

UNIVERSITY OF CALIFORNIA SCRIPPS INSTITUTION OF OCEANOGRAPHY

data report

PHYSICAL AND CHEMICAL DATA

CCOFI Cruise 6307
10 July - 8 August 1963

and

CCOFI Cruise 6309
3 - 29 September 1963

SIO Reference 64-18
25 May 1964

INSERT FOR CCOFI CRUISE 6307 (SIO Ref. 64-18)

The CCOFI cruise-numbering and station-numbering system has been slightly revised in order to make it more consistent with the system used by the National Oceanographic Data Center.

Cruise numbers. Hyphenated numbers indicating quarterly cruises (extending over a period of more than one month) will no longer be used. A four-digit number will appear instead, where the first two digits represent the year, and the last two digits the month in which the first data were collected.

Station numbers. Superscript numbers will not be used any longer, either for indication of the station line (before the decimal point) nor the station position along that line (after the decimal point). (Each station number represents, really, an area of about twelve by four nautical miles.) The exact position will be expressed by latitude and longitude.

UNIVERSITY OF CALIFORNIA
SCRIPPS INSTITUTION OF OCEANOGRAPHY

PHYSICAL AND CHEMICAL DATA

CCOFI Cruise 6307
10 July - 8 August 1963

and


CCOFI Cruise 6309
3 - 29 September 1963

Sponsored by

Marine Research Committee

SIO Reference 64-18
25 May 1964

Approved for distribution:


F. N. Spiess, Director

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1. CCOFI Cruise ⁶⁴⁰¹~~6307~~, station positions
2. Horizontal distribution of dynamic height anomaly (0 over 500 d-bar)
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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 depth to the thermocline
8. Horizontal distribution of temperature at 200 meters
9. Horizontal distribution of salinity at 200 meters

Sigs for close grid area
1a

FIGURES FOR CLOSE GRID AREA

*19
4
76
18
94*

*47
2)94
8
14*

Insert rough draft of Intro.

INTRODUCTION

The data presented in this report were collected by the RV Black Douglas of the Bureau of Commercial Fisheries ~~on Cruise 6307~~ and by the ~~RV Horizon~~ and the RV Alexander Agassiz of the Scripps Institution of Oceanography on Cruise 6309-6401 of the California Cooperative Oceanic Fisheries Investigations program. ~~The first~~ The first two figures in this cruise numbering system represent the year of the cruise; the last two figures, the month. The cruises preceding this one in the series are ~~6301-2 (SIO Ref. 64-2) and 6304 and 6306 (SIO Ref. 64-13).~~

~~6307 and 6309 (SIO Ref. 64-18)~~ and 6310, 6311 and 6311 (El Golfo) (SIO Ref. 65-1).

The data are tabulated at observed depths; the interpolated and computed values are tabulated at standard depths and are accompanied by charts of horizontal distribution. *omit*
The presentation of data in this report does not constitute publication; however, the data contained in this report have been carefully edited and no modifications should be necessary before final publication.

STANDARD PROCEDURES

Processing of the data was carried out using the method described by Klein.^{1/} The 125-meter level was introduced into the integration to obtain greater accuracy in the determination of ΔD .

To indicate degree of accuracy, temperatures are recorded in tenths of a degree when obtained by bucket thermometer, thermograph, or bathythermograph, while temperatures from reversing thermometers are recorded in hundredths of a degree. The salinity values obtained by salinometer are recorded to three decimal places, provided they meet accepted standards. The values recorded "have a reproducibility of $\pm 0.004\%$ salinity at the 95 per cent probability level, and a probable accuracy of $\pm 0.01\%$ salinity or better at the same level of probability."^{2/} The values are recorded to two decimal places when obtained by chlorinity titration, or by salinometer where only one determination per sample was obtained, or where there is doubt concerning the accuracy of a particular sample, or of all samples on

^{1/} Klein, Hans T. A new technique for processing physical oceanographic data. MS.

^{2/} Quotation from Department of Oceanography, University of Washington, Tech. Rep. No. 66, UW Ref. 60-18, October 1960.

a station. The accuracy of all samples obtained by salinometer and recorded to two decimal places is believed to be equal to or better than those obtained by manual titration.

Extrapolated values and values interpolated between remote observations are entered within parentheses. A hyphen is used to indicate a missing observed value. The time is the time of messenger release. When more than one cast was made on a station, messenger times and wire angles are given in the order of increasing depth. A line is left blank between the observed data of each cast.

On stations where more than one cast is lowered, the various property curves may not agree perfectly. This discrepancy may be caused by changes in geographical position, real property changes with time, slight error in measurement, or a combination of these factors. Stations with overlapping casts have the following footnote: Overlapping casts; reconciliation of property curves when necessary.

FOOTNOTES

Laboratory personnel note any possible imperfections in the sealing of the bottles as follows:

Loose bottle cap: The cap is definitely loose so that it could be moved with very little applied pressure. The salinity values obtained from these samples may be usable depending on time and/or conditions of storage.

Possible evaporation: Either the cap was sealed with less than usual pressure, the bottle edge chipped, the rubber washer cracked, or the bale broke on opening, etc.

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

In addition to footnotes, two special notations^{ok} are used without footnotes because their meaning is always the same.

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

p: pretrip or posttrip.

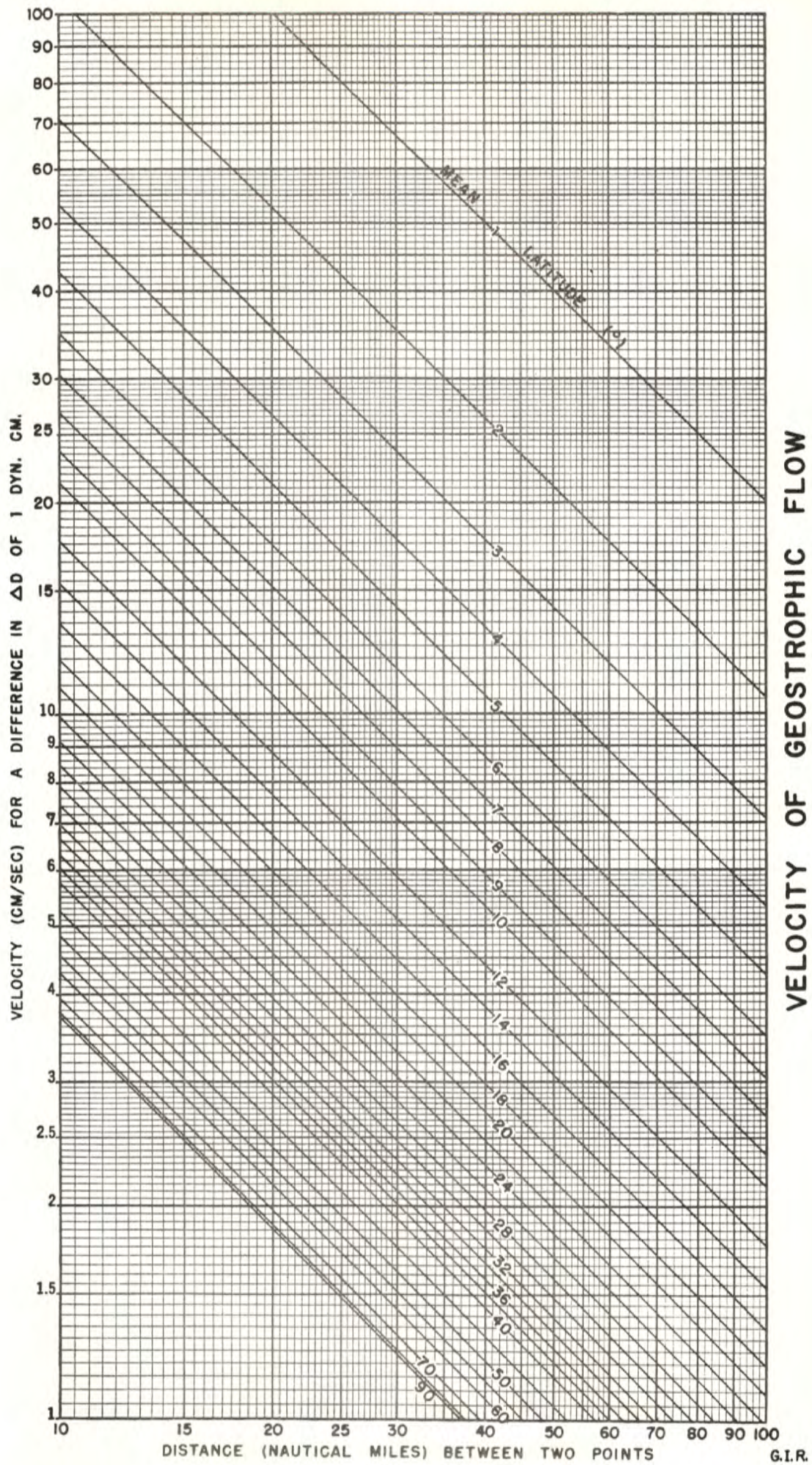
Values which are not drawn through because they seem to be in error without apparent reason are indicated by the following notation.

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

FORMAT

were collected in part by personnel of and processed completely
These data ~~are typed~~ in the format of the University of California Press publication, Oceanic Observations of the Pacific.

