

# data report

## PHYSICAL AND CHEMICAL DATA

CalCOFI Cruise 6607  
8-29 July

CalCOFI Cruise 6608  
5-25 August

Special Cruise 6608  
27 August - 1 September

and

CalCOFI Cruise 6609  
7-24 September

SIO Reference 68-21

UNIVERSITY OF CALIFORNIA  
SCRIPPS INSTITUTION OF OCEANOGRAPHY

PHYSICAL AND CHEMICAL DATA

CalCOFI Cruise 6607  
8-29 July

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27 August - 1 September

and

CalCOFI Cruise 6609  
7-24 September

Sponsored by  
Marine Research Committee

SIO Reference 68-21

Approved for distribution:

  
W. A. Nierenberg, Director

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## INTRODUCTION

The data in this report were collected on Cruises 6607, 6608 and 6609 of the California Cooperative Fisheries Investigations (CalCOFI) program by the RV David Starr Jordan of the Bureau of Commercial Fisheries and the RV Alexander Agassiz of the Scripps Institution of Oceanography. Data for Special Cruise 6608 by the RV Alexander Agassiz are also included in this report. The first two figures in this cruise-numbering system represent the year of the cruise; the last two figures, the month. The cruises preceding this one in the series are 6507 and 6509, both of which appear in Scripps Institution report, SIO Ref. 67-17; and 6601, 6602, 6604, 6605 and 6606, all of which appear in SIO Ref. 68-3.

These data were collected in part by personnel of and processed completely by the Data Collection and Processing Group (DCPG, MLR), Scripps Institution of Oceanography.

### TABULATED DATA

On Cruises 6607 and Special Cruise 6608 the Nansen-bottle-cast data are tabulated at observed depths; the values at standard depths are computer interpolations according to a modified Rattray technique<sup>1/</sup>, except that some property values at standard depths have been determined from consideration of other information such as bathythermograph traces and adjacent stations. These property values were entered in the "observed" columns to prevent instabilities or to indicate features not covered by the hydrographic cast. The values are indicated by notations (see FOOTNOTES).

On Cruises 6608 and 6609 only 10-meter temperature and salinity values were collected.

The Salinity-Temperature-Depth Recorder was not used on any of the cruises in this report.

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<sup>1/</sup>Rattray, Maurice (1962). Interpolation errors and oceanographic sampling. Deep-Sea Res. 9: 25-37.

The data tabulated are of the same type as have previously appeared in these reports; the column headings from the computer are explained as follows:

Z	Depth in meters	
T	Temperature	°C
S	Salinity	‰
OXY	Oxygen	ml/L
PHO	Phosphate	µg at/L
SIL	Silicate	µg at/L
NIT	Nitrite	µg at/L
D*T	$\delta_T$	cl/ton
SIG*T	$\sigma_t$	g/L
DD	$\Delta D$	dyn. m

## STANDARD PROCEDURES

The observed data have been plotted and then evaluated using the method described by Klein.<sup>2/</sup> This involves consideration of their variation as functions of density or depth and their relation to each other and comparison with concurrent bathythermograph observations and with previous or adjacent observations. The 125-meter level was introduced into the integration to obtain greater accuracy in the determination of  $\Delta D$ .

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. The salinity values obtained by salinometer are recorded to three decimal places, provided they meet accepted standards. The values recorded "have a reproducibility of  $\pm 0.004\%$  salinity at the 95 per cent probability level, and a probable accuracy of  $\pm 0.01\%$  salinity or better at the same level of probability."<sup>3/</sup> The values are recorded to two decimal places when only one determination per sample was obtained, or where there is doubt concerning the accuracy of a particular sample, or of all samples on a station. The accuracy of all samples obtained by salinometer and recorded to two decimal places is believed to be equal to or better than those obtained by manual titration.

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<sup>2/</sup>Klein, Hans T. A new technique for processing physical oceanographic data. MS.

<sup>3/</sup>Quotation from Department of Oceanography, University of Washington, Tech. Rep. No. 66, UW Ref. 60-18, October 1960.



A hyphen is used to indicate a missing observed value. The time is the time of messenger release. When more than one bottle cast was made on station, messenger times and wire angles are given in order of increasing depth, and a significant change in position during a multiple cast is listed similarly. Multiple casts are indicated by a letter following all observed depths of each cast except the cast originating at the surface. Footnotes corresponding to each letter explain the type of cast.

On stations where more than one cast was lowered, slight discrepancies in the property values may be noted. These may be caused by changes in geographical position, real changes with time, slight errors in measurement or a combination of these factors. Values at standard depths in the area of these discrepancies may be determined from reconciliation of the plotted observed values and entered in the "observed" columns with notations.

#### FOOTNOTES

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

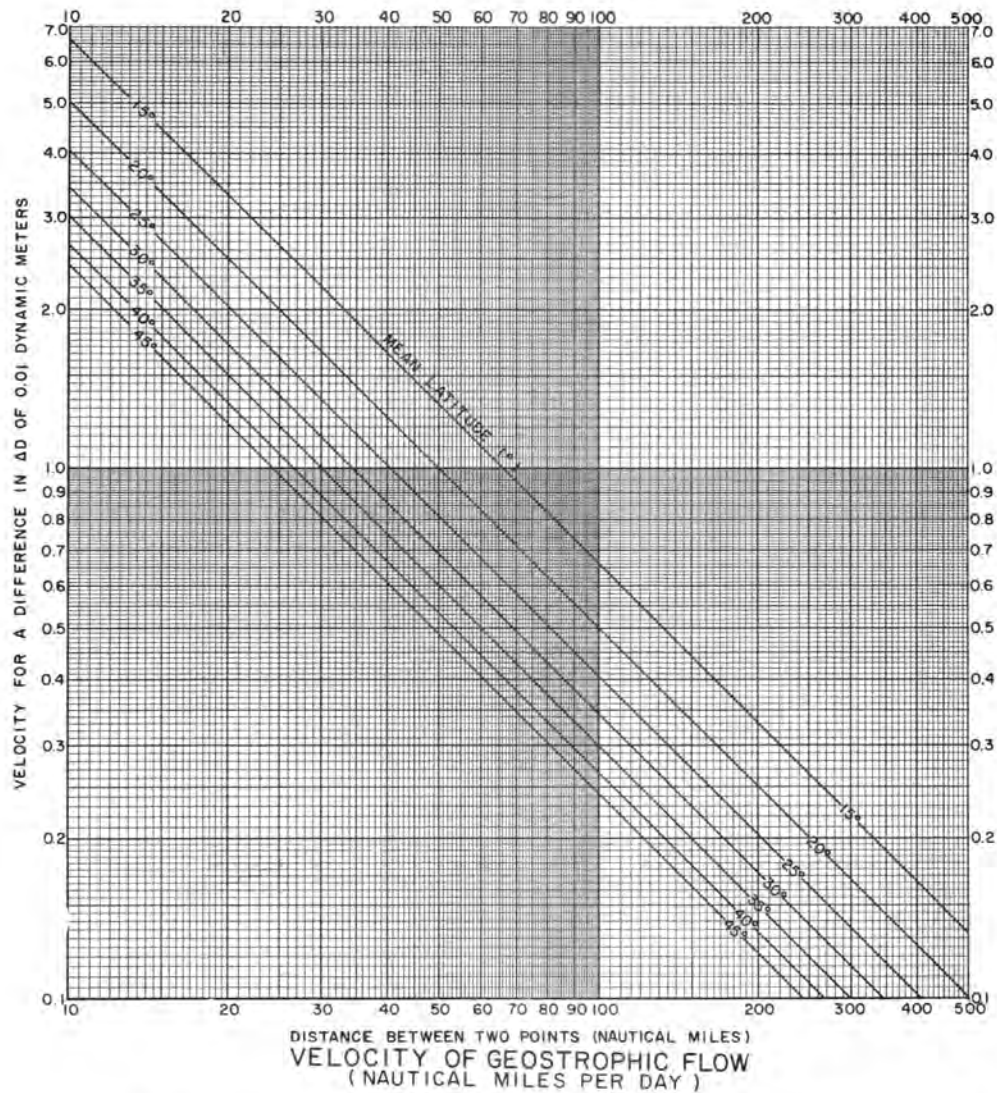
Values which are not used in interpolation because they seem to be in error without apparent reason are indicated by the following notation.

u: uncertain value

Values at standard levels of depth entered in the observed columns to limit machine interpolations may have either of the following notations.

