

UNIVERSITY OF CALIFORNIA SCRIPPS INSTITUTION OF OCEANOGRAPHY

data report

PHYSICAL AND CHEMICAL DATA

CCOFI Cruise 6004
29 March - 30 April 1960

SIO Reference 62-6
10 August 1961

UNIVERSITY OF CALIFORNIA
SCRIPPS INSTITUTION OF OCEANOGRAPHY

PHYSICAL AND CHEMICAL DATA

CCOFI CRUISE 6004

29 March - 30 April 1960

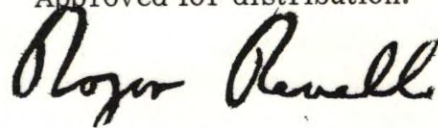
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SIO Reference 62-6

10 August 1961

Approved for distribution:



Roger Revelle, Director

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INTRODUCTION

The data presented in this report were collected by the R/V Black Douglas of the Bureau of Commercial Fisheries, the R/V Horizon and the R/V Hugh M. Smith of the Scripps Institution of Oceanography on Cruise 6004 of the California Cooperative Oceanic Fisheries Investigations program. The first two figures in this cruise numbering system represent the year of the cruise; the last two figures, the month. In the case of quarterly cruises the last figures are hyphenated. The cruises preceding this one in the series are 5911 and 5912 (Scripps Institution report, SIO Ref. 61-21), 6001 (SIO Ref. 61-23), 6002 (SIO Ref. 62-3) and 6003 (SIO Ref. 62-5).

The data are tabulated at observed depths; the interpolated and computed values are tabulated at standard depths and 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.^{1/} 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 ΔD .

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. The salinity values obtained by salinometer are recorded to three decimal places, provided they meet accepted standards. The third decimal place has been offset to emphasize that the accuracy of the observations is not to one unit in that place, but that the values recorded "have a reproducibility of $\pm 0.004\%$ salinity at the 95 percent probability level, and a probable accuracy of $\pm 0.01\%$ salinity or better at the same level of probability."^{2/} The values are recorded to two decimal places when obtained by chlorinity titration, or by salinometer where only one determination

^{1/}Klein, Hans T. A new technique for processing physical oceanographic data. MS.

^{2/}Quotation from Department of Oceanography, University of Washington, Tech. Rep. No. 66, UW Ref. 60-18, October 1960.

per sample was obtained, or where there is doubt concerning the accuracy of a particular sample, or of all samples on a station. The accuracy of all samples obtained by salinometer and recorded to two decimal places is believed to be equal to or better than those obtained by manual titration.

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.

On stations where more than one cast is lowered, the various property curves may not agree perfectly. This discrepancy may be caused by changes in geographical position, real property changes with time, slight error in measurement, or a combination of these factors. Stations with overlapping casts have the following footnote: Overlapping casts; reconciliation of property curves when necessary.

FOOTNOTES

Laboratory personnel, before titrating the salinity samples, note any possible imperfections in the sealing of the bottles as follows:

Loose bottle cap: The cap is definitely loose so that it could be moved with very little applied pressure. The salinity values obtained from these samples may be usable depending on time and/or conditions of storage.

Possible evaporation: Either the cap was sealed with less than usual pressure, the bottle edge chipped, the rubber washer cracked, or the bale broke on opening, etc.

Use of the above values in interpolation depends upon consistency with other values of salinity and other properties, and these footnotes are supplemented with "falls on property curve" or "does not fall on property curve," depending upon whether the property curve was drawn through the value or not.

In addition to 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.

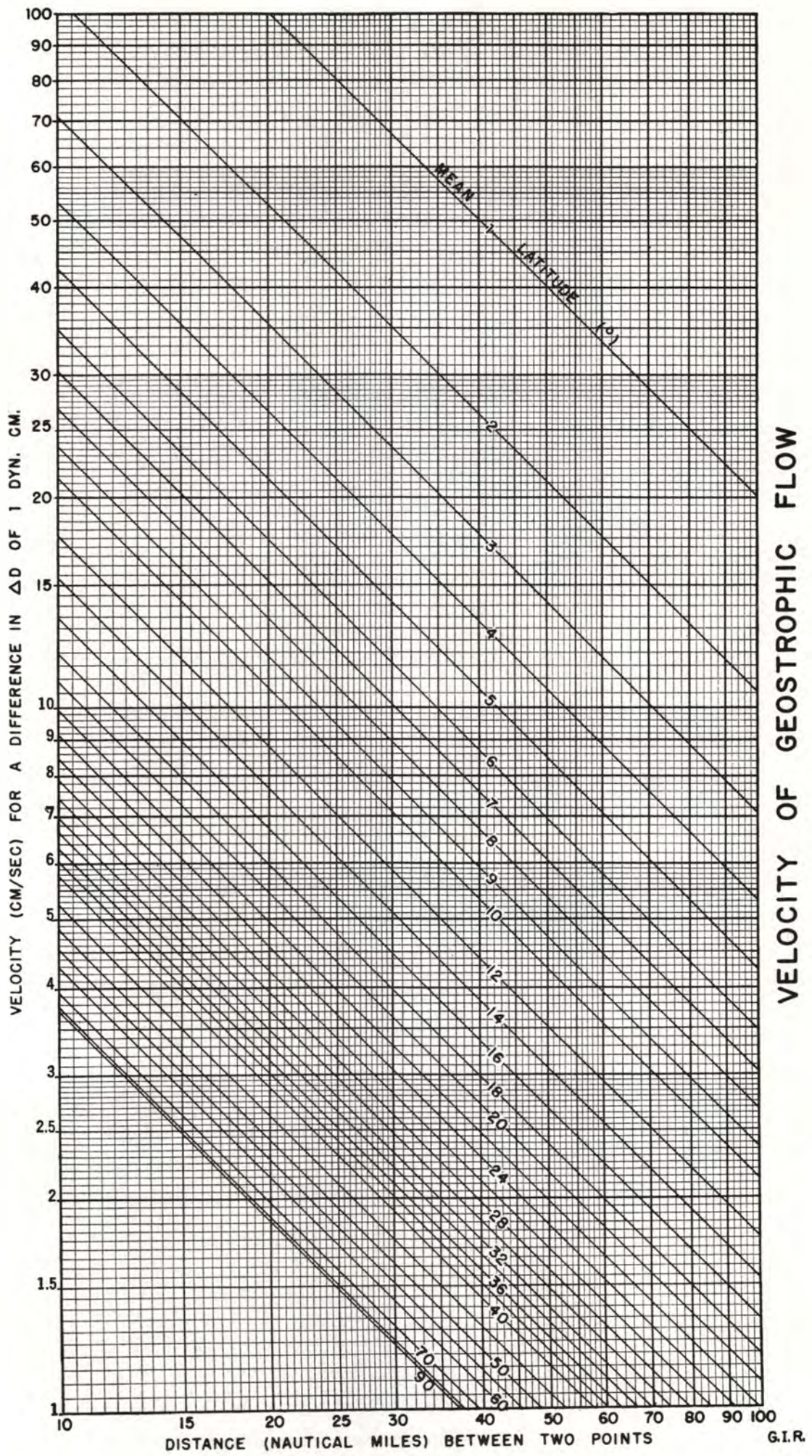
Values which are not drawn through because they seem to be in error without apparent reason are indicated by one of the following notations.

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 1960 volume, the first page of Cruise 6004 data is numbered 143.



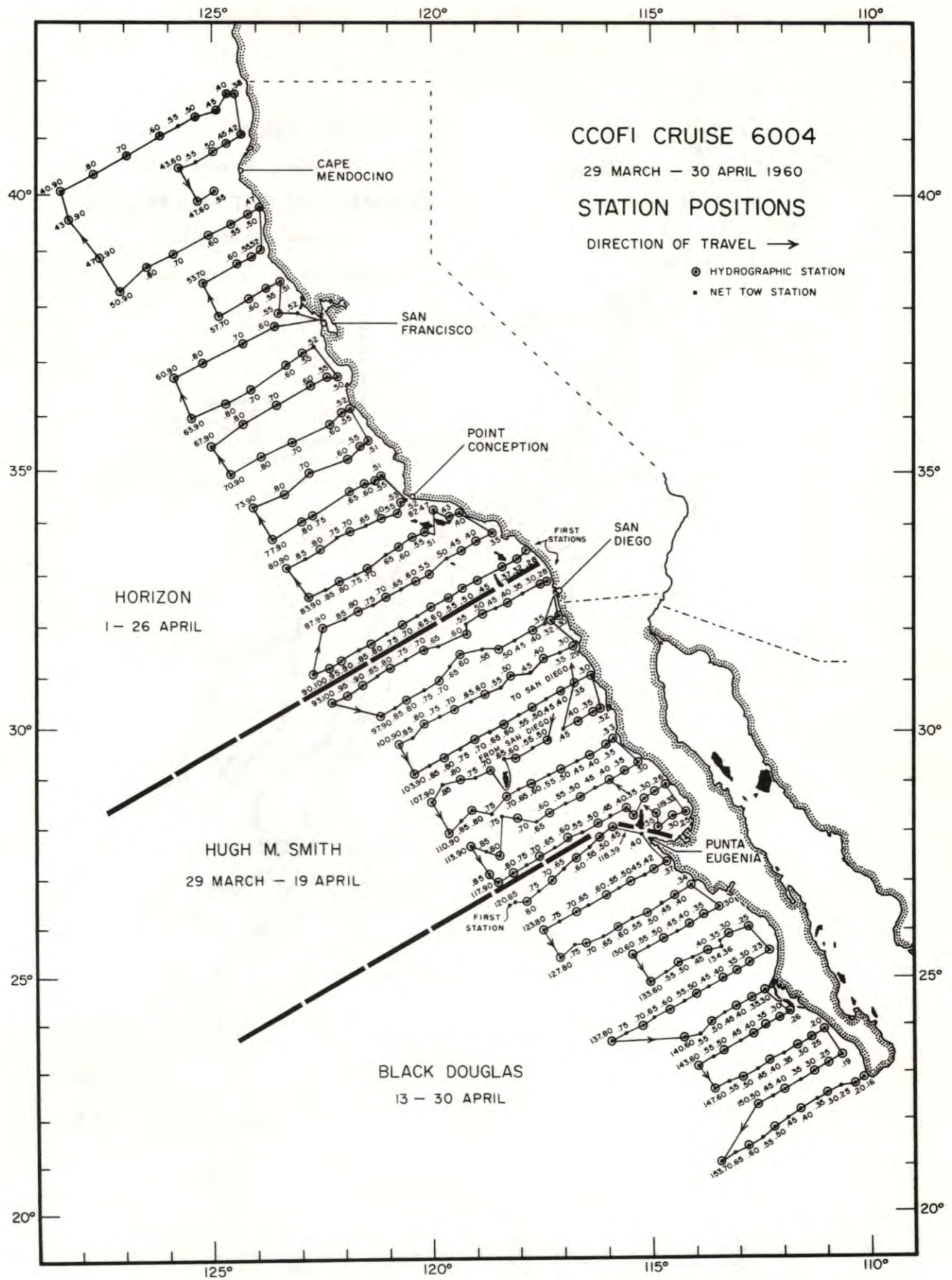


FIGURE 1

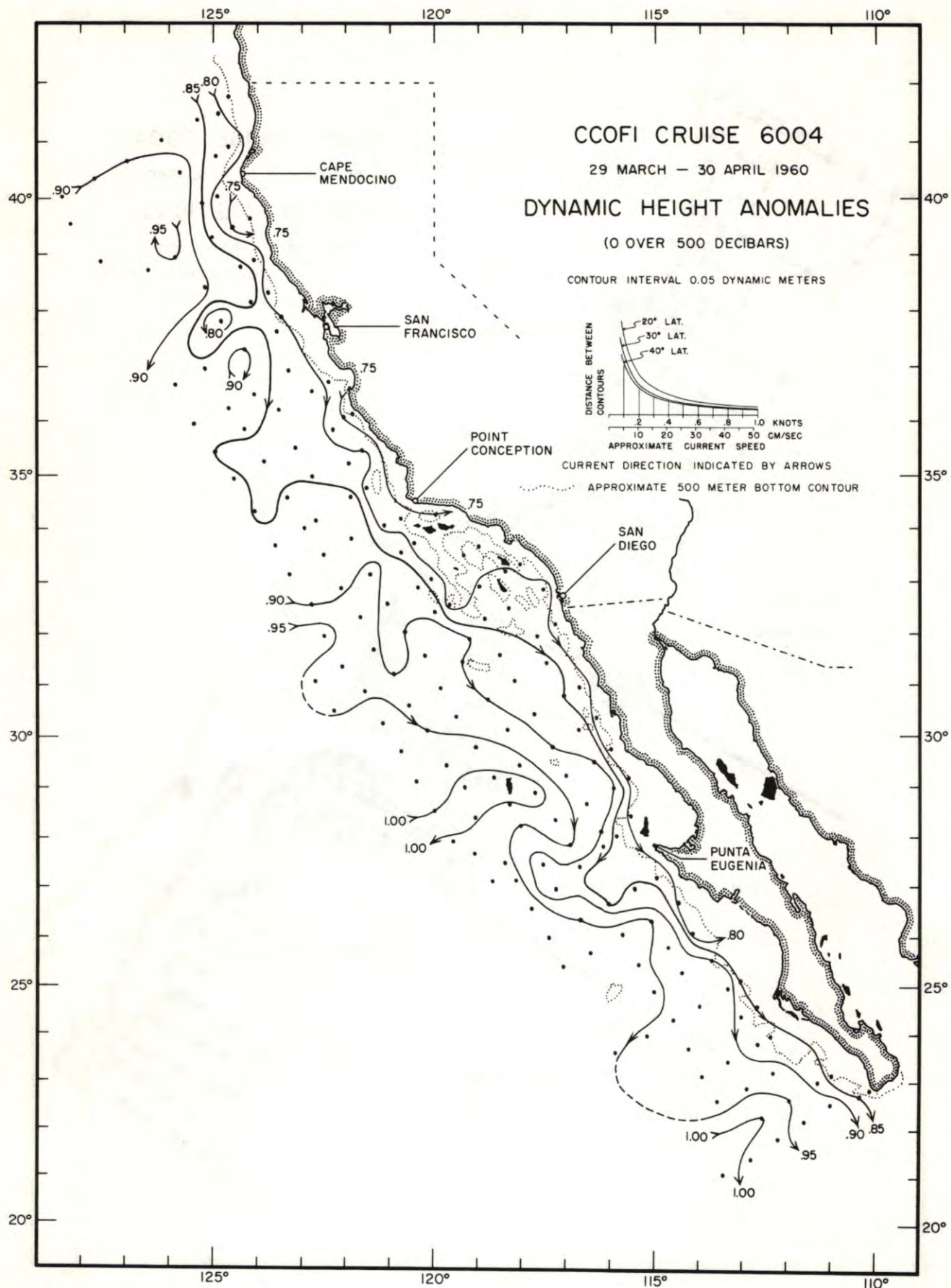


FIGURE 2

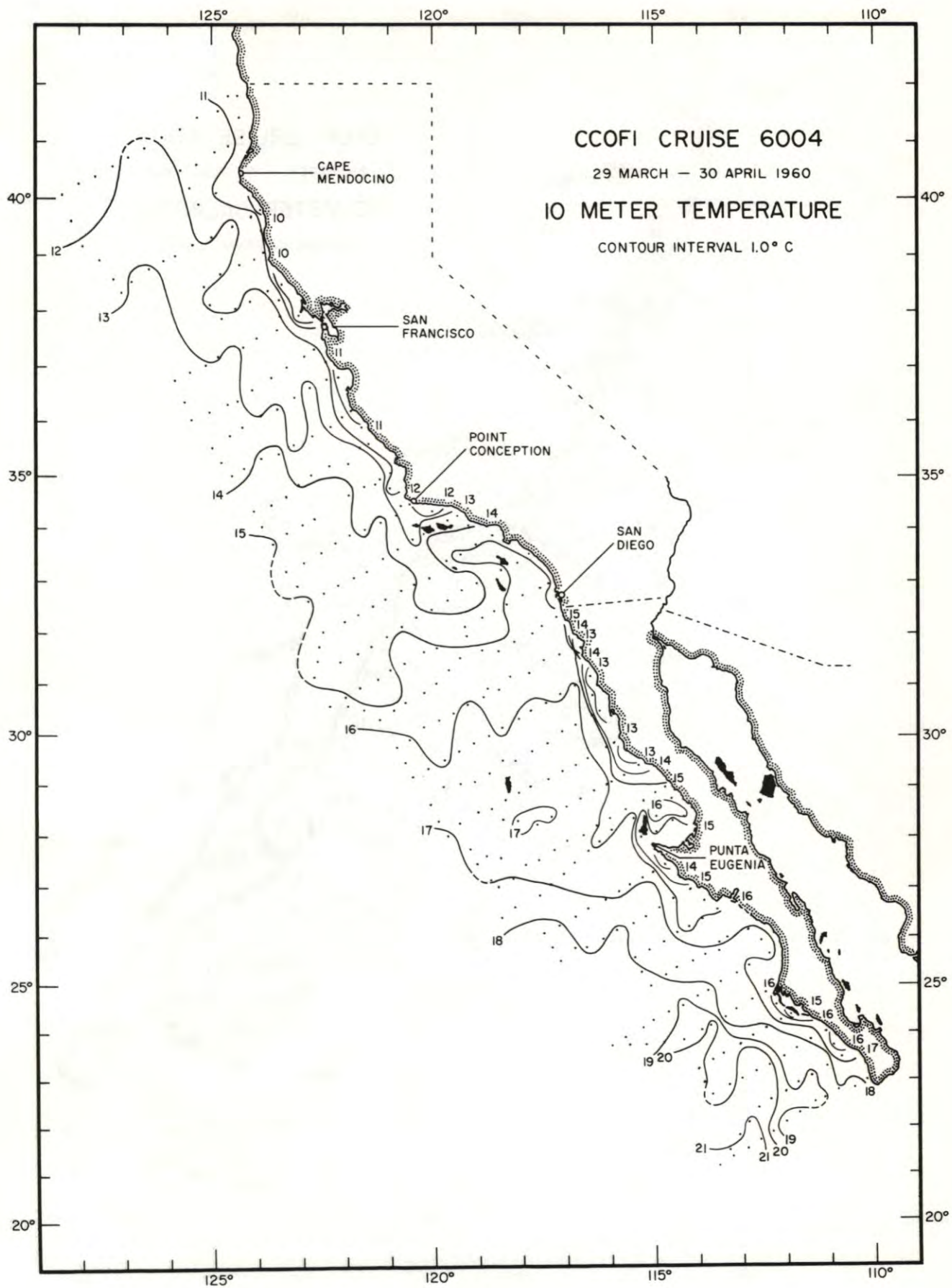


FIGURE 3



FIGURE 4

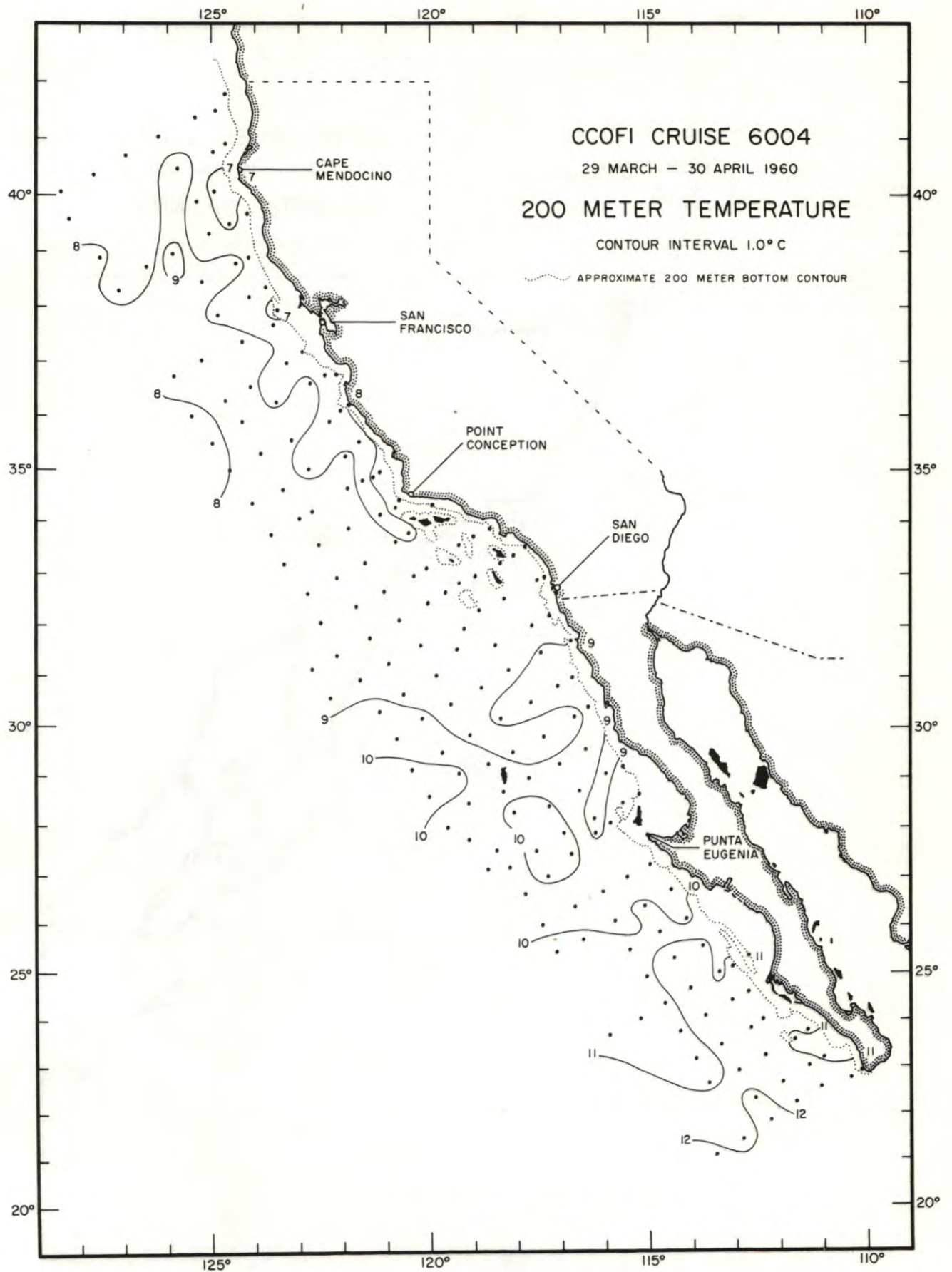


FIGURE 5

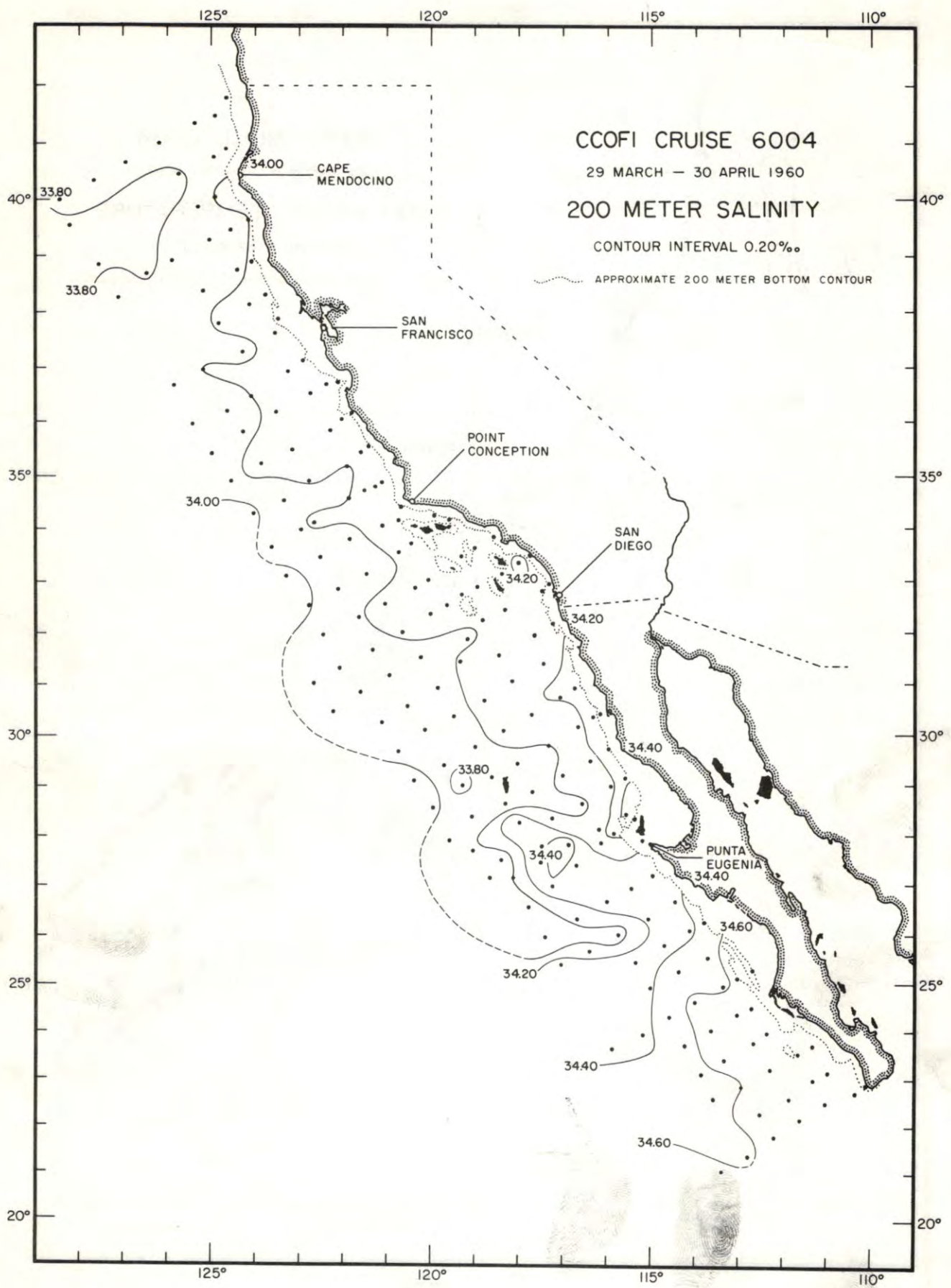


FIGURE 6

PERSONNEL

SHIPS' CAPTAINS

Collinson, Barnes, R/V Horizon
Forster, Charles W., R/V Black Douglas
Miller, Frank, R/V Hugh M. Smith

PERSONNEL PARTICIPATING IN THE COLLECTION OF DATA

R/V Black Douglas

Farrar, Lloyd J., Fishery Aid, Bureau of Commercial Fisheries
Kimura, Makota, Fishery Research Biologist, Bureau of Commercial Fisheries
Kiwala, Robert S., Senior Marine Technician
Mantyla, Arnold W., Marine Technician

R/V Horizon

Lawson, Jan B., Senior Marine Technician
Brennen, Robert E., Marine Technician
Hester, Arthur W., Marine Technician
Joyal, Norman F., Marine Technician
Metoyer, Jack D., Fishery Aid, Bureau of Commercial Fisheries

R/V Hugh M. Smith

Anderson, Norman E., Senior Marine Technician
Bottom, Kenneth S., Marine Technician
Fisher, Oliver L., Marine Technician
Leong, Roderick J. H., Fishery Research Biologist, Bureau of Commercial
Fisheries

OBSERVED				COMPUTED	INTERPOLATED				COMPUTED		
Z	T	S	O ₂	δ _T	Z	T	S	O ₂	σ _t	δ _T	ΔD
m	°C	‰	ml/L	cl/ton	m	°C	‰	ml/L	g/L	cl/ton	dyn m

SIO
CCOFI
6004

HORIZON; April 25, 1960; 0435 GCT; 41°47.5'N, 124°28'W; sounding, 86 fm; wind, 190°, force 5; weather, overcast; sea, high; wire angle, 14°.

4038

1	10.73	32.38 0	6.52	315	0	(10.73)	(32.38)	(6.52)	(24.81)	(315)	(0.00)
10	10.75	32.37 5	6.49	315	10	10.75	32.38	6.49	24.81	315	0.03
30	9.48	32.97 5	4.82	251	20	10.10	32.64	5.63	25.11	286	0.06
48	8.82	33.41 5	3.83	208	30	9.48	32.98	4.82	25.48	251	0.09
73	8.30	33.67 0	3.22	182	50	8.78	33.44	3.78	25.96	206	0.13
96	7.62	33.84 0	2.63	160	75	8.22	33.69	3.17	26.23	180	0.18
120	7.36	33.89 5	2.47	152	100	7.57	33.85	2.59	26.46	158	0.22
150	7.02	33.96 0	2.20	143	125	7.31	33.91	2.42	26.54	150	0.26
					150	7.02	33.96	2.20	26.62	143	0.30

HORIZON; April 25, 1960; 0236 GCT; 41°47'N, 124°39.5'W; sounding, 384 fm; wind, 180°, force 4; weather, drizzle; sea, high; wire angle, 25°.

4040

1	10.66	32.22 5	6.54	325	0	(10.66)	(32.22)	(6.54)	(24.70)	(325)	(0.00)
10	10.66	32.22 0	6.54	325	10	10.66	32.22	6.54	24.70	325	0.03
29	9.69	32.85 0	5.11	264	20	10.62	32.25	6.48	24.72	323	0.06
37	9.10	33.19 0	4.34	230	30	9.60	32.92	4.97	25.42	257	0.09
50	8.85	33.36 0	3.86	213	50	8.85	33.36	3.86	25.88	213	0.14
64	8.53	33.56 5	3.46	193	75	8.28	33.69	3.24	26.23	180	0.19
87	8.08	33.77 5	3.05	171	100	7.94	33.80	2.87	26.37	167	0.24
104	7.90	33.81 0	2.84	166	125	7.68	33.86	2.76	26.45	159	0.28
123	7.69	33.86 0	2.77	159	150	7.52	33.92	2.70	26.52	153	0.32
142	7.59	33.90 0	2.72	154	200	7.10	33.96	2.45	26.61	144	0.39
169	7.36	33.94 0	2.68	149	250	6.42	34.01	1.83	26.74	131	0.46
203	7.05	33.96 0	2.42	143	300	6.02	34.05	1.44	26.82	124	0.52
230	6.64	33.99 0	2.08	136	400	5.54	34.10	0.99	26.92	114	0.65
276	6.20	34.03 5	1.57	127	500	5.14	34.16	0.64	27.02	105	0.76
328	5.85	34.06 5	1.29	121							
409	5.51	34.11 0	0.94	113							
491	5.19	34.15 5	0.68	106							
574	4.72	34.23 5	0.41	95							

HORIZON; April 24, 1960; 2330 GCT; 41°31.5'N, 124°53.5'W; sounding, 522 fm; wind, 170°, force 6; weather, rain; sea, high; wire angle, 25°.

4045

1	11.11	32.67 0	6.25	300	0	(11.11)	(32.67)	(6.25)	(24.97)	(300)	(0.00)
10	11.08	32.67 0	6.25	299	10	11.08	32.67	6.25	24.98	299	0.03
28	10.90	32.69 0	6.17	295	20	10.91	32.67	6.18	25.00	296	0.06
55	10.53	32.74 5	6.02	285	30	10.89	32.69	6.16	25.02	295	0.09
63	9.78	33.01 0	5.16	253	50	10.89	32.71	6.13	25.04	293	0.15
77	9.16	33.34 5	4.07	219	75	9.20	33.32	4.14	25.80	221	0.21
90	8.86	33.53 5	3.68	200	100	8.74	33.60	3.47	26.09	193	0.26
103	8.70	33.62 5	3.42	191	125	8.33	33.73	3.20	26.25	178	0.31
127	8.28	33.74 0	3.18	176	150	7.80	33.84	2.90	26.42	162	0.36
145	7.89	33.82 5	2.96	165	200	7.22	33.94	2.48	26.58	147	0.43
171	7.53	33.90 0	2.79	154	250	6.67	33.99	2.01	26.70	135	0.51
199	7.23	33.94 5	2.49	147	300	6.36	34.01	1.77	26.75	131	0.57
225	6.92	33.97 5	2.23	140	400	5.63	34.08	1.03	26.90	117	0.70
271	6.52	34.00 0	1.91	133	500	5.10	34.15	0.66	27.02	105	0.82
323	6.22	34.02 0	1.65	128							
401	5.62	34.08 5	1.02	116							
484	5.18	34.14 0	0.70	107							
567	4.74	34.21 5	0.41	96							

S10

CCOFI
6004

OBSERVED				COMPUTED	INTERPOLATED				COMPUTED		
Z	T	S	O ₂	δ _T	Z	T	S	O ₂	σ _t	δ _T	ΔD
m	°C	‰	ml/L	cl/ton	m	°C	‰	ml/L	g/L	cl/ton	dyn m

40.50

HORIZON; April 24, 1960; 1700, 1947 GCT; 41°24'N, 125°21.5'W; sounding, 1668 fm; wind, 200°, force 1; weather, drizzle; sea, high; wire angle, 17°, 18°.

1	11.70	32.73 5	5.94	305	0	(11.70)	(32.74)	(5.94)	(24.91)	(305)	(0.00)
11	11.59	32.73 0	5.99	304	10	11.60	32.73	5.98	24.92	304	0.03
31	11.52	32.73 0	5.99	302	20	11.56	32.73	5.99	24.93	303	0.06
60	10.43	32.80 0	5.77	279	30	11.53	32.73	5.99	24.93	303	0.09
70	10.26	32.85 5	5.64	272	50	11.29	32.77	5.94	25.01	296	0.15
85	10.05	32.99 0	5.24	259	75	10.20	32.90	5.53	25.30	268	0.22
99	9.36	33.28 5	4.38	226	100	9.30	33.30	4.30	25.76	225	0.28
114	9.14	33.43 0	3.95	212	125	8.68	33.54	3.67	26.05	197	0.34
138	8.59	33.60 0	3.57	191	150	8.43	33.67	3.35	26.19	184	0.39
157	8.26	33.74 0	3.13	176	200	7.67	33.88	2.84	26.47	157	0.47
185	7.96	33.81 5	2.98	166	250	7.01	33.97	2.38	26.62	143	0.55
213	7.40	33.92 5	2.66	150	300	6.50	34.00	1.89	26.72	133	0.62
241	7.10	33.96 0	2.43	144	400	5.76	34.08	1.11	26.88	118	0.75
288	6.62	33.99 5	2.00	135	500	5.20	34.16	0.68	27.01	106	0.87
341	6.12	34.03 0	1.53	126	600	4.74	34.24	0.40	27.12	95	0.97
421	5.62	34.10 5	1.02	115	700	4.39	34.30	0.29	27.21	87	1.07
504	5.10	34.17 0	0.63	104	800	4.09	34.35	0.31	27.28	80	1.16
587	4.75	34.23 5	0.40	95	1000	3.56	34.44	0.40	27.40	68	1.32
					1200	3.09	34.48	0.50	27.48	61	1.47
377a)	5.91	34.06 0	1.25	121	1500	2.57	34.53	0.90	27.58	52	1.66
471	5.41	34.12 5	0.80	111	2000	1.92	34.60	1.50	27.68	42	1.94
568	4.92	34.20 5	0.49	99	2500	1.76	34.64	1.97	27.73	38	2.19
665	4.52	34.27 5	0.32	90							
762	4.20	34.33 0	0.29	82							
956	3.68	34.42 0	0.38	71							
1149	3.18	34.47 0	0.47	62							
1341	2.85	34.50 5	0.63	57							
1535	2.50	34.54 5	0.96	51							
1727	2.14	34.57 5	1.24	46							
1918	1.98	34.59 5	1.46	43							
2110	1.85	34.61 5	1.63	41							
2303	1.80	34.63 0	1.82	39							
2495	1.76	34.63 5	1.96	38							
2591	1.74	34.64 0	1.99	38							
2688	1.72	34.64 5	2.04	37							
2787	1.72	34.64 5	2.08	37							
2886	1.70	34.65 0	2.16	37							

40.60

HORIZON; April 24, 1960; 1125 GCT; 41°03'N, 126°10'W; sounding, 1660 fm; wind, 110°, force 1; weather, rain; sea, missing; wire angle, 02°.

2	11.78	32.77	6.04	304	0	(11.78)	(32.77)	(6.04)	(24.92)	(304)	(0.00)
12	11.72	32.78	6.04	302	10	11.74	32.78	6.04	24.94	303	0.03
32	11.62	32.79	6.08	300	20	11.66	32.78	6.06	24.96	301	0.06
41	11.60	32.80	6.06	299	30	11.63	32.79	6.07	24.96	300	0.09
56	11.60	32.80	6.06	299	50	11.60	32.80	6.06	24.98	299	0.15
71	11.28	32.81	5.91	293	75	11.20	32.85	5.83	25.09	288	0.22
96	10.14	33.04	5.29	257	100	9.98	33.12	5.08	25.52	247	0.29
115	9.51	33.46	4.20	216	125	9.18	33.55	3.97	25.97	204	0.35
135	8.86	33.61	3.79	195	150	8.58	33.72	3.42	26.21	182	0.40
155	8.50	33.75	3.34	179	200	7.92	33.89	3.10	26.44	160	0.48
184	8.08	33.84	3.18	166	250	7.30	33.97	2.55	26.58	146	0.56
219	7.72	33.95	2.94	153	300	6.88	33.99	2.25	26.66	139	0.64
248	7.32	33.96 5	2.59	147	400	5.90	34.05	1.36	26.84	122	0.77
297	6.90	33.99 0	2.28	139	500	5.46	34.13	0.83	26.96	111	0.89
352	6.34	34.02 0	1.74	129	600	5.04	34.21	0.40	27.06	101	1.00
436	5.66	34.07 5	1.11	117							
521	5.40	34.15 0	0.71	108							
604	5.02	34.21 5	0.38	100							

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

OBSERVED				COMPUTED	INTERPOLATED				COMPUTED		
Z	T	S	O ₂	δ _T	Z	T	S	O ₂	σ _t	δ _T	ΔD
m	°C	‰	ml/L	cl/ton	m	°C	‰	ml/L	g/L	cl/ton	dyn m

SIO
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6004

HORIZON; April 24, 1960; 0555 GCT; 40°42'N, 126°55'W; sounding, 2000+ fm; wind, 330°, force 3; weather, cloudy; sea, high; wire angle, 26°.

40.70

1	12.46	32.88 5	5.80	308	0	(12.46)	(32.88)	(5.80)	(24.88)	(308)	(0.00)
10	12.44	32.88 0	5.82	308	10	12.44	32.88	5.82	24.88	308	0.03
32	12.26	32.86 5	5.86	306	20	12.43	32.88	5.82	24.88	308	0.06
59	12.26	32.87 0	5.85	305	30	12.27	32.86	5.86	24.90	306	0.09
68	11.66	32.89 0	5.86	293	50	12.26	32.87	5.85	24.91	305	0.15
86	10.91	33.06 0	5.36	267	75	11.60	32.97	5.77	25.11	286	0.23
98	10.54	33.23 5	4.88	248	100	10.52	33.25	4.85	25.52	247	0.30
111	9.82	33.35 5	4.34	228	125	9.38	33.50	3.78	25.91	210	0.35
139	9.02	33.62 5	3.44	196	150	8.76	33.68	3.38	26.14	188	0.40
156	8.59	33.71 5	3.34	182	200	7.86	33.90	2.87	26.46	158	0.49
183	8.05	33.85 0	3.06	165	250	7.31	33.96	2.63	26.57	147	0.57
213	7.73	33.93 0	2.77	154	300	6.61	33.97	2.32	26.68	137	0.64
240	7.46	33.96 0	2.66	149	400	5.58	34.01	1.39	26.85	121	0.78
284	6.80	33.96 0	2.49	140	500	4.86	34.08	0.85	26.99	108	0.90
342	6.14	34.00 0	1.72	128	600	(4.50)	(34.13)		(27.06)	(101)	(1.01)
433	5.30	34.02 0	1.25	117							
516	4.78	34.09 5	0.77	106							
587	4.54	34.12 5	0.64	101							

HORIZON; April 23, 1960; 2329 GCT; 40°22.5'N, 127°40'W; sounding, 2000+ fm; wind, 340°, force 3; weather, overcast; sea, high; wire angle, 19°.

4080

2	11.39	32.74 0	6.01	300	0	(11.39)	(32.74)	(6.01)	(24.97)	(300)	(0.00)
12	11.38	32.73 0	6.04	300	10	11.39	32.73	6.03	24.97	300	0.03
35	11.36	32.73 5	6.03	299	20	11.37	32.73	6.04	24.97	299	0.06
64	11.31	32.73 5	5.99	298	30	11.37	32.73	6.03	24.97	299	0.09
73	10.90	32.74 0	5.91	291	50	11.34	32.74	6.02	24.98	299	0.15
92	10.14	32.83 0	5.63	272	75	10.80	32.74	5.89	25.08	289	0.22
105	9.76	32.91 0	5.49	260	100	9.90	32.88	5.54	25.34	265	0.29
120	9.14	33.06 5	5.06	239	125	8.92	33.15	4.87	25.71	229	0.36
149	8.07	33.51 0	4.29	191	150	8.06	33.51	4.28	26.12	190	0.41
167	7.88	33.61 5	4.15	180	200	7.57	33.84	3.62	26.45	159	0.50
195	7.62	33.82 0	3.71	161	250	6.98	33.93	2.90	26.61	144	0.58
228	7.24	33.91 0	3.17	149	300	6.35	33.96	2.36	26.71	134	0.65
256	6.89	33.93 5	2.83	143	400	5.39	34.02	1.36	26.88	119	0.78
304	6.30	33.96 0	2.31	133	500	4.81	34.10	0.75	27.01	106	0.90
367	5.62	33.99 5	1.63	123	600	4.44	34.16	0.47	27.10	97	1.00
464	5.02	34.07 5	0.92	110							
551	4.56	34.13 5	0.56	101							
624	4.43	34.18 0	0.43	96							

HORIZON; April 23, 1960; 1804 GCT; 40°03'N, 128°25'W; sounding, 2000+ fm; wind, 310°, force 5; weather, cloudy; sea, very high; wire angle, 42°.

4090

1	11.73	32.83 0	5.80	299	0	(11.73)	(32.83)	(5.80)	(24.98)	(299)	(0.00)
9	11.72	32.82 5	5.86	299	10	11.72	32.82	5.86	24.98	299	0.03
27	11.73	32.82 5	5.84	299	20	11.72	32.82	5.85	24.98	299	0.06
34	11.71	32.82 5	5.82	299	30	11.73	32.82	5.83	24.98	299	0.09
45	11.72	32.82 5	5.82	299	50	11.72	32.82	5.79	24.98	299	0.15
56	11.71	32.82 5	5.77	299	75	11.77	32.93	5.79	25.05	292	0.22
74	11.78	32.91 5	5.80	293	100	11.11	33.02	5.41	25.24	274	0.30
87	11.49	32.98 0	5.63	284	125	9.99	33.16	4.99	25.55	245	0.36
100	11.11	33.01 5	5.41	274	150	8.74	33.42	4.50	25.94	207	0.42
118	10.34	33.11 0	5.04	254	200	7.93	33.85	3.87	26.41	163	0.51
136	9.30	33.26 5	4.87	227	250	7.03	33.92	3.64	26.58	146	0.59
160	8.55	33.50 5	4.33	198	300	6.39	33.93	3.08	26.68	137	0.66
178	8.31	33.67 5	4.08	182	400	5.71	33.96	2.17	26.79	127	0.80
208	7.78	33.87 0	3.85	159	500	(4.80)	(34.15)		(27.05)	(102)	(0.92)
249	7.04	33.91 5	3.66	146							
315	6.27	33.93 0	2.96	135							
384	5.86	33.94 5	2.45	130							
450	5.16	34.06 0	0.95	113							

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6004

OBSERVED				COMPUTED	INTERPOLATED				COMPUTED		
Z	T	S	O ₂	δ _T	Z	T	S	O ₂	σ _t	δ _T	ΔD
m	°C	‰	ml/L	cl/ton	m	°C	‰	ml/L	g/L	cl/ton	dyn m

43.42 HORIZON; April 25, 1960; 0946 GCT; 41°04'N, 124°20.5'W; sounding, 100 fm; wind, 180°, force 3; weather, drizzle; sea, high; wire angle, 08°.

1	10.93	32.12 0	6.35	338	0	(10.93)	(32.12)	(6.35)	(24.57)	(338)	(0.00)
11	10.92	32.11 5	6.37	337	10	10.92	32.12	6.37	24.57	338	0.03
31	10.46	32.49 0	6.05	302	20	10.67	32.25	6.29	24.71	324	0.07
50	9.84	32.83 0	5.26	267	30	10.47	32.48	6.09	24.94	303	0.10
74	9.07	33.33 5	4.08	218	50	9.84	32.83	5.26	25.31	267	0.16
98	8.24	33.67 5	3.11	181	75	9.04	33.35	4.02	25.85	216	0.22
123	7.62	33.86 5	2.74	158	100	8.18	33.69	3.08	26.26	177	0.27
153	7.30	33.93 0	2.54	149	125	7.59	33.87	2.71	26.47	157	0.31
					150	7.33	33.92	2.56	26.56	149	0.35

43.45 HORIZON; April 25, 1960; 1235 GCT; 40°55'N, 124°39'W; sounding, 368 fm; wind, 180°, force 5; weather, rain; sea, high; wire angle, 36°.

0	11.12	32.65 5	6.11	301	0	11.12	32.66	6.11	24.96	301	0.00
8	11.14	32.64 5	6.21	302	10	11.15	32.64	6.22	24.94	302	0.03
24	11.16	32.65 0	6.24	302	20	11.16	32.65	6.23	24.94	302	0.06
48	10.76	32.74 0	6.06	289	30	11.16	32.65	6.24	24.94	302	0.09
56	10.30	32.81 5	5.79	276	50	10.59	32.76	5.96	25.13	284	0.15
67	9.66	32.96 5	5.49	255	75	9.53	33.03	5.30	25.51	248	0.22
78	9.51	33.05 0	5.23	246	100	9.33	33.34	4.33	25.79	222	0.28
88	9.44	33.24 0	4.69	231	125	8.83	33.54	3.69	26.03	199	0.33
106	9.24	33.39 0	4.14	217	150	8.34	33.72	3.25	26.24	179	0.38
120	8.92	33.51 0	3.78	203	200	7.46	33.91	2.80	26.52	152	0.46
140	8.58	33.64 0	3.43	188	250	6.91	33.98	2.29	26.65	140	0.54
162	8.02	33.80 5	3.06	168	300	6.24	34.04	1.62	26.79	127	0.60
184	7.64	33.88 5	2.96	157	400	5.64	34.10	1.05	26.91	115	0.73
222	7.22	33.94 5	2.59	147	500	(4.97)	(34.19)	(0.60)	(27.06)	(101)	(0.84)
265	6.72	33.99 5	2.11	136							
332	5.90	34.07 0	1.27	121							
406	5.62	34.10 5	1.04	115							
486	5.08	34.18 0	0.60	103							

43.50 HORIZON; April 25, 1960; 1605 GCT; 40°46.5'N, 124°56.5'W; sounding, 1500 fm; wind, 130°, force 8; weather, drizzle; sea, high; wire angle, 27°.^{a)}

1	11.22	32.73 0	6.13	297	0	(11.22)	(32.73)	(6.13)	(25.00)	(297)	(0.00)
10	11.24	32.72 5	6.16	298	10	11.24	32.72	6.16	24.98	298	0.03
33	11.18	32.73 5	6.09	296	20	11.23	32.72	6.15	24.98	298	0.06
43	11.01	32.74 0	6.08	293	30	11.20	32.73	6.10	25.00	297	0.09
57	10.23	32.80 5	5.74	276	50	10.68	32.76	6.00	25.11	286	0.15
72	9.86	33.07 0	5.04	250	75	9.76	33.14	4.87	25.55	244	0.21
94	9.17	33.47 0	3.86	210	100	9.09	33.52	3.71	25.96	205	0.27
113	8.88	33.59 5	3.47	196	125	8.57	33.69	3.22	26.18	185	0.32
131	8.44	33.71 0	3.17	181	150	8.08	33.79	3.06	26.33	170	0.36
158	7.96	33.82 5	2.99	166	200	7.41	33.93	2.67	26.55	150	0.45
186	7.58	33.90 5	2.77	155	250	6.85	33.99	2.23	26.66	139	0.52
223	7.16	33.96 5	2.50	144	300	6.31	34.02	1.70	26.76	129	0.59
251	6.84	33.99 0	2.22	139	400	5.34	34.03	1.16	26.90	117	0.72
297	6.34	34.02 0	1.72	130	500	4.84	34.12	0.72	27.02	105	0.83
359	5.66	34.01 5	1.46	122	600	4.52	34.19	0.45	27.11	96	0.94
454	5.04	34.08 5	0.86	110							
540	4.71	34.14 0	0.63	102							
613	4.49	34.20 0	0.41	95							

a) An assumed wire angle of 17° was used in depth determination.

OBSERVED				COMPUTED	INTERPOLATED				COMPUTED		
Z	T	S	O ₂	δ _T	Z	T	S	O ₂	σ _t	δ _T	ΔD
m	°C	‰	ml/L	cl/ton	m	°C	‰	ml/L	g/L	cl/ton	dyn m

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HORIZON; April 25, 1960; 2222 GCT; 40°28.5'N, 125°44'W; sounding, 1575 fm; wind, 150°, force 7; weather, overcast; sea, very rough; wire angle, 39°.

43.60

1	11.94	32.81 5	5.97	303	0	(11.94)	(32.82)	(5.97)	(24.93)	(303)	(0.00)
9	11.90	32.81 5	5.96	302	10	11.90	32.82	5.96	24.94	302	0.03
29	11.90	32.81 5	5.97	302	20	11.90	32.82	5.97	24.94	302	0.06
51	11.72	32.81 5	5.92	300	30	11.90	32.82	5.97	24.94	302	0.09
59	11.70	32.82 0	5.88	299	50	11.73	32.82	5.93	24.97	300	0.15
74	11.03	32.90 0	5.51	282	75	11.00	32.92	5.47	25.17	280	0.22
84	10.81	33.13 5	5.08	260	100	10.57	33.36	4.61	25.59	240	0.29
95	10.63	33.32 5	4.71	244	125	10.18	33.49	4.07	25.77	224	0.35
116	10.36	33.44 0	4.36	231	150	9.59	33.61	3.45	25.96	205	0.40
131	10.06	33.52 0	3.93	220	200	8.66	33.79	2.72	26.25	178	0.50
154	9.48	33.63 0	3.37	203	250	7.92	33.91	2.49	26.45	159	0.59
181	8.90	33.75 5	2.84	184	300	7.36	33.96	2.34	26.58	147	0.66
204	8.60	33.80 5	2.69	176	400	6.29	34.03	1.55	26.78	128	0.81
244	8.00	33.90 0	2.50	160	500	5.52	34.08	0.90	26.91	115	0.94
298	7.38	33.96 0	2.37	148							
384	6.44	34.02 0	1.70	131							
465	5.73	34.05 0	1.10	120							
536	5.34	34.12 5	0.74	110							

HORIZON; April 23, 1960; 0515 GCT; 39°34'N, 128°13'W; sounding, 2000+ fm; wind, 360°, force 8; weather, cloudy; sea, very high; wire angle, 25°. a)

43.90

4	11.66	32.83 5	5.96	297	0	(11.66)	(32.84)		(25.00)	(297)	(0.00)
14	11.66	32.83 0	5.99	297	10	11.66	32.83	5.97	25.00	297	0.03
37	11.66	32.83 0	5.93	298	20	11.66	32.83	5.97	25.00	297	0.06
65	11.65	32.83 5	5.95	297	30	11.66	32.83	5.94	25.00	297	0.09
75	11.66	32.82 5	5.96	298	50	11.66	32.83	5.94	25.00	297	0.15
93	10.87	32.85 0	5.84	283	75	11.66	32.82	5.96	24.98	298	0.22
106	10.49	32.86 0	5.79	275	100	10.67	32.85	5.82	25.18	279	0.30
119	9.84	32.93 5	5.53	260	125	9.49	33.01	5.34	25.51	248	0.36
146	8.40	33.31 0	4.94	210	150	8.29	33.36	4.87	25.97	204	0.42
163	8.06	33.53 0	4.60	189	200	7.88	33.78	4.13	26.36	168	0.52
190	7.96	33.74 0	4.19	172	250	7.31	33.90	3.87	26.54	151	0.60
220	7.68	33.83 0	4.03	161	300	6.60	33.92	3.43	26.65	140	0.67
248	7.34	33.90 0	3.88	151	400	5.80	33.97	1.96	26.79	127	0.81
293	6.70	33.92 0	3.50	142	500	5.19	34.08	0.93	26.95	111	0.94
352	5.90	33.95 0	2.40	129	600	4.58	34.19	0.41	27.11	96	1.04
445	5.74	33.98 5	1.79	125							
529	4.94	34.11 5	0.68	106							
602	4.57	34.19 5	0.40	96							

HORIZON; April 26, 1960; 0704 GCT; 40°04'N, 124°55.5'W; sounding, 710 fm; wind, 150°, force 4; weather, overcast; sea, rough; wire angle, 22°. b)

47.55

1	11.00	32.56 5	6.16	306	0	(11.00)	(32.56)	(6.16)	(24.90)	(306)	(0.00)
11	10.98	32.56 5	6.28	305	10	10.99	32.56	6.27	24.91	305	0.03
34	10.96	32.56 5	6.23	305	20	10.97	32.56	6.27	24.91	305	0.06
44	10.22	32.79 0	5.66	277	30	10.96	32.56	6.24	24.91	305	0.09
58	9.66	33.04 0	4.97	249	50	9.90	32.93	5.28	25.38	261	0.15
73	9.32	33.22 0	4.44	230	75	9.28	33.24	4.37	25.72	228	0.21
96	8.67	33.55 5	3.56	196	100	8.59	33.59	3.46	26.10	192	0.26
115	8.38	33.67 5	3.22	183	125	8.11	33.74	2.98	26.29	174	0.31
135	7.82	33.80 2	2.77	166	150	7.48	33.89	2.53	26.50	154	0.35
162	7.28	33.94 5	2.37	147	200	6.81	34.00	1.97	26.68	137	0.42
190	6.97	33.99 5	2.03	139	250	6.37	34.04	1.60	26.78	128	0.49
227	6.42	34.01 0	1.87	131	300	6.23	34.09	1.25	26.83	123	0.56
256	6.35	34.05 5	1.51	127	400	5.71	34.14	0.95	26.94	113	0.68
303	6.21	34.09 5	1.23	123	500	5.19	34.21	0.52	27.05	102	0.79
364	5.90	34.11 5	1.10	117	600	4.69	34.26	0.34	27.14	93	0.89
461	5.40	34.18 5	0.66	106							
548	4.92	34.23 5	0.37	97							
622	4.62	34.26 5	0.33	92							

a) Wire angle varies from 25 to 0 degrees.

b) An assumed wire angle of 11° was used in depth determination.

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OBSERVED				COMPUTED	INTERPOLATED				COMPUTED		
Z	T	S	O ₂	δ _T	Z	T	S	O ₂	σ _t	δ _T	ΔD
m	°C	‰	ml/L	cl/ton	m	°C	‰	ml/L	g/L	cl/ton	dyn m

47.60

HORIZON; April 26, 1960; 0358 GCT; 39°53.5'N, 125°18'W; sounding, 1230 fm; wind, 150°, force 4; weather, rain; sea, very rough; wire angle, 23°. a)

0	11.56	32.69 0	6.10	306	0	11.56	32.69	6.10	24.90	306	0.00
10	11.55	32.69 0	6.14	306	10	11.55	32.69	6.14	24.90	306	0.03
33	11.24	32.70 5	6.14	300	20	11.45	32.69	6.14	24.93	304	0.06
43	11.08	32.72 5	6.06	295	30	11.30	32.70	6.14	24.96	301	0.09
57	10.46	32.79 0	5.53	280	50	10.78	32.75	5.80	25.09	288	0.15
72	9.94	33.07 5	4.87	251	75	9.73	33.11	4.74	25.54	245	0.22
95	9.24	33.37 0	4.21	218	100	9.15	33.40	4.14	25.86	215	0.28
115	8.72	33.53 0	3.77	198	125	8.48	33.59	3.70	26.12	190	0.33
134	8.28	33.63 5	3.69	184	150	8.02	33.69	3.75	26.26	177	0.37
161	7.88	33.71 5	3.76	173	200	7.44	33.86	3.50	26.48	156	0.46
189	7.52	33.83 0	3.68	159	250	6.90	33.93	3.03	26.62	143	0.53
225	7.24	33.91 0	3.16	150	300	6.13	33.95	2.50	26.72	133	0.60
253	6.85	33.93 0	3.01	143	400	5.69	34.06	1.15	26.87	119	0.74
298	6.14	33.94 5	2.57	133	500	5.01	34.12	0.70	27.00	107	0.85
359	5.96	34.04 0	1.43	124	600	4.76	34.23	0.34	27.12	95	0.96
453	5.28	34.08 0	0.90	113							
538	4.88	34.15 5	0.54	103							
611	4.74	34.24 5	0.33	95							

47.90

HORIZON; April 22, 1960; 1631 GCT; 38°53.5'N, 127°31.5'W; sounding, 2000+ fm; wind, 320°, force 8; weather, cloudy; sea, very high; wire angle, 11°.

