SG147

SEA-BIRD ELECTRONICS, INC.

1808 136th Place N.E., Bellevue, Washington, 98005 USA
Phone: (425) 643 - 9866 Fax (425) 643 - 9954 Email: seabird@seabird.com

SENSOR SERIAL NUMBER: 0074
CALIBRATION DATE: 24-Sep-07

GliderAPL TEMPERATURE CALIBRATION DATA
IPTS-90 TEMPERATURE SCALE

ITS-90 COEFFICIENTS

g = 4.28399332e-003
h = 6.28267679e-004
i = 2.33110286e-005
j = 2.46290428e-006
f0 = 1000.0

ITS-68 COEFFICIENTS

a = 3.64763387e-003
b = 5.87625712e-004
c = 1.55850940e-005
d = 2.46442932e-006
f0 = 2855.339

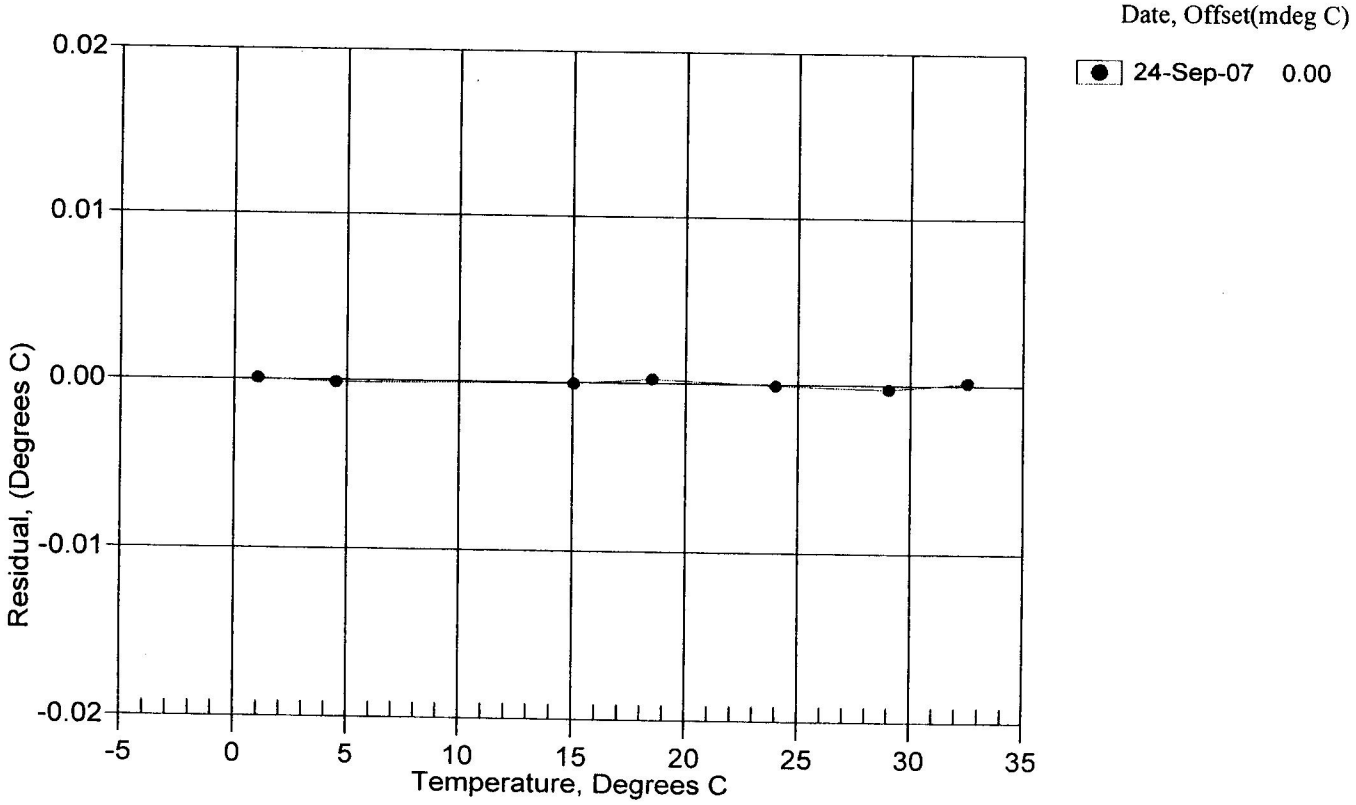
BATH TEMP (ITS-90)	INSTRUMENT FREQ (Hz)	INST TEMP (ITS-90)	RESIDUAL (ITS-90)
1.0000	2855.339	1.0001	0.00008
4.5000	3088.281	4.4999	-0.00014
15.0000	3869.718	15.0000	-0.00004
18.5000	4158.987	18.5002	0.00025
24.0000	4643.882	23.9999	-0.00007
29.0000	5117.895	28.9998	-0.00024
32.5000	5469.080	32.5002	0.00016

Temperature ITS-90 = $1/\{g + h[ln(f_0/f)] + i[ln^2(f_0/f)] + j[ln^3(f_0/f)]\} - 273.15$ (°C)

Temperature IPTS-68 = $1/\{a + b[ln(f_0/f)] + c[ln^2(f_0/f)] + d[ln^3(f_0/f)]\} - 273.15$ (°C)

Following the recommendation of JPOTS: T_{68} is assumed to be 1.00024 * T_{90} (-2 to 35 °C)

Residual = instrument temperature - bath temperature



SEA-BIRD ELECTRONICS, INC.

