

## APPENDIX I

- Software Versions
- Hardware Serial Numbers

Software	Version
<b>Acquisition</b>	
HYPACK MAX	005b10.6.0.0
Sonar Wiz	new
Trimble Asset Surveyor	5.00
<b>Processing</b>	
KapConv	1.2
PYDRO	2.3.2
MapInfo	6.5
Pathfinder Office	2.51
Vertical Mapper	2.5
CARIS HIPS/HDCS SIPS/SSMOS	5.2
<b>Utilities</b>	
Tides and Currents for Windows WorldReg	2.56
	1.0
<b>Horizontal Control</b>	
TSIP Talker	2.0
<b>Sound Velocity</b>	
Velocwin Seabird Firmware	7.01
	1.09

## Equipment

Description	Serial Numbers
Innerspace 448 Echosounder	188
EG&G ACI EG&G Model 272 towfish	020892
Diver Least Depth gauges	68337
Seabird SBE 19-02 Seacat Sound Velocity Profiler	1477

## APPENDIX II

- Bathymetry Cleaning Flow Chart

- Pydro Data Integration Flow Chart







## APPENDIX III

- Launch 1210 Offset Drawing
- Launch 1210 Vessel Configuration File Values

### LAUNCH 1210 Vessel Offset Measurements

Description: Aluminum SeaArk survey launch

LOA: 27 feet

Weight:8,500 lbs

	Valu (Meters)	Date Measured
<b>Antennae height from VBES transducer</b>	<b>2.94</b>	<b>Nov-01</b>
<b>J-Arm block from VBES transducer</b>	<b>2.25</b>	<b>Nov-01</b>
<b>J-Arm layback from VBES</b>	<b>2.97</b>	<b>Nov-01</b>
<b>J-Arm block from waterline</b>	<b>2.30</b>	<b>Nov-01</b>
<b>Antennae offset from VBES transducer</b>	<b>0.2</b>	<b>Nov-01</b>

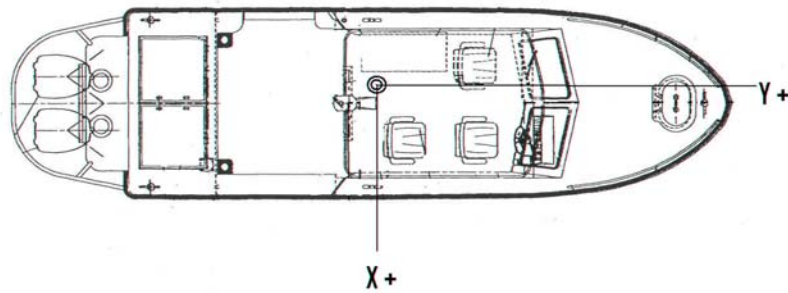
**CARIS Vessel Configuration File Parameters: Launch 1210**

**Depth Sensor**

	Time Error	Delta X	Delta Y	Delta Z	Roll	Pitch	Azimuth	Draft
Transducer	0.00	0.00	0	0	0	0	0	0.5

**Ancillary Sensor Offsets**

	Time Error	Delta X	Delta Y	Delta Z	Error
Navigation	0	0.20	-0.77	-2.94	
Gyro	0	0.00	0	0	
Heave	0	0.00	0	0	



Pitch	0	0.00	0	0	
Roll	0	0.00	0	0	



### **Towed SSS Entries**

<b>Time Error</b>	<b>0</b>
<b>Delta X</b>	<b>2.25</b>
<b>Delta Y</b>	<b>-2.97</b>
<b>Delta Z</b>	<b>-2.30</b>
<b>Layback Error</b>	<b>0</b>

## Dynamic Draft

Speed(knots )	0.0	2.4	3.1	4.2	5.6	8.3
Draft Correction	0.0	0.10	0.15	0.10	0.0	-0.10





# SEA-BIRD ELECTRONICS, INC.

1808 136th Place N.E., Bellevue, Washington 98005 USA  
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SENSOR SERIAL NUMBER = 1477  
 CALIBRATION DATE: 30-Nov-01

