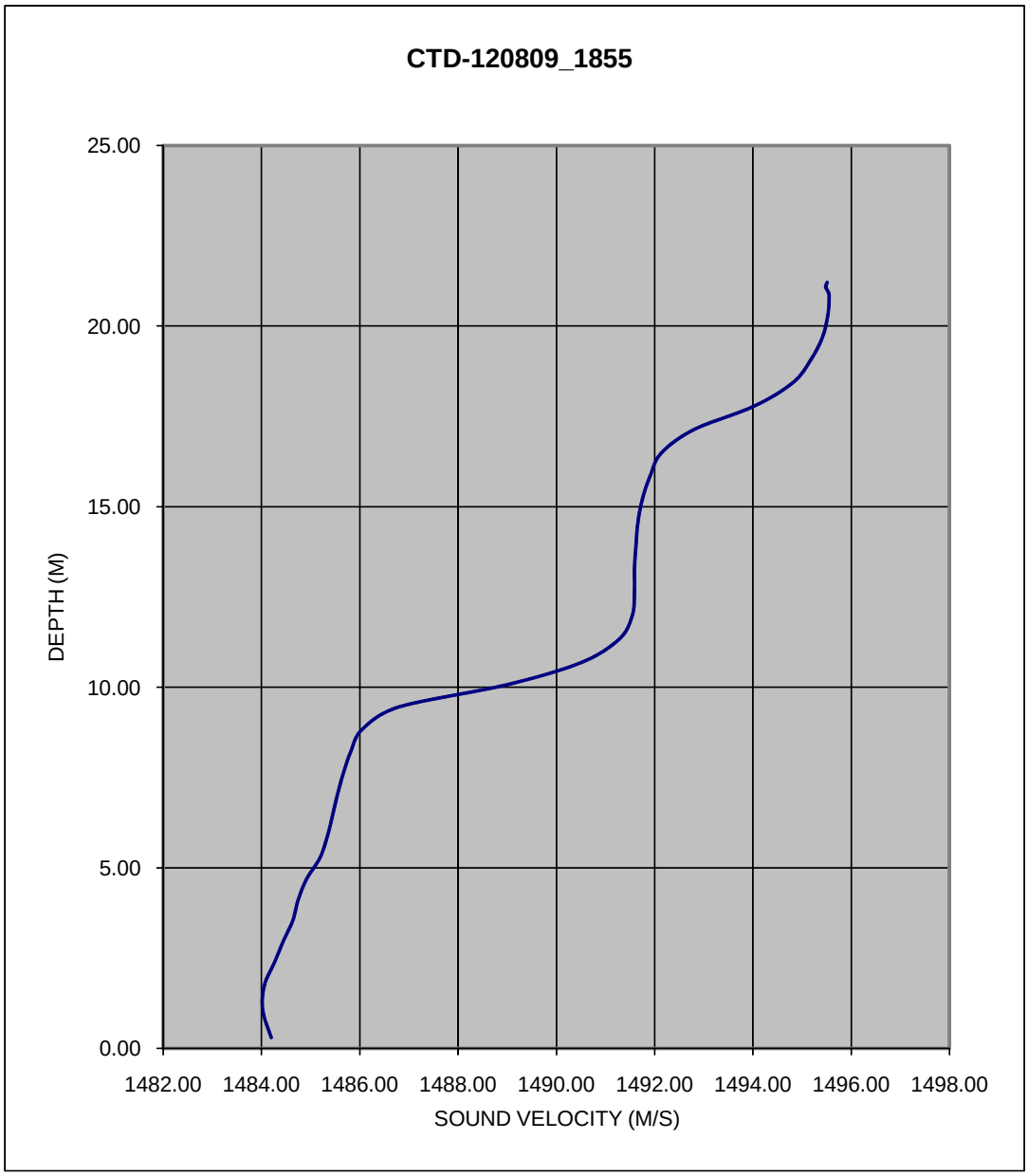


**Figure 3.2-63**
SVP 12/14/09_0829 taken during the Fall 2009 multibeam survey at the HARS

**CTD PROFILE # 121409_0829**

| Date | Time | NAD83 NY LI (Feet) | | Water Depth | Latitude | Longitude |
|---|---|---|---|---|---|---|
| | | Easting | Northing | Feet | N | W |
| 12/14/09 | 8:29 | 1011868 | 95803 | 75 | 40.42958748 | 73.90079935 |

| | |
|---|---|
| 1482.21 | 0.29 |
| 1482.23 | 0.98 |
| 1482.26 | 1.70 |
| 1482.28 | 2.42 |
| 1482.33 | 3.13 |
| 1482.40 | 3.85 |
| 1482.49 | 4.58 |
| 1482.64 | 5.32 |
| 1482.89 | 6.05 |
| 1483.09 | 6.78 |
| 1483.12 | 7.52 |
| 1483.02 | 8.25 |
| 1482.94 | 8.97 |
| 1482.93 | 9.69 |
| 1482.86 | 10.40 |
| 1482.85 | 11.11 |
| 1482.84 | 11.82 |
| 1482.86 | 12.52 |
| 1483.41 | 13.23 |
| 1485.43 | 13.92 |
| 1487.77 | 14.60 |
| 1489.66 | 15.28 |
| 1491.42 | 15.97 |
| 1493.03 | 16.68 |
| 1494.24 | 17.37 |
| 1494.81 | 18.07 |
| 1495.02 | 18.77 |
| 1495.11 | 19.47 |
| 1495.18 | 20.16 |
| 1495.23 | 20.84 |
| 1495.29 | 21.51 |
| 1495.34 | 22.19 |
| 1495.35 | 22.79 |

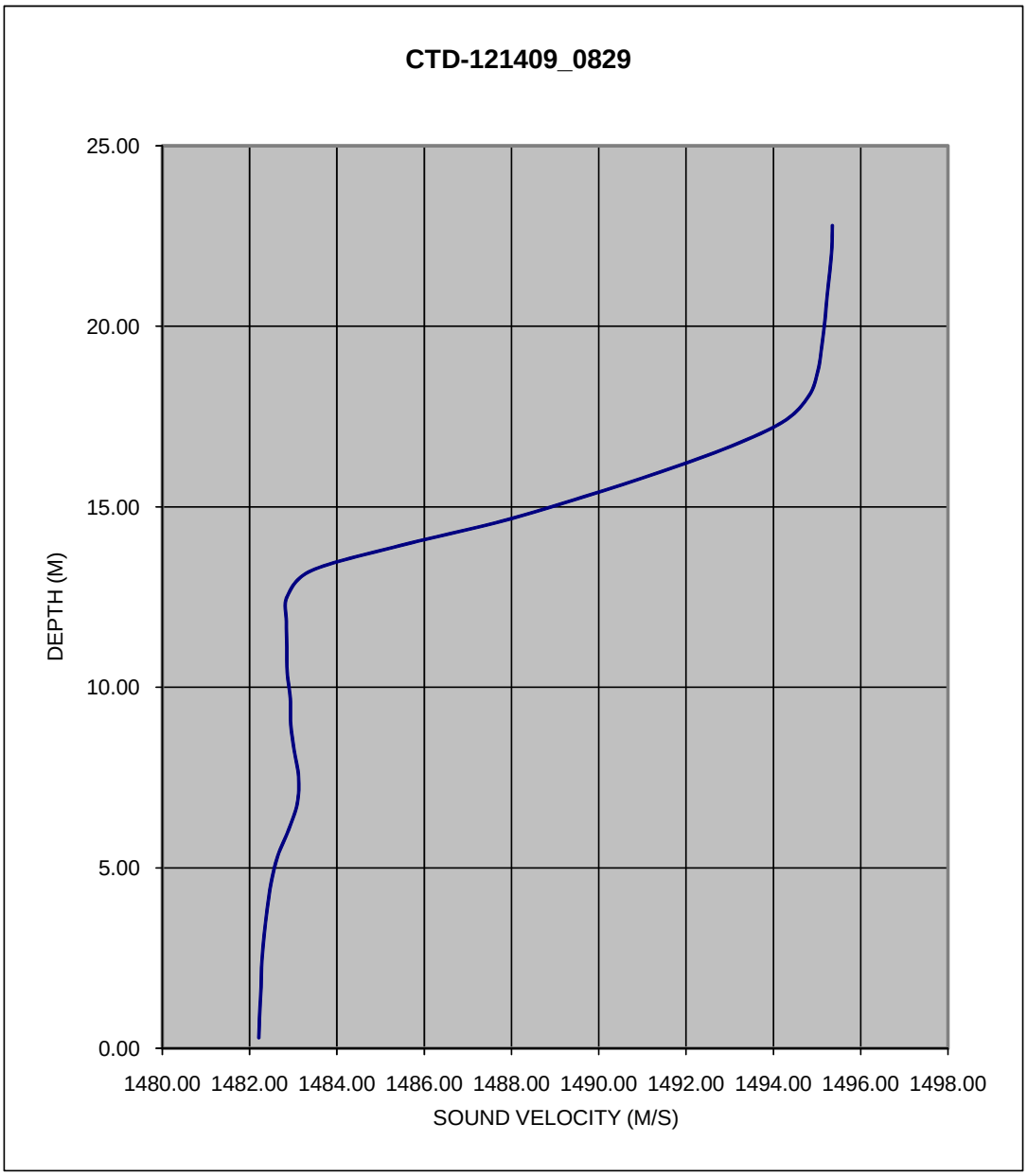


**Figure 3.2-64**
SVP 12/14/09_1031 taken during the Fall 2009 multibeam survey at the HARS

**CTD PROFILE # 121409_1031**

| Date | Time | NAD83 NY LI (Feet) | | Water Depth | Latitude | Longitude |
|---|---|---|---|---|---|---|
| | | Easting | Northing | Feet | N | W |
| 12/14/09 | 10:31 | 1013513 | 96011 | 71 | 40.43015314 | 73.89488981 |

| | |
|---|---|
| 1483.78 | 0.14 |
| 1483.10 | 0.93 |
| 1482.96 | 1.74 |
| 1483.02 | 2.51 |
| 1482.97 | 3.22 |
| 1482.90 | 3.86 |
| 1482.88 | 4.48 |
| 1482.88 | 5.08 |
| 1482.86 | 5.66 |
| 1482.78 | 6.23 |
| 1482.72 | 6.80 |
| 1482.66 | 7.39 |
| 1482.52 | 8.01 |
| 1482.28 | 8.66 |
| 1482.05 | 9.30 |
| 1482.05 | 9.93 |
| 1482.13 | 10.53 |
| 1482.60 | 11.20 |
| 1484.62 | 11.87 |
| 1486.26 | 12.51 |
| 1487.10 | 13.13 |
| 1488.78 | 13.75 |
| 1491.34 | 14.37 |
| 1493.12 | 15.02 |
| 1493.88 | 15.67 |
| 1494.17 | 16.32 |
| 1494.33 | 16.98 |
| 1494.44 | 17.64 |
| 1494.51 | 18.32 |
| 1494.59 | 18.99 |
| 1494.73 | 19.66 |
| 1494.92 | 20.34 |
| 1495.16 | 21.00 |
| 1495.32 | 21.58 |
| 1495.32 | 21.72 |

