

UNIVERSITY OF CALIFORNIA SCRIPPS INSTITUTION OF OCEANOGRAPHY

Cover Copy :
STATION POSITIONS HS

data report

PHYSICAL AND CHEMICAL DATA

CCOFI CRUISE 5309
(MLR 52)
9-19 September 1953

CCOFI CRUISE 5310
(MLR 53)
7-24 October 1953

CCOFI CRUISE 5311
(MLR 54)
9-14 November 1953

CCOFI CRUISE 5312
(MLR 55)
1-13 December 1953

SIO Reference 58-44
1 August 1958

UNIVERSITY OF CALIFORNIA
SCRIPPS INSTITUTION OF OCEANOGRAPHY

PHYSICAL AND CHEMICAL DATA

CCOFI CRUISE 5309
(MLR 52)

9-19 September 1953

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(MLR 53)

7-24 October 1953

CCOFI CRUISE 5311
(MLR 54)

9-14 November 1953

CCOFI CRUISE 5312
(MLR 55)

1-13 December 1953

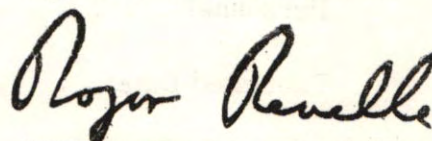
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Marine Research Committee

SIO Reference 58-44

1 August 1958

Approved for distribution:



Roger Revelle, Director

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INTRODUCTION

The data in this report were collected on the fifty-second, the fifty-third, the fifty-fourth and the fifty-fifth cruises of the California Cooperative Oceanic Fisheries Investigations program. The R/V Yellowfin of the California Department of Fish and Game and the R/V Crest, the R/V Horizon and the R/V Paolina-T of the Scripps Institution of Oceanography participated in the fifty-second cruise. The R/V Crest and the R/V Paolina-T participated in the fifty-third cruise. The R/V Paolina-T participated in the fifty-fourth cruise. The R/V Crest and the R/V Paolina-T participated in the fifty-fifth cruise.

The data are tabulated at observed depths; the interpolated and computed values are tabulated at standard depths 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

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 1953 volume, the first page of the Cruise 5309 data is numbered 344; Cruise 5310, 353; Cruise 5311, 375; Cruise 5312, 379.

FIGURES

1. CCOFI Cruise 5309 (MLR 52), station positions
2. Surface currents measured by geomagnetic electrokinetograph (GEK)
3. Horizontal distribution of temperature and salinity at 10 meters
4. Horizontal distribution of temperature and salinity at 200 meters

