

Sea-Bird Electronics, Inc.

13431 NE 20th Street, Bellevue, WA 98005-2010 USA

Phone: (+1) 425-643-9866 Fax (+1) 425-643-9954 Email: seabird@seabird.com

SENSOR SERIAL NUMBER: 9370

CALIBRATION DATE: 19-Jan-17

Slocum Payload CTD CONDUCTIVITY CALIBRATION DATA

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

COEFFICIENTS:

g = -1.017163e+000

h = 1.719061e-001

i = -2.770908e-004

j = 4.824572e-005

CPcor = -9.5700e-008

CTcor = 3.2500e-006

WBOTC = 4.7904e-007

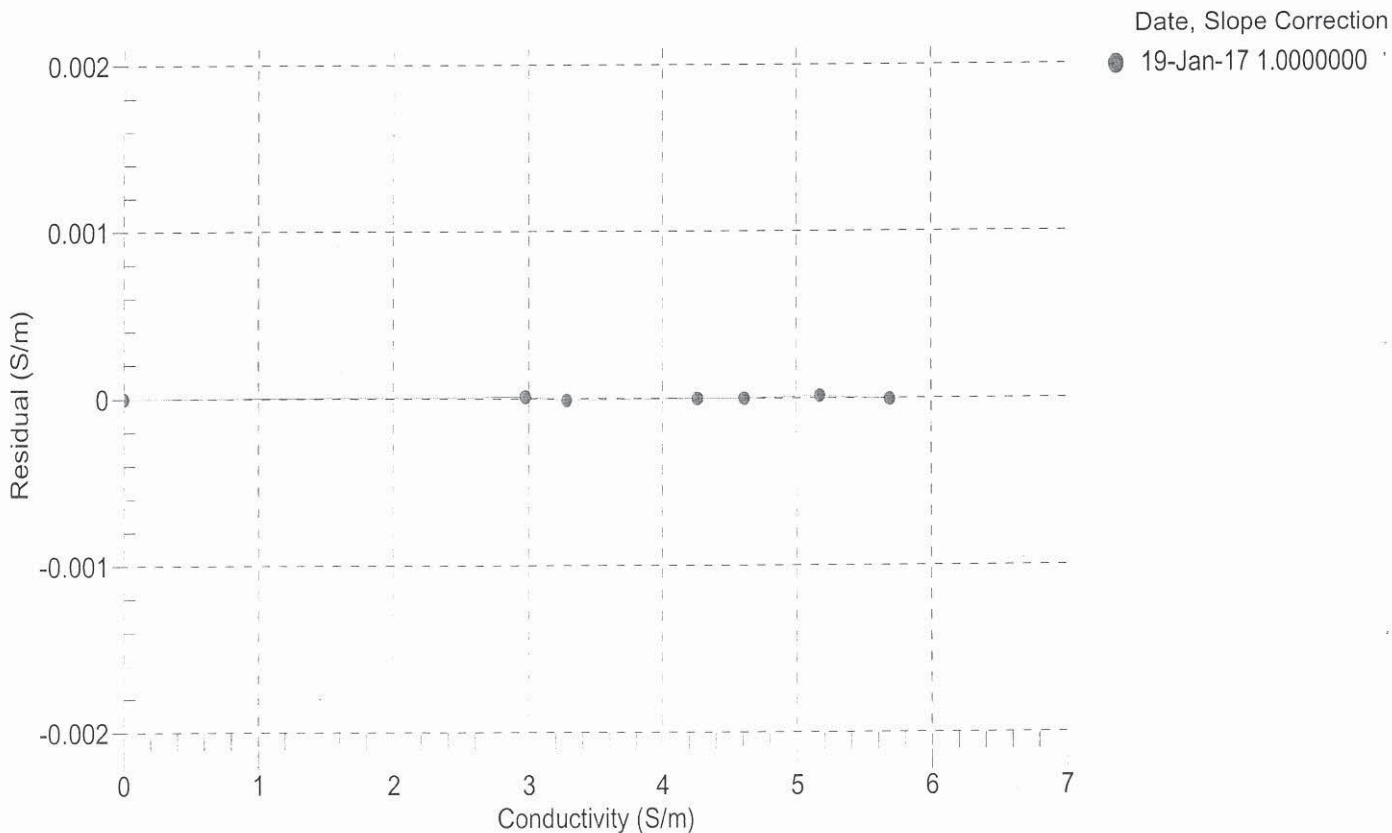
BATH TEMP (° C)	BATH SAL (PSU)	BATH COND (S/m)	INSTRUMENT OUTPUT (Hz)	INSTRUMENT COND (S/m)	RESIDUAL (S/m)
22.0000	0.0000	0.00000	2435.22	0.00000	0.00000
1.0000	34.8085	2.97536	4822.25	2.97537	0.00001
4.5000	34.7889	3.28239	5003.72	3.28238	-0.00001
15.0000	34.7463	4.26393	5543.59	4.26393	-0.00000
18.5000	34.7372	4.60901	5721.07	4.60900	-0.00000
23.9940	34.7269	5.16618	5996.33	5.16619	0.00001
29.0000	34.7203	5.68836	6243.02	5.68836	-0.00001
32.5000	34.7158	6.06044	6412.78	6.06026	-0.00019

