

data report

PHYSICAL AND CHEMICAL DATA

CCOFI Cruise 6107-8

~~12 July~~ - 1 August 1961

27 June

and

CCOFI Cruise 6108

13-28 August 1961

SIO Reference 62-16

26 July 1962

UNIVERSITY OF CALIFORNIA
SCRIPPS INSTITUTION OF OCEANOGRAPHY

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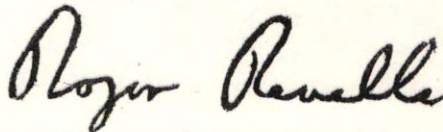
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SIO Reference 62-16

26 July 1962

Approved for distribution:



Roger Revelle, Director

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Approved for distribution
Robert D. Swenson
Robert D. Swenson, Director

INTRODUCTION

The data presented in this report were collected by the RV Black Douglas of the Bureau of Commercial Fisheries and the RV Horizon of the Scripps Institution of Oceanography on Cruises 6107-8 and 6108 of the California Cooperative Oceanic Fisheries Investigations program. The RV Black Douglas participated in both cruises; the RV Horizon, in Cruise 6107-8 only. 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) and 6103, 6104-5 and 6105 (SIO Ref. 62-15).

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.

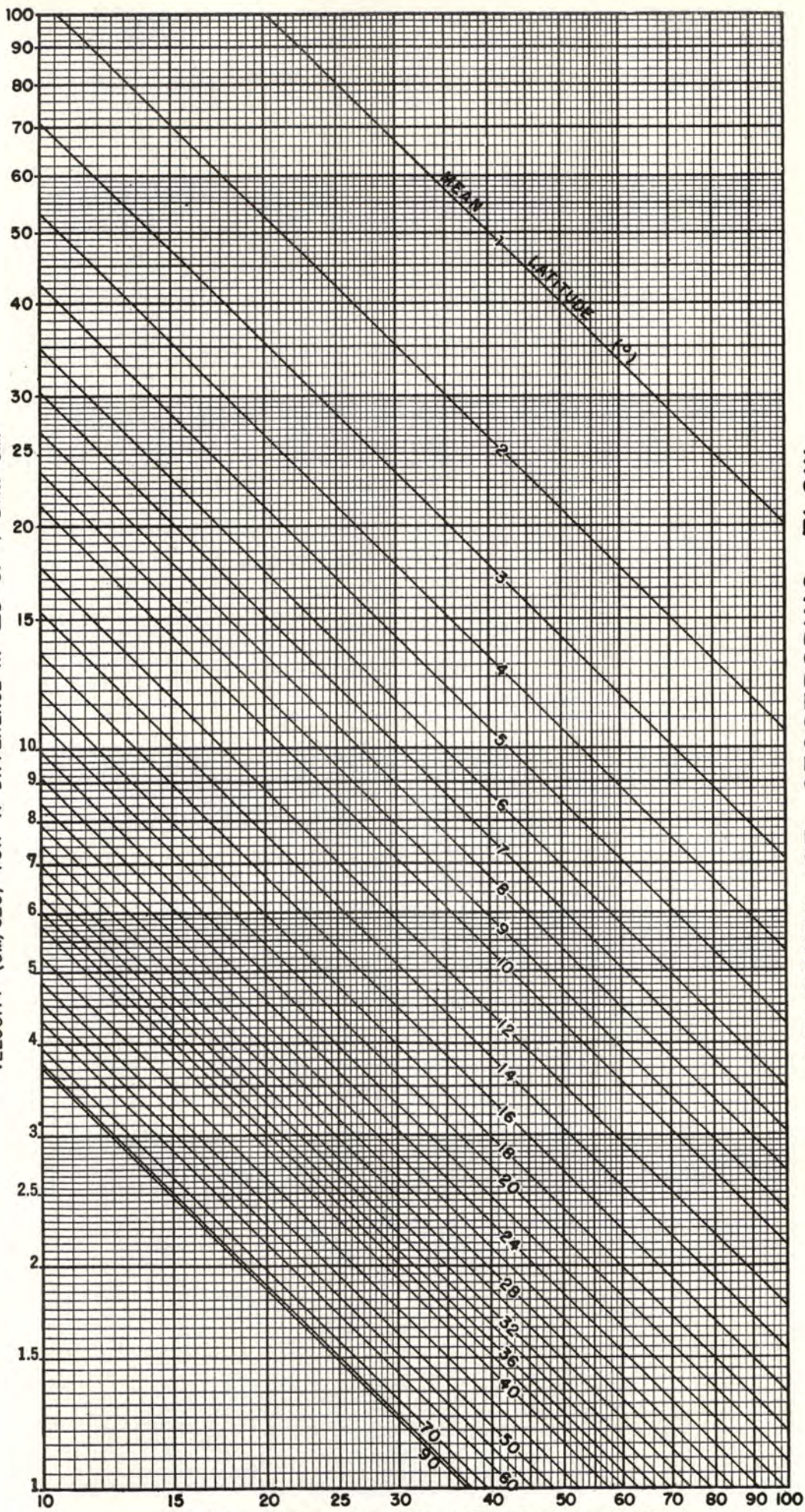
r: rejected value (value seems to be definitely wrong),

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 6107-8 data is numbered 108; Cruise 6108, 174.

VELOCITY (CM/SEC) FOR A DIFFERENCE IN ΔD OF 1 DYN. CM.



VELOCITY OF GEOSTROPHIC FLOW

G.I.R.

FIGURES

1. CCOFI Cruise 6107-8, station positions
2. Horizontal distribution of dynamic height anomaly (0 over 500 d-bar)
3. Horizontal distribution of temperature at 10 meters
4. Horizontal distribution of salinity at 10 meters
5. Horizontal distribution of temperature at 200 meters
6. Horizontal distribution of salinity at 200 meters

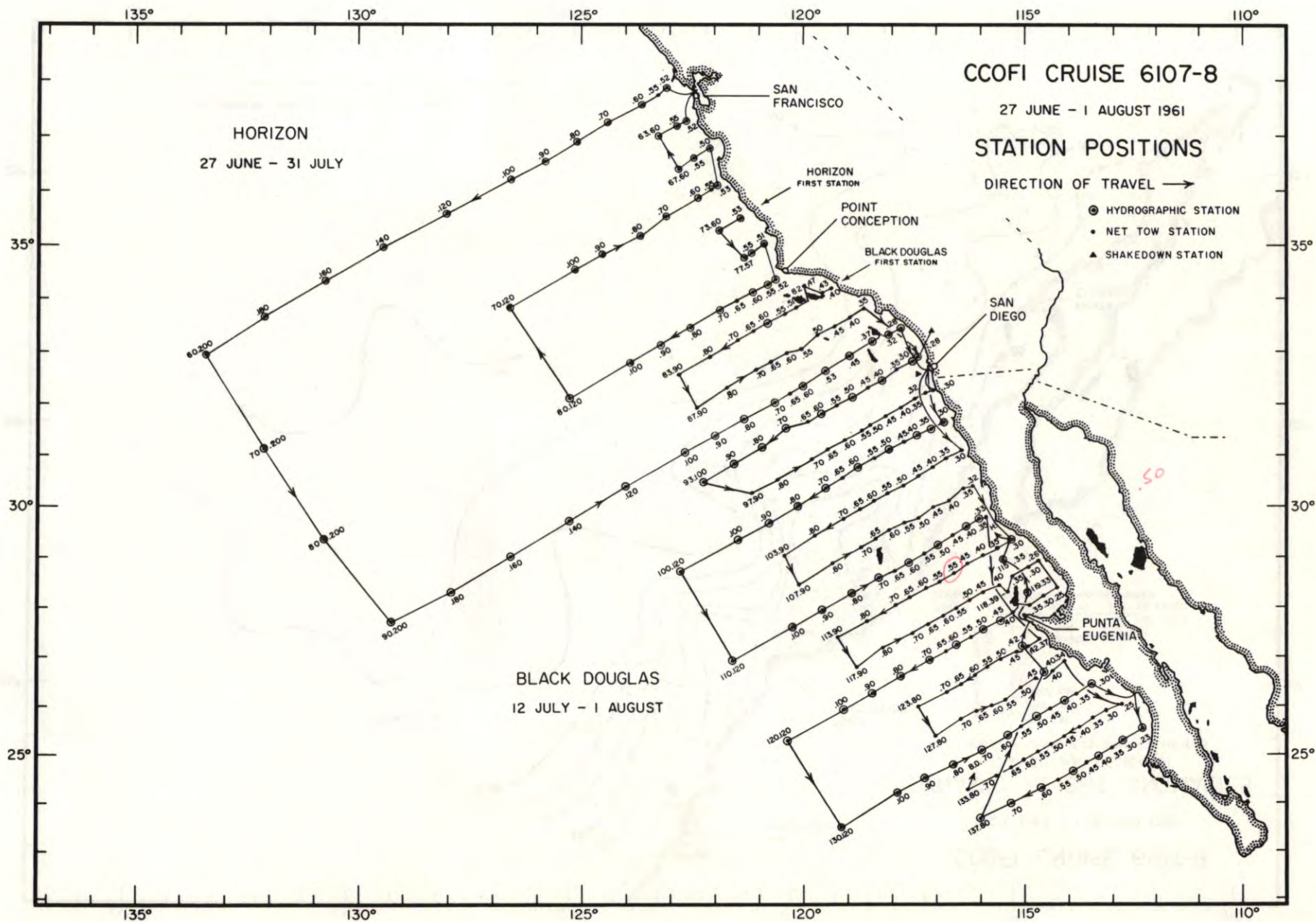


FIGURE 1

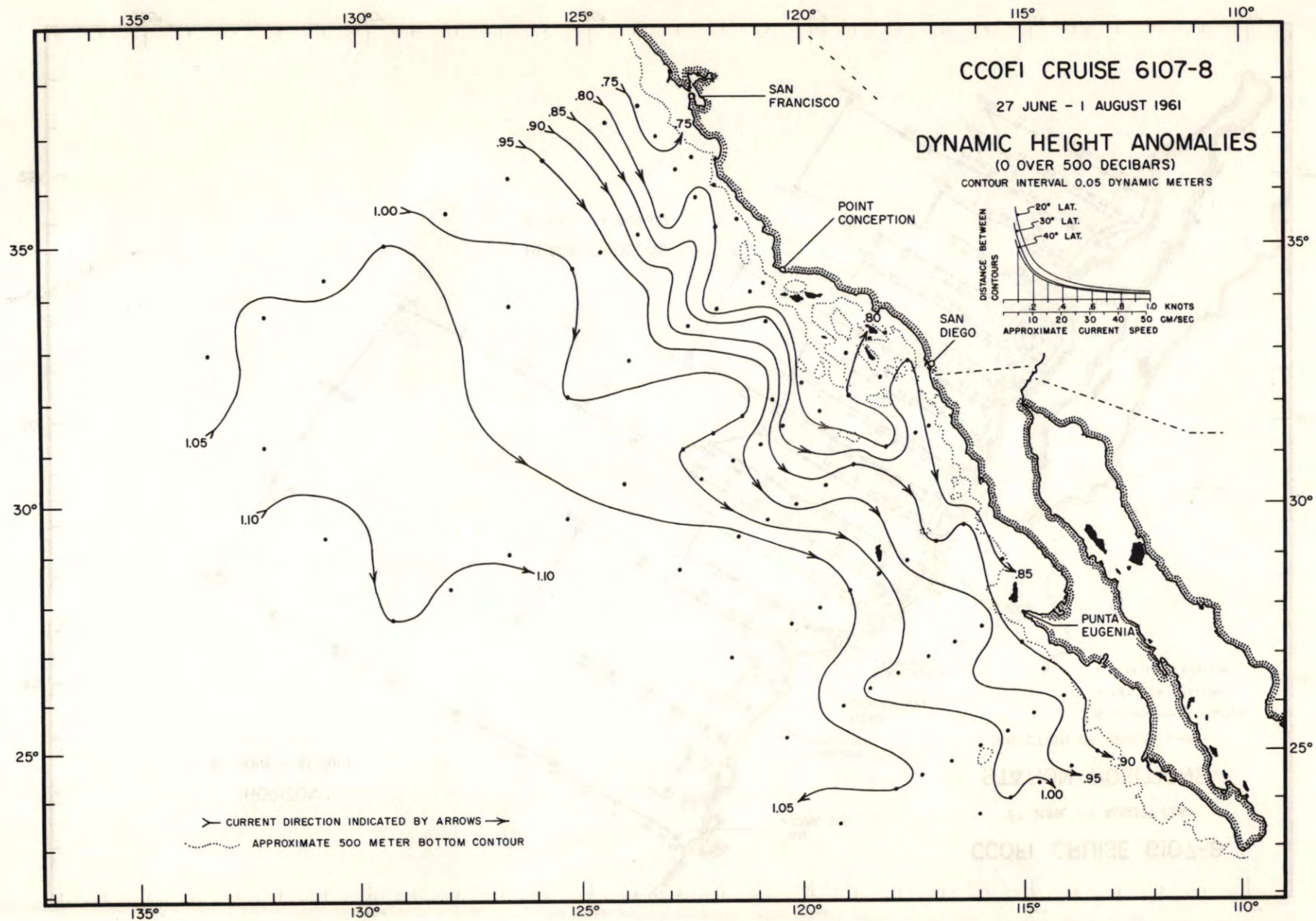


FIGURE 2

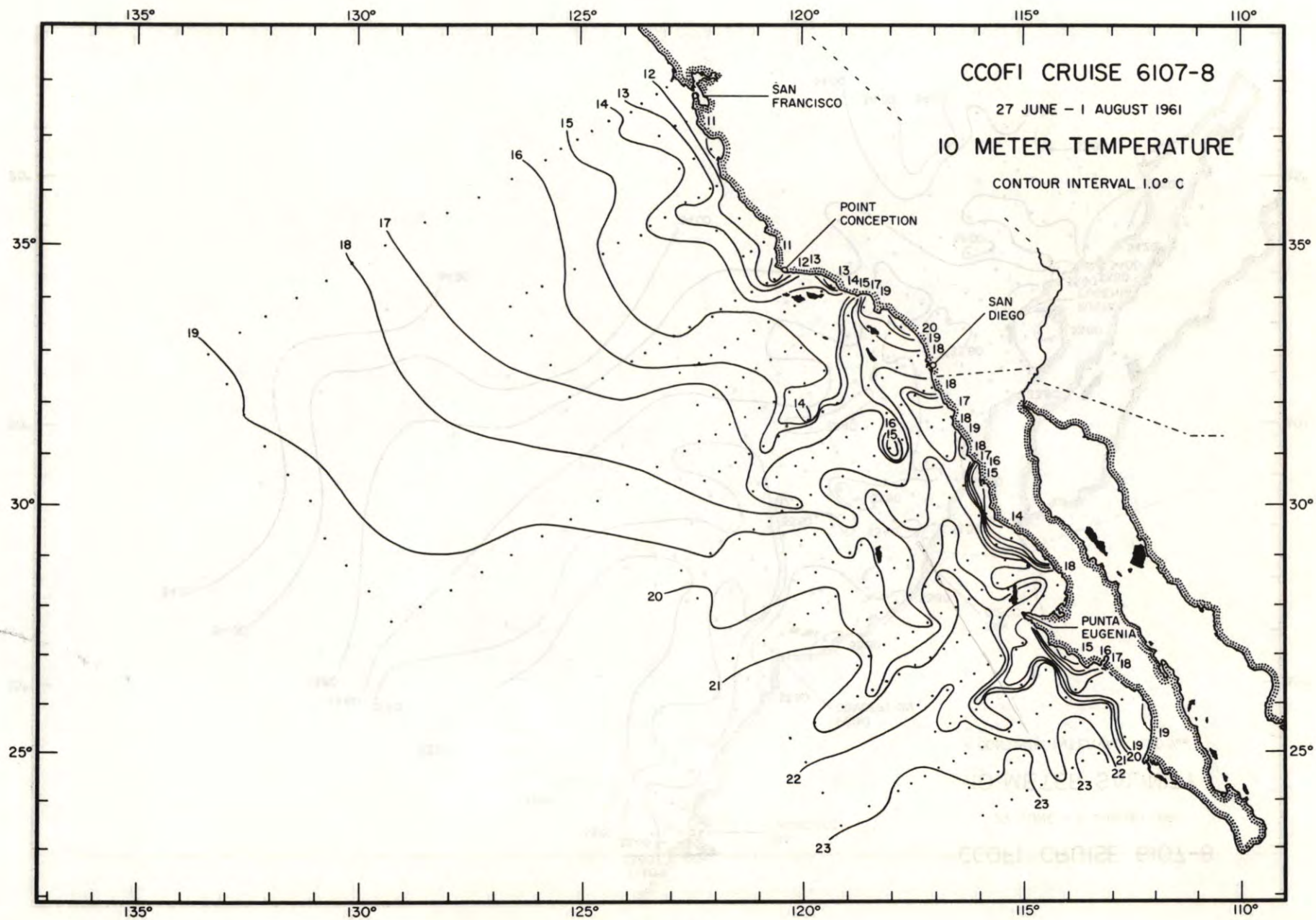


FIGURE 3

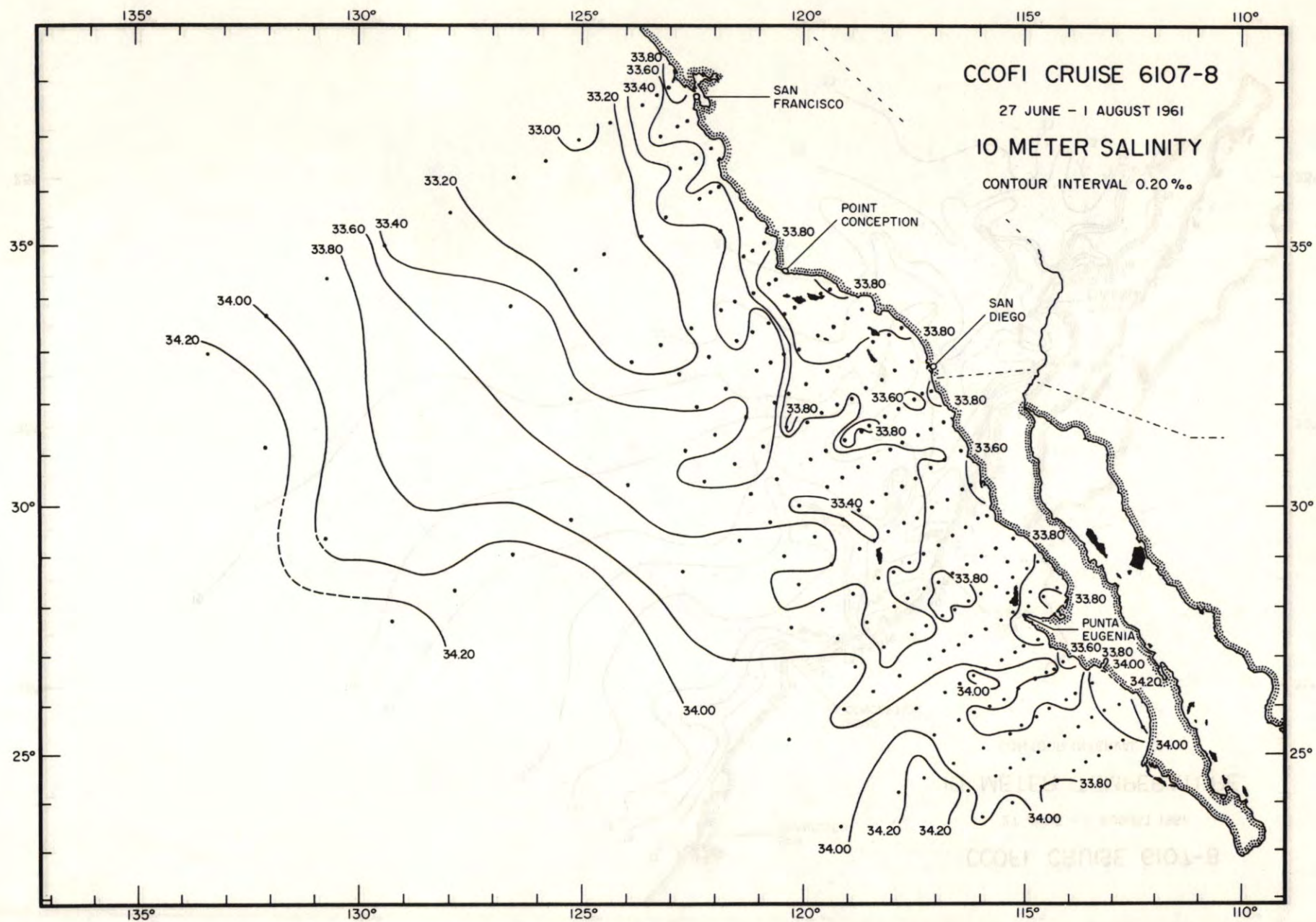


FIGURE 4

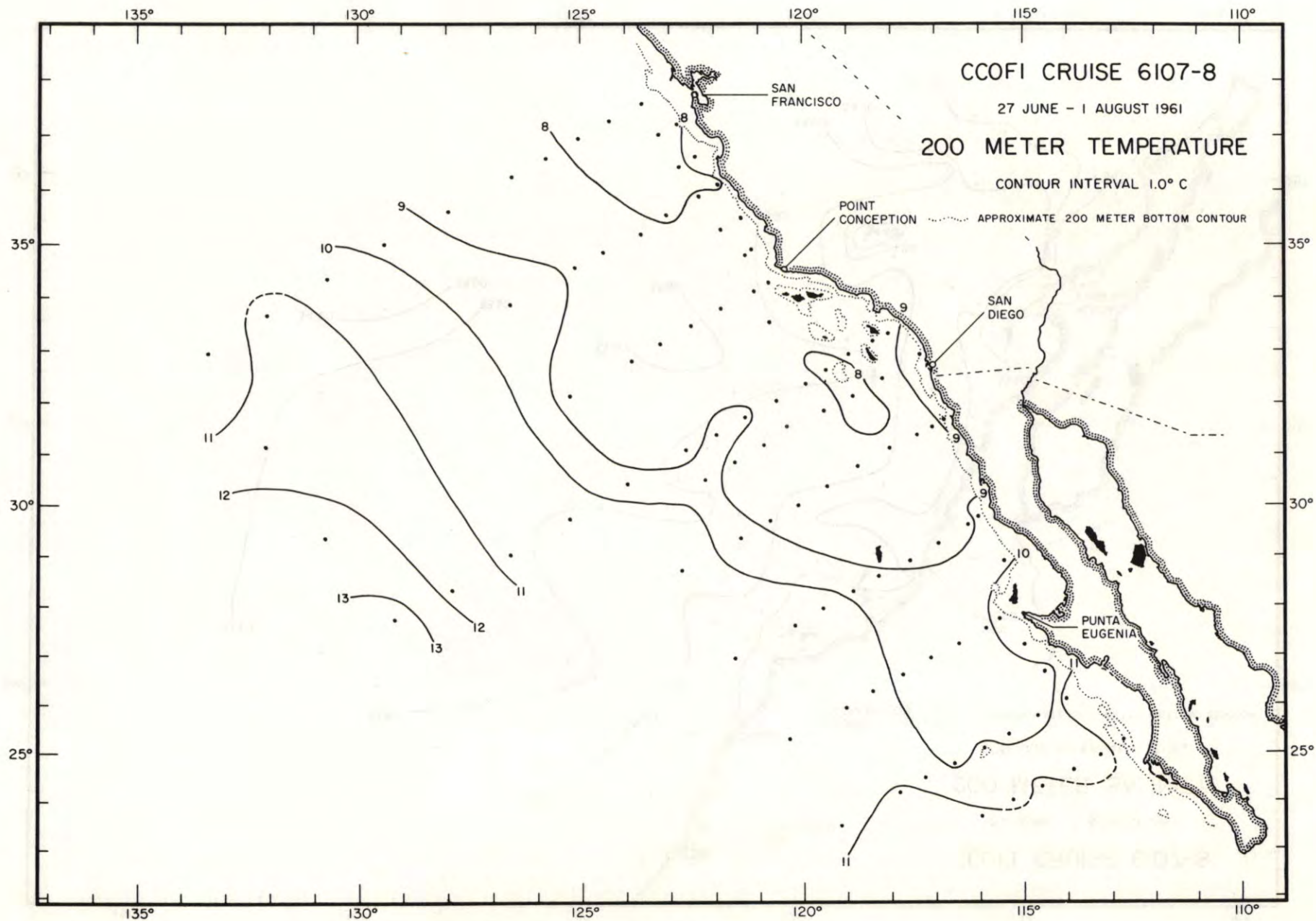


FIGURE 5

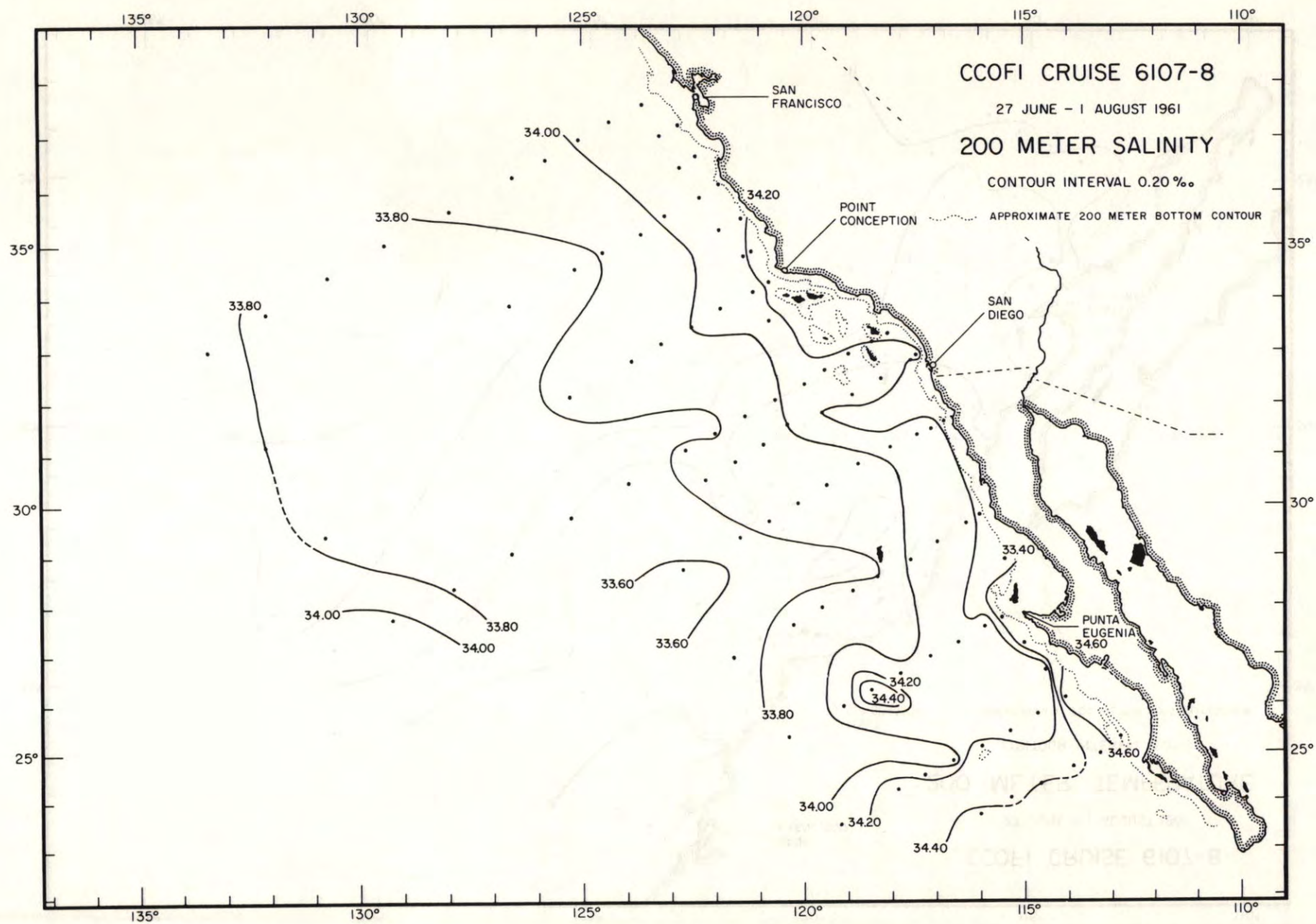


FIGURE 6

PERSONNEL
Cruise 6107-8

SHIPS' CAPTAINS

- *Davis, Laurence E., RV Horizon
- Glazner, Ben W., RV Black Douglas
- **Newbegin, Robert C., RV Horizon

PERSONNEL PARTICIPATING IN THE COLLECTION OF DATA

RV Black Douglas

Farrar, Lloyd J., Fishery Aid, Bureau of Commercial Fisheries
Hodnett, Haley L., Marine Technician
Leong, Roderick J. H., Fishery Research Biologist, Bureau of Commercial
Fisheries
Metoyer, Jack L., Fishery Aid, Bureau of Commercial Fisheries
Roubichoux, Robert, Summer Trainee

-
- *San Diego to San Francisco.
 - **San Francisco to end of cruise.

RV Horizon

- Pine, James S., Senior Marine Technician
**Born, Robert M., Marine Technician
*Brennen, Robert E., Senior Marine Technician
Bryan, Walter R., Marine Technician
*Chow, T. J., Assistant Research Chemist
Costello, James P., Laboratory Technician II
Crandall, David E., Engineering Aid
***Denton, Peter H., Engineering Aid
Engebretson, David W., Marine Technician
Farmer, Charles N., Laboratory Helper
Farrell, David E., Marine Technician
Frey, James M., Marine Technician
****Grow, Harry S., Marine Technician
**Hart, Joe T., Marine Technician
*Lauer, Brian, Laboratory Helper
***Mantyla, Arnold W., Senior Marine Technician
*Psaropulos, Christopher, Scientific Assistant, Inter-American Tropical
Tuna Commission
*Tatsumoto, Dr., Visiting Scientist, California Institute of Technology
Wagner, Vaughn M., Fishery Aid, Bureau of Commercial Fisheries
*****Wyllie, John G., Laboratory Technician

-
- *San Diego to San Francisco.
**San Francisco to end of cruise.
***Southern part of cruise, from San Diego to San Diego.
****San Francisco to San Diego.
*****San Diego to San Francisco to San Diego.

OBSERVED							COMP	INTERPOLATED				COMPUTED		
Z	T	S	O ₂	PO ₄ -P	SiO ₃ -Si	NO ₂ -N	δ _T	Z	T	S	O ₂	σ _t	δ _T	ΔD
m	°C	‰	ml/L	μg at/L	μg at/L	μg at/L	cl/ton	m	°C	‰	ml/L	g/L	cl/ton	dyn m

HORIZON; July 6, 1961; 1945 GCT; 37°55'N, 123°02'W; sounding, 42 fm; wind, 290°, force 4; weather, partly cloudy; sea, moderate; wire angle, 08°.

0	11.16	33.91 0	6.92	1.39	22	0.28	209	0	11.16	33.91	6.92	25.92	209	0.00
10	11.10	33.86 2	6.91	1.45	22	0.31	212	10	11.10	33.86	6.91	25.89	212	0.02
30	9.35	33.82 7	4.52	1.86	24	0.10	186	20	10.25	33.84	5.70	26.02	199	0.04
50	8.98	33.91 6	4.05	2.24	30	0.29	174	30	9.35	33.83	4.52	26.17	186	0.06
								50	8.98	33.92	4.05	26.30	173	0.10

HORIZON; July 7, 1961; 0146 GCT; 37°37'N, 123°37'W; sounding, 1790 fm; wind, 300°, force 4; weather, clear; sea, moderate; wire angle, 23°.

0	12.53	33.58 8	6.53	0.91	8	0.22	257	0	12.53	33.59	6.53	25.41	257	0.00
9	12.54	33.55 0	6.60	0.94	6	0.23	260	10	12.53	33.55	6.59	25.38	260	0.03
27	9.69	33.59 8	4.27	1.72	19	0.10	208	20	10.20	33.58	4.45	25.83	218	0.05
37	9.95	33.81 5	5.10	1.73	20	0.19	196	30	9.78	33.65	4.38	25.96	206	0.07
51	9.65	33.80 3	5.23	1.87	24	0.11	192	50	9.68	33.81	5.23	26.10	192	0.11
65	9.45	33.83 0	4.76	1.98	24	0.16	187	75	9.20	33.87	3.94	26.22	180	0.16
89	8.77	33.91 5	2.66	2.31	26	0.04	171	100	8.59	33.93	2.48	26.37	167	0.20
106	8.50	33.94 2	2.41	2.34	31	0.03	165	125	8.32	34.00	2.19	26.46	158	0.24
125	8.32	33.99 7	2.19	2.36	31	0.02	158	150	7.98	34.05	1.91	26.55	149	0.28
142	8.08	34.04 7	1.93	2.48	35	0.01	151	200	7.48	34.05	1.98	26.62	142	0.36
169	7.77	34.04 4	1.89	2.42	37	0.00	147	250	7.12	34.11	1.48	26.72	133	0.43
200	7.48	34.05 0	1.98	2.59	37	0.00	142	300	6.90	34.15	1.15	26.78	127	0.49
227	7.24	34.10 4	1.60	2.64	41	0.00	135	400	6.30	34.20	0.75	26.90	116	0.62
272	7.03	34.12 1	1.33	2.77	45	0.00	131	500	5.77	34.25	0.51	27.01	106	0.74
322	6.80	34.17 7	1.00	2.98	52	0.00	124							
399	6.30	34.19 7	0.76	3.12	60	0.00	116							
482	5.86	34.24 2	0.51	3.14	64	0.00	107							
565	5.42	34.30 2	0.51	-	-	-	98							

OBSERVED							COMP	INTERPOLATED				COMPUTED		
Z	T	S	O ₂	PO ₄ -P	SiO ₃ -Si	NO ₂ -N	δ _T	Z	T	S	O ₂	σ _t	δ _T	ΔD
m	°C	‰	ml/L	μg at/L	μg at/L	μg at/L	cl/ton	m	°C	‰	ml/L	g/L	cl/ton	dyn m

HORIZON; July 7, 1961; 0643 GCT; 37°19'N, 124°21'W; sounding, 2100 fm; wind, 310°, force 4; weather, clear; sea, moderate; wire angle, 18°.

1	14.84	33.19 7	6.14	0.63	3	0.03	331	0	(14.84)	(33.20)	(6.14)	(24.64)	(331)	(0.00)
10	14.85	33.18 9	6.15	0.59	3	0.03	332	10	14.85	33.19	6.15	24.63	332	0.03
30	13.54	33.31 8	6.68	0.67	3	0.09	296	20	14.84	33.19	6.16	24.63	332	0.07
39	12.52	33.41 8	6.29	0.99	4	0.17	270	30	13.54	33.32	6.68	25.00	296	0.10
54	11.62	33.40 2	5.56	1.27	9	0.24	255	50	11.85	33.41	5.72	25.40	258	0.15
68	10.72	33.45 2	5.20	1.53	13	0.41	236	75	10.20	33.50	4.85	25.77	224	0.21
91	9.30	33.66 9	3.96	1.97	20	0.08	197	100	9.02	33.73	3.62	26.14	188	0.27
110	8.80	33.79 2	3.33	2.26	25	0.02	180	125	8.63	33.86	2.98	26.30	173	0.31
129	8.60	33.86 9	2.91	2.26	29	0.01	172	150	8.32	33.94	2.47	26.41	162	0.35
148	8.36	33.93 6	2.51	2.31	29	0.00	163	200	7.63	34.03	1.98	26.59	146	0.43
176	7.93	34.01 9	1.99	2.37	36	0.00	151	250	7.13	34.06	1.76	26.68	137	0.50
209	7.52	34.03 0	1.98	2.50	38	0.00	144	300	6.62	34.09	1.32	26.78	128	0.57
237	7.24	34.04 9	1.88	2.58	40	0.00	139	400	5.98	34.16	0.64	26.91	115	0.70
283	6.73	34.07 8	1.43	2.79	46	0.00	130	500	5.41	34.24	0.44	27.05	102	0.81
334	6.24	34.10 0	1.10	2.90	54	0.00	123	600	(4.84)	(34.30)		(27.16)	(91)	(0.92)
415	5.90	34.17 8	0.58	2.92	62	0.00	113							
497	5.42	34.24 1	0.44	3.00	70	0.00	102							
581	4.94	34.28 2	0.42	-	-	-	94							

HORIZON; July 7, 1961; 1144 GCT; 36°58'N, 125°04'W; sounding, 2270 fm; wind, 320°, force 4; weather, missing; sea, moderate; wire angle, 35°.

1	14.53	32.94 8	6.31	0.48	1	0.00	343	0	(14.53)	(32.95)	(6.31)	(24.51)	(343)	(0.00)
9	14.52	32.94 4	6.28	0.47	1	0.00	343	10	14.52	32.94	6.27	24.51	343	0.03
26	13.97	32.96 4	6.28	0.44	1	0.00	331	20	14.30	32.95	6.26	24.56	338	0.07
34	13.52	32.99 1	6.18	0.56	1	0.00	320	30	13.76	32.98	6.23	24.70	325	0.10
46	11.94	33.06 7	5.91	0.80	4	0.14	285	50	11.82	33.10	5.91	25.17	281	0.16
57	11.62	33.17 6	5.91	1.04	6	0.18	271	75	10.52	33.23	5.31	25.50	249	0.23
77	10.36	33.24 9	5.21	1.37	10	0.23	245	100	9.62	33.67	4.20	26.00	202	0.29
94	10.04	33.59 4	4.64	1.78	17	0.50	214	125	9.02	33.87	3.00	26.25	178	0.33
108	9.18	33.75 5	3.62	1.97	23	0.01	189	150	8.60	33.92	2.57	26.36	168	0.38
122	9.06	33.86 2	3.04	2.11	25	0.00	179	200	7.74	34.02	2.09	26.56	148	0.46
142	8.74	33.90 2	2.54	2.16	26	0.00	171	250	7.16	34.04	1.89	26.66	139	0.53
167	8.28	33.94 6	2.63	2.17	29	0.08	161	300	6.90	34.12	1.22	26.76	129	0.60
185	7.96	33.99 4	2.34	2.35	30	0.03	153	400	6.18	34.16	0.79	26.89	117	0.73
215	7.54	34.03 9	1.94	2.52	37	0.02	144							
251	7.13	34.04 4	1.89	2.60	41	0.00	138							
308	6.86	34.13 5	1.15	2.69	48	0.00	128							
372	6.38	34.16 2	0.82	2.74	55	0.00	120							
441	5.90	34.14 7	0.75	-	-	-	115							

OBSERVED							COMP	INTERPOLATED				COMPUTED		
Z	T	S	O ₂	PO ₄ -P	SiO ₃ -Si	NO ₂ -N	δ _T	Z	T	S	O ₂	σ _t	δ _T	ΔD
m	°C	‰	ml/L	μg at/L	μg at/L	μg at/L	cl/ton	m	°C	‰	ml/L	g/L	cl/ton	dyn m

HORIZON; July 7, 1961; 1720 GCT; 36°37'N, 125°47'W; sounding, 2390 fm; wind, 320°, force 4; weather, partly cloudy; sea, moderate; wire angle, 20°.

