

SBE 41CP CERTIFICATES

CTD Serial Number 41CP-4557

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SBE 41CP Instrument Configuration

Model Number: SBE 41CP

Serial Number: 41CP-4557

Part Number: 90499.012

Description : NKE-ARVOR Configuration

Firmware Version: 2.0

Pressure Type: Kistler

Pressure Range: 2000 Dbar

Pressure Serial Number: 2103265

SBE 41 ALACE-CP-MO V 2.0 SERIAL NO. 4557
temperature: 01-may-12
TA0 = -5.550574e-05
TA1 = 2.866881e-04
TA2 = -3.447471e-06
TA3 = 1.745626e-07
conductivity: 01-may-12
G = -9.860320e-01
H = 1.475464e-01
I = -3.822762e-04
J = 5.128343e-05
CPCOR = -9.570001e-08
CTCOR = 3.250000e-06
WBOTC = -3.537811e-07
pressure S/N = 2103265, range = 2900 psia: 24-apr-12
PA0 = -1.592716e+00
PA1 = 1.394839e-01
PA2 = 1.500902e-08
PTCA0 = 6.661969e+01
PTCA1 = -1.123690e+00
PTCA2 = 2.745175e-02
PTCB0 = 1.043429e+02
PTCB1 = -5.531984e-03
PTCB2 = 0.000000e+00
PTHA0 = -9.838954e+01
PTHA1 = 4.179493e-02
PTHA2 = 7.632602e-07
POFFSET = 0.000000e+00

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SENSOR SERIAL NUMBER: 4557
 CALIBRATION DATE: 01-May-12

