



SEA-BIRD

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SERVICE REPORT

Service Request

Date

Sales Order

1005503961

22-MAR-2018

314972677

PRODUCT INFORMATION

Item: SLOCUM.50

Item Description: SLOCUM GLIDER CTD, 1000 dBar, DIRECT GROUND

Serial: 712-9015

Special Notes

Services Requested:

Evaluate/Repair Instrumentation.

Perform Routine Calibration Service.

Replace Antifoulant Device(s).

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



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SENSOR SERIAL NUMBER: 9015
CALIBRATION DATE: 08-Feb-18

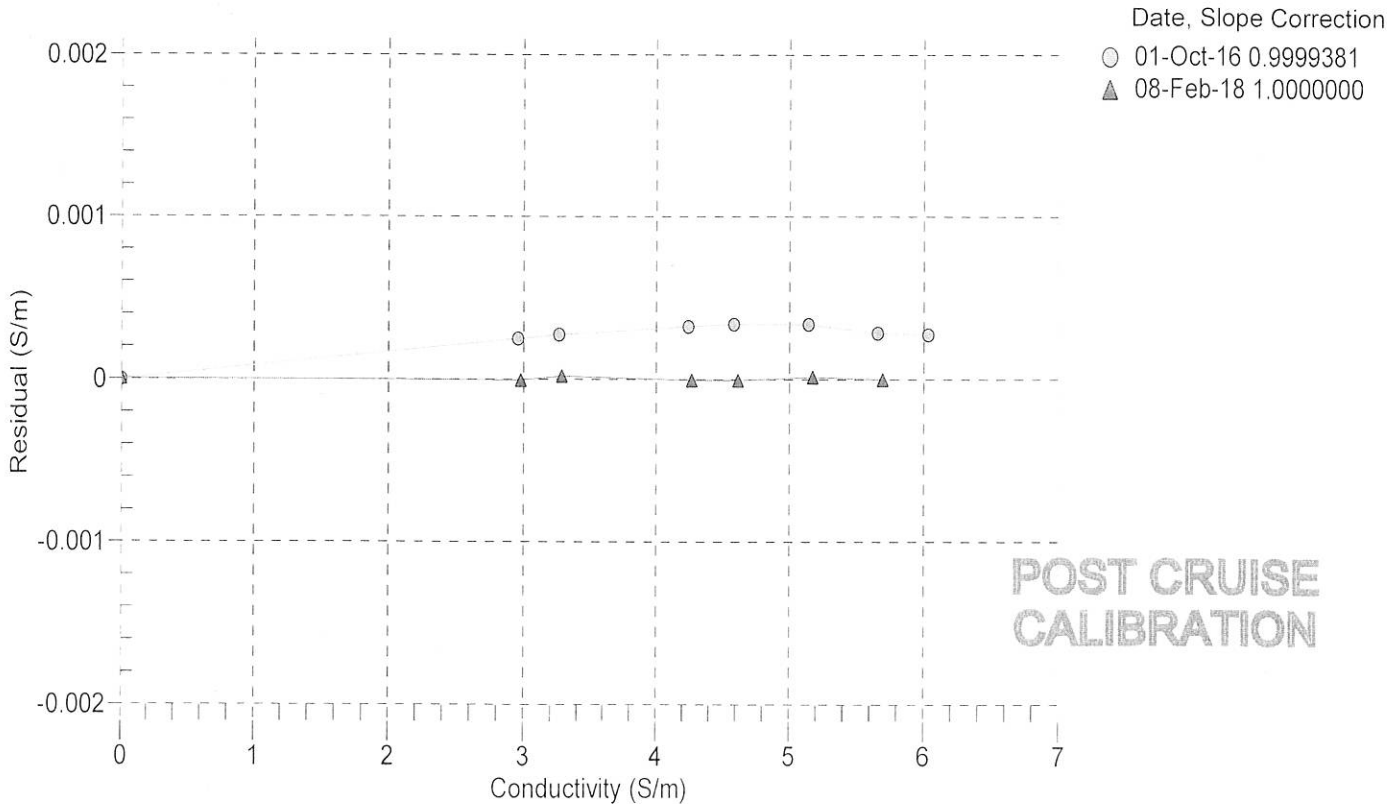
Slocum Payload CTD CONDUCTIVITY CALIBRATION DATA
PSS 1978: C(35,15,0) = 4.2914 Siemens/meter

