

SBE 41CP CERTIFICATES

CTD Serial Number 41CP-4560

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SBE 41CP Instrument Configuration

Model Number: SBE 41CP

Serial Number: 41CP-4560

Part Number: 90499.012

Description : NKE-ARVOR Configuration

Firmware Version: 2.0

Pressure Type: Kistler

Pressure Range: 2000 Dbar

Pressure Serial Number: 2103300

SBE 41 ALACE-CP-MO V 2.0 SERIAL NO. 4560
temperature: 27-apr-12
TA0 = 1.725404e-05
TA1 = 2.808622e-04
TA2 = -2.995071e-06
TA3 = 1.651072e-07
conductivity: 27-apr-12
G = -9.841609e-01
H = 1.458395e-01
I = -3.920865e-04
J = 4.985467e-05
CPCOR = -9.570001e-08
CTCOR = 3.250000e-06
WBOTC = -1.280014e-07
pressure S/N = 2103300, range = 2900 psia: 24-apr-12
PA0 = -1.200388e+00
PA1 = 1.389932e-01
PA2 = 1.528500e-08
PTCA0 = -6.387717e+01
PTCA1 = -9.557354e-01
PTCA2 = 2.548104e-02
PTCB0 = 1.032304e+02
PTCB1 = -5.889515e-03
PTCB2 = 0.000000e+00
PTHA0 = -9.747843e+01
PTHA1 = 4.202553e-02
PTHA2 = 7.141060e-07
POFFSET = 0.000000e+00

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SENSOR SERIAL NUMBER: 4560
CALIBRATION DATE: 27-Apr-12

