CASIUS Calibration Report

Sonardyne
SOUND IN DEPTH

Vessel: Ship 1

Transceiver Settings:

Name	Device No	X/Y Offset Error	Depth Offset Error
Transceiver 1	006799	1.0m	0.5m

GNSS Settings:

Name	Forward Offset	Starboard Offset	Height Offset
GNSS 1	-0.880m	-2.940m	27.190m

Pitch, Roll & Heading Settings:

Name	Usage	Pitch Offset	Roll Offset	Heading Offset
PitchRoll 1	Pitch, Roll & Heading	0.00º	0.00º	0.00º

Beacon Settings:

Name	Received Signal	X/Y Error	Depth Error
float 2108	CRS 2100	30.0m	5.0m

Sound Speed:

	Surface	Average (Initial)	Average (Computed)
Sound Speed	1504.2m/s	1485.2m/s	1483.8m/s
Error	15.0m/s	15.0m/s	0.0m/s

Beacon float 2108 Result:

	Beacon Latitude	Beacon Longitude	Beacon Depth	Beacon Eastings	Beacon Northings
Before	48.04494018º	-126.55034845º	2408.862m	682568.389m	5324198.401m
Calculated	48.04494038º	-126.55034226º	2408.258m	682568.850m	5324198.437m
Calculated Accuracy			0.073m	0.010m	0.010m

	Before CASIUS (distance)	After CASIUS (distance)	Before CASIUS (% depth)	After CASIUS (% depth)
39.4% Beacon Positions (1 sigma)	4.80m	2.89m	0.20	0.12
50.0% Beacon Positions (CEP)	5.51m	3.52m	0.23	0.15
63.2% Beacon Positions (1 Drms)	6.45m	4.54m	0.27	0.19
86.5% Beacon Positions (2 sigma)	9.34m	7.32m	0.39	0.30
95.0% Beacon Positions	12.09m	10.04m	0.50	0.42

Transceiver 'Transceiver 1' Result:

	Transceiver Starboard Offset	Transceiver Forward Offset	Transceiver Depth Offset	Transceiver Pitch Offset	Transceiver Roll Offset	Transceiver Heading Offset
Before	-1.851m	3.387m	5.132m	0.15º	0.04º	2.31º
Calculated	-1.874m	3.328m	5.132m	**0.15º**	**-0.06º**	**2.21º**
Calculated Accuracy	0.010m	0.010m	0.000m	0.00º	0.00º	0.01º

Summary Stats:

	Range RMS	Direction Cosine RMS	Observations	Excluded	Iterations
Box-in	0.059m		2000	1	3

	Range RMS	Direction Cosine RMS	Observations	Excluded	Iterations
Attitude Calibration		0.0015	4000	2	2

Engine Settings:

Mode	Max Iterations	Convergence Threshold	MAD Threshold	Deweight Angle	Height Correction
Box-in and attitude	30	0.000100	10.0	90	GNSS Height

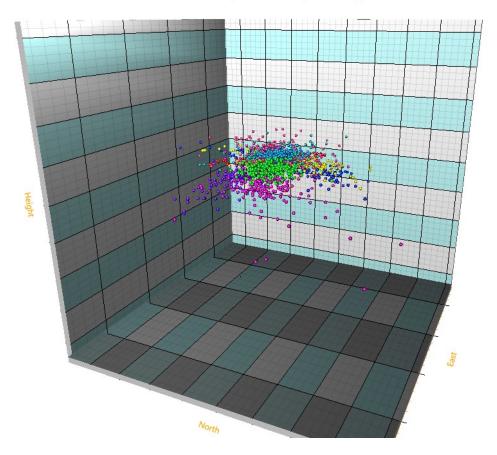| Exclude Outliers	Use Priors	Estimate Height Offset	Seperate Box-In & Attitude Calculations	Refraction Correct
Yes	Yes	No	Yes	Yes

Data Summary:

Name	Start Time	End Time	GNSS 1	Transceiver 1	float 2108
Casius Data 1	2021-07-19 01:27:35Z	2021-07-19 01:47:25Z	1190	200	200
Casius Data 2	2021-07-19 01:56:23Z	2021-07-19 02:16:16Z	1193	200	200
Casius Data 3	2021-07-19 02:34:00Z	2021-07-19 02:53:56Z	1196	200	200
Casius Data 4	2021-07-19 03:01:37Z	2021-07-19 03:21:33Z	1196	200	200
Casius Data 5	2021-07-19 03:43:01Z	2021-07-19 04:02:48Z	1187	200	200
Casius Data 6	2021-07-19 04:18:03Z	2021-07-19 04:37:54Z	1191	200	200
Casius Data 7	2021-07-19 04:56:55Z	2021-07-19 05:16:44Z	1189	200	200
Casius Data 8	2021-07-19 05:27:25Z	2021-07-19 05:47:14Z	1189	200	200
Casius Data 9	2021-07-19 06:04:35Z	2021-07-19 06:24:25Z	1190	200	200
Casius Data 10	2021-07-19 06:33:58Z	2021-07-19 06:53:50Z	1192	200	200
Casius Data 11	2021-07-19 07:11:50Z	2021-07-19 07:31:40Z	1190	200	200
Casius Data 12	2021-07-19 07:40:33Z	2021-07-19 08:00:23Z	1190	200	200

Backplot - Before (float 2108)

Backplot - Before (float 2108)

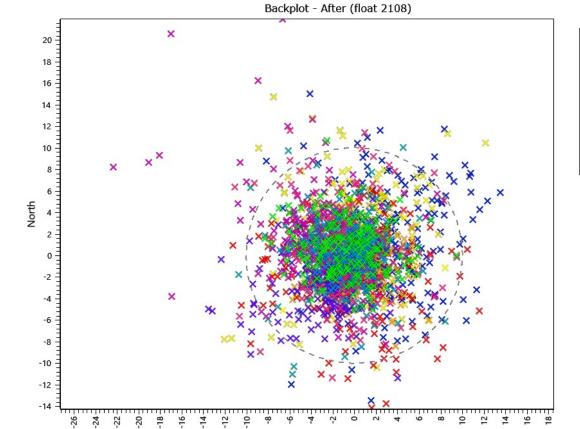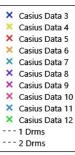| | Casius Data 3 |
	Casius Data 4
	Casius Data 5
	Casius Data 6
	Casius Data 7
	Casius Data 8
	Casius Data 9
	Casius Data 10
	Casius Data 11
	Casius Data 12

Backplot - After (float 2108)

✕	Casius Data 3
✕	Casius Data 4
✕	Casius Data 5
✕	Casius Data 6
✕	Casius Data 7
✕	Casius Data 8
✕	Casius Data 9
✕	Casius Data 10
✕	Casius Data 11
✕	Casius Data 12
- - -	1 Drms
- - -	2 Drms