

SBE 41CP CERTIFICATES

CTD Serial Number 41CP-6805

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SBE 41CP Instrument Configuration

Model Number: SBE 41CP

Serial Number: 41CP-6805

Part Number: 90366.054

Description : MBARI Standard Configuration

Firmware Version: 2.0

Pressure Type: Druck

Pressure Range: 2000 Dbar

Pressure Serial Number: 4196161

SBE 41CP UW V 2.0 SERIAL NO. 6805

TEMPERATURE: 08-FEB-15

TA0 = 2.043726E-05

TA1 = 2.760617E-04

TA2 = -2.629070E-06

TA3 = 1.550354E-07

CONDUCTIVITY: 08-FEB-15

G = -9.867478E-01

H = 1.314003E-01

I = -3.198452E-04

J = 3.998366E-05

CPCOR = -9.570001E-08

CTCOR = 3.250000E-06

WBOTC = 8.495173E-07

PRESSURE S/N = 4196161, RANGE = 2900 PSIA: 02-FEB-15

PA0 = 1.531453E+00

PA1 = 1.401326E-01

PA2 = -3.695679E-08

PTCA0 = 4.375523E+01

PTCA1 = 7.216462E-01

PTCA2 = -1.015174E-02

PTCB0 = 2.527475E+01

PTCB1 = 5.500000E-04

PTCB2 = 0.000000E+00

PTHA0 = -7.161111E+01

PTHA1 = 5.134587E-02

PTHA2 = -6.027754E-07

POFFSET = 0.000000E+00

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SENSOR SERIAL NUMBER: 6805
CALIBRATION DATE: 08-Feb-15

SBE 41cp TEMPERATURE CALIBRATION DATA
ITS-90 TEMPERATURE SCALE

COEFFICIENTS:

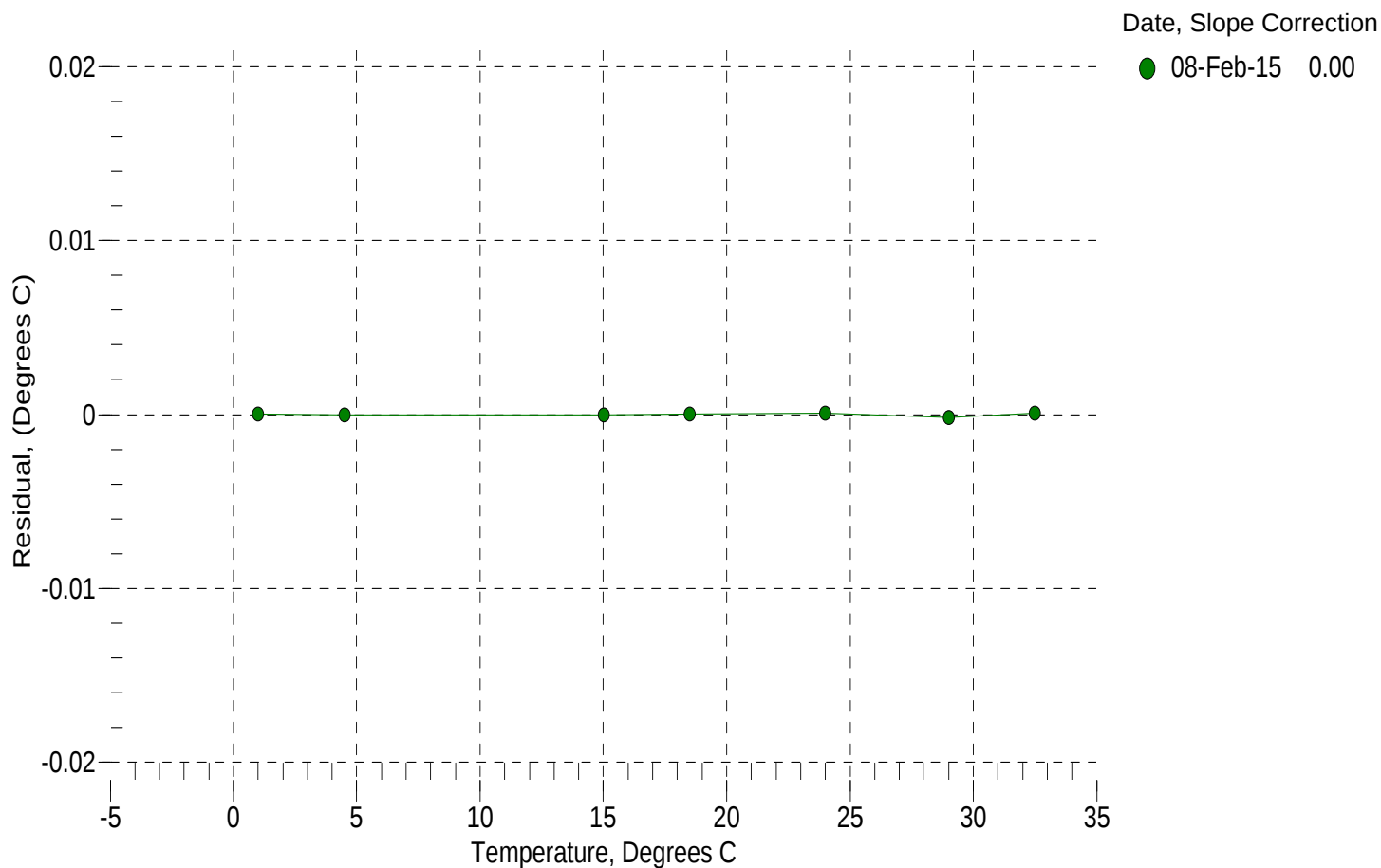
a0 = 2.043726e-005
a1 = 2.760617e-004
a2 = -2.629070e-006
a3 = 1.550354e-007