~~by the~~ (DC PG, MLR) Scripps Inst of Ocean. They are typed.
by the Data Collection and Processing Group



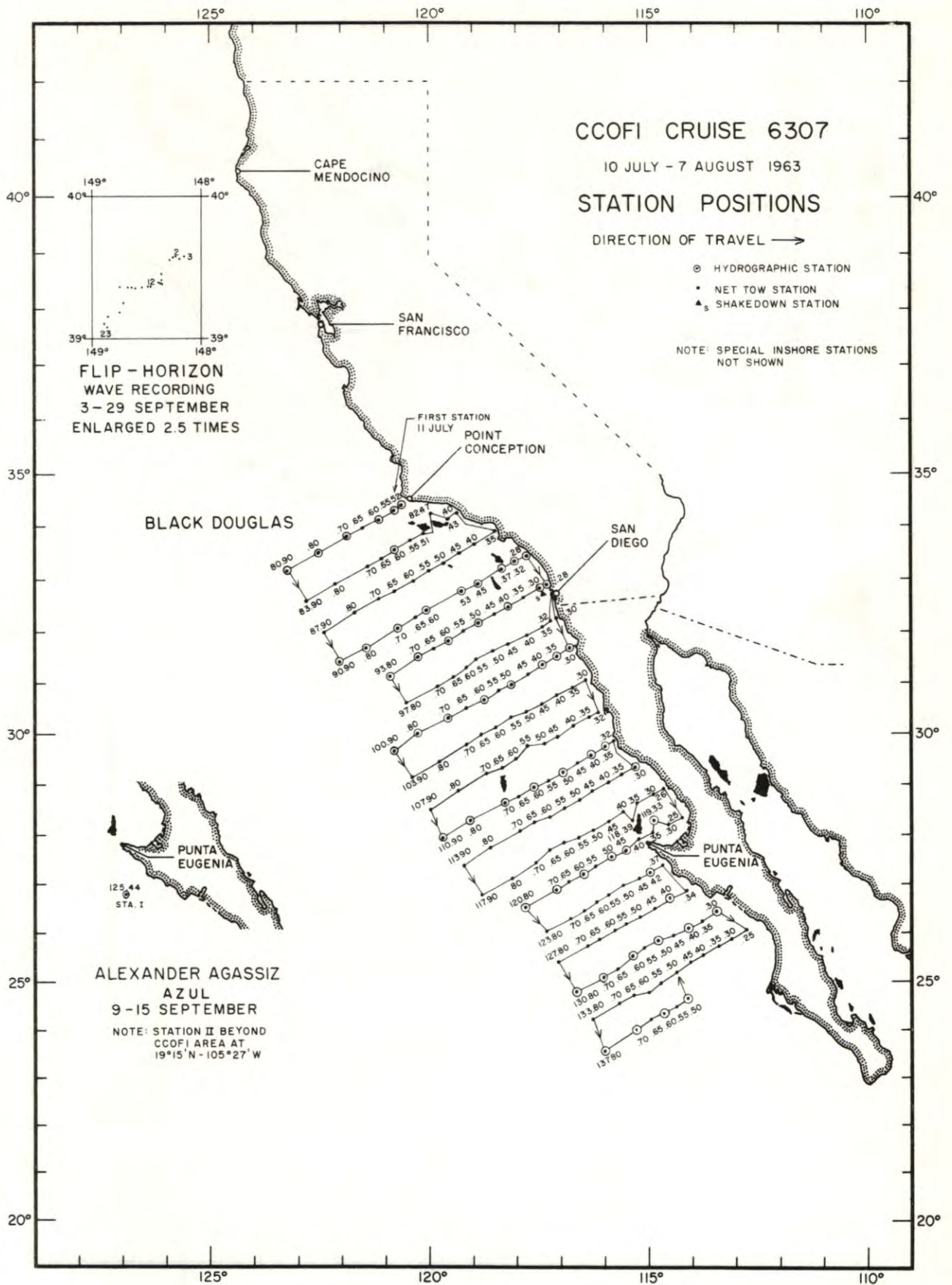


FIGURE 1

FIGURES
Cruise 6309

1. See inserts on station position chart for CCOFI Cruise 6307

PERSONNEL
Cruise 6309

SHIPS' CAPTAINS

Ferris, Noel L., RV Horizon
Newbegin, Robert C., RV Alexander Agassiz

PERSONNEL PARTICIPATING IN THE COLLECTION OF DATA

RV Alexander Agassiz

Pine, James S., Senior Marine Technician

RV Horizon

Bottom, Kenneth S., Senior Marine Technician
Brennen, Robert E., Senior Marine Technician
Ferreira, Simon M., Marine Technician

S10

CCOFI
6309

| OBSERVED | | | | COMPUTED | INTERPOLATED | | | | COMPUTED | | |
|----------|----|---|----------------|----------------|--------------|----|---|----------------|----------------|----------------|-------|
| Z | T | S | O ₂ | δ _T | Z | T | S | O ₂ | σ _t | δ _T | ΔD |
| m | °C | ‰ | ml/L | cl/ton | m | °C | ‰ | ml/L | g/L | cl/ton | dyn m |

H-1

HORIZON; September 3, 1963; 1846 GCT; 39°33.5'N, 148°14'W;^{a)} sounding, 2800+ fm; wind, 340°, force 4; weather, partly cloudy; sea, high; wire angle, 00°.^{b)}

| | | | | | | | | | | | |
|-----|-------|--|--|--|------|---------|--|--|--|--|--|
| 1 | 20.55 | | | | 0 | (20.55) | | | | | |
| 11 | 20.56 | | | | 10 | 20.56 | | | | | |
| 31 | 16.37 | | | | 20 | 20.55 | | | | | |
| 60 | 12.74 | | | | 30 | 16.80 | | | | | |
| 80 | 12.14 | | | | 50 | 13.50 | | | | | |
| 95 | 11.46 | | | | 75 | 12.28 | | | | | |
| 110 | 11.10 | | | | 100 | 11.28 | | | | | |
| 139 | 10.72 | | | | 125 | 11.00 | | | | | |
| 164 | 10.25 | | | | 150 | 10.49 | | | | | |
| 194 | 9.95 | | | | 200 | 9.85 | | | | | |
| 228 | 9.42 | | | | 250 | 9.13 | | | | | |
| 298 | 8.56 | | | | 300 | 8.52 | | | | | |
| 407 | 6.90 | | | | 400 | 7.03 | | | | | |
| 516 | 5.29 | | | | 500 | 5.49 | | | | | |
| 655 | 4.31 | | | | 600 | 4.60 | | | | | |
| 814 | 3.80 | | | | 700 | 4.14 | | | | | |
| 982 | 3.30 | | | | 800 | 3.84 | | | | | |
| | | | | | 1000 | (3.24) | | | | | |

H-2

HORIZON; September 4, 1963; 1846 GCT; 39°33.5'N, 148°14'W; sounding, 2800+ fm; wind, 220°, force 5; weather, cloudy; sea, high; wire angle, 02°.

| | | | | | | | | | | | |
|------|-------|--------|------|-----|------|---------|---------|--------|---------|-------|--------|
| 1 | 20.58 | 33.504 | 5.42 | 441 | 0 | (20.58) | (33.50) | (5.42) | (23.49) | (441) | (0.00) |
| 11 | 20.60 | 33.52 | 5.46 | 440 | 10 | 20.60 | 33.52 | 5.46 | 23.50 | 440 | 0.04 |
| 31 | 16.22 | 33.626 | 6.50 | 329 | 20 | 20.00 | 33.54 | 5.64 | 23.67 | 423 | 0.09 |
| 60 | 12.54 | 33.656 | 6.43 | 253 | 30 | 16.50 | 33.62 | 6.48 | 24.59 | 335 | 0.13 |
| 80 | 11.81 | 33.675 | 6.27 | 238 | 50 | 13.17 | 33.65 | 6.46 | 25.33 | 265 | 0.19 |
| 95 | 11.60 | 33.773 | 5.92 | 227 | 75 | 11.97 | 33.66 | 6.34 | 25.57 | 242 | 0.25 |
| 110 | 11.10 | 33.795 | 5.88 | 217 | 100 | 11.49 | 33.78 | 5.92 | 25.76 | 225 | 0.31 |
| 139 | 10.76 | 34.086 | 5.37 | 190 | 125 | 10.70 | 33.91 | 5.59 | 26.00 | 202 | 0.36 |
| 164 | 10.22 | 34.111 | 5.33 | 179 | 150 | 10.51 | 34.10 | 5.35 | 26.18 | 184 | 0.41 |
| 194 | 9.94 | 34.137 | 5.36 | 172 | 200 | 9.86 | 34.13 | 5.37 | 26.32 | 171 | 0.50 |
| 228 | 9.44 | 34.095 | 5.43 | 167 | 250 | 9.16 | 34.07 | 5.41 | 26.39 | 165 | 0.59 |
| 298 | 8.54 | 34.046 | 5.09 | 157 | 300 | 8.51 | 34.04 | 5.08 | 26.46 | 158 | 0.67 |
| 406 | 6.84 | 33.995 | 3.98 | 138 | 400 | 6.93 | 34.00 | 4.01 | 26.66 | 139 | 0.83 |
| 515 | 5.22 | 33.972 | 2.93 | 120 | 500 | 5.43 | 33.97 | 3.05 | 26.83 | 123 | 0.96 |
| 654 | 4.30 | 34.080 | 1.67 | 102 | 600 | 4.60 | 34.04 | 2.13 | 26.98 | 108 | 1.08 |
| 811 | 3.78 | 34.214 | 0.83 | 87 | 700 | 4.13 | 34.12 | 1.38 | 27.10 | 98 | 1.19 |
| 980 | 3.26 | 34.322 | 0.57 | 74 | 800 | 3.81 | 34.20 | 0.89 | 27.19 | 89 | 1.29 |
| 1192 | 2.86 | 34.417 | 0.51 | 64 | 1000 | 3.21 | 34.34 | 0.56 | 27.36 | 72 | 1.47 |
| | | | | | 1200 | (2.84) | (34.42) | (0.51) | (27.46) | (63) | (1.62) |

H-3

HORIZON; September 6, 1963; 1805 GCT; 39°33.5'N, 148°09.3'W; sounding, 2800+ fm; wind, 210°, force 3; weather, cloudy; sea, rough; wire angle, 20°.

