

DRAFTING ROOM

Corrections July 1964  
p. 263

UNIVERSITY OF CALIFORNIA SCRIPPS INSTITUTION OF OCEANOGRAPHY

# data report

PHYSICAL AND CHEMICAL DATA

CCOFI Cruise 5907  
9 July - 3 August 1959

SIO Reference 60-40  
6 July 1960



UNIVERSITY OF CALIFORNIA  
SCRIPPS INSTITUTION OF OCEANOGRAPHY

PHYSICAL AND CHEMICAL DATA

CCOFI CRUISE 5907

9 July - 3 August 1959

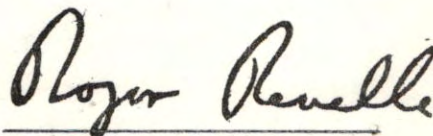
Sponsored by

Marine Research Committee

SIO Reference 60-40

6 July 1960

Approved for distribution:



Roger Revelle, Director

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FIGURES

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6. Horizontal distribution of salinity at 200 meters



## INTRODUCTION

The data presented in this report were collected on the one hundred and twenty-second consecutive cruise of the California Cooperative Oceanic Fisheries Investigations program. The R/V Black Douglas of the U. S. Bureau of Commercial Fisheries, the R/V Orca, and the R/V Paolina-T of the Scripps Institution participated in this cruise.

The data are tabulated at observed depths, and the interpolated and computed values are tabulated at standard depths. They are accompanied by charts of horizontal distribution. The presentation of data in this report does not constitute publication; however, the data contained in this report have been carefully edited and no modifications should be necessary before final publication.

## STANDARD PROCEDURES

Processing of the data was carried out using the method described by Klein.<sup>1/</sup> Certain approximations have been introduced for the determination of the integrated pressure terms which may result in errors whose maximum values are less than 0.5 dynamic centimeter at 0 over 200 decibars, 1.0 dynamic centimeter at 0 over 500 decibars, and 2.0 dynamic centimeters at 0 over 1000 decibars. The 125-meter level was introduced into the integration to obtain greater accuracy in the determination of  $\Delta D$ . The interpolated values at 125 meters are not tabulated.

To indicate degree of accuracy, temperatures are recorded in tenths of a degree when obtained by bucket thermometer, thermograph, or bathythermograph, while temperatures from reversing thermometers are recorded in hundredths of a degree. Extrapolated values and values interpolated between remote observations are entered within parentheses. A hyphen is used to indicate a missing observed value. The time is the time of messenger release. When more than one cast was made on a station, messenger times and wire angles are given in the order of increasing depth. A line is left blank between the observed data of each cast.

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<sup>1/</sup>

Klein, Hans T. A new technique for processing physical oceanographic data. MS.



## FOOTNOTES

In addition to standard footnotes, three special notations are used without footnotes because their meaning is always the same.

To indicate a premature or a delayed reversal of the water-sampling device which results in certain depth and property errors, the following notation is used.

p: pretrip or posttrip

Values which are not drawn through because they seem to be in error without apparent reason are indicated by one of the following notations.

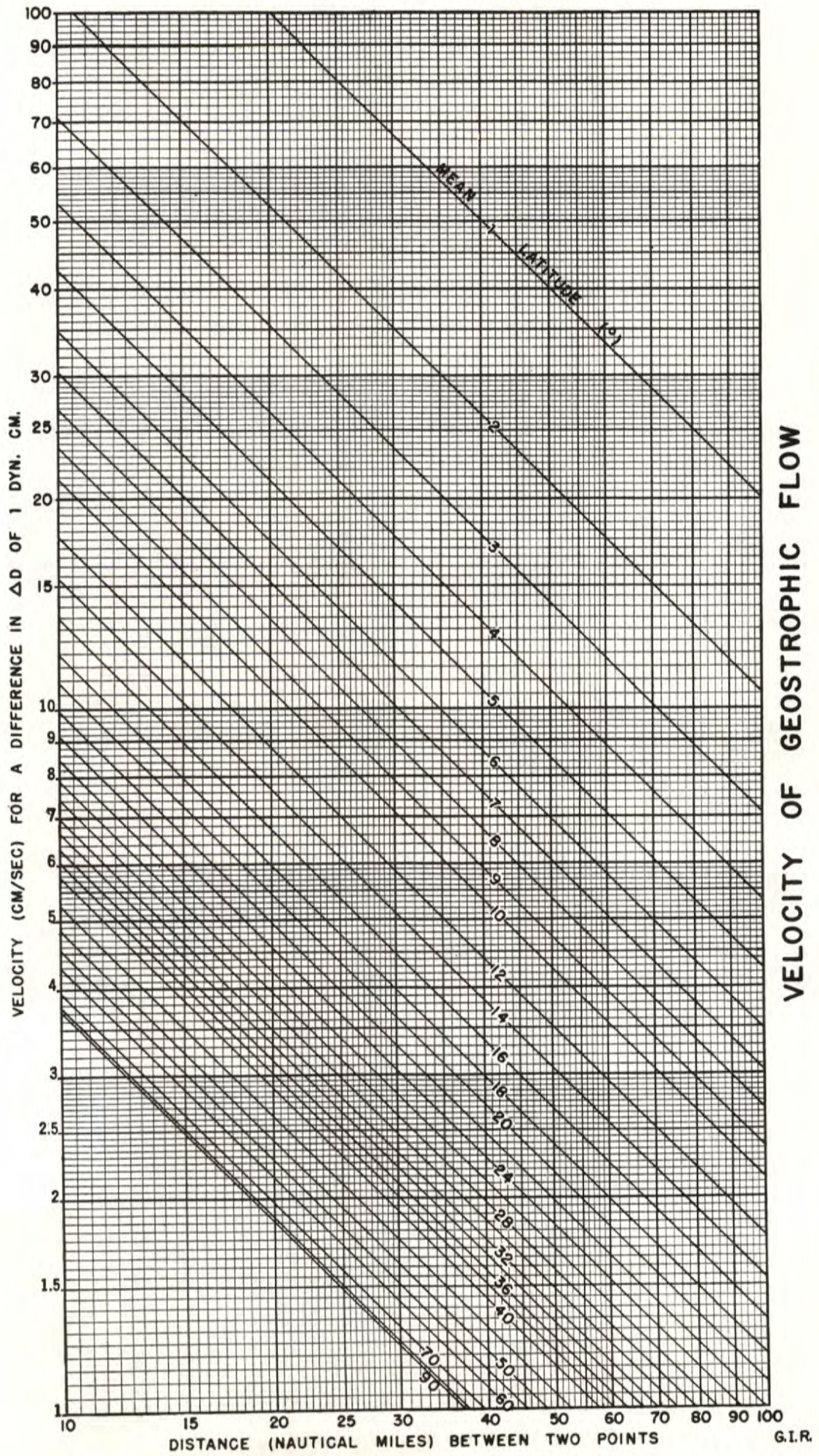
r: rejected value (value seems to be definitely wrong),

u: uncertain value (value may be correct; occasionally it can influence the drawing of the property curve.

## FORMAT

These data are typed in the format of the University of California Press publication, "Oceanic Observations of the Pacific." So that these pages can be used as copy for the 1959 volume, the first page of the Cruise 5907 data is numbered 238.







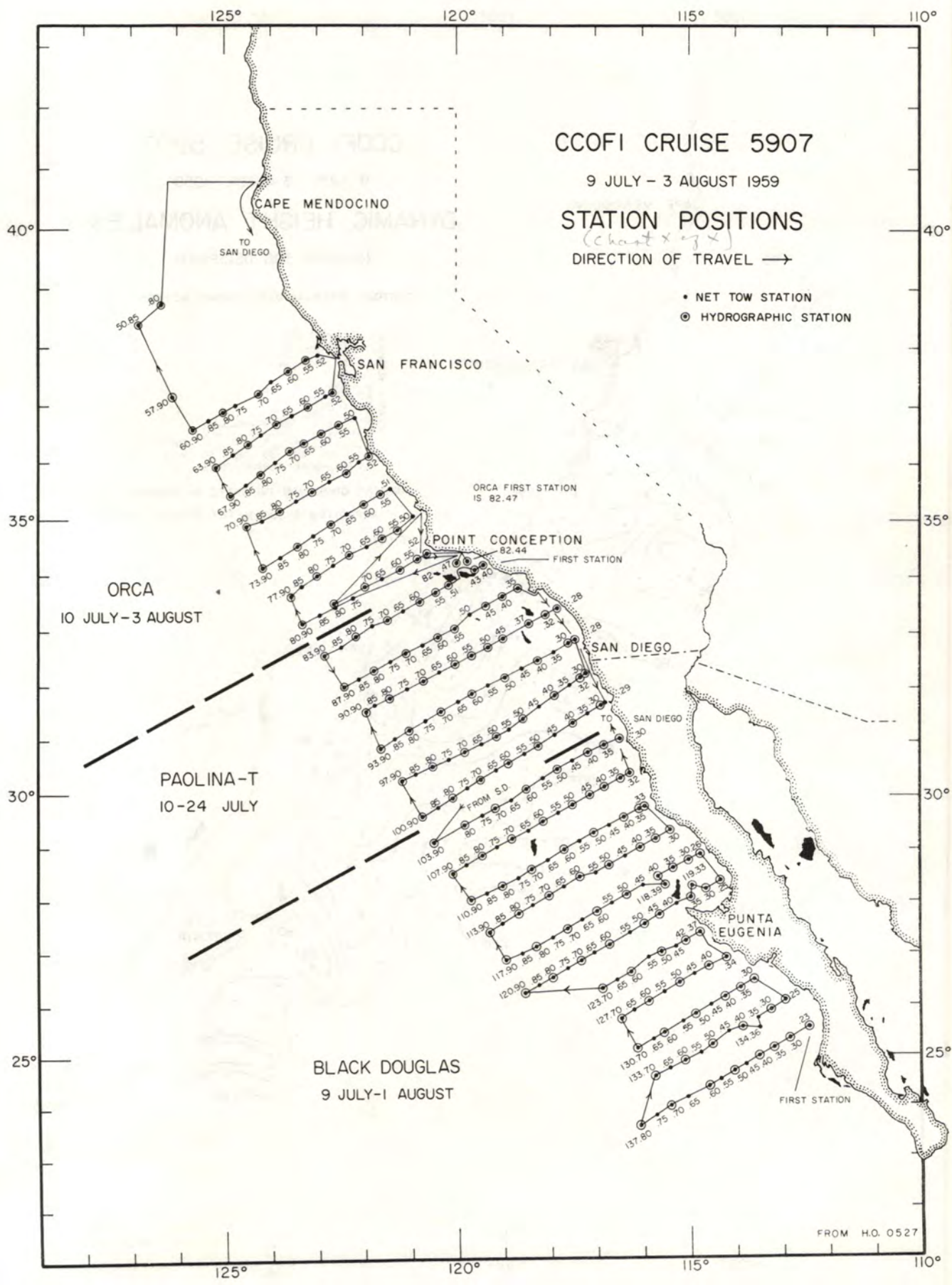


FIGURE 1



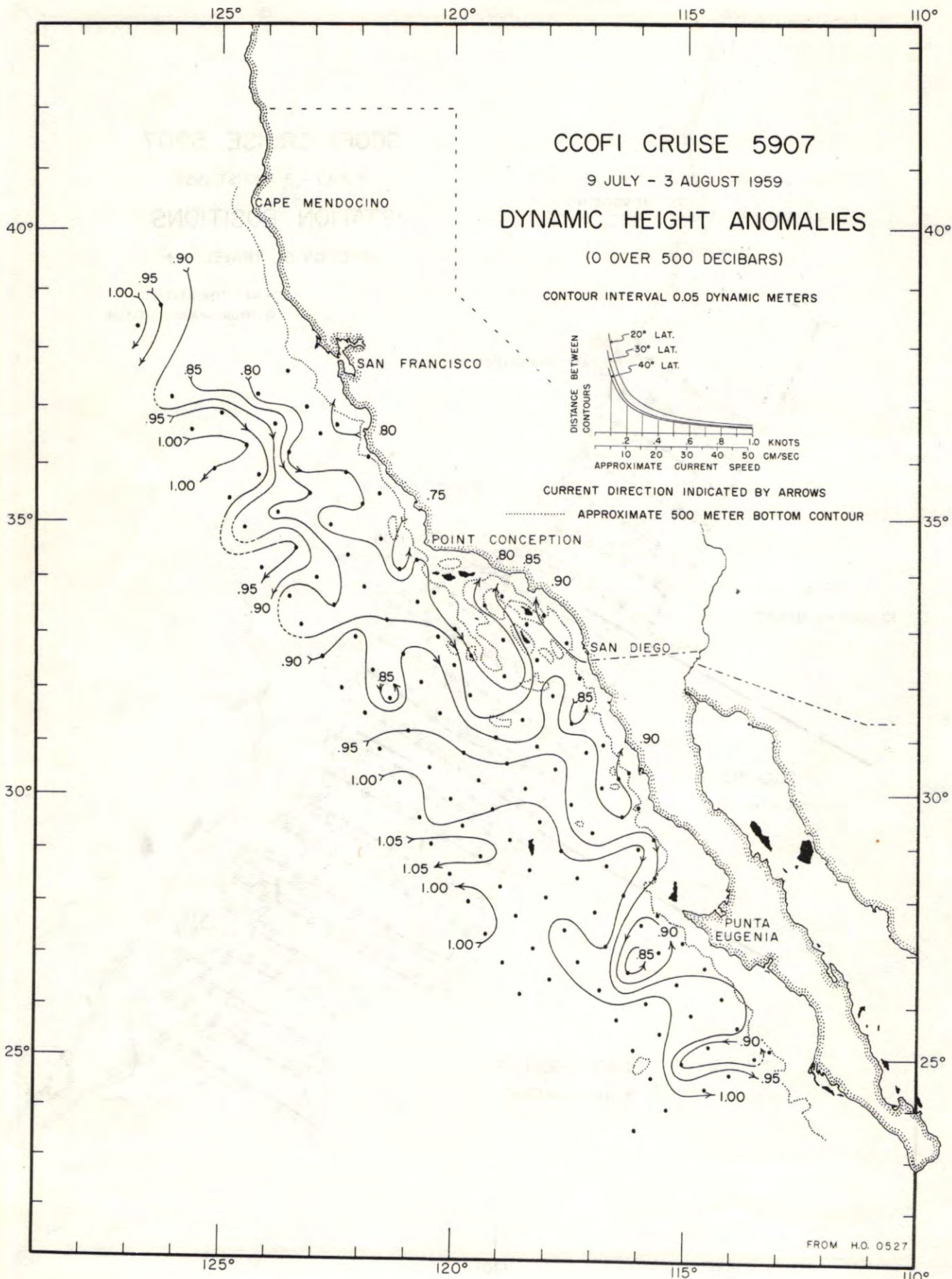


FIGURE 2



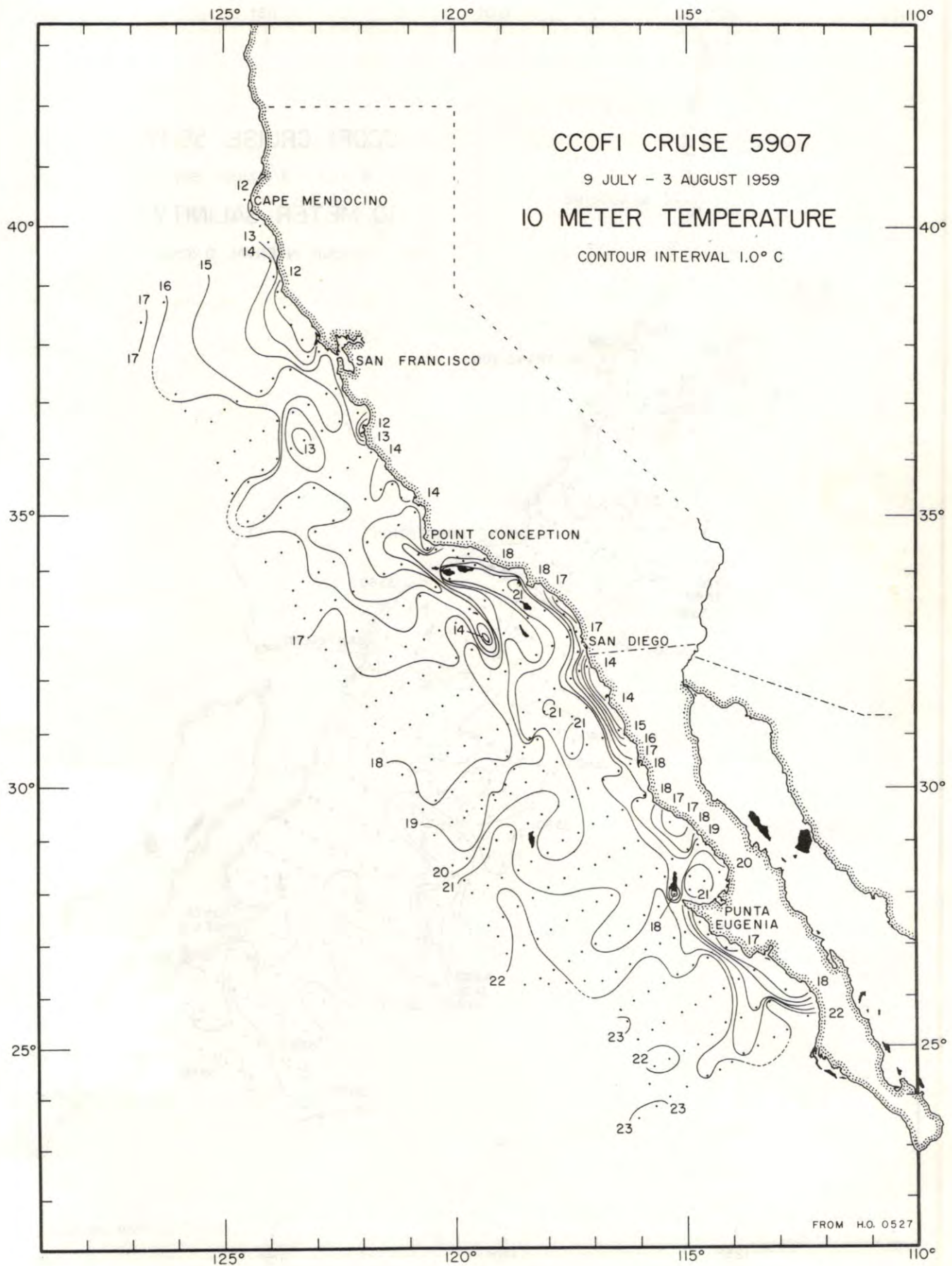


FIGURE 3



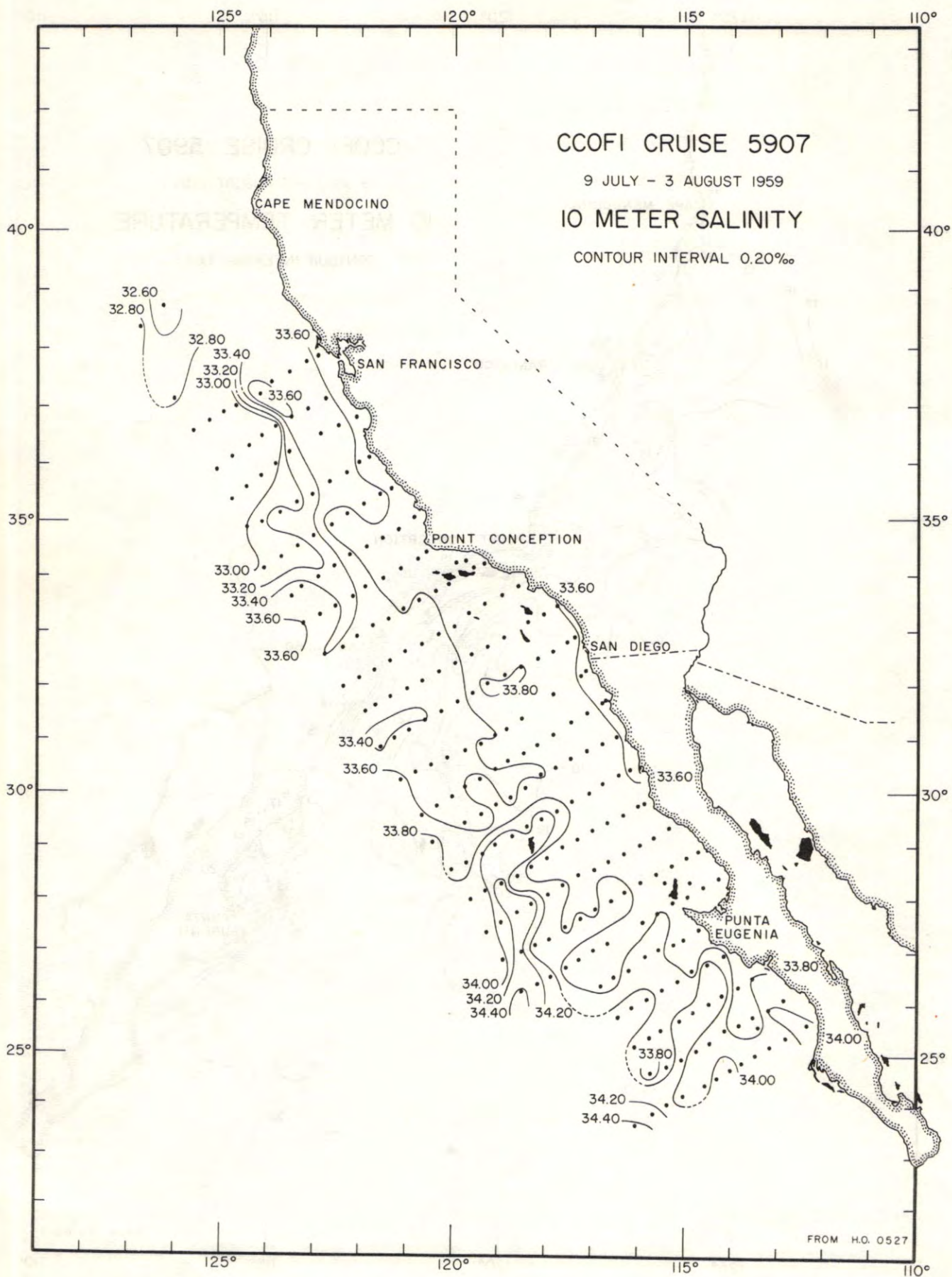


FIGURE 4



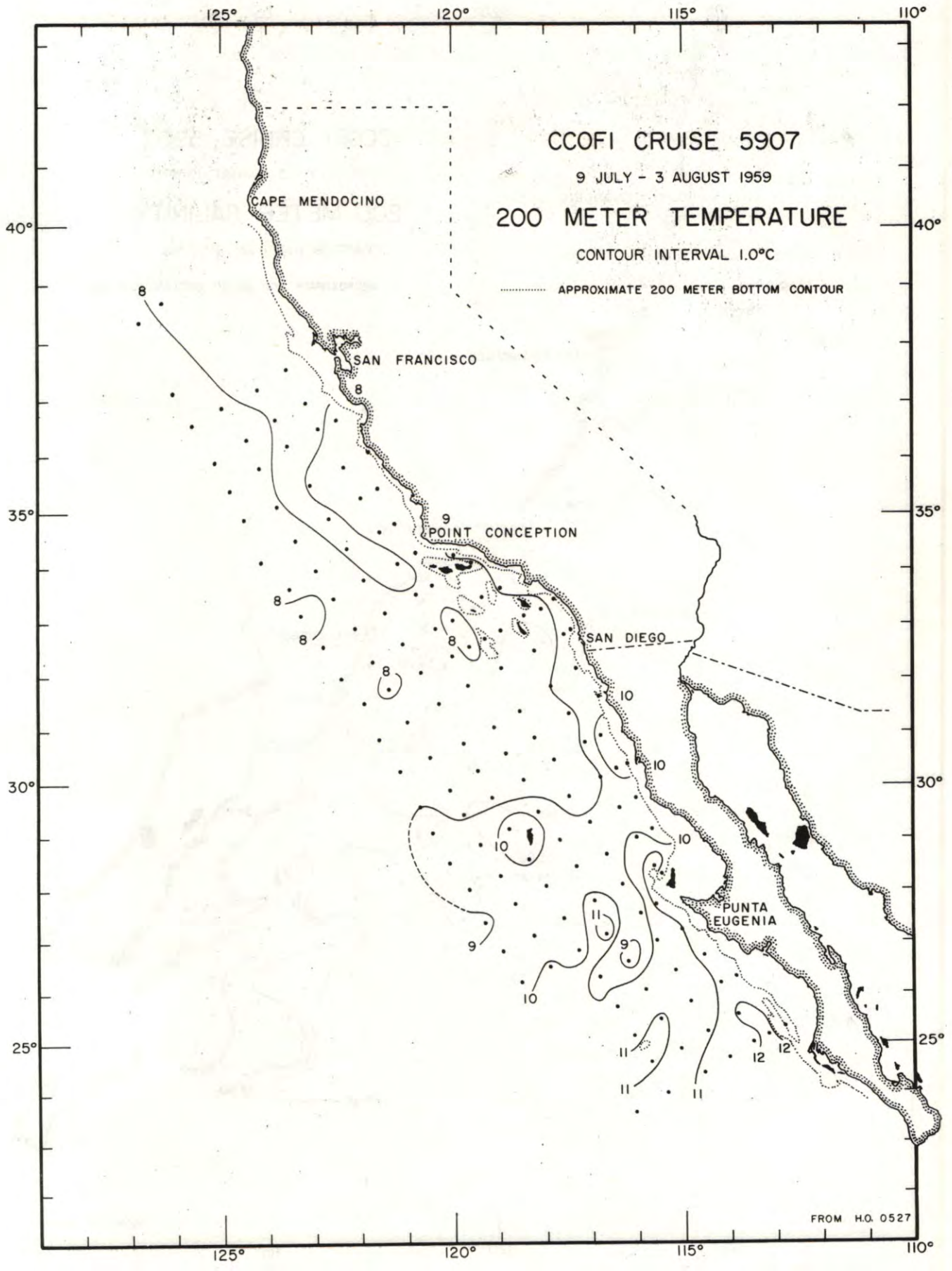


FIGURE 5



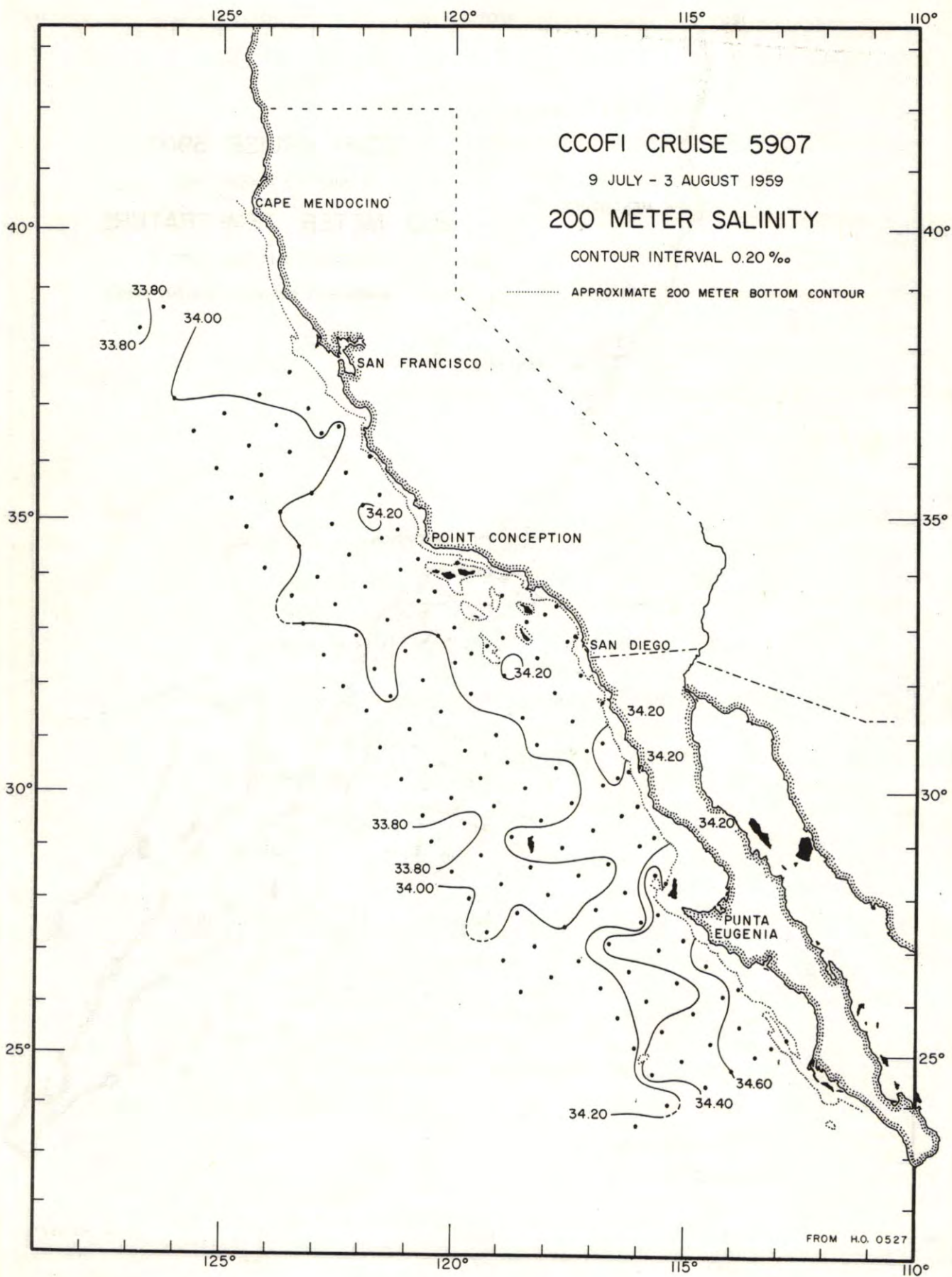


FIGURE 6



RESEARCH VESSEL				NEWSPHOTO			
1	2	3	4	5	6	7	8

## PERSONNEL

### SHIPS' CAPTAINS

Davis, Charles H., R/V Paolina-T  
 Forster, Charles W., R/V Black Douglas  
 Hopkins, Marvin F., R/V Orca

### PERSONNEL PARTICIPATING IN THE COLLECTION OF DATA

#### R/V Black Douglas

Farrar, Lloyd J., Fishery Aid, Bureau of Commercial Fisheries  
 Begnoche, Donald J., Marine Technician  
 Metoyer, Jack D., Fishery Aid, Bureau of Commercial Fisheries  
 Pine, James S., Marine Technician  
 Rittenberg, Bill L., Summer Junior Trainee

#### R/V Orca

Anderson, Norman E., Senior Marine Technician  
 Ballard, Robert D., Summer Trainee  
 Bingman, Allen R., Marine Technician  
 Casey, Harold D., Fishery Aid, Bureau of Commercial Fisheries  
 Kim, Chul Mo, Student, University of California, Berkeley  
 Lawson, Jan B., Marine Technician  
 Smith, Jeffrey P., Summer Trainee

#### R/V Paolina-T

Davoll, Peter J., Senior Marine Technician  
 Bassel, John B., Marine Technician  
 Joyal, Norman F., Marine Technician  
 \*Merino, Jose M., Fishery Aid, Bureau of Commercial Fisheries  
 \*\*Old, James H., Fishery Aid, Bureau of Commercial Fisheries

\*Participated in Lines 83 to 87 only.

\*\*Participated in Lines 100 to 90 only.



SIO

C.COFI  
5907

OBSERVED					INTERPOLATED				COMPUTED		
Z	T	S	O <sub>2</sub>	$\delta T_3$	Z	T	S	O <sub>2</sub>	$\sigma_t$	$\delta T_3$	$\Delta D$
m	°C	‰	ml/L	$10^{-5} \text{ cm}^3/\text{g}$	m	°C	‰	ml/L	g/L	$10^{-5} \text{ cm}^3/\text{g}$	dyn. m

50.80

ORCA; July 27, 1959; 0106 GCT; 38°42.5'N, 126°19.5'W; sounding, 2000+ fm; wind, 330°, force 7; weather, clear; sea, very high; wire angle, 35°.

3	15.98	32.48	5.46	407	0	(15.98)	(32.48)	(5.46)	(23.84)	(407)	(0.00)
12	16.02	32.47	5.48	409	10	16.02	32.47	5.48	23.82	409	0.04
31	15.94	32.48	5.50	406	20	16.02	32.47	5.48	23.82	409	0.08
41	15.72	32.65	-	389	30	15.98	32.48	5.49	23.84	407	0.12
54	13.52	32.77	5.92	336	50	14.97	32.71	5.59	24.23	370	0.20
67	11.77	32.77	6.11	304	75	11.24	32.82	5.88	25.06	291	0.28
91	10.54	32.94	5.20	270	100	10.18	33.03	4.85	25.41	258	0.35
109	9.57	33.30	-	228	150	8.47	33.58	3.97	26.11	191	0.46
128	9.24	33.48	3.96	210	200	7.73	33.89	3.13	26.46	157	0.55
147	8.50	33.58	3.98	192	250	7.11	33.97	2.60	26.62	143	0.63
175	8.19	33.79	3.36	172	300	6.69	34.04	1.95	26.72	133	0.70
207	7.60	33.91	3.10	154	400	5.98	34.08	1.09	26.85	121	0.83
236	7.24	-	2.75	-	500	5.29	34.14	0.66	26.98	108	0.95
283	6.81	34.02	2.21	136	600	(5.02)	(34.26)		(27.10)	(97)	(1.06)
336	6.42	34.05	1.52	128							
420	5.81	34.09	0.99	118							
504	5.26	34.16	0.61	107							
589	5.03	34.25	0.39	98							

50.85

ORCA; July 26, 1959; 1902 GCT; 38°23.5'N, 126°49'W; sounding, 2000+ fm; wind, 300°, force 6; weather, clear; sea, high; wire angle, 32°.

2	17.28	32.82		412	0	(17.28)	(32.82)		(23.80)	(412)	(0.00)
11	17.30	32.82		412	10	17.30	32.82		23.80	412	0.04
28	17.24	32.85		408	20	17.29	32.82		23.80	412	0.08
36	16.92	33.01		389	30	17.22	32.87		23.86	406	0.12
49	15.18	33.06		348	50	15.08	33.05		24.47	347	0.20
63	14.30	32.93		340	75	13.69	32.97		24.70	325	0.28
85	13.48	33.01		318	100	13.38	33.23		24.97	300	0.36
102	13.37	33.24		299	150	10.32	33.32		25.60	239	0.50
120	12.27	33.17		284	200	8.64	33.74		26.21	182	0.61
138	11.00	33.24		256	250	7.85	33.92		26.47	157	0.70
169	9.38	33.40		218	300	7.05	33.96		26.62	143	0.77
200	8.64	33.74		182	400	6.00	34.02		26.80	125	0.91
229	8.16	33.89		164	500	5.33	34.07		26.92	114	1.04
276	7.42	33.94		150	600	(4.73)	(34.17)		(27.07)	(100)	(1.15)
328	6.64	33.98		136							
410	5.92	34.03		124							
494	5.38	34.07		114							
580	4.82	34.14		103							

57.90

ORCA; July 25, 1959; 2104 GCT; 37°09'N, 126°04'W; sounding, 2000+ fm; wind, 330°, force 6; weather, clear; sea, high; wire angle, 15°.

2	15.74	32.78		380	0	(15.74)	(32.78)		(24.12)	(380)	(0.00)
11	15.71	32.79		379	10	15.71	32.79		24.14	379	0.04
36	12.26	-		-	20	15.33	32.80		24.23	370	0.08
47	11.51	32.88		291	30	13.20	32.86		24.73	323	0.11
61	11.06	33.06		270	50	11.49	32.88		25.06	291	0.17
76	10.66	33.30		246	75	10.68	33.28		25.51	248	0.24
101	9.63	33.55		211	100	9.66	33.54		25.89	212	0.30
119	8.92	33.73		186	150	8.50	33.84		26.31	172	0.39
139	8.61	33.80		177	200	8.13	34.00		26.49	155	0.48
169	8.36	33.91		165	250	7.17	34.06		26.67	138	0.55
199	8.13	34.00		155	300	6.77	34.09		26.75	130	0.62
237	7.35	34.05		140	400	5.44	34.08		26.92	114	0.75
267	6.98	34.06		135	500	4.93	34.17		27.05	102	0.86
316	6.67	34.10		128	600	4.78					
380	5.64	34.07		118							
479	4.93	34.14		104							
569	4.92	34.31		92							
644	4.50	-		-							



OBSERVED					INTERPOLATED				COMPUTED		
Z	T	S	O <sub>2</sub>	$\delta T_3$	Z	T	S	O <sub>2</sub>	$\sigma_t$	$\delta T_3$	$\Delta D$
m	°C	‰	ml/L	10 <sup>-5</sup> cm/g	m	°C	‰	ml/L	g/L	10 <sup>-5</sup> cm/g	dyn. m

S10  
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5907

ORCA; July 24, 1959; 0734 GCT; 37°47.5'N, 123°13.5'W; sounding, 46 fm; wind, 300°, force 5; weather, clear; sea, rough; wire angle, 18°.

60.55

2	12.24	33.51	5.74	258	0	(12.24)	(33.51)	(5.74)	(25.40)	(258)	(0.00)
11	12.28	33.54	5.84	256	10	12.28	33.54	5.84	25.42	256	0.03
30	10.59	33.73	3.93	213	20	11.90	33.62	5.51	25.55	244	0.05
50	10.12	33.76	3.48	203	30	10.59	33.73	3.93	25.88	213	0.07
74	9.59	33.82	2.74	190	50	10.12	33.76	3.48	25.98	203	0.12
					75	(9.57)	(33.82)		(26.13)	(189)	(0.16)

ORCA; July 24, 1959; 1055 GCT; 37°36.5'N, 123°35.5'W; sounding, 2000+ fm; wind, 320°, force 5; weather, overcast; sea, very rough; wire angle, 18°.

60.60

2	15.30	33.56	5.59	314	0	(15.30)	(33.56)	(5.59)	(24.82)	(314)	(0.00)
11	15.32	33.53	5.65	316	10	15.32	33.53	5.65	24.79	316	0.03
30	11.92	33.60	5.27	246	20	12.93	33.56	5.46	25.31	267	0.06
40	10.82	33.68	4.51	221	30	11.92	33.60	5.27	25.54	246	0.09
54	10.42	33.68	4.16	214	50	10.46	33.67	4.22	25.86	215	0.13
68	9.94	33.79	3.41	198	75	9.90	33.84	3.22	26.08	194	0.18
92	9.29	33.84	2.81	184	100	9.00	33.83	2.69	26.22	180	0.23
111	8.92	33.89	2.54	175	150	8.40	34.04	1.89	26.48	156	0.32
130	8.58	33.96	2.36	164	200	7.88	34.10	1.73	26.60	144	0.39
148	8.41	34.03	1.93	157	250	7.32	34.14	1.19	26.72	133	0.46
175	8.26	34.14	1.65	146	300	7.07	34.17	1.07	26.78	128	0.53
209	7.68	34.07	1.74	144	400	6.36	34.26	0.58	26.95	112	0.65
237	7.40	34.13	1.29	135	500	5.65	34.31	0.37	27.08	100	0.76
285	7.18	34.16	1.11	130	600	(5.27)	(34.38)		(27.17)	(90)	(0.86)
338	6.77	34.22	0.80	120							
418	6.25	34.27	0.53	110							
503	5.61	34.31	0.36	99							
588	5.30	34.37	0.38	91							

ORCA; July 24, 1959; 1741 GCT; 37°13.5'N, 124°22.5'W; sounding, 2000+ fm; wind, 330°, force 5; weather, overcast; sea, high; wire angle, 26°.

60.70

2	14.42	33.70		286	0	(14.42)	(33.70)		(25.11)	(286)	(0.00)
10	14.44	33.73		284	10	14.44	33.73		25.14	284	0.03
29	12.77	33.78		248	20	14.44	33.73		25.14	284	0.06
37	12.09	33.77		236	30	12.71	33.78		25.52	247	0.08
50	10.14	33.77		203	50	10.14	33.77		25.98	203	0.13
64	9.42	33.75		193	75	9.32	33.78		26.13	189	0.18
85	9.24	33.83		184	100	8.87	33.86		26.26	176	0.22
102	8.82	33.86		176	150	8.21	33.96		26.44	160	0.31
119	8.50	33.95		164	200	7.73	34.05		26.60	145	0.38
136	8.36	33.95		162	250	7.31	34.11		26.69	136	0.46
161	8.09	33.97		157	300	6.85	34.17		26.81	125	0.52
192	7.80	34.04		147	400	6.18	34.20		26.92	114	0.65
218	7.55	34.07		142	500	5.61	34.26		27.04	103	0.76
262	7.22	34.13		133							
311	6.71	34.18		122							
388	6.22	34.19		116							
469	5.76	34.25		106							
552	5.43	34.27		100							



SIO

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5907

OBSERVED					INTERPOLATED				COMPUTED		
Z	T	S	O <sub>2</sub>	$\delta T_{-5}^3$	Z	T	S	O <sub>2</sub>	$\sigma_t$	$\delta T_{-5}^3$	$\Delta D$
m	°C	‰	ml/L	10 <sup>-5</sup> cm <sup>3</sup> /g	m	°C	‰	ml/L	g/L	10 <sup>-5</sup> cm <sup>3</sup> /g	dyn. m

60.80

ORCA; July 24, 1959; 2312 GCT; 36°54'N, 125°00'W; sounding, 2000+ fm; wind, 320°, force 5; weather, clear; sea, high; wire angle, 35°.

1	16.86	32.93		394	0	(16.86)	(32.93)		(23.98)	(394)	(0.00)
10	16.88	32.92		394	10	16.88	32.92		23.97	394	0.04
30	16.08	32.90		379	20	16.87	32.92		23.97	394	0.08
38	15.30	32.90		362	30	16.08	32.90		24.14	379	0.12
50	14.14	32.86		342	50	14.14	32.86		24.53	342	0.19
62	13.38	32.97		319	75	13.20	33.00		24.83	313	0.27
81	12.40	33.06		294	100	11.29	33.22		25.36	263	0.35
97	11.60	33.19		270	150	8.89	33.68		26.12	190	0.46
111	10.69	33.24		251	200	8.22	33.89		26.39	164	0.55
134	9.47	33.54		209	250	7.54	33.96		26.55	150	0.63
156	8.74	33.71		185	300	6.89	33.99		26.66	138	0.71
186	8.33	33.86		168	400	5.66	34.00		26.84	122	0.84
209	8.14	33.90		162	500	5.54	34.15		26.96	110	0.96
246	7.60	33.96		151							
297	6.91	33.99		139							
378	5.66	33.96		126							
459	5.71	34.11		115							
534	5.34	34.16		107							

60.90

ORCA; July 25, 1959; 1120, 0533, 0734 GCT; 36°35'N, 125°37.5'W; sounding, 2000+ fm; wind, 320°, force 6; weather, clear; sea, high; wire angle, 33°, 33°, 45°.