BATH TEMP (ITS-90)	INSTRUMENT OUTPUT	INST TEMP (ITS-90)	RESIDUAL (ITS-90)
1.0000	724575.6	1.0000	0.0000
4.5000	618070.6	4.5000	-0.0000
15.0000	391265.1	15.0000	-0.0000
18.5000	338067.3	18.5000	0.0000
23.9940	270384.0	23.9941	0.0001
29.0000	221946.4	28.9998	-0.0002
32.5000	193978.6	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

n = instrument output



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SENSOR SERIAL NUMBER: 6805
CALIBRATION DATE: 08-Feb-15

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

COEFFICIENTS:

g = -9.867478e-001
h = 1.314003e-001
i = -3.198452e-004
j = 3.998366e-005

CPcor = -9.5700e-008
CTcor = 3.2500e-006
WBOTC = 8.4952e-007

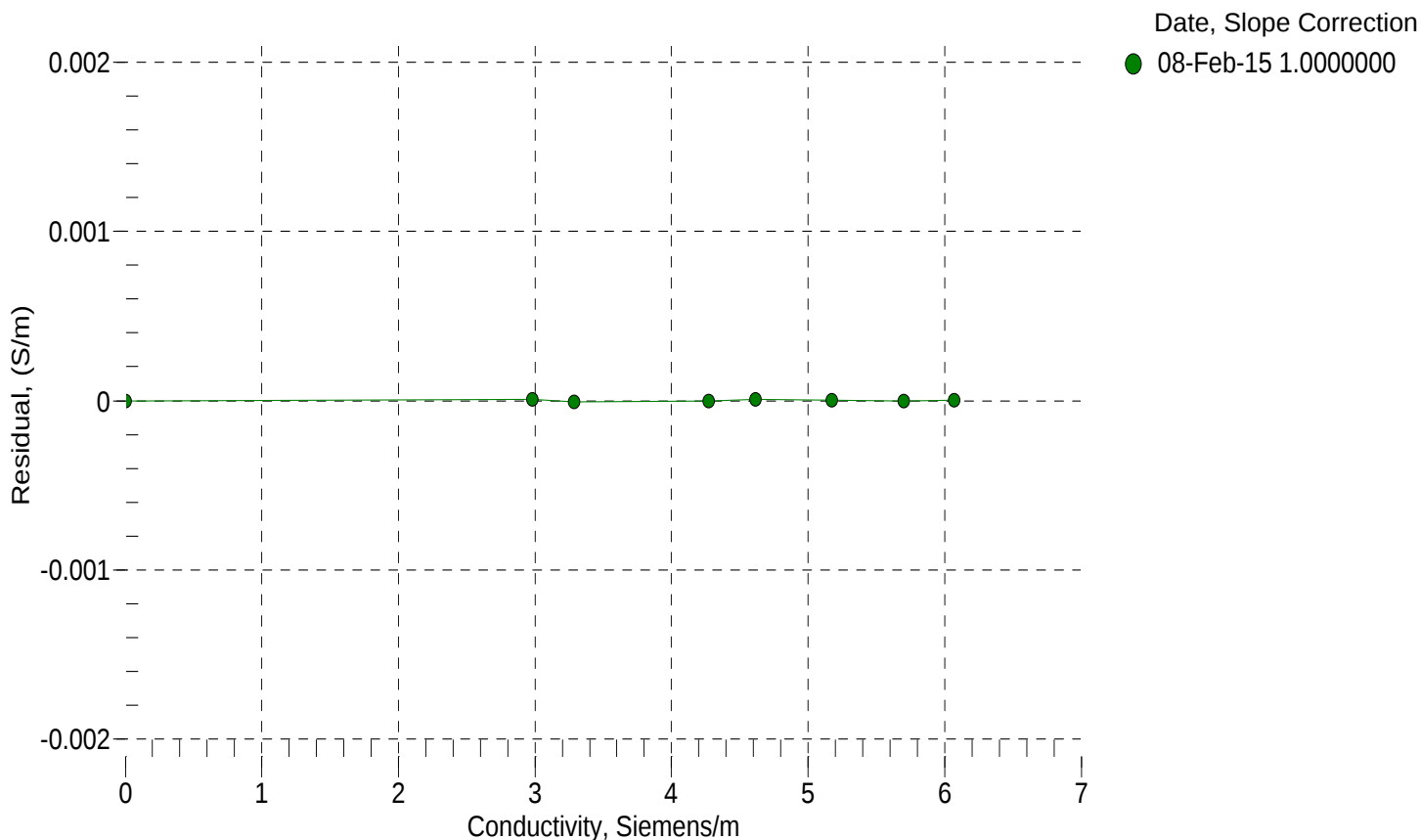
BATH TEMP (ITS-90)	BATH SAL (PSU)	BATH COND (Siemens/m)	INST FREQ (Hz)	INST COND (Siemens/m)	RESIDUAL (Siemens/m)
22.0000	0.0000	0.00000	2746.35	0.00000	0.00000
1.0000	34.8751	2.98051	5506.26	2.98052	0.00001
4.5000	34.8554	3.28805	5715.12	3.28804	-0.00001
15.0000	34.8130	4.27125	6336.00	4.27125	-0.00000
18.5000	34.8041	4.61693	6539.99	4.61693	0.00001
23.9940	34.7946	5.17513	6856.25	5.17514	0.00000
29.0000	34.7900	5.69850	7139.67	5.69849	-0.00000
32.5000	34.7882	6.07164	7334.84	6.07165	0.00000

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

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

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

Residual = instrument conductivity - bath conductivity



