



Sea-Bird Scientific
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 USA

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 seabird@seabird.com
 www.seabird.com

SENSOR SERIAL NUMBER: 9231
 CALIBRATION DATE: 17-Feb-20

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

COEFFICIENTS:

g = -9.849701e-001 CPcor = -9.5700e-008
 h = 1.525933e-001 CTcor = 3.2500e-006
 i = -1.721737e-004 WBOTC = 4.9168e-007
 j = 3.644324e-005

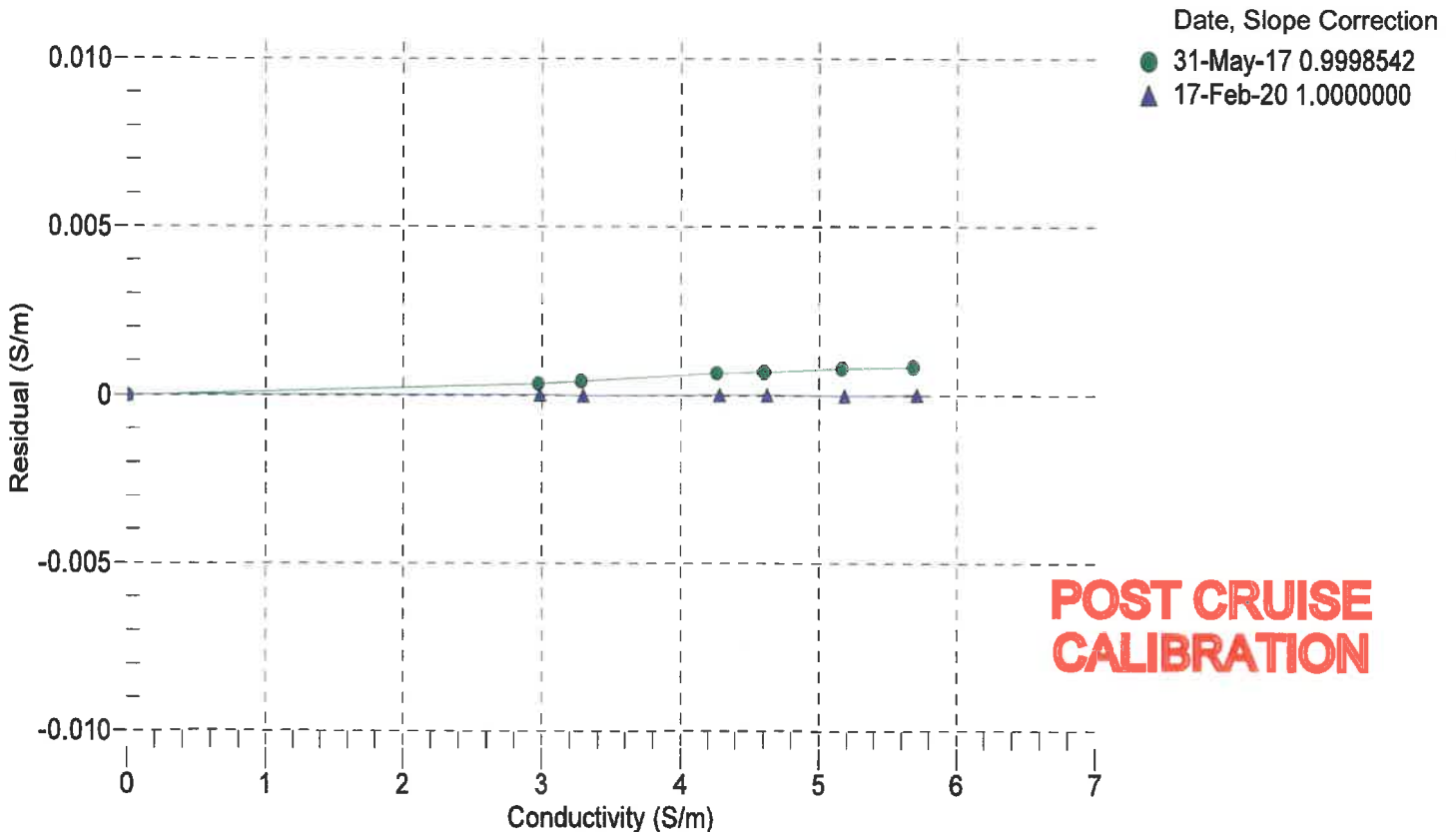
| BATH TEMP (° C) | BATH SAL (PSU) | BATH COND (S/m) | INSTRUMENT OUTPUT (Hz) | INSTRUMENT COND (S/m) | RESIDUAL (S/m) |
|--------------------|-------------------|--------------------|---------------------------|--------------------------|-------------------|
| 22.0000 | 0.0000 | 0.00000 | 2542.32 | 0.00000 | 0.00000 |
| 1.0000 | 34.9488 | 2.98621 | 5100.27 | 2.98621 | 0.00000 |
| 4.4999 | 34.9297 | 3.29436 | 5293.77 | 3.29435 | -0.00001 |
| 15.0000 | 34.8881 | 4.27949 | 5869.06 | 4.27950 | 0.00001 |
| 18.5000 | 34.8792 | 4.62581 | 6058.07 | 4.62582 | 0.00001 |
| 24.0000 | 34.8692 | 5.18562 | 6351.43 | 5.18560 | -0.00002 |
| 29.0000 | 34.8615 | 5.70889 | 6613.60 | 5.70890 | 0.00001 |
| 32.5000 | 34.8532 | 6.08170 | 6794.10 | 6.08182 | 0.00013 |