k: a value determined from another measurement such as a bathythermogram or STD recording.

g: a value determined from considerations such as stability or previous or surrounding stations.



cm/sec	0	1	2	3	4	5	6	7	8	9
0	<i>KNOTS</i> 0.02 <i>NM/DAY</i>	0.04 0.47	0.06 0.93	0.08 1.40	0.10 1.86	0.12 2.33	0.14 2.80	0.16 3.26	0.17 3.73	0.17 4.20
10	0.19 4.66	0.21 5.13	0.23 5.59	0.25 6.06	0.27 6.53	0.29 6.99	0.31 7.46	0.33 7.93	0.35 8.39	0.37 8.86
20	0.39 9.32	0.41 9.79	0.43 10.26	0.45 10.72	0.47 11.19	0.49 11.66	0.51 12.12	0.52 12.59	0.54 13.05	0.56 13.52
30	0.58 13.99	0.60 14.45	0.62 14.92	0.64 15.38	0.66 15.85	0.68 16.32	0.70 16.78	0.72 17.25	0.74 17.72	0.76 18.18
40	0.78 18.65	0.80 19.11	0.82 19.58	0.84 20.05	0.85 20.51	0.87 20.98	0.89 21.45	0.91 21.91	0.93 22.38	0.95 22.84
50	0.97 23.31	0.99 23.78	1.01 24.24	1.03 24.71	1.05 25.17	1.07 25.64	1.09 26.11	1.11 26.57	1.13 27.04	1.15 27.51
60	1.17 27.98	1.18 28.44	1.20 28.90	1.22 29.37	1.24 29.84	1.26 30.30	1.28 30.77	1.30 31.24	1.32 31.70	1.34 32.17
70	1.36 32.63	1.38 33.10	1.40 33.57	1.42 34.03	1.44 34.50	1.46 34.96	1.48 35.43	1.50 35.90	1.52 36.36	1.53 36.83
80	1.55 37.30	1.57 37.76	1.59 38.23	1.61 38.69	1.63 39.16	1.65 39.63	1.67 40.09	1.69 40.56	1.71 41.03	1.73 41.49
90	1.75 41.96	1.77 42.42	1.79 42.89	1.81 43.36	1.83 43.82	1.85 44.29	1.86 44.76	1.88 45.22	1.90 45.69	1.92 46.15
100	1.94 46.62	1.96 47.09	1.98 47.55	2.00 48.02	2.02 48.48	2.04 48.95	2.06 49.42	2.08 49.88	2.10 50.35	2.12 50.82

CONVERSION TABLE  
( CENTIMETERS / SECOND - KNOTS - NAUTICAL MILES / DAY )

1cm/sec=0.019 kts = 0.466 NAUTICAL MILES / DAY  
 1kt = 24 NAUTICAL MILES / DAY = 51.48 cm/sec  
 1 NAUTICAL MILE / DAY=0.042 kts = 2.14 cm/sec

FIGURES  
Cruise 6608

1. CalCOFI Cruise 6608, station positions
2. Horizontal distribution of temperature at 10 meters
3. Horizontal distribution of salinity at 10 meters
4. Horizontal distribution of thermosteric anomaly at 10 meters



