



SEA-BIRD
SCIENTIFIC

Sea-Bird Scientific
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SENSOR SERIAL NUMBER: 2755
CALIBRATION DATE: 03-May-18

SBE 43 OXYGEN CALIBRATION DATA

COEFFICIENTS:
Soc = 0.4328
Voffset = -0.5016
Tau20 = 1.29

A = -4.4488e-003
B = 2.4037e-004
C = -3.3587e-006
E nominal = 0.036

NOMINAL DYNAMIC COEFFICIENTS
D1 = 1.92634e-4 H1 = -3.300000e-2
D2 = -4.64803e-2 H2 = 5.00000e+3
H3 = 1.45000e+3

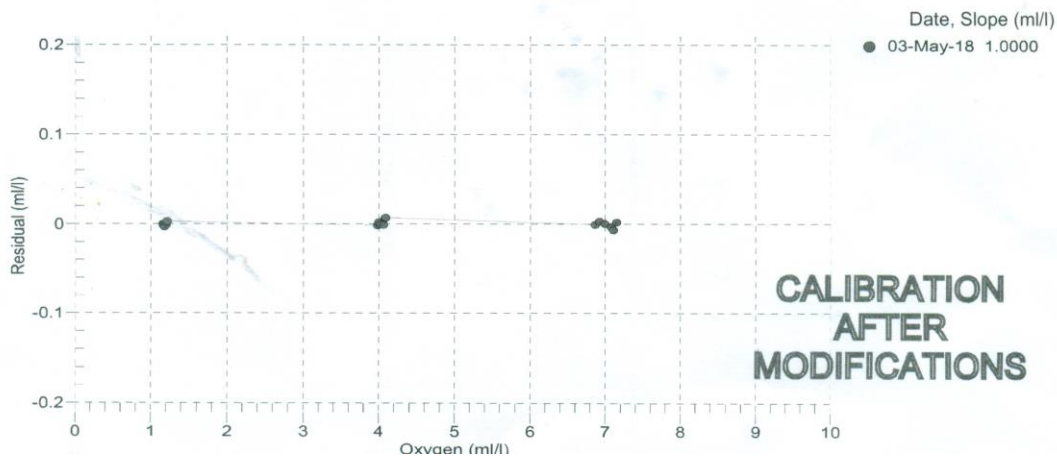
BATH OXYGEN (ml/l)	BATH TEMPERATURE (°C)	BATH SALINITY (PSU)	INSTRUMENT OUTPUT (volts)	INSTRUMENT OXYGEN (ml/l)	RESIDUAL (ml/l)
1.16	2.00	0.00	0.780	1.16	-0.00
1.16	6.00	0.00	0.816	1.16	-0.00
1.18	12.11	0.00	0.871	1.17	-0.00
1.20	20.00	0.00	0.944	1.19	-0.00
1.21	26.00	0.00	0.999	1.21	0.00
1.21	30.00	0.00	1.036	1.21	0.00
3.98	2.00	0.00	1.458	3.97	-0.00
3.99	6.00	0.00	1.580	3.99	0.00
4.02	12.05	0.00	1.765	4.02	-0.00
4.05	20.00	0.00	2.002	4.05	-0.00
4.08	30.00	0.00	2.299	4.08	0.01
4.08	26.00	0.00	2.186	4.09	0.01
6.86	2.00	0.00	2.152	6.86	-0.00
6.92	6.00	0.00	2.372	6.92	0.00
6.99	12.01	0.00	2.698	6.99	0.00
7.07	20.00	0.00	3.121	7.07	-0.00
7.10	30.00	0.00	3.625	7.09	-0.01
7.15	26.01	0.00	3.447	7.15	0.00

V = instrument output (volts); T = temperature (°C); S = salinity (PSU); K = temperature (°K)

Oxsol(T,S) = oxygen saturation (ml/l); P = pressure (dbar)

Oxygen (ml/l) = Soc * (V + Voffset) * (1.0 + A * T + B * T² + C * T³) * Oxsol(T,S) * exp(E * P / K)

Residual (ml/l) = instrument oxygen - bath oxygen





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SENSOR SERIAL NUMBER: 7418
CALIBRATION DATE: 26-Apr-18

