

UNIVERSITY OF CALIFORNIA SCRIPPS INSTITUTION OF OCEANOGRAPHY

data report

PHYSICAL AND CHEMICAL DATA

CCOFI Cruise 6109 (WESTWIND DRIFT)
31 August - 19 September 1961

and

CCOFI Cruise 6110-11
10 October - 12 November 1961

SIO Reference 62-17
26 July 1962

UNIVERSITY OF CALIFORNIA
SCRIPPS INSTITUTION OF OCEANOGRAPHY

PHYSICAL AND CHEMICAL DATA

CCOFI Cruise 6109
31 August - 19 September 1961

and

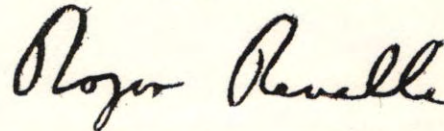
CCOFI Cruise 6110-11
10 October - 12 November 1961

Sponsored by

Marine Research Committee

SIO Reference 62-17
26 July 1962

Approved for distribution:



Roger Revelle, Director

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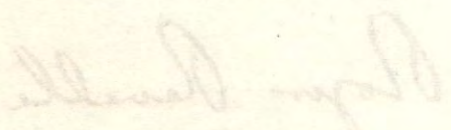
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Approved for distribution:

Roger Revelle, Director

INTRODUCTION

The data presented in this report were collected by the RV Horizon of the Scripps Institution of Oceanography on Cruise 6109 of the California Cooperative Oceanic Fisheries Investigations program and by the RV Black Douglas of the Bureau of Commercial Fisheries and the RV Horizon of the Scripps Institution on Cruise 6110-11. 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), 6101-2 (SIO Ref. 61-24), 6103, 6104-5 and 6105 (SIO Ref. 62-15) and 6107-8 and 6108 (SIO Ref. 62-16).

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

^{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.

obtained by chlorinity titration, or by salinometer where only one determination 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.

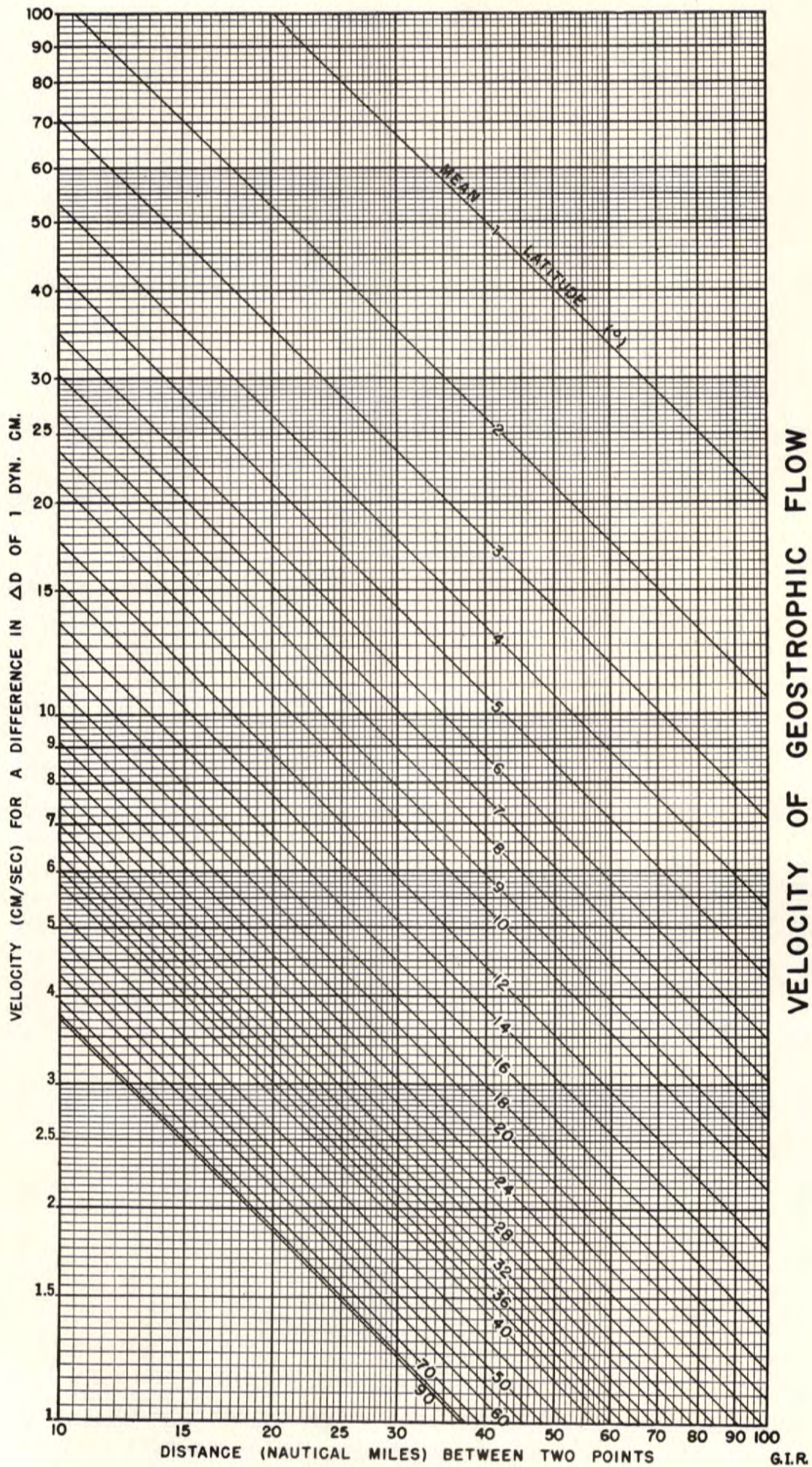
Values which are not drawn through because they seem to be in error without apparent reason are indicated by one of the following notations.

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 6109 data is numbered 176; Cruise 6110-11, 179.



FIGURES

1. CCOFI Cruise 6110-11, 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

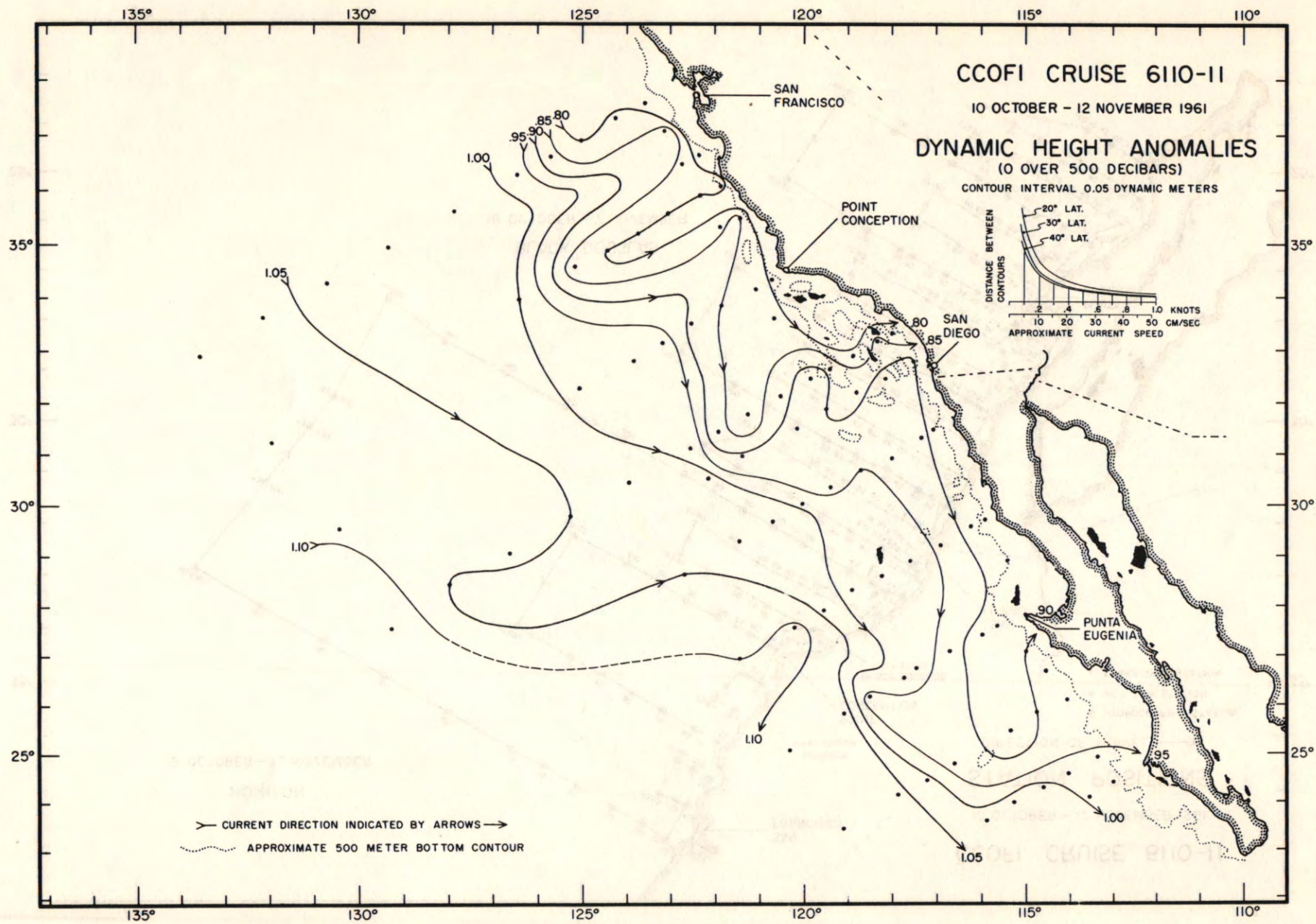


FIGURE 2

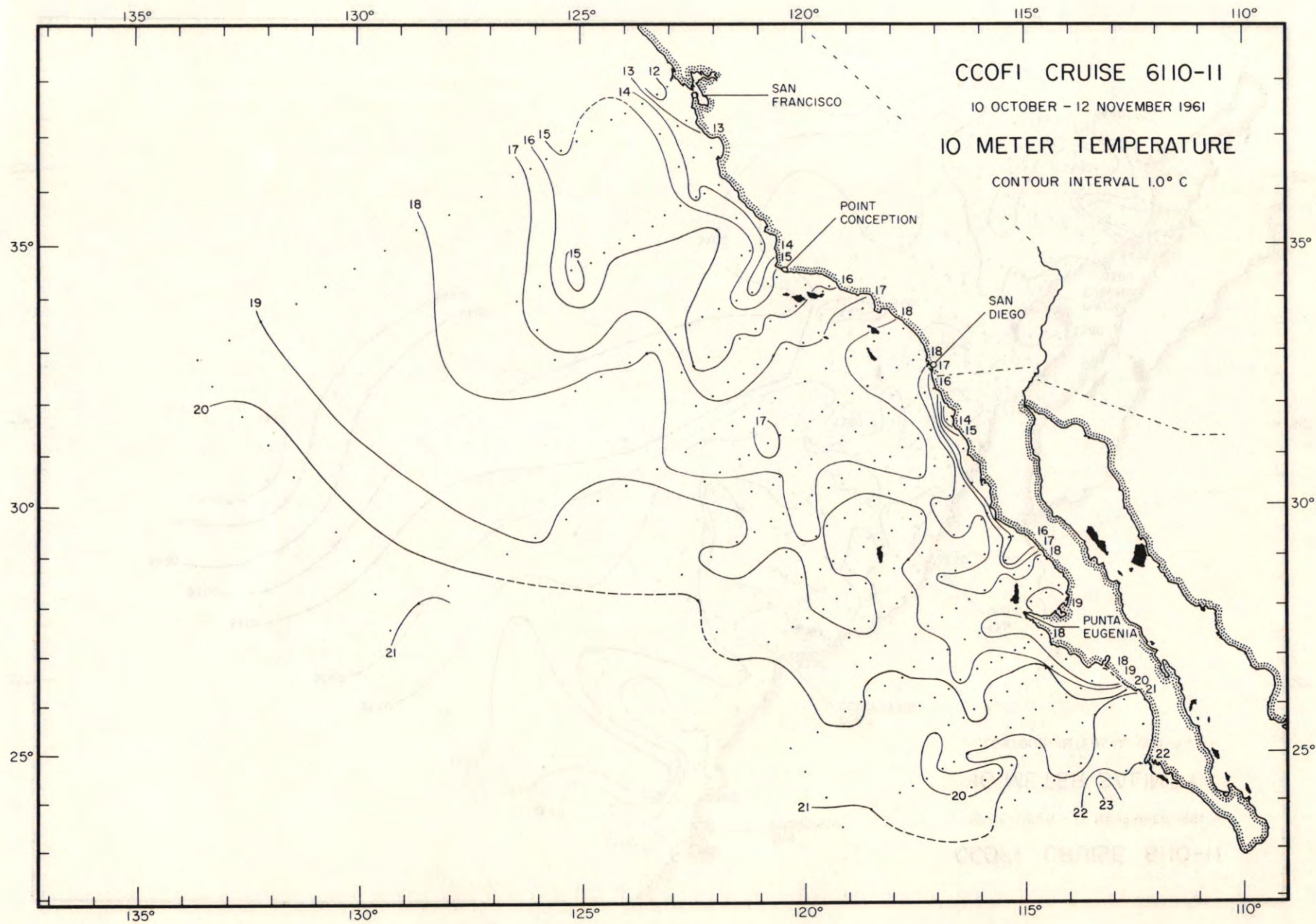


FIGURE 3

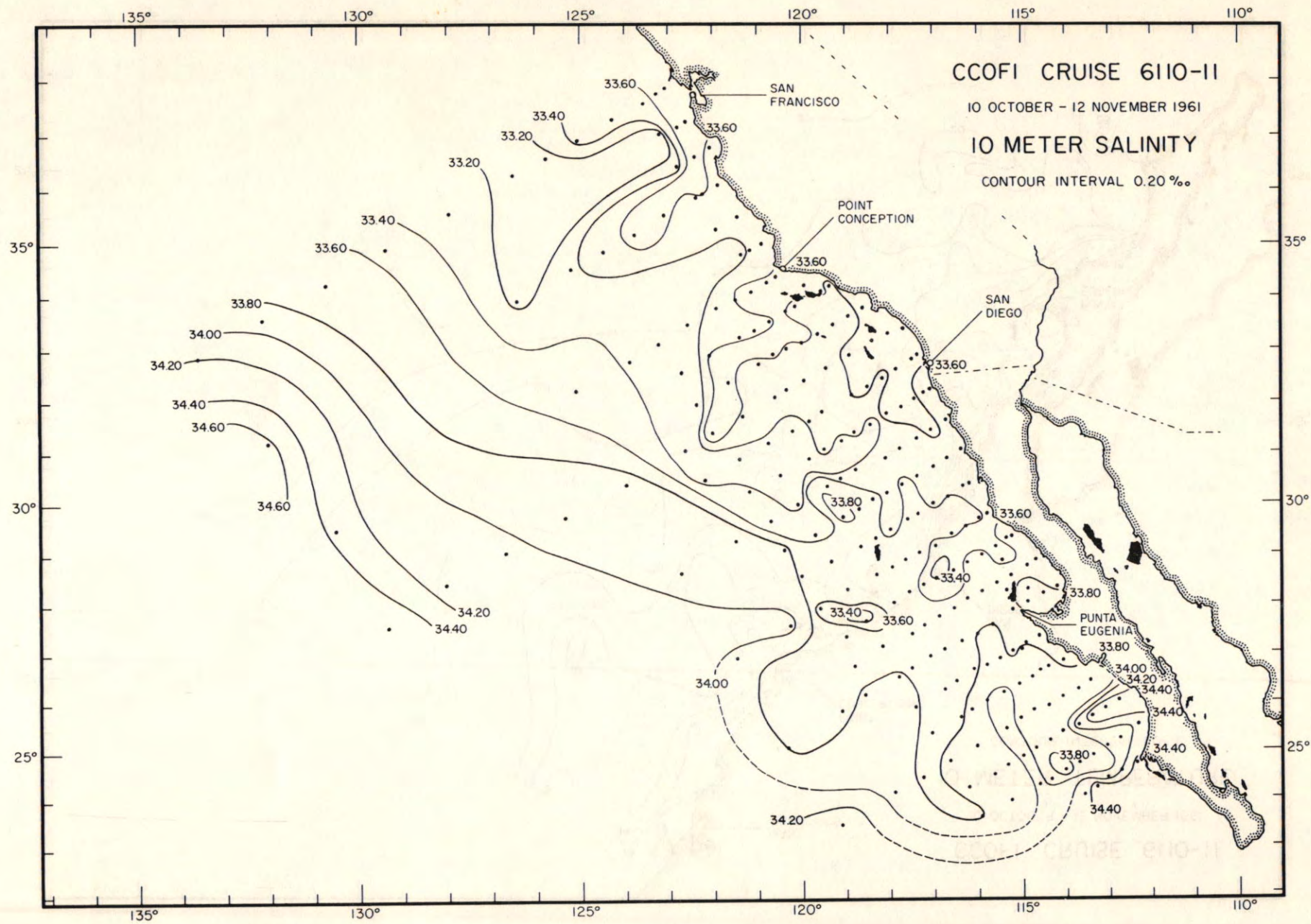


FIGURE 4

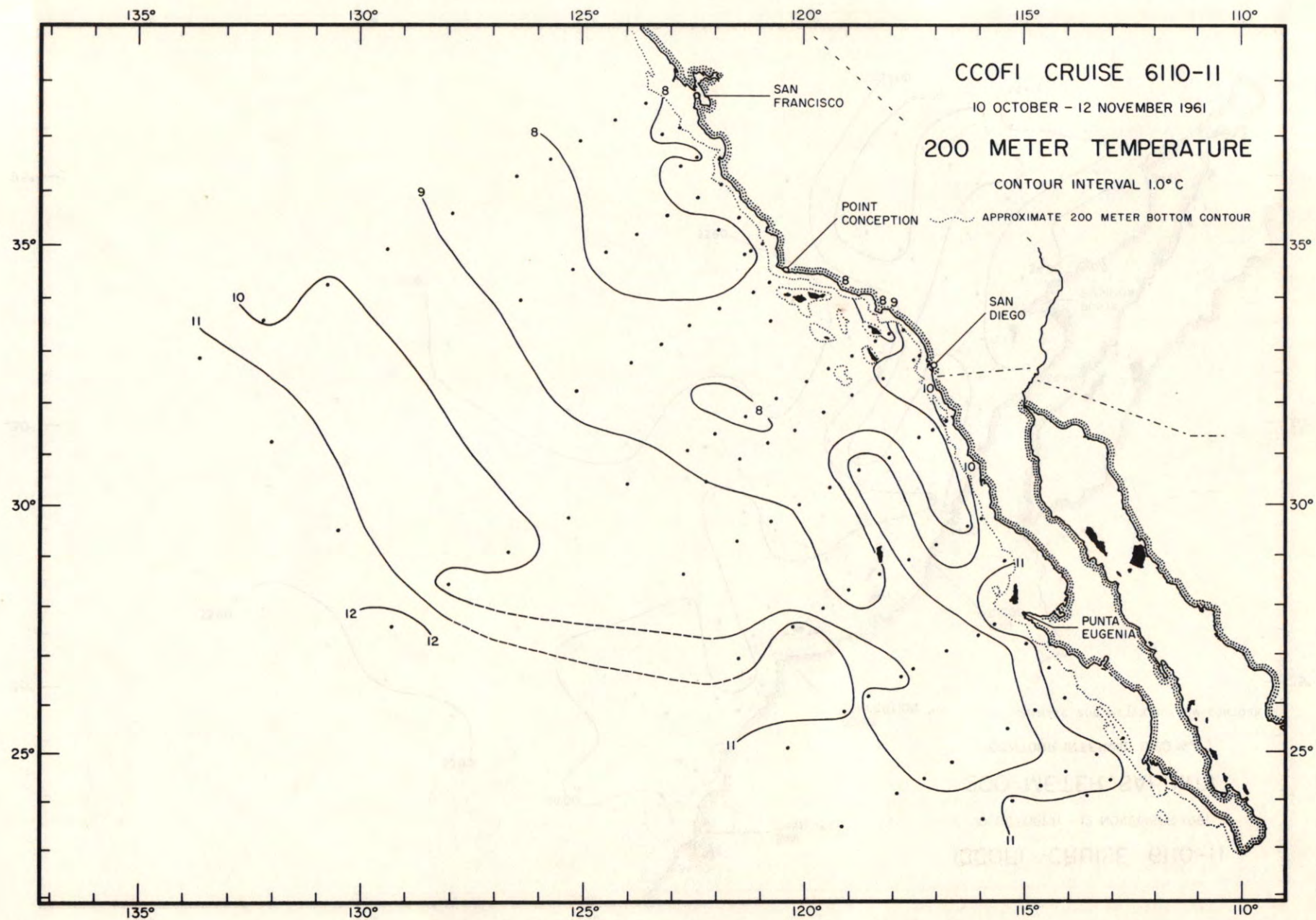


FIGURE 5

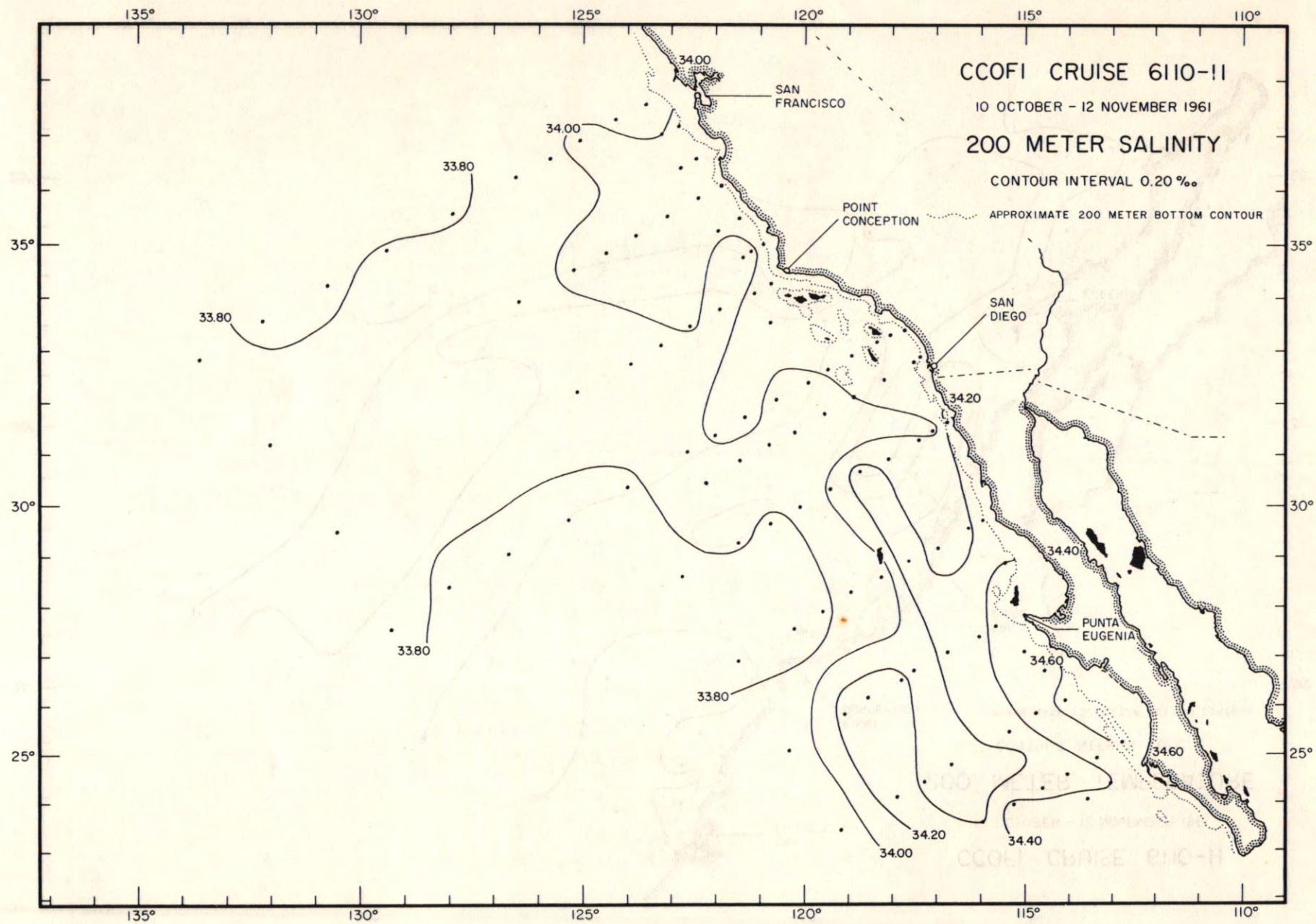


FIGURE 6

PERSONNEL
Cruise 6110-11

SHIPS' CAPTAINS

Davis, Laurence E., RV Horizon
Forster, Charles W., RV Black Douglas

PERSONNEL PARTICIPATING IN THE COLLECTION OF DATA

RV Black Douglas

Farrar, Lloyd, Fishery Aid, Bureau of Commercial Fisheries, La Jolla
Farrell, David E., Marine Technician
Metoyer, Jack D., Fishery Aid, Bureau of Commercial Fisheries, La Jolla
Sanger, Gerald A., Fishery Aid, Bureau of Commercial Fisheries, La Jolla

RV Horizon

Bottom, Kenneth S., Senior Marine Technician
Brennen, Robert E., Senior Marine Technician
Bryan, Walter R., Marine Technician
Crandall, David E., Engineering Aid
Davies, I. Edward, Mathematician, Bureau of Commercial Fisheries, San Diego
Denton, Peter H., Engineering Aid
Engebretson, David W., Marine Technician
Harris, John P., Marine Technician
Hester, Arthur W., Senior Marine Technician
Hodnett, Haley L., Marine Technician
Wagner, Vaughn M., Fishery Aid, Bureau of Commercial Fisheries, La Jolla

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
6110-11

HORIZON; October 18, 1961; 2205 GCT; 37°53.5'N, 123°02'W; sounding, 45 fm; wind, 180°, force 1; weather, overcast; sea, moderate; wire angle, 01°.

60.52

1	13.06	33.72 7	6.71	257	0	(13.06)	(33.73)	(6.71)	(25.42)	(257)	(0.00)
11	12.72	33.74 0	6.08	250	10	12.77	33.74	6.14	25.48	251	0.03
31	11.14	33.77 5	4.30	219	20	11.50	33.75	4.79	25.73	227	0.05
51	10.16	33.84 9	2.63	197	30	11.17	33.77	4.36	25.81	220	0.07
					50	10.18	33.85	2.67	26.04	197	0.11

HORIZON; October 19, 1961; 0223 GCT; 37°37'N, 123°37'W; sounding, 1745 fm; wind, 240°, force 1; weather, overcast; sea, moderate; wire angle, 00°.

60.60

1	14.48	33.43 4	5.77	306	0	(14.48)	(33.43)	(5.77)	(24.89)	(307)	(0.00)
11	14.06	33.46 3	5.72	296	10	14.07	33.46	5.72	25.00	296	0.03
31	11.42	33.43 8	4.91	249	20	14.02	33.46	5.71	25.01	295	0.06
41	10.29	33.56 7	4.22	220	30	12.00	33.44	5.12	25.40	259	0.09
50	9.86	33.66 3	3.77	206	50	9.86	33.66	3.77	25.95	206	0.13
65	9.24	33.70 3	3.64	193	75	8.98	33.74	3.78	26.16	187	0.18
80	8.88	33.76 2	3.81	184	100	8.64	33.88	2.97	26.32	171	0.23
100	8.64	33.87 9	2.97	171	125	8.28	33.93	3.94	26.41	162	0.27
125	8.28	33.93 3	3.94	162	150	7.98	33.95	3.65	26.47	157	0.31
145	8.02	33.94 7	3.77	157	200	7.37	33.98	2.69	26.59	146	0.39
175	7.73	33.97 6	2.97	151	250	6.78	34.02	2.30	26.70	135	0.46
205	7.28	33.98 8	2.67	144	300	6.67	34.11	1.20	26.78	127	0.53
234	6.74	33.98 5	2.73	137	400	5.47	34.10	0.96	26.93	113	0.65
275	6.87	34.08 9	1.43	131	500	5.20	34.22	0.47	27.06	101	0.77
335	6.26	34.12 2	1.05	121							
409	5.38	34.10 7	0.91	112							
484	5.21	34.19 4	0.51	103							
564	5.12	34.29 0	0.41	95							

HORIZON; October 19, 1961; 0637 GCT; 37°20'N, 124°16'W; sounding, 2104 fm; wind, 260°, force 1; weather, overcast; sea, moderate; wire angle, 05°.

60.70

1	15.28	33.42 1	5.79	324	0	(15.28)	(33.42)	(5.79)	(24.71)	(324)	(0.00)
11	15.31	33.41 6	5.75	325	10	15.30	33.42	5.75	24.71	324	0.03
31	15.24	33.41 7	5.69	323	20	15.29	33.42	5.73	24.71	324	0.06
55	11.18	33.47 0	4.96	242	30	15.25	33.42	5.70	24.72	323	0.10
65	10.22	33.62 0	4.03	215	50	15.15	33.42	5.67	24.74	321	0.16
75	9.74	33.67 0	3.75	204	75	9.74	33.67	3.75	25.98	204	0.23
89	9.16	33.72 0	3.54	191	100	8.65	33.77	3.26	26.23	180	0.28
104	8.60	33.77 7	3.19	178	125	8.83	33.89	2.74	26.30	173	0.32
129	8.86	33.91 4	2.66	172	150	8.15	33.95	2.47	26.45	159	0.36
149	8.18	33.94 9	2.45a)	160	200	7.32	33.99	2.79	26.60	145	0.44
173	7.85	33.97 1	3.00	153	250	7.02	34.06	1.63	26.70	135	0.51
204	7.24	33.99 0	2.70	144	300	6.74	34.11	1.07	26.77	128	0.58
233	7.06	34.03 9	1.91	137	400	5.37	34.10	1.02	26.94	112	0.70
272	6.98	34.09 0	1.32	133	500	4.90	34.18	0.44	27.06	101	0.82
331	6.35	34.12 0	0.98	122							
405	5.32	34.09 5	1.02	112							
479	4.96	34.16 1	0.51	103							
558	4.74	34.24 3	0.34	95							

a) Alternate value, 2.54 ml/L, not used in interpolation.

SIO
CCOFI
6110-11

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; October 19, 1961; 1148 GCT; 36°57'N, 125°04'W; sounding, 2295 fm; wind, 250°, force 3; weather, overcast; sea, moderate; wire angle, 12°.

1	15.09	33.42 0	5.73	320	0	(15.09)	(33.42)	(5.73)	(24.76)	(320)	(0.00)
11	15.10	33.42 4	5.75	320	10	15.10	33.42	5.75	24.75	320	0.03
30	15.06	33.41 6	5.66	320	20	15.08	33.42	5.71	24.76	320	0.06
40	15.04	33.41 6	5.66	319	30	15.06	33.42	5.66	24.76	319	0.10
49	12.92	33.41 8	5.17	277	50	12.75	33.42	5.14	25.24	274	0.16
64	9.90	33.56 7	4.14	214	75	9.54	33.66	3.67	26.00	201	0.22
79	9.42	33.71 3	3.41	195	100	8.92	33.84	2.68	26.24	178	0.26
99	8.94	33.83 6	2.72	179	125	8.45	33.95	2.27	26.40	163	0.31
123	8.49	33.95 0	2.27	164	150	8.08	33.98	2.24	26.48	156	0.35
143	8.18	33.97 0	2.27	158	200	7.42	34.02	1.97	26.61	144	0.42
172	7.78	34.00 6	2.04	150	250	6.97	34.07	1.45	26.71	134	0.49
201	7.41	34.02 6	1.96	143	300	6.37	34.08	1.14	26.80	126	0.56
230	7.08	34.04 2	1.71	138	400	5.42	34.12	0.76	26.95	111	0.68
270	6.82	34.09 4	1.22	130	500	4.98	34.19	0.50	27.06	101	0.80
328	5.92	34.07 0	1.09	121							
401	5.41	34.12 6	0.75	111							
474	5.05	34.17 4	0.56	103							
553	4.82	34.24 6	0.37	95							

6090

HORIZON; October 19, 1961; 1624 GCT; 36°37'N, 125°46'W; sounding, 2000 fm; wind, 220°, force 3; weather, overcast; sea, moderate; wire angle, 24°.