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

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



5B45



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Slocum Payload CTD TEMPERATURE CALIBRATION DATA
 ITS-90 TEMPERATURE SCALE

COEFFICIENTS:

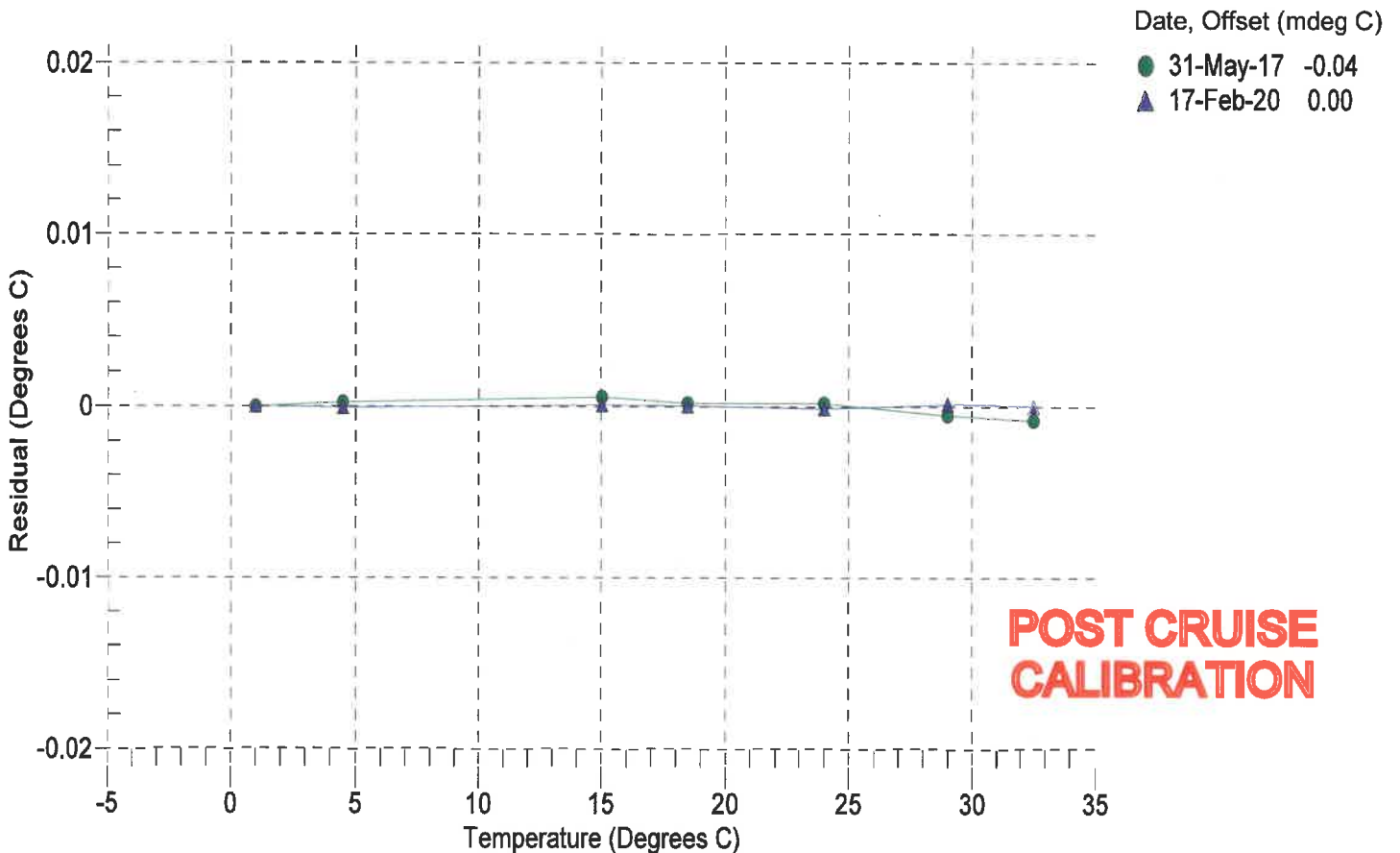
a0 = -1.325521e-004
 a1 = 3.137458e-004
 a2 = -5.075573e-006
 a3 = 2.193267e-007