CONDUCTIVITY CALIBRATION DATA  
 PSS 1978: C(35,15,0) = 4.2914 Siemens/meter

### GHIJ COEFFICIENTS

g = -3.94234042e+00  
 h = 4.69498068e-01  
 i = 1.52072329e-03  
 j = -4.46439722e-05  
 CPcor = -9.57e-08 (nominal)  
 CTcor = 3.25e-06 (nominal)

### ABCDM COEFFICIENTS

a = 5.16435016e-02  
 b = 4.15098682e-01  
 c = -3.93291892e+00  
 d = -1.67014346e-04  
 m = 2.1  
 CPcor = -9.57e-08 (nominal)

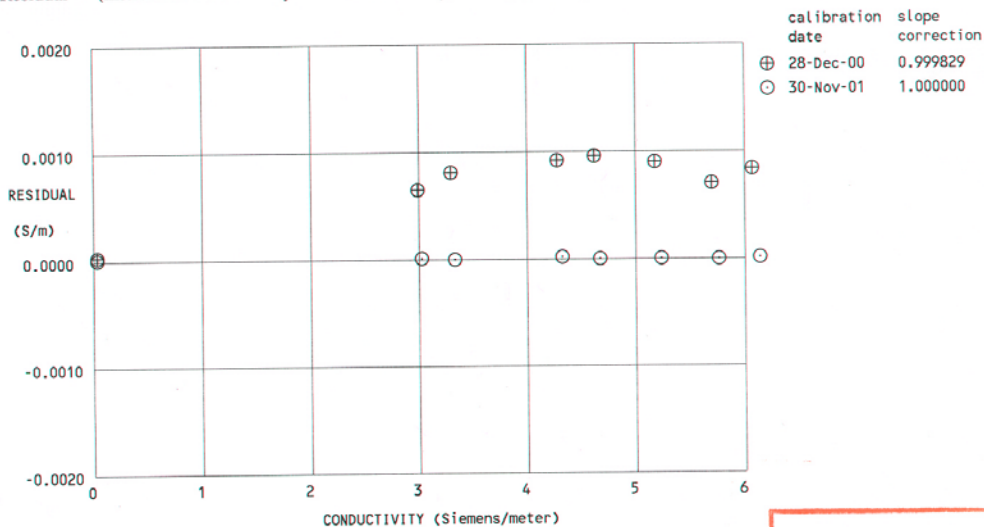
BATH TEMP (ITS-90 °C)	BATH SAL (PSU)	BATH COND (Siemens/m)	INST FREQ (kHz)	INST COND (Siemens/m)	RESIDUAL (Siemens/m)
22.0000	0.0000	0.00000	2.88543	0.00000	0.00000
1.0459	35.0102	2.99495	8.41050	2.99495	0.00000
4.4998	35.0114	3.30129	8.77986	3.30128	-0.00001
14.9999	35.0152	4.29341	9.88080	4.29342	0.00001
18.4999	35.0161	4.64199	10.23925	4.64198	-0.00001
23.9999	35.0171	5.20517	10.79306	5.20517	-0.00000
28.9998	35.0156	5.73124	11.28568	5.73123	-0.00001
32.4999	35.0115	6.10615	11.62396	6.10616	0.00001

$$\text{Conductivity} = (g + hf^2 + if^3 + jf^4) / [10(1 + \delta t + \epsilon p)] \text{ Siemens/meter}$$

$$\text{Conductivity} = (af^m + bf^2 + c + dt) / [10(1 + \epsilon p)] \text{ Siemens/meter}$$

t = temperature [deg C]; p = pressure [decibars];  $\delta$  = CTcor;  $\epsilon$  = CPcor;

Residual = (instrument conductivity - bath conductivity) using g, h, i, j coefficients



**POST CRUISE  
 CALIBRATION**





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SENSOR SERIAL NUMBER = 1477  
 CALIBRATION DATE: 30-Nov-01

TEMPERATURE CALIBRATION DATA  
 ITS-90 TEMPERATURE SCALE

ITS-90 COEFFICIENTS

g = 4.17918099e-03  
 h = 5.98894662e-04  
 i = 3.41552761e-06  
 j = -2.04233985e-06  
 f<sub>0</sub> = 1000.000