SBE 41cp TEMPERATURE CALIBRATION DATA
ITS-90 TEMPERATURE SCALE

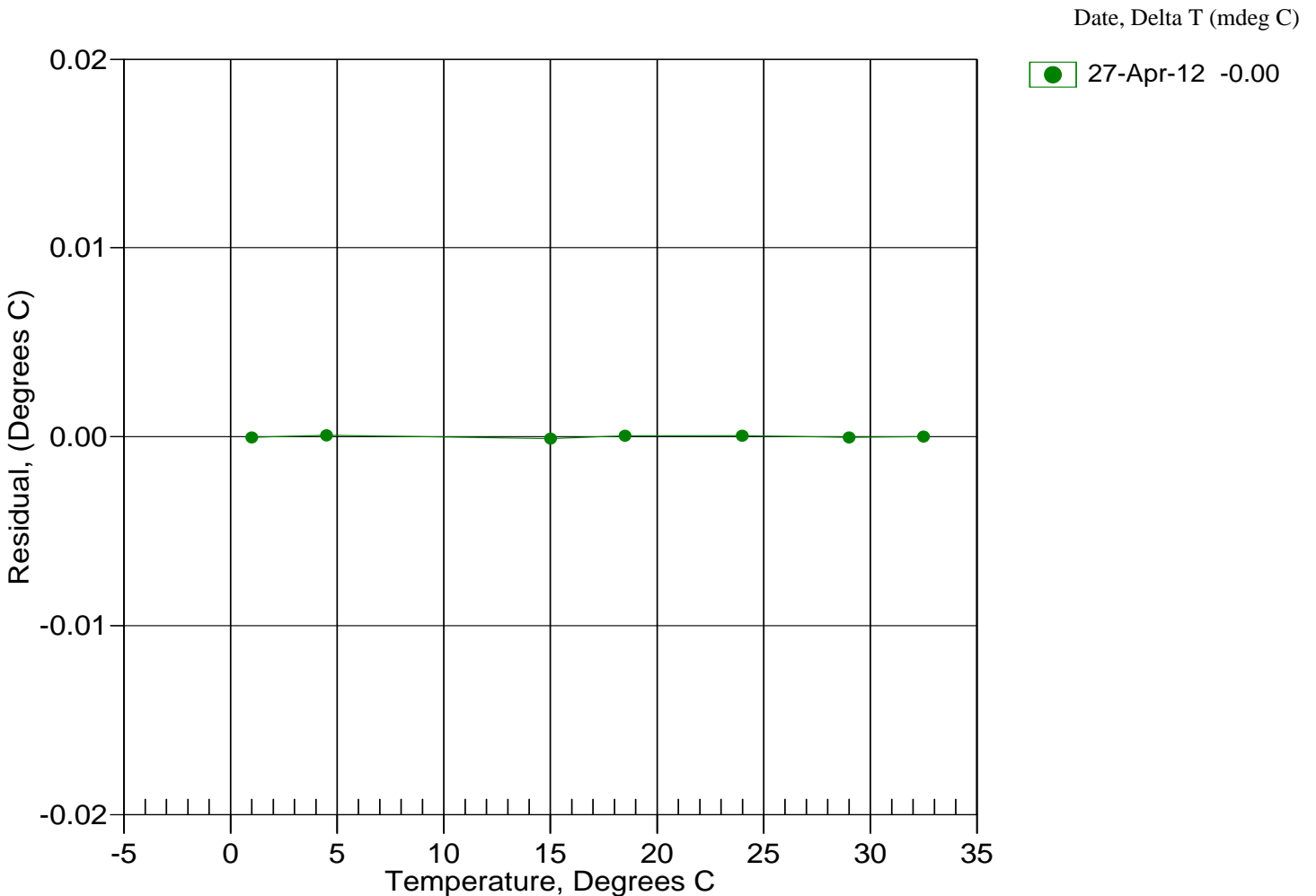
ITS-90 COEFFICIENTS

a0 = 1.725404e-005
a1 = 2.808622e-004
a2 = -2.995071e-006
a3 = 1.651072e-007

BATH TEMP (ITS-90)	INSTRUMENT OUTPUT	INST TEMP (ITS-90)	RESIDUAL (ITS-90)
1.0000	676992.0	1.0000	-0.0000
4.5000	577453.5	4.5001	0.0001
15.0000	365511.1	14.9999	-0.0001
18.5000	315802.3	18.5000	0.0000
23.9940	252563.6	23.9941	0.0001
29.0000	207308.7	29.0000	-0.0000
32.5000	181182.8	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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CALIBRATION DATE: 27-Apr-12

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

COEFFICIENTS:

g = -9.841609e-001	CPcor = -9.5700e-008
h = 1.458395e-001	CTcor = 3.2500e-006
i = -3.920865e-004	WBOTC = -1.2800e-007
j = 4.985467e-005	

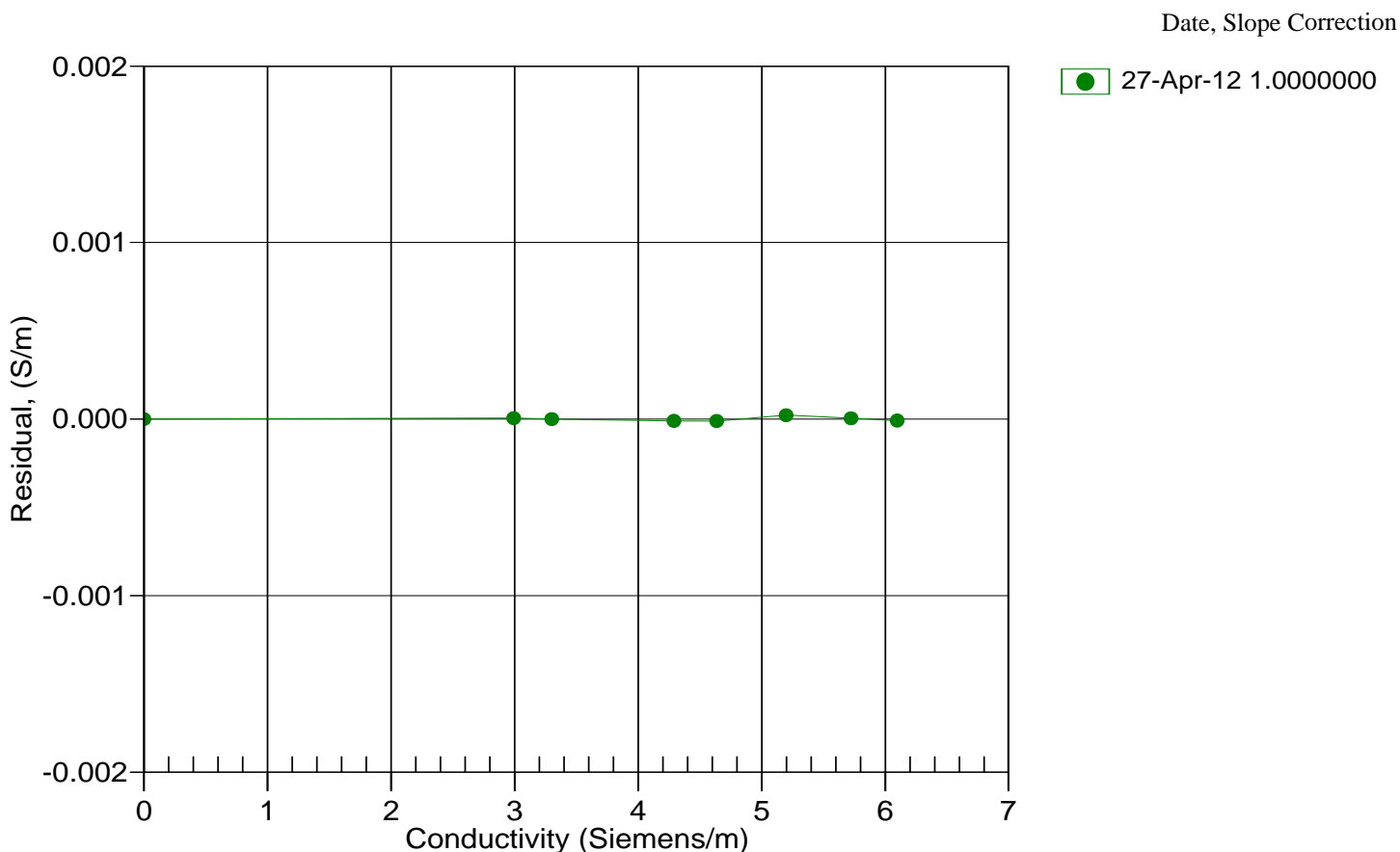
BATH TEMP (ITS-90)	BATH SAL (PSU)	BATH COND (Siemens/m)	INST FREQ (Hz)	INST COND (Siemens/m)	RESIDUAL (Siemens/m)
22.0000	0.0000	0.00000	2603.85	0.00000	0.00000
1.0000	35.0508	2.99409	5235.20	2.99409	0.00001
4.5000	35.0307	3.30295	5434.13	3.30295	0.00000
15.0000	34.9881	4.29045	6025.46	4.29044	-0.00001
18.5000	34.9792	4.63764	6219.73	4.63763	-0.00001
23.9940	34.9694	5.19825	6520.91	5.19827	0.00002
29.0000	34.9643	5.72382	6790.77	5.72383	0.00000
32.5000	34.9619	6.09850	6976.56	6.09849	-0.00001

