

UNIVERSITY OF CALIFORNIA SCRIPPS INSTITUTION OF OCEANOGRAPHY

data report

PHYSICAL AND CHEMICAL DATA

CCOFI Cruise 6103
8-13 March 1961

CCOFI Cruise 6104-5
4 April-12 May 1961

and

CCOFI Cruise 6105
17-29 May 1961

SIO Reference 62-15
28 December 1961

UNIVERSITY OF CALIFORNIA
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PHYSICAL AND CHEMICAL DATA

CCOFI Cruise 6103
8-13 March 1961

CCOFI Cruise 6104-5
4 April-12 May 1961

and

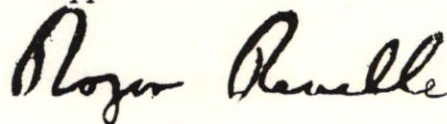
CCOFI Cruise 6105
17-29 May 1961

Sponsored by

Marine Research Committee

SIO Reference 62-15
28 December 1961

Approved for distribution:



Roger Revelle, Director

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INTRODUCTION

The data presented in this report were collected by the RV Black Douglas of the Bureau of Commercial Fisheries and the RV Horizon of the Scripps Institution of Oceanography on Cruises 6103, 6104-5 and 6105 of the California Cooperative Oceanic Fisheries Investigations program. The RV Black Douglas participated in all three cruises; the RV Horizon, 6104-5 and 6105. 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 6008, 6009 and 6009-10 (Scripps Institution report, SIO Ref. 62-10) and 6101-2 (SIO Ref. 61-24).

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.

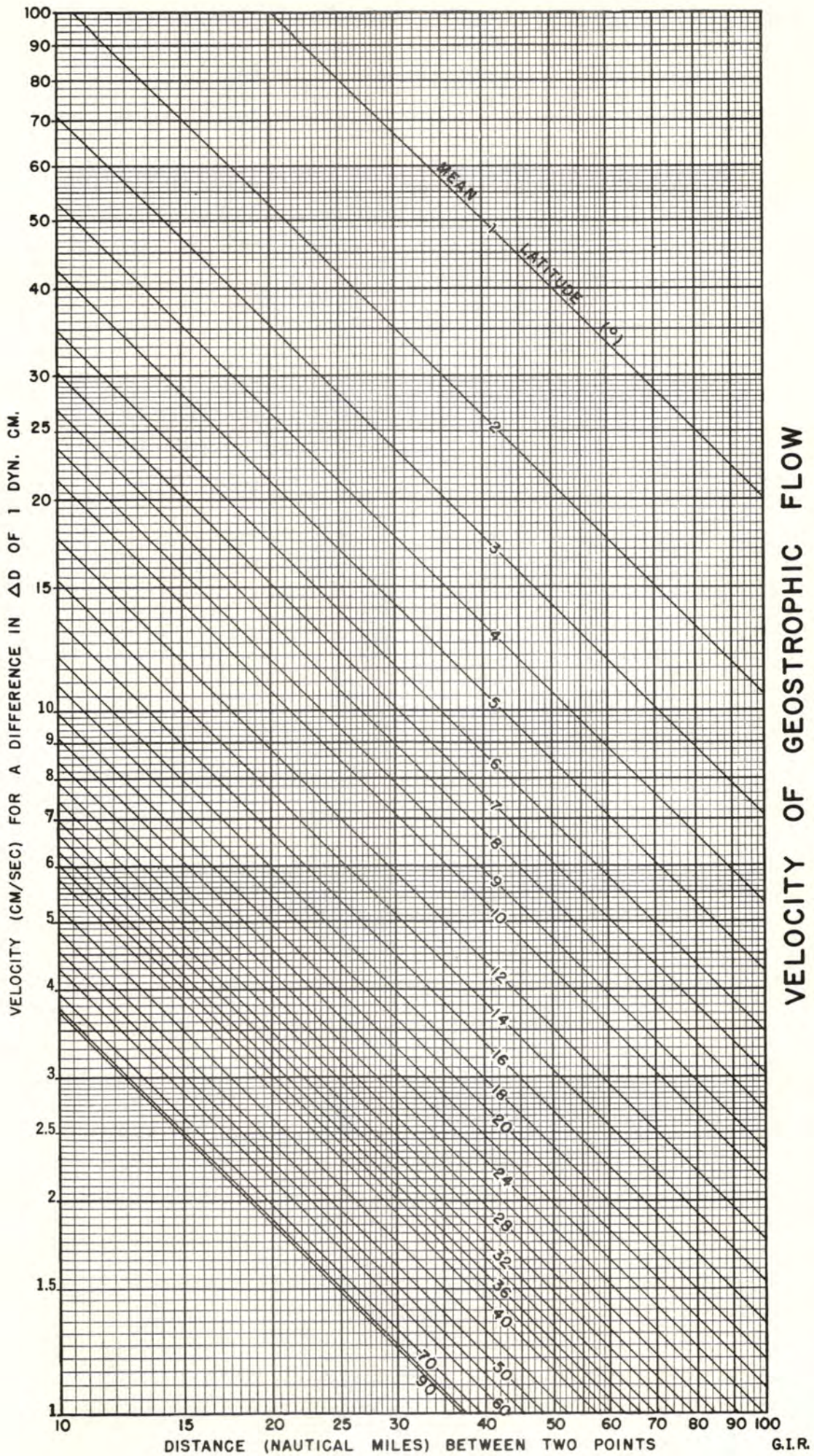
Values which are not drawn through because they seem to be in error without apparent reason are indicated by one of the following notations.

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 1961 volume, the first page of Cruise 6103 data is numbered 50; Cruise 6104-5, 53; Cruise 6105, 101.



FIGURES

1. CCOFI Cruise 6104-5, station positions
2. Horizontal distribution of dynamic height anomaly (0 over 500 d-bar)
3. Horizontal distribution of temperature at 10 meters
4. Horizontal distribution of salinity at 10 meters
5. Horizontal distribution of temperature at 200 meters
6. Horizontal distribution of salinity at 200 meters

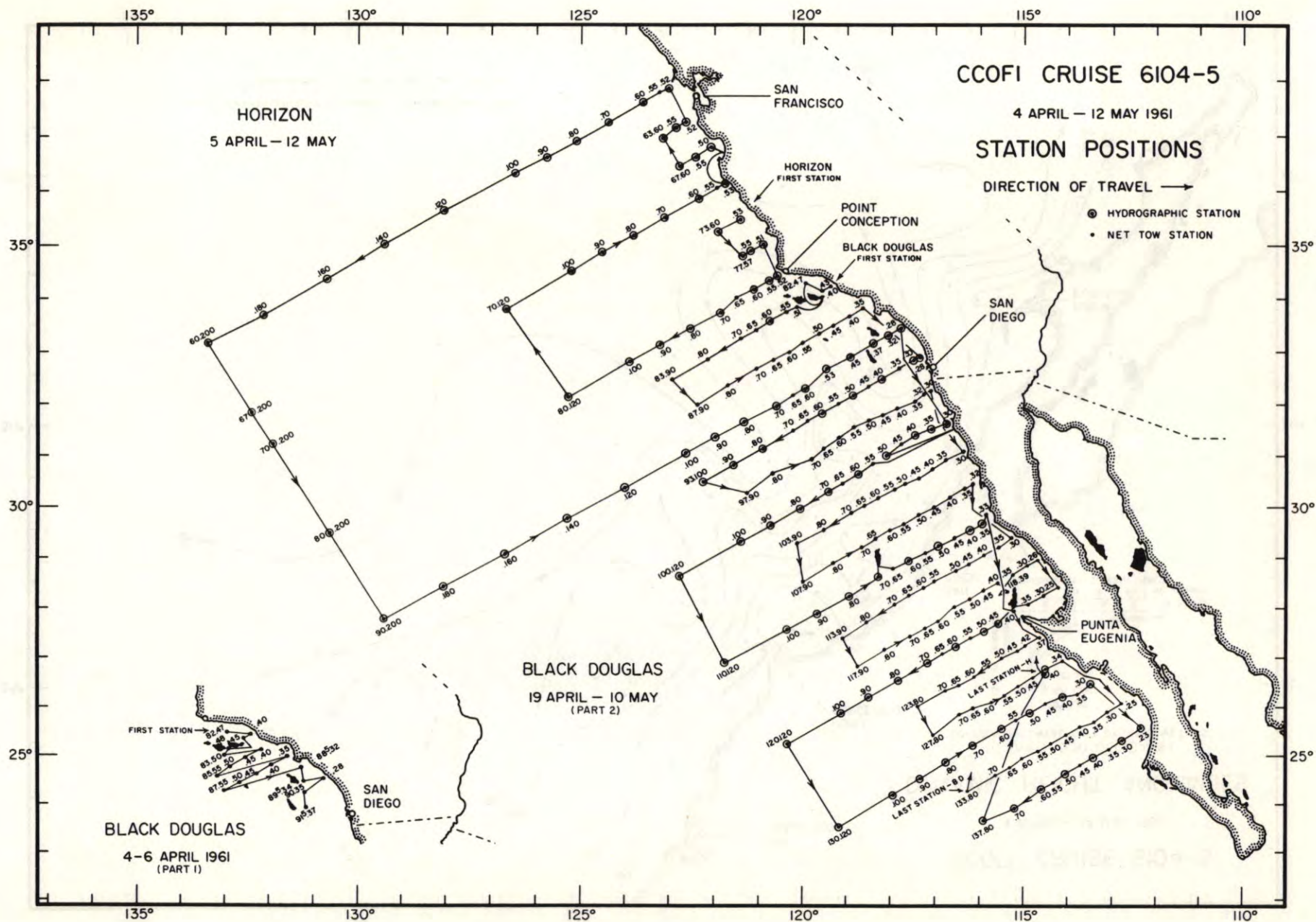


FIGURE 1

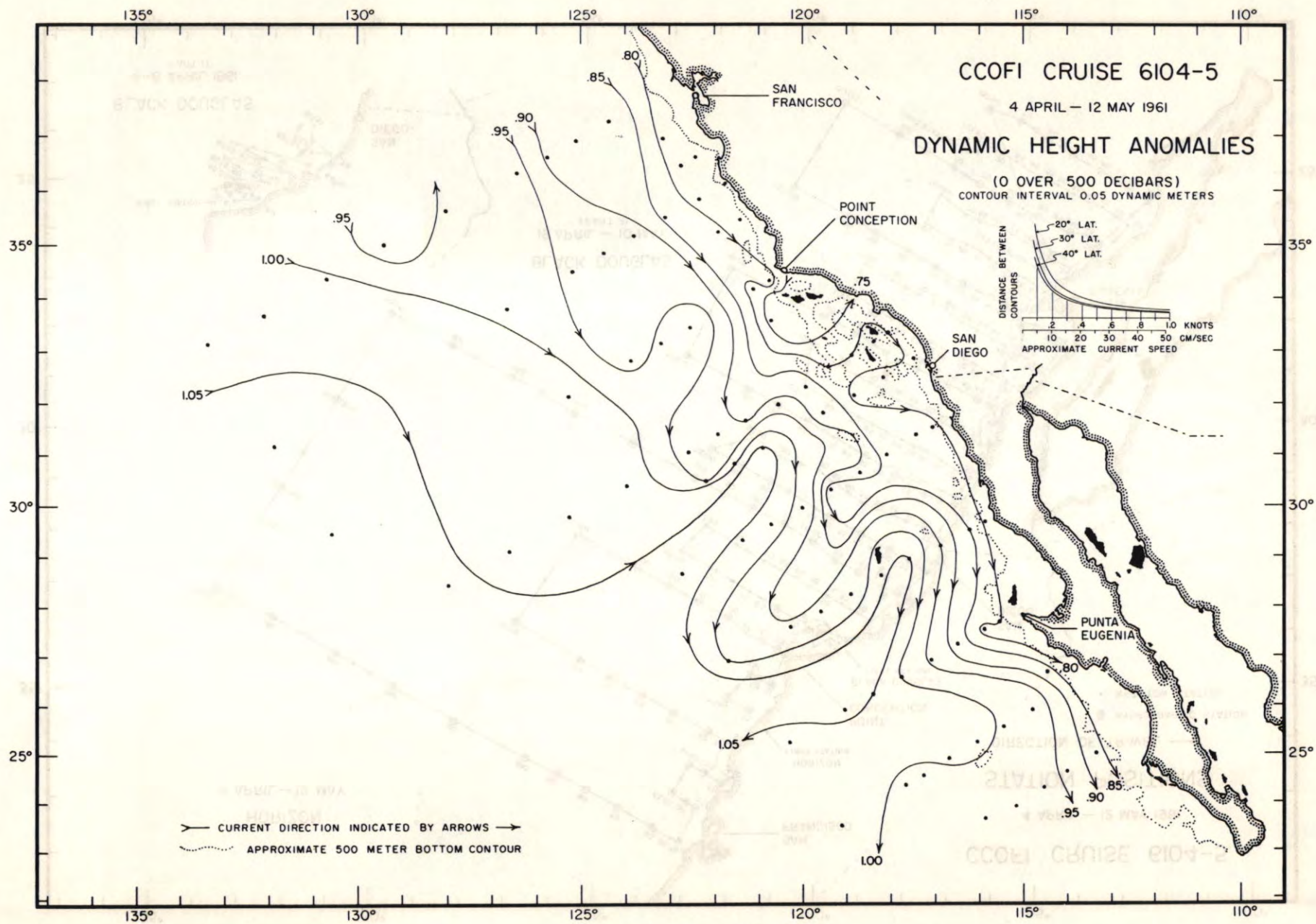


FIGURE 2

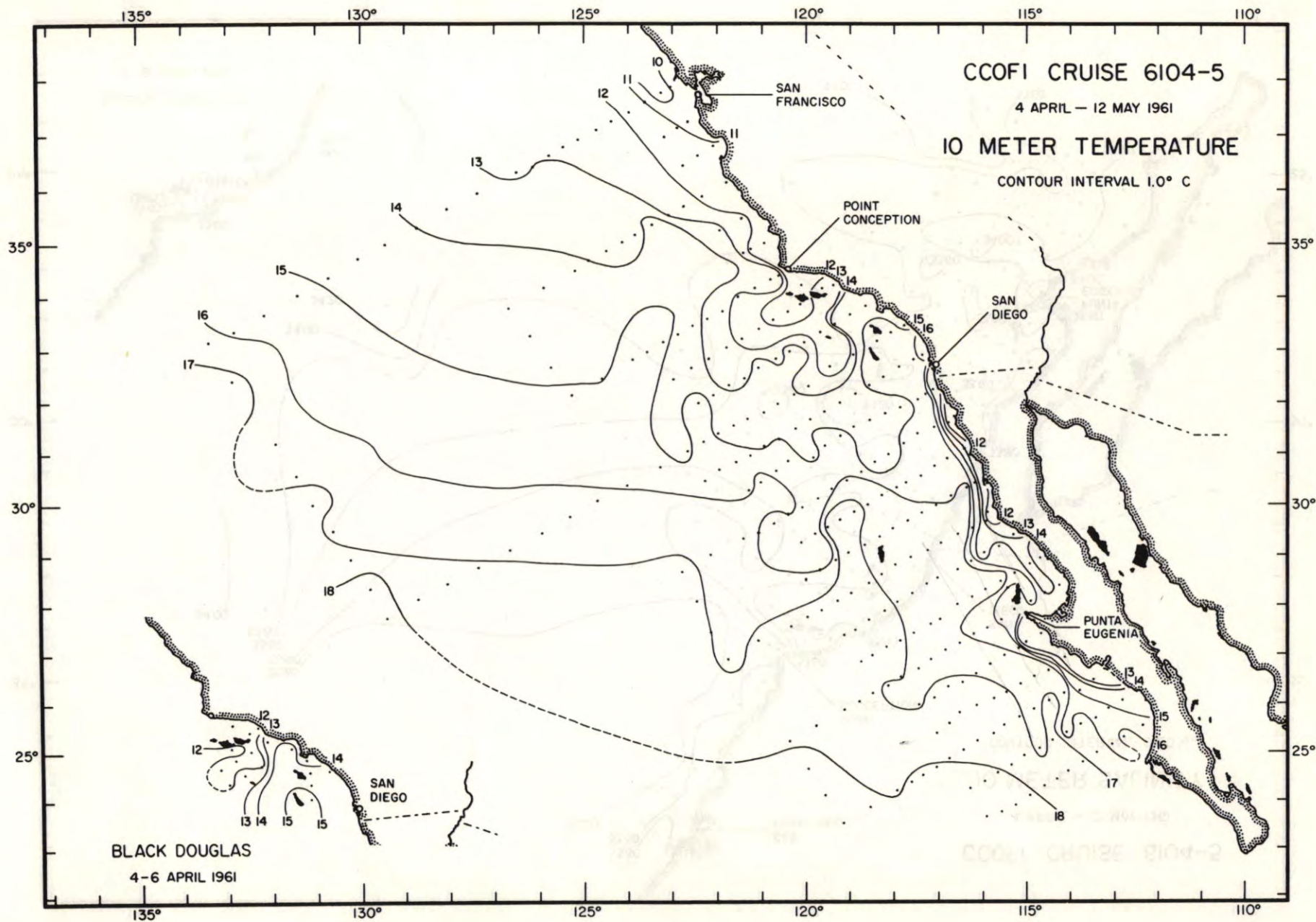


FIGURE 3

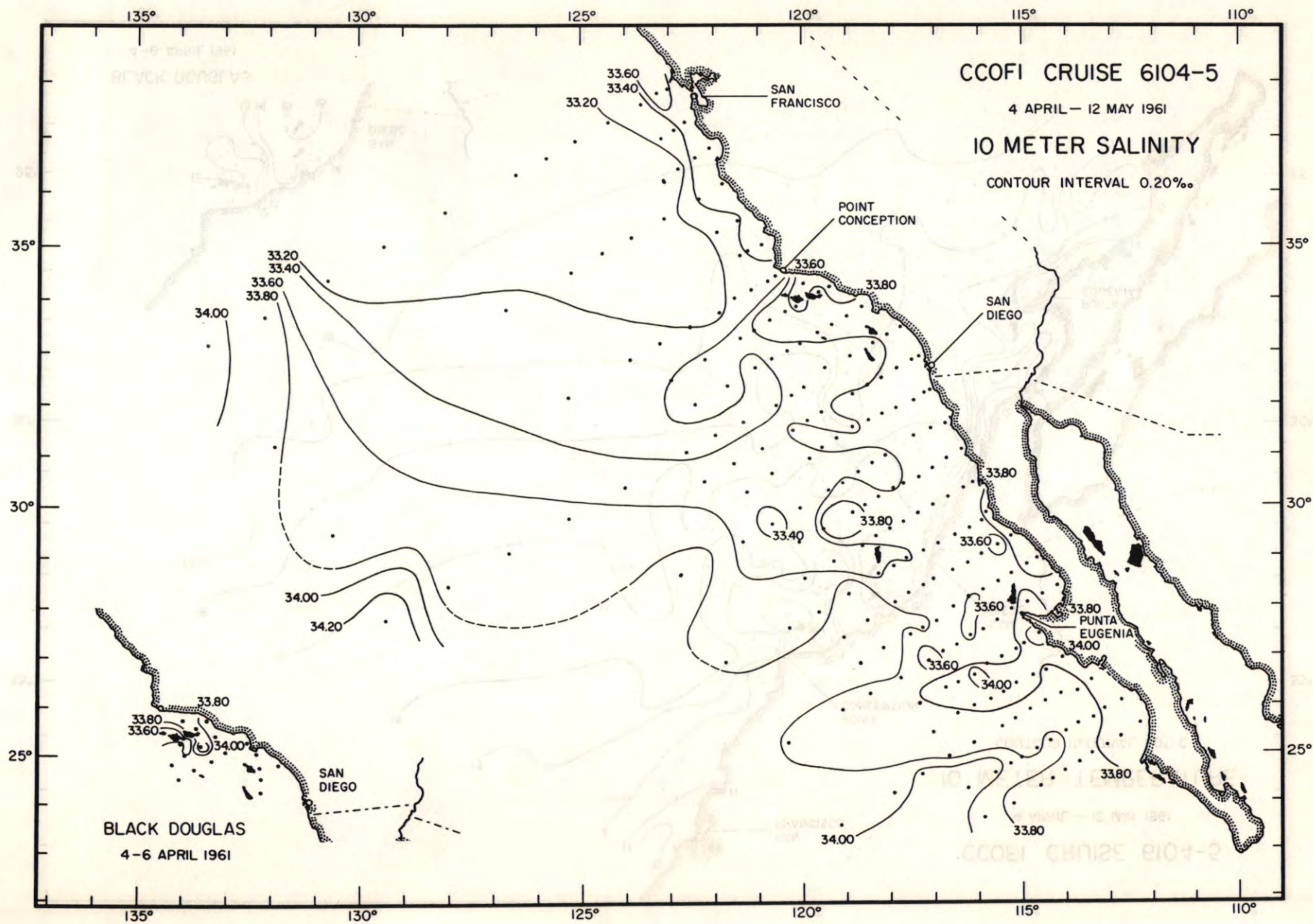


FIGURE 4

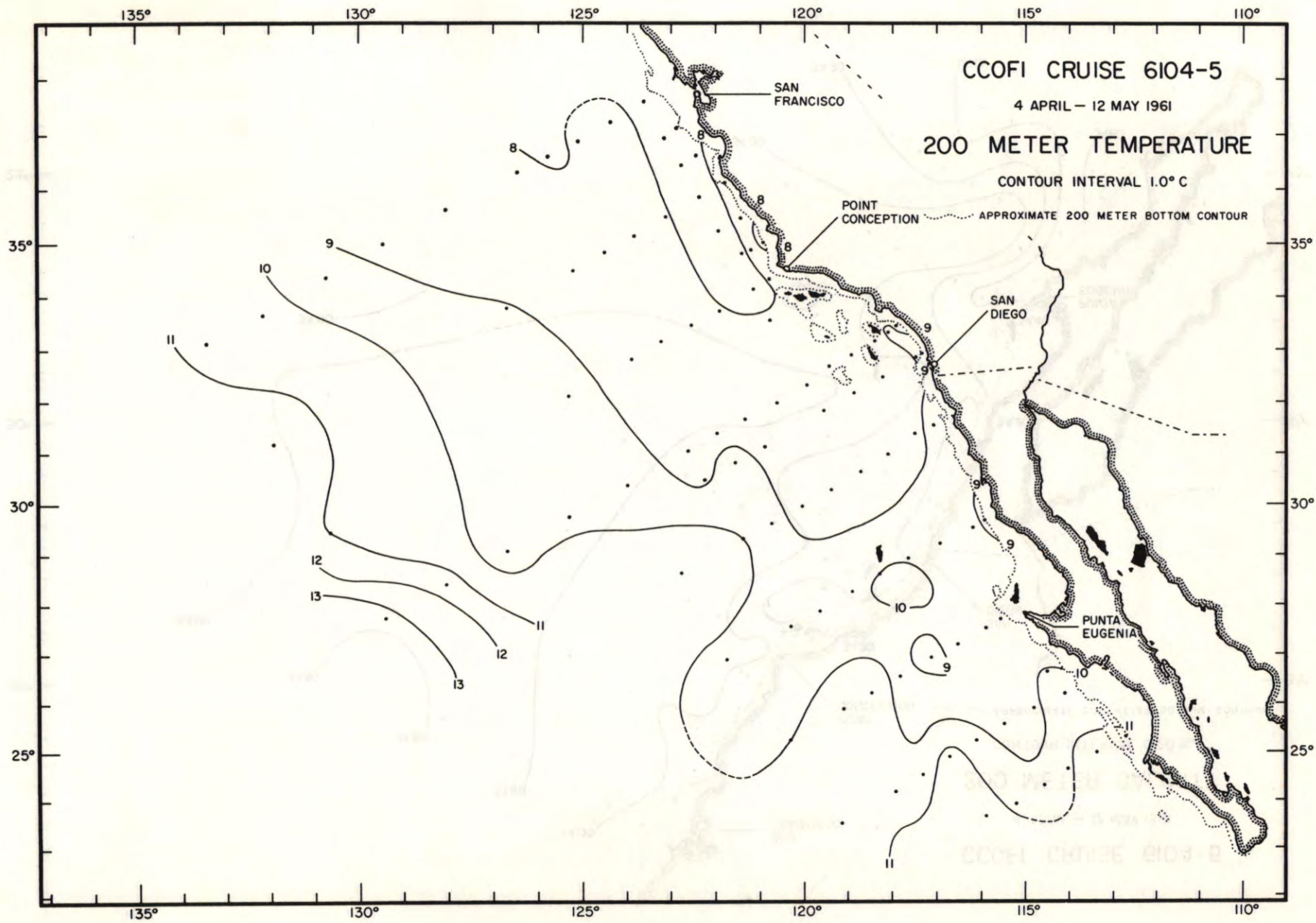


FIGURE 5

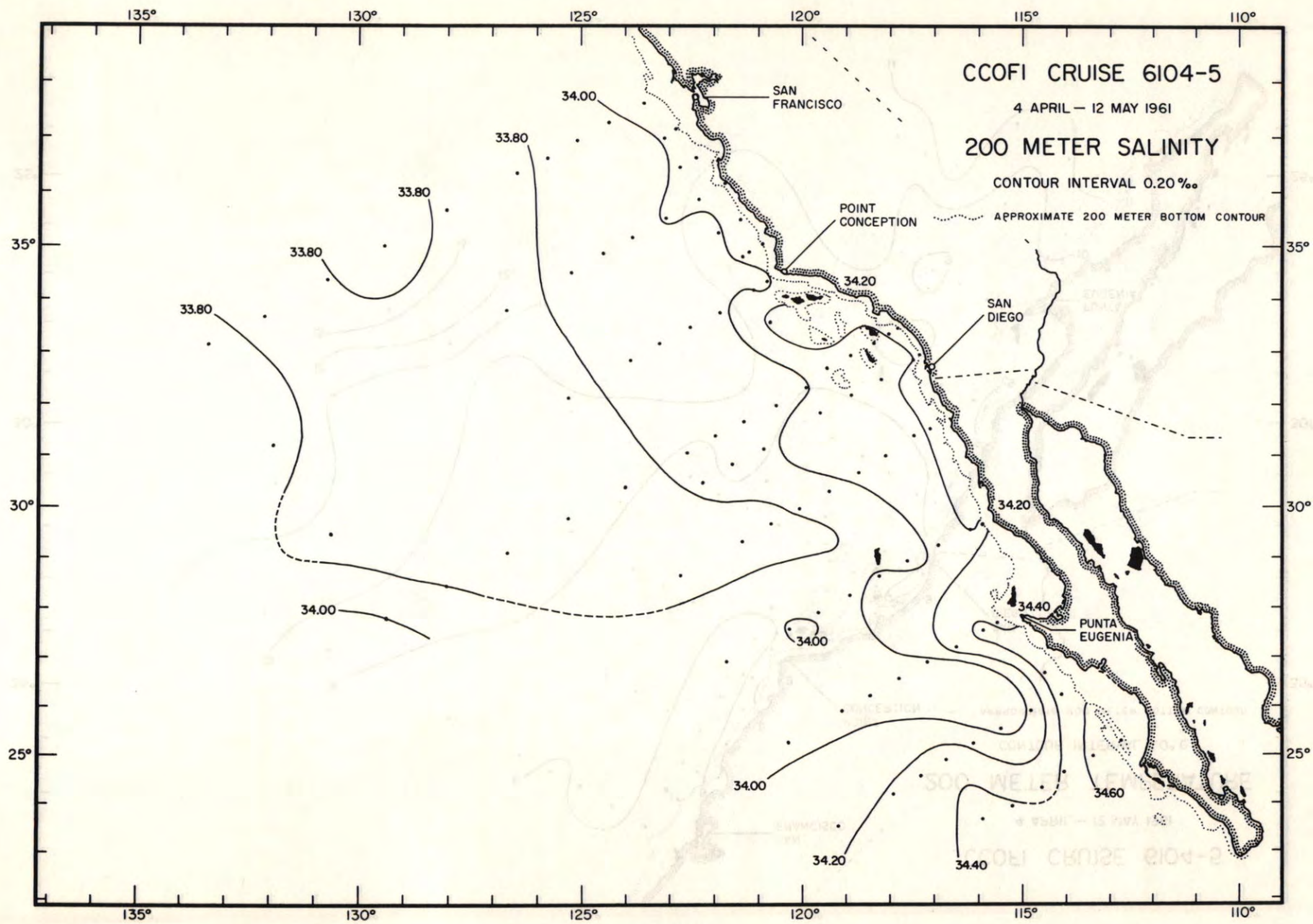


FIGURE 6

PERSONNEL
Cruise 6104-5

SHIPS' CAPTAINS

Forster, Charles W., RV Black Douglas
Newbegin, Robert C., RV Horizon

PERSONNEL PARTICIPATING IN THE COLLECTION OF DATA

RV Black Douglas

Bottom, Kenneth S., Senior Marine Technician
Kimura, M., Fishery Research Biologist, Bureau of Commercial Fisheries
Perkins, Herbert C., Fishery Aid, Bureau of Commercial Fisheries
*Wagner, Vaughn M., Fishery Aid, Bureau of Commercial Fisheries

RV Horizon

Lawson, Jan B., Senior Marine Technician
Born, Robert, Marine Technician
Engebretson, David W., Marine Technician
Frey, James M., Marine Technician
Hester, Arthur W., Senior Marine Technician
Hodnett, Haley L., Marine Technician
**Kujala, Norman F., Research Associate, Oregon State College
Mantyla, Arnold W., Senior Marine Technician
Pine, James S., Senior Marine Technician
***Reeves, R. Alan, Marine Technician
Wagner, Vaughn M., Fishery Aid, Bureau of Commercial Fisheries

*Participated in first part of cruise only.

**To Monterey only.

***To Santa Barbara only.

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 16, 1961; 0051 GCT; 37°53.5'N, 123°01.5'W; sounding, 43 fm; wind, 300°, force 5; weather, partly cloudy; sea, rough; wire angle, 08°.

60.52

0	10.11	33.62 8	6.70	213	0	10.11	33.63	6.70	25.88	213	0.00
10	-	33.63 3	6.46	-	10	10.09	33.63	6.46	25.89	212	0.02
20	9.63	33.73 2	5.20	197	20	9.63	33.73	5.20	26.05	197	0.04
29	9.04	33.76 3	3.90	186	30	9.00	33.77	3.80	26.18	185	0.06
39	8.42	33.86 5	2.59	169	50	(8.34)	(33.90)	(2.30)	(26.39)	(165)	(0.10)
47	8.35	33.90 1	2.32	165							

HORIZON; April 17, 1961; 0531 GCT; 37°37'N, 123°37'W; sounding, 1760 fm; wind, 310°, force 6; weather, partly cloudy; sea, high; wire angle, 50°.

60.60

1	11.01	33.37 2	5.74	246	0	(11.01)	(33.37)	(5.74)	(25.53)	(247)	(0.00)
7	11.01	33.35 9	5.75	247	10	11.00	33.36	5.70	25.52	247	0.02
23	10.95	33.37 3	5.61	245	20	11.00	33.36	5.70	25.52	247	0.05
29	10.70	33.43 9	5.42	236	30	10.68	33.44	5.40	25.64	236	0.07
38	10.30	33.51 2	5.04	224	50	9.81	33.55	4.55	25.87	214	0.12
47	9.94	33.54 3	4.66	216	75	9.08	33.76	2.91	26.16	187	0.17
64	9.34	33.62 4	3.80	201	100	8.55	33.91	2.28	26.36	168	0.21
75	9.08	33.75 5	2.91	187	125	8.35	33.98	2.11	26.44	160	0.26
85	8.90	33.79 8	2.71	181	150	8.13	34.00	2.10	26.49	155	0.30
102	8.52	33.92 6	2.24	166	200	(7.79)	(34.05)	(1.70)	(26.58)	(147)	(0.37)
118	8.40	33.96 9	2.15	161							
142	8.22	34.00 3	2.08	156							
163	8.00	34.00 4	2.15	153							
198	7.80	34.04 9	1.76	147							

HORIZON; April 17, 1961; 1214 GCT; 37°16.5'N, 124°22.5'W; sounding, 2100 fm; wind, 310°, force 6; weather, missing; sea, high; wire angle, 38°.