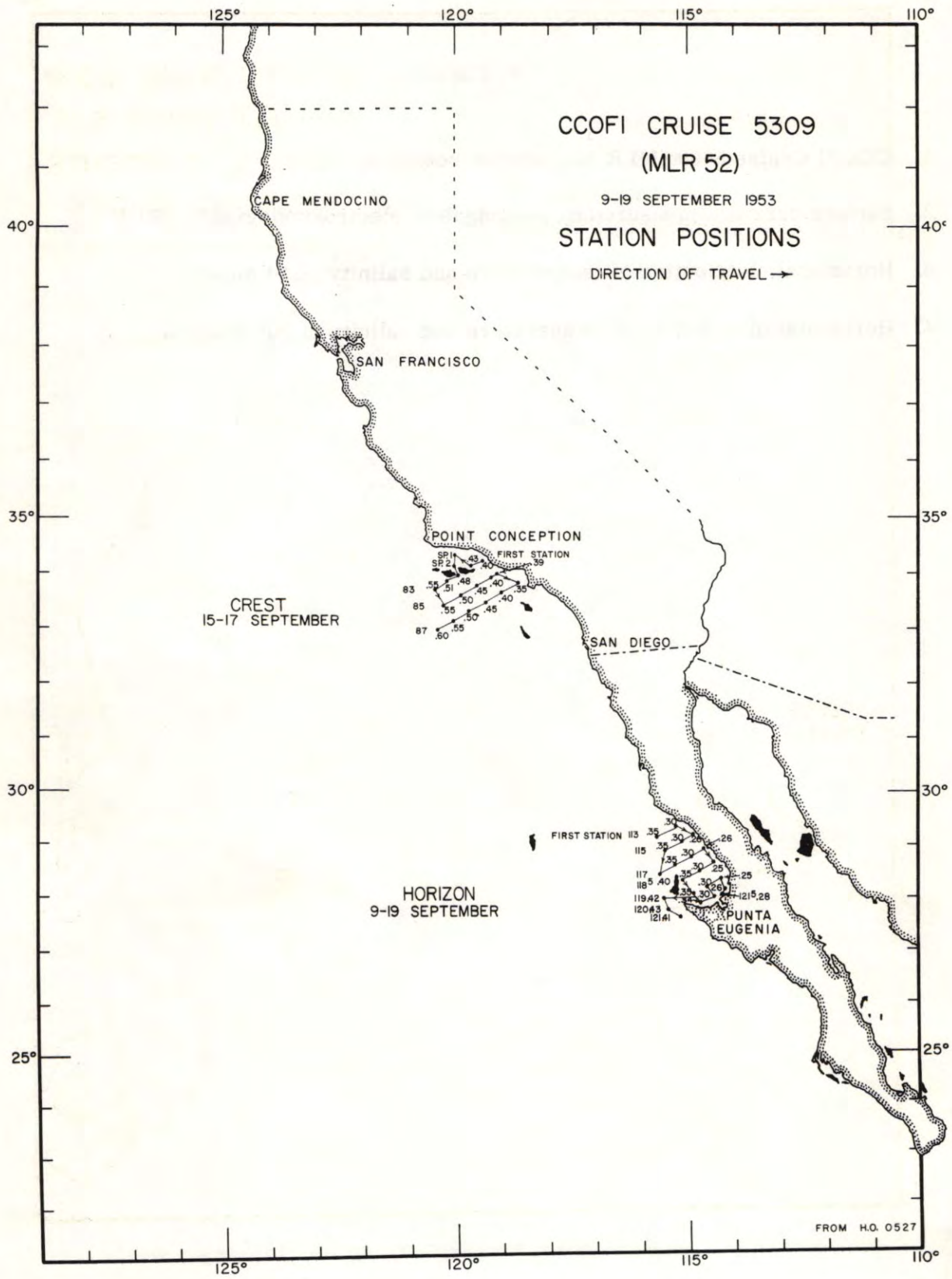


FIGURE 1

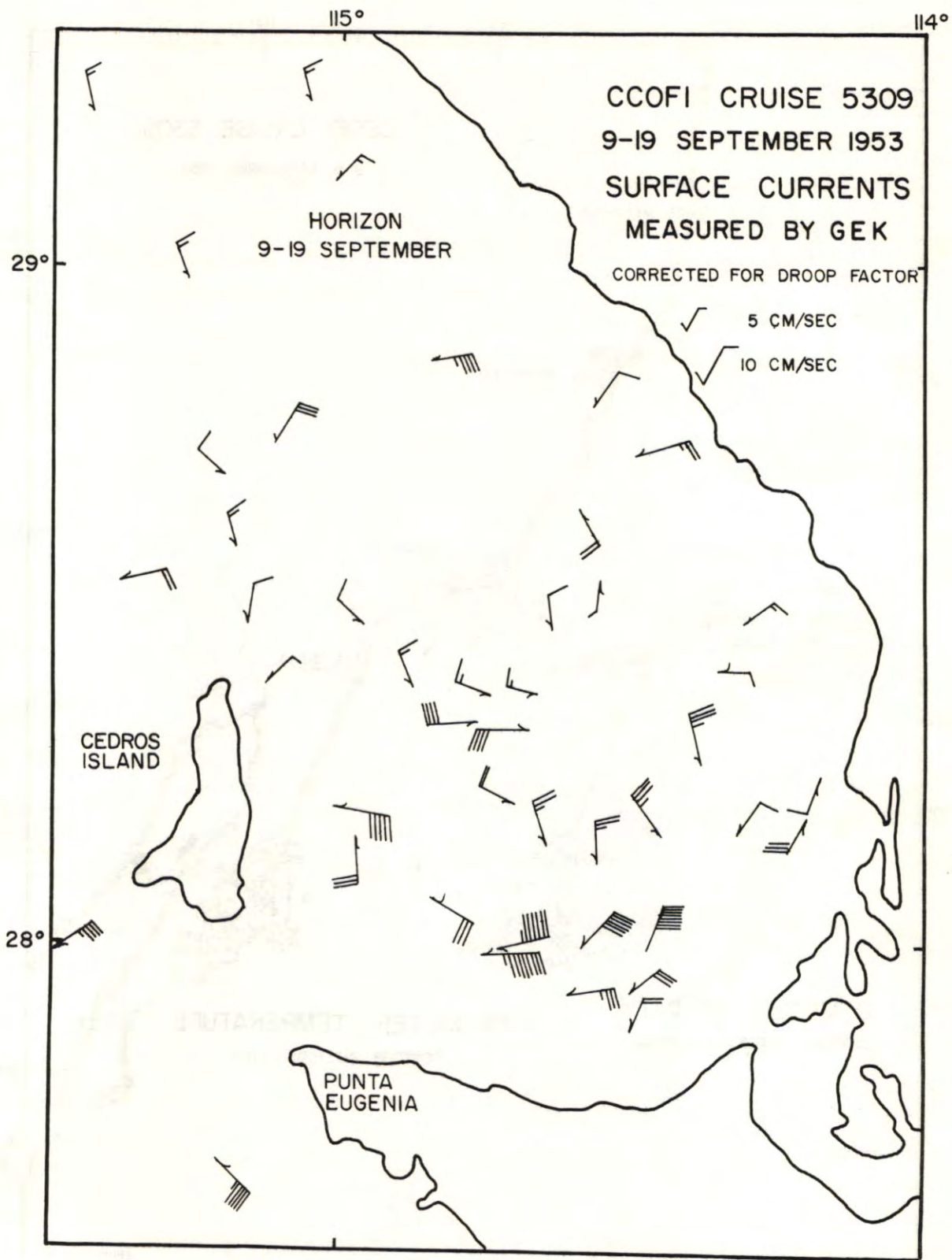


FIGURE 2

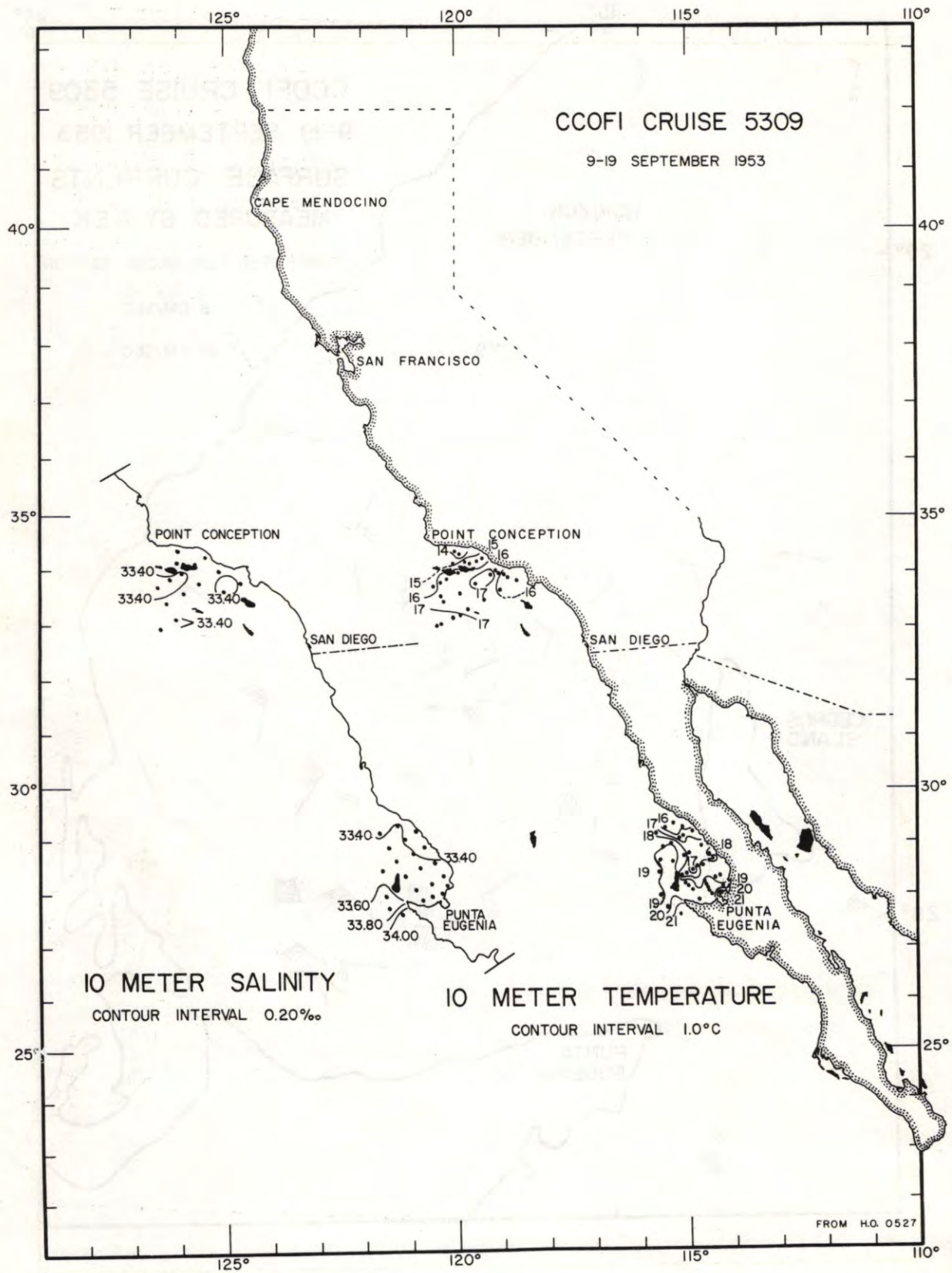


FIGURE 3

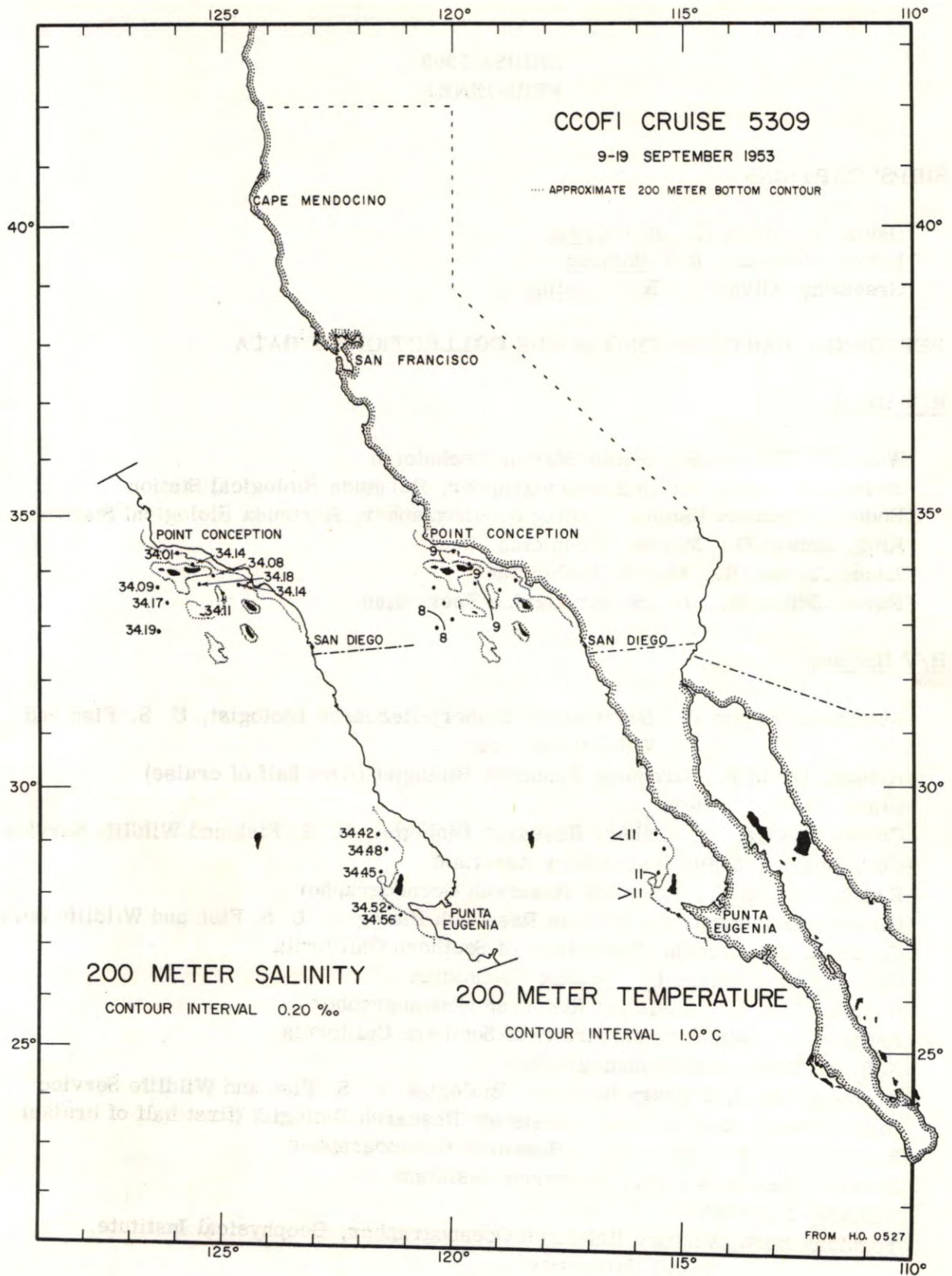


FIGURE 4

CRUISE 5309
PERSONNEL

SHIPS' CAPTAINS

Davis, Laurence E., R/V Crest
Ferris, Noel L., R/V Horizon
Greenway, Glynn C., R/V Paolina-T

PERSONNEL PARTICIPATING IN THE COLLECTION OF DATA

R/V Crest

Worrall, Charles G., Senior Marine Technician
Boden, Brian P., visiting oceanographer, Bermuda Biological Station
Boden, Elizabeth Kampa, visiting oceanographer, Bermuda Biological Station
King, Robert D., Marine Technician
Lance, James R., Marine Technician
Payne, Miles M., Jr., Senior Marine Technician

R/V Horizon

Ahlstrom, Elbert H., Supervisory Fishery Research Biologist, U. S. Fish and
Wildlife Service
Arthur, David K., Graduate Research Biologist (first half of cruise)
Clark, G. A., visitor
Counts, Robert C., Fishery Research Biologist, U. S. Fish and Wildlife Service
Cox, Ben T., Senior Laboratory Assistant
Ewing, Gifford C., Assistant Research Oceanographer
Gilmore, Raymond M., Wildlife Research Biologist, U. S. Fish and Wildlife Service
Gorsline, D., student, University of Southern California
Greenbaum, Richard H., Marine Technician
Horrer, Paul L., Assistant Research Oceanographer
Knudsen, J., student, University of Southern California
Koffler, Ylla, visiting photographer
Kramer, David, Fishery Research Biologist, U. S. Fish and Wildlife Service
Oppenheimer, Carl H., Jr., Assistant Research Biologist (first half of cruise)
Reid, Joseph L., Jr., Junior Research Oceanographer
Stewart, Harris B., Jr., Research Assistant
Yandell, L., visitor
Yoshida, Kozo, Visiting Research Oceanographer, Geophysical Institute,
Tokyo University

R/V Paolina-T

Stover, Allan J., Jr., Senior Marine Technician
Kivlen, John C., Marine Technician
Hinds, James W., Marine Technician

R/V Yellowfin

No personnel list available

SIO

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

CREST; September 15, 1953; 1708 GCT; 34°22'N, 119°58'W; sounding, 233 fm; wind, 090°, force 1; weather, fog; sea, slight; wire angle, 00°.

