

CORRECTIONS MADE :

STATION POSITIONS ~~NR~~

Errata 28 Oct 63
p 85, 87, 95

UNIVERSITY OF CALIFORNIA SCRIPPS INSTITUTION OF OCEANOGRAPHY

progress report

PHYSICAL AND CHEMICAL DATA
CCOFI CRUISE 5902
6-28 February 1959

SIO Reference 60-13
21 October 1959

UNIVERSITY OF CALIFORNIA
SCRIPPS INSTITUTION OF OCEANOGRAPHY

PHYSICAL AND CHEMICAL DATA

CCOFI CRUISE 5902

6-28 February 1959


Sponsored by

Marine Research Committee

SIO Reference 60-13

21 October 1959

Approved for distribution:



Roger Revelle, Director

CONTENTS

List of Figures	ii
Introduction.	iii
Personnel	v
Tabulated Data	69
Distribution List	104

FIGURES

1. CCOFI Cruise 5902, 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

INTRODUCTION

The data presented in this report were collected on the one hundred and seventeenth consecutive cruise of the California Cooperative Oceanic Fisheries Investigations program. The R/V Black Douglas of the U. S. Bureau of Commercial Fisheries, the R/V Orca and the R/V Paolina-T of the Scripps Institution participated in this cruise.

The data are tabulated at observed depths, and the interpolated and computed values are tabulated at standard depths. They are accompanied by charts of horizontal distribution. The presentation of data in this report does not constitute publication; however, the data contained in this report have been carefully edited and no modifications should be necessary before final publication.

STANDARD PROCEDURES

Processing of the data was carried out using the method described by Klein.^{1/} Certain approximations have been introduced for the determination of the integrated pressure terms which may result in errors whose maximum values are less than 0.5 dynamic centimeter at 0 over 200 decibars, 1.0 dynamic centimeter at 0 over 500 decibars, and 2.0 dynamic centimeters at 0 over 1000 decibars. The 125-meter level was introduced into the integration to obtain greater accuracy in the determination of ΔD . 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.

^{1/}

Klein, Hans T. A new technique for processing physical oceanographic data. MS.

FOOTNOTES

In addition to standard 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.

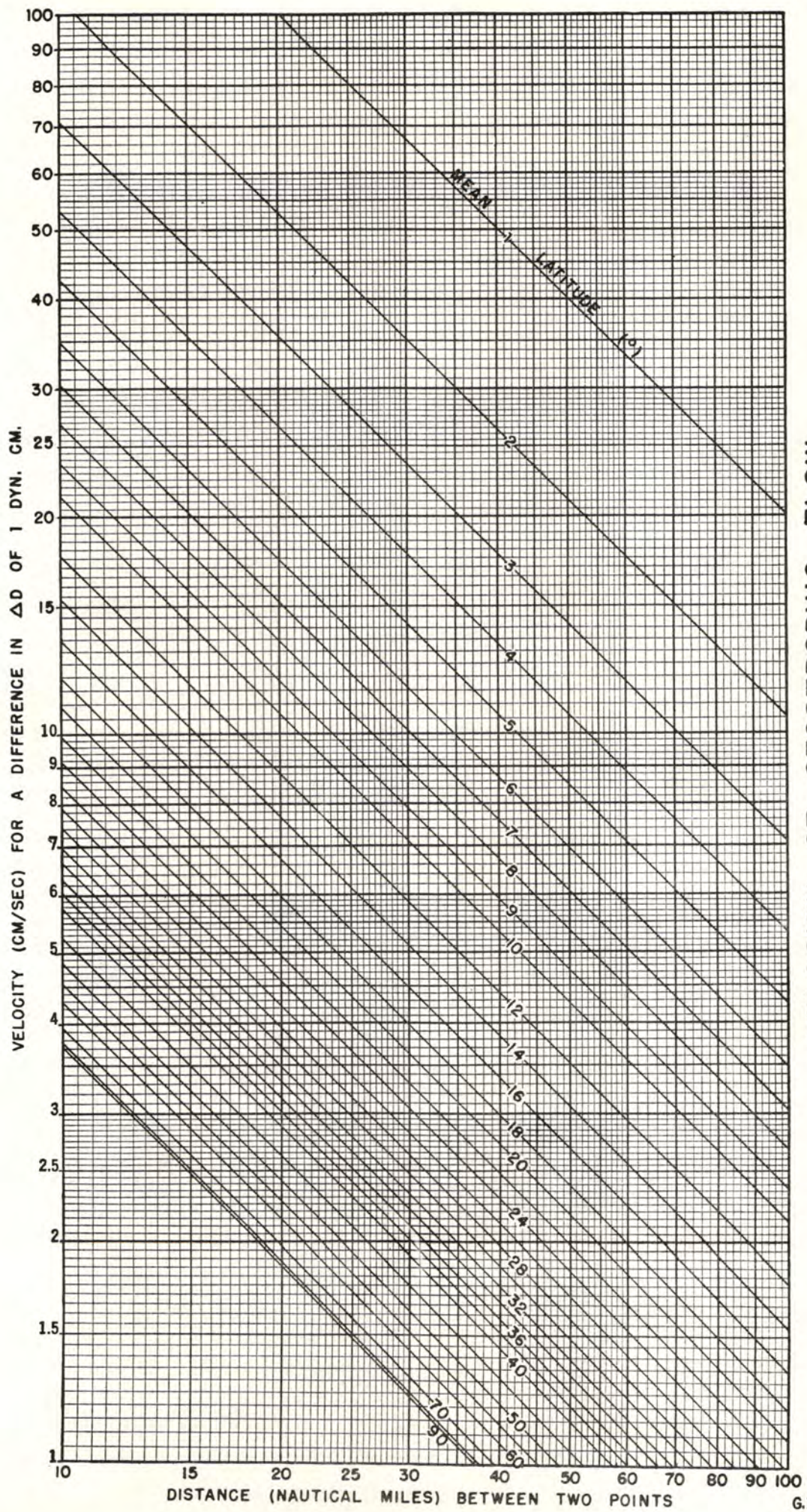
Values which are not drawn through because they seem to be in error without apparent reason are indicated by one of the following notations.

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 5902 data is numbered 69.