60.70

0	12.62	33.07 9	5.99	297	0	12.62	33.08	5.99	25.00	296	0.00
8	12.60	33.07 9	5.82	296	10	12.60	33.08	5.83	25.01	296	0.03
27	12.61	33.07 8	5.91	296	20	12.60	33.08	5.86	25.01	296	0.06
50	12.62	33.07 5	6.00	297	30	12.61	33.08	5.92	25.00	296	0.09
56	12.62	33.07 9	6.01	297	50	12.62	33.08	6.00	25.00	296	0.15
71	12.62	33.08 0	5.90	296	75	12.58	33.08	5.90	25.01	296	0.22
82	12.26	33.12 8	5.92	286	100	10.38	33.53	4.07	25.76	224	0.29
93	10.92	33.42 3	4.70	241	125	9.60	33.74	2.97	26.06	196	0.34
115	9.79	33.66 1	3.35	205	150	9.26	33.84	2.54	26.19	184	0.39
128	9.54	33.75 6	2.89	194	200	8.57	33.98	2.18	26.41	163	0.48
149	9.27	33.83 8	2.56	184	250	7.99	34.06	1.81	26.56	149	0.56
175	8.96	33.92 3	2.29	173	300	7.42	34.08	1.66	26.66	139	0.63
195	8.65	33.96 5	2.24	165	400	6.61	34.13	1.01	26.81	125	0.77
230	8.22	34.03 6	1.87	154	500	5.91	34.21	0.58	26.96	110	0.89
288	7.54	34.07 4	1.73	141							
384	6.74	34.11 5	1.13	128							
461	6.18	34.17 7	0.71	116							
574	5.51	34.24 9	0.42	103							

SIO
CCOFI
6104-5

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

6080

HORIZON; April 17, 1961; 1734 GCT; 36°55.5'N, 125°07'W; sounding, 2310 fm; wind, 310°, force 4; weather, cloudy; sea, very rough; wire angle, 32°.

1	12.66	33.09 8	6.05	296	0	(12.66)	(33.10)	(6.05)	(25.01)	(296)	(0.00)
9	12.64	33.09 4	6.02	296	10	12.64	33.10	6.02	25.01	295	0.03
29	12.66	33.09 7	5.90	296	20	12.64	33.10	5.97	25.01	295	0.06
54	12.64	33.09 7	5.98	296	30	12.66	33.10	5.90	25.01	296	0.09
62	12.63	33.10 3	5.82	295	50	12.64	33.10	5.97	25.01	295	0.15
79	11.22	33.36 2	4.90	251	75	11.40	33.33	5.03	25.42	256	0.22
90	10.69	33.47 1	4.45	234	100	10.49	33.54	4.19	25.75	225	0.28
102	10.44	33.55 2	4.14	224	125	9.78	33.69	3.56	25.99	203	0.33
123	9.83	33.67 6	3.62	205	150	9.11	33.81	2.89	26.19	184	0.38
138	9.42	33.74 6	3.16	193	200	8.49	33.95	2.43	26.40	164	0.47
157	8.98	33.84 4	2.77	179	250	8.01	34.03	1.99	26.53	151	0.55
181	8.74	33.90 3	2.53	171	300	7.46	34.09	1.55	26.66	139	0.63
200	8.49	33.94 9	2.43	164	400	6.47	34.15	0.96	26.84	122	0.76
232	8.21	34.00 2	2.14	156	500	(5.85)	(34.23)	(0.55)	(26.98)	(108)	(0.88)
276	7.71	34.06 6	1.74	144							
351	6.94	34.12 9	1.24	129							
426	6.25	34.15 9	0.85	118							
491	5.88	34.22 2	0.55	109							

6090

HORIZON; April 17, 1961; 2215 GCT; 36°38'N, 125°47'W; sounding, 2004 fm; wind, 310°, force 4; weather, cloudy; sea, rough; wire angle, 27°.

0	13.00	33.04 5	5.93	306	0	13.00	33.04	5.93	24.90	306	0.00
9	12.99	33.04 3	5.92	306	10	12.98	33.04	5.92	24.90	306	0.03
27	12.87	33.04 1	5.99	304	20	12.91	33.04	5.97	24.91	305	0.06
52	12.78	33.05 6	5.90	301	30	12.85	33.04	5.98	24.93	304	0.09
62	12.77	33.06 1	5.83	301	50	12.78	33.06	5.90	24.96	301	0.15
74	12.33	33.24 0	5.47	279	75	12.30	33.24	5.44	25.19	279	0.23
87	11.16	33.37 5	4.84	249	100	10.32	33.43	4.17	25.71	231	0.29
99	10.34	33.43 a)	4.18	231	125	9.11	33.67	3.45	26.08	194	0.34
119	9.24	33.61 1	3.62	200	150	8.67	33.79	3.13	26.24	178	0.39
135	8.92	33.74 0	3.26	186	200	7.86	33.92	2.79	26.47	157	0.48
158	8.54	33.81 3	3.08	175	250	7.20	33.98	2.34	26.61	144	0.55
181	8.17	33.89 3	2.94	164	300	7.05	34.06	1.61	26.69	136	0.62
205	7.78	33.92 5	2.76	156	400	6.13	34.10	0.98	26.85	121	0.76
243	7.22	33.96 1	2.45	145	500	5.47	34.17	0.58	26.98	108	0.88
287	7.16	34.05 2	1.69	138							
358	6.38	34.06 1	1.27	127							
432	5.94	34.13 1	0.76	117							
509	5.39	34.16 8	0.57	107							

60100

HORIZON; April 18, 1961; 0322 GCT; 36°20'N, 126°29.5'W; sounding, 2535 fm; wind, 320°, force 5; weather, cloudy; sea, very rough; wire angle, 25°.^{b)}

0	12.70	33.03 2	6.08	301	0	12.70	33.03	6.08	24.95	302	0.00
10	12.70	33.02 4	6.21	302	10	12.70	33.02	6.21	24.94	302	0.03
33	12.68	33.04 7	6.24	300	20	12.69	33.03	6.22	24.95	301	0.06
61	12.70	33.07 1	6.11	299	30	12.68	33.04	6.24	24.96	301	0.09
70	12.72	33.05 7	6.03	300	50	12.70	33.06	6.14	24.97	299	0.15
89	12.50	33.04 7	5.89	297	75	12.72	33.06	6.02	24.97	300	0.23
101	12.20	33.06 6	5.89	290	100	12.30	33.05	5.89	25.04	293	0.30
115	11.28	33.20 2	5.69	264	125	10.40	33.22	5.37	25.52	248	0.37
143	9.56	33.23 0	5.13	233	150	9.70	33.31	5.13	25.70	230	0.43
160	9.13	33.41 9	5.14	213	200	8.45	33.74	4.50	26.24	179	0.53
187	8.62	33.66 1	4.64	187	250	7.76	33.92	4.05	26.48	156	0.62
218	8.26	33.83 6	4.34	169	300	6.90	33.92	3.20	26.60	144	0.70
245	7.86	33.91 8	4.11	157	400	5.89	34.00	1.91	26.80	126	0.84
290	7.00	33.91 2	3.34	146	500	5.13	34.05	1.06	26.93	113	0.96
349	6.44	33.98 0	2.48	134	600	4.70	34.16	0.58	27.07	100	1.07
442	5.52	34.01 3	1.51	121							
528	4.98	34.07 9	0.89	110							
600	4.70	34.16 0	0.58	100							

54

- a) Alternate value, 33.48‰, not used in interpolation.
b) An assumed wire angle of 15° 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

HORIZON; April 18, 1961; 1157 GCT; 35°38'N, 128°02'W; sounding, 2490 fm; wind, 320°, force 4; weather, cloudy; sea, rough; wire angle, 27°.

60.120

0	13.56	33.13 7	5.87	310	0	13.56	33.14	5.87	24.86	310	0.00
9	13.57	33.13 1	6.00	311	10	13.57	33.13	6.00	24.85	311	0.03
26	13.57	33.12 8	5.79	311	20	13.57	33.13	5.90	24.85	311	0.06
52	13.53	33.12 6	5.75	310	30	13.56	33.13	5.79	24.85	311	0.09
62	13.49	33.12 3	5.77	310	50	13.53	33.13	5.75	24.86	310	0.16
74	13.40	33.10 2	6.04a)	310	75	13.39	33.10	6.04	24.87	309	0.23
88	13.12	33.06 0	6.12	307	100	12.58	33.20	5.81	25.10	287	0.31
100	12.58	33.19 8	5.81	287	125	11.21	33.28	5.66	25.42	257	0.38
122	11.38	33.27 8	5.69	260	150	9.89	33.34	5.09	25.70	230	0.44
139	10.40	33.30 6	5.39	241	200	8.60	33.72	3.57	26.20	183	0.54
166	9.32	33.44 9	4.51	213	250	7.93	33.91	3.10	26.45	159	0.63
192	8.70	33.68 2	3.64	187	300	7.43	33.97	2.61	26.57	148	0.71
219	8.36	33.81 9	3.42	172	400	6.45	34.09	1.29	26.80	126	0.85
264	7.76	33.94 1	2.96	154	500	5.73	34.17	0.71	26.95	111	0.98
313	7.33	33.98 5	2.48	145							
390	6.54	34.07 6	1.39	128							
468	5.93	34.14 4	0.85	115							
545	5.50	34.18 7	0.62	107							

HORIZON; April 18, 1961; 2005 GCT; 35°01'N, 129°25'W; sounding, 2545 fm; wind, 330°, force 4; weather, cloudy; sea, very rough; wire angle, 26°.

60.140

1	14.26	33.13 4	5.91	324	0	(14.26)	(33.13)	(5.91)	(24.71)	(324)	(0.00)
10	14.24	33.13 6	5.85	323	10	14.24	33.14	5.85	24.72	323	0.03
32	14.25	33.12 2	5.87	325	20	14.24	33.13	5.86	24.71	324	0.06
58	14.26	33.16 8	5.99	322	30	14.25	33.12	5.87	24.70	325	0.10
66	14.23	33.17 1	5.85	321	50	14.26	33.15	5.95	24.73	323	0.16
84	12.70	33.26 4	5.52	284	75	13.80	33.19	4.76	24.85	311	0.24
97	11.58	33.35 8	5.05	257	100	11.30	33.38	4.89	25.48	251	0.31
110	10.40	33.47 2	4.35	229	125	9.57	33.57	4.00	25.93	208	0.37
135	9.25	33.63 5	3.78	199	150	8.94	33.78	3.11	26.19	183	0.42
151	8.92	33.78 6	3.09	182	200	8.12	33.95	2.70	26.45	159	0.51
177	8.42	33.87 8	2.71	168	250	7.50	34.00	2.55	26.58	146	0.59
206	8.04	33.95 3	2.69	157	300	6.71	34.00	2.47	26.69	136	0.66
232	7.70	33.97 4	2.68	151	400	5.43	34.00	1.89	26.85	120	0.79
274	7.20	34.01 9	2.41	141	500	4.84	34.10	1.00	27.00	106	0.91
330	6.19	33.97 8	2.53	131							
418	5.30	34.00 8	1.69	118							
500	4.84	34.09 5	1.00	107							
570	4.68	34.18 5	0.67	98							

HORIZON; April 19, 1961; 0348 GCT; 34°22'N, 130°42.5'W; sounding, 2700 fm; wind, 330°, force 4; weather, cloudy; sea, high; wire angle, 21°.

60.160

2	14.24	33.16 9	5.88	321	0	(14.24)	(33.17)	(5.88)	(24.74)	(321)	(0.00)
11	14.26	33.15 3	5.95	323	10	14.25	33.15	5.94	24.73	323	0.03
34	14.28	33.15 9	5.91	323	20	14.27	33.16	5.93	24.73	322	0.06
61	14.27	33.33 0	5.84	310	30	14.28	33.16	5.91	24.73	322	0.10
70	14.35	33.43 0	5.72	304	50	14.28	33.22	5.88	24.77	318	0.16
89	14.12	33.49 9	5.60	294	75	14.35	33.45	5.69	24.94	303	0.24
102	13.41	33.45 6	5.58	284	100	13.59	33.47	5.58	25.11	286	0.31
115	12.30	33.45 8	5.57	263	125	12.12	33.49	5.56	25.41	257	0.38
141	11.38	33.55 9	5.39	239	150	10.62	33.54	5.24	25.73	228	0.44
158	10.02	33.53 6	5.13	218	200	9.49	33.78	4.86	26.11	192	0.55
184	9.60	33.70 2	4.91	199	250	9.01	33.98	4.89	26.34	169	0.64
215	9.37	33.86 0	4.85	184	300	8.29	33.99	4.28	26.46	158	0.73
241	9.12	33.96 1	4.96	172	400	6.40	34.00	2.35	26.73	132	0.88
285	8.58	33.99 2	4.53	162	500	5.42	34.07	1.38	26.91	115	1.01
343	7.20	33.95 7	3.42	145	600	(4.99)	(34.15)		(27.02)	(104)	(1.12)
433	6.04	34.02 3	1.91	126							
517	5.30	34.08 8	1.24	112							
587	5.02	34.14 7	0.79	105							

a) Alternate value, 5.66 ml/L, not used in interpolation.

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

60.180

HORIZON; April 19, 1961; 1226 GCT; 33°41'N, 132°07'W; sounding, 2745 fm; wind, 330°, force 4; weather, partly cloudy; sea, very rough; wire angle, 27°.

0	15.97	33.87 9	5.50	305	0	15.97	33.88	5.50	24.91	305	0.00
9	15.98	33.87 3	5.68	306	10	15.99	33.87	5.68	24.90	306	0.03
30	16.00	33.87 3	5.63	306	20	16.00	33.87	5.65	24.90	306	0.06
56	15.98	33.89 0	5.57	304	30	16.00	33.87	5.63	24.90	306	0.09
65	15.97	33.88 9	5.50	304	50	15.99	33.89	5.52	24.92	305	0.15
82	15.54	33.93 7	5.52	292	75	15.95	33.89	5.50	24.93	304	0.23
95	15.44	33.98 4	5.54	286	100	15.36	33.97	5.56	25.12	285	0.30
107	15.14	33.95 1	5.57	282	125	14.80	34.04	5.42	25.30	269	0.37
132	14.85	34.06 8	5.41	268	150	13.10	33.79	5.33	25.46	253	0.44
148	13.19	33.79 6	5.33	255	200	10.67	33.76	4.94	25.89	212	0.56
174	12.01	33.75 7	5.24	236	250	9.11	33.95	4.69	26.30	173	0.66
204	10.44	33.76 8	4.90	208	300	8.10	33.98	4.19	26.48	156	0.74
229	9.46	33.86 7	4.82	185	400	6.78	33.98	2.80	26.67	138	0.89
271	8.80	33.98 6	4.51	166	500	5.51	34.02	1.66	26.86	120	1.03
328	7.57	33.96 8	3.87	150							
418	6.56	33.98 5	2.50	135							
501	5.50	34.02 0	1.65	120							
571	5.08	34.08 1	1.08	110							

60.200

HORIZON; April 19, 1961; 2050 GCT; 33°07'N, 133°24'W; sounding, 2700 fm; wind, 320°, force 3; weather, partly cloudy; sea, high; wire angle, 16°.

1	16.48	-	5.52	-	0	(16.48)	(34.15)	(5.52)	(25.00)	(296)	(0.00)
11	16.46	34.10 4	5.53	299	10	16.46	34.10	5.53	24.97	300	0.03
29	16.40	34.10 6	5.68	298	20	16.42	34.10	5.60	24.98	299	0.06
57	16.34	34.24 3	5.52	286	30	16.41	34.11	5.68	24.99	298	0.09
67	16.00	34.24 9	5.49	279	50	16.70	34.22	5.66	25.01	296	0.15
81	16.26	34.39 0	5.38	274	75	16.18	34.35	5.41	25.23	275	0.22
95	16.10	34.37 0	5.50	272	100	15.95	34.34	5.57	25.27	271	0.29
109	15.32	34.19 0	5.68	268	125	14.70	34.13	5.42	25.39	260	0.36
132	14.44	34.13 0	5.28	255	150	13.10	33.90	5.20	25.54	245	0.42
150	13.10	33.89 7	5.20	245	200	10.34	33.83	4.89	26.00	201	0.53
177	11.58	33.81 5	5.20	224	250	9.62	34.00	5.00	26.26	177	0.63
205	10.15	33.84 0	4.86a)	198	300	8.51	34.00	4.30	26.43	160	0.72
231	9.72	33.97 5	5.00	181	400	6.69	33.97	2.86	26.67	138	0.87
276	9.09	34.02 2	4.93	167	500	5.66	34.02	1.78	26.84	122	1.01
325	7.94	33.97 7	3.69	154							
401	6.68	33.97 2	2.85	138							
478	5.84	33.99 8	1.98	125							
558	5.31	34.07 1	1.44	114							

63.52

HORIZON; April 15, 1961; 2011 GCT; 37°16'N, 122°40'W; sounding, 55 fm; wind, 300°, force 4; weather, partly cloudy; sea, rough; wire angle, 16°.

1	11.14	33.55 7	7.33	235	0	(11.14)	(33.56)	(7.33)	(25.65)	(235)	(0.00)
10	10.86	33.58 4	6.71	228	10	10.86	33.58	6.71	25.72	228	0.02
29	9.23	33.77 3	2.69	188	20	9.80	33.69	4.07	25.99	203	0.04
47	8.76	33.90 5	2.10	171	30	9.21	33.78	2.66	26.14	188	0.06
70	8.58	33.95 1	1.94	165	50	8.71	33.92	2.05	26.34	169	0.10
					75	(8.58)	(33.95)	(1.91)	(26.39)	(165)	(0.14)

63.55

HORIZON; April 15, 1961; 1741 GCT; 37°09'N, 122°52'W; sounding, 165 fm; wind, 320°, force 5; weather, partly cloudy; sea, very rough; wire angle, 35°.

1	11.04	33.33 7	6.92	250	0	(11.04)	(33.34)	(6.92)	(25.50)	(249)	(0.00)
9	11.02	33.33 8	6.76	249	10	11.01	33.34	6.75	25.50	249	0.02
24	10.47	33.55 4	5.32	224	20	10.70	33.49	5.81	25.68	232	0.05
39	10.00	33.55 9	4.37	216	30	10.28	33.56	4.91	25.80	221	0.07
58	9.48	33.65 2	3.54	201	50	9.49	33.62	3.62	26.98	204	0.11
79	9.02	33.77 8	3.37	185	75	9.15	33.75	3.41	26.14	188	0.16
99	8.58	33.88 4	2.95	170	100	8.57	33.89	2.92	26.34	169	0.21
132	8.38	33.97 2	2.35	161	125	8.42	33.95	2.48	26.41	163	0.25
168	8.06	34.05 6	2.11	150	150	8.22	34.02	2.21	26.49	155	0.29
214	7.56	34.10 6	1.60	139	200	7.71	34.10	1.74	26.63	142	0.37

56

a) Alternate value, 5.00 ml/L, 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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6104-5

HORIZON; April 15, 1961; 1427 GCT; 37°00.5'N, 123°10'W; sounding, 1360 fm; wind, 320°, force 5; weather, partly cloudy; sea, very rough; wire angle, 20°.

63.60

1	11.28	33.23 2	6.03	261	0	(11.28)	(33.23)	(6.03)	(25.37)	(262)	(0.00)
10	11.27	33.22 8	6.03	262	10	11.27	33.23	6.03	25.37	262	0.03
28	11.22	33.23 7	5.94	260	20	11.26	33.23	6.00	25.38	261	0.05
38	9.94	33.46 7	5.16	222	30	11.20	33.24	5.90	25.39	259	0.08
51	9.82	33.49 1	5.07	218	50	9.82	33.49	5.08	25.82	219	0.13
65	9.72	33.52 9	5.00	214	75	9.45	33.58	4.55	25.95	206	0.18
88	9.03	33.65 3	3.78	194	100	8.87	33.74	3.40	26.17	185	0.23
107	8.76	33.78 8	3.22	180	125	8.39	33.91	2.87	26.38	165	0.27
124	8.41	33.90 0	2.88	166	150	8.04	33.97	2.65	26.47	157	0.31
142	8.14	33.94 8	2.78	159	200	7.55	34.01	2.35	26.59	146	0.39
170	7.88	33.99 2	2.43	152	250	7.33	34.07	1.75	26.67	139	0.46
201	7.54	34.01 2	2.35	146	300	6.77	34.10	1.37	26.76	130	0.53
229	7.48	34.04 8	2.02	142	400	6.00	34.17	0.69	26.92	114	0.66
274	7.07	34.09 2	1.52	134	500	5.20	34.17	0.59	27.02	105	0.77
324	6.54	34.10 5	1.20	126							
403	5.98	34.17 0	0.68	114							
484	5.26	34.17 0	0.62	106							
566	5.05	34.25 5	0.37	97							

HORIZON; April 15, 1961; 0247 GCT; 36°49'N, 122°04.5'W; sounding, 55 fm; wind, 300°, force 5; weather, partly cloudy; sea, very rough; wire angle, 10°.

67.50

2	11.17	33.59 4	5.75	233	0	(11.17)	(33.59)	(5.74)	(25.67)	(233)	(0.00)
12	11.19	33.59 3	5.62	233	10	11.19	33.59	5.63	25.67	233	0.02
30	11.10	33.59 9	5.57	231	20	11.17	33.60	5.59	25.67	233	0.05
49	10.08	33.68 6	4.31	208	30	11.11	33.60	5.57	25.69	231	0.07
73	9.11	33.76 0	3.30	187	50	10.06	33.69	4.28	25.94	207	0.11
					75	(9.03)	(33.77)	(3.25)	(26.16)	(186)	(0.16)

HORIZON; April 15, 1961; 0555 GCT; 36°38.5'N, 122°25.5'W; sounding, 1200 fm; wind, 320°, force 5; weather, cloudy; sea, very rough; wire angle, 28°.

67.55

1	11.28	33.59 2	5.82	235	0	(11.28)	(33.59)	(5.82)	(25.65)	(235)	(0.00)
10	11.28	33.56 0	5.79	237	10	11.28	33.56	5.79	25.64	237	0.02
33	11.28	33.56 6	5.80	237	20	11.28	33.56	5.79	25.65	237	0.05
41	11.16	33.58 2	5.50	234	30	11.28	33.56	5.80	25.65	237	0.07
55	9.59	33.71 9	3.85	198	50	9.80	33.70	4.05	25.99	202	0.12
68	9.14	33.79 3	3.34	185	75	9.12	33.80	3.31	26.18	184	0.16
91	9.00	33.81 9	3.24	181	100	8.88	33.83	3.18	26.24	178	0.21
108	8.78	33.85 5	3.10	175	125	8.62	33.93	2.60	26.36	167	0.25
127	8.59	33.94 1	2.54	166	150	8.34	33.99	2.32	26.45	159	0.29
154	8.30	33.98 9	2.32	158	200	7.68	34.02	2.26	26.57	147	0.37
183	7.90	34.00 6	2.29	151	250	7.25	34.09	1.55	26.69	136	0.45
216	7.53	34.03 5	2.15	144	300	6.87	34.09	1.43	26.75	131	0.51
243	7.32	34.09 3	1.57	137	400	6.38	34.22	0.70	26.91	115	0.64
288	6.96	34.08 8	1.51	133	500	5.90	34.25	0.49	26.99	107	0.76
347	6.64	34.17 8	0.94	122	600	(5.27)	(34.32)	(0.36)	(27.13)	(95)	(0.87)
439	6.20	34.23 1	0.61	112							
525	5.77	34.25 3	0.44	105							
598	5.29	34.31 7	0.36	95							

S10

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6104-5

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

67.60

HORIZON; April 15, 1961; 0921 GCT; 36°28'N, 122°47'W; sounding, 1630 fm; wind, 330°, force 5; weather, partly cloudy; sea, very rough; wire angle, 18°.

1	11.82	33.15 5	5.97	277	0	(11.82)	(33.16)	(5.97)	(25.22)	(276)	(0.00)
10	11.83	33.15 8	5.97	276	10	11.83	33.16	5.97	25.22	276	0.03
33	10.58	33.34 5	5.08	241	20	11.80	33.17	5.92	25.23	275	0.06
42	9.94	33.38 5	4.43	228	30	10.70	33.34	5.19	25.56	244	0.08
56	9.38	33.49 9	4.03	211	50	9.61	33.43	4.19	25.81	219	0.13
70	8.87	33.62 2	3.71	194	75	8.70	33.66	3.65	26.14	189	0.18
93	8.38	33.75 0	3.51	177	100	8.40	33.80	3.37	26.29	174	0.22
111	8.56	33.90 2	2.64	168	125	8.35	33.97	2.23	26.43	161	0.27
128	8.38	33.98 3	2.21	160	150	7.96	34.00	2.20	26.52	153	0.31
155	7.88	34.00 0	2.20	151	200	7.47	34.03	1.94	26.61	143	0.38
181	7.60	34.02 2	2.02	146	250	7.21	34.06	1.67	26.67	138	0.45
217	7.38	34.04 5	1.83	141	300	6.93	34.10	1.26	26.75	131	0.52
244	7.25	34.05 5	1.71	139	400	6.05	34.14	0.83	26.89	117	0.65
290	6.99	34.09 0	1.34	133	500	5.29	34.18	0.56	27.02	105	0.77
349	6.60	34.13 2	0.98	125	600	(4.82)	(34.25)	(0.35)	(27.12)	(95)	(0.88)
442	5.66	34.15 5	0.70	111							
526	5.16	34.19 3	0.49	103							
597	4.83	34.24 7	0.35	95							

67.200

HORIZON; April 20, 1961; 0715 GCT;^{a)} 31°49'N, 132°23.5'W; sounding, 2420 fm; wind, 350°, force 1; weather, partly cloudy; sea, very rough; wire angle, 06°.

73	16.83	33.92	5.45	321
82	16.91	33.98	5.46	318
87	16.70	33.97	5.44	314
93	16.84	34.02	5.39	314
96	17.16	34.14	5.36	312
98	17.36	34.24	5.18	310
100	17.39	34.29	5.35	307
103	17.42	34.31	5.33	306
106	17.39	34.32	5.32	304
109	17.41	34.33	5.33	304
112	17.46	34.40	5.32	300
115	17.51	34.43	5.32	299
118	17.53	34.42	5.39	300
121	17.24	34.37	5.39	297
124	17.05	-	5.32	-
127	16.92	34.26	5.36	298
130	16.20	34.13	5.35	292
135	15.88	34.06	5.31	290
145	15.48	34.03	5.27	283
155	14.91	34.00	5.18	274

a) Special cast for investigation of the thermosteric anomaly structure in a temperature inversion indicated by the bathythermograph observation.

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 13, 1961; 1240 GCT; 36°08'N, 121°48'W; sounding, 430 fm; wind, 320°, force 6; weather, partly cloudy; sea, very rough; wire angle, 27°.

7053

0	11.58	33.40 8	5.75	253	0	11.58	33.41	5.75	25.46	253	0.00
9	11.59	33.40 1	5.77	254	10	11.59	33.40	5.77	25.45	254	0.03
31	11.40	33.43 1	5.49	249	20	11.55	33.41	5.70	25.46	253	0.05
39	10.86	33.51 5	4.88	233	30	11.42	33.43	5.55	25.49	250	0.08
53	9.86	33.58 7	3.93	212	50	10.00	33.57	4.08	25.86	215	0.12
65	9.54	33.68 1	3.48	200	75	9.46	33.70	3.51	26.05	197	0.17
87	9.07	33.72 7	3.61	189	100	8.73	33.80	3.25	26.24	179	0.22
103	8.72	33.81 8	3.16	177	125	8.80	33.93	2.52	26.33	170	0.27
119	8.82	33.91 9	2.58	171	150	8.60	33.99	2.24	26.41	163	0.31
144	8.64	33.97 4	2.37	164	200	8.28	34.08	1.82	26.53	151	0.39
170	8.48	34.04 4	1.92	157	250	7.70	34.11	1.58	26.64	141	0.46
204	8.24	34.07 8	1.81	151	300	7.47	34.18	1.07	26.73	133	0.53
230	7.92	34.08 7	1.76	145	400	6.55	34.21	0.70	26.88	119	0.66
273	7.56	34.13 9	1.33	137	500	5.93	34.25	0.44	26.99	108	0.78
332	7.34	34.21 1	0.83	129							
423	6.34	34.20 4	0.68	116							
507	5.90	34.25 2	0.42	107							
578	5.48	34.28 6	0.35	100							

HORIZON; April 13, 1961; 0810 GCT; 35°52'N, 122°21.5'W; sounding, 720 fm; wind, 320°, force 6; weather, partly cloudy; sea, very rough; wire angle, 30°.

7060

2	11.98	33.45 5	5.95	257	0	(11.98)	(33.46)	(5.95)	(25.42)	(257)	(0.00)
10	11.98	33.45 8	5.94	257	10	11.98	33.46	5.94	25.42	257	0.03
31	11.90	33.46 9	5.92	255	20	11.97	33.46	5.93	25.43	256	0.05
39	10.76	33.47 7	5.08	235	30	11.92	33.47	5.92	25.44	255	0.08
52	9.94	33.46 6	4.08	222	50	9.99	33.47	4.13	25.78	223	0.12
65	9.76	33.58 4	3.75	210	75	9.70	33.66	3.72	25.98	203	0.18
86	9.63	33.74 6	3.67	196	100	9.32	33.80	3.13	26.16	187	0.23
101	9.30	33.80 6	3.12	187	125	8.82	33.87	2.59	26.28	175	0.27
116	8.90	33.84 8	2.70	177	150	8.56	33.96	2.30	26.40	164	0.32
142	8.68	33.94 0	2.31	168	200	7.86	34.01	2.32	26.55	150	0.40
164	8.27	33.97 5	2.33	159	250	7.70	34.12	1.42	26.65	140	0.47
195	7.85	33.99 4	2.37	151	300	7.04	34.15	1.06	26.76	129	0.54
218	7.88	34.08 4	1.64	145	400	6.23	34.20	0.66	26.91	115	0.67
257	7.64	34.12 0	1.39	139	500	5.41	34.23	0.46	27.04	103	0.78
323	6.80	34.16 0	0.94	125	600	4.99	34.29	0.35	27.14	94	0.89
426	6.04	34.20 7	0.60	112							
511	5.35	34.22 8	0.45	102							
628	4.93	34.30 6	0.33	92							

HORIZON; April 13, 1961; 0159 GCT; 35°31'N, 123°06.5'W; sounding, 1800 fm; wind, 310°, force 6; weather, partly cloudy; sea, very rough; wire angle, 40°.

