

Information about the Gould Data

General Information

- The floats sampled on the way up.
- There is no extrapolation from the first reported position to where the float actually reached the surface.
- Information about the float is available in the pcode variables. These include the following.
(See the codes list in the documents section.)
 - CSC1 - the name of the originator of the data
 - DDB\$ - deployment date
 - DLT\$ - deployment latitude
 - DLO\$ - deployment longitude

Note on calibration of salinity data

The salinity data are calibrated using a piece-wise linear fit obtained by comparison of float data with WOCE standard CTD casts (see Bacon, Centurioni and Gould, 2001, J. Atm. Oc. Tech., 18,1258).

The correct salinity is obtained with the formula:

$$S_{\text{new}} = S_{\text{old}} + a + bt,$$

where t is the time expressed in number of days.

Example (with float 10587):

The following table contains the coefficients a and b and their accuracy, the cycle number that corresponds to the calibration point (that is the float profile for which the comparison with a ship-CTD was made) and the corresponding number of days from the deployment of the float.

Day	Cyc. #	a	delta-a	b	delta-b
13	1	0.0116	0.0041	-0.000171	0.000656
27	2	0.0092	0.0051	0.000050	0.000156
180	13	0.0168	0.0188	0.000050	0.000294
263	19	0.0210	0.0056	-0.00033	0.001037
276	20	0.0167	0.0079	0.000052	0.000447
303	22	0.0181	0.0042	0	0
0	23	0	0	0	0

To calibrate profile #1: $S_{\text{new}} = S_{\text{old}} + 0.0116 + (-0.000171 * 0)$

To calibrate profile #2: $S_{\text{new}} = S_{\text{old}} + 0.0092 + (-0.000050 * 0)$

To calibrate profile #3: $S_{\text{new}} = S_{\text{old}} + 0.0092 + (-0.000050 * 14)$

To calibrate profile #4: $S_{\text{new}} = S_{\text{old}} + 0.0092 + (-0.000050 * 28)$

To calibrate profile #13: $S_{\text{new}} = S_{\text{old}} + 0.0168 + (-0.000050 * 0)$

etc ...

Note that since we calculated a piece-wise linear fit, time is counted in days from the most recent calibration event. That is, if $t_1 = 13$, $t_2 = 27$, $t_3 = 180$, $t_4 = 263$ etc are the days corresponding to the calibration events, to calibrate profile #5 the correct formula is:

$$S_{\text{new}} = S_{\text{old}} + 0.0092 + [-0.000050 * (t_2 - t)]$$

This may appear a bit convoluted and impractical but offsetting the time in this way allows you to appreciate quickly the error in salinity (roughly corresponding to a since the drift, b, is always very small).

Profiles with cycle number > 22 are uncalibrated. The quality of the data is finally checked by plotting a global T/S diagram (with all the calibrated data from the 4 floats). The points with $T \sim < 3^\circ \text{C}$ show that the curve is sufficiently tight to assume that the spread of the points in the plot is due to the natural variability of the water mass we are observing (Labrador Sea Water).

Additional salinity calibrations

Float number 10588

Day	Cyc. #	a	delta-a	b	delta-b
12	1	-0.0276	0.0042	0.000024	0.000042
221	16	-0.0225	0.0045	-0.000089	0.000105
303	22	-0.0298	0.0041	0.000013	0.000161
372	27	-0.0289	0.0070	0	0
0	28	0	0	0	0

Float number 10589

Day	Cyc. #	a	delta-a	b	delta-b
13	1	-0.0306	0.0044	-0.000053	0.000034
303	22	-0.0461	0.0053	0.000279	0.000198
359	26	-0.0305	0.0058	-0.000862	0.000784
372	27	-0.0417	0.0044	0	0
0	28	0	0	0	0

Float number 10591

Day	Cyc. #	a	delta-a	b	delta-b
12	1	0.0095	0.0044	0.000736	0.000401

40	3	-0.0111	0.0069	-0.000006	0.000057
234	17	-0.0099	0.0041	-0.000067	0.000208
275	20	-0.0126	0.0044	-0.000226	0.000337
302	22	-0.0187	0.0047	0	0
0	23	0	0	0	0

Pressure offsets

The pressure data have also been adjusted from the original values. The formula is: $P_{\text{new}} = P_{\text{old}} - \text{offset}$

Absent values for the offset are indicated as -9999

The following tables provide the offsets for each profile for 7 floats.