2	12.33	32.92	5.81	303	0	(12.33)	(32.92)	(5.81)	(24.94)	(303)	(0.00)
12	12.33	32.95	5.83	301	10	12.33	32.95	5.82	24.96	301	0.03
36	12.31	32.91	5.81	303	20	12.32	32.94	5.82	24.95	302	0.06
65	11.12	32.84	5.87	287	30	12.32	32.92	5.81	24.94	303	0.09
75	11.12	32.86	5.80	286	50	12.27	32.91	5.81	24.94	303	0.15
94	10.56	33.06	5.48	262	75	11.12	32.86	5.80	25.11	286	0.22
108	9.72	33.11	5.17	245	100	10.10	33.08	5.34	25.46	253	0.29
123	9.41	33.24	4.70	230	125	9.38	33.26	4.65	25.71	229	0.35
152	8.72b)	33.44	4.24	205	150	8.77	33.42	4.27	25.94	207	0.41
171	8.20	33.64	3.98	183	200	8.02	33.77	3.54	26.32	171	0.50
200	8.02	33.77	3.54	171	250	7.10	33.94	3.21	26.60	145	0.59
234	7.38	33.95	3.54	148	300	6.48	33.97	2.20	26.70	135	0.66
264	6.88	33.93 5	2.93	143	400	5.45	34.00	1.59	26.85	121	0.79
312	6.35	33.98 0	2.08	133	500	4.79	34.07	0.95	26.98	108	0.91
375	5.67	33.99 0	1.74	124	600	4.39	34.17	0.52	27.10	97	1.02
560	4.52	34.13 0	0.66	101							
634	4.30	34.20 0	0.44	93							

50.47

HORIZON; April 20, 1960; 2306 GCT; 39°47'N, 123°54'W; sounding, 56 fm; wind, 360°, force 2; weather, overcast; sea, rough; wire angle, 00°.

0	11.24	32.93 0	5.25	283	0	11.24	32.93	5.25	25.15	283	0.00
11	9.90	33.01 0	5.07	255	10	9.92	33.01	5.08	25.44	255	0.03
31	8.88	33.41 5	3.86	210	20	9.10	33.37	4.04	25.85	216	0.05
49	8.60	33.64 0	3.48	188	30	8.89	33.41	3.87	25.91	210	0.07
75	8.22	33.81 0	2.86	170	50	8.58	33.65	3.44	26.15	187	0.11
					75	8.22	33.81	2.86	26.33	170	0.16

a) An assumed wire angle of 13° was used in depth determination.

b) Alternate value, 8.83°C, not used in interpolation.

OBSERVED				COMPUTED	INTERPOLATED				COMPUTED		
Z	T	S	O ₂	δ _T	Z	T	S	O ₂	σ _t	δ _T	ΔD
m	°C	‰	ml/L	cl/ton	m	°C	‰	ml/L	g/L	cl/ton	dyn m

S10
CCOF1
6004

HORIZON; April 21, 1960; 0113 GCT; 39°40.5'N, 124°08'W; sounding, 535 fm;^{a)} wind, 320°, force 4; weather, cloudy; sea, very rough; wire angle, 27°. ^{b)}

5050

0	12.14	32.64 0	6.18	320	0	12.14	32.64	6.18	24.76	320	0.00
8	11.64	32.63 5	6.36	312	10	11.50	32.63	6.34	24.87	309	0.03
27	11.09	32.63 0	6.21	302	20	11.14	32.62	6.24	24.92	304	0.06
35	10.53	-	-	-	30	10.99	32.67	6.10	24.98	298	0.09
44	9.78	33.11 0	4.80	246	50	9.77	33.32	4.34	25.70	230	0.15
57	9.60	33.35 5	4.20	225	75	8.98	33.52	3.84	25.99	203	0.20
70	9.14	33.48 0	3.93	208	100	8.49	33.71	3.27	26.22	181	0.25
86	8.68	33.61 0	3.59	192	125	8.21	33.86	2.94	26.37	167	0.29
106	8.44	33.74 0	3.19	179	150	7.84	33.95	2.53	26.50	154	0.33
121	8.28	33.83 5	2.98	169	200	7.39	34.00	2.25	26.60	145	0.41
144	7.86	33.94 5	2.65	155	250	6.77	33.99	2.09	26.68	137	0.48
167	7.82	33.97 5	2.33	152	300	6.29	34.05	1.49	26.79	127	0.55
191	7.52	33.99 5	2.25	147	400	5.39	34.07	0.97	26.92	114	0.67
223	7.09	33.99 0	2.26	142	500	(5.39)	(34.20)		(27.02)	(105)	(0.79)
271	6.56	34.00 5	1.90	133							
334	5.96	34.07 5	1.12	121							
400	5.39	34.07 0	0.97	114							
475	5.41	34.18 5	0.55	106							

HORIZON; April 21, 1960; 0426 GCT; 39°30.5'N, 124°32'W; sounding, 1362 fm; wind, 320°, force 6; weather, clear; sea, high; wire angle, 33°.

5055

1	12.08	32.79 5	6.08	308	0	(12.08)	(32.80)	(6.08)	(24.88)	(308)	(0.00)
9	12.08	32.79 5	6.04	308	10	12.07	32.80	6.04	24.88	308	0.03
29	11.62	32.80 5	6.01	299	20	11.90	32.80	6.03	24.92	304	0.06
38	10.26	-	-	-	30	11.59	32.81	6.00	24.98	298	0.09
51	9.25	33.38 0	4.31	218	50	9.29	33.36	4.38	25.81	220	0.14
63	8.88	33.51 0	3.84	203	75	8.63	33.59	3.65	26.09	193	0.19
83	8.47	33.64 5	3.51	186	100	8.10	33.78	3.01	26.32	171	0.24
100	8.10	33.78 0	3.01	171	125	7.56	33.91	2.70	26.50	154	0.28
116	7.66	33.88 0	2.70	157	150	7.37	33.97	2.52	26.58	147	0.32
139	7.44	33.94 5	2.68	150	200	6.80	33.99	2.22	26.67	138	0.39
164	7.24	33.98 0	2.40	145	250	6.48	34.04	1.62	26.76	130	0.46
197	6.82	33.98 5	2.22	139	300	6.04	34.05	1.32	26.82	124	0.52
222	6.66	34.01 5	1.92	134	400	5.29	34.14	0.67	26.98	109	0.64
264	6.38	34.04 0	1.54	129	500	5.02	34.20	0.43	27.06	101	0.75
319	5.84	34.06 0	1.18	121							
406	5.27	34.14 0	0.65	108							
487	5.06	34.19 0	0.46	102							
558	4.84	34.26 0	0.31	94							

HORIZON; April 21, 1960; 0816 GCT; 39°18.5'N, 125°01'W; sounding, 6130 fm; wind, 320°, force 6; weather, partly cloudy; sea, high; wire angle, 33°.

5060

2	11.53	32.37 5	6.33	329	0	(11.53)	(32.38)	(6.33)	(24.66)	(329)	(0.00)
10	11.52	32.37 5	6.33	328	10	11.52	32.38	6.33	24.67	328	0.03
30	10.96	32.42 5	6.33	316	20	11.35	32.41	6.33	24.72	323	0.07
39	10.98	32.68 0	6.09	297	30	10.96	32.42	6.33	24.80	316	0.10
51	10.47	32.73 5	5.82	284	50	10.50	32.73	5.84	25.12	285	0.16
64	9.99	32.85 0	5.51	268	75	9.69	33.04	5.00	25.49	250	0.22
84	9.44	33.20 5	4.55	234	100	8.98	33.47	3.92	25.94	207	0.28
100	8.98	33.47 0	3.92	207	125	8.28	33.70	3.30	26.23	180	0.33
114	8.54	33.61 5	3.50	189	150	7.93	33.80	2.99	26.36	167	0.38
135	8.11	33.74 5	3.17	174	200	7.31	33.97	2.32	26.59	145	0.45
154	7.88	33.80 5	2.96	166	250	6.69	34.03	1.80	26.72	133	0.53
178	7.54	33.93 0	2.53	152	300	6.35	34.08	1.29	26.81	125	0.59
197	7.34	33.97 0	2.33	146	400	5.67	34.12	0.80	26.93	114	0.72
230	6.86	34.00 5	2.05	137	500	(4.99)	(34.18)	(0.61)	(27.04)	(103)	(0.83)
275	6.52	34.06 0	1.51	129							
350	6.02	34.10 5	1.00	120							
423	5.51	34.13 0	0.75	111							
492	5.04	34.17 0	0.61	104							

a) Sounding varies from 535 to 478 fathoms.
b) Wire angle varies from 27 to 35 degrees.

149

OBSERVED				COMPUTED	INTERPOLATED				COMPUTED		
Z	T	S	O ₂	δ _T	Z	T	S	O ₂	σ _t	δ _T	ΔD
m	°C	‰	ml/L	cl/ton	m	°C	‰	ml/L	g/L	cl/ton	dyn m

50.70

HORIZON; April 21, 1960; 1347 GCT; 38°58'N, 125°51'W; sounding, 2000+ fm; wind, 320°, force 6; weather, cloudy; sea, very high; wire angle, 33°.

1	12.76	32.97	5.96	307	0	(12.76)	(32.97)	(5.96)	(24.89)	(307)	(0.00)
10	12.75	32.95	5.91	308	10	12.75	32.95	5.91	24.88	308	0.03
30	12.74	32.94	5.91	309	20	12.75	32.95	5.91	24.87	309	0.06
39	12.60	32.93	5.95	307	30	12.74	32.94	5.91	24.87	309	0.09
51	12.32	32.90	5.95	304	50	12.33	32.90	5.95	24.92	305	0.15
64	11.88	32.95	5.90	293	75	11.45	33.11	5.66	25.25	273	0.23
83	11.32	33.22	5.51	263	100	11.36	33.30	5.46	25.40	258	0.29
100	11.36	33.30	5.46	258	125	10.86	33.44	4.75	25.60	239	0.36
116	11.12	33.35	5.20	250	150	10.01	33.70	3.15	25.94	207	0.41
139	10.40	33.61	3.77	218	200	9.36	33.86	2.30	26.19	183	0.51
163	9.76	33.76	2.72	197	250	8.52	33.93	2.33	26.38	166	0.60
196	9.42	33.86	2.30	185	300	7.50	33.97	2.44	26.56	149	0.68
221	8.96	33.87 5	2.33	176	400	6.38	34.06	1.43	26.79	127	0.82
264	8.28	33.95 0	2.33	161	500	5.49	34.11	0.81	26.94	113	0.95
320	7.15	33.98 0	2.45	143							
392	6.42	34.05 5	1.49	128							
498	5.50	34.10 5	0.83	113							
572	5.18	34.21 0	0.51	102							

50.80

HORIZON; April 21, 1960; 1806 GCT; 38°43.5'N, 126°27'W; sounding, 2000+ fm; wind, 310°, force 7; weather, cloudy; sea, very high; wire angle, 26°.

1	13.09	32.90	5.79	318	0	(13.09)	(32.90)	(5.79)	(24.78)	(318)	(0.00)
9	13.09	32.88	5.73	320	10	13.09	32.88	5.73	24.76	320	0.03
32	13.09	32.90	5.75	318	20	13.09	32.89	5.74	24.77	319	0.06
40	13.06	32.90	5.73	318	30	13.09	32.90	5.75	24.78	318	0.10
68	11.76	32.86	5.80	297	50	12.00	32.82	5.78	24.93	304	0.16
107	10.38	33.13	5.13	254	75	11.20	32.88	5.70	25.11	286	0.23
125	9.41	33.33	4.67	224	100	10.50	33.06	5.26	25.38	261	0.30
152	8.90	33.58	4.39	197	125	9.41	33.33	4.67	25.77	224	0.36
179	8.06	33.80	3.53	169	150	8.96	33.56	4.43	26.03	199	0.42
215	7.54	33.77	3.38	164	200	7.74	33.78	3.44	26.38	166	0.51
244	7.18	-	3.23	-	250	7.09	33.82	3.19	26.50	154	0.59
289	6.60	33.95 0	2.88	138	300	6.49	33.97	2.70	26.69	136	0.67
350	6.08	34.01 5	1.66	127	400	5.67	34.04	1.26	26.86	120	0.80
445	5.36	34.06 5	1.00	115	500	5.12	34.11	0.74	26.98	109	0.92
531	5.00	34.13 5	0.60	106	600	4.65	34.20	0.41	27.10	97	1.03
604	4.62	34.20 0	0.40	96							

50.90

HORIZON; April 22, 1960; 0122 GCT; 38°18.5'N, 127°04'W; sounding, 2000+ fm; wind, 350°, force 8; weather, drizzle; sea, very high; wire angle, 44°.

3	12.63	32.86 5	5.90	312	0	(12.63)	(32.86)	(5.90)	(24.84)	(312)	(0.00)
10	12.62	32.85 5	5.90	313	10	12.62	32.86	5.90	24.83	313	0.03
28	12.61	32.85 5	5.88	313	20	12.61	32.86	5.89	24.83	313	0.06
34	12.48	32.83 5	5.90	312	30	12.59	32.85	5.89	24.83	313	0.09
45	12.51	32.85 5	5.85	311	50	11.70	32.79	5.94	24.96	301	0.16
56	11.34	32.76 5	5.99	297	75	10.82	32.73	6.03	25.06	291	0.23
73	10.88	32.73 0	6.03	292	100	10.34	32.83	5.62	25.23	275	0.30
88	10.49	32.77 5	5.78	282	125	9.52	33.18	4.81	25.64	236	0.36
102	10.31	32.83 5	5.60	274	150	8.47	33.58	3.78	26.12	191	0.42
123	9.58	33.15 0	4.89	240	200	7.82	33.89	3.06	26.45	159	0.51
140	8.92	33.48 5	3.96	205	250	7.04	33.94	2.76	26.60	145	0.59
157	8.26	33.64 0	3.73	184	300	6.62	33.97	2.32	26.68	137	0.66
170	8.10	33.76 5	3.64	172	400	5.79	34.04	1.43	26.85	121	0.79
192	7.96	33.87 5	3.11	162							
227	7.28	33.93 0	2.95	149							
362	6.14	34.01 0	1.76	128							
430	5.48	34.07 5	1.16	115							

OBSERVED				COMPUTED	INTERPOLATED				COMPUTED		
Z	T	S	O ₂	δ _T	Z	T	S	O ₂	σ _t	δ _T	ΔD
m	°C	‰	ml/L	cl/ton	m	°C	‰	ml/L	g/L	cl/ton	dyn m

HORIZON; April 20, 1960; 1741 GCT; 39°02'N, 123°51'W; sounding, 57 fm; wind, 310°, force 2; weather, cloudy; sea, high; wire angle, 04°.

53.52

0	11.65	32.68 0	6.09	309	0	11.65	32.68	6.09	24.88	309	0.00
10	11.38	32.66 5	6.14	305	10	11.38	32.66	6.14	24.91	305	0.03
30	9.64	33.12 0	5.13	243	20	10.45	32.99	5.63	25.33	265	0.06
49	8.72	33.62 0	3.59	192	30	9.64	33.12	5.13	25.57	243	0.08
74	8.31	33.88 0	2.65	166	50	8.70	33.63	3.55	26.11	191	0.13
					75	(8.30)	(33.88)	(2.64)	(26.38)	(166)	(0.17)

HORIZON; April 20, 1960; 1445 GCT; 38°55'N, 124°03'W; sounding, 800 fm; wind, 350°, force 2; weather, cloudy; sea, high; wire angle, 00°.

53.55

0	11.76	32.61	6.26	316	0	11.76	32.61	6.26	24.80	316	0.00
10	11.76	32.61	6.25	316	10	11.76	32.61	6.25	24.80	316	0.03
30	11.49	32.70	6.21	304	20	11.57	32.67	6.22	24.88	308	0.06
39	11.14	32.74	6.12	295	30	11.49	32.70	6.21	24.92	304	0.09
49	10.58	32.79	5.92	282	50	10.54	32.80	5.90	25.17	281	0.15
64	10.14	33.04	5.24	257	75	10.10	33.17	5.00	25.52	247	0.22
79	10.08	33.21	4.90	243	100	9.42	33.48	4.15	25.88	213	0.28
98	9.52	33.44	4.25	217	125	8.86	33.77	3.34	26.20	183	0.33
123	8.88	33.75	3.34	185	150	8.45	33.89	3.25	26.35	168	0.37
142	8.53	33.86	3.37	171	200	7.63	34.02	2.67	26.58	147	0.45
170	8.28	33.97	2.48	160	250	6.86	33.99	2.22	26.66	139	0.52
199	7.64	34.02	2.67	147	300	6.31	34.03	1.63	26.78	128	0.59
227	7.21	33.98 0	2.42	144	400	5.84	34.13	0.87	26.91	115	0.72
266	6.64	34.00 0	2.05	135	500	5.28	34.20	0.56	27.04	103	0.83
323	6.17	34.05 0	1.40	125							
395	5.87	34.12 5	0.89	116							
468	5.50	34.19 0	0.64	107							
547	4.90	34.20 5	0.47	99							

HORIZON; April 20, 1960; 1114 GCT; 38°47.5'N, 124°23'W; sounding, 1900 fm; wind, 320°, force 2; weather, clear; sea, very rough; wire angle, 05°.

53.60

0	11.97	32.64	6.15	317	0	11.97	32.64	6.15	24.79	317	0.00
10	11.96	32.64	6.18	316	10	11.96	32.64	6.18	24.80	316	0.03
30	11.44	32.63	6.23	309	20	11.63	32.63	6.22	24.84	312	0.06
39	11.44	32.65	6.20	307	30	11.44	32.63	6.23	24.87	309	0.09
55	11.16	32.73	6.05	296	50	11.18	32.71	6.07	24.98	298	0.15
70	10.76	32.90	5.65	277	75	10.94	33.03	5.47	25.27	271	0.23
95	10.14	33.24	4.78	242	100	9.96	33.30	4.60	25.65	235	0.29
114	9.42	33.49	4.01	212	125	9.11	33.59	3.77	26.02	200	0.34
134	8.91	33.65	3.67	192	150	8.68	33.72	3.56	26.20	183	0.39
154	8.62	33.74	3.54	181	200	8.05	33.95	2.87	26.46	158	0.48
182	8.31	33.91	3.21	164	250	7.31	33.98	2.44	26.60	145	0.56
216	7.83	33.96	2.68	154	300	6.60	33.99	2.06	26.70	135	0.63
244	7.41	33.98 0	2.49	147	400	5.87	34.09	1.05	26.87	119	0.76
292	6.69	33.99 0	2.14	136	500	5.32	34.14	0.69	26.99	108	0.88
347	6.22	34.03 5	1.57	127	600	(5.07)	(34.23)	(0.46)	(27.08)	(99)	(0.99)
429	5.69	34.11 0	0.89	115							
512	5.28	34.15 5	0.65	107							
596	5.08	34.23 0	0.46	99							

SIO
CCOFI
6004

OBSERVED				COMPUTED	INTERPOLATED				COMPUTED		
Z	T	S	O ₂	δ _T	Z	T	S	O ₂	σ _t	δ _T	ΔD
m	°C	‰	ml/L	cl/ton	m	°C	‰	ml/L	g/L	cl/ton	dyn m

53.70

HORIZON; April 20, 1960; 0556 GCT; 38°26.5'N, 125°11'W; sounding, 1990 fm; wind, 320°, force 3; weather, clear; sea, high; wire angle, 10°.

1	13.10	32.88 5	5.89	320	0	(13.10)	(32.88)	(5.89)	(24.76)	(320)	(0.00)
11	12.88	32.87 0	5.85	316	10	12.90	32.87	5.85	24.79	317	0.03
35	11.77	32.74 0	6.03	306	20	12.03	32.76	5.99	24.87	309	0.06
44	11.76	32.75 0	5.99	305	30	11.78	32.74	6.03	24.90	306	0.09
59	11.77	32.76 0	5.93	305	50	11.76	32.76	5.95	24.91	305	0.16
73	11.02	32.82 5	5.63	287	75	10.97	32.85	5.59	25.13	284	0.23
96	10.48	33.06 5	5.23	260	100	10.37	33.08	5.17	25.42	257	0.30
116	9.98	33.30 5	4.55	234	125	9.80	33.50	3.91	25.84	217	0.36
135	9.53	33.62 0	3.34	204	150	9.22	33.69	3.07	26.07	195	0.41
163	8.96	33.73 0	3.00	187	200	8.21	33.85	2.96	26.37	167	0.50
191	8.34	33.82 0	3.00	171	250	7.68	34.00	2.26	26.56	149	0.58
229	7.88	33.95 0	2.53	155	300	6.81	34.01	1.96	26.69	136	0.66
258	7.58	34.00 5	2.19	147	400	6.15	34.08	1.12	26.83	123	0.79
305	6.74	34.02 0	1.90	135	500	5.48	34.15	0.63	26.97	110	0.91
368	6.40	34.06 5	1.34	127	600	5.15	34.24	0.37	27.08	99	1.02
464	5.67	34.12 0	0.78	114							
551	5.26	34.19 0	0.46	104							
625	5.12	34.27 0	0.33	97							

57.51

HORIZON; April 19, 1960; 1221 GCT; 38°29'N, 123°25.5'W; sounding, 57 fm; wind, 290°, force 1; weather, overcast; sea, slight; wire angle, 00°.

1	9.30	33.69 5	4.01	195	0	(9.30)	(33.70)	(4.01)	(26.07)	(195)	(0.00)
11	9.10	33.69 0	3.97	192	10	9.11	33.69	3.98	26.09	193	0.02
31	8.80	33.82 0	3.68	178	20	8.93	33.74	3.82	26.17	186	0.04
50	8.60	33.86 0	3.44	172	30	8.81	33.81	3.70	26.23	179	0.06
75	7.90	33.98 5	2.19	153	50	8.60	33.86	3.44	26.31	172	0.09
					75	7.90	33.98	2.19	26.52	153	0.13

57.55

HORIZON; April 19, 1960; 1610 GCT; 38°21'N, 123°44'W; sounding, 560 fm; wind, 360°, force 2; weather, partly cloudy; sea, very high; wire angle, 32°.

0	11.80	32.79	6.09	303	0	11.80	32.79	6.09	24.94	303	0.00
8	11.76	32.79	6.06	302	10	11.72	32.79	6.04	24.96	301	0.03
29	10.38	32.99	5.53	264	20	11.17	32.83	5.86	25.08	289	0.06
37	9.82	33.22	4.85	238	30	10.32	33.02	5.44	25.38	261	0.09
50	9.52	33.34	4.47	224	50	9.52	33.34	4.47	25.76	224	0.14
63	9.17	33.51	4.13	207	75	8.93	33.65	3.74	26.09	193	0.19
83	8.84	33.70	3.53	188	100	8.59	33.74	3.24	26.22	181	0.24
98	8.62	33.73	3.31	182	125	8.25	33.92	2.64	26.42	162	0.28
112	8.40	33.82	2.97	172	150	7.94	34.02	2.35	26.54	151	0.32
130	8.18	33.96	2.50	159	200	7.48	34.04	1.96	26.62	143	0.39
150	7.94	34.02	2.35	151	250	7.00	34.05	1.82	26.69	136	0.46
176	7.70	34.06	2.24	145	300	6.54	34.08	1.38	26.79	127	0.53
196	7.52	34.04 5	2.00	143	400	5.69	34.17	0.73	26.96	111	0.65
230	7.16	34.04 0	1.90	139	500	5.17	34.22	0.47	27.06	101	0.76
277	6.78	34.05 5	1.66	132							
355	6.00	34.13 0	0.96	117							
432	5.46	34.19 0	0.59	107							
501	5.17	34.21 5	0.47	101							

OBSERVED				COMPUTED	INTERPOLATED				COMPUTED		
Z	T	S	O ₂	δ _T	Z	T	S	O ₂	σ _t	δ _T	ΔD
m	°C	‰	ml/L	cl/ton	m	°C	‰	ml/L	g/L	cl/ton	dyn m

SIO

CCOFI
6004

HORIZON; April 19, 1960; 1858 GCT; 38°10.5'N, 124°07.5'W; sounding, 1930 fm; wind, 340°, force 4; weather, clear; sea, very high; wire angle, 24°.

5760

0	12.52	32.77	5.92	317	0	12.52	32.77	5.92	24.79	317	0.00
9	12.50	32.81	5.86	314	10	12.49	32.82	5.87	24.83	313	0.03
31	11.96	32.79	5.99	306	20	12.07	32.79	5.96	24.89	307	0.06
40	11.82	32.75	5.99	306	30	11.97	32.79	5.99	24.90	306	0.09
54	11.98	32.83	5.83	303	50	11.89	32.78	5.89	24.92	305	0.15
67	11.48	33.01	5.64	281	75	11.20	33.12	5.46	25.30	268	0.23
89	10.38	33.31	4.81	240	100	10.09	33.37	4.58	25.68	232	0.29
107	9.92	33.40	4.42	226	125	9.07	33.60	3.64	26.03	199	0.34
125	9.07	33.60	3.64	199	150	8.39	33.75	3.27	26.26	177	0.39
151	8.38a)	33.75	3.26	177	200	7.77	34.03	2.42	26.57	147	0.47
178	7.94	33.96	2.74	155	250	7.32	34.02	2.03	26.63	142	0.55
214	7.66	34.04	2.29	145	300	6.77	34.06	1.62	26.73	132	0.62
241	7.41	34.01 5	2.13	144	400	5.88	34.12	0.91	26.89	117	0.75
285	6.94	34.04 5	1.76	135	500	5.36	34.20	0.50	27.03	104	0.86
344	6.30	34.08 5	1.21	124	600	(5.01)	(34.27)	(0.45)	(27.11)	(96)	(0.97)
435	5.67	34.14 5	0.76	112							
519	5.28	34.21 5	0.48	102							
592	5.02	34.26 5	0.45	96							

HORIZON; April 19, 1960; 2347 GCT; 37°51'N, 124°48'W; sounding, 2150 fm; wind, 330°, force 3; weather, clear; sea, high; wire angle, 28°.

5770

0	13.14	33.01	5.92	311	0	13.14	33.01	5.92	24.85	311	0.00
8	12.70	33.01	6.03	303	10	12.70	33.03	6.03	24.95	302	0.03
30	12.12	33.10	6.04	286	20	12.28	33.06	6.04	25.05	292	0.06
39	11.98	33.12	5.86	282	30	12.12	33.10	6.04	25.11	286	0.09
52	10.44	33.40	5.23	235	50	10.68	33.35	5.37	25.57	242	0.14
65	9.81	33.54	4.30	214	75	9.33	33.67	3.43	26.05	197	0.20
84	9.00	33.76	2.93	185	100	8.57	33.86	2.78	26.31	172	0.24
101	8.55	33.86	2.77	172	125	8.21	33.92	2.58	26.42	162	0.29
117	8.35	33.89	2.63	166	150	7.81	34.02	2.32	26.56	149	0.33
137	8.00	33.98	2.47	154	200	7.29	34.03	2.00	26.64	141	0.40
160	7.70	34.03	2.22	147	250	6.82	34.04	1.64	26.71	134	0.47
189	7.42	34.03	2.08	143	300	6.52	34.10	1.18	26.80	126	0.54
212	7.16	34.02 5	1.95	140	400	5.91	34.16	0.69	26.93	114	0.66
250	6.82	34.04 5	1.64	134	500	5.31	34.22	0.40	27.05	102	0.77
303	6.51	34.10 0	1.14	126							
388	5.99	34.15 0	0.74	115							
467	5.49	34.20 0	0.48	106							
538	5.16	34.24 0	0.34	99							

HORIZON; April 19, 1960; 0743 GCT; 37°54'N, 123°27.5'W; sounding, 400+ fm; wind, 330°, force 2; weather, partly cloudy; sea, rough; wire angle, 16°.

6055

1	12.34	33.01	5.88	297	0	(12.34)	(33.01)	(5.88)	(25.00)	(297)	(0.00)
11	12.00	33.03	5.99	289	10	12.02	33.03	5.99	25.08	289	0.03
30	11.51	33.04	5.93	280	20	11.72	33.04	5.96	25.14	283	0.06
39	11.42	33.04	5.88	278	30	11.51	33.04	5.93	25.18	280	0.09
48	11.28	33.06	5.86	274	50	11.22	33.08	5.81	25.26	272	0.14
62	10.80	33.21	5.22	255	75	10.23	33.35	4.69	25.65	235	0.20
76	10.22	33.35	4.68	235	100	9.42	33.63	3.58	26.00	202	0.26
93	9.76	33.53	3.97	214	125	8.78	33.79	2.96	26.22	181	0.31
116	8.90	33.75	3.09	185	150	8.51	33.87	2.73	26.33	170	0.35
134	8.71	33.82	2.85	177	200	6.97	34.04	1.63	26.69	136	0.43
160	8.28	33.93	2.63	162	250	6.78	34.14	1.03	26.80	126	0.50
187	6.99	-	1.75	-	300	6.61	34.17	0.86	26.84	122	0.56
213	6.96	34.08 5	1.53	132	400	6.25	34.20	0.63	26.91	115	0.68
249	6.78	34.13 0	1.11	126	500	5.67	34.24	0.49	27.02	105	0.80
303	6.60	34.17 0	0.84	122							
372	6.42	34.19 0	0.70	118							
443	5.98	34.21 5	0.55	111							
520	5.58	34.24 5	0.48	104							

a) Alternate value, 8.60°C, not used in interpolation.

153

SIO

CCOFI
6004

OBSERVED				COMPUTED	INTERPOLATED				COMPUTED		
Z	T	S	O ₂	δ _T	Z	T	S	O ₂	σ _t	δ _T	ΔD
m	°C	‰	ml/L	cl/ton	m	°C	‰	ml/L	g/L	cl/ton	dyn m

60.60

HORIZON; April 15, 1960; 2118 GCT; 37°39'N, 123°32'W; sounding, 1680+ fm; wind, 340°, force 7; weather, partly cloudy; sea, high; wire angle, 42°.

1	12.29	32.85 5	5.92	307	0	(12.29)	(32.86)	(5.92)	(24.89)	(307)	(0.00)
9	12.28	32.85 0	5.92	307	10	12.28	32.85	5.92	24.89	307	0.03
26	12.28	32.86 0	5.89	307	20	12.28	32.86	5.90	24.89	307	0.06
48	10.06	33.16 5	4.86	246	30	12.28	32.86	5.88	24.89	307	0.09
56	10.06	33.32 0	4.53	235	50	10.06	33.22	4.72	25.57	242	0.15
71	9.71	33.40 5	4.23	223	75	9.52	33.42	4.15	25.81	219	0.20
82	9.38	33.46 0	4.04	214	100	9.11	33.67	3.18	26.08	194	0.26
92	9.26	33.61 5	3.38	200	125	8.66	33.81	2.75	26.26	177	0.30
113	8.84	33.73 5	2.96	185	150	8.22	33.92	2.36	26.42	162	0.35
126	8.64	33.81 0	2.74	176	200	7.71	34.02	2.06	26.57	148	0.42
144	8.30	33.90 5	2.44	165	250	7.31	34.06	1.67	26.66	139	0.50
167	8.03	33.98 5	2.20	155	300	6.80	34.08	1.32	26.74	131	0.57
186	7.84	34.00 5	2.16	151	400	5.73	34.10	0.88	26.90	116	0.70
267	7.16	34.07 0	1.53	136	500	(5.39)	(34.22)	(0.50)	(27.04)	(103)	(0.81)
421	5.58	34.11 0	0.81	114							
491	5.40	34.20 5	0.50	105							

60.70

HORIZON; April 15, 1960; 1611 GCT; 37°21.5'N, 124°16'W; sounding, 2100 fm; wind, 330°, force 6; weather, partly cloudy; sea, high; wire angle, 18°.

2	13.00	32.92	5.74	315	0	(13.00)	(32.92)	(5.74)	(24.81)	(315)	(0.00)
11	12.98	32.92	5.77	315	10	12.98	32.92	5.77	24.81	315	0.03
34	13.00	32.91	5.74	316	20	13.00	32.92	5.75	24.81	315	0.06
44	12.86	32.99	5.79	308	30	13.00	32.91	5.74	24.80	316	0.09
58	12.47	32.99	5.79	300	50	12.71	32.99	5.79	24.92	304	0.16
72	11.76	32.95	5.77	290	75	11.74	32.96	5.76	25.08	289	0.23
95	10.68	33.13	5.15	259	100	10.41	33.19	4.96	25.49	250	0.30
114	9.69	33.34	4.57	227	125	9.30	33.48	4.25	25.90	211	0.36
133	9.05	33.59	3.98	199	150	8.86	33.73	3.25	26.17	186	0.41
161	8.78	33.80	2.96	179	200	8.06	33.94	3.00	26.45	159	0.50
189	8.31	33.89	2.91	166	250	7.52	33.97	2.67	26.56	149	0.57
225	7.70	33.98	3.10	151	300	6.96	34.01	2.00	26.67	138	0.65
254	7.48	33.96 5	2.61	149	400	6.12	34.10	1.04	26.85	121	0.78
300	6.96	34.01 0	2.00	138	500	5.42	34.19	0.53	27.01	106	0.90
362	6.38	34.06 5	1.35	127	600	4.89	34.26	0.34	27.12	95	1.01
457	5.70	34.15 5	0.67	112							
543	5.15	34.22 0	0.42	101							
617	4.80	34.28 0	0.30	92							

60.80

HORIZON; April 15, 1960; 1015 GCT; 37°00'N, 125°10'W; sounding, 2310 fm; wind, 330°, force 6; weather, cloudy; sea, high; wire angle, 26°.

1	13.19	33.00	5.80	313	0	(13.19)	(33.00)	(5.80)	(24.83)	(313)	(0.00)
10	13.21	33.00	5.76	313	10	13.21	33.00	5.76	24.83	313	0.03
32	13.18	33.10	5.85	306	20	13.21	33.03	5.78	24.84	312	0.06
40	12.59	33.33	6.07	277	30	13.19	33.08	5.81	24.89	307	0.09
54	12.26	33.35	5.60	270	50	12.31	33.34	5.68	25.26	272	0.15
68	12.24	33.46	5.45	262	75	12.04	33.48	5.34	25.42	257	0.22
89	10.92	33.49	4.65	236	100	9.90	33.54	3.60	25.85	216	0.28
107	10.17	33.64	3.40	213	125	9.64	33.75	2.94	26.06	196	0.33
125	9.64	33.75	2.94	196	150	9.01	33.87	2.59	26.25	178	0.38
148	9.04	33.85	2.62	179	200	8.48	34.00	2.27	26.44	160	0.46
174	8.72	33.95	2.43	167	250	7.86	34.04	1.88	26.56	148	0.54
208	8.40	34.01	2.21	158	300	7.24	34.06	1.64	26.67	138	0.62
234	8.06	34.02 0	2.01	152	400	6.48	34.15	0.92	26.85	121	0.75
276	7.54	34.06 0	1.74	142	500	5.91	34.23	0.39	26.98	109	0.87
333	6.89	34.07 0	1.49	133							
423	6.34	34.18 0	0.70	118							
505	5.88	34.23 0	0.38	109							
579	5.46	34.27 5	0.43	100							

OBSERVED				COMPUTED	INTERPOLATED				COMPUTED		
Z	T	S	O ₂	δ _T	Z	T	S	O ₂	σ _t	δ _T	ΔD
m	°C	‰	ml/L	cl/ton	m	°C	‰	ml/L	g/L	cl/ton	dyn m

SIO
CCOF1
6004

HORIZON; April 15, 1960; 0432 GCT; 36°42'N, 125°49.5'W; sounding, 2440 fm; wind, 330°, force 6; weather, clear; sea, high; wire angle, 27°.

6090

2	13.14	32.89 5	5.87	320	0	(13.14)	(32.90)	(5.87)	(24.76)	(320)	(0.00)
11	13.14	32.88 5	5.85	321	10	13.14	32.89	5.85	24.75	321	0.03
32	12.08	32.82 5	6.09	305	20	13.10	32.88	5.86	24.76	320	0.06
41	12.03	32.91 5	6.11	298	30	12.30	32.83	6.06	24.87	309	0.10
55	11.24	32.90 0	5.84	285	50	11.52	32.91	5.95	25.08	289	0.16
68	10.96	33.05 5	5.36	269	75	10.75	33.16	5.03	25.41	257	0.22
88	10.42	33.29 5	4.64	242	100	10.20	33.55	3.58	25.81	220	0.28
106	10.20	33.60 0	3.39	216	125	9.56	33.70	2.98	26.03	199	0.34
122	9.70	33.68 5	3.01	202	150	8.97	33.85	2.55	26.24	178	0.39
146	9.02	33.82 5	2.67	181	200	8.20	33.99	2.22	26.48	156	0.47
171	8.67	33.93 0	2.33	168	250	7.64	34.03	1.90	26.59	146	0.55
204	8.15	33.99 5	2.20	155	300	7.03	34.05	1.64	26.69	136	0.62
229	7.90	34.02 0	2.06	150	400	6.16	34.10	0.99	26.85	121	0.75
271	7.38	34.04 5	1.78	141	500	5.42	34.16	0.61	26.99	108	0.87
327	6.75	34.05 5	1.52	132							
415	6.03	34.11 0	0.93	119							
497	5.44	34.15 5	0.63	109							
569	4.94	34.21 0	0.41	99							

HORIZON; April 14, 1960; 0337 GCT; 37°09'N, 122°54'W; sounding, 210 fm; wind, 320°, force 2; weather, drizzle; sea, very rough; wire angle, 16°.

6355

1	12.68	32.86 0	6.08	314	0	(12.68)	(32.86)	(6.08)	(24.82)	(314)	(0.00)
11	12.24	32.98 0	6.24	297	10	12.46	32.92	6.20	24.92	305	0.03
30	9.86	33.50 5	4.01	218	20	11.68	33.11	5.66	25.20	277	0.06
34	9.78	33.52 5	3.89	215	30	9.86	33.50	4.01	25.82	218	0.08
47	9.64	33.57 5	3.51	209	50	9.56	33.60	3.36	25.95	206	0.13
70	9.04	33.76 0	2.88	187	75	8.97	33.78	2.82	26.19	183	0.18
93	8.78	33.83 5	2.72	176	100	8.72	33.86	2.67	26.29	174	0.22
116	8.60	33.89 0	2.55	170	125	8.50	33.93	2.42	26.38	166	0.26
154	8.20	34.00 5	1.98	156	150	8.24	34.00	2.03	26.47	157	0.31
191	7.78	34.06 0	1.69	146	200	7.70	34.07	1.60	26.61	144	0.38
238	7.36	34.12 0	1.25	136	250	7.25	34.13	1.15	26.72	133	0.45
286	6.95	34.16 0	0.92	127							

HORIZON; April 14, 1960; 0638 GCT; 36°57'N, 123°17'W; sounding, 1440 fm; wind, 300°, force 2; weather, overcast; sea, very rough; wire angle, 18°.

6360

1	12.85	32.93 0	5.91	312	0	(12.85)	(32.93)	(5.91)	(24.84)	(312)	(0.00)
10	12.70	32.95 0	5.95	307	10	12.70	32.95	5.95	24.89	307	0.03
29	12.41	32.97 0	6.02	301	20	12.42	32.97	6.01	24.96	301	0.06
38	11.80	33.04 5	5.97	284	30	12.39	32.98	6.02	24.97	300	0.09
52	11.41	33.11 0	5.58	273	50	11.40	33.11	5.59	25.25	273	0.15
66	10.52	33.27 5	4.70	245	75	10.08	33.39	4.30	25.69	231	0.21
88	9.47	33.54 5	3.66	209	100	8.99	33.65	3.55	26.09	193	0.27
105	8.86	33.67 0	3.54	190	125	8.88	33.84	2.78	26.25	178	0.31
123	8.89	33.84 0	2.79	178	150	8.53	33.93	2.55	26.38	166	0.36
140	8.70	33.90 5	2.55	170	200	7.95	34.01	2.18	26.53	152	0.44
165	8.32	33.95 0	2.54	161	250	7.54	34.06	1.73	26.63	142	0.51
196	8.00	34.00 0	2.22	153	300	7.13	34.13	1.18	26.74	131	0.58
222	7.74	34.03 0	2.01	147	400	6.15	34.16	0.77	26.90	117	0.71
266	7.43	34.08 5	1.56	140	500	5.84	34.26	0.43	27.01	106	0.83
316	6.98	34.14 5	1.08	129							
392	6.19	34.15 0	0.81	118							
472	6.00	34.23 5	0.54	109							
554	5.49	34.28 0	0.24	100							

S10

CCOFI
6004

OBSERVED				COMPUTED	INTERPOLATED				COMPUTED		
Z	T	S	O ₂	δ _T	Z	T	S	O ₂	σ _t	δ _T	ΔD
m	°C	‰	ml/L	cl/ton	m	°C	‰	ml/L	g/L	cl/ton	dyn m

63.70

HORIZON; April 14, 1960; 1151 GCT; 36°31.5'N, 124°03.5'W; sounding, 2090 fm; wind, 330°, force 5; weather, partly cloudy; sea, very rough; wire angle, 35°.

1	12.82	32.90	5.91	313	0	(12.82)	(32.90)	(5.91)	(24.83)	(313)	(0.00)
9	12.82	32.87	5.91	315	10	12.82	32.87	5.91	24.81	315	0.03
29	12.63	32.86	5.93	312	20	12.81	32.87	5.92	24.81	315	0.06
37	11.75	32.87	6.13	296	30	12.61	32.86	5.94	24.84	312	0.09
50	11.19	32.86	5.80	287	50	11.19	32.86	5.80	25.10	287	0.15
62	10.93	32.88	5.68	281	75	10.80	33.00	5.48	25.27	271	0.22
81	10.52	33.13	5.13	256	100	10.20	33.36	4.55	25.67	233	0.29
97	10.24	33.35	4.62	235	125	9.27	33.59	3.64	25.98	203	0.34
111	9.54	33.42	4.13	219	150	9.04	33.83	2.68	26.22	181	0.39
130	9.20	33.64	3.48	198	200	8.35	34.00	2.18	26.46	158	0.48
151	9.03	33.84	2.67	180	250	7.64	34.05	1.83	26.61	144	0.56
179	8.56	33.96	2.35	164	300	7.03	34.10	1.35	26.72	133	0.63
201	8.34	33.99 5	2.17	158	400	6.47	34.21	0.71	26.89	117	0.76
237	7.83	34.04 0	1.91	148	500	5.81	34.25	0.45	27.01	106	0.87
285	7.16	34.08 0	1.54	136							
365	6.62	34.17 5	0.85	122							
441	6.24	34.24 0	0.58	112							
510	5.72	34.25 0	0.42	105							

63.80

HORIZON; April 14, 1960; 1616 GCT; 36°14.5'N, 124°38'W; sounding, 2240 fm; wind, 340°, force 6; weather, partly cloudy; sea, high; wire angle, 27°.

1	13.44	33.31	5.91	295	0	(13.44)	(33.31)	(5.91)	(25.02)	(295)	(0.00)
9	13.44	33.31	5.91	295	10	13.44	33.31	5.91	25.02	295	0.03
31	13.40	33.30	5.92	295	20	13.42	33.30	5.92	25.02	295	0.06
58	12.34	33.38	5.71	270	30	13.40	33.30	5.92	25.02	295	0.09
67	12.31	33.39	5.56	268	50	12.70	33.36	5.82	25.21	277	0.15
85	11.47	33.54	4.15	242	75	12.30	33.41	5.41	25.32	266	0.21
97	10.66	33.68	3.35	218	100	10.54	33.70	3.27	25.86	215	0.28
110	10.30	33.73	3.17	208	125	10.02	33.77	3.02	26.01	201	0.33
137	9.87	33.80	2.93	196	150	9.63	33.87	2.75	26.16	187	0.38
154	9.56	33.89	2.71	185	200	8.77	33.95	2.40	26.35	168	0.47
179	9.04	33.92	2.55	174	250	8.09	34.02	1.94	26.51	153	0.55
236	8.28	34.00 0	2.10	157	300	7.50	34.09	1.50	26.65	140	0.62
337	7.16	34.12 5	1.24	132	400	6.64	34.19	0.84	26.85	121	0.76
428	6.39	34.20 0	0.70	117	500	5.77	34.20	0.54	26.98	109	0.88
510	5.68	34.20 5	0.51	108	600	(5.16)	(34.29)		(27.11)	(96)	(0.99)
583	5.26	34.27 0	0.38	99							

63.90

HORIZON; April 14, 1960; 2157 GCT; 35°58'N, 125°26'W; sounding, 2450 fm; wind, 340°, force 6; weather, partly cloudy; sea, high; wire angle, 33°.

1	13.51	33.06	5.80	314	0	(13.51)	(33.06)	(5.80)	(24.82)	(314)	(0.00)
9	13.50	33.06	5.70	314	10	13.50	33.06	5.71	24.82	314	0.03
30	13.44	33.11	5.74	310	20	13.48	33.08	5.72	24.83	313	0.06
56	11.97	33.27	5.58	270	30	13.44	33.11	5.74	24.86	310	0.09
64	12.40	33.40	5.54	269	50	11.98	33.25	5.60	25.26	272	0.15
80	11.72	33.35	5.26	260	75	12.20	33.39	5.44	25.32	266	0.22
103	9.80	33.38	4.34	226	100	9.97	33.38	4.42	25.71	229	0.28
127	8.66	33.58	4.03	194	125	8.67	33.57	4.04	26.08	194	0.34
144	8.39	33.68	3.76	183	150	8.37	33.75	3.66	26.26	177	0.38
167	8.30	33.90	3.57	165	200	7.98	33.94	3.56	26.47	157	0.47
222	7.72	33.96 0	3.54	152	250	7.31	33.98	2.98	26.60	145	0.54
319	6.35	34.02 5	1.71	130	300	6.63	34.02	1.98	26.72	133	0.62
409	5.28	34.04 5	1.13	116	400	5.38	34.04	1.17	26.89	117	0.75
492	4.74	34.08 5	0.85	107	500	4.71	34.09	0.80	27.02	105	0.86
564	4.50	34.15 5	0.53	99							

OBSERVED				COMPUTED	INTERPOLATED				COMPUTED		
Z	T	S	O ₂	δ _T	Z	T	S	O ₂	σ _t	δ _T	ΔD
m	°C	‰	ml/L	cl/ton	m	°C	‰	ml/L	g/L	cl/ton	dyn m

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HORIZON; April 13, 1960; 1958 GCT; 36°44.5'N, 122°06.5'W; sounding, 770 fm; wind, 320°, force 3; weather, clear; sea, rough; wire angle, 38°.

67.50

0	11.08	33.34 0	4.93	250	0	11.08	33.34	4.93	25.49	250	0.00
7	10.84	33.36 0	4.89	245	10	10.74	33.38	4.82	25.58	241	0.02
23	10.16	33.47 5	4.09	225	20	10.31	33.45	4.30	25.71	229	0.05
30	9.82	33.57 0	3.50	212	30	9.82	33.57	3.50	25.89	212	0.07
38	9.75	33.59 5	3.31	209	50	9.58	33.68	2.96	26.01	201	0.11
50	9.58	33.67 5	2.96	201	75	9.04	33.85	2.28	26.23	180	0.16
62	9.36	33.77 5	2.52	190	100	8.58	33.93	2.32	26.36	167	0.20
77	8.99	33.85 0	2.27	179	125	8.34	33.99	1.91	26.45	159	0.24
95	8.63	33.90 5	2.44	170	150	7.71	34.05	1.76	26.59	146	0.28
107	8.54	33.94 5	2.13	165	200	7.42	34.11	1.33	26.68	137	0.35
126	8.32	33.99 0	1.90	159	250	7.10	34.12	1.23	26.73	132	0.42
142	7.87	34.03 0	1.94	149	300	6.67	34.13	1.04	26.80	126	0.49
161	7.61	34.07 5	1.54	142	400	6.02	34.19	0.57	26.94	113	0.61
187	7.49	34.10 5	1.35	139							
227	7.29	34.11 5	1.29	135							
281	6.81	34.11 5	1.16	128							
341	6.38	34.15 0	0.80	120							
414	5.94	34.19 5	0.53	111							

HORIZON; April 13, 1960; 1657 GCT; 36°44.5'N, 122°22.5'W; sounding, 1250 fm; wind, 320°, force 3; weather, cloudy; sea, very rough; wire angle, 08°.

67.55

1	12.74	33.05	6.18	301	0	(12.74)	(33.05)	(6.18)	(24.96)	(301)	(0.00)
11	12.72	33.06	6.19	300	10	12.72	33.06	6.19	24.97	300	0.03
31	11.72	33.27	5.73	266	20	12.78	33.15	6.17	25.03	294	0.06
40	11.14	33.31	5.38	253	30	11.83	33.26	5.79	25.29	269	0.09
55	10.64	33.58	3.98	225	50	10.81	33.44	4.70	25.61	238	0.14
70	9.74	33.71	3.19	201	75	9.54	33.73	3.12	26.06	196	0.19
94	9.14	33.80	2.86	185	100	9.06	33.83	2.74	26.22	181	0.24
112	8.88	33.90	2.45	173	125	8.72	33.95	2.33	26.36	167	0.28
132	8.64	33.96	2.29	165	150	8.46	33.99	2.35	26.44	160	0.33
151	8.45	33.99	2.35	160	200	7.90	34.06	1.83	26.58	147	0.40
179	8.13	34.05	2.03	151	250	7.30	34.09	1.52	26.69	136	0.48
212	7.74	34.06	1.74	145	300	6.94	34.16	0.97	26.78	127	0.54
240	7.38	34.08 0	1.71	139	400	6.21	34.22	0.67	26.94	113	0.67
287	7.04	34.14 0	1.07	130	500	5.78	34.29	0.29	27.04	103	0.78
340	6.66	34.18 0	0.86	122	600	(5.08)	(34.30)		(27.12)	(95)	(0.89)
421	6.08	34.23 0	0.59	111							
503	5.77	34.29 0	0.29	103							
586	5.19	34.29 5	0.37	95							

HORIZON; April 13, 1960; 1249 GCT; 36°34.5'N, 122°43.5'W; sounding, 1640 fm; wind, 320°, force 4; weather, overcast; sea, very rough; wire angle, 13°.

67.60

1	13.34	33.46	5.75	282	0	(13.34)	(33.46)	(5.75)	(25.16)	(282)	(0.00)
11	13.34	33.44	5.79	283	10	13.34	33.44	5.78	25.14	283	0.03
34	13.34	33.44	5.80	283	20	13.34	33.44	5.79	25.14	283	0.06
63	11.22	33.44	4.91	245	30	13.34	33.44	5.79	25.14	283	0.09
73	10.78	33.51	4.28	232	50	13.05	33.44	5.76	25.19	278	0.14
92	9.99	33.68	3.23	207	75	10.70	33.53	4.17	25.70	230	0.20
106	9.59	33.78	2.94	193	100	9.73	33.74	3.03	26.04	198	0.26
121	9.36	33.80	2.77	188	125	9.28	33.81	2.73	26.17	186	0.31
150	8.70	33.96	2.45	166	150	8.70	33.96	2.45	26.38	166	0.35
168	8.48	33.98	2.35	162	200	8.09	34.03	2.11	26.52	152	0.43
197	8.14	34.02	2.12	153	250	7.64	34.09	1.48	26.64	141	0.51
229	7.74	34.06	1.72	145	300	7.29	34.15	1.16	26.73	132	0.58
258	7.60	34.10 5	1.42	140	400	6.18	34.16	0.79	26.89	117	0.71
305	7.24	34.15 0	1.13	131	500	5.42	34.21	0.52	27.02	105	0.82
367	6.54	34.15 5	0.90	122	600	5.04	34.30	0.34	27.13	94	0.93
464	5.58	34.17 0	0.61	109							
551	5.20	34.25 5	0.39	98							
625	4.96	34.32 5	0.32	91							

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OBSERVED				COMPUTED	INTERPOLATED				COMPUTED		
Z	T	S	O ₂	δ _T	Z	T	S	O ₂	σ _t	δ _T	ΔD
m	°C	‰	ml/L	cl/ton	m	°C	‰	ml/L	g/L	cl/ton	dyn m

67.70

HORIZON; April 13, 1960; 0739 GCT; 36°12.5'N, 123°30'W; sounding, 1923 fm; wind, 300°, force 4; weather, cloudy; sea, very rough; wire angle, 22°.

2	13.13	33.24 5	5.87	294	0	(13.13)	(33.24)	(5.87)	(25.03)	(294)	(0.00)
12	13.12	33.21 5	5.90	296	10	13.12	33.22	5.89	25.01	296	0.03
30	12.92	33.22 0	5.80	292	20	13.05	33.22	5.85	25.03	294	0.06
38	12.00	33.22 5	5.88	275	30	12.92	33.22	5.80	25.05	292	0.09
52	11.04	33.17 5	5.19	261	50	11.10	33.18	5.25	25.37	262	0.14
66	10.82	33.36 0	4.72	244	75	10.42	33.43	4.39	25.68	232	0.21
89	9.77	33.58 5	3.59	211	100	9.56	33.72	3.13	26.05	197	0.26
105	9.47	33.74 5	3.02	194	125	8.83	33.78	3.08	26.21	182	0.31
122	8.93	33.76 0	3.11	184	150	8.45	33.94	2.50	26.40	164	0.35
139	8.59	33.89 0	2.71	170	200	7.89	34.03	2.21	26.55	150	0.43
164	8.28	33.98 0	2.32	159	250	7.40	34.10	1.51	26.68	137	0.50
194	7.92	34.00 0	2.33	152	300	7.03	34.14	1.16	26.76	129	0.57
220	7.76	34.06 5	1.73	145	400	6.26	34.20	0.70	26.91	115	0.70
263	7.24	34.10 0	1.46	135	500	5.58	34.24	0.48	27.04	103	0.81
312	6.96	34.15 5	1.07	127							
389	6.34	34.19 0	0.76	117							
467	5.76	34.22 5	0.53	107							
549	5.29	34.27 0	0.45	99							

67.80

HORIZON; April 13, 1960; 0235 GCT; 35°51.5'N, 124°16'W; sounding, 2100 fm; wind, 280°, force 3; weather, partly cloudy; sea, very rough; wire angle, 12°.

2	13.44	33.16 0	5.75	306	0	(13.44)	(33.16)	(5.75)	(24.90)	(306)	(0.00)
12	13.40	33.16 0	5.80	305	10	13.41	33.16	5.79	24.91	305	0.03
32	13.02	33.26 5	5.92	291	20	13.28	33.18	5.86	24.96	301	0.06
40	12.84	33.31 5	5.91	283	30	13.05	33.25	5.92	25.05	292	0.09
55	12.28	33.36 5	5.31	270	50	12.19	33.31	5.40	25.27	271	0.15
69	12.11	33.36 0	5.19	267	75	11.94	33.37	5.02	25.37	262	0.21
93	10.96	33.50 0	4.08	236	100	10.44	33.54	3.75	25.75	225	0.28
112	9.76	33.61 0	3.37	209	125	9.33	33.70	3.04	26.07	195	0.33
131	9.22	33.73 0	2.94	191	150	9.02	33.83	2.57	26.22	181	0.38
150	9.02	33.83 0	2.57	181	200	8.34	33.96	2.37	26.43	161	0.46
178	8.58	33.92 0	2.47	167	250	7.61	34.00	2.28	26.56	148	0.54
213	8.20	33.98 0	2.33	157	300	7.06	34.03	1.79	26.67	138	0.62
241	7.72	33.99 0	2.33	150	400	5.98	34.09	1.02	26.86	120	0.75
290	7.20	34.03 0	1.85	140	500	5.37	34.16	0.60	27.00	107	0.87
343	6.48	34.05 0	1.40	129	600	(4.98)	(34.26)	(0.16)	(27.12)	(95)	(0.98)
425	5.80	34.10 0	0.90	117							
509	5.32	34.17 0	0.56	106							
594	4.98	34.25 5	0.16	96							

67.90

HORIZON; April 12, 1960; 2049 GCT; 35°26'N, 124°58'W; sounding, 2000+ fm; wind, 300°, force 3; weather, partly cloudy; sea, very rough; wire angle, 08°.

1	13.88	33.34 5	5.79	301	0	(13.88)	(33.34)	(5.79)	(24.96)	(301)	(0.00)
11	13.68	33.33 0	5.84	298	10	13.69	33.33	5.83	24.99	298	0.03
36	12.90	33.26 0	5.96	288	20	13.54	33.31	5.88	25.01	296	0.06
65	12.08	33.28 5	5.60	272	30	12.93	33.26	5.95	25.08	289	0.09
75	12.10	33.35 5	5.44	267	50	12.62	33.26	5.88	25.14	283	0.15
95	9.74	33.34 0	4.39	228	75	12.10	33.36	5.44	25.31	267	0.21
109	9.09	33.46 0	4.20	209	100	9.30	33.34	4.31	25.79	221	0.28
123	8.91	33.61 0	3.78	195	125	8.88	33.64	3.78	26.09	193	0.33
153	8.54	33.84 0	3.77	173	150	8.58	33.82	3.77	26.29	174	0.38
171	8.34	33.89 0	3.60	166	200	7.94	33.94	3.51	26.48	156	0.46
200	7.94	33.94 5	3.51	156	250	7.18	33.96	2.82	26.60	145	0.54
233	7.37	33.95 0	3.25	148	300	6.71	34.03	1.83	26.72	133	0.61
261	7.08	33.97 5	2.59	143	400	5.64	34.10	0.90	26.91	115	0.74
309	6.61	34.04 5	1.66	131	500	5.13	34.19	0.48	27.04	103	0.85
370	5.88	34.08 0	1.05	120	600	4.69	34.26	0.28	27.14	93	0.96
466	5.27	34.15 0	0.63	107							
553	4.93	34.23 5	0.34	97							
626	4.56	34.27 0	0.27	91							

OBSERVED				COMPUTED	INTERPOLATED				COMPUTED		
Z	T	S	O ₂	δ _T	Z	T	S	O ₂	σ _t	δ _T	ΔD
m	°C	‰	ml/L	cl/ton	m	°C	‰	ml/L	g/L	cl/ton	dyn m

S10

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6004

HORIZON; April 11, 1960; 1449 GCT; 36°08'N, 121°50.5'W; sounding, 370 fm; wind, 310°, force 2; weather, rain; sea, very rough; wire angle, 19°.

