UNIVERSITY OF CALIFORNIA

SCRIPPS INSTITUTION OF OCEANOGRAPHY

PHYSICAL AND CHEMICAL DATA

CalCOFI Cruise 7712
29 November - 20 December 1977

CalCOFI Cruise 7801
5 January - 1 February 1978

CalCOFI Cruise 7803
17 February - 15 March 1978

CalCOFI Cruise 7804
29 March - 26 April 1978

CRUCERO AH-7712, JD-7712
29 de noviembre-20 de diciembre 1977

CRUCERO AH-7801, JD-7801
5 de enero-1 de febrero 1978

CRUCERO AH-7803, JD-7803
17 de febrero-15 de marzo 1978

CRUCERO AH-7804, JD-7804
29 de marzo-26 de abril 1978

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W. A. Nierenberg, Director

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INTRODUCTION

The data in this report were collected during Cruises 7712*, 7801, 7803, and 7804 of the California Cooperative Oceanic Fisheries and Investigations (CalCOFI) program aboard the RV David Starr Jordan, National Marine Fisheries Service, and the RV Alejandro de Humboldt Instituto Nacional de Pesca of the Mexican Federal Government. The report preceding this one in the series was SIO Ref. 80-21 which included data for 1972.

These data were collected and processed by personnel of the Data Collection and Processing Group, Marine Life Research Group (DCPG**, MLRG), Scripps Institution of Oceanography, the Southwest Fisheries Center, National Marine Fisheries Service (NMFS), and the Instituto Nacional de Pesca (INP), various branches.

STANDARD PROCEDURES

Hydrographic Cast Data

Most of the hydrographic casts consisted of 18 Nansen bottles. At most stations the maximum sampling depth was 500 meters, bottom depth permitting. Temperature, salinity, oxygen, and nutrients were determined for all depths on each station.

At selected stations 10 meter bottles were cast with samples being taken for temperature, salinity, oxygen, and nutrients.

In general, paired protected reversing thermometers were used to determine temperatures which were recorded in hundredths of a Celsius degree. Unless otherwise noted, temperatures determined using unprotected (pressure) thermometers or surface "bucket" thermometers were recorded to tenths of a degree. Sample bottles used below 100 meters were equipped with unprotected thermometers for depth determination.

Salinity values on both ships for all cruises included, were determined using models 6220 and 6230 Hytech (now Grundy Environmental Systems, Inc.) inductive salinometers. A very few samples collected on the Humboldt during 7804 were analyzed on an

* The first two digits of the cruise designator represent the year and the second two digits the month of the cruise.

** Now the Physical and Chemical Oceanographic Data Facility (PACODF).

INTRODUCCION

Los datos de este informe fueron obtenidos durante los cruceros 7712*, 7801, 7803, y 7804 realizados dentro del programa de cooperación científico-técnico entre CalCOFI (California Cooperative Oceanic Fisheries Investigations) y el Instituto Nacional de Pesca del Departamento de Pesca** de México, a bordo del B/I David Starr Jordan, del National Marine Fisheries Service de los Estados Unidos y el B/I Alejandro de Humboldt, del Departamento de Pesca, México. El informe precedente a éste en la serie era el SIO Ref. 80-21, que incluye datos para 1972.

Estos datos fueron colectados y procesados por el personal del Data Collection and Processing Group del Marine Life Research Group (DCPG***, MLRG) del Scripps Institution of Oceanography, y por el personal del Southwest Fisheries Center del National Marine Fisheries Service (NMFS), y del Instituto Nacional de la Pesca (INP) del Departamento de Pesca.

METODOS

Obtención de Datos Hidrográficos

El mayor número de lances realizados se efectuaron con 18 botellas, muestreándose la mayoría de las estaciones hasta una profundidad máxima de 500 metros, cuando la profundidad lo permitía. Se determinó en todas las profundidades de cada estación temperatura, salinidad, oxígeno, y nutrientes. Se seleccionaron también estaciones para el muestreo a 10 metros de profundidad, para la toma de estos datos.

Para determinar temperatura se utilizaron por lo general termómetros de inversión dobles, registrándose ésta en grados centígrados, con aproximación centesímos. La temperatura superficial se determinó empleando termómetros de cubeta no protegidos, registrándola en décimas de grados. Para profundidades mayores de 100 metros se equiparon con termómetros no protegidos.

La salinidad fue determinada utilizando salinómetros de inducción modelos 6220 y 6230 Hytech (ahora Grundy Environmental Systems, Inc.). Algunas pocas muestras colectadas en el Humboldt durante 7804

* Los primeros dos dígitos representan el año y los dos que siguen, el mes en que se efectuó el crucero.

** Ahora llamado la Secretaría de Pesca.

*** Ahora llamado Physical and Chemical Oceanographic Data Facility (PACODF).

Autolab inductive salinometer. Except for a few major malfunctions when salinometers could no longer be used, problems consisted of bubbles in the cells, excessive drift (samples were rerun) and stirring motor breakdowns. With the exception of a few 10 meter samples, all samples were analyzed at sea.

The salinity values were recorded and reported to three decimal places, provided accepted standards were met. If only one determination per sample was obtained, or there was doubt concerning the accuracy of the analytical results, the salinities were reported to two decimal places.

Dissolved oxygen was determined by the Winkler method as modified by Carpenter (1965), using the equipment and procedure outlined by Anderson (1971). On Cruise 7804-J, problems associated with equipment malfunctions and at times poor pickling procedures resulted in unreliable data. Data for these stations have been omitted.

Phosphate, silicate, nitrite, and nitrate were determined using an automated analyzer consisting of the following components:

Sampler: A.H. Thomas Model 253 Little with a 20 position sampling rack.

Proportioning Pump: Technicon^{R} AutoAnalyzer^{R} II Proportioning Pump with air bar.

Detectors: Hitachi Model 100-10 spectophotometers with flow through cell adaptors.

Recorders: Hitachi Model 056 two-pen recorders with felt tip pens.

The procedures used are basically those described in Atlas et al. (1971). There were very few problems associated with the silicate and nitrate analyses. In general, these data were processed in a routine manner. Nitrite tend to vary between poor and very poor after the first week of each cruise depending on whether or not contamination occurred when the sample bottles were not routinely cleaned with hydrochloric acid. When contamination was evident, the typically "high" nitrite values were omitted for the station and the tabulated nitrate value is nitrate plus nitrite. This tabulated value is probably closer to the correct value than had a correction with the "high" nitrite been made.

se analizaron con un salinómetro de inducción Autolab. Excepto por algunos malos funcionamientos en que ya se podían utilizar los salinómetros, problemas consistían de la formación de burbujas en las celdas, excesivas partículas y mal funcionamiento del motor (estos mustreos se hicieron de nuevo). Con la excepción de algunas muestras de 10 metros, todas fueron analizadas a bordo.

Los valores de salinidad se registraron y se reportaron en milésimas de aproximación, de acuerdo con el procedimiento estándar aceptado. Cuando sólo se realizó una determinación por muestra ó había una duda respecto a la confiabilidad de los datos, la salinidad se reportó en centésimos.

El oxígeno disuelto fue determinado por el método Winkler modificado por Carpenter (1965) usando el equipo y procedimientos descritos por Anderson (1971). En el crucero 7804-J, problemas asociados con malos funcionamientos de equipo y malos métodos de fijación resultaron en datos desconfiables. Los datos para estas estaciones han sido suprimidos.

Fosfato, silicato, nitrito, y nitrato, se determinaron con la ayuda del analizador automático con las siguientes especificaciones:

Muestredor: A.H. Thomas Modelo 253 Little Dipper con una roseta muestreadora con 20 posiciones.

Bomba abastecedora: Technicon^{R} AutoAnalyzer^{R} II Bomba Abastecedora con barra de aire.

Sensores: Hitachi Modelo 100-10 espectrofotómetros con adaptadores que permiten el flujo libre por las celdas.

Registradores: Hitachi Modelo 056 dos registradores que consisten de plumas con puntas de fieltro.

Los procedimientos usados son básicamente los descritos en Atlas et al. (1971). Los silicatos y nitratos fueron procesados con poca dificultad y de manera rutinaria. Las muestras para determinar nitritos fueron contaminados en varios de los cruceros. Los nitritos tendían a variarse, siendo entre malos y muy malos, después de las primeras semanas de cada crucero,

Phosphate data are less reliable than the other measurements due to a number of problems including: poor sensitivity, poorly defined peaks, a serious memory effect and a very slow response time. Temperature control at the elevated temperature required for the analysis were also a problem at times. The initially calculated phosphate values were often unreasonable. Adjustments were made based on two factors: one expedition phosphate data show that there is very little phosphate variation at a depth of 500 meters (approx. 2.8 to 3.1 μg-at/L) and two, a plot of phospate vs. nitrate is essentially linear and constant, and the cruise nitrates are believed to be acceptable. The phosphate factors and baselines were adjusted to bring the phosphate results into reasonable agreement with the historical 500 m phosphate range and the phosphate-nitrate relationship.

The observed data have been evaluated using standard DCPG techniques (Klein, 1973). This involves consideration of their variation as functions of density or depth and their relations to each other, and comparison with concurrent bathythermogram (BT or XBT) or CTDO observations and with previous or adjacent observations.

In general, chlorophyll samples were collected from the first 12 levels of 18 bottle casts or all levels of shallow casts. However, during cruises 7712-J and 7801-J, samples were typically taken from only 7 of the top 12 levels.

Chlorophyll samples were analyzed on all cruises by fluorometer using one of two techniques: 7712-H, the technique of Yentsch and Menzel (1963); on all other cruises, the technique of Owen (1974). On 7801-H, both fluorometers became inoperable shortly after the cruise was started. As a result, data for about five stations have been lost. The remainder of the samples were filtered; the filters were frozen and returned to the lab for subsequent analysis. A comparison of frozen versus non-frozen samples (Owen, 1978, verbal communications) would suggest that samples from frozen filters could be low by as much as 25%.

Secchi disk observations were made on most stations occurring between 0900 and 1600 Pacific Standard Time (PST, +8) for all cruises except 7712-H. These data are tabulated following the chlorophyll data.

Tritium samples were collected on the Jordan during Cruises 7801 and 7804 at selected stations. Additional samples were taken on subsequent cruises. All tritium results may appear in a later report.

Data collected with an in situ Conductivity/Temperature/Depth/Oxygen recorder (CTDO) during the cruises in this report will appear in a separate report.

dependiendo de si la contaminación ocurrío cuando las botellas muestreadoras no fueron limpiadas rutinamente con ácido hidroclórico. Cuando la contaminación era muy evidente, los valores típicamente "altos" de nitrito eran suprimidos para aquella estación y el valor tabulado de nitrato es probablemente más cercano al valor correcto que si le hubiera hecho una corrección con el valor "alto" del nitrito.

Los datos de fosfatos son menos confiables que las otras medidas debido a una serie de problemas que incluyen lo siguiente: mala sensibilidad, picos mal definidos, un serio efecto de memoria, y un lento tiempo de respuesta. El mantenimiento de la temperatura a la temperatura elevada requerida por el análisis también resultó problemático a veces. Los valores de fosfatos que se calculaban inicialmente eran a menudo irrazonables. Se hicieron ajustes, basándose en dos factores: datos de fosfato de expedición muestran que hay muy poca variación de fosfato a una profundidad de 500 metros (approx. 2.8 a 3.1μg-at/L) y, un diagrama de fosfato contra nitrato es escencialmente linear y constante, y se cree que los nitratos de los cruceros son aceptables. Los factores de fosfato y las líneas de base fueron ajustados para que estuvieran los resultados de fosfato de acuerdo con el rango fosfático histórico de 500 metros y la relación fosfato-nitrato.

Los datos observados fueron evaluados usando las técnicas estándares del Data Collection and Processing Group (DCPG) (Klein, 1973). Estas técnicas consideran sus variaciones en función de la densidad ó profundidad y las relaciones de una con otra y en comparación con batitermogramas simultáneos (BT ó XBT) ó con CTDO, así como con observaciones previas.

En general las muestras fueron colectadas de los primeros 12 niveles de un lance de 18 botellas ó de todos los niveles en los muestreos realizados a poca profundidad, excepto durante los cruceros 7712-J y 7801-J donde las muestras fueron tomadas de los 7 primeros niveles.

Las muestras de clorofila en todos los cruceros se analizaron por fluorometría utilizando una u otra de las siguientes técnicas: Para el crucero 7712-H se utilizó la técnica de Yentsch y Menzel (1963) y para todos los demás la técnica de Owen (1974), excepto el crucero 7801-H en el cual ambos fluorómetros estuvieron fuera de operación poco después de iniciado el crucero. Como resultado se perdieron datos de 5 estaciones. Las muestras restantes fueron filtradas; los filtros se congelaron y fueron enviados al laboratorio para el análisis subsecuente. Una comparación entre las muestras congeladas y las no congeladas (Owen, comunicación personal, 1978), sugeriría que las

Starting with Cruise 7712, the standard CalCOFI oblique tow, 300 meters of wire out, depth permitting, was made with an open Bongo frame with a 505 μ net on the starboard side and a 333 μ net on the port side. Starboard samples were preserved in formalin; port samples were preserved in an alcohol solution for otolith studies.

Periodically a heretofore standard 1 m CalCOFI tow was taken in order to extend the comparisons between the Bongo and 1-m net tows made during the 1975 CalCOFI cruises.

Manta (neuston) surface tows were made on all net-tow stations, weather conditions permitting, and on selected stations vertical phytoplankton tows were made to a depth of 100 m (depth permitting).

TABULATED DATA

The time for bottle casts is reported in Greenwich Mean Time. It is the time of messenger releases. Secchi disk observations are reported in local time (PST).

When more than one cast was lowered on a station, the messenger times for the first and last casts are given. Multiple casts, excluding the surface casts, are indicated by a footnote letter following the observed depth.

Bottom depths, determined acoustically, have been corrected using Mathews (1939) tables and are reported in meters. On the Humboldt, the echo sounding units had a rated maximum sounding range of 1000 meters. Depths greater than this are from the navigational charts, and after conversion to meters have been listed to the nearest five meters. The weather and dominant waves are coded using the National Oceanographic Data Center (NODC) method.

Data for all cruises presented in this report were obtained by bottle casts or from separate lowerings to obtain the Secchi disk data. The data appear in two forms:

1. Data from the sample bottle casts are tabulated with the observed levels of depth on the left of a page, and standard depth values of temperature, salinity, and oxygen interpolated from these observations on the right. Computed values of thermosteric anomaly (DT) are included with the observed levels and computed values of sigma-t (SIGT), thermosteric anomaly (DT), and geopotential anomaly (DD) are included with the interpolated levels.

muestras de filtros congelados podían resultar con una desviación del 25%.

Las observaciones con disco Secchi se efectuaron en todas las estaciones realizadas entre las 0900 y las 1600 horas tiempo del Pacífico (PST) para todos los cruceros, excepto para el 7712-H. Estos datos son tabulados por separado y siguen a los datos de clorofila.

Durante 7801-J y 7804-J se tomaron muestras de tritio en estaciones selectas. Adicionalmente se tomaron muestras en cruceros subsecuentes. Los resultados de estos datos serán reportados posteriormente en un informe por separado.

Iniciándose con el crucero 7712 se hizo un arrastre oblicuo estándar de CalCOFI, cuando ésto fuera permitido por una profundidad equivalente a un filar de 300 metros de cable. Se hizo con un marco abierto Bongo con una red de 505μ en el lado estribor y una red de 333μ en el lado babor. Las muestras del lado babor fueron preservados en una solución de alcohol para estudios de otolitos.

Periódicamente los arrastres CalCOFI de 1 metro que eran estándares hasta la fecha se hicieron para poder extender las comparaciones que se hicieron durante los cruceros CalCOFI de 1975.

También se hicieron arrastres superficiales Manta (neuston) y en estaciones selectas se hicieron arrastres verticales de fitoplancton hasta una profundidad de 100 metros (si la profundidad lo permitía).

DATOS TABULADOS

El tiempo registrado para los lances de botella fue el tiempo del meridiano de Greenwich. Es la hora del envío del mensajero. Las observaciones del disco de Secchi son registradas en tiempo local (hora del Pacífico).

Cuando se realizó más de un lance por estación se anota la hora del envío del primer mensajero y del último. Multiples lances, excluyendo a lances superficiales, se señalan con una letra al calce después de la profundidad observada.

Cuando la profundidad del fondo se determinó acústicamente, fue corregida utilizando las tablas de Matthews (1939), registrándola en metros. En el B/I Humboldt, las profundidades mayores de 1000 metros no fueron registradas por la ecosonda, así que éstas se obtuvieron de cartas de navegación y después de ser convertidas a metros, fueron listadas con aproximación a cinco metros. El tiempo y oleaje dominante se codificaron usando el método del National Oceanographic Data Center (NODC).

2. Chlorophyll, phaeophytin and Secchi disk data appear as separate sections.

With the addition of chlorophyll-a, phaeophytin and Secchi disk observations, the same parameters have been tabulated in this report as in previous reports. The decimal has been omitted from the CalCOFI station number so station 90.65 appears in the tabulated data as 90065. [The CalCOFI station designations have been in use for over twenty years. Th first part specifies a line normal to the general trend of the coast line (CalCOFI line). The second part specifies a station position relative to the coast on the CalCOFI line.] The column headings are to be interpreted as follows:

Z	Depth	Meters
T	Temperature	^{o}C
S	Salinity	‰
O2	Dissolved oxygen	ml/L
PO4	"Reactive" inorganic phosphate-phosphorous	μg-at/L
SiO3	"Reactive" inorganic silicate-silicon	μg-at/L
NO2	"Reactive" nitrate-nitrogen	μg-at/L
NO3	"Reactive" nitrate-nitrogen	μg-at/L
DT	δ_T = Thermosteric anomaly	cl/ton
SIGT	$\sigma_T = (\rho_{s,t,o} - 1)10^3$ where $\rho_{s,t,o}$ is is the density the parcel would have if moved isothermally to the sea surface.	g/L
DD	Geopotential anomaly, referred to the sea surface.	dyn. meters
CHL.A	Chlorophyll-a	mg/m^3
PHAEO	Phaeophytin	mg/m^3

Durante el crucero 7801-H, la parte que registra velocidad en el anemómetro del barco se descompuso después de la estación 103.45. Por ésto, se empezó con la estación 103.40, y se estimó la velocidad del viento basada en el oleaje causado por el viento. Estos datos deben ser considerados menos fiables que lo normal.

Los datos de todos los cruceros presentados en este informe se obtuvieron de lances con botellas ó de bajadas separadas para obtener los datos del disco Secchi. Estos datos se registran en dos formas:

1. Los datos provenientes de lances con botellas y tabulados en niveles de profundidad se ubicaron al margen izquierdo de la página y los valores de profundidades estándares correspondientes a temperatura, salinidad, oxígeno, interpolados de estas observaciones, al lado derecho. Valores computados de la anomalía termostérica (DT) se incluyen con los niveles observados, y los valores computados de sigma-t (SIGT), anomalía termostérica (DT), y anomalía geopotencial (DD) se incluyen con los niveles interpolados.

2. Clorofila, feofitina, y datos del disco Secchi aparecen en una sección separada.

Con la adición de clorofila-a, feofitina, y observaciones del disco Secchi, los mismos parámetros son tabulados en este informe como en reportes previos. El punto decimal de las estaciones de CalCOFI se omitió, así que los datos de la estación número 90.65 se registran como 90065. [Las designaciones de estaciones CalCOFI han estado en uso durante más de veinte años. La primera parte especifica una línea normal a la tendencia general de la costa (Línea CalCOFI). La segunda parte especifica la posición de una estación relativo a la costa en la línea CalCOFI.] Los símbolos del encabezado de las columnas se deben interpretar de la siguiente manera:

Z	Profundidad	Metros
T	Temperatura	^{o}C
S	Salinidad	‰
O2	Oxígeno	ml/L
PO4	Fosfato-fósforo inorgánico "reactivo"	μg-at/L
SIO3	Silicato-Silicio inorgánico "reactivo"	μg-at/L
NO2	Nitrito-nitrógeno "reactivo"	μg-at/L
NO3	Nitrito-nitrógeno "reactivo"	μg-at/L
DT	δ_T = Anomalía termostérica	cl/ton.
SIGT	σ_T $(\rho_{s,t,0} - 1)10^3$ donde $\rho_{s,t,0}$ es la densidad que tendría la parcela si ésta se moviera isotérmicamente hasta la superficie del mar.	g/L
DD	Anomalía geopotencial, referida a la superficie del mar.	metros din.
CHL.A	Clorofila-a	mg/m^3
PHAEO	Feofitina	mg/m^3

FOOTNOTES

Data which appear to be in error without obvious reason are reported, but flagged uncertain with a U. Such data were not used in the determination of data at standard depths. Footnotes are used to indicate data which have required special processing.

NOTAS AL CALCE

Los datos que aparecen con errores sin explicación obvia son reportados, pero se les señala con una U. Estos datos no fueron utilizados en la determinación de datos a profundidades estándares. Se utilizan las notas al calce para indicar los datos que han requerido un procesamiento especial.

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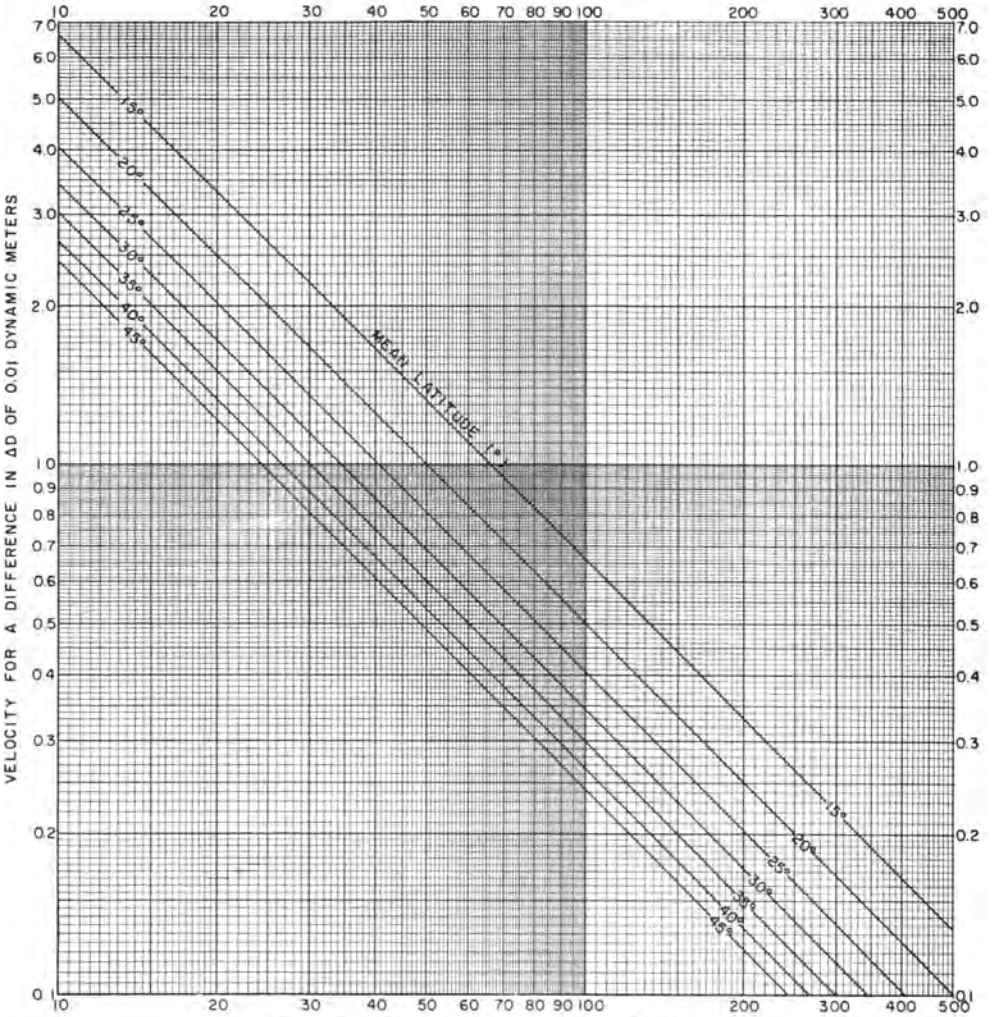

VELOCITY OF GEOSTROPHIC FLOW
(NAUTICAL MILES PER DAY)

cm/sec	0	1	2	3	4	5	6	7	8	9
0	KNOTS / N.M./DAY	0.02 / 0.47	0.04 / 0.93	0.06 / 1.40	0.08 / 1.86	0.10 / 2.33	0.12 / 2.80	0.14 / 3.26	0.16 / 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)

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

FIGURES

Cruise 7801

1. CalCOFI Cruise 7801, station positions

2. Horizontal distribution of dynamic height anomaly (0 over 500 d-bar)

3. Horizontal distribution of dynamic height anomaly (200 over 500 d-bar)

4. Horizontal distribution of temperature at 10 meters

5. Horizontal distribution of salinity at 10 meters

6. Horizontal distribution of thermosteric anomaly at 10 meters

7. Horizontal distribution of temperature at 200 meters

8. Horizontal distribution of salinity at 200 meters

9. Horizontal distribution of thermosteric anomaly at 200 meters

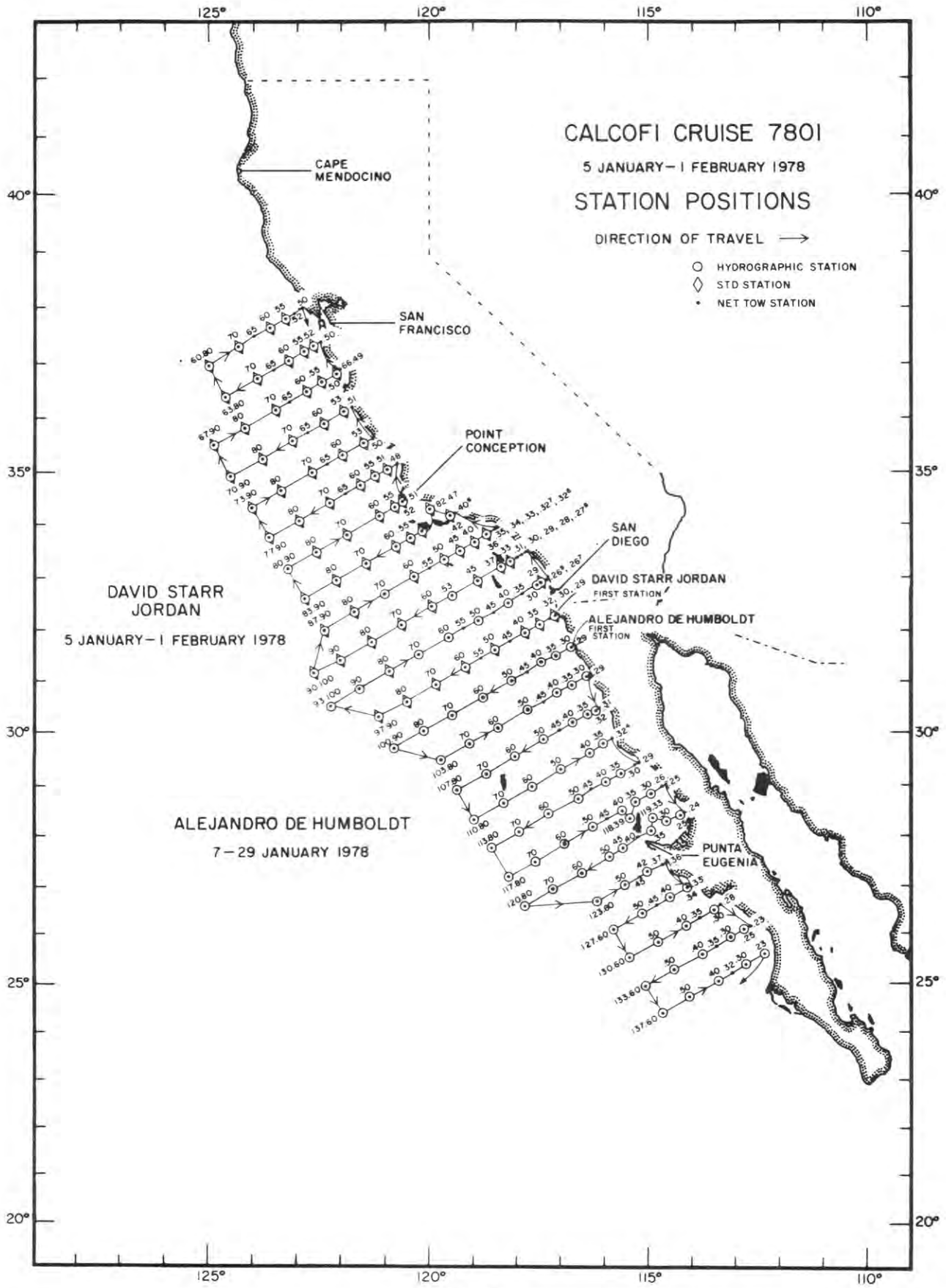
CALCOFI CRUISE 7801
5 JANUARY–1 FEBRUARY 1978
STATION POSITIONS
DIRECTION OF TRAVEL
HYDROGRAPHIC STATION
STD STATION
NET TOW STATION
CAPE MENDOCINO
SAN FRANCISCO
POINT CONCEPTION
SAN DIEGO
DAVID STARR JORDAN
FIRST STATION
ALEJANDRO DE HUMBOLDT
FIRST STATION
PUNTA EUGENIA
DAVID STARR JORDAN
5 JANUARY–1 FEBRUARY 1978
ALEJANDRO DE HUMBOLDT
7–29 JANUARY 1978
125°
120°
115°
110°
40°
35°
30°
25°
20°

FIGURE 1

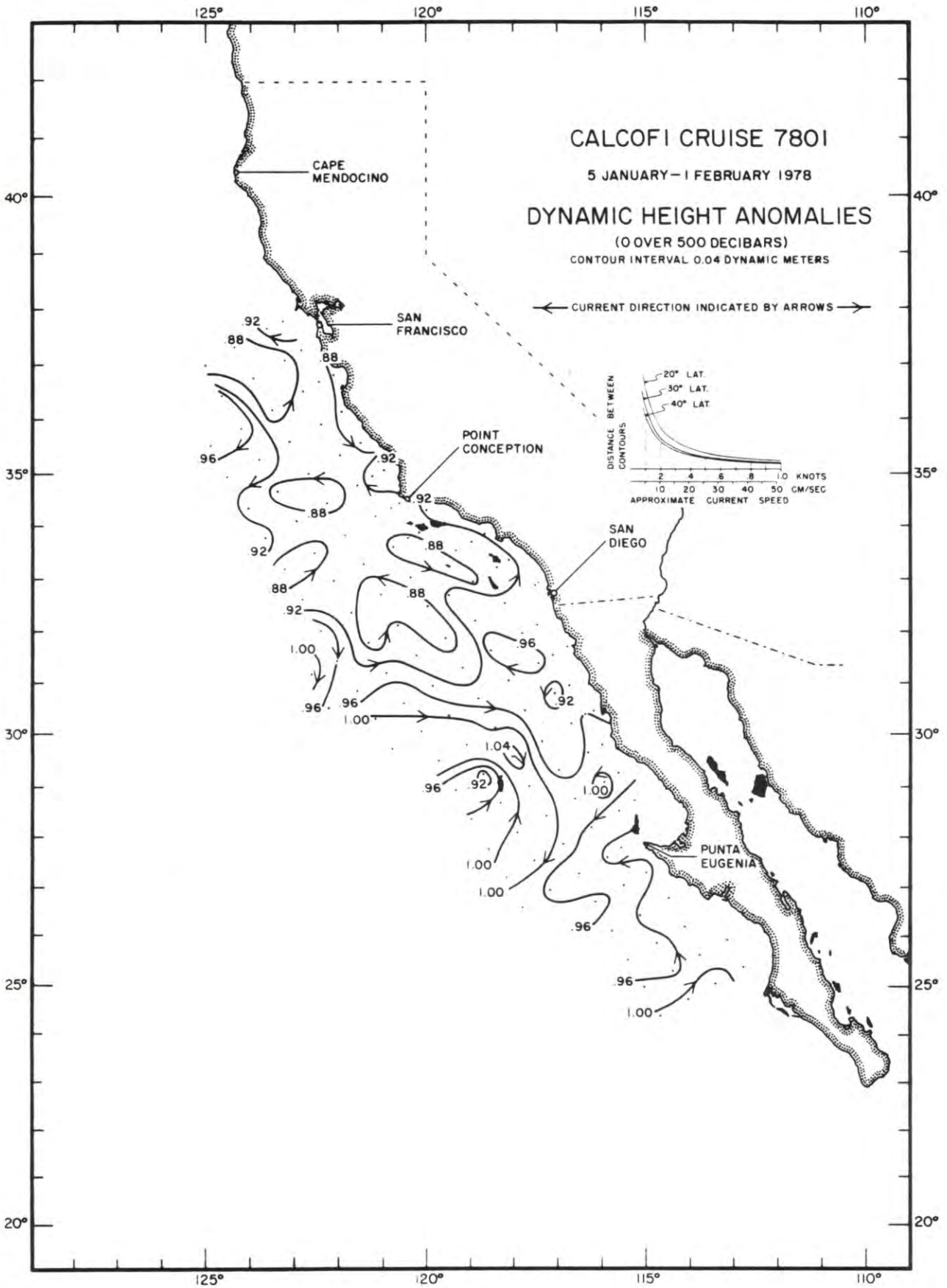
CALCOFI CRUISE 7801
5 JANUARY–1 FEBRUARY 1978
DYNAMIC HEIGHT ANOMALIES
(0 OVER 500 DECIBARS)
CONTOUR INTERVAL 0.04 DYNAMIC METERS
CURRENT DIRECTION INDICATED BY ARROWS
CAPE MENDOCINO
SAN FRANCISCO
POINT CONCEPTION
SAN DIEGO
PUNTA EUGENIA
20° LAT.
30° LAT.
40° LAT.
DISTANCE BETWEEN CONTOURS
APPROXIMATE CURRENT SPEED
KNOTS
CM/SEC
125°
120°
115°
110°
40°
35°
30°
25°
20°

FIGURE 2

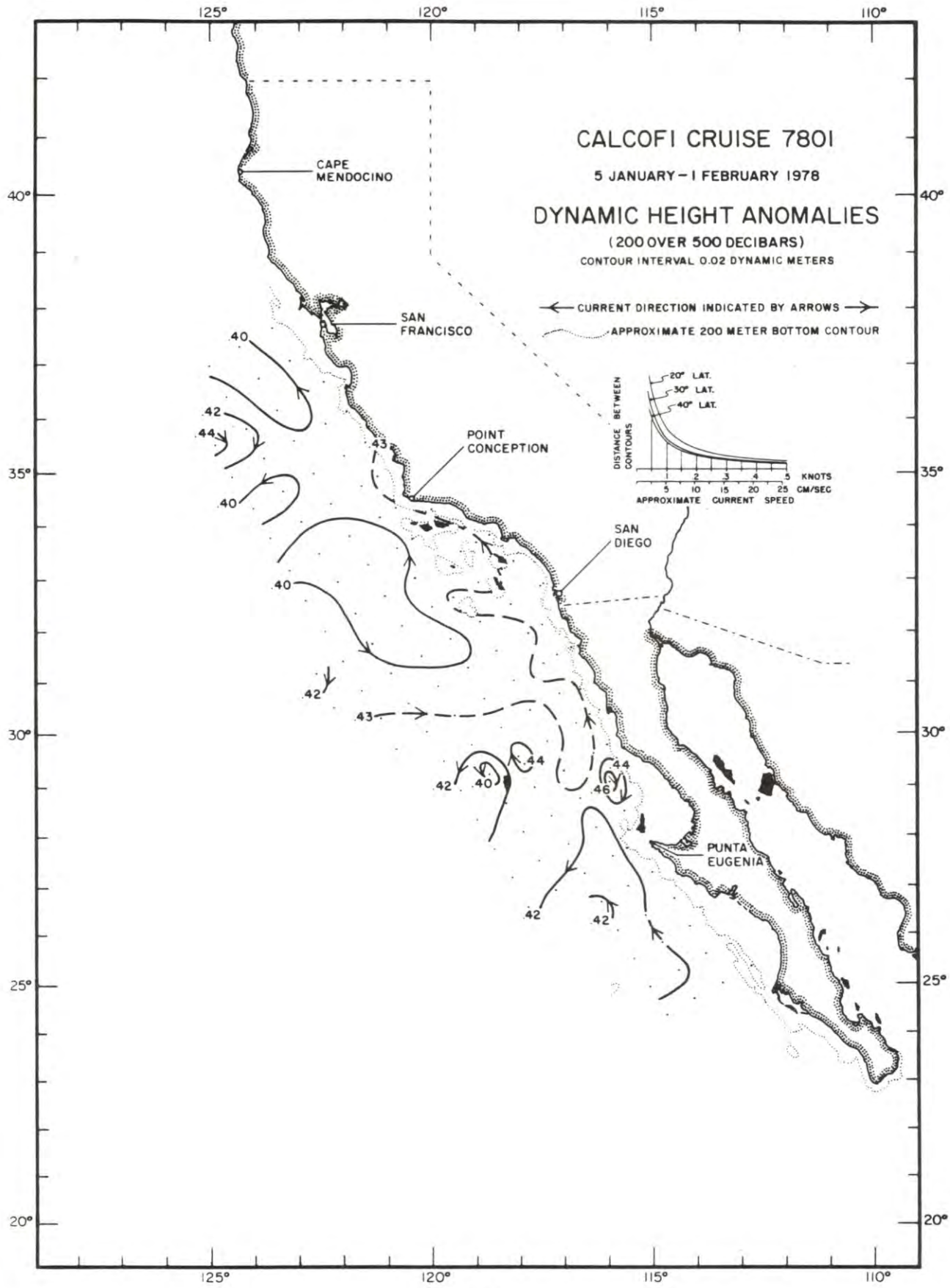
CALCOFI CRUISE 7801
5 JANUARY – 1 FEBRUARY 1978
DYNAMIC HEIGHT ANOMALIES
(200 OVER 500 DECIBARS)
CONTOUR INTERVAL 0.02 DYNAMIC METERS
CURRENT DIRECTION INDICATED BY ARROWS
APPROXIMATE 200 METER BOTTOM CONTOUR
CAPE MENDOCINO
SAN FRANCISCO
POINT CONCEPTION
SAN DIEGO
PUNTA EUGENIA
20° LAT.
30° LAT.
40° LAT.
DISTANCE BETWEEN CONTOURS
KNOTS
CM/SEC
APPROXIMATE CURRENT SPEED
125°
120°
115°
110°
40°
35°
30°
25°
20°

FIGURE 3

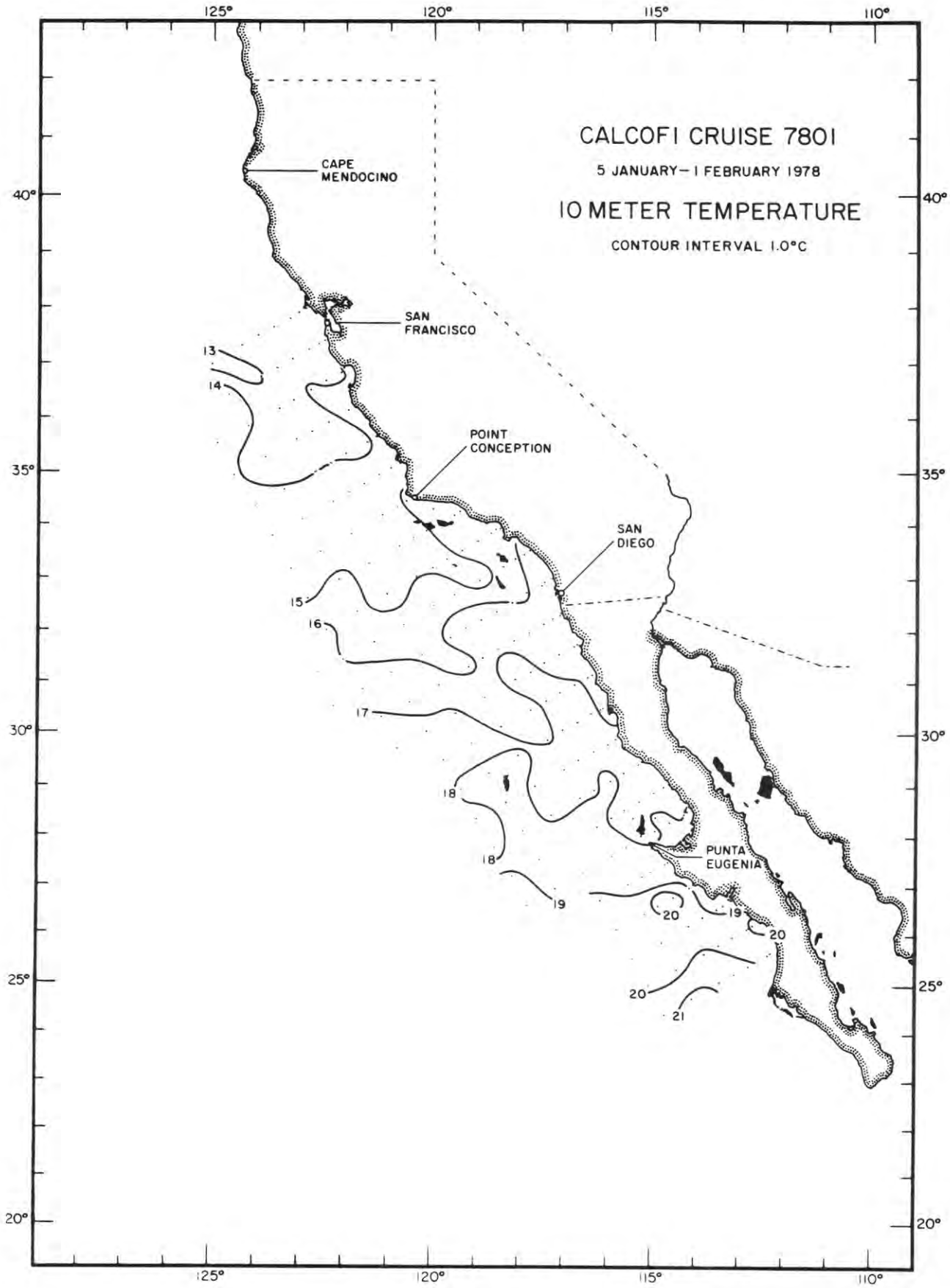
CALCOFI CRUISE 7801
5 JANUARY–1 FEBRUARY 1978
10 METER TEMPERATURE
CONTOUR INTERVAL 1.0°C
CAPE MENDOCINO
SAN FRANCISCO
POINT CONCEPTION
SAN DIEGO
PUNTA EUGENIA
125°
120°
115°
110°
40°
35°
30°
25°
20°
13
14
15
16
17
18
18
19
20
19
20
20
21

FIGURE 4

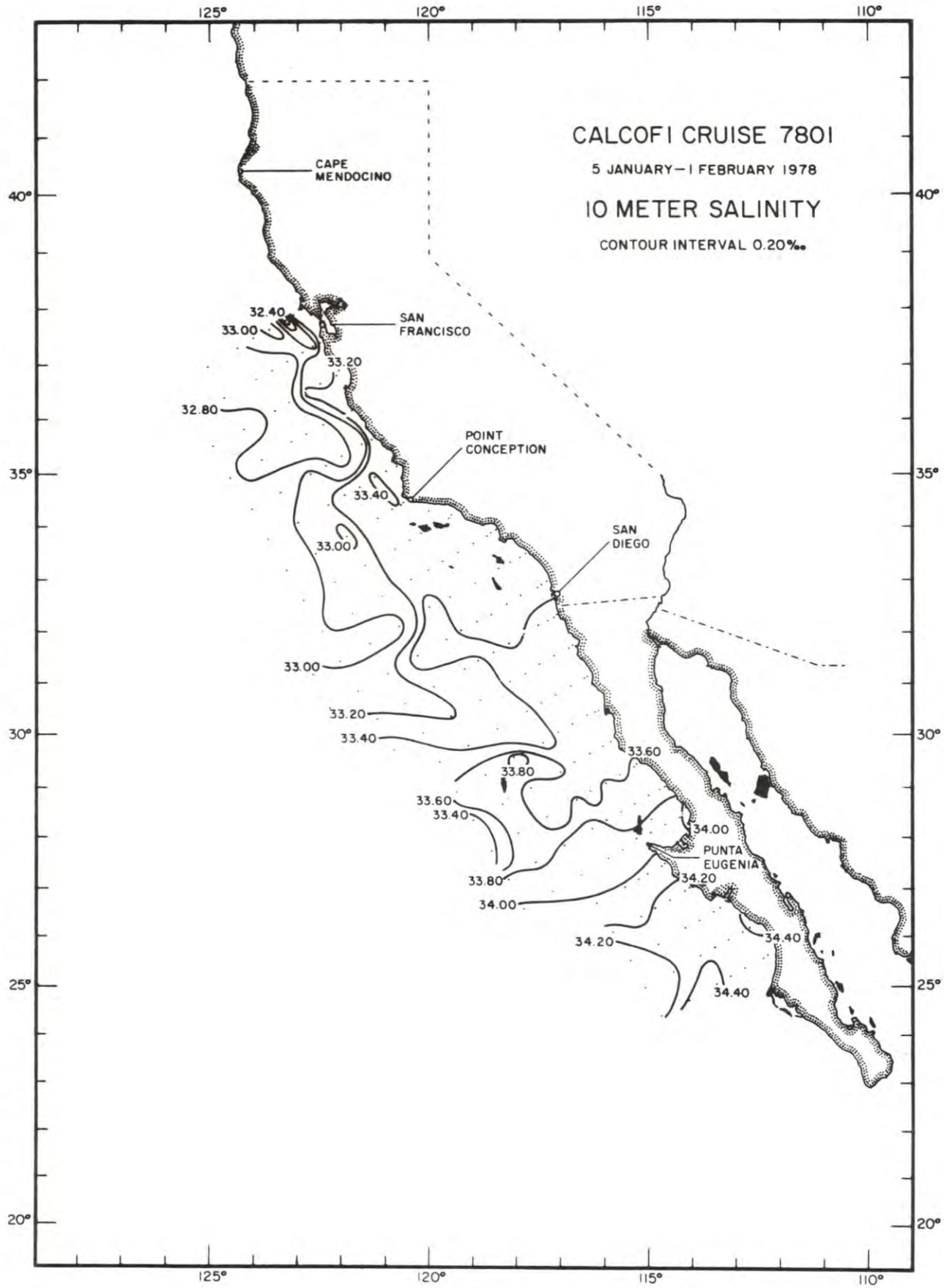
CALCOFI CRUISE 7801
5 JANUARY—1 FEBRUARY 1978
10 METER SALINITY
CONTOUR INTERVAL 0.20‰
CAPE MENDOCINO
SAN FRANCISCO
POINT CONCEPTION
SAN DIEGO
PUNTA EUGENIA
32.40
33.00
33.20
32.80
33.40
33.00
33.00
33.20
33.40
33.60
33.80
33.60
33.40
34.00
34.20
33.80
34.00
34.40
34.20
34.40
125°
120°
115°
110°
40°
35°
30°
25°
20°

FIGURE 5

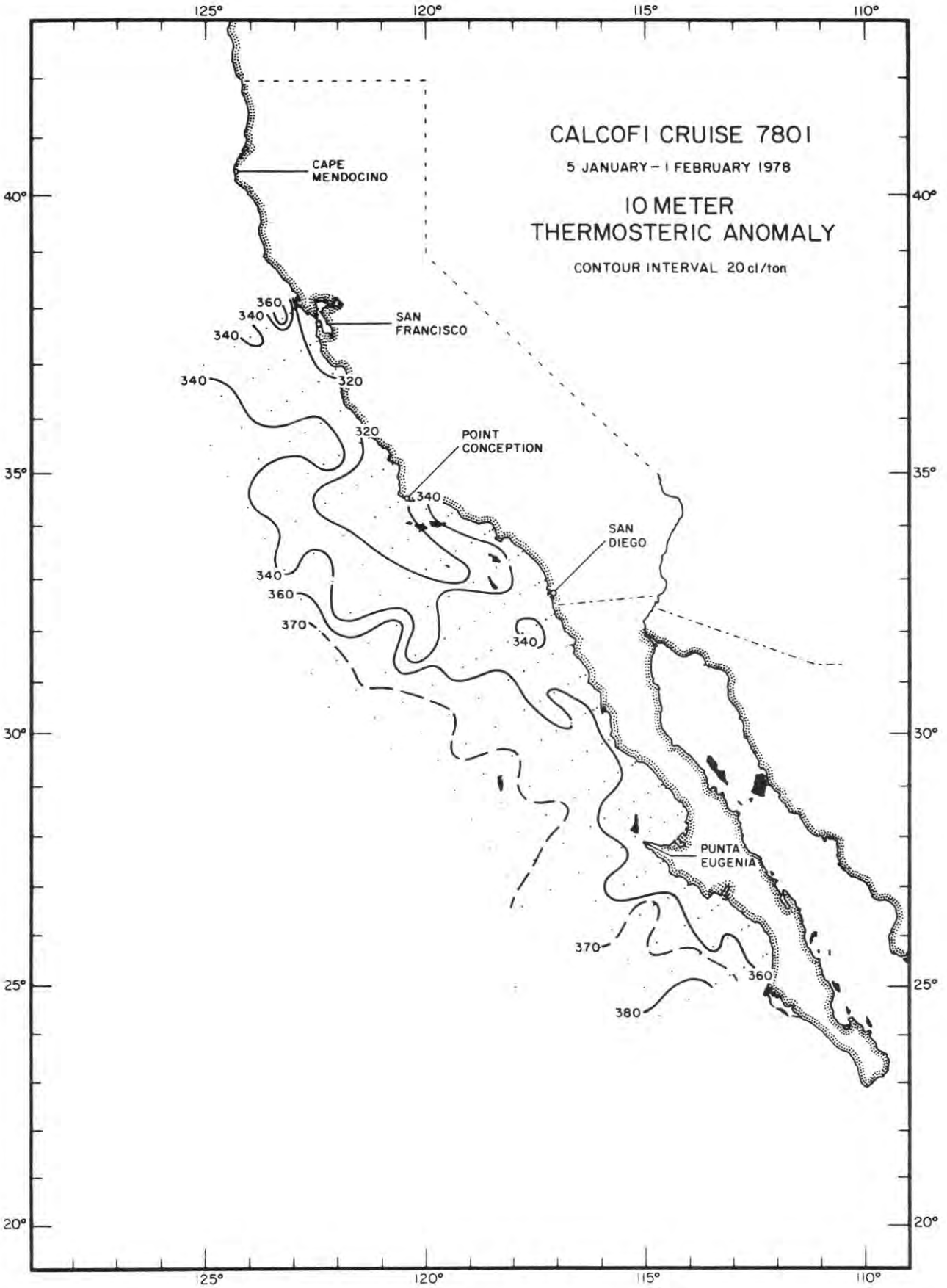
CALCOFI CRUISE 7801
5 JANUARY – 1 FEBRUARY 1978
10 METER
THERMOSTERIC ANOMALY
CONTOUR INTERVAL 20 cl/ton
CAPE MENDOCINO
SAN FRANCISCO
POINT CONCEPTION
SAN DIEGO
PUNTA EUGENIA
125°
120°
115°
110°
40°
35°
30°
25°
20°
360
340
340
340
320
320
340
340
360
370
340
370
360
380

FIGURE 6

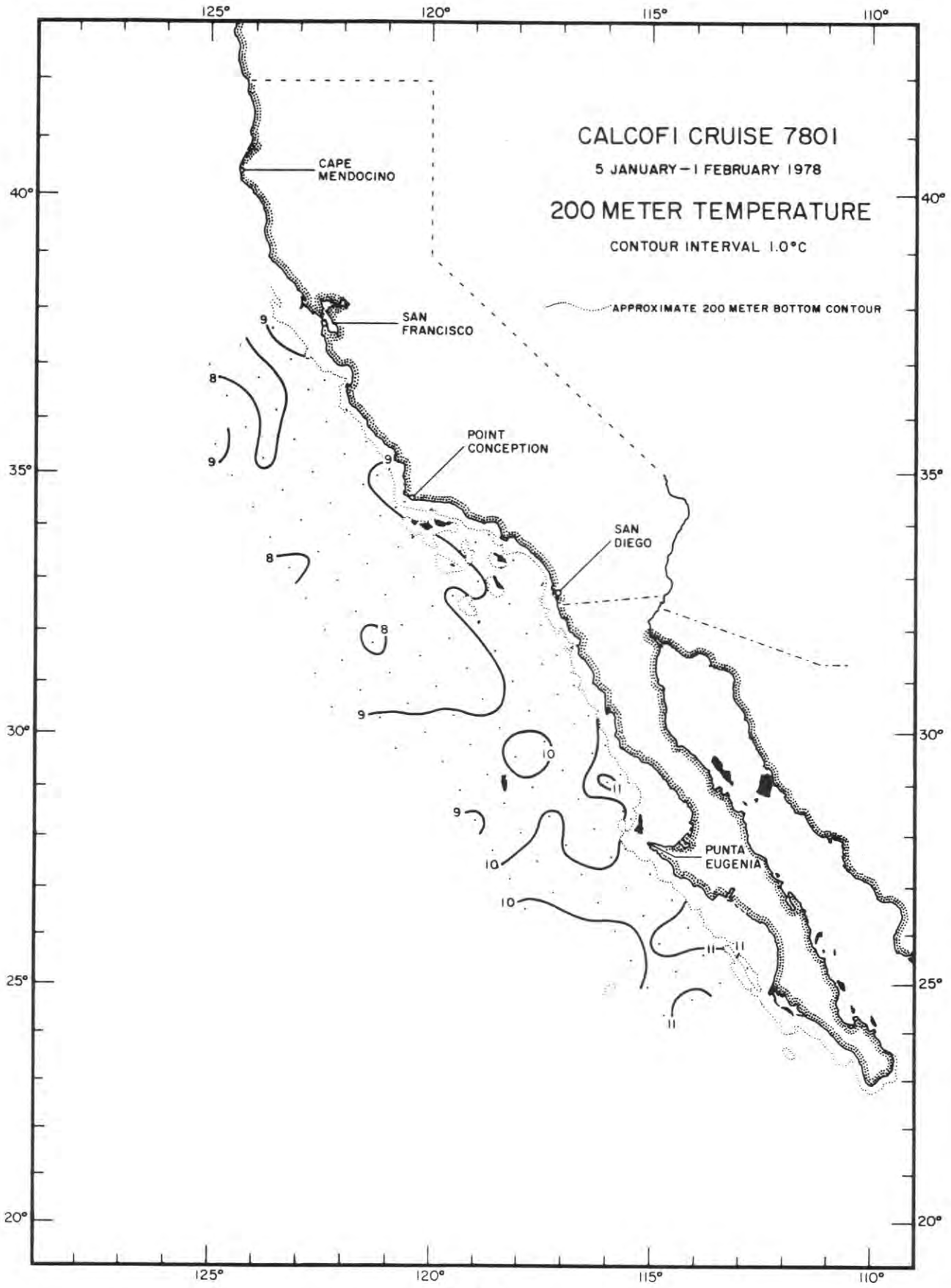
CALCOFI CRUISE 7801
5 JANUARY – 1 FEBRUARY 1978
200 METER TEMPERATURE
CONTOUR INTERVAL 1.0°C
APPROXIMATE 200 METER BOTTOM CONTOUR
CAPE MENDOCINO
SAN FRANCISCO
POINT CONCEPTION
SAN DIEGO
PUNTA EUGENIA
125°
120°
115°
110°
40°
35°
30°
25°
20°

FIGURE 7

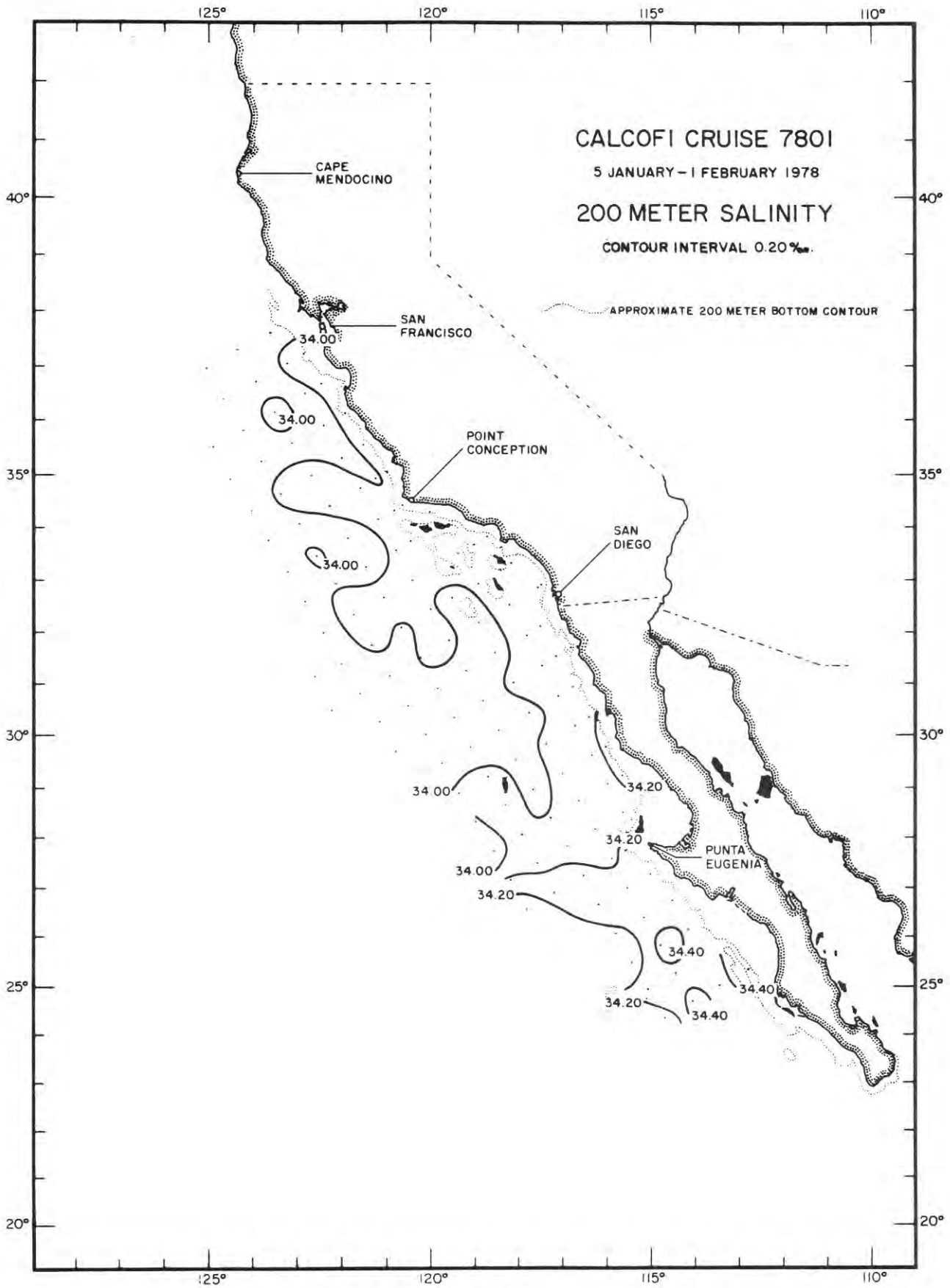
CALCOFI CRUISE 7801
5 JANUARY – 1 FEBRUARY 1978
200 METER SALINITY
CONTOUR INTERVAL 0.20‰
APPROXIMATE 200 METER BOTTOM CONTOUR
CAPE MENDOCINO
SAN FRANCISCO
POINT CONCEPTION
SAN DIEGO
PUNTA EUGENIA
34.00
34.20
34.40
125°
120°
115°
110°
40°
35°
30°
25°
20°

FIGURE 8

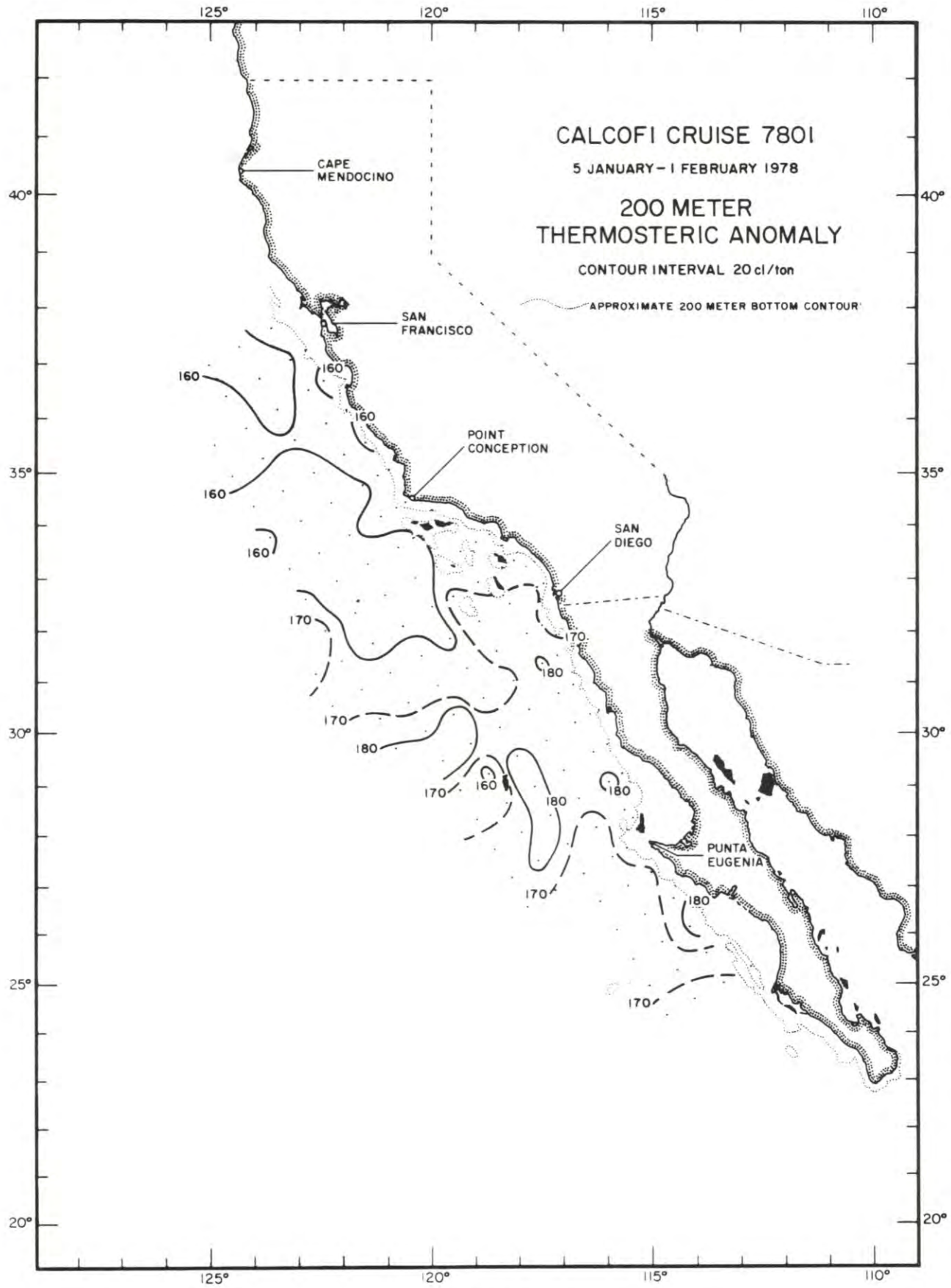
CALCOFI CRUISE 7801
5 JANUARY – 1 FEBRUARY 1978
200 METER
THERMOSTERIC ANOMALY
CONTOUR INTERVAL 20 cl/ton
APPROXIMATE 200 METER BOTTOM CONTOUR
CAPE MENDOCINO
SAN FRANCISCO
POINT CONCEPTION
SAN DIEGO
PUNTA EUGENIA
125°
120°
115°
110°
40°
35°
30°
25°
20°
160
170
180

FIGURE 9

PERSONNEL

Cruise 7801

SHIP'S CAPTAINS

Zatarain, José M. RV Alejandro de Humboldt
Roll, Milton RV David Starr Jordan

PERSONNEL PARTICIPATING IN THE COLLECTION OF DATA

RV Alejandro de Humboldt:

Anderson, George C. (in charge)	Staff Research Associate DCPG*
Alvarez Mendoza, Manuel	Oceanologist INP
Arizpe Uribe, Tomás T.	Physicist INP
Bustillos, Arlene G.	Marine Technician DCPG
Costello, James P.	Staff Research Associate DCPG
Flerx, William C.	Biological Technician NMFS
Johnson, Mary	Marine Technician DCPG
Mauck, William W.	Marine Technician DCPG
Moreno, Aurora B.	Biologist INP
Rosas Cota, Armando	Oceanologist INP
Stallard, Martha O.	Staff Research Associate DCPG

RV David Starr Jordan:

Counts, Robert C. (in charge)	Fishery Biologist NMFS
Bliss, Kenneth A.	Oceanographer NMFS
Conway, Carol	Engineering Aide DCPG
Dotson, Ronald C.	Biological Technician NMFS
Granados Gallegos, José Luis	Oceanologist INP
Johnson, Treve L.	Marine Technician DCPG
Mead, Richard V.	Marine Technician DCPG
Patrick, Ronald G.	Marine Technician DCPG
Roberts, Stephen M.	Staff Research Associate DCPG
Rowe, Raymond A.	Marine Technician DCPG
Singleton, James R.	Electronics Technician MLRG
Sullivan, Mark F.	NOAA Corps Officer NMFS
Sweet, Paul R.	Marine Technician DCPG

*DCPG: Now Physical & Chemical Oceanographic Data Facility (PACODF)

PHYSICAL AND CHEMICAL DATA REPORT, SIO Reference 82-21

The tabulated temperature is in error at 48 m, station 60080, Cruise 7801 (p. 59). The correct value should be 12.87.

