

SBE 41 CERTIFICATES

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SBE 41 Instrument Configuration

Model Number: SBE 41

Serial Number: 41-7072

Part Number: 41CP.FA200

Description: METOCEAN Standard Configuration

Firmware Version: 3.0C

Pressure Type: Kistler

Pressure Range: 2000 dBar

Pressure Serial Number: 4632619

SBE 41 ALACE-CP V 3.0C SERIAL NO. 7072

TEMPERATURE: 14-MAR-15

TA0 = 8.438809E-05

TA1 = 2.673478E-04

TA2 = -1.927235E-06

TA3 = 1.382354E-07

CONDUCTIVITY: 14-MAR-15

G = -9.793576E-01

H = 1.502617E-01

I = -3.379756E-04

J = 4.759844E-05

CPCOR = -9.570001E-08

CTCOR = 3.250000E-06

WBOTC = -6.515656E-08

PRESSURE S/N = 4632619, RANGE = 2900 PSIA: 10-MAR-15

PA0 = 6.745384E-01

PA1 = 1.406777E-01

PA2 = 1.329346E-08

PTCA0 = -5.676706E+01

PTCA1 = -3.878923E-01

PTCA2 = 2.784263E-02

PTCB0 = 1.031980E+02

PTCB1 = -6.852877E-03

PTCB2 = 0.000000E+00

PTHA0 = -9.581759E+01

PTHA1 = 3.969776E-02

PTHA2 = 1.300597E-06

POFFSET = 0.000000E+00

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SENSOR SERIAL NUMBER: 7072
CALIBRATION DATE: 14-Mar-15

SBE 41 TEMPERATURE CALIBRATION DATA
ITS-90 TEMPERATURE SCALE

COEFFICIENTS:

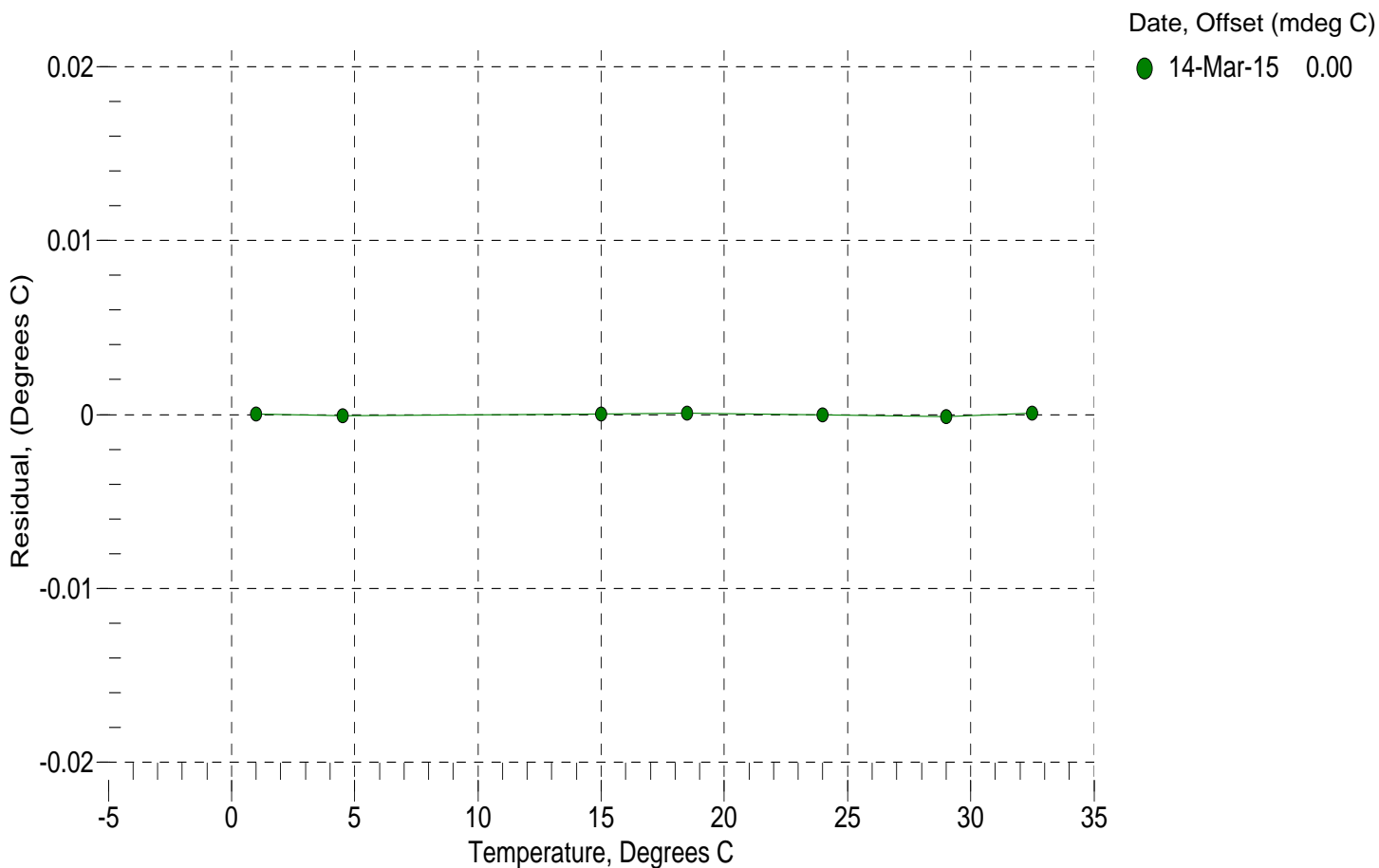
a0 = 8.438809e-005
a1 = 2.673478e-004
a2 = -1.927235e-006
a3 = 1.382354e-007