70.52

1	10.32	33.72	4.45	209	0	(10.32)	(33.72)	(4.45)	(25.92)	(209)	(0.00)
10	10.32	33.69	4.47	211	10	10.32	33.69	4.47	25.90	211	0.02
29	9.82	33.72	3.47	201	20	10.16	33.70	4.20	25.92	209	0.04
38	9.57	33.75	3.19	195	30	9.80	33.72	3.46	26.01	201	0.06
52	9.36	33.80	2.94	188	50	9.38	33.80	2.95	26.14	189	0.10
66	9.20	33.84	2.79	183	75	9.03	33.89	2.75	26.26	177	0.15
89	8.72	33.95	2.74	167	100	8.60	33.96	2.66	26.40	164	0.19
106	8.52	33.97	2.61	163	125	8.23	34.02	2.46	26.49	155	0.23
124	8.24	34.01	2.47	156	150	8.20	34.09	2.20	26.56	149	0.27
141	8.20	34.07a)	2.35	151	200	8.01	34.13	1.76	26.62	143	0.34
167	8.20	34.13	1.91	146	250	7.54	34.13	1.24	26.68	137	0.41
200	8.01	34.13	1.76	143	300	7.09	34.16	1.09	26.77	129	0.48
224	7.80	34.11 5	1.34	141	400	6.26	34.18	0.74	26.90	117	0.61
270	7.34	34.14 5	1.19	133	500	5.49	34.21	0.54	27.02	105	0.72
320	6.92	34.17 0	0.98	126							
397	6.30	34.18 5	0.75	117							
476	5.56	34.17 5	0.62	109							
559	5.35	34.29 5	0.36	97							

HORIZON; April 11, 1960; 1710 GCT; 36°03'N, 122°01.5'W; sounding, 710 fm; wind, 320°, force 4; weather, rain; sea, very rough; wire angle, 30°.

70.55

1	11.62	33.53	5.47	246	0	(11.62)	(33.53)	(5.47)	(25.54)	(246)	(0.00)
9	11.56	33.55	5.47	243	10	11.55	33.55	5.46	25.56	243	0.02
31	10.72	33.64	4.34	221	20	11.14	33.60	4.94	25.69	231	0.05
39	10.47	33.68	4.10	215	30	10.82	33.63	4.47	25.76	224	0.07
52	9.89	33.74	3.50	201	50	10.00	33.73	3.63	25.98	203	0.11
65	9.62	33.78	3.21	193	75	9.37	33.82	3.04	26.16	187	0.16
85	9.12	33.86	2.93	180	100	8.85	33.92	2.76	26.32	172	0.21
101	8.84	33.92	2.75	171	125	8.62	33.94	2.67	26.37	167	0.25
118	8.68	33.93	2.67	168	150	8.28	33.98	2.61	26.45	159	0.29
141	8.42	33.96	2.66	162	200	7.57	34.05	2.18	26.62	143	0.37
166	8.03	34.02	2.47	152	250	7.00	34.05	1.69	26.70	136	0.44
198	7.60	34.05	2.21	144	300	6.62	34.08	1.35	26.77	129	0.51
222	7.20	34.04 5	1.85	139	400	5.88	34.14	0.78	26.91	116	0.63
264	6.92	34.06 0	1.60	134	500	5.62	34.22	0.48	27.01	106	0.75
319	6.46	34.09 0	1.20	126							
407	5.86	34.14 0	0.75	115							
488	5.68	34.21 5	0.51	107							
559	5.22	34.24 5	0.39	100							

HORIZON; April 11, 1960; 2023 GCT; 35°51'N, 122°18'W; sounding, 1700 fm; wind, 320°, force 6; weather, partly cloudy; sea, very rough; wire angle, 41°.

70.60

0	12.87	33.41 5	6.00	276	0	12.87	33.42	6.00	25.22	276	0.00
8	12.84	33.41 5	5.97	276	10	12.83	33.42	5.96	25.23	275	0.03
27	12.29	33.40 0	5.64	267	20	12.53	33.41	5.76	25.27	271	0.05
35	12.04	33.41 5	5.50	261	30	12.20	33.41	5.58	25.34	265	0.08
46	11.30	33.48 5	4.78	243	50	11.11	33.51	4.58	25.62	238	0.13
57	10.78	33.56 5	4.30	228	75	10.08	33.67	3.66	25.92	209	0.19
76	10.07	33.67 0	3.65	209	100	9.63	33.74	3.26	26.05	197	0.24
91	9.81	33.70 5	3.46	202	125	9.12	33.83	2.84	26.20	183	0.29
107	9.46	33.77 5	3.10	191	150	8.46	33.94	2.58	26.39	165	0.33
124	9.14	33.82 5	2.86	183	200	7.84	34.03	2.06	26.56	149	0.41
143	8.60	33.92 0	2.59	168	250	7.41	34.09	1.44	26.67	138	0.48
166	8.22	33.96 0	2.57	159	300	6.95	34.12	1.19	26.76	130	0.55
186	7.94	33.99 5	2.31	152	400	6.07	34.17	0.70	26.91	115	0.68
218	7.74	34.07 5	1.58	144	500	(5.58)	(34.24)		(27.03)	(104)	(0.79)
263	7.28	34.10 0	1.39	136							
337	6.62	34.14 0	0.98	124							
409	6.01	34.17 5	0.66	114							
479	5.66	34.23 0	0.45	106							

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

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OBSERVED				COMPUTED	INTERPOLATED				COMPUTED		
Z	T	S	O ₂	δ _T	Z	T	S	O ₂	σ _t	δ _T	ΔD
m	°C	‰	ml/L	cl/ton	m	°C	‰	ml/L	g/L	cl/ton	dyn m

70.70

HORIZON; April 12, 1960; 0137, 0452 GCT; 35°31'N, 123°08'W; sounding, 2070 fm; wind, 320°, force 6; weather, partly cloudy; sea, very rough; wire angle, 37°, 43°.

1	12.97	33.14 0	6.05	298	0	(12.97)	(33.14)	(6.05)	(24.98)	(298)	(0.00)
9	12.97	33.14 0	6.04	298	10	12.97	33.14	6.05	24.98	298	0.03
28	12.91	33.15 5	6.08	296	20	12.94	33.15	6.07	25.00	297	0.06
36	12.60	33.29 0	6.03	280	30	12.89	33.16	6.07	25.02	295	0.09
49	12.24	33.32 5	5.60	272	50	12.22	33.32	5.58	25.27	271	0.15
60	11.51	33.30 5	5.24	260	75	10.60	33.46	4.19	25.67	233	0.21
80	10.42	33.49 5	3.93	227	100	9.58	33.65	3.25	25.99	203	0.26
96	9.80	33.62 0	3.30	208	125	8.74	33.81	2.98	26.25	178	0.31
112	8.96	33.73 0	3.15	187	150	8.56	33.91	2.48	26.36	167	0.36
135	8.67	33.85 5	2.84	173	200	8.03	34.01	2.08	26.52	153	0.44
158	8.51	33.94 5	2.35	164	250	7.33	34.06	1.71	26.65	140	0.51
188	8.16	34.00 0	2.09	155	300	6.92	34.10	1.28	26.74	131	0.58
211	7.88	34.01 5	2.07	150	400	6.49	34.21	0.63	26.89	117	0.71
250	7.33	34.05 5	1.71	140	500	5.69	34.25	0.40	27.02	105	0.83
302	6.91	34.10 0	1.28	131	600	5.02	34.31	0.28	27.15	92	0.93
385	6.60	34.20 0	0.70	119	700	4.60	34.36	0.28	27.23	85	1.02
464	5.95	34.23 0	0.45	109	800	4.28	34.40	0.30	27.30	78	1.11
534	5.45	34.26 5	0.35	101	1000	3.77	34.46	0.35	27.41	68	1.27
					1200	3.31	34.51	0.71	27.48	61	1.42
296a)	6.86	34.11 0	1.20	129	1500	2.71	34.55	0.98	27.58	52	1.62
372	6.58	34.21 5	0.68	118	2000	2.03	34.62	1.63	27.70	41	1.90
490	5.62	34.28 0	0.37	102	2500	1.78	34.65	2.28	27.73	38	2.14
609	4.98	34.32 0	0.28	91	3000	1.64	34.66	2.60	27.75	36	2.37
768	4.36	34.38 0	-	80							
930	3.93	34.44 5	0.33	71							
1092	3.56	34.48 0	0.39	65							
1254	3.20	34.51 5	0.81	59							
1417	2.90	34.54 0	0.90	55							
1580	2.54	34.57 0	1.12	49							
1746	2.30	34.59 5	1.39	46							
1917	2.10	34.61 5	1.58	43							
2088	1.97	34.63 0	1.85	40							
2263	1.85	34.64 0	2.06	39							
2442	1.80	34.65 0	2.26	38							
2626	1.72	34.65 5	2.31	37							
2814	1.68	34.66 0	2.50	36							
3010	1.64	34.66 5	2.61	36							

70.80

HORIZON; April 12, 1960; 1105 GCT; 35°15.5'N, 123°51.5'W; sounding, 2170 fm; wind, 320°, force 6; weather, partly cloudy; sea, high; wire angle, 30°.

0	13.60	33.45	5.91	288	0	13.60	33.45	5.91	25.10	288	0.00
9	13.60	33.44	5.97	288	10	13.60	33.44	5.98	25.09	288	0.03
30	13.58	33.42	6.36	290	20	13.60	33.43	6.17	25.08	289	0.06
38	13.22	33.44	6.17	281	30	13.58	33.42	6.36	25.07	290	0.09
52	12.18	33.47	6.26	260	50	12.40	33.47	6.22	25.35	264	0.14
64	11.49	33.50	4.71	245	75	10.80	33.51	4.12	25.67	233	0.20
86	10.27	33.55	3.72	221	100	9.95	33.74	3.57	26.00	202	0.26
103	9.89	33.77	3.57	199	125	9.24	33.81	3.00	26.17	186	0.31
120	9.36	33.77	3.19	190	150	8.76	33.96	2.52	26.36	167	0.35
145	8.86	33.95	2.57	169	200	8.10	34.04	2.00	26.53	151	0.43
170	8.44	34.00	2.43	160	250	7.57	34.11	1.41	26.66	139	0.51
226	7.81	34.07 5	1.61	145	300	7.21	34.15	1.12	26.74	131	0.58
268	7.44	34.12 0	1.32	137	400	6.12	34.20	0.68	26.93	114	0.70
322	7.00	34.16 5	0.98	127	500	5.54	34.25	0.41	27.04	103	0.82
409	6.04	34.20 5	0.65	113							
490	5.58	34.24 5	0.44	104							
563	5.26	34.30 5	0.36	96							

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

OBSERVED				COMPUTED	INTERPOLATED				COMPUTED		
Z	T	S	O ₂	δ _T	Z	T	S	O ₂	σ _t	δ _T	ΔD
m	°C	‰	ml/L	cl/ton	m	°C	‰	ml/L	g/L	cl/ton	dyn m

S10
CCOF1
6004

HORIZON; April 12, 1960; 1550 GCT; 34°56.5'N, 124°32'W; sounding, 2040 fm; wind, 320°, force 5; weather, partly cloudy; sea, high; wire angle, 18°.

70.90

2	13.70	33.03	5.86	321	0	(13.70)	(33.03)	(5.86)	(24.75)	(321)	(0.00)
11	13.70	33.04	5.91	320	10	13.70	33.04	5.90	24.76	320	0.03
34	13.10	33.13	6.03	302	20	13.64	33.05	5.93	24.78	318	0.06
44	12.54	33.19	6.08	287	30	13.40	33.09	5.98	24.86	311	0.10
58	12.08	33.24	5.82	275	50	12.10	33.22	5.87	25.21	277	0.15
72	11.74	33.28	5.44	266	75	11.65	33.29	5.38	25.35	264	0.22
95	11.14	33.39	4.94	247	100	11.05	33.40	4.86	25.54	245	0.29
114	9.68	33.42	4.37	221	125	9.23	33.49	4.14	25.92	209	0.34
133	9.10	33.58	4.02	201	150	8.70	33.74	3.83	26.20	183	0.39
161	8.46	33.82	3.73	173	200	8.00	33.98	3.14	26.49	155	0.48
189	8.18	33.96	3.33	159	250	7.04	33.94	2.83	26.60	145	0.56
224	7.57	34.02	2.73	146	300	6.37	33.98	2.10	26.72	133	0.63
252	7.00	33.94 0	2.85	144	400	5.90	34.10	0.98	26.87	119	0.76
297	6.38	33.97 5	2.16	133	500	5.40	34.17	0.57	27.00	107	0.88
356	6.23	34.07 0	1.28	124	600	5.02	34.26	0.37	27.10	97	0.98
448	5.58	34.12 5	0.76	113							
532	5.31	34.20 5	0.47	104							
605	5.00	34.26 0	0.37	96							

HORIZON; April 11, 1960; 0855 GCT; 35°33'N, 121°26'W; sounding, 347 fm; wind, 320°, force 5; weather, partly cloudy; sea, high; wire angle, 42°.

73.51

0	11.76	33.53	5.53	248	0	11.76	33.53	5.53	25.51	248	0.00
8	11.76	33.58	5.52	244	10	11.76	33.58	5.51	25.55	244	0.02
26	11.75	33.58	5.47	244	20	11.75	33.58	5.49	25.55	244	0.05
33	11.76	33.58	5.46	244	30	11.76	33.58	5.46	25.55	244	0.07
55	11.02	33.58	4.63	231	50	11.32	33.58	4.93	25.64	236	0.12
72	9.76	33.67	3.69	204	75	9.73	33.70	3.65	26.00	202	0.18
86	9.72	33.77	3.49	196	100	9.24	33.87	2.83	26.22	181	0.22
100	9.24	33.87	2.83	181	125	8.75	33.94	2.74	26.35	168	0.27
117	8.90	33.93	2.74	171	150	8.22	34.02	2.53	26.49	155	0.31
135	8.56	33.95	2.73	165	200	7.60	34.03	2.20	26.59	146	0.39
156	8.10	34.04	2.38	152	250	7.38	34.10	1.60	26.68	137	0.46
167	8.09	34.02 5	2.13	153	300	7.04	34.15	1.17	26.77	129	0.52
193	7.64	34.02 0	2.26	147	400	6.26	34.20	0.80	26.92	115	0.65
233	7.48	34.07 5	1.78	140							
307	6.98	34.15 5	1.11	127							
382	6.32	34.19 0	0.83	116							
452	6.08	34.24 5	0.53	110							

HORIZON; April 11, 1960; 0615 GCT; 35°28'N, 121°37.5'W; sounding, 517 fm; wind, 340°, force 5; weather, clear; sea, high; wire angle, 28°.

73.55

2	13.36	33.41 0	5.88	286	0	(13.36)	(33.41)	(5.88)	(25.11)	(286)	(0.00)
11	13.36	33.40 0	5.89	287	10	13.36	33.40	5.89	25.10	287	0.03
32	13.34	33.40 0	5.90	286	20	13.35	33.40	5.89	25.10	287	0.06
41	13.30	33.40 0	5.91	286	30	13.34	33.40	5.90	25.11	286	0.09
54	12.26	33.41 5	5.31	265	50	12.86	33.40	5.68	25.20	277	0.14
67	11.19	33.45 5	4.58	243	75	10.49	33.51	4.21	25.72	228	0.21
88	9.34	33.67 5	3.60	197	100	8.98	33.78	3.29	26.18	184	0.26
105	8.91	33.81 5	3.19	180	125	8.66	33.91	2.75	26.34	170	0.30
122	8.68	33.89 5	2.78	171	150	8.36	33.96	2.60	26.43	161	0.34
146	8.44	33.94 5	2.66	164	200	7.54	34.04	2.09	26.61	144	0.42
171	7.94	34.00 0	2.42	152	250	7.40	34.11	1.46	26.68	137	0.49
203	7.52	34.03 5	2.07	144	300	7.01	34.13	1.24	26.75	131	0.56
228	7.58	34.09 5	1.58	140	400	6.29	34.21	0.67	26.91	115	0.69
326	6.80	34.14 5	1.10	126	500	5.86	34.26	0.43	27.01	106	0.80
414	6.20	34.22 5	0.59	113							
495	5.88	34.26 0	0.44	106							
567	5.48	34.31 0	0.33	98							

SIO

CCOFI
6004

OBSERVED				COMPUTED	INTERPOLATED				COMPUTED		
Z	T	S	O ₂	δ _T	Z	T	S	O ₂	σ _t	δ _T	ΔD
m	°C	‰	ml/L	cl/ton	m	°C	‰	ml/L	g/L	cl/ton	dyn m

7360

HORIZON; April 11, 1960; 0226 GCT; 35°12.5'N, 121°55'W; sounding, 1128 fm; wind, 300°, force 5; weather, partly cloudy; sea, high; wire angle, 32°.

2	13.80	33.38 0	5.85	297	0	(13.80)	(33.38)	(5.85)	(25.00)	(297)	(0.00)
10	13.80	33.37 5	5.91	297	10	13.80	33.38	5.91	25.00	297	0.03
31	13.43	33.38 5	5.96	289	20	13.80	33.38	5.91	25.00	297	0.06
40	13.05	33.40 5	5.93	281	30	13.44	33.38	5.96	25.08	289	0.09
52	12.72	33.41 0	5.72	273	50	13.05	33.40	5.93	25.17	281	0.15
65	11.80	33.47 0	5.07	253	75	11.09	33.50	4.42	25.60	239	0.21
85	10.50	33.56 0	3.79	224	100	9.87	33.64	3.41	25.93	208	0.27
102	9.75	33.66 0	3.33	204	125	9.21	33.77	2.94	26.14	188	0.32
119	9.37	33.73 5	3.06	193	150	8.77	33.90	2.59	26.31	172	0.36
144	8.84	33.88 0	2.62	174	200	8.12	34.00	2.23	26.50	154	0.44
169	8.52	33.95 0	2.45	164	250	7.25	34.05	1.79	26.66	139	0.52
203	8.05	34.01 0	2.18	153	300	6.88	34.09	1.40	26.75	131	0.59
228	7.57	34.04 0	1.96	144	400	6.24	34.20	0.68	26.91	115	0.72
270	7.07	34.06 0	1.67	136	500	5.51	34.21	0.46	27.02	105	0.83
327	6.71	34.12 5	1.14	126							
413	6.17	34.20 5	0.62	114							
493	5.56	34.20 5	0.48	106							
565	5.22	34.27 5	0.31	98							

7370

HORIZON; April 10, 1960; 2049 GCT; 34°58.5'N, 122°44'W; sounding, 2150 fm; wind, 320°, force 4; weather, partly cloudy; sea, high; wire angle, 22°.

2	13.92	33.41 5	5.91	296	0	(13.92)	(33.42)	(5.91)	(25.01)	(296)	(0.00)
11	13.89	33.41 5	5.97	296	10	13.90	33.42	5.96	25.01	296	0.03
33	13.75	33.41 5	6.03	293	20	13.84	33.42	5.99	25.02	295	0.06
43	13.26	33.41 5	5.93	284	30	13.78	33.42	6.01	25.04	293	0.09
57	13.16	33.42 0	5.79	282	50	13.20	33.42	5.82	25.15	283	0.15
72	12.78	33.41 0	5.72	275	75	12.35	33.46	5.37	25.35	264	0.21
110	9.42	33.73 5	3.03	194	100	9.80	33.70	3.31	26.00	202	0.27
128	9.07	33.79 0	2.97	184	125	9.11	33.78	2.97	26.17	185	0.32
154	8.56	33.90 0	2.85	168	150	8.64	33.88	2.87	26.32	171	0.37
180	8.18	33.98 0	2.44	157	200	7.87	34.01	2.24	26.52	151	0.45
214	7.70	34.02 0	2.11	147	250	7.43	34.06	1.75	26.64	141	0.52
241	7.52	34.06 0	1.78	142	300	7.00	34.09	1.39	26.72	133	0.60
285	7.12	34.08 0	1.54	135	400	6.21	34.17	0.82	26.89	117	0.72
343	6.67	34.11 5	1.10	126	500	5.56	34.23	0.45	27.03	103	0.84
434	5.94	34.19 5	0.63	112	600	(4.99)	(34.39)	(0.29)	(27.13)	(94)	(0.94)
518	5.46	34.24 0	0.41	103							
591	5.04	34.27 5	0.29	96							

7380

HORIZON; April 10, 1960; 1533 GCT; 34°34.5'N, 123°19'W; sounding, 2240 fm; wind, 320°, force 4; weather, cloudy; sea, high; wire angle, 27°.

1	14.18	33.20 5	5.95	317	0	(14.18)	(33.20)	(5.95)	(24.78)	(317)	(0.00)
10	14.16	33.20 0	6.00	317	10	14.16	33.20	6.00	24.78	317	0.03
28	14.16	33.20 0	5.96	317	20	14.16	33.20	5.98	24.78	317	0.06
36	13.96	33.19 5	6.01	313	30	14.13	33.20	5.97	24.80	316	0.09
49	13.40	33.22 0	6.11	301	50	13.37	33.22	6.11	24.97	300	0.16
62	12.56	33.30 5	6.14	279	75	12.16	33.37	5.64	25.31	267	0.23
81	12.00	33.38 0	5.44	263	100	10.90	33.42	4.81	25.59	241	0.29
96	11.19	33.38 0	5.00	249	125	9.63	33.68	3.33	26.01	201	0.35
111	10.00	33.56 0	3.86	216	150	9.00	33.80	3.09	26.20	183	0.40
128	9.56	33.69 5	3.24	199	200	8.40	33.98	2.31	26.44	160	0.48
150	9.00	33.79 5	3.09	183	250	7.64	34.02	2.21	26.58	147	0.56
178	8.65	33.92 5	2.56	168	300	6.98	34.05	1.84	26.70	136	0.64
201	8.38	33.98 5	2.30	160	400	6.00	34.10	1.10	26.87	119	0.77
241	7.79	34.02 0	2.25	149	500	5.41	34.21	0.52	27.03	104	0.88
287	7.12	34.03 5	1.95	138							
359	6.37	34.07 5	1.35	125							
434	5.70	34.12 0	0.90	115							
515	5.37	34.23 0	0.45	102							

OBSERVED				COMPUTED	INTERPOLATED				COMPUTED		
Z	T	S	O ₂	δ _T	Z	T	S	O ₂	σ _t	δ _T	ΔD
m	°C	‰	ml/L	cl/ton	m	°C	‰	ml/L	g/L	cl/ton	dyn m

SIO
CCOFI
6004

HORIZON; April 10, 1960; 1013 GCT; 34°17'N, 124°02'W; sounding, 2360 fm; wind, 320°, force 4; weather, cloudy; sea, high; wire angle, 20°.

7390

2	14.14	33.26	5.90	312	0	(14.14)	(33.26)	(5.90)	(24.84)	(312)	(0.00)
11	14.13a)	33.21	5.99	315	10	14.13	33.21	5.98	24.81	315	0.03
34	13.02	33.23	6.19	293	20	13.30	33.22	6.16	24.97	299	0.06
43	13.11	33.39	6.18	283	30	13.08	33.23	6.17	25.02	295	0.09
57	12.38	33.37	6.06	271	50	12.88	33.39	6.15	25.19	279	0.15
72	11.96	33.37	5.72	263	75	11.30	33.34	5.27	25.46	253	0.22
94	10.34	33.35	4.73	237	100	9.50	33.60	3.92	25.97	205	0.27
112	9.55	33.77	3.63	194	125	9.40	33.81	3.39	26.14	188	0.32
131	9.28	33.82	3.27	185	150	8.83	33.91	2.96	26.31	172	0.37
158	8.70	33.95	2.91	167	200	8.19	34.08	2.29	26.55	150	0.45
185	8.36	34.03	2.54	156	250	7.59	34.08	1.69	26.64	141	0.52
222	7.94	34.12	2.06	143	300	7.12	34.12	1.37	26.73	132	0.60
249	7.60	34.08 5	1.70	141	400	6.21	34.17	0.78	26.90	117	0.72
295	7.16	34.11 0	1.42	133	500	5.38	34.22	0.50	27.04	103	0.84
359	6.62	34.16 0	0.98	123	600	4.86	34.29	0.30	27.15	92	0.94
449	5.71	34.19 0	0.60	109							
534	5.18	34.24 5	0.43	99							
608	4.82	34.29 5	0.28	92							

HORIZON; April 9, 1960; 0013 GCT; 34°53'N, 121°09.5'W; sounding, 294 fm; wind, 320°, force 6; weather, partly cloudy; sea, rough; wire angle, 38°.

7751

1	13.74	33.44	5.91	291	0	(13.74)	(33.44)	(5.91)	(25.06)	(291)	(0.00)
9	13.74	33.44	5.98	291	10	13.74	33.44	5.98	25.06	291	0.03
25	12.35	33.51	5.77	260	20	13.20	33.47	5.89	25.19	279	0.06
32	12.04	33.50	5.64	255	30	12.13	33.50	5.67	25.43	256	0.08
40	11.50	33.54	5.01	242	50	10.91	33.58	4.42	25.71	229	0.13
47	11.02	33.57	4.52	232	75	9.83	33.82	3.13	26.08	194	0.19
54	10.74	33.60	4.26	225	100	9.22	33.90	2.54	26.24	179	0.23
63	10.04	33.78	3.37	200	125	8.86	33.98	2.05	26.36	167	0.28
71	9.88	33.82	3.18	195	150	8.72	34.01	1.91	26.41	163	0.32
80	9.80	33.82	3.08	193	200	8.43	34.08	1.63	26.51	153	0.40
95	9.36	33.86	2.70	184	250	8.13	34.12	1.44	26.59	146	0.47
112	8.96	33.99	2.13	168	300	7.72	34.15	1.25	26.68	138	0.55
134	8.80	33.97 5b)	1.98	166							
168	8.62	34.04 5	1.80	159							
202	8.42	34.08 5	1.62	153							
284	7.88	34.15 0	1.30	140							
374	6.74	34.15 0b)	0.98	125							

HORIZON; April 9, 1960; 0254 GCT; 34°48.5'N, 121°16'W; sounding, 240 fm; wind, 320°, force 6; weather, clear; sea, rough; wire angle, 31°.

7755

1	13.18	33.62	5.95	267	0	(13.18)	(33.62)	(5.95)	(25.31)	(267)	(0.00)
9	13.17	33.62	5.91	267	10	13.17	33.62	5.91	25.31	267	0.03
26	12.96	33.62	5.78	263	20	13.07	33.62	5.86	25.33	265	0.05
43	11.54	33.57	4.91	241	30	12.68	33.61	5.62	25.40	258	0.08
64	10.56	33.64	4.08	219	50	11.22	33.57	4.68	25.65	235	0.13
85	9.70	33.75	3.32	197	75	10.12	33.71	3.70	25.94	207	0.18
106	8.89	33.85 5	2.84	177	100	9.04	33.83	2.95	26.22	181	0.23
141	8.74	34.00 0	2.08	164	125	8.78	33.93	2.51	26.34	170	0.28
175	8.42	34.10 5	1.55	152	150	8.65	34.04	1.88	26.45	159	0.32
218	8.32	34.13 5	1.42	148	200	8.37	34.13	1.47	26.56	149	0.40
264	8.13	34.15 5	1.30	143	250	8.19	34.15	1.36	26.61	144	0.47
364	7.64	34.19 5	1.01	134	300	7.96	34.17	1.20	26.66	140	0.54

a) Alternate value, 13.86°C, not used in interpolation.

b) Salinity bottle numbers were not recorded on the data sheet. Since standard handling and titrating procedures were used, these salinity values are assumed to be in correct order.

SIO

CCOFI
6004

OBSERVED				COMPUTED	INTERPOLATED				COMPUTED		
Z	T	S	O ₂	δ _T	Z	T	S	O ₂	σ _t	δ _T	ΔD
m	°C	‰	ml/L	cl/ton	m	°C	‰	ml/L	g/L	cl/ton	dyn m

77.60

HORIZON; April 9, 1960; 0538 GCT; 34°45'N, 121°31.5'W; sounding, 525 fm; wind, 320°, force 5; weather, clear; sea, rough; wire angle, 26°.

0	13.73	33.55	5.95	283	0	13.73	33.55	5.95	25.15	283	0.00
9	13.68	33.57	5.95	281	10	13.67	33.57	5.94	25.17	280	0.03
32	11.86	33.57	5.30	247	20	13.52	33.57	5.92	25.20	277	0.06
40	11.70	33.68	5.33	235	30	11.93	33.57	5.31	25.51	248	0.08
54	11.36	33.69	4.86	229	50	11.50	33.69	5.07	25.69	231	0.13
67	10.79	33.69	4.38	219	75	10.39	33.70	4.02	25.90	211	0.19
88	9.86	33.75	3.37	200	100	9.61	33.81	3.14	26.11	191	0.24
105	9.52	33.84	3.07	187	125	8.97	33.93	2.80	26.31	172	0.28
121	9.02	33.92	2.83	174	150	8.71	33.97	2.68	26.38	165	0.32
144	8.78	33.96	2.72	167	200	7.94	34.08	2.14	26.59	146	0.40
169	8.40	34.01	2.57	158	250	7.44	34.08	1.52	26.66	139	0.48
202	7.91	34.08	2.10	145	300	6.99	34.14	1.10	26.77	129	0.55
226	7.61	34.05 5	1.85	144	400	6.39	34.21	0.67	26.91	115	0.67
268	7.30	34.10 5	1.35	136	500	5.90	34.28	0.37	27.02	105	0.79
323	6.79	34.15 5	0.96	125							
411	6.34	34.22 5	0.62	114							
492	5.94	34.28 0	0.38	105							
564	5.62	34.31 5	0.27	99							

77.65

HORIZON; April 9, 1960; 0856 GCT; 34°36'N, 121°52'W; sounding, 2080 fm; wind, 310°, force 4; weather, partly cloudy; sea, rough; wire angle, 31°.

1	14.40	33.39	5.90	308	0	(14.40)	(33.39)	(5.90)	(24.88)	(308)	(0.00)
9	14.40	33.40	5.90	307	10	14.39	33.40	5.90	24.89	307	0.03
30	13.51	33.46	5.99	285	20	14.32	33.41	5.91	24.91	305	0.06
39	13.31	33.44	5.86	283	30	13.51	33.46	5.99	25.12	285	0.09
51	13.22	33.43	5.84	282	50	13.23	33.43	5.85	25.15	282	0.15
64	12.68	33.45	5.66	270	75	11.56	33.49	4.86	25.52	247	0.21
83	10.96	33.51	4.46	235	100	10.30	33.65	4.09	25.87	214	0.27
100	10.30	33.65	4.09	214	125	9.55	33.74	3.55	26.06	196	0.32
116	9.84	33.64	3.86	207	150	9.21	33.91	2.88	26.25	178	0.37
139	9.31	33.86	3.10	183	200	8.34	34.00	2.42	26.46	158	0.46
163	9.07	33.95	2.67	173	250	7.61	34.06	1.87	26.62	143	0.53
193	8.51	33.99	2.47	161	300	7.23	34.09	1.53	26.69	136	0.60
217	7.96	34.02 5	2.24	151	400	6.29	34.13	1.99	26.85	121	0.74
258	7.53	34.06 5	1.78	142	500	5.88	34.24	0.53	26.99	108	0.86
312	7.14	34.10 0	1.44	134							
397	6.30	34.12 5	1.01	121							
478	6.00	34.22 0	0.58	111							
550	5.61	34.27 5	0.42	102							

77.75

HORIZON; April 9, 1960; 2039 GCT; 34°08.5'N, 122°39'W; sounding, 2000+ fm; wind, 320°, force 6; weather, partly cloudy; sea, very rough; wire angle, 30°.

2	14.66	33.40	5.77	313	0	(14.66)	(33.40)	(5.77)	(24.83)	(313)	(0.00)
9	14.66	33.40	5.78	313	10	14.66	33.40	5.78	24.83	313	0.03
30	13.88	33.39	5.86	298	20	14.66	33.40	5.78	24.83	313	0.06
39	13.85	33.40	5.83	296	30	13.88	33.39	5.86	24.98	298	0.09
52	13.52	33.42	5.79	288	50	13.59	33.42	5.80	25.07	290	0.15
65	13.30	33.46	5.60	281	75	12.80	33.45	5.31	25.26	272	0.22
85	11.94	33.44	5.00	258	100	11.32	33.50	4.75	25.57	243	0.29
102	11.27	33.50	4.73	241	125	9.83	33.64	3.83	25.94	207	0.34
118	10.29	33.55	4.14	221	150	9.12	33.80	3.38	26.18	184	0.40
141	9.29	33.76	3.43	190	200	8.23	34.02	2.70	26.49	155	0.48
166	8.81	33.89	3.36	173	250	7.48	34.00	2.37	26.58	147	0.56
198	8.24	34.02	2.73	155	300	7.02	34.08	1.75	26.71	134	0.63
222	8.00	33.98 0	2.66	151	400	6.36	34.17	0.76	26.88	118	0.76
262	7.29	34.01 5	2.28	142	500	5.50	34.20	0.50	27.00	106	0.88
316	6.90	34.10 0	1.28	131							
403	6.33	34.17 5	0.74	117							
484	5.58	34.19 0	0.53	108							
551	5.32	34.23 5	0.39	101							

OBSERVED				COMPUTED	INTERPOLATED				COMPUTED		
Z	T	S	O ₂	δ _T	Z	T	S	O ₂	σ _t	δ _T	ΔD
m	°C	‰	ml/L	cl/ton	m	°C	‰	ml/L	g/L	cl/ton	dyn m

S10
CCOFL
6004

HORIZON; April 9, 1960; 2325 GCT; 34°01.5'N, 122°56'W; sounding, 2250 fm; wind, 330°, force 6; weather, cloudy; sea, high; wire angle, 36°.

7780

2	14.80	33.33 5	5.83	320	0	(14.80)	(33.34)	(5.83)	(24.76)	(320)	(0.00)
10	14.78	33.33 0	5.84	320	10	14.78	33.33	5.84	24.76	320	0.03
29	14.15	33.31 5	5.87	308	20	14.74	33.33	5.84	24.77	319	0.06
37	14.08	33.32 5	5.87	307	30	14.14	33.32	5.87	24.88	308	0.10
50	13.95	33.33 0	5.84	303	50	13.95	33.33	5.84	24.93	303	0.16
61	13.82	33.33 0	5.84	301	75	12.67	33.36	5.58	25.21	277	0.23
79	12.50	33.36 0	5.57	274	100	11.31	33.36	4.75	25.46	253	0.30
92	11.93	33.33 5	5.16	264	125	9.57	33.62	3.64	25.97	205	0.35
105	10.86	33.46 5	4.33	237	150	9.02	33.77	3.46	26.17	186	0.40
124	9.58	33.61 5	3.65	205	200	8.20	33.95	3.05	26.44	160	0.49
144	9.13	33.74 0	3.50	189	250	7.40	34.01	2.30	26.60	144	0.57
171	8.65	33.86 0	3.21	173	300	6.94	34.07	1.57	26.71	134	0.64
192	8.36	33.93 0	3.13	163	400	6.38	34.15	0.87	26.86	120	0.77
228	7.69	33.99 0	2.61	150	500	5.85	34.25	0.48	27.00	107	0.89
277	7.08	34.04 0	1.87	138							
356	6.62	34.13 5	1.00	124							
434	6.20	34.15 5	0.80	118							
504	5.82	34.25 5	0.43	106							

HORIZON; April 10, 1960; 0426 GCT; 33°41'N, 123°36'W; sounding, 2000+ fm; wind, 320°, force 5; weather, cloudy; sea, high; wire angle, 23°.

7790

1	15.02	33.31 0	5.78	327	0	(15.02)	(33.31)	(5.78)	(24.68)	(327)	(0.00)
10	15.02	33.31 0	5.76	327	10	15.02	33.31	5.76	24.68	327	0.03
32	14.21	33.31 0	5.90	310	20	15.02	33.31	5.76	24.68	327	0.07
41	13.95	33.31 5	5.92	304	30	14.49	33.31	5.85	24.80	316	0.10
55	13.18	33.29 5	5.86	291	50	13.40	33.30	5.87	25.02	295	0.16
69	13.02	33.33 0	5.84	286	75	12.76	33.34	5.77	25.18	279	0.23
91	11.68	33.34 5	5.21	261	100	11.08	33.39	4.79	25.53	246	0.30
109	10.42	33.45 5	4.40	230	125	9.67	33.58	3.85	25.92	209	0.36
127	9.58	33.60 5	3.77	206	150	8.95	33.74	3.52	26.16	187	0.40
153	8.90	33.75 5	3.50	184	200	8.28	33.96	2.59	26.43	161	0.49
180	8.60	33.90 0	2.85	169	250	7.54	34.03	2.04	26.60	145	0.57
215	8.02	33.99 0	2.49	154	300	6.92	34.07	1.60	26.72	133	0.64
242	7.65	34.02 5	2.13	147	400	6.10	34.14	0.89	26.88	118	0.77
287	7.06	34.06 0	1.70	136	500	5.40	34.20	0.47	27.02	105	0.89
346	6.44	34.07 5	1.31	127	600	(4.94)		(0.54)			
438	5.86	34.17 0	0.66	113							
521	5.27	34.20 5	0.45	103							
593	4.97	-	0.54	-							

HORIZON; April 8, 1960; 1631 GCT; 34°23'N, 120°41'W; sounding, 250 fm; wind, 320°, force 4; weather, over-cast; sea, rough; wire angle, 27°.

8053

0	12.78	33.60 5	6.06	261	0	12.78	33.60	6.06	25.38	261	0.00
9	12.78	33.60 0	6.11	261	10	12.78	33.60	6.11	25.37	261	0.03
27	12.74	33.60 0	6.07	260	20	12.76	33.60	6.10	25.38	261	0.05
44	11.91	33.54 0	5.42	250	30	12.73	33.60	6.06	25.39	260	0.08
66	10.26	33.58 0	3.98	219	50	11.27	33.54	4.90	25.61	238	0.13
88	9.62	33.67 5	3.53	201	75	10.00	33.61	3.77	25.89	212	0.18
109	9.08	33.84 0	2.93	181	100	9.23	33.79	3.16	26.16	187	0.24
145	8.76	34.01 5	2.02	163	125	8.93	33.94	2.44	26.32	171	0.28
181	8.50	34.08 5	1.70	154	150	8.72	34.03	1.96	26.43	161	0.32
226	8.23	34.13 5	1.49	146	200	8.40	34.11	1.62	26.54	151	0.40
271	7.86	34.17 0	1.24	139	250	8.03	34.15	1.35	26.63	142	0.48
372	7.16	34.21 5	0.88	125	300	7.66	34.18	1.13	26.70	135	0.55

S10

CCOFI
6004

OBSERVED				COMPUTED	INTERPOLATED				COMPUTED		
Z	T	S	O ₂	δ _T	Z	T	S	O ₂	σ _t	δ _T	ΔD
m	°C	‰	ml/L	cl/ton	m	°C	‰	ml/L	g/L	cl/ton	dyn m

80.55

HORIZON; April 8, 1960; 1347 GCT; 34°11.5'N, 120°45.5'W; sounding, 385 fm; wind, 330°, force 4; weather, overcast; sea, rough; wire angle, 33°.

1	13.10	33.57	5.85	269	0	(13.10)	(33.57)	(5.85)	(25.29)	(269)	(0.00)
9	13.09	33.58	5.83	268	10	13.08	33.58	5.83	25.30	268	0.03
26	12.74	33.62	5.83	259	20	13.05	33.59	5.83	25.31	267	0.05
34	12.47	33.64	5.77	252	30	12.63	33.63	5.82	25.43	256	0.08
46	11.88	33.70	5.49	237	50	11.75	33.70	5.40	25.65	235	0.13
59	11.56	33.70	5.17	232	75	10.73	33.73	4.25	25.85	216	0.18
79	10.70	33.73	4.20	215	100	9.52	33.96	3.05	26.24	179	0.24
94	9.70	33.96	3.26	181	125	9.21	33.92	2.51	26.25	178	0.28
110	9.29	33.93	2.65	177	150	8.91	33.96	2.12	26.34	169	0.32
126	9.20	33.91	2.50	178	200	8.43	34.09	1.65	26.52	153	0.41
149	8.92	33.96	2.13	169	250	7.87	34.16	1.23	26.66	139	0.48
178	8.66	34.07	1.83	158	300	7.31	34.19	0.94	26.76	129	0.55
202	8.42	34.09 0	1.64	152	400	6.48	34.24	0.63	26.91	115	0.68
243	7.96	34.15 0	1.27	141	500	5.93	34.28	0.44	27.02	105	0.79
290	7.40	34.18 5	1.00	131							
363	6.74	34.22 0	0.72	120							
441	6.18	34.25 5	0.53	110							
522	5.86	34.29 0	0.42	104							

80.60

HORIZON; April 8, 1960; 1043 GCT; 34°04'N, 121°08'W; sounding, 800 fm; wind, 310°, force 3; weather, partly cloudy; sea, rough; wire angle, 12°.

0	14.16	33.51	5.92	294	0	14.16	33.51	5.92	25.03	294	0.00
10	14.13	33.52	5.97	293	10	14.13	33.52	5.97	25.04	293	0.03
33	12.64	33.60	5.74	258	20	13.01	33.57	5.80	25.31	267	0.06
43	12.31	33.72	5.56	244	30	12.72	33.59	5.75	25.38	260	0.08
57	11.14	33.62	4.80	230	50	12.00	33.70	5.44	25.60	240	0.13
72	10.06	33.55	3.52	218	75	10.06	33.57	3.47	25.84	216	0.19
95	9.76	33.81	3.22	193	100	9.64	33.83	3.10	26.12	190	0.24
115	9.34	33.86	2.92	183	125	9.13	33.90	2.84	26.26	177	0.29
135	8.92	33.95	2.66	170	150	8.75	33.99	2.53	26.39	165	0.33
164	8.56	34.02	2.44	160	200	7.85	34.05	2.35	26.58	147	0.41
193	7.98	34.04	2.39	150	250	7.08	34.05	1.96	26.68	137	0.48
232	7.38	34.09	2.03	138	300	6.71	34.07	1.50	26.75	131	0.55
260	6.94	34.03 5	1.88	136	400	5.80	34.14	0.72	26.93	114	0.68
308	6.64	34.07 5	1.42	129	500	5.60	34.23	0.45	27.02	105	0.79
371	5.94	34.12 5	0.83	117	600	5.24	34.31	0.31	27.12	95	0.90
469	5.66	34.20 5	0.53	108							
557	5.47	34.28 5	0.33	100							
629	5.07	34.33 0	0.30	92							

80.70

HORIZON; April 8, 1960; 0511 GCT; 33°49'N, 121°51'W; sounding, 1950 fm; wind, 280°, force 3; weather, cloudy; sea, very rough; wire angle, 26°.

0	14.96	33.36 5	5.83	321	0	14.96	33.36	5.83	24.74	321	0.00
9	14.72	33.35 5	5.85	317	10	14.60	33.36	5.86	24.81	315	0.03
27	13.88	33.35 0	5.88	301	20	14.03	33.35	5.87	24.92	304	0.06
35	13.58	33.36 5	5.88	294	30	13.78	33.35	5.88	24.98	298	0.09
44	13.36	33.38 0	5.89	288	50	13.15	33.40	5.87	25.14	283	0.15
57	13.00	33.40 5	5.82	280	75	12.88	33.41	5.68	25.22	276	0.22
70	12.94	33.41 0	5.73	278	100	12.00	33.45	5.20	25.40	258	0.29
85	12.66	33.44 0	5.65	271	125	9.65	33.60	3.93	25.93	208	0.35
105	11.40	33.45 0	4.80	247	150	9.00	33.78	3.37	26.18	185	0.40
122	9.76	33.57 0	3.98	212	200	8.32	33.93	3.00	26.41	163	0.49
146	9.08	33.75 5	3.47	187	250	7.56	34.00	2.46	26.58	147	0.56
170	8.70	33.86 5	3.08	173	300	6.98	34.06	1.58	26.70	135	0.64
195	8.40	33.92 0	3.06	165	400	6.04	34.13	0.82	26.89	118	0.77
229	7.86	33.98 0	2.75	153	500	(5.41)	(34.19)	(0.50)	(27.01)	(106)	(0.88)
280	7.16	34.04 5	1.84	138							
345	6.60	34.12 0	1.05	125							
413	5.90	34.13 5	0.77	116							
489	5.46	34.19 0	0.50	107							

OBSERVED				COMPUTED	INTERPOLATED				COMPUTED		
Z	T	S	O ₂	δ _T	Z	T	S	O ₂	σ _t	δ _T	ΔD
m	°C	‰	ml/L	cl/ton	m	°C	‰	ml/L	g/L	cl/ton	dyn m

SIO
CCOFI
6004

HORIZON; April 8, 1960; 0002 GCT; 33°29.5'N, 122°30.5'W; sounding, 2122 fm; wind, 270°, force 2; weather, cloudy; sea, rough; wire angle, 02°.

8080

1	15.30	33.28 0	5.67	334	0	(15.30)	(33.28)	(5.67)	(24.61)	(334)	(0.00)
11	14.69	33.38 0	5.76	314	10	14.72	33.38	5.75	24.81	315	0.03
31	14.06	33.39 5	5.86	301	20	14.38	33.40	5.80	24.89	307	0.06
40	13.77	33.38 5	5.79	296	30	14.08	33.40	5.85	24.96	301	0.09
50	13.24	33.37 5	5.58	286	50	13.24	33.38	5.58	25.11	286	0.15
65	12.87	33.42 0	5.46	276	75	12.37	33.42	5.21	25.31	267	0.22
80	12.00	33.42 0	4.98	260	100	10.93	33.47	4.29	25.62	238	0.29
99	11.00	33.46 5	4.33	240	125	9.56	33.65	3.55	25.99	203	0.34
124	9.59	33.64 5	3.56	203	150	9.08	33.74	3.30	26.14	188	0.39
144	9.18	33.72 5	3.36	191	200	8.25	33.96	2.65	26.44	160	0.48
172	8.68	33.87 5	2.94	172	250	7.63	34.05	1.94	26.60	145	0.56
202	8.22	33.96 5	2.62	159	300	7.24	34.12	1.24	26.71	134	0.63
231	7.89	34.01 0	2.27	151	400	6.46	34.20	0.64	26.89	117	0.76
270	7.42	34.08 0	1.55	139	500	5.96	34.29	0.33	27.02	105	0.88
330	7.05	34.14 5	1.05	130							
402	6.44	34.20 5	0.63	117							
475	6.10	34.27 5	0.37	108							
554	5.66	34.32 5	0.26	99							

HORIZON; April 7, 1960; 1824 GCT; 33°07.5'N, 123°17.5'W; sounding, 2280 fm; wind, 290°, force 2; weather, cloudy; sea, rough; wire angle, 04°.

8090

0	15.20	33.22	5.71	337	0	15.20	33.22	5.71	24.58	337	0.00
10	14.52	33.22	5.78	323	10	14.52	33.22	5.78	24.73	323	0.03
30	14.08	33.31	5.84	307	20	14.27	33.26	5.82	24.81	315	0.06
39	13.52	33.27	5.94	299	30	14.08	33.31	5.84	24.89	307	0.10
54	13.11	33.31	5.81	288	50	13.22	33.30	5.87	25.05	292	0.16
69	12.88	33.39	5.69	279	75	12.83	33.40	5.66	25.20	277	0.23
94	11.49	33.42	5.05	251	100	11.10	33.44	4.84	25.57	243	0.29
113	10.17	33.51	4.29	222	125	9.70	33.60	4.00	25.93	208	0.35
133	9.42	33.67	3.82	199	150	8.90	33.78	3.53	26.20	183	0.40
153	8.83	33.80	3.48	180	200	8.28	34.05	2.78	26.51	153	0.48
182	8.43	34.06	2.84	155	250	7.59	34.03	2.04	26.60	145	0.56
217	8.06	34.03	2.42	152	300	6.90	34.05	1.68	26.70	135	0.63
246	7.64	34.03 0	2.08	146	400	6.10	34.12	0.92	26.87	119	0.77
295	6.94	34.04 5	1.75	135	500	5.40	34.19	0.51	27.02	105	0.88
349	6.52	34.09 5	1.22	126	600	(5.01)	(34.28)	(0.32)	(27.12)	(95)	(0.99)
432	5.84	34.13 0	0.77	115							
516	5.30	34.20 5	0.46	104							
599	5.02	34.28 0	0.32	95							

HORIZON; April 6, 1960; 1056 GCT; 34°15'N, 119°57.5'W; sounding, 304 fm; wind, direction missing, force 1; weather, cloudy; sea, slight; wire angle, 00°.

8247

0	13.31	33.68	6.44	265	0	13.31	33.68	6.44	25.34	265	0.00
10	11.81	33.71	5.61	235	10	11.81	33.71	5.61	25.65	235	0.03
30	10.30	33.79	3.57	204	20	10.92	33.75	4.40	25.84	217	0.05
39	9.92	33.80	3.20	197	30	10.30	33.79	3.57	25.98	204	0.07
49	9.62	33.86	2.85	188	50	9.60	33.87	2.82	26.16	187	0.11
64	9.36	33.91	2.53	180	75	9.28	33.92	2.47	26.24	178	0.15
79	9.24	33.93	2.43	177	100	9.00	33.99	2.21	26.34	169	0.20
98	9.02	33.98	2.23	170	125	8.80	34.03	2.02	26.41	163	0.24
123	8.82	34.03	2.03	163	150	8.66	34.07	1.87	26.46	158	0.28
142	8.71	34.05	1.93	160	200	8.22	34.16	1.48	26.60	145	0.36
170	8.54	34.11	1.67	153	250	7.83	34.15	1.11	26.66	139	0.43
200	8.22	34.16	1.48	145	300	7.48	34.18	0.90	26.72	133	0.50
228	7.98	34.14 5	1.20	142	400	6.77	34.23	0.42	26.87	119	0.63
267	7.72	34.16 0	1.02	137	500	6.52	34.24	0.26	26.91	115	0.75
325	7.32	34.19 0	0.80	130							
398	6.78	34.23 0	0.43	120							
472	6.57	34.24 0	0.28	116							
551	6.46	34.25 0	0.25	114							

S10

CCOFI
6004

OBSERVED				COMPUTED	INTERPOLATED				COMPUTED		
Z	T	S	O ₂	δ _T	Z	T	S	O ₂	σ _t	δ _T	ΔD
m	°C	‰	ml/L	cl/ton	m	°C	‰	ml/L	g/L	cl/ton	dyn m

83.40

HORIZON; April 6, 1960; 0617 GCT; 34°13'N, 119°22'W; sounding, 12 fm; wind, direction missing, force 1; weather, cloudy; sea, slight; wire angle, 00°.

0	14.52	33.59 0	6.41	296	0	14.52	33.59	6.41	25.01	296	0.00
5	14.36	33.58 5	6.50	293	10	13.18	33.58	6.41	25.28	270	0.03
10	13.18	33.58 5	6.41	270							
15	12.22	33.61 0	5.25	250							

83.43

HORIZON; April 6, 1960; 0755 GCT; 34°08'N, 119°35.5'W; sounding, 135 fm; wind, direction missing, force 1; weather, overcast; sea, slight; wire angle, 04°.

0	13.50	33.64 0	5.99	272	0	13.50	33.64	5.99	25.26	272	0.00
10	13.49	33.63 5	6.05	272	10	13.49	33.64	6.05	25.26	272	0.03
13	13.48	33.64 0	6.18	271	20	12.30	33.63	5.41	25.49	250	0.05
16	12.78	33.62 5	5.72	259	30	11.68	33.66	4.96	25.63	237	0.08
30	11.68	33.65 5	4.96	237	50	10.71	33.71	4.04	25.84	217	0.12
49	10.74	33.70 5	4.07	217	75	9.47	33.85	2.80	26.16	186	0.17
74	9.48	33.85 0	2.82	186	100	9.06	33.95	2.28	26.31	172	0.22
98	9.08	33.94 5	2.30	173	125	8.85	34.01	2.04	26.39	165	0.26
123	8.87	34.00 5	2.06	165	150	8.62	34.07	1.77	26.47	157	0.30
163	8.49	34.10 0	1.63	153	200	8.19	34.12	1.33	26.58	147	0.38
201	8.18	34.12 0	1.32	147							

83.51

HORIZON; April 6, 1960; 1625 GCT; 33°52'N, 120°07.5'W; sounding, 80 fm; wind, direction missing, force 1; weather, partly cloudy; sea, slight; wire angle, 03°.

0	14.63	33.55 0	6.26	301	0	14.63	33.55	6.26	24.96	301	0.00
10	13.88	33.54 5	6.51	286	10	13.88	33.54	6.51	25.11	286	0.03
30	12.30	33.57 0	4.94	255	20	13.50	33.54	6.25	25.19	279	0.06
49	11.14	33.62 5	4.00	230	30	12.30	33.57	4.94	25.44	255	0.08
74	10.32	33.69 0	3.35	211	50	11.12	33.63	3.97	25.71	229	0.13
98	9.54	33.84 0	2.77	188	75	10.31	33.69	3.34	25.90	211	0.19
123	9.34	33.88 5	2.57	182	100	9.53	33.85	2.75	26.15	187	0.24
					125	(9.52)	(33.89)	(2.57)	(26.22)	(181)	(0.28)

83.55

HORIZON; April 6, 1960; 1842 GCT; 33°43.5'N, 120°27'W; sounding, 680 fm; wind, variable, force 1; weather, partly cloudy; sea, slight; wire angle, 00°.

0	13.26	33.69	6.16	264	0	13.26	33.69	6.16	25.35	264	0.00
10	12.86	33.69	6.35	256	10	12.86	33.69	6.35	25.43	256	0.03
30	11.88	33.69	5.44	238	20	12.30	33.69	5.84	25.53	246	0.05
39	11.84	33.69	5.34	237	30	11.88	33.69	5.44	25.61	238	0.08
49	11.60	33.71	4.96	232	50	11.55	33.72	4.90	25.69	231	0.12
64	10.74	33.77	4.05	213	75	10.08	33.93	3.44	26.12	190	0.17
79	9.81	33.94	3.29	185	100	9.12	33.88	2.99	26.24	178	0.22
98	9.15	33.88	3.02	178	125	8.75	34.02	2.53	26.41	163	0.26
122	8.80	34.00	2.58	164	150	8.47	34.08	2.33	26.50	154	0.30
142	8.56	34.07	2.40	156	200	7.99	34.15	1.75	26.64	141	0.38
171	8.26	34.10	1.98	149	250	7.50	34.12	1.40	26.68	137	0.45
201	7.98	34.15	1.74	141	300	7.18	34.16	1.11	26.75	130	0.52
230	7.76	34.11 5	1.53	141	400	6.56	34.25	0.65	26.91	115	0.64
269	7.32	34.12 5	1.31	135	500	6.00	34.28	0.50	27.01	106	0.76
328	7.05	34.20 5	0.93	125							
402	6.54	34.25 0	0.64	115							
476	6.16	34.27 0	0.55	109							
555	5.65	34.30 5	0.39	100							

OBSERVED				COMPUTED	INTERPOLATED				COMPUTED		
Z	T	S	O ₂	δ _T	Z	T	S	O ₂	σ _t	δ _T	ΔD
m	°C	‰	ml/L	cl/ton	m	°C	‰	ml/L	g/L	cl/ton	dyn m

HORIZON; April 6, 1960; 2120 GCT; 33°33.5'N, 120°45.5'W; sounding, 850 fm; wind, 230°, force 1; weather, partly cloudy; sea, slight; wire angle, 03°.

83.60

0	14.16	33.48	5.83	297	0	14.16	33.48	5.83	25.00	297	0.00
10	13.79	33.40	5.68	295	10	13.79	33.40	5.68	25.02	295	0.03
30	13.34	33.49	5.67	280	20	13.58	33.43	5.68	25.08	289	0.06
39	13.12	33.73u	5.56	-	30	13.34	33.49	5.67	25.18	280	0.09
49	12.84	33.54	5.56	267	50	12.84	33.54	5.56	25.32	267	0.14
64	12.26	33.48	5.07	260	75	11.26	33.51	4.53	25.59	241	0.21
79	11.09	-	-	-	100	9.99	33.67	3.87	25.94	207	0.26
97	10.09	33.65	3.95	211	125	9.32	33.80	3.77	26.15	187	0.31
121	9.43	33.78	3.47	191	150	8.90	34.01	2.74	26.38	165	0.36
140	9.02	33.89	2.99	176	200	8.02	34.04	2.34	26.54	151	0.44
168	8.64	34.16	2.61	150	250	7.59	34.05	1.85	26.62	143	0.51
197	8.05	34.04	2.37	151	300	7.18	34.10	1.36	26.71	134	0.58
225	7.74	34.03 5	1.98	147	400	6.50	34.21	0.66	26.89	117	0.71
264	7.50	34.05 5	1.78	142	500	5.90	34.29	0.36	27.02	105	0.83
321	7.00	34.12 5	1.13	130							
393	6.55	34.20 0	0.71	119							
466	6.10	34.26 5	0.42	109							
545	5.65	34.31 5	0.29	99							

HORIZON; April 7, 1960; 0247 GCT; 33°08.5'N, 121°27.5'W; sounding, 2070 fm; wind, 250°, force 2; weather, partly cloudy; sea, slight; wire angle, 01°.

83.70

0	15.14	33.29 0	5.71	330	0	15.14	33.29	5.71	24.65	330	0.00
10	15.04	33.27 5	5.80	329	10	15.04	33.28	5.80	24.66	329	0.03
30	13.98	33.32 5	5.93	304	20	14.19	33.31	5.90	24.87	309	0.06
39	13.75	33.33 5	5.85	299	30	13.98	33.32	5.93	24.92	304	0.10
49	13.68	33.34 5	5.83	297	50	13.67	33.35	5.82	25.00	297	0.16
64	13.56	33.37 0	5.74	293	75	13.40	33.39	5.77	25.09	288	0.23
79	13.22	33.40 0	5.79	284	100	12.63	33.44	5.63	25.28	270	0.30
97	12.72	33.44 0	5.67	272	125	11.62	33.48	4.94	25.50	249	0.37
122	11.82	33.46 5	5.16	254	150	10.34	33.58	3.95	25.80	220	0.42
142	10.70	33.54 5	4.13	229	200	8.69	33.86	3.11	26.30	173	0.52
170	9.14	33.73 0	3.41	190	250	8.04	33.99	2.56	26.49	155	0.61
201	8.68	33.86 0	3.10	173	300	7.36	34.05	1.82	26.64	141	0.68
229	8.32	33.94 5	2.82	162	400	6.42	34.16	0.85	26.86	120	0.82
268	7.78	34.01 0	2.27	149	500	6.00	34.27	0.37	27.00	107	0.94
327	7.00	34.07 5	1.51	134							
400	6.42	34.16 0	0.85	120							
474	6.13	34.25 0	0.44	110							
553	5.76	34.30 0	0.31	102							

HORIZON; April 7, 1960; 0755 GCT; 32°52'N, 122°06'W; sounding, 2162 fm; wind, 240°, force 1; weather, drizzle; sea, slight; wire angle, 04°.