10587		10588		10589		10590	
Offset	Profile Number	Offset	Profile Number	Offset	Profile Number	Offset	Profile Number
-6	1	-4	1	-9.1	1	1	1
-10.9	2	-16	2	-15.1	2	-6.9	2
-11.9	3	-15	3	-16.1	3	-3.9	3
-11.9	4	-17	4	-15.1	4	-3	4
-11.9	5	-16	5	-16.1	5	-1	5
-11.9	6	-16	6	-16.1	6	-2	6
-11.9	7	-16	7	-16.1	7	0	7
-11.9	8	-16	8	-16.1	8	-2	8
-11.9	9	-17	9	-16.1	9	0	9
-11.9	10	-17	10	-16.1	10	-2	10
-11.9	11	-16	11	-16.1	11	0	11
-12.9	12	-16	12	-16.1	12	-1	12
-11.9	13	-16	13	-16.1	13	-1	13
-11.9	14	-16	14	-16.1	14	-1	14
-10.9	15	-15	15	-16.1	15	0	15
-10.9	16	-15	16	-15.1	16	0	16
-10.9	17	-16	17	-14.1	17	0	17
-10.9	18	-15	18	-13.1	18	0	18
-9.9	19	-14	19	-13.1	19	0	19
-9.9	20	-14	20	-13.1	20	1	20
-9.9	21	-14	21	-12.1	21	1	21
-9.9	22	-14	22	-12.1	22	1	22

-9.9	23	-14	23	-13.1	23	1	23
-9.9	24	-15	24	-13.1	24	1	24
-9.9	25	-16	25	-14.1	25	1	25
-9.9	26	-16	26	-15.1	26	1	26
-10.9	27	-16	27	-15.1	27	1	27
-12.9	28	-16	28	-15.1	28	0	28
-13.9	29	-17	29	-15.1	29	0	29
-12.9	30	-17	30	-16.1	30	0	30
-11.9	32	-17	31	-16.1	31	0	31
-11.9	33	-17	32	-16.1	32	-1	32
-11.9	34	-17	33			-1	33
-10.9	36	-16	34			-1	34
-10.9	37	-17	35			-1	35
-10.9	38	-17	36			-1	36
-9.9	39	-17	37			-1	37
-8.9	40	-17	38			-1	38
-9.9	41	-17	39			0	39
-8.9	42	-17	40			0	40
-7.9	43	-19	41			0	41
-7.9	44	-18	42			1	42
-6.9	45	-19	43			1	43
-6.9	46	-17	44			1.9	44
-6.9	47	-16	45			1	45
-7.9	48	-15	46			1.9	46
-7.9	49	-14	47			1.9	47
-7.9	50	-15	48			1	48
-7.9	51	-14	49			1	49
-8.9	52	-14	50			1	50
-7.9	53	-14	51			1	51
-8.9	54	-15	52			1	52
-8.9	55	-16	53			0	53
-8.9	56	-17	54			0	54
-8.9	57	-17	55			0	55
-8.9	58	-18	56			0	56
-7.9	59	-18	57			0	57
-7.9	60	-18	58			0	58
-8.9	61	-17	60			0	59
-7.9	62	-18	61			0	60