COEFFICIENTS:

g = -9.869289e-001	CPcor = -9.5700e-008
h = 1.353618e-001	CTcor = 3.2500e-006
i = -1.842392e-004	WBOTC = -1.5415e-007
j = 3.116521e-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	2702.90	0.00000	0.00000
1.0000	34.8497	2.97855	5414.20	2.97854	-0.00001
4.5000	34.8296	3.28586	5619.44	3.28587	0.00002
15.0000	34.7876	4.26846	6229.66	4.26846	-0.00001
18.5000	34.7787	4.61392	6430.18	4.61391	-0.00001
24.0000	34.7687	5.17233	6741.43	5.17234	0.00001
29.0000	34.7622	5.69445	7019.64	5.69445	-0.00000
32.5000	34.7572	6.06685	7211.21	6.06660	-0.00025

$f = \text{Instrument Output(Hz)} * \text{sqrt}(1.0 + \text{WBOTC} * t) / 1000.0$
 $t = \text{temperature } (^\circ\text{C}); p = \text{pressure (decibars)}; \delta = \text{CTcor}; \epsilon = \text{CPcor};$
 $\text{Conductivity (S/m)} = (g + h * f^2 + i * f^3 + j * f^4) / (1 + \delta * t + \epsilon * p)$
 $\text{Residual (Siemens/meter)} = \text{instrument conductivity} - \text{bath conductivity}$





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SENSOR SERIAL NUMBER: 9015
CALIBRATION DATE: 08-Feb-18

Slocum Payload CTD TEMPERATURE CALIBRATION DATA
ITS-90 TEMPERATURE SCALE

COEFFICIENTS:

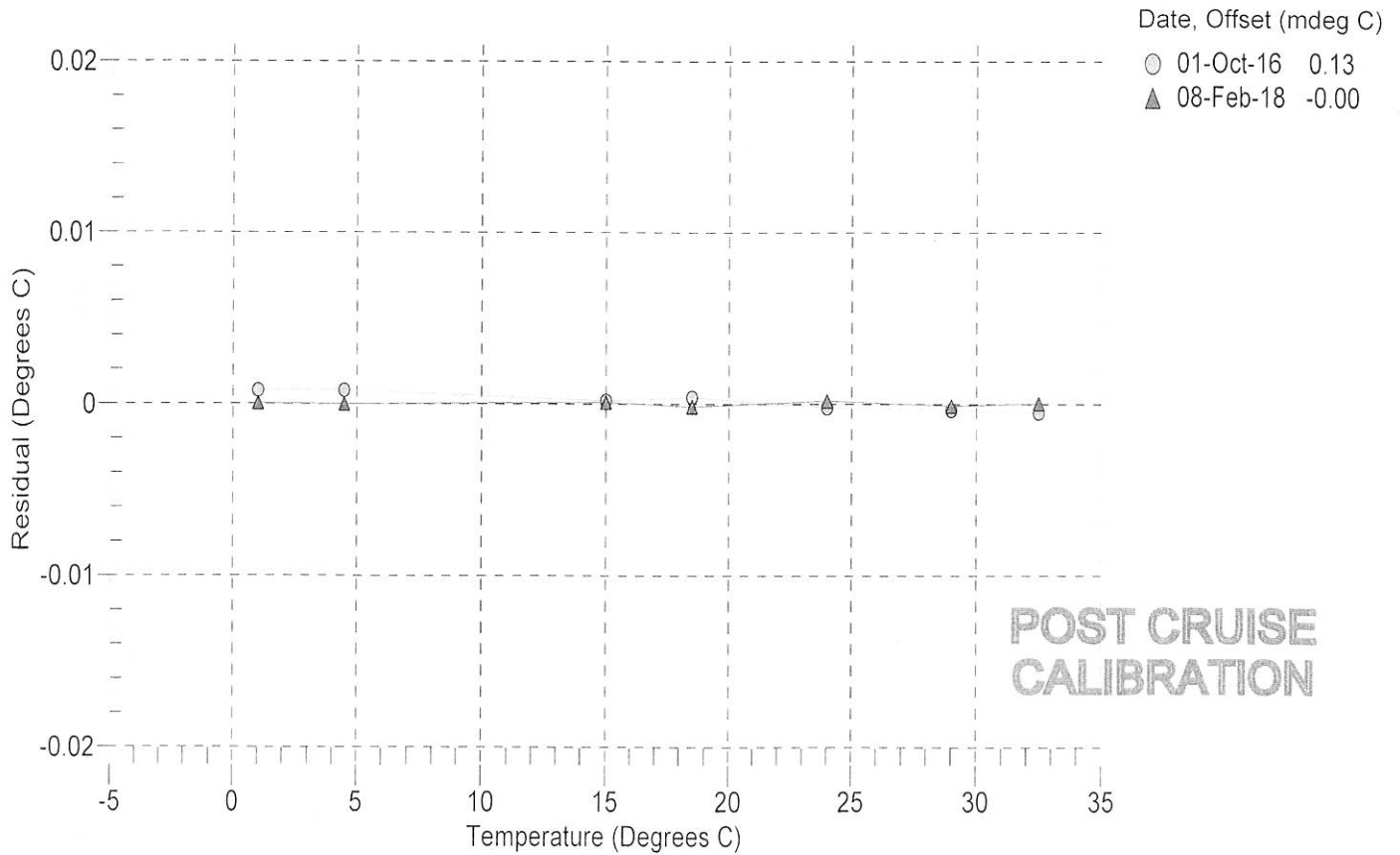
a0 = -1.296793e-004
a1 = 3.121040e-004
a2 = -4.849672e-006
a3 = 2.127385e-007