The latitude is in error on station 83070, Cruise 7804 (p. 204). The correct latitude should read 33°14.5'N.

RV DAVID STARR JORDAN — CALCOFI CRUISE 7801 — 60055

LATITUDE	LONGITUDE	MO/DAY/YR	MESSENGER TIME	BOTTOM	WIND	SPEED	WEATHER	DOMINANT WAVES
37 47.0N	123 15.0W	1/31/78	2139 GMT	131M	040	4KT	1	300 3 9

Z	T	S	O2	PO4	SIO3	NO2	NO3	DT	Z	T	S	O2	SIGT	DT	DD
2	13.75	32.152	6.76	0.27	11.	0.11	0.1	386.0	0	13.75	32.152	6.76	24.064	386.0	0.000
12	13.24	32.270	6.76	0.32	10.	0.06	0.2	367.6	10	13.28	32.214	6.76	24.203	372.8	0.038
26	13.78	33.180	6.02	0.28	3.	0.25	0.3	311.2	20	13.54	32.823	6.35	24.621	332.9	0.073
35	13.55	33.199	5.91	0.32	4.	0.34	0.3	305.3	30	13.70	33.188	5.97	24.872	309.0	0.105
44	13.50	33.282	5.55	0.52	5.	0.60	2.3	298.2	50	13.32	33.330	5.37	25.056	291.4	0.166
58	12.90	33.395	5.08	0.72	9.	0.28	5.9	278.5	75	11.45	33.604	4.07	25.628	237.1	0.232
72	11.66	33.574	4.19	1.13	17.	0.23	12.1	242.8	100	10.08	33.750	3.35	25.984	203.1	0.288
96	10.28	33.735	3.46	1.62	23.	0.12	19.9	207.5	125	8.64	33.629	3.49	26.122	190.1	0.337
138	8.14	33.583	3.56	1.54	28.	0.33	20.2	186.2	150	8.29	33.727	3.29	26.252	177.7	0.384
165	8.55	33.912	2.93	2.61	34.	0.11	26.1	167.6	200	7.79	33.941	3.06	26.495	154.7	0.468
193	7.90	33.933	2.87	2.06	38.	0.06	28.3	156.7	250	7.03	33.964	3.63	26.621	142.7	0.545
221	7.49	33.957	3.65	1.89	39.	0.05	26.8	149.3	300	6.34	33.964	2.86	26.713	134.0	0.616
258	6.90	33.963	3.63	1.89	44.	0.05	27.3	141.1	400	5.66	34.059	1.27	26.873	118.8	0.747
314	6.19	33.966	2.54	2.35	57.	0.03	34.1	131.9	500	5.03	34.147	0.72	27.018	105.0	0.864
384	5.79	34.047	1.41	2.71	69.	0.03	36.5	121.1							
453	5.26	34.096	0.96	2.95	80.	0.03	41.8	111.4							
527	4.94	34.180	0.61	3.03	90.	0.04	43.1	101.5							

RV DAVID STARR JORDAN — CALCOFI CRUISE 7801 — 60060

LATITUDE	LONGITUDE	MO/DAY/YR	MESSENGER TIME	BOTTOM	WIND	SPEED	WEATHER	DOMINANT WAVES
37 37.0N	123 37.0W	1/31/78	1831 GMT	3259M	040	3KT	1	340 3 9

Z	T	S	O2	PO4	SIO3	NO2	NO3	DT	Z	T	S	O2	SIGT	DT	DD
1	13.72	33.060	6.23	0.71	4.	0.02	0.0	318.8	0	13.72	33.060	6.23	24.769	318.8	0.000
11	13.67	33.061	6.25	0.69	4.	0.00	0.0	317.8	10	13.67	33.062	6.25	24.778	317.9	0.032
30	13.82	33.160	6.14	0.69	4.	0.33	0.2	313.4	20	13.72	33.103	6.22	24.800	315.9	0.064
39	13.88	33.203	6.05	0.72	4.	0.44	0.7	311.4	30	13.82	33.160	6.14	24.825	313.4	0.095
48	13.92	33.236	5.89	0.73	4.	0.56	1.2	309.8	50	13.92	33.242	5.89	24.866	309.5	0.158
62	13.93	33.265	5.85	0.70	5.	0.41	0.3	307.9	75	13.79	33.380	5.48	24.999	296.8	0.234
76	13.77	33.387	5.45	0.78	6.	0.02	3.1	295.8	100	12.78	33.482	4.92	25.280	270.1	0.305
95	13.09	33.464	5.06	0.96	9.	0.01	6.5	277.0	125	11.02	33.632	3.97	25.727	227.6	0.368
118	11.53	33.567	4.31	1.28	15.	0.06	12.8	241.0	150	9.88	33.811	3.15	26.064	195.5	0.422
137	10.26	33.742	3.43	1.65	23.	0.05	19.3	206.6	200	9.08	33.969	2.63	26.320	171.3	0.515
165	9.67	33.861	2.98	1.87	27.	0.03	22.9	188.4	250	8.11	34.016	2.55	26.506	153.6	0.598
193	9.20	33.959	2.63	2.09	32.	0.05	25.9	173.8	300	7.67	34.067	2.14	26.611	143.7	0.675
222	8.67	33.982	2.65	2.06	35.	0.05	26.2	164.2	400	6.67	34.119	1.18	26.790	126.7	0.816
259	7.95	34.026	2.50	2.19	40.	0.02	28.6	150.5	500	5.91	34.169	0.71	26.929	113.5	0.942
315	7.61	34.077	1.98	2.48	47.	0.02	31.9	142.0							
386	6.83	34.115	1.27	2.76	59.	0.02	35.1	128.8							
457	6.14	34.133	0.91	3.00	69.	0.06	38.7	118.8							
532	5.84	34.205	0.57	3.26	77.	0.07	40.2	109.9							

RV DAVID STARR JORDAN — CALCOFI CRUISE 7801 — 60070

LATITUDE	LONGITUDE	MO/DAY/YR	MESSENGER TIME	BOTTOM	WIND	SPEED	WEATHER	DOMINANT WAVES
37 17.0N	124 21.0W	1/31/78	1203 GMT	4015M	280	18KT	1	

Z	T	S	O2	PO4	SIO3	NO2	NO3	DT	Z	T	S	O2	SIGT	DT	DD
1	13.38	32.766	6.14	0.45	3.	0.00	0.3	333.8	0	13.38	32.766	6.14	24.611	333.8	0.000
11	13.36	32.759	6.15	0.46	3.	0.00	0.3	334.0	10	13.36	32.762	6.15	24.610	333.9	0.033
29	13.39	32.761	6.31	0.46	3.	0.01	0.4	334.4	20	13.38	32.763	6.25	24.608	334.2	0.067
39	13.14	32.779	6.20	0.48	4.	0.06	1.1	328.3	30	13.38	32.762	6.31	24.607	334.2	0.100
48	12.65	32.907	5.89	0.66	5.	0.14	3.7	309.8	50	12.47	32.958	5.80	24.936	302.9	0.164
62	11.22	33.227	5.27	1.08	10.	0.03	10.9	260.8	75	9.98	33.301	4.82	25.650	234.9	0.232
76	9.90	33.301	4.79	1.37	17.	0.03	16.5	233.5	100	9.19	33.317	4.15	25.948	206.6	0.287
95	9.36	33.478	4.21	1.64	22.	0.01	20.3	212.0	125	8.63	33.699	3.78	26.178	184.8	0.337
119	8.68	33.649	3.94	1.77	27.	0.00	23.0	189.0	150	8.47	33.839	3.31	26.313	172.0	0.382
137	8.59	33.784	3.46	1.94	31.	0.02	25.5	177.7	200	7.96	33.987	2.82	26.505	153.7	0.465
165	8.31	33.880	3.21	2.03	35.	0.02	27.0	166.5	250	7.56	34.060	2.17	26.621	142.7	0.541
193	8.05	33.976	2.85	2.17	39.	0.01	29.0	155.7	300	6.89	34.057	1.79	26.713	134.0	0.612
221	7.71	34.005	2.71	2.22	43.	0.02	30.1	148.7	400	5.73	34.061	1.23	26.866	119.4	0.744
259	7.51	34.073	2.00	2.39	49.	0.00	32.8	141.0	500	4.97	34.091	0.82	26.980	108.7	0.863
315	6.63	34.042	1.77	2.68	57.	0.00	36.1	131.7							
385	5.88	34.055	1.31	2.84	69.	0.00	39.5	121.6							
454	5.26	34.078	1.00	3.08	78.	0.01	42.7	112.7							
528	4.85	34.095	0.72	3.18	86.	0.01	42.8	106.9							

RV DAVID STARR JORDAN — CALCOFI CRUISE 7801 — 60080

LATITUDE	LONGITUDE	MO/DAY/YR	MESSENGER TIME	BOTTOM	WIND	SPEED	WEATHER	DOMINANT WAVES
36 57.0N	125 02.0W	1/31/78	0651 GMT	4255M	300	16KT		

Z	T	S	O2	PO4	SIO3	NO2	NO3	DT	Z	T	S	O2	SIGT	DT	DD
1	12.97	32.630	6.15	0.43	4.	0.00	0.1	336.1	0	12.97	32.630	6.15	24.588	336.1	0.000
11	12.96	32.631	6.16	0.46	4.	0.00	0.2	335.8	10	12.96	32.634	6.16	24.590	335.8	0.034
30	12.98	32.630	6.23	0.50	4.	0.00	0.2	336.3	20	12.97	32.633	6.18	24.588	336.0	0.067
39	12.94	32.647	6.32	0.51	4.	0.04	0.4	334.3	30	12.98	32.630	6.23	24.586	336.3	0.101
48	12.25.87	32.713	6.08	0.53	4.	0.14	1.1	328.1	50	12.65	32.748	6.03	24.739	321.7	0.167
62	11.11	32.985	5.69	0.84	8.	0.23	7.2	276.7	75	10.43	33.208	5.21	25.502	249.1	0.239
76	10.40	33.220	5.17	1.15	13.	0.08	13.1	247.5	100	9.46	33.387	4.50	25.802	220.5	0.298
95	9.66	33.349	4.61	1.44	19.	0.02	17.7	226.2							
118	8.76	33.517	4.23	1.53	25.	0.01	20.3	200.0							

RV DAVID STARR JORDAN — CALCOFI CRUISE 7801 — 63052

LATITUDE	LONGITUDE	MO/DAY/YR	MESSENGER TIME	BOTTOM	WIND	SPEED	WEATHER	DOMINANT WAVES
37 19.0N	122 36.5W	1/30/78	0731 GMT	88M	320	12KT	1	240 3 8

Z	T	S	O2	PO4	SIO3	NO2	NO3	DT	Z	T	S	O2	SIGT	DT	DD
1	13.49	32.732	6.16	0.89	9.	0.59	1.9	338.4	0	13.49	32.732	6.16	24.563	338.4	0.000
10	13.53	32.778	6.16	0.86	9.	0.53	1.7	335.8	10	13.53	32.778	6.16	24.590	335.8	0.034
20	13.78	33.096	6.12	0.75	4.	0.65	0.8	317.3	20	13.78	33.096	6.12	24.784	317.3	0.066
30	14.12	33.211	5.93	0.72	4.	0.64	0.9	315.6	30	14.12	33.211	5.93	24.803	315.6	0.098
48	13.89	33.188	5.80	0.80	3.	0.42	2.1	312.7	50	13.83	33.199	5.75	24.852	310.9	0.161
71	12.75	33.422	4.76	1.23	13.	0.06	8.8	273.7							

RV DAVID STARR JORDAN — CALCOFI CRUISE 7801 — 63055

LATITUDE	LONGITUDE	MO/DAY/YR	MESSENGER TIME	BOTTOM	WIND	SPEED	WEATHER	DOMINANT WAVES
37 13.0N	122 50.0W	1/30/78	0942 GMT	277M	330	20KT		

Z	T	S	O2	PO4	SIO3	NO2	NO3	DT	Z	T	S	O2	SIGT	DT	DD
1	13.68	32.882	6.06	0.66	3.	0.03	0.2	331.1	0	13.68	32.882	6.06	24.640	331.1	0.000
11	13.66	32.880	6.08	0.64	2.	0.03	0.1	330.8	10	13.66	32.883	6.08	24.642	330.9	0.033
29	13.92	33.043	6.21	0.65	2.	0.07	0.2	324.0	20	13.79	32.959	6.15	24.676	327.7	0.066
44	13.88	33.070	6.15	0.65	2.	0.09	0.3	321.2	30	13.92	33.047	6.21	24.717	323.8	0.099
53	13.14	32.995	5.88	0.75	2.	0.16	2.6	312.4	50	13.42	33.017	5.98	24.794	316.4	0.163
67	11.78	33.190	5.49	1.06	6.	0.04	8.0	273.2	75	11.46	33.378	4.91	25.451	253.9	0.235
82	11.22	33.514	4.42	1.42	13.	0.01	13.7	239.6	100	9.80	33.489	4.32	25.827	218.2	0.294
101	9.73	33.483	4.31	1.64	17.	0.00	17.9	217.3	125	9.81	33.792	3.36	26.063	195.7	0.346
125	9.81	33.792	3.36	1.87	22.	0.00	22.0	195.7	150	9.53	33.937	2.70	26.222	180.6	0.394
143	9.60	33.905	2.84	2.05	29.	0.00	23.9	184.0	200	9.13	34.031	2.33	26.360	167.5	0.483
176	9.29	34.009	2.39	2.26	33.	0.00	26.4	171.5	250	8.16	34.060	2.21	26.534	151.0	0.564
204	9.09	34.031	2.32	2.30	35.	0.00	27.0	166.8							
242	8.31	34.055	2.24	2.43	42.	0.00	29.5	153.5							

RV DAVID STARR JORDAN — CALCOFI CRUISE 7801 — 63060

LATITUDE	LONGITUDE	MO/DAY/YR	MESSENGER TIME	BOTTOM	WIND	SPEED	WEATHER	DOMINANT WAVES
37 03.0N	123 12.0W	1/30/78	1312 GMT	2316M	330	20KT		

Z	T	S	O2	PO4	SIO3	NO2	NO3	DT	Z	T	S	O2	SIGT	DT	DD
1	13.64	32.767	5.84	0.70	2.	0.00	0.1	338.8	0	13.64	32.767	5.84	24.560	338.8	0.000
11	13.63	32.763	6.03	0.73	3.	0.00	0.1	338.9	10	13.63	32.766	6.01	24.559	338.8	0.034
30	13.62	32.790	6.22	0.66	4.	0.00	0.1	336.7	20	13.63	32.779	6.12	24.569	337.8	0.068
39	13.36	32.924	6.12	0.69	0.	0.00	0.1	321.8	30	13.62	32.790	6.22	24.581	336.7	0.102
48	13.26	32.975	6.00	0.78	1.	0.10	1.0	316.2	50	13.11	33.019	5.92	24.858	310.3	0.166
62	11.85	33.287	5.32	1.10	6.	0.00	8.6	267.3	75	10.38	33.392	4.58	25.654	234.6	0.235
76	10.27	33.394	4.53	1.52	15.	0.06	17.6	232.6	100	8.98	33.506	4.06	25.972	204.3	0.290
95	9.02	33.441	4.17	1.76	21.	0.07	21.5	209.5	125	8.78	33.733	3.57	26.182	184.3	0.339
118	8.85	33.688	3.68	2.00	26.	0.03	25.7	188.7	150	8.80	33.908	2.91	26.316	171.6	0.384
137	8.69	33.798	3.35	1.72	29.	0.02	22.1	178.1	200	8.59	34.059	2.27	26.467	157.3	0.468
165	8.93	34.017	2.44	2.08	35.	0.04	26.8	165.4	250	7.79	34.110	1.87	26.627	142.1	0.545
193	8.69	34.050	2.30	2.09	37.	0.00	24.1	159.4	300	7.41	34.145	1.49	26.709	134.4	0.616
221	8.25	34.081	2.16	2.45	41.	0.06	30.1	150.7	400	6.35	34.123	1.12	26.837	122.2	0.750
259	7.67	34.117	1.77	2.51	49.	0.04	31.6	139.9	500	5.70	34.189	0.69	26.970	109.5	0.872
315	7.34	34.148	1.41	2.76	55.	0.07	34.8	133.1							
385	6.44	34.111	1.20	2.93	66.	0.04	38.9	124.2							
456	6.06	34.172	0.83	2.93	74.	0.19	37.4	115.0							
531	5.40	34.190	0.63	3.16	85.	0.03	40.5	105.9							

RV DAVID STARR JORDAN — CALCOFI CRUISE 7801 — 63070

LATITUDE	LONGITUDE	MO/DAY/YR	MESSENGER TIME	BOTTOM	WIND	SPEED	WEATHER	DOMINANT WAVES
36 42.5N	123 55.0W	1/30/78	1950 GMT	3825M	320	16KT	1	310 8 8

Z	T	S	O2	PO4	SIO3	NO2	NO3	DT	Z	T	S	O2	SIGT	DT	DD
2	13.01	32.657	6.21	0.56	3.	0.05	0.1	334.8	0	13.01	32.657	6.21	24.601	334.8	0.000
11	12.99	32.653	6.24	0.66	4.	0.00	0.1	334.8	10	12.99	32.656	6.24	24.601	334.8	0.033
29	12.98	32.653	6.40	0.89	5.	0.00	0.1	334.6	20	12.99	32.656	6.35	24.602	334.7	0.067
39	12.95	32.654	6.20	0.84	3.	0.00	0.0	334.0	30	12.98	32.656	6.38	24.604	334.5	0.101
48	12.98	32.658	6.22	0.94	3.	0.00	0.1	334.2	50	12.75	32.717	6.14	24.696	325.7	0.167
62	10.96	33.084	5.60	1.20	9.	0.00	6.9	266.9	75	9.72	33.105	5.38	25.543	245.2	0.238
76	9.66	33.107	5.37	1.36	14.	0.00	9.6	244.1	100	9.31	33.403	4.49	25.840	216.9	0.297
94	9.42	33.334	4.68	1.54	19.	0.02	15.8	223.6	125	8.85	33.621	3.94	26.083	193.8	0.348
118	8.96	33.571	4.04	1.57	25.	0.00	18.0	199.0	150	8.61	33.815	3.31	26.273	175.7	0.395
137	8.69	33.697	3.76	1.67	28.	1.04U	18.9	185.6	200	7.89	33.970	3.00	26.502	154.0	0.479
164	8.51	33.922	2.88	1.78	35.	1.35U	23.9	166.3	250	7.29	34.021	2.52	26.629	141.9	0.555
192	8.02	33.958	3.01	2.11	38.	0.09	26.6	156.6	300	6.70	34.029	2.02	26.716	133.7	0.626
219	7.61	33.992	2.96	2.15	42.	0.22	27.2	148.3	400	5.81	34.107	0.98	26.893	116.9	0.756
258	7.21	34.024	2.39	2.21	49.	0.11	29.1	140.6	500	5.09	34.136	0.71	27.002	106.6	0.873
314	6.54	34.029	1.91	2.61	59.	0.00	34.9	131.5							
384	5.94	34.100	1.06	2.83	72.	0.05	39.1	118.9							
454	5.40	34.118	0.83	2.95	81.	0.01	41.4	111.3							
530	4.91	34.148	0.65	3.05	91.	0.02	43.2	103.6							

RV DAVID STARR JORDAN — CALCOFI CRUISE 7801 — 68080

LATITUDE	LONGITUDE	MO/DAY/YR	MESSENGER TIME	BOTTOM	WIND	SPEED	WEATHER	DOMINANT WAVES
36 23.0N	124 38.5W	1/31/78	0113 GMT	3919M	330	18KT	1	330 8 7

Z	T	S	O2	PO4	SIO3	NO2	NO3	DT	Z	T	S	O2	SIGT	DT	DD
2	14.10	32.771	6.06	0.49	2.	0.00	0.0	347.4	0	14.10	32.771	6.06	24.468	347.4	0.000
12	14.10	32.772	6.01	0.55	3.	0.00	0.0	347.4	10	14.10	32.775	6.02	24.469	347.4	0.035
31	14.10	32.782	6.36		3.	0.00	0.0	346.6	20	14.10	32.780	6.18	24.473	347.0	0.070
41	14.08	32.768	6.15	0.47	3.	0.00	0.0	347.3	30	14.10	32.784	6.35	24.477	346.7	0.104
51	14.08	32.770	6.00	0.46	3.	0.00	0.0	347.1	50	14.08	32.773	6.01	24.472	347.1	0.174
65	14.06	32.770	5.99	0.43	3.	0.00	0.0	346.7	75	13.30	32.837	5.96	24.679	327.4	0.259
79	12.91	32.865	5.95	0.51	4.	0.10	1.0	317.7	100	11.00	32.953	5.80	25.204	277.4	0.335
98	11.08	32.929	5.85	0.66	7.	0.01	4.9	280.4	125	10.39	33.280	4.95	25.564	243.1	0.400
121	10.51	33.223	5.12	1.01	12.	0.04	11.3	249.1	150	9.50	33.548	4.10	25.922	209.1	0.458
139	9.95	33.456	4.37	1.27	18.	0.06	16.9	222.8	200	8.58	33.905	3.11	26.348	168.6	0.554
167	8.90	33.662	3.79	1.53	27.	0.02	22.2	191.3	250	7.93	34.019	2.62	26.534	150.9	0.635
195	8.63	33.886	3.17	1.76	32.	0.05	26.1	170.7	300	7.20	34.045	2.11	26.661	138.9	0.710
222	8.32	33.953	2.93	1.80	36.	0.06	26.8	161.2	400	6.49	34.154	1.05	26.843	121.7	0.846
255A	7.86	34.027	2.56	1.99	42.		29.9	149.2	500	5.70	34.220	0.52	26.996	107.1	0.966
302	7.17	34.044	2.09	2.16	51.	0.02	32.5	138.5							
362	6.85	34.117	1.43	2.32	57.	0.00	34.7	128.9							
421	6.28	34.170	0.87	2.77	67.	0.05	38.1	117.8							
483	5.79	34.203	0.60	2.96	76.	0.02	40.3	109.4							

RV DAVID STARR JORDAN — CALCOFI CRUISE 7801 — 67050

LATITUDE	LONGITUDE	MO/DAY/YR	MESSENGER TIME	BOTTOM	WIND	SPEED	WEATHER	DOMINANT WAVES
36 48.0N	122 05.0W	1/30/78	0036 GMT	187M	310	18KT	4	300 5 5

Z	T	S	O2	PO4	SIO3	NO2	NO3	DT	Z	T	S	O2	SIGT	DT	DD
1	13.95	33.120	6.13	0.72	6.	0.50	1.3	318.9	0	13.95	33.120	6.13	24.768	318.9	0.000
11	13.95	33.350	5.89	0.67	4.	0.07	1.1	302.0	10	13.95	33.335	5.91	24.932	303.2	0.031
31	13.89	33.370	5.75	0.74	5.	0.08	2.2	299.4	20	13.92	33.361	5.83	24.957	300.8	0.061
39	13.25	33.435	5.22	0.91	8.	0.75	4.5	282.2	30	13.89	33.371	5.76	24.971	299.5	0.091
54	12.39	33.492	4.77	1.08	10.	0.44	8.0	262.0	50	12.58	33.482	4.85	25.319	266.4	0.148
69	11.81	33.571	4.34	1.26	14.	0.05	11.2	245.7	75	11.62	33.592	4.25	25.587	240.9	0.212
83	11.38	33.609	4.14	1.37	16.	0.45	12.5	235.3	100	10.85	33.646	3.81	25.768	223.7	0.271
103	10.76	33.653	3.75	1.64	18.	0.07	17.1	221.5	125	10.07	33.807	3.27	26.029	198.9	0.324
126	10.04	33.813	3.25	1.82	24.	0.00	20.0	197.8	150	9.40	33.935	2.70	26.242	178.7	0.372
149	9.41	33.937	2.71	1.90	30.	1.32	19.6	178.7							

RV DAVID STARR JORDAN — CALCOFI CRUISE 7801 — 67055

LATITUDE	LONGITUDE	MO/DAY/YR	MESSENGER TIME	BOTTOM	WIND	SPEED	WEATHER	DOMINANT WAVES
36 39.0N	122 25.5W	1/29/78	2103 GMT	2130M	330	14KT	1	330 4 7

Z	T	S	O2	PO4	SIO3	NO2	NO3	DT	Z	T	S	O2	SIGT	DT	DD
1	13.94	33.114	6.14	0.46	4.	0.20	0.3	319.1	0	13.94	33.114	6.14	24.765	319.1	0.000
11	13.88	33.116	6.12	0.46	4.	0.14	0.1	317.8	10	13.89	33.116	6.12	24.777	318.1	0.032
30	13.80	33.227	6.01	0.54	5.	0.62	0.7	308.1	20	13.84	33.170	6.08	24.828	313.1	0.063
39	13.78	33.233	5.93	0.52	5.	0.52	0.9	307.3	30	13.80	33.227	6.01	24.881	308.1	0.095
48	13.76	33.243	5.90	0.52	5.	0.70	1.4	306.1	50	13.77	33.258	5.83	24.910	305.4	0.156
63	13.82	33.416	5.26	0.62	8.	0.05	3.9	294.6	75	12.88	33.446	5.01	25.233	274.6	0.229
77	12.69	33.448	4.97	0.80	9.	0.03	7.4	270.7	100	10.99	33.667	3.84	25.760	224.5	0.292
95	11.36	33.615	4.10	1.15	17.	0.01	14.2	234.5	125	9.67	33.868	2.89	26.143	188.0	0.344
119	9.86	33.834	3.03	1.60	27.	0.07	22.0	193.4	150	9.25	33.967	2.56	26.289	174.2	0.390
138	9.41	33.919	2.69	1.80	32.	0.10	24.2	180.0	200	8.37	34.054	2.21	26.496	154.5	0.474
166	9.06	34.012	2.43	1.95	35.	0.08	26.0	167.8	250	7.90	34.085	2.03	26.591	145.6	0.551
194	8.43	34.046	2.25	2.11	40.	0.10	28.6	155.9	300	7.52	34.088	1.91	26.649	140.1	0.625
222	8.21	34.072	2.10	2.20	42.	0.07	29.0	150.8	400	6.73	34.129	1.25	26.790	126.6	0.763
259	7.80	34.085	2.01	2.35	47.	0.02	31.0	144.0	500	5.98	34.218	0.60	26.959	110.6	0.888
314	7.44	34.087	1.86	2.47	51.	0.03	31.6	139.0							
384	6.86	34.114	1.39	2.68	59.	0.04	34.3	129.3							
454	6.32	34.179	0.81	3.04	70.	0.11	38.0	117.6							
528	5.78	34.238	0.53	3.21	81.	0.07	40.0	106.7							

A) A POSTTRIP MAY HAVE STARTED WITH THIS NANSEN BOTTLE CAUSING THE FOLLOWING DEPTHS TO BE SLIGHTLY UNCERTAIN.

RV DAVID STARR JORDAN — CALCOFI CRUISE 7801 — 67060

LATITUDE	LONGITUDE	MO/DAY/YR	MESSENGER TIME	BOTTOM	WIND	SPEED	WEATHER	DOMINANT WAVES
36 29.0N	122 47.0W	1/29/78	1639 GMT	2879M	340	26KT	1	270 6 6

Z	T	S	O2	PO4	SIO3	NO2	NO3	DT	Z	T	S	O2	SIGT	DT	DD
1	14.13	33.204	6.05	0.75	0.	0.00	0.0	316.3	0	14.13	33.204	6.05	24.795	316.3	0.000
11	14.11	33.206	6.04	0.75	0.	0.06	0.0	315.7	10	14.11	33.208	6.04	24.801	315.8	0.032
31	14.14	33.200	6.08	0.74	0.	0.00	0.0	316.8	20	14.12	33.206	6.06	24.796	316.2	0.063
41	14.12	33.199	6.28	0.82	0.	0.00	0.1	316.5	30	14.14	33.203	6.08	24.791	316.7	0.095
50	14.14	33.201	6.11	0.77	0.	0.00	0.1	316.7	50	14.14	33.201	6.11	24.791	316.7	0.159
64	14.16	33.202	6.05	0.78	0.	0.01	0.1	317.0	75	13.60	33.331	5.52	25.001	296.6	0.236
79	13.35	33.382	5.30	1.03	0.	0.08	5.3	288.0	100	12.53	33.482	4.80	25.330	265.4	0.306
98	12.67	33.471	4.85	1.20	1.	0.05	8.7	268.7	125	10.57	33.556	4.23	25.748	225.6	0.368
122	10.79	33.555	4.28	1.46	4.	0.04	15.1	229.2	150	9.04	33.601	4.08	26.038	198.1	0.422
140	9.57	33.558	4.06	1.59	11.	0.00	16.9	209.3	200	8.26	33.932	3.03	26.417	162.1	0.514
169	8.37	33.716	4.13	1.73	17.	0.00	19.9	179.6	250	7.55	34.013	2.69	26.586	146.0	0.593
197	8.29	33.917	3.08	2.08	27.	0.00	22.8	163.5	300	7.21	34.079	1.86	26.686	136.5	0.665
224	7.97	33.999	2.80	2.31	32.	0.05	26.5	152.8	400	6.59	34.178	0.91	26.848	121.1	0.799
262	7.37	34.012	2.62	2.40	40.	0.06	28.2	143.6	500	5.74	34.214	0.51	26.985	108.2	0.920
318	7.18	34.112	1.47	2.88	51.	0.07	33.2	133.6							
387	6.67	34.165	0.99	3.13	62.	0.00	36.7	123.0							
456	6.19	34.214	0.63	3.16	73.	0.17U	36.3	113.4							
529	5.39	34.199	0.48	3.38	87.	0.00	41.2	105.1							

RV DAVID STARR JORDAN — CALCOFI CRUISE 7801 — 67070

LATITUDE	LONGITUDE	MO/DAY/YR	MESSENGER TIME	BOTTOM	WIND	SPEED	WEATHER	DOMINANT WAVES
36 08.0N	123 29.5W	1/29/78	0953 GMT	3541M	350	27KT		

Z	T	S	O2	PO4	SIO3	NO2	NO3	DT	Z	T	S	O2	SIGT	DT	DD
1	13.46	32.792	6.15	0.81	4.	0.00	0.1	333.5	0	13.46	32.792	6.15	24.615	333.5	0.000
11	13.43	32.789	6.12	0.80	4.	0.00	0.1	333.1	10	13.43	32.792	6.12	24.619	333.1	0.033
30	13.36	32.857	6.09	0.85	4.	0.02	0.6	326.8	20	13.40	32.824	6.11	24.650	330.1	0.067
39	13.22	33.047	5.88	0.90	5.	0.15	2.4	310.1	30	13.36	32.857	6.09	24.685	326.8	0.099
49	12.08	33.290	5.28	1.18	9.	0.00	8.6	271.2	50	11.95	33.297	5.24	25.297	268.5	0.159
63	10.44	33.300	4.89	1.53	14.	0.00	14.0	242.3	75	9.71	33.384	4.55	25.760	224.5	0.221
77	9.64	33.396	4.49	1.74	19.	0.00	17.9	222.4	100	9.48	33.515	3.65	25.900	211.2	0.276
96	9.59	33.461	3.71	1.96	24.	0.00	21.4	216.8	125	8.87	33.843	3.24	26.254	177.6	0.325
119	8.94	33.784	3.43	2.12	29.	0.00	24.6	182.9	150	8.62	33.921	2.94	26.355	168.0	0.369
137	8.77	33.914	2.92	2.27	33.	0.00	27.0	170.7	200	7.97	34.024	2.62	26.533	151.1	0.450
166	8.42	33.930	2.96	2.28	35.	0.00	27.4	164.4	250	7.50	34.052	2.27	26.623	142.5	0.526
194	8.04	34.017	2.64	2.40	40.	0.00	29.3	152.5	300	7.14	34.089	1.71	26.703	134.9	0.597
221	7.75	34.029	2.55	2.45	43.	0.00	30.0	147.5	400	6.40	34.159	0.95	26.858	120.2	0.730
258	7.44	34.058	2.18	2.60	48.	0.00	32.3	141.1	500	5.71	34.223	0.57	26.997	107.0	0.849
312	7.06	34.097	1.58	2.85	55.	0.00	34.9	133.1							
381	6.57	34.151	1.04	3.07	64.	0.00	37.5	122.8							
449	5.99	34.179	0.76	3.22	74.	0.00	40.0	113.6							
522	5.63	34.246	0.49	3.36	83.	0.00	41.0	104.3							

RV DAVID STARR JORDAN — CALCOFI CRUISE 7801 — 67080

LATITUDE	LONGITUDE	MO/DAY/YR	MESSENGER TIME	BOTTOM	WIND	SPEED	WEATHER	DOMINANT WAVES
35 48.0N	124 12.0W	1/29/78	0430 GMT	3919M	340	21KT		

Z	T	S	O2	PO4	SIO3	NO2	NO3	DT	Z	T	S	O2	SIGT	DT	DD
1	14.28	32.824	5.95	0.60	3.	0.00	0.1	347.1	0	14.28	32.824	5.95	24.472	347.1	0.000
10	14.28	32.824	5.99	0.61	3.	0.00	0.1	347.1	10	14.28	32.824	5.99	24.472	347.1	0.035
29	14.30	32.824	6.03	0.66	3.	0.00	0.1	347.5	20	14.29	32.826	6.02	24.469	347.4	0.069
39	14.29	32.826	6.04	0.65	3.	0.00	0.1	347.2	30	14.30	32.827	6.03	24.468	347.5	0.104
48	14.30	32.826	5.98	0.64	3.	0.00	0.1	347.4	50	14.30	32.829	5.97	24.470	347.3	0.174
63	14.28	32.828	5.95	0.68	3.	0.00	0.1	346.8	75	12.46	32.927	5.91	24.913	305.1	0.256
77	12.12	32.945	5.90	0.76	5.	0.00	3.4	297.3	100	10.50	33.009	5.60	25.334	265.0	0.328
97	10.65	32.982	5.68	1.01	9.	0.00	7.2	269.3	125	9.77	33.292	4.79	25.678	232.3	0.390
119	9.87	33.213	5.00	1.33	15.	0.00	13.6	239.5	150	9.28	33.513	4.30	25.931	208.3	0.446
138	9.59	33.442	4.40	1.51	20.	0.00	16.9	218.2	200	8.84	33.901	2.92	26.303	172.8	0.543
166	8.92	33.590	4.16	1.68	25.	0.00	19.8	197.0	250	8.28	34.050	2.32	26.507	153.5	0.627
195	8.90	33.867	3.05	2.02	31.	0.00	25.0	176.1	300	7.83	34.095	1.93	26.609	143.8	0.703
222	8.54	34.003	2.51	2.26	37.	0.02	28.1	160.7	400	6.97	34.166	1.06	26.787	126.9	0.844
260	8.20	34.054	2.28	2.36	41.	0.02	29.4	152.0	500	6.02	34.183	0.67	26.926	113.8	0.971
316	7.69	34.108	1.77	2.60	49.	0.00	32.4	140.8							
386	7.11	34.162	1.14	2.90	59.	0.00	35.7	129.0							
456	6.41	34.171	0.83	3.06	68.	0.05	37.5	119.3							
532	5.76	34.191	0.58	3.32	79.	0.01	40.7	110.0							

RV DAVID STARR JORDAN CALCOFI CRUISE 7801 67090

LATITUDE	LONGITUDE	MO/DAY/YR	MESSENGER TIME	BOTTOM	WIND	SPEED	WEATHER	DOMINANT WAVES
35 28.5N	124 54.5W	1/28/78	2241 GMT	4499M	340	15KT	2	320 6 9

Z	T	S	O2	PO4	SIO3	NO2	NO3	DT	Z	T	S	O2	SIGT	DT	DD
2	14.53	32.856	5.93	0.60	3.	0.01	0.0	349.8	0	14.53	32.856	5.93	24.444	349.8	0.000
12	14.51	32.851	5.94	0.54	3.	0.00	0.0	349.8	10	14.51	32.855	5.94	24.444	349.8	0.035
31	14.48	32.852	5.97	0.51	3.	0.00	0.1	349.1	20	14.50	32.852	5.95	24.446	349.6	0.070
40	14.47	32.857	6.00	0.66	3.	0.00	0.1	348.5	30	14.48	32.854	5.97	24.450	349.1	0.105
49	14.48	32.851	6.02	0.65	3.	0.00	0.1	349.2	50	14.47	32.854	6.02	24.454	348.8	0.175
63	14.28	32.861	5.95	0.65	3.		0.1	344.4	75	12.75	32.947	5.93	24.874	308.8	0.258
77	12.45	32.962	5.92	0.69	4.	0.00	2.3	302.1	100	10.58	33.022	5.62	25.331	265.3	0.330
96	10.78	32.997	5.69	0.90	8.	0.02	6.3	270.3	125	10.00	33.289	4.80	25.638	236.1	0.393
119	10.05	33.193	5.08	1.24	14.	0.03	12.6	243.9	150	9.81	33.611	3.82	25.920	209.2	0.449
138	9.94	33.490	4.19	1.50		0.06	17.5	220.1	200	9.30	33.908	2.68	26.235	179.3	0.548
166	9.62	33.723	3.43	1.73	25.	0.02	21.7	197.8	250	8.72	34.044	2.17	26.434	160.4	0.635
194	9.37	33.882	2.77	1.88	29.	0.08	24.6	182.2	300	8.19	34.091	1.99	26.553	149.2	0.715
222	9.04	33.978	2.43	2.02	33.	0.03	26.3	170.0	400	7.26	34.169	1.14	26.750	130.4	0.861
259	8.62	34.058	2.11	2.21	39.	0.00	29.1	157.8	500	6.20	34.186	0.75	26.905	115.7	0.990
315	8.04	34.096	1.95	2.28	44.	0.00	30.0	146.6							
385	7.44	34.169	1.21	2.54	55.	0.00	33.2	132.8							
453	6.61	34.162	0.96	2.76	64.	0.06	36.3	122.5							
527	6.03	34.207	0.62	2.89	74.	0.03	38.7	112.0							

RV DAVID STARR JORDAN CALCOFI CRUISE 7801 70053

LATITUDE	LONGITUDE	MO/DAY/YR	MESSENGER TIME	BOTTOM	WIND	SPEED	WEATHER	DOMINANT WAVES
36 06.5N	121 54.5W	1/27/78	1832 GMT	1027M	030	5KT	2	300 3 5

Z	T	S	O2	PO4	SIO3	NO2	NO3	DT	Z	T	S	O2	SIGT	DT	DD
0	14.38	33.352	6.10	0.70	5.	0.05	0.1	310.4	0	14.38	33.352	6.10	24.857	310.4	0.000
10	14.27	33.351	6.01	0.69	5.	0.04	0.0	308.3	10	14.27	33.351	6.01	24.879	308.3	0.031
29	14.07	33.371	5.96	0.74	5.	0.07	0.7	302.9	20	14.17	33.362	5.98	24.906	305.7	0.062
38	13.93	33.380	5.67	0.75	5.	0.36	0.7	299.4	30	14.05	33.374	5.94	24.940	302.5	0.092
48	12.39	33.457	4.98	1.00	9.	0.57	6.6	264.5	50	12.25	33.468	4.91	25.372	261.4	0.149
62	11.86	33.503	4.66	1.12	12.	0.17	8.4	251.6	75	11.45	33.570	4.31	25.601	239.6	0.212
76	11.42	33.574	4.28	1.21	15.	0.29	12.3	238.6	100	10.43	33.735	3.55	25.912	210.1	0.268
95	10.53	33.714	3.63	1.59	21.	0.12	18.5	213.2	125	10.09	33.820	3.24	26.037	198.2	0.320
119	10.20	33.792	3.35	1.66	23.	0.10	19.7	202.0	150	9.60	33.927	2.83	26.201	182.6	0.368
138	9.83	33.878	2.99	1.78	26.		20.7	189.7	200	8.91	34.047	2.28	26.408	162.9	0.456
166	9.33	33.978	2.65	2.06	31.		25.2	174.4	250	8.40	34.108	1.94	26.533	151.0	0.537
194	8.98	34.040	2.33	2.27	36.		27.7	164.5	300	7.90	34.136	1.68	26.631	141.7	0.613
222	8.65	34.065	2.12		39.		27.2	157.7	400	6.64	34.143	1.09	26.814	124.4	0.751
260	8.32	34.121	1.88	2.42	43.		29.5	148.7	500	5.91	34.202	0.63	26.955	111.0	0.875
316	7.71	34.134	1.60	2.66	50.		33.4	139.2							
385	6.79	34.137	1.17	2.87	60.		37.0	126.7							
454	6.21	34.169	0.82	3.04	70.		39.7	117.0							
527	5.77	34.224	0.53	3.25	78.		41.9	107.6							

RV DAVID STARR JORDAN CALCOFI CRUISE 7801 70060

LATITUDE	LONGITUDE	MO/DAY/YR	MESSENGER TIME	BOTTOM	WIND	SPEED	WEATHER	DOMINANT WAVES
35 53.0N	122 22.5W	1/27/78	2234 GMT	3069M	330	20KT	1	350 5 5

Z	T	S	O2	PO4	SIO3	NO2	NO3	DT	Z	T	S	O2	SIGT	DT	DD
1	13.74	32.754	6.05	0.64	3.	0.00	0.1	341.6	0	13.74	32.754	6.05	24.529	341.6	0.000
10	13.72	32.754	6.05	0.67	3.	0.02	0.2	341.3	10	13.72	32.754	6.05	24.533	341.3	0.034
30	13.68	32.745	6.08	0.67	3.	0.00	0.2	341.1	20	13.70	32.752	6.07	24.534	341.2	0.068
39	13.66	32.750	6.16	0.68	3.	0.00	0.2	340.4	30	13.68	32.745	6.08	24.535	341.1	0.103
50	13.65	32.755	6.07	0.72	3.	0.01	0.2	339.8	50	13.65	32.755	6.07	24.548	339.8	0.171
64	11.08	32.929	5.86	1.00	6.	0.03	5.5	280.4	75	10.65	33.035	5.62	25.328	265.5	0.247
78	10.63	33.053	5.55	1.13	9.	0.07	9.6	263.7	100	9.32	33.189	5.13	25.670	233.0	0.310
97	9.47	33.161	5.18	1.49	15.	0.07	14.7	237.1	125	8.60	33.426	4.65	25.970	204.5	0.365
120	8.64	33.374	4.76	1.67	22.	0.10	19.0	208.9	150	8.67	33.684	3.73	26.161	186.4	0.414
138	8.48	33.532	4.29	1.75	27.	0.04	20.7	194.8	200	8.57	33.969	2.79	26.399	163.8	0.503
167	8.95	33.875	3.00	2.19	31.	0.14	27.4	176.3	250	7.47	34.010	2.71	26.595	145.2	0.583
195	8.68	33.964	2.74	2.04	34.	0.13	28.9	165.7	300	6.85	34.062	1.90	26.722	133.1	0.654
223	8.01	33.975	3.03	2.41	38.	0.07	30.5	155.2	400	6.03	34.107	1.04	26.865	119.5	0.785
260	7.30	34.023	2.52	2.57	47.	0.07	33.8	141.8	500	5.56	34.189	0.64	26.988	107.8	0.905
315	6.73	34.071	1.68	2.98	59.	0.09	38.5	130.8							
384	6.14	34.097	1.12	3.30	69.	0.03	42.6	121.5							
454	5.73	34.146	0.82	3.32	78.	0.67U	43.4	113.0							
528	5.50	34.218	0.54	3.67	86.	0.06	46.5	104.9							

RV DAVID STARR JORDAN — CALCOFI CRUISE 7801 — 70070

LATITUDE	LONGITUDE	MO/DAY/YR	MESSENGER TIME	BOTTOM	WIND	SPEED	WEATHER	DOMINANT WAVES
35 33.5N	123 05.5W	1/28/78	0525 GMT	3731M	340	18KT	1	

Z	T	S	O2	PO4	SIO3	NO2	NO3	DT	Z	T	S	O2	SIGT	DT	DD
1	13.32	32.606	6.12		3.	0.00		344.4	0	13.32	32.606	6.12	24.500	344.4	0.000
11	13.31	32.603	6.15		3.	0.00		344.5	10	13.31	32.606	6.15	24.500	344.5	0.034
29	13.24	32.617	6.31		3.	0.02		342.1	20	13.28	32.613	6.24	24.512	343.3	0.069
39	13.23	32.616	6.26		3.	0.02		342.0	30	13.24	32.620	6.31	24.524	342.1	0.103
48	13.22	32.625	6.19		3.	0.03		341.2	50	13.00	32.670	6.14	24.611	333.9	0.171
62	11.38	32.949	5.85		6.	0.12		284.0	75	10.49	32.982	5.70	25.316	266.8	0.246
76	10.45	32.980	5.69		8.	0.08		266.1	100	10.03	33.365	4.70	25.692	230.9	0.309
95	10.25	33.311	4.88		14.	0.03		238.4	125	8.92	33.546	4.14	26.014	200.4	0.364
118	9.15	33.499	4.21		22.	0.01		207.2	150	8.74	33.732	3.60	26.187	183.9	0.412
137	8.67	33.621	4.01		26.	0.25		191.0	200	8.40	33.978	2.77	26.432	160.6	0.500
165	8.89	33.848	3.12		29.	0.02		177.4	250	7.56	34.012	2.63	26.582	146.3	0.579
193	8.48	33.957	2.87		33.	0.02		163.2	300	6.60	33.998	2.42	26.706	134.6	0.651
221	8.13	34.015	2.54		38.	0.19		153.9	400	6.06	34.113	0.95	26.866	119.5	0.783
260	7.35	34.003	2.68		44.	0.03		144.0	500	5.37	34.181	0.59	27.005	106.2	0.901
316	6.37	33.996	2.23		56.	0.00		131.9							
386	6.20	34.107	1.04		67.	0.01		121.5							
455	5.51	34.127	0.78		78.	0.00		111.9							
528	5.28	34.210	0.46		86.	0.00		103.0							

RV DAVID STARR JORDAN — CALCOFI CRUISE 7801 — 70080

LATITUDE	LONGITUDE	MO/DAY/YR	MESSENGER TIME	BOTTOM	WIND	SPEED	WEATHER	DOMINANT WAVES
35 13.5N	123 47.5W	1/28/78	1049 GMT	4022M	340	21KT		

Z	T	S	O2	PO4	SIO3	NO2	NO3	DT	Z	T	S	O2	SIGT	DT	DD
1	13.85	32.711	6.04	0.60	3.	0.00	0.5	346.9	0	13.85	32.711	6.04	24.474	346.9	0.000
11	13.85	32.711	6.06	0.58	4.	0.00	0.3	346.9	10	13.85	32.714	6.06	24.474	346.9	0.035
30	13.87	32.711	6.05	0.58	4.	0.00	0.4	347.3	20	13.86	32.713	6.06	24.471	347.2	0.069
39	13.87	32.714	6.14	0.58	4.	0.00	0.3	347.1	30	13.87	32.711	6.05	24.470	347.3	0.104
49	13.89	32.714	6.06	0.59	4.	0.00	0.4	347.5	50	13.89	32.717	6.06	24.468	347.5	0.174
63	13.87	32.710	6.04	0.55	4.	0.00	0.3	347.4	75	12.49	32.831	6.06	24.835	312.5	0.257
77	12.21	32.851	6.06	0.79	5.	0.06	2.9	305.9	100	10.31	32.885	5.85	25.271	271.0	0.330
96	10.59	32.847	5.94	0.99	8.	0.00	6.5	278.2	125	9.17	33.176	5.14	25.686	231.6	0.394
119	9.31	33.109	5.31	1.53	16.	0.00	15.6	238.5	150	8.66	33.472	4.63	25.996	202.0	0.448
138	8.95	33.315	4.80	1.75	21.	0.00	20.0	217.8	200	7.95	33.876	3.36	26.419	161.9	0.541
166	8.30	33.662	4.39	1.89	27.	0.00	23.6	182.6	250	7.30	33.979	2.98	26.595	145.2	0.619
194	8.01	33.847	3.50	2.25	35.	0.00	26.4	164.7	300	6.55	33.978	2.74	26.695	135.6	0.692
222	7.72	33.945	3.02	2.46	40.	0.00	32.2	153.4	400	5.49	34.017	1.52	26.861	119.9	0.824
259	7.15	33.980	2.97	2.50	45.	0.00	33.1	143.1	500	5.16	34.134	0.76	26.992	107.6	0.943
315	6.35	33.972	2.61	2.72	54.	0.00	36.0	133.4							
384	5.62	34.003	1.68	3.10	68.	0.00	41.3	122.4							
454	5.17	34.068	1.06	3.22	79.	0.03	43.0	112.5							
530	5.16	34.165	0.61	3.41	85.	0.00	44.8	105.1							

RV DAVID STARR JORDAN — CALCOFI CRUISE 7801 — 70090

LATITUDE	LONGITUDE	MO/DAY/YR	MESSENGER TIME	BOTTOM	WIND	SPEED	WEATHER	DOMINANT WAVES
34 53.5N	124 30.5W	1/28/78	1606 GMT	4261M	340	20KT	2	350 5 5

Z	T	S	O2	PO4	SIO3	NO2	NO3	DT	Z	T	S	O2	SIGT	DT	DD
1	14.08	32.804	6.01	0.90	2.	0.00	0.0	344.6	0	14.08	32.804	6.01	24.498	344.6	0.000
11	14.03	32.803	6.01	0.88	2.	0.01	0.0	343.7	10	14.03	32.806	6.01	24.507	343.8	0.034
30	14.06	32.809	6.01	0.91	2.	0.02	0.0	343.9	20	14.04	32.808	6.01	24.507	343.8	0.069
39	14.02	32.881	6.10	0.85	2.	0.03	0.0	337.8	30	14.06	32.809	6.01	24.506	343.9	0.103
49	14.14	33.044	6.00	0.86	2.	0.06	0.0	328.2	50	13.97	33.035	6.00	24.697	325.7	0.170
63	11.51	32.875	6.06	0.97	4.	0.12	1.9	291.7	75	11.13	32.949	5.97	25.177	279.9	0.247
76	11.10	32.947	5.96	0.94	5.	0.15	3.0	279.4	100	10.02	32.977	5.74	25.391	259.6	0.314
96	10.23	32.961	5.79	1.03	8.	0.15	6.1	263.9	125	8.99	33.190	5.16	25.725	227.8	0.376
118	9.19	33.099	5.38	1.42	15.	0.14	12.2	237.5	150	8.59	33.498	4.42	26.027	199.1	0.430
139	8.71	33.379	4.71	1.46	22.	0.13	15.2	209.5	200	8.30	33.898	3.55	26.385	165.1	0.522
166	8.49	33.643	4.08	1.70	27.	0.14	20.1	186.7	250	7.79	33.980	3.01	26.525	151.8	0.604
195	8.31	33.875	3.67	1.83	33.	0.13	23.3	166.9	300	7.39	34.080	2.00	26.661	138.9	0.678
223	8.25	33.967	3.04	2.07	36.	0.21	26.2	159.2	400	6.39	34.128	1.10	26.835	122.4	0.814
259	7.62	33.979	3.00	2.05	39.	0.21	26.2	149.5	500	5.78	34.186	0.66	26.958	110.7	0.937
314	7.34	34.114	1.62	2.59	52.	0.23	27.5	135.6							
384	6.52	34.122	1.18	2.84	63.	0.21	37.0	124.3							
452	6.06	34.152	0.86	2.85	70.	0.27	35.8	116.4							
528	5.64	34.207	0.56	3.07	81.	0.25	40.7	107.4							

RV DAVID STARR JORDAN — CALCOFI CRUISE 7801 — 73053

LATITUDE	LONGITUDE	MO/DAY/YR	MESSENGER TIME	BOTTOM	WIND	SPEED	WEATHER	DOMINANT WAVES
35 31.5N	121 28.5W	1/27/78	0925 GMT	768M	310	10KT	1	

Z	T	S	O2	PO4	SIO3	NO2	NO3	DT
2	13,97	32,938	6,09	0,43	4.	0,00	0,0	332,6
12	13,97	32,946	6,10	0,43	4.	0,00	0,0	332,0
29	12,42	32,959	5,92	0,70	6.	0,14	3,8	301,7
39	12,44	33,311	5,36	0,87	9.	0,04	6,5	276,2
49	11,79	33,473	4,76	1,16	12.	0,04	11,3	252,5
63	11,14	33,539	4,44	1,35	15.	0,08	14,1	236,4
77	10,68	33,642	4,00	1,51	19.	0,05	16,6	221,0
96	10,28	33,732	3,66	1,70	22.	0,04	20,0	207,7
119	9,92	33,800	3,43	1,80	24.	0,05	22,1	196,9
138	9,68	33,890	3,07	2,00	28.	0,05	24,3	186,4
166	9,28	33,991	2,62	2,25	33.	0,06	27,2	172,7
194	8,85	34,071	2,19	2,43	38.	0,00	30,8	160,2
222	8,58	34,108	1,99	2,55	41.	0,00	31,7	153,5
259	8,03	34,115	1,86	2,70	46.	0,00	33,8	145,0
315	7,75	34,157	1,47	2,86	51.	0,00	35,9	138,0
385	7,12	34,184	1,02	3,08	60.	0,00	39,3	127,5
456	6,44	34,181	0,82	3,25	65.	0,01	42,1	118,9
531	5,96	34,204	0,63	3,44	72.	0,01	44,1	111,4

Z	T	S	O2	SIGT	DT	DD
0	13,97	32,938	6,09	24,624	332,6	0,000
10	13,97	32,947	6,10	24,629	332,2	0,033
20	13,24	32,951	6,02	24,782	317,6	0,066
30	12,42	32,995	5,87	24,973	299,3	0,097
50	11,74	33,482	4,73	25,481	251,0	0,152
75	10,74	33,629	4,06	25,776	223,0	0,212
100	10,21	33,745	3,62	25,957	205,7	0,266
125	9,84	33,829	3,32	26,085	193,6	0,316
150	9,51	33,938	2,87	26,225	180,3	0,363
200	8,79	34,083	2,13	26,454	158,5	0,450
250	8,16	34,115	1,89	26,576	146,9	0,528
300	7,80	34,146	1,58	26,653	139,6	0,602
400	6,97	34,185	0,97	26,802	125,5	0,740
500	6,13	34,193	0,71	26,920	114,3	0,867

RV DAVID STARR JORDAN — CALCOFI CRUISE 7801 — 73060

LATITUDE	LONGITUDE	MO/DAY/YR	MESSENGER TIME	BOTTOM	WIND	SPEED	WEATHER	DOMINANT WAVES
35 17.5N	121 58.0W	1/27/78	0443 GMT	2410M	320	29KT		

Z	T	S	O2	PO4	SIO3	NO2	NO3	DT
1	13,97	32,725	6,08	0,48	0.	0,01	0,0	348,3
11	13,93	32,736	6,07	0,50	0.	0,01	0,0	346,7
30	13,89	32,814	6,18	0,51	0.	0,01	0,0	340,2
39	13,89	32,832	6,12	0,49	0.	0,01	0,0	338,8
49	13,47		6,00	0,55	0.	0,07	0,6	
64	12,07	32,926	5,87	0,76	0.	0,05	4,1	297,8
78	10,35	33,015	5,62	1,00	10.	0,03	8,3	261,9
96	9,58	33,226	5,05	1,37	16.	0,03	14,7	234,0
120	9,75	33,617	3,79	1,71	22.	0,03	20,3	207,7
139	9,06	33,776	3,35	1,92	28.	0,02	23,7	185,3
167	8,75	33,780	2,92	2,09	33.	0,02	26,0	180,4
195	8,19	33,916	3,31	2,01	35.	0,02	25,5	162,1
223	7,72	33,917	3,38	2,02	38.	0,03	26,1	155,4
260	7,07	33,994	2,79	2,20	47.	0,05	28,5	141,0
316	7,13	34,121	1,47	2,65	57.	0,05	33,1	132,3
381	6,20	34,097	1,23	2,86	67.	0,02	36,9	122,3
456	5,70	34,148	0,82	3,22	78.	0,03	39,4	112,5
529	5,50	34,241	0,48	3,37	85.	0,06	40,2	103,2

Z	T	S	O2	SIGT	DT	DD
0	13,97	32,725	6,08	24,460	348,3	0,000
10	13,93	32,737	6,07	24,474	346,9	0,035
20	13,90	32,774	6,13	24,509	343,6	0,069
30	13,89	32,814	6,18	24,545	340,2	0,104
50	13,40	32,880	5,99	24,693	326,0	0,170
75	10,69	32,991	5,69	25,287	269,5	0,245
100	9,60	33,296	4,83	25,709	229,3	0,308
125	9,58	33,676	3,65	26,009	200,8	0,362
150	8,90	33,778	3,12	26,199	182,7	0,411
200	8,10	33,916	3,32	26,430	160,8	0,498
250	7,22	33,970	3,00	26,598	144,9	0,577
300	7,11	34,097	1,82	26,713	134,0	0,648
400	6,03	34,105	1,13	26,864	119,7	0,780
500	5,55	34,200	0,61	26,999	106,9	0,899

RV DAVID STARR JORDAN — CALCOFI CRUISE 7801 — 73070

LATITUDE	LONGITUDE	MO/DAY/YR	MESSENGER TIME	BOTTOM	WIND	SPEED	WEATHER	DOMINANT WAVES
34 58.0N	122 40.0W	1/26/78	2219 GMT	4111M	340	25KT	1	340 6 5

Z	T	S	O2	PO4	SIO3	NO2	NO3	DT
1	14,03	33,005	6,08	0,67	3.	0,00	0,0	328,9
11	14,00	33,002	6,07	0,68	3.	0,01	0,0	328,5
29	13,95	32,998	6,07	0,67	3.	0,01	0,0	327,8
37	13,96	33,056	5,99	0,67	3.	0,09	0,3	323,8
47	13,82	33,169	5,83	0,70	3.	0,15	1,5	312,7
59	12,23	33,232	5,46	0,95	6.	0,13	6,3	278,2
73	11,20	33,429	4,69	1,28	11.	0,11	12,1	245,5
96	10,15	33,601	4,01	1,58	17.	0,12	17,7	215,3
124	9,86	33,831	3,15	1,88	23.	0,05	22,3	193,6
145	9,44	33,915	2,82	1,99	27.	0,08	23,7	180,8
176	9,02	34,015	2,47	2,20	31.	0,06	26,7	167,0
205	8,72	34,067	2,29	2,19	34.	0,09	28,0	158,6
231	8,33	34,085	2,19	2,30	37.	0,05	29,4	151,6
271	7,97	34,141	1,72	2,59	43.	0,08	31,7	142,3
329	7,31	34,139	1,41	2,71	57.	0,09	34,1	133,3
399	6,71	34,164	1,03	2,91	67.	0,08	36,3	123,6
481	5,96	34,179	0,70	3,21	77.	0,19	40,0	113,2
557	5,97	34,298	0,39	3,32	81.	0,13	40,1	104,5

Z	T	S	O2	SIGT	DT	DD
0	14,03	33,005	6,08	24,663	328,9	0,000
10	14,00	33,005	6,07	24,666	328,6	0,033
20	13,97	33,001	6,07	24,670	328,2	0,066
30	13,95	33,005	6,06	24,677	327,5	0,099
50	13,46	33,184	5,76	24,915	304,9	0,162
75	11,08	33,449	4,62	25,575	242,1	0,231
100	10,08	33,639	3,87	25,896	211,5	0,288
125	9,84	33,838	3,13	26,092	192,9	0,339
150	9,36	33,935	2,75	26,247	178,2	0,386
200	8,77	34,062	2,31	26,440	159,9	0,472
250	8,15	34,113	1,98	26,577	146,9	0,551
300	7,64	34,145	1,54	26,676	137,4	0,624
400	6,70	34,165	1,03	26,823	123,5	0,760
500	5,96	34,211	0,62	26,955	111,0	0,884

RV DAVID STARR JORDAN — CALCOFI CRUISE 7801 — 73080

LATITUDE	LONGITUDE	MO/DAY/YR	MESSENGER TIME	BOTTOM	WIND	SPEED	WEATHER	DOMINANT WAVES
34 38.0N	123 22.0W	1/26/78	1612 GMT	4117M	340	16KT	1	330 4 4

Z	T	S	O2	PO4	SIO3	NO2	NO3	DT	Z	T	S	O2	SIGT	DT	DD
1	14.06	32.947		0.41	4.	0.00	0.0	333.8	0	14.06	32.947		24.612	333.8	0.000
11	14.03	32.948	6.06	0.45	3.	0.00	0.0	333.1	10	14.03	32.951	6.06	24.621	332.9	0.033
30	14.06	32.948	6.24	0.46	4.	0.00	0.0	333.7	20	14.04	32.951	6.16	24.616	333.4	0.067
40	13.99	32.995	6.09	0.53	4.	0.01	0.0	328.9	30	14.06	32.948	6.24	24.613	333.7	0.100
50	13.25	33.294	5.69	0.67	5.	0.01	3.0	292.6	50	13.25	33.294	5.69	25.044	292.6	0.163
64	11.43	33.274	5.20	0.98	10.	0.02	8.8	260.9	75	10.71	33.362	4.74	25.573	242.3	0.230
79	10.52	33.397	4.59	1.17	15.	0.00	13.5	236.4	100	9.43	33.526	4.35	25.916	209.6	0.287
98	9.45	33.500	4.41	1.46	19.	0.01	18.2	211.7	125	9.20	33.761	3.54	26.138	188.5	0.337
120	9.28	33.726	3.66	1.59	25.	0.01	21.7	192.3	150	8.86	33.903	2.98	26.302	173.0	0.383
139	8.96	33.839	3.24	1.82	29.	0.02	24.9	179.1	200	8.36	34.040	2.37	26.487	155.4	0.467
166	8.75	33.976	2.66	2.04	34.	0.01	27.4	165.8	250	7.74	34.080	2.04	26.611	143.6	0.544
197	8.39	34.034	2.40	2.15	38.	0.03	28.7	156.2	300	7.21	34.122	1.50	26.719	133.4	0.615
225	8.09	34.070	2.14	2.22	42.	0.06	29.3	149.2	400	6.23	34.141	0.90	26.867	119.4	0.747
262	7.57	34.082	1.99	2.12	48.	0.14	27.1	141.1	500	5.82	34.235	0.48	26.993	107.4	0.866
320	7.05	34.141	1.23	2.44	59.	0.35	31.0	129.7							
393	6.26	34.134	0.93	2.79	68.	0.05	37.2	120.2							
463	6.01	34.207	0.61	2.88	77.	0.07	39.6	111.7							
537	5.58	34.253	0.39	2.88	86.	0.15	39.5	103.2							

RV DAVID STARR JORDAN — CALCOFI CRUISE 7801 — 73090

LATITUDE	LONGITUDE	MO/DAY/YR	MESSENGER TIME	BOTTOM	WIND	SPEED	WEATHER	DOMINANT WAVES
34 19.0N	124 02.0W	1/26/78	1103 GMT	3263M	360	17KT		

Z	T	S	O2	PO4	SIO3	NO2	NO3	DT	Z	T	S	O2	SIGT	DT	DD
2	14.39	32.911	5.96	0.70	4.	0.01	0.1	343.0	0	14.39	32.911	5.96	24.515	343.0	0.000
12	14.37	32.911	6.00	0.66	4.	0.00	0.1	342.5	10	14.37	32.914	5.99	24.519	342.6	0.034
31	14.34	32.906	6.07	0.64	4.	0.00	0.1	342.3	20	14.36	32.912	6.02	24.521	342.4	0.069
40	14.32	32.899	6.16	0.64	4.	0.00	0.1	342.4	30	14.34	32.909	6.06	24.522	342.3	0.103
50	13.56	33.106	5.89	0.67	5.	0.14	0.8	312.3	50	13.56	33.106	5.89	24.837	312.3	0.169
64	12.07	33.120	5.70	0.68	7.	0.03	1.5	283.6	75	11.05	33.104	5.51	25.312	267.1	0.241
78	10.81	33.102	5.45	0.93	10.	0.00	7.2	263.0	100	9.88	33.323	4.77	25.685	231.7	0.304
97	10.01	33.303	4.78	1.36	16.	0.03	15.0	235.1	125	9.20	33.523	4.39	25.952	206.3	0.359
121	9.19	33.463	4.62	1.26	20.	0.01	14.9	210.5	150	9.10	33.802	3.83	26.186	184.0	0.409
140	9.23	33.726	3.63	1.62	26.	0.29	20.2	191.6	200	8.18	33.980	3.69	26.467	157.3	0.496
168	8.76	33.882	4.38	1.48	25.	0.07	19.4	172.9	250	7.34	33.994	3.49	26.600	144.7	0.573
197	8.24	33.975	3.68	1.75	32.	0.05	24.0	158.4	300	6.85	34.032	2.35	26.699	135.3	0.645
225	7.72	33.993	3.75	1.65	36.	0.38U	23.4	149.8	400	6.20	34.165	0.80	26.889	117.3	0.776
262	7.19	33.993	3.28	1.72	43.	0.34U	25.7	142.6	500	5.17	34.208	0.53	27.050	102.0	0.892
319	6.72	34.057	1.86	2.45	55.	0.01	34.8	131.7							
390	6.32	34.157	0.86	2.79	67.	0.04	39.1	119.2							
461	5.46	34.191	0.61	2.94	80.	0.02	41.5	106.5							
538	5.02	34.220	0.48	3.01	87.	0.02	43.0	99.4							

RV DAVID STARR JORDAN — CALCOFI CRUISE 7801 — 77051

LATITUDE	LONGITUDE	MO/DAY/YR	MESSENGER TIME	BOTTOM	WIND	SPEED	WEATHER	DOMINANT WAVES
35 02.0N	120 56.5W	1/25/78	0540 GMT	297M	360	20KT		

Z	T	S	O2	PO4	SIO3	NO2	NO3	DT	Z	T	S	O2	SIGT	DT	DD
1	14.37	33.358	6.05	0.42	3.	0.01	0.0	309.8	0	14.37	33.358	6.05	24.863	309.8	0.000
11	14.36	33.359	6.05	0.41	4.	0.00	0.0	309.5	10	14.36	33.361	6.05	24.866	309.5	0.031
31	14.37	33.352	6.13	0.45	4.	0.00	0.0	310.2	20	14.36	33.357	6.08	24.862	309.9	0.062
45	14.27	33.343	6.17	0.48	4.	0.02	0.0	308.9	30	14.37	33.354	6.13	24.859	310.2	0.093
55	13.67	33.386	5.60	0.71	6.	0.12	3.5	293.9	50	14.01	33.364	5.91	24.942	302.3	0.155
69	12.54	33.450	4.99	0.96	9.	0.03	7.2	267.8	75	12.18	33.475	4.83	25.391	259.6	0.225
83	11.78	33.504	4.65	1.14	12.	0.06	10.8	250.1	100	11.06	33.600	4.16	25.695	230.7	0.287
102	10.99	33.611	4.10	1.20	16.	0.04	15.0	228.5	125	10.27	33.763	3.43	25.962	205.3	0.342
124	10.28	33.758	3.45	1.52	23.	0.02	20.0	205.8	150	9.91	33.847	3.06	26.088	193.3	0.393
143	10.06	33.814	3.20	1.70	26.	0.08	20.6	198.1	200	9.13	34.002	2.40	26.336	169.7	0.485
176	9.35	33.957	2.58	1.95	33.	0.00	25.6	176.3	250	8.53	34.070	2.10	26.485	155.6	0.568
202	9.12	34.003	2.39	2.07	35.	0.05	27.0	169.4							
240	8.67	34.060	2.13	2.22	40.	0.00	28.6	158.4							

RV DAVID STARR JORDAN — CALCOFI CRUISE 7801 — 77055

LATITUDE	LONGITUDE	MO/DAY/YR	MESSENGER TIME	BOTTOM	WIND	SPEED	WEATHER	DOMINANT WAVES
34 54.5N	121 13.0W	1/25/78	0908 GMT	556M	330	25KT	0	

Z	T	S	O2	PO4	SIO3	NO2	NO3	DT	Z	T	S	O2	SIGT	DT	DD
1	14.83	33.401	6.04	0.44	4.	0.06	0.2	316.0	0	14.83	33.401	6.04	24.798	316.0	0.000
11	14.83	33.400	5.97	0.43	3.	0.05	0.2	316.0	10	14.83	33.402	5.97	24.798	316.0	0.032
29	14.85	33.394	5.97	0.37	3.	0.04	0.1	316.9	20	14.84	33.398	5.97	24.792	316.6	0.063
43	14.81	33.400	5.96	0.38	3.	0.04	0.0	315.6	30	14.85	33.396	5.97	24.790	316.8	0.095
53	14.50	33.415	5.61	0.50	5.	0.15	1.9	308.2	50	14.61	33.412	5.72	24.853	310.8	0.158
67	14.00	33.431 A	5.36	0.61	6.	0.09	3.6	297.1	75	13.12	33.463	5.04	25.199	277.8	0.232
81	12.45	33.489 A	4.81	0.89	10.	0.03	8.8	263.3	100	11.66	33.538	4.50	25.539	245.5	0.298
95	11.88	33.510	4.64	1.02	12.	0.03	10.7	251.4	125	10.76	33.680	3.82	25.810	219.7	0.357
119	10.91	33.653	3.94	1.28	17.	0.05	15.3	224.0	150	10.34	33.765	3.44	25.950	206.4	0.411
137	10.54	33.722	3.62	1.30	20.	0.00	16.2	212.7	200	9.61	33.934	2.81	26.205	182.1	0.510
166	10.13	33.814	3.24	1.52	24.	0.00	19.5	199.2	250	8.98	34.033	2.42	26.385	165.1	0.599
194	9.69	33.917	2.88	1.73	28.	0.01	23.1	184.6	300	8.42	34.097	2.06	26.522	152.1	0.680
222	9.34	33.981	2.60	1.94	31.	0.05	25.8	174.4	400	7.09	34.180	1.09	26.782	127.4	0.826
259	8.87	34.046	2.37	1.98	35.	0.09	27.0	162.4	500	6.02	34.210	0.63	26.948	111.6	0.952
316	8.24	34.110	1.92	2.29	43.	0.02	31.9	148.4							
367	7.49	34.146 A	1.41	2.54	52.	0.04	34.6	135.2							
424	6.82	34.199 A	0.89	2.70	62.	0.56U	36.4	122.4							
480	6.19	34.200	0.69	2.91	70.	0.03	39.8	114.4							

A) THE SALINITY BOTTLE ORDER FOR THESE SAMPLES DIFFERS ON THE ORIGINAL DATA AND SALINITY DETERMINATION SHEETS. THEY ARE ASSUMED TO NOW BE IN THE CORRECT ORDER.