| | | | | | | | | | | | |
|------|-------|--------|------|-----|------|---------|---------|--------|---------|-------|--------|
| 1 | 20.92 | 33.718 | 5.33 | 434 | 0 | (20.92) | (33.72) | (5.33) | (23.56) | (434) | (0.00) |
| 10 | 20.89 | 33.727 | 5.33 | 432 | 10 | 20.89 | 33.73 | 5.33 | 23.58 | 432 | 0.04 |
| 29 | 20.24 | 33.669 | 5.53 | 420 | 20 | 20.82 | 33.72 | 5.36 | 23.59 | 431 | 0.09 |
| 54 | 12.94 | 33.634 | 6.55 | 262 | 30 | 19.40 | 33.66 | 5.71 | 23.92 | 400 | 0.13 |
| 72 | 12.06 | 33.671 | 6.38 | 243 | 50 | 13.15 | 33.63 | 6.53 | 25.32 | 266 | 0.19 |
| 86 | 11.86 | 33.721 | 6.08 | 236 | 75 | 12.00 | 33.68 | 6.33 | 25.58 | 241 | 0.26 |
| 100 | 11.36 | 33.789 | 5.94 | 222 | 100 | 11.36 | 33.79 | 5.94 | 25.79 | 222 | 0.32 |
| 125 | 10.93 | 34.066 | 5.40 | 194 | 125 | 10.93 | 34.07 | 5.40 | 26.08 | 194 | 0.37 |
| 148 | 10.49 | 34.113 | 5.30 | 183 | 150 | 10.47 | 34.12 | 5.30 | 26.20 | 182 | 0.42 |
| 175 | 10.26 | 34.147 | 5.31 | 177 | 200 | 9.84 | 34.13 | 5.35 | 26.32 | 171 | 0.51 |
| 205 | 9.76 | 34.124 | 5.35 | 170 | 250 | 9.20 | 34.08 | 5.31 | 26.39 | 165 | 0.59 |
| 268 | 8.99 | 34.070 | 5.29 | 162 | 300 | 8.47 | 34.04 | 5.15 | 26.47 | 157 | 0.68 |
| 366 | 7.34 | 33.990 | 4.44 | 145 | 400 | 6.86 | 33.98 | 4.06 | 26.66 | 139 | 0.83 |
| 466 | 5.96 | 33.975 | 3.42 | 128 | 500 | 5.53 | 33.98 | 3.10 | 26.83 | 123 | 0.97 |
| 595 | 4.55 | 34.015 | 2.29 | 110 | 600 | 4.53 | 34.02 | 2.24 | 26.97 | 109 | 1.09 |
| 744 | 3.98 | 34.164 | 1.16 | 93 | 700 | 4.14 | 34.12 | 1.47 | 27.09 | 98 | 1.20 |
| 905 | 3.47 | 34.276 | 0.64 | 80 | 800 | 3.80 | 34.21 | 0.91 | 27.20 | 88 | 1.30 |
| 1108 | 3.04 | 34.379 | 0.49 | 68 | 1000 | 3.27 | 34.32 | 0.56 | 27.34 | 74 | 1.47 |

152

a) Estimated position.

b) Twenty-three hydrographic casts were made in conjunction with bathythermograms from the Floating Instrument Platform (FLIP) for internal wave studies.

| OBSERVED | | | | COMPUTED | INTERPOLATED | | | | COMPUTED | | |
|----------|----|---|----------------|----------------|--------------|----|---|----------------|----------------|----------------|-------|
| Z | T | S | O ₂ | δ _T | Z | T | S | O ₂ | σ _t | δ _T | ΔD |
| m | °C | ‰ | ml/L | cl/ton | m | °C | ‰ | ml/L | g/L | cl/ton | dyn m |

SIO
CCOF1
6309

HORIZON; September 7, 1963; 1909 GCT; 39°32.5'N, 148°11'W; sounding, 2800+ fm; wind, 220°, force 2; weather, overcast; sea, rough; wire angle, 10°.

H-4

| | | | | | | | | | | | |
|-----|-------|--------|------|-----|-----|---------|---------|--------|---------|-------|--------|
| 1 | 20.96 | 33.716 | 5.37 | 435 | 0 | (20.96) | (33.72) | (5.37) | (23.55) | (435) | (0.00) |
| 11 | 20.95 | 33.712 | 5.43 | 435 | 10 | 20.95 | 33.72 | 5.43 | 23.56 | 434 | 0.04 |
| 30 | 16.28 | 33.567 | 6.50 | 334 | 20 | 20.62 | 33.70 | 5.53 | 23.63 | 427 | 0.09 |
| 40 | 14.62 | 33.626 | 6.59 | 295 | 30 | 16.28 | 33.57 | 6.50 | 24.61 | 334 | 0.12 |
| 54 | 12.87 | 33.593 | 6.67 | 263 | 50 | 13.48 | 33.60 | 6.64 | 25.23 | 275 | 0.19 |
| 69 | 12.30 | 33.605 | 6.50 | 252 | 75 | 12.15 | 33.63 | 6.40 | 25.52 | 247 | 0.25 |
| 94 | 11.72 | 33.755 | 5.97 | 231 | 100 | 11.55 | 33.80 | 5.83 | 25.76 | 224 | 0.31 |
| 113 | 11.10 | 33.921 | 5.58 | 207 | 125 | 10.89 | 34.03 | 5.40 | 26.06 | 196 | 0.36 |
| 133 | 10.80 | 34.090 | 5.32 | 190 | 150 | 10.54 | 34.11 | 5.32 | 26.18 | 184 | 0.41 |
| 152 | 10.50 | 34.114 | 5.32 | 183 | 200 | 9.82 | 34.12 | 5.34 | 26.32 | 172 | 0.50 |
| 181 | 10.10 | 34.133 | 5.30 | 175 | 250 | 9.17 | 34.07 | 5.30 | 26.38 | 165 | 0.59 |
| 216 | 9.60 | 34.097 | 5.38 | 170 | 300 | 8.53 | 34.04 | 4.95 | 26.46 | 158 | 0.67 |
| 244 | 9.24 | 34.077 | 5.35 | 166 | 400 | 6.94 | 33.98 | 4.17 | 26.65 | 140 | 0.83 |
| 294 | 8.62 | 34.049 | 4.99 | 158 | 500 | 5.46 | 33.97 | 3.11 | 26.83 | 123 | 0.97 |
| 348 | 7.70 | 33.990 | 4.77 | 150 | 600 | (4.46) | (34.02) | (2.11) | (26.98) | (108) | (1.09) |
| 431 | 6.48 | 33.981 | 3.79 | 134 | | | | | | | |
| 514 | 5.26 | 33.967 | 2.99 | 121 | | | | | | | |
| 598 | 4.48 | 34.019 | 2.14 | 109 | | | | | | | |

HORIZON; September 8, 1963; 1851 GCT; 39°33.5'N, 148°12.5'W; sounding, 2800+ fm; wind, 200°, force 2; weather, overcast; sea, very rough; wire angle, 02°.

H-5

| | | | | | | | | | | | |
|-----|-------|--------|------|-----|-----|---------|---------|--------|---------|-------|--------|
| 1 | 20.79 | 33.617 | 5.38 | 438 | 0 | (20.79) | (33.62) | (5.38) | (23.52) | (438) | (0.00) |
| 11 | 20.79 | 33.622 | 5.46 | 437 | 10 | 20.79 | 33.62 | 5.45 | 23.52 | 438 | 0.04 |
| 31 | 15.46 | 33.602 | 6.57 | 314 | 20 | 20.76 | 33.62 | 5.48 | 23.53 | 437 | 0.09 |
| 41 | 14.18 | 33.646 | 6.65 | 285 | 30 | 15.55 | 33.60 | 6.55 | 24.79 | 316 | 0.13 |
| 55 | 13.00 | 33.632 | 6.71 | 263 | 50 | 13.40 | 33.64 | 6.70 | 25.28 | 270 | 0.18 |
| 70 | 12.11 | 33.612 | 6.58 | 248 | 75 | 11.80 | 33.63 | 6.42 | 25.58 | 241 | 0.25 |
| 95 | 11.73 | 33.747 | 6.08 | 231 | 100 | 11.62 | 33.79 | 5.98 | 25.74 | 226 | 0.31 |
| 115 | 11.25 | 33.919 | 5.68 | 210 | 125 | 11.01 | 34.01 | 5.60 | 26.02 | 199 | 0.36 |
| 135 | 10.80 | 34.088 | 5.53 | 190 | 150 | 10.52 | 34.12 | 5.41 | 26.20 | 183 | 0.41 |
| 154 | 10.45 | 34.131 | 5.39 | 181 | 200 | 9.88 | 34.13 | 5.40 | 26.31 | 172 | 0.50 |
| 184 | 10.10 | 34.145 | 5.38 | 174 | 250 | 9.11 | 34.06 | 5.36 | 26.39 | 165 | 0.59 |
| 219 | 9.58 | 34.096 | 5.43 | 170 | 300 | 8.42 | 34.01 | 5.35 | 26.45 | 158 | 0.67 |
| 248 | 9.14 | 34.068 | 5.36 | 165 | 400 | 6.92 | 33.99 | 4.23 | 26.66 | 139 | 0.82 |
| 298 | 8.44 | 34.009 | 5.37 | 159 | 500 | 5.47 | 33.97 | 3.13 | 26.83 | 123 | 0.96 |
| 352 | 7.76 | 34.004 | 4.72 | 150 | 600 | 4.58 | 34.01 | 2.33 | 26.96 | 110 | 1.08 |
| 436 | 6.33 | 33.981 | 3.95 | 133 | | | | | | | |
| 520 | 5.21 | 33.970 | 2.97 | 120 | | | | | | | |
| 603 | 4.56 | 34.014 | 2.32 | 110 | | | | | | | |

HORIZON; September 10, 1963; 0635 GCT; 39°31.5'N, 148°16.5'W; sounding, 2800+ fm; wind, 340°, force 5; weather, cloudy; sea, very rough; wire angle, 09°.

