SEA-BIRD SCIENTIFIC
Sea-Bird Scientific
13431 NE 20th Street
Bellevue, WA 98005
USA

+1 425-643-9866
seabird@seabird.com
www.seabird.com

SENSOR SERIAL NUMBER: 9409
CALIBRATION DATE: 07-Mar-23

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

COEFFICIENTS:

```
g = -9.828525e-001
h =  1.211957e-001
i = -1.492606e-004
j =  2.608070e-005

CPcor = -9.5700e-008
CTcor =  3.2500e-006
WBOTC =  2.3388e-007
```

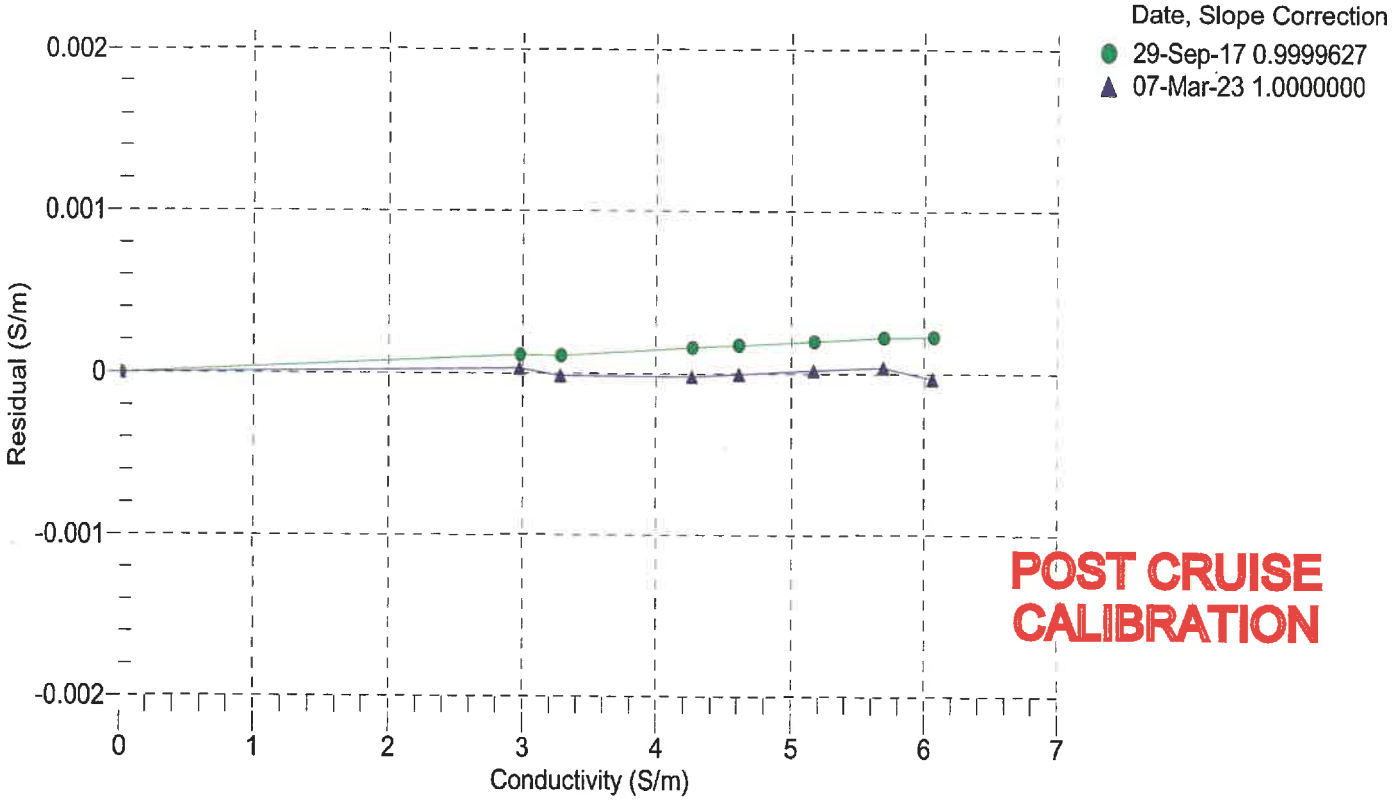
| BATH TEMP (° C) | BATH SAL (PSU) | BATH COND (S/m) | INSTRUMENT OUTPUT (Hz) | INSTRUMENT COND (S/m) | RESIDUAL (S/m) |
|---|---|---|---|---|---|
| 22.0000 | 0.0000 | 0.00000 | 2850.24 | 0.00000 | 0.00000 |
| 1.0000 | 34.8111 | 2.97556 | 5715.06 | 2.97559 | 0.00003 |
| 4.5000 | 34.7913 | 3.28260 | 5931.74 | 3.28258 | -0.00002 |
| 15.0000 | 34.7489 | 4.26422 | 6575.97 | 4.26420 | -0.00002 |
| 18.5000 | 34.7392 | 4.60924 | 6787.59 | 4.60924 | -0.00001 |
| 24.0000 | 34.7277 | 5.16690 | 7116.00 | 5.16692 | 0.00002 |
| 29.0000 | 34.7191 | 5.68819 | 7409.47 | 5.68823 | 0.00004 |
| 32.5000 | 34.7073 | 6.05913 | 7611.15 | 6.05910 | -0.00003 |