VELOCITY OF GEOSTROPHIC FLOW

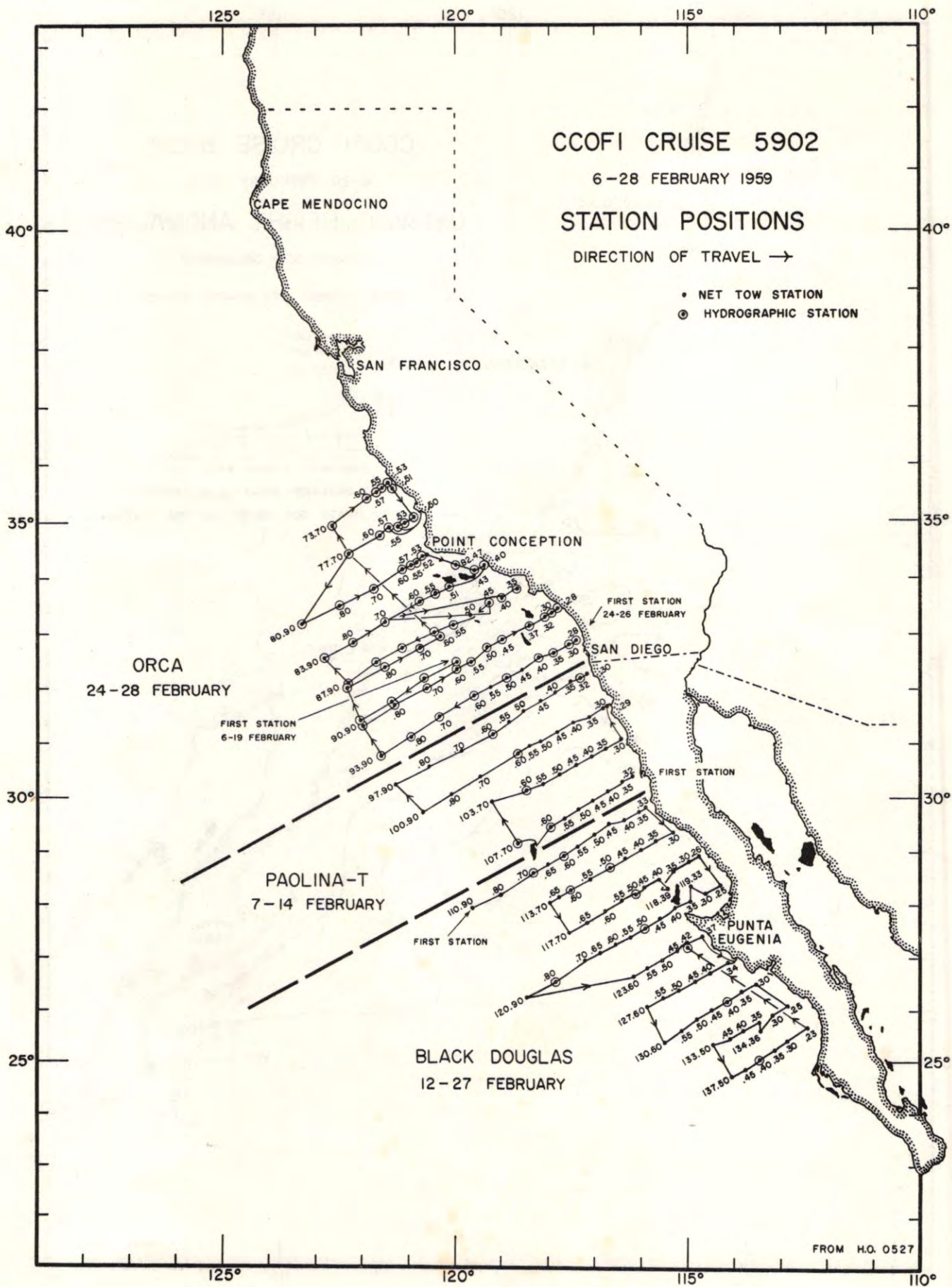


FIGURE 1

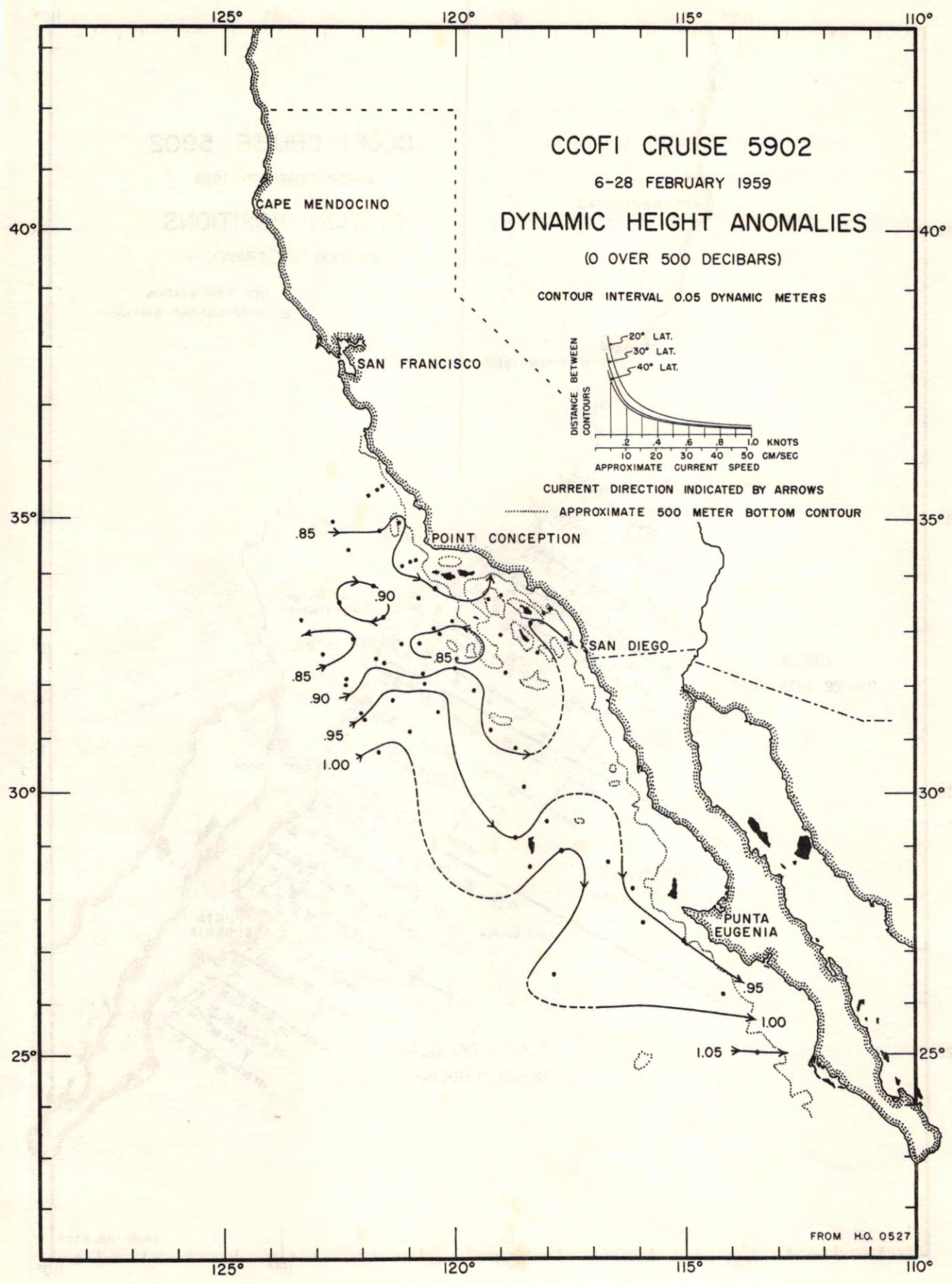


FIGURE 2

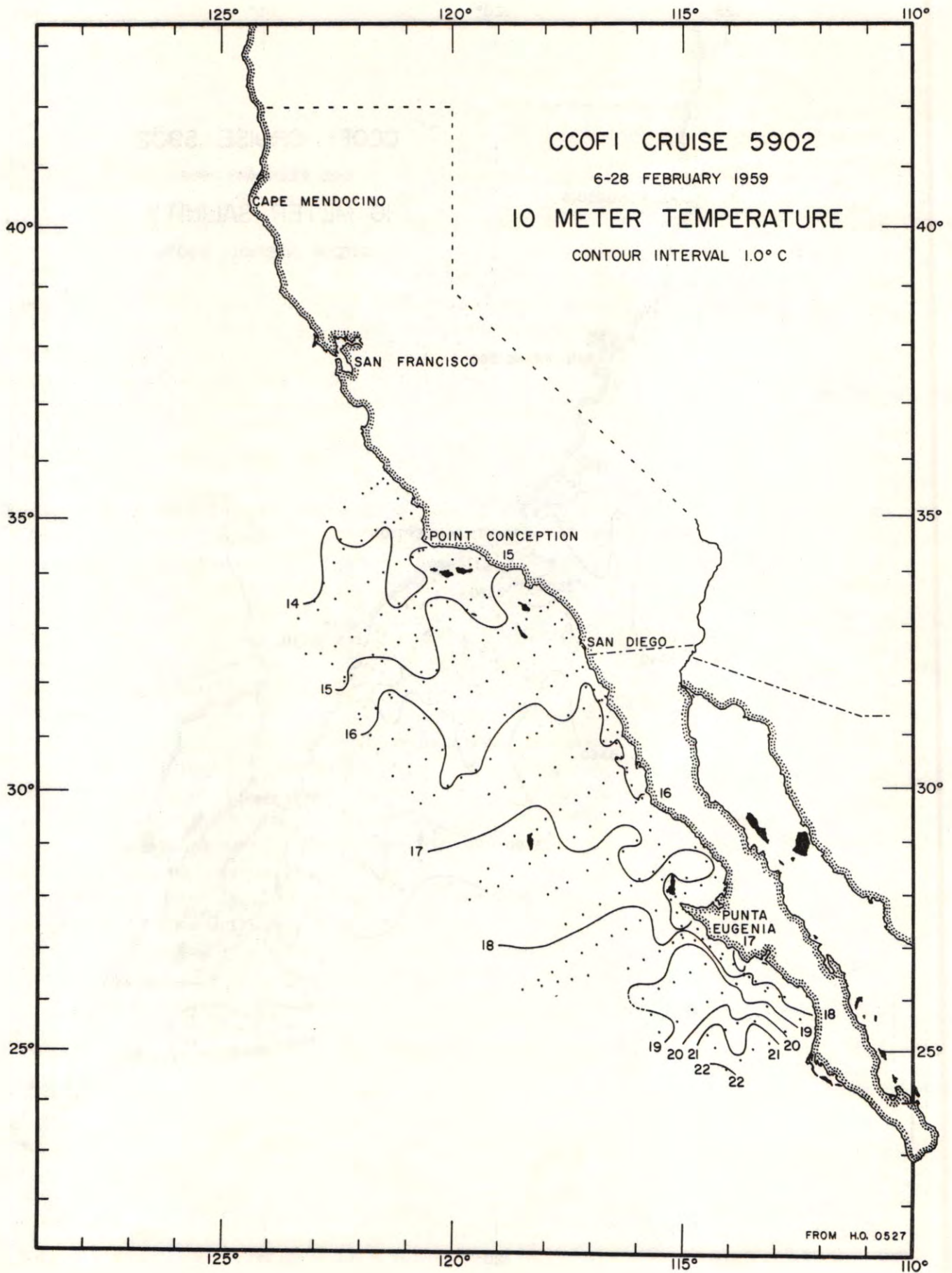


FIGURE 3

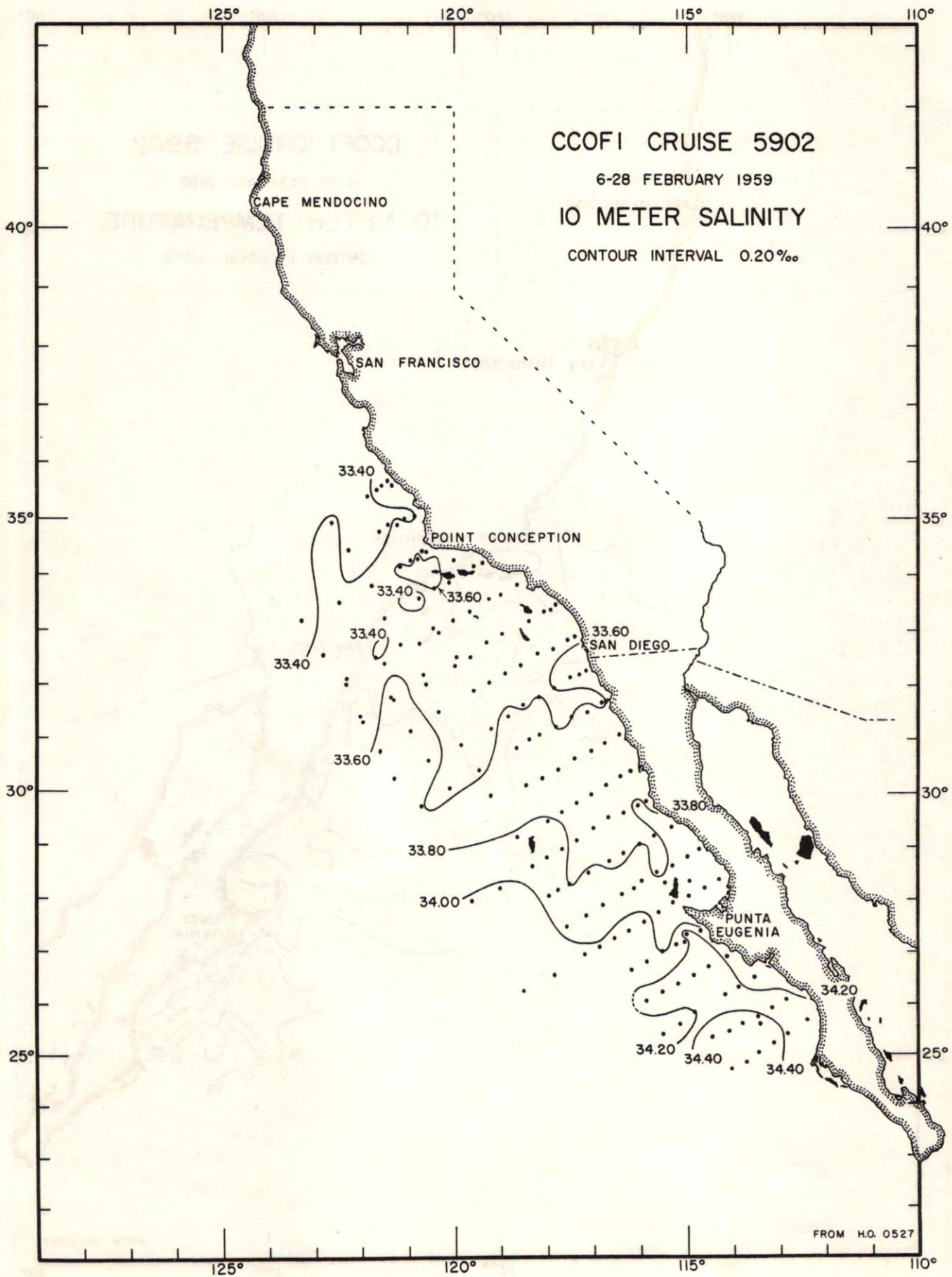


FIGURE 4

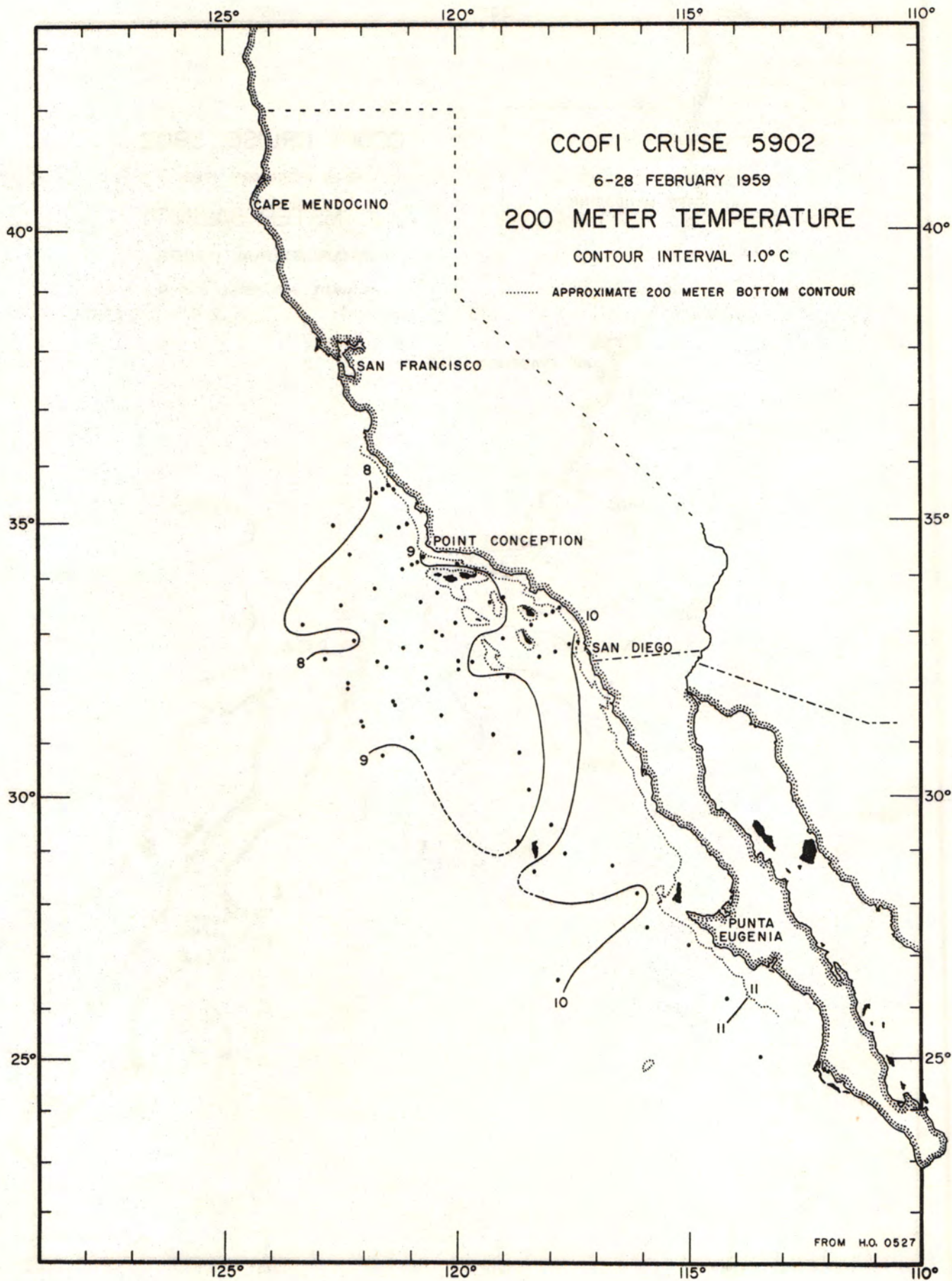


FIGURE 5

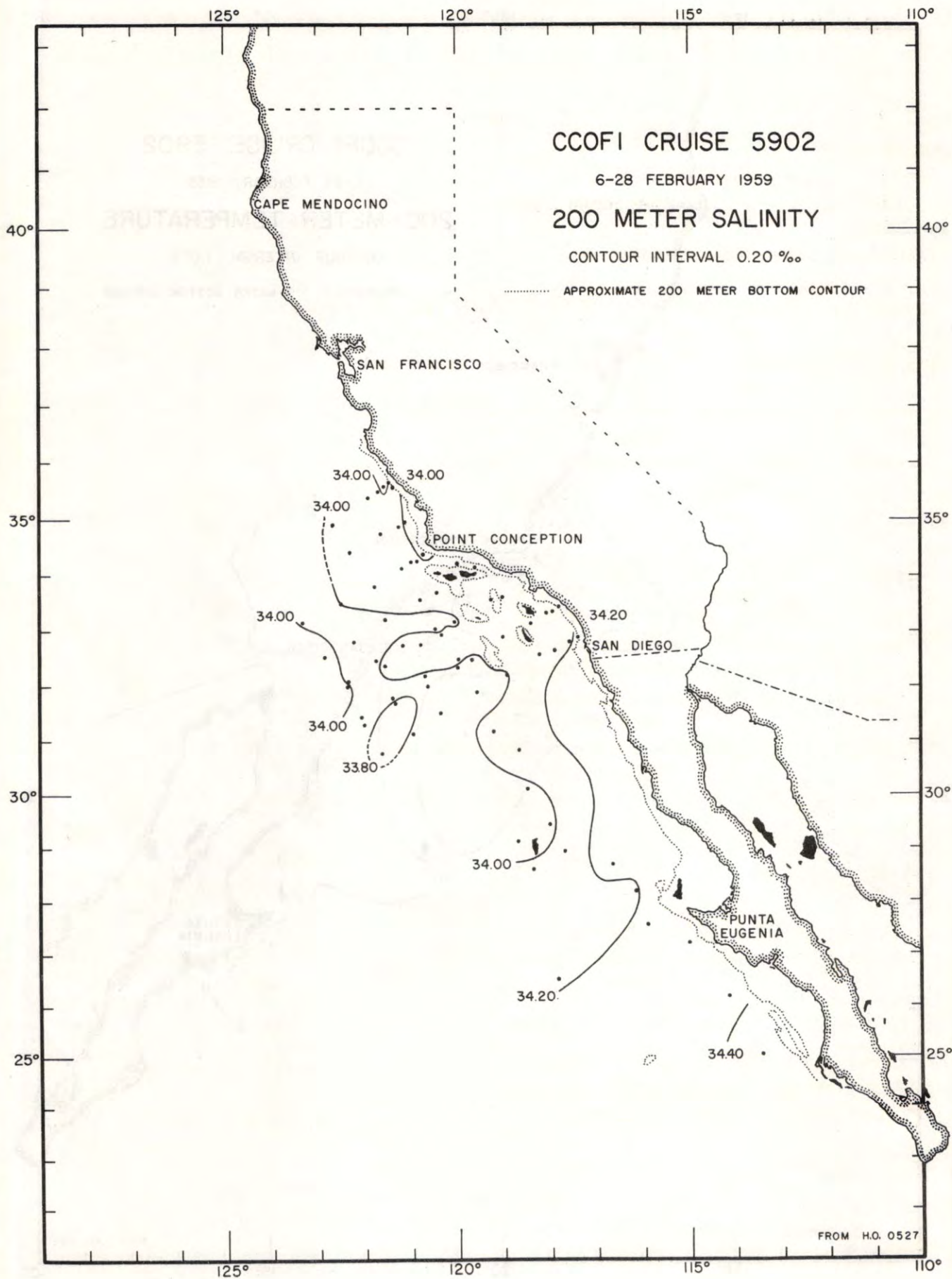


FIGURE 6

PERSONNEL

SHIPS' CAPTAINS

Forster, Charles W., R/V Black Douglas

Miller, Frank, R/V Paolina-T

Phinney, Alan W., R/V Orca

PERSONNEL PARTICIPATING IN THE COLLECTION OF DATA

R/V Black Douglas

Thraikill, James R., Fishery Research Biologist, Bureau of Commercial Fisheries

Kiwala, Robert S., Senior Marine Technician

R/V Orca

*Davoll, Peter J., Senior Marine Technician

**Anderson, Norman E., Senior Marine Technician

*Bassel, John B., Marine Technician

**Bingman, Allen R., Marine Technician

*Bottom, Kenneth S., Marine Technician

*Claussen, Leighton G., Fishery Research Biologist, Bureau of Commercial Fisheries

***Guillén, Oscar, visitor, Consejo de Investigaciones Hidrobiológicas, Lima, Perú

*Kimura, Makota, Fishery Research Biologist, Bureau of Commercial Fisheries

**Lawson, Jan B., Marine Technician

R/V Paolina-T

Lawson, Jan B., Marine Technician

Claussen, Leighton G., Fishery Research Biologist, Bureau of Commercial Fisheries

*Participated in first part of cruise only.

**Participated in second part of cruise only.

***Disembarked at Avila, California.

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 cm/g	m	°C	‰	ml/L	g/L	10 cm/g	dyn. m

ORCA; February 11, 1959; 0038 GCT; 35°36'N, 121°20.5'W; sounding, 110 fm; wind, 220°, force 6; weather, rain; sea, very rough; wire angle, 25°.

73.51

1	13.63	33.44	5.96	289	0	(13.63)	(33.44)	(5.96)	(25.09)	(289)	(0.00)
10	13.63	33.43	5.93	290	10	13.63	33.43	5.93	25.08	290	0.03
29	13.62	33.46	6.03	287	20	13.63	33.45	5.98	25.09	288	0.06
47	13.52	33.49	5.76	283	30	13.63	33.46	6.02	25.10	287	0.09
70	11.57	33.62	4.03	238	50	13.40	33.50	5.60	25.18	280	0.14
93	10.56	33.69	3.42	215	75	11.30	33.64	3.87	25.68	232	0.21
116	10.15	33.78	3.13	202	100	10.46	33.70	3.36	25.88	212	0.26
154	9.16	33.94	2.40	174	150	9.26	33.92	2.49	26.25	178	0.36
192	8.29	34.08	1.81	151	200	(8.08)	(34.10)	(1.72)	(26.58)	(147)	(0.44)

ORCA; February 10, 1959; 2302 GCT; 35°39'N, 121°26.5'W; sounding, 250 fm; wind, 220°, force 5; weather, overcast; sea, very rough; wire angle, 25°.

73.53

1	13.68	33.47	5.91	288	0	(13.68)	(33.47)	(5.91)	(25.10)	(288)	(0.00)
10	13.70	33.47	5.87	288	10	13.70	33.47	5.87	25.10	288	0.03
29	13.69	33.50	5.85	286	20	13.70	33.49	5.86	25.11	286	0.06
47	12.50	33.46	4.75	266	30	13.69	33.50	5.85	25.12	285	0.09
69	11.24	33.43	4.45	246	50	12.06	33.45	4.62	25.40	259	0.14
91	10.21	33.67	3.67	211	75	11.18	33.44	4.43	25.55	244	0.20
113	10.06	33.76	3.29	202	100	10.13	33.74	3.37	25.97	204	0.26
147	9.48	33.87	2.64	185	150	9.45	33.89	2.58	26.20	183	0.36
182	9.16	33.99	2.27	171	200	8.98	34.00	2.15	26.36	167	0.45
226	8.69	34.03	1.99	161	250	8.40	34.06	1.84	26.50	154	0.53
271	8.14	34.10	1.70	148	300	7.82	34.14	1.50	26.65	140	0.60
370	7.19	34.23	1.00	125							

ORCA; February 10, 1959; 2124 GCT; 35°35'N, 121°33.5'W; sounding, 600 fm; wind, 220°, force 5; weather, rain; sea, rough; wire angle, 25°.

73.55

1	13.54	33.48	5.83	284	0	(13.54)	(33.48)	(5.83)	(25.14)	(284)	(0.00)
11	13.54	33.58	5.84	277	10	13.54	33.57	5.84	25.20	278	0.03
34	13.58	33.52	5.82	282	20	13.55	33.56	5.83	25.20	278	0.06
61	11.90	33.51	4.38	252	30	13.57	33.52	5.83	25.16	282	0.08
69	11.55	33.51	4.29	246	50	12.32	33.51	4.80	25.39	260	0.14
89	10.10	33.54	4.17	219	75	10.50	33.52	4.22	25.74	227	0.20
101	9.69	33.60	3.87	208	100	9.70	33.59	3.90	25.92	209	0.25
114	9.42	33.68	3.62	198	150	8.98	33.83	3.10	26.23	180	0.35
140	9.12	33.81	3.22	184	200	8.50	33.98	2.38	26.42	162	0.44
156	8.90	33.85	2.99	177	250	8.05	34.12	1.76	26.60	144	0.52
181	8.69	33.95	2.64	166	300	7.58	34.12	1.52	26.67	138	0.59
211	8.40	34.00	2.27	159	400	6.39	34.18	0.88	26.88	118	0.72
235	8.18	34.12	1.91	147	500	5.83	34.22	0.69	26.97	109	0.84
276	7.80	34.12	1.59	141							
330	7.30	34.15	1.44	132							
416	6.25	34.19	0.81	116							
496	5.86	34.21	0.72	110							
564	5.46	34.28	0.31	100							

0.40

SIO
CCOFI
5902

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

73.57

ORCA; February 10, 1959; 1934 GCT; 35°31'N, 121°40'W; sounding, 600 fm; wind, 220°, force 3; weather, drizzle; sea, rough; wire angle, 20°.

2	13.58	33.42	5.88	289	0	(13.58)	(33.42)	(5.88)	(25.08)	(289)	(0.00)
11	13.58	33.48	6.05	285	10	13.58	33.48	6.05	25.12	285	0.03
30	13.58	33.48	5.89	285	20	13.58	33.48	6.05	25.12	285	0.06
58	13.57	33.51	5.80	282	30	13.58	33.48	5.89	25.12	285	0.08
67	12.36	33.39	5.15	269	50	13.58	33.49	5.84	25.13	284	0.14
82	10.87	33.51	4.31	234	75	10.90	33.50	4.35	25.64	236	0.21
96	10.50	33.60	4.06	221	100	10.00	33.68	3.64	25.94	207	0.26
110	9.95	33.69	3.59	205	150	8.88	33.90	2.68	26.30	173	0.36
132	9.20	33.82	3.10	184	200	8.43	34.07	2.07	26.50	154	0.44
151	8.87	33.91	2.67	173	250	7.72	34.16	1.59	26.68	138	0.52
178	8.60	34.02	2.28	160	300	7.08	34.15	1.39	26.75	130	0.59
206	8.36	34.09	1.99	152	400	6.32	34.21	0.84	26.92	115	0.71
233	7.98	34.16	1.68	140	500	5.78	34.30	0.44	27.05	102	0.83
279	7.32	34.14	1.48	133							
328	6.81	34.32r	1.22	-							
407	6.27	34.22	-	114							
487	5.84	34.29	0.48	104							
570	5.28	34.34	0.38	93							

0.39

73.60

ORCA; February 10, 1959; 1725 GCT; 35°24'N, 121°52.5'W; sounding, 1300 fm; wind, 220°, force 3; weather, cloudy; sea, rough; wire angle, 15°.

1	13.85	33.39	5.77	297	0	(13.85)	(33.39)	(5.77)	(25.00)	(297)	(0.00)
11	13.84	33.37	5.83	298	10	13.84	33.38	5.83	24.98	298	0.03
31	13.81	33.42	5.82	294	20	13.83	33.39	5.82	25.00	296	0.06
59	12.16	33.36	5.15	267	30	13.82	33.42	5.82	25.03	294	0.09
69	10.88	33.39	4.25	243	50	13.70	33.42	5.80	25.05	292	0.15
83	10.08	33.57	4.03	217	75	10.10	33.56	4.04	25.83	218	0.21
97	9.35	33.64	3.93	200	100	9.30	33.65	3.89	26.04	198	0.26
111	9.18	33.68	3.64	194	150	8.56	33.92	2.79	26.37	167	0.36
132	8.82	33.80	3.24	180	200	7.99	34.05	2.13	26.56	149	0.44
151	8.56	33.92	2.79	167	250	7.62	34.14	1.65	26.68	138	0.51
178	8.32	33.99	2.41	158	300	7.29	34.18	1.32	26.75	130	0.58
204	7.92	34.07	-	146	400	6.54	34.24	0.82	26.91	115	0.71
231	7.68	34.11	1.84	140	500	5.90	34.31	0.51	27.04	103	0.82
277	7.52	34.17	1.37	134							
327	7.00	34.19	1.28	126							
405	6.52	34.25	0.80	114							
485	5.99	34.30	0.53	104							
567	5.52	34.34	0.39	96							

0.38

73.70

ORCA; February 10, 1959; 1155 GCT; 34°56.5'N, 122°39'W; sounding, 2000 fm; wind, 330°, force 4; weather, missing; sea, rough; wire angle, 04°.

1	13.86	33.33	5.76	302	0	(13.86)	(33.33)	(5.76)	(24.95)	(302)	(0.00)
11	13.86	33.45	5.72	293	10	13.86	33.44	5.73	25.04	294	0.03
31	13.88	33.37	5.70	299	20	13.88	33.43	5.72	25.02	295	0.06
62	13.48	33.45	5.63	285	30	13.88	33.37	5.70	24.98	299	0.09
72	10.81	33.43	4.45	239	50	13.88	33.37	5.70	24.98	299	0.15
87	10.23	33.46	4.24	227	75	10.69	33.43	4.40	25.63	237	0.22
102	9.54	33.60	3.67	205	100	9.65	33.57	3.77	25.92	210	0.27
117	9.10	33.75	3.52	188	150	8.68	33.88	2.73	26.32	171	0.37
142	8.74	33.87	2.82	173	200	7.93	34.04	2.24	26.56	149	0.45
162	8.55	33.95	2.44	164	250	7.46	34.12	1.79	26.68	137	0.52
192	8.06	34.04	2.30	151	300	6.94	34.12	1.38	26.76	130	0.59
222	7.63	34.04	2.08	145	400	6.28	34.22	0.68	26.92	114	0.72
252	7.44	34.12	1.78	137	500	5.68	34.27	0.44	27.04	103	0.83
301	6.93	34.12	1.35	129	600	5.05	34.34	0.37	27.16	92	0.93
356	6.50	34.20	0.90	118							
440	6.08	34.23	0.48	111							
526	5.49	34.29	0.42	99							
610	5.01	34.34	0.36	90							

0.38

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

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ORCA; February 11, 1959; 0705 GCT; 35°04.5'N, 120°52'W; sounding, 90 fm; wind, 200°, force 5; weather, rain; sea, very rough; wire angle, 25°.

77.50

2a)	13.42	33.43	5.89	286	0	(13.42)	(33.43)	(5.89)	(25.11)	(286)	(0.00)
11	13.41	33.40	5.95	288	10	13.41	33.40	5.95	25.10	288	0.03
29	13.26	33.44	5.68	282	20	13.34	33.41	5.86	25.11	286	0.06
47	13.02	33.49	5.51	274	30	13.25	33.44	5.67	25.16	282	0.08
68	12.80	33.51	5.34	268	50	12.99	33.50	5.47	25.26	272	0.14
88	11.57	33.64	4.11	236	75	12.49	33.54	5.03	25.38	260	0.21
105	11.04	33.72	3.73	221	100	11.06	33.69	3.86	25.76	224	0.27
124	10.70	33.78	3.47	211							

ORCA; February 11, 1959; 0930 GCT; 34°58'N, 121°04.5'W; sounding, 250 fm; wind, 200°, force 5; weather, cloudy; sea, very rough; wire angle, 13°.

77.53

2	13.80	33.35	5.83	299	0	(13.80)	(33.35)	(5.83)	(24.98)	(299)	(0.00)
11	13.80	33.33	5.80	300	10	13.80	33.33	5.80	24.96	300	0.03
31	13.80	33.37	5.89	298	20	13.80	33.35	5.85	24.98	299	0.06
51	13.57	33.50	5.73	283	30	13.80	33.37	5.89	24.99	298	0.09
75	12.78	33.57	4.98	263	50	13.59	33.50	5.75	25.13	284	0.15
99	11.44	33.58	4.18	239	75	12.78	33.57	4.98	25.36	263	0.22
124	10.12	33.68	3.44	209	100	11.38	33.58	4.14	25.62	238	0.28
162	9.52	33.86	2.64	186	150	9.73	33.79	2.94	26.08	194	0.39
201	8.70	34.00	2.25	163	200	8.71	34.00	2.26	26.41	163	0.48
248	7.95	34.16	1.59	140	250	7.93	34.16	1.58	26.65	140	0.56
297	7.62	34.18	1.34	135	300	7.61	34.18	1.33	26.71	134	0.63
400	6.98	34.24	0.84	121	400	6.98	34.24	0.84	26.85	121	0.76

ORCA; February 11, 1959; 1132, 1203 GCT; 34°54'N, 121°13'W; sounding, 320 fm; wind, 200°, force 5; weather, partly cloudy; sea, very rough; wire angle, 00°, 05°.

77.55

1	13.66	33.46	5.82	288	0	(13.66)	(33.46)	(5.82)	(25.10)	(288)	(0.00)
11	13.66	33.46	5.79	288	10	13.66	33.46	5.79	25.10	288	0.03
31	13.65	33.46	5.74	288	20	13.66	33.46	5.76	25.10	288	0.06
56	13.13	33.53	5.12	272	30	13.65	33.46	5.74	25.10	288	0.09
66	12.66	33.55	5.07	262	50	13.57	33.47	5.64	25.12	286	0.14
76	12.04	33.49	4.70	256	75	12.15	33.50	4.80	25.42	257	0.21
91	11.34	33.58	3.90	237	100	10.07	33.64	3.88	25.90	211	0.27
107	9.76	33.67	3.85	204	150	9.27	33.86	2.83	26.21	182	0.37
132	9.43	33.84	2.99	186	200	8.60	34.04	2.30	26.45	159	0.46
151	9.26	33.86	2.83	182	250	8.04	34.11	1.71	26.59	145	0.53
177	8.92	33.98	2.53	168	300	7.69	34.15	1.42	26.68	138	0.61
207	8.48	34.05	2.21	156	400	6.94	34.25	0.81	26.86	120	0.74
237	8.16	34.10	1.80	148	500	6.16	34.26	0.55	26.96	110	0.86
277	7.84	34.13	1.56	142							
338	7.42	34.20	1.16	130							
408	6.88	34.25	0.79	120							
483	6.31	34.26	0.59	111							
564	5.51	34.26b)	0.38	102							

ORCA; February 12, 1959; 2025 GCT; 34°54'N, 121°23'W; sounding, 268 fm; wind, 270°, force 3; weather, partly cloudy; sea, rough; wire angle, 10°.

