

SBE 41CP CERTIFICATES

CTD Serial Number 41CP-4512

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SBE 41CP Instrument Configuration

Model Number: SBE 41CP

Serial Number: 41CP-4512

Part Number: 90365.060

Description : APEX SBE 41CP Configuration

Firmware Version: 2.0

Pressure Type: Druck

Pressure Range: 2000 Dbar

Pressure Serial Number: 3496613

SBE 41CP UW V 2.0 SERIAL NO. 4512

temperature: 20-mar-12

TA0 = 7.047839e-05

TA1 = 2.709857e-04

TA2 = -2.195971e-06

TA3 = 1.449825e-07

conductivity: 20-mar-12

G = -9.841853e-01

H = 1.519734e-01

I = -3.977824e-04

J = 5.228693e-05

CPCOR = -9.570001e-08

CTCOR = 3.250000e-06

WBOTC = -2.025500e-07

pressure S/N = 3496613, range = 2900 psia: 05-mar-12

PA0 = 1.944455e-01

PA1 = 1.395487e-01

PA2 = -3.753852e-08

PTCA0 = 3.437424e+01

PTCA1 = 6.587281e-02

PTCA2 = -1.747061e-04

PTCB0 = 2.537938e+01

PTCB1 = 1.075000e-03

PTCB2 = 0.000000e+00

PTHA0 = -7.075786e+01

PTHA1 = 5.253668e-02

PTHA2 = -7.567328e-07

POFFSET = 0.000000e+00

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SENSOR SERIAL NUMBER: 4512
CALIBRATION DATE: 20-Mar-12