83.80

0	14.77	33.25 5	5.71	325	0	14.77	33.26	5.71	24.70	325	0.00
10	14.48	33.21 5	5.75	322	10	14.48	33.22	5.75	24.74	322	0.03
30	13.81	33.20 0	5.83	310	20	14.14	33.20	5.79	24.80	316	0.06
39	13.28	33.23 0	5.80	298	30	13.81	33.20	5.83	24.86	310	0.10
49	13.00	33.30 0	5.70	287	50	12.98	33.30	5.69	25.10	287	0.16
64	12.49	33.32 5	5.36	276	75	12.01	33.33	5.12	25.31	267	0.22
79	11.81	33.33 0	-	263	100	10.69	33.39	4.60	25.60	239	0.29
98	10.78	33.38 0	4.67	242	125	9.62	33.62	3.59	25.96	206	0.34
124	9.64	33.61 5	3.60	206	150	9.14	33.78	3.05	26.16	186	0.40
143	9.26	33.74 5	3.15	191	200	8.36	33.96	2.58	26.42	162	0.48
171	8.82	33.86 5	2.78	175	250	7.61	34.01	2.26	26.58	147	0.56
200	8.36	33.95 5	2.58	162	300	6.96	34.04	1.87	26.69	136	0.64
229	7.94	34.00 0	2.38	152	400	6.20	34.14	0.83	26.87	119	0.77
267	7.34	34.02 0	2.15	142	500	5.59	34.23	0.46	27.02	105	0.88
325	6.72	34.06 5	1.55	131							
397	6.22	34.14 5	0.85	119							
470	5.80	34.21 5	0.53	108							
549	5.21	34.24 0	0.42	100							

S10

CCOFI
6004

OBSERVED				COMPUTED	INTERPOLATED				COMPUTED		
Z	T	S	O ₂	δ _T	Z	T	S	O ₂	σ _t	δ _T	ΔD
m	°C	‰	ml/L	cl/ton	m	°C	‰	ml/L	g/L	cl/ton	dyn m

83.90

HORIZON; April 7, 1960; 1317 GCT; 32°34.5'N, 122°46'W; sounding, 2000 fm; wind, 290°, force 2; weather, fog; sea, moderate; wire angle, 10°.

0	15.05	33.25	5.65	332	0	15.05	33.25	5.65	24.63	332	0.00
10	15.04	33.26	5.68	331	10	15.04	33.26	5.68	24.64	331	0.03
30	14.36	33.17	5.77	323	20	14.82	33.23	5.72	24.67	328	0.07
38	13.76	33.15	5.88	313	30	14.36	33.17	5.77	24.73	323	0.10
48	13.41	33.18	5.91	304	50	13.38	33.19	5.90	24.94	302	0.16
63	13.22	33.25	5.83	295	75	12.95	33.36	5.61	25.15	282	0.23
78	12.80	33.39	5.55	277	100	11.97	33.46	5.09	25.43	256	0.30
97	12.14	33.44	5.21	261	125	10.50	33.62	4.39	25.81	220	0.36
121	10.74	33.60	4.49	225	150	9.49	33.75	3.54	26.08	194	0.42
140	9.78	33.68	3.77	204	200	8.33	34.02	2.57	26.47	157	0.50
168	8.99	33.86	3.25	178	250	7.73	34.02	2.15	26.57	147	0.58
197	8.38	34.02	2.62	157	300	7.14	34.08	1.58	26.69	136	0.66
225	8.08	33.99 5	2.42	155	400	6.42	34.19	0.78	26.88	118	0.79
264	7.53	34.03 5	2.02	144	500	5.55	34.22	0.47	27.05	105	0.90
321	6.95	34.10 5	1.34	131							
392	6.48	34.18 5	0.80	119							
466	5.90	34.21 5	0.56	110							
544	5.08	34.22 5	0.43	100							

87.35

HORIZON; April 6, 1960; 0050 GCT; 33°50'N, 118°37'W; sounding, 280 fm; wind, 270°, force 3; weather, fog; sea, slight; wire angle, 25°.

0	15.29	33.54 0	5.88	315	0	15.29	33.54	5.88	24.81	315	0.00
9	14.93	33.53 5	5.91	308	10	14.90	33.54	5.91	24.89	307	0.03
22	14.21	33.53 0	5.98	294	20	14.36	33.53	5.97	25.00	297	0.06
27	13.44	33.53 0	5.63	279	30	13.00	33.54	5.41	25.28	270	0.09
44	11.52	33.57 0	4.36	240	50	10.90	33.63	3.78	25.74	226	0.14
66	10.30	33.68 0	3.29	212	75	10.00	33.72	3.14	25.97	204	0.19
89	9.63	33.79 0	2.97	193	100	9.42	33.85	2.73	26.18	185	0.24
110	9.24	33.91 0	2.47	178	125	8.98	34.00	2.04	26.36	167	0.29
145	8.78	34.05 0	1.83	160	150	8.76	34.08	1.79	26.46	158	0.33
179	8.64	34.13 5	1.65	152	200	8.42	34.15	1.53	26.57	148	0.41
222	8.18	34.17 0	1.37	143	250	7.98	34.19	1.20	26.66	139	0.48
266	7.86	34.20 0	1.12	136	300	7.57	34.22	0.96	26.74	131	0.55
365	7.00	34.25 0	0.74	121							

87.40

HORIZON; April 5, 1960; 2111 GCT; 33°40'N, 118°58.5'W; sounding, 360 fm; wind, direction missing, force 1; weather, fog; sea, slight; wire angle, 00°.

0	15.75	33.60	5.83	321	0	15.75	33.60	5.83	24.75	321	0.00
10	14.84	33.60	6.03	302	10	14.84	33.60	6.03	24.95	302	0.03
30	12.24	33.58	4.87	253	20	13.10	33.59	5.40	25.30	268	0.06
39	12.06	33.57	4.68	250	30	12.24	33.58	4.87	25.46	253	0.09
49	11.74	33.60	4.43	242	50	11.69	33.61	4.38	25.59	241	0.14
64	11.03	33.66	3.72	226	75	10.42	33.73	3.34	25.91	210	0.19
79	10.19	33.76	3.27	204	100	9.46	33.88	1.78	26.19	184	0.24
98	9.50	33.87	1.87	185	125	9.10	34.04	1.59	26.38	166	0.28
123	9.12	34.04	1.60	166	150	8.81	34.09	1.22	26.46	158	0.33
143	8.92	34.07	1.41	161	200	8.25	34.13	1.57	26.58	147	0.40
172	8.54	34.13	0.97	151	250	7.80	34.18	1.14	26.69	136	0.48
201	8.24	34.13	1.57	147	300	7.40	34.22	0.93	26.76	129	0.54
230	7.96	34.18 5	1.15	139	400	6.57	34.28	0.44	26.94	113	0.67
269	7.66	34.19 0	1.13	134	500	5.99	34.31	0.37	27.04	103	0.78
327	7.18	34.23 5	0.75	124							
401	6.57	34.28 0	0.43	113							
474	6.12	34.30 0	0.43	106							
552	5.72	34.34 5	0.27	98							

OBSERVED				COMPUTED	INTERPOLATED				COMPUTED		
Z	T	S	O ₂	δ _T	Z	T	S	O ₂	σ _t	δ _T	ΔD
m	°C	‰	ml/L	cl/ton	m	°C	‰	ml/L	g/L	cl/ton	dyn m

S10
CCOFI
6004

HORIZON; April 5, 1960; 1826 GCT; 33°30'N, 119°19'W; sounding, 880 fm; wind, direction missing, force 1; weather, fog; sea, slight; wire angle, 00°.

87.45

0	15.36	33.62	6.05	311	0	15.36	33.62	6.05	24.85	311	0.00
10	15.11	33.83	6.11	290	10	15.11	33.83	6.11	25.07	290	0.03
30	11.90	33.68	4.90	239	20	13.83	33.77	5.85	25.29	269	0.06
39	10.83	33.71	3.98	219	30	11.90	33.68	4.90	25.61	239	0.08
54	10.50	33.75	3.73	210	50	10.59	33.74	3.78	25.89	212	0.13
69	9.80	33.82	3.10	194	75	9.72	33.83	3.03	26.11	191	0.18
94	9.47	33.86	2.83	185	100	9.31	33.88	2.70	26.22	181	0.23
113	9.10	33.96	2.42	172	125	8.98	34.01	2.29	26.38	166	0.27
133	8.92	34.03	2.22	164	150	8.78	34.05	2.01	26.44	160	0.31
153	8.76	34.05	2.00	160	200	8.37	34.16	1.53	26.58	147	0.39
182	8.57	34.11	1.74	153	250	7.91	34.20	1.13	26.68	137	0.46
217	8.17	34.20	1.33	140	300	7.43	34.23	0.84	26.78	128	0.53
246	7.97	34.19 5	1.16	138	400	6.76	34.27	0.55	26.90	116	0.66
296	7.45	34.22 0	0.87	129	500	6.12	34.31	0.36	27.02	105	0.77
350	7.13	34.23 5	0.70	123	600	5.49	34.36	0.28	27.13	94	0.88
433	6.50	34.28 5	0.48	112							
517	6.02	34.32 5	0.34	104							
601	5.48	34.36 0	0.28	94							

HORIZON; April 5, 1960; 1131 GCT; 33°02'N, 120°03.5'W; sounding, 610 fm; wind, 310°, force 2; weather, fog; sea, moderate; wire angle, 09°.

87.55

1	13.84	33.57	6.03	284	0	(13.84)	(33.57)	(6.03)	(25.13)	(284)	(0.00)
11	13.77	33.58	6.11	282	10	13.78	33.58	6.10	25.16	282	0.03
31	12.88	33.58	5.92	264	20	13.20	33.58	5.97	25.28	270	0.06
59	12.58	33.57	5.61	260	30	12.89	33.58	5.93	25.34	264	0.08
69	11.86	33.60	5.26	244	50	12.80	33.58	5.82	25.36	263	0.14
84	10.92	33.62	4.42	226	75	11.55	33.61	4.96	25.61	238	0.20
97	10.20	33.75	3.74	205	100	10.08	33.76	3.65	25.98	203	0.25
112	9.72	33.78	3.38	195	125	9.40	33.85	3.12	26.17	185	0.30
136	9.13	33.88	2.98	178	150	8.93	33.91	2.88	26.29	174	0.35
155	8.88	33.91	2.84	173	200	8.32	34.07	2.26	26.53	152	0.43
183	8.52	34.03	2.51	158	250	7.92	34.09	1.74	26.60	145	0.51
212	8.20	34.09	2.12	149	300	7.54	34.15	1.26	26.70	135	0.58
239	8.00	34.07 5	1.86	147	400	6.72	34.24	0.69	26.89	117	0.71
287	7.66	34.14 0	1.41	138	500	6.20	34.28	0.49	26.99	108	0.83
340	7.20	34.19 5	0.96	128	600	(5.47)	(34.34)		(27.12)	(95)	(0.93)
421	6.58	34.25 0	0.63	115							
504	6.16	34.28 0	0.48	108							
587	5.56	34.33 0	0.35	97							

HORIZON; April 5, 1960; 0826 GCT; 32°53'N, 120°21.5'W; sounding, 500 fm; wind, direction missing, force 1; weather, fog; sea, rough; wire angle, 10°.

87.60

0	14.11	33.58	6.00	288	0	14.11	33.58	6.00	25.09	288	0.00
10	14.10	33.58	5.96	288	10	14.10	33.58	5.96	25.09	288	0.03
30	13.91	33.58	5.91	284	20	14.00	33.58	5.93	25.11	286	0.06
38	13.74	33.57	5.86	282	30	13.91	33.58	5.91	25.13	284	0.09
53	13.18	33.55	5.48	272	50	13.23	33.55	5.50	25.25	273	0.14
68	12.68	33.55	5.11	263	75	12.36	33.57	4.90	25.43	256	0.21
92	11.61	33.60	4.42	240	100	11.30	33.64	4.17	25.68	232	0.27
110	10.94	33.68	3.89	222	125	10.26	33.75	3.43	25.95	206	0.33
129	10.07	33.77	3.30	202	150	9.37	33.85	3.37	26.19	184	0.37
148	9.42	33.84	3.39	186	200	8.57	34.03	2.68	26.45	159	0.46
176	8.84	33.96	3.11	169	250	8.06	34.08	1.85	26.57	148	0.54
209	8.45	34.05	2.46	156	300	7.58	34.14	1.43	26.68	137	0.61
237	8.16	34.06 5	1.97	151	400	6.67	34.23	0.74	26.87	119	0.75
285	7.74	34.11 5	1.59	140	500	6.06	34.28	0.48	27.00	107	0.86
337	7.18	34.17 0	1.08	129	600	(5.42)	(34.35)		(27.13)	(94)	(0.97)
418	6.52	34.24 0	0.63	115							
500	6.06	34.28 5	0.48	107							
583	5.52	34.34 0	0.34	96							

SIO

CCOFI
6004

OBSERVED				COMPUTED	INTERPOLATED				COMPUTED		
Z	T	S	O ₂	δ _T	Z	T	S	O ₂	σ _t	δ _T	ΔD
m	°C	‰	ml/L	cl/ton	m	°C	‰	ml/L	g/L	cl/ton	dyn m

87.70

HORIZON; April 5, 1960; 0108 GCT; 32°35'N, 121°03'W; sounding, 2000+ fm; wind, 320°, force 3; weather, fog; sea, rough; wire angle, 17°.

0	14.52	33.53	5.91	300	0	14.52	33.53	5.91	24.97	300	0.00
10	14.52	33.51	5.88	301	10	14.52	33.51	5.88	24.96	301	0.03
29	14.16	33.53	5.88	293	20	14.52	33.51	5.88	24.96	301	0.06
38	14.07	33.53	5.85	291	30	14.15	33.53	5.87	25.04	293	0.09
52	14.01	33.68	5.84	279	50	14.02	33.65	5.84	25.17	281	0.15
67	13.16	33.48	5.66	277	75	12.57	33.49	5.34	25.34	265	0.22
90	11.52	33.51	4.68	245	100	11.08	33.58	4.14	25.67	233	0.28
107	10.78	33.62	4.00	224	125	10.08	33.73	3.83	25.96	205	0.34
125	10.08	33.73	3.83	205	150	9.28	33.85	3.30	26.19	184	0.38
142	9.42	33.80	3.47	189	200	8.52	34.04	2.50	26.47	157	0.47
168	9.03	33.94	2.99	173	250	8.00	34.08	1.78	26.58	147	0.55
199	8.52	34.04	2.51	158	300	7.60	34.14	1.34	26.68	137	0.62
225	8.18	34.03 0	2.16	153	400	6.76	34.23	0.72	26.86	120	0.75
269	7.86	34.11 0	1.55	143	500	6.08	34.29	0.40	27.00	107	0.87
318	7.43	34.15 5	1.22	134							
394	6.81	34.21 5	0.75	121							
473	6.23	34.27 0	0.45	110							
555	5.78	34.32 0	0.33	100							

87.80

HORIZON; April 4, 1960; 2015 GCT; 32°18.5'N, 121°41'W; sounding, 2000+ fm; wind, 360°, force 2; weather, fog; sea, rough; wire angle, 10°.

0	15.22	33.32	5.79	330	0	15.22	33.32	5.79	24.65	330	0.00
9	14.86	33.31	5.78	323	10	14.85	33.31	5.78	24.72	323	0.03
29	14.73	33.30	5.77	322	20	14.78	33.30	5.77	24.74	322	0.06
38	14.58	33.33	5.80	316	30	14.72	33.30	5.77	24.75	321	0.10
48	14.36	33.29	5.82	314	50	14.00	33.26	5.85	24.87	309	0.16
63	13.46	33.24	5.89	300	75	12.75	33.21	5.80	25.08	289	0.24
77	12.84	33.24	5.80	289	100	11.94	33.46	5.14	25.44	256	0.30
95	12.28	33.45	5.30	263	125	10.30	33.55	4.36	25.79	222	0.36
119	10.55	33.51	4.57	229	150	9.30	33.73	3.65	26.10	192	0.42
138	9.68	33.65	3.87	205	200	8.28	33.99	3.00	26.46	158	0.51
165	8.84	33.84	3.49	177	250	7.63	34.00	2.45	26.57	148	0.58
194	8.35	33.99	3.08	159	300	7.06	34.05	1.80	26.68	137	0.66
222	8.00	33.97 5	2.78	155	400	6.17	34.13	0.88	26.87	119	0.79
260	7.50	34.01 0	2.33	146	500	5.57	34.20	0.46	27.01	106	0.91
317	6.88	34.07 0	1.57	133							
389	6.25	34.12 5	0.95	121							
461	5.70	34.16 5	0.60	111							
540	5.46	34.26 5	0.35	101							

87.90

HORIZON; April 4, 1960; 1428 GCT; 31°58'N, 122°28'W; sounding, 2000+ fm; wind, 360°, force 2; weather, fog; sea, rough; wire angle, 01°.

0	15.20	33.38	5.66	325	0	15.20	33.38	5.66	24.70	325	0.00
10	15.20	33.39	5.76	324	10	15.20	33.39	5.76	24.71	324	0.03
30	15.08	33.38	5.73	323	20	15.14	33.39	5.74	24.72	323	0.06
60	14.99	33.33	5.73	324	30	15.08	33.38	5.73	24.72	323	0.10
70	14.03	33.14	5.87	319	50	15.02	33.35	5.73	24.71	324	0.16
85	13.46	33.10	5.92	311	75	13.70	33.11	5.91	24.81	315	0.24
99	13.96	33.44	5.58	296	100	13.95	33.44	5.57	25.02	295	0.32
114	13.36	33.46	5.41	282	125	12.44	33.51	5.10	25.37	262	0.39
138	11.29	33.58	4.70	236	150	10.58	33.62	4.41	25.80	220	0.45
158	10.08	33.66	4.23	210	200	8.94	33.93	3.60	26.31	172	0.55
186	9.22	33.84	3.85	183	250	8.06	33.98	2.73	26.49	155	0.64
215	8.64	33.96	3.38	165	300	7.24	34.03	2.00	26.64	141	0.71
244	8.16	33.97 5	2.82	157	400	6.22	34.14	0.88	26.87	119	0.85
292	7.38	34.02 0	2.14	143	500	5.73	34.22	0.53	27.00	107	0.97
345	6.64	34.09 0	1.36	128	600	(5.26)	(34.31)	(0.35)	(27.12)	(95)	(1.07)
427	6.07	34.16 5	0.75	116							
511	5.68	34.22 5	0.51	107							
594	5.28	34.30 0	0.35	96							

OBSERVED				COMPUTED	INTERPOLATED				COMPUTED		
Z	T	S	O ₂	δ _T	Z	T	S	O ₂	σ _t	δ _T	ΔD
m	°C	‰	ml/L	cl/ton	m	°C	‰	ml/L	g/L	cl/ton	dyn m

S10
CCOF1
6004

HORIZON; April 2, 1960; 0411 GCT; 33°29'N, 117°47'W; sounding, 220 fm; wind, 320°, force 2; weather, clear; sea, moderate; wire angle, 13°.

9028

0	15.98	33.66	5.84	321	0	15.98	33.66	5.84	24.75	321	0.00
10	14.86	33.62	6.06	301	10	14.86	33.62	6.06	24.96	301	0.03
29	11.84	33.63	4.40	242	20	13.32	33.63	5.16	25.29	269	0.06
48	10.78	33.69	3.74	219	30	11.83	33.63	4.39	25.57	242	0.09
72	9.75	33.84	3.01	191	50	10.69	33.71	3.67	25.84	217	0.13
95	9.44	33.90	2.71	182	75	9.68	33.85	2.93	26.14	189	0.18
120	9.16	33.96 0	2.36	173	100	9.40	33.91	2.63	26.22	181	0.23
159	8.94	34.08 0	1.87	161	125	9.12	33.98	2.27	26.32	171	0.27
197	8.64	34.16 0	1.51	151	150	8.99	34.06	1.97	26.41	163	0.32
245	8.05	34.21 0	1.16	138	200	8.60	34.17	1.47	26.56	149	0.40
293	7.60	34.24 0	0.90	130	250	8.02	34.21	1.14	26.68	137	0.47
396	6.62	34.26 5	0.52	115	300	7.53	34.24	0.87	26.77	129	0.54
					400	(6.58)	(34.27)	(0.52)	(26.92)	(114)	(0.66)

HORIZON; April 2, 1960; 0709 GCT; 33°20.5'N, 118°03'W; sounding, 420 fm; wind, direction missing, force 1; weather, clear; sea, rough; wire angle, 07°.

9032

0	15.70	33.78u	5.94	-	0	15.70	(33.68)	5.94	(24.83)	(313)	(0.00)
10	15.70	33.68	5.96	313	10	15.70	33.68	5.96	24.83	313	0.03
30	11.91	33.68	5.24	239	20	15.00	33.68	5.81	24.97	299	0.06
39	10.96	33.72	3.70	220	30	11.91	33.68	5.24	25.60	239	0.09
54	9.95	33.86	3.12	193	50	10.20	33.82	3.18	26.02	200	0.13
69	9.65	33.87	2.92	187	75	9.58	33.88	2.85	26.18	185	0.18
94	9.34	33.95	2.62	177	100	9.27	33.97	2.57	26.29	174	0.23
112	9.12	34.00	2.40	169	125	8.98	34.04	2.26	26.40	164	0.27
131	8.92	34.05	2.22	163	150	8.70	34.13	1.87	26.50	154	0.31
150	8.70	34.13	1.87	154	200	8.23	34.21	1.41	26.64	141	0.38
179	8.43	34.20	1.51	145	250	7.90	34.18	1.29	26.67	138	0.46
213	8.12	34.22	1.35	138	300	7.55	34.23	0.91	26.76	129	0.52
252	7.89	34.18 0	1.28	138	400	6.66	34.26	0.54	26.91	115	0.65
290	7.66	34.23 0	0.97	131	500	6.04	34.31	0.40	27.03	104	0.76
343	7.05	34.24 0	0.75	123	600	(5.59)	(34.35)	(0.26)	(27.11)	(96)	(0.87)
425	6.48	34.27 5	0.48	112							
508	5.98	34.31 5	0.38	103							
592	5.62	34.34 5	0.26	97							

HORIZON; April 2, 1960; 1049 GCT; 33°10.5'N, 118°23.5'W; sounding, 640 fm; wind, direction missing, force 1; weather, cloudy; sea, rough; wire angle, 05°.

9037

1	14.92	33.65	5.78	299	0	(14.92)	(33.65)	(5.78)	(24.97)	(299)	(0.00)
11	14.92	33.60	5.84	303	10	14.92	33.60	5.83	24.94	303	0.03
31	14.60	33.61	5.92	296	20	14.90	33.60	5.85	24.94	303	0.06
40	13.10	33.57	5.27	270	30	14.68	33.61	5.90	24.98	298	0.09
55	11.23	33.63	4.01	231	50	12.20	33.61	4.59	25.49	250	0.15
70	10.82	33.66	3.80	222	75	10.68	33.69	3.72	25.82	218	0.20
95	10.02	33.80	3.45	199	100	9.85	33.82	3.38	26.07	195	0.26
113	9.52	33.86	3.16	186	125	9.36	33.88	2.96	26.20	182	0.30
132	9.28	33.89	2.87	180	150	9.04	34.03	2.40	26.38	166	0.35
152	9.02	34.04	2.34	165	200	8.50	34.14	1.69	26.56	149	0.43
180	8.68	34.11	1.82	155	250	8.14	34.18	1.32	26.64	141	0.50
214	8.39	34.16	1.59	147	300	7.61	34.21	1.12	26.73	132	0.57
242	8.24	34.18 0	1.38	143	400	6.70	34.26	0.60	26.90	116	0.70
290	7.71	34.20 0	1.16	134	500	6.04	34.31	0.38	27.03	104	0.82
344	7.21	34.23 0	0.91	125	600	(5.57)	(34.36)	(0.29)	(27.12)	(95)	(0.92)
426	6.46	34.28 0	0.50	112							
509	5.99	34.31 5	0.37	103							
594	5.60	34.35 0	0.29	96							

SIO

CCOFI
6004

OBSERVED				COMPUTED	INTERPOLATED				COMPUTED		
Z	T	S	O ₂	δ _T	Z	T	S	O ₂	σ _t	δ _T	ΔD
m	°C	‰	ml/L	cl/ton	m	°C	‰	ml/L	g/L	cl/ton	dyn m

90.45

HORIZON; April 2, 1960; 1441, 1515 GCT; 32°55'N, 118°57'W; sounding, 1100 fm; wind, 020°, force 2; weather, partly cloudy; sea, rough; wire angle, 03°, 02°.

1	13.70	33.57	5.84	281	0	(13.70)	(33.57)	(5.84)	(25.17)	(281)	(0.00)
11	13.69	33.57	5.80	280	10	13.69	33.57	5.80	25.17	280	0.03
31	12.85	33.58	5.57	264	20	13.58	33.57	5.76	25.19	278	0.06
40	12.05	33.60	4.76	248	30	12.96	33.58	5.60	25.32	266	0.08
50	11.58	33.61	4.41	239	50	11.58	33.61	4.41	25.60	239	0.13
65	10.68	33.75	3.81	213	75	10.30	33.73	3.60	25.93	208	0.19
80	10.13	33.72	3.49	206	100	9.63	33.78	3.19	26.08	194	0.24
99	9.64	33.78	3.20	194	125	9.17	33.89	2.76	26.25	178	0.29
124	9.18	33.89	2.77	179	150	8.90	33.99	2.35	26.36	167	0.33
144	8.96	33.96	2.51	170	200	8.50	34.14	1.71	26.55	150	0.41
173	8.67	34.08	1.96	157	250	8.10	34.15	1.26	26.62	143	0.49
202	8.49	34.14	1.70	150	300	7.64	34.20	1.05	26.72	133	0.56
231	8.32	34.13 0	1.51	148	400	6.92	34.25	0.71	26.86	120	0.69
270	7.86	34.19 0	1.14	137	500	6.28	34.30	0.43	26.99	108	0.81
401	6.92	34.25 0	0.70	120							
473	6.46	34.29 0	0.49	111							
553	5.96	34.32 5	0.36	102							

90.50

HORIZON; April 2, 1960; 1825 GCT; 32°46.5'N, 119°18'W; sounding, 228 fm; wind, 030°, force 2; weather, cloudy; sea, rough; wire angle, 06°.

1	14.02	33.51 0	5.89	292	0	(14.02)	(33.51)	(5.89)	(25.05)	(292)	(0.00)
11	13.72	33.51 0	5.89	285	10	13.73	33.51	5.89	25.11	286	0.03
31	13.50	33.50 0	5.87	282	20	13.62	33.51	5.88	25.13	284	0.06
50	12.18	33.50 0	4.97	257	30	13.52	33.50	5.87	25.16	282	0.09
75	10.62	33.61 0	3.85	222	50	12.18	33.50	4.97	25.42	257	0.14
98	9.76	33.72 5	3.27	200	75	10.62	33.61	3.85	25.79	222	0.20
122	9.00	33.89 0	2.63	176	100	9.70	33.74	3.21	26.04	198	0.25
161	8.54	33.98 0	2.29	162	125	8.94	33.91	2.57	26.29	174	0.30
199	8.21	34.07 0	1.92	151	150	8.65	33.95	2.37	26.38	166	0.34
248	7.92	34.15 5	1.41	140	200	8.20	34.07	1.90	26.54	151	0.42
					250	(7.91)	(34.16)	(1.41)	(26.66)	(139)	(0.50)

90.55

HORIZON; April 2, 1960; 2135 GCT; 32°34.5'N, 119°37.5'W; sounding, 385 fm; wind, missing; weather, partly cloudy; sea, very rough; wire angle, 10°.

1	13.96	33.63	5.88	282	0	(13.96)	(33.63)	(5.88)	(25.16)	(282)	(0.00)
11	13.09	33.60	5.84	267	10	13.10	33.60	5.84	25.31	267	0.03
30	12.99	33.66	5.72	261	20	13.02	33.63	5.80	25.36	263	0.05
39	12.96	33.63	5.70	262	30	12.99	33.66	5.72	25.38	261	0.08
54	11.86	33.61	5.04	244	50	12.35	33.61	5.38	25.46	253	0.13
69	11.09	33.62	4.41	230	75	10.80	33.65	4.14	25.79	222	0.19
93	10.05	33.76	3.43	202	100	9.74	33.81	3.19	26.09	193	0.24
112	9.34	33.87	2.92	183	125	9.08	33.91	2.68	26.27	176	0.29
131	9.00	33.93	2.59	173	150	8.70	33.98	2.33	26.39	165	0.33
150	8.70	33.98	2.33	165	200	8.04	34.07	2.00	26.56	148	0.41
177	8.26	34.05	2.13	153	250	7.49	34.12	1.50	26.68	137	0.48
211	7.94	34.08	1.92	146	300	7.06	34.16	1.16	26.76	129	0.55
238	7.61	34.10 5	1.57	140	400	6.53	34.25	0.62	26.92	115	0.68
285	7.14	34.14 5	1.25	131	500	6.00	34.31	0.37	27.03	104	0.79
338	6.86	34.18 0	0.95	124	600	(5.50)	(34.35)		(27.13)	(94)	(0.90)
418	6.42	34.27 0	0.52	112							
500	6.00	34.31 0	0.37	104							
584	5.58	34.34 5	0.29	96							

OBSERVED				COMPUTED	INTERPOLATED				COMPUTED		
Z	T	S	O ₂	δ _T	Z	T	S	O ₂	σ _t	δ _T	ΔD
m	°C	‰	ml/L	cl/ton	m	°C	‰	ml/L	g/L	cl/ton	dyn m

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HORIZON; April 3, 1960; 0046 GCT; 32°23.5'N, 120°00'W; sounding, 1100 fm; wind, direction missing, force 1; weather, partly cloudy; sea, very rough; wire angle, 07°.

90.60

1	14.66	33.52	5.06	304	0	(14.66)	(33.52)	(5.06)	(24.92)	(304)	(0.00)
11	13.90	33.52	4.87	288	10	13.91	33.52	4.88	25.09	288	0.03
31	13.84	33.52	4.93	287	20	13.88	33.52	4.88	25.09	288	0.06
40	13.82	33.49	4.93	289	30	13.84	33.52	4.92	25.10	287	0.09
55	13.66	33.53	4.93	283	50	13.72	33.52	4.93	25.12	285	0.14
70	13.42	33.49	4.86	281	75	13.00	33.51	4.72	25.27	271	0.21
94	11.68	33.59	4.36	242	100	11.39	33.61	4.22	25.65	235	0.28
113	10.80	33.64	3.98	223	125	10.27	33.74	3.57	25.94	207	0.33
132	10.06	33.81	3.35	198	150	9.72	33.87	2.90	26.14	188	0.38
152	9.68	33.88	2.87	187	200	8.98	34.08	2.12	26.42	162	0.47
179	9.21	34.02	2.39	169	250	8.40	34.12	1.47	26.56	149	0.55
213	8.82	34.11	1.89	157	300	7.57	34.14	1.34	26.68	137	0.63
241	8.54	34.11 5	1.53	152	400	6.64	34.20	0.86	26.86	120	0.76
288	7.77	34.13 5	1.40	140	500	6.00	34.23	0.39	26.97	110	0.88
342	7.02	34.15 0	1.11	129	600	(5.45)	(34.35)	(0.31)	(27.12)	(95)	(0.99)
423	6.51	34.21 5	0.70	117							
506	5.96	34.23 0	0.37	110							
590	5.50	34.33 0	0.31	96							

HORIZON; April 3, 1960; 0635 GCT; 32°03'N, 120°40'W; sounding, 2000 fm; wind, 350°, force 3; weather, partly cloudy; sea, very rough; wire angle, 16°.

90.70

1	15.27	33.58	5.67	312	0	(15.27)	(33.58)	(5.67)	(24.84)	(312)	(0.00)
11	14.96	33.60	5.69	304	10	14.96	33.60	5.69	24.93	304	0.03
30	14.92	33.58	5.69	304	20	14.94	33.59	5.69	24.93	304	0.06
39	14.91	33.58	5.67	304	30	14.92	33.58	5.69	24.93	304	0.09
53	14.88	33.58	5.67	303	50	14.89	33.58	5.67	24.93	304	0.15
67	14.04	33.54	5.55	290	75	13.46	33.52	5.36	25.18	280	0.23
91	12.50	33.48	5.08	265	100	11.58	33.52	4.61	25.54	245	0.29
109	10.72	33.58	4.17	226	125	10.03	33.75	3.76	26.00	202	0.35
128	9.91	33.77	3.71	199	150	9.44	33.84	3.44	26.16	187	0.40
147	9.54	33.82	3.50	189	200	8.38	34.04	2.50	26.49	155	0.49
173	8.82	33.96	3.03	168	250	7.92	34.05	1.97	26.56	149	0.57
207	8.32	34.04	2.46	155	300	7.40	34.13	1.43	26.69	136	0.65
234	8.09	34.02 5	2.16	153	400	6.64	34.21	0.76	26.87	119	0.78
281	7.61	34.10 0	1.61	141	500	5.88	34.31	0.33	27.04	103	0.90
334	7.10	34.16 0	1.13	129							
414	6.56	34.22 0	0.68	117							
496	5.90	34.30 5	0.34	103							
579	5.48	34.35 5	0.25	94							

HORIZON; April 3, 1960; 1325 GCT; 31°41.5'N, 121°21.5'W; sounding, 2100 fm; wind, direction missing, force 1; weather, partly cloudy; sea, very rough; wire angle, 17°.

90.80

1	14.34	33.33	5.74	311	0	(14.34)	(33.33)	(5.74)	(24.85)	(311)	(0.00)
11	14.32	33.30	5.78	313	10	14.32	33.30	5.77	24.83	313	0.03
30	14.21	33.33	5.82	309	20	14.27	33.31	5.80	24.85	311	0.06
58	13.60	33.34	5.07u	296	30	14.21	33.33	5.82	24.87	309	0.09
67	13.50	33.34	5.73	294	50	14.00	33.33	5.80	24.92	304	0.15
82	13.07	33.39	5.69	282	75	13.30	33.36	5.70	25.09	288	0.23
94	12.36	33.43	5.39	266	100	12.20	33.44	5.23	25.37	262	0.30
109	11.92	33.46	5.00	255	125	10.58	33.58	4.29	25.78	223	0.36
131	10.00	33.63	4.03	211	150	9.24	33.86	3.66	26.21	182	0.41
148	9.28	33.85	3.73	183	200	8.43	33.93	3.22	26.40	164	0.50
174	8.92	33.87	3.18	176	250	7.80	34.02	2.27	26.56	149	0.58
200	8.43	33.93	3.22	164	300	7.22	34.07	1.74	26.67	138	0.65
226	8.10	33.97 5	2.76	157	400	6.47	34.16	0.93	26.85	121	0.79
270	7.54	34.05 0	1.89	143	500	5.84	34.23	0.53	26.99	108	0.91
321	7.02	34.08 0	1.62	134							
397	6.50	34.15 5	0.95	121							
476	5.91	34.19 5	0.63	111							
558	5.65	34.31 0	0.33	100							

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OBSERVED				COMPUTED	INTERPOLATED				COMPUTED		
Z	T	S	O ₂	δ _T	Z	T	S	O ₂	σ _t	δ _T	ΔD
m	°C	‰	ml/L	cl/ton	m	°C	‰	ml/L	g/L	cl/ton	dyn m

90.90

HORIZON; April 3, 1960; 1832 GCT; 31°21.5'N, 122°04'W; sounding, 2150 fm; wind, 340°, force 1; weather, partly cloudy; sea, rough; wire angle, 11°.

1	14.98	33.30	5.79	326	0	(14.98)	(33.30)	(5.79)	(24.69)	(326)	(0.00)
11	14.66	33.29	5.80	321	10	14.67	33.29	5.80	24.75	321	0.03
30	14.62	33.28	5.79	320	20	14.63	33.28	5.79	24.76	320	0.06
54	13.91	33.30	5.54	305	30	14.62	33.28	5.79	24.76	320	0.10
63	13.73	33.35	5.47	297	50	14.50	33.29	5.74	24.79	317	0.16
73	13.64	33.40	5.44	292	75	13.61	33.41	5.46	25.06	291	0.24
88	13.55	33.44	5.63	287	100	13.34	33.44	5.55	25.14	283	0.31
102	13.30	33.44	5.54	283	125	11.68	33.45	4.89	25.47	252	0.38
126	11.66	33.45	4.88	252	150	10.00	33.63	3.86	25.90	211	0.44
146	10.16	33.58	3.95	217	200	8.70	33.91	3.18	26.33	170	0.53
169	9.24	33.82	3.49	185	250	7.98	34.01	2.30	26.53	152	0.62
198	8.72	33.90	3.20	171	300	7.37	34.11	1.45	26.69	136	0.69
226	8.34	33.94 5	2.85	162	400	6.47	34.21	0.54	26.89	117	0.82
264	7.78	34.04 5	2.01	147	500	5.90	34.29	0.35	27.03	104	0.94
322	7.12	34.15 0	1.14	130							
394	6.51	34.20 5	0.59	118							
467	6.04	34.26 5	0.39	108							
546	5.70	34.32 0	0.29	99							

90.95

HORIZON; April 3, 1960; 2107 GCT; ^{a)} 31°11'N, 122°20.5'W; sounding, 2300 fm; wind, direction missing, force 1; weather, partly cloudy; sea, rough; wire angle, 15°.

419	6.22	34.15 5	0.79	118
422	6.21	34.17 0	0.75	117
425	6.22	34.17 5	0.72	117
449	6.22	34.21 5	0.51	113
453	6.19	34.22 0	0.50	113
455	6.22	34.22 5	0.48	113
479	6.04	34.23 0	0.51	111
481	6.02	34.23 0	0.51	111
483	6.00	34.23 5	0.51	109
508	5.86	34.25 5	0.45	107
511	5.85	34.26 0	0.40	106
514	5.75	34.24 5	0.40	105
539	5.74	34.28 5	0.33	103
541	5.70	34.28 0	0.35	103
543	5.74	34.29 0	0.32	102
568	5.62	34.31 0	0.30	99
572	5.55	34.32 5	0.32	98
575	5.50	34.31 0	0.27	98

90.100

HORIZON; April 4, 1960; 0126 GCT; 31°05'N, 122°40'W; sounding, 2100 fm; wind, 010°, force 2; weather, fog; sea, rough; wire angle, 09°.

0	15.98	33.40	5.71	340	0	15.98	33.40	5.71	24.55	340	0.00
10	14.94	33.40	5.73	318	10	14.94	33.40	5.73	24.77	318	0.03
30	14.82	33.40	5.75	316	20	14.88	33.40	5.74	24.78	317	0.06
38	14.78	33.41	5.74	314	30	14.82	33.40	5.75	24.80	316	0.10
53	14.03	33.40	5.86	300	50	14.28	33.40	5.82	24.92	305	0.16
68	13.43	33.46	5.66	284	75	13.28	33.46	5.60	25.16	281	0.23
93	12.50	33.44	5.39	268	100	12.04	33.42	5.24	25.38	261	0.30
111	11.38	33.42	4.94	249	125	10.76	33.47	4.57	25.65	235	0.36
131	10.51	33.50	4.41	229	150	9.75	33.63	4.11	25.95	206	0.42
151	9.72	33.64	4.09	205	200	8.74	33.90	3.09	26.32	171	0.52
180	9.11	33.80	3.52	185	250	7.99	34.00	2.30	26.51	153	0.60
214	8.50	33.96	2.85	163	300	7.27	34.03	1.95	26.64	141	0.67
241	8.14	34.00 0	2.38	155	400	6.33	34.13	0.98	26.85	121	0.81
290	7.38	34.02 5	2.05	143	500	5.66	34.23	0.46	27.01	106	0.93
343	6.82	34.08 0	1.41	131	600	(5.20)	(34.31)	(0.28)	(27.13)	(94)	(1.04)
425	6.12	34.15 5	0.76	117							
509	5.61	34.23 5	0.43	105							
592	5.22	34.30 0	0.28	96							

OBSERVED				COMPUTED	INTERPOLATED				COMPUTED		
Z	T	S	O ₂	δ _T	Z	T	S	O ₂	σ _t	δ _T	ΔD
m	°C	‰	ml/L	cl/ton	m	°C	‰	ml/L	g/L	cl/ton	dyn m

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HUGH M. SMITH; March 29, 1960; 2255 GCT; 32°54.5'N, 117°22'W; sounding, 290 fm; wind, 340°, force 3; weather, clear; sea, rough; wire angle, 15°.

93.28

0	15.60	33.57	5.86	320	0	15.60	33.57	5.86	24.76	320	0.00
10	15.31	33.57	5.92	313	10	15.31	33.57	5.92	24.83	313	0.03
29	13.50	33.56	6.03	278	20	14.42	33.57	6.01	25.02	295	0.06
48	11.80	33.58	4.49	245	30	13.45	33.56	6.00	25.20	277	0.09
72	10.50	33.68	3.74	215	50	11.63	33.59	4.38	25.58	241	0.14
96	9.87	33.74	3.33	201	75	10.42	33.69	3.67	25.88	213	0.20
121	9.40	33.86	2.95	184	100	9.77	33.76	3.24	26.05	197	0.25
160	8.91	34.03	2.25	164	125	9.34	33.89	2.84	26.22	181	0.30
198	8.58	34.11	1.83	153	150	9.04	34.00	2.42	26.34	169	0.34
247	8.26	34.22	1.37	140	200	8.56	34.12	1.77	26.52	152	0.42
295	7.80	34.23	1.09	133	250	8.23	34.22	1.34	26.65	140	0.50
398	6.97	34.23	1.03	122	300	7.76	34.23	1.07	26.72	133	0.57
					400	(6.96)	(34.23)	(1.03)	(26.84)	(122)	(0.70)

HUGH M. SMITH; March 30, 1960; 0051 GCT; 32°50'N, 117°31.5'W; sounding, 475 fm; wind, 340°, force 3; weather, clear; sea, moderate; wire angle, 10°.

93.30

0	15.80	33.58	5.73	323	0	15.80	33.58	5.73	24.73	323	0.00
10	15.22	33.58	5.87	311	10	15.22	33.58	5.87	24.85	311	0.03
30	13.34	33.54	5.91	276	20	13.99	33.55	5.89	25.09	288	0.06
39	12.70	33.55	5.04	263	30	13.34	33.54	5.91	25.22	276	0.09
54	11.62	33.60	4.23	240	50	11.89	33.58	4.38	25.52	247	0.14
69	10.80	33.66	3.84	222	75	10.50	33.68	3.68	25.86	215	0.20
93	9.72	33.79	3.14	195	100	9.54	33.83	3.00	26.14	189	0.25
113	9.36	33.89	2.87	181	125	9.31	33.94	2.67	26.26	177	0.30
133	9.30	33.99	2.52	173	150	9.01	34.05	2.20	26.40	164	0.34
153	8.97	34.06	2.14	163	200	8.96	34.19	1.57	26.52	152	0.42
183	9.14	34.20	1.61	155	250	8.59	34.23	1.32	26.60	145	0.50
217	8.77	34.19	1.56	150	300	8.30	34.25	1.20	26.66	139	0.57
247	8.60	34.22	1.34	145	400	7.18	34.26	0.83	26.84	122	0.70
298	8.32	34.25	1.21	139	500	6.44	34.33	0.48	26.99	108	0.82
352	7.69	34.25	1.06	130	600	5.79	34.34	0.34	27.08	99	0.93
436	6.90	34.29	0.68	117							
522	6.28	34.34	0.45	105							
608	5.72	34.34	0.33	98							

HUGH M. SMITH; March 30, 1960; 0657 GCT; 32°30'N, 118°18.5'W; sounding, 900 fm; wind, 340°, force 4; weather, clear; sea, rough; wire angle, 22°.

93.40

1	15.16	33.60	5.76	308	0	(15.16)	(33.60)	(5.76)	(24.88)	(308)	(0.00)
10	15.18	33.58	5.84	310	10	15.18	33.58	5.84	24.86	310	0.03
29	14.38	33.58	6.04	293	20	14.79	33.58	5.96	24.95	302	0.06
38	13.60	33.56	6.14	280	30	14.30	33.58	6.06	25.05	292	0.09
52	12.51	33.57	5.04	259	50	12.62	33.57	5.20	25.38	261	0.15
65	11.56	33.60	4.24	239	75	11.09	33.64	3.95	25.72	228	0.21
88	10.62	33.68	3.72	217	100	10.17	33.73	3.46	25.95	206	0.26
107	9.91	33.75	3.30	200	125	9.48	33.87	2.94	26.18	185	0.31
126	9.48	33.87	2.93	185	150	9.14	33.95	2.43	26.29	174	0.36
144	9.22	33.93	2.54	176	200	8.53	34.13	1.73	26.54	151	0.44
171	8.81	34.04	2.10	162	250	8.18	34.17	1.38	26.63	142	0.52
203	8.51	34.13	1.71	151	300	7.59	34.23	1.12	26.76	130	0.58
231	8.35	34.14	1.56	147	400	6.77	34.31	0.70	26.94	113	0.71
277	7.90	34.23	1.23	135	500	6.07	34.33	0.47	27.04	103	0.82
328	7.30	34.25	0.94	125							
407	6.71	34.31	0.69	113							
488	6.16	34.33	0.50	104							
570	5.66	34.34	0.38	97							

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OBSERVED				COMPUTED	INTERPOLATED				COMPUTED		
Z	T	S	O ₂	δ _T	Z	T	S	O ₂	σ _t	δ _T	ΔD
m	°C	‰	ml/L	cl/ton	m	°C	‰	ml/L	g/L	cl/ton	dyn m

93.50

HUGH M. SMITH; March 30, 1960; 1305 GCT; 32° 16.5'N, 118° 51'W; sounding, 750 fm; wind, 310°, force 5;
weather, partly cloudy; sea, very rough; wire angle, 22°.

2	14.80	33.58	5.67	302	0	(14.80)	(33.58)	(5.67)	(24.95)	(302)	(0.00)
11	14.81	33.57	5.60	303	10	14.81	33.57	5.60	24.94	303	0.03
34	13.62	33.51	5.76	284	20	14.79	33.57	5.61	24.94	303	0.06
43	13.50	33.54	5.59	279	30	14.00	33.53	5.72	25.07	290	0.09
57	12.99	33.53	5.12	270	50	13.28	33.54	5.35	25.23	275	0.15
71	12.34	33.58	4.83	255	75	11.90	33.59	4.62	25.53	246	0.21
94	10.44	33.63	3.84	218	100	10.25	33.66	3.66	25.88	213	0.27
113	9.62	33.77	3.24	194	125	9.30	33.89	3.04	26.22	181	0.32
132	9.18	33.91	2.92	177	150	8.93	33.94	2.58	26.32	171	0.36
160	8.82	33.96	2.44	168	200	8.57	34.09	1.72	26.50	154	0.45
188	8.66	34.07	1.91	158	250	8.14	34.13	1.39	26.60	145	0.52
225	8.38	34.11	1.57	151	300	7.66	34.20	1.07	26.71	134	0.60
253	8.10	34.13	-	145	400	6.83	34.27	0.60	26.88	118	0.73
300	7.66	34.20	1.07	134	500	6.23	34.31	0.39	27.01	106	0.84
362	7.06	34.25	0.72	122	600	5.73	34.37	0.32	27.11	96	0.95
461	6.44	34.29	0.44	111							
553	5.92	34.34	0.36	101							
628	5.60	34.39	0.30	93							

93.60

HUGH M. SMITH; March 30, 1960; 1859 GCT; 31° 53.5'N, 119° 12'W; sounding, 1200 fm; wind, 290°, force 4;
weather, clear; sea, rough; wire angle, 34°.

1	14.56	33.56	5.27	299	0	(14.56)	(33.56)	(5.27)	(24.98)	(299)	(0.00)
9	14.56	33.56	5.20	299	10	14.56	33.56	5.21	24.98	299	0.03
30	14.44	33.55	5.78	297	20	14.51	33.56	5.45	24.99	298	0.06
38	14.42	33.57	5.63	295	30	14.44	33.55	5.78	25.00	297	0.09
51	14.34	33.56	5.63	294	50	14.35	33.56	5.63	25.03	294	0.15
63	13.96	33.55	5.53	287	75	13.40	33.50	5.25	25.17	281	0.22
83	13.41	33.51	5.23	280	100	12.04	33.52	4.66	25.45	254	0.29
98	12.34	33.52	4.80	259	125	10.78	33.62	4.12	25.76	224	0.35
113	11.30	33.60	4.23	235	150	9.84	33.73	3.87	26.01	201	0.40
136	10.44	33.64	4.08	217	200	8.71	33.96	2.71	26.38	166	0.50
157	9.60	33.77	3.75	194	250	8.26	34.17	1.55	26.60	144	0.58
186	8.90	33.91	3.08	173	300	7.81	34.23	1.24	26.72	133	0.65
208	8.58	33.99	2.48	162	400	7.01	34.29	0.70	26.88	118	0.78
246	8.30	34.16	1.60	146	500	6.27	34.31	0.45	27.00	107	0.90
296	7.84	34.22	1.30	135							
377	7.12	34.29	0.78	120							
455	6.66	34.29	0.59	114							
522	5.99	34.33	0.38	102							

93.70

HUGH M. SMITH; March 31, 1960; 0304 GCT; 31° 34'N, 120° 12.5'W; sounding, 2000+ fm; wind, 290°, force 5;
weather, overcast; sea, very rough; wire angle, 10°.

1	15.18	-	-	-	0	(15.18)	(33.55)		(24.84)	(312)	(0.00)
11	15.18	33.73u	5.54	-	10	15.18	(33.55)		(24.84)	(312)	(0.03)
36	15.12	33.56	5.66	310	20	15.17	(33.55)	5.58	(24.84)	(312)	(0.06)
65	14.58	33.57	5.78	298	30	15.14	(33.56)	5.62	(24.85)	(311)	(0.09)
75	14.30	33.55	5.16	294	50	15.00	33.57	5.70	24.89	307	0.16
95	12.94	33.53	5.08	269	75	14.30	33.55	5.16	25.03	294	0.23
109	12.26	33.53	4.62	257	100	12.77	33.53	4.97	25.34	265	0.30
124	11.26	33.53	3.64	239	125	11.20	33.53	3.61	25.61	238	0.36
154	9.48	33.75	3.48	194	150	9.59	33.72	3.52	26.05	197	0.42
173	9.17	33.84	2.82	182	200	8.77	33.93	2.65	26.34	169	0.51
203	8.71	33.94	2.62	167	250	8.01	34.06	2.09	26.56	149	0.60
237	8.16	34.02	2.32	154	300	7.36	34.14	1.36	26.71	134	0.67
267	7.80	34.10	1.73	143	400	6.62	34.23	0.73	26.89	117	0.80
316	7.16	34.15	1.25	130	500	6.00	34.31	0.42	27.02	105	0.92
380	6.74	34.22	0.82	120	600	5.49	34.35	0.31	27.12	95	1.02
479	6.12	34.29	0.46	107							
569	5.65	34.34	0.35	98							
642	5.25	34.37	0.29	91							

OBSERVED				COMPUTED	INTERPOLATED				COMPUTED		
Z	T	S	O ₂	δ _T	Z	T	S	O ₂	σ _t	δ _T	ΔD
m	°C	‰	ml/L	cl/ton	m	°C	‰	ml/L	g/L	cl/ton	dyn m

HUGH M. SMITH; March 31, 1960; 1005 GCT; 31°12.5'N, 120°56'W; sounding, 2000+ fm; wind, 330°, force 5; weather, clear; sea, very rough; wire angle, 30°.

9380

2	14.94	33.48	5.72	312	0	(14.94)	(33.48)	(5.72)	(24.84)	(312)	(0.00)
10	14.93	33.49	5.74	312	10	14.93	33.49	5.74	24.84	312	0.03
32	14.62	33.50	5.81	305	20	14.90	33.49	5.75	24.85	311	0.06
41	14.23	33.48	5.90	298	30	14.82	33.50	5.76	24.87	309	0.09
54	14.20	33.51	5.82	295	50	14.23	33.49	5.86	25.00	297	0.15
66	13.80	33.46	5.82	291	75	13.53	33.44	5.73	25.10	287	0.23
86	13.42	33.45	5.65	285	100	12.20	33.48	4.90	25.39	259	0.30
102	11.86	33.48	4.74	253	125	10.30	33.60	4.06	25.82	218	0.36
118	10.82	33.53	4.30	232	150	9.58	33.71	3.78	26.02	200	0.41
142	9.81	33.68	3.82	204	200	8.43	33.95	3.06	26.40	164	0.50
165	9.22	33.78	3.70	188	250	7.93	34.07	2.02	26.59	146	0.58
197	8.50	33.93	3.12	165	300	7.27	34.09	1.68	26.68	137	0.66
221	8.12	34.01	2.68	154	400	6.51	34.19	0.79	26.87	119	0.79
262	7.82	34.09	1.82	144	500	5.91	34.28	0.47	27.02	105	0.90
317	7.06	34.09	1.60	134							
405	6.47	34.20	0.77	118							
487	5.98	34.27	0.47	106							
557	5.68	34.30	0.50	101							

HUGH M. SMITH; March 31, 1960; 1539 GCT; 30°53'N, 121°35.5'W; sounding, 2000+ fm; wind, 340°, force 5; weather, clear; sea, very rough; wire angle, 25°.

9390

2	14.74	33.35	5.82	318	0	(14.74)	(33.35)	(5.82)	(24.78)	(318)	(0.00)
11	14.76	33.34	5.86	319	10	14.75	33.34	5.85	24.77	319	0.03
33	14.72	33.33	5.81	319	20	14.74	33.33	5.84	24.77	319	0.06
42	14.71	33.36	5.86	317	30	14.73	33.33	5.82	24.77	319	0.10
56	14.36	33.38	5.85	308	50	14.64	33.38	5.86	24.82	314	0.16
70	13.74	33.35	5.76	298	75	13.50	33.35	5.68	25.04	293	0.23
92	12.86	33.37	5.48	280	100	12.46	33.39	5.29	25.27	271	0.31
110	11.98	33.44	5.06	258	125	11.10	33.55	4.66	25.66	234	0.37
128	11.10	33.58	4.64	233	150	9.86	33.68	4.12	25.96	205	0.43
154	9.65	33.70	4.04	200	200	8.59	33.94	3.35	26.38	166	0.52
180	9.02	33.85	3.70	179	250	7.73	33.97	2.60	26.52	152	0.60
216	8.26	33.96	3.14	160	300	7.09	34.06	1.83	26.69	136	0.68
243	7.82	33.96	2.69	154	400	6.30	34.14	0.86	26.86	120	0.81
286	7.26	34.02	2.09	142	500	5.69	34.25	0.39	27.02	105	0.93
346	6.67	34.13	1.16	126	600	(5.31)	(34.35)	(0.30)	(27.14)	(93)	(1.03)
438	6.06	34.16	0.68	116							
521	5.58	34.27	0.36	102							
592	5.34	34.34	0.30	94							

HUGH M. SMITH; March 31, 1960; 1855 GCT;^{a)} 30°40.5'N, 121°55.5'W; sounding, 2000+ fm; wind, 310°, force 5; weather, partly cloudy; sea, very rough; wire angle, 19°.

9395

415	6.24	34.18 4	0.84	116							
418	6.21	34.18 8	0.77	116							
421	6.19	34.19 4	0.73	115							
446	6.00	34.21 6	0.61	111							
449	5.98	34.21 6	0.61	110							
452	5.95	34.21 2	0.55	110							
476	5.90	34.24 4	0.49	108							
479	5.89	34.24 2	0.48	108							
482	5.86	34.25 1	0.47	107							
506	5.72	34.25 3	0.47	105							
509	5.67	34.25 4	0.46	104							
512	5.66	34.25 8	0.47	104							
537	5.69	34.30 6	0.43	101							
540	5.68	34.30 0	0.38	101							
543	5.68	34.29 8	0.35	101							
567	5.54	34.33 0	0.34	97							
570	5.53	34.32 8	0.35	97							
573	5.50	34.33 6	0.33	96							

a) Test cast.

S10
CCOFI
6004

OBSERVED				COMPUTED	INTERPOLATED				COMPUTED		
Z	T	S	O ₂	δ _T	Z	T	S	O ₂	σ _t	δ _T	ΔD
m	°C	‰	ml/L	cl/ton	m	°C	‰	ml/L	g/L	cl/ton	dyn m

93.100

HUGH M. SMITH; March 31, 1960; 2205 GCT; 30°32'N, 122°15.5'W; sounding, 2000+ fm; wind, 310°, force 5; weather, clear; sea, very rough; wire angle, 15°.