1	15.68	33.17 1	5.72	351	0	(15.68)	(33.17)	(5.72)	(24.43)	(351)	(0.00)
10	15.68	33.16 9	5.70	351	10	15.68	33.17	5.70	24.43	351	0.04
28	15.65	33.31 5	5.70	339	20	15.66	33.21	5.70	24.47	347	0.07
37	13.96	33.23 2	5.93	311	30	15.64	33.31	5.70	24.55	340	0.10
51	11.78	33.09 8	5.72	280	50	11.85	33.10	5.75	25.16	281	0.17
66	10.48	33.08 0	5.29	259	75	10.61	33.24	5.07	25.50	250	0.23
88	10.10	33.46 7	4.59	224	100	9.50	33.52	4.82	25.90	211	0.29
104	9.36	33.54 0	4.85	207	125	9.00	33.68	4.70	26.11	191	0.34
122	9.05	33.65 3	4.73	194	150	8.63	33.81	4.17	26.27	176	0.39
139	8.84	33.74 8	4.57	184	200	8.06	33.96	3.95	26.47	157	0.47
164	8.41	33.88 2	3.72	168	250	7.17	33.97	3.32	26.61	144	0.55
193	8.16	33.95 4	3.95	159	300	6.40	33.96	2.90	26.70	135	0.62
218	7.72	33.96 7	3.90	152	400	5.63	34.05	1.46	26.87	119	0.75
260	7.00	33.96 5	3.16	142	500	5.21	34.16	0.69	27.01	106	0.87
307	6.32	33.96 3	2.84	134							
382	5.72	34.02 4	1.70	122							
457	5.41	34.12 5	0.85	111							
539	5.03	34.18 3	0.58	102							

60100

HORIZON; October 19, 1961; 2146 GCT; 36°17'N, 126°30'W; sounding, 2460 fm; wind, 320°, force 2; weather, overcast; sea, moderate; wire angle, 09°.

1	17.39	33.17 1	5.50	388	0	(17.39)	(33.17)	(5.50)	(24.04)	(388)	(0.00)
11	17.36	33.18 3	5.54	387	10	17.36	33.18	5.54	24.05	387	0.04
31	17.31	33.18 0	5.47	386	20	17.33	33.18	5.49	24.06	386	0.08
55	15.20	33.06 8	5.98	348	30	17.32	33.18	5.47	24.06	386	0.12
65	14.10	33.02 7	5.95	329	50	16.00	33.11	5.83	24.32	362	0.19
74	13.36	33.20 1	6.30	301	75	13.35	33.20	6.30	24.95	301	0.27
90	12.42	33.19 2	6.05	285	100	11.94	33.20	5.69	25.22	275	0.35
104	11.73	33.20 8	5.54	271	125	11.02	33.37	4.84	25.52	247	0.41
128	10.92	33.39 6	4.75	243	150	9.76	33.51	4.23	25.85	216	0.47
147	9.94	33.48 1	4.30	221	200	8.47	33.88	3.32	26.35	169	0.57
171	8.96	33.70 8	3.90	189	250	7.64	33.96	3.03	26.53	151	0.65
201	8.46	33.88 6	3.31	168	300	6.87	33.97	2.84	26.65	140	0.73
230	8.02	33.95 6	3.05	157	400	5.97	34.04	1.56	26.82	124	0.86
268	7.32	33.97 0	3.01	146	500	5.26	34.11	0.82	26.96	110	0.99
327	6.58	33.97 9	2.57	136							
401	5.96	34.04 3	1.55	123							
476	5.40	34.09 6	0.94	113							
556	5.04	34.17 8	0.56	103							

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
6110-11

HORIZON; October 20, 1961; 0632 GCT; 35°36.5'N, 127°56'W; sounding, 2400+ fm; wind, 020°, force 3; weather, rain; sea, moderate; wire angle, 09°.

60120

1	17.26	33.23 9	5.41	380	0	(17.26)	(33.24)	(5.41)	(24.12)	(380)	(0.00)
11	17.27	33.23 8	5.37	380	10	17.27	33.24	5.38	24.12	380	0.04
31	17.23	33.23 5	5.43	380	20	17.26	33.24	5.40	24.12	380	0.08
60	17.16	33.27 8	5.36	375	30	17.23	33.24	5.43	24.13	379	0.11
69	16.26	33.21 0	5.56	360	50	17.19	33.26	5.40	24.16	377	0.19
85	13.72	33.16 1	5.89	311	75	14.67	33.17	5.83	24.65	330	0.28
100	12.88	33.17 9	5.86	294	100	12.88	33.18	5.86	25.03	294	0.36
115	12.40	33.24 5	5.56	280	125	11.92	33.38	5.41	25.37	262	0.43
139	11.54	33.45 3	5.31	250	150	10.89	33.48	5.16	25.63	236	0.49
158	10.39	33.49 9	4.94	227	200	8.96	33.71	3.90	26.14	189	0.60
187	9.22	33.64 5	4.14	197	250	8.19	33.92	3.36	26.42	162	0.69
217	8.64	33.78 9	3.65	178	300	7.28	33.96	3.41	26.58	146	0.77
247	8.25	33.91 2	3.35	163	400	6.00	34.03	1.68	26.81	125	0.91
297	7.34	33.95 6	3.46	147	500	5.29	34.11	0.86	26.96	111	1.03
352	6.44	33.99 0	2.37	133	600	4.68	34.18	0.55	27.08	99	1.14
437	5.72	34.05 6	1.24	120							
521	5.16	34.12 6	0.77	108							
606	4.62	34.18 2	0.53	98							

HORIZON; October 20, 1961; 1440 GCT; 34°57'N, 129°22'W; sounding, 2584 fm; wind, 020°, force 4; weather, rain; sea, rough; wire angle, 20°.

60140

1	18.09	33.52 4	5.71	378	0	(18.09)	(33.52)	(5.71)	(24.14)	(379)	(0.00)
10	18.10	33.52 5	5.75	379	10	18.10	33.52	5.75	24.14	379	0.04
29	18.10	33.52 1	5.78	379	20	18.10	33.52	5.77	24.14	379	0.08
54	16.86	33.54 0	6.08	349	30	18.10	33.52	5.78	24.14	379	0.11
63	14.39	33.27 7	6.46	316	50	17.10	33.54	6.02	24.39	355	0.19
72	13.70	33.26 4	6.38	303	75	13.68	33.27	6.38	24.94	303	0.27
86	12.80	33.27 4	6.50	286	100	12.82	33.43	6.22	25.23	274	0.34
99	12.82	33.42 8	6.23	275	125	11.48	33.36	5.90	25.43	255	0.41
123	11.57	33.35 6	5.92	257	150	10.94	33.50	5.65	25.64	236	0.47
142	11.16	33.44 3	5.75	244	200	9.30	33.81	4.72	26.16	186	0.58
164	10.41	33.59 2	5.32	220	250	8.66	33.98	4.71	26.39	164	0.67
191	9.46	33.74 1	4.68	194	300	7.58	33.97	3.96	26.55	150	0.75
220	9.06	33.94 1	4.84a)	173	400	6.10	33.97	3.03	26.75	131	0.89
256	8.58	33.98 4	4.65	163	500	5.15	34.03	1.57	26.91	115	1.02
312	7.32	33.96 1	3.79	147							
384	6.28	33.96 2	3.26	133							
455	5.58	34.01 5	1.80	121							
534	4.81	34.04 2	1.49	110							

HORIZON; October 20, 1961; 2335 GCT; 34°15.5'N, 130°43.5'W; sounding, 2760 fm; wind, 020°, force 3; weather, overcast; sea, rough; wire angle, 20°.

60160

2	18.48	33.74 7	5.41	371	0	(18.48)	(33.75)	(5.41)	(24.22)	(371)	(0.00)
11	18.48	33.73 6	5.31	372	10	18.48	33.74	5.31	24.21	372	0.04
35	18.53	33.76 2	5.40	372	20	18.51	33.76	5.34	24.22	371	0.07
64	16.50	33.91 6	5.89	314	30	18.52	33.76	5.39	24.22	371	0.11
73	16.24	34.00 1	5.82	302	50	18.52	33.77	5.41	24.22	371	0.19
92	15.16	33.99 8	5.80	279	75	16.14	34.00	5.81	24.97	300	0.27
105	14.50	33.96 6	5.81	268	100	14.78	33.98	5.81	25.25	273	0.34
119	13.76	33.89 5	5.67	258	125	13.57	33.88	5.61	25.43	256	0.41
147	12.88	33.82 9	5.50	246	150	12.69	33.81	5.48	25.55	244	0.47
164	11.78	33.72 5	5.40	234	200	10.07	33.74	4.91	25.98	204	0.59
193	10.44	33.71 9	5.14	211	250	8.65	33.91	3.89	26.34	169	0.68
224	9.10	33.80 3	4.05	184	300	7.89	34.00	4.24	26.53	152	0.76
252	8.62	33.92 1	3.89	168	400	6.33	34.01	2.60	26.75	130	0.91
297	7.96	34.00 6	4.25	152	500	5.39	34.07	1.23	26.91	115	1.04
358	6.76	33.96 7	3.57	139	600	4.94	34.16	0.67	27.04	103	1.15
452	5.82	34.04 9	1.59	121							
539	5.14	34.09 1	1.03	110							
612	4.90	34.17 8	0.58	101							

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

181

SIO

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6110-11

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

60.180 HORIZON; October 21, 1961; 0755 GCT; 33°35'N, 132°11'W; sounding, 2693 fm; wind, 020°, force 3; weather, overcast; sea, rough; wire angle, 13°.

1	19.01	33.84	1	5.35	377	0	(19.01)	(33.84)	(5.35)	(24.15)	(377)	(0.00)
10	19.00	33.84	2	5.44	377	10	19.00	33.84	5.44	24.16	377	0.04
30	19.02	33.83	9	5.56	378	20	19.01	33.84	5.50	24.15	377	0.08
59	16.87	33.93	1	5.89	321	30	19.02	33.84	5.56	24.15	378	0.11
69	16.15	33.88	2	5.89	309	50	19.01	33.84	5.56	24.15	377	0.19
84	15.28	33.87	2	5.91	291	75	15.99	33.88	5.90	24.91	305	0.27
98	14.55	33.83	8	5.69	278	100	14.47	33.83	5.67	25.20	277	0.35
114	13.84	33.77	6	5.55	269	125	13.89	33.80	5.55	25.30	268	0.42
138	13.24	33.78	0	5.55	257	150	12.42	33.69	5.53	25.51	248	0.48
157	12.00	33.65	3	5.51	243	200	9.91	33.67	4.80	25.95	206	0.60
186	10.40	33.61	4	4.98	218	250	8.94	33.93	4.36	26.31	172	0.69
216	9.50	33.76	3	4.67	193	300	8.08	33.98	3.60	26.48	156	0.78
246	9.01	33.91	5	4.41	174	400	6.50	34.02	2.29	26.74	132	0.93
294	8.17	33.97	5	3.65	157	500	5.40	34.06	1.36	26.91	116	1.06
349	7.20	33.99	3	3.01	143	600	(4.89)	(34.18)	(0.68)	(27.06)	(101)	(1.17)
431	6.10	34.03	3	1.94	126							
515	5.30	34.06	9	1.26	114							
599	4.90	34.17	7	0.69	101							

60.200 HORIZON; October 21, 1961; 1635 GCT; 32°52'N, 133°39'W; sounding, 2640 fm; wind, 030°, force 4; weather, cloudy; sea, very rough; wire angle, 14°.

1	19.51	34.19	8	5.10	364	0	(19.51)	(34.20)	(5.10)	(24.30)	(363)	(0.00)
10	19.52	34.20	3	5.18	363	10	19.52	34.20	5.18	24.30	364	0.04
30	19.52	34.20	2	5.12	363	20	19.51	34.20	5.15	24.30	363	0.07
59	18.16	34.38	4	5.58	318	30	19.52	34.20	5.12	24.30	364	0.11
69	17.33	34.28	9	5.44	305	50	19.60	34.25	5.12	24.31	362	0.18
83	16.52	34.19	4	5.33	294	75	16.92	34.24	5.38	24.97	300	0.27
97	15.99	34.23	2	5.33	280	100	15.81	34.23	5.30	25.22	276	0.34
113	15.49	34.19	7	5.26	272	125	15.07	34.14	5.25	25.31	267	0.41
136	14.50	34.06	8	5.22	260	150	13.63	33.95	5.19	25.47	252	0.47
155	13.39	33.92	8	5.18	249	200	11.55	33.85	5.00	25.80	221	0.59
185	12.53	33.93	4	5.16	232	250	9.46	33.89	4.42	26.20	183	0.70
214	10.56	33.78	1	4.78	209	300	8.61	33.98	4.08	26.40	163	0.78
243	9.59	33.87	7	4.48	186	400	6.95	33.98	3.40	26.64	140	0.94
293	8.72	33.97	7	4.10	165	500	5.59	34.02	1.71	26.85	121	1.08
345	7.86	33.99	7	3.97	151	600	(5.00)	(34.11)	(0.92)	(26.99)	(107)	(1.20)
429	6.48	33.97	7	3.03	135							
512	5.48	34.03	1	1.54	119							
597	5.02	34.11	4	0.93	107							

63.52 HORIZON; October 18, 1961; 1706 GCT; 37°19'N, 122°36'W; sounding, 45 fm; wind, 100°, force 1; weather, overcast; sea, moderate; wire angle, 00°.

1	12.74	33.70	6	6.33	253	0	(12.74)	(33.71)	(6.33)	(25.47)	(252)	(0.00)
11	12.59	33.69	9	5.95	250	10	12.60	33.70	5.98	25.49	251	0.03
31	12.35	33.69	9	5.60	246	20	12.47	33.70	5.81	25.51	248	0.05
51	10.78	33.79	4	3.05	211	30	12.36	33.70	5.62	25.53	246	0.07
						50	10.90	33.78	3.30	25.86	214	0.12

63.55 HORIZON; October 18, 1961; 1458 GCT; 37°12.5'N, 122°50'W; sounding, 150 fm; wind, 300°, force 1; weather, overcast; sea, moderate; wire angle, 02°.

1	13.37	33.64	8	6.37	269	0	(13.37)	(33.65)	(6.37)	(25.29)	(269)	(0.00)
11	13.38	33.64	0	6.36	270	10	13.38	33.64	6.36	25.28	270	0.03
31	12.41	33.69	1	5.38	248	20	13.19	33.65	6.15	25.33	265	0.05
51	10.33	33.65	9	3.88	214	30	12.50	33.69	5.45	25.50	249	0.08
76	9.72	33.81	5	2.92	193	50	10.39	33.66	3.92	25.86	215	0.13
101	9.50	33.89	2	2.38	183	75	9.73	33.81	2.96	26.09	193	0.18
126	9.34	33.94	0	2.25	177	100	9.50	33.89	2.40	26.19	184	0.22
165	8.93	33.99	9	2.04	167	125	9.35	33.94	2.26	26.25	178	0.27
205	8.64	34.02	8	2.06	160	150	9.10	33.97	2.12	26.32	171	0.31
						200	8.68	34.02	2.06	26.42	161	0.40

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: October 17, 1961; 1115 GCT; 37°03'N, 123°11.5'W; sounding, 1365 fm; wind, 280°, force 1; weather, overcast; sea, moderate; wire angle, 20°.

63.60

1	14.88	33.17 6	5.93	333	0	(14.88)	(33.18)	(5.93)	(24.62)	(333)	(0.00)
10	14.90	33.16 7	5.95	335	10	14.90	33.17	5.95	24.60	334	0.03
29	14.60	33.27 0	5.95	321	20	14.90	33.17	5.95	24.60	334	0.07
38	13.00	33.17 8	5.98	296	30	14.58	33.27	5.95	24.75	320	0.10
52	11.88	33.18 1	5.91	276	50	12.00	33.18	5.92	25.20	278	0.16
65	11.44	33.19 9	5.70	267	75	10.97	33.26	5.48	25.45	254	0.23
89	10.20	33.39 4	5.08	231	100	9.88	33.47	4.71	25.80	221	0.29
108	9.63	33.53 5	4.44	212	125	9.23	33.65	4.30	26.05	197	0.34
127	9.18	33.68 2	4.23	194	150	8.59	33.85	3.58	26.30	173	0.39
145	8.69	33.83 2	3.58a)	176	200	8.07	34.00	2.43	26.50	154	0.47
173	8.22	33.92 0	3.57	162	250	7.50	34.02	2.18	26.60	145	0.55
205	8.04	34.00 4	2.26	153	300	6.52	33.98	2.53	26.70	135	0.62
233	7.85	34.03 3	1.84	149	400	6.02	34.12	0.94	26.88	118	0.75
279	6.80	33.98 0	2.79	139	500	5.06	34.13	0.74	27.00	107	0.87
331	6.28	34.01 5	1.98	129							
410	5.98	34.13 2	0.88	117							
491	5.10	34.12 5	0.76	107							
572	4.84	34.22 6	0.44	97							

HORIZON; October 17, 1961; 2240 GCT; 36°49'N, 122°04.5'W; sounding, 54 fm; wind, 310°, force 3; weather, partly cloudy; sea, very rough; wire angle, 15°.

67.50

1	13.25	33.57 5	6.81	272	0	(13.25)	(33.58)	(6.81)	(25.26)	(272)	(0.00)
10	13.12	33.57 3	6.72	270	10	13.12	33.57	6.72	25.28	270	0.03
30	11.31	33.54 9	5.06	239	20	12.22	33.56	5.88	25.45	254	0.05
49	10.40	33.58 2	4.27	221	30	11.31	33.55	5.06	25.61	238	0.08
74	9.86	33.74 7	3.48	200	50	10.38	33.59	4.22	25.81	220	0.12
					75	(9.84)	(33.75)	(3.47)	(26.02)	(199)	(0.18)

HORIZON: October 18, 1961; 0225 GCT; 36°39'N, 122°26'W; sounding, 950 fm; wind, 310°, force 4; weather, partly cloudy; sea, very rough; wire angle, 17°.

67.55

2	13.38	33.69 1	6.14	266	0	(13.38)	(33.69)	(6.14)	(25.32)	(266)	(0.00)
11	13.34	33.67 9	6.12	266	10	13.34	33.68	6.12	25.32	266	0.03
35	11.29	33.73 3	3.89	225	20	12.14	33.70	4.78	25.57	242	0.05
45	10.68	33.77 2	3.21	211	30	11.52	33.72	4.11	25.71	230	0.08
59	10.38	33.79 5	2.84	205	50	10.51	33.78	3.00	25.93	208	0.12
73	9.58	33.73 9	3.31	196	75	9.50	33.74	3.30	26.07	195	0.17
97	9.28	33.86 1	2.71	182	100	9.26	33.89	2.53	26.23	180	0.22
116	9.15	33.98 8	1.85	171	125	9.02	34.01	1.81	26.36	167	0.26
135	8.88	34.03 0	1.80	164	150	8.69	34.04	1.82	26.44	160	0.30
163	8.52	34.05 1	1.86	157	200	7.90	34.02	2.52	26.54	150	0.38
191	7.94	33.99 9	2.64	152	250	7.78	34.08	1.74	26.61	144	0.46
229	7.90	34.08 6	1.81	145	300	7.53	34.16	1.06	26.70	135	0.53
258	7.75	34.08 1	1.70	144	400	6.43	34.17	0.90	26.86	120	0.66
306	7.50	34.16 9	1.02	134	500	5.59	34.19	0.57	26.99	108	0.78
367	6.74	34.15 4	1.03	125	600	4.96	34.23	0.41	27.09	98	0.89
463	5.90	34.19 6	0.61	111							
549	5.19	34.19 2	0.52	103							
622	4.86	34.24 5	0.34	96							

a) Alternate value, 3.84 ml/L, not used in interpolation.

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6110-11

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; October 18, 1961; 0543 GCT; 36°29'N, 122°47.5'W; sounding, 1650 fm; wind, 300°, force 3; weather, overcast; sea, very rough; wire angle, 27°.

1	14.56	33.25 8	5.88	321	0	(14.56)	(33.26)	(5.88)	(24.75)	(321)	(0.00)
9	14.56	33.25 6	5.90	321	10	14.56	33.26	5.90	24.75	321	0.03
27	13.74	33.20 3	5.85	309	20	14.54	33.25	5.90	24.74	321	0.06
35	13.57	33.19 5	5.78	306	30	13.62	33.20	5.80	24.90	307	0.10
48	11.27	33.22 2	5.23	262	50	11.03	33.24	5.18	25.42	257	0.15
61	10.26	33.37 8	4.77	234	75	10.32	33.63	3.60	25.85	216	0.21
82	10.40	33.75 0	3.18	208	100	9.82	33.83	2.83	26.09	193	0.26
99	9.84	33.82 7	2.84	194	125	9.39	33.95	2.16	26.25	177	0.31
117	9.52	33.92 8	2.27	181	150	9.11	34.01	1.97	26.35	169	0.35
134	9.27	33.97 7	2.08	174	200	8.76	34.10	1.60	26.47	157	0.44
160	9.04	34.02 5	1.91	167	250	8.00	34.13	1.50	26.61	143	0.51
190	8.84	34.08 0	1.67	159	300	7.28	34.13	1.30	26.72	134	0.59
216	8.59	34.11 4	1.52	153	400	6.63	34.23	1.66	26.88	118	0.72
260	7.84	34.13 3	1.49	141	500	6.02	34.26	0.53	26.99	108	0.84
308	7.18	34.13 1	1.25	132							
382	6.74	34.21 1	0.70	120							
458	6.30	34.24 5	0.58	112							
538	5.78	34.26 5	0.47	105							

70.53

HORIZON; October 16, 1961; 1750 GCT; 36°06.5'N, 121°54'W; sounding, 520 fm; wind, 290°, force 3; weather, partly cloudy; sea, moderate; wire angle, 04°.

1	14.50	33.41 9	6.95	308	0	(14.50)	(33.42)	(6.95)	(24.88)	(308)	(0.00)
11	12.90	33.41 5	6.95	277	10	13.00	33.42	6.95	25.19	279	0.03
31	11.68	33.43 0	5.33	254	20	12.01	33.43	5.85	25.39	260	0.06
41	11.12	33.44 1	4.96	243	30	11.72	33.43	5.40	25.44	254	0.08
57	10.58	33.45 6	4.69	233	50	11.00	33.44	4.90	25.58	241	0.13
71	9.92	33.51 4	4.46	218	75	9.97	33.55	4.39	25.85	216	0.19
97	9.66	33.79 2	3.11	193	100	9.60	33.81	2.98	26.11	191	0.24
118	9.43	33.91 2	2.51	181	125	9.41	33.94	2.51	26.24	178	0.29
137	9.38	33.96 6	2.50	176	150	9.18	34.00	2.15	26.33	170	0.33
156	9.12	34.00 9	2.04	169	200	8.89	34.09	1.68	26.44	159	0.42
186	9.03	34.07 9	1.80	162	250	8.43	34.14	1.45	26.55	149	0.49
221	8.67	34.10 7	1.55	155	300	7.93	34.17	1.19	26.65	140	0.57
252	8.42	34.14 3	1.44	149	400	7.01	34.24	0.72	26.84	122	0.71
301	7.92	34.16 8	1.18	140	500	6.34	34.27	0.52	26.95	111	0.83
356	7.32	34.20 3	0.98	129	600	5.49	34.30	0.42	27.08	99	0.94
441	6.74	34.26 9	0.55	116							
526	6.14	34.26 9	0.50	109							
611	5.39	34.30 6	0.40	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

HORIZON; October 16, 1961; 0943, 1235 GCT; 35°53.5'N, 122°24'W; sounding, 1640 fm; wind, 290°, force 3; weather, partly cloudy; sea, moderate; wire angle, 23°, 32°.

70.60

0	13.98	33.52 4	6.06	290	0	13.98	33.52	6.06	25.07	290	0.00
9	13.91	33.56 4	6.27	286	10	13.89	33.56	6.27	25.12	285	0.03
26	12.82	33.53 2	5.51	267	20	12.99	33.53	5.61	25.28	270	0.06
34	12.69	33.62 6	5.38	258	30	12.77	33.54	5.48	25.33	265	0.08
48	10.74	33.71 7	3.31	216	50	10.66	33.72	3.27	25.86	215	0.13
62	10.32	33.73 7	3.16	208	75	9.95	33.79	2.95	26.04	198	0.18
84	9.71	33.84 3	2.73	190	100	9.38	33.91	2.37	26.22	180	0.23
102	9.36	33.91 0	2.36	180	125	9.03	34.00	2.00	26.35	168	0.28
119	9.06	33.98 1	2.13	170	150	8.86	34.05	1.71	26.42	162	0.32
136	9.02	34.04 3	1.79	165	200	8.53	34.11	1.44	26.52	153	0.40
162	8.72	34.07 0	1.63	158	250	8.08	34.16	1.23	26.62	142	0.47
192	8.61	34.11 1	1.48	154	300	7.49	34.17	1.08	26.72	133	0.54
218	8.38	34.13 3	1.39	149	400	6.57	34.20	0.71	26.87	119	0.68
260	7.98	34.16 9	1.17	140	500	5.94	34.24	0.49	26.98	108	0.80
308	7.40	34.17 0	1.05	132	600	5.39	34.29	0.36	27.09	98	0.91
380	6.71	34.19 5	0.77	121	700	4.87	34.34	0.30	27.19	89	1.01
454	6.12	34.23 1	0.52	111	800	4.47	34.39	0.31	27.27	81	1.10
527	5.74	34.25 4	0.44	105	1000	3.89	34.46	0.56	27.39	70	1.27
605	5.30	34.29 8	0.33	97	1200	3.36	34.50	0.68	27.47	62	1.42
785	4.50	34.38 4	0.30	82	1500	2.68	34.56	1.08	27.58	51	1.61
					2000	1.99	34.62	1.86	27.69	41	1.89
					2500	1.76	34.65	2.26	27.73	37	2.13
436a)	6.46	34.21 3	0.66	117							
524	5.90	34.24 2	0.48	108							
659	5.10	34.31 7	0.32	93							
793	4.52	34.38 2	0.31	82							
929	4.08	34.43 5	0.38	73							
1015	3.84	34.47 0	0.58	68							
1104	3.58	34.48 9	0.58	65							
1238	3.27	34.51 1	0.72	60							
1372	2.96b)	34.53 7	0.92	55							
1461	2.74	34.55 5	1.04	52							
1596	2.52	34.57 1	1.19	49							
1732	2.30	34.59 5	1.43	46							
1869	2.12	34.61 2	1.69	43							
2007	1.98	34.62 6	1.87	41							
2148	1.92	34.63 5	1.96	40							
2286	1.82	34.64 6	2.12	38							
2429	1.78	34.64 9	2.24	38							
2525	1.75	34.65 2	2.27	37							
2622	1.73	34.65 8	2.34	37							
2718	1.70	34.65 9	2.70	36							

HORIZON; October 16, 1961; 0431 GCT; 35°33'N, 123°06'W; sounding, 1630 fm; wind, 300°, force 3; weather, fog; sea, moderate; wire angle, 08°.

70.70

0	15.75	33.63 0	5.69	318	0	15.75	33.63	5.69	24.77	318	0.00
10	15.54	33.61 2	5.70	315	10	15.54	33.61	5.70	24.80	315	0.03
30	13.79	33.63 7	5.43	278	20	14.93	33.62	5.65	24.94	302	0.06
40	11.36	33.46 7	4.73	245	30	13.79	33.64	5.43	25.20	278	0.09
55	10.23	33.50 7	4.49	224	50	10.52	33.49	4.56	25.71	230	0.14
69	9.54	33.57 3	4.14	208	75	9.43	33.59	4.00	25.97	205	0.20
95	9.16	33.73 7	3.31	190	100	9.09	33.78	3.11	26.17	185	0.25
114	8.90	33.87 1	2.69	176	125	8.70	33.89	2.64	26.32	171	0.29
134	8.53	33.91 9	2.58	167	150	8.43	34.00	2.15	26.45	159	0.33
155	8.39	34.02 5	2.06	157	200	7.97	34.05	1.99	26.55	149	0.41
183	7.96	34.01 3	2.30	152	250	7.87	34.17	1.14	26.66	139	0.49
219	7.99	34.11 8	1.46	144	300	6.52	34.04	1.89	26.75	130	0.56
248	7.88	34.17 4	1.12	139	400	6.09	34.15	0.86	26.89	117	0.68
296	6.57	34.03 6	1.91	131	500	5.60	34.23	0.48	27.02	105	0.80
351	6.42	34.13 0	1.06	123	600	5.39	34.33	0.32	27.12	95	0.91
436	5.86	34.16 7	0.73	113							
520	5.54	34.24 7	0.41	103							
605	5.38	34.33 3	0.30	95							

- a) Overlapping casts; reconciliation of property curves when necessary.
b) Mean value of 2.90 and 3.01°C.

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

7080

HORIZON: October 15, 1961; 2015, 2254 GCT; 35°12.5'N, 123°48.5'W; sounding, 2180 fm; wind, 310°, force 4; weather, fog; sea, moderate; wire angle, 17°, 43°.

0	15.89	-	5.72	-	0	15.89	(33.63)	5.72	(24.74)	(321)	(0.00)
10	15.88	33.63 2	5.69	321	10	15.88	33.63	5.69	24.74	321	0.03
29	15.70	33.63 3	5.55	317	20	15.84	33.63	5.66	24.75	320	0.06
38	14.16	33.61 1	5.34	287	30	15.63	33.63	5.54	24.80	316	0.10
53	11.32	33.60 4	4.39	235	50	11.50	33.60	4.45	25.62	238	0.15
67	10.22	33.63 1	4.05	214	75	9.78	33.66	3.83	25.96	205	0.21
92	9.16	33.74 4	3.48	189	100	8.92	33.79	3.42	26.20	182	0.26
110	8.70	33.83 7	3.34	175	125	8.46	33.91	2.81	26.37	166	0.30
129	8.39	33.92 1	2.72	165	150	7.99	33.96	2.76	26.48	156	0.34
148	8.02	33.95 9	2.76	156	200	7.36	34.01	2.39	26.61	144	0.42
177	7.59	33.99 2	2.56	148	250	6.83	34.03	2.08	26.70	135	0.49
210	7.26	34.00 9	2.33	142	300	6.65	34.11	1.28	26.79	127	0.56
237	6.88	34.00 8	2.26	137	400	6.03	34.17	0.73	26.91	115	0.68
283	6.76	34.08 4	1.49	130	500	5.38	34.23	0.49	27.04	103	0.80
335	6.44	34.13 9	0.94	122	600	5.00	34.31	0.46	27.15	92	0.90
415	5.92	34.19 5	0.67	112	700	4.60	34.37	0.33	27.24	84	1.00
494	5.40	34.22 8	0.47	103	800	4.33	34.41	0.39	27.30	78	1.08
574	5.10	34.29 1	0.51	95	1000	3.77	34.47	0.57	27.41	68	1.25
660	4.74	34.34 3	0.33	87	1200	3.27	34.51	0.80	27.49	60	1.39
853	4.18	34.42 8	0.42	75	1500	2.73	34.56	1.15	27.58	52	1.58
					2000	2.02	34.62	1.80	27.69	42	1.86
447a)	5.75	34.19 5	0.62	110	2500	1.77	34.65	2.36	27.73	37	2.11
532	5.24	34.24 7	0.49	100	3000	1.63	34.66	2.55	27.75	36	2.34
658	4.75	34.34 1	0.34	87							
831	4.27	34.43 0	0.42	76							
1005	3.76	34.47 6	0.57	67							
1183	3.30	34.51 1	0.78	60							
1367	2.95	34.54 1	1.00	55							
1550	2.66	34.56 7	1.19	51							
1734	2.37	34.59 0	1.42	47							
1919	2.12	34.61 1	1.67	43							
2106	1.95	34.62 5	1.91	41							
2296	1.89	34.64 1	2.12	39							
2486	1.79	34.65 1	2.31	37							
2674	1.70	34.65 3	2.45	37							
2865	1.66	34.66 2	2.45	36							
3055	1.63	34.66 4	2.61	35							
3247	1.59	34.66 4	2.77	35							
3442	1.56	34.67 1	2.76	34							
3540	1.54	34.67 3	2.86	34							

7090

HORIZON: October 15, 1961; 1433 GCT; 34°52'N, 124°30'W; sounding, 2310 fm; wind, 290°, force 3; weather, fog; sea, moderate; wire angle, 00°.