0	14.92	33.48	0	14.92	33.48	24.84	312	0.00
10	12.11	33.48	10	12.11	33.48	25.41	258	0.03
25	11.50	33.48	20	11.64	33.48	25.50	249	0.05
50	10.90	33.46	30	11.40	33.48	25.54	245	0.08
74	10.19	33.58	50	10.90	33.46	25.62	238	0.13
98	9.88	33.61	75	10.16	33.58	25.84	217	0.18
148	9.38	33.89	100	9.82	33.61	25.92	209	0.24
194	9.35	34.00	150	9.37	33.90	26.22	181	0.34
239	9.09	34.12	200	9.34	34.01	26.31	172	0.43
287	8.83	34.22	250	9.03	34.15	26.47	157	0.51
339	7.84	34.24	300	8.64	34.23	26.59	146	0.59

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

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CREST; September 15, 1953; 1912 GCT; 34°08.5'N, 119°59.5'W; sounding, 185 fm;
wind, 270°, force 1; weather, overcast; sea, moderate; wire angle, 05°.

82347

0	15.13	33.36	0	15.13	33.36	24.70	325	0.00
10	14.77	33.43	10	14.77	33.43	24.83	313	0.03
25	14.34	33.42	20	14.50	33.42	24.88	308	0.06
50	12.24	33.45	30	14.00	33.42	24.99	298	0.09
74	10.78	33.51	50	12.24	33.45	25.36	262	0.15
98	9.76	33.66	75	10.76	33.51	25.68	232	0.21
121	9.40	33.85	100	9.72	33.67	25.98	204	0.27
149	9.28	34.08	150	(9.27)	(34.09)	(26.38)	(166)	(0.36)

CREST; September 15, 1953; 1056 GCT; 34°14'N, 119°22'W; sounding, 13 fm; wind,
270°, force 2; weather, overcast; sea, moderate; wire angle, 03°.

8340

0	15.66	33.46	0	15.66	33.46	24.66	329	0.00
5	15.64	33.44	10	14.40	33.43	24.91	305	0.03
10	14.40	33.43						
15	12.95	33.41						

CREST; September 15, 1953; 1255 GCT; 34°08'N, 119°37.5'W; sounding, 152 fm;
wind, 270°, force 2; weather, overcast; sea, moderate; wire angle, 11°.

8343

0	15.47	33.42	0	15.47	33.42	24.67	328	0.00
10	15.45	33.43	10	15.45	33.43	24.68	327	0.03
24	15.26	33.41	20	15.36	33.42	24.70	325	0.06
49	13.32	33.46	30	14.92	33.41	24.78	318	0.10
73	11.17	33.48	50	13.20	33.46	25.18	280	0.16
97	10.14	33.59	75	11.06	33.48	25.60	240	0.22
148	9.59	34.11	100	10.08	33.64	25.90	211	0.28
193	9.30	34.14	150	9.55	34.12	26.36	167	0.38
			200	(9.27)	(34.14)	(26.42)	(162)	(0.46)

CREST; September 15, 1953; 2247 GCT; 33°58.5'N, 119°54.5'W; sounding, 50 fm;
wind, 340°, force 3; weather, partly cloudy; sea, moderate; wire angle, 40°.

8348

0	17.19	33.42	0	17.19	33.42	24.28	365	0.00
8	16.98	33.38	10	16.94	33.38	24.31	362	0.04
16	16.22	33.40	20	15.72	33.41	24.61	334	0.07
25	14.92	33.42	30	14.20	33.42	24.95	301	0.10
42	12.20	33.38	50	11.40	33.39	25.47	252	0.16
63	10.00	33.68						

CREST; September 16, 1953; 0054 GCT; 33°52'N, 120°08.5'W; sounding, 125 fm;
wind, 350°, force 3; weather, partly cloudy; sea, moderate; wire angle, 03°.

8351

0	16.98	33.40	0	16.98	33.40	24.31	362	0.00
10	16.90	33.37	10	16.90	33.37	24.31	362	0.04
20	16.48	33.39	20	16.48	33.39	24.42	352	0.07
30	13.14	33.35	30	13.14	33.35	25.11	286	0.10
50	11.04	33.36	50	11.04	33.36	25.51	248	0.16
74	10.07	33.53	75	10.03	33.54	25.83	218	0.22
98	9.74	33.67	100	(9.72)	(33.68)	(25.99)	(202)	(0.27)

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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

83.55

CREST; September 16, 1953; 0320 GCT; 33°44'N, 120°24.5'W; sounding, 700 fm;
wind, 290°, force 3; weather, overcast; sea, slight; wire angle, 19°.

0	15.92	33.56	0	15.92	33.56	24.68	327	0.00
9	15.53	33.36	10	15.40	33.36	24.64	331	0.03
23	13.00	33.42	20	13.60	33.39	25.05	292	0.06
47	10.71	33.48	30	12.15	33.44	25.37	262	0.09
70	10.00	33.55	50	10.58	33.49	25.70	230	0.14
92	9.44	33.74	75	9.83	33.58	25.89	212	0.20
140	9.11	34.03	100	9.37	33.81	26.15	187	0.25
183	8.90	34.07	150	9.06	34.04	26.38	166	0.34
271	8.38	34.18	200	8.81	34.09	26.46	158	0.42
366	7.54	34.16	250	8.52	34.17	26.56	148	0.50
458	7.00	34.23	300	8.09	34.18	26.64	141	0.58
559	5.88	34.32	400	7.38	34.18	26.74	131	0.71
			500	6.57	34.27	26.92	114	0.84

85.39

CREST; September 16, 1953; 1715 GCT; 34°00'N, 119°04'W; sounding, 50 fm; wind,
270°, force 3; weather, overcast; sea, slight; wire angle, 06°.

0	16.96	33.48	0	16.96	33.48	24.38	356	0.00
10	16.84	33.41	10	16.84	33.41	24.35	359	0.04
20	15.72	33.40	20	15.72	33.40	24.60	335	0.07
30	13.51	33.34	30	13.51	33.34	25.03	294	0.10
50	11.26	33.45	50	11.26	33.45	25.54	245	0.16
74	10.14	33.59	75	(10.13)	(33.59)	(25.85)	(216)	(0.21)

85.40

CREST; September 16, 1953; 1545 GCT; 33°57'N, 119°10.5'W; sounding, 400 fm;
wind, 350°, force 3; weather, overcast; sea, slight; wire angle, 00°.