1	15.76	33.08 0	5.85	0.48	2	0.00	359	0	(15.76)	(33.08)	(5.85)	(24.35)	(359)	(0.00)
11	15.74	33.09 3	5.83	0.48	2	0.00	357	10	15.74	33.09	5.83	24.36	358	0.04
29	15.24	33.07 3	5.91	0.73	2	0.00	348	20	15.30	33.07	5.90	24.44	350	0.07
57	14.86	33.08 3	5.92	0.49	2	0.00	340	30	15.23	33.07	5.91	24.46	348	0.11
67	13.94	33.22 2	6.13	0.65	2	0.00	311	50	15.11	33.08	5.92	24.49	345	0.18
82	12.92	33.18 2	6.11	0.59	2	0.00	295	75	13.38	33.20	6.13	24.94	302	0.26
96	11.69	33.25 6	-	0.88	5	0.15	267	100	11.41	33.28	5.44	25.38	260	0.33
110	10.94	33.34 7	5.13	1.18	8	0.06	247	125	10.23	33.47	4.56	25.74	226	0.39
132	9.96	33.53 1	4.30	1.57	14	0.01	217	150	9.56	33.68	3.42	26.02	200	0.44
151	9.55	33.67 9	3.41	1.88	19	0.00	200	200	8.71	33.92	2.60	26.34	169	0.54
179	9.05	33.85 5	2.80	2.04	24	0.00	179	250	8.09	34.04	2.23	26.53	151	0.62
206	8.62	33.93 8	2.55	2.28	27	0.00	167	300	7.53	34.08	1.99	26.64	141	0.69
235	8.26	34.01 8	2.29	2.29	31	0.00	156	400	6.60	34.14	1.16	26.82	124	0.83
280	7.77	34.06 3	2.13	2.46	34	0.00	145	500	5.89	34.23	0.63	26.98	109	0.95
332	7.20	34.09 9	1.71	2.61	41	0.00	135							
411	6.51	34.15 2	1.08	2.75	51	0.00	122							
493	5.92	34.22 4	0.66	2.89	62	0.00	109							
576	5.47	34.26 1	0.47	2.92	67	0.00	101							

HORIZON; July 7, 1961; 2310 GCT; 36°17'N, 126°32'W; sounding, 2490 fm; wind, 320°, force 3; weather, partly cloudy; sea, moderate; wire angle, 10°.

0	16.36	33.09 4	5.75	0.36	1	0.00	371	0	16.36	33.09	5.75	24.22	371	0.00
10	16.31	33.10 7	5.74	0.36	1	0.00	369	10	16.31	33.11	5.74	24.25	369	0.04
30	15.49	33.10 6	5.79	0.36	1	0.00	351	20	15.56	33.11	5.78	24.41	352	0.07
60	13.34	33.12 7	6.22	0.36	1	0.00	307	30	15.49	33.11	5.79	24.43	351	0.11
70	12.83	33.06 8	6.25	0.38	1	0.00	301	50	15.44	33.11	5.80	24.44	350	0.18
84	12.44	33.11 4	6.18	0.38	2	0.00	291	75	12.69	33.08	6.22	24.99	298	0.26
99	11.89	33.21 7	5.79	0.56	3	0.10	273	100	11.88	33.22	5.78	25.25	273	0.33
114	11.44	33.31 3	5.53	0.69	4	0.08	258	125	10.92	33.37	5.36	25.54	245	0.40
140	10.12	33.45 0	5.18	1.01	9	0.02	226	150	9.82	33.52	4.77	25.85	216	0.46
160	9.58	33.59 1	4.19	1.51	15	0.00	207	200	8.67	33.88	3.94	26.31	172	0.55
188	8.88	33.80 8	4.02	1.54	20	0.00	180	250	7.81	33.98	3.79	26.52	152	0.64
218	8.36	33.93 9	3.84	1.74	24	0.00	163	300	7.01	33.98	3.33	26.64	141	0.71
249	7.85	33.98 0	3.80	1.83	28	0.00	153	400	5.79	34.04	1.77	26.84	122	0.85
298	7.05	33.98 0	3.38	2.02	35	0.00	142	500	5.22	34.14	0.78	26.99	108	0.97
352	6.24	33.99 9	2.46	2.31	46	0.00	130	600	4.77	34.22	0.40	27.11	97	1.08
438	5.49	34.06 9	1.30	2.65	58	0.00	116							
522	5.12	34.15 8	0.65	2.74	64	0.00	105							
608	4.73	34.23 2	0.39	2.86	79	0.00	95							

OBSERVED							COMP	INTERPOLATED				COMPUTED		
Z	T	S	O ₂	PO ₄ -P	SiO ₃ -Si	NO ₂ -N	δ _T	Z	T	S	O ₂	σ _t	δ _T	ΔD
m	°C	‰	ml/L	μg at/L	μg at/L	μg at/L	cl/ton	m	°C	‰	ml/L	g/L	cl/ton	dyn m

HORIZON; July 8, 1961; 0816 GCT; 35°39'N, 127°59'W; sounding, 2540 fm; wind, 340°, force 4; weather, missing; sea, moderate; wire angle, 28°.

0	16.50	33.27 4	5.63	0.38	1	0.00	361	0	16.50	33.27	5.63	24.32	361	0.00
8	16.38	33.26 1	5.64	0.39	1	0.00	359	10	16.33	33.26	5.64	24.36	358	0.04
26	15.82	33.24 0	5.57	0.43	1	0.00	348	20	15.89	33.24	5.57	24.44	350	0.07
35	15.74	33.24 5	5.77u	0.44	1	0.00	346	30	15.79	33.24	5.57	24.46	348	0.11
48	14.60	33.29 4	5.83	0.38	1	0.00	319	50	14.50	33.30	5.83	24.79	317	0.17
62	14.24	33.31 7	5.83	0.38	1	0.00	310	75	14.07	33.44	5.87	24.99	298	0.25
82	13.98	33.50 0	5.89	0.38	2	0.00	292	100	13.00	33.43	5.77	25.20	278	0.32
99	13.06	33.43 2	5.79	0.43	2	0.02	279	125	11.56	33.40	5.46	25.45	254	0.39
117	12.15	33.40 6	5.55	0.61	4	0.14	264	150	9.90	33.46	5.13	25.79	222	0.45
133	10.88	33.40 4	5.34	0.91	6	0.02	242	200	8.67	33.84	4.50	26.28	175	0.55
157	9.54	33.48 9	5.02	1.20	10	0.00	214	250	7.79	33.95	3.98	26.50	154	0.63
187	8.94	33.73 6	4.76	1.44	15	0.00	186	300	6.98	33.96	3.55	26.62	142	0.71
212	8.40	33.89 8	4.28	1.64	23	0.00	166	400	5.74	34.01	2.13	26.82	123	0.85
255	7.70	33.95 3	3.94	1.84	28	0.00	152	500	5.00	34.09	1.06	26.98	109	0.97
303	6.92	33.95 6	3.52	2.03	37	0.00	142							
378	5.96	33.99 5	2.41	2.33	48	0.00	127							
458	5.26	34.05 0	1.36	2.59	63	0.00	115							
540	4.80	34.13 2	0.83	2.74	75	0.00	104							

HORIZON; July 8, 1961; 1853 GCT; 35°01'N, 129°24.5'W; sounding, 2540 fm; wind, 340°, force 5; weather, cloudy; sea, very rough; wire angle, 23°.

0	17.08	33.40 3	5.61	0.36	1	0.00	364	0	17.08	33.40	5.61	24.29	364	0.00
9	17.06	33.40 2	5.57	0.36	1	0.00	364	10	17.05	33.40	5.56	24.30	364	0.04
33	16.60	33.44 8	5.58	0.41	1	0.00	350	20	16.67	33.44	5.57	24.42	352	0.07
60	15.44	33.51 3	5.86	0.33	1	0.00	320	30	16.61	33.45	5.57	24.44	350	0.11
69	15.44	33.54 9	5.83	0.28	1	0.00	318	50	16.54	33.45	5.58	24.45	349	0.18
87	15.78	33.85 2	5.27	0.26	1	0.00	303	75	15.21	33.58	5.53	24.85	311	0.26
100	14.78	33.68 9	5.35	0.32	1	0.00	294	100	14.78	33.69	5.35	25.03	294	0.34
114	13.66	33.53 1	5.79	0.41	2	0.03	283	125	13.44	33.55	5.73	25.20	277	0.41
141	12.83	33.65 0	5.48	0.48	3	0.16	258	150	12.41	33.63	5.47	25.47	252	0.48
159	11.90	33.60 6	5.46	0.66	4	0.07	245	200	9.89	33.68	4.70	25.96	205	0.59
185	10.54	33.60 9	4.90	0.90	8	0.01	221	250	8.81	33.90	4.25	26.31	172	0.69
217	9.33	33.77 8	4.59	1.41	14	0.00	189	300	7.82	33.96	2.97	26.51	154	0.77
243	8.96	33.88 8	4.40	1.44	18	0.00	175	400	6.62	34.04	2.32	26.74	132	0.92
287	8.02	33.95 2	2.96	1.94	29	0.00	157	500	5.90	34.12	1.01	26.89	117	1.05
346	7.20	34.01 0	3.13	2.08	34	0.00	141	600	(5.41)	(34.22)		(27.03)	(104)	(1.17)
437	6.28	34.05 9	1.72	2.45	49	0.00	126							
523	5.80	34.15 0	0.80	2.67	57	0.00	113							
596	5.42	34.21 8	-	2.76	66	0.00	104							

OBSERVED							COMP	INTERPOLATED				COMPUTED		
Z	T	S	O ₂	PO ₄ -P	SiO ₃ -Si	NO ₂ -N	δ _T	Z	T	S	O ₂	σ _t	δ _T	ΔD
m	°C	‰	ml/L	μg at/L	μg at/L	μg at/L	cl/ton	m	°C	‰	ml/L	g/L	cl/ton	dyn m

HORIZON; July 9, 1961; 0315 GCT; 34°21.5'N, 130°44'W; sounding, 2740 fm; wind, 340°, force 5; weather, cloudy; sea, very rough; wire angle, 38°.

0	18.42	33.91 1	5.48	0.21	1	0.00	358	0	18.42	33.91	5.48	24.35	358	0.00
8	18.46	33.90 5	5.41	0.23	1	0.00	359	10	18.46	33.91	5.42	24.34	359	0.04
28	18.46	33.99 8	5.43	0.23	1	0.00	353	20	18.46	33.94	5.42	24.37	357	0.07
52	17.24	34.07 1	5.62	0.16	2	0.00	319	30	18.43	34.02	5.46	24.44	350	0.11
61	17.08	34.09 6	5.65	0.15	2	0.00	314	50	17.65	34.06	5.57	24.66	329	0.18
76	16.53	34.11 6	5.69	0.15	2	0.00	300	75	16.64	34.11	5.68	24.94	303	0.25
88	16.25	34.17 7	5.77	0.15	2	0.00	289	100	15.72	34.12	5.75	25.15	282	0.33
100	15.72	34.12 5	5.75	0.18	2	0.00	282	125	14.12	33.87	5.63	25.31	267	0.40
123	14.21	33.87 2	5.68	0.29	2	0.02	269	150	12.95	33.80	5.46	25.49	250	0.46
139	13.64	33.88 4	5.50	0.36	2	0.13	257	200	10.19	33.74	4.92	25.96	206	0.58
160	12.20	33.74 1	5.43	0.56	5	0.02	240	250	8.97	33.97	4.54	26.34	170	0.68
186	11.04	33.72 7	5.20	0.78	6	0.01	221	300	8.01	34.00	4.21	26.51	153	0.76
209	9.66	33.74 7	4.78	1.24	13	0.00	197	400	6.38	34.02	2.24	26.75	130	0.91
247	9.01	33.96 7	4.56	1.39	17	0.00	170	500	5.46	34.08	1.20	26.91	115	1.03
298	8.06	33.99 8	4.22	1.64	25	0.00	154							
378	6.67	34.01 2	2.62	2.10	41	0.00	134							
458	5.76	34.06 1	1.46	2.46	55	0.00	120							
530	5.30	34.10 1	1.04	2.60	64	0.00	111							

HORIZON; July 9, 1961; 1139 GCT; 33°41'N, 132°05'W; sounding, 2700 fm; wind, 360°, force 4; weather, cloudy; sea, rough; wire angle, 21°.

2	18.63	34.00 9	5.65a)	0.30	1	0.00	356	0	(18.63)	(34.01)	(5.65)	(24.38)	(356)	(0.00)
11	18.64	34.00 1	5.68	0.25	1	0.00	357	10	18.64	34.00	5.67	24.37	357	0.04
30	18.62	33.99 3	5.60	0.26	1	0.00	357	20	18.63	33.99	5.63	24.36	357	0.07
39	18.23	33.97 0	5.65	0.24	1	0.00	349	30	18.62	33.99	5.60	24.37	357	0.11
53	16.54	33.96 1	5.99	0.21	2	0.00	311	50	16.80	33.96	5.97	24.78	317	0.17
67	16.40	34.05 3	5.91	0.24	2	0.00	302	75	15.96	34.04	5.74	25.04	293	0.25
92	15.72	34.04 2	5.69	0.23	2	0.00	288	100	15.72	34.08	5.68	25.12	285	0.32
111	15.76	34.16 7	5.69	0.21	2	0.00	279	125	15.83	34.24	5.71	25.22	276	0.40
129	15.83	34.26 5	5.72	0.21	3	0.00	274	150	14.66	34.09	5.74	25.36	262	0.46
148	14.88	34.12 2	5.73	0.25	3	0.00	264	200	11.39	33.78	5.33	25.78	223	0.59
176	12.82	33.81 9	5.82	0.55	4	0.00	246	250	9.48	33.92	4.64	26.22	181	0.69
208	10.96	33.77 8	5.16	0.93	7	0.00	216	300	8.30	33.96	4.02	26.43	160	0.78
238	9.81	33.88 9	4.81	1.29	13	0.00	189	400	6.68	34.02	2.50	26.71	134	0.93
284	8.62	33.95 1	4.20	1.66	22	0.00	166	500	5.62	34.05	1.61	26.87	119	1.06
336	7.66	33.99 3	3.65	1.97	30	0.00	149	600	(4.96)	(34.15)		(27.03)	(104)	(1.18)
418	6.44	34.03 3	2.19	2.46	44	0.00	130							
501	5.61	34.05 2	1.60	2.57	55	0.00	119							
585	5.03	34.13 5	0.83	2.81	67	0.00	106							

a) Alternate value, 5.51 ml/L, not used in interpolation.

OBSERVED							COMP	INTERPOLATED				COMPUTED		
Z	T	S	O ₂	PO ₄ -P	SiO ₃ -Si	NO ₂ -N	δ _T	Z	T	S	O ₂	σ _t	δ _T	ΔD
m	°C	‰	ml/L	μg at/L	μg at/L	μg at/L	cl/ton	m	°C	‰	ml/L	g/L	cl/ton	dyn m

HORIZON; July 8, 1961; 1945 GCT; 33°00'N, 133°25'W; sounding, 2965 fm; wind, 360°, force 4; weather, cloudy; sea, very rough; wire angle, 32°.

0	19.04	34.23 0	5.41	0.23	2	0.00	350	0	19.04	34.23	5.41	24.44	350	0.00
9	19.05	34.23 9	5.42	0.25	2	0.00	349	10	19.05	34.24	5.43	24.45	349	0.03
31	19.01	34.23 3	5.43	0.24	2	0.00	349	20	19.04	34.23	5.43	24.44	350	0.07
39	18.57	34.18 6	5.44	0.23	2	0.00	342	30	19.03	34.23	5.43	24.45	349	0.11
51	16.95	34.11 9	5.74	0.20	3	0.00	309	50	16.99	34.12	5.73	24.86	310	0.17
65	16.61	34.18 9	5.71	0.24	3	0.00	296	75	16.08	34.19	5.71	25.13	285	0.25
85	15.96	34.18 6	5.71a)	0.24	3	0.00	282	100	15.62	34.21	5.75	25.25	273	0.32
101	15.61	34.21 2	5.76	0.26	3	0.00	273	125	14.81	34.13	5.80	25.36	262	0.38
118	15.09	34.15 2	5.87	0.26	3	0.00	266	150	13.65	34.04	5.50	25.54	246	0.45
142	14.15	34.08 5	5.53	0.36	3	0.09	252	200	10.43	33.84	4.96	25.99	202	0.56
167	12.22	33.90 0	5.44	0.66	5	0.01	229	250	9.41	33.99	4.80	26.28	175	0.66
200	10.43	33.84 0	4.96	1.12	11	0.00	202	300	8.71	34.01	4.57	26.41	163	0.75
225	9.76	33.93 0	4.83	1.24	14	0.00	185	400	6.92	33.97	3.80	26.64	141	0.90
264	9.25	34.01 1	4.80	1.32	16	0.00	171	500	5.76	34.05	1.71	26.85	121	1.04
320	8.39	34.00 9	4.40	1.71	23	0.00	158							
407	6.80	33.96 7	3.74	1.97	37	0.00	139							
489	5.86	34.04 2	1.88	2.43	52	0.00	122							
562	5.28	34.09 9	1.12	2.66	64	0.00	111							

HORIZON; July 5, 1961; 1148 GCT; 37°19'N, 122°36'W; sounding, 40 fm; wind, 290°, force 1; weather, partly cloudy; sea, slight; wire angle, 00°.

0	13.56	33.71 7	8.84	0.48	5	0.04	267	0	13.56	33.72	8.84	25.31	267	0.00
10	11.97	33.75 0	6.56	0.86	5	0.09	235	10	11.97	33.75	6.56	25.64	235	0.03
30	9.27	33.82 7	3.00	2.20	26	0.16	185	20	10.09	33.77	4.16	26.00	202	0.05
50	8.81	33.93 6	2.19	2.62	37	0.10	170	30	9.27	33.83	3.00	26.18	184	0.07
60	8.82	33.93 2	2.16	2.62	40	0.17	170	50	8.81	33.94	2.19	26.34	169	0.10

HORIZON; July 5, 1961; 0914 GCT; 37°13'N, 122°50'W; sounding, 150 fm; wind, 280°, force 1; weather, partly cloudy; sea, slight; wire angle, 04°.

1	13.32	33.78 7	7.85	0.36	4	0.03	258	0	(13.32)	(33.79)	(7.85)	(25.41)	(257)	(0.00)
11	12.82	33.76 2	7.90	0.46	4	0.05	250	10	12.88	33.77	7.90	25.48	251	0.03
31	11.09	33.75 4	5.37	1.32	8	0.18	220	20	12.18	33.76	7.01	25.61	238	0.05
51	9.41	33.82 7	3.27	2.16	23	0.19	187	30	11.11	33.76	5.40	25.81	220	0.07
76	8.86	33.88 3	2.68	2.18	28	0.06	174	50	9.55	33.82	3.39	26.13	190	0.11
101	8.67	33.96 7	2.38	2.33	31	0.03	165	75	8.88	33.88	2.69	26.28	175	0.16
126	8.55	34.01 3	2.26	2.38	31	0.05	160	100	8.68	33.97	2.38	26.38	165	0.20
166	8.20	34.08 1	1.77	2.54	37	0.07	150	125	8.56	34.01	2.27	26.43	160	0.24
206	7.96	34.11 1	1.50	3.07u	41	0.04	144	150	8.35	34.06	1.99	26.50	154	0.28
								200	7.99	34.11	1.53	26.60	145	0.36

a) Alternate value, 5.55 ml/L, not used in interpolation.

OBSERVED							COMP	INTERPOLATED				COMPUTED		
Z	T	S	O ₂	PO ₄ -P	SiO ₃ -Si	NO ₂ -N	δ _T	Z	T	S	O ₂	σ _t	δ _T	ΔD
m	°C	‰	ml/L	μg at/L	μg at/L	μg at/L	cl/ton	m	°C	‰	ml/L	g/L	cl/ton	dyn m

HORIZON; July 5, 1961; 0609 GCT; 37°03'N, 123°11'W; sounding, 1230 fm; wind, 260°, force 2; weather, missing; sea, moderate; wire angle, 08°.

0	13.82	33.63 3	6.85	0.60	3	0.05	279	0	13.82	33.63	6.85	25.19	279	0.00
10	13.62	33.63 5	6.85	0.56	3	0.07	275	10	13.62	33.64	6.85	25.24	274	0.03
30	10.30	33.74 9	4.38	1.84	17	0.35	207	20	12.91	33.66	6.48	25.39	259	0.05
40	9.96	33.79 9	4.06	2.06	20	0.34	198	30	10.30	33.75	4.38	25.95	207	0.08
55	9.22	33.86 7	3.09	2.21	25	0.22	181	50	9.41	33.85	3.32	26.17	185	0.12
69	8.55	33.88 6	2.78	2.17	28	0.02	170	75	8.46	33.90	2.72	26.36	167	0.16
94	8.35	33.96 0	2.43	2.36	30	0.02	161	100	8.39	33.99	2.29	26.44	159	0.20
113	8.48	34.05 4	1.92	2.56	32	0.02	156	125	8.49	34.08	1.76	26.50	154	0.24
133	8.49	34.10 5	1.67	2.54	36	0.03	152	150	8.37	34.12	1.57	26.55	150	0.28
153	8.33	34.12 5	1.54	2.54	36	0.03	149	200	7.88	34.16	1.40	26.65	140	0.35
183	8.00	34.14 7	1.48	2.54	35	0.03	142	250	7.29	34.16	1.24	26.74	131	0.42
217	7.76	34.16 2	1.29	2.74	40	0.04	138	300	6.96	34.19	1.14	26.81	125	0.49
247	7.32	34.15 7	1.25	2.77	44	0.02	132	400	6.22	34.20	0.66	26.91	115	0.62
296	6.98	34.18 9	1.17	2.90	47	0.02	125	500	5.49	34.24	0.49	27.04	103	0.73
350	6.60	34.18 6	0.83	3.04	53	0.02	121	600	5.16	34.32	0.34	27.14	93	0.83
436	5.96	34.21 7	0.59	3.04	60	0.00	110							
520	5.37	34.24 6	0.45	3.13	66	0.00	101							
606	5.14	34.32 8	0.33	3.18	79	0.00	93							

HORIZON; July 4, 1961; 1726 GCT; 36°49'N, 122°04.5'W; sounding, 50 fm; wind, 300°, force 3; weather, partly cloudy; sea, moderate; wire angle, 10°.

0	12.28	33.73 4	6.28	1.39	10	0.25	242	0	12.28	33.73	6.28	25.57	242	0.00
10	10.42	33.78 4	4.52	1.74	23	0.36	206	10	10.42	33.78	4.52	25.95	206	0.02
30	9.42	33.85 9	3.16	2.06	26	0.05	185	20	9.80	33.85	3.54	26.11	191	0.04
50	8.98	33.94 5	2.57	2.08	30	0.02	172	30	9.42	33.86	3.16	26.18	185	0.06
74	8.66	33.99 9	2.28	2.10	32	0.05	163	50	8.98	33.94	2.57	26.31	172	0.10
								75	(8.64)	(34.00)	(2.27)	(26.41)	(162)	(0.14)

OBSERVED							COMP	INTERPOLATED				COMPUTED		
Z	T	S	O ₂	PO ₄ -P	SiO ₃ -Si	NO ₂ -N	δ _T	Z	T	S	O ₂	σ _t	δ _T	ΔD
m	°C	‰	ml/L	μg at/L	μg at/L	μg at/L	cl/ton	m	°C	‰	ml/L	g/L	cl/ton	dyn m

HORIZON; July 4, 1961; 2134 GCT; 36°39'N, 122°26'W; sounding, 1275 fm; wind, 300°, force 4; weather, partly cloudy; sea, moderate; wire angle, 20°.

1	13.64	33.50 2	6.32	0.70	7	0.10	285	0	(13.64)	(33.50)	(6.32)	(25.12)	(285)	(0.00)
10	13.32	33.50 4	6.42	0.72	5	0.10	278	10	13.32	33.50	6.42	25.19	279	0.03
29	12.30	33.52 0	6.07	0.94	7	0.20	258	20	12.61	33.51	6.20	25.34	265	0.06
38	12.08	33.54 3	5.94	1.03	8	0.37	253	30	12.29	33.52	6.06	25.41	258	0.08
52	10.09	33.80 5	3.99	1.83	22	0.40	199	50	10.13	33.80	4.05	26.01	200	0.13
66	9.79	33.85 3	3.65	1.95	24	0.23	191	75	9.58	33.87	3.40	26.16	186	0.18
90	9.28	33.89 9	3.07	2.10	27	0.03	180	100	9.07	33.94	2.77	26.30	173	0.22
107	8.92	33.96 4	2.59	2.24	30	0.00	169	125	8.61	33.98	2.47	26.40	163	0.26
126	8.60	33.98 6	2.45	2.30	32	0.00	163	150	8.49	34.03	2.15	26.46	158	0.31
146	8.52	34.02 1	2.19	2.30	32	0.00	159	200	8.18	34.11	1.60	26.57	148	0.38
172	8.22	34.05 0	1.91	2.34	35	0.00	153	250	7.58	34.10	1.53	26.65	140	0.46
205	8.18	34.11 7	1.55	2.55	36	0.00	147	300	7.32	34.12	1.35	26.70	135	0.53
234	7.72	34.09 1	1.55	2.50	40	0.00	142	400	6.67	34.18	0.99	26.84	122	0.66
280	7.41	34.11 0	1.46	2.61	42	0.00	137	500	6.06	34.22	0.62	26.95	111	0.78
335	7.18	34.13 1	1.16	2.74	47	0.00	132	600	(5.40)	(34.30)		(27.10)	(98)	(0.90)
416	6.54	34.18 8	0.92	2.80	55	0.00	120							
497	6.08	34.22 0	0.62	2.92	61	0.00	112							
583	5.52	34.28 3	0.40	3.23	86	0.00	100							

HORIZON; July 5, 1961; 0109 GCT; 36°27.5'N, 122°46.5'W; sounding, 1560 fm; wind, 320°, force 3; weather, partly cloudy; sea, moderate; wire angle, 28°.

0	14.59	33.46 3	6.07	0.65	4	0.06	307	0	14.59	33.46	6.07	24.89	307	0.00
9	14.50	33.43 1	6.10	0.65	3	0.06	307	10	14.49	33.43	6.10	24.89	307	0.03
27	12.86	33.52 4	6.25	0.77	5	0.16	268	20	13.45	33.49	6.23	25.15	282	0.06
35	11.89	33.56 9	5.74	1.07	8	0.28	247	30	12.66	33.54	6.20	25.35	263	0.09
49	11.08	33.74 8	4.93	1.44	17	0.39	220	50	11.00	33.76	4.85	25.83	218	0.14
60	10.16	33.78 3	3.93	1.71	19	0.19	202	75	9.58	33.77	3.56	26.08	194	0.19
81	9.15	33.76 2	3.30	1.93	24	0.02	188	100	8.79	33.82	3.12	26.25	178	0.23
96	8.88	33.81 0	3.09	1.94	24	0.02	180	125	8.47	33.92	3.01	26.38	166	0.28
111	8.46	33.86 7	3.26	1.90	29	0.02	170	150	8.21	34.03	2.24	26.50	154	0.32
128	8.42	33.95 0	2.72	2.07	30	0.00	163	200	7.96	34.10	1.82	26.59	145	0.39
150	8.21	34.03 0	2.24	2.04	35	0.00	154	250	7.58	34.13	1.56	26.67	138	0.47
177	8.02	34.03 9	2.09	2.36	35	0.00	151	300	7.19	34.18	1.13	26.77	129	0.54
202	7.94	34.09 9	1.81	2.37	39	0.00	145	400	6.47	34.26	0.61	26.93	113	0.66
242	7.65	34.12 6	1.60	2.52	40	0.00	139	500	5.78	34.29	0.43	27.04	103	0.78
287	7.28	34.16 4	1.24	2.64	45	0.00	131							
361	6.76	34.24 0	0.73	2.81	53	0.00	119							
440	6.16	34.26 6	0.52	2.86	64	0.00	109							
521	5.66	34.29 5	0.40	2.91	69	0.00	101							

OBSERVED							COMP	INTERPOLATED				COMPUTED		
Z	T	S	O ₂	PO ₄ -P	SiO ₃ -Si	NO ₂ -N	δ _T	Z	T	S	O ₂	σ _t	δ _T	ΔD
m	°C	‰	ml/L	μg at/L	μg at/L	μg at/L	cl/ton	m	°C	‰	ml/L	g/L	cl/ton	dyn m

HORIZON; July 4, 1961; 1150 GCT; 36°06.5'N, 121°54'W; sounding, 560 fm; wind, 360°, force 4; weather, clear; sea, moderate; wire angle, 32°.

0	12.56	33.59 1	6.65	0.87	6	0.20	258	0	12.56	33.59	6.65	25.41	258	0.00
8	12.44	33.58 2	6.13	0.96	6	0.21	256	10	12.40	33.58	6.10	25.43	256	0.03
25	11.64	33.53 8	5.59	1.31	11	0.31	245	20	12.00	33.56	5.76	25.49	250	0.05
35	11.14	33.49 5	5.38	1.40	12	0.40	240	30	11.38	33.51	5.49	25.57	243	0.08
43	10.71	33.46 6	5.02	1.41	13	0.36	234	50	10.52	33.59	4.77	25.78	222	0.12
59	10.34	33.71 0	4.51	1.73	19	0.47	210	75	10.07	33.80	4.01	26.02	199	0.18
68	10.15	33.79 4	4.14	1.92	20	0.45	201	100	9.35	33.84	3.27	26.17	185	0.22
84	9.96	33.81 7	3.84	1.98	21	0.20	196	125	9.32	33.94	2.71	26.26	177	0.27
103	9.31	33.84 8	3.21	2.04	25	0.03	184	150	8.46	33.96	2.70	26.41	163	0.31
121	9.36	33.93 4	2.72	2.15	26	0.02	178	200	7.98	34.04	2.24	26.54	150	0.39
144	8.59	33.95 6	2.70	2.10	29	0.02	165	250	7.31	34.09	1.78	26.68	137	0.47
166	8.24	33.97 5	2.68	2.21	29	0.04	158	300	6.99	34.15	1.23	26.77	128	0.53
188	8.14	34.03 6	2.27	2.31	33	0.04	152	400	6.17	34.18	0.79	26.90	116	0.66
218	7.66	34.04 5	2.23	2.44	35	0.03	145	500	(6.02)	(34.30)		(27.02)	(105)	(0.78)
266	7.18	34.10 9	1.52	2.59	46	0.02	134							
330	6.82	34.17 4	1.06	2.76	50	0.00	124							
398	6.18	34.17 9	0.80	2.79	59	0.00	116							
474	6.05	34.27 1	0.45	2.93	65	0.00	107							

HORIZON; July 4, 1961; 0700 GCT; 35°53'N, 122°22.5'W; sounding, 1370 fm; wind, 310°, force 3; weather, clear; sea, moderate; wire angle, 10°.

0	13.58	33.49 9	6.12	0.96	6	0.09	284	0	13.58	33.50	6.12	25.14	284	0.00
10	13.58	33.49 8	6.16	1.30	6	0.10	284	10	13.58	33.50	6.16	25.14	284	0.03
30	12.56	33.56 1	5.79	1.04	8	0.16	260	20	13.40	33.51	6.11	25.18	280	0.06
40	12.06	33.59 1	5.56	1.22	9	0.26	249	30	12.56	33.56	5.79	25.38	260	0.08
54	11.34	33.63 6	5.14	1.30	12	0.29	233	50	11.58	33.62	5.28	25.62	238	0.13
69	10.38	33.72 9	4.51	1.57	18	0.30	210	75	10.32	33.76	4.39	25.95	206	0.19
94	9.78	33.81 6	3.59	1.83	21	0.03	193	100	9.67	33.84	3.40	26.12	190	0.24
113	9.48	33.87 7	3.12	2.01	24	0.02	184	125	9.26	33.91	2.86	26.24	178	0.29
134	9.09	33.94 0	2.66	2.04	27	0.00	174	150	8.93	33.99	2.29	26.36	167	0.33
154	8.90	33.99 8	2.22	2.00	31	0.00	166	200	8.49	34.06	1.83	26.48	156	0.41
183	8.57	34.01 7	2.03	2.08	33	0.00	160	250	8.08	34.18	1.33	26.64	141	0.49
218	8.44	34.12 8	1.58	2.24	35	0.00	150	300	7.62	34.23	1.00	26.75	131	0.56
248	8.10	34.16 9	1.35	2.27	40	0.00	142	400	6.97	34.28	0.52	26.88	118	0.69
298	7.64	34.22 2	1.02	2.48	43	0.00	132	500	5.79	34.25	0.47	27.01	106	0.81
353	7.36	34.27 4	0.64	2.61	47	0.00	124	600	5.18	34.28	0.36	27.11	97	0.92
438	6.61	34.28 5	0.49	2.69	60	0.00	113							
524	5.50	34.23 9	0.47	2.62	72	0.00	103							
607	5.16	34.28 1	0.33	2.67	78	0.00	96							

OBSERVED							COMP	INTERPOLATED				COMPUTED		
Z	T	S	O ₂	PO ₄ -P	SiO ₃ -Si	NO ₂ -N	δ _T	Z	T	S	O ₂	σ _t	δ _T	ΔD
m	°C	‰	ml/L	μg at/L	μg at/L	μg at/L	cl/ton	m	°C	‰	ml/L	g/L	cl/ton	dyn m

HORIZON; July 4, 1961; 0100 GCT; 35°33'N, 123°06'W; sounding, 2000 fm; wind, 300°, force 4; weather, partly cloudy; sea, rough; wire angle, 07°.

1	14.02	33.52 2	6.12	0.84	5	0.10	291	0	(14.02)	(33.52)	(6.12)	(25.06)	(291)	(0.00)
11	13.82	33.53 2	6.23	1.28	5	0.12	286	10	13.84	33.53	6.22	25.11	287	0.03
36	13.10	33.45 7	5.99	1.29	5	0.15	278	20	13.60	33.51	6.17	25.14	283	0.06
46	12.28	33.47 4	5.74	1.06	8	0.27	261	30	13.31	33.47	6.07	25.17	281	0.09
60	9.97	33.58 9	4.40	1.66	17	0.42	213	50	11.00	33.52	5.06	25.64	235	0.14
76	9.76	33.74 5	3.93	1.74	19	0.03	198	75	9.77	33.74	3.96	26.03	199	0.19
100	9.16	33.81 0	2.99	2.00	25	0.00	184	100	9.16	33.81	2.99	26.18	184	0.24
120	8.76	33.91 5	2.48	2.18	28	0.00	170	125	8.68	33.92	2.42	26.34	169	0.29
139	8.40	33.97 8	2.19	2.28	33	0.00	161	150	8.27	34.00	2.10	26.47	157	0.33
170	8.06	34.02 9	1.97	2.21	35	0.00	152	200	7.72	34.07	1.77	26.61	144	0.40
199	7.72	34.06 4	1.78	2.24	39	0.00	144	250	7.21	34.10	1.45	26.70	135	0.47
238	7.30	34.09 1	1.50	2.44	43	0.00	137	300	6.74	34.12	1.20	26.78	127	0.54
268	7.08	34.11 4	1.37	2.56	47	0.00	132	400	6.08	34.20	0.66	26.93	113	0.67
318	6.55	34.12 7	1.11	2.73	51	0.00	124	500	5.57	34.26	0.42	27.04	103	0.78
383	6.18	34.19 2	0.75	2.81	57	0.00	115	600	5.09	34.33	0.33	27.16	92	0.88
482	5.66	34.25 3	0.46	2.81	69	0.00	104							
572	5.23	34.31 8	0.33	2.92	72	0.00	94							
646	4.82	34.34 8	0.33	3.07	82	0.00	88							

HORIZON; July 3, 1961; 1819 GCT; 35°13'N, 123°48'W; sounding, 2150 fm; wind, 320°, force 4; weather, missing; sea, rough; wire angle, 28°.