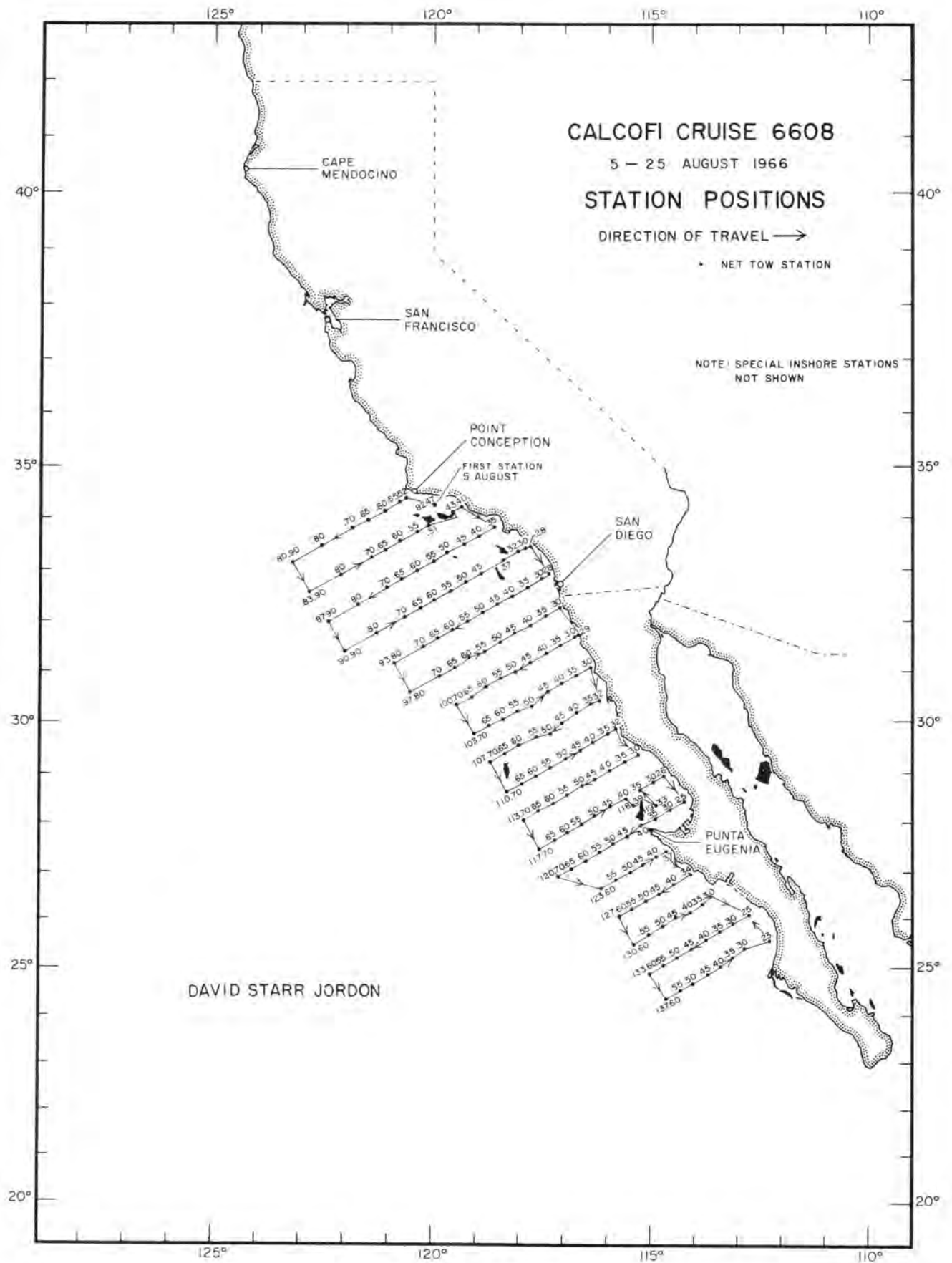


FIGURE 1

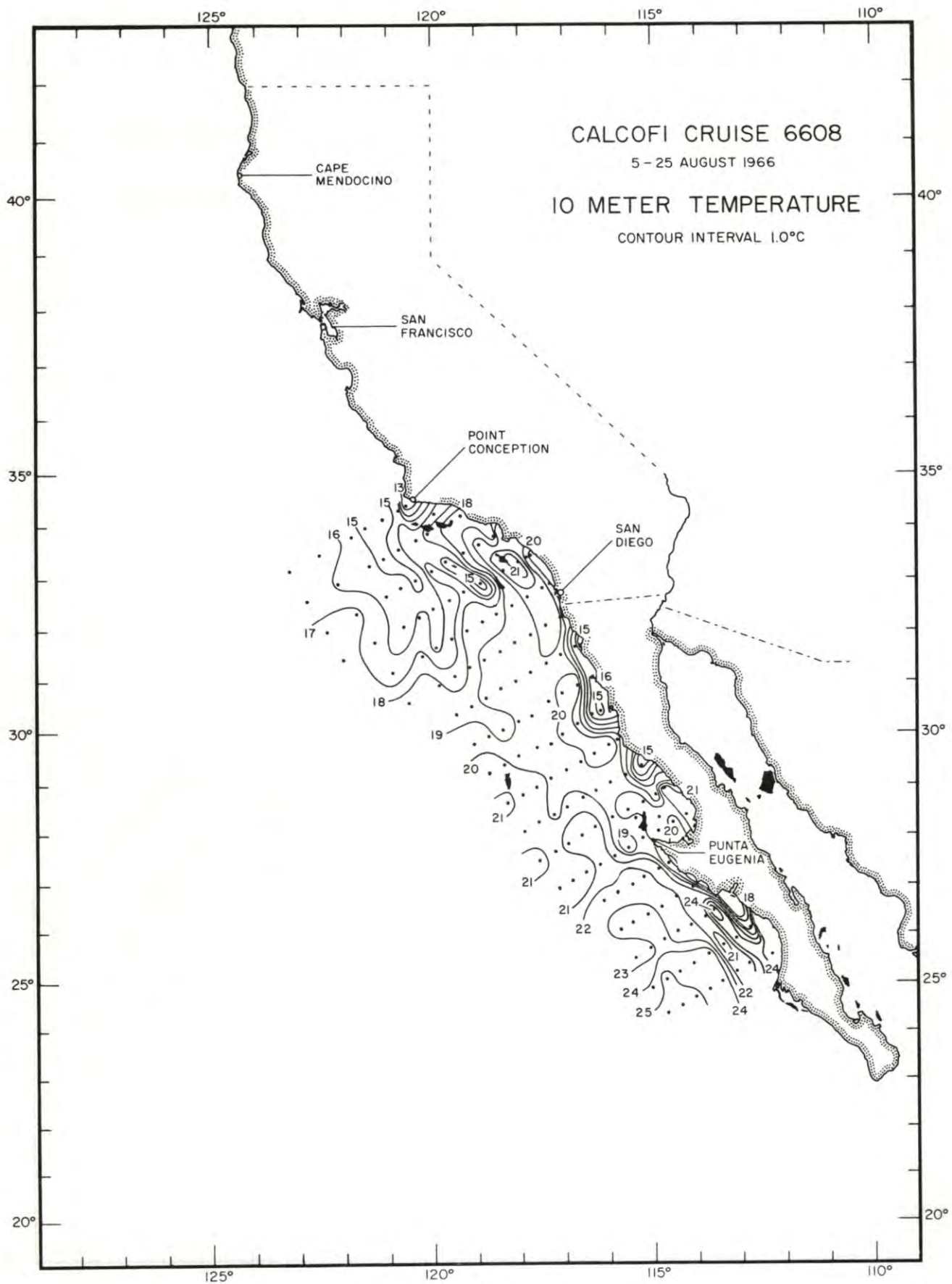


FIGURE 2

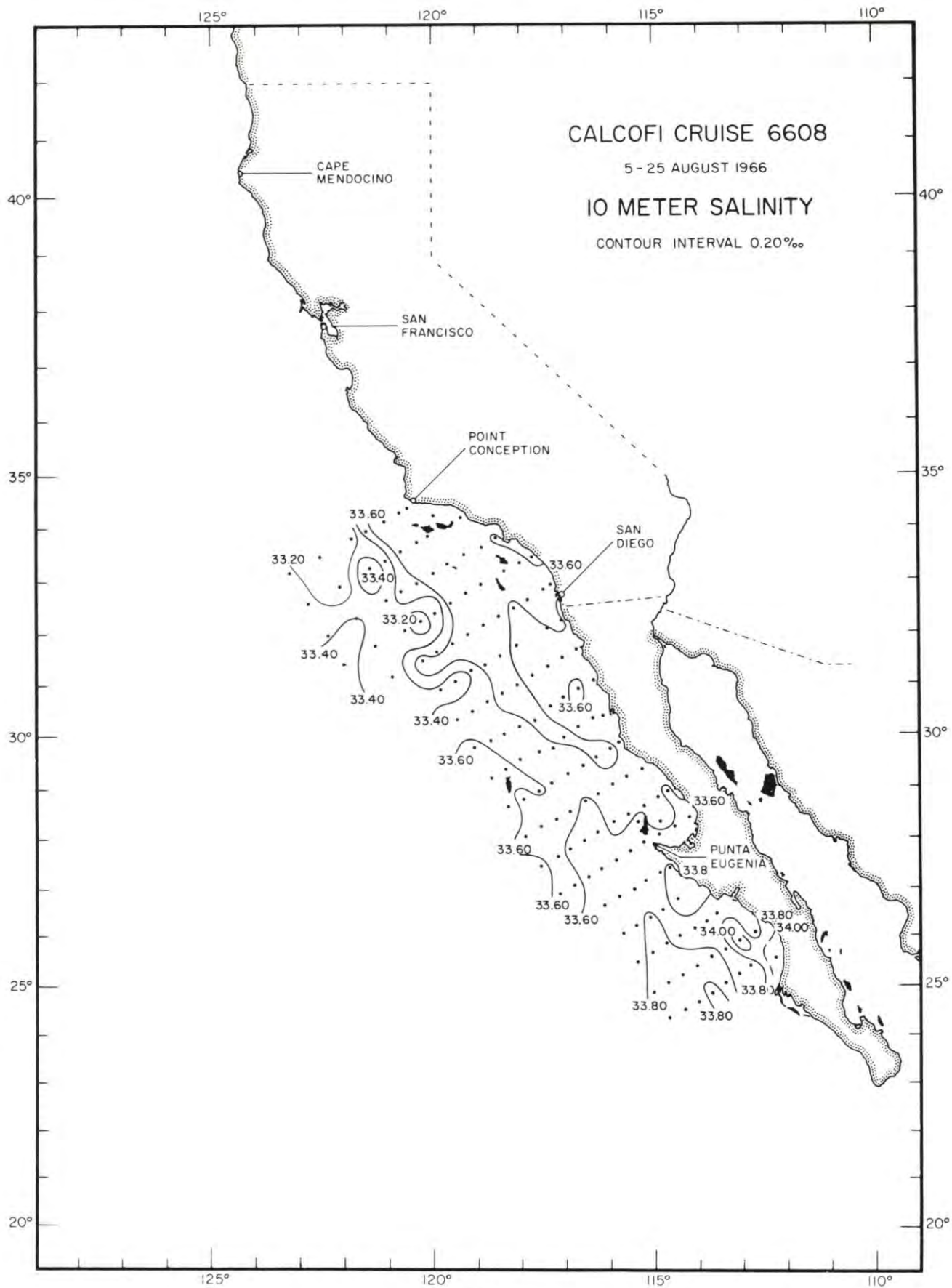


FIGURE 3



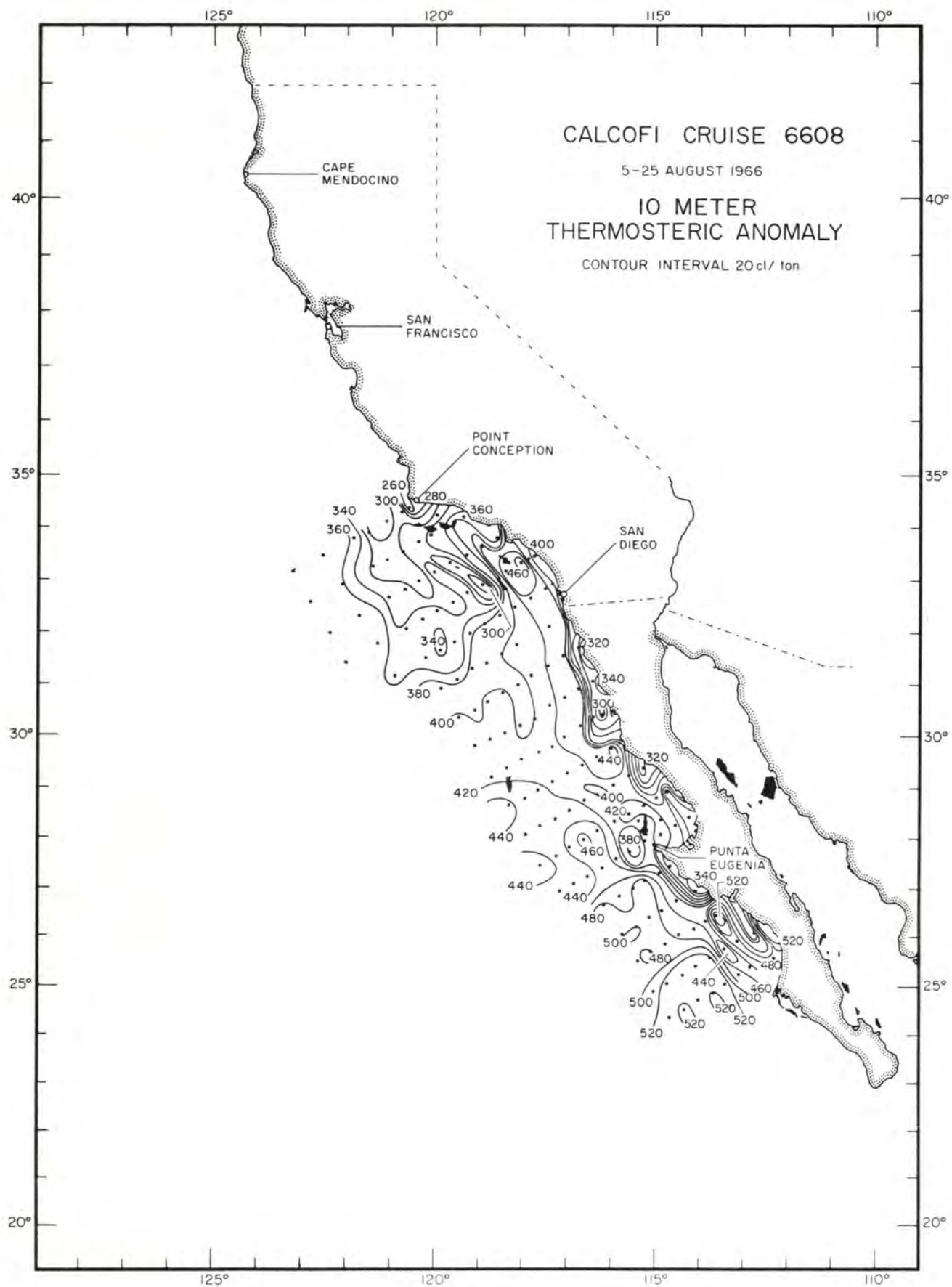


FIGURE 4

PERSONNEL  
Cruise 6608

SHIPS' CAPTAINS

Davis, Laurence E., RV Alexander Agassiz  
Leed, Bjarne, RV David Starr Jordan

PERSONNEL PARTICIPATING IN THE COLLECTION OF DATA

RV Alexander Agassiz

Schwartzlose, Richard A., Associate Specialist in Oceanography (in charge)  
Berger, Wolfgang H., Research Assistant  
Brennen, Robert E., Senior Marine Technician  
Brown, Daniel M., Principal Marine Technician  
\*Dacy, Russell F., Electronics Technician  
\*Isaacs, Prof. John D., Director, Marine Life Research Group  
Kolodny, Yehoshua, Graduate Student, R. A., UCLA  
Nissenbaum, Arie, Graduate Student, R. A., Institute of Geophysics, UCLA  
\*Rosendahl, Donald V., Senior Electronics Technician  
Schmitt, Walter R., Associate Specialist in Geophysics  
Soutar, Andrew, Laboratory Technician

RV David Starr Jordan

Farrar, Lloyd J., Biological Technician (Fisheries), Bureau of Commercial  
Fisheries  
\*\*Kirk, Patricia, Physical Science Technician, Bureau of Commercial Fisheries  
Paloma, Pedro, Biological Technician (Fisheries), Bureau of Commercial  
Fisheries  
\*\*\*Reith, Dougall, Principal Marine Technician

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\*Disembarked 30 August.  
\*\*Lines 80 through 90 only.  
\*\*\*Lines 93 through 137 only.

DATA AT NET TOW STATIONS										10 METERS		
Station	Date	Time GCT	Latitude North	Longitude West	Sounding (fm)	Wind		Weather	Sea	T °C	S ‰	$\delta_T$ cl/ton
						Dir	Force					
80.51-J	VIII-5	2130	34°26.0'	120°32.5'	50	-	-	overcast	very rough	12.94	33.641	261
80.52-J	5	2220	34°24.5'	120°36.5'	175	-	-	overcast	very rough	12.61	33.671	253
80.55-J	6	0000	34°19.0'	120°48.0'	420	-	-	overcast	very rough	15.48	33.686	308
80.60-J	6	0240	34°09.0'	121°09.0'	1250	340	5	overcast	very rough	14.52	33.796	281
80.65-J	6	0455	33°59.0'	121°30.0'	1845	330	5	missing	high	14.58	33.553	300
80.70-J	6	0725	33°48.5'	121°51.0'	1975	320°	5	missing	high	15.66	33.082	356
80.80-J	6	1145	33°28.5'	122°32.0'	2150	300°	4	missing	high	16.78	33.101	379
80.90-J	6	1615	33°09.0'	123°13.0'	2400	300°	4	cloudy	high	16.63	33.206	369
82.47-J	5	1750	34°15.0'	119°59.0'	310	240°	3	partly cloudy	moderate	16.73	33.692	335
