

CORRECTIONS MADE :
STATION POSITIONS #5

UNIVERSITY OF CALIFORNIA SCRIPPS INSTITUTION OF OCEANOGRAPHY

data report

PHYSICAL AND CHEMICAL DATA
CCOFI CRUISE 5405
(MLR 60)
5-24 May 1954

SIO Reference 59-15
1 March 1959

UNIVERSITY OF CALIFORNIA
SCRIPPS INSTITUTION OF OCEANOGRAPHY

PHYSICAL AND CHEMICAL DATA

CCOFI CRUISE 5405

(MLR 60)

5-24 May 1954

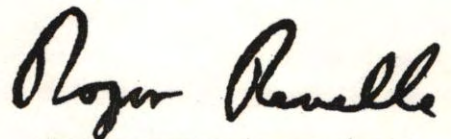
Sponsored by

Marine Research Committee

SIO Reference 59-15

1 March 1959

Approved for distribution:



Roger Revelle, Director

CONTENTS

List of Figures	ii
Introduction	iii
Personnel	vi
Tabulated Data	136
Distribution List	169

FIGURES

1. CCOFI Cruise 5405 (MLR 60), station positions
2. Horizontal distribution of dynamic height anomaly (0 over 500 d-bar)
3. Surface currents measured by geomagnetic electrokinetograph (GEK)
4. Horizontal distribution of temperature at 10 meters
5. Horizontal distribution of salinity at 10 meters
6. Horizontal distribution of temperature at 200 meters
7. Horizontal distribution of salinity at 200 meters

INTRODUCTION

The data presented in this report were collected on the sixtieth consecutive cruise of the California Cooperative Oceanic Fisheries Investigations program. The R/V Crest and the R/V Horizon 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 and the interpretations herein may be subject to modification as the program continues.

STANDARD PROCEDURES

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, each messenger time and wire angle is given in the order of increasing depth. A line is left blank between the observed data of each cast.

FOOTNOTES

Standard footnotes which appear frequently are "loose bottle cap" and "possible evaporation." To avoid any confusion as to their meaning the following explanation is included.

Laboratory personnel, before titrating the salinity samples, note any possible imperfections in the sealing of the bottles as follows:

- | | |
|-----------------------|--|
| Loose bottle cap: | The cap is definitely loose so that it could be moved with very little applied pressure. The salinity values obtained from these samples may be usable depending on time and/or conditions of storage. |
| Possible evaporation: | Either the cap was sealed with less than usual pressure, the bottle edge chipped, the rubber washer cracked, or the bale broke on opening, etc. |

Use of the above values in interpolation depends upon consistency with other values of salinity and other properties, and these footnotes are supplemented with "falls on property curve" or "does not fall on property curve," depending upon whether the property curve was drawn through the value or not.

In addition to footnotes, three special notations are used without footnotes because their meaning is always the same.

To indicate a premature or a delayed reversal of the water-sampling device which results in certain depth and property errors, the following notation is used.

p: pretrip or posttrip.

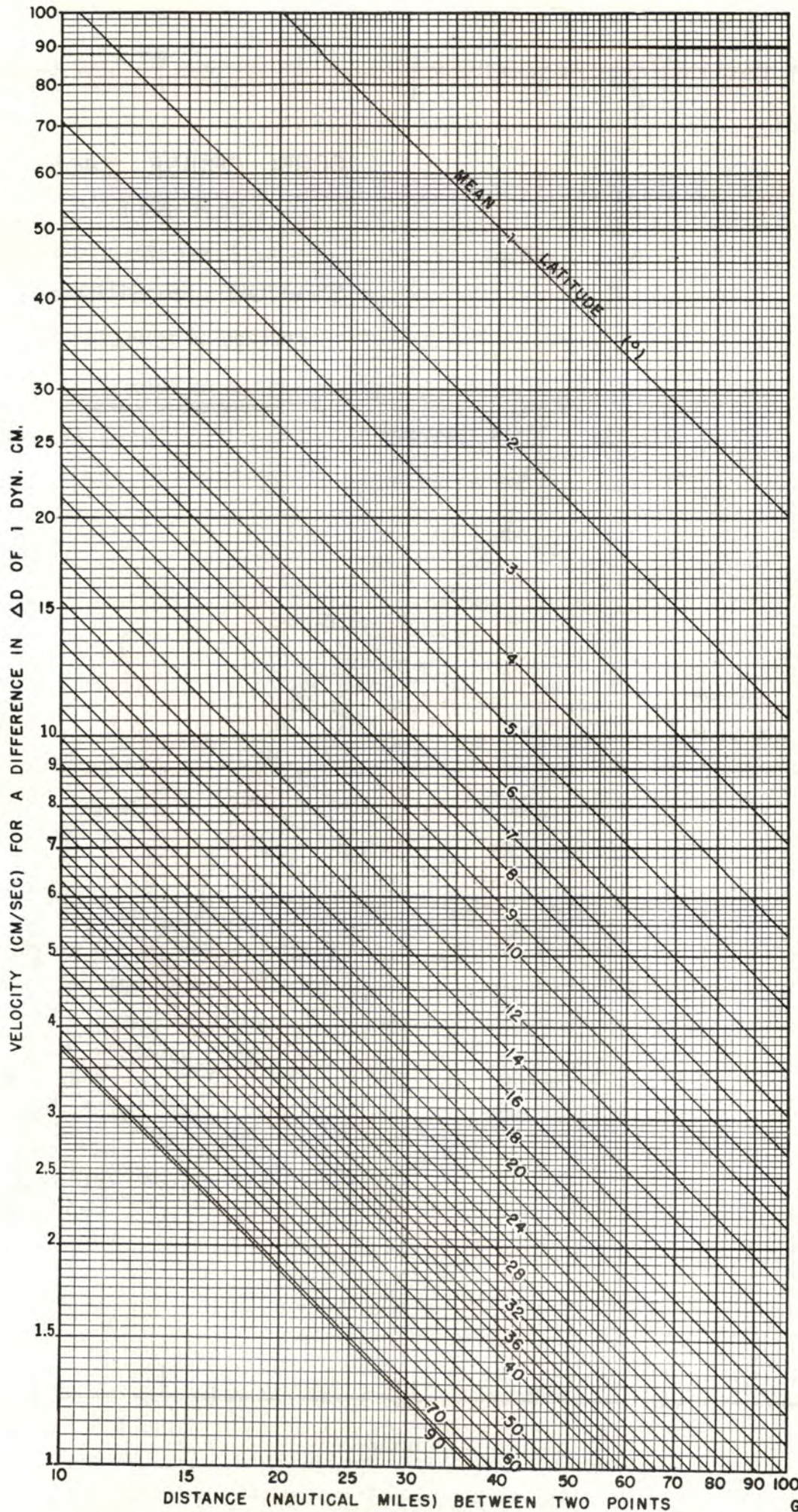
Values which are not drawn through because they seem to be in error without apparent reason are indicated by one of the following notations.

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

u: uncertain value (value may be correct; occasionally it can influence the drawing of the property curve).

FORMAT

These data are typed in the format of the University of California Press publication, "Oceanic Observations of the Pacific." So that these pages can be used as copy for the 1954 volume, the first page of the Cruise 5405 data is numbered 136.