0	17.59	-	0	17.59				
10	17.56	-	10	17.56				
25	15.10	-	20	16.20				
50	11.91	-	30	14.30				
73	10.38	33.50	50	11.91				
97	9.80	33.73	75	10.32	33.53	25.77	223	
146	9.58	33.95	100	9.76	33.75	26.04	198	
191	9.46	34.06	150	9.50	33.96	26.24	179	
285	8.38	34.22	200	9.40	34.08	26.35	168	
384	7.61	34.25	250	8.86	34.18	26.52	152	
480	6.82	34.30	300	8.23	34.23	26.66	139	
584	6.12	34.34	400	7.49	34.26	26.79	127	
			500	6.67	34.31	26.94	112	
			600	(6.02)	(34.34)	(27.05)	(102)	

85.45

CREST; September 16, 1953; 1242 GCT; 33°47'N, 119°31'W; sounding, 1100 fm; wind,
300°, force 4; weather, overcast; sea, moderate; wire angle, 05°.

0	17.68	33.50	0	17.68	33.50	24.22	371	0.00
10	16.00	33.46	10	16.00	33.46	24.58	337	0.04
25	13.82	33.35	20	14.25	33.37	24.90	306	0.07
50	12.31	33.34	30	13.39	33.34	25.05	292	0.10
74	10.74	33.41	50	12.31	33.34	25.26	272	0.15
98	9.86	33.62	75	10.64	33.42	25.63	337	0.22
148	9.35	34.05	100	9.80	33.64	25.94	207	0.27
193	9.04	34.17	150	9.34	34.06	26.35	168	0.37
286	8.07	34.25	200	8.98	34.18	26.50	154	0.45
384	7.42	34.32	250	8.37	34.22	26.63	142	0.53
479	6.68	34.32	300	7.96	34.26	26.72	133	0.60
581	6.00	34.38	400	7.29	34.32	26.86	120	0.73
			500	6.52	34.32	26.97	110	0.85
			600	(5.89)	(34.40)	(27.11)	(96)	(0.96)

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

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CREST; September 16, 1953; 0940 GCT; 33°37'N, 119°52'N, sounding, 180 fm; wind, 300°, force 4; weather, overcast; sea, slight; wire angle, 06°.

85.50

0	16.86	33.43	0	16.86	33.43	24.36	358	0.00
10	16.84	33.45	10	16.84	33.45	24.38	356	0.04
25	16.64	33.45	20	16.78	33.45	24.40	354	0.07
50	11.37	33.40	30	16.35	33.45	24.50	344	0.11
74	10.64	33.45	50	11.37	33.40	25.48	251	0.17
98	9.64	33.74	75	10.63	33.46	25.66	234	0.23
121	9.14	34.02	100	9.56	33.82	26.13	189	0.28
149	9.02	34.05	150	(9.02)	(34.05)	(26.39)	(164)	(0.37)

CREST; September 16, 1953; 0625 GCT; 33°27'N, 120°12.5'W; sounding, 760 fm; wind, 270°, force 3; weather, overcast; sea, moderate; wire angle, 10°.

85.55

0	16.53	33.48	0	16.53	33.48	24.48	346	0.00
10	16.44	33.48	10	16.44	33.48	24.50	344	0.03
25	15.94	33.43	20	16.24	33.44	24.51	343	0.07
49	11.59	33.48	30	15.20	33.43	24.74	321	0.10
72	10.08	33.56	50	11.42	33.48	25.54	245	0.16
95	9.58	33.68	75	9.95	33.57	25.87	214	0.22
142	9.06	34.06	100	9.51	33.73	26.06	196	0.27
186	8.54	34.13	150	8.97	34.07	26.42	162	0.36
275	8.09	34.31	200	8.45	34.17	26.58	146	0.44
370	7.56	34.27	250	8.20	34.29	26.71	134	0.51
463	6.88	34.30	300	7.95	34.31	26.76	129	0.58
565	6.16	34.38	400	7.34	34.27	26.82	124	0.71
			500	6.61	34.32	26.96	110	0.84

CREST; September 16, 1953; 2020 GCT; 33°50'N, 118°37.5'W; sounding, 150 fm; wind, 270°, force 2; weather, overcast; sea, moderate; wire angle, 05°.

87.35

0	15.62	33.40	0	15.62	33.40	24.62	333	0.00
10	14.82	33.40	10	14.82	33.40	24.80	316	0.03
25	12.52	33.40	20	13.20	33.40	25.13	284	0.06
50	10.81	33.49	30	12.00	33.40	25.37	262	0.09
74	10.20	33.56	50	10.81	33.49	25.65	235	0.14
98	9.85	33.78	75	10.19	33.57	25.82	219	0.20
149	9.75	33.97	100	9.84	33.79	26.06	196	0.25
194	9.56	34.12	150	9.75	33.97	26.21	182	0.34
			200	(9.52)	(34.14)	(26.38)	(166)	(0.43)

CREST; September 17, 1953; 1045 GCT; 33°40'N, 118°58.5'W; sounding, 420 fm; wind, 270°, force 2; weather, overcast; sea, slight; wire angle, 00°.

87.40

0	15.89	33.40	0	15.89	33.40	24.56	339	0.00
10	15.75	33.39	10	15.75	33.39	24.59	336	0.03
25	13.32	33.40	20	15.15	33.40	24.73	322	0.07
50	10.48	33.47	30	12.23	33.41	25.33	265	0.10
74	9.92	33.68	50	10.48	33.47	25.70	230	0.15
98	9.56	33.83	75	9.94	33.69	25.96	205	0.20
149	9.52	34.00	100	9.54	33.84	26.14	188	0.25
193	9.43	34.10	150	9.52	34.00	26.27	176	0.34
285	8.79	-	200	9.40	(34.11)	(26.38)	(166)	(0.43)
383	8.02	-	250	9.03				
478	6.76	-	300	8.68				
580	6.00	-	400	7.80				
			500	6.56				
			600	(5.88)				

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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

87.45

CREST; September 17, 1953; 1334 GCT; 33°30.5'N, 119°19'W; sounding, 920 fm; wind, 300°, force 3; weather, overcast; sea, rough; wire angle, 07°.