1808 136th Place N.E., Bellevue, Washington, 98005 USA
Phone: (425) 643 - 9866 Fax (425) 643 - 9954 Email: seabird@seabird.com

SENSOR SERIAL NUMBER: 0074
CALIBRATION DATE: 24-Sep-07

GliderAPL CONDUCTIVITY CALIBRATION DATA
PSS 1978: C(35,15,0) = 4.2914 Seimens/meter

GHIJ COEFFICIENTS

```
g = -9.83881046e+000
h =  1.10142434e+000
i = -1.63138993e-003
j =  2.05652431e-004
CPcor = -9.5700e-008 (nominal)
CTcor =  3.2500e-006 (nominal)
```

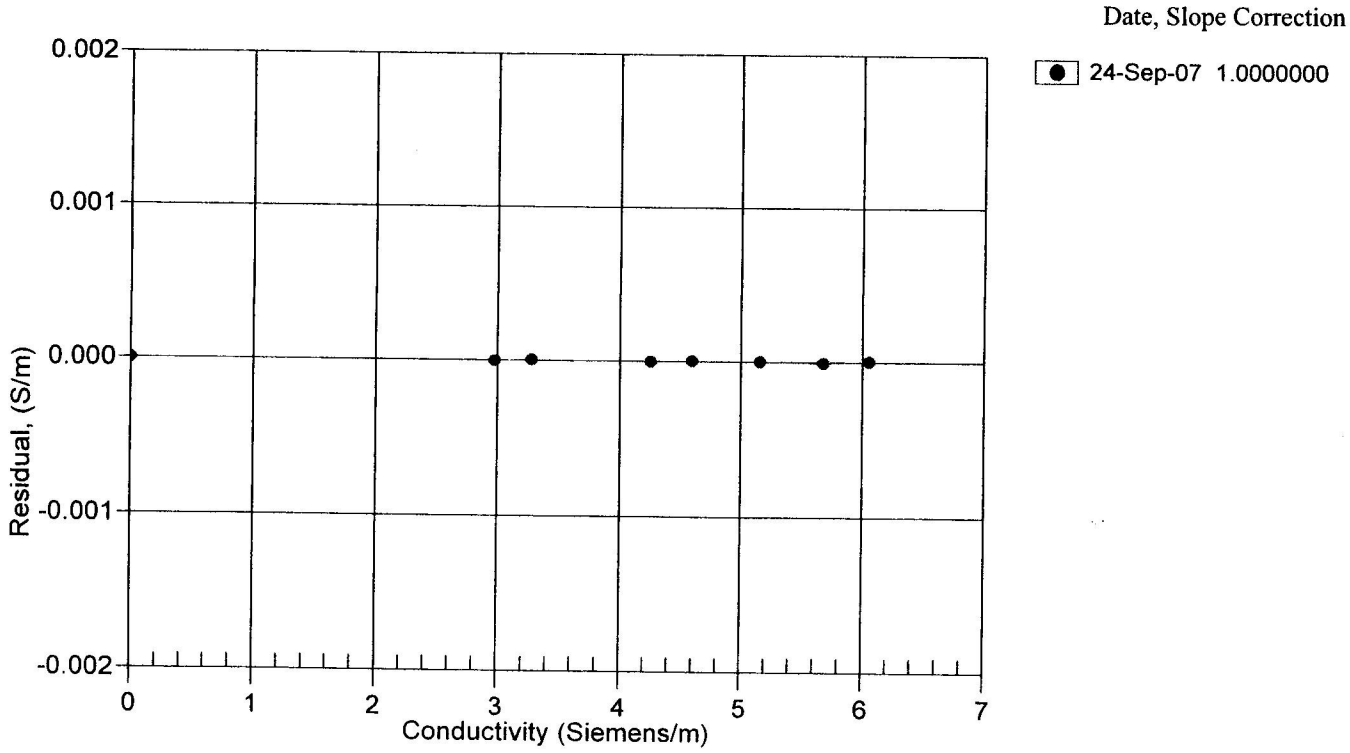
ABCDM COEFFICIENTS

```
a =  8.83245767e-006
b =  1.09673383e+000
c = -9.82433358e+000
d = -8.59933113e-005
m =  5.0
CPcor = -9.5700e-008 (nominal)
```

BATH TEMP (ITS-90)	BATH SAL (PSU)	BATH COND (Siemens/m)	INST FREQ (kHz)	INST COND (Siemens/m)	RESIDUAL (Siemens/m)
22.0000	0.0000	0.00000	2.99291	0.00000	0.00000
1.0000	34.7197	2.96849	5.99685	2.96849	-0.00000
4.5000	34.7004	3.27487	6.22440	3.27487	0.00000
15.0000	34.6592	4.25438	6.90102	4.25437	-0.00000
18.5000	34.6508	4.59878	7.12341	4.59878	0.00000
24.0000	34.6417	5.15552	7.46862	5.15552	0.00000
29.0000	34.6350	5.67596	7.77716	5.67595	-0.00001
32.5000	34.6327	6.04758	7.99000	6.04759	0.00000

Conductivity = $(g + hf^2 + if^3 + jf^4) / 10(1 + \delta t + \varepsilon p)$ Siemens/meter

Conductivity = $(af^m + bf^2 + c + dt) / [10 (1 + \varepsilon p)$ Siemens/meter

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

Residual = (instrument conductivity - bath conductivity) using g, h, i, j coefficients