CASIUS Calibration Report

Sonardyne
SOUND IN DEPTH

Vessel: Atlantis   **Device No:** USBL1811   **Date/Time:** Monday, April 03, 2017 0:18:16 AM

Settings:

Initial Estimates for BoxIn	
Transceiver depth offset	4.760m
Transceiver depth	7.070m
Antenna starboard offset	-3.410m
Antenna forward offset	-10.140m
Antenna height offset	27.470m

Error Estimates for BoxIn	
DGPS lags USBL	0.00s
Range measurement	0.2m
Range gate	2.0m
DGPS position	2.0m
Beacon position	25.0m
Beacon depth	5.0m
Sound velocity	5.0m/s
Transceiver depth	2.0m
Transceiver offset	1.0m

Transceiver & Beacon	
Transceiver Index	11
Beacon Name	AvT-813
Turn Around Time	320.0ms

Depth Aiding	
Boresight Angle Limit	22.0º
Depth Difference Limit	1.0m

Transceiver Attitude Calculation Inputs	
Angle Gate	2.0º
Known Heading Correction	n/a

Values Used During Data Collection	
Transceiver Pitch Correction	0.18º
Transceiver Roll Correction	-0.01º
Transceiver Heading Correction	2.09º
Sound Velocity	1492.8m/s

Results:

Beacon BoxIn	Beacon Eastings	Beacon Northings	Beacon Depth	Sound Velocity	Transceiver Starboard Offset	Transceiver Forward Offset
Before	577705.90m	1087797.10m	2503.90m	1492.76m/s	-2.10m	-6.12m
Calculated	577705.86m	1087797.14m	2504.43m	1490.89m/s	-2.34m	-6.30m
Calculated Accuracy	0.04m	0.04m	0.21m	0.08m/s	0.03m	0.03m

Transceiver Attitude	Pitch Correction	Roll Correction	Heading Correction
Before	0.18º	-0.01º	2.09º
Calculated	**-0.20º**	**0.06º**	**2.26º**
Calculated Accuracy	0.00º	0.00º	0.02º

Statistics:

	Before CASIUS (distance)	After CASIUS (distance)	Before CASIUS (% depth)	After CASIUS (% depth)
39.4% Beacon Positions (1 sigma)	16.0m	6.2m	0.64	0.25
50.0% Beacon Positions (CEP)	16.8m	7.2m	0.67	0.29
63.2% Beacon Positions (1 Drms)	17.8m	8.4m	0.71	0.34
86.5% Beacon Positions (2 sigma)	24.0m	11.8m	0.96	0.47
98.2% Beacon Positions (2 Drms)	27.0m	14.4m	1.08	0.57

General:

	Beacon BoxIn	Transceiver Attitude
Number of Iterations	3	2
Number of Fixes Used	1989	1989
Number Depth Aided		0
Average weighted residuals	0.003	0.362

