

*Errata 28 Oct 63 ✓
p. 317*

UNIVERSITY OF CALIFORNIA SCRIPPS INSTITUTION OF OCEANOGRAPHY

data report

PHYSICAL AND CHEMICAL DATA

CCOFI Cruise 5908
13-31 August 1959

and

CCOFI Cruise 5909
9 September - 1 October 1959

SIO Reference 61-19
12 September 1961

UNIVERSITY OF CALIFORNIA
SCRIPPS INSTITUTION OF OCEANOGRAPHY

PHYSICAL AND CHEMICAL DATA

CCOFI CRUISE 5908
13-31 August 1959

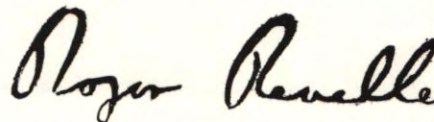
and

CCOFI CRUISE 5909
9 September - 1 October 1959

Sponsored by
Marine Research Committee

SIO Reference 61-19
12 September 1961

Approved for distribution:



Roger Revelle, Director

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[Handwritten signature]
Roger Kovalick, Director

INTRODUCTION

The data presented in this report were collected on the one hundred and twenty-third and the one hundred and twenty-fourth consecutive cruises of the California Cooperative Oceanic Fisheries Investigations program. The Scripps Institution's Tuna Oceanography Research (STOR) program conducted a cruise called TO-59-2 from 13 August through 22 September 1959, using the R/V Hugh M. Smith. The cruise extended far to the south of the area of the CCOFI surveys, but the first part of it, from 13 August through 29 August, was devoted to occupying regular CCOFI stations (lines 130-153, in part) off the Pacific coast of Baja California. The observations made at these stations consisted of those regularly made in the CCOFI investigations together with other biological, chemical (silicate, nitrite, nitrate, acidity and alkalinity) and physical observations particularly required by the STOR program. Continuity with the oceanography of the region north of line 130 was provided by R/V Black Douglas, of the U. S. Bureau of Commercial Fisheries, and the R/V Orca, of the Scripps Institution, which occupied stations on lines 77-100 and lines 103-127, respectively, at the same period. For CCOFI purposes, all of the data collected by the three ships along regular CCOFI station lines have been included in Cruise 5908. All of the STOR observations, together with all observations made on the remaining part of TO-59-2 and on two other cruises, will be published by the U. S. Bureau of Commercial Fisheries which sponsored the STOR investigations. This publication will appear as a Special Scientific Report (Fisheries) of the U. S. Fish and Wildlife Service, entitled "Physical, chemical, and biological investigations in the eastern tropical Pacific Ocean: three cruises to the Gulf of Tehuantepec, 1958-1959." The R/V Black Douglas of the U. S. Bureau of Commercial Fisheries and the R/V Orca of the Scripps Institution participated in Cruise 5909.

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

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

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 . The interpolated values at 125 meters are not tabulated.

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

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.

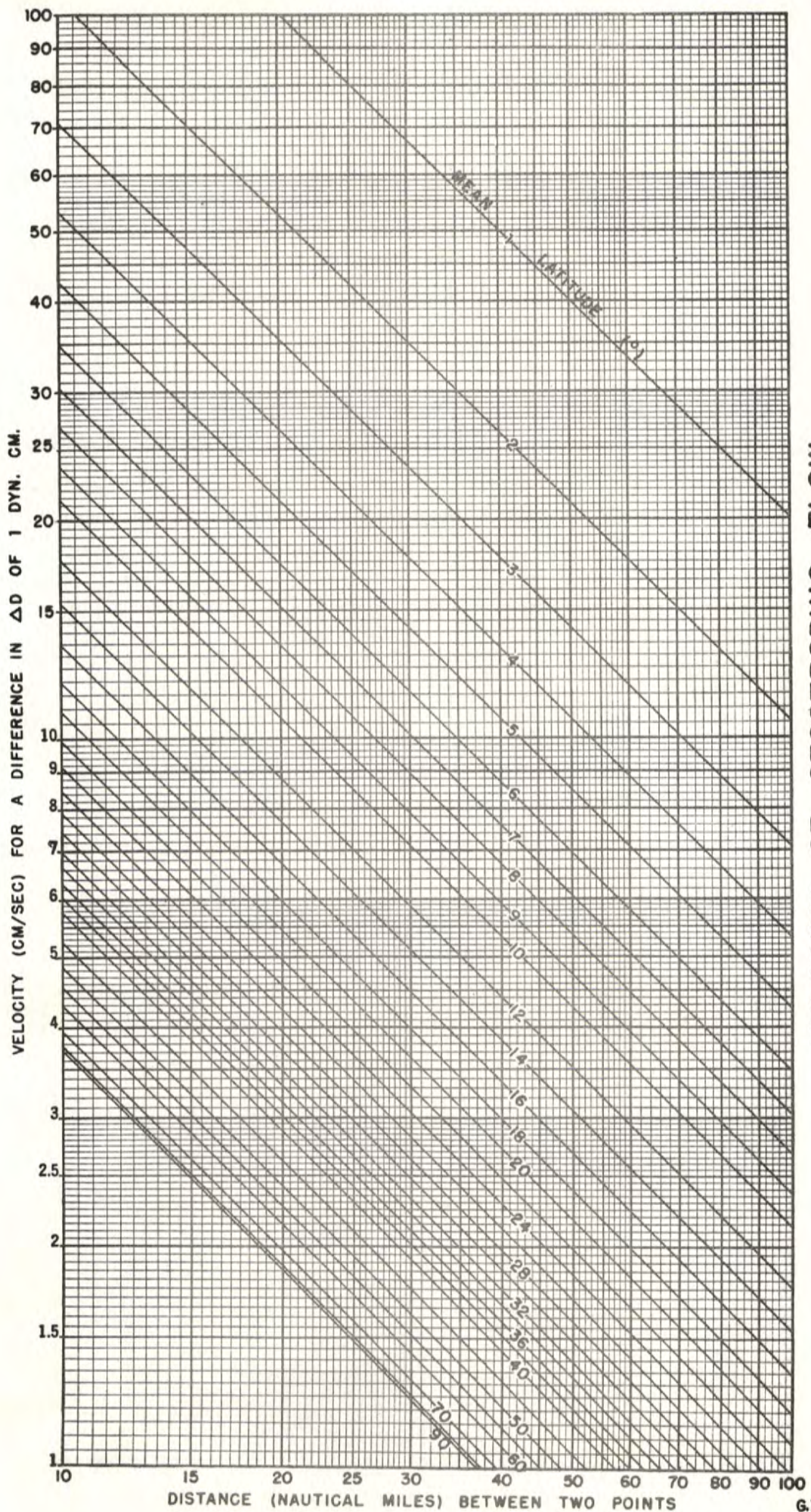
Values which are not drawn through because they seem to be in error without apparent reason are indicated by one of the following notations.

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 1959 volume, the first page of the Cruise 5908 data is numbered 304; Cruise 5909, 368.



VELOCITY OF GEOSTROPHIC FLOW

FIGURES

1. CCOFI Cruise 5908, 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

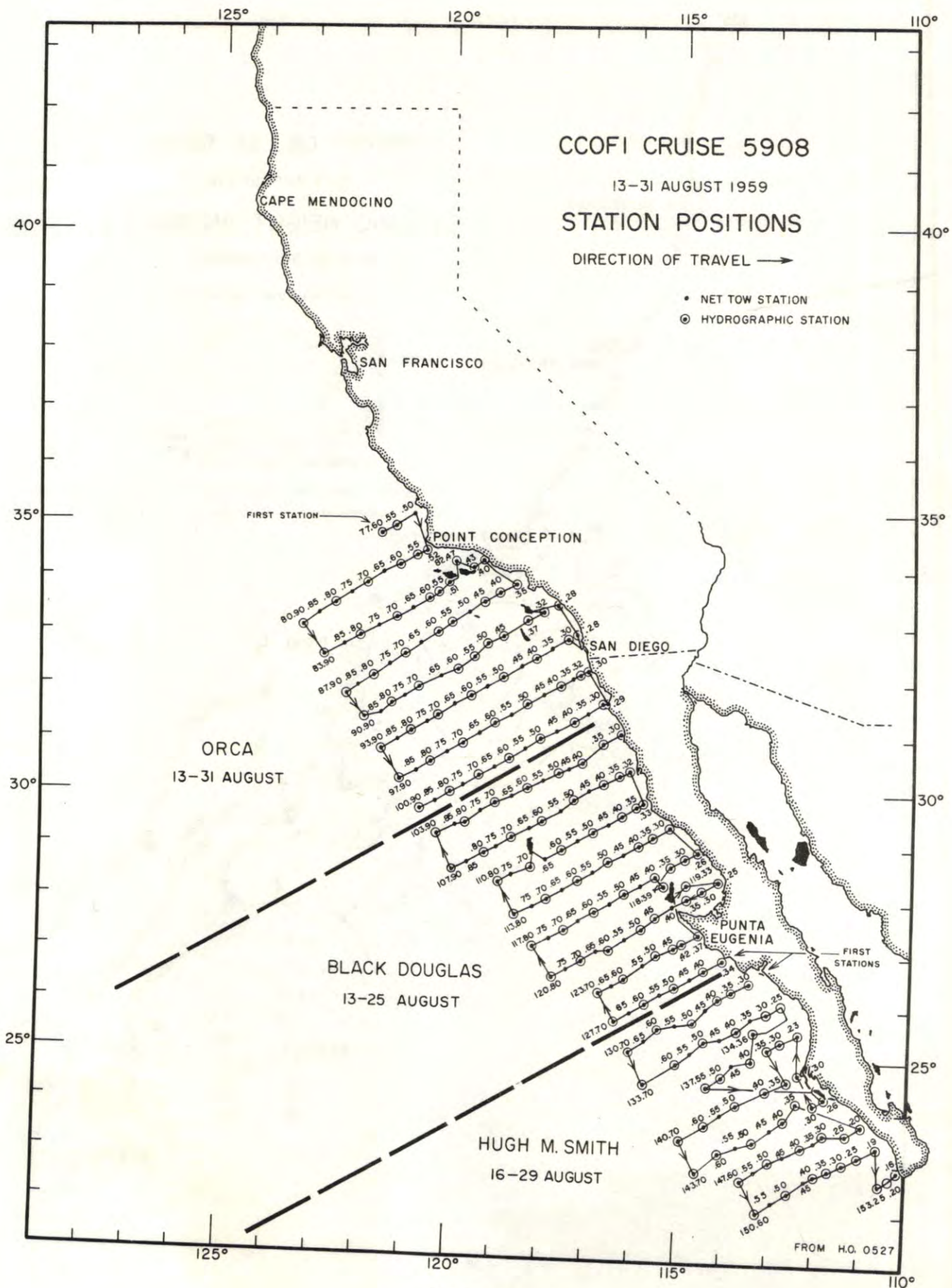


FIGURE 1

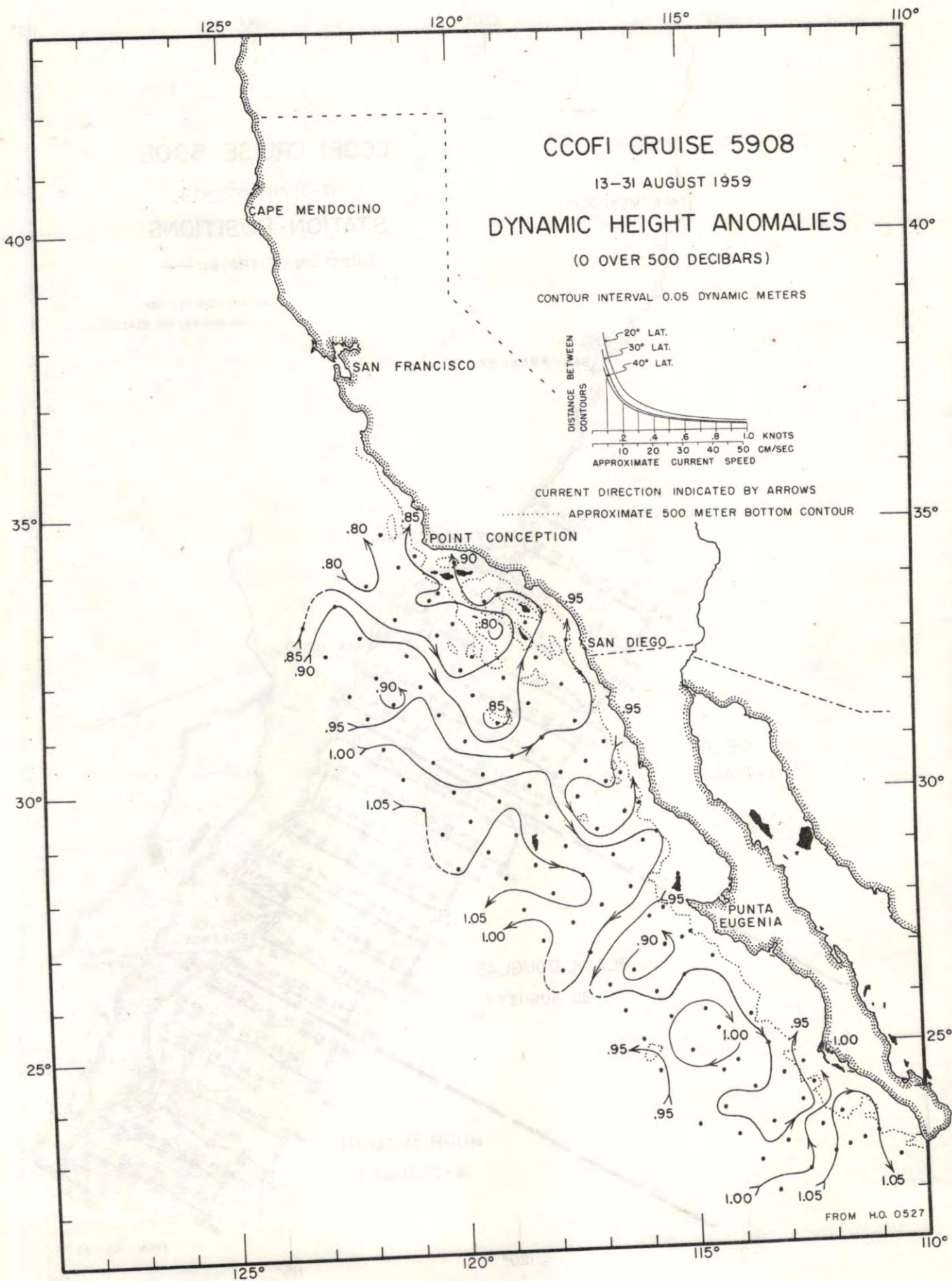


FIGURE 2

4740
60

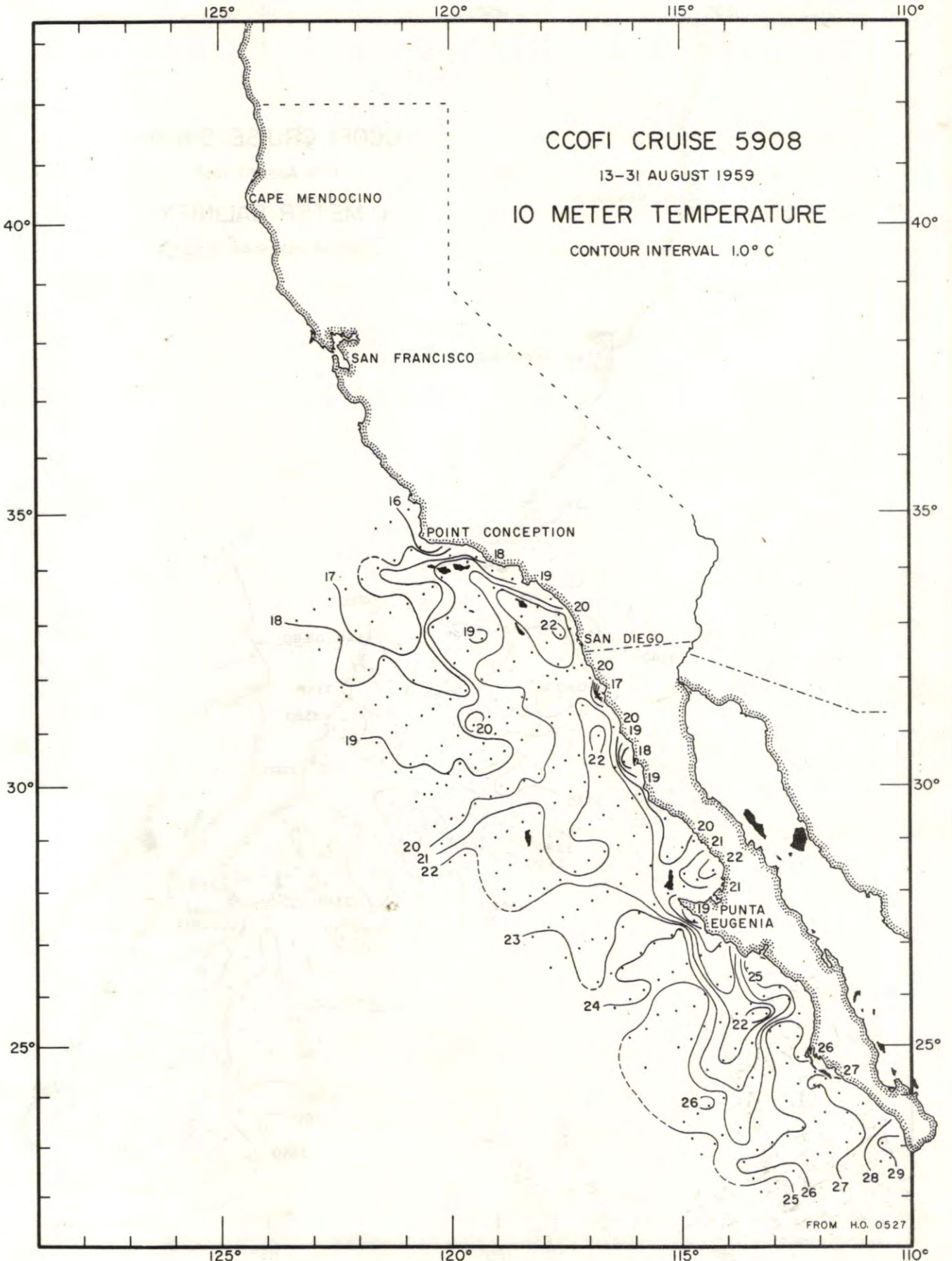


FIGURE 3

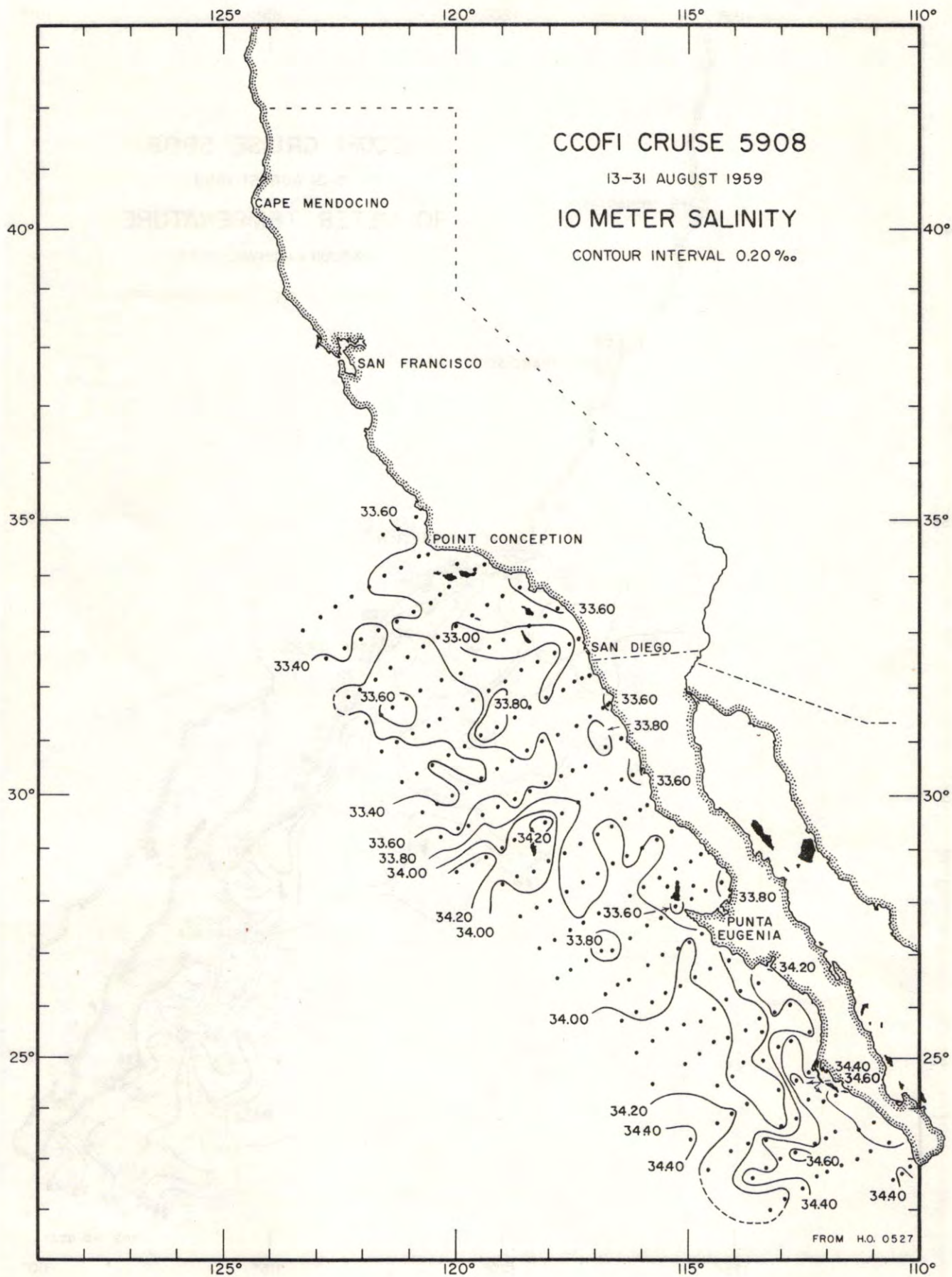


FIGURE 4

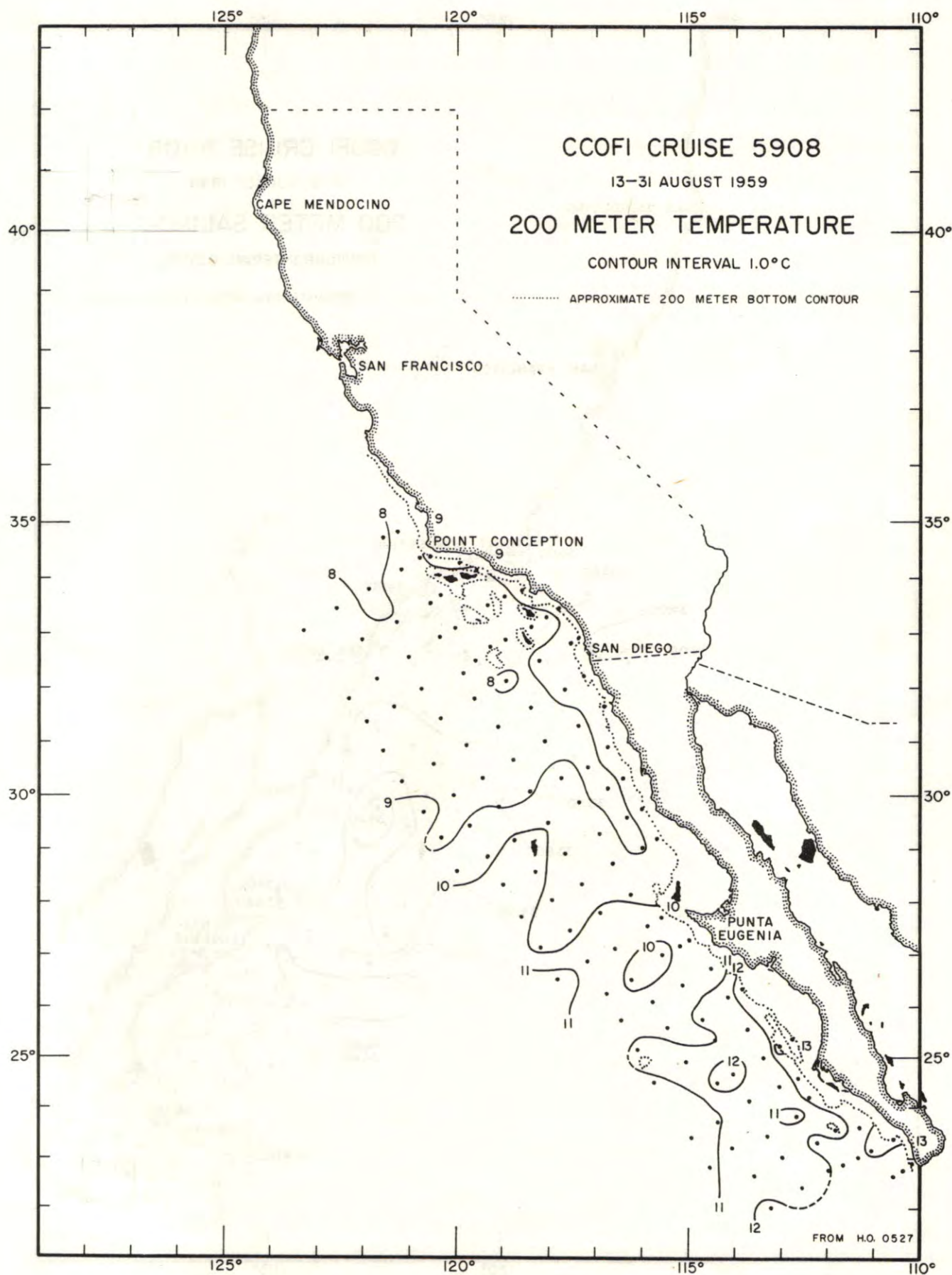


FIGURE 5

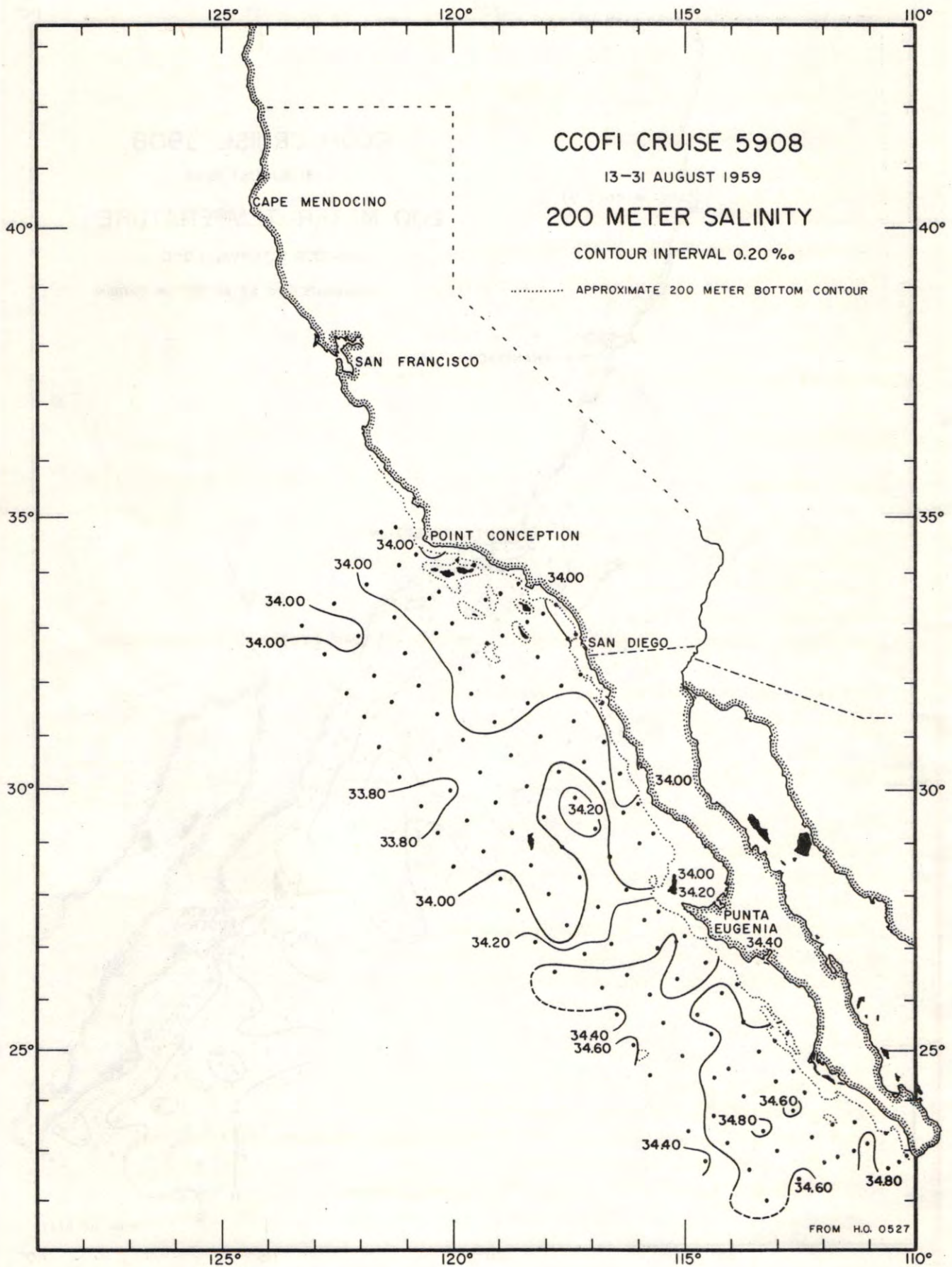


FIGURE 6

PERSONNEL
Cruise 5908

SHIPS' CAPTAINS

Forster, Charles W., R/V Black Douglas
Hopkins, Marvin F., R/V Orca
Miller, Frank, R/V Hugh M. Smith

PERSONNEL PARTICIPATING IN THE COLLECTION OF DATA

R/V Black Douglas

Reid, Charles F., Fishery Research Biologist, U. S. Bureau of Commercial Fisheries
Begnoche, Donald J., Marine Technician
Bingman, Allen R., Marine Technician
Clewell, Don B., Student Summer Trainee
Davie, Eugene N., Visitor
Rittenberg, William, Student Summer Trainee, U. S. Bureau of Commercial Fisheries
Tomson, John A., Student Summer Trainee
Wyllie, John G., Laboratory Technician

R/V Hugh M. Smith

Blackburn, Maurice, Associate Research Biologist
Griffiths, Raymond C., Graduate Research Biologist
Hamilton, Donald W., Laboratory Assistant
Jones, Laurence G., Laboratory Assistant
Linn, Robert J., Senior Marine Technician
Reith, A. Dougall, Senior Marine Technician
Thomas, William H., Assistant Research Biologist

R/V Orca

Davoll, Peter J., Senior Marine Technician
Bottom, Kenneth S., Marine Technician
Casey, Harold D., Fishery Aid, U. S. Bureau of Commercial Fisheries
Pine, James S., Marine Technician
Smith, Jeffrey, Laboratory Helper (Summer Trainee)

SIO

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OBSERVED					INTERPOLATED				COMPUTED		
Z	T	S	O ₂	δ_T	Z	T	S	O ₂	σ_t	δ_T	ΔD
m	°C	‰	ml/L	$\frac{-5}{10} \frac{3}{\text{cm}^3/\text{g}}$	m	°C	‰	ml/L	g/L	$\frac{-5}{10} \frac{3}{\text{cm}^3/\text{g}}$	dyn. m
77.55 ORCA; August 15, 1959; 0830 GCT; 34°52'N, 121°17'W; sounding, 240 fm; wind, 290°, force 2; weather, cloudy; sea, moderate; wire angle, 05°.											
1	16.94	33.57	5.60	349	0	(16.94)	(33.57)	(5.60)	(24.45)	(349)	(0.00)
11	16.49	33.60	5.77	337	10	16.50	33.60	5.77	24.58	337	0.03
40	12.06	33.43	4.97	260	20	15.80	33.57	5.76	24.72	324	0.07
65	10.92	33.56	4.20	231	30	15.00	33.54	5.68	24.87	309	0.10
95	9.90	33.64	3.48	208	50	11.64	33.52	4.67	25.52	247	0.15
130	9.24	33.80	2.92	186	75	10.40	33.57	3.89	25.80	221	0.21
179	8.67	33.96	2.20	166	100	9.78	33.66	3.39	25.97	205	0.27
229	8.34	34.13	1.44	148	150	9.00	33.86	2.65	26.25	178	0.36
334	7.54	34.22	0.89	130	200	8.52	34.05	1.84	26.47	157	0.45
434	6.57	34.27	-	114	250	8.21	34.16	1.29	26.60	144	0.52
					300	7.83	34.20	1.03	26.69	136	0.60
					400	6.91	34.26		26.87	119	0.73

77.60

77.60 ORCA; August 15, 1959; 0515 GCT; 34°43.5'N, 121°35.5'W; sounding, 550 fm; wind, 290°, force 3; weather, cloudy; sea, rough; wire angle, 05°.											
1	16.72	33.59	5.50	342	0	(16.72)	(33.59)	(5.50)	(24.52)	(342)	(0.00)
11	16.60	33.58	5.59	341	10	16.61	33.58	5.59	24.54	341	0.03
31	12.50	33.28	5.28	280	20	16.55	33.58	5.59	24.55	340	0.07
41	11.77	33.33	4.98	262	30	12.80	33.29	5.34	25.13	284	0.10
51	11.40	33.48	4.65	245	50	11.44	33.47	4.69	25.52	247	0.15
66	10.54	33.55	4.04	226	75	9.85	33.60	3.74	25.90	211	0.21
81	9.52	33.64	3.53	202	100	9.31	33.77	2.94	26.12	190	0.26
100	9.31	33.77	2.94	190	150	8.80	34.02	1.84	26.40	163	0.35
125	9.22	33.98	2.07	173	200	7.70	34.07	1.80	26.60	144	0.43
145	8.94	34.02	1.81a)	166	250	7.34	34.08	1.32	26.67	138	0.50
175	8.00	34.00	2.18	153	300	6.99	34.14	1.02	26.76	129	0.57
205	7.66	34.07	1.76	143	400	6.52	34.24	0.52	26.91	115	0.70
235	7.43	34.07	1.45	140	500	5.82	34.27	0.42	27.03	104	0.81
275	7.18	34.11	1.17	134							
335	6.74	34.17	0.83	124							
410	6.48	34.25	0.50	114							
485	5.90	34.27	0.43	106							
566	5.56	34.29	0.29	100							

80.52

80.52 ORCA; August 15, 1959; 1734 GCT; 34°25'N, 120°36'W; sounding, 150 fm; wind, calm; weather, overcast; sea, moderate; wire angle, 03°.											
1	17.69	33.71	5.26	356	0	(17.69)	(33.71)	(5.26)	(24.38)	(356)	(0.00)
11	15.33	33.62	5.03	310	10	15.35	33.62	5.04	24.86	311	0.03
31	13.18	33.64	4.41	266	20	14.76	33.62	4.94	24.99	298	0.06
51	12.54	33.63	4.15	254	30	13.21	33.64	4.44	25.31	267	0.09
76	11.67	33.62	3.83	240	50	12.60	33.63	4.17	25.44	255	0.14
100	11.02	33.66	3.60	226	75	11.69	33.62	3.84	25.60	240	0.21
125	10.10	33.75	3.38	204	100	11.02	33.66	3.60	25.74	226	0.26
165	9.50	33.89	2.54	184	150	9.64	33.85	2.76	26.12	189	0.37
205	9.38	33.95	2.32	177	200	9.39	33.94	2.36	26.25	178	0.46

a) Alternate value, 1.93 ml/L, not used in interpolation.

OBSERVED					INTERPOLATED				COMPUTED		
Z	T	S	O ₂	δT_3	Z	T	S	O ₂	σ_t	δT_3	ΔD
m	°C	‰	ml/L	10 ⁻⁵ cm ³ /g	m	°C	‰	ml/L	g/L	10 ⁻⁵ cm ³ /g	dyn. m

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ORCA; August 15, 1959; 1950 GCT; 34° 21.5'N, 120° 49'W; sounding, 420 fm; wind, 290°, force 3; weather, cloudy; sea, moderate; wire angle, 15°.

8055

2	17.66	33.68	5.53	357	0	(17.66)	(33.68)	(5.53)	(24.37)	(357)	(0.00)
12	17.48	33.71	5.56	350	10	17.49	33.71	5.56	24.43	351	0.04
31	16.92	33.66	5.40	342	20	17.47	33.71	5.55	24.44	350	0.07
40	14.78	33.69	5.03	294	30	16.93	33.66	5.41	24.52	342	0.10
50	12.87	33.63	4.29	260	50	12.87	33.63	4.29	25.38	260	0.16
64	12.24	33.66	4.17	247	75	11.00	33.67	3.65	25.76	224	0.23
79	10.79	33.68	3.53	220	100	10.02	33.73	3.15	25.98	204	0.28
98	10.08	33.73	3.16	205	150	9.22	33.91	2.40	26.25	177	0.38
121	9.50	33.86	2.76	186	200	8.79	34.06	1.88	26.44	160	0.46
140	9.30	33.89	2.51	180	250	8.39	34.18	1.38	26.59	146	0.54
169	9.07	33.98	2.18	170	300	7.57	34.15	1.20	26.69	136	0.61
197	8.82	34.05	1.93	162	400	6.47	34.20	0.87	26.89	117	0.74
225	8.59	34.11	1.62	153	500	6.01	34.23	0.51	26.96	110	0.86
263	8.26	34.19	1.29	143							
321	7.20	34.14	1.16	132							
393	6.50	34.20	0.88	118							
466	6.14	34.22	0.55	112							
544	5.84	34.24	0.48	108							

ORCA; August 15, 1959; 2328 GCT; 34° 11'N, 121° 11'W; sounding, 1200 fm; wind, 180°, force 1; weather, partly cloudy; sea, moderate; wire angle, 04°.

8060

1	17.78	33.68	5.51	360	0	(17.78)	(33.68)	(5.51)	(24.34)	(360)	(0.00)
11	16.58	33.67	5.62	333	10	16.62	33.67	5.62	24.60	335	0.03
31	13.00	33.60	4.49	266	20	15.90	33.68	5.44	24.78	318	0.07
41	11.43	33.58	3.90	238	30	13.25	33.60	4.57	25.29	239	0.10
51	10.56	33.65	3.54	218	50	10.60	33.64	3.57	25.80	220	0.15
66	9.76	33.77	3.15	196	75	9.66	33.79	3.09	26.08	194	0.20
80	9.62	33.80	3.04	192	100	9.30	33.90	2.51	26.23	180	0.24
100	9.30	33.90	2.51	180	150	9.01	34.04	1.92	26.38	166	0.33
125	9.07	33.99	2.10	170	200	8.82	34.18	1.37	26.52	152	0.41
145	9.03	34.02	1.98	167	250	8.52	34.22	1.20	26.60	144	0.49
175	8.78	34.11	1.59	156	300	8.16	34.24	0.96	26.67	138	0.56
205	8.82	34.19	1.35	151	400	7.28	34.27	0.68	26.83	123	0.70
235	8.63	34.20	1.29	148	500	6.63	34.28	0.44	26.92	114	0.82
274	8.32	34.23	1.06	140							
334	7.88	34.24	0.83	134							
409	7.20	34.27	0.65	122							
484	6.76	34.28	0.46	116							
563	5.98	34.30	0.43	104							

ORCA; August 16, 1959; 0525 GCT; 33° 51'N, 121° 54'W; sounding, 2000 fm; wind, direction missing, force 1; weather, cloudy; sea, moderate; wire angle, 00°.

8070

1	17.28	33.59	5.46	355	0	(17.28)	(33.59)	(5.46)	(24.39)	(355)	(0.00)
11	17.04	33.60	5.53	349	10	17.05	33.60	5.53	24.45	349	0.04
31	15.35	33.64	5.40	309	20	17.00	33.60	5.54	24.46	348	0.07
41	13.30	33.60	4.97	271	30	15.42	33.64	5.41	24.85	311	0.10
51	11.35	33.66	3.98	231	50	11.65	33.67	4.13	25.64	236	0.16
66	10.20	33.75	3.14	205	75	9.94	33.82	2.90	26.07	195	0.21
81	9.29	33.81	2.77	186	100	8.89	33.87	2.69	26.27	176	0.26
101	8.87	33.87	2.69	176	150	8.54	34.04	1.97	26.47	157	0.34
126	8.56	33.91	2.61	168	200	7.45	34.02	1.99	26.61	144	0.42
146	8.57	34.04	1.96	158	250	6.75	34.04	1.77	26.72	133	0.49
176	7.72	34.00	2.36	149	300	6.35	34.08	1.20	26.81	125	0.56
206	7.38	34.03	1.93	142	400	5.69	34.17	0.69	26.96	111	0.68
236	6.94	34.04	1.90	136	500	5.52	34.28	0.37	27.07	100	0.79
275	6.46	34.05	1.52	129							
335	6.23	34.14	0.86	120							
410	5.63	34.17	0.66	110							
485	5.58	34.27	0.40	102							
565	5.22	34.33	0.30	94							

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OBSERVED					INTERPOLATED				COMPUTED		
Z	T	S	O ₂	δT	Z	T	S	O ₂	σ_t	δT	ΔD
m	°C	‰	ml/L	$\frac{-5}{10} \frac{T}{cm^3/g}$	m	°C	‰	ml/L	g/L	$\frac{-5}{10} \frac{T}{cm^3/g}$	dyn. m

8080

ORCA; August 16, 1959; 1130 GCT; 33°29'N, 122°35'W; sounding, 2000+ fm; wind, direction missing, force 1; weather, overcast; sea, calm; wire angle, 05°.

1	17.81	33.42	5.27	380	0	(17.81)	(33.42)	(5.27)	(24.13)	(380)	(0.00)
11	17.80	33.42	5.30	380	10	17.80	33.42	5.30	24.13	380	0.04
31	17.24	33.43	5.39	366	20	17.80	33.42	5.30	24.13	380	0.08
41	15.18	33.40	5.76	323	30	17.26	33.43	5.39	24.27	366	0.11
51	13.92	33.40	5.53	298	50	13.93	33.40	5.54	24.98	298	0.18
66	11.93	33.22	5.22	273	75	11.68	33.32	4.96	25.36	262	0.25
80	11.62	33.35	4.88	259	100	10.68	33.51	4.40	25.69	231	0.31
100	10.68	33.51	4.40	231	150	9.05	33.83	2.93	26.22	181	0.41
125	9.20	33.73	3.53	191	200	8.33	33.98	2.49	26.45	159	0.50
144	9.10	33.82	2.94	182	250	7.87	34.07	1.59	26.59	146	0.58
174	8.64	33.89	2.90	171	300	7.35	34.12	1.27	26.70	135	0.65
203	8.30	33.99	2.42	158	400	6.41	34.16	0.72	26.86	120	0.78
233	8.02	34.05	1.73	150	500	5.89	34.24	0.50	26.99	108	0.90
273	7.62	34.10	1.43	140							
333	7.00	34.14	1.08	129							
408	6.35	34.16	0.70	119							
483	5.97	34.22	0.53	110							
563	5.53	34.29	0.35	100							

8090

ORCA; August 16, 1959; 1803 GCT; 33°05'N, 123°17'W; sounding, 2300 fm; wind, calm; weather, overcast; sea, moderate; wire angle, 00°.