1	14.24	33.22 6	6.17	0.59	2	0.08	317	0	(14.24)	(33.23)	(6.17)	(24.79)	(317)	(0.00)
10	14.21	33.23 8	6.05	0.57	2	0.08	315	10	14.21	33.24	6.05	24.80	315	0.03
33	14.20	33.22 8	6.15	0.52	2	0.08	316	20	14.20	33.23	6.10	24.80	316	0.06
40	14.19	33.22 8	6.12	0.52	2	0.08	316	30	14.20	33.23	6.13	24.80	316	0.09
54	12.96	33.15 8	6.15	0.59	3	0.14	297	50	13.58	33.19	6.13	24.90	307	0.16
67	11.64	33.24 9	5.36	0.91	6	0.12	266	75	11.10	33.31	5.16	25.46	253	0.23
89	10.34	33.36 6	5.05	1.11	10	0.04	236	100	9.82	33.40	5.00	25.75	225	0.29
106	9.65	33.41 1	4.97	1.19	11	0.01	221	125	9.60	33.67	3.46	26.00	201	0.34
124	9.61	33.64 5	3.58	1.19	20	0.00	203	150	9.12	33.83	2.76	26.20	182	0.39
149	9.14	33.83 2	2.77	1.96	27	0.00	182	200	8.30	33.98	2.35	26.45	159	0.48
173	8.59	33.91 9	2.66	2.02	30	0.00	168	250	7.65	34.05	1.90	26.60	145	0.55
205	8.24	33.99 5	2.29	2.19	32	0.00	157	300	7.06	34.08	1.58	26.71	134	0.63
228	7.93	34.03 3	1.99	2.17	36	0.00	150	400	6.27	34.17	0.75	26.88	118	0.76
267	7.43	34.05 9	1.83	2.28	47	0.00	141	500	5.67	34.24	0.39	27.02	105	0.87
322	6.83	34.10 0	1.39	2.55	47	0.00	130							
408	6.22	34.17 8	0.70	2.65	60	0.00	116							
490	5.72	34.23 3	0.42	2.73	68	0.00	106							
563	5.37	34.26 8	0.18	2.80	72	0.00	100							

OBSERVED							COMP	INTERPOLATED				COMPUTED		
Z	T	S	O ₂	PO ₄ -P	SiO ₃ -Si	NO ₂ -N	δ _T	Z	T	S	O ₂	σ _t	δ _T	ΔD
m	°C	‰	ml/L	μg at/L	μg at/L	μg at/L	cl/ton	m	°C	‰	ml/L	g/L	cl/ton	dyn m

HORIZON; July 3, 1961; 1257 GCT; 34°52'N, 124°30'W; sounding, 2250 fm; wind, 330°, force 4; weather, clear; sea, rough; wire angle, 24°.

1	14.57	33.06 4	6.04	0.46	3	0.00	335	0	(14.57)	(33.06)	(6.04)	(24.59)	(336)	(0.00)
10	14.56	33.05 1	6.04	0.48	2	0.00	336	10	14.56	33.05	6.04	24.59	336	0.03
33	14.58	33.05 5	6.02	0.44	2	0.00	336	20	14.57	33.05	6.04	24.58	336	0.07
42	14.51	33.05 2	6.02	0.48	2	0.00	335	30	14.58	33.05	6.03	24.58	337	0.10
56	13.58	33.11 3	6.20	0.47	2	0.00	312	50	14.04	33.09	6.13	24.72	323	0.17
70	13.08	33.11 3	6.20	0.48	2	0.00	303	75	12.87	33.12	6.17	24.98	298	0.25
92	12.16	33.15 1	5.85	0.69	3	0.42	283	100	11.88	33.22	5.68	25.25	273	0.32
111	11.53	33.31 3	5.47	0.84	6	0.06	260	125	10.81	33.37	5.27	25.56	243	0.38
129	10.60	33.38 6	5.20	1.01	9	0.01	239	150	9.83	33.49	4.70	25.82	218	0.44
156	9.62	33.52 2	4.52	1.35	17	0.00	213	200	8.62	33.81	3.88	26.27	176	0.54
182	9.01	33.70 3	3.97	1.59	24	0.00	190	250	7.97	33.95	3.72	26.48	156	0.63
217	8.30	33.89 8	3.82	1.81	30	0.00	165	300	7.27	33.99	3.10	26.61	144	0.70
244	8.04	33.94 7	3.77	1.79	33	0.00	158	400	6.10	34.07	1.48	26.83	123	0.84
287	7.45	33.98 2	3.29	1.98	39	0.00	147	500	5.37	34.17	0.61	27.00	107	0.96
347	6.64	34.02 5	2.22	2.38	53	0.00	133	600	(4.84)	(34.26)	(0.34)	(27.13)	(94)	(1.07)
437	5.77	34.09 9	1.08	2.67	70	0.00	117							
523	5.26	34.20 0	0.50	2.81	86	0.00	104							
596	4.87	34.25 8	0.34	2.82	95	0.00	95							

HORIZON; July 3, 1961; 0704 GCT; 34°34'N, 125°09'W; sounding, 2300 fm; wind, 340°, force 4; weather, cloudy; sea, very rough; wire angle, 27°.

1	15.66	33.09 1	5.77	0.40	2	0.00	356	0	(15.66)	(33.09)	(5.77)	(24.38)	(356)	(0.00)
9	15.67	33.08 7	5.80	0.45	2	0.00	356	10	15.67	33.09	5.81	24.37	356	0.04
31	15.68	33.09 2	5.82	0.40	2	0.00	356	20	15.67	33.09	5.82	24.37	356	0.07
40	15.62	33.10 7	5.78	0.41	2	0.00	354	30	15.68	33.09	5.83	24.37	356	0.11
54	14.30	33.25 0	6.02	0.40	2	0.00	316	50	14.49	33.24	6.01	24.75	321	0.17
66	13.74	33.21 8	5.99	0.44	2	0.00	308	75	13.59	33.25	5.97	24.94	302	0.25
89	13.57	33.38 4	5.91	0.42	2	0.03	292	100	13.13	33.44	5.68	25.18	280	0.33
107	13.00	33.50 6	5.58	0.53	3	0.12	272	125	12.85	33.65	5.53	25.40	259	0.39
124	12.88	33.65 2	5.53	0.56	4	0.14	259	150	11.49	33.62	5.28	25.63	236	0.46
149	11.54	33.62 0	5.30	0.74	6	0.02	237	200	8.98	33.75	3.98	26.16	186	0.56
175	9.60	33.56 7	4.45	1.34	14	0.00	209	250	8.15	33.93	4.17	26.43	160	0.65
209	8.81	33.81 4	3.93	1.57	21	0.00	179	300	7.38	33.96	3.84	26.57	148	0.73
235	8.37	33.90 1	4.11	1.66	25	0.00	166	400	5.98	34.01	2.09	26.80	126	0.87
277	7.78	33.95 3	4.17	1.72	28	0.00	154	500	5.30	34.11	1.00	26.96	111	1.00
336	6.73	33.96 4	3.05	2.13	39	0.00	139	600	(4.82)	(34.20)		(27.08)	(99)	(1.11)
427	5.70	34.02 5	1.71	2.45	55	0.00	122							
511	5.24	34.11 9	0.91	2.68	68	0.00	109							
585	4.90	34.19 3	0.60	2.74	75	0.00	100							

OBSERVED							COMP	INTERPOLATED				COMPUTED		
Z	T	S	O ₂	PO ₄ -P	SiO ₃ -Si	NO ₂ -N	δ _T	Z	T	S	O ₂	σ _t	δ _T	ΔD
m	°C	‰	ml/L	μg at/L	μg at/L	μg at/L	cl/ton	m	°C	‰	ml/L	g/L	cl/ton	dyn m

HORIZON; July 2, 1961; 1946 GCT; 33°53'N, 126°32'W; sounding, 2500 fm; wind, 320°, force 6; weather, cloudy; sea, very rough; wire angle, 29°.

1	16.78	33.53 4	5.72	0.35	2	0.00	348	0	(16.78)	(33.53)	(5.72)	(24.46)	(348)	(0.00)
10	16.76	33.51 6	5.69	0.39	1	0.00	349	10	16.76	33.52	5.69	24.46	348	0.03
32	16.76	33.51 9	5.69	0.35	1	0.00	349	20	16.76	33.52	5.69	24.46	348	0.07
58	14.89	33.43 2	5.96	0.34	2	0.00	315	30	16.76	33.52	5.69	24.46	348	0.10
67	14.98	33.49 6	5.92	0.36	2	0.00	312	50	16.71	33.52	5.74	24.47	347	0.17
85	15.02	33.66 0	5.83	0.46	2	0.00	301	75	15.02	33.56	5.89	24.88	308	0.26
97	14.51	33.61 0	5.80	0.38	2	0.00	294	100	14.52	33.64	5.79	25.05	292	0.33
111	14.56	33.76 1	5.76	0.51	2	0.02	284	125	13.60	33.68	5.67	25.27	271	0.40
137	12.53	33.59 1	5.50	0.60	4	0.05	257	150	11.92	33.62	5.37	25.55	244	0.47
154	11.73	33.62 2	5.33	0.70	6	0.01	241	200	9.68	33.69	4.78	26.00	201	0.58
181	10.34	33.59 5	5.11	1.01	10	0.00	219	250	8.62	33.94	4.08	26.37	167	0.68
212	9.32	33.78 3	4.56	1.36	15	0.00	189	300	7.53	33.99	2.70	26.57	147	0.76
238	8.88	33.91 8	4.46	1.52	20	0.00	172	400	6.12	34.03	1.67	26.79	126	0.90
283	7.86	33.98 6	3.02	1.96	31	0.00	152	500	5.57	34.15	0.91	26.96	111	1.02
361	6.44	33.99 3	-	-	-	-	133	600	4.98	34.22	0.46	27.08	99	1.13
475	5.70	34.12 2	1.08	2.58	61	0.00	114	700	(4.68)	(34.32)		(27.19)	(88)	(1.23)
504	5.15	34.19 7	0.55	2.73	70	0.00	103							
688	4.70	34.30 6	0.33	2.83	83	0.00	89							

HORIZON; July 10, 1961; 1005 GCT; 31°10'N, 132°06.5'W; sounding, 2475 fm; wind, 010°, force 4; weather, cloudy; sea, very rough; wire angle, 25°.

1	19.84	34.32	5.37	0.25	2	0.00	363	0	(19.84)	(34.32)	(5.37)	(24.31)	(363)	(0.00)
10	19.84	34.30 5	5.26	0.25	2	0.00	364	10	19.84	34.30	5.26	24.29	364	0.04
33	19.76	34.33 2	5.39	0.24	2	0.00	360	20	19.83	34.31	5.27	24.30	363	0.07
41	19.44	34.51 3	5.45	0.19	2	0.00	339	30	19.80	34.32	5.33	24.32	362	0.11
56	18.78	34.55 6	5.62	0.21	2	0.00	320	50	19.02	34.55	5.57	24.69	326	0.18
69	18.18	34.49 3	5.54	0.23	2	0.00	310	75	17.88	34.46	5.52	24.91	305	0.26
90	17.18	34.35 5	5.48	0.24	2	0.00	297	100	16.52	34.25	5.44	25.07	290	0.33
108	16.03	34.19 1	5.40	0.32	2	0.04	284	125	15.39	34.17	5.30	25.27	271	0.40
126	15.33	34.17 0	5.29	0.40	3	0.07	270	150	13.97	34.01	5.20	25.45	254	0.47
152	13.85	33.99 9	5.20	0.51	3	0.02	252	200	11.38	33.80	4.94	25.79	221	0.59
178	12.56	33.85 0	5.19	0.70	6	0.01	239	250	9.54	33.97	4.52	26.25	178	0.69
213	10.58	33.78 2	4.72	1.15	6	0.00	209	300	8.49	34.01	4.24	26.44	159	0.78
240	9.78	33.92 3	4.56	1.30	14	0.00	186	400	6.72	34.02	2.65	26.71	134	0.93
284	8.80	34.00 8	4.36	2.30	21	0.00	164	500	5.59	34.11	1.08	26.92	114	1.06
344	7.70	33.99 9	3.80	-	31	0.00	149	600	(5.02)	(34.20)	(0.59)	(27.06)	(101)	(1.18)
433	6.16	34.03 7	2.00	2.37	47	0.00	126							
517	5.48	34.12 8	0.91	2.65	64	0.00	111							
591	5.08	34.19 4	0.59	2.78	70	0.00	102							

OBSERVED							COMP	INTERPOLATED				COMPUTED		
Z	T	S	O ₂	PO ₄ -P	SiO ₃ -Si	NO ₂ -N	δ _T	Z	T	S	O ₂	σ _t	δ _T	ΔD
m	°C	‰	ml/L	μg at/L	μg at/L	μg at/L	cl/ton	m	°C	‰	ml/L	g/L	cl/ton	dyn m

HORIZON; June 29, 1961; 0152 GCT; 35°31.5'N, 121°25'W; sounding, 365 fm; wind, 300°, force 6; weather, partly cloudy; sea, very rough; wire angle, 30°.

0	11.50	33.58 3	5.37	1.48	16	0.33	239	0	11.50	33.58	5.37	25.60	240	0.00
8	11.50	33.60 0	5.29	1.48	15	0.33	238	10	11.49	33.61	5.26	25.63	237	0.02
25	11.32	33.71 1u	5.18	1.49	19	0.30	-	20	11.39	33.64	5.19	25.67	233	0.05
34	11.26	33.68 2	5.20	1.49	17	0.33	228	30	11.29	33.68	5.19	25.72	229	0.07
46	11.08	33.70 4	5.10	1.55	17	0.30	223	50	10.89	33.73	5.00	25.83	218	0.12
59	10.36	33.80 2	4.46	1.80	22	0.31	204	75	9.72	33.85	3.40	26.12	190	0.17
78	9.63	33.86 1	3.26	2.13	30	0.32	188	100	9.28	33.95	2.70	26.27	176	0.21
94	9.34	33.93 0	2.79	2.26	32	0.20	178	125	9.05	34.03	2.11	26.37	166	0.26
109	9.18	33.98 3	2.49	2.27	34	0.08	172	150	8.84	34.13	1.63	26.48	156	0.30
124	9.06	34.02 8	2.12	2.24	35	0.05	167	200	8.19	34.19	1.27	26.63	142	0.37
147	8.86	34.12 0	1.66	2.46	39	0.00	157	250	7.68	34.16	1.33	26.68	137	0.44
173	8.57	34.17 8	1.45	2.66	41	0.00	148	300	7.35	34.18	1.14	26.75	131	0.51
195	8.27	34.19 4	1.24	2.60	45	0.00	143	400	7.09	34.22	0.94	26.81	124	0.65
231	7.79	34.15 0	1.37	2.67	46	0.00	139	500	(6.17)	(34.25)	(0.59)	(26.96)	(110)	(0.77)
272	7.56	34.18 2	1.25	2.56	50	0.00	134							
336	7.16	34.16 9	1.07	2.76	55	0.00	129							
406	7.08	34.22 6	0.92	2.98	61	0.00	124							
483	6.32	34.25 1	0.62	2.89	64	0.00	112							

HORIZON; June 29, 1961; 0640 GCT; 35°18'N, 121°54'W; sounding, 1100 fm; wind, 020°, force 6; weather, clear; sea, high; wire angle, 32°.

0	13.18	33.42 1	6.04	0.90			282	0	13.18	33.42	6.04	25.15	282	0.00
8	13.18	33.40 0	6.11	0.94			283	10	13.18	33.40	6.11	25.14	283	0.03
30	11.74	33.47 4	5.67	1.21			252	20	13.18	33.40	6.11	25.14	283	0.06
38	11.31	33.56 7	5.35	1.32			237	30	11.74	33.47	5.67	25.47	252	0.08
51	10.88	33.69 5	4.87	1.58			220	50	10.90	33.69	4.89	25.79	221	0.13
64	10.47	33.75 7	4.52	1.71			209	75	9.84	33.84	3.83	26.09	193	0.18
84	9.82	33.85 6	3.80	1.96			191	100	9.38	33.86	3.75	26.19	184	0.23
100	9.38	33.85 8	3.75	2.08			184	125	9.06	33.94	3.19	26.30	173	0.28
118	9.09	33.91 9	3.34	2.10			175	150	9.03	34.03	2.53	26.37	166	0.32
140	9.02	33.99 5	2.93	2.16			168	200	8.82	34.16	1.51	26.51	153	0.40
164	9.04	34.08 6	1.92	2.33			162	250	8.16	34.20	1.32	26.64	141	0.48
193	8.98	34.16 8	1.48	2.51			155	300	7.85	34.23	1.00	26.71	134	0.55
215	8.44	34.13 7	1.65	2.53			149	400	6.92	34.24	0.82	26.85	121	0.68
249	8.17	34.20 0	1.34	2.56			141	500	6.34	34.28	0.59	26.96	110	0.80
295	7.90	34.22 6	1.02	2.64			135							
363	7.18	34.22 9	0.93	2.84			125							
434	6.72	34.25 7	0.72	2.90			117							
503	6.31	34.27 7	0.59	2.80			110							

OBSERVED							COMP	INTERPOLATED				COMPUTED		
Z	T	S	O ₂	PO ₄ -P	SiO ₃ -Si	NO ₂ -N	δ _T	Z	T	S	O ₂	σ _t	δ _T	ΔD
m	°C	‰	ml/L	μg at/L	μg at/L	μg at/L	cl/ton	m	°C	‰	ml/L	g/L	cl/ton	dyn m

HORIZON; June 29, 1961; 2311 GCT; 35°02'N, 120°56.5'W; sounding, 83 fm; wind, 340°, force 6; weather, clear; sea, very rough; wire angle, 24°.

2	11.40	33.74 8	5.54	1.60	16	0.28	225	0	(11.40)	(33.75)	(5.54)	(25.75)	(225)	(0.00)
11	11.34	33.74 2	5.48	1.57	16	0.33	225	10	11.36	33.74	5.49	25.75	225	0.02
30	9.95	33.79 5	3.85	2.08	25	0.30	198	20	10.85	33.75	4.95	25.85	216	0.04
48	9.77	33.90 9	3.11	2.16	28	0.48	186	30	9.95	33.80	3.85	26.04	197	0.07
70	9.32	33.94 9	2.71	2.32	33	0.04	176	50	9.74	33.92	3.08	26.17	185	0.10
91	9.22	34.06 1	2.02	2.51	35	0.05	167	75	9.29	33.96	2.60	26.28	175	0.15
								100	(9.21)	(34.11)	(1.79)	(26.41)	(163)	(0.19)

HORIZON; June 29, 1961; 1906 GCT; 34°54'N, 121°13'W; sounding, 300 fm; wind, 330°, force 6; weather, clear; sea, very rough; wire angle, 37°.

0	12.84	33.78 9	6.03	1.11			248	0	12.84	33.79	6.03	25.51	248	0.00
9	12.73	33.78 0	5.98	1.18			247	10	12.72	33.78	5.97	25.52	247	0.02
26	10.82	33.91 8	4.03	1.86			203	20	11.86	33.85	5.10	25.74	226	0.05
43	9.92	33.92 1	3.16	2.10			188	30	9.93	33.92	3.19	26.14	188	0.07
64	9.50	33.98 6	2.42	2.50			176	50	9.84	33.94	3.00	26.17	185	0.11
84	9.16	34.10 2	1.78	2.53			163	75	9.29	34.07	2.00	26.36	167	0.15
104	8.96	34.14 2	1.49	2.55			157	100	8.98	34.14	1.50	26.47	157	0.19
136	8.82	34.20 5	1.23	2.50			150	125	8.87	34.19	1.32	26.53	152	0.23
167	8.66	34.22 6	1.06	2.60			146	150	8.76	34.22	1.13	26.57	148	0.27
206	8.50	34.23 4	1.00	-			143	200	8.52	34.23	1.01	26.61	144	0.34
248	8.35	34.25 4	1.00	2.66			139	250	8.34	34.25	0.99	26.65	139	0.42
341	7.80	34.23 9	0.89	2.71			133	300	8.09	34.25	0.96	26.69	136	0.49

HORIZON; June 29, 1961; 1520 GCT; 34°50'N, 121°18'W; sounding, 240 fm; wind, 030°, force 6; weather, clear; sea, very rough; wire angle, 27°.

0	12.42	33.73 8	5.84	1.12	9	0.05	244	0	12.42	33.74	5.84	25.55	244	0.00
8	12.40	33.73 0	5.91	1.16	9	0.27	245	10	12.39	33.73	5.91	25.55	244	0.02
28	12.06	33.81 7	5.05	1.41	15	0.23	232	20	12.25	33.76	5.57	25.60	240	0.05
44	11.17	33.91 0	3.80	1.81	21	0.32	209	30	12.00	33.83	4.90	25.70	230	0.07
68	9.86	33.96 7	2.37	2.24	30	0.22	184	50	10.65	33.92	3.26	26.02	200	0.12
90	9.82	34.01 9	2.23	2.32	31	0.44	179	75	9.85	33.99	2.30	26.21	182	0.16
113	9.50	34.05 4	2.04	2.39	34	0.14	171	100	9.70	34.04	2.16	26.27	176	0.21
150	9.26	34.10 5	1.60	2.37	37	0.04	164	125	9.41	34.07	1.92	26.34	169	0.25
189	8.92	34.17 7	1.34	2.51	41	0.00	153	150	9.26	34.10	1.60	26.39	164	0.29
237	8.32	34.16 8	1.35	2.72	44	0.00	145	200	8.79	34.18	1.34	26.53	151	0.38
285	8.02	34.18 7	1.17	2.69	48	0.00	140	250	8.23	34.17	1.31	26.61	144	0.45

OBSERVED							COMP	INTERPOLATED				COMPUTED		
Z	T	S	O ₂	PO ₄ -P	SiO ₃ -Si	NO ₂ -N	δ _T	Z	T	S	O ₂	σ _t	δ _T	ΔD
m	°C	‰	ml/L	μg at/L	μg at/L	μg at/L	cl/ton	m	°C	‰	ml/L	g/L	cl/ton	dyn m

HORIZON; June 30, 1961; 0711 GCT; 34°24.5'N, 120°35.5'W; sounding, 140 fm; wind, 020°, force 6; weather, clear; sea, very rough; wire angle, 30°.

1	10.38	33.92 4	3.69	1.97	29	0.26	195	0	(10.38)	(33.92)	(3.69)	(26.06)	(195)	(0.00)
9	10.38	33.92 8	3.63	1.99	28	0.29	195	10	10.37	33.93	3.60	26.07	195	0.02
27	10.30	33.92 8	3.46	1.98	29	0.25	194	20	10.34	33.93	3.55	26.08	194	0.04
43	9.66	33.91 3	2.78	2.07	30	0.43	184	30	10.24	33.93	3.42	26.10	192	0.06
63	9.62	34.02 5	2.15	2.20	33	0.44	175	50	9.64	33.95	2.57	26.21	181	0.10
84	9.36	34.07 6	1.81	2.23	36	0.11	168	75	9.48	34.06	1.94	26.33	171	0.14
106	9.26	34.09 2	1.66	2.33	38	0.13	165	100	9.28	34.08	1.68	26.37	166	0.18
142	9.12	34.14 0	1.56	2.32	38	0.02	159	125	9.20	34.11	1.60	26.41	163	0.22
180	8.67	34.20 6	1.15	2.45	43	0.00	148	150	9.05	34.16	1.48	26.47	157	0.26

HORIZON; June 30, 1961; 1026 GCT; 34°19'N, 120°48'W; sounding, 420 fm; wind, 030°, force 6; weather, clear; sea, very rough; wire angle, 37°.

0	11.14	33.88 2	4.48	1.67			211	0	11.14	33.88	4.48	25.90	211	0.00
8	11.14	33.88	4.44	1.66			211	10	11.14	33.88	4.43	25.90	211	0.02
28	11.14	33.89 4	4.36	1.75			210	20	11.14	33.89	4.37	25.91	210	0.04
36	11.09	33.90 0	4.36	1.74			209	30	11.13	33.90	4.36	25.92	210	0.06
48	10.76	33.86 6	4.04	1.72			206	50	10.73	33.88	3.97	25.97	204	0.10
60	10.13	33.91 9	2.96	2.01			191	75	9.69	33.99	2.49	26.24	179	0.15
80	9.54	34.00 8	2.40	2.14			175	100	9.09	34.08	2.19	26.40	163	0.20
97	9.12	34.07 0	2.21	2.18			164	125	8.98	34.11	2.03	26.45	159	0.24
112	9.00	34.10 0	2.11	2.25			160	150	8.87	34.15	1.68	26.49	155	0.28
136	8.93	34.12 0	1.92	2.20			158	200	8.67	34.22	1.41	26.58	146	0.35
159	8.84	34.16 7	1.60	2.28			153	250	8.38	34.26	1.10	26.66	139	0.43
190	8.74	34.20 0	1.53	2.49			149	300	8.13	34.28	0.99	26.71	134	0.50
215	8.57	34.23 4	1.22	2.52			144	400	7.54	34.31	0.72	26.82	124	0.63
254	8.37	34.26 4	1.09	2.57			139	500	6.49	34.30	0.58	26.96	111	0.76
308	8.10	34.28 4	0.98	2.66			133							
392	7.60	34.30 7	0.75	2.74			125							
474	6.84	34.30 5	0.59	2.81			115							
546	5.70	34.26 1	0.58	2.81			104							

OBSERVED							COMP	INTERPOLATED				COMPUTED		
Z	T	S	O ₂	PO ₄ -P	SiO ₃ -Si	NO ₂ -N	δ _T	Z	T	S	O ₂	σ _t	δ _T	ΔD
m	°C	‰	ml/L	μg at/L	μg at/L	μg at/L	cl/ton	m	°C	‰	ml/L	g/L	cl/ton	dyn m

HORIZON; June 30, 1961; 1411 GCT; 34°09'N, 121°09'W; sounding, 1255 fm; wind, 360°, force 6; weather, clear; sea, very rough; wire angle, 26°.

0	13.04	33.63 9	6.15	0.94	3	0.18	263	0	13.04	33.64	6.15	25.35	263	0.00
9	13.04	33.65 7	6.15	0.98	3	0.22	262	10	13.04	33.65	6.15	25.36	262	0.03
32	12.96	33.63 5	6.11	0.99	4	0.19	262	20	13.02	33.65	6.13	25.36	262	0.05
41	11.54	33.60 1	5.44	1.43	11	0.31	239	30	12.99	33.64	6.12	25.36	262	0.08
54	10.12	33.56 6	4.29	1.54	17	0.05	217	50	10.20	33.57	4.38	25.82	218	0.13
68	9.74	33.61 5	3.86	1.78	21	0.02	208	75	9.40	33.70	3.66	26.06	196	0.18
91	9.62	33.83 9	3.50	2.06	26	0.02	189	100	9.56	33.88	3.34	26.17	185	0.23
109	9.40	33.90 8	3.11	2.09	29	0.00	181	125	9.03	33.92	2.83	26.29	174	0.27
127	8.99	33.92 1	2.79	2.13	30	0.00	173	150	8.52	33.97	2.58	26.41	163	0.32
154	8.46	33.97 4	2.59	2.18	36	0.00	162	200	8.12	34.05	2.40	26.53	151	0.40
181	8.04	33.99 2	2.83	2.07	38	0.00	154	250	7.78	34.17	1.33	26.68	137	0.47
217	8.20	34.11 0	1.80	2.45	43	0.00	148	300	7.01	34.16	1.18	26.78	128	0.54
245	7.84	34.16 7	1.35	2.45	48	0.00	138	400	6.21	34.19	0.82	26.91	115	0.66
290	7.12	34.15 6	1.20	2.60	55	0.00	130	500	5.59	34.28	0.33	27.06	101	0.78
351	6.60	34.16 8	1.08	2.92	63	0.00	122	600	5.34	34.36	0.38	27.15	92	0.88
444	5.90	34.21 7	0.54	2.86	74	0.00	110							
530	5.47	34.30 8	0.30	2.90	85	0.00	98							
604	5.34	34.36 3	0.40	2.98	88	0.00	92							

HORIZON; June 30, 1961; 2154 GCT; 33°48'N, 121°51'W; sounding, 1940 fm; wind, 320°, force 6; weather, clear; sea, very rough; wire angle, 15°.

2	14.83	33.54 8	6.32	0.63	2	0.11	305	0	(14.83)	(33.55)	(6.32)	(24.91)	(305)	(0.00)
12	14.80	33.54 5	6.33	0.64	2	0.13	305	10	14.81	33.55	6.33	24.92	305	0.03
36	11.28	33.64 1	5.40	1.30	12	0.37	231	20	14.79	33.54	6.34	24.91	305	0.06
45	10.62	33.62 8	5.05	1.58	16	0.59	221	30	12.00	33.63	5.70	25.55	245	0.09
60	9.91	33.74 5	4.23	1.71	22	0.11	201	50	10.32	33.65	4.80	25.86	214	0.13
74	9.63	33.82 5	3.77	1.98	26	0.02	190	75	9.61	33.83	3.74	26.12	190	0.19
99	9.02	33.89 0	3.10	2.04	31	0.01	176	100	9.01	33.89	3.09	26.27	176	0.23
119	8.65	33.95 1	2.61	2.16	34	0.00	166	125	8.63	33.99	2.42	26.41	163	0.27
138	8.62	34.05 5	2.04	2.28	39	0.00	158	150	8.56	34.08	1.82	26.49	155	0.31
167	8.43	34.11 1	1.64	2.36	42	0.00	151	200	8.29	34.18	1.23	26.61	144	0.39
197	8.30	34.17 7	1.24	2.48	48	0.00	144	250	7.55	34.13	1.50	26.68	137	0.46
235	7.98	34.17 6	1.24	2.40	49	0.00	140	300	6.76	34.14	1.36	26.80	126	0.53
264	7.13	34.09 7	1.64	2.64	54	0.00	134	400	5.90	34.18	0.69	26.94	112	0.66
314	6.65	34.15 3	1.26	2.67	59	0.00	124	500	5.45	34.28	0.40	27.07	100	0.77
378	6.05	34.16 1	0.85	2.81	70	0.00	116	600	5.00	34.34	0.34	27.17	90	0.87
476	5.56	34.26 2	0.43	2.90	83	0.00	102							
565	5.14	34.32 3	0.36	2.96	92	0.00	93							
639	4.81	34.35 5	0.33	2.89	98	0.00	87							

OBSERVED							COMP	INTERPOLATED				COMPUTED		
Z	T	S	O ₂	PO ₄ -P	SiO ₃ -Si	NO ₂ -N	δ _T	Z	T	S	O ₂	σ _t	δ _T	ΔD
m	°C	‰	ml/L	μg at/L	μg at/L	μg at/L	cl/ton	m	°C	‰	ml/L	g/L	cl/ton	dyn m

HORIZON; July 1, 1961; 0357 GCT; 33°29'N, 122°31.5'W; sounding, 2200 fm; wind, 320°, force 6; weather, clear; sea, very rough; wire angle, 35°.

0	14.28	33.25 8	6.05	0.53	4	0.05	315	0	14.28	33.26	6.05	24.81	315	0.00
8	14.31	33.25 5	6.16	0.52	3	0.05	316	10	14.31	33.25	6.15	24.79	316	0.03
29	14.26	33.24 7	6.11	0.52	3	0.05	316	20	14.29	33.25	6.14	24.80	316	0.06
53	12.90	33.05 7	6.11	0.52	4	0.05	303	30	14.25	33.24	6.11	24.80	316	0.09
62	12.32	33.06 1	6.00	0.72	5	0.23	292	50	13.55	33.13	6.10	24.86	310	0.16
79	11.20	33.15 9	5.53	1.01	9	0.53	265	75	11.57	33.11	5.72	25.22	275	0.23
90	10.30	33.27 4	5.05	1.28	14	0.16	242	100	9.82	33.44	4.73	25.79	222	0.29
102	9.72	33.47 8	4.65	1.32	15	0.00	218	125	9.10	33.72	3.85	26.12	190	0.35
126	9.08	33.72 4	3.83	1.65	23	0.00	189	150	8.57	33.86	3.10	26.31	172	0.39
141	8.70	33.81 1	3.24	1.83	28	0.00	177	200	8.16	34.00	2.37	26.49	155	0.48
164	8.40	33.90 9	2.95	2.02	34	0.00	166	250	7.58	34.06	1.86	26.62	143	0.55
190	8.14	33.97 2	2.58	2.17	36	0.00	157	300	7.28	34.14	1.26	26.72	133	0.62
213	8.17	34.03 5	2.14	2.31	40	0.00	153	400	6.31	34.18	0.73	26.89	117	0.75
252	7.55	34.05 8	1.85	2.35	46	0.00	143	500	5.37	34.20	0.54	27.02	105	0.87
304	7.26	34.14 8	1.22	2.56	53	0.00	132							
388	6.46	34.18 6	0.75	2.79	66	0.00	119							
468	5.52	34.16 8	0.66	2.85	78	0.00	109							
539	5.26	34.24 3	0.40	2.88	86	0.00	100							

HORIZON; July 1, 1961; 0954 GCT; 33°09'N, 123°13'W; sounding, 2250 fm; wind, 020°, force 5; weather, partly cloudy; sea, very rough; wire angle, 42°.

0	15.78	33.17 2	5.68	0.44	2	0.00	353	0	15.78	33.17	5.68	24.41	353	0.00
7	15.80	33.17 4	5.69	0.44	3	0.00	353	10	15.80	33.17	5.68	24.41	353	0.04
26	15.80	33.17 6	5.67	0.45	3	0.00	353	20	15.80	33.18	5.68	24.41	352	0.07
47	14.88	33.17 8	5.82	0.45	4	0.00	333	30	15.80	33.18	5.67	24.41	352	0.11
55	14.49	33.19 8	5.92	0.45	3	0.00	324	50	14.70	33.19	5.87	24.66	329	0.17
68	13.92	33.17 4	5.96	0.45	2	0.00	314	75	13.70	33.17	5.94	24.86	310	0.25
79	13.56	33.17 a)	5.93	0.51	2	0.00	308	100	12.20	33.27	5.53	25.23	275	0.33
88	13.10	33.19 4	5.92	0.51	9	0.00	297	125	10.51	33.37	4.98	25.61	238	0.39
106	11.62	33.32 2	5.26	-	-	-	261	150	9.59	33.60	4.00	25.95	206	0.45
118	10.90	33.35 4	5.07	1.01	14	0.00	246	200	8.77	33.90	2.48	26.31	172	0.55
135	10.00	33.43 0	4.81	1.21	14	0.00	226	250	7.92	34.02	2.42	26.54	151	0.63
156	9.46	33.66 4	3.59	1.78	22	0.00	200	300	7.17	34.03	2.26	26.65	140	0.70
173	9.16	33.81 4	2.82	1.95	29	0.00	184	400	6.15	34.10	1.21	26.84	121	0.84
203	8.72	33.91 5	2.48	2.07	33	0.00	170							
241	8.08	34.01 8	2.44	2.12	38	0.00	153							
303	7.12	34.03 0	2.23	2.13	46	0.00	139							
365	6.42	34.06 8	1.55	2.55	58	0.00	127							
428	5.96	34.13 3	0.99	2.58	67	0.00	117							

a) Alternate value, 33.22‰, not used in interpolation.

OBSERVED							COMP	INTERPOLATED				COMPUTED		
Z	T	S	O ₂	PO ₄ -P	SiO ₃ -Si	NO ₂ -N	δ _T	Z	T	S	O ₂	σ _t	δ _T	ΔD
m	°C	‰	ml/L	μg at/L	μg at/L	μg at/L	cl/ton	m	°C	‰	ml/L	g/L	cl/ton	dyn m

HORIZON; July 1, 1961; 1544 GCT; 32°49'N, 123°53'W; sounding, 2240 fm; wind, 330°, force 5; weather, cloudy; sea, very rough; wire angle, 20°.

1	15.80	33.12 4	5.83	0.49	3	0.00	357	0	(15.80)	(33.12)	(5.83)	(24.37)	(357)	(0.00)
10	15.77	33.11 0	5.85	0.50	3	0.00	357	10	15.77	33.11	5.85	24.37	357	0.04
29	15.76	33.11 9	5.79	0.48	3	0.00	356	20	15.76	33.12	5.81	24.38	356	0.07
57	14.61	33.19 4	6.08	0.42	3	0.00	327	30	15.76	33.12	5.78	24.38	356	0.11
66	13.39	33.06 5	6.24	0.45	3	0.00	312	50	15.00	33.18	5.97	24.59	336	0.18
81	12.80	33.06 4	5.91	0.49	3	0.02	301	75	13.00	33.06	6.02	24.91	305	0.26
96	12.26	33.18 7	5.73	0.82	5	0.38	282	100	12.12	33.25	5.64	25.23	275	0.33
110	11.78	33.34 7	5.46	0.80	5	0.14	262	125	11.14	33.42	4.96	25.54	245	0.40
132	10.85	33.44 2	4.80	1.20	11	0.02	239	150	10.08	33.52	4.47	25.80	220	0.45
151	10.03	33.52 6	4.45	1.39	15	0.00	219	200	8.98	33.85	3.16	26.24	179	0.56
178	9.44	33.74 0	3.65	1.71	24	0.00	194	250	8.13	33.96	2.86	26.46	158	0.64
204	8.91	33.86 9	3.11	1.95	29	0.00	176	300	7.38	34.03	2.19	26.62	142	0.72
233	8.42	33.93 6	2.93	1.98	34	0.00	164	400	6.64	34.11	1.20	26.79	127	0.86
278	7.67	34.00 6	2.64	2.11	41	0.00	148	500	5.91	34.20	0.60	26.95	111	0.98
327	7.13	34.05 7	1.83	2.48	50	0.00	137							
406	6.60	34.11 8	1.12	2.64	61	0.00	126							
485	6.02	34.18 3	0.69	2.73	72	0.00	114							
568	5.36	34.29 1	0.29	2.92	86	0.00	98							

HORIZON; July 2, 1961; 0214 GCT; 32°09'N, 125°15'W; sounding, 2300 fm; wind, 350°, force 6; weather, cloudy; sea, high; wire angle, 22°.