7070

1	13.00	33.03 5	6.36	307	0	(13.00)	(33.04)	(6.36)	(24.90)	(306)	(0.00)
9	13.00	33.02 5	6.42	308	10	13.00	33.03	6.42	24.89	307	0.03
28	12.93	33.02 7	6.34	306	20	12.98	33.03	6.38	24.89	307	0.06
50	11.98	33.39 5	5.80	262	30	12.91	33.03	6.33	24.91	306	0.09
56	11.46	33.42 6	5.51	250	50	11.98	33.40	5.80	25.37	261	0.15
71	10.52	33.51 1	4.46	228	75	10.31	33.53	4.28	25.77	223	0.21
82	9.79	33.58 1	3.77	211	100	9.08	33.69	3.14	26.10	192	0.26
92	9.52	33.66 4	3.36	201	125	8.96	33.84	2.67	26.24	179	0.31
115	9.11	33.77 3	2.98	186	150	8.57	33.93	2.53	26.37	167	0.35
128	8.90	33.85 9	2.60	177	200	8.09	34.01	2.30	26.50	154	0.43
148	8.58	33.92 4	2.54	167	250	7.71	34.08	1.75	26.62	143	0.51
173	8.38	33.98 0	2.42	160	300	7.40	34.13	1.21	26.70	135	0.58
194	8.14	34.00 2	2.33	155	400	6.61	34.20	0.70	26.86	119	0.72
228	7.87	34.04 3	2.05	148	500	5.83	34.26		27.01	106	0.83
289	7.48	34.12 3	1.30	137							
380	6.80	34.18 3	0.81	123							
454	6.12	34.23 9	0.48	111							
556	5.60	34.28 5	0.40	101							

SIO

CCOFI
6104-5

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

70.80

HORIZON; April 12, 1961; 2020 GCT; 35°10'N, 123°51'W; sounding, 2182 fm; wind, 290°, force 4; weather, cloudy; sea, rough; wire angle, 32°.

0	13.95	33.08 1	5.75	322	0	13.95	33.08	5.75	24.74	322	0.00
8	13.95	33.08 4	5.75	322	10	13.94	33.08	5.75	24.74	322	0.03
24	13.92	33.07 9	5.75	321	20	13.93	33.08	5.75	24.74	321	0.06
50	13.92	33.08 2	5.71	321	30	13.92	33.08	5.74	24.74	321	0.10
59	13.91	33.08 0	5.74	321	50	13.92	33.08	5.71	24.74	321	0.16
70	13.22	33.10 9	5.75	306	75	12.96	33.23	5.83	25.05	292	0.24
82	12.96	33.26 0	5.83	290	100	11.48	33.18	5.45	25.29	269	0.31
94	12.06	33.16 7	5.57	280	125	10.17	33.44	4.36	25.73	228	0.37
113	10.66	33.24 1	5.27	250	150	9.30	33.60	3.67	26.00	202	0.43
127	10.08	33.46 0	4.28	225	200	8.35	33.90	2.76	26.38	166	0.52
150	9.30	33.60 1	3.67	202	250	7.57	33.97	2.69	26.55	149	0.60
172	8.77	33.82 1	3.01	178	300	6.99	34.00	2.01	26.65	139	0.67
195	8.44	33.88 7	2.76	168	400	5.98	34.07	1.20	26.84	122	0.81
233	7.80	33.95 7	2.82	154	500	(5.52)	(34.16)	(0.59)	(26.97)	(109)	(0.93)
276	7.24	33.97 6	2.35	145							
345	6.58	34.03 9	1.53	131							
417	5.84	34.08 3	1.11	119							
493	5.54	34.15 8	0.59	110							

70.90

HORIZON; April 12, 1961; 1500 GCT; 34°52'N, 124°29.5'W; sounding, 2250 fm; wind, 290°, force 3; weather, partly cloudy; sea, rough; wire angle, 22°.

1	13.33	33.09 5	6.02	309	0	(13.33)	(33.10)	(6.02)	(24.88)	(308)	(0.00)
10	13.32	33.08 4	6.04	309	10	13.32	33.08	6.04	24.86	310	0.03
32	13.32	33.08 3	6.08	309	20	13.32	33.08	6.06	24.86	310	0.06
60	13.30	33.10 5	6.00	307	30	13.32	33.08	6.08	24.86	310	0.09
68	13.22	33.10 9	5.95	306	50	13.31	33.08	6.04	24.87	309	0.16
87	12.35	33.16 4	5.76	285	75	12.82	33.12	5.84	24.99	297	0.23
99	11.24	33.23 3	5.64	261	100	11.22	33.24	5.63	25.39	260	0.30
113	10.70	33.31 1	5.50	246	125	10.18	33.34	5.32	25.65	235	0.36
139	9.71	33.38 3	5.09	224	150	9.68	33.54	4.34	25.89	212	0.42
157	9.66	33.62 7	3.61	206	200	8.31	33.81	3.95	26.31	172	0.52
183	8.68	33.71 0	3.99	185	250	7.50	33.94	3.55	26.54	151	0.60
215	8.05	33.87 8	3.92	163	300	6.75	33.95	2.98	26.65	140	0.68
242	7.62	33.93 0	3.65	153	400	5.66	34.02	1.58	26.84	122	0.81
286	6.99	33.95 1	3.12	143	500	5.26	34.13	0.75	26.98	109	0.93
344	6.08	33.95 9	2.45	131	600	(4.66)	(34.18)		(27.09)	(99)	(1.04)
435	5.48	34.06 2	1.15	116							
516	5.20	34.14 4	0.68	107							
585	4.74	34.17 3	0.54	100							

70.100

HORIZON; April 12, 1961; 0931 GCT; 34°31'N, 125°12'W; sounding, 2424 fm; wind, 280°, force 4; weather, overcast; sea, rough; wire angle, 20°.

1	14.12	33.13 6	5.77	321	0	(14.12)	(33.14)	(5.77)	(24.75)	(321)	(0.00)
10	14.12	33.11 6	5.77	323	10	14.12	33.12	5.77	24.73	322	0.03
28	14.12	33.11 9	5.80	322	20	14.12	33.12	5.79	24.73	322	0.06
56	14.13	33.12 3	5.73	322	30	14.12	33.12	5.80	24.73	322	0.10
65	13.94	33.10 8	5.74	320	50	14.12	33.12	5.76	24.73	322	0.16
79	12.20	33.15 4	5.59	283	75	12.70	33.13	5.61	25.03	294	0.24
93	11.94	33.40 9	5.60	260	100	11.75	33.43	5.56	25.44	255	0.31
106	11.42	33.43 5	5.42	249	125	10.43	33.47	5.10	25.71	230	0.37
129	10.28	33.48 5	5.04	226	150	9.59	33.59	4.76	25.94	207	0.42
148	9.63	33.59 2	4.77	208	200	8.34	33.90	3.82	26.38	165	0.52
175	8.81	33.77 1	4.44	182	250	7.57	33.94	4.12	26.53	152	0.60
203	8.31	33.90 7	3.82	164	300	6.98	33.97	3.00	26.63	142	0.68
231	7.92	33.95 1	4.18	156	400	6.00	34.07	1.17	26.84	122	0.81
277	7.17	33.93 7	3.82	147	500	5.36	34.14	0.66	26.97	109	0.93
328	6.75	34.01 5	1.95	135							
407	5.94	34.07 5	1.11	121							
487	5.42	34.12 7	0.71	111							
568	5.12	34.21 3	0.42	101							

60

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 11, 1961; 225Z GCT; 33°48'N, 126°41'W; sounding, 2440 fm; wind, 320°, force 4; weather, overcast; sea, high; wire angle, 04°, 13°.

70120

2	14.94	33.37 7	5.53	320	0	(14.94)	(33.38)	(5.53)	(24.76)	(320)	(0.00)
12	14.90	33.37 2	5.51	320	10	14.91	33.37	5.51	24.76	320	0.03
36	14.90	33.38 4	5.51	319	20	14.90	33.37	5.51	24.76	320	0.06
66	14.86	33.42 6	5.38	315	30	14.90	33.38	5.51	24.77	319	0.10
75	14.50	33.53 8	5.40	299	50	14.90	33.39	5.50	24.77	318	0.16
95	13.84	33.52 5	5.32	287	75	14.50	33.54	5.40	24.97	299	0.24
109	12.78	33.50 2	5.23	268	100	13.51	33.52	5.28	25.17	281	0.31
124	11.99	33.48 0	5.13	256	125	11.97	33.48	5.12	25.44	255	0.38
152	10.58	33.47 3	4.81	232	150	10.69	33.47	4.84	25.66	234	0.44
171	9.74	33.58 0	4.52	210	200	9.04	33.78	4.34	26.18	185	0.55
200	9.04	33.77 5	4.34	185	250	8.16	33.94	4.07	26.44	160	0.63
234	8.43	33.93 0	4.13	164	300	7.36	33.97	3.00	26.58	147	0.71
264	7.92	33.94 8	4.01	156	400	6.49	34.08	1.30	26.78	127	0.86
312	7.22	33.98 1	2.69	144	500	5.72	34.13	0.81	26.92	114	0.98
374	6.72	34.05 8	1.50	132	600	5.18	34.20	0.47	27.04	103	1.10
471	5.85	34.10 3	0.94	118	700	4.80	34.29	0.29	27.16	92	1.20
558	5.42	34.17 2	0.57	107	800	4.44	34.33	0.32	27.23	85	1.30
631	5.06	34.22 8	0.39	99	1000	3.82	34.43	0.46	27.37	71	1.47
680	4.88	34.27 4	0.28	94	1200	3.33	34.49	0.76	27.47	62	1.62
					1500	2.75	34.55	1.10	27.57	53	1.82
520a)	5.64	34.14 3	0.71	112	2000	2.10	34.61	1.70	27.67	43	2.10
615	5.11	34.21 4	0.42	101	2500	1.78	34.64	2.24	27.72	38	2.35
759	4.57	34.31 6	0.31	87	3000	1.60	34.65	2.68	27.74	36	2.59
949	3.96	34.41 5	0.40	74	4000	(1.50)	(34.67)		(27.77)	(34)	(3.05)
1138	3.46	34.47 3	0.67	65							
1327	3.08	34.51 5	0.89	58							
1516	2.73	34.54 6	1.11	53							
1706	2.46	34.56 7	1.35	49							
1894	2.20	34.58 9	1.56	45							
2082	2.02	34.62 9	1.85	41							
2270	1.90	34.62 0	2.08	41							
2457	1.80	34.62 9	2.18	39							
2643	1.72	34.65 5	2.46	37							
2831	1.65	34.64 4	2.50	37							
3019	1.60	34.65 1	2.69	36							
3207	1.57	34.65 8	2.79	35							
3394	1.54	34.66 1	2.90	35							
3582	1.51	34.67 1	3.01	34							
3771	1.50	34.66 6	3.23	34							
3965	1.50	34.66 7	3.32	34							

HORIZON; April 20, 1961; 1230 GCT; 31°12'N, 131°55.5'W; sounding, 2570 fm; wind, 310°, force 1; weather, partly cloudy; sea, rough; wire angle, 09°.

70200

1	16.86	33.91 6	5.28	322	0	(16.86)	(33.92)	(5.28)	(24.74)	(322)	(0.00)
11	16.88	33.90 5	5.43	323	10	16.88	33.91	5.42	24.73	323	0.03
30	16.91	33.91 2	5.35	323	20	16.90	33.91	5.39	24.72	323	0.06
58	16.88	33.91 4	5.28	322	30	16.91	33.90	5.35	24.71	324	0.10
68	16.92	33.91 9	5.30	323	50	16.89	33.91	5.30	24.72	323	0.16
83	17.16	34.09 4	5.45b)	316	75	16.92	33.92	5.31	24.72	323	0.24
97	16.88	34.12 2	5.41	307	100	17.14	34.23	5.40	24.91	305	0.32
112	17.45	34.42 3	5.39	298	125	15.82	34.09	5.33	25.11	286	0.40
134	15.37	34.02 4	5.32	282	150	14.99	34.10	5.36	25.30	268	0.47
155	14.92	34.12 5	5.36	265	200	11.88	33.83	5.12	25.72	228	0.59
184	12.88	33.88 6	5.25	242	250	9.80	33.90	4.74	26.15	188	0.70
212	11.25	33.82 1	5.03	217	300	8.90	33.98	4.41	26.36	168	0.79
242	9.98	33.87 8	4.77	192	400	7.19	34.01	2.42	26.63	141	0.95
289	9.13	33.98 0	4.59	171	500	5.92	34.05	1.49	26.83	122	1.09
342	7.98	33.97 1	3.32	155	600	(5.25)	(34.17)		(27.01)	(106)	(1.21)
424	6.88	34.02 6	2.14	136							
507	5.84	34.05 8	1.41	121							
589	5.30	34.16 0	0.73	107							

a) Overlapping casts; reconciliation of property curves when necessary.
b) Alternate value, 5.21 ml/L, not used in interpolation.

S10
CCOFI
6104-5

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

73.53

HORIZON; April 8, 1961; 0247 GCT; 35°29'N, 121°27'W; sounding, 390 fm; wind, 300°, force 3; weather, clear; sea, rough; wire angle, 35°.

0	12.75	33.14	1	6.35	294	0	12.75	33.14	6.35	25.02	294	0.00
8	12.75	33.13	8	6.35	295	10	12.75	33.14	6.35	25.02	294	0.03
24	12.34	33.22	1	6.18	281	20	12.48	33.19	6.24	25.11	286	0.06
32	11.27	33.41	7	5.06	248	30	11.76	33.35	5.50	25.37	261	0.09
43	10.72	33.46	5	4.72	235	50	10.43	33.50	4.56	25.73	227	0.13
55	9.94	33.58	0	4.23	213	75	9.59	33.68	3.62	26.01	201	0.19
74	9.61	33.68	3	3.61	201	100	8.96	33.73	3.41	26.15	187	0.24
90	9.20	33.67	0	3.75	195	125	8.48	33.87	3.00	26.34	170	0.28
105	8.83	33.76	9	3.27	182	150	8.43	34.01	2.30	26.45	159	0.32
120	8.50	33.85	2	3.08	171	200	8.14	34.11	1.58	26.58	147	0.40
142	8.46	33.96	6	2.53	162	250	7.47	34.13	1.34	26.69	136	0.47
170	8.34	34.07	1	1.82	153	300	7.06	34.17	1.02	26.78	128	0.54
193	8.22	34.10	2	1.63	149	400	6.57	34.25	0.60	26.91	115	0.67
233	7.71	34.12	1	1.42	140	500	6.04	34.26	0.47	26.98	108	0.79
277	7.18	34.14	5	1.20	131							
349	6.92	34.23	9	0.71	121							
423	6.42	34.25	2	0.57	113							
500	6.04	34.26	4	0.47	108							

7360

HORIZON; April 8, 1961; 0705 GCT; 35°16'N, 141°56.5'W; sounding, 1150 fm; wind, 310°, force 4; weather, clear; sea, rough; wire angle, 13°.

1	13.22	33.24	4	6.22a)	296	0	(13.22)	(33.24)	(6.22)	(25.01)	(296)	(0.00)
10	13.20	33.24	5	6.27	295	10	13.20	33.24	6.27	25.01	296	0.03
34	12.95	33.31	5	6.09	285	20	13.00	33.31	6.11	25.11	287	0.06
44	12.18	33.33	7	5.73	270	30	12.95	33.31	6.10	25.12	286	0.09
59	11.19	33.34	4	5.08	252	50	11.60	33.34	5.38	25.40	259	0.14
72	10.70	33.44	5	4.59	236	75	10.65	33.45	4.57	25.65	235	0.20
97	9.18	33.51	9	4.40	206	100	9.15	33.53	4.36	25.97	205	0.26
116	8.84	33.71	8	3.77	186	125	8.64	33.80	3.55	26.26	177	0.31
134	8.46	33.83	7	3.45	172	150	8.19	33.88	3.31	26.39	165	0.35
163	8.02	33.90	4	3.26	161	200	7.66	33.95	3.39	26.52	152	0.43
192	7.74	33.93	4	3.48	154	250	7.10	33.99	2.52	26.63	142	0.51
231	7.34	33.98	6	2.65	145	300	6.62	34.01	1.86	26.71	134	0.58
260	7.00	33.99	5	2.46	140	400	5.79	34.10	1.10	26.89	117	0.71
310	6.52	34.01	7	1.73	132	500	5.54	34.22	0.50	27.02	105	0.82
371	5.92	34.07	1	1.33	121	600	5.28	34.31	0.36	27.12	96	0.93
469	5.60	34.18	4	0.63	109							
556	5.44	34.27	3	0.40	100							
629	5.15	34.33	6	0.32	92							

77.51

HORIZON; April 8, 1961; 1601 GCT; 35°01.5'N, 120°56'W; sounding, 145 fm; wind, 320°, force 2; weather, clear; sea, moderate; wire angle, 00°.

1	11.80	33.57	5	6.46	245	0	(11.80)	(33.58)	(6.46)	(25.54)	(245)	(0.00)
11	11.57	33.57	4	6.22	241	10	11.58	33.57	6.23	25.58	242	0.02
30	10.74	33.64	5	5.30	222	20	11.20	33.59	5.87	25.66	234	0.05
49	9.92	33.73	8	4.08	201	30	10.74	33.64	5.30	25.78	222	0.07
73	9.17	33.85	7	2.97	181	50	9.90	33.74	4.06	26.01	201	0.11
98	8.75	33.88	9	2.80	172	75	9.12	33.86	2.93	26.23	180	0.16
122	8.54	33.96	1	2.62	164	100	8.73	33.89	2.79	26.31	172	0.21
160	8.28	34.02	5	2.21	155	125	8.52	33.97	2.57	26.41	163	0.25
199	7.88	34.05	0	2.13	148	150	8.37	34.01	2.29	26.46	158	0.29
						200	(7.87)	(34.05)	(2.13)	(26.57)	(148)	(0.37)

a) Alternate value, 6.33 ml/L, 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

HORIZON; April 8, 1961; 1322 GCT; 34°54'N, 121°13.5'W; sounding, 250 fm; wind, calm; weather, clear; sea, rough; wire angle, 23°.

7755

0	12.13	33.39	1	6.24	265	0	12.13	33.39	6.24	25.34	265	0.00
9	11.32	33.42	8	5.71	248	10	11.28	33.43	5.67	25.52	247	0.03
27	10.80	33.52	4	5.30	232	20	11.00	33.49	5.46	25.62	238	0.05
44	10.04	33.66	2	4.31	209	30	10.70	33.55	5.19	25.72	228	0.07
66	9.80	33.69	9	3.88	202	50	9.95	33.68	4.11	25.95	206	0.12
89	9.54	33.76	6	3.47	193	75	9.71	33.72	3.73	26.02	199	0.17
111	8.91	33.89	2	2.78	174	100	9.10	33.83	3.10	26.21	182	0.22
145	8.74	33.99	5	2.11	164	125	8.82	33.94	2.50	26.34	170	0.26
180	8.27	34.03	8	2.05	154	150	8.70	34.00	2.08	26.40	163	0.30
225	7.86	34.07	7	1.92	145	200	8.10	34.06	1.98	26.54	150	0.38
269	6.98	34.02	6	2.13a)	137	250	7.29	34.04	2.06	26.64	140	0.46
364	6.67	34.20	7	0.76	120	300	6.83	34.07	1.76	26.73	132	0.53

HORIZON; April 8, 1961; 1129 GCT; 34°50'N, 121°22.5'W; sounding, 280 fm; wind, 320°, force 2; weather, clear; sea, rough; wire angle, 17°.

7757

1	12.47	33.28	3	6.24	279	0	(12.47)	(33.28)	(6.24)	(25.19)	(279)	(0.00)
10	12.25	33.30	7	6.22	273	10	12.25	33.31	6.22	25.25	273	0.03
28	10.80	33.32	2	5.22	247	20	11.79	33.31	5.95	25.34	265	0.05
47	10.06	33.40	3	4.67	229	30	10.76	33.33	5.18	25.54	245	0.08
71	9.65	33.59	7	4.01	208	50	9.92	33.44	4.54	25.77	224	0.13
94	9.38	33.73	6	3.22	193	75	9.59	33.63	3.84	25.97	204	0.18
117	9.06	33.87	6	2.52	178	100	9.30	33.77	3.01	26.13	189	0.23
154	8.50	33.95	2	2.72	164	125	8.94	33.90	2.56	26.29	174	0.28
190	7.92	33.99	9	2.55	152	150	8.57	33.95	2.71	26.38	165	0.32
237	7.68	34.01	7	2.35	147	200	7.85	34.01	2.49	26.54	150	0.40
285	7.24	34.06	2	1.86	138	250	7.57	34.03	2.24	26.60	145	0.48
384	6.83	34.19	7	0.82	123	300	7.15	34.08	1.68	26.70	136	0.55
						400	(6.79)	(34.22)		(26.85)	(120)	(0.68)

HORIZON; April 8, 1961; 2035 GCT; 34°25.5'N, 120°35.5'W; sounding, 120 fm; wind, 210°, force 2; weather, clear; sea, rough; wire angle, 07°.

8052

0	14.42	33.33	2	6.09	313	0	14.42	33.33	6.09	24.83	313	0.00
10	13.69	33.34	5	6.12	297	10	13.69	33.34	6.12	24.99	298	0.03
34	10.42	33.54	1	4.37	224	20	11.32	33.45	5.05	25.53	246	0.06
48	9.91	33.69	7	3.79	204	30	10.65	33.51	4.54	25.70	230	0.08
72	9.44	33.78	5	3.24	190	50	9.83	33.71	3.73	25.99	202	0.13
102	9.27	33.90	3	2.46	179	75	9.42	33.79	3.19	26.12	190	0.17
121	9.01	33.98	4	2.22	169	100	9.33	33.90	2.50	26.23	180	0.22
150	8.70	34.02	1	2.09	162	125	8.98	34.00	2.19	26.36	167	0.26
169	8.42	34.00	1	2.34b)	159	150	8.70	34.02	2.09	26.42	162	0.31

HORIZON; April 8, 1961; 2248 GCT; 34°19.5'N, 120°48.5'W; sounding, 390 fm; wind, 280°, force 3; weather, clear; sea, rough; wire angle, 12°.

8055

0	14.45	33.35	3	6.00	312	0	14.45	33.35	6.00	24.84	312	0.00
10	13.71	33.36	4	6.05	296	10	13.71	33.36	6.05	25.00	297	0.03
28	12.52	33.35	5	6.03	274	20	13.30	33.36	6.05	25.08	289	0.06
38	12.20	33.35	6	5.80	269	30	12.47	33.35	6.02	25.24	274	0.09
52	11.76	33.43	4	5.61	255	50	11.81	33.43	5.65	25.43	256	0.14
67	10.86	33.50	8	4.68	234	75	10.58	33.53	4.48	25.73	228	0.20
91	10.04	33.59	2	4.12	214	100	9.70	33.67	3.75	25.98	203	0.26
110	9.40	33.76	0	3.32	192	125	9.09	33.84	3.06	26.22	181	0.30
129	9.02	33.84	8	3.02	179	150	8.77	33.89	2.91	26.31	172	0.35
147	8.78	33.88	9	2.91	173	200	8.10	33.97	2.71	26.47	157	0.43
174	8.64	33.94	3	2.72	167	250	7.48	34.03	2.08	26.61	144	0.51
207	7.97	33.98	5	2.68	154	300	7.08	34.07	1.60	26.70	135	0.58
236	7.61	34.02	5	2.22	146	400	6.56	34.24	0.59	26.90	116	0.71
282	7.23	34.05	3	1.82	139	500	5.80	34.28	0.43	27.03	104	0.83
334	6.86	34.12	4	1.13	129							
415	6.49	34.25	7	0.53	114							
496	5.85	34.27	4	0.43	105							
579	5.14	34.26	5	0.32	97							

a) Alternate value, 2.01 ml/L, not used in interpolation.
b) Alternate value, 2.42 ml/L, not used in interpolation.

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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

8060

HORIZON; April 9, 1961; 0159 GCT; 34°10'N, 121°11'W; sounding, 1160 fm; wind, 290°, force 3; weather, cloudy; sea, very rough; wire angle, 09°.

0	14.26	33.38 3	6.08	306	0	14.26	33.38	6.08	24.90	306	0.00
10	13.92	33.37 4	6.10	300	10	13.92	33.37	6.10	24.97	300	0.03
29	11.70	33.51 3	5.54	248	20	12.84	33.43	6.01	25.23	275	0.06
39	11.22	33.54 6	5.13	237	30	11.68	33.51	5.53	25.51	248	0.09
53	10.53	33.62 4	4.46	220	50	10.70	33.60	4.65	25.76	224	0.13
68	9.94	33.69 8	3.73	205	75	9.71	33.73	3.58	26.03	199	0.19
93	9.22	33.77 0	3.33	188	100	9.08	33.81	3.11	26.19	183	0.23
112	8.87	33.86 9	2.86	176	125	8.75	33.91	2.71	26.33	171	0.28
132	8.68	33.92 1	2.68	169	150	8.28	33.93	2.93	26.41	162	0.32
151	8.26	33.93 4	2.93	162	200	7.65	34.00	2.51	26.56	148	0.40
180	7.84	33.97 1	3.01	153	250	7.14	34.03	2.00	26.66	139	0.47
215	7.52	34.01 9	2.19	145	300	6.56	34.04	1.67	26.74	131	0.54
244	7.20	34.02 9	2.03	140	400	5.51	34.11	0.91	26.93	113	0.67
292	6.65	34.04 2	1.72	132	500	5.15	34.20	0.55	27.05	102	0.78
345	6.02	34.05 1	1.37	124	600	(4.84)	(34.27)	(0.39)	(27.14)	(94)	(0.89)
427	5.38	34.14 2	0.77	109							
510	5.12	34.21 1	0.50	101							
592	4.88	34.26 4	0.39	95							

8070

HORIZON; April 10, 1961; 0247 GCT; 33°43.5'N, 121°52'W; sounding, 1970 fm; wind, 320°, force 6; weather, partly cloudy; sea, high; wire angle, 44°.

1	13.68	33.18 0	6.09	309	0	(13.68)	(33.18)	(6.09)	(24.87)	(309)	(0.00)
9	13.67	33.19 0	6.13	308	10	13.67	33.19	6.13	24.88	308	0.03
26	13.59	33.18 0	6.09	307	20	13.64	33.18	6.10	24.88	308	0.06
32	13.26	33.20 4	6.03	299	30	13.41	33.10	6.05	24.86	310	0.09
42	12.62	33.20 4	5.82	287	50	12.53	33.26	5.84	25.16	282	0.15
52	12.52	33.29 1	5.87	279	75	11.98	33.37	6.08	25.35	264	0.22
68	12.21	33.34 1	6.14a)	270	100	10.92	33.39	5.06	25.56	244	0.28
79	11.82	33.38 5	5.93	260	125	9.54	33.73	3.58	26.06	196	0.34
91	11.12	33.38 3	5.26	248	150	9.05	33.81	3.09	26.20	183	0.39
108	10.20	33.51 4	4.32	223	200	8.08	33.92	3.22	26.44	160	0.48
123	9.59	33.72 4	3.63	197	250	7.40	34.00	2.60	26.60	145	0.55
144	9.18	33.78 6	3.12	186	300	6.93	34.05	1.81	26.70	135	0.63
158	8.84	33.83 6	3.07	178	400	(6.27)	(34.12)		(26.84)	(121)	(0.76)
182	8.40	33.87 6	3.12	168							
212	7.87	33.95 1	3.26	155							
269	7.20	34.01 9	2.30	141							
326	6.76	34.07 7	1.51	131							
382	6.38	34.11 3	1.14	123							

8080

HORIZON; April 10, 1961; 0745 GCT; 33°28.5'N, 122°32'W; sounding, 2200 fm; wind, 310°, force 6; weather, overcast; sea, high; wire angle, 35°.

1	14.79	33.21 5	5.94	329	0	(14.79)	(33.22)	(5.94)	(24.67)	(328)	(0.00)
9	14.81	33.20 2	5.86	330	10	14.81	33.20	5.86	24.65	330	0.03
30	14.80	33.19 9	5.86	330	20	14.80	33.20	5.86	24.65	330	0.07
53	14.44	33.13 8	5.95	327	30	14.80	33.20	5.86	24.65	330	0.10
60	14.40	33.13 8	5.82	326	50	14.48	33.14	5.95	24.67	328	0.17
77	13.95	33.16 7	5.92	315	75	14.02	33.16	5.91	24.78	317	0.25
89	13.74	33.25 9	5.78	305	100	12.70	33.31	5.51	25.16	281	0.32
101	12.59	33.31 0	5.49	279	125	11.21	33.34	5.20	25.47	252	0.39
123	11.24	33.33 6	5.22	253	150	10.74	33.50	4.80	25.67	232	0.45
139	11.12	33.44 0	4.93	243	200	8.83	33.83	3.33	26.25	178	0.55
162	10.06	33.56 3	4.64	217	250	8.00	33.95	3.20	26.47	157	0.64
189	9.16	33.77 8	3.34	187	300	7.20	33.98	2.70	26.61	144	0.72
212	8.55	33.88 0	3.33	170	400	6.07	34.07	1.34	26.83	123	0.86
250	8.00	33.95 3	3.20	157	500	5.58	34.18	0.61	26.98	109	0.98
300	7.20	33.98 4	2.70	143							
379	6.24	34.04 8	1.51	126							
455	5.76	34.12 7	0.94	114							
521	5.52	34.19 9	0.47	107							

64

a) Alternate value, 6.25 ml/L, 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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HORIZON; April 10, 1961; 1301 GCT; 33°08'N, 123°13.5'W; sounding, 2280 fm; wind, 310°, force 6; weather, overcast; sea, high; wire angle, 35°.

80.90

1	15.44	33.40 0	5.76	329	0	(15.44)	(33.40)	(5.76)	(24.66)	(329)	(0.00)
9	15.44	33.43 1u	5.76	-	10	15.44	33.39	5.76	24.66	329	0.03
29	15.44	33.39 6	5.78	329	20	15.44	33.39	5.77	24.66	329	0.07
53	15.42	33.39 0	5.74	329	30	15.44	33.39	5.78	24.66	329	0.10
60	15.22	33.35 9	5.71	327	50	15.43	33.39	5.75	24.66	329	0.17
66	14.20	33.29 0	5.89	311	75	13.97	33.29	5.91	24.89	307	0.24
87	13.78	33.30 1	5.92	302	100	12.90	33.29	5.53	25.11	286	0.32
99	12.98	33.28 8	5.56	288	125	11.32	33.37	5.02	25.47	252	0.39
122	11.49	33.35 9	5.08	256	150	10.22	33.47	4.49	25.74	226	0.45
137	10.76	33.41 0	4.78	239	200	8.72	33.84	3.35	26.28	175	0.55
160	9.84	33.53 1	4.26	216	250	7.99	33.97	3.06	26.49	155	0.63
187	8.92	33.79 1	3.53	182	300	7.54	34.04	2.08	26.61	144	0.71
209	8.60	33.86 8	3.24	172	400	6.41	34.12	1.10	26.83	123	0.85
246	8.02	33.95 8	3.10	157	500	5.72	34.20	0.56	26.98	109	0.97
295	7.59	34.03 5	2.14	145							
374	6.62	34.09 5	1.35	128							
450	6.07	34.16 2	0.70	116							
515	5.62	34.20 8	0.53	107							

HORIZON; April 10, 1961; 1821 GCT; 32°49'N, 123°54'W; sounding, 2250 fm; wind, 320°, force 6; weather, overcast; sea, high; wire angle, 45°.