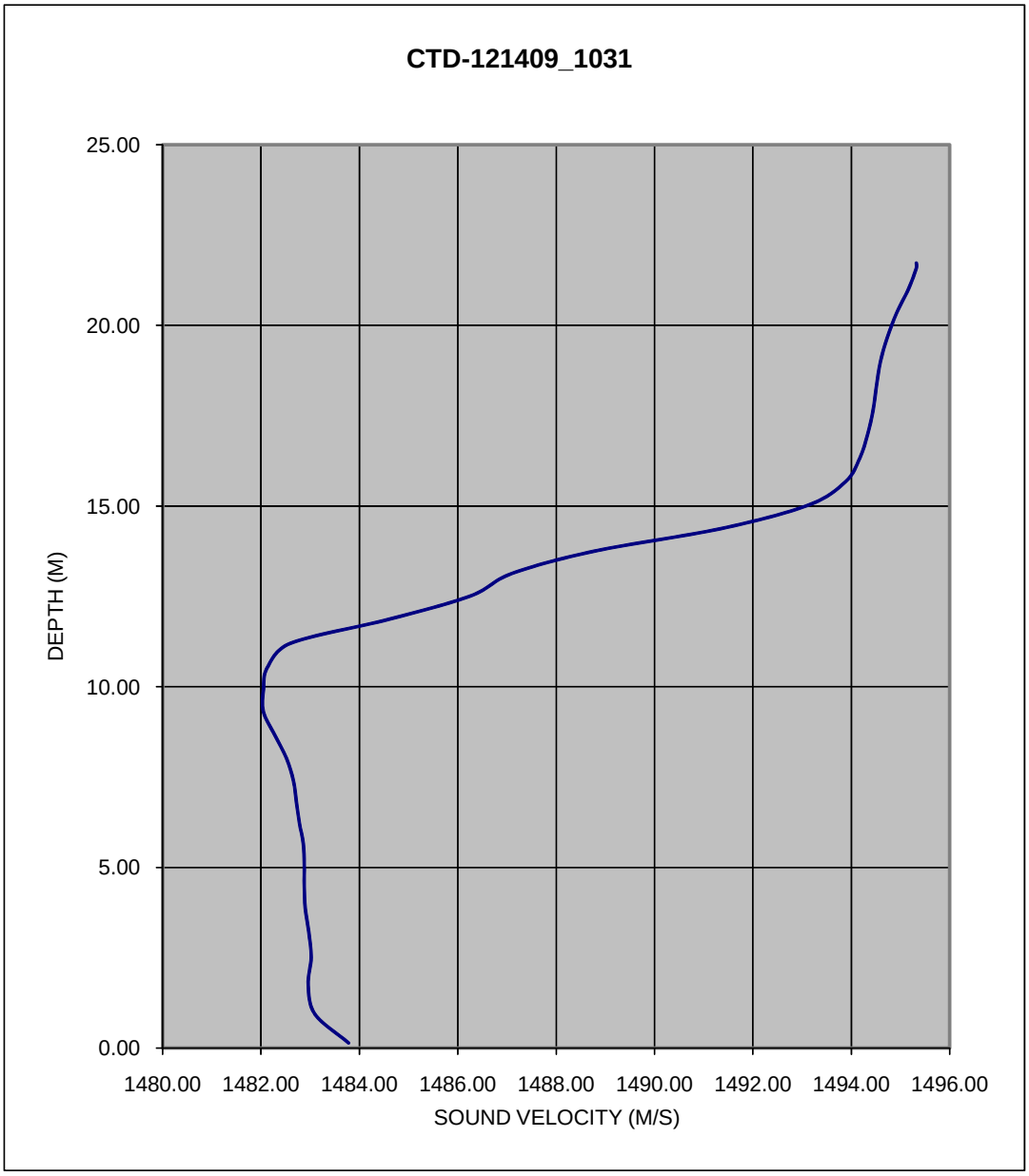
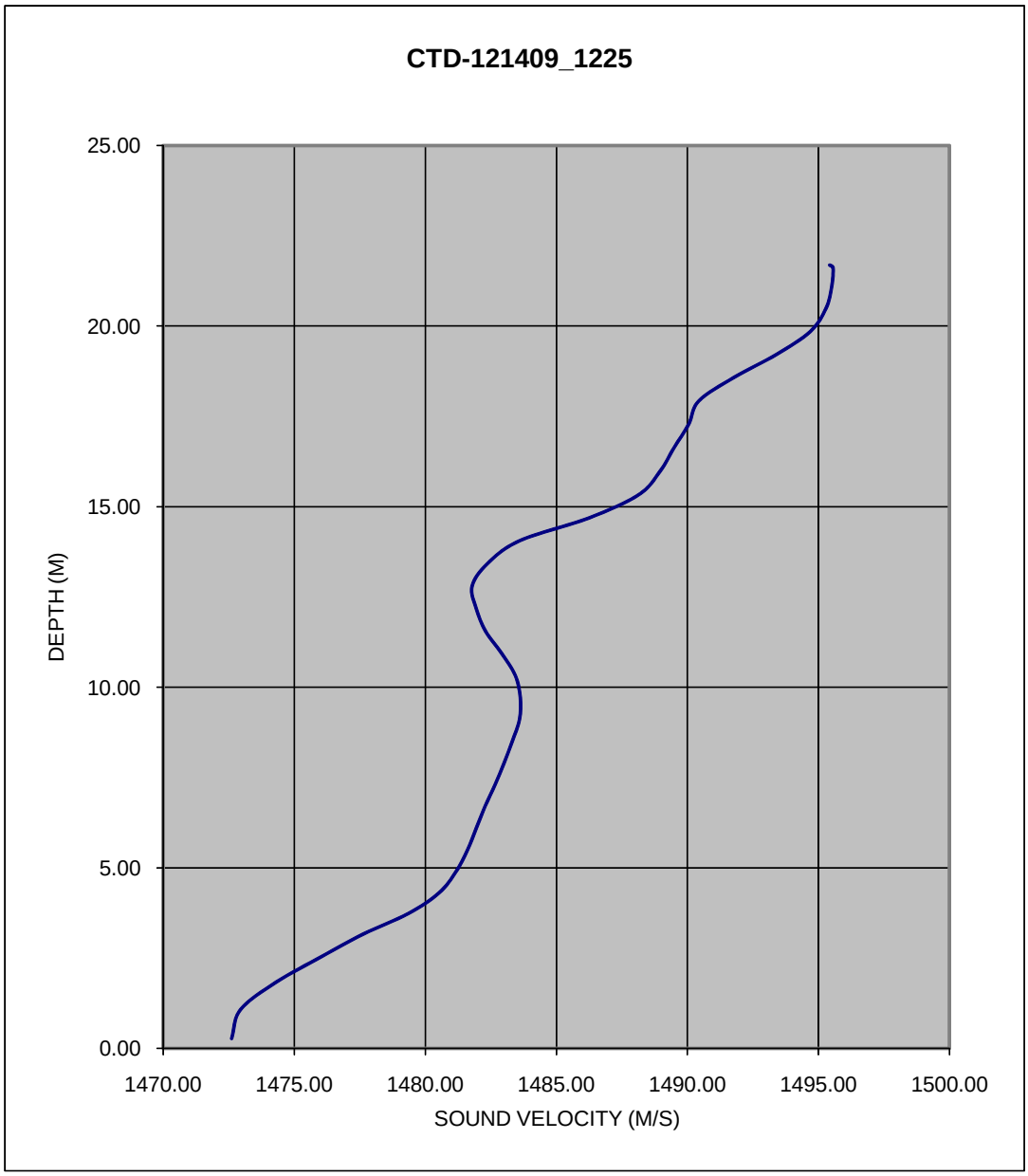


**Figure 3.2-65**
SVP 12/14/09_1225 taken during the Fall 2009 multibeam survey at the HARS

**CTD PROFILE # 121409_1225**

| Date | Time | NAD83 NY LI (Feet) | | Water Depth | Latitude | Longitude |
|---|---|---|---|---|---|---|
| | | Easting | Northing | Feet | N | W |
| 12/14/09 | 12:25 | 1014297 | 92458 | 71 | 40.42039815 | 73.89208948 |

| | |
|---|---|
| 1472.62 | 0.28 |
| 1472.96 | 1.08 |
| 1474.32 | 1.84 |
| 1476.06 | 2.55 |
| 1477.64 | 3.17 |
| 1479.36 | 3.74 |
| 1480.53 | 4.31 |
| 1481.17 | 4.89 |
| 1481.61 | 5.49 |
| 1481.95 | 6.10 |
| 1482.29 | 6.71 |
| 1482.67 | 7.31 |
| 1483.01 | 7.90 |
| 1483.32 | 8.50 |
| 1483.60 | 9.11 |
| 1483.63 | 9.72 |
| 1483.44 | 10.33 |
| 1482.91 | 10.95 |
| 1482.30 | 11.56 |
| 1481.95 | 12.18 |
| 1481.79 | 12.80 |
| 1482.37 | 13.42 |
| 1483.61 | 14.06 |
| 1486.25 | 14.69 |
| 1488.14 | 15.33 |
| 1488.96 | 15.98 |
| 1489.49 | 16.63 |
| 1490.05 | 17.28 |
| 1490.44 | 17.93 |
| 1491.78 | 18.58 |
| 1493.41 | 19.22 |
| 1494.69 | 19.85 |
| 1495.29 | 20.49 |
| 1495.51 | 21.10 |
| 1495.56 | 21.61 |
| 1495.43 | 21.69 |



## 4.0 Tidal Corrections

For the 2009 bathymetry survey the “Valeport Midas WLR” submersible tide gauge was deployed prior to collection of multibeam data at the HARS. This gauge which measures pressure was located on the sea floor attached to an anchor with an additional attachment to an acoustic release buoy (see Figure 3.0-1).
For the Fall 2009 bathymetry survey it was also decided to utilize the Real Time Kinematic GPS (RTK) option of the POS/MV on board the survey vessel to provide real time water level elevations. This system was referenced to NAVD88 during data collection. Unfortunately due to drops in the cellular network providing the RTK corrections the RTK data set is not as complete as expected.

As with previous surveys at the HARS site, tide data from NOAA’s reference tide station at Sandy Hook (Figure 4.1-1) was downloaded from N.O.A.A.’s web site. This NAVD88 tide data was then referenced to MLW as per the USACOE SOW, (0’ MLW is 1.73’ below 0’ NGVD29 and 2.84’ below NAVD88). Historic range and time correctors (used since 2006) of 0.94 and -30 minutes were then used to correct the Sandy Hook NOAA tide data for the HARS survey area.

## 4.1 Cross-Track Analysis

Cross-track analysis was performed to provide a quality check on the accuracy of the multibeam data. Cross-track lines are run perpendicular to the main direction of survey lines to produce areas of overlapping data that can be analyzed and errors quantified to provide an indication of the overall quality of data.

For the Fall 2009 survey the main body of survey lines were run in a North-South direction and for every ten (10) main body lines a cross-track line was run in an East-West direction. This yielded a total of forty two (42) cross-track lines, which were then analyzed utilizing the Beam Angle Test module within the Hypack Processing software. The Beam Angle Test compares multibeam check lines to a reference surface and estimates the depth accuracy of the multibeam system at different angle limits. The estimated accuracy can be used to determine if the multibeam system meets survey specifications. In this case the reference surface used was the final 10x10 xyz of the processed main body multibeam data. Results from this analysis are seen in Section 4.1.

## 4.2 Cross-Track Analysis Results

Table 4.1-1 show the results from the Hypack Beam Analysis for each crossing. The analysis software generates; Max Outlier, Mean Difference, Standard Deviation and 95% Confidence for the beam angle limits specified. The averages for all crossings show that the 95% confidence is less than 0.7', while the mean difference for all crossings averages out to less than 0.1', the standard deviation for all crossings averages out to less than 0.34', and the maximum outlier is 6.4'. Figure 4.1-1 show screen captures of the summary plots for the errors at +/- 60 deg. for each crossing.