VELOCITY OF GEOSTROPHIC FLOW

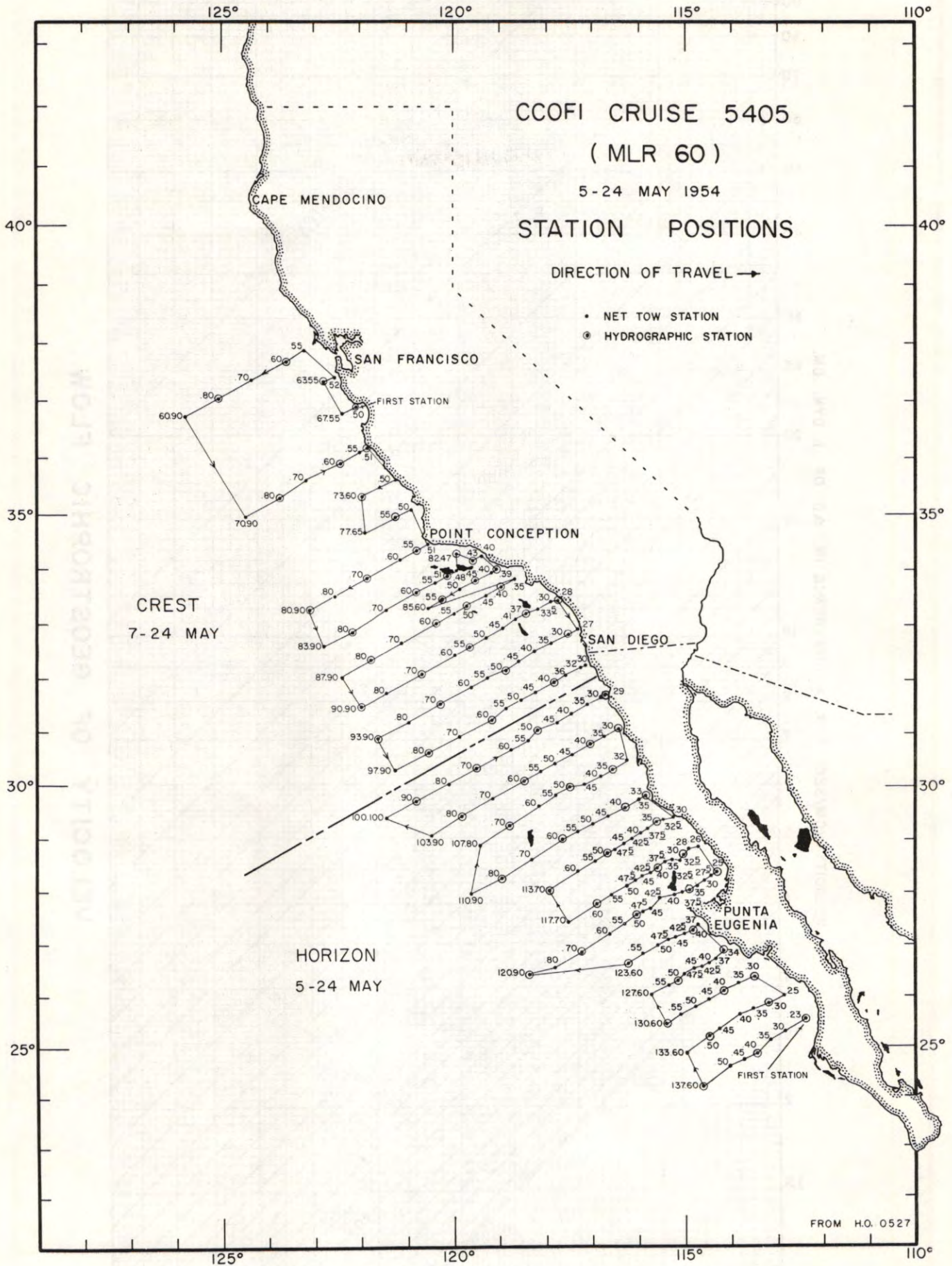


FIGURE I

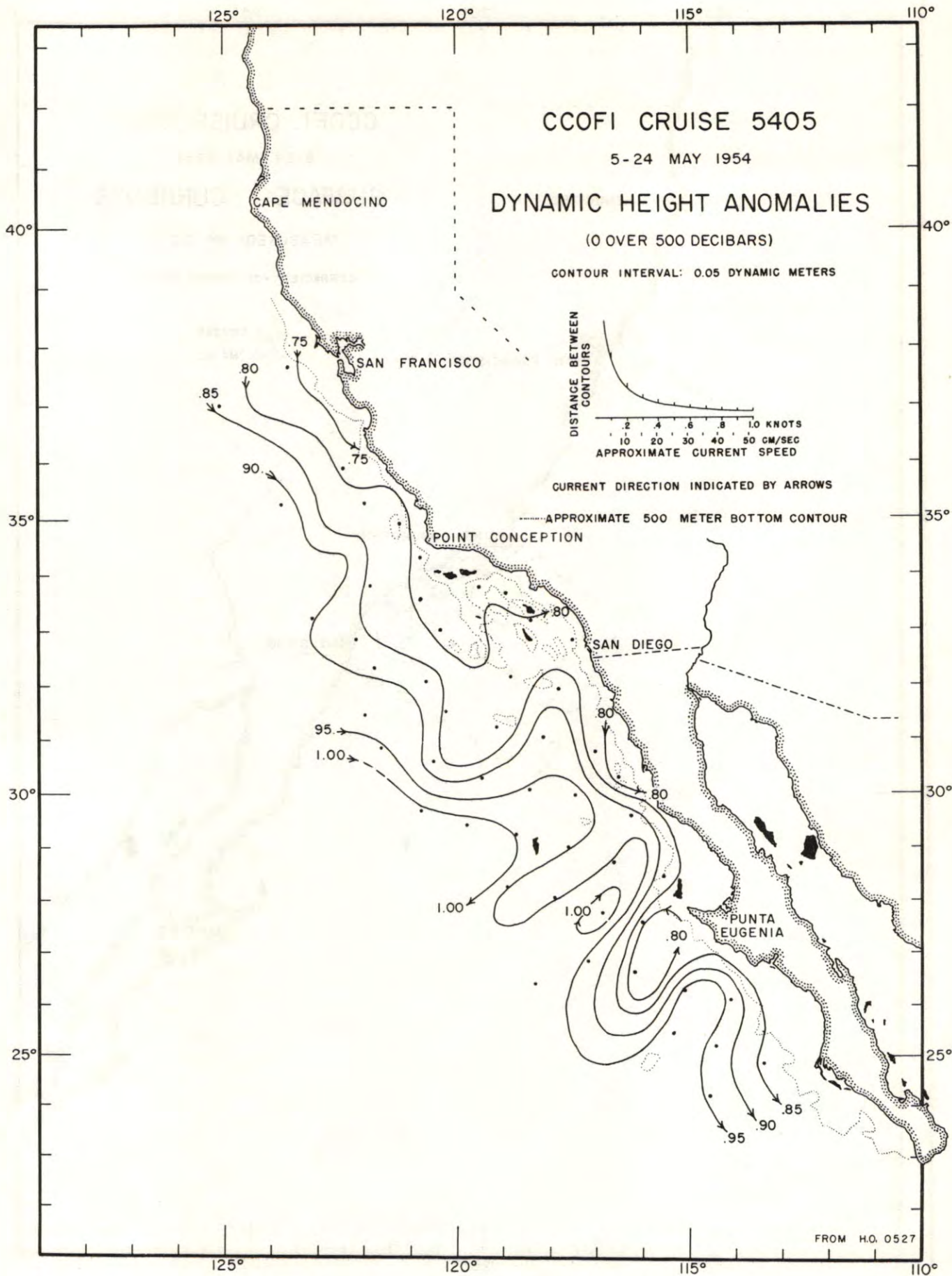


FIGURE 2

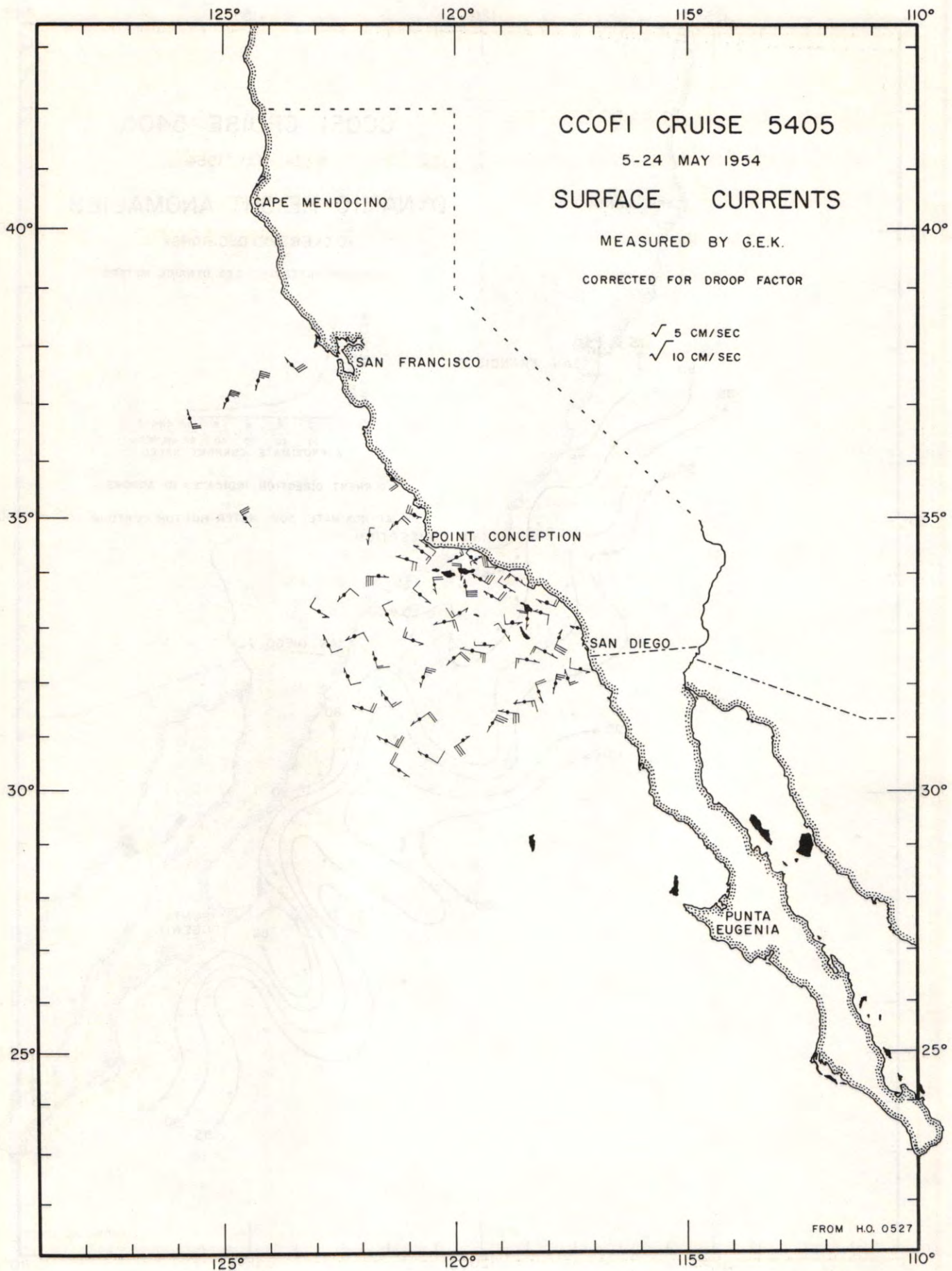


FIGURE 3

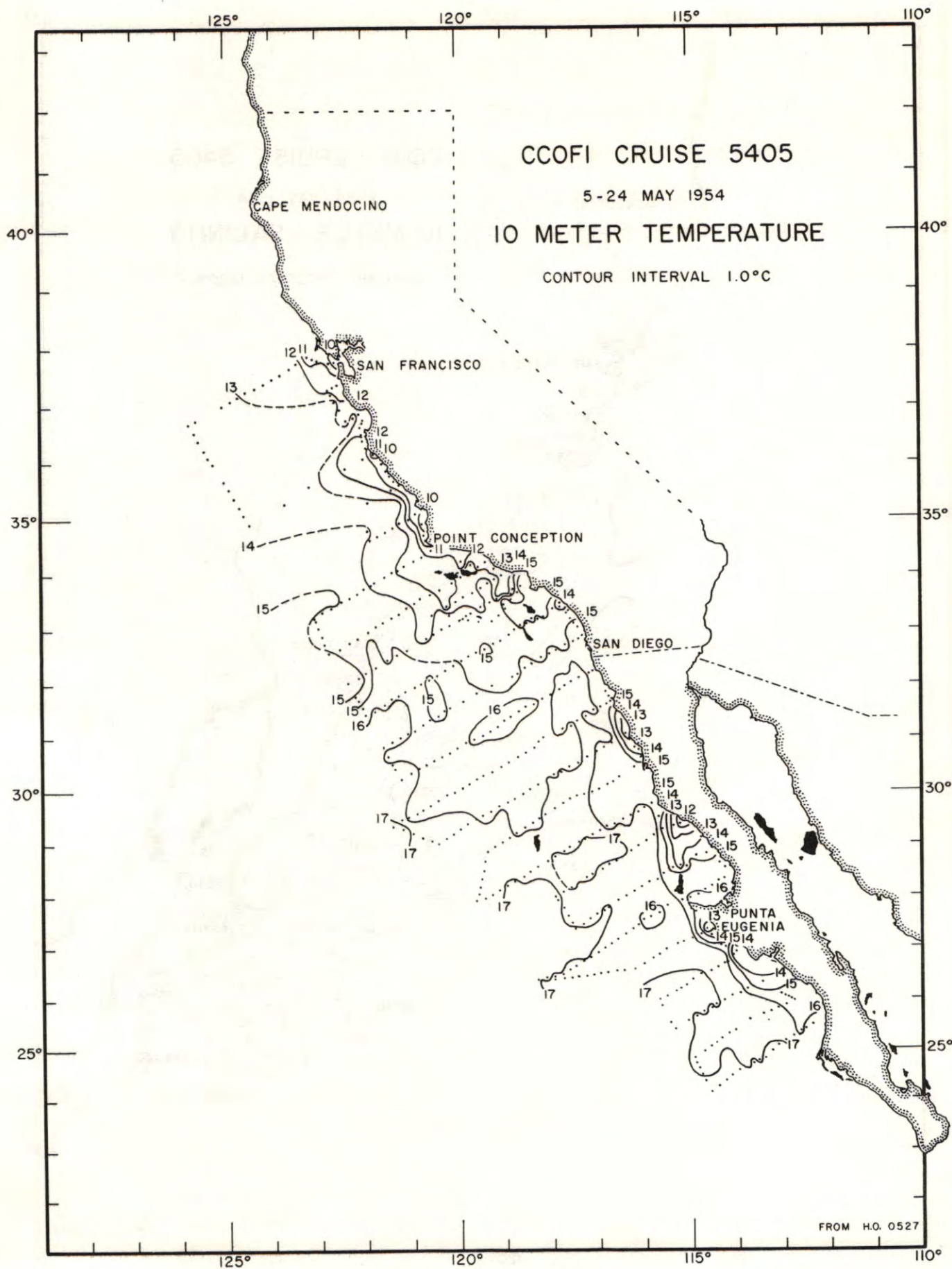


FIGURE 4

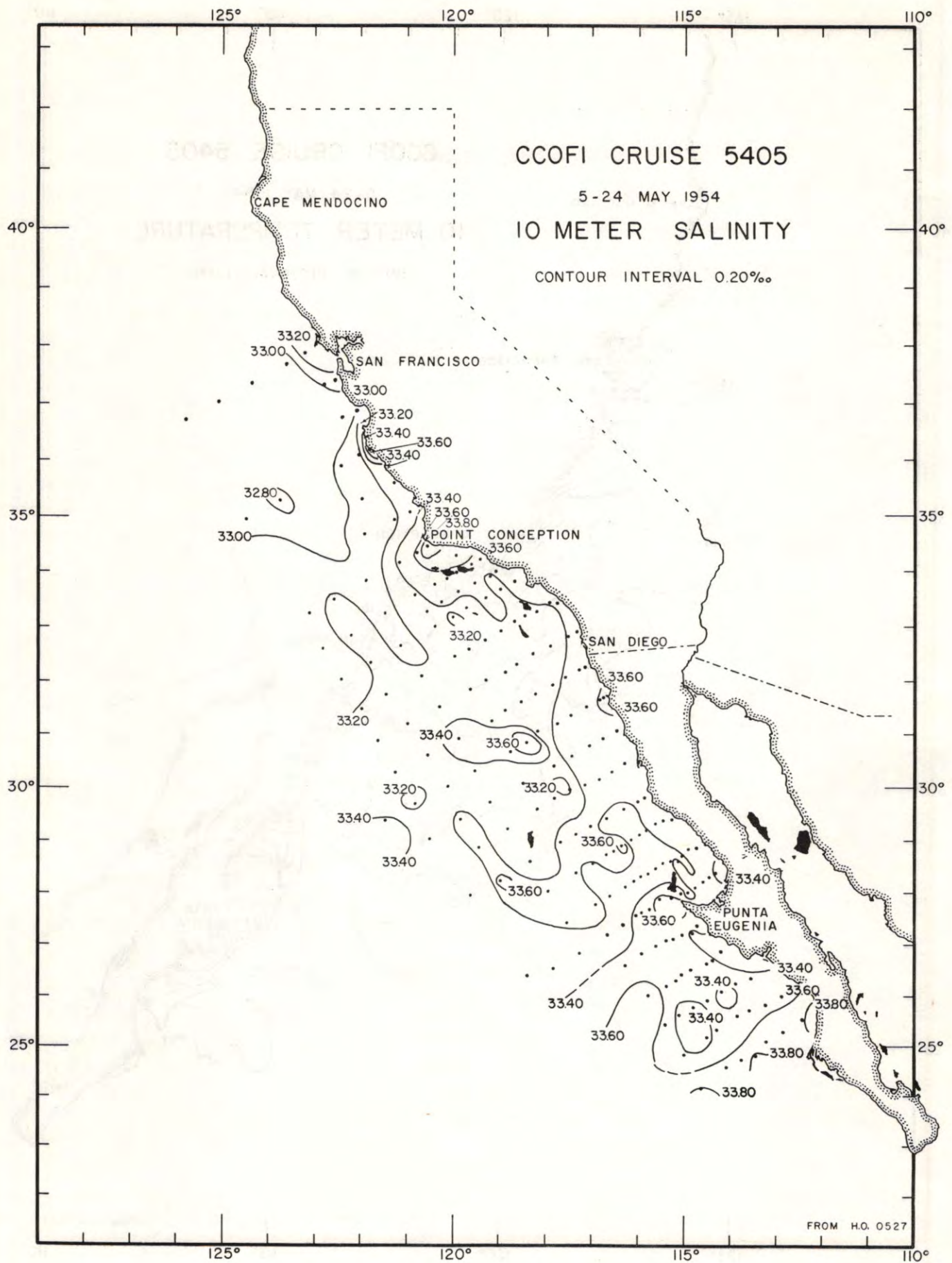


FIGURE 5

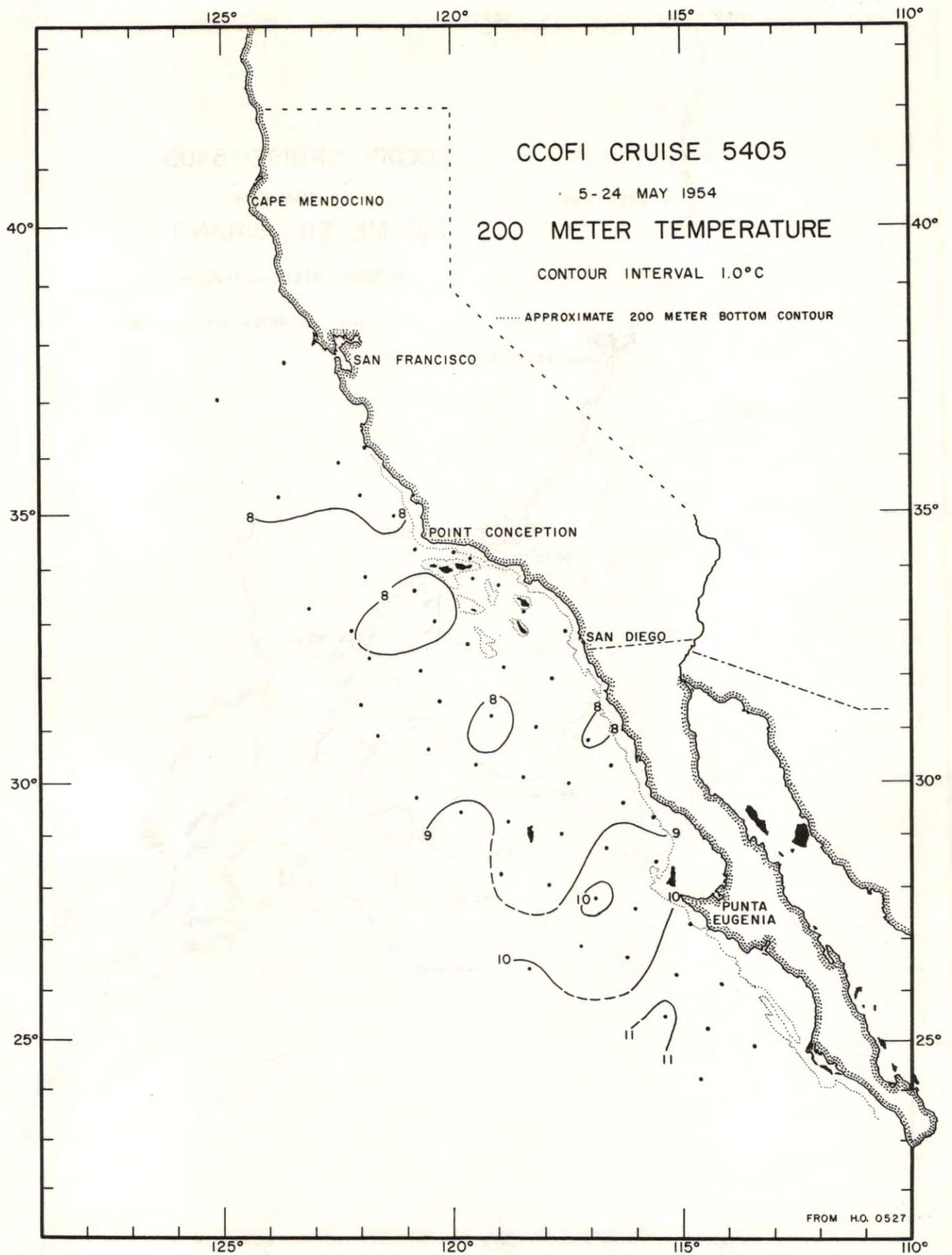


FIGURE 6

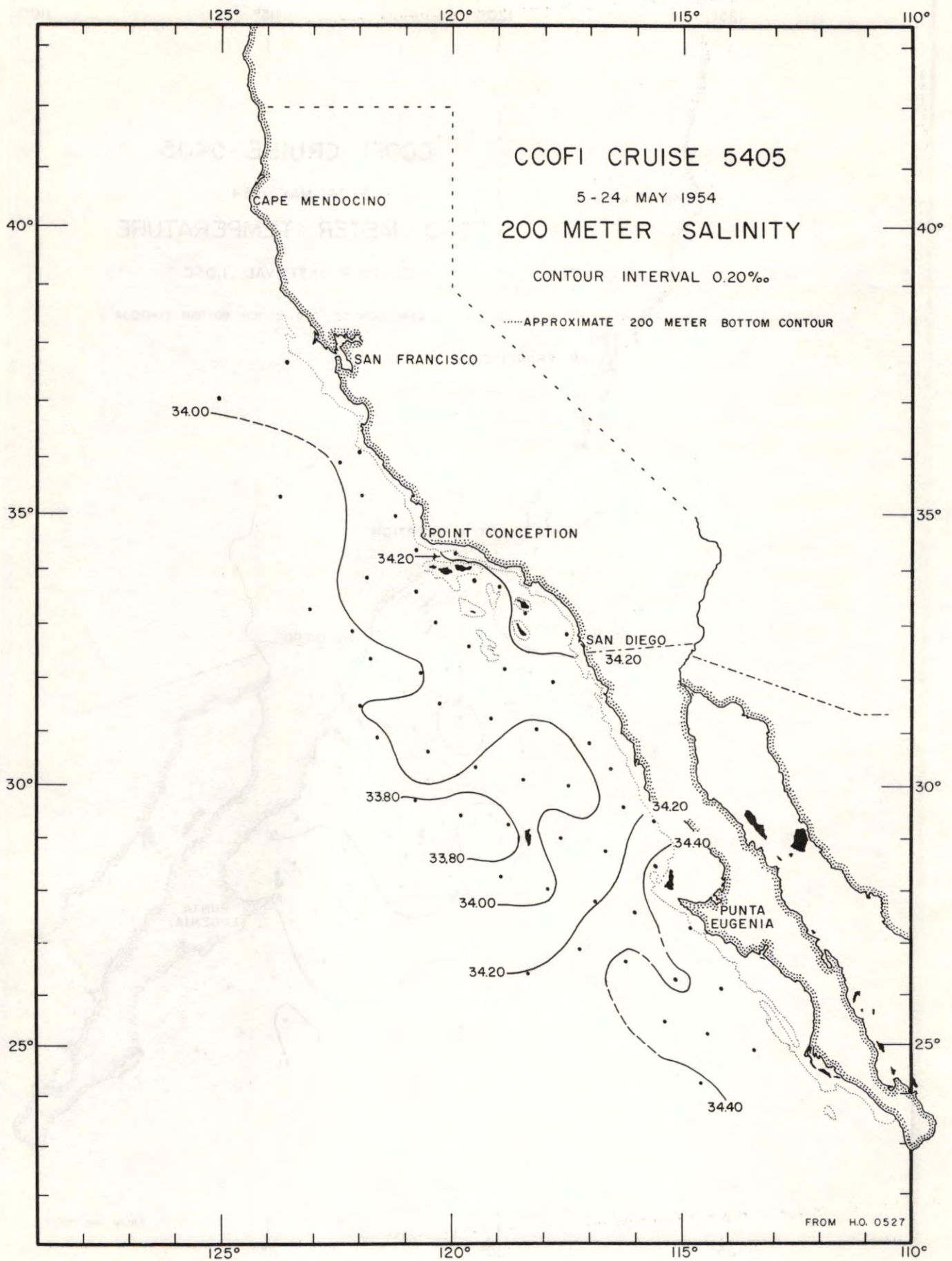


FIGURE 7

PERSONNEL	
-----------	--

SHIPS' CAPTAINS

- Davis, Laurence E., R/V Crest
- Ferris, Noel L., R/V Horizon

PERSONNEL PARTICIPATING IN THE COLLECTION OF DATA

R/V Crest

- Coolidge, Richard N., Senior Marine Technician
- Brennan, Robert E., Marine Technician
- Grom, Robert A., Marine Biologist, U. S. Fish and Wildlife Service

R/V Horizon

- Payne, Miles M., Jr., Senior Marine Technician
- Hapgood, William F., Fishery Aid, U. S. Fish and Wildlife Service
- Taft, Bruce A., Fishery Aid, U. S. Fish and Wildlife Service
- Willis, R. S., Marine Technician

S10

CCOFI
5405

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

60.60

CREST; May 11, 1954; 0023 GCT; 37° 37'N, 123° 37'W; sounding, 1800 fm; wind, 300°, force 4; weather, partly cloudy; sea, moderate; wire angle, 02°.

0	12.9	32.88	0	12.9	32.88	24.79	317	0.00
10	11.74	-	10	11.74	32.98	25.09	288	0.03
25	10.06	33.18	20	10.60	33.13	25.41	258	0.06
57	9.39	33.39	30	9.90	33.22	25.60	240	0.08
66	9.00	33.47	50	9.55	33.35	25.76	224	0.13
78	9.04	33.60	75	9.03	33.57	26.02	200	0.18
93	8.85	33.69	100	8.74	33.77	26.22	181	0.23
113	8.55	33.92	150	8.00	34.01	26.52	152	0.32
138	8.10	33.99	200	7.40	34.05	26.64	141	0.39
169	7.86	34.44r	250	6.90	34.11	26.75	130	0.46
223	7.13	34.06	300	6.61	34.18	26.85	121	0.52
303	6.60	34.18	400	6.08	34.19	26.92	114	0.65
414	6.00	34.19	500	5.53	34.26	27.05	102	0.76
560	5.24	34.31	600	5.10	34.33	27.15	92	0.86
755	4.55	34.41	700	4.73	34.38	27.24	84	0.96
996	3.78	34.52	800	4.41	34.44	27.32	76	1.05
1312	3.08	34.55	1000	3.78	34.52	27.45	64	1.20

60.80

CREST; May 11, 1954; 1104 GCT; 36° 57'N, 125° 04.5'W; sounding, 2200 fm; wind, 330°, force 4; weather, cloudy; sea, moderate; wire angle, 30°.

0	13.5	32.94	0	13.5	32.94	24.72	323	0.00
10	13.43	32.91	10	13.43	32.91	24.71	324	0.03
23	13.42	32.94	20	13.42	32.93	24.73	322	0.06
45	12.91	33.03	30	13.28	32.97	24.79	317	0.10
53	12.66	32.94	50	12.70	33.01	24.93	303	0.16
62	12.64	32.89	75	10.60	33.20	25.47	252	0.23
70	11.76	33.07	100	8.99	33.56	26.01	201	0.29
86	9.50	33.42	150	8.32	33.89	26.38	166	0.38
106	8.84	33.61	200	7.70	34.01	26.56	148	0.46
131	8.55	33.81	250	6.90	34.03	26.69	136	0.53
171	8.08	33.96	300	6.29	34.04	26.78	128	0.60
231	7.20	34.03	400	5.52	34.13	26.95	111	0.72
304	6.26	34.04	500	5.07	34.22	27.07	100	0.83
423	5.40	34.15	600	4.70	34.30	27.18	90	0.94
580	4.76	34.28	700	4.40	34.37	27.26	82	1.03
781	4.19	34.42	800	4.14	34.43	27.34	74	1.11
1071	3.50	34.50	1000	3.63	34.49	27.44	65	1.27

63.55

CREST; May 9, 1954; 1758 GCT; 37° 16'N, 122° 50.5'W; sounding, 140 fm; wind, 140°, force 4; weather, cloudy; sea, rough; wire angle, 11°.

