CORRECTIONS MADE:

STATION POSITIONS ~~HP~~

UNIVERSITY OF CALIFORNIA SCRIPPS INSTITUTION OF OCEANOGRAPHY

data report

PHYSICAL AND CHEMICAL DATA

CCOFI CRUISE 5709 (MLR 100)
4-21 September 1957

CCOFI CRUISE 5710 (MLR 101)
4 October - 8 November 1957

CCOFI CRUISE 5711 (MLR 102)
16-25 November 1957

CCOFI CRUISE 5712 (MLR 103)
12-20 December 1957

SIO Reference 58-64
15 September 1958

ERRATA

PHYSICAL AND CHEMICAL DATA

CCOFI Cruises 5701 and 5702
SIO Reference 58-22

CCOFI Cruises 5703 and 5704
SIO Reference 58-24

CCOFI Cruises 5705 and 5706
SIO Reference 58-33

CCOFI Cruises 5707 and 5708
SIO Reference 58-63

Please replace the last sentence of the second paragraph of the INTRODUCTION with the following:

"The presentation of data in this report does not constitute publication; however, the data contained in this report have been carefully edited and no modification should be necessary before final publication."

UNIVERSITY OF CALIFORNIA

SCRIPPS INSTITUTION OF OCEANOGRAPHY

PHYSICAL AND CHEMICAL DATA

CCOFI CRUISE 5709
(MLR 100)
4-21 September 1957

CCOFI CRUISE 5710
(MLR 101)
4 October - 8 November 1957

CCOFI CRUISE 5711
(MLR 102)
16-25 November 1957

CCOFI CRUISE 5712
(MLR 103)
12-20 December 1957

Sponsored by

Marine Research Committee

SIO Reference 58-64
15 September 1958

Approved for distribution:

Roger Revelle

Roger Revelle, Director

CONTENTS

CRUISE 5711

CRUISE 5712

INTRODUCTION

The data presented in this report were collected on Cruises 100, 101, 102 and 103 of the California Cooperative Oceanic Fisheries Investigations. The R/V Black Douglas of the U. S. Fish and Wildlife Service and the R/V Stranger of the Scripps Institution of Oceanography participated in Cruise 100; the R/V Stranger and R/V Paolina-T of the Scripps Institution, in Cruise 101; the R/V Orca of the Scripps Institution, in Cruise 102; the R/V Paolina-T and R/V Stranger, in Cruise 103.

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 modification should be necessary before final publication.

The stations occupied in the Gulf of California are based on a special grid; therefore, they will appear in each report following the data obtained in the normal station pattern. In each group stations are listed in numerical order. The designation "G" in the station number is used to denote Gulf of California stations.

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

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1/ Klein, Hans T. A new technique for processing physical oceanographic data. (MS). Contribution from the Scripps Institution of Oceanography, New Series, No. 000.

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 of casts. A line is left blank between the observed data of each cast.

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 1957 volume, the first page of Cruise 5709 is numbered 251; Cruise 5710, 260; Cruise 5711, 301; Cruise 5712, 307.

FIGURES

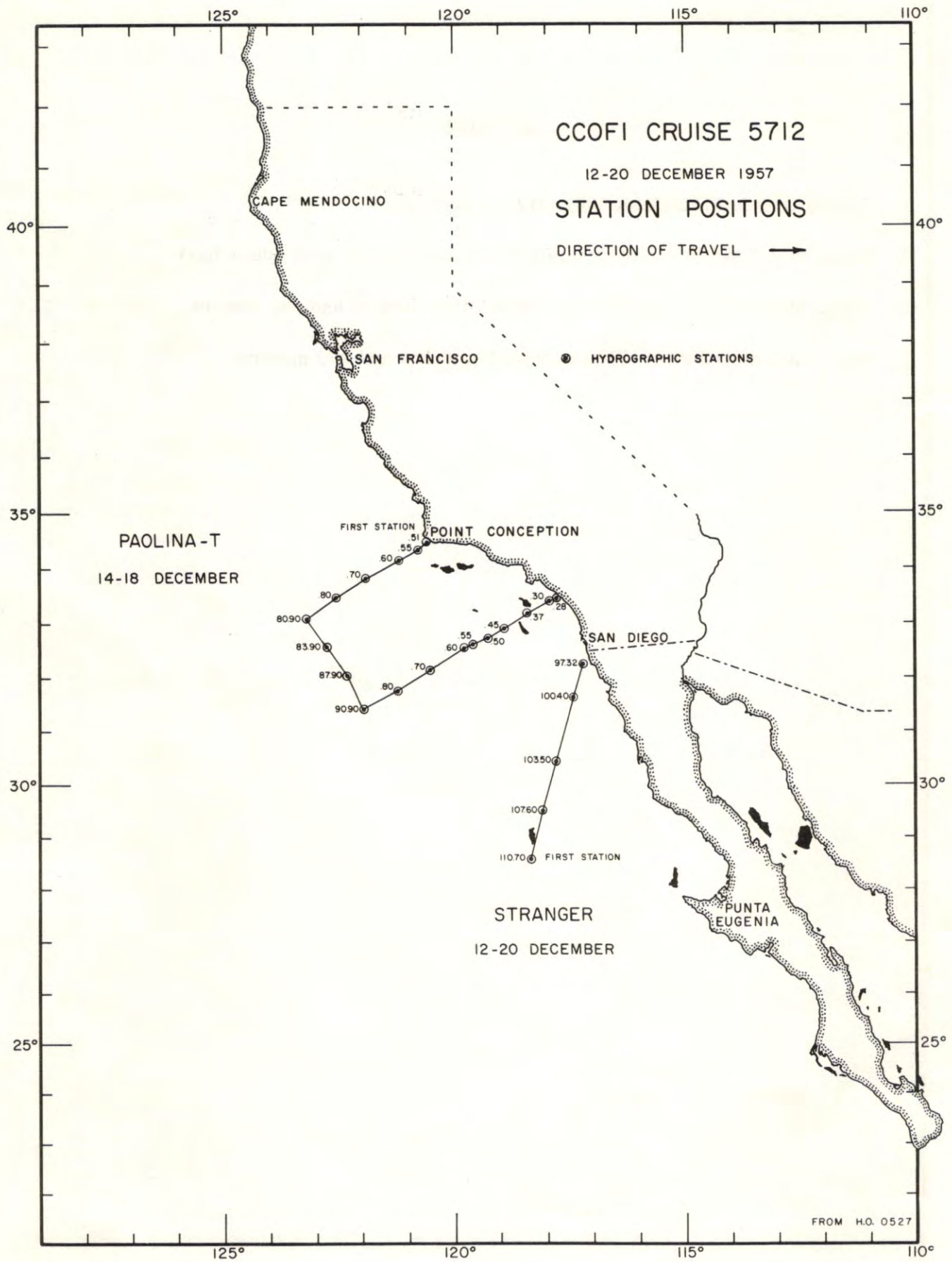
CCOFI CRUISE 5712
12-20 DECEMBER 1957
STATION POSITIONS
DIRECTION OF TRAVEL
HYDROGRAPHIC STATIONS
CAPE MENDOCINO
SAN FRANCISCO
POINT CONCEPTION
SAN DIEGO
PUNTA EUGENIA
PAOLINA-T
14-18 DECEMBER
FIRST STATION
STRANGER
12-20 DECEMBER
FIRST STATION
FROM H.O. 0527
125°
120°
115°
110°
40°
35°
30°
25°

