

SBE 41CP CERTIFICATES

CTD Serial Number 41CP-4521

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SBE 41CP Instrument Configuration

Model Number: SBE 41CP

Serial Number: 41CP-4521

Part Number: 90365.067

Description : APEX SBE 41CP Configuration

Firmware Version: 2.0

Pressure Type: Druck

Pressure Range: 2000 Dbar

Pressure Serial Number: 3469223

SBE 41CP UW V 2.0 SERIAL NO. 4521

temperature: 12-mar-12

TA0 = 1.023608e-05

TA1 = 2.695669e-04

TA2 = -2.139989e-06

TA3 = 1.400969e-07

conductivity: 12-mar-12

G = -9.885324e-01

H = 1.493474e-01

I = -3.859584e-04

J = 5.066479e-05

CPCOR = -9.570001e-08

CTCOR = 3.250000e-06

WBOTC = -7.626301e-07

pressure S/N = 3469223, range = 2900 psia: 08-mar-12

PA0 = 7.131239e-01

PA1 = 1.396020e-01

PA2 = -3.679048e-08

PTCA0 = 5.613473e+01

PTCA1 = 3.900284e-01

PTCA2 = -7.255340e-03

PTCB0 = 2.539575e+01

PTCB1 = -1.250000e-03

PTCB2 = 0.000000e+00

PTHA0 = -7.065672e+01

PTHA1 = 5.257507e-02

PTHA2 = -7.489141e-07

POFFSET = 0.000000e+00

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SENSOR SERIAL NUMBER: 4521
CALIBRATION DATE: 12-Mar-12