0	12.08	32.94	0	12.08	32.94	25.00	297	0.00
10	11.46	32.99	10	11.46	32.99	25.15	282	0.03
15	10.56	33.19	20	10.40	33.22	25.52	247	0.06
20	10.40	33.22	30	10.10	33.30	25.63	237	0.08
25	10.25	33.26	50	9.49	33.40	25.81	220	0.13
30	10.10	33.30	75	8.90	33.65	26.10	192	0.18
35	10.03	33.32	100	8.40	33.79	26.29	174	0.22
45	9.63	33.37	150	8.11	33.96	26.46	158	0.31
56	9.30	33.43						
65	9.03	33.61						
80	8.84	33.66						
100	8.40	33.79						
121	8.28	33.86						
156	8.06	33.98						

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

S10
CCOFI
5405

CREST; May 9, 1954; 1010, 1026 GCT; 36°49'N, 122°05.5'W; sounding, 60 fm; wind, 100°, force 4; weather, rain; sea, moderate; wire angle, 02°, 02°.

67.50

0	12.48	32.85	0	12.48	32.85	24.85	311	0.00
10	12.38	32.91	10	12.38	32.91	24.92	304	0.03
15	10.52	33.33	20	10.14	33.44	25.73	227	0.06
20	10.14	33.44	30	9.24	33.53	25.95	206	0.08
25	9.33	33.56	50	8.90	33.67	26.11	191	0.12
30	9.24	33.53	75	(8.72)	(33.78)	(26.23)	(180)	(0.17)
36	9.08	33.57						
46	8.92	33.63						
56	8.86	33.74						
72	8.73	33.78						

CREST; May 13, 1954; 0836 GCT; 36°10.5'N, 121°46'W; sounding, 200 fm; wind, 120°, force 1; weather, clear; sea, rough; wire angle, 02°.

70.51

0	10.27	33.56	0	10.27	33.56	25.80	221	0.00
10	9.87	33.62	10	9.87	33.62	25.92	209	0.02
15	9.23	33.78	20	9.14	33.77	26.15	187	0.04
20	9.14	33.77	30	9.00	33.84	26.23	180	0.06
25	9.04	33.82	50	8.89	33.86	26.26	177	0.10
30	9.00	33.84	75	8.73	33.89	26.31	172	0.14
35	8.96	33.81	100	8.58	33.94	26.38	166	0.18
46	8.90	33.85	150	8.22	33.98	26.46	158	0.26
55	8.85	33.86	200	7.89	34.07	26.58	146	0.34
71	8.76	33.88	250	7.52	34.13	26.68	137	0.41
87	8.64	33.92						
107	8.54	33.94						
136	8.39	33.95						
171	8.00	34.03						
207	7.86	34.08						
258	7.43	34.14						

CREST; May 13, 1954; 0105 GCT; 35°51.5'N, 122°26'W; sounding, 1700 fm; wind, 320°, force 6; weather, cloudy; sea, high; wire angle, 38°.

70.60

0	11.85	33.00	0	11.85	33.00	25.09	288	0.00
9	11.89	33.75r	10	11.89	33.02	25.09	288	0.03
17	11.89	33.51r	20	11.90	33.05	25.12	285	0.06
25	11.91	33.06	30	11.88	33.07	25.13	284	0.09
60	9.90	33.41	50	10.01	33.10	25.49	250	0.14
70	9.36	33.94r	75	9.21	33.68	26.07	195	0.20
89	8.93	33.74	100	8.71	33.69	26.16	186	0.24
101	8.70	33.69	150	8.13	33.90	26.41	163	0.33
133	8.32	33.86	200	7.54	34.02	26.59	146	0.41
175	7.85	33.96	250	7.00	34.09	26.72	133	0.48
233	7.16	34.08	300	6.55	34.09	26.78	128	0.55
312	6.46	34.09	400	6.08	34.15	26.89	117	0.68
421	5.97	34.16	500	5.59	34.19	26.99	108	0.79
591	5.22	34.22	600	(5.19)	(34.22)	(27.06)	(101)	(0.91)
885	4.42	34.78r	700	(4.89)				
			800	(4.61)				

S10

CCOFI
5405

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

70.80

CREST; May 12, 1954; 1041, 1123 GCT; 35°13'N, 123°48'W; sounding, 2000 fm;
wind, 350°, force 7; weather, cloudy; sea, high; wire angle, 28°, 28°.

0	13.4	32.87	0	13.4	32.87	24.69	326	0.00
10	13.35	32.77	10	13.35	32.77	24.62	333	0.03
28	13.36	32.85	20	13.37	32.82	24.65	330	0.07
49	12.68	-	30	13.30	32.85	24.69	326	0.10
62	12.48	32.87	50	12.64	32.87	24.84	312	0.16
85	11.12	32.88	75	11.81	32.87	24.99	298	0.24
92	10.35	33.04	100	9.80	33.09	25.52	247	0.31
100	9.80	33.09	150	8.51	33.64	26.15	187	0.42
126	8.68	33.40	200	7.89	33.88	26.43	161	0.51
146	8.54	33.62	250	7.54	34.03	26.60	145	0.58
195	7.92	33.86	300	6.97	34.03	26.68	137	0.66
			400	5.91	34.03	26.82	124	0.79
258	7.50	34.04	500	5.37	34.13	26.96	110	0.92
351	6.28	34.00	600	4.80	34.24	27.12	95	1.02
475	5.49	34.11	700	4.44	34.33	27.23	85	1.12
646	4.59	34.28	800	4.18	34.39	27.30	78	1.21
856	4.02	34.42	1000	3.71	34.49	27.43	66	1.37
1155	3.42	34.54						

73.60

CREST; May 13, 1954; 1828 GCT; 35°18'N, 121°58'W; sounding, 1350 fm; wind,
330°, force 4; weather, cloudy; sea, rough; wire angle, 20°.

0	13.18	33.34r	0	13.18	(33.01)	(24.84)	(312)	(0.00)
10	13.12	33.02	10	13.12	33.02	24.86	310	0.03
31	13.00	33.02	20	13.08	33.02	24.87	309	0.06
45	12.99	33.06	30	13.00	33.02	24.88	308	0.09
58	10.64	33.26	50	12.00	33.13	25.16	281	0.15
68	10.18	33.28	75	9.80	33.34	25.71	229	0.22
77	9.74	33.36	100	9.00	33.63	26.07	195	0.27
92	9.09	33.58	150	8.60	33.97	26.40	164	0.36
101	9.00	33.64	200	7.97	34.06	26.56	148	0.44
115	8.94	33.79	250	7.40	34.12	26.69	136	0.51
143	8.70	33.94	300	6.98	34.15	26.77	128	0.58
171	8.35	34.02	400	6.08	34.12	26.87	119	0.71
228	7.67	34.09	500	5.54	34.19	26.99	108	0.83
293	7.03	34.15	600	5.03	34.31	27.15	92	0.93
408	6.04	34.07						
540	5.38	34.25						
677	4.82	34.39						

77.55

CREST; May 14, 1954; 0502 GCT; 34°55'N, 121°14'W; sounding, 305 fm; wind, 320°,
force 3; weather, cloudy; sea, moderate; wire angle, 04°.

0	12.81	32.97	0	12.81	32.97	24.88	308	0.00
10	12.82	33.12	10	12.82	33.12	24.99	298	0.03
30	12.67	32.97	20	12.74	33.06	24.96	300	0.06
41	12.34	32.97	30	12.67	32.97	24.91	305	0.09
51	11.48	33.28	50	11.53	33.25	25.34	264	0.15
62	10.34	33.34	75	9.80	33.41	25.77	223	0.21
72	10.00	33.37	100	9.24	33.56	25.97	204	0.26
82	9.50	33.49	150	8.37	33.95	26.42	162	0.36
92	9.30	33.52	200	7.92	34.03	26.55	149	0.44
102	9.23	33.57	250	7.41	34.10	26.67	138	0.51
122	8.76	33.71	300	6.99	34.16	26.78	128	0.58
146	8.40	33.93	400	6.32	34.25	26.94	112	0.70
168	8.26	34.00	500	5.78	34.30	27.05	102	0.82
207	7.87	34.04						
392	6.38	34.25						
514	5.71	34.30						

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

SIO
CCOFI
5405

CREST; May 14, 1954; 1536 GCT; 34°19'N, 120°48'W; sounding, 427 fm; wind, 300°, force 2; weather, cloudy; sea, moderate; wire angle, 02°.

8055

0	12.23	33.60	0	12.23	33.60	25.48	251	0.00
10	12.00	33.75	10	12.00	33.75	25.64	236	0.02
20	11.38	33.51	20	11.38	33.51	25.57	242	0.05
30	11.29	33.60	30	11.29	33.60	25.65	235	0.07
42	10.21	33.57	50	9.80	33.74	26.02	200	0.12
52	9.23	33.75	75	9.57	33.82	26.12	190	0.17
63	9.64	33.79	100	9.38	33.84	26.17	185	0.21
73	9.58	33.82	150	9.18	34.00	26.33	170	0.30
103	9.36	33.84	200	8.31	34.13	26.57	148	0.38
128	9.31	33.89	250	7.86	34.16	26.66	139	0.46
157	9.08	34.03	300	7.61	34.19	26.72	133	0.53
206	8.26	34.14	400	7.05	34.23	26.83	123	0.66
266	7.76	34.17	500	6.02	34.25	26.98	109	0.78
372	7.32	34.22	600	5.59	34.32	27.09	98	0.89
492	6.06	34.25						
619	5.52	34.35						

CREST; May 14, 1954; 2335 GCT; 33°48.5'N, 121°50.5'W; sounding, 1900 fm; wind, 290°, force 1; weather, cloudy; sea, moderate; wire angle, 18°.

8070

0	13.4	33.09	0	13.4	33.09	24.86	310	0.00
10	13.35	33.06	10	13.35	33.06	24.84	312	0.03
25	13.20	33.08	20	13.27	33.07	24.87	309	0.06
40	12.52	33.09	30	12.99	33.08	24.93	303	0.09
49	11.85	33.18	50	11.80	33.19	25.24	274	0.15
59	11.22	33.23	75	10.51	33.43	25.66	234	0.22
78	10.40	33.46	100	9.72	33.63	25.95	206	0.27
97	9.82	33.60	150	8.95	34.05	26.40	164	0.36
121	9.12	33.86	200	8.29	34.10	26.54	150	0.44
148	8.97	34.04	250	7.70	34.18	26.70	135	0.52
194	8.38	34.09	300	7.04	34.18	26.79	127	0.58
260	7.58	34.19	400	6.19	34.19	26.91	115	0.71
359	6.38	34.15	500	5.79	34.28	27.03	104	0.83
481	5.86	34.27	600	5.38	34.34	27.13	94	0.93
656	5.11	34.37	700	4.84	34.39	27.23	85	1.03
874	4.26	34.46	800	4.49	34.43	27.30	78	1.12
1177	3.47	34.52	1000	3.89	34.49	27.41	68	1.28

CREST; May 15, 1954; 0900, 0925 GCT; 33°12.5'N, 123°06'W; sounding, 2300 fm; wind, 280°, force 3; weather, cloudy; sea, moderate; wire angle, 04°, 04°.

8090

0	14.9	33.19	0	14.9	33.19	24.62	333	0.00
10	14.89	33.19	10	14.89	33.19	24.62	333	0.03
25	14.81	33.22	20	14.88	33.21	24.64	331	0.07
50	14.24	33.24	30	14.72	33.23	24.69	326	0.10
60	13.42	33.19	50	14.24	33.24	24.80	316	0.16
			75	12.40	33.19	25.13	284	0.24
70	12.84	33.19	100	10.19	33.32	25.63	237	0.30
80	11.96	33.19	150	8.84	33.69	26.14	188	0.41
101	10.17	33.33	200	8.29	33.92	26.40	164	0.50
126	9.40	33.53	250	7.54	33.99	26.57	148	0.58
156	8.76	33.73	300	7.00	34.06	26.70	135	0.65
207	8.20	33.93	400	6.21	34.22	26.93	113	0.78
277	7.23	34.02	500	5.58	34.25	27.03	104	0.90
382	6.36	34.21	600	5.08	34.28	27.12	95	1.00
513	5.48	34.25	700	4.68	34.32	27.19	89	1.10
700	4.68	34.32	800	4.33	(34.36)	(27.26)	(82)	(1.20)
927	3.97	-	1000	3.78	(34.45)	(27.39)	(70)	(1.36)
1233	3.25	34.53						

S10

CCOFI
5405

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

82.47

CREST; May 16, 1954; 1719, 1735 GCT; 34°16.5'N, 119°58'W; sounding, 250 fm;
wind, 080°, force 1; weather, partly cloudy; sea, slight; wire angle, 04°, 04°.

0	14.25	33.66	0	14.25	33.66	25.12	285	0.00
10	11.65	33.68	10	11.65	33.68	25.65	235	0.03
15	11.25	33.58	20	11.06	33.62	25.71	229	0.05
20	11.06	33.62	30	10.68	33.71	25.85	216	0.07
25	10.93	33.65	50	9.63	33.82	26.11	191	0.11
30	10.68	33.71	75	9.54	33.91	26.20	183	0.16
			100	9.28	34.04	26.34	169	0.20
40	9.35	33.66	150	9.08	34.08	26.41	163	0.29
50	9.63	33.82	200	8.50	34.30	26.67	138	0.36
65	9.56	33.88	250	8.10	34.18	26.64	141	0.44
80	9.51	33.93	300	7.60	34.20	26.73	132	0.51
100	9.28	34.04	400	6.68	34.24	26.89	117	0.64
126	9.22	34.02						
166	8.92	34.14						
205	8.46	34.30a)						
256	8.08	34.18						
331	7.30	34.21						
413	6.57	34.24						

83.43

CREST; May 16, 1954; 2108 GCT; 34°08'N, 119°33.5'W; sounding, 127 fm; wind,
280°, force 2; weather, partly cloudy; sea, slight; wire angle, 05°.

0	14.82	33.57	0	14.82	33.57	24.93	303	0.00
10	13.68	33.58	10	13.68	33.58	25.18	280	0.03
15	12.99	33.60	20	12.81	33.55	25.33	265	0.06
20	12.81	33.55	30	12.15	33.56	25.46	253	0.08
25	12.51	33.56	50	11.00	33.70	25.78	222	0.13
30	12.15	33.56	75	9.56	33.78	26.09	193	0.18
35	11.88	33.58	100	9.14	33.95	26.29	174	0.23
45	11.51	33.75	150	8.78				
55	10.28	33.60	200	8.30				
66	9.67	33.66						
77	9.53	33.80						
95	9.20	33.95						
110	9.05	33.96						
139	8.81	34.10r						
168	8.71	34.54r						
202	8.27	34.13r						

83.51

CREST; May 16, 1954; 1206 GCT; 33°52'N, 120°07'W; sounding, 80 fm; wind, 320°,
force 6; weather, partly cloudy; sea, moderate; wire angle, 07°.

0	12.70	33.61	0	12.70	33.61	25.40	259	0.00
5	12.64	33.54	10	12.61	33.55	25.37	262	0.03
10	12.61	33.55	20	11.63	33.55	25.55	244	0.05
15	12.54	-	30	10.60	33.58	25.76	224	0.08
20	11.63	-	50	9.49	33.77	26.10	192	0.12
25	11.02	33.55						
35	10.24	33.62						
45	9.71	-						
51	9.43	33.79						
56	9.18	33.87						
71	9.07	34.06						

a) Acceptance of this value results in an unusual density structure.

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

CREST; May 16, 1954; 0608 GCT; 33°34'N, 120°49'W; sounding, 800 fm; wind, 320°, force 5; weather, partly cloudy; sea, rough; wire angle, 22°.

83.60

0	13.52	33.33	0	13.52	33.33	25.02	295	0.00
10	13.43	33.35	10	13.43	33.35	25.05	292	0.03
20	13.07	33.40	20	13.07	33.40	25.16	281	0.06
30	12.67	33.44	30	12.67	33.44	25.27	271	0.09
44	10.68	33.41	50	10.60	33.45	25.66	234	0.14
63	10.00	33.54	75	9.71	33.58	25.91	210	0.19
72	9.75	33.51	100	9.08	33.77	26.16	186	0.24
80	9.64	33.67	150	8.30	33.86	26.36	167	0.33
93	8.96	33.59	200	7.73	34.16	26.68	137	0.41
102	9.07	33.82	250	7.39	34.20	26.76	129	0.48
124	8.77	33.87	300	7.10	34.19	26.79	127	0.54
149	8.31	33.86	400	6.51	34.22	26.89	117	0.67
188	7.82	34.14	500	5.89	34.32	27.05	102	0.79
254	7.36	34.20	600	5.37	34.41	27.19	89	0.89
362	6.76	34.18						
487	5.96	34.31						
622	5.27	34.43						

CREST; May 15, 1954; 1907 GCT; 32°49.5'N, 122°08'W; sounding, 2330 fm; wind, 300°, force 3; weather, cloudy; sea, moderate; wire angle, 03°.

83.80

0	14.5	33.21	0	14.5	33.21	24.72	323	0.00
10	14.26	33.24	10	14.26	33.24	24.79	317	0.03
31	14.21	33.21	20	14.21	33.23	24.80	316	0.06
41	14.06	33.22	30	14.21	33.21	24.78	318	0.10
51	13.13	33.26	50	13.20	33.25	25.02	295	0.16
62	11.84	33.35	75	10.80	33.39	25.58	242	0.22
72	11.06	33.37	100	9.49	33.48	25.87	214	0.28
82	10.44	33.43	150	8.59	33.86	26.31	172	0.38
93	9.96	33.44	200	8.00	33.97	26.49	155	0.46
102	9.42	33.49	250	7.45	34.04	26.62	143	0.54
127	8.85	33.71	300	6.99	34.08	26.72	133	0.61
157	8.53	33.88	400	6.13	34.15	26.89	117	0.74
206	7.92	33.98	500	5.55	34.21	27.01	106	0.86
265	7.31	34.05	600	5.16	34.31	27.13	94	0.96
371	6.34	34.14						
493	5.58	34.20						
621	5.08	34.34						

CREST; May 17, 1954; 0134, 0144 GCT; 34°00'N, 119°03'W; sounding, 55 fm; wind, 270°, force 1; weather, clear; sea, slight; wire angle, 04°, missing.

85.39

0	15.30	33.44	0	15.30	33.44	24.73	322	0.00
10	13.74	33.44	10	13.74	33.44	25.06	291	0.03
15	12.56	33.46	20	12.08	33.48	25.41	258	0.06
20	12.08	33.48	30	11.16	33.46	25.57	242	0.08
25	11.50	33.46	50	10.00	33.54	25.83	218	0.13
30	11.16	33.46	75	9.70	33.81	26.09	193	0.18
32	11.08	33.44						
42	10.50	33.44						
52	9.88	33.56						
62	9.46	33.63						
76	9.79	33.82						

S10
CCOFI
5405

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

85.45

CREST; May 17, 1954; 0609 GCT; ¹³34°46'N, 119°32.5'W; sounding, 1000 fm; wind, 300°, force 2; weather, clear; sea, moderate; wire angle, 06°.