FIGURE 1

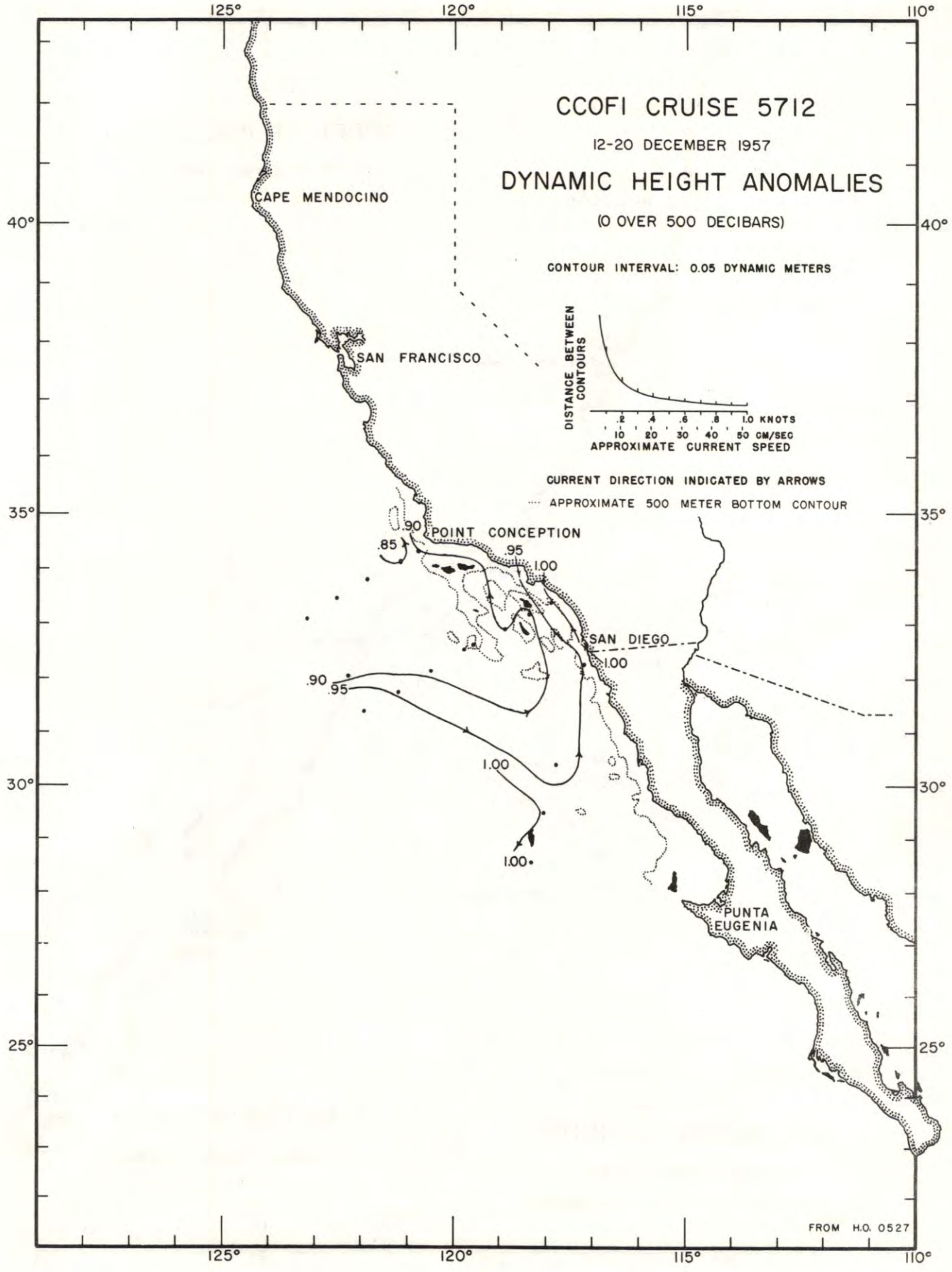
CCOFI CRUISE 5712
12-20 DECEMBER 1957
DYNAMIC HEIGHT ANOMALIES
(0 OVER 500 DECIBARS)
CONTOUR INTERVAL: 0.05 DYNAMIC METERS
DISTANCE BETWEEN CONTOURS
.2 .4 .6 .8 1.0 KNOTS
10 20 30 40 50 CM/SEC
APPROXIMATE CURRENT SPEED
CURRENT DIRECTION INDICATED BY ARROWS
APPROXIMATE 500 METER BOTTOM CONTOUR
CAPE MENDOCINO
SAN FRANCISCO
POINT CONCEPTION
SAN DIEGO
PUNTA EUGENIA
.85
.90
.95
1.00
FROM H.O. 0527
125°
120°
115°
110°
40°
35°
30°
25°

FIGURE 2

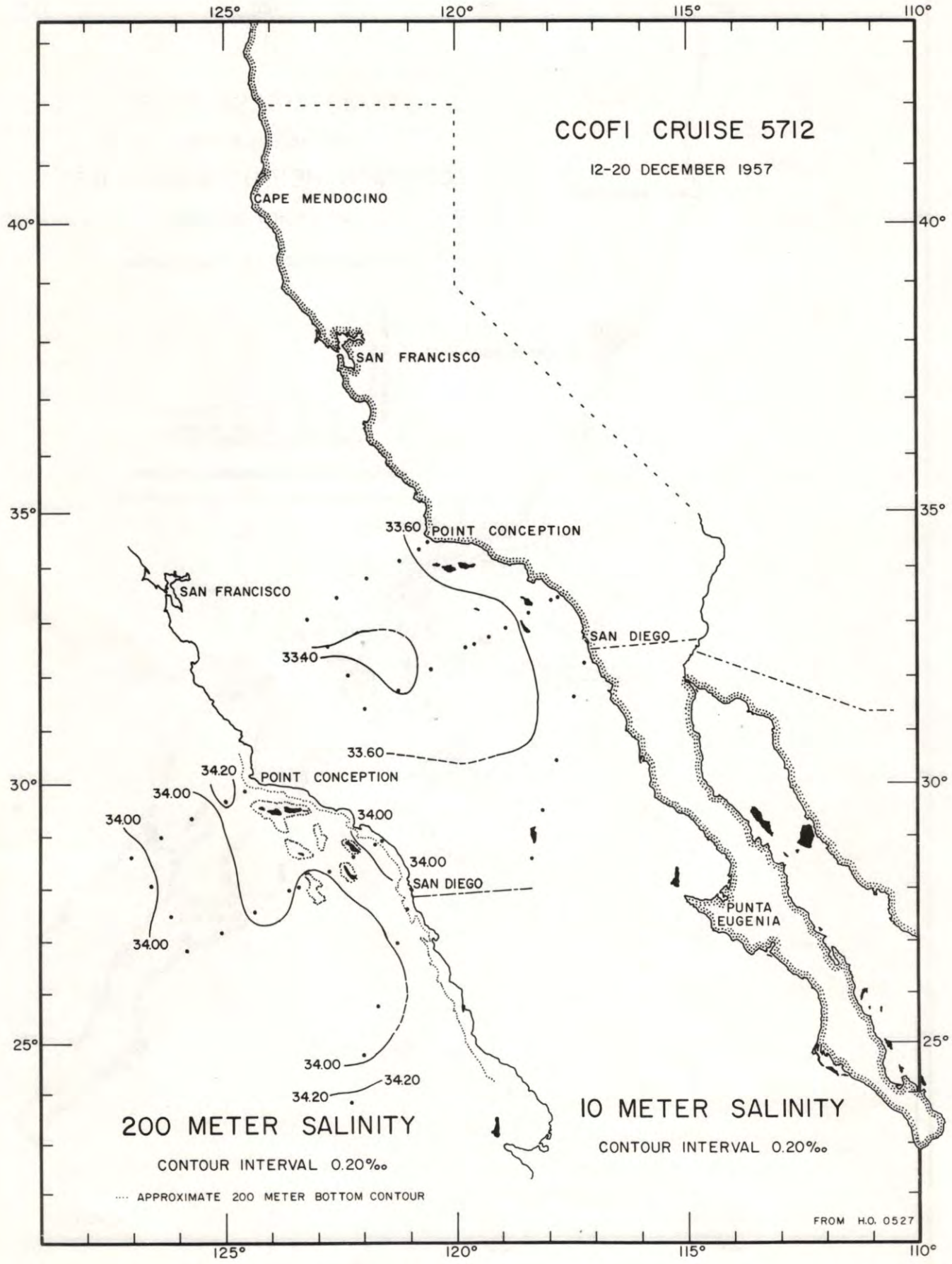
CCOFI CRUISE 5712
12-20 DECEMBER 1957
CAPE MENDOCINO
SAN FRANCISCO
POINT CONCEPTION
SAN DIEGO
PUNTA EUGENIA
125°
120°
115°
110°
40°
35°
30°
25°
33.60
33.40
34.20
34.00
200 METER SALINITY
CONTOUR INTERVAL 0.20‰
APPROXIMATE 200 METER BOTTOM CONTOUR
10 METER SALINITY
CONTOUR INTERVAL 0.20‰
FROM H.O. 0527