2	16.68	32.95	5.40	388	0	(16.68)	(32.95)	(5.40)	(24.04)	(388)	(0.00)
11	16.7	32.97	5.41	388	10	16.7	32.97	5.41	24.04	388	0.04
34	16.59	32.95	5.40	386	20	16.7	32.97	5.41	24.04	388	0.08
42	16.12	32.97	5.47	374	30	16.7	32.97	5.40	24.05	387	0.12
55	14.06	32.95	5.82	334	50	15.59	32.97	5.57	24.30	363	0.19
69	12.42	33.08	5.58	293	75	12.35	33.15	5.58	25.11	286	0.27
90	12.21	33.28	5.65	274	100	12.09	33.34	5.64	25.30	268	0.34
107	12.00	33.37	5.59	264	150	9.84	33.54	4.13	25.86	215	0.47
124	11.73	33.36u	5.44	-	200	8.8	33.88	3.22	26.29	174	0.56
150	9.84	33.54	4.13	215	250	8.00	33.94	3.20	26.47	157	0.65
174	9.0a)	33.71	3.58	189	300	6.95	33.97	2.81	26.64	141	0.73
208	8.73	33.91	3.18	170	400	5.84	34.04	1.64	26.84	122	0.86
234	8.31	33.93	3.20	163	500	5.28	34.11	0.87	26.96	111	0.98
275	7.44	33.96	3.12	149	600	5.83	34.22	0.55	27.10	97	1.10
329	6.46	33.99	2.47	134	700	4.58	34.34	0.25	27.22	86	1.20
417	5.78	34.04	1.59	121	800	4.37	34.38	0.25	27.28	80	1.28
501	5.32	34.20u	0.83	-	1000	3.79	34.47	0.39	27.41	68	1.45
576	4.92	34.19	0.62	100	1200	3.29	34.51	0.56	27.49	60	1.59
					1500	2.69	34.56	0.95	27.58	52	1.77
408b)	5.76	34.04	1.50	121	2000	2.03	34.62	1.68	27.68	42	2.07
499	5.16	34.11	0.84	109	2500	1.76	34.65	2.18			
681	4.61	34.32	0.26	88	3000	1.60	34.68	2.49			
820	4.32	34.40	0.25	78							
1006	3.77	34.47	0.39	67							
1239	3.20	34.54u	0.61	-							
1242	3.12	34.51	0.67	59							
1409	2.84	34.54	0.85	54							
1578	2.57	34.58	1.01	49							
1794	2.20	34.60	1.34	44							
1969	2.06	34.64u	1.58	-							
2146	1.91	34.63	1.79	40							
2326	1.84	34.67u	1.98	-							
2509	1.76	34.65	2.18	37							
2695	1.70	34.65	2.22	36							
2884	1.60	34.69	2.36	34							
3077	1.60	34.68	2.49	34							
3274	1.54	34.67u	2.62	-							

a) Temperature inferred from pressure-thermometer and wire depth.

b) Overlapping casts; reconciliation of property curves when necessary.

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OBSERVED					INTERPOLATED				COMPUTED		
Z	T	S	O <sub>2</sub>	$\delta T_{-5}^3$	Z	T	S	O <sub>2</sub>	$\sigma_t$	$\delta T_{-5}^3$	$\Delta D$
m	°C	‰	ml/L	10 cm/g	m	°C	‰	ml/L	g/L	10 cm/g	dyn. m

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ORCA; July 22, 1959; 1608 GCT; 37° 14.5'N, 122° 36.5'W; sounding, 48 fm; wind, 320°, force 3; weather, drizzle; sea, rough; wire angle, 05°.

63.52

0	14.52	33.48	5.68	304
5	14.52	33.48	5.65	304
8	14.42	33.48	5.63	301
11	14.19	33.48	5.64	297
14	13.62	33.52	5.64	283
17	12.38	33.51	5.60	261
20	11.83	33.51	5.42	250
23	11.42	33.47	5.22	246
26	11.01	33.48	4.98	239
29	10.85	33.48	4.85	236
32	10.93	33.58	4.75	230
35	10.75	33.60	4.64	225
38	10.62	33.77r	4.58	-
41	10.50	33.65	4.34	218
44	10.44	33.64	4.24	217
51	10.05	33.68	4.13	208
61	9.92	33.77	3.58	199
71	9.64	33.78	3.14	194

ORCA; July 22, 1959; 1049 GCT; 37° 00'N, 123° 10'W; sounding, 1400 fm; wind, 300°, force 2; weather, overcast; sea, moderate; wire angle, 02°.

63.60

1	15.32	33.53	5.78	317	0	(15.32)	(33.53)	(5.78)	(24.79)	(317)	(0.00)
11	14.78	33.53	5.85	306	10	14.95	33.53	5.83	24.87	309	0.03
31	11.67	33.68	5.39	235	20	13.90	33.56	5.83	25.12	286	0.06
41	10.92	33.70	5.09	220	30	11.68	33.68	5.40	25.64	236	0.09
55	9.62	33.71	3.60	199	50	10.00	33.73	3.91	25.98	204	0.13
70	9.28	33.78	3.27	188	75	9.22	33.80	3.18	26.17	186	0.18
95	8.93	33.87	2.39	176	100	8.90	33.90	2.35	26.30	174	0.23
114	8.58	33.94	2.31	166	150	8.24	34.03	1.90	26.50	154	0.31
134	8.40	33.99	2.02	160	200	7.76	34.06	1.71	26.60	145	0.38
154	8.19	34.04	1.86	153	250	7.38	34.12	1.38	26.69	136	0.46
183	7.91	34.05	1.78	148	300	6.92	34.14	1.09	26.78	128	0.52
219	7.60	34.11	1.47	140	400	6.20	34.22	0.61	26.94	113	0.65
248	7.39	34.12	1.38	136	500	5.85	34.26	0.40	27.01	106	0.76
298	6.94	34.14	1.11	128	600	5.31	34.33	0.31	27.13	94	0.87
353	6.46	34.20	0.76	118							
438	6.08	34.23	0.52	111							
523	5.72	34.27	0.38	104							
609	5.25	34.34	0.30	93							

ORCA; July 22, 1959; 0523 GCT; 36° 42'N, 123° 51'W; sounding, 2000+ fm; wind, 300°, force 2; weather, drizzle; sea, rough; wire angle, 11°.

63.70

1	16.44	32.97	5.51	382	0	(16.44)	(32.97)	(5.51)	(24.10)	(382)	(0.00)
11	16.44	32.95	5.53	383	10	16.44	32.95	5.53	24.09	383	0.04
31	15.98	32.88	5.63	378	20	16.28	32.93	5.56	24.11	381	0.08
41	13.96	32.93	6.27	333	30	16.09	32.90	5.60	24.13	379	0.11
55	12.00	32.98	5.99	292	50	12.50	32.97	6.07	24.94	303	0.18
69	11.14	33.18	5.30	263	75	10.82	33.24	5.06	25.46	253	0.25
93	9.77	33.40	4.53	224	100	9.49	33.46	4.32	25.86	215	0.31
113	9.20	33.57	4.00	203	150	8.55	33.82	3.41	26.29	174	0.41
132	8.88	33.69	3.73	189	200	7.89	33.94	3.02	26.48	156	0.49
152	8.50	33.84	3.34	172	250	7.18	34.00	2.58	26.63	142	0.57
181	8.22	33.91	2.84	163	300	6.44	34.00	1.89	26.72	133	0.64
216	7.53	33.96	3.17	150	400	5.77	34.10	0.87	26.90	116	0.77
244	7.23	34.00	2.65	143	500	5.30	34.18	0.51	27.02	105	0.89
293	6.49	33.98	1.99	135	600	5.03	34.25	0.28	27.09	98	0.99
347	6.38	34.10	1.11	124							
430	5.41	34.10	0.83	113							
515	5.30	34.20	0.45	104							
601	5.02	34.25	0.27	98							



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OBSERVED					INTERPOLATED				COMPUTED		
Z	T	S	O <sub>2</sub>	$\delta T_3$	Z	T	S	O <sub>2</sub>	$\sigma_t$	$\delta T_3$	$\Delta D$
m	°C	‰	ml/L	$10^{-5} \text{ cm/g}$	m	°C	‰	ml/L	g/L	$10^{-5} \text{ cm/g}$	dyn. m

63.80

ORCA; July 22, 1959; 0022 GCT; 36°19.5'N, 124°27'W; sounding, 2000+ fm; wind, 300°, force 2; weather, partly cloudy; sea, rough; wire angle, 11°.

1	17.07	32.86	5.34	404	0	(17.07)	(32.86)	(5.34)	(23.88)	(404)	(0.00)
11	16.68	32.87	5.43	394	10	16.71	32.87	5.43	23.97	395	0.04
31	16.24	32.84	5.43	387	20	16.43	32.88	5.43	24.00	392	0.08
41	16.07	32.97	5.53	373	30	16.29	32.83	5.43	24.04	388	0.12
55	15.14	32.97	5.67	354	50	15.67	32.97	5.60	24.28	365	0.19
69	13.50	32.97	5.88	321	75	13.47	33.02	5.87	24.79	317	0.28
93	12.65	33.11	5.67	295	100	12.62	33.22	5.59	25.11	286	0.36
113	11.78	33.30	5.30	265	150	9.73	33.54	4.01	25.88	213	0.48
132	10.66	33.40	4.87	239	200	8.88	33.87	2.40	26.28	175	0.58
151	9.67	33.56	3.94	211	250	7.99	34.00	3.02	26.52	152	0.66
180	9.13	33.79	2.84	186	300	7.25	34.03	2.35	26.64	141	0.74
214	8.71	33.95	2.26	167	400	6.29	34.12	1.40	26.85	121	0.88
244	8.08	34.00	3.08	154	500	5.59	34.17	0.73	26.98	109	1.00
291	7.35	34.02	2.47	143	600	(5.19)	(34.27)	(0.38)	(27.10)	(98)	(1.11)
345	6.90	34.09	1.79	131							
430	5.92	34.13	1.15	116							
513	5.54	34.18	0.68	108							
599	5.20	34.27	0.38	98							

63.90

ORCA; July 21, 1959; 1903 GCT; 35°57.5'N, 125°08'W; sounding, 2000+ fm; wind, 300°, force 4; weather, cloudy; sea, high; wire angle, 20°.

1	16.56	32.92	5.45	388	0	(16.56)	(32.92)	(5.45)	(24.04)	(388)	(0.00)
10	16.47	32.90	5.41	387	10	16.47	32.90	5.41	24.05	387	0.04
29	15.80	32.92	5.59	371	20	16.46	32.91	5.41	24.06	386	0.08
38	15.36	32.92	5.69	362	30	15.74	32.92	5.60	24.23	370	0.12
53	14.79	32.94	-	349	50	14.86	32.93		24.43	351	0.19
67	14.32	32.99	5.72	336	75	13.99	33.05	5.69	24.71	325	0.27
89	13.33	33.19	5.66	302	100	12.72	33.26	5.53	25.12	285	0.35
108	12.22	33.29	5.40	274	150	10.28	33.51	4.26	25.76	224	0.48
126	11.43	33.37	5.03	254	200	8.92	33.89	2.61	26.28	175	0.58
144	10.50	33.48	4.42	230	250	8.09	34.00	3.26	26.49	155	0.66
172	9.52	33.70	3.34	198	300	7.18	34.01	3.08	26.64	141	0.74
204	8.84	33.90	2.58	173	400	6.15	34.04	1.49	26.80	126	0.88
232	8.42	33.97	3.11	162	500	5.37	34.14	0.76	26.98	109	1.00
278	7.42	34.00	3.29	145	600	(4.88)	(34.23)		(27.10)	(98)	(1.12)
331	6.90	34.02	2.19	137							
412	6.00	34.05	1.41	123							
496	5.40	34.13	0.80	110							
581	4.96	34.21	0.52	99							

67.55

ORCA; July 20, 1959; 1647 GCT; 36°41'N, 122°30.5'W; sounding, 1200 fm; wind, calm; weather, overcast; sea, slight; wire angle, 07°.

0	15.24	33.39	5.80	326	0	15.24	33.39	5.80	24.69	326	0.00
10	15.20	33.40	5.80	324	10	15.20	33.40	5.80	24.71	324	0.03
30	12.06	33.32	5.64	269	20	14.50	33.38	5.77	24.85	311	0.06
40	11.42	33.33	5.32	257	30	12.06	33.32	5.64	25.29	269	0.09
49	10.89	33.44	4.87	239	50	10.80	33.45	4.79	25.63	237	0.14
64	10.06	33.58	4.32	216	75	9.90	33.64	4.14	25.92	209	0.20
79	9.85	33.69	3.98	204	100	9.17	33.76	3.49	26.14	188	0.25
98	9.20	33.75	3.54	190	150	8.74	33.89	2.40	26.32	172	0.34
123	8.92	33.86	3.06	177	200	8.21	33.99	2.47	26.47	157	0.42
143	8.80	33.88	2.49	174	250	7.61	34.06	2.01	26.62	143	0.50
172	8.49	33.98	2.23	162	300	7.25	34.11	1.47	26.70	135	0.57
202	8.19	33.99	2.48	156	400	6.78	34.21	0.80	26.85	121	0.70
232	7.84	34.05	2.23	147	500	6.04	34.27	0.50	27.00	107	0.82
271	7.34	34.06	1.77	140							
331	7.14	34.14	1.28	131							
406	6.72	34.22	0.77	120							
481	6.16	34.26	0.55	109							
561	5.71	34.29	0.38	102							



OBSERVED					INTERPOLATED				COMPUTED			
Z	T	S	O <sub>2</sub>	$\delta T_3$	Z	T	S	O <sub>2</sub>	$\sigma_t$	$\delta T_3$	$\Delta D$	
m	°C	‰	ml/L	$\frac{10^{-5}}{10 \text{ cm/g}}$	m	°C	‰	ml/L	g/L	$\frac{10^{-5}}{10 \text{ cm/g}}$	dyn. m	

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ORCA; July 20, 1959; 1953 GCT; 36°32'N, 122°53.5'W; sounding, 1625 fm; wind, 300°, force 1; weather, overcast; sea, rough; wire angle, 06°.

67.60

1	15.37	33.53	5.87	318	0	(15.37)	(33.53)	(5.87)	(24.78)	(318)	(0.00)
11	14.64	33.53	5.78	303	10	14.67	33.53	5.79	24.93	303	0.03
31	14.22	33.53	5.55	294	20	14.44	33.53	5.65	24.98	298	0.06
41	12.84	33.53	5.43	268	30	14.24	33.53	5.56	25.02	295	0.09
51	11.08	33.58	4.69	232	50	11.35	33.57	4.84	25.62	238	0.14
65	10.04	33.62	4.10	212	75	9.69	33.69	3.72	26.01	201	0.20
81	9.22	33.70	3.41	193	100	8.78	33.83	2.91	26.26	177	0.25
100	8.78	33.83	2.91	177	150	8.39	33.99	2.21	26.44	160	0.33
125	8.61	33.95	2.80	166	200	7.89	34.03	1.81	26.56	149	0.41
144	8.46	33.98	2.37	161	250	7.17	34.06	1.79	26.68	137	0.48
174	8.13	34.00	2.01	155	300	6.80	34.11	1.31	26.77	129	0.55
204	7.86	34.04	1.79	148	400	6.30	34.19	0.70	26.90	116	0.68
234	7.36	34.04	1.88	141	500	5.67	34.24	0.40	27.02	105	0.79
273	6.97	34.09	1.54	132							
334	6.65	34.14	0.95	125							
409	6.23	34.20	0.67	115							
484	5.76	34.23	0.43	107							
564	5.34	34.29	0.31	98							

ORCA; July 20, 1959; 2323 GCT; 36°21.5'N, 123°15.5'W; sounding, 2000 fm; wind, 300°, force 1; weather, overcast; sea, moderate; wire angle, 03°.

67.65

1	14.06	33.17	5.93	318							
6	13.08	33.12	5.92	310							
11	12.86	33.33	5.94	283							
16	11.69	33.14	5.65	276							
21	11.34	33.12	5.46	271							
27	11.70	33.27	5.62	266							
31	11.47	33.26	5.48	263							
34	11.47	33.30	5.46	260							
37	11.20	33.27	-	257							
40	10.97	33.24	5.12	255							
43	11.61	33.43	5.33	253							
46	11.94	33.57	5.49	248							
49	12.00	33.68	5.28	241							
52	11.78	33.67	5.20	238							
55	11.70	33.66	5.18	237							
61	11.00	33.60	5.39	230							
66	10.83	33.64	5.04	224							
71	10.53	33.68	4.67	216							

ORCA; July 21, 1959; 0146 GCT; 36°12.5'N, 123°34'W; sounding, 2000+ fm; wind, 300°, force 1; weather, overcast; sea, rough; wire angle, 08°.

67.70

1	13.85	33.26	5.91	307	0	(13.85)	(33.26)	(5.91)	(24.89)	(307)	(0.00)
11	13.36	33.30	5.96	294	10	13.36	33.29	5.96	25.03	294	0.03
31	11.58	33.34	5.72	258	20	12.90	33.34	5.90	25.15	283	0.06
40	11.65	33.38	5.66	257	30	11.58	33.33	5.71	25.40	259	0.09
50	10.79	33.36	5.10	244	50	10.79	33.36	5.10	25.56	244	0.14
65	10.67	33.53	5.33	229	75	10.01	33.52	4.67	25.81	220	0.19
80	9.58	33.48	4.41	215	100	8.95	33.65	3.80	26.09	193	0.25
99	8.96	33.64	3.84	194	150	8.33	33.93	2.89	26.41	163	0.34
124	8.66	33.81	3.32	177	200	7.53	33.98	3.17	26.56	148	0.42
143	8.41	33.91	2.90	166	250	6.83	34.01	2.41	26.69	137	0.49
173	8.01	33.96	2.93	156	300	6.49	34.06	1.85	26.77	128	0.56
203	7.45	33.98	3.19	147	400	5.99	34.16	0.87	26.91	115	0.68
232	7.01	34.00	2.60	140	500	5.60	34.25	0.45	27.04	103	0.80
272	6.64	34.02	2.28	134							
331	6.36	34.11	1.33	123							
406	5.94	34.16	0.86	114							
480	5.69	34.23	0.54	106							
560	5.25	34.29	0.30	97							



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OBSERVED					INTERPOLATED				COMPUTED		
Z	T	S	O <sub>2</sub>	$\delta T_3$	Z	T	S	O <sub>2</sub>	$\sigma_t$	$\delta T_3$	$\Delta D$
m	°C	‰	ml/L	$10^{-5} \text{cm/g}$	m	°C	‰	ml/L	g/L	$10^{-5} \text{cm/g}$	dyn. m

67.80 ORCA; July 21, 1959; 0747 GCT; 35°49'N, 124°11'W; sounding, 2000+ fm; wind, 300°, force 1; weather, drizzle; sea, rough; wire angle, 06°.

1	16.58	32.87	5.46	392	0	(16.58)	(32.87)	(5.46)	(24.00)	(392)	(0.00)
12	16.60	32.90	5.47	390	10	16.60	32.90	5.47	24.02	390	0.04
31	16.28	32.88	5.40	385	20	16.35	32.89	5.41	24.06	386	0.08
41	15.78	32.92	5.60	371	30	16.28	32.88	5.40	24.07	385	0.12
52	13.54	32.92	5.92	325	50	14.03	32.92	5.85	24.60	335	0.19
65	12.66	32.84	6.00	315	75	11.72	32.85	5.69	25.00	297	0.27
80	11.69	32.86	5.67	296	100	11.32	33.02	5.36	25.20	278	0.34
101	11.24	33.02	5.33	276	150	9.22	33.58	4.14	25.99	202	0.46
124	10.18	33.37	4.64	233	200	8.40	33.86	3.49	26.34	170	0.56
145	9.40	33.55	4.23	207	250	7.93	33.99	2.86	26.51	153	0.64
173	8.72	33.75	3.70	184	300	7.24	34.03	2.38	26.64	141	0.72
203	8.38	33.87	3.44	168	400	6.04	34.07	1.47	26.83	123	0.85
233	8.10	33.96	3.09	158	500	5.76	34.21	0.50	26.99	108	0.97
273	7.62	34.01	2.62	147							
331	6.78	34.04	2.15	134							
407	6.00	34.07	1.41	122							
482	5.82	34.19	0.59	111							
562	5.33	34.25	0.39	100							

67.90 ORCA; July 21, 1959; 1325 GCT; 35°24'N, 124°49'W; sounding, 2000+ fm; wind, 300°, force 3; weather, overcast; sea, high; wire angle, 09°.

1	16.23	32.84	5.47	386	0	(16.23)	(32.84)	(5.47)	(24.06)	(386)	(0.00)
11	16.27	32.84	5.43	388	10	16.25	32.84	5.44	24.05	387	0.04
31	15.66	32.86	5.54	373	20	16.10	32.85	5.47	24.10	383	0.08
41	14.70	32.84	5.72	354	30	15.79	32.86	5.52	24.18	375	0.12
56	13.24	32.81	5.95	328	50	13.45	32.81	5.94	24.63	332	0.19
71	12.24	32.84	5.90	308	75	12.13	32.86	5.84	24.93	304	0.26
95	12.34	33.17	5.51	285	100	12.70	33.31	5.43	25.17	281	0.34
115	11.22	33.26	5.09	258	150	9.48	33.58	4.20	25.95	206	0.46
135	10.14	33.43	4.48	228	200	8.57	33.91	2.73	26.35	168	0.56
156	9.30	33.63	4.13	200	250	7.84	34.04	2.69	26.57	148	0.64
184	8.70	33.82	3.26	177	300	7.51	34.10	1.54	26.66	139	0.72
219	8.36	33.98	2.22	160	400	6.60	34.17	0.92	26.84	122	0.85
249	7.86	34.04	2.70	148	500	5.94	34.24	0.50	26.98	109	0.97
298	7.52	34.09	1.60	140	600	5.32	34.33	0.34	27.13	94	1.08
353	6.95	34.13	1.23	120							
439	6.36	34.20	0.72	116							
523	5.75	34.25	0.46	105							
610	5.28	34.34	0.33	93							

70.52 ORCA; July 20, 1959; 0726 GCT; 36°07.5'N, 121°49.5'W; sounding, 400 fm; wind, 310°, force 4; weather, overcast; sea, moderate; wire angle, 11°.

1	14.83	33.74	5.93	291	0	(14.83)	(33.74)	(5.93)	(25.06)	(291)	(0.00)
11	14.84	33.73	5.89	292	10	14.84	33.73	5.88	25.05	292	0.03
31	11.56	33.73	3.74	230	20	13.90	33.73	5.24	25.25	273	0.06
41	10.78	33.75	3.20	215	30	11.68	33.73	3.80	25.68	232	0.08
51	10.54	33.79	3.05	208	50	10.56	33.79	3.06	25.93	208	0.13
66	9.94	33.85	2.82	194	75	9.74	33.87	2.52	26.14	189	0.18
81	9.68	33.89	2.33	187	100	9.51	33.95	2.19	26.24	179	0.22
100	9.51	33.95	2.19	179	150	9.16	34.08	1.79	26.40	164	0.31
125	9.32	33.98	2.11	174	200	8.81	34.14	1.53	26.50	154	0.39
145	9.20	34.06	1.84	167	250	8.41	34.20	1.30	26.60	144	0.47
174	9.00	34.12	1.66	159	300	7.69	34.24	1.10	26.75	131	0.54
204	8.76	34.14	1.51	154	400	6.68	34.25	0.69	26.90	117	0.66
233	8.56	34.17	1.38	148	500	6.16	34.26	0.48	26.97	109	0.78
273	8.12	34.23	1.21	137							
332	7.12	34.22	0.97	125							
407	6.63	34.25	0.66	116							
483	6.35	34.26	0.53	112							
562	5.75	34.27	0.36	104							



OBSERVED					INTERPOLATED				COMPUTED			
Z	T	S	O <sub>2</sub>	$\delta T_3$	Z	T	S	O <sub>2</sub>	$\sigma_t$	$\delta T_3$	$\Delta D$	
m	°C	‰	ml/L	$\frac{-5}{10} \frac{cm}{g}$	m	°C	‰	ml/L	g/L	$\frac{-5}{10} \frac{cm}{g}$	dyn. m	

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ORCA; July 20, 1959; 0207 GCT; 35°52.5'N, 122°22'W; sounding, 2000+ fm; wind, 310°, force 4; weather, overcast; sea, moderate; wire angle, 15°.

70.60

1	14.30	33.48	5.92	300	0	(14.30)	(33.48)	(5.92)	(24.97)	(300)	(0.00)
10	14.30	33.51	6.00	297	10	14.30	33.51	6.00	25.00	297	0.03
30	13.12	33.58	5.79	269	20	13.79	33.55	5.90	25.14	284	0.06
39	12.00	33.58	5.69	248	30	13.12	33.58	5.79	25.29	269	0.09
54	11.30	33.64	4.38	232	50	11.47	33.62	4.73	25.64	236	0.14
68	10.54	33.73	3.52	212	75	9.77	33.71	3.17	26.01	201	0.19
92	9.55	33.78	2.96	193	100	9.52	33.82	2.72	26.14	188	0.24
110	9.40	33.88	2.40	183	150	9.22	34.05	1.81	26.36	168	0.33
130	9.26	34.00	2.03	172	200	8.73	34.13	1.45	26.51	153	0.41
149	9.22	34.05	1.82	168	250	8.18	34.21	1.22	26.64	141	0.49
177	8.92	34.11	1.53	158	300	7.67	34.23	1.04	26.74	131	0.56
210	8.62	34.14	1.41	152	400	6.68	34.25	0.78	26.90	117	0.68
238	8.30	34.19	1.29	143	500	5.88	34.23	0.52	26.99	108	0.80
285	7.86	34.23	1.06	134	600	(5.21)	(34.29)	(0.27)	(27.11)	(96)	(0.91)
340	7.18	34.23	1.00	125							
422	6.51	34.25	0.69	114							
507	5.80	34.23	0.50	108							
592	5.26	34.28	0.30	98							

ORCA; July 19, 1959; 1948 GCT; 35°30'N, 123°04'W; sounding, 2000+ fm; wind, 310°, force 3; weather, overcast; sea, moderate; wire angle, 18°.

70.70

1	15.61	33.26	5.79	342	0	(15.61)	(33.26)	(5.79)	(24.52)	(342)	(0.00)
10	15.47	33.28	5.81	338	10	15.47	33.28	5.81	24.57	338	0.03
29	14.04	33.31	5.70	307	20	14.90	33.30	5.80	24.71	324	0.07
39	12.44	33.21	5.58	284	30	13.99	33.31	5.70	24.90	306	0.10
53	11.68	33.30	5.17	264	50	11.81	33.29	5.23	25.31	267	0.16
67	10.90	33.35	4.87	246	75	11.69	33.66	4.64	25.63	237	0.22
91	10.21	33.75	3.48	205	100	9.89	33.83	2.98	26.08	194	0.27
110	9.62	33.88	2.70	186	150	9.01	33.97	2.25	26.32	171	0.36
128	9.14	33.88	2.49	179	200	8.08	34.00	2.21	26.50	154	0.45
146	9.08	33.96	2.21	172	250	7.68	34.08	1.62	26.62	143	0.52
174	8.35	33.95	3.11	162	300	7.39	34.14	1.22	26.71	134	0.60
207	8.02	34.02	1.99	152	400	6.42	34.14	0.91	26.84	122	0.73
235	7.74	34.05	1.77	146	500	5.63	34.22	0.45	27.01	106	0.85
281	7.52	34.13	1.28	137	600	(5.19)	(34.25)		(27.08)	(99)	(0.95)
334	7.10	34.14	1.16	131							
416	6.22	34.14	0.83	119							
499	5.62	34.22	0.46	106							
584	5.22	34.25	0.33	100							

ORCA; July 19, 1959; 1346 GCT; 35°09.5'N, 123°46.5'W; sounding, 2000+ fm; wind, 300°, force 3; weather, overcast; sea, rough; wire angle, 11°.

70.80

1	15.46	33.31	5.56	336	0	(15.46)	(33.31)	(5.56)	(24.59)	(336)	(0.00)
11	15.47	33.34	5.55	334	10	15.47	33.34	5.55	24.61	334	0.03
30	12.71	33.31	5.53	281	20	15.09	33.34	5.55	24.69	326	0.07
40	11.70	33.21	5.25	270	30	12.71	33.31	5.53	25.16	281	0.10
55	11.30	33.45	5.20	245	50	11.40	33.38	5.21	25.46	253	0.15
70	10.96	33.52	5.07	234	75	10.70	33.52	4.98	25.70	230	0.21
94	10.09	33.58	4.63	216	100	9.62	33.65	4.17	25.98	204	0.27
114	9.14	33.75	3.37	189	150	8.71	33.89	2.25	26.33	171	0.36
134	8.87	33.82	2.96	179	200	8.02	34.00	2.39	26.51	153	0.44
154	8.68	33.92	2.00	169	250	7.47	34.04	1.86	26.62	142	0.52
183	8.24	33.98	2.48	158	300	7.15	34.13	1.27	26.74	131	0.59
218	7.80	34.03	2.27	148	400	6.21	34.18	0.70	26.90	116	0.72
247	7.49	34.04	1.93	143	500	5.67	34.25	0.42	27.02	104	0.83
296	7.18	34.13	1.32	132	600	5.05	34.28	0.30	27.12	95	0.94
352	6.58	34.14	0.97	124							
436	6.00	34.22	0.57	111							
521	5.56	34.25	0.38	103							
606	5.00	34.28	0.30	95							

245



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OBSERVED					INTERPOLATED				COMPUTED		
Z	T	S	O <sub>2</sub>	$\delta T_{3-5}$	Z	T	S	O <sub>2</sub>	$\sigma_t$	$\delta T_{3-5}$	$\Delta D$
m	°C	‰	ml/L	10 cm/g	m	°C	‰	ml/L	g/L	10 cm/g	dyn. m

70.90 ORCA; July 19, 1959; 0757 GCT; 34°53.5'N, 124°29.5'W; sounding, 2000+ fm; wind, 300°, force 2; weather, overcast; sea, rough; wire angle, 24°.

1	14.62	32.97	5.88	343	0	(14.62)	(32.97)	(5.88)	(24.51)	(343)	(0.00)
8	14.26	32.97	5.95	336	10	14.00	33.00	5.95	24.66	329	0.03
28	13.38	33.15	5.86	305	20	13.50	33.12	5.88	24.86	310	0.07
37	12.95	33.19	5.79	294	30	13.37	33.18	5.84	24.94	303	0.10
50	12.46	33.22	5.67	283	50	12.46	33.22	5.67	25.14	283	0.15
63	11.35	33.30	5.33	258	75	10.92	33.31	5.32	25.50	249	0.22
85	11.22	33.49	5.31	241	100	10.00	33.51	4.27	25.81	220	0.28
102	9.90	33.53	4.03	216	150	8.83	33.84	3.07	26.25	178	0.38
120	9.52	33.68	3.18	199	200	8.26	33.94	4.10	26.43	161	0.47
137	8.88	33.76	3.35	184	250	7.44	33.98	3.46	26.57	148	0.54
162	8.75	33.86	2.88	174	300	6.78	34.00	2.45	26.69	136	0.62
192	8.33	33.94	4.15	162	400	5.62	34.02	1.47	26.85	121	0.75
219	8.00	33.94	3.75	158	500	5.08	34.12	0.80	26.99	108	0.87
262	7.24	33.98	3.35	144							
310	6.64	34.00	2.32	135							
387	5.77	34.02	1.55	122							
464	5.14	34.07	1.01	112							
547	5.04	34.18	0.51	103							

73.55 ORCA; July 17, 1959; 2020 GCT; 35°28.5'N, 121°35.5'W; sounding, 550 fm; wind, 310°, force 3; weather, overcast; sea, rough; wire angle, 06°.

1	14.70	33.65	6.42	295	0	(14.70)	(33.65)	(6.42)	(25.02)	(295)	(0.00)
11	13.85	33.57	6.01	284	10	13.85	33.57	6.02	25.13	284	0.03
31	12.88	33.62	5.58	261	20	13.10	33.60	5.67	25.31	267	0.06
41	12.25	33.66	5.16	247	30	12.92	33.62	5.59	25.36	262	0.08
56	11.54	33.64	4.55	236	50	11.79	33.65	4.76	25.60	239	0.13
71	11.15	33.73	3.65	222	75	11.07	33.76	3.47	25.82	218	0.19
95	9.76	33.83	2.75	192	100	9.69	33.84	2.72	26.12	190	0.24
115	9.50	33.86	2.51	186	150	9.04	34.06	1.95	26.39	164	0.33
134	9.24	34.00	2.15	171	200	8.34	34.14	1.58	26.58	147	0.41
155	8.98	34.07	1.89	162	250	8.13	34.22	1.21	26.67	138	0.48
184	8.44	34.11	1.74	151	300	7.44	34.25	1.12	26.79	127	0.55
218	8.26	34.18	1.39	143	400	6.54	34.25	0.60	26.92	114	0.68
248	8.13	34.22	1.22	138	500	5.97	34.27	0.50	27.00	107	0.79
298	7.45	34.25	1.13	127	600	5.49	34.31	0.32	27.09	98	0.90
352	6.92	34.24	0.78	120							
437	6.31	34.26	0.54	111							
522	5.86	34.27	0.48	105							
607	5.45	34.32	0.30	97							

73.60 ORCA; July 17, 1959; 2333 GCT; 35°17'N, 121°57'W; sounding, 1300 fm; wind, 310°, force 3; weather, overcast; sea, very rough; wire angle, 05°.

1	14.47	33.59	6.25	295	0	(14.47)	(33.59)	(6.25)	(25.02)	(295)	(0.00)
11	14.07	33.59	6.26	287	10	14.11	33.59	6.26	25.10	287	0.03
31	13.14	33.64	5.88	265	20	13.51	33.62	6.17	25.24	274	0.06
41	12.54	33.60	5.34	257	30	13.21	33.64	5.95	25.32	266	0.08
56	11.04	33.58	4.44	232	50	12.22	33.59	5.05	25.47	252	0.14
71	10.26	33.58	4.31	219	75	10.00	33.59	4.22	25.88	213	0.19
95	9.34	33.71	3.47	194	100	9.20	33.74	3.26	26.12	190	0.25
115	9.14	33.90	2.65	178	150	8.99	34.05	1.83	26.40	164	0.33
135	9.00	34.00	2.04	168	200	8.62	34.20	1.41	26.58	147	0.41
154	8.98	34.07	1.77	162	250	8.17	34.18	1.18	26.63	142	0.49
184	8.71	34.18	1.49	150	300	7.99	34.27	0.98	26.72	133	0.56
219	8.51	34.20	1.34	145	400	6.64	34.22	0.86	26.88	118	0.69
249	8.18	34.18	1.18	142	500	6.04	34.31	0.46	27.03	104	0.80
299	8.00	34.27	0.98	133	600	5.59	34.34	0.36	27.11	96	0.91
353	7.12	34.22	1.06	125							
438	6.32	34.23	0.62	114							
523	5.94	34.34	0.42	101							
608	5.54	34.34	0.35	96							



OBSERVED					INTERPOLATED				COMPUTED		
Z	T	S	O <sub>2</sub>	$\delta T_3$	Z	T	S	O <sub>2</sub>	$\sigma_t$	$\delta T_3$	$\Delta D$
m	°C	‰	ml/L	$10^{-5}$ cm/g	m	°C	‰	ml/L	g/L	$10^{-5}$ cm/g	dyn. m

ORCA; July 18, 1959; 0535 GCT; 34°54.5'N, 122°39.5'W; sounding, 2000 fm; wind, 310°, force 3; weather, overcast; sea, rough; wire angle, 07°.

73.70

0	15.40	33.62	5.73	312	0	15.40	33.62	5.73	24.84	312	0.00
10	15.18	33.66	5.78	304	10	15.18	33.66	5.78	24.92	304	0.03
30	14.46	33.62	5.70	292	20	14.81	33.64	5.76	24.98	298	0.06
40	13.59	33.61	5.56	276	30	14.46	33.62	5.70	25.04	292	0.09
50	12.64	33.71	4.49	250	50	12.64	33.71	4.49	25.49	250	0.14
64	10.45	33.71	3.93	212	75	10.02	33.80	3.11	26.04	198	0.20
79	9.84	33.82	2.83	194	100	8.92	33.81		26.23	180	0.25
99	8.93	33.81	-	180	150	8.37	34.00	2.23	26.46	158	0.33
123	8.73	33.94	2.37	168	200	7.74	34.07	1.79	26.60	145	0.41
143	8.46	33.98	2.32	162	250	7.08	34.11	1.59	26.73	132	0.48
172	8.14	34.05	1.93	151	300	6.84	34.17	1.10	26.80	125	0.55
203	7.68	34.07	1.76	144	400	6.03	34.18	0.76	26.92	114	0.67
232	7.21	34.09	1.74	136	500	5.52	34.24	0.40	27.04	103	0.78
272	6.98	34.14	1.32	129							
332	6.68	34.18	0.95	122							
405	6.01	34.18	0.75	114							
481	5.62	34.23	0.44	105							
562	5.20	34.29	0.29	96							

ORCA; July 18, 1959; 1139 GCT; 34°32'N, 123°23'W; sounding, 2000+ fm; wind, 300°, force 2; weather, overcast; sea, rough; wire angle, 15°.

73.80

1	16.58	33.08	5.48	376	0	(16.58)	(33.08)	(5.48)	(24.17)	(376)	(0.00)
11	16.61	33.12	5.42	374	10	16.60	33.12	5.43	24.18	375	0.04
29	16.00	33.08	5.56	364	20	16.58	33.12	5.42	24.19	374	0.07
39	15.02	33.06	5.74	345	30	15.93	33.08	5.57	24.31	362	0.11
48	14.36	33.14	5.70	325	50	14.29	33.15	5.70	24.73	323	0.18
62	13.94	33.40	5.61	298	75	13.28	33.41	5.48	25.13	284	0.26
76	13.20	33.41	5.47	283	100	12.31	33.51	5.17	25.39	259	0.33
94	12.52	33.51	5.23	263	150	9.78	33.75	3.07	26.04	198	0.44
117	10.78	33.47	4.57	235	200	9.12	34.00	2.11	26.34	170	0.53
135	10.16	33.68	3.58	210	250	8.57	34.12	1.75	26.52	152	0.62
163	9.50	33.80	2.75	190	300	8.15	34.22	1.28	26.66	139	0.69
191	9.28	33.98	2.16	174	400	7.10	34.25	0.80	26.84	122	0.83
219	8.72	34.02	2.09	162	500	6.05	34.26	0.49	26.98	109	0.95
256	8.55	34.14	1.66	150							
314	8.00	34.24	1.18	135							
386	7.29	34.26	0.85	124							
458	6.42	34.25	0.60	114							
538	5.79	34.26	0.40	105							

ORCA; July 18, 1959; 1741 GCT; 34°09'N, 124°07'W; sounding, 2000+ fm; wind, 300°, force 2; weather, overcast; sea, moderate; wire angle, 12°.

73.90

1	16.67	33.04	5.46	382	0	(16.67)	(33.04)	(5.46)	(24.10)	(382)	(0.00)
11	16.63	33.03	5.48	381	10	16.63	33.03	5.48	24.11	381	0.04
30	16.26	33.04	5.56	372	20	16.50	33.03	5.50	24.14	378	0.08
40	16.04	33.07	5.61	366	30	16.26	33.04	5.56	24.21	372	0.11
55	15.30	33.01	5.75	354	50	15.83	33.06	5.65	24.31	362	0.19
69	13.28	32.90	5.96	322	75	12.95	32.93	5.88	24.83	313	0.27
94	12.51	33.15	5.48	289	100	13.35	33.43	5.41	25.13	285	0.35
113	12.48	33.46	5.25	266	150	9.62	33.58	4.25	25.93	208	0.47
132	11.23	33.53	4.65	238	200	8.84	33.91	3.80	26.31	172	0.57
152	9.46	33.59	4.23	205	250	7.82	33.98	3.78	26.52	152	0.65
181	9.36	33.82	2.90	186	300	7.08	33.96	2.99	26.61	144	0.73
215	8.42	33.93	4.15	165	400	5.82	34.02	1.74	26.83	123	0.87
244	7.91	33.98	3.85	153	500	5.22	34.14	0.87	26.99	108	0.99
293	7.18	33.96	3.08	145	600	4.87	34.25	0.47	27.12	95	1.10
347	6.42	33.98	2.37	134							
431	5.54	34.04	1.44	118							
515	5.16	34.16	0.78	105							
602	4.86	34.25	0.46	95							



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OBSERVED					INTERPOLATED				COMPUTED		
Z	T	S	O <sub>2</sub>	$\delta T_3$	Z	T	S	O <sub>2</sub>	$\sigma_t$	$\delta T_3$	$\Delta D$
m	°C	‰	ml/L	10 <sup>-5</sup> cm <sup>3</sup> /g	m	°C	‰	ml/L	g/L	10 <sup>-5</sup> cm <sup>3</sup> /g	dyn. m

77.55 ORCA; July 17, 1959; 0948 GCT; 34°49.5'N, 121°13'W; sounding, 300 fm; wind, 310°, force 3; weather, overcast; sea, rough; wire angle, 09°.

1	15.19	33.60	6.04	308	0	(15.19)	(33.60)	(6.04)	(24.88)	(308)	(0.00)
11	15.20	33.77	6.08	296	10	15.20	33.75	6.08	24.99	298	0.03
30	13.26	33.68	4.28	264	20	15.16	33.77	6.07	25.02	295	0.06
50	10.67	33.77	3.07	211	30	13.26	33.68	4.28	25.34	264	0.09
74	9.63	33.88	2.42	186	50	10.67	33.77	3.07	25.90	211	0.14
99	9.60	33.89	2.42	185	75	9.62	33.88	2.42	26.16	186	0.18
123	9.50	33.91	2.28	182	100	9.60	33.89	2.42	26.18	185	0.23
162	9.13	34.03	1.85	167	150	9.27	33.98	2.02	26.30	173	0.32
202	8.58	34.16	1.47	149	200	8.61	34.15	1.49	26.54	150	0.41
251	8.34	34.18	1.18	145	250	8.36	34.18	1.18	26.60	145	0.48
301	8.04	34.22	1.06	137	300	8.06	34.22	1.07	26.67	138	0.55
406	7.42	34.26	0.79	126	400	7.46	34.26	0.80	26.80	126	0.69

77.60 ORCA; July 17, 1959; 0623 GCT; 34°41.5'N, 121°34'W; sounding, 500 fm; wind, 310°, force 3; weather, overcast; sea, rough; wire angle, 18°.

1	15.92	33.71	5.78	316	0	(15.92)	(33.71)	(5.78)	(24.80)	(316)	(0.00)
11	15.78	33.69	5.77	314	10	15.79	33.69	5.77	24.82	314	0.03
29	14.04	33.65	5.38	282	20	15.58	33.68	5.74	24.85	311	0.06
39	13.07	33.58	5.09	268	30	13.70	33.62	5.28	25.21	277	0.09
52	11.02	33.57	4.36	232	50	11.03	33.57	4.37	25.68	232	0.14
68	9.92	33.68	3.20	206	75	9.19	33.69	2.98	26.08	194	0.20
92	9.15	33.80	2.82	185	100	8.68	33.82	2.66	26.27	176	0.24
110	8.72	33.89	2.55	171	150	8.73	34.13	1.86	26.51	153	0.33
129	8.88	33.98	1.99	168	200	8.55	34.18	1.27	26.56	148	0.40
148	8.72	34.13	1.88	153	250	8.02	34.22	1.08	26.69	136	0.48
176	8.82	34.16	1.35	153	300	7.54	34.24	0.90	26.78	128	0.54
209	8.42	34.18	1.24	146	400	6.64	34.24	0.62	26.90	116	0.67
236	8.16	34.21	1.12	139	500	5.93	34.28	0.42	27.02	105	0.79
284	7.68	34.24	0.98	131	600	(5.57)	(34.32)		(27.09)	(98)	(0.89)
336	7.22	34.25	0.76	124							
420	6.42	34.24	0.59	114							
504	5.90	34.28	0.40	105							
589	5.60	34.32	0.36	98							

77.70 ORCA; July 17, 1959; 0008 GCT; 34°24'N, 122°16.5'W; sounding, 2200 fm; wind, 310°, force 3; weather, overcast; sea, rough; wire angle, 18°.