80.100

0	15.17	33.37 3	5.72	325	0	15.17	33.37	5.72	24.70	325	0.00
8	15.17	33.35 1	5.60	327	10	15.17	33.35	5.60	24.68	327	0.03
24	15.15	33.36 2	5.65	325	20	15.15	33.36	5.64	24.70	326	0.07
45	15.16	33.36 5	5.69	325	30	15.15	33.36	5.66	24.70	326	0.10
51	14.79	33.34 3	5.81	319	50	14.88	33.35	5.78	24.75	321	0.16
66	13.51	33.33 4	5.89	295	75	12.90	33.35	5.52	25.16	282	0.24
75	12.90	33.34 8	5.52	282	100	11.44	33.39	4.86	25.46	253	0.31
85	12.10	33.36 5	5.17	266	125	10.16	33.52	4.14	25.79	221	0.37
108	11.05	33.42 3	4.63	243	150	9.48	33.67	3.72	26.02	200	0.42
121	10.31	33.50 0	4.22	225	200	8.47	33.92	2.90	26.38	166	0.51
141	9.73	33.60 6	3.90	208	250	7.77	33.99	2.56	26.54	151	0.59
166	9.06	33.76 7	3.41	186	300	7.18	34.03	2.17	26.65	140	0.67
184	8.72	33.87 6	3.12	173	400	6.22	34.06	1.49	26.80	125	0.81
216	8.24	33.95 6	2.78	160	500	(5.58)	(34.18)		(26.98)	(109)	(0.93)
259	7.66	33.99 8	2.51	149							
332	6.86	34.04 3	1.94	135							
404	6.18	34.06 5	1.42	124							
471	5.74	34.13 8	0.84	114							

HORIZON; April 11, 1961; 0310 GCT; 32°07'N, 125°18'W; sounding, 2400 fm; wind, 340°, force 6; weather, cloudy; sea, high; wire angle, 35°.^{a)}

80.120

1	15.46	33.39 9	5.75	329	0	(15.46)	(33.40)	(5.75)	(24.66)	(329)	(0.00)
10	15.48	33.39 3	5.82	330	10	15.48	33.39	5.82	24.65	330	0.03
31	15.48	33.39 4	5.67	330	20	15.48	33.39	5.75	24.65	330	0.07
59	15.46	33.39 5	5.74	329	30	15.48	33.39	5.67	24.65	330	0.10
66	15.44	33.39 7	5.83	329	50	15.47	33.39	5.70	24.65	330	0.17
84	14.89	33.31 6	5.79	323	75	15.00	33.33	5.80	24.71	325	0.25
97	14.82	33.34 8	5.78	320	100	14.79	33.36	5.80	24.77	318	0.33
110	14.27	33.38 4	5.88	306	125	12.65	33.39	5.77	25.24	274	0.40
134	11.88	33.39 3	5.67	260	150	11.39	33.41	5.58	25.49	250	0.47
152	11.32	33.40 9	5.54	249	200	9.24	33.72	3.90	26.10	192	0.58
177	9.95	33.54 4	4.47	216	250	8.44	33.91	3.61	26.37	166	0.67
207	9.10	33.76 7	3.80	187	300	7.59	33.98	3.16	26.55	149	0.75
233	8.71	33.86 1	3.63b)	174	400	6.35	34.04	1.69	26.77	128	0.90
275	8.00	33.96 0	3.54	156	500	5.70	34.17	0.65	26.96	111	1.02
351	6.87	34.00 2	2.31	138	600	5.22	34.26	0.42	27.09	99	1.14
462	5.90	34.11 6	0.98	117							
547	5.48	34.22 1	0.48	104							
661	4.98	34.28 7	0.39	94							

- a) An assumed wire angle of 25° was used in depth determination.
b) Alternate value, 3.52 ml/L, not used in interpolation.

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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

80.200

HORIZON; April 21, 1961; 0100 GCT; 29°28'N, 130°38.5'W; sounding, 2430 fm; wind, 310°, force 1; weather, cloudy; sea, rough; wire angle, 20°.

1	17.42	33.76 0	5.39	346	0	(17.42)	(33.76)	(5.39)	(24.48)	(346)	(0.00)
10	16.98	33.73 5	5.56	338	10	16.98	33.74	5.56	24.57	337	0.03
28	16.94	33.74 8	5.48	336	20	16.96	33.75	5.50	24.59	336	0.07
56	16.90	33.74 4	5.46	335	30	16.94	33.75	5.48	24.59	336	0.10
65	16.62	33.74 5	5.50	329	50	16.91	33.75	5.46	24.60	335	0.17
79	17.30	34.06 5	5.39	321	75	16.62	33.83	5.40	24.73	323	0.25
93	17.76	34.29 8	5.43	314	100	17.90	34.36	5.42	24.83	313	0.33
106	17.50	34.34 2	5.37	305	125	17.35	34.47	5.30	25.04	293	0.41
127	17.35	34.48 5	5.30	291	150	15.79	34.17	5.30	25.18	280	0.48
146	16.17	34.24 7	5.32	282	200	11.00	33.68	4.68	25.77	224	0.61
172	13.12	33.78 0	5.00	254	250	9.21	33.81	3.79	26.17	185	0.71
198	11.11	33.67 7	4.70	226	300	8.37	33.92	3.25	26.39	164	0.80
225	10.06	33.74 6	4.35	203	400	6.89	34.03	2.10	26.69	136	0.96
270	8.79	33.85 7	3.52	175	500	5.53	34.08	1.26	26.91	116	1.09
318	8.12	33.95 5	3.09	158							
395	6.99	34.02 9	2.15	137							
474	5.70	34.04 9	1.53	120							
555	5.36	34.16 5	0.74	107							

83.60

BLACK DOUGLAS; April 21, 1961; 0006 GCT; 33°34'N, 120°45'W; sounding, 800 fm; wind, 280°, force 6; weather, partly cloudy; sea, very rough; wire angle, 40°.

1	11.70	33.65	5.45	238	0	(11.70)	(33.65)	(5.45)	(25.62)	(238)	(0.00)
9	11.70	33.66	5.43	237	10	11.70	33.66	5.44	25.63	237	0.02
24	11.72	33.67	5.51	237	20	11.71	33.67	5.46	25.63	237	0.05
48	11.74	33.71	5.40	234	30	11.72	33.67	5.51	25.63	237	0.07
55	11.72	33.74	5.47	232	50	11.73	33.72	5.42	25.67	233	0.12
67	11.48	33.78	5.19	224	75	10.95	33.78	4.67	25.86	215	0.17
79	10.30	33.77	4.08	205	100	9.19	33.92	3.22	26.26	177	0.22
91	9.35	33.90	3.37	181	125	8.82	34.04	2.76	26.42	162	0.27
111	9.05	33.94	3.05	173	150	8.61	34.12	2.15	26.51	153	0.31
126	8.81	34.05	2.75	161	200	8.28	34.22	1.57	26.64	141	0.38
176	8.45	34.31u	1.79	137	250	7.77	34.29	1.12	26.77	128	0.45
200	8.28	34.22	1.57	141	300	7.22	34.28	0.92	26.84	122	0.52
240	7.88	34.29	1.18	130	400	6.28	34.29	0.65	26.98	109	0.64
354	6.64	34.28	0.75	114	500	5.66	34.36	0.38	27.11	96	0.74
426	6.10	34.31	0.57	105							
500	5.66	34.36	0.38	96							

85⁵.46⁵
Q-1HORIZON; April 7, 1961; 0037 GCT;^{a)} 33°40'N, 119°34'W; sounding, 1020 fm; wind, 110°, force 1; weather, cloudy; sea, slight; wire angle, 02°.

53	10.53	33.77 8	4.05	208							
204	8.47	34.15 0	1.46	149							
350	7.24	34.26 5	1.41	123							
506	6.08	34.31 8	0.28	104							
651	5.43	34.36 1	0.24	93							
796	4.62	34.42 4	0.24	80							
941	4.30	34.45 2	0.35	74							
1087	4.20	34.46 2	0.29	73							
1230	4.19	34.46 2	0.32	73							
1404	4.18	34.46 5	0.33	72							
1529	4.16	34.46 4	0.33	72							
1534	4.18	34.46 5	0.34	72							
1539	4.18	34.47 1	0.34	72							
1544	4.18	34.46 6	0.34	72							
1549	4.18	34.46 7	0.31	72							
1554	4.17	34.46 7	0.31	72							
1558	4.18	34.46 4	0.33	72							
1563	4.18	34.46 6	0.34	72							
1568	4.18	34.46 4	0.31	72							
1573	4.18	34.46 7	0.32	72							

66

a) Special cast for verification of the pressure factors of the unprotected reversing thermometers.

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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HORIZON; April 7, 1961; 0856 GCT;^{a)} 33°40'N, 119°34'W; sounding, 1020 fm; wind, 110°, force 1; weather, cloudy; sea, slight; wire angle, 02°.

85⁵.46⁵
Q-3

776	4.67	34.42	2	0.28
781	4.66	34.42	1	0.28
785	4.64	34.42	3	0.27
790	4.63	34.43	1	0.27
795	4.60	34.42	6	0.28
799	4.58	34.42	8	0.26
804	4.55	34.43	6	0.30
809	4.54	34.43	0	0.27
814	4.52	34.43	4	0.28
818	4.51	34.43	6	0.32
823	4.50	34.43	7	0.27
827	4.49	34.43	9	0.31
832	4.48	34.43	4	0.31
837	4.48	34.43	5	0.30
842	4.47	34.43	7	0.30
847	4.46	34.43	6	0.33
852	4.46	34.43	7	0.33
856	4.46	34.44	0	0.31
861	4.44	34.44	0	0.31
866	4.46	34.44	0	0.32

BLACK DOUGLAS; April 18, 1961; 2325 GCT; 33°45.5'N, 118°25.5'W; sounding, 250 fm; wind, 210°, force 2; weather, overcast; sea, slight; wire angle, 05°. b)

87⁷.33⁴

0	15.92	33.77	4.17	312
10	15.80	33.89	4.74	301
20	13.20	33.73	4.58	260
30	11.67	33.74	3.90	231
41	10.86	33.75	3.57	216
51	10.60	33.82	3.25	206
61	10.19	33.94	3.12	191
71	9.94	33.98	2.93	184
81	9.75	33.99	2.83	180
91	9.90	34.13u	2.30	172
101	9.84	34.04	2.28	178
111	9.85	34.10	2.27	174
121	9.82	34.14	2.08	170
130	9.72	34.14	1.95	169
140	9.59	34.16	1.91	165
150	9.44	34.17	2.17u	162
159	9.42	34.22	1.63	158
169	9.42	34.24	1.21	156

HORIZON; April 25, 1961; 0854 GCT; 33°28.5'N, 117°45.5'W; sounding, 298 fm; wind, 070°, force 2; weather, clear; sea, slight; wire angle, 02°.

90.28

0	15.28	33.62	5	6.34	309	0	15.28	33.62	6.34	24.87	309	0.00
10	14.40	33.60	5	6.10	292	10	14.40	33.60	6.10	25.04	293	0.03
29	10.72	33.66	0	3.78	220	20	11.60	33.62	4.46	25.61	238	0.06
39	10.36	33.77	7	3.27	206	30	10.68	33.67	3.74	25.82	219	0.08
48	10.05	33.79	9	3.09	199	50	10.01	33.81	3.05	26.04	198	0.12
58	9.90	33.85	8	2.93	192	75	9.82	33.94	2.60	26.18	185	0.17
68	9.82	33.91	8	2.69	187	100	9.54	34.02	2.34	26.28	175	0.21
82	9.82	33.96	2	2.53	183	125	9.39	34.13	1.76	26.39	164	0.26
98	9.56	34.00	9	2.38	176	150	9.26	34.19	1.54	26.46	158	0.30
112	9.50	34.07	9	2.13	170	200	8.94	34.24	1.29	26.55	149	0.38
136	9.32	34.17	0	1.59	160	250	8.65	34.28	1.03	26.63	142	0.45
165	9.21	34.20	7	1.50	156	300	8.15	34.29	0.84	26.71	134	0.52
199	8.96	34.23	8	1.32	149	400	7.10	34.30	0.56	26.87	119	0.66
247	8.67	34.27	4	1.05	142	500	(6.33)	(34.31)	(0.41)	(26.99)	(108)	(0.77)
296	8.20	34.28	9	0.86	135							
397	7.14	34.29	7	0.58	119							
494	6.36	34.30	5	0.41	109							

- a) Special cast for verification of the pressure factors of the unprotected reversing thermometers.
b) Shakedown station.

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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

90.32

HORIZON; April 25, 1961; 0600 GCT; 33°20'N, 176°03.5'W; sounding, 400+ fm; wind, 180°, force 2; weather, clear; sea, moderate; wire angle, 12°.

0	15.46	33.62	1	6.08	313	0	15.46	33.62	6.08	24.83	313	0.00
10	15.38	33.61	5	6.08	312	10	15.38	33.62	6.08	24.85	311	0.03
28	12.24	33.56	5	4.83	254	20	14.80	33.60	6.00	24.96	301	0.06
38	11.57	33.58	1	4.30	241	30	12.08	33.57	4.68	25.48	251	0.09
51	10.71	33.64	0	3.67	222	50	10.74	33.64	3.71	25.78	222	0.14
66	10.31	33.70	3	3.44	210	75	10.10	33.75	3.30	25.98	203	0.19
90	9.84	33.86	1	3.05	191	100	9.77	33.93	2.84	26.18	185	0.24
108	9.72	33.97	6	2.67	181	125	9.45	34.00	2.39	26.28	175	0.28
126	9.44	34.00	4	2.38	174	150	9.41	34.09	2.01	26.36	167	0.33
146	9.42	34.08	0	2.09	168	200	9.09	34.26	1.15	26.54	150	0.41
174	9.34	34.14	3	1.73	162	250	8.29	34.29	0.88	26.69	136	0.48
207	8.99	34.27	4	1.07	147	300	7.75	34.28	0.77	26.77	129	0.55
235	8.47	34.29	6	0.93	138	400	6.84	34.30	0.50	26.91	115	0.68
281	7.96	34.28	6	0.82	131	500	6.30	34.30	0.40	26.98	108	0.80
333	7.45	34.27	9	0.68	125							
414	6.74	34.30	0	0.49	114							
497	6.32	34.30	5	0.42	108							
579	5.84	34.33	5	0.32	100							

90.37

HORIZON; April 24, 1961; 2107 GCT; 33°12'N, 118°24'W; sounding, 635 fm; wind, 310°, force 4; weather, clear; sea, very rough; wire angle, 23°.

0	15.72	33.45	9	5.74	330	0	15.72	33.46	5.74	24.65	330	0.00
9	15.67	33.45	4	5.74	330	10	15.66	33.45	5.74	24.65	330	0.03
27	14.66	33.42	4	5.62	311	20	15.40	33.44	5.70	24.70	325	0.07
36	13.28	33.40	3	5.39	285	30	14.25	33.42	5.58	24.94	303	0.10
48	12.02	33.39	6	4.42	262	50	11.80	33.40	4.24	25.41	258	0.15
62	10.98	33.49	1	3.63	237	75	10.69	33.57	3.35	25.74	226	0.21
86	10.38	33.64	1	3.07	216	100	9.81	33.74	2.73	26.02	200	0.27
102	9.80	33.74	5	2.72	199	125	9.15	33.76	2.64	26.14	188	0.32
120	9.34	33.75	4	2.68	191	150	8.87	33.87	2.18	26.28	175	0.36
137	8.92	33.79	9	2.44	181	200	8.85	34.05	1.31	26.42	162	0.45
163	8.86	33.92	9	1.92	171	250	8.10	34.03	1.13	26.52	152	0.53
194	8.91	34.04	7	1.33	163	300	7.72	34.07	0.89	26.61	144	0.61
221	8.34	34.00	7	1.29	157	400	6.83	34.11	0.51	26.76	129	0.75
265	7.99	34.05	2	1.03	149	500	6.12	34.15	0.40	26.89	117	0.88
314	7.62	34.08	1	0.84	142							
390	6.92	34.10	4	0.56	131							
470	6.32	34.14	0	0.43	121							
552	5.84	34.16	1	0.37	113							

90.45

HORIZON; April 24, 1961; 1650 GCT; 32°56'N, 118°55'W; sounding, 915 fm; wind, 310°, force 5; weather, clear; sea, very rough; wire angle, 15°.

1	13.28	33.58	0	5.82	272	0	(13.28)	(33.58)	(5.82)	(25.26)	(272)	(0.00)
11	13.26	33.57	7	5.84	272	10	13.26	33.58	5.84	25.26	272	0.03
34	12.76	33.56	5	5.45	263	20	13.24	33.57	5.83	25.26	272	0.05
43	10.91	33.55	7	3.96	231	30	13.20	33.57	5.80	25.27	271	0.08
57	10.08	33.58	5	3.55	215	50	10.37	33.57	3.67	25.79	221	0.13
72	9.71	33.67	9	3.24	202	75	9.64	33.70	3.18	26.02	200	0.18
95	9.18	33.85	3	2.65	181	100	9.11	33.87	2.55	26.24	179	0.23
113	8.96	33.91	2	2.31	174	125	8.81	33.95	2.12	26.35	169	0.28
131	8.76	33.96	7	2.03	167	150	8.58	34.03	1.68	26.45	159	0.32
159	8.48	34.05	7	1.53	156	200	8.11	34.11	1.08	26.58	147	0.40
187	8.20	34.10	7	1.15	148	250	7.80	34.14	0.87	26.65	140	0.47
225	7.97	34.11	9	0.99	144	300	7.39	34.17	0.69	26.73	132	0.54
253	7.77	34.14	3	0.86	139	400	6.99	34.19	0.57	26.80	125	0.67
299	7.39	34.16	6	0.70	132	500	6.22	34.22	0.47	26.93	113	0.80
381	7.10	34.18	1	0.60	127	600	5.69	34.24	0.37	27.01	105	0.92
500	6.22	34.21	5	0.47	114	700	5.20	34.27	0.32	27.10	98	1.02
591	5.74	34.23	7	0.37	106							
712	5.14	34.26	7	0.32	97							

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 24, 1961; 1222 GCT; 32°41'N, 119°27'W; sounding, 685 fm; wind, 310°, force 7; weather, clear; sea, very rough; wire angle, 41°.

90.53

1	12.49	33.56 8	5.68	258	0	(12.49)	(33.57)	(5.68)	(25.41)	(258)	(0.00)
9	12.52	33.55 2	5.61	260	10	12.52	33.55	5.61	25.38	260	0.03
27	12.52	33.56 0	5.59	259	20	12.52	33.56	5.60	25.39	259	0.05
47	12.56	33.59 1	5.55	258	30	12.53	33.57	5.58	25.40	259	0.08
54	12.56	33.62 5	5.29	255	50	12.56	33.60	5.46	25.42	257	0.13
70	10.58	33.66 4	3.91	218	75	10.29	33.67	3.80	25.89	212	0.19
79	10.06	33.68 4	3.72	208	100	9.35	33.81	3.06	26.15	187	0.24
90	9.54	33.77 0	3.26	193	125	9.04	33.93	2.62	26.30	174	0.28
111	9.21	33.85 0	2.87	182	150	8.83	34.02	2.15	26.40	164	0.33
125	9.04	33.93 0	2.62	174	200	8.42	34.13	1.60	26.55	150	0.41
145	8.87	34.00 6	2.24	165	250	7.97	34.20	1.10	26.67	138	0.48
168	8.66	34.06 2	1.90	158	300	7.53	34.23	0.84	26.76	130	0.55
187	8.51	34.09 4	1.75	153	400	6.91	34.27	0.59	26.88	118	0.68
221	8.28	34.18 4	1.38	143	500	6.31	34.30	0.43	26.98	108	0.80
277	7.70	34.21 4	0.92	133							
362	7.15	34.26 3	0.71	122							
434	6.72	34.28 2	0.50	115							
541	6.03	34.31 3	0.40	104							

HORIZON; April 24, 1961; 0702 GCT; 32°17.5'N, 119°56.5'W; sounding, 1650 fm; wind, 320°, force 7; weather, clear; sea, high; wire angle, 42°.

90.60

1	13.54	33.41 5	5.91	289	0	(13.54)	(33.42)	(5.91)	(25.08)	(289)	(0.00)
9	13.54	33.40 9	5.92	290	10	13.54	33.41	5.91	25.07	290	0.03
26	13.53	33.40 7	5.84	290	20	13.54	33.41	5.87	25.07	290	0.06
47	13.22	33.42 8	5.83	282	30	13.50	33.41	5.84	25.08	289	0.09
54	13.21	33.43 1	5.84	282	50	13.22	33.43	5.83	25.15	282	0.14
69	12.52	33.46 0	5.09	267	75	11.70	33.47	4.92	25.48	251	0.21
78	11.44	33.48 2	4.84	246	100	10.93	33.54	4.30	25.67	233	0.27
89	10.93	33.51 0	4.40	235	125	9.55	33.75	3.38	26.07	195	0.33
110	10.14	33.62 3	3.78	214	150	9.07	33.85	3.06	26.23	180	0.37
122	9.66	33.72 7	3.46	198	200	8.23	33.99	2.40	26.47	157	0.46
142	9.24	33.80 8	3.22	186	250	7.81	34.07	1.85	26.59	145	0.54
166	8.69	33.92 5	2.76	169	300	7.34	34.14	1.31	26.72	134	0.61
186	8.36	33.97 5	2.51	160	400	6.44	34.19	0.76	26.88	118	0.74
221	8.08	34.02 1	2.24	153	500	5.84	34.28	0.41	27.03	104	0.86
279	7.54	34.12 7	1.48	137							
370	6.71	34.16 4	0.94	124							
445	6.09	34.25 3	0.50	109							
556	5.72	34.29 1	0.37	102							

HORIZON; April 24, 1961; 0030 GCT; 31°59.5'N, 120°37.5'W; sounding, 2025 fm; wind, 330°, force 5; weather, partly cloudy; sea, very rough; wire angle, 35°.

90.70

1	14.57	33.32 0	5.70	317	0	(14.57)	(33.32)	(5.70)	(24.79)	(317)	(0.00)
9	14.56	33.32 0	5.74	316	10	14.55	33.32	5.74	24.79	316	0.03
30	14.37	33.34 4	5.78	311	20	14.50	33.33	5.75	24.81	314	0.06
52	13.93	33.40 6u	5.80a)	-	30	14.37	33.34	5.78	24.85	311	0.09
59	13.92	33.38 2	5.77	299	50	13.94	33.38	5.77	24.97	300	0.16
75	13.61	33.37 5	5.65	294	75	13.61	33.38	5.65	25.04	293	0.23
85	12.36	33.41 6	5.32	267	100	11.90	33.45	5.21	25.43	256	0.30
97	11.92	33.44 5	5.23	257	125	10.79	33.59	4.25	25.74	227	0.36
119	10.95	33.54 8	4.46	232	150	9.70	33.72	3.56	26.02	199	0.41
133	10.30	33.67 1	3.80	213	200	8.51	33.95	2.88	26.39	164	0.51
155	9.54	33.73 6	3.48	196	250	7.88	34.05	2.14	26.57	148	0.59
181	8.83	33.89 8	2.85	173	300	7.23	34.09	1.63	26.69	136	0.66
203	8.46	33.94 9	2.88	164	400	6.62	34.20	0.79	26.86	120	0.79
240	8.01	34.04 0	2.24	150	500	6.15	34.27	0.49	26.98	109	0.91
303	7.22	34.09 5	1.58	135	600	(5.42)	(34.32)	(0.38)	(27.11)	(96)	(1.02)
399	6.63	34.20 b)	0.81	120							
477	6.28	34.25 4	0.56	112							
591	5.49	34.31 5	0.38	98							

a) Mean value of 5.72 and 5.87 ml/L.

b) Alternate value, 34.22‰, not used in interpolation.

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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

90.80

HORIZON; April 23, 1961; 1926 GCT; 31°42'N, 121°19'W; sounding, 2100 fm; wind, 300°, force 5; weather, cloudy; sea, very rough; wire angle, 38°.

0	14.58	33.34	3	5.88	315	0	14.58	33.34	5.88	24.80	315	0.00
8	14.57	33.33	5	5.88	316	10	14.55	33.33	5.89	24.80	315	0.03
27	14.32	33.35	7	5.93	309	20	14.48	33.34	5.90	24.83	313	0.06
49	13.92	33.36	7	5.88	300	30	14.00	33.36	5.90	24.94	302	0.09
56	13.38	33.37	7	5.72	289	50	13.91	33.37	5.87	24.97	300	0.15
72	12.59	33.43	7	5.39	270	75	12.48	33.44	5.31	25.31	267	0.23
82	12.18	33.44	2	5.01	262	100	11.30	33.48	4.50	25.56	243	0.29
94	11.58	33.46	8	4.64	249	125	10.10	33.63	3.69	25.89	212	0.35
116	10.50	33.53	9	4.08	226	150	9.52	33.74	3.30	26.07	195	0.40
130	9.96	33.66	7	3.54	207	200	8.52	33.96	2.60	26.40	164	0.49
153	9.47	33.74	9	3.28	194	250	7.98	34.04	2.11	26.54	150	0.57
178	8.96	33.87	8	2.86	176	300	7.45	34.08	1.66	26.65	140	0.65
200	8.52	33.96	4	2.60	163	400	6.57	34.18	0.82	26.85	121	0.78
238	8.10	34.02	9	2.25	152	500	5.83	34.24	0.52	27.00	107	0.90
284	7.60	34.07	2	1.80	142							
360	6.91	34.13	1	1.16	129							
434	6.26	34.20	9	0.65	115							
500	5.83	34.23	7	0.52	107							

90.90

HORIZON; April 23, 1961; 1457 GCT; 31°23'N, 121°58'W; sounding, 2170 fm; wind, 310°, force 4; weather, cloudy; sea, very rough; wire angle, 28°.

0	14.46	33.37	4	5.90	310	0	14.46	33.37	5.90	24.85	311	0.00
9	14.46	33.36	8	5.93	311	10	14.46	33.37	5.93	24.85	311	0.03
26	14.42	33.36	7	5.89	310	20	14.44	33.37	5.90	24.86	310	0.06
35	14.32	33.37	8	5.90	307	30	14.38	33.37	5.89	24.87	309	0.09
48	13.50	33.42	9	5.81	287	50	13.39	33.45	5.78	25.14	284	0.15
61	13.02	33.47	9	5.67	275	75	12.62	33.48	5.48	25.31	267	0.22
82	12.39	33.47	2	5.33	263	100	11.71	33.48	4.75	25.48	251	0.29
98	11.71	33.46	7	4.77	252	125	10.69	33.57	4.15	25.74	226	0.35
114	10.95	33.52	4	4.22	234	150	10.01	33.69	3.61	25.95	206	0.40
131	10.57	33.59	2	4.11	223	200	8.75	33.89	2.90	26.31	172	0.50
154	9.86	33.71	6	3.49	202	250	7.93	34.03	2.16	26.54	150	0.58
181	9.03	33.84	0	3.02	180	300	7.53	34.08	1.76	26.64	141	0.66
207	8.65	33.92	0	2.85	168	400	6.53	34.18	0.77	26.86	120	0.79
249	7.94	34.02	9	2.18	150	500	5.90	34.23	0.52	26.98	109	0.91
295	7.58	34.07	3	1.83	142							
366	6.82	34.16	1	0.99	125							
443	6.24	34.20	2	0.66	115							
523	5.78	34.24	5	0.49	106							

90.100

HORIZON; April 23, 1961; 1000 GCT; 31°03.5'N, 122°38'W; sounding, 2150 fm; wind, 320°, force 4; weather, overcast; sea, moderate; wire angle, 15°.

1	14.54	33.27	1	5.83	320	0	(14.54)	(33.27)	(5.83)	(24.76)	(320)	(0.00)
11	14.42	33.25	3	5.83	318	10	14.42	33.25	5.83	24.77	319	0.03
29	14.43	33.29	3	5.84	316	20	14.42	33.28	5.83	24.79	317	0.06
58	14.20	33.26	3	5.82	313	30	14.42	33.29	5.84	24.80	316	0.10
68	13.42	33.18	1	5.82	304	50	14.32	33.28	5.83	24.81	314	0.16
81	13.06	33.22	8	5.21	294	75	13.21	33.20	5.50	24.98	299	0.24
96	12.36	33.32	8	5.39a)	273	100	12.10	33.35	5.37	25.31	267	0.31
109	11.46	33.38	0	5.18	254	125	10.40	33.51	4.27	25.74	226	0.37
132	10.02	33.56	9	3.92	216	150	9.38	33.73	3.39	26.08	194	0.42
151	9.36	33.73	4	3.38	193	200	8.43	33.92	3.42	26.38	165	0.51
179	8.76	33.85	5	3.37	175	250	7.59	34.00	2.85	26.57	147	0.59
207	8.32	33.94	1	3.43b)	162	300	7.01	34.03	2.10	26.68	137	0.67
235	7.84	33.99	1	3.07	152	400	6.40	34.15	0.99	26.85	121	0.80
281	7.18	34.01	3	2.37	141	500	5.70	34.27	0.50	27.04	103	0.92
332	6.77	34.07	1	1.67	131							
415	6.32	34.17	0	0.82	118							
496	5.74	34.25	8	0.52	105							
578	5.22	34.37	0	0.38	90							

70

- a) Alternate value, 5.51 ml/L, not used in interpolation.
 b) Alternate value, 3.54 ml/L, 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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CCOF1
6104-5

HORIZON; April 23, 1961; 0109 GCT; 30°23.5'N, 124°01'W; sounding, 2245 fm; wind, 350°, force 2; weather, partly cloudy; sea, rough; wire angle, 09°.

90120

1	16.22	33.42	3	5.72	344	0	(16.22)	(33.42)	(5.72)	(24.50)	(344)	(0.00)
11	15.91	33.40	5	5.74	338	10	15.93	33.41	5.74	24.56	338	0.03
30	15.80	33.43	2	5.72	334	20	15.84	33.42	5.73	24.59	336	0.07
58	15.65	33.41	9	5.69	332	30	15.80	33.43	5.72	24.61	334	0.10
68	15.66	33.42	2	5.64	332	50	15.68	33.42	5.70	24.63	332	0.17
83	15.53	33.39	9	5.63	331	75	15.63	33.42	5.64	24.64	331	0.25
98	14.70	33.34	8	5.68	317	100	14.57	33.35	5.68	24.81	314	0.33
111	13.79	33.39	0	5.57	296	125	12.70	33.40	5.41	25.23	274	0.41
135	11.96	33.40	4	5.25	261	150	11.14	33.45	4.84	25.56	243	0.47
154	10.92	33.46	5	4.70	238	200	9.35	33.72	3.74	26.08	194	0.58
183	9.68	33.64	0	4.08	205	250	8.27	33.95	3.32	26.43	161	0.67
212	9.13	33.77	2	3.56	187	300	7.43	34.00	2.66	26.59	145	0.75
240	8.44	33.92	3	3.43	165	400	6.18	34.09	1.21	26.83	123	0.89
287	7.64	33.99	5	2.83	149	500	5.55	34.17	0.66	26.97	109	1.01
341	6.82	34.02	1	2.07	136	600	(5.05)	(34.29)		(27.13)	(94)	(1.12)
422	6.00	34.11	4	1.04	119							
504	5.53	34.17	2	0.66	109							
586	5.14	34.26	8	0.43	97							

HORIZON; April 22, 1961; 1625 GCT; 29°45'N, 125°19.5'W; sounding, 2330 fm; wind, 300°, force 4; weather, partly cloudy; sea, moderate; wire angle, 19°.

90140

1	16.58	33.62	6	5.50	337	0	(16.58)	(33.63)	(5.50)	(24.58)	(336)	(0.00)
10	16.58	33.62	6	5.63	337	10	16.58	33.63	5.63	24.58	336	0.03
28	16.72	33.71	7	5.63	333	20	16.64	33.67	5.63	24.60	335	0.07
56	16.94	33.80	8	5.61	331	30	16.74	33.72	5.63	24.61	333	0.10
65	15.80	33.53	1	5.76	327	50	16.92	33.79	5.61	24.63	332	0.17
78	15.02	33.35	7	5.74	323	75	15.15	33.38	5.75	24.71	324	0.25
92	14.52	33.37	5	5.75	312	100	14.53	33.56	5.57	24.98	298	0.33
104	14.54	33.60	8	5.52	295	125	13.80	33.72	5.26	25.26	272	0.40
126	13.77	33.72	3	5.25	271	150	13.15	33.81	4.95	25.46	253	0.47
144	13.36	33.83	5	4.99	255	200	9.82	33.72	4.25	26.00	201	0.58
170	11.24	33.65	7	4.65	229	250	8.57	33.90	3.61	26.35	169	0.68
197	9.94	33.70	8	4.27	204	300	7.93	34.03	2.44	26.54	150	0.76
223	9.04	33.83	4	3.94	181	400	6.42	34.10	1.33	26.81	125	0.90
268	8.32	33.93	6	3.38	162	500	5.80	34.20	0.59	26.97	110	1.02
317	7.70	34.06	8	2.03	144							
396	6.47	34.09	7	1.36	126							
477	5.93	34.18	1	0.71	113							
558	5.44	34.25	2	0.44	102							

HORIZON; April 22, 1961; 0734 GCT; 29°05'N, 126°40'W; sounding, 2200 fm; wind, 260°, force 3; weather, partly cloudy; sea, moderate; wire angle, 10°.