BATH TEMP (° C)	INSTRUMENT OUTPUT (counts)	INST TEMP (° C)	RESIDUAL (° C)
1.0000	565170.2	1.0000	0.0000
4.5000	483610.6	4.5000	-0.0000
15.0000	308985.4	15.0001	0.0001
18.5000	267788.6	18.4998	-0.0002
24.0000	215134.8	24.0002	0.0002
29.0000	177391.0	28.9999	-0.0001
32.5000	155498.2	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: 9015
CALIBRATION DATE: 01-Feb-18

Slocum Payload CTD PRESSURE CALIBRATION DATA
1450 psia S/N 3626944

COEFFICIENTS:

PA0 =	6.016195e-001	PTCA0 =	5.248553e+005
PA1 =	4.852969e-003	PTCA1 =	9.546930e+000
PA2 =	-1.355581e-011	PTCA2 =	-1.773988e-001
PTEMPA0 =	-6.995899e+001	PTCB0 =	2.519613e+001
PTEMPA1 =	5.200621e-002	PTCB1 =	2.250000e-004
PTEMPA2 =	-5.958466e-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)
14.69	527885.4	1810.5	14.70	0.00	32.50	2017	527943.20
301.97	587103.4	1813.4	301.97	-0.00	29.00	1946	527956.60
589.09	646298.9	1814.0	589.04	-0.00	24.00	1846	527955.00
876.19	705529.3	1814.3	876.18	-0.00	18.50	1736	527940.80
1163.28	764766.7	1814.9	1163.27	-0.00	15.00	1665	527924.20
1450.32	824016.4	1815.5	1450.31	-0.00	4.50	1456	527862.20
1163.32	764780.0	1815.2	1163.33	0.00	1.00	1386	527836.40
876.24	705553.1	1815.1	876.30	0.00			
589.25	646344.8	1814.7	589.26	0.00			
301.95	587095.8	1814.9	301.93	-0.00			
14.68	527885.1	1815.3	14.70	0.00			

	TEMPERATURE (°C)	SPAN
	-5.00	25.20
	35.00	25.20

y = thermistor output (counts)

t = PTEMPA0 + PTEMPA1 * y + PTEMPA2 * y²

x = instrument output - PTCA0 - PTCA1 * t - PTCA2 * t²

n = x * PTCB0 / (PTCB0 + PTCB1 * t + PTCB2 * t²)

pressure (PSIA) = PA0 + PA1 * n + PA2 * n²

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

Date, Offset (%FSR)

○ 01-Feb-18 0.00

