



Sea-Bird Scientific  
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 USA

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 seabird@seabird.com  
 www.seabird.com

SENSOR SERIAL NUMBER: 9029  
 CALIBRATION DATE: 12-Sep-20

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

COEFFICIENTS:

g = -9.886628e-001      CPcor = -9.5700e-008  
 h = 1.437982e-001      CTcor = 3.2500e-006  
 i = -1.879890e-004      WBOTC = -9.5261e-008  
 j = 3.545245e-005

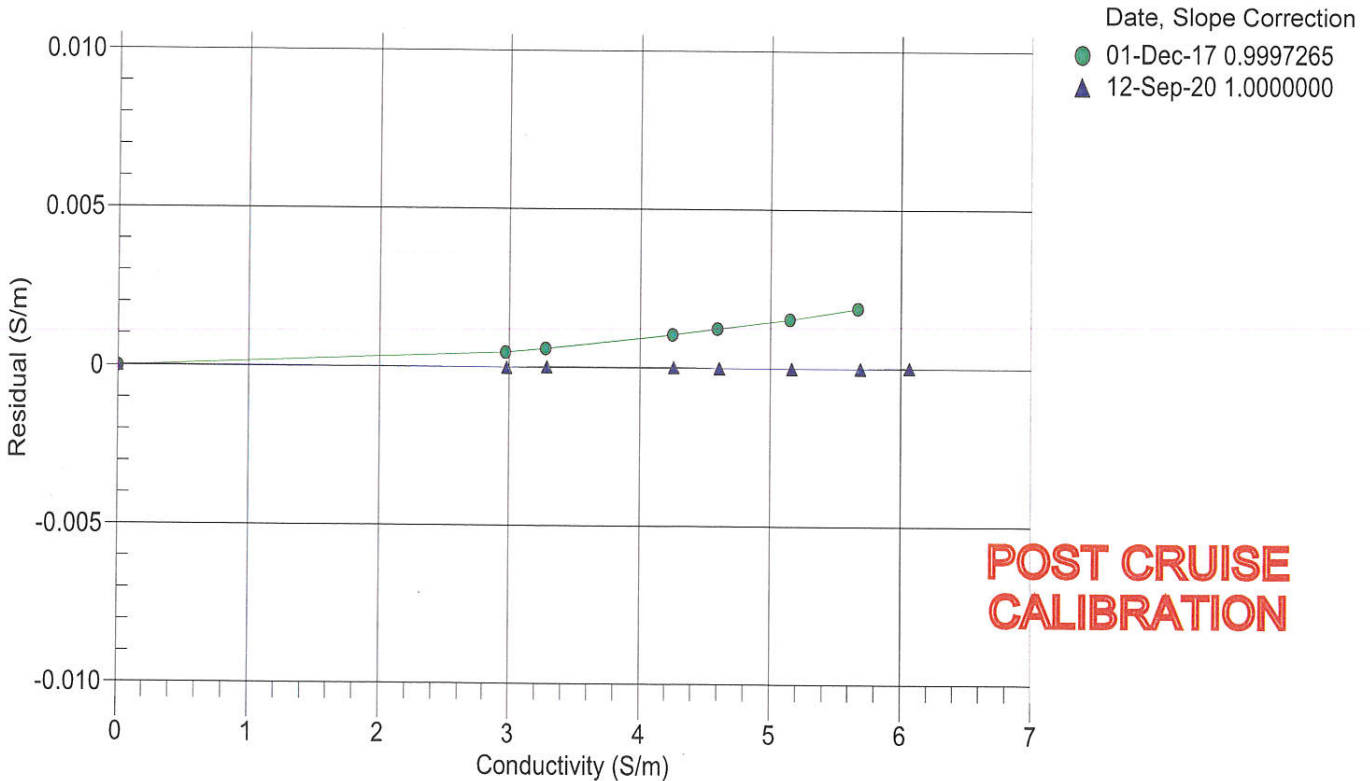
BATH TEMP (° C)	BATH SAL (PSU)	BATH COND (S/m)	INSTRUMENT OUTPUT (Hz)	INSTRUMENT COND (S/m)	RESIDUAL (S/m)
22.0000	0.0000	0.00000	2624.37	0.00000	0.00000
1.0000	34.7998	2.97469	5250.12	2.97468	-0.00001
4.5000	34.7805	3.28168	5448.97	3.28168	0.00000
15.0000	34.7396	4.26320	6040.20	4.26321	0.00001
18.5000	34.7314	4.60832	6234.48	4.60832	-0.00000
24.0000	34.7228	5.16625	6536.09	5.16625	-0.00000
29.0000	34.7187	5.68813	6805.78	5.68811	-0.00002
32.5000	34.7159	6.06046	6991.66	6.06047	0.00001