FIGURE 3

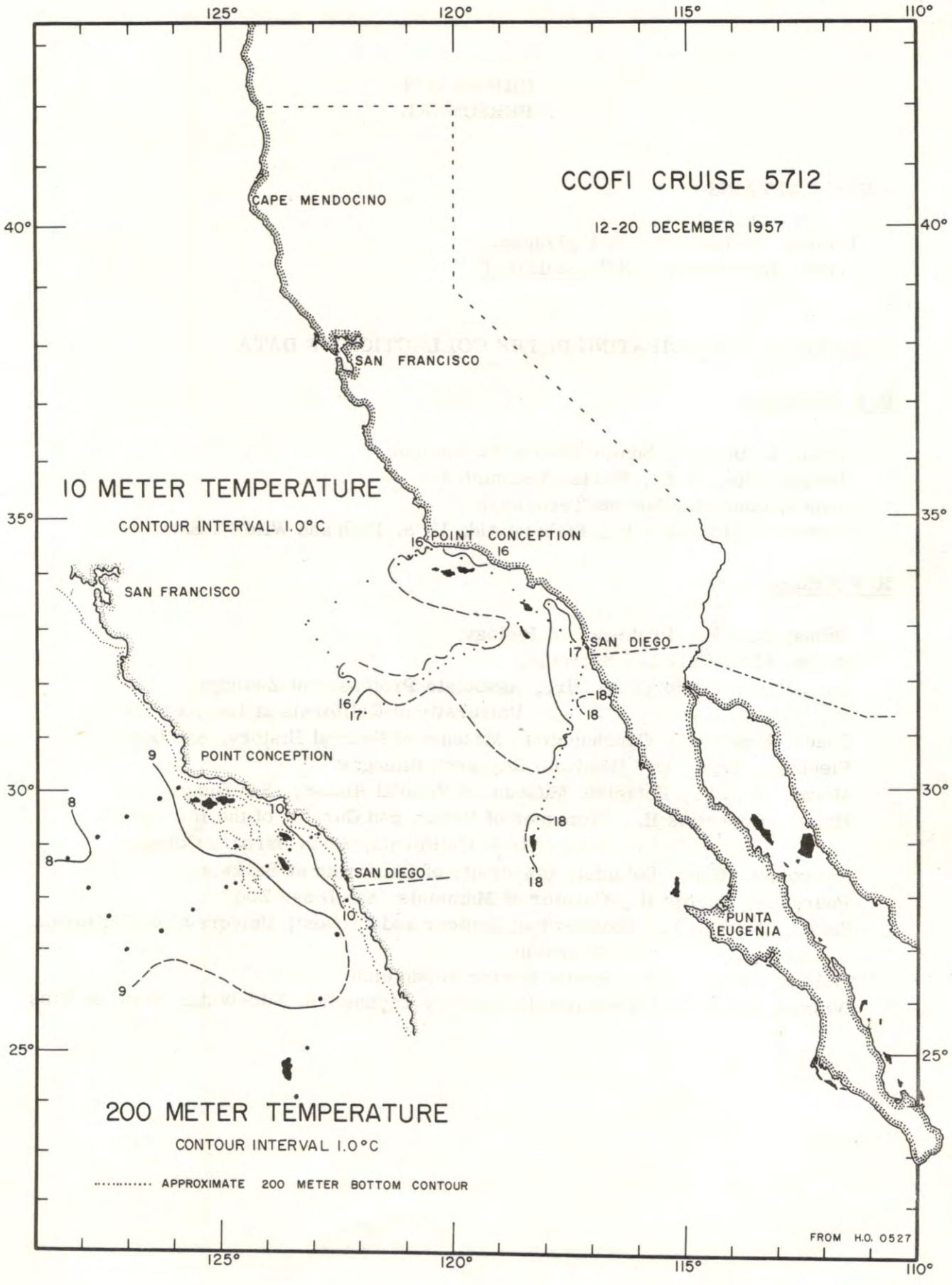
CCOFI CRUISE 5712
12-20 DECEMBER 1957
CAPE MENDOCINO
SAN FRANCISCO
10 METER TEMPERATURE
CONTOUR INTERVAL 1.0°C
POINT CONCEPTION
SAN DIEGO
PUNTA EUGENIA
200 METER TEMPERATURE
CONTOUR INTERVAL 1.0°C
APPROXIMATE 200 METER BOTTOM CONTOUR
FROM H.O. 0527
125°
120°
115°
110°
40°
35°
30°
25°

FIGURE 4

CRUISE 5712
PERSONNEL

SHIPS' CAPTAINS

Colbeth, Clifford W., R/V Stranger
Davis, Laurence E., R/V Paolina-T

PERSONNEL PARTICIPATING IN THE COLLECTION OF DATA

R/V Paolina-T

Reith, A. Dougall, Senior Marine Technician
Brennan, Robert E., Marine Technician
Jaynes, John M., Marine Technician
Vorobiov, Alexander V., Fishery Aid, U. S. Fish and Wildlife Service