BATH TEMP (ITS-90)	INSTRUMENT OUTPUT	INST TEMP (ITS-90)	RESIDUAL (ITS-90)
1.0000	647016.6	1.0000	0.0000
4.5000	551983.1	4.4999	-0.0001
15.0000	349559.6	15.0000	0.0000
18.5000	302069.7	18.5001	0.0001
23.9940	241638.9	23.9940	-0.0000
29.0000	198380.9	28.9999	-0.0001
32.5000	173401.0	32.5001	0.0001

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: 14-Mar-15

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

COEFFICIENTS:

g = -9.793576e-001
h = 1.502617e-001
i = -3.379756e-004
j = 4.759844e-005

CPcor = -9.5700e-008
CTcor = 3.2500e-006
WBOTC = -6.5157e-008

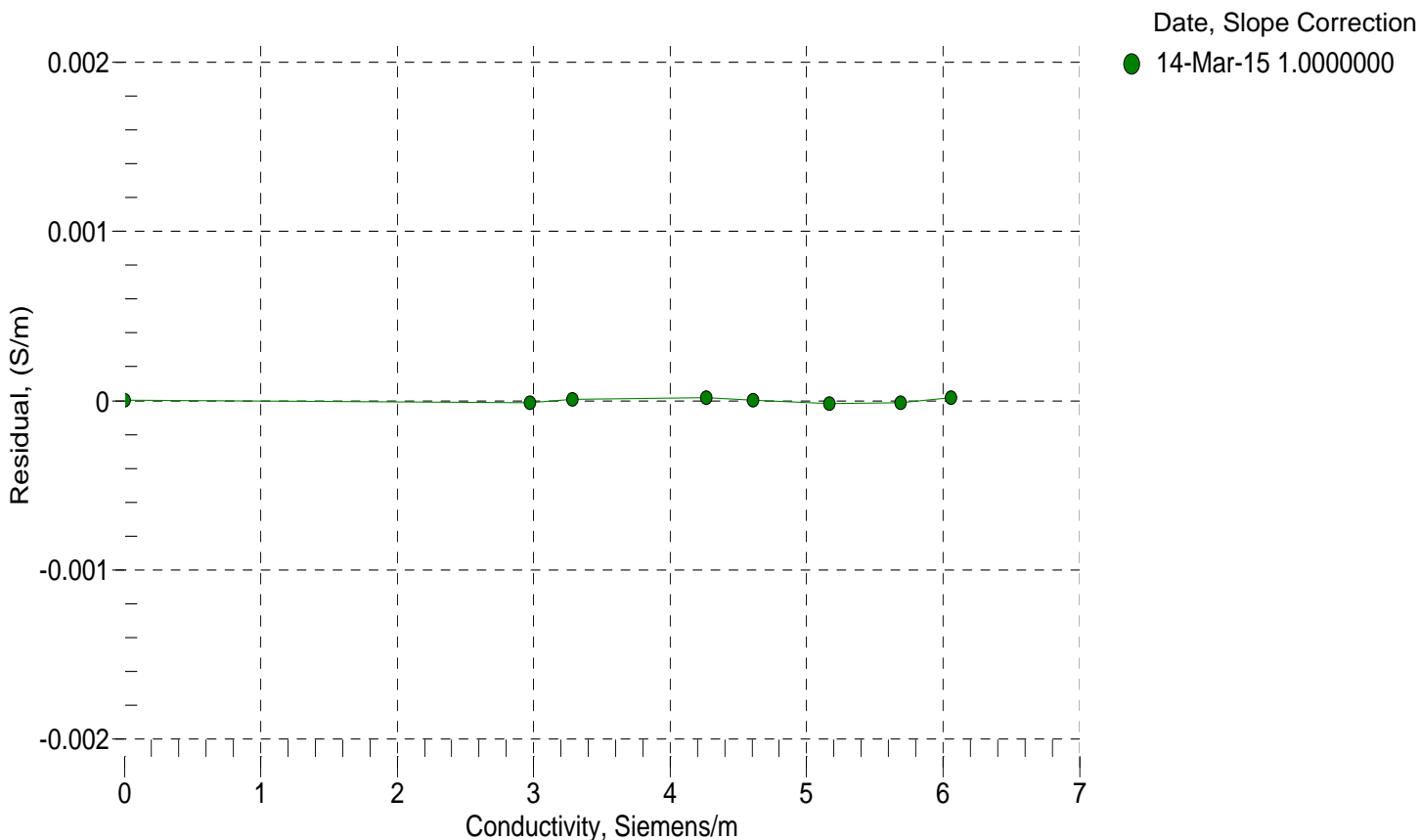
BATH TEMP (ITS-90)	BATH SAL (PSU)	BATH COND (Siemens/m)	INST FREQ (Hz)	INST COND (Siemens/m)	RESIDUAL (Siemens/m)
22.0000	0.0000	0.00000	2557.69	0.00000	0.00000
1.0000	34.8006	2.97475	5138.01	2.97474	-0.00001
4.5000	34.7810	3.28172	5333.20	3.28173	0.00001
15.0000	34.7386	4.26309	5913.38	4.26311	0.00002
18.5000	34.7297	4.60812	6103.99	4.60812	0.00000
23.9940	34.7199	5.16525	6399.49	5.16523	-0.00002
29.0000	34.7140	5.68745	6664.26	5.68743	-0.00001
32.5000	34.7095	6.05947	6846.46	6.05948	0.00002

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

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

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

Residual = instrument conductivity - bath conductivity