1	15.96	33.56 3	5.54	328	0	(15.96)	(33.56)	(5.54)	(24.67)	(328)	(0.00)
11	15.96	33.56 4	5.59	328	10	15.96	33.56	5.59	24.67	328	0.03
31	15.89	33.59 1	5.58	324	20	15.93	33.57	5.58	24.68	327	0.07
41	15.62	33.59 0	5.56	319	30	15.89	33.59	5.58	24.71	324	0.10
51	11.71	33.53 2	4.57	247	50	11.90	33.53	4.64	25.49	250	0.16
66	10.22	33.67 3	3.82	211	75	9.40	33.68	3.18	26.04	198	0.21
82	9.62	33.77 5	3.05	194	100	9.14	33.87	2.71	26.23	180	0.26
101	9.11	33.88 2	2.69	178	125	8.78	33.95	2.49	26.35	168	0.30
126	8.78	33.95 1	2.48	168	150	8.37	33.99	2.32	26.45	159	0.35
146	8.46	33.98 7	2.32	161	200	7.69	34.05	1.87	26.59	145	0.42
175	7.99	34.02 5	2.28	151	250	7.18	34.08	1.41	26.69	136	0.49
205	7.64	34.05 8	1.83	144	300	6.79	34.13	0.95	26.78	127	0.56
235	7.32	34.06 3	1.70	139	400	6.07	34.18	0.64	26.92	114	0.69
276	6.96	34.11 5	0.93	130	500	5.47	34.25	0.43	27.05	102	0.80
335	6.56	34.14 6	0.98	123							
410	6.00	34.18 7	0.59	113							
484	5.56	34.23 3	0.45	104							
564	5.10	34.29 4	0.33	95							

186

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

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

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HORIZON; October 15, 1961; 0440, 0716 GCT; 34°33'N, 125°12'W; sounding, 2423 fm; wind, 350°, force 2; weather, overcast; sea, slight; wire angle, 34°, 50°.

70.100

0	15.50	33.19 2	5.71	345	0	15.50	33.19	5.71	24.49	345	0.00
8	14.80	33.34 1	5.81	320	10	14.68	33.38	5.81	24.81	314	0.03
23	14.18	33.61 0	5.78	288	20	14.20	33.58	5.79	25.07	290	0.06
31	14.20	33.65 0	5.74	285	30	14.20	33.65	5.75	25.12	285	0.09
43	13.96	33.63 8	5.58	281	50	13.82	33.63	5.48	25.19	279	0.15
54	13.70	33.62 5	5.40	277	75	10.81	33.52	4.30	25.68	232	0.21
72	10.94	33.51 1	4.38	235	100	10.01	33.72	3.41	25.97	204	0.27
87	10.42	33.64 9	3.74	216	125	8.89	33.77	3.95	26.19	183	0.32
102	9.96	33.72 6	3.39	203	150	8.58	33.93	2.71	26.37	167	0.36
116	9.03	33.72 1	4.17	189	200	8.18	34.06	2.41	26.53	151	0.44
137	8.72	33.84 3	3.47	175	250	6.85	33.98	2.77	26.66	139	0.52
162	8.52	33.98 8	2.26	162	300	6.39	34.01	2.01	26.74	131	0.59
183	8.51	34.06 5	1.83	156	400	5.55	34.06	1.15	26.89	117	0.71
217	7.40	33.97 7	3.19	147	500	5.08	34.17	0.51	27.03	104	0.83
255	6.80	33.97 4	2.68	139	600	4.81	34.29	0.23	27.16	92	0.93
312	6.29	34.02 5	1.88	129	700	4.58	34.35	0.21	27.23	85	1.03
372	5.79	34.06 4	1.22	120	800	4.30	34.40	0.28	27.30	78	1.12
429	5.31	34.09 3	0.90	112	1000	3.70	34.47	0.46	27.42	67	1.28
494	5.06	34.18 8	0.48	102	1200	3.15	34.51	0.61	27.50	59	1.42
651	4.66	34.33 3	0.24	87	1500	2.61	34.56	1.05	27.59	51	1.61
					2000	1.97	34.62	1.75	27.69	41	1.89
364a)	5.85	34.03 4	1.49	123	2500	1.74	34.65	2.19	27.73	37	2.13
433	5.36	34.07 7	1.01	114	3000	1.60	34.67	2.61	27.76	35	2.35
531	5.06	34.20 4	0.40	101							
669	4.68	34.33 8	0.17	87							
812	4.26	34.40 6	0.30	77							
956	3.84	34.46 1	0.45	69							
1104	3.38	34.48 7	0.47	63							
1259	3.04	34.51 9	0.72	57							
1417	2.75	34.55 0	0.95	53							
1579	2.49	34.57 3	1.13	49							
1742	2.23	34.59 3	1.38	45							
1907	2.03	34.61 2	1.63	42							
2076	1.93	34.62 4	1.82	41							
2247	1.85	34.63 3	1.98	39							
2421	1.77	34.64 6	2.10	38							
2598	1.72	34.65 3	2.26	37							
2777	1.66	34.65 7	2.41	36							
2962	1.61	34.66 7	2.59	35							
3241	1.56	34.67 1	2.69	34							

HORIZON; October 14, 1961; 2027 GCT; 33°59'N, 126°25.5'W; sounding, 2120 fm; wind, 320°, force 2; weather, overcast; sea, moderate; wire angle, 05°.

70.120

0	17.15	33.15 7	5.49	384	0	17.15	33.16	5.49	24.09	383	0.00
10	17.08	33.15 2	5.50	382	10	17.08	33.15	5.50	24.10	383	0.04
30	17.03	33.15 2	5.46	381	20	17.06	33.15	5.49	24.10	382	0.08
55	16.77	33.16 1	5.54	375	30	17.03	33.15	5.46	24.11	381	0.11
65	16.04	33.58 3	5.78	328	50	16.91	33.15	5.48	24.14	379	0.19
75	13.99	33.29 7	5.96	307	75	13.99	33.30	5.96	24.90	306	0.28
90	12.90	33.20 3	5.78	293	100	12.44	33.23	5.56	25.15	282	0.35
105	12.32	33.25 0	5.49	278	125	10.90	33.35	5.01	25.53	246	0.42
129	10.68	33.36 3	4.93	242	150	9.90	33.50	4.47	25.82	219	0.48
149	9.92	33.49 8	4.49	219	200	8.83	33.83	3.26	26.25	178	0.58
174	9.30	33.65 0	4.09	198	250	8.02	33.98	2.78	26.49	155	0.66
204	8.76	33.85 4	3.18	175	300	7.23	34.02	2.30	26.64	141	0.74
234	8.24	33.95 1	3.02	160	400	6.29	34.09	1.26	26.82	124	0.88
274	7.68	34.00 7	2.43	148	500	5.27	34.13	0.93	26.98	109	1.00
334	6.75	34.02 2	2.17	135							
408	6.22	34.10 1	1.19	122							
483	5.39	34.11 5	0.98	111							
563	4.92	34.17 2	0.61	102							

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

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

70.200

HORIZON; October 22, 1961; 0601 GCT; 31°14'N, 132°01'W; sounding, 2370 fm; wind, 030°, force 4; weather, cloudy; sea, rough; wire angle, 13°.

1	20.14	34.61 3	5.35	349	0	(20.14)	(34.61)	(5.35)	(24.45)	(349)	(0.00)
11	20.14	34.60 7	5.35	350	10	20.14	34.61	5.35	24.45	349	0.03
30	20.24	34.67 9	5.12	347	20	20.19	34.64	5.23	24.46	348	0.07
59	20.40	34.80 8	4.80	342	30	20.24	34.68	5.12	24.47	347	0.10
69	18.71	34.50 8	5.45	322	50	20.35	34.75	4.92	24.50	344	0.17
83	17.38	34.46 1	5.56	294	75	18.12	34.48	5.53	24.86	310	0.26
98	16.38	34.37 3	5.44	278	100	16.31	34.37	5.45	25.21	277	0.33
112	15.84	34.33 6	5.48	269	125	15.23	34.26	5.40	25.37	261	0.40
136	14.68	34.18 7	5.34	255	150	13.94	34.10	5.30	25.52	247	0.46
155	13.66	34.06 4	5.27	244	200	11.56	33.92	5.02	25.85	216	0.58
186	12.30	33.95 5	5.16	226	250	9.89	33.92	4.70	26.15	188	0.68
215	10.87	33.90 4	4.89	205	300	8.79	34.01	4.45	26.40	164	0.77
245	10.00	33.90 9	4.73	190	400	6.79	33.99	3.16	26.67	138	0.93
294	8.90	34.01 7	4.47	165	500	5.58	34.05	1.49	26.88	118	1.06
349	7.86	34.00 2	4.00	151	600	5.05	34.16	0.64	27.03	104	1.18
433	6.18	33.98 4	2.59	130							
517	5.46	34.07 0	1.27	116							
601	5.04	34.16 6	0.63	104							

73.53

HORIZON; October 12, 1961; 0240 GCT; 35°31.5'N, 121°28.5'W; sounding, 400 fm; wind, 280°, force 5; weather, partly cloudy; sea, moderate; wire angle, 37°.

0	14.92	33.46 1	5.89	313	0	14.92	33.46	5.89	24.82	313	0.00
8	14.92	33.45 9	5.85	314	10	14.92	33.46	5.85	24.82	313	0.03
22	14.10	33.42 5	5.83	299	20	14.19	33.42	5.83	24.95	302	0.06
30	13.87	33.42 5	5.77	295	30	13.87	33.42	5.77	25.01	295	0.09
40	13.22	33.37 2	5.75	286	50	12.06	33.33	5.40	25.30	268	0.15
52	12.03	33.33 9	5.38	267	75	10.36	33.40	4.78	25.66	234	0.21
70	10.42	33.39 5	4.83	235	100	9.98	33.53	4.31	25.83	218	0.27
85	10.24	33.42 9	4.67	229	125	9.16	33.71	3.73	26.10	192	0.32
98	10.02	33.51 5	4.33	220	150	8.62	33.89	2.92	26.33	170	0.37
113	9.62	33.58 4	4.12	208	200	8.42	34.03	2.24	26.47	157	0.45
134	8.84	33.79 5	3.37	181	250	7.73	34.08	1.96	26.61	143	0.53
160	8.58	33.93 0	2.68	167	300	7.52	34.15	1.21	26.70	135	0.60
182	8.62	34.01 6	2.30	161	400	7.04	34.27	0.65	26.86	120	0.73
217	8.11	34.04 4	2.18	151	500	(6.21)	(34.28)		(26.98)	(109)	(0.85)
258	7.68	34.08 6	1.87	142							
323	7.45	34.19 5	0.88	131							
392	7.10	34.27 1	0.66	121							
462	6.50	34.27 7	0.43	113							

73.60

HORIZON; October 12, 1961; 0642 GCT; 35°17.5'N, 121°58'W; sounding, 1405 fm; wind, 300°, force 4; weather, partly cloudy; sea, moderate; wire angle, 16°.

1	16.00	33.50 8	5.76	333	0	(16.00)	(33.51)	(5.76)	(24.62)	(333)	(0.00)
10	16.00	33.50 6	5.66	333	10	16.00	33.51	5.66	24.62	333	0.03
29	16.00	33.53 1	5.68	331	20	16.00	33.51	5.67	24.62	333	0.07
38	15.20	33.53 1	5.54	314	30	16.00	33.53	5.68	24.64	331	0.10
54	11.58	33.48 3	4.77	248	50	11.83	33.47	4.83	25.45	253	0.16
67	10.60	33.53 2	4.51	228	75	10.18	33.60	4.13	25.85	216	0.22
90	9.52	33.71 0	3.47	197	100	9.15	33.76	3.40	26.14	188	0.27
110	8.80	33.78 6	3.35	181	125	8.52	33.85	3.26	26.31	172	0.31
129	8.46	33.86 8	3.20	170	150	8.25	33.95	2.92	26.43	160	0.36
148	8.27	33.94 2	2.94	161	200	7.63	34.01	2.38	26.57	147	0.43
177	7.90	33.99 8	2.51	152	250	6.98	34.02	2.26	26.67	138	0.51
210	7.51	34.01 6	2.35	145	300	6.50	34.06	1.65	26.77	129	0.58
238	7.12	34.01 4	2.39	140	400	6.04	34.17	0.79	26.91	115	0.70
287	6.63	34.04 8	1.84	131	500	5.53	34.24	0.54	27.03	104	0.82
340	6.26	34.10 6	1.26	122	600	(5.18)	(34.33)		(27.15)	(93)	(0.92)
421	5.96	34.18 6	0.66	113							
504	5.51	34.24 1	0.52	103							
587	5.22	34.32 2	0.32	94							

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

HORIZON; October 12, 1961; 1646 GCT; 35°02'N, 120°56.5'W; sounding, 140 fm; wind, 180°, force 4; weather, partly cloudy; sea, moderate; wire angle, 13°.

77.51

0	14.08	33.53	3	5.87	291	0	14.08	33.53	5.87	25.06	291	0.00
9	14.08	33.53	3	5.84	291	10	14.08	33.53	5.84	25.06	291	0.03
28	14.04	33.53	5	5.90	290	20	14.07	33.53	5.87	25.06	291	0.06
47	12.09	33.53	1	4.69	254	30	13.99	33.53	5.88	25.07	290	0.09
71	10.24	33.46	0	4.60	227	50	12.02	33.53	4.68	25.46	252	0.14
95	9.70	33.64	9	3.89	205	75	10.12	33.49	4.51	25.77	223	0.20
120	9.48	33.77	9	3.25	191	100	9.66	33.67	3.75	25.99	202	0.26
160	8.94	33.98	3	2.28	168	125	9.41	33.81	3.11	26.14	188	0.30
198	8.66	34.06	6	1.82	158	150	9.07	33.94	2.50	26.30	173	0.35
						200	(8.64)	(34.07)	(1.80)	(26.47)	(157)	(0.43)

HORIZON; October 12, 1961; 1400 GCT; 34°54'N, 121°13'W; sounding, 300 fm; wind, 310°, force 4; weather, partly cloudy; sea, rough; wire angle, 15°.

77.55

1	15.04	33.40	9	5.77	320	0	(15.04)	(33.41)	(5.77)	(24.76)	(320)	(0.00)
11	15.06	33.40	5	5.70	320	10	15.06	33.41	5.70	24.75	320	0.03
30	15.03	33.40	1	5.77	320	20	15.04	33.40	5.74	24.75	320	0.06
49	14.24	33.33	0	5.67	309	30	15.03	33.40	5.77	24.75	320	0.10
73	10.84	33.34	2	4.89	246	50	14.00	33.33	5.60	24.92	304	0.16
97	9.43	33.67	3	3.76	199	75	10.70	33.35	4.84	25.57	243	0.23
122	8.82	33.88	1	3.26	174	100	9.38	33.69	3.69	26.05	197	0.28
160	8.27	33.93	5	2.65	162	125	8.76	33.82	3.19	26.25	178	0.33
199	7.80	33.98	8	2.48	151	150	8.41	33.91	2.78	26.38	166	0.37
247	7.32	34.02	4	2.28	142	200	7.80	33.99	2.47	26.53	151	0.45
296	6.84	34.06	7	1.56	133	250	7.28	34.03	2.26	26.64	141	0.53
400	6.76	34.28	2	0.47	115	300	6.83	34.07	1.50	26.73	132	0.60
						400	6.76	34.28	0.47	26.91	116	0.73

HORIZON; October 12, 1961; 1158 GCT; 34°49.5'N, 121°21.5'W; sounding, 250 fm; wind, 220°, force 5; weather, clear; sea, rough; wire angle, 19°.

77.57

1	15.66	33.36	3	5.73	336	0	(15.66)	(33.36)	(5.73)	(24.58)	(336)	(0.00)
10	15.68	33.34	9	5.74	338	10	15.68	33.35	5.74	24.57	337	0.03
29	15.56	33.34	1	5.72	336	20	15.66	33.35	5.73	24.58	337	0.07
48	11.49	33.06	6	5.60	277	30	15.55	33.34	5.72	24.59	335	0.10
71	10.76	33.33	9	4.98	245	50	11.44	33.09	5.58	25.23	275	0.16
96	9.32	33.64	3	4.13	199	75	10.56	33.39	4.83	25.62	238	0.23
119	9.14	33.82	9	2.95	183	100	9.25	33.68	3.92	26.07	195	0.28
157	8.37	33.90	2	3.00	166	125	9.09	33.85	2.97	26.22	180	0.33
195	8.02	33.96	1	2.65	156	150	8.50	33.89	2.99	26.35	169	0.37
243	7.34	34.02	4	2.19	142	200	7.96	33.97	2.60	26.49	155	0.46
294	6.84	34.07	3	1.45	132	250	7.26	34.03	2.10	26.64	141	0.53
						300	(6.79)	(34.08)		(26.74)	(131)	(0.60)

HORIZON; October 22, 1961; 1537 GCT; ^{a)} 30°05'N, 130°59'W; sounding, 2448 fm; wind, 040°, force 4; weather, cloudy; sea, rough; wire angle, 10°.

77.200

417	6.48	34.05	6	1.83	129
420	6.49	34.04	9	1.85	129
423	6.49	34.05	5	1.77	129
450	6.22	34.08	8	1.25	123
453	6.20	34.08	9	1.24	123
456	6.21	34.09	7	1.22	122
484	6.00	34.12	4	1.00b)	118
487	5.97	34.12	5	0.94	117
490	5.98	34.12	8	0.95	117
516	5.84	34.15	3	0.75	114
519	5.80	34.15	4	0.75	113
522	5.80	34.15	9	0.73	113
549	5.57	34.18	4	0.61	108
552	5.56	34.18	5	0.58	108
555	5.55	34.19	1	0.56	108
582	5.43	34.21	0	0.53	105
585	5.42	34.20	5	0.52	105
588	5.37	34.20	7	0.50	104

a) Test cast.

b) Mean value of 0.87 and 1.12 ml/L.

SIO

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6110-11

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

80.52

HORIZON; October 12, 1961; 2202 GCT; 34°25'N, 120°35'W; sounding, 110 fm; wind, 090°, force 4; weather, partly cloudy; sea, very rough; wire angle, 20°.

0	15.40	33.64 0	5.41	310	0	15.40	33.64	5.41	24.86	310	0.00
9	15.34	33.61 8	5.65	311	10	15.32	33.62	5.66	24.86	310	0.03
19	14.20	33.70 1	5.80	281	20	14.01	33.70	5.79	25.20	278	0.06
49	10.68	33.77 9	3.41	211	30	11.98	33.72	4.48	25.62	238	0.09
73	10.16	33.83 9	3.08	198	50	10.66	33.78	3.40	25.91	210	0.13
97	9.83	33.84 0	2.81	192	75	10.13	33.84	3.06	26.05	197	0.18
122	9.66	33.88 1	2.63	187	100	9.80	33.84	2.78	26.10	192	0.23
151	9.44	33.99 8	2.01	175	125	9.63	33.89	2.59	26.17	186	0.28
					150	9.45	33.99	2.02	26.28	175	0.33

80.55

HORIZON; October 13, 1961; 0045 GCT; 34°18.5'N, 120°48'W; sounding, 410 fm; wind, 310°, force 4; weather, partly cloudy; sea, very rough; wire angle, 32°.

1	14.23	33.62 1	5.52	288	0	(14.23)	(33.62)	(5.52)	(25.09)	(288)	(0.00)
9	14.22	33.60 6	5.53	289	10	14.22	33.61	5.53	25.09	288	0.03
24	11.70	33.63 1	3.61	239	20	12.60	33.63	4.24	25.43	256	0.06
31	10.72	33.68 2	3.13	219	30	10.79	33.68	3.18	25.81	220	0.08
42	10.38	33.74 8	2.77	208	50	10.26	33.79	2.50	25.98	203	0.12
54	10.20	33.80 9	2.40	201	75	9.94	33.87	2.22	26.10	192	0.17
73	9.96	33.86 6	2.22	193	100	9.69	33.93	2.02	26.19	184	0.22
87	9.78	33.90 2	2.18	187	125	9.41	34.00	1.79	26.29	174	0.26
103	9.66	33.93 8	1.98	183	150	9.22	34.05	1.49	26.36	167	0.31
117	9.51	33.97 8	1.83	177	200	8.52	34.06	1.76	26.48	156	0.39
139	9.24	34.03 4	1.68	169	250	8.30	34.14	1.24	26.57	147	0.47
166	9.18	34.08 1	1.32	164	300	8.08	34.22	0.83	26.67	138	0.54
191	8.65	34.05 7	1.77	158	400	7.00	34.24	0.56	26.84	122	0.68
229	8.26	34.09 0	1.55	150	500	(6.03)	(34.33)	(0.28)	(27.04)	(103)	(0.80)
272	8.35	34.19 9	0.94	143							
341	7.66	34.23 2	0.73	131							
412	6.87	34.24 9	0.51	119							
486	6.17	34.31 8	0.28	105							

80.60

HORIZON; October 13, 1961; 0433 GCT; 34°08.5'N, 121°10'W; sounding, 1310 fm; wind, 310°, force 5; weather, partly cloudy; sea, very rough; wire angle, 20°.

1	14.00	33.63 9	5.64	282	0	(14.00)	(33.64)	(5.64)	(25.16)	(282)	(0.00)
10	13.99	33.63 6	5.34	282	10	13.99	33.64	5.34	25.16	282	0.03
29	13.39	33.64 2	-	270	20	13.90	33.64		25.18	280	0.06
39	12.06	33.65 3	3.70	244	30	13.10	33.64		25.34	264	0.08
53	10.71	33.66 1	3.16	220	50	10.85	33.66	3.20	25.78	222	0.13
67	10.46	33.71 2	3.00	212	75	10.21	33.76	2.81	25.97	205	0.19
90	9.75	33.85 7	2.37	190	100	9.51	33.91		26.20	182	0.23
109	9.37	33.94 9	-	177	125	9.25	33.97		26.29	174	0.28
128	9.24	33.97 5	1.97	173	150	9.06	34.02	1.88	26.36	167	0.32
147	9.09	34.01 8	1.89	168	200	8.77	34.11	1.56	26.48	156	0.41
207	8.69	34.11 9	1.53	154	250	7.93	34.08	1.60	26.58	146	0.48
235	8.04	34.07 6	1.62	148	300	7.74	34.17	1.08	26.68	137	0.56
282	7.80	34.12 3	1.42	141	400	7.06	34.24	0.65	26.83	122	0.69
335	7.63	34.24 0	0.62	130	500	6.40	34.29	0.34	26.96	110	0.81
416	6.94	34.24 6	0.65	120	600	(5.79)	(34.33)		(27.07)	(100)	(0.93)
497	6.42	34.29 1	0.35	110							
582	5.90	34.32 4	0.26	102							

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

S10
CCOF1
6110-11

HORIZON; October 13, 1961; 0956 GCT; 33°49'N, 121°53'W; sounding, 1950 fm; wind, 310°, force 4; weather, partly cloudy; sea, very rough; wire angle, 36°.

80.70

0	15.30	33.46 4	5.66	321	0	15.30	33.46	5.66	24.74	321	0.00
8	15.29	33.46 7	5.76	321	10	15.26	33.46	5.77	24.75	321	0.03
28	14.69	33.40 7	5.80	313	20	15.11	33.45	5.79	24.77	318	0.06
35	13.00	33.20 4	5.89	294	30	14.38	33.37	5.82	24.87	309	0.10
47	12.20	33.30 7	5.46	272	50	11.99	33.32	5.40	25.31	267	0.15
60	11.32	33.35 2	5.24	253	75	10.45	33.41	5.02	25.66	234	0.22
79	10.22	33.42 5	4.93	229	100	9.55	33.58	4.35	25.94	207	0.27
95	9.68	33.53 6	4.50	213	125	9.04	33.73	3.86	26.14	188	0.32
110	9.34	33.66 3	4.07	198	150	8.64	33.85	3.58	26.30	174	0.37
133	8.90	33.76 6	3.73	184	200	8.04	33.97	3.43	26.48	156	0.45
157	8.54	33.89 1	3.48	169	250	7.30	33.97	3.40	26.59	146	0.53
189	8.20	33.95 6	3.18	159	300	7.07	34.08	1.59	26.71	135	0.60
212	7.85	33.97 2	3.67	153	400	6.48	34.22	0.70	26.90	117	0.73
252	7.28	33.97 6	3.38	145	500	5.95	34.28	0.45	27.01	106	0.85
304	7.06	34.08 6	1.51	134							
385	6.56	34.20 2	0.73	119							
463	6.20	34.25 6	0.53	110							
530	5.71	34.29 7	0.33	101							

HORIZON; October 13, 1961; 1452 GCT; 33°30.5'N, 122°35'W; sounding, 2000 fm; wind, 320°, force 3; weather, partly cloudy; sea, very rough; wire angle, 17°.

80.80

1	15.71	33.28 9	5.80	343	0	(15.71)	(33.29)	(5.80)	(24.52)	(342)	(0.00)
10	15.72	33.29 0	5.68	343	10	15.80	33.29	5.68	24.50	344	0.03
33	15.24	33.33 3	5.74	329	20	15.47	33.29	5.71	24.57	337	0.07
43	14.48	33.29 5	5.70	317	30	15.37	33.33	5.74	24.63	332	0.10
57	12.36	33.17 7	5.64	285	50	12.59	33.18	5.65	25.09	289	0.16
70	11.94	33.30 1	5.42	268	75	11.61	33.33	5.32	25.39	260	0.23
95	10.12	33.40 2	4.93	230	100	10.00	33.42	4.87	25.74	226	0.29
113	9.77	33.48 8	4.60	218	125	9.50	33.58	4.14	25.95	207	0.35
132	9.32	33.65 6	3.82	198	150	8.90	33.81	3.36	26.22	180	0.40
159	8.71	33.85 2	3.17	174	200	8.30	34.03	2.01	26.49	155	0.48
187	8.32	33.97 3	2.33	160	250	7.69	34.08	1.63	26.62	143	0.56
224	8.26	34.11 6	1.54	148	300	7.49	34.14	1.28	26.69	136	0.63
254	7.62	34.08 3	1.64	142	400	6.60	34.19	0.73	26.86	120	0.77
300	7.49	34.14 1	1.28	136	500	5.86	34.25	0.46	27.00	107	0.88
362	6.86	34.14 8	0.91	127	600	5.08	34.26	0.35	27.10	97	0.99
456	6.24	34.24 3	0.54	112							
544	5.46	34.24 6	0.39	102							
617	4.95	34.26 1	0.34	96							

HORIZON; October 13, 1961; 2021 GCT; 33°07.5'N, 123°16'W; sounding, 2300 fm; wind, 320°, force 4; weather, cloudy; sea, very rough; wire angle, 25°.

80.90

1	17.34	33.25 6	5.48	381	0	(17.34)	(33.26)	(5.48)	(24.12)	(380)	(0.00)
9	17.29	33.25 2	5.48	380	10	17.29	33.25	5.48	24.12	380	0.04
27	17.30	33.28 9	5.39	377	20	17.29	33.27	5.40	24.14	379	0.08
35	17.30	33.29 4	5.48	377	30	17.30	33.29	5.42	24.15	377	0.11
49	16.86	33.21 1	5.53	373	50	16.75	33.20	5.56	24.21	372	0.19
62	14.86	33.19 1	5.99	332	75	13.42	33.25	5.84	24.97	299	0.27
84	13.18	33.26 2	5.77	294	100	12.38	33.27	5.52	25.20	278	0.35
102	12.26	33.29 0	5.45	274	125	11.21	33.46	4.69	25.56	243	0.41
120	11.44	33.43 3	4.80	249	150	10.00	33.59	4.10	25.87	214	0.47
137	10.62	33.50 1	4.45	230	200	8.77	33.85	3.57	26.28	175	0.57
163	9.44	33.70 1	3.79	197	250	7.99	33.99	2.89	26.50	154	0.65
194	8.86	33.83 5	3.62	178	300	7.30	34.04	2.12	26.64	141	0.73
222	8.46	33.92 8	3.25	165	400	6.42	34.13	1.01	26.83	123	0.87
265	7.76	34.00 7	2.66	149	500	5.56	34.19	0.64	26.99	108	0.99
315	7.14	34.05 2	1.89	138							
392	6.51	34.13 1	1.03	124							
470	5.75	34.15 7	0.73	112							
550	5.29	34.23 5	0.43	101							

S10

CCOF1
6110-11

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

80.100

HORIZON; October 14, 1961; 0057 GCT; 32°49'N, 123°54'W; sounding, 2365 fm; wind, 340°, force 2; weather, overcast; sea, moderate; wire angle, 12°.

0	17.88	33.38 1	5.27	384	0	17.88	33.38	5.27	24.08	384	0.00
10	17.89	33.37 4	5.40	385	10	17.89	33.37	5.40	24.07	385	0.04
29	17.84	33.37 3	5.41	384	20	17.87	33.37	5.40	24.08	385	0.08
58	15.68	33.26 6	5.99	344	30	17.84	33.37	5.41	24.08	384	0.12
68	14.66	33.25 8	5.92	323	50	17.83	33.37	5.41	24.09	384	0.19
84	14.08	33.29 2	5.79	309	75	14.39	33.27	5.87	24.79	317	0.28
99	12.86	33.36 0	5.48	280	100	12.80	33.36	5.46	25.18	279	0.36
114	11.96	33.38 7	5.15	262	125	11.16	33.45	4.77	25.56	243	0.42
137	10.36	33.52 4	4.36	224	150	9.75	33.63	4.03	25.95	207	0.48
157	9.49	33.68 3	3.83	199	200	8.69	33.89	3.04	26.32	171	0.57
187	8.87	33.85 3	3.23	177	250	7.99	34.01	2.83	26.52	152	0.66
217	8.46	33.94 1	2.90	164	300	7.44	34.06	1.97	26.64	141	0.73
247	8.03	33.99 8	2.87	154	400	6.51	34.15	0.99	26.84	122	0.87
297	7.48	34.05 3	2.01	142	500	5.76	34.20	0.60	26.97	109	0.99
351	6.96	34.10 4	1.41	131	600	5.29	34.30	0.36	27.11	96	1.10
436	6.22	34.17 1	0.76	117							
520	5.63	34.21 9	0.55	106							
605	5.26	34.31 0	0.33	95							

80.120

HORIZON; October 14, 1961; 0816 GCT; 32°14.5'N, 125°08.5'W; sounding, 2380 fm; wind, 320°, force 2; weather, overcast; sea, moderate; wire angle, 03°.