1	15.30	33.46	5.41	322	0	(15.30)	(33.46)	(5.41)	24.74	(322)	(0.00)
10	14.88	33.43	5.72	315	10	14.88	33.43	5.72	24.81	315	0.03
30	14.24	33.41	5.63	303	20	14.49	33.42	5.70	24.88	308	0.06
40	13.77	33.44	5.53	292	30	14.24	33.41	5.63	24.94	303	0.09
48	12.72	33.31	5.53	281	50	12.70	33.31	5.53	25.16	281	0.15
63	12.14	33.53	5.33	255	75	11.04	33.55	4.99	25.66	234	0.22
77	10.89	33.55	4.94	231	100	9.12	33.54	4.10	25.98	204	0.27
96	9.62	33.52	4.10	213	150	8.60	33.90	3.45	26.34	169	0.37
118	8.98	33.72	4.11	188	200	7.90	34.04	2.36	26.56	148	0.45
137	8.68	33.84	3.97	175	250	7.03	34.04	2.25	26.68	137	0.52
165	8.52	33.98	2.39	162	300	6.60	34.10	1.56	26.79	127	0.59
184	8.00	34.04	2.38	150	400	5.86	34.16	0.86	26.93	114	0.71
221	7.58	34.05	2.26	144	500	5.59	34.22	0.45	27.01	106	0.83
258	6.86	34.04	2.26	134							
316	6.54	34.11	1.34	125							
387	5.92	34.14	0.99	116							
460	5.72	34.19	0.55	109							
541	5.32	34.23	0.39	101							



OBSERVED					INTERPOLATED				COMPUTED		
Z	T	S	O <sub>2</sub>	$\delta T_3$	Z	T	S	O <sub>2</sub>	$\sigma_t$	$\delta T_3$	$\Delta D$
m	°C	‰	ml/L	10 <sup>-5</sup> cm/g	m	°C	‰	ml/L	g/L	10 <sup>-5</sup> cm/g	dyn. m

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ORCA; July 16, 1959; 1807 GCT; 34°00'N, 122°57'W; sounding, 2200 fm; wind, 310°, force 2; weather, overcast; sea, rough; wire angle, 00°.

77.80

1	15.52	33.11	5.69	351	0	(15.52)	(33.11)	(5.69)	(24.43)	(351)	(0.00)
12	15.23	33.28	5.79	333	10	15.25	33.28	5.77	24.62	334	0.03
32	14.17	33.10	5.85	324	20	14.41	33.13	5.83	24.68	327	0.07
42	13.36	33.07	5.79	311	30	14.19	33.11	5.84	24.70	325	0.10
52	12.96	33.12	5.51	300	50	13.06	33.10	5.62	24.94	303	0.16
67	12.26	33.28	5.38	275	75	11.72	33.31	5.24	25.36	263	0.23
82	11.18	33.32	5.09	253	100	9.98	33.43	4.50	25.76	225	0.30
101	9.92	33.44	4.47	224	150	9.04	33.90	2.50	26.27	176	0.40
127	9.16	33.75	3.37	188	200	8.70	34.12	1.83	26.49	155	0.48
147	9.06	33.88	2.63	178	250	8.04	34.10	1.56	26.58	146	0.56
177	9.03	34.05	1.89	165	300	7.44	34.11	1.44	26.67	138	0.63
208	8.56	34.12	1.82	152	400	6.78	34.21	0.75	26.85	121	0.76
237	8.20	34.11	1.60	148	500	6.07	34.29	0.43	27.01	106	0.88
278	7.64	34.08	1.55	142							
338	7.22	34.18	1.05	129							
412	6.65	34.21	0.69	120							
488	6.12	34.27	0.45	108							
569	5.68	34.33	0.33	98							

ORCA; July 16, 1959; 1152 GCT; 33°40'N, 123°39'W; sounding, 2400+ fm; wind, 310°, force 3; weather, overcast; sea, rough; wire angle, 04°.

77.90

1	16.36	33.48	5.53	342	0	(16.36)	(33.48)	(5.53)	(24.52)	(342)	(0.00)
11	16.38	33.48	5.57	343	10	16.38	33.48	5.55	24.51	343	0.03
32	15.91	33.56	5.48	327	20	16.38	33.48	5.57	24.51	343	0.07
42	13.74	33.58	5.37	281	30	16.08	33.54	5.52	24.63	332	0.10
57	12.48	33.64	4.60	253	50	12.93	33.62	4.84	25.37	262	0.16
71	11.32	33.58	4.58	236	75	10.94	33.59	4.38	25.71	229	0.22
96	9.92	33.71	3.07	204	100	9.86	33.74	2.87	26.02	200	0.28
115	9.48	33.82	2.64	189	150	8.86	33.96	2.31	26.34	169	0.37
135	9.06	33.95	2.47	173	200	8.34	34.10	1.86	26.54	151	0.45
154	8.80	33.96	2.22	168	250	7.42	34.08	1.77	26.66	139	0.52
185	8.54	34.07	1.88	156	300	6.43	34.04	1.97	26.76	129	0.59
219	7.96	34.09	1.87	146	400	6.16	34.19	0.77	26.91	115	0.72
249	7.42	34.08	1.77	139	500	5.47	34.25	0.51	27.05	102	0.83
298	6.44	34.04	1.98	130	600	4.91	34.27	0.36	27.13	94	0.94
353	6.40	34.14	0.95	122							
437	5.83	34.22	0.62	109							
522	5.40	34.26	0.46	100							
607	4.84	34.27	0.35	94							

ORCA; July 12, 1959; 0518 GCT; 34°25'N, 120°35.5'W; sounding, 100 fm; wind, 310°, force 3; weather, clear; sea, rough; wire angle, 00°.

80.52

1	17.50	33.71	6.14	351	0	(17.51)	(33.71)	(6.14)	24.43	(351)	(0.00)
11	14.13	33.71	4.88	279	10	14.40	33.71	5.03	25.13	284	0.03
30	13.10	33.67	4.29	262	20	13.41	33.68	4.45	25.31	267	0.06
50	12.14	33.72	3.68	241	30	13.10	33.67	4.29	25.37	262	0.09
75	10.94	33.76	3.00	217	50	12.14	33.72	3.68	25.59	241	0.14
99	9.67	33.96	2.40	181	75	10.94	33.76	3.00	25.84	217	0.19
124	9.56	33.98	2.04	178	100	9.66	33.96	2.39	26.22	180	0.24
155	9.44	34.04	1.94	172	150	9.47	34.03	1.94	26.30	173	0.33



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OBSERVED					INTERPOLATED					COMPUTED		
Z	T	S	O <sub>2</sub>	$\delta T_{3-5}$	Z	T	S	O <sub>2</sub>	$\sigma_t$	$\delta T_{3-5}$	$\Delta D$	
m	°C	‰	ml/L	10 cm/g	m	°C	‰	ml/L	g/L	10 cm/g	dyn. m	

80.55 ORCA; July 12, 1959; 0743 GCT; 34°18.5'N, 120°47.5'W; sounding, 410 fm; wind, 320°, force 3; weather, clear; sea, moderate; wire angle, 20°.

0	18.50	33.78	5.94	370	0	18.50	33.78	5.94	24.23	370	0.00
10	18.34	33.75	5.99	368	10	18.34	33.75	5.99	24.25	368	0.04
29	12.40	33.67	4.40	249	20	14.36	33.68	5.05	25.12	286	0.07
39	11.66	33.69	3.92	234	30	12.33	33.67	4.36	25.51	248	0.10
53	10.68	33.75	3.24	213	50	10.92	33.73	3.39	25.82	218	0.14
68	9.96	33.82	3.00	196	75	9.80	33.85	2.96	26.11	191	0.19
91	9.50	33.96	2.63	178	100	9.36	33.99	2.45	26.29	174	0.24
110	9.21	34.02	2.24	170	150	8.97	34.13	1.80	26.46	158	0.32
129	8.99	34.09	1.89	161	200	8.94	34.19	1.63	26.52	153	0.40
149	8.98	34.13	1.82	158	250	8.47	34.26	1.21	26.64	141	0.48
176	8.97	34.20	1.72	152	300	8.17	34.26	1.18	26.69	136	0.55
209	8.90	34.18	1.58	153	400	7.49	34.29	0.87	26.81	125	0.68
238	8.59	34.23	1.25	144	500	6.49	34.31	0.48	26.96	110	0.80
286	8.22	34.26	1.19	137	600	(5.72)	(34.33)	(0.34)	(27.08)	(99)	(0.92)
339	8.02	-	0.98	-							
422	7.28	34.29	0.75	122							
506	6.44	34.31	0.46	109							
593	5.78	34.33	0.35	100							

80.60 ORCA; July 12, 1959; 1117 GCT; 34°08.5'N, 121°09.5'W; sounding, 1000+ fm; wind, 300°, force 4; weather, clear; sea, rough; wire angle, 19°.

1	16.08	33.69	5.88	321	0	(16.08)	(33.69)	(5.88)	(24.75)	(321)	(0.00)
11	16.11	33.75	5.87	317	10	16.11	33.75	5.87	24.79	317	0.03
34	13.00	33.63	5.05	263	20	15.48	33.72	5.82	24.90	306	0.06
43	12.15	33.76	4.05	238	30	14.99	33.69	5.72	24.99	298	0.09
57	10.16	33.77	3.14	202	50	10.46	33.77	3.28	25.94	208	0.14
71	9.88	33.87	2.67	191	75	9.84	33.90	2.59	26.14	188	0.19
96	9.14	34.03	2.15	167	100	9.03	34.04	2.11	26.38	165	0.24
114	8.78	34.07	2.00	159	150	8.15	34.09	1.92	26.56	148	0.32
132	8.52	34.13	1.74	150	200	7.65	34.14	1.69	26.67	138	0.39
161	7.98	34.07	1.93	147	250	7.27	34.17	1.25	26.75	131	0.46
189	7.74	34.12	1.76	140	300	7.12	34.27	0.79	26.85	121	0.52
226	7.39	34.14	1.50	134	400	6.39	34.30	0.52	26.98	109	0.64
254	7.26	34.18	1.16	130	500	5.96	34.32	0.36	27.05	102	0.75
302	7.11	34.27	0.78	121	600	5.49	34.35	0.33	27.12	95	0.86
364	6.61	34.30	0.59	112							
462	6.10	34.31	0.41	105							
551	5.71	34.34	0.32	98							
625	5.39	34.36	0.33	93							

80.70 ORCA; July 12, 1959; 1724 GCT; 33°50'N, 121°55'W; sounding, 1500 fm; wind, 310°, force 4; weather, overcast; sea, very rough; wire angle, 25°.

1	14.71	33.50	5.96	306	0	(14.70)	(33.50)	(5.96)	(24.90)	(306)	(0.00)
11	14.73	33.49	5.99	307	10	14.72	33.49	5.99	24.89	307	0.03
29	13.02	33.31	5.72	287	20	14.73	33.49	5.99	24.89	307	0.06
38	12.08	33.22	5.43	276	30	12.93	33.30	5.70	25.11	286	0.09
52	11.61	33.35	5.28	258	50	11.65	33.33	5.29	25.38	260	0.15
65	11.36	33.53	5.24	240	75	10.68	33.58	5.05	25.74	226	0.21
87	9.22	33.58	4.20	202	100	9.13	33.71	4.06	26.11	191	0.26
106	9.12	33.77	3.92	187	150	9.03	34.06	2.12	26.40	164	0.35
123	9.19	33.92	2.45	177	200	8.20	34.09	1.83	26.55	150	0.43
138	9.18	34.00	2.26	170	250	7.46	34.09	1.81	26.66	140	0.50
165	8.76	34.09	1.91	157	300	6.98	34.10	1.35	26.74	132	0.57
195	8.28	34.09	1.82	151	400	5.89	34.13	1.00	26.90	116	0.70
222	7.89	34.08	1.85	146	500	5.70	34.24	0.40	27.02	105	0.82
266	7.25	34.09	1.76	136							
316	6.84	34.11	1.09	129							
396	5.92	34.13	1.02	116							
478	5.76	34.22	0.46	108							
564	5.47	34.33	0.35	96							



OBSERVED					INTERPOLATED				COMPUTED		
Z	T	S	O <sub>2</sub>	$\delta T$	Z	T	S	O <sub>2</sub>	$\sigma_t$	$\delta T$	$\Delta D$
m	°C	‰	ml/L	$10^{-5} \text{ cm}^3/\text{g}$	m	°C	‰	ml/L	g/L	$10^{-5} \text{ cm}^3/\text{g}$	dyn. m

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ORCA; July 13, 1959; 0028 GCT; 33°30.5'N, 122°35'W; sounding, 2000 fm; wind, 340°, force 7; weather, cloudy; sea, very rough; wire angle, 25°.

80.80

4	16.87	33.46	5.52	356	0	16.9	(33.46)	(5.52)	(24.38)	(356)	(0.00)
14	16.92	33.47	5.52	356	10	16.89	33.46	5.52	24.38	356	0.04
37	14.31	33.33	6.04	310	20	16.91	33.47	5.52	24.38	356	0.07
46	13.20	33.30	5.70	291	30	16.82	33.47	5.56	24.40	354	0.11
59	11.67	33.18	5.22	271	50	12.31	33.22	5.43	25.17	281	0.17
72	11.36	33.33	5.01	255	75	11.37	33.37	4.96	25.46	253	0.24
95	10.06	33.57	3.78	216	100	10.06	33.66	3.52	25.91	210	0.30
113	9.50	33.74	3.14	195	150	8.64	33.89	2.79	26.32	171	0.39
130	8.90	33.80	3.15	181	200	8.06	34.04	2.18	26.54	151	0.47
157	8.58	33.92	2.68	168	250	7.51	34.12	1.60	26.67	138	0.55
183	8.22	34.01	2.37	156	300	6.97	34.16	1.17	26.79	127	0.62
218	7.90	34.05	2.04	148	400	6.25	34.23	0.76	26.94	113	0.74
245	7.58	34.11	1.68	139	500	5.72	34.27	0.48	27.04	103	0.85
292	7.04	34.16	1.24	128	600	5.20	34.32	0.34	27.14	94	0.96
352	6.53	34.20	0.88	118							
448	6.00	34.25	0.65	108							
534	5.49	34.29	0.38	99							
607	5.18	34.33	0.34	93							

ORCA; July 16, 1959; 0625, 0307 GCT; 33°10'N, 123°15'W; sounding, 2000+ fm; wind, 310°, force 3; weather, overcast; sea, very rough; wire angle, 10°, 15°.

80.90

1	16.42	33.60	5.75	335	0	(16.42)	(33.60)	(5.75)	(24.60)	(335)	(0.00)
11	16.40	33.60	5.79	335	10	16.40	33.60	5.79	24.60	335	0.03
31	14.39	33.73	5.76	283	20	16.20	33.60	5.79	24.65	330	0.07
42	13.34	33.68	5.10	266	30	14.41	33.73	5.77	25.14	283	0.10
55	11.35	33.62	4.20	234	50	11.73	33.62	4.35	25.59	240	0.15
71	10.36	33.71	3.45	210	75	10.20	33.74	3.30	25.95	206	0.21
95	9.43	33.80	2.77	190	100	9.34	33.80	2.70	26.16	187	0.26
115	9.32	33.88	2.44	182	150	9.04	34.05	1.87	26.39	165	0.34
134	9.20	34.00	1.91	171	200	7.71	34.00	3.12	26.56	149	0.42
154	8.99	34.05	1.88	164	250	7.27	34.06	2.05	26.66	139	0.50
184	8.17	34.04	2.56	152	300	6.68	34.09	1.40	26.77	128	0.57
218	7.40	33.99	3.31	146	400	5.90	34.16	0.84	26.92	114	0.69
246	7.30	34.05	2.12	140	500	5.30	34.21	0.46	27.04	103	0.81
296	6.72	34.09	1.41	129	600	4.89	34.29	0.21	27.15	93	0.91
350	5.96	34.10	1.27	119	700	4.58	34.32	0.31	27.21	87	1.01
436	5.79	34.20	0.61	110	800	4.33	34.39	0.19	27.29	79	1.10
522	5.19	34.25	0.41	99	1000	3.79	34.44	0.48	27.39	70	1.26
607	4.88	34.33	0.29	90	1200	3.27	34.53	0.72	27.51	58	1.41
					1500	2.74	34.57	1.11	27.59	51	1.60
385a)	6.03	34.13	0.79	118	2000	2.07	34.61	1.71	27.67	43	1.88
484	5.43	34.20	0.27	106	2500	1.78	34.64	2.28			
581	4.94	34.27	0.19	94	3000	1.62	34.65	2.58			
680	4.62	34.31	0.12	88							
777	4.40	34.38	0.15	81							
974	3.86	34.44	0.44	71							
1171	3.34	34.52	0.66	60							
1367	2.94	34.56	0.95	54							
1562	2.64	34.58	1.17	50							
1760	2.32	34.60	1.41	46							
1956	2.10	34.60	1.65	44							
2154	1.98	34.63	1.86	41							
2350	1.86	34.63	2.02	40							
2547	1.76	34.65	2.35	38							
2744	1.68	34.65	2.45	37							
2942	1.62	34.65	2.51	37							
3042	1.62	34.66	2.65	36							
3144	1.56	34.65	2.75	36							

a) Overlapping casts; reconciliation of property curves when necessary.



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OBSERVED					INTERPOLATED				COMPUTED			
Z	T	S	O <sub>2</sub>	$\delta T_3$	Z	T	S	O <sub>2</sub>	$\sigma_t$	$\delta T_3$	$\Delta D$	
m	°C	‰	ml/L	10 <sup>-5</sup> cm/g	m	°C	‰	ml/L	g/L	10 <sup>-5</sup> cm/g	dyn. m	

82.44 ORCA; July 11, 1959; 1625 GCT; 34°17'N, 119°44'W; sounding, 100 fm; wind, 040°, force 1; weather, partly cloudy; sea, slight; wire angle, 00°.

1	20.42	33.72	5.40	421	0	(20.42)	(33.72)	(5.40)	(23.69)	(421)	(0.00)
11	18.76	33.71	5.53	381	10	19.50	33.72	5.47	23.94	398	0.04
31	12.84	33.57	4.57	264	20	17.00	33.66	5.38	24.51	343	0.08
50	11.48	33.64	3.54	235	30	13.70	33.58	4.80	25.18	280	0.11
75	10.62	33.66	3.45	218	50	11.48	33.64	3.54	25.65	235	0.16
99	10.08	33.77	3.13	202	75	10.62	33.66	3.45	25.82	218	0.22
124	9.70	33.87	2.81	188	100	10.07	33.77	3.12	26.00	201	0.27
155	9.47	33.96	2.30	178	150	9.49	33.95	2.35	26.24	179	0.37

82.47 ORCA; July 10, 1959; 2327 GCT; 34°15'N, 119°58'W; sounding, 300 fm; wind, 350°, force 2; weather, cloudy; sea, slight; wire angle, 32°.

1	19.72	33.73	5.76	402	0	(19.72)	(33.73)	(5.76)	(23.89)	(402)	(0.00)
9	17.84	33.72	6.10	358	10	17.40	33.72	6.07	24.46	348	0.04
25	14.24	33.71	4.87	282	20	14.83	33.71	5.13	25.03	294	0.07
42	12.88	33.73	4.44	254	30	13.98	33.71	4.79	25.22	276	0.10
62	10.91	33.80	3.39	213	50	11.59	33.74	3.90	25.71	229	0.15
80	10.29	33.79	3.18	204	75	10.43	33.79	3.23	25.96	206	0.20
99	9.72	33.96	2.46	182	100	9.71	33.96	2.46	26.20	182	0.25
129	9.38	34.06	2.18	169	150	9.26	34.11	2.18	26.40	164	0.34
161	9.22	34.14	2.18	161	200	9.09	34.18	1.73	26.48	156	0.42
203	9.06	34.18	1.65	155	250	8.73	34.20	1.29	26.56	149	0.50
247	8.76	34.20	1.30	149	300	8.19	34.22	1.19	26.65	140	0.57
346	7.58	34.23	1.10	130							

83.40 PAOLINA-T; July 11, 1959; 1558 GCT; 34°14'N, 119°22'W; sounding, 12 fm; wind, 270°, force 2; weather, partly cloudy; sea, slight; wire angle, 00°.

1	20.72	33.71	5.43	429	0	(20.72)	(33.71)	(5.43)	(23.61)	(429)	(0.00)
11	17.14	33.63	5.89	349	10	17.70	33.64	5.84	24.33	361	0.04
16	15.10	33.64	4.48	304							

83.43 PAOLINA-T; July 11, 1959; 1743 GCT; 34°08'N, 119°34'W; sounding, 130 fm; wind, 140°, force 2; weather, partly cloudy; sea, slight; wire angle, 00°.

1	20.18	33.73	5.59	414	0	(20.18)	(33.73)	(5.59)	(23.77)	(414)	(0.00)
11	19.59	33.73	5.65	399	10	19.62	33.73	5.65	23.91	400	0.04
31	14.44	33.64	4.81	291	20	16.60	33.67	5.30	24.61	334	0.08
51	11.88	33.68	3.69	239	30	14.70	33.64	4.92	25.01	296	0.11
76	10.32	33.75	3.05	207	50	12.10	33.67	3.77	25.56	243	0.16
101	9.34	33.95	2.48	176	75	10.34	33.73	3.08	25.93	208	0.22
125	9.18	34.09	1.79	164	100	9.36	33.94	2.52	26.25	178	0.27
150	9.12	34.13	1.67	160	150	9.12	34.13	1.67	26.44	160	0.35
175	9.02	34.13	1.59	159	200	9.00	34.14	1.49	26.47	157	0.43
200	9.00	34.14	1.49	157							

83.51 PAOLINA-T; July 11, 1959; 2350 GCT; 33°52'N, 120°08'W; sounding, 75 fm; wind, 270°, force 2; weather, partly cloudy; sea, slight; wire angle, 08°.

2	21.12	33.74	5.34	438	0	(21.12)	(33.74)	(5.34)	(23.52)	(438)	(0.00)
12	20.49	33.71	5.41	424	10	20.70	33.72	5.40	23.62	428	0.04
32	13.54	33.55	5.03	279	20	15.36	33.56	5.20	24.80	316	0.08
51	10.98a)	33.66	3.29	224	30	13.78	33.55	5.07	25.13	284	0.11
75	9.98	33.80	2.76	197	50	11.08	33.65	3.38	25.73	227	0.16
100	9.80	33.82	2.62	194	75	9.98	33.80	2.76	26.05	197	0.21
					100	9.80	33.82	2.62	26.08	194	0.26

a) Alternate value, 10.75°C, not used in interpolation.



OBSERVED					INTERPOLATED				COMPUTED		
Z	T	S	O <sub>2</sub>	$\delta T_{3-5}$	Z	T	S	O <sub>2</sub>	$\sigma_t$	$\delta T_{3-5}$	$\Delta D$
m	°C	‰	ml/L	10 <sup>-5</sup> cm/g	m	°C	‰	ml/L	g/L	10 <sup>-5</sup> cm/g	dyn. m

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PAOLINA-T; July 12, 1959; 0247 GCT; 33°44'N, 120°24.5'W; sounding, 650 fm; wind, 270°, force 2; weather, partly cloudy; sea, moderate; wire angle, 12°.

83.55

2	17.30	33.66	-	350	0	(17.30)	(33.66)		(24.44)	(350)	(0.00)
12	14.68	33.62	4.96	297	10	14.82	33.62		24.97	300	0.03
31	12.54	33.64	4.05	254	20	13.98	33.63	4.72	25.15	282	0.06
41	11.60	33.61	3.66	239	30	12.59	33.64	4.10	25.44	254	0.09
55	10.38	33.73	3.09	209	50	10.66	33.68	3.21	25.82	218	0.14
70	10.06	33.78	2.94	201	75	9.94	33.80	2.85	26.05	197	0.19
95	9.47	33.87	2.48	185	100	9.39	33.89	2.37	26.21	181	0.24
114	9.22	33.94	2.24	176	150	8.86	34.05	1.76	26.42	162	0.32
134	8.94	34.00	1.98	167	200	8.48	34.18	1.40	26.58	147	0.40
153	8.85	34.07	1.70	160	250	8.22	34.25	1.06	26.67	138	0.47
182	8.59	34.15	1.54	150	300	7.76	34.25	0.87	26.74	131	0.54
216	8.40	34.20	1.26	144	400	7.09	34.28	0.64	26.86	120	0.67
246	8.25	34.25	1.07	138	500	6.42	34.33	0.50	26.98	108	0.79
295	7.82	34.25	0.88	132	600	5.84	34.33	0.35	27.06	101	0.90
349	7.37	34.25	0.69	125							
434	6.89	34.30	0.61	116							
518	6.30	34.33	0.45	106							
603	5.83	34.33	0.34	101							

PAOLINA-T; July 12, 1959; 0632 GCT; 33°34'N, 120°45'W; sounding, 890 fm; wind, 270°, force 4; weather, missing; sea, moderate; wire angle, 14°.

83.60

2	16.90	33.49	5.33	354	0	(16.90)	(33.49)	(5.33)	(24.40)	(354)	(0.00)
11	16.11	33.49	5.33	336	10	16.12	33.49	5.33	24.59	336	0.03
30	15.79	33.51	5.33	328	20	15.95	33.50	5.33	24.63	332	0.07
40	13.48	33.43	5.35	287	30	15.79	33.51	5.33	24.67	328	0.10
55	12.90	33.46	5.14	274	50	12.92	33.44	5.22	25.22	276	0.16
69	12.62	33.55	4.73	262	75	11.35	33.42	4.36	25.51	248	0.23
93	10.51	33.57	3.76	223	100	10.29	33.64	3.55	25.86	215	0.29
112	9.44	33.75	2.95	193	150	8.86	33.89	2.49	26.29	174	0.38
131	9.06	33.81	2.69	183	200	8.05	34.02	2.05	26.52	152	0.46
150	8.86	33.89	2.49	174	250	7.32	34.06	1.65	26.66	139	0.54
177	8.37	34.96	2.40	161	300	6.80	34.12	1.26	26.78	128	0.61
211	7.90	34.04	1.92	149	400	6.14	34.22	0.62	26.94	113	0.73
240	7.47	34.05	1.73	142	500	5.70	34.27	0.40	27.04	103	0.84
288	6.90	34.11	1.33	130	600	(5.30)	(34.33)	(0.31)	(27.13)	(94)	(0.95)
342	6.49	34.16	0.92	121							
425	6.11	34.22	0.58	112							
510	5.65	34.28	0.38	102							
595	5.32	34.33	0.31	95							

PAOLINA-T; July 12, 1959; 1303 GCT; 33°14'N, 121°26'W; sounding, 2000 fm; wind, 340°, force 4; weather, missing; sea, rough; wire angle, 02°.

83.70

2	15.42	33.57	5.64	316	0	(15.42)	(33.57)	(5.64)	(24.80)	(316)	(0.00)
12	15.43	33.57	5.73	316	10	15.42	33.57	5.72	24.80	316	0.03
32	14.14	33.48	5.63	296	20	15.36	33.56	5.73	24.81	315	0.06
42	13.71	33.51	5.61	285	30	14.30	33.48	5.64	24.98	299	0.09
57	12.54	33.40	5.14	271	50	13.18	33.46	5.41	25.18	279	0.15
72	11.95	33.46	4.91	256	75	11.80	33.48	4.84	25.47	252	0.22
96	10.56	33.58	4.00	223	100	10.15	33.59	3.87	25.85	216	0.28
116	9.41	33.62	3.63	202	150	8.88	33.82	3.27	26.24	179	0.38
135	9.18	33.78	3.36	187	200	8.08	34.01	2.11	26.50	154	0.46
155	8.76	33.84	3.21	176	250	7.53	34.07	1.62	26.64	141	0.54
185	8.27	33.97	2.43	160	300	7.01	34.13	1.20	26.75	130	0.61
219	7.86	34.04	1.85	148	400	6.22	34.20	0.66	26.91	115	0.73
249	7.54	34.07	1.63	141	500	5.51	34.26	0.39	27.06	102	0.85
298	7.02	34.13	1.22	130	600	5.19	34.33	0.32	27.15	93	0.95
353	6.68	34.18	0.80	122							
438	5.84	34.21	0.56	110							
523	5.44	34.29	0.35	99							
608	5.18	34.33	0.32	93							



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OBSERVED					INTERPOLATED				COMPUTED			
Z	T	S	O <sub>2</sub>	$\delta T_3$	Z	T	S	O <sub>2</sub>	$\sigma_t$	$\delta T_3$	$\Delta D$	
m	°C	‰	ml/L	$10^{-5} \text{ cm/g}$	m	°C	‰	ml/L	g/L	$10^{-5} \text{ cm/g}$	dyn. m	

83.80 PAOLINA-T; July 12, 1959; 1929 GCT; 32°57'N, 122°06'W; sounding, 2100 fm; wind, 320°, force 5; weather, cloudy; sea, rough; wire angle, 16°.

2	16.95	33.49	5.34	355	0	(16.95)	(33.49)	(5.34)	(24.39)	(355)	(0.00)
11	16.92	33.48	5.38	355	10	16.92	33.48	5.38	24.39	355	0.04
30	16.48	33.48	5.72	345	20	16.91	33.48	5.38	24.39	355	0.07
39	16.26	33.44	5.39	344	30	16.48	33.48	5.72	24.49	345	0.10
53	13.19	33.12	3.62	304	50	13.37	33.13	3.65	24.89	307	0.17
67	13.14	33.23	5.42	295	75	12.93	33.34	5.27	25.14	283	0.24
90	12.17	33.46	4.72	260	100	11.16	33.48		25.58	241	0.31
108	10.48	33.49	3.28	229	150	9.18	33.70		26.09	193	0.42
127	9.66	33.57	2.82	210	200	8.52	33.89		26.34	169	0.51
144	9.29	33.66	4.18	198	250	7.69	34.00	2.15	26.56	149	0.59
171	8.82	33.80	2.38	180	300	7.02	34.03	1.85	26.68	137	0.67
202	8.50	33.89	2.07	168	400	6.42	34.14	0.77	26.84	122	0.80
230	8.13	34.00	1.95	155	500	5.59	34.22	0.42	27.01	106	0.92
276	7.19	33.99	2.32	143							
327	6.89	34.09	1.25	131							
406	6.38	34.14	0.72	121							
488	5.66	34.21	0.42	107							
572	5.30	34.23	0.49	102							

83.90 PAOLINA-T; July 13, 1959; 0243 GCT; 32°34'N, 122°48'W; sounding, 2100 fm; wind, 320°, force 5; weather, cloudy; sea, high; wire angle, 27°.

3	17.14	33.40	5.27	366	0	(17.14)	(33.40)	(5.27)	(24.27)	(366)	(0.00)
12	17.12	33.40	5.15	365	10	17.13	33.40	5.16	24.28	365	0.04
31	15.90	33.31	5.31	345	20	17.06	33.40	5.15	24.29	364	0.07
39	14.67	33.31	5.46	320	30	15.90	33.31	5.31	24.49	345	0.11
53	14.32	33.40	5.34	305	50	14.55	33.39	5.40	24.85	311	0.17
66	13.38	33.31	5.20	294	75	12.67	33.31	5.10	25.17	280	0.25
89	11.84	33.37	4.97	261	100	11.08	33.52	4.45	25.64	236	0.31
106	10.22	33.55	4.07	220	150	8.92	33.79	3.29	26.21	182	0.42
124	9.70	33.62	3.83	207	200	8.15	33.95	3.00	26.46	158	0.51
141	9.10	33.73	3.47	189	250	7.44	34.04	2.23	26.62	143	0.58
168	8.64	33.86	3.09	173	300	6.70	34.04	1.96	26.74	132	0.65
200	8.15	33.95	3.00	158	400	6.09	34.15	0.87	26.90	116	0.78
228	7.77	34.04	2.34	147	500	5.54	34.23	0.55	27.03	104	0.90
274	7.06	34.04	2.11	138							
325	6.40	34.06	1.73	127							
405	6.01	34.16	0.83	116							
487	5.62	34.22	0.58	106							
570	5.20	34.29	0.38	96							

87.35 PAOLINA-T; July 15, 1959; 0132 GCT; 33°50'N, 118°36.5'W; sounding, 180 fm; wind, 240°, force 3; weather, partly cloudy; sea, moderate; wire angle, 12°.

2	22.06	33.74	5.45	462	0	(22.06)	(33.74)	(5.45)	(23.26)	(462)	(0.00)
12	21.27	33.73	5.56	442	10	21.30	33.73	5.55	23.47	443	0.04
31	14.49	33.57	6.07	297	20	15.60	33.70	5.70	23.89	402	0.09
50	12.34	33.57	4.61	256	30	14.70	33.57	6.06	24.96	301	0.12
75	10.51	33.66	3.75	217	50	12.34	33.57	4.61	25.43	256	0.18
99	10.15	33.73	3.46	206	75	10.51	33.66	3.75	25.84	217	0.24
123	9.68	33.84	3.03	190	100	10.13	33.73	3.45	25.96	205	0.29



OBSERVED					INTERPOLATED				COMPUTED			
Z	T	S	O <sub>2</sub>	$\delta T_3$	Z	T	S	O <sub>2</sub>	$\sigma_t$	$\delta T_3$	$\Delta D$	
m	°C	‰	ml/L	$\frac{10^{-5}}{cm/g}$	m	°C	‰	ml/L	g/L	$\frac{10^{-5}}{cm/g}$	dyn. m	

PAOLINA-T; July 14, 1959; 2214 GCT; 33°40.5'N, 118°57'W; sounding, 950 fm; wind, 270°, force 2; weather, partly cloudy; sea, moderate; wire angle, 13°.

8740

2	21.22	33.73	5.96	441	0	(21.22)	(33.73)	(5.69)	(23.49)	(441)	(0.00)
12	20.48	33.73	5.54	422	10	20.55	33.73	5.55	23.67	424	0.04
31	14.71	33.64	6.01	296	20	18.80	33.72	5.65	24.11	381	0.08
40	13.53	33.57	5.40	277	30	14.70	33.63	6.01	25.00	297	0.12
55	12.42	33.57	4.66	257	50	12.72	33.57	4.81	25.36	262	0.17
70	11.34	33.62	3.94	234	75	11.12	33.64	3.80	25.72	228	0.23
94	10.54	33.71	3.34	213	100	10.39	33.74	3.25	25.93	208	0.29
113	10.04	33.82	3.05	198	150	9.39	33.96	2.57	26.26	177	0.39
132	9.69	33.87	2.85	188	200	9.05	34.16	2.05	26.47	157	0.47
151	9.38	33.96	2.56	176	250	8.46	34.26	1.27	26.65	140	0.55
180	9.13	34.06	2.28	165	300	7.92	34.32	1.00	26.78	128	0.62
214	8.98	34.22	1.84	151	400	7.02	34.32	0.69	26.90	116	0.74
242	8.57	34.25	1.33	142	500	6.19	34.34	0.38	27.03	104	0.86
291	8.01	34.32	1.05	130	600	(5.67)	(34.35)	(0.30)	(27.10)	(96)	(0.96)
345	7.46	34.31	0.81	123							
428	6.77	34.33	0.61	112							
512	6.10	34.34	0.37	103							
597	5.68	34.35	0.30	97							

PAOLINA-T; July 14, 1959; 1855 GCT; 33°30'N, 119°19'W; sounding, 900 fm; wind, 270°, force 2; weather, overcast; sea, moderate; wire angle, 14°.

8745

2	21.02	33.78	5.01	432	0	(21.02)	(33.78)	(5.01)	(23.58)	(432)	(0.00)
12	17.70	33.71	5.70	356	10	18.45	33.72	5.59	24.21	372	0.04
31	13.26	33.60	4.62	270	20	15.35	33.66	5.26	24.88	308	0.07
41	11.98	33.57	4.14	248	30	13.37	33.60	4.66	25.26	272	0.10
55	10.74	33.61	3.57	224	50	11.07	33.59	3.73	25.69	231	0.15
70	10.16	33.66	3.33	210	75	10.00	33.68	3.29	25.94	207	0.21
92	9.58	33.79	2.98	192	100	9.51	33.82	2.79	26.14	188	0.26
113	9.42	33.88	2.42	184	150	9.09	33.98	2.17	26.32	171	0.35
132	9.20	33.92	2.24	177	200	8.70	34.07	1.77	26.46	158	0.43
151	9.08	33.98	2.16	171	250	8.40	34.21	1.30	26.62	143	0.51
180	8.90	34.00	1.90	166	300	7.97	34.22	1.09	26.69	136	0.58
214	8.56	34.13	1.65	151	400	7.09	34.27	0.70	26.85	121	0.71
243	8.45	34.21	1.34	144	500	6.36	34.31	0.44	26.98	108	0.83
292	8.04	34.22	1.12	138	600	(5.75)	(34.36)	(0.32)	(27.10)	(97)	(0.94)
345	7.60	34.25	0.83	129							
429	6.85	34.28	0.62	117							
514	6.26	34.32	0.40	106							
598	5.76	34.36	0.32	97							

PAOLINA-T; July 14, 1959; 1151 GCT; 33°05'N, 119°59'W; sounding, 475 fm; wind, 320°, force 6; weather, overcast; sea, high; wire angle, 04°.

8755

3	17.41	33.71	5.76	350	0	(17.41)	(33.71)	(5.76)	(24.44)	(350)	(0.00)
13	17.40	33.73	5.63	348	10	17.40	33.73	5.65	24.46	348	0.03
33	13.85	33.70	5.01	274	20	17.39	33.73	5.62	24.47	347	0.07
43	12.30	33.69	4.16	246	30	15.10	33.71	5.23	24.98	299	0.10
58	10.93	33.75	3.44	217	50	11.61	33.71	3.78	25.68	232	0.16
73	10.05	33.78	3.06	201	75	9.99	33.79	3.01	26.03	199	0.21
97	9.11	33.86	2.68	180	100	9.09	33.86	2.67	26.24	179	0.26
117	8.90	33.93	2.36	172	150	8.35	33.96	2.39	26.43	161	0.34
137	8.50	33.96	2.36	163	200	7.73	34.03	1.85	26.58	147	0.42
157	8.28	33.96	2.41	160	250	7.32	34.12	1.44	26.70	135	0.49
186	7.91	34.01	2.02	151	300	6.98	34.18	1.13	26.80	126	0.56
221	7.52	34.06	1.64	142	400	6.46	34.22	0.73	26.90	116	0.68
250	7.32	34.12	1.44	135	500	6.05	34.30	0.49	27.02	105	0.80
300	6.98	34.18	1.13	126	600	5.54	34.36	0.40	27.12	95	0.90
355	6.64	34.20	0.86	120							
440	6.28	34.25	0.61	112							
524	5.96	34.33	0.43	102							
610	5.49	34.36	0.39	94							



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OBSERVED					INTERPOLATED				COMPUTED		
Z	T	S	O <sub>2</sub>	$\delta T_{-5}^3$	Z	T	S	O <sub>2</sub>	$\sigma_t$	$\delta T_{-5}^3$	$\Delta D$
m	°C	‰	ml/L	10 <sup>-5</sup> cm/g	m	°C	‰	ml/L	g/L	10 <sup>-5</sup> cm/g	dyn. m

87.60

PAOLINA-T; July 14, 1959; 0741 GCT; 32°56'N, 120°20'W; sounding, 410 fm; wind, 320°, force 5; weather, overcast; sea, very rough; wire angle, 33°.

2	16.16	33.51	5.72	336	0	(16.16)	(33.51)	(5.72)	(24.59)	(336)	(0.00)
11	16.16	33.49	5.54	337	10	16.16	33.49	5.55	24.58	337	0.03
36	16.11	33.49	5.72	336	20	16.14	33.49	5.55	24.58	337	0.07
48	15.15	33.51	5.73	314	30	16.13	33.49	5.60	24.58	337	0.10
60	13.74	33.46	5.63	290	50	14.90	33.50	5.72	24.87	310	0.16
79	10.93	33.51	4.32	234	75	11.60	33.48	4.70	25.51	248	0.24
94	9.98	33.60	-	212	100	9.78	33.62	3.77	25.94	208	0.29
109	9.53	33.68	3.53	199	150	9.01	33.93	2.43	26.30	173	0.39
124	9.39	33.80	3.09	188	200	8.19	34.00	2.10	26.48	156	0.47
145	9.04	33.91	2.51	175	250	7.69	34.08	1.62	26.63	142	0.55
170	8.96	34.02	2.22	165	300	7.30	34.15	1.20	26.73	132	0.62
191	8.33	33.99	2.14	158	400	6.39	34.22	0.65	26.91	115	0.75
228	7.86	34.06	1.81	147	500	(5.72)	(34.31)	(0.41)	(27.07)	(100)	(0.86)
270	7.56	34.11	1.46	139							
337	6.93	34.19	0.93	124							
411	6.30	34.23	0.60	114							
491	5.77	34.30	0.42	102							

87.70

PAOLINA-T; July 13, 1959; 2350 GCT; 32°37.5'N, 121°01.5'W; sounding, 2100 fm; wind, 340°, force 7; weather, overcast; sea, high; wire angle, 20°.

2	16.30	33.46	5.70	343	0	(16.30)	(33.46)	(5.70)	(24.51)	(343)	(0.00)
11	16.30	33.45	5.73	343	10	16.30	33.45	5.73	24.51	343	0.03
30	15.83	33.51	5.84	329	20	16.28	33.45	5.73	24.51	343	0.07
39	15.14	33.55	5.69	311	30	15.83	33.51	5.84	24.66	329	0.10
53	14.32	33.53	5.74	296	50	14.46	33.54	5.76	24.98	298	0.16
67	13.84	33.47	5.64	291	75	13.22	33.42	5.44	25.14	283	0.24
91	12.34	33.46	5.00	263	100	11.92	33.53	4.82	25.48	251	0.30
109	10.62	33.51	4.49	230	150	9.42	33.67	4.09	26.03	199	0.42
127	9.89	33.64	3.88	208	200	8.39	33.93	2.86	26.40	164	0.51
146	9.52	33.66	4.09	201	250	7.79	34.06	2.06	26.59	146	0.59
174	8.80	33.84	3.50	176	300	7.32	34.16	1.48	26.73	132	0.66
207	8.30	33.95	2.72	161	400	6.55	34.24	0.72	26.90	116	0.79
235	7.96	34.04	2.20	149	500	5.89	34.31	0.43	27.04	103	0.90
282	7.46	34.11	1.73	138							
334	7.11	34.22	1.13	124							
413	6.44	34.25	0.66	114							
494	5.92	34.31	0.44	103							
578	5.50	34.33	0.32	96							

87.80

PAOLINA-T; July 13, 1959; 1615 GCT; 32°18'N, 121°42.5'W; sounding, 2250 fm; wind, 330°, force 6; weather, overcast; sea, high; wire angle, 15°.

2	16.74	33.42	5.60	355	0	(16.74)	(33.42)	(5.60)	(24.38)	(355)	(0.00)
11	16.74	33.44	5.57	354	10	16.74	33.44	5.57	24.40	354	0.04
31	16.04	33.37	5.69	344	20	16.74	33.44	5.57	24.40	354	0.07
40	15.09	33.41	5.94	321	30	16.05	33.37	5.68	24.50	344	0.10
55	13.70	33.37	5.69	296	50	13.92	33.37	5.76	24.97	300	0.17
70	13.04	33.45	5.30	278	75	12.70	33.46	5.12	25.28	270	0.24
94	11.24	33.48	4.42	242	100	10.52	33.48	4.11	25.70	230	0.30
113	10.38	33.58	3.96	220	150	9.09	33.78	3.95	26.18	185	0.41
132	9.42	33.68	4.13	198	200	8.33	34.01	2.47	26.47	157	0.50
151	9.08	33.78	3.94	185	250	7.84	34.09	2.02	26.60	144	0.57
179	8.50	33.94	3.03	165	300	7.19	34.15	1.45	26.74	131	0.64
212	8.26	34.03	2.32	155	400	6.52	34.22	0.84	26.90	117	0.77
243	7.95	34.08	2.05	146	500	5.89	34.25	0.46	27.00	107	0.89
290	7.28	34.14	1.59	133	600	(5.21)	(34.33)	(0.34)	(27.14)	(93)	(1.00)
344	6.93	34.17	1.11	126							
429	6.32	34.24	0.72	113							
523	5.74	34.26	0.39	104							
597	5.24	34.33	0.34	94							



OBSERVED					INTERPOLATED				COMPUTED		
Z	T	S	O <sub>2</sub>	$\delta T_3$	Z	T	S	O <sub>2</sub>	$\sigma_t$	$\delta T_3$	$\Delta D$
m	°C	‰	ml/L	10 <sup>-5</sup> cm/g	m	°C	‰	ml/L	g/L	10 <sup>-5</sup> cm/g	dyn. m

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5907

PAOLINA-T; July 13, 1959; 0839 GCT; 31°59.5'N, 122°23'W; sounding, 2250 fm; wind, 320°, force 4; weather, missing; sea, rough; wire angle, 24°.