H-6

| | | | | | | | | | | | |
|-----|-------|--------|------|-----|-----|---------|---------|--------|---------|-------|--------|
| 1 | 20.46 | 33.590 | 5.48 | 431 | 0 | (20.46) | (33.59) | (5.48) | (23.59) | (431) | (0.00) |
| 11 | 20.46 | 33.592 | 5.54 | 431 | 10 | 20.46 | 33.59 | 5.53 | 23.59 | 431 | 0.04 |
| 20 | 20.45 | 33.583 | 5.49 | 432 | 20 | 20.45 | 33.58 | 5.49 | 23.58 | 432 | 0.09 |
| 25 | 20.40 | - | 5.39 | | 30 | 19.44 | 33.52 | 5.81 | 23.80 | 411 | 0.13 |
| 30 | 19.44 | 33.518 | 5.81 | 411 | 50 | 14.27 | 33.65 | 6.72 | 25.11 | 286 | 0.20 |
| 40 | 15.50 | 33.632 | 6.66 | 313 | 75 | 12.40 | 33.65 | 6.52 | 25.49 | 251 | 0.27 |
| 53 | 13.92 | 33.654 | 6.71 | 279 | 100 | 11.74 | 33.69 | 6.14 | 25.64 | 236 | 0.33 |
| 68 | 12.52 | 33.560 | 6.73 | 259 | 125 | 11.07 | 33.86 | 5.78 | 25.90 | 211 | 0.38 |
| 92 | 12.07 | 33.703 | 6.21 | 241 | 150 | 10.70 | 34.08 | 5.39 | 26.13 | 189 | 0.43 |
| 111 | 11.30 | 33.683 | 6.06 | 228 | 200 | 9.90 | 34.13 | 5.40 | 26.31 | 172 | 0.53 |
| 149 | 10.72 | 34.080 | 5.41 | 189 | 250 | 9.17 | 34.06 | 5.46 | 26.38 | 166 | 0.61 |
| 178 | 10.29 | 34.146 | 5.31 | 177 | 300 | 8.51 | 34.03 | 5.09 | 26.46 | 158 | 0.70 |
| 212 | 9.70 | 34.115 | 5.44 | 170 | 400 | 6.88 | 33.99 | 3.94 | 26.66 | 139 | 0.85 |
| 241 | 9.29 | 34.076 | 5.47 | 167 | 500 | 5.41 | 33.98 | 3.07 | 26.84 | 122 | 0.99 |
| 290 | 8.64 | 34.035 | 5.23 | 160 | 600 | (4.49) | (34.03) | (2.16) | (26.99) | (108) | (1.11) |
| 343 | 7.92 | 34.020 | 4.66 | 151 | | | | | | | |
| 427 | 6.41 | 33.978 | 3.70 | 134 | | | | | | | |
| 511 | 5.28 | 33.976 | 2.97 | 121 | | | | | | | |
| 594 | 4.53 | 34.027 | 2.19 | 109 | | | | | | | |

SIO

CCOFI
6309

| OBSERVED | | | | COMPUTED | INTERPOLATED | | | | COMPUTED | | |
|----------|----|---|----------------|----------------|--------------|----|---|----------------|----------------|----------------|-------|
| Z | T | S | O ₂ | δ _T | Z | T | S | O ₂ | σ _t | δ _T | ΔD |
| m | °C | ‰ | ml/L | cl/ton | m | °C | ‰ | ml/L | g/L | cl/ton | dyn m |

H-7

HORIZON; September 12, 1963; 0611 GCT; 39°26.5'N, 148°20.5'W; sounding, 2800+ fm; wind, 280°, force 4; weather, cloudy; sea, rough; wire angle, 07°.

| | | | | | | | | | | | |
|-----|-------|--------|------|-----|-----|---------|---------|--------|---------|-------|--------|
| 1 | 20.26 | 33.407 | 5.58 | 440 | 0 | (20.26) | (33.41) | (5.58) | (23.50) | (439) | (0.00) |
| 11 | 20.24 | 33.420 | 5.61 | 438 | 10 | 20.24 | 33.42 | 5.60 | 23.52 | 438 | 0.04 |
| 20 | 20.23 | 33.480 | 5.56 | 433 | 20 | 20.23 | 33.48 | 5.56 | 23.56 | 433 | 0.09 |
| 25 | 20.04 | 33.467 | 5.54 | 430 | 30 | 20.21 | 33.56 | 5.63 | 23.63 | 427 | 0.13 |
| 30 | 20.21 | 33.558 | 5.63 | 427 | 50 | 13.55 | 33.53 | 6.87 | 25.16 | 281 | 0.20 |
| 40 | 15.40 | 33.547 | 6.82 | 317 | 75 | 12.21 | 33.55 | 6.45 | 25.44 | 254 | 0.27 |
| 54 | 13.12 | 33.524 | 6.88 | 273 | 100 | 11.76 | 33.67 | 6.00 | 25.62 | 237 | 0.33 |
| 69 | 12.34 | 33.525 | 6.61 | 259 | 125 | 11.10 | 33.92 | 5.61 | 25.94 | 208 | 0.39 |
| 94 | 11.87 | 33.643 | 6.05 | 241 | 150 | 10.49 | 34.09 | 5.46 | 26.18 | 185 | 0.44 |
| 114 | 11.45 | 33.732 | 5.89 | 227 | 200 | 9.85 | 34.11 | 5.46 | 26.30 | 173 | 0.53 |
| 134 | 10.82 | 34.067 | 5.46 | 192 | 250 | 9.21 | 34.07 | 5.45 | 26.38 | 166 | 0.62 |
| 153 | 10.44 | 34.096 | 5.46 | 183 | 300 | 8.70 | 34.05 | 5.10 | 26.44 | 160 | 0.70 |
| 182 | 10.06 | 34.122 | 5.46 | 175 | 400 | 6.99 | 33.99 | 4.05 | 26.65 | 140 | 0.85 |
| 217 | 9.62 | 34.099 | 5.46 | 170 | 500 | 5.40 | 33.98 | 3.10 | 26.84 | 122 | 0.99 |
| 245 | 9.26 | 34.077 | 5.46 | 166 | 600 | 4.53 | 34.03 | 2.25 | 26.98 | 108 | 1.11 |
| 295 | 8.76 | 34.059 | 5.14 | 160 | | | | | | | |
| 349 | 7.98 | 34.026 | 4.69 | 151 | | | | | | | |
| 433 | 6.37 | 33.980 | 3.68 | 133 | | | | | | | |
| 517 | 5.18 | 33.979 | 2.98 | 119 | | | | | | | |
| 601 | 4.50 | 34.027 | 2.24 | 108 | | | | | | | |

H-8

HORIZON; September 12, 1963; 1848 GCT; 39°23.5'N, 148°21'W; sounding, 2800+ fm; wind, 350°, force 3; weather, partly cloudy; sea, rough; wire angle, 00°.

| | | | | | | | | | | | |
|-----|-------|--------|------|-----|-----|-------|-------|------|-------|-----|------|
| 0 | 20.40 | 33.490 | 5.54 | 437 | 0 | 20.40 | 33.49 | 5.54 | 23.53 | 437 | 0.00 |
| 10 | 20.31 | 33.496 | 5.53 | 434 | 10 | 20.31 | 33.50 | 5.53 | 23.56 | 434 | 0.04 |
| 20 | 20.38 | 33.557 | 5.52 | 432 | 20 | 20.38 | 33.56 | 5.52 | 23.59 | 431 | 0.09 |
| 25 | 20.34 | 33.585 | 5.43 | 429 | 30 | 18.91 | 33.49 | 6.11 | 23.91 | 400 | 0.13 |
| 30 | 18.91 | 33.489 | 6.11 | 400 | 50 | 14.25 | 33.48 | 6.90 | 24.98 | 298 | 0.20 |
| 40 | 14.84 | 33.429 | 6.92 | 314 | 75 | 12.53 | 33.57 | 6.55 | 25.40 | 259 | 0.27 |
| 54 | 13.68 | 33.531 | 6.85 | 283 | 100 | 12.15 | 33.83 | 5.93 | 25.67 | 233 | 0.33 |
| 69 | 12.76 | 33.546 | 6.68 | 265 | 125 | 11.00 | 34.01 | 5.49 | 26.03 | 199 | 0.39 |
| 94 | 11.97 | 33.656 | 6.05 | 242 | 150 | 10.39 | 34.10 | 5.44 | 26.20 | 182 | 0.43 |
| 114 | 11.40 | 33.867 | 5.74 | 217 | 200 | 9.70 | 34.11 | 5.40 | 26.33 | 170 | 0.52 |
| 134 | 10.74 | 34.082 | 5.40 | 189 | 250 | 9.01 | 34.07 | 5.35 | 26.41 | 163 | 0.61 |
| 153 | 10.33 | 34.106 | 5.44 | 181 | 300 | 8.53 | 34.04 | 5.02 | 26.46 | 158 | 0.69 |
| 183 | 9.92 | 34.121 | 5.44 | 173 | 400 | 6.98 | 33.99 | 3.99 | 26.65 | 140 | 0.85 |
| 218 | 9.45 | 34.088 | 5.33 | 168 | 500 | 5.42 | 33.97 | 3.12 | 26.83 | 123 | 0.98 |
| 247 | 9.04 | 34.073 | 5.36 | 163 | 600 | 4.54 | 34.02 | 2.26 | 26.97 | 109 | 1.11 |
| 297 | 8.57 | 34.045 | 5.05 | 158 | | | | | | | |
| 351 | 7.74 | 34.015 | 4.47 | 148 | | | | | | | |
| 435 | 6.42 | 33.970 | 3.68 | 134 | | | | | | | |
| 519 | 5.16 | 33.968 | 2.96 | 120 | | | | | | | |
| 604 | 4.51 | 34.022 | 2.21 | 109 | | | | | | | |

| OBSERVED | | | | COMPUTED | INTERPOLATED | | | | COMPUTED | | |
|----------|----|---|----------------|----------|--------------|----|---|----------------|----------------|--------|-------|
| Z | T | S | O ₂ | δT | Z | T | S | O ₂ | σ _t | δT | ΔD |
| m | °C | ‰ | ml/L | cl/ton | m | °C | ‰ | ml/L | g/L | cl/ton | dyn m |

HORIZON; September 13, 1963; 1840 GCT; 39°22'N, 148°21'W; sounding, 2800+ fm; wind, 230°, force 3; weather, cloudy; sea, moderate; wire angle, 04°.