0	14.47	33.46	0	14.47	33.46	24.92	304	0.00
10	14.33	33.47	10	14.33	33.47	24.96	300	0.03
15	14.08	33.48	20	13.64	33.46	25.09	288	0.06
25	13.20	33.44	30	12.92	33.46	25.24	274	0.09
30	12.92	33.46	50	10.10	33.57	25.84	217	0.14
40	11.86	33.48	75	9.11	33.83	26.21	182	0.19
50	10.10	33.57	100	8.90	33.93	26.32	171	0.23
60	9.45	33.67	150	8.62	34.08	26.48	156	0.32
91	8.96	33.95	200	8.36	34.14	26.57	148	0.39
101	8.89	33.93	250	8.00	34.20	26.67	138	0.47
126	8.73	34.02	300	7.59	34.24	26.76	129	0.54
156	8.58	34.09	400	6.76	34.29	26.91	115	0.66
205	8.32	34.15	500	6.03	34.34	27.05	102	0.78
263	7.90	34.21	600	5.60	34.38	27.13	94	0.88
366	7.11	34.27						
486	6.10	34.34						
612	5.56	34.38						

85.55

CREST; May 17, 1954; 1205 GCT; 33°26.5'N, 120°13.5'W; sounding, 650 fm; wind, 320°, force 6; weather, cloudy; sea, high; wire angle, 23°.

0	12.94	33.50	0	12.94	33.50	25.26	272	0.00
10	12.85	33.49	10	12.85	33.49	25.27	271	0.03
20	12.26	33.40	20	12.26	33.40	25.32	266	0.05
29	12.14	33.37	30	12.10	33.37	25.33	265	0.08
44	11.56	33.44						

87.40

CREST; May 18, 1954; 0625 GCT; 33°40.5'N, 118°59'W; sounding, 470 fm; wind, calm; weather, fog; sea, calm; wire angle, 00°.

0	14.53	33.40	0	14.53	33.40	24.86	310	0.00
10	12.55	33.37	10	12.55	33.37	25.24	274	0.03
20	11.74	33.53	20	11.74	33.53	25.52	247	0.06
31	11.00	33.48	30	11.05	33.48	25.60	240	0.08
41	10.23	33.65	50	9.96	33.75	26.00	202	0.12
52	9.92	33.77	75	9.67	33.95	26.21	182	0.17
62	9.80	33.86	100	9.48	33.99	26.27	176	0.22
73	9.68	33.94	150	8.71	34.08	26.46	158	0.30
92	9.48	33.99	200	8.16	34.18	26.63	142	0.38
103	9.48	33.99	250	7.76	34.21	26.71	134	0.45
128	9.26	34.11	300	7.33	34.23	26.79	127	0.52
157	8.58	34.07	400	6.73	34.29	26.92	114	0.64
206	8.12	34.19	500	6.04	34.34	27.05	102	0.76
265	7.60	34.22	600	5.46	34.39	27.17	91	0.86
369	6.93	34.27						
489	6.11	34.33						
617	5.39	34.40						

87.50

CREST; May 18, 1954; 1156 GCT; 33°20'N, 119°39.5'W; sounding, 40 fm; wind, 260°, force 1; weather, fog; sea, slight; wire angle, 00°.

0	14.33	33.27	0	14.33	33.27	24.80	316	0.00
10	14.24	33.27	10	14.24	33.27	24.82	314	0.03
15	14.01	33.19	20	13.15	33.17	24.97	300	0.06
20	13.15	33.17	30	12.46	33.22	25.14	283	0.09
25	12.67	33.20	50	10.98	33.34	25.51	248	0.14
30	12.46	33.22						
35	12.59	33.31						
41	12.38	33.31						
51	10.86	33.35						
62	10.46	33.45						

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

S10
CCOF1
5405

CREST; May 18, 1954; 1804 GCT; 33°00'N, 120°21.5'W; sounding, 350 fm; wind, 010°, force 3; weather, cloudy; sea, moderate; wire angle, 07°.

87.60

0	14.20	33.35	0	14.20	33.35	24.89	307	0.00
10	14.08	33.32	10	14.08	33.32	24.89	307	0.03
30	12.82	33.38	20	14.05	33.35	24.92	304	0.06
40	11.29	33.45	30	12.82	33.38	25.19	279	0.09
50	10.02	33.57	50	10.02	33.57	25.85	216	0.14
60	9.48	33.67	75	9.04	33.72	26.13	189	0.19
70	9.10	33.69	100	8.73	33.90	26.32	171	0.24
80	9.00	33.77	150	8.46	34.04	26.47	157	0.32
90	8.96	33.86	200	7.75	34.06	26.59	146	0.40
101	8.73	33.90	250	7.29	34.12	26.71	134	0.47
120	8.60	34.00	300	6.88	34.17	26.80	126	0.54
146	8.50	34.03	400	6.03	34.24	26.97	110	0.66
165	8.18	34.07	500	5.55	34.29	27.07	100	0.77
206	7.68	34.06						
286	7.00	34.16						
391	6.10	34.24						
513	5.50	34.29						

CREST; May 19, 1954; 0406 GCT; 32°19.5'N, 121°46.5'W; sounding, 2000 fm; wind, 340°, force 4; weather, clear; sea, rough; wire angle, 13°.

87.80

0	15.32	33.16	0	15.32	33.16	24.51	343	0.00
10	15.28	33.20	10	15.28	33.20	24.55	340	0.03
21	15.26	33.18	20	15.27	33.18	24.53	341	0.07
31	14.93	33.20	30	15.03	33.20	24.60	335	0.10
46	14.32	33.17	50	14.29	33.15	24.72	323	0.17
56	13.77	33.12	75	12.05	33.05	25.09	288	0.24
66	12.76	33.02	100	10.12	33.19	25.54	245	0.31
75	12.05	33.05	150	8.82	33.71	26.16	186	0.42
85	11.28	33.09	200	8.02	33.99	26.50	154	0.51
100	10.12	33.19	250	7.39	34.04	26.63	142	0.58
108	10.03	33.28	300	6.97	34.08	26.72	133	0.66
161	8.64	33.80	400	6.33	(34.21)	(26.91)	(115)	(0.78)
214	7.84	34.03	500	5.87	(34.32)	(27.05)	(102)	(0.90)
277	7.14	34.05	600	5.38	(34.39)	(27.17)	(91)	(1.00)
388	6.40	34.20						
515	5.78	-						
650	5.14	34.42						

CREST; May 21, 1954; 1100 GCT; 33°28.5'N, 117°47'W; sounding, 75 fm; wind, 150°, force 3; weather, cloudy; sea, slight; wire angle, 04°.

90.28

0	16.60	33.51	0	16.60	33.51	24.49	345	0.00
10	14.18	33.54	10	14.18	33.54	25.04	293	0.03
15	13.74	33.56	20	12.60	33.47	25.31	267	0.06
20	12.60	33.47	30	11.23	33.62	25.68	232	0.08
25	12.15	33.58	50	10.41	33.73	25.91	210	0.13
30	11.23	33.62						
35	10.96	33.64						
40	10.72	33.67						
50	10.41	33.73						
60	10.04	33.83						

S10

CCOFI
5405

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

90.37

CREST; May 20, 1954; 1927 GCT; 33°11'N, 118°23.5'W; sounding, 650 fm; wind, 260°, force 1; weather, cloudy; sea, slight; wire angle, 01°.

0	15.86	33.44	0	15.86	33.44	24.60	335	0.00
10	14.56	33.37	10	14.56	33.37	24.83	313	0.03
30	12.44	33.38	20	13.80	33.37	24.99	298	0.06
40	11.61	33.41	30	12.44	33.38	25.27	271	0.09
50	11.24	33.48	50	11.24	33.48	25.57	242	0.14
61	10.78	33.48	75	9.81	33.53	25.86	215	0.20
70	9.97	33.49	100	9.37	33.97	26.27	176	0.25
81	9.65	33.60	150	9.36	34.14	26.41	163	0.34
90	9.38	33.68	200	8.73	34.22	26.57	148	0.42
101	9.38	33.97	250	8.12	34.22	26.66	139	0.49
126	9.46	34.02	300	7.62	34.23	26.75	130	0.56
156	9.27	34.16	400	6.72	34.28	26.91	115	0.69
207	8.65	34.22	500	5.98	34.34	27.06	101	0.80
266	7.96	34.22	600	5.53	34.36	27.13	94	0.90
372	6.98	34.26						
494	5.99	34.34						
623	5.45	34.36						

90.55

CREST; May 20, 1954; 0856 GCT; 32°35'N, 119°36.5'W; sounding, 460 fm; wind, 310°, force 4; weather, cloudy; sea, moderate; wire angle, 07°.

0	14.78	33.26	0	14.78	33.26	24.70	325	0.00
10	14.75	33.31	10	14.75	33.31	24.74	321	0.03
15	14.61	33.22	20	14.52	33.17	24.69	326	0.06
20	14.52	33.17	30	14.40	33.29	24.80	316	0.10
25	14.46	33.27	50	13.31	33.26	25.00	297	0.16
30	14.40	33.29	75	11.42	33.31	25.41	258	0.23
35	14.29	33.24	100	9.81	33.55	25.87	214	0.29
45	13.58	33.26	150	9.11	33.77	26.16	186	0.39
55	12.53	33.26	200	8.39	34.02	26.47	157	0.48
65	11.88	33.27						
75	11.42	33.31						
96	9.97	33.51						
111	9.42	33.62						
142	9.20	33.73						
172	8.64	33.91						
207	8.33	34.04						

90.70

CREST; May 20, 1954; 0000 GCT; 32°04.5'N, 120°39'W; sounding, 2050 fm; wind, 350°, force 4; weather, cloudy; sea, moderate; wire angle, 28°.

0	14.88	33.26	0	14.88	33.26	24.68	327	0.00
10	14.82	33.24	10	14.82	33.24	24.68	327	0.03
24	14.80	33.22	20	14.80	33.22	24.66	329	0.07
50	14.21	33.22	30	14.78	33.22	24.67	328	0.10
59	13.70	-	50	14.21	33.22	24.79	317	0.16
69	12.59	33.28	75	12.10	33.28	25.26	272	0.24
82	11.58	33.28	100	10.39	33.40	25.66	234	0.30
99	10.42	-	150	8.90	33.72	26.15	187	0.41
122	9.64	-	200	8.33	(33.99)	(26.45)	(159)	(0.50)
147	8.94	33.71	250	7.82	(34.07)	(26.59)	(146)	(0.57)
195	8.36	33.98	300	7.21	(34.15)	(26.74)	(131)	(0.64)
265	7.65	-	400	6.56	(34.26)	(26.92)	(114)	(0.77)
361	6.78	-	500	5.99	34.35	27.06	101	(0.89)
489	6.02	34.34	600	5.43	34.42	27.19	89	(0.99)
664	5.14	34.46	700	5.00	34.46	27.27	81	(1.08)
885	4.32	34.45	800	4.60	34.45	27.31	77	(1.17)
1186	3.55	34.52	1000	4.00	34.48	27.39	70	(1.33)

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

S10
CCOFI
5405

CREST; May 19, 1954; 1351 GCT; 31°26'N, 121°58.5'W; sounding, 2000 fm; wind, 350°, force 5; weather, partly cloudy; sea, rough; wire angle, 27°.

9090

0	15.82	33.22	0	15.82	33.22	24.44	350	0.00
10	15.78	33.21	10	15.78	33.21	24.44	350	0.04
24	15.76	33.20	20	15.76	33.20	24.44	350	0.07
33	15.22	33.22	30	15.60	33.21	24.48	346	0.10
42	14.58	33.20	50	14.50	33.27	24.77	319	0.17
51	14.49	33.28	75	12.83	33.24	25.08	289	0.25
61	14.13	33.26	100	10.99	33.22	25.41	258	0.32
101	10.98	33.22	150	9.03	33.66	26.09	193	0.43
122	9.66	33.46	200	8.15	34.00	26.49	155	0.52
149	9.05	33.66	250	7.54	34.08	26.64	141	0.60
197	8.18	34.00	300	6.98	34.11	26.74	131	0.66
267	7.37	34.09	400	6.04	34.17	26.91	115	0.79
363	6.36	34.14	500	5.48	34.25	27.05	102	0.91
491	5.50	34.25	600	5.10	34.32	27.15	92	1.01
665	4.90	34.36	700	4.80	34.38	27.23	85	1.11
887	4.16	34.47	800	4.48	34.43	27.30	78	1.20
1187	3.46	34.58	1000	3.87	34.52	27.44	65	1.36

CREST; May 21, 1954; 1752 GCT; 32°49.5'N, 117°31.5'W; sounding, 450 fm; wind, 190°, force 3; weather, cloudy; sea, moderate; wire angle, 15°.

9330

0	16.13	33.47	0	16.13	33.47	24.56	339	0.00
10	15.58	33.40	10	15.58	33.40	24.63	332	0.03
15	15.20	33.40	20	15.02	33.41	24.76	320	0.07
20	15.02	33.41	30	14.12	33.33	24.89	307	0.10
30	14.12	33.33	50	11.04	33.35	25.51	248	0.15
40	12.52	33.40	75	9.40	33.55	25.94	207	0.21
50	11.04	33.35	100	9.62	33.82	26.12	190	0.26
65	10.08	33.33	150	8.80	34.06	26.43	161	0.35
79	9.32	33.64	200	8.66	34.27	26.62	143	0.43
99	9.64	33.81	250	8.61	34.23	26.60	145	0.50
123	9.06	33.98	300	8.34	34.29	26.69	136	0.57
152	8.80	34.06	400	7.21	34.34	26.89	117	0.71
200	8.66	34.27	500	6.42	34.34	27.00	107	0.83
257	8.60	34.23a)	600	(5.79)	(34.38)	(27.11)	(96)	(0.93)
358	7.86	34.34						
474	6.58	34.34						
599	5.80	34.38						

CREST; May 22, 1954; 0530 GCT; 32°09.5'N, 118°53'W; sounding, 770 fm; wind, 330°, force 4; weather, cloudy; sea, very rough; wire angle, 20°.

9350

0	14.40	33.30	0	14.40	33.30	24.81	315	0.00
10	14.34	33.31	10	14.34	33.31	24.83	313	0.03
20	14.33	33.31	20	14.33	33.31	24.83	313	0.06
30	13.34	33.38	30	13.34	33.38	25.09	288	0.09
44	12.30	33.30	50	11.87	33.31	25.32	266	0.15
58	11.32	33.34	75	10.11	33.44	25.74	226	0.21
67	10.58	33.39	100	9.29	33.63	26.02	200	0.26
78	10.00	33.46	150	8.74	34.02	26.41	163	0.36
91	9.58	33.53	200	8.45	34.18	26.58	146	0.43
114	9.00	33.77	250	7.82	34.23	26.72	133	0.51
142	8.78	33.98	300	7.39	34.22	26.77	128	0.57
170	8.72	34.10	400	6.68	34.28	26.92	114	0.70
225	8.10	34.23	500	6.03	34.34	27.05	102	0.82
281	7.54	34.22	600	5.49	34.39	27.16	92	0.92
405	6.65	34.28						
537	5.81	34.36						
674	5.06	34.42						

a) Acceptance of this value results in an unusual density structure.

S10

CCOFI
5405

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

93.70

CREST; May 22, 1954; 1610 GCT; 31°28'N, 120°17'W; sounding, 2000 fm; wind, 320°, force 4; weather, cloudy; sea, very rough; wire angle, 20°.

0	14.58	33.33	0	14.58	33.33	24.80	316	0.00
10	14.52	33.30	10	14.52	33.30	24.79	317	0.03
30	14.52	33.31	20	14.52	33.31	24.79	317	0.06
44	13.48	33.28	30	14.52	33.31	24.79	317	0.10
49	13.04	33.28	50	13.00	33.28	25.08	289	0.16
58	12.26	33.28	75	10.66	33.43	25.63	237	0.22
68	11.24	33.35	100	9.67	33.48	25.84	217	0.28
79	10.38	33.44	150	8.78	33.99	26.38	166	0.38
92	9.79	33.44	200	8.42	34.08	26.51	153	0.46
115	9.52	33.63	250	7.90	34.15	26.64	141	0.53
144	8.88	33.99	300	7.40	34.19	26.75	130	0.60
171	8.62	34.01	400	6.71	34.26	26.90	116	0.73
226	8.19	34.13	500	5.99	34.33	27.05	102	0.85
293	7.45	34.18	600	5.49	34.36	27.13	94	0.95
393	6.78	34.26						
522	5.84	34.34						
653	5.28	34.38						

93.90

CREST; May 23, 1954; 0145 GCT; 30°50'N, 121°35'W; sounding, 2250 fm; wind, 320°, force 4; weather, cloudy; sea, very rough; wire angle, 22°.

0	16.12	33.26	0	16.12	33.26	24.40	354	0.00
11	16.06	33.27	10	16.08	33.27	24.42	352	0.04
30	16.01	33.26	20	16.02	33.27	24.43	351	0.07
44	15.88	33.22	30	16.01	33.26	24.43	351	0.11
52	15.39	33.20	50	15.59	33.21	24.48	346	0.18
63	14.68	33.12	75	13.43	33.11	24.87	309	0.26
71	13.86	33.11	100	11.40	33.14	25.28	270	0.33
81	12.92	33.12	150	9.00	33.61	26.05	197	0.45
95	11.81	33.13	200	8.39	33.84	26.33	170	0.54
104	11.10	33.16	250	7.84	34.04	26.56	148	0.62
127	9.59	33.37	300	7.53	34.15	26.70	135	0.70
156	8.92	33.68	400	6.91	34.23	26.85	121	0.83
207	8.34	33.86	500	6.09	34.27	26.99	108	0.95
267	7.72	34.10	600	5.59	34.32	27.09	98	1.06
374	7.10	34.22						
497	6.11	34.27						
628	5.46	34.33						

97.40

CREST; May 24, 1954; 1003 GCT; 31°55.5'N, 117°49.5'W; sounding, 600 fm; wind, 290°, force 3; weather, cloudy; sea, moderate; wire angle, 08°.

0	16.12	33.35	0	16.12	33.35	24.47	347	0.00
10	16.09	33.36	10	16.09	33.36	24.49	345	0.04
20	15.50	33.29	20	15.50	33.29	24.57	338	0.07
30	14.38	33.28	30	14.38	33.28	24.80	316	0.10
40	13.58	33.22	50	12.16	33.17	25.16	281	0.16
50	12.16	33.17	75	10.38	33.38	25.64	236	0.23
60	11.43	33.28	100	10.13	33.66	25.90	211	0.28
70	10.34	33.33	150	8.80	33.81	26.24	179	0.38
80	10.38	33.42	200	8.73	34.14	26.51	153	0.47
90	10.28	33.48	250	7.98	34.12	26.61	144	0.54
100	10.13	33.66	300	7.58	34.17	26.70	135	0.61
126	9.65	33.72	400	7.00	34.31	26.90	116	0.74
204	8.72	34.14	500	6.18	34.34	27.03	104	0.86
263	7.80	34.12	600	5.59	34.37	27.13	94	0.97
368	7.28	34.29						
488	6.27	34.34						
615	5.49	34.38						

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

S10
CCOFI
5405

CREST; May 23, 1954; 2135 GCT; 31°13'N, 119°09'W; sounding, 2000 fm; wind, 330°, force 3; weather, cloudy; sea, rough; wire angle, 19°.