SBE 19plus V2 TEMPERATURE CALIBRATION DATA
ITS-90 TEMPERATURE SCALE

COEFFICIENTS:

a0 = 1.279372e-003
a1 = 2.713024e-004
a2 = -1.079591e-006
a3 = 1.783246e-007

BATH TEMP (° C)	INSTRUMENT OUTPUT (counts)	INST TEMP (° C)	RESIDUAL (° C)
1.0000	561995.678	1.0000	0.0000
4.5000	495510.559	4.5000	-0.0000
15.0000	333342.017	15.0001	0.0001
18.5000	290524.068	18.4999	-0.0001
24.0000	232910.356	24.0001	0.0001
29.0000	189475.814	29.0000	-0.0000
32.5000	163423.881	32.5000	0.0000

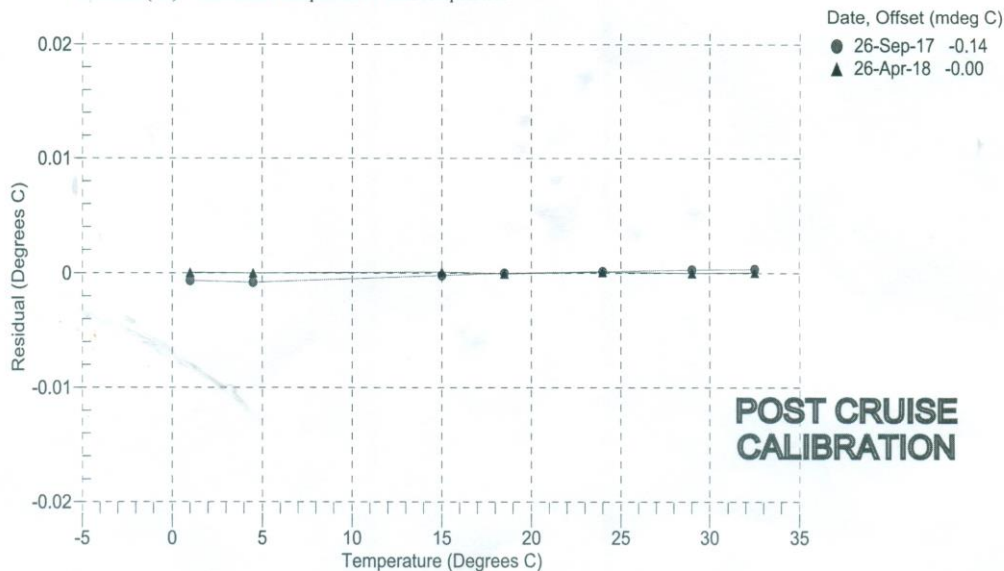
n = Instrument Output (counts)

MV = (n - 524288) / 1.6e+007

R = (MV * 2.900e+009 + 1.024e+008) / (2.048e+004 - MV * 2.0e+005)

Temperature ITS-90 (°C) = 1 / {a0 + a1[ln(R)] + a2[ln²(R)] + a3[ln³(R)]} - 273.15

Residual (°C) = instrument temperature - bath temperature





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SENSOR SERIAL NUMBER: 7418
CALIBRATION DATE: 26-Apr-18

SBE 19plus V2 CONDUCTIVITY CALIBRATION DATA
PSS 1978: C(35,15,0) = 4.2914 Siemens/meter

COEFFICIENTS:

g = -9.781746e-001
h = 1.351173e-001
i = -2.071461e-004
j = 3.439917e-005

CPcor = -9.5700e-008
CTcor = 3.2500e-006

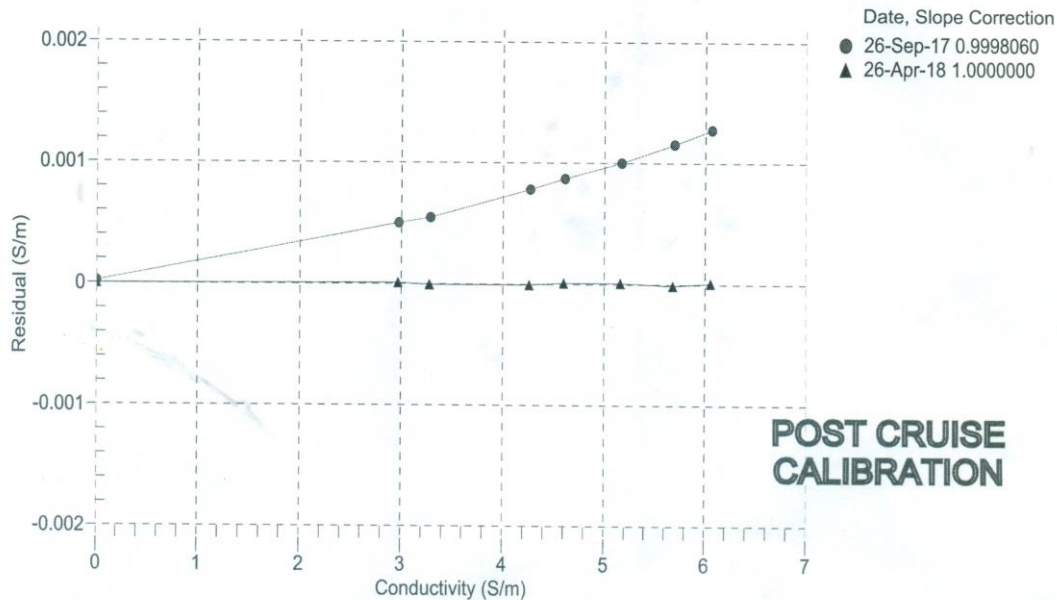
BATH TEMP (° C)	BATH SAL (PSU)	BATH COND (S/m)	INSTRUMENT OUTPUT (Hz)	INSTRUMENT COND (S/m)	RESIDUAL (S/m)
22.0000	0.0000	0.00000	2693.70	0.0000	0.00000
1.0000	34.7421	2.97023	5408.04	2.9702	0.00001
4.5000	34.7223	3.27673	5613.30	3.2767	-0.00001
15.0000	34.6802	4.25668	6223.52	4.2567	-0.00001
18.5000	34.6707	4.60113	6423.96	4.6011	0.00001
24.0000	34.6608	5.15805	6735.10	5.1581	0.00001
29.0000	34.6551	5.67888	7013.24	5.6789	-0.00001
32.5000	34.6511	6.05043	7204.91	6.0504	0.00001

f = Instrument Output (Hz) / 1000.0

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

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





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SENSOR SERIAL NUMBER: 7418
CALIBRATION DATE: 17-Apr-18

SBE 19plus V2 PRESSURE CALIBRATION DATA
870 psia S/N 3894664

COEFFICIENTS:

PA0 = 1.518288e+000
PA1 = 2.644210e-003
PA2 = 1.849771e-011
PTEMPA0 = -6.262547e+001
PTEMPA1 = 5.376465e+001
PTEMPA2 = -4.103038e-001

PTCA0 = 5.249698e+005
PTCA1 = 3.777269e+001
PTCA2 = -5.402188e-001
PTCB0 = 2.509850e+001
PTCB1 = 1.000000e-004
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)
14.70	530520.0	1.6	14.67	-0.00	32.50	1.79	530732.17
179.96	592983.0	1.6	179.91	-0.01	29.00	1.73	530711.13
359.96	660967.0	1.6	359.91	-0.01	24.00	1.63	530662.12
539.97	728900.0	1.6	539.95	-0.00	18.50	1.53	530582.22
719.97	796758.0	1.6	719.96	-0.00	15.00	1.46	530519.45
869.96	853248.0	1.6	869.94	-0.00	4.50	1.26	530241.23
719.98	796784.0	1.6	720.02	0.00	1.00	1.19	530100.13
540.01	728939.0	1.6	540.05	0.01			
360.00	661015.0	1.6	360.03	0.00			
180.00	593029.0	1.6	180.03	0.00			
14.70	530552.0	1.6	14.75	0.01			

THERMAL CORRECTION

TEMPERATURE (°C)	SPAN
-5.00	25.10
35.00	25.10

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)

● 17-Apr-18 0.00