RV DAVID STARR JORDAN — CALCOFI CRUISE 7801 — 77060

LATITUDE	LONGITUDE	MO/DAY/YR	MESSENGER TIME	BOTTOM	WIND	SPEED	WEATHER	DOMINANT WAVES
34 43.6N	121 33.5W	1/25/78	1245 GMT	972M	330	12KT	0	

Z	T	S	O2	PO4	SIO3	NO2	NO3	DT
1	14.60	33.380	5.97	0.56	2.	0.05	0.2	312.8
11	14.59	33.379	5.97	0.44	2.		0.1	312.7
30	14.61	33.378	6.24	0.53	3.	0.02	0.0	313.2
40	14.50	33.361	6.08	0.36	2.	0.03	0.1	312.2
50	12.43	33.160	5.73	0.57	5.	0.21	2.9	287.1
64	11.73	33.150	5.57	0.55	6.	0.05	3.7	275.3
78	10.89	33.127	5.41	0.79	9.	0.16	5.0	262.5
97	10.06	33.336	4.79	1.17	14.	0.00	15.6	233.5
121	9.85	33.719	3.73	1.37	20.	0.00	19.1	201.8
140	9.46	33.850	3.30	1.50	24.	0.10	22.1	185.9
168	9.00	33.951	2.93	1.75	30.	0.02	26.7	171.4
196	8.83	34.065	2.38	1.96	34.	0.00	29.0	160.4
224	8.54	34.095	2.17	1.96	38.	0.89U	28.8	153.9
261	7.98	34.087	2.14	2.02	42.	0.11	31.0	146.4
318	7.73	34.196	1.27	2.42	52.	0.00	35.9	134.8
388	7.01	34.213	0.91	2.68	61.	0.01	39.2	123.8
460	6.42	34.229	0.65	2.76	69.	0.03	41.5	115.1
536	5.98	34.272	0.45	2.84	77.	0.02	43.0	106.5

Z	T	S	O2	SIGT	DT	DD
0	14.60	33.380	5.97	24.831	312.8	0.000
10	14.59	33.381	5.97	24.833	312.7	0.031
20	14.60	33.381	6.12	24.830	312.9	0.063
30	14.61	33.378	6.24	24.828	313.2	0.094
50	12.43	33.160	5.73	25.102	287.1	0.154
75	11.07	33.128	5.45	25.328	265.6	0.224
100	10.02	33.389	4.65	25.713	229.0	0.286
125	9.77	33.756	3.62	26.040	197.9	0.340
150	9.27	33.893	3.16	26.229	179.9	0.388
200	8.80	34.074	2.33	26.446	159.3	0.474
250	8.14	34.090	2.15	26.559	148.6	0.553
300	7.79	34.160	1.57	26.667	138.4	0.627
400	6.90	34.216	0.86	26.836	122.3	0.763
500	6.17	34.250	0.54	26.960	110.5	0.886

RV DAVID STARR JORDAN — CALCOFI CRUISE 7801 — 77070

LATITUDE	LONGITUDE	MO/DAY/YR	MESSENGER TIME	BOTTOM	WIND	SPEED	WEATHER	DOMINANT WAVES
34 24.0N	122 16.0W	1/25/78	1943 GMT	3919M	330	15KT	1	340 4 5

Z	T	S	O2	PO4	SIO3	NO2	NO3	DT
1	14.20	33.173	5.88	0.30	3.	0.00	1.3	319.9
11	14.18	33.175	6.00	0.29	3.	0.00	1.3	319.4
29	14.18	33.178	6.05	0.56	3.	0.00	1.2	319.2
38	14.18	33.258	5.91	0.57	4.	0.04	1.7	313.3
47	13.62	33.348	5.62	0.72	5.	0.07	4.2	295.7
61	11.77	33.352	5.08	1.07	10.	0.24	10.4	261.1
76	11.00	33.400	4.74	1.19	13.	0.07	13.6	244.2
93	10.37	33.508	4.33	1.47	17.	0.01	18.3	225.8
116	9.81	33.712	3.71	1.65	22.	0.01	21.9	201.6
134	9.40	33.855	3.23	1.78	27.	0.01	24.8	184.6
161	9.01	33.975	2.86	1.97	32.	0.00	27.3	169.8
189	8.67	34.026	2.55	2.07	36.	0.06	28.6	160.9
216	8.29	34.071	2.30	2.15	40.	0.09	29.8	152.0
252	8.05	34.124	1.86	1.98	45.	0.52U	28.6	144.6
308	7.37	34.135	1.53	1.97	53.	2.23U	29.9	134.4
376	6.78	34.163	1.09	2.66	62.	0.00	37.0	124.6
446	6.30	34.206	0.75	2.87	70.	0.03	39.4	115.3
524	5.62	34.227	0.52	2.95	81.	0.10	40.8	105.6

Z	T	S	O2	SIGT	DT	DD
0	14.20	33.173	5.88	24.757	319.9	0.000
10	14.18	33.177	5.99	24.762	319.4	0.032
20	14.18	33.179	6.03	24.764	319.3	0.064
30	14.18	33.184	6.04	24.768	318.9	0.096
50	13.23	33.354	5.50	25.093	287.9	0.157
75	11.03	33.398	4.76	25.544	245.0	0.224
100	10.18	33.570	4.14	25.826	218.2	0.282
125	9.60	33.789	3.46	26.095	192.7	0.334
150	9.15	33.938	2.98	26.284	174.7	0.381
200	8.51	34.046	2.45	26.469	157.1	0.465
250	8.06	34.123	1.88	26.597	145.0	0.543
300	7.47	34.137	1.56	26.694	135.8	0.615
400	6.62	34.179	0.96	26.846	121.3	0.749
500	5.85	34.224	0.57	26.981	108.5	0.870

RV DAVID STARR JORDAN — CALCOFI CRUISE 7801 — 77080

LATITUDE	LONGITUDE	MO/DAY/YR	MESSENGER TIME	BOTTOM	WIND	SPEED	WEATHER	DOMINANT WAVES
34 04.0N	122 57.0W	1/26/78	0033 GMT	4117M	350	12KT	1	350 4 5

Z	T	S	O2	PO4	SIO3	NO2	NO3	DT
1	14.64	33.033	5.98	0.36	2.	0.00	0.1	339.0
12	14.55	33.031	6.01	0.28	3.	0.01	0.1	337.4
31	14.55	33.032	6.07	0.30	3.	0.01	0.1	337.3
41	14.52	33.038	6.10	0.30	3.	0.02	0.1	336.3
50	13.21	33.171	5.95	0.43	4.	0.26	1.4	300.8
64	11.46	33.086	5.69	0.64	7.	0.06	5.6	275.3
78	10.60	33.138	5.44	0.86	9.	0.08	9.5	256.9
97	9.75	33.367	4.76	1.25	16.	0.06	15.7	226.2
120	9.47	33.535	4.27	1.41	20.	0.04	19.4	209.4
139	9.07	33.735	3.70	1.51	26.	0.00	22.2	188.5
167	8.67	33.870	3.50	1.61	29.	0.02	23.9	172.5
194	8.30	33.950	3.54	1.59	32.	0.01	24.7	161.1
223	8.02	34.015	2.60	1.98	38.	0.03	29.2	152.3
258	7.47	34.022	2.58	1.98	43.	0.04	30.3	144.2
313	6.91	34.047	1.95	2.27	52.	0.03	34.3	134.9
381	6.28	34.114	1.09	2.62	65.	0.01	39.2	122.0
452	5.90	34.156	0.76	2.65	72.	0.33U	39.2	114.2
528	5.63	34.254	0.41	2.89	81.	0.05	41.7	103.7

Z	T	S	O2	SIGT	DT	DD
0	14.64	33.033	5.98	24.556	339.0	0.000
10	14.56	33.034	6.00	24.572	337.6	0.034
20	14.55	33.034	6.03	24.574	337.3	0.068
30	14.55	33.034	6.07	24.575	337.3	0.101
50	13.21	33.171	5.95	24.957	300.8	0.165
75	10.74	33.120	5.50	25.380	260.7	0.236
100	9.70	33.392	4.69	25.768	223.7	0.297
125	9.37	33.591	4.11	25.977	203.8	0.351
150	8.90	33.804	3.62	26.219	180.9	0.400
200	8.24	33.968	3.35	26.448	159.1	0.486
250	7.60	34.020	2.58	26.585	146.1	0.564
300	7.01	34.040	2.15	26.682	136.9	0.637
400	6.16	34.125	0.97	26.863	119.7	0.771
500	5.71	34.212	0.54	26.988	107.9	0.890

RV DAVID STARR JORDAN — CALCOFI CRUISE 7801 — 77090

LATITUDE	LONGITUDE	MO/DAY/YR	MESSENGER TIME	BOTTOM	WIND	SPEED	WEATHER	DOMINANT WAVES
33 45.0N	123 38.5W	1/26/78	0551 GMT	4022M	340	13KT		

Z	T	S	O2	PO4	SIO3	NO2	NO3	DT	Z	T	S	O2	SIGT	DT	DD
2	14.98	32.880	5.89	0.34	3.	0.01	0.0	357.2	0	14.98	32.880	5.89	24.366	357.2	0.000
12	14.97	32.879	5.90	0.36	3.	0.00	0.1	357.1	10	14.97	32.882	5.90	24.367	357.1	0.036
30	14.97	32.879	5.93	0.36	3.	0.00	0.1	357.1	20	14.97	32.882	5.92	24.367	357.1	0.071
40	14.94	32.880	5.91	0.38	3.	0.00	0.1	356.4	30	14.97	32.879	5.93	24.367	357.1	0.107
48	13.14	32.918	6.26	0.41	3.	0.01	0.0	318.1	50	13.06	32.973	6.23	24.831	312.8	0.174
63	12.57	33.101	5.83	0.57	5.	0.02	3.5	294.0	75	11.14	32.927	5.94	25.159	281.7	0.249
77	10.91	32.898	5.97	0.65	6.	0.00	4.2	279.8	100	10.64	33.233	5.56	25.485	250.6	0.316
95	10.81	33.178	5.65	0.69	8.	0.00	6.2	257.4	125	9.72	33.454	4.80	25.812	219.5	0.375
118	9.91	33.389	5.11	1.04	13.	0.00	13.0	227.1	150	9.19	33.655	3.89	26.056	196.3	0.428
137	9.45	33.554	4.25	1.44	20.	0.00	19.6	207.7	200	8.48	33.962	2.95	26.408	162.9	0.519
165	8.93	33.758	3.59	1.71	27.	0.00	24.6	184.7	250	7.86	34.055	2.26	26.574	147.2	0.599
193	8.57	33.936	3.02	1.92	32.	0.00	27.7	166.1	300	7.35	34.098	1.70	26.681	137.0	0.672
221	8.20	34.011	2.75	2.01	37.	0.00	29.5	155.2	400	6.48	34.163	0.90	26.851	120.9	0.806
258	7.77	34.062	2.12	2.22	44.	0.00	31.9	145.3	500	5.53	34.197	0.57	26.998	106.9	0.926
312	7.24	34.105	1.61	2.34	52.	0.11	34.7	134.9							
381	6.71	34.161	0.98	2.73	62.	0.00	39.0	123.8							
451	5.88	34.165	0.75	2.91	73.	0.00	42.3	113.3							
524	5.43	34.218	0.47	3.02	82.	0.00	43.2	104.1							

RV DAVID STARR JORDAN — CALCOFI CRUISE 7801 — 80052

LATITUDE	LONGITUDE	MO/DAY/YR	MESSENGER TIME	BOTTOM	WIND	SPEED	WEATHER	DOMINANT WAVES
34 24.8N	120 35.9W	1/24/78	2124 GMT	242M	300	12KT	0	320 4 5

Z	T	S	O2	PO4	SIO3	NO2	NO3	DT	Z	T	S	O2	SIGT	DT	DD
1	14.85	33.409	6.00	0.60	2.	0.03	0.0	315.8	0	14.85	33.409	6.00	24.800	315.8	0.000
11	14.84	33.406	6.01	0.58	2.	0.02	0.0	315.8	10	14.84	33.408	6.01	24.800	315.8	0.032
29	14.67	33.401	5.99	0.60	2.	0.01	0.1	312.7	20	14.79	33.404	6.00	24.809	314.9	0.063
44	14.21	33.413	5.66	0.74	4.		1.8	302.6	30	14.66	33.403	5.99	24.835	312.5	0.095
53	13.47	33.454	5.12	0.90	7.	0.03	4.9	285.0	50	13.73	33.441	5.30	25.059	291.1	0.155
67	12.57	33.488	4.81	1.01	9.	0.02	7.7	265.6	75	12.31	33.509	4.67	25.394	259.3	0.224
81	12.17	33.521	4.58	1.07	11.	0.04	9.2	255.8	100	11.76	33.556	4.40	25.535	245.9	0.288
100	11.76	33.556	4.40	1.18	13.	0.03	11.1	245.9	125	10.74	33.687	3.77	25.820	218.8	0.347
124	10.79	33.677	3.81	1.42	18.	0.05	15.7	220.2	150	9.86	33.871	3.00	26.114	190.8	0.399
143	9.99	33.840	3.11	1.75	25.	0.00	21.3	195.0	200	9.32	34.040	2.26	26.337	169.7	0.491
171	9.67	33.926	2.78	1.88	28.	0.00	22.9	183.6							
195	9.38	34.013	2.32	2.08	33.	0.00	25.7	172.6							

RV DAVID STARR JORDAN — CALCOFI CRUISE 7801 — 80055

LATITUDE	LONGITUDE	MO/DAY/YR	MESSENGER TIME	BOTTOM	WIND	SPEED	WEATHER	DOMINANT WAVES
34 19.0N	120 48.0W	1/24/78	1839 GMT	778M	340	14KT	0	320 6 6

Z	T	S	O2	PO4	SIO3	NO2	NO3	DT	Z	T	S	O2	SIGT	DT	DD
0	14.41	33.25	5.97	0.31	2.	0.00	0.3	318.5	0	14.41	33.25	5.97	24.772	318.5	0.000
10	14.40	33.25	5.98	0.31	2.	0.00	0.2	318.3	10	14.40	33.25	5.98	24.774	318.3	0.032
29	14.39	33.25	6.04	0.29	2.	0.00	0.2	318.1	20	14.39	33.25	6.02	24.775	318.2	0.064
38	14.34	33.26	6.02	0.31	2.	0.00	0.2	316.4	30	14.38	33.25	6.04	24.778	317.9	0.096
48	13.38	33.32	5.64	0.50	4.	0.11	3.1	293.1	50	13.21	33.33	5.58	25.078	289.4	0.157
62	12.29	33.35	5.29	0.67	7.	0.00	6.3	270.6	75	11.55	33.39	5.00	25.442	254.7	0.225
76	11.50	33.39	4.98	0.80	10.	0.02	10.2	253.6	100	10.39	33.57	4.28	25.789	221.7	0.285
95	10.59	33.53	4.42	1.08	14.	0.00	15.6	227.7	125	9.71	33.74	3.67	26.038	198.1	0.338
119	9.81	33.70	3.79	1.26	21.	0.00	19.9	202.5	150	9.54	33.88	3.18	26.174	185.1	0.387
137	9.58	33.81	3.45	1.47	23.	0.02	21.7	190.8	200	9.11	34.02	2.63	26.353	168.2	0.477
165	9.51	33.94	2.91	1.59	28.	0.02	24.2	180.0	250	8.53	34.13	1.96	26.530	151.4	0.559
193	9.19	34.00	2.74	1.68	30.	0.01	25.6	170.6	300	8.08	34.18	1.52	26.640	140.8	0.634
221	8.88	34.07	2.29	1.80	34.	0.31	27.2	160.8	400	7.00	34.23	0.90	26.832	122.7	0.772
258	8.44	34.14	1.89	2.00	40.	0.05	28.6	149.1	500	6.37	34.27	0.53	26.949	111.6	0.895
315	7.96	34.19	1.40	2.27	47.	0.02	32.8	138.5							
384	7.13	34.22	0.97	2.48	57.	0.03	35.7	124.9							
456	6.64	34.25	0.68	2.61	65.	0.03	38.2	116.3							
531	6.20	34.28	0.43	2.72	73.	0.04	39.4	108.6							

RV DAVID STARR JORDAN — CALCOFI CRUISE 7801 — 80060

LATITUDE	LONGITUDE	MO/DAY/YR	MESSENGER TIME	BOTTOM	WIND	SPEED	WEATHER	DOMINANT WAVES
34 08.9N	121 08.8W	1/24/78	1405 GMT	2074M	330	9KT		340 8 7

Z	T	S	O2	PO4	SIO3	NO2	NO3	DT	Z	T	S	O2	SIGT	DT	DD
0	14.45	33.315	5.92	0.55	3.	0.02	0.0	314.5	0	14.45	33.315	5.92	24.813	314.5	0.000
11	14.44	33.310	5.90	0.60	3.	0.02	0.0	314.7	10	14.44	33.312	5.90	24.812	314.7	0.031
30	14.46	33.310	6.14	0.61	3.	0.03	0.0	315.1	20	14.45	33.312	6.04	24.809	315.0	0.063
38	14.45	33.309	6.00	0.63	3.	0.11	0.0	315.0	30	14.46	33.310	6.14	24.807	315.1	0.095
48	14.25	33.302	5.87	0.56	3.	0.01	0.2	311.5	50	13.90	33.277	5.82	24.897	306.6	0.157
63	11.44	33.143	5.50	0.94	7.	0.03	3.1	270.7	75	10.74	33.180	5.26	25.426	256.2	0.228
77	10.70	33.189	5.22	1.04	10.	0.03	10.5	254.8	100	10.45	33.363	4.78	25.618	238.0	0.290
96	10.46	33.303	4.92	1.23	13.	0.07	12.8	242.4	125	10.27	33.695	3.92	25.909	210.3	0.347
119	10.42	33.651	4.06	1.38	17.	0.11	16.4	216.0	150	9.70	33.836	3.36	26.115	190.8	0.397
138	9.89	33.759	3.65	1.47	21.	0.00	20.0	199.4	200	8.89	34.022	2.57	26.391	164.5	0.488
166	9.48	33.922	3.02	1.77	27.	0.07	23.6	180.9	250	8.17	34.097	2.15	26.560	148.5	0.568
194	8.94	33.992	2.73	1.80	32.	0.01	27.0	167.5	300	7.58	34.106	1.89	26.654	139.5	0.642
222	8.71	34.114	2.04	2.21	38.	0.01	30.2	155.0	400	6.65	34.149	1.09	26.817	124.1	0.780
260	7.97	34.078	2.19	2.02	42.	0.29	30.7	146.9	500	5.94	34.225	0.55	26.969	109.7	0.903
315	7.48	34.121	1.72	2.45	49.	0.02	34.1	137.0							
385	6.79	34.138	1.20	2.69	59.	0.00	38.1	126.6							
454	6.22	34.190	0.76	2.94	69.	0.00	41.1	115.5							
529	5.81	34.244	0.45	2.99	77.	0.00	40.9	106.6							

RV DAVID STARR JORDAN — CALCOFI CRUISE 7801 — 80070

LATITUDE	LONGITUDE	MO/DAY/YR	MESSENGER TIME	BOTTOM	WIND	SPEED	WEATHER	DOMINANT WAVES
33 48.0N	121 51.0W	1/24/78	0807 GMT	3546M	030	17KT		

Z	T	S	O2	PO4	SIO3	NO2	NO3	DT	Z	T	S	O2	SIGT	DT	DD
2	14.19	32.980	5.99	0.73	5.	0.00	0.3	333.9	0	14.19	32.980	5.99	24.610	333.9	0.000
11	14.21	32.972	6.00	0.72	4.	0.00	0.3	334.9	10	14.21	32.975	6.00	24.601	334.8	0.033
30	14.23	32.982	6.02	0.64	5.	0.00	0.0	334.5	20	14.22	32.980	6.01	24.602	334.7	0.067
39	14.23	32.982	6.02	0.66	5.	0.00	0.0	334.5	30	14.23	32.982	6.02	24.604	334.5	0.100
48	14.26	32.993	6.00	0.66	4.	0.00	0.0	334.3	50	14.20	33.036	5.95	24.648	330.3	0.167
62	13.86	33.343	5.69	0.76	5.	0.00	1.9	300.8	75	12.04	33.093	5.79	25.124	285.0	0.244
75	12.04	33.093	5.79	0.87	7.	0.00	3.5	285.0	100	10.08	33.235	5.08	25.583	241.3	0.311
93	10.40	33.154	5.31	1.17	13.	0.00	10.4	252.4	125	9.46	33.562	4.17	25.940	207.4	0.367
116	9.65	33.447	4.51	1.57	19.	0.00	17.4	218.7	150	8.95	33.797	3.48	26.206	182.1	0.417
135	9.27	33.673	3.83		24.	0.00	21.7	196.1	200	8.22	33.962	3.35	26.447	159.2	0.504
162	8.71	33.864	3.32	1.92	31.	0.00	25.8	173.5	250	7.41	34.021	2.51	26.612	143.5	0.581
190	8.39	33.942	3.32	1.96	33.	0.00	26.5	163.0	300	6.90	34.068	1.67	26.720	133.3	0.653
217	7.92	33.986	3.39	2.02	37.	0.00	27.7	153.1	400	6.14	34.142	0.90	26.878	118.3	0.783
254	7.35 A	34.023	2.38	2.37	47.	0.00	32.9	142.5	500	5.68	34.227	0.47	27.004	106.4	0.901
310	6.82	34.075	1.57	2.68	57.	0.00	37.9	131.7							
379	6.24	34.122	1.02	2.92	67.	0.00	41.7	120.9							
449	5.95	34.185	0.66	3.20	75.	0.00	43.1	112.7							
524	5.53	34.243	0.41	3.22	83.	0.00	45.3	103.4							

RV DAVID STARR JORDAN — CALCOFI CRUISE 7801 — 80080

LATITUDE	LONGITUDE	MO/DAY/YR	MESSENGER TIME	BOTTOM	WIND	SPEED	WEATHER	DOMINANT WAVES
33 28.2N	122 33.0W	1/24/78	0157 GMT	3926M	340	30KT	1	310 10 5

Z	T	S	O2	PO4	SIO3	NO2	NO3	DT	Z	T	S	O2	SIGT	DT	DD
2	14.71	33.031	6.00	0.37	0.	0.00	0.0	340.6	0	14.71	33.031	6.00	24.540	340.6	0.000
11	14.70	33.028	5.98	0.40	0.	0.04	0.0	340.6	10	14.70	33.031	5.98	24.540	340.6	0.034
31	14.73	33.038	6.07	0.41	0.	0.03	0.0	340.5	20	14.71	33.035	6.02	24.540	340.6	0.068
40	14.49	33.046	6.05	0.41	0.	0.03	0.0	335.1	30	14.73	33.040	6.07	24.541	340.5	0.102
50	12.69	33.186	5.78	0.69	1.	0.07	3.4	290.0	50	12.69	33.186	5.78	25.071	290.0	0.166
64	10.94	33.000	5.82	0.68	4.	0.04	4.5	272.8	75	10.39	33.085	5.50	25.414	257.5	0.234
78	10.30	33.124	5.38	0.95	8.	0.01	9.8	253.0	100	9.56	33.426	4.54	25.818	219.0	0.294
97	9.63	33.391	4.62	1.31	14.	0.00	17.2	222.6	125	9.19	33.666	3.94	26.065	195.5	0.347
121	9.21	33.626	4.07	1.43	19.	0.00	20.1	198.7	150	8.97	33.854	3.29	26.246	178.3	0.394
140	9.11	33.791	3.49	1.71	23.	0.01	23.0	184.9	200	8.04	34.017	2.74	26.517	152.5	0.478
168	8.65	33.932	3.03	1.82	29.	0.00	26.4	167.6	250	7.35	34.052	2.15	26.644	140.5	0.553
196	8.09	34.009	2.80	1.91	34.	0.00	28.4	163.8	300	6.71	34.084	1.54	26.758	129.7	0.623
224	7.76	34.041	2.37	2.07	40.	0.11	30.4	146.8	400	5.90	34.167	0.72	26.929	113.5	0.749
261	7.18	34.053	2.07	2.23	47.	0.00	32.8	138.0	500	5.48	34.269	0.36	27.062	100.9	0.862
317	6.54	34.098	1.30	2.56	59.	0.00	37.8	126.4							
387	5.96	34.149	0.79	2.75	69.	0.00	40.4	115.5							
458	5.67	34.238	0.47	2.89	78.	0.00	42.0	105.4							
535	5.30	34.280	0.32	2.94	85.	0.00	42.9	98.0							

RV DAVID STARR JORDAN — CALCOFI CRUISE 7801 — 80090

LATITUDE	LONGITUDE	MO/DAY/YR	MESSENGER TIME	BOTTOM	WIND	SPEED	WEATHER	DOMINANT WAVES
33 09.0N	123 13.0W	1/23/78	1942 GMT	4117M	340	28KT	1	350 10 6

Z	T	S	O2	PO4	SIO3	NO2	NO3	DT	Z	T	S	O2	SIGT	DT	DD
1	14.35	32.973	5.98	0.47	3.		0.2	337.6	0	14.35	32.973	5.98	24.571	337.6	0.000
10	14.34	32.968	6.02	0.49	3.	0.03	0.1	337.8	10	14.34	32.968	6.02	24.570	337.8	0.034
29	14.27	32.980	6.09	0.51	3.		0.0	335.5	20	14.30	32.977	6.06	24.582	336.6	0.068
39	12.57	33.251	5.56	0.84	6.	0.09	5.3	283.0	30	14.10	33.009	6.04	24.650	330.1	0.101
48	12.08	33.293	5.36	0.97	8.	0.09	7.6	271.0	50	11.92	33.294	5.32	25.299	268.3	0.161
63	10.79	33.269	5.05	1.13	12.	0.09	11.7	250.4	75	9.75	33.287	4.82	25.678	232.3	0.224
77	9.60	33.294	4.77	1.28	16.	0.09	15.2	229.3	100	9.20	33.587	3.94	26.002	201.5	0.279
96	9.22	33.550	4.05	1.35	17.	0.09	16.1	204.5	125	9.08	33.739	3.46	26.139	188.5	0.328
120	9.15	33.711	3.52	1.71	25.	0.10	23.1	191.2	150	8.80	33.873	3.07	26.289	174.2	0.374
138	8.94	33.802	3.33	1.80	28.	0.10	25.0	181.5	200	7.80	33.968	3.42	26.515	152.8	0.457
167	8.53	33.949	2.84	1.94	33.	0.02	27.8	164.6	250	7.13	34.003	2.76	26.637	141.1	0.532
195	7.86	33.960	3.46	1.81	34.	0.03	26.6	154.2	300	6.90	34.065	1.83	26.717	133.6	0.603
223	7.55	33.997	3.06	1.96	39.	0.05	28.6	147.2	400	6.14	34.148	0.87	26.883	117.8	0.734
261	6.97	34.003	2.63	2.08	47.	0.10	29.8	139.0	500	5.54	34.206	0.54	27.004	106.3	0.852
319	6.87	34.089	1.44	2.42	56.	0.03	34.7	131.3							
389	6.23	34.142	0.92	2.67	67.	0.03	39.2	119.3							
461	5.73	34.175	0.66	2.79	76.	0.04	41.5	110.8							
534	5.42	34.239	0.44	2.86	84.	0.12	41.8	102.4							

A) THE TEMPERATURE WAS INFERRED FROM THE PRESSURE THERMOMETER AND WIRE DEPTH. IT WAS CONFIRMED BY THE CTDO ANALOG FOR THE STATION.

RV DAVID STARR JORDAN — CALCOFI CRUISE 7801 — 82047

LATITUDE	LONGITUDE	MO/DAY/YR	MESSENGER TIME	BOTTOM	WIND	SPEED	WEATHER	DOMINANT WAVES
34 16.5N	119 59.0W	1/22/78	0851 GMT	556M	080	6KT		

Z	T	S	O2	PO4	SIO3	NO2	NO3	DT
1	15.65	33.339	5.83	0.57	1.	0.01	0.0	337.6
11	15.56	33.363	5.95	0.52	1.	0.00	0.0	333.9
30	15.24	33.362	6.04	0.54	2.	0.04	0.1	327.3
44	14.19	33.429	5.25	0.86	5.	0.21	4.3	301.0
53	13.60	33.457	5.14	0.96	6.	0.06	5.2	288.8
68	12.78	33.476	4.84	1.07	8.	0.04	7.5	270.3
82	12.10	33.510	4.53	1.14	11.	0.06	10.8	255.4
96	11.62	33.569	4.26	1.30	13.	0.00	13.3	242.5
120	10.91	33.658	3.84	1.46	17.	0.00	16.3	223.7
138	10.41	33.756	3.41	1.47	22.	0.00	18.3	208.1
167	9.70	33.934	2.64	1.91	29.	0.00	23.8	183.5
195	9.33	34.032	2.19	1.95	34.		25.9	170.4
223	9.07	34.076	1.94	2.30	38.		29.0	163.2
261	8.69	34.123	1.62	2.39	42.		29.5	154.0
317	8.21	34.161	1.22	2.73	50.		32.6	144.2
369	7.60	34.190	0.77	3.02	61.		34.8	133.5
425	7.03	34.213	0.50	3.13	72.		35.9	124.1
481	6.58	34.230	0.15	3.47	86.		32.4	117.0

Z	T	S	O2	SIGT	DT	DD
0	15.65	33.339	5.83	24.571	337.6	0.000
10	15.57	33.363	5.94	24.606	334.3	0.034
20	15.41	33.364	5.99	24.643	330.8	0.067
30	15.24	33.362	6.04	24.679	327.3	0.100
50	13.79	33.437	5.16	25.044	292.6	0.162
75	12.42	33.493	4.68	25.359	262.6	0.232
100	11.49	33.585	4.19	25.604	239.3	0.295
125	10.77	33.685	3.73	25.813	219.4	0.353
150	10.09	33.834	3.08	26.047	197.2	0.406
200	9.28	34.043	2.14	26.345	168.9	0.499
250	8.80	34.112	1.71	26.475	156.5	0.583
300	8.36	34.153	1.34	26.575	147.0	0.661
400	7.27	34.204	0.61	26.775	128.0	0.804
500	6.51	34.235	0.12	26.904	115.8	0.933

RV DAVID STARR JORDAN — CALCOFI CRUISE 7801 — 83042

LATITUDE	LONGITUDE	MO/DAY/YR	MESSENGER TIME	BOTTOM	WIND	SPEED	WEATHER	DOMINANT WAVES
34 10.0N	119 29.5W	1/22/78	0509 GMT	187M	280	11KT		

Z	T	S	O2	PO4	SIO3	NO2	NO3	DT
1	15.90	33.245		0.63	4.	0.18	0.8	349.8
12	15.69	33.240	5.81	0.66	4.	0.17	0.9	345.7
31	15.66	33.272	5.84	0.66	4.	0.24	0.5	342.7
41	15.56	33.330	5.61	0.68	4.	0.34	1.0	336.4
55	14.30	33.408	5.43	0.74	5.	0.11	3.2	304.7
69	12.78	33.444	5.06	0.96	8.	0.08	7.0	272.7
82	12.62	33.452	5.01	0.94	8.	0.21	6.1	269.1
100	11.28	33.636	4.02	1.39	16.	0.05	15.5	231.6
123	10.53	33.724	3.68	1.50	19.	0.04	18.6	212.4
145	9.94	33.872	3.03	1.74	25.	0.08	22.6	191.9

Z	T	S	O2	SIGT	DT	DD
0	15.90	33.245		24.443	349.8	0.000
10	15.72	33.242		24.480	346.3	0.035
20	15.68	33.250	5.82	24.495	344.8	0.069
30	15.66	33.271	5.84	24.515	343.0	0.104
50	14.84	33.384	5.50	24.782	317.6	0.170
75	12.67	33.446	5.04	25.274	270.7	0.244
100	11.28	33.636	4.02	25.685	231.6	0.307
125	10.46	33.737	3.62	25.907	210.5	0.363
150	9.87	33.910	2.92	26.144	187.9	0.414

RV DAVID STARR JORDAN — CALCOFI CRUISE 7801 — 83051

LATITUDE	LONGITUDE	MO/DAY/YR	MESSENGER TIME	BOTTOM	WIND	SPEED	WEATHER	DOMINANT WAVES
33 52.0N	120 08.5W	1/22/78	1327 GMT	159M	310	16KT		

Z	T	S	O2	PO4	SIO3	NO2	NO3	DT
1	15.00	33.376	5.79	0.84	4.	0.14	0.3	321.3
11	14.94	33.381	5.82	0.91	4.	0.11	0.6	319.7
30	14.83	33.374	5.84	0.94	5.	0.10	0.7	317.9
39	14.60	33.376	5.73	0.91	5.	0.25	0.8	313.1
53	13.52	33.404	5.40	0.99	6.	0.45	3.3	289.7
68	13.13	33.444	5.09	1.02	8.	0.08	5.1	279.3
82	12.08	33.554	4.43	1.28	13.	0.27	11.3	251.8
101	11.42	33.606	4.13	1.32	15.	0.06	14.0	236.2
120	10.84	33.703	3.71	1.58	18.	0.09	17.5	219.2

Z	T	S	O2	SIGT	DT	DD
0	15.00	33.376	5.79	24.742	321.3	0.000
10	14.95	33.383	5.82	24.758	319.8	0.032
20	14.89	33.380	5.83	24.768	318.9	0.064
30	14.83	33.374	5.84	24.778	317.9	0.096
50	13.76	33.397	5.48	25.019	294.9	0.157
75	12.62	33.499	4.76	25.326	265.7	0.228
100	11.44	33.606	4.14	25.631	236.8	0.291
125	10.70	33.728	3.60	25.860	215.0	0.348

RV DAVID STARR JORDAN — CALCOFI CRUISE 7801 — 83055

LATITUDE	LONGITUDE	MO/DAY/YR	MESSENGER TIME	BOTTOM	WIND	SPEED	WEATHER	DOMINANT WAVES
33 44.0N	120 24.5W	1/22/78	1619 GMT	984M	330	18KT	1	310 4 5

Z	T	S	O2	PO4	SIO3	NO2	NO3	DT
1	14.88	33.394	5.92	0.65	3.	0.12	0.2	317.5
11	14.86	33.396	5.90	0.58	3.	0.11	0.3	317.0
30	14.85	33.393	6.18	0.54	3.	0.08	0.4	317.0
39	14.13	33.404	5.76	0.68	4.	0.12	2.7	301.6
49	13.02	33.432	5.22	0.90	7.	0.07	6.5	278.1
63	12.05	33.492	4.74	1.07	10.	0.05	11.4	255.8
78	11.59	33.550	4.42	1.17	13.	0.03	13.0	243.3
96	10.75	33.710	3.69	1.49	19.	0.08	18.5	217.1
120	9.98	33.773	3.58	1.59	22.	0.05	21.0	199.8
138	9.60	33.934	2.91	2.21U	29.	0.06	24.4	181.9
166	9.28	34.017	2.57	1.90	33.	0.26	26.8	170.8
194	8.98	34.083	2.23	2.07	36.	0.17	28.5	161.3
221	8.62	34.128	2.04	2.21	40.	0.13	30.3	152.6
258	8.40	34.148	1.88	2.10	43.	0.04	31.8	147.9
313	7.78	34.165	1.54	2.28	49.	0.30	33.9	137.8
382	7.23	34.231	0.96	2.69	59.	0.04	38.5	125.4
452	6.60	34.247	0.64	3.08	68.	0.05	40.9	116.0
528	6.15	34.282	0.47	2.85	76.	0.04	42.3	107.8

Z	T	S	O2	SIGT	DT	DD
0	14.88	33.394	5.92	24.782	317.5	0.000
10	14.86	33.398	5.90	24.788	317.0	0.032
20	14.86	33.397	6.03	24.788	317.0	0.063
30	14.85	33.393	6.18	24.788	317.0	0.095
50	12.93	33.438	5.18	25.217	276.1	0.155
75	11.67	33.538	4.49	25.537	245.7	0.220
100	10.60	33.722	3.67	25.872	213.8	0.278
125	9.86	33.819	3.40	26.074	194.6	0.330
150	9.44	33.984	2.71	26.272	175.8	0.377
200	8.90	34.096	2.18	26.447	159.2	0.462
250	8.44	34.147	1.91	26.558	148.6	0.541
300	7.94	34.161	1.63	26.646	140.3	0.616
400	7.06	34.237	0.86	26.831	122.8	0.753
500	6.29	34.268	0.51	26.959	110.6	0.876

RV DAVID STARR JORDAN — CALCOFI CRUISE 7801 — 83060

LATITUDE	LONGITUDE	MO/DAY/YR	MESSENGER TIME	BOTTOM	WIND	SPEED	WEATHER	DOMINANT WAVES
33 34.0N	120 45.0W	1/22/78	2009 GMT	1479M	320	22KT	1	320 5 6

Z	T	S	O2	PO4	SIO3	NO2	NO3	DT	Z	T	S	O2	SIGT	DT	DD
1	14.63	33.315	5.94		6.	0.16		318.2	0	14.63	33.315	5.94	24.775	318.2	0.000
11	14.60	33.317	5.94		6.	0.10		317.4	10	14.60	33.319	5.94	24.783	317.5	0.032
29	14.60	33.315	5.96		6.	0.10		317.6	20	14.60	33.318	5.95	24.782	317.5	0.064
39	14.59	33.313	5.93		6.	0.10		317.5	30	14.60	33.317	5.96	24.782	317.6	0.095
48	13.58	33.301	5.76		8.	0.15		298.4	50	13.43	33.304	5.73	25.013	295.6	0.157
62	12.69	33.310	5.55		9.	0.11		280.9	75	11.64	33.328	5.18	25.378	260.8	0.227
76	11.56	33.329	5.15		12.	0.13		259.1	100	10.00	33.515	4.24	25.814	219.4	0.287
95	10.16	33.461	4.41		19.	0.11		225.8	125	9.61	33.727	3.64	26.044	197.5	0.340
118	9.71	33.686	3.75		25.	0.12		202.0	150	9.17	33.870	3.17	26.228	180.0	0.388
136	9.45	33.778	3.48		27.	0.43		191.1	200	8.42	34.023	2.61	26.464	157.6	0.474
164	8.89	33.951	2.89		34.	0.26		169.7	250	7.74	34.082	2.04	26.613	143.5	0.551
191	8.57	34.013	2.69		38.	0.10		160.4	300	7.54	34.181	1.29	26.719	133.4	0.623
219	8.11	34.037	2.43		43.	0.65		152.0	400	6.59	34.238	0.71	26.895	116.7	0.753
255	7.69	34.089	1.97		49.	0.19		142.2	500	6.09	34.294	0.44	27.005	106.2	0.871
310	7.51	34.198	1.15		58.	0.07		131.6							
379	6.70	34.224	0.78		69.	0.07		119.0							
448	6.41	34.268	0.57		76.	0.08		112.1							
525	5.90	34.303	0.39		85.	0.08		103.2							

RV DAVID STARR JORDAN — CALCOFI CRUISE 7801 — 83070

LATITUDE	LONGITUDE	MO/DAY/YR	MESSENGER TIME	BOTTOM	WIND	SPEED	WEATHER	DOMINANT WAVES
33 14.5N	121 26.0W	1/23/78	0217 GMT	3926M	330	28KT	1	330 12 6

Z	T	S	O2	PO4	SIO3	NO2	NO3	DT	Z	T	S	O2	SIGT	DT	DD
0	14.69	33.194	5.96	0.51	3.	0.03	0.2	328.3	0	14.69	33.194	5.96	24.669	328.3	0.000
10	14.68	33.183	5.93	0.55	3.	0.03	0.2	328.9	10	14.68	33.183	5.93	24.663	328.9	0.033
27	14.69	33.179	6.07	0.52	3.	0.02	0.2	329.4	20	14.69	33.183	6.03	24.660	329.2	0.066
38	14.65	33.229	5.92	0.50	3.	0.09	0.2	324.9	30	14.68	33.195	6.04	24.671	328.1	0.099
47	14.40 A	33.354	5.83	0.54	3.	0.39	0.4	310.7	50	14.32	33.352	5.78	24.869	309.2	0.163
61	13.77	33.306	5.68	0.82	4.	0.01	2.4	301.7	75	11.09	33.159	5.41	25.349	263.6	0.235
75	11.09	33.159	5.41	0.89	9.	0.03	7.4	263.6	100	9.85	33.407	4.60	25.754	225.0	0.296
93	9.94	33.312	4.83	1.03	15.	0.03	15.1	233.3	125	9.53	33.601	3.99	25.958	205.7	0.351
116	9.65	33.551	4.14	1.37	20.	0.02	19.0	211.0	150	9.03	33.769	3.54	26.171	185.4	0.400
134	9.40	33.641	3.86	1.65	23.	0.02	21.7	200.5	200	8.23	33.969	3.01	26.450	158.9	0.488
161	8.77	33.853	3.34	1.81	29.	0.02	25.4	175.2	250	7.54	34.024	2.33	26.595	145.1	0.566
188	8.38	33.946	3.08	1.84	34.	0.02	27.2	162.6	300	7.01	34.055	1.76	26.693	135.8	0.638
215	8.05	33.985	2.91	1.87	37.	0.02	27.8	155.0	400	6.18	34.164	0.77	26.890	117.1	0.770
251	7.53	34.024	2.31	2.02	45.	0.34	29.1	144.9	500	5.62	34.251	0.43	27.030	103.9	0.886
305	6.97	34.056	1.71	2.23	54.	0.23	32.4	135.0							
373	6.37	34.128	0.97	2.60	66.	0.02	38.3	122.0							
442	5.93	34.212	0.55	2.76	70.	0.03	41.5	110.4							
517	5.54	34.256	0.40	2.83	86.	0.17	42.2	102.5							

RV DAVID STARR JORDAN — CALCOFI CRUISE 7801 — 83080

LATITUDE	LONGITUDE	MO/DAY/YR	MESSENGER TIME	BOTTOM	WIND	SPEED	WEATHER	DOMINANT WAVES
32 55.5N	122 07.0W	1/23/78	0754 GMT	4117M	340	29KT	1	330 15 5

Z	T	S	O2	PO4	SIO3	NO2	NO3	DT	Z	T	S	O2	SIGT	DT	DD
1	15.14	33.122	5.89	0.44	3.	0.02	0.1	342.8	0	15.14	33.122	5.89	24.517	342.8	0.000
11	15.15	33.119	5.90	0.47	3.	0.01	0.1	343.2	10	15.15	33.122	5.90	24.513	343.2	0.034
29	15.17	33.122	5.98	0.53	3.	0.01	0.1	343.4	20	15.16	33.123	5.95	24.512	343.3	0.069
39	15.14	33.126	5.94	0.56	2.	0.02	0.1	342.5	30	15.17	33.125	5.98	24.511	343.3	0.103
48	15.14	33.129	5.92	0.59	3.	0.01	0.1	342.3	50	14.94	33.150	5.91	24.579	336.8	0.171
62	13.39	33.261	5.79	0.75	4.	0.03	2.8	297.7	75	12.11	33.217	5.54	25.205	277.2	0.248
76	12.02	33.209	5.52	0.98	7.	0.02	6.3	276.1	100	10.14	33.283	4.86	25.610	238.8	0.313
94	10.50	33.225	5.06	1.31	12.	0.04	12.1	248.8	125	9.30	33.556	4.15	25.961	205.4	0.370
117	9.44	33.477	4.33		20.	0.04	18.2	213.3	150	8.93	33.786	3.59	26.200	182.7	0.419
136	9.18	33.654	3.92	1.68	23.	0.03	20.3	196.1	200	8.17	33.998	2.89	26.482	155.9	0.505
164	8.68	33.892	3.28	1.67	30.	0.02	24.9	171.0	250	7.43	34.017	2.63	26.607	144.0	0.582
192	8.31	33.972	2.92	1.82	35.	0.04	26.8	159.7	300	6.90	34.046	1.87	26.702	135.0	0.654
220	7.83	34.040	2.84	1.90	39.	0.03	28.1	147.8	400	6.29	34.173	0.86	26.884	117.7	0.785
257	7.33	34.012	2.57	2.10	44.	0.02	31.4	143.1	500	5.74	34.257	0.40	27.020	104.8	0.902
312	6.82	34.063	1.65	2.56	55.	0.02	35.2	132.6							
382	6.39	34.154	0.99	2.94	65.	0.03	38.6	120.3							
451	6.00	34.217	0.58	3.25	73.	0.07	40.6	110.9							
525	5.61	34.275	0.35	3.24	80.	0.05	43.5	101.9							

A) MEAN VALUE OF 14.37 AND 14.44 DEGREES.

RV DAVID STARR JORDAN — CALCOFI CRUISE 7801 — 83090

LATITUDE	LONGITUDE	MO/DAY/YR	MESSENGER TIME	BOTTOM	WIND	SPEED	WEATHER	DOMINANT WAVES
32 34.5N	122 50.0W	1/23/78	1337 GMT	3738M	350	27KT		

Z	T	S	O2	PO4	SIO3	NO2	NO3	DT
2	15.01	32.837	5.89	0.68	0.	0.15	0.3	361.0
12	14.99	32.835	5.91	0.69	0.	0.13	0.2	360.8
31	15.00	32.849	6.06	0.69	0.	0.13	0.2	359.9
41	14.40	32.963	5.95	0.70	0.	0.13	0.1	339.3
50	13.42	33.121	5.86	0.76	1.	0.38	0.8	308.5
64	12.26	33.196	5.60	0.86	4.	0.12	4.2	281.4
79	11.55	33.253	5.22	1.05	7.	0.12	8.4	264.5
97	10.04	33.308	4.76	1.22	13.	0.08	12.8	235.2
121	9.41	33.472	4.24	1.54	17.	0.10	19.3	213.2
140	8.98	33.614	3.94		21.	0.23	20.6	196.1
168	8.78	33.885	2.88	1.94	29.	0.12	26.7	173.0
196	8.51	33.978	2.44	2.09	33.	0.10	29.5	162.1
223	8.06	34.001	2.62	2.03	36.	0.45	27.9	153.9
261	7.24	33.966	2.97	2.02	41.	0.07	28.5	145.3
316	6.75	34.029	1.85	2.50	54.	0.03	35.9	134.2
387	6.25	34.090	1.04	2.79	65.	0.03	40.0	123.4
458	5.84	34.165	0.61	2.96	77.	0.02	42.0	112.8
537	5.45	34.211	0.43	3.00	85.	0.02	43.4	104.9

Z	T	S	O2	SIGT	DT	DD
0	15.01	32.837	5.89	24.326	361.0	0.000
10	14.99	32.836	5.91	24.327	360.9	0.036
20	14.99	32.842	5.99	24.332	360.4	0.072
30	15.00	32.851	6.06	24.337	359.9	0.108
50	13.42	33.121	5.86	24.877	308.5	0.175
75	11.74	33.243	5.33	25.295	268.8	0.248
100	9.92	33.328	4.69	25.682	231.9	0.311
125	9.31	33.502	4.19	25.918	209.5	0.367
150	8.88	33.719	3.57	26.154	187.0	0.417
200	8.45	33.986	2.45	26.430	160.8	0.505
250	7.47	33.978	2.91	26.570	147.6	0.584
300	6.85	34.006	2.25	26.679	137.2	0.658
400	6.17	34.106	0.94	26.846	121.3	0.792
500	5.62	34.195	0.48	26.985	108.1	0.912

RV DAVID STARR JORDAN — CALCOFI CRUISE 7801 — 87036

LATITUDE	LONGITUDE	MO/DAY/YR	MESSENGER TIME	BOTTOM	WIND	SPEED	WEATHER	DOMINANT WAVES
33 49.0N	118 40.0W	1/21/78	0248 GMT	768M	280	17KT		

Z	T	S	O2	PO4	SIO3	NO2	NO3	DT
1	16.09	33.197	5.76	0.60	4.	0.06	0.6	357.4
11	15.96	33.196	5.83	0.72	4.	0.07	0.5	354.7
30	15.92	33.279	5.67	0.76	4.	0.13	0.7	347.7
39	15.52	33.410	5.67	0.67	3.	0.37	1.2	329.7
49	14.98	33.410	5.58	0.90	4.	0.32	1.8	318.4
63	13.90	33.399	5.40	0.76	5.	0.05	3.8	297.4
77	12.85	33.369	5.29	0.85	7.	0.05	5.6	279.5
96	11.82	33.524	4.50	1.25	12.	0.03	12.0	249.3
120	11.02	33.669	3.84	1.59	17.	0.03	17.1	224.7
138	10.33	33.780	3.42	1.67	21.	0.02	20.9	205.0
166	9.70	33.943	2.85	1.94	27.	0.02	24.9	182.8
194	9.30	34.018	2.55	2.11	31.	0.03	26.7	171.0
221	9.01	34.077	2.28	2.22	33.	0.04	28.2	162.2
258	8.65	34.143	1.88	2.35	40.	0.04	28.9	151.9
314	8.15	34.196	1.42	2.60	47.	0.03	32.2	140.7
383	7.53	34.247	0.90	2.88	56.	0.04	35.5	128.3
454	6.84	34.277	0.52	3.00	67.	0.03	38.5	116.9
532	6.24	34.309	0.36	3.16	78.	0.05	40.1	106.9

Z	T	S	O2	SIGT	DT	DD
0	16.09	33.197	5.76	24.364	357.4	0.000
10	15.97	33.197	5.83	24.389	355.0	0.036
20	15.94	33.238	5.76	24.427	351.4	0.071
30	15.92	33.279	5.67	24.465	347.7	0.106
50	14.91	33.412	5.57	24.788	317.0	0.173
75	12.99	33.372	5.32	25.154	282.1	0.248
100	11.67	33.552	4.37	25.547	244.8	0.314
125	10.82	33.702	3.72	25.817	219.1	0.373
150	10.01	33.858	3.15	26.079	194.2	0.425
200	9.23	34.033	2.49	26.345	168.9	0.518
250	8.72	34.132	1.96	26.502	154.0	0.601
300	8.27	34.187	1.53	26.615	143.2	0.678
400	7.36	34.256	0.79	26.803	125.4	0.818
500	6.47	34.297	0.39	26.958	110.7	0.943

RV DAVID STARR JORDAN — CALCOFI CRUISE 7801 — 87040

LATITUDE	LONGITUDE	MO/DAY/YR	MESSENGER TIME	BOTTOM	WIND	SPEED	WEATHER	DOMINANT WAVES
33 40.0N	118 58.0W	1/20/78	2246 GMT	888M	300	6KT	1	270 6 5

Z	T	S	O2	PO4	SIO3	NO2	NO3	DT
1	15.94	33.34	5.85	0.38	3.	0.00	0.1	343.7
10	15.68	33.34	5.82	0.42	3.	0.00	0.0	338.2
29	14.25	33.40	5.93	0.53	5.	0.11	0.5	304.3
39	13.25	33.40	5.64	0.79		0.09	3.4	284.8
47	12.77	33.40	5.41	0.90	6.	0.05	5.5	275.7
62	12.06	33.44	4.98	1.07	9.	0.03	9.0	259.8
76	11.56	33.54	4.52	1.29	12.	0.02	12.6	243.6
95	11.07	33.66	3.92	1.58	17.	0.02	16.4	226.2
119	10.40	33.78	3.44	1.84	22.	0.02	20.4	206.1
136	10.16	33.83	3.29	1.84	24.	0.02	21.2	198.5
166	9.71	33.95	2.85	2.13	30.	0.03	24.7	182.4
194	9.29	34.07	2.43	2.33	35.	0.02	26.5	167.0
222	8.93	34.10	2.23	2.47	39.	0.02	28.8	159.3
265	8.49	34.16	1.82	2.65	46.	0.03	30.6	148.3
320	7.90	34.22	1.17	2.93	55.	0.02	34.0	135.4
393	7.35	34.26	0.74	3.18	59.	0.03	37.0	124.9
466	6.72	34.29	0.49	3.34	69.	0.03	39.4	114.3
541	6.21	34.32	0.34	3.41	78.	0.05	39.8	105.7

Z	T	S	O2	SIGT	DT	DD
0	15.94	33.34	5.85	24.507	343.7	0.000
10	15.68	33.34	5.82	24.565	338.2	0.034
20	15.04	33.37	5.88	24.730	322.5	0.067
30	14.14	33.40	5.91	24.943	302.2	0.098
50	12.61	33.41	5.33	25.255	272.6	0.156
75	11.59	33.53	4.55	25.548	244.7	0.221
100	10.92	33.69	3.79	25.791	221.5	0.280
125	10.30	33.80	3.38	25.984	203.2	0.334
150	9.95	33.88	3.10	26.110	191.3	0.384
200	9.21	34.08	2.38	26.386	165.0	0.474
250	8.64	34.14	1.97	26.522	152.0	0.556
300	8.11	34.20	1.40	26.651	139.8	0.631
400	7.29	34.26	0.71	26.820	123.8	0.769
500	6.47	34.31	0.41	26.964	110.2	0.893

RV DAVID STARR JORDAN — CALCOFI CRUISE 7801 — 87045

LATITUDE	LONGITUDE	MO/DAY/YR	MESSENGER TIME	BOTTOM	WIND	SPEED	WEATHER	DOMINANT WAVES
33 30.0N	119 19.0W	1/20/78	1835 GMT	1664M	310	15KT	0	310 10 7

Z	T	S	O2	PO4	SIO3	NO2	NO3	DT	Z	T	S	O2	SIGT	DT	DD
1	15.22	33.391	5.90	0.63	3.	0.01	0.3	324.8	0	15.22	33.391	5.90	24.706	324.8	0.000
10	15.20	33.391	5.92	0.53	2.	0.00	0.2	324.3	10	15.20	33.391	5.92	24.710	324.3	0.032
29	15.18	33.385	5.96	0.55	3.	0.00	0.2	324.4	20	15.19	33.390	5.94	24.710	324.4	0.065
39	14.70	33.348	5.96	0.57	3.	0.00	0.9	317.2	30	15.14	33.383	5.96	24.716	323.8	0.097
48	14.29	33.343	5.81	0.66	4.	0.06	1.9	309.3	50	14.01	33.352	5.71	24.933	303.1	0.160
62	12.23	33.427	5.10	1.11	8.	0.00	8.7	263.8	75	11.56	33.473	4.79	25.505	248.7	0.230
76	11.54	33.474	4.77	1.28	10.	0.12	11.2	248.1	100	10.74	33.626	4.17	25.773	223.2	0.289
95	10.88	33.592	4.29	1.55	14.	0.00	15.3	228.0	125	10.13	33.775	3.61	25.995	202.1	0.343
119	10.26	33.740	3.73	1.80	19.	0.00	19.5	206.8	150	9.68	33.904	3.10	26.171	185.4	0.392
138	9.87	33.843	3.35	1.85	23.	0.00	22.2	192.9	200	9.05	34.063	2.40	26.398	163.9	0.481
166	9.46	33.971	2.81	2.15	28.	0.00	25.4	177.0	250	8.57	34.162	1.76	26.551	149.3	0.562
194	9.13	34.044	2.50	2.28	31.	0.00	27.3	166.5	300	8.16	34.208	1.36	26.648	140.1	0.636
222	8.76	34.119	2.04	2.60	38.	0.00	29.8	155.3	400	7.23	34.272	0.72	26.835	122.4	0.773
260	8.51	34.171	1.68	2.61	43.	0.07	30.3	147.8	500	6.57	34.299	0.44	26.946	111.9	0.897
316	8.01	34.218	1.24	3.05	49.	0.00	33.5	137.1							
386	7.34	34.266	0.78	3.29	59.	0.00	36.7	124.3							
456	6.83	34.284	0.55	3.50	67.	0.00	38.4	116.2							
531	6.42	34.308	0.38	3.70	75.	0.09	40.4	109.2							

RV DAVID STARR JORDAN — CALCOFI CRUISE 7801 — 87050

LATITUDE	LONGITUDE	MO/DAY/YR	MESSENGER TIME	BOTTOM	WIND	SPEED	WEATHER	DOMINANT WAVES
33 20.0N	119 39.5W	1/20/78	1514 GMT	75M	320	25KT	0	320 12 8

Z	T	S	O2	PO4	SIO3	NO2	NO3	DT	Z	T	S	O2	SIGT	DT	DD
1	14.58	33.325	5.92	0.51	3.	0.01	0.4	316.4	0	14.58	33.33	5.92	24.793	316.4	0.000
11	14.56	33.329	5.93	0.51	3.	0.00	0.3	315.7	10	14.56	33.33	5.93	24.801	315.8	0.032
20	14.57	33.326	6.00	0.54	3.	0.00	0.2	316.2	20	14.57	33.33	6.00	24.796	316.2	0.063
30	14.25	33.295	5.90	0.57	3.	0.07	0.5	312.0	30	14.25	33.30	5.90	24.840	312.0	0.095
49	11.75	33.29 A	5.32	0.95	8.	0.39	6.9	265.3	50	11.63	33.29	5.30	25.353	263.2	0.152

RV DAVID STARR JORDAN — CALCOFI CRUISE 7801 — 87060

LATITUDE	LONGITUDE	MO/DAY/YR	MESSENGER TIME	BOTTOM	WIND	SPEED	WEATHER	DOMINANT WAVES
33 00.0N	120 21.5W	1/20/78	0805 GMT	929M	320	31KT		

Z	T	S	O2	PO4	SIO3	NO2	NO3	DT	Z	T	S	O2	SIGT	DT	DD
2	15.02	33.242	5.90	0.92	3.	0.03	0.0	331.5	0	15.02	33.242	5.90	24.635	331.5	0.000
12	15.02	33.239	5.91	0.93	3.	0.03	0.0	331.7	10	15.02	33.242	5.91	24.633	331.7	0.033
31	15.01	33.239	5.98	0.92	2.	0.03	0.0	331.5	20	15.02	33.241	5.94	24.634	331.7	0.066
40	14.67	33.310	5.89	0.95	3.	0.12	0.4	319.4	30	15.01	33.241	5.98	24.635	331.5	0.100
50	13.84	33.338	5.79	1.08	4.	0.26	2.1	300.7	50	13.84	33.338	5.79	24.958	300.7	0.163
64	11.92	33.231	5.43	1.29	8.	0.03	7.3	272.7	75	11.21	33.328	5.08	25.457	253.3	0.233
78	11.09	33.361	4.99	1.48	11.	0.05	11.5	248.6	100	10.39	33.518	4.43	25.750	225.4	0.293
97	10.49	33.488	4.53	1.68	15.	0.04	15.2	229.2	125	9.79	33.696	3.81	25.989	202.7	0.347
120	9.84	33.683	3.85	1.94	21.	0.04	20.3	204.3	150	9.56	33.824	3.38	26.128	189.5	0.397
139	9.70	33.725	3.69	1.93	22.	0.05	20.5	198.9	200	8.83	34.091	2.32	26.454	158.6	0.485
166	9.33	33.976	2.88		29.	0.02	24.8	174.6	250	8.32	34.154	1.85	26.583	146.3	0.564
194	8.93	34.074	2.42		35.	0.01	27.4	161.2	300	7.53	34.125	1.65	26.676	137.5	0.637
222	8.51	34.133	2.02		40.	0.02	30.3	150.6	400	6.81	34.200	0.89	26.836	122.3	0.772
259	8.26	34.153	1.82		44.	0.03	30.8	145.5	500	6.17	34.262	0.42	26.970	109.6	0.895
314	7.28	34.116	1.59		53.	0.01	35.0	134.6							
383	6.93	34.186	1.00		61.	0.00	37.4	124.8							
452	6.44	34.235	0.63		70.	0.00	39.8	114.9							
528	6.03	34.274			77.	0.05	40.1	107.0							

RV DAVID STARR JORDAN — CALCOFI CRUISE 7801 — 87070

LATITUDE	LONGITUDE	MO/DAY/YR	MESSENGER TIME	BOTTOM	WIND	SPEED	WEATHER	DOMINANT WAVES
32 39.5N	121 02.0W	1/20/78	0155 GMT	3926M	310	26KT	1	330 10 10

Z	T	S	O2	PO4	SIO3	NO2	NO3	DT	Z	T	S	O2	SIGT	DT	DD
2	14.75	33.18	6.00	0.50	2.	0.01	0.0	330.5	0	14.75	33.18	6.00	24.646	330.5	0.000
11	14.74	33.18	6.00	0.49	1.	0.01	0.0	330.3	10	14.74	33.18	6.00	24.648	330.3	0.033
30	14.74	33.18	6.11	0.49	0.	0.02	0.0	330.3	20	14.74	33.18	6.06	24.648	330.3	0.066
39	14.43	33.31	5.96	0.49	0.	0.16	0.3	314.5	30	14.74	33.18	6.11	24.648	330.3	0.099
48	13.50	33.36	5.65	0.73	2.	0.14	3.5	292.5	50	13.31	33.36	5.59	25.081	289.0	0.161
62	12.13	33.33	5.23	1.04	5.	0.02	8.8	269.2	75	10.65	33.39	4.71	25.601	239.6	0.228
76	10.55	33.39	4.67	1.40	10.	0.03	15.5	237.4	100	9.70	33.59	4.08	25.918	209.4	0.284
95	9.80	33.54	4.20	1.65	15.	0.02	19.7	214.2	125	9.23	33.81	3.38	26.168	185.7	0.334
118	9.41	33.74	3.60	1.90	19.	0.02	23.6	193.3	150	8.78	33.95	2.82	26.349	168.5	0.379
137	8.93	33.90	3.03	2.03	35.	0.00	27.1	174.1	200	8.12	34.04	2.39	26.523	152.0	0.461
165	8.65	33.97	2.68	2.17	39.	0.00	28.9	164.8	250	7.57	34.09	1.95	26.645	140.4	0.536
193	8.20	34.03	2.46	2.27	44.	0.00	30.5	153.8	300	7.25	34.16	1.37	26.740	131.4	0.606
221	7.92	34.06	2.18	2.45	47.	0.01	31.6	147.6	400	6.33	34.19	0.80	26.893	116.8	0.735
258	7.48	34.10	1.88	2.55	53.	0.02	33.1	138.5	500	5.67	34.27	0.42	27.039	103.0	0.851
315	7.18	34.17	1.20	2.84	60.	0.00	36.3	129.3							
386	6.45	34.18	0.87	3.12	70.	0.01	39.8	119.1							
457	5.90	34.24	0.55		79.	0.02	42.0	107.9							
534	5.54	34.29	0.34		88.	0.04	43.1	100.0							

A) ALTERNATE VALUE, 33.68 PPT, NOT USED IN EXTRAPOLATION.