83.40-J	7	2235	34°14.5'	119°21.5'	11	280°	4	missing	moderate	18.25	33.626	375
83.43-J	7	2110	34°08.0'	119°34.0'	124	280°	3	cloudy	moderate	18.62	33.661	381
83.51-J	7	1400	33°52.0'	120°07.5'	70	080°	2	cloudy	rough	17.28	33.602	354
83.55-J	7	1220	33°45.0'	120°22.5'	600	080°	2	missing	rough	16.27	33.644	328
83.60-J	7	0940	33°34.0'	120°45.0'	1000	090°	2	missing	rough	15.90	33.652	320
83.65-J	7	0720	33°24.0'	121°06.0'	1900	050°	3	missing	rough	14.54	33.310	317
83.70-J	7	0450	33°14.5'	121°26.0'	2100	050°	3	missing	rough	15.50	33.555	318
83.80-J	7	0050	32°54.0'	122°08.0'	2200	360°	4	overcast	very rough	15.97	33.105	361
83.90-J	6	2020	32°34.5'	122°50.0'	2390	360°	4	cloudy	high	16.63	33.214	368
87.33-J	8	0305	33°54.0'	118°29.5'	28	260°	3	overcast	moderate	20.58	33.642	430



Station	Date	Time GCT	DATA AT NET TOW STATIONS						10 METERS		
			Latitude North	Longitude West	Sounding (fm)	Wind Dir Force	Weather	Sea	T °C	S ‰	$\delta_T$ cl/ton
87.35-J	VIII-8	0420	33°50.0'	118°37.5'	340°	280° 4	overcast	slight	18.18	33.594	376
87.40-J	8	0620	33°40.0'	118°58.0'	450	240° 3	missing	slight	20.32	33.691	421
87.45-J	8	0825	33°30.0'	119°19.0'	900	300° 1	missing	slight	18.08	33.673	368
87.50-J	8	1050	33°20.0'	119°39.5'	48	270° 1	missing	rough	15.98	33.770	313
87.55-J	8	1310	33°10.0'	120°00.0'	650	300° 2	overcast	rough	17.21	33.735	343
87.60-J	8	1540	33°00.0'	120°21.5'	500	250° 2	overcast	very rough	14.86	33.563	305
87.65-J	8	1750	32°49.5'	120°41.5'	2025	270° 2	cloudy	moderate	15.62	33.462	328
87.70-J	8	1955	32°39.5'	121°02.0'	2075	270° 2	cloudy	moderate	15.28	33.252	336
87.80-J	9	0005	32°19.5'	121°43.0'	2100	300° 2	cloudy	rough	17.10	33.400	365
87.90-J	9	0420	31°59.0'	122°24.0'	2250	320° 4	missing	very rough	17.26	33.397	369
90.28-J	10	1235	33°27.5'	117°46.5'	250	- 1	cloudy	slight	18.96	33.589	394
90.30-J	10	1115	33°25.0'	117°53.5'	340	- 1	missing	moderate	19.77	33.610	412
90.32-J	10	1010	33°20.5'	118°03.0'	400	- 1	missing	moderate	22.35	33.721	471
90.37-J	10	0800	33°11.0'	118°22.5'	650	- 1	missing	moderate	21.60	33.701	453
90.45-J	10	0440	32°54.5'	118°55.0'	950	280° 2	missing	rough	14.66	33.615	297
90.50-J	10	0210	32°45.0'	119°16.0'	240	250° 3	cloudy	rough	17.50	33.721	351
90.55-J	9	2350	32°35.0'	119°37.0'	520	340° 2	cloudy	rough	16.38	33.696	327
90.60-J	9	2140	32°25.0'	119°57.5'	465	270° 2	cloudy	rough	15.84	33.288	346
90.65-J	9	1935	32°14.5'	120°18.0'	2000	260° 2	cloudy	rough	16.17	33.192	359