2	18.25	33.45 8	5.44	387	0	(18.25)	(33.46)	(5.44)	(24.05)	(387)	(0.00)
12	18.26	33.45 8	5.37	387	10	18.26	33.46	5.38	24.05	387	0.04
32	18.24	33.45 8	5.40	387	20	18.25	33.46	5.38	24.05	387	0.08
62	16.07	33.40 1	5.93	342	30	18.24	33.46	5.39	24.06	387	0.12
72	15.28	33.50 5	5.93	318	50	18.24	33.46	5.40	24.06	387	0.19
87	14.33	33.51 4	5.85	298	75	15.10	33.50	5.92	24.81	314	0.28
102	12.81	33.42 5	5.54	275	100	12.95	33.43	5.58	25.21	277	0.36
117	11.76	33.45 9	5.26	253	125	11.28	33.48	5.13	25.56	243	0.42
141	10.41	33.53 3	4.81	225	150	9.99	33.58	4.57	25.87	214	0.48
161	9.58	33.63 5	4.29	204	200	8.66	33.90	3.33	26.33	170	0.58
191	8.86	33.85 5	3.60	176	250	7.99	34.00	2.58	26.51	153	0.66
221	8.30	33.97 1	2.80	160	300	7.36	34.05	2.02	26.64	141	0.74
251	7.98	34.00 5	2.57	153	400	6.38	34.14	1.00	26.85	121	0.87
300	7.36	34.05 3	2.02	140	500	5.63	34.23	0.50	27.01	106	0.99
355	6.72	34.08 0	1.49	130	600	5.08	34.29	0.38	27.13	95	1.10
441	6.08	34.19 1	0.66	114							
526	5.44	34.24 0	0.46	103							
611	5.02	34.29 4	0.37	94							

80.200

HORIZON; October 22, 1961; 1958 GCT; 29°32'N, 130°30'W; sounding, 2475 fm; wind, 030°, force 3; weather, cloudy; sea, rough; wire angle, 21°.

1	20.27	34.39 4	5.10	368	0	(20.27)	(34.39)	(5.10)	(24.25)	(369)	(0.00)
10	20.24	34.38 6	5.15	368	10	20.24	34.39	5.15	24.25	368	0.04
29	20.25	34.37 9	5.18	369	20	20.24	34.38	5.17	24.25	368	0.07
57	18.40	34.14 6	5.53	341	30	20.25	34.38	5.18	24.24	369	0.11
66	17.82	34.15 2	5.47	326	50	20.25	34.38	5.18	24.24	369	0.18
81	17.71	34.33 1	5.47	311	75	17.73	34.25	5.47	24.78	317	0.27
94	17.41	34.39 3	5.48	300	100	17.32	34.41	5.44	25.00	296	0.35
108	17.20	34.42 6	5.38	292	125	16.28	34.30	5.26	25.16	281	0.42
131	16.16	34.30 1	5.22	278	150	15.05	34.17	5.08	25.34	264	0.49
149	15.08	34.17 7	5.08	264	200	11.24	33.84	4.72	25.85	216	0.61
178	13.07	33.90 4	5.01	244	250	9.33	33.90	4.07	26.23	180	0.71
205	10.87	33.83 6	4.63	210	300	8.48	33.98	3.46	26.42	162	0.80
233	9.64	33.87 8	4.16	187	400	6.89	34.06	1.80	26.72	134	0.96
280	8.89	33.95 5	3.90	169	500	5.97	34.17	0.78	26.92	114	1.09
332	7.79	34.00 7	2.73	150	600	(5.06)	(34.20)		(27.06)	(101)	(1.20)
413	6.75	34.07 7	1.63	131							
497	5.99	34.16 2	0.80	115							
581	5.23	34.19 3	0.64	104							

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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6110-11

BLACK DOUGLAS; October 19, 1961; 0618 GCT; 33°34'N, 120°45'W; sounding, 750 fm; wind, 180°, force 1; weather, cloudy; sea, moderate; wire angle, 05°.

83.60

0	16.67	33.55	9	5.37	344	0	16.67	33.56	5.37	24.51	344	0.00
10	16.54	33.56	1	5.31	341	10	16.54	33.56	5.31	24.54	341	0.03
30	13.75	33.41	0	5.20	294	20	15.90	33.53	5.27	24.66	329	0.07
40	11.52	33.38	5	4.34	254	30	13.75	33.41	5.20	25.03	294	0.10
55	10.28	33.67	7	3.41	212	50	10.80	33.56	3.80	25.71	229	0.15
69	9.88	33.73	8	3.11	201	75	9.79	33.77	3.03	26.05	197	0.20
94	9.34	33.86	1	2.75	183	100	9.30	33.90	2.58	26.23	180	0.25
115	9.26	33.97	5	2.15	174	125	9.20	34.00	2.08	26.32	171	0.30
135	9.16	34.02	0	2.03	169	150	9.04	34.04	1.82	26.38	165	0.34
154	9.02	34.04	8	1.79	164	200	8.69	34.12	1.51	26.50	154	0.42
184	8.77	34.10	6	1.56	156	250	8.37	34.17	1.18	26.59	146	0.50
218	8.62	34.13	0	1.47	152	300	7.66	34.19	0.99	26.71	134	0.57
249	8.38	34.16	4	1.20	146	400	6.99	34.26	0.48	26.86	120	0.70
299	7.67	34.18	7	1.00	135	500	6.24	34.28	0.40	26.97	109	0.82
352	7.38	34.24	0	0.68	127	600	5.63	34.33	0.27	27.09	98	0.93
436	6.70	34.27	3	0.42	115							
523	6.10	34.28	5	0.40	107							
605	5.60	34.33	6	0.26	97							

HORIZON; October 26, 1961; 1941 GCT; 33°25.5'N, 117°43'W; sounding, 200 fm; wind, 280°, force 4; weather, overcast; sea, slight; wire angle, 05°.

90.28

1	18.14	33.64	2	5.50	371	0	(18.14)	(33.64)	(5.50)	(24.22)	(371)	(0.00)
11	18.08	33.63	9	5.71	370	10	18.09	33.64	5.70	24.23	370	0.04
31	12.06	33.40	2	5.24	263	20	14.78	33.47	5.49	24.86	310	0.07
51	11.06	33.53	5	4.26	235	30	12.07	33.40	5.25	25.35	263	0.10
76	10.76	33.71	7	3.34	217	50	11.06	33.53	4.27	25.64	236	0.15
100	10.40	33.83	2	2.74	202	75	10.77	33.71	3.36	25.83	217	0.21
125	10.02	33.96	1	2.31	187	100	10.40	33.83	2.74	25.99	202	0.26
165	9.34	34.06	8	2.13	168	125	10.02	33.96	2.31	26.16	187	0.31
205	9.06	34.17	7	1.61	156	150	9.59	34.03	2.21	26.28	175	0.35
255	8.70	34.18	8	1.44	149	200	9.11	34.17	1.66	26.47	157	0.44
						250	8.70	34.19	1.45	26.55	149	0.52

HORIZON; October 26, 1961; 1633 GCT; 33°20.5'N, 118°03'W; sounding, 395 fm; wind, 270°, force 1; weather, fog; sea, smooth; wire angle, 00°.

90.32

1	18.54	33.70	0	5.63	376	0	(18.54)	(33.70)	(5.63)	(24.16)	(376)	(0.00)
11	18.52	33.68	9	5.41	377	10	18.52	33.69	5.42	24.16	377	0.04
31	15.26	33.52	2	6.26	316	20	18.50	33.69	5.41	24.17	376	0.08
41	12.69	33.49	8	5.08	267	30	15.40	33.53	6.25	24.77	318	0.11
50	11.84	33.52	0	4.81	250	50	11.84	33.52	4.81	25.49	250	0.17
65	10.85	33.51	5	4.40	233	75	10.51	33.59	3.96	25.79	222	0.23
80	10.24	33.69	6	3.50	210	100	9.40	33.86	2.87	26.18	184	0.28
101	9.38	33.86	4	2.86	184	125	8.88	33.96	2.43	26.34	169	0.32
125	8.88	33.95	9	2.43	169	150	8.59	34.06	1.95	26.47	157	0.36
145	8.64	34.04	8	1.98	159	200	7.98	34.14	1.43	26.62	142	0.44
175	8.19	34.10	1	1.82	148	250	7.70	34.18	1.25	26.70	136	0.51
206	7.94	34.14	0	1.39	142	300	7.40	34.22	0.84	26.77	129	0.58
235	7.78	34.16	8	1.30	138	400	6.93	34.29	0.48	26.89	117	0.71
274	7.60	34.20	1	1.00	133	500	6.23	34.33	0.35	27.02	105	0.83
335	7.17	34.25	1	0.69	123							
410	6.88	34.29	5	0.47	116							
483	6.36	34.32	4	0.36	107							
564	5.84	34.35	3	0.32	99							

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6110-II

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

90.37

HORIZON; October 26, 1961; 1348 GCT; 33°11'N, 118°23.5'W; sounding, 638 fm; wind, 280°, force 1; weather, partly cloudy; sea, slight; wire angle, 00°.

1	18.66	33.69 8	5.46	379	0	(18.66)	(33.70)	(5.46)	(24.13)	(379)	(0.00)
11	18.63	33.69 2	5.46	379	10	18.64	33.69	5.46	24.13	379	0.04
31	13.74	33.41 9	6.05	293	20	15.89	33.50	5.82	24.64	331	0.07
41	12.72	33.46 3	5.23	270	30	13.82	33.42	6.05	25.02	294	0.10
56	11.38	33.52 9	4.48	241	50	11.80	33.51	4.71	25.49	250	0.16
71	10.81	33.59 2	4.08	227	75	10.69	33.64	3.93	25.79	221	0.22
96	9.82	33.78 0	3.30	197	100	9.70	33.79	3.21	26.08	194	0.27
117	9.56	33.83 8	2.96	188	125	9.50	33.87	2.86	26.17	185	0.32
137	9.42	33.90 3	2.77	181	150	9.29	33.92	2.69	26.25	178	0.37
159	9.16	33.93 8	2.63	175	200	8.77	34.03	2.21	26.42	162	0.45
189	8.80	34.00 1	2.38	165	250	8.49	34.18	1.57	26.58	147	0.53
224	8.75	34.13 0	1.80	154	300	8.05	34.22	0.94	26.67	138	0.60
254	8.43	34.18 6	1.55	145	400	7.09	34.26	0.66	26.84	121	0.74
304	8.02	34.21 9	0.92	137	500	6.29	34.32	0.38	27.00	107	0.86
359	7.40	34.24 0	0.80	127	600	5.76	34.36	0.34	27.10	97	0.97
444	6.76	34.29 6	0.42	114							
529	6.09	34.33 7	0.37	103							
614	5.70	34.36 7	0.33	96							

90.45

HORIZON; October 26, 1961; 1005 GCT; 32°55'N, 118°56'W; sounding, 920 fm; wind, 180°, force 1; weather, partly cloudy; sea, moderate; wire angle, 05°.

1	18.52	33.73 1	5.38	374	0	(18.52)	(33.73)	(5.38)	(24.19)	(374)	(0.00)
11	18.34	33.71 2	5.42	371	10	18.37	33.71	5.41	24.21	372	0.04
30	13.68	33.54 2	5.81	283	20	17.65	33.68	5.50	24.37	357	0.07
40	11.72	33.56 8	4.43	244	30	13.68	33.54	5.81	25.15	283	0.11
55	10.92	33.69 8	3.76	221	50	11.12	33.66	3.90	25.73	227	0.16
70	10.04	33.74 6	3.32	203	75	9.90	33.76	3.26	26.02	200	0.21
95	9.42	33.87 2	2.75	184	100	9.30	33.89	2.67	26.22	180	0.26
115	8.98	33.94 5	2.50	172	125	8.86	33.97	2.44	26.35	168	0.30
135	8.76	33.99 6	2.38	164	150	8.61	34.03	2.22	26.44	160	0.34
155	8.57	34.02 8	2.15	159	200	8.38	34.15	1.50	26.57	147	0.42
185	8.32	34.09 0	1.85	151	250	7.86	34.18	1.12	26.67	138	0.50
220	8.51	34.24 8	1.10	142	300	7.59	34.23	0.87	26.75	130	0.57
250	7.86	34.18 4	1.12	138	400	7.08	34.30	0.52	26.88	118	0.70
300	7.59	34.22 6	0.87	131	500	6.40	34.32	0.38	26.99	108	0.81
354	7.38	34.26 4	0.65	125	600	5.81	34.35	0.31	27.08	99	0.93
438	6.79	34.30 6	0.46	114							
521	6.28	34.32 3	0.37	106							
606	5.78	34.35 7	0.31	98							

90.53

HORIZON; October 26, 1961; 0549 GCT; 32°39.5'N, 119°28'W; sounding, 695 fm; wind, 020°, force 1; weather, cloudy; sea, smooth; wire angle, 20°.

1	17.28	33.44 5	5.38	366	0	(17.28)	(33.44)	(5.38)	(24.27)	(366)	(0.00)
10	17.10	33.43 2	5.34	362	10	17.10	33.43	5.34	24.31	363	0.04
33	15.81	33.42 3	5.59	335	20	17.00	33.43	5.34	24.33	360	0.07
43	14.94	33.33 9	5.74	323	30	16.05	33.42	5.51	24.54	340	0.11
55	12.98	33.17 0	5.74	297	50	13.83	33.23	5.74	24.88	308	0.17
69	12.11	33.25 1	5.23	275	75	11.81	33.31	5.06	25.33	265	0.24
93	10.48	33.47 0	4.53	230	100	10.37	33.49	4.46	25.73	227	0.31
111	10.18	33.51 7	4.25	222	125	9.69	33.63	3.84	25.96	206	0.36
129	9.51	33.67 9	3.68	199	150	8.99	33.84	3.06	26.23	179	0.41
157	8.87	33.88 6	2.89	174	200	8.22	34.04	2.17	26.51	153	0.50
185	8.43	33.99 1	2.42	160	250	7.77	34.11	1.51	26.63	142	0.57
221	7.95	34.07 9	1.83	147	300	7.32	34.14	1.45	26.72	133	0.64
248	7.78	34.10 8	1.51	142	400	6.64	34.24	0.68	26.89	117	0.77
294	7.36	34.13 2	1.50	135	500	6.20	34.30	0.45	27.00	107	0.89
355	6.90	34.22 2	0.85	122	600	5.75	34.35	0.40	27.09	98	1.00
450	6.40	34.26 4	0.55	112							
537	6.04	34.32 9	0.41	103							
611	5.70	34.34 7	0.40	98							

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

S10
CCOF1
6110-11

HORIZON; October 26, 1961; 0135 GCT; 32°25.5'N, 119°57'W; sounding, 690 fm; wind, 270°, force 2; weather, cloudy; sea, moderate; wire angle, 08°.

90.60

1	17.71	33.47 8	5.33	373	0	(17.71)	(33.48)	(5.33)	(24.20)	(373)	(0.00)
10	17.34	33.47 8	5.32	365	10	17.34	33.48	5.32	24.29	364	0.04
30	17.26	33.50 0	5.46	361	20	17.28	33.49	5.41	24.31	362	0.07
40	16.05	33.38 6	5.45	343	30	17.26	33.50	5.46	24.32	361	0.11
50	13.71	33.18 4	5.85	309	50	13.71	33.18	5.85	24.86	310	0.18
64	12.48	33.29 8	5.61	278	75	11.63	33.35	5.24	25.40	259	0.25
79	11.36	33.37 3	5.06	252	100	10.82	33.42	4.71	25.60	240	0.31
100	10.82	33.41 8	4.71	240	125	9.92	33.56	4.16	25.86	215	0.37
124	9.94	33.54 9	4.18	216	150	9.36	33.68	3.72	26.05	197	0.42
144	9.50	33.64 9	3.84	201	200	8.39	33.97	2.58	26.43	161	0.51
174	8.66	33.89 8	2.95	170	250	7.94	34.11	1.62	26.61	144	0.59
203	8.37	33.98 0	2.57	160	300	7.42	34.14	1.28	26.70	135	0.66
234	8.06	34.07 7	1.86	148	400	6.53	34.21	0.71	26.88	118	0.79
273	7.78	34.14 1	1.39	140	500	5.88	34.29	0.38	27.03	104	0.91
333	7.00	34.14 6	1.13	129							
408	6.48	34.21 4	0.67	117							
482	6.00	34.27 5	0.40	107							
562	5.42	34.33 3	0.36	95							

HORIZON; October 25, 1961; 1951 GCT; 32°05.5'N, 120°39'W; sounding, 2040 fm; wind, 270°, force 1; weather, cloudy; sea, rough; wire angle, 05°.

90.70

1	17.44	33.52 6a)	5.64	363	0	(17.44)	(33.53)	(5.64)	(24.30)	(363)	(0.00)
11	17.20	33.51 6	5.43	359	10	17.21	33.52	5.44	24.35	359	0.04
31	16.67	33.55 2	5.59	344	20	17.00	33.53	5.47	24.41	353	0.07
41	14.14	33.28 2	5.82	311	30	16.71	33.55	5.58	24.49	345	0.11
56	13.30	33.32 2	5.61	291	50	13.34	33.32	5.62	25.05	292	0.17
70	12.20	33.26 7	5.42	275	75	11.90	33.27	5.30	25.29	269	0.24
96	10.88	33.47 8	4.56	236	100	10.60	33.50	4.49	25.70	230	0.30
115	9.82	33.58 4	4.30	211	125	9.48	33.67	4.02	26.02	200	0.36
135	9.28	33.72 5	3.81	192	150	9.18	33.75	3.60	26.13	189	0.41
155	9.16	33.76 6	3.51	188	200	8.26	33.96	2.56	26.44	160	0.50
185	8.50	33.92 2	2.75	166	250	7.54	34.04	2.12	26.61	144	0.57
219	7.98	33.99 8	2.38	153	300	6.97	34.10	1.36	26.74	132	0.65
250	7.54	34.03 6	2.12	144	400	6.28	34.18	0.76	26.89	117	0.77
299	6.98	34.09 8	1.38	132	500	5.82	34.28	0.40	27.03	104	0.89
353	6.48	34.12 5	1.04	124	600	5.32	34.38	0.28	27.17	91	1.00
439	6.13	34.22 2	0.59	112							
523	5.68	34.30 5	0.34	100							
608	5.28	34.38 3	0.27	90							

HORIZON; October 25, 1961; 1514 GCT; 31°45'N, 121°19.5'W; sounding, 1880 fm; wind, 330°, force 4; weather, overcast; sea, moderate; wire angle, 11°.

90.80

1	17.21	33.60 0	5.45	353	0	(17.21)	(33.60)	(5.45)	(24.41)	(353)	(0.00)
11	17.23	33.59 1	5.51	354	10	17.23	33.59	5.50	24.40	354	0.04
30	17.21	33.59 4	5.54	353	20	17.22	33.59	5.52	24.40	354	0.07
39	16.68	33.56 2	5.65	344	30	17.21	33.59	5.54	24.40	353	0.11
54	13.24	33.49 0	5.47	278	50	13.53	33.49	5.51	25.14	284	0.17
69	10.78	33.49 2	4.48	234	75	10.58	33.50	4.36	25.70	230	0.23
93	9.86	33.67 5	3.61	205	100	9.68	33.73	3.40	26.04	198	0.29
113	9.40	33.80 0	3.07	189	125	9.14	33.85	2.93	26.22	181	0.34
133	8.96	33.88 3	2.81	176	150	8.59	33.93	2.61	26.37	167	0.38
152	8.55	33.93 3	2.59	166	200	7.68	34.04	2.16	26.59	146	0.46
181	8.03	34.00 2	2.44	153	250	7.17	34.08	1.48	26.69	136	0.53
216	7.42	34.04 0	1.90	142	300	6.70	34.15	0.95	26.81	125	0.60
245	7.20	34.07 2	1.55	137	400	5.93	34.21	0.53	26.96	111	0.72
293	6.76	34.14 4	0.98	126	500	5.40	34.26	0.37	27.06	101	0.83
347	6.28	34.17 1	0.75	118	600	5.12	34.35	0.31	27.17	91	0.94
431	5.76	34.22 5	0.46	107							
516	5.33	34.27 3	0.35	99							
600	5.12	34.35 2	0.31	91							

a) Salinity bottle numbers were not recorded on the data sheet. Since standard handling and titrating procedures were used, these salinity values are assumed to be listed correctly.

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6110-11

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

9090

HORIZON; October 25, 1961; 1022 GCT; 31°25'N, 122°00'W; sounding, 1760 fm; wind, 320°, force 2; weather, overcast; sea, rough; wire angle, 17°.

2	17.45	33.66	1	5.36	354	0	(17.45)	(33.66)	(5.36)	(24.40)	(354)	(0.00)
11	17.44	33.65	4	5.33	354	10	17.44	33.65	5.33	24.39	354	0.04
30	17.46	33.65	5	5.31	354	20	17.45	33.65	5.32	24.39	355	0.07
40	17.40	33.64	6	5.34	354	30	17.46	33.66	5.31	24.40	354	0.11
54	13.40	33.46	3	5.50	283	50	14.05	33.48	5.48	25.02	294	0.17
68	11.79	33.53	3	4.65	248	75	11.20	33.58	4.27	25.66	234	0.24
91	10.10	33.66	8	3.58	210	100	9.63	33.70	3.37	26.02	200	0.29
110	9.28	33.72	3	3.24	193	125	8.99	33.79	3.06	26.19	183	0.34
130	8.89	33.80	4	3.02	181	150	8.49	33.91	2.91	26.37	167	0.39
148	8.52	33.89	7	2.96	168	200	8.10	34.04	2.01	26.53	152	0.47
177	8.34	34.00	2	2.38	158	250	7.69	34.09	1.73	26.63	142	0.54
210	8.00	34.06	4	1.89	148	300	7.11	34.13	1.22	26.74	131	0.61
239	7.81	34.07	8	1.80	145	400	6.43	34.22	0.66	26.90	116	0.74
286	7.26	34.11	9	1.35	134	500	5.83	34.28	0.36	27.03	104	0.86
338	6.80	34.16	4	0.99	125	600	(5.38)	(34.37)		(27.15)	(92)	(0.96)
420	6.31	34.23	4	0.59	113							
503	5.81	34.28	3	0.36	104							
588	5.44	34.35	9	0.27	94							

90100

HORIZON; October 25, 1961; 0523 GCT; 31°05'N, 122°39'W; sounding, 2220 fm; wind, 330°, force 4; weather, cloudy; sea, rough; wire angle, 23°.

1	17.33	33.27	1	5.38	379	0	(17.33)	(33.27)	(5.38)	(24.13)	(379)	(0.00)
10	17.33	33.26	1	5.43	380	10	17.33	33.26	5.43	24.12	380	0.04
33	17.34	33.26	1	5.43	380	20	17.33	33.26	5.43	24.12	380	0.08
60	15.22	33.26	5	5.85	334	30	17.33	33.26	5.43	24.12	380	0.11
70	14.82	33.31	1	5.71	322	50	17.33	33.26	5.43	24.12	380	0.19
88	13.27	33.32	2	5.53	291	75	14.13	33.32	5.64	24.88	308	0.28
101	12.56	33.36	6	5.23	274	100	12.59	33.37	5.25	25.23	275	0.35
114	11.58	33.41	5	4.84	253	125	11.12	33.45	4.59	25.57	243	0.42
141	10.52	33.51	7	4.27	228	150	10.25	33.56	4.13	25.81	220	0.47
159	9.98	33.60	6	3.97	212	200	8.78	33.86	2.98	26.28	175	0.57
185	9.06	33.80	7	3.22	183	250	7.87	34.03	2.38	26.55	149	0.66
217	8.50	33.93	7	2.74	165	300	7.28	34.06	1.73	26.66	139	0.73
241	7.98	33.99	8	2.54	153	400	6.18	34.12	0.93	26.86	120	0.87
288	7.44	34.05	2	1.90	142	500	5.63	34.22	0.50	27.00	106	0.99
347	6.67	34.10	3	1.19	128	600	(5.25)	(34.33)	(0.25)	(27.14)	(94)	(1.09)
440	5.89	34.14	6	0.78	115							
526	5.55	34.24	8	0.41	103							
599	5.25	34.32	5	0.25	94							

90120

HORIZON; October 24, 1961; 2045 GCT; 30°25'N, 124°00'W; sounding, 2250 fm; wind, 340°, force 5; weather, cloudy; sea, very rough; wire angle, 33°.

1	19.17	33.84	0	5.48	381	0	(19.17)	(33.84)	(5.48)	(24.11)	(381)	(0.00)
9	19.18	33.82	4	5.36	383	10	19.18	33.82	5.36	24.09	383	0.04
30	19.15	33.82	4	5.38	382	20	19.17	33.82	5.37	24.10	383	0.08
53	17.48	33.54	7	5.82	363	30	19.15	33.82	5.38	24.10	382	0.11
61	16.39	33.53	6	5.86	339	50	19.13	33.82	5.40	24.11	382	0.19
77	15.68	33.66	7	5.77	314	75	15.69	33.66	5.76	24.81	315	0.28
89	15.52	33.78	2	5.68	302	100	14.50	33.68	5.65	25.08	289	0.36
100	14.50	33.67	7	5.65	289	125	13.52	33.70	5.45	25.30	268	0.43
124	13.54	33.70	4	5.46	268	150	11.83	33.61	5.06	25.56	243	0.49
140	12.38	33.61	3	5.22	253	200	9.43	33.79	4.49	26.12	190	0.60
164	11.16	33.61	5	4.90	231	250	8.44	33.94	3.70	26.40	164	0.69
191	9.66	33.74	8	4.71	197	300	7.60	34.00	2.94	26.57	148	0.77
214	9.12	33.84	6	4.13	181	400	6.60	34.09	1.51	26.78	128	0.91
255	8.34	33.95	1	3.63	162	500	5.74	34.17	0.86	26.95	111	1.04
309	7.47	34.00	7	2.80	145							
394	6.65	34.08	3	1.58	129							
476	5.88	34.14	3	0.99	115							
544	5.52	34.22	1	0.55	105							

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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6110-11

HORIZON; October 24, 1961; 1224 GCT; 29°44.5'N, 125°21'W; sounding, 2340 fm; wind, 340°, force 7; weather, cloudy; sea, rough; wire angle, 20°.

90.140

2	19.48	33.87 8	5.32	386	0	(19.48)	(33.88)	(5.32)	(24.06)	(386)	(0.00)
11	19.48	33.88 0	5.33	386	10	19.48	33.88	5.33	24.06	386	0.04
34	19.48	33.88 3	5.22	386	20	19.48	33.88	5.28	24.06	386	0.08
62	16.28	33.48 8	5.89	340	30	19.48	33.88	5.23	24.06	386	0.12
71	15.60	33.48 2	5.87	326	50	19.48	33.88	5.22	24.06	386	0.19
90	15.15	33.56 0	5.75	311	75	15.48	33.49	5.86	24.72	323	0.28
104	14.68	33.57 6	5.68	300	100	14.85	33.57	5.70	24.92	304	0.36
118	13.86	33.59 4	5.47	282	125	13.72	33.62	5.40	25.20	278	0.43
145	12.31	33.64 3	5.07	249	150	11.99	33.63	5.00	25.55	245	0.50
164	11.08	33.58 8	4.81	232	200	9.51	33.76	4.07	26.09	193	0.61
192	9.77	33.69 8	4.12	202	250	8.46	33.95	3.66	26.40	163	0.70
225	8.94	33.90 4	3.99	174	300	7.57	33.99	3.01	26.56	148	0.78
253	8.40	33.95 8	3.62	162	400	6.36	34.08	1.50	26.80	125	0.93
301	7.56	33.99 7	3.00	147	500	5.69	34.20	0.66	26.98	108	1.05
363	6.76	34.04 2	1.99	133	600	5.24	34.29	0.41	27.11	97	1.16
460	5.85	34.14 1	0.89	115							
550	5.49	34.23 9	0.49	103							
625	5.10	34.30 1	0.39	94							

HORIZON; October 24, 1961; 0325 GCT; 29°04'N, 126°41'W; sounding, 2040 fm; wind, 020°, force 5; weather, overcast; sea, rough; wire angle, 20°.

90.160

1	19.90	34.16 8	5.20	375	0	(19.90)	(34.17)	(5.20)	(24.18)	(375)	(0.00)
10	19.90	34.16 3	5.20	376	10	19.90	34.16	5.20	24.17	376	0.04
29	19.92	34.16 1	5.18	376	20	19.91	34.16	5.20	24.17	376	0.08
57	19.92	34.16 3	5.21	376	30	19.92	34.16	5.18	24.16	376	0.11
66	19.38	34.15 1	5.38	364	50	19.92	34.16	5.20	24.16	376	0.19
80	17.36	34.10 0	5.61	320	75	17.82	34.11	5.60	24.65	330	0.28
94	16.77	34.11 7	5.42	305	100	16.54	34.13	5.40	24.97	299	0.36
108	16.17	34.15 0	5.38	290	125	15.47	34.13	5.28	25.22	276	0.43
131	15.21	34.10 8	5.26	272	150	13.69	33.92	5.26	25.44	255	0.50
149	13.78	33.93 0	5.27	256	200	10.50	33.78	4.55	25.93	208	0.61
177	11.86	33.77 2	4.97	232	250	8.80	33.88	3.86	26.29	174	0.71
204	10.28	33.79 3	4.46	203	300	7.93	33.95	3.39	26.48	156	0.80
232	9.20	33.85 3	3.93	182	400	6.46	34.06	1.76	26.77	128	0.94
279	8.30	33.91 7	3.75	164	500	5.63	34.16	0.71	26.96	111	1.07
331	7.42	34.00 4	2.88	145	600	(5.21)	(34.27)		(27.09)	(98)	(1.18)
413	6.31	34.07 0	1.56	126							
496	5.66	34.16 0	0.74	111							
580	5.29	34.24 8	0.47	100							

HORIZON; October 23, 1961; 1810 GCT; 28°26'N, 128°00'W; sounding, 2080 fm; wind, 360°, force 4; weather, overcast; sea, rough; wire angle, 20°.

90.180

1	20.06	34.10 7	5.09	384	0	(20.06)	(34.11)	(5.09)	(24.09)	(384)	(0.00)
10	20.05	34.10 2	5.08	384	10	20.05	34.10	5.08	24.08	384	0.04
29	20.06	34.09 7	5.12	384	20	20.05	34.10	5.10	24.08	384	0.08
56	19.87	34.08 8	5.08	380	30	20.06	34.10	5.12	24.08	384	0.12
65	18.38	34.07 5	5.44	345	50	20.00	34.09	5.11	24.09	383	0.19
79	17.47	34.03 8	5.49	327	75	17.83	34.08	5.48	24.63	332	0.28
93	16.81	33.99 6	5.46	315	100	16.38	34.00	5.41	24.91	305	0.36
107	16.04	34.00 8	5.37	297	125	14.77	33.91	5.09	25.20	277	0.44
130	14.40	33.87 7	5.03	272	150	12.83	33.75	4.94	25.48	251	0.50
148	12.92	33.75 3	4.96	253	200	9.97	33.76	4.20	26.01	201	0.62
176	11.50	33.68 9	4.67	232	250	8.62	33.93	3.38	26.36	167	0.71
204	9.72	33.77 9	4.12	195	300	7.59	34.02	2.45	26.59	146	0.79
233	8.96	33.88 3	3.72	176	400	6.94	34.22	0.81	26.83	122	0.93
280	8.06	34.00 8	2.75	153	500	6.32	34.29	0.48	26.97	109	1.05
333	6.98	34.05 4	1.97	135	600	(5.67)	(34.34)		(27.09)	(98)	(1.17)
416	6.93	34.25 0	0.64	120							
501	6.32	34.29 5	0.47	109							
585	5.77	34.33 1	0.39	100							

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

90.200

HORIZON; October 23, 1961; 0938 GCT; 27°44.5'N, 129°18'W; sounding, 2330 fm; wind, 040°, force 4; weather, overcast; sea, rough; wire angle, 17°.