0	17.29		0	17.29	
10	16.49		10	16.49	
25	12.32		20	13.55	
50	10.59		30	11.88	
74	9.76		50	10.59	
97	9.28		75	9.72	
146	9.10		100	9.25	
191	8.64		150	9.06	
283	8.16		200	8.60	
380	7.66		250	8.31	
474	6.85		300	8.09	
576	6.13		400	7.48	
			500	6.65	

87.50

CREST; September 17, 1953; 1625 GCT; 33°20'N, 119°40'W; sounding, 45 fm; wind, 250°, force, missing; weather, overcast; sea, moderate; wire angle, 00°.

0	16.76		0	16.76	
10	16.76		10	16.76	
20	16.46		20	16.46	
30	14.66		30	14.66	
50	11.00		50	11.00	

87.55

CREST; September 17, 1953; 1845 GCT; 33°10'N, 120°00.5'W; sounding, 640 fm; wind, 320°, force 1; weather, partly cloudy; sea, slight; wire angle, 00°.

0	17.80	33.45	0	17.80	33.45	24.16	377	0.00
10	17.61	33.45	10	17.61	33.45	24.20	373	0.04
25	16.28	33.47	20	17.05	33.46	24.34	360	0.07
50	12.42	-	30	15.45				
74	11.17	-	50	12.42				
98	9.82	-	75	11.16				
149	8.53	-	100	9.70				
195	8.09	-	150	8.50				
288	7.46	-	200	8.05				
386	6.80	-	250	7.71				
482	6.28	-	300	7.38				
583	5.82	-	400	6.70				
			500	6.19				
			600	(5.76)				

87.60

CREST; September 17, 1953; 2126 GCT; 33°00'N, 120°21.5'W; sounding, 480 fm; wind, 310°, force 1; weather, partly cloudy; sea, slight; wire angle, 08°.

0	17.59	33.48	0	17.59	33.48	24.23	370	0.00
10	17.30	33.48	10	17.30	33.48	24.30	363	0.04
25	17.29	33.47	20	17.28	33.47	24.30	363	0.07
49	14.24	33.50	30	17.29	33.48	24.30	363	0.11
73	10.54	33.52	50	14.00	33.50	25.05	292	0.18
97	9.59	33.67	75	10.47	33.53	25.75	225	0.24
146	8.56	33.97	100	9.47	33.70	26.05	197	0.29
191	8.03	34.19	150	8.48	34.00	26.44	160	0.38
284	7.34	34.20	200	7.96	34.19	26.66	139	0.46
380	6.74	34.33	250	7.57	34.19	26.72	133	0.53
475	6.14	34.38	300	7.23	34.21	26.79	127	0.60
576	5.60	34.37	400	6.63	34.35	26.98	109	0.72
			500	6.00	34.38	27.08	99	0.83

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

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HORIZON; September 10, 1953; 0017 GCT; 29°22'N, 115°16'W; sounding, 24 fm;
wind, 330°, force 4; weather, overcast; sea, rough; wire angle, 10°.

113.30

0	16.36	33.40	0	16.36	33.40	24.46	348	0.00
10	15.86	33.40	10	15.86	33.40	24.57	338	0.03
19	13.16	33.36	20	13.13	33.36	25.12	285	0.06
29	13.04	33.36	30	13.04	33.36	25.14	283	0.08
39	13.04	33.35						

HORIZON; September 9, 1953; 1838 GCT; 29°10.5'N, 115°38.5'W; sounding, 680 fm;
wind, 270°, force 2; weather, overcast; sea, moderate; wire angle, 21°.

113.35

0	17.54	33.40	0	17.54	33.40	24.18	375	0.00
9	17.50	33.38	10	17.49	33.38	24.18	375	0.04
18	16.21	33.32	20	15.80	33.32	24.52	342	0.07
32	13.84	33.32	30	14.10	33.32	24.89	307	0.11
46	11.59	33.31	50	11.57	33.32	25.39	260	0.16
60	11.57	33.72	75	11.61	33.97	25.88	213	0.22
73	11.60	33.94	100	11.75	34.21	26.04	198	0.27
89	11.88	34.16	150	11.08	34.35	26.27	176	0.37
108	11.55	34.22	200	10.81	34.42	26.38	166	0.46
132	11.08	34.27	250	10.34	34.45	26.48	156	0.54
173	11.10	34.41	300	9.75	34.45	26.58	146	0.62
216	10.60	34.42	400	8.46	34.42	26.77	128	0.76
258	10.27	34.46	500	7.36	34.39	26.91	115	0.89
350	9.02	34.42						
439	8.04	34.42						
538	6.96	34.37						

HORIZON; September 10, 1953; 0510 GCT; 29°13'N, 114°52'W; sounding, 26 fm;
wind, 220°, force 1; weather, fog; sea, slight; wire angle, 05°.

115.26

0	17.04	33.40	0	17.04	33.40	24.30	363	0.00
10	16.32	33.36	10	16.32	33.36	24.44	350	0.04
20	13.86	33.36	20	13.86	33.36	24.97	300	0.07
30	12.71	33.40	30	12.71	33.40	25.23	275	0.10
41	12.62	33.39						

HORIZON; September 10, 1953; 0828 GCT; 29°05'N, 115°08'W; sounding, 60 fm;
wind, 310°, force 2; weather, partly cloudy; sea, slight; wire angle, 05°.

115.30

0	16.10	33.48	0	16.10	33.48	24.58	337	0.00
10	16.08	33.39	10	16.08	33.39	24.51	343	0.03
19	15.16	33.39	20	15.10	33.39	24.73	322	0.07
30	13.92	33.40	30	13.92	33.40	24.99	298	0.10
40	13.31	33.43	50	11.64	33.45	25.47	252	0.15
50	11.64	33.45	75	11.74	33.93	25.83	218	0.21
60	11.47	33.59						
70	11.78	33.91						
79	11.62	33.94						
89	11.39	33.96						

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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

5.35

HORIZON; September 10, 1953; 1205 GCT; 28°54'N, 115°29'W; sounding, 760 fm;
wind, 270°, force 2; weather, clear; sea, moderate; wire angle, 10°.

0	18.84	33.60	0	18.84	33.60	24.01	391	0.00
10	18.85	33.58	10	18.85	33.58	24.00	392	0.04
25	15.07	33.30	20	16.70	33.32	24.32	361	0.08
49	12.04	33.54	30	14.00	33.30	24.89	307	0.11
72	11.68	33.75	50	12.03	33.55	25.48	251	0.17
94	11.30	34.08	75	11.63	33.79	25.74	226	0.23
142	11.02	34.25	100	11.25	34.11	26.06	196	0.28
184	10.74	34.45	150	10.99	34.29	26.24	179	0.38
228	10.48	34.50	200	10.65	34.48	26.45	159	0.46
272	9.88	34.51	200	10.16	34.51	26.56	148	0.54
320	9.47	34.48	300	9.64	34.50	26.64	141	0.62
365	8.90	34.42	400	8.39	34.37	26.74	131	0.76
410	8.26	34.37	500	7.35	34.39	26.91	115	0.89
455	7.96	34.39						
553	6.60	34.36						

117.26

HORIZON; September 11, 1953; 1053 GCT; 28°56.5'N, 114°41'W; sounding, 40 fm;
wind, calm; weather, fog; sea, calm; wire angle, 00°.