## Table 4.1-1
Summary of Beam Analysis Results for all crossings during HARS 2009 survey

| Crossing | Beam Angle | Max. Outlier | Mean Diff. | Std Dev. | 95% | Crossing | Beam Angle | Max. Outlier | Mean Diff. | Std Dev. | 95% | Crossing | Beam Angle | Max. Outlier | Mean Diff. | Std Dev. | 95% |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 0923-1451 | +/-20 | 2.23 | 0.03 | 0.38 | 0.74 | 0923-1708 | +/-20 | 1.93 | -0.65 | 0.25 | 0.49 | 0924-1229 | +/-20 | 2.66 | -0.13 | 0.44 | 0.85 |
| | +/-25 | 2.23 | 0.03 | 0.38 | 0.74 | | +/-25 | 1.93 | -0.66 | 0.26 | 0.50 | | +/-25 | 2.66 | -0.12 | 0.43 | 0.85 |
| | +/-30 | 3.01 | 0.04 | 0.37 | 0.73 | | +/-30 | 2.46 | -0.66 | 0.26 | 0.50 | | +/-30 | 2.66 | -0.1 | 0.43 | 0.85 |
| | +/-35 | 3.01 | 0.05 | 0.38 | 0.75 | | +/-35 | 2.46 | -0.66 | 0.26 | 0.50 | | +/-35 | 2.85 | -0.08 | 0.44 | 0.85 |
| | +/-40 | 3.01 | 0.07 | 0.38 | 0.75 | | +/-40 | 2.50 | -0.66 | 0.26 | 0.51 | | +/-40 | 2.85 | -0.08 | 0.44 | 0.87 |
| | +/-45 | 3.01 | 0.09 | 0.39 | 0.76 | | +/-45 | 2.50 | -0.65 | 0.26 | 0.51 | | +/-45 | 2.85 | -0.07 | 0.45 | 0.88 |
| | +/-50 | 3.01 | 0.10 | 0.39 | 0.76 | | +/-50 | 2.89 | -0.66 | 0.27 | 0.52 | | +/-50 | 3.21 | -0.06 | 0.45 | 0.88 |
| | +/-55 | 3.01 | 0.12 | 0.39 | 0.76 | | +/-55 | 2.89 | -0.66 | 0.27 | 0.53 | | +/-55 | 3.67 | -0.06 | 0.45 | 0.89 |
| | +/-60 | 3.01 | 0.17 | 0.42 | 0.82 | | +/-60 | 2.89 | -0.66 | 0.28 | 0.54 | | +/-60 | 3.67 | -0.06 | 0.46 | 0.89 |
| 0924-1538 | +/-20 | 4.43 | -0.05 | 0.42 | 0.82 | 0924-1707 | +/-20 | 2.04 | 0.08 | 0.35 | 0.69 | 1001-1111 | +/-20 | 4.69 | -0.01 | 0.41 | 0.80 |
| | +/-25 | 4.43 | -0.04 | 0.41 | 0.81 | | +/-25 | 2.04 | 0.08 | 0.35 | 0.68 | | +/-25 | 4.76 | 0.00 | 0.43 | 0.85 |
| | +/-30 | 4.43 | -0.03 | 0.40 | 0.77 | | +/-30 | 2.04 | 0.08 | 0.34 | 0.66 | | +/-30 | 4.76 | 0.01 | 0.44 | 0.85 |
| | +/-35 | 4.43 | -0.03 | 0.39 | 0.77 | | +/-35 | 2.04 | 0.08 | 0.34 | 0.66 | | +/-35 | 4.76 | 0.02 | 0.44 | 0.86 |
| | +/-40 | 4.43 | -0.03 | 0.40 | 0.78 | | +/-40 | 2.07 | 0.10 | 0.34 | 0.66 | | +/-40 | 4.86 | 0.03 | 0.45 | 0.89 |
| | +/-45 | 4.43 | -0.03 | 0.40 | 0.79 | | +/-45 | 2.56 | 0.12 | 0.34 | 0.67 | | +/-45 | 4.86 | 0.04 | 0.44 | 0.87 |
| | +/-50 | 4.43 | -0.03 | 0.40 | 0.79 | | +/-50 | 2.56 | 0.13 | 0.35 | 0.68 | | +/-50 | 5.25 | 0.05 | 0.45 | 0.88 |
| | +/-55 | 4.43 | -0.04 | 0.41 | 0.79 | | +/-55 | 2.56 | 0.12 | 0.35 | 0.69 | | +/-55 | 5.81 | 0.06 | 0.45 | 0.89 |
| | +/-60 | 4.43 | -0.02 | 0.41 | 0.81 | | +/-60 | 2.56 | 0.14 | 0.37 | 0.72 | | +/-60 | 5.81 | 0.07 | 0.46 | 0.91 |
| 1001-1426 | +/-20 | 2.13 | 0.00 | 0.23 | 0.45 | 1001-1636 | +/-20 | 0.89 | 0.05 | 0.22 | 0.42 | 1006-1437 | +/-20 | 1.87 | 0.06 | 0.26 | 0.50 |
| | +/-25 | 2.13 | 0.01 | 0.23 | 0.45 | | +/-25 | 0.98 | 0.04 | 0.22 | 0.42 | | +/-25 | 2.49 | 0.06 | 0.26 | 0.50 |
| | +/-30 | 2.13 | 0.01 | 0.23 | 0.45 | | +/-30 | 1.18 | 0.05 | 0.22 | 0.42 | | +/-30 | 2.49 | 0.06 | 0.26 | 0.51 |
| | +/-35 | 3.09 | 0.02 | 0.23 | 0.45 | | +/-35 | 1.18 | 0.06 | 0.22 | 0.43 | | +/-35 | 2.82 | 0.06 | 0.26 | 0.51 |
| | +/-40 | 3.09 | 0.03 | 0.23 | 0.45 | | +/-40 | 1.18 | 0.07 | 0.22 | 0.44 | | +/-40 | 2.82 | 0.05 | 0.26 | 0.51 |
| | +/-45 | 3.09 | 0.04 | 0.23 | 0.46 | | +/-45 | 1.18 | 0.08 | 0.22 | 0.44 | | +/-45 | 2.82 | 0.05 | 0.26 | 0.51 |
| | +/-50 | 3.09 | 0.04 | 0.24 | 0.46 | | +/-50 | 1.18 | 0.09 | 0.23 | 0.44 | | +/-50 | 2.82 | 0.06 | 0.26 | 0.51 |
| | +/-55 | 3.09 | 0.05 | 0.25 | 0.48 | | +/-55 | 1.45 | 0.11 | 0.23 | 0.46 | | +/-55 | 2.82 | 0.06 | 0.26 | 0.52 |
| | +/-60 | 3.09 | 0.05 | 0.26 | 0.50 | | +/-60 | 1.45 | 0.13 | 0.24 | 0.48 | | +/-60 | 3.54 | 0.07 | 0.28 | 0.54 |

| Crossing | Beam Angle | Max. Outlier | Mean Diff. | Std Dev. | 95% | Crossing | Beam Angle | Max. Outlier | Mean Diff. | Std Dev. | 95% | Crossing | Beam Angle | Max. Outlier | Mean Diff. | Std Dev. | 95% |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1006-1716 | +/-20 | 3.18 | -0.11 | 0.33 | 0.65 | 1021-1141 | +/-20 | 3.61 | -0.14 | 0.40 | 0.78 | 1021-1540 | +/-20 | 4.76 | -0.03 | 0.42 | 0.82 |
| | +/-25 | 3.18 | -0.11 | 0.33 | 0.65 | | +/-25 | 3.61 | -0.14 | 0.40 | 0.78 | | +/-25 | 4.76 | -0.03 | 0.42 | 0.82 |
| | +/-30 | 3.18 | -0.11 | 0.33 | 0.65 | | +/-30 | 3.70 | -0.14 | 0.39 | 0.77 | | +/-30 | 4.76 | -0.02 | 0.42 | 0.82 |
| | +/-35 | 3.18 | -0.10 | 0.33 | 0.65 | | +/-35 | 3.70 | -0.13 | 0.40 | 0.79 | | +/-35 | 4.76 | -0.01 | 0.42 | 0.82 |
| | +/-40 | 3.18 | -0.10 | 0.33 | 0.65 | | +/-40 | 3.70 | -0.12 | 0.42 | 0.83 | | +/-40 | 4.76 | 0.00 | 0.42 | 0.82 |
| | +/-45 | 3.67 | -0.09 | 0.34 | 0.66 | | +/-45 | 3.77 | -0.11 | 0.43 | 0.85 | | +/-45 | 4.76 | 0.00 | 0.41 | 0.81 |
| | +/-50 | 3.67 | -0.08 | 0.34 | 0.67 | | +/-50 | 4.30 | -0.11 | 0.43 | 0.85 | | +/-50 | 4.76 | 0.01 | 0.42 | 0.83 |
| | +/-55 | 3.67 | -0.08 | 0.35 | 0.68 | | +/-55 | 4.30 | -0.10 | 0.43 | 0.85 | | +/-55 | 4.76 | 0.02 | 0.44 | 0.85 |
| | +/-60 | 3.67 | -0.05 | 0.37 | 0.73 | | +/-60 | 4.30 | -0.09 | 0.44 | 0.85 | | +/-60 | 4.76 | 0.03 | 0.44 | 0.86 |

| | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1021-1802 | +/-20 | 1.97 | -0.06 | 0.50 | 0.99 | 1022-1205 | +/-20 | 1.47 | -0.07 | 0.29 | 0.57 | 1022-1448 | +/-20 | 1.64 | 0.04 | 0.31 | 0.62 |
| | +/-25 | 2.03 | -0.04 | 0.49 | 0.96 | | +/-25 | 1.47 | -0.07 | 0.29 | 0.56 | | +/-25 | 1.64 | 0.04 | 0.32 | 0.62 |
| | +/-30 | 2.03 | -0.01 | 0.49 | 0.96 | | +/-30 | 1.47 | -0.07 | 0.28 | 0.55 | | +/-30 | 1.70 | 0.05 | 0.32 | 0.62 |
| | +/-35 | 5.19 | 0.02 | 0.49 | 0.96 | | +/-35 | 1.47 | -0.07 | 0.27 | 0.54 | | +/-35 | 1.80 | 0.05 | 0.32 | 0.62 |
| | +/-40 | 5.19 | 0.03 | 0.50 | 0.97 | | +/-40 | 1.47 | -0.06 | 0.27 | 0.54 | | +/-40 | 1.80 | 0.05 | 0.32 | 0.63 |
| | +/-45 | 5.19 | 0.04 | 0.50 | 0.98 | | +/-45 | 1.47 | -0.06 | 0.27 | 0.53 | | +/-45 | 1.80 | 0.05 | 0.32 | 0.63 |
| | +/-50 | 5.19 | 0.04 | 0.50 | 0.98 | | +/-50 | 1.47 | -0.05 | 0.27 | 0.53 | | +/-50 | 1.80 | 0.05 | 0.32 | 0.63 |
| | +/-55 | 5.19 | 0.02 | 0.50 | 0.98 | | +/-55 | 1.47 | -0.05 | 0.27 | 0.53 | | +/-55 | 1.80 | 0.04 | 0.32 | 0.63 |
| | +/-60 | 5.19 | 0.03 | 0.50 | 0.98 | | +/-60 | 1.47 | -0.05 | 0.27 | 0.53 | | +/-60 | 1.80 | 0.05 | 0.32 | 0.63 |

| | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1104-1032 | +/-20 | 4.53 | 0.06 | 0.50 | 0.98 | 1104-1048 | +/-20 | 1.67 | 0.09 | 0.55 | 1.08 | 1104-1346 | +/-20 | 1.74 | 0.02 | 0.36 | 0.71 |
| | +/-25 | 4.53 | 0.05 | 0.51 | 1.00 | | +/-25 | 1.67 | 0.09 | 0.54 | 1.06 | | +/-25 | 1.74 | 0.03 | 0.37 | 0.72 |
| | +/-30 | 4.53 | 0.02 | 0.51 | 1.01 | | +/-30 | 1.67 | 0.08 | 0.53 | 1.04 | | +/-30 | 1.74 | 0.04 | 0.37 | 0.72 |
| | +/-35 | 4.53 | 0.01 | 0.50 | 0.98 | | +/-35 | 1.67 | 0.08 | 0.52 | 1.01 | | +/-35 | 1.91 | 0.04 | 0.37 | 0.72 |
| | +/-40 | 4.53 | 0.01 | 0.49 | 0.97 | | +/-40 | 1.67 | 0.07 | 0.51 | 1.01 | | +/-40 | 2.17 | 0.04 | 0.37 | 0.73 |
| | +/-45 | 4.53 | 0.00 | 0.49 | 0.96 | | +/-45 | 1.67 | 0.07 | 0.50 | 0.99 | | +/-45 | 2.17 | 0.05 | 0.37 | 0.73 |
| | +/-50 | 4.69 | -0.01 | 0.49 | 0.95 | | +/-50 | 1.67 | 0.06 | 0.50 | 0.97 | | +/-50 | 2.17 | 0.05 | 0.37 | 0.73 |
| | +/-55 | 4.69 | 0.01 | 0.48 | 0.95 | | +/-55 | 1.67 | 0.06 | 0.50 | 0.97 | | +/-55 | 2.17 | 0.05 | 0.38 | 0.74 |
| | +/-60 | 4.69 | 0.02 | 0.48 | 0.95 | | +/-60 | 1.67 | 0.05 | 0.50 | 0.98 | | +/-60 | 2.17 | 0.06 | 0.38 | 0.74 |

| | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1104-1653 | +/-20 | 1.58 | 0.04 | 0.27 | 0.54 | 1104-1802 | +/-20 | 1.02 | 0.03 | 0.29 | 0.57 | 1105-1136 | +/-20 | 3.28 | -0.02 | 0.54 | 1.06 |
| | +/-25 | 1.81 | 0.03 | 0.27 | 0.54 | | +/-25 | 1.08 | 0.01 | 0.29 | 0.57 | | +/-25 | 3.28 | -0.02 | 0.54 | 1.06 |
| | +/-30 | 1.81 | 0.02 | 0.27 | 0.53 | | +/-30 | 1.08 | -0.01 | 0.30 | 0.58 | | +/-30 | 3.28 | -0.02 | 0.54 | 1.06 |
| | +/-35 | 1.81 | 0.01 | 0.27 | 0.53 | | +/-35 | 1.08 | -0.03 | 0.30 | 0.58 | | +/-35 | 3.90 | -0.03 | 0.54 | 1.05 |
| | +/-40 | 1.81 | 0.00 | 0.27 | 0.53 | | +/-40 | 1.08 | -0.04 | 0.30 | 0.58 | | +/-40 | 3.90 | -0.03 | 0.55 | 1.08 |
| | +/-45 | 1.97 | -0.01 | 0.27 | 0.53 | | +/-45 | 1.22 | -0.04 | 0.29 | 0.58 | | +/-45 | 3.90 | -0.04 | 0.56 | 1.09 |
| | +/-50 | 2.33 | -0.02 | 0.27 | 0.54 | | +/-50 | 1.22 | -0.03 | 0.30 | 0.58 | | +/-50 | 4.11 | -0.05 | 0.56 | 1.09 |
| | +/-55 | 2.33 | -0.04 | 0.28 | 0.55 | | +/-55 | 1.22 | -0.02 | 0.30 | 0.59 | | +/-55 | 4.11 | -0.05 | 0.56 | 1.11 |
| | +/-60 | 2.43 | -0.07 | 0.31 | 0.61 | | +/-60 | 1.22 | -0.02 | 0.31 | 0.60 | | +/-60 | 4.11 | -0.09 | 0.58 | 1.13 |

| Crossing | Beam Angle | Max. Outlier | Mean Diff. | Std Dev. | 95% | Crossing | Beam Angle | Max. Outlier | Mean Diff. | Std Dev. | 95% | Crossing | Beam Angle | Max. Outlier | Mean Diff. | Std Dev. | 95% |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1105-1447 | +/-20 | 1.64 | 0.05 | 0.25 | 0.48 | 1105-1648 | +/-20 | 0.95 | -0.06 | 0.21 | 0.42 | 1107-1147 | +/-20 | 2.07 | -0.19 | 0.39 | 0.77 |
| | +/-25 | 1.64 | 0.06 | 0.25 | 0.49 | | +/-25 | 0.95 | -0.05 | 0.22 | 0.43 | | +/-25 | 2.07 | -0.19 | 0.39 | 0.77 |
| | +/-30 | 1.64 | 0.08 | 0.25 | 0.49 | | +/-30 | 0.95 | -0.04 | 0.22 | 0.43 | | +/-30 | 2.23 | -0.18 | 0.39 | 0.77 |
| | +/-35 | 1.64 | 0.09 | 0.25 | 0.49 | | +/-35 | 0.95 | -0.03 | 0.22 | 0.44 | | +/-35 | 2.23 | -0.17 | 0.39 | 0.77 |
| | +/-40 | 1.64 | 0.10 | 0.26 | 0.50 | | +/-40 | 0.95 | -0.02 | 0.23 | 0.45 | | +/-40 | 2.23 | -0.15 | 0.39 | 0.76 |
| | +/-45 | 1.64 | 0.11 | 0.26 | 0.50 | | +/-45 | 0.95 | -0.01 | 0.23 | 0.45 | | +/-45 | 2.23 | -0.13 | 0.38 | 0.75 |
| | +/-50 | 1.64 | 0.11 | 0.26 | 0.50 | | +/-50 | 0.95 | 0.00 | 0.22 | 0.44 | | +/-50 | 2.23 | -0.11 | 0.38 | 0.75 |
| | +/-55 | 2.00 | 0.12 | 0.26 | 0.50 | | +/-55 | 0.95 | 0.00 | 0.22 | 0.43 | | +/-55 | 2.23 | -0.10 | 0.38 | 0.75 |
| | +/-60 | 2.52 | 0.12 | 0.26 | 0.52 | | +/-60 | 0.95 | 0.00 | 0.22 | 0.43 | | +/-60 | 2.23 | -0.08 | 0.38 | 0.75 |
| 1107-1444 | +/-20 | 2.46 | 0.09 | 0.38 | 0.74 | 1202-0134 | +/-20 | 1.38 | 0.12 | 0.19 | 0.37 | 1202-0350 | +/-20 | 1.87 | 0.08 | 0.24 | 0.46 |
| | +/-25 | 2.96 | 0.10 | 0.38 | 0.75 | | +/-25 | 1.38 | 0.13 | 0.19 | 0.37 | | +/-25 | 1.87 | 0.09 | 0.24 | 0.46 |
| | +/-30 | 3.15 | 0.08 | 0.40 | 0.78 | | +/-30 | 1.38 | 0.13 | 0.19 | 0.37 | | +/-30 | 1.87 | 0.10 | 0.24 | 0.47 |
| | +/-35 | 3.34 | 0.08 | 0.40 | 0.78 | | +/-35 | 1.38 | 0.14 | 0.19 | 0.38 | | +/-35 | 1.87 | 0.10 | 0.24 | 0.46 |
| | +/-40 | 3.71 | 0.08 | 0.41 | 0.80 | | +/-40 | 1.38 | 0.14 | 0.19 | 0.38 | | +/-40 | 1.87 | 0.11 | 0.24 | 0.46 |
| | +/-45 | 4.33 | 0.08 | 0.42 | 0.82 | | +/-45 | 1.38 | 0.14 | 0.19 | 0.38 | | +/-45 | 1.87 | 0.11 | 0.24 | 0.47 |
| | +/-50 | 5.28 | 0.08 | 0.44 | 0.87 | | +/-50 | 1.38 | 0.14 | 0.19 | 0.38 | | +/-50 | 1.87 | 0.12 | 0.24 | 0.47 |
| | +/-55 | 5.28 | 0.08 | 0.46 | 0.90 | | +/-55 | 1.38 | 0.13 | 0.20 | 0.39 | | +/-55 | 2.20 | 0.12 | 0.24 | 0.48 |
| | +/-60 | 5.28 | 0.08 | 0.52 | 1.02 | | +/-60 | 1.38 | 0.13 | 0.20 | 0.40 | | +/-60 | 3.41 | 0.14 | 0.26 | 0.52 |
| 1202-0632 | +/-20 | 3.38 | -0.16 | 0.32 | 0.63 | 1202-0907 | +/-20 | 2.47 | -0.02 | 0.35 | 0.68 | 1202-1220 | +/-20 | 1.05 | 0.05 | 0.20 | 0.39 |
| | +/-25 | 3.38 | -0.16 | 0.33 | 0.65 | | +/-25 | 3.21 | -0.02 | 0.35 | 0.69 | | +/-25 | 1.22 | 0.06 | 0.20 | 0.40 |
| | +/-30 | 3.38 | -0.15 | 0.36 | 0.71 | | +/-30 | 3.60 | -0.01 | 0.36 | 0.70 | | +/-30 | 1.22 | 0.07 | 0.21 | 0.40 |
| | +/-35 | 3.41 | -0.15 | 0.38 | 0.75 | | +/-35 | 3.64 | 0.00 | 0.36 | 0.71 | | +/-35 | 1.22 | 0.08 | 0.21 | 0.42 |
| | +/-40 | 3.41 | -0.14 | 0.39 | 0.76 | | +/-40 | 4.72 | 0.00 | 0.37 | 0.72 | | +/-40 | 1.22 | 0.09 | 0.21 | 0.42 |
| | +/-45 | 3.74 | -0.13 | 0.39 | 0.76 | | +/-45 | 4.83 | 0.01 | 0.39 | 0.76 | | +/-45 | 1.25 | 0.09 | 0.21 | 0.42 |
| | +/-50 | 4.20 | -0.13 | 0.39 | 0.76 | | +/-50 | 6.40 | 0.01 | 0.40 | 0.77 | | +/-50 | 1.25 | 0.10 | 0.22 | 0.42 |
| | +/-55 | 4.20 | -0.12 | 0.40 | 0.79 | | +/-55 | 6.40 | 0.01 | 0.41 | 0.80 | | +/-55 | 1.25 | 0.11 | 0.22 | 0.43 |
| | +/-60 | 4.20 | -0.10 | 0.44 | 0.87 | | +/-60 | 6.40 | 0.01 | 0.46 | 0.89 | | +/-60 | 1.25 | 0.13 | 0.23 | 0.45 |
| 1202-1305 | +/-20 | 3.90 | -0.04 | 0.44 | 0.87 | 1202-1309 | +/-20 | 1.57 | -0.24 | 0.30 | 0.58 | 1207-0926 | +/-20 | 1.28 | -0.07 | 0.21 | 0.41 |
| | +/-25 | 3.90 | -0.04 | 0.46 | 0.90 | | +/-25 | 1.57 | -0.24 | 0.31 | 0.61 | | +/-25 | 1.34 | -0.07 | 0.21 | 0.41 |
| | +/-30 | 3.90 | -0.02 | 0.47 | 0.93 | | +/-30 | 1.87 | -0.21 | 0.32 | 0.64 | | +/-30 | 1.51 | -0.07 | 0.21 | 0.41 |
| | +/-35 | 4.17 | -0.01 | 0.48 | 0.94 | | +/-35 | 1.87 | -0.18 | 0.34 | 0.66 | | +/-35 | 1.97 | -0.06 | 0.21 | 0.42 |
| | +/-40 | 4.17 | -0.01 | 0.49 | 0.96 | | +/-40 | 1.87 | -0.16 | 0.34 | 0.66 | | +/-40 | 1.97 | -0.05 | 0.21 | 0.42 |
| | +/-45 | 5.32 | 0.01 | 0.51 | 1.00 | | +/-45 | 1.87 | -0.13 | 0.34 | 0.67 | | +/-45 | 1.97 | -0.04 | 0.22 | 0.43 |
| | +/-50 | 5.32 | 0.01 | 0.53 | 1.03 | | +/-50 | 1.87 | -0.11 | 0.34 | 0.66 | | +/-50 | 1.97 | -0.03 | 0.22 | 0.43 |
| | +/-55 | 5.32 | 0.02 | 0.53 | 1.03 | | +/-55 | 1.87 | -0.09 | 0.33 | 0.65 | | +/-55 | 2.10 | -0.02 | 0.23 | 0.44 |
| | +/-60 | 5.32 | 0.04 | 0.60 | 1.18 | | +/-60 | 1.87 | -0.06 | 0.33 | 0.65 | | +/-60 | 2.23 | 0.01 | 0.25 | 0.48 |