RV DAVID STARR JORDAN — CALCOFI CRUISE 7801 — 87080

LATITUDE	LONGITUDE	MO/DAY/YR	MESSENGER TIME	BOTTOM	WIND	SPEED	WEATHER	DOMINANT WAVES
32 19.5N	121 43.0W	1/19/78	2005 GMT	4022M	300	24KT	1	290 8 8

Z	T	S	O2	PO4	SIO3	NO2	NO3	DT
1	15.16	33.282	5.92	0.42	2.	0.03	0.0	331.5
11	15.15	33.278	5.87	0.45	1.	0.02	0.0	331.6
29	15.15	33.279	6.02	0.44	0.	0.02	0.0	331.5
38	15.06	33.285	5.89	0.45	0.	0.02	0.0	329.2
47	14.65	33.331	5.89	0.46	0.	0.04	0.0	317.4
61	13.45	33.288	5.70	0.60	0.	0.12	0.7	296.8
75	12.12	33.198	5.56	0.84	1.	0.13	4.9	278.7
93	10.48	33.321	4.86	1.26	8.	0.03	12.6	241.4
115	10.04	33.628	4.02	1.74	13.	0.03	19.2	211.5
133	9.41	33.782	3.50	1.80	17.	0.03	22.5	190.2
160	9.00	33.933	3.03	2.01	22.	0.05	25.7	172.7
187	8.68	34.000	2.78	2.15	39.	0.04	27.5	163.0
214	8.21	34.055	2.45	2.33	44.	0.02	30.3	152.1
250	7.70	34.062	2.19	2.24	48.	0.10	31.4	144.4
304	7.04	34.097	1.61	2.73	58.	0.03	36.4	132.9
372	6.41	34.149	1.03	3.03	68.	0.00	39.9	121.0
441	6.06	34.211	0.70	3.21	76.	0.00	42.8	112.0
517	5.70	34.261	0.50	3.37	83.	0.00	43.5	104.0

Z	T	S	O2	SIGT	DT	DD
0	15.16	33.282	5.92	24.636	331.5	0.000
10	15.15	33.280	5.87	24.635	331.6	0.033
20	15.15	33.281	5.96	24.635	331.5	0.066
30	15.14	33.282	6.01	24.638	331.2	0.100
50	14.43	33.331	5.86	24.829	313.0	0.164
75	12.12	33.198	5.56	25.190	278.7	0.239
100	10.27	33.420	4.58	25.694	230.7	0.303
125	9.69	33.723	3.71	26.028	199.0	0.357
150	9.11	33.889	3.17	26.252	177.7	0.405
200	8.46	34.031	2.62	26.465	157.5	0.490
250	7.70	34.062	2.19	26.603	144.4	0.568
300	7.08	34.095	1.66	26.716	133.7	0.639
400	6.25	34.176	0.87	26.891	117.1	0.770
500	5.78	34.252	0.53	27.011	105.6	0.887

RV DAVID STARR JORDAN — CALCOFI CRUISE 7801 — 87090

LATITUDE	LONGITUDE	MO/DAY/YR	MESSENGER TIME	BOTTOM	WIND	SPEED	WEATHER	DOMINANT WAVES
31 59.0N	122 24.0W	1/19/78	1353 GMT	4309M	300	26KT		

Z	T	S	O2	PO4	SIO3	NO2	NO3	DT
1	16.02	32.979	5.75	0.17	2.	0.00	0.0	371.8
10	16.02	32.973	5.75	0.33	2.	0.00	0.0	372.2
30	16.04	32.975	5.75	0.19	1.	0.00	0.0	372.5
39	16.04	32.979	5.76	0.18	1.	0.00	0.0	372.2
49	16.06	32.980	5.76	0.17	1.	0.00	0.0	372.6
63	15.27	33.015	5.97	0.25	0.	0.00	0.0	353.3
77	12.62	32.924	6.24	0.27	1.		0.3	308.0
96	10.92	32.936	5.90	0.51	3.		4.3	277.1
120	10.51	33.229	5.59	0.69	3.		7.2	248.7
138	9.80	33.255	5.33	0.73	12.		10.1	235.3
166	9.49	33.667	3.78	1.52	21.		21.5	199.9
194	8.76	33.825	3.44	1.65	26.		24.7	177.2
221	8.54	33.916	3.07	1.83	29.		27.0	167.2
258	8.02	34.005	2.58	1.97	36.		29.1	153.1
313	7.25	34.054	1.92	2.48	48.		35.0	138.9
382	6.40	34.109	1.14	2.88	66.		39.7	123.8
452	5.66	34.132	0.85	2.65U	76.		42.1	113.2
527	5.32	34.214	0.50	2.73U	86.		41.9	103.2

Z	T	S	O2	SIGT	DT	DD
0	16.02	32.979	5.75	24.213	371.8	0.000
10	16.02	32.973	5.75	24.208	372.2	0.037
20	16.03	32.976	5.75	24.206	372.4	0.075
30	16.04	32.975	5.75	24.205	372.5	0.112
50	16.05	32.987	5.77	24.210	372.0	0.187
75	13.02	32.937	6.21	24.813	314.7	0.273
100	10.81	32.988	5.85	25.265	271.6	0.347
125	10.31	33.237	5.55	25.544	245.0	0.412
150	9.63	33.422	4.68	25.802	220.5	0.471
200	8.70	33.850	3.36	26.286	174.4	0.571
250	8.14	33.990	2.68	26.481	156.0	0.656
300	7.43	34.048	2.07	26.631	141.8	0.732
400	6.18	34.115	1.04	26.852	120.8	0.869
500	5.39	34.180	0.63	27.001	106.6	0.988

RV DAVID STARR JORDAN — CALCOFI CRUISE 7801 — 90033

LATITUDE	LONGITUDE	MO/DAY/YR	MESSENGER TIME	BOTTOM	WIND	SPEED	WEATHER	DOMINANT WAVES
33 18.5N	118 07.0W	1/17/78	1010 GMT	768M	290	9KT		

Z	T	S	O2	PO4	SIO3	NO2	NO3	DT
2	15.82	33.362	5.83	0.17	3.	0.00	0.1	339.5
11	15.81	33.361	5.82	0.16	3.	0.00	0.1	339.4
30	15.66	33.373	6.00	0.19	4.	0.00	0.5	335.3
39	14.17	33.310	5.95	0.33	5.		1.4	309.3
49	12.39	33.153	5.81	0.53	6.		3.8	286.9
63	12.28	33.388	5.22	0.69	9.		7.2	267.6
77	11.79	33.406	5.03	0.80	10.		9.3	257.5
96	11.07	33.527	4.52	1.21	15.		13.9	236.0
119	10.55	33.684	3.86	1.36	19.		18.2	215.7
138	10.16	33.799	3.43	1.55	23.	0.00	21.0	200.8
166	9.74	33.913	3.00	1.72	28.	0.02	23.8	185.6
194	9.22	34.013	2.62	1.88	33.	0.00	26.8	170.1
222	8.95	34.088	2.32	2.12	37.	0.00	28.5	160.5
260	8.54	34.142	1.95	2.28	43.	0.00	30.3	150.4
316	8.06	34.202	1.45	2.55	50.	0.00	33.0	139.0
387	7.41	34.246	0.93	3.22U	60.	0.00	36.4	126.7
457	6.81	34.283	0.58	3.00	67.		38.6	116.0
534	6.31	34.310	0.38	3.14	69.		41.1	107.7

Z	T	S	O2	SIGT	DT	DD
0	15.82	33.362	5.83	24.551	339.5	0.000
10	15.81	33.363	5.82	24.552	339.4	0.034
20	15.74	33.369	5.91	24.573	337.5	0.068
30	15.66	33.373	6.00	24.595	335.3	0.102
50	12.38	33.177	5.77	25.122	285.1	0.164
75	11.87	33.405	5.05	25.397	259.0	0.232
100	10.96	33.557	4.40	25.679	232.2	0.294
125	10.42	33.724	3.71	25.905	210.7	0.350
150	9.97	33.854	3.23	26.082	193.8	0.401
200	9.15	34.033	2.55	26.357	167.8	0.493
250	8.65	34.132	2.04	26.515	152.8	0.576
300	8.19	34.188	1.59	26.629	141.9	0.652
400	7.29	34.255	0.85	26.812	124.6	0.791
500	6.51	34.301	0.44	26.956	110.9	0.916

RV DAVID STARR JORDAN — CALCOFI CRUISE 7801 — 90037

LATITUDE	LONGITUDE	MO/DAY/YR	MESSENGER TIME	BOTTOM	WIND	SPEED	WEATHER	DOMINANT WAVES
33 11.0N	118 22.5W	1/17/78	1421 GMT	1165M	280	20KT		

Z	T	S	O2	PO4	SIO3	NO2	NO3	DT
1	15,60	33,376	5,84	0,35	2,	0,00	0,1	333,8
11	15,60	33,378	5,77	0,35	2,	0,00	0,0	333,7
30	14,17	33,409	5,71	0,60	4,	0,18	1,4	302,1
39	13,23	33,398	5,55	0,68	6,	0,09	3,8	284,5
48	12,74	33,408	5,36	0,77	6,	0,03	2,8	274,6
63	11,90	33,457	4,94	0,97	8,	0,03	9,2	255,7
77	11,43	33,513	4,64	1,09	11,	0,13	11,4	243,3
96	10,91	33,645	4,03	1,32	14,	0,00	16,0	224,6
119	10,38	33,819	3,33	1,67	21,	0,00	20,5	202,9
138	10,21	33,852	3,21	1,69	23,	0,00	21,5	197,7
166	9,70	33,953	2,89	1,82	27,	0,05	22,8	182,1
194	9,29	34,036	2,56	2,01	32,	0,00	26,5	169,5
222	9,05	34,088	2,37	2,07	34,	0,00	27,4	162,0
260	8,58	34,162	1,91	2,30	41,	0,41	29,5	149,5
316	8,04	34,214	1,40	2,57	49,	0,06	33,0	137,8
386	7,55	34,250	1,00	2,79	56,	0,03	35,0	128,3
456	6,94	34,284	0,65	2,96	66,	0,00	38,2	117,6
530	6,36	34,310	0,46	3,13	75,	0,00	40,4	108,3

Z	T	S	O2	SIGT	DT	DD
0	15,60	33,376	5,84	24,611	333,8	0,000
10	15,60	33,380	5,78	24,612	333,7	0,033
20	15,09	33,397	5,74	24,738	321,7	0,066
30	14,17	33,409	5,71	24,944	302,1	0,097
50	12,62	33,415	5,30	25,261	272,0	0,155
75	11,49	33,506	4,68	25,545	244,9	0,220
100	10,80	33,682	3,88	25,805	220,2	0,279
125	10,32	33,835	3,27	26,008	200,9	0,332
150	10,00	33,894	3,08	26,108	191,4	0,382
200	9,24	34,050	2,52	26,357	167,8	0,473
250	8,71	34,145	2,04	26,515	152,7	0,555
300	8,18	34,205	1,53	26,644	140,6	0,631
400	7,43	34,258	0,92	26,795	126,2	0,771
500	6,59	34,302	0,51	26,946	111,9	0,896

RV DAVID STARR JORDAN — CALCOFI CRUISE 7801 — 90045

LATITUDE	LONGITUDE	MO/DAY/YR	MESSENGER TIME	BOTTOM	WIND	SPEED	WEATHER	DOMINANT WAVES
32 54.5N	118 55.0W	1/17/78	1930 GMT	1664M	290	20KT	1	290 10 5

Z	T	S	O2	PO4	SIO3	NO2	NO3	DT
1	14,86	33,339	5,93	0,67	3,	0,02	0,2	321,1
11	14,82	33,341	5,98	0,71	3,	0,02	0,3	320,2
30	14,49	33,359	5,99	0,77	5,	0,13	1,3	312,1
39	13,20	33,414	5,53	1,09	7,	0,16	5,8	282,8
48	12,29	33,446	5,03	1,25	9,	0,04	9,3	263,5
63	11,90	33,471	4,88	1,30	10,	0,04	10,6	254,7
77	11,23	33,535	4,53	1,42	13,		12,7	238,2
97	10,53	33,638	4,10	1,64	17,	0,02	16,7	218,8
119	9,93	33,765	3,67	1,87	21,	0,03	20,5	199,6
138	9,75	33,859	3,26	1,96	25,	0,01	22,2	189,8
167	9,37	33,933	2,98	2,08	28,	0,01	24,3	178,4
195	8,89	34,043	2,49	2,31	34,	0,01	27,8	162,9
223	8,53	34,110	2,08	2,48	39,	0,01	29,4	152,6
260	8,13	34,152	1,73	2,44	44,	0,02	30,7	143,7
317	7,67	34,214	1,17	2,86	52,	0,03	33,4	132,6
387	7,17	34,254	0,76	3,06	61,	0,03	36,5	122,9
458	6,72	34,278	0,54	3,14	67,	0,02	38,2	115,2
533	6,31	34,306	0,38	3,26	75,	0,10	39,7	108,0

Z	T	S	O2	SIGT	DT	DD
0	14,86	33,339	5,93	24,744	321,1	0,000
10	14,82	33,343	5,98	24,753	320,3	0,032
20	14,66	33,351	5,98	24,794	316,4	0,064
30	14,49	33,359	5,99	24,859	312,1	0,095
50	12,21	33,451	5,01	25,368	261,8	0,153
75	11,33	33,526	4,58	25,589	240,7	0,216
100	10,43	33,657	4,04	25,851	215,9	0,274
125	9,86	33,799	3,53	26,059	196,1	0,326
150	9,61	33,893	3,13	26,174	185,1	0,374
200	8,82	34,059	2,41	26,431	160,8	0,462
250	8,23	34,144	1,81	26,588	145,8	0,541
300	7,79	34,198	1,33	26,695	135,6	0,614
400	7,08	34,260	0,71	26,845	121,4	0,748
500	6,48	34,294	0,44	26,954	111,1	0,871

RV DAVID STARR JORDAN — CALCOFI CRUISE 7801 — 90053

LATITUDE	LONGITUDE	MO/DAY/YR	MESSENGER TIME	BOTTOM	WIND	SPEED	WEATHER	DOMINANT WAVES
32 39.0N	119 28.5W	1/18/78	0138 GMT	1387M	300	24KT	1	320 15 12

Z	T	S	O2	PO4	SIO3	NO2	NO3	DT
2	15,91	33,300	5,82	0,80	2,	0,02	0,1	346,0
12	15,89	33,299	5,82	0,84	2,	0,02	0,1	345,6
31	15,92	33,298	5,86	0,71	2,	0,02	0,1	346,4
40	15,81	33,301	5,84	0,67	2,	0,01	0,1	343,8
49	14,45	33,253	5,97	0,72	2,	0,07	0,2	319,1
63	12,53	33,112	5,69	0,91	3,	0,19	2,2	292,5
78	11,71	33,191	5,61	1,07	7,	0,05	5,8	271,9
96	11,45	33,444	4,97	1,32	9,	0,02	10,0	248,7
120	10,23	33,552	4,40	1,70	16,	0,01	16,6	220,2
139	9,75	33,706	3,88	1,76	21,	0,00	20,2	201,1
167	9,47	33,842	3,39	1,91	25,	0,03	22,5	186,7
195	9,13	33,939	2,99	2,13	30,	0,00	25,2	174,3
223	8,81	34,050	2,38	2,37	36,	0,04	27,7	161,2
260	8,38	34,112	2,02	2,51	42,	0,04	29,8	150,3
316	7,90	34,194	1,43	2,75	50,	0,00	32,9	137,3
386	7,27	34,244	0,92	2,96	60,	0,00	35,8	125,0
456	6,77	34,262	0,66	3,10	67,	0,00	38,3	117,1
530	6,28	34,282	0,48	3,24	75,	0,00	40,1	109,4

Z	T	S	O2	SIGT	DT	DD
0	15,91	33,300	5,82	24,483	346,0	0,000
10	15,89	33,301	5,82	24,487	345,7	0,035
20	15,90	33,301	5,84	24,484	345,9	0,069
30	15,92	33,300	5,86	24,480	346,3	0,104
50	14,29	33,242	5,96	24,789	316,8	0,170
75	11,80	33,164	5,68	25,222	275,7	0,245
100	11,26	33,469	4,87	25,558	243,7	0,310
125	10,07	33,594	4,26	25,863	214,7	0,368
150	9,61	33,770	3,66	26,077	194,4	0,420
200	9,07	33,962	2,88	26,314	171,8	0,513
250	8,49	34,101	2,09	26,515	152,8	0,596
300	8,03	34,174	1,59	26,642	140,7	0,672
400	7,16	34,250	0,85	26,827	123,2	0,810
500	6,47	34,275	0,54	26,940	112,4	0,934

RV DAVID STARR JORDAN CALCOFI CRUISE 7801 90060

LATITUDE	LONGITUDE	MO/DAY/YR	MESSENGER TIME	BOTTOM	WIND	SPEED	WEATHER	DOMINANT WAVES
32 26.5N	119 57.5W	1/18/78	0618 GMT	873M	290	25KT		

Z	T	S	O2	PO4	SIO3	NO2	NO3	DT	Z	T	S	O2	SIGT	DT	DD
1	15,86	33,429	5,84	0,51	17.	0,00	0,0	335,5	0	15,86	33,429	5,84	24,593	335,5	0,000
10	15,85	33,430	5,77	0,51	16.	0,01	0,0	335,2	10	15,85	33,430	5,77	24,596	335,2	0,034
27	15,86	33,427	5,80	0,51	0.	0,00	0,0	335,6	20	15,86	33,430	5,79	24,594	335,5	0,067
36	15,75	33,418	5,79	0,50	10.	0,00	0,1	334,0	30	15,82	33,426	5,80	24,598	335,1	0,101
45	14,28	33,365	5,84	0,50	11.		0,0	307,5	50	13,60	33,344	5,77	25,011	295,7	0,164
59	12,59	33,335	5,50	0,62	14.		2,2	277,2	75	11,42	33,467	4,78	25,527	246,6	0,232
73	11,54	33,450	4,85	1,06	21.		9,7	249,8	100	10,28	33,644	4,06	25,866	214,4	0,290
91	10,63	33,579	4,30	1,29	25.		14,0	224,8	125	9,63	33,771	3,60	26,076	194,5	0,342
114	9,86	33,727	3,76	1,69	30.		20,7	201,3	150	9,05	33,909	3,03	26,277	175,4	0,389
131	9,51	33,792	3,51	1,88	33.	0,00	23,2	191,0	200	8,37	34,003	2,91	26,456	158,4	0,474
157	8,89	33,947	2,88	2,15	39.	0,00	26,8	170,0	250	7,91	34,058	2,36	26,568	147,8	0,552
183	8,52	33,988	2,96	2,14	40.	0,01	27,1	161,5	300	7,60	34,108	1,89	26,653	139,6	0,627
224	8,18	34,020	2,71	2,28	44.	0,00	29,5	154,2	400	6,49	34,204	0,86	26,881	118,0	0,761
244	7,95	34,050	2,42	2,45	47.	0,00	30,6	148,7	500	6,01	34,290	0,51	27,012	105,6	0,879
320	7,46	34,125	1,71	2,76	57.	0,00	34,5	136,4							
364	6,81	34,186	1,07	2,94	68.	0,00	38,4	123,3							
431	6,31	34,213	0,78	3,10	75.	0,00	40,3	114,9							
504	6,00	34,295	0,50	3,30	82.	0,00	41,7	105,0							

RV DAVID STARR JORDAN CALCOFI CRUISE 7801 90070

LATITUDE	LONGITUDE	MO/DAY/YR	MESSENGER TIME	BOTTOM	WIND	SPEED	WEATHER	DOMINANT WAVES
32 04.5N	120 38.5W	1/18/78	1228 GMT	3738M	310	15KT	1	

Z	T	S	O2	PO4	SIO3	NO2	NO3	DT	Z	T	S	O2	SIGT	DT	DD
2	15,19	32,886	5,94	0,42	2.	0,00	0,2	361,1	0	15,19	32,886	5,94	24,325	361,1	0,000
12	15,19	32,887	5,92	0,44	2.	0,00	0,3	361,0	10	15,19	32,889	5,92	24,326	361,0	0,036
30	15,25	33,003	6,00	0,43	3.	0,00	0,3	353,8	20	15,22	32,930	5,96	24,351	358,6	0,072
40	14,98	33,005	5,98	0,42	3.	0,00	0,3	348,0	30	15,25	33,003	6,00	24,402	353,8	0,108
49	13,18	33,112	6,03	0,42	4.	0,20	1,3	304,6	50	13,09	33,112	6,03	24,936	302,9	0,174
63	12,35	33,114	5,88	0,64	5.	0,00	3,4	289,0	75	11,44	33,116	5,64	25,252	272,8	0,246
77	11,27	33,121	5,58	0,80	8.	0,00	6,0	269,4	100	9,65	33,494	4,51	25,855	215,4	0,308
96	9,67	33,421	4,66	1,39	17.	0,00	16,5	221,0	125	9,53	33,735	3,77	26,063	195,7	0,359
119	9,56	33,689	3,92	1,64	22.	0,00	21,3	199,4	150	9,23	33,878	3,28	26,224	180,4	0,407
137	9,44	33,804	3,52	1,75	24.	0,00	23,0	189,0	200	8,27	33,994	2,76	26,464	157,6	0,493
164	8,95	33,937	3,08	1,96	30.	0,00	25,6	171,7	250	7,62	34,055	2,26	26,608	143,9	0,570
191	8,42	33,976	2,85	2,06	35.	0,00	28,0	161,0	300	7,20	34,129	1,55	26,727	132,7	0,642
219	8,00	34,027	2,57	2,23	40.	0,00	29,7	151,2	400	6,37	34,218	0,73	26,909	115,4	0,771
255	7,57	34,058	2,20	2,35	46.	0,00	31,1	142,9	500	5,96	34,291	0,39	27,020	104,9	0,887
309	7,13	34,142	1,42	2,77	56.	0,00	35,1	130,7							
378	6,49	34,199	0,85	3,04	67.	0,00	38,7	118,2							
449	6,17	34,255	0,54	3,26	75.	0,00	40,5	110,1							
527	5,85	34,307	0,34	3,39	82.	0,05	41,8	102,3							

RV DAVID STARR JORDAN CALCOFI CRUISE 7801 90080

LATITUDE	LONGITUDE	MO/DAY/YR	MESSENGER TIME	BOTTOM	WIND	SPEED	WEATHER	DOMINANT WAVES
31 45.0N	121 19.0W	1/18/78	1751 GMT	3546M	310	10KT	1	280 10 7

Z	T	S	O2	PO4	SIO3	NO2	NO3	DT	Z	T	S	O2	SIGT	DT	DD
1	15,39	32,935	5,87	0,44	2.	0,00	0,0	361,7	0	15,39	32,935	5,87	24,319	361,7	0,000
11	15,33	32,932	5,90	0,48	0.	0,00	0,1	360,6	10	15,33	32,934	5,90	24,329	360,7	0,036
29	15,31	33,065	6,00	0,48	0.	0,00	0,0	350,5	20	15,32	33,001	5,96	24,383	355,6	0,072
39	14,99	33,381	5,97	0,52	2.		0,2	320,7	30	15,28	33,101	6,00	24,470	347,3	0,107
48	14,96	33,428	5,82	0,54	2.		0,7	316,7	50	14,61	33,425	5,69	24,861	310,0	0,173
62	12,05	33,433	4,77	1,23	10.	0,02	12,4	260,1	75	10,45	33,576	4,05	25,784	222,2	0,240
77	10,28	33,597	3,97	1,64	18.	0,03	19,7	217,7	100	9,13	33,700	3,93	26,101	192,0	0,292
95	9,25	33,677	3,95	1,78	23.	0,00	21,6	195,5	125	8,84	33,815	3,75	26,236	179,2	0,339
119	8,91	33,782	3,87	1,80	26.	0,00	22,7	182,6	150	8,62	33,923	3,21	26,355	167,9	0,388
138	8,71	33,878	3,45	1,91	30.	0,00	24,8	172,5	200	7,85	34,031	2,54	26,556	148,9	0,464
167	8,46	33,968	2,91	2,08	35.	0,00	27,3	162,1	250	7,24	34,063	2,01	26,669	138,1	0,538
194	7,97	34,027	2,57	2,14	41.	0,00	29,6	150,7	300	6,90	34,113	1,47	26,755	129,9	0,607
222	7,46	34,032	2,43	2,33	43.	0,00	31,5	143,3	400	6,20	34,194	0,75	26,912	115,1	0,734
260	7,19	34,074	1,85	2,51	51.	0,00	33,9	136,6	500	5,76	34,301	0,37	27,052	101,8	0,848
316	6,78	34,125	1,35	2,69	60.	0,00	36,7	127,4							
386	6,26	34,175	0,84	2,83	73.	0,00	39,5	117,2							
455	5,99	34,264	0,45	2,96	82.	0,00	40,7	107,2							
530	5,58	34,315	0,32	3,05	92.	0,00	41,6	98,6							

RV DAVID STARR JORDAN — CALCOFI CRUISE 7801 — 90090

LATITUDE	LONGITUDE	MO/DAY/YR	MESSENGER TIME	BOTTOM	WIND	SPEED	WEATHER	DOMINANT WAVES
31 24.0N	122 01.0W	1/19/78	0027 GMT	3926M	290	17KT	1	260 10 8

Z	T	S	O2	PO4	SIO3	NO2	NO3	DT	Z	T	S	O2	SIGT	DT	DD
1	16.01	32.982	5.78	0.33	3.	0.00	0.0	371.4	0	16.01	32.982	5.78	24.217	371.4	0.000
11	16.00	32.983	5.77	0.37	3.	0.00	0.0	371.1	10	16.00	32.985	5.77	24.220	371.1	0.037
30	15.93	32.980	5.78	0.32	4.	0.00	0.0	369.8	20	15.97	32.984	5.77	24.227	370.5	0.074
39	15.92	32.980		0.34	3.	0.00	0.0	369.6	30	15.93	32.980	5.78	24.234	369.8	0.111
48	15.10	32.975	5.89	0.33	3.	0.00	0.0	352.7	50	14.96	32.978	5.91	24.443	349.8	0.184
62	14.26	33.018	5.97	0.46	4.	0.11	0.2	332.5	75	13.54	33.181	5.88	24.898	306.5	0.266
76	13.49	33.192	5.87	0.55	5.	0.19	1.5	304.7	100	12.58	33.294	5.56	25.175	280.1	0.340
95	13.07	33.288	5.76	0.69	6.	0.00	3.7	289.6	125	9.88	33.313	4.88	25.677	232.4	0.405
118	10.52	33.308	4.87	1.25	15.	0.00	13.6	243.0	150	9.06	33.351	4.58	25.997	202.0	0.459
136	9.11	33.345	4.90	1.42	16.	0.00	16.3	218.0	200	8.52	33.929	3.10	26.375	166.0	0.553
164	9.00		4.11	1.70	22.	0.00	21.1		250	7.73	33.998	2.51	26.548	149.7	0.634
191	8.61	33.892	3.14	2.08	31.	0.00	26.7	170.0	300	7.11	34.041	2.04	26.670	138.1	0.708
218	8.33	33.973	3.01	2.15	34.	0.00	27.7	159.9	400	6.22	34.139	0.97	26.866	119.5	0.842
254	7.65	33.997	2.44	2.17	38.	0.00	27.6	148.5	500	5.66	34.220	0.56	27.000	106.7	0.961
308	7.04	34.048	1.98	2.68	51.	0.00	33.9	136.5							
374	6.42	34.113	1.17	3.11	64.	0.00	38.6	123.8							
443	5.95	34.177	0.75	3.36	75.	0.00	41.1	113.3							
516	5.60	34.229	0.53	3.46	83.	0.00	42.6	105.2							

RV DAVID STARR JORDAN — CALCOFI CRUISE 7801 — 90100

LATITUDE	LONGITUDE	MO/DAY/YR	MESSENGER TIME	BOTTOM	WIND	SPEED	WEATHER	DOMINANT WAVES
31 08.5N	122 37.0W	1/19/78	0618 GMT	4117M	300	22KT	1	

Z	T	S	O2	PO4	SIO3	NO2	NO3	DT	Z	T	S	O2	SIGT	DT	DD
2	16.41	33.050	5.72	0.41	4.	0.00	0.0	375.1	0	16.41	33.050	5.72	24.178	375.1	0.000
12	16.42	33.045	5.78	0.45	4.	0.00	0.0	375.7	10	16.42	33.048	5.77	24.173	375.6	0.038
31	16.44	33.022 U	5.87	0.47	5.	0.00	0.0		20	16.43	33.049	5.84	24.171	375.8	0.075
41	16.44	33.046	5.79	0.50	4.	0.00	0.0	376.0	30	16.44	33.050	5.87	24.170	375.9	0.113
50	16.46	33.049	5.75	0.51	4.	0.00	0.0	376.2	50	16.46	33.049	5.75	24.166	376.2	0.188
64	16.47	33.126	5.75	0.50		0.00	0.0	370.8	75	15.00	33.078	6.03	24.512	343.3	0.279
79	14.33	33.050	6.14	0.52	4.	0.00	0.1	331.6	100	11.81	32.946	6.07	25.051	292.0	0.359
97	11.97	32.931	6.11	0.66	5.	0.00	1.1	295.7	125	10.95	33.087	5.65	25.317	266.6	0.429
121	11.16	33.074	5.70	0.89	8.		5.8	271.0	150	9.78	33.240	5.23	25.636	236.3	0.493
140	10.15	33.142	5.45	1.02	12.	0.00	10.0	249.3	200	8.81	33.808	3.75	26.236	179.3	0.598
168	9.30	33.453	4.73	1.44	19.	0.00	16.7	212.9	250	8.22	33.969	3.42	26.453	158.7	0.685
195	8.88	33.773	3.75	1.81	27.	0.01	23.3	182.8	300	7.53	34.038	2.37	26.608	143.9	0.763
223	8.53	33.908	3.74	1.87	28.	0.00	24.0	167.6	400	6.48	34.098	1.26	26.800	125.7	0.903
260	8.10	33.980	3.25	2.02	35.		25.4	156.1	500	5.87	34.220	0.52	26.974	109.2	1.026
315	7.32	34.053	2.05	2.64	49.	0.00	32.1	139.9							
384	6.61	34.077	1.42	2.95	60.	0.01	36.9	128.8							
453	6.11	34.171	0.77	3.28	70.	0.01	40.0	115.6							
528	5.77	34.241	0.44	3.51	80.		41.1	106.3							

RV DAVID STARR JORDAN — CALCOFI CRUISE 7801 — 93029

LATITUDE	LONGITUDE	MO/DAY/YR	MESSENGER TIME	BOTTOM	WIND	SPEED	WEATHER	DOMINANT WAVES
32 52.7N	117 26.6W	1/15/78	2347 GMT	602M	280	14KT	1	240 4 8

Z	T	S	O2	PO4	SIO3	NO2	NO3	DT	Z	T	S	O2	SIGT	DT	DD
0	16.27	33.326	5.79	0.46	2.	0.00		351.9	0	16.27	33.326	5.79	24.422	351.9	0.000
10	16.24	33.329	5.79	0.47	2.	0.00		351.0	10	16.24	33.329	5.79	24.431	351.0	0.035
29	16.10	33.369	5.91	0.48	3.	0.00		345.1	20	16.17	33.343	5.87	24.456	348.6	0.070
39	16.06	33.434	5.83	0.49	3.	0.00		339.4	30	16.10	33.376	5.91	24.498	344.6	0.105
49	15.62	33.419	5.57	0.67	4.	0.38	1.0	331.1	50	15.54	33.419	5.55	24.656	329.5	0.173
63	14.21	33.413	5.31	0.87	7.	0.31	3.9	302.6	75	12.73	33.462	4.91	25.275	270.6	0.248
77	12.51	33.472	4.84	1.12	11.	0.00	8.5	265.6	100	11.75	33.601	4.20	25.570	242.6	0.313
96	11.85	33.578	4.29	1.39	14.	0.00	12.5	245.9	125	11.10	33.736	3.69	25.794	221.2	0.371
120	11.26	33.704	3.80	1.61	18.	0.00	16.2	226.2	150	10.32	33.859	3.23	26.027	199.1	0.425
139	10.64	33.815	3.41	1.89	21.	0.00	19.6	207.5	200	9.30	34.046	2.50	26.344	169.0	0.518
167	9.90	33.916	2.98	2.20	27.	0.00	23.2	188.0	250	8.74	34.132	2.07	26.500	154.1	0.601
195	9.37	34.034	2.53	2.25	32.	0.00	26.5	170.9	300	8.08	34.172	1.65	26.632	141.6	0.678
224	8.99	34.081	2.37	2.38	36.	0.00	28.4	161.6	400	7.36	34.244	0.90	26.794	126.3	0.817
260	8.64	34.147	1.95	2.61	41.	0.00	30.4	151.5	500	6.60	34.291	0.51	26.936	112.8	0.944
315	7.88	34.176	1.56	2.85	49.	0.00	33.6	138.4							
385	7.46	34.237	0.97	3.09	57.	0.00	36.3	128.1							
456	6.97	34.265	0.69	3.46	65.	0.00	38.7	119.4							
532	6.30	34.313	0.38	3.46	76.	0.00	41.2	107.3							

RV DAVID STARR JORDAN — CALCOFI CRUISE 7801 — 93030

LATITUDE	LONGITUDE	MO/DAY/YR	MESSENGER TIME	BOTTOM	WIND	SPEED	WEATHER	DOMINANT WAVES
32 50.5N	117 31.0W	1/15/78	2036 GMT	879M	260	15KT	1	220 8 7

Z	T	S	O2	PO4	SIO3	NO2	NO3	DT	Z	T	S	O2	SIGT	DT	DD
1	16.36	33.313	5.76	0.38	2.	0.00	0.2	354.8	0	16.36	33.313	5.76	24.391	354.8	0.000
11	16.34	33.312	5.72	0.35	2.	0.00	0.2	354.4	10	16.34	33.314	5.72	24.394	354.5	0.035
30	16.30	33.312	5.81	0.37	2.	0.00	0.2	353.6	20	16.32	33.314	5.77	24.399	354.0	0.071
39	16.15	33.365	5.76	0.38	2.	0.00	0.2	346.4	30	16.30	33.312	5.81	24.404	353.6	0.106
48	15.50	33.391	5.80	0.58	3.	0.09	0.1	330.6	50	15.23	33.376	5.80	24.690	326.3	0.175
62	13.57	33.285	5.80	0.62	4.	0.18	1.7	299.4	75	12.50	33.371	5.40	25.250	273.0	0.250
77	12.37	33.389	5.31	0.68	6.	0.05	6.2	269.2	100	11.18	33.610	4.21	25.681	232.0	0.314
94	11.23	33.543	4.44	1.07	9.	0.04	12.9	237.6	125	10.87	33.774	3.50	25.865	214.5	0.370
119	11.04	33.740	3.64	1.43	18.	0.10	17.6	219.8	150	10.21	33.882	3.07	26.063	195.7	0.422
138	10.46	33.832	3.25	1.47	22.	0.08	19.5	203.3	200	9.45	34.041	2.60	26.315	171.8	0.516
166	9.95	33.936	2.89	1.84	27.	0.04	24.0	187.3	250	8.90	34.127	2.15	26.472	156.9	0.600
194	9.50	34.019	2.69	1.95	30.	0.03	25.8	174.0	300	8.44	34.187	1.73	26.590	145.6	0.678
222	9.29	34.103	2.27	2.13	33.	0.09	28.0	164.5	400	7.56	34.233	1.06	26.757	129.8	0.822
260	8.75	34.129	2.12	2.22	38.	0.14	29.4	154.4	500	6.66	34.284	0.64	26.923	114.1	0.951
316	8.34	34.208	1.56	2.54	45.	0.06	32.4	142.6							
387	7.71	34.226	1.13	2.69	53.	0.05	34.9	132.3							
457	6.95	34.263	0.79	3.01	64.	0.06	38.5	119.3							
533	6.52	34.295	0.55	3.37	73.	0.06	40.6	111.4							

RV DAVID STARR JORDAN — CALCOFI CRUISE 7801 — 93040

LATITUDE	LONGITUDE	MO/DAY/YR	MESSENGER TIME	BOTTOM	WIND	SPEED	WEATHER	DOMINANT WAVES
32 30.0N	118 11.5W	1/15/78	1328 GMT	1757M	280	20KT		

Z	T	S	O2	PO4	SIO3	NO2	NO3	DT	Z	T	S	O2	SIGT	DT	DD
1	16.01	33.310	5.81	0.38	1.	0.00	0.0	347.4	0	16.01	33.310	5.81	24.468	347.4	0.000
10	16.00	33.314	5.79	0.38	1.	0.00	0.0	346.9	10	16.00	33.314	5.79	24.474	346.9	0.035
29	15.90	33.386	5.90	0.32	3.	0.00	0.1	339.5	20	15.95	33.346	5.85	24.508	343.6	0.069
39	15.70	33.385	5.83	0.43	2.	0.00	0.1	335.3	30	15.88	33.384	5.89	24.553	339.4	0.104
48	14.86	33.342	5.83	0.42	3.	0.06	0.8	320.9	50	14.61	33.307	5.85	24.772	318.4	0.170
62	13.13	33.140	5.95	0.49	3.	0.14	1.6	301.6	75	12.13	33.302	5.39	25.266	271.4	0.244
76	12.07	33.318	5.34	0.77	7.	0.06	7.2	269.0	100	10.90	33.577	4.44	25.705	229.7	0.307
95	10.92	33.531	4.60	1.10	13.	0.00	13.7	233.2	125	10.73	33.726	3.62	25.852	215.7	0.363
119	10.84	33.675	3.84	1.36	17.	0.00	17.5	221.2	150	10.26	33.900	2.89	26.070	195.1	0.415
138	10.45	33.829	3.17	1.62	22.	0.00	21.6	203.3	200	9.73	34.080	2.28	26.300	173.1	0.509
167	10.04	33.973	2.61	1.89	29.	0.00	24.9	186.0	250	9.22	34.178	1.90	26.459	158.0	0.594
195	9.79	34.064	2.33	1.98	33.	0.00	26.7	175.3	300	8.46	34.229	1.40	26.620	142.8	0.672
224	9.42	34.140	2.07	2.11	34.	0.00	28.6	163.8	400	7.52	34.251	0.97	26.777	127.9	0.813
262	9.12	34.188	1.82	2.19	38.	0.00	30.1	155.6	500	6.65	34.290	0.56	26.928	113.6	0.941
318	8.13	34.243	1.21	2.58	50.	0.00	34.2	136.9							
388	7.63	34.247	1.02	2.67	55.	0.00	36.2	129.6							
459	6.97	34.271	0.71	2.79	65.	0.00	39.1	119.0							
533	6.43	34.304	0.46	2.98	74.	0.00	41.5	109.6							

RV DAVID STARR JORDAN — CALCOFI CRUISE 7801 — 93050

LATITUDE	LONGITUDE	MO/DAY/YR	MESSENGER TIME	BOTTOM	WIND	SPEED	WEATHER	DOMINANT WAVES
32 10.0N	118 52.5W	1/15/78	0612 GMT	1479M	190	27KT	6	

Z	T	S	O2	PO4	SIO3	NO2	NO3	DT	Z	T	S	O2	SIGT	DT	DD
2	16.40	33.332	5.72	0.57	2.	0.00	0.0	354.3	0	16.40	33.332	5.72	24.396	354.3	0.000
11	16.40	33.329	5.78	0.55	2.	0.00	0.0	354.9	10	16.40	33.327	5.77	24.391	354.8	0.035
30	16.41	33.328	5.81	0.61	2.	0.02	0.0	354.8	20	16.40	33.328	5.79	24.391	354.8	0.071
39	16.23	33.398	5.76	0.56	2.	0.03	0.0	345.7	30	16.41	33.328	5.81	24.391	354.8	0.107
48	15.75	33.410	5.81	0.62	3.	0.01	0.0	334.5	50	15.63	33.397	5.84	24.619	333.1	0.176
62	14.73	33.302	5.93	0.82	3.	0.18	0.0	321.2	75	13.33	33.332	5.74	25.057	291.3	0.254
75	13.33	33.332	5.74	0.78	5.	0.02	2.3	291.3	100	12.01	33.416	5.21	25.379	260.8	0.324
94	12.33	33.381	5.59	0.95	7.	0.01	5.8	269.0	125	11.00	33.598	4.37	25.705	229.7	0.386
116	11.26	33.526	4.68	1.32	12.	0.00	10.8	239.4	150	10.20	33.739	3.84	25.954	206.0	0.441
134	10.77	33.662	4.10	1.47	16.	0.00	14.7	221.0	200	9.13	33.909	3.30	26.264	176.6	0.538
162	9.81	33.780	3.71	1.75	22.	0.00	18.9	196.6	250	8.05	34.023	2.82	26.520	152.3	0.622
189	9.42	33.869	3.35	1.89	26.	0.00	21.8	183.9	300	7.75	34.111	1.91	26.633	141.5	0.698
215	8.72	33.956	3.24	2.03	31.	0.00	24.2	166.8	400	6.71	34.185	0.97	26.838	122.1	0.835
251	8.04	34.023	2.80	2.20	39.	0.00	27.9	152.0	500	6.03	34.263	0.49	26.988	107.9	0.957
304	7.74	34.116	1.84	2.46	48.	0.00	32.4	140.9							
371	6.99	34.168	1.15	2.74	61.	0.00	36.8	126.9							
436	6.41	34.205	0.79	2.90	70.	0.00	39.8	116.8							
505	6.01	34.267	0.47	3.00	79.	0.00	42.1	107.2							

RV DAVID STARR JORDAN — CALCOFI CRUISE 7801 — 93060

LATITUDE	LONGITUDE	MO/DAY/YR	MESSENGER TIME	BOTTOM	WIND	SPEED	WEATHER	DOMINANT WAVES
31 50.0N	119 34.0W	1/14/78	2250 GMT	2265M	210	18KT	5	99

Z	T	S	O2	PO4	SIO3	NO2	NO3	DT	Z	T	S	O2	SIGT	DT	DD
1	16.21	33.468	5.70	0.37	1.	0.00		340.2	0	16.21	33.468	5.70	24.544	340.2	0.000
11	16.21	33.467	5.67	0.39	1.	0.01		340.3	10	16.21	33.469	5.67	24.543	340.3	0.034
30	16.21	33.472	5.71	0.40	3.	0.02		339.9	20	16.21	33.471	5.69	24.545	340.1	0.068
39	15.68	33.442	5.77	0.40	4.	0.04		330.7	30	16.21	33.472	5.71	24.547	339.9	0.102
48	12.73	33.323	5.55	0.66	7.	0.19	5.0	280.7	50	12.38	33.332	5.45	25.244	273.6	0.164
63	11.26	33.431	4.83	1.00	13.	0.09	12.1	246.4	75	10.98	33.480	4.66	25.617	238.1	0.228
77	10.96	33.485	4.64	1.08	16.	0.09	13.8	237.3	100	10.05	33.645	4.03	25.907	210.5	0.285
95	10.18	33.609	4.17	1.42	23.	0.09	18.6	215.2	125	9.61	33.780	3.52	26.085	193.6	0.336
119	9.70	33.755	3.58	1.63	29.		22.1	196.7	150	9.23	33.883	3.29	26.227	180.1	0.383
138	9.43	33.825	3.43	1.77	33.	0.08	23.7	187.3	200	8.53	34.015	2.64	26.441	159.8	0.470
166	8.97	33.950	3.08	2.00	40.	0.09	26.2	171.0	250	7.78	34.083	2.13	26.608	144.0	0.548
194	8.62	34.002	2.71	2.14	47.	0.09	28.7	161.9	300	7.35	34.120	1.68	26.699	135.3	0.620
222	8.19	34.052	2.41	2.38	54.	0.11	30.9	152.0	400	6.56	34.246	0.70	26.906	115.6	0.750
259	7.66	34.089	2.04	2.66	63.		33.5	141.8	500	5.89	34.287	0.43	27.025	104.4	0.867
315	7.26	34.131	1.54	3.20	73.	0.00	36.2	133.3							
384	6.69	34.238	0.78	3.32	90.	0.00	39.8	117.8							
454	6.16	34.259	0.56	3.33	101.	0.00	42.0	109.7							
528	5.75	34.307	0.36	3.50	110.	0.00	43.8	101.2							

RV DAVID STARR JORDAN — CALCOFI CRUISE 7801 — 93070

LATITUDE	LONGITUDE	MO/DAY/YR	MESSENGER TIME	BOTTOM	WIND	SPEED	WEATHER	DOMINANT WAVES
31 30.0N	120 14.0W	1/14/78	1650 GMT	3926M	170	25KT	5	99

Z	T	S	O2	PO4	SIO3	NO2	NO3	DT	Z	T	S	O2	SIGT	DT	DD
2	15.96	33.430	5.78	0.49	3.		0.0	337.6	0	15.96	33.430	5.78	24.571	337.6	0.000
12	15.95	33.431	5.77	0.44	3.		0.0	337.3	10	15.95	33.433	5.77	24.574	337.3	0.034
31	15.93	33.424	5.79	0.40	3.		0.0	337.4	20	15.94	33.430	5.78	24.574	337.3	0.068
40A	15.71	33.431	5.81	0.44	5.		0.0	332.2	30	15.93	33.426	5.79	24.574	337.4	0.101
64A	12.39	33.246	5.71	0.83	9.		5.0	280.1	50	14.43	33.344	5.77	24.838	312.2	0.167
78	11.49	33.271	5.37	0.97	12.		8.7	262.2	75	11.66	33.260	5.47	25.322	266.1	0.239
92	10.42	33.424	4.69	1.27	19.		15.2	232.8	100	10.39	33.509	4.53	25.741	226.3	0.301
111	10.36	33.569	4.37	1.38	21.		16.7	221.1	125	10.05	33.684	3.96	25.938	207.6	0.356
134	9.81	33.751	3.69	1.56	29.		21.0	198.8	150	9.54	33.844	3.42	26.146	187.7	0.406
152	9.51	33.852	3.39	1.68	32.		22.9	186.6	200	8.84	34.035	2.68	26.408	162.9	0.495
180	9.06	33.953	2.97	1.98	39.		25.7	172.2	250	7.85	34.090	2.12	26.602	144.5	0.574
208	8.74	34.059	2.58	2.12	44.		27.6	159.5	300	7.26	34.141	1.51	26.728	132.5	0.646
235	8.15	34.071	2.35	2.25	51.		30.0	150.0	400	6.52	34.200	0.82	26.875	118.5	0.777
272	7.49	34.118	1.77	2.48	61.		33.3	137.3	500	5.99	34.290	0.42	27.015	105.3	0.895
327	7.11	34.155	1.33	2.84	71.		35.7	129.5							
398	6.53	34.198	0.83	2.90	81.		38.6	118.8							
468	6.18	34.262	0.51	3.05	91.		40.7	109.7							
544	5.70		0.36	3.18	101.		41.9								

RV DAVID STARR JORDAN — CALCOFI CRUISE 7801 — 93080

LATITUDE	LONGITUDE	MO/DAY/YR	MESSENGER TIME	BOTTOM	WIND	SPEED	WEATHER	DOMINANT WAVES
31 10.0N	120 54.5W	1/14/78	1148 GMT	3738M	160	20KT	6	

Z	T	S	O2	PO4	SIO3	NO2	NO3	DT	Z	T	S	O2	SIGT	DT	DD
0	16.59	33.195	5.72					368.4	0	16.59	33.195	5.72	24.248	368.4	0.000
10	16.59	33.192	5.73					368.7	10	16.59	33.192	5.73	24.246	368.7	0.037
30	16.62	33.192	5.73					369.3	20	16.61	33.194	5.73	24.241	369.1	0.074
39	16.61	33.192	5.79					369.1	30	16.62	33.192	5.73	24.239	369.3	0.111
48	15.72	33.181	5.91		2.			350.6	50	15.52	33.174	5.94	24.472	347.1	0.183
63	14.24	33.113	6.11		2.			325.1	75	13.11	33.113	6.07	24.931	303.3	0.264
77	12.92	33.115	6.06	0.60	4.		1.6	299.5	100	10.96	33.253	5.34	25.444	254.6	0.335
94	11.25	33.194	5.52	0.91	10.		7.8	263.7	125	10.22	33.473	4.73	25.743	226.1	0.395
118	10.45	33.426	4.87	1.13	15.		13.6	233.1	150	9.64	33.677	4.00	25.999	201.8	0.449
136	9.90	33.540	4.49	1.25	21.	0.00	16.7	215.8	200	8.95	33.970	3.01	26.340	169.4	0.544
165	9.45	33.816	3.49	1.83	32.	0.00	22.7	188.3	250	8.10	34.048	2.53	26.532	151.1	0.626
192	9.10	33.948	3.06	1.83	38.	0.00	25.5	173.1	300	7.46	34.094	1.91	26.661	138.9	0.701
219	8.59	34.002	2.90	1.94	44.	0.00	27.5	161.5	400	6.43	34.156	0.99	26.852	120.8	0.836
255	8.03	34.052	2.46	2.08	52.	0.01	30.5	149.7	500	5.80	34.245	0.46	27.003	106.5	0.956
310	7.35	34.099	1.80	2.39	68.		34.5	136.9							
379	6.60	34.139	1.15	2.69	85.		38.7	124.1							
449	6.10	34.197	0.69	2.86	97.	0.00	41.0	113.6							
525	5.68	34.269	0.38	2.97	109.		43.0	103.2							

A) DEPTH COMPUTATIONS INDICATE WIRE MAY HAVE BEEN RELEASED FROM THE WINCH BETWEEN THESE NANSEN BOTTLES WITHOUT BEING RECORDED BY THE METER WHEEL. THE FOLLOWING DEPTHS ARE SOMEWHAT UNCERTAIN.

RV DAVID STARR JORDAN — CALCOFI CRUISE 7801 — 93090

LATITUDE	LONGITUDE	MO/DAY/YR	MESSENGER TIME	BOTTOM	WIND	SPEED	WEATHER	DOMINANT WAVES
30 50.0N	121 34.5W	1/14/78	0553 GMT	4213M	160	22KT	6	

Z	T	S	O2	PO4	SIO3	NO2	NO3	DT	Z	T	S	O2	SIGT	DT	DD
1	16.35	33.081	5.74	0.80	1.	0.00	0.2	371.5	0	16.35	33.081	5.74	24.216	371.5	0.000
11	16.35	33.084	5.65	0.52	2.	0.00	0.1	371.3	10	16.35	33.086	5.65	24.218	371.3	0.037
30	16.37	33.102	5.74	0.83	2.	0.00	0.1	370.4	20	16.36	33.094	5.68	24.222	370.9	0.074
39	16.30	33.090	5.72	0.55	4.	0.00	0.1	369.8	30	16.37	33.102	5.74	24.227	370.4	0.111
48	15.86	33.033	5.79	0.48	4.	0.00	0.1	364.4	50	15.64	33.032	5.83	24.338	359.8	0.185
63	14.10	33.028	5.99	0.52	4.	0.09	0.5	328.6	75	13.22	33.197	5.85	24.975	299.2	0.267
77	13.07	33.219	5.82	0.58	6.	0.01	2.6	294.7	100	10.63	33.147	5.45	25.420	256.8	0.337
96	10.74	33.057	5.63	0.90	12.	0.00	8.1	265.2	125	10.09	33.564	4.34	25.836	217.3	0.397
119	10.09	33.498	4.51	1.21	20.	0.00	14.2	222.0	150	9.91	33.752	3.74	26.013	200.4	0.450
138	10.10	33.658	4.04	1.77U	25.	0.00	19.3	210.3	200	8.74	33.947	3.30	26.356	167.9	0.544
166	9.55	33.851	3.43	1.69	33.	0.00	23.4	187.3	250	7.81	34.015	2.85	26.549	149.5	0.625
194	8.86	33.933	3.33	1.77	39.	0.00	25.6	170.6	300	7.17	34.052	2.24	26.670	138.1	0.699
222	8.33	33.982	3.14	1.85	45.	0.00	27.7	159.2	400	6.43	34.170	1.08	26.863	119.7	0.833
259	7.66	34.021	2.75	2.04	46.	0.00	30.6	146.9	500	5.81	34.263	0.61	27.015	105.3	0.952
315	7.04	34.062	2.05	2.40	70.	0.00	34.7	135.5							
384	6.55	34.152	1.19	2.67	92.	0.00	38.5	122.5							
455	6.05	34.221	0.81	3.13		0.00	41.2	111.2							
531	5.69	34.289	0.48	2.90		0.00	42.5	101.8							

RV DAVID STARR JORDAN — CALCOFI CRUISE 7801 — 93100

LATITUDE	LONGITUDE	MO/DAY/YR	MESSENGER TIME	BOTTOM	WIND	SPEED	WEATHER	DOMINANT WAVES
30 30.0N	122 14.0W	1/14/78	0016 GMT	4213M	150	21KT	2	040 9 7

Z	T	S	O2	PO4	SIO3	NO2	NO3	DT	Z	T	S	O2	SIGT	DT	DD
2	16.53	33.128	5.71	0.09	3.	0.00	0.0	372.0	0	16.53	33.128	5.71	24.210	372.0	0.000
12	16.52	33.128	5.72	0.12	3.	0.00	0.0	371.8	10	16.52	33.130	5.72	24.212	371.8	0.037
30	16.52	33.135	5.73	0.12	3.	0.00	0.0	371.3	20	16.52	33.133	5.72	24.215	371.6	0.074
39	16.49	33.144	5.76	0.13	3.	0.06	0.0	370.0	30	16.52	33.135	5.73	24.218	371.3	0.112
49	16.42	33.192	5.75	0.17	2.	0.07	0.0	364.9	50	16.28	33.191	5.77	24.313	362.2	0.185
63	14.12	33.136	6.08	0.21	5.	0.08	0.2	321.1	75	12.86	33.125	6.04	24.990	297.7	0.268
77	12.69	33.123	6.03	0.35	4.	0.26	1.2	294.6	100	11.21	33.200	5.52	25.357	262.8	0.339
95	11.41	33.176	5.61	0.61	8.	0.00	6.4	267.8	125	10.48	33.394	4.92	25.637	236.2	0.402
119	10.68	33.325	5.12	0.90	13.	0.02	11.5	244.4	150	9.80	33.644	4.16	25.948	206.6	0.458
137	10.11	33.532	4.51	1.25	20.	0.00	16.4	219.8	200	8.65	33.939	3.13	26.363	167.2	0.553
165	9.47	33.745	3.81	1.58	29.	0.00	21.6	193.9	250	7.83	34.022	2.72	26.552	149.3	0.634
193	8.80	33.911	3.22	1.91	38.	0.00	26.3	171.4	300	7.11	34.055	2.05	26.680	137.1	0.708
221	8.25	33.993	2.94	1.84	46.	0.00	28.2	157.2	400	6.41	34.199	0.84	26.889	117.3	0.840
259	7.72	34.024	2.65	2.02	54.	0.00	30.9	147.5	500	5.80	34.260	0.46	27.014	105.4	0.957
315	6.92	34.068	1.80	2.42	73.	0.00	35.6	133.5							
385	6.52	34.186	0.94	2.80		0.00	39.4	119.6							
455	6.03	34.230	0.60	3.06		0.00	41.4	110.3							
530	5.69	34.278	0.40	3.20		0.00	42.8	102.6							

RV DAVID STARR JORDAN — CALCOFI CRUISE 7801 — 97030

LATITUDE	LONGITUDE	MO/DAY/YR	MESSENGER TIME	BOTTOM	WIND	SPEED	WEATHER	DOMINANT WAVES
32 16.0N	117 07.0W	1/ 7/78	0239 GMT	56M	270	3KT		270

Z	T	S	O2	PO4	SIO3	NO2	NO3	DT	Z	T	S	O2	SIGT	DT	DD
0	16.54	33.477	5.76	0.14	2.	0.00	0.0	346.8	0	16.54	33.477	5.76	24.475	346.8	0.000
10	16.41	33.480	5.70	0.12	2.	0.00	0.0	343.7	10	16.41	33.480	5.70	24.507	343.7	0.035
19	16.28	33.486	5.75	0.09	2.	0.00	0.0	340.4	20	16.25	33.488	5.74	24.548	339.8	0.069
29	15.93	33.488	5.54	0.16	3.	0.30		332.7	30	15.90	33.499	5.52	24.635	331.5	0.102
48	14.96	33.521	5.10	0.37	5.	0.33	2.6	309.9	50	14.76	33.580	5.04	24.951	301.4	0.166

RV DAVID STARR JORDAN — CALCOFI CRUISE 7801 — 97035

LATITUDE	LONGITUDE	MO/DAY/YR	MESSENGER TIME	BOTTOM	WIND	SPEED	WEATHER	DOMINANT WAVES
32 06.0N	117 27.5W	1/11/78	2219 GMT	1249M	270	9KT	1	270 10 8

Z	T	S	O2	PO4	SIO3	NO2	NO3	DT	Z	T	S	O2	SIGT	DT	DD
1	16.29	33.460	5.76			0.00	0.1	342.5	0	16.29	33.460	5.76	24.520	342.5	0.000
11	16.13	33.452	5.80			0.00	0.1	339.6	10	16.14	33.454	5.80	24.548	339.9	0.034
30	16.08	33.452	5.90				0.1	338.6	20	16.11	33.454	5.86	24.555	339.1	0.068
39	15.38	33.462	5.87				0.1	322.9	30	16.08	33.452	5.90	24.561	338.6	0.102
49	14.54	33.392	5.82				0.6	310.7	50	14.42	33.391	5.80	24.877	308.4	0.167
63	12.90	33.394	5.42		4.	0.03	5.2	278.6	75	12.20	33.414	5.10	25.340	264.4	0.239
77	12.13	33.418	5.05	0.27	6.	0.00	8.8	262.7	100	11.52	33.596	4.36	25.608	239.0	0.302
96	11.73 A	33.574	4.47	0.59	11.	0.00	13.5	244.0	125	10.46	33.727	3.71	25.899	211.2	0.359
120	10.55	33.692	3.85	1.22	14.	0.00	18.0	215.1	150	10.06	33.883	3.14	26.090	193.1	0.411
138	10.32	33.812	3.37		18.	0.00	20.7	202.5	200	9.55	34.084	2.28	26.332	170.1	0.503
166	9.74	33.962	2.87	1.81	23.	0.00	24.5	182.0	250	8.91	34.172	1.86	26.504	153.7	0.586
194	9.60	34.069	2.34	1.79	27.	0.00	26.7	171.9	300	8.20	34.206	1.47	26.642	140.7	0.662
222	9.33	34.124	2.13	2.07	31.	0.00	27.9	163.6	400	7.23	34.244	0.84	26.813	124.5	0.801
258	8.78	34.182	1.78		37.	0.00	30.8	151.0	500	6.52	34.304	0.44	26.957	110.8	0.925
315	8.01	34.208	1.38	2.28	42.	0.00	33.6	137.8							
384	7.36	34.232	0.94	2.50	51.	0.00	36.5	127.1							
455	6.81	34.282	0.57	2.86	59.	0.02	39.2	116.1							
532	6.34	34.312	0.39	2.83	66.		41.3	107.9							

A) ALTERNATE VALUE, 11.12 DEGREES.