f = Instrument Output(Hz) * sqrt(1.0 + WBOTC * t) / 1000.0

t = temperature (°C); p = pressure (decibars); $\delta$ = CTcor; $\varepsilon$ = CPcor;

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

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



Sea-Bird Scientific
13431 NE 20th Street
Bellevue, WA 98005
USA

+1 425-643-9866
seabird@seabird.com
www.seabird.com

SENSOR SERIAL NUMBER: 9409
CALIBRATION DATE: 03-Mar-23

Slocum Payload CTD PRESSURE CALIBRATION DATA
1450 psia S/N 10230819

COEFFICIENTS:

| | | | |
|---|---|---|---|
| PA0 = | 1.251182e-001 | PTCA0 = | 5.244067e+005 |
| PA1 = | 4.564224e-003 | PTCA1 = | 2.640462e+000 |
| PA2 = | -1.901125e-011 | PTCA2 = | -6.185740e-002 |
| PTEMPA0 = | -6.867528e+001 | PTCB0 = | 2.506801e+001 |
| PTEMPA1 = | 5.198644e-002 | PTCB1 = | 8.020050e-004 |
| PTEMPA2 = | -5.010503e-007 | PTCB2 = | 0.000000e+000 |

PRESSURE SPAN CALIBRATION

| PRESSURE (PSIA) | INSTRUMENT OUTPUT (counts) | THERMISTOR OUTPUT (volts) | COMPUTED PRESSURE (PSIA) | RESIDUAL (%FSR) |
|---|---|---|---|---|
| 14.46 | 527615.0 | 1770.6 | 14.63 | 0.01 |
| 301.61 | 590535.4 | 1772.8 | 301.53 | -0.01 |
| 588.80 | 653565.4 | 1773.8 | 588.78 | -0.00 |
| 876.02 | 716633.2 | 1774.4 | 876.04 | 0.00 |
| 1163.29 | 779735.2 | 1774.6 | 1163.32 | 0.00 |
| 1450.49 | 842835.6 | 1774.8 | 1450.43 | -0.00 |
| 1163.31 | 779744.2 | 1774.4 | 1163.36 | 0.00 |
| 876.09 | 716654.6 | 1774.0 | 876.14 | 0.00 |
| 588.88 | 653591.0 | 1773.4 | 588.89 | 0.00 |
| 301.70 | 590558.0 | 1773.2 | 301.63 | -0.00 |
| 14.46 | 527560.4 | 1772.2 | 14.38 | -0.01 |

THERMAL CORRECTION

| TEMP (°C) | THERMISTOR OUTPUT (volts) | INSTRUMENT OUTPUT (counts) |
|---|---|---|
| 32.50 | 1984 | 527663.60 |
| 29.00 | 1914 | 527668.60 |
| 24.00 | 1814 | 527604.00 |
| 18.50 | 1705 | 527664.20 |
| 15.00 | 1635 | 527679.60 |
| 4.50 | 1427 | 527666.00 |
| 1.00 | 1358 | 527609.80 |

| TEMPERATURE (°C) | SPAN |
|---|---|
| -5.00 | 25.06 |
| 34.90 | 25.10 |

y = thermistor output (counts)