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

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

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

Residual = instrument conductivity - bath conductivity



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SENSOR SERIAL NUMBER: 4560
CALIBRATION DATE: 24-Apr-12

SBE 41cp PRESSURE CALIBRATION DATA
2900 psia S/N 2103300

COEFFICIENTS:

PA0 = -1.200388e+000	PTCA0 = -6.387717e+001
PA1 = 1.389932e-001	PTCA1 = -9.557354e-001
PA2 = 1.528500e-008	PTCA2 = 2.548104e-002
PTHA0 = -9.747843e+001	PTCB0 = 1.032304e+002
PTHA1 = 4.202553e-002	PTCB1 = -5.889515e-003
PTHA2 = 7.141060e-007	PTCB2 = 0.000000e+000

PRESSURE SPAN CALIBRATION

PRESSURE PSIA	INST OUTPUT	THERMISTOR OUTPUT	COMPUTED PRESSURE	ERROR %FSR
14.57	41.4	2726.0	14.65	0.00
591.63	4185.3	2727.3	591.64	0.00
1168.71	8327.5	2728.4	1168.92	0.01
1745.73	12463.6	2729.5	1745.88	0.01
2322.78	16596.3	2730.3	2322.89	0.00
2899.63	20723.1	2730.7	2899.60	-0.00
2322.86	16595.3	2730.3	2322.75	-0.00
1746.01	12463.7	2730.3	1745.90	-0.00
1168.69	8325.0	2729.4	1168.58	-0.00
591.52	4182.9	2729.1	591.31	-0.01
14.57	40.9	2729.3	14.58	0.00

THERMAL CORRECTION

TEMP ITS90	PRESS TEMP	INST OUTPUT
32.50	2945.10	48.92
29.00	2870.00	46.79
23.99	2761.10	44.71
18.50	2641.10	44.10
15.00	2564.50	44.52
4.50	2333.90	49.23
1.00	2256.90	52.14

TEMP (ITS90)	SPAN (mV)
-5.57	103.26
33.86	103.03

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

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

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

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

Date, Avg Delta P %FS

24-Apr-12 0.00