77.57

2	14.04	33.34	5.74	305	0	(14.04)	(33.34)	(5.74)	(24.92)	(305)	(0.00)
12	13.97	33.31	5.67	305	10	13.99	33.32	5.68	24.92	305	0.03
31	13.94	33.27	-	308	20	13.96	33.30	-	24.90	306	0.06
159c)	9.40	33.82	3.18	-	30	13.94	33.27	-	24.88	308	0.09
197c)	8.59	33.97	2.49	-							
245c)	7.95	34.14	1.70	-							
293c)	7.42	34.19	1.42	-							
396c)	6.52	34.30	0.61	-							

- a) Depths may be slightly in error owing to hydrographic weight dragging on bottom.
 b) Salinity bottle number was not recorded on the data sheet. Since standard handling and titrating procedures were used, this salinity value is assumed to be listed correctly.
 c) Pretrip; too uncertain for interpolation.

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5902

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

77.60

ORCA; February 12, 1959; 2305 GCT; 34°45'N, 121°36'W; sounding, 500 fm; wind, 270°, force 3; weather, partly cloudy; sea, rough; wire angle, 19°.

1	13.66	33.33	5.74	298	0	(13.66)	(33.33)	(5.74)	(24.99)	(298)	(0.00)
10	13.62	33.30	5.62	300	10	13.62	33.30	5.62	24.97	300	0.03
29	13.56	33.31	5.68	297	20	13.59	33.30	5.64	24.99	298	0.06
58	13.52	33.33	5.82	294	30	13.56	33.31	5.69	25.00	296	0.09
67	12.80	33.33	5.39	282	50	13.53	33.32	5.74	25.01	296	0.15
82	10.76	33.31	4.91	246	75	11.44	33.31	5.07	25.40	259	0.22
96	10.32	33.47	4.24	227	100	10.09	33.51	4.13	25.80	221	0.28
110	9.48	33.60	3.91	205	150	8.90	33.89	2.85	26.28	174	0.38
133	9.08	33.81	3.05	183	200	8.08	34.01	2.64	26.51	153	0.46
152	8.89	33.89	2.84	174	250	7.53	34.07	1.81	26.64	141	0.54
179	8.44	33.96	2.89	162	300	6.88	34.12	1.26	26.77	129	0.60
207	7.97	34.03	2.46	150	400	6.33	34.19	0.89	26.90	117	0.73
235	7.72	34.05	2.08	145	500	5.79	34.30	0.52	27.04	102	0.85
281	7.10	34.11	1.38	133							
332	6.64	34.14	1.15	124							
413	6.27	34.20	0.82	115							
494	5.82	34.29	0.54	103							
577	5.50	34.34	0.34	96							

77.70

ORCA; February 13, 1959; 0428 GCT; 34°25.5'N, 122°16.5'W; sounding, 2200 fm; wind, 320°, force 3; weather, partly cloudy; sea, moderate; wire angle, 05°.

1	14.03	33.31	5.76	306	0	(14.03)	(33.31)	(5.76)	(24.90)	(306)	(0.00)
11	14.04	33.30	5.74	308	10	14.04	33.30	5.74	24.89	307	0.03
30	14.06	33.33	5.65	306	20	14.05	33.32	5.69	24.89	307	0.06
61	14.00	33.30	5.70	307	30	14.06	33.33	5.65	24.90	306	0.09
71	13.40	33.29	5.71	296	50	14.05	33.32	5.69	24.89	307	0.15
86	10.96	33.29	5.01	251	75	11.90	33.29	5.31	25.30	268	0.22
101	10.06	33.36	4.71	232	100	10.10	33.36	4.75	25.67	233	0.29
116	9.38	33.49	4.35	211	150	8.92	33.82	3.28	26.23	180	0.39
139	9.02	33.66	3.95	194	200	8.17	34.02	2.50	26.50	154	0.48
160	8.81	33.91	2.84	172	250	7.58	34.04	2.24	26.60	144	0.56
191	8.32	34.00	2.68	157	300	7.04	34.12	1.52	26.74	131	0.62
220	7.86	34.04	2.20	148	400	6.36	34.20	0.72	26.90	117	0.75
250	7.58	34.04	2.24	144	500	5.63	34.25	0.50	27.03	104	0.87
299	7.05	34.12	1.53	131	600	4.90	34.27	0.37	27.13	95	0.97
353	6.66	34.15	1.07	124							
437	6.14	34.23	0.59	112							
521	5.46	34.25	0.48	102							
605	4.88	34.27	0.35	94							

80.53

ORCA; February 14, 1959; 1430 GCT; 34°23'N, 120°40'W; sounding, 244 fm; wind, direction missing, force 1; weather, cloudy; sea, moderate; wire angle, 00°.

0	14.03	33.55	5.96	289	0	14.03	33.55	5.96	25.08	289	0.00
10	14.02	33.54	6.09	289	10	14.02	33.54	6.09	25.08	289	0.03
30	13.88	33.54	6.01	286	20	14.00	33.54	6.08	25.08	289	0.06
50	12.96	33.53	5.13	269	30	13.88	33.54	6.01	25.11	286	0.09
75	11.06	33.66	3.62	226	50	12.96	33.53	5.13	25.29	269	0.14
100	10.86	33.68	3.49	221	75	11.06	33.66	3.62	25.74	226	0.20
125	10.34	33.73	3.30	208	100	10.86	33.68	3.49	25.80	221	0.26
165	9.62	33.86	2.86	188	150	9.89	33.80	3.04	26.06	196	0.37
206	9.16	33.98	2.41	172	200	9.22	33.96	2.50	26.30	174	0.46
256	8.5a)	34.07	1.75	155	250	8.59	34.06	1.82	26.47	156	0.54
306	7.98	34.12	1.50	144	300	8.03	34.11	1.55	26.60	145	0.62
411	7.24	34.22	1.10	126	400	7.30	34.21	1.14	26.78	128	0.76

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

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

ORCA; February 14, 1959; 1215 GCT; 34°16.5'N, 120°49.5'W; sounding, 415 fm; wind, direction missing, force 1; weather, missing; sea, moderate; wire angle, 01°.

80.55

1	14.06	33.56	5.89	289	0	(14.06)	(33.56)	(5.89)	(25.08)	(289)	(0.00)
11	14.06	33.62	5.99	284	10	14.06	33.62	5.99	25.13	284	0.03
31	14.08	33.50	5.94	293	20	14.07	33.57	5.97	25.09	288	0.06
41	12.52	33.46	5.23	267	30	14.08	33.50	5.95	25.04	293	0.09
52	11.66	33.43	4.77	254	50	11.72	33.43	4.82	25.44	255	0.14
67	10.96	33.57	4.03	231	75	10.71	33.63	3.84	25.78	222	0.20
82	10.53	33.68	3.69	215	100	9.92	33.75	3.29	26.02	200	0.25
102	9.86	33.76	3.27	199	150	9.03	33.96	2.62	26.33	171	0.35
127	9.38	33.86	2.91	184	200	8.38	34.03	2.09	26.48	156	0.43
147	9.05	33.96	2.64	172	250	8.13	34.10	1.81	26.57	147	0.51
177	8.64	33.98	2.30	164	300	7.79	34.16	1.45	26.67	138	0.58
207	8.35	34.04	2.03	155	400	6.98	34.28	0.84	26.88	118	0.71
236	8.18	34.09	1.86	148	500	6.26	34.29	0.55	26.98	108	0.83
277	7.98	34.13	1.64	143							
337	7.44	34.20	1.09	131							
412	6.9a)	34.29	0.82	116							
488	6.33	34.28	0.58	110							
568	5.80	34.34	0.42	99							

ORCA; February 14, 1959; 1020 GCT; 34°13'N, 120°56'W; sounding, 500 fm; wind, calm; weather, partly cloudy; sea, moderate; wire angle, 00°.

80.57

1	13.52	33.53	6.12	280	0	(13.52)	(33.53)	(6.12)	(25.17)	(280)	(0.00)
11	13.51	33.51	6.06	281	10	13.51	33.51	6.06	25.16	281	0.03
31	13.49	33.51	5.84	281	20	13.50	33.51	5.96	25.16	281	0.06
41	13.46	33.55	5.91	278	30	13.49	33.51	5.85	25.16	281	0.08
51	11.74	33.48	4.82	251	50	11.90	33.49	4.93	25.46	253	0.14
66	11.00	33.44	4.48	241	75	10.46	33.46	4.37	25.69	231	0.20
81	10.31	33.48	4.32	227	100	9.95	33.73	3.38	26.00	202	0.25
101	9.94	33.73	3.37	202	150	8.89	33.96	2.50	26.34	169	0.35
126	9.29	33.83	3.09	185	200	8.44	34.05	2.01	26.48	156	0.43
146	8.92	33.95	2.53	149	250	8.07	34.13	1.71	26.61	144	0.51
176	8.67	34.00	2.25	163	300	7.71	34.16	1.38	26.68	138	0.58
207	8.39	34.06	1.95	154	400	6.75	34.28	0.77	26.91	116	0.71
236	8.14	34.13	1.78	146	500	6.12	34.32	0.44	27.02	104	0.82
277	7.93	34.14	1.52	141							
337	7.28	34.20	1.09	129							
412	6.67	34.29	0.70	114							
487	6.20	34.32	0.46	106							
568	5.68	34.31	0.38	100							

ORCA; February 14, 1959; 0811 GCT; 34°08'N, 121°08'W; sounding, 1200 fm; wind, calm; weather, partly cloudy; sea, moderate; wire angle, 00°.

80.60

1	13.67	33.57	6.16	280	0	(13.67)	(33.57)	(6.16)	(25.17)	(280)	(0.00)
11	13.66	33.63	6.28	276	10	13.66	33.62	6.28	25.22	276	0.03
31	13.56	33.55	6.07	279	20	13.61	33.60	6.19	25.20	277	0.06
56	12.98	33.53	5.38	270	30	13.57	33.55	6.07	25.18	279	0.08
66	12.37	33.56	4.27	256	50	13.40	33.54	5.91	25.20	277	0.14
76	11.38	33.60	3.99	236	75	11.46	33.60	3.99	25.62	237	0.20
91	10.29	33.56	4.02	221	100	9.88	33.60	3.94	25.90	211	0.26
106	9.66	33.64	3.82	204	150	8.89	33.90	2.93	26.30	173	0.36
131	9.10	33.82	3.22	182	200	8.48	34.06	2.02	26.49	155	0.44
152	8.88	33.91	2.91	172	250	7.96	34.16	1.58	26.64	141	0.52
177	8.69	34.00	2.33	163	300	7.52	34.19	1.27	26.73	132	0.58
207	8.40	34.08	1.95	153	400	6.75	34.29	0.73	26.92	115	0.71
237	8.10	34.14	1.67	144	500	6.08	34.34	0.44	27.05	102	0.83
277	7.66	34.18	1.40	135							
337	7.36	34.23	1.05	127							
412	6.67	34.30	0.67	113							
488	6.17	34.34	0.45	103							
568	5.58	34.33	0.34	97							

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

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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 ³ /g	m	°C	‰	ml/L	g/L	10 ⁻⁵ cm ³ /g	dyn. m

80.70

ORCA; February 14, 1959; 0221 GCT; 33°49'N, 121°45'W; sounding, 2000 fm; wind, 340°, force 2; weather, partly cloudy; sea, moderate; wire angle, 00°.

1	14.72	33.47	5.73	308	0	(14.72)	(33.47)	(5.73)	(24.88)	(308)	(0.00)
11	14.54	33.46	5.86	306	10	14.55	33.46	5.85	24.90	306	0.03
31	14.51	33.46	5.80	305	20	14.52	33.46	5.83	24.91	305	0.06
56	14.50	33.40	5.75	309	30	14.51	33.46	5.80	24.91	305	0.09
66	14.48	33.45	5.59	305	50	14.50	33.40	5.77	24.87	309	0.15
76	14.20	33.45	5.68	300	75	14.28	33.45	5.66	24.96	301	0.23
91	11.87	33.45	4.73	256	100	11.20	33.47	4.57	25.57	243	0.30
106	10.82	33.50	4.45	234	150	9.20	33.82	3.01	26.18	184	0.40
132	9.61	33.70	3.53	200	200	8.76	34.04	2.12	26.42	162	0.49
152	9.18	33.83	2.98	183	250	8.26	34.10	1.80	26.55	150	0.57
177	8.94	34.01	2.34	166	300	7.75	34.16	1.46	26.68	137	0.65
207	8.70	34.04	2.07	160	400	6.78	34.26	0.87	26.89	117	0.78
237	8.39	34.07	1.87	153	500	6.26	34.29	0.50	26.98	108	0.90
277	7.97	34.14	1.63	142							
337	7.38	34.20	1.13	130							
412	6.69	34.27	0.80	115							
487	6.32	34.29	0.52	109							
568	5.82	34.29	0.40	104							

80.80

ORCA; February 13, 1959; 2038, 2111 GCT; 33°31.5'N, 122°29'W; sounding, 2000 fm; wind, 320°, force 2; weather, partly cloudy; sea, moderate; wire angle, 01°, 00°.

2	14.56	33.41	5.69	310	0	(14.56)	(33.41)	(5.69)	(24.87)	(310)	(0.00)
12	14.47	33.44	5.63	306	10	14.48	33.43	5.64	24.90	306	0.03
32	14.48	33.48	5.60	303	20	14.47	33.46	5.62	24.92	304	0.06
58	14.47	33.44	5.65	306	30	14.48	33.48	5.61	24.93	303	0.09
68	14.46	33.44	5.72	306	50	14.47	33.45	5.64	24.91	306	0.15
78	13.68	33.40	5.52	293	75	14.28	33.42	5.71	24.93	303	0.23
93	11.81	33.44	4.83	255	100	11.15	33.46	4.66	25.58	242	0.30
108	10.54	33.49	4.50	230	150	9.31	33.72	3.62	26.09	193	0.41
133	9.54	33.62	3.92	204	200	8.27	34.00	2.40	26.47	157	0.50
153	9.26	33.74	3.57	192	250	7.86	34.08	1.86	26.59	145	0.57
					300	7.42	34.14	1.48	26.70	135	0.64
178	8.62	33.93	2.75	168	400	6.44	34.17	0.96	26.86	120	0.78
208	8.18	34.03	2.26	153	500	6.03	34.31	0.54	27.02	105	0.90
238	7.92	34.05	2.00	148							
278	7.70	34.13	1.56	139							
339	6.86	34.14	1.36	127							
414	6.39	34.18	0.86	118							
488	6.11	34.29	0.56	106							
569	5.54	34.40	0.40	91							

80.90

ORCA; February 13, 1959; 1447 GCT; 33°10.5'N, 123°17.5'W; sounding, 2100 fm; wind, 320°, force 2; weather, partly cloudy; sea, moderate; wire angle, 06°.

1	14.26	33.30	5.82	311	0	(14.26)	(33.30)	(5.82)	(24.85)	(311)	(0.00)
11	14.25	33.33	5.84	310	10	14.25	33.33	5.84	24.86	310	0.03
31	14.28	33.30	5.65	312	20	14.25	33.32	5.76	24.85	311	0.06
56	13.74	33.32	5.80	300	30	14.27	33.30	5.66	24.84	312	0.09
66	13.23	33.28	5.57	293	50	13.95	33.32	5.75	24.92	305	0.16
76	12.32	33.24	5.40	279	75	12.40	33.24	5.42	25.17	281	0.23
91	11.37	33.37	5.10	252	100	10.45	33.42	4.90	25.66	234	0.29
106	10.36	33.43	4.87	231	150	8.85	33.74	4.20	26.18	185	0.40
131	9.20	33.60	4.27	200	200	8.18	33.99	3.43	26.48	156	0.48
151	8.83	33.74	4.19	185	250	7.64	34.11	1.83	26.64	140	0.56
176	8.48	33.93	3.66	165	300	6.93	34.12	1.45	26.76	130	0.63
206	8.11	34.01	3.37	154	400	6.01	34.17	0.84	26.92	114	0.76
236	7.81	34.09	2.04	144	500	5.52	34.26	0.49	27.06	102	0.87
275	7.32	34.12	1.59	135							
336	6.42	34.13	1.25	122							
410	5.98	34.18	0.79	113							
484	5.60	34.25	0.50	104							
564	5.26	34.34	0.39	93							

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

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ORCA; February 14, 1959; 1943 GCT; 34°14.5'N, 119°59.5'W; sounding, 316 fm; wind, 090°, force 3; weather, cloudy; sea, slight; wire angle, 07°.

82.47

1	14.36	33.51	6.06	298	0	(14.36)	(33.51)	(6.06)	(24.99)	(298)	(0.00)
11	14.31	33.56	5.96	294	10	14.32	33.56	5.97	25.04	294	0.03
31	14.28	33.55	5.76	294	20	14.30	33.56	5.86	25.04	294	0.06
51	13.30	33.55	4.93	274	30	14.29	33.55	5.77	25.04	294	0.09
76	11.50	33.57	4.04	240	50	13.40	33.55	5.00	25.21	277	0.14
101	10.71	33.68	3.49	218	75	11.51	33.57	4.05	25.59	241	0.21
125	10.25	33.80	2.99	202	100	10.72	33.68	3.50	25.82	219	0.27
165	9.50	33.98	2.37	177	150	9.72	33.93	2.55	26.18	184	0.37
205	9.10	34.07	2.07	164	200	9.15	34.06	2.10	26.38	166	0.46
254	8.5a)	34.15	1.50	149	250	8.54	34.15	1.55	26.55	150	0.54
303	7.98	34.18	1.38	139	300	8.01	34.18	1.40	26.65	140	0.62
407	7.14	34.22	0.80	125	400	7.19	34.22	0.85	26.80	126	0.75

ORCA; February 15, 1959; 0101 GCT; 34°14'N, 119°22'W; sounding, 12 fm; wind, direction missing, force 1; weather, cloudy; sea, slight; wire angle, 01°.

83.40

1	14.58	33.60	5.85	296	0	(14.58)	(33.60)	(5.85)	(25.01)	(296)	(0.00)
11	14.42	33.53	5.91	298	10	14.43	33.53	5.91	24.99	298	0.03

ORCA; February 14, 1959; 2315 GCT; 34°08'N, 119°33.5'W; sounding, 128 fm; wind, 120°, force 3; weather, cloudy; sea, slight; wire angle, 03°.

83.43

1	14.56	33.51	5.87	302	0	(14.56)	(33.51)	(5.87)	(24.94)	(302)	(0.00)
11	14.48	33.50	5.88	302	10	14.49	33.50	5.88	24.95	302	0.03
31	14.43	33.52	5.75	299	20	14.44	33.52	5.77	24.97	300	0.06
51	13.11	33.48	4.67	276	30	14.43	33.52	5.77	24.97	300	0.09
76	11.92	33.66	3.90	241	50	13.15	33.48	4.71	25.21	277	0.15
102	10.84	33.71	3.31	219	75	11.98	33.66	3.93	25.57	242	0.21
127	10.4a)	33.79	2.91	206	100	10.88	33.70	3.37	25.81	220	0.27
167	9.33	34.02	2.21	171	150	9.77	33.94	2.49	26.18	184	0.38
207	8.67	34.08	1.80	157	200	8.78	34.07	1.87	26.45	159	0.46

ORCA; February 15, 1959; 0646 GCT; 33°52'N, 120°07.5'W; sounding, 100 fm; wind, 140°, force 3; weather, cloudy; sea, slight; wire angle, 03°.

83.51

0	14.56	33.51	5.76	302	0	14.56	33.51	5.76	24.94	302	0.00
10	14.50	33.57	5.72	297	10	14.50	33.57	5.72	25.00	297	0.03
30	14.14	33.53	5.72	292	20	14.37	33.56	5.72	25.02	295	0.06
50	12.34	33.53	4.75	258	30	14.14	33.53	5.72	25.04	292	0.09
75	10.92	33.60	4.00	228	50	12.34	33.53	4.75	25.40	258	0.14
100	10.2a)	33.75	3.27	205	75	10.92	33.60	4.00	25.72	228	0.20
126	9.46	33.89	2.72	183	100	10.2	33.75	3.27	25.96	205	0.26
155	9.19	33.98	2.31	172	150	9.22	33.96	2.39	26.30	174	0.35

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

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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

83.55 ORCA; February 15, 1959; 0907, 0939 GCT; 33°44'N, 120°24.5'W; sounding, 600 fm; wind, 140°, force 6; weather, cloudy; sea, moderate; wire angle, 12°, 19°.