0	17.96	33.37	0	17.96	33.37	24.06	386	0.00
10	17.23	33.39	10	17.23	33.39	24.25	368	0.04
20	13.90	33.27	20	13.90	33.27	24.89	307	0.07
30	13.32	33.33	30	13.32	33.33	25.06	291	0.10
40	12.60	33.32	50	12.02	33.35	25.33	265	0.16
50	12.02	33.35						
60	11.35	33.46						

117.30

HORIZON; September 11, 1953; 0734 GCT; 28°48'N, 114°56.5'W; sounding, 53 fm;
wind, 270°, force 1; weather, overcast; sea, slight; wire angle, 00°.

0	17.76	33.44	0	17.76	33.44	24.16	377	0.00
10	17.76	33.40	10	17.76	33.40	24.13	380	0.04
20	17.05	33.40	20	17.05	33.40	24.30	363	0.08
30	15.48	33.40	30	15.48	33.40	24.65	330	0.10
40	13.20	33.40	50	11.86	33.48	25.46	253	0.17
50	11.86	33.48	75	10.62	33.69	25.84	217	0.23
60	11.08	33.48						
69	10.77	33.60						
78	10.55	33.73						

117.35

HORIZON; September 11, 1953; 0402 GCT; 28°38'N, 115°16'W; sounding, 120 fm;
wind, 270°, force 2; weather, overcast; sea, moderate; wire angle, 00°.

0	18.71	33.40	0	18.71	33.40	23.89	402	0.00
10	18.97	33.43	10	18.97	33.43	23.85	406	0.04
20	18.26	33.40	20	18.26	33.40	24.01	391	0.08
33	16.93	33.45	30	17.24	33.42	24.27	366	0.12
47	15.05	33.58	50	14.65	33.61	25.00	297	0.19
56	14.00	33.64	75	13.14	34.10	25.68	232	0.25
64	12.33	33.59	100	12.75	34.13	25.79	222	0.31
78	13.16	34.10	150	(11.99)	(34.17)	(25.97)	(204)	(0.42)
91	12.90	34.10						
100	12.75	34.13						
106	12.38	34.14						
118	12.26	34.17						
142	12.04	34.17						

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

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HORIZON; September 10, 1953; 2051 GCT; 28°28'N, 115°35.5'W; sounding, 380 fm;
wind, 310°, force 2; weather, overcast; sea, moderate; wire angle, 12°.

117.4

0	19.32	33.81	0	19.32	33.81	24.05	387	0.00
10	18.66	33.55	10	18.66	33.55	24.02	390	0.04
20	17.72	33.82	20	17.72	33.82	24.46	348	0.08
34	16.46	33.90	30	16.85	33.89	24.72	323	0.11
48	13.52	33.60	50	12.90	33.59	25.34	264	0.17
63	12.04	33.55	75	12.43	33.97	25.73	227	0.23
76	12.44	33.97	100	11.38	34.04	25.98	204	0.28
93	11.38	34.01	150	11.23	34.28	26.19	184	0.38
114	11.37	34.13	200	10.98	34.45	26.37	166	0.47
135	11.30	34.21	250	10.61	34.48	26.46	158	0.57
183	11.07	34.42	300	10.03	34.47	26.55	149	0.65
227	10.80	34.48	400	8.33	34.42	26.79	127	0.78
271	10.42	34.48	500	6.98	34.38	26.95	111	0.91
364	8.98	34.44						
461	7.42	34.38						
558	6.48	34.39						

HORIZON; September 11, 1953; 1408 GCT; 28°41'N, 114°26.5'W; sounding, 46 fm;
wind, 320°, force 2; weather, fog; sea, slight; wire angle, 00°.

118⁵25

0	18.80	33.48	0	18.80	33.48	23.93	399	0.00
10	17.74	33.40	10	17.74	33.40	24.13	380	0.04
20	15.25	33.31	20	15.25	33.31	24.64	331	0.07
30	13.94	33.30	30	13.94	33.30	24.91	305	0.11
40	13.59	33.33	50	12.16	33.29	25.25	273	0.16
50	12.16	33.29						
60	11.77	33.37						
69	11.38	33.38						

HORIZON; September 11, 1953; 1724 GCT; 28°31.5'N, 114°45.5'W; sounding, 63 fm;
wind, 320°, force 1; weather, fog; sea, slight; wire angle, 03°.

118⁵30

0	17.92	33.43	0	17.92	33.43	24.11	382	0.00
10	17.57	33.47	10	17.57	33.47	24.23	370	0.04
20	16.94	33.49	20	16.94	33.49	24.39	355	0.07
30	14.44	33.36	30	14.44	33.36	24.85	311	0.11
40	12.61	33.41	50	11.92	33.42	25.40	259	0.16
50	11.92	33.42	75	10.54	33.63	25.81	220	0.23
59	11.18	33.43						
69	10.74	33.53						
78	10.53	33.67						
88	10.70	33.88						

HORIZON; September 11, 1953; 2040 GCT; 28°21'N, 115°06'W; sounding, 70 fm;
wind, 140°, force 2; weather, partly cloudy; sea, slight; wire angle, 03°.

118⁵35

0	18.04	33.48	0	18.04	33.48	24.12	380	0.00
10	17.84	33.48	10	17.84	33.48	24.17	376	0.04
20	16.32	33.40	20	16.32	33.40	24.47	347	0.07
35	15.53	33.43	30	15.88	33.42	24.58	337	0.11
50	13.84	33.48	50	13.84	33.48	25.07	290	0.17
60	12.99	33.55	75	12.14	33.46	25.39	260	0.24
74	12.18	33.46	100	(12.28)				
88	12.08	33.61						
97	12.22	-						

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

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19.42

HORIZON; September 13, 1953; 0623 GCT; 28°00.5'N, 115°30'W; sounding, 55 fm;
wind, 270°, force 2; weather, fog; sea, moderate; wire angle, 03°.