SBE 41cp TEMPERATURE CALIBRATION DATA
ITS-90 TEMPERATURE SCALE

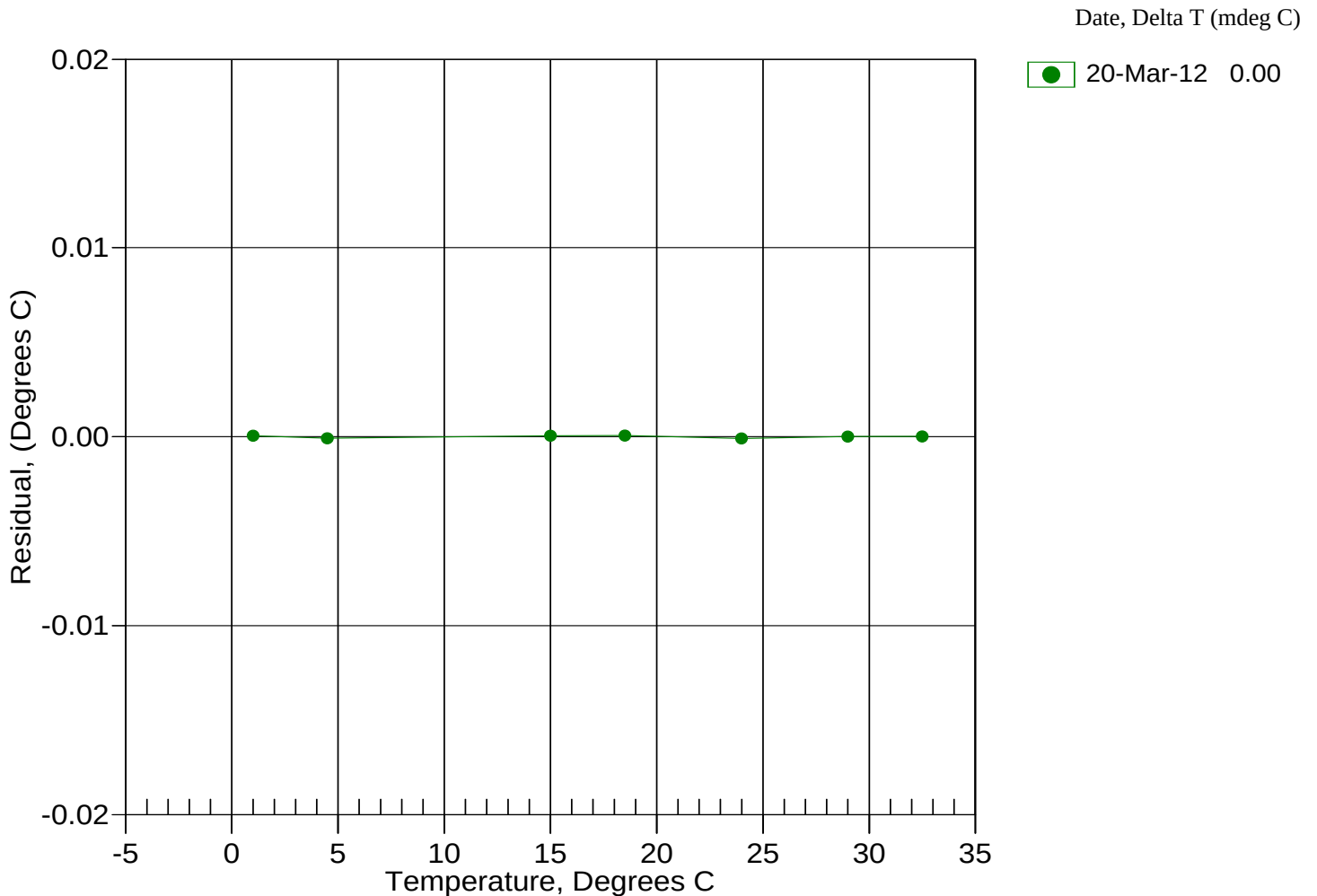
ITS-90 COEFFICIENTS

a0 = 7.047839e-005
a1 = 2.709857e-004
a2 = -2.195971e-006
a3 = 1.449825e-007

BATH TEMP (ITS-90)	INSTRUMENT OUTPUT	INST TEMP (ITS-90)	RESIDUAL (ITS-90)
1.0000	640763.2	1.0000	0.0000
4.5000	546648.5	4.4999	-0.0001
15.0000	346183.5	15.0000	0.0000
18.5000	299154.5	18.5001	0.0001
23.9940	239311.6	23.9939	-0.0001
29.0000	196472.3	29.0000	0.0000
32.5000	171737.0	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



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SENSOR SERIAL NUMBER: 4512
CALIBRATION DATE: 20-Mar-12

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

COEFFICIENTS:

g = -9.841853e-001
h = 1.519734e-001
i = -3.977824e-004
j = 5.228693e-005

CPcor = -9.5700e-008
CTcor = 3.2500e-006
WBOTC = -2.0255e-007

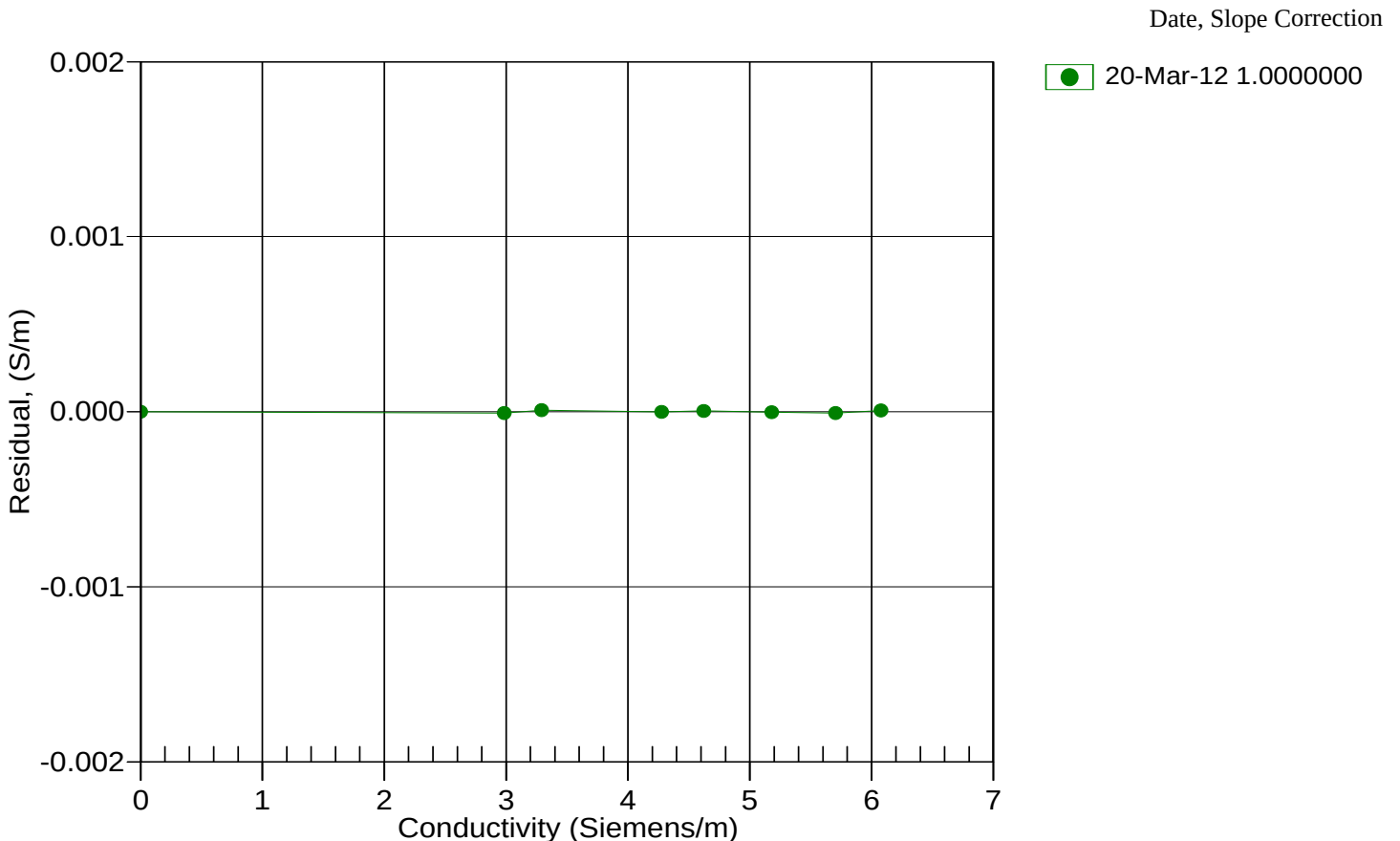
BATH TEMP (ITS-90)	BATH SAL (PSU)	BATH COND (Siemens/m)	INST FREQ (Hz)	INST COND (Siemens/m)	RESIDUAL (Siemens/m)
22.0000	0.0000	0.00000	2550.48	0.00000	0.00000
1.0000	34.9239	2.98428	5121.31	2.98428	-0.00001
4.5000	34.9035	3.29214	5315.78	3.29215	0.00001
15.0000	34.8604	4.27645	5893.87	4.27645	-0.00000
18.5000	34.8509	4.62246	6083.78	4.62247	0.00000
23.9940	34.8406	5.18122	6378.21	5.18122	-0.00000
29.0000	34.8349	5.70502	6642.04	5.70501	-0.00001
32.5000	34.8315	6.07834	6823.66	6.07835	0.00001

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

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

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

Residual = instrument conductivity - bath conductivity



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SENSOR SERIAL NUMBER: 4512
CALIBRATION DATE: 05-Mar-12

SBE 41cp PRESSURE CALIBRATION DATA
2900 psia S/N 3496613

COEFFICIENTS:

PA0 = 1.944455e-001
PA1 = 1.395487e-001
PA2 = -3.753852e-008
PTHA0 = -7.075786e+001
PTHA1 = 5.253668e-002
PTHA2 = -7.567328e-007

PTCA0 = 3.437424e+001
PTCA1 = 6.587281e-002
PTCA2 = -1.747061e-004
PTCB0 = 2.537938e+001
PTCB1 = 1.075000e-003
PTCB2 = 0.000000e+000

PRESSURE SPAN CALIBRATION

PRESSURE PSIA	INST OUTPUT	THERMISTOR OUTPUT	COMPUTED PRESSURE	ERROR %FSR
14.48	138.1	1823.3	14.46	-0.00
590.87	4278.8	1823.9	591.06	0.01
1167.72	8430.2	1825.0	1167.87	0.01
1744.48	12590.0	1825.3	1744.54	0.00
2321.20	16759.4	1826.2	2321.24	0.00
2897.80	20937.7	1826.6	2897.86	0.00
2321.33	16759.3	1825.6	2321.23	-0.00
1744.83	12591.0	1824.5	1744.68	-0.01
1167.89	8429.5	1823.4	1167.77	-0.00
591.05	4278.4	1822.5	591.01	-0.00
14.48	137.7	1821.7	14.41	-0.00

THERMAL CORRECTION

TEMP ITS90	PRESS TEMP	INST OUTPUT
32.50	2024.00	143.19
29.00	1954.70	143.25
23.99	1852.70	143.06
18.50	1742.60	142.47
15.00	1672.40	142.13
4.50	1463.90	141.79
1.00	1393.50	141.40

TEMP(ITS90)	SPAN(mV)
-5.00	25.37
35.00	25.42

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

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

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

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

Date, Avg Delta P %FS

05-Mar-12 0.00