87.90

3	17.04	33.48		358	0	(17.04)	(33.48)		(24.36)	(358)	(0.00)
12	17.05	33.48		358	10	17.05	33.48		24.36	358	0.04
31	16.36	33.48		342	20	17.03	33.48		24.36	358	0.07
40	16.26	33.51		338	30	16.37	33.48		24.52	343	0.11
54	15.36	33.49		320	50	15.90	33.50		24.65	330	0.17
68	14.62	33.51		304	75	14.41	33.51		24.98	299	0.25
91	13.66	33.53		283	100	12.91	33.53		25.30	268	0.33
109	12.06	33.53		253	150	9.69	33.69		26.00	201	0.44
127	10.42	33.58		221	200	8.42	33.93		26.39	164	0.53
145	9.84	33.67		206	250	7.63	34.01		26.57	147	0.62
173	8.90	33.75		184	300	7.04	34.07		26.70	135	0.69
205	8.33	33.95		162	400	6.29	34.16		26.87	119	0.82
232	7.88	33.98		153	500	5.61	34.21		27.00	107	0.94
279	7.28	34.05		140							
331	6.72	34.09		129							
410	6.21	34.16		118							
492	5.66	34.20		108							
576	5.34	34.27		99							

PAOLINA-T; July 24, 1959; 1446 GCT; 33°28.5'N, 117°46.5'W; sounding, 250 fm; wind, calm; weather, fog; sea, slight; wire angle, 03°.

90.28

1	21.28	33.58	5.30	453	0	(21.28)	(33.58)	(5.30)	(23.36)	(453)	(0.00)
11	16.24	33.60	6.01	331	10	16.35	33.60	6.01	24.61	334	0.04
31	13.22	33.55	4.97	273	20	14.48	33.57	5.50	25.00	296	0.07
51	11.82	33.57	4.31	246	30	13.30	33.55	4.98	25.24	274	0.10
76	10.75	33.68	4.20	220	50	11.84	33.57	4.32	25.53	246	0.15
100	9.98	33.69	3.76	206	75	10.76	33.68	4.21	25.81	220	0.21
125	9.54	33.82	3.46	189	100	9.98	33.69	3.76	25.96	206	0.26
164	9.33	33.92	2.66	179	150	9.39	33.89	2.90	26.21	182	0.36
204	9.16	34.04	2.18	167	200	9.21	34.02	2.20	26.34	169	0.45
253	8.41	34.09	2.09	152	250	8.42	34.09	2.10	26.51	153	0.53
302	8.57	34.24	1.28	143	300	8.56	34.23	1.32	26.61	144	0.61
407	7.59	34.28	0.89	126	400	7.66	34.28	0.90	26.78	128	0.75

PAOLINA-T; July 24, 1959; 1154 GCT; 33°20.5'N, 118°02'W; sounding, 450 fm; wind, direction missing, force 1; weather, fog; sea, smooth; wire angle, 00°.

90.32

1	20.60	33.77	4.94	422	0	(20.60)	(33.77)	(4.94)	(23.68)	(422)	(0.00)
11	20.31	33.74	4.95	417	10	20.38	33.74	4.95	23.73	418	0.04
31	16.00	33.58	5.72	328	20	18.85	33.68	5.22	24.07	385	0.08
41	14.31	33.57	5.41	293	30	16.15	33.58	5.41	24.64	331	0.12
51	13.16	33.51	4.73	274	50	13.24	33.51	4.80	25.22	276	0.18
65	12.04	33.54	4.24	252	75	11.60	33.60	4.18	25.60	240	0.24
80	11.28	33.64	4.05	231	100	10.19	33.65	3.61	25.89	212	0.30
100	10.19	33.65	3.61	212	150	9.35	33.83	3.23	26.17	186	0.40
125	9.90	33.78	3.43	198	200	8.94	34.01	2.32	26.37	166	0.49
144	9.43	33.82	3.30	188	250	8.52	34.15	1.79	26.55	150	0.57
174	9.16	33.91	2.74	176	300	7.93	34.16	1.47	26.65	140	0.65
204	8.92	34.02	2.28	165	400	7.09	34.20	1.08	26.80	126	0.78
234	8.66	34.10	2.11	156	500	6.60	34.31	0.71	26.96	111	0.91
273	8.32	34.16	1.57	146							
333	7.50	34.16	1.38	135							
407	7.02	34.21	1.03	125							
482	6.70	34.31	0.76	112							
562	6.16	34.30	0.47	106							



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OBSERVED					INTERPOLATED				COMPUTED		
Z	T	S	O <sub>2</sub>	$\delta T_{3-5}$	Z	T	S	O <sub>2</sub>	$\sigma_t$	$\delta T_{3-5}$	$\Delta D$
m	°C	‰	ml/L	10 cm/g	m	°C	‰	ml/L	g/L	10 cm/g	dyn. m

90.37

PAOLINA-T; July 24, 1959; 0825 GCT; 33°11'N, 118°23.5'W; sounding, 650 fm; wind, 270°, force 2; weather, overcast; sea, slight; wire angle, 00°.

1	19.13	33.73	5.38	388	0	(19.13)	(33.73)	(5.38)	(24.04)	(388)	(0.00)
11	19.06	33.72	5.61	387	10	19.07	33.72	5.60	24.05	387	0.04
31	14.56	33.60	5.58	296	20	17.20	33.67	5.61	24.47	347	0.08
41	13.85	33.57	5.21	284	30	14.65	33.60	5.60	25.00	297	0.11
51	13.38	33.58	5.01	274	50	13.44	33.58	5.03	25.23	275	0.16
66	12.11	33.58	4.50	250	75	11.46	33.60	4.14	25.62	238	0.23
81	11.18	33.61	3.95	232	100	9.92	33.68	3.40	25.96	206	0.29
100	9.92	33.68	3.40	206	150	8.82	33.91	2.70	26.31	172	0.38
125	9.22	33.80	2.94	186	200	8.35	34.07	1.71	26.52	153	0.46
144	8.92	33.88	2.79	176	250	7.80	34.13	1.53	26.65	140	0.54
174	8.55	34.00	2.33	161	300	7.52	34.15	1.20	26.70	136	0.61
203	8.32	34.08	1.68	152	400	6.74	34.26	0.74	26.90	117	0.74
233	7.99	34.10	1.61	146	500	6.27	34.26	0.46	26.96	111	0.86
273	7.60	34.15	1.42	137							
333	7.40	34.15	0.85	134							
407	6.70	34.26	0.74	116							
482	6.36	34.25	0.51	112							
562	5.97	34.35	0.37	100							

90.45

PAOLINA-T; July 24, 1959; 0319 GCT; 32°53.5'N, 118°55.5'W; sounding, 930 fm; wind, 270°, force 3; weather, overcast; sea, moderate; wire angle, 00°.

2	20.02	33.80	5.07	405	0	(20.02)	(33.80)	(5.07)	(23.96)	(405)	(0.00)
12	18.90	33.78	5.33	379	10	18.95	33.78	5.33	24.12	380	0.04
32	11.70	33.64	3.86	239	20	15.10	33.70	4.55	24.97	300	0.07
42	11.04	33.64	3.52	227	30	12.05	33.64	3.94	25.54	245	0.10
52	10.32	33.69	3.08	212	50	10.43	33.68	3.15	25.86	214	0.15
67	10.01	33.75	2.84	202	75	9.76	33.79	2.72	26.07	195	0.20
81	9.55	33.81	2.65	190	100	9.07	33.86	2.45	26.23	180	0.24
101	9.06	33.86	2.44	179	150	8.84	34.04	1.81	26.42	162	0.33
125	8.99	34.00	2.01	168	200	8.35	34.14	1.47	26.57	148	0.41
145	8.89	34.04	1.84	163	250	7.82	34.18	1.17	26.68	137	0.48
175	8.58	34.07	1.72	156	300	7.47	34.22	0.90	26.76	129	0.55
204	8.31	34.15	1.44	146	400	6.71	34.30	0.53	26.93	114	0.68
234	7.96	34.19	1.34	138	500	6.04	34.34	0.39	27.03	102	0.79
273	7.68	34.18	1.07	135							
333	7.20	34.28	0.75	121							
407	6.64	34.30	0.51	113							
482	6.14	34.33	0.41	104							
563	5.70	34.40	0.29	94							

90.50

PAOLINA-T; July 24, 1959; 0010 GCT; 32°45'N, 119°16'W; sounding, 160 fm; wind, 290°, force 4; weather, cloudy; sea, moderate; wire angle, 13°.

1	17.94	33.70	5.33	362	0	(17.94)	(33.70)	(5.33)	(24.31)	(362)	(0.00)
11	13.75	33.66	4.66	276	10	14.98	33.67	4.95	24.96	300	0.03
30	12.43	33.68	3.77	249	20	12.50	33.68	3.79	25.49	250	0.06
49	10.64	33.69	3.10	217	30	12.43	33.68	3.77	25.50	249	0.08
73	9.86	33.78	2.73	197	50	10.59	33.69	3.09	25.85	216	0.13
97	9.08	33.95	2.13	173	75	9.84	33.78	2.72	26.06	197	0.18
121	8.76	34.03	1.88	162	100	9.01	33.96	2.11	26.32	171	0.23
160	8.55	34.08	1.60	155	150	8.60	34.07	1.68	26.48	156	0.31
199	8.33	34.11	1.42	150	200	8.32	34.11	1.41	26.55	149	0.39
248	7.86	34.19	1.02	137	250	(7.83)	(34.19)	(1.01)	(26.68)	(137)	(0.46)



OBSERVED					INTERPOLATED				COMPUTED		
Z	T	S	O <sub>2</sub>	$\delta T_3$	Z	T	S	O <sub>2</sub>	$\sigma_t$	$\delta T_3$	$\Delta D$
m	°C	‰	ml/L	$\frac{1}{10} \frac{cm}{g}$	m	°C	‰	ml/L	g/L	$\frac{1}{10} \frac{cm}{g}$	dyn. m

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PAOLINA-T; July 23, 1959; 2047 GCT; 32°35'N, 119°37'W; sounding, 600 fm; wind, 320°, force 3; weather, overcast; sea, moderate; wire angle, 20°.

90.55

2	18.47	33.75	5.37	371	0	(18.47)	(33.75)	(5.37)	(24.22)	(371)	(0.00)
11	18.14	33.75	5.20	363	10	18.16	33.75	5.22	24.30	364	0.04
29	16.40	33.70	5.08	328	20	17.20	33.72	5.15	24.51	344	0.07
38	14.80	33.67	4.64	296	30	16.25	33.69	5.04	24.71	324	0.10
47	11.76	33.68	3.70	237	50	11.06	33.67	3.52	25.75	225	0.16
60	9.94	33.67	3.27	207	75	9.21	33.78	3.02	26.15	188	0.21
73	9.26	33.78	3.01	188	100	8.88	33.80	3.11	26.22	180	0.26
90	9.06	33.78	3.12	185	150	8.22	34.00	2.21	26.48	156	0.34
112	8.66	33.86	2.91	173	200	7.75	34.03	1.85	26.58	147	0.42
129	8.45	33.98	2.13	161	250	7.23	34.08	1.46	26.68	137	0.49
156	8.15	34.00	2.22	155	300	6.92	34.13	1.15	26.77	128	0.56
182	7.82	34.02	1.95	149	400	6.42	34.23	0.56	26.92	114	0.68
209	7.70	34.04	1.80	146	500	6.03	34.30	0.36	27.02	105	0.80
246	7.27	34.08	1.49	137							
300	6.92	34.13	1.15	128							
370	6.50	34.21	0.67	118							
442	6.28	34.27	0.43	110							
520	5.96	34.31	0.35	103							

PAOLINA-T; July 23, 1959; 1718 GCT; 32°25.5'N, 119°57.5'W; sounding, 500 fm; wind, 320°, force 4; weather, overcast; sea, rough; wire angle, 07°.

90.60

2	16.66	33.51	5.52	347	0	(16.66)	(33.51)	(5.52)	(24.47)	(347)	(0.00)
12	16.64	33.51	5.37	347	10	16.65	33.51	5.37	24.47	347	0.03
32	15.16	33.45	5.52	319	20	16.64	33.51	5.37	24.47	347	0.07
42	14.43	33.43	5.40	306	30	15.26	33.45	5.51	24.75	321	0.10
56	13.18	33.41	5.04	283	50	13.24	33.37	5.10	25.10	287	0.16
71	11.84	33.50	4.48	252	75	11.45	33.58	4.30	25.57	243	0.23
95	10.49	33.58	3.86	223	100	10.26	33.60	3.72	25.84	217	0.29
115	9.65	33.69	3.31	201	150	8.78	33.94	2.47	26.34	169	0.38
133	8.94	33.84	2.75	179	200	8.31	34.05	1.96	26.50	154	0.47
153	8.74	33.95	2.44	168	250	7.91	34.11	1.54	26.61	144	0.54
182	8.45	34.02	2.20	158	300	7.39	34.17	1.22	26.73	132	0.61
216	8.20	34.07	1.79	151	400	6.64	34.22	0.74	26.88	118	0.74
244	7.96	34.10	1.56	145	500	6.10	34.28	0.64	27.00	107	0.86
294	7.46	34.16	1.25	134	600	5.53	34.30	0.40	27.08	99	0.97
348	6.88	34.20	0.86	123							
432	6.48	34.24	0.65	115							
517	5.99	34.29	0.64	106							
601	5.52	34.30	0.39	99							

PAOLINA-T; July 23, 1959; 1055 GCT; 32°06'N, 120°40'W; sounding, 2040 fm; wind, 320°, force 5; weather, overcast; sea, very rough; wire angle, 09°.

90.70

2	17.50	33.60	5.12	360	0	(17.50)	(33.60)	(5.12)	(24.34)	(360)	(0.00)
12	17.50	33.58	5.14	361	10	17.50	33.58	5.14	24.32	361	0.04
32	17.20	33.58	5.17	354	20	17.50	33.58	5.14	24.32	361	0.07
42	16.34	33.55	5.40	337	30	17.30	33.58	5.16	24.38	356	0.11
56	14.92	33.53	5.49	308	50	15.50	33.53	5.48	24.76	320	0.18
71	14.18	33.53	5.34	294	75	13.94	33.53	5.25	25.09	288	0.25
95	12.34	33.54	4.67	258	100	12.26	33.55	4.61	25.43	255	0.32
115	11.22	33.55	4.31	237	150	9.27	33.68	3.68	26.06	196	0.43
134	9.76	33.58	3.99	211	200	8.51	33.91	2.61	26.36	167	0.52
154	9.18	33.73	3.50	190	250	7.74	34.04	2.02	26.58	146	0.61
183	8.74	33.86	2.80	174	300	7.29	34.10	1.46	26.69	136	0.68
218	8.22	33.96	2.44	160	400	6.58	34.19	0.84	26.86	120	0.81
247	7.79	34.03	2.09	148	500	5.87	34.24	0.46	27.00	107	0.93
296	7.32	34.10	1.48	136	600	5.42	34.33	0.33	27.12	95	1.04
351	6.95	34.16	1.09	127							
435	6.28	34.21	0.66	115							
519	5.76	34.26	0.43	104							
604	5.40	34.34	0.32	94							



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OBSERVED					INTERPOLATED				COMPUTED		
Z	T	S	O <sub>2</sub>	$\delta T_{-5}^3$	Z	T	S	O <sub>2</sub>	$\sigma_t$	$\delta T_{-5}^3$	$\Delta D$
m	°C	‰	ml/L	10 <sup>-5</sup> cm/g	m	°C	‰	ml/L	g/L	10 <sup>-5</sup> cm/g	dyn. m

90.80

PAOLINA-T; July 23, 1959; 0433 GCT; 31°47'N, 121°21.5'W; sounding, 2050 fm; wind, 340°, force 4; weather, overcast; sea, rough; wire angle, 10°.

2	17.62	33.58	5.46	364	0	(17.62)	(33.58)	(5.46)	(24.29)	(364)	(0.00)
12	17.62	33.57	5.31	364	10	17.62	33.57	5.32	24.29	364	0.04
31	17.18	33.58	5.27	354	20	17.56	33.57	5.30	24.30	363	0.07
41	14.98	33.53	5.85	310	30	17.20	33.58	5.27	24.40	354	0.11
56	13.44	33.51	5.14	280	50	13.95	33.51	5.41	25.07	290	0.17
70	12.27	33.52	4.54	258	75	11.80	33.53	4.38	25.51	248	0.24
95	10.30	33.58	3.85	220	100	10.02	33.60	3.74	25.88	214	0.30
114	9.40	33.71	3.37	196	150	8.61	33.91	3.28	26.34	169	0.40
134	8.91	33.79	3.18	182	200	7.74	34.05	2.08	26.59	146	0.48
153	8.54	33.93	3.28	166	250	7.33	34.16	1.34	26.73	132	0.55
182	7.97	34.02	2.04	151	300	6.84	34.18	1.14	26.82	124	0.61
216	7.60	34.07	2.10	142	400	6.23	34.24	0.56	26.95	112	0.74
245	7.38	34.15	1.40	133	500	5.80	34.32	0.40	27.06	101	0.84
294	6.89	34.18	1.17	125	600	5.50	34.35	0.29	27.12	95	0.95
347	6.52	34.21	0.78	118							
431	6.08	34.27	0.48	108							
515	5.74	34.33	0.39	99							
600	5.50	34.35	0.29	95							

90.90

PAOLINA-T; July 22, 1959; 2059, 2307 GCT; 31°32'N, 121°53'W; sounding, 2100 fm; wind, 340°, force 3; weather, overcast; sea, moderate; wire angle, 10°, 20°.

1	17.44	33.46	5.27	368	0	(17.44)	(33.46)	(5.27)	(24.25)	(368)	(0.00)
11	17.20	33.47	5.31	362	10	17.21	33.47	5.30	24.31	362	0.04
30	16.32	33.42	5.43	346	20	17.11	33.46	5.32	24.33	360	0.07
40	15.24	33.46	5.65	320	30	16.32	33.42	5.43	24.48	346	0.11
50	14.35	33.44	5.53	303	50	14.35	33.44	5.53	24.94	303	0.17
64	13.96	33.51	5.20	290	75	13.22	33.49	5.01	25.20	278	0.25
79	12.91	33.48	4.92	272	100	11.12	33.54	4.16	25.64	236	0.31
98	11.62	33.52	4.39	246	150	9.43	33.74	3.29	26.08	194	0.42
121	10.12	33.58	3.74	216	200	8.64	33.92	2.56	26.35	168	0.51
140	9.58	33.71	3.38	198	250	7.92	34.02	2.03	26.54	150	0.59
169	9.20	33.80	3.08	186	300	7.17	34.07	1.61	26.69	136	0.67
197	8.68	33.91	2.61	170	400	6.29	34.18	0.75	26.89	117	0.80
226	8.25	33.98	2.24	158	500	5.68	34.26	0.43	27.03	104	0.92
264	7.72	34.04	1.92	146	600	5.12	34.32	0.33	27.14	93	1.02
322	6.88	34.09	1.41	132	700	4.75	34.37	0.30	27.23	85	1.12
395	6.28	34.18	0.76	118	800	4.50	34.43	0.37	27.30	78	1.20
469	5.80	34.22	0.49	108	1000	3.90	34.47	0.55	27.40	69	1.37
548	5.39	34.29	0.37	98	1200	3.40	34.51	0.81	27.48	61	1.52
					1500	2.81	34.56	1.17	27.58	52	1.71
371a)	6.49	34.15	1.01	122	2000	2.06	34.63	1.81	27.69	42	2.00
463	6.06	34.23	0.55	110	2500	1.80	34.65	2.39	27.73	37	
557	5.42	34.31	0.34	97	3000	1.63	34.67	2.67	27.76	35	
651	4.89	34.33	0.30	90							
744	4.64	34.41	0.34	81							
931	4.10	34.46	0.47	72							
1118	3.58	34.49	0.71	64							
1305	3.18	34.54	0.92	57							
1494	2.82	34.56	1.15	53							
1683	2.50	34.60	1.34	47							
1873	2.18	34.60	1.68	44							
2064	2.02	34.64	1.86	40							
2256	1.90	34.65	2.16	38							
2450	1.80	34.65	2.21	37							
2644	1.75	34.65	2.44	37							
2839	1.67	34.66	2.56	36							
2938	1.65	34.66	2.65	36							
3036	1.62	34.67	2.68	34							

a) Overlapping casts; reconciliation of property curves when necessary.



OBSERVED					INTERPOLATED				COMPUTED		
Z	T	S	O <sub>2</sub>	$\delta T_{-5}^3$	Z	T	S	O <sub>2</sub>	$\sigma_t$	$\delta T_{-5}^3$	$\Delta D$
m	°C	‰	ml/L	10 <sup>-5</sup> cm/g	m	°C	‰	ml/L	g/L	10 <sup>-5</sup> cm/g	dyn. m

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ORCA; July 10, 1959; 0547 GCT;<sup>a)</sup> 32°56.5'N, 117°23.5'W; sounding, 320 fm; wind, 350°, force 2; weather, partly cloudy; sea, slight; wire angle, 18°.

93.28

226	9.01	34.11	1.78	160
236	9.02	34.17	1.60	156
246	9.06	34.24	1.34	151
255	8.88	34.18	1.32	153
265	8.87	34.21	1.19	150
275	8.71	34.22	1.14	147
285	8.64	34.22	1.15	146
295	8.54	34.22	1.11	144
306	8.51	34.23	1.06	143
316	8.52	34.23	0.98	143
325	8.36	34.24	1.02	140
336	8.28	34.26	0.92	138
346	7.98	34.23	1.02	136
356	7.93	34.24	0.89	134
366	7.86	34.25	0.86	133
376	7.78	34.25	0.88	132
386	7.68	34.25	0.84	130
396	7.72	34.25	0.77	130

PAOLINA-T; July 10, 1959; 2250 GCT;<sup>a)</sup> 32°55'N, 117°22'W; sounding, 300 fm; wind, calm; weather, partly cloudy; sea, slight; wire angle, 12°.

93.28

318	8.23	34.24	1.06	138
327	7.98	34.22	0.93	136
337	7.92	34.23	0.70	134
347	7.94	34.25	0.59	134
356	7.86	34.26	0.51	132
367	7.89	34.28	0.40	131
376	7.83	34.27	0.36	131
386	7.70	34.29	0.38	127
395	7.64	34.32	0.37	125
404	7.58	34.29	0.38	126
414	7.48	34.37u	0.39	-
424	7.41	34.31	0.48	122
433	7.39	34.46u	0.46	-
443	7.32	34.31	0.56	121
452	7.21	34.30	0.55	120
462	7.20	34.29	0.56	121
472	7.14	34.31	0.56	118

PAOLINA-T; July 20, 1959; 2042 GCT; 32°55'N, 117°22'W; sounding, 300 fm; wind, 220°, force 4; weather, cloudy; sea, moderate; wire angle, 08°.

93.28

2	21.96	33.75	5.30	459	0	(21.96)	(33.75)	(5.30)	(23.30)	(459)	(0.00)
12	17.88	33.61	6.14	368	10	18.80	33.64	5.96	24.05	387	0.04
32	12.83	33.54	4.86	267	20	14.76	33.55	5.52	24.93	304	0.08
51	11.44	33.57	4.17	240	30	13.05	33.54	4.95	25.27	271	0.10
75	10.58	33.61	3.86	221	50	11.49	33.57	4.18	25.59	240	0.16
100	9.99	33.70	3.61	205	75	10.58	33.61	3.86	25.80	221	0.21
124	9.58	33.77	3.47	194	100	9.99	33.70	3.61	25.96	205	0.27
162	9.43	33.92	2.53	180	150	9.48	33.87	2.85	26.18	185	0.37
201	9.02	34.07	1.91	163	200	9.03	34.06	1.95	26.40	164	0.46
250	8.96	34.21	1.35	152	250	8.96	34.21	1.35	26.53	152	0.54
299	8.40	34.26	1.22	139	300	(8.39)	(34.26)	(1.22)	(26.66)	(139)	(0.61)

a) Special cast.



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OBSERVED					INTERPOLATED				COMPUTED		
Z	T	S	O <sub>2</sub>	$\delta T_3$	Z	T	S	O <sub>2</sub>	$\sigma_t$	$\delta T_3$	$\Delta D$
m	°C	‰	ml/L	10 <sup>-5</sup> cm/g	m	°C	‰	ml/L	g/L	10 <sup>-5</sup> cm/g	dyn. m

93.30 PAOLINA-T; July 20, 1959; 2254 GCT; 32°50'N, 117°32'W; sounding, 470 fm; wind, 220°, force 3; weather, overcast; sea, moderate; wire angle, 09°.

2	21.06	33.74	5.05	436	0	(21.06)	(33.74)	(5.05)	(23.54)	(436)	(0.00)
12	20.74	33.71	5.12	430	10	20.96	33.73	5.08	23.56	434	0.04
32	15.56	33.57	5.70	319	20	17.50	33.62	5.50	24.36	358	0.08
42	14.50	33.57	5.54	297	30	15.71	33.57	5.69	24.74	322	0.12
56	12.06	33.55	4.25	252	50	14.00	33.56	5.33	25.10	287	0.18
77	11.50	33.57	3.97	240	75	11.57	33.57	3.99	25.58	242	0.24
95	10.48	33.61	3.85	220	100	10.21	33.63	3.81	25.86	214	0.30
115	9.58	33.77	3.41	194	150	9.35	33.91	2.68	26.23	180	0.40
134	9.46	33.87	2.87	184	200	9.05	34.08	1.80	26.41	163	0.49
154	9.32	33.92	2.57	178	250	8.84	34.15	1.64	26.49	155	0.57
182	9.17	34.02	1.99	169	300	8.22	34.19	1.41	26.62	142	0.64
216	8.96	34.11	1.72	159	400	7.51	34.24	0.92	26.77	129	0.78
246	8.87	34.14	1.65	156	500	6.78	34.29	0.57	26.91	115	0.91
295	8.26	34.19	1.43	143	600	6.07	34.27	0.40	26.98	108	1.03
349	7.86	34.20	1.19	136							
433	7.25	34.27	0.77	124							
518	6.62	34.29	0.52	113							
602	6.06	34.27	0.39	108							

93.40 PAOLINA-T; July 21, 1959; 0508 GCT; 32°29.5'N, 118°12'W; sounding, 920 fm; wind, 220°, force 3; weather, overcast; sea, moderate; wire angle, 02°.

2	18.64	33.73	5.12	377	0	(18.64)	(33.73)	(5.12)	(24.16)	(377)	(0.00)
12	18.52	33.71	5.18	375	10	18.55	33.71	5.17	24.17	375	0.04
32	14.25	33.57	5.16	292	20	17.90	33.68	5.19	24.31	362	0.07
42	13.24	33.57	4.73	272	30	15.00	33.58	5.17	24.90	306	0.11
52	12.74	33.57	4.48	263	50	12.77	33.57	4.50	25.36	263	0.16
67	12.00	33.57	4.14	249	75	11.67	33.58	4.03	25.57	242	0.23
81	11.46	33.59	-	238	100	10.34	33.63	3.49	25.85	216	0.29
100	10.34	33.63	3.49	216	150	8.84	33.86	2.65	26.27	176	0.39
125	9.67	33.73	2.94	198	200	8.36	34.01	2.11	26.46	158	0.47
145	8.96	33.85	2.71	178	250	7.94	34.14	1.56	26.63	142	0.55
174	8.56	33.93	2.37	166	300	7.58	34.22	1.10	26.74	131	0.62
204	8.33	34.02	2.06	156	400	6.93	34.27	0.66	26.87	119	0.75
233	8.06	34.10	1.71	146	500	5.91	34.33	0.35	27.06	102	0.86
273	7.78	34.18	1.36	136							
332	7.34	34.24	0.85	126							
407	6.88	34.27	0.63	118							
482	6.04	34.32	0.37	104							
561	5.68	34.34	0.32	98							

93.50 PAOLINA-T; July 21, 1959; 1205 GCT; a) 32°12.5'N, 118°54'W; sounding, 810 fm; wind, 270°, force 2; weather, overcast; sea, moderate; wire angle, 00°.

1	18.37	33.78	5.28	366							
6	18.36	33.78	5.31	366							
11	18.35	33.77	5.25	366							
14	18.14	33.77	5.25	362							
17	15.84	33.69	5.23	316							
19	13.68	33.68	4.93	272							
22	12.06	33.63	4.18	246							
25	11.84	33.67	4.02	239							
30	10.98	33.61	3.54	228							
35	10.76	33.64	3.42	222							
40	10.54	33.66	3.34	217							
45	10.32	33.68	3.26	212							
50	10.13	33.70	3.13	208							
54	10.07	33.73	3.10	204							
59	10.01	33.75	3.00	202							
64	9.82	33.77	2.92	198							
69	9.73	33.81	2.84	193							
75	9.59	33.85	2.71	188							



OBSERVED					INTERPOLATED				COMPUTED		
Z	T	S	O <sub>2</sub>	$\delta T_3$	Z	T	S	O <sub>2</sub>	$\sigma_t$	$\delta T_3$	$\Delta D$
m	°C	‰	ml/L	$10^{-5} \text{ cm}^3/\text{g}$	m	°C	‰	ml/L	g/L	$10^{-5} \text{ cm}^3/\text{g}$	dyn. m

PAOLINA-T; July 21, 1959; 1312 GCT; 32° 12.5'N, 118° 54'W; sounding, 810 fm; wind, 270°, force 2; weather, overcast; sea, moderate; wire angle, 00°.

93.50

2	18.40	33.78	5.51	367	0	(18.40)	(33.78)	(5.51)	(24.26)	(367)	(0.00)
12	18.38	33.78	5.50	366	10	18.39	33.78	5.50	24.27	366	0.04
32	11.99	33.64	4.43	244	20	14.80	33.69	5.30	25.03	294	0.07
42	10.53	33.66	3.09	217	30	12.30	33.64	4.60	25.50	249	0.10
52	10.16	33.71	3.26	207	50	10.22	33.69	3.25	25.91	210	0.14
67	9.84	33.78	3.06	198	75	9.71	33.80	2.95	26.09	193	0.19
101	9.36	33.87	2.66	182	100	9.37	33.87	2.67	26.20	183	0.24
125	9.13	33.98	2.24	172	150	8.88	34.06	1.94	26.43	161	0.33
145	8.96	34.04	2.01	164	200	8.19	34.20	1.18	26.64	141	0.40
175	8.50	34.18	1.45	147	250	7.39	34.21	1.00	26.77	129	0.47
204	8.14	34.20	1.17	140	300	7.08	34.23	0.72	26.83	123	0.54
234	7.52	34.21	1.10	131	400	6.53	34.27	0.59	26.93	114	0.66
273	7.26	34.22	0.86	127	500	6.03	34.31	0.40	27.03	104	0.77
333	6.87	34.25	0.60	119							
407	6.47	34.27	0.58	113							
482	6.10	34.31	0.39	105							
561	5.90	34.33	0.45	101							

PAOLINA-T; July 21, 1959; 1907 GCT; 31° 52.5'N, 119° 37.5'W; sounding, 1880 fm; wind, direction missing, force 1; weather, overcast; sea, moderate; wire angle, 05°.

93.60

1	17.31	33.70		348	0	(17.31)	(33.70)		(24.46)	(348)	(0.00)
11	17.12	33.68		345	10	17.13	33.68		24.49	345	0.03
31	15.12	33.56		311	20	16.70	33.65		24.57	338	0.07
41	13.76	33.49		288	30	15.15	33.56		24.85	311	0.10
51	13.02	33.48		275	50	13.03	33.48		25.23	275	0.16
65	11.28	33.49		242	75	10.79	33.59		25.74	226	0.22
80	10.57	33.68		216	100	9.84	33.78		26.04	198	0.28
100	9.84	33.78		198	150	8.90	34.00		26.38	166	0.37
124	9.30	33.87		182	200	8.64	34.14		26.52	152	0.45
144	8.96	33.97		170	250	8.35	34.18		26.64	141	0.52
173	8.76	34.07		159	300	7.65	34.20		26.71	134	0.60
210	8.56	34.16		149	400	6.89	34.29		26.90	117	0.72
231	8.24	34.17		144	500	6.08	34.31		27.02	105	0.84
270	7.88	34.18		138							
330	7.47	34.23		129							
404	6.83	34.29		116							
478	6.22	34.31		107							
558	5.76	34.31		100							

PAOLINA-T; July 22, 1959; 0126 GCT; 31° 32'N, 120° 15.5'W; sounding, 2050 fm; wind, 290°, force 2; weather, overcast; sea, moderate; wire angle, 05°.

93.70

1	17.93	33.58	5.25	371	0	(17.93)	(33.58)	(5.25)	(24.22)	(371)	(0.00)
11	17.48	33.56	5.30	362	10	17.49	33.56	5.30	24.31	362	0.04
31	16.23	33.39	5.42	347	20	17.40	33.55	5.31	24.33	360	0.07
41	15.46	33.50	5.70	322	30	16.35	33.40	5.39	24.46	348	0.11
51	14.58	33.54	5.46	301	50	14.61	33.54	5.48	24.95	302	0.17
66	13.44	33.44	5.16	286	75	13.39	33.49	5.10	25.17	281	0.24
81	13.06	33.54	4.99	271	100	11.88	33.51	4.51	25.48	252	0.31
100	11.88	33.51	4.51	252	150	9.19	33.68	3.94	26.08	194	0.42
125	10.05	33.62	3.64	212	200	8.45	33.95	2.61	26.41	163	0.51
144	9.30	33.66	3.98	198	250	7.95	34.04	2.04	26.55	150	0.60
174	8.82	33.84	3.56	177	300	7.39	34.12	1.38	26.69	136	0.67
204	8.40	33.96	2.54	162	400	6.62	34.22	0.67	26.88	118	0.80
234	8.14	34.00	2.26	155	500	5.71	34.26	0.37	27.03	104	0.92
273	7.64	34.09	1.63	142							
332	7.11	34.15	1.08	130							
408	6.54	34.23	0.61	116							
483	5.82	34.25	0.39	106							
563	5.42	34.36	0.32	94							



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OBSERVED					INTERPOLATED				COMPUTED			
Z	T	S	O <sub>2</sub>	$\delta T_3$	Z	T	S	O <sub>2</sub>	$\sigma_t$	$\delta T_3$	$\Delta D$	
m	°C	‰	ml/L	$\frac{1}{10} \text{ cm/g}$	m	°C	‰	ml/L	g/L	$\frac{1}{10} \text{ cm/g}$	dyn. m	

93.80

PAOLINA-T; July 22, 1959; 0722 GCT; 31°11'N, 120°56'W; sounding, 2050 fm; wind, 290°, force 3; weather, overcast; sea, moderate; wire angle, 02°.

2	17.64	33.44	5.45	374	0	(17.64)	(33.44)	(5.45)	(24.18)	(374)	(0.00)
12	17.54	33.44	5.42	372	10	17.56	33.44	5.43	24.21	372	0.04
32	16.05	33.37	5.76	344	20	17.52	33.44	5.43	24.22	371	0.07
42	15.10	33.36	5.90	325	30	17.10	33.42	5.49	24.30	363	0.11
52	14.76	33.37	5.83	316	50	14.78	33.37	5.84	24.79	317	0.18
67	14.26	33.40	5.71	305	75	14.21	33.43	5.68	24.96	301	0.26
81	13.58	33.48	5.52	285	100	12.33	33.49	5.17	25.38	261	0.33
100	12.33	33.49	5.17	261	150	9.88	33.73	4.40	26.00	202	0.44
125	11.02	33.64	4.76	227	200	8.53	33.93	2.86	26.38	166	0.54
144	10.12	33.71	4.62	207	250	7.86	33.99	2.42	26.53	152	0.62
173	9.06	33.78	3.30	185	300	7.32	34.04	1.68	26.65	140	0.70
202	8.50	33.93	2.85	166	400	6.30	34.13	0.96	26.85	121	0.83
232	8.03	33.96	2.69	156	500	5.93	34.25	0.48	26.99	108	0.95
271	7.68	34.03	1.93	146							
331	6.93	34.06	1.48	134							
406	6.26	34.14	0.94	120							
480	6.04	34.24	0.51	110							
560	5.56	34.28	0.38	101							

93.90

PAOLINA-T; July 22, 1959; 1333 GCT; 30°51'N, 121°33'W; sounding, 2220 fm; wind, 320°, force 3; weather, overcast; sea, moderate; wire angle, 00°.

1	17.76	33.38	5.33	381	0	(17.76)	(33.38)	(5.33)	(24.11)	(381)	(0.00)
12	17.66	33.40	5.33	378	10	17.67	33.39	5.33	24.15	378	0.04
32	16.48	33.30	5.59	359	20	17.71	33.41	5.35	24.14	378	0.08
42	15.40	33.22	5.72	341	30	17.00	33.35	5.50	24.27	366	0.11
52	14.92	33.28	5.77	327	50	15.00	33.24	5.77	24.64	331	0.18
67	15.46	33.62	5.55	313	75	15.07	33.60	5.50	24.89	307	0.26
81	13.93	33.43	5.42	295	100	12.81	33.49	5.09	25.28	270	0.34
101	12.78	33.49	5.08	269	150	10.06	33.67	4.22	25.92	209	0.46
125	11.36	33.64	4.69	232	200	8.57	33.86	3.46	26.31	172	0.55
145	10.26	33.65	4.26	213	250	7.72	34.01	2.33	26.56	148	0.64
174	9.28	33.82	4.12	186	300	7.10	34.06	1.57	26.69	136	0.71
204	8.47	33.86	3.39	170	400	6.23	34.12	0.82	26.85	121	0.84
233	7.98	33.96	2.86	156	500	5.62	34.22	0.49	27.00	106	0.96
272	7.42	34.04	1.85	142							
332	6.78	34.07	1.35	131							
406	6.19	34.13	0.78	120							
481	5.72	34.20	0.53	109							
561	5.30	34.27	0.37	99							

93.90

PAOLINA-T; July 22, 1959; 1507 GCT; a) 30°51'N, 121°33'W; sounding, 2220 fm; wind, 320°, force 3; weather, overcast; sea, moderate; wire angle, 00°.

52	14.92	33.22	5.76	331							
57	14.98	33.32	5.75	325							
61	15.15	33.39	5.73	323							
64	15.40	33.55	5.61	317							
67	15.30	33.57	5.56	313							
69	15.12	33.54	5.54	312							
71	14.86	33.49	5.51	310							
73	14.52	33.46	5.51	306							
76	14.28	33.42	5.51	304							
79	13.80	33.37	5.44	298							
82	13.84	33.46	5.43	292							

a) Special cast.



OBSERVED					INTERPOLATED				COMPUTED		
Z	T	S	O <sub>2</sub>	$\delta T_{3-5}$	Z	T	S	O <sub>2</sub>	$\sigma_t$	$\delta T_{3-5}$	$\Delta D$
m	°C	‰	ml/L	10 <sup>-5</sup> cm/g	m	°C	‰	ml/L	g/L	10 <sup>-5</sup> cm/g	dyn. m

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PAOLINA-T; July 20, 1959; 1450 GCT; 32°15.5'N, 117°08.5'W; sounding, 30 fm; wind, direction missing, force 1; weather, overcast; sea, slight; wire angle, 00°.

97.30

1	21.04	33.73	5.28	437	0	(21.04)	(33.73)	(5.28)	(23.53)	(437)	(0.00)
11	14.37	33.53	5.47	297	10	14.50	33.53	5.46	24.97	300	0.04
31	12.60	33.58	3.83	259	20	13.41	33.56	4.59	25.22	276	0.06
41	11.36	33.58	3.72	237	30	12.64	33.58	3.84	25.38	260	0.09

BLACK DOUGLAS; July 9, 1959; 0634 GCT;<sup>a)</sup> 32°11.5'N, 117°17'W; sounding, 700 fm; wind, 290°, force 1; weather, clear; sea, moderate; wire angle, 10°.

97.32

376	7.96	34.32	0.69	128
384	7.83	34.33	0.56	126
393	7.46	34.29	0.69	124
402	7.42	34.28	0.62	124
411	7.24	34.26	0.60	124
420	7.02	34.23	0.58	123
429	7.01	34.23	0.62	123
438	6.94	34.23	0.63	122
447	6.74	34.22	0.52	120
456	6.62	34.18u	0.84u	-
465	6.58	34.22	0.50	118
474	6.52	34.23	0.47	116
482	6.50	34.23	0.51	116
491	6.54	34.27	0.74	113
500	6.50	34.27	0.56	113
508	6.54	34.29	0.54	112
517	6.53	34.30	0.45	111
527	6.51	34.33	0.39	109

PAOLINA-T; July 20, 1959; 1302 GCT; 32°11.5'N, 117°16'W; sounding, 700 fm; wind, direction missing, force 1; weather, overcast; sea, slight; wire angle, 01°.

97.32

2	21.90	33.80	5.19	454	0	(21.90)	(33.80)	(5.19)	(23.35)	(454)	(0.00)
12	16.58	33.58	5.93	340	10	16.92	33.59	5.92	24.48	347	0.04
32	13.86	33.52	5.51	288	20	14.98	33.51	5.80	24.85	311	0.07
42	12.70b)	33.52	4.73	266	30	13.86	33.52	5.52	25.09	288	0.10
52	11.60	33.53	3.98	245	50	11.80	33.53	4.07	25.50	249	0.16
66	10.57	33.62	3.82	220	75	10.39	33.65	3.72	25.85	216	0.21
81	10.29	33.66	3.65	213	100	9.98	33.71	3.50	25.97	204	0.27
100	9.98	33.71	3.50	204	150	9.43	33.92	2.82	26.23	180	0.36
125	9.70	33.82	3.23	192	200	9.28	34.08	1.99	26.38	166	0.45
144	9.46	33.90	2.92	182	250	9.11	34.20	1.45	26.49	155	0.54
174	9.42	34.05	2.23	170	300	8.66	34.20	1.38	26.57	148	0.61
203	9.26	34.09	1.95	165	400	7.39	34.18	1.08	26.74	131	0.76
232	9.14	34.18	1.56	156	500	6.73	34.24	0.63	26.88	118	0.89
272	9.08	34.22	1.35	153							
331	8.14	34.18	1.39	142							
405	7.33	34.18	1.05	131							
480	6.86	34.22	0.70	121							
559	6.35	34.29	0.45	110							

a) Special cast.

b) Alternate value, 13.00°C, not used in interpolation.



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OBSERVED					INTERPOLATED				COMPUTED		
Z	T	S	O <sub>2</sub>	$\delta T_3$	Z	T	S	O <sub>2</sub>	$\sigma_t$	$\delta T_3$	$\Delta D$
m	°C	‰	ml/L	$\frac{-5}{10} \text{ cm/g}$	m	°C	‰	ml/L	g/L	$\frac{-5}{10} \text{ cm/g}$	dyn. m

97.40

PAOLINA-T; July 20, 1959; 0631 GCT; 31°52.5'N, 117°49.5'W; sounding, 720 fm; wind, 320°, force 3; weather, overcast; sea, moderate; wire angle, 10°.