1	20.84	34.52 0	4.92	374	0	(20.84)	(34.52)	(4.92)	(24.19)	(374)	(0.00)
10	20.84	34.50 9	4.96	374	10	20.84	34.51	4.96	24.18	374	0.04
29	20.86	34.51 0	4.91	375	20	20.85	34.51	4.94	24.18	375	0.07
58	20.88	34.51 9	4.94	375	30	20.86	34.51	4.91	24.18	375	0.11
67	19.20	34.36 7	5.35	344	50	20.87	34.52	4.93	24.18	374	0.19
81	18.36	34.44 3	5.23	318	75	18.70	34.42	5.28	24.67	328	0.28
95	18.40	34.62 6	5.27	306	100	18.40	34.64	5.25	24.92	305	0.36
110	18.02	34.62 9	5.16	296	125	17.80	34.63	5.09	25.06	291	0.43
134	17.66	34.63 3	5.06	288	150	16.50	34.43	4.96	25.21	276	0.50
152	16.38	34.41 2	4.96	275	200	12.49	33.89	4.63	25.65	235	0.63
181	13.88	34.01 7	4.76	252	250	9.79	33.87	4.29	26.13	190	0.74
209	11.88	33.85 9	4.58	226	300	8.74	33.97	3.84	26.37	166	0.83
238	10.14	33.85 6	4.36	196	400	6.75	34.05	1.93	26.73	133	0.99
286	9.04	33.95 2	4.08	172	500	5.77	34.14	0.88	26.92	114	1.12
340	7.87	34.00 0	3.10	151	600	(5.09)	(34.25)		(27.09)	(98)	(1.23)
422	6.47	34.07 0	1.65	128							
505	5.73	34.15 1	0.85	113							
589	5.17	34.23 4	0.48	100							

93.28

BLACK DOUGLAS; October 21, 1961; 1535 GCT; 32°54.5'N, 117°22'W; sounding, 300 fm; wind, 270°, force 3; weather, cloudy; sea, moderate; wire angle, 02°.

0	19.15	33.60 8	5.09	398	0	19.15	33.61	5.09	23.94	397	0.00
10	18.46	33.65 2	5.08	378	10	18.46	33.65	5.08	24.15	378	0.04
31	14.24	33.42 2	5.87	302	20	17.10	33.58	5.34	24.42	352	0.08
50	12.20	33.41 9	4.79	264	30	14.27	33.42	5.88	24.93	303	0.11
75	10.91	33.52 4	3.90	234	50	12.20	33.42	4.79	25.35	264	0.17
99	10.60	33.67 9	3.13	217	75	10.91	33.52	3.90	25.66	234	0.23
125	10.23	33.82 7	2.72	200	100	10.59	33.68	3.12	25.84	217	0.28
165	9.82	34.02 9	1.99	178	125	10.23	33.83	2.72	26.02	200	0.34
203	9.38	34.10 7	1.69	166	150	9.97	33.97	2.20	26.17	185	0.39
254	9.00	34.19 3	1.38	153	200	9.41	34.10	1.72	26.37	167	0.48
304	8.68	34.26 5	0.91	143	250	9.02	34.19	1.43	26.50	154	0.56
					300	8.72	34.27	0.96	26.61	144	0.63

93.30

BLACK DOUGLAS; October 21, 1961; 1720 GCT; 32°50.5'N, 117°31'W; sounding, 450 fm; wind, 290°, force 2; weather, cloudy; sea, moderate; wire angle, 04°.

0	18.58	33.63 3	5.34	382	0	18.58	33.63	5.34	24.10	382	0.00
10	18.57	33.64 3	5.46	381	10	18.57	33.64	5.46	24.11	381	0.04
30	13.46	33.34 1	5.99	293	20	17.70	33.59	5.60	24.29	365	0.08
40	12.16	33.30 0	5.42	272	30	13.46	33.34	5.99	25.04	293	0.11
50	11.87	33.40 3	5.03	259	50	11.87	33.40	5.03	25.39	259	0.16
64	11.69	33.49 8	4.47	249	75	11.60	33.54	4.20	25.55	244	0.23
79	11.15	33.64 5	3.51	229	100	10.49	33.88	2.75	26.01	200	0.28
99	10.48	33.86 8	2.80	201	125	10.40	33.95	2.16	26.08	194	0.33
125	10.40	33.94 9	2.16	194	150	10.32	34.05	1.67	26.18	185	0.38
145	10.38	34.02 9	1.71	187	200	9.98	34.15	1.42	26.31	172	0.47
174	9.97	34.11 9	1.54	174	250	9.62	34.28	1.07	26.47	157	0.56
203	9.98	34.15 6	1.38	171	300	8.56	34.24	1.06	26.61	143	0.63
233	9.80	34.24 7	1.13	162	400	7.50	34.29	0.63	26.81	125	0.77
273	9.30	34.29 0	0.99	151	500	6.72	34.29	0.54	26.92	114	0.90
333	7.84	34.19 1	1.13	137							
407	7.46	34.29 0	0.59	124							
481	6.88	34.29 0	0.55	116							
560	6.36	34.31 5	0.40	108							

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

BLACK DOUGLAS; October 21, 1961; 2300 GCT; 32°30'N, 118°12.5'W; sounding, 900 fm; wind, 310°, force 4; weather, cloudy; sea, moderate; wire angle, 15°.

93.40

0	18.86	33.59 6	5.21	391	0	18.86	33.60	5.21	24.01	391	0.00
10	18.84	33.59 2	5.46	391	10	18.84	33.59	5.46	24.01	391	0.04
29	15.64	33.28 2	5.98	342	20	18.84	33.59	5.46	24.01	391	0.08
39	14.68	33.23 1	6.14	325	30	15.55	33.28	6.00	24.55	340	0.11
53	13.22	33.26 1	5.85	294	50	13.49	33.25	5.95	24.96	300	0.18
67	12.11	33.35 4	5.13	267	75	11.35	33.39	4.72	25.48	251	0.25
92	11.04	33.54 7	4.30	234	100	10.42	33.59	3.82	25.80	221	0.31
110	10.42	33.74 1	3.13	209	125	10.67	33.93	1.90	26.02	200	0.36
130	10.67	33.97 3	1.67	196	150	10.14	34.02	1.95	26.18	184	0.41
149	10.18	34.01 6	1.97	185	200	9.21	34.14	1.76	26.43	161	0.50
178	9.62	34.11 0	1.91	169	250	9.21	34.28	1.05	26.54	150	0.58
210	9.10	34.14 9	1.66	158	300	8.49	34.26	1.02	26.64	141	0.65
239	9.32	34.27 9	1.06	152	400	7.52	34.28	0.65	26.80	126	0.79
288	8.66	34.25 9	1.06	143	500	6.72	34.31	0.57	26.93	113	0.92
340	8.00	34.24 8	0.86	135	600	(5.86)	(34.35)	(0.32)	(27.07)	(100)	(1.04)
423	7.36	34.28 6	0.61	123							
509	6.64	34.30 8	0.56	112							
592	5.92	34.33 9	0.32	101							

BLACK DOUGLAS; October 22, 1961; 0500 GCT; 32°10'N, 118°52.5'W; sounding, 825 fm; wind, 320°, force 5; weather, cloudy; sea, rough; wire angle, 33°.

93.50

0	17.46	33.57 0	5.59	361	0	17.46	33.57	5.59	24.33	361	0.00
8	17.48	33.60 6	5.52	358	10	17.48	33.60	5.51	24.35	359	0.04
25	16.33	33.49 7	5.85	341	20	17.48	33.60	5.51	24.35	359	0.07
35	15.75	33.44 8	5.82	332	30	15.84	33.45	5.84	24.61	334	0.11
46	14.22	33.33 7	5.66	308	50	14.08	33.34	5.65	24.91	305	0.17
59	11.60	33.34 4	5.56	259	75	10.64	33.49	5.03	25.68	232	0.24
80	10.46	33.52 6	4.92	226	100	9.75	33.68	4.45	25.98	203	0.29
97	9.86	33.65 7	4.64	207	125	9.28	33.83	3.27	26.18	185	0.34
115	9.34	33.80 0	3.51	188	150	9.02	33.91	2.78	26.28	175	0.39
132	9.24	33.85 5	3.12	182	200	8.67	34.00	2.23	26.41	163	0.47
158	8.94	33.92 7	2.64	172	250	8.00	34.06	1.95	26.56	149	0.55
189	8.75	33.97 9	2.32	166	300	7.57	34.12	1.38	26.67	138	0.63
217	8.46	34.03 7	2.14	157	400	6.92	34.24	0.81	26.85	121	0.76
263	7.86	34.06 5	1.88	146	500	6.31	34.30	0.39	26.98	108	0.88
312	7.49	34.13 9	1.23	136							
391	6.98	34.23 3	0.85	122							
472	6.48	34.28 5	0.44	112							
551	6.00	34.32 1	0.34	103							

BLACK DOUGLAS; October 22, 1961; 1055 GCT; 31°49.5'N, 119°31.5'W; sounding, 1000 fm; wind, 320°, force 6; weather, missing; sea, very rough; wire angle, 40°.

93.60

0	17.63	33.46 8	5.65	372	0	17.63	33.47	5.65	24.21	372	0.00
8	17.62	33.46 3	5.72	372	10	17.61	33.46	5.71	24.21	372	0.04
27	17.56	33.46 2	5.68	371	20	17.59	33.46	5.70	24.21	372	0.07
50	13.54	33.26 8	5.95	300	30	17.37	33.45	5.71	24.26	367	0.11
57	13.14	33.27 8	5.86	292	50	13.54	33.27	5.95	24.97	300	0.18
73	12.06	33.33 0	5.48	268	75	11.98	33.34	5.43	25.33	266	0.25
84	11.52	33.40 7	5.18	253	100	10.77	33.52	4.72	25.69	231	0.31
96	10.90	33.48 7	4.86	236	125	10.08	33.70	3.65	25.94	207	0.37
121	10.21	33.67 0	3.82	211	150	9.32	33.82	3.31	26.16	186	0.42
137	9.72	33.77 6	3.34	195	200	8.30	33.97	2.64	26.44	160	0.51
162	8.99	33.85 4	3.25	178	250	7.72	34.06	2.05	26.60	145	0.58
192	8.43	33.95 4	2.72	163	300	7.25	34.12	1.45	26.71	134	0.66
217	8.05	34.01 1	2.47	153	400	6.63	34.25	0.93	26.90	116	0.79
260	7.64a)	34.07 2	1.97	143	500	5.97	34.33	0.46	27.05	102	0.90
317	7.12	34.13 7	1.30	131							
405	6.60	34.25 3	0.89	116							
485	6.06	34.32 1	0.48	104							
554	5.68	34.34 5	0.43	97							

a) Alternate value, 7.70°C, 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

93.70 BLACK DOUGLAS; October 22, 1961; 1653 GCT; 31°30'N, 120°14'W; sounding, 2050 fm; wind, 320°, force 6; weather, clear; sea, very rough; wire angle, 06°.

0	17.36	33.32 9	5.65	376	0	17.36	33.33	5.65	24.17	376	0.00
10	17.34	33.35 3	5.59	374	10	17.34	33.35	5.59	24.19	374	0.04
35	16.43	33.28 3	5.95	358	20	17.34	33.35	5.59	24.19	374	0.07
45	15.16	33.30 3	5.94	330	30	17.34	33.35	5.59	24.19	374	0.11
60	13.76	33.22 1	5.83	308	50	14.45	33.26	5.90	24.77	319	0.18
74	12.68	33.19 4	5.73	289	75	12.66	33.19	5.72	25.08	289	0.26
99	11.75	33.41 3	5.07	256	100	11.73	33.42	5.05	25.43	255	0.33
119	10.54	33.59 4	4.09	222	125	10.28	33.62	3.99	25.85	216	0.39
138	9.60	33.66 1	3.76	202	150	9.33	33.72	3.58	26.08	194	0.44
169	8.98	33.81 3	3.18	181	200	8.52	33.94	2.62	26.38	165	0.53
198	8.54	33.93 1	2.64	166	250	7.86	34.04	2.34	26.56	148	0.61
238	8.05	34.05 0	2.37	150	300	7.04	34.04	2.10	26.68	137	0.68
268	7.52	34.02 7	2.28	145	400	6.16	34.16	0.91	26.89	117	0.82
317	6.82	34.05 7	1.90	133	500	5.81	34.26	0.39	27.01	105	0.93
382	6.24	34.13 1	1.09	120	600	5.28	34.33	0.26	27.13	94	1.04
480	5.90	34.24 5	0.42	108							
569	5.44	34.31 4	0.29	97							
645	5.10	34.35 4	0.18	90							

93.80 BLACK DOUGLAS; October 22, 1961; 2225 GCT; 31°13.5'N, 120°49'W; sounding, 2000+ fm; wind, 330°, force 6; weather, partly cloudy; sea, very rough; wire angle, 16°.

0	16.95	33.37 1	5.76	364	0	16.95	33.37	5.76	24.30	364	0.00
10	16.90	33.37 9	5.79	362	10	16.90	33.38	5.79	24.32	362	0.04
34	15.66	33.37 8	5.96	335	20	16.60	33.37	5.85	24.38	356	0.07
43	14.44	33.29 6	6.01	316	30	16.05	33.40	5.91	24.53	342	0.11
58	13.00	33.27 5	5.84	289	50	13.98	33.28	5.99	24.88	308	0.17
72	12.21	33.29 0	5.57	274	75	12.17	33.30	5.53	25.26	272	0.25
97	11.02	33.41 2	4.95	244	100	10.60	33.42	4.81	25.64	236	0.31
116	10.02	33.49 4	4.56	221	125	9.73	33.61	4.09	25.93	208	0.37
136	9.39	33.75 0	3.43	192	150	9.02	33.85	2.99	26.24	179	0.41
166	8.72	33.91 1	2.76	170	200	(8.22)	(33.98)	(2.61)	(26.46)	(158)	(0.50)
195	8.28	33.97 1	2.63	159							

93.90 BLACK DOUGLAS; October 23, 1961; 0435 GCT; 30°56'N, 121°27'W; sounding, 2000+ fm; wind, 320°, force 6; weather, partly cloudy; sea, very rough; wire angle, 10°.

2	17.02	33.27 9	5.50	372	0	(17.02)	(33.28)	(5.50)	(24.21)	(372)	(0.00)
11	17.02	33.28 3	5.49	372	10	17.02	33.28	5.50	24.21	372	0.04
38	16.04	33.31 3	5.70	348	20	17.02	33.28	5.50	24.21	372	0.07
46	16.36	33.49 2	5.52	342	30	17.02	33.29	5.50	24.22	371	0.11
61	14.14	33.29 3	5.79	310	50	16.05	33.47	5.55	24.58	337	0.18
75	11.72	33.24 2	5.18	268	75	11.72	33.24	5.18	25.30	268	0.26
100	10.40	33.39 9	4.68	234	100	10.40	33.40	4.68	25.66	234	0.32
119	9.90	33.55 6	4.31	215	125	9.84	33.59	4.18	25.90	211	0.38
139	9.46	33.73 3	3.39	195	150	9.21	33.79	2.99	26.16	187	0.43
168	8.92	33.87 6	2.60	176	200	8.47	33.98	2.48	26.42	161	0.52
198	8.49	33.98 2	2.49	162	250	7.75	34.08	1.89	26.61	144	0.60
237	7.91	34.05 5	2.13	148	300	7.09	34.11	1.35	26.73	133	0.67
266	7.54	34.09 5	1.64	140	400	6.07	34.13	0.89	26.88	118	0.80
315	6.89	34.11 2	1.26	130	500	5.53	34.22	0.52	27.02	105	0.91
381	6.20	34.12 1	0.98	120	600	5.01	34.31	0.41	27.15	93	1.02
479	5.66	34.20 7	0.54	108							
568	5.14	34.28 0	0.47	96							
642	4.91	34.34 2	0.32	89							

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; October 23, 1961; 1055 GCT; 30°30.5'N, 122°14'W; sounding, 2100 fm; wind, 340°, force 6; weather, cloudy; sea, high; wire angle, 12°.

93.100

1	18.47	33.40 5	5.32	396	0	(18.47)	(33.40)	(5.32)	(23.95)	(396)	(0.00)
11	18.48	33.39 3	5.37	397	10	18.48	33.39	5.38	23.94	397	0.04
35	18.12	33.32 9	5.32	393	20	18.48	33.39	5.38	23.94	397	0.08
45	17.08	33.27 4	5.89	374	30	18.48	33.39	5.38	23.94	397	0.12
60	15.50	33.37 8	5.87	332	50	16.50	33.34	5.90	24.38	356	0.19
74	14.34	33.34 9	5.66	310	75	14.30	33.35	5.65	24.87	309	0.28
98	13.17	33.38 2	5.50	285	100	13.15	33.39	5.50	25.14	284	0.35
118	12.23	33.46 2	5.25	261	125	11.89	33.48	5.19	25.45	254	0.42
138	11.18	33.50 6	5.01	239	150	10.52	33.56	4.79	25.76	224	0.48
167	9.77	33.67 2	4.34	204	200	9.00	33.83	3.19	26.22	180	0.58
195	9.10	33.81 1	3.29	183	250	8.23	34.00	2.37	26.48	156	0.67
235	8.38	33.96 7	2.60	161	300	7.64	34.06	1.97	26.61	144	0.75
265	8.10	34.02 5	2.19	153	400	6.70	34.16	0.87	26.82	124	0.89
313	7.50	34.07 4	1.86	141	500	5.76	34.23	0.48	27.00	107	1.01
378	6.92	34.14 1	1.03	128	600	5.20	34.31	0.30	27.13	95	1.12
475	5.98	34.21 3	0.55	111							
564	5.36	34.28 3	0.33	98							
639	5.12	34.33 6	0.28	92							

BLACK DOUGLAS; October 18, 1961; 0212 GCT; 32°47'N, 117°28'W;^{a)} sounding, 300 fm; wind, 320°, force 2; weather, cloudy; sea, rough; wire angle, 06°.^{b)}

93⁴.29⁸

0	19.70	33.69 0	5.36	405
10	18.74	33.68 8	5.33	382
20	18.00	33.64 0	5.55	368
30	15.00	33.48 7	6.03	313
40	13.48	33.47 3	5.48	284
50	12.36	33.48 2	4.86	262
61	11.64	33.47 3	4.54	250
69	10.88	33.42 7	4.52	240
80	10.68	33.53 9	4.14	229
90	10.26	33.58 7	4.07	218
100	10.10	33.77 9	3.89	201
110	10.26	33.89 0	2.93	196
119	10.16	33.89 8	2.41	193
129	10.09	33.93 6	2.31	190
139	10.09	33.97 2	2.22	187
149	10.14	34.02 5	1.91	184
159	10.06	34.08 2	1.63	178
169	9.72	34.09 5	0.98	172

HORIZON; October 10, 1961; 1953 GCT; 32°40'N, 117°22'W; sounding, 140 fm; wind, direction missing, force 1; weather, clear; sea, slight; wire angle, 02°.^{b)}

94³.29⁶

0	18.19	33.60 1	5.19	375
5	18.10	33.60 4	5.08	373
10	16.46	33.47 1	5.67	345
15	15.15	33.42 0	5.45	321
20	14.55c)	33.42 8	5.48	308
25	13.52	33.45 5	5.39	286
30	12.65	33.44 0	4.82	271
35	12.39	33.50 0	4.19	261
40	12.22	33.52 0	4.09	257
45	11.89	33.53 2	4.00	250
50	11.70	33.55 8	2.94u	245
55	11.66	33.57 6	3.79	243
60	11.68	33.63 5	3.01	239
65	11.64	33.68 1	2.78	235
70	11.50	33.69 5	3.12	231
75	11.43	33.69 4	3.17	230
80	11.17	33.71 4	3.19	224
85	11.06	33.74 4	2.98	220

a) Approximate position.

b) Shakedown station.

c) Alternate value, 14.25°C.

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

100.30 HORIZON; October 28, 1961; 0725 GCT; 31°40.5'N, 116°46'W; sounding, 220 fm; wind, 100°, force 2; weather, cloudy; sea, rough; wire angle, 02°.

0	16.18	33.51 6	6.08	336	0	16.18	33.52	6.08	24.59	336	0.00
10	13.69	33.48 0	5.38	287	10	13.69	33.48	5.38	25.10	287	0.03
31	12.19	33.59 3	3.81	251	20	12.61	33.53	4.37	25.35	263	0.06
50	11.44	33.69 8	2.99	230	30	12.21	33.59	3.84	25.48	251	0.08
76	11.08	33.79 4	2.49	217	50	11.44	33.70	2.99	25.70	230	0.13
101	11.00	33.87 4	2.09	209	75	11.10	33.78	2.54	25.83	218	0.19
125	10.82	33.95 7	1.80	200	100	11.00	33.87	2.11	25.92	210	0.24
165	10.54	34.17 2	1.26	179	125	10.82	33.96	1.80	26.02	200	0.29
206	10.16	34.24 7	1.16	168	150	10.64	34.11	1.40	26.17	186	0.34
256	9.67	34.32 8	0.83	154	200	10.21	34.24	1.19	26.34	169	0.43
306	8.90	34.31 4	0.81	143	250	9.72	34.32	0.86	26.49	155	0.52
					300	9.00	34.32	0.81	26.61	144	0.60

100.35 HORIZON; October 28, 1961; 1035 GCT; 31°30'N, 117°06'W; sounding, 630 fm; wind, 320°, force 4; weather, cloudy; sea, rough; wire angle, 15°.

2	18.59	33.69 8	5.37	378	0	(18.59)	(33.70)	(5.37)	(24.15)	(377)	(0.00)
11	18.36	33.68 2	5.42	373	10	18.40	33.69	5.40	24.19	374	0.04
35	16.24	33.50 4	5.80	338	20	17.29	33.59	5.63	24.38	355	0.07
44	15.08	33.42 6	5.90	319	30	16.52	33.53	5.76	24.52	342	0.11
58	12.50	33.38 3	5.27	272	50	13.90	33.39	5.72	24.98	298	0.17
72	11.81	33.50 2	4.72	251	75	11.79	33.52	4.65	25.50	249	0.24
95	10.62	33.66 0	3.63	219	100	10.46	33.70	3.47	25.88	213	0.30
114	10.08	33.77 1	3.20	202	125	9.73	33.78	3.20	26.07	195	0.35
133	9.46	33.79 0	3.20	190	150	9.21	33.88	2.96	26.23	180	0.40
160	9.10	33.92 1	2.86	175	200	8.64	33.99	2.66	26.40	163	0.49
187	8.78	33.96 7	2.78	167	250	8.31	34.13	1.86	26.57	148	0.57
225	8.42	34.05	2.32	155	300	8.28	34.27	0.94	26.68	137	0.64
252	8.30	34.13 2	1.80	148	400	7.12	34.30	0.58	26.87	119	0.77
298	8.29	34.27 1	0.96	137	500	6.50	34.33	0.38	26.98	109	0.89
360	7.49	34.28 5	0.70	125	600	5.76	34.36	0.36	27.10	97	1.00
452	6.78	34.32 7	0.43	112							
538	6.26	34.33 2	0.34	105							
610	5.66	34.36 8	0.36	96							

100.40 HORIZON; October 28, 1961; 1340 GCT; 31°20'N, 117°25'W; sounding, 1075 fm; wind, 300°, force 5; weather, partly cloudy; sea, high; wire angle, 38°.

1	17.72	33.44 7	5.27	375	0	(17.72)	(33.45)	(5.27)	(24.17)	(375)	(0.00)
9	17.73	33.44 7	5.20	376	10	17.73	33.45	5.20	24.17	376	0.04
29	16.91	33.39 1	5.50	361	20	17.73	33.45	5.20	24.17	376	0.08
36	15.92	33.35 4	5.44	342	30	16.70	33.38	5.50	24.36	357	0.11
46	13.96	33.27 2	5.56	308	50	13.71	33.28	5.51	24.94	302	0.18
59	12.86	33.32 9	5.21	283	75	12.20	33.40	5.12	25.33	265	0.25
77	11.84	33.40 9	5.04	258	100	10.69	33.55	4.31	25.72	228	0.31
92	11.00	33.50 8	4.37	236	125	9.71	33.71	3.74	26.01	200	0.37
108	10.37	33.59 6	4.23	219	150	9.43	33.87	2.84	26.19	184	0.41
130	9.60	33.73 1	3.58	197	200	8.60	34.02	2.32	26.43	160	0.50
154	9.41	33.91 0	2.70	181	250	7.95	34.07	1.92	26.57	147	0.58
184	9.02	33.99 3	2.37	169	300	7.34	34.11	1.48	26.69	136	0.65
207	8.44	34.03 2	2.29	157	400	6.82	34.24	0.67	26.87	119	0.79
245	8.00	34.07 3	1.96	148	500	6.18	34.30	0.40	27.00	107	0.91
298	7.36	34.11 2	1.49	136							
380	6.92	34.22 6	0.77	122							
458	6.50	34.27 0	0.49	113							
525	5.98	34.32 2	0.33	103							

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; October 28, 1961; 1926 GCT; 30°58.5'N, 118°05'W; sounding, 945 fm; wind, 290°, force 6; weather, partly cloudy; sea, very rough; wire angle, 21°.

100.50

2	17.70	33.47	2	4.88	373	0	(17.70)	(33.47)	(4.88)	(24.19)	(373)	(0.00)
10	17.72	33.47	3	5.38	374	10	17.72	33.47	5.38	24.19	374	0.04
33	17.64	33.46	6	5.45	372	20	17.72	33.47	5.40	24.19	374	0.07
41	16.24	33.37	7	5.73	347	30	17.68	33.47	5.43	24.20	373	0.11
56	14.24	33.28	9	5.79	312	50	15.28	33.33	5.77	24.64	330	0.18
68	13.96	33.28	3	5.83	307	75	13.75	33.29	5.76	24.94	302	0.26
91	11.80	33.52	3	4.40	249	100	11.30	33.55	4.19	25.61	238	0.33
109	10.88	33.58	4	3.94	229	125	10.86	33.83	2.50	25.91	210	0.39
127	10.85	33.86	1	2.34	208	150	10.36	33.99	2.03	26.12	190	0.44
155	10.24	34.01	7	1.98	186	200	9.71	34.15	1.56	26.36	168	0.53
182	9.96	34.09	4	1.76	176	250	8.70	34.14	1.75	26.51	153	0.61
219	9.44	34.21	3	1.40	159	300	7.63	34.10	1.71	26.64	141	0.69
247	8.78	34.15	0	1.75	153	400	6.75	34.20	0.81	26.84	121	0.82
293	7.70	34.09	4	1.76	142	500	6.09	34.27	0.44	26.99	108	0.94
354	7.18	34.16	8	1.15	129	600	5.59	34.34	0.31	27.10	97	1.05
447	6.38	34.23	7	0.57	114							
529	5.94	34.28	9	0.40	105							
600	5.59	34.33	5	0.31	97							

HORIZON; October 29, 1961; 0014 GCT; 30°41'N, 118°47'W; sounding, 1620 fm; wind, 300°, force 7; weather, partly cloudy; sea, high; wire angle, 40°.

100.60

0	18.16	33.40	6	5.56	389	0	18.16	33.41	5.56	24.04	388	0.00
8	18.18	33.40	8	5.44	389	10	18.18	33.41	5.44	24.03	389	0.04
27	18.19	33.40	5	5.43	389	20	18.19	33.41	5.43	24.03	389	0.08
50	16.44	33.50	3	5.78	343	30	18.19	33.41	5.43	24.03	389	0.12
57	14.93	33.47	1	5.66	313	50	16.44	33.50	5.78	24.51	343	0.19
70	13.54	33.54	1	5.04	280	75	12.65	33.48	4.93	25.31	268	0.27
81	12.24	33.45	7	4.84	262	100	11.53	33.64	3.86	25.64	236	0.33
91	11.92	33.54	4	4.23	250	125	10.69	33.89	2.68	25.99	203	0.39
110	11.10	33.73	1	3.47	221	150	11.71	34.32	0.96	26.14	189	0.44
124	10.68	33.88	7	2.74	203	200	10.92	34.38	0.99	26.33	171	0.53
143	11.82	34.32	6	0.93	190	250	10.01	34.36	0.89	26.47	157	0.61
165	11.28	34.28	3	1.26	184	300	8.90	34.29	1.05	26.60	145	0.69
185	11.24	34.39	6	0.83	175	400	6.99	34.22	0.79	26.83	123	0.83
219	10.39	34.33	1	1.18	165	500	(6.25)	(34.29)	(0.84)	(26.98)	(108)	(0.95)
266	9.84	34.37	8	0.80	153							
346	7.42	34.15	2	1.34a)	134							
422	6.87	34.25	3	0.70	119							
490	6.34	34.28	7	0.84	110							

HORIZON; October 29, 1961; 1937 GCT; 30°22'N, 119°28'W; sounding, 2030 fm; wind, 330°, force 4; weather, partly cloudy; sea, very rough; wire angle, 25°.

100.70

1	18.93	33.70	0	5.28	386	0	(18.93)	(33.70)	(5.28)	(24.07)	(386)	(0.00)
10	18.94	33.69	7	5.34	386	10	18.94	33.70	5.34	24.06	386	0.04
33	18.91	33.69	8	5.31	385	20	18.93	33.70	5.32	24.07	386	0.08
41	18.84	33.68	4	5.43	385	30	18.92	33.70	5.31	24.07	385	0.12
56	15.74	33.52	1	5.97	326	50	17.40	33.60	5.76	24.37	357	0.19
69	13.49b)	33.49	6	5.34	282	75	12.99	33.50	5.06	25.25	273	0.27
91	11.91	33.59	6	4.29	246	100	11.46	33.64	4.10	25.65	234	0.33
109	10.82	33.66	4	3.83	222	125	10.17	33.74	3.47	25.96	205	0.39
127	10.07	33.75	4	3.41	203	150	9.51	33.86	3.00	26.16	186	0.44
155	9.46	33.88	4	2.92	183	200	8.96	34.09	2.18	26.43	160	0.53
181	9.26	34.05	4	2.29	168	250	9.11	34.32	1.20	26.59	146	0.61
218	8.76	34.11	4	2.07	156	300	8.49	34.32	0.90	26.69	136	0.68
245	9.12	34.31	1	1.30	147	400	7.23	34.29	0.55	26.85	121	0.81
290	8.68	34.33	5	0.92	138	500	6.34	34.36	0.51	27.02	104	0.93
350	7.44	34.24	6	0.85	127	600	(5.61)	(34.36)	(0.36)	(27.12)	(96)	(1.04)
441	7.08	34.33	2	0.30	116							
525	6.03	34.35	8	0.55	101							
598	5.62	34.35	9	0.36	96							

a) Alternate value, 1.24 ml/L, not used in interpolation.
b) Alternate value, 13.66°C, not used in interpolation.

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6110-11

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

100.80

HORIZON; October 30, 1961; 0023 GCT; 30°02'N, 120°07'W; sounding, 2450 fm; wind, 300°, force 3; weather, partly cloudy; sea, very rough; wire angle, 26°.