RV DAVID STARR JORDAN — CALCOFI CRUISE 7801 — 97040

LATITUDE	LONGITUDE	MO/DAY/YR	MESSENGER TIME	BOTTOM	WIND	SPEED	WEATHER	DOMINANT WAVES
31 56.0N	117 48.0W	1/12/78	0319 GMT	1295M	99	4KT		

Z	T	S	O2	PO4	SIO3	NO2	NO3	DT	Z	T	S	O2	SIGT	DT	DD
2	16.23	33.455	5.77	0.13	0.	0.11	0.0	341.6	0	16.23	33.455	5.77	24.529	341.6	0.000
12	16.13	33.453	5.79	0.08	0.	0.11	0.0	339.6	10	16.15	33.455	5.79	24.547	339.9	0.034
31	16.10	33.451	5.78	0.05	0.	0.11	0.0	339.1	20	16.12	33.454	5.79	24.553	339.3	0.068
40	15.63	33.454	5.84	0.14		0.43	1.0	328.8	30	16.10	33.453	5.78	24.556	339.1	0.102
50	14.71	33.437	5.67	0.28	1.	0.33	3.5	310.9	50	14.71	33.437	5.67	24.852	310.9	0.167
64	13.10	33.332	5.67	0.32	3.		6.8	286.9	75	12.49	33.405	5.23	25.279	270.3	0.240
78	12.37	33.429	5.10	0.63	5.	0.00	10.6	266.2	100	11.31	33.488	4.70	25.563	243.2	0.305
96	11.49	33.460	4.82		14.	0.00		248.2	125	10.48	33.695	3.82	25.871	213.9	0.363
119	10.62	33.642	4.03			0.00		220.0	150	10.04	33.857	3.16	26.073	194.7	0.415
138	10.25	33.794	3.40		17.	0.00		202.6	200	9.48	34.053	2.45	26.321	171.2	0.508
165	9.82	33.916	2.94		21.	0.00		186.7	250	8.69	34.123	2.16	26.500	154.1	0.591
192	9.58	34.031	2.52		22.	0.00		174.4	300	8.14	34.183	1.65	26.631	141.7	0.668
220	9.18	34.090	2.34		29.	0.00	26.9	163.8	400	7.10	34.268	0.71	26.849	121.0	0.805
256	8.60	34.127	2.12		35.		29.8	152.4	500	6.44	34.302	0.41	26.965	110.0	0.927
312	8.04	34.196	1.50		44.	0.00	32.4	139.2							
381	7.28	34.258	0.80		51.		36.8	124.1							
452	6.70	34.285	0.55		60.		39.4	114.5							
530	6.34	34.309	0.34		65.	0.00	40.6	108.1							

RV DAVID STARR JORDAN — CALCOFI CRUISE 7801 — 97050

LATITUDE	LONGITUDE	MO/DAY/YR	MESSENGER TIME	BOTTOM	WIND	SPEED	WEATHER	DOMINANT WAVES
31 36.0N	118 30.5W	1/12/78	1145 GMT	2416M	100	8KT		

Z	T	S	O2	PO4	SIO3	NO2	NO3	DT	Z	T	S	O2	SIGT	DT	DD
1	16.96	33.464	5.61	0.14		0.00	0.0	357.0	0	16.96	33.464	5.61	24.367	357.0	0.000
11	16.96	33.461	5.55	0.19		0.00	0.0	357.2	10	16.96	33.463	5.55	24.365	357.2	0.036
30	16.99	33.460	5.64	0.23		0.00	0.0	358.0	20	16.98	33.463	5.59	24.360	357.7	0.072
39	16.95	33.454	5.60	0.16		0.00	0.0	357.5	30	16.99	33.460	5.64	24.357	358.0	0.107
49	15.41	33.316	5.77	0.17	3.	0.19	0.0	334.2	50	15.31	33.309	5.78	24.622	332.8	0.177
63	14.36	33.250	5.87	0.23	4.	0.32	0.0	317.5	75	13.66	33.295	5.77	24.960	300.6	0.256
77	13.54	33.304	5.74	0.23	2.		1.1	297.4	100	11.82	33.418	5.22	25.416	257.2	0.327
95	12.02	33.393	5.31	0.42	5.	0.00	6.2	262.5	125	11.18	33.565	4.58	25.646	235.3	0.389
119	11.35	33.514	4.80	0.71	9.	0.00	10.6	241.8	150	10.53	33.733	3.82	25.892	211.9	0.445
138	10.83	33.669	4.09	1.32	13.	0.00	15.3	221.5	200	9.22	33.967	2.90	26.296	173.5	0.544
166	10.13	33.800	3.54	1.25	17.	0.00	16.3	200.3	250	8.41	34.086	2.28	26.516	152.6	0.627
194	9.33	33.942	3.00	1.43	23.	0.00	24.1	177.1	300	7.90	34.127	1.89	26.624	142.4	0.703
221	8.88	34.034	2.61	1.73	28.	0.00	26.9	163.4	400	6.80	34.207	0.94	26.843	121.6	0.841
258	8.29	34.094	2.20	2.08	33.		29.8	150.3	500	6.15	34.253	0.61	26.965	110.1	0.963
314	7.79	34.133	1.79	2.35	39.	0.00	32.4	140.3							
383	6.96	34.198	1.04	2.68	52.		36.8	124.3							
453	6.39	34.227	0.75	2.99			39.4	114.9							
529	6.06	34.269	0.54	2.99		0.00	40.6	107.7							

RV DAVID STARR JORDAN — CALCOFI CRUISE 7801 — 97060

LATITUDE	LONGITUDE	MO/DAY/YR	MESSENGER TIME	BOTTOM	WIND	SPEED	WEATHER	DOMINANT WAVES
31 15.5N	119 10.0W	1/12/78	1930 GMT	3546M	280	6KT	1	270 6 10

Z	T	S	O2	PO4	SIO3	NO2	NO3	DT	Z	T	S	O2	SIGT	DT	DD
1	15.77	33.266	5.86					345.5	0	15.77	33.266	5.86	24.488	345.5	0.000
11	15.67	33.308	5.87					340.3	10	15.67	33.305	5.87	24.539	340.7	0.034
29	15.82	33.410	6.08					336.0	20	15.78	33.362	6.01	24.558	338.8	0.068
38	15.52	33.440	5.91					327.5	30	15.79	33.406	6.06	24.591	335.7	0.102
47	13.64	33.340	5.77					296.7	50	13.31	33.327	5.73	25.057	291.3	0.165
61	12.55	33.284	5.60					280.2	75	11.63	33.219	5.48	25.298	268.4	0.235
75	11.63	33.219	5.48					268.4	100	10.35	33.358	4.92	25.633	236.6	0.299
93	10.41	33.261	5.10					244.7	125	10.06	33.567	4.37	25.844	216.5	0.356
116	10.20	33.527	4.53					221.6	150	9.58	33.728	3.75	26.049	197.0	0.409
134	9.90	33.596	4.21					211.7	200	8.48	33.957	3.04	26.404	163.3	0.500
161	9.34	33.818	3.43					186.4	250	7.68	34.007	2.77	26.562	148.3	0.580
188	8.73	33.925	3.03					169.3	300	7.10	34.061	1.95	26.686	136.5	0.654
215	8.19	33.983	3.09					157.1	400	6.26	34.176	0.83	26.890	117.2	0.785
251	7.67	34.006	2.76					148.1	500	5.81	34.291	0.40	27.037	103.2	0.902
306	7.04	34.067	1.84					135.1							
373	6.46	34.148	1.00					121.7							
442	6.01	34.218	0.65					110.9							
516	5.79	34.311	0.34					101.3							

RV DAVID STARR JORDAN — CALCOFI CRUISE 7801 — 97070

LATITUDE	LONGITUDE	MO/DAY/YR	MESSENGER TIME	BOTTOM	WIND	SPEED	WEATHER	DOMINANT WAVES
30 55.0N	119 51.0W	1/13/78	0345 GMT	3546M	110	12KT		

Z	T	S	O2	PO4	SIO3	NO2	NO3	DT
1	16.66	33.195	5.73	0.23	1.	0.00	0.2	370.0
11	16.60	33.209	5.79	0.19	1.	0.00	0.2	367.6
31	16.59	33.207	5.91	0.21	1.	0.00	0.2	367.6
40	16.13	33.313	5.77	0.24	1.	0.00	0.1	349.8
50	15.60	33.256	5.88	0.27	1.	0.00	0.1	342.6
65	13.33	33.102	6.06	0.32	2.	0.14	0.4	308.2
79	11.74	33.108	5.80	0.38	4.	0.00	3.2	278.6
98	10.58	33.200	5.52	0.46	7.	0.00	7.6	252.0
122	9.96	33.466	4.75	0.78	14.	0.00	15.0	222.2
141	9.74	33.744	3.77		20.	0.00	20.5	198.2
169	9.02	33.861	3.43	1.46	26.	0.00	23.9	178.4
197	8.52	33.953	3.19	1.47	31.	0.00	25.7	164.1
224	8.07	33.993	3.20	1.49	34.	0.00	26.9	154.7
261	7.76	34.045	2.43	1.73	41.	0.00	30.3	146.5
316	6.93	34.073	1.78	2.01	54.	0.00	34.4	133.2
385	6.45	34.162	0.99	2.21	65.	0.00	37.5	120.5
455	6.03	34.214	0.67	2.34		0.00	39.5	111.4
535	5.63	34.284	0.39	2.39		0.00	38.6	101.5

Z	T	S	O2	SIGT	DT	DD
0	16.66	33.195	5.73	24.232	370.0	0.000
10	16.60	33.210	5.78	24.254	367.8	0.037
20	16.60	33.210	5.84	24.257	367.6	0.074
30	16.59	33.209	5.90	24.257	367.6	0.111
50	15.60	33.256	5.88	24.519	342.6	0.182
75	12.14	33.107	5.89	25.116	285.8	0.261
100	10.50	33.220	5.47	25.498	249.4	0.328
125	9.92	33.515	4.59	25.827	218.2	0.387
150	9.52	33.803	3.66	26.118	190.5	0.439
200	8.46	33.960	3.19	26.408	162.9	0.529
250	7.84	34.032	2.69	26.558	148.6	0.609
300	7.17	34.066	1.94	26.681	137.0	0.682
400	6.35	34.175	0.90	26.877	118.4	0.815
500	5.79	34.253	0.50	27.010	105.8	0.933

RV DAVID STARR JORDAN — CALCOFI CRUISE 7801 — 97080

LATITUDE	LONGITUDE	MO/DAY/YR	MESSENGER TIME	BOTTOM	WIND	SPEED	WEATHER	DOMINANT WAVES
30 35.0N	120 31.0W	1/13/78	0923 GMT	3738M	140	20KT		

Z	T	S	O2	PO4	SIO3	NO2	NO3	DT
1	16.63	33.132	5.72	0.83	0.		0.0	373.9
11	16.61	33.126	5.66	0.34	0.		0.0	373.9
29	16.62	33.129	5.71	0.35	0.		0.0	373.9
38	16.62	33.135	5.69	0.32	3.		0.0	373.5
47	16.55	33.168	5.71	0.35	0.	0.00	0.1	369.5
61	15.64	33.186	5.89	0.33	0.	0.00	0.1	348.6
74	13.92	33.097	6.04	0.41	0.	0.01	0.0	320.0
93	12.09	33.062	5.90	0.62	1.	0.00	2.9	288.2
116	10.81	33.259	5.26	0.76	7.	0.00	10.0	251.4
134	10.14	33.498	4.59	0.94	11.	0.00	15.8	222.8
161	9.42	33.754	3.72		13.	0.00	22.2	192.4
189	8.88	33.895	3.30	1.25	25.	0.00	25.0	173.7
217	8.31	33.995	2.84	1.31	31.	0.00	28.2	158.0
253	7.84	34.028	2.54	1.40	36.	0.04	30.2	148.8
309	7.08	34.042	2.10	1.86	47.	0.00	33.9	137.5
378	6.44	34.099	1.39	1.93	57.	0.00	37.8	125.1
448	5.74	34.138	0.98	2.08		0.00	40.9	113.7
523	5.52	34.231	0.57	2.19		0.00	42.4	104.2

Z	T	S	O2	SIGT	DT	DD
0	16.63	33.132	5.72	24.190	373.9	0.000
10	16.61	33.129	5.66	24.190	373.9	0.037
20	16.62	33.130	5.68	24.190	373.9	0.075
30	16.62	33.132	5.71	24.191	373.9	0.112
50	16.44	33.182	5.74	24.271	366.2	0.187
75	13.80	33.094	6.03	24.776	318.2	0.273
100	11.62	33.105	5.75	25.209	276.9	0.347
125	10.45	33.380	4.93	25.632	236.7	0.412
150	9.68	33.666	4.04	25.985	203.1	0.468
200	8.65	33.942	3.11	26.366	166.9	0.562
250	7.87	34.029	2.56	26.551	149.3	0.643
300	7.20	34.041	2.17	26.658	139.2	0.717
400	6.20	34.110	1.24	26.846	121.3	0.853
500	5.59	34.207	0.69	26.999	106.8	0.973

RV DAVID STARR JORDAN — CALCOFI CRUISE 7801 — 97090

LATITUDE	LONGITUDE	MO/DAY/YR	MESSENGER TIME	BOTTOM	WIND	SPEED	WEATHER	DOMINANT WAVES
30 16.5N	121 09.0W	1/13/78	1545 GMT	3832M	180	17KT	2	180 5 4

Z	T	S	O2	PO4	SIO3	NO2	NO3	DT
1	17.14	33.229	5.68	0.05	0.	0.00	0.0	378.2
10	17.12	33.228	5.68	0.06	1.	0.00	0.0	377.8
30	17.14	33.223	5.80	0.05	0.	0.00	0.0	378.6
39	17.14	33.231	5.73	0.03	1.	0.00	0.0	378.0
48	17.10	33.241	5.71	0.02	1.	0.00	0.0	376.4
63	16.35	33.300	5.82	0.05	3.	0.00	0.0	355.5
77	14.78	33.171	6.05	0.05	2.	0.00	0.0	331.8
95	13.15	33.145	5.98	0.13	3.	0.33	0.5	301.6
118	10.95	33.101	5.66	0.41	11.	0.00	6.4	265.5
136	10.18	33.243	5.42	0.49	16.	0.00	9.1	242.3
163	9.62	33.545	4.72	0.97	23.	0.00	15.3	211.0
190	9.35	33.824	4.00	1.03	32.	0.00	20.3	186.1
216	8.75	33.934	3.73	1.20	39.	0.00	23.2	168.9
252	8.05	33.985	3.25	1.43	49.	0.00	27.0	155.0
305	7.29	34.026	2.44	1.70	64.	0.00	32.0	141.5
372	6.53	34.074	1.55	2.02	83.	0.00	37.0	128.1
442	6.05	34.162	0.84	2.29	97.	0.00	40.2	115.6
517	5.56	34.218	0.54	2.47		0.00	42.2	105.6

Z	T	S	O2	SIGT	DT	DD
0	17.14	33.229	5.68	24.145	378.2	0.000
10	17.12	33.228	5.68	24.149	377.8	0.038
20	17.13	33.226	5.75	24.145	378.3	0.076
30	17.14	33.223	5.80	24.141	378.6	0.114
50	17.05	33.256	5.72	24.185	374.4	0.189
75	15.02	33.193	6.02	24.596	335.3	0.278
100	12.62	33.125	5.92	25.036	293.3	0.357
125	10.58	33.148	5.58	25.428	256.1	0.427
150	9.83	33.397	5.08	25.750	225.4	0.488
200	9.13	33.880	3.88	26.241	178.8	0.590
250	8.08	33.985	3.28	26.486	155.6	0.676
300	7.35	34.024	2.52	26.623	142.5	0.753
400	6.32	34.110	1.23	26.831	122.8	0.891
500	5.67	34.209	0.57	26.991	107.6	1.012

RV ALEJANDRO DE HUMBOLDT CALCOFI CRUISE 7801 100030

LATITUDE	LONGITUDE	MO/DAY/YR	MESSENGER TIME	BOTTOM	WIND	SPEED	WEATHER	DOMINANT WAVES
31 40.5N	116 46.5W	1/ 8/78	0152 0220 GMT	480M	340	10KT	0	280 4 8

Z	T	S	O2	PO4	SIO3	NO2	NO3	DT	Z	T	S	O2	SIGT	DT	DD
0A	16.91	33.462	5.71		0.		0.1	356.1	0	16.91	33.462	5.71	24.378	356.1	0.000
9A	16.90	33.465	5.73		0.		0.0	355.6	10	16.89	33.466	5.73	24.383	355.5	0.036
29	16.34	33.456	5.69		3.		0.1	343.9	20	16.69	33.458	5.71	24.424	351.7	0.071
43	15.43	33.507	5.27		4.		2.5	320.7	30	16.28	33.460	5.67	24.520	342.5	0.106
53	14.79	33.569	4.82		6.		5.3	302.9	50	14.99	33.554	4.94	24.880	308.2	0.171
67	13.63	33.561	4.74		8.		6.9	280.3	75	13.28	33.575	4.63	25.253	272.7	0.244
81	13.08	33.589	4.51		10.		8.9	267.7	100	12.20	33.665	3.99	25.534	246.0	0.309
95	12.45	33.644	4.12		12.		12.1	251.9	125	11.09	33.775	3.44	25.827	218.1	0.368
119	11.32	33.744	3.54		18.		17.4	224.3	150	10.35	33.893	3.02	26.048	197.1	0.421
137	10.68	33.833	3.25		22.		20.2	206.9	200	9.55	34.067	2.37	26.319	171.3	0.515
165	10.06	33.952	2.78		27.		23.6	187.9	250	8.80	34.166	1.83	26.518	152.5	0.598
194	9.66	34.050	2.45		31.		26.1	174.2	300	8.35	34.220	1.43	26.630	141.8	0.674
228	9.05	34.128	2.03		40.		28.5	159.0	400	7.39	34.267	0.80	26.809	124.9	0.813
283	8.51	34.205	1.57		43.		30.8	145.3							
339	7.97	34.241	1.14		54.		33.5	134.8							
398	7.41	34.264	0.81		59.		35.1	125.4							

RV ALEJANDRO DE HUMBOLDT CALCOFI CRUISE 7801 100035

LATITUDE	LONGITUDE	MO/DAY/YR	MESSENGER TIME	BOTTOM	WIND	SPEED	WEATHER	DOMINANT WAVES
31 30.5N	117 07.0W	1/ 8/78	0651 GMT	2222M	290	8KT	0	

Z	T	S	O2	PO4	SIO3	NO2	NO3	DT	Z	T	S	O2	SIGT	DT	DD
0	16.83	33.444	5.73		0.		0.0	355.6	0	16.83	33.444	5.73	24.383	355.6	0.000
10	16.80	33.443	5.73		0.		0.0	355.0	10	16.80	33.443	5.73	24.389	355.0	0.036
32	16.16	33.421	5.81		0.		0.6	342.5	20	16.61	33.434	5.78	24.424	351.6	0.071
42	15.58	33.428	5.75		0.		0.7	329.6	30	16.25	33.424	5.81	24.499	344.4	0.106
58	14.02	33.422	5.40		1.		3.5	298.1	50	14.81	33.421	5.60	24.817	314.2	0.172
73	13.16	33.498	5.01		3.		6.4	275.9	75	13.05	33.504	4.97	25.244	273.5	0.246
99	11.89	33.557	4.42		7.		12.8	248.1	100	11.85	33.564	4.39	25.524	247.0	0.311
119	11.15	33.681	3.86		12.		16.9	226.0	125	11.03	33.719	3.70	25.793	221.3	0.371
140	10.80	33.812	3.31		16.		19.9	210.4	150	10.57	33.885	3.07	26.003	201.3	0.424
160	10.35	33.952	2.85		22.		22.8	192.6	200	9.77	34.088	2.36	26.298	173.3	0.520
190	9.94	34.075	2.39		27.		25.4	176.8	250	9.19	34.119	2.21	26.418	162.0	0.606
225	9.39	34.095	2.29		30.		27.4	166.7	300	8.67	34.188	1.76	26.555	149.0	0.686
255	9.16	34.123	2.19		32.		28.3	161.1	400	7.46	34.264	0.88	26.796	126.1	0.830
305	8.61	34.194	1.70		41.		30.7	147.5	500	6.61	34.317	0.43	26.955	111.0	0.955
359	7.93	34.236	1.18		51.		33.5	134.6	600	5.93	34.349	0.30	27.068	100.3	1.068
443	7.03	34.288	0.64		63.		37.1	118.5							
527	6.44	34.327	0.37		75.		39.6	108.0							
612	5.85	34.350	0.29		86.		40.8	99.1							

RV ALEJANDRO DE HUMBOLDT CALCOFI CRUISE 7801 100040

LATITUDE	LONGITUDE	MO/DAY/YR	MESSENGER TIME	BOTTOM	WIND	SPEED	WEATHER	DOMINANT WAVES
31 21.0N	117 26.9W	1/ 8/78	1058 GMT	2037M	320	10KT	0	

Z	T	S	O2	PO4	SIO3	NO2	NO3	DT	Z	T	S	O2	SIGT	DT	DD
0	16.80	33.438	5.70		3.		0.5	355.4	0	16.80	33.438	5.70	24.385	355.4	0.000
10	16.79	33.433	5.75		3.		0.5	355.5	10	16.79	33.433	5.75	24.383	355.5	0.036
29	16.69	33.438	5.72		4.		0.5	352.9	20	16.74	33.438	5.73	24.398	354.1	0.071
38	16.49	33.442	5.76		4.		0.4	348.2	30	16.67	33.436	5.72	24.412	352.7	0.107
52	14.64	33.321	5.92	0.33	4.		1.0	317.9	50	14.94	33.341	5.90	24.726	322.9	0.174
66	13.35	33.277	5.77	0.84	6.		3.0	295.7	75	12.68	33.311	5.55	25.168	280.8	0.250
90	11.94	33.437	4.94	1.31	11.		9.7	257.9	100	11.83	33.576	4.30	25.535	245.9	0.317
109	11.80	33.693	3.75	1.93	17.		15.2	236.5	125	11.44	33.805	3.24	25.787	221.9	0.376
128	11.35	33.813	3.21	2.44	21.			219.8	150	10.69	33.792	3.51	25.909	210.3	0.430
147	10.76	33.777	3.56	2.56	22.		18.4	212.3	200	9.95	34.033	2.53	26.227	180.1	0.530
176	10.25	33.947	2.81	2.62	27.		22.0	191.3	250	9.09	34.133	2.13	26.446	159.3	0.617
209	9.83	34.055	2.47	3.39U	30.		24.7	176.6	300	8.48	34.193	1.64	26.589	145.7	0.696
238	9.29	34.113	2.24	2.91	34.		26.7	163.8	400	7.41	34.242	0.87	26.785	127.1	0.838
286	8.59	34.178	1.77	2.92	40.		29.2	148.4	500	6.53	34.285	0.48	26.941	112.3	0.965
338	8.20	34.220	1.31	2.94	43.		31.6	139.7	600	5.91	34.332		27.058	101.2	1.079
421	7.14	34.247	0.75	3.10	58.		35.4	123.0							
503	6.51	34.286	0.47	3.22	66.		37.5	112.0							
586	5.97	34.328	0.29	3.48	76.		39.3	102.2							

A) THESE TWO NANSEN BOTTLES DID NOT CLOSE PROPERLY ON THE FIRST CAST AND WERE RELOWERED.

RV ALEJANDRO DE HUMBOLDT CALCOFI CRUISE 7801 100050

LATITUDE	LONGITUDE	MO/DAY/YR	MESSENGER TIME	BOTTOM	WIND	SPEED	WEATHER	DOMINANT WAVES
31 00.5N	118 07.0W	1/ 8/78	1836 GMT	1763M	330	10KT	1	360 4 6

Z	T	S	O2	PO4	SIO3	NO2	NO3	DT	Z	T	S	O2	SIGT	DT	DD
0	17.29	33.463	5.61		0.		0.0	364.5	0	17.29	33.463	5.61	24.289	364.5	0.000
10	17.27	33.466	5.70		0.		0.0	363.9	10	17.27	33.466	5.70	24.296	363.9	0.036
31	17.26	33.463	5.63		0.		0.0	363.8	20	17.27	33.467	5.68	24.296	363.8	0.073
41	17.09	33.428	5.66		0.		0.0	362.6	30	17.26	33.465	5.64	24.296	363.8	0.109
56	15.25	33.365	5.86		1.		0.0	327.3	50	16.06	33.393	5.78	24.520	342.5	0.180
71	14.15	33.237	5.93		1.		0.5	314.3	75	13.58	33.197	5.91	24.901	306.2	0.262
97	10.86	33.185	5.44		9.		9.5	257.8	100	10.86	33.253	5.30	25.461	252.9	0.332
118	10.87	33.586	4.40		12.		15.0	228.3	125	10.65	33.657	4.12	25.812	219.5	0.392
138	10.19	33.744	3.71		22.		20.2	205.4	150	9.94	33.817	3.52	26.059	196.0	0.444
159	9.79	33.862	3.41		22.		22.6	190.2	200	9.12	34.030	2.72	26.361	167.3	0.537
190	9.24	34.004	2.82		27.		26.7	171.1	250	8.41	34.098	2.30	26.525	151.8	0.619
226	8.80	34.070	2.52		34.		28.8	159.6	300	7.74	34.140	1.80	26.659	139.1	0.694
256	8.31	34.102	2.24		38.		30.0	150.0	400	7.24	34.273	0.81	26.833	122.6	0.831
308	7.66	34.147	1.71		42.		33.1	137.5	500	6.44	34.324	0.44	26.984	108.3	0.953
364	7.52	34.240	1.06		53.		34.9	128.7	600	5.66	34.355	0.34	27.107	96.6	1.063
450	6.79	34.299	0.59		67.		38.0	114.6							
535	6.19	34.336	0.38		74.		39.7	104.3							
620	5.49	34.359	0.33		85.		41.9	94.2							

RV ALEJANDRO DE HUMBOLDT CALCOFI CRUISE 7801 100060

LATITUDE	LONGITUDE	MO/DAY/YR	MESSENGER TIME	BOTTOM	WIND	SPEED	WEATHER	DOMINANT WAVES
30 40.4N	118 47.5W	1/ 9/78	0046 GMT	2981M	170	4KT	1	360 2 7

Z	T	S	O2	PO4	SIO3	NO2	NO3	DT	Z	T	S	O2	SIGT	DT	DD
0	17.08	33.307	5.68		2.			371.2	0	17.08	33.307	5.68	24.219	371.2	0.000
11	16.80	33.306	5.69		2.			365.0	10	16.83	33.309	5.69	24.278	365.5	0.037
32	16.06	33.240	5.79		2.			353.6	20	16.51	33.283	5.73	24.331	360.5	0.073
42	15.63	33.223	5.83		2.	0.02		345.7	30	16.14	33.249	5.78	24.391	354.8	0.109
53	14.42	33.208	5.96		2.	0.14		321.8	50	14.79	33.215	5.93	24.663	328.9	0.178
68	12.78	33.119	5.95		3.	0.07	2.1	296.6	75	12.35	33.096	5.91	25.065	290.6	0.255
84	11.97	33.092	5.85		5.		4.2	283.8	100	11.41	33.257	5.35	25.365	262.0	0.325
105	11.24	33.316	5.16		9.		10.3	254.5	125	10.17	33.422	4.63	25.713	229.0	0.387
130	9.92	33.451	4.50		17.		17.6	222.7	150	9.52	33.728	3.82	26.059	196.0	0.441
151	9.51	33.740	3.79		24.		22.1	194.9	200	8.70	33.933	3.32	26.351	168.3	0.534
181	9.17	33.864	3.40		26.		24.5	180.4	250	7.71	34.005	3.08	26.556	148.8	0.615
211	8.41	33.964	3.30		32.		26.7	161.7	300	7.24	34.085	2.01	26.686	136.5	0.688
241	7.87	33.998	3.23		38.		28.1	151.5	400	6.68	34.223	0.77	26.872	118.9	0.821
282	7.26	34.035	2.40		47.		32.6	140.4	500	5.90	34.265	0.49	27.006	106.2	0.940
342	7.18	34.180	1.22		56.		35.9	128.5							
418	6.49	34.226	0.71		68.		38.8	116.2							
495	5.93	34.260	0.50		80.		41.3	106.8							
577	5.58	34.335	0.31		78.		42.0	97.1							

RV ALEJANDRO DE HUMBOLDT CALCOFI CRUISE 7801 100070

LATITUDE	LONGITUDE	MO/DAY/YR	MESSENGER TIME	BOTTOM	WIND	SPEED	WEATHER	DOMINANT WAVES
30 20.5N	119 27.5W	1/ 9/78	0733 GMT	3900M	250	9KT		

Z	T	S	O2	PO4	SIO3	NO2	NO3	DT	Z	T	S	O2	SIGT	DT	DD
0	17.01	33.197	5.68		5.			377.6	0	17.01	33.197	5.68	24.152	377.6	0.000
10	17.01	33.198	5.71		5.			377.5	10	17.01	33.198	5.71	24.152	377.5	0.038
31	16.84	33.263	5.69		5.			369.0	20	16.95	33.222	5.70	24.183	374.6	0.075
41	16.72	33.313	5.71		4.			362.7	30	16.85	33.260	5.69	24.235	369.6	0.113
51	16.02	33.280	5.88		5.			349.8	50	16.11	33.288	5.86	24.427	351.4	0.185
66	14.33	33.177	6.08		5.			322.2	75	13.97	33.178	6.04	24.807	315.1	0.269
81	13.79	33.179	6.01		5.			311.4	100	12.32	33.121	5.87	25.091	288.2	0.345
102	12.15	33.114	5.85		6.		1.7	285.4	125	10.70	33.154	5.58	25.413	257.5	0.414
127	10.61	33.165	5.55	0.33	10.		6.2	255.1	150	10.31	33.487	5.01	25.740	226.4	0.475
147	10.37	33.455	5.14	0.44	12.		10.4	229.7	200	9.12	33.839	3.70	26.210	181.7	0.579
178	9.63	33.702	3.90	1.60	22.		21.3	199.5	250	8.19	33.987	3.17	26.471	156.9	0.665
209	8.93	33.882	3.68	2.15	28.		23.9	175.5	300	7.38	34.022	2.65	26.617	143.1	0.742
239	8.38	33.970	3.27	2.42	34.		26.2	160.8	400	6.19	34.096	1.34	26.836	122.3	0.880
280	7.70	34.009	2.92	2.69	41.		29.7	148.3	500	5.62	34.249	0.49	27.028	104.1	0.999
341	6.78	34.043	2.05	3.24	60.		31.9	133.6							
417	6.07	34.115	1.16	3.62	71.		39.3	119.3							
492	5.66	34.239	0.51	3.61	83.		41.7	105.2							
572	5.36	34.300	0.32	3.61	88.		42.6	97.2							

RV ALEJANDRO DE HUMBOLDT CALCOFI CRUISE 7801 100080

LATITUDE	LONGITUDE	MO/DAY/YR	MESSENGER TIME	BOTTOM	WIND	SPEED	WEATHER	DOMINANT WAVES
30 01.0N	120 07.0W	1/ 9/78	1340 GMT	3738M	220	13KT	5	250 3 6

Z	T	S	O2	PO4	SIO3	NO2	NO3	DT	Z	T	S	O2	SIGT	DT	DD
0	17.46	33.337	5.61		2.	0.00		377.6	0	17.46	33.337	5.61	24.152	377.6	0.000
9	17.42	33.324	5.64		2.	0.00		377.6	10	17.42	33.326	5.64	24.152	377.5	0.038
27	17.39	33.331	5.62		2.	0.00		376.4	20	17.40	33.330	5.63	24.159	376.9	0.076
36	16.80	33.273	5.70		2.	0.02		367.4	30	17.18	33.308	5.65	24.194	373.5	0.113
46	16.84	33.368	5.69		2.	0.00		361.3	50	16.57	33.354	5.76	24.374	356.4	0.186
59	15.82	33.292	5.93		2.	0.00		344.7	75	15.13	33.277	6.04	24.638	331.2	0.273
73	15.23	33.278	6.04		2.			333.2	100	13.50	33.256	5.89	24.963	300.3	0.352
91	14.20	33.274	5.96		2.			312.5	125	11.45	33.145	5.70	25.272	270.9	0.424
113	12.41	33.209	5.78		5.		2.0	283.1	150	10.19	33.266	5.26	25.588	240.8	0.489
131	11.02	33.125	5.64		7.		5.9	264.9	200	9.16	33.882	3.91	26.238	179.1	0.596
157	9.99	33.353	5.07		12.		12.3	231.1	250	8.34	33.982	3.49	26.445	159.4	0.682
184	9.43	33.774	4.22		20.	0.01	19.1	191.1	300	7.68	34.012	2.90	26.566	147.9	0.762
210	9.00	33.914	3.77		25.	0.01	23.0	174.1	400	6.62	34.143	1.16	26.817	124.1	0.903
245	8.41	33.977	3.53		31.	0.01	25.5	160.7	500	6.03	34.235	0.57	26.967	109.9	1.026
298	7.71	34.008	2.94		39.	0.01	29.1	148.5							
366	6.85	34.103	1.52		56.	0.00	36.1	130.0							
438	6.42	34.180	0.90		66.	0.00	38.3	118.8							
519	5.90	34.249	0.50		77.	0.00	40.6	107.3							

RV ALEJANDRO DE HUMBOLDT CALCOFI CRUISE 7801 100090

LATITUDE	LONGITUDE	MO/DAY/YR	MESSENGER TIME	BOTTOM	WIND	SPEED	WEATHER	DOMINANT WAVES
29 40.5N	120 47.0W	1/ 9/78	1928 2012 GMT	4200M	220	15KT	5	230 5 5

Z	T	S	O2	PO4	SIO3	NO2	NO3	DT	Z	T	S	O2	SIGT	DT	DD
1	17.98	33.596	5.51		2.	0.01		370.7	0	17.98	33.596	5.51	24.224	370.7	0.000
10	17.98	33.597	5.53		2.	0.02		370.6	10	17.98	33.597	5.53	24.225	370.6	0.037
28	17.97	33.597	5.54		2.	0.02		370.4	20	17.97	33.599	5.54	24.227	370.4	0.074
37	17.97	33.595	5.54		2.	0.02		370.5	30	17.97	33.598	5.54	24.227	370.4	0.111
51	17.98	33.595	5.53		2.	0.02		370.7	50	17.98	33.597	5.53	24.223	370.7	0.186
64	17.69	33.607	5.61		2.	0.01		363.2	75	16.44	33.488	5.81	24.505	344.0	0.275
86	15.20	33.409	5.97		2.	0.01		323.0	100	15.02	33.553	5.85	24.872	308.9	0.358
103A	15.01	33.587	5.80		2.			306.1	125	13.46	33.631	5.45	25.260	272.1	0.431
121A	13.78	33.618	5.52		4.		1.8	279.0	150	11.60	33.616	5.07	25.610	238.8	0.496
138A	12.44	33.655	5.22		7.		5.6	250.9	200	9.37	33.902	3.13	26.219	180.8	0.603
163A	10.80	33.585	4.83		12.		12.8	227.2	250	8.90	34.105	2.12	26.453	158.6	0.690
193A	9.43	33.839	3.39		26.	0.02	23.3	186.3	300	8.38	34.169	1.67	26.585	146.1	0.768
219A	9.22	34.011	2.56		31.	0.02	26.8	170.3	400	7.37	34.199	1.13	26.758	129.7	0.912
261A	8.78	34.119	2.04		37.	0.03	29.3	155.6	500	6.24	34.210	0.74	26.920	114.4	1.041
308A	8.30	34.174	1.61		44.	0.02	31.7	144.5							
383A	7.58	34.200	1.20		53.	0.03	34.5	132.4							
461A	6.61	34.195	0.89		65.	0.03	37.6	120.0							
543A	5.92	34.236	0.58		77.	0.03	40.0	108.5							

RV ALEJANDRO DE HUMBOLDT CALCOFI CRUISE 7801 103030

LATITUDE	LONGITUDE	MO/DAY/YR	MESSENGER TIME	BOTTOM	WIND	SPEED	WEATHER	DOMINANT WAVES
31 06.0N	116 24.5W	1/11/78	1458 GMT	60M	120	7KT	6	260 5 5

Z	T	S		O2	PO4	SIO3	NO2	NO3	DT	Z	T	S	O2	SIGT	DT	DD
1	16.83	33.465	B	5.63		1.		0.4	354.1	0	16.83	33.465	5.63	24.399	354.1	0.000
12	16.84	33.473	B	5.63		1.		0.3	353.7	10	16.84	33.473	5.63	24.402	353.7	0.035
24	16.71	33.505	B	5.55		1.		0.6	348.5	20	16.76	33.496	5.58	24.437	350.4	0.071
34	16.62	33.518	B	5.49		2.		1.2	345.5	30	16.66	33.515	5.51	24.476	346.7	0.106
41	15.25	33.560	B	4.60		8.		4.5	313.0							

RV ALEJANDRO DE HUMBOLDT CALCOFI CRUISE 7801 103035

LATITUDE	LONGITUDE	MO/DAY/YR	MESSENGER TIME	BOTTOM	WIND	SPEED	WEATHER	DOMINANT WAVES
30 56.0N	116 45.0W	1/11/78	1147 GMT	1720M	230	5KT	0	

Z	T	S	O2	PO4	SIO3	NO2	NO3	DT	Z	T	S	O2	SIGT	DT	DD
1	17.05	33.490	5.62		1.		0.1	357.1	0	17.05	33.490	5.62	24.366	357.1	0.000
11	17.07	33.491	5.64		1.		0.1	357.5	10	17.07	33.493	5.64	24.362	357.5	0.036
31	17.05	33.492	5.61		1.		0.1	357.0	20	17.06	33.493	5.63	24.365	357.3	0.072
42	16.84	33.494	5.58		1.		0.1	352.2	30	17.05	33.494	5.61	24.367	357.0	0.107
57	14.83	33.439	5.41		3.		2.2	313.2	50	15.87	33.464	5.50	24.615	333.4	0.177
71	13.20	33.443	5.20		6.		4.9	280.7	75	12.97	33.443	5.18	25.212	276.6	0.253
96	12.27	33.456	4.97		8.		8.2	262.4	100	12.09	33.476	4.87	25.409	257.9	0.321
116	11.36	33.587	4.35		12.		13.4	236.6	125	10.95	33.688	3.96	25.784	222.2	0.381
135	10.53	33.793	3.55		19.		19.2	207.3	150	10.08	33.872	3.27	26.077	194.3	0.434
155	9.97	33.889	3.20		23.		22.3	191.1	200	9.42	34.119	2.33	26.381	165.5	0.526
183	9.59	34.057	2.59		30.		25.0	172.6	250	9.02	34.209	1.79	26.515	152.7	0.608
217	9.28	34.157	2.12		35.		27.5	160.4	300	8.51	34.254	1.32	26.632	141.6	0.684
246	9.06	34.203	1.83		39.		29.6	153.6	400	7.31	34.275	0.73	26.826	123.2	0.822
294	8.58	34.249	1.38		44.		30.4	143.0	500	6.53	34.298	0.46	26.952	111.3	0.946
346	7.93	34.279	0.91		53.		33.4	131.4	600	5.93	34.342	0.29	27.063	100.8	1.060
429	7.02	34.270	0.68		63.		36.4	119.7							
515	6.44	34.305	0.42		73.		38.4	109.7							
602	5.92	34.342	0.29		81.		39.5	100.6							

A) CAST II.
B) THE SALINITY BOTTLE ORDER DIFFFRS ON THE ORIGINAL DATA AND SALINITY DETERMINATION SHEETS.
THEY ARE ASSUMED TO NOW BE IN THE CORRECT ORDER.

RV ALEJANDRO DE HUMBOLDT CALCOFI CRUISE 7801 103040

LATITUDE	LONGITUDE	MO/DAY/YR	MESSENGER TIME	BOTTOM	WIND	SPEED	WEATHER	DOMINANT WAVES
30 46.0N	117 04.5W	1/11/78	0725 GMT	1856M	260	15KT	5	

Z	T	S	O2	PO4	SIO3	NO2	NO3	DT	Z	T	S	O2	SIGT	DT	DD
0	17.16	33.439	5.66		1.			363.3	0	17.16	33.439	5.66	24.301	363.3	0.000
9	17.15	33.438	5.77		1.			363.2	10	17.15	33.443	5.77	24.306	362.9	0.036
28	17.07	33.488	5.63		1.		0.0	357.7	20	17.10	33.469	5.70	24.336	360.0	0.073
38	15.94	33.405	5.66		2.	0.31	0.3	339.0	30	16.89	33.476	5.64	24.392	354.6	0.108
52	13.83	33.294	5.79		3.		1.2	303.8	50	14.11	33.302	5.77	24.873	308.8	0.175
67	13.03	33.459	5.15		6.		5.4	276.3	75	12.56	33.509	4.88	25.344	264.0	0.247
91	11.68	33.582	4.39		12.		12.5	242.6	100	11.30	33.650	4.07	25.691	231.0	0.309
110	10.90	33.706	3.81		17.		16.8	219.9	125	10.26	33.697	3.92	25.912	210.1	0.365
129	10.10	33.694	3.96		19.		18.1	207.6	150	9.50	33.842	3.54	26.152	187.3	0.415
148	9.55	33.833	3.56		24.		21.5	188.6	200	9.26	34.080	2.50	26.377	165.8	0.505
177	9.10	33.932	3.19		28.		24.5	174.3	250	8.86	34.210	1.73	26.542	150.1	0.587
211	9.34	34.144	2.18		33.		27.5	162.3	300	8.29	34.259	1.23	26.669	138.1	0.661
240	8.99	34.194	1.85		37.		28.7	153.2	400	7.23	34.281	0.70	26.841	121.8	0.797
289	8.39	34.254	1.30		44.		31.4	139.9	500	6.47	34.312	0.41	26.970	109.6	0.919
343	7.91	34.263	1.03		50.		33.4	132.3	600	5.81	34.354	0.25	27.088	98.3	1.031
426	6.94	34.290	0.57		62.		36.6	117.2							
510	6.42	34.314	0.40		70.		38.3	108.8							
594	5.84	34.350	0.26		81.		40.0	99.0							

RV ALEJANDRO DE HUMBOLDT CALCOFI CRUISE 7801 103050

LATITUDE	LONGITUDE	MO/DAY/YR	MESSENGER TIME	BOTTOM	WIND	SPEED	WEATHER	DOMINANT WAVES
30 26.0N	117 44.5W	1/11/78	0019 GMT	2434M	210	29KT	1	210 5 5

Z	T	S	O2	PO4	SIO3	NO2	NO3	DT	Z	T	S	O2	SIGT	DT	DD
1	16.87	33.310	5.68	0.64	1.			366.2	0	16.87	33.310	5.68	24.271	366.2	0.000
12	16.85	33.308	5.68	0.63	1.			365.9	10	16.86	33.311	5.68	24.273	366.0	0.037
32	16.75	33.325	5.70	0.69	1.			362.5	20	16.81	33.317	5.69	24.288	364.6	0.073
42	15.28	33.325	5.87	0.68	2.			330.8	30	16.76	33.325	5.70	24.306	362.8	0.110
57	15.03	33.346	5.85		2.			324.1	50	15.15	33.338	5.86	24.680	327.2	0.179
72	13.55	33.171	5.99					307.4	75	13.25	33.173	5.95	24.951	301.5	0.258
97	11.58	33.231	5.49	0.73	7.		5.2	266.7	100	11.50	33.246	5.45	25.341	264.4	0.329
117	11.25	33.366	5.14	0.89	9.		7.6	251.0	125	11.02	33.485	4.82	25.613	238.5	0.393
136	10.67	33.644	4.34	1.18	15.		12.7	220.7	150	10.24	33.752	3.84	25.958	205.7	0.449
156	10.07	33.780	3.66	1.56	20.		17.8	200.8	200	9.40	33.955	2.95	26.257	177.2	0.546
186	9.67	33.889	3.20	1.78	25.		21.3	186.3	250	8.75	34.119	2.38	26.489	155.2	0.632
220	9.03	34.042	2.64	2.02	33.		25.7	165.1	300	7.97	34.152	1.77	26.633	141.5	0.708
249	8.76	34.117	2.39	2.10	37.		26.6	155.5	400	6.98	34.197	1.02	26.811	124.7	0.847
299	7.98	34.150	1.78	2.46	46.		31.6	141.7	500	6.43	34.303	0.43	26.968	109.8	0.971
354	7.38	34.171	1.34	2.71	57.		34.8	131.9	600	5.87	34.358	0.24	27.084	98.8	1.083
443	6.68	34.229	0.75	2.97	66.		38.2	118.4							
530	6.31	34.337	0.30					105.7							
617	5.75	34.360	0.23	3.26	84.		42.7	97.2							

RV ALEJANDRO DE HUMBOLDT CALCOFI CRUISE 7801 103060

LATITUDE	LONGITUDE	MO/DAY/YR	MESSENGER TIME	BOTTOM	WIND	SPEED	WEATHER	DOMINANT WAVES
30 05.9N	118 24.9W	1/10/78	1651 GMT	2900M	250	17KT	1	250 5 5

Z	T	S	O2	PO4	SIO3	NO2	NO3	DT	Z	T	S	O2	SIGT	DT	DD
1	16.98	33.298	5.64	0.00	1.			369.6	0	16.98	33.298	5.64	24.236	369.6	0.000
11	16.97	33.297	5.70	0.02	1.			369.4	10	16.97	33.299	5.70	24.237	369.4	0.037
31	16.92	33.307	5.66	0.05	1.			367.6	20	16.95	33.304	5.69	24.246	368.6	0.074
40	16.75	33.341	5.68	0.00	1.			361.3	30	16.92	33.309	5.66	24.256	367.7	0.111
55	16.28	33.328	5.74	0.00	1.			351.9	50	16.48	33.344	5.71	24.385	355.4	0.183
70	15.21	33.244	5.95	0.04				335.3	75	14.71	33.222	5.93	24.684	326.9	0.269
94	12.85	33.195	5.87	0.07		0.53	1.5	292.3	100	12.39	33.215	5.74	25.151	282.4	0.346
113	11.61	33.285	5.42	0.30	5.		4.6	263.2	125	11.30	33.397	5.21	25.495	249.7	0.413
133	11.15	33.473	5.06	0.38	8.		9.9	241.4	150	10.56	33.610	4.60	25.791	221.5	0.473
152	10.49	33.624	4.53	0.58	13.		14.8	219.2	200	9.26	33.945	3.31	26.272	175.9	0.574
181	9.77	33.895	3.28	1.13	22.		22.8	187.5	250	8.44	34.039	2.74	26.473	156.7	0.659
214	8.92	33.953	3.33	1.29	24.		25.1	170.0	300	8.17	34.195	1.63	26.637	141.2	0.736
243	8.49	34.011	2.92	1.57	32.		27.4	159.4	400	7.13	34.233	0.97	26.818	124.0	0.874
291	8.25	34.183	1.74	1.98	42.		31.1	143.1	500	6.38	34.309	0.47	26.979	108.7	0.997
344	7.74	34.215	1.32	2.27	50.		33.4	133.5	600	5.82	34.355	0.32	27.088	98.4	1.108
427	6.86	34.243	0.82	2.56	62.		36.8	119.7							
512	6.32	34.319	0.43	2.86	73.		38.9	107.1							
599	5.83	34.354	0.32	3.03	80.		38.0	98.6							

RV ALEJANDRO DE HUMBOLDT CALCOFI CRUISE 7801 103070

LATITUDE	LONGITUDE	MO/DAY/YR	MESSENGER TIME	BOTTOM	WIND	SPEED	WEATHER	DOMINANT WAVES
29 46.2N	119 04.8W	1/10/78	1106 GMT	3508M	240	20KT	1	

Z	T	S	O2	PO4	SIO3	NO2	NO3	DT	Z	T	S	O2	SIGT	DT	DD
1	17.22	33.396	5.64	0.57	2.			367.8	0	17.22	33.396	5.64	24.254	367.8	0.000
11	17.22	33.395	5.63	0.59	2.			367.9	10	17.22	33.397	5.63	24.253	367.9	0.037
31	16.72	33.326	5.70	0.61	2.			361.7	20	17.05	33.372	5.66	24.273	366.0	0.074
41	16.37	33.290	5.67	0.63	2.			356.7	30	16.76	33.333	5.70	24.313	362.2	0.110
55	16.20	33.285	5.76	0.63	2.			353.3	50	16.29	33.288	5.71	24.386	355.3	0.182
70	14.99	33.241	5.98	0.72	2.			331.0	75	14.68	33.227	5.98	24.696	325.8	0.267
95	13.35	33.151	5.97	0.70	3.	0.27	0.4	305.0	100	12.84	33.125	5.94	24.993	297.4	0.346
114	11.53	33.091	5.78	0.88	6.		0.0	276.1	125	11.05	33.158	5.56	25.354	263.1	0.417
134	10.82	33.235	5.35	1.18	9.		9.3	253.4	150	10.46	33.390	4.99	25.639	236.0	0.480
154	10.38	33.429	4.90	1.39	13.		13.3	231.8	200	9.47	33.821	3.71	26.139	188.4	0.588
183	9.80	33.723	4.07	1.60	19.		18.9	200.7	250	8.58	33.994	3.01	26.418	162.0	0.677
218	9.14	33.888	3.41	2.06	27.		23.7	178.2	300	7.76	34.076	2.20	26.604	144.2	0.756
247	8.63	33.986	3.06	2.33	33.		26.2	163.3	400	6.68	34.168	1.09	26.828	123.0	0.895
297	7.80	34.071	2.25	2.70	45.		30.6	145.1	500	6.07	34.256	0.54	26.977	108.9	1.018
351	7.19	34.131	1.53	3.09	58.		34.1	132.3	600	5.56	34.365	0.42	27.128	94.6	1.126
435	6.38	34.191	0.87	3.41	73.		37.5	117.4							
519	6.00	34.275	0.48	3.50	80.		38.9	106.5							
603	5.54	34.368	0.42	3.61	89.		40.8	94.2							

RV ALEJANDRO DE HUMBOLDT CALCOFI CRUISE 7801 103080

LATITUDE	LONGITUDE	MO/DAY/YR	MESSENGER TIME	BOTTOM	WIND	SPEED	WEATHER	DOMINANT WAVES
29 26.5N	119 42.9W	1/10/78	0409 GMT	3661M	230	17KT	1	

Z	T	S	O2	PO4	SIO3	NO2	NO3	DT	Z	T	S	O2	SIGT	DT	DD
0	17.57	33.469	5.59		2.			370.5	0	17.57	33.469	5.59	24.226	370.5	0.000
10	17.56	33.467	5.60		2.			370.4	10	17.56	33.467	5.60	24.227	370.4	0.037
29	17.60	33.483	5.59	0.04	2.			370.1	20	17.58	33.477	5.59	24.229	370.2	0.074
38	17.68	33.530	5.57	0.20	2.			368.5	30	17.61	33.490	5.59	24.232	369.9	0.111
52	17.68	33.537	5.59	0.21	2.			368.0	50	17.68	33.538	5.59	24.251	368.1	0.185
67	16.37	33.439	5.93	0.23	3.			345.8	75	15.91	33.453	5.92	24.598	335.0	0.274
91	15.06	33.482	5.89	0.31	2.			314.8	100	14.46	33.457	5.84	24.919	304.5	0.354
110	13.59	33.390	5.76	0.40	3.		1.1	292.1	125	11.50	33.213	5.61	25.316	266.7	0.426
129	10.98	33.182	5.55	0.64	8.		6.7	260.0	150	10.26	33.361	5.01	25.649	235.0	0.490
148	10.30	33.334	5.05	1.01	12.	0.23	12.2	237.5	200	9.48	33.855	4.10	26.165	186.0	0.597
176	9.93	33.681	4.55	1.09	16.		15.9	205.8	250	8.42	33.984	3.53	26.434	160.4	0.685
209	9.29	33.894	3.96	1.43	23.		21.5	180.0	300	7.53	34.032	2.66	26.602	144.5	0.764
238	8.70	33.967	3.71	1.64	28.		24.4	165.7	400	6.81	34.146	1.26	26.794	126.3	0.905
285	7.70	34.016	2.92	2.13	40.		29.7	147.8	500	5.96	34.234	0.58	26.973	109.3	1.029
337	7.26	34.066	2.67	2.54	49.		33.9	138.1							
416	6.69	34.164	1.10	2.93	62.		37.6	123.4							
496	5.99	34.229	0.60	3.16	73.		40.5	109.9							
575	5.60	34.303	0.36	3.34	83.		42.0	99.7							

RV ALEJANDRO DE HUMBOLDT CALCOFI CRUISE 7801 107032

LATITUDE	LONGITUDE	MO/DAY/YR	MESSENGER TIME	BOTTOM	WIND	SPEED	WEATHER	DOMINANT WAVES
30 25.7N	116 11.0W	1/11/78	2246 GMT	676M	270	7KT	1	270 12 12

Z	T	S	O2	PO4	SIO3	NO2	NO3	DT	Z	T	S	O2	SIGT	DT	DD
1	17.57	33.508	5.60		1.	0.00	0.0	367.6	0	17.57	33.508	5.60	24.256	367.6	0.000
11	17.38	33.511	5.59		0.	0.00	0.0	363.1	10	17.41	33.513	5.59	24.297	363.7	0.037
31	16.30	33.475	5.40		1.	0.56	0.7	341.6	20	17.02	33.505	5.49	24.383	355.5	0.073
45	14.90	33.411	5.50		3.	0.06	2.0	316.7	30	16.38	33.480	5.41	24.513	343.1	0.108
55	14.36	33.457	5.40		4.	0.00	2.8	302.3	50	14.61	33.433	5.47	24.869	309.3	0.173
70	13.47	33.486	5.01		7.		5.7	282.7	75	13.22	33.510	4.85	25.216	276.2	0.247
84	12.76	33.560	4.54		9.		8.9	263.8	100	11.84	33.689	3.88	25.621	237.7	0.311
99	11.88	33.680	3.91		14.		13.9	238.9	125	11.22	33.854	3.20	25.864	214.6	0.369
124	11.25	33.847	3.22		19.		18.3	215.5	150	10.69	33.991	2.73	26.065	195.5	0.421
143	10.77	33.952	2.85		23.		21.3	199.6	200	10.06	34.201	1.97	26.338	169.5	0.514
173	10.50	34.101	2.37		27.		24.4	184.1	250	9.18	34.231	1.73	26.508	153.4	0.597
203	10.00	34.208	1.93		33.		26.3	168.0	300	8.73	34.258	1.42	26.600	144.7	0.674
233	9.35	34.219	1.82		37.		28.2	156.9	400	7.82	34.299	0.82	26.770	128.5	0.817
274	9.01	34.246	1.59		39.		29.2	149.7	500	6.86	34.318	0.50	26.921	114.2	0.945
335	8.36	34.271	1.19		49.		31.7	138.2							
392	7.89	34.296	0.85		55.		33.3	129.6							
453	7.33	34.306	0.63		62.		35.5	121.2							
515	6.71	34.321	0.46		71.		37.4	111.9							

RV ALEJANDRO DE HUMBOLDT CALCOFI CRUISE 7801 107035

LATITUDE	LONGITUDE	MO/DAY/YR	MESSENGER TIME	BOTTOM	WIND	SPEED	WEATHER	DOMINANT WAVES
30 21.5N	116 22.5W	1/12/78	0202 GMT	1849M	260	4KT	1	270 10 11

Z	T	S	O2	PO4	SIO3	NO2	NO3	DT	Z	T	S	O2	SIGT	DT	DD
0	17.60	33.493	5.59		2.			369.4	0	17.60	33.493	5.59	24.238	369.4	0.000
10	17.59	33.491	5.59		2.			369.3	10	17.59	33.491	5.59	24.238	369.3	0.037
31	17.50	33.518	5.57		2.			365.3	20	17.55	33.506	5.58	24.259	367.4	0.074
41	17.19	33.560	5.35		2.	0.40	0.6	355.2	30	17.50	33.519	5.57	24.279	365.5	0.111
58	14.91	33.376	5.68		4.		1.1	319.4	50	16.09	33.460	5.52	24.563	338.4	0.181
71	13.47	33.451	5.42		5.		3.0	285.3	75	13.19	33.451	5.39	25.176	280.0	0.259
96	12.23	33.428	5.21		7.		7.1	263.8	100	12.07	33.443	5.13	25.388	259.9	0.327
116	11.53	33.536	4.68		11.		11.2	243.3	125	11.31	33.628	4.29	25.671	232.9	0.389
136	11.08	33.741	3.80		16.		16.4	220.4	150	10.76	33.853	3.35	25.946	206.8	0.445
156	10.60	33.888	3.21		22.		21.2	201.5	200	9.30	34.005	3.01	26.312	172.0	0.541
186	9.47	33.952	3.07		26.		23.1	178.5	250	9.59	34.310	1.46	26.502	153.9	0.625
221	9.04	34.051	2.70		33.		26.4	164.6	300	9.14	34.360	1.01	26.615	143.2	0.702
251	9.61	34.318	1.42		39.		28.8	153.6	400	7.55	34.277	0.96	26.794	126.3	0.843
300	9.14	34.360	1.01		43.		29.8	143.2	500	6.67	34.311	0.49	26.942	112.2	0.969
355	8.08	34.275	1.11		52.		32.4	133.8	600	5.95	34.353	0.31	27.070	100.1	1.083
440	7.20	34.283	0.75		62.		35.1	121.1							
526	6.45	34.324	0.40		74.		38.4	108.4							
615	5.86	34.357	0.29		82.		40.4	98.7							

RV ALEJANDRO DE HUMBOLDT CALCOFI CRUISE 7801 107040

LATITUDE	LONGITUDE	MO/DAY/YR	MESSENGER TIME	BOTTOM	WIND	SPEED	WEATHER	DOMINANT WAVES
30 11.0N	116 42.0W	1/12/78	0603 GMT	2602M	120	4KT	1	

Z	T	S	O2	PO4	SIO3	NO2	NO3	DT	Z	T	S	O2	SIGT	DT	DD
0	17.31	33.548	5.64		1.			358.8	0	17.31	33.548	5.64	24.349	358.8	0.000
10	17.30	33.551	5.64		2.			358.3	10	17.30	33.551	5.64	24.354	358.3	0.036
30	16.20	33.598	5.19		4.		3.3	330.5	20	16.84	33.579	5.42	24.481	346.1	0.071
40	15.63	33.579	5.13		4.		4.0	319.6	30	16.20	33.598	5.19	24.646	330.5	0.105
55	14.37	33.506	5.18		5.		4.3	298.9	50	14.79	33.529	5.17	24.903	306.0	0.169
70	13.52	33.520	4.94		7.		5.7	281.2	75	13.40	33.552	4.75	25.213	276.5	0.242
95	12.86	33.660	4.09		12.		10.8	258.3	100	12.54	33.657	4.09	25.464	252.7	0.309
115	11.52	33.652	4.11		14.		13.5	234.6	125	11.05	33.712	3.87	25.785	222.1	0.369
135	10.65	33.786	3.57		19.		19.1	209.8	150	10.10	33.888	3.25	26.086	193.5	0.422
155	9.95	33.917	3.15		24.		22.1	188.7	200	9.30	34.086	2.49	26.375	166.1	0.513
185	9.44	34.042	2.69		30.		25.0	171.4	250	8.78	34.174	1.95	26.527	151.6	0.595
220	9.14	34.127	2.26		35.		21.7U	160.5	300	8.31	34.248	1.34	26.658	139.1	0.670
251	8.77	34.175	1.94		40.		28.8	151.3	400	7.40	34.300	0.67	26.833	122.6	0.807
301	8.30	34.249	1.33		48.		26.0U	138.9	500	6.36	34.324	0.37	26.993	107.4	0.928
357	7.92	34.290	0.89		54.		32.0	130.5	600	5.72	34.361	0.31	27.104	96.9	1.038
443	6.85	34.305	0.51		67.		36.2	114.9							
530	6.15	34.333	0.33		77.		36.1U	104.0							
618	5.63	34.367	0.31		86.		40.7	95.3							

RV ALEJANDRO DE HUMBOLDT CALCOFI CRUISE 7801 107050

LATITUDE	LONGITUDE	MO/DAY/YR	MESSENGER TIME	BOTTOM	WIND	SPEED	WEATHER	DOMINANT WAVES
29 50.4N	117 22.0W	1/12/78	1327 GMT	1856M	040	1KT	2	