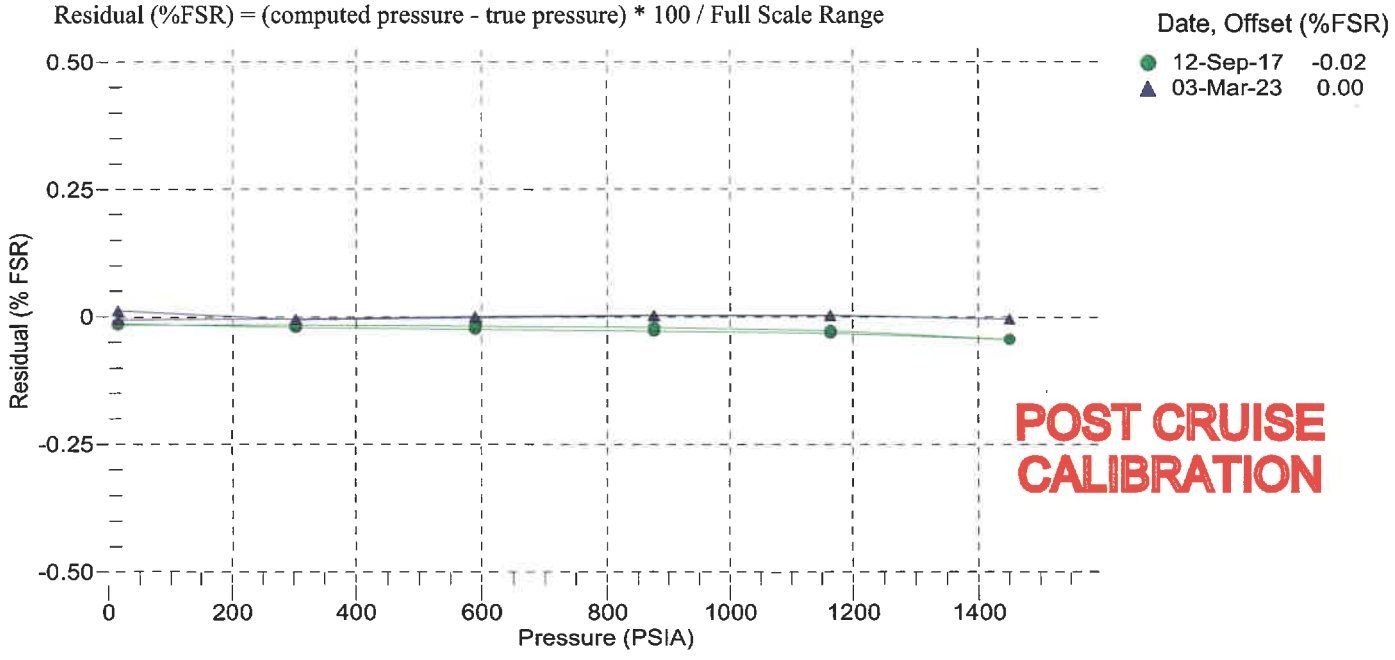
$t = PTEMPA0 + PTEMPA1 * y + PTEMPA2 * y^2$

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

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

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

Residual (%FSR) = (computed pressure - true pressure) * 100 / Full Scale Range



Sea-Bird Scientific
13431 NE 20th Street
Bellevue, WA 98005
USA

+1 425-643-9866
seabird@seabird.com
www.seabird.com

SENSOR SERIAL NUMBER: 9409
CALIBRATION DATE: 07-Mar-23

Slocum Payload CTD TEMPERATURE CALIBRATION DATA
ITS-90 TEMPERATURE SCALE

COEFFICIENTS:

a0 = -2.221646e-004
a1 = 3.291908e-004
a2 = -5.999896e-006
a3 = 2.405514e-007

| BATH TEMP (° C) | INSTRUMENT OUTPUT (counts) | INST TEMP (° C) | RESIDUAL (° C) |
|---|---|---|---|
| 1.0000 | 571543.0 | 1.0000 | 0.0000 |
| 4.5000 | 489410.2 | 4.5000 | -0.0000 |
| 15.0000 | 313350.2 | 15.0002 | 0.0002 |
| 18.5000 | 271766.2 | 18.4997 | -0.0003 |
| 24.0000 | 218572.2 | 24.0002 | 0.0002 |
| 29.0000 | 180409.6 | 28.9999 | -0.0001 |
| 32.5000 | 158258.6 | 32.5000 | 0.0000 |

n = Instrument Output (counts)

Temperature ITS-90 (°C) = $1/\{a0 + a1[ln(n)] + a2[ln^2(n)] + a3[ln^3(n)]\} - 273.15$

Residual (°C) = instrument temperature - bath temperature