$f = \text{Instrument Output(Hz)} * \text{sqrt}(1.0 + \text{WBOTC} * t) / 1000.0$

$t = \text{temperature (°C)}$; $p = \text{pressure (decibars)}$; $\delta = \text{CTcor}$; $\epsilon = \text{CPcor}$;

$\text{Conductivity (S/m)} = (g + h * f^2 + i * f^3 + j * f^4) / 10 (1 + \delta * t + \epsilon * p)$

$\text{Residual (Siemens/meter)} = \text{instrument conductivity} - \text{bath conductivity}$



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Slocum Payload CTD TEMPERATURE CALIBRATION DATA
ITS-90 TEMPERATURE SCALE

COEFFICIENTS:

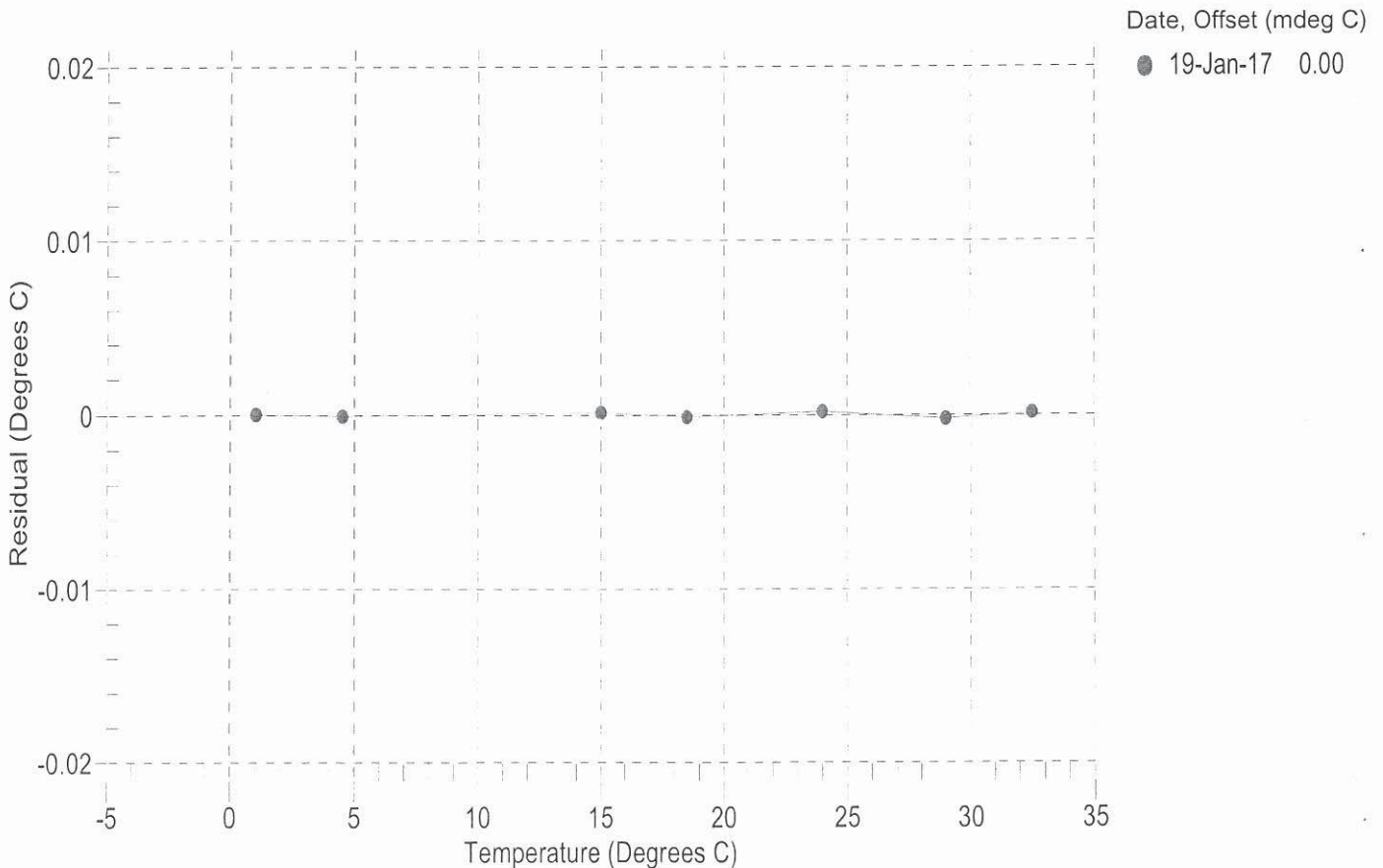
a0 = -1.470046e-004
a1 = 3.139361e-004
a2 = -4.859230e-006
a3 = 2.111330e-007