SBE 41cp TEMPERATURE CALIBRATION DATA
ITS-90 TEMPERATURE SCALE

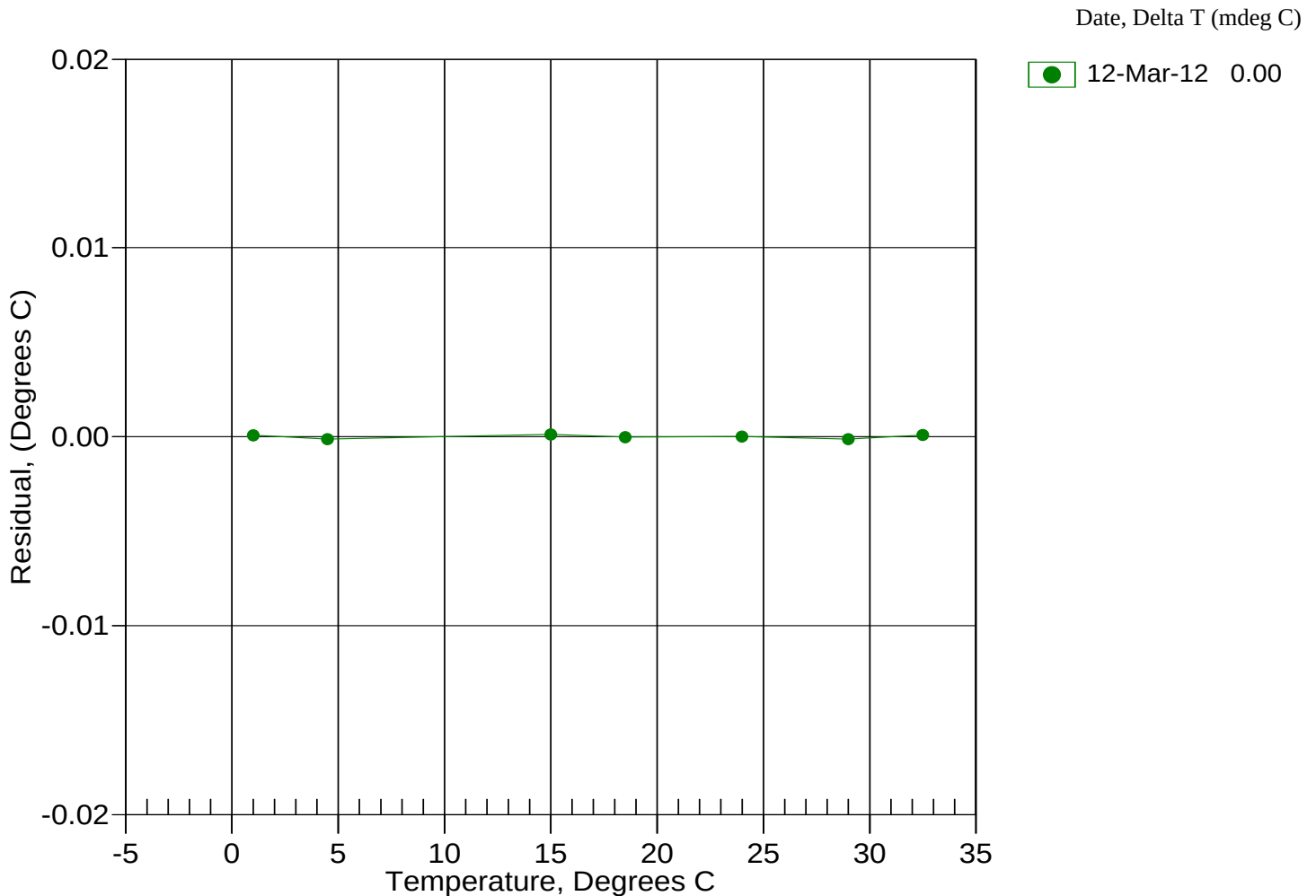
ITS-90 COEFFICIENTS

a0 = 1.023608e-005
a1 = 2.695669e-004
a2 = -2.139989e-006
a3 = 1.400969e-007

BATH TEMP (ITS-90)	INSTRUMENT OUTPUT	INST TEMP (ITS-90)	RESIDUAL (ITS-90)
1.0000	848142.5	1.0001	0.0001
4.5000	723349.5	4.4999	-0.0001
15.0000	457683.1	15.0001	0.0001
18.5000	395399.6	18.5000	-0.0000
23.9940	316166.4	23.9940	0.0000
29.0000	259474.0	28.9999	-0.0001
32.5000	226746.5	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



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SENSOR SERIAL NUMBER: 4521
CALIBRATION DATE: 12-Mar-12

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

COEFFICIENTS:

g = -9.885324e-001
h = 1.493474e-001
i = -3.859584e-004
j = 5.066479e-005

CPcor = -9.5700e-008
CTcor = 3.2500e-006
WBOTC = -7.6263e-007

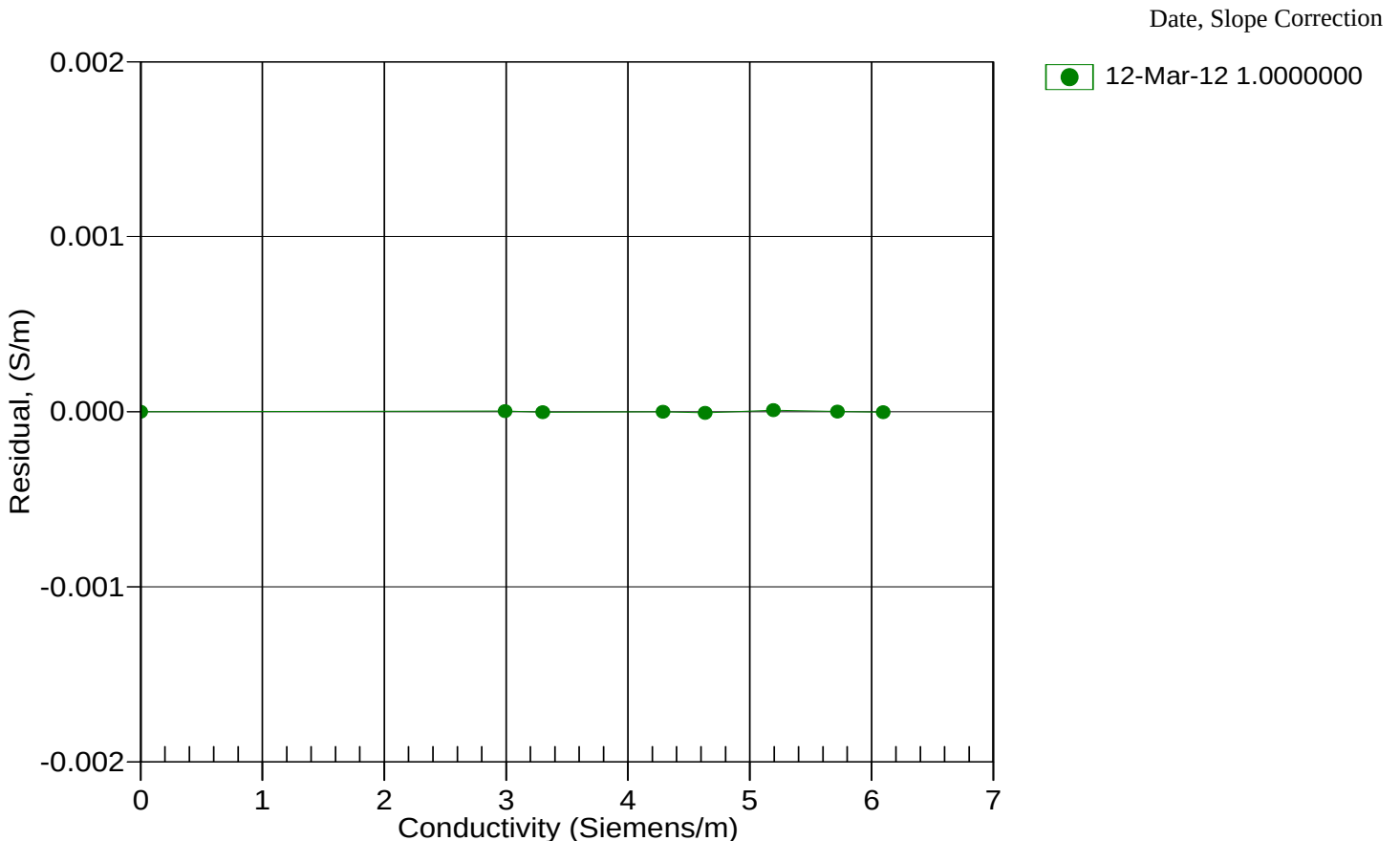
BATH TEMP (ITS-90)	BATH SAL (PSU)	BATH COND (Siemens/m)	INST FREQ (Hz)	INST COND (Siemens/m)	RESIDUAL (Siemens/m)
22.0000	0.0000	0.00000	2578.45	0.00000	0.00000
1.0000	35.0258	2.99216	5173.86	2.99216	0.00000
4.5000	35.0061	3.30086	5370.23	3.30086	-0.00000
15.0000	34.9642	4.28783	5954.02	4.28783	0.00000
18.5000	34.9555	4.63484	6145.83	4.63483	-0.00001
23.9940	34.9461	5.19517	6443.21	5.19518	0.00001
29.0000	34.9413	5.72048	6709.69	5.72048	0.00000
32.5000	34.9394	6.09502	6893.19	6.09502	-0.00000