90160

1	16.68	33.66	3	5.51	336	0	(16.68)	(33.66)	(5.51)	(24.58)	(336)	(0.00)
11	16.68	33.65	8	5.49	337	10	16.68	33.66	5.49	24.58	336	0.03
30	16.70	33.66	2	5.45	337	20	16.69	33.66	5.47	24.58	337	0.07
58	16.40	33.72	2	5.50	326	30	16.70	33.66	5.45	24.58	337	0.10
68	16.34	33.72	2	5.48	324	50	16.50	33.71	5.49	24.66	329	0.17
83	16.36	33.80	2	5.44	319	75	16.34	33.75	5.46	24.73	322	0.25
97	16.56	33.94	8	5.42	313	100	16.56	33.96	5.42	24.84	312	0.33
111	15.69	33.90	4	5.39	297	125	14.04	33.76	5.27	25.24	274	0.40
135	13.40	33.70	9	5.17	265	150	12.10	33.53	5.05	25.45	254	0.47
155	11.96	33.52	7	5.01	252	200	9.60	33.75	4.08	26.06	196	0.58
184	10.10	33.65	9	4.30	210	250	8.52	33.93	3.62	26.38	166	0.68
213	9.38	33.81	1	3.96	188	300	7.78	34.00	3.27	26.54	150	0.76
241	8.68	33.91	0	3.66	170	400	6.50	34.09	1.43	26.79	126	0.90
289	7.98	33.98	8	3.48	154	500	5.85	34.19	0.65	26.95	111	1.03
341	6.96	34.02	3	2.30	137	600	(5.47)	(34.31)		(27.09)	(98)	(1.14)
422	6.36	34.12	1	1.17	122							
504	5.83	34.20	1	0.63	110							
586	5.48	34.29	7	0.40	99							

S10

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6104-5

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

90180

HORIZON; April 21, 1961; 2243 GCT; 28°26.5'N, 128°01.5'W; sounding, 2360 fm; wind, 250°, force 3; weather, partly cloudy; sea, moderate; wire angle, 12°.

0	17.86	33.78 5	5.48	354	0	17.86	33.78	5.48	24.39	354	0.00
10	17.42	33.78 2	5.50	344	10	17.42	33.78	5.50	24.50	344	0.03
28	17.40	33.78 1	5.37a)	344	20	17.41	33.78	5.44	24.50	344	0.07
52	17.32	33.78 5	5.46	342	30	17.40	33.78	5.38	24.50	344	0.10
61	16.97	33.80 2	5.48	333	50	17.34	33.78	5.45	24.52	343	0.17
71	16.91	33.83 0	5.48	329	75	16.93	33.87	5.47	24.68	327	0.26
86	17.18	34.00 8	5.41	322	100	16.89	34.04	5.40	24.82	313	0.34
101	16.86	34.04 5	5.39	312	125	14.99	33.85	5.24	25.11	286	0.41
124	15.00	33.84 6	5.25	287	150	14.27	33.96	5.01	25.35	264	0.48
142	14.71	33.98 3	5.08	271	200	11.31	33.80	4.90	25.81	220	0.61
165	12.71	33.75 9	4.90	248	250	9.22	33.92	3.99	26.26	177	0.71
193	11.38	33.77 4	4.90	223	300	8.01	34.01	3.56	26.52	153	0.79
221	10.23	33.90 9	4.61	194	400	6.54	34.06	1.70	26.76	129	0.94
259	8.92	33.92 7	3.84	172	500	5.68	34.17	0.80	26.96	111	1.06
316	7.72	34.02 1	3.41	148							
392	6.64	34.04 8	1.83	131							
459	5.97	34.12 0	1.11	118							
536	5.47	34.20 0	0.63	106							

90200

HORIZON; April 21, 1961; 1332 GCT; 27°44.5'N, 129°23.5'W; sounding, 2000 fm; wind, 320°, force 1; weather, clear; sea, moderate; wire angle, 01°.

0	18.04	34.37 5	5.32	315	0	18.04	34.38	5.32	24.81	315	0.00
10	18.06	34.37 4	5.35	316	10	18.06	34.37	5.35	24.79	316	0.03
29	18.06	34.39 6	5.32	314	20	18.06	34.37	5.33	24.79	316	0.06
53	18.06	34.38 8	5.30	315	30	18.06	34.39	5.32	24.81	315	0.09
64	18.05	34.37 8	5.29	315	50	18.06	34.39	5.30	24.81	315	0.16
73	17.96	34.48 7	5.25	305	75	17.94	34.50	5.27	24.92	304	0.24
88	17.90	34.52 0	5.33	302	100	17.81	34.53	5.32	24.98	299	0.31
103	17.74	34.52 6	5.31	297	125	17.42	34.50	5.25	25.05	292	0.39
127	17.40	34.49 2	5.24	292	150	16.28	34.38	5.13	25.23	275	0.46
147	16.47	34.41 8	5.14	277	200	13.12	34.00	4.89	25.61	238	0.59
171	14.94	34.21 1	5.09	259	250	9.58	33.89	4.37	26.18	185	0.70
200	13.12	34.00 2	4.89	238	300	8.42	33.96	3.71	26.42	162	0.79
229	10.71	33.86 1	4.77	205	400	(6.69)	(34.05)	(1.75)	(26.73)	(132)	(0.94)
268	9.18	33.91 7	4.14	177							
326	7.92	33.98 4	3.34	153							
398	6.72	34.04 4	1.79	133							

9328

BLACK DOUGLAS; April 23, 1961; 0830 GCT; 32°54.5'N, 117°22'W; sounding, 250 fm; wind, 270°, force 3; weather, partly cloudy; sea, moderate; wire angle, 08°.

0	16.22	33.77	5.75	318	0	16.22	33.77	5.75	24.77	318	0.00
10	16.22	33.75	5.99	320	10	16.22	33.75	5.99	24.76	320	0.03
29	11.42	33.71	4.00	229	20	14.20	33.72	5.31	25.18	280	0.06
49	10.33	33.87	3.09	198	30	11.38	33.71	3.99	25.72	228	0.09
74	9.86	33.94	2.90	186	50	10.29	33.88	3.08	26.05	197	0.13
99	9.66	34.02	2.53	176	75	9.85	33.94	2.88	26.17	185	0.18
123	9.56	34.09	2.11	170	100	9.65	34.02	2.51	26.27	176	0.22
163	9.55	34.30	1.41	154	125	9.56	34.10	2.08	26.34	169	0.27
203	9.34	34.32	1.20	149	150	9.55	34.24	1.61	26.45	158	0.31
252	9.01	34.36	0.98	141	200	9.37	34.32	1.23	26.55	150	0.39
302	8.64	34.44	0.88	130	250	9.04	34.36	1.00	26.63	142	0.46
405	7.16	34.34	0.56	116	300	8.65	34.44	0.88	26.76	130	0.53
					400	7.23	34.35	0.58	26.90	117	0.66

a) Alternate value, 5.61 ml/L, 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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6104-5

BLACK DOUGLAS; April 23, 1961; 1013 GCT; 32°50'N, 117°31.5'W; sounding, 450 fm; wind, 270°, force 4; weather, cloudy; sea, moderate; wire angle, 07°.

93.30

0	15.93	33.65	5.95	321	0	15.93	33.65	5.95	24.75	321	0.00
10	15.94	33.69	5.53	318	10	15.94	33.69	5.53	24.77	318	0.03
29	13.14	33.53	5.41	273	20	15.55	33.67	5.46	24.85	311	0.06
39	11.74	33.82	4.52	226	30	13.13	33.53	5.41	25.25	273	0.09
54	10.85	33.66	3.91	222	50	10.92	33.66	4.08	25.77	224	0.14
69	10.30	33.72	3.37	209	75	10.16	33.78	3.15	25.99	202	0.20
94	10.17	33.95	2.76	190	100	9.92	33.96	2.66	26.17	185	0.25
115	9.65	33.98	2.53	179	125	9.66	34.06	2.18	26.30	173	0.29
134	9.66	34.12	1.99	169	150	9.42	34.12	2.00	26.38	165	0.33
153	9.39	34.12	2.01	165	200	8.88	34.20	1.61	26.53	151	0.41
182	9.34	34.23	1.64	156	250	8.50	34.34	1.28	26.70	135	0.49
216	8.57	34.18	1.61	148	300	8.20	34.40	0.83	26.79	126	0.56
246	8.52	34.33	1.31	136	400	7.17	34.38	0.59	26.93	114	0.68
294	8.24	34.40	0.85	127	500	6.36	34.42	0.35	27.07	100	0.79
348	7.68	34.39	0.74	120	600	(5.85)	(34.42)	(0.30)	(27.13)	(94)	(0.90)
429	6.88	34.38	0.49	110							
512	6.29	34.42	0.34	99							
597	5.86	34.42	0.30	94							

BLACK DOUGLAS; April 23, 1961; 1600 GCT; 32°30'N, 118°12.5'W; sounding, 925 fm; wind, 300°, force 6; weather, partly cloudy; sea, rough; wire angle, 10°.

93.40

0	15.19	33.69	6.05	302	0	15.19	33.69	6.05	24.94	302	0.00
10	15.19	33.71	6.14	301	10	15.19	33.71	6.14	24.96	301	0.03
30	11.82	33.64	4.48	241	20	15.19	33.71	6.14	24.96	301	0.06
40	11.30	33.71	3.93	226	30	11.82	33.64	4.48	25.59	241	0.09
55	10.58	33.78	3.43	209	50	10.79	33.76	3.55	25.87	214	0.13
70	10.15	33.84	3.22	198	75	10.11	33.85	3.21	26.06	196	0.18
94	9.76	33.93	3.14	185	100	9.59	33.92	3.26	26.20	183	0.23
114	9.21	33.89	3.52	179	125	8.96	33.92	3.36	26.30	173	0.28
133	8.84	33.96	3.13	168	150	8.79	34.08	2.62	26.45	159	0.32
152	8.78	34.09	2.60	158	200	8.17	34.16	1.84	26.61	144	0.40
181	8.40	34.15	2.01	148	250	7.74	34.21	1.33	26.71	134	0.47
215	8.00	34.18	1.69	140	300	7.59	34.26	0.95	26.77	128	0.54
245	7.78	34.29u	1.38	-	400	6.92	34.32	0.50	26.92	115	0.66
293	7.58	34.25	0.98	129	500	6.13	34.36	0.29	27.05	102	0.78
347	7.43	34.38	0.56	117	600	(5.56)	(34.38)	(0.30)	(27.14)	(93)	(0.88)
428	6.66	34.31	0.48	112							
511	6.06	34.37	0.29	100							
594	5.59	34.38	0.30	94							

BLACK DOUGLAS; April 23, 1961; 2148 GCT; 32°10'N, 118°52.5'W; sounding, 700 fm; wind, 300°, force 6; weather, partly cloudy; sea, very rough; wire angle, 15°.

93.50

0	14.69	33.77	5.90	290	0	14.69	33.71	5.90	25.06	290	0.00
10	14.72	33.73	5.95	290	10	14.72	33.73	5.95	25.07	290	0.03
30	13.33	33.62	6.08	270	20	13.65	33.64	6.07	25.23	275	0.06
40	13.04	33.71	6.09	258	30	13.33	33.62	6.08	25.28	270	0.08
54	11.65	33.66	4.94	236	50	11.85	33.66	5.17	25.60	240	0.14
68	11.04	33.71	4.65	222	75	10.40	33.74	4.09	25.92	209	0.19
92	9.79	33.78	3.49	196	100	9.64	33.80	3.32	26.10	192	0.24
112	9.42	33.89	2.94	182	125	9.27	33.99	2.58	26.31	173	0.29
130	9.20	34.02	2.48	169	150	8.87	34.08	2.28	26.44	160	0.33
179	8.66	34.14	2.07	152	200	8.46	34.20	1.74	26.60	145	0.41
213	8.36	34.22	1.51	142	250	8.12	34.21	1.13	26.66	139	0.48
242	8.18	34.20	1.16	141	300	7.72	34.26	0.96	26.76	130	0.55
291	7.82	34.25	1.02	132	400	6.87	34.34	0.74	26.94	113	0.68
345	7.26	34.31	0.80	120	500	6.14	34.32	0.51	27.02	105	0.79
427	6.66	34.34	0.69	110	600	(5.74)	(34.33)	(0.48)	(27.08)	(99)	(0.90)
509	6.08	34.32	0.50	104							
590	5.78	34.33	0.48	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

9360 BLACK DOUGLAS; April 24, 1961; 0404 GCT; 31°50'N, 119°34'W; sounding, 1200 fm; wind, 310°, force 8; weather, partly cloudy; sea, very rough; wire angle, 15°.

0	14.86	33.57	5.95	304	0	14.86	33.57	5.95	24.92	304	0.00
9	14.85	33.58	5.85	303	10	14.85	33.58	5.84	24.93	303	0.03
28	14.86	33.62	5.40	301	20	14.86	33.61	5.50	24.95	301	0.06
58	13.74	33.51	5.79	286	30	14.86	33.62	5.40	24.96	301	0.09
67	13.38	33.57	5.49	275	50	14.79	33.62	5.41	24.97	299	0.15
81	12.18	33.83u	5.31a)	-	75	13.00	33.62	5.41	25.34	264	0.22
95	11.77	33.71	4.97b)	235	100	11.61	33.69	4.85	25.67	233	0.28
110	11.28	33.64	4.61	231	125	10.56	33.73	3.92	25.89	212	0.34
133	10.20	33.78	3.65	203	150	9.70	33.84	3.30	26.12	190	0.39
151	9.68	33.84	3.27	190	200	8.50	34.03	2.94	26.46	158	0.48
180	8.96	33.96	2.99	170	250	8.01	34.12	2.12	26.60	144	0.56
207	8.37	34.04	2.92	155	300	7.86	34.26	1.42	26.73	132	0.63
235	8.01	34.05	2.48	150	400	7.06	34.33	0.88	26.90	116	0.76
282	7.97	34.24	1.54	135	500	(6.29)	(34.36)	(0.46)	(27.03)	(104)	(0.88)
412	6.97	34.33	0.84	115							
492	6.34	34.36	0.46	104							

9380 BLACK DOUGLAS; April 24, 1961; 1546 GCT; 31°08'N, 120°57'W; sounding, 2000 fm; wind, 320°, force 6; weather, cloudy; sea, very rough; wire angle, 08°.

0	14.94	33.58	5.99	305	0	14.94	33.58	5.99	24.91	305	0.00
10	14.94	33.55	6.00	-	10	14.94	33.55	6.00	24.89	307	0.03
30	14.94	33.64	6.02	301	20	14.94	33.60	6.01	24.93	304	0.06
60	13.68	33.43	6.08	291	30	14.94	33.64	6.02	24.96	301	0.09
70	13.12	33.48	5.60	276	50	14.93	33.64	6.03	24.96	301	0.15
85	12.40	33.49	5.63	262	75	12.88	33.48	5.61	25.26	272	0.22
100	11.94	33.56	5.15	249	100	11.94	33.56	5.15	25.50	249	0.29
115	11.03	33.60	4.57	230	125	10.57	33.64	4.32	25.81	219	0.35
139	10.04	33.73	3.91	204	150	9.71	33.81	3.55	26.09	193	0.40
160	9.46	33.87	3.32	184	200	8.70	33.99	2.96	26.40	164	0.49
190	8.90	33.98	3.08	168	250	7.86	34.13	2.24	26.63	142	0.57
220	8.31	34.03	2.60	155	300	7.27	34.22	1.60	26.87	201/27	0.66 4
250	7.86	34.13	2.24	142	400	6.60	34.21	0.83	26.87	193/19	0.86 77
298	7.28	34.22	1.67	127	500	5.88	34.30	0.53	26.25	178/178	0.95 88
354	6.90	34.18	1.15	125	600	5.37	34.39	0.32	26.38	178/166	2401.23 99
437	6.32	34.25	0.66	112							
522	5.74	34.31	0.48	101							
605	5.34	34.40	0.31	89							

9390 BLACK DOUGLAS; April 24, 1961; 2048 GCT; 30°50'N, 121°34.5'W; sounding, 2000 fm; wind, 320°, force 5; weather, cloudy; sea, very rough; wire angle, 20°.

0	15.90	33.58	5.95	325	0	15.90	33.58	5.95	24.70	325	0.00
9	15.90	33.59	5.89	325	10	15.90	33.59	5.90	24.71	325	0.03
28	15.86	33.53	5.96	328	20	15.88	33.56	5.94	24.69	326	0.07
57	15.84	33.56	5.90	325	30	15.86	33.53	5.95	24.67	328	0.10
66	15.84	33.54	5.76	327	50	15.84	33.55	5.91	24.69	326	0.16
81	14.72	33.45	6.10	310	75	15.79	33.53	5.77	24.69	327	0.25
95	14.39	33.49	6.05	301	100	14.27	33.49	5.98	24.98	298	0.32
108	14.00	33.48	5.81	293	125	12.93	33.56	5.43	25.31	267	0.40
132	12.47	33.61	5.25	255	150	12.09	33.72	4.84	25.60	240	0.46
151	12.04	33.73	4.80	238	200	9.28	33.88	3.81	26.22	181	0.57
208	8.98	33.91	3.76	174	250	8.31	34.05	3.05	26.50	154	0.65
236	8.60	33.99	3.41	163	300	7.63	34.11	2.50	26.65	140	0.73
284	7.74	34.11	2.57	141	400	7.11	34.11	1.10	26.72	133	0.87
415	6.96	34.11	0.98	131	500	5.88	34.11	0.62	26.89	117	1.00
494	5.92	34.10	0.63	119							
575	5.50	34.34	0.34	96							

a) Alternate value, 4.82 ml/L, not used in interpolation.

b) Alternate value, 5.23 ml/L, 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 25, 1961; 0217 GCT; 30°30.5'N, 122°15'W; sounding, 2000 fm; wind, 320°, force 5; weather, cloudy; sea, very rough; wire angle, 10°.

93.100

0	15.74	33.45	5.81	331	0	15.74	33.45	5.81	24.64	331	0.00
10	15.72	33.49	5.82	-	10	15.72	33.49	5.82	24.67	328	0.03
30	15.64	33.44	5.84	330	20	15.68	33.46	5.83	24.66	329	0.07
60	15.00	33.34	5.93	324	30	15.64	33.44	5.84	24.65	330	0.10
70	14.12	33.24	6.08	313	50	15.57	33.42	5.85	24.65	330	0.17
85	13.74	33.44	5.90	291	75	14.29	33.38	6.06	24.90	307	0.25
99	13.02	33.39	5.71	281	100	13.01	33.39	5.70	25.17	281	0.32
115	12.06	33.40	5.33	263	125	11.43	33.48	5.10	25.54	246	0.39
139	10.68	33.57	4.81	226	150	10.19	33.60	4.52	25.85	216	0.44
159	9.85	33.64	4.26	208	200	8.92	33.90	3.69	26.29	174	0.54
217	8.50	33.96	3.58	163	250	7.88	34.01	3.06	26.54	151	0.63
247	7.95	34.00	3.21	152	300	7.19	34.09	1.69	26.70	135	0.70
297	7.21	34.09	1.71	136	400	6.42	34.15	1.17	26.85	121	0.83
351	6.78	34.11	1.46	129	500	6.01	34.31	0.48	27.03	104	0.95
436	6.19	34.21	0.82	114	600	5.44	34.34	0.31	27.12	95	1.06
519	5.94	34.33	0.41	102							
603	5.42	34.34	0.30	95							

HORIZON; April 5, 1961; 0152 GCT; 32°38'N, 117°21'W; sounding, 105 fm; wind, 250°, force 3; weather, overcast; sea, moderate; wire angle, 03.^{a)}

94⁶.29⁷

0	15.36	33.57	6.52	314
5	14.93	33.56	6.64	306
10	13.94	33.55	6.80	287
14	12.90	33.56	6.00	266
19	11.74	33.57	4.19	244
24	10.90	33.62	3.66	226
29	10.73	33.67	3.43	219
33	10.61	33.68	3.30	217
39	10.44	33.73	3.14	210
44	10.31	33.75	3.02	206
48	10.24	33.76	2.93	205
53	10.06	33.80	2.82	199
58	9.98	33.81	2.92	197
63	9.88	33.83	2.88	194
68	9.80	33.86	-	191
73	9.66	33.89	2.81	186
77	9.60	33.92	2.62	182
82	9.62	33.96	2.42	180
87	9.59	33.97	2.38	178
92	9.58	33.99	2.32	177

cell degree sig

HORIZON; April 5, 1961; 2122, 2340 GCT; ^{b)} 30°31'N, 120°55'W; sounding, 1910 fm; wind, 270°, force 2; weather, overcast; sea, very rough; wire angle, 15°, 08°.

96⁴.85

5	13.72	33.25	6.35	
8	13.66	-	-	
1090	3.63	34.48	0.57	
2186	1.88	34.63	2.09	
3303	1.62	34.66	2.70	
3493	1.60	34.66	2.68	
194	8.78	34.01	2.06	

a) Shakedown station.

b) Special cast using 2-liter Nansen bottles for the collection of water samples for analysis of rare dissolved gases in the deep ocean.

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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

HORIZON; April 27, 1961; 0301 GCT; 31°37'N, 116°45'W; sounding, 50 fm; wind, 340°, force 3; weather, partly cloudy; sea, moderate; wire angle, 10°.

1	13.64	33.70 7	5.25	270	0	(13.64)	(33.71)	(5.25)	(25.29)	(270)	(0.00)
12	11.12	33.60 2	3.94	231	10	11.50	33.61	4.18	25.62	237	0.03
21	10.66	33.72 5	3.35	215	20	10.68	33.73	3.36	25.86	214	0.05
31	10.41	33.74 1	3.28	209	30	10.42	33.74	3.29	25.92	209	0.07
41	10.29	33.81 3	2.92	202	50	9.88	33.87	2.84	26.11	191	0.11
50	9.88	33.87 2	2.84	191							
59	9.78	33.95 0	2.48	184							
69	9.88	34.09 5	2.01	174							

100.35

HORIZON; April 27, 1961; 0558 GCT; 31°31'N, 117°07'W; sounding, 500 fm; wind, 320°, force 3; weather, clear; sea, moderate; wire angle, 33°.

0	15.80	33.62 6	5.67	320	0	15.80	33.63	5.67	24.76	320	0.00
8	15.81	33.61 6	5.76	321	10	15.80	33.61	5.76	24.74	321	0.03
24	15.70	33.62 6	5.78	318	20	15.75	33.62	5.77	24.76	319	0.06
33	15.47	33.61 1	5.65	314	30	15.59	33.61	5.71	24.79	317	0.10
44	12.26	33.55 5	4.44	255	50	11.67	33.57	4.19	25.56	243	0.15
57	11.32	33.59 0	4.02	236	75	10.38	33.70	3.51	25.89	212	0.21
77	10.36	33.70 8	3.50	211	100	9.93	33.79	3.23	26.04	198	0.26
93	10.06	33.78 0	3.21	201	125	9.58	33.84	3.08	26.14	189	0.31
110	9.73	33.80 7	3.25	193	150	10.12	34.24	1.38	26.36	168	0.36
125	9.58	33.83 9	3.08	189	200	9.98	34.37	0.91	26.48	156	0.44
148	10.12	34.23 4	1.40	168	250	9.20	34.41	0.60	26.64	140	0.51
174	10.05	34.26 9	1.26	164	300	8.27	34.35	0.60	26.74	131	0.58
198	10.00	34.36 6	0.95	156	400	6.68	34.25	0.46	26.89	117	0.71
239	9.48	34.41 5	0.63	144	500	6.00	34.30	0.49	27.02	105	0.83
284	8.60	34.38 4	0.60	133							
355	7.10	34.25 3	0.61	122							
431	6.44	34.26 1	0.38	113							
510	5.94	34.30 8	0.52	103							

100.40

HORIZON; April 27, 1961; 0909 GCT; 31°23'N, 117°29'W; sounding, 1044 fm; wind, 290°, force 4; weather, partly cloudy; sea, rough; wire angle, 20°.

1	15.78	33.63 4	5.70	319	0	(15.78)	(33.63)	(5.70)	(24.76)	(319)	(0.00)
10	15.78	33.62 9	5.74	319	10	15.78	33.63	5.74	24.76	319	0.03
33	15.58	33.62 1	5.73	316	20	15.74	33.63	5.74	24.77	318	0.06
42	15.27	33.61 2	5.68	310	30	15.64	33.62	5.73	24.79	317	0.10
55	12.60	33.56 1	4.80	261	50	12.80	33.55	4.92	25.33	265	0.15
70	11.46	33.60 2	3.96	237	75	11.40	33.64	3.82	25.67	233	0.22
93	10.58	33.75 5	3.43	211	100	10.28	33.77	3.38	25.96	205	0.27
111	10.04	33.79 6	3.31	199	125	9.95	33.92	2.79	26.14	188	0.32
130	9.88	33.96 3	2.68	184	150	9.02	33.96	2.89	26.32	171	0.37
157	8.78	33.95 5	2.91	168	200	8.37	34.08	2.19	26.52	152	0.45
184	8.68	34.07 5	2.27	157	250	7.59	34.11	1.69	26.66	139	0.52
221	7.84	34.06 8	2.06	146	300	7.20	34.17	1.18	26.76	130	0.59
249	7.60	34.10 4	1.73	140	400	6.63	34.27	0.61	26.92	115	0.72
296	7.26	34.16 4	1.22	131	500	6.21	34.35	0.34	27.03	103	0.84
354	6.72	34.19 1	0.85	122	600	5.59	34.38	0.26	27.14	94	0.94
450	6.54	34.34 2	0.38	108							
536	5.96	34.36 0	0.31	100							
609	5.56	34.38 5	0.25	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

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HORIZON; April 27, 1961; 1440 GCT; 31°00'N, 118°07'W; sounding, 962 fm; wind, 310°, force 4; weather, partly cloudy; sea, rough; wire angle, 10°.

100.50

1	14.37	33.58	1	5.91	293	0	(14.37)	(33.58)	(5.91)	(25.03)	(294)	(0.00)
11	14.37	33.63	8u	5.94	-	10	14.37	33.58	5.94	25.03	294	0.03
34	14.32	33.56	5	5.86	294	20	14.37	33.57	5.90	25.03	294	0.06
44	14.08	33.54	4	5.80	290	30	14.34	33.57	5.87	25.03	294	0.09
57	13.05	33.46	7	5.42	276	50	14.08	33.54	5.79	25.06	291	0.15
72	11.82	33.51	9	4.72	250	75	11.50	33.54	4.53	25.57	243	0.21
96	10.48	33.70	8	3.59	213	100	10.23	33.75	3.45	25.96	206	0.27
113	9.76	33.86	2	3.06	190	125	9.67	33.93	2.79	26.19	183	0.32
132	9.62	33.96	1	2.66	180	150	9.23	34.04	2.38	26.35	168	0.36
161	8.96	34.06	8	2.25	162	200	8.50	34.14	1.74	26.54	150	0.45
188	8.52	34.10	6	1.95	153	250	7.78	34.15	1.49	26.66	139	0.52
225	8.50	34.19	1	1.46	146	300	7.18	34.18	1.18	26.77	129	0.59
253	7.72	34.15	1	1.50	138	400	6.53	34.28	0.53	26.94	113	0.71
361	6.74	34.23	1	0.75	119	500	5.97	34.34	0.33	27.06	101	0.83
455	6.24	34.32	6	0.38	106	600	5.40	34.38	0.30	27.16	92	0.93
541	5.73	34.35	6	0.31	97	700	4.93	34.41	0.32	27.24	84	1.03
610	5.36	34.38	2	0.30	91	800	4.55	34.44	0.37	27.30	78	1.12
777	4.64	34.43	1	0.36	79	1000	(4.09)	(34.47)		(27.38)	(71)	(1.28)
944	4.18	34.46	4	0.52	72							

HORIZON; April 29, 1961; 1605 GCT; 30°39'N, 118°44'W; sounding, 1450 fm; wind, 300°, force 5; weather, overcast; sea, rough; wire angle, 27°.

100.60

0	15.20	33.57	0	5.38	311	0	15.20	33.57	5.38	24.85	311	0.00
8	15.20	33.55	6	5.25	312	10	15.20	33.55	5.27	24.83	313	0.03
30	15.12	33.54	8	5.32	311	20	15.15	33.55	5.30	24.84	312	0.06
56	15.08	33.55	0	5.32	310	30	15.12	33.55	5.32	24.85	311	0.09
64	15.02	33.54	7	5.16	309	50	15.10	33.55	5.32	24.85	311	0.16
81	13.06	33.39	3	4.80	282	75	14.80	33.53	5.07	24.90	306	0.23
94	11.77	33.42	6	4.54	256	100	11.35	33.46	4.30	25.53	246	0.30
106	11.08	33.52	0	4.03	237	125	9.83	33.67	3.32	25.96	205	0.36
130	9.66	33.71	4	3.27	199	150	9.12	33.85	3.16	26.22	181	0.41
147	9.20	33.83	4	3.21	183	200	8.35	34.02	2.29	26.47	157	0.49
171	8.72	33.93	4	2.70	168	250	8.24	34.15	1.40	26.59	145	0.57
200	8.35	34.02	2	2.29	157	300	7.39	34.13	1.08	26.70	135	0.64
224	8.41	34.08	3	1.81	153	400	6.58	34.22	0.70	26.88	118	0.78
265	8.06	34.16	4	1.28	142	500	6.05	34.29	0.45	27.01	106	0.89
319	7.08	34.12	9	1.00	131							
406	6.56	34.22	5	0.68	117							
487	6.14	34.27	9	0.43	108							
560	5.62	34.29	6	0.59	100							

HORIZON; April 29, 1961; 2135 GCT; 30°18'N, 119°23'W; sounding, 2355 fm; wind, 330°, force 5; weather, cloudy; sea, very rough; wire angle, 30°.

100.70

0	15.73	33.52	8	5.56	325	0	15.73	33.53	5.56	24.70	325	0.00
8	15.72	33.52	4	5.54	326	10	15.71	33.53	5.54	24.70	325	0.03
29	15.57	33.53	7	5.54	321	20	15.65	33.53	5.54	24.72	324	0.06
55	14.10	33.37	4	5.63	303	30	15.57	33.54	5.54	24.74	321	0.10
64	13.58	33.34	4	5.62	295	50	15.00	33.48	5.58	24.82	314	0.16
80	12.96	33.36	8	5.26	282	75	13.16	33.36	5.39	25.11	286	0.24
93	12.25	33.41	3	4.97	265	100	11.92	33.47	4.63	25.44	255	0.30
106	11.62	33.52	5	4.32	246	125	10.17	33.57	3.72	25.83	218	0.36
130	10.09	33.58	4	3.68	216	150	9.44	33.69	3.36	26.04	197	0.42
147	9.56	33.66	8	3.43	201	200	8.68	33.93	2.68	26.35	168	0.51
171	9.08	33.82	1	3.09	182	250	8.01	34.02	2.14	26.52	152	0.59
200	8.68	33.92	6	2.68	168	300	7.62	34.11	1.46	26.65	140	0.67
224	8.42	33.98	8	2.44	160	400	6.96	34.22	0.64	26.83	123	0.80
266	7.83	34.04	3	1.90	148	500	6.02	34.24	0.44	26.97	109	0.93
322	7.52	34.14	8	1.18	135							
408	6.88	34.22	3	0.60	121							
490	6.11	34.23	7	0.46	111							
562	5.66	34.25	9	0.41	104							

SIO

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6104-5

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

10080

HORIZON; April 30, 1961; 0240 GCT; 29°57'N, 120°03'W; sounding, 2123 fm; wind, 320°, force 5; weather, partly cloudy; sea, rough; wire angle, 27°.