1	14.14	33.53	5.69	293	0	(14.14)	(33.53)	(5.69)	(25.04)	(293)	(0.00)
11	14.14	33.60	5.60	287	10	14.14	33.60	5.60	25.10	287	0.03
30	14.05	33.53	5.55	291	20	14.10	33.57	5.58	25.08	289	0.06
59	12.53	33.51	4.62	263	30	14.05	33.53	5.55	25.06	291	0.09
69	11.81	33.55	4.47	247	50	13.50	33.52	5.18	25.17	281	0.14
83	10.95	33.58	4.08	230	75	11.42	33.56	4.28	25.60	240	0.21
97	10.29	33.68	3.76	212	100	10.20	33.68	3.70	25.91	210	0.27
112	9.62	33.71	3.18	199	150	8.76	33.94	2.43	26.36	168	0.36
136	8.94	33.89	2.75	175	200	8.43	34.08	1.81	26.51	153	0.44 0.47
155	8.72	33.96	2.34	166	250	8.06	34.12	1.64	26.60	144	0.52
184	8.60	34.07	1.83	156	300	7.65	34.16	1.25	26.69	136	0.59
212	8.32	34.09	1.80	151	400	7.12	34.22	0.82	26.81	125	0.72
					500	6.54	34.26	0.60	26.93	114	0.85
239	8.15	34.11	1.72	147	600	(5.75)	(34.35)		(27.09)	(98)	(0.96)
287	7.73	34.16	1.30	137							
339	7.44	34.16	1.14	134							
420	7.0a)	34.23	0.77	123							
503	6.52	34.27	0.58	113							
587	5.88	34.34	0.50	100							

83.60 ORCA; February 15, 1959; 1243 GCT;^{b)} 33°34'N, 120°45'W; sounding, 800 fm; wind, 140°, force 6; weather, overcast; sea, moderate; wire angle, 11°.

1	14.16	33.41	5.68	301	0	(14.16)	(33.41)	(5.68)	(24.95)	(301)	(0.00)
11	14.16	33.39	5.80	303	10	14.16	33.39	5.80	24.93	303	0.03
21	14.18	33.38	5.76	304	20	14.18	33.38	5.76	24.92	304	0.06
30	14.17	33.37	5.84	304	30	14.17	33.37	5.84	24.92	304	0.09
40	14.14	33.39	5.80	302	50	14.12	33.39	5.83	24.94	302	0.15
50	14.12	33.39	5.83	302	75	13.50	33.41	5.53	25.09	288	0.22
59	14.01	33.40	5.82	300	100	11.12	33.48	4.50	25.60	240	0.29
69	13.84	33.42	5.75	294	150	8.99	33.84	3.32	26.24	179	0.40
79	12.96	33.39	5.21	280	200	(8.23)	(34.05)	(2.27)	(26.52)	(153)	(0.48)
89	12.38	33.43	4.91	266							
99	11.14	33.48	4.51	241							
108	10.22	33.52	4.16	223							
118	9.90	33.56	4.04	214							
129	9.51	33.68	3.94	199							
139	9.3a)	33.74	3.51	191							
149	9.00	33.84	3.33	180							
173	8.70	33.91	2.59	170							
198	8.25	34.04	2.28	154							

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

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; February 15, 1959; 1335 GCT; ^{a)} 33°34'N, 120°45'W; sounding, 800 fm; wind, 140°, force 6; weather, overcast; sea, moderate; wire angle, 20°.

83.60

93	11.68	33.44	4.76	253							
130	9.52	33.68	3.94	199							
139	9.28	33.71	3.65	194							
149	9.10	33.78	3.37	186							
158	8.91	33.86	2.98	176							
168	8.75	33.89	2.70	172							
177	8.66	33.94	2.46	167							
187	8.54	33.98	2.34	162	150	9.08	33.78	3.36	26.17	186	
197	8.32	34.04	2.22	154	200	8.30	34.04	2.21	26.50	154	
206	8.24	34.05	2.12	153	250	7.90	34.11	1.74	26.62	143	
216	8.12	34.04	2.01	152							
225	8.06	34.05	1.95	150							
235	7.98	34.06	1.84	148							
245	8.0b)	34.10	1.75	146							
254	7.78	34.13	1.63	140							
264	7.72	34.14	1.59	139							
274	7.64	34.14	1.55	138							
283	7.54	34.16	1.47	135							

ORCA; February 15, 1959; 1538 GCT; 33°34'N, 120°45'W; sounding, 800 fm; wind, 150°, force 7; weather, overcast; sea, rough; wire angle, 28°.

83.60

1	14.13	33.41	5.82	301	0	(14.13)	(33.41)	(5.82)	(24.96)	(301)	(0.00)
10	14.14	33.39	5.88	302	10	14.14	33.39	5.88	24.94	302	0.03
32	14.18	33.43	5.76	300	20	14.15	33.39	5.84	24.94	302	0.06
59	13.90	33.42	5.84	296	30	14.17	33.42	5.77	24.96	301	0.09
68	13.10	33.37	5.14	284	50	14.16	33.43	5.77	24.96	300	0.15
85	10.73	33.46	4.36	235	75	12.14	33.38	4.77	25.33	265	0.22
100	10.34	33.50	4.23	226	100	10.34	33.50	4.23	25.74	226	0.28
113	9.92	33.58	4.18	213	150	9.18	33.78	3.15	26.16	187	0.39
139	9.34	33.69	3.56	196	200	8.39	33.94	2.28	26.41	163	0.48
157	9.06	33.83	2.91	182	250	7.89	34.05	1.76	26.57	148	0.56
184	8.56	33.91	2.46	168	300	7.42	34.12	1.30	26.69	136	0.63
215	8.25	33.97	2.14	159	400	6.48	34.16	0.80	26.85	121	0.76
242	7.96	34.04	1.82	149	500	6.04	34.24	0.57	26.97	110	0.88
288	7.51	34.11	1.38	138	600	5.56	34.31	0.37	27.08	98	0.99
347	6.94	34.14	0.97	128							
441	6.2b)	34.18	0.70	116							
527	5.96	34.26	0.50	107							
600	5.56	34.31	0.37	98							

a) Special cast, lower.

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

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5902

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

83.70

ORCA; February 18, 1959; 1732 GCT; 33°13'N, 121°30'W; sounding, 2000 fm; wind, 310°, force 2; weather, partly cloudy; sea, very rough; wire angle, 06°.

1	14.70	33.46	5.74	309	0	(14.70)	(33.46)	(5.74)	(24.87)	(309)	(0.00)
11	14.66	33.46	5.66	308	10	14.67	33.46	5.66	24.88	308	0.03
31	14.52	33.48	5.75	304	20	14.59	33.47	5.71	24.90	306	0.06
56	14.38	33.46	5.72	302	30	14.53	33.48	5.75	24.93	304	0.09
66	14.28	33.46	5.64	300	50	14.42	33.47	5.73	24.94	303	0.15
77	13.72	33.44	5.46	290	75	14.00	33.45	5.54	25.01	296	0.23
92	12.51	33.44	4.95	268	100	12.10	33.46	4.82	25.39	259	0.30
106	11.38	33.51	4.60	242	150	9.03	33.74	3.61	26.15	188	0.41
131	9.36	33.64	4.02	200	200	8.33	33.97	2.64	26.44	160	0.50
151	9.02	33.75	3.57	187	250	7.69	34.04	2.12	26.59	146	0.57
175	8.58	33.89	3.01	169	300	7.23	34.06	1.66	26.67	138	0.65
205	8.28	33.99	2.59	158	400	6.39	34.18	0.90	26.88	118	0.78
234	7.86	34.04	2.31	148	500	5.77	34.20	0.60	26.98	109	0.90
275	7.46	34.04	1.81	142							
334	6.92	34.13	1.39	128							
407	6.34	34.18	0.86	118							
481	5.90	34.19	0.66	112							
558	5.30	34.26	0.47	99							

0.40

83.80

ORCA; February 18, 1959; 1152 GCT; 32°50'N, 122°10'W; sounding, 2000 fm; wind, 190°, force 2; weather, partly cloudy; sea, rough; wire angle, 01°.

1	14.75	33.51	5.76	306	0	(14.75)	(33.51)	(5.76)	(24.90)	(306)	(0.00)
11	14.75	33.49	5.74	307	10	14.75	33.49	5.74	24.89	307	0.03
31	14.62	33.49	5.74	305	20	14.71	33.49	5.74	24.90	306	0.06
56	13.70	33.49	5.18	287	30	14.62	33.49	5.74	24.91	305	0.09
66	11.37	33.44	4.35	248	50	14.62	33.49	5.74	24.91	305	0.15
77	10.72	33.49	4.32	232	75	10.80	33.48	4.32	25.65	235	0.22
92	10.25	33.57	3.95	219	100	9.97	33.65	3.79	25.93	208	0.28
107	9.74	33.72	3.65	200	150	8.85	33.89	2.72	26.29	174	0.37
132	9.12	33.82	2.89	183	200	7.98	33.98	2.58	26.50	154	0.46
151	8.84	33.89	2.72	174	250	7.41	34.04	1.99	26.63	142	0.53
177	8.28	33.93	2.72	162	300	7.02	34.06	1.68	26.70	136	0.60
207	7.90	34.00	2.47	152	400	6.40	34.21	0.92	26.90	116	0.73
237	7.52	34.04	2.07	144	500	5.76	34.28	0.30	27.04	103	0.85
277	7.24	34.05	1.83	139							
337	6.68	34.10	1.34	128							
413	6.35	34.23	0.83	114							
488	5.84	34.27	0.30	105							
568	5.49	34.33	0.33	96							

0.39

83.90

ORCA; February 18, 1959; 0653 GCT; 32°32'N, 122°48.5'W; sounding, 2400 fm; wind, 210°, force 2; weather, partly cloudy; sea, very rough; wire angle, 01°.

1	14.78	33.48	5.77	309	0	(14.78)	(33.48)	(5.77)	(24.87)	(309)	(0.00)
11	14.77	33.46	5.62	310	10	14.77	33.46	5.62	24.86	310	0.03
31	14.66	33.48	5.74	306	20	14.71	33.48	5.69	24.88	308	0.06
56	14.62	33.47	5.68	306	30	14.67	33.48	5.73	24.90	306	0.09
66	14.16	33.46	5.56	298	50	14.63	33.48	5.70	24.90	306	0.15
76	11.35	33.51	4.27	242	75	11.46	33.50	4.32	25.55	245	0.22
91	10.43	33.58	3.79	221	100	10.00	33.63	3.62	25.90	211	0.28
107	9.66	33.68	3.48	202	150	8.87	33.83	2.81	26.24	178	0.38
132	9.02	33.80	3.12	183	200	8.14	34.02	2.07	26.51	153	0.46
152	8.84	33.84	2.78	177	250	7.50	34.12	1.50	26.68	138	0.54
176	8.41	33.93	2.59	164	300	6.90	34.11	1.26	26.76	130	0.60
206	8.07	34.04	1.98	151	400	6.08	34.17	0.74	26.91	115	0.73
236	7.69	34.11	1.60	141	500	5.67	34.26	0.44	27.04	103	0.84
276	7.19	34.12	1.35	133							
336	6.50	34.10	1.11	126							
410	6.02	34.18	0.68	114							
485	5.72	34.25	0.45	105							
565	5.44	34.31	0.35	97							

0.38

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

ORCA; February 19, 1959; 1102 GCT; 33°50'N, 118°37.5'W; sounding, 156 fm; wind, 240°, force 4; weather, partly cloudy; sea, moderate; wire angle, 05°.

87.35

0	15.35	33.54	5.72	316	0	15.35	33.54	5.72	24.80	316	0.00
12	15.36	33.55	5.77	316	10	15.35	33.55	5.77	24.80	316	0.03
32	15.27	33.55	5.64	314	20	15.32	33.55	5.71	24.81	315	0.06
52	15.04	33.43u	5.66	-	30	15.28	33.55	5.65	24.82	314	0.09
77	12.82	33.64	4.13	258	50	15.06	33.44	5.66	24.78	318	0.16
102	11.60	33.68	3.63	234	75	12.98	33.63	4.23	25.36	263	0.23
					100	11.78	33.68	3.69	25.62	237	0.29

ORCA; February 19, 1959; 0747 GCT; 33°39'N, 118°58.5'W; sounding, 350 fm; wind, 270°, force 3; weather, partly cloudy; sea, rough; wire angle, 10°.

87.40

1	15.33	33.57a)	5.75	314	0	(15.33)	(33.57)	(5.75)	(24.82)	(314)	(0.00)
11	15.31	33.57	5.74	313	10	15.32	33.57	5.74	24.83	313	0.03
31	15.13	33.55	5.65	311	20	15.29	33.57	5.72	24.83	313	0.06
55	14.15	33.51	5.02	294	30	15.15	33.55	5.67	24.85	311	0.09
65	13.10	33.53	4.82	272	50	14.90	33.54	5.52	24.88	308	0.16
75	12.16	33.60	4.03	250	75	12.16	33.60	4.03	25.50	250	0.22
89	11.39	33.60	3.93	236	100	11.12	33.68	3.61	25.74	226	0.29
104	11.04	33.72	3.49	222	150	9.89	33.87	2.69	26.11	191	0.39
129	10.30	33.84	3.01	200	200	9.02	34.02	2.10	26.36	167	0.48
149	9.90	33.87	2.70	191	250	8.48	34.10	1.78	26.52	152	0.56
174	9.54	34.01	2.34	176	300	7.94	34.16	1.43	26.64	140	0.64
203	8.96	34.02	2.02	166	400	7.10	34.28	0.80	26.86	120	0.77
233	8.61	34.08	1.84	156	500	6.35	34.34	0.50	27.01	106	0.89
273	8.25	34.14	1.68	146							
333	7.57	34.17	1.18	134							
407	7.04	34.29	0.76	118							
482	6.48	34.33	0.52	108							
560	5.99	34.36	0.39	100							

ORCA; February 16, 1959; 2218, 2257 GCT; 33°33.5'N, 119°13.5'W; sounding, 900 fm; wind, 160°, force 4; weather, cloudy; sea, very rough; wire angle, 05, 01°.

87.45

4	14.66	33.48	5.65	306	0	14.7	(33.48)	(5.65)	(24.88)	(308)	(0.00)
14	14.52	33.48	5.64	304	10	14.59	33.48	5.64	24.91	305	0.03
34	14.30	33.51	5.59	297	20	14.47	33.48	5.64	24.94	302	0.06
44	13.58	33.49	5.14	284	30	14.35	33.50	5.62	24.98	299	0.09
59	12.06	33.51	4.40	254	50	12.93	33.49	4.80	25.26	272	0.15
					75	10.83	33.60	3.81	25.74	227	0.21
73	10.92	33.59	3.86	229	100	10.19	33.68	3.34	25.92	210	0.27
98	10.20	33.68	3.35	210	150	9.32	33.82	2.84	26.16	186	0.37
118	9.90	33.73	3.17	202	200	8.92	34.04	2.12	26.40	164	0.45
138	9.51	33.78	3.03	192	250	8.36	34.13	1.78	26.56	148	0.53
158	9.21	33.86	2.66	182	300	7.93	34.18	1.40	26.66	139	0.61
188	9.05	34.00	2.25	168	400	7.12	34.24	0.77	26.83	123	0.74
224	8.54	34.08	1.90	155	500	6.44	34.30	0.47	26.96	110	0.86
254	8.32	34.14	1.72	147	600	5.90	34.35	0.39	27.07	100	0.98
304	7.89	34.18	1.37	138							
359	7.41	34.21	0.92	130							
444	6.8b)	34.29	0.63	115							
529	6.26	34.31	0.40	107							
614	5.86	34.36	0.39	98							

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

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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 ³ /g	m	°C	‰	ml/L	g/L	10 ⁻⁵ cm ³ /g	dyn. m

87.55

ORCA; February 17, 1959; 0517 GCT; 33°10'N, 120°02'W; sounding, 600 fm; wind, 150°, force 3; weather, partly cloudy; sea, very rough; wire angle, 00°.

1	15.28	33.56	5.64	314	0	(15.28)	(33.56)	(5.64)	(24.82)	(314)	(0.00)
11	15.27	33.55	5.59	314	10	15.27	33.55	5.59	24.82	314	0.03
31	14.92	33.48	5.59	312	20	15.03	33.50	5.59	24.83	313	0.06
56	14.70	33.49	5.60	306	30	14.93	33.48	5.59	24.84	312	0.09
67	13.18	33.44	4.96	280	50	14.79	33.49	5.60	24.88	308	0.16
77	11.84	33.49	4.52	252	75	12.92	33.49	4.55	25.45	254	0.23
91	10.97	33.49	4.23	237	100	10.38	33.55	4.06	25.78	223	0.29
107	10.34	33.55	4.03	222	150	9.38	33.77	3.17	26.11	191	0.39
131	9.67	33.69	3.47	201	200	8.32	33.97	2.33	26.44	160	0.48
152	9.33	33.78	3.12	189	250	7.81	34.07	1.79	26.59	145	0.56
176	8.72	33.93	2.57	169	300	7.32	34.10	1.48	26.69	136	0.63
207	8.22	33.98	2.26	158	400	6.76	34.20	0.78	26.84	122	0.76
237	7.91	34.03	1.89	150	500	6.21	34.27	0.44	26.98	109	0.88
277	7.54	34.10	1.66	139							
337	7.05	34.09	1.22	134							
412	6.7a)	34.22	0.73	119							
488	6.26	34.27	0.47	110							
568	5.81	34.28	0.37	104							

87.60

ORCA; February 9, 1959; 0510 GCT; 32°58'N, 120°19'W; sounding, 400 fm; wind, 320°, force 6; weather, cloudy; sea, very rough; wire angle, 20°.

1	15.12	33.59		308	0	(15.12)	(33.59)		(24.88)	(308)	(0.00)
10	15.13	33.57		309	10	15.13	33.57		24.87	309	0.03
29	14.58	33.54		300	20	14.96	33.56		24.89	307	0.06
57	13.41	-	-	-	30	14.56	33.54		24.97	300	0.09
66	12.20	33.57		252	50	13.78	33.55		25.14	284	0.15
80	11.01	33.60		230	75	11.30	33.59		25.65	235	0.22
95	10.44	33.64		216	100	10.35	33.66		25.87	214	0.27
108	10.20	33.71		208	150	9.42	33.92		26.22	180	0.37
131	9.78	33.86		190	200	8.40	34.04		26.48	156	0.46
147	9.49	33.91		182	250	7.75	34.14		26.66	140	0.53
175	8.74	34.01		163	300	7.29	34.17		26.75	130	0.60
202	8.38	34.04		155	400	6.56	34.27		26.94	113	0.73
229	8.07	34.13		144	500	5.87	34.32		27.06	101	0.84
273	7.44	34.14		135							
324	7.14	34.20		126							
400	6.56	34.27		113							
481	5.98	34.32		102							
563	5.49	34.34		96							

87.60

ORCA; February 17, 1959; 0848 GCT; 33°01'N, 120°24'W; sounding, 400 fm; wind, 200°, force 3; weather, partly cloudy; sea, very rough; wire angle, 01°.

2	15.00	33.57	5.64	307	0	(15.00)	(33.57)	(5.64)	(24.89)	(307)	(0.00)
12	14.99	33.50	5.67	312	10	15.00	33.50	5.67	24.84	312	0.03
32	14.85	33.49	5.65	310	20	14.94	33.50	5.66	24.85	311	0.06
57	14.78	33.49	5.48	308	30	14.86	33.49	5.65	24.86	310	0.09
68	13.05	33.48	4.66	275	50	14.82	33.49	5.62	24.87	309	0.16
78	12.08	33.49	4.36	256	75	12.38	33.49	4.44	25.36	262	0.23
93	10.42	33.59	3.86	220	100	10.10	33.58	3.87	25.85	216	0.29
108	9.95	33.58	3.88	213	150	9.12	33.84	2.95	26.21	182	0.39
133	9.46	33.99r	3.01	-	200	8.33	33.98	2.31	26.44	160	0.48
153	9.04	33.86	2.90	179	250	7.83	34.04	1.90	26.57	147	0.56
178	8.46	33.97	2.48	162	300	7.42	34.10	1.59	26.67	138	0.63
208	8.28	33.98	2.27	158	400	6.56	34.20	0.81	26.88	119	0.76
238	7.92	34.03	2.00	150	500	5.98	34.28	0.45	27.01	106	0.88
278	7.64	34.07	1.71	143							
339	7.01	34.15	1.42	128							
413	6.48	34.21	0.71	117							
489	6.03	34.28	0.45	107							
569	5.64	34.29	0.50	102							

80

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

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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	

87.80

ORCA; February 17, 1959; 1924 GCT; 32°29.5'N, 121°41'W; sounding, 2000 fm; wind, 100°, force 3; weather, overcast; sea, very rough; wire angle, 08°.

1	14.94	33.48	5.77	312	0	(14.94)	(33.48)	(5.77)	(24.84)	(312)	(0.00)
11	14.84	33.40	5.47	316	10	14.85	33.40	5.50	24.80	316	0.03
31	14.76	33.46	5.46	310	20	14.79	33.44	5.46	24.84	312	0.06
56	14.73	33.46	5.63	309	30	14.76	33.46	5.46	24.86	310	0.09
66	14.52	33.44	5.57	306	50	14.74	33.46	5.60	24.86	310	0.16
76	12.62	33.39	4.92	274	75	12.80	33.39	4.99	25.21	277	0.23
91	11.44	33.44	4.52	249	100	10.70	33.43	4.42	25.63	236	0.30
106	10.38	33.43	4.35	231	150	9.04	33.80	2.91	26.19	184	0.40
130	9.60	33.64	3.49	204	200	8.28	33.94	2.38	26.43	161	0.49 0.40
150	9.04	33.80	2.91	184	250	7.60	34.04	1.87	26.60	144	0.57
175	8.64	33.91	2.61	169	300	7.10	34.08	1.42	26.70	135	0.64
205	8.20	33.95	2.31	160	400	6.36	34.15	0.88	26.86	120	0.77
234	7.80	34.02	2.04	149	500	5.64	(34.19)	(0.56)	(26.98)	(108)	(0.89)
273	7.32	34.07	1.63	138							
333	6.88	34.09	1.14	131							
406	6.31	34.16	0.85	119							
481	5.74	34.19	0.60	110							
559	5.48	-	-	-							

87.90

ORCA; February 8, 1959; 1344 GCT; 32°01'N, 122°19'W; sounding, 2300 fm; wind, 360°, force 4; weather, drizzle; sea, moderate; wire angle, 18°.