1	17.95	33.53	4.87	374	0	(17.95)	(33.53)	(4.87)	(24.18)	(374)	(0.00)
11	17.96	33.51	4.82	376	10	17.96	33.51	4.82	24.16	376	0.04
31	17.41	33.59	5.10	358	20	17.96	33.51	4.82	24.16	376	0.08
41	14.90	33.66	5.28	298	30	17.42	33.59	5.09	24.35	358	0.11
51	13.76	33.59	4.90	280	50	14.00	33.60	5.01	25.12	285	0.18
66	11.92	33.66	4.03	241	75	11.21	33.72	3.52	25.76	224	0.24
81	10.70	33.75	3.21	213	100	9.65	33.78	2.75	26.08	194	0.29
101	9.64	33.78	2.74	194	150	8.78	33.99	2.21	26.38	165	0.38
126	9.22	33.93	2.32	176	200	8.24	34.04	2.04	26.51	153	0.46
146	8.80	33.97	2.18	167	250	7.30	34.04	2.15	26.64	141	0.54
175	8.64	34.05	2.32	159	300	6.60	34.03	1.78	26.74	132	0.61
205	8.12	34.04	1.98	152	400	5.67	34.08	1.04	26.90	117	0.74
235	7.54	34.04	2.26	144	500	5.51	34.25	0.40	27.04	102	0.85
275	6.95	34.04	1.93	136							
335	6.12	34.03	1.54	126							
409	5.62	34.10	0.96	115							
484	5.58	34.23	0.46	104							
565	5.18	34.27	0.34	97							

8247

ORCA; August 18, 1959; 0020 GCT; 34°14'N, 119°58'W; sounding, 310 fm; wind, 310°, force 2; weather, partly cloudy; sea, slight; wire angle, 10°.

0	19.60	33.68	5.45	404	0	19.60	33.68	5.45	23.88	404	0.00
10	17.79	33.62	5.78	364	10	17.79	33.62	5.78	24.29	364	0.04
29	15.72	33.58	5.55	321	20	17.12	33.61	5.76	24.44	350	0.07
39	13.96	33.53	4.91	288	30	15.68	33.58	5.54	24.76	320	0.11
49	12.94	33.50	4.47	271	50	12.78	33.50	4.39	25.30	268	0.17
59	11.60	33.55	3.91	244	75	10.72	33.60	3.62	25.76	224	0.23
69	10.99	33.57	3.68	231	100	10.01	33.71	3.16	25.96	206	0.28
83	10.44	33.65	3.53	216	150	9.44	33.84	2.68	26.16	186	0.38
98	10.05	33.70	3.17	206	200	9.20	34.02	1.90	26.34	169	0.47
113	9.83	33.77	3.05	198	250	8.85	34.14	1.30	26.49	155	0.56
138	9.54	33.81	2.78	190	300	8.19	34.16	0.99	26.61	144	0.63
167	9.32	33.90	2.49	180	400	7.28	34.20	0.52	26.77	129	0.77
202	9.19	34.03	1.87	168	500	6.59	34.22	0.11	26.89	118	0.90
251	8.84	34.14	1.29	155							
300	8.19	34.16	0.99	144							
406	7.22	34.20	0.49	128							
506	6.54	34.22	0.09	117							

OBSERVED					INTERPOLATED				COMPUTED			
Z	T	S	O ₂	δT_3	Z	T	S	O ₂	σ_t	δT_3	ΔD	
m	°C	‰	ml/L	10^{-5} cm/g	m	°C	‰	ml/L	g/L	10^{-5} cm/g	dyn. m	

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ORCA; August 18, 1959; 0542 GCT; 34°14'N, 119°23'W; sounding, 14 fm; wind, 300°, force 2; weather, partly cloudy; sea, slight; wire angle, 00°.

8340

0	19.94	33.72	5.46	409	0	19.94	33.72	5.46	23.82	409	0.00
10	17.72	33.65	5.68	361	10	17.72	33.65	5.68	24.33	361	0.04

ORCA; August 18, 1959; 0349 GCT; 34°07.5'N, 119°33.5'W; sounding, 142 fm; wind, 300°, force 2; weather, clear; sea, slight; wire angle, 06°.

8343

1	20.47	33.73	5.49	422	0	(20.47)	(33.73)	(5.49)	(23.69)	(422)	(0.00)
11	19.99	33.71	5.60	411	10	20.09	33.71	5.58	23.78	413	0.04
31	17.82	33.67	5.36	362	20	19.50	33.71	5.58	23.94	398	0.08
51	13.57	33.57	4.77	278	30	18.05	33.68	5.38	24.26	367	0.12
76	11.22	33.63	3.88	231	50	13.68	33.57	4.77	25.17	280	0.18
100	9.81	33.82	3.19	194	75	11.30	33.62	3.90	25.67	233	0.25
125	9.46	33.87	2.89	185	100	9.81	33.82	3.19	26.08	194	0.30
165	9.10	34.00	2.31	169	150	9.20	33.95	2.52	26.29	175	0.40
206	8.92	34.06	1.94	162	200	8.94	34.05	1.99	26.41	163	0.48

ORCA; August 17, 1959; 2032 GCT; 33°52'N, 120°07.5'W; sounding, 84 fm; wind, 270°, force 1; weather, cloudy; sea, slight; wire angle, 06°.

8351

1	19.52	33.72	5.49	398	0	(19.52)	(33.72)	(5.49)	(23.93)	(398)	(0.00)
11	19.05	33.73	5.44	386	10	19.09	33.73	5.44	24.05	387	0.04
31	16.08	33.61	5.90	327	20	18.40	33.71	5.53	24.21	372	0.08
51	14.10	33.55	5.25	290	30	16.18	33.62	5.90	24.66	329	0.11
76	12.02	33.57	4.22	250	50	14.20	33.55	5.30	25.05	292	0.17
100	10.30	33.68	3.49	212	75	12.09	33.57	4.23	25.49	250	0.24
					100	10.30	33.68	3.49	25.89	212	0.30

ORCA; August 17, 1959; 1824 GCT; 33°41.5'N, 120°20'W; sounding, 550 fm; wind, 300°, force 1; weather, overcast; sea, slight; wire angle, 10°.

8355

1	18.50	33.73	5.67	373	0	(18.50)	(33.73)	(5.67)	(24.20)	(373)	(0.00)
11	17.54	33.69	5.76	354	10	17.69	33.70	5.75	24.37	356	0.04
31	14.24	33.64	4.83	286	20	16.05	33.66	5.41	24.73	322	0.07
41	13.24	33.62	4.51	268	30	14.29	33.64	4.85	25.10	287	0.10
50	12.36	33.60	4.29	254	50	12.36	33.60	4.29	25.45	254	0.15
65	11.22	33.62	3.90	232	75	11.00	33.64	3.76	25.74	226	0.21
80	10.50	33.68	3.52	215	100	9.16	33.91	2.76	26.26	177	0.27
100	9.16	33.91	2.76	177	150	8.98	33.98	2.38	26.34	169	0.35
124	9.08	33.93	2.54	174	200	8.69	34.13	1.88	26.50	154	0.44
144	9.00	33.96	2.47	171	250	8.49	34.18	1.45	26.58	147	0.51
174	8.84	34.05	2.12	162	300	8.09	34.23	1.24	26.68	137	0.59
203	8.68	34.13	1.86	153	400	7.39	34.25	0.84	26.80	126	0.72
233	8.58	34.16	1.57	149	500	6.89	34.29	0.68	26.90	116	0.85
272	8.32	34.20	1.34	143							
332	7.81	34.25	1.11	132							
405	7.36	34.25	0.81	126							
480	6.99	34.28	0.72	118							
560	6.52	34.30	0.55	110							

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OBSERVED					INTERPOLATED				COMPUTED		
Z	T	S	O ₂	δT_3	Z	T	S	O ₂	σ_t	δT_3	ΔD
m	°C	‰	ml/L	$\frac{10^{-5} T_3}{10 \text{ cm/g}}$	m	°C	‰	ml/L	g/L	$\frac{10^{-5} T_3}{10 \text{ cm/g}}$	dyn. m

83.60 ORCA; August 17, 1959; 1605 GCT; 33°34'N, 120°32'W; sounding, 500 fm; wind, 300°, force 1; weather, overcast; sea, slight; wire angle, 10°.

1	18.12	33.71	5.55	366	0	(18.12)	(33.71)	(5.55)	(24.27)	(366)	(0.00)
11	17.40	33.68	5.64	351	10	17.43	33.68	5.63	24.42	352	0.04
31	15.94	33.61	5.15	324	20	17.10	33.67	5.56	24.50	345	0.07
41	14.82	33.57	5.13	304	30	16.02	33.62	5.16	24.70	325	0.10
50	13.91	33.60	4.83	283	50	13.91	33.60	4.83	25.14	283	0.16
65	12.32	33.59	4.37	253	75	11.69	33.60	4.08	25.58	242	0.23
79	11.38	33.60	3.93	236	100	10.00	33.74	3.19	25.99	203	0.29
123	9.58	33.78	2.97	192	150	9.11	33.92	2.51	26.28	175	0.38
143	9.22	33.87	2.67	181	200	8.53	34.06	1.82	26.48	156	0.47
172	8.78	34.02	2.14	162	250	8.19	34.16	1.53	26.60	144	0.54
202	8.51	34.07	1.78	155	300	7.86	34.19	1.31	26.68	137	0.62
231	8.32	34.13	1.57	148	400	7.07	34.27	0.71	26.85	121	0.75
270	8.04	34.17	1.48	141	500	6.06	34.29	0.48	27.01	106	0.87
330	7.63	34.20	1.12	134							
404	7.02	34.27	0.70	120							
478	6.20	34.28	0.50	108							
559	5.78	34.33	0.43	100							

83.70 ORCA; August 17, 1959; 1027 GCT; 33°14'N, 121°16'W; sounding, 2000 fm; wind, calm; weather, overcast; sea, slight; wire angle, 05°.

1	17.33	33.66	5.59	351	0	(17.33)	(33.66)	(5.59)	(24.43)	(351)	(0.00)
11	16.97	33.62	5.64	346	10	16.99	33.62	5.64	24.48	346	0.03
31	14.93	33.58	5.13	305	20	16.50	33.61	5.54	24.59	336	0.07
41	11.83	33.24	5.18	270	30	14.97	33.58	5.14	24.91	305	0.10
51	10.96	33.35	4.91	247	50	11.00	33.34	4.96	25.51	248	0.16
66	10.24	33.46	4.33	227	75	10.02	33.67	3.98	25.93	208	0.21
81	9.98	33.70	3.88	205	100	9.61	33.72	3.28	26.04	198	0.26
100	9.61	33.72	3.28	198	150	8.49	33.88	3.06	26.35	168	0.36
125	8.96	33.84	2.98	179	200	8.11	33.97	2.40	26.49	155	0.44
145	8.51	33.87	3.92u	170	250	7.62	34.06	1.80	26.62	143	0.52
175	8.38	33.93	3.56u	164	300	7.01	34.10	1.26	26.73	132	0.59
204	8.07	33.98	2.35	156	400	6.19	34.19	0.85	26.92	115	0.71
234	7.79	34.04	1.99	147	500	5.64	34.26	0.39	27.04	103	0.83
274	7.32	34.08	1.49	138							
333	6.64	34.14	1.05	125							
408	6.14	34.20	0.80	114							
483	5.72	34.25	0.44	105							
563	5.42	34.29	0.33	99							

83.80 ORCA; August 17, 1959; 0445 GCT; 32°54'N, 122°02'W; sounding, 2300 fm; wind, direction missing, force 1; weather, overcast; sea, slight; wire angle, 05°.

1	17.02	33.24	5.56	375	0	(17.02)	(33.24)	(5.56)	(24.18)	(375)	(0.00)
11	16.74	33.22	5.69	370	10	16.74	33.22	5.68	24.23	370	0.04
31	15.09	33.30	5.85	328	20	16.34	33.24	5.78	24.34	360	0.07
41	14.91	33.34	5.64	322	30	15.11	33.30	5.85	24.66	329	0.11
51	13.36	33.17	5.49	304	50	13.70	33.20	5.52	24.88	308	0.17
66	12.84	33.33	5.25	282	75	12.46	33.35	5.14	25.24	274	0.24
81	12.14	33.35	5.07	268	100	11.00	33.44	4.57	25.58	241	0.31
101	10.92	33.45	4.52	239	150	9.23	33.73	3.44	26.10	192	0.42
126	9.88	33.64	3.66	208	200	8.67	34.02	1.98	26.42	162	0.51
146	9.32	33.71	3.47	194	250	7.97	34.10	1.53	26.60	145	0.59
176	8.84	33.87	3.12	175	300	7.39	34.13	1.21	26.70	135	0.66
206	8.61	34.04	1.85	159	400	6.36	34.14	0.92	26.85	121	0.79
236	8.16	34.07	1.64	150	500	5.91	34.26	0.51	27.01	106	0.91
275	7.66	34.13	1.36	139							
335	7.01	34.13	1.07	130							
410	6.29	34.14	0.88	120							
485	5.99	34.25	0.55	108							
566	5.54	34.29	0.41	100							

OBSERVED					INTERPOLATED				COMPUTED		
Z	T	S	O ₂	δT_3	Z	T	S	O ₂	σ_t	δT_3	ΔD
m	°C	‰	ml/L	$\frac{10^{-5}}{10 \text{ cm/g}}$	m	°C	‰	ml/L	g/L	$\frac{10^{-5}}{10 \text{ cm/g}}$	dyn. m

ORCA; August 16, 1959; 2311 GCT; 32°34'N, 122°49'W; sounding, 2000+ fm; wind, direction missing, force 1; weather, overcast; sea, moderate; wire angle, 05°.

83.90

1	18.42	33.44	5.35	392	0	(18.42)	(33.44)	(5.35)	(24.00)	(392)	(0.00)
11	18.02	33.37	5.35	388	10	18.03	33.37	5.35	24.04	388	0.04
31	17.56	33.48	5.38	369	20	18.01	33.37	5.35	24.04	388	0.08
41	16.70	33.49	5.64	351	30	17.57	33.48	5.37	24.24	370	0.12
50	14.97	33.45	5.76	315	50	14.97	33.45	5.76	24.81	315	0.18
65	13.85	33.44	5.44	293	75	13.14	33.47	5.10	25.20	278	0.26
80	12.71	33.49	4.89	268	100	10.86	33.51	4.28	25.66	234	0.32
100	10.86	33.51	4.28	234	150	8.92	33.77	3.60	26.19	184	0.43
125	9.76	33.62	3.89	208	200	8.27	33.98	2.39	26.45	159	0.52
145	9.00	33.75	3.69	186	250	7.51	34.00	1.92	26.58	146	0.59
174	8.61	33.86	3.03	172	300	6.99	34.04	1.48	26.69	136	0.67
204	8.20	33.98	2.31	158	400	6.27	34.15	0.79	26.87	119	0.80
233	7.78	33.98	2.06	151	500	5.62	34.22	0.52	27.01	106	0.92
273	7.22	34.04	1.70	140							
333	6.72	34.05	1.27	132							
408	6.20	34.16	0.75	118							
482	5.72	34.21	0.55	108							
562	5.36	34.27	0.37	99							

ORCA; August 18, 1959; 1043 GCT; 33°49'N, 118°38'W; sounding, 250 fm; wind, direction missing, force 1; weather, overcast; sea, calm; wire angle, 02°.

87.35

1	19.04	33.64	5.59	393	0	(19.04)	(33.64)	(5.59)	(23.99)	(393)	(0.00)
11	18.56	33.58	5.78	385	10	18.65	33.59	5.77	24.05	387	0.04
31	13.29	33.53	5.12	276	20	15.90	33.55	5.50	24.68	327	0.07
51	11.90	33.55	4.05	248	30	13.46	33.53	5.17	25.18	279	0.10
76	10.74	33.64	3.60	222	50	11.92	33.54	4.09	25.49	250	0.16
101	10.36	33.69	3.58	212	75	10.76	33.64	3.60	25.78	223	0.22
125	9.96	33.69	3.50	205	100	10.38	33.69	3.59	25.89	212	0.27
165	9.50	33.86	2.96	186	150	9.64	33.77	3.24	26.07	195	0.38
205	9.22	34.07	2.20	166	200	9.26	34.07	2.25	26.36	167	0.47
254	8.81	34.08	1.89	159	250	8.85	34.08	1.94	26.44	160	0.55
304	8.36	34.18	1.32	145	300	8.39	34.18	1.37	26.59	146	0.63
409	7.40	34.22	0.91	128	400	7.49	34.22	0.93	26.76	130	0.77

ORCA; August 18, 1959; 1333 GCT; 33°41'N, 118°59.5'W; sounding, 450 fm; wind, 160°, force 1; weather, overcast; sea, calm; wire angle, 02°.

8740

1	21.01	33.77	5.16	432	0	(21.01)	(33.77)	(5.16)	(23.58)	(432)	(0.00)
11	20.92	33.76	5.16	430	10	20.94	33.76	5.16	23.59	431	0.04
31	16.48	33.56	5.75	339	20	19.71	33.72	5.36	23.88	403	0.08
41	15.38	33.58	5.74	314	30	16.60	33.56	5.74	24.52	342	0.12
51	14.34	33.54	5.41	296	50	14.45	33.54	5.46	25.00	297	0.19
66	12.82	33.56	4.58	265	75	12.02	33.55	4.30	25.48	251	0.25
81	11.58	33.55	4.14	243	100	10.60	33.66	3.70	25.82	218	0.31
101	10.56	33.67	3.68	217	150	9.00	33.85	2.87	26.24	179	0.42
126	9.80	33.71	3.45	202	200	8.29	34.06	1.82	26.51	153	0.50
146	9.11	33.82	2.99	183	250	7.79	34.16	1.39	26.67	138	0.58
176	8.51	33.98	2.30	162	300	7.57	34.20	1.06	26.73	132	0.64
206	8.24	34.07	1.75	152	400	6.92	34.26	0.66	26.87	119	0.78
235	7.88	34.13	1.54	142	500	6.38	34.29	0.41	26.97	110	0.90
275	7.71	34.19	1.14	135							
335	7.31	34.20	0.98	128							
410	6.88	34.27	0.59	118							
485	6.47	34.29	0.44	111							
565	5.99	34.33	0.31	102							

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OBSERVED					INTERPOLATED				COMPUTED		
Z	T	S	O ₂	δT_{-5}^3	Z	T	S	O ₂	σ_t	δT_{-5}^3	ΔD
m	°C	‰	ml/L	10 cm/g	m	°C	‰	ml/L	g/L	10 cm/g	dyn. m

8745 ORCA; August 18, 1959; 1636 GCT; 33°31.5'N, 119°20.5'W; sounding, 950 fm; wind, 210°, force 2; weather, overcast; sea, slight; wire angle, 05°.

0	20.05	33.69	5.18	414	0	20.05	33.69	5.18	23.77	414	0.00
10	19.72	33.67	5.30	407	10	19.72	33.67	5.30	23.84	407	0.04
30	17.12	33.58	5.75	352	20	19.20	33.65	5.42	23.96	396	0.08
40	15.49	33.52	5.90	321	30	17.12	33.58	5.75	24.42	352	0.12
50	13.90	33.49	5.37	291	50	13.90	33.49	5.37	25.06	291	0.18
65	12.70	33.56	4.44	262	75	12.00	33.56	4.15	25.49	250	0.25
80	11.70	33.55	4.06	245	100	10.82	33.62	3.70	25.75	225	0.31
100	10.82	33.62	3.70	225	150	8.98	33.88	2.68	26.27	176	0.42
124	9.91	33.68	3.41	206	200	8.64	34.04	1.81	26.45	159	0.50
144	9.04	33.87	2.74	178	250	8.38	34.13	1.44	26.56	149	0.58
173	8.86	33.94	2.50	170	300	8.10	34.16	1.25	26.62	143	0.65
203	8.61	34.05	1.74	158	400	7.33	34.22	0.79	26.78	128	0.79
232	8.46	34.12	1.52	150	500	6.49	34.25	0.50	26.92	114	0.92
272	8.29	34.13	1.39	148							
332	7.90	34.20	1.08	137							
407	7.29	34.22	0.77	127							
482	6.60	34.24	0.53	116							
563	6.17	34.29	0.40	107							

8755 ORCA; August 18, 1959; 2217 GCT; 33°08'N, 120°02'W; sounding, 700 fm; wind, 250°, force 2; weather, overcast; sea, moderate; wire angle, 07°.

1	20.00	33.78	5.17	406	0	(20.00)	(33.78)	(5.17)	(23.85)	(406)	(0.00)
11	19.61	33.82	5.25	394	10	19.65	33.82	5.25	23.98	394	0.04
31	16.76	33.66	5.20	338	20	18.51	33.77	5.24	24.23	370	0.08
41	12.94	33.56	4.87	267	30	16.87	33.67	5.21	24.55	340	0.11
50	12.16	33.59	4.12	250	50	12.16	33.59	4.12	25.49	250	0.17
65	10.30	33.74	3.35	207	75	9.90	33.77	3.10	26.03	198	0.23
80	9.80	33.78	3.01	196	100	9.60	33.82	2.87	26.12	190	0.28
100	9.60	33.82	2.87	190	150	8.81	33.97	2.29	26.36	167	0.37
125	9.06	33.89	2.71	177	200	8.37	34.10	1.84	26.54	151	0.45
145	8.85	33.96	2.35	168	250	7.99	34.17	1.34	26.65	140	0.52
175	8.53	34.04	1.92	158	300	7.48	34.26	0.92	26.78	127	0.59
205	8.34	34.11	1.81	150	400	6.88	34.31	0.59	26.91	115	0.72
234	8.14	34.14	1.54	144	500	6.32	34.31	0.41	26.99	108	0.83
273	7.70	34.22	1.05	132							
333	7.27	34.27	0.83	123							
408	6.84	34.32	0.55	114							
483	6.42	34.31	0.41	110							
563	5.80	34.33	0.48	100							

8760 ORCA; August 19, 1959; 0112 GCT; 32°58'N, 120°21'W; sounding, 410 fm; wind, 290°, force 2; weather, overcast; sea, moderate; wire angle, 16°.

0	19.78	33.82	5.40	397	0	19.78	33.82	5.40	23.95	397	0.00
10	19.41	33.77	5.57	393	10	19.41	33.77	5.57	23.99	393	0.04
29	17.50	33.71	5.75	351	20	17.72	33.72	5.75	24.38	355	0.08
38	17.05	33.66	5.74	345	30	17.48	33.71	5.75	24.43	351	0.11
48	15.62	33.62	5.41	316	50	14.23	33.62	4.94	25.09	288	0.18
62	12.42	33.62	4.37	254	75	10.21	33.68	3.44	25.91	210	0.24
76	10.16	33.69	3.39	208	100	9.42	33.87	2.64	26.19	184	0.29
95	9.52	33.85	2.72	187	150	8.62	33.96	2.37	26.39	165	0.38
119	9.02	33.93	2.45	174	200	8.07	34.17	1.62	26.64	141	0.45
138	8.78	33.95	2.42	168	250	7.90	34.16	1.13	26.65	140	0.53
167	8.37	34.03	2.06	156	300	7.39	34.20	0.89	26.75	130	0.60
195	8.09	34.17	1.65	142	400	6.48	34.27	0.54	26.94	113	0.72
224	7.95	-	1.28	-	500	6.08	34.30	0.40	27.01	106	0.84
263	7.90	34.16	1.11	140							
321	7.10	34.22	0.81	124							
393	6.51	34.27	0.55	113							
467	6.24	34.29	0.42	108							
546	5.86	34.32	0.38	102							

OBSERVED					INTERPOLATED				COMPUTED			
Z	T	S	O ₂	δT_3	Z	T	S	O ₂	σ_t	δT_3	ΔD	
m	°C	‰	ml/L	10^{-5} cm/g	m	°C	‰	ml/L	g/L	10^{-5} cm/g	dyn. m	

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ORCA; August 19, 1959; 0205 GCT; ^{a)} 32°58'N, 120°21'W; sounding, 410 fm; wind, 290°, force 2; weather, overcast; sea, moderate; wire angle, 10°.

8760

1	19.66	33.77	5.51	398	0	(19.66)	(33.77)	(5.51)	(23.93)	(398)	(0.00)
11	19.46	33.75	5.64	394	10	19.49	33.75	5.62	23.97	395	0.04
30	16.92	33.64	5.78	343	20	17.48	33.66	5.77	24.38	355	0.08
35	16.83	33.62	5.74	343	30	16.92	33.64	5.78	24.51	343	0.11
40	16.44	33.60	5.68	336	50	14.29	33.57	5.18	25.05	292	0.18
45	15.13	33.57	5.43	310	75	10.66	33.58	3.80	25.75	225	0.24
50	14.29	33.57	5.18	292	100	9.60	33.78	2.79	26.09	193	0.29
55	13.20	33.57	4.73	271	150	8.71	33.96	2.25	26.38	166	0.38
60	12.88	33.58	4.57	264	200	(8.04)	(34.13)	(1.42)	(26.61)	(144)	(0.46)
65	12.25	33.58	4.30	253							
70	10.86	33.59	3.83	228							
75	10.66	33.58	3.80	225							
80	10.25	33.65	3.50	214							
85	10.01	33.67	3.27	208							
89	9.93	33.69	3.14	205							
94	9.76	33.74	2.91	198							
149	8.72	33.96	2.26	166							
199	8.05	34.13	1.43	144							

ORCA; August 19, 1959; 0730 GCT; 32°34'N, 121°03'W; sounding, 2100 fm; wind, 310°, force 3; weather, overcast; sea, moderate; wire angle, 10°.

8770

1	18.00	33.48	5.30	380	0	(18.00)	(33.48)	(5.30)	(24.13)	(380)	(0.00)
11	18.01	33.50	5.29	379	10	18.01	33.50	5.29	24.14	379	0.04
31	17.74	33.49	5.40	372	20	17.96	33.50	5.31	24.15	377	0.08
41	16.48	33.51	5.64	343	30	17.76	33.49	5.38	24.19	373	0.11
50	15.11	33.46	5.56	317	50	15.11	33.46	5.56	24.78	317	0.18
65	14.30	33.45	5.49	301	75	13.95	33.49	5.32	25.05	292	0.26
79	13.82	33.51	5.22	288	100	12.38	33.49	4.67	25.37	262	0.33
98	12.40	33.49	4.68	262	150	9.18	33.69	3.40	26.08	194	0.44
123	10.25	33.51	4.14	224	200	8.26	33.95	2.47	26.43	161	0.53
142	9.36	33.65	3.58	199	250	7.58	34.05	1.76	26.61	144	0.61
171	8.80	33.82	2.81	178	300	7.16	34.12	1.21	26.72	133	0.68
200	8.26	33.95	2.47	161	400	6.37	34.22	0.66	26.91	115	0.81
229	7.76	34.02	2.02	148	500	5.72	34.25	0.43	27.02	105	0.93
268	7.42	34.07	1.55	140							
327	6.94	34.16	1.02	127							
400	6.37	34.22	0.66	115							
475	5.86	34.24	0.45	108							
555	5.50	34.29	0.39	100							

ORCA; August 19, 1959; 1325 GCT; 32°10'N, 121°44.5'W; sounding, 2000+ fm; wind, 350°, force 5; weather, cloudy; sea, rough; wire angle, 12°.

8780

1	17.66	33.48	4.73	372	0	(17.66)	(33.48)	(4.73)	(24.21)	(372)	(0.00)
11	17.69	33.48	4.90	372	10	17.69	33.48	4.90	24.21	372	0.04
30	17.68	33.48	4.80b)	372	20	17.68	33.48	4.82	24.21	372	0.07
40	15.98	33.42	5.10c)	338	30	17.68	33.48	4.80	24.21	372	0.11
55	14.14	33.32	5.48	308	50	14.40	33.34	5.46	24.84	312	0.18
69	13.52	33.48	5.14	284	75	13.32	33.53	5.04	25.22	276	0.25
94	11.50	33.53	4.44	243	100	11.22	33.55	4.32	25.63	237	0.32
113	10.32	33.58	4.07	219	150	9.18	33.72	3.27	26.11	191	0.43
133	9.72	33.62	3.79	206	200	8.37	33.96	2.34	26.43	161	0.52
152	9.10	33.73	3.21	189	250	7.80	34.06	1.86	26.58	146	0.60
181	8.62	33.96	2.50	165	300	7.39	34.15	1.25	26.72	133	0.67
215	8.18	33.96	2.20	158	400	6.57	34.24	0.76	26.90	116	0.80
244	7.85	34.04	1.94	148	500	5.84	34.30	0.42	27.05	102	0.91
292	7.46	34.14	1.32	135	600	(5.40)	(34.33)	(0.36)	(27.12)	(95)	(1.02)
345	6.91	34.20	1.02	123							
429	6.26	34.24	0.60	112							
513	5.74	34.31	0.40	100							
597	5.41	34.33	0.36	96							

a) Special cast.

b) Alternate value, 5.33 ml/L, not used in interpolation.

c) Alternate value, 5.67 ml/L, not used in interpolation.

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OBSERVED					INTERPOLATED				COMPUTED		
Z	T	S	O ₂	δT_{-5}^3	Z	T	S	O ₂	σ_t	δT_{-5}^3	ΔD
m	°C	‰	ml/L	10 ⁻⁵ cm/g	m	°C	‰	ml/L	g/L	10 ⁻⁵ cm/g	dyn. m

87.90

ORCA; August 19, 1959; 1841 GCT; 31°50.5'N, 122°20'W; sounding, 2400 fm; wind, 320°, force 5; weather, partly cloudy; sea, rough; wire angle, 20°.

1	18.14	33.51	5.22	381	0	(18.14)	(33.51)	(5.22)	(24.12)	(381)	(0.00)
10	18.14	33.52	5.28	380	10	18.14	33.52	5.28	24.12	380	0.04
29	18.11	33.54	5.24	378	20	18.13	33.53	5.26	24.13	379	0.08
38	17.66	33.58	5.32	364	30	18.11	33.54	5.24	24.14	378	0.11
52	15.51	33.52	5.66	321	50	15.55	33.52	5.66	24.73	322	0.18
66	14.18	33.57	5.42	290	75	13.91	33.57	5.32	25.12	285	0.26
89	12.68	33.56	4.74	262	100	11.73	33.56	4.42	25.54	245	0.33
107	11.26	33.57	4.23	236	150	9.22	33.72	3.66	26.10	192	0.44
125	10.13	33.59	3.88	216	200	8.41	33.96	2.58	26.42	162	0.53
143	9.40	33.68	3.82	198	250	7.63	34.06	2.04	26.60	144	0.60
171	8.88	33.83	3.16	178	300	7.17	34.08	1.51	26.70	136	0.68
202	8.39	33.97	2.57	161	400	6.24	34.16	0.80	26.88	118	0.81
229	7.89	34.04	2.36	148	500	5.60	34.23	0.48	27.02	105	0.93
276	7.34	34.06	1.72	140							
327	7.00	34.12	1.28	130							
407	6.17	34.16	0.77	117							
489	5.66	34.22	0.50	106							
572	5.28	34.30	0.33	96							

90.28

ORCA; August 22, 1959; 1934 GCT; 33°27.5'N, 117°46'W; sounding, 250 fm; wind, 190°, force 1; weather, partly cloudy; sea, slight; wire angle, 08°.

0	19.56	33.63	5.44	406	0	19.56	33.63	5.44	23.86	406	0.00
10	16.56	33.53	5.74	343	10	16.56	33.53	5.74	24.51	343	0.04
30	13.19	33.57	4.35	271	20	14.40	33.55	5.08	25.01	296	0.07
50	12.10	33.58	3.61	250	30	13.19	33.57	4.35	25.27	271	0.10
75	11.60	33.59	3.39	241	50	12.10	33.58	3.61	25.49	250	0.15
99	11.00	-	3.20	-	75	11.60	33.59	3.39	25.59	241	0.21
124	10.43	33.68	3.25	214	100	10.98	33.64	3.20	25.74	226	0.27
164	9.63	33.78	2.76	194	150	9.92	33.74	2.99	26.00	202	0.38
204	9.28	33.98	2.02	174	200	9.30	33.96	2.10	26.28	175	0.48
253	8.90	34.12	1.53	157	250	8.94	34.12	1.55	26.46	158	0.56
303	8.43	34.16	1.54	148	300	8.46	34.16	1.55	26.56	148	0.64

90.32

ORCA; August 21, 1959; 1538 GCT; 33°20.5'N, 118°03'W; sounding, 400 fm; wind, calm; weather, clear; sea, smooth; wire angle, 01°.

1	21.04	33.68	5.47	440	0	(21.04)	(33.68)	(5.47)	(23.50)	(440)	(0.00)
11	21.01	33.66	5.54	440	10	21.01	33.66	5.54	23.50	440	0.04
31	14.82	33.55	5.99	305	20	18.70	33.61	5.74	24.04	388	0.08
41	13.84	33.61	5.45	281	30	15.30	33.55	5.97	24.81	315	0.12
51	12.90	33.56	4.79	266	50	13.00	33.56	4.86	25.30	268	0.18
66	12.03	33.56	4.25	250	75	11.61	33.56	4.11	25.56	243	0.24
80	11.39	33.57	4.04	238	100	10.41	33.67	3.78	25.86	215	0.30
101	10.34	33.68	3.73	212	150	9.68	33.98	2.42	26.23	180	0.40
126	9.78	33.83	3.00	192	200	8.71	34.02	2.23	26.42	162	0.49
146	9.72	33.96	2.45	182	250	8.35	34.12	1.58	26.56	149	0.57
176	9.30	34.02	2.35	171	300	7.96	34.14	1.31	26.63	142	0.64
206	8.58	34.02	2.17	160	400	7.12	34.22	0.87	26.82	124	0.78
236	8.44	34.12	1.79	151	500	6.42	34.29	0.51	26.96	111	0.90
276	8.15	34.11	1.46	147							
335	7.64	34.21	1.16	133							
409	7.06	34.23	0.81	123							
485	6.52	34.29	0.51	112							
564	6.11	34.29	0.46	106							

OBSERVED					INTERPOLATED				COMPUTED			
Z	T	S	O ₂	δT_3	Z	T	S	O ₂	σ_t	δT_3	ΔD	
m	°C	‰	ml/L	10 cm/g	m	°C	‰	ml/L	g/L	10 cm/g	dyn. m	

ORCA; August 21, 1959; 1232 GCT; 33°10.5'N, 118°24'W; sounding, 650 fm; wind, calm; weather, partly cloudy; sea, moderate; wire angle, 02°.

9037

0	21.47	33.80	5.06	442	0	21.47	33.80	5.06	23.47	442	0.00
10	21.51	33.80	5.09	443	10	21.51	33.80	5.09	23.46	443	0.04
30	16.10	33.51	5.93	335	20	18.65	33.61	5.64	24.07	386	0.09
40	14.64	33.52	5.85	304	30	16.10	33.51	5.93	24.60	335	0.12
50	13.78	33.56	5.19	283	50	13.78	33.56	5.19	25.14	283	0.18
66	12.56	33.55	4.14	260	75	11.75	33.57	3.87	25.55	244	0.25
80	11.33	33.60	3.80	235	100	10.46	33.71	3.47	25.89	212	0.31
100	10.46	33.71	-	212	150	8.99	33.86	2.84	26.25	178	0.41
126	9.76	33.78	3.17	196	200	8.49	34.02	2.06	26.46	159	0.49
145	9.08	33.84	2.98	181	250	8.12	34.18	1.30	26.63	142	0.57
176	8.66	33.95	2.19	166	300	7.81	34.20	1.09	26.69	136	0.64
206	8.45	34.04	2.02	157	400	6.97	34.28	0.68	26.88	118	0.77
235	8.21	34.15	1.42	145	500	6.11	34.27	0.38	26.98	108	0.89
275	7.99	34.20	1.18	138							
335	7.56	34.19	0.95	133							
410	6.86	34.29	0.66	116							
485	6.20	34.27	0.40	109							
565	5.85	34.31	0.36	102							

ORCA; August 21, 1959; 0755 GCT; 32°54.5'N, 118°56.5'W; sounding, 700 fm; wind, 290°, force 4; weather, partly cloudy; sea, rough; wire angle, 00°.

9045

1	19.40	33.80	5.16	390	0	(19.40)	(33.80)	(5.16)	(24.02)	(390)	(0.00)
11	19.43	33.82	5.15	389	10	19.42	33.82	5.15	24.03	389	0.04
31	13.36	33.66	4.73	268	20	19.05	33.82	5.10	24.13	380	0.08
41	11.88	33.62	4.08	243	30	13.75	33.68	4.82	25.24	274	0.11
56	10.51	33.72	3.15	212	50	11.02	33.66	3.51	25.76	226	0.16
71	9.82	33.78	2.83	197	75	9.69	33.79	2.80	26.08	194	0.21
96	9.11	33.86	2.66	180	100	9.11	33.89	2.60	26.25	178	0.26
116	9.11	33.99	2.12	170	150	8.78	34.09	1.76	26.46	158	0.34
136	8.91	34.05	1.87	162	200	8.31	34.12	1.50	26.56	149	0.42
156	8.72	34.10	1.71	156	250	8.01	34.21	1.21	26.68	138	0.50
186	8.43	34.10	1.56	152	300	7.53	34.26	0.86	26.78	128	0.56
221	8.14	34.17	1.45	142	400	6.62	34.26	0.52	26.91	116	0.69
251	8.00	34.21	1.21	138	500	6.10	34.34	0.36	27.04	103	0.80
301	7.52	34.26	0.84	127	600	5.60	34.34	0.27	27.10	97	0.91
356	6.95	34.25	0.61	120							
441	6.42	34.29	0.42	110							
526	5.94	34.34	0.32	101							
611	5.56	34.34	0.26	96							

ORCA; August 21, 1959; 0427 GCT; 32°45.5'N, 119°16'W; sounding, 187 fm; wind, 320°, force 4; weather, partly cloudy; sea, rough; wire angle, 22°.

9050

1	18.90	33.80	5.36	378	0	(18.90)	(33.80)	(5.36)	(24.15)	(378)	(0.00)
10	18.92	33.81	5.46	378	10	18.92	33.81	5.46	24.15	378	0.04
30	13.14	33.62	4.56	267	20	18.91	33.81	5.46	24.16	377	0.08
49	10.66	33.64	3.70	221	30	13.14	33.62	4.56	25.32	267	0.11
72	9.58	33.66	3.53	202	50	10.63	33.64	3.69	25.80	221	0.16
95	9.18	33.73	3.25	190	75	9.50	33.67	3.50	26.02	200	0.21
118	8.86	33.86	2.69	176	100	9.11	33.75	3.16	26.15	188	0.26
155	8.55	33.96	2.14	164	150	8.59	33.95	2.18	26.39	165	0.35
193	8.35	34.04	1.92	155	200	8.32	34.05	1.87	26.51	153	0.43
243	8.08	34.15	1.24	143	250	(8.04)	(34.16)	(1.13)	(26.64)	(142)	(0.50)

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OBSERVED					INTERPOLATED				COMPUTED			
Z	T	S	O ₂	δT	Z	T	S	O ₂	σ_t	δT	ΔD	
m	°C	‰	ml/L	$\frac{-5}{10} \frac{3}{g}$	m	°C	‰	ml/L	g/L	$\frac{-5}{10} \frac{3}{g}$	dyn. m	

90.55 ORCA; August 21, 1959; 0030, 0101 GCT; 32°31.5'N, 119°33.5'W; sounding, 500 fm; wind, 320°, force 4; weather, partly cloudy; sea, rough; wire angle, 22°, 25°.

2	19.66	33.83	5.03	394	0	(19.66)	(33.83)	(5.03)	(23.98)	(394)	(0.00)
10	19.68	33.78	4.95	398	10	19.68	33.78	4.95	23.94	398	0.04
29	16.62	33.73	5.10	330	20	19.67	33.78	4.95	23.94	398	0.08
38	14.06	33.66	4.44	282	30	16.58	33.73	5.10	24.66	329	0.12
51	11.95	33.61	3.88	245	50	12.25	33.61	3.96	25.49	250	0.17
65	11.06	33.66	3.49	226	75	10.58	33.68	3.25	25.84	216	0.23
88	9.86	33.71	3.00	202	100	9.26	33.75	3.16	26.12	190	0.28
106	9.05	33.77	3.22	186	150	8.44	33.94	2.39	26.40	164	0.37
125	8.73	33.90	2.68	171	200	8.31	34.14	1.49	26.57	147	0.45
143	8.52	33.93	2.45	166	250	7.84	34.16	1.20	26.66	139	0.52
170	8.24	33.98	2.14	158	300	7.57	34.18	1.10	26.71	134	0.60
200	8.31	34.14	1.49	147	400	6.62	34.26	0.57	26.92	115	0.72
227	8.15	34.19	1.24	141	500	5.74	34.34	0.35	27.09	98	0.83
270	7.57u	34.12u	1.38u	-							
319	7.52	34.22	0.96	130							
396	6.67	34.26	0.59	116							
476	5.84	34.32	0.39	102							
558	5.52	34.35	0.31	95							

90.60 ORCA; August 20, 1959; 2105 GCT; 32°17'N, 119°53'W; sounding, 700 fm; wind, 320°, force 4; weather, partly cloudy; sea, rough; wire angle, 18°.

1	19.58	33.78	5.22	395	0	(19.58)	(33.78)	(5.22)	(23.97)	(395)	(0.00)
10	19.44	33.76	5.29	394	10	19.44	33.76	5.29	23.98	394	0.04
29	14.70	33.55	5.23	302	20	16.92	33.64	5.27	24.51	343	0.08
39	12.71	33.49	4.67	268	30	14.40	33.54	5.20	25.00	297	0.11
53	11.58	33.53	4.13	244	50	12.10	33.53	4.38	25.45	254	0.16
67	10.78	33.61	3.53	225	75	10.32	33.66	3.25	25.87	214	0.22
91	9.59	33.75	2.92	195	100	9.40	33.77	2.84	26.11	191	0.27
110	9.22	33.79	2.76	187	150	8.62	33.92	2.19	26.35	168	0.36
128	8.90	33.84	2.70	178	200	8.04	34.06	1.76	26.55	149	0.44
147	8.67	33.91	2.23	169	250	7.47	34.10	1.29	26.66	138	0.52
175	8.32	34.02	1.98	156	300	7.02	34.18	0.96	26.79	126	0.59
208	7.96	34.07	1.65	147	400	6.41	34.26	0.61	26.94	112	0.71
236	7.60	34.08	1.41	142	500	6.06	34.29	0.39	27.00	106	0.82
283	7.20	34.16	1.09	130	600	(5.45)	(34.42)		(27.18)	(90)	(0.93)
335	6.71	34.20	0.71	120							
417	6.34	34.27	0.59	111							
500	6.06	34.29	0.39	106							
584	5.58	34.40	0.32	92							

90.70 ORCA; August 20, 1959; 1411 GCT; 31°58.5'N, 120°47'W; sounding, 2000+ fm; wind, 290°, force 4; weather, partly cloudy; sea, rough; wire angle, 09°.

2	17.96	33.51	5.26	376	0	(17.96)	(33.51)	(5.26)	(24.16)	(376)	(0.00)
12	17.98	33.49	5.28	378	10	17.98	33.49	5.28	24.14	378	0.04
32	17.98	33.55	5.30	374	20	17.98	33.49	5.28	24.14	378	0.08
42	16.34	33.46	5.66	344	30	17.98	33.52	5.29	24.16	376	0.11
56	14.62	33.42	5.63	311	50	15.34	33.43	5.64	24.72	324	0.18
72	13.69	33.44	5.14	290	75	13.50	33.44	5.05	25.11	286	0.26
96	11.70	33.48	4.27	250	100	11.48	33.49	4.17	25.53	246	0.33
116	10.58	33.55	3.82	226	150	9.28	33.67	3.27	26.05	197	0.44
135	9.68	33.61	3.45	207	200	8.54	33.90	2.86	26.34	169	0.53
155	9.17	33.68	3.25	194	250	8.15	33.98	2.16	26.48	156	0.62
184	8.69	33.84	3.16	175	300	7.82	34.06	1.61	26.58	146	0.69
218	8.42	33.94	2.44	164	400	7.10	34.33	0.35	26.90	117	0.83
248	8.17	33.98	2.18	157	500	5.74	34.32	0.32	27.07	100	0.94
297	7.82	34.05	1.70	147	600	5.25	34.33	0.27	27.13	94	1.05
351	8.01	34.31	0.57	130							
436	6.48	34.33	0.32	108							
521	5.54	34.31	0.33	98							
605	5.22	34.33	0.27	94							

OBSERVED					INTERPOLATED				COMPUTED		
Z	T	S	O ₂	δT_{-5}^3	Z	T	S	O ₂	σ_t	δT_{-5}^3	ΔD
m	°C	‰	ml/L	10 ⁻⁵ cm ³ /g	m	°C	‰	ml/L	g/L	10 ⁻⁵ cm ³ /g	dyn. m

SIO
CCOFI
5908

ORCA; August 20, 1959; 0840 GCT; 31°39'N, 121°21'W; sounding, 2000+ fm; wind, 320°, force 3; weather, partly cloudy; sea, rough; wire angle, 12°.