1	17.24	33.42 3	5.53	0.37	2	0.00	366	0	(17.24)	(33.42)	(5.53)	(24.27)	(367)	(0.00)
10	17.25	33.41 8	5.50	0.43	2	0.00	367	10	17.25	33.42	5.50	24.26	367	0.04
34	17.22	33.42 1	5.57	0.37	2	0.00	366	20	17.25	33.42	5.52	24.26	367	0.07
43	17.12	33.42 3	5.54	0.37	2	0.00	364	30	17.24	33.42	5.54	24.27	367	0.11
56	15.60	33.32 9	5.85	0.40	2	0.00	337	50	16.20	33.36	5.75	24.46	348	0.18
70	15.35	33.40 2	5.85	0.34	2	0.00	327	75	15.17	33.39	5.86	24.72	324	0.27
92	13.96	33.30 0	5.96	0.37	2	0.00	306	100	13.37	33.30	5.88	25.02	294	0.34
110	12.62	33.33 1	5.67	0.60	3	0.11	278	125	11.93	33.40	5.47	25.38	260	0.41
129	11.76	33.42 0	5.42	0.74	5	0.09	256	150	10.79	33.53	5.01	25.69	231	0.48
155	10.48	33.55 8	4.84	1.08	11	0.01	224	200	8.79	33.87	3.73	26.29	174	0.58
182	9.14	33.76 8	4.00	1.52	25	0.00	187	250	8.08	33.97	2.92	26.47	157	0.66
218	8.52	33.92 5	3.51	1.84	30	0.00	166	300	7.29	34.00	2.86	26.61	143	0.74
245	8.15	33.96 3	2.92	1.93	35	0.00	158	400	6.39	34.11	1.28	26.82	124	0.88
290	7.41	33.99 3	2.94	2.06	40	0.00	146	500	5.68	34.18	0.68	26.97	110	1.00
370	6.64	34.07 3	1.67	2.53	56	0.00	130	600	5.14	34.24	0.46	27.08	99	1.11
487	5.76	34.16 9	0.72	2.71	73	0.00	112	700	4.70	34.31	0.34	27.18	89	1.21
578	5.24	34.23 4	0.49	2.83	87	0.00	101							
700	4.70	34.31 2	0.34	2.87	99	0.00	89							

OBSERVED							COMP	INTERPOLATED				COMPUTED		
Z	T	S	O ₂	PO ₄ -P	SiO ₃ -Si	NO ₂ -N	δ _T	Z	T	S	O ₂	σ _t	δ _T	ΔD
m	°C	‰	ml/L	μg at/L	μg at/L	μg at/L	cl/ton	m	°C	‰	ml/L	g/L	cl/ton	dyn m

HORIZON; July 11, 1961; 0218 GCT; 29°22'N, 130°46.5'W; sounding, 2400 fm; wind, 340°, force 4; weather, cloudy; sea, very rough; wire angle, 17°.

0	19.32	33.99 1	5.41	0.57	2	0.00	374	0	19.32	33.99	5.41	24.19	374	0.00
9	19.32	33.97 7	5.44	0.46	2	0.00	375	10	19.31	33.98	5.45	24.18	374	0.04
28	19.15	33.97 1	5.46	0.48	2	0.00	371	20	19.24	33.97	5.46	24.19	373	0.07
58	17.18	33.79 0	5.62	0.31	2	0.00	338	30	19.09	33.97	5.47	24.23	370	0.11
67	17.16	33.87 0	5.66	0.35	3	0.00	332	50	17.41	33.80	5.62	24.52	343	0.18
81	17.18	34.01 5	5.69	0.31	2	0.00	322	75	17.17	33.98	5.68	24.71	324	0.27
95	17.08	34.05 8	5.62	0.23	2	0.00	316	100	17.02	34.07	5.58	24.82	314	0.35
110	16.95	34.09 9	5.50	0.20	2	0.00	311	125	17.06	34.26	5.52	24.95	301	0.43
133	17.10	34.32 3	5.54	0.23	2	0.08	298	150	17.09	34.46	5.15	25.10	287	0.50
152	17.09	34.46 6	5.13	0.26	3	0.12	287	200	12.75	33.73	5.34	25.48	251	0.64
181	14.35	33.94 7	5.40	0.48	4	0.03	266	250	9.87	33.82	4.34	26.07	195	0.75
210	11.90	33.70 3	5.27	0.85	6	0.00	238	300	8.71	33.96	4.10	26.37	166	0.84
238	10.26	33.76 8	4.36	1.22	12	0.00	205	400	6.96	34.03	2.27	26.68	137	1.00
287	9.00	33.93 5	4.29	1.61	20	0.00	173	500	5.88	34.14	0.98	26.91	115	1.13
339	7.88	33.99 1	3.40	1.97	30	0.00	152	600	(5.30)	(34.23)		(27.05)	(102)	(1.25)
421	6.69	34.04 6	1.92	2.36	45	0.00	132							
504	5.84	34.14 0	0.94	2.72	59	0.00	115							
589	5.36	34.21 4	0.61	2.80	68	0.00	104							

BLACK DOUGLAS; July 13, 1961; 0435 GCT; 33°34'N, 120°45'W; sounding, 710 fm; wind, 290°, force 3; weather, overcast; sea, rough; wire angle, 25°.

1	15.64	33.23 1	5.86				345	0	(15.64)	(33.23)	(5.86)	(24.49)	(345)	(0.00)
10	15.26	33.24 3	5.76				336	10	15.26	33.24	5.76	24.58	337	0.03
28	14.44	33.20 8	5.84				322	20	15.25	33.24	5.76	24.58	336	0.07
37	13.54	33.26 3	5.86				300	30	14.34	33.21	5.84	24.75	320	0.10
50	11.64	33.20 1	5.28				270	50	11.64	33.20	5.28	25.28	270	0.16
63	11.05	33.16 5	5.20				262	75	10.50	33.22	5.09	25.50	249	0.23
86	10.60	33.55 3	4.74				226	100	10.08	33.67	4.09	25.92	209	0.28
105	9.68	33.68 6	3.73				202	125	9.21	33.78	3.50	26.15	187	0.33
122	9.28	33.74 6	3.57				191	150	8.84	33.96	2.65	26.35	168	0.38
138	8.92	33.91 7	2.88				173	200	8.19	34.01	2.41	26.49	155	0.46
164	8.74	33.98 3	2.49				165	250	7.34	34.02	2.34	26.62	143	0.54
195	8.30	34.01 8	2.39				156	300	6.88	34.06	1.72	26.72	134	0.61
221	7.76	34.00 2	2.65				150	400	6.04	34.12	0.94	26.87	119	0.74
264	7.17	34.03 6	2.05				139	500	5.42	34.22	0.45	27.03	104	0.86
313	6.77	34.07 6	1.53				131							
388	6.13	34.11 4	1.01				120							
465	5.61	34.19 0	0.52				108							
543	5.24	34.24 0	0.40				100							

OBSERVED							COMP	INTERPOLATED				COMPUTED		
Z	T	S	O ₂	PO ₄ -P	SiO ₃ -Si	NO ₂ -N	δ _T	Z	T	S	O ₂	σ _t	δ _T	ΔD
m	°C	‰	ml/L	μg at/L	μg at/L	μg at/L	cl/ton	m	°C	‰	ml/L	g/L	cl/ton	dyn m

HORIZON; July 15, 1961; 1220 GCT; 33°28.5'N, 117°46.5'W; sounding, 105 fm; wind, 140°, force 3; weather, overcast; sea, slight; wire angle, 00°.

0	21.92	33.89 1	5.77	0.24	2	0.01	447	0	21.92	33.89	5.77	23.42	447	0.00
10	20.70	33.84 0	6.24	0.27	4	0.01	419	10	20.70	33.84	6.24	23.71	419	0.04
30	12.48	33.67 8	5.27	0.44	8	0.26	250	20	15.35	33.69	5.87	24.91	306	0.08
50	11.14	33.74 4	3.82	1.61	16	0.45	221	30	12.48	33.68	5.27	25.49	250	0.11
75	10.32	33.78 9	3.10	1.90	21	0.29	204	50	11.14	33.74	3.82	25.79	222	0.15
100	9.87	33.85 6	2.81	1.92	22	0.12	192	75	10.32	33.79	3.10	25.97	204	0.21
								100	9.87	33.86	2.81	26.10	192	0.26

HORIZON; July 15, 1961; 0939 GCT; 33°20.5'N, 118°03'W; sounding, 395 fm; wind, 150°, force 2; weather, overcast; sea, slight; wire angle, 07°.

1	20.21	33.80 4	5.47	0.37			409	0	(20.21)	(33.80)	(5.47)	(23.81)	(410)	(0.00)
11	18.17	33.72 6	5.94	0.44			366	10	18.40	33.73	5.92	24.22	371	0.04
31	12.85	33.65 3	5.36	0.97			259	20	14.65	33.67	5.64	25.04	293	0.07
40	12.26	33.64 6	4.80	1.24			248	30	12.93	33.65	5.37	25.38	260	0.10
50	11.54	33.64 8	4.17	1.44			235	50	11.54	33.65	4.17	25.65	235	0.15
65	10.72	33.72 5	3.47	1.74			216	75	10.32	33.76	3.28	25.95	206	0.21
80	10.16	33.77 4	3.23	1.80			203	100	9.77	33.85	2.96	26.11	191	0.26
101	9.74	33.85 6	2.91	1.94			190	125	9.17	33.95	2.62	26.29	174	0.30
124	9.18	33.94 1	2.63	2.08			175	150	9.07	34.07	2.15	26.40	164	0.34
144	9.12	34.04 0	2.28	2.26			167	200	8.94	34.26	1.36	26.57	148	0.42
175	8.80	34.15 3	1.76	2.40			153	250	8.56	34.30	0.89	26.66	139	0.50
205	8.97	34.26 6	1.30	2.49			148	300	8.18	34.31	0.76	26.73	133	0.57
233	8.67	34.29 0	0.96	2.54			141	400	7.30	34.31	0.57	26.85	120	0.70
274	8.41	34.31 5	0.83	2.62			136	500	6.48	34.33	0.36	26.98	108	0.82
333	7.86	34.30 5	0.69	2.65			129							
408	7.22	34.31 4	0.55	2.82			119							
483	6.56	34.32 3	0.38	2.86			110							
563	6.22	34.34 1	0.33	2.94			104							

OBSERVED							COMP	INTERPOLATED				COMPUTED		
Z	T	S	O ₂	PO ₄ -P	SiO ₃ -Si	NO ₂ -N	δ _T	Z	T	S	O ₂	σ _t	δ _T	ΔD
m	°C	‰	ml/L	μg at/L	μg at/L	μg at/L	cl/ton	m	°C	‰	ml/L	g/L	cl/ton	dyn m

HORIZON; July 14, 1961; 2129 GCT; 33°10.5'N, 118°23.5'W; sounding, 635 fm; wind, 270°, force 1; weather, overcast; sea, slight; wire angle, 02°.

1	19.65	33.81 8	5.73	0.25	1	0.01	395	0	(19.65)	(33.82)	(5.73)	(23.97)	(394)	(0.00)
11	16.86	33.75 2	6.31	0.35	1	0.02	334	10	17.30	33.76	6.30	24.51	343	0.04
31	13.67	33.63 6	5.59	0.82	4	0.26	276	20	15.12	33.69	6.03	24.96	301	0.07
41	12.71	33.60 1	5.37	1.03	5	0.38	260	30	13.78	33.64	5.64	25.20	277	0.10
51	11.68	33.62 9	4.78	1.32	9	0.18	239	50	11.80	33.62	4.85	25.58	242	0.15
66	10.85	33.72 3	3.96	1.62	14	0.03	218	75	10.24	33.74	3.57	25.95	206	0.21
81	9.86	33.76 8	3.28	1.84	20	0.00	198	100	9.47	33.87	2.59	26.18	185	0.26
101	9.44	33.88 1	2.56	1.98	23	0.00	183	125	9.12	33.98	2.46	26.32	171	0.30
126	9.10	33.97 8	2.46	2.07	26	0.00	171	150	8.82	34.04	2.10	26.42	162	0.34
146	8.84	34.03 0	2.17	2.11	28	0.00	163	200	8.56	34.20	1.45	26.58	146	0.42
177	8.72	34.15 8	1.58	2.28	32	0.00	152	250	8.10	34.24	1.04	26.68	137	0.49
206	8.50	34.21 4	1.39	2.36	35	0.00	144	300	7.77	34.28	0.75	26.76	129	0.56
236	8.24	34.23 6	1.11	2.70	38	0.00	139	400	7.21	34.31	0.50	26.87	119	0.69
276	7.84	34.25 3	0.95	2.85	41	0.00	132	500	6.64	34.33	0.40	26.96	110	0.81
337	7.68	34.33 2	0.57	2.85	47	0.00	124							
411	7.14	34.31 3	0.49	2.92	48	0.00	118							
486	6.76	34.32 7	0.41	2.90	53	0.00	112							
567	6.02	34.34 3	0.30	3.02	64	0.00	102							

HORIZON; July 14, 1961; 1742 GCT; 32°56.5'N, 118°56.5'W; sounding, 900 fm; wind, direction missing, force 1; weather, overcast; sea, slight; wire angle, 00°.

1	16.86	33.55 9	5.78	0.47	1	0.04	348	0	(16.86)	(33.56)	(5.78)	(24.46)	(348)	(0.00)
11	16.44	33.80 5	5.85	0.48	1	0.03	321	10	16.49	33.80	5.85	24.73	322	0.03
31	11.82	33.77 2	4.43	1.40	14	0.32	231	20	15.65	33.80	5.76	24.92	304	0.06
41	11.16	33.79 4	3.95	1.63	15	0.35	218	30	12.10	33.77	4.54	25.64	236	0.09
51	10.61	33.87 4	3.42	1.75	20	0.22	203	50	10.68	33.87	3.47	25.97	204	0.14
66	9.88	33.89 8	2.85	1.96	23	0.14	189	75	9.57	33.93	2.62	26.21	182	0.18
81	9.40	33.95 1	2.51	2.07	25	0.04	178	100	9.06	33.99	2.32	26.34	169	0.23
101	9.02	33.99 8	2.30	2.17	28	0.02	168	125	8.72	34.05	1.97	26.44	160	0.27
126	8.70	34.05 5	1.95	2.27	32	0.01	159	150	8.53	34.13	1.68	26.53	151	0.31
145	8.57	34.10 9	1.74	2.20	34	0.00	153	200	8.20	34.19	1.31	26.63	142	0.38
175	8.40	34.14 9	1.55	2.27	36	0.00	148	250	7.76	34.21	1.02	26.71	134	0.46
206	8.14	34.19 5	1.26	2.46	38	0.00	141	300	7.36	34.27	0.68	26.81	124	0.52
236	7.88	34.19 4	1.15	2.53	40	0.00	137	400	6.72	34.31	0.47	26.93	113	0.65
275	7.56	34.25 1	0.80	2.77	45	0.00	128	500	6.21	34.34	0.32	27.03	104	0.76
336	7.06	34.29 1	0.57	2.77	51	0.00	119							
411	6.67	34.31 0	0.44	2.84	55	0.00	112							
486	6.29	34.33 2	0.33	2.88	62	0.00	106							
566	5.86	34.36 9	0.29	2.97	66	0.00	98							

OBSERVED							COMP	INTERPOLATED				COMPUTED		
Z	T	S	O ₂	PO ₄ -P	SiO ₃ -Si	NO ₂ -N	δ _T	Z	T	S	O ₂	σ _t	δ _T	ΔD
m	°C	‰	ml/L	μg at/L	μg at/L	μg at/L	cl/ton	m	°C	‰	ml/L	g/L	cl/ton	dyn m

HORIZON; July 14, 1961; 1400 GCT; 32°39'N, 119°29'W; sounding, 690 fm; wind, 280°, force 3; weather, overcast; sea, moderate; wire angle, 15°.

1	16.50	33.76 9	5.71				325	0	(16.50)	(33.77)	(5.71)	(24.71)	(324)	(0.00)
10	15.23	33.76 2	6.11				298	10	15.23	33.76	6.11	24.99	298	0.03
30	11.36	33.56 1	4.90				239	20	14.29	33.72	5.93	25.16	282	0.06
39	10.92	33.58 9	4.65				229	30	11.36	33.56	4.90	25.61	239	0.09
55	9.87	33.62 7	4.24				209	50	10.49	33.60	4.47	25.80	221	0.13
69	9.54	33.79 0	3.34				192	75	9.45	33.84	3.09	26.16	187	0.18
93	9.18	33.90 8	2.72				177	100	9.03	33.93	2.65	26.30	173	0.23
112	8.70	33.95 4	2.55				167	125	8.43	33.96	2.61	26.41	162	0.27
131	8.32	33.95 8	2.63				161	150	8.09	33.98	2.59	26.48	156	0.31
150	8.09	33.97 8	2.59				156	200	7.68	34.10	2.39	26.64	141	0.39
178	7.80	34.02 7	2.63				148	250	7.83	34.24	1.20	26.72	133	0.46
210	7.66	34.13 1	2.23				139	300	7.58	34.26	0.70	26.78	128	0.53
238	7.86	34.23 0	1.54				134	400	6.79	34.30	0.48	26.92	114	0.65
286	7.66	34.25 8	0.77				129	500	6.07	34.34	0.34	27.04	103	0.77
337	7.30	34.28 2	0.63				123	600	(5.58)	(34.37)		(27.13)	(94)	(0.87)
419	6.63	34.31 1	0.43				112							
500	6.07	34.33 7	0.34				103							
585	5.63	34.36 2	0.30				96							

HORIZON; July 14, 1961; 0953 GCT; 32°22'N, 119°56'W; sounding, 560 fm; wind, 320°, force 3; weather, missing; sea, moderate; wire angle, 15°.

1	15.26	33.78 1	5.95	0.77	2	0.09	297	0	(15.26)	(33.78)	(5.95)	(24.99)	(297)	(0.00)
11	15.16	33.76 5	5.96	0.84	1	0.09	296	10	15.18	33.77	5.96	25.00	296	0.03
30	11.76	33.45 1	5.06	1.16	7	0.15	254	20	13.22	33.57	5.45	25.26	272	0.06
39	11.55	33.56 5	4.83	1.39	8	0.26	242	30	11.76	33.45	5.06	25.45	254	0.08
54	11.04	33.78 9	3.88	1.73	15	0.35	216	50	11.00	33.76	3.94	25.83	218	0.13
68	9.82	33.84 6	3.24	2.01	21	0.03	192	75	9.62	33.87	3.03	26.15	187	0.18
93	9.32	33.93 6	2.55	2.29	25	0.03	177	100	9.24	33.97	2.33	26.29	174	0.23
113	9.10	34.03 1	2.06	2.48	26	0.01	167	125	8.76	34.04	2.03	26.43	161	0.27
131	8.56	34.04 6	2.02	2.48	31	0.01	158	150	8.26	34.08	1.81	26.53	151	0.31
150	8.26	34.07 9	1.81	2.40	34	0.01	151	200	8.04	34.14	1.48	26.61	143	0.39
180	8.22	34.14 5	1.53	2.40	36	0.00	146	250	7.00	34.06	1.81	26.70	135	0.46
213	7.85	34.12 9	1.47	2.66	37	0.00	141	300	6.63	34.08	1.45	26.77	129	0.52
242	7.13	34.05 7	1.82	-	41	0.00	137	400	6.33	34.24	0.56	26.93	113	0.65
290	6.68	34.07 0	1.55	2.76	45	0.00	130	500	5.97	34.33	0.37	27.05	102	0.76
343	6.53	34.14 8	0.98	2.90	53	0.00	123	600	(5.40)	(34.36)	(0.34)	(27.14)	(93)	(0.87)
424	6.22	34.28 0	0.46	3.01	60	0.00	109							
507	5.94	34.33 0	0.37	3.00	63	0.00	102							
592	5.46	34.36 2	0.34	3.04	71	0.00	94							

OBSERVED							COMP	INTERPOLATED				COMPUTED		
Z	T	S	O ₂	PO ₄ -P	SiO ₃ -Si	NO ₂ -N	δ _T	Z	T	S	O ₂	σ _t	δ _T	ΔD
m	°C	‰	ml/L	μg at/L	μg at/L	μg at/L	cl/ton	m	°C	‰	ml/L	g/L	cl/ton	dyn m

HORIZON; July 14, 1961; 0413 GCT; 32°03'N, 120°37'W; sounding, 1890 fm; wind, 320°, force 3; weather, overcast; sea, moderate; wire angle, 20°.

1	16.40	33.37 0	5.62	0.39	1	0.00	351	0	(16.40)	(33.37)	(5.62)	(24.42)	(351)	(0.00)
10	16.40	33.35 4	5.62	0.46	1	0.00	353	10	16.40	33.35	5.62	24.41	353	0.04
29	16.47	33.38 9	5.65	0.42	1	0.00	352	20	16.44	33.37	5.64	24.42	352	0.07
38	16.24	33.36 0	5.69	0.50	1	0.00	349	30	16.46	33.39	5.66	24.43	351	0.11
53	15.36	33.27 0	5.87	0.42	1	0.00	337	50	15.49	33.28	5.83	24.56	339	0.18
66	14.66	33.29 0	5.96	0.47	1	0.02	321	75	13.90	33.32	5.84	24.93	303	0.26
90	12.69	33.37 1	5.55	0.75	3	0.13	276	100	12.28	33.40	5.38	25.31	267	0.33
108	11.71	33.44 5	5.10	1.02	5	0.13	253	125	10.71	33.51	4.66	25.69	231	0.39
126	10.66	33.51 7	4.64	1.23	9	0.05	230	150	9.64	33.67	3.84	25.99	202	0.45
145	9.81	33.62 7	4.05	1.54	14	0.01	208	200	8.78	33.96	2.66	26.36	167	0.54
173	9.16	33.82 3	3.09	1.88	21	0.00	183	250	7.77	34.04	2.30	26.58	147	0.62
204	8.72	33.97 8	2.62	2.08	27	0.00	165	300	7.00	34.07	1.75	26.71	134	0.69
231	8.14	34.02 2	2.50	2.20	30	0.00	154	400	6.27	34.17	0.86	26.88	118	0.82
277	7.27	34.06 1	1.95	2.82u	39	0.00	139	500	5.61	34.23	0.46	27.01	105	0.94
328	6.74	34.08 4	1.56	2.58	46	0.00	130							
406	6.23	34.17 4	0.80	2.75	54	0.00	117							
488	5.64	34.22 4	0.49	2.82	65	0.00	106							
572	5.52	34.32 2	0.29	2.94	68	0.00	97							

HORIZON; July 13, 1961; 2300 GCT; 31°45'N, 121°19'W; sounding, 1950 fm; wind, 310°, force 3; weather, overcast; sea, moderate; wire angle, 25°.

1	16.88	33.40 7	5.53	0.43	2	0.00	359	0	(16.88)	(33.41)	(5.53)	(24.34)	(359)	(0.00)
10	16.84	33.39 8	5.53	0.49	2	0.00	359	10	16.84	33.40	5.53	24.35	359	0.04
28	16.83	33.41 5	5.55	0.41	2	0.00	358	20	16.83	33.40	5.53	24.35	359	0.07
37	16.76	33.42 4	5.55	0.41	2	0.00	355	30	16.82	33.41	5.54	24.36	358	0.11
50	15.96	33.42 8	5.84	0.40	2	0.00	338	50	15.96	33.43	5.84	24.57	338	0.18
64	15.34	33.42 1	5.94	0.40	2	0.01	325	75	14.87	33.39	5.93	24.78	318	0.26
86	13.86	33.36 2	5.84	0.46	3	0.04	299	100	13.14	33.35	5.74	25.11	286	0.34
105	12.73	33.34 5	5.67	0.80	3	0.54	279	125	11.98	33.46	5.14	25.42	257	0.40
123	12.04	33.44 9	5.21	1.02	5	0.02	259	150	10.92	33.58	4.56	25.71	230	0.47
140	11.50	33.52 5	4.83	1.20	9	0.00	244	200	9.08	33.87	3.13	26.24	179	0.57
167	9.96	33.65 0	4.10	1.50	17	0.00	209	250	8.50	34.02	2.28	26.45	159	0.66
197	9.12	33.85 7	3.21	1.81	24	0.00	180	300	7.83	34.09	1.84	26.61	144	0.73
222	8.82	33.95 4	2.70	2.06	27	0.00	168	400	6.82	34.17	0.96	26.81	125	0.87
265	8.33	34.05 7	2.09	2.24	30	0.00	154	500	6.07	34.24	0.49	26.97	110	1.00
312	7.68	34.09 6	1.77	2.37	38	0.00	142							
388	6.93	34.16 2	1.03	2.60	47	0.00	127							
467	6.27	34.21 7	0.59	3.02	57	0.00	114							
550	5.80	34.26 5	0.40	3.02	65	0.00	105							

OBSERVED							COMP	INTERPOLATED				COMPUTED		
Z	T	S	O ₂	PO ₄ -P	SiO ₃ -Si	NO ₂ -N	δ _T	Z	T	S	O ₂	σ _t	δ _T	ΔD
m	°C	‰	ml/L	μg at/L	μg at/L	μg at/L	cl/ton	m	°C	‰	ml/L	g/L	cl/ton	dyn m

HORIZON; July 13, 1961; 1810 GCT; 31°25'N, 121°59'W; sounding, 2250 fm; wind, 330°, force 3; weather, overcast; sea, moderate; wire angle, 08°.

1	17.14	33.45 7	5.47	0.60	2	0.00	362	0	(17.14)	(33.46)	(5.47)	(24.32)	(361)	(0.00)
11	17.11	33.43 8	5.49	0.49	2	0.00	362	10	17.11	33.44	5.48	24.31	362	0.04
31	17.10	33.45 9	5.54	0.49	2	0.00	361	20	17.10	33.44	5.51	24.32	362	0.07
40	16.96	33.47 1	5.55	0.46	2	0.00	357	30	17.10	33.45	5.53	24.32	361	0.11
50	15.84	33.38 2	5.75	0.46	2	0.00	339	50	15.84	33.38	5.75	24.56	339	0.18
65	14.25	33.26 6	6.10	0.59	2	0.00	314	75	13.62	33.29	5.94	24.97	300	0.26
80	13.50	33.29 8	5.90	0.60	2	0.07	297	100	13.10	33.47	5.49	25.21	277	0.33
99	13.13	33.46 9	5.50	0.73	3	0.22	277	125	11.92	33.49	5.10	25.45	254	0.40
124	11.98	33.48 5	5.13	1.23	7	0.01	255	150	11.01	33.56	4.40	25.67	233	0.46
145	11.21	33.54 2	4.56	1.36	10	0.00	237	200	9.22	33.79	3.37	26.16	187	0.57
174	10.01	33.67 3	3.63	1.57	17	0.00	208	250	8.28	34.00	2.69	26.47	157	0.65
205	9.06	33.81 3	3.33	1.88	21	0.00	183	300	7.83	34.07	1.90	26.59	146	0.73
234	8.36	33.95 6	3.01	1.92	28	0.00	162	400	6.81	34.16	1.07	26.80	125	0.87
274	8.14	34.04 2	2.19	2.18	32	0.00	152	500	5.92	34.21	0.57	26.96	110	1.00
334	7.46	34.09 9	1.63	2.50	42	0.00	138							
408	6.74	34.16 1	1.01	2.62	51	0.00	124							
483	5.98	34.18 5	0.63	2.64	60	0.00	113							
562	5.78	34.31 8	0.35	2.73	68	0.00	101							

HORIZON; July 13, 1961; 1238 GCT; 31°05'N, 122°39'W; sounding, 2100 fm; wind, 310°, force 3; weather, overcast; sea, moderate; wire angle, 05°.

1	17.63	33.42 7	5.46	0.46	1	0.00	375	0	(17.63)	(33.43)	(5.46)	(24.18)	(375)	(0.00)
11	17.64	33.42 0	5.47	0.55	1	0.00	376	10	17.64	33.42	5.47	24.17	376	0.04
31	17.45	33.41 1	5.49	0.75	1	0.00	372	20	17.62	33.42	5.47	24.18	375	0.08
61	15.78	33.33 2	5.81	0.67	1	0.00	341	30	17.46	33.41	5.48	24.21	372	0.11
71	14.86	33.27 9	5.90	0.63	2	0.00	326	50	17.40	33.41	5.50	24.22	371	0.19
87	14.00	33.27 2	6.01	0.59	2	0.00	309	75	14.62	33.27	5.93	24.74	321	0.27
102	12.87	33.37 3	5.39	0.82	4	0.14	280	100	13.02	33.36	5.47	25.14	283	0.35
117	12.05	33.39 5	5.21	1.23	5	0.11	263	125	11.55	33.44	4.99	25.48	251	0.42
141	10.56	33.54 9	4.39	1.57	12	0.02	226	150	10.20	33.59	4.12	25.84	217	0.48
161	9.86	33.63 9	3.81	1.77	14	0.00	208	200	8.84	33.87	2.96	26.28	175	0.58
191	9.02	33.83 4	3.14	1.95	21	0.00	180	250	7.94	33.99	2.70	26.51	153	0.66
220	8.51	33.95 3	2.70	2.14	24	0.00	164	300	7.46	34.05	2.03	26.63	142	0.74
251	7.92	33.99 3	2.70	2.26	31	0.00	153	400	6.51	34.14	1.08	26.83	123	0.87
301	7.45	34.04 9	2.01	2.51	38	0.00	142	500	5.68	34.19	0.61	26.97	109	1.00
357	6.76	34.09 0	1.42	2.78	46	0.00	130	600	5.08	34.26	0.40	27.10	97	1.11
442	6.25	34.16 9	0.80	2.85	57	0.00	117							
527	5.46	34.21 1	0.56	2.89	65	0.00	105							
612	5.01	34.27 1	0.39	2.92	77	0.00	95							

OBSERVED							COMP	INTERPOLATED				COMPUTED		
Z	T	S	O ₂	PO ₄ -P	SiO ₃ -Si	NO ₂ -N	δ _T	Z	T	S	O ₂	σ _t	δ _T	ΔD
m	°C	‰	ml/L	μg at/L	μg at/L	μg at/L	cl/ton	m	°C	‰	ml/L	g/L	cl/ton	dyn m

HORIZON; July 13, 1961; 0408 GCT; 30°24'N, 123°59'W; sounding, 2250 fm; wind, 320°, force 3; weather, overcast; sea, rough; wire angle, 18°.

2	18.12	33.53 1	5.43	0.40	1	0.00	379	0	(18.12)	(33.53)	(5.43)	(24.14)	(379)	(0.00)
11	18.14	33.50 9	5.45	0.41	1	0.00	381	10	18.14	33.51	5.46	24.12	381	0.04
30	18.17	33.56 0	-	0.38	1	0.00	378	20	18.16	33.52	5.46	24.12	380	0.08
40	18.22	33.62 1	5.47	0.35	1	0.00	374	30	18.17	33.56	5.46	24.15	378	0.11
54	16.46	33.47 2	5.88	0.34	1	0.00	345	50	16.65	33.48	5.84	24.45	349	0.19
68	16.12	33.52 9	5.81	0.34	1	0.00	334	75	16.18	33.60	5.80	24.65	330	0.27
91	15.54	33.61 4	5.72	0.32	1	0.00	315	100	15.08	33.59	5.72	24.89	307	0.35
110	14.22	33.54 1	5.72	0.37	2	0.00	293	125	13.20	33.59	5.51	25.28	270	0.43
129	12.92	33.59 1	5.45	0.54	3	0.07	264	150	11.60	33.57	5.22	25.57	242	0.49
148	11.70	33.56 5	5.26	0.74	5	0.02	244	200	9.32	33.74	3.90	26.10	192	0.60
177	10.34	33.60 9	4.64	1.12	11	0.00	218	250	8.26	33.95	3.26	26.43	161	0.69
210	8.92	33.82 5	3.53	1.70	21	0.00	180	300	7.55	34.01	2.91	26.58	146	0.77
239	8.42	33.93 3	3.31	1.85	26	0.00	164	400	6.23	34.09	1.52	26.83	123	0.91
286	7.76	33.99 3	3.04	1.96	31	0.00	150	500	5.49	34.18	0.68	26.99	108	1.03
340	6.99	34.03 0	2.39	2.17	40	0.00	137	600	5.19	34.27	0.38	27.10	98	1.14
423	5.98	34.10 1	1.21	2.58	56	0.00	119							
506	5.46	34.18 1	0.66	2.72	66	0.00	107							
609	5.18	34.27 6	0.37	2.86	73	0.00	97							

HORIZON; July 12, 1961; 1840 GCT; 29°44.5'N, 125°16'W; sounding, 2320 fm; wind, 320°, force 4; weather, cloudy; sea, rough; wire angle, 08°.

1	18.56	33.72 4	5.35	0.35	1	0.00	375	0	(18.56)	(33.72)	(5.35)	(24.17)	(375)	(0.00)
11	18.54	33.70 8	5.35	0.41	1	0.00	376	10	18.54	33.71	5.35	24.17	376	0.04
31	18.45	33.70 9	5.41	0.45	1	0.00	373	20	18.52	33.71	5.37	24.18	375	0.08
41	18.05	33.73 3	5.52	0.38	1	0.00	362	30	18.46	33.71	5.40	24.19	374	0.11
56	17.65	33.82 0	5.60	0.35	1	0.00	347	50	17.80	33.80	5.58	24.42	352	0.19
71	17.14	33.80 7	5.65	0.35	2	0.00	336	75	17.04	33.81	5.65	24.61	334	0.27
95	16.34	33.89 4	5.58	0.35	2	0.00	312	100	16.00	33.87	5.51	24.90	306	0.35
116	15.22	33.81 5	5.39	0.41	2	0.02	294	125	14.77	33.79	5.37	25.11	286	0.43
135	14.22	33.76 3	5.36	0.52	3	0.19	277	150	13.18	33.74	5.13	25.40	258	0.50
155	12.86	33.72 9	5.06	0.75	5	0.02	253	200	10.62	33.70	4.51	25.85	216	0.62
185	11.38	33.67 3	4.76	1.05	8	0.00	231	250	8.86	33.93	4.02	26.32	171	0.72
220	9.54	33.77 9	4.15	1.50	16	0.00	192	300	7.91	33.99	3.29	26.52	153	0.80
250	8.86	33.93 0	4.02	1.75	21	0.00	171	400	6.66	34.08	1.54	26.76	129	0.95
300	7.91	33.98 6	3.29	2.08	30	0.00	153	500	5.88	34.19	0.70	26.95	111	1.07
354	7.14	34.03 5	2.26	2.50	38	0.00	139	600	5.34	34.26	0.46	27.07	100	1.18
440	6.28	34.12 8	1.08	2.74	53	0.00	121							
524	5.74	34.20 3	0.61	2.88	61	0.00	109							
610	5.30	34.26 6	0.43	3.00	69	0.00	99							

OBSERVED							COMP	INTERPOLATED				COMPUTED		
Z	T	S	O ₂	PO ₄ -P	SiO ₃ -Si	NO ₂ -N	δ _T	Z	T	S	O ₂	σ _t	δ _T	ΔD
m	°C	‰	ml/L	μg at/L	μg at/L	μg at/L	cl/ton	m	°C	‰	ml/L	g/L	cl/ton	dyn m

HORIZON; July 12, 1961; 0923 GCT; 29°02'N, 126°35'W; sounding, 2350 fm; wind, 320°, force 3; weather, overcast; sea, rough; wire angle, 23°.

0	19.41	34.07 9	5.32	0.37	1	0.00	370	0	19.41	34.08	5.32	24.23	370	0.00
9	19.42	34.06 2	5.25	0.38	1	0.00	371	10	19.42	34.06	5.26	24.22	371	0.04
28	19.43	34.06 4	5.26	0.50	1	0.00	371	20	19.43	34.06	5.26	24.21	372	0.07
55	18.44	34.11 7	5.51	0.42	1	0.00	344	30	19.43	34.06	5.27	24.21	372	0.11
64	18.26	34.17 2	5.53	0.36	1	0.00	335	50	19.18	34.08	5.36	24.29	364	0.19
78	18.18	34.25 9	5.48	0.36	1	0.00	327	75	18.25	34.25	5.49	24.66	329	0.27
91	18.18	34.40 3	5.48	0.33	1	0.00	317	100	17.97	34.48	5.37	24.90	306	0.35
105	17.96	34.49 6	5.35	0.30	1	0.00	305	125	17.58	34.51	5.24	25.02	295	0.43
128	17.54	34.51 5	5.22	0.38	2	0.04	294	150	15.40	34.15	5.13	25.25	273	0.50
146	15.77	34.20 5	5.15	0.46	3	0.11	277	200	10.84	33.79	4.71	25.88	213	0.62
174	13.19	33.91 7	4.91	0.69	5	0.01	246	250	9.11	33.87	3.99	26.24	179	0.72
200	10.84	33.79 0	4.71	1.03	9	0.00	213	300	8.18	33.98	3.36	26.47	157	0.81
229	9.59	33.80 9	4.25	1.50	16	0.00	191	400	6.78	34.07	1.72	26.74	132	0.96
274	8.66	33.94 4	3.71	1.74	24	0.00	167	500	5.91	34.20	0.76	26.95	111	1.09
324	7.77	34.00 5	3.06	1.95	32	0.00	150							
404	6.72	34.07 4	1.69	2.39	47	0.00	130							
485	6.02	34.18 1	0.86	2.66	57	0.00	114							
569	5.36	34.24 5	0.51	2.89	68	0.00	101							

HORIZON; July 11, 1961; 2352 GCT; 28°20'N, 127°54.5'W; sounding, 2500 fm; wind, 340°, force 3; weather, cloudy; sea, rough; wire angle, 17°.

1	19.60	34.02 9	5.29	0.37	2	0.00	378	0	(19.60)	(34.03)	(5.29)	(24.15)	(378)	(0.00)
10	19.52	34.02 3	5.30	0.49	2	0.00	376	10	19.52	34.02	5.30	24.16	377	0.04
29	19.40	34.02 9	5.32	0.37	2	0.00	373	20	19.46	34.03	5.32	24.18	374	0.08
58	18.80	34.23 5	5.48	0.34	2	0.00	344	30	19.39	34.03	5.33	24.20	373	0.11
69	18.64	34.30	5.49	0.29	2	0.00	335	50	18.97	34.15	5.44	24.40	354	0.19
82	18.12	34.26 0	5.47	0.35	2	0.00	326	75	18.42	34.28	5.47	24.64	331	0.27
97	17.90	34.28 3	5.45	0.29	2	0.00	319	100	17.88	34.31	5.44	24.79	316	0.35
112	17.81	34.38 5	5.40	0.32	2	0.00	309	125	16.83	34.20	5.33	24.96	300	0.43
136	15.68	33.98 7	5.22	0.46	2	0.11	291	150	15.13	34.08	5.01	25.25	272	0.50
155	14.98	34.08 5	4.98	0.50	4	0.02	269	200	11.70	33.79	4.78	25.73	228	0.63
184	12.92	33.88 8	4.91	0.73	6	0.01	243	250	9.54	33.85	4.22	26.15	187	0.74
214	10.85	33.78 0	4.62	1.18	10	0.00	214	300	8.70	33.94	3.78	26.36	168	0.83
243	9.68	33.82 6	4.29	1.44	16	0.00	191	400	6.87	34.05	2.14	26.71	134	0.99
291	8.86	33.93 0	3.89	1.76	22	0.00	171	500	5.89	34.15	0.99	26.92	115	1.12
345	7.72	34.00 6	2.95	2.10	33	0.00	149	600	(5.17)	(34.25)	(0.49)	(27.08)	(99)	(1.23)
429	6.48	34.06 7	1.72	2.50	46	0.00	128							
513	5.80	34.16 1	0.89	2.79	60	0.00	113							
599	5.18	34.24 5	0.49	2.87	71	0.00	99							

OBSERVED							COMP	INTERPOLATED				COMPUTED		
Z	T	S	O ₂	PO ₄ -P	SiO ₃ -Si	NO ₂ -N	δ _T	Z	T	S	O ₂	σ _t	δ _T	ΔD
m	°C	‰	ml/L	μg at/L	μg at/L	μg at/L	cl/ton	m	°C	‰	ml/L	g/L	cl/ton	dyn m

HORIZON; July 11, 1961; 1447 GCT; 27°42'N, 129°15'W; sounding, 2100 fm; wind, 350°, force 3; weather, missing; sea, very rough; wire angle, 09°.