R/V Stranger

Hubbs, Carl L., Professor of Biology
Hubbs, Mrs. Carl L., Secretary
Bartholomew, George A., Jr., Associate Professor of Zoology, University of California at Los Angeles
Chace, Emery P., Conchologist, Museum of Natural History, San Diego
Flechsig, Arthur O., Graduate Research Biologist
Moran, Reid V., Botanist, Museum of Natural History, San Diego
Muller, Cornelius H., Professor of Botany and Curator of the Herbarium, University of California, Santa Barbara College
Newcombe, Gene, Botanist, University of California at Berkeley
Pournelle, George H., Curator of Mammals, San Diego Zoo
Spieth, Herman T., Professor of Zoology and Provost, University of California at Riverside
Stover, Allan J., Jr., Senior Marine Technician
Wisner, Robert L., Principal Laboratory Technician, Mid-Water Trawl Studies

OBSERVED				INTERPOLATED				COMPUTED		
Z	T	S	O_2	Z	T	S	O_2	σ_t	δ_{T_3}	ΔD
m	°C	‰	ml/L	m	°C	‰	ml/L	g/L	10^{-5} cm/g	dyn. m

PAOLINA-T; December 15, 1957; 0017 GCT; 34°26.5'N, 120°32.5'W; sounding, 49 fm; wind, 100°, force 4; weather, overcast; sea, moderate; wire angle, 17°. 80.51

0	16.50	33.68		0	16.50	33.68		24.64	331	0.00
10	16.48	33.69		10	16.48	33.69		24.65	330	0.03
28	16.08	33.64		20	16.28	33.67		24.68	327	0.07
47	-	33.60		30	16.07	33.63		24.70	325	0.10
71	14.94	33.58		50	15.86	33.59		24.72	323	0.16

PAOLINA-T; December 15, 1957; 0304 GCT; 34°19'N, 120°48'W; sounding, 420 fm; wind, 100°, force 4; weather, overcast; sea, rough; wire angle, 21°. 80.55

0	16.16	33.66	5.33	0	16.16	33.66	5.33	24.70	325	0.00
9	16.17	33.66[a]	5.44	10	16.17	33.66	5.44	24.70	325	0.03
32	14.66	33.52	5.29	20	16.13	33.65	5.42	24.71	324	0.06
41	13.66	33.51	4.84	30	14.90	33.54	5.34	24.88	308	0.10
55	12.25	33.56	4.13	50	12.50	33.55	4.27	25.39	260	0.15
66	11.99	33.58	3.54	75	11.66	33.62	3.60	25.60	240	0.22
74	11.70	33.62	3.60	100	11.06	33.65	3.32	25.73	227	0.28
92	11.27	33.61	3.50	150	10.18	33.84	2.84	26.03	199	0.38
109	10.84	33.75	2.98	200	9.42	34.03	2.06	26.32	172	0.48
121	10.71	33.77	2.79	250	9.01	34.15	1.65	26.47	157	0.56
142	10.34	33.81	2.88	300	8.40	34.19	1.46	26.60	145	0.64
176	9.79	33.94	2.39	400	6.99	34.20	1.04	26.81	125	0.78
209	9.26	34.08	1.92	500	6.10	34.23	0.62	26.96	111	0.90
259	8.96	34.17	1.59							
334	7.90	34.20	1.37							
432	6.61	34.20	0.90							
568	5.75	34.28	0.44							

PAOLINA-T; December 15, 1957; 0710 GCT; 34°09'N, 121°09'W; sounding, 1150 fm; wind, 100°, force 5; weather, rain; sea, rough; wire angle, 23°. 80.60

0	15.50	33.46		0	15.50	33.46		24.70	326	0.00
8	15.52	33.51		10	15.52	33.51		24.73	322	0.03
31	14.66	33.46		20	15.30	33.50		24.77	318	0.06
39	14.26	33.48		30	14.71	33.46		24.87	309	0.10
52	13.19	33.41		50	13.39	33.42		25.12	286	0.16
61	12.00	33.37		75	10.90	33.39		25.56	243	0.22
69	11.02	33.37		100	10.42	33.65		25.85	216	0.28
86	10.70	33.51		150	9.53	33.95		26.23	180	0.38
103	10.27	33.68		200	8.88	34.21		26.54	151	0.46
114	9.66	33.69[a]		250	8.10	34.20		26.66	139	0.54
136	9.56	33.86		300	7.55	34.22		26.75	131	0.61
171	9.14	34.05		400	6.82	34.26		26.88	118	0.74
204	8.85	34.22		500	6.13	34.30		27.01	106	0.85
254	8.02	34.20								
334	7.32	34.23								
436	6.58	34.27								
575	5.60	34.34								

a) Possible evaporation; value falls on property curve.

SIO

CCOFI
5712

OBSERVED				INTERPOLATED				COMPUTED		
Z	T	S	O_2	Z	T	S	O_2	σ_t	δ_{T_3}	ΔD
m	°C	‰	ml/L	m	°C	‰	ml/L	g/L	10^5cm/g	dyn. m

80.70 PAOLINA-T; December 15, 1957; 1638 GCT; 33°50'N, 121°51'W; sounding, 2000 fm; wind, 180°, force 6; weather, overcast; sea, very rough; wire angle, 15°.

0	15.32	33.49	5.80	0	15.32	33.49	5.80	24.76	320	0.00
9	15.30	33.48	5.90	10	15.30	33.48	5.88	24.76	320	0.03
34	15.30	33.49	5.73	20	15.30	33.48	5.79	24.77	319	0.06
64	12.38	33.35[a]	5.27	30	15.30	33.49	5.74	24.77	319	0.10
72	11.40	33.33	5.03	50	15.25	33.49	5.64	24.78	318	0.16
86	10.46	33.36	4.67	75	11.26	33.33	4.98	25.45	254	0.23
94	9.80	33.48	4.32	100	9.67	33.49	4.20	25.85	216	0.29
111	9.44	33.51	4.05	150	8.84	33.81	3.09	26.23	180	0.39
125	9.05	33.70	3.62	200	8.21	33.95	2.74	26.44	160	0.48
144	8.94	33.79[a]	3.23	250	7.63	34.04	2.15	26.60	145	0.55
166	8.60	33.87	2.88	300	7.17	34.12	1.44	26.73	133	0.62
194	8.26	33.95	2.75	400	6.42	34.22	0.83	26.90	116	0.75
276	7.35	34.09	1.70	500	5.50	34.24	0.58	27.04	103	0.87
337[b]	6.90	34.16	1.05	600	4.92	34.20	0.53	27.07	100	0.98
465	5.76	34.25	0.61							
607	4.92	34.20	0.53							

80.80 PAOLINA-T; December 15, 1957; 2258 GCT; 33°29'N, 122°31.5'W; sounding, 2100 fm; wind, 220°, force 2; weather, cloudy; sea, high; wire angle, 03°.