Vessel Track
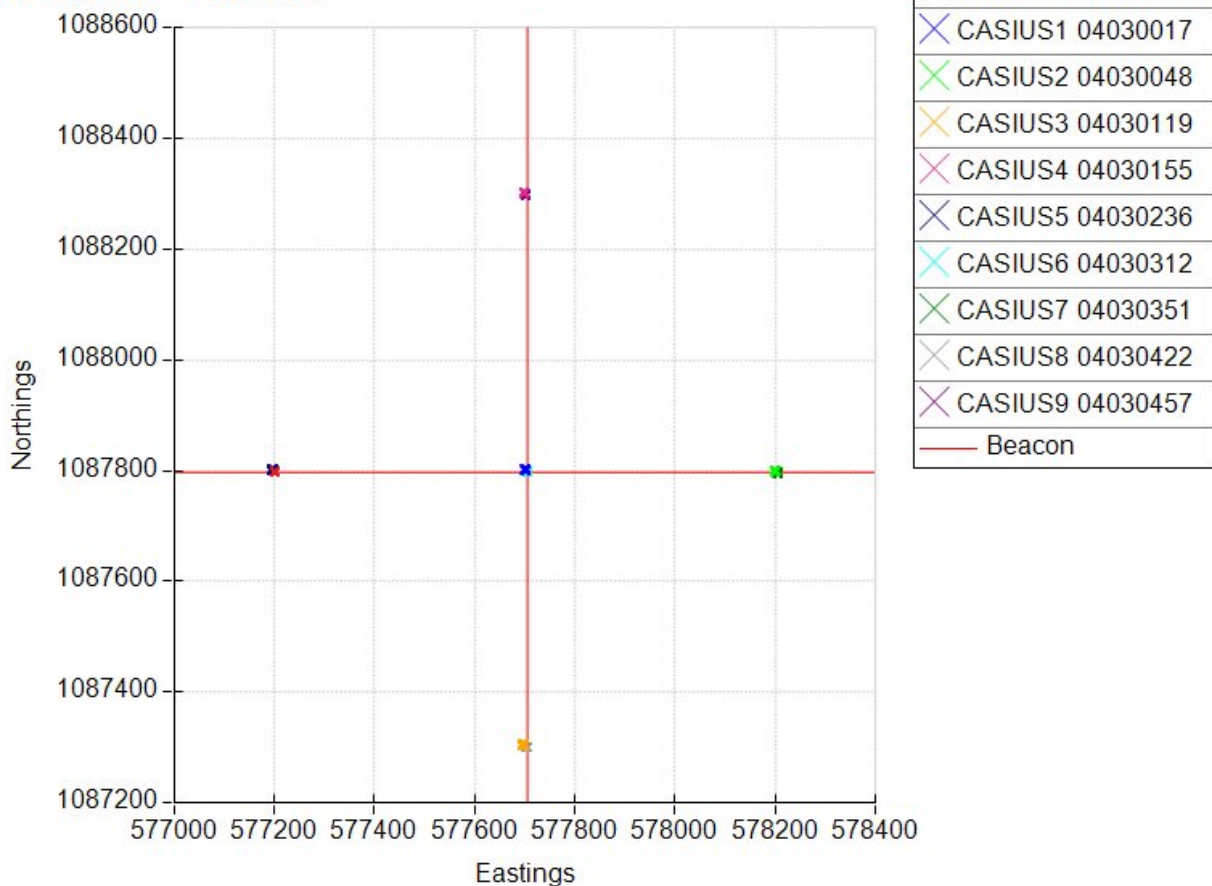
Data used:

Name	Filename	Start	End	#Acoustic	#Position
CASIUS10 04030537	C:\Ranger Files\CASIUS\0403_0016\ CASIUS10 04030537.csv	4/3/2017 5:53:21 AM	4/3/2017 6:13:15 AM	200	1202
CASIUS1 04030017	C:\Ranger Files\CASIUS\0403_0016\CASIUS1 04030017.csv	4/3/2017 0:18:16 AM	4/3/2017 0:47:53 AM	199	1788
CASIUS2 04030048	C:\Ranger Files\CASIUS\0403_0016\CASIUS2 04030048.csv	4/3/2017 1:00:00 AM	4/3/2017 1:19:47 AM	199	1196
CASIUS3 04030119	C:\Ranger Files\CASIUS\0403_0016\CASIUS3 04030119.csv	4/3/2017 1:36:02 AM	4/3/2017 1:55:48 AM	199	1195
CASIUS4 04030155	C:\Ranger Files\CASIUS\0403_0016\CASIUS4 04030155.csv	4/3/2017 2:16:10 AM	4/3/2017 2:36:02 AM	200	1202
CASIUS5 04030236	C:\Ranger Files\CASIUS\0403_0016\CASIUS5 04030236.csv	4/3/2017 2:52:17 AM	4/3/2017 3:12:10 AM	200	1202
CASIUS6 04030312	C:\Ranger Files\CASIUS\0403_0016\CASIUS6 04030312.csv	4/3/2017 3:31:18 AM	4/3/2017 3:51:11 AM	199	1202
CASIUS7 04030351	C:\Ranger Files\CASIUS\0403_0016\CASIUS7 04030351.csv	4/3/2017 4:02:13 AM	4/3/2017 4:22:06 AM	200	1196
CASIUS8 04030422	C:\Ranger Files\CASIUS\0403_0016\CASIUS8 04030422.csv	4/3/2017 4:37:03 AM	4/3/2017 4:56:57 AM	200	1201
CASIUS9 04030457	C:\Ranger Files\CASIUS\0403_0016\CASIUS9 04030457.csv	4/3/2017 5:17:14 AM	4/3/2017 5:37:12 AM	201	1203