2	15.2	33.34	5.76	328	0	15.2	(33.34)	(5.76)	(24.67)	(328)	(0.00)
12	15.22	33.35	5.81	328	10	15.22	33.35	5.80	24.67	328	0.03
36	14.90	33.37	5.84	320	20	15.22	33.36	5.81	24.68	327	0.07
45	14.64	33.35	5.91	316	30	15.22	33.37	5.81	24.69	326	0.10
60	14.36	33.37	5.90	308	50	14.56	33.36	5.91	24.82	314	0.16
74	13.88	33.40	5.73	297	75	13.84	33.40	5.70	25.01	296	0.24
99	12.71	33.40	5.38	275	100	12.65	33.40	5.33	25.25	273	0.31
118	11.18	33.44	4.70	244	125	10.79	33.47	4.53	25.64	236	0.38
137	10.22	33.53	4.30	222	150	9.80	33.61	4.02	25.92	209	0.43
167	9.26	33.71	3.75	193	200	8.85	33.81	3.53	26.23	180	0.53
195	8.92	33.78	3.63	183	250	8.03	34.00	2.68	26.50	154	0.62
233	8.29	33.96	2.97	161	300	7.35	34.03	2.05	26.64	141	0.69
262	7.86	34.01	2.55	151	400	6.35	34.14	1.10	26.86	120	0.83
309	7.22	34.04	1.96	140	500	5.69	34.33	0.48	27.08	99	0.94
372	6.54	34.09	1.38	127	600	5.26	34.40	0.37	27.18	89	1.04
470	5.92	34.29	0.59	104							
563	5.38	34.39	0.43	91							
639	5.16	34.40	0.35	87							

94³294

HUGH M. SMITH; March 29, 1960; 2013 GCT; 32°41'N, 117°20.5'W; sounding, 100 fm; wind, 310°, force 3; weather, clear; sea, rough; wire angle, 04°. a)

0	15.03	33.62	6.00	304
10	14.72	33.57	6.00	301
19	13.45	33.57	5.87	276
28	12.54	33.59	5.14	257
33	12.07	33.58	4.59	250
37	11.76	33.58	4.45	244
42	11.44	33.60	4.08	237
46	11.28	33.62	3.89	233
51	11.22	33.62	3.96	232
55	11.02	33.64	3.79	227
60	10.90	33.66	3.75	223
64	10.58	33.70	3.66	215
69	10.32	33.73	3.42	208
73	10.17	33.75	3.30	204
78	10.14	33.77	3.30	203
82	10.06	33.77	3.24	201
87	9.96	33.77	3.18	199
91	9.82	33.78	3.05	197

94⁵30

HORIZON; April 1, 1960; 2155 GCT; 32°37.5'N, 117°22'W; sounding, 100 fm; wind, 300°, force 3; weather, clear; sea, rough; wire angle, 05°. a)

1	15.12	33.54 5	5.90	311
6	14.74	33.54 5	5.76	304
11	13.72	33.54 0	5.61	283
16	12.68	33.54 0	5.00	264
21	12.12	33.55 0	4.43	252
26	11.70	33.57 5	3.98	243
31	11.42	33.59 0	3.85	237
35	11.12	33.61 0	3.71	231
40	10.74	33.64 0	3.47	222
45	10.60	33.65 5	3.46	218
50	10.32	33.69 0	3.16	211
55	10.00	33.73 5	3.01	203
60	9.92	33.74 5	2.93	201
65	9.82	33.76 5	3.03	198
70	9.76	33.79 0	2.89	195
75	9.62	33.83 0	2.85	190
80	9.56	33.84 5	2.81	188
85	9.50	33.84 5	2.71	187

OBSERVED				COMPUTED	INTERPOLATED				COMPUTED		
Z	T	S	O ₂	δ _T	Z	T	S	O ₂	σ _t	δ _T	ΔD
m	°C	‰	ml/L	cl/ton	m	°C	‰	ml/L	g/L	cl/ton	dyn m

SIO
CCOFI
6004

HUGH M. SMITH; April 3, 1960; 0101 GCT; 32°15.5'N, 117°09'W; sounding, 24 fm; wind, 060°, force 4; weather, partly cloudy; sea, slight; wire angle, 00°.

97.30

1	15.76	33.58	5.81	322	0	(15.76)	(33.58)	(5.81)	(24.74)	(322)	(0.00)
11	15.60	33.58	5.90	319	10	15.61	33.58	5.89	24.77	319	0.03
31	13.44	33.58	5.57	275	20	15.39	33.58	5.89	24.82	314	0.06
					30	14.00	33.58	5.68	25.11	286	0.09

BLACK DOUGLAS; April 13, 1960; 2225 GCT; 32°14'N, 117°12'W; sounding, 200 fm; wind, 320°, force 3; weather, partly cloudy; sea, rough; wire angle, 07°. a)

97.31³

0	15.84	33.62	4.92	321							
5	15.72	33.63	4.34	317							
10	15.09	33.63	4.30	304							
15	14.57	33.62	4.45	294							
20	12.50	33.64	3.60	253							
25	11.76	33.62	-	241							
30	11.14	33.67	2.72	226							
35	10.96	33.68	2.65	223							
40	10.80	33.71	2.51	218							
45	10.42	33.71	2.38	211							
50	10.18	33.79	2.22	202							
55	10.02	33.82	2.38	197							
60	9.90	33.87	2.26	191							
65	9.80	33.91	2.10	187							
70	9.69	33.90	2.15	186							
75	9.62	33.95	2.15	181							
80	9.52	33.95	2.12	179							
85	9.49	33.98	2.32	177							

HUGH M. SMITH; April 3, 1960; 0255 GCT; 32°11.5'N, 117°16.5'W; sounding, 710 fm; wind, 290°, force 2; weather, partly cloudy; sea, rough; wire angle, 09°.

97.32

2	16.52	33.58	5.31	339	0	(16.52)	(33.58)	(5.31)	(24.55)	(339)	(0.00)
12	15.56	33.58	5.45	318	10	15.63	33.58	5.44	24.77	319	0.03
32	12.57	33.56	4.65	260	20	14.80	33.58	5.35	24.95	302	0.06
42	11.82	33.60	4.28	244	30	12.79	33.56	4.73	25.35	264	0.09
56	11.16	33.65	3.79	228	50	11.36	33.63	3.95	25.66	234	0.14
71	10.11	33.71	3.44	207	75	9.96	33.74	3.33	26.00	202	0.20
95	9.55	33.86	2.98	187	100	9.54	33.89	2.90	26.18	185	0.25
115	9.42	33.99	2.50	175	125	9.20	34.02	2.38	26.34	169	0.29
135	9.02	34.03	2.34	166	150	8.80	34.07	1.87	26.45	159	0.33
155	8.72	34.08	1.79	157	200	8.27	34.15	1.57	26.60	145	0.41
184	8.42	34.13	1.68	150	250	7.91	34.21	1.25	26.68	137	0.48
219	8.09	34.18	1.44	141	300	7.47	34.23	0.95	26.76	129	0.55
249	7.92	34.20	1.28	137	400	6.66	34.30	0.60	26.94	113	0.67
298	7.48	34.23	0.96	129	500	5.98	34.35	0.40	27.06	101	0.78
354	7.12	34.29	0.70	119	600	5.47	34.41	0.35	27.18	90	0.89
438	6.33	34.31	0.53	108							
522	5.87	34.36	0.35	99							
607	5.42	34.42	0.35	89							

a) Shakedown station.

SIO

CCOFI
6004

OBSERVED				COMPUTED	INTERPOLATED				COMPUTED		
Z	T	S	O ₂	δ _T	Z	T	S	O ₂	σ _t	δ _T	ΔD.
m	°C	‰	ml/L	cl/ton	m	°C	‰	ml/L	g/L	cl/ton	dyn m

97.40

HUGH M. SMITH; April 2, 1960; 1437 GCT; 31°58'N, 117°41'W; sounding, 750 fm; wind, direction missing, force 1; weather, clear; sea, moderate; wire angle, 17°.

2	15.58	33.65	5.86	313	0	(15.58)	(33.65)	(5.86)	(24.83)	(313)	(0.00)
12	15.56	33.65	5.95	312	10	15.56	33.65	5.93	24.84	312	0.03
31	13.21	33.62	5.59	268	20	15.50	33.66	5.94	24.85	311	0.06
40	12.12	33.60	4.72	249	30	13.80	33.63	5.71	25.19	278	0.09
50	11.70	33.63	4.38	239	50	11.70	33.63	4.38	25.60	239	0.14
64	10.92	33.68	3.77	222	75	10.48	33.75	3.48	25.92	209	0.20
78	10.38	33.77	3.43	206	100	9.97	33.84	3.26	26.07	195	0.25
97	10.04	33.82	3.31	198	125	9.42	33.92	2.95	26.23	180	0.30
121	9.50	33.90	3.01	183	150	9.04	34.01	2.61	26.36	167	0.34
139	9.21	33.98	2.80	173	200	8.53	34.17	1.84	26.57	148	0.42
167	8.79	34.07	2.20	159	250	8.02	34.18	1.27	26.65	140	0.50
195	8.58	34.16	1.91	149	300	7.51	34.21	0.97	26.74	131	0.56
222	8.29	34.19	1.49	143	400	6.73	34.24	0.58	26.88	118	0.70
259	7.92	34.18	1.20	138	500	5.99	34.31	0.36	27.03	104	0.81
315	7.36	34.22	0.90	128							
386	6.82	34.23	0.64	120							
458	6.26	34.28	0.45	110							
535	5.76	34.33	0.32	99							

97.50

HUGH M. SMITH; April 2, 1960; 0843 GCT; 31°35'N, 118°30'W; sounding, 1300 fm; wind, 310°, force 3; weather, clear; sea, rough; wire angle, 10°.

1	15.10	33.63	5.69	305	0	(15.10)	(33.63)	(5.69)	(24.91)	(305)	(0.00)
11	15.10	33.63	5.68	305	10	15.10	33.63	5.68	24.91	305	0.03
31	15.12	33.62	5.64	306	20	15.11	33.63	5.66	24.91	305	0.06
40	15.14	33.62	5.67	306	30	15.12	33.62	5.64	24.90	306	0.09
55	14.88	33.65	5.63	299	50	14.90	33.64	5.64	24.97	300	0.15
70	14.00	33.62	5.48	283	75	13.70	33.62	5.32	25.20	277	0.22
95	12.35	33.60	4.73	253	100	11.96	33.61	4.55	25.54	245	0.29
115	10.98	33.69	3.96	222	125	10.43	33.77	3.60	25.94	207	0.35
134	10.08	33.82	3.38	198	150	9.71	33.91	3.00	26.18	185	0.40
153	9.63	33.93	2.94	183	200	8.95	34.11	2.04	26.45	159	0.48
183	9.14	34.07	2.20	165	250	8.43	34.23	1.52	26.62	143	0.56
215	8.78	34.14	1.92	154	300	8.17	34.28	1.13	26.71	134	0.63
245	8.44	34.22	1.56	143	400	6.87	34.29	0.65	26.90	116	0.76
293	8.25	34.29	1.19	135	500	6.16	34.33	0.35	27.03	104	0.88
349	7.48	34.26	0.94	127	600	5.66	34.36	0.46	27.11	96	0.98
431	6.56	34.31	0.51	111							
515	6.07	34.34	0.36	102							
600	5.66	34.36	0.46	96							

97.60

HUGH M. SMITH; April 2, 1960; 0129 GCT; 31°28'N, 119°21'W; sounding, 1300 fm; wind, 350°, force 5; weather, clear; sea, high; wire angle, 20°.

2	15.30	33.55	5.77	315	0	(15.30)	(33.55)	(5.77)	(24.81)	(315)	(0.00)
11	15.28	33.57	6.03	313	10	15.28	33.57	6.00	24.83	313	0.03
35	15.27	33.57	5.73	313	20	15.27	33.57	5.93	24.83	313	0.06
63	14.98	33.53	5.70	309	30	15.27	33.57	5.79	24.83	313	0.09
73	14.32	33.50	5.61	298	50	15.17	33.56	5.72	24.85	311	0.16
92	13.22	33.44	5.25	282	75	14.31	33.51	5.59	25.00	297	0.23
106	11.70	33.45	4.70	253	100	12.73	33.46	5.00	25.27	271	0.30
120	10.71	33.53	4.46	230	125	10.47	33.56	4.37	25.77	223	0.37
149	9.40	33.74	3.80	193	150	9.38	33.75	3.77	26.10	192	0.42
168	8.95	33.86	3.50	177	200	8.39	34.04	3.01	26.48	156	0.51
197	8.44	34.04	3.11	157	250	7.69	34.06	2.37	26.61	144	0.58
231	7.96	34.04	2.62	149	300	7.14	34.13	1.78	26.73	132	0.66
260	7.55	34.07	2.24	142	400	6.97	34.31	0.77	26.90	117	0.78
307	7.10	34.14	1.72	131	500	6.29	34.37	0.53	27.04	103	0.90
370	7.10	34.25	1.02	122	600	5.59	34.39	0.39	27.14	93	1.00
467	6.55	34.36	0.56	107							
554	5.84	34.38	0.48	97							
628	5.46	34.40	0.35	91							

OBSERVED				COMPUTED	INTERPOLATED				COMPUTED		
Z	T	S	O ₂	δ _T	Z	T	S	O ₂	σ _t	δ _T	ΔD
m	°C	‰	ml/L	cl/ton	m	°C	‰	ml/L	g/L	cl/ton	dyn m

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6004

HUGH M. SMITH; April 1, 1960; 1922 GCT; 30°57.5'N, 119°51.5'W; sounding, 2000+ fm; wind, 350°, force 6; weather, clear; sea, high; wire angle, 16°.

97.70

2	15.60	-	-	-	0	(15.60)	(33.55)		(24.75)	(321)	(0.00)
11	15.58	33.55	5.45	321	10	15.58	(33.55)		(24.75)	(321)	(0.03)
35	15.56	33.56	5.73	319	20	15.57	33.56	5.60	24.76	320	0.06
45	15.20	33.49	5.74	317	30	15.56	33.56	5.70	24.76	320	0.10
59	14.54	33.50	5.75	303	50	14.98	33.49	5.74	24.83	313	0.16
74	14.28	33.47	5.76	300	75	14.27	33.47	5.75	24.97	299	0.24
98	12.36	33.44	5.12	265	100	12.27	33.44	5.07	25.35	264	0.31
118	11.52	33.44	4.74	250	125	11.10	33.49	4.58	25.60	239	0.37
138	10.27	33.60	4.36	217	150	9.83	33.68	3.95	25.96	205	0.43
167	9.34	33.78	3.72	189	200	8.96	33.88	3.69	26.27	176	0.52
197	9.00	33.87	3.72	177	250	8.02	34.03	2.42	26.54	151	0.61
236	8.08	33.98	2.93	156	300	7.62	34.15	1.62	26.68	137	0.68
265	7.94	34.09	1.96	145	400	6.49	34.17	1.04	26.86	120	0.82
314	7.45	34.16	1.53	134	500	5.86	34.27	0.57	27.02	105	0.93
378	6.69	34.15	1.19	124	600	6.42	34.37	0.41	27.15	92	1.04
476	5.96	34.25	0.64	108							
565	5.61	34.34	0.45	97							
639	5.20	34.40	0.40	88							

HUGH M. SMITH; April 1, 1960; 1201 GCT; 30°35'N, 120°34'W; sounding, 2000+ fm; wind, 350°, force 6; weather, clear; sea, high; wire angle, 28°.

97.80

2	15.02	33.40	5.79	320	0	(15.02)	(33.40)	(5.79)	(24.76)	(320)	(0.00)
10	15.02	33.40	5.73	320	10	15.02	33.40	5.73	24.76	320	0.03
33	15.04	33.38	5.73	322	20	15.03	33.39	5.73	24.75	321	0.06
59	15.01	33.39	5.73	321	30	15.04	33.38	5.73	24.74	322	0.10
68	14.82	33.38	5.75	317	50	15.04	33.38	5.73	24.74	322	0.16
85	14.54	33.42	5.72	309	75	14.67	33.40	5.74	24.83	313	0.24
98	13.34	33.40	5.38	287	100	13.20	33.41	5.32	25.14	283	0.32
110	12.54	33.47	5.08	266	125	11.80	33.56	4.82	25.53	246	0.38
136	11.16	33.62	4.63	231	150	10.10	33.66	4.18	25.90	211	0.44
153	9.97	33.66	4.13	208	200	8.60	33.95	3.17	26.38	166	0.54
177	9.08	33.86	3.68	179	250	7.88	34.05	2.57	26.58	147	0.62
207	8.45	33.96	3.07	163	300	7.22	34.11	1.78	26.71	134	0.69
233	8.14	34.02	2.81	153	400	6.61	34.20	1.05	26.86	120	0.82
275	7.52	34.08	2.08	139	500	5.88	34.30	0.58	27.04	103	0.94
334	6.94	34.13	1.48	129	600	(5.52)	(34.37)		(27.14)	(93)	(1.04)
423	6.46	34.22	0.92	117							
508	5.82	34.31	0.55	102							
581	5.56	34.36	0.30	95							

HUGH M. SMITH; April 1, 1960; 0540 GCT; 30°15.5'N, 121°10.5'W; sounding, 2000+ fm; wind, 310°, force 5; weather, clear; sea, very rough; wire angle, 29°.

97.90

2	15.74	33.58	5.66	322	0	(15.74)	(33.58)	(5.66)	(24.74)	(322)	(0.00)
10	15.74	33.58	5.69	322	10	15.74	33.58	5.69	24.74	322	0.03
33	15.76	33.60	5.78	321	20	15.75	33.58	5.72	24.75	321	0.06
59	15.78	33.60	5.66	321	30	15.76	33.59	5.76	24.75	321	0.10
67	15.80	33.63	5.64	319	50	15.77	33.60	5.70	24.75	321	0.16
85	15.50	33.60	5.66	315	75	15.80	33.63	5.64	24.77	319	0.24
98	14.62	33.53	5.64	302	100	14.50	33.53	5.59	24.97	300	0.32
111	13.96	33.58	5.36	285	125	12.93	33.58	5.19	25.33	266	0.39
137	12.10	33.58	5.07	250	150	11.18	33.65	4.75	25.71	229	0.45
154	10.93	33.68	4.67	223	200	9.33	33.87	3.92	26.20	183	0.56
178	9.98	33.81	4.24	197	250	8.58	34.03	2.81	26.45	159	0.65
207	9.16	33.88	3.83	179	300	7.81	34.11	2.08	26.63	142	0.72
233	8.90	33.98	3.14	168	400	6.64	34.15	1.13	26.82	124	0.86
275	8.11	34.07	2.41	150	500	6.03	34.26	0.65	26.99	108	0.98
335	7.40	34.14	1.71	135	600	(5.33)	(34.29)		(27.10)	(97)	(1.09)
425	6.40	34.16	0.93	120							
508	5.98	34.27	0.59	106							
580	5.44	34.29	0.40	99							

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OBSERVED				COMPUTED	INTERPOLATED				COMPUTED		
Z	T	S	O ₂	δ _T	Z	T	S	O ₂	σ _t	δ _T	ΔD
m	°C	‰	ml/L	cl/ton	m	°C	‰	ml/L	g/L	cl/ton	dyn m

100.30

HUGH M. SMITH; April 3, 1960; 0845 GCT; 31°40.5'N, 116°46.5'W; sounding, 225 fm; wind, 060°, force 2; weather, clear; sea, slight; wire angle, 28°.

2	15.37	33.64	6.05	309	0	(15.37)	(33.64)	(6.05)	(24.87)	(309)	(0.00)
10	15.36	33.61	5.98	311	10	15.36	33.61	5.98	24.85	311	0.03
28	12.64	33.68	5.22	253	20	14.48	33.66	5.68	25.07	290	0.06
46	10.44	33.80	3.40	206	30	12.44	33.68	5.12	25.50	249	0.09
66	9.75	34.02	2.43	178	50	10.00	33.82	3.09	26.05	197	0.13
88	9.55	34.07	2.17	171	75	9.65	34.05	2.32	26.28	175	0.18
109	9.46	34.13	1.88	165	100	9.49	34.10	2.03	26.35	168	0.22
142	9.39	34.22	1.48	157	125	9.43	34.17	1.71	26.42	162	0.26
177	9.12	34.27	1.27	149	150	9.34	34.24	1.40	26.49	155	0.30
219	8.62	34.29	1.00	141	200	8.86	34.28	1.14	26.60	145	0.38
263	8.17	34.34	0.89	130	250	8.31	34.33	0.91	26.72	133	0.45
358	7.24	34.29	0.69	121	300	7.82	34.32	0.80	26.80	126	0.52

100.40

HUGH M. SMITH; April 3, 1960; 1420 GCT; 31°25.5'N, 117°28'W; sounding, 1100 fm; wind, direction missing, force 1; weather, partly cloudy; sea, moderate; wire angle, 07°.

1	15.50	33.64	5.76	312	0	(15.50)	(33.64)	(5.76)	(24.84)	(312)	(0.00)
11	15.44	33.61	5.73	313	10	15.46	33.62	5.74	24.83	313	0.03
31	14.56	33.58	5.85	297	20	15.27	33.61	5.76	24.86	310	0.06
41	14.13	33.55	5.82	291	30	14.62	33.58	5.84	24.98	298	0.09
55	13.35	33.53	5.62	277	50	13.69	33.53	5.73	25.14	283	0.15
70	12.10	33.57	4.50	251	75	12.04	33.59	4.42	25.50	249	0.22
95	11.00	33.67	3.89	224	100	10.90	33.68	3.82	25.79	222	0.28
115	10.42	33.78	3.40	207	125	10.20	33.82	3.23	26.02	200	0.33
134	10.02	33.86	3.07	194	150	9.81	33.93	2.77	26.18	185	0.38
154	9.74	33.95	2.70	183	200	9.13	34.11	2.00	26.42	162	0.47
184	9.28	34.07	2.25	167	250	8.80	34.23	1.45	26.57	148	0.55
218	9.00	34.15	1.77	157	300	8.14	34.25	1.08	26.69	136	0.62
247	8.84	34.22	1.51	149	400	7.14	34.29	0.68	26.87	119	0.75
297	8.16	34.25	1.11	137	500	6.29	34.36	0.40	27.04	103	0.87
352	7.63	34.25	0.89	130	600	5.70	34.36	0.30	27.10	97	0.98
435	6.80	34.34	0.54	112							
521	6.16	34.36	0.38	102							
606	5.66	34.36	0.29	96							

100.50

HUGH M. SMITH; April 3, 1960; 2011 GCT; 31°05'N, 118°12'W; sounding, 1500 fm; wind, direction missing, force 1; weather, clear; sea, rough; wire angle, 00°.

1	16.88	33.68	5.79	339	0	(16.88)	(33.68)	(5.79)	(24.55)	(339)	(0.00)
11	15.38	33.68	5.83	307	10	15.40	33.68	5.83	24.89	307	0.03
31	14.56	33.64	5.92	293	20	15.37	33.70	5.84	24.91	305	0.06
41	14.19	33.62	5.99	287	30	14.61	33.64	5.91	25.04	293	0.09
51	13.90	33.60	5.72	283	50	13.92	33.60	5.74	25.14	283	0.15
66	12.88	33.59	4.83	264	75	12.22	33.61	4.55	25.49	250	0.22
81	11.86	33.63	4.41	242	100	11.25	33.69	3.85	25.73	227	0.28
101	11.23	33.69	3.84	227	125	10.43	33.76	3.62	25.94	207	0.33
127	10.35	33.77	3.61	206	150	9.46	33.88	3.30	26.19	184	0.38
147	9.59	33.86	3.36	187	200	8.60	34.08	2.48	26.49	155	0.47
177	8.82	34.00	3.00	165	250	8.00	34.17	1.68	26.64	141	0.54
207	8.52	34.10	2.31	153	300	7.75	34.27	1.13	26.76	129	0.61
237	8.08	34.14	1.86	144	400	6.84	34.34	0.64	26.95	112	0.74
278	7.86	34.23	1.34	134	500	6.22	34.39	0.38	27.06	101	0.85
338	7.50	34.33	0.88	122							
413	6.72	34.34	0.60	111							
488	6.30	34.38	0.40	102							
570	5.76	34.42	0.32	93							

OBSERVED				COMPUTED	INTERPOLATED				COMPUTED		
Z	T	S	O ₂	δ _T	Z	T	S	O ₂	σ _t	δ _T	ΔD
m	°C	‰	ml/L	cl/ton	m	°C	‰	ml/L	g/L	cl/ton	dyn m

S10
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6004

HUGH M. SMITH; April 4, 1960; 0146 GCT; 30°42'N, 118°48'W; sounding, 1560 fm; wind, direction missing, force 1; weather, partly cloudy; sea, moderate; wire angle, 02°.

100.60

2	16.18	33.60	5.49	330	0	(16.18)	(33.60)	(5.49)	(24.65)	(330)	(0.00)
12	15.82	33.63	5.50	320	10	15.89	33.62	5.50	24.74	322	0.03
32	15.73	33.61	5.53	319	20	15.76	33.62	5.51	24.76	320	0.06
57	15.72	33.63	5.48	318	30	15.73	33.61	5.53	24.76	320	0.10
67	15.32	33.60	5.28	312	50	15.72	33.62	5.49	24.77	318	0.16
77	14.57	33.57	5.04	298	75	14.88	33.58	5.12	24.93	304	0.24
92	13.50	33.55	5.04	279	100	12.20	33.56	4.80	25.45	254	0.31
107	12.14	33.57	4.76	251	125	11.90	33.62	4.64	25.56	243	0.37
132	10.47	33.64	4.37	218	150	9.76	33.75	4.08	26.04	198	0.43
152	9.69	33.77	4.05	195	200	8.67	34.09	3.35	26.48	156	0.52
176	9.11	33.87	3.64	179	250	8.02	34.15	1.87	26.62	143	0.59
206	8.58	34.14	3.21	151	300	7.88	34.29	1.10	26.76	130	0.66
236	8.01	34.09	2.42	147	400	6.95	34.33	0.67	26.92	114	0.79
276	8.04	34.25	1.35	135	500	6.18	34.35	0.43	27.04	103	0.90
337	7.59	34.33	0.92	123							
412	6.82	34.33	0.62	113							
487	6.26	34.34	0.46	105							
567	5.79	34.40	0.36	94							

HUGH M. SMITH; April 4, 1960; 0732 GCT; 30°24'N, 119°29'W; sounding, 2000+ fm; wind, direction missing, force 1; weather, partly cloudy; sea, moderate; wire angle, 06°.

100.70

0	17.03	33.58	5.36	350	0	17.03	33.58	5.36	24.44	350	0.00
10	15.72	33.57	5.70	322	10	15.72	33.57	5.70	24.74	322	0.03
30	15.64	33.57	5.52	321	20	15.68	33.57	5.61	24.75	321	0.07
55	15.58	33.57	5.58	319	30	15.64	33.57	5.52	24.75	321	0.10
65	15.40	33.57	5.64	315	50	15.60	33.57	5.56	24.77	319	0.16
75	14.96	33.51	5.54	311	75	14.96	33.51	5.54	24.85	311	0.24
90	14.40	33.58	5.36	294	100	13.70	33.60	5.19	25.19	278	0.32
105	12.58	33.60	4.96	257	125	11.30	33.59	4.54	25.65	235	0.38
130	10.67	33.57	4.38	226	150	9.91	33.66	4.07	25.94	207	0.44
150	9.91	33.66	4.07	207	200	8.74	33.95	3.50	26.36	168	0.53
176	9.16	33.81	3.72	184	250	8.02	34.00	2.88	26.50	154	0.62
206	8.64	33.96	3.48	165	300	7.25	34.09	2.00	26.68	137	0.69
236	8.24	33.98	3.11	158	400	6.40	34.19	1.00	26.89	117	0.82
276	7.60	34.04	2.45	145	500	5.73	34.29	0.59	27.05	102	0.94
336	6.82	34.14	1.43	127							
412	6.32	34.20	0.95	116							
487	5.78	34.28	0.66	103							
568	5.48	34.35	0.25	95							

HUGH M. SMITH; April 4, 1960; 1312 GCT; 30°07'N, 120°10'W; sounding, 2000+ fm; wind, direction missing, force 1; weather, clear; sea, moderate; wire angle, 07°.

100.80

1	16.27	33.57	5.61	334	0	(16.27)	(33.57)	(5.61)	(24.61)	(334)	(0.00)
11	15.66	33.55	5.66	322	10	15.70	33.55	5.65	24.72	323	0.03
31	15.48	33.55	5.66	319	20	15.54	33.55	5.66	24.76	320	0.07
56	15.44	33.57	5.67	316	30	15.49	33.55	5.66	24.77	319	0.10
66	15.30	33.55	5.70	315	50	15.47	33.56	5.66	24.79	317	0.16
76	14.86	33.52	5.69	308	75	14.87	33.52	5.69	24.88	308	0.24
90	14.40	33.51	5.66	299	100	14.00	33.51	5.45	25.06	291	0.32
105	13.74	33.51	5.33	286	125	11.70	33.53	4.80	25.52	247	0.38
130	11.18	33.53	4.65	237	150	10.34	33.65	4.12	25.86	215	0.44
149	10.38	33.64	4.14	216	200	9.06	33.87	3.67	26.24	178	0.54
174	9.60	33.77	3.94	194	250	7.96	34.05	2.75	26.56	149	0.63
204	8.95	33.89	3.61	175	300	7.40	34.09	2.11	26.67	138	0.70
234	8.18	34.04	3.01	153	400	6.44	34.18	0.95	26.87	119	0.83
273	7.70	34.06	2.49	145	500	5.77	34.30	0.47	27.05	102	0.95
333	7.02	34.13	1.68	131							
408	6.36	34.19	0.87	117							
483	5.83	34.28	0.53	104							
564	5.46	34.33	0.33	96							

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OBSERVED				COMPUTED	INTERPOLATED				COMPUTED		
Z	T	S	O ₂	δ _T	Z	T	S	O ₂	σ _t	δ _T	ΔD
m	°C	‰	ml/L	cl/ton	m	°C	‰	ml/L	g/L	cl/ton	dyn m

100.90

HUGH M. SMITH; April 4, 1960; 1905 GCT; 29°42'N, 120°45.5'W; sounding, 2000+ fm; wind, 050°, force 2; weather, partly cloudy; sea, moderate; wire angle, 05°.

11	16.50	33.75	5.47	326	0	17.1	(33.75)		(24.55)	(339)	(0.00)
31	16.30	33.76	5.46	321	10	(16.51)	(33.75)		(24.69)	(326)	(0.03)
56	16.30	33.75	5.50	321	20	16.39	33.76	5.46	24.72	323	0.07
66	16.26	33.77	5.51	319	30	16.31	33.76	5.46	24.75	321	0.10
76	16.26	33.76	5.49	320	50	16.30	33.75	5.49	24.75	321	0.16
91	16.23	33.78	5.46	318	75	16.26	33.76	5.49	24.76	320	0.24
106	15.38	33.75	5.22	302	100	16.20	33.78	5.44	24.79	317	0.32
131	13.27	33.75	5.01	259	125	13.67	33.75	5.04	25.31	267	0.40
151	11.91	33.71	4.83	237	150	11.98	33.71	4.84	25.61	238	0.46
176	10.35	33.78	4.47	205	200	9.51	33.85	4.00	26.16	187	0.57
206	9.36	33.86	3.90	183	250	8.40	33.98	3.22	26.44	160	0.66
236	8.64	33.96	3.42	165	300	7.61	34.06	2.30	26.62	143	0.74
276	7.98	34.02	2.75	151	400	6.63	34.23	1.18	26.88	118	0.87
337	7.13	34.13	1.74	132	500	5.94	34.34	0.51	27.06	101	0.99
412	6.54	34.25	1.09	115							
487	6.00	34.33	0.58	102							
567	5.76	34.40	0.36	94							

103.30

HUGH M. SMITH; April 6, 1960; 1046 GCT; 31°06'N, 116°24.5'W; sounding, 39 fm; wind, 330°, force 2; weather, fog; sea, moderate; wire angle, 00°.

1	14.82	33.73	7.17	292	0	(14.82)	(33.73)	(7.17)	(25.05)	(292)	(0.00)
11	12.56	33.73	5.79	247	10	12.57	33.73	5.80	25.52	247	0.03
31	10.00	33.84	3.19	195	20	11.48	33.77	4.84	25.75	225	0.05
51	10.14	33.95	2.54	189	30	10.02	33.83	3.31	26.05	197	0.07
					50	10.11	33.94	2.56	26.13	189	0.11

103.35

HUGH M. SMITH; April 6, 1960; 0723 GCT; 30°56'N, 116°45'W; sounding, 1100 fm; wind, 330°, force 3; weather, overcast; sea, moderate; wire angle, 17°.

2	16.56	33.68	5.70	332	0	(16.56)	(33.68)	(5.70)	(24.63)	(332)	(0.00)
11	16.20	33.68	5.81	324	10	16.30	33.68	5.78	24.68	327	0.03
30	14.66	33.62	6.06	297	20	15.40	33.64	5.96	24.86	310	0.06
40	13.42	33.60	5.67	274	30	14.66	33.62	6.06	25.00	297	0.10
54	12.86	33.60	5.42	263	50	13.02	33.60	5.49	25.32	266	0.15
69	11.76	33.66	4.34	238	75	11.30	33.67	4.34	25.71	229	0.21
93	10.58	33.73	4.33	213	100	10.58	33.75	4.25	25.90	211	0.27
111	9.92	33.87	3.03	192	125	9.69	33.96	2.78	26.21	182	0.32
130	9.62	33.98	2.72	179	150	9.42	34.09	2.33	26.35	168	0.36
148	9.43	34.08	2.36	169	200	9.08	34.21	1.73	26.50	154	0.44
177	9.18	34.14	2.02	160	250	8.39	34.28	1.23	26.67	138	0.52
207	9.05	34.23	1.61	152	300	8.02	34.33	0.92	26.76	129	0.59
234	8.44	34.25	1.39	141	400	7.11	34.34	0.57	26.90	116	0.72
280	8.24	34.33	0.98	132	500	6.33	34.37	0.38	27.04	103	0.83
331	7.67	34.33	0.83	124							
410	7.02	34.34	0.55	115							
491	6.38	34.36	0.39	105							
574	5.94	34.40	0.31	96							

OBSERVED				COMPUTED	INTERPOLATED				COMPUTED		
Z	T	S	O ₂	δ _T	Z	T	S	O ₂	σ _t	δ _T	ΔD
m	°C	‰	ml/L	cl/ton	m	°C	‰	ml/L	g/L	cl/ton	dyn m

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HUGH M. SMITH; April 7, 1960; 0647 GCT; 30°56'N, 116°45'W; sounding, 1100 fm; wind, 270°, force 3; weather, clear; sea, slight; wire angle, 18°.

103.35

1	16.2	-	-	-	0	16.2	(33.61)		(24.66)	(329)	(0.00)
10	16.19	33.61	5.71	329	10	16.19	33.61	5.71	24.66	329	0.03
29	14.10	33.58	6.19	288	20	16.09	33.61	5.74	24.68	327	0.07
39	13.07	33.58	5.70	268	30	13.93	33.58	6.16	25.12	285	0.10
48	12.30	33.59	4.79	253	50	12.28	33.59	4.73	25.46	253	0.15
62	11.70	33.59	4.43	242	75	10.90	33.76	3.88	25.85	216	0.21
76	10.83	33.77	3.86	214	100	10.13	33.84	3.26	26.05	197	0.26
94	10.20	33.82	3.34	200	125	9.64	33.93	2.78	26.20	183	0.31
116	9.78	33.89	2.93	188	150	9.31	34.06	2.24	26.36	168	0.35
135	9.50	34.00	2.55	176	200	8.91	34.20	1.60	26.54	151	0.44
162	9.20	34.11	2.00	163	250	8.46	34.31	1.08	26.68	137	0.51
189	9.04	34.19	1.64	154	300	8.05	34.33	0.86	26.76	129	0.58
216	8.60	34.22	1.53	145	400	7.02	34.34	0.49	26.92	115	0.70
252	8.44	34.31	1.06	137	500	6.31	34.36	0.29	27.04	103	0.82
307	8.00	34.33	0.83	129							
377	7.22	34.34	0.55	117							
448	6.58	34.35	0.36	108							
525	6.18	34.36	0.28	102							

HUGH M. SMITH; April 6, 1960; 0402 GCT; 30°46'N, 117°04.5'W; sounding, 1040 fm; wind, 330°, force 3; weather, overcast; sea, moderate; wire angle, 10°.

103.40

1	16.18	33.68	5.71	324	0	(16.18)	(33.68)	(5.71)	(24.71)	(324)	(0.00)
11	15.48	33.68	5.87	309	10	15.50	33.68	5.86	24.87	309	0.03
30	14.46	33.65	5.98	290	20	15.36	33.69	5.88	24.90	306	0.06
40	13.74	33.60	5.87	280	30	14.46	33.65	5.98	25.07	290	0.09
50	13.19	33.66	5.30	264	50	13.19	33.66	5.30	25.34	264	0.15
64	12.70	33.64	4.81	257	75	12.12	33.70	4.14	25.58	242	0.21
79	11.84	33.75	3.82	233	100	11.17	33.79	3.33	25.81	219	0.27
99	11.20	33.78	3.37	220	125	10.29	33.94	2.57	26.09	193	0.32
124	10.31	33.94	2.58	193	150	9.96	34.03	2.45	26.23	180	0.37
144	10.02	34.02	2.48	183	200	9.67	34.25	1.78	26.44	160	0.45
173	9.60	34.07	2.31	172	250	9.26	34.35	1.26	26.59	146	0.53
203	9.68	34.27	1.74	158	300	8.66	34.41	1.12	26.72	133	0.60
232	9.48	34.34	1.34	150	400	7.62	34.39	0.75	26.87	119	0.74
271	9.00	34.36	1.22	141	500	6.66	34.39	0.46	27.01	106	0.85
330	8.30	34.45	0.95	124							
403	7.59	34.39	0.73	118							
477	6.82	34.38	0.50	109							
558	6.22	34.42	0.36	99							

HUGH M. SMITH; April 5, 1960; 2227 GCT; 30°26'N, 117°44.5'W; sounding, 1050 fm; wind, 050°, force 2; weather, cloudy; sea, moderate; wire angle, 07°.

103.50

1	16.60	33.65	5.69	335	0	(16.60)	(33.65)	(5.69)	(24.60)	(335)	(0.00)
11	16.07	33.68	5.75	322	10	16.08	33.68	5.75	24.74	322	0.03
31	15.76	33.66	5.74	317	20	15.97	33.68	5.75	24.77	319	0.06
41	15.51	33.66	5.70	311	30	15.77	33.66	5.74	24.79	317	0.10
51	14.83	33.64	5.79	299	50	14.84	33.64	5.78	24.97	299	0.16
65	13.84	33.57	5.39	284	75	12.96	33.58	4.94	25.33	265	0.23
80	12.50	33.60	4.78	256	100	11.22	33.68	4.21	25.72	228	0.29
100	11.22	33.68	4.21	228	125	10.12	33.77	3.75	25.99	203	0.35
126	10.10	33.77	3.74	202	150	9.79	33.81	3.58	26.09	193	0.40
145	9.86	33.78	3.74	197	200	9.24	34.12	2.16	26.41	163	0.49
176	9.43	34.00	2.74	175	250	8.49	34.19	1.50	26.59	146	0.57
206	9.17	34.13	2.05	161	300	8.14	34.27	1.06	26.70	135	0.64
234	8.66	34.16	1.67	151	400	7.16	34.34	0.56	26.90	116	0.77
273	8.30	34.23	1.30	141	500	6.34	34.44	0.40	27.09	98	0.88
332	7.92	34.31	0.83	129							
406	7.09	34.34	0.54	116							
480	6.47	34.43	0.46	101							
560	5.92	34.47	0.31	91							

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S10

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OBSERVED				COMPUTED	INTERPOLATED				COMPUTED		
Z	T	S	O ₂	δ _T	Z	T	S	O ₂	σ _t	δ _T	ΔD
m	°C	‰	ml/L	cl/ton	m	°C	‰	ml/L	g/L	cl/ton	dyn m

103.60

HUGH M. SMITH; April 5, 1960; 1715 GCT; 30°07'N, 118°22'W; sounding, 1900 fm; wind, 350°, force 2; weather, overcast; sea, moderate; wire angle, 02°.

1	16.66	33.67	5.62	335	0	(16.66)	(33.67)	(5.62)	(24.60)	(335)	(0.00)
11	15.88	33.68	5.71	317	10	15.89	33.68	5.70	24.78	318	0.03
31	15.66	33.65	5.72	315	20	15.76	33.66	5.71	24.80	316	0.06
56	15.08	33.68	5.70	301	30	15.67	33.65	5.72	24.81	315	0.10
66	14.92	33.61	5.76	302	50	15.38	33.68	5.71	24.89	307	0.16
76	14.52	33.62	5.54	293	75	14.80	33.60	5.70	24.96	301	0.23
91	13.28	33.53	5.15	276	100	12.74	33.51	4.98	25.31	267	0.31
106	12.42	33.51	4.91	262	125	11.11	33.71	4.08	25.78	223	0.37
131	10.77	33.76	3.80	213	150	10.07	33.80	3.43	26.03	199	0.42
151	10.04	33.80	3.42	199	200	9.03	34.05	2.35	26.39	165	0.51
176	9.30	33.89	2.95	181	250	8.44	34.13	1.87	26.55	150	0.60
206	8.96	34.07	2.22	162	300	7.80	34.19	1.43	26.69	136	0.67
236	8.57	34.11	2.00	153	400	6.64	34.23	0.84	26.88	118	0.80
276	8.18	34.17	1.65	143	500	6.00	34.26	0.45	27.00	107	0.92
336	7.20	34.21	1.17	126							
411	6.54	34.23	0.78	116							
486	6.06	34.25	0.51	109							
567	5.76	34.34	0.31	99							

103.70

HUGH M. SMITH; April 5, 1960; 1152 GCT; 29°47.5'N, 119°01'W; sounding, 1800 fm; wind, 330°, force 2; weather, clear; sea, moderate; wire angle, 14°.

1	16.46	33.60	5.44	336	0	(16.46)	(33.60)	(5.44)	(24.59)	(336)	(0.00)
11	16.40	33.59	5.58	335	10	16.41	33.59	5.56	24.60	335	0.03
30	15.61	33.55	5.66	321	20	15.64	33.54	5.64	24.72	323	0.07
54	15.58	33.57	5.67	319	30	15.61	33.55	5.66	24.75	321	0.10
64	15.30	33.54	5.70	315	50	15.60	33.56	5.67	24.76	320	0.16
73	15.08	33.53	5.76	312	75	15.03	33.53	5.73	24.85	311	0.24
88	14.68	33.51	5.65	305	100	13.78	33.48	5.53	25.08	289	0.32
102	13.66	33.49	5.51	286	125	12.49	33.72	4.97	25.52	247	0.39
128	12.30	33.73	4.89	243	150	10.40	33.70	4.40	25.89	212	0.44
146	10.55	33.69	4.43	215	200	8.96	33.86	3.78	26.26	177	0.54
171	9.71	33.76	4.30	197	250	8.31	34.00	2.74	26.47	157	0.63
200	8.96	33.86	3.78	177	300	7.68	34.08	1.98	26.62	143	0.71
229	8.61	33.96	3.15	165	400	6.47	34.17	1.01	26.85	121	0.84
267	8.06	34.03	2.45	152	500	5.87	34.24	0.54	27.00	107	0.96
324	7.39	34.12	1.66	136							
396	6.50	34.16	1.03	121							
469	6.06	34.22	0.64	111							
548	5.53	34.27	0.43	101							

103.80

HUGH M. SMITH; April 5, 1960; 0558 GCT; 29°26.5'N, 119°42'W; sounding, 1900 fm; wind, direction missing, force 1; weather, clear; sea, slight; wire angle, 06°.

1	16.78	33.58	5.62	345	0	(16.78)	(33.58)	(5.62)	(24.49)	(345)	(0.00)
11	15.92	33.58	5.62	325	10	15.95	33.58	5.62	24.69	326	0.03
31	15.68	33.58	5.64	321	20	15.79	33.58	5.63	24.72	323	0.07
56	15.73	33.62	5.72	319	30	15.69	33.58	5.64	24.75	321	0.10
66	15.75	33.60	5.72	320	50	15.72	33.61	5.71	24.77	319	0.16
76	15.84	33.64	5.69	320	75	15.83	33.64	5.70	24.76	320	0.24
91	14.95	33.53	5.69	309	100	14.50	33.45	5.68	24.92	305	0.32
106	14.26	33.42	5.66	303	125	13.47	33.44	5.17	25.11	286	0.40
130	12.88	33.44	4.89	275	150	11.38	33.48	4.69	25.54	245	0.46
150	11.38	33.48	4.69	245	200	9.20	33.85	3.76	26.21	182	0.57
175	9.96	33.68	4.14	206	250	8.34	34.01	3.15	26.47	157	0.66
204	9.09	33.87	3.72	179	300	7.63	34.08	2.39	26.63	142	0.74
235	8.56	33.97	3.33	163	400	6.47	34.16	1.17	26.85	121	0.87
274	7.98	34.05	2.84	149	500	5.80	34.27	0.58	27.02	105	0.99
333	7.19	34.22a)	1.79	-							
408	6.40	34.17	1.10	119							
483	5.90	34.25	0.64	107							
562	5.52	34.33	0.47	97							

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a) Possible evaporation; value does not fall on property curve.

OBSERVED				COMPUTED	INTERPOLATED				COMPUTED		
Z	T	S	O ₂	δ _T	Z	T	S	O ₂	σ _t	δ _T	ΔD
m	°C	‰	ml/L	cl/ton	m	°C	‰	ml/L	g/L	cl/ton	dyn m

S10
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6004

HUGH M. SMITH; April 5, 1960; 0019 GCT; 29°06'N, 120°23'W; sounding, 2000+ fm; wind, direction missing, force 1; weather, clear; sea, slight; wire angle, 00°.

103.90

1	17.48	33.81	5.48	343	0	(17.48)	(33.81)	(5.48)	(24.51)	(343)	(0.00)
11	16.62	33.78	5.49	327	10	16.64	33.78	5.49	24.68	327	0.03
31	16.50	33.84	5.54	319	20	16.54	33.82	5.53	24.74	322	0.07
56	16.48	33.78	5.55	323	30	16.50	33.84	5.54	24.76	320	0.10
66	16.46	33.82	5.58	320	50	16.48	33.80	5.55	24.74	322	0.16
76	16.44	33.84	5.59	318	75	16.44	33.84	5.59	24.78	318	0.24
91	16.43	33.82	5.54	319	100	15.60	33.80	5.31	24.94	303	0.32
106	15.14	33.80	5.18	293	125	13.57	33.82	4.58	25.38	260	0.39
131	12.99	33.82	4.45	249	150	11.46	33.78	4.52	25.76	224	0.45
151	11.42	33.78	4.52	224	200	10.61	34.14	1.91	26.20	183	0.56
176	11.22	34.00	2.42	204	250	9.80	34.27	1.45	26.44	160	0.64
206	10.48	34.17	1.84	179	300	8.94	34.34	1.18	26.64	141	0.72
236	10.09	34.25	1.56	167	400	7.61	34.34	0.80	26.83	123	0.86
276	9.28	34.31	1.32	149	500	6.43	34.32	0.47	26.98	109	0.98
336	8.50	34.38	1.00	132							
412	7.44	34.33	0.76	121							
487	6.52	34.31	0.50	110							
567	6.12	34.38	0.32	100							

HUGH M. SMITH; April 6, 1960; 1543 GCT; 30°26'N, 116°11'W; sounding, 140 fm; wind, 350°, force 2; weather, fog; sea, slight; wire angle, 05°.

107.32

0	14.82	33.73	7.51	292	0	14.82	33.73	7.51	25.05	292	0.00
10	12.84	33.69	5.50	256	10	12.84	33.69	5.50	25.43	256	0.03
30	11.18	33.73	3.85	223	20	12.74	33.71	5.30	25.47	252	0.05
75	10.07	33.96	2.62	188	30	11.18	33.73	3.85	25.78	223	0.08
99	9.87	34.00	2.50	181	50	10.64	33.85	3.15	25.96	205	0.12
124	9.82	34.07	2.17	175	75	10.07	33.96	2.62	26.14	188	0.17
164	9.51	34.20	1.67	161	100	9.87	34.00	2.49	26.22	181	0.22
203	9.46	34.25	1.50	156	125	9.81	34.07	2.16	26.28	175	0.26
254	8.70	34.45	0.79	130	150	9.60	34.16	1.82	26.39	165	0.30
					200	9.47	34.24	1.53	26.47	157	0.38
					250	8.75	34.44	0.83	26.74	131	0.46

HUGH M. SMITH; April 6, 1960; 1751 GCT; 30°22.5'N, 116°21.5'W; sounding, 1000 fm; wind, 350°, force 2; weather, fog; sea, slight; wire angle, 04°.

107.35

0	15.52	33.66	6.54	311	0	15.52	33.66	6.54	24.85	311	0.00
10	15.16	33.66	6.76	304	10	15.16	33.66	6.76	24.93	304	0.03
30	12.62	33.66	5.08	254	20	13.00	33.64	5.42	25.37	262	0.06
40	11.57	33.65	3.90	235	30	12.62	33.66	5.08	25.45	254	0.08
50	11.16	33.68	3.78	226	50	11.16	33.68	3.78	25.74	226	0.13
65	10.57	33.75	3.55	211	75	10.44	33.77	3.40	25.94	207	0.19
80	10.40	33.78	3.33	206	100	9.76	33.84	3.24	26.10	192	0.24
100	9.76	33.84	3.24	192	125	9.54	33.96	2.66	26.24	179	0.28
125	9.54	33.96	2.66	179	150	9.02	34.03	2.52	26.39	165	0.33
145	9.14	34.04	2.46	167	200	9.05	34.27	1.33	26.57	148	0.41
176	8.47	34.02	2.70	159	250	8.52	34.32	1.03	26.68	137	0.48
205	9.08	34.30	1.26	147	300	8.00	34.33	0.84	26.77	129	0.55
235	8.64	34.31	1.09	139	400	7.03	34.35	0.50	26.93	113	0.67
275	8.30	34.33	0.94	133	500	6.37	34.37	0.34	27.03	104	0.79
334	7.60	34.33	0.72	123							
409	6.94	34.36	0.47	112							
485	6.46	34.37	0.38	105							
565	5.99	34.38	0.26	98							

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OBSERVED				COMPUTED	INTERPOLATED				COMPUTED		
Z	T	S	O ₂	δ _T	Z	T	S	O ₂	σ _t	δ _T	ΔD
m	°C	‰	ml/L	cl/ton	m	°C	‰	ml/L	g/L	cl/ton	dyn m

107.40

HUGH M. SMITH; April 6, 1960; 2135 GCT; 30°11'N, 116°42'W; sounding, 1500 fm; wind, 270°, force 2; weather, cloudy; sea, slight; wire angle, 14°.

1	16.8	-	-	-	0	16.8	(33.68)		(24.56)	(338)	(0.00)
11	16.26	33.68	5.55	326	10	(16.28)	(33.68)		(24.69)	(326)	(0.03)
30	15.60	33.68	5.57	312	20	16.00	33.69	5.56	24.77	319	0.07
54	14.80	33.64	5.63	298	30	15.60	33.68	5.57	24.84	312	0.10
64	13.38	33.57	5.03	275	50	15.02	33.65	5.62	24.95	302	0.16
74	12.90	33.58	4.85	265	75	12.90	33.58	4.85	25.34	265	0.23
88	11.86	33.63	4.26	242	100	11.17	33.69	3.96	25.74	226	0.29
102	11.10	33.69	3.95	225	125	10.01	33.73	3.76	25.97	204	0.35
125	10.01	33.73	3.76	204	150	9.64	34.00	2.67	26.24	178	0.40
144	9.76	33.99	2.71	180	200	8.80	34.11	2.15	26.47	157	0.48
168	9.28	34.02	2.65	171	250	8.52	34.25	1.36	26.63	142	0.56
195	8.82	34.09	2.29	159	300	7.95	34.28	1.17	26.74	131	0.63
223	8.65	34.18	1.68	149	400	6.99	34.34	0.56	26.92	114	0.75
260	8.44	34.27	1.26	139	500	6.27	34.34	0.36	27.02	105	0.87
316	7.74	34.28	1.14	129							
387	7.12	34.34	0.62	116							
450	6.56	34.34	0.42	109							
537	6.02	34.34	0.32	102							

107.50

HUGH M. SMITH; April 11, 1960; 1133 GCT; 29°48'N, 117°22.5'W; sounding, 1500 fm; wind, 330°, force 4; weather, overcast; sea, rough; wire angle, 07°.

0	16.48	33.67	5.31	332	0	16.48	33.67	5.31	24.63	332	0.00
10	16.49	33.69	5.43	330	10	16.49	33.69	5.43	24.65	330	0.03
30	16.30a)	33.66	5.40	328	20	16.42	33.68	5.42	24.66	329	0.07
40	16.20	33.66	5.37	326	30	16.30	33.66	5.40	24.67	328	0.10
55	15.29	33.65	5.44	307	50	15.60	33.66	5.43	24.83	313	0.16
70	14.94	33.62	5.32	303	75	14.67	33.62	5.23	25.00	297	0.24
96	12.98	33.67	4.59	259	100	12.67	33.68	4.46	25.46	253	0.31
115	11.26	33.69	3.96	227	125	10.72	33.76	3.64	25.89	212	0.37
136	10.30	33.82	3.42	202	150	9.98	33.86	3.25	26.09	193	0.42
156	9.88	33.87	3.21	191	200	8.91	34.00	2.51	26.38	166	0.51
186	9.26	33.93	2.87	177	250	8.33	34.20	1.39	26.62	143	0.59
221	8.50	34.13	1.99	151	300	7.65	34.31	1.19	26.80	125	0.66
251	8.32	34.20	1.38	143	400	6.93	34.32	0.47	26.92	115	0.78
301	7.64	34.31	1.18	125	500	6.27	34.39	0.29	27.06	101	0.90
356	7.40	34.31	0.65	122	600	5.67	34.40	0.23	27.14	93	1.00
441	6.56	34.36	0.35	107							
529	6.12	34.41	0.28	98							
620	5.53	34.40	0.22	92							

107.60

HUGH M. SMITH; April 11, 1960; 1718 GCT; 29°27'N, 118°05.5'W; sounding, 1800 fm; wind, 330°, force 5; weather, cloudy; sea, rough; wire angle, 25°.

1	16.59	33.66	5.36	335	0	(16.59)	(33.66)	(5.36)	(24.60)	(335)	(0.00)
11	16.58	33.66	5.55	334	10	16.58	33.66	5.54	24.61	334	0.03
30	16.46	33.65	5.53	332	20	16.57	33.66	5.55	24.61	334	0.07
38	16.16	33.60	5.62	330	30	16.46	33.65	5.53	24.63	332	0.10
51	15.72	33.65	5.62	316	50	15.97	33.65	5.62	24.75	321	0.17
64	15.40	33.57	5.65	315	75	15.37	33.58	5.65	24.83	313	0.24
84	14.92	33.58	5.66	305	100	14.14	33.57	5.35	25.07	290	0.32
100	14.14	33.57	5.35	290	125	12.00	33.61	4.66	25.53	246	0.39
117	12.70	33.64	4.87	257	150	10.04	33.68	4.23	25.93	208	0.45
134	11.15	33.58	4.44	233	200	8.91	33.92	3.06	26.31	172	0.54
158	9.72	33.74	4.08	198	250	8.20	34.04	2.09	26.51	153	0.63
186	9.12	33.88	3.31	178	300	7.68	34.11	1.53	26.64	141	0.70
211	8.73	33.95	2.86	167	400	6.63	34.17	1.00	26.84	122	0.84
253	8.14	34.05	2.00	151	500	6.18	34.31	0.33	27.01	106	0.96
301	7.68	34.11	1.53	141							
376	6.74	34.14	1.16	126							
453	6.38	34.25	0.55	113							
532	6.04	34.34	0.25	102							

190

a) Alternate value, 16.49°C, not used in interpolation.

OBSERVED				COMPUTED	INTERPOLATED				COMPUTED		
Z	T	S	O ₂	δ _T	Z	T	S	O ₂	σ _t	δ _T	ΔD
m	°C	‰	ml/L	cl/ton	m	°C	‰	ml/L	g/L	cl/ton	dyn m

S10
CCOFI
6004

HUGH M. SMITH; April 12, 1960; 0622 GCT; 29°11.5'N, 118°40'W; sounding, 2440 fm; wind, 320°, force 5; weather, overcast; sea, very rough; wire angle, 25°.

2	16.83	33.75	5.43	333	0	(16.83)	(33.75)	(5.43)	(24.62)	(333)	(0.00)
11	16.82	33.73	5.40	335	10	16.82	33.73	5.40	24.60	335	0.03
29	16.78	33.69	5.48	336	20	16.80	33.70	5.44	24.59	336	0.07
38	15.83	33.57	5.56	324	30	16.78	33.69	5.48	24.59	336	0.10
52	15.62	33.53	5.58	323	50	15.65	33.53	5.57	24.72	323	0.17
66	15.46	33.51	5.57	321	75	15.25	33.50	5.65	24.79	317	0.25
88	14.76	33.43	5.79	312	100	14.53	33.43	5.68	24.89	307	0.33
106	14.48	33.44	5.65	306	125	14.47	33.55	5.45	25.00	297	0.40
124	14.47	33.55	5.46	298	150	12.73	33.73	4.71	25.48	251	0.47
142	13.38	33.73	4.99	263	200	9.50	33.83	3.95	26.14	188	0.58
168	11.40	33.73	4.10	227	250	8.42	34.01	2.85	26.45	159	0.67
198	9.58	33.81	4.01	190	300	7.91	34.11	2.26	26.62	143	0.75
225	8.79	33.96	3.09	168	400	7.11	34.27	0.90	26.85	121	0.89
270	8.18	34.05	2.64	152	500	5.98	34.28	0.65	27.01	106	1.01
320	7.72	34.16	1.94	137							
398	7.12	34.27	0.91	121							
478	6.08	34.25	0.73	109							
560	5.72	34.34	0.43	98							

107.70

HUGH M. SMITH; April 12, 1960; 1405 GCT; 29°01'N, 119°19'W; sounding, 2000+ fm; wind, 310°, force 6; weather, partly cloudy; sea, very rough; wire angle, 28°.

2	16.66	33.78	5.52	328	0	(16.66)	(33.78)	(5.52)	(24.67)	(328)	(0.00)
10	16.64	33.75	5.49	329	10	16.64	33.75	5.49	24.66	329	0.03
33	16.58	33.78	5.54	326	20	16.62	33.76	5.51	24.67	328	0.07
60	16.31	33.75	5.58	322	30	16.60	33.78	5.53	24.69	326	0.10
68	16.29	33.71	5.57	324	50	16.35	33.75	5.56	24.72	323	0.16
87	16.21	33.73	5.48	321	75	16.27	33.72	5.54	24.72	323	0.24
99	16.16	33.73	5.55	320	100	16.15	33.73	5.56	24.76	320	0.33
113	15.12	33.51	5.67	314	125	14.92	33.59	5.51	24.92	304	0.40
139	14.40	33.82	5.08	276	150	13.58	33.79	4.90	25.37	262	0.48
156	13.13	33.78	4.80	255	200	10.03	33.78	4.25	26.02	200	0.59
181	11.06	33.78	4.61	217	250	8.79	33.94	3.34	26.34	169	0.69
211	9.58	33.80	4.05	191	300	8.14	34.06	2.49	26.55	150	0.77
236	9.02	33.88	3.63	177	400	6.99	34.18	1.33	26.80	126	0.92
279	8.34	34.02	2.87	156	500	5.99	34.28	0.58	27.02	105	1.04
336	7.78	34.14	1.88	139							
426	6.67	34.20	1.12	120							
507	5.92	34.29	0.56	104							
578	5.60	34.36	0.45	95							

107.80

HUGH M. SMITH; April 12, 1960; 2205 GCT; 28°33'N, 119°59'W; sounding, 2000+ fm; wind, 310°, force 6; weather, partly cloudy; sea, high; wire angle, 25°.

