

SBE 41CP CERTIFICATES

CTD Serial Number 41CP-7273

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SBE 41CP Instrument Configuration

Model Number: SBE 41CP

Serial Number: 41CP-7273

Part Number: 41CP.FA202

Description : METOCEAN 41CP with SBE63 Configuration

Firmware Version: 3.0C

Pressure Type: Kistler

Pressure Range: 2000 dBar

Pressure Serial Number: 4669456

Oxygen Sensor Type: SBE 63

Oxygen Serial Number: 1073

SBE 41 ALACE-CP V 3.0C SERIAL NO. 7273
TEMPERATURE: 27-MAY-15
TA0 = 1.856812E-05
TA1 = 2.777941E-04
TA2 = -2.788021E-06
TA3 = 1.588792E-07
CONDUCTIVITY: 27-MAY-15
G = -9.754046E-01
H = 1.320971E-01
I = -2.890583E-04
J = 3.735885E-05
CPCOR = -9.570001E-08
CTCOR = 3.250000E-06
WBOTC = 5.508836E-07
PRESSURE S/N = 4669456, RANGE = 2900 PSIA: 19-MAY-15
PA0 = -1.729769E+00
PA1 = 1.403852E-01
PA2 = 1.264652E-08
PTCA0 = -7.537216E+01
PTCA1 = -1.075078E+00
PTCA2 = 2.345140E-02
PTCB0 = 1.031956E+02
PTCB1 = -4.187369E-03
PTCB2 = 0.000000E+00
PTHA0 = -9.657972E+01
PTHA1 = 4.000398E-02
PTHA2 = 1.166535E-06
POFFSET = 0.000000E+00

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SENSOR SERIAL NUMBER: 7273
CALIBRATION DATE: 27-May-15

SBE 41 TEMPERATURE CALIBRATION DATA
ITS-90 TEMPERATURE SCALE

COEFFICIENTS:

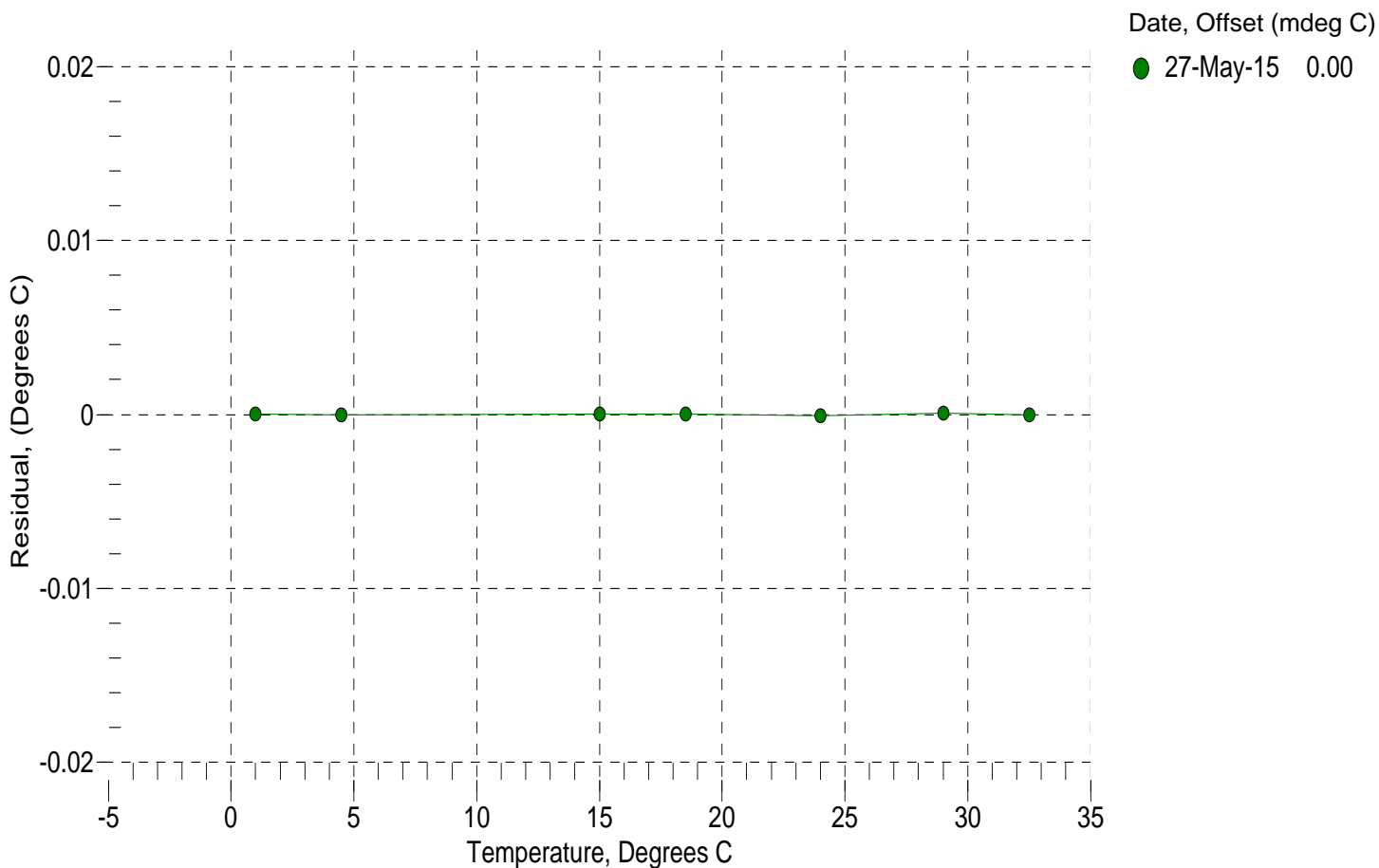
a0 = 1.856812e-005
a1 = 2.777941e-004
a2 = -2.788021e-006
a3 = 1.588792e-007