H-9

| | | | | | | | | | | | |
|-----|-------|--------|------|-----|-----|-------|-------|------|-------|-----|------|
| 0 | 20.69 | 33.514 | 5.43 | 443 | 0 | 20.69 | 33.51 | 5.43 | 23.47 | 443 | 0.00 |
| 10 | 20.58 | 33.622 | 5.44 | 432 | 10 | 20.58 | 33.62 | 5.44 | 23.58 | 432 | 0.04 |
| 20 | 20.54 | 33.663 | 5.45 | 428 | 20 | 20.54 | 33.66 | 5.45 | 23.62 | 428 | 0.09 |
| 25 | 19.56 | 33.575 | 5.64 | 410 | 30 | 17.82 | 33.46 | 6.18 | 24.16 | 377 | 0.13 |
| 30 | 17.82 | 33.460 | 6.18 | 377 | 50 | 13.50 | 33.52 | 6.83 | 25.17 | 281 | 0.19 |
| 40 | 14.48 | 33.463 | 6.88 | 304 | 75 | 12.25 | 33.57 | 6.43 | 25.45 | 254 | 0.26 |
| 54 | 13.11 | 33.538 | - | 272 | 100 | 12.00 | 33.74 | 5.95 | 25.63 | 237 | 0.32 |
| 69 | 12.34 | 33.545 | 6.50 | 257 | 125 | 11.14 | 33.89 | 5.64 | 25.91 | 210 | 0.38 |
| 94 | 12.12 | 33.713 | 6.01 | 241 | 150 | 10.63 | 34.11 | 5.43 | 26.17 | 186 | 0.43 |
| 114 | 11.40 | 33.758 | 5.83 | 225 | 200 | 9.86 | 34.11 | 5.43 | 26.30 | 173 | 0.52 |
| 134 | 10.97 | 34.011 | 5.50 | 199 | 250 | 9.18 | 34.07 | 5.40 | 26.38 | 165 | 0.61 |
| 153 | 10.56 | 34.111 | 5.42 | 184 | 300 | 8.48 | 34.04 | 4.98 | 26.47 | 157 | 0.69 |
| 182 | 10.05 | 34.116 | 5.40 | 176 | 400 | 6.79 | 33.99 | 3.90 | 26.67 | 138 | 0.84 |
| 217 | 9.69 | 34.102 | 5.46 | 171 | 500 | 5.37 | 33.98 | 3.07 | 26.85 | 121 | 0.98 |
| 246 | 9.24 | 34.079 | 5.41 | 166 | 600 | 4.47 | 34.03 | 2.12 | 26.99 | 108 | 1.10 |
| 296 | 8.54 | 34.046 | 5.01 | 157 | | | | | | | |
| 350 | 7.77 | 34.019 | 4.46 | 149 | | | | | | | |
| 434 | 6.20 | 33.975 | 3.59 | 131 | | | | | | | |
| 518 | 5.15 | 33.976 | 2.94 | 119 | | | | | | | |
| 601 | 4.47 | 34.030 | 2.12 | 108 | | | | | | | |

HORIZON; September 14, 1963; 1839 GCT; 39°23'N, 148°22'W; sounding, 2800+ fm; wind, 270°, force 4; weather, overcast; sea, moderate; wire angle, 06°.

H-10

| | | | | | | | | | | | |
|-----|-------|--------|------|-----|-----|-------|-------|------|-------|-----|------|
| 0 | 20.64 | 33.467 | 5.55 | 445 | 0 | 20.64 | 33.47 | 5.55 | 23.45 | 445 | 0.00 |
| 10 | 20.61 | 33.469 | 5.55 | 444 | 10 | 20.61 | 33.47 | 5.55 | 23.46 | 444 | 0.04 |
| 20 | 20.60 | 33.465 | - | 444 | 20 | 20.60 | 33.46 | 5.55 | 23.45 | 444 | 0.09 |
| 25 | 20.17 | 33.423 | 5.54 | 436 | 30 | 17.97 | 33.45 | 6.46 | 24.11 | 381 | 0.13 |
| 30 | 17.97 | 33.451 | 6.46 | 381 | 50 | 12.99 | 33.54 | 6.75 | 25.28 | 270 | 0.20 |
| 40 | 14.90 | 33.543 | 6.88 | 307 | 75 | 12.17 | 33.59 | 6.32 | 25.48 | 251 | 0.26 |
| 54 | 12.97 | 33.544 | 6.75 | 269 | 100 | 11.50 | 33.68 | 5.87 | 25.68 | 232 | 0.32 |
| 69 | 12.36 | 33.579 | 6.49 | 255 | 125 | 11.13 | 33.98 | 5.55 | 25.98 | 204 | 0.38 |
| 94 | 11.74 | 33.654 | 5.93 | 238 | 150 | 10.49 | 34.09 | 5.46 | 26.18 | 185 | 0.43 |
| 113 | 11.40 | 33.843 | 5.78 | 218 | 200 | 9.80 | 34.09 | 5.46 | 26.30 | 173 | 0.52 |
| 133 | 10.92 | 34.055 | 5.45 | 195 | 250 | 9.17 | 34.07 | 5.44 | 26.38 | 165 | 0.60 |
| 152 | 10.44 | 34.093 | 5.47 | 184 | 300 | 8.55 | 34.04 | 5.03 | 26.46 | 158 | 0.69 |
| 182 | 10.05 | 34.128 | 5.40 | 175 | 400 | 7.08 | 33.99 | 4.16 | 26.63 | 141 | 0.84 |
| 217 | 9.56 | 34.095 | 5.50 | 169 | 500 | 5.47 | 33.97 | 3.18 | 26.83 | 123 | 0.98 |
| 245 | 9.22 | 34.074 | 5.47 | 166 | 600 | 4.56 | 34.03 | 2.26 | 26.98 | 109 | 1.10 |
| 295 | 8.62 | 34.048 | 5.07 | 159 | | | | | | | |
| 349 | 7.78 | 34.019 | 4.57 | 149 | | | | | | | |
| 433 | 6.62 | 33.978 | 3.85 | 136 | | | | | | | |
| 517 | 5.19 | 33.968 | 3.00 | 120 | | | | | | | |
| 601 | 4.55 | 34.028 | 2.25 | 109 | | | | | | | |

SIO

CCOFI
6309

| OBSERVED | | | | COMPUTED | INTERPOLATED | | | | COMPUTED | | |
|----------|----|---|----------------|----------------|--------------|----|---|----------------|----------------|----------------|-------|
| Z | T | S | O ₂ | δ _T | Z | T | S | O ₂ | σ _t | δ _T | ΔD |
| m | °C | ‰ | ml/L | cl/ton | m | °C | ‰ | ml/L | g/L | cl/ton | dyn m |

H-II HORIZON; September 15, 1963; 1849 GCT; 39°23'N, 148°23'W; sounding, 2800+ fm; wind, 310°, force 4; weather, drizzle; sea, moderate; wire angle, 00°.

| | | | | | | | | | | | |
|-----|-------|--------|------|-----|-----|-------|-------|------|-------|-----|------|
| 0 | 20.70 | 33.446 | 5.45 | 448 | 0 | 20.70 | 33.45 | 5.45 | 23.42 | 448 | 0.00 |
| 10 | 20.68 | 33.450 | 5.48 | 447 | 10 | 20.68 | 33.45 | 5.48 | 23.42 | 447 | 0.04 |
| 20 | 20.08 | 33.434 | 5.47 | 433 | 20 | 20.08 | 33.43 | 5.47 | 23.57 | 433 | 0.09 |
| 25 | 18.63 | 33.445 | 6.05 | 397 | 30 | 15.98 | 33.45 | 6.78 | 24.58 | 337 | 0.13 |
| 30 | 15.98 | 33.451 | 6.78 | 336 | 50 | 13.25 | 33.51 | 6.76 | 25.21 | 277 | 0.19 |
| 40 | 14.48 | 33.496 | 6.81 | 302 | 75 | 11.80 | 33.57 | 6.17 | 25.54 | 246 | 0.25 |
| 54 | 12.84 | 33.518 | 6.70 | 268 | 100 | 11.50 | 33.79 | 5.70 | 25.76 | 224 | 0.31 |
| 69 | 12.05 | 33.547 | 6.32 | 252 | 125 | 10.89 | 34.04 | 5.38 | 26.07 | 195 | 0.37 |
| 94 | 11.64 | 33.703 | 5.84 | 233 | 150 | 10.39 | 34.09 | 5.39 | 26.19 | 183 | 0.41 |
| 114 | 11.17 | 33.990 | 5.46 | 204 | 200 | 9.73 | 34.10 | 5.37 | 26.32 | 172 | 0.51 |
| 134 | 10.66 | 34.068 | 5.36 | 189 | 250 | 9.15 | 34.07 | 5.40 | 26.39 | 165 | 0.59 |
| 153 | 10.34 | 34.099 | 5.39 | 182 | 300 | 8.56 | 34.05 | 4.93 | 26.46 | 157 | 0.67 |
| 183 | 9.92 | 34.119 | 5.36 | 173 | 400 | 6.85 | 33.98 | 3.95 | 26.66 | 139 | 0.83 |
| 218 | 9.52 | 34.086 | 5.38 | 169 | 500 | 5.40 | 33.97 | 3.05 | 26.83 | 122 | 0.97 |
| 247 | 9.19 | 34.070 | 5.41 | 165 | 600 | 4.57 | 34.01 | 2.30 | 26.96 | 110 | 1.09 |
| 297 | 8.60 | 34.050 | 4.96 | 158 | | | | | | | |
| 352 | 7.74 | 34.012 | 4.47 | 149 | | | | | | | |
| 436 | 6.24 | 33.970 | 3.59 | 132 | | | | | | | |
| 520 | 5.16 | 33.968 | 2.90 | 120 | | | | | | | |
| 604 | 4.54 | 34.014 | 2.27 | 110 | | | | | | | |