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SENSOR SERIAL NUMBER: 6805
CALIBRATION DATE: 02-Feb-15

SBE 41cp PRESSURE CALIBRATION DATA
2900 psia S/N 4196161

COEFFICIENTS:

PA0 = 1.531453e+000
PA1 = 1.401326e-001
PA2 = -3.695679e-008
PTHA0 = -7.161111e+001
PTHA1 = 5.134587e-002
PTHA2 = -6.027754e-007

PTCA0 = 4.375523e+001
PTCA1 = 7.216462e-001
PTCA2 = -1.015174e-002
PTCB0 = 2.527475e+001
PTCB1 = 5.500000e-004
PTCB2 = 0.000000e+000

PRESSURE SPAN CALIBRATION

PRESSURE PSIA	INST OUTPUT	THERMISTOR OUTPUT	COMPUTED PRESSURE	ERROR %FS
14.55	147.6	1861.8	14.54	-0.00
590.97	4268.1	1863.4	591.03	0.00
1167.70	8399.4	1864.5	1167.76	0.00
1744.55	12540.1	1865.7	1744.54	-0.00
2321.20	16689.4	1866.6	2321.25	0.00
2897.99	20848.2	1867.5	2898.00	0.00
2321.20	16688.6	1867.3	2321.14	-0.00
1744.51	12539.8	1866.4	1744.50	-0.00
1167.47	8396.7	1866.1	1167.38	-0.00
590.66	4265.6	1865.8	590.67	0.00
14.55	147.5	1865.2	14.52	-0.00

THERMAL CORRECTION

TEMP ITS90	PRESS TEMP	INST OUTPUT
32.50	2078.50	154.50
29.00	2006.60	154.32
23.99	1904.50	153.49
18.50	1792.80	151.72
15.00	1721.50	150.25
4.50	1509.40	144.98
1.00	1438.20	142.56
TEMP(ITS90)		SPAN(mV)
-5.00		25.27
35.00		25.29

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

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

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

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