| BATH TEMP (° C) | INSTRUMENT OUTPUT (counts) | INST TEMP (° C) | RESIDUAL (° C) |
|--------------------|-------------------------------|--------------------|-------------------|
| 1.0000 | 575712.8 | 1.0000 | 0.0000 |
| 4.4999 | 492440.6 | 4.4998 | -0.0001 |
| 15.0000 | 314248.8 | 15.0001 | 0.0001 |
| 18.5000 | 272239.4 | 18.5000 | 0.0000 |
| 24.0000 | 218579.0 | 23.9999 | -0.0001 |
| 29.0000 | 180125.8 | 29.0001 | 0.0001 |
| 32.5000 | 157836.0 | 32.5000 | -0.0000 |

n = Instrument Output (counts)

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

$$\text{Residual (°C)} = \text{instrument temperature} - \text{bath temperature}$$





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SENSOR SERIAL NUMBER: 9231
 CALIBRATION DATE: 14-Feb-20

Slocum Payload CTD PRESSURE CALIBRATION DATA
 1450 psia S/N 4207724

COEFFICIENTS:

| | | | |
|-----------|----------------|---------|----------------|
| PA0 = | 4.738927e-002 | PTCA0 = | 5.246125e+005 |
| PA1 = | 4.558952e-003 | PTCA1 = | -4.807692e-001 |
| PA2 = | -2.023990e-011 | PTCA2 = | 3.846240e-002 |
| PTEMPA0 = | -6.609698e+001 | PTCB0 = | 2.539025e+001 |
| PTEMPA1 = | 5.244805e-002 | PTCB1 = | -7.500000e-004 |
| PTEMPA2 = | -6.824204e-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) |
|-----------------|----------------------------|---------------------------|--------------------------|-----------------|-----------|---------------------------|----------------------------|
| 14.54 | 527799.7 | 1722.1 | 14.55 | 0.00 | 32.50 | 1928 | 527894.60 |
| 301.64 | 590715.3 | 1723.7 | 301.48 | -0.01 | 29.00 | 1858 | 527884.60 |
| 588.93 | 653770.7 | 1724.6 | 588.89 | -0.00 | 24.00 | 1758 | 527880.00 |
| 876.15 | 716824.1 | 1725.3 | 876.12 | -0.00 | 18.50 | 1648 | 527872.60 |
| 1163.40 | 779926.3 | 1725.9 | 1163.42 | 0.00 | 15.00 | 1579 | 527869.80 |
| 1450.71 | 843044.6 | 1726.8 | 1450.63 | -0.01 | 4.50 | 1371 | 527867.40 |
| 1163.44 | 779945.9 | 1726.3 | 1163.51 | 0.00 | 1.00 | 1301 | 527867.60 |
| 876.18 | 716861.0 | 1726.3 | 876.29 | 0.01 | | | |
| 588.89 | 653780.8 | 1726.5 | 588.93 | 0.00 | | | |
| 301.56 | 590719.9 | 1726.8 | 301.50 | -0.00 | | | |
| 14.55 | 527825.5 | 1727.4 | 14.67 | 0.01 | | | |

| | | |
|--|------------------|-------|
| | TEMPERATURE (°C) | SPAN |
| | -5.00 | 25.39 |
| | 35.00 | 25.36 |

y = thermistor output (counts)