97.60

0	16.19	33.38	0	16.19	33.38	24.48	346	0.00
10	16.03	33.38	10	16.03	33.38	24.52	342	0.03
20	15.98	33.39	20	15.98	33.39	24.54	340	0.07
30	15.05	33.35	30	15.05	33.35	24.71	324	0.10
40	14.48	33.30	50	13.30	33.32	25.05	292	0.16
49	13.48	33.32	75	10.26	33.59	25.83	218	0.23
58	12.33	33.37	100	9.23	33.71	26.09	193	0.28
68	10.82	33.52	150	8.42	33.98	26.43	161	0.37
77	10.14	33.60	200	7.73	34.10	26.63	142	0.45
97	9.30	33.69	250	7.27	34.14	26.73	132	0.52
120	8.88	33.84	300	6.81	34.16	26.80	126	0.58
148	8.47	33.97	400	6.09	34.21	26.94	112	0.71
194	7.80	34.09	500	5.68	34.28	27.05	102	0.82
250	7.27	34.14						
349	6.40	34.18						
465	5.79	34.25						
588	5.36	34.35						

CREST; May 23, 1954; 1136 GCT; 30°34'N, 120°31'W; sounding, 2050 fm; wind, 320°, force 3; weather, cloudy; sea, rough; wire angle, 06°.

97.80

0	15.76	33.30	0	15.76	33.30	24.52	342	0.00
10	15.72	33.33	10	15.72	33.33	24.55	340	0.03
30	15.66	33.31	20	15.69	33.32	24.55	340	0.07
40	15.39	33.33	30	15.66	33.31	24.55	340	0.10
50	13.62	33.35	50	13.62	33.35	25.01	296	0.17
62	12.32	33.32	75	10.99	33.41	25.56	243	0.23
72	11.10	33.38	100	9.78	33.64	25.95	206	0.29
82	10.76	33.49	150	8.99	33.98	26.34	169	0.38
92	9.86	33.55	200	8.67	34.14	26.52	152	0.47
101	9.76	33.64	250	7.80	34.17	26.67	138	0.54
126	9.22	33.79	300	7.21	34.18	26.77	128	0.61
156	8.96	34.02	400	6.49	34.24	26.91	115	0.74
207	8.49	34.15	500	5.98	34.32	27.04	103	0.85
267	7.62	34.17	600	5.41	34.37	27.15	92	0.96
372	6.66	34.22						
492	6.00	34.32						
620	5.30	34.38						

HORIZON; May 21, 1954; 1024 GCT; 31°42.5'N, 116°43.5'W; sounding, 60 fm; wind, calm; weather, overcast; sea, calm; wire angle, 00°.

100.29

0	14.64	33.66	0	14.64	33.66	25.04	293	0.00
2	14.62	33.66	10	13.72	33.48	25.09	288	0.03
4	14.60	33.63	20	11.99	33.49	25.44	255	0.06
6	14.60	33.54	30	11.40	33.61	25.64	236	0.08
8	14.48	33.55	50	10.29	33.64	25.86	215	0.13
10	13.72	33.48	75	9.69	33.68	25.99	202	0.18
15	12.66	33.46	100	9.36	33.77	26.12	190	0.23
20	11.99	33.49						
25	11.40	33.62						
31	11.40	33.61						
36	10.83	33.58						
41	10.65	33.65						
46	10.46	33.60						
51	10.24	33.64						
71	9.75	33.67						
102	9.34	33.78						

S10

CCOFI
5405

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

100.50

HORIZON; May 20, 1954; 2350 GCT; 31°01.5'N, 118°08'W; sounding, 975 fm; wind, 320°, force 3; weather, overcast; sea, moderate; wire angle, 16°.

0	15.98	33.31	0	15.98	33.31	24.47	347	0.00
10	15.86	33.32	10	15.86	33.32	24.51	343	0.04
30	15.37	33.28	20	15.69	33.30	24.53	341	0.07
40	14.64	33.21	30	15.37	33.28	24.59	336	0.10
50	13.50	33.02	50	13.50	33.02	24.78	318	0.17
60	13.14	33.10	75	11.93	33.11	25.16	281	0.24
70	12.22	33.10	100	10.67	33.22	25.47	252	0.31
80	11.69	33.12	150	9.16	33.65	26.06	196	0.42
108	10.34	33.30	200	8.53	33.85	26.31	172	0.52
147	9.20	33.64	250	7.78	34.04	26.57	148	0.60
194	8.62	33.82	300	7.29	34.14	26.72	133	0.67
290	7.37	34.13	400	6.57	34.20	26.87	119	0.80
433	6.36	34.22	500	5.89	34.28	27.02	105	0.92
625	5.26	34.42	600	5.33	34.40	27.18	90	1.02
868	4.35	34.47	700	4.93	34.45	27.27	81	1.12
1170	3.67	34.47	800	4.58	34.47	27.32	76	1.20
			1000	4.00	34.42	27.35	74	1.37

100.70

HORIZON; May 20, 1954; 1434 GCT; 30°19.5'N, 119°28'W; sounding, 2100 fm; wind, 320°, force 4; weather, overcast; sea, slight; wire angle, 18°.

0	15.72	33.33	0	15.72	33.33	24.55	340	0.00
10	15.71	33.32	10	15.71	33.32	24.54	340	0.03
30	15.62	33.27	20	15.70	33.29	24.52	342	0.07
50	14.72	33.22	30	15.62	33.27	24.52	342	0.10
68	13.68	33.27	50	14.72	33.22	24.68	327	0.17
79	12.54	33.22	75	13.06	33.26	25.05	292	0.25
88	11.04	33.09	100	10.20	33.19	25.53	246	0.32
96	10.48	33.15	150	8.80	33.73	26.18	184	0.42
116	9.63	33.39	200	8.17	33.99	26.48	156	0.51
135	9.10	33.60	250	7.79	34.10	26.62	143	0.59
190	8.24	33.96	300	7.39	34.18	26.74	131	0.66
285	7.53	34.16	400	6.61	34.27	26.92	114	0.79
425	6.46	34.29	500	6.01	34.32	27.04	103	0.90
614	5.42	34.36	600	5.50	34.35	27.12	95	1.01
855	4.38	34.47	700	5.00	34.40	27.22	86	1.11
1152	3.50	34.54	800	4.57	34.45	27.31	77	1.20
			1000	3.92	34.51	27.43	66	1.36

100.90

HORIZON; May 20, 1954; 0516 GCT; 29°41.5'N, 120°44.5'W; sounding, 2250 fm; wind, 320°, force 4; weather, overcast; sea, moderate; wire angle, 32°.

0	15.8	33.22	0	15.8	33.22	24.45	349	0.00
10	15.90	33.15	10	15.90	33.15	24.37	357	0.04
36	15.18	33.11	20	15.64	33.14	24.42	352	0.07
53	14.77	33.12	30	15.34	33.12	24.47	347	0.11
70	14.48	33.22	50	14.82	33.11	24.58	337	0.17
88	15.42	33.68	75	14.41	33.32	24.82	314	0.26
96	15.48	33.66	100	15.20	33.61	24.88	308	0.34
104	14.44	33.53	150	10.45	33.33	25.59	240	0.47
113	13.26	33.46	200	8.69	33.70	26.17	185	0.58
129	11.70	33.31	250	7.92	33.95	26.48	156	0.67
153	10.28	33.33	300	7.38	34.03	26.62	143	0.74
193	8.82	33.64	400	6.53	34.08	26.78	128	0.88
292	7.45	34.02	500	5.84	34.17	26.94	112	1.01
432	6.30	34.11	600	5.24	34.26	27.08	99	1.12
629	5.11	34.28	700	4.81	34.32	27.18	90	1.22
853	4.32	34.38	800	4.50	34.36	27.25	83	1.32
1149	3.55	34.46	1000	3.90	34.43	27.37	72	1.49

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

S10

CCOFI
5405

HORIZON; May 18, 1954; 1504 GCT; 31°05'N, 116°25'W; sounding, 40 fm; wind, calm;
weather, overcast; sea, calm; wire angle, 00°.

10330

0	13.12	33.56	0	13.12	33.56	25.27	271	0.00
5	12.76	33.60	10	12.42	33.58	25.43	256	0.03
10	12.42	33.58	20	11.80	33.57	25.54	245	0.05
15	12.12	33.56	30	10.83	33.61	25.74	226	0.08
20	11.80	33.57	50	10.20	33.67	25.90	211	0.12
25	10.96	33.62						
30	10.83	33.61						
35	10.76	33.63						
41	10.67	33.61						
46	10.33	33.64						
51	10.16	33.68						
57	9.86	33.72						
62	9.74	33.73						

HORIZON; May 18, 1954; 2003 GCT; 30°46.5'N, 117°02.5'W; sounding, 1000 fm;
wind, 200°, force 1; weather, overcast; sea, moderate; wire angle, 22°.

10340

0	16.16	33.41	0	16.16	33.41	24.51	343	0.00
10	15.74	33.40	10	15.74	33.40	24.60	335	0.03
20	15.35	33.40	20	15.35	33.40	24.68	327	0.07
29	14.08	33.36	30	14.02	33.36	24.94	302	0.10
39	13.50	33.33	50	12.20	33.29	25.24	274	0.16
48	12.45	33.28	75	10.71	33.55	25.72	228	0.22
58	11.48	33.49	100	9.78	33.84	26.10	192	0.27
67	11.16	33.48	150	8.78	33.99	26.38	166	0.36
94	9.90	33.80	200	7.89	34.04	26.56	148	0.44
139	9.02	33.98	250	7.72	34.19	26.70	135	0.52
183	7.92	34.01	300	7.48	34.24	26.77	128	0.58
228	7.81	34.13	400	6.81	34.30	26.91	115	0.71
273	7.60	34.22	500	6.13	34.34	27.04	103	0.83
366	7.09	34.28						
460	6.38	34.33						
560	5.77	34.35						

HORIZON; May 19, 1954; 0600 GCT; 30°05'N, 118°26.5'W; sounding, 1900 fm; wind,
290°, force 2; weather, overcast; sea, smooth; wire angle, 10°.

10360

0	16.06	33.22	0	16.06	33.22	24.39	355	0.00
10	15.89	33.21	10	15.89	33.21	24.42	352	0.04
30	15.36	33.21	20	15.62	33.21	24.48	346	0.07
50	14.33	33.10	30	15.36	33.21	24.54	340	0.10
70	13.34	32.99	50	14.33	33.10	24.67	328	0.17
90	12.53	33.15	75	13.29	33.00	24.81	315	0.25
110	11.42	33.18	100	11.95	33.16	25.19	279	0.33
130	10.38	33.31	150	9.68	33.60	25.93	208	0.45
150	9.68	33.60	200	8.78	33.96	26.36	167	0.55
170	8.88	33.71	250	8.29	34.14	26.58	146	0.63
200	8.78	33.96	300	8.06	34.23	26.68	137	0.70
248	8.30	34.14	400	7.03	34.29	26.88	118	0.83
296	8.09	34.22	500	6.27	34.33	27.01	106	0.95
395	7.11	34.29	600	(5.72)	(34.38)	(27.12)	(95)	(1.06)
494	6.31	34.33						
596	5.74	34.38						

S10

CCOFI
5405

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

103.80

HORIZON; May 19, 1954; 1445 GCT; 29°24'N, 119°48'W; sounding, 2100 fm; wind, 320°, force 3; weather, overcast; sea, smooth; wire angle, 11°.

0	16.87	33.45	0	16.87	33.45	24.38	356	0.00
10	16.86	33.45	10	16.86	33.45	24.38	356	0.04
45	16.40	33.32	20	16.82	33.45	24.39	355	0.07
65	15.59	33.21	30	16.79	33.45	24.40	354	0.11
100	14.68	33.22	50	16.00	33.27	24.44	350	0.18
120	13.65	33.30	75	15.30	33.21	24.55	340	0.26
135	12.03	33.31	100	14.68	33.22	24.69	326	0.35
165	10.76	33.42	150	11.36	33.35	25.45	254	0.49
190	9.46	33.68	200	9.29	33.74	26.11	191	0.61
209	9.10	33.78	250	8.38	33.99	26.44	160	0.70
233	8.57	33.95	300	7.72	34.05	26.59	146	0.78
277	8.09	34.03	400	6.61	34.14	26.82	124	0.92
346	7.14	34.08	500	5.86	34.24	26.99	108	1.04
454	6.18	34.20	600	5.35	34.31	27.11	96	1.15
564	5.52	34.29						
676	5.05	34.36						

107.35

HORIZON; May 18, 1954; 0813 GCT; 30°19'N, 116°34'W; sounding, 900 fm; wind, 290°, force 1; weather, overcast; sea, calm; wire angle, 05°.

0	16.0	33.54	0	16.0	33.54	24.65	330	0.00
20	13.62	33.52	10	15.94	33.54	24.66	329	0.03
25	11.82	33.54	20	13.62	33.52	25.14	283	0.06
29	11.45	33.49	30	11.41	33.50	25.55	244	0.09
31	11.38	33.52	50	10.09	33.57	25.84	217	0.14
33	11.16	33.53	75	9.36	33.76	26.11	191	0.19
36	10.88	33.58	100	9.10	33.93	26.29	174	0.23
38	10.78	33.53	150	8.82	34.09	26.46	158	0.32
41	10.60	33.54	200	8.51	34.19	26.58	146	0.40
46	10.22	33.57	250	8.12	34.27	26.70	135	0.47
51	10.05	33.57	300	7.70	34.33	26.81	125	0.54
61	9.69	33.64	400	6.84	34.39	26.98	109	0.66
71	9.42	33.72	500	6.11	34.41	27.09	98	0.77
100	9.10	33.93	600	5.53	34.42	27.17	91	0.87
210	8.44	34.21						
408	6.80	34.39						
610	5.50	34.42						

107.50

HORIZON; May 18, 1954; 0025 GCT; 29°58.5'N, 117°28.5'W; sounding, 1100 fm; wind, 320°, force 3; weather, overcast; sea, moderate; wire angle, 14°.

0	16.15	33.22	0	16.15	33.22	24.37	357	0.00
10	16.06	33.18	10	16.06	33.18	24.36	358	0.04
35	16.05	33.22	20	16.06	33.20	24.37	357	0.07
60	14.66	33.08	30	16.06	33.22	24.39	355	0.11
75	13.62	33.08	50	15.31	33.16	24.51	343	0.18
95	12.69	33.09	75	13.62	33.08	24.80	316	0.26
110	11.78	33.10	100	12.41	33.09	25.05	292	0.34
124	10.60	33.18	150	9.51	33.38	25.79	222	0.47
143	9.72	33.32	200	8.49	33.88	26.34	169	0.56
162	9.22	33.50	250	7.80	34.00	26.54	150	0.65
191	8.60	33.82	300	7.19	34.06	26.67	138	0.72
219	8.30	33.95	400	6.63	34.18	26.84	122	0.86
331	6.95	34.10	500	6.21	34.28	26.98	109	0.98
438	6.49	34.23	600	5.72	34.33	27.08	99	1.09
546	6.01	34.31	700	(5.28)	(34.36)	(27.16)	(92)	(1.19)
686	5.34	34.36						

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

SIO
CCOFI
5405

HORIZON; May 17, 1954; 1506 GCT; 29°15'N, 118°45'W; sounding, 2000 fm; wind, 320°, force 4; weather, overcast; sea, moderate; wire angle, 26°.

107.70

0	16.0	33.36	0	16.0	33.36	24.51	343	0.00
10	16.09	33.35	10	16.09	33.35	24.48	346	0.04
52	15.62	33.34	20	(16.03)	(33.35)	(24.49)	(345)	(0.07)
83	14.80	33.32	30	(15.94)	(33.34)	(24.51)	(343)	(0.10)
92	13.82	33.17	50	(15.67)	(33.34)	(24.57)	(338)	(0.17)
100	13.24	33.07	75	15.07	33.33	24.69	326	(0.26)
110	13.14	33.12	100	13.24	33.07	24.87	309	(0.34)
121	12.26	33.15	150	10.59	33.30	25.55	244	(0.48)
140	11.15	33.24	200	8.77	33.74	26.19	184	(0.58)
150	10.59	33.30	250	7.87	33.98	26.51	153	(0.67)
157	9.72	33.32	300	7.04	34.01	26.66	139	(0.74)
176	9.15	33.52	400	6.84	34.25	26.87	119	(0.88)
240	8.08	33.97	500	6.22	34.28	26.98	109	(1.00)
334	6.90	34.03	600	5.45	34.32	27.11	96	(1.11)
441	6.76	34.28						
553	5.75	34.29						
648	5.20	34.36						

HORIZON; May 16, 1954; 0020 GCT; 29°50.5'N, 115°52.5'W; sounding, 58 fm; wind, 320°, force 4; weather, partly cloudy; sea, moderate; wire angle, 13°.

110.33

0	15.7	33.45	0	15.7	33.45	24.64	331	0.00
5	15.46	33.42	10	15.26	33.42	24.72	323	0.03
10	15.26	33.42	20	14.42	33.39	24.88	308	0.06
15	15.23	33.44	30	12.70	33.17	25.06	291	0.09
20	14.42	33.39	50	10.36	33.17	25.48	251	0.15
25	13.52	33.22	75	9.44	33.55	25.93	208	0.21
30	12.70	33.17						
35	11.84	33.21						
40	10.94	33.13						
45	10.48	33.13						
50	10.36	33.17						
55	10.21	33.23						
60	10.26	33.47						
65	9.88	33.40						
70	9.62	33.57						
80	9.34	33.53						
90	9.32	33.81						

HORIZON; May 16, 1954; 0502 GCT; 29°36.5'N, 116°20'W; sounding, 1450 fm; wind, 320°, force 4; weather, partly cloudy; sea, moderate; wire angle, 25°.

110.40

0	16.0	33.39	0	16.0	33.39	24.53	341	0.00
10	16.00	33.37	10	16.00	33.37	24.52	342	0.03
24	15.96	33.39	20	15.98	33.39	24.54	340	0.07
33	15.86	33.37	30	15.89	33.38	24.55	340	0.10
43	14.92	33.27	50	14.50	33.23	24.74	321	0.17
52	14.37	33.22	75	12.69	33.14	25.03	294	0.25
70	13.12	33.17	100	10.80	33.15	25.39	260	0.32
84	11.62	33.03	150	9.25	33.68	26.07	195	0.43
100	10.80	33.15	200	8.89	34.04	26.40	164	0.52
152	9.24	33.68	250	8.51	34.16	26.56	148	0.60
220	8.76	34.11	300	8.05	34.23	26.68	137	0.68
304	8.02	34.23	400	7.01	34.26	26.86	120	0.81
432	6.71	34.27	500	6.29	34.30	26.98	109	0.93
562	5.94	34.34	600	5.74	34.36	27.10	97	1.04
739	5.04	34.42	700	5.24	34.41	27.20	88	1.14
922	4.25	34.46	800	4.77	34.43	27.27	81	1.23
1164	3.58	34.54	1000	4.03	34.48	27.39	70	1.40

SIO

CCOF1
5405

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

110.60

HORIZON; May 16, 1954; 1404 GCT; 28°59.5'N, 117°35.5'W; sounding, 2000 fm; wind, 320°, force 5; weather, overcast; sea, moderate; wire angle, 30°.