SBE 41cp TEMPERATURE CALIBRATION DATA
 ITS-90 TEMPERATURE SCALE

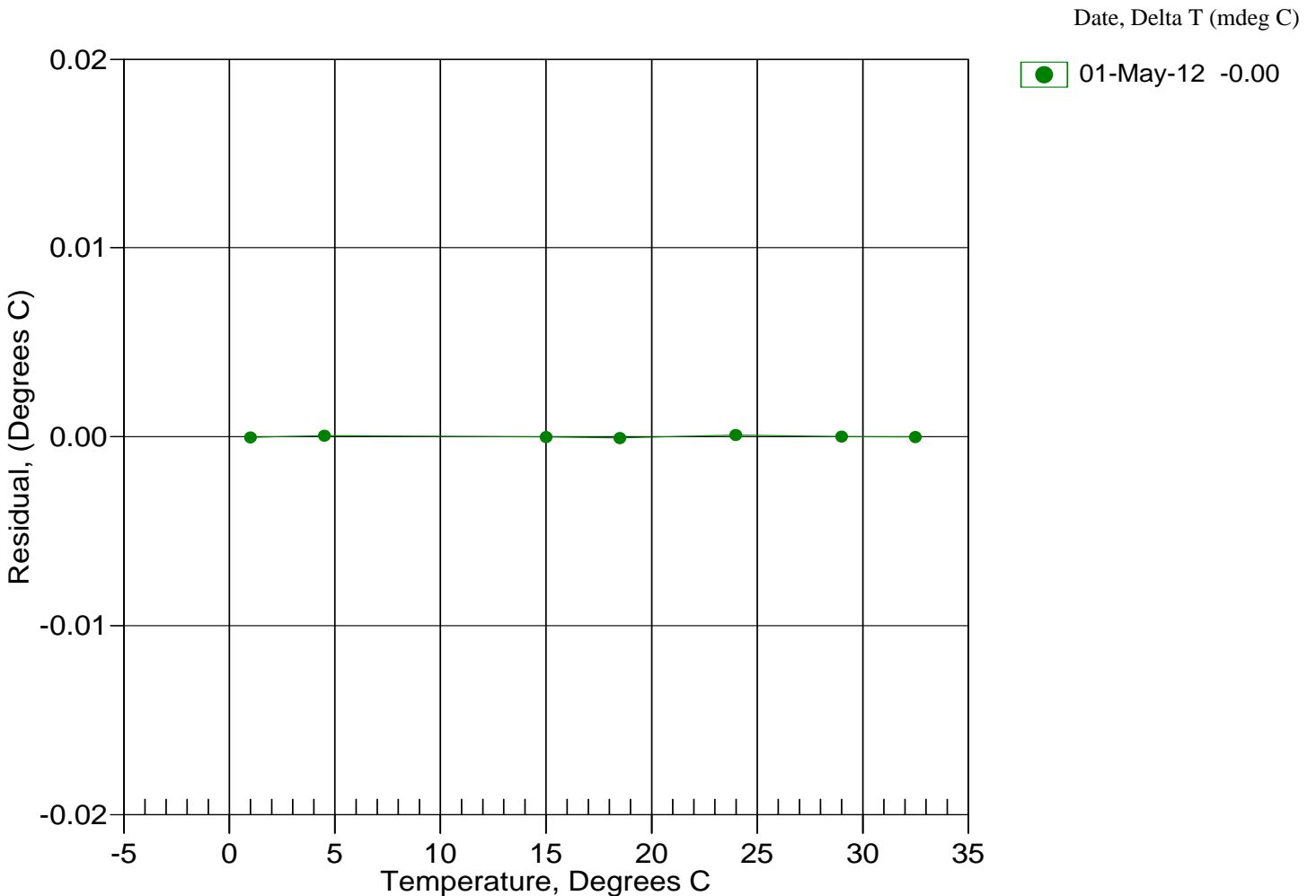
ITS-90 COEFFICIENTS

a0 = -5.550574e-005
 a1 = 2.866881e-004
 a2 = -3.447471e-006
 a3 = 1.745626e-007

BATH TEMP (ITS-90)	INSTRUMENT OUTPUT	INST TEMP (ITS-90)	RESIDUAL (ITS-90)
1.0000	813749.2	1.0000	-0.0000
4.5000	694151.2	4.5001	0.0001
15.0000	439455.4	15.0000	-0.0000
18.5000	379714.7	18.4999	-0.0001
23.9940	303701.9	23.9941	0.0001
29.0000	249302.9	29.0000	0.0000
32.4999	217897.9	32.4999	-0.0000

$$\text{Temperature ITS-90} = 1/\{a_0 + a_1[\ln(n)] + a_2[\ln^2(n)] + a_3[\ln^3(n)]\} - 273.15 \text{ (}^\circ\text{C)}$$

Residual = instrument temperature - bath temperature



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SENSOR SERIAL NUMBER: 4557
CALIBRATION DATE: 01-May-12

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

COEFFICIENTS:

g = -9.860320e-001	CPcor = -9.5700e-008
h = 1.475464e-001	CTcor = 3.2500e-006
i = -3.822762e-004	WBOTC = -3.5378e-007
j = 5.128343e-005	

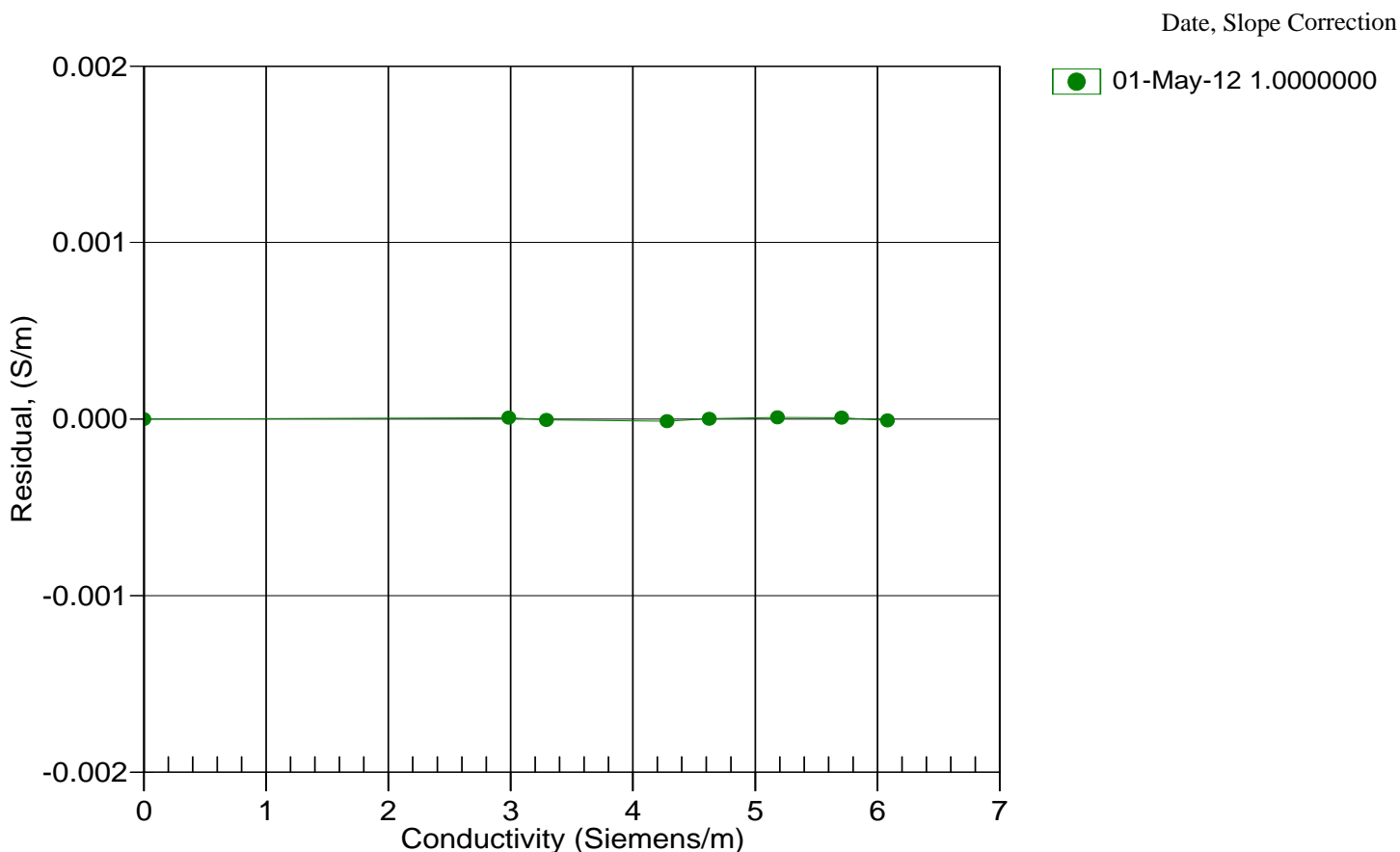
BATH TEMP (ITS-90)	BATH SAL (PSU)	BATH COND (Siemens/m)	INST FREQ (Hz)	INST COND (Siemens/m)	RESIDUAL (Siemens/m)
22.0000	0.0000	0.00000	2590.81	0.00000	0.00000
1.0000	34.9398	2.98551	5198.80	2.98552	0.00001
4.5000	34.9197	3.29352	5396.06	3.29351	-0.00000
15.0000	34.8772	4.27829	5982.49	4.27828	-0.00001
18.5000	34.8679	4.62447	6175.13	4.62448	0.00000
23.9940	34.8579	5.18351	6473.78	5.18352	0.00001
29.0000	34.8523	5.70755	6741.37	5.70756	0.00001
32.4999	34.8493	6.08108	6925.56	6.08107	-0.00001