2D Scatter - Before CASIUS

Legend:
- ✕ CASIUS10 04030537
- ✕ CASIUS1 04030017
- ✕ CASIUS2 04030048
- ✕ CASIUS3 04030119
- ✕ CASIUS4 04030155
- ✕ CASIUS5 04030236
- ✕ CASIUS6 04030312
- ✕ CASIUS7 04030351
- ✕ CASIUS8 04030422
- ✕ CASIUS9 04030457
- ---- 1 Drms
- — - 2 Drms
- —— Beacon

Axis labels: Northings (vertical), Eastings (horizontal)
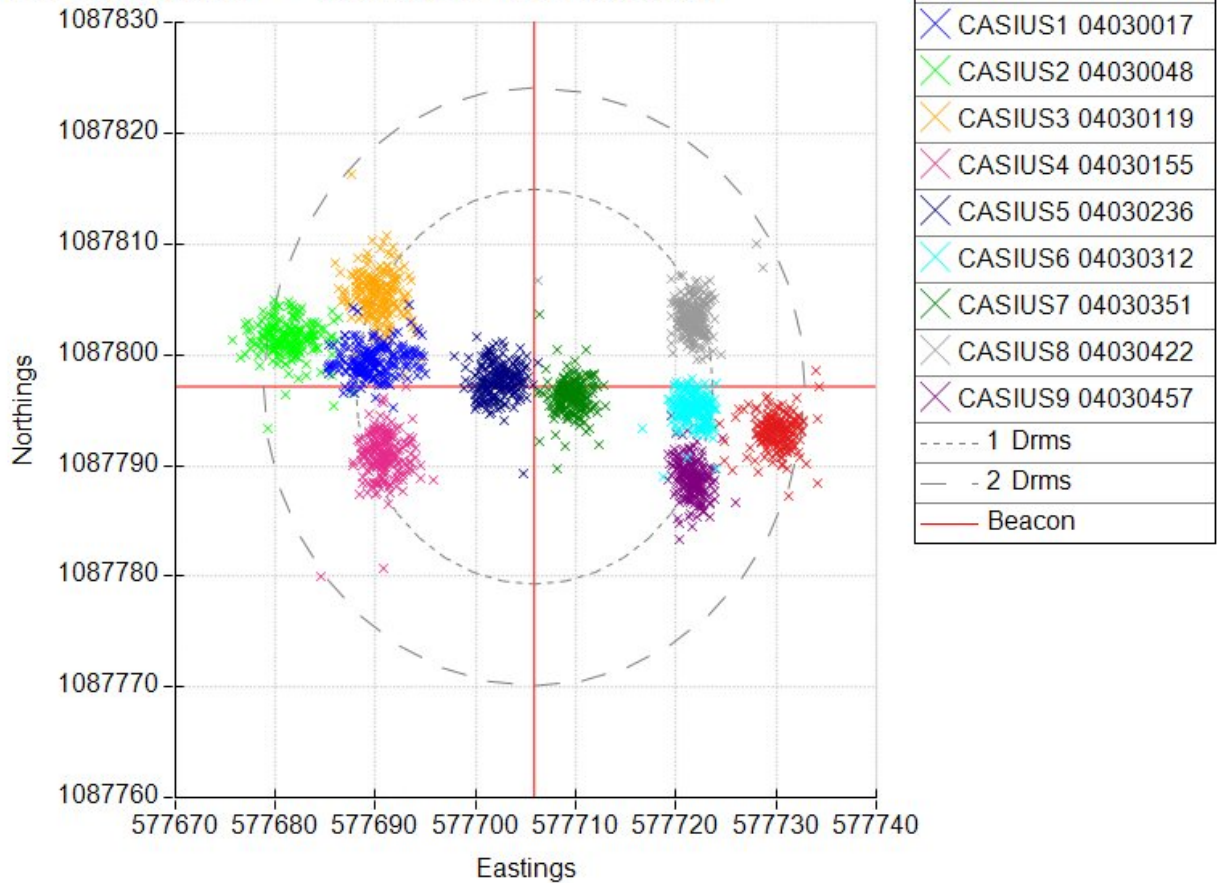
3D Histogram - Before CASIUS