3	16.87	33.78	-	332	0	(16.87)	(33.78)	-	(24.63)	(332)	(0.00)
12	16.85	33.73	5.43	335	10	16.86	33.73	-	24.60	335	0.03
35	16.76	33.71	5.46	335	20	16.83	33.72	5.44	24.60	335	0.07
62	16.46	33.77	5.50	324	30	16.79	33.72	5.45	24.60	335	0.10
71	16.38	33.75	5.46	323	50	16.50	33.75	5.50	24.69	326	0.17
89	16.15	33.77	5.38	317	75	16.34	33.76	5.41	24.74	322	0.25
103	15.55	33.78	5.21	303	100	15.78	33.78	5.28	24.88	308	0.33
116	14.40	33.79	4.87	279	125	13.50	33.80	4.53	25.38	260	0.40
144	12.21	33.84	3.84	233	150	11.96	33.85	3.66	25.72	228	0.46
162	11.49	33.88	3.23	217	200	10.53	34.06	2.30	26.15	188	0.57
189	10.80	34.02	2.47	195	250	9.68	34.20	1.76	26.41	163	0.66
221	10.03	34.13	2.06	175	300	9.04	34.34	1.35	26.61	144	0.74
248	9.70	34.20	1.77	164	400	7.97	34.38	0.74	26.82	124	0.88
295	9.08	34.33	1.40	145	500	6.76	34.38	0.40	26.99	108	1.00
355	8.64	34.41	0.91	132	600	5.94	34.38	0.36	27.09	98	1.11
446	7.26	34.36	0.59	116							
530	6.48	34.38	0.36	105							
602	5.92	34.38	0.36	98							

107.90

SIO
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6004

OBSERVED				COMPUTED	INTERPOLATED				COMPUTED		
Z	T	S	O ₂	δ _T	Z	T	S	O ₂	σ _t	δ _T	ΔD
m	°C	‰	ml/L	cl/ton	m	°C	‰	ml/L	g/L	cl/ton	dyn m

110.33

HUGH M. SMITH; April 14, 1960; 1819 GCT; 29°49'N, 115°52'W; sounding, 43 fm; wind, 340°, force 4; weather, cloudy; sea, rough; wire angle, 03°.

1	13.90	33.64	5.70	280	0	(13.90)	(33.64)	(5.70)	(25.18)	(280)	(0.00)
11	13.87	33.63	5.69	280	10	13.87	33.63	5.69	25.18	280	0.03
31	12.21a)	33.60	4.59	251	20	13.83	33.63	5.65	25.19	279	0.06
51	10.92	33.73	3.60	218	30	12.27	33.60	4.63	25.48	252	0.08
					50	10.96	33.72	3.64	25.81	219	0.13

110.35

HUGH M. SMITH; April 14, 1960; 1643 GCT; 29°45'N, 116°01'W; sounding, 700+ fm; wind, 340°, force 4; weather, cloudy; sea, rough; wire angle, 19°.

0	15.22	33.62	5.84	308	0	15.22	33.62	5.84	24.88	308	0.00
10	15.22	33.60	5.92	309	10	15.22	33.60	5.92	24.87	309	0.03
29	13.20	33.56	5.43	272	20	14.48	33.59	5.74	25.01	295	0.06
38	12.75	33.58	5.01	262	30	13.18	33.56	5.41	25.26	272	0.09
53	11.32	33.69	4.08	228	50	11.63	33.66	4.28	25.64	236	0.14
68	10.79	33.77	3.85	213	75	10.52	33.80	3.71	25.95	206	0.20
91	9.93	33.86	3.41	192	100	9.76	33.91	3.36	25.16	186	0.25
109	9.58	33.95	3.33	180	125	9.22	33.96	3.29	26.29	174	0.29
127	9.20	33.96	3.28	174	150	9.34	34.14	2.25	26.41	163	0.33
145	9.30	34.11	2.43	164	200	9.00	34.27	1.47	26.56	148	0.41
172	9.44	34.25	1.54	156	250	8.72	34.39	0.87	26.70	135	0.48
203	8.99	34.27	1.46	147	300	8.17	34.42	0.63	26.81	125	0.55
230	8.89	34.37	1.03	139	400	7.05	34.40	0.43	26.96	111	0.67
274	8.46	34.40	0.71	130	500	6.30	34.42	0.29	27.07	100	0.78
324	7.86	34.42	0.55	120							
401	7.03	34.40	0.42	110							
480	6.46	34.41	0.30	102							
560	5.85	34.43	0.29	93							

110.40

HUGH M. SMITH; April 14, 1960; 1311 GCT; 29°31.5'N, 116°25'W; sounding, 1170 fm; wind, 330°, force 4; weather, partly cloudy; sea, very rough; wire angle, 21°.

2	16.26	33.72	5.62	323	0	(16.26)	(33.72)	(5.62)	(24.73)	(323)	(0.00)
11	16.28	33.71	5.64	324	10	16.28	33.71	5.63	24.72	324	0.03
30	16.29	33.70	5.61	325	20	16.28	33.70	5.62	24.72	324	0.06
39	16.29	33.69	5.60	326	30	16.29	33.70	5.61	24.71	325	0.10
53	15.74	33.69	5.64	313	50	16.14	33.69	5.62	24.73	323	0.16
67	15.14	33.73	5.62	298	75	14.34	33.69	5.50	25.12	285	0.24
91	12.60	33.60	4.82	258	100	12.00	33.67	4.37	25.58	241	0.30
109	11.42	33.77	3.92	224	125	10.90	33.88	3.34	25.94	207	0.36
128	10.79	33.89	3.23	204	150	10.28	33.95	2.87	26.11	191	0.41
147	10.32	33.94	2.90	193	200	9.76	34.17	2.00	26.36	167	0.50
175	9.95	34.02	2.70	181	250	8.96	34.30	1.30	26.60	145	0.58
208	9.67	34.22	1.73	162	300	8.26	34.33	0.96	26.73	133	0.66
236	9.18	34.29	1.42	149	400	7.36	34.34	0.59	26.87	119	0.78
283	8.46	34.31	1.08	137	500	6.35	34.36	0.39	27.03	104	0.90
334	7.88	34.34	0.78	126							
414	7.22	34.34	0.56	117							
494	6.39	34.36	0.39	104							
576	5.83	34.39	0.51	96							

a) Alternate value, 13.80°C, not used in interpolation.

OBSERVED				COMPUTED	INTERPOLATED				COMPUTED		
Z	T	S	O ₂	δ _T	Z	T	S	O ₂	σ _t	δ _T	ΔD
m	°C	‰	ml/L	cl/ton	m	°C	‰	ml/L	g/L	cl/ton	dyn m

SIO
CCOFI
6004

HUGH M. SMITH; April 14, 1960; 0720 GCT; 29°14'N, 117°02'W; sounding, 1985 fm; wind, 330°, force 5; weather, partly cloudy; sea, very rough; wire angle, 20°.

110.50

1	16.43	33.67	5.54	330	0	(16.43)	(33.67)	(5.54)	(24.65)	(330)	(0.00)
11	16.43	33.68	5.58	330	10	16.43	33.68	5.58	24.65	330	0.03
35	16.37	33.68	5.57	328	20	16.42	33.68	5.58	24.66	329	0.07
63	15.48	33.63	5.64	313	30	16.39	33.68	5.57	24.66	329	0.10
72	15.05	33.64	5.64	303	50	16.12	33.67	5.58	24.72	324	0.16
91	13.64	33.64	5.06	274	75	14.79	33.64	5.56	25.00	297	0.24
105	12.30	33.65	4.30	249	100	12.74	33.65	4.53	25.42	257	0.31
119	11.98	33.74	4.08	236	125	11.76	33.78	4.00	25.71	229	0.37
147	10.37	33.87	3.60	198	150	10.17	33.87	3.53	26.07	195	0.43
165	9.62	33.86	3.34	188	200	9.07	34.05	2.57	26.39	165	0.52
193	9.12	34.02	2.69	168	250	8.57	34.23	1.71	26.60	144	0.60
224	8.90	34.14	2.18	156	300	8.23	34.33	1.13	26.74	132	0.67
251	8.56	34.23	1.70	144	400	7.20	34.39	0.57	26.94	113	0.80
297	8.26	34.33	1.15	132	500	6.22	34.42	0.36	27.09	98	0.91
357	7.62	34.34	0.82	123	600	5.52	34.43	0.30	27.19	89	1.01
450	6.70	34.42	0.40	104							
536	5.88	34.42	0.33	94							
610	5.47	34.43	0.29	89							

HUGH M. SMITH; April 14, 1960; 0100 GCT; 28°56.5'N, 117°45'W; sounding, 2000+ fm; wind, 330°, force 5; weather, clear; sea, high; wire angle, 31°.

110.60

4	16.62	33.69	5.16	333	0	(16.62)	(33.69)		(24.62)	(333)	(0.00)
12	16.61	33.66	5.22	335	10	16.62	33.67	5.21	24.60	335	0.03
34	16.54	33.68	5.12	332	20	16.60	33.67	5.19	24.60	335	0.07
60	16.46	33.67	5.21	331	30	16.57	33.67	5.16	24.61	334	0.10
69	16.37	33.67	5.19	329	50	16.50	33.67	5.15	24.64	331	0.17
86	15.70	33.64	5.58	317	75	16.22	33.66	5.27	24.69	326	0.25
97	15.36	33.63	5.50	310	100	15.25	33.64	5.46	24.89	307	0.33
110	14.86	33.66	5.28	298	125	14.06	33.66	5.04	25.17	281	0.40
135	13.49	-	4.88	-	150	12.23	33.68	4.47	25.54	245	0.47
149	12.30	33.68	4.50	246	200	9.75	33.84	3.43	26.11	191	0.58
170	10.84	33.71	4.14	219	250	8.82	34.01	2.70	26.39	165	0.67
194	9.84	33.82	3.51	194	300	8.11	34.14	1.76	26.60	145	0.75
215	9.45	33.90	3.15	182	400	7.43	34.28	0.79	26.81	125	0.89
253	8.78	34.02	2.65	163	500	6.43	34.32	0.49	26.98	108	1.02
302	8.08	34.14	1.74	144							
384	7.58	34.27	0.90	127							
462	6.85	34.31	0.50	115							
530	6.10	34.33	0.49	104							

HUGH M. SMITH; April 13, 1960; 1903 GCT; 28°39'N, 118°18'W; sounding, 2000 fm; wind, 330°, force 5; weather, partly cloudy; sea, high; wire angle, 12°.

110.70

1	16.57	33.66	5.50	334	0	(16.57)	(33.66)	(5.50)	(24.61)	(334)	(0.00)
11	16.54	33.66	5.47	333	10	16.54	33.66	5.48	24.62	333	0.03
35	16.50	33.67	5.47	332	20	16.53	33.66	5.47	24.62	333	0.07
64	15.86	33.64	5.54	320	30	16.51	33.67	5.47	24.63	332	0.10
74	15.56	33.66	5.53	312	50	16.44	33.67	5.48	24.64	331	0.17
94	14.50	33.63	5.25	292	75	15.55	33.66	5.53	24.85	311	0.25
108	14.36	33.77	5.03	279	100	14.45	33.69	5.16	25.10	287	0.32
124	13.50	33.75	4.95	264	125	13.44	33.75	4.94	25.36	263	0.39
153	11.44	33.66	4.39	233	150	11.66	33.66	4.46	25.64	236	0.46
173	10.40	33.72	4.17	210	200	9.33	33.81	3.63	26.16	187	0.56
203	9.20	33.82	3.55	184	250	8.47	34.01	2.88	26.45	159	0.65
237	8.52	33.94	3.25	165	300	7.91	34.09	2.05	26.59	145	0.73
266	8.36	34.07	2.29	153	400	6.62	34.18	1.09	26.85	121	0.87
315	7.68	34.09	1.92	142	500	6.04	34.30	0.42	27.02	105	0.99
379	6.74	34.15	1.22	125	600	5.53	34.39	0.33	27.16	92	1.09
478	6.16	34.29	0.44	107							
567	5.66	34.45a)	0.40	-							
641	5.37	34.42	0.27	88							

a) Possible evaporation; value does not fall on property curve.

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OBSERVED				COMPUTED	INTERPOLATED				COMPUTED		
Z	T	S	O ₂	δ _T	Z	T	S	O ₂	σ _t	δ _T	ΔD
m	°C	‰	ml/L	cl/ton	m	°C	‰	ml/L	g/L	cl/ton	dyn m

110.80

HUGH M. SMITH; April 13, 1960; 1149 GCT; 28°23.5'N, 119°05.5'W; sounding, 2000+ fm; wind, 310°, force 6; weather, partly cloudy; sea, high; wire angle, 17°.

2	16.82	33.73	5.45	335	0	(16.82)	(33.73)	(5.45)	(24.60)	(335)	(0.00)
11	16.82	33.75	5.46	333	10	16.82	33.75	5.46	24.62	333	0.03
35	16.81	33.73	5.36	334	20	16.82	33.75	5.43	24.62	333	0.07
64	16.32	33.71	5.37	325	30	16.81	33.73	5.38	24.61	334	0.10
73	16.23	33.71	5.55	323	50	16.40	33.71	5.37	24.68	328	0.17
94	15.96	33.69	5.53	318	75	16.21	33.71	5.54	24.73	323	0.25
108	15.56	33.66	5.42	312	100	15.86	33.68	5.52	24.79	317	0.33
122	14.34	33.66	5.28	287	125	14.18	33.67	5.23	25.15	283	0.40
151	12.61	33.80	4.52	243	150	12.67	33.80	4.53	25.55	244	0.47
170	11.10	33.78	4.26	218	200	9.69	33.87	3.44	26.14	188	0.58
199	9.72	33.87	3.45	188	250	8.71	34.08	2.56	26.47	157	0.67
233	8.98	34.01	2.98	166	300	8.00	34.13	1.92	26.62	143	0.75
262	8.54	34.13	2.25	151	400	7.14	34.25	0.90	26.83	123	0.89
311	7.88	34.13	1.83	142	500	6.20	34.26	0.47	26.98	110	1.01
374	7.40	34.25	1.08	126	600	5.56	34.32	0.30	27.10	97	1.12
472	6.42	34.24	0.57	114							
565	5.74	34.30	0.33	102							
641	5.36	34.35	0.30	93							

110.90

HUGH M. SMITH; April 13, 1960; 0317 GCT; 27°56.5'N, 119°35.5'W; sounding, 2000+ fm; wind, 310°, force 6; weather, partly cloudy; sea, high; wire angle, 23°.

3	17.04	33.86	5.63	330	0	(17.04)	(33.86)	(5.63)	(24.65)	(330)	(0.00)
12	17.04	33.83	5.53	332	10	17.04	33.84	5.54	24.63	332	0.03
35	17.04	33.85	5.52	331	20	17.04	33.84	5.53	24.64	331	0.07
62	17.16	33.89	5.50	331	30	17.04	33.85	5.52	24.64	331	0.10
72	17.47	34.09	5.41	323	50	17.04	33.86	5.51	24.64	331	0.17
90	16.55	33.87	5.46	318	75	17.40	34.08	5.42	24.74	322	0.25
104	15.77	33.77	5.33	308	100	16.03	33.80	5.37	24.84	312	0.33
118	13.95	33.68	5.00	278	125	13.58	33.68	4.93	25.28	270	0.40
146	11.32	33.69	4.48	228	150	11.19	33.70	4.42	25.75	225	0.46
165	10.75	33.77	4.19	213	200	9.54	33.87	3.67	26.17	185	0.57
193	9.66	33.86	3.83	189	250	9.01	34.12	2.13	26.45	159	0.66
225	9.24	33.96	2.87	175	300	8.27	34.23	1.63	26.65	140	0.73
253	8.97	34.13	2.07	157	400	7.51	34.31	0.84	26.82	123	0.87
300	8.27	34.23	1.63	140	500	6.60	(34.36)	0.40	(26.99)	(108)	(0.99)
361	7.88	34.28	1.09	130	600	5.93		0.35			
459	6.93	34.34	0.50	113							
552	6.24	34.45u	0.36	-							
626	5.75	34.38u	0.34	-							

113.30

HUGH M. SMITH; April 14, 1960; 2235 GCT; 29°22'N, 115°18'W; sounding, 35 fm; wind, 340°, force 5; weather, cloudy; sea, rough; wire angle, 08°.

2	13.31	33.88	5.24	251	0	(13.31)	(33.88)	(5.24)	(25.49)	(251)	(0.00)
12	13.30	33.86	5.14	252	10	13.30	33.86	5.15	25.47	252	0.03
32	12.65	33.91	3.94	236	20	13.17	33.88	4.85	25.51	248	0.05
42	11.78	33.87	3.01	223	30	12.73	33.91	4.02	25.62	237	0.07

OBSERVED				COMPUTED	INTERPOLATED				COMPUTED		
Z	T	S	O ₂	δ _T	Z	T	S	O ₂	σ _t	δ _T	ΔD
m	°C	‰	ml/L	cl/ton	m	°C	‰	ml/L	g/L	cl/ton	dyn m

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HUGH M. SMITH; April 15, 1960; 0132 GCT; 29°12'N, 115°37'W; sounding, 535 fm; wind, 340°, force 5; weather, partly cloudy; sea, rough; wire angle, 34°.

113.35

0	14.10	33.66	5.78	282	0	14.10	33.66	5.78	(25.15)	(282)	(0.00)
9	14.09	33.66	5.89	281	10	14.07	33.66	5.90	25.16	281	0.03
30	13.23	33.78	6.06	257	20	13.44	33.72	6.06	25.34	265	0.06
38	12.26	33.73	4.68	242	30	13.23	33.78	6.06	25.42	257	0.08
51	11.52	33.69	4.17	232	50	11.57	33.69	4.18	25.68	232	0.13
63	10.72	33.76	3.73	213	75	10.54	33.85	3.36	25.98	203	0.18
83	10.45	33.89	3.12	199	100	10.37	33.92	2.91	26.07	195	0.24
100	10.37	33.92	2.91	195	125	9.40	34.00	2.86	26.29	174	0.28
116	9.56	33.96	2.92	179	150	9.21	34.10	2.44	26.40	164	0.32
141	9.28	34.07	2.65	167	200	9.55	34.38	1.07	26.57	148	0.40
163	9.17	34.14	2.04	160	250	9.03	34.39	0.93	26.65	140	0.48
195	9.58	34.36	1.11	150	300	8.63	34.41	0.65	26.74	132	0.55
219	9.39	34.40	0.99	144	400	7.40	34.40	0.36	26.91	115	0.68
259	8.91	34.38	0.90	138	500	6.39	34.38	0.39	27.04	103	0.79
314	8.51	34.42	0.54	129							
404	7.33	34.40	0.36	114							
489	6.48	34.38	0.40	105							
560	6.02	34.38	0.36	99							

HUGH M. SMITH; April 15, 1960; 0455 GCT; 29°02'N, 115°57'W; sounding, 1007 fm; wind, 340°, force 5; weather, partly cloudy; sea, rough; wire angle, 46°.

113.40

1	15.16	33.63	5.72	306	0	(15.16)	(33.63)	(5.72)	(24.90)	(306)	(0.00)
10	15.16	33.62	5.75	306	10	15.16	33.62	5.75	24.90	306	0.03
26	14.59	33.62	5.73	295	20	14.95	33.62	5.74	24.94	303	0.06
33	14.30	33.59	5.57	291	30	14.37	33.60	5.62	25.05	292	0.09
43	13.43	33.58	5.10	275	50	12.62	33.59	4.68	25.40	259	0.15
54	12.20	33.60	4.44	250	75	11.32	33.66	4.10	25.69	231	0.21
72	11.52	33.64	4.20	235	100	10.10	33.89	2.87	26.09	193	0.26
82	10.98	33.71	3.81	221	125	9.66	33.98	2.67	26.24	179	0.31
92	10.36	33.81	3.30	203	150	9.20	34.00	2.67	26.32	171	0.35
107	9.96	33.95	2.57	186	200	8.28	34.12	2.03	26.57	148	0.43
121	9.78	33.97	2.66	182							
142	9.28	34.00	2.68	172							
158	9.10	34.00	2.66	169							
184	8.55	34.11	2.22	153							
224	7.94	34.14	1.75	141							

HUGH M. SMITH; April 19, 1960; 0900 GCT; 29°00'N, 115°59.5'W; sounding, 900 fm; wind, 290°, force 4; weather, partly cloudy; sea, very rough; wire angle, 31°.

113.40

1	16.68	33.68	5.55	335	0	(16.68)	(33.68)	(5.55)	(24.60)	(335)	(0.00)
10	16.70	33.66	5.61	337	10	16.70	33.66	5.61	24.58	337	0.03
28	16.62	33.66	5.59	335	20	16.69	33.66	5.61	24.58	337	0.07
36	16.45	33.66	5.64	331	30	16.60	33.66	5.60	24.60	335	0.10
48	16.04	33.65	5.63	323	50	15.96	33.65	5.63	24.75	321	0.17
60	15.46	33.62	5.63	313	75	13.45	33.58	5.03	25.23	275	0.24
78	12.96	33.58	4.80	266	100	11.64	33.72	3.90	25.68	232	0.30
94	11.98	33.67	4.12	241	125	10.53	33.79	3.55	25.94	207	0.36
107	11.26	33.77	3.66	222	150	9.86	33.97	2.73	26.18	184	0.41
123	10.60	33.78	3.59	210	200	9.40	34.13	2.07	26.39	165	0.50
145	9.90	33.94	2.86	186	250	9.21	34.29	1.25	26.55	150	0.58
171	9.76	34.04	2.37	177	300	8.90	34.39	0.81	26.68	137	0.66
195	9.44	34.11	2.15	167	400	7.45	34.38	0.40	26.89	117	0.79
234	9.20	34.23	1.50	154	500	6.38	34.35	0.57	27.02	105	0.90
279	9.25	34.40	0.91	142							
352	7.98	34.36	0.63	126							
428	7.14	34.38	0.36	113							
507	6.30	34.35	0.60	105							

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OBSERVED				COMPUTED	INTERPOLATED				COMPUTED		
Z	T	S	O ₂	δ _T	Z	T	S	O ₂	σ _t	δ _T	ΔD
m	°C	‰	ml/L	cl/ton	m	°C	‰	ml/L	g/L	cl/ton	dyn m

113.50

HUGH M. SMITH; April 15, 1960; 1100 GCT; 28°41.5'N, 116°36.5'W; sounding, 1900 fm; wind, 340°, force 4; weather, overcast; sea, very rough; wire angle, 17°.

0	16.14	33.71	5.53	321	0	16.14	33.71	5.53	24.75	321	0.00
9	16.14	33.80u	5.58	-	10	16.14	33.71	5.58	24.75	321	0.03
33	16.14	33.70	5.60	321	20	16.14	33.70	5.59	24.75	321	0.06
43	16.08	33.72	5.59	319	30	16.14	33.70	5.60	24.75	321	0.10
57	15.25	33.62	5.62	309	50	16.00	33.71	5.59	24.79	317	0.16
71	14.84	33.64	5.64	299	75	14.84	33.65	5.63	24.98	299	0.24
95	13.36	33.63	5.08	270	100	13.06	33.62	4.97	25.34	265	0.31
113	12.43	33.60	4.74	255	125	11.89	33.70	4.50	25.63	237	0.37
132	11.50	33.75	4.41	227	150	10.40	33.81	4.23	25.98	204	0.43
159	9.75	33.84	4.06	191	200	9.31	33.99	2.93	26.29	174	0.52
187	9.51	33.96	3.19	178	250	8.40	34.13	2.17	26.56	149	0.61
224	8.76	34.03	2.48	162	300	8.40	34.33	1.11	26.71	134	0.68
252	8.38	34.14	2.12	148	400	8.85	34.45	0.43	26.89	117	0.81
298	8.40	34.23	1.12	134	500	6.73	34.44	0.30	27.04	103	0.93
360	8.20	34.43	0.51	124	600	5.90	34.41	0.27	27.12	96	1.03
457	7.17	34.45	0.33	108							
543	6.30	34.42	0.29	99							
618	5.78	34.40	0.27	94							

113.60

HUGH M. SMITH; April 15, 1960; 1716 GCT; 28°21.5'N, 117°17.5'W; sounding, 2000+ fm; wind, 320°, force 5; weather, partly cloudy; sea, high; wire angle, 10°.

1	17.06	33.78	5.51	336	0	(17.06)	(33.78)	(5.51)	(24.58)	(336)	(0.00)
11	17.05	33.76	5.54	338	10	17.05	33.76	5.54	24.57	338	0.03
35	17.02	33.78	5.60	335	20	17.04	33.77	5.56	24.58	337	0.07
65	16.00	33.73	5.67	316	30	17.03	33.78	5.59	24.59	336	0.10
75	15.39	33.73	5.64	303	50	17.00	33.78	5.61	24.60	335	0.17
94	14.76	33.68	5.60	294	75	15.39	33.73	5.64	24.94	303	0.25
110	14.23	33.68	5.19	283	100	14.69	33.68	5.55	25.05	292	0.32
125	13.26	33.73	4.36	261	125	13.26	33.73	4.36	25.38	261	0.39
154	10.96	33.83	3.37	212	150	11.38	33.81	3.51	25.80	220	0.46
174	10.20	33.95	3.21	190	200	10.05	34.06	2.37	26.24	179	0.56
203	10.04	34.09	2.21	178	250	10.19	34.48	0.85	26.54	151	0.64
238	10.58	34.50	0.74	156	300	9.33	34.46	0.73	26.67	138	0.72
268	9.56	34.43	1.04	144	400	7.91	34.44	0.53	26.86	120	0.85
317	9.20	34.49	0.59	134	500	6.92	34.43	0.33	27.01	106	0.97
381	8.13	34.44	0.55	122	600	6.04	34.44	0.25	27.13	94	1.08
479	7.10	34.43	0.35	109							
570	6.26	34.44	0.27	97							
643	5.70	34.44	0.24	91							

113.70

HUGH M. SMITH; April 16, 1960; 0005 GCT; 28°14'N, 118°02'W; sounding, 1800 fm; wind, 320°, force 5; weather, cloudy; sea, high; wire angle, 22°. ^{a)}

2	17.09	33.78	5.52	337	0	(17.09)	(33.78)	(5.52)	(24.58)	(337)	(0.00)
12	17.10	33.79	6.08	336	10	17.10	33.79	5.96	24.59	336	0.03
36	17.05	33.78	5.56	336	20	17.09	33.79	5.92	24.59	336	0.07
65	16.24	33.77	5.71	319	30	17.07	33.78	5.70	24.59	336	0.10
75	15.54	33.74	5.67	306	50	17.02	33.78	5.57	24.60	335	0.17
95	14.23	33.71	5.05	281	75	15.54	33.74	5.67	24.90	306	0.25
109	13.28	33.69	4.34	264	100	13.92	33.70	4.79	25.23	275	0.32
123	12.24	33.70	4.24	244	125	12.17	33.71	4.20	25.58	242	0.39
152	11.35	33.96	2.59	209	150	11.42	33.95	2.67	25.90	211	0.44
171	10.62	34.04	2.37	191	200	10.56	34.36	1.23	26.38	166	0.54
200	10.56	34.36	1.23	166	250	9.58	34.34	1.28	26.53	151	0.62
233	10.10	34.41	1.05	155	300	8.67	34.36	1.10	26.69	136	0.70
262	9.20	34.30	1.41	149	400	7.29	34.32	0.71	26.86	120	0.83
309	8.55	34.36	1.02	134	500	6.37	34.36	0.38	27.02	105	0.95
372	7.60	34.31	0.86	125	600	5.75	34.41	0.33	27.14	94	1.05
473	6.56	34.34	0.43	108							
562	5.97	34.39	0.34	97							
635	5.62	34.42	0.32	91							

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a) An assumed wire angle of 12° was used in depth determination.

OBSERVED				COMPUTED	INTERPOLATED				COMPUTED		
Z	T	S	O ₂	δ _T	Z	T	S	O ₂	σ _t	δ _T	ΔD
m	°C	‰	ml/L	cl/ton	m	°C	‰	ml/L	g/L	cl/ton	dyn m

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HUGH M. SMITH; April 16, 1960; 0733 GCT; 27°30'N, 118°27'W; sounding, 2000+ fm; wind, 320°, force 5; weather, cloudy; sea, high; wire angle, 18°.

113.80

1	16.84	33.79	5.60	331	0	(16.84)	(33.79)	(5.60)	(24.64)	(331)	(0.00)
10	16.85	33.71	5.55	337	10	16.85	33.71	5.55	24.58	337	0.03
34	16.84	33.73	5.53	335	20	16.85	33.72	5.54	24.59	336	0.07
44	16.86	33.71	5.53	337	30	16.85	33.73	5.53	24.60	335	0.10
58	15.79	33.66	5.65	317	50	16.09	33.67	5.62	24.73	323	0.17
72	15.45	33.73	5.71	305	75	15.39	33.73	5.69	24.93	304	0.24
96	14.55	33.62	5.40	294	100	14.31	33.63	5.16	25.09	288	0.32
115	13.24	33.66	4.37	266	125	12.24	33.67	4.15	25.53	246	0.39
133	11.54	33.68	4.07	233	150	10.80	33.72	3.84	25.84	217	0.45
162	10.31	33.77	-	205	200	9.31	33.91	3.00	26.24	179	0.55
190	9.58	33.87	3.13	186	250	8.33	34.04	2.38	26.49	155	0.63
226	8.68	34.00	2.66	163	300	7.83	34.18	1.52	26.68	137	0.71
254	8.28	34.05	2.33	154	400	7.18	34.29	0.64	26.86	120	0.84
302	7.81	34.18	1.51	137	500	6.37	34.36	0.30	27.03	104	0.96
363	7.42	34.27	0.80	125	600	5.73	34.41	0.23	27.14	93	1.06
457	6.73	34.33	0.48	111							
544	5.99	34.40	0.22	97							
617	5.63	34.41	0.24	92							

HUGH M. SMITH; April 16, 1960; 1443 GCT; 27°41'N, 119°06'W; sounding, 2000+ fm; wind, 320°, force 5; weather, partly cloudy; sea, high; wire angle, 17°.

113.90

1	16.90	33.69	5.59	339	0	(16.90)	(33.69)	(5.59)	(24.55)	(339)	(0.00)
10	16.88	33.70	5.54	338	10	16.88	33.70	5.54	24.56	338	0.03
34	16.88	33.70	5.58	338	20	16.88	33.70	5.56	24.56	338	0.07
63	16.28	33.70	5.65	325	30	16.88	33.70	5.57	24.56	338	0.10
72	15.74	33.67	5.67	315	50	16.88	33.70	5.58	24.56	338	0.17
92	15.54	33.73	5.58	307	75	15.70	33.71	5.64	24.85	311	0.25
106	14.98	33.71	5.41	296	100	15.28	33.72	5.49	24.95	301	0.33
120	14.09	33.67	4.92	281	125	13.68	33.67	4.72	25.25	273	0.40
150	11.50	33.70	4.09	231	150	11.50	33.70	4.09	25.69	231	0.46
168	10.60	33.77	3.71	210	200	9.24	33.99	3.47	26.30	173	0.57
196	9.26	33.96	3.67	175	250	8.88	34.15	1.75	26.50	154	0.65
228	9.14	34.13	2.17	160	300	8.30	34.27	1.04	26.68	138	0.73
257	8.76	34.16	1.67	152	400	7.52	34.36	0.51	26.86	120	0.86
305	8.25	34.28	0.99	136	500	6.73	34.36	0.33	26.98	109	0.98
367	7.78	34.35	0.59	124	600	5.91	34.40	0.23	27.11	96	1.09
465	6.98	34.36	0.37	112							
553	6.30	34.37	0.27	103							
629	5.65	34.42	0.22	92							

HUGH M. SMITH; April 18, 1960; 1044 GCT; 28°56.5'N, 114°42'W; sounding, 35 fm; wind, 340°, force 2; weather, fog; sea, rough; wire angle, 00°.

117.26

1	15.43	33.86	5.72	295	0	(15.43)	(33.86)	(5.72)	(25.02)	(295)	(0.00)
11	15.08	33.84	5.59	289	10	15.11	33.84	5.60	25.08	289	0.03
31	12.77	33.82	4.03	245	20	13.70	33.82	4.70	25.36	263	0.06
51	11.52	33.93	2.27	214	30	12.78	33.82	4.05	25.54	245	0.08
					50	11.53	33.93	2.28	25.86	214	0.13

HUGH M. SMITH; April 18, 1960; 0837 GCT; 28°48'N, 114°56.5'W; sounding, 55 fm; wind, 340°, force 2; weather, overcast; sea, rough; wire angle, 00°.

117.30

1	15.31	33.66	5.92	307	0	(15.31)	(33.66)	(5.92)	(24.89)	(307)	(0.00)
11	15.31	33.66	6.01	307	10	15.31	33.66	6.00	24.89	307	0.03
31	13.92	33.66	5.48	279	20	15.20	33.66	5.95	24.92	305	0.06
51	11.66	33.68	4.01	235	30	14.00	33.66	5.50	25.17	280	0.09
76	10.84	33.86	3.17	208	50	11.70	33.68	4.03	25.64	236	0.14
					75	10.84	33.85	3.18	25.93	208	0.20

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6004

OBSERVED				COMPUTED	INTERPOLATED				COMPUTED		
Z	T	S	O ₂	δ_T	Z	T	S	O ₂	σ_t	δ_T	ΔD
m	°C	‰	ml/L	cl/ton	m	°C	‰	ml/L	g/L	cl/ton	dyn m

117.35

HUGH M. SMITH; April 18, 1960; 0553 GCT; 28°38'N, 115°11'W; sounding, 130 fm; wind, 340°, force 2; weather, clear; sea, very rough; wire angle, 02°.

1	15.62	33.66	6.21	314	0	(15.62)	(33.66)	(6.21)	(24.82)	(314)	(0.00)
11	15.42	33.66	6.03	309	10	15.54	33.66	6.14	24.84	312	0.03
31	14.06	33.66	5.41	281	20	14.30	33.66	5.48	25.11	286	0.06
51	11.60	33.88	4.11	219	30	14.07	33.66	5.42	25.16	282	0.09
76	10.72	33.87	3.31	205	50	11.70	33.88	4.17	25.80	221	0.14
101	9.80	34.11	3.42	172	75	10.78	33.87	3.32	25.96	205	0.19
126	9.90	34.33	2.16	157	100	9.80	34.10	3.43	26.30	173	0.24
166	9.88	34.43	1.09	149	125	9.90	34.33	2.16	26.47	157	0.28
206	9.52	34.41	0.89	145	150	9.90	34.40	1.35	26.52	152	0.32
					200	9.60	34.42	0.91	26.59	146	0.40

117.40

HUGH M. SMITH; April 18, 1960; 0043 GCT; 28°27.5'N, 115°35.5'W; sounding, 400 fm; wind, 340°, force 3; weather, clear; sea, very rough; wire angle, 09°.

2	16.10	33.68	6.42	322	0	(16.10)	(33.68)	(6.42)	(24.74)	(322)	(0.00)
12	15.46	33.68	6.40	309	10	15.70	33.68	6.41	24.82	314	0.03
32	13.33	33.76	5.33	260	20	15.00	33.69	6.20	24.98	298	0.06
42	12.81	33.75	5.17	251	30	13.46	33.75	5.40	25.36	263	0.09
52	11.96	33.71	4.50	238	50	12.13	33.71	4.65	25.59	241	0.14
66	10.92	33.72	3.68	219	75	10.60	33.80	3.38	25.93	208	0.20
81	10.53	33.86	3.23	203	100	10.10	33.94	2.80	26.13	189	0.25
100	10.10	33.94	2.80	189	125	9.92	34.10	2.12	26.28	175	0.29
125	9.92	34.10	2.12	175	150	9.12	34.16	2.00	26.47	157	0.34
144	9.09	34.12	2.20	160	200	9.71	34.49	0.54	26.62	143	0.41
173	9.69	34.40	1.01	149	250	8.97	34.45	0.53	26.71	134	0.48
203	9.70	34.49	0.53	142	300	8.37	34.45	0.44	26.81	125	0.55
231	9.08	34.43	0.64	137	400	7.65	34.43	0.53	26.89	117	0.67
270	8.85	34.48	0.48	130	500	6.82	34.39	0.37	26.99	108	0.79
329	7.94	34.43	0.46	120							
402	7.64	34.43	0.54	117							
476	7.07	34.40	0.37	111							
555	6.13	34.39	0.44	99							

117.50

HUGH M. SMITH; April 17, 1960; 1846 GCT; 28°08.5'N, 116°13.5'W; sounding, 2500 fm; wind, 340°, force 2; weather, cloudy; sea, very rough; wire angle, 07°.

1	16.38	33.71	5.71	326	0	(16.38)	(33.71)	(5.71)	(24.69)	(326)	(0.00)
11	16.18	33.68	5.69	324	10	16.18	33.68	5.69	24.71	324	0.03
31	15.88	33.69	5.75	317	20	16.13	33.68	5.70	24.73	323	0.06
41	15.56	33.68	5.93	311	30	15.91	33.69	5.75	24.79	317	0.10
56	15.52	33.68	5.84	310	50	15.54	33.68	5.86	24.86	310	0.16
71	15.11	33.66	5.83	303	75	14.84	33.65	5.75	24.98	298	0.24
96	13.06	33.60	5.00	267	100	12.60	33.62	4.85	25.42	257	0.31
115	11.12	33.72	4.40	223	125	10.79	33.82	3.64	25.91	210	0.36
135	10.44	33.90	2.95	198	150	9.54	33.93	3.18	26.22	181	0.42
155	9.38	33.96	3.21	176	200	8.96	34.11	2.27	26.45	159	0.50
186	9.05	34.05	2.54	165	250	8.48	34.20	1.58	26.60	145	0.58
220	8.80	34.16	2.00	153	300	7.76	34.20	1.46	26.70	135	0.65
250	8.48	34.20	1.58	145	400	7.28	34.35	0.70	26.89	117	0.78
300	7.76	34.20	1.46	135	500	6.50	34.38	0.31	27.02	105	0.90
354	7.50	34.27	0.99	126	600	5.72	34.42	0.25	27.15	92	1.00
439	7.04	34.38	0.55	112							
524	6.29	34.38	0.25	102							
609	5.66	34.43	0.25	91							

OBSERVED				COMPUTED	INTERPOLATED				COMPUTED		
Z	T	S	O ₂	δ _T	Z	T	S	O ₂	σ _t	δ _T	ΔD
m	°C	‰	ml/L	cl/ton	m	°C	‰	ml/L	g/L	cl/ton	dyn m

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6004

HUGH M. SMITH; April 17, 1960; 1307 GCT; 27°51'N, 116°55'W; sounding, 1900 fm; wind, 340°, force 3; weather, overcast; sea, very rough; wire angle, 13°.

117.60

1	16.65	33.64	5.58	337	0	(16.65)	(33.64)	(5.58)	(24.58)	(337)	(0.00)
11	16.64	33.67	5.73	335	10	16.64	33.67	5.72	24.60	335	0.03
30	16.59	33.69	5.69	332	20	16.63	33.68	5.72	24.61	334	0.07
40	16.54	33.64	5.53	335	30	16.59	33.69	5.69	24.63	332	0.10
57	15.88	33.73	5.52	314	50	16.10	33.71	5.52	24.76	320	0.17
72	15.58	33.73	5.53	307	75	15.51	33.73	5.52	24.90	306	0.24
96	14.88	33.71	5.37	295	100	14.63	33.71	5.27	25.08	289	0.32
115	13.54	33.71	4.85	267	125	12.63	33.76	4.25	25.52	247	0.39
135	11.68	33.85	3.43	223	150	10.93	33.95	3.05	25.98	203	0.44
154	10.81	33.98	2.93	198	200	10.75	34.43	1.18	26.40	163	0.54
182	10.98	34.36	1.52	173	250	10.58	34.57	0.56	26.54	151	0.62
215	10.60	34.49	0.94	157	300	9.92	34.56	0.46	26.65	140	0.69
244	10.60	34.56	0.59	152	400	8.04	34.47	0.47	26.88	119	0.83
292	10.15	34.58	0.43	143	500	6.88	34.45	0.27	27.02	105	0.95
345	8.68	34.47	0.68	128	600	(5.96)	(34.45)	(0.23)	(27.15)	(93)	(1.05)
427	7.72	34.47	0.39	114							
511	6.76	34.44	0.26	104							
595	5.99	34.45	0.23	93							

HUGH M. SMITH; April 17, 1960; 0711 GCT; 27°29'N, 117°32.5'W; sounding, 2000+ fm; wind, 340°, force 3; weather, cloudy; sea, high; wire angle, 08°.

117.70

1	16.96	33.78	5.22	334	0	(16.96)	(33.78)	(5.22)	(24.61)	(334)	(0.00)
11	16.96	33.77	5.55	335	10	16.96	33.77	5.54	24.60	335	0.03
31	16.66	33.75	5.57	329	20	16.96	33.77	5.55	24.60	335	0.07
40	15.22	33.69	5.92	303	30	16.66	33.75	5.57	24.66	329	0.10
55	14.12	33.68	5.18	281	50	14.48	33.68	5.44	25.09	288	0.16
70	12.71	33.68	4.46	254	75	12.20	33.70	4.33	25.56	243	0.23
94	11.14	33.77	4.09	219	100	11.14	33.82	3.80	25.85	215	0.29
114	11.29	33.98	2.60	207	125	11.21	34.12	1.96	26.07	195	0.34
133	11.10	34.20	1.74	187	150	10.66	34.22	1.62	26.25	178	0.39
153	10.60	34.22	1.59	177	200	10.33	34.39	0.92	26.44	160	0.47
182	10.43	34.34	1.13	165	250	9.71	34.46	0.65	26.60	145	0.55
217	10.21	34.43	0.78	155	300	9.12	34.44	0.54	26.68	137	0.62
246	9.76	34.46	0.67	145	400	7.49	34.34	0.46	26.85	121	0.76
296	9.20	34.45	0.54	137	500	6.66	34.37	0.32	27.00	107	0.87
350	8.10	34.36	0.57	128	600	5.90	34.38	0.24	27.10	97	0.98
434	7.18	34.34	0.41	116							
519	6.51	34.38	0.29	105							
603	5.88	34.38	0.23	97							

HUGH M. SMITH; April 17, 1960; 0132 GCT; 27°08'N, 118°10.5'W; sounding, 2000+ fm; wind, 340°, force 4; weather, cloudy; sea, high; wire angle, 14°.

117.80

2	17.11	33.77	5.70	338	0	(17.11)	(33.77)	(5.70)	(24.56)	(338)	(0.00)
12	17.10	33.75	5.67	340	10	17.10	33.75	5.68	24.55	339	0.03
31	17.06	33.76	5.54	338	20	17.08	33.75	5.64	24.55	339	0.07
40	17.06	33.75	5.49	339	30	17.06	33.76	5.55	24.56	338	0.10
55	16.56	33.76	5.63	327	50	17.05	33.75	5.49	24.56	339	0.17
70	16.29	33.73	5.63	323	75	15.90	33.69	5.57	24.79	317	0.25
94	15.31	33.71	5.47	303	100	14.85	33.72	5.23	25.04	293	0.33
113	13.60	33.75	4.56	266	125	12.48	33.75	4.14	25.55	245	0.40
132	11.84	33.75	3.94	233	150	10.77	33.77	3.93	25.88	213	0.46
151	10.72	33.77	3.93	212	200	9.43	34.00	2.79	26.28	175	0.55
179	9.84	33.88	3.26	190	250	8.55	34.09	2.39	26.50	154	0.64
212	9.20	34.04	2.68	168	300	7.79	34.23	1.65	26.72	133	0.71
242	8.70	34.06	2.54	159	400	7.11	34.25	0.82	26.84	122	0.84
289	7.89	34.23	1.77	135	500	6.35	34.33	0.44	27.00	107	0.96
343	7.47	34.21	1.37	130	600	(5.75)	(34.36)	(0.33)	(27.10)	(97)	(1.07)
426	6.96	34.28	0.63	118							
509	6.26	34.33	0.42	106							
593	5.78	34.36	0.33	97							

SIO

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6004

OBSERVED				COMPUTED	INTERPOLATED				COMPUTED		
Z	T	S	O ₂	δ _T	Z	T	S	O ₂	σ _t	δ _T	ΔD
m	°C	‰	ml/L	cl/ton	m	°C	‰	ml/L	g/L	cl/ton	dyn m

117.85

HUGH M. SMITH; April 16, 1960; 2235 GCT; ^{a)} 26°57'N, 118°29'W; sounding, 2000+ fm; wind, 320°, force 3; weather, cloudy; sea, high; wire angle, 04°.

10	17.01	33.67 8	5.58	343
35	17.22	33.80 3	5.50	338
40	17.86	34.11 6	5.40	330
45	18.00	34.16 7	5.36	330
50	17.96	34.15 8	5.44	329
55	17.94	34.15 8	5.35	329
60	17.94	34.14 8	5.37	329
65	17.75	34.10 7	5.36	328
70	17.48	34.04 9	5.33	326
75	17.06	33.96 6	5.37	322

117.90

HUGH M. SMITH; April 16, 1960; 1957 GCT; 27°06.5'N, 118°42'W; sounding, 2000+ fm; wind, 320°, force 4; weather, cloudy; sea, high; wire angle, 17°.

2	17.02	33.69	5.50	342	0	(17.02)	(33.69)	(5.50)	(24.52)	(342)	(0.00)
11	16.99	33.70	5.57	341	10	17.00	33.70	5.56	24.54	341	0.03
30	16.94	33.72	5.55	338	20	16.97	33.71	5.57	24.56	339	0.07
59	16.08	33.64	5.70	325	30	16.94	33.72	5.55	24.57	338	0.10
68	15.92	33.64	5.63	321	50	16.63	33.70	5.60	24.62	333	0.17
83	15.54	33.62	5.70	315	75	15.76	33.63	5.63	24.78	318	0.25
96	14.98	33.60	5.50	304	100	14.40	33.72	5.09	25.13	284	0.33
110	14.24	33.82	4.90	274	125	13.07	33.81	4.54	25.48	251	0.40
133	12.36	33.80	4.35	239	150	11.46	33.78	3.95	25.76	224	0.46
153	11.31	33.78	3.86	222	200	9.58	33.89	3.66	26.18	185	0.56
181	10.40	33.89	3.35	198	250	8.76	34.03	2.48	26.42	162	0.65
208	9.29	33.89	3.76	181	300	7.90	34.13	2.00	26.63	142	0.73
237	9.03	34.01	2.58	168	400	7.25	34.30	0.76	26.85	121	0.86
285	7.98	34.07	2.34	147	500	6.36	34.34	0.37	27.01	106	0.98
338	7.70	34.23	1.26	132	600	(5.81)	(34.38)		(27.11)	(96)	(1.09)
419	7.11	34.31	0.67	118							
502	6.34	34.34	0.37	106							
585	5.84	34.38	0.39	97							

118.39

HUGH M. SMITH; April 18, 1960; 0303 GCT; 28°18.5'N, 115°23.5'W; sounding, 170 fm; wind, 340°, force 2; weather, clear; sea, very rough; wire angle, 03°.

1	16.32	33.68	5.68	327	0	(16.32)	(33.68)	(5.68)	(24.68)	(327)	(0.00)
11	16.02	33.65	5.86	323	10	16.06	33.65	5.84	24.72	323	0.03
31	14.03	33.60	5.59	285	20	15.76	33.63	5.86	24.77	318	0.06
51	13.18	33.64	5.50	265	30	14.20	33.60	5.61	25.09	288	0.10
76	11.04	33.89	3.10	209	50	13.19	33.63	5.51	25.32	266	0.15
101	10.38	34.14	1.69	179	75	11.06	33.88	3.15	25.91	210	0.21
126	10.18	34.22	1.54	170	100	10.39	34.14	1.70	26.24	179	0.26
166	9.93	34.34	1.10	157	125	10.18	34.22	1.54	26.33	170	0.30
206	9.87	34.42	0.78	150	150	10.03	34.29	1.27	26.42	162	0.34
					200	9.88	34.41	0.82	26.54	151	0.42

a) Test cast.

OBSERVED				COMPUTED	INTERPOLATED				COMPUTED		
Z	T	S	O ₂	δ _T	Z	T	S	O ₂	σ _t	δ _T	ΔD
m	°C	‰	ml/L	cl/ton	m	°C	‰	ml/L	g/L	cl/ton	dyn m

S10
CCOF1
6004

HUGH M. SMITH; April 18, 1960; 2345 GCT; 28°20'N, 114°54.5'W; sounding, 42 fm; wind, 340°, force 4; weather, clear; sea, rough; wire angle, 00°.

119.33

1	16.50	33.85	5.81	319	0	(16.50)	(33.85)	(5.81)	(24.77)	(319)	(0.00)
11	16.39	33.84	5.80	317	10	16.40	33.84	5.80	24.79	317	0.03
31	15.54	33.75	5.85	305	20	16.07	33.80	5.82	24.83	313	0.06
51	14.38	33.68	5.83	286	30	15.59	33.76	5.85	24.90	306	0.09
					50	14.50	33.69	5.83	25.09	288	0.15

HUGH M. SMITH; April 18, 1960; 1602 GCT; 28°22.5'N, 114°15'W; sounding, 25 fm; wind, direction missing, force 1; weather, fog; sea, moderate; wire angle, 00°.

120.25

1	16.26	33.86	5.59	313	0	(16.26)	(33.86)	(5.59)	(24.83)	(313)	(0.00)
11	16.24	33.84	5.72	314	10	16.24	33.84	5.71	24.82	314	0.03
21	15.00	33.73	5.63	296	20	15.20	33.74	5.64	24.98	299	0.06
31	13.34	33.78	4.77	259	30	13.40	33.78	4.82	25.38	260	0.09

HUGH M. SMITH; April 18, 1960; 1832 GCT; 28°17'N, 114°31'W; sounding, 55 fm; wind, 300°, force 1; weather, cloudy; sea, moderate; wire angle, 03°.

120.30

1	15.36	33.81	6.28	297	0	(15.36)	(33.81)	(6.28)	(25.00)	(297)	(0.00)
11	14.82	33.80	6.28	287	10	14.85	33.80	6.28	25.10	287	0.03
31	13.26	33.73	4.85	261	20	14.49	33.79	6.04	25.16	281	0.06
51	12.01	33.80	3.63	232	30	13.26	33.73	4.86	25.38	261	0.08
76	11.00	33.97	2.20	202	50	12.25	33.78	3.85	25.62	238	0.13
					75	11.00	33.97	2.21	26.00	202	0.19

HUGH M. SMITH; April 18, 1960; 2134 GCT; 28°04'N, 114°52'W; sounding, 40 fm; wind, direction missing, force 1; weather, clear; sea, moderate; wire angle, 00°.

120.35

2	17.80	33.75	6.08	355	0	(17.80)	(33.75)	(6.08)	(24.38)	(355)	(0.00)
12	15.20	33.75	6.72	298	10	15.70	33.75	6.68	24.87	309	0.03
32	13.84	33.71	5.58	273	20	14.90	33.75	6.50	25.06	291	0.06
52	12.56	33.72	4.17	248	30	13.89	33.71	5.62	25.24	275	0.09
					50	12.58	33.72	4.20	25.50	249	0.14

BLACK DOUGLAS; April 16, 1960; 1520 GCT; 28°04'N, 115°54'W; sounding, 2000+ fm; wind, 340°, force 5; weather, cloudy; sea, rough; wire angle, 12°.

120.45

0	16.01	33.68	5.38	320	0	16.01	33.68	5.38	24.76	320	0.00
10	15.96	33.67	5.56	320	10	15.96	33.67	5.56	24.76	320	0.03
30	15.21	33.66	5.69	305	20	15.63	33.67	5.65	24.83	313	0.06
40	14.80	33.64	5.54	298	30	15.21	33.66	5.69	24.91	305	0.09
56	13.91	33.64	5.22	280	50	14.29	33.64	5.34	25.10	287	0.15
70	12.58	33.63	4.63	255	75	12.17	33.64	4.47	25.52	247	0.22
95	11.18	33.70	4.06	225	100	11.01	33.72	3.96	25.80	221	0.28
114	10.50	33.80	3.57	206	125	10.01	33.83	3.62	26.06	196	0.33
135	9.76	33.86	3.65	190	150	9.51	33.94	3.31	26.23	180	0.38
154	9.44	33.97	3.16	177	200	9.24	34.22	1.78	26.49	155	0.47
184	9.06	34.09	2.37	162	250	9.97	34.54	0.55	26.63	142	0.54
220	9.68	34.40	1.09	149	300	9.08	34.52	0.46	26.74	131	0.61
249	9.98	34.54	0.58	143	400	7.50	34.48	0.60	26.97	110	0.74
299	9.10	34.52	0.46	131	500	6.55	34.46		27.08	99	0.84
353	8.06	34.49	0.41	117	600	5.82	34.49		27.19	89	0.94
438	7.11	34.48	0.62	105							
524	6.36	34.46	0.42a)	97							
609	5.76	34.49	0.09a)	87							

a) Oxygen samples at 524 and 609 meters appear to have been reversed; they are assumed to be listed in correct order.

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OBSERVED				COMPUTED	INTERPOLATED				COMPUTED		
Z	T	S	O ₂	δ _T	Z	T	S	O ₂	σ _t	δ _T	ΔD
m	°C	‰	ml/L	cl/ton	m	°C	‰	ml/L	g/L	cl/ton	dyn m

120.50

BLACK DOUGLAS; April 16, 1960; 1320 GCT; 27°51'N, 116°11'W; sounding, 2200 fm; wind, 340°, force 5; weather, overcast; sea, rough; wire angle, 18°.

0	16.02	33.69	4.99	319	0	16.02	33.69	4.99	24.77	319	0.00
9	15.99	33.75	4.85	315	10	15.99	33.75	4.89	24.81	315	0.03
28	16.01	33.73	5.75	317	20	16.00	33.74	5.48	24.80	316	0.06
39	16.01	33.66	5.27	322	30	16.01	33.72	5.74	24.79	317	0.09
53	15.46	33.62	5.56	313	50	15.68	33.63	5.45	24.80	316	0.16
68	14.70	33.57	4.96	301	75	14.13	33.58	4.81	25.09	288	0.23
92	12.61	33.61	4.58	257	100	11.89	33.64	4.48	25.58	242	0.30
111	11.20	33.69	4.34	226	125	10.67	33.75	4.01	25.88	213	0.36
130	10.46	33.77	3.83	208	150	9.57	33.86	3.07	26.15	187	0.41
149	9.59	33.86	3.08	187	200	8.69	34.01	2.58	26.41	163	0.50
179	9.10	33.96	2.71	172	250	8.72	34.34	1.20	26.67	138	0.58
213	8.52	34.04	2.47	157	300	8.48	34.37	0.69	26.73	132	0.64
241	8.74	34.33	1.30	139	400	7.51	34.40	0.30	26.89	117	0.77
290	8.52	34.36	0.76	134	500	6.63	34.39	0.29	27.01	106	0.89
344	8.23	34.42	0.43	125	600	(5.83)	(34.47)	(0.17)	(27.18)	(90)	(0.99)
427	7.18	34.39	0.27	113							
512	6.56	34.39	0.29	105							
597	5.87	34.47	0.18	91							

120.60

BLACK DOUGLAS; April 16, 1960; 0721 GCT; 27°26'N, 116°44'W; sounding, 2000 fm; wind, 340°, force 5; weather, cloudy; sea, very rough; wire angle, 20°.

2	16.37	33.68	5.32	328	0	(16.37)	(33.68)	(5.32)	(24.67)	(328)	(0.00)
11	16.36	33.69	5.17	327	10	16.36	33.69	5.18	24.68	327	0.03
30	16.21	33.66	5.20	326	20	16.30	33.68	5.19	24.69	326	0.07
40	16.14	33.64	5.17	326	30	16.21	33.66	5.20	24.69	326	0.10
55	15.44	33.68	5.17	308	50	16.00	33.64	5.17	24.72	323	0.16
69	14.77	33.66	4.94	296	75	14.62	33.68	4.87	25.06	291	0.24
92	12.02	33.69	4.05	241	100	11.44	33.71	3.85	25.71	229	0.31
111	11.11	33.73	3.69	222	125	11.29	34.04	2.44	25.99	202	0.36
130	11.32	34.12	2.11	196	150	10.63	34.18	1.75	26.23	180	0.41
148	10.66	34.18	1.76	181	200	10.22	34.39	0.94	26.46	158	0.50
210	10.11	34.41	0.88	155	250	9.02	34.33	1.02	26.62	143	0.57
239	9.17	34.33	1.03	146	300	8.62	34.40	0.70	26.72	133	0.64
286	8.70	34.38	0.80	135	400	7.79	34.42	0.27	26.87	119	0.77
338	8.40	34.42	0.50	128	500	7.03	34.43	0.18	26.99	108	0.89
422	7.58	34.42	0.25	116	600	(6.16)	(34.44)	(0.12)	(27.11)	(96)	(1.00)
505	6.99	34.43	0.18	107							
590	6.26	34.44	0.13	97							

120.70

BLACK DOUGLAS; April 16, 1960; 0130 GCT; 27°00'N, 117°17'W; sounding, 2150 fm; wind, 350°, force 5; weather, partly cloudy; sea, very rough; wire angle, 23°.