DATA AT NET TOW STATIONS										10 METERS		
Station	Date	Time GCT	Latitude North	Longitude West	Sounding (fm)	Wind		Weather	Sea	T °C	S ‰	$\delta_T$ cl/ton
						Dir	Force					
90.70-J	VIII-9	1715	32°04.5'	120°38.5'	2100	290°	2	cloudy	rough	15.51	33.251	341
90.80-J	9	1230	31°45.5'	121°19.0'	2200	320°	2	missing	rough	16.66	33.222	368
90.90-J	9	0825	31°24.0'	122°01.0'	2050	320°	3	missing	very rough	17.28	33.431	366
93.27-J	10	1635	32°56.0'	117°19.0'	43	210°	1	cloudy	slight	18.74	33.632	386
93.28-J	10	1720	32°54.5'	117°22.0'	300	-	1	cloudy	slight	19.56	33.665	403
93.30-J	11	0250	32°50.0'	117°30.5'	450	290°	3	partly cloudy	moderate	20.55	33.650	429
93.35-J	11	0505	32°39.0'	117°52.5'	260	280°	2	missing	moderate	20.75	33.634	435
93.40-J	11	0715	32°30.0'	118°11.5'	1000	290°	3	missing	moderate	19.38	33.580	405
93.45-J	11	0915	32°20.0'	118°32.0'	500	290°	2	missing	moderate	18.76	33.651	385
93.50-J	11	1140	32°10.0'	118°52.5'	800	310°	2	missing	moderate	18.51	33.636	380
93.55-J	11	1350	32°00.0'	119°14.0'	700	270°	2	fog	moderate	18.54	33.661	379
93.60-J	11	1630	31°50.0'	119°34.0'	1200	270°	3	cloudy	rough	16.96	33.644	343
93.65-J	11	1845	31°40.0'	119°53.5'	2025	320°	2	cloudy	rough	15.96	33.597	325
93.70-J	11	2115	31°30.0'	120°14.0'	2000	330°	1	cloudy	rough	17.36	33.682	350
93.80-J	12	0125	31°10.0'	120°54.5'	2200	280°	1	cloudy	moderate	16.14	33.238	355
97.29-J	14	0510	32°17.5'	117°04.5'	30	-	-	cloudy	moderate	18.45	33.578	383
97.30-J	14	0435	32°16.0'	117°07.0'	30	-	-	cloudy	moderate	20.38	33.694	422
97.35-J	14	0210	32°05.5'	117°27.5'	700	290°	3	cloudy	rough	20.31	33.590	428
97.40-J	14	0005	31°56.0'	117°48.0'	800	350°	4	partly cloudy	rough	19.80	35.088u	306u

Station	Date	Time GCT	DATA AT NET TOW STATIONS						10 METERS		
			Latitude North	Longitude West	Sounding (fm)	Wind Dir Force	Weather	Sea	T °C	S ‰	$\delta_T$ cl/ton
97.45-J	VIII-13	2140	31°46.0'	118°08.5'	900	350° 4	cloudy	rough	19.24	33.533	406
97.50-J	13	1915	31°34.0'	118°29.0'	1300	330° 3	cloudy	rough	19.52	33.694	400
97.55-J	13	1705	31°25.0'	118°50.0'	260	360° 3	cloudy	rough	19.20	33.679	394
97.60-J	13	1450	31°17.0'	119°09.5'	2000	340° 2	cloudy	rough	18.04	33.410	386
97.65-J	13	1235	31°05.5'	119°30.0'	1930	290° 3	missing	rough	17.64	33.379	379
97.70-J	13	1005	30°55.0'	119°50.5'	2000	280° 2	missing	moderate	18.02	33.395	387
97.80-J	13	0605	30°35.0'	120°31.0'	2125	290° 2	missing	moderate	18.42	-	
100.29-J	14	0915	31°42.0'	116°43.5'	85	- 1	missing	smooth	14.84	33.512	308
100.30-J	14	1015	31°40.5'	116°46.5'	230	270° 2	missing	moderate	16.38	33.519	340
100.35-J	14	1235	31°30.5'	117°07.0'	650	300° 3	missing	moderate	19.94	33.520	423
100.40-J	14	1440	31°21.0'	117°27.0'	1050	300° 4	cloudy	rough	19.96	33.519	423
100.45-J	14	1700	31°10.5'	117°46.5'	1000	320° 4	cloudy	moderate	19.02	33.476	404
100.50-J	14	1915	31°01.0'	118°08.0'	950	320° 4	cloudy	moderate	19.20	33.652	396
100.55-J	14	2125	30°50.5'	118°27.5'	1300	320° 4	cloudy	moderate	19.44	33.656	401
100.60-J	14	2345	30°40.5'	118°47.5'	1520	280° 4	cloudy	rough	19.17	33.535	403
100.65-J	15	0210	30°30.0'	119°08.0'	1700	300° 4	cloudy	rough	18.66	33.458	397
100.70-J	15	0430	30°20.5'	119°27.5'	200	310° 4	overcast	rough	18.74	33.418	402



DATA AT NET TOW STATIONS										10 METERS		
Station	Date	Time GCT	Latitude North	Longitude West	Sounding (fm)	Wind		Weather	Sea	T °C	S ‰	$\delta_T$ cl/ton
						Dir	Force					
103.29-J	VIII-16	0405	31°07.0'	116°21.0'	-	-	-	missing	missing	16.79a)	33.534	349a)
103.30-J	16	0325	31°06.0'	116°24.5'	34	330°	3	cloudy	moderate	15.99	33.479	334
103.35-J	16	0125	30°56.0'	116°45.0'	800	330°	4	cloudy	moderate	20.76	33.632	435
103.40-J	15	2310	30°46.0'	117°05.0'	1100	320°	4	cloudy	moderate	20.20	33.589	425
103.45-J	15	2050	30°36.0'	117°24.0'	1150	320°	4	cloudy	rough	19.79	33.589	415
103.50-J	15	1750	30°20.0'	117°44.0'	925	320°	4	cloudy	rough	19.29	33.625	400
103.55-J	15	1535	30°12.0'	118°05.0'	1600	350°	4	cloudy	rough	19.06	33.572	398
103.60-J	15	1320	30°04.0'	118°25.0'	1600	330°	4	cloudy	moderate	18.84	33.452	402
103.65-J	15	1050	29°56.5'	118°44.0'	1850	330°	4	missing	moderate	19.06	33.433	408
103.70-J	15	0825	29°46.5'	119°04.0'	1850	330°	4	missing	moderate	19.73	33.650	408
107.31-J	16	0810	30°28.0'	116°07.0'	-	-	-	missing	missing	15.48	33.463	325
107.32-J	16	0855	30°26.5'	116°11.0'	150	320°	2	missing	moderate	14.29	33.463	300
107.35-J	16	1025	30°21.5'	116°22.5'	900	330°	2	missing	moderate	15.58	33.467	326
107.40-J	16	1245	30°11.0'	116°42.0'	1500	330°	3	partly cloudy	moderate	19.94	33.554	421
107.45-J	16	1445	29°59.0'	117°02.0'	800	330°	3	partly cloudy	moderate	20.30	33.610	426
107.50-J	16	1705	29°47.0'	117°20.0'	1400	320°	3	partly cloudy	rough	19.06	33.440	408
107.55-J	16	1930	29°42.0'	117°39.0'	1750	320°	3	partly cloudy	rough	19.26	33.573	403

a) Alternate values: 17.02°C; 354 cl/ton.