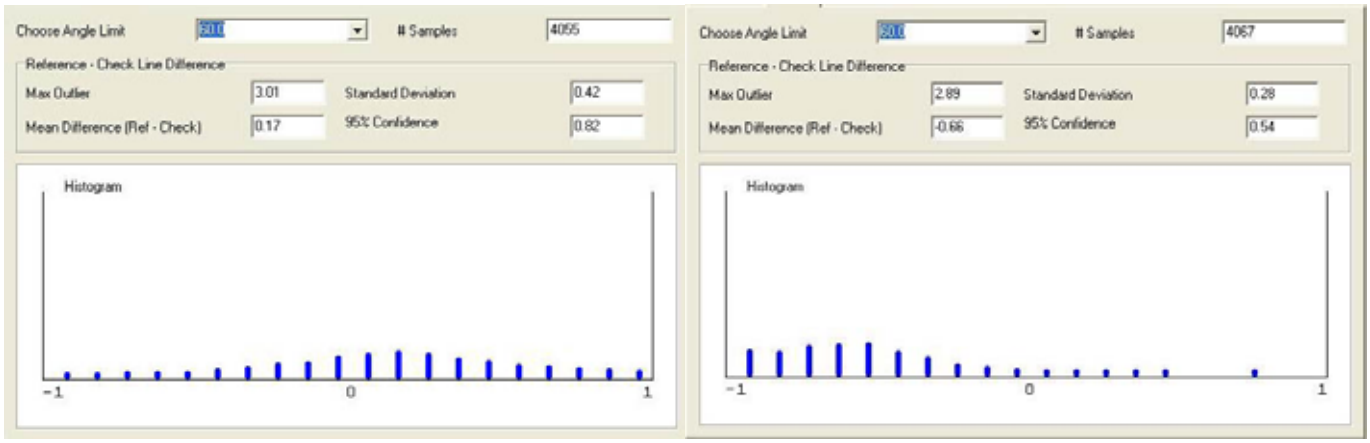
| Crossing | Beam Angle | Max. Outlier | Mean Diff. | Std Dev. | 95% | Crossing | Beam Angle | Max. Outlier | Mean Diff. | Std Dev. | 95% | Crossing | Beam Angle | Max. Outlier | Mean Diff. | Std Dev. | 95% |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1207-1207 | +/-20 | 1.61 | -0.28 | 0.25 | 0.50 | 1207-1447 | +/-20 | 1.02 | 0.14 | 0.19 | 0.38 | 1207-1727 | +/-20 | 0.99 | -0.11 | 0.21 | 0.41 |
| | +/-25 | 1.64 | -0.27 | 0.26 | 0.51 | | +/-25 | 1.02 | 0.14 | 0.19 | 0.38 | | +/-25 | 0.99 | -0.11 | 0.21 | 0.42 |
| | +/-30 | 1.64 | -0.26 | 0.26 | 0.51 | | +/-30 | 1.38 | 0.14 | 0.19 | 0.38 | | +/-30 | 0.99 | -0.10 | 0.21 | 0.42 |
| | +/-35 | 1.64 | -0.25 | 0.26 | 0.51 | | +/-35 | 1.38 | 0.15 | 0.20 | 0.38 | | +/-35 | 0.99 | -0.09 | 0.22 | 0.42 |
| | +/-40 | 1.64 | -0.24 | 0.26 | 0.51 | | +/-40 | 1.38 | 0.14 | 0.20 | 0.39 | | +/-40 | 0.99 | -0.08 | 0.22 | 0.43 |
| | +/-45 | 1.64 | -0.22 | 0.26 | 0.50 | | +/-45 | 1.38 | 0.14 | 0.20 | 0.39 | | +/-45 | 0.99 | -0.07 | 0.22 | 0.43 |
| | +/-50 | 1.80 | -0.21 | 0.26 | 0.51 | | +/-50 | 1.38 | 0.13 | 0.20 | 0.39 | | +/-50 | 0.99 | -0.07 | 0.22 | 0.42 |
| | +/-55 | 2.33 | -0.20 | 0.26 | 0.52 | | +/-55 | 1.54 | 0.11 | 0.21 | 0.40 | | +/-55 | 0.99 | -0.06 | 0.21 | 0.42 |
| | +/-60 | 2.33 | -0.16 | 0.28 | 0.55 | | +/-60 | 1.68 | 0.09 | 0.22 | 0.44 | | +/-60 | 0.99 | -0.06 | 0.21 | 0.42 |
| 1208-1136 | +/-20 | 0.95 | -0.08 | 0.17 | 0.34 | 1208-1418 | +/-20 | 1.15 | -0.07 | 0.21 | 0.41 | 1208-1641 | +/-20 | 1.15 | 0.00 | 0.19 | 0.38 |
| | +/-25 | 0.95 | -0.07 | 0.18 | 0.35 | | +/-25 | 1.21 | -0.06 | 0.21 | 0.42 | | +/-25 | 1.15 | 0.01 | 0.20 | 0.39 |
| | +/-30 | 0.95 | -0.06 | 0.18 | 0.36 | | +/-30 | 1.21 | -0.05 | 0.21 | 0.42 | | +/-30 | 1.18 | 0.01 | 0.20 | 0.39 |
| | +/-35 | 1.12 | -0.05 | 0.18 | 0.35 | | +/-35 | 1.38 | -0.04 | 0.21 | 0.42 | | +/-35 | 1.18 | 0.02 | 0.20 | 0.39 |
| | +/-40 | 1.15 | -0.04 | 0.18 | 0.36 | | +/-40 | 1.61 | -0.04 | 0.21 | 0.41 | | +/-40 | 1.48 | 0.02 | 0.20 | 0.39 |
| | +/-45 | 1.15 | -0.03 | 0.19 | 0.37 | | +/-45 | 1.61 | -0.05 | 0.21 | 0.41 | | +/-45 | 1.58 | 0.02 | 0.20 | 0.39 |
| | +/-50 | 1.19 | -0.02 | 0.19 | 0.37 | | +/-50 | 1.61 | -0.05 | 0.21 | 0.41 | | +/-50 | 1.58 | 0.02 | 0.20 | 0.40 |
| | +/-55 | 1.19 | -0.02 | 0.19 | 0.38 | | +/-55 | 1.61 | -0.05 | 0.21 | 0.41 | | +/-55 | 1.58 | 0.02 | 0.20 | 0.40 |
| | +/-60 | 1.19 | 0.00 | 0.21 | 0.40 | | +/-60 | 1.87 | -0.05 | 0.22 | 0.42 | | +/-60 | 1.77 | 0.02 | 0.20 | 0.40 |
| 1208-1911 | +/-20 | 1.64 | -0.03 | 0.21 | 0.42 | 1214-1103 | +/-20 | 2.00 | -0.12 | 0.23 | 0.45 | 1214-1221 | +/-20 | 4.00 | -0.22 | 0.60 | 1.17 |
| | +/-25 | 1.64 | -0.02 | 0.21 | 0.42 | | +/-25 | 2.00 | -0.12 | 0.23 | 0.45 | | +/-25 | 4.00 | -0.21 | 0.61 | 1.19 |
| | +/-30 | 1.64 | -0.01 | 0.21 | 0.41 | | +/-30 | 2.00 | -0.14 | 0.23 | 0.44 | | +/-30 | 4.00 | -0.20 | 0.61 | 1.19 |
| | +/-35 | 1.64 | -0.01 | 0.21 | 0.42 | | +/-35 | 2.00 | -0.15 | 0.23 | 0.44 | | +/-35 | 4.00 | -0.20 | 0.60 | 1.18 |
| | +/-40 | 1.64 | -0.01 | 0.22 | 0.43 | | +/-40 | 2.00 | -0.17 | 0.23 | 0.45 | | +/-40 | 4.00 | -0.19 | 0.62 | 1.21 |
| | +/-45 | 1.97 | -0.02 | 0.22 | 0.44 | | +/-45 | 2.00 | -0.19 | 0.25 | 0.48 | | +/-45 | 4.04 | -0.19 | 0.63 | 1.24 |
| | +/-50 | 2.72 | -0.03 | 0.23 | 0.46 | | +/-50 | 2.03 | -0.21 | 0.27 | 0.54 | | +/-50 | 4.04 | -0.23 | 0.65 | 1.28 |
| | +/-55 | 2.72 | -0.05 | 0.24 | 0.48 | | +/-55 | 2.20 | -0.26 | 0.34 | 0.66 | | +/-55 | 4.13 | -0.28 | 0.68 | 1.33 |
| | +/-60 | 2.72 | -0.07 | 0.26 | 0.52 | | +/-60 | 2.79 | -0.34 | 0.46 | 0.91 | | +/-60 | 5.02 | -0.36 | 0.74 | 1.44 |

| Beam Angle | Max. Outlier | Mean Diff. | Std Dev. | 95% |
|---|---|---|---|---|
| +/-20 | 4.76 | -0.09 | 0.27 | 0.54 |
| +/-25 | 4.76 | -0.08 | 0.28 | 0.55 |
| +/-30 | 4.76 | -0.08 | 0.28 | 0.55 |
| +/-35 | 5.19 | -0.07 | 0.28 | 0.55 |
| +/-40 | 5.19 | -0.06 | 0.29 | 0.56 |
| +/-45 | 5.32 | -0.06 | 0.29 | 0.57 |
| +/-50 | 6.40 | -0.06 | 0.30 | 0.58 |
| +/-55 | 6.40 | -0.07 | 0.31 | 0.60 |
| +/-60 | 6.40 | -0.07 | 0.33 | 0.66 |

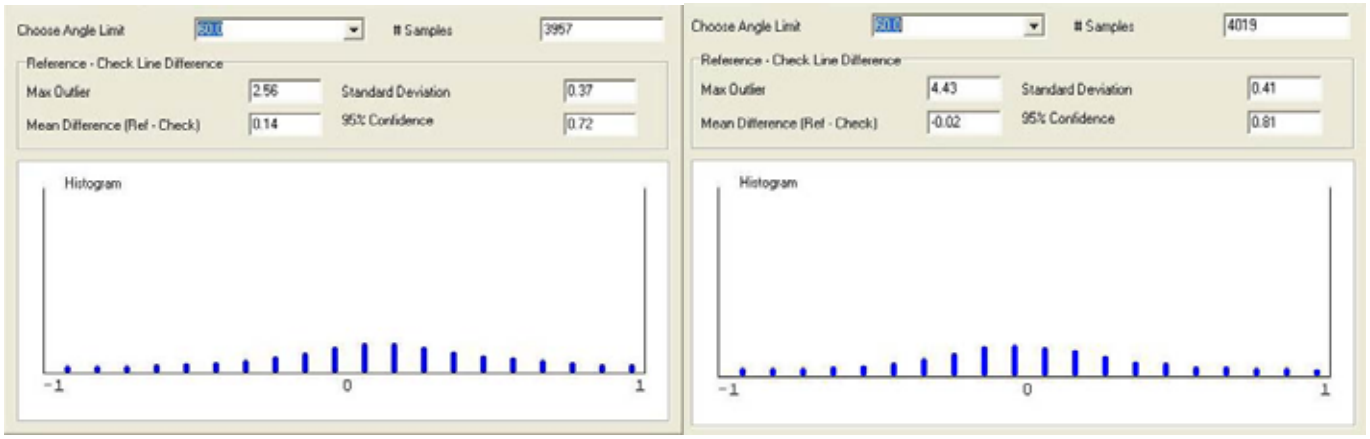
Summary of averages for all crossings.

**Figure 4.1-1**

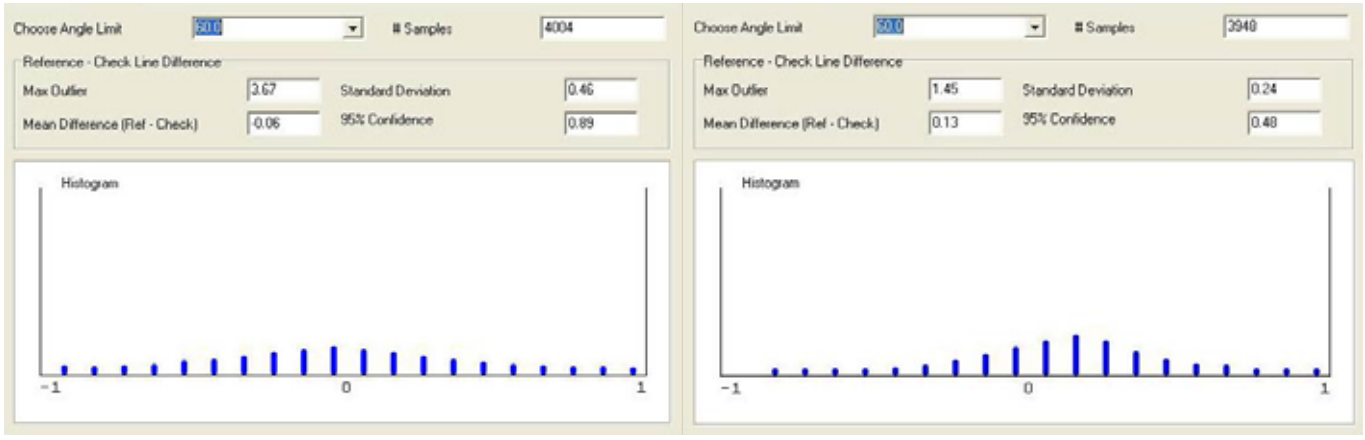
Plots of +/- 60 Deg. Beam Analysis Results for crossings 09/23 to 12/14 during HARS Fall 2009 survey.