90.80

1	18.62	33.65	5.06	382	0	(18.62)	(33.65)	(5.06)	(24.10)	(382)	(0.00)
11	18.62	33.64	4.99	383	10	18.62	33.64	4.99	24.09	383	0.04
30	18.44	33.64	5.11	378	20	18.58	33.64	5.02	24.10	382	0.08
40	16.48	33.58	5.53	338	30	18.44	33.64	5.11	24.14	378	0.11
55	14.36	33.57	5.50	294	50	14.85	33.57	5.51	24.92	304	0.18
69	13.05	33.53	4.78	272	75	12.42	33.53	4.45	25.38	260	0.25
93	10.70	33.53	3.79	230	100	10.38	33.53	3.74	25.76	224	0.32
113	9.82	33.57	3.69	212	150	8.92	33.78	3.22	26.20	183	0.42
132	9.16	33.71	3.58	192	200	8.19	33.95	2.26	26.44	160	0.50
151	8.90	33.78	3.20	182	250	7.58	34.11	1.77	26.66	139	0.58
180	8.44	33.91	2.49	166	300	7.07	34.08	1.27	26.71	134	0.65
214	8.01	33.96	2.16	156	400	6.42	34.24	0.65	26.92	114	0.78
243	7.65	34.11	1.83	140	500	5.81	34.27	0.30	27.02	105	0.89
292	7.12	34.07	1.37	136	600	(5.33)	(34.34)	(0.30)	(27.14)	(94)	(1.00)
346	6.81	34.20	0.91	122							
429	6.21	34.25	0.56	111							
513	5.74	34.27	0.29	104							
598	5.35	34.34	0.30	94							

ORCA; August 19-20, 1959; 2246, 0043 GCT; 31°24'N, 121°57'W; sounding, 2100 fm; wind, 320°, force 4; weather, partly cloudy; sea, rough; wire angle, 16°, 20°.

90.90

2	18.52	33.36	5.22	400	0	(18.52)	(33.36)	(5.22)	(23.92)	(400)	(0.00)
11	18.52	33.37	5.23	400	10	18.52	33.37	5.23	23.92	400	0.04
31	16.97	33.31	5.57	368	20	17.90	33.35	5.39	24.06	386	0.08
40	15.04	33.10	5.76	342	30	17.02	33.32	5.55	24.24	369	0.12
54	13.71	33.04	5.78	320	50	14.02	33.04	5.80	24.69	326	0.19
69	13.80	33.33	5.63	300	75	13.45	33.36	5.50	25.06	290	0.26
93	12.39	33.40	5.12	268	100	11.50	33.42	4.78	25.48	251	0.33
112	10.86	33.46	4.49	238	150	9.48	33.73	3.65	26.07	195	0.44
131	9.82	33.63	3.87	208	200	8.68	33.92	3.21	26.34	169	0.54
150	9.48	33.73	3.65	195	250	7.71	34.06	2.64	26.61	144	0.62
178	8.92	33.87	3.34	176	300	6.90	34.04	2.21	26.70	135	0.69
211	8.54	33.95	3.51	164	400	5.98	34.13	0.88	26.89	117	0.82
240	7.93	34.07	2.72	147	500	5.53	34.23	0.52	27.02	105	0.94
288	7.01	34.04	2.38	137	600	5.11	34.30	0.34	27.13	94	1.04
341	6.56	34.07	1.41	128	700	4.77	34.37	0.30	27.22	86	1.14
425	5.81	34.17	0.76	112	800	4.44	34.44	0.47	27.31	77	1.23
509	5.50	34.23	0.48	104	1000	3.82	34.48	0.66	27.41	68	1.39
593	5.15	34.29	0.34	96	1200	3.33	34.53	0.93	27.50	60	1.53
					1500	2.80	34.56	1.20	27.58	52	1.73
386a)	6.09	34.18u	0.94	-	2000	2.10	34.62	1.83	27.68	42	2.01
481	5.60	34.22	0.55	106	2500	1.79	34.66	2.30			
577	5.23	34.30	0.38	96	3000	1.65	34.65	2.55			
673	4.86	34.35	0.28	88							
768	4.54	34.42	0.44	79							
960	3.94	34.47	0.60	69							
1151	3.43	34.52	0.90	61							
1344	3.05	34.54	0.97	56							
1537	2.74	34.56	1.26	52							
1730	2.41	34.56	1.44	49							
1926	2.17	34.60	1.76	44							
2122	2.01	34.65	1.93	39							
2321	1.91	34.63	2.19	40							
2523	1.78	34.67	2.32	36							
2722	1.72	34.70u	2.47	-							
2922	1.67	34.67	2.59	35							
3025	1.63	34.65	2.54	36							
3126	1.61	34.67	2.64	35							

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

SIO		OBSERVED					INTERPOLATED				COMPUTED		
CCOFI	Z	T	S	O ₂	δT_{-5}^3	Z	T	S	O ₂	σ_t	δT_{-5}^3	ΔD	
5908	m	°C	‰	ml/L	10 ⁻⁵ cm ³ /g	m	°C	‰	ml/L	g/L	10 ⁻⁵ cm ³ /g	dyn. m	

93.28

ORCA; August 14, 1959; 0015 GCT; ^{a)} 32°55'N, 117°21.5'W; sounding, 300+ fm; wind, 270°, force 1; weather, cloudy; sea, slight; wire angle, 07°.

334	8.46	34.23	1.14	142
337	8.44	34.22	1.20	143
340	8.44	34.23	1.09	142
365	8.28	34.25	0.91	138
368	8.28	34.25	0.86	138
371	8.22	34.25	0.88	138
396	7.84	34.25	0.73	133
398	7.82	34.25	0.66	132
401	7.76	34.26	0.66	130
426	7.44	34.25	0.57	127
429	7.41	34.26	0.62	126
432	7.42	34.27	0.61	125
457	7.02	34.27	0.49	120
460	6.99	34.31	0.46	116
463	6.95	34.31	0.56	116
488	6.82	34.29	0.48	116
491	6.80	34.29	0.51	115
494	6.80	34.25	0.64	118

93.28

ORCA; August 23, 1959; 0031 GCT; 32°55'N, 117°21.5'W; sounding, 324 fm; ^{b)} wind, 190°, force 1; weather, cloudy; sea, slight; wire angle, 11°.

1	22.98	33.79	5.20	483	0	(22.98)	(33.79)	(5.20)	(23.04)	(483)	(0.00)
11	20.91	33.71	5.52	434	10	21.14	33.72	5.52	23.50	439	0.05
30	14.46	33.59	5.45	294	20	18.20	33.65	5.52	24.21	372	0.09
40	13.27	33.59	4.46	271	30	14.46	33.59	5.45	25.02	294	0.12
50	12.34	33.55	3.77	257	50	12.34	33.55	3.77	25.42	257	0.18
60	11.80	33.60	3.75	243	75	11.33	33.67	3.19	25.70	230	0.24
69	11.34	33.65	3.43	232	100	11.00	33.66	3.19	25.75	225	0.29
83	11.32	33.68	3.17	229	150	10.16	33.75	3.26	25.97	205	0.40
98	11.02	33.65	3.19	226	200	(9.71)	(33.88)	(2.77)	(26.14)	(188)	(0.50)
112	10.98	33.74	3.18	218							
136	10.40	33.73	3.31	210							
164	9.96	33.78	3.11	198							
197	9.76	33.87	2.79	189							

93.30

ORCA; August 24, 1959; 2114 GCT; 32°50.5'N, 117°32'W; sounding, 400 fm; wind, 190°, force 2; weather, cloudy; sea, smooth; wire angle, 05°.

1	22.69	33.85	4.74	471	0	(22.69)	(33.85)	(4.74)	(23.17)	(471)	(0.00)
11	22.12	33.82	4.71	458	10	22.17	33.82	4.71	23.30	459	0.05
31	16.80	33.58	5.72	345	20	21.32	33.78	4.82	23.49	440	0.09
41	15.44	33.55	5.72	318	30	17.00	33.59	5.72	24.45	349	0.13
51	14.30	33.52	5.13	296	50	14.40	33.52	5.20	24.99	298	0.20
66	12.74	33.51	4.35	267	75	12.24	33.55	3.87	25.44	255	0.26
81	12.02	33.58	3.69	249	100	10.85	33.60	3.63	25.74	227	0.33
100	10.85	33.60	3.63	227	150	9.43	33.77	3.11	26.11	191	0.43
125	10.14	33.67	3.51	210	200	9.14	34.00	2.30	26.33	170	0.52
145	9.55	33.75	3.23	195	250	8.70	34.11	1.84	26.49	155	0.61
175	9.02	33.91	2.58	175	300	8.40	34.20	1.32	26.61	144	0.68
205	9.16	34.02	2.18	169	400	7.48	34.26	0.87	26.78	127	0.82
235	8.61	34.07	1.91	157	500	6.65	34.32	0.44	26.95	112	0.95
275	8.86	34.21	1.30	150							
335	7.68	34.16	1.39	137							
410	7.44	34.27	0.75	126							
484	6.78	34.31	0.47	114							
564	6.22	34.34	0.31	104							

a) Special cast.

b) Ship apparently drifted into shallower water while occupying this station; all Nansen bottles below 197 meters were affected by the cast resting on the bottom.

OBSERVED					INTERPOLATED				COMPUTED		
Z	T	S	O ₂	δT_{3-5}	Z	T	S	O ₂	σ_t	δT_{3-5}	ΔD
m	°C	‰	ml/L	10 ⁻⁵ cm/g	m	°C	‰	ml/L	g/L	10 ⁻⁵ cm/g	dyn. m

ORCA; August 25, 1959; 0308 GCT; 32°30'N, 118°12.5'W; sounding, 900 fm; wind, 240°, force 1; weather, overcast; sea, slight; wire angle, 07°.

93.40

0	21.88	33.80	4.96	453	0	21.88	33.80	4.96	23.36	453	0.00
10	20.62	33.75	5.03	424	10	20.62	33.75	5.03	23.67	424	0.04
30	16.84	33.56	5.50	348	20	19.15	33.67	5.25	23.99	393	0.08
40	14.12	33.54	5.45	291	30	16.84	33.56	5.50	24.46	348	0.12
50	13.54	33.48	5.25	285	50	13.54	33.48	5.25	25.13	285	0.18
65	12.40	33.55	4.47	258	75	11.09	33.62	3.82	25.71	229	0.25
80	11.06	33.66	3.77	226	100	10.66	33.78	3.07	25.91	210	0.30
100	10.66	33.78	3.07	210	150	9.72	33.96	2.47	26.20	182	0.40
124	10.22	33.91	2.40	194	200	9.54	34.18	1.59	26.41	163	0.49
143	9.80	33.95	2.50	184	250	8.77	34.19	1.41	26.55	150	0.57
173	9.54	34.07	2.04	171	300	8.35	34.24	1.03	26.65	140	0.65
202	9.56	34.19	1.59	162	400	7.18	34.23	0.78	26.81	125	0.78
232	8.82	34.14	1.67	155	500	6.51	34.33	0.45	26.98	109	0.91
272	8.76	34.24	1.13	146							
333	7.88	34.24	0.96	134							
407	7.12	34.24	0.76	124							
481	6.61	34.31	0.49	112							
561	6.15	34.34	0.39	103							

ORCA; August 25, 1959; 0853 GCT; 32°08.5'N, 118°55'W; sounding, 750 fm; wind, calm; weather, overcast; sea, slight; wire angle, 02°.

93.50

1	21.00	33.79	5.07	431	0	(21.00)	(33.79)	(5.07)	(23.59)	(431)	(0.00)
11	20.40	33.78	5.17	416	10	20.41	33.77	5.15	23.73	418	0.04
31	15.90	33.50	5.75	331	20	19.60	33.76	5.30	23.94	398	0.08
41	15.00	33.49	5.74	313	30	16.00	33.50	5.75	24.62	333	0.12
51	14.03	33.51	5.41	292	50	14.05	33.50	5.43	25.04	292	0.18
66	12.86	33.58	4.29	264	75	11.67	33.58	3.98	25.56	243	0.25
81	11.18	33.58	3.98	234	100	10.44	33.70	3.36	25.88	213	0.31
101	10.41	33.71	3.33	211	150	8.86	33.86	2.73	26.28	175	0.41
126	9.50	33.78	3.10	192	200	7.92	34.01	2.15	26.53	151	0.49
146	8.94	33.86	2.79	177	250	7.37	34.06	1.66	26.65	140	0.56
176	8.38	33.96	2.39	162	300	7.02	34.11	1.30	26.73	132	0.63
206	7.80	34.02	2.08	149	400	6.57	34.25	0.62	26.91	115	0.76
236	7.48	34.04	1.77	143	500	6.20	34.31	0.34	27.01	106	0.88
276	7.18	34.09	1.45	135							
336	6.80	34.14	1.05	127							
411	6.54	34.27	0.55	114							
486	6.27	34.31	0.34	107							
566	5.89	34.31	0.32	102							

ORCA; August 25, 1959; 1439, 1508 GCT; 31°48'N, 119°37'W; sounding, 1200 fm; wind, 280°, force 2; weather, drizzle; sea, slight; wire angle, 05°. *Second wire angle 05°*

93.60

0	18.92	33.45	5.25	404	0	18.92	33.45	5.25	23.88	404	0.00
10	17.96	33.50	5.41	377	10	17.96	33.50	5.41	24.15	377	0.04
30	16.92	33.51	5.64	352	20	17.90	33.51	5.43	24.17	376	0.08
40	15.28	33.49	5.74	319	30	16.92	33.51	5.64	24.41	352	0.11
50	14.50	33.51	5.55	301	50	14.50	33.51	5.55	24.96	301	0.18
66	13.45	33.48	5.11	283	75	12.89	33.48	4.91	25.26	272	0.25
81	12.53	33.48	4.82	266	100	10.82	33.49	4.22	25.66	235	0.31
100	10.82	33.49	4.22	235	150	8.81	33.88	2.72	26.30	174	0.42
125	9.23	33.71	3.39	193	200	8.32	34.16	1.72	26.59	146	0.50
145	8.86	33.86	2.82	176	250	8.01	34.22	1.10	26.68	137	0.57
174	8.58	33.96	2.40	164	300	7.39	34.22	0.77	26.78	128	0.64
204	8.26	34.17	1.62	144	400	6.50	34.29	0.50	26.95	111	0.76
234	8.15	34.20	1.29	140	500	6.10	34.29	0.45	27.00	106	0.88
273	7.70	34.23	0.92	132							
332	7.06	34.24	0.59	123							
407	6.45	34.29	0.49	111							
483	6.16	34.29	0.46a)	107							
562	5.90	34.29	0.38	104							

a) Alternate value, 0.35 ml/L, not used in interpolation.

SIO

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5908

OBSERVED					INTERPOLATED				COMPUTED		
Z	T	S	O ₂	δT_3	Z	T	S	O ₂	σ_t	δT_3	ΔD
m	°C	%	ml/L	10^{-5} cm/g	m	°C	%	ml/L	g/L	10^{-5} cm/g	dyn. m

93.70 ORCA; August 25, 1959; 2052 GCT; 31°27'N, 120°21'W; sounding, 2000 fm; wind, 290°, force 4; weather, overcast; sea, slight; wire angle, 09°.

1	18.74	33.55	5.22	392	0	(18.74)	(33.55)	(5.22)	(24.00)	(392)	(0.00)
11	18.72	33.53	5.21	393	10	18.73	33.53	5.21	23.99	393	0.04
31	17.98	33.51	5.33	377	20	18.35	33.49	5.24	24.05	387	0.08
41	15.78	33.17	5.87	352	30	18.01	33.50	5.30	24.14	378	0.12
50	14.60	33.24	5.77	323	50	14.60	33.24	5.77	24.73	323	0.19
65	13.73	33.32	5.55	300	75	13.13	33.36	5.28	25.12	285	0.26
80	13.08	33.40	5.17	282	100	11.82	33.49	4.69	25.47	252	0.33
99	11.93	33.48	4.71	254	150	9.34	33.74	3.61	26.10	192	0.44
123	10.56	33.60	4.19	222	200	8.18	33.95	3.09	26.44	160	0.53
143	9.57	33.69	3.61	200	250	7.50	34.02	1.97	26.60	145	0.61
172	8.82	33.87	3.63	175	300	7.01	34.09	1.46	26.72	133	0.68
202	8.14	33.95	3.06	159	400	6.24	34.19	0.73	26.90	116	0.81
231	7.71	34.00	2.22	149	500	5.77	34.26	0.38	27.02	105	0.93
270	7.32	34.04	1.78	141							
330	6.75	34.14	1.13	126							
404	6.22	34.19	0.71	116							
479	5.86	34.23	0.46	108							
559	5.39	34.34	0.28	94							

93.80 ORCA; August 26, 1959; 0155 GCT; 31°10.5'N, 120°55'W; sounding, 2000+ fm; wind, 290°, force 4; weather, overcast; sea, slight; wire angle, 18°.

0	18.76	33.55	5.20	392	0	18.76	33.55	5.20	24.00	392	0.00
9	18.76	33.55	5.16	392	10	18.75	33.55	5.16	24.00	392	0.04
28	18.60	33.57	5.18	387	20	18.70	33.56	5.16	24.01	391	0.08
37	18.34	33.54	5.27	383	30	18.59	33.57	5.19	24.06	386	0.12

93.90 ORCA; August 26, 1959; 0733 GCT; 30°50'N, 121°35'W; sounding, 2000 fm; wind, 320°, force 4; weather, overcast; sea, slight; wire angle, 16°.

2	19.04	33.24	5.15	422	0	(19.04)	(33.24)	(5.15)	(23.69)	(422)	(0.00)
11	19.08	33.24	5.12	422	10	19.08	33.24	5.12	23.68	422	0.04
30	18.15	33.28	5.31	398	20	19.08	33.24	5.12	23.68	422	0.08
40	17.07	33.33	5.57	370	30	18.15	33.28	5.31	23.94	398	0.12
54	15.54	33.22	5.78	344	50	16.13	33.27	5.73	24.41	353	0.20
68	15.12	33.33	5.67	327	75	14.63	33.43	5.52	24.86	310	0.28
91	14.69	33.60	5.45	298	100	13.48	33.44	5.32	25.11	286	0.36
110	12.56	33.35	5.11	276	150	10.21	33.60	4.37	25.84	217	0.49
129	11.48	33.45	4.75	249	200	8.76	33.86	3.61	26.29	174	0.59
147	10.42	33.58	4.42	221	250	8.14	33.95	3.16	26.45	159	0.67
175	9.14	33.77	3.88	187	300	7.28	34.01	2.31	26.62	143	0.75
208	8.64	33.88	3.53	171	400	6.34	34.12	1.00	26.84	122	0.89
236	8.37	33.93	3.35	164	500	5.78	34.20	0.55	26.97	110	1.01
284	7.52	34.00	2.55	147	600	(5.27)	(34.29)		(27.10)	(97)	(1.12)
337	6.84	34.03	1.83	135							
419	6.23	34.15	0.82	119							
503	5.75	34.20	0.54	109							
588	5.31	34.27	0.32	99							

97.30 ORCA; August 28, 1959; 0153 GCT; ^{a)} 32°15'N, 117°06.5'W; sounding, 46 fm; wind, 290°, force 2; weather, partly cloudy; sea, slight; wire angle, 04°.

1	21.21	33.75	5.08	439	0	(21.21)	(33.75)	(5.08)	(23.50)	(439)	(0.00)
11	20.24	33.71	5.25	418	10	20.33	33.71	5.24	23.72	419	0.04
21	16.54	33.57	5.88	340	20	16.95	33.57	5.86	24.45	349	0.08
31	13.98	33.55	4.82	288	30	14.20	33.55	4.90	25.05	292	0.11
41	13.76	33.60	4.13	280	50	13.67	33.58	4.14	25.18	279	0.17
51	13.66	33.58	4.14	279							
61	13.59	33.58	4.15	278							

a) Special cast.

OBSERVED					INTERPOLATED				COMPUTED		
Z	T	S	O ₂	δT_{-5}^3	Z	T	S	O ₂	σ_t	δT_{-5}^3	ΔD
m	°C	‰	ml/L	10 ⁻⁵ cm/g	m	°C	‰	ml/L	g/L	10 ⁻⁵ cm/g	dyn. m

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BLACK DOUGLAS; August 13, 1959; 0106 GCT; ^{a)} 32°11.5'N, 117°17'W; sounding, 740 fm; wind, 270°, force 3; weather, partly cloudy; sea, slight; wire angle, 02°.

97.32

385	7.86	34.19	1.32	137
388	7.81	34.20	1.22	136
391	7.79	34.16	1.20	138
413	7.50	34.20	1.13	132
416	7.48	34.21	1.35	130
418	7.46	34.20	1.09	131
441	7.22	34.24	0.84	125
443	7.18	34.25	0.81	123
446	7.20	34.30	0.74	120
468	6.94	34.29	0.61	117
471	6.96	34.27	0.68	119
474	6.96	34.31	0.66	116
496	6.78	34.32	0.54	113
499	6.74	34.32	0.51	112
502	6.71	34.31	0.54	113
524	6.54	34.32	0.42	110
527	6.46	34.34	0.47	107
529	6.44	34.35	0.54	106

ORCA; August 28, 1959; 0000 GCT; 32°11.5'N, 117°16.5'W; sounding, 700 fm; wind, 290°, force 2; weather, partly cloudy; sea, slight; wire angle, 13°.

97.32

0	22.00	33.82	5.03	455	0	22.00	33.82	5.03	23.34	455	0.00
10	20.88	33.78	5.19	428	10	20.88	33.78	5.19	23.62	428	0.04
30	16.92	33.53	5.79	351	20	18.18	33.54	5.59	24.13	379	0.08
39	15.58	33.53	5.76	322	30	16.92	33.53	5.79	24.43	351	0.12
49	14.19	33.54	4.96	292	50	14.10	33.54	4.91	25.06	291	0.18
64	12.80	33.55	4.46	265	75	12.02	33.58	3.98	25.50	249	0.25
78	11.78	33.60	3.81	243	100	11.03	33.70	3.31	25.78	223	0.31
97	11.10	33.69	3.35	224	150	10.40	33.84	2.68	26.01	201	0.42
122	10.68	33.78	3.08	211	200	9.99	34.03	2.23	26.21	182	0.52
141	10.51	33.82	2.75	205	250	9.67	34.20	1.60	26.40	164	0.60
170	10.12	33.89	2.59	193	300	8.99	34.22	1.31	26.52	151	0.69
199	10.00	34.02	2.24	182	400	7.14	34.23	0.79	26.82	124	0.83
228	9.88	34.16	1.84	170	500	6.32	34.29	0.46	26.98	109	0.95
267	9.43	34.20	1.42	160							
326	8.62	34.23	1.27	145							
400	7.14	34.23	0.79	124							
474	6.48	34.28	0.51	112							
554	6.10	34.31	0.35	105							

ORCA; August 27, 1959; 1959 GCT; 32°00'N, 117°40'W; sounding, 378 fm; wind, 330°, force 2; weather, overcast; sea, moderate; wire angle, 18°.

9740

1	21.01	33.73	5.39	435	0	(21.01)	(33.73)	(5.39)	(23.55)	(435)	(0.00)
10	20.22	33.72	5.49	416	10	20.22	33.72	5.49	23.75	416	0.04
30	14.72	33.57	5.67	302	20	18.33	33.68	5.60	24.20	372	0.08
39	14.34	33.58	5.35	293	30	14.72	33.57	5.67	24.95	302	0.12
49	12.81	33.60	4.10	262	50	12.70	33.60	4.07	25.39	260	0.17
63	11.50	33.58	4.01	240	75	10.95	33.67	3.71	25.78	223	0.23
77	10.76	33.68	3.62	220	100	10.28	33.72	3.31	25.93	208	0.29
95	10.34	33.71	3.35	210	150	9.72	33.89	2.84	26.16	187	0.39
119	10.02	33.78	3.26	200	200	9.24	34.02	2.33	26.33	170	0.48
137	9.86	33.86	2.96	192	250	9.21	34.21	1.52	26.49	155	0.56
165	9.58	33.91	2.78	183	300	8.82	34.24	1.19	26.57	147	0.64
192	9.34	34.00	2.42	173	400	7.47	34.26	0.80	26.79	127	0.78
219	9.06	34.06	2.10	164	500	6.59	34.29	0.46	26.94	112	0.91
256	9.26	34.25	1.39	153							
313	8.66	34.23	1.14	146							
383	7.68	34.26	0.88	130							
456	6.93	34.27	0.59	118							
535	6.38	34.31	0.39	108							

a) Special cast. Station 97.32 was also occupied on August 14 by R/V Hugh M. Smith. These data are presented out of order on page 345 so that they may be included with the other observations of this ship which collected samples for phosphate, nitrite, nitrate and silicate in addition to oxygen.

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OBSERVED					INTERPOLATED				COMPUTED		
Z	T	S	O ₂	δT_{-5}^3	Z	T	S	O ₂	σ_t	δT_{-5}^3	ΔD
m	°C	‰	ml/L	10 ⁻⁵ cm/g	m	°C	‰	ml/L	g/L	10 ⁻⁵ cm/g	dyn. m

97.50 ORCA; August 27, 1959; 1352 GCT; 31°40'N, 118°23'W; sounding, 1300 fm; wind, 320°, force 3; weather, overcast; sea, moderate; wire angle, 02°.

1	19.20	33.66	5.36	395	0	(19.20)	(33.66)	(5.36)	(23.97)	(395)	(0.00)
11	19.22	33.67	5.36	394	10	19.21	33.66	5.36	23.97	395	0.04
31	17.08	33.48	5.71	358	20	19.11	33.66	5.37	23.99	393	0.08
41	15.31	33.44	5.75	323	30	17.30	33.50	5.68	24.31	362	0.12
56	14.40	33.45	5.57	304	50	14.68	33.44	5.64	24.86	310	0.18
71	13.80	33.51	5.27	287	75	13.20	33.52	5.02	25.23	275	0.26
95	11.44	33.53	4.38	242	100	11.12	33.54	4.27	25.64	236	0.32
116	10.32	33.58	4.13	220	150	9.24	33.71	3.52	26.09	193	0.43
136	9.80	33.62	3.73	208	200	8.61	34.01	2.28	26.43	161	0.52
156	9.00	33.77	3.43	185	250	7.89	34.07	1.84	26.58	146	0.60
186	8.74	33.96	2.48	167	300	7.54	34.16	1.43	26.70	135	0.67
221	8.38	34.06	2.08	154	400	6.68	34.24	0.75	26.88	118	0.80
250	7.89	34.07	1.84	146	500	6.17	34.31	0.45	27.01	106	0.92
300	7.54	34.16	1.43	135	600	5.53	34.38	0.31	27.14	94	1.03
355	6.96	34.20	1.01	124							
440	6.44	34.26	0.56	114							
524	6.07	34.34	0.41	103							
609	5.48	34.38	0.29	92							

97.60 ORCA; August 27, 1959; 0744 GCT; 31°18'N, 119°06'W; sounding, 2000+ fm; wind, 330°, force 4; weather, overcast; sea, moderate; wire angle, 03°.

2	19.86	33.86	5.11	397	0	(19.86)	(33.86)	(5.11)	(23.95)	(397)	(0.00)
12	19.89	33.87	5.16	397	10	19.89	33.87	5.14	23.95	397	0.04
37	13.83	33.49	5.36	290	20	19.84	33.87	5.17	23.96	396	0.08
47	12.92	33.53	4.99	269	30	15.80	33.59	5.33	24.74	322	0.12
62	11.77	33.62	4.01	241	50	12.60	33.56	4.66	25.38	261	0.17
77	10.84	33.67	3.63	222	75	10.95	33.66	3.66	25.76	224	0.23
101	9.42	33.80	2.89	189	100	9.47	33.79	2.92	26.12	190	0.29
121	9.11	33.92	2.49	176	150	8.68	34.04	2.02	26.44	160	0.38
141	8.78	34.00	2.14	164	200	8.41	34.18	1.51	26.59	146	0.45
171	8.50	34.14	1.72	150	250	7.62	34.16	1.30	26.69	136	0.52
201	8.40	34.18	1.50	146	300	7.15	34.18	1.08	26.77	128	0.59
241	7.70	34.16	1.32	137	400	6.58	34.27	0.48	26.92	114	0.72
271	7.48	34.16	1.28	134	500	5.87	34.33	0.33	27.07	100	0.83
320	6.90	34.19	0.89	124	600	5.32	34.35	0.29	27.14	93	0.93
385	6.66	34.25	0.57	116							
485	5.96	34.33	0.33	102							
575	5.44	34.34	0.29	95							
650	5.04	34.37	0.29	89							

97.70 ORCA; August 27, 1959; 0135 GCT; 30°56'N, 119°48'W; sounding, 2000+ fm; wind, 330°, force 4; weather, cloudy; sea, moderate; wire angle, 30°.

2	18.46	33.51	5.33	388	0	(18.46)	(33.51)	(5.33)	(24.04)	(388)	(0.00)
10	18.47	33.53	5.30	387	10	18.47	33.53	5.30	24.05	387	0.04
28	18.28	33.54	5.32	382	20	18.43	33.54	5.31	24.06	386	0.08
36	17.96	33.55	5.41	373	30	18.23	33.54	5.33	24.12	381	0.12
49	16.49	33.51	5.73	343	50	16.35	33.51	5.75	24.54	340	0.19
60	15.37	33.52	5.74	318	75	14.20	33.48	5.55	24.99	298	0.27
80	13.74	33.46	5.45	290	100	11.23	33.50	4.35	25.59	241	0.34
96	11.71	33.49	4.54	250	150	9.08	33.79	3.62	26.18	185	0.44
111	10.42	33.55	4.05	223	200	8.13	33.95	2.93	26.46	158	0.53
126	9.98	33.63	3.70	210	250	7.53	34.05	1.98	26.52	143	0.61
148	9.10	33.79	3.64	185	300	7.01	34.09	1.53	26.72	133	0.68
176	8.78	33.88	3.08	173	400	6.32	34.22	0.77	26.92	114	0.81
198	8.18	33.95	2.95	159	500	5.94	34.33	0.34	27.05	102	0.92
236	7.76	34.04	2.15	146							
279	7.22	34.07	1.72	138							
347	6.62	34.15	1.09	124							
421	6.24	34.25	0.69	112							
501	5.93	34.33	0.33	102							

OBSERVED					INTERPOLATED				COMPUTED		
Z	T	S	O ₂	δT_3	Z	T	S	O ₂	σ_t	δT_3	ΔD
m	°C	‰	ml/L	10 ⁻⁵ cm ³ /g	m	°C	‰	ml/L	g/L	10 ⁻⁵ cm ³ /g	dyn. m

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ORCA; August 26, 1959; 1933 GCT; 30°35'N, 120°30'W; sounding, 2000+ fm; wind, 330°, force 4; weather, overcast; sea, moderate; wire angle, 15°.

97.80

1	18.94	33.44	5.14	405	0	(18.94)	(33.44)	(5.14)	(23.86)	(405)	(0.00)
11	18.94	33.42	5.17	406	10	18.94	33.42	5.17	23.85	406	0.04
30	17.74	33.39	5.54	380	20	18.91	33.42	5.18	23.86	405	0.08
41	16.72	33.35	5.72	360	30	17.74	33.39	5.54	24.12	380	0.12
54	15.52	33.32	5.72	336	50	15.71	33.31	5.72	24.54	341	0.19
68	14.90	33.33	5.74	323	75	14.32	33.33	5.62	24.86	310	0.27
92	14.09	33.44	5.45	298	100	13.11	33.41	5.24	25.16	282	0.35
111	12.38	33.41	5.08	268	150	9.80	33.59	4.37	25.91	210	0.47
130	11.22	33.60	5.03	233	200	8.43	33.91	2.97	26.38	166	0.57
150	9.80	33.59	4.37	210	250	7.73	34.02	2.15	26.56	148	0.65
178	8.88	33.80	3.56	180	300	7.00	34.09	1.53	26.72	133	0.72
211	8.25	33.95	2.75	160	400	6.69	34.21	0.78	26.86	120	0.85
240	7.88	34.00	2.31	152	500	5.90	34.23	0.47	26.98	109	0.98
287	7.14	34.07	1.67	136	600	(5.43)	(34.33)		(27.11)	(96)	(1.08)
340	6.76	34.13	1.25	126							
421	6.66	34.23	0.62	118							
504	5.87	34.23	0.46	108							
588	5.46	34.31	0.32	98							

ORCA; August 26, 1959; 1252 GCT; 30°16'N, 121°11'W; sounding, 2000+ fm; wind, 310°, force 3; weather, overcast; sea, slight; wire angle, 09°.

97.90

1	19.19	33.36	-	416	0	(19.19)	(33.36)		(23.74)	(416)	(0.00)
11	19.24	33.37	5.16	417	10	19.24	33.37		23.73	417	0.04
31	19.60	33.77	5.22	397	20	19.72	33.56	5.16	23.77	414	0.08
40	17.65	33.46	5.44	373	30	19.61	33.76	5.21	23.94	398	0.12
55	16.81	33.44	5.52	356	50	17.00	33.44	5.52	24.34	359	0.20
70	15.83	33.44	5.72	334	75	15.63	33.46	5.72	24.67	328	0.29
94	14.86	33.60	5.57	302	100	14.64	33.61	5.54	25.00	297	0.37
114	13.94	33.61	5.36	282	150	10.88	33.63	4.60	25.74	226	0.50
133	12.09	33.68	4.95	242	200	8.87	33.85	3.48	26.26	177	0.60
153	10.70	33.62	4.54	223	250	8.15	33.97	3.03	26.46	158	0.69
183	9.26	33.73	4.00	192	300	7.43	34.06	1.92	26.64	141	0.76
217	8.60	33.87	3.26	171	400	6.46	34.14	1.06	26.84	122	0.90
247	8.21	33.96	3.08	159	500	5.80	34.24	0.56	27.00	107	1.02
296	7.48	34.05	2.01	142	600	5.31	34.32	0.40	27.12	95	1.13
350	6.90	34.09	1.43	132							
434	6.20	34.18	0.86	116							
518	5.73	34.25	0.48	105							
602	5.30	34.32	0.40	95							

ORCA; August 26, 1959; 1352 GCT;^{a)} 30°16'N, 121°11'W; sounding, 2000+ fm; wind, 310°, force 3; weather, overcast; sea, slight; wire angle, 04°.

97.90

1	19.24	33.40	5.41	415	0	(19.24)	(33.40)	(5.41)	(23.76)	(415)	(0.00)
11	19.29	33.40	5.66	416	10	19.29	33.40	5.66	23.75	416	0.04
21	19.78	33.84	5.36	396	20	19.77	33.80	5.40	23.93	399	0.08
26	19.68	33.80	5.41	397	30	19.17	33.73	5.46	24.03	389	0.12
31	19.04	33.72	5.47	387	50	16.96	33.48	5.87	24.38	356	0.20
36	17.76	33.48	5.78	374	75	15.31	33.44	6.16	24.73	323	0.28
41	17.47	33.46	5.74	369	100	14.71	33.58	5.74	24.96	301	0.36
46	17.31	33.48	5.88	364	150	10.88	33.62	4.63	25.74	226	0.49
51	16.88	33.48	5.87	354	200	8.96	33.84	3.66	26.24	179	0.60
61	16.17	33.45	5.81	340							
71	15.44	33.41	6.02	328							
76	15.30	33.45	6.17	322							
81	15.35	33.58	5.97	314							
86	15.30	33.63	5.84	309							
91	15.26	33.69	5.72	304							
96	14.80	33.58	5.74	302							
150	10.88	33.62	4.63	226							
200	8.96	33.84	3.66	179							

a) Special cast.

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OBSERVED					INTERPOLATED				COMPUTED		
Z	T	S	O ₂	δT_{-5}^3	Z	T	S	O ₂	σ_t	δT_{-5}^3	ΔD
m	°C	‰	ml/L	10 cm/g	m	°C	‰	ml/L	g/L	10 cm/g	dyn. m

997.28⁹
DORCA; August 28, 1959; 0705 GCT; ^{a)} 31°46.5'N, 116°44.5'W; sounding, 108 fm; wind, 320°, force 2; weather, overcast; sea, slight; wire angle, 05°.

1	19.75	33.66	5.60	408	0	(19.75)	(33.66)	(5.60)	(23.83)	(408)	(0.00)
11	19.58	33.62	5.67	407	10	19.59	33.62	5.67	23.84	407	0.04
21	18.25	33.59	5.61	378	20	18.29	33.59	5.62	24.15	378	0.08
31	15.64	33.60	3.61	318	30	15.95	33.60	3.73	24.70	325	0.12
41	14.07	33.56	3.92	289	50	13.62	33.55	3.85	25.17	281	0.18
50	13.62	33.55	3.85	281	75	12.23	33.60	3.37	25.48	251	0.24
60	12.94	33.58	3.64	265	100	11.72	33.65	3.04	25.62	238	0.30
70	12.46	33.58	3.49	257							
80	12.06	33.62	3.26	246							
90	11.85	33.64	3.43 _u	241							
100	11.72	33.65	3.04	238							
109	11.44	33.68	2.96	231							
119	11.28	33.69	2.92	228							
129	10.98	33.71	2.75	221							
138	10.76	33.76	2.68	213							

998.28⁷
CORCA; August 28, 1959; 0602 GCT; ^{a)} 31°45'N, 116°42.5'W; sounding, 25 fm; wind, 320°, force 1; weather, overcast; sea, smooth; wire angle, 00°.

1	20.50	33.67	5.51	426	0	(20.50)	(33.67)	(5.51)	(23.64)	(426)	(0.00)
11	19.64	33.64	5.70	408	10	19.65	33.64	5.69	23.83	408	0.04
21	19.26	33.63	5.70	399	20	19.60	33.64	5.70	23.85	406	0.08
31	16.18	33.58	4.65	331	30	16.48	33.58	4.80	24.57	338	0.12
41	14.78	33.60	3.49	300							

100.28⁸
AORCA; August 28, 1959; 1454 GCT; ^{a)} 31°42.5'N, 116°41.5'W; sounding, 20 fm; wind, calm; weather, overcast; sea, smooth; wire angle, 00°.

0	19.03	33.58	5.29	397	0	19.03	33.58	5.29	23.95	397	0.00
10	17.11	33.58	5.40	352	10	17.11	33.58	5.40	24.42	352	0.04
20	15.82	33.54	5.12	327	20	15.82	33.54	5.12	24.68	327	0.07
30	14.47	33.53	4.86	299	30	14.47	33.53	4.86	24.97	299	0.10

100.29
BORCA; August 28, 1959; 0907 GCT; ^{a)} 31°42'N, 116°43.5'W; sounding, 108 fm; wind, 320°, force 1; weather, overcast; sea, slight; wire angle, 05°.

0	18.82	33.63	5.47	388	0	18.82	33.63	5.47	24.03	388	0.00
10	16.54	33.58	5.84	339	10	16.54	33.58	5.84	24.56	339	0.04
20	15.24	33.55	5.56	314	20	15.24	33.55	5.56	24.82	314	0.07
30	14.12	33.54	4.88	291	30	14.12	33.54	4.88	25.06	291	0.10
40	13.53	33.60	3.70	275	50	12.74	33.58	4.08	25.37	262	0.15
50	12.74	33.58	4.08	262	75	11.82	33.62	3.80	25.57	243	0.22
60	12.52	33.58	3.90	258	100	10.84	33.75	2.91	25.84	216	0.28
70	12.10	33.59	3.98	249	150	10.12	33.88	2.45	26.08	194	0.38
80	11.60	33.64	3.57	237							
90	11.30	33.71	3.18	226							
100	10.84	33.75	2.91	216							
110	10.62	33.78	2.74	210							
119	10.41	33.84	2.66	202							
129	10.24	33.86	2.55	198							
139	10.16	33.89	2.55	194							
149	10.12	33.88	2.45	194							
159	10.12	33.94	2.42	189							
169	9.98	33.96	2.28	186							

a) Cast for special biological work, Stations A through D.

OBSERVED					INTERPOLATED				COMPUTED		
Z	T	S	O ₂	δT_{-5}^3	Z	T	S	O ₂	σ_t	δT_{-5}^3	ΔD
m	°C	‰	ml/L	10 ⁻⁵ cm/g	m	°C	‰	ml/L	g/L	10 ⁻⁵ cm/g	dyn. m

ORCA; August 28, 1959; 1044 GCT; 31°40.5'N, 116°46.5'W; sounding, 200 fm; wind, 330°, force 1; weather, overcast; sea, smooth; wire angle, 12°.

100.30

1	19.96	33.61	5.55	417	0	(19.96)	(33.61)	(5.55)	(23.74)	(417)	(0.00)
11	19.48	33.63	5.65	404	10	19.51	33.63	5.64	23.86	405	0.04
31	14.32	33.53	4.95	296	20	16.80	33.56	5.33	23.47	347	0.08
51	13.22	33.51	4.70	276	30	14.34	33.53	4.96	25.00	296	0.11
76	12.28	33.55	4.21	256	50	13.24	33.51	4.71	25.21	277	0.17
100	11.78	33.58	3.79	244	75	12.32	33.55	4.22	25.42	256	0.23
125	11.14	33.72	3.11	223	100	11.78	33.58	3.79	25.55	244	0.30
159	10.14	33.86	2.53	196	150	10.39	33.82	2.66	25.99	203	0.41
198	9.98	34.04	2.06	180	200	9.97	34.03	2.05	26.24	179	0.51
247	9.29	34.14	1.71	162	250	9.23	34.14	1.68	26.43	161	0.60
296	8.58	34.19	1.16	147	300	8.52	34.19	1.14	26.58	146	0.68
345	7.92	34.22	1.11	136							

ORCA; August 28, 1959; 2130 GCT; 31°19.5'N, 117°23'W; sounding, 1000 fm; wind, 280°, force 4; weather, overcast; sea, moderate; wire angle, 22°.

100.40

1	20.36	33.71	4.99	420	0	(20.36)	(33.71)	(4.99)	(23.70)	(420)	(0.00)
10	20.34	33.73	5.08	418	10	20.34	33.73	5.08	23.72	418	0.04
29	19.13	33.63	5.15	395	20	20.32	33.73	5.09	23.73	418	0.08
38	16.54	33.46	5.57	348	30	19.00	33.62	5.16	23.99	393	0.12
52	15.30	33.54	5.50	316	50	15.42	33.53	5.52	24.77	318	0.20
66	14.54	33.51	5.46	302	75	13.39	33.49	4.96	25.17	281	0.27
89	12.59	33.49	4.59	266	100	11.40	33.53	4.15	25.58	241	0.34
108	11.24	33.56	4.10	236	150	9.54	33.72	3.47	26.06	196	0.45
125	10.70	33.58	4.09	226	200	8.58	33.92	2.62	26.36	168	0.54
144	9.76	33.69	3.60	202	250	7.96	34.07	2.03	26.57	147	0.62
171	9.02	33.83	3.12	181	300	7.20	34.09	1.60	26.70	136	0.70
203	8.54	33.92	2.58	167	400	6.38	34.21	0.86	26.90	116	0.83
230	8.32	34.04	2.23	155	500	6.00	34.32	0.49	27.04	103	0.94
276	7.42	34.08	1.77	140							
327	7.06	34.13	1.34	131							
406	6.32	34.21	0.83	115							
486	6.03	34.32	0.51	104							
569	5.86	34.36	0.31	98							

ORCA; August 29, 1959; 0324 GCT; 31°02'N, 118°07'W; sounding, 950 fm; wind, 310°, force 4; weather, cloudy; sea, moderate; wire angle, 16°.