Station	Date	Time GCT	DATA AT NET TOW STATIONS						10 METERS		
			Latitude North	Longitude West	Sounding (fm)	Wind Dir Force	Weather	Sea	T °C	S ‰	$\delta_T$ cl/ton
107.60-J	VIII-16	2150	29°32.0'	118°01.5'	1950	320° 4	partly cloudy	rough	19.64	33.552	414
107.65-J	17	0000	29°21.0'	118°21.0'	1600	300° 3	partly cloudy	moderate	20.04	33.695	414
107.70-J	17	0225	29°11.0'	118°41.0'	1200	330° 3	partly cloudy	moderate	20.24	33.730	416
110.32-J	18	0045	29°52.0'	115°48.0'	14	- 1	partly cloudy	slight	19.16	33.578	400
110.35-J	17	2330	29°46.0'	116°00.0'	700	340° 2	cloudy	moderate	20.94	33.608	442
110.40-J	17	2055	29°36.5'	116°19.5'	1325	340° 2	cloudy	moderate	20.14	33.608	422
110.45-J	17	1835	29°25.5'	116°39.0'	340	- 1	cloudy	moderate	19.94	33.576	419
110.50-J	17	1605	29°15.5'	116°59.0'	1900	020° 2	cloudy	moderate	19.18	33.455	409
110.55-J	17	1345	29°06.0'	117°19.5'	1875	360° 3	cloudy	rough	19.77	33.572	415
110.60-J	17	1130	28°56.5'	117°39.0'	1925	330° 4	cloudy	rough	20.35	33.620	426
110.65-J	17	0900	28°46.0'	117°58.0'	1925	330° 4	missing	moderate	20.08	33.554	425
110.70-J	17	0630	28°36.5'	118°18.0'	1950	330° 4	missing	moderate	21.23	33.715	442
113.29-J	18	0515	29°24.0'	115°13.0'	13	- 1	cloudy	slight	15.96	33.570	327
113.30-J	18	0605	29°22.0'	115°18.0'	35	- 1	missing	slight	14.80	33.533	306
113.35-J	18	0815	29°11.5'	115°38.0'	550	- 1	missing	slight	18.98	33.496	401
113.40-J	18	1025	29°02.0'	115°57.0'	1000	- 1	missing	slight	19.35	33.534	408
113.45-J	18	1240	28°51.0'	116°18.5'	1100	310° 2	partly cloudy	moderate	19.04	33.551	400
113.50-J	18	1455	28°41.5'	116°36.5'	2100	270° 2	cloudy	moderate	20.02	33.608	419
113.55-J	18	1705	28°30.5'	116°56.0'	2250	270° 2	cloudy	moderate	20.24	33.588	426

DATA AT NET TOW STATIONS											10 METERS		
Station	Date	Time GCT	Latitude North	Longitude West	Sounding (fm)	Wind		Weather	Sea	T °C	S ‰	$\delta_T$ cl/ton	
						Dir	Force						
113.60-J	VIII-18	1905	28°21.0'	117°15.0'	1900	350°	1	cloudy	moderate	19.94	33.504	424	
113.65-J	18	2130	28°12.0'	117°36.0'	2050	calm		partly cloudy	moderate	20.70	33.565	439	
113.70-J	18	2340	28°02.0'	117°55.0'	1700	350°	2	partly cloudy	moderate	20.50	33.540	436	
117.25-J	20	1545	28°58.0'	114°37.0'	28	300°	2	partly cloudy	slight	18.99	33.576	396	
117.26-J	20	1505	28°56.0'	114°41.5'	38	300°	2	cloudy	moderate	21.24	33.639	448	
117.30-J	20	1315	28°48.0'	114°56.5'	55	300°	2	cloudy	slight	18.32	33.523	384	
117.35-J	20	1105	28°38.0'	115°16.0'	100	350°	2	missing	moderate	20.35	33.580	429	
117.40-J	19	1755	28°28.0'	115°35.5'	540	350°	3	partly cloudy	rough	20.48	33.576	433	
117.45-J	19	1525	28°18.0'	115°56.0'	1750	350°	2	cloudy	rough	19.90	33.585	417	
117.50-J	19	1245	28°08.0'	116°19.5'	2200	340°	2	missing	moderate	21.02	33.644	442	
117.55-J	19	1020	27°58.0'	116°37.5'	1850	320°	3	missing	moderate	21.86	33.670	462	
117.60-J	19	0810	27°48.0'	116°55.5'	2000	350°	3	missing	moderate	21.06	33.672	441	
117.65-J	19	0555	27°37.5'	117°13.0'	1950	350°	3	missing	moderate	20.43	33.489	438	
117.70-J	19	0340	27°27.5'	117°32.5'	2100	350°	1	partly cloudy	moderate	21.43	33.643	452	
118.39-J	19	1955	28°18.5'	117°23.5'	120	-	1	partly cloudy	slight	19.44	33.660	401	
119.33-J	20	0805	28°19.0'	114°53.0'	60	350°	3	missing	moderate	20.12	33.576	424	
120.24-J	20	1945	28°25.0'	114°10.5'	21	310°	4	clear	slight	21.28	33.644	448	
120.25-J	20	2015	28°22.5'	114°15.0'	32	310°	4	clear	moderate	21.59	33.649	456	
120.30-J	20	2220	28°13.0'	114°34.0'	50	310°	3	clear	moderate	19.84	33.607	414	



DATA AT NET TOW STATIONS											10 METERS		
Station	Date	Time GCT	Latitude North	Longitude West	Sounding (fm)	Wind		Weather	Sea	T °C	S ‰	$\delta_T$ cl/ton	
						Dir	Force						
120.35-J	VIII-21	0040	28°03.0'	114°54.0'	43	350°	2	partly cloudy	slight	20.49	33.614	430	
120.40-J	21	0225	27°56.5'	115°14.0'	21	300°	5	partly cloudy	moderate	19.62	33.679	404	
120.45-J	21	0445	27°43.0'	115°33.0'	1200	340°	4	missing	moderate	18.38	33.627	378	
120.50-J	21	0705	27°33.0'	115°52.5'	2050	340°	3	missing	rough	20.79	33.606	438	
120.55-J	21	0920	27°22.0'	116°11.5'	1950	320°	3	missing	rough	21.32	33.623	451	
120.60-J	21	1130	27°11.5'	116°30.0'	1960	320°	3	missing	rough	20.54	33.622	431	
120.65-J	21	1340	27°03.0'	116°50.0'	2050	340°	3	partly cloudy	rough	20.51	33.499	439	
120.70-J	21	1605	26°53.0'	117°09.0'	3000	340°	3	partly cloudy	very rough	20.15	33.576	425	
123.36-J	22	0905	27°26.0'	114°36.0'	25	300°	5	missing	moderate	17.29	33.776	342	
123.37-J	22	0825	27°24.0'	114°40.0'	38	300°	5	missing	moderate	18.16	33.903	352	
123.40-J	22	0650	27°18.0'	114°52.0'	255	320°	5	missing	moderate	21.07	33.761	435	
123.45-J	22	0425	27°08.0'	115°11.5'	2250	330°	5	missing	rough	22.66	33.698	482	
123.50-J	22	0205	26°59.0'	115°30.0'	1950	330°	5	clear	rough	22.75	33.675	484	
123.55-J	21	2355	26°48.5'	115°49.5'	2000	330°	4	partly cloudy	rough	22.09	33.654	469	
123.60-J	21	2120	26°38.5'	116°09.0'	2100	330°	5	partly cloudy	rough	22.40	33.611	481	
127.33-J	22	1340	26°57.5'	114°02.0'	35	360°	4	partly cloudy	moderate	17.41	33.873	337	
127.34-J	22	1420	26°55.0'	114°06.5'	43	360°	4	partly cloudy	rough	20.82	-		
127.40-J	22	1700	26°43.5'	114°29.0'	1700	330°	5	partly cloudy	rough	22.04	33.960	446	
127.45-J	22	1910	26°33.0'	114°48.5'	1850	320°	5	partly cloudy	rough	22.36	33.667	475	