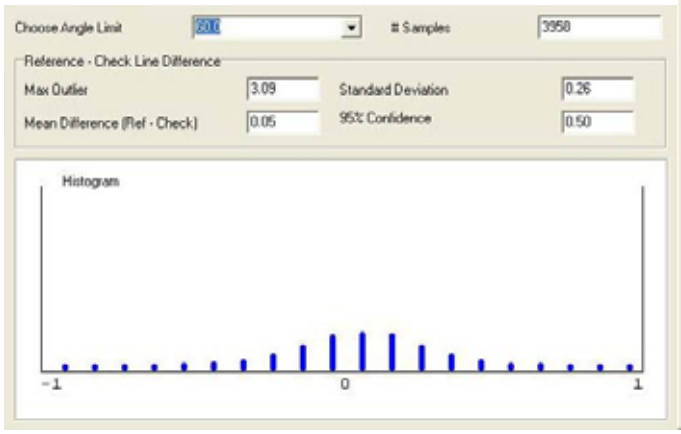

09/23_1451 09/23_1708



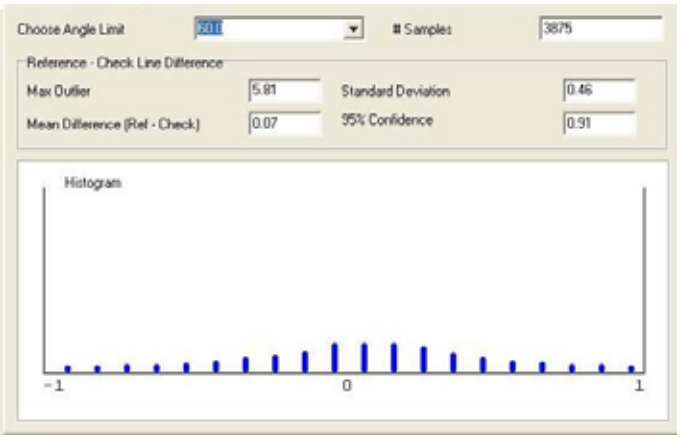

09/24_1707 09/24_A1538



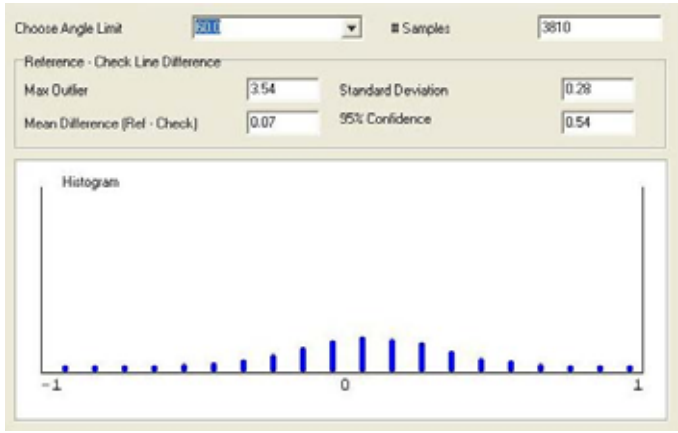

09/24_1229 10/01_1636



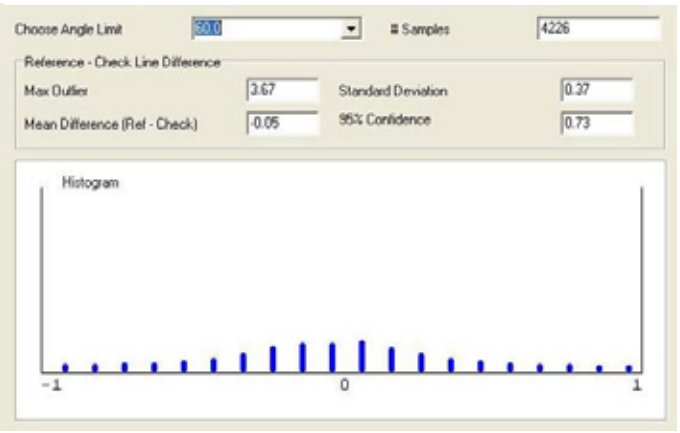

10/01_1426



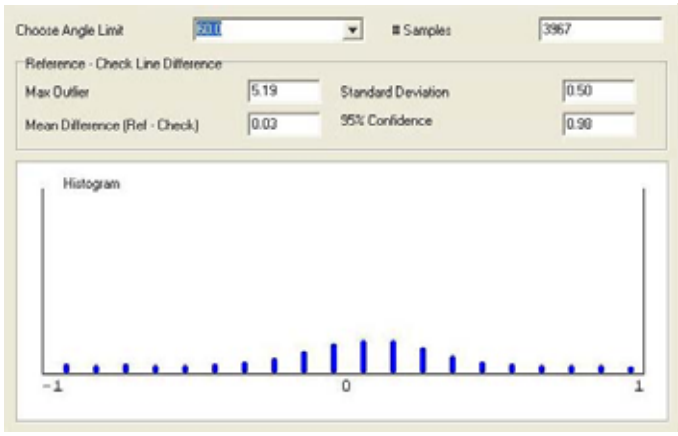

10/01_1111



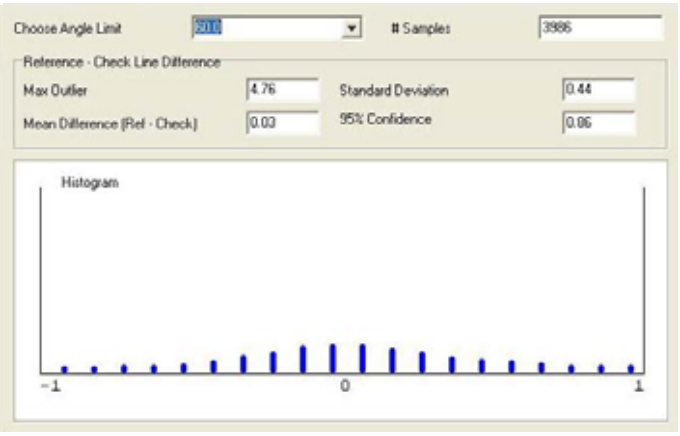

10/06_1437



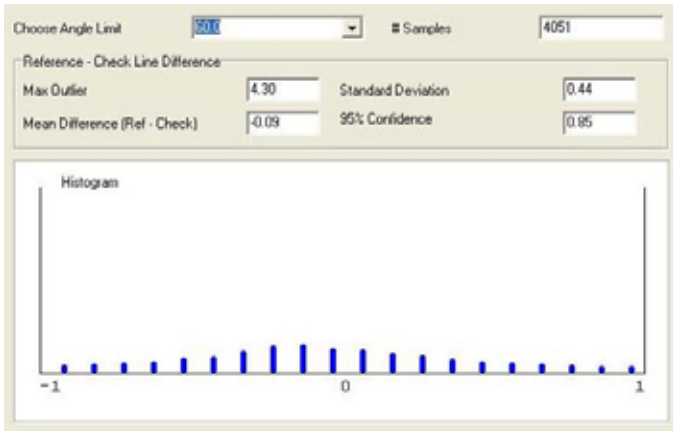

10/06_1716



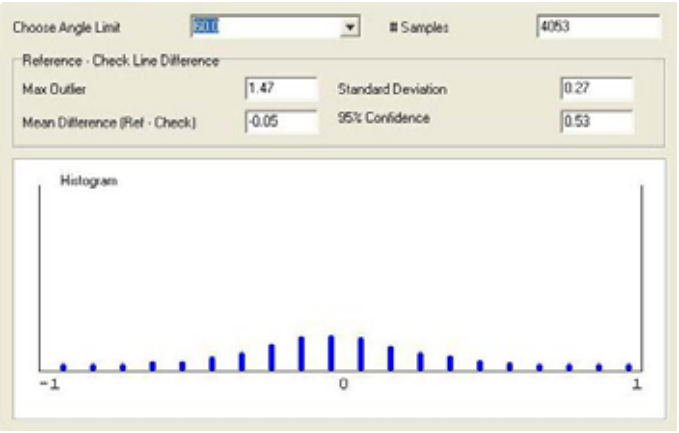

10/21_1802



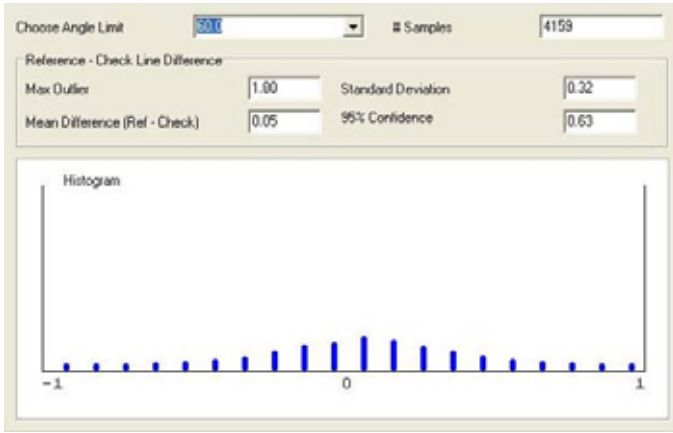

10/21_A1540



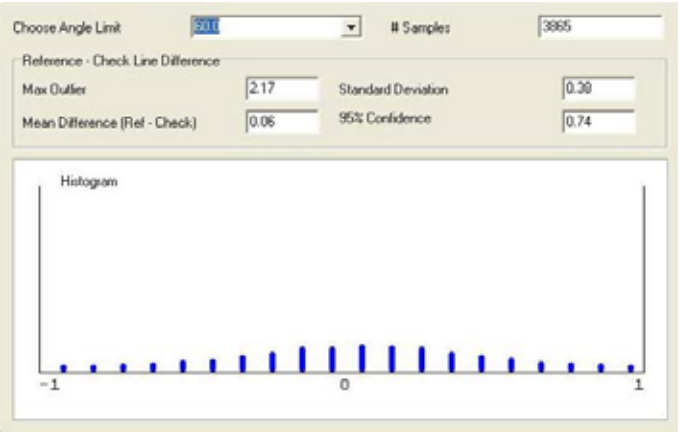

10/21_1141



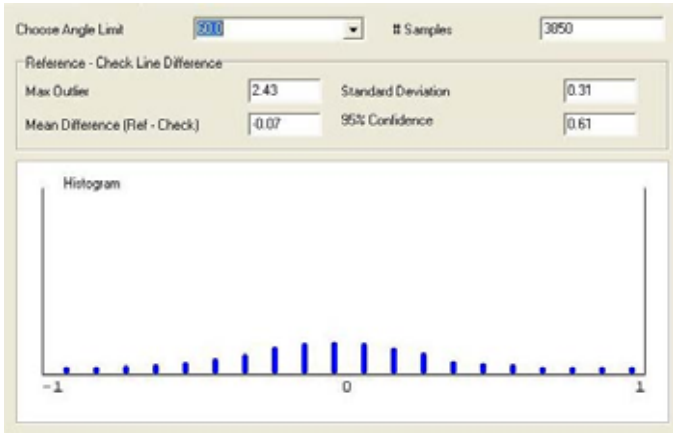

10/22_1205



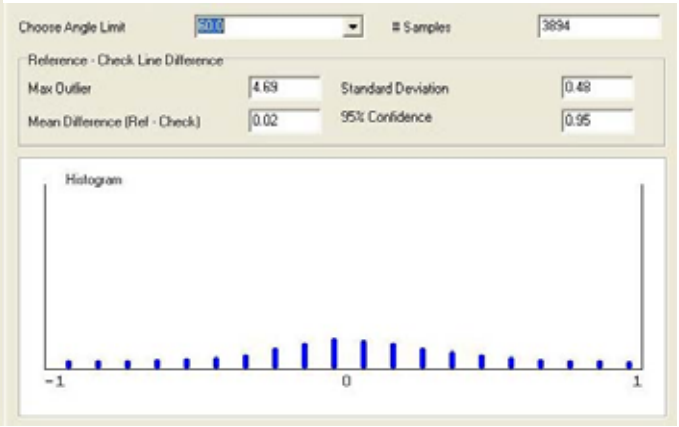

10/22_A1448



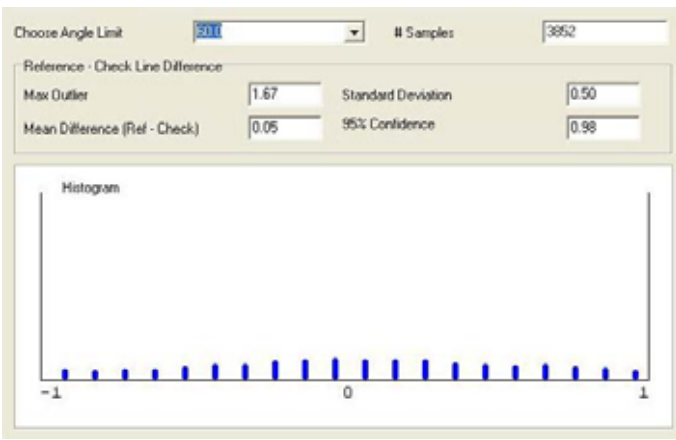

11/04_1346




11/04_1653




11/04_A1032

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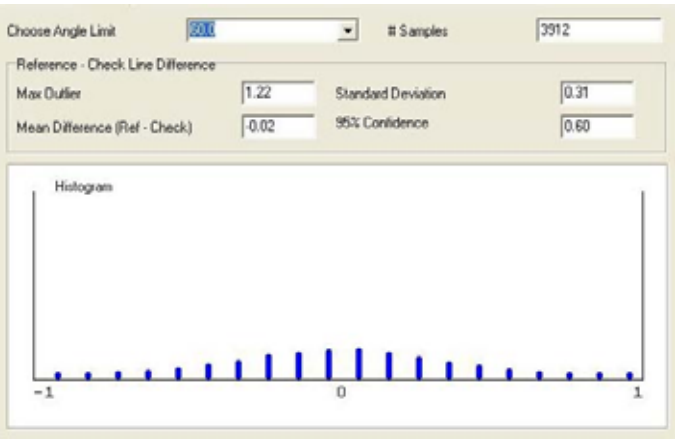