H-12 HORIZON; September 16, 1963; 1833 GCT; 39°21.5'N, 148°27'W; sounding, 2800+ fm; wind, 310°, force 6; weather, overcast; sea, very rough; wire angle, 05°.

| | | | | | | | | | | | |
|-----|-------|--------|------|-----|-----|-------|-------|------|-------|-----|------|
| 0 | 20.65 | 33.500 | 5.51 | 443 | 0 | 20.65 | 33.50 | 5.51 | 23.47 | 443 | 0.00 |
| 10 | 20.64 | 33.500 | 5.49 | 442 | 10 | 20.64 | 33.50 | 5.49 | 23.47 | 442 | 0.04 |
| 20 | 20.66 | 33.527 | 5.46 | 441 | 20 | 20.66 | 33.53 | 5.46 | 23.49 | 441 | 0.09 |
| 25 | 20.64 | 33.560 | 5.38 | 438 | 30 | 19.05 | 33.46 | 6.02 | 23.85 | 406 | 0.13 |
| 30 | 19.05 | 33.464 | 6.02 | 406 | 50 | 13.80 | 33.51 | 6.81 | 25.10 | 287 | 0.20 |
| 40 | 15.53 | 33.455 | 6.82 | 327 | 75 | 12.24 | 33.57 | 6.42 | 25.45 | 253 | 0.27 |
| 54 | 13.23 | 33.531 | 6.77 | 275 | 100 | 11.86 | 33.71 | 5.89 | 25.63 | 236 | 0.33 |
| 69 | 12.32 | 33.533 | 6.52 | 258 | 125 | 11.10 | 33.94 | 5.56 | 25.95 | 206 | 0.39 |
| 94 | 12.02 | 33.687 | 5.97 | 241 | 150 | 10.50 | 34.11 | 5.37 | 26.19 | 183 | 0.44 |
| 114 | 11.46 | 33.772 | 5.82 | 225 | 200 | 9.68 | 34.11 | 5.40 | 26.33 | 170 | 0.53 |
| 133 | 10.86 | 34.057 | 5.39 | 193 | 250 | 9.15 | 34.07 | 5.29 | 26.39 | 165 | 0.61 |
| 152 | 10.46 | 34.113 | 5.36 | 183 | 300 | 8.53 | 34.05 | 4.97 | 26.47 | 157 | 0.69 |
| 182 | 9.88 | 34.117 | 5.39 | 173 | 400 | 7.00 | 33.99 | 3.92 | 26.65 | 140 | 0.85 |
| 217 | 9.52 | 34.095 | 5.40 | 169 | 500 | 5.50 | 33.97 | 3.22 | 26.82 | 123 | 0.99 |
| 246 | 9.20 | 34.077 | 5.31 | 165 | 600 | 4.60 | 34.01 | 2.38 | 26.96 | 111 | 1.11 |
| 296 | 8.58 | 34.051 | 5.00 | 158 | | | | | | | |
| 350 | 7.81 | 34.021 | 4.19 | 149 | | | | | | | |
| 434 | 6.47 | 33.977 | 3.78 | 135 | | | | | | | |
| 518 | 5.26 | 33.970 | 3.05 | 121 | | | | | | | |
| 601 | 4.59 | 34.009 | 2.36 | 111 | | | | | | | |

| OBSERVED | | | | COMPUTED | INTERPOLATED | | | | COMPUTED | | |
|----------|----|---|----------------|----------------|--------------|----|---|----------------|----------------|----------------|-------|
| Z | T | S | O ₂ | δ _T | Z | T | S | O ₂ | σ _t | δ _T | ΔD |
| m | °C | ‰ | ml/L | cl/ton | m | °C | ‰ | ml/L | g/L | cl/ton | dyn m |

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6309

HORIZON; September 17, 1963; 1806 GCT; 39°21.5'N, 148°28.5'W; sounding, 2800+ fm; wind, 350°, force 4; weather, overcast; sea, rough; wire angle, 07°.

H-13

| | | | | | | | | | | | |
|-----|-------|--------|------|-----|-----|---------|---------|--------|---------|-------|--------|
| 1 | 20.66 | 33.438 | 5.47 | 447 | 0 | (20.66) | (33.44) | (5.47) | (23.42) | (447) | (0.00) |
| 11 | 20.66 | 33.531 | 5.48 | 441 | 10 | 20.66 | 33.53 | 5.48 | 23.49 | 441 | 0.04 |
| 21 | 20.64 | 33.565 | 5.47 | 438 | 20 | 20.64 | 33.56 | 5.47 | 23.52 | 438 | 0.09 |
| 26 | 20.63 | 33.572 | 5.41 | 437 | 30 | 18.00 | 33.46 | 6.35 | 24.11 | 381 | 0.13 |
| 31 | 17.74 | 33.449 | 6.44 | 376 | 50 | 14.20 | 33.48 | 6.84 | 24.99 | 297 | 0.20 |
| 41 | 14.92 | 33.439 | 6.90 | 315 | 75 | 12.14 | 33.53 | 6.39 | 25.44 | 255 | 0.27 |
| 55 | 13.28 | 33.545 | 6.75 | 275 | 100 | 12.18 | 33.76 | 5.93 | 25.61 | 238 | 0.33 |
| 70 | 12.28 | 33.531 | 6.49 | 257 | 125 | 11.08 | 33.98 | 5.50 | 25.99 | 203 | 0.38 |
| 95 | 12.22 | 33.743 | 5.97 | 240 | 150 | 10.56 | 34.09 | 5.38 | 26.17 | 186 | 0.43 |
| 114 | 11.39 | 33.834 | 5.69 | 219 | 200 | 9.90 | 34.12 | 5.37 | 26.30 | 173 | 0.53 |
| 134 | 10.87 | 34.062 | 5.39 | 193 | 250 | 9.29 | 34.09 | 5.36 | 26.38 | 166 | 0.61 |
| 153 | 10.50 | 34.090 | 5.38 | 185 | 300 | 8.58 | 34.05 | 5.00 | 26.46 | 158 | 0.70 |
| 183 | 10.12 | 34.140 | 5.35 | 175 | 400 | 7.05 | 34.00 | 4.05 | 26.65 | 140 | 0.85 |
| 217 | 9.68 | 34.108 | 5.39 | 170 | 500 | 5.55 | 33.97 | 3.23 | 26.82 | 124 | 0.99 |
| 246 | 9.34 | 34.088 | 5.37 | 166 | 600 | 4.57 | 34.02 | 2.31 | 26.97 | 110 | 1.11 |
| 296 | 8.64 | 34.057 | 5.04 | 158 | | | | | | | |
| 349 | 7.78 | 34.018 | 4.48 | 149 | | | | | | | |
| 433 | 6.59 | 33.982 | 3.79 | 136 | | | | | | | |
| 517 | 5.32 | 33.970 | 3.10 | 121 | | | | | | | |
| 601 | 4.55 | 34.017 | 2.29 | 110 | | | | | | | |

HORIZON; September 19, 1963; 0122 GCT; 39°22'N, 148°32'W; sounding, 2800+ fm; wind, 240°, force 3; weather, cloudy; sea, moderate; wire angle, 02°.

H-14

| | | | | | | | | | | | |
|-----|-------|--------|------|-----|-----|---------|---------|--------|---------|-------|--------|
| 1 | 21.04 | 33.474 | 5.49 | 455 | 0 | (21.04) | (33.47) | (5.49) | (23.34) | (455) | (0.00) |
| 11 | 20.84 | 33.475 | 5.49 | 449 | 10 | 20.86 | 33.47 | 5.49 | 23.39 | 450 | 0.05 |
| 21 | 19.66 | 33.475 | 5.87 | 420 | 20 | 19.90 | 33.48 | 5.78 | 23.65 | 425 | 0.09 |
| 26 | 16.80 | 33.431 | 6.61 | 356 | 30 | 15.55 | 33.46 | 6.87 | 24.69 | 327 | 0.13 |
| 31 | 15.40 | 33.463 | 6.87 | 323 | 50 | 13.36 | 33.56 | 6.70 | 25.23 | 275 | 0.19 |
| 41 | 14.52 | 33.598 | 6.76 | 295 | 75 | 12.20 | 33.61 | 6.25 | 25.49 | 250 | 0.25 |
| 55 | 12.88 | 33.549 | 6.67 | 267 | 100 | 11.64 | 33.72 | 5.84 | 25.68 | 232 | 0.31 |
| 70 | 12.29 | 33.594 | 6.34 | 253 | 125 | 10.97 | 34.01 | 5.43 | 26.03 | 199 | 0.37 |
| 95 | 11.79 | 33.683 | 5.92 | 237 | 150 | 10.42 | 34.10 | 5.39 | 26.20 | 183 | 0.42 |
| 115 | 11.17 | 33.930 | 5.55 | 208 | 200 | 9.80 | 34.11 | 5.40 | 26.31 | 172 | 0.51 |
| 135 | 10.74 | 34.073 | 5.36 | 190 | 250 | 9.07 | 34.07 | 5.23 | 26.40 | 164 | 0.59 |
| 154 | 10.34 | 34.104 | 5.40 | 181 | 300 | 8.54 | 34.04 | 4.94 | 26.46 | 158 | 0.68 |
| 184 | 10.01 | 34.128 | 5.39 | 174 | 400 | 6.79 | 33.99 | 3.88 | 26.67 | 138 | 0.83 |
| 219 | 9.51 | 34.088 | 5.40 | 169 | 500 | 5.29 | 33.97 | 3.00 | 26.85 | 121 | 0.96 |
| 248 | 9.10 | 34.066 | 5.26 | 164 | 600 | 4.46 | 34.03 | 2.08 | 26.99 | 108 | 1.08 |
| 298 | 8.57 | 34.044 | 4.96 | 158 | | | | | | | |
| 351 | 7.64 | 34.015 | 4.38 | 147 | | | | | | | |
| 435 | 6.20 | 33.970 | 3.56 | 132 | | | | | | | |
| 520 | 5.06 | 33.976 | 2.86 | 118 | | | | | | | |
| 604 | 4.44 | 34.035 | 2.06 | 107 | | | | | | | |