1	20.48	33.73	5.19	422	0	(20.48)	(33.73)	(5.19)	(23.68)	(422)	(0.00)
11	20.48	33.72	5.16	422	10	20.48	33.72	5.16	23.68	422	0.04
30	17.80	33.66	5.50	362	20	19.50	33.69	5.23	23.92	400	0.08
40	16.34	33.58	5.79	335	30	17.80	33.66	5.50	24.31	362	0.12
50	15.17	33.54	5.56	312	50	15.17	33.54	5.56	24.84	312	0.19
64	13.65	33.55	5.15	282	75	12.71	33.56	4.50	25.36	262	0.26
79	12.38	33.57	4.34	256	100	10.88	33.62	4.02	25.74	226	0.32
98	10.96	33.61	4.04	228	150	9.79	33.90	2.79	26.15	187	0.43
121	10.32	33.80	3.06	204	200	9.00	34.06	2.22	26.40	164	0.52
140	9.89	33.87	2.91	192	250	7.87	34.06	2.08	26.58	147	0.60
167	9.66	33.97	2.57	180	300	7.97	34.18	1.35	26.66	139	0.67
196	9.16	34.06	2.21	165	400	7.03	34.23	0.82	26.83	123	0.80
225	7.98	34.00	2.30	152	500	6.39	34.24	0.59	26.94	113	0.93
263	7.85	34.09	1.88	144							
321	8.01	34.25	1.06	135							
394	7.07	34.23	0.83	124							
468	6.53	34.23	0.65	116							
548	6.24	34.30	0.40	108							

97.50

PAOLINA-T; July 20, 1959; 0027 GCT; 31°26'N, 118°30'W; sounding, 1300 fm; wind, 320°, force 5; weather, overcast; sea, very rough; wire angle, 09°.

3	20.42	33.75	5.21	419	0	(20.42)	(33.75)	(5.21)	(23.71)	(419)	(0.00)
13	20.42	33.73	5.19	420	10	20.42	33.73	5.20	23.70	420	(0.04)
33	16.87	33.57	5.95	348	20	20.10	33.71	5.28	23.78	413	(0.08)
42	15.34	33.56	5.73	315	30	17.13	33.57	5.93	24.42	352	(0.12)
57	14.24	33.58	5.12	291	50	14.27	33.53	5.23	25.02	295	(0.19)
71	12.64	33.51	4.41	265	75	12.25	33.56	4.14	25.44	255	(0.26)
96	10.70	33.67	3.50	220	100	10.66	33.68	3.54	25.83	218	(0.32)
116	10.01	33.68	3.76	208	150	9.15	33.80	3.19	26.18	185	(0.42)
135	9.50	33.73	3.40	196	200	8.28	34.02	2.31	26.48	156	(0.50)
154	9.04	33.82	3.12	182	250	7.70	34.09	1.72	26.63	142	(0.58)
183	8.51	33.98	2.52	162	300	7.25	34.16	1.25	26.74	131	(0.65)
218	8.06	34.05	2.10	150	400	6.41	34.23	0.75	26.91	115	(0.78)
247	7.72	34.09	1.75	142	500	6.06	(34.31)	0.42	(27.03)	(104)	(0.89)
297	7.28	34.16	1.26	131	600	5.59	(34.35)	0.38	(27.11)	(96)	(1.00)
351	6.75	34.20	0.88	122							
436	6.23	34.25	0.65	111							
520	6.00	34.34a)	0.35	102							
606	5.54	34.35a)	0.39	96							

97.60

PAOLINA-T; July 19, 1959; 1743 GCT; 31°05'N, 119°03.5'W; sounding, 1920 fm; wind, 320°, force 4; weather, cloudy; sea, rough; wire angle, 13°.

3	17.98	33.62	5.06	369	0	(17.98)	(33.62)	(5.06)	(24.24)	(369)	(0.00)
13	17.97	33.60	5.19	370	10	17.97	33.60	5.19	24.23	370	0.04
32	16.09	33.57	5.57	330	20	17.96	33.60	5.20	24.23	370	0.07
42	14.96	33.58	5.58	306	30	16.16	33.54	5.55	24.61	334	0.11
56	13.97	33.58	5.10	285	50	14.38	33.58	5.33	25.04	294	0.17
71	12.54	33.46	4.77	267	75	12.27	33.45	4.70	25.36	263	0.24
95	10.52	33.55	4.03	225	100	10.15	33.58	3.84	25.84	216	0.30
113	9.79	33.62	3.65	208	150	9.19	33.77	3.10	26.15	188	0.40
132	9.21	33.68	3.56	195	200	8.52	33.98	2.19	26.42	162	0.49
152	9.18	33.78	3.04	186	250	7.99	34.10	1.62	26.60	145	0.57
180	8.73	33.95	2.47	168	300	7.57	34.15	1.14	26.69	136	0.64
214	8.39	34.00	2.04	159	400	6.88	34.25	0.66	26.87	119	0.78
243	8.04	34.09	1.72	147	500	6.11	34.29	0.39	27.00	107	0.90
292	7.64	34.14	1.20	138	600	(5.59)	(34.33)	(0.26)	(27.10)	(97)	(1.00)
346	7.20	34.20	0.92	128							
429	6.64	34.27	0.54	116							
514	6.00	34.29	0.36	106							
599	5.60	34.33	0.26	98							

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a) An error of - 0.1‰ chlorinity in burette reading has been assumed. The listed observed and interpolated values incorporate the correction.



OBSERVED					INTERPOLATED				COMPUTED		
Z	T	S	O <sub>2</sub>	$\delta T_3$	Z	T	S	O <sub>2</sub>	$\sigma_t$	$\delta T_3$	$\Delta D$
m	°C	‰	ml/L	$10^{-5} \text{ cm}^3/\text{g}$	m	°C	‰	ml/L	g/L	$10^{-5} \text{ cm}^3/\text{g}$	dyn. m

PAOLINA-T; July 19, 1959; 1128 GCT; 30°48'N, 119°45'W; sounding, 1930 fm; wind, 320°, force 4; weather, cloudy; sea, moderate; wire angle, 21°.

97.70

3	17.61	33.56	5.50	365	0	(17.61)	(33.56)	(5.50)	(24.28)	(365)	(0.00)
12	17.61	33.57	5.27	364	10	17.61	33.57	5.30	24.29	364	0.04
31	17.58	33.58	5.17	362	20	17.60	33.58	5.21	24.30	363	0.07
40	17.40	33.55	5.17	360	30	17.58	33.58	5.18	24.31	362	0.11
54	16.29	33.53	5.48	338	50	16.68	33.53	5.37	24.48	346	0.18
68	15.35	33.53	5.53	317	75	15.00	33.52	5.51	24.85	311	0.26
91	13.87	33.49	5.37	290	100	13.04	33.49	5.20	25.24	274	0.34
109	12.03	33.51	4.94	254	150	9.59	33.77	3.30	26.08	194	0.45
128	10.16	33.55	4.39	220	200	8.72	33.96	2.60	26.38	166	0.54
146	9.69	33.73	3.49	198	250	8.08	34.06	2.00	26.55	149	0.62
173	9.12	33.89	2.82	178	300	7.61	34.13	1.52	26.67	138	0.70
205	8.65	33.98	2.53	164	400	6.80	34.21	0.95	26.85	121	0.83
232	8.24	34.03	2.18	155	500	6.13	34.30	0.53	27.00	106	0.95
278	7.83	34.11	1.71	143							
329	7.31	34.16	1.27	132							
409	6.75	34.22	0.89	120							
490	6.20	34.29	0.55	108							
573	5.60	34.31	0.41	99							

PAOLINA-T; July 19, 1959; 0506 GCT; 30°32'N, 120°28.5'W; sounding, 2000 fm; wind, 320°, force 4; weather, overcast; sea, moderate; wire angle, 14°.

97.80

1	17.76	33.58	5.20	366	0	(17.76)	(33.58)	(5.20)	(24.27)	(366)	(0.00)
10	17.76	33.58	5.24	366	10	17.76	33.58	5.24	24.27	366	0.04
30	17.54	33.56	5.16	363	20	17.67	33.57	5.22	24.28	365	0.07
39	17.42	33.58	5.27	359	30	17.54	33.56	5.16	24.30	363	0.11
54	16.75	33.53	5.35	347	50	16.99	33.54	5.33	24.43	351	0.18
68	16.18	33.53	5.40	335	75	15.89	33.54	5.40	24.67	328	0.27
92	14.66	33.57	5.39	300	100	13.96	35.61	5.34	25.15	283	0.34
111	13.00	33.57	5.21	268	150	10.31	33.53	4.35	25.78	223	0.47
130	11.56	33.53	4.73	244	200	8.66	33.85	3.25	26.29	174	0.57
149	10.37	33.53	4.36	224	250	7.92	34.03	2.15	26.55	149	0.66
178	8.96	33.75	3.69	186	300	7.28	34.08	1.72	26.67	138	0.73
211	8.54	33.89	3.01	169	400	6.53	34.16	0.90	26.85	121	0.86
241	8.08	34.00	2.33	154	500	5.83	34.26	0.44	27.01	106	0.98
289	7.40	34.07	1.78	140	600	(5.49)	(34.34)	(0.31)	(27.12)	(95)	(1.09)
343	6.86	34.09	1.37	131							
427	6.36	34.20	0.69	116							
511	5.78	34.27	0.41	104							
596	5.50	34.34	0.31	96							

PAOLINA-T; July 18, 1959; 2311 GCT; 30°16'N, 121°07'W; sounding, 2000 fm; wind, 320°, force 4; weather, cloudy; sea, rough; wire angle, 12°.

97.90

2	18.18	33.64	5.13	372	0	(18.18)	(33.64)	(5.13)	(24.21)	(372)	(0.00)
12	18.03	33.62	5.16	370	10	18.05	33.62	5.15	24.22	370	0.04
31	17.94	33.62	5.00	368	20	17.99	33.62	5.12	24.24	369	0.07
41	17.72	33.64	5.30	361	30	17.95	33.62	5.00	24.25	368	0.11
55	17.26	33.62	5.25	352	50	17.42	33.63	5.29	24.38	355	0.18
70	16.74	33.60	5.23	342	75	16.56	33.60	5.26	24.57	338	0.27
94	15.79	33.66	5.40	317	100	15.51	33.68	5.37	24.87	309	0.35
113	14.74	33.71	5.22	292	150	10.67	33.59	4.41	25.75	225	0.49
132	12.16	33.58	4.69	251	200	8.91	33.82	3.29	26.23	180	0.59
151	10.66	33.59	4.40	224	250	8.10	33.97	2.38	26.48	156	0.68
180	9.38	33.73	3.79	194	300	7.54	34.03	2.10	26.60	145	0.76
214	8.64	33.87	2.95	172	400	6.56	34.12	1.14	26.81	125	0.90
243	8.19	33.96	2.45	159	500	5.86	34.28	0.51	27.02	105	1.02
292	7.63	34.02	2.15	147	600	(5.39)	(34.31)	(0.43)	(27.10)	(97)	(1.12)
346	7.06	34.07	1.57	135							
429	6.31	34.16	0.90	119							
513	5.79	34.29	0.46	103							
599	5.40	34.31	0.43	97							



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OBSERVED					INTERPOLATED				COMPUTED			
Z	T	S	O <sub>2</sub>	$\delta T_{-5}^3$	Z	T	S	O <sub>2</sub>	$\sigma_t$	$\delta T_{-5}^3$	$\Delta D$	
m	°C	‰	ml/L	$10^{-5} \text{ cm}^3/\text{g}$	m	°C	‰	ml/L	g/L	$10^{-5} \text{ cm}^3/\text{g}$	dyn. m	

100.30

PAOLINA-T; July 17, 1959; 0147 GCT; 31°41'N, 116°46.5'W; sounding, 240 fm; wind, 290°, force 4; weather, cloudy; sea, moderate; wire angle, 14°.

2	18.21	33.63	6.66	374	0	(18.21)	(33.63)	(6.66)	(24.19)	(374)	(0.00)
22	12.66	33.57	4.71	261	10	13.86	33.58	5.17	25.14	283	0.03
46	11.12	33.62	4.06	230	20	12.68	33.57	4.72	25.38	261	0.06
71	10.46	33.70	3.63	213	30	12.32	33.57	4.58	25.44	255	0.09
95	10.10	33.86	3.33	196	50	10.97	33.63	3.97	25.74	226	0.13
134	9.58	33.85	3.08	188	75	10.39	33.72	3.56	25.91	210	0.19
172	9.27	34.02	2.26	171	100	10.02	33.86	3.32	26.07	195	0.24
221	9.24	34.14a)	1.69	161	150	9.41	33.91	2.80	26.22	180	0.34
269	9.11	34.27	1.16	150	200	9.25	34.08	1.94	26.38	166	0.42
372	8.32	34.33a)	0.74	133	250	9.20	34.22	1.31	26.50	154	0.50
					300	8.90	34.31	0.96	26.61	143	0.58

100.40

PAOLINA-T; July 17, 1959; 0751 GCT; 31°21'N, 117°27'W; sounding, 1050 fm; wind, 300°, force 4; weather, overcast; sea, moderate; wire angle, 10°.

2	20.76	33.74	5.21	428	0	(20.76)	(33.74)	(5.21)	(23.62)	(428)	(0.00)
12	20.76	33.72	5.37	429	10	20.76	33.72	5.35	23.62	428	0.04
32	16.39	33.68	5.76	329	20	20.50	33.71	5.40	23.67	423	0.08
41	14.22	33.62	5.43	288	30	16.80	33.68	5.73	24.57	338	0.12
56	12.17	33.64	-	247	50	12.82	33.63	4.31	25.38	260	0.18
70	11.02	33.66	3.60	226	75	10.78	33.68	3.57	25.80	220	0.24
95	10.04	33.76	3.40	202	100	9.91	33.78	3.36	26.04	198	0.30
114	9.50	33.82	3.28	189	150	8.86	33.88	2.97	26.29	174	0.39
133	9.10	33.84	3.20	182	200	8.16	34.09	2.03	26.56	149	0.47
152	8.83	33.89	2.93	172	250	7.58	34.16	1.63	26.70	135	0.54
181	8.42	34.02	2.30	158	300	7.08	34.18	1.20	26.78	127	0.61
215	7.98	34.13	1.85	143	400	6.49	34.29	0.55	26.96	111	0.74
244	7.64	34.16	1.69	136	500	5.98	34.33	0.41	27.05	102	0.85
293	7.14	34.17	1.23	129	600	(5.50)	(34.42)	(0.32)	(27.18)	(89)	(0.95)
347	6.68	34.24	0.94	118							
430	6.37	34.31	0.44	108							
513	5.90	34.34	0.41	100							
598	5.51	34.42	0.32	90							

100.50

PAOLINA-T; July 17, 1959; 1502 GCT; 30°54.5'N, 118°12.5'W; sounding, 950 fm; wind, 320°, force 3; weather, overcast; sea, moderate; wire angle, 05°.

2	18.55	33.71	5.17	376	0	(18.55)	(33.71)	(5.17)	(24.17)	(376)	(0.00)
12	18.44	33.69	5.24	375	10	18.47	33.69	5.23	24.18	375	0.04
32	17.58	33.64	5.40	358	20	18.27	33.67	5.27	24.21	372	0.08
42	16.67	33.58	5.51	342	30	17.73	33.65	5.37	24.32	361	0.11
56	15.60	33.57	5.58	320	50	16.06	33.57	5.56	24.66	329	0.18
71	14.30	33.46	5.60	301	75	13.84	33.44	5.56	25.04	293	0.26
95	11.80	33.46	4.88	254	100	11.49	33.48	4.71	25.52	246	0.33
115	10.65	33.60	4.10	224	150	9.24	33.82	3.06	26.16	185	0.44
135	9.65	33.75	3.43	196	200	8.73	34.02	2.21	26.41	163	0.52
154	9.18	33.84	2.98	182	250	7.83	34.10	1.91	26.62	143	0.60
183	8.90	33.95	2.51	170	300	7.22	34.18	1.24	26.76	129	0.67
217	8.50	34.07	1.95	155	400	6.53	34.24	0.77	26.91	116	0.80
246	7.90	34.10	1.93	144	500	5.94	34.32	0.46	27.04	103	0.91
296	7.26	34.18	1.25	130	600	5.34	34.36	0.32	27.15	92	1.02
350	6.86	34.21	0.97	122							
434	6.31	34.26	0.64	112							
519	5.84	34.33	0.40	101							
605	5.31	34.36	0.31	92							

a) Salinity bottle numbers and order differ on the data and titration sheets. They are assumed to be in the order listed.



OBSERVED					INTERPOLATED				COMPUTED		
Z	T	S	O <sub>2</sub>	$\delta T_3$	Z	T	S	O <sub>2</sub>	$\sigma_t$	$\delta T_3$	$\Delta D$
m	°C	‰	ml/L	$10^{-5} \text{ cm}^3/\text{g}$	m	°C	‰	ml/L	g/L	$10^{-5} \text{ cm}^3/\text{g}$	dyn. m

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PAOLINA-T; July 17, 1959; 2025 GCT; 30°36'N, 118°49.5'W; sounding, 1500 fm; wind, 300°, force 3; weather, overcast; sea, moderate; wire angle, 12°.

100.60

2	18.05	33.62	5.16	371	0	(18.05)	(33.62)	(5.16)	(24.22)	(371)	(0.00)
12	17.90	33.60	5.20	368	10	17.95	33.61	5.18	24.24	369	0.04
31	16.80	33.58	5.33	345	20	17.52	33.58	5.24	24.33	360	0.07
40	16.58	33.58	5.52	340	30	16.84	33.58	5.31	24.48	346	0.11
55	16.04	33.58	5.51	328	50	16.23	33.58	5.51	24.62	332	0.18
70	15.32	33.59	5.65	312	75	15.09	33.58	5.60	24.88	308	0.26
93	14.07	33.54	5.26	290	100	13.45	33.52	5.05	25.17	280	0.33
112	12.15	33.48	4.66	258	150	9.86	33.68	3.55	25.96	205	0.45
131	10.82	33.51	4.23	234	200	8.72	33.92	2.72	26.34	170	0.55
150	9.86	33.68	3.55	205	250	8.09	34.08	1.95	26.56	148	0.63
178	9.25	33.83	2.95	185	300	7.29	34.13	1.60	26.72	134	0.70
211	8.52	33.96	2.56	164	400	6.45	34.21	0.81	26.89	117	0.84
239	8.26	34.05	2.04	154	500	5.84	34.29	0.27	27.03	104	0.95
286	7.48	34.13	1.76	137	600	(5.30)	(34.40)		(27.19)	(89)	(1.05)
339	6.85	34.14	1.20	127							
420	6.31	34.23	0.68	114							
503	5.82	34.29	0.26	104							
587	5.36	34.38	0.19	91							

PAOLINA-T; July 18, 1959; 0230 GCT; 30°17.5'N, 119°25'W; sounding, 2000 fm; wind, 290°, force 3; weather, cloudy; sea, moderate; wire angle, 08°.

100.70

1	18.51	33.64	5.25	380	0	(18.51)	(33.64)	(5.25)	(24.13)	(380)	(0.00)
11	18.36	33.64	5.29	376	10	18.37	33.64	5.28	24.16	376	0.04
31	17.30	33.57	5.48	357	20	17.56	33.58	5.44	24.31	363	0.07
41	16.95	33.56	5.51	350	30	17.32	33.57	5.47	24.36	357	0.11
50	16.22	33.54	5.60	335	50	16.22	33.54	5.60	24.60	335	0.18
65	15.34	33.50	5.59	319	75	14.98	33.49	5.60	24.83	313	0.26
80	14.79	33.48	5.60	310	100	13.54	33.47	5.40	25.12	285	0.34
99	13.60	33.45	5.41	286	150	9.80	33.59	4.16	25.91	210	0.46
123	11.44	33.49	4.74	245	200	8.54	33.93	2.78	26.38	166	0.56
142	10.18	33.53	4.35	221	250	8.03	34.05	1.91	26.54	150	0.64
171	9.04	33.76	3.55	186	300	7.34	34.10	1.47	26.68	137	0.71
200	8.54	33.93	2.78	166	400	6.40	34.18	0.82	26.87	119	0.84
230	8.26	34.02	2.21	156	500	5.81	34.23	0.51	27.00	107	0.96
269	7.77	34.07	1.64	144							
328	7.00	34.13	1.33	130							
403	6.36	34.18	0.81	118							
478	5.93	34.22	0.55	110							
558	5.56	34.27	0.40	101							

PAOLINA-T; July 18, 1959; 0805 GCT; 29°56.5'N, 120°03'W; sounding, 2000 fm; wind, 300°, force 2; weather, overcast; sea, moderate; wire angle, 06°.

100.80

1	18.10	33.57	5.20	375	0	(18.10)	(33.57)	(5.20)	(24.18)	(375)	(0.00)
11	18.08	33.57	5.16	375	10	18.08	33.57	5.16	24.18	375	0.04
21	17.95	33.55	5.08	373	20	17.97	33.55	5.09	24.20	373	0.07
41	16.55	33.46	5.26	348	30	17.42	33.51	5.12	24.29	364	0.11
51	16.06	33.48	5.44	336	50	16.08	33.48	5.43	24.59	336	0.18
60	15.58	33.47	5.48	326	75	15.06	33.48	5.49	24.81	315	0.26
75	15.06	33.48	5.49	315	100	12.96	33.48	5.13	25.25	273	0.34
90	13.61	33.51	5.29	284	150	9.40	33.67	3.95	26.04	198	0.46
110	12.10	33.53	4.80	254	200	8.59	33.90	2.90	26.34	169	0.55
134	10.00	33.58	4.22	214	250	7.88	34.01	2.09	26.54	150	0.63
153	9.30	33.71	3.87	194	300	7.19	34.10	1.47	26.70	135	0.71
182	8.84	33.84	3.26	178	400	6.62	34.22	0.64	26.88	118	0.84
241	8.02	34.00	2.23	154	500	6.12	34.30	0.43	27.01	106	0.96
280	7.31	34.06	1.72	139							
339	7.02	34.17	1.06	128							
413	6.51	34.23	0.58	116							
488	6.19	34.29	0.45	107							
568	5.70	34.33	0.31	99							



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OBSERVED					INTERPOLATED				COMPUTED		
Z	T	S	O <sub>2</sub>	$\delta T_{-5}^3$	Z	T	S	O <sub>2</sub>	$\sigma_t$	$\delta T_{-5}^3$	$\Delta D$
m	°C	‰	ml/L	10 <sup>-5</sup> cm/g	m	°C	‰	ml/L	g/L	10 <sup>-5</sup> cm/g	dyn. m

100.90

PAOLINA-T; July 18, 1959; 1404, 1604 GCT; 29°36'N, 120°40'W; sounding, 2150 fm; wind, 320°, force 3; weather, cloudy; sea, moderate; wire angle, 04°, 07°.

1	18.22	33.68	5.25	370	0	(18.22)	(33.68)	(5.25)	(24.22)	(370)	(0.00)
11	18.22	33.66	5.35	372	10	18.22	33.66	5.34	24.21	372	0.04
31	18.12	33.68	5.38	368	20	18.20	33.66	5.36	24.21	372	0.07
41	17.86	33.68	5.40	362	30	18.13	33.68	5.37	24.25	368	0.11
56	17.44	33.68	5.48	352	50	17.58	33.68	5.46	24.39	355	0.18
71	17.01	33.66	5.54	344	75	16.85	33.65	5.56	24.54	341	0.27
95	15.62	33.58	5.81	319	100	15.20	33.58	5.75	24.86	310	0.35
115	13.66	33.60	5.30	278	150	11.07	33.58	4.72	25.68	232	0.49
134	12.10	33.61	4.95	248	200	9.00	33.83	3.53	26.22	181	0.59
154	10.78	33.57	4.65	228	250	8.25	33.99	2.56	26.47	157	0.68
184	9.47	33.75	3.90	194	300	7.29	34.11	1.82	26.70	135	0.76
218	8.60	33.91	3.06	168	400	6.49	34.17	0.83	26.86	120	0.89
248	8.28	33.99	2.60	158	500	5.96	34.27	0.46	27.01	106	1.01
297	7.35	34.11	1.86	136	600	5.44	34.33	0.35	27.12	96	1.12
352	6.76	34.13	1.25	127	700	5.00	34.37	0.27	27.20	88	1.21
437	6.17	34.23	0.69	112	800	4.62	34.40	0.35	27.26	82	1.31
523	5.84	34.29	0.47	104	1000	3.96	34.43	0.57	27.36	72	1.48
608	5.31	34.35	0.31	92	1200	3.48	34.53	0.82	27.49	60	1.63
					1500	2.85	34.57	1.12	27.58	52	1.82
395a)	6.57	34.14	1.09	123	2000	2.09	34.62	1.88	27.68	42	2.11
495	6.06	34.27	0.46	108	2500	1.81	34.65	2.28	27.72	38	
594	5.51	34.33	0.34	96	3000	1.65	34.67	2.64	27.77	34	
693	5.03	34.37	0.27	88							
792	4.66	34.40	0.33	82							
990	3.98	34.43	0.56	73							
1188	3.50	34.53	0.78	61							
1386	3.08	34.56	0.98	55							
1584	2.70	34.58	1.26	50							
1781	2.37	34.61	1.55	45							
1979	2.12	34.62	1.81	42							
2176	1.96	34.63	2.02	40							
2373	1.86	34.65	2.21	38							
2570	1.77	34.65	2.28	38							
2769	1.71	34.68	2.44	35							
2968	1.66	34.67	2.58	34							
3068	1.64	34.67	2.65	34							
3167	1.62	34.67	2.65	34							

103.30

BLACK DOUGLAS; August 1, 1959; 1716 GCT; 31°05'N, 116°25'W; sounding, 40 fm; wind, 330°, force 2; weather, partly cloudy; sea, moderate; wire angle, 00°.

1	19.64	33.58	6.83	411	0	(19.64)	(33.58)	(6.83)	(23.80)	(411)	(0.00)
10	15.08	33.61	5.84	306	10	15.08	33.61	5.84	24.90	306	0.04
28	12.44	33.68	3.23	249	20	12.63	33.65	4.43	25.44	255	0.06
46	12.31	33.69	2.08	246	30	12.43	33.68	3.22	25.50	249	0.09

a) Overlapping casts; reconciliation of property curves when necessary.



OBSERVED					INTERPOLATED				COMPUTED			
Z	T	S	O <sub>2</sub>	$\delta T_{-5}^3$	Z	T	S	O <sub>2</sub>	$\sigma_t$	$\delta T_{-5}^3$	$\Delta D$	
m	°C	‰	ml/L	10 cm/g	m	°C	‰	ml/L	g/L	10 cm/g	dyn. m	

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BLACK DOUGLAS; August 1, 1959; 1432 GCT; 30°57'N, 116°46'W; sounding, 950 fm; wind, 340°, force 3; weather, partly cloudy; sea, moderate; wire angle, 02°.

103.35

1	20.29	33.66	6.06	422	0	(20.29)	(33.66)	(6.06)	(23.69)	(422)	(0.00)
10	20.29	33.64	6.09	423	10	20.29	33.64	6.09	23.68	423	0.04
28	13.39	33.51	5.12	279	20	16.25	33.59	5.70	24.63	332	0.08
37	12.78	33.50	4.68	268	30	13.24	33.50	5.03	25.21	277	0.11
50	12.02	33.55	4.10	251	50	12.02	33.55	4.10	25.48	251	0.16
64	10.94	33.75	3.13	217	75	10.72	33.84	2.52	25.94	207	0.22
86	10.62	33.91	2.13	200	100	10.57	33.95	2.12	26.06	196	0.27
104	10.54	33.96	2.13	195	150	10.19	34.13	1.86	26.26	176	0.37
122	10.40	33.99	2.15	191	200	10.26	34.33	1.12	26.41	163	0.45
140	10.16	34.07	2.03	181	250	10.10	34.37	0.97	26.46	158	0.54
167	10.28	34.23	1.51	171	300	9.79	34.40	0.81	26.54	150	0.62
199	10.26	34.33	1.12	163	400	8.67	34.39	0.70	26.72	133	0.76
225	10.16	34.35	1.06	160	500	7.01	34.26	0.64	26.85	121	0.89
270	10.00	34.38	0.91	155							
320	9.61	34.42	0.76	146							
395	8.73	34.40	0.70	134							
472	7.49	34.27	0.67	126							
548	6.20	34.25	0.54	111							

BLACK DOUGLAS; August 1, 1959; 1110 GCT; 30°48'N, 117°06'W; sounding, 975 fm; wind, 320°, force 3; weather, clear; sea, moderate; wire angle, 04°.

103.40

1	20.81	33.75	4.92	429	0	(20.81)	(33.75)	(4.92)	(23.61)	(429)	(0.00)
10	20.84	33.75	4.97	430	10	20.84	33.75	4.97	23.60	430	0.04
28	17.45	33.62	5.41	357	20	19.92	33.72	5.24	23.83	408	0.08
37	15.56	33.51	5.21	323	30	17.05	33.60	5.35	24.45	349	0.12
50	13.78	33.47	5.29	290	50	13.78	33.47	5.29	25.07	290	0.19
63	12.71	33.49	4.72	268	75	12.27	33.53	4.47	25.42	257	0.25
85	11.76	33.58	4.16	244	100	11.17	33.60	4.00	25.68	232	0.32
103	10.99	33.61	3.93	228	150	9.39	33.78	3.22	26.12	190	0.42
121	10.24	33.68	3.50	211	200	9.36	34.11	2.00	26.39	164	0.51
139	9.62	33.73	3.42	198	250	8.71	34.15	1.65	26.52	152	0.59
165	9.23	33.87	2.90	181	300	7.48	34.09	1.67	26.65	140	0.67
196	9.30	34.09	2.09	166	400	7.19	34.28	0.60	26.85	121	0.81
223	9.89	34.31	1.16	158	500	6.65	34.33	0.43	26.96	110	0.93
268	7.90	34.05	1.79	148							
317	7.36	34.11	1.57	136							
391	7.20	34.26	0.62	123							
468	6.92	34.33	0.46	114							
545	6.04	34.30	0.40	105							

BLACK DOUGLAS; August 1, 1959; 0508 GCT; 30°29'N, 117°46.5'W; sounding, 1450 fm; wind, 330°, force 4; weather, clear; sea, moderate; wire angle, 20°.

103.50

2	19.36	33.66	5.06	399	0	(19.36)	(33.66)	(5.06)	(23.93)	(399)	(0.00)
10	19.38	33.66	5.07	399	10	19.38	33.66	5.07	23.93	399	0.04
27	18.12	33.60	5.20	374	20	18.80	33.63	5.11	24.04	388	0.08
36	17.54	33.58	5.32	361	30	17.84	33.59	5.24	24.25	368	0.12
48	17.03	33.53	5.40	354	50	16.80	33.51	5.40	24.44	350	0.19
61	15.77	33.51	5.31	327	75	14.95	33.50	5.40	24.85	311	0.27
82	14.42	33.50	5.43	300	100	12.68	33.48	4.94	25.30	268	0.35
97	12.86	33.48	5.03	271	150	9.92	33.68	3.62	25.96	206	0.46
115	11.72	33.48	4.41	250	200	8.58	33.95	2.56	26.39	165	0.56
131	10.72	33.57	4.32	227	250	7.89	34.05	2.12	26.56	148	0.64
156	9.71	33.71	3.36	200	300	7.23	34.12	1.52	26.71	134	0.71
185	9.84	33.86	2.95	176	400	6.30	34.18	0.82	26.89	117	0.84
210	8.42	34.00	2.39	159	500	5.94	34.31	0.40	27.04	103	0.96
252	7.86	34.05	2.11	148							
297	7.26	34.11	1.55	135							
369	6.60	34.16	0.95	122							
443	6.00	34.22	0.66	111							
518	5.94	34.34	0.31	101							



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OBSERVED					INTERPOLATED				COMPUTED			
Z	T	S	O <sub>2</sub>	$\delta T_3$	Z	T	S	O <sub>2</sub>	$\sigma_t$	$\delta T_3$	$\Delta D$	
m	°C	‰	ml/L	$10^{-5}$ cm/g	m	°C	‰	ml/L	g/L	$10^{-5}$ cm/g	dyn. m	

103.60 BLACK DOUGLAS; July 31, 1959; 2338 GCT; 30°06'N, 118°25.5'W; sounding, 1700 fm; wind, 340°, force 4; weather, cloudy; sea, moderate; wire angle, 15°.

1	19.30	33.69	5.15	395	0	(19.30)	(33.69)	(5.15)	(23.97)	(395)	(0.00)
9	19.28	33.68	5.20	395	10	19.28	33.68	5.20	23.97	395	0.04
27	18.14	33.63	5.33	372	20	18.59	33.62	5.34	24.09	383	0.08
36	17.68	33.66	5.26	359	30	17.99	33.65	5.28	24.26	367	0.12
49	16.97	33.64	5.28	344	50	16.92	33.64	5.29	24.51	343	0.19
61	16.54	33.65	5.41	334	75	15.47	33.61	5.44	24.82	314	0.27
83	14.66	33.60	5.41	298	100	13.02	33.57	4.71	25.30	268	0.34
100	13.02	33.57	4.71	268	150	9.73	33.64	4.17	25.96	206	0.46
117	11.70	33.58	4.81	243	200	8.70	33.91	3.10	26.33	170	0.56
134	10.65	33.58	4.61	225	250	7.93	34.06	2.26	26.56	148	0.64
159	9.40	33.73	3.86	194	300	7.29	34.11	1.76	26.69	136	0.72
188	8.88	33.86	3.33	176	400	6.56	34.24	0.87	26.91	116	0.85
213	8.50	33.96	2.80	163	500	5.97	34.29	0.49	27.02	105	0.96
255	7.86	34.07	2.20	146							
302	7.28	34.11	1.75	136							
375	6.72	34.23	1.06	119							
450	6.22	34.26	0.66	110							
526	5.84	34.32	0.40	101							

103.70 BLACK DOUGLAS; July 31, 1959; 1757 GCT; 29°46'N, 119°05.5'W; sounding, 1850 fm; wind, 360°, force 4; weather, overcast; sea, moderate; wire angle, 03°.

2	19.02	33.61	4.97	395	0	(19.02)	(33.61)	(4.97)	(23.97)	(395)	(0.00)
10	19.04	33.62	4.98	394	10	19.04	33.62	4.98	23.98	394	0.04
29	18.38	33.60	5.14	380	20	18.83	33.62	5.05	24.03	389	0.08
37	17.72	33.61	5.25	363	30	18.31	33.60	5.16	24.14	378	0.12
51	17.18	33.55	5.14	355	50	17.20	33.55	5.14	24.38	356	0.19
64	16.76	33.55	5.22	347	75	16.32	33.55	5.36	24.58	337	0.28
86	15.84	-	5.43	-	100	15.16	33.55	5.28	24.84	312	0.36
104	14.92	33.56	5.23	306	150	10.68	33.58	4.25	25.75	225	0.50
121	13.21	33.60	5.01	269	200	8.97	33.83	3.11	26.23	180	0.60
138	11.94	33.58	4.57	247	250	8.00	34.03	2.27	26.54	151	0.68
165	9.90	33.64	3.96	208	300	7.32	34.11	1.69	26.69	136	0.76
196	9.08	33.82	3.17	183	400	6.43	34.20	0.98	26.88	118	0.89
222	8.48	33.96	2.67	163	500	5.78	34.31	0.50	27.07	100	1.00
265	7.78	34.05	2.09	146							
314	7.19	34.13	1.56	132							
389	6.52	34.18	1.04	120							
465	5.97	34.28	0.63	105							
541	5.58	34.34	0.40	96							

103.80 BLACK DOUGLAS; July 31, 1959; 1219 GCT; 29°26.5'N, 119°45.5'W; sounding, 1800 fm; wind, 320°, force 3; weather, cloudy; sea, moderate; wire angle, 11°.

0	18.50	33.57	5.31	385	0	18.50	33.57	5.31	24.07	385	0.00
10	18.52	33.55	5.34	387	10	18.52	33.55	5.34	24.05	387	0.04
28	17.74	33.49	5.47	373	20	18.30	33.53	5.37	24.09	383	0.08
54	16.64	33.45	5.62	351	30	17.64	33.48	5.48	24.21	372	0.11
63	16.37	33.48	5.48	343	50	16.79	33.45	5.64	24.39	355	0.19
76	15.98	33.49	5.61	333	75	16.00	33.49	5.60	24.61	334	0.27
89	15.58	33.51	5.63	323	100	14.94	33.53	5.65	24.87	309	0.36
102	14.74	33.53	5.64	305	150	10.49	33.57	4.37	25.77	223	0.49
123	12.26	33.53	4.97	257	200	8.94	33.78	3.44	26.19	183	0.59
140	11.89	33.55	4.49	231	250	8.11	33.98	2.52	26.48	156	0.68
166	9.99	33.60	4.25	212	300	7.52	34.04	1.96	26.62	143	0.76
192	9.09	33.74	3.57	189	400	6.52	34.14	1.06	26.83	123	0.89
218	8.66	33.87	3.11	172	500	5.87	34.23	0.57	26.98	108	1.02
261	7.96	34.00	2.36	152							
309	7.42	34.05	1.88	142							
383	6.68	34.13	1.19	126							
458	6.12	34.21	0.70	113							
535	5.70	34.25	0.49	105							



OBSERVED					INTERPOLATED				COMPUTED		
Z	T	S	O <sub>2</sub>	$\delta T_3$	Z	T	S	O <sub>2</sub>	$\sigma_t$	$\delta T_3$	$\Delta D$
m	°C	‰	ml/L	10 <sup>-5</sup> cm/g	m	°C	‰	ml/L	g/L	10 <sup>-5</sup> cm/g	dyn. m

BLACK DOUGLAS; July 31, 1959; 0645 GCT; 29°06'N, 120°25'W; sounding, 2000 fm; wind, 270°, force 3; weather, overcast; sea, moderate; wire angle, 02°.

103.90

2	19.56	33.93	4.90	384	0	(19.56)	(33.93)	(4.90)	(24.08)	(384)	(0.00)
11	19.57	33.92	4.98	395	10	19.57	33.92	4.98	24.07	385	0.04
29	19.51	33.93	4.99	383	20	19.56	33.91	5.00	24.07	385	0.08
37	19.26	33.95	5.08	375	30	19.51	33.93	4.99	24.09	383	0.12
51	18.98	33.97	5.01	367	50	18.99	33.97	5.01	24.26	367	0.19
64	18.76	34.00	5.13	360	75	18.46	33.99	5.19	24.41	353	0.28
87	17.81	33.91	5.20	344	100	17.29	33.95	4.83	24.66	329	0.37
105	17.04	33.96	4.67	323	150	11.99	33.58	4.42	25.51	248	0.52
123	15.64	33.89	5.03	297	200	9.54	33.69	3.67	26.03	199	0.63
140	13.17	33.66	4.68	264	250	8.29	33.89	2.47	26.39	165	0.72
166	10.84	33.55	4.16	231	300	7.58	34.03	1.95	26.60	145	0.80
198	9.61	33.68	3.71	201	400	6.86	34.16	1.00	26.80	126	0.94
224	8.74	33.80	3.01	179	500	6.10	34.25	0.47	26.96	110	1.07
269	8.00	33.96	2.19	156							
319	7.40	34.06	1.85	141							
395	6.90	34.16	1.02	127							
471	6.32	34.22	0.60	114							
547	5.72	34.27	0.26	103							

BLACK DOUGLAS; July 28, 1959; 0430 GCT; 30°26'N, 116°11'W; sounding, 340 fm; wind, 270°, force 4; weather, clear; sea, moderate; wire angle, 05°.

107.32

1	19.84	33.59	7.68a)	416	0	(19.84)	(33.59)		(23.75)	(416)	(0.00)
9	18.73	33.59	8.30b)	389	10	18.48	33.59		24.10	383	0.04
27	14.02	33.66	4.40c)	281	20	15.95	33.63		24.74	322	0.08
36	12.62	33.57	4.23	260	30	13.30	33.59		25.26	272	0.10
45	12.36	33.65	3.66	250	50	12.18	33.66	3.73	25.54	245	0.16
54	11.95	33.67	3.78	241	75	10.78	33.75	3.38	25.86	215	0.21
63	11.26	33.67	3.68	229	100	10.32	33.76	3.35	25.96	206	0.27
76	10.75	33.75	3.39	214	150	10.49	33.96	2.19	26.08	194	0.37
90	10.58	33.75	3.43	211	200	10.31	34.15	1.80	26.26	177	0.46
104	10.28	33.80	3.24	203	250	9.96	34.28	1.24	26.42	162	0.55
126	10.58	33.98	2.48	194	300	9.45	34.29	1.07	26.51	153	0.63
153	10.48	33.96	2.16	194	400	7.96	34.23	1.00	26.70	135	0.78
184	10.42	34.09	1.93	184	500	(6.92)	(34.27)		(26.88)	(118)	(0.91)
229	10.06	34.25	1.46	166							
274	9.82	34.31	1.06	158							
367	8.36	34.23	1.09	141							
457	7.34	34.25	0.80	125							

a) Alternate value 8.08 ml/L.

b) Alternate value 8.48 ml/L.

c) Alternate value 4.65 ml/L.



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OBSERVED					INTERPOLATED				COMPUTED		
Z	T	S	O <sub>2</sub>	$\delta T_{3-5}$	Z	T	S	O <sub>2</sub>	$\sigma_t$	$\delta T_{3-5}$	$\Delta D$
m	°C	‰	ml/L	10 <sup>-5</sup> cm/g	m	°C	‰	ml/L	g/L	10 <sup>-5</sup> cm/g	dyn. m

10735 BLACK DOUGLAS; July 28, 1959; 0230 GCT; 30°20'N, 116°23'W; sounding, 900 fm; wind, 280°, force 2; weather, cloudy; sea, moderate; wire angle, 11°.

0	20.56	33.64	5.71	430	0	20.56	33.64	5.71	23.60	430	0.00
8	20.16	33.65	5.78	419	10	19.75	33.65	5.80	23.82	409	0.04
26	15.64	33.58	5.78	320	20	16.80	33.60	5.87	24.50	344	0.08
35	14.84	33.58	5.43	303	30	15.32	33.58	5.64	24.83	313	0.11
48	13.12	33.51	4.81	274	50	13.00	33.53	4.76	25.28	270	0.17
61	11.86	33.64	4.24	241	75	10.76	33.72	3.58	25.84	217	0.23
82	10.36	33.75	3.31	207	100	10.00	33.86	2.85	26.08	194	0.28
100	10.00	33.86	2.85	194	150	10.38	34.17	1.63	26.26	177	0.38
116	10.00	33.95	2.47	187	200	10.11	34.25	1.28	26.37	167	0.46
134	10.40	34.13	1.78	180	250	9.99	34.33	1.00	26.46	158	0.55
159	10.33	34.18	1.59	175	300	9.42	34.38	0.94	26.59	146	0.63
188	10.17	34.22	1.44	170	400	8.13	34.36	0.70	26.78	128	0.77
214	10.08	34.29	1.15	163	500	7.00	34.26	0.69	26.86	120	0.90
256	9.96	34.34	0.99	157							
304	9.35	34.38	0.92	145							
376	8.38	34.38	0.78	130							
451	7.62	34.31	0.63	125							
528	6.64	34.25	0.75a)	117							

10740 BLACK DOUGLAS; July 27, 1959; 2336 GCT; 30°10'N, 116°43.5'W; sounding, 1500 fm; wind, 300°, force 2; weather, overcast; sea, moderate; wire angle, 10°.