Station	Date	Time GCT	DATA AT NET TOW STATIONS						10 METERS			
			Latitude	Longitude	Sounding	Wind		Weather	Sea	T	S	$\delta_T$
			North	West	(fm)	Dir	Force			°C	‰	cl/ton
127.50-J	VIII-22	2125	26°23.0'	115°08.0'	1950	320°	5	partly cloudy	rough	23.42	33.850	491
127.55-J	22	2345	26°13.5'	115°27.5'	1975	320°	5	partly cloudy	rough	23.38	33.709	500
127.60-J	23	0200	26°05.0'	115°45.0'	2050	320°	5	partly cloudy	rough	23.50	33.779	498
130.28-J	23	2050	26°33.0'	113°21.0'	30	130°	3	partly cloudy	moderate	17.72	-	
130.30-J	23	1955	26°29.0'	113°29.0'	39	120°	2	cloudy	rough	24.58	33.742	531
130.35-J	23	1720	26°19.0'	113°49.5'	450	080°	3	cloudy	rough	21.37	33.665	449
130.40-J	23	1510	26°08.5'	114°07.0'	1250	020°	2	fog	rough	22.36	33.659	476
130.45-J	23	1255	26°03.0'	114°28.0'	1800	340°	4	partly cloudy	rough	22.38	33.665	476
130.50-J	23	1040	25°51.5'	114°46.5'	1960	340°	4	missing	rough	23.28	33.829	488
130.55-J	23	0820	25°40.5'	115°05.0'	2000	350°	4	missing	rough	22.94	33.821	480
130.60-J	23	0600	25°29.0'	115°24.0'	2050	320°	4	missing	rough	22.93	33.755	484
133.23-J	24	0130	26°08.5'	112°40.0'	38	270°	2	partly cloudy	moderate	24.70	33.951	520
133.25-J	24	0230	26°04.5'	112°48.0'	43	-	1	partly cloudy	moderate	19.90	33.728	407
133.30-J	24	0455	25°54.5'	113°07.5'	104	-	1	missing	moderate	23.75	34.027	487
133.35-J	24	0710	25°44.5'	113°26.5'	360	-	1	missing	moderate	20.56	33.623	431
133.40-J	24	0925	25°34.0'	113°44.5'	1600	-	1	missing	moderate	24.74	33.908	524
133.45-J	24	1140	25°23.0'	114°04.5'	1950	-	1	missing	moderate	24.76	33.917	524
133.50-J	24	1350	25°12.0'	114°24.5'	2050	320°	2	cloudy	moderate	24.50	33.813	524
133.55-J	24	1605	25°01.5'	114°43.0'	2050	-	1	cloudy	moderate	25.10	33.897	535

Station	Date	Time GCT	DATA AT NET TOW STATIONS						10 METERS		
			Latitude North	Longitude West	Sounding (fm)	Wind Dir Force	Weather	Sea	T °C	S ‰	$\delta_T$ cl/ton
133.60-J	VIII-24	1825	24°50.5'	115°03.0'	2100	- 1	cloudy	moderate	24.03	33.808	511
137.22-J	25	1605	25°36.0'	112°15.0'	30	310° 4	partly cloudy	moderate	24.32	34.173	493
137.23-J	25	1515	25°34.0'	112°19.0'	40	310° 4	partly cloudy	moderate	24.54	34.171	499
137.30-J	25	1210	25°23.0'	112°50.5'	155	300° 3	missing	moderate	21.91	33.751	457
137.35-J	25	0945	25°12.0'	113°08.0'	700	290° 3	missing	moderate	21.92	33.690	462
137.40-J	25	0730	25°01.0'	113°25.0'	1600	320° 2	missing	moderate	24.98	33.907	530
137.45-J	25	0510	24°50.0'	113°43.0'	1775	270° 3	cloudy	rough	24.26	33.773	520
137.50-J	25	0240	24°40.0'	114°02.5'	1900	010° 2	partly cloudy	rough	25.34	34.061	530
137.55-J	25	0040	24°29.5'	114°21.0'	2060	030° 2	cloudy	rough	25.26	34.195	519
137.60-J	24	2205	24°20.0'	114°40.5'	1950	090° 2	cloudy	rough	25.44	34.025	536



FIGURES  
Special Cruise 6608

1. Special Cruise 6608, station positions

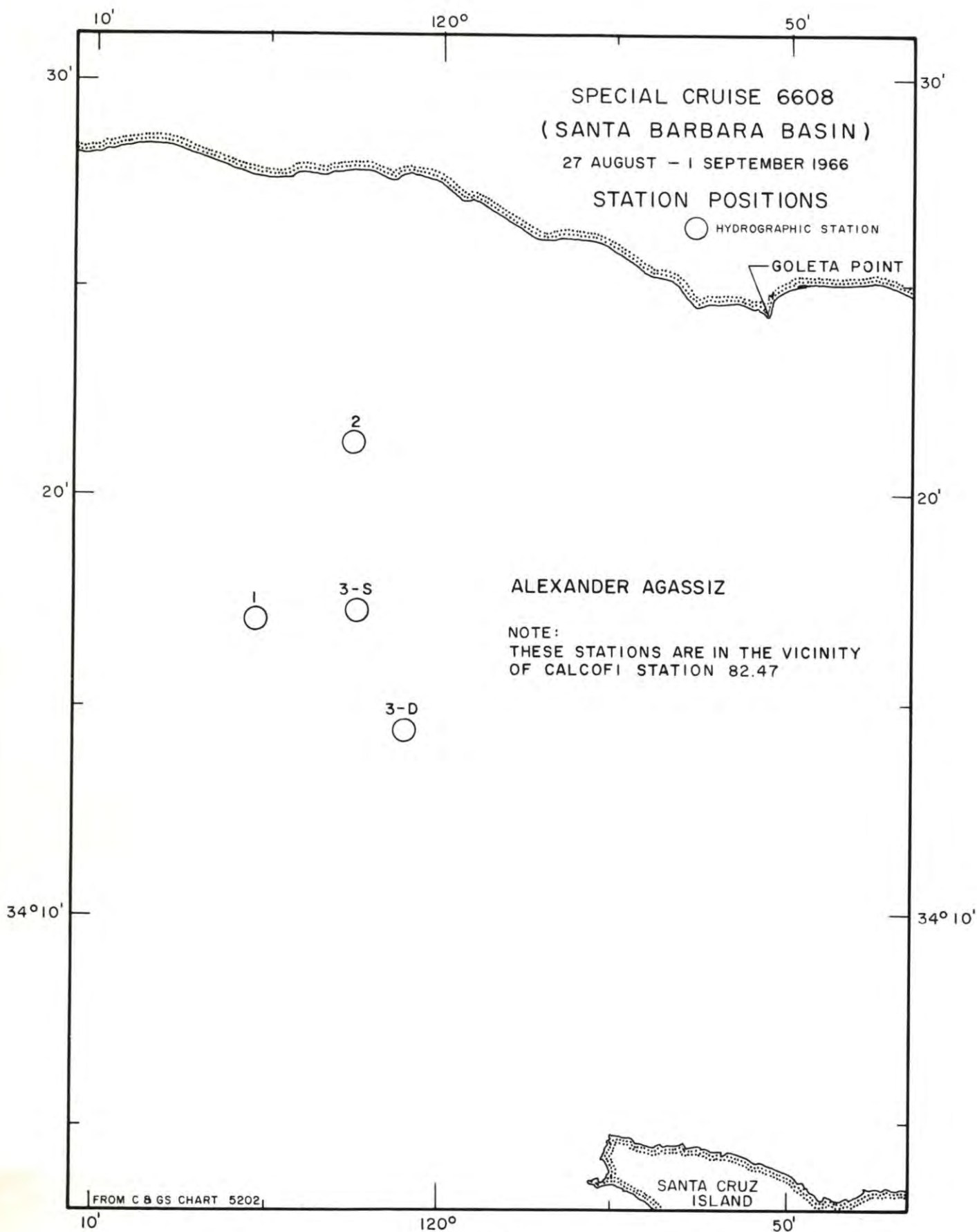


FIGURE 1

PERSONNEL  
Special Cruise 6608

SHIP'S CAPTAIN

Davis, Laurence E., RV Alexander Agassiz

PERSONNEL PARTICIPATING IN THE COLLECTION OF DATA

RV Alexander Agassiz

Brennen, Robert E., Senior Marine Technician (in charge)  
Schmitt, Walter R., Associate Specialist in Geophysics  
Kolodny, Yehoshua, Graduate Student, R. A., UCLA