100.50

1	19.80	33.64	5.09	411	0	(19.80)	(33.64)	(5.09)	(23.80)	(411)	(0.00)
10	19.82	33.58	5.08	416	10	19.82	33.58	5.08	23.75	416	0.04
30	18.21	33.50	5.38	383	20	19.82	33.58	5.08	23.75	416	0.08
39	16.28	33.37	5.71	349	30	18.21	33.50	5.38	24.10	383	0.12
54	14.98	33.36	5.79	322	50	15.28	33.36	5.78	24.67	328	0.19
68	14.58	33.46	5.60	306	75	14.22	33.47	5.47	24.98	298	0.27
92	12.97	33.48	5.03	273	100	12.39	33.48	4.90	25.36	263	0.34
111	11.56	33.48	4.69	248	150	9.28	33.72	3.66	26.10	192	0.46
130	9.86	33.58	4.16	212	200	8.33	33.95	2.56	26.43	161	0.55
150	9.28	33.72	3.66	192	250	7.70	34.04	2.02	26.58	146	0.63
178	8.76	33.86	3.10	175	300	7.24	34.11	1.44	26.71	134	0.70
212	8.12	33.99	2.31	156	400	6.41	34.18	0.76	26.87	119	0.83
240	7.80	34.02	2.10	149	500	5.77	34.27	0.39	27.03	104	0.95
288	7.36	34.10	1.58	137	600	(5.22)	(34.35)	(0.29)	(27.15)	(92)	(1.05)
340	6.90	34.14	1.13	128							
422	6.27	34.20	0.64	115							
505	5.74	34.28	0.37	103							
590	5.27	34.34	0.29	93							

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OBSERVED					INTERPOLATED				COMPUTED		
Z	T	S	O ₂	δT_{-5}^3	Z	T	S	O ₂	σ_t	δT_{-5}^3	ΔD
m	°C	‰	ml/L	10 cm/g	m	°C	‰	ml/L	g/L	10 cm/g	dyn. m

100.60

ORCA; August 29, 1959; 0902 GCT; 30°40'N, 118°47'W; sounding, 2000+ fm; wind, 310°, force 4; weather, cloudy; sea, moderate; wire angle, 08°.

1	18.69	33.58	5.08	388	0	(18.69)	(33.58)	(5.08)	(24.04)	(388)	(0.00)
11	18.74	33.58	5.17	390	10	18.73	33.58	5.17	24.02	390	0.04
31	17.66	33.44	5.48	374	20	18.74	33.58	5.17	24.02	390	0.08
41	15.87	33.32	5.84	343	30	17.86	33.46	5.42	24.15	378	0.12
56	14.82	33.48	5.70	310	50	15.12	33.43	5.76	24.76	320	0.19
71	14.23	33.46	5.53	300	75	14.00	33.46	5.44	25.03	294	0.26
95	12.64	33.55	4.82	262	100	12.01	33.56	4.64	25.49	250	0.33
115	11.24	33.58	4.49	235	150	9.60	33.69	3.71	26.02	200	0.45
135	10.24	33.58	4.23	218	200	8.73	33.96	2.65	26.37	167	0.54
154	9.46	33.71	3.56	196	250	7.89	34.05	2.13	26.58	147	0.62
183	8.98	33.89	2.92	176	300	7.32	34.09	1.59	26.68	137	0.70
218	8.46	34.00	2.41	160	400	6.64	34.22	0.76	26.87	119	0.83
248	7.92	34.05	2.14	148	500	5.87	34.26	0.42	27.01	106	0.95
298	7.34	34.09	1.60	138	600	5.38	34.34	0.34	27.13	94	1.05
353	7.08	34.22	0.98	124							
437	6.29	34.22	0.60	114							
522	5.74	34.28	0.38	103							
607	5.36	34.34	0.33	94							

100.60

ORCA; August 29, 1959; 1018 GCT;^{a)} 30°40'N, 118°47'W; sounding, 2000+ fm; wind, 310°, force 4; weather, cloudy; sea, moderate; wire angle, 01°.

1	18.71	33.58	5.31	389	0	(18.71)	(33.58)	(5.31)	(24.03)	(389)	(0.00)
11	18.74	33.58	5.27	390	10	18.74	33.58	5.27	24.02	390	0.04
31	17.72	33.42	5.52	370	20	18.74	33.58	5.27	24.02	390	0.08
36	16.28	33.24	5.83	358	30	17.82	33.53	5.50	24.21	372	0.12
41	15.76	33.24	5.85	347	50	14.91	33.35	5.85	24.74	322	0.19
46	15.43	33.29	5.83	336	75	13.84	33.53	5.34	25.10	287	0.26
51	14.88	33.35	5.85	321	100	11.87	33.53	4.42	25.49	250	0.33
56	14.86	33.44	5.66	314	150	9.45	33.70	3.48	26.05	197	0.44
61	14.49	33.44	5.51	306	200	8.72	33.93	2.59	26.34	169	0.53
66	14.26	33.44	5.43	302							
71	14.10	33.48	5.45	295							
76	13.78	33.53	5.31	286							
80	13.42	33.54	5.11	278							
85	13.14	33.50	5.03	276							
90	12.72	33.54	4.86	264							
95	12.32	33.51	4.65	260							
150	9.45	33.70	3.48	197							
200	8.72	33.93	2.59	169							

100.70

ORCA; August 29, 1959; 1532 GCT; 30°21.5'N, 119°26'W; sounding, 2000 fm; wind, 320°, force 4; weather, overcast; sea, moderate; wire angle, 11°.

1	18.84	33.39	5.18	406	0	(18.84)	(33.39)	(5.18)	(23.85)	(406)	(0.00)
11	18.86	33.40	5.17	406	10	18.86	33.40	5.17	23.85	406	0.04
30	18.39	33.55	5.32	384	20	18.86	33.40	5.17	23.85	406	0.08
41	17.12	33.37	5.62	368	30	18.39	33.55	5.32	24.08	384	0.12
55	16.06	33.39	5.61	342	50	16.38	33.37	5.62	24.43	351	0.19
70	15.30	33.56	5.54	314	75	15.08	33.57	5.51	24.87	309	0.28
94	14.22	33.58	5.34	290	100	13.80	33.58	5.25	25.15	282	0.35
113	12.26	33.55	4.98	255	150	9.63	33.60	4.20	25.94	207	0.47
134	10.68	33.54	4.55	228	200	8.61	33.84	3.32	26.29	174	0.57
153	9.47	33.62	4.10	203	250	7.92	34.03	2.06	26.54	149	0.66
182	8.91	33.74	3.69	186	300	7.67	34.14	1.40	26.67	138	0.73
216	8.34	33.91	2.90	164	400	6.94	34.26	0.77	26.86	120	0.86
246	7.95	34.02	2.18	151	500	6.16	34.29	0.48	27.00	107	0.98
295	7.70	34.13	1.47	139	600	5.53	34.30	0.30	27.08	99	1.09
349	7.30	34.22	1.03	127							
433	6.70	34.27	0.65	116							
518	6.02	34.29	0.44	106							
603	5.52	34.30	0.29	99							

324

a) Special cast.

OBSERVED					INTERPOLATED				COMPUTED		
Z	T	S	O ₂	δT_3	Z	T	S	O ₂	σ_t	δT_3	ΔD
m	°C	‰	ml/L	$10^{-5} \text{ cm}^3/\text{g}$	m	°C	‰	ml/L	g/L	$10^{-5} \text{ cm}^3/\text{g}$	dyn. m

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ORCA; August 29, 1959; 2104 GCT; 30°02'N, 120°04'W; sounding, 2000 fm; wind, 310°, force 3; weather, overcast; sea, moderate; wire angle, 12°.

100.80

1	19.18	33.35	5.12	417	0	(19.18)	(33.35)	(5.12)	(23.74)	(417)	(0.00)
11	19.16	33.39	5.17	414	10	19.16	33.39	5.17	23.77	414	0.04
30	17.89	33.42	5.48	381	20	19.15	33.39	5.18	23.78	413	0.08
40	16.77	33.30	5.67	364	30	17.89	33.42	5.48	24.11	381	0.12
55	15.84	33.39	5.71	338	50	16.15	33.36	5.69	24.48	346	0.20
69	15.06	33.38	5.76	322	75	15.00	33.40	5.76	24.76	320	0.28
94	14.18	33.45	5.40	299	100	13.89	33.46	5.31	25.05	292	0.36
113	13.02	33.49	5.12	274	150	10.70	33.65	4.46	25.80	221	0.48
132	11.68	33.62	4.68	240	200	8.93	33.78	3.46	26.19	184	0.59
151	10.66	33.65	4.45	220	250	8.20	33.91	2.58	26.41	163	0.68
180	9.22	33.70	3.74	194	300	7.43	34.03	1.91	26.62	143	0.76
214	8.78	33.82	3.27	178	400	6.48	34.16	0.98	26.85	121	0.89
243	8.32	33.89	2.69	166	500	5.85	34.26	0.47	27.01	106	1.01
290	7.58	34.02	2.06	146	600	(5.32)	(34.34)	(0.36)	(27.14)	(93)	(1.12)
343	6.91	34.07	1.41	133							
426	6.30	34.20	0.81	116							
509	5.80	34.27	0.44	104							
593	5.37	34.34	0.36	94							

ORCA; August 30, 1959; 0235, 0441 GCT; 29°43'N, 120°43'W; sounding, 2000+ fm; wind, 340°, force 3; weather, cloudy; sea, moderate; wire angle, 18°, 18°.

100.90

1	19.56	33.53	5.12	413	0	(19.56)	(33.53)	(5.12)	(23.78)	(413)	(0.00)
10	19.58	33.54	5.06	413	10	19.58	33.54	5.06	23.78	413	0.04
29	19.80	33.69	5.04	408	20	19.66	33.59	5.04	23.80	411	0.08
39	19.33	33.93	5.31	379	30	19.83	33.70	5.05	23.84	408	0.12
53	17.44	33.70	5.53	351	50	17.69	33.71	5.47	24.38	355	0.20
67	16.62	33.57	5.65	342	75	16.31	33.55	5.64	24.59	336	0.29
90	16.15	33.70	5.54	322	100	16.59	33.90	5.54	24.79	316	0.37
109	15.24	33.75	5.55	299	150	11.47	33.55	4.74	24.59	241	0.51
129	13.42	33.60	5.19	273	200	9.35	33.74	3.94	26.09	193	0.62
147	11.74	33.55	4.80	246	250	8.39	33.92	2.90	26.40	164	0.71
176	10.14	33.67	4.37	210	300	7.65	34.03	2.18	26.58	146	0.79
208	9.15	33.77	3.78	187	400	6.60	34.14	1.14	26.82	124	0.93
236	8.60	33.87	3.18	171	500	5.99	34.25	0.55	26.98	108	1.05
282	7.94	34.01	2.38	152	600	5.47	34.33	0.34	27.11	96	1.16
334	7.16	34.06	1.83	137	700	5.03	34.42	0.30	27.23	85	1.26
415	6.45	34.15	0.98	121	800	4.62	34.46	0.37	27.31	77	1.35
497	5.97	34.23	0.57	109	1000	4.00	34.49	0.53	27.40	69	1.51
581	5.48	34.29	0.34	99	1200	3.50	34.58	0.76	27.52	57	1.66
					1500	2.82	34.60	1.16	27.60	50	1.85
378a)	6.80	34.13	1.34	127	2000	2.11	34.62	1.80	27.68	42	2.12
473	6.20	34.25	0.68	111	2500	1.80	34.63	2.24			
569	5.68	34.33	0.38	98	3000	1.67	34.66	2.52			
664	5.21	34.39	0.31	89							
758	4.78	34.45	0.33	80							
948	4.16	34.47	0.49	72							
1139	3.67	34.55	0.69	61							
1329	3.18	34.60	0.91	52							
1520	2.79	34.60	1.18	49							
1701	2.46	34.63	1.44	44							
1902	2.21	34.62	1.68	43							
2095	2.03	34.63	1.91	41							
2288	1.92	34.63	2.17	40							
2483	1.81	34.63	2.22	39							
2680	1.73	34.65	2.46	37							
2880	1.69	34.63	2.50	38							
2981	1.67	34.67	2.51	35							
3081	1.66	34.65	2.53	36							

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

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OBSERVED					INTERPOLATED				COMPUTED		
Z	T	S	O ₂	δT_3	Z	T	S	O ₂	σ_t	δT_3	ΔD
m	°C	‰	ml/L	10^{-5} cm/g	m	°C	‰	ml/L	g/L	10^{-5} cm/g	dyn. m

103.30

BLACK DOUGLAS; August 25, 1959; 2345 GCT; 31°05'N, 116°25'W; sounding, 40 fm; wind, 300°, force 2; weather, cloudy; sea, moderate; wire angle, 01°.

1	21.83	33.74	5.44	456	0	(21.83)	(33.74)	(5.44)	(23.33)	(456)	(0.00)
10	20.98	33.69	5.54	437	10	20.98	33.69	5.54	23.53	437	0.04
27	16.61	33.57	5.15	342	20	18.40	33.63	5.42	23.89	402	0.09
36	15.18	33.58	5.07	310	30	16.16	33.57	5.11	24.64	332	0.12

103.35

BLACK DOUGLAS; August 25, 1959; 2144 GCT; 30°56'N, 116°45'W; sounding, 740 fm; wind, 260°, force 3; weather, overcast; sea, moderate; wire angle, 18°.

2	22.47	33.82	4.75	467	0	(22.47)	(33.82)	(4.75)	(23.21)	(467)	(0.00)
10	22.30	33.83	4.69	462	10	22.30	33.83	4.69	23.26	462	0.05
27a)	19.29	33.63	5.30	400	20	22.00	33.82	4.69	23.34	455	0.09
36a)	17.86	33.57	5.38	370	30	18.70	33.60	5.34	24.04	388	0.13
49	16.80	33.56	5.52	347	50	16.50	33.56	5.56	24.54	340	0.21
61	15.51	33.55	5.64	319	75	14.30	33.55	5.08	25.03	294	0.29
82	13.74	33.55	4.81	283	100	11.85	33.56	3.92	25.53	247	0.36
99	11.97	33.56	3.95	249	150	10.04	33.74	3.36	25.98	204	0.47
116	10.91	33.64	3.71	225	200	9.25	33.98	2.50	26.30	173	0.56
132	10.49	33.68	3.52	215	250	8.50	34.08	2.08	26.50	154	0.65
157	9.88	33.78	3.21	198	300	7.72	34.14	1.59	26.66	139	0.72
187	9.37	33.95	2.57	177	400	7.31	34.30	0.61	26.85	121	0.86
212	9.12	33.99	2.45	170	500	6.40	34.27	0.67	26.95	112	0.98
254	8.44	34.10	2.01	152							
300	7.72	34.14	1.59	139							
371	7.50	34.29	0.76	125							
445	6.95	34.29	0.53	117							
518	6.22	34.27	0.78	110							

103.40

BLACK DOUGLAS; August 25, 1959; 1746 GCT; 30°34'N, 117°11'W; sounding, 800 fm; wind, 260°, force 3; weather, cloudy; sea, slight; wire angle, 05°.

2	20.91	33.69	4.84	436	0	(20.91)	(33.69)	(4.84)	(23.54)	(436)	(0.00)
11	20.54	33.68	4.92	427	10	20.64	33.68	4.92	23.61	429	0.04
29	18.46	33.58	5.36	383	20	20.33	33.68	4.96	23.68	422	0.09
38	17.36	33.53	5.46	361	30	18.30	33.57	5.37	24.12	380	0.13
51	16.63	33.53	5.60	345	50	16.70	33.53	5.60	24.48	347	0.20
64	15.94	33.55	5.38	328	75	15.13	33.57	5.33	24.86	310	0.28
86	14.46	33.58	5.30	295	100	13.32	33.53	5.13	25.21	277	0.36
104	12.93	33.49	5.05	272	150	9.93	33.58	4.08	25.87	214	0.48
121	11.59	33.48	4.58	248	200	8.70	33.85	3.08	26.29	174	0.58
139	10.64	33.51	4.30	230	250	8.02	34.02	2.13	26.52	152	0.66
164	9.30	33.68	3.71	196	300	7.45	34.08	1.64	26.65	140	0.74
195	8.78	33.82	3.12	178	400	6.57	34.20	0.82	26.88	118	0.87
221	8.39	33.95	2.65	162	500	6.32	34.31	0.44	26.99	108	0.99
263	7.88	34.04	1.97	148							
312	7.32	34.09	1.56	137							
385	6.60	34.18	0.91	121							
460	6.56	34.32	0.41	110							
536	6.07	34.29	0.53	106							

a) Nansen bottles at 27 and 36 meters appear to have been reversed; they are assumed to be in the order listed.

OBSERVED					INTERPOLATED				COMPUTED			
Z	T	S	O ₂	δT_3	Z	T	S	O ₂	σ_t	δT_3	ΔD	
m	°C	‰	ml/L	$10^{-5} \text{ cm}^3/\text{g}$	m	°C	‰	ml/L	g/L	$10^{-5} \text{ cm}^3/\text{g}$	dyn. m	

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BLACK DOUGLAS; August 25, 1959; 1505 GCT; ^{a)} 30°28'N, 117°29'W; sounding, 1000 fm; wind, 270°, force 1; weather, overcast; sea, slight; wire angle, 00°.

103.45

0	20.62	33.66	4.92	430	0	20.62	33.66	4.92	23.60	430	0.00
9	20.36	33.68	5.08	423	10	20.34	33.68	5.09	23.68	422	0.04
27	18.22	33.51	5.35	383	20	19.75	33.64	5.20	23.81	410	0.08
31	17.70	33.49	5.43	372	30	17.79	33.49	5.40	24.19	374	0.12
36	17.50	33.51	5.51	366	50	16.70	33.50	5.43	24.45	349	0.20
41	17.26	33.53	5.40	359	75	15.25	33.56	5.45	24.83	313	0.28
45b)	16.90	33.51	5.42	352	100	13.02	33.56	5.07	25.30	269	0.35
50b)	16.70	33.50	5.43	349	150	9.79	33.66	3.93	25.96	205	0.47
54	16.46	33.51	5.43	343							
58	16.24	33.50	5.45	339							
63	-	33.49	5.46	-							
68	-	33.48	5.49	-							
72	15.54	33.51	5.41	323							
76	15.09	33.57	5.47	309							
81	14.66	33.56	5.39	301							
85	14.17	33.56	5.32	291							
134	10.38	33.60	4.22	219							
179	8.99	33.80	3.36	182							

BLACK DOUGLAS; August 25, 1959; 1223 GCT; 30°22'N, 117°44'W; sounding, 1000 fm; wind, 260°, force 2; weather, clear; sea, moderate; wire angle, 05°.

103.50

2	20.54	33.65	4.97	429	0	(20.54)	(33.65)	(4.97)	(23.61)	(429)	(0.00)
11	20.54	33.66	5.04	428	10	20.54	33.66	5.04	23.62	428	0.04
29	18.56	33.55	5.32	387	20	20.03	33.64	5.20	23.74	417	0.08
38	17.74	33.53	5.40	370	30	18.40	33.54	5.35	24.08	384	0.12
51	16.47	33.53	5.49	342	50	16.56	33.53	5.47	24.51	343	0.20
64	15.28	33.54	5.52	315	75	14.52	33.54	5.42	24.98	299	0.28
86	13.66	33.54	5.23	282	100	12.56	33.52	4.94	25.36	263	0.35
104	12.28	33.54	4.84	257	150	10.05	33.76	3.63	26.00	202	0.47
122	11.10	33.59	4.49	232	200	9.34	34.02	2.40	26.32	172	0.56
139	10.23	33.66	4.01	212	250	9.07	34.19	1.61	26.49	155	0.64
166	9.81	33.87	3.02	190	300	8.84	34.31	0.99	26.62	142	0.72
197	9.36	34.00	2.51	173	400	6.74	34.14	1.05	26.80	126	0.86
223	9.28	34.11	1.93	164	500	6.15	34.23	0.65	26.95	112	0.99
268	8.94	34.23	1.40	150							
317	8.78	34.34	0.81	139							
391	6.81	34.14	1.07	127							
467	6.36	34.22	0.68	115							
543	5.92	34.23	0.65	109							

BLACK DOUGLAS; August 24, 1959; 0713 GCT; 30°06'N, 118°23.5'W; sounding, 1940 fm; wind, 270°, force 3; weather, overcast; sea, moderate; wire angle, 10°.

103.60

2	20.12	33.62	4.82	421	0	(20.12)	(33.62)	(4.82)	(23.69)	(421)	(0.00)
11	20.08	33.62	4.80	420	10	20.10	33.62	4.80	23.70	420	0.04
28	18.46	33.58	5.06	383	20	19.87	33.62	4.81	23.76	415	0.08
37	17.94	33.57	5.20	372	30	18.30	33.58	5.09	24.12	380	0.12
50	17.27	33.57	5.24	356	50	17.27	33.57	5.24	24.37	356	0.20
64	16.50	33.51	5.35	344	75	15.97	33.54	5.35	24.66	329	0.28
86	15.34	33.57	5.34	314	100	14.50	33.55	5.28	24.99	298	0.36
103	14.31	33.55	5.25	294	150	10.79	33.59	4.26	25.74	226	0.50
121	12.66	33.53	4.69	264	200	8.99	33.92	2.84	26.29	174	0.60
138	11.30	33.51	4.47	241	250	8.24	34.06	2.27	26.53	152	0.68
165	10.16	33.71	3.97	207	300	7.65	34.13	1.62	26.66	139	0.76
195	9.08	33.90	2.94	177	400	6.58	34.22	0.81	26.89	117	0.89
222	8.76	33.99	2.57	164	500	6.03	34.29	0.54	27.01	106	1.01
266	7.94	34.10	2.03	145							
314	7.52	34.14	1.49	136							
388	6.70	34.21	0.91	120							
463	6.17	34.27	0.55	109							
539	5.95	34.30	0.53	104							

a) Special cast.

b) Nansen bottles at 45 and 50 meters appear to have been reversed; they are assumed to be in the order listed.

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OBSERVED					INTERPOLATED				COMPUTED			
Z	T	S	O ₂	δT_3	Z	T	S	O ₂	σ_t	δT_3	ΔD	
m	°C	‰	ml/L	$\frac{10^{-5}}{10 \text{ cm/g}}$	m	°C	‰	ml/L	g/L	$\frac{10^{-5}}{10 \text{ cm/g}}$	dyn. m	

103.70 BLACK DOUGLAS; August 25, 1959; 0154 GCT; 29°49'N, 119°05'W; sounding, 1800 fm; wind, 320°, force 3; weather, cloudy; sea, moderate; wire angle, 12°.

2	19.96	33.59	4.94	418	0	(19.96)	(33.59)	(4.94)	(23.72)	(418)	(0.00)
10	19.92	33.65	5.02	413	10	19.92	33.65	5.02	23.78	413	0.04
28	19.32	33.67	5.17	398	20	19.83	33.66	5.06	23.80	411	0.08
37	18.88	33.84	5.15	374	30	19.25	33.74	5.15	24.02	390	0.12
50	18.10	33.78	5.33	360	50	18.10	33.78	5.33	24.33	360	0.20
63	17.02	33.64	5.47	346	75	16.70	33.65	5.51	24.57	338	0.28
85	16.26	33.67	5.53	326	100	15.47	33.57	5.54	24.78	317	0.37
102	15.34	33.55	5.54	316	150	11.13	33.52	4.48	25.62	238	0.51
119	13.90	33.55	5.22	286	200	9.00	33.88	3.07	26.26	177	0.61
137	12.36	33.53	4.72	259	250	8.39	34.04	2.17	26.48	156	0.70
161	10.18	33.57	4.23	218	300	7.57	34.05	1.89	26.61	144	0.78
191	9.18	33.82	3.36	184	400	7.50	34.29	0.81	26.81	124	0.92
217	8.76	33.96	2.59	167	500	6.61	34.36	0.34	26.99	108	1.04
260	8.26	34.05	2.08	153							
308	7.50	34.06	1.84	142							
381	7.58	34.25	0.91	128							
455	7.16	34.37	0.52	114							
531	6.14	34.32	0.25	105							

103.80 BLACK DOUGLAS; August 24, 1959; 2105 GCT; 29°27'N, 119°43.5'W; sounding, 1960 fm; wind, 320°, force 3; weather, overcast; sea, moderate; wire angle, 02°.

2	19.83	33.67	5.03	410	0	(19.83)	(33.67)	(5.03)	(23.81)	(410)	(0.00)
11	19.69	33.66	5.18	407	10	19.69	33.66	5.18	23.84	407	0.04
29	19.32	33.62	5.34	401	20	19.70	33.66	5.18	23.84	407	0.08
38	18.12	33.60	5.48	374	30	19.24	33.62	5.37	23.92	399	0.12
51	16.86	33.51	5.39	352	50	16.93	33.52	5.39	24.40	354	0.20
64	16.28a)	33.50	5.61	340	75	16.07	33.59	5.65	24.67	328	0.28
87	15.38	33.60	5.65	313	100	15.08	33.64	5.59	24.93	304	0.36
104	14.70	33.68	5.51	293	150	10.98	33.58	4.67	25.70	230	0.50
121	13.48	33.66	5.42	270	200	9.02	33.86	3.18	26.24	179	0.60
140	11.81	33.58	4.91	245	250	8.28	34.08	2.06	26.54	151	0.69
165	9.91	33.64	4.17	208	300	7.82	34.18	1.53	26.68	137	0.76
197	9.10	33.85	3.21	180	400	6.94	34.28	0.88	26.88	118	0.90
222	8.52	33.95	2.73	164	500	6.17	34.30	0.63	27.01	106	1.01
266	8.12	34.14	1.78	144							
315	7.69	34.19	1.45	135							
389	7.02	-	0.94	-							
465	6.43	34.31	0.61	109							
540	5.88	34.30	0.67	103							

103.90 BLACK DOUGLAS; August 24, 1959; 1657 GCT; 29°14'N, 120°20'W; sounding, 2000 fm; wind, 300°, force 3; weather, overcast; sea, moderate; wire angle, 04°.

2	19.62	33.68	5.07	404	0	(19.62)	(33.68)	(5.07)	(23.87)	(404)	(0.00)
11	19.61	33.67	5.14	404	10	19.61	33.67	5.14	23.87	404	0.04
29	19.50	33.84	5.23	389	20	19.57	33.68	5.18	23.88	403	0.08
38	19.03	33.84	5.26	378	30	19.46	33.84	5.23	24.04	388	0.12
51	18.13	33.75	5.37	363	50	18.24	33.76	5.35	24.28	365	0.20
64	17.30	33.69	5.36	348	75	16.83	33.68	5.42	24.57	338	0.28
86	16.44	33.71	5.44	328	100	16.09	33.79	5.40	24.82	314	0.37
104	15.69	33.81	5.34	304	150	11.20	33.64	4.63	25.70	230	0.50
121	14.47	33.82	5.20	278	200	8.93	33.81	3.42	26.22	181	0.61
139	12.26	33.64	4.80	249	250	8.22	34.02	2.56	26.49	155	0.70
165	10.17	33.68	4.32	210	300	7.56	34.06	1.91	26.63	142	0.77
195	9.09	33.80	3.54	184	400	6.58	34.12	1.07	26.81	125	0.91
221	8.58	33.93	2.97	166	500	5.93	34.24		26.99	108	1.04
266	8.00	34.04	2.37	150							
314	7.40	34.07	1.74	140							
389	6.68	34.12	1.12	126							
465	6.17	34.20	0.65	114							
539	5.76	34.30	-	102							

OBSERVED					INTERPOLATED				COMPUTED			
Z	T	S	O ₂	δT_3	Z	T	S	O ₂	σ_t	δT_3	ΔD	
m	°C	‰	ml/L	$10^{-5} \text{ cm}^3/\text{g}$	m	°C	‰	ml/L	g/L	$10^{-5} \text{ cm}^3/\text{g}$	dyn. m	

BLACK DOUGLAS; August 23, 1959; 0555, 0615 GCT; ^{a)} 30°26'N, 116°11'W; sounding, 365 fm; wind, 320°, force 2; weather, overcast; sea, rough; wire angle, 02°, missing.

107.32

2	18.49	33.59	5.56	384	0	(18.49)	(33.59)	(5.56)	(24.08)	(384)	(0.00)
11	17.28	33.57	5.67	357	10	17.53	33.57	5.67	24.31	362	0.04
29	15.00	33.53	5.31	310	20	17.08	33.56	5.64	24.43	351	0.07
33	14.36	33.51	5.22	298	30	14.89	33.52	5.31	24.88	308	0.11
38	13.80	33.51	5.01	287	50	12.80	33.51	4.74	25.30	268	0.16
42	13.52	33.50	4.98	283	75	11.97	33.67	3.26	25.58	242	0.23
47	13.14	33.48	4.83	276	100	11.56	33.67	3.15	25.67	233	0.29
51	12.74	33.54	4.68	265	150	10.59	33.89	1.89	26.01	201	0.40
56	12.60	33.53	4.45	263							
60	12.44	33.56	4.33	258							
65	12.32	33.58	4.07	254							
69	12.22	33.64	3.57	248							
74	12.07	33.66	3.30	244							
78	11.86	33.68	3.27	238							
83	11.84	33.67	3.26	239							
87	11.80	33.66	3.26	239							
136	10.85	33.88	1.88	206							
181	10.10	33.89	2.51	193							

BLACK DOUGLAS; August 23, 1959; 0754 GCT; 30°20'N, 116°23'W; sounding, 840 fm; wind, 180°, force 2; weather, partly cloudy; sea, moderate; wire angle, 05°.

107.35

2	21.10	33.73	5.12	438	0	(21.10)	(33.73)	(5.12)	(23.52)	(438)	(0.00)
11	20.64	33.75	5.33	424	10	20.70	33.75	5.31	23.64	426	0.04
29	16.96	33.60	5.80	347	20	19.85	33.73	5.50	23.85	406	0.08
38	15.56	33.55	5.61	320	30	16.75	33.59	5.80	24.51	343	0.12
51	14.88	33.56	5.10	305	50	14.93	33.56	5.16	24.89	307	0.19
64	13.90	33.59	4.84	283	75	12.38	33.50	4.44	25.38	261	0.26
87	11.88	33.56	4.06	248	100	11.24	33.70	3.17	25.74	226	0.32
104	11.32	33.79	2.95	221	150	10.34	33.95	2.44	26.10	192	0.42
122	10.56	33.92	2.42	198	200	9.74	34.12	1.95	26.33	170	0.52
140	10.36	33.93	2.49	194	250	9.42	34.23	1.40	26.47	157	0.60
167	10.34	34.01	2.30	188	300	8.93	34.29	1.03	26.60	145	0.68
198	9.75	34.10	2.05	172	400	7.78	34.30	0.68	26.79	127	0.82
224	9.80	34.23	1.42	163	500	6.80	34.33	0.47	26.95	112	0.94
267	9.12	34.23	1.34	153							
316	8.82	34.32	0.94	141							
391	7.90	34.31	0.71	129							
466	7.11	34.32	0.44	117							
542	6.42	34.31	0.50	109							

BLACK DOUGLAS; August 23, 1959; 1039 GCT; 30°10.5'N, 116°43.5'W; sounding, 1500 fm; wind, 200°, force 3; weather, overcast; sea, moderate; wire angle, missing.

107.40

2	21.60	33.73	5.09	451	0	(21.60)	(33.73)	(5.09)	(23.38)	(451)	(0.00)
11	21.54	33.69	5.27	452	10	21.55	33.69	5.26	23.37	452	0.04
29	18.17	33.60	5.47	375	20	20.50	33.66	5.37	23.62	428	0.09
38	16.86	33.54	5.57	349	30	18.02	33.59	5.46	24.21	372	0.13
51	15.63	33.53	5.63	323	50	15.79	33.53	5.63	24.69	326	0.20
65	14.72	33.53	5.47	304	75	13.96	33.51	5.33	25.07	290	0.28
87	12.96	33.48	5.26	273	100	11.86	33.50	5.20	25.47	252	0.35
104	11.72	33.53	5.13	247	150	9.60	33.71	3.82	26.03	199	0.46
122	10.82	33.57	4.47	229	200	8.66	33.94	2.77	26.36	167	0.55
139	9.87	33.66	4.13	207	250	8.16	34.11	2.00	26.58	147	0.63
166	9.30	33.78	3.36	189	300	7.83	34.20	1.56	26.69	136	0.71
197	8.71	33.92	2.80	169	400	7.22	34.29	0.86	26.85	121	0.84
224	8.36	34.05	2.38	154	500	6.66	34.34	0.45	26.97	110	0.96
268	8.03	34.15	1.81	142							
316	7.72	34.22	1.45	133							
391	7.26	34.28	0.97	122							
467	6.90	34.33	0.44	114							
543	6.24	34.36	0.61	103							

a) Special casts.

SIO		OBSERVED					INTERPOLATED				COMPUTED		
Z	T	S	O ₂	δT_{-5}^3	Z	T	S	O ₂	σ_t	δT_{-5}^3	ΔD		
m	°C	‰	ml/L	10 ⁻⁵ cm ³ /g	m	°C	‰	ml/L	g/L	10 ⁻⁵ cm ³ /g	dyn. m		

10750 BLACK DOUGLAS; August 23, 1959; 1623 GCT; 29°54'N, 117°22'W; sounding, 1240 fm; wind, 140°, force 4; weather, overcast; sea, rough; wire angle, 10°.

2	20.94	33.80	4.98	428	0	(20.94)	(33.80)	(4.98)	(23.62)	(428)	(0.00)
11	20.88	33.80	5.04	426	10	20.89	33.80	5.04	23.63	427	0.04
28	17.83	33.59	5.58	368	20	20.50	33.79	5.22	23.72	418	0.08
37	16.67	33.55	5.53	344	30	17.66	33.58	5.56	24.29	364	0.12
50	15.16	33.54	5.57	312	50	15.16	33.54	5.57	24.84	312	0.19
63	13.24	33.55	4.87	274	75	11.98	33.56	4.72	25.50	249	0.26
85	11.21	33.58	4.59	235	100	10.24	33.71	3.65	25.92	209	0.32
102	10.19	33.73	3.51	206	150	9.98	34.11	1.92	26.28	175	0.42
120	10.22	33.93	-	192	200	9.80	34.33	1.32	26.48	156	0.50
137	10.08	34.04	2.25	182	250	9.38	34.34	0.97	26.57	148	0.58
163	9.94	34.17	1.69	170	300	8.82	34.38	0.87	26.68	137	0.65
193	9.90	34.33	1.27	157	400	7.76	34.36	0.64	26.83	123	0.79
218	9.40	34.27	1.38	154	500	6.62	34.35	0.41	26.98	108	0.91
261	9.38	34.38	0.88	145							
309	8.70	34.39	0.86	134							
383	8.02	34.39	0.67	125							
458	6.97	34.34	0.53	114							
534	6.50	34.38	0.31	105							

10760 BLACK DOUGLAS; August 23, 1959; 2136 GCT; 29°31'N, 118°03'W; sounding, 1700 fm; wind, 260°, force 5; weather, overcast; sea, moderate; wire angle, 12°.

2	22.03	34.25	4.80	425	0	(22.03)	(34.25)	(4.80)	(23.65)	(425)	(0.00)
10	21.87	34.24	4.84	421	10	21.87	34.24	4.84	23.69	421	0.04
28	21.80	34.25	5.06	418	20	21.82	34.25	5.05	23.71	419	0.08
37	20.44	34.08	4.98	396	30	21.79	34.25	5.06	23.73	418	0.13
50	19.38	33.98	5.24	376	50	19.38	33.98	5.24	24.17	376	0.21
63	18.52	33.92	4.98	360	75	17.78	33.90	4.93	24.50	344	0.30
84	17.19	33.89	4.91	331	100	15.50	33.84	4.92	25.00	297	0.38
101	15.28	33.82	4.92	295	150	10.89	33.73	3.68	25.83	218	0.51
119	13.46	33.73	4.71	265	200	9.90	34.01	2.59	26.22	181	0.61
136	11.58	33.68	3.91	233	250	9.35	34.17	1.82	26.44	160	0.70
160	10.52	33.77	3.50	209	300	8.73	34.33	1.10	26.66	139	0.77
190	9.96	33.95	2.79	186	400	7.59	34.32	0.72	26.83	123	0.91
215	9.84	34.08	2.38	175	500	6.37	34.31	0.40	26.98	108	1.03
256	9.27	34.19	1.73	158							
303	8.70	34.34	1.07	138							
376	7.91	34.33	0.81	127							
450	6.92	34.31	0.55	115							
525	6.16	34.31	0.37	106							

10770 BLACK DOUGLAS; August 24, 1959; 0238 GCT; 29°11'N, 118°43'W; sounding, 1450 fm; wind, 280°, force 3; weather, cloudy; sea, moderate; wire angle, 12°.

2	21.65	34.13	4.80	423	0	(21.65)	(34.13)	(4.80)	(23.67)	(423)	(0.00)
11	21.64	34.16	4.75	421	10	21.64	34.16	4.75	23.70	421	0.04
28	21.64	34.15	4.75	422	20	21.64	34.15	4.75	23.69	422	0.08
37	20.72	34.14	5.26	398	30	21.30	34.14	5.00	23.78	413	0.13
50	18.92	33.93	5.24	368	50	18.92	33.93	5.24	24.25	368	0.20
63	18.58	33.95	5.29	359	75	17.38	33.85	5.40	24.56	338	0.29
85	16.44	33.73	5.40	326	100	16.14	33.69	5.27	24.72	323	0.38
102	16.10	33.68	5.23	322	150	11.64	33.70	3.97	25.67	233	0.52
119	14.04	33.59	5.15	286	200	10.02	33.85	3.07	26.08	194	0.63
136	12.59	33.68	4.54	251	250	11.03	34.43	1.12	26.34	169	0.72
161	11.00	33.73	3.63	220	300	10.62	34.66	0.20	26.60	145	0.80
191	10.18	33.81	3.23	200	400	7.90	34.44	0.29	26.87	119	0.94
216	9.92	33.97	2.59	184	500	6.60	34.33	0.59	26.96	110	1.06
258	11.12	34.49	0.90	166							
304	10.57	34.69	0.13	141							
378	8.42	34.50	0.21	122							
450	7.02	34.37	0.47	112							
525	6.50	34.32	0.61	109							

OBSERVED					INTERPOLATED				COMPUTED		
Z	T	S	O ₂	δ_T	Z	T	S	O ₂	σ_t	δ_T	ΔD
m	°C	‰	ml/L	$10^{-5} \text{ cm}^3/\text{g}$	m	°C	‰	ml/L	g/L	$10^{-5} \text{ cm}^3/\text{g}$	dyn. m

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BLACK DOUGLAS; August 24, 1959; 0715 GCT; 28°52'N, 119°19.5'W; sounding, 1820 fm; wind, 270°, force 3; weather, missing; sea, moderate; wire angle, 04°.

107.80

2	21.97	34.23	4.80	424	0	(21.97)	(34.23)	(4.80)	(23.66)	(424)	(0.00)
11	21.94	34.24	4.80	423	10	21.94	34.24	4.80	23.68	423	0.04
29	21.90	34.22	4.87	423	20	21.94	34.24	4.80	23.68	423	0.08
37	20.36	34.18	5.15	386	30	21.85	34.22	4.89	23.69	422	0.13
51	19.59	34.09	5.18	373	50	19.61	34.09	5.17	24.19	374	0.21
64	18.96	34.06	5.25	360	75	18.35	34.03	5.26	24.47	347	0.30
86	18.03	34.02	5.26	341	100	16.62	33.92	5.11	24.79	316	0.38
104	16.20	33.89	5.07	309	150	11.82	33.71	3.99	25.64	236	0.52
122	13.54	33.75	4.48	264	200	9.89	33.89	2.96	26.13	189	0.63
139	12.60	33.75	4.13	247	250	9.05	34.08	2.09	26.41	163	0.72
166	10.84	33.71	3.74	219	300	8.47	34.17	1.60	26.58	147	0.80
196	9.97	33.86	3.11	193	400	7.57	34.32	0.70	26.83	123	0.94
223	9.58	34.02	2.36	175	500	6.39	34.27	0.53	26.95	111	1.06
266	8.76	34.09	1.97	157							
315	8.36	34.20	1.39	143							
390	7.70	34.32	0.73	125							
466	6.75	34.29	0.57	114							
541	5.97	34.26	0.48	107							

BLACK DOUGLAS; August 24, 1959; 1148 GCT; 28°34'N, 120°00'W; sounding, 1800 fm; wind, 280°, force 3; weather, cloudy; sea, moderate; wire angle, 04°.

107.90

2	22.10	34.34	4.65	420	0	(22.10)	(34.34)	(4.65)	(23.70)	(420)	(0.00)
11	22.11	34.34	4.74	420	10	22.10	34.34	4.74	23.70	420	0.04
29	21.80	34.30	4.76	415	20	22.10	34.34	4.74	23.70	420	0.08
38	21.11	34.36	4.95	392	30	21.73	34.30	4.77	23.78	413	0.13
51	20.13	34.28	5.07	373	50	20.17	34.28	5.05	24.18	374	0.20
64	19.63	34.25	5.33	363	75	18.80	34.16	5.25	24.45	349	0.29
87	17.96	34.09	5.15	334	100	16.29	34.02	4.93	24.95	302	0.38
104	15.62	33.94	4.83	293	150	11.71	33.69	4.11	25.65	235	0.51
122	13.82	33.81	4.59	266	200	9.86	33.89	2.88	26.12	190	0.62
140	12.33	33.72	4.25	244	250	9.03	34.14	1.85	26.46	158	0.71
166	10.80	33.69	3.87	220	300	8.44	34.27	1.35	26.66	140	0.79
197	9.96	33.86	2.97	193	400	7.49	34.34	0.71	26.85	121	0.92
223	9.33	34.03	2.29	170	500	6.48	34.34	0.36	27.00	107	1.04
268	8.82	34.19	1.65	151							
317	8.28	34.31	1.19	134							
393	7.58	34.34	0.73	122							
469	6.73	34.34	0.44	111							
545	6.16	34.35	0.28	102							

BLACK DOUGLAS; August 23, 1959; 0120 GCT; 29°50.5'N, 115°52'W; sounding, 50 fm; wind, 360°, force 2; weather, cloudy; sea, moderate; wire angle, 00°.

110.33

2	21.98	33.78	4.80	457	0	(21.98)	(33.78)	(4.80)	(23.31)	(457)	(0.00)
11	20.91	33.71	5.09	434	10	21.08	33.72	5.04	23.52	438	0.04
29	17.14	33.51	5.53	358	20	18.34	33.55	5.43	24.10	383	0.09
38	16.36	33.51	5.56	340	30	17.06	33.51	5.54	24.38	356	0.12

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OBSERVED					INTERPOLATED				COMPUTED		
Z	T	S	O ₂	δT	Z	T	S	O ₂	σ_t	δT	ΔD
m	°C	‰	ml/L	$10^{-5} \text{ cm}^3/\text{g}$	m	°C	‰	ml/L	g/L	$10^{-5} \text{ cm}^3/\text{g}$	dyn. m

110.35 BLACK DOUGLAS; August 23, 1959; 0005 GCT; 29°46.5'N, 116°00'W; sounding, 550 fm; wind, 330°, force 2; weather, cloudy; sea, moderate; wire angle, 07°.

2	21.74	33.71	4.66	456	0	(21.74)	(33.71)	(4.66)	(23.33)	(456)	(0.00)
11	21.02	33.71	4.98	438	10	21.03	33.71	4.97	23.52	438	0.05
29	17.88	33.51	5.39	375	20	20.34	33.67	5.10	23.68	423	0.09
37	16.97	33.49	5.41	355	30	17.81	33.50	5.40	24.20	373	0.13
51	15.78	33.49	5.39	329	50	15.85	33.49	5.39	24.64	331	0.20
64	14.84	33.51	5.39	308	75	13.95	33.51	5.24	25.07	290	0.28
86	13.12	33.51	5.03	274	100	12.13	33.51	4.79	25.43	256	0.35
103	11.62	33.48	4.38	249	150	9.72	33.70	3.58	26.01	201	0.46
121	10.98	33.55	4.42	232	200	9.16	33.98	2.35	26.32	171	0.56
139	9.92	33.64	3.79	209	250	9.40	34.26	1.32	26.50	154	0.64
165	9.44	33.77	3.39	192	300	8.72	34.29	1.11	26.63	142	0.72
196	9.16	33.95	2.50	174	400	7.59	34.34	0.59	26.84	122	0.85
223	9.62	34.20	1.69	162	500	6.76	34.34	0.40	26.96	111	0.98
267	9.19	34.29	1.19	149							
314	8.52	34.29	1.09	139							
390	7.66	34.34	0.61	123							
465	7.06	34.34	0.47	115							
541	6.38	34.38	0.31	103							

110.40 BLACK DOUGLAS; August 22, 1959; 2104 GCT; 29°36.5'N, 116°19.5'W; sounding, 1100 fm; wind, 320°, force 3; weather, cloudy; sea, rough; wire angle, 03°.