IPTS-68 COEFFICIENTS

a = 3.64702503e-03  
 b = 5.88002634e-04  
 c = 8.92762723e-06  
 d = -2.04195126e-06  
 f<sub>0</sub> = 2448.760

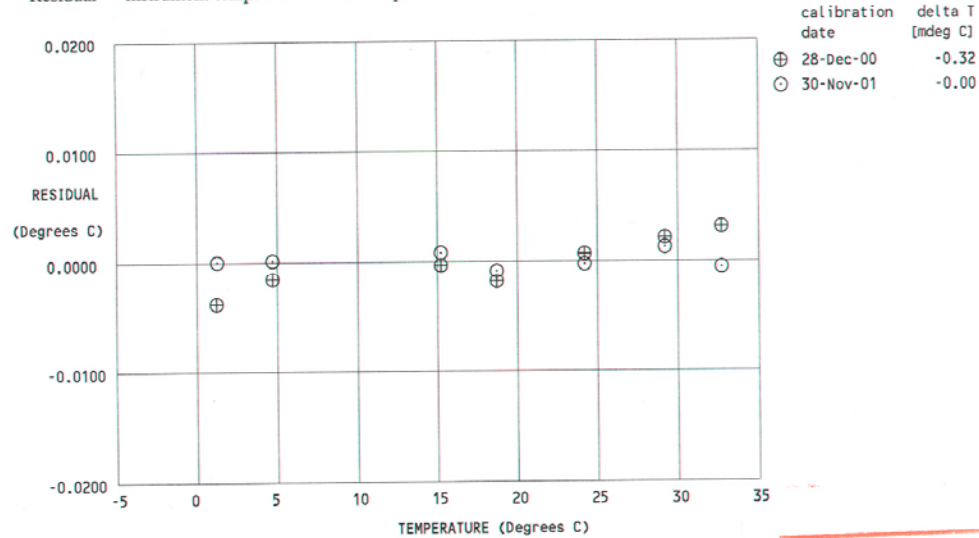
BATH TEMP (ITS-90 °C)	INSTRUMENT FREQ (Hz)	INST TEMP (ITS-90 °C)	RESIDUAL (ITS-90 °C)
1.0459	2448.760	1.0458	-0.00006
4.4998	2645.476	4.4998	0.00005
14.9999	3311.841	15.0006	0.00072
18.4999	3557.770	18.4989	-0.00096
23.9999	3969.881	23.9996	-0.00033
28.9998	4372.501	29.0010	0.00121
32.4999	4670.437	32.4993	-0.00063

Temperature ITS-90 =  $1/\{g + h[\ln(f_0/f)] + i[\ln^2(f_0/f)] + j[\ln^3(f_0/f)]\} - 273.15$  (°C)

Temperature IPTS-68 =  $1/\{a + b[\ln(f_0/f)] + c[\ln^2(f_0/f)] + d[\ln^3(f_0/f)]\} - 273.15$  (°C)

Following the recommendation of JPOTS: T<sub>68</sub> is assumed to be 1.00024 \* T<sub>90</sub> (-2 to 35 °C).

Residual = instrument temperature - bath temperature



**POST CRUISE  
 CALIBRATION**





# LINE / BAR LINE CALIBRATION

Lead-line Calibration ✓

Bar Line Calibration

Lead / Bar Line Identifier 1210

DN 331 Date Nov.27, 2001

<b>Leadline</b>		
Lead Line Mark (M)	Steel Tape Measurement (M)	Correction (M)
<b>A</b>	<b>B</b>	<b>C = A - B</b>
1	1	0
2	2	0
3	3	0
4	4	0
5	5	0
6	6	0
7	7	0
8	8	0
9	9	0
10	10	0
11	11	0
12	12	0
13	13	0
14	14	0
15	15	0
16	16	0
17	17	0
18	18	0
19	19	0
20	20	0

<b>Leadline</b>		
Lead Line Mark (M)	Steel Tape Measurement (M)	Correction (M)
<b>A</b>	<b>B</b>	<b>C = A - B</b>

**\*\*Read and record the steel tape readings to the nearest centimeter. If correction exceeds 0.1m, the line must be remarked.\*\***

**Measured by: RWR**

**Checked by: DBE**