Z	T	S	O2	PO4	SIO3	NO2	NO3	DT	Z	T	S	O2	SIGT	DT	DD
0	16.79	33.361	5.70		1.			360.8	0	16.79	33.361	5.70	24.328	360.8	0.000
10	16.80	33.358	5.73		2.			361.2	10	16.80	33.358	5.73	24.324	361.2	0.036
30	16.14	33.330	5.78		2.		0.2	348.8	20	16.47	33.345	5.76	24.389	355.0	0.072
41	14.92	33.302	5.92		3.		0.2	325.1	30	16.14	33.330	5.78	24.454	348.8	0.107
57	13.05	33.114	6.02		4.		1.1	302.0	50	13.83	33.180	5.98	24.838	312.2	0.174
72	12.01	33.344	5.38		7.		6.3	266.0	75	11.92	33.374	5.32	25.363	262.3	0.246
97	11.50	33.557	4.56		12.		12.2	241.3	100	11.39	33.602	4.27	25.637	236.2	0.309
117	10.83	33.823	2.71		25.		21.7	210.1	125	10.73	33.867	2.54	25.962	205.2	0.364
139	10.65	33.902	2.25		29.		23.0	201.3	150	10.60	33.936	2.12	26.039	197.9	0.415
159	10.54	33.963	2.06		32.		24.4	194.9	200	10.07	34.125	1.92	26.277	175.3	0.511
189	10.10	34.085	2.00		33.		22.8	178.7	250	9.04	34.129	2.13	26.451	158.8	0.596
225	9.87	34.170	1.83		35.		24.2	168.7	300	7.84	34.089	2.10	26.603	144.4	0.675
257	8.78	34.113	2.22		39.		28.4	156.1	400	6.87	34.187	1.03	26.818	123.9	0.814
308	7.72	34.089	2.08		48.		31.5	142.6	500	6.35	34.283	0.48	26.963	110.2	0.938
363	7.14	34.155	1.34		59.		35.3	129.9	600	5.79	34.358	0.28	27.094	97.9	1.050
450	6.58	34.226	0.74		71.		37.0	117.3							
536	6.18	34.320	0.35		79.		39.6	105.3							
621	5.64	34.363	0.26		87.		42.0	95.7							

RV ALEJANDRO DE HUMBOLDT CALCOFI CRUISE 7801 107060

LATITUDE	LONGITUDE	MO/DAY/YR	MESSENGER TIME	BOTTOM	WIND	SPEED	WEATHER	DOMINANT WAVES
29 32.0N	118 01.5W	1/12/78	1914 GMT	3546M	260	2KT	1	270 5 9

Z	T	S	O2	PO4	SIO3	NO2	NO3	DT	Z	T	S	O2	SIGT	DT	DD
0	18.84	33.832	5.43		2.			373.8	0	18.84	33.832	5.43	24.191	373.8	0.000
11	18.78	33.828	5.44		2.			372.7	10	18.78	33.830	5.44	24.202	372.7	0.037
31	18.77	33.829	5.44		2.			372.4	20	18.78	33.830	5.44	24.204	372.5	0.075
42	18.75	33.826	5.44		2.			372.1	30	18.77	33.830	5.44	24.206	372.4	0.112
57	18.76	33.824	5.43		2.			372.5	50	18.76	33.826	5.43	24.207	372.3	0.187
73	17.39	33.583	5.64		2.			358.0	75	17.12	33.548	5.66	24.393	354.6	0.278
98	14.05	33.324	5.84		4.		0.3	305.9	100	13.86	33.345	5.71	24.957	300.9	0.361
119	12.58	33.570	4.40		11.		9.8	259.7	125	12.37	33.597	4.25	25.450	253.9	0.431
139	12.01	33.633	3.98		16.		13.2	244.7	150	11.69	33.704	3.51	25.661	233.9	0.492
160	11.43	33.769	3.08		21.		12.4	224.4	200	10.69	33.932	2.61	26.020	199.8	0.603
190	10.97	33.881	2.65		25.		21.0	208.2	250	9.53	34.127	2.32	26.369	166.6	0.697
226	9.94	34.055	2.55		29.		24.7	178.3	300	8.87	34.222	1.74	26.550	149.4	0.778
256	9.45	34.140	2.25		34.		26.4	164.3	400	7.66	34.272	0.95	26.773	128.3	0.923
307	8.79	34.230	1.66		42.		29.9	147.5	500	6.46	34.294	0.51	26.957	110.8	1.050
362	8.16	34.257	1.23		50.		32.8	136.3	600	5.74	34.338	0.34	27.084	98.8	1.162
448	7.04	34.286	0.67		64.		35.9	118.8							
535	6.14	34.301	0.44		77.		40.8	106.3							
622	5.66	34.354	0.32		86.		42.0	96.6							

RV ALEJANDRO DE HUMBOLDT CALCOFI CRUISE 7801 107070

LATITUDE	LONGITUDE	MO/DAY/YR	MESSENGER TIME	BOTTOM	WIND	SPEED	WEATHER	DOMINANT WAVES
29 11.0N	118 41.0W	1/13/78	0313 GMT	3169M	330	2KT	1	

Z	T	S	O2	PO4	SIO3	NO2	NO3	DT	Z	T	S	O2	SIGT	DT	DD
0	18.78	33.773	5.46	0.00				376.7	0	18.78	33.773	5.46	24.161	376.7	0.000
11	18.60	33.767	5.44	0.00				372.8	10	18.61	33.769	5.44	24.199	373.1	0.038
31	18.57	33.764	5.38	0.00				372.3	20	18.59	33.767	5.42	24.204	372.6	0.075
62	14.11	33.599	5.02	0.15	5.		4.3	286.9	30	18.57	33.766	5.38	24.206	372.3	0.112
72	13.22	33.617	4.67	0.39	7.		7.6	268.3	50	16.00	33.635	5.24	24.718	323.6	0.182
88	12.13	33.655	4.24	0.69	10.		12.1	245.2	75	12.98	33.623	4.58	25.351	263.3	0.256
103	11.68	33.745	3.80	1.05	14.		15.1	230.6	100	11.75	33.729	3.88	25.669	233.1	0.318
119	11.08	33.782	3.69	1.16	17.		15.7	217.4	125	10.82	33.815	3.57	25.906	210.6	0.374
144	10.07	33.926	3.16	1.65	24.		21.8	190.0	150	9.92	33.953	3.10	26.169	185.6	0.425
165	9.61	34.007	2.95	1.76	28.		24.5	176.6	200	9.05	34.135	2.33	26.453	158.6	0.513
196	9.10	34.121	2.41	1.96	35.		27.4	160.3	250	8.43	34.194	1.73	26.597	145.0	0.591
227	8.72	34.192	1.85	2.20	40.		29.6	149.3	300	8.07	34.263	1.15	26.705	134.7	0.663
257	8.35	34.192	1.71	2.41	44.		31.0	143.9	400	7.17	34.332	0.53	26.890	117.2	0.795
308	8.03	34.278	1.03	2.74	50.		33.5	132.9	500	6.11	34.331	0.38	27.031	103.8	0.912
365	7.65	34.344	0.55	3.00	59.		35.3	122.7	600	5.69	34.380	0.28	27.123	95.0	1.018
451	6.46	34.304	0.51	3.08	73.		38.8	110.0							
538	5.94	34.357	0.29	3.22	82.		40.9	99.7							
624	5.62	34.385	0.28	3.17	86.		41.0	93.8							

RV ALEJANDRO DE HUMBOLDT CALCOFI CRUISE 7801 107080

LATITUDE	LONGITUDE	MO/DAY/YR	MESSENGER TIME	BOTTOM	WIND	SPEED	WEATHER	DOMINANT WAVES
28 51.5N	119 20.0W	1/13/78	0818 GMT	3546M	130	2KT	0	

Z	T	S	O2	PO4	SIO3	NO2	NO3	DT	Z	T	S	O2	SIGT	DT	DD
0	18.57	33.752	5.45		1.	0.00		373.2	0	18.57	33.752	5.45	24.198	373.2	0.000
10	18.59	33.751	5.47		1.	0.00		373.7	10	18.59	33.751	5.47	24.192	373.7	0.037
30	18.50	33.747	5.43		0.	0.02		371.9	20	18.55	33.751	5.45	24.201	372.8	0.075
41	16.70	33.646	5.18		2.	0.05	1.9	338.0	30	18.50	33.747	5.43	24.211	371.9	0.112
56	14.42	33.476	5.60		3.	0.05	1.4	302.1	50	15.24	33.534	5.42	24.809	315.0	0.181
71	13.39	33.508	5.33A		4.	0.02	3.2	279.5	75	13.14	33.528	5.21	25.245	273.5	0.255
96	11.98	33.615	4.67		9.	0.02	10.2	245.5	100	11.75	33.612	4.65	25.578	241.8	0.320
117	10.98	33.623	4.54		12.	0.02	13.2	227.4	125	10.91	33.718	4.11	25.814	219.4	0.378
137	10.81	33.848	3.41		18.	0.02	18.8	207.9	150	10.66	33.934	3.01	26.026	199.2	0.431
157	10.56	33.965	2.87		22.	0.01	22.4	195.1	200	9.49	34.078	2.60	26.337	169.6	0.525
187	9.81	34.062	2.63		27.	0.01	24.6	175.7	250	8.88	34.201	1.86	26.532	151.2	0.608
222	9.07	34.105	2.54		33.	0.01	27.2	161.0	300	8.86	34.359	0.90	26.658	139.1	0.683
252	8.88	34.208	1.80		39.	0.01	29.7	150.5	400	7.49	34.318	0.62	26.833	122.5	0.820
302	8.86	34.363	0.87		44.	0.01	31.6	138.7	500	6.35	34.313	0.43	26.986	108.1	0.942
356	8.26	34.371	0.60		52.	0.01	33.8	129.3	600	5.74	34.373	0.24	27.111	96.2	1.051
440	6.82	34.275	0.63		65.		37.2	116.8							
524	6.23	34.335	0.34		75.		39.8	104.8							
610	5.68	34.375	0.24		84.	0.00	40.9	95.2							

A) ALTERNATE OXYGEN VALUE: 5.56.

RV ALEJANDRO DE HUMBOLDT CALCOFI CRUISE 7801 110035

LATITUDE	LONGITUDE	MO/DAY/YR	MESSENGER TIME	BOTTOM	WIND	SPEED	WEATHER	DOMINANT WAVES
29 46.0N	116 00.0W	1/14/78	1932 GMT	1373M	160	5KT	1	270 6 11

Z	T	S	O2	PO4	SIO3	NO2	NO3	DT	Z	T	S	O2	SIGT	DT	DD
0	17.67	33.511	5.61	0.00	1.			369.7	0	17.67	33.511	5.61	24.234	369.7	0.000
11	17.56	33.508	5.64	0.00	0.			367.4	10	17.57	33.510	5.64	24.257	367.5	0.037
31	17.54	33.506	5.61	0.00	0.			367.1	20	17.55	33.509	5.63	24.260	367.3	0.074
41	17.55	33.506	5.63	0.00	0.			367.3	30	17.54	33.508	5.61	24.262	367.1	0.110
52	17.15	33.477	5.62	0.00	1.			360.3	50	17.22	33.484	5.62	24.319	361.6	0.184
67	13.95	33.317	5.85	0.00	2.		0.9	304.4	75	13.29	33.348	5.69	25.076	289.5	0.265
83	12.97	33.393	5.45	0.17	4.		3.5	280.0	100	12.14	33.439	5.13	25.372	261.3	0.335
103	12.02	33.451	5.05	0.42	7.		4.7	258.3	125	11.62	33.759	3.75	25.717	228.5	0.397
129	11.60	33.821	3.48	0.82	16.		16.1	223.5	150	11.61	34.027	2.55	25.927	208.5	0.452
149	11.62	34.019	2.58	1.45	19.		20.2	209.3	200	10.53	34.229	1.88	26.279	175.1	0.550
180	10.96	34.168	2.05	1.67	27.		23.2	186.9	250	9.64	34.301	1.53	26.486	155.5	0.635
211	10.30	34.252	1.81	1.78	32.		25.5	169.6	300	8.97	34.311	1.25	26.603	144.4	0.713
241	9.80	34.299	1.57	2.05	36.		27.9	158.0	400	7.73	34.328	0.66	26.807	125.1	0.854
282	9.14	34.295	1.40	2.12	41.		29.4	148.0	500	6.68	34.334	0.39	26.959	110.6	0.979
343	8.61	34.344	0.89	2.47	48.		31.7	136.4							
419	7.43	34.319	0.61	2.75	60.		35.2	121.5							
495	6.72	34.332	0.40	3.02	70.		37.7	111.2							
575	6.15	34.352	0.29	3.03	77.		39.3	102.6							

RV ALEJANDRO DE HUMBOLDT CALCOFI CRUISE 7801 110040

LATITUDE	LONGITUDE	MO/DAY/YR	MESSENGER TIME	BOTTOM	WIND	SPEED	WEATHER	DOMINANT WAVES
29 36.5N	116 19.4W	1/14/78	1524 GMT	2080M	180	3KT	1	090 3 9

Z	T	S	O2	PO4	SIO3	NO2	NO3	DT	Z	T	S	O2	SIGT	DT	DD
0	17.77	33.565	5.56	0.00	1.			368.1	0	17.77	33.565	5.56	24.251	368.1	0.000
11	17.75	33.565	5.56	0.00	0.			367.6	10	17.75	33.567	5.56	24.256	367.6	0.037
31	17.75	33.564	5.64	0.00	0.			367.7	20	17.75	33.566	5.60	24.256	367.6	0.074
42	17.35	33.576	5.42	0.00	0.		0.4	357.7	30	17.75	33.566	5.64	24.256	367.7	0.110
57	14.81	33.334	5.86	0.00	2.		0.5	320.5	50	16.04	33.443	5.63	24.562	338.5	0.181
73	13.85	33.375	5.79	0.17	3.		1.2	298.2	75	13.69	33.385	5.73	25.024	294.5	0.261
98	12.08	33.519	4.95	0.62	8.		5.0	254.3	100	12.04	33.537	4.90	25.467	252.4	0.330
119	11.69	33.659	4.50	1.03	10.		11.3	237.1	125	11.37	33.661	4.39	25.686	231.5	0.391
139	10.59	33.664	4.12	1.25	17.		15.7	217.9	150	10.22	33.735	3.90	25.947	206.7	0.446
160	9.98	33.812	3.68	1.65	22.		19.7	196.9	200	9.46	34.058	2.68	26.328	170.5	0.542
190	9.50	34.013	2.85	2.07	29.		24.4	174.5	250	9.18	34.225	1.87	26.504	153.8	0.626
226	9.39	34.146	2.32	2.38	33.		27.1	162.9	300	7.93	34.131	1.95	26.624	142.4	0.702
257	9.08	34.238	1.76	2.58	42.		29.4	151.3	400	7.22	34.265	0.86	26.831	122.8	0.841
307	7.82	34.129	2.00	2.75	49.		32.2	141.0	500	6.64	34.364	0.38	26.988	107.8	0.963
363	7.37	34.196	1.26	2.92	58.		34.8	129.9	600	5.84	34.378	0.30	27.103	97.0	1.073
449	7.03	34.343	0.47	3.04	68.		36.9	114.4							
535	6.34	34.365	0.32	3.04	78.		38.8	104.0							
621	5.69	34.381	0.30	2.81	87.		40.5	94.9							

RV ALEJANDRO DE HUMBOLDT CALCOFI CRUISE 7801 110050

LATITUDE	LONGITUDE	MO/DAY/YR	MESSENGER TIME	BOTTOM	WIND	SPEED	WEATHER	DOMINANT WAVES
29 16.4N	116 59.1W	1/14/78	0906 GMT	3461M	330	4KT	1	360 2 9

Z	T	S	O2	PO4	SIO3	NO2	NO3	DT	Z	T	S	O2	SIGT	DT	DD
0	17.80	33.602	5.58	0.00	1.			366.1	0	17.80	33.602	5.58	24.272	366.1	0.000
10	17.80	33.603	5.57	0.00	1.			366.0	10	17.80	33.603	5.57	24.273	366.0	0.037
31	17.83	33.622	5.53	0.00	1.			365.3	20	17.81	33.614	5.55	24.277	365.7	0.073
41	17.38	33.528	5.54	0.00	1.	0.06		361.8	30	17.83	33.623	5.53	24.280	365.3	0.110
56	14.83	33.343	5.80	0.00	2.	0.25	0.5	320.2	50	15.91	33.402	5.70	24.560	338.7	0.181
71	13.49	33.373	5.65	0.00	4.	0.05	2.2	291.4	75	13.18	33.382	5.59	25.125	284.9	0.259
96	11.86	33.453	5.11	0.16	8.	0.03	5.1	255.3	100	11.69	33.480	4.99	25.487	250.4	0.326
117	11.08	33.607	4.39	0.58	13.		13.3	230.3	125	10.78	33.687	4.07	25.814	219.4	0.386
137	10.39	33.798	3.62	0.85	20.		18.8	204.6	150	10.20	33.877	3.32	26.061	195.8	0.438
157	10.12	33.908	3.19	1.17	24.		21.4	192.1	200	9.30	34.111	2.40	26.395	164.2	0.530
187	9.41	34.043	2.72	1.70	32.		25.3	170.9	250	8.61	34.153	2.02	26.536	150.7	0.611
222	9.14	34.188	1.97	1.76	42.		29.1	155.9	300	7.81	34.142	1.79	26.649	140.0	0.686
254	8.53	34.143	2.03	1.82	46.		29.5	150.2	400	6.91	34.225	0.84	26.842	121.7	0.822
303	7.77	34.143	1.76	2.29	53.		32.3	139.3	500	6.30	34.321	0.39	26.999	106.8	0.943
358	7.33	34.208	1.09	2.23	58.		35.0	128.5	600	5.63	34.356	0.27	27.112	96.1	1.052
445	6.50	34.242	0.68	2.41	69.		38.0	115.1							
529	6.20	34.357	0.27	2.65	78.		39.7	102.8							
615	5.47	34.355	0.27	2.86	88.		41.9	94.3							

RV ALEJANDRO DE HUMBOLDT CALCOFI CRUISE 7801 110060

LATITUDE	LONGITUDE	MO/DAY/YR	MESSENGER TIME	BOTTOM	WIND	SPEED	WEATHER	DOMINANT WAVES
28 56.4N	117 38.9W	1/14/78	0254 GMT	3661M	060	4KT	1	

Z	T	S	O2	PO4	SIO3	NO2	NO3	DT	Z	T	S	O2	SIGT	DT	DD
0	17.76	33.508	5.60	0.68	1.			372.0	0	17.76	33.508	5.60	24.210	372.0	0.000
10	17.64	33.505	5.64	0.62	1.			369.4	10	17.64	33.505	5.64	24.237	369.4	0.037
30	17.60	33.505	5.62	0.66	1.			368.5	20	17.62	33.507	5.63	24.242	369.0	0.074
55	15.36	33.296	5.92	0.67	2.		0.1	334.6	30	17.60	33.505	5.62	24.247	368.5	0.111
65	14.58	33.308	5.95	0.61	2.		0.2	317.7	50	15.89	33.332	5.86	24.511	343.4	0.182
75	14.04	33.334	5.87	0.72	3.		0.3	305.0	75	14.04	33.334	5.87	24.914	305.0	0.264
90	13.43	33.369	5.69	0.66	4.		1.6	290.5	100	12.90	33.374	5.55	25.173	280.3	0.338
105	12.63	33.374	5.47	0.60	5.		4.4	275.1	125	11.63	33.449	4.99	25.474	251.7	0.405
130	11.42	33.474	4.86	0.64	9.		10.2	246.0	150	10.85	33.591	4.50	25.727	227.6	0.465
150	10.85	33.591	4.50	0.64	12.		13.4	227.6	200	9.84	33.903	3.26	26.143	188.1	0.571
174	10.32	33.761	3.69	0.92	18.		18.4	206.2	250	9.34	34.130	2.34	26.404	163.3	0.661
204	9.79	33.923	3.21	1.03	24.		21.8	185.7	300	8.18	34.151	1.99	26.600	144.7	0.741
234	9.75	34.128	2.49	1.42	30.		25.7	169.9	400	7.82	34.337	0.75	26.801	125.6	0.882
273	8.64	34.131	2.22	1.64	38.		28.7	152.7	500	6.28	34.274	0.61	26.964	110.2	1.007
332	7.93	34.189	1.66	2.03	48.		32.5	138.1							
406	7.80	34.346	0.68	2.35	57.		34.2	124.6							
481	6.49	34.270	0.65	2.54	71.		38.1	112.9							
560	5.97	34.331	0.43	2.70	81.		40.1	102.0							

RV ALEJANDRO DE HUMBOLDT CALCOFI CRUISE 7801 110070

LATITUDE	LONGITUDE	MO/DAY/YR	MESSENGER TIME	BOTTOM	WIND	SPEED	WEATHER	DOMINANT WAVES
28 36.5N	118 18.0W	1/13/78	2110 GMT	3506M	270	2KT	1	49

Z	T	S	O2	PO4	SIO3	NO2	NO3	DT	Z	T	S	O2	SIGT	DT	DD
0	18.37	33.646	5.51		2.		0.0	376.2	0	18.37	33.646	5.51	24.166	376.2	0.000
11	18.46	33.692	5.45		2.		0.0	374.9	10	18.45	33.690	5.45	24.178	375.0	0.038
33	18.54	33.730	5.42		2.		0.0	374.1	20	18.49	33.709	5.44	24.183	374.6	0.075
56	18.02	33.759	5.08		3.	0.39	0.5	359.7	30	18.53	33.726	5.42	24.187	374.2	0.113
73	14.49	33.607	5.09		4.		3.0	294.0	50	18.16	33.753	5.16	24.299	363.5	0.187
88	13.15	33.613	4.66	0.16	7.		7.1	267.2	75	14.26	33.609	5.03	25.078	289.3	0.269
104	11.84	33.557	4.93	0.17	8.		7.8	247.2	100	12.12	33.570	4.85	25.477	251.4	0.337
120	11.47	33.607	4.63	0.21	10.		10.1	237.0	125	11.37	33.669	4.29	25.694	230.7	0.398
144	10.86	33.899	3.12	0.94	21.		19.6	205.0	150	10.57	33.919	3.14	26.030	198.8	0.452
165	9.92	33.947	3.31	1.03	23.		21.6	186.0	200	9.88	34.166	2.24	26.342	169.2	0.546
195	9.92	34.143	2.35	1.46	30.		25.5	171.5	250	9.31	34.267	1.63	26.514	152.8	0.629
227	9.58	34.246	1.82	1.70	36.		28.2	158.5	300	8.99	34.356	0.99	26.636	141.3	0.705
256	9.25	34.269	1.59	1.95	39.		29.7	151.6	400	7.85	34.364	0.54	26.818	124.0	0.844
308	8.95	34.371	0.88	2.31	46.		31.6	139.5	500	6.72	34.366	0.34	26.979	108.7	0.968
393	7.94	34.365	0.56	2.44	56.		34.7	125.2	600	5.93	34.394	0.27	27.103	96.9	1.078
450	7.20	34.353	0.44	2.61	64.		37.1	115.9							
536	6.43	34.379	0.28	2.86	74.		40.3	104.0							
622	5.78	34.397	0.27	2.96	84.		42.3	94.8							

RV ALEJANDRO DE HUMBOLDT CALCOFI CRUISE 7801 110080

LATITUDE	LONGITUDE	MO/DAY/YR	MESSENGER TIME	BOTTOM	WIND	SPEED	WEATHER	DOMINANT WAVES
28 16.5N	118 57.5W	1/13/78	1500 GMT	3926M	110	3KT	0	

Z	T	S	O2	PO4	SIO3	NO2	NO3	DT	Z	T	S	O2	SIGT	DT	DD
0	17.33	33.392	5.62		2.			370.6	0	17.33	33.392	5.62	24.225	370.6	0.000
10	17.34	33.392	5.68		2.			370.8	10	17.34	33.392	5.68	24.223	370.8	0.037
32	17.33	33.394	5.64		2.			370.5	20	17.34	33.395	5.66	24.224	370.7	0.074
58	15.83	33.312	5.85		2.			343.4	30	17.33	33.396	5.64	24.226	370.5	0.111
68	14.76	33.236	6.05		3.			326.6	50	16.48	33.353	5.75	24.393	354.5	0.184
79	13.62	33.215	5.96		4.			305.5	75	14.04	33.220	5.99	24.824	313.5	0.268
94	11.87	33.230	5.64		6.		3.2	271.9	100	11.50	33.293	5.53	25.376	261.0	0.340
110	11.16	33.424	5.27		9.		6.2	245.2	125	11.11	33.683	4.31	25.750	225.4	0.402
136	11.08	33.828	3.57		18.		15.8	214.0	150	10.96	33.939	3.06	25.977	203.9	0.456
156	10.91	33.980	2.92		22.		20.0	199.9	200	8.95	33.998	2.66	26.362	167.3	0.551
182	9.70	34.037	2.89		26.		23.3	175.8	250	9.09	34.265	1.69	26.549	149.5	0.632
213	8.62	33.988	3.35U		31.		23.9	163.0	300	8.91	34.360	0.88	26.652	139.7	0.707
243	9.08	34.239	1.84		38.		28.8	151.3	400	7.56	34.361	0.51	26.858	120.2	0.843
284	9.13	34.362	1.02		44.		30.8	142.9	500	6.49	34.355	0.35	27.000	106.7	0.964
345	8.13	34.344	0.71		53.		35.8	129.4							
421	7.38	34.368	0.46		63.		37.0	117.2							
497	6.52	34.354	0.35		74.		40.7	107.0							
579	6.03	34.385	0.27		78.		42.5	98.7							

RV ALEJANDRO DE HUMBOLDT CALCOFI CRUISE 7801 113035

LATITUDE	LONGITUDE	MO/DAY/YR	MESSENGER TIME	BOTTOM	WIND	SPEED	WEATHER	DOMINANT WAVES
29 11.5N	115 38.0W	1/18/78	1822 1847 GMT	984M	350	10KT	0	350 4 9

Z	T	S	O2	PO4	SIO3	NO2	NO3	DT	Z	T	S	O2	SIGT	DT	DD
1A	17.44	33.463	5.61		4.			367.9	0	17.44	33.463	5.61	24.253	367.9	0.000
11	17.40	33.462	5.59		1.			367.1	10	17.40	33.464	5.59	24.261	367.2	0.037
31	17.38	33.461	5.60		1.			366.7	20	17.39	33.463	5.59	24.263	366.9	0.074
40	17.38	33.480	5.59		1.			365.3	30	17.38	33.463	5.60	24.265	366.7	0.110
55	15.82	33.642	5.81		2.			319.1	50	16.43	33.593	5.74	24.589	335.9	0.181
70	14.68	33.538	5.72		3.		0.7	302.9	75	14.09	33.495	5.65	25.025	294.4	0.260
94	12.09	33.435	5.16		7.		7.2	260.7	100	11.82	33.486	4.92	25.467	252.3	0.329
113	11.55	33.627	4.35		12.		12.6	237.0	125	11.48	33.746	3.83	25.734	227.0	0.389
133	11.46	33.822	3.49		16.		16.4	221.0	150	11.26	33.987	2.82	25.960	205.4	0.444
152	11.23	34.004	2.74	1.64	22.		20.6	203.6	200	10.71	34.325	1.42	26.321	171.1	0.540
181	10.92	34.245	1.74	2.00	29.		25.2	180.5	250	10.11	34.386	1.13	26.473	156.7	0.625
214	10.57	34.358	1.28	2.39	35.		27.3	166.2	300	8.78	34.261	1.47	26.595	145.2	0.703
243	10.32	34.405	1.07	2.64	38.		28.7	158.6	400	7.97	34.317	0.82	26.763	129.2	0.847
290	8.89	34.259	1.53	2.50	43.		29.2	146.9	500	7.02	34.338	0.50	26.915	114.7	0.976
340	8.57	34.298	1.09	2.55	50.		31.9	139.2							
420	7.75	34.319	0.76	2.62	59.		33.8	125.9							
499	7.03	34.337	0.50	2.74	67.		36.5	114.9							
5798	6.35	34.353	0.35	2.77	78.		38.3	105.0							

RV ALEJANDRO DE HUMBOLDT CALCOFI CRUISE 7801 113040

LATITUDE	LONGITUDE	MO/DAY/YR	MESSENGER TIME	BOTTOM	WIND	SPEED	WEATHER	DOMINANT WAVES
29 02.0N	115 57.0W	1/18/78	2311 GMT	1931M	320	12KT	1	320 9 11

Z	T	S	O2	PO4	SIO3	NO2	NO3	DT	Z	T	S	O2	SIGT	DT	DD
2	18.06	33.623	5.51		3.	0.00		370.6	0	18.06	33.623	5.51	24.225	370.6	0.000
12	18.06	33.623	5.53		3.	0.00		370.6	10	18.06	33.625	5.53	24.225	370.6	0.037
32	18.04	33.630	5.52		3.	0.01		369.6	20	18.06	33.628	5.53	24.229	370.2	0.074
42	18.02	33.628	5.53		3.	0.01		369.3	30	18.04	33.631	5.52	24.234	369.7	0.111
58	16.59	33.487	5.49		4.	0.25	0.4	347.1	50	17.49	33.567	5.50	24.320	361.6	0.185
73	14.16	33.410	5.63	0.40	5.	0.03	1.1	301.8	75	14.02	33.423	5.59	24.985	298.2	0.268
98	13.22	33.631	4.57	0.84	8.	0.01	7.4	267.2	100	13.12	33.652	4.43	25.346	263.8	0.338
118	12.24	33.804	3.32	1.40	17.	0.02	14.9	236.3	125	12.01	33.827	3.13	25.697	230.4	0.401
137	11.74	33.858	2.89	1.63	20.	0.03	17.2	223.3	150	11.69	33.952	2.39	25.852	215.7	0.457
157	11.67	33.997	2.14	1.74	25.	0.03	20.6	211.8	200	11.19	34.177	1.80	26.121	190.1	0.561
187	11.26	34.123	1.94	1.89	27.	0.02	22.9	195.3	250	10.39	34.276	1.61	26.340	169.4	0.653
223	11.00	34.249	1.60	2.04	30.	0.01	25.0	181.6	300	9.46	34.302	1.38	26.518	152.5	0.737
252	10.34	34.276	1.61		33.	0.01	26.6	168.5	400	8.51	34.324	0.93	26.686	136.5	0.888
302	9.43	34.302	1.37	2.38	39.	0.03	28.6	152.0	500	7.21	34.328	0.49	26.881	118.0	1.023
356	8.98	34.315	1.14	2.43	44.	0.03	29.8	144.1	600	6.24	34.338	0.32	27.020	104.8	1.142
441	8.02	34.328	0.73	2.63	54.	0.02	32.8	129.1							
528	6.85	34.327	0.40	2.85	68.	0.03	36.9	113.3							
615	6.15	34.339	0.30	2.88	78.	0.04	39.0	103.6							

RV ALEJANDRO DE HUMBOLDT CALCOFI CRUISE 7801 113050

LATITUDE	LONGITUDE	MO/DAY/YR	MESSENGER TIME	BOTTOM	WIND	SPEED	WEATHER	DOMINANT WAVES
28 41.5N	116 36.5W	1/19/78	0527 GMT	3738M	310	3KT	1	310 4 9

Z	T	S	O2	PO4	SIO3	NO2	NO3	DT	Z	T	S	O2	SIGT	DT	DD
1	17.93	33.603	5.54	0.36	3.	0.00		369.0	0	17.93	33.603	5.54	24.242	369.0	0.000
11	17.93	33.603	5.58	0.19	2.	0.00		369.0	10	17.93	33.605	5.58	24.242	369.0	0.037
32	17.90	33.601	5.54	0.20	2.	0.00		368.5	20	17.92	33.604	5.56	24.244	368.8	0.074
42	17.89	33.601	5.52	0.18	1.	0.05		368.2	30	17.90	33.603	5.54	24.247	368.5	0.111
57	17.22	33.599	5.25	0.41	2.	0.24	1.4	353.0	50	17.64	33.600	5.40	24.310	362.5	0.184
73	15.49	33.701	4.83	0.66	6.	0.03	4.5	307.8	75	15.27	33.698	4.83	24.928	303.6	0.268
98	13.14	33.621	4.79	0.81	7.		6.7	266.5	100	13.00	33.623	4.78	25.346	263.8	0.339
118	12.05	33.680	4.43	1.35	11.		10.6	241.9	125	11.88	33.754	4.05	25.664	233.6	0.402
139	11.58	33.889	3.34	1.74	17.		16.8	218.2	150	11.09	33.907	3.29	25.929	208.4	0.458
159	10.67	33.908	3.25	1.81	21.		19.5	201.2	200	9.99	34.133	2.36	26.296	173.5	0.556
189	9.93	34.055	2.71	1.97	27.		23.0	178.2	250	9.93	34.366	1.17	26.490	155.1	0.640
225	10.22	34.293	1.58	2.24	34.		26.0	165.3	300	9.11	34.370	0.94	26.627	142.1	0.717
255	9.84	34.373	1.12	2.43	39.		28.8	153.2	400	7.48	34.306	0.68	26.826	123.2	0.856
305	9.02	34.363	0.92	2.56	44.		30.4	141.1	500	6.59	34.340	0.35	26.975	109.1	0.979
361	7.95	34.299	0.85	2.64	53.		33.4	130.2	600	5.87	34.373	0.25	27.095	97.7	1.090
447	7.06	34.330	0.47	2.91	65.		36.4	115.8							
533	6.33	34.345	0.31	3.03	75.		39.0	105.3							
620	5.75	34.383	0.25	2.98	84.		40.4	95.5							

A) THIS NANSEN BOTTLE DID NOT CLOSE PROPERLY ON THE FIRST CAST AND WAS RELOWERED.
B) THE DEPTH FOR THE LAST NANSEN BOTTLE WAS DETERMINED FROM AN EXTRAPOLATED DEPTH CURVE DUE TO MALFUNCTIONING OF THE UNPROTECTED THERMOMETER.

RV ALEJANDRO DE HUMBOLDT CALCOFI CRUISE 7801 113060

LATITUDE	LONGITUDE	MO/DAY/YR	MESSENGER TIME	BOTTOM	WIND	SPEED	WEATHER	DOMINANT WAVES
28 22.0N	117 16.0W	1/19/78	1119 GMT	3642M	280	9KT	1	

Z	T	S	O2	PO4	SIO3	NO2	NO3	DT	Z	T	S	O2	SIGT	DT	DD
1	17.84	33.428	5.56	0.19	2.	0.00		379.6	0	17.84	33.428	5.56	24.130	379.6	0.000
11	17.84	33.429	5.57	0.18	1.	0.00		379.6	10	17.84	33.431	5.57	24.131	379.6	0.038
31	17.84	33.427	5.55	0.12	1.	0.00		379.7	20	17.84	33.430	5.56	24.130	379.6	0.076
41	17.84	33.428	5.56	0.11	1.	0.02		379.6	30	17.84	33.429	5.55	24.129	379.7	0.114
56	17.33	33.374	5.63	0.07	1.	0.02		371.9	50	17.62	33.403	5.59	24.162	376.6	0.190
71	15.99	33.303	5.87	0.08	1.	0.03		347.5	75	15.65	33.307	5.84	24.546	340.0	0.280
96	14.07	33.394	5.70	0.18	2.	0.07	0.8	301.2	100	13.84	33.424	5.63	25.023	294.5	0.360
117	12.98	33.545	5.20	0.37	4.	0.06	4.2	269.0	125	12.59	33.589	4.84	25.401	258.6	0.430
137	12.03	33.642	4.35	0.86	9.	0.06	10.9	244.4	150	11.43	33.695	4.30	25.701	230.0	0.492
157	11.15	33.725	4.28	1.02	11.		13.0	222.8	200	10.07	34.004	2.95	26.184	184.2	0.597
187	10.48	33.949	3.01	1.52	20.		20.7	195.0	250	9.01	34.101	3.00	26.433	160.5	0.685
223	9.39	34.064	2.84	1.66	27.		24.2	169.0	300	8.84	34.280	1.53	26.601	144.6	0.764
254	8.98	34.105	3.00	1.78	30.		24.8	159.7	400	7.81	34.336	0.82	26.802	125.5	0.906
305	8.83	34.298	1.35	2.56	46.		30.1	143.1	500	6.66	34.326	0.37	26.955	111.0	1.031
360	8.39	34.357	1.06					132.2	600	5.95	34.365	0.27	27.079	99.2	1.144
446	7.12	34.303	0.57	3.08	64.		36.5	118.6							
531	6.46	34.344	0.29	2.84	70.		39.1	107.0							
615	5.84	34.367	0.26	3.08	79.		41.9	97.7							

RV ALEJANDRO DE HUMBOLDT CALCOFI CRUISE 7801 113070

LATITUDE	LONGITUDE	MO/DAY/YR	MESSENGER TIME	BOTTOM	WIND	SPEED	WEATHER	DOMINANT WAVES
28 02.0N	117 55.0W	1/19/78	1736 GMT	4000M	300	9KT	1	300 3 7

Z	T	S	O2	PO4	SIO3	NO2	NO3	DT	Z	T	S	O2	SIGT	DT	DD
2	18.54	33.759	5.47	0.36	2.	0.03		372.0	0	18.54	33.759	5.47	24.210	372.0	0.000
12	18.53	33.759	5.48	0.39	1.	0.03		371.7	10	18.53	33.760	5.48	24.212	371.8	0.037
31	18.44	33.743	5.50	0.40	1.	0.04		370.8	20	18.51	33.760	5.49	24.217	371.3	0.074
60	17.88	33.829	5.04	0.45	2.	0.10	2.1	351.4	30	18.45	33.747	5.50	24.223	370.8	0.112
70	16.44	33.721	5.11		3.		2.6	326.8	50	18.07	33.800	5.18	24.356	358.1	0.185
85	14.69	33.561	5.41	0.75	4.	0.06	2.1	301.4	75	15.83	33.671	5.21	24.785	317.2	0.270
100	12.99	33.372	5.51	0.87	5.	0.06	3.4	281.9	100	12.99	33.372	5.51	25.156	281.9	0.345
114	13.18	33.611	4.75	1.11	8.	0.06	6.5	267.9	125	12.60	33.658	4.48	25.453	253.7	0.413
139	11.70	33.697	4.17	1.40	12.	0.06	13.2	234.4	150	11.50	33.839	3.60	25.802	220.5	0.473
159	11.36	33.952	3.16	1.87	19.	0.05	19.2	209.7	200	9.73	34.055	3.21	26.280	175.1	0.574
188	10.04	34.046	3.04	2.00	26.	0.00	22.0	180.6	250	8.97	34.093	3.02	26.434	160.4	0.660
218	9.41	34.055	3.42	2.06	27.		22.2	170.0	300	8.56	34.202	1.99	26.583	146.3	0.739
248	8.99	34.089	3.06		31.		24.5	161.0	400	7.73	34.320	0.67	26.801	125.6	0.881
298	8.57	34.196	2.03	2.61	42.		29.6	146.8	500	6.65	34.333	0.40	26.962	110.3	1.006
352	8.22	34.302	1.03	2.84	50.		32.4	133.8	600	6.05	34.384	0.27	27.080	99.1	1.118
438	7.30	34.321	0.57	2.88	61.		35.2	119.6							
524	6.44	34.340	0.36	2.92	74.		36.9	107.1							
610	6.03	34.390	0.27	2.96	80.		39.0	98.3							

RV ALEJANDRO DE HUMBOLDT CALCOFI CRUISE 7801 113080

LATITUDE	LONGITUDE	MO/DAY/YR	MESSENGER TIME	BOTTOM	WIND	SPEED	WEATHER	DOMINANT WAVES
27 42.0N	118 33.5W	1/19/78	2339 GMT	3876M	340	20KT	1	340 7 9

Z	T	S	O2	PO4	SIO3	NO2	NO3	DT	Z	T	S	O2	SIGT	DT	DD
0	17.56	33.341	5.63	0.21	2.			379.6	0	17.56	33.341	5.63	24.131	379.6	0.000
9	17.54	33.341	5.63	0.18	2.	0.09		379.1	10	17.54	33.343	5.63	24.136	379.1	0.038
27	17.53	33.341	5.62	0.10	2.	0.09		378.9	20	17.53	33.343	5.62	24.137	379.0	0.076
54	16.46	33.322	5.84	0.05	2.	0.08		356.3	30	17.48	33.342	5.63	24.150	377.8	0.114
63	15.78	33.319	5.95	0.02	2.	0.08		341.8	50	16.70	33.327	5.79	24.321	361.5	0.188
76	14.68	33.371	5.83	0.09	3.	0.09	0.0	315.1	75	14.76	33.368	5.85	24.787	317.1	0.273
90	14.01	33.412	5.67	0.16	3.	0.07	0.5	298.7	100	13.21	33.465	5.49	25.183	279.4	0.348
103	12.97	33.481	5.43	0.40	5.	0.07	3.1	273.5	125	12.17	33.584	4.80	25.479	251.2	0.415
125	12.17	33.584	4.80	0.56	8.	0.07	8.1	251.2	150	11.06	33.796	3.67	25.848	216.1	0.475
142	11.39	33.752	3.71	1.08	16.	0.02	15.1	225.0	200	9.36	33.949	3.72	26.259	177.1	0.575
169	10.34	33.858	3.58	1.23	20.	0.02	18.4	199.4	250	8.38	34.024	3.28	26.471	156.9	0.660
195	9.48	33.938	3.72	1.31	24.	0.08	20.4	179.7	300	7.99	34.144	2.06	26.623	142.5	0.738
221	8.92	33.980	3.72	1.37	27.	0.15	21.6	168.0	400	7.13	34.245	0.90	26.828	123.1	0.876
265	8.17	34.049	2.94	1.78	38.	0.06	26.8	151.9	500	6.32	34.312	0.45	26.989	107.8	0.998
313	7.96	34.176	1.74	2.13	47.	0.05	29.2	139.5							
389	7.24	34.237	0.98	2.51	60.	0.04	34.4	125.1							
466	6.53	34.288	0.56	2.73	70.	0.04	37.0	112.1							
547	6.14	34.342	0.36	2.89	79.	0.07	38.9	103.2							

RV ALEJANDRO DE HUMBOLDT CALCOFI CRUISE 7801 117030

LATITUDE	LONGITUDE	MO/DAY/YR	MESSENGER TIME	BOTTOM	WIND	SPEED	WEATHER	DOMINANT WAVES
28 48.0N	114 56.5W	1/21/78	1714 GMT	98M	030	2KT	0	310 7 12

Z	T	S	O2	PO4	SIO3	NO2	NO3	DT	Z	T	S	O2	SIGT	DT	DD
0	17.60	33.738	5.51	0.29	2.	0.06		351.6	0	17.60	33.738	5.51	24.425	351.6	0.000
11	17.58	33.735	5.53	0.44	2.	0.05		351.3	10	17.58	33.737	5.53	24.427	351.3	0.035
21	17.58	33.735	5.53	0.19	2.	0.09		351.3	20	17.58	33.737	5.53	24.427	351.3	0.070
31	17.57	33.734	5.55	0.27	2.			351.2	30	17.57	33.736	5.55	24.429	351.2	0.106
50	16.71	33.644	5.30	0.33	3.	0.00	1.8	338.3	50	16.71	33.644	5.30	24.563	338.3	0.175
73	13.27	33.573	4.54	0.94	10.	0.00	8.2	272.5	75	12.98	33.580	4.48	25.319	266.4	0.251

RV ALEJANDRO DE HUMBOLDT CALCOFI CRUISE 7801 117035

LATITUDE	LONGITUDE	MO/DAY/YR	MESSENGER TIME	BOTTOM	WIND	SPEED	WEATHER	DOMINANT WAVES
28 38.0N	115 16.0W	1/21/78	1420 GMT	179M	010	5KT	0	300 4 10

Z	T	S	O2	PO4	SIO3	NO2	NO3	DT	Z	T	S	O2	SIGT	DT	DD
0	17.40	33.694	5.53		3.	0.04		350.2	0	17.40	33.694	5.53	24.439	350.2	0.000
11	17.39	33.692	5.55		3.	0.04		350.1	10	17.39	33.694	5.55	24.440	350.1	0.035
32	17.27	33.731	5.34		3.	0.09	1.0	344.5	20	17.34	33.710	5.46	24.465	347.7	0.070
43	16.00	33.621	4.95		4.	0.07	3.4	324.5	30	17.28	33.729	5.36	24.493	345.1	0.105
58	14.78 A	33.612	4.85		6.	0.03	4.3	299.5	50	15.40	33.620	4.90	24.842	311.8	0.171
73	13.40	33.605	4.38		10.	0.03	7.6	272.6	75	13.24	33.611	4.32	25.290	269.1	0.244
88	12.36	33.666	3.93		14.	0.02	12.9	248.6	100	11.97	33.756	3.66	25.649	235.0	0.307
108	11.79	33.821	3.48		16.	0.04	17.0	226.9	125	11.17	33.958	2.94	25.953	206.2	0.363
133	10.91	34.023	2.66		24.	0.04	23.5	196.7	150	10.60	34.173	2.07	26.223	180.4	0.412
158	10.53	34.245	1.78		31.	0.04	27.9	173.9							

RV ALEJANDRO DE HUMBOLDT CALCOFI CRUISE 7801 117040

LATITUDE	LONGITUDE	MO/DAY/YR	MESSENGER TIME	BOTTOM	WIND	SPEED	WEATHER	DOMINANT WAVES
28 28.0N	115 35.5W	1/21/78	0723 GMT	1485M	340	8KT	0	

Z	T	S	O2	PO4	SIO3	NO2	NO3	DT	Z	T	S	O2	SIGT	DT	DD
1	17.59	33.746	5.58	0.50	3.	0.01		350.7	0	17.59	33.746	5.58	24.433	350.7	0.000
11	17.58	33.742	5.60	0.40	2.	0.01		350.8	10	17.58	33.744	5.60	24.432	350.8	0.035
29	17.57	33.740	5.59	0.47	2.	0.01		350.7	20	17.58	33.743	5.59	24.433	350.8	0.070
38	17.56	33.741	5.61	0.28	2.	0.01		350.4	30	17.57	33.742	5.59	24.434	350.7	0.105
52	16.56 B	33.655	5.08	0.58	4.	0.07	3.1	334.2	50	16.79	33.671	5.18	24.564	338.3	0.175
65	14.17	33.633	4.38	1.09	9.	0.02	7.3	285.6	75	13.15	33.632	4.23	25.325	265.8	0.250
87	12.44	33.631	4.16	1.42	12.	0.02	11.9	252.6	100	11.90	33.695	3.81	25.616	238.2	0.314
105	11.72	33.724	3.67	1.66	16.	0.01	15.7	232.8	125	11.01	33.809	3.44	25.867	214.3	0.371
123	11.07	33.798	3.47	1.81	19.	0.02	18.7	216.0	150	10.50	33.939	2.97	26.058	196.1	0.423
140	10.64	33.887	3.16	1.95	22.	0.02	21.6	202.2	200	9.96	34.147	2.20	26.314	171.8	0.517
166	10.35	34.015	2.68	2.05	26.	0.07	23.8	187.9	250	9.72	34.330	1.30	26.497	154.5	0.601
196	10.01	34.132	2.27	2.39	30.	0.02	26.5	173.8	300	9.54	34.416	0.76	26.593	145.3	0.679
222	9.71	34.223	1.81	2.56	35.	0.04	27.7	162.2	400	7.99	34.340	0.63	26.777	127.8	0.822
265	9.72	34.370	1.07	2.92	40.	0.03	30.1	151.5	500	6.88	34.339	0.38	26.936	112.8	0.950
313	9.42	34.418	0.70	3.11	45.	0.02	31.9	143.2							
390	8.13	34.343	0.65	3.10	54.	0.09	34.7	129.5							
472	7.16	34.335	0.44	3.33	65.	0.02	37.8	116.7							
560	6.36	34.351	0.28	3.35	76.	0.02	40.4	105.2							

RV ALEJANDRO DE HUMBOLDT CALCOFI CRUISE 7801 117050

LATITUDE	LONGITUDE	MO/DAY/YR	MESSENGER TIME	BOTTOM	WIND	SPEED	WEATHER	DOMINANT WAVES
28 08.0N	116 15.0W	1/21/78	0057 GMT	4689M	320	10KT	1	340 8 7

Z	T	S	O2	PO4	SIO3	NO2	NO3	DT	Z	T	S	O2	SIGT	DT	DD
1	19.00	33.975	5.39		2.	0.00		367.3	0	19.00	33.975	5.39	24.259	367.3	0.000
11	19.02	33.977	5.39		1.	0.00		367.6	10	19.02	33.978	5.39	24.256	367.6	0.037
31	19.02	33.979	5.39		1.	0.00		367.5	20	19.02	33.979	5.39	24.256	367.6	0.074
41	18.28	33.779	5.49		0.	0.00		364.4	30	19.02	33.980	5.39	24.257	367.5	0.110
55	15.78	33.596	5.70		1.	0.08	0.4	321.6	50	16.68	33.640	5.65	24.566	338.1	0.181
70	14.87	33.602	5.28	0.18	3.	0.01	2.2	302.1	75	14.54	33.627	5.07	25.033	293.6	0.261
95	13.19	33.723	4.31	0.67	7.	0.00	8.8	259.9	100	12.82	33.724	4.21	25.460	253.0	0.330
115	11.86	33.726	3.98	0.94	11.	0.00	13.2	235.2	125	11.55	33.768	3.81	25.737	226.6	0.390
134	11.33	33.814	3.66	1.06	14.	0.00	15.7	219.3	150	10.74	33.911	3.38	25.995	202.1	0.445
154	10.59	33.935	3.30	1.24	19.	0.00	18.9	197.8	200	9.63	34.130	2.42	26.355	167.9	0.539
184	9.86	34.080	2.66	1.60	27.	0.00	22.9	175.2	250	9.21	34.241	1.79	26.511	153.1	0.621
218	9.45	34.171	2.19	1.82	32.	0.00	25.6	162.0	300	8.33	34.260	1.27	26.664	138.6	0.697
248	9.24	34.239	1.81	2.08	37.	0.00	27.2	153.7	400	7.40	34.319	0.61	26.847	121.3	0.833
297	8.36	34.257	1.29	2.37	45.	0.00	30.3	139.2	500	6.61	34.352	0.33	26.983	108.3	0.954
352	7.94	34.298	0.90	2.50	52.	0.00	32.3	130.2	600	6.04	34.380	0.25	27.079	99.2	1.066
436	7.01	34.330	0.45		64.	0.00	35.4	115.1							
522	6.50	34.358	0.32	2.78	72.		37.3	106.5							
608	5.99	34.381	0.25	2.84	80.		38.1	98.5							

A) ALTERNATE VALUE, 14.62 DEGREES.
B) ALTERNATE VALUE, 16.22 DEGREES.

RV ALEJANDRO DE HUMBOLDT CALCOFI CRUISE 7801 117060

LATITUDE	LONGITUDE	MO/DAY/YR	MESSENGER TIME	BOTTOM	WIND	SPEED	WEATHER	DOMINANT WAVES
27 48.0N	116 53.0W	1/20/78	1806 1826 GMT	3680M	320	10KT	1	320 8 6

Z	T	S	O2	PO4	SIO3	NO2	NO3	DT	Z	T	S	O2	SIGT	DT	DD
1	18.59	33.871	5.40	0.25	2.	0.02		365.0	0	18.59	33.871	5.40	24.283	365.0	0.000
11	18.59	33.871	5.41	0.23	1.	0.02		365.0	10	18.59	33.872	5.41	24.283	365.0	0.037
30	18.57	33.870	5.43	0.07	1.	0.02		364.6	20	18.58	33.872	5.42	24.285	364.8	0.073
40	18.57	33.870	5.40	0.00	1.	0.02		364.6	30	18.57	33.870	5.43	24.287	364.6	0.110
55	18.15	33.837	5.22	0.09	2.	0.12	1.0	357.1	50	18.57	33.870	5.25	24.287	364.6	0.183
70	15.40	33.387	5.71	0.18	3.	0.09	0.4	328.8	75	14.66	33.345	5.69	24.792	316.6	0.268
94	12.91	33.319	5.63	0.46	5.	0.00	6.5	284.3	100	12.95	33.460	5.18	25.230	274.9	0.343
113	13.05	33.737	4.15	0.90	10.	0.00	10.3	256.2	125	12.44	33.781	3.87	25.579	241.7	0.408
133	11.95	33.780	3.77	1.12	14.	0.00	14.0	232.8	150	11.40	33.903	3.17	25.869	214.1	0.466
152	11.35	33.918	3.10	1.55	19.	0.00	18.1	212.0	200	9.97	34.078	2.53	26.257	177.2	0.566
181	10.74	34.110	2.33	1.87	26.	0.00	21.9	187.4	250	9.10	34.160	2.21	26.466	157.4	0.652
214	9.45	34.044	2.72	1.91	30.	0.00	23.9	171.4	300	8.32	34.206	1.63	26.622	142.5	0.729
243A	9.20	34.146	2.31	2.03	35.	0.00	26.3	160.0	400	7.00	34.223	0.94	26.828	123.0	0.868
291A	8.44	34.200	1.71	2.30	43.	0.00	29.4	144.6	500	6.23	34.291	0.49	26.985	108.2	0.990
344A	7.79	34.219	1.29	2.55	51.	0.00	31.8	133.9	600	5.75	34.352	0.31	27.094	97.8	1.100
427A	6.66	34.228	0.80	2.88	66.	0.00	35.2	118.2							
511A	6.19	34.301	0.45	2.95	75.	0.00	38.0	106.9							
598A	5.76	34.350	0.31	3.05	83.	0.00	38.7	98.1							

RV ALEJANDRO DE HUMBOLDT CALCOFI CRUISE 7801 117070

LATITUDE	LONGITUDE	MO/DAY/YR	MESSENGER TIME	BOTTOM	WIND	SPEED	WEATHER	DOMINANT WAVES
27 27.5N	117 32.5W	1/20/78	1215 GMT	3757M	340	12KT	5	

Z	T	S	O2	PO4	SIO3	NO2	NO3	DT	Z	T	S	O2	SIGT	DT	DD
1	18.32	33.689	5.47	0.41	2.	0.00		371.9	0	18.32	33.689	5.47	24.212	371.9	0.000
11	18.30	33.690	5.46	0.29	1.	0.01		371.3	10	18.30	33.692	5.46	24.217	371.3	0.037
29	18.30	33.689	5.45	0.16	1.	0.01		371.4	20	18.30	33.691	5.46	24.217	371.3	0.074
38	18.31	33.688	5.46	0.02	1.	0.02		371.7	30	18.30	33.691	5.45	24.216	371.4	0.112
52	18.32	33.688	5.46	0.00	1.	0.02		371.9	50	18.32	33.690	5.46	24.211	371.9	0.186
66	16.61	33.489	5.40	0.08	2.	0.16	0.8	347.4	75	15.56	33.485	5.41	24.703	325.0	0.274
89	14.25	33.478	5.43	0.25	4.	0.03	2.0	298.6	100	13.73	33.548	5.07	25.142	283.3	0.350
108	13.46	33.607	4.73	0.61	7.	0.03	5.6	273.6	125	12.70	33.702	4.04	25.468	252.3	0.418
126	12.65	33.706	4.00	0.97		0.03	11.4	251.0	150	11.73	33.910	2.91	25.813	219.4	0.478
145	11.85	33.876	3.06		18.	0.03	17.3	223.9	200	10.32	34.073	2.76	26.194	183.2	0.580
173	11.27	34.014	2.55	1.69	23.	0.06	20.7	203.5	250	9.30	34.156	2.58	26.430	160.8	0.669
206	10.10	34.078	2.84	1.75	26.	0.07	22.4	179.2	300	8.79	34.245	1.66	26.581	146.4	0.748
234	9.45	34.098	2.86	1.78	30.	0.01	23.6	167.4	400	7.16	34.240	0.87	26.820	123.9	0.889
282	9.07	34.252	1.89	2.21	40.	0.04	27.6	150.1	500	6.75	34.367	0.27	26.976	109.0	1.013
335	8.18	34.239	1.33	2.51	49.	0.02	31.3	137.9							
417	6.96	34.247	0.77	2.86	64.	0.02	36.0	120.7							
500	6.75	34.367	0.27	3.08	71.	0.04	37.5	109.0							
584	6.10	34.384	0.19	3.17	80.	0.04	39.1	99.6							

RV ALEJANDRO DE HUMBOLDT CALCOFI CRUISE 7801 117080

LATITUDE	LONGITUDE	MO/DAY/YR	MESSENGER TIME	BOTTOM	WIND	SPEED	WEATHER	DOMINANT WAVES
27 08.0N	118 10.0W	1/20/78	0530 GMT	4547M	320	18KT	1	320

Z	T	S	O2	PO4	SIO3	NO2	NO3	DT	Z	T	S	O2	SIGT	DT	DD
1	19.14	33.853	5.41	0.50	2.	0.00		379.5	0	19.14	33.853	5.41	24.131	379.5	0.000
10	19.14	33.854	5.42	0.36	2.	0.00		379.5	10	19.14	33.854	5.42	24.132	379.5	0.038
30	19.16	33.852	5.39	0.31	2.	0.00		380.1	20	19.15	33.855	5.40	24.128	379.9	0.076
39	19.14	33.852	5.41	0.35	2.	0.00		379.6	30	19.16	33.852	5.39	24.125	380.1	0.114
52	19.15	33.852	5.40	0.31	2.	0.00		379.8	50	19.15	33.853	5.40	24.128	379.8	0.190
66	17.80	33.788	5.59	0.20	2.	0.03		352.5	75	16.63	33.718	5.56	24.639	331.1	0.280
87	15.15	33.657	5.51	0.39	3.	0.00	0.1	303.8	100	14.26	33.690	5.09	25.141	283.4	0.357
104	14.02	33.705	4.91	0.55	6.	0.01	3.6	277.4	125	12.33	33.804	3.79	25.617	238.1	0.423
120	12.62	33.762	4.04	0.85	11.	0.01	10.5	246.3	150	11.52	34.017	2.75	25.936	207.8	0.480
138	11.80	33.919	3.19	1.20	17.	0.00	16.7	219.9	200	10.70	34.250	1.81	26.265	176.4	0.578
165	11.29	34.117	2.34	1.53	23.	0.00	21.0	196.3	250	10.33	34.385	1.24	26.436	160.3	0.664
197	10.70	34.232	1.88	1.73	29.	0.00	24.0	177.7	300	9.35	34.359	1.18	26.579	146.6	0.744
224	10.68	34.363	1.35	2.15	33.	0.00	26.6	167.7	400	8.12	34.400	0.48	26.806	125.1	0.886
270	9.95	34.396	1.15	2.25	38.	0.00	27.7	153.3	500	6.88	34.375	0.32	26.963	110.2	1.011
321	8.97	34.328	1.20	2.26	44.	0.00	29.6	143.0							
401	8.11	34.401	0.47	2.66	55.	0.00	32.8	124.9							
481	7.07	34.373	0.34	2.87	66.	0.00	36.7	112.7							
562	6.43	34.395	0.25	2.86	74.	0.01	37.7	102.8							

A) CAST II.