INPUT							OUTPUT AT STANDARD LEVELS OF DEPTH							
Z	T	S	OXY	PHO	SIL	NIT	D*T	Z	T	S	OXY	SIG*T	D*T	DC
SPECIAL CRUISE 6608														
ALEXANDER AGASSIZ, AUGUST 26 1966, 2242 GMT, 34 17.2N 120 05.3W, SOUNDING 308 FM, WIND 310 FORCE 3, WEATHER CLEAR, SEA ROUGH, WIRE ANGLE 05. A)														
0	17.90K	33.64 G	-	-	-	-	365.6	0	17.90	33.640	-0	24.28	365.6	0
5	17.85	33.638	5.83	-	-	-	364.6	10	17.11	33.623	5.70	24.45	348.8	.036
20	15.30K	33.60 G	-	-	-	-	311.1	20	15.30	33.600	5.45	24.85	311.1	.069
30	14.50K	33.62 G	-	-	-	-	293.2	30	14.50	33.620	5.20	25.04	293.2	.099
75	10.20K	33.72 G	-	-	-	-	207.3	50	12.48	33.660	4.73	25.48	251.2	.154
150	9.50G	34.00 G	-	-	-	-	175.4	75	10.20	33.720	4.18	25.94	207.3	.211
184	9.12	34.085	2.27	-	-	-	163.3	100	9.97	33.813	3.67	26.05	196.7	.262
250	8.70G	34.120G	-	-	-	-	154.4	125	9.73	33.906	3.20	26.16	186.1	.311
381	7.67	34.207	.85	-	-	-	133.2	150	9.50	34.000	2.78	26.28	175.4	.357
392	7.56	34.216	.82	-	-	-	131.0	200	9.00	34.101	2.07	26.43	160.3	.442
402	7.44	34.223	.79	-	-	-	128.8	250	8.70	34.120	1.56	26.50	154.4	.523
412	7.32	34.226	.75	-	-	-	127.0	300	8.35	34.150	1.17	26.57	147.1	.601
422	7.18	34.230	.67	-	-	-	124.8	400	7.46	34.222	.80	26.76	129.2	.745
433	6.96	34.227	.49	-	-	-	122.1	500	6.55	34.244	.24	26.91	115.6	.874
443	6.84	34.230	.43	-	-	-	120.4							
453	6.76	34.235	.40	-	-	-	119.1							
463	6.72	34.241	.37	-	-	-	118.0							
473	6.68	34.240	.35	-	-	-	117.6							
483	6.62	34.240	.30	-	-	-	116.8							
493	6.60	34.245	.30	-	-	-	116.2							
503	6.52	34.244	.22	-	-	-	115.2							
513	-	34.254	.24	-	-	-	-							
523	6.46	34.250	.21	-	-	-	114.0							
533	-	34.249	.23	-	-	-	-							
543	6.46	34.249	.24	-	-	-	114.1							
553	6.42	34.245	.18	-	-	-	113.9							

INPUT							OUTPUT AT STANDARD LEVELS OF DEPTH							
Z	T	S	OXY	PHO	SIL	NIT	D*T	Z	T	S	OXY	SIG*T	D*T	DC
SPECIAL CRUISE 6608														
ALEXANDER AGASSIZ, AUGUST 29 1966, 0630 GMT, 34 21.4N 120 02.6W, SOUNDING 268 FM, WIND 060 FORCE 2, WEATHER CLEAR, SEA MODERATE, WIRE ANGLE 03.														
1	18.25	33.647	6.34	-	-	-	373.3	0	18.25	33.647	6.34	24.20	373.3	0
11	15.88	33.635	5.82	-	-	-	320.9	10	16.09	33.637	5.86	24.70	325.1	.035
31	13.21	33.529	5.40	-	-	-	274.5	20	14.46	33.581	5.61	25.02	295.2	.066
46	11.72	33.585	-	-	-	-	243.1	30	13.30	33.533	5.42	25.22	276.0	.095
56	11.26	33.598	4.27	-	-	-	234.1	50	11.50	33.589	4.55	25.61	238.9	.146
71	10.82	33.698	3.79	-	-	-	219.2	75	10.62	33.736	3.64	25.88	213.1	.203
86	10.10	33.841	3.26	-	-	-	196.7	100	9.80	33.943	2.93	26.18	184.4	.253
101	9.79	33.949	2.91	-	-	-	183.8	125	9.70	33.974	2.82	26.22	180.5	.299
126	9.70	33.975	2.82	-	-	-	180.4	150	9.61	33.996	2.75	26.25	177.5	.345
146	9.66	33.989	2.76	-	-	-	178.8	200	8.96	34.116	2.07	26.45	158.6	.431
177	9.22	34.056	2.63	-	-	-	167.0	250	8.62	34.175	1.49	26.55	149.1	.510
207	8.90	34.133	1.89	-	-	-	156.4	300	8.15	34.201	1.06	26.65	140.3	.584
241	8.70	34.168	1.58	-	-	-	150.8	400	7.04	34.229	.57	26.83	123.0	.722
296	8.18	34.200	1.08	-	-	-	140.8							
341	7.77	34.206	.91	-	-	-	134.6							
381	7.32	34.221	.71	-	-	-	127.4							
421	6.81	34.235	.44	-	-	-	119.6							
461	6.63	34.242	.29	-	-	-	116.8							

A) THE THREE STATIONS ON THIS CRUISE ARE IN THE VICINITY OF CALCOFI STATION 82.47.

INPUT								OUTPUT AT STANDARD LEVELS OF DEPTH								
Z	T	S	OXY	PHO	SIL	NIT	D*T	Z	T	S	OXY	SIG*T	D*T	DD		
3								SPECIAL CRUISE 6608								3
ALEXANDER AGASSIZ, SEPTEMBER 1-AUGUST 31 1966, 0306 2203 GMT, 34 14.5N 120 01.1W (34 17.3N 120 02.5W), SOUNDING 315 FM, WIND 270 FORCE 5, WEATHER CLEAR, SEA MODERATE, WIRE ANGLE 21 32.																
2	17.94	33.630	6.07	-	-	-	367.3	0	17.94	33.630	6.07	24.26	367.3	0		
11	17.93	33.629	6.19	-	-	-	367.1	10	17.93	33.630	6.20	24.26	367.1	.037		
30	12.34	33.575	4.82	-	-	-	254.9	20	15.44	33.594	5.66	24.81	314.5	.071		
44	11.47	33.678	3.95	-	-	-	231.8	30	12.34	33.575	4.82	25.44	254.9	.099		
57	10.68	33.730	3.60	-	-	-	214.5	50	11.09	33.703	3.76	25.77	223.4	.147		
76	10.03	33.864	3.11	-	-	-	193.9	75	10.05	33.858	3.13	26.07	194.7	.200		
95	9.94	33.881	3.05	-	-	-	191.2	100	9.88	33.895	3.01	26.13	189.2	.248		
114	9.68	33.939	2.87	-	-	-	182.8	125	9.55	33.970	2.66	26.24	178.5	.295		
161	9.24	34.050	2.08	-	-	-	167.7	150	9.32	34.029	2.24	26.33	170.5	.339		
207	9.02	34.096	2.33	-	-	-	160.9	200	9.05	34.090	2.31	26.42	161.9	.424		
235	8.80	34.136	1.77	-	-	-	154.7	250	8.64	34.138	1.55	26.52	152.2	.505		
263	8.50	34.139	1.40	-	-	-	150.0	300	8.17	34.182	1.13	26.63	142.1	.581		
291	8.27	34.173	1.21	-	-	-	144.1	400	7.11	34.237	.66	26.82	123.3	.719		
319	7.94	34.196	.98	-	-	-	137.7	500	6.56	34.244	.29	26.90	115.8	.845		
347	7.58	34.202	.87	-	-	-	132.3									
359A	7.72	34.203	.92	-	-	-	134.1									
375	7.29	34.208	.69	-	-	-	127.9									
404	7.17	34.226	.69	-	-	-	125.0									
406A	7.26	34.210	.71	-	-	-	127.4									
415A	7.22	34.224	.70	-	-	-	125.8									
424A	7.20	34.224	.70	-	-	-	125.5									
433	6.66	34.232	.35	-	-	-	117.9									
434A	7.13	34.230	.70	-	-	-	124.2									
443A	7.02	34.223	.62	-	-	-	123.2									
453A	6.97	34.225	.52	-	-	-	122.4									
462A	6.86	34.226	.49	-	-	-	120.9									
472A	6.80	34.236	.58	-	-	-	119.4									
482A	6.68	34.238	.30	-	-	-	117.7									
491A	6.59	34.246	.26	-	-	-	116.0									
501A	6.56	34.244	.29	-	-	-	115.7									
511A	6.53	34.254	.24	-	-	-	114.6									
520A	6.50	34.246	.23	-	-	-	114.8									
530A	6.47	34.249	.21	-	-	-	114.2									
539A	6.44	34.251	.21	-	-	-	113.7									
544A	6.45	34.254	.23	-	-	-	113.6									
554A	6.42	34.246	.21	-	-	-	113.8									
564A	6.41	34.251	.21	-	-	-	113.3									
569A	6.41	34.249	.22	-	-	-	113.5									

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