1	19.85	34.28 6	5.08	0.41	2	0.00	366	0	(19.85)	(34.29)	(5.08)	(24.28)	(365)	(0.00)
11	19.84	34.26 7	5.15	0.35	2	0.00	367	10	19.84	34.27	5.14	24.27	366	0.04
31	20.44	34.65 8	5.15	0.31	2	0.00	353	20	19.84	34.27	5.15	24.27	366	0.07
41	20.20	34.66 5	5.26	0.30	2	0.00	347	30	20.42	34.62	5.14	24.38	356	0.11
57	19.06	34.53 6	5.36	0.28	2	0.00	328	50	19.48	34.58	5.34	24.60	335	0.18
71	18.70	34.59 6	5.34	0.26	2	0.00	315	75	18.67	34.63	5.32	24.84	312	0.26
96	18.56	34.70 5	5.29	0.25	2	0.00	304	100	18.51	34.70	5.28	24.93	303	0.34
116	18.18	34.65 6	5.26	0.25	2	0.00	298	125	17.99	34.64	5.21	25.02	295	0.41
135	17.74	34.63 2	5.14	0.31	2	0.05	290	150	16.83	34.50	5.03	25.19	279	0.49
156	16.21	34.41 6	4.97	0.42	3	0.02	271	200	13.32	34.05	4.83	25.61	238	0.62
185	14.36	34.16 4	4.89	0.59	4	0.01	251	250	9.82	33.92	4.38	26.16	186	0.73
219	11.75	33.92 4	4.70	0.96	8	0.00	219	300	8.60	33.99	3.77	26.41	163	0.82
248	9.89	33.91 9	4.40	1.40	15	0.00	188	400	6.82	34.06	2.19	26.72	133	0.97
298	8.64	33.98 4	3.80	1.75	23	0.00	164	500	5.81	34.15	1.04	26.93	114	1.10
352	7.45	34.01 3	2.92	2.33	35	0.00	145	600	5.13	34.25	0.65	27.09	98	1.21
436	6.41	34.09 7	1.62	2.49	46	0.00	125							
526	5.60	34.17 1	0.84	2.69	63	0.00	110							
605	5.10	34.25 1	0.65	2.88	64u	0.00	98							

BLACK DOUGLAS; July 15, 1961; 1726 GCT; 32°54.5'N, 117°22'W; sounding, 250 fm; wind, 180°, force 3; weather, overcast; sea, slight; wire angle, 03°.

0	20.09	33.79 2	5.62				407	0	20.09	33.79	5.62	23.84	407	0.00
10	17.17	33.67 2	8.45u				347	10	17.17	33.67	5.60	24.47	347	0.04
30	12.71	33.54 3	5.40				264	20	14.19	33.57	5.55	25.06	291	0.07
50	11.34	33.65 2	4.04				231	30	12.71	33.54	5.40	25.34	264	0.10
75	10.36	33.77 6	3.22				206	50	11.34	33.65	4.04	25.68	232	0.15
100	9.76	33.89 8	2.75				187	75	10.36	33.78	3.22	25.96	205	0.20
124	9.46	33.96 3	2.60				178	100	9.76	33.90	2.75	26.15	187	0.25
164	9.48a)	34.06 9	2.03				170	125	9.45	33.97	2.58	26.26	177	0.30
204	9.22	34.13 7	1.79				161	150	9.47	34.04	2.25	26.31	172	0.34
253	9.22	34.26 0	1.07				152	200	9.23	34.13	1.80	26.42	162	0.43
303	8.77	34.31 4	0.91				141	250	9.22	34.25	1.08	26.52	153	0.51
								300	8.79	34.31	0.92	26.63	142	0.58

a) Alternate value, 9.69°C, not used in interpolation.

OBSERVED							COMP	INTERPOLATED				COMPUTED		
Z	T	S	O ₂	PO ₄ -P	SiO ₃ -Si	NO ₂ -N	δ _T	Z	T	S	O ₂	σ _t	δ _T	ΔD
m	°C	‰	ml/L	μg at/L	μg at/L	μg at/L	cl/ton	m	°C	‰	ml/L	g/L	cl/ton	dyn m

BLACK DOUGLAS; July 15, 1961; 1930 GCT; 32°50.5'N, 117°31'W; sounding, 417 fm; wind, 180°, force 1; weather, overcast; sea, slight; wire angle, 03°.

0	19.69	33.77 9	5.30				398	0	19.69	33.78	5.30	23.93	398	0.00
10	17.72	33.72 1	6.06				356	10	17.72	33.72	6.06	24.38	356	0.04
30	13.10	33.69 1	4.86				261	20	15.68	33.71	5.63	24.85	311	0.07
40	12.14	33.68 0	4.27				244	30	13.10	33.69	4.86	25.38	261	0.10
50	11.70	33.65 4	4.12				238	50	11.70	33.65	4.12	25.62	238	0.15
65	11.10	33.67 4	3.74				226	75	10.40	33.74	3.26	25.92	209	0.21
80	10.10	33.78 2	3.07				201	100	9.68	33.91	2.79	26.18	185	0.26
100	9.68	-	2.79				-	125	9.28	34.02	2.32	26.33	171	0.30
125	9.28	34.02 3	2.32				170	150	9.33	34.10	1.84	26.38	165	0.34
144	9.33	34.09 3	1.85				166	200	9.25	34.20	1.47	26.47	157	0.43
174	9.34	34.11 6	1.77				164	250	9.35	34.27	1.06	26.51	153	0.51
203	9.24	34.20 5	1.44				156	300	9.17	34.31	0.95	26.57	147	0.58
233	9.34	34.25 2	1.17				154	400	7.64	34.32	0.57	26.81	124	0.73
273	9.36	34.29 5	0.98				151	500	6.75	34.32	0.35	26.94	112	0.85
332	8.75	34.31 3	0.94				141							
407	7.56	34.31 9	0.52				123							
481	6.90	34.32 2	0.38				114							
560	6.25	34.33 0	0.30				105							

BLACK DOUGLAS; July 16, 1961; 0230 GCT; 32°30'N, 118°13'W; sounding, 640 fm; wind, 180°, force 2; weather, overcast; sea, slight; wire angle, 05°.

0	18.45	33.73 8	5.52				371	0	18.45	33.74	5.52	24.22	371	0.00
10	18.16	33.73 8	5.55				365	10	18.16	33.74	5.55	24.29	364	0.04
30	13.74	33.65 1	5.62				276	20	17.00	33.72	5.59	24.55	339	0.07
40	12.83	33.66 7	5.10				257	30	13.74	33.65	5.62	25.22	276	0.10
50	12.30	33.65 2	4.79				249	50	12.30	33.65	4.79	25.50	249	0.16
64	11.33	33.70 0	4.18				228	75	11.00	33.73	3.90	25.81	220	0.21
79	10.64	33.74 3	3.65				213	100	10.09	33.79	3.18	26.01	200	0.27
100	10.09	33.79 4	3.18				200	125	9.42	33.90	2.73	26.21	182	0.32
124	9.43	33.89 7	2.74				182	150	9.14	33.98	2.30	26.32	171	0.36
144	9.22	33.94 4	2.46				175	200	8.33	34.09	1.86	26.53	151	0.44
173	8.73	34.05 6	1.99				160	250	7.99	34.16	1.41	26.64	141	0.52
203	8.32	34.09 1	1.85				151	300	7.53	34.21	1.00	26.74	131	0.59
233	8.18	34.12 7	1.61				146	400	6.82	34.29	0.44	26.91	116	0.72
273	7.74	34.18 7	1.17				136	500	6.11	34.34	0.26	27.04	103	0.83
331	7.32	34.24 0	0.78				126							
406	6.78	34.29 8	0.39				115							
480	6.24	34.34 0	0.26				105							
558	5.78	34.34 9	0.25				98							

~~a) Shakedown station.~~

belongs on page 139

OBSERVED							COMP	INTERPOLATED				COMPUTED		
Z	T	S	O ₂	PO ₄ -P	SiO ₃ -Si	NO ₂ -N	δ _T	Z	T	S	O ₂	σ _t	δ _T	ΔD
m	°C	‰	ml/L	μg at/L	μg at/L	μg at/L	cl/ton	m	°C	‰	ml/L	g/L	cl/ton	dyn m

BLACK DOUGLAS; July 16, 1961; 0804 GCT; 32°10'N, 118°52.5'W; sounding, 800 fm; wind, 180°, force 1; weather, overcast; sea, slight; wire angle, 07°.

1	16.70	33.62 3	5.62				340	0	(16.70)	(33.62)	(5.62)	(24.55)	(340)	(0.00)
11	16.49	33.58 5	5.72				338	10	16.49	33.59	5.72	24.57	337	0.03
31	14.83	33.74 9	5.67				290	20	16.20	33.60	5.71	24.65	330	0.07
41	12.62	33.68 4	5.06				252	30	14.93	33.75	5.68	25.04	292	0.10
51	11.78	33.68 6	4.74				237	50	11.91	33.68	4.79	25.60	239	0.15
64	11.10	33.75 3	4.06				220	75	10.45	33.79	3.49	25.95	206	0.21
79	10.04	33.80 5	3.24				198	100	9.35	33.82	3.00	26.16	186	0.26
100	9.35	33.81 7	3.00				187	125	9.06	33.97	2.40	26.32	171	0.30
124	9.07	33.97 2	2.44				171	150	8.92	34.07	1.98	26.42	161	0.34
144	8.95	34.05 2	2.09				163	200	7.98	34.05	2.01	26.55	149	0.42
173	8.73	34.10 3	1.74				156	250	7.79	34.22	1.03	26.71	134	0.50
202	7.90	34.04 7	2.03				148	300	7.48	34.25	0.84	26.78	127	0.56
232	7.72	34.18 0	1.18				136	400	6.67	34.31	0.49	26.94	112	0.69
271	7.81	34.23 5	1.00				133	500	6.14	34.34	0.37	27.03	103	0.80
330	7.10	34.26 4	0.74				121							
405	6.63	34.31 4	0.47				111							
478	6.27	34.33 5	0.37				105							
557	5.85	34.35 4	0.36				99							

BLACK DOUGLAS; July 16, 1961; 1410 GCT; 31°50'N, 119°34'W; sounding, 1250 fm; wind, direction missing, force 1; weather, overcast; sea, moderate; wire angle, 03°.

0	16.88	33.63 2	5.64				343	0	16.88	33.63	5.64	24.51	343	0.00
10	16.88	33.62 7	5.73				343	10	16.88	33.63	5.73	24.51	343	0.03
30	14.96	33.72 0	5.67				295	20	16.88	33.63	5.73	24.51	343	0.07
41	12.76	33.69 1	5.18				254	30	14.96	33.72	5.67	25.01	295	0.10
51	11.38	33.67 6	4.48				230	50	11.46	33.68	4.53	25.69	231	0.15
65	10.61	33.71 2	3.89				215	75	9.80	33.77	3.44	26.05	197	0.21
80	9.73	33.78 4	3.39				195	100	9.38	33.83	3.07	26.16	186	0.26
100	9.38	33.82 6	3.07				186	125	8.80	33.97	2.40	26.36	167	0.30
125	8.80	33.96 7	2.40				167	150	8.70	34.08	1.87	26.47	157	0.34
145	8.68	34.05 7	1.97				159	200	8.34	34.20	1.23	26.62	143	0.42
175	8.80	34.14 5	1.46				154	250	7.58	34.22	1.10	26.74	131	0.49
205	8.20	34.20 1	1.20				141	300	7.29	34.26	0.81	26.82	124	0.55
235	7.70	34.20 7	1.13				134	400	6.66	34.30	0.45	26.94	113	0.68
275	-	33.67 2	0.66				-	500	5.98	34.34	0.43	27.06	101	0.79
333	7.10	34.28 0	0.64				120							
408	6.59	34.31 0	0.42				111							
482	6.06	34.34 0	0.44				102							
560	5.80	34.34 7	0.42				99							

OBSERVED							COMP	INTERPOLATED				COMPUTED		
Z	T	S	O ₂	PO ₄ -P	SiO ₃ -Si	NO ₂ -N	δ _T	Z	T	S	O ₂	σ _t	δ _T	ΔD
m	°C	‰	ml/L	μg at/L	μg at/L	μg at/L	cl/ton	m	°C	‰	ml/L	g/L	cl/ton	dyn m

BLACK DOUGLAS; July 16, 1961; 2118 GCT; 31°33'N, 120°12'W; sounding, 2000 fm; wind, 280°, force 2; weather, overcast; sea, moderate; wire angle, 13°.

0	15.92	33.80 4	5.84				309	0	15.92	33.80	5.84	24.86	310	0.00
10	15.34	33.80 1	5.87				297	10	15.34	33.80	5.87	24.99	297	0.03
29	14.37	33.79 2	5.57				278	20	14.94	33.80	5.80	25.08	289	0.06
59	12.98	33.76 0	5.09				253	30	14.32	33.99	5.56	25.36	262	0.09
68	12.12	33.66 8	4.98				244	50	13.08	33.76	5.14	25.44	255	0.14
83	10.88	33.68 3	4.11				221	75	11.23	33.68	4.37	25.73	227	0.20
97	10.03	33.62 1	3.84				212	100	9.99	33.62	3.79	25.90	211	0.26
112	9.85	33.70 0	3.44				203	125	9.52	33.77	3.18	26.09	193	0.31
136	9.18	33.81 5	3.10				184	150	8.85	33.85	2.95	26.26	177	0.35
155	8.76	33.86 5	2.83				174	200	8.30	34.00	2.22	26.46	157	0.44
183	8.56	33.98 5	2.26				162	250	7.68	34.08	1.78	26.62	143	0.52
212	8.12	34.01 7	2.21				154	300	7.18	34.16	1.25	26.75	130	0.59
240	7.78	34.06 0	1.90				146	400	6.30	34.23	0.64	26.93	114	0.71
339	6.80	34.19 5	0.94				122	500	5.77	34.30	0.36	27.05	102	0.83
420	6.19	34.24 3	0.56				111	600	(5.25)	(34.34)		(27.14)	(93)	(0.93)
504	5.76	34.30 2	0.35				102							
586	5.32	34.33 9	0.29				94							

BLACK DOUGLAS; July 17, 1961; 0241 GCT; 31°10'N, 120°54.5'W; sounding, 2000+ fm; wind, 310°, force 3; weather, overcast; sea, moderate; wire angle, 18°.

0	16.32	33.30 3	5.79				355	0	16.32	33.30	5.79	24.39	355	0.00
9	15.96	33.30 3	5.76				347	10	15.95	33.30	5.77	24.47	347	0.04
29	14.76	33.24 9	5.93				326	20	15.60	33.29	5.80	24.54	340	0.07
39	14.22	33.26 6	5.87				314	30	14.68	33.25	5.93	24.71	324	0.10
53	14.17	33.35 3	5.79				306	50	14.18	33.34	5.79	24.89	307	0.17
66	13.90	33.34 7	5.82				301	75	13.28	33.35	5.67	25.08	289	0.24
90	12.61	33.48 7	5.40				266	100	11.95	33.50	5.20	25.45	253	0.31
109	11.36	33.52 8	4.97				241	125	10.30	33.63	4.16	25.85	216	0.37
128	10.15	33.65 1	4.04				212	150	9.46	33.74	3.54	26.08	194	0.42
146	9.56	33.72 7	3.61				197	200	8.31	33.95	2.62	26.42	161	0.51
174	8.84	33.85 1	3.08				176	250	7.61	34.05	2.02	26.61	144	0.59
205	8.20	33.96 9	2.53				158	300	7.28	34.13	1.31	26.72	134	0.66
233	7.81	34.01 1	2.29				150	400	6.55	34.26	0.55	26.92	114	0.79
279	7.38	34.10 6	1.52				137	500	5.94	34.30	0.30	27.03	104	0.91
329	7.12	34.18 0	0.99				128							
408	6.52	34.26 4	0.53				114							
488	6.02	34.29 9	0.33				105							
570	5.52	34.33 8	0.29				96							

OBSERVED							COMP	INTERPOLATED				COMPUTED		
Z	T	S	O ₂	PO ₄ -P	SiO ₃ -Si	NO ₂ -N	δ _T	Z	T	S	O ₂	σ _t	δ _T	ΔD
m	°C	‰	ml/L	μg at/L	μg at/L	μg at/L	cl/ton	m	°C	‰	ml/L	g/L	cl/ton	dyn m

BLACK DOUGLAS; July 17, 1961; 0758 GCT; 30°50'N, 121°34.5'W; sounding, 2000+ fm; wind, 310°, force 3; weather, overcast; sea, moderate; wire angle, 15°.

0	17.35	33.38 6	6.25u				371	0	17.35	33.39		24.22	371	0.00
10	17.32	33.38 4	5.38				371	10	17.32	33.38	5.38	24.22	371	0.04
28	16.95	33.40 3	5.47				361	20	17.02	33.40	5.46	24.30	363	0.07
37	15.95	33.28 3	5.61				348	30	16.88	33.40	5.49	24.34	360	0.11
53	15.26	33.29 6	5.75				333	50	15.32	33.30	5.74	24.61	334	0.18
66	14.94	33.29 4	5.77				326	75	14.27	33.31	5.76	24.85	311	0.26
91	13.26	33.37 9	5.67				287	100	13.24	33.39	5.64	25.12	285	0.34
110	12.28	33.41 3	5.39				266	125	11.48	33.46	4.85	25.51	248	0.40
129	11.30	33.47 7	4.72				244	150	10.34	33.57	4.06	25.80	221	0.46
148	10.46	33.55 3	4.13				224	200	8.70	33.88	3.00	26.31	172	0.56
176	9.29	33.73 0	3.67				192	250	7.94	34.01	2.57	26.53	152	0.65
209	8.51	33.91 5	2.78				167	300	7.43	34.08	1.67	26.66	139	0.72
237	8.04	33.98 3	2.74				155	400	6.58	34.20	0.76	26.87	119	0.85
285	7.64	34.07 0	1.82				143	500	5.96	34.27	0.48	27.00	106	0.97
338	6.94	34.09 7	1.38				132	600	(5.50)	(34.32)		(27.10)	(97)	(1.08)
420	6.48	34.22 0	0.68				117							
503	5.94	34.27 0	0.49				106							
586	5.54	34.32 2	0.40				98							

BLACK DOUGLAS; July 17, 1961; 1308 GCT; 30°30.5'N, 122°14'W; sounding, 2200 fm; wind, 310°, force 3; weather, cloudy; sea, moderate; wire angle, 07°.

0	17.39	33.29 4	5.30				379	0	17.39	33.29	5.30	24.13	379	0.00
10	17.30	33.29 7	5.45				377	10	17.30	33.30	5.45	24.16	377	0.04
30	15.90	33.25 6	5.71				349	20	16.75	33.28	5.58	24.27	366	0.07
41	14.74	33.21 2	5.95				328	30	15.90	33.26	5.71	24.45	349	0.11
56	14.43	33.21 4	5.96				322	50	14.45	33.21	5.96	24.73	322	0.18
70	14.05	33.23 6	5.86				312	75	13.50	33.23	5.80	24.94	302	0.26
95	13.03	33.24 9	5.74				292	100	13.01	33.26	5.73	25.06	291	0.33
114	12.48	33.34 5	5.39				274	125	12.08	33.43	5.23	25.38	261	0.40
134	11.58	33.49 8	4.98				247	150	10.72	33.48	4.57	25.66	234	0.46
155	10.49	33.48 0	4.48				230	200	9.06	33.82	3.76	26.21	182	0.57
183	9.54	33.72 6	4.05				196	250	8.18	33.96	3.22	26.45	159	0.66
218	8.65	33.89 0	3.49				171	300	7.35	34.02	2.32	26.62	143	0.73
248	8.20	33.94 8	3.28				160	400	6.63	34.16	1.08	26.83	123	0.87
298	7.38	34.02 3	2.36				143	500	6.02	34.26	0.46	26.99	108	0.99
351	6.82	34.08 1	1.52				131	600	5.51	34.35	0.31	27.12	95	1.10
435	6.48	34.20 7	0.81				117							
520	5.90	34.28 4	0.38				105							
603	5.50	34.34 8	0.31				95							

OBSERVED							COMP	INTERPOLATED				COMPUTED		
Z	T	S	O ₂	PO ₄ -P	SiO ₃ -Si	NO ₂ -N	δ _T	Z	T	S	O ₂	σ _t	δ _T	ΔD
m	°C	‰	ml/L	μg at/L	μg at/L	μg at/L	cl/ton	m	°C	‰	ml/L	g/L	cl/ton	dyn m

HORIZON; June 27, 1961; 2132 GCT; 32°34'N, 117°28'W; sounding, 650 fm; wind, 280°, force 2; weather, cloudy; sea, slight; wire angle, 12°. a)

0	18.72	33.77 7	5.94				375							
5	18.72	33.80 4	5.93				373							
10	17.72	33.75 9	6.13				353							
15	16.00	33.72 3	6.55				317							
20	14.64	33.68 4	6.49				291							
25	13.43	33.66 1	5.80				269							
30	12.83b)	33.66 2	5.42				258							
35	12.40	33.65 7	5.14				250							
40	11.50	33.66 9	4.41				233							
44	10.97	33.72 2	3.80				220							
49	10.57	33.75 2	3.51				211							
54	10.27	33.78 2	3.23				204							
59	9.88	33.86 5	2.97				191							
64	9.76	33.89 7	2.85				187							
69	9.66	33.91 5	2.78				184							
74	9.60	33.95 0	2.70				181							
79	9.46	33.98 1	2.46				176							
83	9.46	34.01 4	2.45				174							
88	9.44	34.00 3	2.53				174							
93	9.40	34.01 1	2.43				173							

HORIZON; July 17, 1961; 0400 GCT; 31°41'N, 116°47'W; sounding, 270 fm; wind, 260°, force 1; weather, partly cloudy; sea, slight; wire angle, 03°.

0	20.25	33.79 1	6.13	0.41	1	0.00	411	0	20.25	33.79	6.13	23.79	412	0.00
10	17.58	33.71 2	6.58	0.39	4	0.01	353	10	17.58	33.71	6.58	24.41	353	0.04
30	12.16	33.55 5	4.90	1.35	6	0.43	253	20	13.70	33.57	5.54	25.16	281	0.07
50	11.08	33.59 6	4.34	1.59	11	0.00	231	30	12.16	33.56	4.90	25.46	253	0.10
75	10.58	33.72 2	3.58	1.76	15	0.01	213	50	11.08	33.60	4.34	25.69	231	0.15
100	10.08	33.85 0	2.96	2.11	20	0.02	196	75	10.58	33.72	3.58	25.87	214	0.20
126	9.98	33.96 1	2.56	2.20	23	0.02	186	100	10.08	33.85	2.96	26.06	196	0.25
165	9.71	34.16 3	1.72	2.47	28	0.01	167	125	9.99	33.96	2.58	26.16	186	0.30
205	9.48	34.22 6	1.39	2.38	32	0.01	158	150	9.81	34.09	2.03	26.29	174	0.35
255	9.20	34.27 6	1.22	2.79	33	0.02	150	200	9.50	34.22	1.42	26.45	159	0.43
305	8.74	34.32 5	0.82	2.75	39	0.00	140	250	9.23	34.27	1.24	26.53	151	0.51
355	8.14	34.36 6	0.64	2.90	43	0.00	128	300	8.79	34.32	0.87	26.64	141	0.59
409	7.26	34.30 4	0.59	2.94	49	0.02	120	400	7.42	34.31	0.60	26.84	122	0.72

- a) Shakedown station.
b) Alternate value, 12.75°C.

OBSERVED							COMP	INTERPOLATED				COMPUTED		
Z	T	S	O ₂	PO ₄ -P	SiO ₃ -Si	NO ₂ -N	δ _T	Z	T	S	O ₂	σ _t	δ _T	ΔD
m	°C	‰	ml/L	μg at/L	μg at/L	μg at/L	cl/ton	m	°C	‰	ml/L	g/L	cl/ton	dyn m

HORIZON; July 17, 1961; 0712 GCT; 31°32'N, 117°06'W; sounding, 655 fm; wind, 320°, force 1; weather, missing; sea, moderate; wire angle, 03°.

0	18.65	33.74 7	5.72	0.36	0	0.00	375	0	18.65	33.75	5.72	24.18	375	0.00
10	17.17	33.72 1	5.91	0.42	0	0.00	343	10	17.17	33.72	5.91	24.51	343	0.04
30	13.18	33.61 6	5.32	0.98	4	0.21	268	20	16.88	33.71	5.90	24.57	337	0.07
40	12.70	33.62 4	5.09	1.10	6	0.21	258	30	13.18	33.62	5.32	25.31	267	0.10
50	12.18	33.63 7	4.69	1.33	8	0.14	247	50	12.18	33.64	4.69	25.52	247	0.15
65	11.22	33.67 7	3.92	1.60	12	0.06	228	75	10.69	33.73	3.53	25.86	215	0.21
81	10.26	33.76 3	3.36	1.82	17	0.01	205	100	9.88	33.82	3.19	26.07	195	0.26
101	9.86	33.82 2	3.18	1.95	19	0.01	194	125	9.58	33.94	2.84	26.22	181	0.31
126	9.58	33.95 1	2.83	2.08	23	0.01	180	150	9.61	34.00	2.56	26.26	177	0.35
146	9.66	33.98 6	2.58	2.04	22	0.00	179	200	8.87	34.14	1.90	26.49	155	0.44
176	8.80	34.04 3	2.49	2.16	28	0.00	162	250	8.87	34.30	1.09	26.61	144	0.52
205	8.88	34.15 7	1.82	2.41	30	0.00	154	300	8.42	34.33	0.82	26.70	135	0.59
236	8.96	34.27 6	1.21	2.61	35	0.00	147	400	6.93	34.24	0.67	26.85	121	0.72
276	8.60	34.31 0	0.95	2.85	36	0.01	139	500	6.44	34.30	0.44	26.96	110	0.84
336	8.13	34.34 2	0.69	2.86	49	0.00	130							
411	6.80	34.24 3	0.65	2.90	55	0.00	119							
485	6.50	34.28 9	0.47	2.90	62	0.00	112							
565	6.18	34.33 6	0.30	3.05	-	0.01	104							

HORIZON; July 17, 1961; 1025 GCT; 31°24'N, 117°25'W; sounding, 1000 fm; wind, 160°, force 1; weather, missing; sea, moderate; wire angle, 12°.

0	18.38	33.70 2	5.74	0.30	0	0.00	372	0	18.38	33.70	5.74	24.20	372	0.00
10	18.16	33.68 8	5.78	0.33	0	0.00	368	10	18.16	33.69	5.78	24.25	368	0.04
29	16.58	33.58 7	6.10	0.41	0	0.01	340	20	17.69	33.66	5.90	24.34	359	0.07
39	13.62	33.35 8	6.06	0.68	2	0.10	295	30	16.35	33.57	6.10	24.59	336	0.11
49	13.14	33.44 0	5.74	0.82	3	0.14	280	50	13.13	33.45	5.72	25.19	279	0.17
63	12.96	33.60 1	5.45	1.11	5	0.35	265	75	11.99	33.55	4.99	25.49	250	0.24
78	11.68	33.54 4	4.84	1.26	8	0.15	245	100	10.43	33.62	4.11	25.82	218	0.30
99	10.48	33.61 7	4.14	1.60	13	0.02	220	125	9.62	33.79	3.35	26.09	193	0.35
123	9.65	33.78 4	3.39	1.91	20	0.02	194	150	9.37	33.92	2.88	26.23	179	0.39
143	9.44	33.87 8	3.02	1.95	22	0.00	184	200	8.59	34.03	2.60	26.44	159	0.48
172	9.03	33.99 3	2.66	2.05	27	0.00	169	250	8.18	34.14	1.78	26.59	145	0.56
201	8.58	34.03 5	2.59	2.27	28	0.00	159	300	7.97	34.29	0.90	26.74	131	0.63
231	8.37	34.11 0	2.04	2.39	33	0.00	150	400	7.15	34.31	0.53	26.88	118	0.76
271	7.98	34.18 4	1.42	2.63	36	0.00	139	500	6.25	34.34	0.36	27.02	105	0.88
331	7.94	34.35 3	0.60	2.80	44	0.00	126							
404	7.11	34.31 0	0.52	2.97	50	0.00	118							
477	6.42	34.32 8	0.40	2.97	57	0.00	108							
556	5.89	34.35 4	0.30	3.06	64	0.00	99							

OBSERVED							COMP	INTERPOLATED				COMPUTED		
Z	T	S	O ₂	PO ₄ -P	SiO ₃ -Si	NO ₂ -N	δ _T	Z	T	S	O ₂	σ _t	δ _T	ΔD
m	°C	‰	ml/L	μg at/L	μg at/L	μg at/L	cl/ton	m	°C	‰	ml/L	g/L	cl/ton	dyn m

HORIZON; July 17, 1961; 1538 GCT; 31°07'N, 118°02'W; sounding, 910 fm; wind, 230°, force 1; weather, overcast; sea, moderate; wire angle, 08°.

0	17.32	33.67 9	5.86	0.38	0	0.01	349	0	17.32	33.68	5.86	24.45	349	0.00
10	14.88	33.52 3	6.28	0.55	0	0.08	308	10	14.88	33.52	6.28	24.88	308	0.03
30	13.90	33.58 2	5.88	0.82	1	0.13	284	20	14.34	33.55	6.11	25.02	295	0.06
40	13.12	33.67 1	5.54	1.11	2	0.21	262	30	13.90	33.58	5.88	25.13	284	0.09
49	11.83	33.67 0	5.14	1.31	8	-	239	50	11.63	33.67	5.06	25.65	235	0.14
64	10.40	33.61 9	4.40	1.55	14	0.13	218	75	10.20	33.64	4.23	25.88	213	0.20
79	10.14	33.64 6	-	1.68	15	0.02	212	100	9.34	33.81	3.27	26.15	187	0.25
100	9.34	33.81 4	3.27	2.02	22	0.01	187	125	9.10	34.01	2.17	26.35	169	0.30
124	9.11	34.01 2	2.18	2.26	27	0.00	169	150	8.80	34.08	1.90	26.45	159	0.34
144	8.89	34.07 8	1.99	2.28	30	0.01	160	200	8.10	34.14	1.47	26.60	144	0.41
173	8.44	34.10 0	1.68	2.17	33	0.00	152	250	7.80	34.20	1.05	26.70	135	0.49
202	8.08	34.14 3	1.46	2.40	35	0.01	144	300	7.47	34.24	0.76	26.78	128	0.55
232	7.92	34.18 5	1.19	2.57	39	0.00	138	400	6.80	34.30	0.41	26.92	115	0.68
271	7.66	34.21 8	0.90	2.73	42	0.00	132	500	6.11	34.32	0.32	27.02	104	0.80
330	7.26	34.26 9	0.63	2.79	47	0.00	123							
403	6.78	34.29 7	0.42	2.76	54	0.01	115							
477	6.24	34.31 9	0.34	2.78	61	0.00	106							
556	5.83	34.34 5	0.28	2.83	66	0.01	99							

HORIZON; July 17, 1961; 2247 GCT; 30°46'N, 118°45'W; sounding, 1600 fm; wind, 170°, force 1; weather, overcast; sea, slight; wire angle, 03°.

0	18.85	33.58 6	-	0.57	2	0.01	392	0	18.85	33.59		24.00	392	0.00
10	17.83	33.46 7	5.70	0.47	2	0.00	377	10	17.83	33.47	5.70	24.16	376	0.04
30	15.66	33.41 5	6.11	0.50	2	0.01	332	20	17.11	33.44	5.88	24.31	362	0.08
40	14.76	33.40 5	6.09	0.54	1	0.02	314	30	15.66	33.42	6.11	24.63	332	0.11
50	13.91	33.38 4	5.94	0.67	3	0.05	299	50	13.91	33.38	5.94	24.98	299	0.17
65	13.07	33.37 4	5.67	0.91	3	0.19	283	75	12.63	33.45	5.40	25.29	269	0.24
80	12.46	33.46 8	5.34	1.14	5	0.35	265	100	11.27	33.54	4.70	25.61	239	0.31
100	11.27	33.54 3	4.70	1.51	10	0.02	238	125	10.04	33.69	3.73	25.94	207	0.37
125	10.04	33.69 3	3.73	1.89	17	0.02	207	150	9.11	33.80	3.69	26.18	184	0.41
145	9.26	33.76 7	3.74	1.82	20	0.00	189	200	8.20	33.97	3.14	26.46	158	0.50
175	8.55	33.93 3	3.33	1.92	26	0.01	166	250	7.63	34.06	2.40	26.61	144	0.58
204	8.14	33.97 4	3.12	2.16	30	0.00	157	300	7.52	34.20	1.02	26.74	132	0.65
235	7.71	34.01 9	2.79	2.30	35	0.00	148	400	6.97	34.30	0.52	26.89	117	0.78
276	7.57	34.13 4	1.49	2.76	41	0.01	137	500	6.07	34.34	(0.32)	27.04	103	0.90
336	7.48	34.29 5	0.69	3.00	47	0.00	124							
411	6.83	34.29 9	0.49	2.95	55	0.00	115							
485	6.18	34.32 6	0.32	2.86	62	0.00	105							
565	5.60	34.37 6	1.05u	3.03	71	0.01	94							

OBSERVED							COMP	INTERPOLATED				COMPUTED		
Z	T	S	O ₂	PO ₄ -P	SiO ₃ -Si	NO ₂ -N	δ _T	Z	T	S	O ₂	σ _t	δ _T	ΔD
m	°C	‰	ml/L	μg at/L	μg at/L	μg at/L	cl/ton	m	°C	‰	ml/L	g/L	cl/ton	dyn m

HORIZON; July 18, 1961; 0623 GCT; 30°21.5'N, 119°28'W; sounding, 2045 fm; wind, 260°, force 2; weather, missing; sea, slight; wire angle, 11°.

0	18.34	33.54 4	5.45	0.59	2	0.00	383	0	18.34	33.54	5.45	24.09	383	0.00
10	18.11	33.53 6	5.45	0.44	1	0.01	378	10	18.11	33.54	5.45	24.15	378	0.04
29	16.98	33.48 9	5.68	0.48	1	0.01	356	20	17.91	33.52	5.48	24.18	375	0.08
39	14.74	33.30 3	6.36	0.51	1	0.02	321	30	16.97	33.49	5.68	24.38	355	0.11
49	14.24	33.32 6	6.26	0.65	1	0.06	310	50	14.22	33.33	6.23	24.87	309	0.18
64	13.54	33.36 9	5.90	0.72	2	0.19	293	75	12.00	33.33	5.42	25.31	267	0.25
78	11.90	33.33 2	5.38	0.97	5	0.18	265	100	11.40	33.51	4.78	25.56	243	0.32
98	11.48	33.49 1	4.87	1.28	8	0.02	246	125	10.40	33.66	4.00	25.86	215	0.37
123	10.49	33.65 2	4.07	1.67	15	0.01	217	150	9.48	33.73	3.32	26.11	191	0.42
142	9.72	33.72 1	3.54	1.91	18	0.00	200	200	8.54	33.98	2.61	26.41	162	0.51
171	9.04	33.88 6	3.00	2.07	24	0.00	177	250	7.87	34.10	1.91	26.61	144	0.59
200	8.54	33.98 3	2.61	2.04	28	0.01	162	300	7.32	34.17	1.30	26.74	131	0.66
230	8.09	34.04 7	2.29	2.39	33	0.01	151	400	6.01	34.18	0.84	26.93	114	0.79
269	7.66	34.13 5	1.56	2.65	41	0.01	138	500	5.63	34.28	0.42	27.05	102	0.91
328	6.98	34.18 2	1.15	2.96	48	0.01	126							
402	6.00	34.17 9	0.83	2.94	58	0.01	114							
476	5.73	34.25 3	0.50	3.01	64	0.01	105							
556	5.42	34.32 2	0.31	3.17	71	0.01	96							

HORIZON; July 18, 1961; 1144 GCT; 30°01'N, 120°07.5'W; sounding, 1852 fm; wind, 360°, force 1; weather, overcast; sea, moderate; wire angle, 02°.