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SENSOR SERIAL NUMBER: 7072
CALIBRATION DATE: 10-Mar-15

SBE 41 PRESSURE CALIBRATION DATA
2900 psia S/N 4632619

COEFFICIENTS:

PA0 = 6.745384e-001	PTCA0 = -5.676706e+001
PA1 = 1.406777e-001	PTCA1 = -3.878923e-001
PA2 = 1.329346e-008	PTCA2 = 2.784263e-002
PTHA0 = -9.581760e+001	PTCB0 = 1.031980e+002
PTHA1 = 3.969776e-002	PTCB1 = -6.852877e-003
PTHA2 = 1.300597e-006	PTCB2 = 0.000000e+000

PRESSURE SPAN CALIBRATION

PRESSURE PSIA	INST OUTPUT	THERMISTOR OUTPUT	COMPUTED PRESSURE	ERROR %FS
14.56	46.7	2720.7	14.58	0.00
590.52	4134.6	2722.9	590.71	0.01
1166.97	8220.7	2723.5	1167.05	0.00
1743.33	12303.8	2724.9	1743.41	0.00
2319.69	16383.8	2725.4	2319.79	0.00
2896.03	20459.6	2726.8	2896.01	-0.00
2319.63	16382.3	2727.1	2319.58	-0.00
1743.49	12303.5	2727.2	1743.37	-0.00
1166.74	8217.4	2727.7	1166.58	-0.01
590.35	4131.6	2727.4	590.27	-0.00
14.56	46.4	2727.7	14.50	-0.00

THERMAL CORRECTION

TEMP ITS90	PRESS TEMP	INST OUTPUT
32.50	2947.70	62.91
29.00	2873.60	58.94
23.99	2767.30	54.26
18.50	2649.70	48.06
15.00	2574.30	46.77
4.50	2346.70	45.72
1.00	2270.00	46.04

TEMP(ITS90)	SPAN(mV)
-3.82	103.22
35.02	102.96

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

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

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

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