RV ALEJANDRO DE HUMBOLDT CALCOFI CRUISE 7801 118039

LATITUDE	LONGITUDE	MO/DAY/YR	MESSENGER TIME	BOTTOM	WIND	SPEED	WEATHER	DOMINANT WAVES
28 18.5N	115 23.7W	1/21/78	1105 GMT	220M	350	7KT	1	

Z	T	S	O2	PO4	SIO3	NO2	NO3	DT	Z	T	S	O2	SIGT	DT	DD
0	17.71	33.742	5.55		2.	0.05		353.8	0	17.71	33.742	5.55	24.401	353.8	0.000
10	17.70	33.741	5.58		2.	0.04		353.6	10	17.70	33.741	5.58	24.403	353.6	0.035
31	17.68	33.736	5.54		2.	0.05		353.5	20	17.69	33.740	5.56	24.403	353.6	0.071
46	15.87	33.705	4.87		5.	0.05	3.9	315.6	30	17.68	33.738	5.54	24.404	353.5	0.106
56	15.27	33.664	4.88		5.	0.04	4.3	305.8	50	15.61	33.691	4.87	24.848	311.2	0.173
71	13.97	33.623	4.68		7.	0.04	6.9	282.4	75	13.71	33.661	4.45	25.233	278.6	0.247
86	13.10	33.783	3.77		13.	0.06	13.5	253.8	100	12.37	33.859	3.34	25.653	234.6	0.311
106	12.10	33.880	3.22		17.	0.04	18.3	228.1	125	11.59	33.980	2.77	25.894	211.8	0.367
131	11.47	34.007	2.65		22.	0.04	22.4	207.6	150	10.99	34.078	2.33	26.080	194.0	0.419
150	10.99	34.078	2.33		26.	0.04	25.3	194.0	200	10.47	34.187	1.87	26.257	177.3	0.514
176	10.54	34.158	2.00		30.	0.05	27.5	180.5							
202	10.46	34.188	1.87		31.	0.10	28.4	177.0							

RV ALEJANDRO DE HUMBOLDT CALCOFI CRUISE 7801 119033

LATITUDE	LONGITUDE	MO/DAY/YR	MESSENGER TIME	BOTTOM	WIND	SPEED	WEATHER	DOMINANT WAVES
28 19.0N	114 53.0W	1/22/78	0810 GMT	108M	020	4KT	0	

Z	T	S	O2	PO4	SIO3	NO2	NO3	DT	Z	T	S	O2	SIGT	DT	DD
0	18.40	33.892	5.36	0.13	2.	0.42	0.7	359.0	0	18.40	33.892	5.36	24.346	359.0	0.000
10	18.41	33.892	5.35	0.13	2.	0.41	0.7	359.2	10	18.41	33.892	5.35	24.344	359.2	0.036
26	18.39	33.890	5.36	0.17	2.	0.42	0.7	358.9	20	18.40	33.892	5.35	24.346	359.0	0.072
36	18.34	33.891	5.37	0.02	2.	0.41	0.8	357.6	30	18.37	33.893	5.37	24.353	358.4	0.108
46	18.25	33.871	5.35	0.00	2.	0.38	0.9	357.0	50	18.23	33.868	5.33	24.370	356.7	0.180
61	18.16	33.854	5.28	0.00	2.	0.37	1.2	356.1	75	14.94	33.687	4.00	24.994	297.3	0.262
76	14.68	33.679	3.89	1.07	10.	0.09	10.2	292.6	100	12.98	33.760	2.10	25.458	253.2	0.331
101	12.91	33.765	2.04	2.20	22.	0.06	19.6	251.5							

RV ALEJANDRO DE HUMBOLDT CALCOFI CRUISE 7801 120025

LATITUDE	LONGITUDE	MO/DAY/YR	MESSENGER TIME	BOTTOM	WIND	SPEED	WEATHER	DOMINANT WAVES
28 22.5N	114 15.0W	1/22/78	0235 GMT	55M	320	8KT		

Z	T	S	O2	PO4	SIO3	NO2	NO3	DT	Z	T	S	O2	SIGT	DT	DD
0	17.83	33.806	5.46	0.22	1.	0.08	0.6	351.9	0	17.83	33.806	5.46	24.421	351.9	0.000
10	17.80	33.808	5.48	0.58	1.	0.10	0.6	351.1	10	17.80	33.808	5.48	24.430	351.1	0.035
20	17.68	33.803	5.44		1.	0.12	0.7	348.7	20	17.68	33.803	5.44	24.455	348.7	0.070
30	17.68	33.804	5.36		1.	0.17	0.8	348.6	30	17.68	33.804	5.36	24.456	348.6	0.105
48	15.16	33.672	4.19	0.50	8.	0.04	7.0	303.0	50	15.12	33.676	4.17	24.947	301.8	0.170

RV ALEJANDRO DE HUMBOLDT CALCOFI CRUISE 7801 120030

LATITUDE	LONGITUDE	MO/DAY/YR	MESSENGER TIME	BOTTOM	WIND	SPEED	WEATHER	DOMINANT WAVES
28 13.0N	114 34.0W	1/22/78	0502 GMT	92M	020	8KT	0	

Z	T	S	O2	PO4	SIO3	NO2	NO3	DT	Z	T	S	O2	SIGT	DT	DD
1	18.41	33.878	5.39	0.72	1.	0.40	0.7	360.2	0	18.41	33.878	5.39	24.333	360.2	0.000
11	18.41	33.878	5.40	0.67	2.	0.43	0.7	360.2	10	18.41	33.879	5.40	24.333	360.2	0.036
22	18.40	33.878	5.39	0.66	2.	0.41	0.7	360.0	20	18.40	33.879	5.39	24.335	360.0	0.072
33	18.41	33.880	5.41	0.30	2.	0.26	0.5	360.1	30	18.41	33.881	5.41	24.335	360.1	0.108
44	18.42	33.880	5.37	0.25	3.	0.41	0.7	360.3	50	18.22	33.857	5.28	24.364	357.3	0.180
66	17.04	33.764	4.75	0.46	4.	0.03	3.3	336.9	75	16.01	33.729	4.24	24.787	317.0	0.265
92	13.34	33.720	2.88	1.69	17.	0.08	15.2	263.0							

RV ALEJANDRO DE HUMBOLDT CALCOFI CRUISE 7801 120035

LATITUDE	LONGITUDE	MO/DAY/YR	MESSENGER TIME	BOTTOM	WIND	SPEED	WEATHER	DOMINANT WAVES
28 03.0N	114 54.0W	1/22/78	1045 GMT	80M	040	9KT	0	040 3 9

Z	T	S	O2	PO4	SIO3	NO2	NO3	DT	Z	T	S	O2	SIGT	DT	DD
1	17.81	33.808	5.50	0.09	2.	0.09		351.3	0	17.81	33.808	5.50	24.427	351.3	0.000
11	17.82	33.808	5.54	0.00	1.	0.11		351.5	10	17.82	33.810	5.54	24.425	351.5	0.035
21	17.80	33.808	5.52	0.00	1.	0.05		351.1	20	17.80	33.809	5.52	24.429	351.1	0.070
32	17.81	33.808	5.57	0.00	1.	0.06		351.3	30	17.81	33.809	5.56	24.428	351.3	0.106
53	15.26	33.587	4.90	0.49	5.	0.07	5.3	311.3	50	15.71	33.615	5.07	24.769	318.7	0.173
79	13.07	33.755	1.90	2.31	24.	0.09	19.5	255.3	75	13.34	33.703	2.52	25.341	264.4	0.246

RV ALEJANDRO DE HUMBOLDT CALCOFI CRUISE 7801 120045

LATITUDE	LONGITUDE	MO/DAY/YR	MESSENGER TIME	BOTTOM	WIND	SPEED	WEATHER	DOMINANT WAVES
27 43.0N	115 33.0W	1/22/78	1651 GMT	2191M	030	3KT	1	330 3 9

Z	T	S	O2	PO4	SIO3	NO2	NO3	DT	Z	T	S	O2	SIGT	DT	DD
0	18.69	33.935	5.44	0.46	2.	0.00		362.7	0	18.69	33.935	5.44	24.307	362.7	0.000
10	18.69	33.936	5.44	0.43	2.	0.00		362.7	10	18.69	33.936	5.44	24.308	362.7	0.036
31	18.59	33.910	5.43	0.40	4.	0.00		362.2	20	18.66	33.929	5.44	24.310	362.5	0.073
41	18.50	33.886	5.51	0.24	2.			361.8	30	18.60	33.913	5.43	24.313	362.2	0.109
56	15.70	33.550	5.61	0.39	3.	0.04	1.0	323.2	50	16.90	33.676	5.58	24.543	340.3	0.179
71	14.80	33.569	5.49	0.56	3.	0.04	1.4	303.1	75	14.65	33.596	5.37	24.987	298.0	0.260
96	13.71	33.715	4.68	1.09	7.	0.03	7.2	270.5	100	13.32	33.703	4.65	25.344	264.0	0.330
117	11.95	33.706	4.31	1.46	11.	0.03	13.1	238.2	125	12.07	33.847	3.72	25.700	230.2	0.393
137	12.26	34.020	2.80		18.	0.03	20.5	220.7	150	12.13	34.109	2.36	25.892	211.9	0.449
157	12.06	34.153	2.24	1.74	22.	0.01	23.4	207.3	200	10.61	34.259	1.76	26.288	174.3	0.548
187	10.80	34.186	2.06	1.91	28.	0.01	26.4	182.8	250	10.22	34.429	0.97	26.488	155.3	0.633
223	10.48	34.386	1.21	2.39	35.	0.01	29.4	162.7	300	9.32	34.409	0.83	26.623	142.5	0.710
253	10.19	34.429	0.96	2.55	38.	0.01	29.9	154.7	400	8.43	34.448	0.39	26.796	126.0	0.851
303	9.27	34.406	0.82	2.83	43.	0.01	31.2	141.8	500	7.12	34.412	0.29	26.960	110.5	0.977
359	8.93	34.454	0.43	3.08	49.	0.02	32.0	133.0	600	6.29	34.411	0.22	27.071	100.0	1.090
444	7.81	34.428	0.34	3.17	60.	0.02	35.2	118.7							
530	6.80	34.406	0.26	3.22	71.	0.02	38.0	106.7							
615	6.22	34.412	0.22	3.27	78.	0.02	39.2	99.0							

RV ALEJANDRO DE HUMBOLDT CALCOFI CRUISE 7801 120050

LATITUDE	LONGITUDE	MO/DAY/YR	MESSENGER TIME	BOTTOM	WIND	SPEED	WEATHER	DOMINANT WAVES
27 33.0N	115 52.5W	1/22/78	2008 GMT	4165M	020	3KT	1	270 3 5

Z	T	S	O2	PO4	SIO3	NO2	NO3	DT	Z	T	S	O2	SIGT	DT	DD
0	18.96	33.959	5.39	0.48	1.	0.01		367.5	0	18.96	33.959	5.39	24.257	367.5	0.000
10	18.89	33.949	5.42	0.39	1.	0.01		366.5	10	18.89	33.949	5.42	24.267	366.5	0.037
31	18.75	33.916	5.40	0.50	1.	0.02		365.6	20	18.86	33.942	5.41	24.270	366.2	0.073
41	18.50	33.862	5.48	0.18	1.	0.03		363.5	30	18.76	33.920	5.40	24.277	365.6	0.110
56	17.07	33.656	5.10	0.32	2.	0.10	2.9	345.5	50	17.71	33.736	5.26	24.396	354.2	0.182
74	15.61	33.653	5.22	0.53	4.	0.09	2.2	313.8	75	15.50	33.651	5.21	24.843	311.7	0.266
98	13.12	33.639	4.58	0.95	8.	0.08	8.2	264.8	100	12.98	33.655	4.48	25.375	261.1	0.338
118	12.07	33.811	3.57	1.38	15.	0.08	15.0	232.7	125	11.90	33.869	3.31	25.749	225.5	0.400
139	11.49	33.946	3.02	1.67	19.	0.05	19.1	212.4	150	10.68	33.946	3.12	26.032	198.6	0.453
159	10.02	33.943	3.24	1.89	24.	0.02	21.8	187.9	200	9.40	34.107	2.52	26.374	166.1	0.546
190	9.54	34.078	2.66	2.03	30.	0.02	25.0	170.3	250	9.31	34.287	1.53	26.531	151.2	0.628
226	9.19	34.179	2.13	2.26	37.	0.03	27.5	157.4	300	8.21	34.227	1.41	26.657	139.3	0.703
256	9.32	34.308	1.40	2.67	41.	0.06	29.0	149.8	400	7.29	34.289	0.74	26.840	121.9	0.840
307	8.12	34.225	1.41	2.88	48.	0.03	31.9	138.1	500	6.51	34.348	0.36	26.993	107.4	0.961
364	7.60	34.264	0.96	3.16	56.	0.02	34.4	128.0	600	5.92	34.395	0.24	27.107	96.6	1.071
451	6.87	34.320	0.50	3.37	67.	0.04	37.2	114.0							
537	6.27	34.366	0.30	3.68	77.	0.05	39.5	103.0							
624	5.80	34.403	0.23	3.55	85.	0.04	40.4	94.6							

RV ALEJANDRO DE HUMBOLDT CALCOFI CRUISE 7801 120060

LATITUDE	LONGITUDE	MO/DAY/YR	MESSENGER TIME	BOTTOM	WIND	SPEED	WEATHER	DOMINANT WAVES
27 13.0N	116 30.5W	1/23/78	0147 GMT	3642M	010	7KT	2	340 3 9

Z	T	S	O2	PO4	SIO3	NO2	NO3	DT	Z	T	S	O2	SIGT	DT	DD
0	18.62	33.880	5.42		0.			365.1	0	18.62	33.880	5.42	24.283	365.1	0.000
10	18.61	33.879	5.48		0.			364.9	10	18.61	33.879	5.48	24.284	364.9	0.037
31	18.51	33.876	5.41		0.			362.8	20	18.56	33.879	5.46	24.295	363.9	0.073
41	18.50	33.875	5.40		0.			362.6	30	18.51	33.878	5.42	24.306	362.9	0.109
56	15.23	33.609	5.23	0.12	5.		2.8	309.0	50	16.69	33.706	5.34	24.613	333.6	0.179
71	13.27	33.643	4.60	0.54	8.		8.0	267.3	75	13.02	33.679	4.39	25.386	260.0	0.254
97	12.30	33.867	3.36	1.13	15.		16.6	232.7	100	12.18	33.876	3.31	25.702	230.0	0.316
117	11.59	33.928	3.03		21.		20.1	215.5	125	11.46	34.018	2.67	25.947	206.7	0.371
137	11.29	34.134	2.18		25.		24.4	195.1	150	10.95	34.138	2.22	26.134	188.9	0.421
158	10.74	34.140	2.25	1.49	26.		25.1	185.2	200	10.24	34.319	1.47	26.400	163.7	0.511
188	10.37	34.284	1.63	1.82	32.		27.3	168.4	250	9.71	34.404	0.99	26.556	148.8	0.592
224	9.98	34.365	1.22		31.			156.0	300	8.96	34.378	0.83	26.658	139.1	0.666
254	9.66	34.407	0.96	2.20	40.		30.3	147.8	400	7.74	34.355	0.57	26.826	123.2	0.804
305	8.88	34.372	0.82	2.34	44.		30.3	138.4	500	6.59	34.347	0.37	26.981	108.5	0.927
361	8.30	34.366	0.66		49.		34.1	130.2	600	5.84	34.375	0.27	27.100	97.2	1.037
447	7.08	34.344	0.47	3.78	63.		38.1	115.0							
533	6.34	34.352	0.32	3.86	72.		40.5	104.9							
619	5.71	34.383	0.26	3.90	80.		42.0	95.0							

RV ALEJANDRO DE HUMBOLDT CALCOFI CRUISE 7801 120070

LATITUDE	LONGITUDE	MO/DAY/YR	MESSENGER TIME	BOTTOM	WIND	SPEED	WEATHER	DOMINANT WAVES
26 53.0N	117 10.0W	1/23/78	0724 GMT	4041M	360	4KT	1	330 3 10

Z	T	S	O2	PO4	SIO3	NO2	NO3	DT	Z	T	S	O2	SIGT	DT	DD
1	18.62	33.891	5.43	0.43	2.			364.3	0	18.62	33.891	5.43	24.291	364.3	0.000
11	18.62	33.893	5.44	0.36	2.			364.1	10	18.62	33.894	5.44	24.292	364.1	0.036
32	18.61	33.890	5.44	0.31	2.			364.1	20	18.62	33.894	5.44	24.293	364.1	0.073
42	18.60	33.890	5.44	0.20	2.			363.9	30	18.61	33.892	5.44	24.293	364.1	0.109
57	17.69	33.819	5.10	0.33	3.	0.06	1.7	347.7	50	18.29	33.872	5.25	24.356	358.1	0.182
72	14.98	33.583	5.25	0.48	4.	0.00	2.0	305.7	75	14.64	33.593	5.09	24.984	298.3	0.264
98	12.81	33.745	3.89	1.19	12.	0.01	11.8	251.1	100	12.60	33.736	3.95	25.512	248.0	0.333
118	11.22	33.716	4.25	1.13	13.	0.01	12.6	224.7	125	11.29	33.843	3.61	25.843	216.6	0.392
138	11.64	34.090	2.31	1.91	23.	0.03	21.0	204.4	150	11.51	34.133	2.16	26.027	199.0	0.445
159	11.41	34.151	2.05	2.18	25.	0.01	23.5	195.9	200	10.21	34.227	1.90	26.333	170.1	0.539
189	10.54	34.228	1.86	2.15	30.	0.03	24.5	175.4	250	9.24	34.251	1.69	26.514	152.8	0.622
225	9.57	34.215	1.96	2.32	34.	0.03	26.2	160.6	300	8.39	34.227	1.50	26.629	141.9	0.698
255	9.18	34.257	1.63	2.47	39.	0.02	27.9	151.4	400	7.42	34.320	0.58	26.846	121.4	0.836
305	8.30	34.222	1.49	2.47	45.	0.05	30.5	140.9	500	6.63	34.368	0.30	26.993	107.4	0.957
361	7.67	34.274	0.88	2.96	55.	0.00	33.7	128.2	600	5.84	34.386	0.22	27.109	96.4	1.067
447	7.15	34.363	0.35	3.14	65.	0.02	35.8	114.5							
534	6.29	34.365	0.26	3.24	76.	0.03	38.8	103.3							
620	5.74	34.394	0.22	3.30	83.	0.01	39.0	94.5							

RV ALEJANDRO DE HUMBOLDT CALCOFI CRUISE 7801 120080

LATITUDE	LONGITUDE	MO/DAY/YR	MESSENGER TIME	BOTTOM	WIND	SPEED	WEATHER	DOMINANT WAVES
26 32.4N	117 49.0W	1/23/78	1319 GMT	3936M	330	4KT	1	300 6 10

Z	T	S	O2	PO4	SIO3	NO2	NO3	DT	Z	T	S	O2	SIGT	DT	DD
0	19.46	34.106	5.35	0.36	2.	0.00		369.0	0	19.46	34.106	5.35	24.242	369.0	0.000
10	19.48	34.108	5.34	0.23	2.	0.00		369.3	10	19.48	34.108	5.34	24.238	369.3	0.037
30	19.49	34.105	5.34	0.18	2.	0.00		369.8	20	19.49	34.108	5.34	24.235	369.5	0.074
41	19.46	34.106	5.34	0.11	2.	0.00		369.0	30	19.49	34.105	5.34	24.233	369.8	0.111
56	17.46	33.717	5.07	0.32	2.	0.08	2.1	349.9	50	18.40	33.883	5.16	24.339	359.7	0.184
71	15.36	33.570	5.36	0.38	3.	0.01	1.9	314.6	75	14.94	33.575	5.32	24.908	305.5	0.268
96	13.35	33.624	4.70	0.79	7.	0.01	7.7	270.2	100	13.16	33.657	4.51	25.341	264.3	0.340
116	12.56	33.798	3.72	1.25	13.	0.01	14.2	242.6	125	12.21	33.873	3.33	25.694	230.8	0.402
136	11.80	33.942	2.96	1.58	19.	0.01	19.5	218.2	150	11.32	33.975	2.82	25.940	207.4	0.458
155	11.15	33.980	2.81	1.74	21.	0.01	21.7	204.0	200	9.73	34.122	2.48	26.332	170.1	0.554
185	10.06	34.075	2.60	1.81	27.	0.00	25.1	178.8	250	9.89	34.371	1.23	26.499	154.3	0.638
220	9.55	34.195	2.33	2.01	33.	0.00	27.4	161.8	300	9.55	34.469	0.54	26.633	141.5	0.714
249	9.90	34.368	1.25	2.43	38.	0.00	29.7	154.5	400	8.15	34.434	0.31	26.828	123.0	0.853
299	9.56	34.468	0.54	2.81	44.	0.00	31.5	141.7	500	7.01	34.412	0.22	26.976	109.0	0.977
353	8.82	34.454	0.37	2.93	51.	0.00	33.3	131.4	600	6.13	34.423	0.17	27.102	97.1	1.088
438	7.64	34.419	0.28	3.13	62.	0.01	36.8	117.0							
523	6.80	34.411	0.20	3.26	71.	0.00	39.7	106.3							
611	6.04	34.425	0.17	3.35	82.	0.01	40.8	95.8							

RV ALEJANDRO DE HUMBOLDT CALCOFI CRUISE 7801 123042

LATITUDE	LONGITUDE	MO/DAY/YR	MESSENGER TIME	BOTTOM	WIND	SPEED	WEATHER	DOMINANT WAVES
27 14.0N	114 59.0W	1/24/78	1214 GMT	1151M	340	10KT	1	310

Z	T	S	O2	PO4	SIO3	NO2	NO3	DT	Z	T	S	O2	SIGT	DT	DD
0	18.70	34.129	5.39		2.	0.00	0.0	348.9	0	18.70	34.129	5.39	24.452	348.9	0.000
9	18.70	34.129	5.40		2.	0.00	0.0	348.9	10	18.70	34.130	5.40	24.452	348.9	0.035
29	18.69	34.125	5.39		2.	0.00	0.0	348.9	20	18.69	34.128	5.39	24.452	348.9	0.070
39	18.66	34.121	5.45		2.	0.00	0.0	348.5	30	18.69	34.126	5.40	24.452	348.9	0.105
54	15.44	33.775	5.18	0.34	4.	0.10	1.2	301.3	50	16.42	33.863	5.29	24.798	316.0	0.172
69	13.60	33.732	4.48	0.68	7.	0.00	6.7	267.1	75	13.23	33.737	4.33	25.388	259.8	0.244
94	12.70	33.824	3.80	1.07	12.	0.00	12.6	243.3	100	12.60	33.898	3.45	25.639	236.0	0.306
113	12.41	34.052	2.72	1.49	18.	0.01	18.2	221.1	125	12.18	34.114	2.45	25.886	212.4	0.363
133	11.99	34.132	2.36	1.68	21.	0.00	21.1	207.6	150	11.42	34.157	2.20	26.063	195.7	0.415
153	11.32	34.161	2.17	1.82	24.	0.00	23.1	193.6	200	10.82	34.394	1.15	26.355	167.9	0.508
182	10.96	34.320	1.51	1.94	30.	0.01	25.8	175.6	250	10.18	34.464	0.70	26.523	152.0	0.590
217	10.68	34.440	0.89	2.21	35.	0.00	27.2	162.0	300	9.72	34.492	0.42	26.623	142.5	0.667
246	10.22	34.460	0.73	2.38	39.	0.00	28.4	152.9	400	8.59	34.471	0.24	26.790	126.6	0.808
295	9.77	34.490	0.44	2.57	43.	0.00	29.1	143.4	500	7.35	34.419	0.20	26.932	113.1	0.936
349	9.19	34.492	0.30	2.63	48.	0.00	30.2	134.2	600	6.34	34.411	0.18	27.064	100.6	1.051
433	8.18	34.452	0.23	2.74	56.	0.00	32.9	122.1							
519	7.13	34.411	0.20	2.83	67.	0.00	35.9	110.7							
606	6.29	34.411	0.18	3.01	78.	0.00	39.0	99.9							

RV ALEJANDRO DE HUMBOLDT CALCOFI CRUISE 7801 123050

LATITUDE	LONGITUDE	MO/DAY/YR	MESSENGER TIME	BOTTOM	WIND	SPEED	WEATHER	DOMINANT WAVES
26 58.0N	115 31.0W	1/24/78	0543 GMT	3719M	340	10KT	1	310 3 10

Z	T	S	O2	PO4	SIO3	NO2	NO3	DT	Z	T	S	O2	SIGT	DT	DD
1	18.35	34.041	5.46	0.37	2.	0.02	0.0	347.0	0	18.35	34.041	5.46	24.472	347.0	0.000
11	18.36	34.041	5.49	0.31	2.	0.00	0.3	347.2	10	18.36	34.042	5.49	24.470	347.2	0.035
30	18.36	34.042	5.47	0.25	2.	0.01	0.2	347.1	20	18.36	34.043	5.48	24.470	347.2	0.070
40	18.42	34.069	5.43	0.20	2.	0.13	0.1	346.6	30	18.36	34.042	5.47	24.471	347.1	0.104
55	16.60	33.861	5.13	0.38	4.	0.28	1.0	320.1	50	17.37	33.940	5.27	24.632	331.8	0.172
69	14.26	33.777	4.52	0.72	8.	0.03	5.2	276.9	75	13.82	33.789	4.30	25.309	267.4	0.248
93	13.23	33.869	3.67	1.13	13.		11.6	250.0	100	12.99	33.921	3.37	25.579	241.6	0.312
113	12.49	33.990	2.97	1.34	17.		15.7	227.2	125	11.76	33.951	3.10	25.839	216.9	0.370
132	11.39	33.938	3.14	1.33	19.		17.4	211.2	150	11.21	34.139	2.24	26.087	193.3	0.422
151	11.20	34.149	2.18	1.85	25.		22.6	192.4	200	10.18	34.294	1.58	26.390	164.6	0.514
180	10.63	34.270	1.69	1.99	31.		24.8	173.7	250	9.68	34.399	0.97	26.557	148.7	0.594
214	9.92	34.305	1.51	2.05	36.		25.4	159.5	300	9.18	34.438	0.56	26.669	138.1	0.669
243	9.73	34.385	1.06	2.27	40.		26.8	150.5	400	7.92	34.404	0.38	26.838	122.1	0.805
291	9.30	34.440	0.57	2.46	45.		28.9	139.7	500	6.99	34.399	0.24	26.967	109.9	0.929
344	8.57	34.410	0.50	2.60	52.		30.7	130.9	600	6.12	34.398	0.21	27.084	98.8	1.041
427	7.65	34.404	0.32	2.69	61.		33.0	118.2							
510	6.91	34.397	0.23	2.84	69.		35.5	108.8							
595	6.14	34.396	0.21	2.79	79.		36.5	99.2							

RV ALEJANDRO DE HUMBOLDT CALCOFI CRUISE 7801 123060

LATITUDE	LONGITUDE	MO/DAY/YR	MESSENGER TIME	BOTTOM	WIND	SPEED	WEATHER	DOMINANT WAVES
26 38.5N	116 09.0W	1/23/78	2344 GMT	3823M	350	5KT	2	350 8 5

Z	T	S	O2	PO4	SIO3	NO2	NO3	DT	Z	T	S	O2	SIGT	DT	DD
1	19.32	34.055	5.37		2.			369.2	0	19.32	34.055	5.37	24.239	369.2	0.000
11	19.31	34.053	5.40		1.		0.9	369.1	10	19.31	34.054	5.40	24.240	369.2	0.037
31	18.79	33.944	5.44		1.		0.8	364.5	20	19.09	34.005	5.42	24.259	367.3	0.074
41	18.71	33.939	5.47		1.		0.9	362.9	30	18.82	33.951	5.44	24.286	364.8	0.110
56	18.70	33.939	5.41		1.		0.8	362.7	50	18.70	33.940	5.43	24.306	362.8	0.184
71	15.91	33.566	5.57		3.		0.9	326.6	75	15.55	33.590	5.37	24.784	317.3	0.269
96	14.21	33.819	4.23	0.20	8.		8.2	272.8	100	13.76	33.802	4.24	25.331	265.3	0.342
116	12.06	33.734	4.28	0.38	11.		12.3	238.1	125	11.52	33.787	4.09	25.757	224.7	0.404
135	11.11	33.859	3.80	0.93	16.		17.0	212.2	150	10.64	33.910	3.35	26.012	200.6	0.458
155	10.54	33.929	3.17	1.35	21.		21.7	197.4	200	10.72	34.381	1.18	26.364	167.1	0.552
185	10.73	34.290	1.64	2.21	30.		27.0	174.0	250	10.30	34.498	0.63	26.527	151.5	0.634
219	10.70	34.461	0.82	2.54	36.		29.4	160.8	300	9.48	34.452	0.60	26.632	141.6	0.710
249	10.32	34.498	0.63	2.77	38.		29.9	151.8	400	8.37	34.458	0.32	26.812	124.5	0.850
298	9.50	34.452	0.60	2.90	44.		31.2	142.0	500	7.12	34.436	0.24	26.978	108.8	0.975
353	8.92	34.454	0.45		49.		32.6	132.9	600	6.28	34.443	0.19	27.098	97.4	1.086
437	7.92	34.456	0.24	3.34	59.		35.5	118.1							
524	6.85	34.429	0.24	3.52	70.		38.9	105.7							
611	6.22	34.446	0.18	3.55	78.		40.4	96.4							

RV ALEJANDRO DE HUMBOLDT CALCOFI CRUISE 7801 127034

LATITUDE	LONGITUDE	MO/DAY/YR	MESSENGER TIME	BOTTOM	WIND	SPEED	WEATHER	DOMINANT WAVES
26 55.0N	114 06.6W	1/25/78	0029 GMT	76M	350	15KT	1	350 3 4

Z	T	S	O2	PO4	SIO3	NO2	NO3	DT	Z	T	S	O2	SIGT	DT	DD
0	19.19	34.253	5.37	0.17	2.	0.00	0.0	351.7	0	19.19	34.253	5.37	24.423	351.7	0.000
9	19.21	34.253	5.37	0.04	2.	0.00	0.0	352.2	10	19.21	34.254	5.37	24.418	352.2	0.035
18	19.20	34.252	5.37	0.11	2.	0.00	0.0	352.0	20	19.18	34.250	5.37	24.421	351.9	0.070
28	19.12	34.236	5.38	0.00	2.	0.09	0.0	351.2	30	19.05	34.220	5.37	24.433	350.7	0.106
47	18.00 A	34.027	5.22	0.13	3.	0.09	0.4	339.8	50	17.76	33.996	5.20	24.582	336.5	0.175
71	15.59	33.796	5.07	0.46	4.	0.00	2.0	302.9							

RV ALEJANDRO DE HUMBOLDT CALCOFI CRUISE 7801 127040

LATITUDE	LONGITUDE	MO/DAY/YR	MESSENGER TIME	BOTTOM	WIND	SPEED	WEATHER	DOMINANT WAVES
26 43.4N	114 29.1W	1/25/78	0401 GMT	3169M	360	18KT	1	360 3 9

Z	T	S	O2	PO4	SIO3	NO2	NO3	DT	Z	T	S	O2	SIGT	DT	DD
1	20.09	34.318	5.28	0.32		0.00		369.2	0	20.09	34.318	5.28	24.239	369.2	0.000
10	20.10	34.317	5.34	0.30		0.00		369.5	10	20.10	34.317	5.34	24.235	369.5	0.037
34	20.12	34.314	5.29	0.23	0.	0.00		370.3	20	20.11	34.315	5.32	24.231	370.0	0.074
43	20.10	34.310	5.34	0.12	0.	0.01		370.0	30	20.12	34.314	5.30	24.228	370.2	0.111
57	19.56	34.207	5.37	0.18	0.	0.00		364.1	50	19.83	34.259	5.36	24.261	367.1	0.185
71	15.90	33.805	5.32	0.24	0.	0.14		308.9	75	15.39	33.773	5.24	24.961	300.5	0.269
94	14.06	33.773	4.60	0.67	3.	0.01	5.3	273.2	100	13.55	33.791	4.29	25.366	261.9	0.340
112	12.68	33.855	3.65	1.02	9.	0.01	11.8	240.6	125	12.27	33.969	3.11	25.757	224.8	0.401
131	12.16	34.022	2.89	1.41	15.	0.05	17.5	218.8	150	11.65	34.153	2.26	26.017	200.1	0.455
158	11.45	34.192	2.06	1.91	22.	0.02	23.4	193.6	200	10.68	34.296	1.61	26.304	172.8	0.551
186	10.88	34.248	1.83	1.96	26.	0.00	24.6	179.6	250	10.45	34.471	0.77	26.481	156.0	0.635
223	10.48	34.381	1.20	2.27	32.	0.02	25.8	163.1	300	9.71	34.485	0.48	26.620	142.8	0.713
251	10.45	34.473	0.76	2.74	36.		27.6	155.8	400	8.34	34.459	0.26	26.818	124.0	0.853
297	9.75	34.485	0.49	2.75	43.		29.4	143.5	500	7.17	34.426	0.22	26.964	110.1	0.978
357	8.91	34.476	0.32	2.86	48.		31.0	131.1	600	6.32	34.432	0.17	27.084	98.8	1.090
452	7.70	34.436	0.23	2.99	60.		34.3	116.5							
540	6.78	34.422	0.21	3.03	70.		37.1	105.3							
616	6.22	34.435	0.16	3.06	78.		37.9	97.2							

A) ALTERNATE VALUE, 17.85 DEGREES.

RV ALEJANDRO DE HUMBOLDT CALCOFI CRUISE 7801 127050

LATITUDE	LONGITUDE	MO/DAY/YR	MESSENGER TIME	BOTTOM	WIND	SPEED	WEATHER	DOMINANT WAVES
26 23.0N	115 08.0W	1/25/78	1017 GMT	2416M	020	18KT	1	010 4 7

Z	T	S	O2	PO4	SIO3	NO2	NO3	DT
0	19.63	34.113	5.34	0.05	2.	0.00		372.6
10	19.65	34.113	5.36	0.03	2.	0.00		373.1
34	19.64	34.114	5.33	0.00	2.	0.00		372.8
44	19.65	34.113	5.34	0.00	2.	0.00		373.1
59	19.42 A	34.075	5.41	0.00	2.	0.00		370.2
73	16.59	33.850	5.48	0.01	3.	0.00		320.6
98	13.98	33.631	5.16	0.41	4.	0.05	2.9	282.0
117	13.06	33.887	3.63	1.00	12.	0.06	12.5	245.4
137	12.32	34.035	2.84	1.43	17.	0.01	18.7	220.7
166	11.35	34.144	2.25	1.94	24.	0.01	25.1	195.4
195	10.67	34.306	1.55	2.04	31.	0.00	26.9	171.8
234	9.95	34.376	1.10	2.14	37.	0.08	26.6	154.7
263	9.76	34.446	0.66	2.54	41.	0.00	30.0	146.5
311	9.22	34.453	0.45	2.73	46.	0.00	31.3	137.5
374	8.56	34.446	0.32	2.81	52.	0.00	33.0	128.1
472	7.49	34.443	0.19	3.01	62.	0.05	35.9	115.1
561	6.71	34.437	0.15	3.04	71.	0.00	37.7	103.2
637	6.08	34.441	0.16	3.12	79.	0.01	40.0	95.1

Z	T	S	O2	SIGT	DT	DD
0	19.63	34.113	5.34	24.203	372.6	0.000
10	19.65	34.113	5.36	24.198	373.1	0.037
20	19.65	34.115	5.35	24.199	373.0	0.075
30	19.64	34.115	5.34	24.200	372.9	0.112
50	19.56	34.099	5.36	24.210	372.0	0.187
75	16.29	33.818	5.45	24.792	316.6	0.273
100	13.86	33.654	5.01	25.197	278.0	0.348
125	12.75	33.959	3.24	25.656	254.3	0.413
150	11.86	34.089	2.54	25.928	208.5	0.469
200	10.56	34.320	1.48	26.344	168.9	0.566
250	9.83	34.418	0.85	26.546	149.8	0.648
300	9.35	34.453	0.47	26.654	139.5	0.723
400	8.27	34.445	0.28	26.818	123.9	0.861
500	7.23	34.441	0.17	26.967	109.8	0.986
600	6.38	34.439	0.16	27.081	99.0	1.098

RV ALEJANDRO DE HUMBOLDT CALCOFI CRUISE 7801 127060

LATITUDE	LONGITUDE	MO/DAY/YR	MESSENGER TIME	BOTTOM	WIND	SPEED	WEATHER	DOMINANT WAVES
26 03.5N	115 46.5W	1/25/78	1545 GMT	3738M	040	20KT	1	030 5 7

Z	T	S	O2	PO4	SIO3	NO2	NO3	DT
0	19.59	34.227	5.31		2.	0.00		363.4
9	19.60	34.230	5.32		2.	0.00		363.4
18	19.59	34.226	5.32		2.	0.00		363.5
40	19.59		5.36		2.	0.00		
49	19.60	34.227	5.32		2.	0.09		363.6
62	17.45	33.847	5.39		2.	0.05	0.2	340.2
75	15.41	33.810	4.98	1.06	5.	0.29	1.9	298.1
97	13.80		3.88	1.61	11.	0.17	9.2	
131	11.51	33.894	3.28	2.05	18.	0.10	18.1	216.6
157	10.77	34.063	2.60	2.48	25.	0.00	22.3	191.4
182	10.41	34.176	2.21	2.43	29.	0.00	25.4	177.0
215	9.43	34.167	2.24	2.44	34.	0.00	26.7	162.0
240	9.09	34.214	1.89	2.55	38.	0.07	28.4	153.3
282	8.72	34.301	1.23	2.67	45.	0.00	30.3	141.2
337	8.35	34.338	0.82	2.87	51.	0.02	32.5	133.0
424	7.59	34.394	0.38	3.09	61.		34.9	118.1
506	6.86	34.403	0.27					107.7
580	6.38	34.431	0.21					99.5

Z	T	S	O2	SIGT	DT	DD
0	19.59	34.227	5.31	24.300	363.4	0.000
10	19.60	34.231	5.32	24.300	363.4	0.036
20	19.59	34.227	5.33	24.299	363.5	0.073
30	19.59	34.226	5.35	24.299	363.5	0.109
50	19.48	34.203	5.33	24.310	362.4	0.182
75	15.41	33.810	4.98	24.986	298.1	0.265
100	13.56	33.835	3.81	25.399	258.8	0.335
125	11.83	33.871	3.35	25.765	224.0	0.396
150	10.91	34.017	2.78	26.047	197.2	0.450
200	9.87	34.177	2.22	26.351	168.3	0.543
250	8.99	34.237	1.72	26.544	150.0	0.625
300	8.60	34.319	1.06	26.669	138.1	0.700
400	7.81	34.382	0.47	26.837	122.2	0.836
500	6.91	34.404	0.27	26.982	108.4	0.958
600	6.32	34.433		27.085	98.6	1.070

RV ALEJANDRO DE HUMBOLDT CALCOFI CRUISE 7801 130030

LATITUDE	LONGITUDE	MO/DAY/YR	MESSENGER TIME	BOTTOM	WIND	SPEED	WEATHER	DOMINANT WAVES
26 29.0N	113 29.0W	1/26/78	1659 GMT	77M	020	12KT	1	020 5 9

Z	T	S	O2	PO4	SIO3	NO2	NO3	DT
0	18.97	34.251	5.31	0.34	2.	0.01	0.2	346.5
10	18.97	34.251	5.33	0.26	2.	0.00	0.1	346.5
20	18.96	34.250	5.33	0.18	2.	0.00	0.1	346.4
30	18.96	34.251	5.37	0.12	2.	0.01	0.1	346.3
50	18.97	34.250	5.33	0.22	2.	0.01	0.1	346.6
76	14.96	33.869	3.94	0.81	11.	0.39	6.2	284.4

Z	T	S	O2	SIGT	DT	DD
0	18.97	34.251	5.31	24.477	346.5	0.000
10	18.97	34.251	5.33	24.477	346.5	0.035
20	18.96	34.250	5.33	24.479	346.4	0.069
30	18.96	34.251	5.37	24.480	346.3	0.104
50	18.97	34.250	5.33	24.476	346.6	0.174
75	15.20	33.888	4.02	25.091	288.1	0.253

RV ALEJANDRO DE HUMBOLDT CALCOFI CRUISE 7801 130040

LATITUDE	LONGITUDE	MO/DAY/YR	MESSENGER TIME	BOTTOM	WIND	SPEED	WEATHER	DOMINANT WAVES
26 09.0N	114 07.0W	1/26/78	1035 GMT	2227M	360	12KT	0	350 4 9

Z	T	S	O2	PO4	SIO3	NO2	NO3	DT
1	19.65	34.206	5.34	0.17	2.	0.00		366.4
10	19.66	34.204	5.36	0.20	2.	0.00		366.8
28	19.65	34.204	5.33	0.12	2.	0.00		366.5
37	19.65	34.203	5.33	0.00	1.	0.00		366.6
50	19.54	34.186	5.35	0.00	2.	0.00		365.1
64	15.82	33.787	5.36	0.00	3.	0.04	1.0	308.5
86	14.06	33.931	3.56	0.71	11.	0.01	12.0	261.6
103	13.49	34.013	2.85	1.05	15.	0.05	16.3	244.4
120	13.09	34.144	2.26	1.40	20.	0.06	20.5	227.1
137	12.79	34.228	1.88	1.71	22.	0.05	23.0	215.2
163	12.30	34.275	1.65	1.96	25.	0.01	25.5	202.7
191	11.93	34.404	1.13	2.14	29.	0.04	27.8	186.5
218	10.85	34.337	1.44	2.18	31.	0.05	28.7	172.5
260	10.54	34.506	0.64	2.67	38.		30.0	154.8
306	9.71	34.484	0.49	2.72	43.	0.03	32.6	142.9
380	9.11	34.497	0.27	2.91	49.	0.08	33.2	132.6
457	8.10	34.466	0.20	3.05	58.	0.04	36.2	119.9
536	7.23	34.461	0.13	3.16	68.		37.9	108.3

Z	T	S	O2	SIGT	DT	DD
0	19.65	34.206	5.34	24.269	366.4	0.000
10	19.66	34.204	5.36	24.264	366.8	0.037
20	19.66	34.205	5.35	24.265	366.7	0.073
30	19.65	34.205	5.33	24.267	366.5	0.110
50	19.54	34.186	5.35	24.282	365.1	0.184
75	14.56	33.816	4.54	25.175	280.1	0.265
100	13.56	33.999	2.95	25.525	246.8	0.331
125	13.00	34.174	2.13	25.773	223.2	0.391
150	12.54	34.254	1.75	25.926	208.7	0.446
200	11.57	34.384	1.22	26.211	181.6	0.545
250	10.56	34.461	0.87	26.454	158.5	0.633
300	9.78	34.484	0.51	26.607	144.0	0.711
400	8.86	34.490	0.24	26.761	129.3	0.855
500	7.61	34.460	0.16	26.929	113.4	0.985

A) ALTERNATE VALUE, 19.18 DEGREES.

RV ALEJANDRO DE HUMBOLDT CALCOFI CRUISE 7801 130050

LATITUDE	LONGITUDE	MO/DAY/YR	MESSENGER TIME	BOTTOM	WIND	SPEED	WEATHER	DOMINANT WAVES
25 49.0N	114 45.0W	1/26/78	0455 GMT	3661M	030	8KT	1	030 3 6

Z	T	S	O2	PO4	SIO3	NO2	NO3	DT	Z	T	S	O2	SIGT	DT	DD
1	19.96	34.293	5.31	0.19	2.	0.00		367.8	0	19.96	34.293	5.31	24.254	367.8	0.000
11	19.97	34.288	5.34	0.14	1.	0.00		368.4	10	19.97	34.289	5.34	24.248	368.4	0.037
31	19.91	34.280	5.34	0.10	1.	0.00		367.5	20	19.94	34.285	5.34	24.252	368.0	0.074
41	19.49	34.219	5.36	0.10	2.	0.00		361.5	30	19.91	34.281	5.34	24.257	367.5	0.111
56	16.32	33.649	5.84	0.10	2.	0.00		329.4	50	17.66	33.868	5.66	24.508	343.6	0.182
71	14.99	33.637	5.58	0.10	3.	0.00		302.0	75	14.63	33.642	5.46	25.026	294.3	0.262
95	12.95	33.693	4.69	0.72	7.	0.01	7.2	257.6	100	12.57	33.712	4.46	25.500	249.2	0.331
115	11.66	33.777	3.85	1.06	14.	0.05	14.3	227.8	125	11.38	33.830	3.64	25.816	219.1	0.390
135	11.19	33.885	3.46	1.44	18.	0.01	18.8	211.7	150	10.74	33.976	3.07	26.046	197.3	0.443
155	10.64	34.017	2.89	1.79	24.	0.01	23.5	192.6	200	11.38	34.513	0.73	26.347	168.7	0.536
185	11.62	34.516	0.80	2.66	33.	0.00	29.3	172.7	250	10.06	34.466	0.66	26.545	149.9	0.618
220	10.76	34.509	0.63	2.36	37.	0.15	24.9	158.3	300	9.51	34.490	0.37	26.656	139.3	0.693
250	10.06	34.466	0.66	2.80	40.	0.00	31.6	149.9	400	8.52	34.495	0.18	26.819	123.9	0.832
300	9.51	34.490	0.37	3.01	45.	0.00	32.6	139.3	500	7.41	34.478	0.13	26.970	109.6	0.956
355	9.02	34.506	0.21	3.11	50.	0.00	33.6	130.5	600	6.54	34.462	0.14	27.079	99.2	1.069
441	8.04	34.480	0.16	3.12	59.	0.06	36.2	118.0							
527	7.15	34.476	0.12	3.17	69.	0.01	38.4	106.1							
613	6.44	34.457	0.14	2.96	77.	0.02	38.3	98.3							

RV ALEJANDRO DE HUMBOLDT CALCOFI CRUISE 7801 130060

LATITUDE	LONGITUDE	MO/DAY/YR	MESSENGER TIME	BOTTOM	WIND	SPEED	WEATHER	DOMINANT WAVES
25 29.0N	115 24.0W	1/25/78	2203 GMT	3738M	040	12KT	1	040 4 5

Z	T	S	O2	PO4	SIO3	NO2	NO3	DT	Z	T	S	O2	SIGT	DT	DD
1	19.79	34.176	5.33	0.00	2.	0.00	0.3	372.0	0	19.79	34.176	5.33	24.209	372.0	0.000
10	19.80	34.176	5.34	0.00			0.3	372.3	10	19.80	34.176	5.34	24.207	372.3	0.037
34	19.78	34.174	5.32	0.00	2.	0.00	0.3	371.9	20	19.79	34.176	5.33	24.208	372.1	0.075
43	19.76	34.175	5.34	0.00	1.	0.00	0.1	371.4	30	19.78	34.175	5.32	24.210	372.0	0.112
56	17.01	33.735	5.69	0.00	2.	0.00	0.1	338.4	50	18.45	33.943	5.54	24.373	356.4	0.185
70	14.66	33.644	5.40	0.11	3.	0.05	0.9	294.7	75	14.06	33.642	5.19	25.146	282.8	0.265
93	12.49	33.697	4.35	0.85	9.	0.02	11.1	248.7	100	12.01	33.742	4.09	25.630	236.8	0.331
111	11.46	33.824	3.69	1.30	15.	0.01	16.7	220.9	125	11.21	33.951	3.06	25.941	207.3	0.387
129	11.17	33.982	2.90	1.64	20.	0.00	21.3	204.2	150	10.56	34.049	2.77	26.134	189.0	0.437
155	10.41	34.055	2.74	1.80	25.	0.00	23.6	186.0	200	9.56	34.168	2.36	26.397	163.9	0.527
182	10.00	34.131	2.49	1.95	28.	0.00	25.3	173.7	250	8.59	34.216	1.76	26.589	145.7	0.607
218	9.09	34.190	2.21	2.10	36.	0.04	27.1	155.0	300	8.56	34.357	0.84	26.705	134.7	0.680
244	8.59	34.195	1.88	2.32	41.	0.00	30.1	147.2	400	7.76	34.431	0.33	26.883	117.8	0.812
289	8.59	34.331	0.99	2.80	46.	0.00	31.7	137.1	500	6.84	34.427	0.24	27.011	105.7	0.931
347	8.31	34.430	0.39	3.12	54.	0.00	33.3	125.6	600	6.22	34.447	0.19	27.110	96.3	1.040
439	7.32	34.414	0.28	3.22	64.	0.02	36.1	113.0							
526	6.66	34.433	0.23	3.32	72.	0.00	38.0	102.9							
601	6.21	34.447	0.19	3.31	79.	0.00	39.0	96.2							

RV ALEJANDRO DE HUMBOLDT CALCOFI CRUISE 7801 133025

LATITUDE	LONGITUDE	MO/DAY/YR	MESSENGER TIME	BOTTOM	WIND	SPEED	WEATHER	DOMINANT WAVES
26 04.5N	112 48.0W	1/27/78	0134 GMT	80M	240	3KT	1	250 1 4

Z	T	S	O2	PO4	SIO3	NO2	NO3	DT	Z	T	S	O2	SIGT	DT	DD
0	19.83	34.379	5.28	0.17	3.	0.00	0.2	358.3	0	19.83	34.379	5.28	24.353	358.3	0.000
10	19.77	34.373	5.31	0.06	3.	0.00	0.1	357.2	10	19.77	34.373	5.31	24.364	357.2	0.036
21	19.67	34.366	5.29	0.00	3.	0.02	0.1	355.3	20	19.68	34.367	5.29	24.383	355.4	0.071
31	19.64	34.361	5.42	0.00	3.	0.02	0.0	354.9	30	19.64	34.362	5.41	24.389	354.9	0.107
51	16.82	33.968	4.73	0.39	5.	0.37	2.3	317.2	50	16.99	33.988	4.79	24.760	319.6	0.175
77	14.73	34.023	2.59		18.	0.04	13.7	268.4	75	14.83	34.001	2.80	25.259	272.1	0.249

RV ALEJANDRO DE HUMBOLDT CALCOFI CRUISE 7801 133030

LATITUDE	LONGITUDE	MO/DAY/YR	MESSENGER TIME	BOTTOM	WIND	SPEED	WEATHER	DOMINANT WAVES
25 54.5N	113 07.5W	1/27/78	0416 GMT	194M	290	3KT	1	260 1 4

Z	T	S	O2	PO4	SIO3	NO2	NO3	DT	Z	T	S	O2	SIGT	DT	DD
0	19.80	34.283	5.32	0.31	2.	0.01		364.5	0	19.80	34.283	5.32	24.288	364.5	0.000
10	19.79	34.281	5.33	0.31	2.	0.01		364.4	10	19.79	34.281	5.33	24.289	364.4	0.036
30	19.67	34.280	5.34	0.27	2.	0.01		361.5	20	19.73	34.281	5.34	24.304	363.0	0.073
45	16.88	33.858	5.57	0.43	3.	0.02		326.5	30	19.67	34.280	5.34	24.320	361.5	0.109
55	15.89	33.834	5.22	0.60	4.	0.07	0.7	306.6	50	16.32	33.834	5.42	24.797	316.0	0.177
70	15.01	33.853	4.63	0.87	6.	0.03	2.6	286.6	75	14.76	33.875	4.40	25.175	280.1	0.252
85	14.34	33.931	3.90	1.59	10.	0.07	9.6	267.2	100	13.88	34.058	3.15	25.503	248.9	0.319
104	13.77	34.095	2.95	2.06	16.	0.12	14.6	243.8	125	12.99	34.309	1.81	25.878	213.2	0.377
128	12.88	34.338	1.65	3.01	26.	0.03	23.0	208.9	150	12.18	34.510	0.55	26.193	183.3	0.428
147	12.23	34.494	0.64	3.42	33.	0.03	26.0	185.3							
175	11.94	34.576	0.16	3.57	38.	0.03	25.2	174.0							
197	11.69	34.571 A	0.14A		39.			169.9							

A) THE WATER SAMPLES FROM THE LAST NANSEN BOTTLE CONTAINED PARTICULATE MATTER INDICATING THE BOTTLE MAY HAVE TOUCHED BOTTOM DURING THE CAST.

RV ALEJANDRO DE HUMBOLDT CALCOFI CRUISE 7801 133040

LATITUDE	LONGITUDE	MO/DAY/YR	MESSENGER TIME	BOTTOM	WIND	SPEED	WEATHER	DOMINANT WAVES
25 34.5N	113 45.5W	1/27/78	1027 GMT	1856M	340	3KT	1	320 1

Z	T	S	O2	PO4	SIO3	NO2	NO3	DT	Z	T	S	O2	SIGT	DT	DD
1	20.61	34.397	5.21	0.23	2.	0.01		376.6	0	20.61	34.397	5.21	24.161	376.6	0.000
11	20.61	34.395	5.23	0.15	1.	0.01		376.8	10	20.61	34.396	5.23	24.159	376.8	0.038
32	20.59	34.393	5.23	0.10	1.	0.01		376.4	20	20.60	34.395	5.23	24.161	376.6	0.075
42	20.01	34.302	5.30	0.04	1.	0.03		368.4	30	20.59	34.394	5.23	24.163	376.5	0.113
52	19.46	34.261	5.35	0.19	1.	0.03		357.7	50	19.62	34.278	5.34	24.330	360.5	0.187
67	16.19	33.804	5.56	0.10	2.	0.04		315.2	75	15.25	33.707	5.54	24.941	302.3	0.270
82	14.67	33.664	5.52	0.20	3.	0.06		293.4	100	13.36	33.666	4.98	25.309	267.4	0.342
102	13.23	33.666	4.91	0.29	6.	0.12	2.9	264.9	125	11.69	33.694	4.26	25.653	234.6	0.406
127	11.57	33.699	4.21	0.90	12.	0.12	11.3	232.0	150	10.65	33.833	3.64	25.950	206.4	0.462
147	10.74	33.814	3.69	1.55	17.	0.07	17.7	209.3	200	10.14	34.216	2.08	26.337	169.7	0.558
177	10.13	34.009	3.07	2.11	23.	0.04	22.0	184.8	250	10.13	34.421	0.91	26.498	154.3	0.641
207	10.14	34.265	1.78	2.56	33.	0.02	26.9	166.0	300	9.69	34.497	0.43	26.631	141.7	0.718
238	10.19	34.390	1.09	2.70	36.	0.06	27.6	157.6	400	8.40	34.462	0.23	26.811	124.6	0.858
277	9.90	34.467	0.61	3.06	41.	0.06	29.1	147.2	500	7.42	34.453	0.19	26.949	111.5	0.984
337	9.29	34.516	0.25	3.29	47.	0.03	30.4	133.9							
413	8.22	34.448	0.23	3.33	55.	0.07	32.9	123.0							
489	7.53	34.452	0.15	3.51	64.	0.06	35.0	113.0							
571	6.68	34.452	0.12	3.72	73.	0.04	38.6	101.7							

RV ALEJANDRO DE HUMBOLDT CALCOFI CRUISE 7801 133050

LATITUDE	LONGITUDE	MO/DAY/YR	MESSENGER TIME	BOTTOM	WIND	SPEED	WEATHER	DOMINANT WAVES
25 14.5N	114 24.0W	1/27/78	1651 GMT	3419M	020	8KT	2	360 3 4

Z	T	S	O2	PO4	SIO3	NO2	NO3	DT	Z	T	S	O2	SIGT	DT	DD
0	19.79	34.177	5.32	0.25	1.	0.00		372.0	0	19.79	34.177	5.32	24.210	372.0	0.000
10	19.81	34.180	5.33	0.17	1.	0.01		372.2	10	19.81	34.180	5.33	24.207	372.2	0.037
31	19.77	34.180	5.33	0.15	1.	0.01		371.2	20	19.80	34.183	5.33	24.212	371.8	0.074
41	19.76	34.174	5.42	0.04	1.	0.01		371.4	30	19.77	34.181	5.33	24.217	371.3	0.112
56	18.07	33.972	5.51	0.08	1.	0.01		345.4	50	18.94	34.076	5.48	24.350	358.7	0.185
72	14.87	33.629	5.59	0.22	3.	0.05		300.1	75	14.48	33.630	5.49	25.049	292.1	0.267
97	12.74	33.706	4.49	0.83	8.	0.03	8.9	252.7	100	12.64	33.719	4.39	25.491	250.0	0.335
118	12.29	33.822	3.69	1.17	12.	0.07	13.4	235.8	125	12.16	33.912	3.26	25.734	226.9	0.395
138	11.84	34.075	2.52	1.75	20.	0.07	19.9	209.1	150	11.30	34.152	2.21	26.081	194.0	0.449
159	10.90	34.191	2.07	2.15	26.	0.07	23.0	184.1	200	10.35	34.352	1.35	26.405	163.1	0.540
189	10.49	34.320	1.51	2.57	31.	0.02	26.2	167.7	250	9.87	34.425	0.91	26.545	149.8	0.621
225	10.08	34.400	1.06	2.66	37.	0.01	27.3	155.1	300	9.46	34.462	0.60	26.643	140.6	0.696
256	9.82	34.428	0.88	2.72	40.	0.03	28.0	148.8	400	8.29	34.468	0.28	26.833	122.5	0.834
307	9.39	34.465	0.56	2.89	43.	0.10	28.6	139.3	500	7.32	34.467	0.19	26.975	109.1	0.958
363	8.67	34.469	0.31	3.04	52.	0.02	31.0	128.0	600	6.39	34.457	0.18	27.094	97.8	1.070
449	7.84	34.467	0.23	3.18	60.	0.07	32.9	116.2							
535	6.97	34.465	0.17	3.32	70.	0.05	35.4	104.5							
621	6.22	34.452	0.18	3.33	79.	0.10	37.2	96.0							

RV ALEJANDRO DE HUMBOLDT CALCOFI CRUISE 7801 133060

LATITUDE	LONGITUDE	MO/DAY/YR	MESSENGER TIME	BOTTOM	WIND	SPEED	WEATHER	DOMINANT WAVES
24 54.5N	115 02.0W	1/27/78	2224 2241 GMT	3926M		1KT	2	330 3 4

Z	T	S	O2	PO4	SIO3	NO2	NO3	DT	Z	T	S	O2	SIGT	DT	DD
1	20.11	34.193	5.31	0.14	2.	0.00		378.8	0	20.11	34.193	5.31	24.139	378.8	0.000
12	19.87	34.194	5.33	0.00	1.	0.00		372.7	10	19.90	34.195	5.33	24.194	373.5	0.038
32A	19.85	34.195	5.32	0.00	1.	0.00		372.1	20	19.86	34.195	5.33	24.205	372.5	0.075
42	19.84	34.193	5.39	0.00	1.	0.00		372.0	30	19.85	34.196	5.32	24.208	372.2	0.112
52	19.84	34.191	5.31	0.00	1.	0.00		372.2	50	19.84	34.192	5.32	24.208	372.2	0.187
68	15.83	33.705	5.64	0.23	3.	0.02		314.7	75	14.96	33.645	5.55	24.956	300.9	0.272
83	14.31	33.622	5.34		4.		2.1	289.2	100	13.09	33.636	4.73	25.340	264.4	0.343
104	12.86	33.653	4.55	0.94	8.	0.07	8.7	258.8	125	11.97	33.877	3.31	25.743	226.1	0.405
129	11.83	33.920	3.11	1.66	17.	0.04	18.0	220.3	150	10.97	34.009	2.98	26.029	198.9	0.459
149	11.01	34.003	3.00	1.84	20.	0.05	20.2	199.9	200	10.04	34.253	1.90	26.383	165.3	0.552
180	10.17	34.164	2.37	2.29		0.06	24.5	174.0	250	9.58	34.339	1.31	26.527	151.6	0.633
209	10.01	34.283	1.71	2.50	34.	0.03	27.4	162.6	300	8.92	34.370	0.89	26.658	139.1	0.709
240	9.67	34.319	1.45	2.69	37.	0.07	28.3	154.5	400	8.00	34.413	0.41	26.833	122.5	0.846
281	9.26	34.386	0.91	2.99	42.	0.19	28.9	143.1	500	7.02	34.445	0.18	27.000	106.8	0.968
341	8.21	34.326	0.84	3.09	50.	0.01	32.5	131.9							
419	7.97	34.445	0.27	3.40	57.	0.04	34.2	119.7							
495	7.07	34.444	0.18	3.48	68.	0.04	36.7	107.4							
577	6.43	34.444	0.19	3.28	75.	0.07	38.6	99.2							

RV ALEJANDRO DE HUMBOLDT CALCOFI CRUISE 7801 137022

LATITUDE	LONGITUDE	MO/DAY/YR	MESSENGER TIME	BOTTOM	WIND	SPEED	WEATHER	DOMINANT WAVES
25 36.1N	112 14.8W	1/29/78	0534 GMT	45M		0KT	1	00

Z	T	S	O2	PO4	SIO3	NO2	NO3	DT	Z	T	S	O2	SIGT	DT	DD
5R	19.37								10	19.32	34.340	5.29		348.6	0.000
10	19.32	34.340	5.29	0.48	2.	0.10		348.6							
39	19.25														

A) THIS NANSEN BOTTLE DID NOT CLOSE PROPERLY ON THE FIRST CAST AND WAS RELOWERED.
B) A SPECIAL CAST TO COLLECT WATER SAMPLES FOR CHLOROPHYLL ANALYSIS.

