

SBE 41CP CERTIFICATES

CTD Serial Number 41CP-5952

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SBE 41CP Instrument Configuration

Model Number: SBE 41CP

Serial Number: 41CP-5952

Part Number: 90366.054

Description : MBARI SBE 41CP Configuration

Firmware Version: 2.0

Pressure Type: Druck

Pressure Range: 2000 Dbar

Pressure Serial Number: 4004719

SBE 41CP UW V 2.0 SERIAL NO. 5952

temperature: 15-mar-14

TA0 = 3.536242e-05

TA1 = 2.674251e-04

TA2 = -1.901062e-06

TA3 = 1.365250e-07

conductivity: 15-mar-14

G = -9.858232e-01

H = 1.476071e-01

I = -3.292498e-04

J = 4.505543e-05

CPCOR = -9.570001e-08

CTCOR = 3.250000e-06

WBOTC = -3.218098e-07

pressure S/N = 4004719, range = 2900 psia: 10-mar-14

PA0 = 1.629284e-01

PA1 = 1.404717e-01

PA2 = -3.503310e-08

PTCA0 = 2.758681e+01

PTCA1 = 2.201518e-02

PTCA2 = 1.374282e-03

PTCB0 = 2.510888e+01

PTCB1 = 1.175000e-03

PTCB2 = 0.000000e+00

PTHA0 = -7.442904e+01

PTHA1 = 4.994783e-02

PTHA2 = -3.966033e-07

POFFSET = 0.000000e+00

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SENSOR SERIAL NUMBER: 5952
CALIBRATION DATE: 15-Mar-14

SBE 41cp TEMPERATURE CALIBRATION DATA
ITS-90 TEMPERATURE SCALE

COEFFICIENTS:

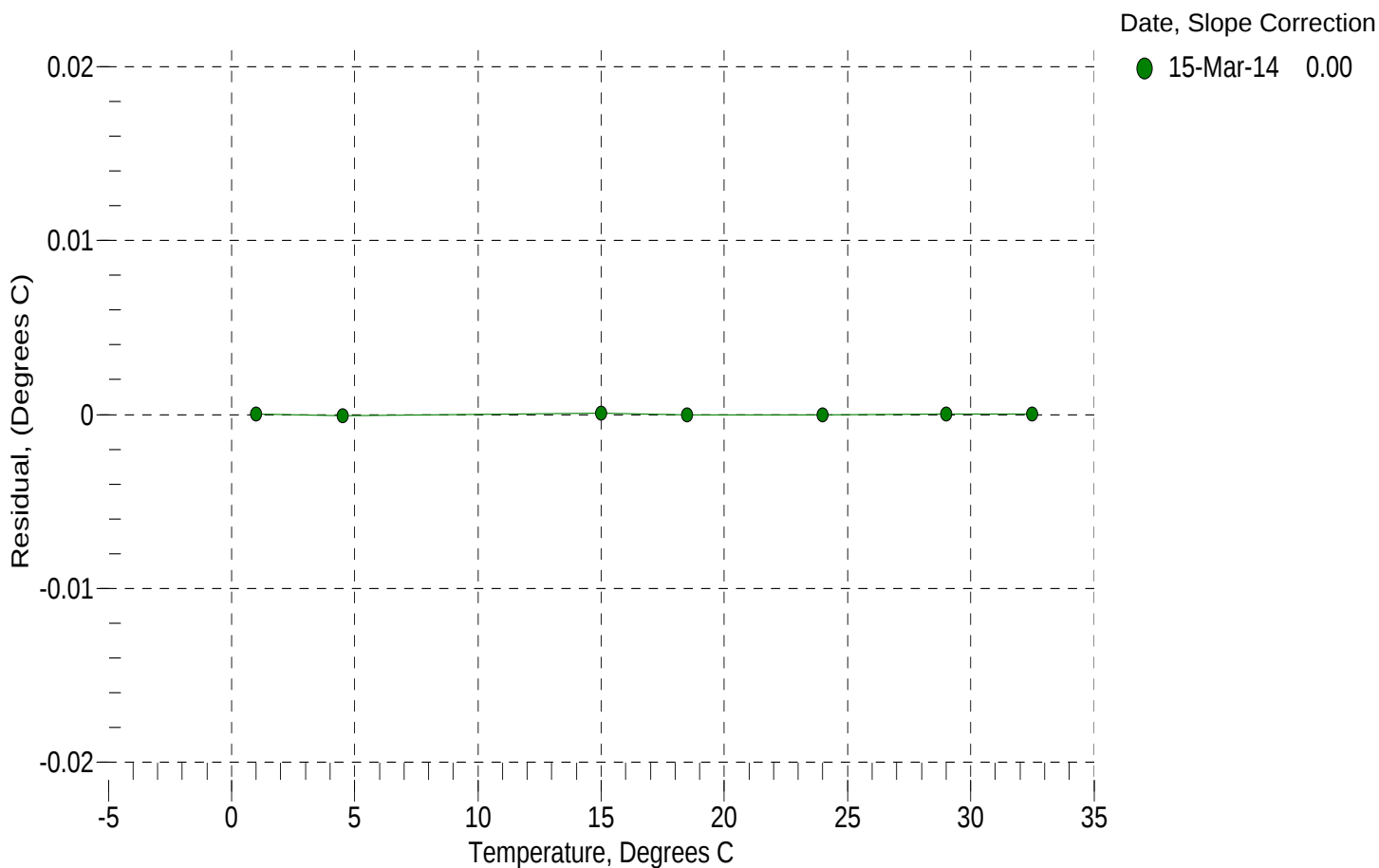
a0 = 3.536242e-005
a1 = 2.674251e-004
a2 = -1.901062e-006
a3 = 1.365250e-007