0	16.9	33.41	0	16.9	33.41	24.34	360	0.00
10	16.98	33.41	10	16.98	33.41	24.32	361	0.04
23	16.99	33.42	20	17.00	33.42	24.32	361	0.07
50	16.10	33.37	30	16.64	33.41	24.40	354	0.11
59	16.07	33.39	50	16.10	33.37	24.49	345	0.18
68	16.86	33.78	75	16.41	33.75	24.71	324	0.26
81	15.62	33.68	100	12.60	33.32	25.19	279	0.34
98	12.86	33.40	150	9.69	33.60	25.93	208	0.46
120	11.14	33.30	200	8.68	34.06	26.45	159	0.55
145	9.84	33.54	250	8.35	34.22	26.63	142	0.63
191	8.76	34.00	300	7.93	34.25	26.72	133	0.70
258	8.29	34.22	400	6.90	34.29	26.89	117	0.83
350	7.49	34.27	500	6.05	34.35	27.05	102	0.95
472	6.22	34.33	600	5.53	34.42	27.17	91	1.05
638	5.38	34.44	700	5.10	34.47	27.27	81	1.14
849	4.57	34.51	800	4.73	34.50	27.33	75	1.23
1144	3.64	34.54	1000	4.08	34.53	27.43	66	1.39

110.80

HORIZON; May 16, 1954; 2333 GCT; 28°17'N, 118°58'W; sounding, 2175 fm; wind, 320°, force 4; weather, partly cloudy; sea, moderate; wire angle, 25°.

0	17.2	33.51	0	17.2	33.51	24.34	360	0.00
10	17.28	33.60	10	17.28	33.60	24.39	355	0.04
43	16.92	33.58	20	17.27	33.59	24.39	355	0.07
53	16.73	33.77	30	17.20	33.58	24.40	354	0.11
63	15.56	33.55	50	16.26	33.75	24.75	320	0.17
73	14.64	33.42	75	14.61	33.42	24.86	310	0.25
82	14.52	33.60	100	12.00	33.42	25.38	260	0.33
93	13.48	33.48	150	9.62	33.56	25.91	210	0.44
102	11.80	33.40	200	8.82	33.90	26.31	172	0.54
115	10.46	33.28	250	8.28	34.13	26.57	148	0.62
128	10.05	33.38	300	7.79	34.24	26.73	132	0.70
216	8.64	33.98	400	6.95	34.31	26.90	116	0.83
313	7.66	34.25	500	6.23	34.37	27.05	102	0.94
448	6.61	34.34	600	5.63	34.42	27.16	92	1.04
678	5.22	34.45	700	5.13	34.46	27.25	83	1.14
962	4.13	34.53	800	4.70	34.49	27.33	75	1.23
1309	3.20	34.59	1000	4.03	34.54	27.44	65	1.39

113.35

HORIZON; May 15, 1954; 1705 GCT; 29°18'N, 115°39'W; sounding, 400 fm; wind, 300°, force 3; weather, overcast; sea, slight; wire angle, 39°.

0	14.9	33.50	0	14.9	33.50	24.86	310	0.00
10	14.33	33.44	10	14.33	33.44	24.93	303	0.03
14	14.14	33.46	20	13.23	33.40	25.13	284	0.06
18	13.82	33.40	30	12.60	33.49	25.32	266	0.09
22	12.93	33.40	50	10.52	33.52	25.73	227	0.14
25	12.92	33.46	75	9.63	33.92	26.19	184	0.19
29	12.66	33.48	100	9.31	33.97	26.28	175	0.23
33	12.44	33.51	150	8.93	34.15	26.48	156	0.32
37	12.01	33.50	200	8.83	34.28	26.60	145	0.39
41	11.40	33.50	250	8.78	34.36	26.67	138	0.47
48	10.72	33.51	300	8.48	34.36	26.72	133	0.54
61	9.55	33.64						
73	9.64	33.91						
113	9.12	34.00						
160	8.90	34.19						
265	8.74	34.36						
376	7.50	34.34						

OBSERVED			INTERPOLATED			COMPUTED		
Z	T	S	Z	T	S	σ_t	δ_{T_3}	ΔD
m	°C	‰	m	°C	‰	g/L	10^{-5}cm/g	dyn. m

HORIZON; May 15, 1954; 0733 GCT; 28°44'N, 116°38.5'W; sounding, 2200 fm; wind, 320°, force 2; weather, overcast; sea, smooth; wire angle, 12°.

113.50

0	17.0	33.46	0	17.0	33.46	24.35	359	0.00
10	17.02	33.48	10	17.02	33.48	24.36	358	0.04
40	16.29	33.35	20	17.02	33.48	24.36	358	0.07
50	15.55	33.30	30	17.00	33.48	24.37	357	0.11
60	14.37	33.26	50	15.55	33.30	24.56	339	0.18
70	13.56	33.19	75	13.20	33.17	24.96	300	0.26
80	12.81	33.16	100	11.52	33.21	25.31	267	0.33
90	12.05	33.15	150	10.71	33.96	26.04	198	0.45
100	11.52	33.21	200	9.61	34.06	26.30	173	0.54
110	11.40	33.26	250	8.49	34.10	26.51	153	0.62
119	11.62	33.56	300	7.81	34.13	26.64	141	0.70
138	10.80	33.76	400	7.06	34.28	26.86	120	0.84
156	10.65	33.98	500	6.39	34.32	26.99	108	0.96
193	9.78	34.05						
285	7.94	34.12						
429	6.87	34.30						
581	5.88	34.34						

HORIZON; May 14, 1954; 2151 GCT; 28°02'N, 117°55.5'W; sounding, 1725 fm; wind, 320°, force 1; weather, overcast; sea, moderate; wire angle, 08°.

113.70

0	17.3	33.41	0	17.3	33.41	24.24	369	0.00
10	16.98	33.44	10	16.98	33.44	24.34	360	0.04
30	16.72	33.42	20	16.92	33.44	24.36	358	0.07
50	15.41	33.26	30	16.72	33.42	24.39	355	0.11
70	14.28	33.19	50	15.41	33.26	24.56	339	0.18
80	13.71	33.16	75	14.00	33.17	24.79	317	0.26
90	12.66	33.16	100	11.68	33.15	25.23	275	0.33
100	11.68	33.15	150	9.76	33.66	25.97	204	0.46
110	10.76	33.25	200	8.77	33.91	26.32	171	0.55
120	10.40	33.31	250	8.53	34.11	26.52	152	0.63
150	9.76	33.66	300	8.24	34.26	26.68	137	0.71
198	8.78	33.91	400	7.34	34.33	26.86	120	0.84
257	8.50	34.13	500	6.42	34.35	27.01	106	0.96
267	8.45	34.18	600	(5.72)	(34.37)	(27.11)	(96)	(1.07)
346	7.94	34.31						
446	6.86	34.34						
597	5.73	34.37						

HORIZON; May 13, 1954; 1343 GCT; 28°41.5'N, 115°02'W; sounding, 75 fm; wind, 320°, force 5; weather, overcast; sea, slight; wire angle, 08°.

117.30

0	15.14	33.40	0	15.14	33.40	24.73	322	0.00
10	15.02	33.37	10	15.02	33.37	24.73	322	0.03
20	13.94	33.40	20	13.94	33.40	24.98	299	0.06
25	12.76	33.37	30	12.36	33.40	25.30	268	0.09
30	12.36	33.40	50	10.36	33.54	25.77	223	0.14
35	11.72	33.42	75	9.51	33.71	26.05	197	0.19
40	11.30	33.45	100	9.20	33.87	26.22	181	0.24
45	10.98	33.48						
50	10.36	33.54						
60	9.81	-						
70	9.56	33.68						
80	9.48	33.74						
90	9.32	33.78						
100	9.20	33.87						
110	9.10	33.95						
120	9.15	34.32r						

S10

CCOF1
5405

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

117.40

HORIZON; May 14, 1954; 0214 GCT; 28°27'N, 115°36'W; sounding, 600 fm; wind, 320°, force 3; weather, clear; sea, moderate; wire angle, 20°.

0	16.26	33.31	0	16.26	33.31	24.41	353	0.00
10	15.76	33.28	10	15.76	33.28	24.50	344	0.04
40	15.67	33.35	20	15.74	33.32	24.54	340	0.07
58	13.98	33.16	30	15.73	33.34	24.55	340	0.10
68	12.61	33.17	50	15.00	33.22	24.62	333	0.17
77	11.88	33.22	75	11.98	33.20	25.22	276	0.25
87	11.68	33.30	100	10.48	33.33	25.59	240	0.31
96	10.78	33.31	150	9.97	34.24	26.38	166	0.42
115	9.64	33.53	200	9.72	34.46	26.60	145	0.49
132	9.34	33.73	250	9.22	34.46	26.68	137	0.57
140	9.34	33.90	300	8.83	34.46	26.74	131	0.64
149	9.92	34.21	400	8.13	34.46	26.85	121	0.77
168	10.04	34.44	500	7.10	34.45	26.99	108	0.89
228	9.42	34.46						
365	8.41	34.46						
560	6.56	34.45						

117.60

HORIZON; May 14, 1954; 1236 GCT; 27°46.5'N, 116°53'W; sounding, 2100 fm; wind, 300°, force 2; weather, overcast; sea, smooth; wire angle, 15°.

0	17.20	33.46	0	17.20	33.46	24.31	362	0.00
10	17.20	33.48	10	17.20	33.48	24.32	361	0.04
50	16.76	33.49	20	17.20	33.48	24.32	361	0.07
90	15.64	33.57	30	17.20	33.48	24.32	361	0.11
109	13.54	33.31	50	16.76	33.49	24.43	351	0.18
119	12.32	33.33	75	16.19	33.54	24.60	335	0.27
129	11.67	33.33	100	14.56	33.42	24.87	309	0.35
138	11.04	33.47	150	10.83	33.60	25.74	226	0.48
149	10.87	33.57	200	10.61	34.20	26.24	179	0.59
159	10.48	33.78	250	9.56	34.27	26.48	156	0.67
178	10.86	34.05	300	8.70	34.29	26.63	142	0.75
216	10.24	34.25	400	7.27	34.31	26.86	120	0.89
294	8.78	34.29	500	6.38	34.42	27.07	100	1.00
391	7.38	34.31	600	5.85	34.46	27.17	91	1.11
514	6.28	34.43						
648	5.68	34.48						

120.25

HORIZON; May 13, 1954; 0655 GCT; 28°24'N, 114°18'W; sounding, 45 fm; wind, 320°, force 5; weather, overcast; sea, smooth; wire angle, 10°.

0	15.42	33.45	0	15.42	33.45	24.71	324	0.00
5	15.43	33.40	10	15.42	33.40	24.67	328	0.03
10	15.42	33.62r	20	15.40	33.40	24.67	328	0.07
15	15.41	33.40	30	13.43	33.43	25.11	286	0.10
20	15.40	33.40	50	10.99	33.51	25.64	236	0.15
25	15.20	33.41						
30	13.43	33.43						
35	12.12	33.47						
40	11.64	33.48						
45	11.24	33.48						
50	10.99	33.51						
55	10.68	33.58						
60	10.46	33.64						
65	10.14	33.73						
70	10.08	33.80						

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

S10

CCOFI
5405

HORIZON; May 13, 1954; 0131 GCT; 28°03'N, 114°54'W; sounding, 45 fm; wind, 340°, force 4; weather, clear; sea, moderate; wire angle, 15°.

120.35

0	16.46	33.42	0	16.46	33.42	24.45	349	0.00
5	16.43	33.38	10	16.17	33.39	24.49	345	0.04
10	16.17	33.39	20	15.54	33.34	24.60	335	0.07
15	15.68	33.37	30	15.44	33.40	24.66	329	0.10
20	15.54	33.34	50	13.27	33.36	25.09	288	0.16
25	15.48	33.43						
30	15.44	33.40						
35	15.12	33.39						
40	13.99	33.35						
45	13.54	33.34						
50	13.27	33.36						
55	13.10	33.42						
60	13.00	33.40						
65	12.58	33.40						
70	12.01	33.40						

HORIZON; May 12, 1954; 1533 GCT; 27°32'N, 116°01'W; sounding, 2100 fm; wind, 330°, force 3; weather, overcast; sea, moderate; wire angle, 18°.

120.50

0	15.4	33.40	0	15.4	33.40	24.67	328	0.00
10	15.30	33.44	10	15.30	33.44	24.73	322	0.03
15	14.66	33.42	20	13.20	33.32	25.07	290	0.06
22	12.74	33.31	30	11.76	33.36	25.38	260	0.09
28	11.72	33.37	50	10.69	33.54	25.71	229	0.14
33	11.11	33.35	75	10.32	33.84	26.01	201	0.19
40	10.94	33.45	100	10.62	34.11	26.17	185	0.24
59	10.38	33.62	150	9.50	34.08	26.34	169	0.33
79	10.56	33.89	200	9.08	34.25	26.54	150	0.42
107	10.54	34.12	250	8.72	34.41	26.72	133	0.49
145	9.56	34.08	300	8.33	34.50	26.85	121	0.55
211	8.99	34.29	400	7.41	34.46	26.96	110	0.68
317	8.24	34.50	500	6.58	34.45	27.06	101	0.79
432	7.11	34.45	600	5.88	34.46	27.16	92	0.89
624	5.72	34.46	700	5.26	34.47	27.25	83	0.99
867	4.50	34.50	800	4.77	34.49	27.32	76	1.08
1168	3.64	34.59	1000	4.08	34.54	27.43	66	1.24

HORIZON; May 12, 1954; 0551 GCT; 26°52'N, 117°11'W; sounding, 2000 fm; wind, 330°, force 3; weather, overcast; sea, moderate; wire angle, 13°.

120.70

0	16.9	33.38	0	16.9	33.38	24.32	361	0.00
10	17.00	33.37	10	17.00	33.37	24.29	364	0.04
30	16.77	33.37	20	16.90	33.37	24.31	362	0.07
60	16.36	33.68	30	16.77	33.37	24.34	360	0.11
81	13.94	33.32	50	16.41	33.63	24.41	353	0.18
85	13.30	33.27	75	14.81	33.43	24.82	314	0.26
89	13.14	33.44	100	12.25	33.48	25.38	260	0.34
94	12.93	33.45	150	10.14	33.81	26.02	200	0.45
98	12.38	33.47	200	9.50	34.22	26.45	159	0.54
108	11.89	33.54	250	(9.49)	(34.40)	(26.59)	(146)	(0.62)
118	11.35	33.59	300	(8.72)	(34.41)	(26.72)	(133)	(0.70)
147	10.22	33.78	400	(7.95)	(34.42)	(26.85)	(121)	(0.83)
240	9.84	34.40	500	5.89	34.51	27.20	88	(0.94)
430	7.66	34.43	600	(5.37)	(34.51)	(27.27)	(81)	(1.03)
519	5.72	34.51	700	(5.03)	(34.50)	(27.30)	(78)	(1.12)
860	4.56	34.49	800	(4.73)	(34.49)	(27.32)	(76)	(1.20)
1161	3.65	34.54	1000	4.12	34.51	27.41	68	(1.37)

155

S10

CCOFI
5405

OBSERVED			INTERPOLATED			COMPUTED		
Z	T	S	Z	T	S	σ_t	δ_{T_3}	ΔD
m	°C	‰	m	°C	‰	g/L	$10^5 \frac{\text{cm}^3}{\text{g}}$	dyn. m

120.90

HORIZON; May 11, 1954; 1135 GCT; 26°25'N, 118°18'W; sounding, 2200 fm; wind, 330°, force 3; weather, cloudy; sea, rough; wire angle, 28°.

0	17.0	33.35	0	17.0	33.35	24.27	366	0.00
10	16.98	33.37	10	16.98	33.37	24.29	364	0.04
33	16.93	33.43	20	16.94	33.37	24.30	363	0.07
63	17.85	34.24	30	16.93	33.38	24.31	362	0.11
80	16.07	33.78	50	17.75	34.05	24.63	332	0.18
84	15.38	33.68	75	17.10	34.03	24.77	319	0.26
88	14.86	33.66	100	13.38	33.54	25.21	277	0.34
96	14.16	33.59	150	11.21	33.92	25.92	209	0.46
105	12.84	33.51	200	10.30	34.20	26.30	173	0.56
118	12.02	33.65	250	9.74	34.35	26.51	153	0.64
131	11.70	33.78	300	9.27	34.38	26.61	144	0.72
173	10.70	34.06	400	8.22	34.40	26.79	127	0.86
255	9.69	34.36	500	7.00	34.37	26.94	112	0.99
381	8.44	34.40	600	6.03	34.37	27.07	100	1.10
552	6.45	34.37	700	5.30	34.39	27.18	90	1.20
772	4.93	34.40	800	4.82	34.41	27.25	83	1.30
1056	4.00	34.47	1000	4.14	34.46	27.36	73	1.47

123.40

HORIZON; May 10, 1954; 1349 GCT; 27°19.5'N, 114°52'W; sounding, 305 fm; wind, 320°, force 4; weather, partly cloudy; sea, slight; wire angle, 32°.

0	14.4	33.39	0	14.4	33.39	24.88	308	0.00
10	14.38	33.37	10	14.38	33.37	24.87	309	0.03
23	13.94	33.42	20	14.28	33.41	24.92	304	0.06
27	13.88	33.43	30	13.52	33.53	25.17	280	0.09
31	13.37	33.53	50	11.18	33.64	25.71	229	0.14
35	11.94	33.46	75	9.92	33.75	26.01	201	0.20
39	11.50	33.43	100	10.30	34.13	26.24	179	0.24
58	10.88	33.76	150	10.23	34.45	26.50	154	0.33
65	10.10	33.63	200	10.52	34.58	26.55	149	0.41
72	9.96	33.73						
84	9.84	33.79						
89	9.83	33.90						
98	10.32	34.08						
101	10.25	34.14						
111	9.97	34.23						
209	10.53	34.58						

123.60

HORIZON; May 11, 1954; 0946 GCT; 26°39'N, 116°15'W; sounding, 2150 fm; wind, 320°, force 5; weather, overcast; sea, moderate; wire angle, 33°.

0	16.6	33.45	0	16.6	33.45	24.44	350	0.00
9	16.60	33.49	10	16.59	33.49	24.47	347	0.04
18	16.53	33.49	20	16.30	33.46	24.52	342	0.07
22	15.37	33.41	30	14.28	33.36	24.88	308	0.10
27	14.35	33.31	50	11.29	33.26	25.39	260	0.16
31	14.25	33.36	75	10.44	33.78	25.95	206	0.22
35	13.80	33.35	100	9.65	34.10	26.33	170	0.26
39	13.03	33.38	150	9.51	34.38	26.57	148	0.35
47	11.53	33.25	200	9.32	34.44	26.65	140	0.42
55	11.04	33.30	250	8.98	34.46	26.72	133	0.49
69	10.62	33.57	300	8.52	34.46	26.79	127	0.56
99	9.66	34.09	400	7.40	34.44	26.94	112	0.68
174	9.43	34.42	500	6.47	34.44	27.07	100	0.80
268	8.83	34.46						
367	7.76	34.45						
432	7.07	34.43						
571	5.89	34.45						

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

SIO
CCOFI
5405

HORIZON; May 10, 1954; 0710 GCT; 26°56'N, 114°05'W; sounding, 41 fm; wind, 320°, force 4; weather, clear; sea, slight; wire angle, 12°.