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

t = temperature (°C); p = pressure (decibars); δ = CTcor; ε = CPcor;

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

Residual (Siemens/meter) = instrument conductivity - bath conductivity



**POST CRUISE  
 CALIBRATION**



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SENSOR SERIAL NUMBER: 9029  
 CALIBRATION DATE: 12-Sep-20

Slocum Payload CTD TEMPERATURE CALIBRATION DATA  
 ITS-90 TEMPERATURE SCALE

COEFFICIENTS:

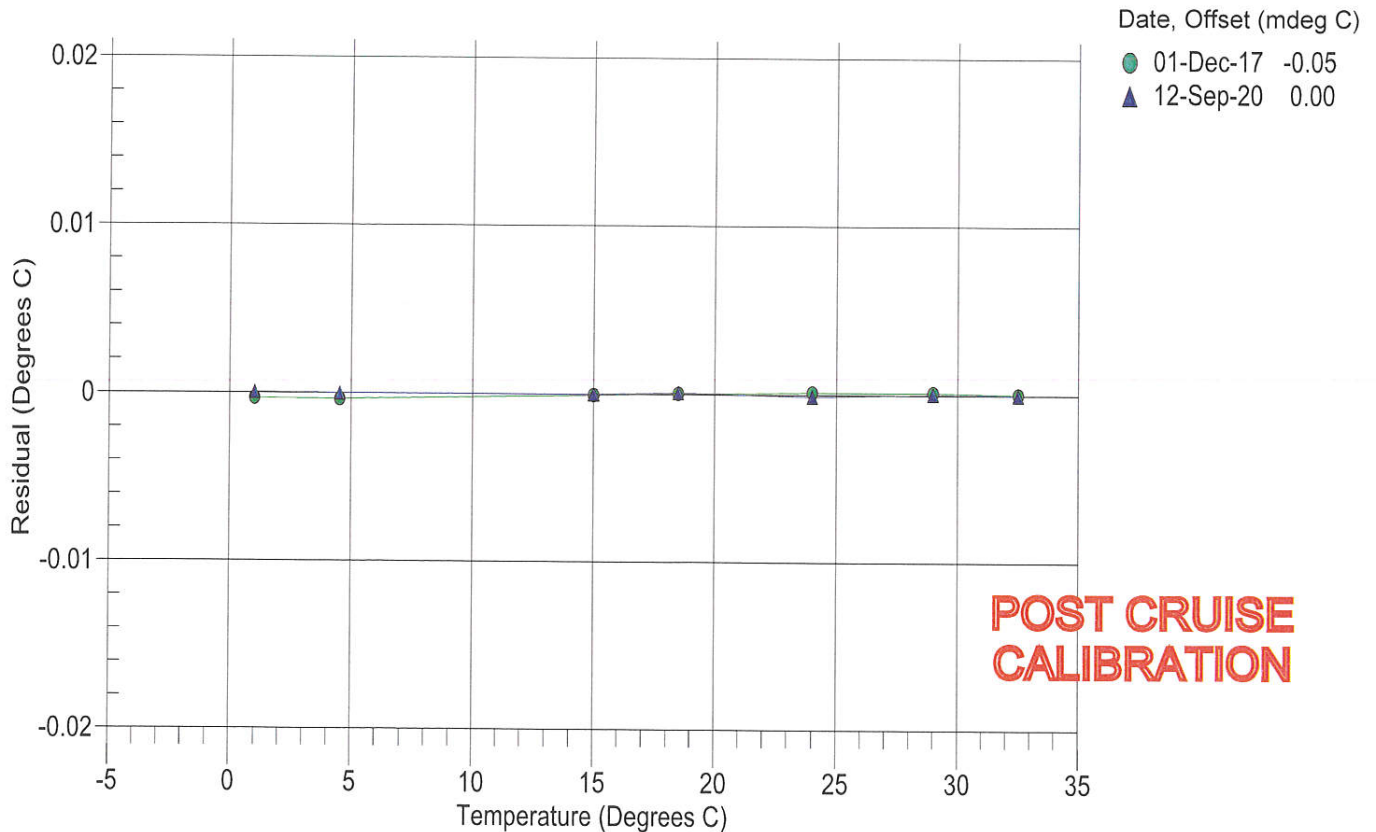
a0 = -1.117507e-004  
 a1 = 3.060147e-004  
 a2 = -4.332872e-006  
 a3 = 1.972937e-007