1	17.47	33.32 0	5.58	0.40	0	0.00	379	0	(17.47)	(33.32)	(5.58)	(24.14)	(379)	(0.00)
11	16.60	33.34 9	5.79	0.41	0	0.00	357	10	16.75	33.35	5.74	24.33	361	0.04
31	15.67	33.32 9	5.90	0.41	0	0.00	339	20	16.13	33.34	5.83	24.46	348	0.07
41	14.62	33.25 4	6.07	0.47	1	0.00	322	30	15.72	33.33	5.89	24.55	340	0.11
51	13.79	33.33 0	6.05	0.55	1	0.04	300	50	13.83	33.33	6.04	24.95	301	0.17
66	13.48	33.35 4	5.87	0.63	1	0.12	293	75	13.30	33.38	5.77	25.10	287	0.25
81	12.66	33.39 2	5.62	0.84	3	0.37	274	100	12.02	33.46	5.23	25.41	258	0.31
101	11.98	33.46 7	5.20	1.06	5	0.03	256	125	10.83	33.58	4.52	25.72	228	0.38
126	10.82	33.58 6	4.51	1.48	10	0.00	227	150	9.88	33.73	3.54	26.00	201	0.43
146	10.03	33.69 4	3.69	1.77	16	0.00	206	200	8.79	33.92	2.88	26.33	171	0.52
176	9.10	33.87 3	3.00	1.99	20	0.00	179	250	8.00	34.05	2.23	26.55	149	0.61
206	8.72	33.92 4	2.85	2.18	25	0.00	169	300	7.38	34.12	1.48	26.69	136	0.68
237	8.26	34.03 7	2.41	2.32	31	0.00	154	400	6.41	34.23	0.70	26.91	115	0.81
276	7.56	34.09 7	1.89	2.61	38	0.00	140	500	6.07	34.31	0.36	27.02	105	0.93
335	7.14	34.16 0	1.07	2.77	42	0.00	130							
411	6.34	34.24 3	0.67	2.98	55	0.00	113							
485	6.14	34.29 9	0.39	3.01	59	0.00	106							
566	5.64	34.35 7	0.33	3.02	69	0.00	96							

OBSERVED							COMP	INTERPOLATED				COMPUTED		
Z	T	S	O ₂	PO ₄ -P	SiO ₃ -Si	NO ₂ -N	δ _T	Z	T	S	O ₂	σ _t	δ _T	ΔD
m	°C	‰	ml/L	μg at/L	μg at/L	μg at/L	cl/ton	m	°C	‰	ml/L	g/L	cl/ton	dyn m

HORIZON; July 18, 1961; 1716 GCT; 29°42'N, 120°47'W; sounding, 2100 fm; wind, 200°, force 1; weather, cloudy; sea, rough; wire angle, 12°.

0	19.00	33.57 5	5.44	0.37	1	0.00	396	0	19.00	33.58	5.44	23.96	396	0.00
10	18.56	33.56 9	5.39	0.37	1	0.00	386	10	18.56	33.57	5.39	24.06	386	0.04
29	18.08	33.58 0	5.47	0.36	1	0.00	374	20	18.49	33.57	5.40	24.08	385	0.08
39	16.81	33.54 2	5.79	0.36	1	0.00	348	30	18.03	33.58	5.49	24.20	373	0.12
49	16.34	33.51 2	5.84	0.36	1	0.00	340	50	16.31	33.51	5.84	24.55	339	0.19
64	15.88	33.52 1	5.77	0.36	1	0.00	329	75	15.76	33.62	5.77	24.76	319	0.27
79	15.70	33.66 2	5.76	0.36	2	0.00	315	100	13.70	33.53	5.52	25.13	284	0.35
99	13.85	33.53 8	5.54	0.56	2	0.09	286	125	11.70	33.46	4.99	25.47	252	0.41
123	11.86	33.45 3	5.04	1.01	6	0.02	255	150	10.56	33.60	4.49	25.78	222	0.47
142	10.80	33.54 3	4.55	1.22	10	0.00	230	200	8.89	33.86	3.73	26.26	176	0.57
171	10.08	33.73 4	4.38	1.38	13	0.00	204	250	8.23	34.02	2.69	26.49	155	0.66
199	8.92	33.85 3	3.75	1.82	21	0.00	177	300	7.68	34.13	1.87	26.66	139	0.74
229	8.40	33.95 6	3.41	1.92	26	0.00	162	400	6.62	34.17	1.01	26.84	122	0.87
267	8.08	34.06 9	2.30	2.30	32	0.00	149	500	6.26	34.31	0.44	27.00	107	0.99
324	7.34	34.14 3	1.60	2.50	41	0.00	133							
395	6.63	34.16 4	1.08	2.68	50	0.00	123							
467	6.48	34.27 9	0.56a)	2.74	56	0.00	112							
546	5.84	34.33 5	0.35	2.84	63	0.00	100							

a) Alternate value, 0.46 ml/L, not used in interpolation.

OBSERVED							COMP	INTERPOLATED				COMPUTED		
Z	T	S	O ₂	PO ₄ -P	SiO ₃ -Si	NO ₂ -N	δ _T	Z	T	S	O ₂	σ _t	δ _T	ΔD
m	°C	‰	ml/L	μg at/L	μg at/L	μg at/L	cl/ton	m	°C	‰	ml/L	g/L	cl/ton	dyn m

HORIZON; July 18, 1961; 2336 GCT; 29°21'N, 121°26.5'W; sounding, 2100 fm; wind, direction missing, force 1; weather, partly cloudy; sea, rough; wire angle, 08°.

1	19.35	33.71 3	5.56	0.39	2	0.00	395	0	(19.35)	(33.71)	(5.56)	(23.97)	(395)	(0.00)
11	19.10	33.70 4	5.57a)	0.44	1	0.00	389	10	19.11	33.70	5.57	24.02	390	0.04
31	18.96	33.72 1	5.54	0.38	1	0.00	385	20	19.00	33.72	5.56	24.06	386	0.08
55	17.34	33.69 0	5.71	0.48	1	0.00	349	30	18.96	33.72	5.55	24.07	385	0.12
66	16.76	33.63 3	5.76	0.39	1	0.00	340	50	18.30	33.72	5.60	24.24	369	0.19
75	17.28	33.92 8	5.79	0.36	1	0.00	330	75	17.28	33.93	5.79	24.65	330	0.28
91	16.91	33.88 3	5.65	0.36	1	0.00	325	100	16.80	33.92	5.61	24.75	320	0.36
106	16.74	34.02 6	5.61	0.29	1	0.00	311	125	14.84	33.83	5.60	25.12	285	0.44
130	13.94	33.70 9	5.57	0.61	3	0.11	275	150	12.66	33.58	5.26	25.38	260	0.51
150	12.66	33.57 6	5.26	0.82	5	0.01	261	200	9.60	33.78	4.29	26.09	193	0.62
176	10.42	33.57 2	4.68	1.33	12	0.00	222	250	8.44	33.95	3.54	26.40	163	0.71
205	9.44	33.81 6	4.22	1.64	16	0.00	188	300	7.63	34.02	2.90	26.58	147	0.79
235	8.70	33.92 5	3.70	1.88	25	0.00	169	400	6.70	34.13	1.13	26.80	126	0.94
275	8.08	33.98 2	3.28	2.22	28	0.00	156	500	5.93	34.24	0.60	26.98	108	1.06
334	7.14	34.05 2	2.42	2.61	41	0.00	138							
410	6.63	34.14 6	1.02	2.74	49	0.00	124							
483	6.04	34.22 4	0.66	2.80	59	0.00	111							
563	5.48	34.29 7	0.42	2.90	67	0.00	99							

a) Alternate value, 5.44 ml/L, not used in interpolation.

OBSERVED							COMP	INTERPOLATED				COMPUTED		
Z	T	S	O ₂	PO ₄ -P	SiO ₃ -Si	NO ₂ -N	δ _T	Z	T	S	O ₂	σ _t	δ _T	ΔD
m	°C	‰	ml/L	μg at/L	μg at/L	μg at/L	cl/ton	m	°C	‰	ml/L	g/L	cl/ton	dyn m

HORIZON; July 19, 1961; 0956 GCT; 28°41'N, 122°46.5'W; sounding, 2100 fm; wind, 300°, force 1; weather, partly cloudy; sea, rough; wire angle, 04°.

1	19.50	33.65 2	5.30	0.37	1	0.00	403	0	(19.50)	(33.65)	(5.30)	(23.88)	(403)	(0.00)
11	19.32	33.65 9	4.91	0.37	1	0.00	398	10	19.33	33.66	4.93	23.93	398	0.04
31	19.22	33.93 0	5.35	0.35	1	0.00	376	20	19.12	33.75	5.11	24.06	387	0.08
61	18.02	33.90 5	5.65	0.34	1	0.00	349	30	19.20	33.91	5.34	24.16	377	0.12
71	17.71	33.90 5	5.65	0.39	1	0.00	342	50	19.08	33.93	5.40	24.20	372	0.19
86	17.00	33.83 1	5.69	0.32	1	0.00	331	75	17.58	33.89	5.66	24.54	340	0.28
102	16.61	33.91 1	5.59	0.36	1	0.01	317	100	16.78	33.91	5.62	24.75	320	0.37
117	15.88	33.92 1	5.44	0.38	2	0.03	300	125	15.40	33.89	5.38	25.05	292	0.44
141	14.38	33.80 6	5.30	0.56	2	0.17	277	150	13.75	33.79	5.23	25.32	266	0.51
161	13.03	33.77 0	5.12	0.74	4	0.03	253	200	10.32	33.58	4.45	25.81	220	0.64
191	10.82	33.58 0	4.64	1.14	10	0.00	228	250	8.58	33.90	3.46	26.34	169	0.74
221	9.40	33.70 2	3.94	1.64	17	0.00	196	300	7.74	34.01	2.80	26.56	149	0.82
251	8.56	33.89 5	3.45	1.86	24	0.00	169	400	6.45	34.10	1.34	26.81	125	0.96
302	7.71	34.01 6	2.78	2.21	33	0.01	148	500	5.60	34.19	0.68	26.98	108	1.08
357	6.90	34.07 0	1.87	2.50	43	0.00	133	600	5.04	34.28	0.42	27.12	95	1.19
441	6.10	34.12 7	1.02	2.69	53	0.00	119							
531	5.33	34.22 5	0.55	2.93	-	0.00	102							
611	5.01	34.29 1	0.41	2.83	66	0.01	94							

HORIZON; July 21, 1961; 2213 GCT; 29°47'N, 116°00'W; sounding, 560 fm; wind, 290°, force 3; weather, overcast; sea, slight; wire angle, 35°.

0	19.51	33.69 9	5.72	0.28	1	0.00	400	0	19.51	33.70	5.72	23.92	400	0.00
8	19.03	33.68 4	5.85	0.35	2	0.00	389	10	18.75	33.68	5.89	24.10	383	0.04
24	16.65	33.64 9	6.04	0.35	1	0.00	337	20	17.28	33.66	6.00	24.44	350	0.08
31	15.05	33.60 4	6.20	0.39	1	0.00	306	30	15.35	33.62	6.18	24.85	311	0.11
40	14.08	33.58	5.78	0.53	4	0.02	288	50	13.10	33.59	5.25	25.30	268	0.17
51	13.05	33.59	5.23	0.84	5	0.27	267	75	11.49	33.73	3.63	25.72	228	0.23
61	12.16	33.64 1	4.36	1.20	9	0.09	247	100	10.52	33.90	2.90	26.02	199	0.28
76	11.44	33.74 0	3.57	1.52	13	0.02	227	125	10.11	33.99	2.48	26.17	186	0.33
91	10.76	33.83 7	3.07	1.76	17	0.00	208	150	9.63	34.03	2.37	26.28	175	0.38
103	10.44	33.91 8	2.86	1.86	20	0.00	197	200	9.66	34.24	1.49	26.44	160	0.46
120	10.18	33.97 3	2.53	2.04	22	0.00	188	250	9.83	34.43	0.71	26.56	149	0.54
140	9.91	34.04 5	2.37	2.12	24	0.00	179	300	9.31	34.45	0.60	26.66	139	0.62
159	9.44	34.01 3	2.36	2.12	27	0.00	174	400	(8.33)	(34.37)	(0.76)	(26.75)	(130)	(0.76)
184	9.48	34.15	1.95	2.34	28	0.00	164							
225	9.95	34.38 9	0.92	2.64	34	0.00	154							
280	9.58	34.44 8	0.60	2.77	35	0.00	144							
343	8.66	34.40 2	0.63	2.77	41	0.00	133							
397	8.34	34.37 0	0.76	2.74	40	0.00	131							

OBSERVED							COMP	INTERPOLATED				COMPUTED		
Z	T	S	O ₂	PO ₄ -P	SiO ₃ -Si	NO ₂ -N	δ _T	Z	T	S	O ₂	σ _t	δ _T	ΔD
m	°C	‰	ml/L	μg at/L	μg at/L	μg at/L	cl/ton	m	°C	‰	ml/L	g/L	cl/ton	dyn m

HORIZON; July 21, 1961; 1848 GCT; 29°37'N, 116°18.5'W; sounding, 1333 fm; wind, 300°, force 3; weather, overcast; sea, moderate;
wire angle, 01°.

0	19.76	33.70 5	5.19	0.38	1	0.00	405	0	19.76	33.70	5.19	23.85	406	0.00
10	19.62	33.69 5	5.26	0.34	0	0.00	403	10	19.62	33.70	5.26	23.89	402	0.04
30	16.28	33.51 1	5.77	0.35	1	0.00	339	20	17.10	33.55	5.67	24.40	354	0.08
40	14.66	33.44 2	6.07	0.44	2	0.02	309	30	16.28	33.51	5.77	24.56	339	0.11
55	13.68	33.48 0	5.72	0.57	2	0.06	287	50	13.98	33.46	5.85	25.02	295	0.18
71	12.80	33.54 9	5.25	0.88	4	0.43	265	75	12.52	33.56	5.10	25.39	259	0.25
96	11.24	33.61 2	4.38	1.36	11	0.03	233	100	10.93	33.63	4.17	25.74	226	0.31
116	10.16	33.69 3	3.66	1.65	16	0.02	209	125	9.91	33.74	3.47	26.00	201	0.36
136	9.69	33.78 0	3.30	1.78	20	0.01	195	150	9.43	33.85	3.11	26.17	185	0.41
156	9.35	33.87 1	3.03	1.85	23	0.01	183	200	8.71	34.03	2.24	26.43	161	0.50
186	8.84	33.98 2	2.46	2.00	28	0.00	167	250	8.39	34.19	1.39	26.60	145	0.58
222	8.56	34.11 0	1.91	2.34	32	0.00	153	300	8.90	34.43	0.54	26.71	134	0.65
252	8.38	34.19 8	1.36	2.53	38	0.00	144	400	7.32	34.34	0.51	26.88	118	0.78
302	8.91	34.43 7	0.52	2.80	40	0.00	134	500	6.71	34.41	0.24	27.01	105	0.90
357	7.42	34.27 0	0.81	2.87	48	0.00	125	600	5.67	34.39	0.24	27.13	94	1.01
442	7.22	34.40 5	0.29	2.95	54	0.00	112							
527	6.46	34.40 3	0.24	2.91	61	0.00	103							
612	5.52	34.38 1	0.24	2.92	73	0.00	93							

HORIZON; July 21, 1961; 1250 GCT; 29°15'N, 116°57.5'W; sounding, 1720 fm; wind, 300°, force 3; weather, overcast; sea, moderate;
wire angle, 12°.

0	19.82	33.70 1	5.32	0.35	1	0.00	407	0	19.82	33.70	5.32	23.84	407	0.00
10	19.82	33.69 3	5.29	0.37	0	0.00	408	10	19.82	33.69	5.29	23.83	408	0.04
29	17.43	33.64 0	5.58	0.36	0	0.00	355	20	18.25	33.66	5.45	24.21	372	0.08
39	15.93	33.54 9	5.93	0.39	1	0.00	328	30	17.41	33.64	5.60	24.39	354	0.12
53	14.02	33.39 8	6.05	0.47	1	0.03	300	50	14.40	33.42	6.04	24.90	306	0.18
69	12.98	33.49 5	5.50	0.83	3	0.19	273	75	12.76	33.51	5.34	25.31	268	0.26
94	11.28	33.56 7	4.55	1.17	9	0.09	237	100	10.80	33.60	4.31	25.74	226	0.32
113	10.10	33.64 5	3.92	1.55	15	0.03	211	125	9.73	33.72	3.67	26.02	200	0.37
133	9.50	33.77 8	3.53	1.80	18	0.01	192	150	9.15	33.88	3.46	26.24	179	0.42
152	9.12	33.89 3	3.44	1.85	23	0.01	178	200	8.70	34.08	2.09	26.47	157	0.51
182	9.00	34.05 0	2.29	2.25	30	0.00	164	250	8.24	34.16	1.43	26.60	145	0.58
217	8.41	34.10 8	1.85	2.48	33	0.00	151	300	7.86	34.22	1.00	26.70	135	0.66
246	8.26	34.15 1	1.49	2.57	36	0.00	146	400	6.70	34.26	0.69	26.90	116	0.79
296	7.92	34.21 9	1.02	2.84	42	0.00	136	500	6.44	34.38	0.27	27.03	104	0.90
350	7.21	34.22 8	0.89	2.89	49	0.00	125	600	5.78	34.39	0.24	27.12	95	1.01
433	6.50	34.28 0	0.51	2.99	59	0.00	112							
516	6.39	34.40 0	0.24	3.22	61	0.00	102							
600	5.78	34.39 0	0.24	3.12	70	0.00	95							

OBSERVED							COMP	INTERPOLATED				COMPUTED		
Z	T	S	O ₂	PO ₄ -P	SiO ₃ -Si	NO ₂ -N	δ _T	Z	T	S	O ₂	σ _t	δ _T	ΔD
m	°C	‰	ml/L	μg at/L	μg at/L	μg at/L	cl/ton	m	°C	‰	ml/L	g/L	cl/ton	dyn m

HORIZON; July 21, 1961; 0659 GCT; 28°53'N, 117°37'W; sounding, 1975 fm; wind, 330°, force 5; weather, cloudy; sea, rough; wire angle, 24°.

0	19.84	33.48 9	5.49	0.36	0	0.00	423	0	19.84	33.49	5.49	23.67	423	0.00
9	18.86	33.51 5	5.61	0.37	0	0.00	397	10	18.40	33.55	5.69	24.08	384	0.04
28	16.22	33.63 5	6.14	0.38	0	0.02	328	20	16.60	33.63	6.07	24.58	337	0.08
37	15.44	33.54 9	6.25	0.46	0	0.04	318	30	16.20	33.63	6.15	24.67	328	0.11
50	14.16	33.39 3	6.07	0.48	1	0.02	303	50	14.16	33.39	6.07	24.93	303	0.17
64	13.38	33.40 5	5.86	0.70	2	0.15	287	75	12.92	33.43	5.63	25.21	276	0.25
86	12.44	33.45 8	5.38	0.77	4	0.15	265	100	11.55	33.49	4.90	25.52	247	0.31
106	11.16	33.50 4	4.69	1.20	8	0.04	239	125	10.00	33.66	3.90	25.93	209	0.37
124	10.04	33.65 1	3.94	1.57	15	0.01	210	150	9.47	33.77	3.60	26.10	192	0.42
142	9.61	33.74 0	3.71	1.68	17	0.00	196	200	8.85	34.02	2.34	26.40	164	0.51
169	9.15	33.85 3	3.26	1.92	22	0.00	181	250	8.51	34.15	1.57	26.55	149	0.59
200	8.85	34.02 3	2.34	2.21	27	0.00	164	300	7.89	34.20	1.13	26.68	137	0.67
229	8.76	34.11 1	1.84	2.35	32	0.00	156	400	6.70	34.22	0.77	26.87	119	0.80
274	8.13	34.17 8	1.37	2.55	36	0.00	142	500	6.03	34.30	0.40	27.02	105	0.92
324	7.70	34.22 9	0.96	2.87	43	0.00	132							
404	6.65	34.21 5	0.76	2.88	53	0.00	119							
484	6.12	34.28 2	0.45	2.92	60	0.00	107							
567	5.75	34.34 6	0.26	3.00	67	0.00	98							

HORIZON; July 21, 1961; 0036 GCT; 28°36.5'N, 118°18'W; sounding, 2050 fm; wind, 270°, force 3; weather, rain; sea, moderate; wire angle, 18°.

1	21.10	33.56 4	5.26	0.35	1	0.00	450	0	(21.10)	(33.56)	(5.26)	(23.39)	(450)	(0.00)
10	19.18	33.54 6	5.40	0.36	1	0.00	403	10	19.18	33.55	5.40	23.89	403	0.04
29	17.42	33.49 9	5.63	0.37	1	0.00	365	20	18.30	33.52	5.51	24.09	384	0.08
39	16.86	33.51 6	5.73	0.36	1	0.00	351	30	17.39	33.50	5.63	24.29	364	0.12
54	16.55	33.53 2	5.78	0.35	1	0.00	343	50	16.64	33.53	5.78	24.49	345	0.19
68	15.74	33.48 8	5.78	0.38	1	0.00	329	75	15.12	33.49	5.72	24.80	315	0.27
91	14.54	33.50 8	5.65	0.46	1	0.07	302	100	14.16	33.50	5.58	25.02	295	0.35
110	13.76	33.49 4	5.49	0.58	2	0.10	288	125	12.97	33.55	5.12	25.30	268	0.42
129	12.70	33.56 3	4.99	0.84	5	0.02	262	150	11.15	33.60	4.44	25.68	232	0.49
148	11.28	33.59 5	4.49	1.19	9	0.01	235	200	9.19	33.80	3.89	26.17	185	0.59
175	9.97	33.60 9	4.11	1.49	14	0.00	212	250	8.53	34.02	2.82	26.45	159	0.68
207	9.03	33.86 8	3.82	1.74	20	0.00	178	300	8.09	34.15	1.84	26.61	143	0.76
235	8.71	33.99 0	3.11	1.96	26	0.00	164	400	7.37	34.30	0.72	26.84	122	0.90
279	8.20	34.08 4	2.25	2.36	32	0.00	150	500	6.47	34.32	0.37	26.98	109	1.02
329	7.94	34.22 4	1.34	2.69	39	0.00	136							
407	7.30	34.30 6	0.68	2.99	48	0.00	121							
486	6.58	34.32 0	0.40	2.92	54	0.00	110							
567	5.84	34.34 8	0.29	3.18	63	0.00	99							

OBSERVED							COMP	INTERPOLATED				COMPUTED		
Z	T	S	O ₂	PO ₄ -P	SiO ₃ -Si	NO ₂ -N	δ _T	Z	T	S	O ₂	σ _t	δ _T	ΔD
m	°C	‰	ml/L	μg at/L	μg at/L	μg at/L	cl/ton	m	°C	‰	ml/L	g/L	cl/ton	dyn m

HORIZON; July 20, 1961; 1935 GCT; 28°18.5'N, 118°54'W; sounding, 2100 fm; wind, direction missing, force 1; weather, fog; sea, moderate; wire angle, 01°.

0	20.91	33.75 9	5.29	0.40	0	0.00	431	0	20.91	33.76	5.29	23.60	430	0.00
10	19.80	33.74 7	5.38	0.38	0	0.00	403	10	19.80	33.75	5.38	23.88	403	0.04
30	18.64	33.61 0	5.55	0.38	0	0.00	385	20	19.00	33.65	5.49	24.01	391	0.08
40	17.94	33.54 5	5.63	0.40	0	0.01	373	30	18.64	33.61	5.55	24.07	385	0.12
50	17.23	33.59 1	5.82	0.37	0	0.00	354	50	17.23	33.59	5.82	24.40	354	0.19
65	16.86	33.66 4	5.85	0.35	0	0.00	340	75	16.47	33.64	5.84	24.62	333	0.28
80	16.19	33.61 9	5.83	0.37	0	0.00	329	100	15.35	33.64	5.78	24.87	309	0.36
100	15.35	33.64 2	5.78	0.42	0	0.00	309	125	13.67	33.63	5.40	25.22	276	0.44
126	13.61	33.63 3	5.38	0.64	3	0.08	275	150	12.35	33.68	4.83	25.52	247	0.50
146	12.70	33.67 2	5.02	0.80	4	0.02	254	200	9.97	33.87	3.40	26.10	192	0.61
176	10.72	33.75 9	3.86	1.53	14	0.01	213	250	8.98	34.06	2.61	26.41	163	0.70
206	9.78	33.88 7	3.34	1.88	19	0.01	188	300	8.59	34.16	1.88	26.55	150	0.79
237	9.06	34.03 5	2.87	2.09	25	0.01	166	400	7.35	34.25	0.96	26.80	126	0.93
277	8.88	34.10 2	2.28	2.37	28	0.01	158	500	6.51	34.32	0.58	26.97	109	1.05
337	8.02	34.23 0	1.39	2.72	38	0.01	136							
412	7.22	34.25 5	0.89	2.81	46	0.01	123							
488	6.60	34.31 5	0.61	2.87	51	0.01	111							
568	6.06	34.34 1	0.41	2.95	60	0.01	102							

HORIZON; July 20, 1961; 1332 GCT; 27°57.5'N, 119°34'W; sounding, 2100 fm; wind, direction missing, force 1; weather, fog; sea, moderate; wire angle, 00°.

0	20.60	33.66 8	5.27	0.76	2	0.00	429	0	20.60	33.67	5.27	23.61	429	0.00
10	20.24	33.66 0	5.47	0.39	1	0.00	421	10	20.24	33.66	5.47	23.70	421	0.04
31	18.69	33.66 9	5.59	0.38	1	0.00	382	20	19.10	33.67	5.58	24.00	392	0.08
41	17.52	33.66 2	5.76	0.56	1	0.01	355	30	18.70	33.67	5.59	24.10	382	0.12
51	17.31	33.67 8	5.93	0.46	1	0.00	349	50	17.32	33.68	5.92	24.45	349	0.20
66	16.92	33.66 0	5.80	0.71u	1	0.00	342	75	16.53	33.60	5.83	24.57	338	0.28
81	16.32	33.57 5	5.86	0.45	1	0.00	335	100	15.70	33.59	5.74	24.75	320	0.36
101	15.61	33.59 1	5.72	0.47	1	0.00	318	125	13.62	33.56	5.28	25.17	280	0.44
126	13.60	33.55 6	5.27	0.78	3	0.16	280	150	12.49	33.64	4.68	25.46	253	0.51
146	12.75	33.62 2	4.81	1.05	6	0.02	259	200	10.41	33.85	3.12	26.00	201	0.62
176	10.86	33.69 9	3.81	1.64	15	0.01	220	250	9.23	34.05	2.72	26.36	168	0.72
206	10.27	33.86 7	3.04	2.01	19	0.02	198	300	8.70	34.20	1.64	26.56	148	0.80
237	9.34	33.97 4	2.98	2.03	24	0.00	175	400	7.18	34.21	1.11	26.79	126	0.94
277	9.02	34.16 9	1.89	2.37	30	0.00	156	500	6.63	34.31	0.50	26.95	112	1.07
337	8.12	34.21 1	1.44	2.72	37	0.00	139							
412	7.04	34.21 9	1.04	2.98	48	0.00	124							
487	6.72	34.30 2	0.52	2.92	54	0.00	113							
568	6.08	34.33 5	0.40	3.14	62	0.00	103							

OBSERVED							COMP	INTERPOLATED				COMPUTED		
Z	T	S	O ₂	PO ₄ -P	SiO ₃ -Si	NO ₂ -N	δ _T	Z	T	S	O ₂	σ _t	δ _T	ΔD
m	°C	‰	ml/L	μg at/L	μg at/L	μg at/L	cl/ton	m	°C	‰	ml/L	g/L	cl/ton	dyn m

HORIZON; July 20, 1961; 0806 GCT; 27°38'N, 120°14'W; sounding, 2150 fm; wind, 140°, force 2; weather, rain; sea, slight; wire angle, 05°.

1	20.78	33.70 8	5.39	0.48	0	0.01	431	0	(20.78)	(33.71)	(5.39)	(23.59)	(431)	(0.00)
11	20.38	33.65 9	5.41	0.44	1	0.00	424	10	20.54	33.67	5.40	23.63	428	0.04
31	18.74	33.66 3	5.56	0.40	1	0.00	384	20	18.89	33.66	5.55	24.05	388	0.08
41	18.64	33.71 1	5.59	0.49	0	0.00	378	30	18.76	33.66	5.57	24.08	384	0.12
56	17.91	33.81 4	5.84	0.36	1	0.00	353	50	18.02	33.79	5.81	24.36	357	0.20
71	17.65	33.86 6	5.77	0.37	1	0.00	343	75	17.62	33.87	5.77	24.52	342	0.28
96	16.65	33.85 0	5.71	0.36	1	0.00	322	100	16.62	33.85	5.71	24.74	321	0.37
116	15.03	33.76 9	5.54	0.48	2	0.07	293	125	14.62	33.80	5.41	25.15	282	0.44
137	14.18	33.84 5	5.30	0.58	3	0.06	270	150	13.10	33.74	5.18	25.42	257	0.51
156	12.48	33.69 2	5.09	0.84	5	0.02	249	200	10.71	33.85	3.70	25.95	206	0.63
186	11.43	33.79 2	3.99	1.32	12	0.00	223	250	9.33	34.04	2.87	26.33	170	0.73
221	9.86	33.92 2	3.33	1.81	19	0.00	187	300	8.86	34.19	1.67	26.53	152	0.81
252	9.30	34.04 2	2.84	2.02	25	0.00	169	400	7.62	34.27	0.86	26.78	128	0.96
301	8.84	34.19 7	1.66	2.43	31	0.00	151	500	6.62	34.30	0.57	26.94	112	1.08
356	8.06	34.25 1	1.10	2.68	38	0.00	135	600	5.86	34.34	0.36	27.07	100	1.20
441	7.22	34.28 5	0.66	2.77	46	0.00	121							
526	6.36	34.30 5	0.53	2.77	59	0.00	109							
612	5.78	34.34 6	0.32	2.81	63	0.00	99							

HORIZON; July 19, 1961; 2228 GCT; 26°56.5'N, 121°35'W; sounding, 2200 fm; wind, 090°, force 4; weather, overcast; sea, rough; wire angle, 25°.

0	20.64	33.78 7		0.38	2	0.00	422	0	20.64	33.79		23.69	421	0.00
9	20.54	33.80 1		0.48	2	0.00	418	10	20.53	33.80		23.73	418	0.04
27	19.74	33.92 8		0.37	1	0.00	389	20	20.28	33.85		23.83	408	0.08
36	18.32	33.86 1		0.47	1	0.00	359	30	19.28	33.91		24.14	379	0.12
50	18.02	33.90 4		0.40	1	0.00	349	50	18.02	33.90		24.45	349	0.20
63	17.82	33.89 7		0.57	1	0.00	345	75	17.25	33.82		24.57	338	0.28
86	16.70	33.76 3		0.37	1	0.00	329	100	16.49	33.79		24.73	323	0.37
105	16.42	33.81 4		0.43	1	0.00	320	125	16.19	33.95		24.92	305	0.44
122	16.24	33.95 4		0.40	1	0.00	305	150	14.32	33.85		25.25	273	0.52
140	15.20	33.91 1		0.49	2	0.07	286	200	10.70	33.74		25.87	214	0.64
166	13.10	33.77 4		0.86	4	0.02	254	250	9.08	34.00		26.34	169	0.74
198	10.87	33.73 8		1.30	9	0.01	217	300	8.44	34.16		26.57	148	0.82
225	9.42	33.89 5		1.84	19	0.00	182	400	7.27	34.24		26.80	125	0.96
271	8.80	34.08 1		2.27	28	0.00	159	500	6.40	34.34		27.00	107	1.09
322	8.18	34.18 6		2.55	34	0.00	142							
401	7.25	34.24 2		2.74	44	0.00	125							
482	6.52	34.32 4		2.81	54	0.00	109							
566	6.00	34.37 6		2.97	61	0.00	99							

OBSERVED							COMP	INTERPOLATED				COMPUTED		
Z	T	S	O ₂	PO ₄ -P	SiO ₃ -Si	NO ₂ -N	δ _T	Z	T	S	O ₂	σ _t	δ _T	ΔD
m	°C	‰	ml/L	μg at/L	μg at/L	μg at/L	cl/ton	m	°C	‰	ml/L	g/L	cl/ton	dyn m

HORIZON; July 31, 1961; 1930 GCT; 29°22'N, 115°18'W; sounding, 30 fm; wind, 250°, force 3; weather, clear; sea, slight; wire angle, 07°.

0	17.19	33.76 8	9.64u	0.25	14	0.01	340	0	17.19	33.77		24.55	340	0.00
10	14.88	33.65 0	7.71u	0.43	9	0.02	299	10	14.88	33.65		24.98	299	0.03
30	11.70	33.80 0	2.61	1.20	15	0.02	227	20	12.13	33.77		25.63	237	0.06
40	11.04	33.84 6	2.22	1.92	21	0.04	212	30	11.70	33.80		25.73	227	0.08

HORIZON; July 31, 1961; 1525 GCT; 28°54.5'N, 115°26.5'W; sounding, 628 fm; wind, 270°, force 3; weather, cloudy; sea, slight; wire angle, 10°.

0	20.31	33.78 6	6.98	0.17	4	0.00	413	0	20.31	33.79	6.98	23.78	413	0.00
10	19.54	33.75 0	6.92	0.15	4	0.00	397	10	19.54	33.75	6.92	23.95	397	0.04
29	12.62	33.73 4	4.39	1.10	11	0.29	248	20	14.88	33.74	5.29	25.05	292	0.07
39	12.15	33.74 1	4.14	1.39	12	0.25	239	30	12.59	33.74	4.37	25.52	247	0.10
54	11.48	33.76 5	3.63	1.73	15	0.03	226	50	11.69	33.76	3.80	25.70	230	0.15
69	10.72	33.79 4	3.23	1.85	17	0.01	210	75	10.60	33.81	3.12	25.94	207	0.20
93	10.22	33.90 9	2.61	2.05	20	0.00	194	100	10.10	33.94	2.46	26.13	189	0.25
114	9.95	34.01 5	2.17	2.27	24	0.00	181	125	9.94	34.06	1.99	26.25	178	0.30
134	9.94	34.10 4	1.81	2.38	25	0.00	175	150	9.94	34.18	1.54	26.34	169	0.35
153	9.94	34.19 5	1.50	2.48	28	0.00	168	200	9.27	34.23	1.30	26.49	155	0.43
183	9.56	34.23 6	1.28	2.57	31	0.00	159	250	8.68	34.25	1.18	26.60	144	0.51
218	8.98	34.23 4	1.34	2.64	32	0.00	150	300	8.49	34.34	0.71	26.70	135	0.58
248	8.68	34.24 3	1.19	2.61	36	0.00	145	400	8.06	34.40	0.46	26.81	124	0.71
297	8.50	34.33 1	0.73	2.86	39	0.00	136	500	7.23	34.39	0.23	26.93	114	0.84
353	8.41	34.40 5	0.42	2.96	42	0.00	129	600	6.18	34.38	0.38	27.06	101	0.96
437	7.74	34.39 8	0.47	3.14	48	0.00	120							
521	7.05	34.39 5	0.20	3.10	55	0.00	111							
606	6.12	34.38 4	0.39	3.18	63	0.00	100							

HORIZON; July 31, 1961; 0955 GCT; 28°19'N, 114°54'W; sounding, 49 fm; wind, 300°, force 4; weather, clear; sea, moderate; wire angle, wire angle, 10°.

2	20.90	33.85 6	4.77	0.46	1	0.00	423	0	(20.90)	(33.86)	(4.77)	(23.67)	(423)	(0.00)
12	20.90	33.86 3	4.67	0.56	1	0.00	423	10	20.90	33.86	4.68	23.67	423	0.04
31	18.28	33.80 8	5.05	0.54	0	0.01	362	20	20.65	33.86	4.70	23.74	417	0.08
51	15.96	33.77 2	4.81	0.77	1	0.13	313	30	18.35	33.81	5.05	24.30	364	0.12
76	12.16	33.69 6	3.60	1.52	10	0.05	243	50	16.05	33.77	4.81	24.81	315	0.19
								75	12.22	33.70	3.61	25.56	244	0.26

OBSERVED							COMP	INTERPOLATED				COMPUTED		
Z	T	S	O ₂	PO ₄ -P	SiO ₃ -Si	NO ₂ -N	δ _T	Z	T	S	O ₂	σ _t	δ _T	ΔD
m	°C	‰	ml/L	μg at/L	μg at/L	μg at/L	cl/ton	m	°C	‰	ml/L	g/L	cl/ton	dyn m

HORIZON; July 23, 1961; 0218, 0235 GCT; 27°44.5'N, 115°32'W; sounding, 1400 fm; wind, 290°, force 3; weather, cloudy; sea, moderate; wire angle, 41°, 44°.

0	21.82	33.81 0a)	5.00	0.30	1	0.00	451	0	21.82	33.81	5.00	23.39	451	0.00
8	21.40	33.79 7	5.05	0.31	1	0.00	440	10	20.75	33.77	5.14	23.65	426	0.04
27	17.02	33.58 9	5.61	0.32	1	0.00	349	20	18.60	33.66	5.39	24.12	381	0.08
								30	16.72	33.58	5.63	24.51	343	0.12
33	16.54	33.57 7	5.66	0.34	1	0.00	339	50	15.23	33.54	5.82	24.82	314	0.19
43	15.64	33.54 1	5.76	0.36	1	0.00	323	75	13.13	33.62	4.73	25.32	266	0.26
54	15.02	33.54 3	5.84	0.39	1	0.00	309	100	11.50	33.63	4.17	25.64	236	0.32
71	13.38	33.59 4	4.89	0.81	5	0.00	273	125	10.34	33.84	3.21	26.01	201	0.38
84	12.68	33.68 6	4.45	0.86	6	0.03	253	150	10.23	34.03	2.50	26.18	185	0.43
96	11.70	33.62 8	4.26	1.14	9	0.03	240	200	10.81	34.43	0.73	26.39	165	0.52
114	10.79	33.78 6	3.45	1.55	15	0.05	212	250	10.82	34.57	0.29	26.49	155	0.60
130	10.29	33.87 1	3.15	1.73	19	0.01	198	300	10.55	34.61	0.11	26.57	147	0.68
152	10.23	34.03 7	2.48	2.02	23	0.00	184	400	8.18	34.35	0.66	26.76	130	0.83
168	10.08	34.05 6	2.40	2.02	25	0.00	181							
195	10.78	34.40 6	0.85	2.55	30	0.00	166							
232	10.84	34.54 2	0.38	2.66	31	0.01	157							
297	10.62	34.61 6	0.11	2.83	34	0.00	148							
367	8.62	34.34 7	0.76	2.65	39	0.00	136							
433	7.79	34.37 5	0.47	2.85	47	0.00	122							

a) Alternate value, 33.87‰, not used in interpolation.

OBSERVED							COMP	INTERPOLATED				COMPUTED		
Z	T	S	O ₂	PO ₄ -P	SiO ₃ -Si	NO ₂ -N	δ _T	Z	T	S	O ₂	σ _t	δ _T	ΔD
m	°C	‰	ml/L	μg at/L	μg at/L	μg at/L	cl/ton	m	°C	‰	ml/L	g/L	cl/ton	dyn m

HORIZON; July 23, 1961; 0657 GCT; 27°33'N, 115°53'W; sounding, 2250 fm; wind, 340°, force 3; weather, cloudy; sea, moderate; wire angle, 13°.