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

$\text{Conductivity} = (g + hf^2 + if^3 + jf^4) / (1 + \delta t + \epsilon p)$ Siemens/meter

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

Residual = instrument conductivity - bath conductivity



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SENSOR SERIAL NUMBER: 4521
CALIBRATION DATE: 08-Mar-12

SBE 41cp PRESSURE CALIBRATION DATA
2900 psia S/N 3469223

COEFFICIENTS:

PA0 = 7.131239e-001
PA1 = 1.396020e-001
PA2 = -3.679048e-008
PTHA0 = -7.065672e+001
PTHA1 = 5.257507e-002
PTHA2 = -7.489141e-007

PTCA0 = 5.613473e+001
PTCA1 = 3.900284e-001
PTCA2 = -7.255340e-003
PTCB0 = 2.539575e+001
PTCB1 = -1.250000e-003
PTCB2 = 0.000000e+000

PRESSURE SPAN CALIBRATION

PRESSURE PSIA	INST OUTPUT	THERMISTOR OUTPUT	COMPUTED PRESSURE	ERROR %FSR
14.70	161.0	1819.0	14.66	-0.00
591.33	4293.5	1820.0	591.54	0.01
1168.20	8434.4	1821.1	1168.34	0.00
1745.18	12585.1	1821.4	1745.23	0.00
2322.12	16744.8	1822.5	2322.11	-0.00
2898.90	20913.8	1823.0	2898.99	0.00
2322.24	16744.8	1822.1	2322.11	-0.00
1745.57	12586.8	1821.5	1745.47	-0.00
1168.46	8434.3	1820.3	1168.32	-0.00
591.39	4292.4	1820.1	591.39	-0.00
14.69	160.7	1819.2	14.61	-0.00

THERMAL CORRECTION

TEMP ITS90	PRESS TEMP	INST OUTPUT
32.50	2020.30	162.75
29.00	1949.50	163.43
23.99	1849.10	164.01
18.50	1738.90	162.78
15.00	1668.80	161.55
4.50	1460.00	160.05
1.00	1390.40	158.37

TEMP(ITS90)	SPAN(mV)
-5.00	25.40
35.00	25.35

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

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

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

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

Date, Avg Delta P %FS

08-Mar-12 -0.00