0	15.94	33.44	0	15.94	33.44		24.58	336	0.00
10	15.82	33.45	10	15.82	33.45		24.62	333	0.03
30	15.62	33.45	20	15.72	33.45		24.64	331	0.07
60	13.95	33.44	30	15.62	33.45		24.66	329	0.10
70	13.22	33.39	50	15.03	33.45		24.78	317	0.16
80	12.08	33.40	75	12.66	33.39		25.24	274	0.24
94	10.82	33.43	100	10.31	33.47		25.73	227	0.30
109	9.70	33.55	150	8.92	33.83		26.24	179	0.40
123	9.26	33.67	200	8.23	33.99		26.47	157	0.49
144	9.04	33.80	250	7.41	34.05		26.64	141	0.57
163	8.68	33.86	300	6.75	34.10		26.77	129	0.64
190	8.36	33.97	400	6.19	34.23		26.95	112	0.76
216	8.07	34.03	500	5.88	34.27		27.02	105	0.87
267	7.08	34.06[a]	600	(5.25)	(34.31)		(27.12)	(95)	(0.98)
347	6.40	34.16							
453	6.08	34.25							
591	5.34	34.31							

80.90 PAOLINA-T; December 16, 1957; 0625 GCT; 33°05.5'N, 123°10'W; sounding, 2000+ fm; wind, 240°, force 2; weather, clear; sea, moderate; wire angle, 05°.

0	15.73	33.43	5.19	0	15.73	33.43	5.19	24.62	333	0.00
11	15.64	33.44[c]	6.08	10	15.65	33.44	6.08	24.65	330	0.03
31	15.46	33.43	5.07	20	15.59	33.44	5.90	24.66	329	0.07
61	14.20	33.41	5.42	30	15.48	33.43	5.10	24.68	327	0.10
70	12.22	33.34	4.47	50	15.09	33.41	5.15	24.75	320	0.16
80	11.45	33.38[d]	-	75	11.82	33.33	4.47	25.35	264	0.24
95	10.56	33.33	4.65	100	10.30	33.34	4.50	25.63	237	0.30
108	9.96	33.36	3.82	150	8.77	33.81	2.81	26.25	178	0.41
123	9.51	33.54	3.80	200	7.98	34.03	2.17	26.54	151	0.49
141	8.94	33.71	3.24	250	7.35	34.06	1.63	26.66	139	0.56
160	8.63	33.87	2.55	300	6.83	34.09	1.36	26.75	131	0.63
188	8.16	34.01	2.32	400	5.97	34.17	0.85	26.93	113	0.76
210	7.80	34.04	1.98	500	5.39	34.25	0.47	27.06	101	0.87
262	7.22	34.07	1.53	600	(5.08)	(34.30)		(27.13)	(94)	(0.98)
341	6.42	34.12	1.18							
446	5.63	34.21	0.63							
581	5.11	34.29	0.32							

a) Possible evaporation; value falls on property curve.
b) Depth uncertain, possible pretrip; alternate depth, 358 meters.
c) Loose bottle cap; value falls on property curve.
d) Loose bottle cap; value does not fall on property curve.

OBSERVED				INTERPOLATED				COMPUTED		
Z	T	S	O_2	Z	T	S	O_2	σ_t	δ_T	ΔD
m	°C	‰	ml/L	m	°C	‰	ml/L	g/L	10^{-5} cm^3/g	dyn. m

PAOLINA-T; December 16, 1957; 1252 GCT; 32°34.5'N, 122°44'W; sounding, 2250 fm; wind, 180°, force 3; weather, rain; sea, rough; wire angle, 10°. 83.90

0	15.94	33.39	5.70	0	15.94	33.39	5.70	24.55	340	0.00
10	15.92	33.40	5.45	10	15.92	33.40	5.45	24.56	339	0.03
29	15.52	33.42	4.98	20	15.74	33.41	5.07	24.61	334	0.07
45	15.22	33.46	5.40	30	15.50	33.43	5.02	24.67	328	0.10
54	15.02	33.48	5.94	50	15.12	33.47	5.80	24.79	317	0.16
64	13.71	33.40	5.02	75	11.42	33.33	5.04	25.42	256	0.24
73	11.77	33.33	5.12	100	9.49	33.53	3.74	25.91	211	0.30
92	9.86	33.39	4.15	150	8.59	33.90	2.41	26.35	168	0.39
106	9.29	33.61	3.47	200	8.12	34.03	1.97	26.51	153	0.47
120	8.90	33.68	3.42	250	7.33	34.06	1.88	26.65	140	0.55
143	8.63	33.87	2.51	300	6.66	34.09	1.76	26.77	128	0.62
170	8.38	33.95	2.22	400	6.13	34.25	1.11	26.97	110	0.74
209	8.02	34.04	1.92	500	5.88		1.00			
259	7.17	34.06	1.88							
339	6.29	34.14	1.23							
438	6.08	34.26	1.09							
577	5.34	34.21u	0.88							

PAOLINA-T; December 16, 1957; 1913 GCT; 32°02'N, 122°16.5'W; sounding, 2200 fm; wind, 200°, force 3; weather, rain; sea, very rough; wire angle, 02°. 87.90

1	16.20	33.41	5.83	0	(16.20)	(33.41)	(5.84)	(24.50)	(344)	(0.00)
10	16.11	33.42	5.76	10	16.11	33.42	5.76	24.53	341	0.03
29	15.72	33.45	5.92	20	15.95	33.43	5.83	24.58	337	0.07
60	14.31	33.40	5.76	30	15.71	33.45	5.92	24.64	331	0.10
70	13.01	33.39	5.74	50	15.37	33.44	5.92	24.72	324	0.17
81	11.45	33.38	5.13	75	12.31	33.38	5.49	25.30	269	0.24
95	10.50	33.40	5.15	100	10.22	33.42	5.00	25.70	230	0.30
109	9.72	33.47	4.33	150	8.95	33.79	3.57	26.19	183	0.41
124	9.20	33.58	3.95	200	8.12	33.97	2.75	26.47	157	0.49
143	9.12	33.73	3.66	250	7.60	34.03	2.34	26.60	145	0.57
162	8.60	33.84	3.42	300	7.14	34.09	1.74	26.69	136	0.64
191	8.24	33.96	2.85	400	6.48	34.22	0.79	26.90	116	0.78
214	7.96	33.99	2.62	500	5.78	34.28	0.42	27.04	103	0.89
266	7.36	34.08	2.06	600	(5.24)	(34.32)	(0.31)	(27.13)	(94)	(0.99)
356	6.80	34.18	1.11							
453	6.05	34.25	0.50							
591	5.26	34.32	0.32							

PAOLINA-T; December 18, 1957; 1712 GCT; 33°28.5'N, 117°46.5'W; sounding, 165 fm; wind, 340°, force 3; weather, clear; sea, rough; wire angle, 04°. 90.28

0	16.60	33.66	5.77	0	16.60	33.66	5.77	24.60	335	0.00
10	16.70	33.67	5.74	10	16.70	33.67	5.74	24.59	336	0.03
30	16.57	33.70[a)]	5.74	20	16.65	33.69	5.74	24.61	334	0.07
51	16.38	33.68	5.59	30	16.57	33.70	5.74	24.64	331	0.10
74	15.99	33.67	5.49	50	16.38	33.68	5.59	24.67	328	0.17
98	15.73	33.65	5.33	75	15.95	33.67	5.48	24.76	320	0.25
122	14.00	33.59	4.78	100	15.70	33.65	5.30	24.80	316	0.33
162	11.40	33.73	3.31	150	12.18	33.68	3.84	25.55	244	0.47
200	10.32	33.85	2.79	200	10.32	33.85	2.79	26.02	200	0.58
249	9.46	34.10	1.98	250	(9.43)	(34.10)	(1.96)	(26.37)	(167)	(0.68)

a) Possible evaporation; value falls on property curve.