1	20.82	33.66	5.21	436	0	(20.82)	(33.66)	(5.21)	(23.54)	(436)	(0.00)
10	19.96	33.64	5.73	415	10	19.96	33.64	5.73	23.76	415	0.04
27	17.27	33.58	5.43	356	20	18.59	33.61	5.51	24.08	384	0.08
36	16.02	33.57	5.43	329	30	16.90	33.57	5.43	24.46	348	0.12
49	14.50	33.48	5.42	303	50	14.40	33.48	5.40	24.95	302	0.18
62	12.88	33.57	4.13	265	75	11.34	33.64	3.69	25.68	232	0.25
84	10.49	33.67	3.56	215	100	9.81	33.70	3.47	26.00	202	0.31
102	9.76	33.71	3.46	201	150	9.93	34.10	2.00	26.28	175	0.40
119	9.60	33.77	3.32	194	200	9.00	34.10	2.03	26.44	160	0.49
137	9.65	33.96	2.58	181	250	8.56	34.18	1.60	26.58	147	0.57
163	10.16	34.21	1.51	170	300	8.60	34.36	0.79	26.70	135	0.64
195	9.10	34.11	2.02	161	400	7.51	34.34	0.55	26.85	121	0.77
221	8.68	34.12	1.96	154	500	6.65	34.34	0.36	26.97	109	0.89
266	8.56	34.23	1.33	144							
314	8.60	34.40	0.65	132							
390	7.60	34.34	0.57	122							
465	6.96	34.34	0.39	113							
545	6.27	34.34	0.31	105							

10745 BLACK DOUGLAS; July 27, 1959; 2037 GCT;<sup>b)</sup> 30°00'N, 117°03.5'W; sounding, 800 fm; wind, 270°, force 3; weather, overcast; sea, moderate; wire angle, 02°.

4	20.94	33.77	5.09	431	0	(21.00)	(33.78)	(5.07)	(23.58)	(432)	(0.00)
13	20.79	33.74	5.12	429	10	20.83	33.75	5.11	23.61	429	0.04
31	19.18	33.69	5.45	392	20	20.58	33.71	5.19	23.66	425	0.09
35	17.78	33.66	5.99	361	30	19.27	33.69	5.43	23.97	395	0.13
40	16.40	33.60	6.18	335	50	14.75	33.58	5.88	24.95	301	0.20
44	15.41	33.55	6.06	317	75	11.17	33.58	3.89	25.66	234	0.26
49	14.94	33.58	5.99	305	100	10.03	33.77	3.42	26.01	201	0.32
53	13.82	33.55	5.15	285	150	8.99	33.91	2.71	26.29	174	0.41
58	13.02	33.55	4.52	270							
62	12.40	33.57	4.14	257							
66	12.06	33.55	4.13	252							
71	11.56	33.55	4.08	243							
75	11.17	33.58	3.89	234							
80	10.84	33.60	3.92	227							
85	10.55	33.61	3.80	221							
89	10.34	33.70	3.63	211							
139	9.15	33.88	2.87	179							
183	8.57	33.98	2.37	163							

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a) Alternate value, 0.90 ml/L, not used in interpolation.

b) Special cast.



OBSERVED					INTERPOLATED				COMPUTED			
Z	T	S	O <sub>2</sub>	$\delta T_{-5}^3$	Z	T	S	O <sub>2</sub>	$\sigma_t$	$\delta T_{-5}^3$	$\Delta D$	
m	°C	‰	ml/L	10 cm/g	m	°C	‰	ml/L	g/L	10 cm/g	dyn. m	

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BLACK DOUGLAS; July 27, 1959; 1710 GCT; 29°50.5'N, 117°23.5'W; sounding, 1450 fm; wind, 270°, force 3; weather, overcast; sea, moderate; wire angle, 03°.

107.50

2	19.35	33.66	5.29	399	0	(19.35)	(33.66)	(5.29)	(23.93)	(399)	(0.00)
10	19.29	33.64	5.12	399	10	19.29	33.64	5.12	23.93	399	0.04
29	17.46	33.56	5.50	361	20	18.18	33.59	5.35	24.16	376	0.08
38	17.25	33.57	5.34	356	30	17.43	33.56	5.49	24.32	361	0.12
51	16.22	33.50	5.52	338	50	16.29	33.50	5.52	24.55	340	0.18
65	15.45	33.49	5.41	322	75	14.37	33.45	5.33	24.94	303	0.27
87	13.00	33.44	5.12	277	100	11.71	33.45	4.74	25.46	253	0.34
105	11.36	33.46	4.58	246	150	9.26	33.73	3.45	26.10	192	0.45
122	10.22	33.57	4.01	219	200	8.30	33.97	2.55	26.45	159	0.54
140	9.53	33.66	3.67	201	250	7.61	34.04	2.16	26.59	145	0.62
166	8.85	33.82	3.01	179	300	7.60	34.18	1.28	26.70	135	0.69
197	8.33	33.96	2.56	161	400	7.01	34.25	0.61	26.85	121	0.82
224	7.96	34.00	2.45	152	500	6.33	34.33	0.45	27.00	106	0.94
268	7.49	34.06	1.94	142							
317	7.65	34.23	0.99	131							
392	7.07	34.25	0.62	122							
468	6.54	34.32	0.48	110							
545	6.02	34.33	0.43	103							

BLACK DOUGLAS; July 27, 1959; 1105 GCT; 29°31'N, 118°05'W; sounding, 2000 fm; wind, 320°, force 3; weather, cloudy; sea, moderate; wire angle, 05°.

107.60

1	20.78	34.14	4.84	400	0	(20.78)	(34.14)	(4.84)	(23.92)	(400)	(0.00)
10	20.80	34.11	4.78	402	10	20.80	34.11	4.78	23.89	402	0.04
28	20.66	34.13	4.73	397	20	20.77	34.11	4.75	23.90	401	0.08
37	19.79	34.04	4.92	382	30	20.62	34.14	4.74	23.96	395	0.12
50	18.33	33.86	5.18	359	50	18.33	33.86	5.18	24.34	359	0.20
63	17.65	33.84	5.01	345	75	16.91	33.77	5.10	24.62	333	0.28
85	16.38	33.76	5.18	323	100	15.78	33.77	5.11	24.88	308	0.36
103	15.58	33.78	5.07	304	150	11.39	33.71	3.43	25.72	228	0.50
120	14.01	33.75	4.60	274	200	9.67	33.98	2.45	26.23	179	0.60
137	12.46	33.68	4.18	250	250	9.13	34.17	1.70	26.47	157	0.69
164	10.46	33.80	2.85	206	300	9.17	34.35	0.86	26.60	144	0.77
194	9.76	33.95	2.55	183	400	7.70	34.32	0.65	26.81	125	0.91
221	9.40	34.05	2.18	170	500	6.76	34.31	0.46	26.94	113	1.04
265	9.12	34.23	1.47	153							
313	9.18	34.38	0.76	142							
388	7.81	34.33	0.68	126							
464	7.08	34.31	0.49	118							
540	6.42	34.34	0.43	107							

BLACK DOUGLAS; July 27, 1959; 0542 GCT; 29°11'N, 118°43'W; sounding, 1700 fm; wind, 280°, force 3; weather, cloudy; sea, moderate; wire angle, 07°.

107.70

2	21.55	-	4.72	-	0	(21.55)	(34.13)	(4.72)	(23.70)	(420)	(0.00)
11	21.07	34.13	4.85	408	10	21.07	(34.13)	4.85	(23.83)	(408)	(0.04)
29	21.02	34.14	4.80	406	20	21.04	34.14	4.81	23.85	406	(0.08)
37	19.82	34.05	4.69a)	382	30	21.02	34.14	4.80	23.85	406	(0.12)
51	18.48	33.83	5.06	365	50	18.53	33.84	5.04	24.27	366	(0.20)
64	17.96	33.84	5.14	352	75	17.20	33.82	5.16	24.58	336	(0.29)
86	16.40	33.78	5.16	322	100	15.61	33.74	5.06	24.89	307	(0.37)
104	15.28	33.73	5.00	301	150	11.30	33.68	3.82	25.71	229	(0.50)
121	13.46	33.68	4.53	268	200	10.38	34.02	2.28	26.15	188	(0.61)
139	11.85	33.67	4.05	239	250	9.44	34.22	1.56	26.45	159	(0.70)
166	10.70	33.72	3.45	216	300	8.72	34.27	1.37	26.62	143	(0.78)
196	10.36	33.97	2.41	191	400	7.70	34.29	0.59	26.78	127	(0.92)
223	10.66	34.34	1.54	170	500	6.70	34.32	0.46	26.95	112	(1.04)
268	9.04	34.22	1.56	153							
316	8.57	34.29	1.22	139							
391	7.80	34.29	0.62	129							
467	7.02	34.31	0.48	117							
544	6.28	34.33	0.45	106							

a) Alternate value, 5.15 ml/L, not used in interpolation.

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OBSERVED					INTERPOLATED				COMPUTED		
Z	T	S	O <sub>2</sub>	$\delta T_{-5}^3$	Z	T	S	O <sub>2</sub>	$\sigma_t$	$\delta T_{-5}^3$	$\Delta D$
m	°C	‰	ml/L	10 cm/g	m	°C	‰	ml/L	g/L	10 cm/g	dyn. m

107.80 BLACK DOUGLAS; July 26, 1959; 2355 GCT; 28°51.5'N, 119°22.5'W; sounding, 1900 fm; wind, 320°, force 2; weather, cloudy; sea, moderate; wire angle, 00°.

0	21.15	34.00	4.79	419	0	21.15	34.00	4.79	23.72	419	0.00
9	20.60	34.00	4.87	405	10	20.59	34.00	4.37	23.87	404	0.04
27	20.40	34.01	4.80	399	20	20.50	34.01	4.84	23.89	402	0.08
36	19.70	33.92	4.94	388	30	20.27	34.00	4.81	23.95	397	0.12
49	18.78	33.86	5.08	370	50	18.69	33.85	5.10	24.24	369	0.20
63	17.60	33.72	5.33	353	75	17.00	33.72	5.26	24.56	339	0.29
85	16.48	33.74	5.18	326	100	15.79	33.74	4.87	24.85	311	0.37
104	15.52	33.73	4.76	306	150	11.60	33.66		25.64	236	0.51
122	14.11	33.68	4.50	281	200	9.69	33.86	3.13	26.14	189	0.62
140	12.52	33.66	4.24	252	250	8.57	33.98	2.50	26.42	162	0.71
166	10.60	33.68	-	217	300	7.88	34.06	2.08	26.58	147	0.79
198	9.73	33.85	3.19	190	400	7.60	34.30	0.77	26.80	126	0.93
225	9.08	33.94	2.66	173	500	6.76	34.34	0.44	26.96	111	1.06
270	8.26	34.03	2.36	155							
320	7.71	34.09	1.85	142							
396	7.62	34.29	0.80	127							
472	7.04	34.33	0.50	116							
552	6.12	34.36	0.35	101							

107.90 BLACK DOUGLAS; July 26, 1959; 1828 GCT; 28°32.5'N, 120°01.5'W; sounding, 2100 fm; wind, 320°, force 2; weather, overcast; sea, moderate; wire angle, 03°.

2	19.80	33.81	5.18	399	0	(19.80)	(33.81)	(5.18)	(23.93)	(399)	(0.00)
11	19.54	33.80	4.95	393	10	19.54	33.79	4.98	23.98	394	0.04
29	19.51	34.05	5.38	374	20	19.52	33.85	5.01	24.03	389	0.08
38	19.06	34.02	5.20	366	30	19.50	34.06	5.37	24.20	373	0.12
51	18.62	33.96	5.13	359	50	18.67	33.97	5.13	24.33	360	0.19
65	18.16	34.00	5.25	346	75	17.78	34.06	5.25	24.63	332	0.28
88	17.16	34.07	5.19	317	100	16.00	33.98	4.96	24.98	298	0.36
106	15.47	33.93	4.89	290	150	11.93	33.70	4.27	25.62	238	0.49
124	13.95	33.80	4.69	269	200	9.44	33.83	3.29	26.15	188	0.60
142	12.56	33.73	4.34	247	250	8.53	33.97	2.54	26.41	163	0.69
168	10.68	33.69	4.05	218	300	8.07	34.10	1.83	26.58	147	0.77
198	9.50	33.82	3.32	189	400	7.63	34.27	0.58	26.78	128	0.92
226	8.93	33.91	2.80	173	500	6.65	34.33	0.41	26.96	110	1.04
271	8.28	34.04	2.24	154							
321	7.99	34.15	1.49	142							
396	7.68	34.27	0.60	129							
473	6.84	34.33	0.42	113							
548	6.33	34.33	0.37	106							

110.33 BLACK DOUGLAS; July 24, 1959; 2212 GCT; 29°50.5'N, 115°52'W; sounding, 50 fm; wind, 280°, force 1; weather, partly cloudy; sea, slight; wire angle, 00°.

0	20.16	33.73	5.39	414	0	20.16	33.73	5.39	23.77	414	0.00
9	19.54	33.73	5.68	398	10	19.50	33.73	5.69	23.94	397	0.04
27	16.17	33.68	5.94	324	20	18.49	33.70	5.85	24.18	375	0.08
45	13.61	33.66	4.18	272	30	15.53	33.66	5.72	24.85	311	0.11
68	11.43	33.67	3.62	232	50	13.13	33.66	3.98	25.36	263	0.17



OBSERVED					INTERPOLATED				COMPUTED		
Z	T	S	O <sub>2</sub>	$\delta T_3$	Z	T	S	O <sub>2</sub>	$\sigma_t$	$\delta T_3$	$\Delta D$
m	°C	‰	ml/L	$\frac{10^{-5}}{cm/g}$	m	°C	‰	ml/L	g/L	$\frac{10^{-5}}{cm/g}$	dyn. m

BLACK DOUGLAS; July 24, 1959; 2338 GCT; 29°46.5'N, 116°00'W; sounding, 550 fm; wind, 280°, force 1; weather, partly cloudy; sea, moderate; wire angle, 17°.

110.35

1	20.73	33.78	4.86	425	0	(20.73)	(33.78)	(4.86)	(23.66)	(425)	(0.00)
10	18.78	33.69	5.12	383	10	18.78	33.69	5.12	24.10	383	0.04
28	17.21	33.66	5.20	348	20	17.89	33.68	5.15	24.30	363	0.08
36	16.60	33.59	5.29	340	30	17.09	33.66	5.23	24.48	346	0.11
50	14.86	-	5.36	-	50	14.86	33.50	5.36	24.87	309	0.18
62	13.75	33.52	5.00	286	75	13.01	33.59	4.61	25.32	266	0.25
83	12.50	33.64	4.30	253	100	11.36	33.71	3.64	25.72	228	0.31
100	11.36	33.71	3.64	228	150	9.57	33.92	2.77	26.20	182	0.42
117	10.73	33.77	3.43	212	200	9.06	34.09	2.15	26.42	162	0.50
133	10.16	33.86	2.92	196	250	9.58	34.32	0.95	26.52	153	0.58
157	9.35	33.95	2.73	177	300	8.32	34.22	1.31	26.64	141	0.66
187	8.65	34.94	2.66	167	400	7.69	34.33	0.70	26.81	125	0.80
212	9.47	34.23	1.67	158	500	6.89	34.34	0.37	26.94	113	0.92
254	9.57	34.33	0.92	152							
301	8.30	34.22	1.31	141							
374	7.77	34.29	0.85	128							
449	7.48	34.36	0.48	119							
530	6.48	34.32	0.32	109							

BLACK DOUGLAS; July 25, 1959; 0225 GCT; 29°36.5'N, 116°19.5'W; sounding, 1250 fm; wind, 300°, force 2; weather, overcast; sea, moderate; wire angle, 03°.

110.40

1	20.42	33.73	4.86	420	0	(20.42)	(33.73)	(4.86)	(23.70)	(420)	(0.00)
10	20.24	33.73	4.99	416	10	20.24	33.73	4.99	23.75	416	0.04
32	17.33	33.62	5.59	354	20	19.60	33.70	5.18	23.90	402	0.08
41	15.72	33.58	5.76	322	30	17.75	33.63	5.54	24.31	362	0.12
54	13.86	33.53	4.91	287	50	14.30	33.52	5.25	25.01	296	0.19
68	12.88	33.58	4.02	264	75	12.40	33.58	3.95	25.43	256	0.26
90	11.36	33.58	3.75	237	100	10.77	33.62	3.55	25.77	224	0.32
108	10.32	33.68	3.33	212	150	9.00	33.84	2.96	26.24	179	0.42
129	9.55	33.77	3.13	193	200	9.16	34.15	1.75	26.45	159	0.50
152	8.99	33.86	2.92	178	250	8.50	34.20	1.23	26.60	145	0.58
179	9.37	34.09	2.07	167	300	7.91	34.25	0.99	26.72	133	0.65
214	8.98	34.18	1.57	154	400	7.09	34.26	0.55	26.85	121	0.78
242	8.62	34.20	1.27	147	500	6.33	34.30	0.49	26.98	108	0.90
286	8.04	34.25	1.07	135	600	(5.79)	(34.34)		(27.08)	(99)	(1.02)
345	7.53	34.26	0.71	128							
435	6.80	34.27	0.50	117							
515	6.24	34.32	0.48	106							
583	5.88	34.34	0.32	100							

BLACK DOUGLAS; July 25, 1959; 0731 GCT; 29°18'N, 116°58'W; sounding, 1440 fm; wind, 270°, force 2; weather, overcast; sea, moderate; wire angle, 20°.

110.50

2	20.70	33.75	4.90	426	0	(20.70)	(33.75)	(4.90)	(23.64)	(426)	(0.00)
10	20.48	33.75	5.00	421	10	20.48	33.75	5.00	23.69	421	0.04
27	18.04	33.64	5.18	369	20	19.10	33.68	5.11	24.01	391	0.08
35	17.33	-	5.29	-	30	17.72	33.63	5.23	24.30	363	0.12
48	16.20	33.57	5.41	332	50	16.00	33.56	5.44	24.66	329	0.19
60	14.64	33.53	5.42	303	75	12.88	33.51	4.49	25.29	269	0.26
80	12.21	33.51	4.22	257	100	10.92	33.57	3.84	25.70	230	0.33
97	11.04	33.57	3.85	233	150	9.41	33.80	2.92	26.13	189	0.44
113	10.50	33.59	3.78	222	200	9.06	34.18	1.66	26.48	156	0.52
130	9.95	33.69	3.48	205	250	8.64	34.25	1.27	26.60	144	0.60
154	9.32	33.82	2.79	186	300	8.08	34.23	0.93	26.68	137	0.67
182	9.08	34.05	2.08	166	400	6.29	34.18	0.83	26.90	117	0.80
206	9.04	34.20	1.57	154	500	5.69	34.25	0.49	27.02	105	0.92
247	8.68	34.24	1.30	145							
293	8.18	34.24	0.94	138							
363	6.62	34.16	0.89	123							
437	6.04	34.21	0.74	112							
512	5.62	34.26	0.40	103							



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OBSERVED					INTERPOLATED				COMPUTED		
Z	T	S	O <sub>2</sub>	$\delta T_{-5}^3$	Z	T	S	O <sub>2</sub>	$\sigma_t$	$\delta T_{-5}^3$	$\Delta D$
m	°C	‰	ml/L	10 cm/g	m	°C	‰	ml/L	g/L	10 cm/g	dyn. m

110.60 BLACK DOUGLAS; July 25, 1959; 1237 GCT; 28°59'N, 117°38'W; sounding, 1800 fm; wind, 300°, force 2; weather, overcast; sea, moderate; wire angle, 13°.

0	19.34	33.69	-	396	0	19.34	33.69		23.96	396	0.00
8	19.36	33.68	4.91	398	10	19.36	33.67	4.91	23.94	398	0.04
26	18.03	33.68	5.17	366	20	18.53	33.70	5.16	24.16	376	0.08
34	17.70	33.66	5.08	360	30	17.82	33.66	5.08	24.32	362	0.12
48	17.20	33.60	5.19	353	50	17.08	33.58	5.22	24.43	351	0.19
61	16.36	33.55	5.25	338	75	15.69	33.59	5.21	24.76	320	0.27
82	15.32	33.59	5.18	312	100	14.10	33.66	4.61	25.15	282	0.35
100	14.10	33.66	4.61	282	150	10.45	33.71	4.00	25.89	212	0.47
117	12.90	33.64	4.35	261	200	9.63	34.02	2.26	26.27	176	0.57
135	11.06	33.60	4.34	230	250	9.72	34.35	1.10	26.52	153	0.66
160	10.08	33.77	3.62	202	300	9.38	34.41	0.82	26.62	143	0.73
191	9.60	33.93	2.59	182	400	8.16	34.38	0.53	26.79	127	0.87
217	9.78	34.20	1.69	165	500	6.83	34.35	0.44	26.95	111	1.00
261	9.69	34.38	1.00	151							
308	9.30	34.42	0.78	141							
383	8.40	34.39	0.56	130							
458	7.37	34.36	0.49	118							
534	6.43	34.33	0.40	108							

110.70 BLACK DOUGLAS; July 26, 1959; 0100 GCT; 28°36.5'N, 118°18'W; sounding, 1600 fm; wind, 300°, force 2; weather, partly cloudy; sea, moderate; wire angle, 04°.

0	21.05	33.76	-	434	0	21.05	33.76		23.56	434	0.00
9	20.10	33.77	4.84	409	10	20.02	33.77	4.84	23.84	408	0.04
27	18.46	33.66	5.05	377	20	19.10	33.69	4.93	24.02	390	0.08
35	17.92	33.63	5.14	367	30	18.12	33.62	5.10	24.20	372	0.12
49	17.85	33.78	5.15	354	50	17.82	33.78	5.15	24.40	353	0.19
62	17.34	33.79	5.11	342	75	16.70	33.78	5.10	24.67	328	0.28
84	16.14	33.78	5.06	316	100	15.08	33.75	4.82	25.01	295	0.36
102	14.90	33.75	4.76	292	150	11.09	33.71	3.60	25.78	222	0.48
119	13.42	33.80	4.19	259	200	10.07	33.97	2.32	26.16	186	0.59
137	11.65	33.68	3.94	235	250	9.53	34.18	1.60	26.42	162	0.68
164	10.66	33.76	3.23	212	300	9.14	34.30	1.29	26.57	148	0.76
194	10.12	33.94	2.42	190	400	7.72	34.30	0.78	26.79	127	0.90
221	9.82	34.07	2.03	175	500	6.71	34.31	0.50	26.94	112	1.03
265	9.40	34.24	1.42	156							
314	9.00	34.31	1.23	145							
388	7.84	-	0.86	-							
465	7.05	34.31	0.50	117							
541	6.32	34.31	0.54	108							

110.80 BLACK DOUGLAS; July 26, 1959; 0552 GCT; 28°18'N, 118°57'W; sounding, 2050 fm; wind, 270°, force 3; weather, clear; sea, moderate; wire angle, 03°.

2	22.04	34.25	-	425	0	(22.04)	(34.25)		(23.65)	(425)	(0.00)
11	21.90	34.24	4.79	422	10	21.92	34.24		23.68	422	0.04
29	19.64	33.92	5.20	387	20	20.70	34.06	4.99	23.88	404	0.08
38	19.19	33.87	5.28	379	30	19.61	33.91	5.22	24.06	386	0.12
51	18.54	33.94	5.25	359	50	18.60	33.94	5.25	24.33	360	0.20
65	17.96	33.87	5.56	350	75	17.26	33.85	5.40	24.59	336	0.28
87	16.44	33.86	5.11	317	100	15.62	33.87	4.89	24.98	298	0.37
106	15.02	33.86	4.75	287	150	11.10	33.70	3.79	25.27	223	0.50
123	12.64	33.72	4.21	250	200	9.57	33.92	3.00	26.20	182	0.60
142	11.55	33.69	3.87	232	250	9.39	34.22	1.66	26.46	158	0.69
167	10.28	33.76	3.66	206	300	8.83	34.31	1.25	26.62	143	0.76
198	9.60	33.91	3.03	184	400	7.51	34.32	0.66	26.84	122	0.90
225	9.38	34.04	2.41	170	500	6.72	34.36	0.41	26.98	108	1.02
270	9.42	34.33	1.31	150							
321	8.40	34.27	1.21	139							
396	7.56	34.32	0.68	123							
473	6.92	34.36	0.45	112							
549	6.32	34.36	0.38	104							



OBSERVED					INTERPOLATED				COMPUTED			
Z	T	S	O <sub>2</sub>	$\delta T_3$	Z	T	S	O <sub>2</sub>	$\sigma_t$	$\delta T_3$	$\Delta D$	
m	°C	‰	ml/L	10 <sup>-5</sup> cm <sup>3</sup> /g	m	°C	‰	ml/L	g/L	10 <sup>-5</sup> cm <sup>3</sup> /g	dyn. m	

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BLACK DOUGLAS; July 26, 1959; 1051, 1234 GCT; 28°01'N, 119°36'W; sounding, 2050 fm; wind, 270°, force 3; weather, cloudy; sea, moderate; wire angle, 04°, 05°.

110.90

1	21.50	33.92	-	434	0	(21.50)	(33.92)		(23.56)	(434)	(0.00)
10	21.24	33.93	4.82	427	10	21.24	33.93	4.82	23.63	427	0.04
28	20.00	33.82	5.02	403	20	20.60	33.87	4.91	23.77	414	0.08
37	19.60	33.80	5.09	395	30	19.92	33.82	5.04	23.90	401	0.13
50	18.04	33.72	5.34	363	50	18.04	33.72	5.34	24.30	363	0.20
64	15.92	33.63	5.18	322	75	14.70	33.61	4.84	24.98	298	0.29
85	13.54	33.60	4.39	276	100	12.06	33.64	3.60	24.54	245	0.36
103	11.90	33.65	3.55	242	150	10.13	33.91	2.56	26.10	192	0.47
121	11.36	33.71	3.49	228	200	9.48	34.08	2.03	26.34	169	0.56
138	10.51	33.84	2.83	204	250	8.77	34.17	1.61	26.54	151	0.64
164	9.84	33.97	2.34	183	300	8.23	34.22	1.20	26.65	140	0.72
194	9.53	34.05	2.11	172	400	6.82	34.21	0.85	26.85	121	0.85
222	9.19	34.16	1.76	159	500	6.08	34.29	0.44	27.01	106	0.97
266	8.58	34.18	1.52	148	600	5.55	34.34	0.28	27.12	96	1.08
315	8.08	34.23	1.08	137	700	5.13	34.40	0.30	27.20	87	1.18
390	6.91	34.21	0.87	123	800	4.69	34.42	0.37	27.27	81	1.28
466	6.40	34.27	0.64	112	1000	3.99	34.47	0.50	27.39	70	1.44
541	5.82	-	0.42	-	1200	3.49	34.51	0.82	27.47	62	1.59
					1500	2.84	34.54	1.11	27.56	54	1.80
439a)	6.42	34.23	0.61	115	2000	(2.10)	(34.60)		(27.67)	(43)	(2.09)
526	5.92	34.31	0.36	103							
614	5.51	34.36	0.26	94							
701	5.12	34.40	0.30	87							
789	4.74	34.42	0.36	81							
876	4.38	34.42	0.49	77							
964	4.10	34.47	0.47	71							
1052	3.85	34.49	0.67	67							
1140	3.62	34.51	0.79	64							
1229	3.42	34.51	0.83	62							
1316	3.19	34.51	0.88	59							
1405	3.00	34.52	0.99	57							
1494	2.85	34.54	1.10	54							
1583	2.68	34.57	1.28	51							
1672	2.50	34.58	1.44	48							
1761	2.38	34.58	1.49	47							
1853	2.22	34.60	1.73	45							
1943	2.13	34.60	1.76	44							

BLACK DOUGLAS; July 24, 1959; 1309 GCT; 29°22.5'N, 115°17.5'W; sounding, 30 fm; wind, 360°, force 1; weather, fog; sea, slight; wire angle, 00°.

113.30

1	16.76	33.68	5.80	337	0	(16.76)	(33.68)	(5.80)	(24.58)	(337)	(0.00)
10	16.27	33.67	5.89	327	10	16.27	33.67	5.89	24.68	327	0.03
28	13.42	33.68	3.35	267	20	14.40	33.67	4.33	25.10	287	0.06
37	13.00	33.68	3.25	260	30	13.35	33.68	3.33	25.32	266	0.09

a) Overlapping casts; reconciliation of property curves when necessary.



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OBSERVED					INTERPOLATED				COMPUTED			
Z	T	S	O <sub>2</sub>	$\delta T_3$	Z	T	S	O <sub>2</sub>	$\sigma_t$	$\delta T_3$	$\Delta D$	
m	°C	‰	ml/L	$10^{-5} \text{cm}^3/\text{g}$	m	°C	‰	ml/L	g/L	$10^{-5} \text{cm}^3/\text{g}$	dyn. m	

113.35 BLACK DOUGLAS; July 24, 1959; 0946 GCT; 29°12'N, 115°39'W; sounding, 550 fm; wind, 320°, force 4; weather, overcast; sea, moderate; wire angle, 30°.

1a)	19.86	33.71	6.19	407	0	(19.86)	(33.71)	(6.19)	(23.84)	(407)	(0.00)
30	18.72	33.66	5.22	384	10	19.84	33.71	6.18	23.84	407	0.04
37	16.72	33.58	5.45	343	20	19.69	33.70	5.99	23.87	404	0.08
48	16.03	33.57	5.51	329	30	18.72	33.66	5.22	24.08	384	0.12
60	15.68	33.64	5.54	317	50	16.06	33.57	5.51	24.66	329	0.19
76	13.94	33.58	4.76	285	75	13.99	33.58	4.80	25.11	286	0.27
90	13.10	33.64	3.93	264	100	12.02	33.67	3.90	25.57	242	0.34
103	11.78	33.68	3.89	237	150	9.79	33.85	3.31	26.11	191	0.45
123	10.78	33.66	3.80	221	200	9.13	34.07	2.56	26.40	164	0.54
141	10.10	33.81	3.30	199	250	8.79	34.22	1.49	26.56	148	0.62
168	9.17	33.87	3.38	180	300	7.92	34.20	1.43	26.68	137	0.69
185	8.96	33.94	3.24	171	400	7.52	34.32	0.70	26.83	123	0.83
219	9.26	34.20	1.88	157	500	(6.82)	(34.38)		(26.97)	(109)	(0.95)
341	7.52	34.23	1.35	130							
416	7.51	34.34	0.65	122							
480	7.04	34.38	0.61	112							

113.40 BLACK DOUGLAS; July 24, 1959; 0632 GCT; 29°02'N, 115°58.5'W; sounding, 1000 fm; wind, 320°, force 4; weather, overcast; sea, moderate; wire angle, 25°.

1	20.30	33.76	5.00	415	0	(20.30)	(33.76)	(5.00)	(23.76)	(415)	(0.00)
10	20.32	33.74	5.06	417	10	20.32	33.74	5.06	23.74	417	0.04
27	18.44	33.66	5.28	377	20	19.70	33.71	5.16	23.88	404	0.08
35	17.91	33.64	5.35	366	30	18.20	33.64	5.32	24.21	372	0.12
46	17.10	33.58	5.44	352	50	16.89	33.56	5.48	24.46	348	0.19
58	16.49	33.55	5.53	341	75	15.73	33.66	5.41	24.80	316	0.28
78	15.71	33.69	5.37	313	100	14.00	33.67	4.85	25.18	280	0.35
93	14.88	33.71	5.05	295	150	10.61	33.69	3.80	25.85	216	0.48
109	12.85	33.61	4.61	262	200	10.10	34.07	2.06	26.23	180	0.58
125	11.96	33.62	4.38	245	250	8.94	34.10	2.01	26.45	159	0.66
149	10.63	33.69	3.84	217	300	8.38	34.22	1.37	26.63	142	0.74
200	10.10	34.07	2.06	180	400	7.53	34.29	0.75	26.81	125	0.88
240	9.06	34.07	2.11	164	500	6.79	34.34	0.37	26.95	111	1.01
285	8.57	34.21	1.48	146							
354	7.82	34.23	1.11	134							
426	7.38	34.33	0.53	120							
500	6.79	34.34	0.37	111							

113.50 BLACK DOUGLAS; July 24, 1959; 0055 GCT; 28°42'N, 116°37.5'W; sounding, 1800 fm; wind, 320°, force 4; weather, cloudy; sea, moderate; wire angle, 10°.

1	20.46	33.72	4.84	422	0	(20.46)	(33.72)	(4.84)	(23.69)	(422)	(0.00)
9	20.48	33.74	5.06	422	10	20.48	33.74	5.06	23.69	422	0.04
28	19.08	33.72	5.19	388	20	20.20	33.73	5.15	23.77	414	0.08
36	18.67	33.83	5.20	370	30	18.94	33.75	5.19	24.10	382	0.12
49	18.33	33.87	5.33	359	50	18.32	33.87	5.34	24.35	359	0.20
62	17.43	-	5.37	-	75	16.65	33.66	5.34	24.59	336	0.28
85	15.88	33.61	5.26	322	100	15.08	33.67	5.00	24.96	301	0.37
102	15.16	33.70	4.99	301	150	10.57	33.66	4.16	25.81	220	0.50
120	13.94	33.70	4.49	276	200	9.54	33.98	2.53	26.26	178	0.60
137	11.85	33.63	4.46	242	250	9.09	34.16	1.46	26.47	157	0.69
163	10.13	33.71	3.74	207	300	8.61	34.29	1.01	26.65	140	0.76
193	9.65	33.96	2.64	181	400	7.62	34.34	1.05	26.83	123	0.90
221	9.22	34.03	2.23	169	500	6.61	34.34	0.46	26.98	109	1.02
265	9.00	34.22	1.12	152							
314	8.44	34.31	1.01	137							
389	7.76	34.34	1.08	124							
464	6.92	34.34	0.44	113							
540	6.24	34.34	0.49	104							

a) The Nansen bottle at 12 meters failed to trip, but it released its messenger at an undetermined time. Nevertheless, the depth determination method does not indicate a noticeable error.



OBSERVED					INTERPOLATED				COMPUTED		
Z	T	S	O <sub>2</sub>	$\delta T_3$	Z	T	S	O <sub>2</sub>	$\sigma_t$	$\delta T_3$	$\Delta D$
m	°C	‰	ml/L	10 <sup>-5</sup> cm/g	m	°C	‰	ml/L	g/L	10 <sup>-5</sup> cm/g	dyn. m

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BLACK DOUGLAS; July 23, 1959; 1945 GCT; 28°28'N, 117°17'W; sounding, 1900 fm; wind, 320°, force 4; weather, overcast; sea, moderate; wire angle, 06°.

113.60

2	20.36	33.75	4.90	417	0	(20.36)	(33.75)	(4.90)	(23.74)	(417)	(0.00)
10	20.35	33.74	4.90	418	10	20.35	33.74	4.90	23.73	418	0.04
29	19.16	-	5.21	-	20	20.10	33.74	5.03	23.80	412	0.08
55	17.83	33.74	5.20	357	30	19.13	33.74	5.21	24.05	387	0.12
64	17.13	33.72	5.35	343	50	18.14	33.74	5.21	24.29	364	0.20
77	16.50	33.68	5.45	331	75	16.60	33.69	5.44	24.62	333	0.29
91	15.64	33.58	5.33	320	100	15.10	33.62	5.32	24.91	306	0.37
104	14.96	33.68	5.17	298	150	10.59	33.62	4.13	25.80	221	0.50
127	12.94	33.66	4.68	260	200	9.15	33.84	3.09	26.21	182	0.60
145	10.84	33.60	4.21	227	250	8.51	34.06	2.20	26.48	156	0.69
171	9.72	33.71	3.71	201	300	8.09	34.19	1.61	26.64	141	0.77
198	9.20	33.83	3.10	184	400	7.48	34.31	0.85	26.83	123	0.90
223	8.68	33.96	2.80	166	500	6.57	34.32	0.50	26.97	109	1.03
268	8.50	34.13	1.84	151							
317	7.87	34.20	1.47	136							
394	7.51	34.30	0.89	124							
470	6.78	34.31	0.53	113							
545	6.30	34.33	0.50	106							

BLACK DOUGLAS; July 23, 1959; 1407 GCT; 28°06.5'N, 117°56'W; sounding, 1600 fm; wind, 330°, force 3; weather, overcast; sea, moderate; wire angle, 06°.

113.70

1	20.53	33.89	4.94	411	0	(20.53)	(33.89)	(4.94)	(23.80)	(411)	(0.00)
9	20.54	33.91	4.94	410	10	20.54	33.91	4.94	23.81	410	0.04
28	19.02	33.91	5.14	373	20	20.00	33.93	4.97	23.97	395	0.08
36	18.48	33.83	5.19	366	30	18.84	33.88	5.15	24.22	370	0.12
50	17.92	33.82	5.26a)	353	50	17.96	33.82	5.26	24.41	353	0.19
63	17.28	33.77	5.29	342	75	16.41	33.62	5.34	24.61	334	0.28
86	15.81	33.57	5.42	324	100	15.51	33.73	5.23	24.90	306	0.36
103	15.42	33.78	5.17	300	150	11.59	33.67	3.80	25.66	234	0.50
121	13.96	33.70	4.85	276	200	9.83	33.92	2.67	26.16	187	0.60
139	12.68	33.68	3.83	254	250	8.93	34.08	2.26	26.43	161	0.69
166	10.56	33.68	3.78	216	300	8.46	34.21	1.53	26.61	144	0.77
197	9.90	33.91	2.70	189	400	7.48	34.25	0.94	26.78	128	0.92
224	9.38	33.97	2.55	176	500	6.42	34.31	0.47	26.98	109	1.04
268	8.69	34.14	2.00	153							
318	8.36	34.23	1.37	141							
394	7.54	34.25	0.96	128							
469	6.62	34.29	0.60	113							
545	6.22	34.34	0.32	104							

BLACK DOUGLAS; July 23, 1959; 0810 GCT; 27°44'N, 118°35'W; sounding, 2000 fm; wind, 320°, force 5; weather, cloudy; sea, moderate; wire angle, 05°.

113.80

2	22.10	34.20	4.74	430	0	(22.10)	(34.20)	(4.74)	(23.60)	(430)	(0.00)
10	22.12	34.23	4.81	428	10	22.12	34.23	4.81	23.62	428	0.04
29	20.46	34.27	5.05	382	20	21.60	34.26	4.93	23.78	413	0.08
37	20.13	34.32	5.09	370	30	20.44	34.29	5.06	24.12	380	0.12
51	18.86	34.09	5.29	356	50	18.94	34.11	5.28	24.37	357	0.20
64	17.62	33.93	5.36	338	75	17.35	34.01	5.29	24.69	326	0.28
87	16.54	34.00	5.10	309	100	15.70	33.92	4.97	25.01	296	0.36
104	14.96	33.87	4.77	284	150	11.13	33.72	3.67	25.78	223	0.50
123	13.44	33.76	4.30	262	200	9.73	34.01	2.48	26.25	178	0.60
140	11.60	33.69	3.85	233	250	9.51	34.29	1.36	26.49	155	0.68
167	10.46	33.81	3.27	205	300	9.18	34.39	0.86	26.64	141	0.76
199	9.74	34.01	2.50	179	400	7.92	34.40	0.49	26.84	122	0.90
225	9.52	34.19	1.97	162	500	6.68	34.34	0.44	26.96	110	1.02
270	9.64	34.38	1.04	150							
319	8.84	34.38	0.75	137							
395	8.00	34.41	0.49	122							
470	6.95	34.33	0.48	114							
547	6.34	34.38	0.33	105							

a) Mean value of 5.32 and 5.19 ml/L.

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OBSERVED					INTERPOLATED				COMPUTED		
Z	T	S	O <sub>2</sub>	$\delta T_3$	Z	T	S	O <sub>2</sub>	$\sigma_t$	$\delta T_3$	$\Delta D$
m	°C	‰	ml/L	$\frac{10^{-5}}{10 \text{ cm/g}}$	m	°C	‰	ml/L	g/L	$\frac{10^{-5}}{10 \text{ cm/g}}$	dyn. m

113.90

BLACK DOUGLAS; July 23, 1959; 0237 GCT; 27°23'N, 119°14'W; sounding, 2100 fm; wind, 320°, force 4; weather, cloudy; sea, moderate; wire angle, 10°.

0	21.33	33.91	4.66	430	0	21.33	33.91	4.66	23.60	430	0.00
9	21.33	33.93	4.81	429	10	21.33	33.93	4.86	23.62	428	0.04
27	19.64	33.82	5.01	395	20	20.66	33.91	4.93	23.78	413	0.08
35	19.45	33.84	5.13	388	30	19.58	33.80	5.03	23.98	394	0.12
49	18.89	33.80	5.39	378	50	18.79	33.79	5.41	24.17	376	0.20
62	17.54	33.71	5.49	353	75	16.07	33.71	5.19	24.76	320	0.29
84	14.92	33.67	4.87	298	100	13.40	33.68	4.41	25.32	267	0.36
102	13.24	33.68	4.39	264	150	10.30	33.76	3.47	25.96	206	0.48
120	11.76	33.68	4.26	237	200	8.90	33.97	2.68	26.36	168	0.58
137	10.78	33.68	3.92	220	250	8.63	34.16	1.63	26.55	150	0.66
164	9.80	33.84	2.96	192	300	8.12	34.22	1.22	26.67	138	0.73
195	8.96	33.95	2.74	171	400	7.23	34.28	0.73	26.84	122	0.87
222	8.76	34.08	2.15	158	500	6.19	34.32	0.56	27.01	106	0.99
266	8.54	34.20	1.41	146							
315	7.94	34.23	1.14	135							
390	7.32	34.27	0.79	124							
466	6.45	34.33	0.54	108							
546	5.87	34.29	0.65	104							

117.26

BLACK DOUGLAS; July 21, 1959; 0740 GCT; 28°56'N, 114°41'W; sounding, 40 fm; wind, 320°, force 2; weather, cloudy; sea, moderate; wire angle, 00°.

2	20.08	33.71	6.04	413	0	(20.10)	(33.71)		(23.78)	(413)	(0.00)
10	19.72	33.70a)	5.45	405	10	19.72	33.70		23.86	405	0.04
29	12.43	33.67a)	3.10	250	20	16.40	33.67		24.66	329	0.08
46	11.42	33.68	3.49	231	30	12.28	33.67		25.52	247	0.11

117.30

BLACK DOUGLAS; July 21, 1959; 0929 GCT; 28°48'N, 114°56.5'W; sounding, 50 fm; wind, 260°, force 2; weather, cloudy; sea, moderate; wire angle, 02°.

0	18.64	33.62	5.52	385	0	18.64	33.62	5.52	24.07	385	0.00
9	17.43	33.62	6.21	357	10	17.42	33.62	6.21	24.38	356	0.04
27	15.16	33.59	5.89	309	20	16.90	33.61	6.24	24.49	345	0.07
44	13.16	33.51	4.88	275	30	14.80	33.58	5.72	24.94	302	0.10
68	11.36	33.66	3.56	231	50	12.65	33.53	4.53	25.35	264	0.16

117.35

BLACK DOUGLAS; July 21, 1959; 1212 GCT; 28°38'N, 115°16'W; sounding, 120 fm; wind, 320°, force 2; weather, cloudy; sea, slight; wire angle, 00°.

0	20.23	33.72	5.14	416	0	20.23	33.72	5.14	23.74	416	0.00
18	18.91	33.65	5.41	388	10	19.50	33.66	5.28	23.89	403	0.04
27	16.34	33.58	5.58	335	20	18.88	33.65	5.42	24.04	388	0.08
45	14.60	33.48	5.55	305	30	16.01	33.55	5.59	24.66	329	0.12
63	12.66	33.51	4.85	266	50	13.93	33.47	5.43	25.04	293	0.18
85	11.34	33.67	4.01	230	75	11.88	33.59	4.35	25.54	245	0.25
108	10.60	33.80	3.36	208	100	10.77	33.73	3.63	25.86	215	0.30
131	10.66	34.11	1.97	186	150	10.62	34.22	1.74	26.26	177	0.40
157	10.61	34.25	1.71	175							

a) This salinity bottle number not in agreement with number on data sheet. Since standard handling and titrating procedures were used, this salinity value is assumed to be listed correctly.