0	19.70	33.74	0	19.70	33.74	23.90	402	0.00
10	19.62	33.71	10	19.62	33.71	23.90	402	0.04
20	17.46	33.71	20	17.46	33.71	24.44	350	0.08
30	13.82	33.55	30	13.82	33.55	25.12	285	0.11
40	13.38	33.66	50	12.80	33.76	25.49	250	0.16
50	12.80	33.76	75	12.92	34.04	25.69	231	0.22
60	13.18	34.01						
69	13.06	34.08						
78	12.82	33.97						

120.25

HORIZON; September 12, 1953; 1135 GCT; 28°22.5'N, 114°16.5'W; sounding, 45 fm;
wind, 140°, force 1; weather, fog; sea, slight; wire angle, 00°.

0	18.56	33.43	0	18.56	33.43	23.95	397	0.00
10	18.56	33.42	10	18.56	33.42	23.95	397	0.04
20	18.16	33.41	20	18.16	33.41	24.04	388	0.08
30	15.72	33.39	30	15.72	33.39	24.59	336	0.12
40	13.06	33.39	50	12.48	33.39	25.27	271	0.18
50	12.48	33.39	75	(11.31)	(33.66)	(25.70)	(230)	(0.24)
60	11.69	33.58						
70	11.39	33.64						

120.30

HORIZON; September 12, 1953; 0818 GCT; 28°13'N, 114°34'W; sounding, 46 fm;
wind, calm; weather, clear; sea, calm; wire angle, 00°.

0	19.62	33.42	0	19.62	33.42	23.68	422	0.00
10	19.14	33.41	10	19.14	33.41	23.79	412	0.04
20	18.80	33.41	20	18.80	33.41	23.88	403	0.08
30	18.66	33.44	30	18.66	33.44	23.94	398	0.12
40	18.40	33.40	50	18.02	33.41	24.07	385	0.20
50	18.02	33.41						
60	17.02	33.42						
70	14.46	33.32						

120.35

HORIZON; September 12, 1953; 0008 GCT; 28°05.5'N, 114°52'W; sounding, 48 fm;
wind, 280°, force 1; weather, partly cloudy; sea, slight; wire angle, 00°.

0	20.26	33.25	0	20.26	33.25	23.38	451	0.00
10	19.24	33.40	10	19.24	33.40	23.76	415	0.04
20	18.92	-	20	18.92	33.38	23.83	408	0.08
30	18.70	-	30	18.70	33.33	23.84	407	0.12
40	18.49	33.31	50	17.80	33.34	24.07	385	0.20
50	17.80	33.34	75	(13.20)	(33.34)	25.09	(288)	0.29
60	16.44	33.39						
74	13.35	33.34						

120.43

HORIZON; September 13, 1953; 0859 GCT; 27°47'N, 115°25'W; sounding, 260 fm;
wind, 320°, force 4; weather, clear; sea, moderate; wire angle, 05°.

0	20.49	33.86	0	20.49	33.86	23.78	413	0.00
10	19.57	33.71	10	19.57	33.71	23.91	400	0.04
25	18.18	33.75	20	18.65	33.74	24.17	376	0.08
50	13.46	33.53	30	17.75	33.73	24.38	356	0.12
72	13.09	34.01	50	13.46	33.53	25.18	280	0.18
94	12.52	34.15	75	13.01	34.03	25.66	234	0.24
141	12.23	34.35	100	12.48	34.18	25.88	213	0.30
185	11.54	34.52	150	12.11	34.40	26.12	190	0.40
230	11.19	34.52	200	11.42	34.52	26.34	169	0.50
274	10.67	34.57	250	10.96	36.54	26.44	160	0.58
327	10.16	34.52	300	10.45	34.55	26.54	150	0.66
374	9.21	34.47						

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

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HORIZON; September 12, 1953; 1414 GCT; 28°10'N, 114°12'W; sounding, 12 fm;
wind, 180°, force 1; weather, partly cloudy; sea, slight; wire angle, 00°.

121¹26

0	19.50	33.53	0	19.50	33.53	23.79	412	0.00
10	19.36	33.48	10	19.36	33.48	23.79	412	0.04
15	19.11	33.71						

HORIZON; September 12, 1953; 2353 GCT; 28°01.5'N, 114°16.5'W; sounding, 8 fm;
wind, 290°, force 3; weather, partly cloudy; sea, moderate; wire angle, 00°.

121⁵28

0	21.97	34.17	0	21.97	34.17	23.62	428	0.00
5	21.98	34.20	10	22.35	34.52	23.78	413	0.04
10	22.35	34.52						

HORIZON; September 12, 1953; 0553 GCT; 28°02.5'N, 114°27'W; sounding, 32 fm;
wind, 090°, force 1; weather, fog; sea, slight; wire angle, 05°.

121.30

0	19.68	33.53	0	19.68	33.53	23.75	416	0.00
10	19.54	33.48	10	19.54	33.48	23.74	417	0.04
20	19.21	33.52	20	19.21	33.52	23.86	405	0.08
30	17.78	33.45	30	17.78	33.45	24.16	377	0.12
40	16.49	33.40	50	14.20	33.39	24.92	304	0.19
50	14.20	33.39						

HORIZON; September 12, 1953; 0252 GCT; 27°55'N, 114°43'W; sounding, 30 fm;
wind, 290, force 1; weather, partly cloudy; sea, slight; wire angle, 04°.

121.34

0	19.92	33.52	0	19.92	33.52	23.68	422	0.00
10	19.10	33.48	10	19.10	33.48	23.86	405	0.04
20	18.62	33.47	20	18.62	33.47	23.97	395	0.08
30	17.08	33.43	30	17.08	33.43	24.31	362	0.12
36	16.40	33.43						

HORIZON; September 13, 1953; 1214 GCT; 27°40'N, 115°10.5'W; sounding, 220 fm;
wind, 330°, force 3; weather, missing; sea, moderate; wire angle, 12°.

121.41

0	21.66	34.11	0	21.66	34.11	23.66	424	0.00
10	21.52	34.10	10	21.52	34.10	23.69	422	0.04
24	15.66	33.48	20	18.00	33.95	24.49	345	0.08
48	12.32	33.36	30	12.85	33.39	25.20	278	0.11
71	14.29	34.32	50	12.34	33.36	25.27	271	0.17
92	12.15	34.02	75	14.24	34.32	25.63	237	0.23
137	12.41	34.43	100	12.17	34.07	25.85	216	0.29
180	11.40	34.52	150	12.22	34.46	26.15	187	0.39
224	11.23	34.60	200	11.31	34.56	26.40	164	0.48
270	10.88	34.60	250	11.08	34.60	26.47	157	0.56
323	9.88	34.53	300	10.37	34.56	26.56	148	0.64

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