2	21.70	33.75	5.00	452	0	(21.70)	(33.75)	(5.00)	(23.37)	(452)	(0.00)
11	21.40	33.78	5.33	442	10	21.40	33.78	5.33	23.47	442	0.04
29	21.33	33.75	5.24	442	20	21.36	33.76	5.28	23.47	442	0.09
38	17.40	33.58	5.93	358	30	21.32	33.75	5.24	23.48	441	0.13
51	15.37	33.58	5.76	314	50	15.55	33.58	5.80	24.78	318	0.21
64	13.04	33.51	4.88	273	75	12.00	33.52	4.41	25.47	252	0.28
86	11.30	33.58	4.09	236	100	10.95	33.64	3.93	25.75	225	0.34
104	10.72	33.66	3.81	220	150	9.27	33.85	3.00	26.19	183	0.44
122	10.06	33.75	3.23	203	200	8.35	33.99	2.52	26.45	159	0.53
139	9.74	33.84	3.02	191	250	7.72	34.09	1.92	26.63	142	0.61
166	8.80	33.89	2.90	173	300	7.65	34.19	1.28	26.71	134	0.68
197	8.40	33.98	2.55	160	400	6.95	34.27	0.72	26.87	119	0.81
223	7.98	34.04	2.25	150	500	6.00	34.28	0.52	27.01	106	0.93
267	7.62	34.12	1.72	139							
315	7.66	34.22	1.12	132							
391	7.03	34.27	0.75	120							
466	6.20	34.25	0.59	110							
542	5.82	34.36	0.42	98							

110.50 BLACK DOUGLAS; August 22, 1959; 1621 GCT; 29°16.5'N, 116°56'W; sounding, 1480 fm; wind, 360°, force 3; weather, cloudy; sea, rough; wire angle, 05°.

2	21.54	33.82	4.81	442	0	(21.54)	(33.82)	(4.81)	(23.48)	(442)	(0.00)
11	21.52	33.82	4.83	442	10	21.53	33.82	4.82	23.48	442	0.04
29	17.95	33.61	5.45	369	20	19.82	33.72	5.29	23.85	406	0.09
38	16.66	33.53	5.42	346	30	17.93	33.61	5.45	24.25	368	0.12
51	15.08	33.50	5.51	314	50	15.18	33.50	5.51	24.81	315	0.19
64	13.59	33.46	5.19	287	75	12.82	33.49	5.18	25.28	270	0.27
87	12.04	33.53	5.18	253	100	11.18	33.60	4.16	25.68	232	0.33
104	10.92	33.63	3.89	226	150	9.29	33.86	3.02	26.21	182	0.44
122	10.08	33.73	3.39	205	200	9.76	34.28	1.30	26.46	158	0.52
140	9.53	33.82	3.13	189	250	8.95	34.28	1.07	26.58	146	0.60
167	9.06	33.96	2.73	172	300	8.40	34.34	0.81	26.71	134	0.67
198	9.76	34.27	1.31	160	400	6.59	34.24	0.62	26.90	116	0.80
224	8.83	34.18	1.57	152	500	5.94	34.33	0.41	27.06	101	0.92
269	9.06	34.36	0.79	142							
317	7.94	34.31	0.81	129							
393	6.64	34.23	0.66	118							
467	6.16	34.34	0.41	103							
543	5.68	34.31	0.41	100							

OBSERVED					INTERPOLATED				COMPUTED		
Z	T	S	O ₂	δT_{-5}^3	Z	T	S	O ₂	σ_t	δT_{-5}^3	ΔD
m	°C	‰	ml/L	10 cm/g	m	°C	‰	ml/L	g/L	10 cm/g	dyn. m

BLACK DOUGLAS; August 22, 1959; 0955 GCT; 28°57'N, 117°38'W; sounding, 1780 fm; wind, 340°, force 4; weather, partly cloudy; sea, moderate; wire angle, 12°.

110.60

2	20.13	33.68	5.18	416	0	(20.13)	(33.68)	(5.18)	(23.74)	(416)	(0.00)
10	20.10	33.70	5.13	414	10	20.10	33.70	5.13	23.76	414	0.04
28	19.16	33.71	5.32	390	20	20.05	33.71	5.12	23.78	413	0.08
37	18.22	33.75	5.57	365	30	18.95	33.72	5.36	24.07	385	0.12
50	17.66	33.64	5.74	360	50	17.66	33.64	5.74	24.33	360	0.20
63	17.16	33.58	5.45	353	75	16.83	33.58	5.46	24.48	346	0.28
84	16.31	33.60	5.56	333	100	15.55	33.69	5.54	24.86	310	0.37
102	15.34	33.69	5.47	305	150	11.49	33.63	4.21	25.64	236	0.51
119	14.16	33.69	5.22	281	200	9.77	34.00	2.50	26.24	179	0.61
135	12.73	33.60	5.08	260	250	8.81	34.08	2.13	26.45	159	0.70
160	10.94	33.73	3.53	218	300	8.41	34.20	1.60	26.60	145	0.78
190	10.16	34.00	2.56	186	400	7.14	34.24	0.92	26.82	124	0.92
215	9.25	34.01	2.42	171	500	6.39	34.30	0.47	26.98	109	1.04
257	8.79	34.11	2.01	156							
303	8.39	34.20	1.53	144							
376	7.37	34.22	1.03	128							
448	6.74	34.27	0.67	116							
523	6.24	34.31	0.41	107							

BLACK DOUGLAS; August 21, 1959; 2004 GCT; 28°36.5'N, 118°18'W; sounding, 1580 fm; wind, 360°, force 5; weather, partly cloudy; sea, rough; wire angle, 06°.

110.70

2	21.68	34.18	4.95	420	0	(21.68)	(34.18)	(4.95)	(23.70)	(420)	(0.00)
11	21.64	34.14	5.01	422	10	21.65	34.14	5.01	23.69	422	0.04
28	21.60	34.13	4.95	421	20	21.61	34.13	4.95	23.69	422	0.08
37	21.58	34.18	5.02	417	30	21.60	34.15	4.99	23.70	420	0.13
50	19.30	33.89	5.35	381	50	19.30	33.89	5.35	24.12	381	0.21
63	18.51	33.93	5.45	359	75	18.00	33.91	5.43	24.46	348	0.30
85	17.52	33.88	5.40	339	100	16.42	33.75	5.45	24.71	324	0.38
101	16.36	33.74	5.45	323	150	11.75	33.77	3.94	25.70	230	0.52
118	14.52	33.80	4.83	280	200	10.08	33.94	2.94	26.14	189	0.63
135	12.72	33.77	4.35	247	250	9.72	34.24	1.56	26.43	161	0.72
159	11.32	33.77	3.71	222	300	9.58	34.36	0.96	26.54	150	0.80
188	10.36	33.88	3.07	198	400	8.08	34.33	0.89	26.76	130	0.94
213	9.90	34.02	2.69	180	500	6.80	34.29	0.59	26.91	115	1.07
254	9.70	34.25	1.48	160							
301	9.58	34.36	0.95	150							
374	8.50	34.35	0.95	134							
448	7.41	34.29	0.75	123							
524	6.54	34.30	0.47	111							

BLACK DOUGLAS; August 21, 1959; 1421 GCT; 28°20'N, 119°00'W; sounding, 1850 fm; wind, 360°, force 4; weather, overcast; sea, rough; wire angle, 16°.

110.80

2	21.23	33.99	4.34	422	0	(21.23)	(33.99)	(4.34)	(23.68)	(422)	(0.00)
10	21.24	33.95	4.75	425	10	21.24	33.95	4.75	23.65	425	0.04
32	20.70	34.15	4.90	397	20	21.23	33.95	4.76	23.65	425	0.08
40	20.38	34.18	5.05	386	30	20.80	34.12	4.87	23.90	402	0.13
53	19.46	34.11	5.19	370	50	19.85	34.15	5.17	24.17	376	0.20
66	18.62	34.00	4.92	356	75	18.20	34.00	4.96	24.47	347	0.29
86	17.47	33.89	4.97a)	330	100	16.56	33.98	4.97	24.86	310	0.38
104	16.1	33.96	4.94	302	150	12.20	33.72	4.20	25.59	241	0.52
120	14.64	33.84	4.06	280	200	10.12	34.02	2.48	26.19	184	0.63
145	12.48	33.73	4.23	246	250	9.56	34.21	1.76	26.43	161	0.71
169	11.00	33.75	3.79	218	300	9.06	34.32	1.17	26.60	145	0.80
204	10.07	34.05	2.38	181	400	7.95	34.34	0.58	26.79	127	0.94
228	9.79	34.14	2.03	170	500	6.83	34.36	0.37	26.96	111	1.06
270	9.37	34.27	1.49	153							
324	8.84	34.33	0.99	141							
409	7.84	34.34	0.53	126							
487	6.94	34.35	0.35	112							
553	6.40	34.33	0.49	107							

a) Mean value of 4.90 and 5.04 ml/L.

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OBSERVED					INTERPOLATED				COMPUTED		
Z	T	S	O ₂	$\delta T_{-5} T_3$	Z	T	S	O ₂	σ_t	$\delta T_{-5} T_3$	ΔD
m	°C	‰	ml/L	10 cm/g	m	°C	‰	ml/L	g/L	10 cm/g	dyn. m

113.30 BLACK DOUGLAS; August 20, 1959; 0705 GCT; 29°22.5'N, 115°17.5'W; sounding, 30 fm; wind, 260°, force 4; weather, clear; sea, slight; wire angle, 00°.

2	19.54	33.64	5.09	405	0	(19.54)	(33.64)	(5.09)	(23.86)	(405)	(0.00)
11	19.51	33.69	5.06	401	10	19.52	33.69	5.06	23.90	401	0.04
29	15.30	33.57	5.29	313	20	17.46	33.63	5.18	24.38	356	0.08

113.35 BLACK DOUGLAS; August 20, 1959; 0953 GCT; 29°12'N, 115°39'W; sounding, 540+ fm; wind, 260°, force 4; weather, clear; sea, moderate; wire angle, 26°.

2	21.13	33.78	4.58	435	0	(21.33)	(33.78)	(4.58)	(23.55)	(435)	(0.00)
10	21.14	33.81	4.79	433	10	21.14	33.81	4.79	23.57	433	0.04
26	21.18	33.80	4.78	434	20	21.17	33.80	4.78	23.56	434	0.09
34	18.41	33.59	4.99	381	30	20.50	33.72	4.84	23.67	423	0.13
46	17.38	33.58	5.14	358	50	17.10	33.59	5.19	24.43	351	0.21
57	16.76	33.59	5.26	343	75	15.71	33.58	5.21	24.75	321	0.29
77	15.70	33.58	5.21	321	100	13.57	33.54	5.04	25.17	280	0.37
93	14.24	33.50	5.18	297	150	9.94	33.68	3.70	25.96	205	0.49
108	12.76	33.61	4.74	260	200	9.23	33.97	2.37	26.30	173	0.59
124	11.62	33.58	4.50	242	250	9.69	34.39	1.05	26.55	149	0.67
147	10.02	33.67	3.80	208	300	8.80	34.37	0.93	26.68	137	0.74
175	9.51	33.85	3.13	186	400	7.70	34.38	0.55	26.85	121	0.88
199	9.23	33.97	2.41	174	500	(6.76)	(34.42)	(0.48)	(27.02)	(105)	(1.00)
239	9.74	34.36	1.12	153							
284	9.14	34.39	0.94	141							
353	7.86	34.33	0.93	127							
424	7.60	34.40	0.46	118							
498	6.79	34.42	0.48	105							

113.40 BLACK DOUGLAS; August 20, 1959; 1246 GCT; 29°02'N, 115°58.5'W; sounding, 900 fm; wind, 320°, force 3; weather, partly cloudy; sea, moderate; wire angle, 07°.

2	21.14	33.80		434	0	(21.14)	(33.80)		(23.56)	(434)	(0.00)
11	21.16	33.80		434	10	21.16	33.80		23.56	434	0.04
29	18.85	33.66		387	20	21.02	33.80		23.60	430	0.09
38	18.38	33.62		378	30	18.85	33.67		24.06	386	0.13
51	18.20	33.75		365	50	18.22	33.74		24.27	366	0.20
64	17.14	33.62		350	75	16.28	33.55		24.59	336	0.29
86	15.83	33.53		328	100	14.90	33.52		24.88	308	0.37
104	14.56	33.53		301	150	10.06	33.69		25.94	207	0.50
122	13.02	33.57		268	200	8.97	33.89		26.27	176	0.60
139	11.04	33.62		229	250	8.42	34.11		26.54	151	0.69
165	9.48	33.78		192	300	8.52	34.31		26.67	138	0.76
196	9.01	33.87		158	400	7.23	34.35		26.89	117	0.89
222	8.70	34.04		160	500	6.23	34.36		27.04	103	1.01
266	8.38	34.16		146							
315	8.57	34.36		134							
390	7.33	34.34		118							
466	6.58	34.37		106							
541	5.98	34.34		101							

OBSERVED					INTERPOLATED				COMPUTED		
Z	T	S	O ₂	δT_3	Z	T	S	O ₂	σ_t	δT_3	ΔD
m	°C	‰	ml/L	$10^{-5} \text{ cm}^3/\text{g}$	m	°C	‰	ml/L	g/L	$10^{-5} \text{ cm}^3/\text{g}$	dyn. m

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BLACK DOUGLAS; August 20, 1959; 1756 GCT; 28°44.5'N, 116°37'W; sounding, 1950 fm; wind, 300°, force 3; weather, partly cloudy; sea, moderate; wire angle, 10°.

113.50

2	20.90	33.84	-	425	0	(20.90)	(33.84)		(23.66)	(425)	(0.00)
11	20.82	33.86	4.96	421	10	20.83	33.86		23.69	421	0.04
28	20.22	33.80	4.98	410	20	20.80	33.86	4.97	23.70	420	0.08
36	18.70	33.66	5.22	383	30	19.90	33.77	5.02	23.87	404	0.13
50	17.67	33.65	5.32	362	50	17.67	33.65	5.32	24.32	362	0.20
63	16.50	33.50	5.46	344	75	16.09	33.50	5.46	24.60	335	0.29
84	15.28	33.53	5.42	316	100	14.52	33.61	5.26	25.02	294	0.37
101	14.44	33.62	5.24	292	150	11.41	33.71	3.84	25.71	229	0.50
118	13.72	33.78	4.84	266	200	9.78	34.00	2.44	26.23	180	0.60
135	12.14	33.64	4.47	247	250	8.84	34.15	1.90	26.50	154	0.69
160	11.00	33.78	3.29	216	300	7.38	34.12	1.77	26.70	135	0.77
190	10.10	33.96	2.55	188	400	7.22	34.29	0.57	26.85	121	0.90
215	9.38	34.04	2.31	170	500	6.45	34.33	0.32	26.99	108	1.02
257	8.66	34.15	1.83	152							
304	7.34	34.13	1.71	134							
377	7.30	34.27	0.69	124							
452	6.94	34.33	0.36	114							
529	6.08	34.33	0.33	104							

BLACK DOUGLAS; August 20, 1959; 2352 GCT; 28°22'N, 117°16.5'W; sounding, 1800 fm; wind, 340°, force 4; weather, partly cloudy; sea, moderate; wire angle, 22°.

113.60

2	20.92	33.74	5.11	432	0	(20.92)	(33.74)	(5.11)	(23.58)	(432)	(0.00)
10	20.90	33.73	4.90	432	10	20.90	33.73	4.90	23.58	432	0.04
31	20.60	33.95	4.99	409	20	20.88	33.73	4.89	23.58	432	0.09
39	19.73	33.89	5.48	391	30	20.75	33.93	4.93	23.77	414	0.13
51	18.76	33.91	5.32	366	50	18.65	33.85	5.35	24.25	368	0.21
63	17.55	33.64	5.23	357	75	17.32	33.75	5.07	24.50	344	0.30
83	17.12	33.84	5.00	333	100	16.10	33.84	5.07	24.85	311	0.38
99	16.2	33.84	5.07	312	150	11.19	33.67		25.72	228	0.52
115	14.33	33.75	5.00	280	200	9.41	33.85		26.18	185	0.62
137	12.26	33.69	-	245	250	8.53	34.01		26.44	160	0.71
161	10.56	33.69	-	215	300	7.94	34.10		26.60	145	0.79
193	9.54	33.82	-	189	400	6.81	34.20	0.97	26.84	122	0.93
216	9.17	33.91	-	177	500	6.24	34.33	0.46	27.01	106	1.05
256	8.44	34.02	-	158							
308	7.86	34.11	1.69	143							
389	6.90	34.19	1.07	124							
463	6.46	34.29	0.53	111							
528	6.10	34.35	0.42	102							

BLACK DOUGLAS; August 21, 1959; 0435 GCT; 28°02'N, 117°55.5'W; sounding, 1850 fm; wind, 320°, force 3; weather, partly cloudy; sea, moderate; wire angle, 10°.

113.70

3	21.74	33.89	5.04	443	0	(21.74)	(33.89)	(5.04)	(23.47)	(443)	(0.00)
12	21.74	33.91	4.97	441	10	21.74	33.91	4.99	23.48	442	0.04
34	19.30	33.82	5.41	386	20	21.25	33.90	5.10	23.61	429	0.09
43	18.66	33.85	5.39	368	30	19.68	33.83	5.43	23.97	395	0.13
56	17.74	33.75	5.55	354	50	18.41	33.83	5.40	24.29	364	0.20
69	17.12	33.69	5.58	344	75	16.90	33.68	5.55	24.54	340	0.29
91	15.88	33.69	5.44	317	100	15.15	33.69	5.37	24.96	301	0.38
108	14.71	33.75	5.29	288	150	11.94	33.68	4.47	25.59	240	0.51
125	13.66	33.71	4.86	270	200	9.96	33.89	3.02	26.11	191	0.62
151	11.82	33.68	4.42	238	250	8.84	34.05	2.36	26.42	162	0.71
177	10.22	33.70	3.98	209	300	8.47	34.21	1.72	26.60	145	0.79
211	9.80	33.95	2.73	184	400	7.72	34.31	0.91	26.80	126	0.93
237	9.06	34.01	2.46	168	500	6.63	34.36	0.44	26.99	108	1.06
280	8.53	34.14	2.02	150							
337	8.32	34.31	1.16	135							
424	7.44	34.31	0.84	123							
501	6.61	34.36	0.43	108							
567	5.94	34.42	0.36	95							

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OBSERVED					INTERPOLATED				COMPUTED		
Z	T	S	O ₂	δT_3	Z	T	S	O ₂	σ_t	δT_3	ΔD
m	°C	‰	ml/L	10^{-5} cm/g	m	°C	‰	ml/L	g/L	10^{-5} cm/g	dyn. m

113.80 BLACK DOUGLAS; August 21, 1959; 0920 GCT; 27°44.5'N, 118°36'W; sounding, 2050 fm; wind, 330°, force 4; weather, overcast; sea, rough; wire angle, 26°. a)

2	21.67	33.87	4.74	443	0	(21.67)	(33.87)	(4.74)	(23.46)	(443)	(0.00)
11	21.68	33.88	4.82	442	10	21.68	33.88	4.81	23.48	442	0.04
33	18.68	33.84	5.33	370	20	19.40	33.86	5.32	24.07	385	0.09
42	18.04	33.78	5.31	359	30	18.81	33.85	5.32	24.21	372	0.12
54	17.58	33.78	5.31	348	50	17.60	33.72	5.31	24.41	353	0.20
68	16.14	33.62	5.37	327	75	16.00	33.63	5.34	24.72	323	0.28
90	15.54	33.72	5.12	307	100	14.40	33.63	4.98	25.07	390	0.36
108	14.04	33.71	4.82	278	150	11.18	33.78	3.43	25.81	219	0.48
125	12.58	33.78	4.18	244	200	10.04	34.09	2.17	26.26	177	0.59
151	11.10	33.78	3.39	218	250	9.48	34.28	1.39	26.49	155	0.67
177	10.24	33.92	2.78	193	300	8.85	34.34	0.92	26.65	140	0.75
211	9.96	34.15	1.87	171	400	7.70	34.38	0.50	26.85	121	0.88
236	9.62	34.24	1.52	160	500	6.86	34.36	0.31	26.96	111	1.01
278	9.14	34.33	1.08	145							
334	8.41	34.36	0.69	132							
420	7.53	34.38	0.46	118							
499	6.88	34.36	0.31	111							
564	6.14	34.38	0.24	100							

117.26 BLACK DOUGLAS; August 20, 1959; 0222 GCT; 28°56'N, 114°41'W; sounding, 40 fm; wind, 310°, force 3; weather, partly cloudy; sea, moderate; wire angle, 02°.

2	20.24	33.71	5.30	417	0	(20.24)	(33.71)	(5.30)	(23.74)	(417)	(0.00)
11	20.11	33.69	5.28	416	10	20.13	33.69	5.29	23.75	416	0.04
29	14.86	33.60	4.38	302	20	17.57	33.60	4.82	24.33	360	0.08
47	12.66	33.61	3.88	258	30	14.70	33.60	4.32	24.98	299	0.11

117.30 BLACK DOUGLAS; August 20, 1959; 0024 GCT; 28°48'N, 114°56.5'W; sounding, 52 fm; wind, 330°, force 3; weather, partly cloudy; sea, moderate; wire angle, 00°.

1	21.04	33.73	4.99	437	0	(21.04)	(33.73)	(4.99)	(23.53)	(437)	(0.00)
10	19.52	33.68	5.23	402	10	19.52	33.68	5.23	23.90	402	0.04
28	14.84	33.60	5.08	302	20	16.50	33.60	5.23	24.58	337	0.08
46	13.32	33.61	3.90	271	30	14.65	33.60	4.96	24.99	298	0.11
68	11.81	33.63	4.11	242	50	13.04	33.61	3.90	25.32	265	0.17

117.35 BLACK DOUGLAS; August 19, 1959; 2153 GCT; 28°38'N, 115°16'W; sounding, 120 fm; wind, 330°, force 2; weather, partly cloudy; sea, slight; wire angle, 00°.

2	20.13	33.66	5.04	418	0	(20.13)	(33.66)	(5.04)	(23.73)	(418)	(0.00)
11	19.71	33.66	5.12	407	10	19.73	33.66	5.12	23.83	408	0.04
29	19.51	33.64	5.19	404	20	19.64	33.65	5.17	23.85	406	0.08
47	17.24	33.58	5.39	355	30	19.40	33.64	5.20	23.90	402	0.12
70	15.80	33.57	5.48	324	50	17.07	33.58	5.39	24.43	351	0.20
92	13.68	33.49	5.33	286	75	15.75	33.58	5.48	24.74	322	0.28
114	11.75	33.58	4.29	244	100	12.94	33.50	5.07	25.27	272	0.36
151	10.92	33.85	3.02	210	150	10.94	33.84	3.07	25.91	210	0.48
187	10.66	-	-	-							

117.40 BLACK DOUGLAS; August 19, 1959; 0928 GCT; 28°28'N, 115°35.5'W; sounding, 450 fm; wind, 300°, force 4; weather, cloudy; sea, moderate; wire angle, 15°.

2	21.12	33.73	4.81	438	0	(21.12)	(33.73)	(4.81)	(23.52)	(438)	(0.00)
10	21.10	33.69	4.79	440	10	21.10	33.69	4.79	23.49	440	0.04
28	19.08b)	33.64	5.15	394	20	20.10	33.66	4.99	23.74	417	0.09
45	17.08	33.60	5.37	350	30	18.90	33.63	5.18	24.02	390	0.13
67	15.64	33.69	5.16	312	50	16.98	33.60	5.36	24.47	347	0.20
88	14.08	33.68	4.85	281	75	15.10	33.70	5.08	24.97	300	0.28
109	12.14	33.73	3.86	240	100	12.97	33.71	4.37	25.42	257	0.35
143	11.24	33.96	2.43	207	150	11.26	34.02	2.14	25.98	203	0.47
178	11.54	34.23	1.37	192							

- a) An assumed wire angle of 11° was used in depth determination.
b) Alternate value, 19.47°C, not used in interpolation.

OBSERVED					INTERPOLATED				COMPUTED			
Z	T	S	O ₂	δT_{-5}^3	Z	T	S	O ₂	σ_t	δT_{-5}^3	ΔD	
m	°C	‰	ml/L	10 ⁻⁵ cm/g	m	°C	‰	ml/L	g/L	10 ⁻⁵ cm/g	dyn. m	

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BLACK DOUGLAS; August 19, 1959; 0406 GCT; 28°08'N, 116°15'W; sounding, 2100 fm; wind, 320°, force 2; weather, partly cloudy; sea, slight; wire angle, 00°.

117.50

2	21.76	33.88	4.89	444	0	(21.76)	(33.88)	(4.89)	(23.45)	(444)	(0.00)
11	21.74	33.86	4.94	445	10	21.74	33.86	4.93	23.44	445	0.04
29	21.09	33.86	5.15	428	20	21.66	33.86	4.99	23.46	443	0.09
38	18.94	33.71	5.46	385	30	20.75	33.84	5.22	23.70	420	0.13
51	17.90	33.77	5.51	356	50	17.98	33.77	5.51	24.35	358	0.21
65	17.38	33.75	5.53	345	75	17.00	33.74	5.50	24.57	338	0.30
87	16.41	33.73	5.42	326	100	14.80	33.70	5.11	25.04	293	0.38
104	14.68	33.71	5.07	290	150	11.43	33.79	3.55	25.77	223	0.51
122	12.92	33.66	4.48	260	200	9.92	34.02	2.43	26.23	180	0.61
139	11.73	33.69	4.00	235	250	9.29	34.21	1.57	26.48	156	0.70
166	11.00	33.89	2.75	208	300	8.68	34.31		26.66	140	0.77
197	9.94	34.00	2.48	182	400	7.58	34.33		26.83	123	0.91
224	9.62	34.14	1.98	167	500	6.72	34.35		26.97	110	1.03
269	9.04	34.26	1.37	149							
318	8.48	34.33	0.61u	136							
394	7.66	34.33	1.00u	124							
469	6.96	34.35	0.37	113							
546	6.38	34.35	0.36	105							

BLACK DOUGLAS; August 19, 1959; 0029 GCT;^a) 27°57.5'N, 116°34.5'W; sounding, 2000+ fm; wind, 340°, force 3; weather, partly cloudy; sea, moderate; wire angle, 05°.

117.55

9	22.48	33.87	4.85	464							
88	15.94	33.73	5.48	315							
174	11.27	34.17	1.72	192							
192	11.13	34.29	1.42	180							
201	10.36	34.23	1.59	172							
209	10.47	34.27	1.37	171							
218	10.68	34.40	0.97	165							
227	10.29	34.32	1.28	164							
236	10.48	34.43	0.75	160							
252	10.27	34.48	0.60	152							
262	10.26	34.56	0.54	146							
270	10.25	34.49	0.74	151							
280	10.03	34.47	0.78	150							
289	10.09	34.60	0.45	141							
298	9.97	34.60	0.48	138							
307	9.95	34.55	0.45	142							
329	9.10	34.45	0.56	136							
352	8.66	34.34	0.97	137							

BLACK DOUGLAS; August 18, 1959; 2124 GCT; 27°47.5'N, 116°54'W; sounding, 2000+ fm; wind, 320°, force 3; weather, overcast; sea, moderate; wire angle, 01°.

117.60

1	22.55	33.88	4.52	465	0	(22.55)	(33.88)	(4.52)	(23.24)	(465)	(0.00)
10	22.37	33.90	4.54	459	10	22.37	33.90	4.54	23.30	459	0.05
28	19.73	33.89	5.09	391	20	22.30	33.90	4.56	23.32	457	0.09
37	19.06	33.89	5.11	375	30	19.42	33.89	5.10	24.09	384	0.13
51	18.56	33.86	5.18	365	50	18.63	33.86	5.17	24.26	367	0.21
64	18.06	33.86	5.02	354	75	17.72	33.84	5.07	24.48	347	0.30
86	16.42	33.77	5.23	323	100	15.20	33.73	4.98	24.98	299	0.38
104	14.33	33.71	4.69	283	150	11.18	33.86	2.78	25.88	213	0.51
122	12.52	33.68	4.26	251	200	10.27	34.15	1.81	26.26	177	0.61
140	11.40	33.78	3.19	223	250	10.59	34.48	0.70	26.47	157	0.69
167	10.82	34.00	2.21	197	300	9.93	34.47	0.60	26.58	147	0.77
197	10.28	34.13	1.86	178	400	8.42	34.38	0.55	26.75	131	0.92
223	10.51	34.35	1.14	166	500	6.88	34.34	0.34	26.94	113	1.04
268	10.56	34.54	0.56	153							
317	9.60	34.43	0.60	145							
391	8.56	34.38	0.57	133							
467	7.24	34.33	0.39	118							
543	6.50	34.36	0.26	106							

a) Special cast.

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OBSERVED					INTERPOLATED				COMPUTED		
Z	T	S	O ₂	δT	Z	T	S	O ₂	σ_t	δT	ΔD
m	°C	‰	ml/L	$10^{-5} \text{ cm}^3/\text{g}$	m	°C	‰	ml/L	g/L	$10^{-5} \text{ cm}^3/\text{g}$	dyn. m

117.70 BLACK DOUGLAS; August 18, 1959; 1601 GCT; 27°27.5'N, 117°32.5'W; sounding, 1900 fm; wind, 330°, force 3; weather, overcast; sea, moderate; wire angle, 08°.

2	22.68	33.89		468	0	(22.68)	(33.89)		(23.20)	(468)	(0.00)
11	22.65	33.91		466	10	22.65	33.91		23.22	466	0.05
28	20.21	33.75		414	20	22.60	33.91		23.24	464	0.09
37	18.64	33.71		378	30	19.80	33.74		23.87	404	0.14
50	17.52	33.65		356	50	17.52	33.65		24.38	356	0.21
63	17.00	33.68		342	75	16.60	33.68		24.62	333	0.30
85	15.56	33.64		314	100	14.31	33.60		25.06	291	0.38
102	14.18	33.60		288	150	10.26	33.61		25.84	216	0.51
120	12.30	33.58		254	200	9.43	33.90		26.21	182	0.61
137	11.09	33.57		233	250	9.60	34.31		26.50	154	0.69
163	9.83	33.70		203	300	8.97	34.35		26.64	141	0.77
194	9.40	33.83		186	400	7.70	34.34		26.82	124	0.91
220	9.62	34.13		168	500	6.76	34.39		27.00	107	1.03
264	9.29	34.31		150							
312	8.86	34.36		139							
387	7.84	34.34		126							
462	7.07	34.38		112							
538	6.46	34.40		103							

117.80 BLACK DOUGLAS; August 18, 1959; 1015 GCT; 27°08'N, 118°12'W; sounding, 2050 fm; wind, 300°, force 3; weather, cloudy; sea, slight; wire angle, 02°.

2	23.11	33.91	4.51	478	0	(23.11)	(33.91)	(4.51)	(23.10)	(478)	(0.00)
11	23.10	33.91	4.56	478	10	23.10	33.91	4.55	23.10	478	0.05
29	18.92	33.71	5.22	384	20	21.50	33.78	4.89	23.45	444	0.09
38	18.41	33.77	5.36	368	30	18.90	33.71	5.25	24.08	384	0.14
51	17.26	33.66	5.37	350	50	17.37	33.66	5.36	24.42	352	0.21
65	16.17	33.66	5.35	325	75	15.60	33.67	5.22	24.83	313	0.29
87	14.45	33.73	5.02	284	100	13.00	33.70	4.72	25.40	258	0.36
105	12.53	33.71	4.38	249	150	11.01	34.06	2.38	26.06	196	0.48
123	11.84	33.80	3.18	230	200	9.83	34.28	1.70	26.44	160	0.57
140	11.10	33.98	2.63	203	250	9.66	34.39	0.84	26.56	149	0.65
167	10.78	34.14	1.92	186	300	9.30	34.45	0.57	26.66	139	0.73
198	9.84	34.27	1.71	161	400	7.56	34.36	0.62	26.86	120	0.86
224	9.74	34.32	1.24	156	500	6.80	34.37	0.40	26.97	109	0.98
269	9.60	34.45	0.63	144							
318	9.03	34.42	0.55	138							
393	7.62	34.36	0.64	121							
469	7.02	34.37	0.39	113							
545	6.43	34.38	0.45	104							

118.39 BLACK DOUGLAS; August 19, 1959; 1133 GCT; 28°18.5'N, 115°24'W; sounding, 130 fm; wind, 330°, force 3; weather, cloudy; sea, moderate; wire angle, 12°.

2	21.28	33.71	4.89	444	0	(21.28)	(33.71)	(4.89)	(23.45)	(444)	(0.00)
28	15.80	33.57	5.34	324	10	20.00	33.65	5.07	23.76	415	0.04
50	13.97	33.64	4.69	281	20	17.20	33.58	5.29	24.40	354	0.08
72	12.70	33.87	3.03	240	30	15.74	33.57	5.33	24.73	323	0.12
94	12.28	33.91	2.49	229	50	13.97	33.64	4.69	25.16	281	0.18
112	12.00	33.97	2.09	220	75	12.61	33.89	2.87	25.63	237	0.24
128	11.28	33.89	2.59	213	100	12.13	33.93	2.27	25.75	226	0.30
137	11.06	33.89	2.65	209							

119.33 BLACK DOUGLAS; August 16, 1959; 1920 GCT; 28°19'N, 114°53'W; sounding, 60 fm; wind, 320°, force 4; weather, partly cloudy; sea, moderate; wire angle, 03°.

1	21.18	33.80	4.98	435	0	(21.18)	(33.80)	(4.98)	(23.55)	(435)	(0.00)
10	21.08	33.75	4.92	436	10	21.08	33.75	4.92	23.54	436	0.04
28	17.08	33.71	5.27	342	20	17.30	33.72	5.24	24.48	346	0.08
46	15.56	33.57	5.48	318	30	17.00	33.70	5.29	24.54	341	0.12
68	13.42	33.62	4.97	272	50	15.15	33.57	5.41	24.86	310	0.18

OBSERVED					INTERPOLATED				COMPUTED			
Z	T	S	O ₂	δT_{3-5}	Z	T	S	O ₂	σ_t	δT_{3-5}	ΔD	
m	°C	‰	ml/L	10 ⁻⁵ cm/g	m	°C	‰	ml/L	g/L	10 ⁻⁵ cm/g	dyn. m	

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BLACK DOUGLAS; August 16, 1959; 2308 GCT; 28°23'N, 114°14.5'W; sounding, 30 fm; wind, 320°, force 4; weather, partly cloudy; sea, slight; wire angle, 08°.

120.25

2	22.46	33.82	4.70	467	0	(22.46)	(33.82)	(4.70)	(23.21)	(467)	(0.00)
11	22.42	33.84	4.74	465	10	22.43	33.84	4.73	23.23	465	0.05
28	17.24	33.66	5.28	349	20	20.78	33.80	4.97	23.66	425	0.09
46	15.10	33.57	5.43	309	30	17.03	33.65	5.29	24.49	345	0.13

BLACK DOUGLAS; August 17, 1959; 0135 GCT; 28°13'N, 114°34'W; sounding, 53 fm; wind, 320°, force 5; weather, partly cloudy; sea, rough; wire angle, 07°.

120.30

2	21.97	33.81	5.02	454	0	(21.97)	(33.81)	(5.02)	(23.35)	(454)	(0.00)
11	21.92	33.77	5.09	456	10	21.94	33.78	5.08	23.33	456	0.05
29	15.44	33.62	5.43	313	20	16.22	33.63	5.45	24.67	328	0.08
47	13.34	33.66	4.90a)	267	30	15.36	33.62	5.40	24.86	310	0.12

BLACK DOUGLAS; August 16, 1959; 1823 GCT; 28°03'N, 114°54'W; sounding, 47 fm; wind, 320°, force 5; weather, partly cloudy; sea, rough; wire angle, 12°.

120.35

2	21.02	33.75	5.10	434	0	(21.02)	(33.75)	(5.10)	(23.56)	(434)	(0.00)
10	20.89	33.73	5.15	432	10	20.89	33.73	5.15	23.58	432	0.04
28	19.72	33.69	5.22	405	20	19.94	33.70	5.20	23.81	410	0.08
46	16.26	33.56	5.59	335	30	19.23	33.67	5.29	23.96	396	0.13

BLACK DOUGLAS; August 17, 1959; 0907 GCT; 27°43'N, 115°33'W; sounding, 1240 fm; wind, 320°, force 4; weather, partly cloudy; sea, moderate; wire angle, 30°.

120.45

1	21.66	33.85	4.99	444	0	(21.66)	(33.85)	(4.99)	(23.46)	(444)	(0.00)
9	21.62	33.87	5.30	441	10	21.62	33.87	5.31	23.49	441	0.04
29	19.58	33.75	5.43	398	20	21.00	33.84	5.39	23.63	427	0.09
37	18.08	33.71	5.72	365	30	19.30	33.74	5.50	24.00	392	0.13
48	16.35	33.69	5.68	327	50	16.20	33.68	5.65	24.71	324	0.20
60	14.74	33.64	5.03	296	75	13.58	33.72	4.34	25.30	268	0.27
80	13.24	33.72	4.18	262	100	11.73	33.76	3.64	25.69	231	0.34
95	12.12	33.73	3.74	240	150	10.42	34.10	2.27	26.20	183	0.44
111	11.27	33.84	3.44	217	200	10.20	34.35	1.16	26.43	161	0.53
135	10.72	33.98	2.46	197	250	9.34	34.36	1.01	26.58	146	0.61
158	10.36	34.16	2.18	177	300	9.23	34.46	0.60	26.68	138	0.68
189	10.48	34.34	1.15	166	400	8.14	34.48	0.33	26.87	120	0.82
212	9.86	34.36	1.17	155	500	7.06	34.49	0.22	27.03	104	0.93
252	9.31	34.36	1.00	146							
305	9.20	34.46	0.59	137							
387	8.28	34.48	0.36	122							
463	7.46	34.47	0.22	111							
529	6.77	34.51	0.22	98							

BLACK DOUGLAS; August 17, 1959; 1207 GCT; 27°30'N, 115°52.5'W; sounding, 2150 fm; wind, 320°, force 5; weather, cloudy; sea, rough; wire angle, 10°.

120.50

2	23.32	33.87	4.75	486	0	(23.32)	(33.87)	(4.75)	(23.01)	(486)	(0.00)
11	23.30	33.93	4.90	482	10	23.30	33.93	4.88	23.05	482	0.05
33	19.22	33.75	5.66	389	20	23.27	33.94	4.92	23.06	481	0.10
42	17.17	33.68	5.73	346	30	20.40	33.81	5.54	23.77	414	0.14
55	14.73	33.70	5.28	292	50	15.18	33.70	5.42	24.95	302	0.21
68	13.39	33.69	4.52	266	75	12.64	33.70	4.22	25.48	251	0.28
90	11.32	33.75	3.75	224	100	10.88	33.78	3.51	25.86	214	0.34
108	10.66	33.81	3.34	208	150	9.64	33.96	2.77	26.22	181	0.44
125	10.04	33.86	3.18	195	200	10.06	34.31	1.13	26.42	162	0.53
150	9.64	33.96	2.77	181	250	9.77	34.42	0.82	26.57	148	0.61
176	9.37	34.07	2.33	168	300	8.94	34.43	0.72	26.70	135	0.68
211	10.21	34.38	0.85	159	400	8.04	34.41	0.44	26.83	123	0.82
237	9.96	34.42	0.84	152	500	7.11	34.42	0.25	26.97	110	0.94
284	9.20	34.42	0.70	140							
341	8.40	34.43	0.75	127							
427	7.82	34.40	0.33	121							
505	7.05	34.42	0.25	109							
571	6.48	34.40	0.43	103							

a) Alternate value, 4.08 ml/L, not used in interpolation.

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OBSERVED					INTERPOLATED				COMPUTED		
Z	T	S	O ₂	δT_3	Z	T	S	O ₂	σ_t	δT_3	ΔD
m	°C	‰	ml/L	$10^{-5} \text{ cm}^3/\text{g}$	m	°C	‰	ml/L	g/L	$10^{-5} \text{ cm}^3/\text{g}$	dyn. m

120.60 BLACK DOUGLAS; August 17, 1959; 1819 GCT; 27°05'N, 116°34'W; sounding, 1900 fm; wind, 320°, force 4; weather, partly cloudy; sea, rough; wire angle, 18°.

2	22.02	33.80	4.85	456	0	(22.02)	(33.80)	(4.85)	(23.32)	(456)	(0.00)
11	21.98	33.77	4.78	458	10	21.99	33.78	4.82	23.31	457	0.05
28	21.88	33.77	4.78	455	20	21.93	33.77	4.78	23.32	456	0.09
36	18.82	33.64	5.39	388	30	20.85	33.72	4.96	23.58	432	0.14
48	16.46	33.57	5.39	338	50	16.22	33.57	5.43	24.61	334	0.21
60	14.92	33.57	5.62	305	75	14.30	33.74	4.34	25.17	280	0.29
80	14.00	33.75	4.11	274	100	12.10	33.72	3.87	25.59	240	0.36
95	12.38	33.71	3.94	246	150	10.44	34.00	2.03	26.11	191	0.46
111	11.37	33.71	3.48	228	200	10.23	34.26	1.36	26.36	168	0.56
126	10.89	33.80	2.89	213	250	9.94	34.43	0.74	26.54	150	0.64
147	10.46	33.96	2.11	194	300	9.58	34.49	0.41	26.65	140	0.71
172	10.38	34.11	1.76	181	400	8.00	34.40	0.35	26.83	123	0.85
193	10.30	34.23	1.42	171							
228	9.96	34.37	0.94	155							
267	9.92	34.47	0.59	147							
330	9.14	34.49	0.30	133							
393	8.12	34.41	0.33	124							
461	6.82	34.38	0.37	109							

120.70 BLACK DOUGLAS; August 17, 1959; 2354 GCT; 26°52.5'N, 117°10'W; sounding, 2000+ fm; wind, 320°, force 2; weather, overcast; sea, moderate; wire angle, 06°.

2	22.60	33.86	4.50	468	0	(22.60)	(33.86)	(4.50)	(23.20)	(468)	(0.00)
11	22.42	33.86	4.49	463	10	22.43	33.86	4.49	23.25	464	0.05
29	20.02	33.78	4.89	407	20	22.40	33.86	4.49	23.26	462	0.09
38	18.70	33.72	5.00	379	30	19.85	33.78	4.90	23.89	403	0.14
51	17.40	33.64	4.79	354	50	17.50	33.65	4.79	24.38	356	0.21
64	16.46	33.59	5.28	337	75	15.70	33.66	5.04	24.81	315	0.30
86	14.54	33.66	4.88	291	100	13.19	33.66	4.42	25.34	265	0.37
103	13.05	33.70	4.24	259	150	10.80	33.98	2.41	26.04	198	0.49
121	11.48	33.69	3.91	231	200	10.65	34.31	1.16	26.32	171	0.58
138	11.03	33.86	2.76	211	250	10.27	34.45	0.66	26.50	154	0.66
164	10.62	34.11	2.10	186	300	9.60	34.46	0.58	26.62	143	0.74
194	10.70	34.29	1.28	174	400	8.38	34.44	0.25	26.80	126	0.88
220	10.47	34.38	0.99	163	500	7.15	34.42	0.24	26.96	110	1.00
264	10.15	34.47	-	151							
313	9.42	34.45	0.56	141							
388	8.53	34.44	0.26	128							
462	7.58	34.42	0.24	116							
537	6.72	34.42	0.24	105							

120.80 BLACK DOUGLAS; August 18, 1959; 0445 GCT; 26°32.5'N, 117°48.5'W; sounding, 1900 fm; wind, 300°, force 3; weather, cloudy; sea, moderate; wire angle, 10°.