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OBSERVED				INTERPOLATED				COMPUTED		
Z m	T °C	S ‰	O_2 ml/L	Z m	T °C	S ‰	O_2 ml/L	σ_t g/L	δ_T 10^{-5} cm^3/g	ΔD dyn. m
90.30	PAOLINA-T; December 18, 1957; 1501 GCT; 33°24.5'N, 117°55'W; sounding, 340 fm; wind, 300°, force 3; weather, partly cloudy; sea, rough; wire angle, 04°.									
0	17.20	33.71	5.60	0	17.20	33.71	5.60	24.50	344	0.00
10	17.20	33.69	5.66	10	17.20	33.69	5.66	24.48	346	0.03
30	17.20	33.70	5.68	20	17.20	33.70	5.67	24.49	345	0.07
60	15.67	33.66	5.40	30	17.20	33.70	5.68	24.49	345	0.10
70	14.77	33.65	4.94	50	17.02	33.70	5.68	24.53	341	0.17
79	14.35	33.62	4.81	75	14.53	33.63	4.86	25.04	293	0.25
94	13.72	33.64	4.48	100	13.50	33.64	4.39	25.26	272	0.32
108	13.18	33.63	4.29	150	11.99	33.68	3.76	25.59	241	0.45
123	12.93	33.64[a]	4.06	200	10.13	33.97	2.63	26.14	188	0.56
142	12.41	33.69	3.75	250	9.32	34.16	2.00	26.43	161	0.65
160	11.15	33.65	3.82	300	8.71	34.23	1.56	26.58	146	0.73
188	10.38	33.89	2.87	400	7.69	34.27	0.93	26.77	128	0.88
212	9.89	34.04	2.35	500	6.82	34.32	0.53	26.93	113	1.00
262	9.18	34.19	1.86	600	(5.99)	(34.37)		(27.08)	(99)	(1.12)
343	8.23	34.25	1.22							
446	7.28	34.29	0.73							
583	6.16	34.36	0.29							
90.37	PAOLINA-T; December 18, 1957; 1025 GCT; 33°11'N, 118°23.5'W; sounding, 640 fm; wind, 300°, force 4; weather, clear; sea, very rough; wire angle, 03°.									
0	16.34	33.67	5.81	0	16.34	33.67	5.81	24.67	328	0.00
10	16.36	33.65	5.88	10	16.36	33.65	5.88	24.65	330	0.03
30	16.18	33.64	5.79	20	16.30	33.65	5.85	24.66	329	0.06
46	15.29	33.57	5.65	30	16.18	33.64	5.79	24.69	327	0.10
56	13.50	33.53	5.17	50	14.48	33.54	5.61	24.98	298	0.16
65	12.58	33.49	5.09	75	12.12	33.48	4.97	25.40	258	0.23
74	12.18	33.48	5.00	100	11.09	33.71	3.66	25.78	223	0.29
95	11.22	33.68[a]	3.77	150	10.01	33.96	2.62	26.15	187	0.40
109	10.88	33.72	3.51	200	9.23	34.11	2.03	26.40	164	0.49
124	10.25	33.71	3.46	250	8.68	34.21	1.63	26.57	148	0.57
147	10.06	33.94	2.69	300	8.21	34.25	1.32	26.68	137	0.64
177	9.49	34.04	2.30	400	7.53	34.30	0.88	26.82	124	0.78
214	9.15	34.16	1.90	500	6.75	34.33	0.63	26.96	111	0.90
266	8.47	34.22	1.52	600	(5.90)	(34.40)		(27.11)	(96)	(1.01)
348	7.92	34.29	1.06							
449	7.15	34.31	0.73							
589	6.00	34.39	0.52							
90.45	PAOLINA-T; December 18, 1957; 0528 GCT; 32°54.5'N, 118°56'W; sounding, 950 fm; wind, 330°, force 3; weather, clear; sea, high; wire angle, 10°.									
0	15.92	33.57	5.47	0	15.92	33.57	5.47	24.69	326	0.00
10	15.94	33.56	5.68	10	15.94	33.56	5.68	24.67	328	0.03
31	15.16	33.51	5.56	20	15.94	33.56	5.67	24.68	327	0.06
45	13.50	33.48	5.20	30	15.25	33.52	5.56	24.80	316	0.10
54	12.66	33.46	5.04	50	13.03	33.47	5.11	25.22	276	0.16
64	12.20	33.46[a]	4.79	75	11.54	33.45	4.57	25.49	250	0.22
73	11.65	33.44	4.60	100	10.81	33.60	3.92	25.74	226	0.28
93	11.10	33.55	4.12	150	9.70	33.85	3.12	26.13	189	0.39
107	10.48	33.65	3.67	200	9.42	34.09	2.45	26.36	168	0.48
121	10.16	33.78	3.08	250	8.77	34.21	1.57	26.56	149	0.56
144	9.76	33.83	3.14	300	8.26	34.24	1.23	26.66	139	0.63
172	9.65	33.95	2.79	400	7.43	34.25	1.06	26.79	127	0.77
209	9.32	34.11	2.31	500	6.64	34.27	0.87	26.92	115	0.90
260	8.65	34.22	1.48	600	(5.95)	(34.36)		(27.08)	(99)	(1.01)
340	7.95	34.25	1.11							
441	7.10	34.25[a]	1.03							
580	6.08	34.34[a]	0.56							

a) Possible evaporation; value falls on property curve.

OBSERVED				INTERPOLATED				COMPUTED		
Z m	T °C	S ‰	O_2 ml/L	Z m	T °C	S ‰	O_2 ml/L	σ_t g/L	δ_T 10^{-5} cm^3/g	ΔD dyn. m

PAOLINA-T; December 18, 1957; 0224 GCT; 32°44.5'N, 119°16.5'W; sounding, 65 fm; wind, 300°, force 3; weather, cloudy; sea, very high; wire angle, 03°. 90.50

0	16.03	33.51	5.77	0	16.03	33.51	5.77	24.62	333	0.00
10	16.04	33.48	5.44	10	16.04	33.48	5.44	24.59	336	0.03
30	14.62	33.42	5.75	20	16.02	33.47	5.44	24.60	335	0.07
50	12.75	33.44	4.85	30	14.62	33.42	5.75	24.85	311	0.10
75	11.35	33.63	4.47	50	12.75	33.44	4.85	25.26	272	0.16
100	10.40	33.67	3.44	75	11.35	33.63	4.47	25.67	233	0.22
				100	10.40	33.67	3.44	25.87	214	0.28

PAOLINA-T; December 17, 1957; 2322 GCT; 32°36'N, 119°34.5'W; sounding, 390 fm; wind, 300°, force 3; weather, partly cloudy; sea, high; wire angle, 03°. 90.55