1	14.80	33.54		305	0	(14.80)	(33.54)		(24.91)	(305)	(0.00)
11	14.81	33.55		304	10	14.81	33.55		24.92	304	0.03
29	14.80	33.55		304	20	14.80	33.55		24.92	304	0.06
53	14.81	33.53		306	30	14.80	33.55		24.92	304	0.09
63	14.81	33.55		304	50	14.81	33.53		24.90	306	0.15
73	14.52	33.52		301	75	14.14	33.50		25.03	294	0.23
86	11.78	33.48		252	100	10.40	33.51		25.74	226	0.29
100	10.40	33.51		226	150	9.13	33.82		26.20	183	0.40
123	9.58	33.69		200	200	8.39	34.02		26.47	157	0.48 0.39
142	9.28	33.77		189	250	7.61	34.08		26.63	142	0.56
164	8.88	33.91		173	300	7.05	34.14		26.76	130	0.63
191	8.55	33.99		162	400	6.26	34.20		26.91	115	0.76
216	8.12	34.05		151	500	5.60	34.31		27.08	99	0.87
254	7.54	34.09		140							
310	6.96	34.15		128							
381	6.39	34.18		118							
452	5.94	34.29		105							
531	5.36	34.31		96							

87.90

ORCA; February 18, 1959; 0124 GCT; 32°04.5'N, 122°18.5'W; sounding, 2000 fm; wind, 220°, force 2; weather, partly cloudy; sea, very rough; wire angle, 03°.

0	15.19	33.46	5.63	319	0	15.19	33.46	5.63	24.77	319	0.00
10	14.94	33.45	5.65	315	10	14.94	33.45	5.65	24.81	315	0.03
30	14.84	33.46	5.70	312	20	14.87	33.45	5.67	24.83	313	0.06
55	14.80	33.46	5.74	310	30	14.84	33.46	5.70	24.84	312	0.09
65	14.78	33.48	5.58	309	50	14.81	33.46	5.73	24.85	311	0.16
75	13.68	33.40	5.31	293	75	13.68	33.40	5.31	25.04	293	0.23
91	11.28	33.42	4.42	248	100	10.48	33.54	4.03	25.76	225	0.30
106	10.12	33.63	3.86	213	150	9.06	33.74	3.88	26.14	188	0.40
130	9.50	33.66	3.66	201	200	8.31	33.94	2.86	26.42	162	0.49 0.40
150	9.06	33.74	3.88	188	250	7.59	34.05	1.99	26.61	144	0.57
176	8.59	33.89	3.05	170	300	7.16	34.06	1.39	26.68	137	0.64
206	8.23	33.96	2.79	160	400	6.52	34.14	0.78	26.83	123	0.78
236	7.76	34.05	2.15	146	500	5.57	34.26	0.43	27.04	103	0.89
276	7.38	34.05	1.63	140							
336	6.84	34.10	1.09	130							
411	6.46	34.14	0.73	122							
486	5.64	34.24	0.46	105							
565	5.34	34.33	0.31	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/g	m	°C	‰	ml/L	g/L	10 ⁻⁵ cm/g	dyn. m

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ORCA; February 28, 1959; 0901 GCT; 33°28.5'N, 117°47'W; sounding, 300 fm; wind, calm; weather, clear; sea, slight; wire angle, 01°.

90.28

0	15.68	33.50	5.74	326	0	15.68	33.50	5.74	24.68	326	0.00
10	15.36	33.49	5.82	320	10	15.36	33.49	5.82	24.76	320	0.03
30	15.06	33.50	5.74	314	20	15.21	33.49	5.78	24.79	317	0.06
50	12.44	33.60	3.98	256	30	15.06	33.50	5.74	24.82	314	0.10
75	11.44	33.69	3.40	230	50	12.44	33.60	3.98	25.44	256	0.15
100	10.61	33.78	3.19	210	75	11.44	33.69	3.40	25.70	230	0.21
125	9.88	33.93	2.53	187	100	10.61	33.78	3.19	25.92	210	0.27
166	9.47	34.11	1.94	167	150	9.55	34.04	2.15	26.30	173	0.36
206	9.63	34.20	1.48	163	200	9.60	34.19	1.50	26.41	163	0.45

ORCA; February 28, 1959; 0646 GCT; 33°23.5'N, 117°55'W; sounding, 320 fm; wind, direction missing, force 1; weather, clear; sea, slight; wire angle, 00°.

90.30

2	15.74	33.55	5.57	324	0	(15.74)	(33.55)	(5.57)	(24.71)	(324)	(0.00)
12	15.30	33.55	5.65	315	10	15.34	33.55	5.65	24.80	316	0.03
22	15.12	33.53	5.34	313	20	15.15	33.53	5.36	24.83	313	0.06
32	15.02	33.55	4.93	309	30	15.05	33.55	4.99	24.86	310	0.09
42	13.92	33.55	4.36	287	50	12.90	33.58	3.95	25.34	265	0.15
52	12.84	33.58	3.94	264	75	11.97	33.63	3.50	25.56	244	0.22
62	12.62	33.58	3.90	260	100	10.89	33.74	3.14	25.83	217	0.27
77	11.85	33.64	3.46	242	150	9.83	33.93	2.56	26.16	186	0.38
92	11.24	33.74	3.16	224	200	9.23	34.13	1.81	26.42	162	0.46
108	10.54	33.74	3.12	211	250	9.02	34.24	1.23	26.54	150	0.54
132	9.88	33.83	3.00	194	300	8.43	34.27	1.05	26.66	140	0.62
162	9.80	33.99	2.24	181	400	7.51	34.28	0.70	26.80	126	0.76
197	9.24	34.12	1.84	163	500	6.49	34.27	0.56	26.94	113	0.88
247	9.03	34.24	1.27	151							
297	8.46	34.27	1.07	140							
353	8.10	34.30	0.76	132							
428	7.17	34.27	0.69	122							
503	6.46	34.27	0.54	112							

ORCA; February 28, 1959; 0438 GCT; 33°19.5'N, 118°04'W; sounding, 814 fm; wind, 270°, force 1; weather, clear; sea, slight; wire angle, 02°.

90.32

1	15.58	33.53	5.59	322	0	(15.58)	(33.53)	(5.59)	(24.74)	(322)	(0.00)
11	15.35	33.53	5.57	317	10	15.37	33.53	5.58	24.79	317	0.03
31	14.93	33.54	5.42	308	20	15.21	33.53	5.52	24.82	314	0.06
41	13.89	33.58	4.51	284	30	15.00	33.54	5.44	24.88	308	0.09
52	12.79	33.59	4.09	262	50	12.90	33.58	4.11	25.34	264	0.15
67	11.61	33.68	3.57	234	75	11.27	33.68	3.51	25.72	228	0.21
81	11.09	33.68	3.45	225	100	10.77	33.74	3.02	25.86	214	0.27
101	10.76	33.75	3.01	214	150	10.03	33.94	2.42	26.14	188	0.37
126	10.33	33.82	2.71	202	200	9.65	34.16	1.63	26.38	166	0.46
151	10.02	33.95	2.40	188	250	8.81	34.24	1.46	26.57	147	0.54
176	9.62	34.07	2.01	172	300	8.34	34.26	1.10	26.66	139	0.62
201	9.64	34.16	1.61	166	400	7.44	34.29	0.70	26.82	124	0.75
256	8.72	34.24	1.42	146	500	6.46	34.29	0.52	26.96	110	0.87
306	8.30	34.26	1.04	138							
357	7.86	34.29	0.73	130							
406	7.39	34.29	0.70	123							
511	6.38	34.29	0.50	110							
561	6.06	34.31	0.39	105							

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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

90.37 ORCA; February 28, 1959; 0142 GCT; 33°10.5'N, 118°23.5'W; sounding, 647 fm; wind, 270°, force 1; weather, partly cloudy; sea, moderate; wire angle, 07°.

1	15.66	33.58	5.53	320	0	(15.66)	(33.58)	(5.53)	(24.76)	(320)	(0.00)
10	15.28	33.58	5.69	312	10	15.28	33.58	5.69	24.84	312	0.03
30	15.22	33.58	5.69	311	20	15.24	33.58	5.69	24.84	312	0.06
50	14.93	33.64	5.34	300	30	15.22	33.58	5.69	24.85	311	0.09
65	14.02	33.64	4.68	282	50	14.93	33.64	5.34	24.96	300	0.16
80	12.39	33.71	3.93	246	75	12.60	33.70	4.01	25.49	250	0.22
100	11.40	33.69	3.74	230	100	11.40	33.69	3.74	25.70	230	0.28
115	10.70	33.73	3.36	215	150	9.83	33.89	2.70	26.13	189	0.39
130	10.40	33.80	2.95	204	200	9.48	34.06	2.25	26.32	171	0.48 0.42
150	9.83	33.89	2.70	189	250	9.13	34.21	1.50	26.50	154	0.57
180	9.27	33.95	2.52	176	300	8.26	34.22	1.28	26.65	140	0.64
205	9.51	34.07	2.17	170	400	7.02	34.20	0.80	26.81	125	0.78
255	9.04	34.22	1.45	152	500	6.28	34.28	0.47	26.98	109	0.90
310	8.09	34.22	1.24	138							
359	7.33	34.18	0.98	131							
410	6.96	34.21	0.76	123							
514	6.15	34.29	0.43	107							
564	5.88	34.33	0.31	101							

90.45 ORCA; February 27, 1959; 1837 GCT; a) 32°55.5'N, 118°58'W; b) sounding, 920 fm; wind, 270°, force 1; weather, cloudy; sea, rough; wire angle, 05°.

1	15.58	33.55	5.36	320	0	(15.58)	(33.55)	(5.36)	(24.75)	(320)	(0.00)
11	15.39	33.55	5.60	316	10	15.40	33.55	5.57	24.79	316	0.03
32	15.37	33.55	5.39	316	20	15.39	33.55	5.50	24.79	316	0.06
42	14.99	33.55	5.30	308	30	15.38	33.55	5.40	24.79	316	0.10
52	14.25	33.56	4.85	292	50	14.38	33.56	4.91	25.03	294	0.16
67	13.02	33.53	4.36	271	75	12.45	33.56	4.10	25.40	258	0.22
81	12.10	33.59	3.92	249	100	11.00	33.68	3.50	25.76	224	0.29
101	10.98	33.68	3.49	223	150	9.49	33.84	2.99	26.15	187	0.39
127	10.14	33.77	3.14	203	200	9.10	34.09	2.10	26.41	163	0.48 0.40
151	9.48	33.84	2.98	187	250	8.40	34.16	1.69	26.58	146	0.56
176	9.32	34.06	2.19	168	300	7.71	34.24	1.23	26.75	131	0.63
201	9.09	34.09	2.09	163	400	7.01	34.26	0.71	26.86	120	0.76
256	8.31	34.17	1.63	145	500	6.34	34.33	0.48	27.00	106	0.88
306	7.65	34.25	1.21	130							
356	7.22	34.24	1.00	125							
405	6.98c)	34.26	0.71	120							
510	6.26	34.34	0.46	104							
561	5.92	34.36	0.35	99							

a) Special cast, top.

b) Ship drifted two miles while on station.

c) Mean value of 6.95 and 7.01°C.

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 cm/g	m	°C	‰	ml/L	g/L	10 cm/g	dyn. m

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ORCA; February 27, 1959; 2104 GCT; a) 32°53.5'N, 118°56'W; b) sounding, 920 fm; wind, 270°, force 1; weather, cloudy; sea, rough; wire angle, 06°.

90.45

404	6.96	34.27	0.73	119							
454	6.62	34.34	0.53	109							
504	6.37	34.33	0.43	106							
554	5.94	34.39	0.38	97							
604	5.69	34.37	0.24	96							
654	5.48	34.41	0.34	90							
705	5.16	34.45	0.34	84							
754	4.97	34.44	0.27	82							
804	4.83	34.49	0.32	78							
854	4.56	34.50	0.48	74							
904	4.42	34.52	0.41	71							
954	4.29	34.51	0.44	70							
1004	4.14	34.53	0.52	67	500	6.39	34.33	0.45	27.00	106	
1054	4.05	34.52	0.63	67	600	5.71	34.37	0.25	27.12	96	
1105	4.02	34.54	0.56	65	700	5.20	34.45	0.34	27.24	84	
1155	3.92	34.54	0.61	64	800	4.85	34.49	0.31	27.30	78	
1205	3.88	34.54	0.70	64	1000	4.15	34.53	0.51	27.42	68	
1255	3.84	34.56	0.56	62	1200	3.89	34.54	0.69	27.45	64	

ORCA; February 27, 1959; 1941 GCT; c) 32°54.5'N, 118°57'W; b) sounding, 920 fm; wind, 270°, force 1; weather, cloudy; sea, rough; wire angle, 09°.

90.45

964	4.26	34.49	0.43	71							
1014	4.12	34.50	0.48	69							
1038	4.10	34.52	0.53	67							
1063	4.08	34.49	0.50	69							
1088	4.04	34.51	0.48	68							
1113	4.00	34.51	0.49	68							
1139	3.98	34.52	0.52	66							
1164	3.94	34.52	0.50	66							
1188	3.93	34.52	0.50	66							
1213	3.84	34.53	0.56	64							
1238	3.86	34.53	0.54	64							
1263	3.82	34.52	0.49	64							
1288	3.80	34.52	0.56	64							
1314	3.82	34.54	0.59	64							
1338	3.80	34.54	0.56	63							
1388	3.76	34.55	0.57	62							
1438	3.75	34.56	0.50	60	1000	4.16	34.50	0.47	27.40	69	
1513	3.72	34.56	0.60	60	1200	3.89	34.53	0.53	27.44	65	
					1500	3.73	34.56	0.58	27.48	61	

ORCA; February 27, 1959; 1520 GCT; 32°47.5'N, 119°18'W; sounding, missing; wind, 280°, force 2; weather, cloudy; sea, rough; wire angle, missing.

90.50

2	15.24	33.55	5.62	313	0	(15.24)	(33.55)	(5.62)	(24.83)	(313)	(0.00)
12	15.24	33.56	5.64	313	10	15.24	33.56	5.64	24.83	313	0.03
32	15.16	33.55	5.70	312	20	15.24	33.56	5.67	24.83	313	0.06
52	14.22	33.52	5.39	295	30	15.18	33.56	5.69	24.84	312	0.09
					50	14.30	33.52	5.42	25.01	296	0.15

ORCA; February 27, 1959; 1056 GCT; 32°29'N, 119°39.5'W; sounding, missing; wind, 280°, force 2; weather, cloudy; sea, rough; wire angle, 05°.

90.55

1	15.69	33.57	5.39	322	0	(15.69)	(33.57)	(5.39)	(24.74)	(322)	(0.00)
11	15.71	33.56	5.46	322	10	15.71	33.56	5.46	24.74	322	0.03
31	15.71	33.55	5.33	323	20	15.71	33.56	5.45	24.73	323	0.06
51	15.70	33.56	5.26	322	30	15.71	33.55	5.33	24.72	323	0.10
75	14.04	33.52	4.91	292	50	15.70	33.56	5.26	24.73	322	0.16
100	12.82	33.55	4.47	266	75	14.04	33.52	4.91	25.05	292	0.24
125	11.15	33.64	3.94	229	100	12.82	33.55	4.47	25.32	266	0.31
165	9.65	33.85	3.00	189	150	10.08	33.77	3.36	25.99	202	0.43
205	9.00	34.00	2.41	168	200	9.07	33.98	2.47	26.33	170	0.52

a) Special cast, middle.

b) Ship drifted two miles while on station.

c) Special cast, bottom

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OBSERVED					INTERPOLATED				COMPUTED		
Z	T	S	O ₂	$\delta_{T_3}^{-5}$	Z	T	S	O ₂	σ_t	$\delta_{T_3}^{-5}$	ΔD
m	°C	‰	ml/L	10 cm ³ /g	m	°C	‰	ml/L	g/L	10 cm ³ /g	dyn. m

90.60

ORCA; February 7, 1959; 1505 GCT; 32°28.5'N, 119°56'W; sounding, 485 fm; wind, 270°, force 3; weather, cloudy; sea, moderate; wire angle, 01°.

0	15.16	33.64		305	0	15.16	33.64		24.91	305	0.00
10	15.17	33.64		305	10	15.17	33.64		24.91	305	0.03
30	15.18	33.60		308	20	15.18	33.61		24.89	307	0.06
55	12.15	33.52		256	30	15.18	33.60		24.88	308	0.09
65	10.60	33.57		225	50	15.21	33.61		24.87	309	0.15
75	10.16	33.63		213	75	10.16	33.63		25.88	213	0.22
90	9.68	33.69		201	100	9.44	33.74		26.08	194	0.27
106	9.35	33.77		190	150	8.72	33.96		26.36	167	0.36
131	9.12	33.84		181	200	8.02	34.05		26.55	150	0.44 0.37
151	8.71	33.96		166	250	7.50	34.12		26.68	137	0.52
176	8.34	34.02		156	300	6.83	34.18		26.82	124	0.58
206	7.94	34.06		148	400	6.30	34.37		27.04	103	0.70
236	7.68	34.11		141	500	5.92	34.34		27.06	100	0.81
276	7.11	34.15		130							
336	6.56	34.24		116							
411	6.27	34.37		103							
486	5.98	34.34		101							
566	5.72	34.36		96							

90.60

ORCA; February 27, 1959; 0755 GCT; 32°22.5'N, 119°58'W; sounding, 400 fm; wind, 270°, force 3; weather, clear; sea, very rough; wire angle, 07°.

1	15.88	33.56	5.47	326	0	(15.88)	(33.56)	(5.47)	(24.69)	(326)	(0.00)
11	15.88	33.58	5.49	325	10	15.88	33.58	5.49	24.70	325	0.03
30	15.82	33.57	5.60	324	20	15.86	33.57	5.59	24.71	324	0.06
50	15.60	33.55	4.67u	321	30	15.82	33.57	5.60	24.71	324	0.10
66	14.63	33.55	5.00	301	50	15.60	33.55		24.75	321	0.16
81	13.08	33.57	4.41	269	75	13.68	33.56	4.62	25.17	280	0.24
101	11.54	33.52	4.54	244	100	11.59	33.52	4.54	25.54	245	0.30
116	10.52	33.56	4.42	224	150	9.65	33.74	3.34	26.05	197	0.42
131	10.00	33.62	4.13	212	200	8.46	34.00	2.37	26.45	159	0.50 0.40
151	9.64	33.75	3.28	196	250	7.82	34.08	1.93	26.60	144	0.58
181	8.86	33.93	2.62	171	300	7.14	34.12	1.55	26.74	132	0.66
206	8.36	34.02	2.31	157	400	6.82	34.26	0.61	26.88	118	0.78
256	7.74	34.09	1.88	143	500	6.16	34.32	0.54	27.02	105	0.90
311	7.03	34.14	1.45	130							
360	7.04	34.24	-	122							
410	6.76	34.26	0.59	117							
516	6.04	34.33	0.52	103							
566	5.72	34.35	0.30	97							

90.70

ORCA; February 7, 1959; 2028 GCT; 32°10'N, 120°37.5'W; sounding, 2000 fm; wind, 230°, force 3; weather, rain; sea, rough; wire angle, 04°.

1	14.86	33.50		309	0	(14.86)	(33.50)		(24.87)	(309)	(0.00)
11	14.80	33.49		309	10	14.80	33.49		24.87	309	0.03
31	14.72	33.53		304	20	14.76	33.51		24.89	307	0.06
56	14.54	33.49		303	30	14.73	33.53		24.92	304	0.09
67	14.52	33.48		303	50	14.57	33.50		24.93	303	0.15
77	13.02	33.46		276	75	13.38	33.46		25.15	283	0.23
92	11.70	33.46		252	100	10.84	33.50		25.66	234	0.29
107	10.27	33.56		220	150	9.10	33.77		26.15	187	0.40
131	9.34	33.69		196	200	8.44	33.99		26.44	160	0.48 0.39
151	9.09	33.77		187	250	7.74	34.15		26.67	138	0.56
176	8.73	33.92		170	300	7.13	34.13		26.74	132	0.63
207	8.35a)	34.00		158	400	6.29	34.19		26.90	116	0.76
236	7.96	34.16		140	500	5.75	34.24		27.01	106	0.87
275	7.41	34.13		136							
335	6.80	34.14		126							
409	6.23	34.20		115							
483	5.83	34.23		108							
563	5.44	34.33		96							

86

a) Alternate value, 8.59°C, 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/g	m	°C	‰	ml/L	g/L	10^{-5}cm/g	dyn. m

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ORCA; February 27, 1959; 0242 GCT; 32°00'N, 120°36'W; sounding, 2140 fm; wind, 330°, force 3; weather, partly cloudy; sea, very rough; wire angle, 24°.

90.70

2	15.15	33.34	5.44	320	0	(15.15)	(33.34)	(5.44)	(24.76)	(320)	(0.00)
11	15.10	33.36	5.62	324	10	15.11	33.36	5.60	24.71	324	0.03
30	15.02	33.37	5.52	323	20	15.07	33.36	5.58	24.72	324	0.06
48	15.01	33.38	5.55	321	30	15.02	33.37	5.52	24.73	323	0.10
66	14.88	33.37	5.62	320	50	15.00	33.38	5.57	24.75	321	0.16
80	14.82	33.42	5.60	314	75	14.84	33.42	5.61	24.81	315	0.24
103	12.34	33.30	5.28	275	100	12.74	33.32	5.34	25.17	281	0.32
115	11.04	33.42	4.55	244	150	9.64	33.65	4.10	25.98	204	0.44
128	10.36	33.55	4.19	222	200	8.54	33.86	2.95	26.33	171	0.53
144	9.78	33.64	4.12	206	250	7.72	34.00	2.14	26.55	150	0.61
172	9.22	33.71	3.98	193	300	7.19	34.06	1.70	26.68	138	0.69
193	8.70	33.85	3.09	174	400	6.43	34.18	0.90	26.87	119	0.82
240	7.85	33.98	2.24	152	500	5.78	34.19	0.60	26.96	110	0.94
283	7.32	34.03	1.85	142							
331	6.96	34.10	1.42	132							
377	6.60	34.16	1.01	122							
475	5.85	34.18	0.63	112							
523	5.72	34.21	0.55	108							

0.41

ORCA; February 8, 1959; 0217, 0243 GCT; 31°44.5'N, 121°19.5'W; sounding, 3200 fm; wind, 240°, force 2; weather, cloudy; sea, moderate; wire angle, 03°, 04°.