0	15.94	33.43 0	5.63	337	0	15.94	33.43	5.63	24.57	337	0.00
9	15.95	33.41 7	5.63	338	10	15.95	33.42	5.63	24.57	338	0.03
30	15.81	33.40 1	5.63	336	20	15.88	33.41	5.63	24.57	337	0.07
56	15.70	33.41 3	5.64	333	30	15.81	33.40	5.63	24.58	337	0.10
65	15.04	33.36 6	5.75	323	50	15.74	33.41	5.64	24.60	334	0.17
81	14.64	33.39 8	5.77	312	75	14.68	33.38	5.77	24.81	314	0.25
94	14.07	33.40 7	5.80	300	100	13.66	33.41	5.59	25.05	292	0.33
105	13.22	33.41 9	5.30	283	125	11.47	33.43	4.79	25.49	250	0.39
130	11.04	33.43 0	4.65	243	150	9.87	33.56	3.87	25.87	214	0.45
147	10.03	33.53 7	3.99	218	200	8.63	33.84	3.06	26.29	174	0.55
171	9.06	33.73 8	3.38	188	250	7.97	33.94	2.45	26.47	157	0.64
199	8.64	33.84 0	3.07	174	300	7.58	34.04	1.60	26.60	144	0.71
223	8.32	33.88 4	2.99	166	400	6.58	34.11	0.74	26.80	126	0.86
264	7.82	33.96 5	2.19	153	500	6.04	34.18	0.46	26.92	114	0.98
317	7.46	34.06 5	1.36	141							
403	6.56	34.11 5	0.73	125							
484	6.16	34.16 8	0.49	116							
555	5.58	34.21 1	0.36	106							

10090

HORIZON; April 30, 1961; 0740 GCT; 29°37'N, 120°44.5'W; sounding, 2145 fm; wind, 320°, force 4; weather, partly cloudy; sea, rough; wire angle, 25°.

0	15.71	33.34 7	5.78	338	0	15.71	33.35	5.78	24.57	338	0.00
9	15.72	33.34 2	5.80	339	10	15.72	33.34	5.80	24.56	339	0.03
31	15.28	33.28 4	5.83	334	20	15.72	33.34	5.80	24.56	339	0.07
39	15.23	33.25 7	5.81	335	30	15.29	33.29	5.83	24.61	334	0.10
52	15.15	33.26 5	5.84	333	50	15.16	33.26	5.84	24.62	333	0.17
65	14.87	33.27 1	5.90	326	75	14.50	33.24	5.88	24.74	321	0.25
87	13.84	33.23 5	5.74	308	100	13.14	33.24	5.56	25.02	294	0.33
103	13.04	33.23 9	5.53	293	125	12.40	33.29	5.37	25.21	277	0.40
121	12.56	33.27 9	5.41	281	150	11.00	33.36	4.58	25.52	247	0.47
145	11.31	33.34 8	4.71	253	200	9.18	33.65	3.55	26.05	196	0.58
170	9.89	33.44 3	4.08	223	250	8.40	33.85	2.72	26.33	170	0.67
204	9.10	33.67 4	3.48	193	300	7.74	33.93	1.89	26.49	155	0.76
229	8.68	33.78 9	3.09	179	400	6.72	34.06	0.81	26.74	132	0.90
272	8.11	33.89 9	2.29	162	500	6.04	34.13	0.45	26.88	118	1.04
329	7.40	33.96 6	1.52	147							
416	6.60	34.07 4	0.72	129							
500	6.04	34.12 8	0.45	118							
573	5.60	34.13 8	-	112							

100100

HORIZON; April 30, 1961; 1258 GCT; 29°18'N, 121°26'W; sounding, 2200 fm; wind, 340°, force 4; weather, overcast; sea, rough; wire angle, 10°.

1	16.02	33.49 8	5.66	334	0	(16.02)	(33.50)	(5.66)	(24.61)	(334)	(0.00)
11	16.04	33.49 2	5.64	335	10	16.04	33.49	5.64	24.60	335	0.03
30	15.86	33.47 4	5.62	332	20	15.95	33.48	5.63	24.61	334	0.07
58	15.76	33.47 4	5.62	330	30	15.86	33.47	5.62	24.62	333	0.10
67	15.53	33.42 6	5.69	329	50	15.81	33.47	5.62	24.63	331	0.17
82	14.42	33.25 8	5.76	318	75	14.90	33.31	5.73	24.71	324	0.25
96	14.71	33.48 7	5.77	307	100	14.60	33.49	5.74	24.92	305	0.33
110	13.92	33.46 1	5.47	293	125	13.50	33.45	5.32	25.11	286	0.40
135	12.72	33.42 2	5.12	273	150	11.89	33.45	4.77	25.43	256	0.47
153	11.68	33.46 1	4.68	251	200	10.00	33.74	3.95	25.99	203	0.59
181	10.06	33.62 4	3.98	212	250	9.42	34.08	2.68	26.35	168	0.68
211	9.65	33.77 5	3.93a)	194	300	9.52	34.38	1.30	26.57	148	0.76
240	9.42	34.01 2	2.99	173	400	7.52	34.46	0.33	26.94	112	0.90
287	9.52	34.30 4	1.66	153	500	5.90	34.38	0.38	27.10	97	1.01
340	9.44	34.58 8	0.32	131	600	(5.09)	(34.35)		(27.17)	(90)	(1.11)
422	6.96	34.42 5	0.33	107							
505	5.85	34.37 5	0.38	97							
586	5.18	34.35 6	0.42	91							

78

a) Alternate value, 4.01 ml/L, 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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6104-5

HORIZON; May 1, 1961; 0004 GCT; 28°38.5'N, 122°47'W; sounding, 2388 fm; wind, 350°, force 3; weather, cloudy; sea, very rough; wire angle, 14°.

100.120

0	17.34	33.82 2	5.34	339	0	17.34	33.82	5.34	24.55	340	0.00
10	17.30	33.82 0	5.41	339	10	17.30	33.82	5.41	24.56	339	0.03
28	17.22	33.82 1	5.37	337	20	17.24	33.82	5.39	24.57	337	0.07
56	17.24	33.86 6	5.40	334	30	17.22	33.83	5.38	24.58	336	0.10
66	17.30	33.88 1	5.47	334	50	17.23	33.86	5.40	24.61	334	0.17
81	17.20	33.93 4	5.25	328	75	17.23	33.91	5.33	24.64	331	0.25
95	17.42	34.10 3	4.98a)	321	100	17.10	34.05	5.07	24.78	317	0.33
109	16.48	33.92 7	5.20	313	125	15.70	33.93	5.18	25.01	295	0.41
132	15.30	33.90 8	5.16	289	150	14.39	33.85	5.12	25.24	274	0.48
150	14.39	33.85 4	5.12	274	200	10.89	33.76	4.41	25.85	216	0.61
178	12.48	33.78 5	4.66	242	250	9.01	33.87	3.67	26.25	178	0.71
207	10.44	33.75 8	4.35	208	300	8.02	34.01	2.80	26.51	153	0.79
235	9.40	33.82 3	3.90	187	400	6.71	34.11	1.40	26.78	128	0.94
282	8.34	33.97 0	3.14	160	500	6.13	34.23	0.74	26.95	111	1.07
335	7.53	34.04 9	2.20	143							
415	6.58	34.12 9	1.30	125							
497	6.16	34.22 4	0.78	112							
579	5.53	34.29 2	0.43	100							

HORIZON; May 4, 1961; 0055 GCT; 29°41.5'N, 115°56.5'W; sounding, 760 fm; wind, 290°, force 5; weather, cloudy; sea, high; wire angle, 45°.

110.35

0	12.52	33.73 2	5.73	247	0	12.52	33.73	5.73	25.52	247	0.00
7	12.50	33.73 0	5.93	246	10	12.48	33.73	5.93	25.53	246	0.02
24	12.03	33.82 0	5.52	231	20	12.15	33.79	5.64	25.64	236	0.05
44	11.71	33.88 2	5.34	221	30	11.91	33.84	5.47	25.73	228	0.07
51	11.68	33.88 9	5.16	220	50	11.69	33.89	5.17	25.81	220	0.12
62	11.30	33.84 5	4.40	217	75	10.60	33.86	3.31	25.98	204	0.17
72	10.82	33.85 3	3.65	208	100	9.97	33.93	2.79	26.14	188	0.22
81	10.32	33.87 2	2.94	198	125	8.90	33.94	2.98	26.33	171	0.27
99	9.98	33.93 4	2.76	188	150	8.83	34.05	2.39	26.42	161	0.31
110	9.41	33.88 7	3.11	182	200	8.60	34.18	1.64	26.56	148	0.39
127	8.86	33.95 4	2.92	169	250	8.50	34.26	1.17	26.64	141	0.46
145	8.82	34.03 3	2.47	163	300	8.01	34.26	1.02	26.71	134	0.53
160	8.86	34.09 2	2.16	159	400	7.59	34.33	0.56	26.83	123	0.67
187	8.60	34.13 7	1.84	152	500	(6.90)	(34.33)		(26.93)	(114)	(0.79)
230	8.64	34.25 5	1.24	143							
298	8.02	34.25 6	1.03	134							
359	7.83	34.31 8	0.67	127							
457	7.18	34.33 6	0.50	117							

HORIZON; May 3, 1961; 2139 GCT; 29°33'N, 116°13.5'W; sounding, 1290 fm; wind, 280°, force 5; weather, overcast; sea, high; wire angle, 45°.

110.40

0	15.96	33.66 2	5.78	321	0	15.96	33.66	5.78	24.75	321	0.00
7	15.96	33.63 8	5.79	322	10	15.96	33.64	5.79	24.73	322	0.03
25	15.96	33.63 6	5.80	323	20	15.96	33.64	5.80	24.73	322	0.06
32	15.72	33.62 8	5.80	318	30	15.96	33.63	5.80	24.72	323	0.10
41	13.70	33.49 7	5.58	286	50	12.57	33.45	5.04	25.30	268	0.16
52	12.52	33.45 3	5.02	267	75	10.79	33.60	4.21	25.74	226	0.22
67	11.22	33.53 4	4.50	238	100	9.90	33.91	2.99	26.14	188	0.27
79	10.66	33.63 8	4.02	221	125	9.60	34.02	2.44	26.27	176	0.32
91	10.54	33.86 3	3.06	202	150	9.44	34.11	2.08	26.37	166	0.36
108	9.62	33.93	2.96	182	200	9.30	34.20	1.83	26.46	158	0.44
125	9.60	34.02 2	2.44	175	250	8.89	34.27	0.97	26.58	146	0.52
149	9.44	34.10 3	2.10	167	300	8.53	34.31	0.84	26.67	138	0.59
167	9.44	34.17 3	1.82	162	400	7.69	34.35	0.50	26.83	123	0.73
196	9.14	34.15 9	1.85	158	500	6.76	34.35	0.39	26.96	110	0.85
248	8.90	34.26 7	0.99	146							
330	8.29	34.32 9	0.78	133							
399	7.71	34.34 8	0.51	123							
505	6.72	34.34 7	0.38	110							

a) Alternate value, 5.77 ml/L, not used in interpolation.

S10

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6104-5

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

110.50

HORIZON; May 3, 1961; 1510 GCT; 29°15'N, 116°56'W; sounding, 1500 fm; wind, 290°, force 6; weather, over-cast; sea, high; wire angle, 30°.

1	16.14	33.63 4	5.68	327	0	(16.14)	(33.63)	(5.68)	(24.68)	(327)	(0.00)
9	16.16	33.62 8	5.66	327	10	16.16	33.63	5.66	24.68	327	0.03
31	16.16	33.62 5	5.70	328	20	16.16	33.63	5.68	24.68	327	0.07
56	16.14	33.62 8	5.65	326	30	16.16	33.63	5.70	24.68	327	0.10
65	16.08	33.62 0	5.59	326	50	16.15	33.63	5.66	24.68	327	0.16
81	14.96	33.50 9	5.67	311	75	15.55	33.56	5.62	24.76	319	0.25
94	13.50	33.43 5	5.56	287	100	12.94	33.42	5.32	25.20	277	0.32
105	12.46	33.40 4	5.17	270	125	10.79	33.53	4.25	25.69	231	0.38
129	10.57	33.56 2	4.15	225	150	9.88	33.69	3.78	25.97	204	0.44
146	9.92	-	-	-	200	9.57	34.18	1.69	26.40	163	0.53
171	9.30	33.87 3	3.27	182	250	8.85	34.24	1.39	26.57	148	0.61
200	9.57	34.18 0	1.69	163	300	8.38	34.30	0.99	26.69	136	0.69
224	9.35	34.24 1	1.42	155	400	7.62	34.34	0.49	26.83	123	0.82
267	8.61	34.24 5	1.35	144	500	6.54	34.35	0.31	26.99	108	0.94
339	8.18	34.34 0	0.69	130	600	5.75	34.37	0.28	27.11	96	1.05
449	7.10	34.34 2	0.38	115							
535	6.22	34.35 8	0.29	103							
653	5.44	34.37 6	0.28	92							

110.60

HORIZON; May 3, 1961; 0745 GCT; 28°56.5'N, 117°38'W; sounding, 1900 fm; wind, 310°, force 6; weather, cloudy; sea, high; wire angle, 39°.

1	16.58	33.58 4	5.63	340	0	(16.58)	(33.58)	(5.63)	(24.54)	(340)	(0.00)
9	16.58	33.57 9	5.70	340	10	16.58	33.58	5.70	24.54	340	0.03
27	16.58	33.57 5	5.67	340	20	16.58	33.58	5.68	24.54	340	0.07
50	16.58	33.58 4	5.71	340	30	16.58	33.58	5.67	24.54	340	0.10
57	16.60	33.57 8	5.65	341	50	16.58	33.58	5.71	24.54	340	0.17
71	16.54	33.57 2	5.65	340	75	16.50	33.57	5.67	24.55	339	0.26
83	16.40	33.56 7	5.74	337	100	15.53	33.49	5.81	24.71	324	0.34
93	15.80	33.51 7	5.82	328	125	14.80	33.49	5.71	24.87	309	0.42
114	15.14	33.47 8	5.79	317	150	12.10	33.53	4.99	25.45	254	0.49
129	14.10	33.55 1	5.46	290	200	9.95	33.90	3.35	26.12	190	0.60
149	12.12	33.53 0	4.99	254	250	9.32	34.04	2.56	26.34	170	0.70
174	10.70	33.71 1	3.77	216	300	8.98	34.12	2.19	26.45	159	0.78
194	9.92	33.84 6	3.44	193	400	6.98	34.19	0.99	26.81	125	0.93
227	9.38	33.99 9	2.69	174	500	6.25	34.25	0.55	26.95	111	1.05
285	9.16	34.08 1	2.37	164							
370	7.42	34.18 3	1.20	132							
440	6.60	34.20 1	0.79	119							
545	6.10	34.30 0	0.40	106							

110.70

HORIZON; May 2, 1961; 1904 GCT; 28°37'N, 118°17.5'W; sounding, 1500 fm; wind, 310°, force 6; weather, partly cloudy; sea, very rough; wire angle, 30°.

1	16.68	33.59	5.48	342	0	(16.68)	(33.59)	(5.48)	(24.53)	(342)	(0.00)
9	16.68	-	5.48	-	10	16.68	33.59	5.48	24.53	342	0.03
30	16.67	33.60	5.57	341	20	16.68	33.60	5.51	24.54	341	0.07
55	16.64	33.60	5.51	340	30	16.67	33.60	5.57	24.54	341	0.10
64	16.64	33.59	5.46	341	50	16.65	33.60	5.52	24.54	340	0.17
80	16.32	33.62	5.37	331	75	16.60	33.59	5.43	24.55	340	0.26
93	15.74	33.55 3	5.42	324	100	15.35	33.55	5.39	24.80	316	0.34
105	14.70	33.54 5	5.26	303	125	13.85	33.62	4.95	25.17	280	0.41
131	12.98	33.62 0	4.66	263	150	11.63	33.70	3.66	25.67	233	0.48
148	11.74	33.69 4	3.66	235	200	10.00	34.02	2.56	26.21	182	0.58
173	10.34	33.75 8	3.82	207	250	8.91	34.11	1.98	26.46	158	0.67
202	9.92	34.02 4	2.46	180	300	8.10	34.14	1.67	26.60	144	0.75
227	9.38	34.09 2	2.03	167	400	7.15	34.21	0.92	26.80	126	0.89
268	8.60	34.11 7	1.93	153	500	6.48	34.27	0.53	26.94	113	1.02
339	7.66	34.16 5	1.36	136	600	5.89	34.34	0.32	27.07	100	1.13
448	6.81	34.24 0	0.68	119							
536	6.24	34.29 8	0.44	108							
655	5.63	34.36 7	0.24	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
6104-5

HORIZON; May 2, 1961; 1217 GCT; 28°14'N, 118°57'W; sounding, 2065 fm; wind, 340°, force 6; weather, cloudy; sea, high; wire angle, 38°.

110.80

0	17.28	33.81 8	5.45	338	0	17.28	33.82	5.45	24.56	338	0.00
8	17.28	33.81 1	5.47	339	10	17.28	33.81	5.47	24.56	339	0.03
27	17.30	33.81 0	5.44	339	20	17.30	33.81	5.45	24.55	339	0.07
50	17.20	33.80 3	5.41	338	30	17.30	33.81	5.43	24.55	339	0.10
58	17.19	33.79 8	5.42	338	50	17.20	33.80	5.41	24.57	338	0.17
73	16.90	33.77 3	5.41	333	75	16.73	33.75	5.39	24.64	331	0.25
85	14.27	33.57 4	4.76	292	100	12.80	33.56	4.30	25.34	265	0.33
96	13.10	33.56 0	4.40	270	125	11.57	33.65	3.63	25.64	236	0.39
118	11.82	33.61 8	3.81	242	150	10.72	33.77	3.14	25.89	212	0.45
135	11.21	33.70 2	3.38	226	200	9.65	33.97	2.36	26.23	180	0.55
155	10.53	33.78 5	3.07	208	250	8.46	34.00	2.30	26.44	160	0.64
184	9.79	33.90 7	2.72	187	300	8.20	34.15	1.32	26.60	145	0.71
206	9.54	33.98 5	2.26	177	400	7.42	34.25	0.59	26.79	127	0.86
244	8.52	33.99 1	2.35	161	500	6.43	34.26	0.33	26.93	113	0.98
306	8.17	34.16 9	1.21	143	600	(5.90)	(34.31)	(0.10)	(27.04)	(103)	(1.10)
404	7.39	34.25 6	0.56	126							
482	6.60	34.25 9	0.38	115							
596	5.91	34.31 0	0.10	103							

HORIZON; May 1, 1961; 1830 GCT; 27°53'N, 119°39'W; sounding, 2112 fm; wind, 340°, force 5; weather, cloudy; sea, high; wire angle, 24°.

110.90

0	17.36	33.77 1	5.47	344	0	17.36	33.77	5.47	24.51	344	0.00
9	17.36	33.76 6	5.41	344	10	17.36	33.76	5.40	24.50	344	0.03
31	17.34	33.76 3	5.33	344	20	17.35	33.76	5.36	24.50	344	0.07
57	16.89	33.74 7	5.65	335	30	17.34	33.76	5.32	24.50	344	0.10
66	16.89	33.75 4	5.57	334	50	17.00	33.75	5.56	24.58	337	0.17
84	15.29	33.59 6	5.50	311	75	16.10	33.65	5.52	24.71	325	0.25
97	14.18	33.58 9	4.85	289	100	13.85	33.59	4.70	25.15	282	0.33
110	12.75	33.58 8	4.32	262	125	11.93	33.62	4.03	25.55	244	0.40
137	11.41	33.66 2	3.84	232	150	10.88	33.74	3.54	25.84	217	0.46
154	10.72	33.76 8	3.39	212	200	9.47	33.97	2.66	26.26	177	0.56
180	10.00	33.94 3	2.80	188	250	8.59	34.07	2.18	26.48	156	0.64
211	9.20	33.99 2	2.61	171	300	8.09	34.14	1.53	26.61	144	0.72
238	8.72	34.04 6	2.41	160	400	7.05	34.21	0.96	26.81	125	0.86
283	8.30	34.13 1	1.67	148	500	6.42	34.28	0.46	26.95	111	0.98
341	7.57	34.16 4	1.29	135	600	(5.76)	(34.34)		(27.08)	(99)	(1.10)
433	6.84	34.23 8	0.80	120							
517	6.32	34.29 4	0.38	109							
588	5.84	34.33 8	0.34	100							

HORIZON; May 2, 1961; 0027 GCT; 27°34'N, 120°20'W; sounding, 2175 fm; wind, 340°, force 5; weather, partly cloudy; sea, very rough; wire angle, 32°.

110.100

1	17.24	33.73 2	5.48	344	0	(17.24)	(33.73)	(5.48)	(24.50)	(344)	(0.00)
9	17.25	33.71 6	5.50	345	10	17.25	33.72	5.50	24.49	345	0.03
29	17.16	33.72 0	5.48	343	20	17.22	33.72	5.49	24.50	344	0.07
52	16.80	33.68 5	5.55	337	30	17.15	33.72	5.48	24.52	343	0.10
60	16.20	33.62 5	5.58	329	50	16.86	33.69	5.54	24.56	338	0.17
75	15.16	33.61 8	5.51	307	75	15.16	33.62	5.51	24.89	307	0.25
87	14.01	33.58 7	5.25	286	100	12.65	33.58	4.26	25.38	260	0.32
98	12.82	33.58 0	4.30	263	125	11.45	33.66	3.96	25.67	233	0.39
121	11.57	33.64 3	4.07	236	150	10.72	33.81	3.06	25.92	209	0.44
137	11.10	33.75 0	3.38	220	200	9.35	34.01	2.46	26.31	172	0.54
160	10.42	33.85 7	2.92	201	250	8.64	34.11	1.87	26.50	154	0.62
186	9.64	33.96 6	2.60	180	300	7.89	34.13	1.55	26.63	142	0.70
209	9.20	34.04 1	2.36	168	400	7.20	34.25	0.64	26.82	124	0.84
247	8.70	34.11 3	1.89	155	500	6.45	34.32	0.27	26.98	109	0.96
297	7.94	34.12 7	1.59	143							
377	7.30	34.22 0	0.80	127							
453	6.90	34.30 3	0.40	116							
520	6.26	34.32 1	0.26	106							

S10

CCOF1
6104-5

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

110.120

HORIZON; May 1, 1961; 1141, 1400 GCT; 26°52'N, 121°46'W; sounding, 2170 fm; wind, 350°, force 4; weather, partly cloudy; sea, rough; wire angle, 22°, 30°.

1	16.73	33.62 8	5.50	340	0	(16.73)	(33.63)	(5.50)	(24.55)	(340)	(0.00)
10	16.74	33.61 3	5.50	341	10	16.74	33.61	5.50	24.53	341	0.03
28	16.76	33.61 5	5.52	342	20	16.74	33.61	5.51	24.53	341	0.07
37	16.80	33.64 7	-	340	30	16.77	33.63	5.52	24.54	341	0.10
50	16.82	33.67 3	5.42	339	50	16.82	33.67	5.42	24.56	339	0.17
64	16.78	33.77 3	5.44	330	75	16.75	33.83	5.42	24.70	326	0.25
86	16.58	33.88 3	5.40	318	100	15.08	33.75	5.45	25.01	296	0.33
104	14.82	33.72 8	5.44	292	125	13.10	33.63	4.87	25.33	265	0.40
122	13.19	33.62 4	4.91	267	150	11.12	33.64	4.29	25.72	229	0.47
139	12.02	33.63 7	4.42	245	200	9.64	33.89	3.16	26.17	186	0.57
164	10.20	33.65 2	4.15	212	250	8.65	34.05	2.61	26.45	159	0.66
194	9.72	33.85 2	3.26	190	300	7.48	34.06	1.85	26.63	142	0.74
221	9.10	33.97 1	2.91	171	400	6.72	34.17	1.00	26.82	123	0.87
264	8.42	34.07 5	2.46	154	500	6.15	34.29	0.25	26.99	107	1.00
310	7.30	34.06 3	1.69	139	600	5.66	34.37	0.25	27.12	95	1.10
385	6.80	34.14 9	1.05	126	700	5.10	34.38	0.29	27.19	88	1.20
460	6.36	34.23 7	0.78	114	800	4.66	34.42	0.32	27.28	81	1.30
535	6.03	34.32 0	0.16	104	1000	3.95	34.48	0.62	27.40	69	1.46
616	5.57	34.37 5	0.25	94	1200	3.40	34.53	0.77	27.49	60	1.61
805	4.64	34.42 3	0.33	80	1500	2.77	34.57	1.19	27.58	51	1.80
					2000	2.08	34.63	1.92	27.69	41	2.08
478a)	6.26	34.27 0	0.45	110	2500	1.80	34.65	2.40	27.73	38	2.33
566	5.89	34.34 8	0.25	100	3000	1.62	34.66	2.77	27.75	36	2.56
698	5.11	34.38 3	0.29	88							
857	4.43	34.44 3	0.43	76							
1016	3.90	34.48 6	0.64	68							
1174	3.46	34.52 1	0.74	61							
1334	3.12	34.54 6	0.92	56							
1494	2.78	34.57 0	1.15	51							
1653	2.50	34.58 8	1.34	48							
1814	2.26	34.61 0	1.68	44							
1976	2.10	34.62 6	1.91	42							
2138	2.00	34.63 7	2.02	40							
2300	1.88	34.64 2	2.21	39							
2465	1.82	34.65 1	2.36	38							
2630	1.74	34.65 5	2.46	37							
2794	1.67	34.65 8	2.57	36							
2959	1.64	34.65 9	2.77	36							
3125	1.60	34.66 2	2.77	35							
3217	1.56	34.66 8	2.82	35							
3309	1.55	34.66 8	2.90	35							

120.45

HORIZON; May 5, 1961; 0300 GCT; 27°42'N, 115°34'W; sounding, 1370 fm; wind, 300°, force 4; weather, overcast; sea, very rough; wire angle, 18°.

1	14.98	33.63 6	6.09	302	0	(14.98)	(33.64)	(6.09)	(24.95)	(302)	(0.00)
10	14.98	33.63 2	6.09	302	10	14.98	33.63	6.09	24.94	302	0.03
28	13.42	33.63 6	4.98	271	20	14.98	33.63	6.09	24.94	302	0.06
38	12.42	33.59 2	4.80	255	30	13.32	33.63	4.94	25.29	269	0.09
51	11.50	33.76 7	3.48	226	50	11.52	33.77	3.51	25.74	226	0.14
66	10.77	33.96 4	2.42	199	75	10.87	34.12	1.85	26.13	189	0.19
89	10.88	34.23 7	1.31	180	100	10.88	34.26	1.23	26.24	179	0.24
107	10.88	34.29 0	1.17	176	125	10.82	34.33	0.97	26.31	173	0.28
124	10.82	34.33 1	0.98	172	150	10.69	34.38	0.86	26.37	167	0.33
141	10.76	34.38 1	0.82	168	200	9.74	34.39	0.83	26.54	150	0.41
168	10.42	34.38 5	0.90	162	250	8.94	34.38	0.68	26.66	139	0.48
199	9.78	34.39 2	0.84	151	300	8.52	34.40	0.47	26.74	131	0.55
226	9.24	34.38 3	0.70	143	400	7.64	34.43	0.21	26.90	116	0.68
269	8.76	34.37 7	0.63	136	500	6.86	34.41	0.20	26.99	107	0.80
319	8.39	34.41 9	0.34	128							
397	7.66	34.43 6	0.21	116							
479	7.05	34.41 2	0.20	110							
558	6.25	34.41 7	0.20	99							

82

a) Overlapping casts.

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; May 5, 1961; 0614 GCT; 27°32.5'N, 115°54'W; sounding, 1960 fm; wind, 310°, force 5; weather, overcast; sea, high; wire angle, 03°.

120.50

1	15.97	33.69 4	5.95	319	0	(15.97)	(33.69)	(5.95)	(24.77)	(319)	(0.00)
11	15.28	33.67 7	6.18	305	10	15.28	33.67	6.18	24.91	306	0.03
30	13.54	33.62 8	5.48	274	20	15.00	33.68	6.16	24.97	299	0.06
40	13.06	33.78	4.32	253	30	13.54	33.63	5.48	25.24	273	0.09
54	10.46	33.63 8	4.05	218	50	12.00	33.72	4.17	25.62	238	0.14
68	9.92	33.83 5	3.24	194	75	9.95	33.91	3.05	26.13	189	0.20
92	9.76	33.99 5	2.54	180	100	9.80	34.05	2.30	26.26	176	0.24
112	9.82	34.14 5	1.86	170	125	9.95	34.20	1.82	26.36	168	0.29
131	9.16	34.15 8	1.77	158	150	9.12	34.19	1.61	26.49	155	0.33
149	9.12	34.19 2	1.62	155	200	9.35	34.42	0.60	26.63	142	0.40
179	9.47	34.38 4	0.79	147	250	9.11	34.46	0.60	26.70	135	0.47
211	9.31	34.42 8	0.58	141	300	8.64	34.46	0.30	26.77	128	0.54
240	9.18	34.45 6	0.63	137	400	7.64	34.43	0.22	26.90	116	0.67
288	8.77	34.45 8	0.33	130	500	6.77	34.42	0.23	27.01	105	0.79
341	8.16	34.44 7	0.28	122	600	(6.00)	(34.42)		(27.12)	(96)	(0.90)
424	7.44	34.42 6	0.20	114							
507	6.70	34.41 9	0.24	104							
589	6.06	34.42 0	0.21	96							

HORIZON; May 5, 1961; 1157 GCT; 27°13.5'N, 116°31.5'W; sounding, 1993 fm; wind, 320°, force 4; weather, overcast; sea, very rough; wire angle, 25°.

120.60

0	16.52	33.69 9	5.66	330	0	16.52	33.70	5.66	24.65	330	0.00
8	16.52	33.69 5	5.66	330	10	16.52	33.70	5.66	24.65	330	0.03
26	16.55	33.69 5	5.68	331	20	16.54	33.70	5.67	24.64	330	0.07
35	15.94	33.76 1	5.60	313	30	16.55	33.70	5.68	24.64	331	0.10
48	14.58	33.57 5	5.55	298	50	14.55	33.58	5.54	24.99	297	0.16
61	13.49	33.63 3	4.79	272	75	11.52	33.59	4.53	25.60	239	0.23
83	11.24	33.58 7	4.45	235	100	11.13	33.80	3.21	25.84	217	0.29
102	11.09	33.81 8	3.12	215	125	10.45	33.97	2.70	26.09	193	0.34
119	10.35	33.93 4	2.69	194	150	9.33	33.95	2.79	26.26	176	0.39
137	9.60	33.92 2	2.90	183	200	9.70	34.33	1.11	26.50	154	0.47
164	9.27	34.00 4	2.51	172	250	9.39	34.38	0.80	26.59	146	0.55
194	9.72	34.31 2	1.19	156	300	8.83	34.40	0.64	26.70	136	0.62
223	9.58	34.35 2	0.98	151	400	7.63	34.39	0.40	26.87	119	0.75
268	9.24	34.39 6	0.72	142	500	6.78	34.39	0.27	26.99	108	0.87
319	8.55	34.40 3	0.59	131							
398	7.66	34.38 9	0.41	119							
480	6.96	34.39 6	0.30	110							
562	6.20	34.38 5	0.26	101							

HORIZON; May 5, 1961; 1718 GCT; 26°53'N, 117°09'W; sounding, 2120 fm; wind, 330°, force 4; weather, partly cloudy; sea, very rough; wire angle, 28°.