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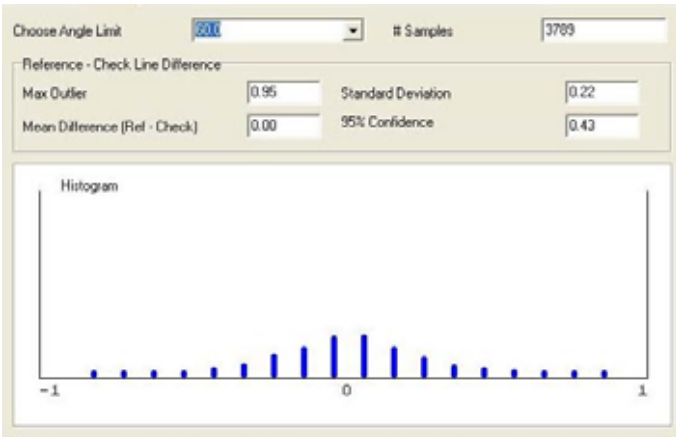


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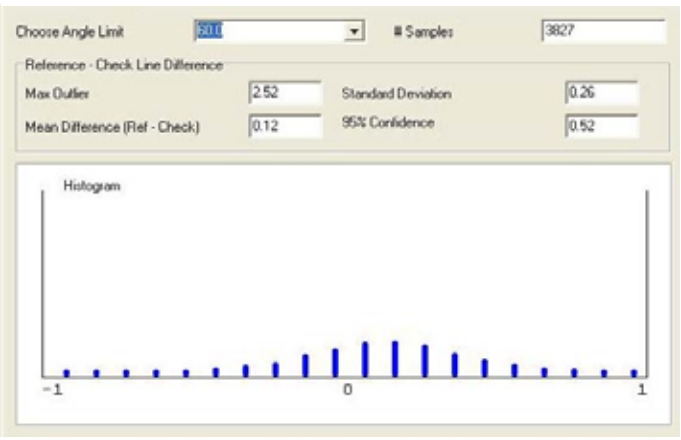


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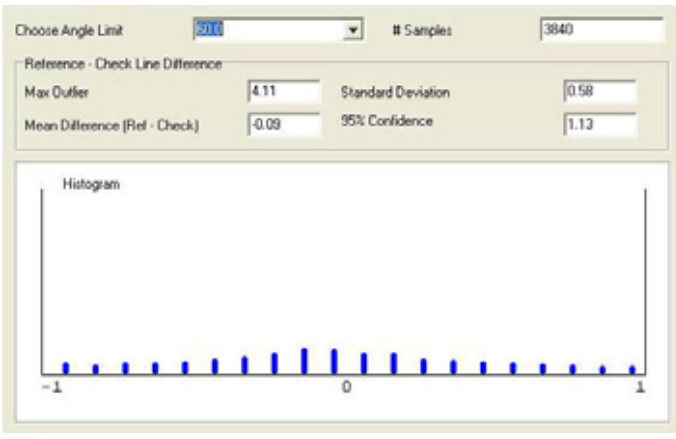


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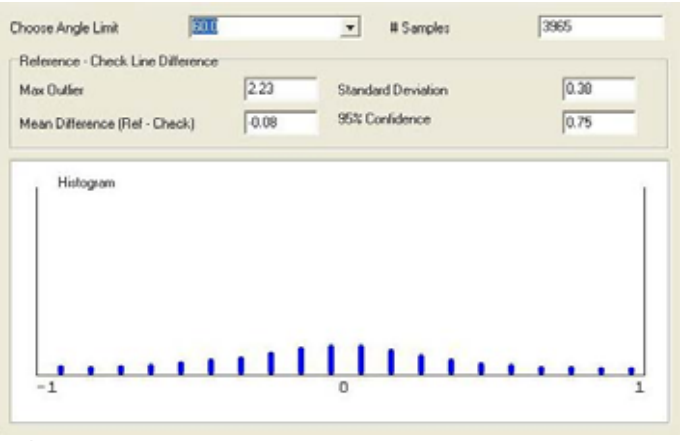


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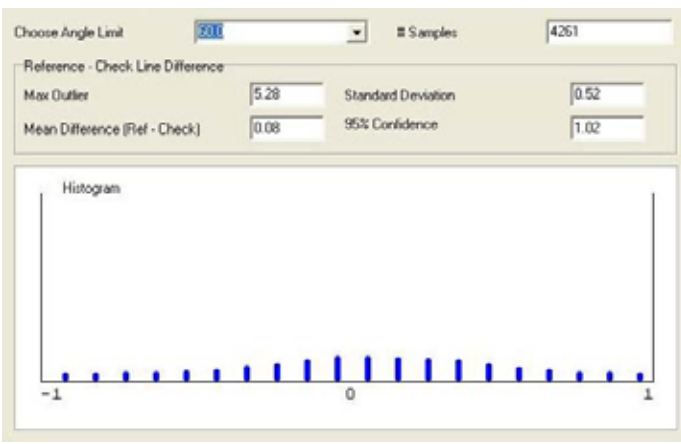


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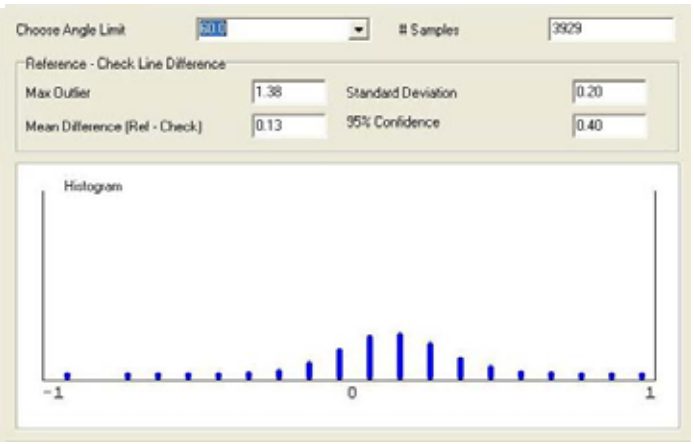


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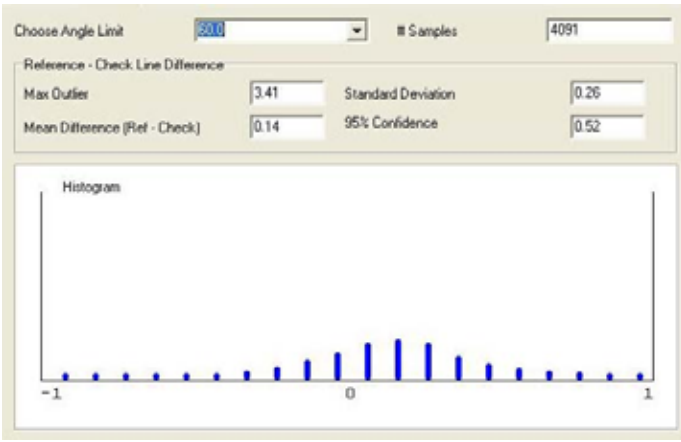


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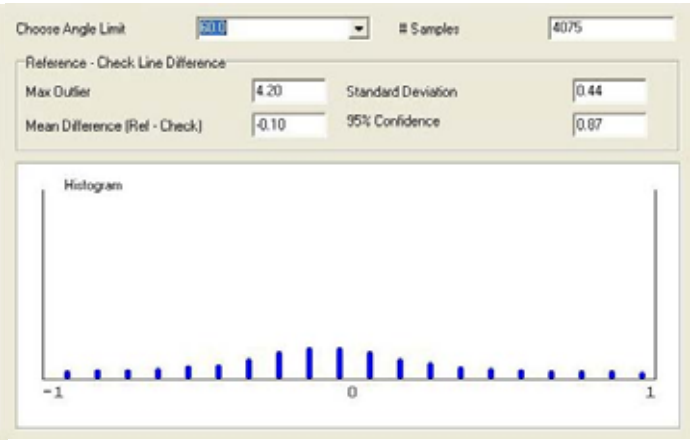


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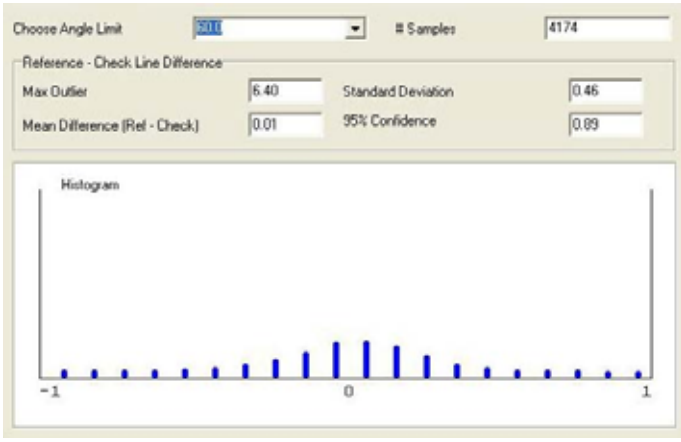


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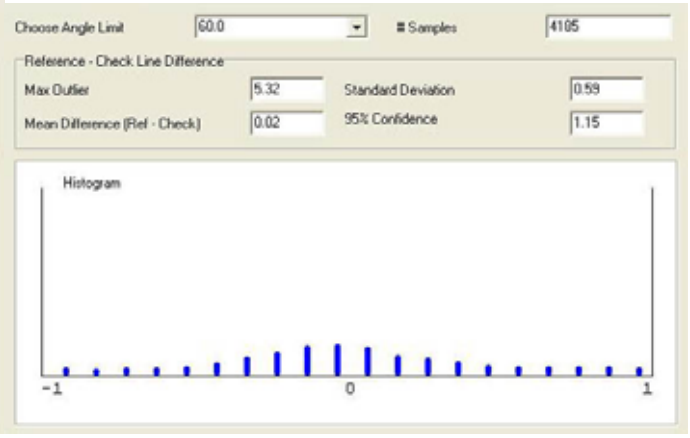