0	21.72	33.74 6	5.00	0.45	1	0.00	453	0	21.72	33.75	5.00	23.37	452	0.00
10	21.72	33.74 3	5.00	0.36	0	0.00	453	10	21.72	33.74	5.00	23.36	453	0.05
34	17.46	33.62 0	5.56	0.40	1	0.00	357	20	19.22	33.67	5.32	23.97	395	0.09
44	16.98	33.60 7	5.61	0.42	1	0.00	347	30	18.00	33.63	5.49	24.24	369	0.13
58	16.08	33.54 9	5.77	0.44	1	0.00	331	50	16.67	33.59	5.66	24.53	341	0.20
73	15.41	33.59 9	5.60	0.43	1	0.01	314	75	15.30	33.60	5.57	24.85	311	0.28
98	13.68	33.59 1	5.07	0.81	3	0.13	279	100	13.52	33.59	4.99	25.22	276	0.35
118	12.34	33.61 8	4.40	1.17	7	0.03	252	125	11.85	33.65	4.14	25.59	241	0.42
137	11.02	33.72 7	3.74	1.62	14	0.01	220	150	10.78	33.84	3.38	25.93	208	0.48
166	10.54	33.96 7	2.80	1.96	19	0.01	195	200	9.92	34.10	2.27	26.28	175	0.57
195	10.01	34.08 3	2.34	2.17	25	0.00	177	250	9.38	34.33	1.02	26.55	149	0.66
234	9.32	34.23 5	1.53	2.59	31	0.00	155	300	8.70	34.32	0.91	26.65	140	0.73
263	9.46	34.39 9	0.80	2.76	34	0.00	145	400	7.81	34.40	0.41	26.85	121	0.87
311	8.51	34.30 8	0.96	2.87	37	0.00	138	500	7.00	34.43	0.21	26.99	108	0.99
375	8.02	34.38 6	0.49	3.13	44	0.00	125	600	6.18	34.43	0.21	27.10	97	1.10
474	7.20	34.42 1	0.24	3.27	54	0.00	111							
562	6.50	34.43 6	0.20	3.23	58	0.00	101							
635	5.82	34.42 0	0.23	3.28	66	0.01	94							

HORIZON; July 23, 1961; 1238 GCT; 27°14.5'N, 116°30'W; sounding, 1925 fm; wind, 330°, force 2; weather, rain; sea, slight; wire angle, 04°.

1	21.40	33.74 0	5.08	0.45	2	0.00	445	0	(21.40)	(33.74)	(5.08)	(23.45)	(445)	(0.00)
11	21.38	33.75 1	5.10	0.45	1	0.00	443	10	21.39	33.75	5.09	23.46	444	0.04
31	18.00	33.64 9	5.58	0.43	1	0.00	367	20	18.85	33.68	5.48	24.07	385	0.09
41	16.87	33.58 4	5.74	0.45	1	0.00	346	30	18.03	33.65	5.59	24.25	368	0.12
56	16.12	33.62 8	5.85	0.43	1	0.00	327	50	16.42	33.61	5.81	24.60	334	0.19
71	15.04	33.52 7	5.88	0.45	1	0.00	311	75	14.87	33.53	5.83	24.89	307	0.27
97	13.73	33.58 8	5.10	0.73	3	0.07	280	100	13.45	33.59	4.95	25.23	275	0.35
116	12.35	33.61 9	4.38	1.13	8	0.02	252	125	11.87	33.64	4.17	25.58	242	0.41
136	11.26	33.68 7	3.84	1.47	13	0.01	227	150	10.52	33.79	3.40	25.94	207	0.47
155	10.35	33.82 4	3.30	1.74	18	0.00	202	200	9.68	34.10	1.99	26.32	171	0.57
186	9.98	34.06 5	2.22	2.18	26	0.00	178	250	9.02	34.24	1.44	26.54	150	0.65
220	9.28	34.13 3	1.74	2.36	30	0.00	162	300	8.39	34.30	1.08	26.69	136	0.72
249	9.03	34.24 1	1.45	2.49	34	0.00	150	400	7.50	34.34	0.27	26.85	121	0.86
298	8.42	34.30 0	1.07	2.81	40	0.00	137	500	6.98	34.43	0.25	26.99	107	0.98
353	7.92	34.32 2	0.45	2.98	43	0.00	128	600	5.99	34.41	0.70	27.11	96	1.09
436	7.26	34.37 5	0.24	3.08	53	0.00	115							
521	6.84	34.44 0	0.25	3.22	60	0.00	105							
605	5.93	34.40 3	0.73	3.23	69	0.00	96							

OBSERVED							COMP	INTERPOLATED				COMPUTED		
Z	T	S	O ₂	PO ₄ -P	SiO ₃ -Si	NO ₂ -N	δ _T	Z	T	S	O ₂	σ _t	δ _T	ΔD
m	°C	‰	ml/L	μg at/L	μg at/L	μg at/L	cl/ton	m	°C	‰	ml/L	g/L	cl/ton	dyn m

HORIZON; July 23, 1961; 1845 GCT; 26°56'N, 117°08'W; sounding, 2050 fm; wind, 260°, force 1; weather, cloudy; sea, rough; wire angle, 00°.

0	20.90	33.69 6	5.21	0.40	1	0.00	435	0	20.90	33.70	5.21	23.55	435	0.00
10	20.82	33.69 7	5.31	0.43	0	0.00	433	10	20.82	33.70	5.31	23.57	432	0.04
30	17.73	33.62 5	5.70	0.42	1	0.00	363	20	18.70	33.65	5.66	24.09	384	0.08
40	17.21	33.62 4	5.72	0.40	1	0.00	351	30	17.73	33.62	5.70	24.30	363	0.12
55	16.72	33.63 9	5.75	0.41	1	0.00	339	50	16.88	33.64	5.73	24.52	342	0.19
70	15.82	33.62 4	5.69	0.42	1	0.00	320	75	15.37	33.63	5.60	24.86	310	0.27
95	13.78	33.64 0	5.22	0.77	3	0.03	277	100	13.40	33.63	5.13	25.27	271	0.35
115	12.09	33.61 1	4.82	1.07	7	0.02	248	125	11.52	33.66	4.31	25.66	234	0.41
135	11.02	33.73 6	3.81	1.56	13	0.00	220	150	10.42	33.84	3.30	26.00	202	0.47
155	10.25	33.85 9	3.20	1.84	19	0.00	198	200	9.27	34.03	2.60	26.34	170	0.56
185	9.56	33.97 7	2.79	2.04	24	0.00	178	250	8.61	34.19	1.79	26.57	148	0.64
219	8.95	34.09 3	2.34	2.28	28	0.00	160	300	8.18	34.26	1.19	26.69	136	0.72
250	8.61	34.18 6	1.79	2.45	35	0.00	148	400	7.76	34.41	0.37	26.87	119	0.85
300	8.18	34.26 1	1.19	2.74	39	0.00	136	500	6.57	34.38	0.29	27.01	106	0.97
355	8.31	34.43 9	0.45	2.96	43	0.00	125	600	5.82	34.42	0.25	27.14	94	1.08
440	7.13	34.36 4	0.35	2.93	52	0.00	114							
525	6.36	34.38 3	0.26	2.95	62	0.00	103							
610	5.74	34.42 0	0.25	2.99	69	0.00	93							

HORIZON; July 24, 1961; 0059 GCT; 26°35.5'N, 117°48'W; sounding, 2100 fm; wind, 280°, force 1; weather, cloudy; sea, moderate; wire angle, 12°.

1	21.72	33.77 8	4.99	0.37	1	0.00	450	0	(21.72)	(33.78)	(4.99)	(23.39)	(450)	(0.00)
11	21.14	33.77 9	4.97	0.36	1	0.00	435	10	21.15	33.78	4.98	23.55	435	0.04
30	18.44	33.73 2	5.54	0.36	1	0.00	372	20	19.45	33.75	5.30	23.97	395	0.09
40	17.60	33.71 7	5.62	0.37	1	0.00	353	30	18.44	33.73	5.54	24.21	372	0.12
50	16.94	33.65 7	5.69	0.38	2	0.00	343	50	16.94	33.66	5.69	24.52	342	0.20
65	16.26	33.63 5	5.70	0.40	2	0.00	329	75	15.53	33.56	5.73	24.77	319	0.28
80	14.99	33.52 3	5.77	0.45	2	0.00	310	100	13.72	33.60	5.12	25.18	279	0.35
99	13.76	33.59 3	5.15	0.72	4	0.03	280	125	11.84	33.68	4.47	25.61	238	0.42
124	11.90	33.67 7	4.47	1.12	8	0.01	239	150	10.63	33.72	4.00	25.87	214	0.48
143	10.94	33.69 1	4.16	1.32	12	0.00	222	200	9.43	34.01	2.73	26.29	174	0.58
172	9.94	33.85 2	3.56	1.67	18	0.00	193	250	8.81	34.19	1.72	26.53	151	0.66
201	9.42	34.01 8	2.72	2.05	24	0.00	173	300	8.12	34.23	1.23	26.67	138	0.73
230	9.11	34.15 8	2.04	2.26	32	0.00	158	400	7.03	34.28	0.69	26.87	119	0.87
269	8.50	34.21 0	1.48	2.49	35	0.00	145	500	6.31	34.34	0.32	27.01	105	0.99
328	7.81	34.24 9	1.06	2.75	42	0.00	132							
401	7.02	34.28 3	0.67	2.80	51	0.00	119							
475	6.40	34.30 8	0.38	2.84	61	0.00	109							
554	6.14	34.40 5	0.24	3.00	65	0.00	98							

OBSERVED							COMP	INTERPOLATED				COMPUTED		
Z	T	S	O ₂	PO ₄ -P	SiO ₃ -Si	NO ₂ -N	δ _T	Z	T	S	O ₂	σ _t	δ _T	ΔD
m	°C	‰	ml/L	μg at/L	μg at/L	μg at/L	cl/ton	m	°C	‰	ml/L	g/L	cl/ton	dyn m

HORIZON; July 24, 1961; 0633 GCT; 26°16'N, 118°26'W; sounding, 2150 fm; wind, 250°, force 2; weather, rain; sea, moderate; wire angle, 07°.

0	20.88	33.64 7	5.02	0.50	1	0.00	438	0	20.88	33.65	5.02	23.52	438	0.00
10	19.56	33.61 5	5.11	0.44	1	0.00	407	10	19.56	33.62	5.11	23.85	407	0.04
30	17.11	33.56 8	5.59	0.42	1	0.00	353	20	17.74	33.59	5.50	24.28	366	0.08
40	16.66	33.54 9	5.60	0.41	1	0.00	344	30	17.11	33.57	5.59	24.41	353	0.12
50	16.06	33.48 7	5.72	0.41	1	0.00	336	50	16.06	33.49	5.72	24.59	335	0.19
65	15.39	33.51 5	5.66	0.45	1	0.00	319	75	15.37	33.65	5.54	24.87	309	0.27
80	15.35	33.71 7	5.47	0.54	2	0.02	304	100	13.92	33.60	5.12	25.14	283	0.34
100	13.92	33.59 6	5.12	0.76	3	0.03	283	125	11.83	33.63	4.08	25.58	242	0.41
124	11.87	33.62 4	4.12	1.28	9	0.01	243	150	10.89	34.14	1.74	26.15	188	0.46
145	10.88	34.08 0	1.98	2.20	23	0.00	192	200	10.84	34.42	0.81	26.37	166	0.55
175	10.95	34.35 8	0.99	2.41	29	0.00	173	250	10.62	34.48	0.50	26.46	158	0.64
205	10.82	34.42 2	0.80	2.61	30	0.00	166	300	10.26	34.50	0.40	26.54	151	0.72
235	10.71	34.46 7	0.55	2.67	32	0.00	161	400	8.88	34.48	0.30	26.75	130	0.86
275	10.44	34.50 0	0.46	2.81	33	0.00	154	500	7.12	34.40	0.28	26.95	111	0.99
335	9.88	34.50 6	0.34	2.83	35	0.00	144							
410	8.70	34.45 3	0.30	2.85	42	0.00	130							
484	7.30	34.40 6	0.30	2.88	53	0.00	113							
564	6.48	34.40 6	0.17	3.00	61	0.00	103							

HORIZON; July 23, 1961; 1158 GCT; 25°57'N, 119°04'W; sounding, 2100 fm; wind, 280°, force 3; weather, overcast; sea, rough; wire angle, 14°.

0	20.98	33.73 0	5.14	0.40	0	0.00	434	0	20.98	33.73	5.14	23.55	434	0.00
10	20.57	33.71 9	5.11	0.37	0	0.00	425	10	20.57	33.72	5.11	23.66	425	0.04
29	18.78	33.88 1	5.48	0.35	0	0.00	369	20	18.97	33.87	5.44	24.19	374	0.08
40	17.94	33.79 5	5.60	0.37	0	0.00	355	30	18.77	33.88	5.49	24.24	369	0.12
55	16.76	33.63 0	5.70	0.41	0	0.00	340	50	16.98	33.65	5.68	24.50	344	0.19
69	16.35	33.62 7	5.72	0.44	0	0.00	332	75	16.19	33.64	5.70	24.68	327	0.28
93	15.67	33.66 6	5.60	0.43	0	0.00	314	100	15.40	33.66	5.54	24.87	309	0.36
113	14.34	33.61 5	5.30	0.64	2	0.09	290	125	13.72	33.63	5.04	25.21	277	0.43
132	12.51	33.69 4	4.45	1.07	7	0.00	249	150	11.11	33.72	4.01	25.78	222	0.49
152	11.07	33.72 0	4.00	1.43	11	0.00	222	200	10.49	34.17	1.82	26.24	179	0.60
181	10.57	33.99 0	2.57	2.01	21	0.00	193	250	10.33	34.40	0.88	26.45	159	0.68
214	10.45	34.27 9	1.43	2.37	26	0.00	170	300	9.57	34.42	0.76	26.59	145	0.76
244	10.38	34.39 5	0.92	2.58	30	0.00	160	400	7.52	34.29	0.72	26.81	125	0.90
292	9.70	34.42 0	0.77	2.66	34	0.00	147	500	6.77	34.38	0.26	26.98	108	1.03
346	8.78	34.38 7	0.69	2.80	39	0.00	136	600	(6.02)	(34.43)	(0.26)	(27.12)	(95)	(1.14)
428	7.08	34.27 4	0.72	2.81	50	0.00	120							
511	6.72	34.40 a)	0.22	2.88	59	0.00	106							
595	6.04	34.42 9	0.26	3.05	65	0.00	95							

a) Alternate value, 34.46‰, not used in interpolation.

OBSERVED							COMP	INTERPOLATED				COMPUTED		
Z	T	S	O ₂	PO ₄ -P	SiO ₃ -Si	NO ₂ -N	δ _T	Z	T	S	O ₂	σ _t	δ _T	ΔD
m	°C	‰	ml/L	μg at/L	μg at/L	μg at/L	cl/ton	m	°C	‰	ml/L	g/L	cl/ton	dyn m

HORIZON; July 24, 1961; 1859 GCT; 25° 18'N, 120° 21'W; sounding, 2250 fm; wind, 320°, force 1; weather, partly cloudy; sea, rough; wire angle, 04°.

1	21.50	33.96 0	5.04	0.31	1	0.00	431	0	(21.50)	(33.96)	(5.04)	(23.59)	(431)	(0.00)
11	21.16	33.94 9	4.99	0.31	1	0.00	423	10	21.17	33.95	4.99	23.67	423	0.04
31	19.66	33.94 0	5.28	0.32	1	0.00	386	20	20.68	33.94	5.02	23.79	412	0.08
41	18.84	33.89 1	5.48	0.33	1	0.00	370	30	19.70	33.94	5.26	24.05	387	0.12
51	18.46	33.88 3	5.38	0.31	1	0.00	361	50	18.48	33.88	5.40	24.32	362	0.20
66	18.24	33.80 0u	5.43	0.32	0	0.00	-	75	18.16	33.94	5.41	24.44	350	0.29
81	18.11	33.94 6	5.40	0.32	2	0.00	348	100	17.12	33.80	5.44	24.59	336	0.38
101	17.02	33.78 9	5.44	0.36	1	0.00	335	125	15.58	33.76	5.29	24.91	305	0.46
126	15.56	33.75 7	5.28	0.44	2	0.03	305	150	13.12	33.75	4.23	25.42	257	0.53
146	13.50	33.74 7	4.40	0.98	5	0.02	264	200	10.33	33.89	3.20	26.05	197	0.64
176	11.65	33.79 4	3.70	1.37	11	0.01	226	250	9.54	34.15	1.98	26.39	165	0.74
205	10.14	33.91 7	3.12	1.84	18	0.00	192	300	8.83	34.25	1.41	26.58	147	0.82
235	9.74	34.11 6	2.18	2.18	25	0.00	171	400	7.59	34.32	0.56	26.82	124	0.96
274	9.22	34.20 1	1.72	2.38	29	0.00	156	500	6.49	34.34	0.32	26.99	108	1.08
334	8.28	34.27 9	1.03	2.66	38	0.00	136							
409	7.49	34.32 4	0.53	2.81	46	0.00	122							
483	6.63	34.33 9	0.36	2.89	55	0.00	110							
564	6.08	34.37 6	0.26	3.00	60	0.00	100							

HORIZON; July 30, 1961; 1442 GCT; 27° 14'N, 115° 00'W; sounding, 950 fm; wind, 310°, force 3; weather, clear; sea, moderate; wire angle, 13°.

1	19.10	33.71 0	5.98	0.64	0	0.00	389	0	(19.10)	(33.71)	(5.98)	(24.03)	(389)	(0.00)
10	19.10	33.71 3	6.02	0.40	0	0.00	389	10	19.10	33.71	6.02	24.03	389	0.04
35	15.57	33.58 9	6.36	0.46	1	0.00	318	20	19.03	33.71	6.04	24.05	387	0.08
45	13.97	33.55 2	5.87	0.62	3	0.08	288	30	17.50	33.66	6.21	24.39	355	0.11
60	12.68	33.60 3	4.84	1.00	6	0.02	259	50	13.52	33.57	5.50	25.20	277	0.18
75	11.76	33.67 1	4.25	1.30	10	0.00	237	75	11.76	33.67	4.25	25.62	237	0.24
99	10.90	33.82 5	3.67	1.61	14	0.00	211	100	10.88	33.83	3.65	25.91	210	0.30
118	10.50	33.90 0	2.90	1.93	19	0.01	199	125	10.48	33.98	2.59	26.09	193	0.35
137	10.46	34.13 8	1.98	2.32	25	0.00	181	150	10.60	34.29	1.34	26.31	172	0.40
166	10.79	34.42 5	0.86	2.60	29	0.00	165	200	10.93	34.58	0.30	26.48	156	0.48
195	10.94	34.56 5	0.33	2.71	32	0.00	157	250	10.71	34.65	0.13	26.57	147	0.56
234	10.84	34.65 1	0.15	2.93	33	0.00	149	300	10.26	34.63	0.10	26.64	141	0.63
263	10.60	34.64 0	0.12	2.83	35	0.00	146	400	8.61	34.48	0.22	26.79	126	0.77
311	10.12	34.62 3	0.10	3.00	37	0.00	139	500	7.56	34.45	0.18	26.93	114	0.90
376	8.84	34.48 4	0.22	2.98	41	0.00	129	600	6.42	34.41	0.19	27.05	102	1.02
474	7.87	34.46 3	0.18	2.95	48	0.00	117							
562	6.82	34.41 4	0.18	3.19	60	0.00	106							
637	6.06	34.40 4	0.20	3.23	-	0.00	98							

OBSERVED							COMP	INTERPOLATED				COMPUTED		
Z	T	S	O ₂	PO ₄ -P	SiO ₃ -Si	NO ₂ -N	δ _T	Z	T	S	O ₂	σ _t	δ _T	ΔD
m	°C	‰	ml/L	μg at/L	μg at/L	μg at/L	cl/ton	m	°C	‰	ml/L	g/L	cl/ton	dyn m

HORIZON; July 30, 1961; 0922 GCT; 26°42'N, 114°30'W; sounding, 1780 fm; wind, 280°, force 3; weather, partly cloudy; sea, moderate; wire angle, 20°.

1	21.59	33.84 3	5.13	0.36	1	0.00	442	0	(21.59)	(33.84)	(5.13)	(23.47)	(442)	(0.00)
10	21.57	33.81 6	5.18	0.36	1	0.00	444	10	21.57	33.82	5.18	23.46	443	0.04
29	18.25	33.78 0	5.91	0.36	1	0.02	364	20	18.89	33.79	5.81	24.15	378	0.09
39	16.74	33.72 2	5.98	0.43	0	0.00	333	30	18.25	33.78	5.91	24.30	364	0.12
53	14.98	33.70 2	5.29	0.61	2	0.02	297	50	15.28	33.71	5.40	24.94	303	0.19
67	13.23	33.57 3	5.11	0.80	3	0.20	272	75	12.91	33.67	4.52	25.40	259	0.26
91	12.47	33.77 3	3.78	1.44	10	0.02	243	100	12.16	33.79	3.66	25.64	236	0.32
109	11.44	33.79 9	3.49	1.61	12	0.01	222	125	11.07	34.00	2.42	26.00	201	0.38
128	11.00	33.99 9	2.39	2.10	21	0.00	200	150	9.87	33.95	3.00	26.17	185	0.43
146	10.04	33.95 0	3.02	1.98	20	0.00	188	200	9.48	34.18	1.80	26.42	162	0.52
173	9.44	34.04 2	2.40	2.13	26	0.00	171	250	9.37	34.38	0.90	26.59	145	0.59
206	9.47	34.21 6	1.67	2.50	30	0.00	159	300	9.12	34.47	0.35	26.70	135	0.67
234	9.46	34.33 5	1.17	2.55	33	0.00	150	400	8.34	34.50	0.17	26.85	121	0.80
280	9.21	34.43 6	0.50	2.83	36	0.00	139	500	7.24	34.47	0.16	26.99	108	0.92
332	8.98	34.50 5	0.24	3.06	40	0.00	130							
413	8.22	34.50 6	0.17	2.98	46	0.00	119							
495	7.29	34.47 0	0.16	3.10	58	0.00	108							
579	6.47	34.45 9	0.16	2.87	63	0.00	99							

HORIZON; July 27, 1961; 0942 GCT; 26°28'N, 113°29'W; sounding, 42 fm; wind, 200°, force 1; weather, overcast; sea, slight; wire angle, 02°.

1	18.23	34.08 3	5.49	0.43	13	0.07	341	0	(18.23)	(34.08)	(5.49)	(24.53)	(341)	(0.00)
11	17.98	34.08 3	4.61	0.55	12	0.06	335	10	18.05	34.08	4.77	24.58	337	0.03
31	13.34	34.23 7	0.34	2.71	21	0.17	225	20	14.70	34.17	0.85	25.42	257	0.06
51	12.32	34.32 3	0.66	2.57	24	0.04	200	30	13.38	34.24	0.34	25.75	226	0.09
								50	12.32	34.32	0.66	26.02	200	0.13

OBSERVED							COMP	INTERPOLATED				COMPUTED		
Z	T	S	O ₂	PO ₄ -P	SiO ₃ -Si	NO ₂ -N	δ _T	Z	T	S	O ₂	σ _t	δ _T	ΔD
m	°C	‰	ml/L	μg at/L	μg at/L	μg at/L	cl/ton	m	°C	‰	ml/L	g/L	cl/ton	dyn m

HORIZON; July 27, 1961; 0400 GCT; 26°05.5'N, 114°04.5'W; sounding, 1180 fm; wind, 300°, force 5; weather, partly cloudy; sea, rough; wire angle, 35°.

1	20.77	33.74 1	5.14	0.51	2	0.00	428	0	(20.77)	(33.74)	(5.14)	(23.62)	(428)	(0.00)
9	20.65	33.73 7	5.17	0.40	1	0.00	425	10	20.64	33.74	5.18	23.65	425	0.04
30	17.82	33.74 1	5.58	0.37	1	0.00	356	20	19.65	33.74	5.36	23.91	400	0.08
37	17.10	33.67 9	5.64	0.38	1	0.00	344	30	17.82	33.74	5.58	24.37	356	0.12
49	15.72	33.60 9	5.67	0.40	2	0.00	319	50	15.62	33.61	5.67	24.78	317	0.19
62	14.58	33.63 0	5.53	0.52	3	0.03	294	75	12.74	33.64	4.71	25.41	258	0.26
81	12.38	33.66 2	4.43	1.04	7	0.02	249	100	12.22	33.99	2.54	25.78	222	0.32
96	12.20	33.92 4	2.87	1.82	15	0.02	227	125	11.69	34.27	1.31	26.10	192	0.37
112	12.28	34.23 0	1.49	2.30	22	0.03	206	150	11.59	34.42	0.94	26.20	182	0.42
133	11.56	34.29 5	1.25	2.40	25	0.02	188	200	11.48	34.65	0.21	26.43	160	0.51
154	11.60	34.44 9	0.67	2.56	27	0.02	177	250	10.98	34.65	0.16	26.53	152	0.59
183	11.38	34.56 6	0.39	2.75	29	0.01	165	300	10.25	34.62	0.14	26.63	142	0.67
207	11.50	34.67 2	0.18	2.77	32	0.01	159	400	9.13	34.56	0.12	26.77	128	0.81
243	11.10	34.66 0	0.16	2.88	32	0.00	153	500	7.70	34.48	0.10	26.93	113	0.94
292	10.36	34.62 2	0.15	2.95	35	0.00	143							
369	9.56	34.58 4	0.13	2.95	39	0.00	133							
441	8.57	34.52 6	0.11	2.83	45	0.00	122							
506	7.62	34.48 0	0.10	2.94	50	0.00	112							

HORIZON; July 26, 1961; 2242 GCT; 25°46'N, 114°44'W; sounding, 1890 fm; wind, 310°, force 4; weather, partly cloudy; sea, rough; wire angle, 19°.

1	21.96	33.82 6	5.12	0.36	2	0.00	453	0	(21.96)	(33.83)	(5.12)	(23.36)	(453)	(0.00)
11	21.88	33.82 1	5.19	0.36	0	0.00	451	10	21.89	33.82	5.18	23.37	452	0.05
30	18.70	33.77 5	5.61	0.36	1	0.00	375	20	20.05	33.78	5.43	23.84	407	0.09
39	18.20	33.78 0	5.69	0.37	1	0.00	362	30	18.70	33.78	5.61	24.19	374	0.13
53	17.54	33.73 0	5.73	0.33	1	0.00	351	50	17.68	33.74	5.72	24.41	353	0.20
67	16.37	33.63 8	5.76	0.38	1	0.00	331	75	15.84	33.64	5.66	24.76	320	0.28
92	14.66	33.66 1	5.27	0.59	3	0.02	293	100	13.71	33.68	4.76	25.25	273	0.36
110	12.80	33.70 3	4.21	1.16	7	0.00	254	125	11.73	33.75	3.93	25.69	231	0.42
129	11.52	33.76 4	3.89	1.47	13	0.00	226	150	10.70	33.91	3.12	26.00	202	0.48
148	10.86	33.90 8	3.16	1.71	20	0.00	204	200	9.52	34.12	2.15	26.37	167	0.57
176	9.50	33.98 0	2.84	1.87	25	0.00	177	250	9.21	34.30	1.12	26.56	149	0.65
209	9.52	34.17 0	1.90	2.38	28	0.00	163	300	9.04	34.42	0.54	26.68	137	0.73
237	9.20	34.24 9	1.44	2.62	33	0.00	152	400	7.73	34.39	0.33	26.86	120	0.86
284	9.30	34.43 5	0.55	2.86	36	0.00	140	500	6.92	34.42	0.17	26.99	107	0.98
337	8.34	34.37 4	0.58	2.87	43	0.00	130	600	(6.24)	(34.44)		(27.10)	(97)	(1.09)
419	7.57	34.40 2	0.28	2.95	51	0.00	117							
503	6.90	34.42 1	0.16	2.96	59	0.00	107							
588	6.32	34.43 9	0.14	2.99	65	0.00	98							

OBSERVED							COMP	INTERPOLATED				COMPUTED		
Z	T	S	O ₂	PO ₄ -P	SiO ₃ -Si	NO ₂ -N	δ _T	Z	T	S	O ₂	σ _t	δ _T	ΔD
m	°C	‰	ml/L	μg at/L	μg at/L	μg at/L	cl/ton	m	°C	‰	ml/L	g/L	cl/ton	dyn m

HORIZON; July 26, 1961; 1631 GCT; 25°24'N, 115°20.5'W; sounding, 1921 fm; wind, 300°, force 3; weather, cloudy; sea, moderate; wire angle, 12°.

1	21.93	33.80 9	5.16	0.43	1	0.00	454	0	(21.93)	(33.81)	(5.16)	(23.36)	(453)	(0.00)
11	20.70	33.83 8	5.35	0.42	0	0.00	419	10	21.00	33.84	5.31	23.63	427	0.04
30	18.15	33.77 9	5.56	-	1	0.00	361	20	18.98	33.81	5.48	24.14	379	0.08
40	17.62	33.73 1	5.63	0.42	1	0.00	353	30	18.15	33.78	5.56	24.32	361	0.12
56	16.94	33.64 2	5.67	0.42	1	0.00	344	50	17.09	33.66	5.67	24.49	346	0.19
70	15.84	33.60 6	5.69	0.52	1	0.00	322	75	15.59	33.61	5.75	24.79	317	0.28
94	14.26	33.66 0	5.36	0.61	3	0.06	285	100	13.70	33.67	5.18	25.24	274	0.35
114	12.56	33.68 1	4.77	0.99	6	0.02	251	125	11.91	33.72	4.20	25.63	236	0.41
132	11.54	33.75 7	3.78	1.58	11	0.00	227	150	10.72	33.90	3.13	25.99	203	0.47
153	10.64	33.90 8	3.09	1.85	18	0.00	201	200	9.91	34.14	2.14	26.32	172	0.57
182	9.82	33.99 3	2.72	1.94	22	0.00	181	250	9.38	34.29	1.28	26.52	152	0.65
215	10.00	34.25 3	1.53	2.60	27	0.00	165	300	8.79	34.34	0.89	26.66	139	0.72
244	9.48	34.28 7	1.32	2.70	32	0.00	154	400	7.72	34.39	0.31	26.86	120	0.86
293	8.86	34.33 5	0.96	2.85	37	0.00	141	500	6.50	34.36	0.28	27.00	106	0.98
346	8.37	34.40 2	0.46	3.10	43	0.00	129	600	(5.85)	(34.40)	(0.21)	(27.12)	(95)	(1.09)
428	7.38	34.38 3	0.29a)	3.32	50	0.00	116							
511	6.39	34.35 4	0.28b)	3.22	60	0.00	105							
595	5.87	34.40 0	0.21	3.13	66	0.00	96							

- a) Alternate value, 0.15 ml/L, not used in interpolation.
- b) Alternate value, 0.48 ml/L, not used in interpolation.

Z	T	S	O ₂	PO ₄ -P	SiO ₃ -Si	NO ₂ -N	δ _T	Z	T	S	O ₂	σ _t	δ _T	ΔD
m	°C	‰	ml/L	μg at/L	μg at/L	μg at/L	cl/ton	m	°C	‰	ml/L	g/L	cl/ton	dyn m

OBSERVED							COMP	INTERPOLATED				COMPUTED		
Z	T	S	O ₂	PO ₄ -P	SiO ₃ -Si	NO ₂ -N	δ _T	Z	T	S	O ₂	σ _t	δ _T	ΔD
m	°C	‰	ml/L	μg at/L	μg at/L	μg at/L	cl/ton	m	°C	‰	ml/L	g/L	cl/ton	dyn m

HORIZON; July 26, 1961; 1136 GCT; 25°05'N, 115°58'W; sounding, 1930 fm; wind, 340°, force 3; weather, cloudy; sea, moderate; wire angle, 15°.

1	22.55	33.88 9	4.92	0.30	1	0.00	464	0	(22.55)	(33.89)	(4.92)	(23.24)	(464)	(0.00)
10	22.54	33.88 3	4.98	0.31	1	0.00	464	10	22.54	33.88	4.98	23.24	465	0.05
30	18.99	33.80 8	5.49	0.31	1	0.00	379	20	20.30	33.83	5.34	23.81	410	0.09
39	18.72	33.80 8	5.52	0.31	1	0.00	373	30	18.99	33.81	5.49	24.14	379	0.13
54	18.21	33.78 6	5.52	0.35	1	0.00	362	50	18.35	33.79	5.52	24.28	365	0.20
68	17.72	33.76 7	5.52	0.43	1	0.00	352	75	17.33	33.74	5.51	24.49	345	0.29
93	15.81	33.64 7	5.51	0.43	2	0.00	319	100	15.17	33.65	5.40	24.91	305	0.38
113	14.20	33.66 2	4.97	0.66	3	0.04	284	125	13.58	33.82	3.90	25.38	260	0.45
132	13.24	33.87 7	3.38	1.44	10	0.02	250	150	12.04	34.04	2.48	25.86	215	0.51
151	11.98	34.04 7	2.42	1.88	17	0.00	214	200	10.88	34.28	1.46	26.26	177	0.61
180	11.26	34.20 8	1.71	2.12	24	0.00	189	250	9.14	34.16	1.86	26.46	158	0.69
213	10.60	34.29 4	1.42	2.46	26	0.00	171	300	8.60	34.27	1.23	26.63	142	0.77
243	9.24	34.15 6	1.90	2.30	30	0.00	160	400	7.50	34.33	0.67	26.84	122	0.91
290	8.70	34.24 8	1.32	2.55	34	0.00	145	500	6.72	34.40	0.22	27.01	106	1.03
345	8.14	34.32 0	0.94	2.80	40	0.00	131	600	(6.12)	(34.43)	(0.22)	(27.11)	(96)	(1.14)
427	7.22	34.34 0	0.53	2.84	51	0.00	117							
511	6.66	34.40 5	0.22	2.87	59	0.00	105							
595	6.14	34.42 8	0.22	2.96	65	0.00	97							

HORIZON; July 26, 1961; 0611 GCT; 24°47.5'N, 116°38'W; sounding, 2140 fm; wind, 340°, force 2; weather, partly cloudy; sea, moderate; wire angle, 07°.

1	23.16	33.93 3	4.96	0.32	1	0.00	478	0	(23.16)	(33.93)	(4.96)	(23.10)	(478)	(0.00)
11	22.86	33.90 8	5.05	0.32	2	0.00	471	10	22.88	33.91	5.03	23.16	472	0.05
31	19.08	33.79 6	5.54	0.33	1	0.00	382	20	20.20	33.81	5.46	23.82	409	0.09
41	18.22	33.77 0	5.54	0.35	2	0.00	364	30	19.14	33.79	5.54	24.08	384	0.13
51	17.94	33.76 2	5.61	0.36	1	0.00	358	50	17.96	33.76	5.60	24.35	358	0.21
65	17.30	33.74 0	5.62	0.36	2	0.00	345	75	16.84	33.74	5.62	24.61	334	0.29
80	16.62	33.74 0	5.62	0.44	1	0.00	329	100	14.90	33.70	5.23	25.01	296	0.37
100	14.90	33.70 2	5.23	0.59	3	0.06	295	125	12.80	33.73	4.60	25.47	252	0.44
125	12.80	33.73 1	4.60	1.05	6	0.02	252	150	11.76	33.89	3.18	25.79	221	0.50
144	11.88	33.85 4	3.45	1.59	13	0.01	226	200	9.91	33.99	2.79	26.20	183	0.60
174	11.34	34.02 1	2.56	1.99	19	0.00	204	250	9.33	34.22	1.62	26.47	156	0.69
202	9.85	33.99 0	2.79	2.09	23	0.00	182	300	8.82	34.30	1.08	26.62	143	0.77
232	9.54	34.18 3	1.92	2.40	29	0.00	163	400	7.64	34.37	0.44	26.85	121	0.91
272	9.04	34.25 8	1.36	2.64	34	0.00	149	500	6.59	34.36	0.30	26.99	107	1.03
331	8.54	34.34 5	0.82	2.87	40	0.00	135							
404	7.58	34.36 6	0.43	2.97	48	0.00	120							
479	6.76	34.35 8	0.33	3.01	58	0.00	110							
559	6.16	34.37 8	0.15	3.06	62	0.00	101							

OBSERVED							COMP	INTERPOLATED				COMPUTED		
Z	T	S	O ₂	PO ₄ -P	SiO ₃ -Si	NO ₂ -N	δ _T	Z	T	S	O ₂	σ _t	δ _T	ΔD
m	°C	‰	ml/L	μg at/L	μg at/L	μg at/L	cl/ton	m	°C	‰	ml/L	g/L	cl/ton	dyn m

HORIZON; July 26, 1961; 0025 GCT; 24°30'N, 117°18'W; sounding, 2010 fm; wind, 350°, force 1; weather, cloudy; sea, moderate; wire angle, 06°.