1	17.00	33.77	5.20	336	0	(17.00)	(33.77)	(5.20)	(24.59)	(336)	(0.00)
10	17.00	33.79	5.25	334	10	17.00	33.79	5.25	24.61	334	0.03
29	15.78	33.77	5.45	309	20	16.94	33.80	5.27	24.63	332	0.07
38	14.97	33.70	5.28	297	30	15.65	33.76	5.44	24.89	307	0.10
52	14.32	33.84	5.20	273	50	14.44	33.83	5.24	25.22	276	0.16
65	13.43	33.69	4.34	267	75	13.29	33.71	4.20	25.36	262	0.22
89	12.06	33.84	3.74	230	100	12.19	33.99	3.30	25.80	221	0.29
108	11.71	34.05	2.58	208	125	11.08	34.14	1.96	26.12	190	0.34
127	11.04	34.15	1.93	190	150	10.79	34.30	1.38	26.29	174	0.38
145	10.84	34.29	1.36	176	200	10.19	34.39	0.69	26.47	157	0.47
172	10.42	34.34	1.59	165	250	9.61	34.44	0.82	26.60	145	0.54
206	10.12	34.40	0.66	156	300	9.11	34.50	0.46	26.73	132	0.62
234	9.72	34.41	0.92	148	400	7.53	34.41	0.43	26.90	116	0.75
281	9.41	34.50	0.53	137	500	6.68	34.44	0.24	27.05	102	0.86
333	8.50	34.47	0.43	125	600	(5.90)	(34.42)		(27.13)	(94)	(0.96)
415	7.36	34.40	0.43	115							
498	6.69	34.44	0.26	103							
582	6.04	34.43	0.20	95							

OBSERVED				COMPUTED	INTERPOLATED				COMPUTED		
Z	T	S	O ₂	δ _T	Z	T	S	O ₂	σ _t	δ _T	ΔD
m	°C	‰	ml/L	cl/ton	m	°C	‰	ml/L	g/L	cl/ton	dyn m

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BLACK DOUGLAS; April 15, 1960; 1920 GCT; 26°35'N, 117°50'W; sounding, 2000+ fm; wind, 350°, force 5; weather, partly cloudy; sea, very rough; wire angle, 18°.

2	17.44	33.82	5.19	342	0	(17.44)	(33.82)	(5.19)	(24.52)	(342)	(0.00)
12	17.38	33.84	5.56	339	10	17.40	33.84	5.51	24.56	339	0.03
31	17.30	33.84	5.19	337	20	17.35	33.84	5.39	24.57	338	0.07
41	16.48	33.65	5.15	333	30	17.31	33.84	5.21	24.58	337	0.10
56	15.98	33.66	5.28	321	50	16.17	33.66	5.25	24.70	325	0.17
71	15.56	33.60	5.22	317	75	15.48	33.60	5.20	24.82	314	0.25
96	15.03a)	33.68	5.15	300	100	14.90	33.69	5.13	25.01	296	0.33
115	14.02	33.93	4.69	261	125	12.70	33.83	4.16	25.56	243	0.39
135	11.44	33.73	3.80	228	150	10.57	33.76	4.07	25.90	211	0.45
154	10.42	33.77	4.08	207	200	9.46	33.97	2.97	26.26	177	0.55
184	9.74	33.88	3.27	188	250	8.75	34.17	2.07	26.52	152	0.64
219	9.14	34.07	2.61	165	300	8.17	34.22	1.52	26.66	139	0.71
248	8.78	34.16	2.09	153	400	6.86	34.23	1.06	26.86	120	0.84
297	8.23b)	34.22	1.53	140	500	6.23	34.36	0.50	27.03	104	0.96
352	7.12	34.16	1.50	129	600	5.63	34.36	0.33	27.11	96	1.07
436	6.70	34.30	0.67	113							
521	6.08	34.36	0.45	101							
607	5.60	34.36	0.30	95							

120.80

BLACK DOUGLAS; April 17, 1960; 0248 GCT; 27°24'N, 114°40'W; sounding, 40 fm; wind, 340°, force 4; weather, clear; sea, rough; wire angle, 00°.

0	13.32	34.01	4.73	241	0	13.32	34.01	4.73	25.58	241	0.00
10	13.22	33.99	4.65	241	10	13.22	33.99	4.65	25.58	241	0.02
30	11.30	33.91	3.08	212	20	12.20	33.94	3.77	25.74	226	0.05
50	10.98	34.11	2.15	191	30	11.30	33.91	3.08	25.89	212	0.07
					50	10.98	34.11	2.15	26.11	191	0.11

123.37

BLACK DOUGLAS; April 17, 1960; 0521 GCT; 27°14'N, 114°58.5'W; sounding, 600 fm; wind, 340°, force 4; weather, clear; sea, rough; wire angle, 25°.

2	16.98	33.73	5.11	338	0	(16.98)	(33.73)	(5.11)	(24.57)	(338)	(0.00)
10	16.97	33.80	4.82	332	10	16.97	33.80	4.82	24.63	332	0.03
29	15.77	33.74	5.30	311	20	16.90	33.80	4.84	24.64	331	0.07
37	14.58	33.69	4.56	290	30	15.70	33.74	5.29	24.87	309	0.10
50	13.49	33.71	4.36	267	50	13.49	33.71	4.36	25.31	267	0.16
63	12.70	33.71	4.04	251	75	12.19	33.85	3.57	25.68	232	0.22
86	11.74	33.94	3.25	218	100	10.90	33.86	3.06	25.93	208	0.27
102	10.82	33.86	3.05	207	125	9.96	33.93	2.91	26.15	187	0.32
119	10.20	33.92	2.98	193	150	9.80	34.13	2.13	26.32	171	0.37
135	9.62	33.96	2.69	180	200	9.67	34.33	1.12	26.50	154	0.45
161	9.92	34.23	1.74	165	250	9.48	34.44	0.63	26.63	142	0.53
191	9.62	34.29	1.27	156	300	8.99	34.49	0.47	26.74	131	0.60
217	9.88	34.43	0.78	150	400	7.82	34.46	0.23	26.90	116	0.73
264	9.32	34.45	0.60	139	500	6.61	34.43	0.18	27.04	103	0.84
307	8.92	34.49	0.44	130							
384	8.03	34.47	0.25	119							
462	7.04	34.44	0.20	108							
544	6.22	34.43	0.16	98							

123.42

- a) Alternate value, 15.27°C, not used in interpolation.
b) Mean value of 8.20 and 8.26°C.

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OBSERVED				COMPUTED	INTERPOLATED				COMPUTED		
Z	T	S	O ₂	δ _T	Z	T	S	O ₂	σ _t	δ _T	ΔD
m	°C	‰	ml/L	cl/ton	m	°C	‰	ml/L	g/L	cl/ton	dyn m

123.50

BLACK DOUGLAS; April 17, 1960; 1015 GCT; 26°59.5'N, 115°28.5'W; sounding, 1800 fm; wind, 330°, force 4; weather, partly cloudy; sea, moderate; wire angle, 15°.

0	16.93	33.76	5.02	335	0	16.93	33.76	5.02	24.60	335	0.00
10	16.94	33.73	3.61u	337	10	16.94	33.73		24.58	337	0.03
29	16.92	33.84	5.17	328	20	16.93	33.76	5.02	24.63	332	0.07
39	16.36	33.78	4.85	321	30	16.91	33.84	5.16	24.67	328	0.10
53	15.57	33.76	5.22	305	50	15.61	33.76	5.20	24.90	306	0.16
68	14.52	33.69	4.28	288	75	13.93	33.77	3.80	25.27	271	0.24
92	12.92	33.84	3.37	246	100	11.91	33.85	3.32	25.73	227	0.30
110	11.20	33.86	3.27	214	125	10.50	33.86	2.32	25.99	202	0.35
129	10.98	34.01	2.19	199	150	9.64	33.96	2.75	26.22	181	0.40
149	9.64	33.95	2.76	182	200	9.45	34.32	1.43	26.53	151	0.49
177	9.65	34.22	1.63	162	250	8.80	34.34	1.06	26.65	140	0.56
210	9.31	34.33	1.37	148	300	8.34	34.39	0.78	26.76	129	0.63
237	8.93	34.33	1.15	142	400	7.52	34.50	0.12	26.97	110	0.75
285	8.48	34.38	0.82	132	500	6.49	34.46	0.19	27.08	99	0.86
337	8.00	34.42	0.74	122	600	(5.85)	(34.47)		(27.18)	(90)	(0.96)
420	7.36	34.51	0.03	106							
503	6.46	34.46	0.20	99							
587	5.92	34.47	0.19	91							

123.60

BLACK DOUGLAS; April 17, 1960; 1520 GCT; 26°42'N, 116°02'W; sounding, 1950 fm; wind, 320°, force 4; weather, cloudy; sea, very rough; wire angle, 06°.

0	17.04	33.86	5.45	330	0	17.04	33.86	5.45	24.65	330	0.00
10	17.04	33.82	5.24	333	10	17.04	33.82	5.24	24.62	333	0.03
30	17.02	33.80	5.45	334	20	17.03	33.81	5.31	24.62	333	0.07
40	16.60	33.77	5.42	327	30	17.02	33.80	5.45	24.61	334	0.10
55	13.86	33.66	4.56	277	50	14.48	33.67	4.80	25.08	289	0.16
70	12.74a)	33.80	3.64	246	75	12.48	33.86	3.30	25.64	236	0.23
95	11.90	34.00	2.54	216	100	11.85	34.04	2.41	25.89	212	0.28
115	11.24	34.07	1.98	199	125	11.17	34.18	1.70	26.12	190	0.34
135	11.04	34.22	1.56	185	150	10.70	34.23	1.42	26.25	178	0.38
155	10.58	34.24	1.38	175	200	9.73	34.34	1.27	26.51	153	0.47
184	9.90	34.36	1.33	154	250	8.76	34.26	1.24	26.60	145	0.54
220	9.50	34.32	1.10	152	300	8.65	34.40	0.55	26.72	133	0.61
250	8.76	34.26	1.24	145	400	7.83	34.51	0.23	26.93	113	0.74
299	8.66	34.40	0.56	133	500	6.49	34.43	0.19	27.07	100	0.85
355	8.44	34.52	0.28	121	600	5.74	34.46	0.20	27.19	89	0.95
440	7.26	34.48	0.21	107							
526	6.23	34.43	0.18	98							
610	5.70	34.47	0.20	88							

123.70

BLACK DOUGLAS; April 17, 1960; 2126 GCT; 26°22'N, 116°42.5'W; sounding, 1800 fm; wind, 300°, force 3; weather, partly cloudy; sea, very rough; wire angle, 15°.

0	17.54	33.81	5.25	345	0	17.54	33.81	5.25	24.49	345	0.00
10	17.24	33.81	4.85	338	10	17.24	33.81	4.85	24.57	338	0.03
29	17.24	33.85	5.16	335	20	17.24	33.84	5.05	24.59	336	0.07
58	17.94	34.16	4.77	328	30	17.25	33.86	5.15	24.60	335	0.10
68	17.28	34.08	5.04	319	50	18.00	34.13	5.02	24.63	332	0.17
82	15.28	33.72	5.18	302	75	17.10	34.09	5.12	24.82	314	0.25
96	14.38	33.89u	5.15	-	100	14.00	33.66	4.63	25.17	280	0.32
110	13.93	33.68	4.41	278	125	13.00	33.83	3.98	25.50	249	0.39
133	12.28	33.84	3.80	235	150	10.96	33.84	3.40	25.90	211	0.45
151	10.93	33.84	3.39	211	200	9.27	34.03	2.78	26.34	169	0.55
179	9.80	34.02	2.80	178	250	8.23	34.10	2.29	26.55	149	0.63
207	9.10	34.04	2.77	166	300	7.78	34.15	1.84	26.67	138	0.70
234	8.54	34.09	2.43	154	400	7.27	34.34	0.60	26.88	118	0.84
281	7.78	34.11	2.07	142	500	6.46	34.39	0.27	27.04	103	0.95
334	7.77	34.23	1.27	132	600	(5.97)	(34.40)		(27.11)	(96)	(1.06)
414	7.16	34.35	0.53	116							
496	6.48	34.39	0.28	104							
580	6.05	34.40	0.22	98							

204

a) Alternate value, 13.49°C, not used in interpolation.

OBSERVED				COMPUTED	INTERPOLATED				COMPUTED		
Z	T	S	O ₂	δ _T	Z	T	S	O ₂	σ _t	δ _T	ΔD
m	°C	‰	ml/L	cl/ton	m	°C	‰	ml/L	g/L	cl/ton	dyn m

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BLACK DOUGLAS; April 18, 1960; 0335 GCT; 25°59'N, 117°26'W; sounding, 1900 fm; wind, 320°, force 3;
weather, partly cloudy; sea, very rough; wire angle, 08°

123.80

0	18.65	34.16	4.93	346	0	18.65	34.16	4.93	24.48	346	0.00
10	18.57	34.18	5.00	342	10	18.57	34.18	5.00	24.52	342	0.03
30	18.48	34.18	4.79	342	20	18.52	34.16	4.85	24.52	342	0.07
40	18.49	34.16	4.75	342	30	18.48	34.16	4.79	24.52	342	0.10
55	18.44	34.16	4.86	340	50	18.48	34.16	4.79	24.53	341	0.17
71	17.75	34.04	5.16	333	75	17.46	33.99	5.14	24.66	329	0.26
95	16.48	33.88	5.03	316	100	15.52	33.78	4.79	24.94	302	0.34
115	15.12	33.86	4.49	288	125	13.72	33.79	3.92	25.33	265	0.41
135	12.86	33.77	3.71	250	150	12.01	33.78	3.83	25.66	234	0.47
155	11.74	33.78	3.85	229	200	9.63	33.84	3.13	26.13	189	0.58
185	9.84	33.77	3.45	198	250	9.02	34.15	1.86	26.47	157	0.67
221	9.38	33.96	2.62	177	300	8.86	34.45	0.84	26.73	132	0.74
250	9.02	34.15	1.86	157	400	7.33	34.33	0.57	26.87	119	0.87
300	8.86	34.45	0.84	132	500	6.46	34.34	0.30	27.00	107	0.99
355	7.92	34.34	0.75	126	600	5.88	34.41	0.23	27.12	95	1.10
441	6.91	34.33	0.39	114							
527	6.30	34.36	0.30	104							
612	5.82	34.43	0.23	93							

BLACK DOUGLAS; April 18, 1960; 0432 GCT;^{a)} 25°59'N, 117°26'W; sounding, 1900 fm; wind, 320°, force 3;
weather, partly cloudy; sea, very rough; wire angle, 09°.

123.80

432	6.97	34.31	0.44	116							
433	6.96	34.31	0.43	116							
437	6.94	34.31	0.40	115							
463	6.73	34.32	0.30	112							
466	6.72	34.31	0.32	112							
469	6.70	34.32	0.34	112							
494	6.54	34.32	0.27	109							
497	6.52	34.32	0.24	109							
500	6.48	34.33	0.24	108							
525	6.32	34.33	0.24	105							
528	6.32	34.33	0.21	105							
531	6.30	34.33	0.25	105							
556	6.12	34.35	0.22	102							
559	6.10	34.35	0.23	102							
562	6.11	34.35	0.22	102							
588	5.94	34.36	0.18	98							
591	5.92	34.36	0.21	98							
594	5.92	34.36	0.19	98							

BLACK DOUGLAS; April 19, 1960; 1209 GCT; 26°55'N, 114°06.5'W; sounding, 45 fm; wind, 290°, force 3;
weather, clear; sea, moderate; wire angle, 05°.

127.34

0	15.69	33.99	4.76	291	0	15.69	33.99	4.76	25.06	291	0.00
10	15.55	33.96	5.11	291	10	15.55	33.96	5.11	25.06	291	0.03
30	13.88	33.93	4.03	258	20	14.90	33.93	4.80	25.19	279	0.06
50	12.32	33.91	2.64	230	30	13.88	33.93	4.03	25.41	258	0.08
					50	12.32	33.91	2.64	25.70	230	0.13

a) Test cast.

SIO

CCOFI
6004

OBSERVED				COMPUTED	INTERPOLATED				COMPUTED		
Z	T	S	O ₂	δ _T	Z	T	S	O ₂	σ _t	δ _T	ΔD
m	°C	‰	ml/L	cl/ton	m	°C	‰	ml/L	g/L	cl/ton	dyn m

12740

BLACK DOUGLAS; April 19, 1960; 0917 GCT; 26°43.5'N, 114°29'W; sounding, 1450 fm; wind, 300°, force 3; weather, partly cloudy; sea, moderate; wire angle, 12°.

0	16.48	33.87	4.98	317	0	16.48	33.87	4.98	24.79	317	0.00
10	16.36	33.91	4.84	311	10	16.36	33.91	4.84	24.85	311	0.03
30	15.34	33.95	4.90	287	20	15.60	33.92	4.88	25.03	294	0.06
41	12.74	33.87	3.55	241	30	15.34	33.95	4.90	25.10	287	0.09
56	12.38	33.88	3.12	234	50	12.50	33.87	3.28	25.64	236	0.14
71	11.60	33.96	2.29	213	75	11.47	33.99	2.23	25.92	209	0.20
95	10.99	34.13	1.98	190	100	10.89	34.15	1.90	26.15	187	0.25
115	10.66	34.21	1.59	179	125	10.74	34.31	1.16	26.31	172	0.29
135	10.85	34.40	0.87	168	150	10.85	34.48	0.67	26.42	162	0.34
156	10.86	34.51	0.66	160	200	9.30	34.36	1.14	26.59	146	0.42
185	9.48	34.34	1.26	150	250	9.32	34.50	0.56	26.69	136	0.49
220	9.20	34.39	0.95	142	300	8.81	34.49	0.41	26.77	128	0.55
250	9.32	34.50	0.56	136	400	7.86	34.55	0.21	26.95	111	0.68
299	8.82	34.49	0.42	129	500	6.84	34.50	0.17	27.07	100	0.79
354	8.32	34.52	0.28	119	600	6.01	34.49	0.18	27.17	91	0.89
439	7.46	34.55	0.19	105							
525	6.60	34.49	0.17	98							
610	5.96	34.49	0.18	90							

12750

BLACK DOUGLAS; April 19, 1960; 0318 GCT; 26°22.5'N, 115°06.5'W; sounding, 2000 fm; wind, 320°, force 3; weather, cloudy; sea, rough; wire angle, 18°.

0	17.98	33.96	4.95	344	0	17.98	33.96	4.95	24.50	344	0.00
10	17.98	33.98	4.95	343	10	17.98	33.98	4.95	24.51	343	0.03
28	17.68	33.96	5.08	338	20	17.72	33.96	5.08	24.57	338	0.07
57	17.42	33.91	5.06	335	30	17.66	33.95	5.08	24.58	337	0.10
67	17.44	34.01	5.05	329	50	17.44	33.91	5.06	24.60	335	0.17
81	16.66	33.87	4.88	321	75	17.12	33.95	4.99	24.70	325	0.25
95	15.70	33.82	5.01	304	100	15.41	33.83	4.86	25.00	297	0.33
109	14.84	33.86	4.36	283	125	13.38	33.84	4.13	25.44	255	0.40
131	12.36	33.82	4.00	237	150	10.70	33.88	3.33	25.98	204	0.46
150	10.70	33.88	3.33	204	200	10.20	34.27	1.50	26.36	167	0.55
178	9.92	34.05	2.47	178	250	10.00	34.48	0.85	26.56	148	0.63
205	10.24	34.32	1.34	164	300	9.08	34.44	0.71	26.69	136	0.71
233	10.24	34.46	0.90	154	400	7.72	34.45	0.34	26.90	116	0.84
279	9.38	34.45	0.79	140	500	6.75	34.46	0.25	27.05	102	0.95
332	8.62	34.43	0.58	130							
411	7.60	34.45	0.33	114							
494	6.80	34.46	0.25	103							
577	6.04	34.45	0.15	94							

12760

BLACK DOUGLAS; April 18, 1960; 2145 GCT; 26°03.5'N, 115°46.5'W; sounding, 1700 fm; wind, 320°, force 3; weather, partly cloudy; sea, rough; wire angle, 10°.

0	18.43	34.01	5.17	351	0	18.43	34.01	5.17	24.43	351	0.00
10	18.10	34.01	5.06	344	10	18.10	34.01	5.06	24.50	344	0.03
30	17.74	33.92	5.25	342	20	18.05	33.99	5.15	24.51	343	0.07
39	17.12	33.85	5.08	332	30	17.74	33.92	5.25	24.52	342	0.10
54	17.06	33.82	5.10	333	50	17.06	33.82	5.09	24.62	333	0.17
69	17.18	34.00	4.87	323	75	16.90	33.95	4.92	24.76	320	0.25
93	16.02	33.78	5.16	313	100	15.98	33.87	5.08	24.91	305	0.33
112	15.24	33.98	4.65	282	125	13.90	33.96	4.22	25.43	256	0.40
131	13.02	33.92	4.07	242	150	11.63	33.84	4.01	25.77	223	0.46
149	11.66	33.84	4.02	223	200	9.27	33.97	3.02	26.29	174	0.56
178	10.02	33.86	3.80	195	250	8.68	34.17	1.75	26.53	151	0.65
211	9.03	34.02	2.69	167	300	8.34	34.29	1.11	26.68	137	0.72
240	8.74	34.13	1.97	154	400	7.37	34.34	0.51	26.87	119	0.86
288	8.46	34.25	1.25	141	500	6.55	34.43	0.37	27.05	102	0.97
341	7.88	34.36	0.81	125	600	(5.76)	(34.45)	(0.18)	(27.18)	(90)	(1.07)
422	7.18	34.34	0.41	117							
506	6.50	34.43	0.36	101							
591	5.83	34.45	0.18	91							

OBSERVED				COMPUTED	INTERPOLATED				COMPUTED		
Z	T	S	O ₂	δ _T	Z	T	S	O ₂	σ _t	δ _T	ΔD
m	°C	‰	ml/L	cl/ton	m	°C	‰	ml/L	g/L	cl/ton	dyn m

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6004

BLACK DOUGLAS; April 18, 1960; 1540 GCT; 25°43'N, 116°28'W; sounding, 1950 fm; wind, 320°, force 3; weather, partly cloudy; sea, rough; wire angle, 10°.

127.70

0	17.96	34.05	5.20	337	0	(17.96)	(34.05)	(5.20)	(24.58)	(337)	(0.00)
10	17.92	34.02	5.09	338	10	17.92	34.02	5.09	24.57	338	0.03
31	17.88	34.04	5.18	336	20	17.90	34.02	5.10	24.57	338	0.07
61	17.90	34.19	5.08	326	30	17.88	34.04	5.18	24.59	336	0.10
70	17.58	34.11	5.18	324	50	18.00	34.15	5.13	24.64	331	0.17
85	17.24	34.11	5.22	317	75	17.47	34.11	5.22	24.74	321	0.25
100	16.32	34.04	4.91	301	100	16.32	34.04	4.91	24.95	301	0.33
114	14.58	33.94	4.42	271	125	12.96	33.83	3.85	25.52	247	0.40
140	11.68	33.77	3.44	229	150	11.18	33.79	3.28	25.83	218	0.46
160	10.82	33.84	3.15	209	200	10.10	34.15	2.07	26.29	174	0.56
189	10.26	34.09	2.33	181	250	9.80	34.36	1.22	26.51	153	0.64
219	9.92	34.23	1.73	165	300	9.00	34.35	0.90	26.63	142	0.72
249	9.82	34.36	1.24	154	400	8.43	34.51	0.30	26.85	121	0.85
298	9.00	34.34	0.92	143	500	6.91	34.51	0.32	27.06	101	0.97
354	9.00	34.52	0.37	129	600	6.23	34.52	0.22	27.17	91	1.07
438	7.80	34.49	0.30	114							
524	6.64	34.51	0.32	97							
609	6.21	34.52	0.21	91							

BLACK DOUGLAS; April 18, 1960; 0942 GCT; 25°26'N, 117°04'W; sounding, 2000 fm; wind, 320°, force 3; weather, cloudy; sea, moderate; wire angle, 12°.

127.80

0	18.66	34.14	4.18	347	0	18.66	34.14	4.18	24.47	347	0.00
10	18.64	34.16	4.00	345	10	18.64	34.16	4.00	24.49	345	0.03
30	18.64	34.27u	4.37	-	20	18.64	34.17	4.02	24.50	344	0.07
60	18.64	34.23	4.37	340	30	18.64			24.50	344	0.10
70	18.09	34.16	4.68	333	50	18.64	34.21	4.19	24.52	342	0.17
85	16.80	33.93	3.82	320	75	17.58	34.06	4.38	24.68	327	0.26
100	15.73a)	33.89	3.82	299	100	15.73	33.89	3.82	24.98	299	0.34
115	14.62	33.84	3.59	280	125	13.72	33.84	3.56	25.38	261	0.41
140	12.20	33.85	3.50	232	150	11.52	33.87	2.92	25.83	218	0.47
159	11.01	33.91	2.35	207	200	10.18	34.23	1.57	26.34	169	0.57
189	10.36	34.17	1.69	176	250	9.75	34.39	0.95	26.54	150	0.65
220	9.90	34.31	1.29	159	300	9.14	34.43	0.72	26.67	138	0.72
249	9.76	34.39	0.96	151	400	8.34	34.50	0.27	26.85	121	0.86
299	9.15	34.43	0.73	138	500	7.06	34.48	0.22	27.02	105	0.98
353	8.75	34.47	0.44	129	600	6.15	34.51	0.17	27.17	91	1.08
439	7.92	34.51	0.22	114							
524	6.77	34.47	0.22	101							
609	6.11	34.51	0.17	90							

BLACK DOUGLAS; April 19, 1960; 1634 GCT; 26°29'N, 113°29'W; sounding, 40 fm; wind, direction missing, force 1; weather, overcast; sea, calm; wire angle, 00°.

130.30

0	15.92	33.84	5.33	306	0	15.92	33.84	5.33	24.90	306	0.00
10	15.57	33.91	5.76	294	10	15.57	33.91	5.76	25.03	294	0.03
30	13.31	33.84	4.42	254	20	15.40	33.93	5.69	25.08	289	0.06
50	12.39	33.89	3.50	233	30	13.31	33.84	4.42	25.45	254	0.09
					50	12.39	33.89	3.50	25.67	233	0.13

BLACK DOUGLAS; April 19, 1960; 1849 GCT; 26°19.5'N, 113°50.5'W; sounding, 160 fm; wind, 270°, force 2; weather, overcast; sea, moderate; wire angle, 00°.

130.35

0	16.84	33.87	5.54	325	0	16.84	33.87	5.54	24.70	325	0.00
10	16.07	33.86	5.10	309	10	16.07	33.86	5.10	24.87	309	0.03
30	15.04	33.87	4.75	286	20	15.34	33.86	4.84	25.04	293	0.06
50	12.53	33.81	3.78	241	30	15.04	33.87	4.75	25.11	286	0.09
75	11.46	33.99	2.31	209	50	12.53	33.81	3.78	25.58	241	0.14
100	10.74	34.08	2.16	190	75	11.46	33.99	2.31	25.92	209	0.20
125	10.46	34.25	1.53	172	100	10.74	34.08	2.16	26.12	190	0.25
164	10.26	34.31	1.28	165	125	10.46	34.25	1.53	26.31	172	0.30
203	10.73	34.54	0.40	155	150	10.31	34.29	1.37	26.36	167	0.34
254	9.34	34.41	0.70	143	200	10.72	34.53	0.42	26.48	156	0.42
					250	9.47	34.43	0.67	26.61	144	0.50

a) Alternate value, 16.09°C, not used in interpolation.

SIO

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6004

OBSERVED				COMPUTED	INTERPOLATED				COMPUTED		
Z	T	S	O ₂	δ _T	Z	T	S	O ₂	σ _t	δ _T	ΔD
m	°C	‰	ml/L	cl/ton	m	°C	‰	ml/L	g/L	cl/ton	dyn m

130.40

BLACK DOUGLAS; April 19, 1960; 2132 GCT; 26°08.5'N, 114°08'W; sounding, 1800 fm; wind, 270°, force 3; weather, cloudy; sea, rough; wire angle, 05°.

1	16.45	33.80	5.16	321	0	(16.45)	(33.80)	(5.16)	(24.74)	(321)	(0.00)
11	15.76	33.82	5.25	304	10	15.77	33.82	5.25	24.91	305	0.03
31	13.56	33.83	4.38	259	20	14.40	33.81	4.91	25.21	277	0.06
41	12.81	33.82	3.72	245	30	13.58	33.83	4.39	25.40	259	0.09
56	12.00	33.80	3.40	232	50	12.25	33.80	3.50	25.63	237	0.14
71	11.62	34.00	2.08	211	75	11.48	34.01	2.10	25.94	207	0.19
96	10.96	34.04	2.11	196	100	10.96	34.08	2.03	26.09	193	0.24
117	11.04	34.26	1.33	182	125	10.94	34.31	1.18	26.28	175	0.29
136	10.60	34.34	1.15	168	150	10.04	34.28	1.31	26.41	163	0.33
157	9.82	34.26	1.38	161	200	9.35	34.33	0.98	26.55	149	0.41
187	9.32	34.28	1.21	152	250	9.47	34.47	0.41	26.65	140	0.48
221	9.52	34.43	0.61	144	300	8.30	34.37	0.54	26.75	130	0.55
251	9.46	34.47	0.39	140	400	7.36	34.40	0.27	26.92	114	0.68
301	8.28	34.37	0.54	130	500	6.54	34.44	0.23	27.06	101	0.79
356	7.82	34.41	0.40	120	600	5.86	34.45	0.19	27.17	91	0.89
442	6.98	34.40	0.21	109							
527	6.36	34.45	0.24	97							
612	5.78	34.45	0.17	90							

130.50

BLACK DOUGLAS; April 20, 1960; 0244 GCT; 25°50'N, 114°44'W; sounding, 1700 fm; wind, 320°, force 4; weather, cloudy; sea, rough; wire angle, 22°.

1	18.02	33.96	5.14	345	0	(18.02)	(33.96)	(5.14)	(24.49)	(345)	(0.00)
10	17.98	33.96	5.08	344	10	17.98	33.96	5.08	24.50	344	0.03
29	17.52	33.94	5.10	335	20	17.70	33.95	5.08	24.57	338	0.07
37	17.56	33.96	5.27	334	30	17.52	33.94	5.11	24.60	335	0.10
52	17.28	33.95	5.30	329	50	17.40	33.96	5.30	24.64	331	0.17
65	16.26	33.78	5.15	319	75	16.11	33.80	5.08	24.83	313	0.25
88	14.42	33.74	4.78	282	100	13.55	33.75	4.30	25.33	265	0.32
106	12.87	33.75	4.06	252	125	11.64	33.80	4.08	25.74	226	0.38
123	11.74	33.79	4.12	228	150	10.89	34.02	2.65	26.06	196	0.44
141	11.06	33.95	3.08	205	200	10.15	34.26	1.51	26.38	166	0.53
167	10.64	34.09	2.17	187	250	9.93	34.42	1.13	26.54	150	0.61
197	10.14	34.25	1.54	167	300	9.05	34.41	0.73	26.66	139	0.69
225	10.36	34.43	1.39	157	400	8.01	34.45	0.36	26.86	120	0.82
269	9.51	34.41	0.93	145	500	6.91	34.45	0.24	27.02	105	0.94
320	8.82	34.41	0.66	134							
398	8.04	34.45	0.37	120							
480	7.12	34.45	0.27	108							
563	6.41	34.46	0.19	98							

130.60

BLACK DOUGLAS; April 20, 1960; 0800 GCT; 25°29'N, 115°24'W; sounding, 2000+ fm; wind, 270°, force 4; weather, cloudy; sea, rough; wire angle, 12°.

1	17.96	33.95	5.04	344	0	(17.96)	(33.95)	(5.04)	(24.50)	(344)	(0.00)
11	17.95	33.95	5.03	344	10	17.95	33.95	5.03	24.50	344	0.03
30	17.66	33.91	5.10	340	20	17.93	33.91	5.09	24.53	341	0.07
40	17.54	33.91	5.13	338	30	17.66	33.91	5.10	24.55	340	0.10
54	17.24	33.89	5.20	332	50	17.36	33.90	5.19	24.61	334	0.17
69	16.80	33.86	5.17	325	75	16.51	33.84	5.16	24.76	320	0.25
94	15.33	33.77	5.11	299	100	14.97	33.77	5.05	25.06	291	0.33
114	13.92	33.86	4.52	264	125	12.90	33.86	3.72	25.55	244	0.40
133	12.34	33.87	3.34	234	150	11.45	33.92	2.87	25.87	214	0.46
153	11.32	33.94	2.81	210	200	10.29	34.23	1.79	26.32	171	0.55
182	10.53	34.14	2.23	181	250	9.88	34.44	0.98	26.55	149	0.64
216	10.14	34.30	1.49	164	300	9.61	34.52	0.42	26.66	139	0.71
246	9.90	34.42	1.08	151	400	8.14	34.47	0.38	26.86	120	0.84
295	9.66	34.52	0.42	140	500	7.08	34.45	0.26	27.00	107	0.96
349	8.88	34.47	0.43	131	600	6.21	34.47	0.25	27.12	95	1.07
432	7.76	34.47	0.32	114							
517	6.94	34.45	0.25	105							
603	6.19	34.47	0.25	94							

OBSERVED				COMPUTED	INTERPOLATED				COMPUTED		
Z	T	S	O ₂	δ _T	Z	T	S	O ₂	σ _t	δ _T	ΔD
m	°C	‰	ml/L	cl/ton	m	°C	‰	ml/L	g/L	cl/ton	dyn m

BLACK DOUGLAS; April 21, 1960; 1022 GCT; 26°04.5'N, 112°48'W; sounding, 42 fm; wind, 320°, force 2; weather, overcast; sea, moderate; wire angle, 00°.

133.25

0	17.15	33.96	4.86	325	0	17.15	33.96	4.86	24.70	325	0.00
10	17.04	33.99	4.66	320	10	17.04	33.99	4.66	24.75	320	0.03
30	14.46	33.90	3.61	272	20	15.50	33.89	4.08	25.03	294	0.06
50	12.50	34.13	1.44	217	30	14.46	33.90	3.61	25.26	272	0.09
					50	12.50	34.13	1.44	25.84	217	0.14

BLACK DOUGLAS; April 21, 1960; 0700 GCT; 25°55'N, 113°16.5'W; sounding, 100 fm; wind, 320°, force 3; weather, cloudy; sea, rough; wire angle, 12°.

133.30

0	16.44	33.91	5.54	313	0	16.44	33.91	5.54	24.83	313	0.00
10	16.42	33.92	5.49	312	10	16.42	33.92	5.49	24.84	312	0.03
29	15.38	34.03	4.14	281	20	15.60	33.97	4.51	25.07	290	0.06
49	13.66	33.98	3.19	250	30	15.37	34.03	4.13	25.16	281	0.09
73	11.92	33.96	2.57	219	50	13.48	34.97	3.12	25.52	247	0.14
97	11.18	34.13	1.61	193	75	11.88	34.97	2.53	25.83	218	0.20
121	10.56	34.25	1.29	174	100	11.20	34.14	1.58	26.09	193	0.25
151	11.48	34.58	0.20	166	125	10.56	34.26	1.25	26.30	173	0.30
					150	11.43	34.57	0.24	26.38	166	0.34

BLACK DOUGLAS; April 21, 1960; 0015 GCT; 25°34.5'N, 113°45.5'W; sounding, 1400 fm; wind, 320°, force 4; weather, partly cloudy; sea, moderate; wire angle, 15°.

133.40

0	17.34	33.81	5.03	341	0	17.34	33.81	5.03	24.53	341	0.00
10	17.31	33.78	5.25	342	10	17.31	33.78	5.25	24.52	342	0.03
29	17.11	33.79	5.30	337	20	17.25	33.79	5.27	24.55	340	0.07
39	16.76	33.78	5.23	330	30	17.08	33.79	5.30	24.59	336	0.10
54	16.56	33.96	5.11	312	50	16.68	33.90	5.17	24.77	319	0.17
69	15.77	33.98	4.87	293	75	15.00	33.95	4.70	25.18	280	0.24
93	13.40	33.78	4.38	260	100	12.69	33.79	3.96	25.54	245	0.31
112	11.78	33.82	3.40	227	125	11.09	33.88	2.99	25.91	210	0.37
132	10.87	33.95	2.75	202	150	11.84	34.41	0.98	26.17	185	0.42
150	11.84	34.41	0.98	185	200	11.11	34.56	0.45	26.44	160	0.50
178	11.26	34.51	0.61	167	250	10.49	34.59	0.40	26.57	147	0.58
213	11.01	34.58	0.40	157	300	10.14	34.67	0.17	26.69	136	0.66
242	10.54	34.58	0.44	149	400	8.20	34.51	0.20	26.88	118	0.79
290	10.31	34.69	0.17	157	500	7.03	34.47	0.20	27.02	105	0.90
345	8.94	34.54	0.22	127	600	(6.18)	(34.46)	(0.13)	(27.13)	(94)	(1.01)
427	7.88	34.50	0.21	115							
512	6.91	34.47	0.21	103							
597	6.20	34.46	0.13	95							

BLACK DOUGLAS; April 20, 1960; 1840 GCT; 25°18'N, 114°25'W; sounding, 1440 fm; wind, 320°, force 4; weather, cloudy; sea, rough; wire angle, 06°.

133.50

0	17.58	33.84	4.58	344	0	17.58	33.84	4.58	24.50	344	0.00
10	17.56	33.88	4.56	340	10	17.56	33.88	4.56	24.54	340	0.03
30	17.25	33.89	5.01	333	20	17.65	33.91	4.57	24.55	340	0.07
40	16.80	33.78	4.73	331	30	17.25	33.89	5.01	24.62	333	0.10
54	16.32	33.83	5.05	316	50	16.63	33.85	4.92	24.73	322	0.17
69	15.70	33.84	4.71	302	75	15.04	33.86	4.38	25.10	287	0.24
95	13.40	33.90	3.60	251	100	13.19	33.92	3.27	25.53	246	0.31
114	12.80	33.98	2.42	234	125	12.60	34.10	2.02	25.80	221	0.37
134	12.40	34.20	1.77	210	150	11.98	34.36	1.03	26.11	191	0.42
154	11.92	34.39	0.91	187	200	11.23	34.57	0.46	26.42	162	0.51
185	11.48	34.53	0.61	169	250	10.49	34.65	0.22	26.62	143	0.59
219	10.90	34.60	0.31	154	300	9.86	34.59	0.22	26.68	137	0.66
249	10.50	34.65	0.22	143	400	8.38	34.53	0.19	26.87	119	0.80
298	9.90	34.60	0.22	137	500	7.19	34.50	0.16	27.02	105	0.91
353	9.02	34.53	0.22	129	600	6.23	34.51	0.11	27.16	92	1.02
438	7.90	34.53	0.17	112							
523	6.96	34.49	0.15	102							
608	6.16	34.51	0.10	91							

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6004

OBSERVED				COMPUTED	INTERPOLATED				COMPUTED		
Z	T	S	O ₂	δ _T	Z	T	S	O ₂	σ _t	δ _T	ΔD
m	°C	‰	ml/L	cl/ton	m	°C	‰	ml/L	g/L	cl/ton	dyn m

133.60

BLACK DOUGLAS; April 20, 1960; 1302 GCT; 24°54.5'N, 115°02'W; sounding, 2000+ fm; wind, 270°, force 4; weather, cloudy; sea, rough; wire angle, 15°.

1	18.90	34.23	4.58	347	0	(18.90)	(34.23)	(4.58)	(24.47)	(347)	(0.00)
11	18.90	34.24	4.56	346	10	18.90	34.24	4.56	24.48	346	0.03
30	18.69	34.25	4.66	340	20	18.82	34.25	4.57	24.51	343	0.07
39	18.62	34.24	4.74	339	30	18.69	34.25	4.66	24.55	340	0.10
55	18.44	34.20	4.71	338	50	18.52	34.21	4.74	24.56	339	0.17
70	17.61	34.20	4.65	318	75	17.12	34.17	4.48	24.87	309	0.25
93	15.74	34.05	3.77	288	100	15.16	34.02	3.47	25.21	277	0.33
113	13.68	33.98	2.95	251	125	12.06	33.94	2.70	25.77	223	0.39
132	11.87	33.95	2.64	219	150	11.73	34.15	1.67	25.99	202	0.44
151	11.72	34.15	1.66	201	200	10.99	34.36	0.97	26.30	173	0.54
179	11.44	34.34	1.06	183	250	10.79	34.59	0.32	26.51	153	0.62
212	10.83	34.39	0.90	169	300	10.12	34.57	0.25	26.62	143	0.70
241	10.84	34.59	0.35	155	400	8.65	34.52	0.20	26.82	124	0.84
289	10.28	34.57	0.27	146	500	7.15	34.45	0.13	26.99	108	0.96
343	9.54	34.56	0.21	135	600	(6.23)	(34.48)	(0.13)	(27.13)	(94)	(1.07)
425	8.23	34.50	0.18	119							
509	7.06	34.45	0.13	107							
593	6.28	34.48	0.13	95							

137.23

BLACK DOUGLAS; April 21, 1960; 1424 GCT; 25°34'N, 112°19'W; sounding, 40 fm; wind, 320°, force 2; weather, overcast; sea, moderate; wire angle, 05°.

0	17.46	33.98	4.57	331	0	17.46	33.98	4.57	24.64	331	0.00
10	17.31	33.96	5.12	329	10	17.31	33.96	5.12	24.66	329	0.03
30	14.40	33.94	3.46	268	20	16.40	33.94	4.73	24.86	310	0.06
50	13.34	34.25	1.17	224	30	14.40	33.94	3.46	25.30	268	0.09
					50	13.34	34.25	1.17	25.76	224	0.14

137.30

BLACK DOUGLAS; April 21, 1960; 1800 GCT; 25°20'N, 112°46'W; sounding, 220 fm; wind, 270°, force 3; weather, overcast; sea, moderate; wire angle, 04°.

0	17.02	33.79	5.30	334	0	17.02	33.79	5.30	24.61	334	0.00
9	16.86	33.80	5.16	330	10	16.83	33.80	5.16	24.65	330	0.03
29	16.06	33.91	5.45	305	20	16.23	33.89	5.42	24.87	309	0.07
49	14.62	33.89	4.78	276	30	16.04	33.91	5.45	24.92	304	0.10
74	12.51	33.94	3.00	231	50	14.52	33.89	4.70	25.25	273	0.15
99	11.92	34.22	1.88	200	75	12.49	33.95	2.98	25.69	231	0.22
125	11.86	34.63	0.32	169	100	11.89	34.23	1.84	26.03	199	0.27
163	11.39	34.63	0.28	160	125	11.86	34.63	0.32	26.34	169	0.32
203	10.81	34.76u	0.37u	-	150	11.54	34.63	0.28	26.41	163	0.36
253	10.48	34.64	0.20	144	200	10.84	34.61	0.37	26.52	152	0.44
304	10.28	34.64	0.17	141	250	10.49	34.64	0.21	26.61	144	0.52
					300	10.30	34.64	0.17	26.64	141	0.59

137.35

BLACK DOUGLAS; April 21, 1960; 2029 GCT; 25°10.5'N, 113°03.5'W; sounding, 650 fm; wind, 270°, force 3; weather, overcast; sea, moderate; wire angle, 10°.

1	17.45	33.87	5.28	339	0	(17.45)	(33.87)	(5.28)	(24.56)	(339)	(0.00)
11	17.18	33.88	5.40	332	10	17.20	33.88	5.39	24.63	332	0.03
31	16.66	33.91	5.69	318	20	16.94	33.89	5.56	24.70	325	0.07
40	16.08	33.89	5.31	307	30	16.68	33.91	5.69	24.78	318	0.10
56	14.76	33.86	4.76	281	50	15.15	33.86	4.91	25.08	289	0.16
70	13.84	33.96	3.97	256	75	13.30	34.00	3.37	25.58	242	0.23
95	12.56	34.22	1.97	212	100	11.80	34.17	1.93	26.01	201	0.28
114	11.07	34.16	1.91	189	125	11.08	34.27	1.70	26.21	182	0.33
133	11.20	34.38	1.29	175	150	11.60	34.57	0.56	26.34	169	0.37
153	11.63	34.59	0.51	168	200	11.15	34.64	0.29	26.48	156	0.46
182	11.36	34.63	0.48	160	250	10.43	34.67	0.24	26.64	141	0.53
217	10.96	34.64	0.12	152	300	9.78	34.63	0.25	26.71	134	0.60
246	10.49	34.67	0.23	142	400	8.43	34.57	0.18	26.89	117	0.73
295	9.84	34.63	0.26	135	500	7.32	34.55	0.18	27.04	103	0.85
348	9.14	34.60	0.41u	126	600	6.25	34.51	0.17	27.16	92	0.95
431	8.06	34.56	0.15	113							
517	7.14	34.54	0.17	101							
602	6.23	34.51	0.17	92							

210

OBSERVED				COMPUTED	INTERPOLATED				COMPUTED		
Z	T	S	O ₂	δ _T	Z	T	S	O ₂	σ _t	δ _T	ΔD
m	°C	‰	ml/L	cl/ton	m	°C	‰	ml/L	g/L	cl/ton	dyn m

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BLACK DOUGLAS; April 21, 1960; 2330 GCT; 25°00'N, 113°23.5'W; sounding, 1700 fm; wind, 270°, force 3; weather, cloudy; sea, moderate; wire angle, 10°.

13740

1	17.73	33.87	5.25	345	0	(17.73)	(33.87)	(5.25)	(24.49)	(345)	(0.00)
11	17.31	33.82	4.67	339	10	17.32	33.82	4.68	24.56	339	0.03
31	17.09	33.78	-	337	20	17.27	33.82	4.69	24.57	338	0.07
40	16.68	33.78	5.03	328	30	17.12	33.78	4.71	24.58	337	0.10
56	16.17	33.75	5.36	319	50	16.34	33.76	5.29	24.73	322	0.17
70	15.86	33.77	4.86	311	75	15.77	33.79	4.78	24.89	307	0.25
95	13.90	33.78	4.29	269	100	13.52	33.79	4.04	25.38	261	0.32
114	12.32	33.89	3.00	231	125	11.67	33.99	2.42	25.89	212	0.38
133	11.25	34.04	2.22	201	150	10.77	34.13	2.09	26.15	187	0.43
153	10.76	34.14	2.07	186	200	10.78	34.53	0.73	26.47	157	0.52
182	10.88	34.43	0.91	167	250	10.23	34.58	0.42	26.61	144	0.59
217	10.60	34.57	0.58	151	300	9.63	34.56	0.33	26.68	137	0.67
246	10.30	34.58	0.43	145	400	8.36	34.51	0.20	26.86	120	0.80
295	9.68	34.56	0.35	137	500	7.19	34.48	0.19	27.01	106	0.92
349	9.00	34.52	0.27	129	600	6.35	34.51	0.22	27.14	93	1.02
433	7.95	34.51	0.18	115							
518	6.99	34.48	0.19	104							
602	6.34	34.51	0.22	93							

BLACK DOUGLAS; April 22, 1960; 0525 GCT; 24°40'N, 114°00'W; sounding, 2100 fm; wind, 250°, force 4; weather, overcast; sea, rough; wire angle, 12°.

13750

0	18.45	33.97	4.53	355	0	18.45	33.97	4.53	24.39	355	0.00
10	18.44	33.96	4.70	355	10	18.44	33.96	4.70	24.39	355	0.04
30	18.57	34.12	4.74	346	20	18.48	34.01	4.72	24.42	352	0.07
40	18.06	34.14	4.81	333	30	18.57	34.12	4.74	24.48	346	0.11
55	16.90	34.07	-	311	50	17.03	34.07	4.40	24.82	314	0.17
70	15.61	33.96	3.77	291	75	14.42	33.89	3.70	25.26	272	0.25
95	12.88	33.84	3.61	246	100	12.87	33.87	3.54	25.56	243	0.31
115	12.14	34.09	2.22	214	125	12.02	34.17	1.85	25.96	205	0.37
135	11.93	34.28	1.46	196	150	11.91	34.52	0.71	26.26	177	0.42
154	11.88	34.56	0.59	174	200	11.21	34.63	0.30	26.47	157	0.50
184	11.42	34.60	0.42	163	250	10.61	34.61	0.25	26.56	148	0.58
219	10.98	34.64	0.23	152	300	10.00	34.60	0.18	26.66	139	0.65
250	10.61	34.61	0.25	148	400	8.50	34.53	0.13	26.85	121	0.79
299	10.02	34.60	0.18	139	500	7.29	34.52	0.19	27.02	105	0.91
354	9.16	34.56	0.17	129	600	6.38	34.51	0.14	27.14	93	1.01
438	7.98	34.52	0.11	114							
524	7.06	34.52	0.19	102							
610	6.30	34.51	0.13	92							

BLACK DOUGLAS; April 22, 1960; 1015 GCT; 24°20'N, 114°36'W; sounding, 2100 fm; wind, 250°, force 3; weather, overcast; sea, rough; wire angle, 14°.

13760

1	18.36	33.95	4.56	354	0	(18.36)	(33.95)	(4.56)	(24.40)	(354)	(0.00)
11	18.35	33.95	4.77	354	10	18.35	33.95	4.70	24.40	354	0.04
30	18.69	34.18	4.93	345	20	18.50	34.05	4.89	24.44	350	0.07
40	17.68	34.07	-	329	30	18.69	34.18	4.93	24.49	345	0.11
54	16.66	33.98	4.84	313	50	16.92	33.99	4.87	24.79	317	0.17
70	15.91	33.99	4.56	295	75	15.59	33.98	4.54	25.08	289	0.25
95	12.98	33.82	4.53	249	100	12.62	33.84	4.29	25.59	241	0.32
114	11.92	33.95	3.07	220	125	11.49	34.10	2.34	26.01	201	0.37
133	11.24	34.18	1.98	191	150	10.84	34.21	1.66	26.21	182	0.42
153	10.80	34.22	1.61	180	200	10.69	34.44	0.87	26.42	162	0.51
182	10.86	34.41	1.03	168	250	10.16	34.49	0.56	26.55	149	0.59
217	10.46	34.46	0.74	157	300	9.44	34.52	0.32	26.69	136	0.66
247	10.21	34.49	0.58	151	400	8.10	34.44	0.23	26.84	122	0.79
296	9.52	34.52	0.33	137	500	7.05	34.42	0.20	26.98	109	0.92
350	8.67	34.45	0.28	130	600	6.17	34.42	0.37	27.09	98	1.02
449	7.58	34.43	0.18	115							
520	6.85	34.58u	0.21	-							
605	6.15	34.42	0.38	98							

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6004

OBSERVED				COMPUTED	INTERPOLATED				COMPUTED		
Z	T	S	O ₂	δ _T	Z	T	S	O ₂	σ _t	δ _T	ΔD
m	°C	‰	ml/L	cl/ton	m	°C	‰	ml/L	g/L	cl/ton	dyn m

137.70

BLACK DOUGLAS; April 22, 1960; 1525 GCT; 24°00'N, 115°11.5'W; sounding, 2000 fm; wind, 270°, force 3; weather, overcast; sea, moderate; wire angle, 15°.

1	18.67	34.02	4.56	356	0	(18.67)	(34.02)	(4.56)	(24.38)	(356)	(0.00)
11	18.66	34.00	4.83	357	10	18.66	34.00	4.78	24.37	357	0.04
30	18.58	34.00	4.83	356	20	18.64	34.00	4.83	24.37	357	0.07
39	18.12	34.00	5.17	345	30	18.58	34.00	4.83	24.38	356	0.11
54	16.76	33.87	5.08	323	50	17.11	33.90	5.11	24.67	328	0.18
68	15.74	33.80	4.78	306	75	15.20	33.80	4.56	25.03	294	0.25
93	13.72	33.82	3.96	263	100	13.04	33.85	3.61	25.51	248	0.32
111	12.13	33.87	3.12	229	125	11.39	33.89	2.77	25.86	215	0.38
130	11.26	33.89	2.71	213	150	11.02	34.09	1.98	26.08	194	0.43
148	11.03	34.07	2.06	195	200	10.52	34.36	1.06	26.39	165	0.52
176	10.93	34.31	1.27	176	250	10.06	34.47	0.76	26.55	149	0.60
208	10.40	34.38	1.00	162	300	9.43	34.48	0.50	26.66	139	0.68
236	10.24	34.45	0.85	154	400	8.25	34.55	0.23	26.91	115	0.81
284	9.62	34.49	0.59	141	500	7.15	34.52	0.22	27.04	103	0.92
336	9.06	34.47	0.33	134	600	(6.24)	(34.51)		(27.16)	(92)	(1.03)
417	8.05	34.56	0.23	112							
501	7.14	34.52	0.22	103							
585	6.37	34.51	0.18	93							

137.80

BLACK DOUGLAS; April 22, 1960; 2035 GCT; 23°40'N, 115°55'W; sounding, 2000 fm; wind, 270°, force 3; weather, overcast; sea, moderate; wire angle, 15°.

1	18.75	34.05	4.97	356	0	(18.75)	(34.05)	(4.97)	(24.38)	(356)	(0.00)
11	18.66	34.05	5.03	354	10	18.67	34.05	5.03	24.40	354	0.04
30	18.26	34.02	4.85	346	20	18.50	34.04	4.96	24.43	351	0.07
40	18.58	34.20	4.93	341	30	18.26	34.02	4.85	24.48	346	0.11
54	17.66	34.05	5.08	330	50	17.80	34.07	5.07	24.63	332	0.17
70	17.42	34.04	4.87	325	75	17.20	34.05	4.75	24.76	320	0.25
93	15.85	34.16	4.50	282	100	15.28	34.12	3.82	25.26	272	0.33
112	14.40	34.06	2.76	259	125	13.73	34.13	2.29	25.59	241	0.40
130	13.48	34.15	2.17	235	150	12.39	34.22	1.67	25.92	209	0.45
150	12.39	34.22	1.67	209	200	10.93	34.39	1.07	26.34	169	0.55
177	11.36	34.29	1.50	185	250	10.53	34.59	0.51	26.56	148	0.63
211	10.82	34.45	0.87	164	300	10.01	34.61	0.27	26.66	139	0.70
240	10.61	34.57	0.58	151	400	8.71	34.54	0.13	26.82	124	0.84
287	10.18	34.61	0.36	141	500	7.42	34.51	0.17	27.01	106	0.96
340	9.47	34.60	0.12	131	600	(6.55)	(34.51)		(27.12)	(95)	(1.07)
421	8.44	34.52	0.15	121							
505	7.35	34.51	0.17	107							
589	6.61	34.51	0.15	96							

140.30

BLACK DOUGLAS; April 24, 1960; 0523 GCT; 24°45.5'N, 112°24'W; sounding, 60 fm; wind, 320°, force 5; weather, clear; sea, very rough; wire angle, 13°.

1	16.80	34.18	3.82	301	0	(16.80)	(34.18)	(3.82)	(24.95)	(301)	(0.00)
11	16.80	34.22	3.56	298	10	16.80	34.22	3.57	24.98	299	0.03
30	14.50	34.16	2.57	254	20	16.40	34.23	3.27	25.09	288	0.06
50	13.87	34.40	1.14	224	30	14.50	34.16	2.57	25.45	254	0.09
75	12.92	34.56	0.47	193	50	13.87	34.40	1.14	25.76	224	0.13
					75	12.92	34.56	0.47	26.09	193	0.19

OBSERVED				COMPUTED	INTERPOLATED				COMPUTED		
Z	T	S	O ₂	δ _T	Z	T	S	O ₂	σ _t	δ _T	ΔD
m	°C	‰	ml/L	cl/ton	m	°C	‰	ml/L	g/L	cl/ton	dyn m

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BLACK DOUGLAS; April 24, 1960; 0222 GCT; 24°35.5'N; 112°42.5'W; sounding, 500 fm; wind, 330°, force 5; weather, partly cloudy; sea, very rough; wire angle, 15°.

140.35

1	17.61	34.03	4.59	330	0	(17.61)	(34.03)	(4.59)	(24.65)	(330)	(0.00)
11	17.60	-	-	-	10	17.60	34.03	4.58	24.65	330	0.03
30	16.66	33.94	4.05	316	20	17.42	34.01	4.47	24.68	327	0.07
40	15.16	33.87	4.23	288	30	16.66	33.94	4.05	24.80	316	0.10
55	13.74	33.89	3.19	258	50	13.98	33.88	3.45	25.35	263	0.16
70	13.49	34.18	1.96	232	75	13.39	34.28	1.60	25.77	223	0.22
94	12.92	34.47	0.88	199	100	12.79	34.50	0.74	26.07	195	0.27
114	12.52	34.58	0.41	184	125	12.38	34.66	0.34	26.28	175	0.32
133	12.29	34.69	0.32	172	150	12.09	34.68	0.27	26.34	169	0.36
153	12.04	34.68	0.26	169	200	11.34	34.68	0.16	26.48	156	0.44
183	11.49	34.75u	0.16	-	250	10.72	34.69	0.14	26.60	145	0.52
217	11.18	34.69	0.17	152	300	9.89	34.63	0.10	26.70	135	0.59
246	10.82	34.69	0.15	146	400	8.81	34.59	0.10	26.85	121	0.72
295	9.94	34.63	0.11	136	500	7.22	34.52	0.12	27.03	104	0.84
350	9.45	34.64	0.10	127	600	6.33	34.54	0.13	27.17	91	0.94
434	8.32	34.55	0.10	117							
519	6.96	34.52	0.13	100							
605	6.30	34.54	0.13	90							

BLACK DOUGLAS; April 23, 1960; 2235 GCT; 24°24'N, 113°04'W; sounding, 1760 fm; wind, 330°, force 4; weather, cloudy; sea, very rough; wire angle, 20°.