SIO
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6309

| OBSERVED | | | | COMPUTED | INTERPOLATED | | | | COMPUTED | | |
|----------|----|---|----------------|----------------|--------------|----|---|----------------|----------------|----------------|-------|
| Z | T | S | O ₂ | δ _T | Z | T | S | O ₂ | σ _t | δ _T | ΔD |
| m | °C | ‰ | ml/L | cl/ton | m | °C | ‰ | ml/L | g/L | cl/ton | dyn m |

H-15 HORIZON; September 19, 1963; 1838 GCT; 39°22.5'N, 148°36.5'W; sounding, 2800+ fm; wind, 300°, force 6; weather, cloudy; sea, rough; wire angle, 05°.

| | | | | | | | | | | | |
|-----|-------|--------|------|-----|-----|---------|---------|--------|---------|-------|--------|
| 1 | 20.74 | 33.560 | 5.46 | 441 | 0 | (20.74) | (33.56) | (5.46) | (23.49) | (441) | (0.00) |
| 11 | 20.75 | 33.555 | 5.46 | 441 | 10 | 20.75 | 33.55 | 5.47 | 23.48 | 442 | 0.04 |
| 21 | 20.73 | 33.559 | 5.49 | 440 | 20 | 20.73 | 33.56 | 5.49 | 23.49 | 440 | 0.09 |
| 26 | 20.70 | 33.569 | 5.38 | 439 | 30 | 19.50 | 33.51 | 5.79 | 23.78 | 413 | 0.13 |
| 31 | 18.46 | 33.465 | 6.26 | 391 | 50 | 14.45 | 33.45 | 6.87 | 24.92 | 305 | 0.20 |
| 41 | 16.22 | 33.431 | 6.77 | 343 | 75 | 12.32 | 33.54 | 6.48 | 25.42 | 257 | 0.27 |
| 55 | 13.61 | 33.474 | 6.88 | 286 | 100 | 12.19 | 33.72 | 6.02 | 25.58 | 242 | 0.34 |
| 70 | 12.55 | 33.514 | 6.61 | 263 | 125 | 11.22 | 33.95 | 5.53 | 25.94 | 207 | 0.39 |
| 95 | 12.20 | 33.697 | 6.05 | 243 | 150 | 10.54 | 34.08 | 5.38 | 26.16 | 186 | 0.44 |
| 115 | 11.67 | 33.756 | 5.84 | 230 | 200 | 9.80 | 34.10 | 5.39 | 26.30 | 173 | 0.53 |
| 135 | 10.91 | 34.047 | 5.41 | 195 | 250 | 9.12 | 34.05 | 5.32 | 26.38 | 166 | 0.62 |
| 154 | 10.46 | 34.099 | 5.36 | 184 | 300 | 8.51 | 34.02 | 4.93 | 26.45 | 159 | 0.71 |
| 185 | 10.01 | 34.108 | 5.36 | 176 | 400 | 6.89 | 33.96 | 3.98 | 26.64 | 141 | 0.86 |
| 219 | 9.52 | 34.073 | 5.44 | 170 | 500 | 5.45 | 33.93 | 3.12 | 26.80 | 126 | 1.00 |
| 247 | 9.16 | 34.053 | 5.34 | 166 | 600 | 4.58 | 33.98 | 2.30 | 26.94 | 113 | 1.13 |
| 297 | 8.56 | 34.026 | 4.98 | 159 | | | | | | | |
| 351 | 7.78 | 33.986 | 4.48 | 151 | | | | | | | |
| 435 | 6.30 | 33.936 | 3.64 | 136 | | | | | | | |
| 519 | 5.22 | 33.932 | 3.00 | 123 | | | | | | | |
| 603 | 4.56 | 33.981 | 2.27 | 112 | | | | | | | |

H-16 HORIZON; September 20, 1963; 1833 GCT; 39°21.5'N, 148°40'W; sounding, 2800+ fm; wind, 350°, force 4; weather, cloudy; sea, high; wire angle, 00°.

| | | | | | | | | | | | |
|-----|-------|--------|------|-----|-----|---------|---------|--------|---------|-------|--------|
| 1 | 20.58 | 33.536 | 5.51 | 438 | 0 | (20.58) | (33.54) | (5.51) | (23.52) | (438) | (0.00) |
| 11 | 20.57 | 33.540 | 5.50 | 438 | 10 | 20.57 | 33.54 | 5.50 | 23.52 | 438 | 0.04 |
| 21 | 20.56 | 33.545 | 5.49 | 437 | 20 | 20.56 | 33.54 | 5.49 | 23.52 | 437 | 0.09 |
| 26 | 20.57 | 33.540 | 5.40 | 438 | 30 | 20.41 | 33.54 | 5.45 | 23.56 | 434 | 0.13 |
| 31 | 20.34 | 33.537 | 5.46 | 432 | 50 | 13.67 | 33.49 | 6.78 | 25.11 | 286 | 0.20 |
| 41 | 15.99 | 33.434 | 6.79 | 338 | 75 | 12.13 | 33.55 | 6.35 | 25.46 | 253 | 0.27 |
| 55 | 12.98 | 33.514 | 6.75 | 271 | 100 | 11.68 | 33.71 | 5.85 | 25.67 | 233 | 0.33 |
| 70 | 12.22 | 33.527 | 6.46 | 256 | 125 | 11.00 | 34.00 | 5.45 | 26.02 | 200 | 0.39 |
| 95 | 11.78 | 33.664 | 5.93 | 238 | 150 | 10.34 | 34.10 | 5.40 | 26.21 | 181 | 0.44 |
| 116 | 11.32 | 33.899 | 5.58 | 213 | 200 | 9.65 | 34.10 | 5.39 | 26.33 | 170 | 0.53 |
| 135 | 10.66 | 34.090 | 5.38 | 188 | 250 | 9.04 | 34.06 | 5.27 | 26.40 | 164 | 0.61 |
| 154 | 10.26 | 34.105 | 5.40 | 180 | 300 | 8.50 | 34.04 | 4.90 | 26.47 | 157 | 0.69 |
| 184 | 9.88 | 34.115 | 5.39 | 173 | 400 | 7.11 | 33.99 | 4.10 | 26.63 | 142 | 0.85 |
| 219 | 9.40 | 34.079 | 5.37 | 168 | 500 | 5.69 | 33.97 | 3.31 | 26.80 | 126 | 0.99 |
| 248 | 9.07 | 34.062 | 5.30 | 164 | 600 | 4.67 | 34.00 | 2.42 | 26.94 | 112 | 1.11 |
| 298 | 8.52 | 34.044 | 4.92 | 157 | | | | | | | |
| 353 | 7.78 | 34.015 | 4.44 | 149 | | | | | | | |
| 437 | 6.59 | 33.975 | 3.80 | 136 | | | | | | | |
| 521 | 5.39 | 33.967 | 3.12 | 122 | | | | | | | |
| 605 | 4.62 | 34.004 | 2.38 | 111 | | | | | | | |

| OBSERVED | | | | COMPUTED | INTERPOLATED | | | | COMPUTED | | |
|----------|----|---|----------------|----------------|--------------|----|---|----------------|----------------|----------------|-------|
| Z | T | S | O ₂ | δ _T | Z | T | S | O ₂ | σ _t | δ _T | ΔD |
| m | °C | ‰ | ml/L | cl/ton | m | °C | ‰ | ml/L | g/L | cl/ton | dyn m |

HORIZON; September 21, 1963; 1835 GCT; 39°22.5'N, 148°44'W; sounding, 2800+ fm; wind, 320°, force 4; weather, partly cloudy; sea, very rough; wire angle, 02°.