BATH TEMP (ITS-90)	INSTRUMENT OUTPUT	INST TEMP (ITS-90)	RESIDUAL (ITS-90)
1.0000	719560.1	1.0000	0.0000
4.5000	613620.5	4.5000	-0.0000
15.0000	388133.9	15.0000	0.0000
18.5000	335276.0	18.5000	0.0000
23.9941	268047.1	23.9940	-0.0001
28.9999	219950.5	29.0000	0.0001
32.5000	192191.2	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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SENSOR SERIAL NUMBER: 7273
CALIBRATION DATE: 27-May-15

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

COEFFICIENTS:

g = -9.754047e-001
h = 1.320971e-001
i = -2.890583e-004
j = 3.735885e-005

CPcor = -9.5700e-008
CTcor = 3.2500e-006
WBOTC = 5.5088e-007

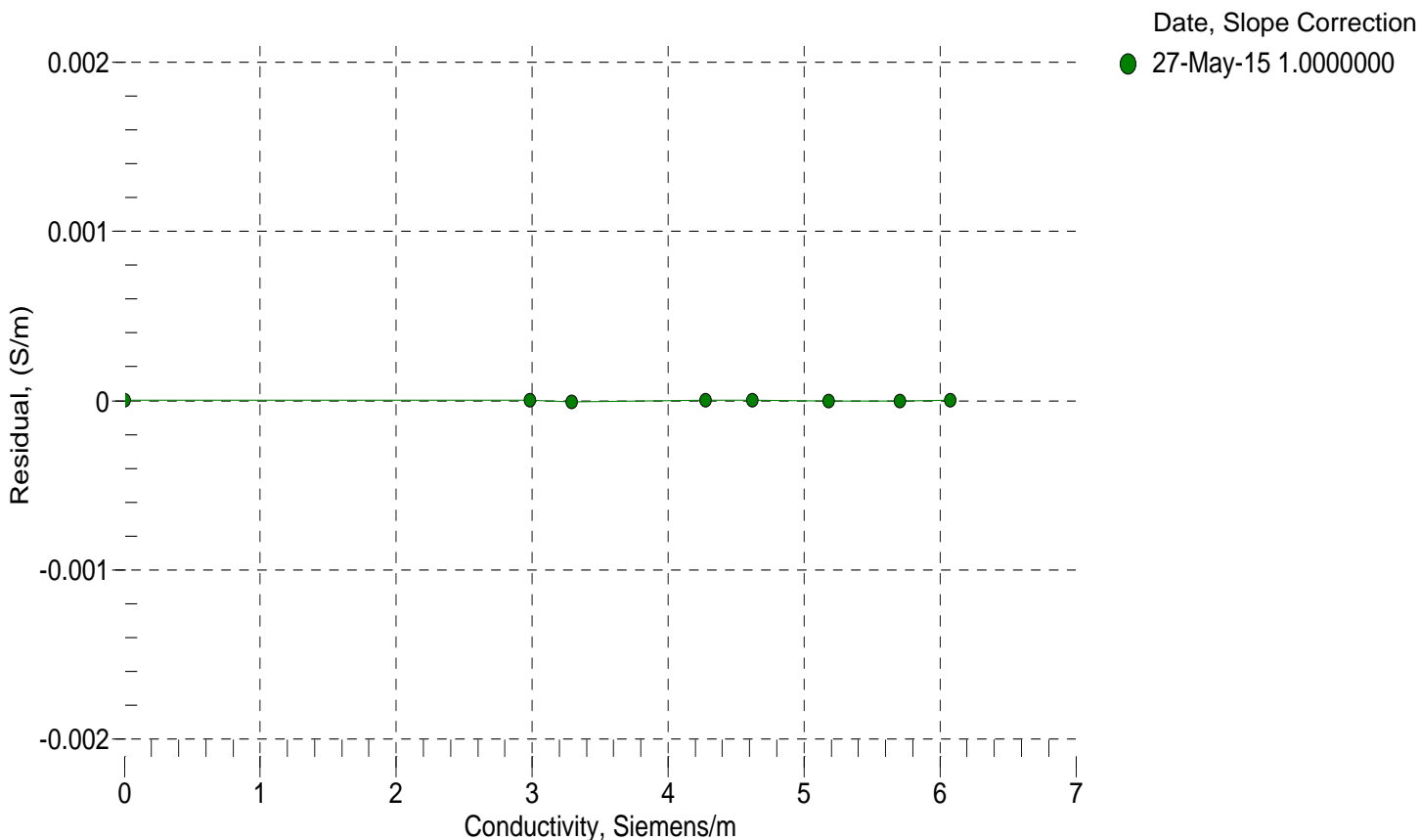
BATH TEMP (ITS-90)	BATH SAL (PSU)	BATH COND (Siemens/m)	INST FREQ (Hz)	INST COND (Siemens/m)	RESIDUAL (Siemens/m)
22.0000	0.0000	0.00000	2722.60	0.00000	0.00000
1.0000	34.9148	2.98358	5484.11	2.98358	0.00000
4.5000	34.8948	3.29140	5692.75	3.29139	-0.00001
15.0000	34.8518	4.27551	6312.92	4.27551	0.00000
18.5000	34.8424	4.62146	6516.63	4.62146	0.00000
23.9941	34.8319	5.18008	6832.44	5.18008	-0.00000
28.9999	34.8261	5.70373	7115.40	5.70373	-0.00000
32.5000	34.8232	6.07706	7310.24	6.07706	0.00000

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

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

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

Residual = instrument conductivity - bath conductivity