2	23.48	33.91	4.77	488	0	(23.48)	(33.91)	(4.77)	(22.99)	(488)	(0.00)
11	23.45	33.93	4.68	486	10	23.45	33.93	4.68	23.01	487	0.05
29	19.19	33.80	5.41	384	20	22.10	33.89	4.92	23.36	453	0.10
38	18.58	33.79	5.23	370	30	19.11	33.80	5.41	24.10	383	0.14
50	18.24	33.84	5.43	359	50	18.24	33.84	5.43	24.34	359	0.21
63	17.62	33.84	5.41	345	75	17.00	33.85	5.41	24.65	330	0.30
85	16.20	33.87	5.33	311	100	13.45	33.69	4.73	25.31	267	0.37
102	13.10	33.68	4.61	262	150	11.23	34.06	2.13	26.02	200	0.49
118	11.64	33.71	4.26	233	200	11.42	34.46	0.68	26.30	173	0.58
135	11.05	33.85	3.05	212	250	11.12	34.55	0.54	26.42	162	0.67
161	11.40	34.20	1.53	192	300	10.40	34.54	0.49	26.55	150	0.75
191	11.46	34.43	0.78	176	400	8.92	34.46	0.38	26.73	133	0.90
217	11.36	34.51	0.60	168	500	7.60	34.44	0.27	26.91	115	1.03
259	11.02	34.56	0.51	159							
306	10.30	34.54	0.49	148							
380	9.20	34.47	0.41	136							
455	8.16	34.43	0.37	123							
531	7.29	34.46	0.21	109							

OBSERVED					INTERPOLATED				COMPUTED			
Z	T	S	O ₂	δT_{-5}^3	Z	T	S	O ₂	σ_t	δT_{-5}^3	ΔD	
m	°C	‰	ml/L	10 cm ³ /g	m	°C	‰	ml/L	g/L	10 cm ³ /g	dyn. m	

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BLACK DOUGLAS; August 16, 1959; 0924 GCT; 27°24'N, 114°39.5'W; sounding, 38 fm; wind, 290°, force 3; weather, clear; sea, slight; wire angle, 00°.

123.37

2	18.14	33.82	5.15	358	0	(18.14)	(33.82)	(5.15)	(24.35)	(358)	(0.00)
11	18.13	33.83	5.16	357	10	18.13	33.83	5.16	24.36	357	0.04
29	16.92	33.77	5.31	334	20	17.46	33.80	5.26	24.50	344	0.07
47	15.47	33.93	4.44	291	30	16.83	33.77	5.30	24.63	332	0.10

BLACK DOUGLAS; August 16, 1959; 0623 GCT; 27°14'N, 114°59'W; sounding, 800 fm; wind, 300°, force 4; weather, partly cloudy; sea, rough; wire angle, 12°.

123.42

2	24.06	34.03	4.57a)	496	0	(24.06)	(34.03)	(4.57)	(22.91)	(496)	(0.00)
10	24.04	34.02	4.64	496	10	24.04	34.02	4.64	22.91	496	0.05
28	18.68	33.67	5.30	382	20	20.20	33.73	5.24	23.76	415	0.10
37	17.60	33.64	5.33	359	30	18.18	33.66	5.32	24.22	371	0.13
50	16.88	33.59	5.40	346	50	16.88	33.59	5.40	24.48	346	0.21
63	15.78	33.66	5.20	317	75	14.38	33.61	5.00	25.07	291	0.29
84	13.53	33.63	4.63	273	100	12.31	33.74	3.66	25.58	242	0.35
101	12.23	33.75	3.60	240	150	10.65	34.02	2.47	26.09	193	0.46
119	11.40	33.75	3.33	225	200	10.36	34.34	1.02	26.40	164	0.56
136	10.70	33.81	3.02	209	250	9.58	34.37	0.82	26.56	149	0.64
161	10.58	34.15	1.91	182	300	9.19	34.42	0.55	26.66	139	0.71
191	10.39	34.29	1.22	168	400	7.92	34.45	0.49	26.88	119	0.84
217	10.24	34.40	0.82	158	500	7.02	34.50	0.16	27.04	103	0.96
260	9.42	34.37	0.82	147							
306	9.12	34.42	0.50	138							
380	8.06	34.42	0.57	123							
455	7.48	34.51	0.23	108							
531	6.70	34.47	0.16	101							

BLACK DOUGLAS; August 16, 1959; 0405 GCT; 27°08'N, 115°10.5'W; sounding, 1800 fm; wind, 300°, force 4; weather, partly cloudy; sea, rough; wire angle, 04°.

123.45

2	23.78	33.86	4.64	500	0	(23.78)	(33.86)	(4.64)	(22.87)	(500)	(0.00)
11	23.76	33.89	4.77	497	10	23.76	33.89	4.77	22.90	497	0.05
29	18.67	33.75	5.63	376	20	21.10	33.81	5.36	23.59	432	0.10
38	16.84	33.73	5.64	335	30	18.30	33.74	5.67	24.26	367	0.14
51	15.54	33.66	5.46	312	50	15.78	33.66	5.50	24.79	316	0.20
65	14.56	33.77	4.94	283	75	13.10	33.69	4.46	25.38	260	0.28
87	12.13	33.70	3.86	242	100	11.60	33.77	3.50	25.73	227	0.34
105	11.36	33.80	3.34	221	150	9.90	34.01	2.44	26.22	181	0.44
123	10.86	33.96	2.67	201	200	10.28	34.44	0.97	26.49	156	0.53
140	9.88	33.91	2.88	188	250	9.73	34.42	0.70	26.57	148	0.60
167	10.24	34.23	1.67	171	300	9.09	34.42	0.59	26.67	138	0.68
197	10.30	34.43	1.00	157	400	7.68	34.37	0.45	26.85	121	0.81
223	9.96	34.42	0.78	152	500	6.74	34.39	0.25	27.00	107	0.93
268	9.52	34.42	0.66	144							
316	8.88	34.42	0.57	135							
391	7.78	34.37	0.48	122							
467	7.03	34.39	0.24	111							
543	6.36	34.38	0.26	103							

a) These oxygen values were obtained from an average factor because of poor standards on this station.

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5908

OBSERVED					INTERPOLATED				COMPUTED		
Z	T	S	O ₂	δT_3	Z	T	S	O ₂	σ_t	δT_3	ΔD
m	°C	‰	ml/L	$10^{-5} \text{ cm}^3/\text{g}$	m	°C	‰	ml/L	g/L	$10^{-5} \text{ cm}^3/\text{g}$	dyn. m

123.50

BLACK DOUGLAS; August 16, 1959; 0106 GCT; 27° 00'N, 115° 31.5'W; sounding, 2000+ fm; wind, 300°, force 4; weather, partly cloudy; sea, moderate; wire angle, 02°.

1	24.18	33.89	4.66	510	0	(24.18)	(33.89)	(4.66)	(22.77)	(510)	(0.00)
10	24.04	33.89	4.80	506	10	24.04	33.89	4.80	22.81	506	0.05
32	17.77	33.75	5.77	354	20	21.76	33.86	5.42	23.44	445	0.10
41	15.57	33.68	5.48	311	30	18.60	33.78	5.77	24.21	372	0.14
55	13.69	33.69	4.71	272	50	14.55	33.68	5.12	25.08	289	0.20
68	12.16	33.77	3.64	237	75	11.85	33.80	3.51	25.70	230	0.27
91	10.92	33.83	3.27	211	100	10.76	33.89	2.90	25.97	204	0.33
109	10.62	33.94	2.56	198	150	9.62	34.05	2.28	26.30	173	0.42
127	10.46	34.05	2.22	187	200	9.23	34.26	1.49	26.52	152	0.50
153	9.56	34.06	2.29	172	250	8.82	34.30	0.81	26.63	142	0.58
180	9.41	34.20	1.75	160	300	8.56	34.42	0.56	26.76	130	0.65
215	9.06	34.28	1.36	148	400	7.51	34.42	0.30	26.91	115	0.78
241	8.86	34.29	0.88	144	500	6.63	34.43	0.22	27.04	103	0.89
286	8.62	34.40	0.65	133							
343	8.26	34.45	0.40	123							
432	7.16	34.41	0.28	111							
513	6.52	34.43	0.21	101							
579	6.06	34.41	0.24	97							

123.60

BLACK DOUGLAS; August 15, 1959; 1905 GCT; 26° 32'N, 116° 13'W; sounding, 1900 fm; wind, 320°, force 3; weather, cloudy; sea, slight; wire angle, 03°.

2	24.24	33.96	4.68	506	0	(24.24)	(33.96)	(4.68)	(22.80)	(506)	(0.00)
11	24.06	33.94	4.71	503	10	24.06	33.94	4.71	22.84	503	0.05
29	20.49	33.82	5.83	416	20	22.75	33.88	5.32	23.18	470	0.10
37	16.44	33.73	5.29	326	30	19.50	33.80	5.74	24.00	392	0.14
51	13.98	33.67	4.43	279	50	14.08	33.67	4.50	25.16	281	0.21
64	12.60	33.74	3.68	248	75	11.37	33.81	3.14	25.80	220	0.27
86	10.64	33.86	-	205	100	10.62	34.01	2.22	26.09	193	0.33
103	10.62	34.04	2.13	191	150	10.14	34.24	1.40	26.36	168	0.42
121	10.50	34.19	1.73	177	200	9.91	34.43	0.81	26.55	149	0.50
139	10.23	34.18	1.67	174	250	9.36	34.44	0.66	26.65	140	0.57
165	10.06	34.33	-	160	300	8.57	34.43	0.51	26.76	129	0.64
195	9.94	34.43	0.83	150	400	7.03	34.35	0.50	26.92	114	0.77
221	9.73	34.43	0.76	147	500	6.30	34.35	0.36	27.02	105	0.88
264	9.15	34.45	0.61	137							
312	8.38	34.42	0.49	127							
387	7.13	34.34	0.52	116							
461	6.60	34.36	0.30	107							
536	6.08	34.34	0.46	103							

123.70

BLACK DOUGLAS; August 15, 1959; 1354 GCT; 26° 16'N, 116° 46'W; sounding, 2000+ fm; wind, 270°, force 3; weather, cloudy; sea, moderate; wire angle, 09°.

0	22.78	33.84	-	474	0	22.78	33.84		23.14	474	0.00
10	22.75	33.84	4.72	473	10	22.75	33.84	4.72	23.15	473	0.05
27	19.08	33.68	5.15	391	20	20.40	33.73	4.95	23.71	420	0.09
36	17.56	33.65	5.58	357	30	18.50	33.67	5.31	24.14	378	0.13
49	15.36	33.65	5.17	308	50	15.15	33.66	5.03	24.93	303	0.20
63	13.76	33.75	3.83	269	75	12.62	33.77	3.60	25.53	246	0.27
84	11.92	33.78	3.41	232	100	11.34	33.85		25.84	217	0.33
101	11.31	33.86	-	216	150	10.43	34.18	1.74	26.26	177	0.43
119	11.42	34.11	1.89	200	200	10.70	34.51	0.79	26.46	158	0.51
134	10.87	34.13	1.91	189	250	9.81	34.49	0.73	26.60	144	0.59
159	10.30	34.22	1.56	172	300	8.87	34.39	0.69	26.68	137	0.66
189	11.10	34.52	0.60	164	400	7.70	34.39	0.58	26.86	120	0.80
213	10.02	34.43	0.99	152	500	6.94	34.43	0.33	27.00	107	0.92
256	9.76	34.48	0.71	144							
302	8.84	34.39	0.69	136							
375	7.92	34.38	0.64	124							
449	7.33	34.41	0.43	113							
524	6.74	34.44	0.29	103							

OBSERVED					INTERPOLATED				COMPUTED		
Z	T	S	O ₂	δ_T	Z	T	S	O ₂	σ_t	δ_T	ΔD
m	°C	‰	ml/L	$\frac{10^{-5}}{10 \text{ cm/g}}$	m	°C	‰	ml/L	g/L	$\frac{10^{-5}}{10 \text{ cm/g}}$	dyn. m

BLACK DOUGLAS; August 14, 1959; 1415 GCT; 26°55.5'N, 114°06'W; sounding, 40+ fm; wind, 280°, force 3; weather, cloudy; sea, moderate; wire angle, 01°.

12734

1	22.12	34.16	4.55	434	0	(22.12)	(34.16)	(4.55)	(23.57)	(434)	(0.00)
10	21.09a)	34.14	4.22	408	10	21.09	34.14	4.22	23.83	408	0.04
28	16.79	34.25	2.53	296	20	16.97	34.24	2.67	24.97	300	0.08
46	16.22	34.34	1.68	277	30	16.73	34.26	2.45	25.04	293	0.11

BLACK DOUGLAS; August 14, 1959; 1715 GCT; 26°43.5'N, 114°29.5'W; sounding, 1800+ fm; wind, 280°, force 3; weather, overcast; sea, moderate; wire angle, 06°.

12740

2	22.20	33.98	4.90	448	0	(22.20)	(33.98)	(4.90)	(23.41)	(448)	(0.00)
11	21.96	33.97	5.07	442	10	21.97	33.97	5.07	23.46	443	0.04
29	17.12	33.88	4.70	330	20	20.00	33.94	4.86	23.98	394	0.09
38	15.70	33.81	5.08	304	30	17.02	33.87	4.74	24.67	329	0.12
51	15.10	33.86	3.69	288	50	15.11	33.84	3.77	25.07	290	0.18
64	14.01	33.88	3.14	265	75	13.06	33.90	2.36	25.55	245	0.25
86	13.09	34.02	1.96	236	100	12.96	34.12	1.29	25.73	227	0.31
104	12.94	34.13	1.26	225	150	11.08	34.10	2.01	26.08	194	0.42
122	11.48	33.98	2.59	210	200	10.55	34.37	1.12	26.39	165	0.51
139	11.40	34.07	2.11	202	250	9.92	34.45	0.79	26.56	149	0.59
166	10.70	34.15	1.92	184	300	9.33	34.47	0.63	26.68	138	0.66
197	10.58	34.36	1.15	166	400	8.07	34.47	0.40	26.87	119	0.80
224	10.27	34.45	0.81	155	500	6.94	34.43	0.33	27.00	107	0.92
268	9.70	34.44	0.78	146							
316	9.14	34.49	0.51	134							
392	8.18	34.47	0.41	120							
468	7.28	34.43	0.32	111							
544	6.48	34.42	0.37	102							

BLACK DOUGLAS; August 14, 1959; 2213 GCT; 26°23.5'N, 115°08'W; sounding, 2000 fm; wind, 280°, force 3; weather, cloudy; sea, moderate; wire angle, 02°.

12750

1	24.70	34.04	4.65	513	0	(24.70)	(34.04)	(4.65)	(22.73)	(513)	(0.00)
10	24.41	34.04	4.86	505	10	24.41	34.04	4.86	22.81	505	0.05
28	20.02	34.08	5.23	385	20	20.70	34.09	5.22	23.90	401	0.10
37	19.14	33.93	5.16b)	374	30	19.82	34.05	5.22	24.10	382	0.14
50	17.94	33.76	5.34	358	50	17.94	33.76	5.34	24.36	358	0.21
63	16.47	33.86	4.86	317	75	14.68	33.79	4.29	25.12	285	0.29
86	13.62	33.77	3.87	265	100	12.50	33.84	3.06	25.61	239	0.36
103	12.39	33.85	2.96	236	150	11.05	34.16	1.83	26.14	189	0.46
122	12.18	34.05	2.23	217	200	10.06	34.34	1.18	26.45	159	0.55
139	11.44	34.13	1.91	198	250	9.82	34.48	0.61	26.60	145	0.63
165	10.65	34.21	1.66	179	300	9.34	34.53	0.44	26.72	134	0.70
196	10.10	34.33	1.24	161	400	7.90	34.49	0.30	26.91	116	0.84
224	9.89	34.40	0.89	152	500	6.88	34.49	0.19	27.05	102	0.95
267	9.74	34.52	0.49	141							
317	9.08	34.52	0.41	131							
392	8.00	34.49	0.31	117							
468	7.16	34.48	0.19	106							
544	6.56	34.48	0.21	98							

a) Alternate value, 20.90°C, not used in interpolation.

b) Mean value of 5.11 and 5.22 ml/L.

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OBSERVED					INTERPOLATED				COMPUTED		
Z	T	S	O ₂	δT	Z	T	S	O ₂	σ_t	δT	ΔD
m	°C	‰	ml/L	$10^{-5} \text{ cm}^3/\text{g}$	m	°C	‰	ml/L	g/L	$10^{-5} \text{ cm}^3/\text{g}$	dyn. m

12760

BLACK DOUGLAS; August 15, 1959; 0358 GCT; 26°03.5'N, 115°46.5'W; sounding, 2000+ fm; wind, 300°, force 2; weather, cloudy; sea, moderate; wire angle, 08°.

2	24.07	33.92	4.48	504	0	(24.07)	(33.92)	(4.48)	(22.82)	(504)	(0.00)
11	23.80	33.92	4.80	496	10	23.90	33.92	4.70	22.87	499	0.05
29	18.46	33.71	5.41	374	20	20.50	33.79	5.20	23.73	418	0.10
38	17.50	33.69	5.47	353	30	18.38	33.71	5.42	24.22	371	0.14
51	15.88	33.64	5.61	320	50	16.00	33.64	5.63	24.73	323	0.20
64	14.41	33.69	4.92	286	75	13.77	33.69	4.73	25.25	273	0.28
86	12.44	33.70	4.44	248	100	11.70	33.73	3.98	25.68	232	0.34
103	11.52	33.75	3.79	227	150	10.75	34.19	1.76	26.21	182	0.45
121	10.81	33.92	2.82	203	200	10.48	34.44	0.86	26.45	159	0.53
139	10.62	34.08	2.25	188	250	9.62	34.46	0.67	26.62	143	0.61
165	10.92	34.32	1.18	175	300	9.03	34.46	0.44	26.71	134	0.68
195	10.55	34.43	0.88	160	400	7.64	34.48	0.36	26.94	113	0.81
221	10.13	34.43	0.83	154	500	6.74	34.49	0.17	27.07	100	0.92
265	9.40	34.48	0.52	138							
314	8.83	34.45	0.40	132							
388	7.79	34.47	0.38	115							
463	7.02	34.49	0.23	104							
538	6.47	34.47	0.11	98							

12770

BLACK DOUGLAS; August 15, 1959; 0900 GCT; 25°44'N, 116°24.5'W; sounding, 2000+ fm; wind, 270°, force 3; weather, cloudy; sea, moderate; wire angle, 03°.

2	24.26	34.45	4.43	471	0	(24.26)	(34.45)	(4.43)	(23.17)	(471)	(0.00)
11	24.31	34.47	4.31	471	10	24.30	34.47	4.32	23.17	471	0.05
29	20.82	34.25	5.01	393	20	23.50	34.41	4.48	23.36	453	0.09
38	20.12	34.30	5.03	371	30	20.73	34.25	5.01	24.01	391	0.14
51	19.33	34.20	5.01	359	50	19.41	34.21	5.02	24.33	360	0.21
65	18.37	34.14	4.98	340	75	17.59	34.11	4.89	24.72	324	0.30
87	16.48	34.05	4.74	304	100	15.02	33.92	4.55	25.16	282	0.37
105	14.22	33.86	4.47	270	150	11.04	33.95	2.96	25.97	205	0.50
122	12.30	33.75	4.12	241	200	10.33	34.31	1.52	26.38	166	0.59
140	11.18	33.82	3.56	216	250	9.39	34.33	1.32	26.55	149	0.67
167	10.84	34.09	1.97	191	300	9.04	34.44	0.68	26.69	136	0.74
198	10.38	34.31	-	166	400	7.74	34.44	0.30	26.89	117	0.88
224	9.78	34.30	1.49	158	500	6.95	34.45	0.22	27.02	105	0.99
268	9.20	34.37	1.07	143							
316	8.94	34.45	0.58	133							
390	7.81	34.43	0.31	118							
466	7.27	34.47	0.22	108							
542	6.53	34.42	0.22	102							

OBSERVED								COMP	INTERPOLATED				COMPUTED		
Z	T	S	O ₂	PO ₄ -P	SiO ₃ -Si	NO ₂ -N	NO ₃ -N	δ _T	Z	T	S	O ₂	σ _t	δ _T	ΔD
m	°C	‰	ml/L	μg at/L	μgm at/L	μg at/L	μg at/L	10 ⁻⁵ cm ³ /g	m	°C	‰	ml/L	g/L	10 ⁻⁵ cm ³ /g	dyn m

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HUGH M. SMITH;^{a)} August 14, 1959; 0640 GCT;^{b)} 32°11.5'N, 117°17'W; sounding, 710 fm; wind, 030°, force 2; weather, cloudy; sea, slight; wire angle, 03°.

9732

374	7.79	34.25	1.70	2.89	51.6		24.8	131
377	7.79	34.31	0.62	-	-		-	127
401	7.51	34.28	1.08	2.93	55.0		-	126
404	7.56	34.32	0.55	-	-		-	123
407	7.55	34.28	1.00	2.85	55.0		31.7	125
432	7.30	34.34	0.48	-	-		-	118
435	7.27	34.34	0.77	2.97	60.0		-	118
437	7.19	34.33	0.45	-	-		-	117
462	6.91	34.33	0.34	3.12c)	65.2		26.6	114
465	6.85	34.34	0.58	-	-		-	112
468	6.82	34.33	0.58	3.13	65.8		28.8	113
493	6.58	34.36	0.43	-	-		-	107
496	6.56	34.36	0.46	3.17	70.9		-	107
499	6.56	34.38	0.41	-	-		-	105
523	6.32	34.31u	0.41	3.25	74.2		28.6	-
526	6.29	34.42	0.41	-	-		-	99
529	6.26	34.38	0.40	3.05	76.0		-	102
554	5.96	34.42	0.33	-	-		-	100
557	6.04	34.37	0.33	3.25	79.8		-	95
560	6.01	34.38	0.34	-	-		-	99
584	5.78	34.45	0.31	3.21	84.0		-	90
587	5.75	34.40	0.33	-	-		-	94
590	5.72	34.42	0.31	3.25	85.1		-	92

HUGH M. SMITH; August 16, 1959; 0208 GCT; 26°29'N, 113°29'W; sounding, 43 fm; wind, 320°, force 4; weather, partly cloudy; sea, moderate; wire angle, 24°.

130.30

1	25.10	34.22	3.44	0.42d)			512	0	(25.10)	(34.22)	(3.44)	(22.74)	(512)	(0.00)
9	25.08	34.27	3.42	0.56			507	10	25.06	34.27	3.42	22.80	507	0.05
28	17.81	34.25	2.97	0.79			319	20	19.40	34.25	3.06	24.36	357	0.09
46	16.13	34.34	1.91	1.25d)			274	30	17.76	34.26	2.93	24.79	317	0.13
69	16.68	34.80	0.48	2.60d)			253	50	16.13	34.40	1.72	25.27	271	0.19

HUGH M. SMITH; August 16, 1959; 0722 GCT; 26°19'N, 113°52'W; sounding, 170 fm; wind, 320°, force 4; weather, missing; sea, rough; wire angle, 09°.

130.35

0	21.82	34.02	4.91	0.38			436	0	21.82	34.02	4.91	23.54	436	0.00
10	21.60	34.04	4.97	0.38			428	10	21.60	34.04	4.97	23.62	428	0.04
29	17.98	33.94	5.50	0.50			346	20	19.94	34.00	5.23	24.03	389	0.08
49	15.77	33.85	5.26	0.72			302	30	17.90	33.94	5.50	24.50	344	0.12
73	14.74	34.42	1.36	2.43			240	50	15.53	33.86	4.94	25.00	297	0.18
98	14.48	34.56	0.88	2.60			224	75	14.74	34.44	1.30	25.62	238	0.25
122	14.32	34.60	0.60	2.80e)			217	100	14.47	34.56	0.86	25.78	223	0.31
161	13.58	34.60	0.46	2.47e)			203	150	13.83	34.61	0.48	25.94	207	0.42
200	12.80	34.56	0.41	2.80e)			191	200	12.80	34.56	0.41	26.11	191	0.52
250	11.35	34.64	0.41	3.00e)			159	250	11.35	34.64	0.41	26.46	159	0.61

a) Beginning with Line 130, the data were collected by the R/V Hugh M. Smith for Tuna Oceanography Research (STOR) of Scripps Institution on Cruise TO-59-2 which extended to the Gulf of Tehuantepec. On the first part of the cruise stations of the CCOFI pattern off Baja California were occupied at the same time that other Scripps vessels were taking observations to the north on CCOFI Cruise 5908. For continuity the Cruise TO-59-2 data are presented in two sections in this volume: the first, stations of the CCOFI pattern, are included with CCOFI Cruise 5908; the second, data collected in the Gulf of Tehuantepec, are presented as Cruise TO-59-2 with other SIO special cruises which follow the CCOFI cruises.

b) Special cast.

c) Duplicate value, 3.04 μgm at/L.

d) Duplicate values: 1 m, 0.64; 46, 1.31; 69, 2.76 μg at/L.

e) Duplicate values: 122 m, 2.68; 161, 2.87; 200, 2.91; 250, 2.92 μg at/L.

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OBSERVED								COMP	INTERPOLATED				COMPUTED		
Z	T	S	O ₂	PO ₄ -P	SiO ₃ -Si	NO ₂ -N	NO ₃ -N	δ _T	Z	T	S	O ₂	σ _t	δ _T	ΔD
m	°C	‰	ml/L	μg at/L	μgm at/L	μg at/L	μg at/L	10 ⁻⁵ cm ³ /g	m	°C	‰	ml/L	g/L	10 ⁻⁵ cm ³ /g	dyn m

0.40 HUGH M. SMITH; August 16, 1959; 1300 GCT; 26°11'N, 114°10.5'W; sounding, 1300 fm; wind, 330°, force 3; weather, cloudy; sea, rough; wire angle, 35°.

0	21.18	33.91	5.12	0.42				426	0	21.18	33.91	5.12	23.64	426	0.00
8	21.20	33.88	5.07	0.41				429	10	21.13	33.88	5.07	23.62	428	0.04
24	20.18	34.05	5.26	0.47a)				391	20	20.43	34.00	5.20	23.90	401	0.08
31	19.72	34.20	5.38	0.35				369	30	19.77	34.20	5.38	24.23	370	0.12
43	18.68	34.05	5.29	0.41a)				354	50	17.28	33.92	5.22	24.64	331	0.19
52	16.83	33.89	5.17	0.47				323	75	13.20	33.83	3.40	25.47	252	0.26
69	14.22	33.86	3.33	1.42				270	100	12.24	34.06	2.18	25.83	218	0.33
82	12.54	33.82	3.42	1.58				240	150	12.34	34.60	0.92	26.23	180	0.43
95	12.48	34.02	2.20	2.10				225	200	11.69	34.63	0.40	26.38	166	0.51
107	11.97b)	34.12	2.16	2.27a)				208	250	11.06	34.66	0.47	26.52	152	0.60
127	11.77b)	34.24	1.41	2.51a)				196	300	10.35	34.61	0.45	26.61	144	0.67
151	12.34b)	34.60	0.91	2.84				180	400	8.44	34.53	0.40	26.86	120	0.81
170	11.99b)	34.66	0.45	2.91a)				169							
204	11.64	34.63	0.40	2.89				165							
243	11.14	34.66	0.48	3.07a)				153							
304	10.28	34.60	0.45	2.83a)				143							
372	8.80	34.51	0.41	3.15				127							
448	7.86	34.57	0.38	2.61a)				109							

30.50 HUGH M. SMITH; August 16, 1959; 2045, 2115 GCT; 25°44.5'N, 114°42.5'W; sounding, 1950 fm; wind, 330°, force 3; weather, cloudy; sea, very rough; wire angle, 15°, 18°.

1	25.38	34.15	4.72	0.36c)	1.3	0.0	0.9	525	0	(25.38)	(34.15)	(4.72)	(22.60)	(525)	(0.00)
10	25.35	34.18	4.14	0.41	1.1	0.0	0.8	522	10	25.35	34.18	4.14	22.64	522	0.05
34	20.58	34.11	4.74	0.43	1.0	0.0	1.6	397	20	23.70	34.18	4.33	23.13	475	0.10
44	19.94	34.05	4.69	0.42	1.2	0.0	1.2	385	30	21.35	34.13	4.65	23.76	415	0.15
58	18.36	33.92	5.39	0.44	1.2	0.01	1.0	356	50	19.32	34.00	4.97	24.19	374	0.22
73	16.83	33.83	4.21	0.51	1.6	0.0	1.1	328	75	16.61	33.82	4.13	24.72	323	0.31
96	13.81	33.75	3.32	1.12	7.9	0.07	-	270	100	13.40	33.76	3.14	25.38	261	0.39
115	12.10	33.82	2.44	1.78	16.5	0.01	22.6	232	150	11.82	34.24	1.41	26.05	197	0.50
134	11.67	34.04	1.68	2.21c)	-	-	-	208	200	11.43	34.65	0.23	26.45	159	0.59
162	11.04	34.31	0.96	2.70	-	-	-	178	250	10.98	34.63	0.25	26.52	153	0.67
191	11.50	34.65	0.22	3.04	37.1	0.0	37.8	161	300	10.53	34.61	0.20	26.58	146	0.75
229	11.13	-	0.29	2.99c)	-	-	-	-	400	8.43	34.51	0.32	26.85	121	0.89
258	10.92	34.63	0.24	3.06	-	-	-	152	500	7.31	34.46	0.22	26.97	110	1.01
306	10.43	34.61	0.19	3.12	41.3	0.0	52.9	145	600	6.38	34.45	0.20	27.09	98	1.12
368	8.88	34.54	0.34	3.15	-	-	-	126							
465	7.64	34.47	0.26	3.21	60.7	0.0	-	114							
551	6.86	34.45	0.21	3.17c)	-	-	-	104							
625	6.13	34.45	0.19	3.41	79.4	0.0	-	95							

a) Duplicate values: 24 m, 0.40; 43, 0.33; 107, 2.21; 127, 2.58; 170, 3.03; 243, 2.95; 304, 3.07; 448, 3.21 μg at/L.

b) A much stronger temperature inversion was indicated by the bathythermograph observation obtained at this station one hour before the hydrographic cast.

c) Duplicate values: 1 m, 0.42; 134, 2.13; 229, 3.11; 551, 3.43 μg at/L.

OBSERVED								COMP	INTERPOLATED				COMPUTED		
Z	T	S	O ₂	PO ₄ -P	SiO ₃ -Si	NO ₂ -N	NO ₃ -N	δ _T	Z	T	S	O ₂	σ _t	δ _T	ΔD
m	°C	‰	ml/L	μg at/L	μgm at/L	μg at/L	μg at/L	10 ⁻⁵ cm ³ /g	m	°C	‰	ml/L	g/L	10 ⁻⁵ cm ³ /g	dyn m

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HUGH M. SMITH; August 17, 1959; 0550 GCT; 25°35'N, 115°27.5'W; sounding, 2050 fm; wind, 350°, force 4; weather, partly cloudy; sea, rough; wire angle, 07°.

130.60

0	25.32	34.10	4.47	0.38				527	0	25.32	34.10	4.47	22.58	527	0.00
10	25.34	34.14	4.40	0.39				525	10	25.34	34.14	4.40	22.61	525	0.05
30	20.40	33.84	5.33	0.44				412	20	25.35	34.15	4.40	22.62	524	0.10
39	19.00	33.82	5.48	0.43				378	30	20.40	33.84	5.33	23.79	412	0.15
55	17.24	33.77	5.29	0.52				341	50	17.77	33.78	5.37	24.42	352	0.23
68	16.03	33.82	4.91	0.63				311	75	15.20	33.80	4.49	25.02	294	0.31
93	13.04	33.75	3.40	1.52				255	100	12.59	33.84	2.96	25.59	240	0.38
112	11.88	33.95	2.34	2.07				219	150	10.92	34.15	1.81	26.14	188	0.48
132	11.39	34.09	1.79	2.38a)				200	200	10.76	34.43	0.83	26.40	164	0.57
152	10.87	34.16	1.79	2.64				186	250	10.16	34.51	0.64	26.56	148	0.65
181	10.94	34.36	1.01	2.84				172	300	9.55	34.49	0.49	26.65	140	0.73
214	10.64	34.63u	0.72	3.04a)				-	400	8.35	34.46	0.32	26.82	124	0.87
245	10.22	34.51	0.64	3.04				149	500	7.16	34.42	0.20	26.96	110	0.99
293	9.62	34.49	0.52	3.07				141	600	6.16	34.43	0.22	27.10	97	1.10
347	9.02	34.47	0.29	3.18a)				134							
432	7.94	34.45	0.34	3.30				119							
515	7.00	34.42	0.19	3.34a)				108							
600	6.16	34.43	0.22	3.42a)				97							

HUGH M. SMITH; August 17, 1959; 1335 GCT; 25°08.5'N, 116°04'W; sounding, 2100 fm; wind, 330°, force 4; weather, partly cloudy; sea, rough; wire angle, 20°.

130.70

0	25.10	34.13	4.66	0.36				518	0	25.10	34.13	4.66	22.67	518	0.00
9	25.13	34.11	4.55	0.37				520	10	25.13	34.11	4.55	22.66	520	0.05
32	19.66	33.90	5.17	0.40				389	20	24.02	34.04	4.66	22.93	494	0.10
41	19.24	34.02	5.15	0.38				370	30	20.17	33.90	5.10	23.90	402	0.15
54	16.90	33.78	5.29	0.50				332	50	17.62	33.85	5.26	24.50	344	0.22
68	14.83	33.78	4.52	0.85				288	75	13.95	33.80	3.95	25.29	269	0.30
90	12.80	33.86	3.02	1.64				243	100	12.37	33.93	2.43	25.70	230	0.36
107	12.11	33.98	2.01	2.17				221	150	11.22	34.32	1.46	26.22	180	0.47
125	11.66	34.09	1.80	2.16				205	200	11.22	34.61	0.47	26.46	158	0.55
151	11.21	34.33	1.44	2.60				179	250	10.65	34.63	0.26	26.57	148	0.63
177	11.48	34.60	0.53	2.89b)				164	300	9.85	34.59	0.31	26.68	137	0.71
212	11.02	34.61	0.43	3.06b)				156	400	8.50	34.50	0.31	26.83	123	0.84
239	10.80	34.63	0.27	3.02				150	500	7.22	34.44	0.29	26.97	110	0.96
284	10.08	34.60	0.31	3.04				140	600	(6.38)	(34.46)	(0.17)	(27.10)	(97)	(1.07)
343	9.24	34.56	0.31	2.88				130							
436	8.02	34.47	0.31	3.30b)				119							
520	6.99	34.53u	0.27	3.35				-							
593	6.42	34.46	0.17	3.51b)				98							

HUGH M. SMITH; August 19, 1959; 0908 GCT; 26°05'N, 112°48.5'W; sounding, 41 fm; wind, 320°, force 2; weather, partly cloudy; sea, moderate; wire angle, 00°.

133.25

0	25.06	34.16	4.81	0.51				515	0	25.06	34.16	4.81	22.71	515	0.00
10	24.84	34.16	4.90	0.51				509	10	24.84	34.16	4.90	22.78	509	0.05
29	17.24	33.81	5.84	0.40				338	20	18.28	33.83	5.81	24.33	360	0.09
49	15.57	34.00	4.16	1.20				288	30	17.12	33.81	5.81	24.60	335	0.13
									50	(15.49)	(34.01)		(25.12)	(285)	(0.19)

HUGH M. SMITH; August 19, 1959; 0555 GCT; 25°56'N, 113°07'W; sounding, 85 fm; wind, 290°, force 3; weather, partly cloudy; sea, rough; wire angle, 11°.

133.30

1	24.88	34.24	4.64	0.37c)				504	0	(24.88)	(34.24)	(4.64)	(22.83)	(504)	(0.00)
10	24.89	34.22	4.57	0.54				505	10	24.89	34.22	4.57	22.81	505	0.05
30	16.22	33.80	5.48	0.58				316	20	23.90	34.16	4.66	23.05	482	0.10
49	15.30	34.29	2.46	1.72c)				260	30	16.22	33.80	5.48	24.79	316	0.14
73	15.24	34.67	1.12	2.69c)				232	50	15.30	34.30	2.44	25.39	260	0.20
98	14.49	34.81	0.52	3.31c)				206	75	15.23	34.70	1.04	25.71	229	0.26
122	13.84	34.70	0.62	2.66c)				201	100	14.35	34.79	0.55	25.98	204	0.31

a) Duplicate values: 132 m, 2.46; 214, 2.92; 347, 3.26; 515, 3.42; 600, 3.34 μg at/L.

b) Duplicate values: 177 m, 2.76; 212, 2.88; 436, 3.20; 593, 3.37 μg at/L.

c) Duplicate values: 1 m, 0.50; 49, 1.96; 73, 2.32; 98, 3.09; 122, 2.91 μg at/L.

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OBSERVED									COMP	INTERPOLATED				COMPUTED		
Z	T	S	O ₂	PO ₄ -P	SiO ₃ -Si	NO ₂ -N	NO ₃ -N	δ _T	Z	T	S	O ₂	σ _t	δ _T	ΔD	
m	°C	‰	ml/L	μg at/L	μgm at/L	μg at/L	μg at/L	10 ⁻⁵ cm ³ /g	m	°C	‰	ml/L	g/L	10 ⁻⁵ cm ³ /g	dyn m	

133.40

HUGH M. SMITH; August 18, 1959; 1925 GCT; 25°35'N, 113°44'W; sounding, 1495 fm; wind, 330°, force 4; weather, clear; sea, rough; wire angle, 26°.

1	22.66	33.96	4.88	0.41	1.7	0.0	0.3	462	0	(22.66)	(33.96)	(4.88)	(23.26)	(462)	(0.00)
9	22.64	33.93	4.64	0.45	1.7	0.0	0.3	464	10	22.48	33.93	4.62	23.30	459	0.05
27	19.92	34.11	5.24	0.40	-	-	-	380	20	20.38	34.09	5.16	23.99	393	0.09
35	19.21	34.04	5.15	0.47a)	1.2	0.0	0.3	368	30	19.70	34.09	5.22	24.17	376	0.13
49	18.12	33.94	5.22	0.43	-	0.0	0.2	349	50	18.08	33.94	5.22	24.47	347	0.20
61	16.30	33.95	5.00	0.82a)	2.2	0.0	0.4	307	75	14.37	33.86	4.34	25.25	273	0.28
82	13.79	33.84	4.07	1.15	7.7	0.0	10.2	263	100	13.08	34.18	1.34	25.75	225	0.34
97	13.28	34.20	1.46	2.49	25.2	Trace	28.0	227	150	12.84	34.64	0.27	26.17	186	0.45
113	13.49	34.36	0.91	2.55a)	30.2	Trace	-	219	200	11.43	34.60	0.13	26.40	164	0.54
130	13.16	34.47	0.67	3.02a)	-	0.0	-	204	250	10.28	34.54	0.65	26.56	148	0.62
153	12.78	34.65	0.22	2.83a)	33.5	0.0	-	184	300	9.82	34.55	0.62	26.65	140	0.69
181	11.26b)	34.48	1.65	2.63a)	-	-	-	169	400	8.54	34.52	0.43	26.84	122	0.83
204	11.42	34.61	0.12	3.10a)	-	-	-	163	500	7.04	34.51	0.37	27.05	102	0.94
244	10.38	34.54	0.65	3.10	-	0.0	34.0	149							
291	9.90	34.54	0.64	2.93	-	-	-	142							
359	9.18	34.53	0.43	3.27a)	46.0	0.0	34.4	131							
438	7.92	34.51	0.43	3.18	-	-	-	114							
517	6.80	34.51	0.36	3.22	69.4	0.0	-	99							

133.50

HUGH M. SMITH; August 18, 1959; 1250 GCT; 25°21'N, 114°26.5'W; sounding, 1300 fm; wind, 340°, force 4; weather, partly cloudy; sea, rough; wire angle, 15°.

1	24.82	34.13	4.54	0.40				510	0	(24.82)	(34.13)	(4.54)	(22.76)	(510)	(0.00)
10	24.85	34.11	4.52	0.39				512	10	24.85	34.11	4.52	22.74	512	0.05
29	20.82	34.04	5.14	0.38				408	20	22.20	34.07	4.96	23.47	442	0.10
38	20.10	34.00	4.95	0.41				392	30	20.73	34.04	5.13	23.86	406	0.14
53	19.52	34.04	5.02	0.42c)				375	50	19.67	34.03	5.01	24.13	379	0.22
66	18.63	33.98	4.98	0.44				358	75	18.00	33.94	4.90	24.48	346	0.31
90	16.88	33.89	4.84	0.75c)				324	100	15.50	33.84	4.43	24.98	298	0.39
108	14.38	33.80	3.92	1.00c)				277	150	11.85	34.04	2.27	25.90	212	0.52
127	12.57	33.76	3.54	1.38				245	200	11.00	34.42	1.13	26.34	169	0.62
145	11.96	33.99	2.44	2.16c)				217	250	10.60	34.56	0.60	26.53	152	0.70
173	11.50	34.25	1.61	2.58c)				190	300	9.69	34.53	0.55	26.66	139	0.78
205	10.91	34.44	1.07	2.77				166	400	8.42	34.54	0.34	26.86	120	0.91
233	10.8d)	34.56	0.60	2.86c)				155	500	7.29	34.49	0.43	27.00	107	1.03
280	9.84	34.49	0.65	3.10c)				145							
341	9.34	34.61	0.34	3.18c)				128							
413	8.23	34.52	0.34	3.38c)				118							
494	7.32	34.49	0.43	3.12c)				107							
577	6.78	34.47	0.27	3.34c)				101							

a) Duplicate values: 35 m, 0.34; 61, 0.53; 113, 2.71; 130, 2.64; 153, 2.62; 181, 2.87; 204, 3.30; 359, 3.18 μg at/L.

b) Mean value of 11.21 and 11.32°C.

c) Duplicate values: 53 m, 0.36; 90, 0.51; 108, 0.94; 145, 2.05; 173, 2.47; 233, 2.79; 280, 3.18; 341, 2.86; 413, 3.18; 494, 3.30; 577, 3.46 μg at/L.

d) Both protected thermometers at this level malfunctioned. Since an acceptable depth was obtained, the temperature value was determined by calculation, using the unprotected thermometer reading.

OBSERVED								COMP	INTERPOLATED				COMPUTED		
Z	T	S	O ₂	PO ₄ -P	SiO ₃ -Si	NO ₂ -N	NO ₃ -N	δ _T	Z	T	S	O ₂	σ _t	δ _T	ΔD
m	°C	‰	ml/L	μg at/L	μgm at/L	μg at/L	μg at/L	10 ⁻⁵ cm ³ /g	m	°C	‰	ml/L	g/L	10 ⁻⁵ cm ³ /g	dyn m

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HUGH M. SMITH; August 18, 1959; 0432 GCT; 24°55'N, 115°02'W; sounding, 1970 fm; wind, 340°, force 4; weather, partly cloudy; sea, rough; wire angle, 16°.

133.60

1	25.16	34.05	3.97	0.41				526	0	(25.16)	(34.05)	(3.97)	(22.59)	(526)	(0.00)
10	25.17	34.11	4.09	0.42a)				521	10	25.17	34.11	4.09	22.65	521	0.05
30	20.86	34.07	4.30	0.42				407	20	24.60	34.13	4.13	22.83	504	0.10
39	19.90	33.98	4.33	0.42				389	30	20.86	34.07	4.30	23.84	407	0.15
53	18.60	33.91	4.40	0.43				362	50	18.83	33.92	4.39	24.26	368	0.23
68	17.90	33.96	4.47	0.46a)				342	75	17.84	33.99	4.44	24.56	339	0.31
92	16.84	33.96	4.17	0.54				318	100	16.35	33.94	4.10	24.87	309	0.40
112	14.36	33.86	3.80	0.92				273	150	11.31	33.85	3.10	25.85	216	0.53
130	12.80	33.82	3.08	1.55				246	200	11.16	34.41	1.08	26.31	172	0.63
149	11.32	33.84	3.14	1.93				217	250	10.35	34.54	0.90	26.56	149	0.71
179	11.44	34.27	1.49	2.71a)				188	300	9.38	34.50	0.62	26.69	136	0.78
212	10.98	34.47	0.93	2.77				165	400	8.12	34.49	0.48	26.88	118	0.92
242	10.50	34.54	0.93	2.85				151	500	7.15	34.51	0.37	27.03	104	1.03
289	9.58	34.52	0.64	2.59a)				138	600	(6.17)	(34.52)	(0.36)	(27.17)	(90)	(1.14)
343	8.67	34.44	0.53	2.31				130							
426	7.87	34.51	0.45	2.53a)				113							
509	7.06	34.51	0.36	3.15				102							
593	6.24	34.52	0.36	3.43				91							

HUGH M. SMITH; August 17, 1959; 2047 GCT; 24°31'N, 115°45'W; sounding, 2100 fm; wind, 360°, force 4; weather, cloudy; sea, rough; wire angle, 16°.