0	24.54	34.36 0	4.89	0.30	1	0.00	486	0	24.54	34.36	4.89	23.02	486	0.00
10	23.31	34.31 2	4.94	0.32	1	0.00	455	10	23.31	34.31	4.94	23.34	455	0.05
30	20.26	34.19 8	5.30	0.34	1	0.00	382	20	21.90	34.26	5.09	23.70	420	0.09
40	19.83	34.14 7	5.37	0.33	1	0.00	375	30	20.26	34.20	5.30	24.10	382	0.13
55	19.33	34.13 8	5.35	0.32	1	0.00	363	50	19.46	34.14	5.35	24.27	366	0.21
71	19.06	34.16 1	5.40	0.34	1	0.00	355	75	18.92	34.15	5.40	24.41	353	0.30
96	16.02	33.81 5	5.26	0.47	2	0.00	311	100	15.47	33.79	5.08	24.96	301	0.38
115	14.06	33.74 7	4.32	0.96	5	0.05	275	125	13.30	33.80	3.80	25.42	256	0.45
135	12.60	33.85 3	3.36	1.51	11	0.01	239	150	11.66	33.91	3.06	25.83	218	0.51
155	11.36	33.93 1	2.98	1.66	17	0.00	211	200	10.42	34.19	1.87	26.27	176	0.61
186	10.40	34.06 8	2.30	1.78	23	0.00	185	250	10.43	34.46	0.75	26.48	156	0.70
221	10.50	34.34 8	1.17	2.38	28	0.00	166	300	9.98	34.53	0.33	26.61	144	0.77
250	10.43	34.46 4	0.75	2.59	31	0.00	156	400	8.68	34.50	0.30	26.80	126	0.92
300	9.98	34.53 1	0.33	2.71	35	0.02	144	500	7.29	34.44	0.27	26.96	111	1.04
356	9.44	34.54 6	0.29	2.90	39	0.02	134	600	6.35	34.44	0.26	27.09	98	1.15
440	7.99	34.46 9	0.28	3.00	47	0.00	118							
525	7.06	34.42 8	0.24	2.88	58	0.00	108							
600	6.35	34.43 7	0.26	2.83	61	0.01	99							

HORIZON; July 25, 1961; 1905 GCT; 24°11'N, 117°53'W; sounding, 2100 fm; wind, 010°, force 1; weather, clear; sea, slight; wire angle, 07°.

1	23.51	34.14	5.02	0.29	1	0.00	472	0	(23.51)	(34.14)	(5.02)	(23.16)	(472)	(0.00)
11	23.02	34.08	5.02	0.30	0	0.00	463	10	23.03	34.08	5.02	23.25	464	0.05
31	21.60	34.15	5.23	0.30	1	0.00	420	20	23.01	34.10	5.02	23.27	462	0.09
41	19.60	34.07	5.42	0.32	1	0.00	375	30	21.70	34.15	5.21	23.68	423	0.14
51	19.54	34.17	5.46	0.36	1	0.00	366	50	19.56	34.17	5.46	24.26	367	0.22
65	18.92	34.12	5.50	0.34	1	0.00	355	75	18.60	34.09	5.47	24.45	349	0.31
81	18.44	34.07	5.45	0.36	1	0.00	347	100	16.30	33.86	5.37	24.82	314	0.39
101	16.10	33.85	5.36	0.48	2	0.00	310	125	13.61	33.88	3.66	25.42	256	0.46
125	13.61	33.88	3.66	1.32	9	0.02	256	150	12.28	34.04	2.60	25.81	220	0.52
145	12.52	34.01	2.75	1.70	15	0.00	226	200	11.20	34.35	1.28	26.25	178	0.62
174	11.53	34.15	1.98	1.96	21	0.00	198	250	10.58	34.49	0.64	26.47	157	0.71
204	11.16	34.38	1.19	2.49	27	0.00	175	300	9.79	34.50	0.52	26.62	143	0.79
233	10.83	34.49	0.64	2.51	31	0.00	161	400	8.64	34.51	0.27	26.81	125	0.93
273	10.16	34.48	0.65	2.70	32	0.00	150	500	7.39	34.48	0.16	26.98	109	1.05
333	9.41	34.53	0.36	2.87	38	0.00	135							
407	8.56	34.51	0.25	2.79	45	0.00	123							
481	7.58	34.48	0.16	2.81	50	0.00	112							
560	6.84	34.47	0.16	2.85	55	0.00	102							

OBSERVED							COMP	INTERPOLATED				COMPUTED		
Z	T	S	O ₂	PO ₄ -P	SiO ₃ -Si	NO ₂ -N	δ _T	Z	T	S	O ₂	σ _t	δ _T	ΔD
m	°C	‰	ml/L	μg at/L	μg at/L	μg at/L	cl/ton	m	°C	‰	ml/L	g/L	cl/ton	dyn m

HORIZON; July 25, 1961; 0945 GCT; 23°29.5'N, 119°10'W; sounding, 2150 fm; wind, direction missing, force 1; weather, cloudy; sea, smooth; wire angle, 06°.

1	22.30	34.00 3	5.00	0.31	1	0.00	449	0	(22.30)	(34.00)	(5.00)	(23.40)	(450)	(0.00)
11	22.07	33.97 5	5.07	0.31	1	0.00	445	10	22.09	33.98	5.06	23.44	445	0.04
31	18.96	33.84 3	5.46	0.32	1	0.00	376	20	21.30	33.92	5.20	23.61	429	0.09
41	18.81	33.85 7	5.50	0.33	1	0.00	371	30	18.99	33.84	5.45	24.16	377	0.13
51	18.71	33.85 3	5.50	0.32	1	0.00	369	50	18.72	33.85	5.50	24.23	370	0.20
66	18.36	33.87 0	5.67	0.39	0	0.00	360	75	17.92	33.82	5.61	24.41	353	0.29
82	17.57	33.78 5	5.55	0.37	1	0.00	347	100	15.70	33.73	5.32	24.86	310	0.38
101	15.62	33.73 0	5.32	0.46	2	0.00	308	125	13.46	33.73	4.54	25.34	265	0.45
125	13.46	33.73 2	4.54	1.06	5	0.02	264	150	11.50	33.79	3.93	25.76	224	0.51
146	11.74	33.76 5	4.06	1.32	10	0.00	230	200	10.18	34.13	2.09	26.26	177	0.61
176	10.65	33.93 5	3.12	1.68	18	0.00	199	250	9.40	34.27	1.49	26.50	154	0.70
206	10.08	34.16 0	1.93	1.95	25	0.00	173	300	8.85	34.35	0.94	26.65	140	0.78
236	9.58	34.23 2	1.66	2.27	29	0.00	160	400	7.89	34.39	0.50	26.83	123	0.91
276	9.12	34.32 2	1.18	2.49	34	0.00	146	500	6.86	34.42	0.27	27.00	106	1.03
336	8.46	34.37 4	0.66	2.72	40	0.00	132							
411	7.78	34.39 5	0.47	2.81	46	0.00	121							
486	6.96	34.41 2	0.28	2.86	53	0.00	108							
567	6.45	34.44 3	0.23	2.88	60	0.00	99							

HORIZON; July 28, 1961; 0633 GCT; 25°33.5'N, 112°18.5'W; sounding, 40 fm; wind, 310°, force 2; weather, cloudy; sea, slight; wire angle, 11°.

1	23.82	34.18 4	6.72	0.13	2	0.02	478	0	(23.82)	(34.18)	(6.72)	(23.10)	(478)	(0.00)
11	18.58	34.20 0	4.30	0.97	2	0.06	341	10	19.05	34.20	4.58	24.42	352	0.04
30	15.34	34.35 1	0.71	2.34	9	0.37	257	20	16.32	34.32	1.74	25.17	280	0.07
50	14.52	34.34 7	0.36	2.65	22	1.63	240	30	15.34	34.35	0.71	25.42	257	0.10
								50	14.52	34.35	0.36	25.59	240	0.15

OBSERVED							COMP	INTERPOLATED				COMPUTED		
Z	T	S	O ₂	PO ₄ -P	SiO ₃ -Si	NO ₂ -N	δ _T	Z	T	S	O ₂	σ _t	δ _T	ΔD
m	°C	‰	ml/L	μg at/L	μg at/L	μg at/L	cl/ton	m	°C	‰	ml/L	g/L	cl/ton	dyn m

HORIZON; July 28, 1961; 1003 GCT; 25°19'N, 112°43'W; sounding, 230 fm; wind, 260°, force 2; weather, cloudy; sea, moderate; wire angle, 17°.

2	22.08	34.03 0	5.51	0.23	0	0.01	442	0	(22.08)	(34.03)	(5.51)	(23.48)	(442)	(0.00)
10	18.48	33.84 7	6.38	0.47	1	0.01	364	10	18.48	33.85	6.38	24.29	364	0.04
30	14.36	33.90 4	3.76	1.44	9	0.44	270	20	15.80	33.88	5.01	24.95	301	0.07
49	12.67	33.94 3	2.67	1.96	14	0.13	234	30	14.36	33.90	3.76	25.28	270	0.10
73	12.48	34.24 6	1.32	2.28	-	0.08	208	50	12.65	33.95	2.65	25.67	233	0.15
96	12.52	34.42 2	0.63	2.64u	25u	0.06	196	75	12.50	34.28	1.20	25.95	206	0.21
121	12.44	34.56 2	0.20	3.02u	34u	0.04	184	100	12.51	34.46	0.55	26.09	193	0.26
159	12.13	34.64 3	0.13	2.77u	-	0.01	173	125	12.41	34.58	0.18	26.20	182	0.31
198	11.74	34.65 5	0.12	3.17u	33u	0.02	165	150	12.22	34.63	0.13	26.28	175	0.35
246	11.19	34.63 7	0.13	2.78u	42u	0.03	156	200	11.72	34.65	0.12	26.39	165	0.44
296	10.84	34.61 7	0.12	3.01u	-	0.03	152	250	11.16	34.63	0.13	26.48	156	0.52
								300	(10.82)	(34.61)	(0.12)	(26.52)	(152)	(0.60)

HORIZON; July 28, 1961; 1518 GCT; 24°59'N, 113°18'W; sounding, 1870 fm; wind, 300°, force 3; weather, cloudy; sea, moderate; wire angle, 15°.

1	23.10	33.89 9	5.01	0.40	1	0.00	479	0	(23.10)	(33.90)	(5.01)	(23.09)	(479)	(0.00)
10	23.08	33.91 3	5.15	0.35	0	0.00	477	10	23.08	33.91	5.15	23.11	477	0.05
30	16.18	33.67 8	5.98	1.00u	1	0.00	324	20	20.30	33.81	5.68	23.80	411	0.09
40	15.50	33.67 4	5.95	0.88u	2	0.00	310	30	16.18	33.68	5.98	24.71	324	0.13
54	14.66	33.69 4	5.68	0.79	3	0.28	291	50	14.80	33.69	5.74	25.03	294	0.19
68	13.42	33.71 0	4.68	1.15	6	0.02	265	75	12.70	33.73	4.16	25.49	250	0.26
94	11.58	33.79 6	3.49	1.69	13	0.00	225	100	11.28	33.88	3.16	25.87	214	0.32
113	10.98	33.99 3	2.70	1.90	18	0.00	200	125	10.98	34.09	2.28	26.09	193	0.37
132	10.94	34.16 1	1.97	2.27	22	0.00	187	150	10.23	34.18	1.71	26.29	174	0.42
152	10.22	34.19 8	1.66	2.45	27	0.00	172	200	10.56	34.52	0.46	26.50	154	0.50
181	10.79	34.51 3	0.60	2.59	30	0.00	159	250	9.89	34.51	0.34	26.61	144	0.58
216	10.32	34.51 9	-	2.68	31	0.00	150	300	9.19	34.48	0.30	26.70	135	0.65
246	9.96	34.50 9	0.36	2.61	33	0.00	145	400	8.16	34.47	0.19	26.85	120	0.78
295	9.24	34.48 3	0.32	2.77	38	0.00	136	500	7.09	34.46	0.16	27.00	106	0.90
350	8.73	34.50 4	0.22	2.89	41	0.00	126	600	6.38	34.47	0.13	27.11	97	1.01
435	7.74	34.45 9	0.17	2.90	48	0.00	115							
519	6.92	34.46 1	0.15	2.88	56	0.00	104							
604	6.36	34.46 7	0.13	2.91	61	0.00	97							

OBSERVED							COMP	INTERPOLATED				COMPUTED		
Z	T	S	O ₂	PO ₄ -P	SiO ₃ -Si	NO ₂ -N	δ _T	Z	T	S	O ₂	σ _t	δ _T	ΔD
m	°C	‰	ml/L	μg at/L	μg at/L	μg at/L	cl/ton	m	°C	‰	ml/L	g/L	cl/ton	dyn m

HORIZON; July 28, 1961; 2141 GCT; 24°39'N, 113°54'W; sounding, 2080 fm; wind, 290°, force 3; weather, cloudy; sea, moderate; wire angle, 08°.

1	22.74	33.88 0	4.40	0.45	1	0.00	470	0	(22.74)	(33.88)	(4.40)	(23.18)	(470)	(0.00)
11	22.46	33.87 3	4.52	0.43	1	0.00	463	10	22.47	33.87	4.52	23.25	464	0.05
31	17.45	33.67 9	5.40	0.40	1	0.00	352	20	19.10	33.74	5.26	24.05	387	0.09
40	16.30	33.65 3	5.32	0.46	2	0.00	329	30	17.46	33.68	5.40	24.41	353	0.13
55	15.12	33.64 8	5.04	0.54	2	0.00	304	50	15.48	33.65	5.14	24.85	311	0.19
71	14.02	33.70 3	4.11	1.04	5	0.10	278	75	13.67	33.71	3.94	25.28	270	0.27
95	12.26	33.69 8	3.56	1.36	10	0.00	244	100	11.92	33.71	3.40	25.62	237	0.33
115	11.12	33.81 1	2.85	1.81	16	0.00	216	125	10.89	33.86	2.65	25.93	208	0.39
134	10.70	33.90 1	2.48	1.96	20	0.00	202	150	10.33	34.01	2.07	26.14	188	0.44
155	10.28	34.05 5	1.98	2.14	24	0.00	184	200	10.16	34.32	1.00	26.41	162	0.53
184	10.22	34.26 1	1.15	2.42	29	0.00	168	250	9.65	34.42	0.56	26.58	147	0.61
218	10.03	34.36 9	0.86	2.79	32	0.00	157	300	9.30	34.50	0.35	26.70	135	0.68
247	9.68	34.41 4	0.57	2.69	34	0.00	148	400	8.37	34.54	0.17	26.88	118	0.81
295	9.34	34.49 3	0.36	2.93	36	0.00	136	500	6.98	34.47	0.12	27.03	104	0.93
348	8.99	34.55 8	0.24	3.09	43	0.00	126	600	(6.08)	(34.45)	(0.16)	(27.13)	(94)	(1.04)
431	7.94	34.51 6	0.11	2.99	49	0.00	114							
514	6.78	34.46 3	0.12	2.96	60	0.00	102							
598	6.10	34.45 0	0.16	3.02	68	0.00	95							

HORIZON; July 29, 1961; 0325 GCT; 24°20'N, 114°36'W; sounding, 1930 fm; wind, 290°, force 2; weather, cloudy; sea, moderate; wire angle, 09°.

1	22.61	33.80 6	5.08	0.72	0	0.00	472	0	(22.61)	(33.81)	(5.08)	(23.16)	(472)	(0.00)
11	22.56	33.79 9	5.08	0.69	0	0.00	471	10	22.58	33.80	5.08	23.17	472	0.05
31	19.19	33.75 3	5.50	0.54	0	0.00	388	20	20.60	33.76	5.33	23.68	423	0.09
41	18.84	33.76 4	5.51	0.54	0	0.00	379	30	19.22	33.75	5.50	24.03	389	0.13
55	17.66	33.72 0	5.63	0.50	0	0.00	354	50	17.73	33.72	5.62	24.38	356	0.21
70	16.28	33.60 1	5.72	0.40	0	0.00	332	75	15.97	33.61	5.66	24.71	325	0.29
96	14.62	33.67 0	4.98	0.77	2	0.02	292	100	14.27	33.70	4.70	25.15	283	0.37
115	13.28	33.78 8	3.87	1.26	6	0.00	257	125	12.70	33.89	3.10	25.61	238	0.44
135	12.12	34.01 2	2.49	1.72	15	0.00	219	150	11.22	34.01	2.50	25.99	203	0.49
155	11.17	34.00 9	2.50	1.76	19	0.00	202	200	11.19	34.40	0.90	26.29	174	0.59
185	11.39	34.34 5	1.14	2.23	24	0.00	181	250	10.63	34.53	0.40	26.50	155	0.67
219	10.98	34.47 4	0.67	2.48	26	0.00	165	300	9.83	34.52	0.33	26.63	142	0.75
248	10.65	34.53 0	0.41	2.42	29	0.00	155	400	8.00	34.40	0.33	26.82	123	0.89
297	9.90	34.52 6	0.32	2.61	31	0.00	143	500	7.19	34.44	0.13	26.97	109	1.01
353	8.66	34.42 8	0.39	2.70	36	0.00	131	600	6.38	34.47	0.11	27.11	97	1.12
436	7.60	34.39 6	0.27	2.70	44	0.00	118							
519	7.06	34.45 9	0.12	2.86	50	0.00	106							
604	6.34	34.47 6	0.11	2.90	59	0.00	96							

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OBSERVED							COMP	INTERPOLATED				COMPUTED		
Z	T	S	O ₂	PO ₄ -P	SiO ₃ -Si	NO ₂ -N	δ _T	Z	T	S	O ₂	σ _t	δ _T	ΔD
m	°C	‰	ml/L	μg at/L	μg at/L	μg at/L	cl/ton	m	°C	‰	ml/L	g/L	cl/ton	dyn m

HORIZON; July 29, 1961; 0818 GCT; 24°00'N, 115°18'W; sounding, 2000 fm; wind, 270°, force 2; weather, partly cloudy; sea, moderate; wire angle, 18°.

1	23.85	34.04 4	4.90	0.35	0	0.00	489	0	(23.85)	(34.04)	(4.90)	(22.98)	(489)	(0.00)
11	23.85	34.03 9	4.88	0.37	0	0.00	489	10	23.85	34.04	4.90	22.98	489	0.05
30	19.81	33.91 1	5.52	0.40	0	0.00	392	20	23.16	34.02	5.02	23.17	471	0.10
39	18.67	33.83 1	5.60	0.35	0	0.00	370	30	19.81	33.91	5.52	24.00	392	0.14
49	18.02	33.79 6	5.62	0.37	0	0.00	357	50	17.99	33.80	5.62	24.38	356	0.22
63	16.88	33.78 5	5.56	0.39	0	0.00	332	75	15.63	33.69	5.53	24.84	312	0.30
76	15.55	33.69 2	5.52	0.53	1	0.00	310	100	13.82	33.72	4.44	25.26	272	0.37
95	14.01	33.71 1	4.60	0.92	4	0.02	277	125	11.87	33.85	3.17	25.74	226	0.44
119	12.10	33.80 4	3.45	1.33	11	0.00	234	150	11.32	34.09	2.05	26.03	199	0.49
137	11.58	33.97 5	2.60	1.58	16	0.00	212	200	10.73	34.39	0.93	26.37	167	0.58
164	11.08	34.21 2	1.54	2.22	23	0.00	186	250	10.09	34.46	0.62	26.53	151	0.66
191	10.86	34.38 0	0.94	2.50	25	0.00	170	300	9.40	34.47	0.39	26.66	139	0.74
220	10.41	34.39 1	0.91	2.31	27	0.00	161	400	8.06	34.44	0.23	26.85	121	0.88
256	10.02	34.47 3	0.53	2.53	29	0.00	149	500	7.08	34.44	0.23	26.99	108	1.00
312	9.23	34.46 6	0.37	2.70	33	0.00	137							
383	8.28	34.44 7	0.26	2.91	40	0.00	124							
455	7.46	34.44 2	0.19	2.88	47	0.00	113							
532	6.84	34.44 2	0.26	2.84	52	0.00	105							

HORIZON; July 29, 1961; 1400 GCT; 23°40.5'N, 115°59'W; sounding, 2000 fm; wind, 300°, force 2; weather, partly cloudy; sea, moderate; wire angle, 04°.

1	23.48	33.96 3	4.68	0.28	0	0.00	484	0	(23.48)	(33.96)	(4.68)	(23.03)	(485)	(0.00)
11	23.48	33.96 1	4.53	0.27	0	0.00	485	10	23.48	33.96	4.54	23.03	485	0.05
31	19.55	33.83 8	5.41	0.31	0	0.00	391	20	23.18	33.95	4.61	23.11	477	0.10
41	18.76	33.80 0	5.45	0.31	0	0.00	374	30	19.70	33.84	5.40	23.98	394	0.14
57	18.34	33.82 7	5.48	0.29	0	0.00	362	50	18.48	33.81	5.47	24.26	367	0.22
72	18.02	33.98 1	5.34	0.34	0	0.00	344	75	17.92	33.98	5.31	24.53	341	0.31
96	15.12	33.82 7	4.60	0.77	3	0.05	291	100	14.28	33.80	4.43	25.22	276	0.38
118	12.56	33.77 7	3.99	1.22	8	0.00	244	125	12.45	33.87	3.51	25.65	235	0.45
139	12.24	34.05 8	2.41	1.88	15	0.00	218	150	11.85	34.14	2.00	25.97	204	0.50
159	11.55	34.18 4	1.77	2.08	21	0.00	196	200	11.14	34.43	0.91	26.33	171	0.60
188	11.34	34.38 8	1.05	2.35	25	0.00	177	250	10.73	34.57	0.34	26.51	153	0.68
224	10.78	34.48 4	0.66	2.55	29	0.00	160	300	10.37	34.61	0.20	26.60	144	0.76
253	10.72	34.57 5	0.31	2.74	30	0.00	153	400	8.60	34.47	0.26	26.79	127	0.90
303	10.33	34.61 0	0.19	2.85	32	0.00	144	500	7.09	34.40	0.27	26.95	111	1.03
358	9.40	34.52 6	0.26	2.91	36	0.00	135	600	6.37	34.43	0.17	27.08	99	1.14
442	7.84	34.43 0	0.25	2.85	45	0.00	119							
527	6.82	34.39 8	0.26	2.85	54	0.00	108							
612	6.30	34.43 6	0.15	2.93	61	0.00	98							

STATIONS
137.70 137.80

Station	Date	Time GCT	Latitude North	Longitude West	Sounding (fm)	Wind		Weather	Sea	10 Meters	
						Dir	Force			T	S
60.55-H	VII-6	2235	37°46.0'	123°15.0'	165	300°	4	partly cloudy	moderate	14.62	33.49
70.55-H	4	0950	36°03.0'	122°02.0'	718	300°	4	clear	moderate	13.01	33.55
80.65-H	VI-30	1810	33°58.5'	121°30.5'	1775	320°	6	clear	rough	14.62	33.49
82.47-B	VII-12	1915	34°15.0'	119°58.0'	310	320°	3	overcast	moderate	13.96	33.86
83.40-B	12	1500	34°14.0'	119°22.0'	11	320°	2	overcast	moderate	11.93	33.76
83.43-B	12	1640	34°08.0'	119°34.0'	134	320°	3	fog	moderate	14.86	33.88
83.51-B	12	2310	33°52.0'	120°08.0'	60	240°	3	overcast	moderate	14.66	33.81
83.55-B	13	0140	33°44.0'	120°24.5'	500	300°	3	overcast	rough	14.44	33.81
83.65-B	13	0805	33°24.0'	121°06.0'	1900	290°	3	overcast	moderate	15.23	33.33
83.70-B	13	1045	33°14.5'	121°26.0'	2000+	320°	3	overcast	rough	15.72	33.58
83.80-B	13	1530	32°55.5'	122°05.0'	2000+	320°	3	overcast	rough	15.26	33.24
83.90-B	13	2055	32°34.5'	122°47.5'	2000+	320°	3	cloudy	rough	16.92	33.35
87.35-B	15	0610	33°50.0'	118°37.5'	250	-	1	overcast	slight	19.66	33.86
87.40-B	15	0410	33°40.0'	118°58.0'	480	310°	2	overcast	moderate	16.54	33.84
87.45-B	15	0130	33°30.0'	119°19.0'	850	310°	3	overcast	rough	14.18	33.89
87.50-B	14	2300	33°20.0'	119°39.5'	45	310°	4	overcast	rough	14.26	33.84
87.55-B	14	1940	33°04.5'	120°02.5'	600	310°	4	overcast	rough	15.01	33.84

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
87.60-B	VII-14	1730	33°00.0'	120°21.5'	350	350°	4	overcast	rough	15.31a)	33.31
87.65-B	14	1510	32°49.5'	120°41.5'	2000+	350°	4	cloudy	rough	15.67b)	33.31
87.70-B	14	1210	32°39.5'	121°02.0'	2100	350°	3	cloudy	rough	15.86	33.24
87.80-B	14	0645	32°19.5'	121°43.0'	2200	320°	4	overcast	rough	16.81	33.39
87.90-B	14	0125	31°59.0'	122°24.0'	2100	320°	3	cloudy	rough	17.37	33.39
90.65-H	14	0710	32°13.0'	120°16.0'	2000	300°	4	overcast	moderate	14.42	33.72
93.35-B	15	2245	32°40.5'	117°51.5'	300	180°	2	cloudy	slight	17.79	33.77
93.45-B	16	0520	32°20.0'	118°32.0'	900	180°	1	overcast	slight	17.78	33.73
93.55-B	16	1120	32°00.0'	119°13.5'	650	180°	1	overcast	moderate	15.84	33.72
93.65-B	16	1715	31°40.0'	119°53.5'	2000	280°	2	overcast	moderate	13.79	33.45
97.30-B	19	0200	32°16.0'	117°07.0'	30	350°	1	partly cloudy	slight	18.24	33.82
97.32-B	19	0055	32°12.0'	117°15.0'	650	350°	1	partly cloudy	slight	18.58	33.70
97.35-B	18	2320	32°05.5'	117°27.5'	650	-	1	partly cloudy	slight	16.92	33.58
97.40-B	18	2050	31°56.0'	117°48.0'	400	-	1	cloudy	slight	18.34	33.68
97.45-B	18	1750	31°46.0'	118°08.5'	780	140°	1	overcast	slight	16.92	33.69
97.50-B	18	1525	31°36.0'	118°29.0'	1300	360°	1	overcast	slight	17.34	33.81

a) Alternate value, 14.94°C.

b) Alternate value, 15.89°C.

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

Station	Date	Time GCT	Latitude North	Longitude West	Sounding (fm)	Wind		Weather	Sea	10 Meters	
						Dir	Force			T	S
97.55-B	VII-18	1355	31°29.5'	118°40.0'	580	-	1	overcast	moderate	17.50	33.79
97.60-B	18	1130	31°18.0'	119°02.5'	400	-	1	overcast	slight	17.40	33.83
97.65-B	18	0855	31°07.0'	119°26.0'	2000	-	1	overcast	slight	17.09	33.54
97.70-B	18	0550	30°55.5'	119°49.0'	1940	-	1	overcast	moderate	17.24	33.52
97.80-B	18	0010	30°33.0'	120°34.0'	2000+	-	1	overcast	moderate	17.50	33.49
97.90-B	17	1920	30°15.5'	121°10.5'	2000+	320°	3	overcast	moderate	16.58	33.44
100.45-H	17	1310	31°15.5'	117°44.0'	1030	220°	2	overcast	moderate	16.66	33.70
100.55-H	17	1910	30°59.0'	118°21.0'	800	150°	1	overcast	moderate	17.46	33.49
100.65-H	18	0320	30°33.5'	119°07.0'	1810	200°	2	overcast	slight	18.07	33.47
103.30-B	21	1115	31°06.0'	116°24.5'	38	260°	1	overcast	moderate	19.60	33.66
103.35-B	21	1405	30°56.0'	116°45.0'	1000	280°	1	overcast	moderate	17.28	33.60
103.40-B	21	1630	30°46.0'	117°04.5'	1060	280°	1	overcast	moderate	19.58	33.73
103.45-B	21	1920	30°36.0'	117°24.0'	940	280°	3	overcast	moderate	18.48	33.47
103.50-B	21	2140	30°26.0'	117°44.5'	1450	280°	3	overcast	moderate	17.31	33.48
103.55-B	22	0045	30°16.0'	118°05.0'	1100	280°	3	overcast	rough	18.73	33.45
103.60-B	22	0300	30°06.0'	118°25.0'	1600	280°	5	overcast	rough	19.08	33.43
103.65-B	22	0545	29°56.5'	118°44.0'	1740	320°	5	overcast	rough	18.94	33.50
103.70-B	22	0835	29°46.5'	119°04.0'	1900	300°	5	overcast	rough	17.70	33.40
103.80-B	22	1325	29°26.5'	119°44.0'	2100	320°	4	cloudy	rough	19.37	33.73

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

Station	Date	Time GCT	Latitude North	Longitude West	Sounding (fm)	Wind		Weather	Sea	10 Meters	
						Dir	Force			T	S
103.90-B	VII-22	1810	29°07.0'	120°23.5'	2050	320°	4	overcast	rough	19.58	33.66
107.32-B	24	0425	30°26.0'	116°11.0'	250	150°	1	partly cloudy	moderate	15.21	33.49
107.35-B	24	0240	30°21.5'	116°22.5'	920	150°	1	partly cloudy	moderate	18.67	33.65
107.40-B	24	0010	30°08.0'	116°43.0'	1200	150°	1	partly cloudy	moderate	19.52	33.72
107.45-B	23	2150	30°02.0'	117°02.5'	650	150°	1	cloudy	moderate	19.56	33.71
107.50-B	23	1930	29°45.5'	117°24.5'	1450	270°	2	cloudy	moderate	18.18	33.49
107.55-B	23	1700	29°41.0'	117°42.0'	1760	280°	1	cloudy	moderate	18.59	33.43
107.60-B	23	1430	29°32.0'	118°01.5'	1800	280°	2	cloudy	moderate	19.00	33.49
107.65-B	23	1145	29°21.0'	118°21.0'	1600	260°	3	partly cloudy	rough	18.98	33.40
107.70-B	23	0940	29°11.0'	118°41.0'	1600	320°	3	cloudy	rough	19.28	33.53
107.80-B	23	0440	28°51.5'	119°20.5'	2000	320°	3	cloudy	rough	19.23	33.60
107.90-B	22	2245	28°29.0'	120°05.5'	2000	330°	4	overcast	rough	19.57	33.53
110.33-H	21	2355	29°49.0'	115°51.5'	43	310°	3	cloudy	slight	13.86	33.65
110.45-H	21	1552	29°26.0'	116°38.5'	327	320°	3	overcast	moderate	20.10	33.70
110.55-H	21	1049	29°04.0'	117°17.0'	1800	240°	4	overcast	rough	19.71	33.66
110.65-H	21	0425	28°44.0'	117°56.5'	1900	250°	5	overcast	moderate	18.46	33.65
113.30-B	24	1305	29°22.0'	115°18.0'	24	290°	2	partly cloudy	moderate	15.14	33.68
113.35-B	24	1520	29°12.0'	115°38.0'	640	320°	1	partly cloudy	moderate	16.52	33.61
113.40-B	24	1740	29°03.0'	115°57.0'	940	-	1	partly cloudy	moderate	19.53	33.74

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
113.45-B	VII-24	2025	28°52.0'	116°18.0'	1050	-	1	partly cloudy	moderate	19.16	33.78
113.50-B	24	2300	28°41.5'	116°36.5'	1800	240°	3	partly cloudy	moderate	20.42	33.72
113.55-B	25	0110	28°32.0'	116°57.0'	1700	270°	1	partly cloudy	moderate	21.27	33.88
113.60-B	25	0325	28°22.0'	117°16.5'	1850	280°	2	cloudy	moderate	20.00	33.66
113.65-B	25	0540	28°12.0'	117°36.0'	1980	270°	1	partly cloudy	moderate	19.30	33.70
113.70-B	25	0803	28°02.0'	117°55.0'	1800	-	1	partly cloudy	moderate	18.94	33.49
113.80-B	25	1215	27°42.0'	118°33.5'	2000	240°	1	cloudy	moderate	19.58	33.57
113.90-B	25	1635	27°22.0'	119°12.0'	1950	220°	1	overcast	moderate	20.10	33.69
117.26-B	27	1050	28°56.0'	114°41.5'	42	280°	2	cloudy	moderate	14.22	33.82
117.30-B	27	0840	28°48.0'	114°56.5'	58	280°	4	cloudy	moderate	19.12	33.77
117.35-B	27	0550	28°38.0'	115°16.0'	105	320°	3	cloudy	moderate	18.68	33.70
117.40-B	26	2250	28°28.0'	115°35.5'	400	340°	4	partly cloudy	moderate	18.33	33.75
117.45-B	26	2000	28°18.0'	115°56.0'	1700	320°	4	cloudy	rough	20.42	33.73
117.50-B	26	1720	28°08.0'	116°15.0'	2500	320°	3	cloudy	moderate	21.27	33.86
117.55-B	26	1440	27°58.0'	116°34.5'	1900	300°	2	cloudy	moderate	21.0	33.78
117.60-B	26	1230	27°50.0'	116°49.5'	2000	300°	2	cloudy	moderate	20.69	33.82
117.65-B	26	0945	27°39.0'	117°11.5'	1700	360°	1	cloudy	moderate	18.81	33.50
117.70-B	26	0700	27°28.0'	117°31.5'	1800	360°	1	cloudy	moderate	19.74	33.51
117.80-B	26	0200	27°12.0'	118°11.0'	2000	-	1	cloudy	moderate	19.80	33.53

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

Station	Date	Time GCT	Latitude North	Longitude West	Sounding (fm)	Wind		Weather	Sea	10 Meters	
						Dir	Force			T	S
117.90-B	VII-25	2100	26°47.5'	118°49.0'	2000	-	1	overcast	moderate	21.48	33.86
118.39-B	27	0255	28°18.5'	115°23.5'	115	320°	3	cloudy	moderate	19.61	33.73
120.25-B	27	1515	28°22.5'	114°15.0'	31	300°	3	overcast	moderate	18.33	33.83
120.30-B	27	1955	28°13.0'	114°34.0'	50	320°	4	overcast	rough	19.00	33.78
120.35-B	27	2150	28°03.0'	114°54.0'	45	320°	3	partly cloudy	rough	19.94	33.84
120.40-H	22	2340	27°56.0'	115°14.5'	25	290°	4	clear	moderate	16.50	33.75
120.40-B	28	0535	27°56.5'	115°14.0'	21	320°	4	partly cloudy	moderate	19.58	33.82
120.55-H	23	1000	27°24.0'	116°12.5'	1925	-	1	missing	slight	21.37	33.74
120.65-H	23	1547	27°06.0'	116°48.0'	2050	280°	1	cloudy	moderate	21.14	33.70
123.37-B	28	1100	27°24.0'	114°40.0'	38	270°	2	cloudy	moderate	15.58	33.89
123.42-B	28	1325	27°14.0'	114°59.0'	700	300°	5	cloudy	moderate	18.96	33.85
123.45-B	28	1510	27°08.0'	115°11.5'	2000	320°	4	cloudy	moderate	18.54	33.64
123.50-B	28	1745	26°58.0'	115°31.0'	1950	320°	5	cloudy	rough	21.56	33.78
123.55-B	28	2020	26°48.5'	115°49.5'	2000	320°	3	cloudy	rough	21.58	33.80
123.60-B	28	2300	26°38.5'	116°09.0'	2000	320°	3	cloudy	rough	21.82	34.04
123.65-B	29	0140	26°28.5'	116°28.0'	2000	320°	3	cloudy	rough	21.88	33.96
123.70-B	29	0400	26°19.0'	116°47.0'	1950	320°	3	cloudy	rough	22.02	33.99
123.80-B	29	0900	25°59.0'	117°25.5'	2000	280°	3	cloudy	rough	21.54	33.89
127.34-B	30	1510	26°55.0'	114°06.5'	41	320°	2	clear	moderate	14.87	33.55

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
127.40-B	VII-30	1255	26°43.0'	114°23.0'	1800	320°	3	partly cloudy	moderate	21.16	33.85
127.45-B	30	1008	26°33.0'	114°46.0'	1800	330°	2	partly cloudy	moderate	21.06	33.80
127.50-B	30	0640	26°23.0'	115°08.0'	1840	310°	2	partly cloudy	moderate	19.77	33.80
127.55-B	30	0225	26°09.0'	115°27.0'	1800	320°	2	cloudy	moderate	21.41	33.87
127.60-B	29	2350	26°01.0'	115°47.0'	1800	320°	2	cloudy	moderate	21.62	33.87
127.65-B	29	2105	25°53.0'	116°08.0'	2000	320°	2	cloudy	moderate	20.08	33.75
127.70-B	29	1835	25°44.0'	116°26.0'	2100	350°	2	cloudy	moderate	21.90	33.95
127.80-B	29	1350	25°24.0'	117°02.5'	2000	330°	2	cloudy	moderate	22.12	33.99
130.35-H	27	0642	26°14.0'	113°50.0'	530	280°	4	overcast	moderate	17.88	33.76
130.45-H	27	0130	25°56.5'	114°25.5'	1895	290°	4	partly cloudy	rough	21.23	33.82
130.55-H	26	1940	25°34.0'	115°03.0'	1920	320°	4	overcast	rough	21.68	33.74
133.25-B	31	0040	26°04.5'	112°48.0'	45	270°	4	partly cloudy	moderate	18.39	34.07
133.30-B	31	0305	25°56.0'	113°09.5'	105	270°	4	partly cloudy	moderate	21.04	34.07
133.35-B	31	0545	25°45.5'	113°28.0'	360	270°	4	clear	moderate	21.59	33.91
133.40-B	31	0810	25°34.0'	113°48.0'	1600	320°	3	partly cloudy	moderate	22.56	33.99
133.45-B	31	1045	25°22.0'	114°08.0'	1700	320°	3	partly cloudy	moderate	22.28	33.96
133.50-B	31	1314	25°12.5'	114°25.0'	1900	330°	3	partly cloudy	moderate	21.85	33.86
133.55-B	31	1530	25°04.5'	114°43.0'	2000	330°	3	cloudy	moderate	22.06	33.86
133.60-B	31	1800	24°54.5'	115°02.0'	2150	330°	3	cloudy	moderate	23.22	33.96

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
133.65-B	VII-31	2020	24° 44.5'	115° 20.5'	2000+	330°	3	cloudy	moderate	23.34	33.97
133.70-B	31	2305	24° 34.5'	115° 39.0'	2000+	340°	3	cloudy	moderate	22.86	33.95
133.80-B	VIII-1	0315	24° 14.5'	116° 17.0'	2000+	330°	3	cloudy	moderate	23.32	34.04
137.35-H	VII-28	1300	25° 09.0'	113° 00.5'	742	290°	4	cloudy	moderate	21.99	33.89
137.45-H	28	1829	24° 49.5'	113° 35.0'	1860	320°	3	cloudy	rough	23.07	33.89
137.55-H	29	0035	24° 29.0'	114° 15.0'	2015	300°	3	partly cloudy	moderate	21.92	33.80

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

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