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SENSOR SERIAL NUMBER: 7273
CALIBRATION DATE: 19-May-15

SBE 41 PRESSURE CALIBRATION DATA
2900 psia S/N 4669456

COEFFICIENTS:

PA0 = -1.729769e+000	PTCA0 = -7.537216e+001
PA1 = 1.403852e-001	PTCA1 = -1.075078e+000
PA2 = 1.264652e-008	PTCA2 = 2.345140e-002
PTHA0 = -9.657973e+001	PTCB0 = 1.031956e+002
PTHA1 = 4.000398e-002	PTCB1 = -4.187369e-003
PTHA2 = 1.166535e-006	PTCB2 = 0.000000e+000

PRESSURE SPAN CALIBRATION

PRESSURE PSIA	INST OUTPUT	THERMISTOR OUTPUT	COMPUTED PRESSURE	ERROR %FS
14.65	28.6	2749.2	14.61	-0.00
592.51	4140.5	2756.9	592.62	0.00
1169.87	8244.6	2758.0	1169.95	0.00
1747.31	12346.7	2759.0	1747.44	0.00
2324.76	16445.2	2760.2	2324.85	0.00
2902.20	20539.9	2761.3	2902.15	-0.00
2324.73	16444.2	2761.7	2324.71	-0.00
1747.26	12344.6	2761.6	1747.15	-0.00
1169.92	8243.1	2762.0	1169.75	-0.01
592.28	4137.3	2762.0	592.17	-0.00
14.65	29.3	2762.2	14.71	0.00

THERMAL CORRECTION

TEMP ITS90	PRESS TEMP	INST OUTPUT
32.50	2969.30	36.31
29.00	2895.10	35.03
23.99	2787.60	34.19
18.50	2668.80	34.60
15.00	2593.10	35.64
4.50	2363.80	42.13
1.00	2286.80	45.42

TEMP(ITS90)	SPAN(mV)
-4.38	103.21
37.48	103.04

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

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

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

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