12734

0	13.95	33.35	0	13.95	33.35	24.94	302	0.00
5	13.93	33.37	10	13.46	33.29	25.00	297	0.03
10	13.46	33.29	20	11.88	33.26	25.28	270	0.06
12	12.76	33.27	30	11.40	33.50	25.56	243	0.08
15	12.35	33.27	50	11.23	33.96	25.94	207	0.13
18	11.90	33.19						
20	11.88	33.26						
25	11.78	33.42						
30	11.40	33.50						
35	11.42	33.65						
40	10.84	33.75						
45	10.95	33.82						
50	11.23	33.96						
55	11.35	34.03						
60	10.98	34.03						

HORIZON; May 9, 1954; 2050 GCT; 26°20.5'N, 115°12'W; sounding, 1850 fm; wind, 320°, force 4; weather, overcast; sea, moderate; wire angle, 20°.

12750

0	17.4	33.58	0	17.4	33.58	24.35	359	0.00
10	17.45	33.59	10	17.45	33.59	24.35	359	0.04
39	18.00	34.02	20	17.43	33.60	24.36	358	0.07
63	17.44	33.96	30	17.77	33.89	24.50	344	0.11
82	15.90	33.87	50	18.03	34.00	24.52	342	0.18
91	14.36	33.69	75	16.84	33.91	24.74	321	0.26
106	12.56	33.68	100	13.06	33.68	25.38	260	0.33
114	12.06	33.86	150	11.45	34.10	26.01	201	0.45
123	10.28	33.53	200	10.77	34.34	26.32	171	0.54
132	11.25	33.82	250	10.42	34.47	26.49	155	0.63
141	11.52	33.97	300	10.00	34.52	26.60	145	0.71
145	11.47	34.03	400	8.27	34.41	26.79	127	0.85
154	11.44	34.14	500	7.02	34.40	26.96	110	0.98
202	10.74	34.35	600	6.14	34.41	27.09	98	1.09
301	10.00	34.52						
440	7.66	34.40						
658	5.70	34.42						

HORIZON; May 8, 1954; 1946 GCT; 26°27'N, 113°28'W; sounding, 45 fm; wind, 270°, force 2; weather, clear; sea, slight; wire angle, 00°.

13030

0	14.94	33.53	0	14.94	33.53	24.87	309	0.00
5	14.49	33.44	10	14.14	33.42	24.96	300	0.03
10	14.14	33.42	20	12.14	33.55	25.46	253	0.06
15	12.64	33.45	30	11.62	33.58	25.58	242	0.08
20	12.14	33.55	50	10.68	33.78	25.90	211	0.13
25	11.84	33.54						
30	11.62	33.58						
35	11.39	33.60						
40	11.18	33.68						
44	10.89	33.68						
49	10.68	33.74						
54	10.94	33.94						
58	11.22	34.04						
63	11.24	34.07						
68	11.23	34.09						

SIO
CCOFI
5405

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

130.40

HORIZON; May 9, 1954; 0109 GCT; 26°08.5'N, 114°08.5'W; sounding, 1300 fm; wind, 290°, force 6; weather, clear; sea, moderate; wire angle, 42°.

0	16.5	33.35	0	16.5	33.35	24.39	355	0.00
9	16.45	33.35	10	16.45	33.35	24.40	354	0.04
20	16.25	33.42	20	16.25	33.42	24.50	344	0.07
39	15.25	33.30	30	16.06	33.36	24.49	345	0.10
58	13.48	33.21	50	14.69	33.23	24.70	325	0.17
66	13.10	33.22	75	12.32	33.24	25.18	280	0.25
77	12.20	33.25	100	10.50	33.38	25.62	238	0.31
92	11.21	33.51	150	11.12	34.26	26.20	183	0.42
100	10.50	33.38	200	10.49	34.44	26.45	159	0.51
111	11.06	33.75	250	9.62	34.45	26.61	144	0.58
118	11.30	34.02	300	8.87	34.44	26.72	133	0.66
165	10.99	34.34	400	7.66	34.40	26.87	119	0.79
231	9.95	34.45	500	6.78	34.38	26.98	109	0.91
325	8.55	34.43	600	6.07	34.42	27.11	96	1.02
493	6.82	34.38	700	5.49	34.45	27.20	88	1.12
643	5.79	34.43	800	4.99	34.47	27.28	80	1.21
918	4.46	34.49						

130.60

HORIZON; May 9, 1954; 1106 GCT; 25°28'N, 115°23.5'W; sounding, 2100 fm; wind, 320°, force 5; weather, missing; sea, moderate; wire angle, 15°.

0	17.0	33.36	0	17.0	33.36	24.28	365	0.00
10	17.03	33.49	10	17.03	33.49	24.37	357	0.04
25	15.96	33.32	20	16.02	33.36	24.50	344	0.07
60	15.36	33.42	30	15.94	33.33	24.50	344	0.11
79	13.73	33.34	50	15.83	33.40	24.58	337	0.17
93	12.62	33.30	75	14.18	33.36	24.90	306	0.26
108	11.69	33.38	100	12.24	33.32	25.26	272	0.33
127	10.68	33.44	150	11.61	34.02	25.92	209	0.45
161	11.70	34.28	200	11.12	34.45	26.35	168	0.55
185	11.25	34.38	250	10.29	34.51	26.54	150	0.63
214	11.00	34.49	300	9.48	34.51	26.68	137	0.70
291	9.56	34.51	400	8.28	34.48	26.84	122	0.84
389	8.42	34.48	500	7.08	34.43	26.98	109	0.96
558	6.45	34.43	600	6.07	34.44	27.12	95	1.07
681	5.49	34.47	700	(5.41)	(34.47)	(27.23)	(85)	(1.17)
1272	3.51	34.52	800	(4.98)	(34.48)	(27.29)	(79)	(1.26)
1577	2.77	34.60	1000	(4.28)	(34.50)	(27.38)	(71)	(1.43)
			1200	(3.72)	(34.51)	(27.45)	(64)	(1.58)
			1500	2.94	34.58	27.58	52	(1.79)

133.30

HORIZON; May 8, 1954; 0832 GCT; 25°54.5'N, 113°08'W; sounding, 110 fm; wind, 320°, force 5; weather, missing; sea, slight; wire angle, 28°.

0	16.6	33.52	0	16.6	33.52	24.49	345	0.00
10	16.36	33.58	10	16.36	33.58	24.59	336	0.03
15	15.18	33.44	20	14.45	33.44	24.91	305	0.07
19	14.64	33.44	30	13.34	33.36	25.08	289	0.10
24	13.69	33.40	50	12.95	33.63	25.36	262	0.15
28	13.52	33.37	75	12.28	34.26	25.98	204	0.20
37	12.63	33.36	100	11.79	34.33	26.13	189	0.26
46	12.21	33.37	150	11.34	34.58	26.41	163	0.35
51	12.98	33.81						
55	12.96	33.87						
60	12.76	33.91						
64	12.46	33.97						
83	12.12	34.28						
101	11.79	34.33						
130	11.43	34.46						
158	11.32	34.61						

S10

CCOFI
5405

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

13760

HORIZON; May 7, 1954; 1230 GCT; 24°16'N, 114°35'W; sounding, 2100 fm; wind, 340°, force 5; weather, missing; sea, slight; wire angle, 19°.

0	18.0	33.86	0	18.0	33.86	24.42	352	0.00
10	18.04	33.85	10	18.04	33.85	24.40	354	0.04
49	17.64	33.94	20	17.88	33.86	24.45	349	0.07
68	17.67	33.99	30	17.66	33.87	24.51	343	0.10
72	17.40	34.00	50	17.64	33.94	24.57	338	0.17
76	16.48	33.93	75	16.63	33.98	24.84	312	0.26
81	14.66	33.78	100	12.93	33.69	25.41	258	0.33
85	13.82	33.77	150	10.73	34.33	26.32	171	0.44
90	13.61	33.70	200	10.22	34.36	26.43	161	0.52
94	13.42	33.68	250	9.87	34.47	26.58	146	0.60
103	12.62	33.75	300	9.17	34.49	26.71	134	0.67
116	11.69	33.78	400	7.83	34.46	26.90	116	0.81
139	10.74	34.32	500	6.87	34.46	27.03	104	0.92
183	10.48	34.34						
273	9.54	34.49						
414	7.68	34.46						
561	6.40	34.46						

ESAEI

0	18.0	33.86	0	18.0	33.86	24.42	352	0.00
10	18.04	33.85	10	18.04	33.85	24.40	354	0.04
49	17.64	33.94	20	17.88	33.86	24.45	349	0.07
68	17.67	33.99	30	17.66	33.87	24.51	343	0.10
72	17.40	34.00	50	17.64	33.94	24.57	338	0.17
76	16.48	33.93	75	16.63	33.98	24.84	312	0.26
81	14.66	33.78	100	12.93	33.69	25.41	258	0.33
85	13.82	33.77	150	10.73	34.33	26.32	171	0.44
90	13.61	33.70	200	10.22	34.36	26.43	161	0.52
94	13.42	33.68	250	9.87	34.47	26.58	146	0.60
103	12.62	33.75	300	9.17	34.49	26.71	134	0.67
116	11.69	33.78	400	7.83	34.46	26.90	116	0.81
139	10.74	34.32	500	6.87	34.46	27.03	104	0.92
183	10.48	34.34						
273	9.54	34.49						
414	7.68	34.46						
561	6.40	34.46						

OPTEI

0	18.0	33.86	0	18.0	33.86	24.42	352	0.00
10	18.04	33.85	10	18.04	33.85	24.40	354	0.04
49	17.64	33.94	20	17.88	33.86	24.45	349	0.07
68	17.67	33.99	30	17.66	33.87	24.51	343	0.10
72	17.40	34.00	50	17.64	33.94	24.57	338	0.17
76	16.48	33.93	75	16.63	33.98	24.84	312	0.26
81	14.66	33.78	100	12.93	33.69	25.41	258	0.33
85	13.82	33.77	150	10.73	34.33	26.32	171	0.44
90	13.61	33.70	200	10.22	34.36	26.43	161	0.52
94	13.42	33.68	250	9.87	34.47	26.58	146	0.60
103	12.62	33.75	300	9.17	34.49	26.71	134	0.67
116	11.69	33.78	400	7.83	34.46	26.90	116	0.81
139	10.74	34.32	500	6.87	34.46	27.03	104	0.92
183	10.48	34.34						
273	9.54	34.49						
414	7.68	34.46						
561	6.40	34.46						

Station	Date	Time GCT	Latitude North	Longitude West	Sounding (fm)	Wind		Weather	Sea	10 Meters	
						Dir	Force			T	S
60.55-C	V-10	2130	37°48.0'	123°15.0'	47	310°	4	cloudy	moderate	10.42	33.38
60.70-C	11	0515	37°18.0'	124°21.0'	209	330°	4	missing	moderate	12.40	32.91
60.90-C	11	1650	36°37.0'	125°47.0'	2200	350°	4	cloudy	moderate	13.58	32.98
63.52-C	9	2010	37°20.0'	122°38.0'	40	140°	3	cloudy	moderate	11.14	33.05
67.55-C	9	1300	36°40.0'	122°24.0'	1050	140°	5	cloudy	rough	12.37	32.92
70.55-C	13	0600	36°03.0'	122°02.0'	650	310°	6	partly cloudy	very rough	11.82	33.15
70.70-C	12	1805	35°35.0'	123°12.0'	2000	340°	6	cloudy	very rough	13.28	-
70.90-C	12	0500	34°52.5'	124°30.0'	2200	330°	7	cloudy	rough	13.48	32.92
73.50-C	13	1345	35°37.0'	121°16.5'	50	120°	1	clear	rough	10.47	33.51
77.50-C	14	0820	35°04.0'	120°52.0'	80	320°	3	fog	moderate	11.50	33.35
77.65-C	14	0000	34°35.5'	121°54.0'	2100	330°	4	cloudy	rough	13.50	33.11
80.51-C	14	1315	34°24.5'	120°33.0'	52	320°	3	fog	moderate	11.59	33.94
80.60-C	14	1830	34°09.0'	121°09.0'	1200	270°	2	cloudy	moderate	11.85	33.43
80.80-C	15	0440	33°29.0'	122°32.0'	2200	310°	2	cloudy	slight	14.82	33.21
83.40-C	16	2245	34.14.5'	119°22.0'	30	260°	2	partly cloudy	slight	14.00	33.44
83.48-C	16	1405	33°58.5'	119°55.0'	62	300°	3	cloudy	slight	13.13	33.55
83.55-C	16	0920	33°42.5'	120°23.5'	650	320°	6	partly cloudy	rough	12.90	33.48
83.70-C	16	0020	33°14.5'	121°26.0'	1950	330°	3	partly cloudy	moderate	14.28	33.18
83.90-C	15	1420	32°34.0'	122°47.5'	2200	340°	2	cloudy	slight	14.94	33.18

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
85.40-C	V-17	0230	33°57.0'	119°10.5'	400	260°	2	clear	slight	13.68	33.31
85.50-C	17	0900	33°37.0'	119°52.0'	135	310°	4	cloudy	moderate	13.10	33.43
85.60-C	17	1510	33°16.5'	120°34.5'	1050	340°	4	overcast	rough	13.63	33.27
87.35-C	18	0300	33°50.0'	118°37.5'	300	140°	1	fog	slight	15.14	33.49
87.45-C	18	0900	33°30.0'	119°19.0'	920	calm		fog	smooth	13.58	33.51
87.55-C	18	1500	33°10.0'	120°00.5'	660	100°	2	fog	moderate	14.26	33.18
87.70-C	18	2315	32°38.0'	121°06.0'	1750	340°	4	cloudy	rough	14.68	33.17
87.90-C	19	0830	31°59.0'	122°24.0'	2200	330°	4	clear	rough	15.18	33.11
90.30-C	21	0935	33°25.0'	117°55.0'	320	110°	2	missing	smooth	13.64	33.37
90.33 ⁵ -C	20	2145	33°17.5'	118°09.5'	400	240°	3	cloudy	smooth	15.40	33.34
90.41-C	20	1645	33°02.5'	118°39.0'	140	200°	4	overcast	moderate	15.04	33.39
90.45-C	20	1420	32°54.5'	118°56.0'	910	280°	2	overcast	moderate	14.40	33.37
90.50-C	20	1200	32°44.5'	119°16.0'	65	280°	4	cloudy	moderate	14.74	33.30
90.60-C	20	0515	32°25.0'	119°58.0'	750	330°	4	cloudy	moderate	14.60	33.23
90.80-C	19	1745	31°41.5'	121°25.5'	1900	350°	4	cloudy	rough	15.90	33.22
93.27-C	21	1520	32°56.5'	117°19.5'	50	160°	4	cloudy	moderate	17.14	33.57
93.35-C	21	2050	32°40.0'	117°52.0'	350	200°	2	cloudy	moderate	15.04	33.36
93.40-C	21	2335	32°30.0'	118°12.5'	950	280°	3	cloudy	very rough	14.70	33.38
93.45-C	22	0220	32°20.0'	118°33.0'	385	330°	4	cloudy	very rough	15.02	33.35

Station	Date	Time GCT	Latitude North	Longitude West	Sounding (fm)	Wind		Weather	Sea	10 Meters	
						Dir	Force			T	S
93.55-C	V-22	0830	32°00.0'	119°14.0'	850	320°	3	cloudy	very rough	14.74	33.37
93.60-C	22	1115	31°49.5'	119°34.5'	1050	310°	4	cloudy	very rough	15.18	33.34
93.80-C	22	2045	31°11.0'	120°55.5'	2100	330°	4	cloudy	very rough	15.22	33.27
97.30-C	24	1550	32°15.5'	117°09.0'	32	330°	3	cloudy	slight	13.21	33.44
97.32-C	24	1445	32°11.5'	117°13.0'	750	010°	2	cloudy	slight	16.46	33.48
97.36-C	24	1243	32°03.5'	117°34.0'	740	320°	3	cloudy	slight	16.04	33.42
97.45-C	24	0615	31°41.5'	118°10.0'	800	300°	3	cloudy	moderate	16.02	33.30
97.50-C	24	0320	31°35.5'	118°31.0'	1300	310°	4	cloudy	moderate	15.90	33.24
97.55-C	24	0040	31°25.5'	118°51.0'	650	330°	2	cloudy	moderate	16.04	33.39
97.70-C	23	1630	30°54.0'	119°49.0'	2000	300°	3	cloudy	rough	15.76	33.51
97.90-C	23	0620	30°15.0'	121°11.0'	2050	340°	4	cloudy	rough	15.54	33.28
100.30-H	21	0915	31°39.5'	116°47.0'	260	320°	1	overcast	calm	15.82	33.61
100.35-H	21	0705	31°29.5'	117°06.5'	700	300°	2	overcast	slight	16.31	33.47
100.40-H	21	0450	31°20.0'	117°25.5'	1070	300°	3	overcast	slight	16.46	33.55
100.45-H	21	0230	31°12.0'	117°46.0'	1100	320°	3	overcast	slight	16.29	33.42
100.55-H	20	2120	30°49.0'	118°20.0'	1350	300°	2	overcast	slight	15.76	33.77
100.60-H	20	1910	30°39.0'	118°42.0'	1350	300°	3	overcast	moderate	16.00	33.41
100.80-H	20	0955	30°00.5'	120°04.0'	2250	330°	3	overcast	moderate	15.91	33.24
100.100-H	20	0055	29°22.0'	121°25.0'	2200	320°	4	overcast	moderate	17.41	33.47