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

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

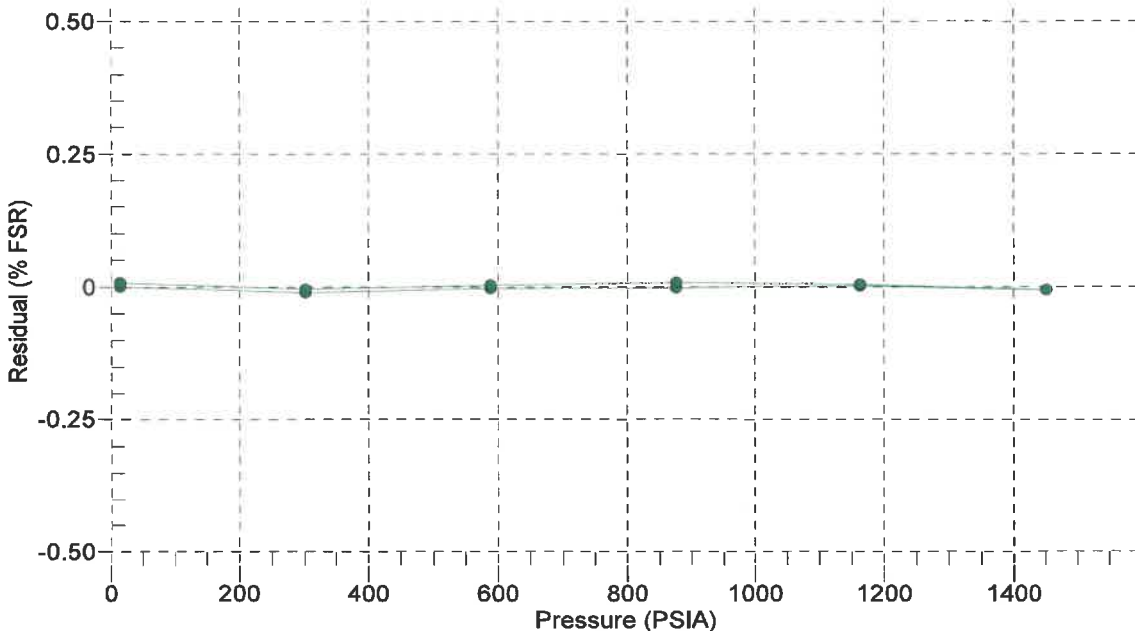
$$n = x * PTCB0 / (PTCB0 + PTCB1 * t + PTCB2 * t^2)$$

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

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

Date, Offset (%FSR)

● 14-Feb-20 0.00





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1005510128
 27-FEB-2020
 315908185

SERVICE REPORT

Service Request
Date
Sales Order

PRODUCT INFORMATION

Item: SLOCUM.50
Item Description: SLOCUM GLIDER CTD, 1000 dBar, DIRECT GROUND
Serial: 712-9231

Special Notes
 Service Request:
 Standard Service.

Services Performed:
 Perform initial diagnostic evaluation.
 Performed pressure calibration.
 Performed "POST" cruise calibration.
 Installed NEW AF24173 Anti-foulant cylinder(s).

| Item | Item Description | Qty |
|-------------|--|-----|
| CAL_SLOCUM | Calibrate SLOCUM conductivity and temperature sensors | 1 |
| CNCRTSLOCUM | Confirm & Re-certify Webb SLOCUM Glider CTD | 1 |
| REPLACEAF | Extra charge to install one antifoulant device, includes one 801542.1. | 1 |
| PCAL_SLOCUM | Calibrate SLOCUM pressure sensor | 1 |

Unbilled Items

| Item | Item Description | Qty |
|----------|---|-----|
| 801542.1 | AF24173 ANTI-FOULANT, SINGLE CYLINDER, V2 | 1 |
| 22096 | LITHIUM COIN BATTERY, WITH TABS, BR1632A/HA | 1 |