Legend:
- 8 - 9
- 7 - 8
- 6 - 7
- 5 - 6
- 4 - 5
- 3 - 4
- 2 - 3
- 1 - 2
- 0 - 1

Axis labels: Fix Density (% Fixes in 5.3m Box), Eastings, Northings

2D Scatter - After CASIUS

Legend:
- ✕ CASIUS10 04030537
- ✕ CASIUS1 04030017
- ✕ CASIUS2 04030048
- ✕ CASIUS3 04030119
- ✕ CASIUS4 04030155
- ✕ CASIUS5 04030236
- ✕ CASIUS6 04030312
- ✕ CASIUS7 04030351
- ✕ CASIUS8 04030422
- ✕ CASIUS9 04030457
- ---- 1 Drms
- — - 2 Drms
- — Beacon

Axis labels: Northings (vertical), Eastings (horizontal)
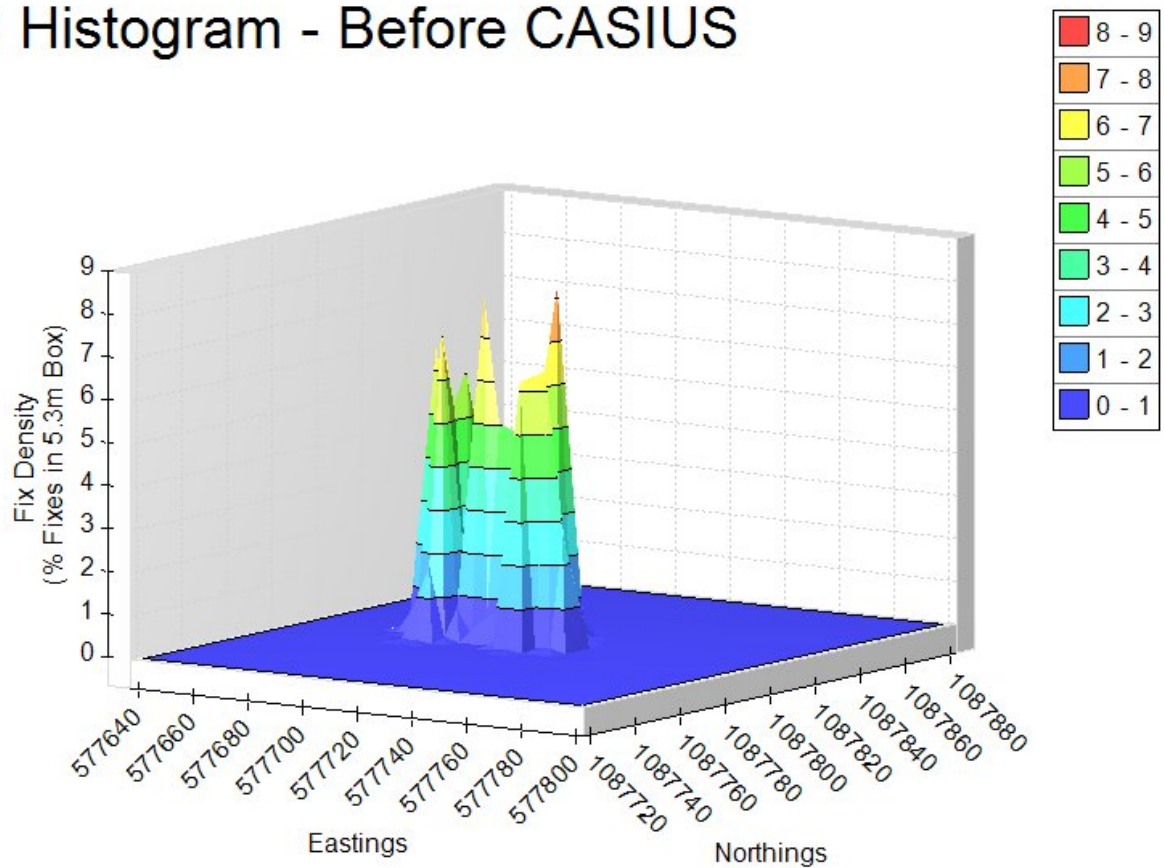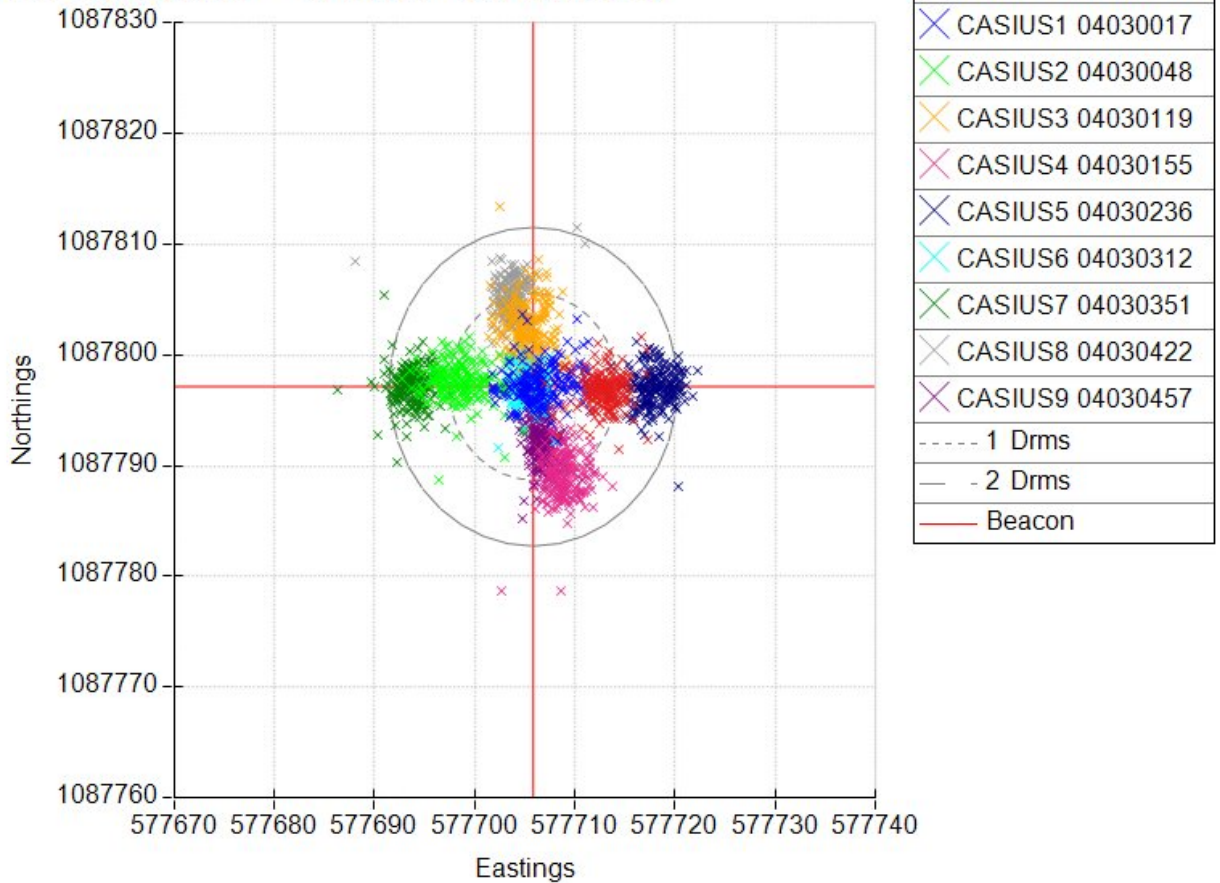
3D Histogram - After CASIUS

Legend:
- 16 - 18
- 14 - 16
- 12 - 14
- 10 - 12
- 8 - 10
- 6 - 8
- 4 - 6
- 2 - 4
- 0 - 2

Axis labels: Fix Density (% Fixes in 5.3m Box), Eastings, Northings