BATH TEMP (ITS-90)	INSTRUMENT OUTPUT	INST TEMP (ITS-90)	RESIDUAL (ITS-90)
1.0000	761712.0	1.0000	0.0000
4.5000	650199.7	4.4999	-0.0001
15.0000	412428.5	15.0001	0.0001
18.5000	356585.3	18.5000	-0.0000
23.9940	285473.6	23.9940	-0.0000
29.0000	234530.6	29.0000	0.0000
32.5000	205097.7	32.5000	0.0000

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

Residual = instrument temperature - bath temperature

n = instrument output



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CALIBRATION DATE: 15-Mar-14

SBE 41cp CONDUCTIVITY CALIBRATION DATA
PSS 1978: C(35,15,0) = 4.2914 Siemens/meter

COEFFICIENTS:

g = -9.858233e-001
h = 1.476071e-001
i = -3.292498e-004
j = 4.505543e-005

CPcor = -9.5700e-008
CTcor = 3.2500e-006
WBOTC = -3.2181e-007

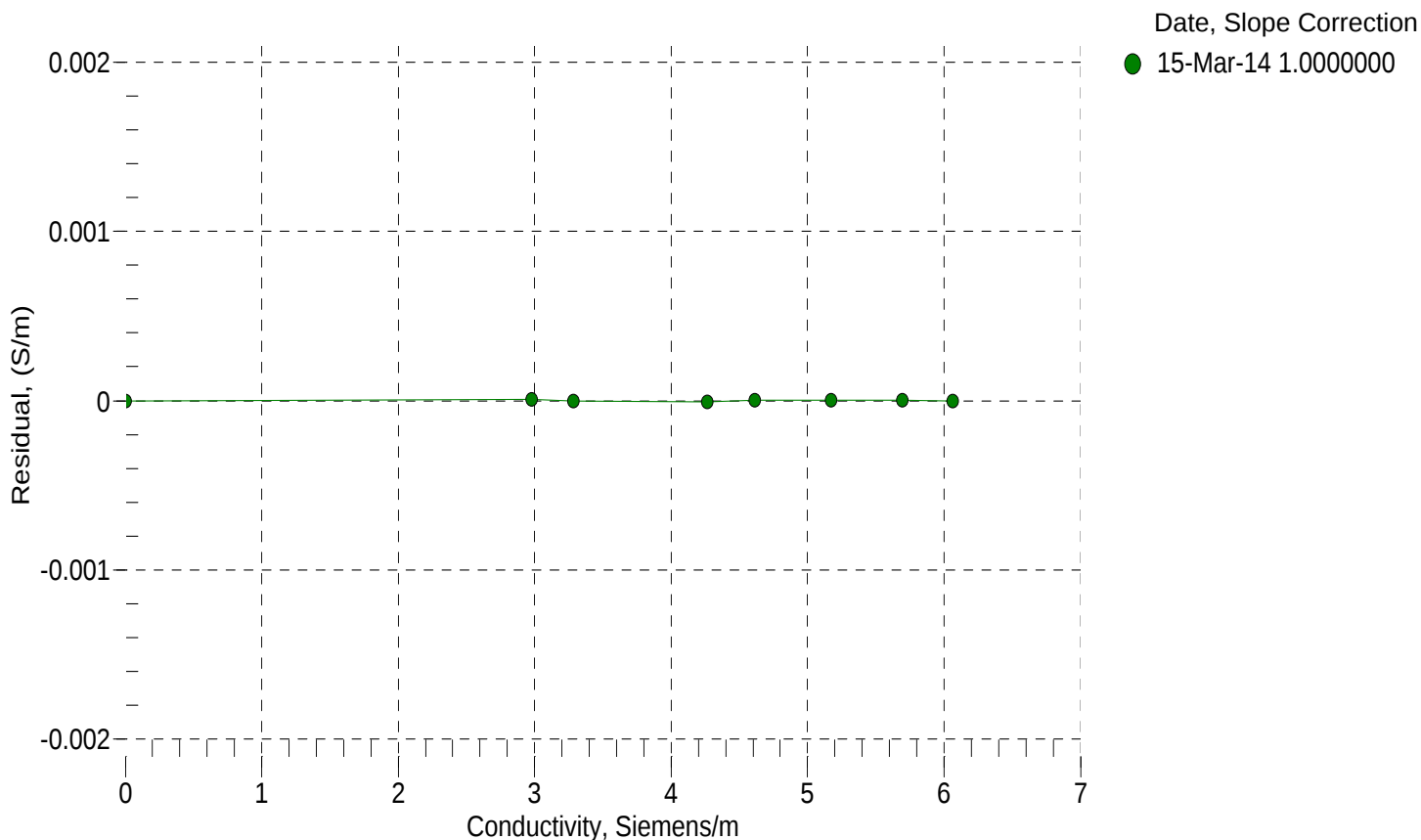
BATH TEMP (ITS-90)	BATH SAL (PSU)	BATH COND (Siemens/m)	INST FREQ (Hz)	INST COND (Siemens/m)	RESIDUAL (Siemens/m)
22.0000	0.0000	0.00000	2589.16	0.00000	0.00000
1.0000	34.8419	2.97794	5190.76	2.97795	0.00001
4.5000	34.8222	3.28523	5387.69	3.28522	-0.00000
15.0000	34.7789	4.26751	5973.13	4.26750	-0.00001
18.5000	34.7691	4.61278	6165.47	4.61279	0.00000
23.9940	34.7585	5.17036	6463.68	5.17036	0.00000
29.0000	34.7515	5.69290	6730.85	5.69290	0.00000
32.5000	34.7448	6.06493	6914.59	6.06493	-0.00000