RV ALEJANDRO DE HUMBOLDT CALCOFI CRUISE 7801 137023

LATITUDE	LONGITUDE	MO/DAY/YR	MESSENGER TIME	BOTTOM	WIND	SPEED	WEATHER	DOMINANT WAVES
25 34.0N	112 19.0W	1/29/78	0405 GMT	70M		0KT	1	230 3 4

Z	T	S	O2	PO4	SIO3	NO2	NO3	DT	Z	T	S	O2	SIGT	DT	DD
0	19.99	34.399	5.35	0.46	2.	0.02		360.8	0	19.99	34.399	5.35	24.327	360.8	0.000
10	19.60	34.380	5.23	0.44	3.	0.03		352.5	10	19.60	34.380	5.23	24.414	352.5	0.036
21	19.53	34.374	5.18	0.36	3.	0.02		351.2	20	19.54	34.375	5.18	24.426	351.4	0.071
31	19.42	34.377	5.13	0.39	4.	0.11	0.0	348.3	30	19.44	34.379	5.14	24.454	348.7	0.106
51	18.41	34.216	4.79	0.55	5.	0.30	1.1	335.7	50	18.49	34.229	4.81	24.580	336.7	0.175
61	17.34	34.101	4.50	0.75	7.	0.51	1.3	319.2							

RV ALEJANDRO DE HUMBOLDT CALCOFI CRUISE 7801 137030

LATITUDE	LONGITUDE	MO/DAY/YR	MESSENGER TIME	BOTTOM	WIND	SPEED	WEATHER	DOMINANT WAVES
25 20.0N	112 46.0W	1/28/78	2340 GMT	380M	230	3KT	1	230 3 4

Z	T	S	O2	PO4	SIO3	NO2	NO3	DT	Z	T	S	O2	SIGT	DT	DD
1	20.52	34.367	5.29	0.21	2.	0.00		376.5	0	20.52	34.367	5.29	24.162	376.5	0.000
11	20.05	34.355	5.35	0.01	1.	0.01		365.5	10	20.08	34.357	5.35	24.269	366.3	0.037
31	19.96	34.346	5.29	0.00	1.	0.01		363.9	20	20.01	34.352	5.34	24.285	364.8	0.074
47	19.47	34.298	5.27	0.00	2.	0.12		355.3	30	19.96	34.347	5.30	24.293	364.0	0.110
62	16.06	33.918	4.60	0.15	6.	0.09	4.3	304.1	50	18.80	34.208	5.17	24.486	345.7	0.182
77	15.18	34.006	3.74	0.32	10.	0.06	9.2	278.9	75	15.22	33.983	3.86	25.159	281.6	0.260
92	14.28	34.130	2.80	0.82	16.	0.02	14.8	251.4	100	13.83	34.193	2.35	25.617	238.0	0.326
112	13.29	34.279	1.78	1.37	22.	0.03	20.5	221.0	125	13.01	34.362	1.37	25.915	209.7	0.383
137	12.87	34.426	1.10	1.78	27.	0.04	24.1	202.2	150	12.66	34.489	0.84	26.083	193.7	0.434
167	12.38	34.550	0.57	2.20	32.	0.03	26.1	183.9	200	11.73	34.598	0.28	26.347	168.6	0.527
202	11.69	34.598	0.27	2.31	37.	0.03	26.0	167.9	250	11.15	34.601	0.23	26.456	158.3	0.611
238	11.29	34.602	0.25	2.58	39.	0.02	25.9	160.6	300	10.79	34.595	0.18	26.517	152.5	0.692
279	10.88	34.594	0.18	2.75	41.	0.01	25.6	154.1							
325	10.72	34.593	0.17	2.83	43.	0.03	25.4	151.4							
366	10.56	34.585	0.15	2.92	45.	0.03	24.9	149.3							

RV ALEJANDRO DE HUMBOLDT CALCOFI CRUISE 7801 137040

LATITUDE	LONGITUDE	MO/DAY/YR	MESSENGER TIME	BOTTOM	WIND	SPEED	WEATHER	DOMINANT WAVES
25 00.0N	113 23.6W	1/28/78	1527 GMT	2227M	230	2KT	1	340 2 4

Z	T	S	O2	PO4	SIO3	NO2	NO3	DT	Z	T	S	O2	SIGT	DT	DD
0	20.80	34.417	5.21		1.	0.00		380.1	0	20.80	34.417	5.21	24.125	380.1	0.000
10	20.79	34.419	5.24		1.	0.00		379.7	10	20.79	34.419	5.24	24.129	379.7	0.038
31	20.77	34.411	5.22		1.	0.05		379.7	20	20.78	34.416	5.23	24.129	379.7	0.076
41	20.47	34.348	5.41		1.	0.05		376.6	30	20.77	34.412	5.22	24.129	379.7	0.114
51	20.41	34.346	5.26		1.	0.06		375.3	50	20.41	34.346	5.28	24.174	375.4	0.190
66	20.22	34.323	5.24		1.	0.39		372.1	75	18.61	34.089	5.26	24.442	349.9	0.281
82	17.16	33.916	5.27		3.	0.17		328.6	100	14.99	33.862	4.66	25.118	285.5	0.361
102	14.82	33.861	4.56		6.	0.08		282.1	125	13.42	34.048	3.23	25.591	240.5	0.428
128	13.28	34.078	3.07		14.	0.11		235.6	150	12.18	34.127	2.62	25.897	211.5	0.485
148	12.32	34.134	2.60		20.	0.02		213.4	200	10.50	34.206	2.19	26.266	176.4	0.584
178	10.50	34.044	2.90		23.	0.04		188.3	250	9.67	34.305	1.57	26.484	155.7	0.669
209	10.50	34.259	1.87		30.	0.10		172.4	300	9.35	34.411	0.80	26.621	142.7	0.747
239	9.79	34.279	1.74		34.	0.14		159.3	400	8.42	34.458	0.31	26.806	125.1	0.887
279	9.50	34.376	1.06		39.	0.11		147.6	500	7.37	34.458	0.21	26.961	110.4	1.013
340	9.04	34.451	0.45		47.	1.06		134.9							
415	8.25	34.458	0.28		54.	0.17		122.7							
490	7.45	34.459	0.22		63.	0.10		111.4							
571	6.94	34.455	0.19		69.	0.07		104.9							

RV ALEJANDRO DE HUMBOLDT CALCOFI CRUISE 7801 137050

LATITUDE	LONGITUDE	MO/DAY/YR	MESSENGER TIME	BOTTOM	WIND	SPEED	WEATHER	DOMINANT WAVES
24 40.0N	114 02.0W	1/28/78	1005 GMT	3452M	020	4KT	2	360 1 9

Z	T	S	O2	PO4	SIO3	NO2	NO3	DT	Z	T	S	O2	SIGT	DT	DD
1	21.35	34.438	5.16	0.36	1.	0.00		392.8	0	21.35	34.438	5.16	23.992	392.8	0.000
11	21.32	34.446	5.21	0.31	1.	0.00		391.4	10	21.32	34.445	5.21	24.004	391.6	0.039
32	20.70	34.333	5.23	0.20	1.	0.00		383.6	20	21.06	34.400	5.22	24.040	388.2	0.078
43	20.62	34.333	5.28	0.10	1.	0.01		381.5	30	20.76	34.345	5.23	24.080	384.4	0.117
53	20.38	34.279	5.25	0.10	1.	0.02		379.3	50	20.47	34.301	5.26	24.126	380.0	0.194
68	19.79	34.110	5.33	0.04	1.	0.01		376.8	75	18.30	33.908	5.59	24.383	355.5	0.286
84	16.28	33.717	5.80	0.08	2.	0.02		323.5	100	15.23	33.859	4.82	25.062	290.9	0.368
105	15.10	33.931	4.40	0.43	6.	0.36	2.1	282.8	125	13.36	33.960	3.53	25.534	245.9	0.436
130	12.95	33.967	3.35	1.10	13.	0.13	13.7	237.4	150	12.11	34.140	2.53	25.921	209.2	0.493
150	12.11	34.140	2.53	1.77	21.	0.07	21.2	209.2	200	11.53	34.499	0.97	26.308	172.3	0.591
181	11.63	34.384	1.45	2.19	29.	0.06	25.5	182.6	250	10.65	34.542	0.50	26.501	154.0	0.675
211	11.45	34.542	0.77	2.62	35.	0.03	28.1	167.8	300	9.93	34.552	0.26	26.634	141.4	0.752
242	10.79	34.537	0.56	2.79	38.	0.00	30.2	156.7	400	8.43	34.487	0.20	26.826	123.2	0.891
283	10.15	34.556	0.29	2.94	42.	0.00	30.4	144.7	500	7.33	34.449	0.15	26.959	110.6	1.016
343	9.37	34.544	0.19	3.14	48.	0.01	31.4	133.1							
419	8.13	34.467	0.20	3.25	55.	0.81	29.6	120.3							
496	7.37	34.449	0.15	3.54	65.	0.05	37.2	111.0							
579	6.66	34.454	0.15	3.59	74.	0.06	39.5	101.3							

RV ALEJANDRO DE HUMBOLDT CALCOFI CRUISE 7801 137060

LATITUDE	LONGITUDE	MO/DAY/YR	MESSENGER TIME	BOTTOM	WIND	SPEED	WEATHER	DOMINANT WAVES
24 20.0N	114 39.5W	1/28/78	0413 GMT	3642M		1KT	2	00

Z	T	S	O2	PO4	SIO3	NO2	NO3	DT
0	20.34	34.192	5.29	0.32	1.	0.00		384.6
10	20.33	34.184	5.30	0.20	1.	0.00		385.0
31	19.80	34.098	5.35	0.12	1.	0.00		377.9
57	19.81	34.106	5.38	0.06	1.	0.00		377.6
67	17.58	33.776	5.83	0.00	1.	0.00		348.3
77	16.25	33.677	5.87	0.00	1.	0.00		325.8
93	15.07	33.669	5.67	0.00	2.	0.01		301.3
108	13.62	33.650	5.16	0.19	4.	0.09	2.7	273.5
134	11.88	33.761	4.44	0.67	10.	0.09	10.2	232.9
154	10.99	33.825	4.08	1.01	14.	0.09	13.6	212.7
180	10.17	33.987	3.24	1.63	23.	0.00	21.1	187.1
211	10.26	34.246	1.90	2.17	31.	0.00	24.9	169.4
241	10.00	34.348	1.35	2.38	36.	0.03	27.2	157.6
282	9.30	34.353	1.16	2.75	41.	0.06	28.0	146.2
343	8.91	34.433	0.55	3.04	48.	0.02	30.9	134.3
419	8.08	34.434	0.33	3.14	56.	0.09	32.5	122.0
495	7.19	34.447	0.22	3.30	67.	0.21	34.2	108.8
576	6.55	34.451	0.19	3.45	73.	0.05	36.7	100.2

Z	T	S	O2	SIGT	DT	DD
0	20.34	34.192	5.29	24.077	384.6	0.000
10	20.33	34.184	5.30	24.074	385.0	0.038
20	20.09	34.144	5.32	24.106	381.9	0.077
30	19.83	34.103	5.35	24.143	378.3	0.115
50	19.81	34.105	5.37	24.150	377.7	0.191
75	16.46	33.687	5.86	24.653	329.8	0.280
100	14.39	33.657	5.45	25.087	288.4	0.358
125	12.39	33.717	4.66	25.538	245.5	0.425
150	11.14	33.813	4.16	25.846	216.3	0.484
200	10.23	34.170	2.35	26.285	174.5	0.583
250	9.85	34.354	1.29	26.494	154.8	0.668
300	9.16	34.377	0.98	26.626	142.2	0.745
400	8.31	34.434	0.35	26.804	125.3	0.885
500	7.14	34.448	0.22	26.986	108.1	1.010

		Z	T	S	O2	PO4	SIO3	NO2	NO3	DT
60.050	02/01/78 0050GMT 37 57.5N 122 53.1W BOTTOM 45M WIND 290 09KT WEATHER 1 DOMINANT WAVES 300 03 09	10	13.25	33.020	5.88	0.26	7.	0.41	1.0	312.7
60.052	01/31/78 2315GMT 37 52.5N 123 03.5W BOTTOM 88M WIND 320 04KT WEATHER 1 DOMINANT WAVES 49	10	13.25	32.596	6.56	0.29	10.	0.06	0.7	343.9
60.065	01/31/78 1507GMT 37 28.0N 123 59.0W BOTTOM 3731M WIND 320 10KT WEATHER 1 DOMINANT WAVES 310 03 04	10	13.42	32.490	6.50	0.23	6.	0.02	0.1	354.9
63.050	01/30/78 0608GMT 37 23.3N 122 27.8W BOTTOM 24M WIND 320 15KT WEATHER 1 DOMINANT WAVES 240 03 08	10	13.61	33.225	5.34	1.11	11.	1.15	3.4	304.5
63.065	01/30/78 1630GMT 36 53.0N 123 33.0W BOTTOM 3541M WIND 320 20KT WEATHER 1 DOMINANT WAVES 320 05 08	10	13.30	32.788	6.01	0.48	3.	0.00	0.0	330.7
66.049	01/30/78 0200GMT 36 53.0N 122 01.7W BOTTOM 52M WIND 320 07KT WEATHER 4 DOMINANT WAVES 300 05 05	10	14.06	33.105	6.17	0.57	4.	0.00	0.0	322.2
67.065	01/29/78 1250GMT 36 18.0N 123 09.5W BOTTOM 3259M WIND 340 22KT WEATHER DOMINANT WAVES	10	13.19	32.762	6.19	0.83	3.	0.01	0.3	330.5
70.051	01/27/78 1616GMT 36 11.3N 121 44.0W BOTTOM 78M WIND 050 02KT WEATHER 1 DOMINANT WAVES 310 02 03	10	14.32	33.363	5.53	0.99	7.	0.54	2.7	308.4
70.065	01/28/78 0210GMT 35 43.0N 122 45.0W BOTTOM 1757M WIND 330 15KT WEATHER DOMINANT WAVES	10	13.97	32.793	5.96	0.49	3.	0.00	0.1	343.3
73.050	01/27/78 1151GMT 35 37.0N 121 17.0W BOTTOM 97M WIND 040 15KT WEATHER 1 DOMINANT WAVES	10	14.39	33.330	5.97	0.74	4.	0.03	0.8	312.2
73.065	01/27/78 0121GMT 35 08.0N 122 19.0W BOTTOM 4015M WIND 330 26KT WEATHER 1 DOMINANT WAVES 340 08 04	10	14.00	32.802	6.03	1.36	5.	0.01	0.0	343.2
77.048	01/25/78 0342GMT 35 08.3N 120 43.7W BOTTOM 22M WIND 290 05KT WEATHER DOMINANT WAVES	10	14.52	33.365	5.92		6.	0.05	0.0	312.3
77.065	01/25/78 1610GMT 34 34.5N 121 54.0W BOTTOM 3636M WIND 330 16KT WEATHER 1 DOMINANT WAVES 300 04 05	10	14.18	33.305	5.94	0.47	4.	0.01	0.8	309.9
80.051	01/24/78 2250GMT 34 26.0N 120 32.5W BOTTOM 151M WIND 300 14KT WEATHER 0 DOMINANT WAVES 320 04 05	10	15.18	33.387	5.91	0.45	3.	0.00	0.1	324.2
83.040[6]	01/22/78 0350GMT 34 12.5N 119 24.2W BOTTOM 34M WIND 260 10KT WEATHER 1 DOMINANT WAVES	10	15.43	33.148	5.38	0.68	7.	0.29	1.2	346.9
87.032[5]	01/21/78 0920GMT 33 53.5N 118 26.7W BOTTOM 24M WIND 050 10KT WEATHER DOMINANT WAVES	10	15.84	33.099	5.79	0.67	5.	0.19	1.3	359.2
87.032[7]	01/21/78 0830GMT 33 54.5N 118 27.5W BOTTOM 35M WIND 050 12KT WEATHER DOMINANT WAVES	10	15.72	33.152	5.73	0.75	5.	0.19	0.8	352.8
87.033	01/21/78 0735GMT 33 53.9N 118 29.0W BOTTOM 48M WIND 060 10KT WEATHER DOMINANT WAVES	10	15.68	33.191	5.80	0.63	4.	0.13	0.6	349.1
87.034	01/21/78 0630GMT 33 52.0N 118 33.2W BOTTOM 73M WIND 070 07KT WEATHER DOMINANT WAVES	10	15.88	33.235	5.64	0.47	4.	0.01	0.2	350.1
87.035	01/21/78 0450GMT 33 50.0N 118 37.5W BOTTOM 565M WIND 030 04KT WEATHER DOMINANT WAVES	10	15.94	33.216	5.72					352.8
87.055	01/20/78 1157GMT 33 10.0N 120 00.0W BOTTOM 1202M WIND 310 30KT WEATHER DOMINANT WAVES	10	14.53	33.359	5.94	0.85	3.	0.04	0.0	312.9
90.027[6]	01/16/78 2350GMT 33 29.3N 117 45.5W BOTTOM 41M WIND 150 22KT WEATHER 2 DOMINANT WAVES 150 05 03	10	16.00	32.989	5.64	1.26	6.	0.09	0.8	370.6
90.028	01/17/78 0135GMT 33 28.5N 117 46.7W BOTTOM 436M WIND 080 13KT WEATHER 6 DOMINANT WAVES	10	16.08	33.289	5.80	1.13	3.	0.01	0.0	350.5
90.029	01/17/78 0306GMT 33 27.0N 117 49.5W BOTTOM 611M WIND 200 23KT WEATHER 6 DOMINANT WAVES	10	15.98	33.253	5.77	1.13	4.	0.02	0.0	350.9
90.030	01/17/78 0518GMT 33 25.0N 117 53.5W BOTTOM 611M WIND 170 04KT WEATHER DOMINANT WAVES	10	16.04	33.366	5.79	1.18	4.	0.02	0.0	344.0

RV DAVID STARR JORDAN

CALCOFI CRUISE 7801 — 10 METER DATA

			Z	T	S	O2	PO4	SIO3	NO2	NO3	DT
90.031	01/17/78 0715GMT 33 23.0N 117 57.7W BOTTOM 445M WIND 210 05KT WEATHER DOMINANT WAVES		10	15.90	33.391	5.76	1.19	4.	0.02	0.0	339.1
93.026[7]	01/16/78 0405GMT 32 57.2N 117 17.4W BOTTOM 41M WIND 090 04KT WEATHER DOMINANT WAVES		10	16.03	33.258	5.71	0.68	3.	0.06		351.6
93.026[9]	01/16/78 0303GMT 32 56.8N 117 18.3W BOTTOM 76M WIND 230 03KT WEATHER DOMINANT WAVES		10	16.10	33.299	5.65		4.	0.08		350.2
93.028	01/16/78 0130GMT 32 54.7N 117 21.8W BOTTOM 537M WIND 240 04KT WEATHER 1 DOMINANT WAVES 240 04 05		10		33.323	5.74	0.54	3.			
93.035	01/15/78 1657GMT 32 40.5N 117 51.5W BOTTOM 630M WIND 220 10KT WEATHER 1 DOMINANT WAVES 220 06 05		10	15.78	33.337	5.82	1.58	3.	0.01	0.0	340.5
93.045	01/15/78 0955GMT 32 20.0N 118 32.0W BOTTOM 1479M WIND 230 25KT WEATHER DOMINANT WAVES		10	16.29	33.340	5.74	0.57	2.	0.00	0.0	351.3
93.055	01/15/78 0250GMT 32 00.5N 119 13.5W BOTTOM 1392M WIND 180 20KT WEATHER DOMINANT WAVES		10	16.52	33.305	5.71					358.9
97.029	01/05/78 2143GMT 32 17.5N 117 04.7W BOTTOM 62M WIND 140 15KT WEATHER 1 DOMINANT WAVES 260 03 10		10	16.44	33.416	5.65	0.11	1.		0.3	349.0
97.032	01/07/78 0406GMT 32 12.0N 117 15.0W BOTTOM 1387M WIND 270 04KT WEATHER DOMINANT WAVES		10	16.41	33.434	5.67	0.13	1.		0.0	347.0
97.045	01/12/78 0810GMT 31 46.0N 118 08.5W BOTTOM 1387M WIND 99 KT WEATHER DOMINANT WAVES		10	16.09	33.380	5.80	0.85	1.	0.15	0.0	344.0
97.055	01/12/78 1603GMT 31 25.5N 118 49.5W BOTTOM 1206M WIND 100 11KT WEATHER 1 DOMINANT WAVES 270 04 06		10	16.58	33.340	5.77	0.16	1.	0.14	0.0	357.6

RV ALEJANDRO DE HUMBOLDT

CALCOFI CRUISE 7801 — 10 METER DATA

			Z	T	S	O2	PO4	SIO3	NO2	NO3	DT
100.029	01/07/78 1100GMT 31 42.2N 116 43.4W BOTTOM 216M WIND 040 06KT WEATHER DOMINANT WAVES		10	16.68	33.436	5.80		0.			352.8
100.045	01/08/78 1510GMT 31 10.0N 117 46.0W BOTTOM 1485M WIND 320 08KT WEATHER 1 DOMINANT WAVES 280 04 07		10	17.21	33.525	5.59	0.00	0.		0.0	358.2
103.029	01/11/78 1600GMT 31 07.0N 116 21.0W BOTTOM 20M WIND 03KT WEATHER 5 DOMINANT WAVES 260 07 05		10	16.61	33.426	5.57	0.10	2.		1.1	352.0
103.045	01/11/78 0323GMT 30 36.0N 117 23.9W BOTTOM 3094M WIND 240 22KT WEATHER 2 DOMINANT WAVES		10	17.19	33.505	5.61	0.32	1.			359.2
107.031	01/11/78 2102GMT 30 27.8N 116 07.0W BOTTOM 50M WIND 280 04KT WEATHER 1 DOMINANT WAVES 280 08 08		10	16.86	33.441	5.64	0.00	2.		0.8	356.5
107.045	01/12/78 0930GMT 30 01.5N 117 02.0W BOTTOM 2070M WIND 150 04KT WEATHER 2 DOMINANT WAVES		10	17.45	33.479	5.60	0.00	1.		0.0	367.0
110.032[4]	01/14/78 2154GMT 29 51.2N 115 49.6W BOTTOM 34M WIND 270 02KT WEATHER 2 DOMINANT WAVES 270 04 14		10	17.06	33.515	5.70		6.			355.5
110.045	01/14/78 1220GMT 29 26.5N 116 39.5W BOTTOM 480M WIND 300 04KT WEATHER 1 DOMINANT WAVES		10	17.43	33.541	5.56		3.			362.0
113.029	01/18/78 1400GMT 29 24.5N 115 13.5W BOTTOM 26M WIND 340 08KT WEATHER 0 DOMINANT WAVES 340 04 12		10	17.26	33.711	5.07	0.35	6.	0.76	3.1	345.8
113.030	01/18/78 1545GMT 29 22.0N 115 18.0W BOTTOM 60M WIND 310 14KT WEATHER 0 DOMINANT WAVES 340 04 12		10	17.15	33.714	5.19	0.49	4.	0.41	2.3	343.1
113.045	01/19/78 0205GMT 28 52.0N 116 18.0W BOTTOM 2227M WIND 320 05KT WEATHER 1 DOMINANT WAVES 320 07 10		10	17.58	33.545	5.57	0.21	2.	0.05	0.2	365.2
117.025	01/21/78 2043GMT 28 58.0N 114 35.0W BOTTOM 32M WIND 280 03KT WEATHER 1 DOMINANT WAVES 280 03 08		10	17.44	33.736	5.41	0.15	2.	0.10	1.3	348.0

		Z	T	S	O2	PO4	SIO3	NO2	NO3	DT
117.026	01/21/78 1936GMT 28 56.0N 114 41.5W BOTTOM 70M WIND 320 03KT WEATHER 1 DOMINANT WAVES 280 04 09	10	17.53	33.740	5.45	0.33	1.	0.16	0.4	349.8
117.045	01/21/78 0415GMT 28 18.0N 115 56.0W BOTTOM 3169M WIND 330 08KT WEATHER 1 DOMINANT WAVES	10	17.53	33.646	5.61	0.39	2.	0.03	0.1	356.7
120.024	01/22/78 0105GMT 28 25.0N 114 10.7W BOTTOM 30M WIND 270 08KT WEATHER 1 DOMINANT WAVES 290 04 09	10	18.63	34.091	5.39	0.21	1.	0.00		350.0
120.040	01/22/78 1354GMT 27 56.5N 115 14.0W BOTTOM 45M WIND 030 03KT WEATHER 0 DOMINANT WAVES 49 03 09	10	17.71	33.805	5.47					349.2
123.036	01/24/78 1728GMT 27 26.2N 114 36.0W BOTTOM 46M WIND 360 12KT WEATHER 1 DOMINANT WAVES 360 02 07	10	18.37	34.140	5.34	0.22	3.	0.02	0.4	340.2
123.037	01/24/78 1629GMT 27 24.0N 114 40.0W BOTTOM 68M WIND 030 06KT WEATHER 1 DOMINANT WAVES 100 03 08	10	18.41	34.129	5.41	0.17	2.	0.01	0.5	342.0
123.045	01/24/78 0929GMT 27 08.0N 115 11.5W BOTTOM 4213M WIND 310 12KT WEATHER 1 DOMINANT WAVES 340 04 09	10	18.23	34.008	5.43	0.23	2.	0.08		346.5
127.033	01/24/78 2332GMT 26 57.5N 114 02.2W BOTTOM 67M WIND 350 12KT WEATHER 1 DOMINANT WAVES 300 04 08	10	18.93	34.227	5.47	0.00	3.	0.00		347.3
127.045	01/25/78 0713GMT 26 33.0N 114 48.5W BOTTOM 3358M WIND 030 14KT WEATHER 1 DOMINANT WAVES 310 03 09	10	20.15	34.307	5.27	0.39	2.			371.5
130.028	01/26/78 1855GMT 26 33.0N 113 21.0W BOTTOM 55M WIND 020 12KT WEATHER 1 DOMINANT WAVES 010 03 04	10	18.87	34.254	5.30	0.21	3.	0.03		343.9
130.035	01/26/78 1418GMT 26 19.0N 113 48.0W BOTTOM 279M WIND 360 10KT WEATHER 1 DOMINANT WAVES 350 04 06	10	19.32	34.270	5.41	1.28	3.	0.02		353.6
133.023	01/26/78 2348GMT 26 08.5N 112 40.2W BOTTOM 71M WIND 260 04KT WEATHER 1 DOMINANT WAVES 260 02 04	10	20.02	34.401	5.27	0.01	3.	0.01	0.1	361.4
133.035	01/27/78 0724GMT 25 44.5N 113 26.5W BOTTOM 860M WIND 310 03KT WEATHER 1 DOMINANT WAVES 260 01 09	10	19.45	34.236	5.35	0.00	2.	0.02		359.3
137.035	01/28/78 2044GMT 25 10.0N 113 04.5W BOTTOM 1169M WIND 270 02KT WEATHER 1 DOMINANT WAVES 290 03 03	10	20.15	34.274	5.28					373.9

	DEPTH	CHL A	PHAEO
STATION 60055	2	4.19	0.70
01/31/78	12	6.01	0.00
2139 GMT	26	0.55	0.37
	35	0.50	0.33
37 47.0N	58	0.18	0.26
123 15.0W	72	0.16	0.31
	165	0.02	0.01

	DEPTH	CHL A	PHAEO
STATION 60060	1	1.84	0.00
01/31/78	11	1.63	0.70
1831 GMT	30	0.95	0.47
	48	0.54	0.42
37 37.0N	76	0.11	0.09
123 37.0W	118	0.04	0.07

	DEPTH	CHL A	PHAEO
STATION 60070	1	0.37	0.03
01/31/78	11	0.42	0.02
1203 GMT	29	0.23	0.00
	48	0.35	0.09
37 17.0N	76	0.08	0.01
124 21.0W	119	0.05	0.02
	165	0.03	0.03

	DEPTH	CHL A	PHAEO
STATION 60080	1	0.37	0.00
01/31/78	11	0.33	0.06
0651 GMT	30	0.33	0.05
	48	0.30	0.11
36 57.0N	76	0.08	0.05
125 02.0W	118	0.05	0.01

	DEPTH	CHL A	PHAEO
STATION 63052	1	1.17	0.42
01/30/78	10	1.19	0.48
0731 GMT	20	0.58	0.40
	30	0.21	0.18
37 19.0N	48	0.17	0.17
122 36.5W	71	0.11	0.16

	DEPTH	CHL A	PHAEO
STATION 63055	1	0.49	0.15
01/30/78	11	0.46	0.17
0942 GMT	29	0.62	0.36
	53	0.25	0.16
37 13.0N	82	0.04	0.07
122 50.0W	125	0.04	0.02
	176	0.02	0.03

	DEPTH	CHL A	PHAEO
STATION 63060	1	0.18	0.04
01/30/78	11	0.18	0.04
1312 GMT	30	0.21	0.06
	48	0.28	0.26
37 03.0N	76	0.05	0.06
123 12.0W	118	0.03	0.01
	165	0.01	0.04

	DEPTH	CHL A	PHAEO
STATION 63070	2	0.28	0.05
01/30/78	11	0.25	0.05
1950 GMT	29	0.12	0.04
	48	0.28	0.08
36 42.5N	76	0.01	0.01
123 55.0W	118	0.01	0.04
	164	0.02	0.05

	DEPTH	CHL A	PHAEO
STATION 63080	2	0.32	0.04
01/31/78	12	0.30	0.03
0113 GMT	31	0.28	0.05
	51	0.32	0.05
36 23.0N	79	0.16	0.07
124 38.5W	121	0.07	0.00
	167	0.08	0.00

	DEPTH	CHL A	PHAEO
STATION 67050	1	1.42	0.34
01/30/78	11	1.10	0.35
0036 GMT	31	0.62	0.34
	54	0.08	0.11
36 48.0N	83	0.05	0.09
122 05.0W	126	0.03	0.06

	DEPTH	CHL A	PHAEO
STATION 67055	1	0.70	0.10
01/29/78	11	0.68	0.23
2103 GMT	30	0.80	0.50
	48	0.63	0.37
36 39.0N	77	0.06	0.07
122 25.5W	119	0.02	0.04
	166	0.01	0.05

	DEPTH	CHL A	PHAEO
STATION 67060	1	0.82	0.39
01/29/78	11	0.67	0.24
1639 GMT	31	0.22	0.07
	50	1.09	0.06
36 29.0N	79	0.06	0.09
122 47.0W	122	0.04	0.04
	169	0.01	0.04

	DEPTH	CHL A	PHAEO
STATION 67070	1	0.25	0.11
01/29/78	11	0.26	0.09
0953 GMT	30	0.45	0.02
	49	0.19	0.12
36 08.0N	77	0.04	0.04
123 29.5W	166	0.06	0.37

	DEPTH	CHL A	PHAEO
STATION 67080	1	0.18	0.04
01/29/78	10	0.19	0.06
0430 GMT	29	0.18	0.04
	48	0.19	0.06
35 48.0N	77	0.07	0.03
124 12.0W	119	0.02	0.02

	DEPTH	CHL A	PHAEO
STATION 67090	2	0.12	0.04
01/28/78	12	0.12	0.03
2241 GMT	31	0.12	0.04
	49	0.14	0.05
35 28.5N	77	0.11	0.05
124 54.5W	119	0.02	0.03

	DEPTH	CHL A	PHAEO
STATION 70053	0	0.58	0.17
01/27/78	10	0.51	0.17
1832 GMT	29	0.46	0.23
	48	0.09	0.09
36 06.5N	76	0.01	0.02
121 54.5W	119	0.02	0.03
	166	0.02	0.03

	DEPTH	CHL A	PHAEO
STATION 70060	1	0.19	0.08
01/27/78	10	0.20	0.08
2234 GMT	30	0.26	0.18
	50	0.34	0.14
35 53.0N	78	0.09	0.10
122 22.5W	120	0.17	0.00

	DEPTH	CHL A	PHAEO
STATION 70070	1	0.27	0.06
01/28/78	11	0.29	0.06
0525 GMT	29	0.26	0.09
	48	0.33	0.07
35 33.5N	76	0.15	0.07
123 05.5W	118	0.01	0.02
	165	0.01	0.03

	DEPTH	CHL A	PHAEO
STATION 70080	1	0.21	0.07
01/28/78	11	0.22	0.05
1049 GMT	30	0.24	0.05
	49	0.21	0.07
35 13.5N	77	0.24	0.10
123 47.5W	119	0.03	0.04

	DEPTH	CHL A	PHAEO
STATION 70090	1	0.16	0.10
01/28/78	11	0.22	0.06
1606 GMT	30	0.19	0.08
	49	0.32	0.15
34 53.5N	76	0.10	0.07
124 30.5W	118	0.02	0.04

	DEPTH	CHL A	PHAEO
STATION 73053	2	0.24	0.06
01/27/78	12	0.29	0.07
0925 GMT	29	0.18	0.06
35 31.5N	49	0.06	0.05
121 28.5W	77	0.02	0.04

	DEPTH	CHL A	PHAEO
STATION 73060	1	0.22	0.05
01/27/78	11	0.22	0.06
0443 GMT	30	0.34	0.11
	49	0.27	0.11
35 17.5N	78	0.05	0.04
121 58.0W	120	0.01	0.03
	167	0.01	0.03

	DEPTH	CHL A	PHAEO
STATION 73070	1	0.33	0.15
01/26/78	11	0.33	0.13
2219 GMT	29	0.35	0.18
34 58.0N	47	0.40	0.21
122 40.0W	73	0.06	0.07

	DEPTH	CHL A	PHAEO
STATION 73080	1	0.23	0.07
01/26/78	11	0.18	0.07
1612 GMT	30	0.24	0.08
34 38.0N	50	0.16	0.13
123 22.0W	79	0.04	0.04

	DEPTH	CHL A	PHAEO
STATION 73090	2	0.16	0.09
01/26/78	12	0.17	0.09
1103 GMT	31	0.20	0.11
34 19.0N	50	0.24	0.23
124 02.0W	78	0.03	0.05

	DEPTH	CHL A	PHAEO
STATION 77051	1	0.93	0.46
01/25/78	11	0.95	0.39
0540 GMT	31	0.90	0.43
	55	0.35	0.29
35 02.0N	83	0.09	0.16
120 56.5W	124	0.02	0.09

	DEPTH	CHL A	PHAEO
STATION 77055	1	1.25	0.53
01/25/78	11	1.12	0.67
0908 GMT	29	1.12	0.55
	53	0.23	0.41
34 54.5N	81	0.03	0.19
121 13.0W	119	0.01	0.06

	DEPTH	CHL A	PHAEO
STATION 77060	1	0.70	0.48
01/25/78	11	0.69	0.36
1245 GMT	30	0.66	0.46
34 43.6N	50	0.20	0.13
121 33.5W	78	0.06	0.14

	DEPTH	CHL A	PHAEO
STATION 77070	1	0.30	0.16
01/25/78	11	0.29	0.17
1943 GMT	29	0.29	0.16
34 24.0N	47	0.22	0.20
122 16.0W	76	0.03	0.13

	DEPTH	CHL A	PHAEO
STATION 77080	1	0.15	0.09
01/26/78	12	0.18	0.09
0033 GMT	31	0.20	0.09
34 04.0N	50	0.17	0.18
122 57.0W	78	0.04	0.08

	DEPTH	CHL A	PHAEO
STATION 77090	2	0.06	0.03
01/26/78	12	0.07	0.03
0551 GMT	30	0.08	0.03
	48	0.15	0.18
33 45.0N	77	0.08	0.09
123 38.5W	118	0.02	0.02

	DEPTH	CHL A	PHAEO
STATION 80052	1	1.11	0.41
01/24/78	11	1.12	0.49
2124 GMT	29	1.65	0.46
	53	0.23	0.20
34 24.8N	81	0.07	0.13
120 35.9W	124	0.02	0.08

	DEPTH	CHL A	PHAEO
STATION 80055	0	0.26	0.06
01/24/78	10	0.27	0.07
1839 GMT	29	0.25	0.10
34 19.0N	48	0.24	0.09
120 48.0W	76	0.07	0.13

	DEPTH	CHL A	PHAEO
STATION 80060	0	0.29	0.09
01/24/78	11	0.27	0.11
1405 GMT	30	0.28	0.14
	48	0.27	0.10
34 08.9N	77	0.06	0.07
121 08.8W	119	0.02	0.04
STATION 80070	2	0.26	0.10
01/24/78	11	0.29	0.07
0807 GMT	30	0.30	0.07
	48	0.28	0.10
33 48.0N	75	0.13	0.10
121 51.0W	116	0.04	0.02
STATION 80080	2	0.20	0.07
01/24/78	11	0.18	0.07
0157 GMT	31	0.21	0.06
33 28.2N	50	0.24	0.09
122 33.0W	78	0.07	0.06
STATION 80090	1	0.32	0.12
01/23/78	10	0.31	0.11
1942 GMT	29	0.30	0.12
33 09.0N	48	0.16	0.10
123 13.0W	77	0.02	0.04
STATION 82047	1	0.82	0.29
01/22/78	11	0.57	0.23
0851 GMT	30	0.93	0.39
	53	0.14	0.15
34 16.5N	82	0.04	0.10
119 59.0W	120	0.01	0.06
	167	0.01	0.06
STATION 83042	1	1.01	0.34
01/22/78	12	1.00	0.40
0509 GMT	31	0.63	0.25
	55	0.23	0.11
34 10.0N	82	0.11	0.11
119 29.5W	123	0.03	0.06
STATION 83051	1	0.67	0.28
01/22/78	11	0.69	0.30
1327 GMT	30	0.63	0.27
	53	0.22	0.23
33 52.0N	82	0.07	0.13
120 08.5W	101	0.04	0.09
	120	0.03	0.14
STATION 83055	1	0.60	0.21
01/22/78	11	0.64	0.19
1619 GMT	30	0.57	0.19
	49	0.22	0.20
33 44.0N	78	0.01	0.01
120 24.5W	120	0.01	0.04
STATION 83060	1	0.28	0.09
01/22/78	11	0.30	0.14
2009 GMT	29	0.33	0.13
33 34.0N	48	0.28	0.18
120 45.0W	76	0.15	0.13
STATION 83070	0	0.28	0.12
01/23/78	10	0.34	0.04
0217 GMT	27	0.30	0.06
	47	0.30	0.17
33 14.5N	75	0.07	0.08
121 26.0W	116	0.01	0.03
STATION 83080	1	0.13	0.04
01/23/78	11	0.13	0.04
0754 GMT	29	0.14	0.03
32 55.5N	48	0.13	0.05
122 07.0W	76	0.09	0.06
STATION 83090	2	0.16	0.05
01/23/78	12	0.15	0.05
1337 GMT	31	0.16	0.05
32 34.5N	50	0.24	0.16
122 50.0W	79	0.03	0.05
STATION 87050	1	0.60	0.19
01/20/78	11	0.60	0.15
1514 GMT	20	0.62	0.12
33 20.0N	30	0.50	0.15
119 39.5W	49	0.11	0.16
STATION 87060	2	0.26	0.03
01/20/78	12	0.22	0.06
0805 GMT	31	0.24	0.04
33 00.0N	50	0.27	0.16
120 21.5W	78	0.09	0.10
STATION 87070	2	0.24	0.06
01/20/78	11	0.23	0.06
0155 GMT	30	0.25	0.07
	48	0.26	0.14
32 39.5N	76	0.03	0.08
121 02.0W	118	0.02	0.03
STATION 87080	1	0.19	0.03
01/19/78	11	0.18	0.04
2005 GMT	29	0.19	0.05
	47	0.32	0.13
32 19.5N	75	0.11	0.10
121 43.0W	115	0.02	0.05
STATION 87090	1	0.10	0.04
01/19/78	10	0.11	0.03
1353 GMT	30	0.09	0.05
	49	0.12	0.03
31 59.0N	77	0.20	0.12
122 24.0W	120	0.05	0.01
STATION 90053	2	0.12	0.04
01/18/78	12	0.09	0.03
0138 GMT	31	0.10	0.03
	49	0.26	0.13
32 39.0N	78	0.11	0.09
119 28.5W	120	0.02	0.04
STATION 90060	1	0.18	0.03
01/18/78	10	0.14	0.04
0618 GMT	27	0.14	0.04
	45	0.32	0.16
32 26.5N	73	0.13	0.10
119 57.5W	114	0.02	0.04
STATION 90070	2	0.13	0.02
01/18/78	12	0.12	0.05
1228 GMT	30	0.17	0.02
32 04.5N	49	0.31	0.16
120 38.5W	77	0.09	0.08
STATION 90080	1	0.13	0.04
01/18/78	11	0.14	0.03
1751 GMT	29	0.19	0.07
31 45.0N	48	0.29	0.18
121 19.0W	77	0.08	0.09
STATION 90090	1	0.09	0.04
01/19/78	11	0.09	0.03
0027 GMT	30	0.10	0.05
	48	0.29	0.11
31 24.0N	76	0.21	0.14
122 01.0W	118	0.03	0.05
STATION 90100	2	0.10	0.01
01/19/78	12	0.07	0.02
0618 GMT	31	0.07	0.02
31 08.5N	79	0.19	0.12
122 37.0W	121	0.07	0.04
STATION 93070	2	0.18	0.02
01/14/78	12	0.15	0.03
1650 GMT	31	0.16	0.04
	64	0.29	0.17
31 30.0N	78	0.12	0.08
120 14.0W	111	0.01	0.04
STATION 93080	0	0.11	0.02
01/14/78	10	0.09	0.01
1148 GMT	30	0.10	0.01
	48	0.16	0.05
31 10.0N	77	0.30	0.14
120 54.5W	118	0.06	0.04
STATION 93090	1	0.09	0.04
01/14/78	11	0.09	0.01
0553 GMT	30	0.10	0.01
	48	0.17	0.04
30 50.0N	77	0.12	0.09
121 34.5W	119	0.02	0.03
STATION 93100	2	0.09	0.00
01/14/78	12	0.09	0.02
0016 GMT	30	0.11	0.02
	49	0.13	0.05
30 30.0N	77	0.28	0.14
122 14.0W	119	0.07	0.08
STATION 97030	0	0.75	0.07
01/07/78	10	0.53	0.20
0239 GMT	19	0.58	0.26
32 16.0N	29	0.43	0.21
117 07.0W	48	0.18	0.38
STATION 97035	1	0.27	0.04
01/11/78	11	0.32	0.01
2219 GMT	30	0.30	0.10
	39	0.75	0.30
32 06.0N	49	0.67	0.28
117 27.5W	63	0.19	0.21
	77	0.18	0.15
	96	0.03	0.06
	120	0.01	0.05
STATION 97040	2	0.11	0.06
01/12/78	12	0.13	0.06
0319 GMT	31	0.16	0.08
	40	0.21	0.08
31 56.0N	50	0.43	0.23
117 48.0W	64	0.22	0.19
	78	0.10	0.14
	96	0.05	0.10
	119	0.02	0.05

RV DAVID STARR JORDAN — CHLOROPHYLL-A AND PHAEOPHYTIN — CALCOFI CRUISE 7801

	DEPTH	CHL A	PHAEO
STATION 97050	1	0.36	0.15
01/12/78	11	0.33	0.13
1145 GMT	30	0.30	0.18
	63	0.11	0.09
31 36.0N	77	0.05	0.07
118 30.5W	95	0.03	0.05

	DEPTH	CHL A	PHAEO
STATION 97060	1	0.12	0.03
01/12/78	11	0.13	0.04
1930 GMT	29	0.17	0.06
	47	0.30	0.21
31 15.5N	75	0.12	0.10
119 10.0W	116	0.02	0.04

	DEPTH	CHL A	PHAEO
STATION 97070	1	0.08	0.02
01/13/78	11	0.07	0.02
0345 GMT	31	0.09	0.03
	50	0.18	0.06
30 55.0N	79	0.12	0.09
119 51.0W	122	0.01	0.03

	DEPTH	CHL A	PHAEO
STATION 97080	1	0.10	0.02
01/13/78	11	0.08	0.02
0923 GMT	29	0.09	0.02
	47	0.12	0.03
30 35.0N	74	0.27	0.13
120 31.0W	116	0.08	0.06

	DEPTH	CHL A	PHAEO
STATION 97090	1	0.06	0.02
01/13/78	10	0.08	0.01
1545 GMT	30	0.06	0.02
	48	0.09	0.01
30 16.5N	77	0.22	0.08
121 09.0W	118	0.05	0.04

RV ALEJANDRO DE HUMBOLDT — CHLOROPHYLL-A AND PHAEOPHYTIN — CALCOFI CRUISE 7801

	DEPTH	CHL A	PHAEO
STATION 100030	0	0.13	0.06
01/08/78	9	0.13	0.06
0152 GMT	29	0.39	0.20
	43	0.09	0.07
31 40.5N	53	0.04	0.06
116 46.5W	67	0.02	0.05
	81	0.02	0.05
	95	0.01	0.05
	119	0.01	0.05
	137	0.01	0.03
	165	0.00	0.03
	194	0.00	0.02

	DEPTH	CHL A	PHAEO
STATION 100035	0	0.11	0.06
01/08/78	10	0.11	0.05
0651 GMT	32	0.19	0.12
	42	0.33	0.19
31 30.5N	58	0.05	0.08
117 07.0W	73	0.03	0.06
	99	0.02	0.06
	119	0.01	0.03
	140	0.01	0.02
	160	0.00	0.02
	190	0.00	0.02

	DEPTH	CHL A	PHAEO
STATION 100040	0	0.38	0.03
01/08/78	10	0.37	0.03
1058 GMT	29	0.38	0.06
	38	0.40	0.14
31 21.0N	52	0.66	0.27
117 26.9W	66	0.39	0.28
	90	0.14	0.18
	109	0.04	0.08
	128	0.03	0.10
	147	0.02	0.07
	176	0.01	0.06
	209	0.01	0.05

	DEPTH	CHL A	PHAEO
STATION 100050	0	0.16	0.01
01/08/78	10	0.17	0.01
1836 GMT	31	0.16	0.02
	41	0.20	0.07
31 00.5N	56	0.48	0.20
118 07.0W	71	0.52	0.25
	97	0.14	0.18
	118	0.05	0.09
	138	0.04	0.07
	159	0.01	0.04
	190	0.01	0.05
	226	0.01	0.03

	DEPTH	CHL A	PHAEO
STATION 100060	0	0.16	0.02
01/09/78	11	0.20	0.02
0046 GMT	32	0.26	0.04
	42	0.31	0.11
30 40.4N	53	0.65	0.32
118 47.5W	68	0.50	0.30
	84	0.42	0.19

	DEPTH	CHL A	PHAEO
STATION 107032	1	0.26	0.03
01/11/78	11	0.31	0.10
2246 GMT	31	0.04	0.06
	45	0.02	0.05
30 25.7N	55	0.03	0.05
116 11.0W	70	0.02	0.06
	84	0.03	0.10
	99	0.02	0.09
	124	0.01	0.09
	143	0.01	0.05
	173	0.00	0.03
	203	0.00	0.03

	DEPTH	CHL A	PHAEO
STATION 107035	0	0.16	0.05
01/12/78	10	0.17	0.05
0202 GMT	31	0.30	0.07
	41	0.14	0.08
30 21.5N	58	0.04	0.05
116 22.5W	71	0.02	0.07
	96	0.02	0.06
	116	0.02	0.06
	136	0.01	0.04
	156	0.01	0.04
	186	0.00	0.03
	221	0.00	0.03

	DEPTH	CHL A	PHAEO
STATION 107040	0	0.30	0.11
01/12/78	10	0.30	0.12
0603 GMT	30	0.33	0.25
	40	0.22	0.19
30 11.0N	55	0.06	0.12
116 42.0W	70	0.01	0.06
	95	0.01	0.06
	115	0.01	0.05
	135	0.01	0.04
	155	0.00	0.03
	185	0.01	0.01
	220	0.00	0.03

	DEPTH	CHL A	PHAEO
STATION 107050	0	0.20	0.09
01/12/78	10	0.25	0.08
1327 GMT	30	0.32	0.06
	41	0.21	0.12
29 50.4N	57	0.17	0.16
117 22.0W	72	0.07	0.09
	97	0.03	0.03
	117	0.01	0.02
	139	0.01	0.02
	159	0.00	0.02
	189	0.00	0.01
	225	0.01	0.00

	DEPTH	CHL A	PHAEO
STATION 107060	0	0.12	0.03
01/12/78	11	0.13	0.04
1914 GMT	31	0.14	0.03
	42	0.13	0.04
29 32.0N	57	0.14	0.05
118 01.5W	73	0.22	0.10
	98	0.15	0.16
	119	0.11	0.11
	139	0.05	0.07
	160	0.02	0.02
	190	0.01	0.01
	226	0.01	0.01

	DEPTH	CHL A	PHAEO
STATION 107070	0	0.23	0.04
01/13/78	11	0.27	0.06
0313 GMT	31	0.26	0.07
	62	0.01	0.04
29 11.0N	72	0.04	0.48
118 41.0W	88	0.01	0.05
	103	0.01	0.05
	119	0.01	0.04
	144	0.01	0.03
	165	0.00	0.02
	196	0.00	0.02
	227	0.00	0.02

	DEPTH	CHL A	PHAEO
STATION 107080	0	0.27	0.06
01/13/78	10	0.26	0.08
0818 GMT	30	0.35	0.06
	41	0.05	0.03
28 51.5N	56	0.05	0.06
119 20.0W	71	0.07	0.08
	96	0.02	0.06
	117	0.02	0.03
	137	0.00	0.04
	157	0.00	0.03
	187	0.00	0.02
	222	0.00	0.01

	DEPTH	CHL A	PHAEO
STATION 110035	0	0.14	0.05
01/14/78	11	0.13	0.04
1932 GMT	31	0.16	0.05
	41	0.14	0.05
29 46.0N	52	0.33	0.15
116 00.0W	67	0.09	0.09
	83	0.06	0.06
	103	0.03	0.04
	129	0.01	0.04
	149	0.01	0.04
	180	0.00	0.03
	211	0.00	0.02

	DEPTH	CHL A	PHAEO
STATION 110040	0	0.19	0.06
01/14/78	11	0.19	0.06
1524 GMT	31	0.19	0.05
	42	0.21	0.09
29 36.5N	57	0.03	0.04
116 19.4W	73	0.03	0.05
	119	0.02	0.05
	139	0.01	0.03
	160	0.01	0.03
	190	0.00	0.02
	226	0.00	0.02

	DEPTH	CHL A	PHAEO
STATION 110050	0	0.16	0.08
01/14/78	10	0.17	0.06
0906 GMT	31	0.25	0.08
	41	0.24	0.12
29 16.4N	56	0.10	0.08
116 59.1W	71	0.03	0.05
	96	0.03	0.04
	117	0.02	0.04
	137	0.01	0.04
	157	0.01	0.03
	187	0.03	0.00
	222	0.00	0.03

	DEPTH	CHL A	PHAEO
STATION 110060	0	0.21	0.07
01/14/78	10	0.25	0.06
0254 GMT	30	0.28	0.10
	55	0.08	0.05
28 56.4N	65	0.07	0.08
117 38.9W	75	0.07	0.08
	90	0.07	0.08
	105	0.05	0.07
	130	0.03	0.05
	150	0.02	0.04
	174	0.01	0.02
	204	0.00	0.01
STATION 110070	0	0.07	0.05
01/13/78	11	0.26	0.06
2110 GMT	33	0.27	0.05
	56	0.07	0.03
28 36.5N	73	0.01	0.04
118 18.0W	88	0.03	0.04
	104	0.03	0.07
	120	0.02	0.04
	144	0.01	0.03
	165	0.00	0.03
	195	0.00	0.03
	227	0.00	0.02
STATION 110080	0	0.06	0.00
01/13/78	10	0.06	0.02
1500 GMT	32	0.07	0.01
	58	0.11	0.05
28 16.5N	68	0.11	0.10
118 57.5W	79	0.16	0.17
	94	0.09	0.12
	110	0.05	0.07
	136	0.01	0.02
	156	0.00	0.02
	182	0.00	0.02
	213	0.00	0.01
STATION 113035	1	0.23	0.07
01/18/78	11	0.21	0.08
1822 GMT	31	0.22	0.09
	40	0.27	0.11
29 11.5N	55	0.15	0.13
115 38.0W	70	0.12	0.13
	94	0.04	0.07
	113	0.02	0.05
	133	0.01	0.04
	152	0.01	0.03
	181	0.00	0.03
	214	0.00	0.03
STATION 113040	2	0.19	0.04
01/18/78	12	0.20	0.03
2311 GMT	32	0.21	0.05
	42	0.21	0.04
29 02.0N	58	0.09	0.02
115 57.0W	73	0.03	0.04
	98	0.01	0.05
	118	0.02	0.04
	137	0.01	0.05
	157	0.01	0.03
	187	0.01	0.03
	223	0.01	0.03
STATION 113050	11	0.30	0.07
01/19/78	32	0.28	0.08
0527 GMT	42	0.33	0.10
	57	0.31	0.10
28 41.5N	73	0.07	0.06
116 36.5W	98	0.04	0.07
	118	0.01	0.07
	139	0.02	0.07
	159	0.01	0.05
	189	0.01	0.04
	225	0.00	0.03
	255	0.00	0.03
STATION 113060	1	0.09	0.01
01/19/78	11	0.00	0.09
1119 GMT	31	0.09	0.00
	41	0.08	0.01
28 22.0N	56	0.10	0.02
117 16.0W	71	0.18	0.09
	96	0.09	0.12
	117	0.04	0.06
	137	0.01	0.04
	157	0.02	0.05
	187	0.01	0.02
	223	0.00	0.01
STATION 113070	2	0.20	0.02
01/19/78	12	0.18	0.03
1736 GMT	31	0.25	0.03
	60	0.10	0.02
28 02.0N	70	0.04	0.05
117 55.0W	85	0.04	0.06
	100	0.02	0.06
	114	0.02	0.04
	139	0.02	0.03
	159	0.02	0.02
	188	0.00	0.01
	218	0.01	0.01
STATION 113080	0	0.05	0.01
01/19/78	9	0.05	0.01
2339 GMT	27	0.06	0.01
	54	0.10	0.02
27 42.0N	63	0.18	0.06
118 33.5W	76	0.16	0.10
	90	0.09	0.08
	103	0.09	0.14
	125	0.02	0.04
	142	0.01	0.03
	169	0.01	0.02
	195	0.01	0.01
STATION 117030	0	0.50	0.19
01/21/78	11	0.47	0.19
1714 GMT	21	0.47	0.20
	31	0.41	0.25
28 48.0N	50	0.22	0.15
114 56.5W	73	0.02	0.04
STATION 117035	0	0.89	0.38
01/21/78	32	0.52	0.23
1420 GMT	43	0.15	0.09
	58	0.06	0.09
28 38.0N	73	0.02	0.06
115 16.0W	88	0.02	0.05
	108	0.01	0.07
	133	0.03	0.04
	158	0.01	0.03
STATION 117040	1	0.87	0.27
01/21/78	11	0.88	0.25
0723 GMT	29	0.90	0.25
	38	0.77	0.26
28 28.0N	52	0.22	0.08
115 35.5W	65	0.03	0.05
	87	0.02	0.04
	105	0.02	0.04
	123	0.02	0.03
	140	0.01	0.03
	166	0.01	0.03
	196	0.01	0.02
STATION 117050	1	0.29	0.10
01/21/78	11	0.28	0.09
0057 GMT	31	0.29	0.09
	41	0.31	0.13
28 08.0N	55	0.21	0.16
116 15.0W	70	0.05	0.06
	95	0.01	0.06
	115	0.01	0.05
	134	0.01	0.05
	154	0.01	0.02
	184	0.01	0.02
	218	0.00	0.02
STATION 117060	1	0.35	0.13
01/20/78	11	0.37	0.11
1806 GMT	30	0.35	0.12
	40	0.33	0.13
27 48.0N	55	0.16	0.09
116 53.0W	70	0.16	0.19
	94	0.09	0.11
	113	0.03	0.07
	133	0.01	0.05
	152	0.01	0.04
	181	0.00	0.03
	214	0.01	0.02
STATION 117070	1	0.22	0.05
01/20/78	11	0.22	0.04
1215 GMT	29	0.24	0.02
	38	0.20	0.05
27 27.5N	52	0.22	0.04
117 32.5W	66	0.04	0.04
	89	0.03	0.03
	108	0.02	0.04
	126	0.01	0.03
	145	0.02	0.02
	173	0.02	0.02
	206	0.01	0.01
STATION 117080	1	0.15	0.03
01/20/78	10	0.16	0.02
0530 GMT	30	0.15	0.04
	39	0.13	0.04
27 08.0N	52	0.15	0.04
118 10.0W	66	0.27	0.23
	87	0.14	0.09
	104	0.10	0.11
	120	0.06	0.08
	138	0.03	0.05
	165	0.01	0.02
	197	0.01	0.01
STATION 118039	0	0.73	0.17
01/21/78	10	0.67	0.20
1105 GMT	31	0.66	0.19
	46	0.09	0.10
28 18.5N	56	0.07	0.09
115 23.7W	71	0.04	0.06
	86	0.03	0.18
	106	0.02	0.08
	131	0.01	0.07
	150	0.01	0.08
	176	0.01	0.09
	202	0.01	0.09
STATION 119033	0	0.32	0.17
01/22/78	10	0.30	0.17
0810 GMT	26	0.27	0.19
	36	0.24	0.24
28 19.0N	46	0.33	0.26
114 53.0W	61	0.24	0.19
	76	0.02	0.09
	101	0.02	0.25
STATION 120025	0	0.59	0.16
01/22/78	10	0.65	0.11
0235 GMT	20	0.58	0.19
28 22.5N	30	0.39	0.23
114 15.0W	48	0.03	0.17
STATION 120030	1	0.51	0.24
01/22/78	11	0.43	0.30
0502 GMT	22	0.42	0.30
	33	0.33	0.30
28 13.0N	44	0.33	0.21
114 34.0W	66	0.03	0.07
	92	0.08	0.41
STATION 120035	1	0.45	0.17
01/22/78	11	0.43	0.20
1045 GMT	21	0.40	0.22
	32	0.40	0.25
28 03.0N	53	0.04	0.05
114 54.0W	79	0.04	0.26

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	DEPTH	CHL A	PHAEO
STATION 120045	0	0.29	0.07
01/22/78	10	0.27	0.09
1651 GMT	31	0.28	0.11
	41	0.24	0.12
27 43.0N	56	0.14	0.09
115 33.0W	71	0.06	0.04
	96	0.05	0.06
	117	0.02	0.05
	137	0.02	0.07
	157	0.02	0.04
	187	0.00	0.02
	223	0.00	0.02

	DEPTH	CHL A	PHAEO
STATION 120050	0	0.27	0.04
01/22/78	10	0.27	0.07
2008 GMT	31	0.35	0.11
	41	0.32	0.13
27 33.0N	56	0.09	0.07
115 52.5W	74	0.04	0.06
	98	0.01	0.06
	118	0.01	0.05
	139	0.01	0.05
	159	0.01	0.03
	190	0.00	0.03
	226	0.00	0.02

	DEPTH	CHL A	PHAEO
STATION 120060	0	0.23	0.08
01/23/78	10	0.22	0.09
0147 GMT	31	0.30	0.12
	41	0.26	0.10
27 13.0N	56	0.03	0.06
116 30.5W	71	0.03	0.05
	97	0.02	0.08
	117	0.01	0.05
	137	0.01	0.04
	158	0.01	0.03
	188	0.00	0.03
	224	0.00	0.04

	DEPTH	CHL A	PHAEO
STATION 120070	1	0.32	0.11
01/23/78	11	0.28	0.13
0724 GMT	32	0.30	0.14
	42	0.33	0.14
26 53.0N	57	0.11	0.08
117 10.0W	72	0.05	0.00
	98	0.02	0.06
	118	0.02	0.05
	138	0.01	0.04
	159	0.01	0.04
	189	0.00	0.03
	225	0.01	0.03

	DEPTH	CHL A	PHAEO
STATION 120080	0	0.18	0.06
01/23/78	10	0.17	0.05
1319 GMT	30	0.18	0.05
	41	0.17	0.05
26 32.4N	56	0.31	0.11
117 49.0W	71	0.06	0.04
	96	0.01	0.04
	116	0.01	0.04
	136	0.01	0.04
	155	0.01	0.03
	185	0.00	0.02
	220	0.00	0.01

	DEPTH	CHL A	PHAEO
STATION 123042	0	0.44	0.19
01/24/78	9	0.41	0.23
1214 GMT	29	0.42	0.21
	39	0.39	0.24
27 14.0N	54	0.33	0.36
114 59.0W	69	0.13	0.14
	94	0.05	0.10
	113	0.02	0.05
	133	0.01	0.04
	153	0.00	0.03
	182	0.00	0.03
	217	0.00	0.03

	DEPTH	CHL A	PHAEO
STATION 123050	1	0.65	0.31
01/24/78	11	0.63	0.32
0543 GMT	30	0.58	0.32
	40	0.39	0.29
26 58.0N	55	0.16	0.22
115 31.0W	69	0.06	0.12
	93	0.05	0.11
	113	0.03	0.08
	132	0.02	0.05
	151	0.00	0.04
	180	0.00	0.04
	214	0.00	0.03

	DEPTH	CHL A	PHAEO
STATION 123060	1	0.16	0.03
01/23/78	11	0.16	0.03
2344 GMT	31	0.30	0.08
	41	0.35	0.08
26 38.5N	56	0.30	0.13
116 09.0W	71	0.24	0.13
	96	0.05	0.08
	116	0.03	0.05
	135	0.01	0.03
	155	0.01	0.02
	185	0.01	0.01
	219	0.01	0.02

	DEPTH	CHL A	PHAEO
STATION 127034	0	0.36	0.08
01/25/78	9	0.32	0.12
0029 GMT	18	0.32	0.12
	28	0.46	0.21
26 55.0N	47	0.58	0.32
114 06.6W	71	0.33	0.32

	DEPTH	CHL A	PHAEO
STATION 127040	1	0.17	0.05
01/25/78	10	0.17	0.05
0401 GMT	34	0.15	0.06
	43	0.14	0.06
26 43.4N	57	0.21	0.12
114 29.1W	71	0.36	0.29
	94	0.13	0.19
	112	0.05	0.09
	131	0.02	0.06
	158	0.01	0.02
	186	0.00	0.02
	223	0.00	0.02

	DEPTH	CHL A	PHAEO
STATION 127050	0	0.15	0.05
01/25/78	10	0.14	0.04
1017 GMT	34	0.14	0.04
	44	0.13	0.04
26 23.0N	59	0.19	0.10
115 08.0W	73	0.45	0.42
	98	0.14	0.26
	117	0.06	0.12
	137	0.03	0.06
	166	0.01	0.02
	195	0.00	0.02

	DEPTH	CHL A	PHAEO
STATION 127060	0	0.12	0.03
01/25/78	9	0.13	0.03
1545 GMT	18	0.12	0.03
	40	0.11	0.03
26 03.5N	49	0.11	0.04
115 46.5W	62	0.25	0.13
	75	0.15	0.15
	97	0.06	0.08
	131	0.02	0.04
	157	0.01	0.02
	182	0.00	0.02
	215	0.00	0.02

	DEPTH	CHL A	PHAEO
STATION 130030	0	0.46	0.08
01/26/78	10	0.40	0.13
1659 GMT	20	0.41	0.11
	30	0.38	0.14
26 29.0N	50	0.40	0.12
113 29.0W	76	0.17	0.30

	DEPTH	CHL A	PHAEO
STATION 130040	1	0.13	0.03
01/26/78	10	0.13	0.03
1035 GMT	28	0.15	0.04
	37	0.14	0.04
26 09.0N	50	0.15	0.05
114 07.0W	64	0.26	0.23
	86	0.11	0.19
	103	0.07	0.09
	120	0.03	0.03
	137	0.01	0.03
	163	0.01	0.03
	191	0.01	0.02

	DEPTH	CHL A	PHAEO
STATION 130050	1	0.13	0.03
01/26/78	11	0.14	0.00
0455 GMT	31	0.14	0.02
	41	0.24	0.09
25 49.0N	56	0.23	0.24
114 45.0W	71	0.18	0.22
	95	0.07	0.14
	115	0.04	0.06
	135	0.02	0.03
	155	0.01	0.01
	185	0.01	0.01
	220	0.00	0.02

	DEPTH	CHL A	PHAEO
STATION 130060	1	0.12	0.01
01/25/78	10	0.12	0.01
2203 GMT	34	0.12	0.02
	43	0.13	0.01
25 29.0N	56	0.24	0.09
115 24.0W	70	0.30	0.24
	93	0.10	0.11
	111	0.04	0.05
	129	0.01	0.04
	155	0.01	0.01
	182	0.01	0.02
	218	0.00	0.01

	DEPTH	CHL A	PHAEO
STATION 133025	0	0.31	0.09
01/27/78	10	0.30	0.11
0134 GMT	21	0.41	0.22
	31	0.48	0.25
26 04.5N	51	0.48	0.47
112 48.0W	77	0.15	0.40

	DEPTH	CHL A	PHAEO
STATION 133030	0	0.14	0.02
01/27/78	10	0.14	0.01
0416 GMT	30	0.22	0.02
	45	0.45	0.21
25 54.5N	55	0.37	0.20
113 07.5W	70	0.19	0.23
	85	0.13	0.15
	104	0.04	0.08
	128	0.01	0.05
	147	0.03	0.10
	175	0.06	0.38

	DEPTH	CHL A	PHAEO
STATION 133040	1	0.13	0.08
01/27/78	11	0.14	0.07
1027 GMT	32	0.13	0.08
	42	0.18	0.13
25 34.5N	52	0.19	0.07
113 45.5W	67	0.25	0.30
	82	0.18	0.24
	102	0.11	0.14
	127	0.07	0.07
	147	0.04	0.11
	177	0.00	0.02
	207	0.00	0.06
STATION 133050	0	0.05	0.02
01/27/78	10	0.10	0.02
1651 GMT	31	0.13	0.03
	41	0.15	0.03
25 14.5N	56	0.17	0.08
114 24.0W	72	0.34	0.33
	97	0.10	0.13
	118	0.07	0.13
	138	0.02	0.05
	159	0.00	0.02
	189	0.00	0.02
	225	0.00	0.02
STATION 133060	1	0.13	0.00
01/27/78	12	0.12	0.01
2224 GMT	32	0.15	0.03
	42	0.13	0.03
24 54.5N	52	0.18	0.02
115 02.0W	83	0.24	0.20
	104	0.11	0.14
	129	0.03	0.05
	149	0.01	0.03
	180	0.01	0.01
	209	0.00	0.02
STATION 137023	0	0.34	0.13
01/29/78	10	0.59	0.18
0405 GMT	21	0.61	0.23
	31	0.44	0.26
25 34.0N	51	0.19	0.10
112 19.0W	61	0.10	0.13
STATION 137030	1	0.15	0.03
01/28/78	11	0.20	0.04
2340 GMT	31	0.43	0.17
	47	0.52	0.29
25 20.0N	62	0.22	0.27
112 46.0W	77	0.15	0.21
	92	0.07	0.15
	112	0.02	0.09
	137	0.01	0.08
	167	0.01	0.10
	202	0.01	0.14
	238	0.01	0.18
STATION 137040	0	0.16	0.06
01/28/78	10	0.16	0.06
1527 GMT	31	0.15	0.07
	41	0.21	0.05
25 00.0N	51	0.16	0.07
113 23.6W	66	0.31	0.15
	82	0.31	0.24
	102	0.10	0.14
	128	0.04	0.07
	148	0.01	0.04
	178	0.00	0.03
	209	0.00	0.02
STATION 137050	1	0.09	0.00
01/28/78	11	0.10	0.00
1005 GMT	32	0.12	0.00
	43	0.09	0.00
24 40.0N	53	0.10	0.01
114 02.0W	68	0.14	0.03
	84	0.17	0.22
	105	0.13	0.20
	130	0.05	0.09
	150	0.01	0.03
	181	0.01	0.01
	211	0.01	0.01
STATION 137060	0	0.07	0.02
01/28/78	10	0.07	0.02
0413 GMT	31	0.08	0.02
	57	0.12	0.03
24 20.0N	67	0.17	0.11
114 39.5W	77	0.17	0.13
	108	0.15	0.20
	134	0.05	0.07
	154	0.02	0.04
	180	0.00	0.02
	211	0.00	0.02

Secchi Disk Observations

CalCOFI Cruise 7801

Stat #	Mo	Dy	Local Time (+8: PST)	Depth (m)	Weather	Clouds Type/Amt
60.052	1	31	1515	5	1	8 5
60.055	1	31	1345	8	1	8 5
60.060	1	31	1045	9	1	8 1
63.070	1	30	1210	20	1	6 4
67.055	1	29	1330	8	1	8 7
67.090	1	28	1500	25	2	6 8
70.053	1	27	1045	14	2	7 8
70.060	1	27	1415	18	1	7 6
73.070	1	26	1440	12	1	4 4
80.052	1	24	1340	12	0	- 0
80.055	1	24	1107	20	0	- 0
83.060	1	22	1230	12	1	8 3
87.040	1	20	1510	26	1	8 4
87.045	1	20	1050	22	0	- 0
87.080	1	19	1225	14	1	6 5
90.045	1	17	1200	15	1	7 1
90.080	1	18	1005	20	1	8 3
93.030	1	15	1205	24	1	6 7
93.035	1	15	1010	23	1	6 7
93.060	1	14	1510	17	5	7 8
93.070	1	14	0910	20	5	7 8
97.029	1	5	1330	16	1	6 6
97.035	1	11	1315	26	1	8 6
97.060	1	12	1306	31	1	3 6
100.050	1	8	1100	33	1	6 4
100.090	1	9	1318	34	5	6 8
103.050	1	10	1544	24	1	7 1
103.060	1	10	0928	27	1	1 3
107.031	1	11	1311	11	1	8 3
107.032	1	11	1410	18	1	8 4
107.060	1	12	1037	28	1	8 2
110.032[4]	1	14	1344	14	2	7 8
110.035	1	14	1154	25	1	6 7
110.070	1	13	1344	18	1	7 7
113.035	1	18	1054	20	0	- 0
113.040	1	18	1442	20	1	6 1
113.070	1	19	0954	26	1	8 6
113.080	1	19	1507	30	1	8 3

Secchi Disk Observations

CalCOFI Cruise 7801

Stat #	Mo	Dy	Local Time (+8: PST)	Depth (m)	Weather	Clouds Type/Amt
117.025	1	21	1237	13	1	8 1
117.026	1	21	1139	17	1	8 1
117.030	1	21	0941	16	0	- 0
117.060	1	20	1044	22	1	8 5
120.045	1	22	0909	21	1	0 1
120.050	1	22	1232	22	1	2 7
120.060	1	22	1604	18	2	4 8
123.036	1	24	0942	13	1	6 6
127.033	1	24	1526	14	1	1 5
130.028	1	26	1100	20	1	2 5
130.030	1	26	0907	22	1	2 2
130.060	1	25	1335	34	1	0 5
133.023	1	26	1541	13	1	2 5
133.050	1	27	0912	29	2	4 8
133.060	1	27	1355	30	2	4 8
137.030	1	28	1653	23	1	4 7
137.035	1	28	1238	27	1	4 7

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