0	16.26	33.47	5.90	0	16.26	33.47	5.90	24.53	241	0.00
10	16.27	33.47	5.88	10	16.27	33.47	5.88	24.52	342	0.03
30	16.00	33.51	5.89	20	16.15	33.50	5.88	24.58	337	0.07
45	14.66	33.38	6.00	30	16.00	33.51	5.89	24.62	332	0.10
55	13.50	33.38	5.76	50	14.09	33.38	5.89	24.94	303	0.16
65	11.76	33.33	5.55	75	11.18	33.35	5.29	25.48	251	0.23
76	11.13	33.35	5.26	100	10.32	33.52	4.38	25.76	224	0.29
96	10.42	33.49	4.53	150	9.20	33.84	2.99	26.20	183	0.40
109	10.06	33.60	4.04	200	8.51	33.99	2.55	26.43	161	0.48
124	9.66	33.75	3.58	250	7.98	34.10	2.24	26.59	146	0.56
147	9.23	33.83	3.00	300	7.45	34.13	1.90	26.68	137	0.63
176	8.92	33.90	2.90	400	6.50	34.18	0.97	26.87	119	0.77
213	8.32	34.04	2.37	500	5.98	34.28	0.53	27.01	106	0.88
265	7.84	34.11	2.20	600	(5.70)	(34.34)		(27.09)	(98)	(0.99)
345	6.92	34.14	1.31							
445	6.22	34.22	0.91							
586	5.72	34.34	0.35							

PAOLINA-T; December 17, 1957; 2017 GCT; 32°32'N, 119°46.5'W; sounding, 730 fm; wind, 300°, force 3; weather, cloudy; sea, high; wire angle, 02°. 90.60

0	16.43	33.44		0	16.43	33.44		24.47	347	0.00
9	16.36	33.49		10	16.32	33.50		24.54	341	0.03
30	15.84	33.57		20	16.06	33.55		24.65	330	0.07
45	15.18	33.54		30	15.84	33.57		24.69	326	0.10
56	13.40	33.44		50	14.65	33.50		24.96	301	0.16
66	12.42	33.39		75	12.01	33.44		25.40	258	0.23
75	12.01	33.44		100	10.62	33.51		25.71	229	0.30
95	10.80	33.49		150	9.51	33.95		26.24	179	0.40
109	10.28	33.67		200	8.52	34.01		26.44	160	0.48
124	9.54	33.77		250	7.90	34.09		26.60	145	0.56
147	9.58	33.95		300	7.33	34.15		26.73	133	0.63
176	8.82	33.95		400	6.45	34.23		26.91	115	0.76
214	8.34	34.04		500	5.86	34.29		27.03	104	0.87
266	7.70	34.11		600	(5.72)	(34.35)		(27.10)	(97)	(0.98)
347	6.90	34.20								
450	6.08	34.25								
592	5.72	34.35								

OBSERVED				INTERPOLATED				COMPUTED		
Z m	T °C	S ‰	O_2 ml/L	Z m	T °C	S ‰	O_2 ml/L	σ_t g/L	δ_T $10^5 cm^3/g$	ΔD dyn. m

90.70 PAOLINA-T; December 17, 1957; 1405 GCT; 32°10'N, 120°30'W; sounding, 2050 fm; wind, 320°, force 4; weather, overcast; sea, very rough; wire angle, 10°.

0	16.44	33.44	5.65	0	16.44	33.44	5.65	24.46	348	0.00
10	16.45	33.44	5.75	10	16.45	33.44	5.75	24.46	348	0.03
30	16.38	33.44	5.33	20	16.43	33.44	5.50	24.47	347	0.07
46	15.41	33.44	5.78	30	16.38	33.44	5.33	24.48	346	0.10
55	15.01	33.44	5.53	50	15.26	33.44	5.74	24.74	322	0.17
66	13.95	33.41	5.43	75	12.79	33.37	5.09	25.19	278	0.25
74	12.92	33.37	5.09	100	10.77	33.43	5.15	25.63	237	0.31
93	11.14	33.40	5.38	150	9.20	33.80	2.67	26.17	186	0.42
108	10.28	33.51	4.27	200	8.28	34.02	2.69	26.48	156	0.50
122	9.70	33.62	3.22	250	7.57	34.08	2.01	26.64	141	0.58
145	9.28	33.77[a]	2.63	300	7.02	34.11	1.31	26.74	132	0.65
171	8.82	33.93	2.80	400	6.24	34.22	0.87	26.92	114	0.78
208	8.13	34.04[a]	2.64	500	5.85	34.28	0.75	27.02	104	0.89
259	7.46	34.08	1.88							
338	6.63	34.14	0.94							
436	6.10	34.25	0.85							
577	5.42	34.32	0.30							

90.80 PAOLINA-T; December 17, 1957; 0740 GCT; 31°46.5'N, 121°12'W; sounding, 2000+ fm; wind, 320°, force 4; weather, cloudy; sea, rough; wire angle, 25°.

1	16.74	33.40	5.45	0	(16.74)	(33.40)	(5.45)	(24.37)	(357)	(0.00)
9	16.74	33.39	5.60	10	16.74	33.39	5.61	24.36	357	0.04
28	16.79	33.40	5.64	20	16.76	33.40	5.63	24.36	358	0.07
42	16.25	33.44	5.65	30	16.77	33.41	5.65	24.36	357	0.11
50	15.73	33.48	5.60	50	15.73	33.48	5.60	24.66	329	0.18
60	15.40	33.45	5.69	75	13.52	33.35	5.74	25.04	293	0.25
69	14.26	33.36	5.84	100	11.10	33.37	5.25	25.51	248	0.32
86	12.32	33.36	5.50	150	9.57	33.70	4.36	26.04	198	0.44
99	11.15	33.37	5.27	200	8.63	33.92	2.81	26.35	168	0.53
111	10.54	33.39	5.07	250	7.57	34.05	2.30	26.62	143	0.61
131	9.73	33.50	4.46	300	7.29	34.14	1.55	26.72	133	0.68
153	9.58	33.73	3.20	400	6.30	34.20	0.78	26.91	116	0.81
185	8.77	33.81	3.08	500	5.58	34.23	0.53	27.02	104	0.92
227	7.85	34.00	2.75							
295	7.36	34.13	1.59							
383	6.44	34.19	0.87							
514	5.48	34.24	0.51							

90.90 PAOLINA-T; December 17, 1957; 0116 GCT; 31°22.5'N, 121°56'W; sounding, 2150 fm; wind, 220°, force 4; weather, cloudy; sea, rough; wire angle, 06°.

0	17.64	33.58		0	17.64	33.58		24.29	364	0.00
11	17.59	33.54		10	17.60	33.55		24.28	366	0.04
31	17.56	33.54		20	17.58	33.54		24.28	365	0.07
61	17.10	33.50		30	17.56	33.54		24.29	365	0.11
71	16.66	33.48		50	17.38	33.53		24.32	362	0.18
81	14.67	33.39		75	16.05	33.45		24.57	338	0.27
96	12.93	33.35		100	12.30	33.33		25.26	272	0.35
110	11.36	33.31		150	9.40	33.53		25.92	209	0.47
124	10.71	33.36		200	8.57	33.87		26.32	171	0.57
143	9.53	33.49[a]		250	7.89	34.02		26.54	150	0.65
161	9.22	33.62		300	7.30	34.09		26.68	137	0.72
189	8.70	33.80		400	6.39	34.16		26.87	120	0.86
212	8.38	33.94		500	5.82	34.20		26.96	110	0.98
265	7.71	34.04		600	(5.43)	(34.32)		(27.11)	(96)	(1.09)
344	6.81	34.14[a]								
449	6.08	34.17								
584	5.46	34.30								

a) Possible evaporation; value falls on property curve.