120.70

0	16.44	33.56 4	5.59	338	0	16.44	33.56	5.59	24.56	339	0.00
8	16.43	33.56 3	5.59	338	10	16.42	33.56	5.59	24.57	338	0.03
30	16.41	33.56 9	5.54	337	20	16.41	33.57	5.56	24.58	337	0.07
56	16.30	33.55 0	5.53	336	30	16.41	33.57	5.54	24.58	337	0.10
65	15.76	33.49 7	5.66	328	50	16.40	33.56	5.53	24.57	338	0.17
82	14.50	33.50 2	5.47	302	75	15.40	33.50	5.64	24.75	321	0.25
94	13.44	33.53 8	5.02	278	100	13.12	33.54	4.92	25.26	272	0.33
105	12.58	33.52 7	4.79	263	125	10.80	33.60	4.23	25.74	226	0.39
129	10.63	33.61 2	4.14	222	150	10.15	33.78	3.37	25.99	202	0.44
146	10.35	33.77 8	3.34	205	200	8.84	33.97	2.83	26.36	168	0.54
170	9.37	33.81 6	3.56	187	250	8.09	34.08	2.08	26.56	148	0.62
198	8.88	33.96 2	2.85	169	300	7.61	34.18	1.33	26.71	134	0.69
222	8.44	34.01 6	2.49	158	400	7.33	34.35	0.44	26.88	118	0.82
263	7.96	34.10 8	1.85	145	500	6.75	34.41	0.26	27.01	106	0.94
317	7.52	34.20 8	1.11	131							
403	7.32	34.35 4	0.43	117							
483	6.81	34.40 6	0.26	107							
554	6.21	34.40 6	0.28	99							

SIO

CCOFI
6104-5

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

120.80

HORIZON; May 5, 1961; 2223 GCT; 26°32.5'N, 117°49'W; sounding, 2000+ fm; wind, 330°, force 4; weather, partly cloudy; sea, high; wire angle, 23°.

0	17.02	33.61 0	5.41	348	0	17.02	33.61	5.41	24.46	348	0.00
9	17.02	33.60 2	5.49	348	10	17.02	33.60	5.49	24.46	348	0.03
27	16.86	33.59 6	5.49	345	20	16.92	33.60	5.49	24.48	346	0.07
52	16.27	33.56 8	5.58	334	30	16.83	33.59	5.50	24.49	345	0.10
62	16.23	33.58 4	5.55	332	50	16.50	33.58	5.56	24.56	338	0.17
75	16.06	33.60 9	5.61	327	75	16.06	33.61	5.61	24.69	327	0.26
88	15.12	33.54 8	5.71	311	100	14.44	33.55	5.37	25.00	297	0.33
100	14.44	33.55 0	5.37	297	125	12.70	33.61	4.28	25.40	259	0.41
121	13.16	33.61 6	4.54	267	150	11.60	33.66	3.80	25.64	235	0.47
138	12.38	33.63 2	4.02	251	200	9.49	33.89	3.04	26.19	183	0.57
163	10.85	33.72 6	3.57	218	250	8.60	34.02	2.70	26.43	160	0.66
189	9.87	33.87 6	3.04	190	300	9.02	34.33	0.81	26.61	144	0.74
214	9.09	33.91 2	3.04	176	400	7.80	34.37	0.51	26.83	123	0.88
256	8.58	34.05 0	2.51	158	500	6.66	34.34	0.35	26.97	110	1.00
305	9.04	34.35 6	0.75	142							
377	8.08	34.37 1	0.59	127							
453	7.21	34.35 9	0.39	116							
529	6.30	34.33 6	0.33	106							

120.90

HORIZON; May 6, 1961; 0323 GCT; 26°12.5'N, 118°29'W; sounding, 2150 fm; wind, 340°, force 4; weather, partly cloudy; sea, very rough; wire angle, 14°.

1	17.60	33.78 1	5.41	348	0	(17.60)	(33.78)	(5.41)	(24.46)	(348)	(0.00)
10	17.60	33.78 0	5.48	348	10	17.60	33.78	5.48	24.46	348	0.03
29	17.61	33.78 0	5.46	349	20	17.60	33.78	5.47	24.46	348	0.07
57	17.50	33.77 5	5.48	347	30	17.60	33.78	5.46	24.46	348	0.10
66	17.52	33.77 6	5.40	347	50	17.52	33.78	5.47	24.47	347	0.17
81	17.50	33.77 7	5.37	346	75	17.51	33.78	5.38	24.48	346	0.26
94	16.70	33.68 5	5.67	335	100	16.18	33.69	5.63	24.72	323	0.35
109	15.64	33.69 1	5.52	312	125	14.70	33.74	5.12	25.09	288	0.42
131	13.80	33.76 2	4.75	269	150	12.25	33.76	4.09	25.60	240	0.49
149	12.34	33.75 8	4.13	241	200	10.39	33.84	3.43	26.00	202	0.60
176	11.50	33.79 2	3.69	224	250	9.23	34.06	2.58	26.37	167	0.70
205	10.15	33.85 5	3.39	197	300	9.29	34.36	0.91	26.59	145	0.78
234	9.17	33.93 5	3.12	175	400	8.27	34.39	0.46	26.77	128	0.92
280	9.39	34.27 9	1.29	153	500	6.82	34.33	0.42	26.94	113	1.05
333	9.00	34.39 4	0.69	139							
415	8.08	34.39 0	0.45	125							
497	6.85	34.32 7	0.42	113							
579	6.16	34.37 8	0.26	101							

120.100

HORIZON; May 5, 1961; 0826 GCT; 25°52.5'N, 119°07.5'W; sounding, 2230 fm; wind, 340°, force 4; weather, partly cloudy; sea, very rough; wire angle, 15°.

1	17.71	33.78 1	5.46	351	0	(17.71)	(33.78)	(5.46)	(24.43)	(351)	(0.00)
11	17.71	33.77 2	5.49	352	10	17.71	33.77	5.49	24.42	352	0.04
29	17.71	33.78 4	5.41	351	20	17.71	33.78	5.45	24.43	351	0.07
58	17.64	33.77 9	5.46	349	30	17.70	33.78	5.41	24.43	351	0.11
68	17.64	33.77 2	5.46	350	50	17.65	33.78	5.45	24.44	350	0.18
81	17.31	33.75 0	5.49	344	75	17.60	33.77	5.48	24.45	349	0.26
96	16.28	33.63 0	5.63	330	100	16.17	33.63	5.62	24.68	328	0.35
110	16.00	33.67 3	5.53	321	125	15.40	33.73	5.29	24.93	304	0.43
133	14.18	33.74 1	4.89	278	150	13.23	33.72	4.54	25.38	261	0.50
152	13.13	33.72 3	4.50	259	200	10.69	33.90	3.00	25.99	202	0.62
181	11.38	33.78 0	3.68	223	250	9.33	34.05	2.65	26.34	169	0.71
209	10.41	33.94 5	2.83	194	300	8.42	34.12	1.95	26.54	150	0.80
237	9.58	34.02 0	2.80	175	400	7.27	34.25	0.91	26.81	125	0.94
284	8.74	34.11 1	2.13	156	500	6.41	34.34	0.39	27.00	107	1.06
332	7.82	34.15 0	1.64	139	600	(5.99)	(34.39)		(27.09)	(98)	(1.17)
418	7.12	34.26 7	0.74	121							
500	6.41	34.33 5	0.39	107							
581	6.03	34.37 8	0.30	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; May 6, 1961; 1702 GCT; 25°13'N, 120°22'W; sounding, 2230 fm; wind, 350°, force 5; weather, cloudy; sea, very rough; wire angle, 29°.

120.120

1	17.52	33.79 6	5.51	345	0	(17.52)	(33.80)	(5.51)	(24.49)	(345)	(0.00)
10	17.52	33.78 6	5.52	346	10	17.52	33.79	5.52	24.48	346	0.03
31	17.52	33.78 5	5.51	346	20	17.52	33.79	5.52	24.48	346	0.07
57	17.50	33.78 9	5.44	346	30	17.52	33.79	5.51	24.48	346	0.10
66	17.46	33.77 7	5.42	346	50	17.51	33.79	5.45	24.49	346	0.17
82	16.94	33.71 3	5.49	338	75	16.94	33.71	5.48	24.56	339	0.26
95	16.50	33.66 5	5.58	332	100	15.63	33.59	5.57	24.77	319	0.34
107	15.18	33.56 6	5.54	311	125	14.00	33.74	4.59	25.23	274	0.42
132	13.58	33.75 6	4.39	265	150	12.12	33.72	4.06	25.59	240	0.48
149	12.26	33.72 2	4.10	243	200	10.00	33.87	3.14	26.09	193	0.59
175	10.82	33.73 4	3.55	217	250	8.94	34.08	2.45	26.43	161	0.68
205	9.79	33.91 0	3.07	187	300	8.49	34.21	1.49	26.60	145	0.76
229	9.18	33.98 4	2.91	172	400	7.83	34.35	0.58	26.81	125	0.90
272	8.70	34.15 1	1.93	152	500	6.80	34.37	0.32	26.97	109	1.03
329	8.30	34.26 5	1.14	138							
418	7.69	34.36 5	0.50	122							
500	6.80	34.36 8	0.32	110							
573	6.01	34.34 1	0.38	102							

HORIZON; May 12, 1961; 2314 GCT; 26°41'N, 114°30.5'W; sounding, 1600 fm; wind, 310°, force 7; weather, cloudy; sea, very high; wire angle, 45°.

127.40

1	16.80	33.70 8	5.69	336	0	(16.80)	(33.71)	(5.69)	(24.59)	(336)	(0.00)
9	16.80	33.68 8	5.72	337	10	16.80	33.69	5.72	24.58	337	0.03
26	16.74	33.69 8	5.70	335	20	16.78	33.69	5.71	24.58	337	0.07
32	16.22	33.70 5	5.70	323	30	16.55	33.70	5.70	24.64	331	0.10
42	15.14	33.67 5	5.55	302	50	13.50	33.59	4.86	25.22	276	0.16
53	13.30	33.59 4	4.75	271	75	12.10	33.66	4.40	25.55	244	0.23
70	12.14	33.63 8	4.46	247	100	10.90	33.90	2.88	25.96	206	0.28
83	11.34	33.71 6	3.72	227	125	9.72	33.98	2.67	26.22	180	0.33
95	10.98	33.88 9	2.86	208	150	10.10	34.23	1.73	26.35	168	0.38
113	9.70	33.88 9	3.24	187	200	9.98	34.41	0.80	26.51	153	0.46
132	9.75	34.02 6	2.38	177	250	9.39	34.46	0.56	26.65	140	0.53
155	10.17	34.27 1	1.55	166	300	8.80	34.47	0.37	26.76	130	0.60
172	10.26	34.39 9	0.93	158	400	7.96	34.45	0.28	26.87	119	0.74
200	9.98	34.40 8	0.80	153	500	(6.98)	(34.42)		(26.99)	(108)	(0.86)
248	9.42	34.45 5	0.59	140							
320	8.63	34.46 6	0.34	128							
384	8.09	34.45 4	0.28	121							
476	7.24	34.42 9	0.28	111							

HORIZON; May 9, 1961; 1037 GCT; 26°29.5'N, 113°29'W; sounding, 42 fm; wind, 280°, force 2; weather, clear; sea, calm; wire angle, 03°.

130.30

0	12.64	33.95 0	5.10	233	0	12.64	33.95	5.10	25.67	233	0.00
10	12.63	33.94 5	5.11	233	10	12.63	33.94	5.11	25.66	233	0.02
19	12.62	33.94 1	5.06	233	20	12.62	33.94	5.06	25.67	233	0.05
29	12.61	33.93 1	5.06	234	30	12.61	33.93	5.06	25.66	234	0.07
39	12.30	33.95 5	4.23	226	50	(10.99)	(33.99)		(26.01)	(201)	(0.11)
44	11.70	33.92 9	3.42	217							
48	11.00	33.98 3	2.59	201							

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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

130.35 HORIZON; May 9, 1961; 0748 GCT; ^{a)} 26°15'N, 113°47'W; sounding, 310 fm; wind, 290°, force 4; weather, clear; sea, rough; wire angle, 27°.

48	13.07	33.83 8	4.90	249
70	11.87	33.76 7	3.60	232
101	10.84	33.97 7	2.29	199
107	10.70	34.02 9	2.25	193
109	10.72	34.09 7	1.90	188
114	10.93	34.20 1	1.61	184
119	10.85	34.19 8	1.59	183
123	11.10	34.29 0	1.28	180
127	11.33	34.37 4	0.93	178
132	11.34	34.39 7	0.91	177
135	11.41	34.45 5	0.60	173
140	11.44	34.48 1	0.58	172
144	11.44	34.49 0	0.60	171
149	11.45	34.49 1	0.54	172
154	11.35	34.51 0	0.51	168
158	11.34	34.50 0	0.63	169
163	11.36	34.52 5	0.43	167
185	11.11	34.57 3	0.28	160
221	10.60	34.55 7	0.28	152
267	9.86	34.50 6	0.39	144

130.40 HORIZON; May 9, 1961; 0242 GCT; 26°12'N, 114°08.5'W; sounding, 725 fm; wind, 290°, force 4; weather, partly cloudy; sea, rough; wire angle, 44°.

0	16.36	33.67 9	5.75	328	0	16.36	33.68	5.75	24.67	328	0.00
8	16.36	33.67 3	6.02	328	10	16.36	33.67	6.02	24.66	329	0.03
24	15.84	33.67 5	5.93	317	20	15.85	33.67	5.93	24.78	318	0.07
31	15.15	33.68 8	5.97	302	30	15.30	33.68	5.97	24.91	305	0.10
40	14.82	33.70 1	5.80	294	50	14.40	33.69	5.61	25.11	286	0.16
48	14.54	33.70 0	5.68	288	75	11.95	33.62	4.30	25.55	245	0.22
63	12.72	33.55 4	4.78	263	100	10.63	33.80	3.35	25.93	208	0.28
74	11.96	33.61 9	4.32	245	125	10.56	34.06	2.19	26.14	188	0.33
86	11.47	33.74 3	3.45	227	150	10.40	34.16	1.96	26.25	178	0.38
99	10.68	33.79 9	3.36	209	200	10.15	34.45	0.71	26.52	153	0.46
115	10.76	34.02 5	2.38	194	250	9.40	34.42	0.66	26.62	143	0.54
135	10.38	34.09 5	2.08	183	300	9.10	34.46	0.36	26.70	135	0.61
150	10.40	34.16 b)	1.96	178							
174	10.20	34.27 6	1.38	166							
205	10.13	34.46 8	0.69	151							
260	9.29	34.41 5	0.65	141							
316	9.01	34.48 c)	0.28	132							
368	8.34	34.43 9	0.30	125							

- a) Special cast for investigation of the thermocline structure in a temperature inversion indicated by the bathythermograph observation.
 b) Alternate value, 34.18‰, not used in interpolation.
 c) Alternate value, 34.49‰, 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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HORIZON; May 8, 1961; 2029 GCT; 25°53'N, 114°51.5'W; sounding, 1930 fm; wind, 310°, force 4; weather, partly cloudy; sea, very rough; wire angle, 30°.

130.50

1	16.76	33.68 3	5.44	337	0	(16.76)	(33.68)	(5.44)	(24.58)	(337)	(0.00)
9	16.75	33.67 9	5.65	337	10	16.75	33.68	5.65	24.58	337	0.03
26	16.72	33.68 0	5.77	336	20	16.73	33.68	5.76	24.59	336	0.07
51	16.64	33.67 4	5.80	335	30	16.70	33.67	5.78	24.58	336	0.10
60	16.54	33.68 2	5.74	332	50	16.65	33.67	5.80	24.60	335	0.17
72	16.48	33.67 2	5.77	331	75	16.43	33.67	5.76	24.65	330	0.25
85	14.44	33.54 6	5.32	297	100	13.33	33.57	5.32	25.24	274	0.33
97	13.36	33.56 5	5.33	275	125	12.10	33.64	4.49	25.53	246	0.39
117	12.60	33.61 5	4.67	257	150	10.95	33.74	3.89	25.82	218	0.45
133	11.70	33.67 9	4.34	236	200	9.82	34.09	2.44	26.29	174	0.55
156	10.46	33.76 1	3.62	209	250	10.40	34.47	0.73	26.49	155	0.64
181	9.90	33.89 9	3.08	189	300	9.54	34.46	0.58	26.63	142	0.71
205	9.82	34.13 2	2.25	171	400	8.21	34.45	0.32	26.83	123	0.85
245	10.42	34.45 9	0.78	156	500	7.07	34.43	0.19	26.98	108	0.98
291	9.67	34.46 3	0.60	144							
363	8.70	34.46 1	0.40	129							
439	7.71	34.44 2	0.25	116							
518	6.93	34.43 6	0.18	106							

HORIZON; May 8, 1961; 1406 GCT; 25°33'N, 115°30'W; sounding, 2050 fm; wind, 330°, force 6; weather, partly cloudy; sea, high; wire angle, 32°.

130.60

1	17.28	33.71 8	5.43	346	0	(17.28)	(33.72)	(5.43)	(24.49)	(346)	(0.00)
9	17.29	33.71 6	5.50	346	10	17.29	33.72	5.50	24.48	346	0.03
29	17.30	33.71 9	5.48	346	20	17.30	33.72	5.49	24.48	346	0.07
55	17.30	33.71 4	5.62	346	30	17.30	33.72	5.48	24.48	346	0.10
63	17.28	33.71 6	5.78	346	50	17.30	33.72	5.55	24.48	346	0.17
79	15.82	33.61 8	5.67	321	75	16.20	33.64	5.71	24.68	327	0.26
91	14.99	33.60 9	5.54	304	100	14.16	33.66	5.18	25.14	283	0.33
102	13.93	33.67 0	5.06	278	125	12.27	33.66	4.52	25.52	247	0.40
126	12.23	33.65 9	4.51	247	150	11.12	33.72	4.33	25.78	223	0.46
142	11.47	33.70 3	4.41	230	200	9.16	33.93	3.15	26.28	175	0.56
165	10.27	33.74 9	4.00	206	250	9.40	34.24	1.44	26.48	156	0.65
191	9.32	33.88 2	3.32	181	300	9.22	34.36	0.88	26.60	144	0.73
214	9.10	34.00 0	2.91	169	400	8.44	34.44	0.32	26.79	127	0.87
252	9.41	34.24 9	1.40	156	500	7.45	34.46	0.19	26.95	111	0.99
303	9.20	34.36 2	0.86	144							
384	8.61	34.44 6	0.36	129							
460	7.69	34.43 5	0.23	116							
530	7.36	34.48 3	0.17	108							

HORIZON; May 8, 1961; 0824 GCT; 25°12.5'N, 116°08'W; sounding, 2054 fm; wind, 330°, force 6; weather, clear; sea, very rough; wire angle, 27°.

130.70

1	17.34	33.72 3	5.57	347	0	(17.34)	(33.72)	(5.57)	(24.47)	(347)	(0.00)
9	17.34	33.71 8	5.57	347	10	17.34	33.72	5.57	24.47	347	0.03
32	17.36	33.72 0	5.53	347	20	17.35	33.72	5.55	24.47	347	0.07
58	17.32	33.70 8	5.48	347	30	17.36	33.72	5.53	24.47	347	0.10
66	17.12	33.70 1	5.49	343	50	17.35	33.71	5.49	24.46	348	0.17
84	15.84	33.63 0	5.51	320	75	16.62	33.67	5.50	24.60	334	0.26
96	14.91	33.62 1	5.38	302	100	14.68	33.63	5.30	25.01	296	0.34
110	14.20	33.63 5	5.11	286	125	13.47	33.65	4.88	25.27	271	0.41
135	12.34	33.67 2	4.60	248	150	11.20	33.70	4.05	25.75	226	0.47
152	11.08	33.70 6	3.96	223	200	10.57	34.17	1.77	26.23	180	0.58
177	10.38	33.95 9	2.73	193	250	10.10	34.36	1.01	26.46	158	0.66
207	10.60	34.22 8	1.54	176	300	9.47	34.42	0.60	26.61	144	0.74
231	10.30	34.30 4	1.24	166	400	7.89	34.35	0.56	26.80	126	0.88
275	9.83	34.40 6	0.76	151	500	6.77	34.36	0.36	26.97	110	1.01
332	8.96	34.42 2	0.54	136							
421	7.61	34.34 3	0.55	122							
504	6.74	34.36 2	0.36	109							
577	6.23	34.39 2	0.32	101							

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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

130.80

HORIZON; May 8, 1961; 0213 GCT; 24°51.5'N, 116°46.5'W; sounding, 2035 fm; wind, 340°, force 6; weather, partly cloudy; sea, high; wire angle, 34°.

1	17.64	33.76 6	5.46	350	0	(17.64)	(33.77)	(5.46)	(24.44)	(350)	(0.00)
9	17.64	33.75 8	5.51	351	10	17.64	33.76	5.51	24.43	351	0.04
29	17.65	33.76 1	5.40	351	20	17.64	33.76	5.44	24.43	351	0.07
54	17.62	33.77 4	5.39	349	30	17.65	33.76	5.40	24.43	351	0.11
62	17.65	33.79 4	5.40	349	50	17.62	33.77	5.39	24.44	350	0.18
78	17.72	33.92 2	5.35	341	75	17.72	33.89	5.36	24.51	343	0.26
91	17.30	33.91 6	5.35	332	100	16.05	33.78	5.21	24.82	314	0.35
102	15.74	33.74 7	5.16	310	125	13.46	33.64	4.71	25.27	271	0.42
125	13.46	33.63 9	4.71	271	150	11.65	33.77	3.41	25.72	228	0.48
140	12.43	33.69 5	4.16	248	200	11.02	34.33	1.25	26.27	176	0.59
160	11.64	33.94 4	2.88	215	250	9.98	34.37	1.04	26.48	156	0.67
186	11.28	34.20 7	1.75	189	300	9.12	34.34	0.93	26.60	144	0.75
205	10.92	34.35 8	1.19	172	400	7.77	34.34	0.63	26.81	125	0.89
242	10.16	34.36 9	1.07	159	500	6.73	34.36	0.41	26.97	109	1.01
291	9.25	34.34 1	0.97	146							
370	8.15	34.33 9	0.69	130							
446	7.24	34.33 1	0.58	118							
516	6.61	34.36 5	0.35	107							

130.90

HORIZON; May 7, 1961; 2047 GCT; 24°31.5'N, 117°20'W; sounding, 2134 fm; wind, 360°, force 5; weather, cloudy; sea, very rough; wire angle, 28°.

0	18.25	34.01 1	5.36	347	0	18.25	34.01	5.36	24.47	347	0.00
8	18.24	34.00 7	5.38	347	10	18.24	34.01	5.38	24.48	347	0.03
30	18.24	34.01 0	5.38	347	20	18.24	34.01	5.38	24.48	347	0.07
56	18.18	34.00 3	5.33	346	30	18.24	34.01	5.38	24.48	347	0.10
63	18.20	34.00 9	5.34	346	50	18.18	34.00	5.34	24.48	346	0.17
82	17.10	33.91 2	5.22	328	75	18.20	34.01	5.34	24.49	346	0.26
94	14.54	33.70 2	4.75	288	100	14.03	33.67	4.64	25.17	280	0.34
105	13.60	33.65 8	4.50	273	125	12.14	33.79	3.54	25.64	235	0.40
130	11.94	33.83 7	3.30	228	150	11.46	33.97	2.65	25.91	210	0.46
146	11.56	33.94 6	2.77	214	200	10.12	34.23	1.60	26.35	168	0.56
171	11.01	34.10 8	2.16	192	250	9.29	34.26	1.36	26.51	153	0.64
191	10.49	34.22 4	1.66	175	300	9.03	34.38	0.84	26.65	140	0.72
223	9.70	34.23 7	1.54	161	400	8.03	34.41	0.40	26.83	123	0.85
264	9.13	34.28 7	1.21	148	500	6.94	34.38	0.33	26.96	110	0.98
319	8.97	34.41 0	0.68	137							
405	7.97	34.41 4	0.39	122							
485	7.09	34.39 4	0.33	111							
555	6.40	34.38 1	0.32	104							

130.100

HORIZON; May 7, 1961; 1523 GCT; 24°11'N, 117°56'W; sounding, 2100 fm; wind, 360°, force 5; weather, cloudy; sea, very rough; wire angle, 25°.

1	17.98	33.91 2	5.58	348	0	(17.98)	(33.91)	(5.58)	(24.46)	(348)	(0.00)
10	17.97	33.89 9	5.57	348	10	17.97	33.90	5.57	24.46	348	0.03
32	17.98	33.90	5.53	348	20	17.97	33.90	5.55	24.46	348	0.07
58	17.97	33.90 1	5.54	348	30	17.98	33.90	5.53	24.46	349	0.10
67	17.66	33.87 9	5.56	343	50	17.97	33.90	5.54	24.46	348	0.17
84	16.94	33.81 8	5.55	331	75	17.20	33.84	5.55	24.60	335	0.26
98	15.08	33.63 4	5.53	304	100	14.75	33.64	5.47	25.00	297	0.34
111	13.62	33.66 2	4.98	273	125	12.69	33.69	4.46	25.46	253	0.41
137	12.00	33.72 6	4.14	238	150	11.37	33.78	3.86	25.78	223	0.47
155	11.14	33.81 8	3.71	216	200	10.70	34.22	1.97	26.24	179	0.57
181	10.64	34.12 1	2.14	185	250	9.56	34.35	1.12	26.54	150	0.66
211	10.01	34.22 5	1.71	167	300	9.03	34.41	0.70	26.67	138	0.73
237	9.64	34.32 2	1.28	154	400	7.95	34.42	0.36	26.85	121	0.87
281	9.22	34.39 7	0.82	142	500	7.13	34.45	0.21	26.99	108	0.99
337	8.66	34.42 3	0.54	131	600	(6.30)	(34.45)		(27.10)	(97)	(1.10)
427	7.70	34.43 0	0.31	117							
508	7.08	34.45 5	0.21	107							
580	6.47	34.45 4	0.17	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

S10
CCOF1
6104-5

HORIZON; May 7, 1961; 0617 GCT; 23°30'N, 119°10'W; sounding, 2160 fm; wind, 360°, force 5; weather, partly cloudy; sea, very rough; wire angle, 20°.

130.120

1	18.21	33.92 3	5.42	352	0	(18.21)	(33.92)	(5.42)	(24.41)	(352)	(0.00)
10	18.22	33.92 3	5.44	352	10	18.22	33.92	5.44	24.41	353	0.04
33	18.24	33.90 8	5.38	354	20	18.23	33.92	5.41	24.41	353	0.07
60	18.06	33.92 5	5.36	349	30	18.24	33.91	5.38	24.40	354	0.11
69	17.98	33.93 4	5.36	346	50	18.19	33.91	5.37	24.41	353	0.18
87	16.92	33.88 0	5.30	326	75	17.94	33.93	5.35	24.49	345	0.26
102	15.73	33.85 0	5.32	302	100	15.93	33.85	5.32	24.90	306	0.35
116	14.54	33.84 7	4.62	277	125	14.20	33.86	4.35	25.28	270	0.42
143	13.20	33.87 2	3.71	249	150	12.50	33.87	3.49	25.64	236	0.48
161	11.90	33.88 5	3.29	224	200	10.33	34.13	2.15	26.24	179	0.59
188	10.69	34.06 4	2.44	190	250	9.56	34.24	1.46	26.45	159	0.68
220	9.90	34.20 1	1.79	167	300	8.88	34.29	1.21	26.60	144	0.75
246	9.62	34.24 0	1.50	160	400	8.05	34.40	0.42	26.82	124	0.90
292	8.96	34.27 4	1.30	147	500	6.92	34.39	0.30	26.97	109	1.02
352	8.55	34.37 8	0.62	133	600	6.13	34.40	0.27	27.08	99	1.13
444	7.53	34.39 7	0.35	117							
527	6.66	34.38 4	0.28	107							
602	6.12	34.39 7	0.27	99							

HORIZON; May 10, 1961; 0700 GCT; 25°33.5'N, 112°21'W; sounding, 39 fm; wind, 160°, force 2; weather, clear; sea, calm; wire angle, 00°.

137.23

0	16.14	33.93 9	6.89	304	0	16.14	33.94	6.89	24.92	304	0.00
10	15.15	33.93 6	5.74	283	10	15.15	33.94	5.74	25.14	283	0.03
20	13.70	33.96 6	3.08	252	20	13.70	33.97	3.08	25.47	252	0.06
30	12.82	34.04 1	1.81	230	30	12.82	34.04	1.81	25.70	230	0.08
40	12.92	34.28 7	0.52	213	50	12.88	34.33	0.29	25.92	209	0.12
50	12.88	34.32 9	0.29	210							
60	12.80	34.38 0	0.20	204							

HORIZON; May 10, 1961; 1029 GCT; 25°18.5'N, 112°47.5'W; sounding, 230 fm; wind, 250°, force 2; weather, clear; sea, calm; wire angle, 06°.

137.30

0	16.92	33.83 2	5.81	329	0	16.92	33.83	5.81	24.66	329	0.00
10	16.30	33.82 7	5.88	316	10	16.30	33.83	5.88	24.80	316	0.03
29	15.09	33.84 0	5.25	289	20	15.57	33.83	5.55	24.96	300	0.06
48	14.00	33.85 7	4.38	266	30	15.07	33.84	5.23	25.08	289	0.09
74	12.98	34.09 7	2.03	228	50	13.89	33.87	4.23	25.36	263	0.15
97	12.54	34.31 2	1.19	204	75	12.98	34.10	2.02	25.72	228	0.21
121	12.35	34.51 9	0.63	186	100	12.53	34.33	1.14	25.99	203	0.26
159	11.78	34.60 5	0.31	169	125	12.29	34.54	0.56	26.20	183	0.31
198	11.20	34.62 0	0.14	158	150	11.92	34.60	0.37	26.31	172	0.36
245	10.70	34.59 9	0.21	151	200	11.17	34.62	0.15	26.47	157	0.44
294	10.40	34.60 0	0.20	146	250	10.65	34.60	0.21	26.55	150	0.52
					300	(10.38)	(34.60)	(0.20)	(26.59)	(145)	(0.60)

SIO

CCOF1
6104-5

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

137.40

HORIZON; May 10, 1961; 1542 GCT; 24°59.5'N, 113°24.5'W; sounding, 1760 fm; wind, 290°, force 4; weather, partly cloudy; sea, moderate; wire angle, 26°.

0	16.55	33.76 5	6.16	326	0	16.55	33.76	6.16	24.69	326	0.00
8	16.54	33.77 7	6.20	325	10	16.54	33.78	6.20	24.71	325	0.03
26	16.19	33.77 9	6.18	317	20	16.53	33.78	6.19	24.71	324	0.07
35	15.54	33.77 5	5.74	303	30	15.91	33.78	5.99	24.85	311	0.10
47	13.86	33.78 3	5.16	268	50	13.30	33.73	4.85	25.37	261	0.15
61	13.08	33.73 1	4.65	257	75	12.80	33.78	4.28	25.51	248	0.22
83	11.95	33.82 2	3.45	230	100	11.82	34.02	2.52	25.88	213	0.28
99	11.82	34.00 6	2.55	214	125	11.98	34.39	1.06	26.14	188	0.33
115	11.84	34.24 9	1.56	196	150	11.94	34.60	0.38	26.31	172	0.37
132	12.04	34.48 6	0.76	182	200	11.14	34.61	0.35	26.47	157	0.46
157	11.85	34.60 6	0.34	170	250	9.98	34.53	0.43	26.61	144	0.54
188	11.34	34.61 4	0.35	161	300	9.32	34.52	0.23	26.71	134	0.61
212	10.90	34.60 4	0.35	154	400	8.11	34.46	0.39	26.85	121	0.74
254	9.90	34.52 7	0.44	143	500	7.06	34.44	0.20	26.99	108	0.86
301	9.31	34.52 1	0.23a)	134							
375	8.31	34.47 2	0.44	123							
451	7.64	34.44 5	0.24	115							
530	6.67	34.43 8	0.20	103							

137.50

HORIZON; May 10-11, 1961; 2126, 0257 GCT; 24°36'N, 114°02.5'W; sounding, 2000+ fm; wind, 320°, force 3; weather, partly cloudy; sea, rough; wire angle, 30°, 29°.