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

Station	Date	Time GCT	Latitude North	Longitude West	Sounding (fm)	Wind		Weather	Sea	10 Meters	
						Dir	Force			T	S
103.35-H	V-18	1715	30°56.0'	116°43.0'	1020	calm		overcast	slight	16.12	33.40
103.45-H	18	2235	30°34.0'	117°26.0'	1150	calm		overcast	slight	15.87	33.43
103.50-H	20	0115	30°24.0'	117°47.0'	1450	220°	3	overcast	moderate	16.16	33.21
103.55-H	19	0305	30°16.0'	118°06.0'	1300	270°	4	overcast	moderate	16.87	-
103.70-H	19	1015	29°44.5'	119°08.0'	2000	320°	1	overcast	slight	16.01	33.24
103.90-H	19	1930	29°02.0'	120°26.5'	2175	360°	2	overcast	slight	16.92	33.38
107.32-H	18	1045	30°28.5'	116°15.0'	380	calm		overcast	calm	15.07	33.57
107.40-H	18	0530	30°11.0'	116°49.5'	1600	300°	1	overcast	slight	15.94	33.44
107.45-H	18	0310	30°02.0'	117°07.5'	1300	300°	4	overcast	moderate	15.70	33.44
107.55-H	17	2150	29°49.0'	117°48.0'	2050	320°	3	overcast	moderate	16.01	33.29
107.60-H	17	1935	29°37.0'	118°07.0'	1900	300°	4	overcast	moderate	16.02	33.30
107.80-H	17	1025	28°52.5'	119°23.0'	2300	320°	4	overcast	moderate	16.82	33.40
110.35-H	16	0135	29°46.0'	116°00.0'	635	320°	4	partly cloudy	moderate	16.10	33.40
110.45-H	16	0640	29°28.0'	116°39.0'	1250	320°	4	overcast	moderate	16.08	33.40
110.50-H	16	0855	29°18.5'	116°58.0'	1700	320°	4	overcast	moderate	16.60	33.40
110.55-H	16	1115	29°08.5'	117°17.0'	1950	320°	5	overcast	moderate	17.22	33.56
110.70-H	16	1915	28°35.5'	118°19.0'	2000	300°	5	partly cloudy	moderate	16.60	33.35
110.90-H	17	0420	27°56.5'	119°36.0'	2200	320°	4	cloudy	moderate	16.82	33.26
113.30-H	15	1935	29°26.0'	115°18.5'	37	220°	1	clear	slight	12.12	33.59

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

Station	Date	Time GCT	Latitude North	Longitude West	Sounding (fm)	Wind		Weather	Sea	10 Meters	
						Dir	Force			T	S
113.32 ⁵ -H	V-15	1805	29°21.0'	115°30.5'	60	320°	1	cloudy	slight	12.52	33.52
113.37 ⁵ -H	15	1500	29°12.5'	115°49.0'	1000	320°	2	overcast	slight	16.03	33.39
113.40-H	15	1340	29°06.5'	115°59.0'	1035	320°	4	overcast	slight	16.50	33.36
113.42 ⁵ -H	15	1215	29°01.0'	116°09.0'	850	320°	3	overcast	slight	16.53	33.36
113.45-H	15	1040	28°55.0'	116°19.0'	910	320°	2	overcast	slight	17.06	33.68
113.47 ⁵ -H	15	0915	28°50.0'	116°29.0'	1700	320°	2	overcast	slight	17.00	33.42
113.55-H	15	0425	28°33.5'	116°57.0'	1875	320°	3	overcast	slight	16.94	33.38
113.60-H	15	0205	28°23.0'	117°17.0'	2000	320°	1	overcast	slight	17.29	33.42
117.26-H	13	1115	28°51.5'	114°46.0'	50	320°	3	overcast	missing	14.70	33.50
117.28-H	13	1230	28°45.0'	114°57.0'	60	300°	5	overcast	slight	14.88	33.44
117.32 ⁵ -H	13	1430	28°38.0'	115°08.0'	90	300°	3	overcast	slight	14.56	33.46
117.35-H	13	1540	28°37.0'	115°17.0'	105	300°	4	overcast	slight	13.52	33.30
117.37 ⁵ -H	13	1655	28°33.0'	115°26.5'	150	300°	3	overcast	slight	14.78	33.28
117.42 ⁵ -H	14	0320	28°23.0'	115°45.5'	750	330°	3	overcast	moderate	16.30	33.22
117.45-H	14	0500	28°18.0'	115°55.5'	1700	300°	5	overcast	slight	16.28	33.22
117.47 ⁵ -H	14	0620	28°13.5'	116°05.5'	2500	300°	4	overcast	slight	16.18	33.25
117.50-H	14	0750	28°08.0'	116°15.0'	2300	300°	4	overcast	moderate	16.22	33.25
117.55-H	14	1010	27°58.0'	116°34.0'	2175	300°	3	cloudy	moderate	16.56	33.30
117.70-H	14	1655	27°25.5'	117°29.0'	2150	320°	1	overcast	slight	17.12	33.40

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

Station	Date	Time GCT	Latitude North	Longitude West	Sounding (fm)	Wind		Weather	Sea	10 Meters	
						Dir	Force			T	S
120.27 ⁵ -H	V-13	0515	28°18.5'	114°28.0'	50	320°	5	cloudy	moderate	15.73	33.49
120.30-H	13	0415	28°13.0'	114°36.5'	50	320°	4	cloudy	moderate	15.53a)	33.45
120.32 ⁵ -H	13	0250	28°07.5'	114°45.5'	50	320°	5	partly cloudy	moderate	15.94	33.46
120.37 ⁵ -H	12	2355	28°00.0'	115°01.0'	35	040°	3	partly cloudy	slight	16.14	33.47
120.40-H	12	2250	27°55.5'	115°15.0'	22	320°	5	cloudy	moderate	15.59	33.68
120.42 ⁵ -H	12	2050	27°55.0'	115°31.0'	90	320°	4	partly cloudy	moderate	17.21	33.67
120.45-H	12	1900	27°41.0'	115°45.0'	2400	320°	4	overcast	moderate	15.64	33.50
120.47 ⁵ -H	12	1730	27°36.5'	115°53.0'	2100	320°	4	overcast	moderate	16.09	33.46
120.55-H	12	1245	27°22.0'	116°17.5'	2100	330°	5	overcast	moderate	15.59	33.27
120.60-H	12	1025	27°12.5'	116°34.0'	2100	320°	5	overcast	moderate	16.60	33.33
120.80-H	12	0110	26°30.5'	117°47.0'	2150	320°	4	cloudy	moderate	16.98	33.37
123.37-H	10	1150	27°24.5'	114°40.5'	400	320°	4	clear	moderate	12.99	33.55
123.42 ⁵ -H	11	0040	27°13.5'	115°01.5'	1350	330°	5	partly cloudy	moderate	16.20	33.49
123.45-H	11	0140	27°08.5'	115°12.0'	2350	320°	5	partly cloudy	moderate	16.48	33.55
123.47 ⁵ -H	11	0320	27°03.5'	115°22.5'	2200	330°	5	partly cloudy	moderate	16.59	33.53
123.50-H	11	0450	26°58.0'	115°33.5'	2150	330°	6	cloudy	moderate	16.72	33.51
123.55-H	11	0710	26°49.0'	115°54.0'	2050	320°	6	overcast	rough	16.78	33.46

a) Alternate value, 15.97°C.

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

Station	Date	Time GCT	Latitude North	Longitude West	Sounding (fm)	Wind		Weather	Sea	10 Meters	
						Dir	Force			T	S
127.37-H	V-10	0509	26°45.0'	114°19.0'	1500	320°	5	clear	rough	16.52	33.42
127.40-H	10	0310	26°39.0'	114°29.5'	1750	330°	5	clear	rough	16.60	33.48
127.42 ⁵ -H	10	0155	26°35.5'	114°37.5'	2050	320°	5	clear	moderate	16.69	-
127.45-H	10	0035	26°31.0'	114°48.0'	2000	320°	5	partly cloudy	moderate	17.36	33.50
127.47 ⁵ -H	9	2255	26°27.5'	114°59.0'	2000	320°	5	overcast	moderate	17.10	33.43
127.55-H	9	1755	26°12.5'	115°26.0'	2050	320°	5	overcast	moderate	17.22	33.42
127.60-H	9	1535	26°02.5'	115°45.0'	2150	320°	4	overcast	moderate	17.69	33.78
130.35-H	8	2215	26°20.0'	113°48.5'	290	290°	5	clear	moderate	15.48	33.42
130.45-H	9	0345	25°58.5'	114°27.5'	2000	320°	4	partly cloudy	moderate	17.12	33.42
130.50-H	9	0555	25°49.0'	114°46.0'	3050	300°	5	cloudy	moderate	17.20	33.38
130.55-H	9	0815	25°39.0'	115°05.0'	2100	320°	5	cloudy	rough	17.12	33.37
133.25-H	8	1510	26°04.0'	112°48.5'	45	330°	2	partly cloudy	slight	15.78	33.53
133.35-H	8	0530	25°48.5'	113°29.0'	430	340°	4	partly cloudy	moderate	16.98a)	33.55
133.40-H	8	0355	25°40.5'	113°44.0'	1300	320°	4	partly cloudy	moderate	16.76	33.44
133.45-H	8	0016	25°25.0'	114°12.0'	1700	320°	4	cloudy	moderate	16.48b)	33.45
133.60-H	7	1720	24°55.5'	114°59.0'	2150	330°	4	overcast	moderate	16.62	33.40

a) Alternate value, 15.96°C.

b) Alternate value, 16.64°C.

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

Station	Date	Time GCT	Latitude North	Longitude West	Sounding (fm)	Wind		Weather	Sea	10 Meters	
						Dir	Force			T	S
137.30-H	V-6	2215	25°21.0'	112°47.5'	180	320°	4	partly cloudy	slight	16.91a)	33.68
137.35-H	7	0050	25°10.5'	113° ^{06.5} 07.0 '	720	320°	4	partly cloudy	moderate	17.69b)	33.76
137.45-H	7	0550	24°46.5'	113°41.0'	2000	320°	3	partly cloudy	moderate	17.31	33.70
137.50-H	7	0810	^{2A} 27 °38.0'	114°01.0'	1950	330°	4	partly cloudy	moderate	17.62	33.67

a) Alternate value, 16.17°C.

b) Alternate value, 17.20°C.

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

DISTRIBUTION LIST

Dr. E. H. Ahlstrom
Bureau of Commercial Fisheries
c/o Scripps Institution of Oceanography
La Jolla, California

Mr. William Anderson
Bureau of Commercial Fisheries
Brunswick, Georgia

Dr. Leo D. Berner
University of California
Scripps Institution of Oceanography
La Jolla, California

Dr. Edward Brinton
University of California
Scripps Institution of Oceanography
La Jolla, California

Dr. Wayne V. Burt
Assoc. Prof. of Oceanography
School of Science
Oregon State College
Corvallis, Oregon

Librarian (4)
Department of Fish and Game
California State Fisheries Laboratory
Terminal Island, California

Chief, Division of Fisheries
Commonwealth Scientific and Industrial
Research Organization
P. O. Box 21
Crunulla, N. S. W., Australia

Mr. R. S. Croker, Director
California Department of Fish and Game
Marine Fisheries Laboratory Branch
772 Capitol Avenue
Sacramento 14, California

Dr. Ernest R. Anderson
Code 2233
U. S. Navy Electronics Laboratory
San Diego 52, California

Mr. Thomas S. Austin
Bureau of Commercial Fisheries
Biological Laboratory
P. O. Box 3830
Honolulu 12, Hawaii

Dr. Rolf Bolin
Hopkins Marine Station
Pacific Grove, California

British Joint Services
(Navy Staff)
1910 K Street N. W.
Washington, D. C.

Mr. J. G. Burnette, Chairman
Marine Research Committee
P. O. Box 807
Los Altos, California

Mr. Ray Cannon
Ocean Fish Protective Association
645 N. Serrano Street
Los Angeles 4, California

Mr. Harold B. Clemens, Jr.
Marine Resources Operations
California State Fisheries Laboratory
Terminal Island, California

Herrn Professor Dr. A. Defant
Sternwartestrasse 38
Innsbruck
Austria

Chief
Division of Biological Research
U. S. Fish and Wildlife Service
Bureau of Commercial Fisheries
Washington 25, D. C.

Dr. Richard H. Fleming
University of Washington
Oceanographic Laboratories
Seattle 5, Washington

Dr. Paul M. Fye
Woods Hole Oceanographic Institution
Woods Hole, Massachusetts

Mr. John Hawk
c/o Seafarers' International Union of
North America
450 Harrison Street
San Francisco 5, California

Mr. T. Hirano
Tokai Regional Fisheries Research
Laboratory
Tsukishima
Tokyo, Japan

Mr. John D. Isaacs
Program Director, Marine Life Research
University of California
Scripps Institution of Oceanography
La Jolla, California

Japan Meteorological Agency
Oceanographical Section
Tokyo, Japan

Dr. H. Kitamura
Oceanographic Section
Kobe Marine Observatory
Kobe, Japan

Director of Research
Fish Commission of Oregon
Route 1, Box 31A
Clackamas, Oregon

Mr. Jeffery D. Frautschy
University of California
Scripps Institution of Oceanography
La Jolla, California

Hancock Library of Biology and
Oceanography
Allan Hancock Foundation
University of Southern California
Los Angeles 7, California

Dr. Robert W. Hiatt
University of Hawaii
Honolulu, Hawaii

Director
Instituto de Geofísica
Torre de Ciencias, 3er piso
Universidad Nacional Autónoma de
México
Villa Obregón, D. F.
México

Mr. Milton C. James
Pacific Marine Fishery Commission
340 State Office Building
1400 S. W. Fifth Avenue
Portland 1, Oregon

Dr. Martin W. Johnson
University of California
Scripps Institution of Oceanography
La Jolla, California

Mr. Hans T. Klein
University of California
Scripps Institution of Oceanography
La Jolla, California

Dr. E. Koto
Institute of Fisheries
Hokkaido University
Hakodate, Japan

Mr. Joseph Mardesich
Franco-Italian Packing Company
Fish Harbor Wharf
Terminal Island, California

Dr. J. L. McHugh
Virginia Fisheries Laboratory
Gloucester Point, Virginia

Mr. Arthur H. Mendonca
c/o R. E. Booth Company, Inc.
280 Battery Street
San Francisco 11, California

Mr. John V. Morris
French Sardine Company
582 Tuna Street
Terminal Island, California

Dr. A. W. H. Needler, Director
Pacific Biological Station
Nanaimo, B. C.
Canada

Dr. Robert M. Norris
Department of Physical Sciences
University of California
Santa Barbara Campus
Goleta, California

Pusan Fisheries College
Pusan
Korea

Chief of Naval Research
Office of Naval Research
Geophysics Branch
Washington 25, D. C.

Dr. E. C. La Fond
Code 2235
U. S. Navy Electronics Laboratory
San Diego 52, California

Mr. John C. Marr
Bureau of Commercial Fisheries
Biological Laboratory
P. O. Box 3830
Honolulu 12, Hawaii

Dr. H. J. McLellan
Atlantic Oceanographic Group
St. Andrews, New Brunswick
Canada

Dr. R. C. Miller, Director
California Academy of Science
Golden Gate Park
San Francisco 18, California

National Marine Consultants, Inc.
Administration Airport
Goleta, California
Attn: Dr. R. Kent

Mr. Kenneth S. Norris, Curator
Marineland of the Pacific
Portuguese Bend
Marineland, California

Director
Norwegian Polar Institute
Observatorieggt 1
Oslo, Norway

Dr. Yngve H. Olsen
Journal of Marine Research
Yale University
New Haven, Connecticut

Dr. E. L. Pickard
Institute of Oceanography
University of British Columbia
Vancouver, B. C.
Canada

Mr. Don Powell
Bureau of Commercial Fisheries
2725 Montlake Boulevard
Seattle 2, Washington

Mr. John Radovich
California Department of Fish and Game
California State Fisheries Laboratory
Terminal Island, California

Dr. Roger Revelle
University of California
Scripps Institution of Oceanography
La Jolla, California

Dr. Gordon A. Riley
Bingham Oceanographic Foundation
Yale University
New Haven, Connecticut

Mr. Gunnar I. Roden
University of California
Scripps Institution of Oceanography
La Jolla, California

Dr. M. B. Schaefer
Inter-American Tropical Tuna
Commission
c/o Scripps Institution of Oceanography
La Jolla, California

Dr. O. E. Sette, Chief
Bureau of Commercial Fisheries
Biological Laboratory
450-B Jordan Hall
Stanford, California

Mr. W. E. Stewart
c/o California State Chamber of
Commerce
350 Bush Street
San Francisco 4, California

Dr. D. W. Pritchard, Director
Chesapeake Bay Institute
The Johns Hopkins University
121 Maryland Hall
Baltimore 18, Maryland

Mr. Joseph L. Reid, Jr.
University of California
Scripps Institution of Oceanography
La Jolla, California

Mrs. Margaret K. Riedel
University of California
Scripps Institution of Oceanography
La Jolla, California

Mrs. Margaret K. Robinson
University of California
Scripps Institution of Oceanography
La Jolla, California

Mr. Don T. Saxby
California Division
California Packing Corporation
2600 Seventh Street
Berkeley 10, California

Mr. Richard A. Schwartzlose
University of California
Scripps Institution of Oceanography
La Jolla, California

Mr. D. Shoji
Japanese Hydrographic Office
Tsukiji
Tokyo, Japan

Mr. Henry M. Stommel
Woods Hole Oceanographic Institution
Woods Hole, Massachusetts

Miss Margaret Storey, Librarian
Natural History Museum
Stanford, California

Mr. Norman Tebble
Annelida Section
British Museum (Natural History)
Cromwell Road
London SW7, England

Dr. John P. Tully
Pacific Oceanographic Group
P. O. Drawer 6
Nanaimo, B. C.
Canada

Librarian
Bureau of Commercial Fisheries
Biological Laboratory
P. O. Box 3830
Honolulu 12, Hawaii

Library, Code 2400 (2)
U. S. Navy Electronics Laboratory
San Diego 52, California

Library (4)
University of California
Scripps Institution of Oceanography
La Jolla, California

University of California (2)
Serials Department
General Library
Berkeley 4, California

Librarian
University of Washington
Oceanographic Laboratories
Friday Harbor, Washington

Dr. Y. Takenouti
Oceanographical Section
Japan Meteorological Agency
Chuo-ku
Tokyo, Japan

Department of Oceanography
Texas A. and M. College
College Station, Texas

Dr. M. Uda
Tokyo University of Fisheries
Minato-ku
Tokyo, Japan

U. S. Hydrographic Office (2)
Navy Department
Washington 25, D. C.
Attn: Dr. John Lyman

University of California
Department of Zoology
Berkeley 4, California

Library
University of California
Scripps Institution of Oceanography
Scripps Field Annex
La Jolla, California

Director
University of Miami
Marine Laboratory
Coral Gables, Florida

Librarian (2)
University of Washington
Oceanographic Laboratories
Seattle 5, Washington

Director
University of Washington
School of Fisheries
Seattle 4, Washington

Mr. Richard C. Vetter
Secretary to the Committee
on Oceanography
National Academy of Sciences
2101 Constitution Avenue
Washington 25, D. C.

Dr. Boyd W. Walker
University of California
Department of Zoology
Los Angeles 24, California

Dr. Warren S. Wooster
University of California
Scripps Institution of Oceanography
La Jolla, California

Dr. Kozo Yoshida
Geophysical Institute
Tokyo University
Bunkyo-ku
Tokyo, Japan

Mr. Gilbert C. Van Camp, Sr.
772 Tuna Street
Terminal Island, California

Dr. Lionel A. Walford, Chief
Atlantic Fishery Oceanographic
Research Center
Bureau of Commercial Fisheries
734 Jackson Place, N. W.
Washington 25, D. C.

Mr. William E. Warne
California Department of Fish and Game
926 J Street
Sacramento 14, California

Mr. Charles G. Worrall (20)
University of California
Scripps Institution of Oceanography
La Jolla, California