

# 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: 0141  
CALIBRATION DATE: 15-Nov-09

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

## GHIJ COEFFICIENTS

g = -9.90598856e+000  
h = 1.14237595e+000  
i = -1.98931796e-003  
j = 2.33087869e-004  
CPcor = -9.5700e-008 (nominal)  
CTcor = 3.2500e-006 (nominal)

## ABCDM COEFFICIENTS

a = 5.77959853e-006  
b = 1.13656176e+000  
c = -9.88842306e+000  
d = -8.68983149e-005  
m = 5.2  
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	2.94968	0.00000	0.00000
1.0000	34.6798	2.96541	5.89407	2.96541	0.00000
4.5000	34.6599	3.27142	6.11733	3.27142	-0.00000
15.0000	34.6170	4.24974	6.78127	4.24974	-0.00000
18.5000	34.6080	4.59371	6.99951	4.59371	0.00000
24.0000	34.5982	5.14976	7.33830	5.14975	-0.00000
29.0000	34.5931	5.66986	7.64131	5.66987	0.00001
32.5000	34.5901	6.04099	7.85019	6.04099	-0.00000

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

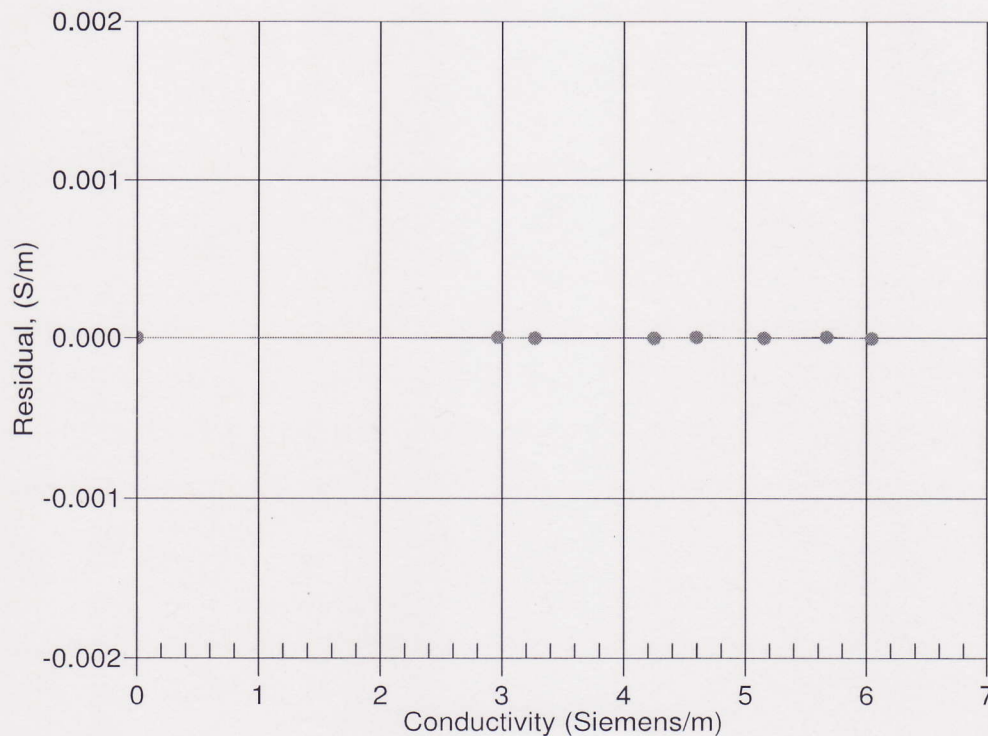
Conductivity =  $(af^m + bf^2 + c + dt) / [10(1 + \epsilon p)]$  Siemens/meter

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

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

Date, Slope Correction

● 15-Nov-09 1.0000000



# 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: 0141  
CALIBRATION DATE: 15-Nov-09

GliderAPL TEMPERATURE CALIBRATION DATA  
ITS-90 TEMPERATURE SCALE

### ITS-90 COEFFICIENTS

g = 4.35638239e-003  
h = 6.31014875e-004  
i = 2.40835469e-005  
j = 2.56125321e-006  
f0 = 1000.0

### IPTS-68 COEFFICIENTS

a = 3.64763541e-003  
b = 5.85352058e-004  
c = 1.51283874e-005  
d = 2.56274739e-006  
f0 = 3218.263

BATH TEMP (ITS-90)	INSTRUMENT FREQ (Hz)	INST TEMP (ITS-90)	RESIDUAL (ITS-90)
1.0000	3218.263	1.0000	-0.00003
4.5000	3481.885	4.5001	0.00006
15.0000	4366.474	15.0000	-0.00004
18.5000	4694.005	18.5000	0.00001
24.0000	5243.178	23.9999	-0.00007
29.0000	5780.119	29.0002	0.00015
32.5000	6177.852	32.4999	-0.00008

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

Date, Offset(mdeg C)

15-Nov-09 -0.00