133.70

1	25.34	34.11	4.64	0.42				527	0	(25.34)	(34.11)	(4.64)	(22.58)	(527)	(0.00)
10	25.33	34.14	4.60	0.42				524	10	25.33	34.14	4.60	22.61	524	0.05
29	21.57	33.92	5.39	0.46b)				436	20	25.32	34.19	4.61	22.65	521	0.10
39	18.00	33.89	5.60	0.68				350	30	21.40	33.92	5.40	23.58	432	0.15
52	15.81	33.82	4.86	0.82				306	50	15.98	33.82	4.94	24.87	309	0.23
66	14.13	33.82	3.92	1.63b)				271	75	13.02	33.86	3.19	25.52	247	0.30
89	12.26	33.96	2.51	2.09				225	100	11.98	34.02	2.43	25.86	215	0.36
107	11.36	34.00	2.34	2.54b)				206	150	11.27	34.47	1.00	26.33	170	0.45
126	11.62	34.27	1.37	2.41b)				191	200	10.69	34.57	0.67	26.51	153	0.54
144	11.33	34.47	1.10	2.77b)				171	250	9.88	34.51	0.50	26.61	144	0.61
172	11.04	34.45	0.79	2.85				168	300	9.42	34.52	0.38	26.70	135	0.68
206	10.60	34.58	0.64	3.12b)				150	400	8.06	34.47	0.37	26.86	120	0.82
233	10.03	34.51	0.58	3.01b)				147	500	6.92	34.43	0.25	27.01	106	0.94
281	9.60	34.52	0.38	3.15				138							
335	9.02	34.53	0.40	3.18b)				129							
417	7.82	34.45	0.34	3.28				117							
502	6.90	34.43	0.24	3.73b)				106							

HUGH M. SMITH; August 19, 1959; 1800 GCT; 25°34.5'N, 113°22.5'W; sounding, 92 fm; wind, 340°, force 3; weather, partly cloudy; sea, moderate; wire angle, 08°.

134.36

0	22.86	33.94	5.00	0.43	1.7	0.01	1.2	469	0	22.86	33.94	5.00	23.19	469	0.00
9	21.82	33.94	5.19	0.44	1.8	0.0	0.4	441	10	21.30	33.94	5.23	23.63	427	0.04
29	18.32	33.95	5.48	0.43c)	1.2	0.0	0.4	353	20	19.63	33.95	5.39	24.08	384	0.08
49	16.64	33.91	5.14	0.53	1.9	0.0	0.4	317	30	18.30	33.95	5.47	24.42	352	0.12
73	14.34	33.85	4.26	1.01	6.2	0.09	9.0	273	50	16.63	33.91	5.13	24.79	317	0.19
98	13.58	34.11	2.23	2.09	18.8	0.03	23.4	238	75	14.30	33.85	4.23	25.26	272	0.26
123	12.48	34.47	1.19	2.63	29.5	0.01	34.0	192	100	13.38	34.16	1.98	25.69	231	0.33

HUGH M. SMITH; August 22, 1959; 1343 GCT; 25°32.5'N, 112°22.5'W; sounding, 41 fm; wind, 210°, force 2; weather, partly cloudy; sea, rough; wire angle, 00°.

137.23

1	25.38	34.11	4.57	0.45				528	0	(25.38)	(34.11)	(4.57)	(22.57)	(528)	(0.00)
11	25.38	34.13	4.64	0.47				526	10	25.38	34.13	4.64	22.59	526	0.05
31	22.79	34.18	5.03	0.53				450	20	24.20	34.16	4.87	22.97	490	0.10
51	19.98	34.41	4.02	1.06				360	30	22.87	34.18	5.03	23.37	452	0.15
									50	20.02	34.40	4.05	24.32	362	0.23

a) Duplicate values: 10 m, 0.34; 68, 0.29; 179, 2.56; 289, 2.91; 426, 2.44 μg at/L.

b) Duplicate values: 29 m, 0.52; 66, 1.19; 107, 2.22; 126, 2.54; 144, 2.89; 206, 2.85; 233, 3.12; 335, 3.12; 502, 3.24 μg at/L.

c) Duplicate value, 0.53 μg at/L.

OBSERVED								COMP	INTERPOLATED				COMPUTED		
Z	T	S	O ₂	PO ₄ -P	SiO ₃ -Si	NO ₂ -N	NO ₃ -N	δ_T	Z	T	S	O ₂	σ_t	δ_T	ΔD
m	°C	‰	ml/L	µg at/L	µgm at/L	µg at/L	µg at/L	10 ⁻⁵ cm ³ /g	m	°C	‰	ml/L	g/L	10 ⁻⁵ cm ³ /g	dyn m

137.30 HUGH M. SMITH; August 22, 1959; 1751 GCT; 25°22'N, 112°47.5'W; sounding, 195 fm; wind, 250°, force 2; weather, clear; sea, rough; wire angle, 08°.

1	26.78	34.42	4.47	0.43				547	0	(26.78)	(34.42)	(4.47)	(22.38)	(547)	(0.00)
11	26.69	34.42	4.47	0.41				544	10	26.69	34.42	4.47	22.41	544	0.05
31	20.68	33.90	5.34	0.39				414	20	26.00	34.36	4.54	22.57	528	0.11
51	18.09	34.49	2.90	1.59a)				308	30	21.30	33.94	5.33	23.63	427	0.16
75	15.98	34.52	1.91	2.20a)				258	50	18.22	34.46	3.03	24.83	313	0.23
99	14.70	34.56	1.46	2.41				228	75	15.98	34.52	1.91	25.40	258	0.30
123	14.50	34.79	0.60	2.79				207	100	14.67	34.56	1.43	25.73	227	0.36
163	13.16	34.74	0.34	2.86				184	150	13.60	34.77	0.38	26.11	191	0.47
201	12.46	34.69	0.31	2.72a)				176	200	12.48	34.69	0.31	26.28	176	0.56
250	11.70	34.69	0.38	3.52				161	250	11.70	34.69	0.38	26.43	161	0.65
301	10.99	34.65	0.21	3.52				152	300	11.00	34.65	0.21	26.53	152	0.73

137.35 HUGH M. SMITH; August 22, 1959; 2100 GCT; 25°14'N, 113°03'W; sounding, 275 fm; wind, 250°, force 2; weather, partly cloudy; sea, moderate; wire angle, 09°.

1	26.62	34.36	4.54	0.49				547	0	(26.62)	(34.36)	(4.54)	(22.38)	(547)	(0.00)
11	26.32	34.34	4.43	0.52				539	10	26.33	34.34	4.44	22.46	539	0.05
30	21.06	34.15	5.29	0.48b)				406	20	26.10	34.33	4.45	22.52	534	0.11
50	16.70	34.01	4.50	0.87				311	30	21.06	34.15	5.29	23.85	406	0.16
75	15.22	34.14	2.97	1.68b)				270	50	16.70	34.01	4.50	24.85	311	0.23
99	15.70	34.88	0.81	2.74b)				226	75	15.22	34.14	2.97	25.28	270	0.30
123	14.69	34.87	0.60	2.71b)				205	100	15.69	34.88	0.80	25.75	225	0.36
163	13.86	34.90	0.50	2.93				186	150	14.12	34.89	0.51	26.10	192	0.47
202	13.00	34.78	0.48	2.81b)				178	200	13.06	34.79	0.49	26.24	179	0.56
251	11.78	34.68	0.26	2.96				163	250	11.79	34.68	0.26	26.41	163	0.65
301	11.12	34.67	0.36	2.94				152	300	11.13	34.67	0.36	26.52	153	0.73
404	9.04	34.56	-	3.12				127	400	9.16	34.56		26.78	128	0.88

137.40 HUGH M. SMITH; August 20, 1959; 0843 GCT; 25°00'N, 113°24'W; sounding, 1700 fm; wind, 360°, force 3; weather, partly cloudy; sea, rough; wire angle, 04°.

0	23.79	34.13	4.69	0.42				481	0	23.79	34.13	4.69	23.06	481	0.00
10	23.67	34.13	4.90	0.36				477	10	23.67	34.13	4.90	23.11	477	0.05
30	20.03	34.12	5.22	0.35				382	20	21.28	34.12	5.18	23.77	414	0.09
40	19.40	34.14	5.24	0.38				365	30	20.03	34.12	5.22	24.10	382	0.13
54	17.90	33.93	5.15	0.44				344	50	18.37	33.99	5.19	24.43	351	0.20
69	15.94	33.91	4.76	0.74				302	75	14.99	33.98	3.24	25.20	277	0.28
94	16.14	34.78	1.08	2.54				243	100	16.06	34.85	0.97	25.63	236	0.35
114	15.51	34.93	0.84	2.77c)				218	150	13.58	34.87	0.56	26.20	183	0.46
133	14.14	34.88	0.57	2.83c)				193	200	11.64	34.65	0.51	26.41	163	0.54
153	13.44	34.86	0.57	2.99c)				181	250	11.08	34.70	0.26	26.55	150	0.62
182	11.80	34.58	0.81	2.52c)				171	300	10.38	34.66	0.23	26.65	140	0.70
217	11.66	34.73	0.29	3.05c)				158	400	8.69	34.55	0.47	26.84	122	0.84
247	11.13	34.70	0.27	2.91				150	500	7.28	34.49	0.35	27.00	106	0.95
296	10.47	34.67	0.21	3.27c)				141	600	6.16	34.47	0.40	27.14	94	1.06
350	9.30	34.52	0.45	3.07				134							
434	8.26	34.57	0.45	3.37				115							
518	7.02	34.48	0.34	3.43c)				104							
602	6.14	34.47	0.40	3.47c)				94							

a) Duplicate values: 51 m, 1.53; 75, 2.06; 201, 2.91 µg at/L.

b) Duplicate values: 30 m, 0.81; 75, 1.60; 99, 2.64; 123, 2.79; 202, 2.71 µg at/L.

c) Duplicate values: 114 m, 2.70; 133, 2.73; 153, 3.27; 182, 2.72; 217, 2.92; 296, 3.05; 518, 3.23; 602, 3.96 µg at/L.

OBSERVED								COMP	INTERPOLATED				COMPUTED		
Z	T	S	O ₂	PO ₄ -P	SiO ₃ -Si	NO ₂ -N	NO ₃ -N	δ _T	Z	T	S	O ₂	σ _t	δ _T	ΔD
m	°C	‰	ml/L	μg at/L	μgm at/L	μg at/L	μg at/L	10 ⁻⁵ cm ³ /g	m	°C	‰	ml/L	g/L	10 ⁻⁵ cm ³ /g	dyn m

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HUGH M. SMITH; August 20, 1959; 1605 GCT; 24°40'N, 114°02'W; sounding, 2050 fm; wind, 020°, force 3; weather, cloudy; sea, high; wire angle, 08°.

13750

2	23.04	33.99a)	4.60	0.44				470	0	(23.04)	(33.99)	(4.60)	(23.18)	(470)	(0.00)
11	22.96	33.96	4.50	0.38b)				470	10	22.97	33.96	4.50	23.18	470	0.05
30	19.72	34.00	5.02	0.47				383	20	22.30	33.96	4.60	23.37	452	0.09
40	19.42	34.05	4.83	0.45				372	30	19.72	34.00	5.02	24.09	383	0.13
56	18.29	34.00	4.76	0.53b)				348	50	18.92	34.03	4.77	24.33	361	0.21
69	16.62	33.91	4.64	0.59				317	75	15.86	33.90	4.49	24.96	301	0.29
94	13.70	33.91	3.26	1.43				256	100	13.32	33.94	2.77	25.53	246	0.36
113	12.94	34.13	1.51	2.32				225	150	12.90	34.51	0.45	26.06	196	0.47
133	12.91	34.43	0.43	2.83b)				203	200	12.16	34.69	0.38	26.34	170	0.56
152	12.88	34.53	0.45	3.12b)				195	250	11.80	34.79	0.22	26.49	155	0.65
180	12.42	34.68	0.33	3.00				176	300	10.97	34.71	0.26	26.58	147	0.73
216	12.00	34.70	0.40	2.98				166	400	9.22	34.59	0.33	26.78	128	0.87
245	11.86	34.80	0.21	3.07				156	500	7.49	34.49	0.36	26.97	109	0.99
294	11.04	34.72	0.26	3.06				148	600	(6.64)	(34.51)	(0.21)	(27.10)	(97)	(1.10)
348	10.16	34.65	0.29	3.14b)				138							
516	7.28	34.49	0.27	3.31b)				107							
599	6.66	34.51	0.21	3.61b)				97							

HUGH M. SMITH; August 20, 1959; 1904 GCT; 24°29'N, 114°22'W; sounding, 2070 fm; wind, 020°, force 4; weather, partly cloudy; sea, very rough; wire angle, 02°.

13755

1	24.02	34.02	4.76	0.39c)				496	0	(24.02)	(34.02)	(4.76)	(22.91)	(496)	(0.00)
10	23.86	34.04	4.76	0.37				489	10	23.86	34.04	4.76	22.98	489	0.05
30	20.82	34.05	5.26	0.35				408	20	23.80	34.04	4.76	23.00	488	0.10
40	19.38	34.00	-	-				374	30	20.82	34.05	5.26	23.84	408	0.14
55	17.65	33.86	5.29	0.46c)				344	50	18.00	33.88	5.30	24.44	350	0.22
70	16.18	33.87	4.93	0.90c)				310	75	15.70	33.88	4.64	24.97	299	0.30
94	13.48	33.94	2.59	1.81				249	100	13.12	34.00	2.16	25.62	238	0.37
114	12.92	34.25	1.55	2.42				216	150	12.68	34.68	0.49	26.23	180	0.47
133	12.68	34.52	0.88	2.57				192	200	12.14	34.76	0.33	26.40	164	0.56
154	12.68	34.70	0.45	3.06c)				178	250	11.37	34.79	0.21	26.57	148	0.64
183	12.38	34.72	0.33	3.06				172	300	10.86	34.75	0.15	26.62	143	0.72
217	11.88	34.79	0.33	3.22c)				157	400	9.13	34.62	0.19	26.82	124	0.86
246	11.43	34.80	0.22	3.12c)				149	500	7.72	34.57	0.16	27.00	107	0.98
305	10.80	34.74	0.14	3.27c)				142	600	6.64	34.49	0.24	27.08	99	1.08
350	10.14	34.70	0.12	3.07c)				134							
433	8.57	34.59	0.21	3.33				117							
517	7.53	34.56	0.15	3.41				105							
601	6.63	34.49	0.24	3.39				99							

HUGH M. SMITH; August 22, 1959; 0717 GCT; 24°45'N, 112°24'W; sounding, 60 fm; wind, 230°, force 2; weather, clear; sea, rough; wire angle, 00°.

14030

1	26.71	34.56	4.54	0.53				535	0	(26.71)	(34.56)	(4.54)	(22.50)	(535)	(0.00)
11	25.74	34.37	4.57	0.46				520	10	25.82	34.38	4.57	22.64	522	0.05
31	22.50	34.43	4.67	0.66				424	20	23.50	34.41	4.68	23.37	452	0.10
51	20.78	34.41	4.19	0.88				380	30	22.52	34.43	4.67	23.66	424	0.14
75	16.68	34.58	1.89	2.02d)				269	50	20.85	34.41	4.22	24.10	382	0.23
									75	16.68	34.58	1.89	25.29	269	0.31

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

b) Duplicate values: 11 m, 0.30; 56, 0.46; 133, 2.71; 152, 3.41; 348, 3.06; 516, 3.37; 599, 3.37 μg at/L.

c) Duplicate values: 1 m, 0.30; 55, 0.55; 70, 0.62; 154, 2.86; 217, 3.06; 246, 2.73; 305, 3.33; 350, 3.13 μg at/L.

d) Duplicate value, 2.12 μg at/L.

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OBSERVED								COMP	INTERPOLATED				COMPUTED		
Z	T	S	O ₂	PO ₄ -P	SiO ₃ -Si	NO ₂ -N	NO ₃ -N	δ_T	Z	T	S	O ₂	σ_t	δ_T	ΔD
m	°C	‰	ml/L	µg at/L	µgm at/L	µg at/L	µg at/L	10 ⁻⁵ cm ³ /g	m	°C	‰	ml/L	g/L	10 ⁻⁵ cm ³ /g	dyn m

140.35

HUGH M. SMITH; August 23, 1959; 0425 GCT; 24°36'N, 112°39'W; sounding, 385 fm; wind, 330°, force 3; weather, partly cloudy; sea, moderate; wire angle, 04°.

1	26.95	34.66	4.33	0.61a)				535	0	(26.95)	(34.66)	(4.33)	(22.50)	(535)	(0.00)
11	26.94	34.61	4.47	0.59				538	10	26.94	34.61	4.46	22.47	538	0.05
30	22.72	34.33	5.02	0.57				437	20	26.00	34.54	4.64	22.71	515	0.11
40	19.72	34.10	4.90	0.31a)				375	30	22.72	34.33	5.02	23.53	437	0.15
55	17.57	33.97	5.03	0.64a)				334	50	18.10	33.99	5.01	24.50	344	0.23
70	15.70	33.96	3.95	1.16				293	75	15.61	34.04	3.69	25.11	286	0.31
94	14.68	34.40	1.51	2.36a)				240	100	14.85	34.57	1.17	25.69	231	0.38
114	14.86	34.79	0.72	2.82				215	150	13.64	34.86	0.43	26.18	185	0.48
134	14.22	34.90	0.55	2.67a)				194	200	12.28	34.77	0.30	26.38	166	0.57
154	13.50	34.85	0.40	3.00				183	250	11.37	34.69	0.19	26.49	155	0.65
183	12.74	34.80	0.26	3.00				172	300	10.82	34.67	0.23	26.56	148	0.73
218	11.82	34.74	0.31	3.00				160	400	8.85	34.54	0.28	26.81	125	0.87
247	11.40	34.70	0.19	3.00				156	500	7.12	34.50	0.23	27.03	104	0.99
297	10.87	34.67	0.22	3.00				148	600	6.39	34.45	0.20	27.09	98	1.10
351	9.88	34.60	0.29	3.05				137							
435	8.14	34.52	0.26	3.29a)				116							
519	6.92	34.49	0.21	3.40				102							
605	6.36	34.45	0.19	3.40				98							

140.40

HUGH M. SMITH; August 23, 1959; 0845 GCT; 24°25.5'N, 113°02.5'W; sounding, 2000 fm; wind, 320°, force 3; weather, partly cloudy; sea, slight; wire angle, 03°.

1	25.66	33.93	4.60	0.14				549	0	(25.66)	(33.93)	(4.60)	(22.36)	(549)	(0.00)
11	25.64	33.96	4.64	0.16				546	10	25.64	33.96	4.64	22.38	546	0.05
30	19.32	33.98	5.45	0.21				374	20	24.83	33.97	4.84	22.64	522	0.11
40	16.16	33.76	5.14	0.41				317	30	19.32	33.98	5.45	24.18	374	0.15
55	14.38	33.78	4.23	0.91				279	50	14.84	33.77	4.60	25.08	289	0.22
70	13.20	33.82	3.14	1.36				253	75	13.07	33.85	2.95	25.51	248	0.29
94	12.68	34.21	1.58	2.12b)				214	100	12.59	34.25	1.46	25.92	210	0.34
114	12.34	34.33	1.29	2.41				200	150	12.18	34.57	0.60	26.25	178	0.44
134	12.42	34.34u	0.79	2.69b)				-	200	11.29	34.61	0.49	26.44	160	0.53
153	12.10	34.58	0.60	2.67b)				176	250	10.28	34.58	0.45	26.60	145	0.61
183	11.58	34.60	0.58	2.69				165	300	9.76	34.55	0.31	26.67	138	0.68
217	10.93	34.61	0.41	2.82b)				154	400	8.26	34.50	0.41	26.86	120	0.82
247	10.32	34.58	0.46	2.66				145	500	7.09	34.50	0.36	27.03	104	0.93
296	9.82	34.56	0.31	2.93b)				140	600	6.17	34.44	0.34	27.11	96	1.04
350	9.03	34.52	0.38	2.83b)				130							
434	7.80	34.50	0.41	3.06b)				113							
518	6.90	34.49	0.34	3.32b)				102							
603	6.14	34.44	0.34	3.21				96							

a) Duplicate values: 1 m, 0.53; 40, 0.55; 55, 0.53; 94, 2.28; 134, 3.03; 435, 3.22 µg at/L.

b) Duplicate values: 94 m, 2.28; 134, 2.55; 153, 2.59; 217, 2.70; 296, 2.78; 350, 2.93; 434, 3.14; 518, 2.88 µg at/L.

OBSERVED								COMP	INTERPOLATED				COMPUTED		
Z	T	S	O ₂	PO ₄ -P	SiO ₃ -Si	NO ₂ -N	NO ₃ -N	δ _T	Z	T	S	O ₂	σ _t	δ _T	ΔD
m	°C	‰	ml/L	μg at/L	μgm at/L	μg at/L	μg at/L	10 ⁻⁵ cm ³ /g	m	°C	‰	ml/L	g/L	10 ⁻⁵ cm ³ /g	dyn m

HUGH M. SMITH; August 23, 1959; 1655 GCT; 24°08'N, 113°42.5'W; sounding, 1800 fm; wind, 320°, force 2; weather, partly cloudy; sea, rough; wire angle, 18°.

1	23.94	34.03	4.60	0.17a)	1.7	0.0	0.2	492	0	(23.94)	(34.03)	(4.60)	(22.95)	(492)	(0.00)
10	23.90	34.04	4.50	0.26a)	1.8	0.0	0.4	490	10	23.90	34.04	4.50	22.97	490	0.05
28	19.86	33.98	4.97	0.31a)	-	-	-	388	20	23.00	34.03	4.58	23.22	466	0.10
38	19.25	33.97	5.10	0.22	1.1	0.0	0.4	374	30	19.73	33.98	5.00	24.07	385	0.14
52	17.52	33.91	4.64	0.31	1.4	0.0	0.3	337	50	17.92	33.93	4.76	24.49	345	0.21
65	14.29	33.80	3.76	1.08	6.7	0.08	7.6	276	75	12.98	33.91	2.48	25.58	242	0.29
88	12.70	34.04	1.82	2.00	21.8	0.02	22.4	227	100	12.78	34.22	1.24	25.86	215	0.34
106	12.81	34.31	0.91	2.52a)	28.2	0.0	26.7	210	150	12.69	34.59	0.38	26.16	187	0.45
124	12.86	34.48	0.74	2.73a)	31.5	Trace	26.2	198	200	11.88	34.66	0.41	26.37	166	0.54
142	12.76	34.57	0.38	2.58a)	-	-	-	189	250	11.07	34.64	0.38	26.50	154	0.62
169	12.42	34.62	0.38	2.86a)	34.8	0.01	-	180	300	10.23	34.56	0.45	26.60	145	0.70
200	11.88	34.66	0.41	2.90a)	-	-	-	166	400	8.95	34.56	0.21	26.80	125	0.84
227	11.55	34.67	0.21	2.90a)	-	-	-	160	500	7.55	34.50	0.20	26.97	110	0.96
273	10.56	34.69u	0.48	2.82	38.3	0.0	-	-							
324	9.96	34.56	0.34	2.75	-	-	-	141							
403	8.90	34.56	0.21	3.01a)	50.9	0.0	30.6	125							
484	7.74	34.51	0.21	2.87a)	-	-	-	111							
567	6.99	34.49	0.17	3.29	69.5	0.0	30.9	103							

HUGH M. SMITH; August 24, 1959; 0250 GCT; 23°44.5'N, 114°22'W; sounding, 2100 fm; wind, 340°, force 2; weather, partly cloudy; sea, moderate; wire angle, 06°.

1	26.06	34.28	4.43	0.26				536	0	(26.06)	(34.28)	(4.43)	(22.49)	(536)	(0.00)
11	26.06	34.31	4.47	0.34				534	10	26.06	34.31	4.47	22.51	534	0.05
30	22.72	33.98	4.81	0.28				462	20	25.83	34.29	4.52	22.57	528	0.11
40	17.82	33.80	5.15	0.35b)				352	30	22.72	33.98	4.81	23.26	462	0.16
55	15.76	33.87	4.26	0.52				301	50	16.35	33.85	4.63	24.80	316	0.23
70	14.62	33.89	3.54	1.10				276	75	14.37	33.95	3.16	25.32	266	0.31
94	13.80	34.31	1.77	1.99				229	100	13.55	34.36	1.70	25.81	220	0.37
114	12.16	34.26	1.63	2.23				201	150	10.66	34.36	1.52	26.35	168	0.47
134	10.66	34.14	2.11	1.93b)				184	200	10.82	34.61	0.61	26.52	152	0.55
154	10.68	34.39	1.39	2.45				166	250	10.51	34.72	0.26	26.66	139	0.62
183	10.82	34.54	0.91	2.59				158	300	10.00	34.65	0.20	26.69	136	0.70
218	10.82	34.69	0.33	2.82				146	400	8.78	34.62	0.23	26.88	118	0.83
247	10.55	34.72	0.27	2.82				139	500	7.63	34.58	0.20	27.02	105	0.94
297	10.02	34.65	0.21	2.99b)				136	600	6.58	34.54	0.17	27.14	94	1.05
352	9.40	34.64	0.19	2.99b)				126							
434	8.34	34.60	0.24	3.10				113							
520	7.42	34.57	0.19	3.21				103							
603	6.53	34.54	0.17	3.29				93							

a) Duplicate values: 1 m, 0.23; 10, 0.17; 28, 0.21; 106, 2.40; 124, 2.48; 142, 2.78; 169, 3.14; 200, 2.70; 227, 2.74; 403, 2.87; 484, 3.16 μg at/L.

b) Duplicate values: 40 m, 0.25; 134, 2.13; 297, 2.87; 352, 2.93 μg at/L.

OBSERVED								COMP	INTERPOLATED				COMPUTED		
Z	T	S	O ₂	PO ₄ -P	SiO ₃ -Si	NO ₂ -N	NO ₃ -N	δ _T	Z	T	S	O ₂	σ _t	δ _T	ΔD
m	°C	‰	ml/L	μg at/L	μgm at/L	μg at/L	μg at/L	10 ⁻⁵ cm ³ /g	m	°C	‰	ml/L	g/L	10 ⁻⁵ cm ³ /g	dyn m

40.70

HUGH M. SMITH; August 24, 1959; 0940, 1007 GCT; 23°26'N, 114°55'W; sounding, 2000+ fm; wind, 340°, force 3; weather, partly cloudy; sea, moderate; wire angle, 20°, 30°.

1	25.96	34.49	4.55	0.37			0.3	518	0	(25.96)	(34.49)	(4.55)	(22.68)	(518)	(0.00)
10	25.36	34.42	4.59	0.39			0.2	505	10	25.36	34.42	4.59	22.81	505	0.05
29	24.09	34.38	4.79	0.45			-	471	20	25.25	34.41	4.60	22.84	502	0.10
37	22.76	34.31	4.95	0.49a)			0.2	440	30	23.97	34.37	4.81	23.20	468	0.15
51	17.57	34.05	4.91	0.71a)			0.2	328	50	17.85	34.05	4.95	24.60	334	0.23
64	16.24	34.19	3.09	1.44			0.2	288	75	15.88	34.24	2.71	25.22	276	0.31
87	14.50	34.26	2.13	1.89			0.3	246	100	12.48	34.06	2.15	25.78	222	0.37
105	12.47	34.09	2.15	2.00			0.6	220	150	11.34	34.37	1.31	26.25	178	0.47
122	11.96	34.25	1.67	2.24a)			3.2	198	200	10.72	34.52	0.68	26.48	156	0.56
140	11.49	34.30	1.43	2.72a)			-	186	250	9.72	34.46	0.58	26.60	145	0.63
166	11.14	34.47	1.13	2.58			18.7	168	300	8.92	34.46	0.66	26.73	132	0.71
196	10.78	34.52	0.69	2.58			-	158	400	8.04	34.45	0.33	26.86	120	0.84
223	10.36	34.51	0.67	2.70a)			-	151	500	7.09	34.46	0.22	27.00	107	0.96
267	9.36	34.43	0.53	3.17			36.7	141							
317	8.75	34.47	0.67	2.84			-	129							
374	8.32	34.45	0.40	2.95			32.3	124							
452	7.47	34.46	0.26	3.17a)			-	112							
533	6.86	34.45	0.21	3.37a)			-	104							

143.26

HUGH M. SMITH; August 21, 1959; 2345 GCT; 24°19'N, 111°48'W; sounding, 42 fm; wind, 200°, force 3; weather, partly cloudy; sea, rough; wire angle, 02°.

0	27.17	34.70	4.45	0.77b)				539	0	27.17	34.70	4.45	22.46	539	0.00
10	27.00	34.69	4.31	0.49b)				535	10	27.00	34.69	4.31	22.50	535	0.05
30	24.26	34.49	5.24	0.73b)				468	20	26.07	34.62	4.62	22.74	512	0.11
50	19.92	34.29	4.81	0.74				366	30	24.26	34.49	5.24	23.20	468	0.16
									50	19.92	34.29	4.81	24.27	366	0.24

143.30

HUGH M. SMITH; August 22, 1959; 0200 GCT; 24°10.5'N, 112°03'W; sounding, 110 fm; wind, 220°, force 4; weather, partly cloudy; sea, rough; wire angle, 00°.

1	27.16	34.56	4.35	0.57				548	0	(27.16)	(34.56)	(4.35)	(22.36)	(548)	(0.00)
11	27.12	34.56	4.26	0.58				548	10	27.13	34.56	4.26	22.37	548	0.05
31	21.68	34.27	4.97	0.56				413	20	25.50	34.45	4.46	22.80	506	0.11
51	17.91	34.27	3.64	1.18c)				320	30	21.90	34.28	4.95	23.72	418	0.15
75	15.62	34.56	1.29	2.34				248	50	18.05	34.27	3.73	24.72	324	0.23
100	15.16	34.76	0.81	2.63				223	75	15.62	34.56	1.29	25.51	248	0.30
125	14.84	34.78	0.64	2.72c)				215	100	15.16	34.76	0.81	25.78	223	0.36
154	14.04	34.87	0.45	2.32c)				193	150	14.16	34.86	0.45	26.07	195	0.47

a) Duplicate values: 37 m, 0.41; 51, 0.62; 122, 2.08; 140, 2.44; 223, 2.58; 452, 3.05; 533, 3.25 μg at/L.

b) Duplicate values: 0 m, 0.66; 10, 0.71; 30, 0.61 μg at/L.

c) Duplicate values: 51 m, 1.38; 125, 2.62; 154, 2.80 μg at/L.

OBSERVED									COMP	INTERPOLATED				COMPUTED		
Z	T	S	O ₂	PO ₄ -P	SiO ₃ -Si	NO ₂ -N	NO ₃ -N	δ _T	Z	T	S	O ₂	σ _t	δ _T	ΔD	
m	°C	‰	ml/L	μg at/L	μgm at/L	μg at/L	μg at/L	10 ⁻⁵ cm ³ /g	m	°C	‰	ml/L	g/L	10 ⁻⁵ cm ³ /g	dyn m	

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HUGH M. SMITH; August 26, 1959; 0100 GCT; 24°12.5'N, 112°25'W; sounding, 550 fm; wind, 320°, force 4; weather, partly cloudy; sea, very rough; wire angle, 07°.

143.35

2	26.76	-	4.23	0.30	2.1	0.0	0.7	-	0	(26.76)	(34.53)	(4.23)	(22.47)	(538)	(0.00)
12	26.78	34.53	4.09	0.28	2.2	0.0	0.2	539	10	26.77	(34.53)	4.12	(22.46)	(539)	(0.05)
32	19.90	33.94	5.02	0.17	-	-	-	392	20	26.75	34.53	4.09	22.47	538	(0.11)
41	18.64	34.11	4.93	0.18	1.2	0.0	1.1	349	30	22.20	34.11	4.77	23.51	439	(0.16)
56	16.56	34.02	3.97	0.77	6.1	0.17	4.5	307	50	17.46	34.06	4.52	24.70	325	(0.23)
71	14.78	34.23	1.86	1.80	17.3	0.06	23.7	254	75	14.26	34.18	1.63	25.52	247	(0.30)
95	14.08	34.39	1.10	2.10	22.9	0.02	26.8	228	100	14.03	34.42	1.03	25.75	225	(0.36)
115	13.37	34.50	0.72	2.36	27.5	0.0	31.8	206	150	12.56	34.65	0.40	26.24	179	(0.47)
134	12.51	34.55	0.57	2.34a)	30.2	0.01	30.0	186	200	12.20	34.69	0.31	26.33	170	(0.56)
154	12.61	34.69	0.38	2.68	-	-	-	178	250	10.99	34.78	0.21	26.63	142	(0.64)
183	12.42	34.69	0.38	2.94	35.7	0.01	32.1	175	300	10.22	34.66	0.16	26.67	138	(0.71)
217	11.94	34.70	0.26	2.64	-	-	-	165	400	8.97	34.59	0.22	26.82	124	(0.84)
247	11.07	34.78	0.22	2.66	-	-	-	144	500	7.40	34.50	0.20	26.98	108	(0.97)
297	10.3b)	34.67	0.15	2.74	41.9	0.0	32.6	139	600	6.43	-	0.29	-	-	-
351	9.64	34.61	0.21	2.72	-	-	-	133	-	-	-	-	-	-	-
435	8.40	34.55	0.22	2.90a)	55.4	0.0	34.4	118	-	-	-	-	-	-	-
518	7.17	34.49	0.19	2.93	-	-	-	105	-	-	-	-	-	-	-
603	6.40	-	0.29	3.13a)	75.6	0.0	44.5	-	-	-	-	-	-	-	-

HUGH M. SMITH; August 25, 1959; 1853 GCT; 23°51'N, 112°40.5'W; sounding, 1800 fm; wind, 340°, force 4; weather, cloudy; sea, rough; wire angle, 17°.

143.40

2	26.28	34.14	4.11	-	-	-	-	552	0	(26.28)	(34.14)	(4.11)	(22.32)	(552)	(0.00)
11	26.26	34.14	4.36	-	-	-	-	552	10	26.26	34.14	4.36	22.32	552	0.06
30	18.94	34.09	5.15	-	-	-	-	357	20	26.23	34.14	4.39	22.34	551	0.11
39	17.38	34.07	4.31	-	-	-	-	322	30	18.94	34.09	5.15	24.36	357	0.16
53	15.34	33.93	3.80	-	-	-	-	288	50	15.88	33.97	3.94	25.02	295	0.22
67	13.35	33.96	2.49	-	-	-	-	245	75	13.21	34.01	2.29	25.60	240	0.29
90	12.63	34.22	1.55	-	-	-	-	213	100	12.40	34.26	1.52	25.95	206	0.34
109	11.66	34.19	1.49	-	-	-	-	198	150	11.11	34.38	1.45	26.30	174	0.44
129	11.38	34.29	1.31	-	-	-	-	185	200	10.95	34.56	0.52	26.46	158	0.52
147	11.15	34.37	1.51	-	-	-	-	175	250	10.72	34.62	0.29	26.55	149	0.60
174	10.92	34.49	0.52	-	-	-	-	162	300	10.26	34.64	0.19	26.65	140	0.68
207	10.90	34.56	0.52	-	-	-	-	157	400	8.06	34.50	0.24	26.89	117	0.81
235	10.78	34.60	0.34	-	-	-	-	152	500	6.78	34.45	0.28	27.05	103	0.93
282	10.58	34.65	0.19	-	-	-	-	145	600	(6.13)	(34.47)	-	(27.15)	(93)	(1.03)
335	9.35	34.58	0.22	-	-	-	-	130	-	-	-	-	-	-	-
415	7.80	34.48	0.26	-	-	-	-	114	-	-	-	-	-	-	-
498	6.80	34.45	0.29	-	-	-	-	103	-	-	-	-	-	-	-
581	6.21	34.47	0.27	-	-	-	-	95	-	-	-	-	-	-	-

a) Duplicate values: 134 m, 2.47; 435, 2.78; 603, 3.07 μg at/L.

b) Both protected thermometers at this level malfunctioned. Since an acceptable depth value was obtained, the temperature value was determined by calculation, using the unprotected thermometer reading.

S10

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TO-59-2

OBSERVED								COMP	INTERPOLATED				COMPUTED		
Z	T	S	O ₂	PO ₄ -P	SiO ₃ -Si	NO ₂ -N	NO ₃ -N	δ _T	Z	T	S	O ₂	σ _t	δ _T	ΔD
m	°C	‰	ml/L	μg at/L	μgm at/L	μg at/L	μg at/L	10 ⁻⁵ cm ³ /g	m	°C	‰	ml/L	g/L	10 ⁻⁵ cm ³ /g	dyn m

143.50

HUGH M. SMITH; August 25, 1959; 1129 GCT; 23°26.5'N, 113°19'W; sounding, 1500 fm; wind, 320°, force 4; weather, partly cloudy; sea, rough; wire angle, 07°.

1	25.4	34.45	4.52	0.42				504	0	25.4	(34.45)	(4.52)	(22.82)	(504)	(0.00)
11	25.34	34.44	4.67	0.34				503	10	25.35	34.44	4.66	22.84	503	0.05
30	19.78	34.04	5.22	0.21				381	20	23.00	34.27	4.96	23.40	449	0.10
40	18.64	33.95	5.27	0.22				361	30	19.78	34.04	5.22	24.11	381	0.14
55	16.60	33.84	5.05	0.33				322	50	17.21	33.86	5.17	24.61	334	0.21
69	14.55	34.04	2.77	1.41a)				263	75	14.46	34.10	2.55	25.42	257	0.29
94	13.89	34.47	1.27	2.20				219	100	13.95	34.62	0.90	25.92	209	0.35
112	14.12	34.81	0.55	2.65				198	150	13.00	34.83	0.30	26.28	175	0.44
132	13.42	34.86	0.45	2.71a)				181	200	11.95	34.82	0.20	26.48	156	0.53
152	12.96	34.83	0.29	2.74				174	250	11.21	34.78	0.15	26.58	146	0.60
191	12.12	34.83	0.21	2.74				158	300	10.65	34.74	0.17	26.66	139	0.68
215	11.70	34.79	0.17	2.72				154	400	9.08	34.63	0.17	26.84	122	0.81
244	11.28	34.78	0.15	2.78				147	500	7.60	34.55	0.15	27.00	107	0.93
293	10.74	34.75	0.17	2.87				140	600	(6.32)	(34.47)	(0.19)	(27.11)	(96)	(1.04)
347	9.92	34.68	0.14	2.87				131							
430	8.60	34.60	0.19	3.03a)				117							
513	7.42	34.54	0.14	3.03				105							
598	6.36	34.47	0.19	3.18				96							

143.60

HUGH M. SMITH; August 25, 1959; 0225 GCT; 23°12.5'N, 114°04'W; sounding, 2200 fm; wind, 360°, force 3; weather, partly cloudy; sea, rough; wire angle, 16°.

1	25.28	34.06	4.55	0.27				528	0	(25.28)	(34.06)	(4.55)	(22.57)	(528)	(0.00)
11	25.27	34.10	4.47	0.31				525	10	25.27	34.10	4.47	22.59	526	0.05
35	20.08	34.09	5.10	0.29				385	20	23.90	34.10	4.64	23.01	486	0.10
45	19.12	34.01	5.07	0.33				367	30	21.08	34.10	4.99	23.80	411	0.15
59	17.54	33.95	4.97	0.41				335	50	18.89	34.00	5.06	24.30	363	0.22
74	15.56	33.88	4.30	0.69				296	75	15.54	33.90	4.25	25.03	294	0.31
98	13.23	33.96	2.59	1.71				244	100	13.20	33.99	2.42	25.59	240	0.38
117	13.44	34.42	1.10	2.43				214	150	12.88	34.70	0.35	26.21	182	0.48
136	13.39	34.71	0.36	2.58b)				191	200	11.97	34.71	0.19	26.39	165	0.57
165	12.44	34.70	0.34	2.85				174	250	11.20	34.70	0.19	26.53	152	0.65
195	12.05	34.71	0.19	2.85				166	300	10.51	34.72	0.12	26.67	138	0.73
232	11.40	34.70	0.21	3.03b)				155	400	9.10	34.62	0.17	26.82	124	0.86
262	11.06	34.70	0.14	2.89				149	500	7.82	34.62	0.14	27.03	104	0.98
307	10.41	34.72	0.12	3.01				137	600	6.62	34.59	0.11	27.17	91	1.09
373	9.48	34.62	0.17	2.99				129							
470	8.15	34.63	0.15	3.27b)				108							
559	7.15	34.60	0.10	3.27				96							
632	6.16	34.58	0.17	3.47b)				85							

a) Duplicate values: 69 m, 1.51; 132, 2.53; 430, 2.86 μg at/L.

b) Duplicate values: 136 m, 2.79; 232, 2.89; 470, 3.05; 632, 3.38 μg at/L.

OBSERVED								COMP	INTERPOLATED				COMPUTED		
Z	T	S	O ₂	PO ₄ -P	SiO ₃ -Si	NO ₂ -N	NO ₃ -N	δ _T	Z	T	S	O ₂	σ _t	δ _T	ΔD
m	°C	‰	ml/L	μg at/L	μgm at/L	μg at/L	μg at/L	10 ⁻⁵ cm ³ /g	m	°C	‰	ml/L	g/L	10 ⁻⁵ cm ³ /g	dyn m

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HUGH M. SMITH; August 24, 1959; 1650, missing, 1745 GCT; 22°50'N, 114°32.5'W; sounding, 2200 fm; wind, 360°, force 2; weather, cloudy; sea, moderate; wire angle, 34°, 45°, 45°.

143.70

1	24.78	34.22	4.64	0.24				502	0	(24.78)	(34.22)	(4.64)	(22.84)	(502)	(0.00)
9	24.74	34.18	4.48	0.24				504	10	24.74	34.18	4.47	22.82	504	0.05
25	23.40	34.29	4.78	0.31a)				459	20	24.72	34.18	4.47	22.83	504	0.10
33	21.82	34.34	5.22	0.28				412	30	22.40	34.34	5.13	23.62	428	0.15
45	20.46	34.27	4.88	0.29				382	50	19.97	34.23	4.84	24.20	372	0.23
57	19.86	34.22	4.84	0.35a)				371	75	18.00	33.99	4.71	24.52	343	0.32
75	18.00	33.99	4.71	0.34				343	100	15.47	33.90	4.45	25.04	293	0.40
90	16.48	33.96	4.60	0.44				310	150	11.30	34.05	2.26	26.00	202	0.52
106	14.84	33.86	4.23	0.62a)				282	200	10.47	34.36	1.23	26.39	165	0.62
121	13.36	33.87	3.28	1.42				252	250	9.67	34.50	0.82	26.64	141	0.70
									300	9.44	34.53	0.39	26.70	135	0.77
131	12.22	33.86	2.99	1.53				232	400	(7.95)	(34.49)	(0.27)	(26.90)	(116)	(0.90)
155	11.23	34.08	2.15	2.12a)				198							
177	10.78	34.27	1.49	2.39				176							
211	10.32	34.39	1.13	2.55a)				160							
255	9.60	34.51	0.76	2.63				139							
322	9.36	34.53	0.31	2.97a)				134							
396	8.04	34.49	0.27	3.07				118							

HUGH M. SMITH; August 26, 1959; 1047 GCT; 23°47.5'N, 110°59.5'W; sounding, 95 fm; wind, 320°, force 3; weather, partly cloudy; sea, rough; wire angle, 12°.