-6.9	63	-16	62	1	61
-6.9	64	-16	63	0	62
-6.9	65	-16	64	1	63
-6	66	-16	65	0	64
-6	67	-16	66	1	65
-3	68	-15	67	1	66
-3	69	-14	68	1	67
-2	70	-11	69	1	68
-2	71	-9	70	0	69
-1	72	-11	71	1	70
-2	73	-9	72	1	71
-2	74	-9	73	1	72
-3	75	-9	74	1.9	73
-3	76	-5	75	1	74
-5	77	-6	76	1	75
-6	78	-6	77	0	76
-6	79	-7	78	1	77
-6.9	80	-8	79	0	78
-6.9	81	-9	80	0	79
-6.9	82	-8	81	0	80
-7.9	83	-9	82	-1	81
-6.9	84	-9	83	0	82
-7.9	85	-9	84	-2	83
-6.9	86	-9	85	-2	84
-6.9	87	-9	86	-1	85
-7.9	88	-9	87	-2	86
-6.9	89	-10	88	-2	87
-6.9	90	-9	89	-2	88
-4	91	-10	90	-1	89
-6	92	-8	91	-2	90
-6	93	-8	92	-2	91
-2	94	-11	93	-2	92
-1	95	-9	94	-1	93
-1	96	-10	95	-1	94
-1	97	-9	96	-1	95
-1	98	-9999	97	0	96
-1	99	-6	98	-1	97
-1	100	-7	99	-1	98

-1	101	-8	100	-1	99
0	102	-7	101	-1	100
-1	103	-8	102	-3	101
-1	104	-9	103	-3.9	102
-1	105	-9	104	-4.9	103
-1	106	-9	105	-6.9	104
-1	107	-9	106	-7.8	105
0	108	-9	107	-7.8	106
-1	109	-9	108	-8.8	107
-1	110	-9	109	-8.8	108
0	111	-10	110	-9.8	109
0	112	-10	111	-10.8	110
-1	113	-10	112		
		-10	113		
		-9	114		
		-10	115		
		-9	116		
		-8	117		
		-8	118		
		-7	119		
		-6	120		

10591		10592		10593	
Offset	Profile Number	Offset	Profile Number	Offset	Profile Number
-4.9	1	-5.9	1	-3.1	1
-5.9	2	-9.9	2	-8.3	2
-8.9	3	-12.9	3	-8.3	3
		-12.9	4	-7.3	4
		-13.9	5	-7.3	5
		-12.9	6	-9.3	6
		-13.9	7	-9.3	7
		-13.9	8	-8.3	8
		-13.9	9	-8.3	9
		-12.9	10	-8.3	10
		-12.9	11	-7.3	11
		-11.9	12	-7.3	12
		-11.9	13	-7.3	13
		-11.9	14	-7.3	14

-10.9	15	-6.2	15
-10.9	16	-6.2	16
-10.9	17	-5.2	17
-8.9	18	-4.1	18
-8.9	19	-3.1	19
-7.9	20	-2	20
-8.9	21	-2	21
-7.9	22	-2	22
-7.9	23	-2	23
-7.9	24	-2	24
-8.9	25	-2	25
-8.9	26	-2	26
-8.9	27	-2	27
-8.9	28	-2	28
-8.9	29	-3.1	29
-8.9	30	-3.1	30
		-3.1	31
		-4.1	32
		-4.1	33
		-4.1	34
		-4.1	35
		-4.1	36
		-3.1	37
		-3.1	38
		-3.1	39
		-3.1	40
		-2	41
		-1	42
		0	43
		0	44
		2.1	45
		2.1	46
		3.2	47
		2.1	48
		2.1	49
		2.1	50
		3.2	51
		3.2	52

2.1	53
2.1	54
1.1	55
1.1	56
0	57
1.1	58
0	59
1.1	60
1.1	61
1.1	62
1.1	63
1.1	64
2.1	65
2.1	66
3.2	67
3.2	68
3.2	69
3.2	70
4.2	71
4.2	72
6.3	73
6.3	74
6.3	75
5.3	76
5.3	77
5.3	78
5.3	79
5.3	80
5.3	81
4.2	82
4.2	83
4.2	84
6.3	85
5.3	86
5.3	87
5.3	88
6.3	89
6.3	90

6.3	91
6.3	92
7.3	93
7.3	94
8.4	95
8.4	96
10.5	97
9.4	98
10.5	99
10.5	100
10.5	101
9.4	102
10.5	103
9.4	104
9.4	105
8.4	106
8.4	107
8.4	108
8.4	109
8.4	110
8.4	111
8.4	112
8.4	113
8.4	114
8.4	115
8.4	116
9.4	117
9.4	118
9.4	119
10.5	120
-9999	121
11.5	122
12.6	123
12.6	124
12.6	125
12.6	126
12.6	127