$f = \text{INST FREQ} * \text{sqrt}(1.0 + \text{WBOTC} * t) / 1000.0$

Conductivity = $(g + h * f^2 + i * f^3 + j * f^4) / (1 + \delta * t + \epsilon * p)$ Siemens / meter

t = temperature[°C]; p = pressure[decibars]; δ = CTcor; ϵ = CPcor;

Residual = instrument conductivity - bath conductivity



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SENSOR SERIAL NUMBER: 5952
CALIBRATION DATE: 10-Mar-14

SBE 41cp PRESSURE CALIBRATION DATA
2900 psia S/N 4004719

COEFFICIENTS:

PA0 = 1.629284e-001
PA1 = 1.404717e-001
PA2 = -3.503310e-008
PTHA0 = -7.442905e+001
PTHA1 = 4.994783e-002
PTHA2 = -3.966033e-007

PTCA0 = 2.758681e+001
PTCA1 = 2.201518e-002
PTCA2 = 1.374282e-003
PTCB0 = 2.510888e+001
PTCB1 = 1.175000e-003
PTCB2 = 0.000000e+000

PRESSURE SPAN CALIBRATION

PRESSURE PSIA	INST OUTPUT	THERMISTOR OUTPUT	COMPUTED PRESSURE	ERROR %FS
14.64	132.1	1964.1	14.67	0.00
590.67	4242.0	1966.2	590.77	0.00
1166.93	8361.1	1968.2	1166.97	0.00
1743.14	12489.2	1969.8	1743.24	0.00
2319.45	16626.0	1971.2	2319.52	0.00
2895.66	20770.2	1972.8	2895.63	-0.00
2319.39	16625.0	1972.7	2319.37	-0.00
1743.32	12489.3	1973.0	1743.24	-0.00
1167.04	8360.7	1973.1	1166.90	-0.00
590.54	4240.2	1972.9	590.50	-0.00
14.65	131.7	1973.3	14.60	-0.00

THERMAL CORRECTION

TEMP ITS90	PRESS TEMP	INST OUTPUT
32.50	2178.50	137.81
29.00	2106.00	137.74
23.99	2002.20	137.26
18.50	1889.10	136.66
15.00	1816.50	136.26
4.50	1600.60	135.97
1.00	1528.70	135.83
TEMP(ITS90)	SPAN(mV)	
-5.00	25.10	
35.00	25.15	

$y = \text{thermistor output}; t = \text{PTHA0} + \text{PTHA1} * y + \text{PTHA2} * y^2$

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

$n = x * \text{PTCB0} / (\text{PTCB0} + \text{PTCB1} * t + \text{PTCB2} * t^2)$

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