90.80

0	16.42	33.78	5.23	322	0	16.42	33.78	5.23	24.74	322	0.00
11	16.46	33.76	5.39	324	10	16.46	33.76	5.39	24.71	324	0.03
31	16.46	33.75	5.35	325	20	16.46	33.75	5.37	24.71	324	0.06
56	16.51	33.75	5.41	326	30	16.46	33.75	5.35	24.70	325	0.10
66	16.46	33.78	5.13	323	50	16.50	33.75	5.40	24.69	326	0.16
76	16.48	33.75	5.12	326	75	16.48	33.75	5.12	24.69	326	0.24
91	16.49	33.74	5.35	326	100	16.48	33.74	5.37	24.69	326	0.33
106	15.76	33.68	5.39	315	150	9.82	33.67	4.46	24.97	205	0.46
131	12.41a)	33.61	4.85	254	200	8.58	33.91	2.90	26.36	168	0.56
					250	7.83	34.03	2.16	26.56	148	0.64
151	9.76	33.68	4.44	203	300	7.16	34.11	1.67	26.71	134	0.71
176	9.16	33.75	3.83	189	400	6.32	34.21	0.68	26.91	115	0.84
206	8.48	33.93	2.79	165	500	6.06	34.34	0.37	27.05	102	0.96
236	8.08	34.00	2.30	154							
276	7.38	34.08	1.95	139							
335	6.92	34.14	1.25	128							
409	6.28	34.23	0.62	113							
485	6.12	34.24	0.37	104							
565	5.72	34.34	0.38	98							

0.40

ORCA; February 26, 1959; 2128 GCT; 31°44'N, 121°18'W; sounding, 2000 fm; wind, 300°, force 3; weather, overcast; sea, very rough; wire angle, 11°.

90.80

1	16.15	33.61	5.48	328	0	(16.15)	(33.61)	(5.48)	(24.67)	(328)	(0.00)
11	16.10	33.62	5.46	327	10	16.10	33.62	5.46	24.68	327	0.03
30	16.06	33.62	5.47	326	20	16.07	33.62	5.46	24.69	326	0.06
50	16.06	33.62	5.50	326	30	16.06	33.62	5.47	24.69	326	0.10
65	16.06	33.62	5.44	326	50	16.06	33.62	5.50	24.69	326	0.16
80	16.08	33.64	5.48	325	75	16.07	33.64	5.48	24.70	325	0.24
100	15.88	33.58	5.48	325	100	15.88	33.58	5.48	24.70	325	0.33
115	14.19	33.58	5.36	290	150	10.83	33.58	4.73	25.71	228	0.47
130	13.07	33.60	5.16	266	200	9.20	33.70	3.73	26.09	193	0.57
149	10.88	33.57	4.77	230	250	8.10	33.96	2.67	26.46	158	0.66
179	9.69	33.62	4.26	206	300	7.33	34.01	2.08	26.61	144	0.74
203	9.12	33.71	3.65	191	400	6.50	34.13	1.10	26.83	123	0.88
252	8.06	33.97	2.61	156	500	5.84	34.20	0.61	26.96	110	1.00
307	7.24	34.02	1.97	141							
358	6.76	34.09	1.40	129							
407	6.46	34.14	1.05	122							
511	5.79	34.21	0.57	108							
560	5.58	34.25	0.42	103							

0.43

a) Mean value of 12.34 and 12.48°C

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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

90.90 ORCA; February 8, 1959; 0753 GCT; 31°24.5'N, 122°00'W; sounding, 2000 fm; wind, 250°, force 2; weather, drizzle; sea, moderate; wire angle, 01°.

0	15.80	33.49		330	0	15.80	33.49		24.66	330	0.00
10	15.78	33.49		330	10	15.78	33.49		24.66	330	0.03
30	15.77	33.51		327	20	15.78	33.50		24.67	328	0.06
55	15.83	33.48		331	30	15.77	33.51		24.68	327	0.10
65	16.30	33.65		328	50	15.80	33.48		24.65	330	0.16
75	16.25	33.76		320	75	16.25	33.76		24.76	320	0.24
90	15.17	33.77		296	100	14.09	33.71		25.20	278	0.32
105	12.75	33.46		271	150	9.96	33.59		25.88	213	0.45
131	11.73	33.68		236	200	8.61	33.90		26.34	169	0.54
150	9.96	33.59		213	250	7.79	34.06		26.59	146	0.62
176	9.08	33.78		186	300	7.23	34.10		26.70	135	0.70
206	8.50	33.93		165	400	6.32	34.20		26.90	116	0.83
236	7.98	34.04		150	500	5.74	34.24		27.01	106	0.94
276	7.50	34.08		141							
336	6.82	34.13		128							
411	6.26	34.20		115							
486	5.81	34.23		108							
567	5.36	34.34		94							

90.90 ORCA; February 26, 1959; 1600 GCT; 31°19.5'N, 121°58.5'W; sounding, 2100 fm; wind, 300°, force 3; weather, partly cloudy; sea, very rough; wire angle, 10°.

2	15.02	33.30	5.68	328	0	(15.02)	(33.30)	(5.68)	(24.67)	(328)	(0.00)
12	15.02	33.28	5.62	329	10	15.02	33.28	5.62	24.66	329	0.03
31	15.10	33.31	5.63	328	20	15.05	33.28	5.62	24.66	329	0.06
50	15.04	33.28	5.58	329	30	15.09	33.31	5.63	24.67	328	0.10
65	15.01	33.30	5.52	328	50	15.04	33.28	5.58	24.66	329	0.16
80	14.99	33.30	5.59	327	75	15.00	33.30	5.56	24.68	327	0.25
100	13.33	33.29	5.45	294	100	13.33	33.29	5.45	25.03	294	0.33
115	13.04	33.53	4.97	271	150	9.82	33.55	3.98	25.87	214	0.45
130	11.16	33.42	4.59	246	200	8.83	33.86	2.96	26.28	175	0.55
149	9.87	33.54	4.01	216	250	7.90	33.97	2.74	26.50	154	0.64
178	9.06	33.77	3.22	186	300	7.31	34.04	1.90	26.64	141	0.72
202	8.80	33.87	2.95	174	400	6.38	34.15	0.96	26.86	120	0.85
252	7.88	33.97	2.73	154	500	5.72	34.22	0.50	26.99	108	0.97
307	7.24	34.05	1.78	139							
357	6.74	34.13	1.24	126							
407	6.34	34.16	0.92	119							
511	5.68	34.23	0.47	106							
560	5.44	34.27	0.41	100							

93.28 ORCA; February 6, 1959; 2352 GCT;^{a)} 32°54.5'N, 117°22'W; sounding, 325 fm; wind, 270°, force 2; weather, cloudy; sea, moderate; wire angle, 06°.

332	7.88	34.24		134							
341	7.82	34.20		136							
351	7.72	34.22		133							
361	7.56	34.20		132							
371	7.50	34.22		130							
380	7.34	34.22		128							
391	7.14	34.22		125							
399	7.09	34.23		124							
410	6.97	34.25		120							
420	6.85	34.25		119							
430	6.82	34.27		117							
439	6.69	34.28		115							
449	6.61	34.27		114							
459	6.58	34.28		113							
468	6.51	34.27		113							
479	6.46	34.33u		-							
488	6.46	34.29		111							

a) Special cast.

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 cm/g	m	°C	‰	ml/L	g/L	10 cm/g	dyn. m

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ORCA; February 24, 1959; 2014 GCT; 32°54.5'N, 117°22.5'W; sounding, 324 fm; wind, 290°, force 1; weather, partly cloudy; sea, moderate; wire angle, 02°.

93.28

0	15.42	33.57	5.28	316	0	15.42	33.57	5.28	24.80	316	0.00
10	15.13	33.57	5.18	310	10	15.13	33.57	5.18	24.86	310	0.03
30	14.94	33.57	4.90	306	20	15.02	33.57	5.04	24.88	308	0.06
50	13.36	33.60	3.63	272	30	14.94	33.57	4.90	24.91	306	0.09
75	12.14	33.66	3.27	245	50	13.36	33.60	3.63	25.26	272	0.15
100	10.92	33.73	2.77	218	75	12.14	33.66	3.27	25.54	245	0.22
125	10.18	33.85	2.77	197	100	10.92	33.73	2.77	25.82	218	0.27
165	10.14	34.14	1.67	175	150	10.15	34.04	2.07	26.20	182	0.37
205	10.06	34.27	0.99	165	200	10.10	34.26	1.03	26.37	166	0.46
255	8.96	34.20	1.33	152	250	9.06	34.21	1.31	26.51	153	0.54
305	8.31	34.22	1.13	142	300	8.37	34.22	1.17	26.63	142	0.62
360	7.88	34.25	0.95	133	400	7.59	34.24	0.89	26.75	130	0.76
410	7.50	34.23	0.87	129							

ORCA; February 24, 1959; 2217 GCT; 32°49.5'N, 117°32'W; sounding, 425 fm; wind, 290°, force 4; weather, partly cloudy; sea, moderate; wire angle, 12°.

93.30

1	15.96	33.56	5.61	328	0	(15.96)	(33.56)	(5.61)	(24.67)	(328)	(0.00)
10	15.42	33.56	5.73	317	10	15.42	33.56	5.73	24.79	317	0.03
30	15.36	33.58	6.79u	314	20	15.40	33.57	5.63	24.81	315	0.06
40	15.31	33.57	5.30	313	30	15.36	33.58	5.37	24.82	314	0.10
50	15.63	33.52	4.68	283	50	15.63	33.52	4.68	25.15	283	0.16
65	12.59	33.60	3.30	258	75	11.93	33.63	3.24	25.56	244	0.22
80	11.70	33.64	3.23	239	100	11.07	33.73	3.36	25.80	220	0.28
104	10.94	33.75	3.36	217	150	10.08	33.96	2.38	26.15	188	0.38
129	10.36	33.84	2.72	201	200	9.86	34.18	1.74	26.36	168	0.47
153	10.04	33.98	2.32	186	250	9.47	34.32	0.92	26.54	151	0.56
188	9.93	34.11	-	174	300	8.80	34.25	1.45	26.59	146	0.63
212	9.78	34.24	1.51	162	400	7.76	34.29	0.89	26.77	128	0.77
262	9.37	34.33	0.83	149	500	6.74	34.30	0.57	26.93	114	0.90
311	8.63	34.24	1.52	144							
367	8.06	34.27	0.95	134							
417	7.61a)	34.30	0.85	125							
521	6.52	34.30	0.51	111							
571	6.10	34.31	0.50	105							

ORCA; February 25, 1959; 0211 GCT; 32°39.5'N, 117°52.5'W; sounding, 320 fm; wind, 330°, force 3; weather, partly cloudy; sea, moderate; wire angle, 10°.

93.35

0	15.72	33.55	5.17	324	0	15.72	33.55	5.17	24.72	324	0.00
10	15.49	33.55	5.46	319	10	15.49	33.55	5.46	24.77	319	0.03
30	15.37	33.58	5.46	314	20	15.39	33.56	5.46	24.81	315	0.06
50	14.33	33.55	4.94	294	30	15.37	33.58	5.46	24.82	314	0.10
75	12.30	33.55	4.38	256	50	14.33	33.55	4.94	25.02	294	0.16
99	11.14	33.62	3.92	230	75	12.30	33.55	4.38	25.42	256	0.22
124	10.52	33.75	3.12	210	100	11.10	33.62	3.90	25.70	230	0.29
164	9.63	33.96	2.49	180	150	9.93	33.89	2.70	26.12	190	0.39
203	9.16	34.14	1.90	160	200	9.19	34.12	1.96	26.43	161	0.48
253	8.66	34.21	1.47	147	250	8.70	34.21	1.47	26.57	148	0.56
302	8.11	34.20	1.19	140	300	8.13	34.20	1.20	26.64	140	0.64
357	7.70	34.26	0.94	130	400	7.27	34.31	0.73	26.85	121	0.77
407	7.20	34.32	0.69	119							

a) Mean value of 7.58 and 7.64°C.

SIO

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5902

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 cm/g	m	°C	‰	ml/L	g/L	10 cm/g	dyn. m

93.40 ORCA; February 25, 1959; 0506, 0539 GCT; 32°37.5'N, 118°12.5'W; sounding, 850 fm; wind, 270°, force 3; weather, clear; sea, moderate; wire angle, 09°, 14°.

0	15.74	33.58	5.58	322	0	15.74	33.58	5.58	24.74	322	0.00
11	15.60	33.58	5.63	319	10	15.61	33.58	5.63	24.77	319	0.03
31	15.46	33.57	5.61	317	20	15.53	33.57	5.62	24.78	318	0.06
41	15.36	33.58	5.47	314	30	15.47	33.57	5.61	24.79	317	0.10
50	13.86	33.53	4.79	287	50	13.86	33.53	4.79	25.10	287	0.16
65	12.84	33.58	4.33	264	75	12.15	33.59	3.99	25.49	250	0.22
80	11.86	33.60	3.85	244	100	11.12	33.67	3.54	25.73	227	0.28
106	10.95	33.69	3.47	222	150	9.91	33.91	2.63	26.14	189	0.39
129	10.38	33.84	2.99	201	200	9.27	34.12	1.99	26.41	163	0.48
155	9.81	33.93	2.54	186	250	8.77	34.22	1.49	26.57	147	0.56
190	9.37	34.10	2.12	166	300	8.00	34.22	1.31	26.69	136	0.63
					400	6.81	34.22	0.73	26.85	121	0.76
209	9.20	34.14	1.82	160	500	6.19	34.28	0.53	26.98	108	0.88
255	8.71	34.23	1.46	146							
304	7.94	34.22	1.29	136							
358	7.34	34.22	1.00	128							
406	6.74	34.22	0.70	120							
509	6.14	34.29	0.50	107							
559	5.96	34.30	0.38	104							

93.50 ORCA; February 25, 1959; 1129 GCT; 32°12'N, 118°54'W; sounding, 750 fm; wind, 280°, force 2; weather, clear; sea, moderate; wire angle, 13°.

0	15.20	33.54	5.26	313	0	15.20	33.54	5.26	24.83	313	0.00
10	15.17	33.53	5.66	313	10	15.17	33.53	5.66	24.83	313	0.03
30	15.17	33.55	5.85a)	312	20	15.17	33.54	5.78	24.83	313	0.06
40	14.98	33.52	5.54	310	30	15.17	33.55	5.85	24.84	312	0.09
50	13.26	33.51	4.87	277	50	13.26	33.51	4.87	25.21	277	0.15
65	12.12	33.51	4.40	256	75	11.14	33.56	3.87	25.65	235	0.22
79	10.97	33.57	3.78	231	100	10.74	33.66	3.69	25.80	221	0.28
99	10.76	33.66	3.71	221	150	9.11	33.88	2.69	26.25	178	0.37
123	9.77	33.77	3.04	196	200	8.75	34.00	2.22	26.40	164	0.46
147	9.16	33.87	2.75	180	250	8.36	34.09	1.74	26.53	152	0.54
176	8.89	33.98	2.32	168	300	7.97	34.14	1.32	26.63	142	0.62
200	8.75	34.00	2.22	164	400	7.08	34.25	0.74	26.84	122	0.75
248	8.38	34.09	1.75	152	500	6.41	34.29	0.43	26.96	110	0.88
302	7.95	34.14	1.31	142							
352	7.40	34.18	1.03	132							
402	7.06	34.25	0.73	122							
505	6.38	34.29	0.42	110							
554	6.02	34.30	0.30	105							

93.60 ORCA; February 25, 1959; 1744 GCT; 31°57.5'N, 119°35'W; sounding, 1200 fm; wind, 280°, force 2; weather, clear; sea, very rough; wire angle, 02°.

1	15.76	33.55	5.39	324	0	(15.76)	(33.55)	(5.39)	(24.72)	(324)	(0.00)
11	15.70	33.55	5.38	323	10	15.70	33.55	5.38	24.73	323	0.03
30	15.71	33.55	5.38	323	20	15.70	33.55	5.38	24.73	323	0.06
52	15.70	33.55	5.50	323	30	15.71	33.55	5.38	24.73	323	0.10
65	14.66	33.54	4.92	302	50	15.70	33.55	5.49	24.73	323	0.16
81	12.90	33.59	4.13	264	75	13.50	33.57	4.38	25.21	277	0.24
101	11.91	33.60	4.00	246	100	11.96	33.60	4.00	25.54	246	0.30
116	11.07	33.66	3.43	226	150	9.58	33.69	3.79	26.02	200	0.41
130	10.31	33.71	3.70	210	200	8.86	33.90	2.59	26.30	173	0.51
151	9.55	33.69	3.79	200	250	8.03	34.10	1.78	26.58	146	0.59
176	9.23	33.81	3.20	186	300	7.49	34.14	1.41	26.70	136	0.66
201	8.84	33.91	2.57	172	400	6.62	34.24	0.87	26.89	117	0.79
256	7.95	34.11	1.70	144	500	5.87	34.29	0.67	27.03	104	0.91
307	7.41	34.14	1.38	135							
357	6.92	34.22	1.02	122							
407	6.57	34.24	0.85	116							
512	5.80	34.30	0.61	102							
562	5.77	34.33	0.33	100							

a) Alternate value, 5.41 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/g	m	°C	‰	ml/L	g/L	10^{-5} cm/g	dyn. m

ORCA; February 25, 1959; 2350 GCT; 31°30'N, 120°19.5'W; sounding, 2100 fm; wind, 280°, force 2; weather, clear; sea, very rough; wire angle, 10°.

93.70

1	16.20	33.57	5.56	332	0	(16.20)	(33.57)	(5.56)	(24.63)	(332)	(0.00)
10	15.68	33.58	5.52	321	10	15.68	33.58	5.52	24.75	321	0.03
30	15.66	33.57	5.50	321	20	15.66	33.58	5.51	24.75	321	0.06
51	15.67	33.54	5.50	323	30	15.66	33.57	5.50	24.75	321	0.10
65	15.66	33.57	5.58	321	50	15.67	33.54	5.50	24.73	323	0.16
80	15.64	33.57	5.52	320	75	15.65	33.57	5.53	24.75	321	0.24
100	14.22	33.62	5.47	287	100	14.22	33.62	5.47	25.10	287	0.32
114	13.14	33.55	5.17	272	150	10.09	33.59	4.00	25.86	215	0.45
129	11.28	33.44	4.58	246	200	8.76	33.86	3.09	26.28	175	0.54
148	10.14	33.57	4.07	217	250	8.03	34.00	2.10	26.50	154	0.63
176	9.34	33.71	3.34	194	300	7.39	34.07	1.55	26.66	139	0.71
201	8.74	33.86	3.08	174	400	6.62	34.14	0.89	26.82	124	0.84
249	8.05	33.99	2.14	155	500	5.90	34.24	0.55	26.98	108	0.96
302	7.36	34.07	1.53	139							
352	6.80	34.09	1.34	130							
400	6.62	34.14	0.89	124							
503	5.89	34.24	0.54	108							
552	5.61	34.27	0.44	102							

ORCA; February 26, 1959; 0449 GCT; 31°07'N, 120°56'W; sounding, 2200 fm; wind, 280°, force 3; weather, clear; sea, very rough; wire angle, 12°.

93.80

1	16.20	33.66	5.09	326	0	(16.20)	(33.66)	(5.09)	(24.70)	(326)	(0.00)
11	16.21	33.67	5.25	325	10	16.21	33.67	5.24	24.71	325	0.03
31	16.16	33.65	5.36	326	20	16.19	33.66	5.30	24.70	326	0.06
50	16.14	33.68	5.38	323	30	16.16	33.65	5.36	24.70	326	0.10
64	16.14	33.66	5.40	325	50	16.14	33.68	5.38	24.73	323	0.16
79	16.15	33.68	5.48	323	75	16.14	33.67	5.44	24.72	324	0.24
103	14.58	33.58	5.50	298	100	15.00	33.60	5.50	24.92	305	0.32
117	12.63	33.55	4.91	262	150	10.48	33.57	4.49	25.77	223	0.45
132	11.16	33.55	4.69	236	200	8.90	33.82	3.49	26.23	180	0.56
151	10.44	33.57	4.48	222	250	8.03	33.98	2.46	26.49	155	0.64
185	9.26	33.75	3.97	190	300	7.47	34.05	2.07	26.63	142	0.72
209	8.71	33.86	3.19	174	400	6.53	34.13	1.08	26.82	124	0.86
259	7.92	34.00	2.35	152	500	5.94	34.28	0.75	27.01	106	0.98
308	7.37	34.05	2.00	140							
362	6.84	34.14	1.37	127							
412	6.46	34.13	1.02	123							
515	5.84	34.30	0.71	103							
565	5.49	34.29	0.64	99							

ORCA; February 26, 1959; 1001 GCT; 30°47'N, 121°36'W; sounding, 2240 fm; wind, 280°, force 3; weather, clear; sea, very rough; wire angle, 10°.