147.20

2	27.13	34.73	4.12	0.37				535	0	(27.13)	(34.73)	(4.12)	(22.50)	(535)	(0.00)
12	27.14	34.71	4.19	0.37				537	10	27.14	34.71	4.19	22.48	537	0.05
31	21.28	34.39	5.22	0.43				394	20	27.10	34.71	4.21	22.49	536	0.11
51	18.00	34.33	3.61	0.99				318	30	22.90	34.47	4.96	23.58	432	0.16
74	15.06	34.13	2.65	1.40				267	50	18.03	34.33	3.62	24.77	319	0.23
99	15.91	34.74	1.15	2.20				241	75	15.06	34.14	2.64	25.31	267	0.30
123	15.06	34.85	0.60	2.40				215	100	15.92	34.75	1.14	25.60	240	0.37
152	14.20	34.84	0.79	2.56				198	150	14.26	34.84	0.77	26.03	199	0.48

HUGH M. SMITH; August 26, 1959; 1433 GCT; 23°37'N, 111°19'W; sounding, 155 fm; wind, 320°, force 2; weather, partly cloudy; sea, rough; wire angle, 13°.

147.25

1	26.78	34.63	4.28	0.32				532	0	(26.78)	(34.63)	(4.28)	(22.53)	(532)	(0.00)
10	26.77	34.60	4.42	0.30				534	10	26.77	34.60	4.42	22.51	534	0.05
30	22.80	34.38	4.74	0.23				436	20	26.76	34.60	4.43	22.52	533	0.11
48	19.90	34.20	5.03	0.22				373	30	22.80	34.38	4.74	23.54	436	0.16
72	17.72	34.03	4.47	0.40				333	50	19.62	34.18	5.01	24.25	368	0.24
95	15.08	34.05	3.00	1.22				274	75	17.30	34.01	4.28	24.71	324	0.32
119	13.63	34.15	1.94	1.79				237	100	15.01	34.11	2.82	25.31	268	0.40
157	12.58	34.43	0.05u	2.33b)				196	150	12.59	34.37	1.12	26.01	201	0.51
195	12.36	34.63	0.64	2.56b)				178	200	12.29	34.64	0.62	26.27	176	0.61
243	11.78	34.69	0.24	2.72				162	250	(11.71)	(34.70)	(0.23)	(26.43)	(161)	(0.70)

a) Duplicate values: 25 m, 0.23; 57, 0.26; 106, 0.70; 155, 2.41; 211, 2.70; 322, 2.90 μg at/L.

b) Duplicate values: 157 m, 1.99; 195, 2.33 μg at/L.

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OBSERVED								COMP	INTERPOLATED				COMPUTED		
Z	T	S	O ₂	PO ₄ -P	SiO ₃ -Si	NO ₂ -N	NO ₃ -N	δ_T	Z	T	S	O ₂	σ_t	δ_T	ΔD
m	°C	‰	ml/L	$\mu\text{g at/L}$	$\mu\text{gm at/L}$	$\mu\text{g at/L}$	$\mu\text{g at/L}$	$10^{-5}\text{cm}^3/\text{g}$	m	°C	‰	ml/L	g/L	$10^{-5}\text{cm}^3/\text{g}$	dyn m

147.30

HUGH M. SMITH; August 26, 1959; 1931 GCT; 23°36'N, 111°49'W; sounding, 385 fm; wind, 340°, force 4; weather, cloudy; sea, very rough; wire angle, 08°.

2	26.20	34.42	3.91	0.15a)	1.2	0.0	0.2	530	0	(26.20)	(34.42)	(3.91)	(22.55)	(530)	(0.00)
12	26.14	34.42	3.87	0.19	1.2	0.0	0.0	528	10	26.17	34.42	3.88	22.56	529	0.05
31	24.81	34.40	3.98	0.19	-	-	-	490	20	26.10	34.42	3.87	22.58	527	0.10
41	22.74	34.43	4.17	0.30	1.4	0.0	0.2	430	30	25.00	34.40	3.95	22.91	496	0.16
56	20.80	34.22	4.11	0.22	1.3	0.0	0.2	394	50	21.46	34.29	4.16	23.85	406	0.25
70	19.36	34.18	4.07	0.31	1.8	0.0	0.4	361	75	18.72	34.12	3.94	24.45	349	0.34
85	17.34	34.00	3.66	0.49	2.9	0.04	0.4	326	100	15.49	34.08	2.42	25.17	280	0.42
114	14.99	34.31	1.35	1.94	17.3	0.03	7.3	253	150	12.66	34.61	0.43	26.18	185	0.54
133	13.36	34.31	1.06	2.00a)	22.8	0.01	-	220	200	11.91	34.64	0.35	26.34	169	0.63
153	12.60	34.63	0.40	2.57	-	-	-	182	250	11.13	34.66	0.32	26.50	154	0.71
183	12.46	34.61	0.42	2.62	31.9	0.0	55.2	181	300	10.17	34.62	0.17	26.66	140	0.79
214	11.50	34.67	0.29	2.73	-	-	-	159	400	9.03	34.55	0.16	26.78	127	0.93
245	11.20	34.66	0.32	2.71a)	-	-	-	155	500	8.06	34.50	0.20	26.89	117	1.06
294	10.24	34.63	0.16	2.78a)	38.4	0.0	-	141	600	(7.84)		(0.19)			
348	9.62	34.60	0.19	2.80a)	-	-	-	133							
430	8.66	34.51	0.16	2.92a)	50.9	0.01	57.1	125							
514	7.96	34.50	0.21	2.92	-	-	-	115							
598	7.84	34.47u	0.19	3.04a)	59.0	0.0	63.0	-							

147.40

HUGH M. SMITH; August 27, 1959; 0215 GCT; 23°20.5'N, 112°15.5'W; sounding, 1900 fm; wind, 330°, force 3; weather, partly cloudy; sea, rough; wire angle, 13°.

2	25.94	34.41	4.23	0.27				523	0	(25.94)	(34.41)	(4.23)	(22.63)	(523)	(0.00)
11	25.96	34.38	4.25	0.21				525	10	25.95	34.38	4.25	22.60	525	0.05
31	24.74	34.31	4.20	-				495	20	25.93	34.38	4.25	22.61	524	0.10
40	23.22	34.22	4.49	0.23				459	30	24.80	34.31	4.20	22.90	496	0.16
54	19.79	-	-	0.26b)				-	50	20.58	34.06	4.85	23.92	400	0.24
69	18.40	33.96	4.92	0.34				354	75	17.40	33.94	4.67	24.63	332	0.34
92	15.70	34.22	2.55	1.36				274	100	15.56	34.31	2.06	25.34	264	0.41
112	14.73	34.59	0.80	2.44b)				227	150	13.06	34.59	0.56	26.08	194	0.53
131	13.39	34.47	0.82	2.22b)				209	200	12.12	34.71	0.16	26.36	167	0.62
150	13.06	34.59	0.56	2.56				194	250	11.13	34.69	0.25	26.54	151	0.70
180	12.53	34.70	0.24	2.62				177	300	10.30	34.60	0.17	26.62	143	0.78
213	11.85	34.71	0.16	2.79				163	400	8.80	34.51	0.20	26.79	127	0.92
241	11.30	34.70	0.29	2.58b)				153	500	7.38	34.47	0.18	26.97	110	1.04
288	10.46	34.63	0.16	2.89b)				145	600	(6.14)	(34.42)	(0.26)	(27.10)	(97)	(1.15)
343	9.82	34.58	0.21	2.65				138							
423	8.42	34.51	0.19	2.87				122							
507	7.31	34.47	0.18	2.99				109							
591	6.26	34.43	0.26	3.11				98							

a) Duplicate values: 2 m, 0.21; 133, 2.20; 245, 2.65; 294, 2.72; 348, 2.88; 430, 2.82; 598, 2.96 $\mu\text{g at/L}$.

b) Duplicate values: 54 m, 0.14; 112, 2.36; 131, 2.34; 241, 2.83; 288, 2.58 $\mu\text{g at/L}$.

OBSERVED								COMP	INTERPOLATED				COMPUTED		
Z	T	S	O ₂	PO ₄ -P	SiO ₃ -Si	NO ₂ -N	NO ₃ -N	δ _T	Z	T	S	O ₂	σ _t	δ _T	ΔD
m	°C	‰	ml/L	μg at/L	μgm at/L	μg at/L	μg at/L	10 ⁻⁵ cm ³ /g	m	°C	‰	ml/L	g/L	10 ⁻⁵ cm ³ /g	dyn m

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HUGH M. SMITH; August 27, 1959; 1040 GCT; 23°02'N, 113°00'W; sounding, 1900 fm; wind, 320°, force 2; weather, partly cloudy; sea, moderate; wire angle, 06°.

14750

1	25.26	34.42u	4.43	0.25				-	0	(25.26)	(34.14)	(4.43)	(22.64)	(522)	(0.00)
11	25.29	34.14	4.46	0.22				523	10	25.28	(34.14)	4.46	(22.63)	(523)	(0.05)
31	21.67	34.14	4.89	0.36a)				423	20	25.29	34.14	4.46	22.63	523	(0.10)
41	18.34	33.93	5.15	0.32				355	30	23.50	34.14	4.66	23.16	472	(0.15)
55	15.64	33.80	4.56	0.53				304	50	17.31	34.00	4.98	24.70	326	(0.23)
70	14.05	33.79	3.56	1.03				272	75	13.91	33.83	3.35	25.32	266	(0.31)
95	12.58	34.02	2.28	1.70a)				226	100	12.02	34.20	1.07	25.98	203	(0.37)
115	13.10	34.63	0.61	2.51				191	150	12.42	34.76	0.22	26.34	170	(0.46)
134	12.50	34.70	0.37	2.42a)				175	200	11.53	34.67	0.20	26.45	159	(0.55)
153	12.40	34.76	0.21	2.67				169	250	10.93	34.64	0.16	26.53	151	(0.62)
183	11.82	34.70	0.24	2.72				163	300	10.33	34.62	0.14	26.62	143	(0.70)
218	11.26	34.65	0.16	2.64a)				156	400	8.77	34.56	0.20	26.83	123	(0.84)
247	10.96	34.64	0.16	2.70				152	500	7.49	34.49	0.17	26.96	110	(0.96)
297	10.38	34.62	0.14	2.83a)				144	600	6.38	34.52	0.21	27.14	93	(1.07)
352	9.54	-	0.16	2.83				-							
435	8.22	34.52	0.21	2.95				118							
518	7.31	34.48	0.16	3.34a)				108							
603	6.34	34.52	0.21	3.16a)				92							

HUGH M. SMITH; August 27, 1959; 1845 GCT; 22°40'N, 113°35'W; sounding, 2000 fm; wind, 320°, force 3; weather, cloudy; sea, rough; wire angle, 07°.

14760

1	26.22	34.54	4.27	0.44				522	0	(26.22)	(34.54)	(4.27)	(22.64)	(522)	(0.00)
11	26.22	34.54	4.11	0.46				522	10	26.22	34.54	4.11	22.64	522	0.05
31	22.13	34.27	4.65	0.51				425	20	26.22	34.54	4.11	22.64	522	0.10
40	18.86	34.11	4.76	0.55				354	30	25.20	34.47	4.22	22.90	496	0.16
55	16.48	34.04	3.93	0.87				304	50	17.19	34.05	4.31	24.76	319	0.24
70	14.76	34.07	2.74	1.43				266	75	14.32	34.15	2.02	25.49	250	0.31
94	14.83	34.60	0.87	2.32				229	100	14.41	34.61	0.70	25.82	219	0.37
113	13.48	34.58	0.58	2.53				202	150	12.28	34.59	0.43	26.24	179	0.47
133	12.66	34.57	0.47	2.47b)				187	200	11.46	34.64	0.32	26.43	161	0.55
153	12.21	34.60	0.42	2.69b)				177	250	10.86	34.69	0.15	26.58	146	0.63
182	11.62	34.61	0.30	2.67				166	300	10.12	34.62	0.16	26.66	139	0.71
216	11.33	34.67	0.35	2.81b)				156	400	8.70	34.57	0.12	26.86	120	0.84
245	10.92	34.69	0.14	2.81b)				147	500	7.42	34.52	0.17	27.00	106	0.96
294	10.20	34.63	0.16	2.83				140	600	6.47	34.50	0.18	27.12	95	1.07
349	9.44	34.61	0.18	2.81b)				130							
432	8.24	34.55	0.11	3.00				116							
515	7.30	34.53	0.19	3.10b)				104							
601	6.45	34.50	0.18	2.90b)				95							

HUGH M. SMITH; August 29, 1959; 0829 GCT; 23°24'N, 110°39'W; sounding, 225 fm; wind, 060°, force 2; weather, cloudy; sea, slight; wire angle, 03°.

15019

1	27.58	34.72	4.28	0.29				550	0	(27.58)	(34.72)	(4.28)	(22.34)	(550)	(0.00)
11	27.16	34.64	4.27	0.29				542	10	27.18	34.65	4.27	22.42	543	0.05
31	19.68	34.16	4.81	0.35c)				370	20	21.20	34.21	4.70	23.86	405	0.10
51	18.62	34.37	3.69	0.67				330	30	20.40	34.18	4.78	24.05	387	0.14
75	18.01	34.78	1.81	1.31				286	50	18.60	34.36	3.69	24.65	330	0.21
99	16.87	34.83	1.35	1.50				255	75	18.01	34.78	2.04	25.11	286	0.29
124	16.38	34.84	1.33	1.56				244	100	16.89	34.84	1.34	25.44	255	0.36
163	14.81	34.75	0.79	1.78				217	150	15.98	34.86	1.17	25.66	234	0.48
202	13.02	34.75	0.34	1.89				182	200	13.12	34.75	0.34	26.20	183	0.59
251	11.76	34.76	0.27	1.89c)				157	250	11.78	34.76	0.27	26.47	157	0.68
300	10.94	34.70	0.18	2.00				147	300	10.94	34.70	0.18	26.57	147	0.76

a) Duplicate values: 31 m, 0.30; 95, 1.80; 134, 2.85; 218, 2.77; 297, 2.73; 518, 3.21; 603, 3.04 μg at/L.

b) Duplicate values: 133 m, 2.57; 153, 2.63; 216, 2.67; 245, 2.88; 349, 2.88; 515, 2.98; 601, 3.10 μg at/L.

c) Duplicate values: 31 m, 0.19; 251, 1.81 μg at/L.

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OBSERVED								COMP	INTERPOLATED				COMPUTED		
Z	T	S	O ₂	PO ₄ -P	SiO ₃ -Si	NO ₂ -N	NO ₃ -N	δ _T	Z	T	S	O ₂	σ _t	δ _T	ΔD
m	°C	‰	ml/L	μg at/L	μgm at/L	μg at/L	μg at/L	10 ⁻⁵ cm ³ /g	m	°C	‰	ml/L	g/L	10 ⁻⁵ cm ³ /g	dyn m

150.25

HUGH M. SMITH; August 29, 1959; 0550 GCT; 23°12'N, 111°04'W; sounding, 700 fm; wind, 330°, force 3; weather, rain; sea, slight; wire angle, 11°.

1	27.18	34.42	4.19	0.64a)				559	0	(27.18)	(34.42)	(4.19)	(22.25)	(559)	(0.00)
11	26.60	34.43	4.25	0.33a)				541	10	26.61	34.43	4.24	22.43	542	0.06
30	23.94	34.38	4.72	0.30a)				467	20	26.54	34.43	4.25	22.46	539	0.11
40	21.49	34.15	4.97	0.30a)				417	30	23.94	34.38	4.72	23.21	467	0.16
54	19.9	34.21	4.72	0.44				372	50	20.02	34.19	4.73	24.17	376	0.24
69	17.39	33.96	4.60	0.49				330	75	16.40	34.00	3.94	24.92	305	0.33
93	15.34	34.10	2.89	1.38				275	100	15.02	34.24	2.18	25.39	259	0.40
112	15.16	34.56	1.19	2.34				238	150	14.30	34.81	0.91	26.00	202	0.52
131	14.88	34.78	0.67	2.40				216	200	13.06	34.83	0.32	26.27	176	0.61
150	14.30	34.81	0.91	2.59				202	250	12.28	34.83	0.17	26.43	161	0.70
179	13.41	34.81	0.34	3.02a)				184	300	11.08	34.70	0.18	26.54	150	0.78
213	12.88	34.84	0.34	2.69				172	400	9.01	34.54	0.18	26.77	128	0.93
242	12.42	-	0.24	2.52a)				-	500	7.74	34.53	0.18	26.96	110	1.05
290	11.30	34.72	0.19	2.91				152	600	(6.67)	(34.52)	(0.20)	(27.11)	(96)	(1.16)
343	10.21	-	0.19	2.75				-							
426	8.57	34.52	0.18	3.00				122							
508	7.66	34.53	0.18	3.05				109							
592	6.76	34.52	0.19	3.13a)				97							

150.30

HUGH M. SMITH; August 28, 1959; 2330 GCT; 23°02'N, 111°21'W; sounding, 1500 fm; wind, 350°, force 2; weather, overcast; sea, moderate; wire angle, 10°.

1	27.34	34.51	4.33	0.42				558	0	(27.34)	(34.51)	(4.33)	(22.26)	(558)	(0.00)
11	26.76	34.49	4.12	0.31				541	10	26.76	34.49	4.12	22.44	541	0.06
30	24.68	34.33	4.62	0.55b)				492	20	26.72	34.49	4.12	22.45	540	0.11
40	23.68	34.38	4.70	0.39				459	30	24.68	34.33	4.62	22.95	492	0.16
54	21.7	34.39	4.68	0.37				406	50	22.3	34.39	4.68	23.70	421	0.25
69	19.05	34.06	5.02	0.39				363	75	17.78	33.98	4.69	24.56	339	0.35
93	15.97	34.00	3.75	0.99b)				295	100	15.65	34.04	3.40	25.11	286	0.43
113	15.52	34.52	1.56	2.05				248	150	13.99	34.78	0.49	26.04	198	0.55
132	15.10	34.78	0.98	2.59b)				220	200	12.22	34.68	0.38	26.33	171	0.64
151	13.96	34.78	0.48	2.64				197	250	11.23	34.68	0.20	26.50	154	0.72
180	12.98	34.76	0.47	2.69				179	300	10.38	34.62	0.26	26.61	144	0.80
213	11.88	34.66	0.27	2.75				166	400	9.05	34.59	0.18	26.80	125	0.94
242	11.36	34.68	0.19	2.72				156	500	7.67	34.53	0.17	26.97	109	1.07
289	10.52	34.62	0.27	2.69				146	600	(6.69)	(34.61)	(0.19)	(27.09)	(98)	(1.18)
343	9.86	34.62	0.19	2.76				135							
426	8.66	34.56	0.18	2.95				121							
509	7.55	34.52	0.16	3.06				108							
592	6.76	34.51	0.19	3.13b)				98							

a) Duplicate values: 1 m, 0.41; 11, 0.47; 30, 0.40; 40, 0.40; 179, 3.15; 242, 2.71; 592, 3.03 μg at/L.

b) Duplicate values: 30 m, 0.35; 93, 0.91; 132, 2.36; 592, 3.07 μg at/L.

OBSERVED								COMP	INTERPOLATED				COMPUTED		
Z	T	S	O ₂	PO ₄ -P	SiO ₃ -Si	NO ₂ -N	NO ₃ -N	δ _T	Z	T	S	O ₂	σ _t	δ _T	ΔD
m	°C	‰	ml/L	μg at/L	μgm at/L	μg at/L	μg at/L	10 ⁻⁵ cm ³ /g	m	°C	‰	ml/L	g/L	10 ⁻⁵ cm ³ /g	dyn m
HUGH M. SMITH; August 28, 1959; 1725 GCT; 22°54'N, 111°41.5'W; sounding, 1750 fm; wind, 340°, force 3; weather, cloudy; sea, rough; wire angle, 05°.															
1	26.92	34.56	4.49	0.38				541	0	(26.92)	(34.56)	(4.49)	(22.44)	(541)	(0.00)
11	26.85	34.56	4.30	0.31				540	10	26.87	34.56	4.31	22.45	540	0.05
30	24.77	34.43	4.65	0.29				487	20	26.78	34.56	4.30	22.48	537	0.11
40	23.85	34.40	4.70	0.32				463	30	24.77	34.43	4.65	23.00	487	0.16
55	21.0	34.12	5.04	0.27				406	50	22.2	34.24	4.93	23.59	431	0.25
69	19.22	34.01	5.00	0.30				370	75	19.06	34.01	4.96	24.27	366	0.35
94	15.98	34.13	2.90	1.33				286	100	15.86	34.16	2.83	25.16	282	0.43
113	13.61	34.04	2.49	1.64				245	150	13.85	34.70	0.59	26.01	201	0.55
133	13.59	34.44	1.06	2.11a)				215	200	12.21	34.72	0.22	26.35	168	0.65
152	13.84	34.72	0.55	2.65a)				200	250	11.28	34.74	0.16	26.54	150	0.73
181	12.76	34.72	0.29	2.74a)				178	300	10.22	34.63	0.19	26.64	141	0.81
215	11.86	34.74	0.19	2.80				160	400	8.83	34.57	0.16	26.83	123	0.94
244	11.39	34.75	0.16	2.76				151	500	7.60	34.50	0.16	26.96	110	1.07
293	10.34	34.63	0.19	2.81				142	600	(6.56)	(34.47)	(0.26)	(27.08)	(99)	(1.18)
346	9.56	34.61	0.16	2.75				131							
429	8.45	34.54	0.16	2.95				120							
513	7.42	34.50	0.16	3.05				108							
597	6.58	34.47	0.26	3.14				99							

150.35

HUGH M. SMITH; August 28, 1959; 1445 GCT; 22°48'N, 111°59.5'W; sounding, 1850 fm; wind, 330°, force 2; weather, cloudy; sea, moderate; wire angle, 02°.															
1	26.81	34.54	4.22	0.31				540	0	(26.81)	(34.54)	(4.22)	(22.45)	(540)	(0.00)
11	26.84	34.55	4.14	0.23				540	10	26.83	34.55	4.15	22.45	540	0.05
31	23.98	34.39	4.54	0.28				467	20	26.80	34.55	4.14	22.46	539	0.11
41	22.76	34.41	4.68	0.28				432	30	24.30	34.39	4.50	23.12	476	0.16
55	20.65	34.22	4.78	0.30				391	50	21.44	34.29	4.76	23.85	406	0.25
70	19.02	34.12	4.62	0.38				358	75	18.88	34.19	4.48	24.45	349	0.34
95	17.34	34.70	1.89	1.90				275	100	17.24	34.72	1.79	25.26	272	0.42
114	15.50	34.64	1.57	2.18				239	150	14.19	34.81	0.69	26.02	200	0.54
134	14.90	34.75	0.93	2.41b)				219	200	11.93	34.64	0.39	26.34	169	0.63
154	14.01	34.82	0.64	2.69b)				196	250	10.81	34.63	0.27	26.54	150	0.72
183	12.64	34.70	0.37	2.64				178	300	10.17	34.64	0.21	26.66	139	0.79
218	11.33	34.60	0.45	2.59				161	400	8.84	34.55	0.17	26.82	124	0.93
247	10.85	34.63	0.29	2.73b)				151	500	7.75	34.53	0.17	26.96	111	1.05
297	10.20	34.64	0.21	2.79				139	600	6.59	34.50	0.14	27.10	97	1.16
351	9.47	34.60	0.16	2.71b)				130							
435	8.42	34.51	0.18	3.01				122							
519	7.58	34.54	0.16	3.10				107							
603	6.54	34.50	0.14	3.28b)				96							

150.40

a) Duplicate values: 133 m, 2.69; 152, 2.55; 181, 2.65 μg at/L.

b) Duplicate values: 134 m, 2.31; 154, 2.61; 247, 2.61; 351, 2.90; 603, 2.82 μg at/L.

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150.50

OBSERVED								COMP	INTERPOLATED				COMPUTED		
Z	T	S	O ₂	PO ₄ -P	SiO ₃ -Si	NO ₂ -N	NO ₃ -N	δ_T	Z	T	S	O ₂	σ_t	δ_T	ΔD
m	°C	‰	ml/L	µg at/L	µgm at/L	µg at/L	µg at/L	10 ⁻⁵ cm ³ /g	m	°C	‰	ml/L	g/L	10 ⁻⁵ cm ³ /g	dyn m
HUGH M. SMITH; August 28, 1959; 0816 GCT; 22°27.5'N, 112°32'W; sounding, 1840 fm; wind, 320°, force 3; weather, partly cloudy; sea, moderate; wire angle, 04°.															
1	25.08	34.25	4.51	0.27				509	0	(25.08)	(34.25)	(4.51)	(22.78)	(509)	(0.00)
11	25.02	34.27	4.43	0.27				506	10	25.04	34.27	4.44	22.80	507	0.05
31	23.42	34.04	4.70	0.27				478	20	24.90	34.26	4.44	22.84	503	0.10
40	21.52	33.93	5.50	0.28a)				434	30	23.85	34.10	4.60	23.02	485	0.15
55	18.68	34.01	4.75	0.30				357	50	19.38	34.01	5.01	24.19	374	0.24
70	16.82	33.94	4.68	0.44a)				319	75	16.68	33.94	4.62	24.80	316	0.32
94	15.36	34.23	2.42	1.56				266	100	14.80	34.26	2.11	25.46	253	0.40
114	13.70	34.25	1.75	2.01				231	150	12.90	34.57	1.00	26.10	192	0.51
133	13.59	34.54	0.87	2.40a)				207	200	11.10	34.53	0.69	26.42	162	0.60
153	11.44	34.38	1.15	2.74				180	250	10.56	34.63	0.35	26.58	146	0.68
182	11.32	34.49	0.79	2.45				169	300	9.89	34.59	0.24	26.67	138	0.75
217	10.80	34.85u	0.66	2.59				-	400	8.48	34.53	0.18	26.86	120	0.89
251	10.54	34.63	0.34	2.65				146	500	7.16	34.50	0.18	27.02	104	1.00
300	9.89	34.59	0.24	2.77a)				138	600	6.32	34.51	0.16	27.15	93	1.11
351	9.21	34.57	0.16	2.82				129							
433	7.93	34.49	0.22	2.98a)				116							
517	6.98	34.51	0.16	3.10a)				101							
602	6.30	34.51	0.16	3.18a)				92							

150.60

HUGH M. SMITH; August 28, 1959; 0115 GCT; 22°02'N, 113°14'W; sounding, 2000 fm; wind, 020°, force 2; weather, overcast; sea, rough; wire angle, 10°.															
1	24.68	34.16	4.33	0.24				504	0	(24.68)	(34.16)	(4.33)	(22.82)	(504)	(0.00)
11	24.67	34.17	4.25	0.24				502	10	24.67	34.17	4.25	22.84	502	0.05
30	23.23	34.23	4.44	0.27				458	20	24.67	34.17	4.25	22.84	502	0.10
59	19.22	34.07	4.91	0.29				366	30	23.23	34.23	4.44	23.30	458	0.15
69	17.96	33.95	4.72	0.35				344	50	19.99	34.11	4.91	24.10	382	0.23
83	15.73	33.91	3.80	0.81				298	75	16.75	33.88	4.37	24.74	322	0.32
98	14.26	33.86	3.21	1.14				270	100	14.00	33.91	2.88	25.37	262	0.40
113	14.14	34.25	1.75	1.97				240	150	13.04	34.62	0.54	26.10	192	0.51
136	13.06	34.45	0.79	2.43b)				204	200	12.35	34.74	0.31	26.34	169	0.60
156	13.04	34.67	0.45	2.71b)				188	250	10.94	34.65	0.18	26.54	151	0.68
186	12.68	34.74	0.35	2.75				175	300	9.89	34.57	0.26	26.66	139	0.76
214	11.95	34.72	0.26	2.76				164	400	8.52	34.52	0.19	26.84	122	0.90
243	11.10	34.66	0.18	2.75				153	500	7.19	34.47	0.17	26.99	108	1.02
292	10.05	34.59	0.24	2.80				141	600	(6.12)	(34.48)	(0.18)	(27.14)	(93)	(1.12)
345	9.24	34.54	0.22	2.77				132							
427	8.14	34.51	0.16	2.96				117							
511	7.07	34.46	0.18	3.11				106							
595	6.17	34.47	0.18	3.16				94							

153.16

HUGH M. SMITH; August 29, 1959; 2135 GCT; 22°55.5'N, 110°12.5'W; sounding, 240 fm; wind, 160°, force 2; weather, partly cloudy; sea, moderate; wire angle, 25°.															
1	30.41	34.21	4.35	0.07				673	0	(30.41)	(34.21)	(4.35)	(21.06)	(673)	(0.00)
9	29.74	34.46	4.38	0.14				637	10	29.50	34.48	4.39	21.53	628	0.06
27	24.22	34.52	4.65	0.24c)				465	20	28.30	34.50	4.46	21.94	588	0.12
45	21.38	34.47	4.59	0.50				391	30	23.60	34.51	4.64	23.41	448	0.18
66	19.06	34.82	2.58	1.49				307	50	20.78	34.54	4.26	24.22	371	0.26
87	18.08	34.88	2.15	1.76c)				279	75	18.93	34.83	2.50	24.94	303	0.34
108	17.20	34.90	1.67	2.00				258	100	17.25	34.90	1.69	25.40	259	0.42
141	14.90	34.70	0.77	2.36c)				222	150	14.29	34.72	0.60	25.93	208	0.54
174	13.39	34.74	0.40	2.52c)				189	200	12.83	34.75	0.28	26.25	178	0.64
218	12.51	34.74	0.22	2.62c)				172	250	12.13	34.71	0.20	26.36	168	0.73
263	11.99	34.70	0.19	2.60				166	300	11.38	34.68	0.18	26.48	156	0.81
362	10.18	34.65	0.16	2.72				138							

a) Duplicate values: 40 m, 0.36; 70, 0.50; 133, 2.26; 300, 2.87; 433, 2.90; 517, 2.71; 602, 3.10 µg at/L.

b) Duplicate values: 136 m, 2.31; 156, 2.63 µg at/L.

c) Duplicate values: 27 m, 0.68; 87, 1.66; 141, 2.26; 174, 2.62; 218, 2.47 µg at/L.

OBSERVED								COMP	INTERPOLATED				COMPUTED		
Z	T	S	O ₂	PO ₄ -P	SiO ₃ -Si	NO ₂ -N	NO ₃ -N	δ _T	Z	T	S	O ₂	σ _t	δ _T	ΔD
m	°C	‰	ml/L	μg at/L	μgm at/L	μg at/L	μg at/L	10 ⁻⁵ cm ³ /g	m	°C	‰	ml/L	g/L	10 ⁻⁵ cm ³ /g	dyn m

HUGH M. SMITH; August 29, 1959; 1740, 1755 GCT; 22°46'N, 110°22.5'W; sounding, 500 fm; wind, 110°, force 3; weather, partly cloudy; sea, rough; wire angle, 26°, a) 35°.

153.20

1	30.00	34.30	4.06	0.12				657	0	(30.00)	(34.30)	(4.06)	(21.23)	(657)	(0.00)
10	28.82	-	4.03	0.17				-	10	28.82	34.32	4.03	21.64	618	0.06
26	23.98	34.46	4.43	0.28				462	20	26.00	34.38	4.32	22.58	527	0.12
33	22.42	-	4.28	0.36				-	30	23.00	34.57	4.37	23.63	427	0.17
46	20.90	34.83	3.37	0.91				353	50	19.45	34.87	2.50	24.82	314	0.24
58	19.60	34.93	2.49	1.27				313	75	18.28	34.80	1.96	25.07	290	0.32
77	18.11	34.79	1.89	1.77				287	100	16.50	34.82	1.04	25.52	248	0.39
									150	14.18	34.76	0.63	25.99	203	0.50
91	17.10	-	1.44	1.89b)				-	200	12.61	34.77	0.36	26.31	172	0.60
106	16.10	34.82	0.80	2.17				239	250	12.20	34.71	0.24	26.34	169	0.68
121	14.98	34.74	0.58	2.05b)				221	300	11.59	34.69	0.15	26.45	159	0.77
144	14.19	-	0.64	2.42				-	400	9.40	34.60	0.15	26.76	130	0.92
170	13.30	34.77	0.43	2.49				185	500	(7.68)		(0.16)			
194	12.67	34.77	0.37	2.59b)				173							
233	12.32	34.72	0.32	2.66b)				170							
277	11.98	-	0.14	2.50b)				-							
342	10.56	34.67	0.18	2.72b)				143							
421	9.02	34.57	0.13	2.83				126							
499	7.70	-	0.16	3.00b)				-							

HUGH M. SMITH; August 29, 1959; 1430 GCT; 22°39.5'N, 110°35.5'W; sounding, 1300 fm; wind, 120°, force 4; weather, partly cloudy; sea, moderate; wire angle, 08°.

153.25

1	28.47	34.56	4.17	0.15				589	0	(28.47)	(34.56)	(4.17)	(21.94)	(589)	(0.00)
11	28.54	34.58	4.11	0.15				590	10	28.53	34.58	4.12	21.93	590	0.06
30	22.63	34.29	4.88	0.18				438	20	27.35	34.52	4.28	22.27	557	0.12
40	21.60	34.29	4.68	0.19				410	30	22.63	34.29	4.88	23.52	438	0.16
55	19.43	34.22	4.38	0.55c)				360	50	20.00	34.24	4.48	24.20	373	0.25
69	17.42	34.19	3.24	0.90c)				315	75	16.90	34.29	2.47	25.02	296	0.33
93	15.90	34.54	0.99	2.01c)				255	100	15.57	34.57		25.52	246	0.40
112	14.52	34.60	0.51	2.07c)				222	150	13.22	34.72	0.35	26.15	188	0.51
132	13.56	34.56	0.56	2.34c)				205	200	12.07	34.71	0.18	26.37	167	0.60
151	13.20	34.72	0.34	2.62c)				187	250	11.37	34.72	0.16	26.51	154	0.68
179	12.44	34.72	0.24	2.55c)				173	300	10.83	34.77	0.16	26.65	140	0.76
213	11.92	34.71	0.16	2.58				163	400	9.33	34.61	0.15	26.79	127	0.90
242	11.48	34.70	0.16	2.57c)				156	500	7.85	34.53	0.13	26.96	111	1.03
290	10.97	34.78	0.16	2.67c)				142	600	(6.69)	(34.51)	(0.14)	(27.10)	(97)	(1.14)
343	10.17	34.71	0.13	2.61				134							
426	8.94	34.58	0.16	2.87				124							
510	7.70	-	0.13	3.00c)				-							
595	6.74	34.51	0.14	2.74c)				98							

a) An assumed wire angle of 36° was used in depth determination.

b) Duplicate values: 91 m, 1.95; 121, 2.21; 194, 2.49; 233, 2.54; 277, 2.63; 342, 2.54; 499, 2.92 μg at/L.

c) Duplicate values: 55 m, 0.41; 69, 0.96; 93, 2.08; 112, 2.32; 132, 2.47; 151, 2.28; 179, 2.69; 242, 2.68; 290, 2.96; 510, 3.08; 595, 3.15 μg at/L.

Station	Date	Time GCT	Latitude North	Longitude West	Sounding (fm)	Wind		Weather	Sea	10 Meters	
						Dir	Force			T	S
77.50-O	VIII-15	1200	35°04.5'	120°52.5'	84	-	1	cloudy	moderate	15.60	33.64
80.65-O	16	0218	34°02.0'	121°32.5'	1800	260°	2	partly cloudy	moderate	17.96	33.71
80.75-O	16	0830	33°40.0'	122°14.0'	2000	-	1	cloudy	moderate	16.61	33.50
80.85-O	16	1505	33°17.0'	122°56.0'	2150	calm		overcast	moderate	17.82	33.41
83.65-O	17	1318	33°24.0'	120°54.0'	1300	calm		overcast	slight	16.94	33.55
83.75-O	17	0740	33°04.0'	121°40.0'	2000	-	1	overcast	slight	16.82	33.38
83.85-O	17	0200	32°44.0'	122°24.0'	2000+	-	1	overcast	moderate	18.24	33.53
87.50-O	18	1935	33°19.5'	119°39.0'	44	280°	1	overcast	slight	19.28	33.78
87.65-O	19	0435	32°46.0'	120°42.5'	2000	310°	3	overcast	moderate	16.88	33.51
87.75-O	19	1025	32°22.0'	121°23.5'	2400	310°	5	overcast	rough	18.10	33.51
87.85-O	19	1620	31°59.0'	122°05.0'	2000+	320°	5	partly cloudy	rough	17.34	33.40
90.65-O	20	1800	32°09.0'	120°17.5'	2100	320°	3	partly cloudy	rough	17.70	33.46
90.75-O	20	1120	31°47.5'	121°04.0'	2100	320°	4	partly cloudy	rough	18.78	33.66
90.85-O	20	0610	31°30.0'	121°36.5'	2000+	320°	3	partly cloudy	rough	18.59	33.60
93.35-O	25	0004	32°40.0'	117°52.0'	300	270°	2	cloudy	slight	21.16	33.77
93.45-O	25	0600	32°20.0'	118°33.5'	900	270°	4	overcast	slight	20.72	33.75
93.55-O	25	1140	31°58.0'	119°17.0'	880	260°	2	drizzle	slight	20.10	33.77
93.65-O	25	1800	31°38.0'	119°59.0'	2000+	280°	4	drizzle	slight	18.16	33.55
93.75-O	25	2315	31°20.0'	120°35.0'	2000	290°	4	overcast	slight	18.92	33.45

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

Station	Date	Time GCT	Latitude North	Longitude West	Sounding (fm)	Wind		Weather	Sea	10 Meters	
						Dir	Force			T	S
93.85-O	VIII-26	0440	31°00.5'	121°15.0'	2000+	320°	4	overcast	slight	18.48	33.33
97.35-O	27	2205	32°07.0'	117°25.0'	500	290°	2	cloudy	slight	20.62	33.75
97.45-O	27	1700	31°49.5'	118°02.0'	700	320°	3	overcast	moderate	20.40	33.81
97.55-O	27	1050	31°28.0'	118°43.0'	230	330°	4	overcast	moderate	19.46	33.75
97.65-O	27	0435	31°07.0'	119°27.0'	2000+	330°	4	overcast	moderate	20.35	33.86
97.75-O	26	2230	30°45.5'	120°09.5'	2000+	330°	4	overcast	moderate	18.86	33.33
97.85-O	26	1623	30°25.0'	120°49.5'	2000+	310°	3	cloudy	slight	18.90	33.30
100.29-O	28	0845	31°41.5'	116°43.0'	108	320°	1	overcast	slight	16.53	33.56
100.35-O	28	1817	31°30.5'	117°05.0'	650	280°	3	overcast	moderate	21.39	33.79
100.45-O	29	0035	31°10.0'	117°47.0'	900+	320°	4	cloudy	moderate	20.04	33.65
100.55-O	29	0610	30°51.0'	118°27.0'	1000	310°	4	cloudy	moderate	19.74	33.66
100.65-O	29	1240	30°31.5'	119°06.0'	1700+	340°	4	overcast	moderate	18.78	33.53
100.75-O	29	1812	30°11.0'	119°47.0'	2000+	320°	3	overcast	moderate	19.42	33.57
100.85-O	29	2345	29°52.0'	120°24.0'	2000+	350°	4	overcast	moderate	19.42	33.40
103.55-B	25	0930	30°14.0'	118°03.0'	1580	270°	2	clear	moderate	19.92	33.55
103.65-B	25	0435	29°57.5'	118°44.5'	1680	270°	3	clear	moderate	19.94	33.58
103.75-B	24	2330	29°40.0'	119°25.0'	1800	330°	3	cloudy	moderate	20.08	33.67
103.85-B	24	1910	29°24.0'	119°57.5'	2000	320°	2	overcast	moderate	19.54	33.53
107.45-B	23	1325	30°03.0'	117°02.0'	950	160°	4	drizzle	rough	20.76	33.64

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

Station	Date	Time GCT	Latitude North	Longitude West	Sounding (fm)	Wind		Weather	Sea	10 Meters	
						Dir	Force			T	S
107.55-B	VIII-23	1930	29°41.0'	117°42.0'	1780	140°	4	overcast	rough	21.19	33.82
107.65-B	24	0006	29°21.5'	118°21.0'	1500	270°	4	overcast	rough	21.80	34.20
107.75-B	24	0500	29°02.0'	119°00.5'	1740	270°	3	missing	moderate	21.34	33.96
107.85-B	24	0930	28°42.0'	119°39.0'	1840	270°	3	cloudy	moderate	22.05	34.25
110.45-B	22	1830	29°26.0'	116°38.5'	840	040°	4	cloudy	rough	21.72	33.82
110.55-B	22	1342	29°07.0'	117°18.0'	1800	340°	3	partly cloudy	rough	21.31	33.77
110.65-B	22	0705	28°46.0'	117°59.0'	2000	360°	5	partly cloudy	moderate	21.28	34.02
110.75-B	21	1710	28°29.0'	118°42.0'	2000	330°	3	overcast	moderate	21.38	34.11
113.45-B	20	1510	28°52.0'	116°18.0'	950	320°	3	cloudy	rough	21.23	33.73
113.55-B	20	2030	28°32.0'	116°56.5'	1800	310°	3	partly cloudy	moderate	20.66	33.66
113.65-B	21	0210	28°12.0'	117°36.0'	2050	360°	4	partly cloudy	rough	21.92	33.69
113.75-B	21	0635	27°53.5'	118°15.0'	1850	320°	4	overcast	moderate	21.98	33.86
117.45-B	19	0655	28°18.0'	115°55.0'	1750	320°	3	cloudy	moderate	21.74	33.75
117.65-B	18	1845	27°38.0'	117°14.0'	2000	320°	4	overcast	moderate	22.64	33.84
117.75-B	18	1305	27°17.0'	117°52.0'	2000	320°	2	cloudy	slight	22.97	33.82
120.40-B	17	0615	27°56.5'	115°14.0'	21	280°	4	clear	moderate	20.43	33.58
120.55-B	17	1532	27°18.0'	116°13.0'	2000+	280°	4	cloudy	moderate	23.26	33.84
120.65-B	17	2045	27°03.0'	116°51.0'	1950	320°	4	cloudy	slight	22.24	33.71
120.75-B	18	0225	26°42.0'	117°30.0'	2000	340°	3	cloudy	moderate	23.51	33.82

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
123.55-B	VIII-15	2220	26°48.0'	115°49.5'	1800	290°	3	partly cloudy	moderate	23.96	33.91
123.65-B	15	1640	26°23.5'	116°29.0'	1950	320°	3	cloudy	slight	23.91	33.86
127.45-B	14	1930	26°33.5'	114°48.5'	2000+	280°	3	cloudy	moderate	24.18	33.89
127.55-B	15	0050	26°16.0'	115°27.0'	2000+	300°	3	cloudy	moderate	24.07	33.89
127.65-B	15	0630	25°54.0'	116°05.5'	2000+	270°	2	cloudy	slight	23.71	33.82
130.45-M	16	1630	25°58.5'	114°25.0'	2000	330°	4	partly cloudy	very rough	25.06	34.11
130.55-M	17	0140	25°39.0'	115°04.5'	2050	330°	3	cloudy	rough	25.36	34.18
130.65-M	17	1001	25°19.0'	115°43.0'	2050	350°	3	cloudy	rough	25.24	34.18
133.35-M	19	0240	25°47.0'	113°26.0'	300	340°	4	partly cloudy	rough	22.94	33.97
133.45-M	18	1620	25°24.5'	114°05.0'	1800	340°	3	partly cloudy	rough	23.68	34.03
133.55-M	18	0915	25°06.5'	114°43.0'	1850	340°	4	cloudy	very rough	25.06	34.14
137.45-M	20	1140	24°54.0'	113°48.0'	580	360°	4	cloudy	rough	22.72	33.99
140.55-M	23	2350	23°55.0'	114°01.5'	1000+	320°	3	partly cloudy	moderate	25.48	34.22
143.45-M	25	1510	23°40.0'	112°58.0'	1900	340°	4	cloudy	rough	20.97	33.97
143.55-M	25	0810	23°20.0'	113°39.5'	2000	320°	3	partly cloudy	rough	24.84	34.06
147.35-M	26	2230	23°26.0'	112°00.0'	1600	340°	3	partly cloudy	very rough	26.43	34.51
147.45-M	27	0710	23°10.0'	112°39.5'	1900	320°	4	partly cloudy	rough	26.44	34.64
147.55-M	27	1430	22°54.0'	113°18.5'	1850	330°	3	partly cloudy	rough	25.22	34.37
150.45-M	28	1155	22°41.0'	112°12.0'	1900	360°	2	cloudy	moderate	26.55	34.56
150.55-M	28	0410	22°14.0'	112°54.0'	1900	330°	3	partly cloudy	rough	24.88	34.18

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