OBSERVED					INTERPOLATED				COMPUTED		
Z	T	S	O <sub>2</sub>	$\delta T_3$	Z	T	S	O <sub>2</sub>	$\sigma_t$	$\delta T_3$	$\Delta D$
m	°C	‰	ml/L	$10^{-5} \text{ cm}^3/\text{g}$	m	°C	‰	ml/L	g/L	$10^{-5} \text{ cm}^3/\text{g}$	dyn. m

BLACK DOUGLAS; July 21, 1959; 1442 GCT; 28°28'N, 115°35.5'W; sounding, 500 fm; wind, 300°, force 2; weather, cloudy; sea, moderate; wire angle, 08°.

11740

1	20.59	33.72	5.03	425	0	(20.59)	(33.72)	(5.03)	(23.65)	(425)	(0.00)
9	20.62	33.75	5.02	424	10	20.62	33.75	5.02	23.66	424	0.04
28	17.02	33.59	5.39	350	20	18.00	33.61	5.30	24.23	370	0.08
36	16.74	33.58	5.34	344	30	16.98	33.59	5.37	24.46	348	0.12
49	15.60	33.53	5.45	323	50	15.53	33.53	5.45	24.75	321	0.18
63	14.46	33.54	5.40	298	75	13.66	33.52	5.05	25.13	284	0.26
85	12.76	33.50	4.58	268	100	11.28	33.67	4.08	25.71	229	0.33
102	11.04	33.68	4.00	225	150	10.82	34.21	1.58	26.21	182	0.43
120	10.58	33.87	2.96	202	200	11.29	34.47	0.86	26.34	170	0.52
137	10.63	34.13	1.94	184	250	10.66	34.46	0.84	26.44	160	0.60
164	11.12	34.30	1.25	179	300	10.21	34.48	0.78	26.54	151	0.68
194	11.34	34.47	0.84	171	400	8.40	34.41	0.53	26.78	128	0.83
221	10.89	34.44	0.92	166	500	7.04	34.36	0.40	26.92	114	0.95
266	10.54	34.47	0.81	157							
315	10.05	34.49	0.77	148							
391	8.54	34.42	0.55	130							
466	7.52	34.38	0.42	118							
544	6.45	34.34	0.36	107							

BLACK DOUGLAS; July 22, 1959; 0125 GCT; 28°08'N, 116°15'W; sounding, 2200 fm; wind, 320°, force 2; weather, cloudy; sea, moderate; wire angle, 04°.

11750

0	21.03	33.87	4.76	426	0	21.03	33.87	4.76	23.64	426	0.00
9	20.66	33.82	5.09	419	10	20.60	33.81	5.13	23.72	418	0.04
27	18.72	33.85	5.31	369	20	19.54	33.81	5.32	23.99	393	0.08
36	18.44	33.87	5.22	361	30	18.61	33.87	5.29	24.27	366	0.12
49	18.04	33.77	5.38	360	50	18.01	33.76	5.39	24.34	359	0.19
62	17.32	33.73	5.40	345	75	16.20	33.74	5.39	24.75	321	0.28
89a)	15.42	33.75	5.32	303	100	14.38	33.73	4.96	25.16	282	0.36
102	14.04	33.71	4.88	278	150	10.91	33.90	2.81	25.95	206	0.48
120	12.04	33.71	3.98	240	200	9.95	34.02	2.60	26.22	181	0.57
137	11.34	33.87	3.08	215	250	9.28	34.21	1.77	26.48	156	0.66
164	10.54	33.93	2.67	197	300	8.93	34.31	1.17	26.61	144	0.74
195	10.02	34.00	2.66	184	400	7.75	34.33	0.71	26.81	125	0.88
221	9.54	34.15	2.13	165	500	6.63	34.30	0.60	26.94	112	1.00
266	9.16	34.24	1.55	152							
314	8.84	34.34	1.05	140							
389	7.86	34.33	0.72	127							
465	7.04	34.31	0.64	117							
542	6.13	34.29	0.50	107							

BLACK DOUGLAS; July 22, 1959; 0630 GCT; 27°47.5'N, 116°54'W; sounding, 1750 fm; wind, 270°, force 4; weather, partly cloudy; sea, moderate; wire angle, 02°.

11760

2	21.22	33.78	4.91	437	0	(21.22)	(33.78)	(4.91)	(23.53)	(437)	(0.00)
10	21.19	33.76	4.94	438	10	21.19	33.76	4.94	23.52	438	0.04
29	18.25	33.66	5.34b)	372	20	19.95	33.68	5.15	23.79	412	0.09
37	18.04	33.68	5.25	366	30	18.23	33.66	5.32	24.21	372	0.12
51	17.44	33.73	5.38	349	50	17.49	33.73	5.37	24.44	350	0.20
65	16.72	33.66	5.38	338	75	16.10	33.60	5.40	24.67	328	0.28
87	15.21	33.53	5.41	314	100	14.24	33.66	5.03	25.12	285	0.36
105	13.69	33.69	4.78	272	150	11.54	33.89	2.68	25.83	218	0.48
123	12.10	33.67	4.20	244	200	10.72	34.16	1.78	26.18	184	0.59
141	11.83	33.86	2.73	225	250	10.39	34.42	0.82	26.45	158	0.68
168	11.00	33.93	2.57	205	300	9.83	34.46	0.56	26.58	146	0.76
200	10.72	34.16	1.78	184	400	8.29	34.37	0.59	26.75	130	0.90
226	11.22	34.50	0.70	167	500	7.01	34.34	0.42	26.92	114	1.03
271	10.01	34.42	0.87	153							
322	9.68	34.48	0.51	143							
397	8.32	34.55u	0.60	-							
474	7.32	34.34	0.46	119							
549	6.46	34.37	0.31	105							

a) Alternate depth, 85 meters, not used in interpolation.  
b) Mean value of 5.42 and 5.26 ml/L.



S10

CCOF1  
5907

OBSERVED					INTERPOLATED				COMPUTED		
Z	T	S	O <sub>2</sub>	$\delta T_3$	Z	T	S	O <sub>2</sub>	$\sigma_t$	$\delta T_3$	$\Delta D$
m	°C	‰	ml/L	$10^{-5}$ cm/g	m	°C	‰	ml/L	g/L	$10^{-5}$ cm/g	dyn. m

117.70

BLACK DOUGLAS; July 22, 1959; 1135 GCT; 27°27.5'N, 117°32.5'W; sounding, 1800 fm; wind, 320°, force 3; weather, cloudy; sea, moderate; wire angle, 07°.

1	21.34	33.73	4.76	444	0	(21.34)	(33.73)	(4.76)	(23.45)	(444)	(0.00)
9	21.38	33.76	4.95	442	10	21.38	33.76	4.99	23.47	442	0.04
28	19.06	33.69	5.56	390	20	20.40	33.74	5.43	23.72	419	0.09
36	18.07	33.66	5.47	368	30	18.80	33.68	5.55	24.08	384	0.13
50	17.07	33.60	5.42	350	50	17.07	33.60	5.42	24.44	350	0.20
64	16.41	33.58	5.68a)	336	75	15.32	33.56	5.55	24.81	315	0.28
85	14.29	33.58	5.33	292	100	13.19	33.69	4.93	25.36	262	0.36
103	12.92	33.69	4.84	257	150	10.29	33.79	3.36	25.98	204	0.48
120	11.75	33.67	4.22	237	200	9.50	34.00	2.25	26.28	175	0.57
138	10.40	33.71	3.67	211	250	9.14	34.21	1.43	26.49	155	0.66
164	10.18	33.89	2.87	194	300	8.74	34.32	0.92	26.65	140	0.73
194	9.58	-	2.31	-	400	7.81	34.34	0.57	26.81	125	0.87
220	9.31	34.11	1.89	164	500	6.64	34.35	0.37	26.98	109	0.99
265	9.04	34.25	1.21	150							
313	8.67	34.35	0.83	137							
387	8.00	34.35	0.60	127							
463	6.94	34.33	0.47	114							
539	6.46	34.38	0.26	104							

117.80

BLACK DOUGLAS; July 22, 1959; 1640 GCT; 27°07'N, 118°12'W; sounding, 2100 fm; wind, 270°, force 3; weather, cloudy; sea, moderate; wire angle, 06°.

2	21.82	33.96	4.81	440	0	(21.82)	(33.96)	(4.81)	(23.50)	(440)	(0.00)
10	21.81	33.97	4.86	439	10	21.81	33.97	4.86	23.51	439	0.04
29	20.56	34.20	5.03	389	20	21.30	34.04	5.00	23.70	420	0.09
37	20.40	34.23	5.02	383	30	20.53	34.20	5.03	24.03	389	0.13
51	19.90	34.23	5.07	371	50	19.91	34.23	5.07	24.22	371	0.20
64	19.71	34.32	5.00	360	75	18.94	34.23	5.09	24.47	347	0.29
86	17.78	34.04	5.20	334	100	16.85	33.99	5.10	24.80	316	0.38
103	15.89	33.96	4.92	297	150	11.67	33.79	3.76	25.73	227	0.51
120	14.00	33.86	4.61	266	200	9.94	34.04	2.51	26.23	180	0.62
138	12.46	33.78	4.19	242	250	9.17	34.20	1.88	26.49	155	0.70
165	10.86	33.84	3.21	209	300	8.66	34.30	1.32	26.64	140	0.78
195	10.03	34.01	2.61	184	400	7.78	34.38	0.59	26.84	122	0.92
222	9.60	34.14	2.18	167	500	6.58	34.36	0.57	27.00	107	1.04
265	8.96	34.22	1.74	150							
315	8.57	34.34	1.98	136							
389	7.94	34.39	0.59	124							
465	6.88	34.35	0.60	112							
540	6.26	34.38	0.50	102							

117.90

BLACK DOUGLAS; July 22, 1959; 2205 GCT; 26°50'N, 118°51.5'W; sounding, 1800 fm; wind, 320°, force 4; weather, cloudy; sea, moderate; wire angle, 02°.

0	21.79	34.00	4.87	436	0	21.79	34.00	4.87	23.54	436	0.00
9	21.50	33.96	4.86	432	10	21.49	33.96	4.86	23.59	431	0.04
27	19.58	33.89	5.12	388	20	21.08	33.94	4.89	23.68	422	0.09
36	19.15	33.88	5.20	378	30	19.41	33.89	5.15	24.08	384	0.13
49	18.56	33.86	5.23	365	50	18.52	33.86	5.23	24.29	364	0.20
63	17.96	33.87	5.26	350	75	17.31	33.86	5.26	24.59	336	0.29
85	16.68	33.84	5.24	324	100	14.49	33.72	4.76	25.12	286	0.37
102	14.24	-	4.69	-	150	10.88	33.76	3.52	25.85	216	0.50
121	12.70	33.68	4.24	254	200	9.77	34.08	2.22	26.30	173	0.59
138	11.40	33.69	3.82	230	250	9.76	34.28	1.49	26.45	159	0.68
166	10.32	33.86	3.06	199	300	9.35	34.36	1.15	26.58	147	0.76
197	9.77	34.07	2.24	175	400	8.49	34.46	0.33	26.79	126	0.90
224	9.76	34.18	1.89	166	500	6.87	34.43	0.23	27.01	106	1.02
269	9.76	34.36	1.22	153							
318	9.14	34.36	1.12	144							
393	8.58	34.45	0.36	128							
470	7.46	34.46	0.21	111							
546	5.92	34.40	0.35	96							

284

a) Mean value of 5.62 and 5.75 ml/L.



OBSERVED					INTERPOLATED				COMPUTED			
Z	T	S	O <sub>2</sub>	$\delta T_3$	Z	T	S	O <sub>2</sub>	$\sigma_t$	$\delta T_3$	$\Delta D$	
m	°C	‰	ml/L	$\frac{10^{-5}}{cm/g}$	m	°C	‰	ml/L	g/L	$\frac{10^{-5}}{cm/g}$	dyn. m	

BLACK DOUGLAS; July 21, 1959; 1655 GCT; 28°18.5'N, 115°24'W; sounding, 150 fm; wind, 300°, force 1; weather, cloudy; sea, slight; wire angle, 02°.

118.39

0	20.86	-	5.26	-	0	20.86	(33.73)	5.26	(23.59)	(431)	(0.00)
8	20.86	33.73	5.22	431	10	20.84	33.73	5.23	23.59	431	0.04
27	16.90	33.62	5.52	344	20	18.40	33.65	5.44	24.17	376	0.08
45	14.38	33.52	5.56	298	30	16.45	33.60	5.52	24.59	336	0.12
68	12.12	33.55	4.50	252	50	13.80	33.53	5.34	25.11	286	0.18
90	10.96	33.62	4.03	227	75	11.97	33.57	4.44	25.51	248	0.25
112	10.48	33.77	3.18	208	100	10.68	33.67	3.70	25.82	219	0.31
148	10.21	33.96	2.49	190	150	10.21	33.97	2.43	26.12	189	0.41
184	10.75	34.34	1.31	171	200	10.58	34.35	1.27	26.38	166	0.50
229	10.07	34.31	1.26	162							

BLACK DOUGLAS; July 20, 1959; 0925 GCT; 28°19'N, 114°53'W; sounding, 60 fm; wind, 320°, force 2; weather, partly cloudy; sea, moderate; wire angle, 04°.

119.33

1	21.56	33.77	5.05	446	0	(21.56)	(33.77)	(5.05)	(23.43)	(446)	(0.00)
9	21.58	33.77	5.06	447	10	21.58	33.77	5.06	23.42	447	0.04
28	20.32	33.75	5.42	416	20	21.03	33.76	5.25	23.56	434	0.09
45	17.79	33.71	5.58	358	30	20.00	33.74	5.49	23.82	409	0.13
69	13.43	33.67	3.98	268	50	16.85	33.70	5.34	24.57	338	0.21

BLACK DOUGLAS; July 21, 1959; 0245 GCT; 28°23'N, 114°14.5'W; sounding, 30 fm; wind, 320°, force 3; weather, partly cloudy; sea, moderate; wire angle, 00°.

120.25

0	20.80	33.77	5.24	427	0	20.80	33.77	5.24	23.63	427	0.00
9	20.22	33.69	5.51	418	10	20.19	33.69	5.51	23.74	417	0.04
27	15.32	33.64	5.44	308	20	17.00	33.65	5.50	24.50	344	0.08
36	14.26	33.62	4.64	289	30	15.05	33.64	5.31	24.94	303	0.11

BLACK DOUGLAS; July 21, 1959; 0002 GCT; 28°13'N, 114°34'W; sounding, 48 fm; wind, 320°, force 3; weather, partly cloudy; sea, slight; wire angle, 03°.

120.30

1	22.52	33.79	5.04	471	0	(22.56)	(33.79)	(5.04)	(23.17)	(471)	(0.00)
9	21.79	33.75	4.98	454	10	21.72	33.75	4.98	23.36	453	0.05
28	19.47	33.74	5.68	396	20	21.26	33.74	5.08	23.49	441	0.09
45	13.87	33.64	4.44	279	30	19.00	33.74	5.63	24.07	385	0.13

BLACK DOUGLAS; July 20, 1959; 0711 GCT; 28°03'N, 114°54'W; sounding, 40 fm; wind, 320°, force 3; weather, partly cloudy; sea, moderate; wire angle, 00°.

120.35

2	21.56	33.80	5.06	444	0	(21.56)	(33.80)	(5.06)	(23.45)	(444)	(0.00)
11	21.58	33.77	5.06	447	10	21.58	33.77	5.06	23.42	447	0.04
29	19.61	33.77	5.56	397	20	21.56	33.77	5.12	23.43	446	0.09
47	16.26	33.66	5.47	328	30	19.58	33.77	5.56	23.95	397	0.13

BLACK DOUGLAS; July 20, 1959; 0145 GCT; 27°43'N, 115°33'W; sounding, 1190 fm; wind, 360°, force 3; weather, cloudy; sea, rough; wire angle, 10°.

120.45

1	21.79	33.84	4.87	448	0	(21.79)	(33.84)	(4.87)	(23.41)	(448)	(0.00)
10	21.70	33.80	4.97	448	10	21.70	33.80	4.97	23.41	448	0.04
28	17.54	33.75	5.50	349	20	21.27	33.79	5.20	23.52	438	0.09
36	16.48	33.71	5.48	329	30	17.25	33.73	5.50	24.50	344	0.13
49	14.88	33.73	4.99	293	50	14.65	33.72	4.90	25.08	289	0.19
62	13.06	33.71	4.28	259	75	12.06	33.71	4.23	25.59	240	0.26
85	11.70	33.77	4.20	229	100	11.23	33.87	2.99	25.87	214	0.32
103	11.20	33.89	2.74	212	150	11.27	34.35	1.22	26.24	179	0.41
119	11.35	34.14	1.82	196	200	11.02	34.55	0.50	26.44	160	0.50
137	11.27	34.25	1.49	186	250	10.24	34.47	0.56	26.52	152	0.58
163	11.22	34.42	0.98	173	300	9.60	34.47	0.51	26.63	142	0.66
194	11.06	34.54	0.53	161	400	8.29	34.41	0.40	26.79	127	0.80
221	10.88	34.56	0.44	157	500	7.16	(34.38)	0.15	(26.93)	(114)	(0.92)
264	9.90	34.43	0.66	150							
313	9.49	34.49	0.46	139							
387	8.43	34.42	0.42	129							
463	7.76	34.42	0.28	118							
539	6.53	-	0.06	-							



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OBSERVED					INTERPOLATED				COMPUTED		
Z	T	S	O <sub>2</sub>	$\delta T_3$	Z	T	S	O <sub>2</sub>	$\sigma_t$	$\delta T_3$	$\Delta D$
m	°C	‰	ml/L	$10^{-5} \text{ cm}^3/\text{g}$	m	°C	‰	ml/L	g/L	$10^{-5} \text{ cm}^3/\text{g}$	dyn. m

120.50

BLACK DOUGLAS; July 19, 1959; 2211 GCT; 27°33'N, 115°52.5'W; sounding, 2000 fm; wind, 360°, force 2; weather, overcast; sea, moderate; wire angle, 05°.

1	21.24	33.77	5.28	439	0	(21.24)	(33.77)	(5.28)	(23.51)	(439)	(0.00)
10	20.68	33.75	5.30	425	10	20.68	33.75	5.30	23.65	425	0.04
33	16.90	33.69	5.38	339	20	17.99	33.69	5.37	24.29	364	0.08
41	15.34	33.73	4.90	302	30	17.20	33.69	5.38	24.48	346	0.12
55	13.48	33.69	4.34	268	50	14.05	33.69	4.56	25.18	279	0.18
68	12.14	-	3.62	-	75	12.14	33.76	3.60	25.62	238	0.24
90	10.68	33.72	3.73	215	100	10.66	33.83	3.35	25.94	207	0.30
108	10.25	33.85	2.99	199	150	9.57	33.98	2.48	26.25	178	0.40
126	10.08	33.91	2.77	192	200	9.28	34.19	1.78	26.46	158	0.48
152	9.53	33.99	2.47	177	250	9.28	34.32	1.20	26.56	148	0.56
179	9.38	34.13	2.03	164	300	8.54	34.32	1.06	26.68	137	0.64
214	9.27	34.23	1.60	155	400	7.71	34.36	0.57	26.83	123	0.77
241	9.36	34.31	1.24	150	500	6.85	34.36	0.38	26.96	111	0.89
286	8.72	34.32	1.10	140	600	(6.20)	(34.41)		(27.08)	(99)	(1.00)
343	8.04	34.33	0.83	129							
433	7.47	34.36	0.44	119							
513	6.73	34.36	0.38	109							
580	6.30	34.40	0.44	100							

120.60

BLACK DOUGLAS; July 19, 1959; 1528 GCT; 27°09.5'N, 116°37.5'W; sounding, 2000 fm; wind, 360°, force 3; weather, cloudy; sea, rough; wire angle, 09°.

1	20.50	33.72	4.95	423	0	(20.50)	(33.72)	(4.95)	(23.67)	(423)	(0.00)
10	20.52	33.73	4.94	422	10	20.52	33.73	4.94	23.68	422	0.04
33	18.28	33.73	5.19	368	20	19.34	33.71	5.04	23.97	395	0.08
41	17.98	33.81	5.31	355	30	18.43	33.72	5.16	24.20	373	0.12
55	17.52	33.80	5.28	345	50	17.71	33.81	5.29	24.45	349	0.19
68	16.40	33.79	5.22	321	75	15.63	33.78	5.16	24.92	305	0.28
90	13.40	33.68	4.91	267	100	12.43	33.67	4.65	25.49	250	0.35
107	11.82	33.67	4.35	239	150	11.73	34.31	1.17	26.12	190	0.46
126	11.38	33.91	2.82	213	200	11.28	34.41	1.00	26.28	175	0.55
152	11.77	34.33	1.11	189	250	11.03	34.54	0.51	26.43	161	0.64
179	11.25	34.31	1.27	182	300	10.62	34.55	0.40	26.51	153	0.72
214	11.32	34.48	0.80	170	400	9.32	34.50	0.35	26.69	136	0.87
241	11.11	34.54	0.53	162	500	7.91	34.48	0.32	26.90	116	1.00
285	10.76	34.55	0.43	155	600	(6.81)	(34.41)		(27.00)	(107)	(1.12)
343	10.16	34.54	0.38	146							
432	8.84	34.49	0.35	129							
513	7.74	34.47	0.31	114							
581	6.99	34.42	0.23	108							

120.70

BLACK DOUGLAS; July 19, 1959; 0935 GCT; 26°51'N, 117°13.5'W; sounding, 2050 fm; wind, 320°, force 4; weather, cloudy; sea, moderate; wire angle, 32°.

1	21.22	33.75	5.09	439	0	(21.22)	(33.75)	(5.09)	(23.50)	(439)	(0.00)
9	21.26	33.72	5.18a)	443	10	21.26	33.72	5.18	23.46	443	0.04
28	17.51	33.59	5.55	360	20	18.36	33.61	5.54	24.14	378	0.08
36	16.86	33.58	5.51	346	30	17.35	33.58	5.54	24.37	357	0.12
47	16.16	33.58	5.55	331	50	15.83	33.60	5.52	24.73	323	0.19
58	14.85	33.65	5.18	298	75	13.28	33.74	4.21	25.38	260	0.26
76	13.20	33.74	4.16	259	100	11.94	33.76	3.48	25.65	235	0.33
90	12.27	33.73	3.82	243	150	10.73	34.14	1.83	26.18	185	0.43
105	11.75	33.77	3.20	230	200	9.41	34.11	2.04	26.38	166	0.52
129	10.72	33.91	2.90	202	250	9.32	34.28	1.40	26.52	152	0.60
150	10.73	34.14	1.83	185	300	9.29	34.40	0.72	26.62	143	0.68
180	10.74	34.28	1.38	175	400	8.18	34.42	0.33	26.82	124	0.82
203	9.34	34.11	2.09	165	500	6.92	34.37	0.16	26.95	112	0.94
240	9.32	34.24	1.70	155							
289	9.34	34.37	0.80	146							
365	8.65	34.43	0.37	131							
439	7.66	34.42	0.29	117							
505	6.88	34.36	0.14	112							

286

a) Alternate value, 4.97 ml/L, not used in interpolation.



OBSERVED					INTERPOLATED				COMPUTED		
Z	T	S	O <sub>2</sub>	$\delta T_3$	Z	T	S	O <sub>2</sub>	$\sigma_t$	$\delta T_3$	$\Delta D$
m	°C	‰	ml/L	10 <sup>-5</sup> cm/g	m	°C	‰	ml/L	g/L	10 <sup>-5</sup> cm/g	dyn. m

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BLACK DOUGLAS; July 19, 1959; 0351 GCT; 26°32'N, 117°49.5'W; sounding, 1850 fm; wind, 320°, force 3; weather, cloudy; sea, rough; wire angle, 05°.

120.80

1	22.06	34.04	5.12	440	0	(22.06)	(34.04)	(5.12)	(23.49)	(440)	(0.00)
10	22.06	34.05	5.08	440	10	22.06	34.05	5.08	23.49	440	0.04
28	20.18	34.09	5.33	388	20	20.74	34.05	5.24	23.86	405	0.09
37	20.29	34.28	5.38	378	30	20.18	34.10	5.34	24.05	387	0.13
50	19.14	34.02	5.51	368	50	19.14	34.02	5.51	24.26	368	0.20
64	18.79	34.03	5.48	358	75	18.09	34.02	5.53	24.52	343	0.29
85	17.85	34.06	5.57	334	100	16.92	34.03	5.45	24.81	315	0.37
105	16.48	34.00	5.36	308	150	11.30	33.72	4.36	25.74	226	0.51
121	13.97	33.78	4.72	270	200	10.15	34.01	2.50	26.18	185	0.61
138	12.38	33.73	4.58	244	250	9.70	34.27	1.43	26.46	158	0.70
164	10.56	33.80	4.00	207	300	9.19	34.38	0.80	26.63	142	0.78
196	10.22	34.00	2.57	187	400	8.13	34.40	0.41	26.81	125	0.92
223	9.78	34.13	2.18	170	500	6.93	34.40	0.29	26.98	109	1.04
267	9.68	34.35	1.14	152							
317	8.96	34.38	0.69	139							
392	8.24	34.40	0.43	127							
468	7.24	34.40	0.33	113							
544	6.50	34.40	0.23	103							

BLACK DOUGLAS; July 18, 1959; 2003, 2135 GCT; 26°13'N, 118°27.5'W; sounding, 2100 fm; wind, 270°, force 3; weather, cloudy; sea, rough; wire angle, 02°, 08°.

120.90

2	22.46	34.45	4.81	421	0	(22.46)	(34.45)	(4.81)	(23.69)	(421)	(0.00)
11	22.20	34.42	4.83	417	10	22.22	34.42	4.82	23.74	417	0.04
29	19.78	33.96	5.14	387	20	20.40	34.00	5.00	23.92	400	0.08
38	19.40	34.04	5.28	372	30	19.72	33.96	5.16	24.06	386	0.12
51	18.98	33.98	5.22	366	50	18.98	33.97	5.23	24.26	367	0.20
65	18.85	34.05	5.26	358	75	18.35	34.04	5.30	24.47	347	0.29
87	17.38	33.98	5.32	329	100	16.05	33.87	5.16	24.89	307	0.37
106	15.41	33.82	5.01	297	150	11.21	33.70	4.32	25.75	226	0.50
123	13.67	33.80	4.64	263	200	9.73	34.02	2.40	26.26	177	0.60
141	11.94	33.73	4.51	236	250	9.31	34.21	1.60	26.47	157	0.69
167	10.20	33.72	3.80	207	300	8.63	34.28	1.28	26.64	141	0.77
198	9.74	34.00	2.50	179	400	7.69	34.36	0.55	26.84	122	0.90
225	9.90	34.18	1.67	168	500	6.70	34.35	0.32	26.98	109	1.03
269	8.98	34.25	1.59	149	600	5.96	34.38	0.27	27.09	98	1.14
318	8.44	34.29	1.11	138	700	5.34	34.41	0.29	27.19	89	1.24
394	7.75	34.37	0.56	122	800	4.79	34.43	0.38	27.27	81	1.33
469	6.98	34.36	0.38	112	1000	4.15	34.50	0.63	27.40	69	1.50
547	6.26	34.40	0.26	100	1200	3.57	34.52	0.91	27.47	62	1.65
					1500	2.87	34.58	1.28	27.58	52	1.85
436a)	7.29	34.33	0.40	119	2000	(2.13)	(34.61)		(27.68)	(43)	(2.13)
524	6.54	34.34	0.28	108							
610	5.84	34.34	0.31	100							
698	5.34	34.40	0.29	89							
785	4.86	34.43	0.37	82							
873	4.52	34.43	0.41	78							
961	4.24	34.49	0.62	71							
1050	4.01	34.51	0.66	67							
1138	3.74	34.51	0.76	64							
1227	3.50	34.53	0.97	61							
1316	3.30	34.54	0.90	58							
1404	3.08	34.56	1.03	55							
1493	2.89	34.58	1.27	52							
1583	2.75	34.57	1.37	51							
1671	2.61	34.58	1.44	50							
1762	2.48	34.58	1.59	48							
1853	2.31	34.60	1.78	45							
1943	2.20	34.61	1.74	43							

a) Overlapping casts; reconciliation of property curves when necessary.







OBSERVED					INTERPOLATED				COMPUTED		
Z	T	S	O <sub>2</sub>	$\delta T_{-5}^3$	Z	T	S	O <sub>2</sub>	$\sigma_t$	$\delta T_{-5}^3$	$\Delta D$
m	°C	‰	ml/L	10 cm/g	m	°C	‰	ml/L	g/L	10 cm/g	dyn. m

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BLACK DOUGLAS; July 18, 1959; 0425 GCT; 26°38.5'N, 116°09'W; sounding, 2000 fm; wind, 320°, force 4; weather, cloudy; sea, rough; wire angle, 10°.

123.60

1	22.01	33.84	4.98	454	0	(22.01)	(33.84)	(4.98)	(23.35)	(454)	(0.00)
10	21.75	33.82	4.98	448	10	21.75	33.82	4.98	23.41	448	0.04
28	17.47	33.74	5.49	349	20	19.50	33.74	5.28	23.96	396	0.09
36	15.31	33.70	5.30	304	30	17.10	33.74	5.47	24.54	340	0.12
50	13.14	33.70	4.31	261	50	13.14	33.70	4.31	25.38	261	0.18
63	11.84	33.77	3.01	232	75	11.27	33.81	3.00	25.82	218	0.24
85	10.88	33.86	2.96	209	100	10.56	33.92	2.66	26.04	198	0.30
106	10.49	33.96	2.55	194	150	9.86	34.17	1.75	26.34	169	0.39
120	10.30	34.05	2.19	184	200	8.70	34.23	1.55	26.59	146	0.47
137	10.10	34.14	1.78	175	250	8.54	34.33	0.90	26.68	137	0.54
162	9.53	34.17	-	163	300	8.29	34.38	0.68	26.77	129	0.61
192	8.72	34.20	1.69	149	400	7.58	34.44	0.30	26.92	114	0.74
217	8.66	34.29	1.28	141	500	6.66	34.40	0.20	27.02	105	0.85
260	8.50	34.33	0.84	136							
308	8.14	34.37	0.63	128							
383	7.73	34.43	0.32	117							
458	7.02	34.44	0.29	108							
535	6.36	34.37	0.16	104							

BLACK DOUGLAS; July 18, 1959; 0950 GCT; 26°18.5'N, 116°47'W; sounding, 2000 fm; wind, 270°, force 3; weather, cloudy; sea, slight; wire angle, 05°.

123.70

2	21.70	33.78	4.87	449	0	(21.70)	(33.78)	(4.87)	(23.40)	(449)	(0.00)
11	21.72	33.79	4.88	449	10	21.72	33.79	4.88	23.40	449	0.04
29	20.00	34.09	5.34	384	20	20.25	33.90	5.27	23.88	404	0.09
37	18.50	33.86	5.32	364	30	20.02	34.11	5.34	24.10	382	0.13
51	18.03	33.89	5.37	351	50	18.05	33.88	5.36	24.42	352	0.20
65	17.28	33.86	5.45	335	75	16.77	33.83	5.30	24.70	326	0.28
87	14.55	33.75	4.32	285	100	12.91	33.75	3.86	25.46	253	0.36
105	12.49	33.75	3.77	245	150	11.00	33.95	2.61	25.96	205	0.47
123	11.60	33.76	3.51	228	200	9.53	34.10	2.03	26.35	168	0.57
140	11.12	33.84	2.94	214	250	9.41	34.37	0.96	26.58	147	0.65
166	10.82	34.09	-	190	300	9.36	34.46	0.46	26.65	140	0.72
197	9.68	34.11	2.03	170	400	8.07	34.42	0.38	26.83	123	0.86
224	8.95	34.16	1.92	155	500	6.80	34.40	0.21	27.00	107	0.98
268	9.68	34.47	0.57	144							
318	9.14	34.43	0.41	138							
394	8.14	34.42	0.39	124							
469	7.14	34.40	0.25	112							
545	6.35	34.41	0.19	100							

BLACK DOUGLAS; July 17, 1959; 0134 GCT; 26°55.5'N, 114°06'W; sounding, 44 fm; wind, 280°, force 3; weather, partly cloudy; sea, moderate; wire angle, 05°.

127.34

0	17.10	33.86	6.25	331	0	17.10	33.86	6.25	24.64	331	0.00
9	16.74	33.86	6.10	323	10	16.70	33.86	6.08	24.74	322	0.03
27	12.48	33.80	3.51	241	20	14.00	33.80	4.71	25.28	270	0.06
48	12.23	33.95	2.21	226	30	12.42	33.83	3.30	25.62	238	0.09



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OBSERVED					INTERPOLATED				COMPUTED			
Z	T	S	O <sub>2</sub>	$\delta T_{-5}^3$	Z	T	S	O <sub>2</sub>	$\sigma_t$	$\delta T_{-5}^3$	$\Delta D$	
m	°C	‰	ml/L	10 cm/g	m	°C	‰	ml/L	g/L	10 cm/g	dyn. m	

127.40

BLACK DOUGLAS; July 16, 1959; 2239 GCT; 26°43.5'N, 114°29.5'W; sounding, 1400 fm; wind, 320°, force 3; weather, partly cloudy; sea, moderate; wire angle, 05°.

0	23.13	34.05	4.80	468	0	23.13	34.05	4.80	23.20	468	0.00
9	22.65	34.05	4.79	456	10	22.64	34.05	4.79	23.33	456	0.05
32	17.28	33.87	5.35	335	20	22.20	34.04	4.96	23.45	444	0.09
54	14.56	33.73	4.86	286	30	17.70	33.88	5.35	24.51	344	0.13
67	13.07	33.87	3.39	247	50	15.09	33.76	5.07	25.02	295	0.19
89	11.98	33.96	2.22	220	75	12.57	33.89	2.92	25.64	236	0.26
107	11.76	34.22	1.47	197	100	11.81	34.12	1.72	25.96	205	0.32
125	11.47	34.33	1.10	184	150	12.06	34.65	0.54	26.32	171	0.41
152	12.06	34.65	0.53	171	200	11.72	34.67	0.23	26.41	163	0.50
179	11.84	34.65	0.35	167	250	11.41	34.68	0.13	26.47	157	0.58
215	11.64	34.69	0.16	160	300	10.93	34.66	0.17	26.54	150	0.66
242	11.48	34.69	0.13	158	400	9.42	34.59	0.21	26.74	131	0.80
287	11.12	34.66	0.16	153	500	7.66	34.43	0.23	26.90	116	0.93
344	10.12	34.63	0.18	138	600	(6.46)	(34.43)		(27.07)	(100)	(1.05)
434	8.98	34.55	0.22	126							
515	7.42	34.42	0.23	114							
583	6.66	34.43	0.23	103							

127.50

BLACK DOUGLAS; July 16, 1959; 1654 GCT; 26°25.5'N, 115°08'W; sounding, 2000 fm; wind, 340°, force 3; weather, cloudy; sea, moderate; wire angle, 14°.

2	21.78	33.79	4.93	451	0	(21.78)	(33.79)	(4.93)	(23.38)	(451)	(0.00)
10	21.18	33.95	4.99	424	10	21.18	33.95	4.99	23.67	424	0.04
28	19.94	34.08	5.11	383	20	20.40	34.03	5.08	23.94	398	0.08
36	19.44	34.05	5.11	373	30	19.82	34.08	5.11	24.12	380	0.12
50	18.92	34.00	5.15	364	50	18.92	34.00	5.15	24.30	364	0.20
63	17.62	33.92	5.17	339	75	16.35	33.90	4.83	24.85	311	0.28
85	14.92	33.78	4.40	290	100	13.03	33.75	3.83	25.44	255	0.36
102	12.87	33.76	3.74	251	150	10.81	34.11	1.96	26.14	189	0.47
119	11.89	33.79	3.23	231	200	10.39	34.32	1.13	26.38	165	0.56
136	10.93	33.94	2.53	203	250	9.63	34.37	0.97	26.54	150	0.64
161	10.74	34.20	1.63	181	300	9.11	34.42	0.70	26.66	139	0.71
191	10.44	34.31	1.20	168	400	7.93	34.40	0.43	26.83	123	0.85
216	10.26	34.33	1.08	163	500	6.84	34.38	0.35	26.98	109	0.97
257	9.54	34.38	0.97	148							
303	9.09	34.42	0.68	138							
374	8.28	34.41	0.47	127							
447	7.34	34.39	0.39	115							
522	6.64	34.38	0.32	107							

127.60

BLACK DOUGLAS; July 16, 1959; 1120 GCT; 26°04'N, 115°46.5'W; sounding, 2000 fm; wind, 330°, force 4; weather, cloudy; sea, moderate; wire angle, 08°.

1	22.36	34.04	4.86	448	0	(22.36)	(34.04)	(4.86)	(23.41)	(448)	(0.00)
10	22.38	34.04	4.86	449	10	22.38	34.04	4.86	23.40	449	0.04
32	19.29	33.84	5.22	384	20	21.40	33.94	5.02	23.60	430	0.09
41	19.05	33.84	5.28	378	30	19.50	33.84	5.20	24.03	389	0.13
54	18.96	33.96	5.24	368	50	19.06	33.94	5.25	24.22	371	0.21
66	18.56	33.98	5.31	356	75	17.90	33.89	5.34	24.46	348	0.30
90	16.84	33.85	5.27	326	100	15.57	33.84	4.75	24.98	299	0.38
107	14.38	33.82	4.14	276	150	11.10	33.84	3.00	25.88	213	0.50
126	12.84	33.91	2.94	240	200	10.66	34.23	1.18	26.26	177	0.60
152	11.09	33.87	3.00	211	250	10.04	34.44	0.79	26.52	152	0.69
179	11.20	34.27	1.47	183	300	9.45	34.43	0.59	26.62	143	0.77
214	10.38	34.21	1.07	174	400	8.18	34.44	0.30	26.83	123	0.90
242	10.14	34.42	0.86	154	500	6.98	34.38	0.24	26.96	111	1.03
286	9.65	34.43	0.63	146	600	(6.11)	(34.44)		(27.11)	(96)	(1.14)
343	8.84	34.46	0.44	132							
433	7.79	34.42	0.24	119							
513	6.82	34.38	0.24	109							
581	6.25	34.42	0.21	99							



OBSERVED					INTERPOLATED				COMPUTED		
Z	T	S	O <sub>2</sub>	$\delta T_3$	Z	T	S	O <sub>2</sub>	$\sigma_t$	$\delta T_3$	$\Delta D$
m	°C	‰	ml/L	10 <sup>-5</sup> cm <sup>3</sup> /g	m	°C	‰	ml/L	g/L	10 <sup>-5</sup> cm <sup>3</sup> /g	dyn. m

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BLACK DOUGLAS; July 16, 1959; 0540 GCT; 25°44'N, 116°24.5'W; sounding, 2000 fm; wind, 340°, force 4; weather, cloudy; sea, moderate; wire angle, 00°.

127.70

2	22.62	34.07	4.78	453	0	(22.62)	(34.07)	(4.78)	(23.36)	(453)	(0.00)
10	22.66	34.06	4.73	455	10	22.66	34.06	4.73	23.34	455	0.05
34	19.60	33.93	5.18	385	20	21.00	33.95	4.93	23.71	419	0.09
42	19.40	33.96	5.22	378	30	19.74	33.93	5.13	24.03	389	0.13
56	19.16	34.07	5.21	364	50	19.26	34.01	5.23	24.22	371	0.21
70	18.80	34.13	5.20	351	75	18.60	34.14	5.20	24.48	346	0.30
91	16.93	33.96	5.11	320	100	16.35	33.96	5.06	24.88	308	0.38
110	14.57	33.84	4.67	278	150	11.50	33.84	3.19	25.80	220	0.51
127	12.79	33.77	3.74	249	200	10.44	34.19	1.83	26.26	177	0.61
155	11.28	33.87	3.04	214	250	10.11	34.38	1.12	26.47	157	0.70
183	10.64	34.09	2.13	187	300	9.71	34.48	0.71	26.61	144	0.78
218	10.30	34.28	1.55	167	400	8.25	34.47	0.43	26.84	122	0.91
245	10.12	-	1.19	-	500	7.04	34.46	0.35	27.01	106	1.03
289	9.84	34.47	0.77	146	600	(6.10)	(34.38)		(27.07)	(100)	(1.14)
347	9.02	34.47	0.51	134							
437	7.72	34.47	0.39	114							
519	6.86	34.45	0.34	104							
585	6.24	34.39	0.40	101							

BLACK DOUGLAS; July 14, 1959; 2305 GCT; 26°29'N, 113°29'W; sounding, 40 fm; wind, 280°, force 3; weather, cloudy; sea, moderate; wire angle, 00°.

130.30

0	19.82	33.84	5.18	398	0	19.82	33.84	5.18	23.94	398	0.00
9	18.72	33.80	5.58	374	10	18.50	33.80	5.56	24.25	368	0.04
27	14.04	33.87	3.81	266	20	14.70	33.81	4.52	25.13	284	0.07
45	13.04	34.00	2.07	237	30	13.92	33.90	3.55	25.38	261	0.10

BLACK DOUGLAS; July 15, 1959; 0155 GCT; 26°19'N, 113°48.5'W; sounding, 170 fm; wind, 270°, force 3; weather, partly cloudy; sea, slight; wire angle, 30°.

130.35

0	20.48	33.73	4.79	422	0	20.48	33.73	4.79	23.68	422	0.00
8	20.43	33.73	4.62	421	10	20.10	33.73	4.57	23.78	412	0.04
24	17.44	33.77	5.23	346	20	17.73	33.76	5.21	24.41	353	0.08
40	16.20	33.65	5.20	327	30	17.03	33.73	5.23	24.56	339	0.11
58	15.03	33.86	4.62	287	50	15.61	33.74	4.99	24.88	308	0.18
76	13.20	33.83	3.44	252	75	13.24	33.83	3.47	25.46	253	0.25
93	12.19	33.93	2.59	226	100	13.50	34.39	2.12	25.84	217	0.31
122	13.34	34.61	0.75	197	150	12.43	34.65	0.62	26.25	178	0.41
151	12.41	34.65	0.61	177	200	(11.73)	(34.70)		(26.42)	(162)	(0.50)
192	11.84	34.69	0.25	164							

BLACK DOUGLAS; July 15, 1959; 0457 GCT; 26°09'N, 114°07.5'W; sounding, 1150 fm; wind, 270°, force 5; weather, partly cloudy; sea, rough; wire angle, 15°.

130.40

2	23.02	34.05	4.49	466	0	(23.02)	(34.05)	(4.49)	(23.23)	(466)	(0.00)
10	22.99	34.06	4.73	464	10	22.99	34.06	4.73	23.25	464	0.05
32	20.56	34.20	4.97	390	20	21.90	34.07	4.90	23.57	433	0.09
41	19.66	34.16	5.13	370	30	20.72	34.18	4.94	23.97	395	0.13
54	18.43	34.02	5.11	351	50	18.89	34.09	5.13	24.37	356	0.21
88	14.32	33.87	3.53	271	75	16.34	33.85	4.51	24.81	315	0.29
104	12.94	33.95	2.63	238	100	13.19	33.89	2.85	25.52	247	0.36
121	12.30	34.08	2.08	217	150	11.49	34.27	1.34	26.14	189	0.47
146	11.54	34.25	1.35	191	200	11.02	34.43	0.82	26.35	168	0.56
171	11.23	34.31	1.25	181	250	10.31	34.50	0.46	26.53	152	0.65
204	10.99	34.45	0.78	166	300	9.71	34.51	0.22	26.64	141	0.72
229	10.61	34.49	0.58	157	400	8.81	34.48	0.15	26.77	128	0.86
270	10.06	34.51	0.36	147	500	7.45	34.42	0.15	26.92	114	0.99
324	9.48	34.58u	0.16	-							
407	8.72	34.48	0.15	128							
484	7.64	34.43	0.15	116							
551	6.83	34.42	0.15	106							



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OBSERVED					INTERPOLATED				COMPUTED		
Z	T	S	O <sub>2</sub>	$\delta T_{3-5}$	Z	T	S	O <sub>2</sub>	$\sigma_t$	$\delta T_{3-5}$	$\Delta D$
m	°C	‰	ml/L	10 <sup>-5</sup> cm/g	m	°C	‰	ml/L	g/L	10 <sup>-5</sup> cm/g	dyn. m

130.50 BLACK DOUGLAS; July 15, 1959; 1045 GCT; 25°49'N, 114°46'W; sounding, 1800+ fm; wind, 300°, force 5; weather, overcast; sea, rough; wire angle, 10°.