93.90

1	16.28	33.68	5.40	327	0	(16.28)	(33.68)	(5.40)	(24.68)	(327)	(0.00)
11	16.30	33.65	5.47	329	10	16.30	33.65	5.47	24.67	329	0.03
30	16.30	33.71	5.42	325	20	16.30	33.67	5.41	24.68	327	0.06
50	16.32	33.69	5.21	326	30	16.30	33.71	5.42	24.71	325	0.10
64	16.35	33.73	5.37	324	50	16.32	33.69	5.21	24.69	326	0.16
79	16.36	33.72	5.03	325	75	16.36	33.71	5.20	24.71	325	0.24
100	16.35	33.73	5.06	324	100	16.35	33.73	5.06	24.72	324	0.33
115	14.50	33.62	5.29	293	150	11.42	33.57	4.84	25.60	240	0.47
130	13.11	33.60	4.84	268	200	9.16	33.74	3.66	26.13	189	0.58
150	11.42	33.57	4.84	240	250	8.41	33.97	2.41	26.43	161	0.67
179	9.72	33.66	4.10	204	300	7.67	34.07	2.01	26.61	143	0.75
204	9.08	33.77	3.55	187	400	6.67	34.13	1.06	26.81	125	0.89
253	8.38	33.98	2.37	160	500	6.03	34.24	0.50	26.97	109	1.01
307	7.56	34.08	1.95	141							
357	7.04	34.12	1.41	132							
407	6.62	34.14	1.02	124							
510	5.98	34.25	0.46	108							
559	5.68	34.29	0.41	102							

SIO

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5902

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

97.32

PAOLINA-T; February 7, 1959; 0430, 0509 GCT;^{a)} 32°11.5'N, 117°17'W; sounding, 791 fm; wind, 270°, force 1; weather, partly cloudy; sea, moderate; wire angle, 00°, 00°.

439	7.10	34.34	0.48	116
449	6.96	34.34	0.52	114
459	6.82	34.35	0.43	111
469	6.66	34.36	0.42	108
479	6.60	34.34	0.42	109
489	6.52	34.46r	0.42	-
499	6.42	34.34	0.43	107
509	6.35	34.36	0.41	104
518	6.30	34.42	0.42	99
528	6.25	34.38	0.42	102
538	6.18	34.36	0.42	102
548	6.08	34.35	0.42	102
558	6.02	34.37	0.37	100
570	5.91	34.38	0.35	97
580	5.82	34.40	0.34	95
590	5.78	34.38	0.32	96
601	5.74	34.40	0.32	94

97.32

BLACK DOUGLAS; February 12, 1959; 0406 GCT;^{a)} 32°11.5'N, 117°17'W; sounding, 675 fm; wind, 200°, force 4; weather, overcast; sea, rough; wire angle, 10°.

384	8.14	34.34	1.01	130
392	8.02	34.32	-	130
398	7.92	34.31	0.63	129
407	7.82	34.33	0.71	126
416	7.68b)	34.34	0.70	124
425	7.42	34.33	-	120
435	7.30	34.31	0.64	120
443	7.11	34.29	0.64	120
451	6.90	34.27	0.66	118
461	6.84	34.29	0.72	116
469	6.74	34.31	0.68	113
478	6.64	34.30	0.56	113
486	6.56	34.29	0.51	112
495	6.49	34.29	0.60	111
504	6.44	34.27	0.55	112
513	6.30	34.31	0.63	107
522	6.26	34.31	0.41	107
530	6.24	34.27	-	110

a) Special cast.

b) Mean value of 7.62 and 7.75°C.

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

PAOLINA-T; February 13, 1959; 1735 GCT; 31°11'N, 119°10'W; sounding, 1950 fm; wind, 320°, force 4; weather, partly cloudy; sea, rough; wire angle, 08°.

97.60

2	15.75	33.58	5.64	322	0	(15.75)	(33.58)	(5.64)	(24.73)	(322)	(0.00)
12	15.77	33.57	5.60	323	10	15.76	33.57	5.63	24.73	322	0.03
31	15.78	33.56	5.63	324	20	15.77	33.57	5.63	24.72	323	0.06
61	14.24	33.67	4.64	284	30	15.78	33.56	5.63	24.71	324	0.10
71	13.77	33.64	4.50	277	50	15.79	33.56	5.59	24.73	322	0.16
86	12.82	33.64	4.16a)	259	75	13.42	33.63	4.40	25.27	271	0.24
100	12.29	33.65	4.17	249	100	12.29	33.65	4.17	25.50	249	0.30
115	11.05	33.72	3.49	221	150	9.76	33.80	3.51	26.08	194	0.41
140	9.98	33.73	3.85	203	200	8.77	34.04	-	26.44	160	0.50
159	9.58	33.89	3.04	185	250	7.85	34.09	-	26.61	144	0.58
190	8.88	34.04	2.54	163	300	7.37	34.16	1.50	26.73	132	0.65
219	8.50	34.05	-	157	400	6.69	34.31	0.63	26.94	112	0.78
248	7.86	34.09	-	144	500	6.22	34.36	0.46	27.05	102	0.89
297	7.40	34.16	1.55	133	600	5.69	34.40	0.40	27.13	94	0.99
352	6.94	34.25	0.92	120							
435	6.51	34.34	0.48	108							
520	6.16	34.37	0.44	101							
604	5.66	34.40	0.38	93							

0.39

PAOLINA-T; February 11, 1959; 2307 GCT; 30°50'N, 118°39'W; sounding, 1500 fm; wind, 220°, force 5; weather, drizzle; sea, very rough; wire angle, 13°.

100.60

2	16.32	33.69	5.00	326	0	(16.32)	(33.69)	(5.00)	(24.69)	(326)	(0.00)
10	16.36	33.71	5.54	325	10	16.36	33.71	5.54	24.70	325	0.03
36	16.32	33.73	5.53	323	20	16.34	33.72	5.55	24.71	324	0.06
65	15.15	33.64	4.91	305	30	16.32	33.73	5.55	24.72	323	0.10
75	13.54	33.56	4.70	279	50	16.31	33.74	5.53	24.73	322	0.16
94	11.78	33.58	4.33	244	75	13.54	33.56	4.70	25.19	279	0.24
108	10.94	33.62	4.17	227	100	11.42	33.59	4.29	25.62	238	0.30
123	10.09	33.73	3.84	205	150	9.54	33.89	3.07	26.19	184	0.41
151	9.52	33.89	3.04	184	200	8.93	34.05	2.33	26.41	163	0.50
171	9.20	33.95	2.74	174	250	8.40	34.19	1.63	26.60	145	0.57
201	8.92	34.05	2.31	163	300	7.70	34.23	1.13	26.74	131	0.65
236	8.58	34.16	1.77	150	400	6.84	34.33	0.70	26.93	113	0.77
263	8.26	34.22	1.52	141	500	6.09	34.35	0.42	27.05	102	0.89
313	7.53	34.24	1.02	129	600	5.50	34.38	0.38	27.14	93	0.99
377	7.03	34.32	0.77	116							
475	6.24	34.34	0.45	105							
564	5.69	34.36	0.38	96							
638	5.32	34.39	0.38	90							

0.39

PAOLINA-T; February 10, 1959; 0251 GCT; 30°07'N, 118°26'W; sounding, 2100 fm; wind, 300°, force 4; weather, partly cloudy; sea, very rough; wire angle, 08°.

103.60

1	16.16	33.63	5.66b)	327	0	(16.16)	(33.63)	(5.66)	(24.68)	(327)	(0.00)
11	16.21	33.62	5.50	329	10	16.21	33.62	5.50	24.66	329	0.03
31	16.15	33.60	5.55	329	20	16.20	33.61	5.52	24.66	329	0.06
60	16.10	33.62	5.49	327	30	16.15	33.60	5.55	24.66	329	0.10
70	16.14	33.61	5.53	328	50	16.10	33.60	5.50	24.68	327	0.16
86	14.39	33.55	5.53	296	75	16.19	33.61	5.53	24.66	329	0.25
99	13.35	33.57	5.33	274	100	13.34	33.57	5.33	25.24	274	0.32
115	11.02	33.58	4.77	231	150	9.70	33.68	4.06	25.99	202	0.44
139	10.06	33.61	4.34	213	200	8.70	33.97	2.79	26.37	166	0.53
159	9.40	33.75	3.76	192	250	8.06	34.13	2.01	26.61	144	0.61
188	8.96	33.91	3.05	174	300	7.62	34.19	1.60	26.71	134	0.69
217	8.36	34.04	2.40	155	400	6.72	34.27	0.80	26.91	115	0.82
246	8.09	34.12	2.08	146	500	6.16	34.34	0.49	27.04	103	0.93
295	7.68	34.18	1.65	135	600	5.54	34.41	0.37	27.17	91	1.03
349	7.02	34.22	1.14	124							
433	6.52	34.30	0.63	111							
517	6.05	34.35	0.45	102							
603	5.52	34.41	0.37	91							

0.40

a) Mean value of 4.08 and 4.25 ml/L.

b) Mean value of 5.60 and 5.73 ml/L.

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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 ³ /g	m	°C	‰	ml/L	g/L	10 ⁻⁵ cm ³ /g	dyn. m

107.60 PAOLINA-T; February 8, 1959; 1309 GCT; 29°28'N, 117°57.5'W; sounding, 1900 fm; wind, 200°, force 3; weather, rain; sea, slight; wire angle, 02°.

1	17.17	33.89	5.44	330	0	(17.17)	(33.89)	(5.44)	(24.65)	(330)	(0.00)
11	17.20	33.91	5.22	330	10	17.20	33.91	5.25	24.65	330	0.03
31	17.20	33.91	5.18	330	20	17.20	33.91	5.21	24.65	330	0.07
56	17.20	33.92	5.33	329	30	17.20	33.91	5.20	24.65	330	0.10
66	17.20	33.90	5.40	331	50	17.20	33.91	5.27	24.66	329	0.16
76	17.20	33.91	5.40	330	75	17.20	33.91	5.40	24.65	330	0.25
90	14.94	33.68	5.49	298	100	14.10	33.68	5.34	25.16	281	0.33
105	13.78	33.68	-	275	150	10.09	33.77	3.34	25.99	202	0.44
130	11.02	33.69	4.38	223	200	9.51	33.94	2.88	26.23	180	0.54 0.42
150	10.09	33.77	3.34	202	250	8.95	34.07	2.18	26.42	162	0.63
174	9.84	33.85	3.10	192	300	8.25	34.20	1.60	26.63	142	0.71
204	9.46	33.96	2.82	178	400	7.25	34.31	0.62	26.86	120	0.84
234	9.12	34.04	2.38	167	500	6.54	34.41	0.37	27.05	102	0.96
274	8.70	34.13	1.85	154							
333	7.69	34.28	1.33	128							
407	7.20	34.31	0.58	120							
481	6.68	34.42	0.38	104							
562	6.10	34.39	0.33	99							

107.70 PAOLINA-T; February 9, 1959; 0140 GCT; 29°10'N, 118°39.5'W; sounding, 1860 fm; wind, 290°, force 6; weather, rain; sea, rough; wire angle, 20°.

2	17.14	33.89a)	5.49	330	0	(17.14)	(33.89)	(5.49)	(24.65)	(330)	(0.00)
11	17.18	33.86	5.45	333	10	17.19	33.86	5.46	24.62	333	0.03
30	17.16	33.86	5.43	332	20	17.18	33.86	5.44	24.62	333	0.07
57	17.12	33.87	5.47	331	30	17.16	33.86	5.43	24.63	332	0.10
65	17.06	33.89	5.44	328	50	17.13	33.87	5.45	24.64	331	0.17
78	16.94	33.89	5.36	326	75	16.97	33.89	5.38	24.69	326	0.25
93	14.96	33.77	5.44	292	100	14.83	33.77	5.42	25.08	289	0.33
108	14.30	33.91	5.11	268	150	10.59	33.73	3.77	25.88	213	0.45
128	11.59	33.58	4.70	241	200	8.95	33.91	3.14	26.30	173	0.55 0.40
146	10.74	33.71	3.87	217	250	8.30	34.11	2.29	26.55	149	0.63
172	9.69	33.84	3.30	190	300	7.76	34.20	1.59	26.71	134	0.71
199	8.96	33.91	3.13	174	400	6.91	34.28	0.80	26.89	117	0.84
226	8.50	34.05	2.69	156	500	6.34	34.39	0.39	27.05	102	0.95
270	8.18	34.16	1.94	144							
319	7.51	34.23	1.37	129							
398	6.92	34.28	0.80	117							
479	6.44	34.38	0.41	104							
561	6.10	34.41	0.33	98							

110.60 BLACK DOUGLAS; February 14, 1959; 0605 GCT; 28°56.5'N, 117°39'W; sounding, 2040 fm; wind, 360°, force 4; weather, cloudy; sea, moderate; wire angle, 05°.

0	17.12	33.82	5.62	335	0	17.12	33.82	5.62	24.61	335	0.00
10	17.13	33.82	5.76	335	10	17.13	33.82	5.76	24.61	335	0.03
28	17.14	33.82	5.70	335	20	17.14	33.82	5.73	24.61	335	0.07
51	17.08	33.81	5.69	335	30	17.14	33.82	5.70	24.61	335	0.10
60	16.94	33.78	5.82	333	50	17.09	33.81	5.69	24.61	335	0.17
69	16.92	33.77	5.76	334	75	16.92	33.77	5.70	24.61	334	0.25
82	16.65	33.78	5.69	327	100	14.42	33.67	5.20	25.10	288	0.33
95	14.86	33.69	5.37	296	150	11.65	33.82	3.41	25.75	225	0.46
118	12.76	33.62	4.39	260	200	10.54	34.04	2.27	26.13	189	0.56 0.44
136	12.16	33.75	3.66	238	250	9.12	34.12	2.12	26.44	160	0.65
159	11.32	33.86	3.22	216	300	8.71	34.25	1.50	26.60	145	0.73
184	10.80	33.96	2.62	200	400	7.89	34.36	0.54	26.81	125	0.87
212	10.34	34.11	2.04	180	500	6.90	34.34	0.42	26.94	113	1.00
248	9.14	34.11	2.13	161							
300	8.71	34.25	1.50	145							
368	8.31	34.36	0.67	131							
434	7.36	34.35	0.49	118							
506	6.86	34.34	0.41	113							

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; February 14, 1959; 0022 GCT; 28°36.5'N, 118°18'W; sounding, 1550 fm; wind, 340°, force 3; weather, cloudy; sea, rough; wire angle, 03°.

110.70

1	17.56	33.84	-	343	0	(17.56)	(33.84)		(24.51)	(343)	(0.00)
10	17.56	33.87	-	341	10	17.56	33.87		24.54	341	0.03
28	17.40	33.87	-	338	20	17.48	33.87		24.55	340	0.07
51	17.39	33.84	-	340	30	17.40	33.87		24.57	338	0.10
59	17.38	33.84	-	340	50	17.39	33.84		24.55	340	0.17
69	17.40	33.84	-	340	75	17.40	33.84		24.55	340	0.25
82	17.13	33.83	-	334	100	14.10	33.66		25.16	282	0.33
95	14.34	-	-	-	150	11.16	33.86		25.88	213	0.46
118	12.44	33.61	-	254	200	10.60	34.14	1.83	26.20	183	0.56
136	11.19	33.73	-	223	250	9.19	34.20	1.81	26.48	156	0.64
159	11.15	33.93	-	208	300	8.70	34.28	1.22	26.63	142	0.72
186	10.86	34.02	2.24	196	400	7.47	34.31	0.64	26.83	123	0.86
213	10.34	34.25	1.56	170	500	(6.37)	(34.33)	(0.42)	(27.00)	(107)	(0.98)
249	9.26	34.20	1.83	156							
304	8.64	34.29	1.18	141							
372	7.90	34.31	0.76	128							
428p	7.06	34.31	0.53	118							
491p	6.44	34.33	0.42	108							

0.42

BLACK DOUGLAS; February 15, 1959; 1222, 1302 GCT; 28°42'N, 116°37.5'W; sounding, 1750 fm; wind, 080°, force 3; weather, partly cloudy; sea, moderate; wire angle, 02°, 05°.

113.50

1	17.05	33.78	5.65	336	0	(17.05)	(33.78)	(5.65)	(24.59)	(336)	(0.00)
10	17.07	33.79	5.63	336	10	17.07	33.79	5.63	24.59	336	0.03
29	17.05	33.79	5.62	336	20	17.06	33.79	5.62	24.59	336	0.07
51	17.06	33.80	5.25	335	30	17.05	33.79	5.61	24.59	336	0.10
60	17.06	33.82	5.58	333	50	17.06	33.80	5.26	24.60	335	0.17
69	17.04	33.88	5.69	329	75	17.00	33.88	5.69	24.67	328	0.25
83	16.50	33.78	5.67	324	100	14.21	33.69	5.00	25.15	282	0.33
96	14.90	33.68	5.37	297	150	11.48	33.96	2.77	25.90	211	0.45
119	12.66	33.77	3.85	246	200	10.93	34.32	1.36	26.28	175	0.55
137	12.00	33.95	3.00	221	250	10.25	34.49	0.80	26.54	151	0.63
160	11.18	33.96	-	206	300	9.33	34.42	0.78	26.63	142	0.71
					400	7.92	34.35	0.58	26.80	126	0.85
159	11.20	33.96	2.61	206	500	6.72	34.32	0.41	26.95	112	0.97
186	10.98	34.18	1.71	186							
213	10.84	34.40	1.14	168							
249	10.26	34.49	0.80	151							
304	9.26	34.42	0.78	141							
371	8.40	34.40	0.57	129							
439	7.26	34.29	0.61	122							
511	6.61	34.33	0.35	110							

0.42

BLACK DOUGLAS; February 15, 1959; 1855 GCT; 28°15'N, 117°29'W; sounding, 1780 fm; wind, 080°, force 2; weather, drizzle; sea, moderate; wire angle, 04°.

113.60

0	16.99	33.78	5.84	334	0	16.99	33.78	5.84	24.61	334	0.00
10	17.02	33.80	5.75	334	10	17.02	33.80	5.75	24.61	334	0.03
28	17.02	33.81	5.71	334	20	17.02	33.80	5.72	24.61	334	0.07
51	17.02	33.78	5.65	336	30	17.02	33.81	5.70	24.62	334	0.10
59	17.02	33.78	5.77	336	50	17.02	33.78	5.65	24.59	336	0.17
69	17.02	33.80	5.69	334	75	17.02	33.80	5.58	24.61	334	0.25
82	16.64	33.78	5.48	327	100	14.98	33.70	4.92	24.98	298	0.33
95	15.22	33.69	4.91	303							
118	13.36	33.73	5.30	262							
136	11.84	33.62	5.17	243							

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

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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 cm/g	m	°C	‰	ml/L	g/L	10 cm/g	dyn. m

117.50

BLACK DOUGLAS; February 16, 1959; 1424 GCT; 28°12.5'N, 116°06.5'W; sounding, 2400 fm; wind, 160°, force 1; weather, rain; sea, moderate; wire angle, 00°.

0	17.67	33.96	5.49	337	0	17.67	33.96	5.49	24.58	337	0.00
10	17.66	-	5.54	-	10	17.66	33.93	5.54	24.56	339	0.03
28	17.61	33.86	5.37	343	20	17.64	33.89	5.46	24.52	342	0.07
51	16.93	33.95	5.30	321	30	17.61	33.86	5.36	24.51	343	0.10
60	15.82	33.83	4.57	306	50	17.02	33.95	5.31	24.73	323	0.17
69	14.86	33.78	4.30	289	75	14.60	33.77	4.23	25.13	284	0.24
82	14.30	33.76	4.12	279	100	13.00	33.75	3.86	25.45	254	0.31
96	13.48	33.77	3.94	262	150	10.40	33.83	3.20	26.00	202	0.43
119	11.66	33.72	3.69	232	200	9.49	34.08	2.48	26.34	170	0.52
137	10.93	33.79	3.27	214	250	9.79	34.39	0.91	26.54	150	0.60
159	10.04	33.86	3.20	195	300	9.23	34.43	0.67	26.66	140	0.68
187	9.64	34.04	2.71	175	400	8.00	34.37	0.47	26.81	125	0.82
214	9.37	34.11	2.22	165	500	7.13	34.37	0.28	26.92	114	0.94
250	9.79	34.39	0.91	150							
305	9.16	34.43	0.65	138							
373	8.34	34.39	0.53	129							
441	7.54	34.36	0.38	120							
513	7.04	34.38	0.25	112							

120.50

BLACK DOUGLAS; February 18, 1959; 0402, 0448 GCT; 27°33'N, 115°52.5'W; sounding, 2100 fm; wind, direction missing, force 1; weather, overcast; sea, moderate; wire angle, 00°, missing.

1	18.79	34.02	5.29	359	0	(18.79)	(34.02)	(5.29)	(24.34)	(359)	(0.00)
10	18.73	34.05	5.34	356	10	18.73	34.05	5.34	24.38	356	0.04
28	18.57	34.04	5.34	352	20	18.64	34.04	5.34	24.40	354	0.07
51	18.55	34.04	5.28	352	30	18.56	34.04	5.33	24.42	352	0.10
60	18.54	34.04	5.25	352	50	18.55	34.04	5.28	24.42	352	0.18
69	16.92	33.87	5.16	326	75	15.85	33.77	4.97	24.86	310	0.26
83	14.78	33.70	4.73	293	100	13.20	33.72	4.34	25.38	260	0.33
96	13.54	33.73	4.39	266	150	11.60	34.04	2.57	25.93	208	0.45
119	11.91	33.69	4.14	238	200	10.76	34.36	1.20	26.34	170	0.55
137	11.37	33.75	3.62	224	250	9.89	34.42	0.97	26.55	150	0.63
160	11.80	34.22	1.85	198	300	9.15	34.43	0.60	26.67	138	0.70
187	11.20	34.35	1.17	178	400	8.22	34.45	0.40	26.84	122	0.84
214	10.29	34.36	1.27	161	500	7.02	34.42	0.28	26.98	108	0.96
250	9.89	34.42	0.97	150							
301	9.14	34.43	0.58	138							
368	8.61	34.46	0.43	128							
436	7.73	34.44	0.37	116							
508	6.92	34.42	0.27	107							

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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BLACK DOUGLAS; February 18, 1959; 1924 GCT; ²⁶36°32.5'N, 117°48.5'W; sounding, 2200 fm; wind, 270°, force 2; weather, cloudy; sea, rough; wire angle, 03°.