BATH TEMP (° C)	INSTRUMENT OUTPUT (counts)	INST TEMP (° C)	RESIDUAL (° C)
1.0000	580597.5	1.0000	0.0000
4.5000	496726.4	4.5000	-0.0000
15.0000	317227.1	15.0000	-0.0000
18.5000	274892.7	18.5001	0.0001
24.0000	220807.2	23.9999	-0.0001
29.0000	182037.5	29.0000	0.0000
32.5000	159556.9	32.5000	-0.0000

n = Instrument Output (counts)

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

Residual (°C) = instrument temperature - bath temperature





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SENSOR SERIAL NUMBER: 9029  
 CALIBRATION DATE: 10-Sep-20

Slocum Payload CTD PRESSURE CALIBRATION DATA  
 1450 psia S/N 3701173

COEFFICIENTS:

PA0 =	5.018836e-001	PTCA0 =	5.247469e+005
PA1 =	4.628309e-003	PTCA1 =	1.730082e+000
PA2 =	-2.643750e-011	PTCA2 =	9.734890e-002
PTEMPA0 =	-7.041284e+001	PTCB0 =	2.545125e+001
PTEMPA1 =	5.164667e-002	PTCB1 =	-3.550000e-003
PTEMPA2 =	-4.730903e-007	PTCB2 =	0.000000e+000

PRESSURE SPAN CALIBRATION

PRESSURE (PSIA)	INSTRUMENT OUTPUT (counts)	THERMISTOR OUTPUT (volts)	COMPUTED PRESSURE (PSIA)	RESIDUAL (%FSR)	TEMP (°C)	THERMISTOR OUTPUT (volts)	INSTRUMENT OUTPUT (counts)
14.50	527871.6	1842.0	14.58	0.01	32.50	2031	527959.00
301.74	589693.8	1845.0	301.53	-0.01	29.00	1960	527935.50
588.83	651623.6	1845.6	588.78	-0.00	24.00	1860	527901.40
875.91	713580.7	1846.4	875.96	0.00	18.50	1750	527866.80
1163.06	775562.4	1846.8	1163.04	-0.00	15.00	1680	527847.10
1450.22	837591.1	1847.3	1450.14	-0.01	4.50	1470	527812.90
1163.08	775586.9	1847.2	1163.16	0.01	1.00	1401	527803.20
875.97	713605.0	1847.1	876.07	0.01			
588.85	651645.0	1846.8	588.88	0.00			
301.73	589722.6	1847.5	301.67	-0.00			
14.50	527870.2	1850.9	14.56	0.00			

THERMAL CORRECTION

TEMPERATURE (°C)	SPAN
-5.00	25.47
35.00	25.33

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)

● 10-Sep-20 0.00