OBSERVED				INTERPOLATED				COMPUTED		
Z	T	S	O_2	Z	T	S	O_2	σ_t	δ_T	ΔD
m	°C	‰	ml/L	m	°C	‰	ml/L	g/L	$10^5 cm^3/g$	dyn. m

STRANGER; December 20, 1957; 1338 GCT; 32°15.5'N, 117°13'W; sounding, 560 fm; wind, 320°, force 4; weather, partly cloudy; sea, missing; wire angle, 05°. 97.32

0	16.94	33.74[a]	0	16.94	33.74	24.58	337	0.00
10	16.92	33.70	10	16.92	33.70	24.54	340	0.03
29	16.97	-	20	16.97	33.70	24.55	340	0.07
39	16.96	33.69	30	16.97	33.69	24.54	340	0.10
47	16.24	33.64	50	16.00	33.64	24.73	323	0.17
58	15.55	33.65	75	14.10	33.55	25.06	291	0.24
68	14.70	33.77	100	13.11	33.53	25.25	273	0.32
81	13.76	33.53	150	10.84	33.77	25.86	214	0.44
95	13.30	-	200	10.00	34.09	26.26	177	0.54
109	12.76	33.53	250	8.89	34.27	26.58	146	0.62
132	-	33.64	300	8.24	34.29	26.70	135	0.70
160	10.47	33.84	400	7.33	34.31	26.85	121	0.83
192	10.14	34.04	500	6.60	34.35	26.98	109	0.95
240	9.06	34.26						
315	8.06	34.29						
409	7.25	34.31						
533	6.37	34.36						

STRANGER; December 20, 1957; 0823 GCT; 31°39'N, 117°25'W; sounding, 1100 fm; wind, 320°, force 4; weather, cloudy; sea, rough; wire angle, 06°. 10040

0	17.40	33.66	0	17.40	33.66	24.41	353	0.00
10	17.38	33.68	10	17.38	33.68	24.44	350	0.04
29	17.20	33.66	20	17.26	33.67	24.45	349	0.07
44	17.14	33.66	30	17.19	33.66	24.47	348	0.10
54	16.54	33.63	50	16.99	33.65	24.51	344	0.17
63	14.14	33.48	75	12.98	33.46	25.22	275	0.25
73	13.10	33.46	100	11.00	33.42	25.57	243	0.32
92	11.58	33.44	150	9.36	33.89	26.22	181	0.42
105	10.72	33.41	200	8.44	34.04	26.47	157	0.51
128p	9.84	33.77	250	8.03	34.12	26.60	145	0.59
186p	8.62	34.00	300	7.64	34.18	26.70	135	0.66
265p	7.94	34.14						
386p	6.86	34.27						

STRANGER; December 19, 1957; 2322 GCT; 30°26'N, 117°48'W; sounding, missing; wind, 320°, force 4; weather, cloudy; sea, very rough; wire angle, 20°. 10350

0	17.11	33.60	0	17.11	33.60	24.44	350	0.00
8	17.10	33.62	10	17.08	33.62	24.46	348	0.03
26	16.92	33.62	20	17.00	33.62	24.48	346	0.07
40	16.36	33.58	30	16.81	33.61	24.51	343	0.10
48	14.84	33.48	50	14.67	33.47	24.88	308	0.17
58	13.66	33.40	75	12.92	33.45	25.23	275	0.24
66	13.12	33.39	100	11.02	33.50	25.63	237	0.31
83	12.22	33.59	150	10.00	33.85	26.07	195	0.42
95	11.21	33.48	200	8.52	33.96	26.40	164	0.51
109	10.74	33.57	250	8.33	34.12	26.56	149	0.59
130	9.89	33.66	300	8.45	34.30	26.68	138	0.66
155	10.00	33.87	400	7.43	34.30	26.83	123	0.80
189	8.70	33.93	500	6.51	34.31	26.97	110	0.92
237	8.26	34.07						
310	8.39	34.31						
401	7.41	34.30						
531	6.23	34.32						

a) Possible evaporation; value falls on property curve.

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OBSERVED				INTERPOLATED				COMPUTED		
Z m	T °C	S ‰	O_2 ml/L	Z m	T °C	S ‰	O_2 ml/L	σ_t g/L	δ_T 10^{-5} cm^3/g	ΔD dyn. m

107.60

STRANGER; December 19, 1957; 1605 GCT; 29°31'N, 118°03'W; sounding, 1825 fm; wind, 320°, force 4; weather, cloudy; sea, high; wire angle, 11°.

0	17.91	33.73	0	17.91	33.73	24.34	359	0.00
10	17.88	-	10	17.88	33.73	24.35	359	0.04
28	17.92	33.75	20	17.94	33.74	24.35	358	0.07
57	17.92	33.75	30	17.92	33.75	24.36	357	0.11
66	17.12	-	50	17.92	33.75	24.36	357	0.18
76	16.34	33.76	75	16.41	33.76	24.72	323	0.26
90	15.24	33.67[a]	100	14.95	33.68	24.98	298	0.34
105	14.38	33.63	150	10.63	33.58	25.75	225	0.48
118	13.31	33.57	200	9.24	33.85	26.20	183	0.58
137	11.08	-	250	8.49	34.01	26.45	159	0.67
155	10.50	33.58	300	7.82	34.11	26.62	143	0.75
184	9.58	33.78[a]	400	6.70	34.23	26.87	119	0.88
207	9.19	33.87	500	5.97	34.31	27.04	104	1.00
260	8.36	34.04						
340	7.29	34.16[a]						
444	6.32	-						
578	5.70	34.33						

110.70

STRANGER; December 19, 1957; 0705 GCT; 28°36'N, 118°20'W; sounding, missing; wind, 340°, force 5; weather, overcast; sea, very rough; wire angle, 14°.

0	-	33.77	0	(17.95)	33.77	(24.36)	(358)	(0.00)
9	17.95	33.77	10	17.95	33.78	24.37	357	0.04
28	17.94	33.79	20	17.94	33.78	24.37	356	0.07
56	17.86	33.75	30	17.93	33.78	24.38	356	0.11
65	17.36	33.69	50	17.88	33.76	24.38	356	0.18
72	16.62	33.64	75	16.21	33.62	24.66	329	0.26
88	14.20	33.55	100	12.62	33.44	25.28	270	0.34
100	12.62	33.44	150	11.28	33.91	25.90	211	0.46
114	12.14	-	200	9.96	34.22	26.37	166	0.56
131	11.28	33.73	250	9.76	34.41	26.56	149	0.64
149	11.29	33.91	300	9.12	34.41	26.66	139	0.71
176	10.51	34.19	400	7.22	34.29	26.85	121	0.85
199	9.98	34.21	500	6.31	34.31	26.99	108	0.97
249	9.78	34.41						
322	8.80	34.40						
427	6.68	34.26						
561	6.22	34.36						

a) Possible evaporation; value falls on property curve.

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