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

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

t = temperature[°C]; p = pressure[decibars]; $\delta = \text{CTcor}$; $\epsilon = \text{CPcor}$;

Residual = instrument conductivity - bath conductivity



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SENSOR SERIAL NUMBER: 4557
CALIBRATION DATE: 24-Apr-12

SBE 41cp PRESSURE CALIBRATION DATA
2900 psia S/N 2103265

COEFFICIENTS:

PA0 = -1.592716e+000	PTCA0 = 6.661969e+001
PA1 = 1.394839e-001	PTCA1 = -1.123690e+000
PA2 = 1.500902e-008	PTCA2 = 2.745175e-002
PTHA0 = -9.838954e+001	PTCB0 = 1.043429e+002
PTHA1 = 4.179493e-002	PTCB1 = -5.531984e-003
PTHA2 = 7.632602e-007	PTCB2 = 0.000000e+000

PRESSURE SPAN CALIBRATION

PRESSURE PSIA	INST OUTPUT	THERMISTOR OUTPUT	COMPUTED PRESSURE	ERROR %FSR
14.57	171.4	2749.9	14.63	0.00
591.63	4302.1	2751.2	591.75	0.00
1168.71	8429.3	2752.1	1168.90	0.01
1745.73	12551.9	2753.2	1745.92	0.01
2322.78	16670.1	2753.8	2322.83	0.00
2899.63	20783.7	2754.9	2899.62	-0.00
2322.86	16669.7	2754.3	2322.78	-0.00
1746.01	12551.6	2753.3	1745.88	-0.00
1168.69	8426.7	2753.0	1168.54	-0.01
591.52	4298.7	2752.8	591.28	-0.01
14.57	170.9	2753.1	14.56	-0.00

THERMAL CORRECTION

TEMP ITS90	PRESS TEMP	INST OUTPUT
32.50	2970.60	181.67
29.00	2894.90	179.69
23.99	2786.30	178.11
18.50	2667.10	177.81
15.00	2590.20	178.51
4.50	2360.30	184.66
1.00	2282.70	188.15

TEMP (ITS90)	SPAN (mV)
-6.22	104.38
36.67	104.14

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

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

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

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

Date, Avg Delta P %FS

24-Apr-12 -0.00