0	17.75	33.34 9	5.33	383	0	17.75	33.35	5.33	24.09	383	0.00
8	17.76	33.35 6	5.40	383	10	17.76	33.36	5.40	24.10	383	0.04
31	17.76	33.35 4	5.25	383	20	17.76	33.35	5.35	24.09	383	0.08
58	15.80	33.32 0	5.83	342	30	17.76	33.35	5.30	24.09	383	0.12
67	15.18	33.32 1	5.81	329	50	17.74	33.35	5.28	24.09	383	0.19
85	13.80	33.36 4	5.56	298	75	14.70	33.33	5.74	24.77	319	0.28
98	12.80	33.41 6	5.31	275	100	12.66	33.43	5.28	25.26	271	0.35
110	12.14	33.48 3	5.08	258	125	11.42	33.52	4.71	25.57	243	0.42
138	10.85	33.54 8	4.38	231	150	10.41	33.59	4.06	25.80	220	0.48
155	10.23	33.61 4	3.93	216	200	8.90	33.87	2.99	26.27	176	0.58
180	9.33	33.76 5	3.45	190	250	8.01	34.00	2.54	26.51	153	0.66
211	8.70	33.91 5	2.78	170	300	7.30	34.05	1.98	26.65	140	0.74
237	8.25	33.98 2	2.62	158	400	6.59	34.20	0.82	26.87	119	0.87
281	7.58	34.02 9	2.30	145	500	5.88	34.25	0.50	27.00	107	0.99
338	6.86	34.12 8	1.32	128	600	(5.39)	(34.36)		(27.14)	(93)	(1.10)
428	6.43	34.22 2	0.69	116							
511	5.70	34.25 6	0.48	104							
583	5.44	34.34 8	0.29	94							

100.90

HORIZON; October 30, 1961; 0519 GCT; 29°41'N, 120°48.5'W; sounding, 2125 fm; wind, 280°, force 4; weather, partly cloudy; sea, very rough; wire angle, 24°.

1	18.26	33.47 1	5.27	386	0	(18.26)	(33.47)	(5.27)	(24.06)	(386)	(0.00)
9	18.28	33.47 2	5.22	387	10	18.28	33.47	5.22	24.05	387	0.04
32	18.30	33.47 2	5.21	387	20	18.29	33.47	5.22	24.05	387	0.08
60	17.40	33.77 1	5.64	345	30	18.30	33.47	5.21	24.05	387	0.12
67	17.00	33.78 0	5.57	335	50	18.34	33.47	5.21	24.04	388	0.19
86	15.78	33.69 3	5.48	315	75	16.90	33.78	5.55	24.62	333	0.28
100	14.24	33.41 9	5.53a)	303	100	14.24	33.42	5.53	24.94	303	0.36
113	13.78	33.58 1	5.43b)	282	125	13.03	33.58	5.26	25.31	267	0.44
141	11.90	33.57 3	5.00	247	150	11.39	33.59	4.93	25.63	237	0.50
158	10.95	33.60 6	4.83	228	200	9.27	33.78	3.61	26.14	188	0.61
186	9.62	33.70 6	3.86	199	250	8.24	33.96	3.07	26.44	160	0.70
217	8.88	33.86 8	3.38	176	300	7.55	34.04	2.30	26.61	144	0.78
244	8.34	33.95 4	3.12	161	400	6.44	34.13	1.14	26.83	123	0.91
290	7.69	34.02 4	2.34	147	500	5.68	34.20	0.59	26.98	108	1.04
350	6.90	34.07 1	1.69	133	600	(5.18)	(34.29)	(0.36)	(27.11)	(96)	(1.14)
441	6.13	34.16 7	0.80	116							
526	5.50	34.21 9	0.51	105							
598	5.19	34.29 2	0.36	96							

100.100

HORIZON; October 30, 1961; 1042 GCT; 29°19.5'N, 121°31'W; sounding, 2230 fm; wind, 340°, force 5; weather, cloudy; sea, rough; wire angle, 15°.

1	19.02	33.82 2	5.56	379	0	(19.02)	(33.82)	(5.56)	(24.14)	(379)	(0.00)
10	19.03	33.83 1	5.37	378	10	19.03	33.83	5.37	24.14	379	0.04
29	19.06	33.83 0	5.40	379	20	19.06	33.83	5.38	24.13	379	0.08
58	16.42	33.47 3	6.06	344	30	19.06	33.83	5.40	24.13	379	0.11
68	15.56	33.44 3	6.12	328	50	18.97	33.81	5.44	24.14	379	0.19
83	14.96	33.52 4	5.93	310	75	15.15	33.46	6.07	24.77	318	0.28
97	15.14	33.76 2	5.59	296	100	15.11	33.77	5.58	25.02	295	0.35
111	14.42	33.77 2	5.43	280	125	12.92	33.64	5.32	25.38	261	0.42
135	12.00	33.56 0	5.25	250	150	11.20	33.55	5.09	25.63	237	0.49
155	10.95	33.54 8	5.01	232	200	9.32	33.81	4.10	26.16	187	0.60
184	9.74	33.72 9	4.31	199	250	8.36	33.95	3.29	26.42	162	0.68
213	9.01	33.86 0	3.94	178	300	7.57	34.02	2.79	26.59	146	0.76
242	8.50	33.93 3	3.38	165	400	6.57	34.17	1.16	26.84	121	0.90
290	7.70	33.99 9	2.96	149	500	5.94	34.24	0.66	26.98	108	1.02
344	6.96	34.09 7	1.73	132	600	(5.38)	(34.31)	(0.48)	(27.11)	(97)	(1.13)
429	6.40	34.19 3	0.95	118							
513	5.86	34.25 6	0.62	106							
598	5.38	34.30 5	0.48	97							

204

- a) Alternate value, 5.63 ml/L, not used in interpolation.
b) Alternate value, 5.16 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

S10
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6110-II

HORIZON; October 30, 1961; 1848 GCT; 28°38.5'N, 122°47.5'W; sounding, 2290 fm; wind, 320°, force 4; weather, partly cloudy; sea, very rough; wire angle, 13°.

100.120

1	19.07	33.87 8	5.28	376	0	(19.07)	(33.88)	(5.28)	(24.17)	(376)	(0.00)
11	19.07	33.87 9	5.29	376	10	19.07	33.88	5.29	24.17	376	0.04
30	19.06	33.87 7	5.32	376	20	19.07	33.88	5.30	24.17	376	0.08
59	19.04	33.87 6	5.32	375	30	19.06	33.88	5.32	24.17	376	0.11
69	17.14	33.43 4	5.76	363	50	19.05	33.88	5.32	24.17	375	0.19
84	16.72	33.81 6	5.57	326	75	16.92	33.56	5.71	24.45	349	0.28
98	16.26	33.91 1	5.53	309	100	16.18	33.91	5.51	24.89	307	0.36
113	15.51	33.92 4	5.27	292	125	14.69	33.86	5.20	25.18	279	0.44
137	13.34	33.71 1	5.13	264	150	12.32	33.66	5.07	25.51	248	0.50
156	11.94	33.65 6	5.01	242	200	9.54	33.77	4.20	26.09	193	0.62
186	9.96	33.68 9	4.32	206	250	8.51	33.94	3.57	26.39	165	0.71
216	9.17	33.84 4	4.06	182	300	7.72	34.00	2.83	26.55	149	0.79
244	8.62	33.92 5	3.65	168	400	6.61	34.12	1.40	26.80	126	0.93
292	7.84	33.99 4	2.98	151	500	5.97	34.24	0.51	26.98	109	1.05
347	7.02	34.04 8	2.10	136	600	(5.48)	(34.31)	(0.41)	(27.09)	(98)	(1.16)
429	6.40	34.15 3	1.08	121							
512	5.90	34.24 8	0.48	107							
597	5.49	34.31 1	0.41	98							

HORIZON; November 2, 1961; 0140 GCT; 29°44.5'N, 115°59'W; sounding, 680 fm; wind, 300°, force 6; weather, partly cloudy; sea, rough; wire angle, 43°.

110.35

0	18.10	33.61 9	5.48	372	0	18.10	33.62	5.48	24.21	372	0.00
7	18.10	33.62 4	5.44	371	10	18.10	33.62	5.44	24.21	372	0.04
25	17.84	33.59 6	5.49	367	20	18.10	33.62	5.44	24.21	372	0.07
32	14.80	33.40 7	6.17	315	30	15.50	33.44	6.05	24.68	327	0.11
42	13.36	33.43 8	5.56	284	50	12.65	33.46	5.05	25.29	269	0.17
52	12.52	33.47 0	4.97	266	75	11.68	33.69	3.57	25.65	235	0.23
69	11.80	33.61 5	4.02	242	100	11.65	33.94	2.00	25.85	216	0.29
83	11.56	33.76 9	2.80	227	125	11.01	34.06	1.68	26.06	196	0.34
97	11.56	33.88 3	2.10	218	150	10.31	34.14	1.80	26.25	178	0.39
117	11.28	34.02 8	1.62	203	200	10.07	34.37	0.93	26.47	157	0.47
138	10.56	34.10 6	1.84	185	250	9.40	34.37	0.84	26.58	146	0.55
166	10.13	34.19 5	1.64	171	300	8.40	34.31	0.90	26.69	136	0.63
187	10.11	34.31 6	1.13	162	400	7.33	34.31	0.58	26.85	121	0.76
223	9.90	34.39 8	0.80	152	500	(6.53)	(34.36)	(0.34)	(27.00)	(107)	(0.88)
271	8.96	34.34 0	0.88	142							
351	7.73	34.27 9	0.84	129							
427	7.17	34.32 7	0.45	117							
493	6.60	34.36 1	0.34	108							

HORIZON; November 1, 1961; 2120 GCT; 29°36'N, 116°19'W; sounding, 1230 fm; wind, 300°, force 5; weather, partly cloudy; sea, rough; wire angle, 24°.

110.40

2	17.90	33.60 4	5.60	368	0	(17.90)	(33.60)	(5.60)	(24.25)	(369)	(0.00)
10	17.90	33.60 4	5.52	368	10	17.90	33.60	5.52	24.25	369	0.04
34	16.12	33.44 3	6.15	340	20	17.90	33.60	5.52	24.25	369	0.07
43	13.74	33.41 7	5.81	293	30	17.90	33.60	5.52	24.25	369	0.11
57	12.40	33.42 4	5.19	267	50	13.24	33.42	5.59	25.14	283	0.18
69	11.42	33.46 1	4.92	247	75	11.35	33.49	4.79	25.56	244	0.24
95	10.78	33.76 1	3.33	214	100	10.75	33.80	3.20	25.91	210	0.30
113	10.28	33.89 8	2.78	195	125	10.20	33.92	2.80	26.10	193	0.35
132	9.53	33.92 6	3.03	181	150	9.05	33.97	2.78	26.32	171	0.40
160	8.92	33.99 2	2.64	167	200	8.64	34.11	2.00	26.50	154	0.48
188	8.77	34.08 0	2.21	158	250	8.05	34.19	1.36	26.65	140	0.55
226	8.33	34.15 0	1.57	147	300	7.69	34.25	0.86	26.75	130	0.62
254	8.00	34.19 4	1.30	139	400	6.91	34.30	0.57	26.90	116	0.75
302	7.68	34.25 2	0.86	130	500	6.23	34.34	0.37	27.02	104	0.87
364	7.16	34.29 2	0.67	120	600	5.48	34.38	0.36	27.15	93	0.98
461	6.54	34.32 2	0.42	110							
549	5.84	34.36 2	0.32	98							
623	5.38	34.39 0	0.38	91							

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6110-11

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; November 1, 1961; 1635 GCT; 29°12'N, 116°59'W; sounding, 1990 fm; wind, 280°, force 5; weather, cloudy; sea, rough; wire angle, 25°.

0	18.20	33.52 7	5.45	381	0	18.20	33.53	5.45	24.12	381	0.00
8	18.18	33.52 1	5.39	381	10	18.17	33.52	5.39	24.12	381	0.04
30	17.53	33.46 5	5.49	370	20	18.14	33.52	5.39	24.13	380	0.08
39	17.14	33.44 0	5.61	363	30	17.53	33.46	5.49	24.23	370	0.11
52	14.42	33.36 3	6.06	310	50	15.20	33.38	6.00	24.70	325	0.18
64	13.06	33.41 3	5.51	280	75	12.23	33.50	4.83	25.40	258	0.26
85	11.82	33.55 6	4.48	247	100	11.10	33.57	4.44	25.67	233	0.32
101	11.08	33.56 4	4.44	233	125	9.92	33.68	4.04	25.96	206	0.37
118	10.25	33.64 0	4.19	214	150	9.42	33.80	3.72	26.13	189	0.42
140	9.50	33.76 7	3.79	193	200	9.35	34.07	2.39	26.35	168	0.52
168	9.38	33.86 2	3.56	184	250	8.97	34.23	1.42	26.54	150	0.60
200	9.35	34.07 1	2.39	168	300	8.96	34.37	0.70	26.65	140	0.67
223	9.28	34.20 5	1.65	157	400	7.33	34.26	0.76	26.81	125	0.81
265	8.88	34.25 4	1.27	147	500	6.77	34.33	0.35	26.94	112	0.94
320	9.00	34.43 3	0.50	136							
404	7.27	34.26 3	0.76	124							
482	6.90	34.33 3	0.35	113							
550	6.22	34.33 8	0.35	104							

110.60

HORIZON; November 1, 1961; 1135 GCT; 28°55'N, 117°39'W; sounding, 1900 fm; wind, 280°, force 4; weather, partly cloudy; sea, moderate; wire angle, 25°.

0	18.98	33.65 3	5.77	390	0	18.98	33.65	5.77	24.02	390	0.00
8	19.00	33.64 7	5.83	391	10	19.00	33.65	5.83	24.01	391	0.04
26	19.00	33.64 5	5.80	391	20	19.00	33.65	5.82	24.01	391	0.08
35	18.83	33.62 7	5.70	388	30	18.94	33.64	5.79	24.02	390	0.12
44	18.63	33.58 8	5.87	387	50	17.80	33.55	5.99	24.23	370	0.19
56	15.94	33.50 1	6.10	332	75	13.50	33.53	5.58	25.17	280	0.28
70	14.68	33.52 5	6.11	304	100	12.29	33.67	4.19	25.52	247	0.34
86	13.02	33.52 6	5.25	271	125	11.40	33.88	3.06	25.85	216	0.40
108	11.96	33.75 0	3.68	235	150	11.07	34.06	2.21	26.05	197	0.45
124	11.41	33.87 5	3.08	216	200	10.81	34.33	1.26	26.31	172	0.55
149	11.08	34.04 6	2.23	198	250	10.45	34.42	0.89	26.44	160	0.63
174	11.04	34.22 8	1.54	184	300	9.71	34.40	1.00	26.55	149	0.71
199	10.82	34.32 6	1.30	173	400	8.70	34.42	0.57	26.73	132	0.86
232	10.68	34.42 7	0.83	163	500	(7.28)	(34.39)	(0.34)	(26.92)	(114)	(0.99)
283	9.94	34.39 7	1.07a)	153							
348	9.18	34.41 6	0.71	140							
435	8.34	34.42 4	0.50	127							
491	7.41	34.39 4	0.38	116							

110.70

HORIZON; November 1, 1961; 0629 GCT; 28°36.5'N, 118°18.5'W; sounding, 1730 fm; wind, 300°, force 3; weather, partly cloudy; sea, moderate; wire angle, 05°.

1	19.16	33.69 8	5.69	391	0	(19.16)	(33.70)	(5.69)	(24.01)	(391)	(0.00)
11	19.16	33.68 5	5.74	392	10	19.16	33.68	5.74	23.99	393	0.04
30	19.02	33.65 4	5.91	391	20	19.12	33.66	5.82	23.99	393	0.08
40	16.84	33.43 0	6.46	357	30	19.02	33.65	5.91	24.01	391	0.12
51	16.21	33.43 0	6.48	343	50	16.29	33.43	6.49	24.50	345	0.19
65	15.40	33.48 0	6.26	322	75	15.00	33.67	5.94	24.97	300	0.27
79	15.00	33.68 3	5.92	299	100	13.74	33.64	5.74	25.21	277	0.35
100	13.74	33.64 3	5.74	276	125	11.44	33.55	5.06	25.59	241	0.41
125	11.44	33.55 4	5.06	240	150	10.28	33.65	4.60	25.87	214	0.47
144	10.51	33.62 0	4.67	220	200	8.89	33.91	3.46	26.30	173	0.57
175	9.46	33.78 0	4.30	191	250	8.23	34.05	2.62	26.51	153	0.65
203	8.83	33.91 9	3.39	171	300	8.03	34.19	1.70	26.65	139	0.73
232	8.35	34.00 8	2.88	158	400	7.07	34.26	0.84	26.85	121	0.86
273	8.14	34.12 1	2.22	146	500	6.33	34.33	0.53	27.00	106	0.98
332	7.86	34.24 4	1.20	133							
407	7.00	34.26 7	0.80	120							
481	6.47	34.32 0	0.62	109							
560	5.94	34.35 2	0.30	100							

206

a) Alternate value, 0.96 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; November 1, 1961; 0135 GCT; 28°19.5'N, 119°00'W; sounding, 2080 fm; wind, 360°, force 3; weather, partly cloudy; sea, rough; wire angle, 05°.

110.80

1	18.97	33.65 7	5.44	390	0	(18.97)	(33.66)	(5.44)	(24.03)	(389)	(0.00)
11	18.98	33.65 3	5.51	390	10	18.98	33.65	5.51	24.02	390	0.04
31	18.96	33.67 2	5.49	388	20	18.97	33.66	5.50	24.03	389	0.08
61	15.40	33.30 7	5.94	335	30	18.96	33.67	5.49	24.04	388	0.12
71	14.76	33.38 3	6.20	316	50	18.95	33.67	5.49	24.04	388	0.19
86	13.60	33.51 6	5.61	283	75	14.53	33.42	6.09	24.88	308	0.28
101	12.16	33.46 4	5.20	260	100	12.22	33.47	5.24	25.38	260	0.35
115	11.38	33.52 9	4.72	241	125	10.89	33.59	4.46	25.72	228	0.42
140	10.20	33.65 8	4.15	212	150	9.82	33.70	3.96	25.99	203	0.47
160	9.48	33.74 8	3.82	194	200	8.65	33.92	3.52	25.35	168	0.56
191	8.79	33.89 7	3.72	172	250	7.76	34.00	2.96	26.55	150	0.65
221	8.34	33.96 3	3.03	161	300	7.26	34.06	2.07	26.66	139	0.72
251	7.74	34.00 3	2.93	149	400	6.79	34.25	0.74	26.88	118	0.85
300	7.26	34.06 5	2.07	138	500	5.94	34.31	0.57	27.04	103	0.97
356	7.28	34.22 4	0.98	127	600	5.41	34.36	0.38	27.14	93	1.08
440	6.36	34.26 1	0.64	112							
526	5.82	34.32 6	0.53	101							
611	5.34	34.36 9	0.36	92							

HORIZON; October 31, 1961; 2112 GCT; 27°57'N, 119°36'W; sounding, 2130 fm; wind, 010°, force 3; weather, partly cloudy; sea, rough; wire angle, 05°.

110.90

1	18.72	33.55 9	5.44	391	0	(18.72)	(33.56)	(5.44)	(24.01)	(391)	(0.00)
11	18.65	33.57 0	5.44	388	10	18.66	33.57	5.44	24.04	389	0.04
31	18.64	33.58 9	5.44	387	20	18.65	33.58	5.44	24.05	388	0.08
56	17.84	33.69 6	5.77	360	30	18.64	33.58	5.44	24.05	387	0.12
66	17.46	33.80 0	5.84	344	50	18.60	33.60	5.46	24.07	385	0.19
76	16.96	33.81 3	5.60	332	75	17.02	33.81	5.61	24.62	333	0.28
92	15.92	33.78 7	5.60	311	100	15.50	33.75	5.59	24.92	304	0.36
107	14.44	33.64 7	5.51	290	125	13.03	33.60	5.07	25.32	266	0.44
131	12.65	33.58 5	4.98	260	150	11.30	33.53	4.90	25.60	240	0.50
151	11.28	33.53 1	4.89	239	200	9.33	33.79	3.84	26.14	188	0.61
176	10.05	33.65 6	3.87	210	250	8.33	33.96	2.96	26.43	161	0.70
205	9.20	33.81 4	3.81	185	300	7.55	34.02	2.52	26.59	145	0.78
235	8.58	33.93 5	3.05	166	400	6.41	34.11	1.31	26.82	124	0.92
276	7.94	34.00 3	2.80	152	500	5.64	34.21	0.67	27.00	107	1.04
335	7.04	34.04 4	2.07	137							
410	6.32	34.12 1	1.22	122							
484	5.76	34.19 8	0.72	109							
563	5.33	34.28 3	0.54	98							

HORIZON; October 31, 1961; 1410 GCT; 27°36'N, 120°16'W; sounding, 2190 fm; wind, 320°, force 3; weather, partly cloudy; sea, rough; wire angle, 13°.

110.100

0	19.60	34.02 7	5.31	378	0	19.60	34.03	5.31	24.15	378	0.00
10	19.62	34.02 3	5.36	379	10	19.62	34.02	5.36	24.13	379	0.04
30	19.61	34.01 4	5.33	379	20	19.62	34.02	5.34	24.13	379	0.08
54	19.58	34.00 9	5.26	379	30	19.61	34.01	5.33	24.13	380	0.11
63	18.30	33.83 0	5.68	361	50	19.59	34.01	5.30	24.13	379	0.19
73	18.02	33.86 0	5.66	352	75	17.99	33.87	5.66	24.43	351	0.28
101	17.33	33.94 9	5.66	330	100	17.35	33.95	5.66	24.65	330	0.37
125	15.18	33.73 1	5.35	299	125	15.18	33.73	5.35	24.97	299	0.45
144	14.82	33.91 7	5.04	278	150	14.68	33.91	5.06	25.22	276	0.52
169	13.40	33.84 2	5.16	255	200	11.21	33.73	4.58	25.77	223	0.65
198	11.34	33.72 5	4.61	226	250	9.17	33.89	3.82	26.24	178	0.75
227	9.86	33.79 2	4.17	197	300	8.07	34.02	2.73	26.52	153	0.83
265	8.79	33.94 2	3.55	169	400	6.70	34.12	1.50	26.79	127	0.98
323	7.67	34.05 2	2.31	145	500	6.06	34.22	0.79	26.95	111	1.11
396	6.74	34.11 9	1.53	127							
469	6.26	34.19 5	0.95	116							
549	5.70	34.26 0	0.58	104							

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6110-11

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

October 31,
HORIZON; ~~November 1,~~ 1961; 0515 GCT; 26°58'N, 121°30.5'W; sounding, 2330 fm; wind, 010°, force 3; weather, clear; sea, moderate; wire angle, 07°.

1	20.01	33.87 8	5.29	399	0	(20.01)	(33.88)	(5.29)	(23.93)	(399)	(0.00)
11	20.00	33.86 5	5.32	400	10	20.00	33.86	5.32	23.91	400	0.04
31	20.02	33.86 5	5.34	400	20	20.00	33.86	5.33	23.91	400	0.08
60	19.48	33.90 9	5.52	384	30	20.02	33.86	5.34	23.91	401	0.12
70	18.14	33.75 6	5.82	363	50	20.02	33.86	5.34	23.91	401	0.20
85	17.68	33.88 6	5.59	343	75	17.98	33.78	5.77	24.36	357	0.30
100	17.16	33.92 1	5.64	328	100	17.16	33.92	5.64	24.67	328	0.38
115	16.34	34.01 5	5.37	303	125	15.72	33.99	5.26	25.05	292	0.46
140	14.67	33.91 8	5.07	275	150	13.88	33.85	4.90	25.34	264	0.53
160	12.94	33.78 7	4.66	250	200	10.28	33.78	3.89	25.97	204	0.65
190	10.83	33.76 4	4.04	214	250	9.31	34.07	2.39	26.36	167	0.75
220	9.55	33.88 8	3.55	185	300	8.98	34.24	1.45	26.55	150	0.83
249	9.32	34.06 6	2.40	168	400	7.70	34.29	0.83	26.78	127	0.97
300	8.98	34.23 9	1.45	150	500	6.57	34.32	0.39	26.96	110	1.10
354	8.37	34.27 2	1.06	138	600	5.87	34.37	0.30	27.09	98	1.21
439	7.18	34.30 6	0.63	119							
524	6.38	34.33 6	0.31	107							
610	5.81	34.37 5	0.30	97							

113.30

HORIZON; November 12, 1961; 1455 GCT; 29°22'N, 115°18'W; sounding, 33 fm; wind, 300°, force 3; weather, partly cloudy; sea, moderate; wire angle, 02°.

1	15.74	33.72 6	5.11	311	0	(15.74)	(33.73)	(5.11)	(24.85)	(311)	(0.00)
11	15.75	33.71 6	5.22	312	10	15.75	33.71	5.21	24.83	313	0.03
31	14.45	33.64 8	4.92	290	20	15.62	33.70	5.21	24.85	311	0.06
51	12.32	33.71 6	3.19	244	30	14.50	33.65	4.94	25.06	291	0.09
					50	12.37	33.71	3.26	25.54	246	0.15

115.35

HORIZON; November 12, 1961; 1130 GCT; 28°53.5'N, 115°27.5'W; sounding, 400 fm; wind, 280°, force 4; weather, partly cloudy; sea, moderate; wire angle, 25°.

1	16.00	33.52 0	5.67	332	0	(16.00)	(33.52)	(5.67)	(24.63)	(332)	(0.00)
10	15.98	33.51 9	5.67	331	10	15.98	33.52	5.67	24.63	331	0.03
33	14.32	33.57 8	5.11	293	20	15.80	33.55	5.59	24.70	325	0.07
41	13.04	33.49 4	4.88	274	30	14.75	33.58	5.25	24.95	301	0.10
54	12.38	33.49 4	4.61	262	50	12.43	33.49	4.66	25.36	263	0.15
68	12.52	33.70 0	3.61	249	75	12.21	33.77	2.93	25.61	238	0.22
90	12.42	33.92 8	2.53	230	100	12.12	34.02	2.06	25.83	218	0.27
108	12.00	34.07 4	1.91	212	125	11.55	34.19	1.52	26.06	195	0.33
124	11.58	34.18 5	1.57	196	150	11.48	34.25	1.16	26.12	190	0.38
151	11.48	34.26 0	1.17	189	200	10.57	34.40	0.90	26.40	163	0.47
176	10.88	34.34 8	1.03	172	250	9.89	34.40	0.80	26.52	152	0.55
210	10.46	34.41 7	0.85a)	160	300	9.21	34.39	0.73	26.63	142	0.62
235	10.14	34.40 7	0.79	156	400	7.97	34.38	0.46	26.81	124	0.76
277	9.48	34.39 1	0.79	146	500	6.83	34.37	0.25	26.97	110	0.89
335	8.83	34.39 7	0.57	136							
424	7.65	34.37 4	0.41	120							
505	6.79	34.36 7	0.25	109							
575	6.08	34.38 2	0.26	99							

a) Alternate value, 0.73 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

S10
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HORIZON; November 12, 1961; 0558 GCT; 28°18.5'N, 114°53'W; sounding, 55 fm; wind, 300°, force 5; weather, partly cloudy; sea, moderate; wire angle, 15°.

119.33

1	18.38	33.83 1	5.40	363	0	(18.38)	(33.83)	(5.40)	(24.30)	(363)	(0.00)
10	18.34	33.82 5	5.39	362	10	18.34	33.82	5.39	24.31	363	0.04
30	18.18	33.81 1	5.39	360	20	18.27	33.82	5.39	24.32	361	0.07
49	17.33	33.73 5	5.07	346	30	18.18	33.81	5.39	24.34	360	0.11
					50	(17.28)	(33.73)		(24.49)	(345)	(0.18)

HORIZON; November 3, 1961; 0312 GCT; 27°38.5'N, 115°41.5'W; sounding, 1560 fm; wind, 300°, force 4; weather, clear; sea, rough; wire angle, 26°.

120.45

0	17.58	33.81 6	5.45	345	0	17.58	33.82	5.45	24.49	345	0.00
8	17.56	33.80 4	5.48	346	10	17.55	33.80	5.48	24.48	346	0.03
32	14.62	33.67 6	4.71	292	20	17.00	33.77	5.40	24.59	336	0.07
41	14.20	33.72 7	4.05	279	30	14.85	33.68	4.82	25.01	296	0.10
54	13.07	33.76 6	3.42	254	50	13.23	33.75	3.53	25.40	259	0.16
68	12.78	33.87 4	2.73	241	75	12.68	33.93	2.42	25.65	235	0.22
92	12.48	34.04 0	1.85	223	100	12.39	34.06	1.76	25.80	220	0.28
110	12.20	34.10 0	1.61	214	125	11.92	34.22	1.22	26.02	200	0.33
128	11.94	34.24 2	1.18	199	150	11.95	34.39	0.84	26.14	188	0.38
156	11.95	34.42 5	0.76	185	200	11.43	34.54	0.39	26.36	168	0.47
184	11.52	34.48 6	0.53	173	250	10.51	34.55	0.39	26.53	151	0.55
220	11.31	34.60 2	0.24	161	300	9.57	34.46	0.47	26.62	142	0.63
248	10.55	34.54 9	0.38	152	400	8.11	34.42	0.37	26.82	123	0.77
294	9.68	34.46 4	0.47a)	144	500	7.00	34.43	0.21	26.99	108	0.89
355	8.60	34.40 0	0.50	132	600	5.95	34.42	0.26	27.12	95	1.00
449	7.61	34.44 7	0.23	114							
535	6.59	34.41 6	0.21	103							
608	5.88	34.41 8	0.26	94							

HORIZON; November 3, 1961; 0706 GCT; 27°27'N, 116°02.5'W; sounding, 2210 fm; wind, 330°, force 4; weather, cloudy; sea, rough; wire angle, 23°.

120.50

1	18.00	33.80 4	5.31	356	0	(18.00)	(33.80)	(5.31)	(24.37)	(356)	(0.00)
10	18.02	33.80 4	5.26	356	10	18.02	33.80	5.26	24.37	357	0.04
32	15.48	33.59 9	5.18	315	20	18.02	33.80	5.26	24.37	357	0.07
41	13.67	33.49 0	5.45	286	30	17.50	33.76	5.29	24.46	348	0.11
55	12.40	33.50 4	4.85	261	50	12.99	33.48	5.18	25.24	274	0.17
69	11.84	33.55 2	4.43	248	75	11.79	33.57	4.33	25.54	245	0.23
92	10.82	33.72 7	3.41	217	100	11.06	33.81	3.35	25.86	215	0.29
109	10.46	33.85 7	2.88	201	125	10.80	34.09	2.06	26.12	190	0.34
128	10.86	34.13 8	1.91	187	150	10.33	34.17	1.78	26.27	176	0.39
155	10.26	34.19 1	1.75	173	200	9.96	34.34	1.07	26.46	158	0.48
182	10.28	34.34 2	1.07	163	250	9.29	34.34	0.92	26.58	147	0.55
218	9.62	34.33 4	1.06	153	300	8.75	34.38	0.50	26.69	136	0.63
246	9.34	34.33 8	0.96	148	400	7.60	34.39	0.36	26.87	119	0.76
291	8.83	34.37 3	0.54	138	500	6.62	34.40	0.26	27.02	105	0.88
350	8.34	34.41 4	0.40	127	600	5.86	34.42	0.18	27.13	94	0.99
442	7.10	34.37 6	0.31	113							
527	6.42	34.40 2	0.23	102							
600	5.86	34.41 9	0.18	94							

a) Alternate value, 0.26 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

120.60

HORIZON; November 3, 1961; 1225 GCT; 27°06'N, 116°45.5'W; sounding, 2065 fm; wind, 340°, force 4; weather, cloudy; sea, rough; wire angle, 10°.