140.40

1	17.88	33.98	5.08	341	0	(17.88)	(33.98)	(5.08)	(24.53)	(341)	(0.00)
10	17.79	33.96	4.96	340	10	17.79	33.96	4.96	24.55	340	0.03
29	17.17	33.97	5.27	325	20	17.69	33.96	4.99	24.57	338	0.07
38	15.86	33.95	5.02	297	30	17.15	33.97	5.27	24.70	325	0.10
53	14.85	33.96	4.32	275	50	15.01	33.96	4.50	25.18	280	0.16
67	14.35	34.04	3.30	259	75	14.11	34.07	2.98	25.46	253	0.23
91	13.08	34.14	2.02	227	100	12.92	34.16	1.84	25.79	222	0.29
109	12.70	34.20	1.61	216	125	12.27	34.37	1.12	26.07	195	0.34
128	12.23	34.40	1.05	192	150	12.01	34.58	0.57	26.28	175	0.39
146	12.04	34.35u	0.62	-	200	11.34	34.65	0.22	26.46	158	0.47
174	11.77	34.67	0.31	164	250	10.54	34.61	0.19	26.58	147	0.55
207	11.22	34.64	0.21	156	300	9.89	34.59	0.12	26.67	138	0.62
235	10.76	34.62	0.22	150	400	8.49	34.56	0.22	26.88	118	0.76
282	10.12	34.60	0.13	141	500	7.43	34.52	0.20	27.00	107	0.87
334	9.40	34.58	0.15	131	600	(6.23)	(34.50)		(27.14)	(93)	(0.98)
415	8.29	34.55	0.22	116							
498	7.45	34.52	0.20	107							
583	6.44	34.50	0.17	95							

BLACK DOUGLAS; April 23, 1960; 1651 GCT; 24°04.5'N, 113°40'W; sounding, 1760 fm; wind, 330°, force 4; weather, cloudy; sea, very rough; wire angle, 15°.

140.50

					0						
					10						
					20						
					30						
					50						
					75						
					100						
					125						
					150						
156	12.47	34.62	0.64	181	200	11.82	34.70	0.33	26.41	163	
184	12.17	34.68	0.44	171	250	10.85	34.69	0.27	26.58	147	
213	11.50	34.70	0.28	157	300	10.10	34.67	0.20	26.69	136	
242	10.97	34.69	0.28	148	400	8.57	34.60	0.17	26.89	117	
289	10.27	34.67	0.22	138	500	7.43	34.57	0.13	27.04	103	
342	9.42	34.67	0.17	125	600	(6.49)	(34.56)	(0.22)	(27.17)	(91)	
425	8.26	34.58	0.16	114							
508	7.34	34.57	0.13	102							
593	6.54	34.56	0.19	92							

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OBSERVED				COMPUTED	INTERPOLATED				COMPUTED		
Z	T	S	O ₂	δ _T	Z	T	S	O ₂	σ _t	δ _T	ΔD
m	°C	‰	ml/L	cl/ton	m	°C	‰	ml/L	g/L	cl/ton	dyn m

140.60

BLACK DOUGLAS; April 23, 1960; 0642, 1045 GCT; 23°45.5'N, 114°16.5'W; sounding, 1800 fm; wind, 320°, force 4; weather, cloudy; sea, rough; wire angle, 06°, 13°.

0	19.45	34.30	4.51	355	0	19.45	34.30	4.51	24.39	355	0.00
10	19.45	34.31	4.66	354	10	19.45	34.31	4.66	24.40	354	0.04
30	19.32	34.29	4.55	352	20	19.42	34.31	4.61	24.41	353	0.07
40	19.02	34.26	4.83	347	30	19.32	34.29	4.55	24.42	352	0.11
55	18.00	34.14	4.91	332	50	18.40	34.19	4.90	24.58	337	0.18
70	16.84	34.05	4.36	312	75	16.29	34.01	4.20	24.94	302	0.26
96	13.86	33.83	3.85	265	100	13.36	33.82	3.75	25.43	256	0.33
115	12.08	33.82	3.39	233	125	11.57	33.86	3.07	25.80	221	0.39
135	11.22	33.96	2.55	207	150	11.06	34.12	1.91	26.10	192	0.44
155	11.04	34.17	1.69	189	200	10.91	34.47	0.67	26.41	163	0.53
185	11.06	34.43	0.84	169	250	10.27	34.54	0.32	26.57	148	0.61
219	10.64	34.51	0.48	157	300	9.60	34.53	0.28	26.67	138	0.68
250	10.27	34.54	0.32	148	400	8.24	34.48	0.17	26.85	121	0.82
300	9.60	34.53	0.28	138	500	7.04	34.44	0.15	26.99	108	0.94
355	8.91	34.53	0.19	127	600	6.18	34.44	0.13	27.11	96	1.05
439	7.74	34.45	0.14	116	700	5.50	34.46	0.19	27.21	87	1.14
525	6.86	34.48	0.14	102	800	4.93	34.48	0.24	27.29	79	1.23
611	6.18	34.45	0.12	96	1000	4.09	34.51	0.38	27.42	67	1.39
					1200	3.50	34.56	0.60	27.50	59	1.54
430a)	7.72	34.45 1	0.18	116	1500	2.91	34.59	1.04	27.59	51	1.73
515	6.83	34.43 5	0.13	105	2000	2.13	34.63	1.60	27.69	41	2.01
600	6.10	34.44 0	0.14	96	2500	1.78	34.66	2.01	27.74	37	2.26
772	5.06	34.47 7	0.23	81	3000	1.65	34.67	2.38	27.76	35	2.49
946	4.28	34.50 7	0.32	70							
1119	3.69	34.54 1	0.54	62							
1291	3.36	34.57 0	0.66	56							
1463	-	34.59 0	0.99	-							
1637	2.66	34.61 1	1.19	47							
1810	2.37	34.62 5	1.53	44							
1983	2.14	34.62 8	1.57	42							
2156	1.98	34.65 1	1.99	39							
2328	1.89	34.65 9	2.00	38							
2503	1.78	34.66 2	2.01	37							
2677	1.76	34.66 7	2.10	36							
2852	1.69	34.66 9	2.34	35							
3026	1.64	34.67 1	2.39	35							
3100	1.65	34.67 5	2.47	34							

143.26

BLACK DOUGLAS; April 25, 1960; 1115 GCT; 24°19'N, 111°48'W; sounding, 43 fm; wind, 320°, force 3; weather, clear; sea, moderate; wire angle, 10°.

0	14.86	34.41		243	0	14.86	34.41		25.56	243	0.00
10	14.85	34.37		246	10	14.85	34.37		25.53	246	0.02
30	13.72	34.25		231	20	14.85	34.37		25.53	246	0.05
50	13.74	34.60		206	30	13.72	34.25		25.69	231	0.07
					50	13.74	34.60		25.95	206	0.12

143.30

BLACK DOUGLAS; April 25, 1960; 1431 GCT; 24°11'N, 112°03'W; sounding, 105 fm; wind, 320°, force 5; weather, partly cloudy; sea, very rough; wire angle, 10°.

0	16.68	34.03	4.75	310	0	16.68	34.03	4.75	24.86	310	0.00
10	16.70	34.09	4.55	306	10	16.70	34.09	4.55	24.90	306	0.03
30	14.64	34.08	3.53	262	20	16.70	34.09	4.50	24.91	305	0.06
50	13.50	34.15	2.12	234	30	14.64	34.08	3.53	25.36	262	0.09
74	13.55	34.45	0.82	214	50	13.50	34.15	2.12	25.66	234	0.14
99	12.56	34.56	0.54	187	75	13.57	34.45	0.80	25.88	213	0.20
125	12.18	34.67	0.30	171	100	12.54	34.57	0.53	26.16	186	0.25
153	11.66	34.76	0.18	156	125	12.18	34.67	0.30	26.32	171	0.29
					150	11.71	34.75	0.20	26.47	157	0.33

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

OBSERVED				COMPUTED	INTERPOLATED				COMPUTED		
Z	T	S	O ₂	δ _T	Z	T	S	O ₂	σ _t	δ _T	ΔD
m	°C	‰	ml/L	cl/ton	m	°C	‰	ml/L	g/L	cl/ton	dyn m

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BLACK DOUGLAS; April 25, 1960; 1740 GCT; 24°01.5'N, 112°23'W; sounding, 1040 fm; wind, 320°, force 6; weather, partly cloudy; sea, very rough; wire angle, 18°.

143.35

1	18.48	34.06	4.73	349	0	(18.48)	(34.06)	(4.73)	(24.45)	(349)	(0.00)
11	18.44	34.06	4.56	348	10	18.45	34.06	4.57	24.46	348	0.03
30	17.91	34.14	5.07	329	20	18.49	34.09	4.57	24.47	347	0.07
39	16.87	34.11	4.82	308	30	17.91	34.14	5.07	24.66	329	0.10
54	15.23	33.94	4.52	285	50	15.50	33.95	4.61	25.07	290	0.17
68	14.18	34.07	2.69	254	75	14.10	34.18	2.51	25.55	244	0.23
93	12.93	34.47	1.80	200	100	12.75	34.46	1.46	26.04	198	0.29
112	12.64	34.45	1.14	196	125	12.59	34.61	0.59	26.20	183	0.34
131	12.56	34.66	0.48	179	150	12.02	34.65	0.38	26.33	170	0.38
150	12.02	34.65	0.38	170	200	11.20	34.67	0.27	26.50	154	0.46
179	11.58	34.69	0.30	159	250	10.49	34.65	0.18	26.62	143	0.54
213	10.96	34.66	0.25	151	300	9.70	34.60	0.16	26.71	134	0.61
242	10.60	34.65	0.21	145	400	8.39	34.57	0.12	26.90	116	0.74
291	9.82	34.60	0.15	136	500	7.42	34.54	0.12	27.02	105	0.86
343	9.18	34.60	0.18	126	600	(6.62)	(34.53)	(0.10)	(27.12)	(95)	(0.96)
428	8.06	34.56	0.10	113							
511	7.33	34.54	0.12	104							
597	6.64	34.53	0.11	95							

BLACK DOUGLAS; April 25, 1960; 2050 GCT; 23°50.5'N, 112°41'W; sounding, 1650 fm; wind, 320°, force 5; weather, partly cloudy; sea, rough; wire angle, 27°.

14340

0	18.98	34.16		353	0	18.98	34.16		24.41	353	0.00
8	18.93	34.14		354	10	18.90	34.14		24.41	353	0.04
27	18.81	34.19		347	20	18.83	34.18		24.46	348	0.07
37	18.78	34.15		349	30	18.80	34.17		24.46	348	0.11
52	17.23	34.11		316	50	17.37	34.10		24.76	320	0.17
66	16.17	34.13		291	75	15.10	34.08		25.26	272	0.25
89	13.69	34.12		241	100	13.01	34.24		25.82	219	0.31
108	12.56	34.29		207	125	11.78	34.32		26.12	190	0.36
126	11.76	34.32		190	150	11.53	34.48		26.29	174	0.41
145	11.54	34.45		176	200	11.17	34.69		26.52	152	0.49
173	11.50	34.60		165	250	10.39	34.63		26.62	143	0.56
205	11.08	34.69		151	300	9.65	34.59		26.70	135	0.64
233	10.64	34.65		146	400	8.41	34.54		26.87	119	0.77
279	9.94	34.61		138	500	7.19	34.54		27.05	102	0.88
330	9.24	34.56		130							
410	8.28	34.54		117							
493	7.27	34.54		103							
577	6.46	34.54		92							

BLACK DOUGLAS; April 26, 1960; 0240 GCT; 23°28'N, 113°22'W; sounding, 1700 fm; wind, 330°, force 4; weather, partly cloudy; sea, rough; wire angle, 15°.

14350

1	19.54	34.36		353	0	(19.54)	(34.36)		(24.41)	(353)	(0.00)
11	19.54	34.34		354	10	19.54	34.34		24.40	354	0.04
30	19.44	34.36		350	20	19.52	34.35		24.41	353	0.07
40	18.20	34.21		331	30	19.44	34.36		24.44	350	0.11
55	16.92	-		-	50	17.29	34.12		24.80	316	0.17
70	16.38	34.09		298	75	16.30	34.09		25.00	297	0.25
94	14.64	34.14		258	100	14.70	34.18		25.43	256	0.32
113	13.62	34.25		229	125	13.15	34.39		25.91	210	0.38
133	12.86	34.42		203	150	11.99	34.37		26.12	190	0.43
153	11.96	34.37		189	200	11.78	34.68		26.41	163	0.52
182	12.06	34.58		176	250	10.80	34.69		26.60	145	0.60
216	11.46	34.70		157	300	9.89	34.63		26.70	135	0.67
245	10.90	34.70		147	400	8.73	34.63		26.89	117	0.80
294	9.96	34.63		136	500	7.39	34.53		27.02	105	0.92
348	9.42	34.63		127	600	6.40	34.54		27.17	91	1.02
432	8.28	34.63		110							
517	7.18	34.52		103							
602	6.37	34.54		91							

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OBSERVED				COMPUTED	INTERPOLATED				COMPUTED		
Z	T	S	O ₂	δ _T	Z	T	S	O ₂	σ _t	δ _T	ΔD
m	°C	‰	ml/L	cl/ton	m	°C	‰	ml/L	g/L	cl/ton	dyn m

143.60

BLACK DOUGLAS; April 26, 1960; 0756 GCT; 23°10.5'N, 113°55.5'W; sounding, 2000 fm; wind, 320°, force 4; weather, cloudy; sea, very rough; wire angle, 08°.

1	20.24	34.56	4.97	356	0	(20.24)	(34.56)	(4.97)	(24.38)	(356)	(0.00)
11	20.22	34.58	4.93	354	10	20.22	34.58	4.94	24.40	354	0.04
31	20.21	34.60	4.85	352	20	20.21	34.59	4.87	24.41	353	0.07
61	18.39	34.26	5.40	332	30	20.21	34.60	4.86	24.42	352	0.11
70	17.35	34.11	5.13	319	50	20.00	34.60	4.98	24.48	346	0.18
85	16.78	34.10	5.15	307	75	17.12	34.11	5.13	24.82	314	0.26
100	15.32a)	34.00	4.20	282	100	15.32	34.00	4.20	25.15	282	0.34
115	13.19	33.87	3.71	249	125	12.19	33.93	3.24	25.74	226	0.40
139	11.28	34.04	2.55	202	150	10.98	34.12	2.14	26.11	191	0.45
159	10.84	34.22	1.78	181	200	10.78	34.56	0.60	26.49	155	0.54
188	10.78	34.49	0.93	160	250	10.13	34.61	0.38	26.65	140	0.62
218	10.74	34.65	0.36	147	300	9.49	34.55	0.28	26.71	134	0.69
247	10.18	34.61	0.39	141	400	8.19	34.52	0.29	26.89	117	0.82
296	9.55	34.56	0.29	135	500	7.22	34.52	0.22	27.03	104	0.93
351	8.84	34.52	0.28	127	600	6.35	34.50	0.22	27.13	94	1.04
434	7.81	34.52	0.29	112							
519	7.06	34.52	0.20	102							
603	6.32	34.50	0.23	94							

147.20

BLACK DOUGLAS; April 27, 1960; 1205 GCT; 23°56'N, 111°03.5'W; sounding, 78 fm; wind, 320°, force 5; weather, partly cloudy; sea, rough; wire angle, 20°.

0	16.90	34.34	3.93	292	0	16.90	34.34	3.93	25.05	292	0.00
9	16.89	34.36	-	290	10	16.89	34.36	3.80	25.07	290	0.03
28	15.67	34.30	2.34	268	20	16.87	34.37	3.68	25.08	289	0.06
47	13.62	34.25	1.67	229	30	14.91	34.25	2.05	25.45	254	0.09
72	13.03	34.60	0.38	192	50	13.80	34.34	1.60	25.74	226	0.13
96	12.62	34.79	0.21	171	75	12.93	34.64	0.31	26.14	188	0.18
					100	(12.57)	(34.81)	(0.21)	(26.35)	(168)	(0.23)

147.25

BLACK DOUGLAS; April 27, 1960; 0923 GCT; 23°46'N, 111°22'W; sounding, 180 fm; wind, 320°, force 4; weather, partly cloudy; sea, rough; wire angle, 05°.

1	17.92	34.30	4.58	318	0	(17.92)	(34.30)	(4.58)	(24.78)	(318)	(0.00)
11	17.92	34.31	4.63	317	10	17.92	34.31	4.62	24.79	317	0.03
31	15.06	34.40	1.89	248	20	16.20	34.37	2.96	25.24	274	0.06
51	14.00	34.39	1.19	227	30	15.10	34.40	1.91	25.50	249	0.09
76	12.92	34.41	1.04	204	50	14.02	34.39	1.20	25.73	227	0.14
102	12.64b)	34.69	0.28	179	75	12.93	34.41	1.05	25.97	204	0.19
127	12.41	34.70	0.21	174	100	12.66	34.68	0.30	26.23	180	0.24
167	11.48	34.72	0.16	156	125	12.43	34.70	0.21	26.29	174	0.28
206	11.10	34.72	0.09	149	150	11.83	34.72	0.17	26.43	161	0.32
257	10.26	34.68	0.11	138	200	11.17	34.72	0.09	26.54	150	0.40
307	9.94	34.66	0.07	133	250	10.33	34.69	0.11	26.67	138	0.48
					300	9.97	34.66	0.08	26.71	134	0.55

147.30

BLACK DOUGLAS; April 27, 1960; 0629 GCT; 23°35.5'N, 111°41.5'W; sounding, 240 fm; wind, 320°, force 4; weather, cloudy; sea, rough; wire angle, 20°.

1	18.36	34.34	4.57	326	0	(18.36)	(34.34)	(4.57)	(24.69)	(326)	(0.00)
10	18.34	34.33	4.68	326	10	18.34	34.33	4.68	24.69	326	0.03
29	16.72	34.31	3.33	289	20	18.33	34.32	4.69	24.69	326	0.07
48	13.88	34.23	1.96	236	30	16.40	34.30	3.14	25.14	283	0.10
71	13.04	34.32	1.27	214	50	13.77	34.23	1.87	25.66	234	0.15
94	12.90	34.50	0.64	197	75	12.99	34.35	1.13	25.91	210	0.20
117	12.80	34.63	0.36	186	100	12.88	34.56	0.48	26.10	192	0.25
154	11.92	34.68	0.28	166	125	12.69	34.65	0.33	26.21	182	0.30
190	11.08	34.67	0.20	152	150	12.02	34.68	0.30	26.35	168	0.34
238	10.52	34.66	0.18	143	200	10.93	34.67	0.20	26.55	149	0.43
285	9.72	34.65	0.14	131	250	10.32	34.66	0.17	26.65	140	0.50
388	8.80	34.61	0.12	119	300	9.54	34.64	0.13	26.78	128	0.57

a) Alternate value, 15.71°C, not used in interpolation.

b) Alternate value, 12.86°C, not used in interpolation.

OBSERVED				COMPUTED	INTERPOLATED				COMPUTED		
Z	T	S	O ₂	δ _T	Z	T	S	O ₂	σ _t	δ _T	ΔD
m	°C	‰	ml/L	cl/ton	m	°C	‰	ml/L	g/L	cl/ton	dyn m

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BLACK DOUGLAS; April 27, 1960; 0052 GCT; 23°16'N, 112°19'W; sounding, 1750 fm; wind, 330°, force 4;
weather, cloudy; sea, rough; wire angle, 18°.

14740

1	20.48	34.57	3.58u	361	0	(20.48)	(34.57)		(24.32)	(361)	(0.00)
11	20.48	34.56	4.62	362	10	20.48	34.56		24.31	362	0.04
30	20.63	34.59	4.71	363	20	20.55	34.57	4.68	24.30	363	0.07
40	20.22	34.54	4.79	356	30	20.63	34.59	4.71	24.30	363	0.11
54	18.49	34.27	4.85	334	50	18.60	34.27	4.85	24.59	336	0.18
68	17.66	34.25	4.05	315	75	17.00	34.23	3.47	24.94	302	0.26
91	14.92	34.20	2.40	259	100	13.92	34.20	2.06	25.62	238	0.33
111	13.14	34.22	1.75	223	125	12.55	34.48	0.87	26.10	192	0.38
130	12.58	34.52	0.80	190	150	12.54	34.67	0.37	26.25	178	0.43
148	12.56	34.65	0.44	180	200	11.79	34.70	0.34	26.43	161	0.52
176	12.27	34.72	0.18	170	250	10.88	34.68	0.23	26.57	148	0.59
209	11.57	34.70	0.37	158	300	10.19	34.64	0.22	26.66	139	0.67
237	11.05	34.69	0.23	150	400	8.87	34.59	0.14	26.84	122	0.80
284	10.42	34.65	0.23	142	500	7.44	34.53	0.10	27.01	106	0.92
337	9.67	34.63	0.20	131	600	(6.39)	(34.52)		(27.14)	(93)	(1.03)
420	8.60	34.58	0.13	119							
503	7.41	34.53	0.11	106							
587	6.48	34.52	0.18	94							

BLACK DOUGLAS; April 26, 1960; 1915 GCT; 22°55.5'N, 112°56.5'W; sounding, 1700 fm; wind, 320°, force 4;
weather, cloudy; sea, very rough; wire angle, 15°.

14750

0	20.80	34.65	4.31	363	0	20.80	34.65	4.31	24.30	363	0.00
10	20.73	34.64	4.41	362	10	20.73	34.64	4.41	24.31	362	0.04
29	20.71	34.65	4.66	361	20	20.71	34.65	4.54	24.32	361	0.07
39	19.76	34.45	4.46	351	30	20.71	34.65	4.66	24.32	361	0.11
53	18.18	34.22	4.52	330	50	18.45	34.25	4.51	24.61	334	0.18
68	17.18	34.18	4.33	310	75	16.00	34.06	3.87	25.05	292	0.26
93	14.42	33.92	3.36	269	100	13.29	33.88	3.34	25.49	250	0.33
113	13.04	33.90	3.34	244	125	13.05	34.09	2.57	25.70	230	0.39
132	12.77	34.28	1.54	211	150	12.20	34.43	1.06	26.13	189	0.44
152	12.14	34.44	1.03	188	200	11.40	34.60	0.38	26.42	162	0.53
182	11.74	34.58	0.56	170	250	10.64	34.62	0.23	26.57	148	0.61
216	11.12	34.61	0.30	157	300	10.05	34.65	0.16	26.68	137	0.68
294	10.13	34.64	0.17	138	400	8.79	34.63	0.10	26.89	117	0.81
348	9.53	34.67	0.10	126	500	7.34	34.51	0.15	27.01	106	0.93
432	8.32	34.60	0.10	114	600	6.46	34.49	0.11	27.11	96	1.04
517	7.16	34.50	0.16	104							
603	6.44	34.49	0.11	96							

BLACK DOUGLAS; April 26, 1960; 1300 GCT; 22°39'N, 113°36'W; sounding, 2000 fm; wind, 320°, force 3;
weather, cloudy; sea, rough; wire angle, 10°.

14760

1	19.76	34.38	4.69	357	0	(19.76)	(34.38)	(4.69)	(24.37)	(357)	(0.00)
11	19.76	34.36	4.77	358	10	19.76	34.36	4.76	24.36	358	0.04
30	19.76	34.35	4.82	358	20	19.76	34.36	4.79	24.36	358	0.07
40	19.02	34.25	4.78	348	30	19.76	34.35	4.82	24.36	358	0.11
54	18.43	34.17	4.78	339	50	18.60	34.19	4.78	24.52	342	0.18
70	17.30	34.09	4.68	319	75	16.90	34.09	4.53	24.86	310	0.26
93	15.65	34.09	3.50	282	100	15.28	34.17	2.81	25.29	269	0.33
113	14.48	34.36	1.34	239	125	12.94	34.36	1.30	25.93	208	0.39
131	12.46	34.36	1.27	199	150	11.76	34.38	1.02	26.17	185	0.44
151	11.74	34.38	1.01	185	200	10.92	34.59	0.48	26.49	155	0.53
179	11.06	34.51	0.97	164	250	10.41	34.60	0.36	26.60	145	0.61
213	10.86	34.60	0.43	153	300	9.69	34.62	0.20	26.73	132	0.68
241	10.54	34.60	0.38	148	400	8.20	34.53	0.16	26.89	117	0.81
289	9.86	34.63	0.23	135	500	7.21	34.52	0.12	27.03	104	0.92
342	8.99	34.58	0.19	125	600	(6.36)	(34.52)	(0.11)	(27.14)	(93)	(1.03)
423	7.94	34.52	0.14	114							
508	7.14	34.52	0.12	103							
593	6.42	34.52	0.11	93							

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OBSERVED				COMPUTED	INTERPOLATED				COMPUTED		
Z	T	S	O ₂	δ _T	Z	T	S	O ₂	σ _t	δ _T	ΔD
m	°C	‰	ml/L	cl/ton	m	°C	‰	ml/L	g/L	cl/ton	dyn m

150.19 BLACK DOUGLAS; April 27, 1960; 1625 GCT; 23°24'N, 110°40.5'W; sounding, 105 fm; wind, 320°, force 5; weather, clear; sea, very rough; wire angle, 10°.

0	16.56	34.42	4.31	279	0	16.56	34.42	4.31	25.19	279	0.00
10	16.37	34.34	4.40	280	10	16.37	34.34	4.40	25.18	280	0.03
30	15.68	34.31	3.65	267	20	16.32	34.32	4.39	25.18	280	0.06
50	14.39	34.36	1.58	237	30	15.68	34.31	3.65	25.31	267	0.08
74	13.27	34.60	0.50	197	50	14.39	34.36	1.58	25.63	237	0.13
99	12.86	34.70	0.33	182	75	13.26	34.60	0.49	26.05	197	0.19
124	12.46	34.72	0.24	173	100	12.85	34.70	0.31	26.22	181	0.24
					125	(12.45)	(34.72)	(0.23)	(26.30)	(173)	(0.28)

150.25 BLACK DOUGLAS; April 27, 1960; 1906 GCT; 23°13.5'N, 110°59.5'W; sounding, 550 fm; wind, 320°, force 4; weather, partly cloudy; sea, rough; wire angle, 33°.

0	19.05	34.27	4.82	347	0	19.05	34.27	4.82	24.47	347	0.00
9	18.87	34.24	4.93	345	10	18.85	34.23	4.94	24.49	345	0.03
26	18.24	34.18	4.95	334	20	18.43	34.19	4.94	24.57	338	0.07
34	18.04	34.21	4.97	327	30	18.13	34.20	4.97	24.64	331	0.10
45	15.78	34.13	3.88	282	50	15.38	34.13	3.42	25.24	274	0.16
57	15.02	34.16	2.96	264	75	14.08	34.45	1.19	25.76	224	0.22
79	13.86	34.49	0.98	217	100	13.11	34.60	0.59	26.08	194	0.28
95	13.26	34.58	0.61	198	125	12.69	34.66	0.46	26.21	182	0.33
110	12.90	34.62	0.55	189	150	12.29	34.72	0.33	26.33	170	0.37
126	12.68	34.66	0.45	182	200	10.89	34.65	0.29	26.54	150	0.45
179	11.63	34.76	0.27	155	250	10.53	34.72	0.13	26.67	138	0.52
205	10.82	34.65	0.29	149	300	10.04	34.69	0.12	26.71	134	0.60
246	10.56	34.72	0.16	139	400	8.68	34.65	0.10	26.91	115	0.72
292	10.14	34.69	0.12	135	500	7.69	34.58	0.08	27.01	106	0.84
366	9.08	34.65	0.12	121							
442	8.22	34.63	0.09	109							
524	7.48	34.55	0.08	105							

150.30 BLACK DOUGLAS; April 27, 1960; 2246 GCT; 23°02'N, 111°20'W; sounding, 1300 fm; wind, 320°, force 5; weather, partly cloudy; sea, very rough; wire angle, 20°.

1	19.20	34.23	4.82	354	0	(19.20)	(34.23)	(4.82)	(24.40)	(354)	(0.00)
11	19.18	34.25	4.91	352	10	19.19	34.25	4.90	24.42	352	0.04
29	18.97	34.22	4.98	349	20	19.11	34.24	4.96	24.43	351	0.07
39	18.46	34.23	4.87	336	30	18.96	34.22	4.98	24.46	348	0.11
53	16.50	34.11	4.61	300	50	17.20	34.15	4.76	24.84	312	0.17
67	15.28	34.11	3.53	274	75	14.80	34.16	2.87	25.38	260	0.24
89	14.10	34.39	1.40	229	100	13.94	34.48	0.99	25.83	218	0.30
107	13.76	34.52	0.80	213	125	13.00	34.58	0.55	26.09	193	0.36
125	13.00	34.58	0.55	193	150	12.38	34.66	0.36	26.27	176	0.40
142	12.52	34.63	0.43	180	200	11.55	34.70	0.14	26.46	158	0.49
170	12.06	34.72	0.20	166	250	10.81	34.69	0.10	26.59	146	0.57
201	11.54	34.70	0.13	158	300	10.00	34.64	0.10	26.69	136	0.64
229	11.16	34.70	0.09	151	400	8.53	34.60	0.08	26.90	116	0.77
275	10.38	34.66	0.13	141	500	7.19	34.52	0.10	27.04	103	0.88
326	9.62	34.62	0.08	131							
405	8.44	34.60	0.08	115							
488	7.30	34.52	0.10	105							
573	6.68	34.56	0.08	94							

OBSERVED				COMPUTED	INTERPOLATED				COMPUTED		
Z	T	S	O ₂	δ _T	Z	T	S	O ₂	σ _t	δ _T	ΔD
m	°C	‰	ml/L	cl/ton	m	°C	‰	ml/L	g/L	cl/ton	dyn m

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BLACK DOUGLAS; April 28, 1960; 0455 GCT; 22°41.5'N, 111°57'W; sounding, 1700 fm; wind, 320°, force 5; weather, clear; sea, very rough; wire angle, 15°.

15040

0	19.32	34.22	4.92	357	0	19.32	34.22	4.92	24.37	357	0.00
10	19.32	34.23	4.77	356	10	19.32	34.23	4.77	24.38	356	0.04
29	19.32	34.22	5.02	357	20	19.32	34.23	4.87	24.37	357	0.07
39	19.10	34.23	5.07	351	30	19.32	34.22	5.02	24.37	357	0.11
54	17.73	34.13	5.10	326	50	17.90	34.13	5.10	24.65	330	0.18
68	16.53	34.05	4.74	305	75	15.89	34.04	4.36	25.06	291	0.25
92	14.93	34.04	3.61	271	100	14.62	34.07	3.20	25.36	262	0.32
111	13.80	34.11	2.27	243	125	13.13	34.23	1.49	25.80	221	0.38
130	13.00	34.29	1.32	215	150	12.59	34.49	0.78	26.09	193	0.44
149	12.60	34.48	0.81	193	200	11.83	34.68	0.16	26.40	164	0.53
178	12.20	34.62	0.34	175	250	11.15	34.69	0.12	26.52	152	0.61
212	11.63	34.69	0.15	160	300	10.45	34.64	0.09	26.62	143	0.68
241	11.28	34.69	0.13	154	400	8.94	34.56	0.04	26.81	125	0.82
289	10.58	34.65	0.10	145	500	7.24	34.50	0.11	27.01	106	0.95
342	9.91	34.61	0.07	137	600	(6.16)	(34.51)	(0.12)	(27.17)	(91)	(1.05)
425	8.48	34.54	0.04	120							
511	7.10	34.50	0.12	104							
595	6.22	34.51	0.12	92							

BLACK DOUGLAS; April 28, 1960; 1050 GCT; 22°21.5'N, 112°34'W; sounding, 1600 fm; wind, 310°, force 5; weather, missing; sea, very rough; wire angle, 25°.^{a)}

15050

1	20.76	34.60	4.05	366	0	(20.76)	(34.60)	(4.05)	(24.27)	(366)	(0.00)
11	20.74	34.60	4.77	365	10	20.74	34.60	4.50	24.28	365	0.04
30	20.76	34.59	4.63	367	20	20.75	34.59	4.68	24.27	366	0.07
59	20.23	34.56	4.80	355	30	20.76	34.59	4.63	24.26	367	0.11
68	19.68	34.48	4.79	348	50	20.74	34.59	4.64	24.27	366	0.18
82	18.82	34.50b)	4.81	325	75	19.22	34.49	4.80	24.60	335	0.27
98	17.77	34.31b)	4.26	314	100	17.37	34.28	3.92	24.89	307	0.35
112	15.60	34.25	2.45	270	125	14.63	34.46	1.77	25.66	234	0.42
135	14.51	34.54	1.61	226	150	14.00	34.61	0.70	25.91	210	0.48
154	13.81	34.65	0.36	204	200	12.49	34.74	0.30	26.31	172	0.58
183	12.69	34.67	0.32	181	250	11.52	34.73	0.24	26.49	155	0.66
212	12.32	34.77	0.30	167	300	10.83	34.68	0.13	26.58	147	0.74
240	11.64	34.74	0.28	157	400	8.90	34.57	0.18	26.82	124	0.88
287	11.11	34.71	0.12	150	500	7.66	34.53	0.18	26.98	109	1.00
340	9.92	34.59	0.17	138	600	(6.62)	(34.49)	(0.20)	(27.09)	(98)	(1.11)
421	8.59	34.56	0.18	120							
506	7.59	34.53	0.18	108							
591	6.69	34.49	0.20	99							

BLACK DOUGLAS; April 30, 1960; 0440 GCT; 22°57.5'N, 110°09'W; sounding, 450 fm; wind, 320°, force 4; weather, partly cloudy; sea, rough; wire angle, 33°.

15316

0	17.88	34.25	4.77	321	0	17.88	34.25	4.77	24.74	321	0.00
8	17.84	34.25	4.82	320	10	17.83	34.25	4.82	24.76	320	0.03
25	14.90	34.45	1.65	241	20	14.97	34.36	1.87	25.60	249	0.06
33	15.70	34.79	1.71	233	30	15.60	34.72	1.69	25.64	236	0.08
50	15.35	34.95	1.50	213	50	15.35	34.95	1.50	25.88	213	0.13
59	14.21	34.85	0.55	197	75	13.44	34.80	0.34	26.16	186	0.18
81	13.28	34.78	0.32	185	100	13.04	34.76	0.27	26.22	181	0.23
98	13.08	34.76	0.28	182	125	12.61	34.77	0.20	26.31	172	0.27
116	12.78	34.77	0.22	175	150	12.32	34.77	0.16	26.36	167	0.31
133	12.46	34.76	0.18	170	200	11.33	34.72	0.07	26.51	153	0.40
159	12.25	34.78	0.14	165	250	11.04	34.73	0.07	26.57	147	0.47
190	11.46	34.72	0.07	155	300	10.82	34.72	0.07	26.61	144	0.55
216	11.23	34.73	0.07	150	400	9.39	34.63	0.05	26.79	127	0.68
262	10.96	34.72	0.07	146	500	7.79	34.57	0.08	26.99	108	0.81
312	10.74	34.72	0.07	143							
390	9.56	34.63	0.04	130							
472	8.18	34.60	0.07	111							
555	7.08	34.52	0.08	102							

- a) An assumed wire angle of 15° was used in depth determination.
b) Possible evaporation; value falls on property curve.

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OBSERVED				COMPUTED	INTERPOLATED				COMPUTED		
Z	T	S	O ₂	δ _T	Z	T	S	O ₂	σ _t	δ _T	ΔD
m	°C	‰	ml/L	cl/ton	m	°C	‰	ml/L	g/L	cl/ton	dyn m

153.20

BLACK DOUGLAS; April 30, 1960; 0203 GCT; 22°47'N, 110°22'W; sounding, 450 fm; wind, 310°, force 4; weather, partly cloudy; sea, rough; wire angle, 15°.

1	18.88	34.37	5.12	336	0	(18.88)	(34.37)	(5.12)	(24.59)	(336)	(0.00)
11	18.88	34.34	5.06	338	10	18.88	34.34	5.07	24.57	338	0.03
30	18.58	34.30	5.26	334	20	18.83	34.33	5.09	24.58	337	0.07
39	17.35	34.29	4.87	306	30	18.58	34.30	5.26	24.61	334	0.10
55	15.22	34.38	2.47	252	50	15.48	34.34	2.91	25.38	261	0.16
68	15.34	34.72	1.38	230	75	15.13	34.71	1.18	25.74	226	0.22
93	14.04	34.66	0.64	208	100	13.73	34.67	0.51	25.99	202	0.28
112	13.31	34.70	0.34	191	125	12.91	34.74	0.23	26.23	180	0.32
131	12.74	34.76	0.20	176	150	12.36	34.77	0.18	26.36	167	0.37
150	12.36	34.77	0.18	167	200	11.27	34.73	0.07	26.53	151	0.45
178	11.62	34.72	0.12	158	250	10.88	34.73	0.07	26.60	145	0.52
213	11.12	34.74	0.07	148	300	10.33	34.69	0.09	26.67	138	0.60
241	10.96	34.73	0.07	145	400	8.97	34.63	0.14	26.85	121	0.73
289	10.42	34.69	0.07	139	500	7.64	34.54	0.08	26.99	108	0.85
342	10.04	34.69	0.24	133	600	(6.67)	(34.53)	(0.11)	(27.12)	(95)	(0.96)
425	8.52	34.60	0.08	116							
511	7.53	34.54	0.08	107							
595	6.71	34.53	0.11	96							

153.30

BLACK DOUGLAS; April 29, 1960; 2012 GCT; 22°34.5'N, 111°03'W; sounding, 1680 fm; wind, 340°, force 6; weather, cloudy; sea, very rough; wire angle, 15°.

1	19.56	34.31	4.53	357	0	(19.56)	(34.31)	(4.53)	(24.37)	(357)	(0.00)
11	19.54	34.31	4.74	356	10	19.55	34.31	4.73	24.38	356	0.04
30	19.45	34.34	4.79	352	20	19.50	34.33	4.78	24.40	354	0.07
59	16.46	34.20	3.84	292	30	19.45	34.34	4.79	24.42	352	0.11
68	15.22	34.09	3.03	273	50	19.28	34.34	4.77	24.46	348	0.18
82	14.08	34.10	2.51	250	75	14.31	34.09	2.61	25.44	255	0.25
97	14.00	34.27	1.79	235	100	14.01	34.31	1.64	25.67	233	0.31
111	14.13	34.52	0.79	220	125	13.60	34.57	0.54	25.95	206	0.37
135	13.10	34.60	0.44	194	150	12.81	34.67	0.34	26.19	184	0.42
154	12.74	34.68	0.32	181	200	11.94	34.76	0.17	26.44	160	0.51
183	12.16	34.75	0.20	165	250	11.11	34.73	0.13	26.57	147	0.58
211	11.82	34.76	0.15	158	300	10.43	34.69	0.10	26.65	140	0.66
239	11.24	34.74	0.14	149	400	9.10	34.60	0.16	26.81	125	0.80
288	10.60	34.70	0.10	141	500	7.72	34.52	0.11	26.95	111	0.92
341	9.89	34.65	0.08	133	600	(6.85)	(34.60)	(0.10)	(27.15)	(92)	(1.03)
423	8.76	34.58	0.17	121							
508	7.61	34.52	0.10	109							
592	6.90	34.59	0.10	94							

153.40

BLACK DOUGLAS; April 29, 1960; 1345 GCT; 22°14.5'N, 111°38'W; sounding, 1600 fm; wind, 340°, force 6; weather, drizzle; sea, very rough; wire angle, 33°.^{a)}

0	18.82	34.10	4.87	354	0	18.82	34.10	4.87	24.40	354	0.00
8	18.82	34.10	-	354	10	18.83	34.11	4.87	24.40	354	0.04
27	18.84	34.10	4.87	354	20	18.83	34.10	4.88	24.40	354	0.07
36	18.80	34.14	4.92	351	30	18.83	34.11	4.90	24.41	353	0.11
51	18.21	34.09	4.98	340	50	18.23	34.09	4.97	24.53	341	0.18
65	16.86	34.11	4.77	308	75	15.28	34.11	3.67	25.22	276	0.25
88	14.67	34.11	2.88	261	100	13.82	34.14	2.22	25.58	242	0.32
107	13.44	34.16	1.99	233	125	12.96	34.31	0.99	25.88	213	0.38
125	12.96	34.31	0.99	213	150	12.68	34.53	0.63	26.11	191	0.43
144	12.77	34.48	0.73	196	200	11.68	34.70	0.32	26.44	160	0.52
172	12.27	34.65	0.29	175	250	10.93	34.64	0.20	26.52	152	0.60
206	11.56	34.70	0.33	158	300	10.31	34.67	0.20	26.66	139	0.67
234	11.12	34.64	0.21	155	400	8.76	34.55	0.24	26.83	123	0.81
281	10.60	34.67	0.18	144	500	7.49	34.53	0.17	27.00	107	0.93
334	9.74	34.65	0.23	132	600	(6.39)	(34.51)		(27.13)	(94)	(1.03)
414	8.54	34.54	0.25	121							
497	7.52	34.53	0.17	107							
581	6.59	34.51	0.18	96							

220

a) An assumed wire angle of 23° was used in depth determination.

OBSERVED				COMPUTED	INTERPOLATED				COMPUTED		
Z	T	S	O ₂	δ _T	Z	T	S	O ₂	σ _t	δ _T	ΔD
m	°C	‰	ml/L	cl/ton	m	°C	‰	ml/L	g/L	cl/ton	dyn m

BLACK DOUGLAS; April 29, 1960; 0720 GCT; 21°50'N, 112°14'W; sounding, 1660 fm; wind, 320°, force 6; weather, clear; sea, high; wire angle, 30°.

153.50

0	19.68	34.32	4.32	359	0	19.68	34.32	4.32	24.35	359	0.00
10	19.68	34.31	4.72	360	10	19.68	34.31	4.72	24.33	360	0.04
29	19.69	34.36	4.83	357	20	19.68	34.34	4.82	24.36	358	0.07
58	18.59	34.31	4.77	333	30	19.69	34.36	4.83	24.38	356	0.11
67	17.98	34.27	4.36	322	50	19.51	34.35	4.82	24.41	353	0.18
81	17.55	34.26	4.43	313	75	17.95	34.29	4.37	24.77	319	0.26
96	16.84	34.23	4.31	299	100	16.62	34.22	4.16	25.03	294	0.34
109	16.10	34.21	3.74	283	125	14.36	34.19	2.40	25.50	249	0.41
133	14.06	34.20	2.15	242	150	13.30	34.49	0.93	25.95	206	0.47
152	13.23	34.53	0.83	202	200	12.43	34.77	0.38	26.34	169	0.56
180	12.80	34.78	-	175	250	11.29	34.71	0.14	26.51	153	0.64
207	12.30	34.76	0.36	167	300	10.52	34.71	0.10	26.65	140	0.72
235	11.56	34.72	0.17	157	400	9.08	34.61	0.07	26.82	124	0.86
282	10.83	34.72	0.11	144	500	7.69	34.54	0.11	26.98	109	0.98
333	9.96	34.68	0.07	132	600	(6.53)	(34.46)		(27.08)	(99)	(1.09)
414	8.85	34.59	0.07	122							
497	7.72	34.54	0.11	109							
582	6.70	34.47	0.11	100							

BLACK DOUGLAS; April 29, 1960; 0150 GCT; 21°27'N, 112°49'W; sounding, 1850 fm; wind, 350°, force 3; weather, overcast; sea, rough; wire angle, 10°.

153.60

1	21.24	34.60	4.12	378	0	(21.24)	(34.60)	(4.12)	(24.15)	(378)	(0.00)
11	21.24	34.67	4.17	374	10	21.24	34.67	4.17	24.19	374	0.04
31	21.22	34.67	3.48	373	20	21.23	34.67	3.80	24.20	373	0.08
61	20.43	34.50	4.28	365	30	21.22	34.67	3.49	24.20	373	0.11
71	19.45	34.38	4.82	349	50	21.20	34.67	3.49	24.21	372	0.19
86	17.97	34.14	4.69	321	75	19.00	34.31	4.79	24.51	343	0.28
100	15.60	34.02	4.23	287	100	15.60	34.02	4.23	25.10	287	0.36
115	15.11	34.20	2.30	264	125	14.78	34.31	1.67	25.51	248	0.42
139	13.90	34.50	0.77	217	150	12.38	34.37	1.16	26.05	197	0.48
158	11.72	34.32	1.30	189	200	11.40	34.54	0.63	26.36	167	0.57
189	11.57	34.51	0.77	172	250	10.83	34.63	0.27	26.53	151	0.66
218	11.16	34.59	0.41	159	300	10.08	34.61	0.22	26.65	140	0.73
247	10.88	34.63	0.28	152	400	8.62	34.54	0.12	26.84	122	0.87
296	10.13	34.61	0.23	140	500	7.37	34.51	0.12	27.01	106	0.99
350	9.38	34.60	0.13	129	600	6.38	34.49	0.10	27.12	95	1.09
434	8.12	34.49	0.12	118							
519	7.16	34.52	0.12	103							
604	6.35	34.49	0.09	94							

BLACK DOUGLAS; April 28, 1960; 2015 GCT; 21°06'N, 113°27'W; sounding, 2000 fm; wind, 320°, force 4; weather, cloudy; sea, rough; wire angle, 10°.

153.70

0	21.28	34.60	3.91	380	0	21.28	34.60	3.91	24.13	380	0.00
10	21.20	34.60	4.26	377	10	21.20	34.60	4.26	24.16	377	0.04
29	21.18	34.61	4.60	376	20	21.19	34.61	4.50	24.16	377	0.08
59	21.14	34.60	4.67	375	30	21.18	34.61	4.61	24.17	376	0.11
69	20.97	34.59	4.50	372	50	21.17	34.60	4.65	24.18	375	0.19
83	19.54	34.38	4.65	352	75	19.70	34.40	4.63	24.40	354	0.28
97	17.76	34.05	4.89	333	100	17.58	34.05	4.86	24.66	329	0.37
111	15.91	34.07	3.29	290	125	14.08	34.31	1.78	25.66	234	0.44
135	13.36	34.42	1.15	212	150	12.88	34.49	0.73	26.04	198	0.49
154	12.78	34.52	0.59	194	200	12.22	34.76	0.20	26.38	166	0.58
183	12.43	34.76	0.13	170	250	11.60	34.75	0.05	26.49	155	0.67
211	12.10	34.76	0.23	163	300	10.59	34.69	0.12	26.63	142	0.75
240	11.76	34.75	0.05	158	400	8.67	34.47	0.24	26.78	128	0.89
288	10.88	34.72	0.08	145	500	7.35	34.49	0.21	26.99	108	1.01
340	9.64	34.58	0.22	135	600	(6.89)	(34.52)	(0.14)	(27.08)	(99)	(1.12)
422	8.35	34.45	0.24	125							
505	7.31	34.49	0.21	107							
592	6.92	34.52	0.14	100							

Station	Date	Time GCT	Latitude North	Longitude West	Sounding (fm)	Wind		Weather	Sea	10 Meters	
						Dir	Force			T	S
40.55-H	IV-24	1420	41°13.5'	125°45.5'	1640	160°	3	cloudy	high	11.87	32.77
43.55-H	25	1915	40°35.0'	125°21.0'	1500	130°	7	cloudy	high	11.88	32.75
60.52-H	19	0455	37°54.0'	123°01.5'	40	-	1	cloudy	rough	9.44	33.89
63.52-H	14	0130	37°17.0'	122°40.5'	48	-	1	cloudy	very rough	12.24	32.95
80.52-H	8	1747	34°25.0'	120°36.0'	160	320°	4	overcast	rough	12.20	33.68
80.65-H	8	0759	33°56.5'	121°29.5'	1760	280°	3	partly cloudy	rough	13.88	33.46
80.75-H	8	0243	33°42.5'	122°10.0'	2080	260°	3	partly cloudy	very rough	14.32	33.41
80.85-H	7	2130	33°19.0'	122°52.5'	2278	240°	2	cloudy	very rough	14.70	33.40
83.65-H	6	2354	33°24.5'	121°04.0'	1350	250°	2	cloudy	slight	14.02	33.48
83.75-H	7	0515	33°01.5'	121°45.0'	2160	calm		partly cloudy	slight	14.10	33.44
83.85-H	7	1032	32°43.0'	122°25.5'	2200	calm		missing	slight	14.58	33.34
87.50-H	5	1602	33°20.0'	119°39.5'	38	300°	1	missing	slight	14.21	33.64
87.65-H	5	0400	32°44.5'	120°42.0'	2020	-	1	missing	rough	14.57	33.58
87.75-H	4	2248	32°27.5'	121°20.0'	2200	320°	3	missing	rough	14.40	33.42
87.85-H	4	1810	32°11.0'	121°58.5'	2000+	360°	2	missing	rough	14.62	33.22
90.65-H	3	0335	32°14.0'	120°20.5'	2000	-	1	partly cloudy	very rough	14.08	33.57
90.75-H	3	0920	31°52.5'	121°01.0'	2100	-	-	partly cloudy	very rough	14.77	33.56
90.85-H	3	1610	31°33.0'	121°40.0'	2250	-	1	partly cloudy	very rough	14.30	33.34
93.35-M	III-30	0340	32°40.0'	117°55.5'	370	340°	3	clear	moderate	15.48	33.64

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
93.45-M	III-30	0945	32°24.0'	118°32.5'	930	270°	5	clear	rough	14.85	33.63
93.55-M	30	1652	32°03.5'	119°14.0'	900	260°	4	partly cloudy	very rough	14.54	33.59
93.65-M	30	2341	31°38.5'	119°51.5'	2000+	290°	5	clear	very rough	15.29	33.60
93.75-M	31	0641	31°22.5'	120°36.5'	2000+	320°	5	overcast	very rough	15.06	33.59
93.85-M	31	1230	31°03.0'	121°15.0'	2000+	310°	5	clear	very rough	14.58	33.40
97.35-M	IV-2	1637	32°05.5'	117°27.5'	670	-	1	clear	moderate	15.36	33.66
97.45-M	2	1147	31°46.0'	118°07.5'	700	310°	2	clear	moderate	15.04	33.63
97.55-M	2	0530	31°35.5'	118°52.0'	500	350°	5	clear	very rough	15.16	33.67
97.65-M	1	2245	31°14.0'	119°35.5'	1900+	350°	5	clear	high	15.27	-
97.75-M	1	1553	30°47.0'	120°10.0'	2000+	350°	7	clear	high	15.14	33.46
97.85-M	1	0838	30°25.5'	120°51.0'	2000+	350°	6	clear	high	15.31	33.50
100.29-M	3	0747	31°42.0'	116°43.5'	95	060°	2	clear	slight	12.73	33.73
100.35-M	3	1130	31°32.0'	117°07.0'	600	360°	2	clear	slight	15.50	33.80
100.45-M	3	1722	31°08.0'	117°46.0'	1200	-	1	partly cloudy	slight	15.73	33.69
100.55-M	3	2250	30°50.5'	118°27.0'	1400	-	1	clear	moderate	15.57	33.68
100.65-M	4	0425	30°33.0'	119°08.5'	1750	-	1	partly cloudy	moderate	16.06	33.64
100.75-M	4	1020	30°15.0'	119°50.0'	2000+	-	1	clear	moderate	15.90	33.61
100.85-M	4	1620	29°50.0'	120°27.0'	2000+	050°	2	partly cloudy	moderate	16.04	33.62
103.45-M	6	0104	30°36.0'	117°24.0'	1300	330°	4	overcast	moderate	16.31	33.66

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
103.55-M	IV-5	2001	30°17.5'	118°01.5'	1000	050°	2	fog	moderate	16.20	33.69
103.65-M	5	1432	29°57.0'	118°42.0'	1900	040°	2	fog	moderate	16.42	33.58
103.75-M	5	0840	29°37.0'	119°21.5'	1800	-	1	partly cloudy	moderate	16.21	33.78
103.85-M	5	0300	29°16.0'	120°04.0'	2000+	330°	2	partly cloudy	moderate	16.52	33.80
107.45-M	7	0025	30°01.5'	117°02.0'	2000	270°	3	partly cloudy	slight	16.76	33.68
107.55-M	11	1422	29°37.5'	117°43.5'	1850	330°	4	cloudy	rough	16.54	33.66
107.65-M	11	1934	29°27.0'	118°21.0'	2000+	320°	5	cloudy	very rough	16.38	33.64
107.75-M	12	0918	29°02.0'	119°00.0'	1900	310°	5	partly cloudy	very rough	16.78	33.71
107.85-M	12	1815	28°54.0'	119°43.0'	2000+	310°	6	partly cloudy	high	16.60	33.75
110.45-M	14	1013	29°23.0'	116°43.0'	400	330°	4	clear	very rough	16.38	33.71
110.55-M	14	0425	29°06.0'	117°21.0'	1934	330°	5	clear	very rough	16.50	33.68
110.65-M	13	2200	28°48.0'	118°00.0'	2000+	330°	5	clear	high	16.60	33.71
110.75-M	13	1522	28°18.0'	118°39.0'	2000+	330°	5	cloudy	high	16.34	33.64
110.85-M	13	0740	28°10.5'	119°20.5'	2000+	310°	6	cloudy	high	16.64a)	33.69
113.45-M	15	0805	28°52.0'	116°18.0'	1200	340°	5	cloudy	rough	16.04	33.70
113.55-M	15	1414	28°32.0'	116°57.0'	2100	320°	4	cloudy	very rough	16.46	33.68
113.65-M	15	2010	28°11.5'	117°35.0'	1600	320°	4	cloudy	high	16.98	33.78

a) Alternate value, 16.75°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
113.75-M	IV-16	0345	28°16.0'	118°24.0'	2100	320°	5	cloudy	high	16.76	33.75
113.85-M	16	1124	27°34.5'	118°45.0'	2000+	320°	5	overcast	high	16.80	33.76
117.45-M	17	2155	28°17.0'	115°56.5'	1700	340°	2	clear	very rough	15.36	33.64
117.55-M	17	1600	27°57.5'	116°34.5'	2000	340°	3	overcast	very rough	16.50	33.68
117.65-M	17	1012	27°40.0'	117°14.0'	1700	340°	3	cloudy	very rough	16.76	33.71
117.75-M	17	0422	27°18.0'	117°51.5'	2000+	340°	3	cloudy	high	16.90	33.78
120.40-B	16	2100	27°56.0'	115°14.0'	21	280°	4	cloudy	rough	14.40	33.74
120.55-B	16	1015	27°39.0'	116°27.0'	2000	340°	4	cloudy	very rough	16.20	33.64
120.65-B	16	0425	27°13.0'	117°00.0'	2000	340°	4	cloudy	very rough	16.58	33.68
120.75-B	15	2215	26°47.0'	117°34.0'	2000+	350°	5	partly cloudy	very rough	17.24	33.73
120.85-B	15	1555	26°33.0'	118°08.0'	2000+	360°	5	partly cloudy	rough	17.07	33.71
123.45-B	17	0740	27°08.0'	115°11.5'	2200	340°	3	clear	rough	16.88	33.75
123.55-B	17	1255	26°51.0'	115°46.0'	1950	320°	4	cloudy	rough	16.93	33.80
123.65-B	17	1835	26°30.0'	116°26.0'	2000	270°	3	cloudy	very rough	17.16	33.80
123.75-B	18	0100	26°09.0'	117°06.5'	2000	270°	4	partly cloudy	very rough	18.05	34.14
127.45-B	19	0610	26°33.0'	114°48.5'	1900	320°	4	partly cloudy	rough	17.16	33.75
127.55-B	19	0020	26°13.5'	115°27.0'	1800	320°	3	partly cloudy	rough	17.64	33.91
127.65-B	18	1855	25°52.0'	116°06.0'	1880	320°	3	partly cloudy	rough	17.98	33.95
127.75-B	18	1235	25°42.0'	116°46.0'	1900	320°	3	partly cloudy	rough	18.18	34.05

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
130.45-B	IV-20	0000	25°58.5'	114°26.5'	2000	280°	4	partly cloudy	rough	16.40	33.91
130.55-B	20	0530	25°39.0'	115°04.0'	2000	270°	4	cloudy	rough	17.54	33.81
133.35-B	21	0425	25°46.0'	113°27.0'	300	320°	4	partly cloudy	rough	16.88	33.76
133.45-B	20	2125	25°24.0'	114°05.0'	1650	300°	4	partly cloudy	moderate	17.12	33.78
133.55-B	20	1600	25°07.0'	114°42.0'	1850	320°	3	cloudy	moderate	17.80	33.95
134.36-B	21	0315	25°38.0'	113°25.0'	65	320°	4	partly cloudy	rough	17.32	33.82
137.45-B	22	0230	25°48.5'	113°44.5'	1650	300°	3	overcast	rough	18.24	33.93
137.55-B	22	0745	24°30.0'	114°18.0'	2050	270°	4	overcast	rough	19.12	34.25
137.65-B	22	1245	24°10.0'	114°59.0'	2000	320°	3	overcast	rough	18.48	34.00
137.75-B	22	1830	23°48.0'	115°37.0'	2000	270°	3	overcast	moderate	18.49	34.02
140.45-B	23	1930	24°15.0'	113°21.0'	1780	330°	4	overcast	very rough	17.50	33.81
140.55-B	23	1500	23°48.0'	113°53.0'	2000	340°	4	cloudy	rough	19.64	34.34
143.45-B	25	2325	23°41.5'	112°58.0'	1700	320°	5	partly cloudy	rough	19.36	34.23
143.55-B	26	0515	23°21.0'	113°36.5'	1850	320°	4	partly cloudy	rough	19.52	34.38
147.35-B	27	0340	23°25.0'	112°00.0'	1700	320°	4	cloudy	rough	18.16	33.96
147.45-B	26	2200	23°05.5'	112°37.5'	1650	310°	4	cloudy	very rough	20.96	34.60
147.55-B	26	1615	22°49.0'	113°15.0'	1860	320°	4	cloudy	very rough	19.77	34.34
150.35-B	28	0145	22°51.5'	111°38.5'	1600	320°	6	partly cloudy	very rough	18.63	34.16
150.45-B	28	0755	22°31.5'	112°16.0'	1640	320°	5	clear	very rough	20.78	34.69

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
153.25-B	IV-29	2315	22°43.0'	110°43.5'	1200	350°	6	partly cloudy	very rough	18.03	34.23
153.35-B	29	1710	22°28.0'	111°17.0'	1760	340°	6	cloudy	very rough	19.64	34.33
153.45-B	29	1025	22°02.5'	111°56.0'	1200	320°	5	clear	rough	18.76	34.14
153.55-B	29	0430	21°38.0'	112°31.5'	1300	320°	5	partly cloudy	very rough	21.23	34.69
153.65-B	28	2255	21°17.0'	113°09.0'	2000	320°	4	cloudy	rough	21.14	34.64

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