0	18.10	33.73 1	5.51	364	0	18.10	33.73	5.51	24.30	364	0.00
8	17.68	33.72 3	5.56	354	10	17.65	33.72	5.56	24.40	354	0.04
30	17.35	33.71 7	5.56	347	20	17.49	33.72	5.56	24.44	350	0.07
38	17.24	33.70 2	5.56	346	30	17.35	33.72	5.56	24.47	347	0.11
50	16.31	33.64 8	5.60	329	50	16.31	33.65	5.60	24.66	329	0.17
63	14.72	33.67 6	4.93	294	75	14.00	33.67	4.53	25.18	280	0.25
83	13.38	33.66 7	4.15	268	100	12.60	33.81	3.33	25.57	242	0.32
98	12.78	33.80 5	3.43	246	125	12.10	34.13	1.87	25.91	210	0.37
114	12.11	33.93 7	2.69	224	150	11.23	34.29	1.23	26.20	183	0.42
136	12.10	34.30 7	1.25	197	200	10.82	34.44	0.75	26.39	164	0.51
158	11.22	34.30 7	1.22	181	250	10.16	34.48	0.59	26.54	150	0.59
187	10.84	34.39 2	0.95	168	300	9.32	34.46	0.45	26.66	139	0.67
209	10.78	34.46 7	0.66	162	400	8.01	34.41	0.32	26.83	123	0.81
246	10.23	34.48 1	0.60	152	500	7.09	34.42	0.26	26.97	109	0.93
293	9.44	34.46 5	0.45	140	600	6.14	34.41	0.37	27.09	98	1.04
366	8.33	34.39 9	0.44	128	700	5.57	34.44	0.30	27.19	89	1.14
434	7.74	34.42 4	0.22	118	800	5.00	34.46	0.38	27.27	81	1.24
492	7.13	34.40 5	0.10	111	1000	4.08	34.51	0.65	27.41	68	1.40
574	6.44	34.40 3	0.38	102	1200	3.58	34.54	0.86	27.48	61	1.55
710	5.52	34.42 0	0.26	90	1500	2.95	34.60	1.29	27.59	51	1.75
					2000	2.12	34.63	2.14	27.69	42	2.03
473b)	7.37	34.43 9c)	0.35	112	2500	1.80	34.66	2.61	27.74	37	2.27
559	6.29	34.40 7	0.35	100	3000	1.65	34.66	2.94	27.75	36	2.50
687	5.64	34.44 7	0.35	89							
861	4.67	34.47 8	0.45	76							
1036	3.99	34.51 3	0.68	67							
1213	3.55	34.54 3	0.87	60							
1391	3.18	34.57 1	1.11	55							
1570	2.80	34.60 5	1.40	49							
1749	2.44	34.60 9	1.72	46							
1930	2.18	34.62 8	2.08	42							
2111	2.02	34.64 1	2.21	40							
2291	1.90	34.64 4	2.44	39							
2474	1.80	34.65 7	2.60	37							
2657	1.75	34.65 4	2.69	37							
2840	1.68	34.65 8	2.78	36							
3026	1.64	34.66 2	2.95	36							
3212	1.63	34.66 7	3.02	35							
3400	1.63	34.66 7	3.11	35							

90

- a) Alternate value, 0.14 ml/L, not used in interpolation
 b) Overlapping casts; reconciliation of property curves when necessary.
 c) Salinity bottle numbers were not recorded on the data sheet. Since standard handling procedures were used, these salinity values are assumed to be in correct order.

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
6104-5

HORIZON; May 11, 1961; 1537 GCT; 24°17'N, 114°36'W; sounding, 1900 fm; wind, 320°, force 3; weather, partly cloudy; sea, rough; wire angle, 12°.

137.60

1	17.72	33.71	2	5.46	356	0	(17.72)	(33.71)	(5.46)	(24.37)	(356)	(0.00)
11	17.72	33.70	7	5.40	357	10	17.72	33.71	5.40	24.37	356	0.04
30	17.64	33.72	3	5.41	354	20	17.70	33.71	5.40	24.38	356	0.07
58	17.36	33.72	3	5.39	347	30	17.64	33.72	5.41	24.40	354	0.11
68	16.52	33.66	8	5.46	332	50	17.45	33.72	5.40	24.45	349	0.18
82	15.37	33.59	3	5.42	313	75	16.00	33.62	5.46	24.71	325	0.26
96	14.16	33.66	4	5.14	283	100	13.75	33.67	4.91	25.23	275	0.34
112	12.73	33.66	8	4.12	255	125	12.10	33.76	3.43	25.63	237	0.40
135	11.64	33.86	9	2.90	221	150	10.85	33.96	2.57	26.01	200	0.46
154	10.71	33.98	4	2.48	196	200	10.30	34.24	1.60	26.33	170	0.55
182	10.30	34.13	7	1.88	178	250	10.12	34.46	0.53	26.53	151	0.64
211	10.00	34.26	1	1.38	164	300	9.47	34.47	0.47	26.65	140	0.71
240	10.18	34.44	3	0.57	154	400	8.13	34.44	0.26	26.84	122	0.85
288	9.62	34.46	4	0.50	143	500	7.30	34.45	0.18	26.96	110	0.97
341	8.92	34.47	2	0.32	132	600	(6.24)	(34.42)		(27.09)	(99)	(1.08)
420	7.91	34.43	5	0.25	120							
512	7.20	34.44	6	0.18	109							
583	6.42	34.42	2	0.15	101							

HORIZON; May 11, 1961; 2030 GCT; 23°54'N, 115°15.5'W; sounding, 2050 fm; wind, 320°, force 5; weather, partly cloudy; sea, very rough; wire angle, 25°.

137.70

0	18.24	33.78	4	5.60	363	0	18.24	33.78	5.60	24.30	363	0.00
9	18.22	33.77	5	5.48	363	10	18.22	33.78	5.48	24.30	363	0.04
31	17.95	33.81	1	5.53	354	20	18.10	33.79	5.49	24.34	359	0.07
57	16.72	33.82	4	5.50	325	30	17.96	33.81	5.52	24.39	355	0.11
67	15.58	33.69	5	5.46	310	50	17.79	33.83	5.52	24.45	349	0.18
84	14.48	33.70	6	4.75	287	75	15.14	33.70	5.23	24.96	300	0.26
97	13.28	33.75	2	3.97	259	100	13.09	33.78	3.80	25.45	254	0.33
109	12.77	33.88	1	3.39	240	125	12.70	33.94	3.25	25.65	235	0.39
134	11.44	34.03	5	2.52	205	150	11.14	34.16	2.01	26.12	191	0.45
151	11.13	34.16	6	1.99	190	200	10.95	34.41	0.90	26.34	169	0.54
176	11.05	34.29	5	1.41	179	250	10.80	34.58	0.35	26.50	154	0.62
206	11.01	34.45	6	0.79	166	300	11.11	34.56	0.29	26.43	161	0.70
231	11.00	34.58	6	0.38	157	400	8.71	34.52	0.16	26.81	125	0.85
274	10.46	34.56	7	0.33	149	500	7.34	34.45	0.18	26.96	111	0.98
330	9.70	34.55	3	0.22	138							
419	8.44	34.50	6	0.15	122							
499	7.36	34.45	0	0.18	111							
569	6.56	34.43	7	0.17	101							

HORIZON; May 12, 1961; 0102 GCT; 23°39.5'N, 115°55.5'W; sounding, 1990 fm; wind, 330°, force 5; weather, partly cloudy; sea, rough; wire angle, 28°.

137.80

1	18.78	33.95	5	5.46	363	0	(18.78)	(33.96)	(5.46)	(24.30)	(363)	(0.00)
10	18.77	33.94	4	5.41	364	10	18.77	33.94	5.41	24.29	364	0.04
31	18.26	33.93	5	5.42	353	20	18.75	33.94	5.41	24.30	364	0.07
57	16.76	33.81	9	5.51	327	30	18.26	33.94	5.42	24.42	352	0.11
66	15.51	33.73	3	5.17	306	50	18.26	33.94	5.42	24.42	352	0.18
83	14.04	33.83	2	3.84	268	75	14.67	33.79	4.41	25.13	284	0.26
96	13.50	33.89	8	3.35	253	100	13.30	33.92	3.18	25.52	248	0.33
109	12.90	33.99	1	2.75	235	125	12.53	34.10	2.24	25.81	220	0.39
134	12.32	34.15	7	1.96	212	150	11.93	34.24	1.65	26.03	199	0.44
152	11.84	34.25	8	1.59	196	200	11.40	34.50	0.72	26.33	170	0.53
178	11.61	34.43	4	0.79	179	250	10.61	34.54	0.49	26.51	153	0.62
209	11.22	34.51	3	0.69	166	300	9.91	34.55	0.34	26.64	141	0.69
234	10.85	34.54	0	0.54	158	400	8.88	34.53	0.20	26.79	127	0.83
277	10.22	34.54	4	0.40	147	500	7.53	34.45	0.22	26.93	113	0.96
335	9.46	34.54	1	0.27	135							
424	8.64	34.52	4	0.20	123							
507	7.42	34.45	1	0.23	112							
579	6.64	34.45	5	0.21	101							

Station	Date	Time GCT	Latitude North	Longitude West	Sounding (fm)	Wind		Weather	Sea	0 Meters		10 Meters	
						Dir	Force			T	S	T	S
60.55-H	IV-16	0238	37°47.5'	123°15.0'	70	310°	5	partly cloudy	rough	-		9.88	33.68
70.55-H	13	1045	36°03.0'	121°58.5'	560	320°	6	partly cloudy	very rough	-		-	-
80.65-H	9	0430	34°01.5'	121°31.5'	1797	310°	4	clear	rough	-		12.94	33.39
82.47-B	5	1235	34°15.0'	119°58.0'	300	050°	1	fog	moderate	12.82		11.03	33.91
82.47-B	19	2115	34°15.0'	119°58.0'	300	280°	7	overcast	rough	11.28		11.27	33.86
83.40-B	5	0735	34°14.0'	119°21.5'	12	180°	1	fog	moderate	13.84		11.80	33.78
83.40-B	19	1645	34°14.0'	119°22.0'	12	300°	2	overcast	rough	13.44		12.48	33.94
83.43-B	19	1830	34°08.0'	119°34.0'	134	210°	2	overcast	rough	12.74		12.69	33.75
83.45-B	5	0935	34°08.0'	119°35.0'	130	120°	3	fog	moderate	12.32		11.76	33.93
83.48-B	5	1505	33°58.0'	119°55.0'	100	150°	3	overcast	moderate	12.04		11.99	33.57
83.50-B	5	1800	33°50.5'	120°00.0'	75	150°	2	overcast	moderate	12.82		12.36	33.72
83.51-B	20	1835	33°52.0'	120°07.5'	50	270°	6	cloudy	very rough	11.64		11.60	33.83
83.55-B	20	2020	33°44.0'	120°24.5'	500	280°	6	clear	very rough	11.80		11.75	33.77
83.65-B	21	0300	33°24.0'	121°06.0'	1900	320°	6	partly cloudy	very rough	12.38		12.38	33.60
83.70-B	21	0545	33°14.0'	121°26.0'	2000	310°	6	partly cloudy	very rough	12.62		12.60	33.51
83.80-B	21	1015	32°51.5'	122°11.0'	2000	290°	4	clear	rough	13.66		13.66	33.41
83.90-B	21	1520	32°28.0'	122°58.0'	2000	300°	4	cloudy	rough	14.60		14.61	33.40
85.40-B	5	0520	33°57.0'	119°10.5'	400	180°	1	fog	moderate	14.14		13.32	33.70
85.45-B	5	0230	33°47.0'	119°31.5'	1000	250°	3	partly cloudy	rough	12.40		11.42	34.08

TEMPERATURE AND SALINITY AT 0 AND 10 METERS (NET-TOW STATIONS)

Station	Date	Time GCT	Latitude North	Longitude West	Sounding (fm)	Wind		Weather	Sea	0 Meters		10 Meters	
						Dir	Force			T	S	T	S
85.50-B	IV-5	0000	33°37.0'	119°52.0'	150	320°	3	partly cloudy	moderate	13.22		11.94	33.60
85.55-B	4	2105	33°27.0'	120°13.0'	640	320°	5	clear	rough	12.69		11.98	33.63
87.35-B	4	0710	33°50.0'	118°37.5'	300	320°	1	missing	slight	14.32		14.27	33.62
87.35-B	22	2310	33°50.0'	118°37.5'	300	270°	4	partly cloudy	moderate	14.84		14.52	33.72
87.40-B	4	0940	33°40.0'	118°59.0'	450	230°	1	missing	slight	14.10		-	33.75
87.40-B	22	2040	33°40.0'	118°58.0'	400	270°	4	partly cloudy	moderate	15.00		14.70	33.66
87.45-B	4	1255	33°30.0'	119°19.0'	900	220°	2	clear	moderate	12.06		12.00	33.78
87.45-B	22	1800	33°30.0'	119°19.0'	900	270°	5	cloudy	rough	14.08		14.08	33.73
87.50-B	4	1525	33°20.0'	119°39.5'	42	270°	4	clear	rough	12.94		12.93	33.71
87.50-B	22	1525	33°20.0'	119°39.5'	40	250°	4	cloudy	rough	13.10		12.86	33.72
87.55-B	4	1810	33°09.5'	120°01.0'	600	270°	4	clear	rough	12.63		11.92	33.61
87.55-B	22	1300	33°09.0'	120°01.0'	600	240°	4	partly cloudy	moderate	13.91		13.58	33.40
87.60-B	22	1010	32°59.0'	120°21.5'	400	240°	4	cloudy	moderate	14.42		14.40	33.46
87.65-B	22	0756	32°49.5'	120°41.5'	2050	180°	4	cloudy	moderate	13.92		13.84	33.44
87.70-B	22	0525	32°39.5'	121°02.0'	2100	180°	4	cloudy	moderate	14.68		14.57	33.39
87.80-B	22	0050	32°19.5'	121°44.0'	2200	320°	3	cloudy	moderate	14.20		13.54	33.47
87.90-B	21	1935	31°59.0'	122°24.0'	2400	270°	3	cloudy	rough	15.30		15.16	33.46
88 ⁵ .32-B	6	0455	33°38.5'	118°17.5'	270	140°	4	cloudy	moderate	14.30		13.65	33.68
89 ⁵ .34-B	6	1335	33°22.0'	118°14.0'	300	110°	2	overcast	moderate	14.86		14.78	33.62

TEMPERATURE AND SALINITY AT 0 AND 10 METERS (NET-TOW STATIONS)

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Station	Date	Time GCT	Latitude North	Longitude West	Sounding (fm)	Wind		Weather	Sea	0 Meters		10 Meters	
						Dir	Force			T	S	T	S
90.28-B	IV-6	0808	33°28.0'	117°47.0'	250	140°	3	cloudy	moderate	14.76		14.78	33.62
90.65-H	24	0325	32°08.0'	120°15.0'	1950	330°	6	clear	very rough	-		14.05	33.40
90 ⁵ .35 ⁵ -B	6	1845	33°07.5'	118°13.0'	500	140°	3	overcast	moderate	14.94		14.86	33.64
91 ⁵ .37-B	6	2050	32°53.0'	118°12.0'	475	150°	1	overcast	slight	15.32		15.15	33.66
93.35-B	23	1255	32°40.0'	117°52.0'	325	300°	5	cloudy	rough	15.60		15.61	33.63
93.45-B	23	1855	32°20.0'	118°33.0'	880	300°	6	partly cloudy	very rough	15.12		15.14	33.60
93.55-B	24	0035	32°00.0'	119°13.5'	950	310°	5	partly cloudy	very rough	14.65		14.79	-
93.65-B	24	0735	31°40.0'	119°54.5'	2000	320°	7	partly cloudy	very rough	14.94		14.97	33.55
93.70-B	24	0955	31°30.0'	120°15.0'	2000	320°	8	partly cloudy	high	14.70		14.79	33.63
97.30-B	26	1750	32°15.5'	117°08.5'	33	320°	3	clear	moderate	14.55a)		13.84	33.67
97.32-B	26	1650	32°11.5'	117°16.5'	700	310°	3	partly cloudy	moderate	15.58		15.21	33.70
97.35-B	26	1435	32°02.5'	117°27.5'	620	320°	4	partly cloudy	rough	15.04		15.06	33.66
97.40-B	26	1140	31°54.0'	117°52.0'	350	270°	3	partly cloudy	rough	14.69		14.70	33.62
97.45-B	26	0840	31°46.5'	118°12.5'	600	270°	4	partly cloudy	very rough	14.72		14.78	33.73
97.50-B	26	0625	31°39.0'	118°32.0'	1250	270°	4	partly cloudy	rough	14.64		14.62	33.67
97.55-B	26	0335	31°31.5'	118°52.0'	700	320°	5	partly cloudy	very rough	14.18		14.17	33.55
97.60-B	26	0100	31°19.0'	119°12.0'	1900	320°	5	partly cloudy	very rough	15.18		15.15	33.64

a) Alternate value, 15.44°C.

TEMPERATURE AND SALINITY AT 0 AND 10 METERS (NET-TOW STATIONS)

Station	Date	Time GCT	Latitude North	Longitude West	Sounding (fm)	Wind		Weather	Sea	0 Meters		10 Meters	
						Dir	Force			T	S	T	S
97.65-B	IV-25	2135	31°07.0'	119°33.0'	2000	330°	6	cloudy	very rough	15.36		15.36	33.68
97.70-B	25	1915	30°55.0'	119°50.5'	1950	330°	6	cloudy	high	14.96		14.92	33.50
97.80-B	25	1310	30°40.0'	120°42.0'	2100	330°	6	cloudy	very rough	15.80		15.82	33.53
97.90-B	25	0820	30°17.0'	121°17.5'	2000	330°	5	cloudy	rough	15.96		15.96	33.53
100.45-H	27	1149	31°12.0'	117°47.0'	630	300°	4	partly cloudy	rough	-		15.70	-
100.55-H	29	1327	30°50.0'	118°25.0'	1370	310°	5	cloudy	rough	-		14.42	33.54
100.65-H	29	1852	30°28.0'	119°03.0'	40	330°	5	cloudy	very rough	-		16.14	33.62
103.30-B	28	0915	31°05.0'	116°24.5'	37	320°	3	clear	moderate	12.02		12.00	33.76
103.35-B	28	1205	30°55.0'	116°45.0'	-	320°	4	clear	rough	15.38		15.38	33.67
103.40-B	28	1435	30°43.0'	117°05.0'	850	320°	5	partly cloudy	rough	15.60		15.62	33.67
103.45-B	28	1705	30°33.0'	117°23.5'	1000	320°	4	partly cloudy	moderate	15.60		15.71	33.66
103.50-B	28	1920	30°26.0'	117°44.5'	1240	320°	4	partly cloudy	moderate	15.78		15.63	33.65
103.55-B	28	2110	30°19.5'	117°56.0'	1400	320°	4	partly cloudy	moderate	16.15		15.96	33.59
103.60-B	28	2345	30°10.5'	118°17.0'	1500	320°	4	partly cloudy	moderate	16.70		16.66	33.63
103.65-B	29	0228	30°00.0'	118°37.0'	1850	320°	4	partly cloudy	rough	16.61		16.63	33.66
103.70-B	29	0422	29°52.0'	118°53.5'	1800	320°	4	partly cloudy	moderate	17.20		17.21	33.81
103.80-B	29	0900	29°33.0'	119°31.0'	1600	320°	5	cloudy	rough	17.20		17.27	33.80
103.90-B	29	1410	29°15.0'	120°08.0'	1900	330°	5	cloudy	rough	15.94		15.96	33.57
107.32-B	V-1	0215	30°25.0'	116°11.0'	365	340°	6	cloudy	rough	14.11		14.02	33.64

TEMPERATURE AND SALINITY AT 0 AND 10 METERS (NET-TOW STATIONS)

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6104-5

Station	Date	Time GCT	Latitude North	Longitude West	Sounding (fm)	Wind		Weather	Sea	0 Meters		10 Meters	
						Dir	Force			T	S	T	S
107.35-B	V-1	0025	30°20.0'	116°22.5'	850	320°	6	partly cloudy	very rough	16.28		16.26	33.64
107.40-B	IV-30	2118	30°10.0'	116°43.0'	1300	320°	5	partly cloudy	very rough	15.98		15.84	33.62
107.45-B	30	1840	29°59.0'	117°03.0'	1150	340°	5	partly cloudy	rough	16.02		16.01	33.66
107.50-B	30	1620	29°50.5'	117°23.5'	1200	330°	6	partly cloudy	rough	15.74		15.71	33.67
107.55-B	30	1358	29°40.0'	117°43.0'	1650	330°	6	cloudy	rough	16.51		16.54	33.65
107.60-B	30	1115	29°32.0'	118°01.5'	1800	330°	6	cloudy	very rough	16.53a)		16.49	33.65
107.65-B	30	0825	29°21.0'	118°21.0'	1600	330°	6	cloudy	very rough	16.66		16.61	33.61
107.70-B	30	0530	29°11.0'	118°40.0'	2000	340°	5	cloudy	rough	16.64		16.64	33.58
107.80-B	29	2130	28°51.5'	119°19.5'	2000	340°	5	cloudy	rough	16.06		16.09	33.51
107.90-B	29	1845	28°32.0'	119°59.0'	2040	340°	5	cloudy	rough	16.80		16.76	33.62
110.33-H	V-4	0305	29°50.0'	115°52.2'	45	300°	5	overcast	high	-		11.71	33.89
110.45-H	3	1830	29°25.0'	116°34.0'	430	290°	5	overcast	high	-		16.10	33.68
110.55-H	3	1131	29°05.5'	117°16.5'	1858	300°	6	overcast	very rough	-		16.86	33.76
110.65-H	3	0415	28°47.0'	117°58.5'	1890	320°	5	clear	very rough	-		16.66	33.62
113.30-B	1	1027	29°22.0'	115°18.0'	34	300°	6	cloudy	very rough	12.20		12.20	33.81
113.35-B	1	1322	29°11.5'	115°38.0'	600	330°	6	cloudy	very rough	14.26		14.44	33.51
113.40-B	1	1605	29°02.0'	115°57.0'	900	330°	6	partly cloudy	very rough	13.76		13.76	33.78

a) Alternate value, 16.34°C.

TEMPERATURE AND SALINITY AT 0 AND 10 METERS (NET-TOW STATIONS)

Station	Date	Time GCT	Latitude North	Longitude West	Sounding (fm)	Wind		Weather	Sea	0 Meters		10 Meters	
						Dir	Force			T	S	T	S
113.45-B	V-1	1845	28°51.5'	116°17.5'	1000	330°	6	cloudy	very rough	15.64		15.61	33.69
113.50-B	1	2215	28°42.0'	116°34.0'	2000	320°	7	cloudy	high	16.30		16.36	33.73
113.55-B	2	0125	28°32.5'	117°01.0'	1750	320°	7	partly cloudy	high	16.51		16.51	33.68
113.60-B	2	0340	28°25.0'	117°17.0'	1950	320°	6	clear	high	16.44		16.44	33.70
113.65-B	2	0610	28°14.5'	117°36.0'	2000	320°	6	partly cloudy	high	16.56		16.58	33.68
113.70-B	2	0915	28°04.0'	117°55.0'	1700	320°	6	cloudy	very rough	16.90		16.94	33.72
113.80-B	2	1425	27°42.0'	118°33.5'	2000	340°	6	cloudy	very rough	17.58		17.59	33.86
113.90-B	2	1900	27°22.0'	119°07.0'	2000	320°	6	cloudy	high	17.64		17.63	33.84
117.26-B	5	0640	28°56.0'	114°41.5'	40	270°	5	partly cloudy	very rough	14.04		14.06	33.80
117.30-B	5	0440	28°48.0'	114°56.5'	50	270°	5	partly cloudy	very rough	13.68		13.66	33.86
117.35-B	5	0200	28°38.0'	115°16.0'	120	300°	5	cloudy	very rough	15.72		15.73	33.68
117.40-B	4	0325	28°28.0'	115°35.5'	450	320°	5	cloudy	very rough	16.32		16.31	33.66
117.45-B	4	0028	28°18.0'	115°56.0'	1800	320°	5	cloudy	very rough	16.46		16.54	33.68
117.50-B	3	2125	28°08.0'	116°15.0'	2000	310°	5	cloudy	rough	16.46		16.47	33.60
117.55-B	3	1820	28°01.0'	116°35.5'	1500	320°	5	cloudy	high	16.32		16.31	33.68
117.60-B	3	1525	27°42.0'	116°57.0'	1700	320°	5	overcast	rough	16.26		16.23	33.74
117.65-B	3	1228	27°33.5'	117°15.0'	2000	310°	5	partly cloudy	very rough	16.45		16.45	33.82
117.70-B	3	0940	27°25.0'	117°33.0'	2000	300°	8	cloudy	very rough	16.70		16.66	33.67
117.80-B	3	0400	27°08.0'	118°10.5'	2000	320°	7	partly cloudy	high	17.62		17.63	33.91

TEMPERATURE AND SALINITY AT 0 AND 10 METERS (NET-TOW STATIONS)

CCOFI
6104-5

S10

Station	Date	Time GCT	Latitude North	Longitude West	Sounding (fm)	Wind		Weather	Sea	0 Meters		10 Meters	
						Dir	Force			T	S	T	S
117.90-B	V-2	2336	26°50.0'	118°45.0'	2000	320°	5	cloudy	very rough	17.71		17.76	33.83
118.39-B	4	0510	28°18.5'	115°23.5'	120	320°	5	overcast	rough	14.99		15.00	33.66
120.25-B	5	1140	28°22.5'	114°15.0'	30	300°	5	partly cloudy	rough	14.72		14.75	33.70
120.30-B	5	1348	28°13.0'	114°34.0'	50	310°	5	cloudy	rough	14.02		14.00	33.79
120.35-B	5	1625	28°03.0'	114°54.0'	47	310°	5	partly cloudy	rough	15.20		15.18	33.81
120.40-H	4	2355	27°56.0'	115°14.0'	23	300°	6	cloudy	rough	-		15.98	33.76
120.40-B	5	2334	27°56.5'	115°14.0'	25	300°	6	partly cloudy	very rough	15.04		14.91	33.83
120.55-H	5	0802	27°23.0'	116°13.0'	1980	310°	4	overcast	high	-		15.34	33.58
120.65-H	5	1435	27°04.5'	116°51.5'	2060	330°	4	cloudy	very rough	-		16.69	33.69
123.37-B	6	0410	27°24.0'	114°40.0'	39	270°	4	clear	rough	12.22		12.24	34.14
123.42-B	6	0645	27°14.0'	114°59.0'	820	290°	5	cloudy	rough	12.96		12.99	33.83
123.45-B	6	0906	27°08.0'	115°10.5'	2200	320°	5	cloudy	very rough	15.77		15.76	33.72
123.50-B	6	1158	26°58.0'	115°31.0'	2200	320°	6	cloudy	very rough	16.22		16.22	33.74
123.55-B	6	1440	26°47.5'	115°50.5'	200	340°	6	cloudy	very rough	16.67		16.68	33.80
123.60-B	6	1715	26°35.0'	116°09.5'	2200	300°	6	cloudy	very rough	16.99		16.98	34.03
123.65-B	6	2045	26°25.5'	116°28.5'	2000	320°	6	cloudy	very rough	17.24		17.24	33.82
123.70-B	6	2238	26°19.0'	116°47.0'	2000	330°	4	cloudy	rough	17.22		17.20	33.82
123.80-B	7	0325	25°59.0'	117°25.5'	2150	330°	4	partly cloudy	rough	16.89		16.90	33.79
127.34-B	8	0946	26°55.0'	114°06.5'	40	350°	4	clear	very rough	12.92		12.92	33.98

TEMPERATURE AND SALINITY AT 0 AND 10 METERS (NET-TOW STATIONS)

Station	Date	Time GCT	Latitude North	Longitude West	Sounding (fm)	Wind		Weather	Sea	0 Meters		10 Meters	
						Dir	Force			T	S	T	S
127.40-B	V-8	0650	26°43.5'	114°29.0'	1400	340°	6	clear	very rough	15.32		15.31	33.75
127.45-B	8	0350	26°33.0'	114°48.5'	1750	340°	7	clear	high	16.62		16.63	33.83
127.50-B	8	0110	26°23.0'	115°08.0'	2000	340°	7	clear	high	16.76		16.76	33.89
127.55-B	7	2211	26°13.5'	115°27.0'	2000	340°	5	partly cloudy	very rough	17.18		17.19	33.81
127.60-B	7	1910	26°05.5'	115°45.0'	2000	340°	6	partly cloudy	very rough	17.52		17.50	33.83
127.65-B	7	1610	25°58.0'	116°08.0'	2000	340°	6	cloudy	very rough	17.69		17.68	33.89
127.70-B	7	1310	25°48.0'	116°31.5'	2100	340°	5	partly cloudy	very rough	17.03		17.05	33.78
127.80-B	7	0730	25°24.0'	117°02.5'	2200	310°	3	partly cloudy	rough	17.26		17.27	33.78
130.35-H	9	0605	26°15.0'	113°47.0'	300	290°	4	clear	rough	-		14.60	33.74
130.45-H	8	2333	26°03.0'	114°30.0'	1910	290°	4	partly cloudy	very rough	-		17.16	33.68
130.55-H	8	1717	25°43.0'	115°11.0'	1700	340°	5	cloudy	high	-		17.34	33.76
133.25-B	8	2101	26°04.5'	112°48.0'	45	260°	3	partly cloudy	slight	15.14		14.40	33.93
133.30-B	8	2339	25°53.5'	113°07.0'	100	260°	4	partly cloudy	moderate	15.68		15.08	33.86
133.35-B	9	0200	25°42.0'	113°25.0'	350	290°	5	cloudy	rough	15.64		15.54	33.77
133.40-B	9	0415	25°34.5'	114°45.5'	1200	290°	4	partly cloudy	rough	16.28		16.24	33.74
133.45-B	9	0645	25°24.5'	114°04.5'	1950	290°	4	partly cloudy	rough	15.88		15.89	33.78
133.50-B	9	1003	25°14.0'	114°24.0'	1700	280°	4	partly cloudy	rough	17.24		17.22	33.82
133.55-B	9	1232	25°03.5'	114°42.0'	1800	300°	4	partly cloudy	rough	16.87		16.86	33.78
133.60-B	9	1510	24°54.5'	115°02.0'	2100	320°	4	partly cloudy	rough	17.06		17.06	33.80

TEMPERATURE AND SALINITY AT 0 AND 10 METERS (NET-TOW STATIONS)

Station	Date	Time GCT	Latitude North	Longitude West	Sounding (fm)	Wind		Weather	Sea	0 Meters		10 Meters	
						Dir	Force			T	S	T	S
133.65-B	V-9	1745	24°43.5'	115°20.0'	2000	300°	4	partly cloudy	rough	17.76		17.64	33.86
133.70-B	9	2150	24°34.0'	115°40.5'	2000	320°	4	partly cloudy	moderate	18.46		18.22	34.08
133.80-B	10	0135	24°14.5'	116°17.0'	2100	330°	4	partly cloudy	rough	18.92		18.91	34.19
137.35-H	10	1300	25°08.5'	113°05.5'	720	-	1	partly cloudy	moderate	-		15.98	33.85
137.45-H	10	1823	24°48.0'	113°43.0'	1800	320°	3	partly cloudy	very rough	-		17.06	33.69
137.55-H	11	1315	24°25.0'	114°21.5'	2000	340°	4	partly cloudy	rough	-		17.38	33.72

TEMPERATURE AND SALINITY AT 0 AND 10 METERS (NET-TOW STATIONS)

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