1	22.70	34.04	4.78	457	0	(22.70)	(34.04)	(4.78)	(23.32)	(457)	(0.00)
10	22.72	34.05	4.77	457	10	22.72	34.05	4.77	23.32	457	0.05
32	20.60	34.25	5.07	387	20	22.14	34.06	4.79	23.48	442	0.09
41	20.19	34.23	4.99	378	30	20.60	34.17	5.07	23.99	393	0.13
54	17.64	33.89	5.41	342	50	18.41	33.97	5.28	24.40	354	0.21
65	16.16	33.77	4.65	317	75	14.65	33.71	4.08	25.07	290	0.29
88	13.66	33.82	3.55	262	100	13.48	33.96	2.87	25.51	248	0.36
106	13.19	34.04	2.11	237	150	11.21	34.22	1.33	26.16	186	0.47
123	12.27	34.09	1.96	216	200	10.82	34.41	0.80	26.37	167	0.56
149	11.22	34.23	1.35	187	250	10.18	34.46	0.63	26.53	152	0.64
174	11.00	34.21	1.01	184	300	9.41	34.41	0.52	26.61	144	0.72
208	10.72	34.45	0.75	162	400	8.33	34.45	0.18	26.82	124	0.85
234	10.32	34.46	0.70	154	500	7.26	34.42	0.22	26.95	112	0.98
276	9.87	34.45	0.52	148							
332	8.84	34.38	0.52	137							
418	8.20	34.47	0.15	121							
498	7.29	34.42	0.22	112							
564	6.64	34.39	0.19	106							

130.60 BLACK DOUGLAS; July 15, 1959; 1607, 1800 GCT; 25°28'N, 115°27'W; sounding, 2050 fm; wind, 320°, force 4; weather, overcast; sea, rough; wire angle, 20°, 30°.

1	22.44	33.99	4.82	454	0	(22.44)	(33.99)	(4.82)	(23.34)	(454)	(0.00)
10	22.40	-	4.78	-	10	22.40	(33.99)	4.78	(23.36)	(453)	(0.04)
32	19.28	33.86	5.19	382	20	20.45	(33.90)	5.03	(23.82)	(409)	(0.09)
40	18.74	33.84	5.27	371	30	19.42	(33.86)	5.17	(24.06)	(386)	(0.13)
52	18.10	33.83	5.35	357	50	18.20	33.83	5.34	24.35	359	(0.20)
66	17.76	33.89	5.34	344	75	17.18	33.87	5.27	24.62	333	(0.29)
85	15.78	33.78	5.07	308	100	14.50	33.76	4.36	25.14	283	(0.37)
101	14.46	33.76	4.34	282	150	11.14	33.98	2.42	25.97	204	(0.49)
117	12.24	33.75	3.76	240	200	11.05	34.44	0.86	26.35	168	(0.58)
141	11.14	33.86	2.82	213	250	10.36	34.50	0.58	26.52	152	(0.66)
165	11.14	34.16	1.75	191	300	9.73	34.48	0.42	26.62	143	(0.74)
195	11.11	34.42	0.91	171	400	8.26	34.43	0.27	26.81	125	(0.88)
220	10.69	34.48	0.73	160	500	7.18	34.43	0.20	26.96	110	(1.01)
259	10.26	34.51	0.52	150	600	6.18	34.40	0.21	27.08	99	(1.12)
313	9.48	-	0.41	-	700	5.49	34.41	0.23	27.17	91	(1.22)
395	8.27	34.44	0.27	124	800	4.94	34.43	0.26	27.25	83	(1.32)
473	7.48	34.43	0.23	114	1000	4.27	34.51	0.40	27.40	69	(1.49)
539	6.86	34.43	0.21	106	1200	3.69	34.55	0.57	27.48	61	(1.64)
					1500	3.00	34.56	1.02	27.56	54	(1.84)
304a)	9.74	34.49	0.38	143	2000	2.19	34.61	1.72	27.67	44	(2.14)
379	8.66	34.44	0.29	130	2500	1.82	34.64	2.24			
455	7.60	34.43	0.23	116							
532	6.84	34.42	0.17	106							
611	6.08	34.40	0.22	98							
770	5.10	34.42	0.25	85							
931	4.52	34.49b)	0.36	74							
1096	3.96	34.54	0.49	64							
1263	3.54	34.56	0.66	59							
1433	3.14	34.56b)	0.93	55							
1603	2.83	34.57	1.15	52							
1775	2.48	34.60b)	1.41	47							
1948	2.26	34.61b)	1.68	44							
2121	2.08	34.62b)	1.94	42							
2295	1.94	34.65	2.13	38							
2473	1.84	34.65b)	2.23	38							
2562	1.82	34.63b)	2.30	38							
2654	1.77	-	-	-							

a) Overlapping casts; reconciliation of property curves when necessary.

b) Salinity bottle numbers at these levels appear to have been listed out of order on the data sheet. Since standard handling and titrating procedures were used, these salinity values are assumed to be in the order listed.



OBSERVED					INTERPOLATED				COMPUTED			
Z	T	S	O <sub>2</sub>	$\delta T_{-5}^3$	Z	T	S	O <sub>2</sub>	$\sigma_t$	$\delta T_{-5}^3$	$\Delta D$	
m	°C	‰	ml/L	10 <sup>-5</sup> cm/g	m	°C	‰	ml/L	g/L	10 <sup>-5</sup> cm/g	dyn. m	

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BLACK DOUGLAS; July 16, 1959; 0035 GCT; 25°08.5'N, 116°02'W; sounding, 2000 fm; wind, 340°, force 3; weather, cloudy; sea, moderate; wire angle, 08°.

130.70

1	22.61	33.87	4.73	467	0	(22.61)	(33.87)	(4.73)	(23.21)	(467)	(0.00)
10	22.56	33.86	4.77	467	10	22.56	33.86	4.77	23.21	467	0.05
32	19.98	34.04	5.04	386	20	21.30	33.84	4.91	23.55	435	0.09
41	19.58	33.99	5.11	380	30	20.04	34.04	5.01	24.04	388	0.13
54	19.20	34.00	5.20	370	50	19.24	33.97	5.20	24.19	374	0.21
68	18.73	34.00	5.11	359	75	18.05	33.92	5.14	24.46	348	0.30
90	16.59	33.76	5.24	327	100	15.70	33.76	5.08	24.88	308	0.38
108	14.79	33.77	4.71	288	150	11.52	33.80	3.12	25.76	224	0.51
126	12.96	33.86	3.31	245	200	10.53	34.19	1.64	26.24	178	0.62
152	11.42	33.80	3.08	222	250	10.13	34.42	0.94	26.49	155	0.70
179	10.87	34.07	2.08	193	300	9.67	34.46	0.58	26.61	144	0.78
214	10.38	34.27	1.38	169	400	8.21	34.49	0.39	26.86	120	0.92
242	10.20	34.40	1.04	157	500	7.18	34.42	0.18	26.96	111	1.04
286	9.86	34.45	0.61	148							
343	9.04	34.49	0.51	133							
432	7.76	34.46	0.30	115							
513	7.09	34.42	0.17	110							
579	6.38	34.42	0.27	100							

BLACK DOUGLAS; July 14, 1959; 1750 GCT; 26°04.5'N, 112°48'W; sounding, 40 fm; wind, 330°, force 2; weather, partly cloudy; sea, slight; wire angle, 03°.

133.25

1	21.02	33.99	5.55	417	0	(21.02)	(33.99)	(5.55)	(23.74)	(417)	(0.00)
9	17.48	33.88	4.90	338	10	17.40	33.88	4.87	24.58	337	0.04
28	14.08	33.88	2.97	266	20	15.00	33.83	3.74	25.09	288	0.07
45	13.32	34.20	1.04	227	30	14.03	33.90	2.89	25.34	264	0.10

BLACK DOUGLAS; July 14, 1959; 1458 GCT; 25°54.5'N, 113°07.5'W; sounding, 110 fm; wind, 320°, force 4; weather, clear; sea, moderate; wire angle, 05°.

133.30

1	22.45	-	4.90	-	0	(22.45)	(34.00)	(4.90)	(23.35)	(454)	(0.00)
9	22.46	34.00	4.93	454	10	22.45	34.00	4.93	23.35	454	0.04
28	15.60	33.73	5.17	308	20	18.00	33.78	5.16	24.36	358	0.09
45	13.24	33.93	2.83	246	30	15.39	33.72	5.04	24.93	304	0.12
68	13.00	34.27	1.70	216	50	13.14	33.97	2.67	25.59	241	0.17
90	13.02	34.55	0.89	196	75	13.41	34.50	1.36	25.94	207	0.23
112	12.78	34.59	0.43	188	100	12.89	34.57	0.63	26.10	192	0.28
140	12.64	34.62	0.71	184	150	(12.62)	(34.63)		(26.20)	(183)	(0.38)

BLACK DOUGLAS; July 14, 1959; 0342 GCT; 25°34.5'N, 113°45.5'W; sounding, 1500 fm; wind, 320°, force 3; weather, partly cloudy; sea, moderate; wire angle, 17°.

133.40

1	21.63	33.77	4.96	449	0	(21.63)	(33.77)	(4.96)	(23.40)	(449)	(0.00)
9	20.76	33.77	5.10	426	10	20.65	33.77	5.08	23.67	423	0.04
27	18.69	33.72	4.46	378	20	19.15	33.68	4.59	24.00	392	0.08
35	18.38	33.89	4.50	359	30	18.57	33.80	4.46	24.23	370	0.12
49	17.11	33.77	4.58	338	50	17.06	33.77	4.60	24.58	337	0.19
62	16.38	33.87	4.95	314	75	15.22	33.94	3.90	25.08	289	0.27
85	14.40	33.89	2.73	271	100	13.48	34.13	1.04	25.65	235	0.34
102	13.48	34.18	0.96	232	150	12.76	34.63	0.45	26.18	185	0.44
119	13.80	34.60	0.55	207	200	12.21	34.78	0.17	26.40	164	0.53
137	12.75	34.52	0.62	193	250	11.44	34.70	0.15	26.48	156	0.61
164	12.76	34.74	0.30	177	300	10.82	34.70	0.12	26.59	146	0.69
194	12.31	34.79	0.17	165	400	9.04	34.58	0.16	26.81	125	0.83
220	11.91	34.74	0.16	161	500	7.50	34.47	0.20	26.96	111	0.96
264	11.23	34.69	0.14	153							
313	10.66	-	0.11	-							
388	9.24	34.60	0.14	127							
464	8.00	34.49	0.19	117							
541	6.94	34.45	0.22	105							



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OBSERVED					INTERPOLATED				COMPUTED			
Z	T	S	O <sub>2</sub>	$\delta T_3$	Z	T	S	O <sub>2</sub>	$\sigma_t$	$\delta T_3$	$\Delta D$	
m	°C	‰	ml/L	$10^{-5} \text{ cm}^3/\text{g}$	m	°C	‰	ml/L	g/L	$10^{-5} \text{ cm}^3/\text{g}$	dyn. m	

133.50

BLACK DOUGLAS; July 13, 1959; 2115, 2145 GCT; 25°14.5'N, 114°24'W; sounding, 1870 fm; wind, 340°, force 3; weather, partly cloudy; sea, rough; wire angle, 05°, 03°.

1	22.94	33.93	4.84	471	0	(22.94)	(33.93)	(4.84)	(23.17)	(471)	(0.00)
10	22.48	-	4.83	-	10	22.48	33.90	4.83	23.27	461	0.05
28	17.66	33.80	5.01	349	20	19.90	33.81	4.97	23.90	402	0.09
37	15.80	33.84	5.02	304	30	17.40	33.82	5.03	24.54	341	0.13
51	13.90	33.75	3.79	272	50	13.94	33.75	3.80	25.25	273	0.19
64	12.62	33.78	3.54	245	75	11.94	33.78	3.42	25.67	233	0.25
86	11.36	33.78	3.26	222	100	10.92	33.89	2.80	25.94	207	0.31
104	10.88	33.93	2.62	203	150	10.90	34.27	0.97	26.24	178	0.40
122	11.20	34.18	1.57	190	200	10.80	34.55	0.39	26.48	156	0.49
139	10.96	34.18	1.09	186	250	10.01	34.55	0.29	26.62	143	0.57
164	10.84	34.43	0.84	166	300	9.38	34.53	0.23	26.71	134	0.64
195	10.88	34.55	0.38	158	400	8.12	34.47	0.19	26.86	120	0.77
222	10.40	34.52	0.41	151	500	7.10	34.46	0.20	27.00	107	0.89
269	9.76	34.55	0.22	139							
317	9.16	34.51	0.23	132							
394	8.18	34.47	0.20	121							
470	7.46	34.46	0.13	112							
546	6.58	34.47	0.38	99							

133.60

BLACK DOUGLAS; July 13, 1959; 1439 GCT; 24°53'N, 115°01'W; sounding, 2000 fm; wind, 320°, force 3; weather, cloudy; sea, moderate; wire angle, 09°.

1	22.82	33.98	4.86	465	0	(22.82)	(33.98)	(4.86)	(23.23)	(465)	(0.00)
10	22.82	34.01	4.84	463	10	22.82	34.01	4.84	23.25	463	0.05
28	18.60	33.89	5.42	364	20	21.25	33.97	5.13	23.66	425	0.09
36	16.65	33.80	5.53	326	30	18.29	33.88	5.44	24.36	357	0.13
50	14.67	33.71	5.20	290	50	14.67	33.71	5.20	25.07	290	0.19
62	13.60	33.78	4.23	263	75	12.99	33.87	3.43	25.55	245	0.26
85	12.54	33.92	2.91	233	100	11.83	33.97	2.40	25.84	217	0.32
102	11.82	34.00	2.32	214	150	11.04	34.40	1.00	26.32	171	0.42
119	11.86	34.31	1.22	192	200	10.44	34.49	0.70	26.49	155	0.50
136	11.46	34.42	0.90	177	250	10.37	34.62	0.25	26.62	143	0.58
162	10.76	34.39	1.05	167	300	9.47	34.49	0.40	26.66	139	0.65
193	10.41	34.45	0.79	157	400	7.97	34.45	0.31	26.88	118	0.78
218	10.60	34.59	0.45	150	500	6.88	34.48	0.20	27.05	102	0.90
262	10.20	34.61	0.23	141							
310	9.29	34.47	0.43	137							
385	8.14	34.45	0.33	122							
462	7.24	34.47	0.23	108							
538	6.57	34.50	0.19	96							

133.70

BLACK DOUGLAS; July 13, 1959; 0912 GCT; 24°34.5'N, 115°39'W; sounding, 2100 fm; wind, 280°, force 3; weather, clear; sea, moderate; wire angle, 10°.

1	21.88	33.78	4.96	455	0	(21.88)	(33.78)	(4.96)	(23.34)	(455)	(0.00)
10	21.91	33.77	4.90	456	10	21.79	33.77	4.90	23.33	456	0.05
29	20.00	34.02	5.03	389	20	21.40	33.81	4.90	23.50	439	0.09
37	19.60	33.97	5.12	382	30	19.90	34.00	5.05	24.04	388	0.13
51	19.51	34.04	5.12	375	50	19.52	34.04	5.12	24.18	375	0.21
64	19.20	34.02	5.16	369	75	18.57	33.97	5.20	24.36	357	0.30
86	17.57	33.91	5.23	338	100	16.10	33.82	5.11	24.85	311	0.38
104	15.43	33.75	5.00	303	150	11.77	34.03	2.04	25.90	211	0.52
121	13.14	33.76	3.58	256	200	11.12	34.47	0.73	26.36	167	0.61
138	12.14	33.94	2.33	224	250	10.43	34.50	0.60	26.51	153	0.69
164	11.48	34.16	1.75	197	300	9.64	34.50	0.52	26.64	141	0.77
193	11.24	34.45	0.77	171	400	8.19	34.45	0.40	26.84	122	0.91
219	10.76	34.49	0.66	160	500	7.10	34.46	0.20	27.00	107	1.03
263	10.28	34.51	0.54	150							
310	9.46	34.60u	0.50	-							
385	8.36	34.45	0.42	124							
460	7.54	34.46	0.23	112							
536	6.70	34.45	0.16	102							



OBSERVED					INTERPOLATED				COMPUTED			
Z	T	S	O <sub>2</sub>	$\delta T_3$	Z	T	S	O <sub>2</sub>	$\sigma_t$	$\delta T_3$	$\Delta D$	
m	°C	‰	ml/L	$\frac{-5}{10} \frac{3}{\text{cm/g}}$	m	°C	‰	ml/L	g/L	$\frac{-5}{10} \frac{3}{\text{cm/g}}$	dyn. m	

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BLACK DOUGLAS; July 11, 1959; 1147 GCT; 25°34'N, 112°18.5'W; sounding, 40 fm; wind, direction missing, force 1; weather, clear; sea, calm; wire angle, 00°.

137.23

0	23.08	34.04	4.47	468	0	23.08	34.04	4.47	23.20	468	0.00
9	22.80	34.04	4.77	460	10	22.70	34.04	4.77	23.30	458	0.05
27	16.36	33.93	4.63	310	20	19.25	33.98	4.73	24.20	373	0.09
45	14.02	-	1.67	-	30	14.95	-	4.40	-	-	-

BLACK DOUGLAS; July 11, 1959; 1504 GCT; 25°20'N, 112°45.5'W; sounding, 190 fm; wind, 270°, force 2; weather, fog; sea, slight; wire angle, 00°.

137.30

0	22.44	33.93	4.65	459	0	22.44	33.93	4.65	23.30	459	0.00
9	21.28	33.86	4.84	433	10	21.12	33.86	4.84	23.61	429	0.04
27	15.48	33.78	4.39	302	20	18.22	33.84	4.62	24.35	359	0.08
44	13.48	33.78	3.29	261	30	14.75	33.76	4.22	25.09	288	0.12
67	13.24	34.04	1.65	238	50	13.34	33.82	2.92	25.44	255	0.17
90	12.80	34.19	1.30	218	75	13.25	34.13	1.50	25.69	231	0.23
112	12.50	34.51	0.39	189	100	12.65	34.36	0.85	25.98	203	0.29
148	12.24	34.61	0.16	177	150	12.22	34.61	0.15	26.26	176	0.38
184	11.90	34.66	0.12	167	200	11.69	34.66	0.08	26.41	163	0.47
229	11.34	34.64	0.07	159	250	11.18	34.61	0.08	26.47	157	0.55
273	11.04	34.60	0.09	156							

BLACK DOUGLAS; July 11, 1959; 2228 GCT; 25°10'N, 113°04.5'W; sounding, 700 fm; wind, 300°, force 3; weather, partly cloudy; sea, moderate; wire angle, 11°.

137.35

1	23.26	33.89	4.95	484	0	(23.26)	(33.89)	(4.95)	(23.04)	(484)	(0.00)
10	21.94	33.91	5.04	446	10	21.94	33.91	5.04	23.43	446	0.05
27	17.36	33.84	5.49	338	20	18.70	33.80	5.47	24.20	373	0.09
36	16.36	34.05	3.99	301	30	16.94	33.88	5.21	24.69	326	0.12
49	15.36	34.15	2.53	272	50	15.30	34.16	2.52	25.28	270	0.18
62	14.18	34.20	1.81	244	75	14.23	34.38	1.14	25.68	232	0.24
84	14.50	34.58	0.78	223	100	13.98	34.66	0.52	25.94	207	0.30
102	13.88	34.67	0.46	204	150	12.80	34.77	0.24	26.28	176	0.40
120	13.30	34.77	0.30	185	200	12.07	34.72	0.25	26.38	166	0.48
137	12.96	34.74	0.28	181	250	11.82	34.70	0.18	26.42	162	0.57
164	12.62	34.78	0.23	172	300	11.29	34.66	0.19	26.48	156	0.65
195	12.11	34.72	0.28	167	400	9.83	34.58	0.13	26.67	138	0.80
220	11.98	34.71	0.18	164	500	7.84	34.46	0.11	26.90	117	0.93
265	11.71	34.70	0.19	161							
313	11.12	34.65	0.19	154							
388	10.10	34.60	0.14	141							
463	8.28	34.46	0.10	123							
538	7.47	34.45	0.14	112							

BLACK DOUGLAS; July 12, 1959; 0157 GCT; 25°00'N, 113°23.5'W; sounding, 1300 fm; wind, 300°, force 3; weather, partly cloudy; sea, slight; wire angle, 11°.

137.40

0	23.25	-	5.21	-	0	23.25	(33.94)	5.21	(23.07)	(480)	(0.00)
9	21.72	33.94	5.39	438	10	21.70	33.94	5.39	23.52	438	0.05
31	15.72	33.79	5.26	306	20	17.88	33.91	5.36	24.50	345	0.08
40	14.82	33.82	4.12	285	30	15.82	33.79	5.32	24.88	308	0.12
53	13.70	33.96	2.83	252	50	14.05	33.94	3.20	25.38	260	0.17
67	14.84	34.63	1.05	226	75	14.68	34.69	0.76	25.82	218	0.23
89	13.90	34.65	0.51	206	100	13.62	34.73	0.41	26.08	194	0.29
107	13.50	34.77	0.31	189	150	12.59	34.76	0.21	26.31	172	0.38
125	13.14	34.76	0.15	183	200	11.73	34.73	0.14	26.45	159	0.46
152	12.54	34.76	0.21	171	250	11.11	34.68	0.22	26.53	151	0.54
179	12.02	34.74	0.18	164	300	10.40	34.61	0.16	26.60	145	0.62
214	11.56	34.72	0.13	157	400	9.10	34.52	0.17	26.74	131	0.76
240	11.26	34.70	0.22	153	500	7.77	34.49	0.20	26.93	114	0.89
285	10.62	34.63	0.16	147	600	(7.68)	(34.43)		(27.03)	(104)	(1.00)
343	9.82	34.55	0.16	140							
433	8.70	34.51	0.17	126							
513	7.60	34.49	0.20	112							
581	6.86	34.44	0.15	105							



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OBSERVED					INTERPOLATED				COMPUTED		
Z	T	S	O <sub>2</sub>	$\delta T_{-5}^3$	Z	T	S	O <sub>2</sub>	$\sigma_t$	$\delta T_{-5}^3$	$\Delta D$
m	°C	‰	ml/L	10 cm/g	m	°C	‰	ml/L	g/L	10 cm/g	dyn. m

137.50

BLACK DOUGLAS; July 12, 1959; 0750 GCT; 24°41'N, 113°57.5'W; sounding, 1900 fm; wind, 270°, force 3; weather, clear; sea, moderate; wire angle, 16°.

1	22.87a)	34.02	4.94	463	0	(22.87)	(34.02)	(4.94)	(23.26)	(463)	(0.00)
10	22.37	34.08	4.80	445	10	22.37	34.08	4.80	23.44	445	0.05
28	19.94	33.94	5.15	393	20	20.42	33.94	5.11	23.86	405	0.09
36	19.92	34.09	5.11	381	30	19.93	33.95	5.14	24.01	391	0.13
50	18.84	33.99	5.22	363	50	18.84	33.99	5.22	24.30	363	0.20
62	18.14	33.95	5.23	349	75	16.99	33.87	5.14	24.67	328	0.29
83	15.68	33.83	4.84	302	100	14.47	33.74	4.43	25.14	284	0.37
99	14.57	33.75	4.46	285	150	11.81	34.19	1.56	26.02	200	0.49
116	12.88	33.78	3.52	250	200	11.59	34.60	0.39	26.37	167	0.58
132	12.46	34.09	2.19	220	250	10.49	34.54	0.41	26.52	151	0.66
156	11.74	34.25	1.35	194	300	9.78	34.55	0.25	26.66	139	0.74
183	11.82	34.51	0.55	177	400	8.41	34.51	0.27	26.85	121	0.87
205	11.48	34.61	0.36	164	500	7.04	34.44	0.23	26.99	108	0.99
244	10.60	34.54	0.42	154							
289	9.94	34.56	0.24	141							
358	8.92	34.52	0.26	128							
431	8.01	34.48	0.27	118							
507	6.97	34.43	0.22	107							

137.60

BLACK DOUGLAS; July 12, 1959; 1302 GCT; 24°23'N, 114°29'W; sounding, 2000 fm; wind, 300°, force 3; weather, partly cloudy; sea, moderate; wire angle, 07°.

1	22.45	33.94	4.83	458	0	(22.45)	(33.94)	(4.83)	(23.31)	(458)	(0.00)
10	21.76	33.95	4.90	439	10	21.76	33.95	4.90	23.51	439	0.04
28	19.40	33.99	5.14	376	20	20.72	34.02	4.96	23.84	407	0.09
36	18.60	33.80	5.27	370	30	19.05	33.92	5.25	24.21	372	0.13
50	18.38	33.76	5.26	368	50	18.38	33.76	5.26	24.25	368	0.20
64	18.46	33.91	5.02	359	75	17.32	33.89	4.94	24.61	334	0.29
86	15.77	33.82	4.90	305	100	13.78	33.80	4.00	25.34	265	0.36
103	13.31	33.80	3.75	256	150	11.31	33.98	2.45	25.95	206	0.48
121	12.23	33.93	2.87	227	200	11.39	34.46	0.66	26.30	173	0.58
139	11.40	33.89	2.74	215	250	10.71	34.63	0.30	26.56	149	0.66
166	11.28	34.17	1.76	192	300	9.52	34.52	0.37	26.68	137	0.73
196	11.40	34.43	0.76	175	400	8.19	34.46	0.25	26.85	121	0.87
222	11.27	34.61	0.32	160	500	7.12	34.45	0.12	26.99	108	0.99
265	10.32	34.59	0.30	145							
314	9.29	34.51	0.38	134							
389	8.30	34.47	0.27	122							
464	7.52	34.45	0.17	113							
539	6.70	34.46	0.10	101							

a) Alternate value, 22.64°C, not used in interpolation.



OBSERVED					INTERPOLATED				COMPUTED		
Z	T	S	O <sub>2</sub>	$\delta T_3$	Z	T	S	O <sub>2</sub>	$\sigma_t$	$\delta T_3$	$\Delta D$
m	°C	‰	ml/L	10 cm/g	m	°C	‰	ml/L	g/L	10 cm/g	dyn. m

BLACK DOUGLAS; July 12, 1959; 1938 GCT; 24°00'N, 115°17.5'W; sounding, 2000+ fm; wind, 290°, force 3; weather, partly cloudy; sea, moderate; wire angle, 07°.

137.70

1	23.30	-	4.81	-	0	(23.30)	(34.02)	(4.81)	(23.12)	(476)	(0.00)
10	22.40	34.02	4.87	451	10	22.40	34.02	4.87	23.38	451	0.05
28	20.82	34.23	5.05	394	20	21.34	34.18	5.04	23.80	411	0.09
36	20.38	34.17	4.98	387	30	20.69	34.21	5.04	23.99	393	0.13
50	19.80	34.13	5.14	376	50	19.80	34.13	5.14	24.17	376	0.21
64	18.73	34.04	5.27	356	75	17.93	33.98	5.27	24.53	342	0.30
86	17.07	33.89	5.21	328	100	15.35	33.74	4.69	24.95	302	0.38
103	14.64	33.74	4.35	288	150	11.76	33.95	2.77	25.84	217	0.51
121	13.16	33.75	3.79	257	200	10.10	34.09	2.17	26.24	178	0.61
139	12.36	33.95	2.85	228	250	9.89	34.33	1.15	26.47	157	0.70
166	10.98	33.95	2.65	203	300	9.42	34.42	0.63	26.62	143	0.77
197	10.11	34.07	2.23	180	400	8.27	34.41	0.36	26.80	126	0.91
223	10.19	34.30	1.43	164	500	6.99	34.39	0.26	27.07	110	1.04
267	9.70	34.34	1.00	154							
317	9.28	34.46	0.51	138							
393	8.38	34.42	0.37	127							
470	7.27	34.38	0.27	115							
544	6.61	34.42	0.24	104							

BLACK DOUGLAS; July 13, 1959; 0120 GCT; 23°35'N, 115°59.5'W; sounding, 2000 fm; wind, 320°, force 4; weather, partly cloudy; sea, rough; wire angle, 07°.

137.80

0	23.78	34.42	4.73	460	0	23.78	34.42	4.73	23.29	460	0.00
9	23.66	34.25u	4.83	-	10	23.63	34.42	4.84	23.32	456	0.05
31	21.45	34.42	4.95	397	20	22.30	34.42	4.94	23.71	419	0.09
40	20.90	34.39	4.96	385	30	21.50	34.42	4.95	23.93	399	0.13
53	19.74	34.24	5.20	366	50	19.89	34.25	5.16	24.24	369	0.21
67	19.20	34.22	5.23	354	75	18.80	34.21	5.23	24.49	345	0.30
89	17.83	-	5.13	-	100	16.61	34.00	4.87	24.86	310	0.38
107	15.76	33.91	4.57	298	150	12.11	34.00	2.47	25.81	219	0.52
125	13.78	33.81	3.81	265	200	10.71	34.32	1.45	26.32	171	0.61
152	11.98	33.99	2.44	218	250	10.30	34.46	0.80	26.50	154	0.70
178	10.72	34.11	2.10	187	300	9.78	34.52	0.49	26.64	141	0.78
214	10.68	34.42	1.10	164	400	8.50	34.50	0.37	26.83	123	0.91
241	10.38	34.44	0.87	156	500	7.44	34.46	0.21	26.95	112	1.04
285	9.98	34.52	0.52	144							
343	9.22	34.52	0.41	133							
432	8.15	34.50	0.30	118							
512	7.33	34.45	0.19	110							
579	6.68	34.49	0.20	99							



Station	Date	Time GCT	Latitude North	Longitude West	Sounding (fm)	Wind		Weather	Sea	10 Meters	
						Dir	Force			T	S
60.52-O	VII-24	0522	37°53.0'	122°58.5'	40	330°	4	clear	rough	13.86	33.68
60.65-O	24	1416	37°25.0'	123°58.5'	2000+	320°	5	cloudy	high	14.74	33.58
60.75-O	24	2039	37°02.0'	124°45.0'	1800+	320°	5	overcast	high	15.99	32.90
60.85-O	25	0220	36°45.0'	125°18.5'	2000+	320°	5	cloudy	high	16.80	32.92
63.55-O	22	1357	37°10.0'	122°47.0'	147	310°	3	overcast	rough	15.24	33.48
63.65-O	22	0804	36°51.0'	123°31.0'	1200+	300°	2	overcast	moderate	13.94	33.60
63.75-O	22	0250	36°30.5'	124°09.5'	2000+	300°	2	overcast	rough	16.55	32.92
63.85-O	21	2141	36°09.0'	124°48.5'	2000+	300°	3	cloudy	very rough	16.33	32.96
67.50-O	20	1330	36°50.5'	122°07.0'	40+	300°	1	fog	moderate	13.44	33.68
67.75-O	21	0447	36°01.5'	123°52.0'	2000+	300°	1	overcast	rough	16.49	32.90
67.85-O	21	1030	35°36.5'	124°30.0'	2000+	300°	2	overcast	rough	15.16	32.88
70.55-O	20	0515	36°02.5'	122°02.5'	700	310°	3	overcast	moderate	14.83	33.69
70.65-O	19	2240	35°41.0'	122°42.5'	2000+	310°	4	overcast	moderate	14.42	33.51
70.75-O	19	1650	35°20.0'	123°24.5'	2000+	310°	3	overcast	rough	15.28	33.14
70.85-O	19	1030	34°59.5'	124°07.5'	2200+	300°	2	overcast	rough	14.82	33.19
73.51-O	17	1815	35°34.5'	121°21.5'	200	310°	3	overcast	moderate	14.14	33.69
73.65-O	18	0230	35°06.0'	122°18.5'	2000+	310°	3	overcast	very rough	15.25	33.69
73.75-O	18	0839	34°43.0'	123°01.0'	2200+	310°	2	overcast	rough	14.88	33.28
73.85-O	18	1450	34°20.0'	123°45.0'	2000+	300°	2	overcast	moderate	16.56	33.12

TEMPERATURE AND SALINITY AT 10 METERS (NET-TOW STATIONS)



Station	Date	Time GCT	Latitude North	Longitude West	Sounding (fm)	Wind		Weather	Sea	10 Meters	
						Dir	Force			T	S
77.50-O	VII-17	1317	35°05.0'	120°52.5'	70	310°	3	drizzle	moderate	15.46	33.68
77.65-O	17	0315	34°31.5'	121°54.5'	2200+	310°	3	overcast	rough	16.08	33.69
77.75-O	16	2100	34°12.0'	122°36.0'	2300	310°	2	overcast	rough	15.22	33.28
77.85-O	16	1508	33°50.0'	123°17.5'	2000+	310°	2	overcast	rough	16.40	33.51
80.65-O	12	1425	33°58.5'	121°32.0'	1500	310°	4	partly cloudy	rough 301	15.20	33.71
80.75-O	15	1840	33°37.5'	122°11.0'	2000	310°	1	overcast	rough 317	14.76	33.37
80.80-O	15	2120	33°29.0'	122°32.5'	2000	300°	1	overcast	rough 350	16.61	33.45
80.85-O	16	0000	33°19.0'	122°54.0'	2000	300°	2	cloudy	rough 345	16.64	33.53
83.65-P	12	0942	33°24.0'	121°05.5'	1930	270°	4	missing	rough	15.64	33.61
83.75-P	12	1620	33°03.5'	121°46.0'	2100	320°	4	partly cloudy	rough	16.45	33.46
83.85-P	12	2245	32°44.0'	122°26.0'	2200	320°	5	clear	very rough	17.21	33.54
87.50-P	14	1555	33°20.0'	119°39.5'	40	320°	4	overcast	very rough	15.59	33.68
87.65-P	14	0400	32°46.5'	120°40.0'	2050	320°	6	overcast	high	16.24	33.55
87.75-P	13	1948	32°28.0'	121°22.5'	2300	330°	5	overcast	high	16.52	33.44
87.85-P	13	1215	32°09.0'	122°02.5'	2200	320°	7	cloudy	very rough	17.00	33.48
90.65-P	23	1425	32°16.0'	120°18.5'	2150	320°	5	overcast	very rough 354	17.16	33.57
90.75-P	23	0759	31°57.0'	121°00.0'	2050	320°	4	overcast	rough 364	17.68	33.59
90.85-P	23	0142	31°37.5'	121°41.5'	2200	330°	4	overcast	moderate 364	17.60	33.57
93.35-P	21	0205	32°40.0'	117°52.0'	325	220°	3	overcast	moderate	19.92	33.71

TEMPERATURE AND SALINITY AT 10 METERS (NET-TOW STATIONS)

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Station	Date	Time GCT	Latitude North	Longitude West	Sounding (fm)	Wind		Weather	Sea	10 Meters	
						Dir	Force			T	S
93.45-P	VII-21	0838	32°20.5'	118°33.0'	890	270°	2	overcast	moderate	19.63	33.80
93.55-P	21	1620	32°03.0'	119°15.0'	800	340°	3	overcast	moderate	18.67	33.84
93.65-P	21	2240	31°43.5'	119°56.0'	2030	290°	2	cloudy	moderate	17.13	33.55
93.75-P	22	0438	31°22.0'	120°36.0'	2000	290°	3	overcast	moderate	17.64	33.40
93.85-P	22	1040	31°01.5'	121°15.5'	2140	290°	3	overcast	moderate	17.26	33.42
97.35-P	20	1045	32°03.0'	117°29.0'	700	-	1	overcast	moderate	18.82	-
97.45-P	20	0345	31°39.0'	118°10.0'	820	320°	4	overcast	very rough	20.60	-
97.55-P	19	2005	31°12.0'	118°51.0'	800	320°	4	overcast	rough	17.96	33.63
97.65-P	19	1505	30°56.0'	119°24.5'	1930	340°	4	cloudy	rough	17.58	33.61
97.75-P	19	0820	30°40.0'	120°08.0'	1970	320°	4	cloudy	moderate	17.54	33.51
97.85-P	19	0223	30°23.0'	120°50.5'	2000	320°	4	cloudy	rough	17.98	33.55
100.29-P	17	0020	31°42.0'	116°43.5'	78	290°	4	cloudy	slight 278'	13.55	33.57
100.35-P	17	0445	31°31.0'	117°07.0'	650	300°	4	cloudy	moderate 412	20.04	33.71
100.45-P	17	1135	31°06.0'	117°50.0'	1000	270°	3	overcast	moderate 414	20.32	33.77
100.55-P	17	1745	30°46.0'	118°29.0'	1100	300°	3	overcast	moderate 374	18.50	33.68
100.65-P	17	2330	30°28.0'	119°06.5'	1700	320°	3	overcast	moderate 374	18.16	33.60
100.75-P	18	0520	30°07.5'	119°44.0'	2000	290°	2	overcast	moderate 374	18.17	33.60
100.85-P	18	1120	29°45.5'	120°22.0'	2050	290°	3	overcast	moderate 370	17.78	33.54
103.45-B	VIII-1	0750	30°39.0'	117°26.5'	1100	270°	4	clear	moderate	21.12	33.78

TEMPERATURE AND SALINITY AT 10 METERS (NET-TOW STATIONS)



Station	Date	Time GCT	Latitude North	Longitude West	Sounding (fm)	Wind		Weather	Sea	10 Meters	
						Dir	Force			T	S
103.55-B	VIII-1	0235	30°20.0'	118°04.0'	1050	340°	4	partly cloudy	moderate	19.31	33.58
103.65-B	VII-31	2030	29°54.0'	118°46.0'	1850	340°	5	cloudy	moderate	19.01	33.58
103.75-B	31	1510	29°37.0'	119°24.5'	1300	340°	4	cloudy	moderate	18.70	33.57
107.55-B	27	1400	29°40.5'	117°43.0'	1600	320°	2	overcast	moderate	20.30	33.98
107.65-B	27	0820	29.21.0'	118°23.0'	1750	280°	3	cloudy	moderate	20.72	33.97
107.75-B	27	0240	29°01.5'	119°03.5'	1800	320°	3	overcast	moderate	21.20	34.14
107.85-B	26	2105	28°41.0'	119°42.0'	1850	320°	3	overcast	moderate	19.20	33.62
110.45-B	25	0500	29°27.0'	116°39.0'	560	270°	2	missing	moderate	20.60	33.78
110.55-B	25	1000	29°09.0'	117°18.5'	1900	270°	3	overcast	moderate	19.04	33.65
110.65-B	25	1535	28°46.0'	117°58.0'	1840	320°	1	overcast	moderate	19.55	33.68
110.75-B	26	0325	28°26.0'	118°38.0'	2050	300°	2	cloudy	moderate	20.68	33.90
110.85-B	26	0830	28°09.0'	119°16.0'	2100	270°	3	partly cloudy	moderate	21.50	33.97
113.45-B	24	0345	28°52.0'	116°18.0'	1080	320°	4	overcast	moderate	20.48	33.71
113.55-B	23	2215	28°32.0'	116°57.0'	1800	320°	4	cloudy	moderate	20.37	33.78
113.65-B	23	1655	28°18.0'	117°35.5'	1860	320°	3	overcast	moderate	20.58	33.82
113.75-B	23	1100	27°55.0'	118°16.0'	2000	340°	4	cloudy	moderate	21.74	34.25
113.85-B	23	0522	27°33.0'	118°55.0'	2000	320°	4	cloudy	moderate	21.66	34.03
117.45-B	21	2250	28°18.0'	115°55.0'	1700	320°	2	cloudy	moderate	20.62	33.75
117.55-B	22	0400	27°57.5'	116°34.5'	1750	270°	3	overcast	moderate	21.28	33.92

TEMPERATURE AND SALINITY AT 10 METERS (NET-TOW STATIONS)



Station	Date	Time GCT	Latitude North	Longitude West	Sounding (fm)	Wind		Weather	Sea	10 Meters	
						Dir	Force			T	S
117.65-B	VII-22	0900	27°37.5'	117°13.0'	2000	270°	4	partly cloudy	moderate	21.34	33.81
117.75-B	22	1405	27°17.0'	117°53.0'	2000	320°	3	cloudy	moderate	21.54	33.86
117.85-B	22	1845	26°59.0'	118°30.0'	2000	320°	3	cloudy	moderate	22.55	34.31
120.40-B	20	0420	27°56.5'	115°14.0'	20	300°	5	partly cloudy	moderate	17.46	33.65
120.55-B	19	1855	27°23.0'	116°12.0'	2000	360°	3	cloudy	moderate	20.38	-
120.65-B	19	1230	27°00.5'	116°56.0'	2000	340°	3	overcast	moderate	20.82	33.72
120.75-B	19	0630	26°41.5'	117°31.5'	2100	320°	3	cloudy	rough	21.58	33.73
120.85-B	19	0045	26°22.5'	118°08.0'	2150	340°	4	cloudy	moderate	22.34a)	34.32
123.45-B	17	2020	27°08.0'	115°11.0'	2250	320°	4	partly cloudy	moderate	21.60	33.75
123.55-B	18	0110	26°54.0'	115°49.0'	2000	330°	3	partly cloudy	moderate	21.92	33.82
123.65-B	18	0705	26°29.0'	116°28.0'	2000	320°	4	cloudy	moderate	21.82	33.78
127.45-B	16	1940	26°35.5'	114°48.5'	1750	320°	3	partly cloudy	moderate	21.32	33.78
127.55-B	16	1405	26°15.0'	115°27.0'	2000	340°	3	cloudy	moderate	22.16	33.91
127.65-B	16	0810	25°54.5'	116°05.5'	2000	340°	4	cloudy	moderate	22.64	34.02
130.45-B	15	0753	25°59.0'	114°26.0'	1860	270°	5	partly cloudy	rough	22.82	34.08
130.55-B	15	1315	25°40.0'	115°03.0'	2000	320°	4	cloudy	rough	23.12	34.11

a) Mean value of 22.40 and 22.28°C.

TEMPERATURE AND SALINITY AT 10 METERS (NET-TOW STATIONS)



Station	Date	Time GCT	Latitude North	Longitude West	Sounding (fm)	Wind		Weather	Sea	10 Meters	
						Dir	Force			T	S
130.65-B	VII-15	2146	25°19.0'	115°42.0'	2000	330°	4	cloudy	moderate	22.38a)	33.96
133.35-B	14	0820	25°44.5'	113°26.5'	380	320°	2	partly cloudy	slight	19.84	33.75
133.45-B	14	0025	25°28.0'	114°05.0'	1800	330°	4	clear	moderate	22.93	33.83
133.55-B	13	1750	25.02.0'	114°41.0'	2000+	340°	3	cloudy	moderate	22.88	33.93
133.65-B	13	1155	24°44.0'	115°19.0'	2000	320°	4	cloudy	moderate	21.56	33.93
134.36-B	14	0720	25°38.0'	113°25.0'	-	-	-	missing	missing	19.44	33.72
137.45-B	12	0430	24°50.0'	113°42.5'	1900	270°	3	clear	slight	20.83	33.96
137.55-B	12	1025	24°32.5'	114°13.5'	2100	300°	3	clear	moderate	22.72	34.07
137.65-B	12	1650	24°10.0'	114°58.5'	2000	290°	3	cloudy	moderate	22.38	33.96
137.75-B	12	2230	23°48.0'	115°37.0'	2100	320°	3	partly cloudy	moderate	23.42	34.37

a) Mean value of 22.31 and 22.44°C.

TEMPERATURE AND SALINITY AT 10 METERS (NET-TOW STATIONS)



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