120.80

1	18.71	34.01	5.43	358	0	(18.71)	(34.01)	(5.43)	(24.36)	(358)	(0.00)
10	18.58	34.02	5.39	354	10	18.58	34.02	5.39	24.40	354	0.04
28	18.41	34.03	5.34	349	20	18.48	34.02	5.36	24.42	352	0.07
51	18.38	34.04	5.34	348	30	18.40	34.03	5.34	24.45	349	0.10
60	18.40	34.01	5.25	350	50	18.38	34.04	5.34	24.46	348	0.18
69	18.40	34.04	5.33	348	75	17.95	33.99	5.28	24.52	342	0.26
82	15.87	33.76	4.84	311	100	13.10	33.70	4.06	25.38	260	0.34
96	13.42	33.69	4.18	267	150	10.62	33.92	2.70	26.03	199	0.45
118	11.70	33.78	3.41	228	200	9.90	34.17	1.90	26.34	170	0.55
136	11.05	33.86	2.90	211	250	9.56	34.38	1.03	26.57	148	0.63
159	10.38	33.96	2.59	192	300	8.82	34.34	0.89	26.66	139	0.70
186	10.06	34.13	2.09	175	400	7.52	34.36	0.51	26.86	120	0.84
216	9.74	34.21	1.62a)	163	500	6.54	34.35	0.44	27.00	107	0.96
249	9.57	34.38	1.03	148							
303	8.77	34.34	0.88	139							
369	7.92	34.36	0.51	125							
437	7.04	34.35	0.50	114							
510	6.46	34.36	0.40	106							

0.41

BLACK DOUGLAS; February 25, 1959; 0657 GCT; 27°14'N, 114°59'W; sounding, 650 fm; wind, 320°, force 3; weather, cloudy; sea, rough; wire angle, 28°.

123.42

0	18.26	34.14	5.51	338	0	18.26	34.14	5.51	24.58	338	0.00
9	18.26	34.13	5.53	338	10	18.26	34.13	5.53	24.56	338	0.03
25	18.26	34.16	5.47	336	20	18.26	34.15	5.48	24.58	336	0.07
32	18.28	34.13	5.51	338	30	18.27	34.13	5.50	24.56	338	0.10
45	17.77	34.03	5.39	334	50	17.32	33.97	5.28	24.67	328	0.17
57	16.74	33.89	5.13	321	75	15.08	33.70	4.72	24.98	299	0.25
77	14.79	33.68	4.61	295	100	12.49	33.68	3.95	25.49	250	0.32
93	12.84	33.69	4.08	256	150	11.29	34.05	2.13	26.00	202	0.43
109	11.94	33.68	3.70	240	200	10.85	34.38	1.04	26.34	170	0.52
125	11.47	33.78	3.20	225	250	10.49	34.49	0.54	26.49	155	0.61
149	11.30	34.05	2.14	202	300	10.06	34.55	0.37	26.60	144	0.68
177	11.06	34.25	1.36	183	400	8.49	34.49	0.31	26.82	124	0.82
201	10.82	34.38	1.02	169	500	7.32	34.42	0.26	26.94	112	0.95
241	10.58	34.47	0.59	157							
286	10.24	34.54	0.39	148							
357	9.13	34.53	0.33	130							
429	8.08	34.47	0.30	120							
503	7.27	34.42	0.25	112							

0.43

BLACK DOUGLAS; February 25, 1959; 0812 GCT; ^{b)} 27°14'N, 114°59'W; sounding, 650 fm; wind, 320°, force 3; weather, cloudy; sea, rough; wire angle, 13°.

123.42

1	18.23	34.13	5.41	338	0	(18.23)	(34.13)	(5.41)	(24.57)	(338)	(0.00)
10	18.24	34.12	5.47	339	10	18.24	34.12	5.47	24.56	339	0.03
27	18.23	34.12	5.35	339	20	18.24	34.12	5.40	24.56	339	0.07
31	18.24	34.14	5.38	337	30	18.24	34.14	5.37	24.58	337	0.10
36	18.25	34.12	5.44	339	50	18.08	34.14	5.38	24.62	333	0.17
40	18.25	34.13	5.42	338	75	14.40	33.69	4.47	25.11	286	0.24
44	18.26	34.13	5.41	338	100	12.10	33.88	2.94	25.72	228	0.31
48	18.19	34.16	5.41	335	150	11.33	34.04	2.11	26.00	202	0.42
52	17.56	34.03	5.35	329							
56	17.13	33.96	5.13	325							
60	16.86	33.95	5.12	320							
64	16.47	33.87	5.02	317							
68	15.96	33.82	4.80	309							
73	14.95	33.70	4.51	296							
77	14.30	33.69	4.46	284							
82	14.26	33.77	4.17	277							
130	11.48	33.91	2.60	216							
175	11.20	34.29	1.27	182							

X

a) Alternate value, 1.74 ml/L, not used in interpolation.

b) Special cast.

97

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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

130.40 BLACK DOUGLAS; February 22, 1959; 0340 GCT; 26°09'N, 114°07.5'W; sounding, 1100 fm; wind, 300°, force 2; weather, cloudy; sea, moderate; wire angle, 03°.

1	19.68	34.39	5.29	354	0	(19.68)	(34.39)	(5.29)	(24.40)	(354)	(0.00)
10	19.67	34.34	5.30	357	10	19.67	34.34	5.30	24.36	357	0.04
28	19.18	34.34	5.29	346	20	19.40	34.34	5.30	24.44	350	0.07
50	19.08	34.34	5.33	343	30	19.17	34.34	5.30	24.50	344	0.10
59	18.88	34.34	5.25	338	50	19.08	34.34	5.33	24.52	343	0.17
69	18.73	34.42	5.25	328	75	18.05	34.31	5.08	24.75	320	0.26
82	15.68	33.87	4.29	300	100	14.36	33.96	3.09	25.33	265	0.33
96	14.55	33.96	3.16	269	150	11.39	34.04	2.39	25.98	204	0.45
118	12.38	33.88	2.91	234	200	10.72	34.34	1.14	26.34	170	0.54 0.43
136	11.62	33.95	2.66	214	250	10.44	34.50	0.55	26.51	153	0.63
159	11.22	34.11	2.15	196	300	9.55	34.41	0.50	26.59	146	0.70
186	10.79	34.27	1.46	176	400	8.69	34.50	0.24	26.80	126	0.84
212	10.67	34.40	0.91	165	500	7.54	34.42	0.22	26.90	116	0.97
248	10.47	34.50	0.56	154							
303	9.50	34.41	0.49	146							
370	9.01	34.52	0.30	130							
438	8.26	34.46	0.16	123							
510	7.42	34.41	0.24	115							

137.40 BLACK DOUGLAS; February 24, 1959; 0138 GCT; 25°01'N, 113°24.5'W; sounding, 1200 fm; wind, 360°, force 3; weather, partly cloudy; sea, rough; wire angle, 15°.

1	21.36	34.52	5.29	387	0	(21.36)	(34.52)	(5.29)	(24.05)	(387)	(0.00)
10	21.33	34.49	5.22	388	10	21.33	34.49	5.22	24.04	388	0.04
28	20.91	34.49	5.27	377	20	21.20	34.49	5.23	24.07	385	0.08
49	20.61	34.45	5.23	372	30	20.90	34.49	5.27	24.16	377	0.12
58	20.59	34.45	5.07	372	50	20.60	34.45	5.20	24.20	372	0.19
67	20.56	34.52	4.69	366	75	20.40	34.48	4.62	24.28	365	0.28
80	19.95	34.34	4.55	364	100	18.90	34.34	4.37	24.56	339	0.37
93	19.37	34.36	4.47	348	150	13.53	34.28	1.71	25.74	226	0.51
113	16.56	34.14	3.78	299	200	11.74	34.52	0.69	26.29	174	0.61 0.44
130	14.54	34.13	2.53	256	250	11.09	34.64	0.32	26.50	154	0.70
152	13.40	34.29	1.64	222	300	10.84	34.69	0.18	26.59	146	0.78
177	12.10	34.33	1.13	195	400	8.97	34.51	0.17	26.76	129	0.92
203	11.69	34.55	0.64	172	500	(7.57)	(34.41)	(0.21)	(26.90)	(116)	(1.05)
238	11.20	34.61	0.39	157							
290	10.96	34.70	0.18	147							
356	9.70	34.53	0.18	139							
421	8.64	34.51	0.17	125							
492	7.66	34.42	0.20	117							

Station	Date	Time GCT	Latitude North	Longitude West	Sounding (fm)	Wind		Weather	Sea	10 Meters	
						Dir	Force			T	S
80.52-O	II-14	1530	34°24.5'	120°36.0'	120	calm		cloudy	slight	14.03	33.51
87.50-O	17	0230	33°20.0'	119°39.5'	50	180°	7	drizzle	high	14.98	33.51
93.45-O	25	0830	32°21.0'	118°34.0'	900	280°	2	clear	moderate	15.21	33.47
93.55-O	25	1429	32°02.0'	119°15.0'	880	280°	2	clear	very rough	15.71	33.48
97.30-P	14	1147	32°15.5'	117°09.0'	27	020°	5	partly cloudy	slight	15.29	33.66
97.32-P	14	1037	32°11.5'	117°17.0'	700	340°	3	clear	moderate	15.47	33.71
97.35-P	14	0840	32°08.0'	117°28.5'	550	340°	4	clear	moderate	15.54	33.66
97.40-P	14	0538	31°57.0'	117°50.0'	850	340°	4	clear	moderate	15.52	33.60
97.45-P	14	0238	31°47.5'	118°09.5'	830	290°	4	partly cloudy	moderate	15.81	33.60
97.50-P	13	2344	31°36.5'	118°31.0'	1380	320°	4	partly cloudy	rough	15.78	33.58
97.55-P	13	2051	31°24.5'	118°50.0'	350	320°	4	partly cloudy	rough	15.87	33.66
97.70-P	13	1147	30°52.5'	119°50.5'	1960	330°	4	partly cloudy	moderate	15.18	33.51
97.80-P	13	0627	30°36.0'	120°32.0'	2100+	330°	4	partly cloudy	moderate	16.26	33.68
97.90-P	13	0032	30°16.5'	121°15.5'	2000+	340°	5	cloudy	very rough	16.51	33.71
100.29-P	11	0232	31°42.0'	116°43.5'	62	290°	3	clear	moderate	15.56	33.64
100.30-P	11	0311	31°40.5'	116°46.5'	232	320°	2	clear	moderate	15.66	33.59
100.35-P	11	0605	31°31.5'	117°07.5'	700	220°	2	partly cloudy	slight	16.17	33.68
100.40-P	11	0912	31°23.0'	117°28.0'	1040	200°	4	partly cloudy	rough	15.98	33.60
100.45-P	11	1209	31°13.5'	117°49.0'	1200	220°	5	drizzle	rough	16.06	33.60

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

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Station	Date	Time GCT	Latitude North	Longitude West	Sounding (fm)	Wind		Weather	Sea	10 Meters	
						Dir	Force			T	S
100.50-P	II-11	1503	31°03.5'	118°09.5'	1040	200°	5	cloudy	very rough	16.17	33.67
100.55-P	11	1845	30°58.0'	118°22.5'	1150	220°	6	rain	very rough	16.26	33.69
100.70-P	12	0749	30°24.5'	119°27.5'	2000+	280°	4	partly cloudy	very rough	15.82	33.59
100.80-P	12	1316	30°04.5'	120°03.5'	1940	290°	4	fog	very rough	15.98	33.58
100.90-P	12	1832	29°44.0'	120°40.0'	2000+	320°	4	partly cloudy	very rough	16.28	33.60
103.30-P	10	1953	31°05.5'	116°25.5'	42	320°	2	clear	rough	15.88	33.65
103.35-P	10	1711	30°55.5'	116°45.0'	1020	330°	3	partly cloudy	rough	15.97	33.66
103.40-P	10	1430	30°46.0'	117°02.5'	1095	290°	3	partly cloudy	rough	16.46	33.71
103.45-P	10	1145	30°36.0'	117°24.5'	1350	340°	3	partly cloudy	moderate	16.50	33.73
103.50-P	10	0858	30°26.5'	117°44.5'	1440	340°	3	partly cloudy	moderate	16.48	33.73
103.55-P	10	0608	30°16.0'	118°05.0'	1450	330°	3	drizzle	rough	16.13	33.64
103.70-P	9	2045	29°56.0'	119°11.0'	2100	320°	5	partly cloudy	high	16.14	33.71
107.32-P	7	2015	30°26.0'	116°11.5'	410	calm		cloudy	slight	15.92	33.71
107.35-P	7	2240	30°19.5'	116°23.0'	990	140°	2	cloudy	moderate	16.60	33.64
107.40-P	8	0135	30°09.0'	116°42.0'	1650	270°	1	cloudy	slight	16.62	33.68
107.45-P	8	0417	29°58.5'	117°01.0'	1250	270°	3	partly cloudy	moderate	16.50	33.62
107.50-P	8	0707	29°48.0'	117°19.5'	1600	210°	2	cloudy	slight	16.88	33.76
107.55-P	8	0953	29°38.0'	117°38.5'	1800	calm		drizzle	slight	16.48	33.62
110.33-B	14	2105	29°50.5'	115°52.0'	50	320°	2	partly cloudy	slight	16.26	33.78

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

Station	Date	Time GCT	Latitude North	Longitude West	Sounding (fm)	Wind		Weather	Sea	10 Meters	
						Dir	Force			T	S
110.35-B	II-14	1925	29°46.5'	116°00.0'	570	320°	2	partly cloudy	moderate	16.06	33.82
110.40-B	14	1653	29°36.5'	116°19.5'	1180	320°	2	partly cloudy	moderate	16.24	33.79
110.45-B	14	1420	29°32.5'	116°39.0'	500	320°	3	partly cloudy	moderate	16.52	33.68
110.50-B	14	1205	29°19.5'	116°59.0'	1500	360°	3	clear	moderate	16.52	33.68
110.55-B	14	0915	29°07.0'	117°20.0'	2000	350°	3	missing	moderate	16.60	33.71
110.65-B	14	0330	²⁸ 26 °46.5'	117°59.0'	1800	340°	3	missing	rough	17.28	33.86
110.80-B	13	1805	28°12.0'	118°59.0'	2065	320°	4	cloudy	rough	17.64	34.02
110.90-B	13	1311	27°56.5'	119°36.0'	2100	350°	4	cloudy	rough	17.80	34.05
113.30-B	15	0150	29°22.5'	115°17.5'	30	310°	4	partly cloudy	moderate	-	33.82
113.35-B	15	0415	29°12.0'	115°39.0'	640	320°	3	clear	moderate	-	33.78
113.40-B	15	0700	29°02.0'	115°58.5'	960	320°	4	clear	moderate	16.76	33.80
113.45-B	15	0945	28°52.0'	116°18.0'	1050	350°	3	clear	moderate	16.68	33.73
113.55-B	15	1615	28°28.0'	117°03.0'	2000	080°	2	overcast	moderate	17.02	33.82
113.65-B	15	2115	28°08.0'	117°43.0'	1850	140°	4	overcast	slight	17.18	33.86
113.70-B	15	2300	28°02.0'	117°55.5'	2000	150°	4	overcast	moderate	17.30	33.89
117.26-B	17	0935	28°56.0'	114°41.0'	1700	110°	2	overcast	slight	16.92	33.86
117.30-B	17	0745	28°48.0'	114°56.5'	54	090°	2	overcast	slight	-	33.98
117.35-B	17	0520	28°38.0'	115°16.0'	130	040°	3	overcast	slight	17.08	33.89
117.40-B	16	1835	28°28.0'	115°35.5'	480	040°	2	cloudy	slight	16.64	33.78

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

S10
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Station	Date	Time GCT	Latitude North	Longitude West	Sounding (fm)	Wind		Weather	Sea	10 Meters	
						Dir	Force			T	S
117.45-B	II-16	1555	28°18.0'	116°55.0'	2400	160°	1	overcast	slight	16.97	33.86
117.55-B	16	1150	28°03.0'	116°21.0'	2000	180°	3	overcast	moderate	17.19	33.95
117.60-B	16	0900	27°51.0'	116°45.0'	2000	180	3	overcast	moderate	17.54	33.97
117.65-B	16	0610	27°39.0'	117°08.0'	1760	150°	3	overcast	moderate	17.66	33.97
117.70-B	16	0340	27°27.5'	117°32.5'	1780	160°	3	overcast	slight	17.50	33.96
118.39-B	16	1830	28°18.5'	115°24.0'	120	180°	1	cloudy	slight	17.16	33.91
119.33-B	17	1910	28°19.0'	114°53.0'	60	-	1	fog	slight	17.32	33.91
120.25-B	17	1420	28°23.0'	114°14.5'	30	-	1	overcast	smooth	16.96	33.89
120.30-B	17	1635	28°13.0'	114°34.0'	50	-	1	fog	slight	16.72	33.84
120.35-B	17	2105	28°03.0'	114°54.0'	45	-	1	overcast	slight	16.90	33.84
120.40-B	17	2320	27°56.5'	115°13.5'	21	290°	3	overcast	slight	16.98	33.91
120.45-B	18	0135	27°43.0'	115°33.0'	1100	260°	3	overcast	moderate	17.47	33.91
120.55-B	18	0705	27°23.0'	116°12.0'	2200	-	1	overcast	slight	18.68	34.06
120.60-B	18	0835	27°14.0'	116°31.5'	140	270°	3	fog	moderate	18.66	34.04
120.65-B	18	1220	27°04.5'	116°51.0'	2000	270°	5	missing	rough	18.50	34.02
120.70-B	18	1430	26°55.0'	117°10.5'	1900	300°	4	cloudy	rough	18.47	34.01
120.90-B	19	0030	26°13.0'	118°27.5'	2150	300°	3	cloudy	very rough	18.23	34.11
123.37-B	20	0530	27°24.0'	114°39.5'	40	360°	4	clear	rough	17.40	34.06
123.42-B	20	0320	27°17.0'	115°00.5'	650	340°	7	clear	very high	19.36	34.28

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
123.45-B	II-20	0115	27°08.0'	115°11.0'	2250	340°	7	partly cloudy	very high	18.18	34.02
123.50-B	19	2215	26°58.0'	115°30.5'	1850	330°	5	partly cloudy	very rough	18.20	34.00
123.55-B	19	1825	26°48.0'	115°49.5'	2176	330°	5	partly cloudy	very rough	18.62	34.07
123.60-B	19	1515	26°38.5'	116°09.0'	2000	360°	6	partly cloudy	very rough	18.72	34.14
127.34-B	20	2135	26°55.5'	114°06.0'	42	280°	3	cloudy	moderate	17.72	34.05
127.40-B	21	0045	26°43.5'	114°29.5'	1550	320°	5	partly cloudy	very rough	19.76	34.33
127.45-B	21	0330	26°33.5'	114°48.5'	1950	270°	4	partly cloudy	rough	19.55	34.34
127.50-B	21	0650	26°23.5'	115°08.0'	2250	270°	3	cloudy	rough	19.29	34.29
127.55-B	21	0925	26°13.0'	115°28.0'	1900	250°	3	cloudy	moderate	19.19	34.25
127.60-B	21	1155	26°02.0'	115°49.0'	2000	260°	3	cloudy	moderate	19.32	34.29
130.30-B	21	0905	26°29.0'	113°29.0'	42	080°	3	cloudy	moderate	18.08	34.09
130.35-B	22	0630	26°19.0'	113°48.5'	140	270°	3	cloudy	moderate	18.82	34.21
130.45-B	22	0120	25°59.0'	114°26.0'	1800	280°	3	drizzle	moderate	19.04	-
130.50-B	21	2245	25°49.0'	114°46.0'	1800	270°	2	overcast	moderate	19.24	34.20
130.55-B	21	1940	25°36.5'	115°05.0'	1980	270°	2	overcast	moderate	19.02	34.13
130.60-B	21	1645	25°22.0'	115°27.0'	2170	270°	3	overcast	moderate	18.83	34.09
133.25-B	22	1410	26°04.5'	112°48.0'	45	320°	5	cloudy	rough	17.86	34.22
133.30-B	22	1650	25°54.5'	113°07.5'	106	360°	5	cloudy	rough	19.00	34.32
133.35-B	23	0615	25°44.5'	113°26.5'	350	320°	5	cloudy	very rough	-	34.45

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

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5902

Station	Date	Time GCT	Latitude North	Longitude West	Sounding (fm)	Wind		Weather	Sea	10 Meters	
						Dir	Force			T	S
133.40-B	II-23	0920	25°34.5'	113°45.5'	1200	300°	7	cloudy	high	20.11	34.42
133.45-B	23	1200	25°27.0'	114°04.0'	1800	320°	5	partly cloudy	very rough	20.86	34.43
133.50-B	23	1455	25°19.0'	114°25.0'	1700	360°	6	cloudy	rough	21.50	34.51
134.36-B	23	0420	25°36.0'	113°23.0'	80	320°	5	cloudy	very rough	20.92	34.47
137.23-B	24	1020	25°39.0'	112°22.0'	40	350°	3	clear	moderate	18.18	34.28
137.30-B	24	0650	25°23.5'	112°47.0'	140	320°	4	partly cloudy	rough	19.96	34.35
137.35-B	24	0415	25°12.0'	113°06.0'	650	270°	4	cloudy	rough	21.37	34.57
137.45-B	23	2235	24°50.5'	113°42.0'	1700	350°	4	cloudy	rough	21.02	34.51
137.50-B	23	1955	24 ⁴⁰ ° 50 .0'	114°01.5'	2050	360°	4	partly cloudy	very rough	22.00	34.58

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

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