1	19.02	33.75 0	5.14	384	0	(19.02)	(33.75)	(5.14)	(24.08)	(384)	(0.00)
11	19.02	33.74 7	5.16	384	10	19.02	33.75	5.16	24.08	384	0.04
35	19.00	33.75 0	5.22	384	20	19.01	33.75	5.18	24.08	384	0.08
45	16.02	33.48 7	5.92	335	30	19.00	33.75	5.21	24.09	384	0.12
60	13.26	33.49 0	4.97	278	50	15.00	33.49	5.60	24.83	313	0.19
75	12.08	33.54 6	4.45	252	75	12.08	33.55	4.45	25.47	252	0.26
100	10.82	33.68 7	3.58	220	100	10.82	33.69	3.58	25.81	220	0.32
120	10.42	33.80 6	3.09	205	125	10.25	33.84	2.99	26.02	199	0.37
139	9.88	33.90 9	2.79	188	150	9.83	33.99	2.57	26.21	181	0.42
169	9.82	34.10 2	2.12	173	200	9.84	34.31	1.13	26.46	158	0.50
199	9.84	34.30 7	1.13	158	250	9.86	34.48	1.09	26.59	146	0.58
239	9.89	34.46 5	1.30	147	300	9.22	34.47	0.52	26.69	136	0.66
268	9.68	34.48 8	0.54	142	400	7.83	34.40	0.38	26.85	121	0.79
317	8.94	34.45 0	0.51	133	500	6.89	34.38	0.32	26.97	110	0.91
382	8.03	34.40 4	0.39	124	600	6.12	34.40	0.26	27.08	99	1.02
482	7.05	34.38 4	0.35	112							
571	6.34	34.39 7	0.24	102							
646	5.70	34.41 2	0.31	93							

120.70

HORIZON; November 3, 1961; 1735 GCT; 26°43'N, 117°32'W; sounding, 2090 fm; wind, 340°, force 3; weather, cloudy; sea, rough; wire angle, 15°.

1	19.02	33.65 6	5.26	391	0	(19.02)	(33.66)	(5.26)	(24.01)	(391)	(0.00)
10	19.02	33.64 8	5.33	392	10	19.02	33.65	5.33	24.01	391	0.04
29	19.01	33.64 9	5.22	391	20	19.01	33.65	5.28	24.01	391	0.08
39	18.12	33.59 9	5.65	374	30	19.01	33.65	5.22	24.01	391	0.12
52	16.72	33.58 8	5.75	343	50	16.79	33.59	5.75	24.50	344	0.19
67	16.19	33.74 5	5.70	320	75	16.12	33.77	5.69	24.79	316	0.27
91	13.77	33.61 9	5.41	279	100	12.67	33.60	4.78	25.39	259	0.35
110	11.94	33.59 6	4.37	246	125	11.29	33.65	4.17	25.69	231	0.41
128	11.23	33.68 0	4.11	227	150	11.09	33.96	2.73	25.97	204	0.46
148	11.12	33.94 9	2.76	206	200	9.82	34.13	2.05	26.32	171	0.56
176	10.24	34.05 3	2.35	183	250	9.18	34.27	1.45	26.54	150	0.64
209	9.65	34.16 0	1.96	166	300	9.27	34.44	0.60	26.66	139	0.72
237	9.15	34.20 5	1.71	155	400	8.08	34.43	0.39	26.84	122	0.85
285	9.34	34.40 7	0.80	143	500	6.82	34.36	0.43	26.96	110	0.98
336	8.90	34.47 0	0.34	131	600	(6.40)	(34.47)		(27.10)	(97)	(1.09)
418	7.84	34.41 2	0.40	120							
500	6.82	34.36 3	0.43	110							
583	6.44	34.44 7	0.25	99							

120.80

HORIZON; November 3, 1961; 2007 GCT; 26°33'N, 117°49.5'W; sounding, 2160 fm; wind, 340°, force 3; weather, partly cloudy; sea, rough; wire angle, 07°.

1	20.54	33.81 7	5.18	417	0	(20.54)	(33.82)	(5.18)	(23.74)	(417)	(0.00)
11	20.47	33.81 7	5.18	415	10	20.48	33.82	5.18	23.76	415	0.04
31	20.44	33.81 3	5.18	415	20	20.46	33.82	5.18	23.76	415	0.08
41	20.40	33.79 6	5.15	415	30	20.44	33.81	5.18	23.76	415	0.12
56	16.40	33.49 2	5.53	343	50	17.04	33.50	5.45	24.38	356	0.20
70	15.72	33.62 8	5.58	318	75	15.10	33.65	5.25	24.93	303	0.28
96	13.32	33.66 4	4.30	267	100	13.22	33.66	4.29	25.33	265	0.36
116	12.04	33.64 7	4.30	244	125	11.38	33.71	3.98	25.72	228	0.42
136	10.92	33.81 6	3.49	212	150	10.54	33.96	2.54	26.07	195	0.47
155	10.44	34.00 2	2.30	190	200	10.02	34.21	1.71	26.35	168	0.57
186	10.18	34.16 6	1.87	174	250	9.11	34.31	1.12	26.58	146	0.65
221	9.70	34.25 7	1.48	160	300	9.24	34.47	0.46	26.68	137	0.72
251	9.10	34.31 0	1.11	146	400	7.77	34.41	0.34	26.87	119	0.85
300	9.24	34.46 7	0.46	137	500	6.80	34.42	0.27	27.01	106	0.97
355	8.31	34.41 2	0.41	127	600	5.99	34.43	0.21	27.13	95	1.08
440	7.35	34.40 9	0.29	114							
525	6.59	34.42 4	0.25	103							
610	5.91	34.43 3	0.20	94							

210

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

S10
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6110-11

HORIZON; November 4, 1961; 0141 GCT; 26°11'N, 118°34'W; sounding, 2130 fm; wind, 330°, force 4; weather, cloudy; sea, rough; wire angle, 24°.

120.90

2	20.64	33.82 0	5.17	419	0	(20.64)	(33.82)	(5.17)	(23.71)	(419)	(0.00)
11	20.64	33.82 0	5.19	419	10	20.64	33.82	5.19	23.71	419	0.04
29	20.66	33.81 8	5.19	420	20	20.65	33.82	5.19	23.71	419	0.08
56	16.04	33.61 2	6.03	326	30	20.66	33.82	5.19	23.71	420	0.13
66	14.24	33.52 0	5.64	295	50	16.60	33.64	5.99	24.58	336	0.20
78	13.07	33.59 9	4.82	267	75	13.38	33.56	5.09	25.22	276	0.28
91	12.18	33.73 7	3.69	240	100	11.76	33.77	3.43	25.70	230	0.34
104	11.76	33.79 9	3.37	228	125	11.19	33.95	2.63	25.94	207	0.40
125	11.19	33.95 4	2.63	207	150	10.45	34.08	2.10	26.18	185	0.45
141	10.54	34.00 6	2.47	192	200	9.80	34.27	1.32	26.44	160	0.54
166	10.30	34.18 2	1.57	175	250	9.47	34.39	0.73	26.58	146	0.61
190	9.94	34.25 9	1.38	163	300	9.00	34.44	0.48	26.70	135	0.69
215	9.64	34.29 0	1.25	156	400	7.63	34.40	0.31	26.88	118	0.82
256	9.44	34.40 4	0.67	145	500	6.79	34.42	0.20	27.01	106	0.94
304	8.94	34.44 0	0.48	134							
377	7.82	34.39 6	0.36	121							
452	7.28	34.42 3	0.22	112							
530	6.44	34.42 2	0.20	101							

HORIZON; November 4, 1961; 0557 GCT; 25°51'N, 119°06'W; sounding, 2210 fm; wind, 340°, force 4; weather, partly cloudy; sea, rough; wire angle, 19°.

120.100

2	19.67	33.73 1	5.17	401	0	(19.67)	(33.73)	(5.17)	(23.90)	(401)	(0.00)
11	19.67	33.73 1	5.05	401	10	19.67	33.73	5.06	23.90	401	0.04
35	19.68	33.73 7	5.07	401	20	19.67	33.73	5.05	23.90	401	0.08
62	17.88	33.62 7	5.56	366	30	19.68	33.73	5.05	23.90	402	0.12
72	17.29	33.66 6	5.56	350	50	19.68	33.74	5.07	23.91	401	0.20
91	16.34	33.71 0	5.42	325	75	17.15	33.68	5.55	24.49	346	0.29
105	15.99	33.85 0	5.35	308	100	16.25	33.85	5.37	24.83	313	0.38
118	14.76	33.75 6	5.21	289	125	14.05	33.72	4.96	25.21	277	0.45
146	12.10	33.65 3	4.14	245	150	11.81	33.66	4.00	25.60	239	0.52
165	11.18	33.78 8	3.48	219	200	11.29	34.31	1.30	26.21	182	0.63
192	11.37	34.30 4	1.30	184	250	10.04	34.31	1.26	26.43	161	0.71
226	10.39	34.25 2	1.40	171	300	9.20	34.35	1.16	26.60	145	0.79
253	9.98	34.32 1	1.23	159	400	8.03	34.40	0.37	26.82	124	0.93
299	9.22	34.34 8	1.17	145	500	6.97	34.41	0.28	26.98	109	1.06
361	8.50	34.38 8	0.42	132	600	6.12	34.43	0.24	27.11	96	1.17
456	7.38	34.40 2	0.32	115							
541	6.63	34.41 4	0.23	104							
613	6.02	34.42 9	0.24	95							

HORIZON; November 4, 1961; 1402 GCT; 25°06'N, 120°22.5'W; sounding, 2140 fm; wind, 340°, force 3; weather, cloudy; sea, rough; wire angle, 13°.

120.120

1	20.03	33.79 5	5.24	406	0	(20.03)	(33.80)	(5.24)	(23.86)	(405)	(0.00)
11	20.02	33.79 7	5.22	405	10	20.02	33.80	5.22	23.86	405	0.04
30	20.06	33.79 8	5.26	406	20	20.04	33.80	5.24	23.86	406	0.08
59	18.28	33.70 2	5.76	370	30	20.06	33.80	5.26	23.85	406	0.12
69	17.43	33.64 3	5.79	355	50	20.06	33.80	5.26	23.85	406	0.20
84	17.03	33.72 0	5.73	340	75	17.43	33.66	5.79	24.40	353	0.30
99	16.68	33.81 4	5.58	325	100	16.63	33.81	5.57	24.71	324	0.38
113	15.56	33.71 9	5.50	308	125	14.90	33.78	5.23	25.07	290	0.46
138	14.18	33.84 1	4.97a)	271	150	13.28	33.77	4.80	25.40	258	0.53
157	12.52	33.71 6	4.67	248	200	10.35	33.90	3.03	26.05	196	0.65
186	10.70	33.77 6	3.62	211	250	9.85	34.26	1.42	26.42	162	0.74
215	10.10	34.04 5	2.35	182	300	8.47	34.24	1.35	26.63	142	0.82
245	9.96	34.25 3	1.44	164	400	7.24	34.29	0.66	26.85	121	0.95
293	8.58	34.23 5	1.41	144	500	6.44	34.36	0.39	27.01	106	1.07
347	7.84	34.26 7	0.96	131	600	(5.77)	(34.39)	(0.26)	(27.12)	(95)	(1.18)
430	6.94	34.30 4	0.54	116							
514	6.37	34.36 5	0.38	104							
599	5.79	34.39 4	0.26	95							

a) Alternate value, 5.08 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

123.42

HORIZON; November 11, 1961; 1048 GCT; 27°10'N, 115°02'W; sounding, 1750 fm; wind, 310°, force 6; weather, partly cloudy; sea, rough; wire angle, 28°.

1	18.56	33.81 4	5.34	368	0	(18.56)	(33.81)	(5.34)	(24.24)	(369)	(0.00)
9	18.56	33.81 5	5.34	368	10	18.56	33.81	5.34	24.24	369	0.04
30	17.25	33.69 3	5.53	347	20	18.40	33.79	5.37	24.27	366	0.07
38	16.12	33.86 0	5.60	310	30	17.25	33.69	5.53	24.47	347	0.11
51	14.36	33.58 3	5.20	293	50	14.41	33.59	5.24	25.03	294	0.17
64	13.37	33.66 5	4.41	268	75	13.14	33.80	3.70	25.46	253	0.24
84	12.78	33.88 2	2.81	240	100	12.32	34.11	1.75	25.86	215	0.30
101	12.30	34.11 6	1.72	214	125	11.74	34.27	1.23	26.09	193	0.35
117	11.84	34.22 3	1.37	198	150	11.52	34.44	0.79	26.26	177	0.40
142	11.59	34.39 6	0.90	181	200	10.88	34.53	0.49	26.45	159	0.49
167	11.36	34.48 7	0.63	170	250	10.08	34.50	0.45	26.57	148	0.57
200	10.88	34.53 1	0.49	159	300	9.35	34.48	0.40	26.67	138	0.64
225	10.38	34.49 0	0.46	153	400	8.22	34.46	0.21	26.84	122	0.78
266	9.90	34.51 1	0.42	144	500	7.23	34.47	0.15	26.99	108	0.90
321	9.02	34.46 5	0.37	134							
404	8.17	34.46 0	0.20	121							
484	7.45	34.47 3	0.15	110							
551	6.44	34.40 3	0.17	102							

127.40

HORIZON; November 11, 1961; 0602 GCT; 26°43'N, 114°33.5'W; sounding, 1780 fm; wind, 310°, force 5; weather, clear; sea, rough; wire angle, 25°.

0	-	33.89 3	5.05	-	0	20.4	33.89	5.05	23.83	408	0.00
9	20.30	33.89 8	5.05	405	10	20.29	33.90	5.05	23.87	405	0.04
27	18.80	33.77 8	5.10	377	20	19.90	33.87	5.06	23.95	397	0.08
54	16.74	33.61 6	5.56	341	30	18.62	33.76	5.12	24.19	374	0.12
63	14.16	33.52 0	5.35	294	50	17.82	33.70	5.34	24.34	359	0.19
76	13.16	33.57 4	4.61	270	75	13.18	33.57	4.64	25.27	271	0.27
88	12.22	33.64 9	3.88	247	100	11.63	33.75	3.38	25.71	229	0.34
103	11.59	33.77 9	3.28	226	125	11.60	34.11	1.77	25.99	202	0.39
124	11.60	34.10 5	1.78	203	150	11.13	34.28	1.30	26.21	182	0.44
141	11.08	34.19 0	1.57	187	200	11.14	34.54	0.49	26.41	163	0.53
167	11.28	34.44 9	0.73	172	250	10.26	34.54	0.40	26.57	148	0.61
192	11.24	34.52 2	0.53	166	300	9.59	34.51	0.28	26.66	139	0.68
218	10.85	34.54 8	0.45	157	400	7.95	34.43	0.37	26.85	120	0.82
261	10.08	34.53 5	0.39	145	500	6.91	34.43	0.23	27.00	106	0.94
309	9.44	34.51 0	0.27	137							
384	8.16	34.43 3	0.39	123							
460	7.23	34.42 4	0.24	111							
539	6.62	34.43 7	0.23	102							

130.30

HORIZON; November 6, 1961; 2357 GCT; 26°29.5'N, 113°29.5'W; sounding, 38 fm; wind, 210°, force 3; weather, clear; sea, moderate; wire angle, 05°.

0	18.93	33.93 9	5.95	368	0	18.93	33.94	5.95	24.25	368	0.00
10	17.53	33.85 2	5.95	342	10	17.53	33.85	5.95	24.53	342	0.04
30	15.43	33.62 4	5.62	312	20	16.45	33.73	5.87	24.69	326	0.07
50	14.05	33.88 1	3.40	265	30	15.43	33.62	5.62	24.83	312	0.10
					50	14.05	33.88	3.40	25.33	265	0.16

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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6110-11

HORIZON; November 6, 1961; 1755 GCT; 26°09'N, 114°06.5'W; sounding, 1140 fm; wind, 220°, force 3; weather, cloudy; sea, moderate; wire angle, 08°.

13040

1	20.25	33.87	1	5.25	406	0	(20.25)	(33.87)	(5.25)	(23.86)	(406)	(0.00)
11	20.03	33.86	0	5.32	401	10	20.04	33.86	5.30	23.90	401	0.04
31	19.24	33.76	9	5.48	388	20	20.00	33.86	5.32	23.91	400	0.08
40	16.42	33.62	5	5.80	333	30	19.40	33.79	5.45	24.02	390	0.12
55	15.00	33.76	4	4.83	293	50	15.96	33.65	5.55	24.74	322	0.19
70	13.49	33.76		4.03	263	75	13.17	33.82	3.70	25.47	252	0.26
96	12.70	33.96	4	2.77	233	100	12.57	33.97	2.52	25.70	230	0.32
116	13.03	34.33	2	1.10	212	125	12.90	34.39	1.04	25.96	205	0.38
136	12.54	34.43	5	0.98	195	150	12.31	34.55	0.55	26.20	183	0.43
155	12.24	34.57	9	0.45	179	200	11.74	34.65	0.30	26.39	165	0.52
185	11.98	34.62	3	0.40	171	250	10.98	34.65	0.23	26.53	152	0.60
220	11.43	34.67	1	0.21	158	300	9.69	34.52	0.37	26.65	140	0.68
250	10.98	34.64	8	0.23	152	400	8.38	34.51	0.20	26.85	121	0.81
300	9.69	34.52	4	0.37	140	500	7.26	34.47	0.21	26.99	108	0.93
355	9.06	34.54	5	0.21	128	600	6.12	34.43	0.27	27.11	96	1.05
439	7.87	34.48	5	0.21	115							
523	7.00	34.46	0	0.24	105							
607	6.06	34.43	2	0.28	96							

HORIZON; November 6, 1961; 1157 GCT; 25°53'N, 114°46.5'W; sounding, 1920 fm; wind, 280°, force 3; weather, partly cloudy; sea, moderate; wire angle, 11°.

13050

1	20.56	33.95	8	5.04	407	0	(20.56)	(33.96)	(5.04)	(23.84)	(407)	(0.00)
11	20.56	33.95	4	5.14	407	10	20.56	33.95	5.13	23.83	408	0.04
30	20.57	33.96	0	5.10	407	20	20.56	33.96	5.12	23.84	407	0.08
40	19.91a)	33.84	2	5.30	399	30	20.57	33.96	5.10	23.84	407	0.12
54	13.97	33.64	6	4.70	281	50	14.75	33.65	4.82	25.01	296	0.19
69	11.97	33.62	5	4.21	245	75	11.78	33.63	4.14	25.59	241	0.26
95	11.09	33.73	0	3.51	221	100	11.21	33.80	3.37	25.82	218	0.32
115	10.93	34.06	6	2.15	194	125	10.78	34.17	1.81	26.19	184	0.37
135	10.76	34.23	6	1.60	178	150	10.72	34.30	1.30	26.30	173	0.41
154	10.71	34.32	6	1.20	171	200	10.43	34.46	0.80	26.48	156	0.50
184	10.54	34.42	8	0.87	161	250	9.99	34.53	0.37	26.61	144	0.58
218	10.31	34.49	0	0.54	152	300	9.29	34.49	0.35	26.69	136	0.65
247	10.03	34.52	9	0.37	145	400	8.10	34.47	0.24	26.86	120	0.78
295	9.34	34.48	8	0.37	137	500	6.89	34.43	0.32	27.01	106	0.90
348	8.74	34.48	1	0.27	128	600	(5.98)	(34.44)	(0.37)	(27.13)	(94)	(1.01)
429	7.72	34.45	5	0.24	115							
512	6.75	34.42	7	0.33	105							
595	6.01	34.44	2	0.37	94							

HORIZON; November 6, 1961; 0648 GCT; 25°30.5'N, 115°22.5'W; sounding, 2060 fm; wind, 290°, force 4; weather, cloudy; sea, moderate; wire angle, 07°.

13060

1	20.58	34.04	2	5.03	402	0	(20.58)	(34.04)	(5.03)	(23.90)	(402)	(0.00)
11	20.57	34.02	8	5.14	402	10	20.57	34.03	5.13	23.89	402	0.04
31	20.57	34.02	8	5.20	402	20	20.57	34.03	5.17	23.89	402	0.08
41	15.86	33.66	7	5.53	318	30	20.57	34.03	5.20	23.89	402	0.12
57	13.84	33.72	1	4.16	273	50	14.45	33.70	4.60	25.11	286	0.19
70	12.64	33.79	2	3.37	244	75	12.53	33.82	3.17	25.59	240	0.26
95	11.95	34.06	9	1.92	211	100	11.72	34.06	1.95	25.93	208	0.31
116	10.96	34.04	0	2.28	196	125	10.68	34.07	2.16	26.13	189	0.36
135	10.36	34.15	0	1.90	178	150	9.90	34.18	1.90	26.35	168	0.41
155	9.77	34.18	1	1.88	166	200	9.01	34.27	1.36	26.57	148	0.49
186	9.30	34.24	5	1.47	154	250	9.18	34.48	0.39	26.70	135	0.56
220	8.72	34.30	1	1.19	141	300	8.80	34.49	0.22	26.77	128	0.64
250	9.18	34.47	8	0.39	135	400	7.54	34.45	0.23	26.93	113	0.76
299	8.82	34.49	3	0.22	128	500	6.57	34.42	0.23	27.04	103	0.87
353	8.24	34.48	3	0.24	121	600	5.85	34.44	0.22	27.15	92	0.98
437	7.08	34.42	8	0.22	109							
522	6.40	34.42	0	0.23	101							
607	5.80	34.44	4	0.22	91							

a) Alternate value, 20.02°C, not used in interpolation.

S10

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6110-11

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

130.70

HORIZON; November 6, 1961; 0208 GCT; 25°09'N, 116°02'W; sounding, 2060 fm; wind, 270°, force 3; weather, cloudy; sea, moderate; wire angle, 10°.

1	20.81	33.94 7	5.15	414	0	(20.81)	(33.95)	(5.15)	(23.77)	(414)	(0.00)
11	20.74	33.93 5	5.11	413	10	20.74	33.93	5.11	23.77	414	0.04
30	20.60	33.92 6	5.01	411	20	20.67	33.93	5.05	23.79	412	0.08
40	19.92	33.85 8	5.62	398	30	20.60	33.93	5.01	23.81	410	0.12
54	14.41	33.64 6	4.86	289	50	15.53	33.66	5.13	24.84	312	0.20
69	13.08	33.75 6	3.59	255	75	12.78	33.79	3.34	25.52	247	0.27
95	11.96	33.89 8	2.61	224	100	(11.79)	(33.92)	(2.49)	(25.81)	(220)	(0.33)

130.80

HORIZON; November 5, 1961; 2050 GCT; 24°49'N, 116°40'W; sounding, 2100 fm; wind, 320°, force 3; weather, cloudy; sea, rough; wire angle, 18°.

1	20.80	33.95 5	5.41	414	0	(20.80)	(33.96)	(5.41)	(23.78)	(413)	(0.00)
10	20.67	33.98 3	5.41	408	10	20.67	33.98	5.41	23.83	408	0.04
29	20.64	33.98 2	5.21	407	20	20.64	33.98	5.31	23.84	408	0.08
39	17.24	33.61 0	6.06a)	353	30	20.64	33.98	5.20	23.84	408	0.12
53	14.00	33.51 0	5.56	291	50	14.28	33.51	5.65	25.00	297	0.19
67	13.28	33.57 9	4.80	272	75	12.68	33.60	4.61	25.39	259	0.26
91	11.69	33.62 0	4.35	240	100	11.33	33.66	4.06	25.69	231	0.33
110	11.02	33.71 5	3.77	221	125	10.54	33.83	3.30	25.97	205	0.38
128	10.44	33.85 3	3.22	201	150	10.10	33.97	2.76	26.15	187	0.43
147	10.12	33.94 2	2.87	190	200	9.62	34.19	1.90	26.40	163	0.52
175	10.07	34.14 3	2.04	174	250	8.90	34.27	1.39	26.58	146	0.60
208	9.48	34.19 9	1.84	160	300	7.90	34.23	1.19	26.71	135	0.67
235	9.16	34.26 3	1.45	151	400	7.20	34.34	0.56	26.89	117	0.80
281	8.22	34.23 0	1.30	139	500	6.53	34.39	0.20	27.02	104	0.92
332	7.52	34.25 4	0.97	128							
411	7.14	34.35 2	0.53	115							
491	6.60	34.38 2	0.19	106							
572	6.09	34.41 9	0.30	97							

130.90

HORIZON; November 5, 1961; 1520 GCT; 24°29'N, 117°17.5'W; sounding, 2040 fm; wind, 340°, force 3; weather, cloudy; sea, rough; wire angle, 16°.

1	19.92	33.68 5	5.37	411	0	(19.92)	(33.68)	(5.37)	(23.80)	(411)	(0.00)
10	19.93	33.68 6	5.56	411	10	19.93	33.69	5.56	23.80	411	0.04
29	19.92	33.68 3	5.48b)	411	20	19.93	33.68	5.52	23.80	411	0.08
38	19.16	33.62 2	5.72c)	397	30	19.92	33.68	5.48	23.80	411	0.12
53	17.06	33.54 6	6.01	353	50	17.39	33.55	5.99	24.33	360	0.20
67	16.50	33.60 5	6.05	337	75	16.00	33.62	5.97	24.71	325	0.29
90	14.66	33.64 1	5.52	295	100	14.15	33.69	5.03	25.16	281	0.36
109	13.75	33.73 8	4.66	270	125	12.68	33.76	4.39	25.52	248	0.43
127	12.58	33.76 4	4.35	245	150	11.49	33.82	3.80	25.79	222	0.49
146	11.71	33.80 1	3.90	227	200	9.96	34.06	2.50	26.25	178	0.59
173	10.58	33.89 7	3.27	200	250	9.48	34.23	1.70	26.46	158	0.68
205	9.86	34.08 6	2.39	175	300	9.19	34.37	0.94	26.61	143	0.76
232	9.52	34.15 8	2.07	164	400	7.91	34.38	0.58	26.82	124	0.90
278	9.42	34.35 0	1.11	148	500	7.08	34.42	0.30	26.97	109	1.02
329	8.71	34.37 4	0.78	136							
407	7.84	34.38 3	0.57	122							
487	7.19	34.41 7	0.30	111							
570	6.44	34.42 7	0.32d)	101							

a) Mean value of 5.92 and 6.19 ml/L.

b) Alternate value, 5.76 ml/L, not used in interpolation.

c) Alternate value, 5.99 ml/L, not used in interpolation.

d) Alternate value, 0.27 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; November 5, 1961; 1045 GCT; 24°09.5'N, 117°55'W; sounding, 2080 fm; wind, 290°, force 3; weather, cloudy; sea, rough; wire angle, 12°.

130.100

1	20.92	33.92 5	5.24	419	0	(20.92)	(33.92)	(5.24)	(23.72)	(419)	(0.00)
11	20.92	33.92 1	5.22	419	10	20.92	33.92	5.22	23.72	419	0.04
30	20.92	33.92 1	5.21	419	20	20.92	33.92	5.22	23.72	419	0.08
59	18.90	33.89 3	5.89	371	30	20.92	33.92	5.21	23.72	419	0.13
69	18.39	33.85 9	5.62	361	50	20.50	33.92	5.36	23.83	408	0.21
83	17.42	33.78 0	5.78	344	75	18.00	33.83	5.66	24.40	354	0.30
98	16.44	33.69 4	5.54	329	100	16.33	33.69	5.54	24.69	327	0.39
113	14.76	33.69 6	5.15	293	125	13.50	33.73	4.54	25.33	265	0.47
138	12.43	33.77 6	3.98	242	150	11.79	33.82	3.60	25.73	227	0.53
157	11.45	33.84 3	3.39	219	200	10.59	34.24	1.73	26.28	175	0.63
187	10.70	34.11 1	2.13	187	250	9.86	34.35	1.16	26.49	155	0.72
216	10.46	34.35 a)	1.41	165	300	9.20	34.40	0.77	26.64	141	0.79
245	9.92	34.34 2	1.19	157	400	8.08	34.41	0.40	26.82	124	0.93
294	9.26	34.39 5	0.81	142	500	7.07	34.40	0.30	26.96	111	1.06
347	8.74	34.42 1	0.54	133	600	(6.29)	(34.42)	(0.20)	(27.08)	(99)	(1.17)
431	7.72	34.40 4	0.36	119							
515	6.94	34.40 2	0.28	109							
599	6.30	34.41 6	0.20	100							

HORIZON; November 5, 1961; 0015 GCT; 23°29'N, 119°09.5'W; sounding, 2160 fm; wind, 300°, force 4; weather, cloudy; sea, rough; wire angle, 08°.

130.120

0	21.68	34.24 9	4.86	415	0	21.68	34.25	4.86	23.76	415	0.00
10	21.70	34.24 6	4.83	416	10	21.70	34.25	4.83	23.75	416	0.04
30	21.73	34.25 8	4.87	416	20	21.72	34.25	4.85	23.75	416	0.08
61	19.52	33.94 1	5.38	382	30	21.73	34.26	4.87	23.75	416	0.12
70	19.07	33.94 2	5.24	371	50	21.73	34.26	4.87	23.75	416	0.21
85	18.14	33.88 6	5.08	353	75	18.78	33.93	5.16	24.28	365	0.31
100	17.00	33.78 3	5.15	335	100	17.00	33.78	5.15	24.60	335	0.40
115	15.23	33.74 6	4.74	299	125	14.20	33.76	4.30	25.21	277	0.47
140	13.05	33.77 7	3.81	253	150	12.48	33.80	3.79	25.59	241	0.54
160	11.92	33.83 4	3.76	228	200	10.28	33.98	2.64	26.13	189	0.65
190	10.49	33.93 8	2.92	196	250	9.58	34.21	1.65	26.43	161	0.74
220	10.00	34.10 2	2.11	176	300	8.95	34.32	1.03	26.61	143	0.82
250	9.58	34.21 0	1.65	161	400	7.90	34.38	0.49	26.82	123	0.96
299	8.96	34.31 8	1.04	144	500	6.94	34.41	0.28	26.98	108	1.08
354	8.38	34.36 4	0.70	132	600	6.20	34.44	0.23	27.11	97	1.19
438	7.49	34.39 2	0.34	117							
522	6.80	34.42 8	0.26	105							
607	6.14	34.43 8	0.23	96							

HORIZON; November 7, 1961; 2250 GCT; 25°35'N, 112°20'W; sounding, 32 fm; wind, 180°, force 3; weather, partly cloudy; sea, moderate; wire angle, 12°.

137.23

1	21.38	34.31 0	5.08	403	0	(21.38)	(34.31)	(5.08)	(23.89)	(403)	(0.00)
11	21.20	34.29 7	5.07	399	10	21.21	34.30	5.07	23.92	399	0.04
30	19.04	34.14 5	4.96	356	20	21.03	34.28	5.07	23.96	396	0.08
50	14.78	33.97 4	3.22	273	30	19.04	34.14	4.96	24.37	356	0.12
					50	14.78	33.97	3.22	25.25	273	0.18

a) An error of -10 ohms in salinometer reading has been assumed. The tabulated observed and interpolated values incorporate the correction.

S10

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6110-11

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

137.30

HORIZON; November 8, 1961; 0110 GCT; 25°19'N, 112°46'W; sounding, 250 fm; wind, 290°, force 3; weather, partly cloudy; sea, moderate; wire angle, 11°.

1	21.17	34.01 7	4.74	419	0	(21.17)	(34.02)	(4.74)	(23.72)	(418)	(0.00)
11	21.18	34.02 3	4.90	418	10	21.18	34.02	4.90	23.72	419	0.04
30	21.10	34.06 3	4.79	413	20	21.16	34.04	4.86	23.74	417	0.08
50	17.97	33.71 6	5.32	362	30	21.10	34.06	4.79	23.77	414	0.13
75	14.54	33.72 0	4.40	287	50	17.97	33.72	5.32	24.32	361	0.20
99	13.49	33.87 3	3.27	255	75	14.54	33.72	4.40	25.10	287	0.28
124	13.43	34.40 7	1.04	214	100	13.46	33.88	3.25	25.45	254	0.35
164	12.16	34.61 9	0.30	175	125	13.20	34.48	0.79	25.97	205	0.41
203	11.78	34.63 3	0.29	167	150	12.38	34.60	0.38	26.22	180	0.46
253	11.05	34.64 1	0.11	154	200	11.83	34.63	0.30	26.35	168	0.55
302	10.76	34.62 8	0.17	150	250	11.08	34.64	0.11	26.50	154	0.63
					300	10.77	34.63	0.17	26.55	150	0.71

137.40

HORIZON; November 8, 1961; 0611 GCT; 24°58.5'N, 113°23'W; sounding, 1950 fm; wind, 240°, force 1; weather, partly cloudy; sea, moderate; wire angle, 00°.