BATH TEMP (° C)	INSTRUMENT OUTPUT (counts)	INST TEMP (° C)	RESIDUAL (° C)
1.0000	562252.4	1.0000	0.0000
4.5000	481296.6	4.4999	-0.0001
15.0000	307862.6	15.0001	0.0001
18.5000	266921.4	18.4999	-0.0001
23.9940	214624.4	23.9942	0.0002
29.0000	177031.8	28.9998	-0.0002
32.5000	155246.0	32.5001	0.0001

n = Instrument Output (counts)

Temperature ITS-90 (°C) = $1/\{a_0 + a_1[\ln(n)] + a_2[\ln^2(n)] + a_3[\ln^3(n)]\} - 273.15$

Residual (°C) = instrument temperature - bath temperature



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SENSOR SERIAL NUMBER: 9370
 CALIBRATION DATE: 13-Dec-16

Slocum Payload CTD PRESSURE CALIBRATION DATA
 1450 psia S/N 4433961

COEFFICIENTS:

PA0 = 4.515523e-001	PTCA0 = 5.245374e+005
PA1 = 4.589066e-003	PTCA1 = 9.918876e+000
PA2 = -1.011595e-011	PTCA2 = -2.472566e-001
PTEMPA0 = -6.888574e+001	PTCB0 = 2.509350e+001
PTEMPA1 = 5.292990e-002	PTCB1 = 1.000000e-004
PTEMPA2 = -6.888957e-007	PTCB2 = 0.000000e+000

PRESSURE SPAN CALIBRATION

THERMAL CORRECTION

PRESSURE (PSIA)	INSTRUMENT OUTPUT (counts)	THERMISTOR OUTPUT (volts)	COMPUTED PRESSURE (PSIA)	RESIDUAL (%FSR)	TEMP (°C)	THERMISTOR OUTPUT (volts)	INSTRUMENT OUTPUT (counts)
14.74	527752.0	1762.0	14.75	0.00	32.50	1966	527697.80
314.98	593179.0	1763.0	314.93	-0.00	29.00	1896	527677.40
614.98	658584.0	1763.0	614.91	-0.00	23.99	1797	527706.80
914.97	724015.0	1764.0	914.93	-0.00	18.50	1688	527731.00
1214.93	789450.0	1763.0	1214.89	-0.00	15.00	1619	527717.20
1464.91	844006.0	1763.0	1464.90	-0.00	4.50	1412	527655.20
1214.96	789479.0	1763.0	1215.02	0.00	1.00	1344	527629.40
914.98	724035.0	1762.0	915.03	0.00			
614.94	658602.0	1761.0	615.00	0.00			
314.96	593192.0	1761.0	314.99	0.00			
14.74	527752.0	1760.0	14.75	0.00			

	TEMPERATURE (°C)	SPAN (mV)
	-5.00	25.09
	35.00	25.10

y = thermistor output (counts)

$$t = PTEMPA0 + PTEMPA1 * y + PTEMPA2 * y^2$$

$$x = \text{instrument output} - PTCA0 - PTCA1 * t - PTCA2 * t^2$$

$$n = x * PTCB0 / (PTCB0 + PTCB1 * t + PTCB2 * t^2)$$

$$\text{pressure (PSIA)} = PA0 + PA1 * n + PA2 * n^2$$

$$\text{Residual (\%FSR)} = (\text{computed pressure} - \text{true pressure}) * 100 / \text{Full Scale Range}$$

Date, Offset (%FSR)

● 13-Dec-16 0.00