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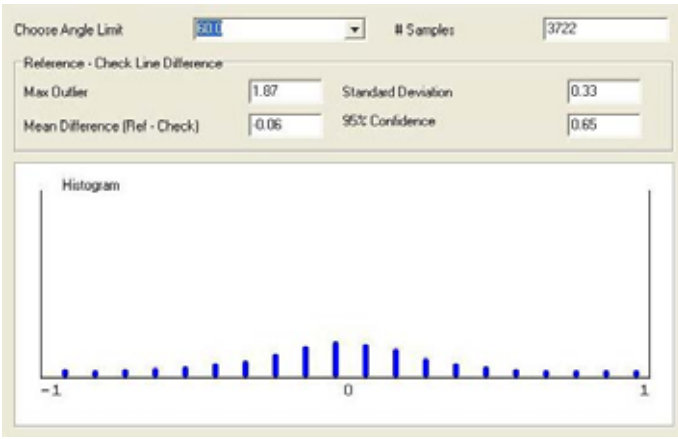


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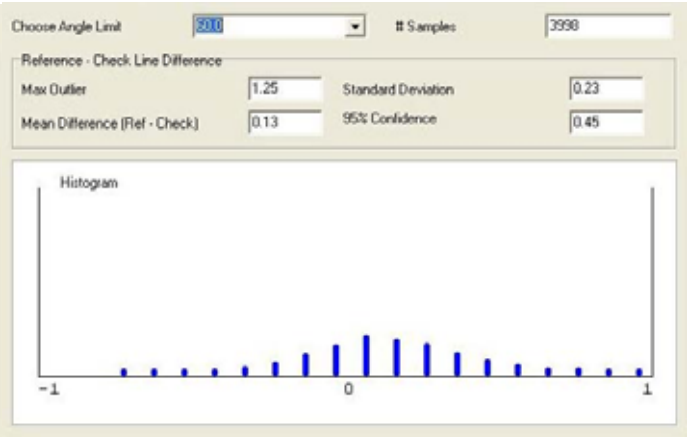


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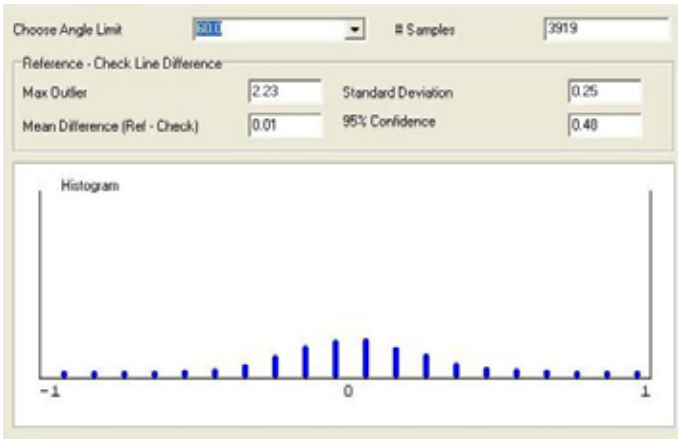


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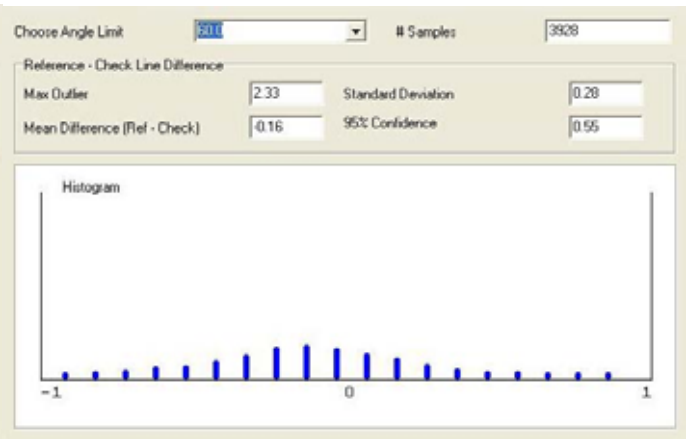


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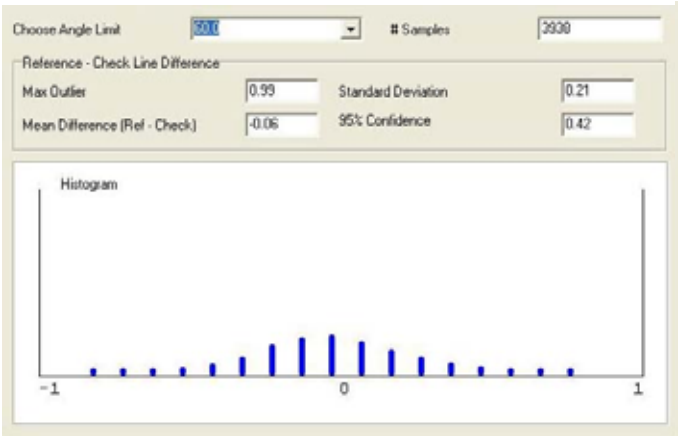


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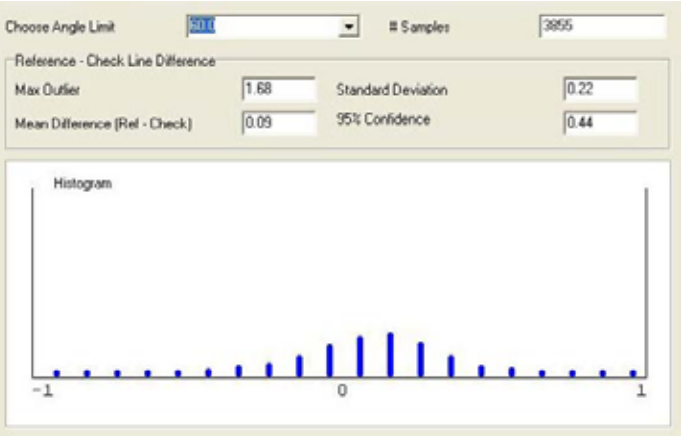


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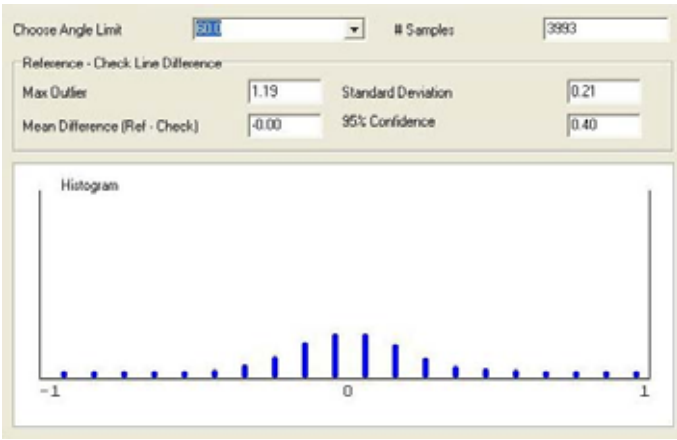


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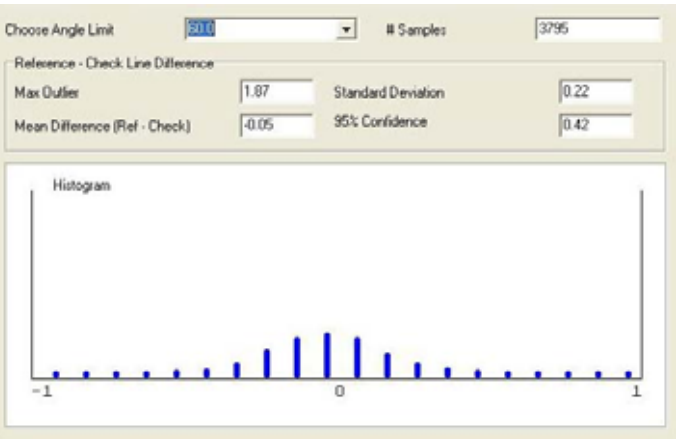


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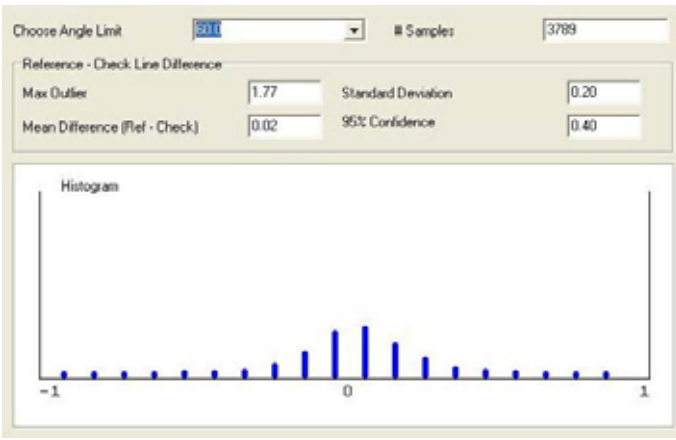


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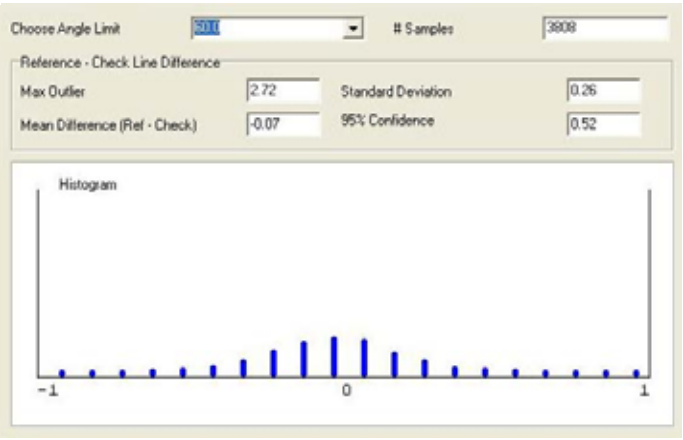


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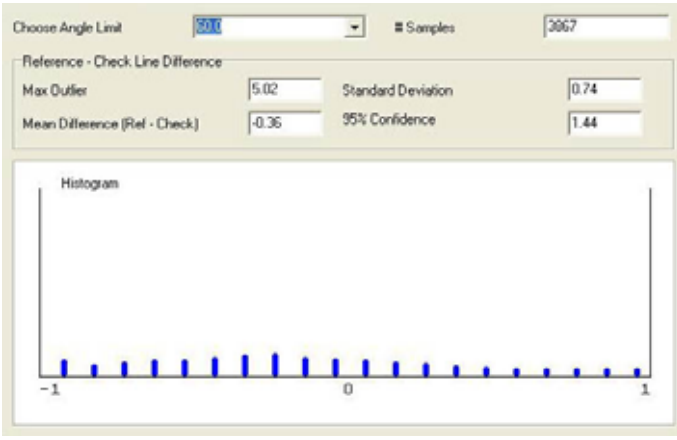


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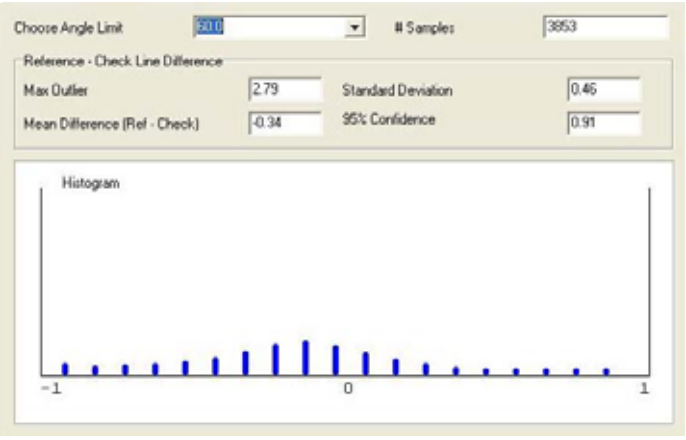


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