1	21.10	33.98 1	4.95	419	0	(21.10)	(33.98)	(4.95)	(23.71)	(419)	(0.00)
11	21.08	33.97 4	5.04	419	10	21.08	33.97	5.03	23.71	420	0.04
31	20.74	34.08 4	4.98	403	20	21.01	34.00	5.02	23.75	416	0.08
41	17.86	33.67 2	5.57	362	30	20.80	34.08	4.98	23.87	404	0.12
56	15.86	33.61 0	5.39	322	50	16.50	33.62	5.48	24.59	335	0.20
71	14.73	33.60 1	5.12	299	75	14.40	33.61	4.94	25.05	292	0.28
96	13.02	33.75 4	3.81	254	100	12.72	33.79	3.52	25.53	246	0.35
117	11.86	33.93 6	2.62	220	125	11.69	34.06	2.12	25.94	208	0.40
137	11.49	34.16 1	1.71	197	150	11.27	34.22	1.70	26.14	188	0.45
157	11.13	34.25 4	1.68	183	200	10.51	34.43	1.00	26.44	160	0.54
187	10.66	34.39 1	0.95	165	250	10.05	34.48	0.55	26.56	149	0.62
222	10.29	34.45 2	1.01	155	300	9.52	34.50	0.37	26.66	139	0.70
253	10.02	34.48 1	0.52	148	400	8.23	34.48	0.24	26.85	121	0.83
303	9.48	34.50 0	0.36	138	500	7.27	34.47	0.30	26.98	108	0.96
358	8.72	34.48 0	0.19	128	600	6.38	34.46	0.20	27.10	97	1.07
443	7.80	34.48 1	0.30	115							
528	7.00	34.46 4	0.26	105							
614	6.26	34.46 6	0.19	95							

137.50

HORIZON; November 8, 1961; 1119 GCT; 24°37'N, 114°02'W; sounding, 2075 fm; wind, 200°, force 1; weather, clear; sea, slight; wire angle, 10°.

1	20.42	33.78 5	5.09	416	0	(20.42)	(33.78)	(5.09)	(23.74)	(417)	(0.00)
11	20.44	33.79 2	5.13	416	10	20.44	33.79	5.12	23.74	416	0.04
31	20.20	33.75 7	5.20	413	20	20.37	33.78	5.16	23.76	415	0.08
40	17.68	33.52 4	5.81	369	30	20.22	33.76	5.19	23.78	413	0.12
55	16.88	33.61 0	5.82	345	50	16.98	33.61	5.82	24.47	347	0.20
69	15.82	33.57 8	5.67	324	75	15.10	33.60	5.40	24.89	307	0.28
94	13.63	33.68 0	4.60	272	100	12.99	33.69	4.32	25.40	259	0.35
114	11.84	33.70 8	3.92	236	125	10.98	33.75	3.57	25.83	218	0.41
134	10.72	33.82 9	3.35	208	150	11.52	34.20	1.61	26.08	194	0.47
154	11.56	34.24 4	1.49	192	200	10.74	34.37	1.01	26.35	168	0.56
183	10.66	34.22 5	1.60	178	250	10.19	34.47	0.66	26.53	152	0.64
218	10.85	34.51 5	0.50	159	300	9.02	34.42	0.60	26.68	137	0.72
247	10.26	34.47 4	0.66	153	400	7.74	34.41	0.36	26.87	119	0.85
297	9.08	34.42 2	0.60	138	500	6.88	34.43	0.20	27.01	106	0.97
351	8.22	34.38 3	0.53	128	600	6.07	34.45	0.22	27.13	94	1.08
435	7.46	34.42 6	0.25	114							
519	6.70	34.43 7	0.20	103							
604	6.03	34.45 5	0.22	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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6110-11

HORIZON; November 8, 1961; 1547 GCT; 24°19.5'N, 114°40'W; sounding, 2090 fm; wind, 270°, force 1; weather, partly cloudy; sea, moderate; wire angle, 09°.

137.60

1	21.43	34.017	5.01	425	0	(21.43)	(34.02)	(5.01)	(23.65)	(425)	(0.00)
11	21.44	34.012	5.04	426	10	21.44	34.01	5.04	23.64	426	0.04
31	21.44	34.015	5.03	426	20	21.44	34.01	5.04	23.64	426	0.09
40	20.45	33.890	5.33	402	30	21.44	34.01	5.03	23.64	426	0.13
55	18.71	33.891	5.59	366	50	19.20	33.92	5.54	24.17	376	0.21
70	17.42	33.774	5.64	345	75	17.02	33.75	5.59	24.57	338	0.30
95	15.42	33.717	5.25	305	100	14.95	33.70	5.09	25.00	297	0.38
115	13.07	33.672	4.45	261	125	12.17	33.71	3.90	25.58	242	0.45
134	11.72	33.819	3.40	226	150	11.52	34.01	2.40	25.93	208	0.50
155	11.49	34.069	2.13	203	200	10.59	34.30	1.42	26.32	171	0.60
183	10.87	34.231	1.72	181	250	9.95	34.39	0.92	26.50	154	0.68
219	10.32	34.354	1.17	162	300	9.27	34.42	0.66	26.64	141	0.76
249	9.98	34.393	0.92	154	400	7.94	34.41	0.42	26.84	122	0.90
298	9.30	34.424	0.66	141	500	7.07	34.43	0.27	26.98	108	1.02
352	8.48	34.413	0.52	129	600	6.18	34.45	0.33	27.12	96	1.13
437	7.59	34.410	0.32	117							
520	6.90	34.440	0.27	105							
605	6.12	34.449	0.35	95							

HORIZON; November 8, 1961; 2110 GCT; 24°00'N, 115°18'W; sounding, 2010 fm; wind, 220°, force 1; weather, partly cloudy; sea, moderate; wire angle, 03°.

137.70

1	21.56	33.919	4.97	436	0	(21.56)	(33.92)	(4.97)	(23.54)	(436)	(0.00)
11	21.40	33.902	5.17	433	10	21.40	33.90	5.16	23.57	433	0.04
31	21.34	33.890	5.29	432	20	21.35	33.89	5.25	23.58	432	0.09
56	17.86	33.497	5.92	375	30	21.34	33.89	5.25	23.58	432	0.13
66	16.95	33.584	5.81	348	50	21.31	33.89	5.33	23.59	431	0.22
76	16.04	33.568	5.75	329	75	16.11	33.57	5.75	24.64	331	0.31
91	14.62	33.544	5.59	301	100	14.07	33.55	5.41	25.07	290	0.39
107	13.70	33.554	5.26	282	125	12.62	33.71	5.19	25.49	250	0.46
132	12.22	33.801	3.67	236	150	11.60	33.98	2.67	25.89	212	0.52
152	11.54	34.000	2.55	209	200	11.12	34.44	0.89	26.34	170	0.61
177	11.22	34.283	1.51	183	250	10.59	34.53	0.54	26.50	154	0.70
208	11.09	34.483	0.74	166	300	9.62	34.51	0.42	26.65	140	0.77
237	10.82	34.536	0.59	157	400	8.26	34.47	0.32	26.84	122	0.91
277	10.06	34.524	0.45	146	500	7.13	34.46	0.32	27.00	107	1.03
337	9.04	34.493	0.38	132							
412	8.11	34.471	0.31	120							
487	7.26	34.463	0.32	109							
567	6.56	34.465	0.31	99							

HORIZON; November 9, 1961; 0148 GCT; 23°39'N, 115°55'W; sounding, 2040 fm; wind, 220°, force 1; weather, partly cloudy; sea, moderate; wire angle, 02°.

137.80

0	21.15	33.811	5.28	433	0	21.15	33.81	5.28	23.57	433	0.00
10	20.20	33.798	5.29	410	10	20.20	33.80	5.29	23.82	410	0.04
30	20.16	33.818	5.32	407	20	20.18	33.80	5.30	23.82	409	0.08
40	20.12	33.804	5.36	407	30	20.16	33.82	5.32	23.84	407	0.12
50	17.63	33.632	5.98	360	50	17.63	33.63	5.98	24.33	360	0.20
65	16.74	33.616	6.05	341	75	15.80	33.57	5.90	24.71	324	0.29
80	15.45	33.552	5.83	318	100	14.16	33.69	4.99	25.16	281	0.36
100	14.16	33.691	4.99	281	125	12.76	33.74	4.21	25.48	251	0.43
125	12.76	33.737	4.21	251	150	11.52	33.88	3.19	25.83	218	0.49
145	11.74	33.836	3.44	225	200	10.40	34.20	1.94	26.28	175	0.59
175	10.75	34.046	2.41	192	250	9.58	34.32	1.28	26.51	153	0.67
204	10.34	34.229	1.83	172	300	8.68	34.32	1.04	26.66	139	0.75
234	9.94	34.335	1.22	158	400	7.62	34.38	0.41	26.86	120	0.89
275	8.87	34.279	1.34	145	500	6.96	34.42	0.32	26.99	108	1.01
335	8.44	34.387	0.65	131							
411	7.50	34.384	0.39	118							
486	7.08	34.425	0.32	109							
566	6.33	34.413	0.33	100							

SIO
CCOFI
6110-11

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

140.30

HORIZON; November 10, 1961; 0037 GCT; 24°46'N, 112°24.5'W; sounding, 53 fm; wind, 280°, force 4; weather, clear; sea, slight; wire angle, 06°.

0	22.01	34.40	9	5.05	412	0	22.01	34.41	5.05	23.79	412	0.00
10	22.00	34.40	9	5.12	412	10	22.00	34.41	5.12	23.79	412	0.04
30	20.54	34.34	2	4.98	379	20	21.89	34.40	5.12	23.81	410	0.08
50	19.57	34.29	3	4.70	358	30	20.54	34.34	4.98	24.14	379	0.12
75	17.06	33.93	2	4.75	325	50	19.57	34.29	4.70	24.35	358	0.20
						75	17.06	33.93	4.75	24.70	325	0.28

140.40

HORIZON; November 9, 1961; 1946 GCT; 24°26.5'N, 113°01'W; sounding, 1780 fm; wind, 320°, force 3; weather, cloudy; sea, slight; wire angle, 07°.

1	22.48	34.08	6	4.97	448	0	(22.48)	(34.09)	(4.97)	(23.41)	(448)	(0.00)
11	22.24	34.06	1	5.06	444	10	22.27	34.07	5.05	23.46	444	0.04
31	21.30	33.98	6	5.13	424	20	22.19	34.07	5.07	23.48	442	0.09
41	19.80	33.79	4	5.50	400	30	21.39	33.99	5.12	23.64	426	0.13
56	16.19	33.50	1	5.83	337	50	17.40	33.55	5.78	24.33	361	0.21
70	15.76	33.71	2	5.18	313	75	15.02	33.71	4.66	24.99	297	0.29
96	13.93	33.87	8	3.61	263	100	12.76	33.86	3.26	25.58	242	0.36
116	12.05	33.85	3	3.08	229	125	11.79	33.91	2.72	25.80	220	0.42
135	11.54	34.00	4	2.27	209	150	11.23	34.13	1.78	26.08	194	0.47
155	11.13	34.19	2	1.60	188	200	10.48	34.40	0.92	26.42	162	0.56
185	10.58	34.33	6	1.07	168	250	10.01	34.49	0.46	26.57	147	0.64
221	10.36	34.44	4	0.77	156	300	9.38	34.49	0.41	26.68	137	0.72
251	10.01	34.49	3	0.45	147	400	8.12	34.46	0.20	26.85	121	0.85
300	9.38	34.48	7	0.41	137	500	7.12	34.46	0.15	27.00	107	0.97
354	8.74	34.47	8	0.28	128	600	6.36	34.48	0.13	27.12	96	1.08
439	7.66	34.45	5	0.17	115							
524	6.92	34.46	5	0.14	104							
609	6.29	34.47	9	0.13	95							

140.50

HORIZON; November 9, 1961; 1420 GCT; 24°07.5'N, 113°38'W; sounding, 1730 fm; wind, 330°, force 2; weather, partly cloudy; sea, moderate; wire angle, 04°.

1	22.75	34.30	7	4.75	440	0	(22.75)	(34.31)	(4.75)	(23.50)	(439)	(0.00)
11	22.76	34.29	9	4.82	440	10	22.76	34.30	4.81	23.49	440	0.04
31	22.78	34.29	9	4.88	441	20	22.77	34.30	4.83	23.49	441	0.09
61	16.84	33.79	6	5.25	330	30	22.78	34.30	4.88	23.49	441	0.13
71	16.56	34.09	9	3.56	302	50	19.30	33.91	5.16	24.13	379	0.21
86	14.69	34.14	5	2.32	259	75	15.75	34.14	2.80	25.16	281	0.30
102	13.71	34.11	2	2.27	241	100	13.81	34.12	2.26	25.57	243	0.36
117	11.93	33.91	2	2.80	223	125	11.65	33.99	2.56	25.89	212	0.42
141	11.34	34.13	3	1.73	196	150	11.48	34.29	1.25	26.15	187	0.47
161	11.70	34.46	8	0.77	178	200	11.22	34.53	0.50	26.39	165	0.56
191	11.45	34.54	1	0.53	168	250	10.30	34.53	0.40	26.55	149	0.64
222	10.70	34.52	2	0.43	156	300	9.90	34.56	0.25	26.65	140	0.72
252	10.28	34.52	8	0.40	149	400	8.53	34.49	0.19	26.81	124	0.86
302	9.88	34.56	2	0.24	140	500	7.23	34.45	0.16	26.97	109	0.98
356	9.12	34.52	5	0.17	131	600	6.23	34.45	0.10	27.11	96	1.09
441	8.00	34.47	0	0.20	118							
527	6.92	34.45		0.13	105							
612	6.14	34.44	7	0.10	95							

Station	Date	Time GCT	Latitude North	Longitude West	Sounding (fm)	Wind		Weather	Sea	10 Meters	
						Dir	Force			T	S
60.55-H	X-18	2345	37°47.5'	123°15.0'	70	200°	3	overcast	moderate	11.14	33.79 3
70.58-H	16	1500	35°58.0'	122°12.5'	920	290°	3	partly cloudy	moderate	14.96	33.59 9
80.65-H	13	0715	33°59.0'	121°30.0'	1790	310°	4	partly cloudy	very rough	14.69	33.59 8
82.47-B	18	2120	34°15.0'	119°58.0'	300	090°	2	missing	moderate	15.94	33.62
83.40-B	18	1655	34°14.0'	119°22.0'	12	320°	1	light fog	moderate	15.36	33.53
83.43-B	18	1835	34°08.0'	119°34.0'	135	140°	2	missing	moderate	16.65	33.62
83.51-B	19	0105	33°52.0'	120°08.5'	70	280°	2	missing	moderate	15.69	33.53
83.55-B	19	0305	33°44.0'	120°24.5'	530	280°	2	missing	rough	15.32	33.60
83.65-B	19	0900	33°24.0'	121°06.0'	1800	var.	1	missing	moderate	15.84	33.57
83.70-B	19	1200	33°14.5'	121°26.0'	2000	var.	1	missing	moderate	16.12	33.58
83.80-B	19	1635	32°54.0'	122°08.0'	2000+	170°	2	overcast	moderate	15.03	33.60
83.90-B	19	2120	32°34.5'	122°47.5'	2000+	200°	1	overcast	moderate	17.52	33.34
87.35-B	21	0550	33°50.0'	118°37.5'	250	270°	3	cloudy	moderate	17.92	33.62
87.40-B	21	0310	33°40.0'	118°58.0'	475	290°	3	partly cloudy	moderate	17.26	33.58
87.45-B	21	0030	33°30.0'	119°19.0'	520	320°	3	cloudy	moderate	17.45	33.57
87.50-B	20	2155	33°20.0'	119°39.5'	40	270°	3	partly cloudy	moderate	16.74	33.58
87.55-B	20	1925	33°10.0'	120°00.0'	650	320°	1	partly cloudy	moderate	16.66	33.60
87.60-B	20	1640	33°00.0'	121°21.5'	400	320°	2	partly cloudy	moderate	17.54	33.46
87.65-B	20	1430	32°49.5'	120°41.5'	2050	320°	3	partly cloudy	moderate	17.00	33.62

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

Station	Date	Time GCT	Latitude North	Longitude West	Sounding (fm)	Wind		Weather	Sea	10 Meters	
						Dir	Force			T	S
87.70-B	X-20	1145	32°45.0'	121°01.0'	2000+	360°	2	clear	moderate	16.36	33.57
87.80-B	20	0650	32°21.5'	121°43.0'	2300	360°	2	cloudy	moderate	16.84	33.61
87.90-B	20	0150	31°59.0'	122°24.0'	2250	320°	2	overcast	moderate	17.66	33.28
90.65-H	25	2240	32°14.5'	120°19.5'	2060	270°	1	cloudy	rough	-	33.48 0
93.35-B	21	2000	32°40.5'	117°51.5'	300	330°	3	cloudy	moderate	18.70	33.75
93.45-B	22	0155	32°20.0'	118°32.0'	600	320°	5	partly cloudy	rough	18.12	33.64
93.55-B	22	0740	31°59.5'	119°12.5'	900	320°	6	cloudy	very rough	17.56	-
93.65-B	22	1340	31°39.0'	119°51.5'	2100	320°	5	missing	very rough	17.63	33.41
97.30-B	25	0050	32°16.0'	117°10.0'	25	290°	1	clear	moderate	16.45	33.49
97.32-B	24	2345	32°12.0'	117°18.0'	700	320°	1	clear	moderate	17.39	33.49
97.35-B	24	2210	32°05.5'	117°30.0'	550	var.	1	clear	moderate	18.87	33.62
97.40-B	24	1930	31°56.0'	117°50.0'	800	330°	1	clear	rough	18.43	33.68
97.45-B	24	1700	31°46.0'	118°08.5'	470	300°	2	partly cloudy	rough	17.36	33.68
97.50-B	24	1435	31°36.0'	118°29.0'	1300	320°	3	cloudy	very rough	17.62	33.37
97.55-B	24	1145	31°25.5'	118°49.5'	500	320°	4	cloudy	very rough	17.52	33.45
97.60-B	24	0905	31°15.5'	119°10.0'	1900	320°	5	partly cloudy	very rough	17.69	33.37
97.65-B	24	0615	31°05.0'	119°30.5'	1900	320°	5	cloudy	very rough	17.59	33.42
97.70-B	24	0325	30°55.0'	119°50.5'	1950	320°	5	partly cloudy	very rough	17.69	33.30
97.80-B	23	2230	30°35.0'	120°31.0'	2000+	340°	6	partly cloudy	very rough	18.20	33.35

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

Station	Date	Time GCT	Latitude North	Longitude West	Sounding (fm)	Wind		Weather	Sea	10 Meters	
						Dir	Force			T	S
97.90-B	X-23	1750	30°18.0'	121°11.0'	2000	330°	6	cloudy	very rough	18.58	33.43
100.45-H	28	1620	31°09.0'	117°45.5'	635	300°	6	cloudy	very rough	17.70	33.44 1
100.55-H	28	2228	30°51.5'	118°25.0'	1375	300°	7	cloudy	high	17.5	-
100.65-H	29	0530	30°31.0'	119°08.0'	1800	300°	7	cloudy	high	18.22	33.41 1
103.30-B	26	1235	31°06.0'	116°24.5'	38	320°	2	fog	moderate	15.20	33.42
103.35-B	26	1515	30°56.0'	116°45.0'	1000	320°	3	cloudy	moderate	18.44	33.57
103.40-B	26	1735	30°46.0'	117°04.5'	1050	320°	3	cloudy	moderate	18.60	33.57
103.45-B	26	2015	30°36.0'	117°24.0'	1000	300°	4	cloudy	rough	17.98	33.47
103.50-B	26	2315	30°26.0'	117°44.5'	1400	310°	4	cloudy	rough	18.43	33.64
103.55-B	27	0210	30°16.0'	118°05.0'	1250	320°	4	cloudy	rough	18.17	33.48
103.60-B	27	0450	30°06.0'	118°25.0'	1900	300°	5	cloudy	rough	19.60	33.75
103.65-B	27	0735	29°56.5'	118°44.0'	1750	300°	6	cloudy	very rough	19.42	33.71
103.70-B	27	1025	29°46.5'	119°06.0'	1900	330°	5	cloudy	very rough	19.63	33.86
103.80-B	27	1455	29°26.5'	119°44.0'	1950	330°	5	partly cloudy	very rough	17.64	33.45
103.90-B	27	2040	29°05.5'	120°26.0'	2000+	330°	5	cloudy	very rough	19.41	33.87
107.32-B	29	1030	30°26.0'	116°11.0'	350	280°	4	cloudy	rough	15.18	33.51
107.35-B	29	0830	30°21.5'	116°22.5'	900	260°	5	cloudy	very rough	17.19	33.52
107.40-B	29	0540	30°11.0'	116°42.0'	1500	300°	7	clear	very rough	18.12	33.60
107.45-B	29	0240	30°01.5'	117°02.0'	800	300°	6	partly cloudy	very rough	17.33	33.52

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

Station	Date	Time GCT	Latitude North	Longitude West	Sounding (fm)	Wind		Weather	Sea	10 Meters	
						Dir	Force			T	S
107.50-B	X-28	2345	29°50.5'	117°22.0'	1300	300°	6	cloudy	very rough	19.40	33.70
107.55-B	28	2120	29°43.5'	117°38.0'	1700	320°	6	cloudy	very rough	19.60	33.61
107.60-B	28	1830	29°32.0'	118°01.5'	1800	320°	6	cloudy	very rough	19.51	33.59
107.65-B	28	1545	29°21.0'	118°21.0'	2000	330°	6	cloudy	very rough	19.18	33.61
107.70-B	28	1245	29°11.0'	118°41.0'	1600	330°	6	cloudy	very rough	19.46	33.62
107.80-B	28	0425	28°51.0'	119°22.0'	2000+	330°	6	partly cloudy	very rough	19.27	33.67
107.90-B	28	0110	28°35.0'	120°02.0'	2050	330°	5	cloudy	very rough	19.14	33.67
110.33-H	XI-2	0350	29°50.0'	115°52.0'	40	300°	7	partly cloudy	rough	16.53	33.55 3
110.45-H	1	1930	29°27.0'	116°38.0'	590	290°	5	partly cloudy	rough	17.96	33.66 0
110.55-H	1	1415	29°03.0'	117°20.0'	1875	290°	4	partly cloudy	moderate	18.92	33.64 8
110.65-H	1	0855	28°46.0'	117°59.0'	1900	310°	4	partly cloudy	moderate	19.43	33.72 7
113.30-B	X-29	1955	29°22.0'	115°18.0'	32	210°	2	partly cloudy	rough	16.00	33.75
113.35-B	29	2230	29°11.5'	115°38.0'	600	250°	1	partly cloudy	rough	17.41	33.51
113.40-B	30	0120	29°02.0'	115°57.0'	1000	290°	2	partly cloudy	rough	18.43	33.61
113.45-B	30	0350	28°52.0'	116°18.0'	950	290°	2	missing	rough	18.30	33.61
113.50-B	30	0630	28°41.5'	116°36.5'	2400	290°	2	clear	rough	18.36	33.59
113.55-B	30	0905	28°35.0'	116°56.0'	2000	250°	6	partly cloudy	rough	17.93	33.40
113.60-B	30	1145	28°26.0'	117°15.0'	2000	330°	1	cloudy	rough	18.23	33.49
113.65-B	30	1425	28°17.0'	117°35.0'	2000	320°	3	partly cloudy	rough	19.47	33.78

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

Station	Date	Time GCT	Latitude North	Longitude West	Sounding (fm)	Wind		Weather	Sea	10 Meters	
						Dir	Force			T	S
113.70-B	X-30	1705	28°02.0'	117°55.0'	2000	300°	3	partly cloudy	rough	19.02	33.64
113.80-B	30	2240	27°42.0'	118°33.5'	2000	290°	4	partly cloudy	rough	18.73	33.40
113.90-B	31	0335	27°22.0'	119°12.0'	2100	320°	2	partly cloudy	rough	19.38	33.78
117.26-B	XI-2	0200	28°56.0'	114°41.5'	38	290°	6	clear	rough	18.06	33.78
117.30-B	1	2350	28°48.0'	114°56.5'	54	310°	6	partly cloudy	rough	17.03	33.65
117.35-B	1	2110	28°38.0'	115°16.0'	120	310°	6	partly cloudy	rough	17.96	33.69
117.40-B	1	1115	28°28.0'	115°35.5'	400	310°	5	clear	rough	18.38	33.75
117.45-B	1	0825	28°18.0'	115°56.0'	1900	300°	5	clear	rough	17.91	33.71
117.50-B	1	0530	28°08.0'	116°15.0'	2400	320°	5	clear	rough	18.30	33.61
117.55-B	1	0245	27°58.0'	116°34.5'	2300	310°	3	partly cloudy	rough	18.50	33.61
117.60-B	X-31	2330	27°45.5'	116°54.0'	2000	350°	3	partly cloudy	rough	18.72	33.62
117.65-B	31	2050	27°35.5'	117°13.0'	2000	350°	3	partly cloudy	rough	18.74	33.61
117.70-B	31	1820	27°27.0'	117°31.0'	2050	320°	3	partly cloudy	moderate	19.20	33.62
117.80-B	31	1320	27°11.0'	118°12.5'	2000	300°	2	partly cloudy	moderate	19.82	33.73
117.90-B	31	0815	26°48.0'	118°50.0'	2000+	320°	3	partly cloudy	moderate	19.80	33.74
118.39-B	XI-1	1320	28°18.5'	115°24.0'	140	300°	4	clear	rough	18.04	33.75
120.25-B	2	0635	28°22.5'	114°15.0'	30	320°	6	clear	rough	18.58	33.77
120.30-B	2	0930	28°13.0'	114°34.0'	50	300°	5	clear	rough	19.34	33.89
120.35-B	2	1155	28°03.0'	114°54.0'	45	280°	4	partly cloudy	rough	19.52	33.91

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

Station	Date	Time GCT	Latitude North	Longitude West	Sounding (fm)	Wind		Weather	Sea	10 Meters	
						Dir	Force			T	S
120.40-B	XI-2	2030	27°56.5'	115°14.0'	22	290°	5	cloudy	rough	18.46	33.78
120.55-H	3	0925	27°17.5'	116°24.0'	1960	340°	4	cloudy	rough	18.36	33.67 7
120.65-H	3	1453	26°56.0'	117°06.5'	1960	360°	4	cloudy	rough	19.11	33.71 0
123.37-B	3	0140	27°24.0'	114°40.0'	40	310°	4	partly cloudy	moderate	17.11	33.69
123.42-B	3	0405	27°14.0'	114°59.0'	840	310°	6	missing	rough	18.99	33.74
123.45-B	3	0630	27°04.5'	115°18.0'	2200	310°	4	clear	rough	18.64	33.73
123.50-B	3	0815	26°58.0'	115°31.0'	2000	330°	5	clear	rough	19.38	33.82
123.55-B	3	1050	26°50.5'	115°50.0'	2000	320°	4	partly cloudy	rough	19.76	33.85
123.60-B	3	1330	26°42.5'	116°08.0'	2100	330°	4	cloudy	rough	19.13	33.73
123.65-B	3	1630	26°29.5'	116°29.5'	2100	330°	4	cloudy	rough	18.82	33.78
123.70-B	3	1900	26°19.0'	116°47.0'	2100	330°	4	cloudy	rough	20.17	33.78
123.80-B	4	0010	25°59.0'	117°25.5'	2000	340°	4	partly cloudy	rough	20.31	33.83
127.34-B	5	0715	26°55.0'	114°06.5'	41	320°	3	clear	moderate	17.19	33.78
127.40-B	5	0410	26°43.5'	114°29.0'	1600	320°	4	partly cloudy	moderate	18.45	33.82
127.45-B	5	0125	26°33.0'	114°48.5'	1800	330°	5	partly cloudy	rough	20.50	33.94
127.50-B	4	2235	26°23.0'	115°08.0'	1800	340°	5	partly cloudy	rough	20.78	33.95
127.55-B	4	1950	26°13.5'	115°27.0'	2000	330°	5	partly cloudy	rough	20.80	34.02
127.60-B	4	1635	26°04.0'	115°48.0'	2050	330°	6	partly cloudy	rough	20.52	34.00
127.65-B	4	1300	25°52.0'	116°10.0'	2050	320°	5	partly cloudy	rough	19.56	33.87

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

Station	Date	Time GCT	Latitude North	Longitude West	Sounding (fm)	Wind		Weather	Sea	10 Meters	
						Dir	Force			T	S
127.70-B	XI-4	1010	25°43.0'	116°26.0'	2100	340°	5	partly cloudy	rough	20.08	33.78
127.80-B	4	0505	25°24.0'	117°02.5'	2100	330°	5	partly cloudy	rough	20.00	33.77
130.35-H	6	2050	26°18.5'	113°48.5'	380	240°	3	partly cloudy	moderate	19.32	33.82 4
130.45-H	6	1435	25°58.0'	114°26.5'	1870	280°	4	partly cloudy	rough	20.30	33.89 2
130.55-H	6	0915	25°42.0'	115°05.0'	1980	290°	3	overcast	moderate	20.60	33.91 7
133.25-B	5	2200	26°04.5'	112°48.0'	44	220°	3	clear	moderate	21.46	34.52
133.30-B	6	0035	25°54.5'	113°07.5'	110	260°	4	clear	moderate	21.29	34.49
133.35-B	6	0315	25°44.5'	113°26.5'	420	290°	4	partly cloudy	rough	21.00	34.52
133.40-B	6	0545	25°34.5'	113°45.5'	1700	270°	4	partly cloudy	rough	20.99	34.29
133.45-B	6	0820	25°24.0'	114°05.0'	2000	300°	3	partly cloudy	moderate	20.30	33.96
133.50-B	6	1050	25°14.5'	114°24.0'	2000	300°	3	partly cloudy	moderate	20.12	33.87
133.55-B	6	1335	25°04.5'	114°43.0'	2000	290°	3	cloudy	rough	21.11	33.87
133.60-B	6	1600	24°54.5'	115°02.0'	2100	320°	3	partly cloudy	moderate	21.48	34.03
133.65-B	6	1830	24°44.5'	115°20.5'	2150	320°	3	partly cloudy	moderate	20.78	33.89
133.70-B	6	2055	24°34.5'	115°39.0'	2000	290°	3	partly cloudy	moderate	19.95	33.86
133.80-B	7	0120	24°14.5'	116°17.0'	2100	300°	1	cloudy	moderate	19.96	33.95
137.35-H	8	0335	25°09.5'	113°03.0'	790	260°	4	partly cloudy	moderate	21.55	34.05 2
137.45-H	8	0840	24°47.0'	113°43.0'	1760	300°	2	partly cloudy	moderate	20.72	33.97 4
137.55-H	8	1341	24°25.0'	114°23.0'	2035	260°	1	partly cloudy	slight	21.22	33.86 9

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

Station	Date	Time GCT	Latitude North	Longitude West	Sounding (fm)	Wind		Weather	Sea	10 Meters	
						Dir	Force			T	S
140.35-H	XI-9	2215	24°37.0'	112°44.0'	490	310°	5	partly cloudy	slight	21.03	34.20 2
140.45-H	9	1710	24°17.5'	113°20.0'	1830	320°	3	partly cloudy	slight	23.16	34.42 3

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