H-17

| | | | | | | | | | | | |
|-----|-------|--------|------|-----|-----|---------|---------|--------|---------|-------|--------|
| 1 | 20.47 | 33.559 | 5.53 | 434 | 0 | (20.47) | (33.56) | (5.53) | (23.56) | (434) | (0.00) |
| 11 | 20.46 | 33.559 | 5.53 | 434 | 10 | 20.46 | 33.56 | 5.53 | 23.56 | 433 | 0.04 |
| 21 | 20.45 | 33.567 | 5.50 | 433 | 20 | 20.44 | 33.57 | 5.50 | 23.58 | 432 | 0.09 |
| 26 | 20.44 | 33.566 | 5.40 | 433 | 30 | 20.40 | 33.56 | 5.57 | 23.58 | 432 | 0.13 |
| 31 | 20.37 | 33.558 | 5.59 | 431 | 50 | 14.30 | 33.50 | 6.81 | 24.99 | 298 | 0.20 |
| 41 | 15.86 | 33.440 | 6.81 | 335 | 75 | 12.26 | 33.58 | 6.40 | 25.46 | 253 | 0.27 |
| 55 | 13.51 | 33.527 | 6.79 | 280 | 100 | 12.00 | 33.73 | 6.02 | 25.62 | 237 | 0.33 |
| 70 | 12.50 | 33.560 | 6.52 | 259 | 125 | 11.18 | 33.90 | 5.64 | 25.91 | 210 | 0.39 |
| 95 | 11.96 | 33.707 | 6.04 | 238 | 150 | 10.58 | 34.09 | 5.40 | 26.16 | 186 | 0.44 |
| 115 | 11.37 | 33.765 | 5.90 | 224 | 200 | 9.84 | 34.11 | 5.40 | 26.30 | 173 | 0.53 |
| 135 | 10.99 | 34.033 | 5.44 | 197 | 250 | 9.17 | 34.07 | 5.44 | 26.38 | 165 | 0.62 |
| 154 | 10.46 | 34.099 | 5.39 | 184 | 300 | 8.65 | 34.04 | 5.12 | 26.44 | 160 | 0.70 |
| 184 | 10.05 | 34.127 | 5.35 | 175 | 400 | 7.08 | 33.99 | 4.11 | 26.63 | 141 | 0.86 |
| 219 | 9.59 | 34.095 | 5.42 | 170 | 500 | 5.62 | 33.97 | 3.29 | 26.81 | 125 | 1.00 |
| 248 | 9.19 | 34.068 | 5.44 | 166 | 600 | 4.64 | 34.01 | 2.40 | 26.95 | 111 | 1.12 |
| 298 | 8.68 | 34.041 | 5.15 | 160 | | | | | | | |
| 351 | 7.89 | 34.018 | 4.61 | 150 | | | | | | | |
| 435 | 6.48 | 33.971 | 3.74 | 135 | | | | | | | |
| 520 | 5.38 | 33.970 | 3.14 | 122 | | | | | | | |
| 605 | 4.60 | 34.009 | 2.36 | 111 | | | | | | | |

HORIZON; September 22, 1963; 1831 GCT; 39°22'N, 148°38.5'W; sounding, 2800+ fm; wind, 220°, force 7; weather, overcast; sea, very rough; wire angle, 04°.

H-18

| | | | | | | | | | | | |
|-----|-------|--------|------|-----|-----|---------|---------|--------|---------|-------|--------|
| 1 | 20.34 | 33.562 | 5.52 | 430 | 0 | (20.34) | (33.56) | (5.52) | (23.60) | (430) | (0.00) |
| 11 | 20.30 | 33.559 | 5.47 | 430 | 10 | 20.30 | 33.56 | 5.48 | 23.61 | 429 | 0.04 |
| 21 | 20.33 | 33.560 | 5.44 | 430 | 20 | 20.33 | 33.56 | 5.45 | 23.60 | 430 | 0.09 |
| 26 | 19.99 | 33.554 | 5.43 | 422 | 30 | 18.25 | 33.49 | 6.22 | 24.08 | 385 | 0.13 |
| 31 | 17.86 | 33.483 | 6.37 | 376 | 50 | 13.80 | 33.55 | 6.70 | 25.13 | 284 | 0.19 |
| 41 | 14.90 | 33.511 | 6.78 | 309 | 75 | 12.23 | 33.62 | 6.36 | 25.49 | 250 | 0.26 |
| 55 | 13.32 | 33.563 | 6.64 | 274 | 100 | 11.60 | 33.75 | 5.87 | 25.71 | 229 | 0.32 |
| 70 | 12.53 | 33.603 | 6.51 | 256 | 125 | 11.08 | 33.98 | 5.49 | 25.99 | 203 | 0.38 |
| 95 | 11.82 | 33.712 | 5.97 | 235 | 150 | 10.46 | 34.10 | 5.34 | 26.19 | 183 | 0.43 |
| 115 | 11.30 | 33.882 | 5.65 | 214 | 200 | 9.69 | 34.10 | 5.38 | 26.32 | 171 | 0.52 |
| 135 | 10.83 | 34.066 | 5.38 | 192 | 250 | 9.05 | 34.06 | 5.39 | 26.40 | 164 | 0.60 |
| 154 | 10.34 | 34.106 | 5.33 | 181 | 300 | 8.48 | 34.03 | 5.10 | 26.46 | 158 | 0.68 |
| 183 | 9.84 | 34.109 | 5.34 | 173 | 400 | 6.93 | 33.99 | 4.00 | 26.65 | 139 | 0.84 |
| 218 | 9.52 | 34.092 | 5.40 | 169 | 500 | 5.38 | 33.97 | 3.10 | 26.84 | 122 | 0.98 |
| 247 | 9.10 | 34.064 | 5.41 | 165 | 600 | 4.54 | 34.02 | 2.20 | 26.97 | 109 | 1.10 |
| 297 | 8.52 | 34.026 | 5.12 | 159 | | | | | | | |
| 352 | 7.78 | 34.017 | 4.49 | 149 | | | | | | | |
| 435 | 6.32 | 33.972 | 3.65 | 133 | | | | | | | |
| 519 | 5.14 | 33.972 | 2.94 | 119 | | | | | | | |
| 604 | 4.50 | 34.020 | 2.18 | 109 | | | | | | | |

SIO

CCOFI
6309

| OBSERVED | | | | COMPUTED | INTERPOLATED | | | | COMPUTED | | |
|----------|----|---|----------------|----------------|--------------|----|---|----------------|----------------|----------------|-------|
| Z | T | S | O ₂ | δ _T | Z | T | S | O ₂ | σ _t | δ _T | ΔD |
| m | °C | ‰ | ml/L | cl/ton | m | °C | ‰ | ml/L | g/L | cl/ton | dyn m |

H-19

HORIZON; September 24, 1963; 1829 GCT; 39°16'N, 148°41.5'W; sounding, 2800+ fm; wind, 300°, force 6; weather, squalls; sea, high; wire angle, 08°.

| | | | | | | | | | | | |
|-----|-------|--------|------|-----|-----|---------|---------|--------|---------|-------|--------|
| 1 | 20.02 | 33.615 | 5.53 | 418 | 0 | (20.02) | (33.62) | (5.53) | (23.73) | (418) | (0.00) |
| 11 | 20.02 | 33.616 | 5.52 | 418 | 10 | 20.02 | 33.62 | 5.52 | 23.73 | 418 | 0.04 |
| 21 | 20.03 | 33.617 | 5.49 | 419 | 20 | 20.03 | 33.62 | 5.50 | 23.72 | 418 | 0.08 |
| 26 | 20.02 | 33.619 | 5.40 | 418 | 30 | 20.03 | 33.62 | 5.51 | 23.72 | 418 | 0.13 |
| 31 | 20.03 | 33.616 | 5.52 | 419 | 50 | 15.00 | 33.48 | 6.70 | 24.82 | 314 | 0.20 |
| 41 | 19.54 | 33.600 | 5.56 | 408 | 75 | 12.25 | 33.51 | 6.45 | 25.41 | 258 | 0.27 |
| 55 | 13.84 | 33.476 | 6.84 | 291 | 100 | 11.50 | 33.62 | 5.81 | 25.63 | 237 | 0.33 |
| 70 | 12.42 | 33.501 | 6.57 | 262 | 125 | 10.94 | 33.97 | 5.55 | 26.00 | 201 | 0.39 |
| 94 | 11.67 | 33.568 | 5.94 | 243 | 150 | 10.49 | 34.11 | 5.37 | 26.19 | 183 | 0.44 |
| 114 | 11.12 | 33.833 | 5.63 | 214 | 200 | 9.70 | 34.11 | 5.39 | 26.33 | 170 | 0.53 |
| 134 | 10.78 | 34.057 | 5.48 | 192 | 250 | 9.05 | 34.06 | 5.38 | 26.40 | 164 | 0.61 |
| 153 | 10.42 | 34.113 | 5.35 | 182 | 300 | 8.43 | 34.04 | 4.92 | 26.48 | 156 | 0.70 |
| 182 | 9.98 | 34.132 | 5.37 | 173 | 400 | 6.90 | 33.99 | 4.00 | 26.66 | 139 | 0.85 |
| 217 | 9.46 | 34.080 | 5.40 | 169 | 500 | 5.45 | 33.96 | 3.15 | 26.82 | 124 | 0.99 |
| 246 | 9.10 | 34.058 | 5.39 | 165 | 600 | 4.54 | 34.01 | 2.27 | 26.96 | 110 | 1.11 |
| 295 | 8.50 | 34.038 | 5.00 | 158 | | | | | | | |
| 350 | 7.68 | 34.015 | 4.43 | 148 | | | | | | | |
| 434 | 6.38 | 33.972 | 3.69 | 134 | | | | | | | |
| 516 | 5.24 | 33.963 | 3.01 | 121 | | | | | | | |
| 600 | 4.54 | 34.012 | 2.27 | 110 | | | | | | | |

H-20

HORIZON; September 25, 1963; 1837 GCT; 39°10.5'N, 148°45'W; sounding, 2800+ fm; wind, 340°, force 3; weather, partly cloudy; sea, rough; wire angle, 00°.

| | | | | | | | | | | | |
|-----|-------|--------|------|-----|-----|---------|---------|--------|---------|-------|--------|
| 1 | 20.16 | 33.552 | 5.54 | 427 | 0 | (20.16) | (33.55) | (5.54) | (23.64) | (427) | (0.00) |
| 11 | 20.14 | 33.554 | 5.52 | 426 | 10 | 20.14 | 33.55 | 5.53 | 23.64 | 426 | 0.04 |
| 21 | 20.16 | 33.558 | 5.51 | 426 | 20 | 20.16 | 33.56 | 5.51 | 23.64 | 426 | 0.09 |
| 26 | 20.18 | 33.557 | 5.41 | 427 | 30 | 20.16 | 33.56 | 5.52 | 23.64 | 426 | 0.13 |
| 31 | 20.16 | 33.563 | 5.53 | 426 | 50 | 14.42 | 33.48 | 6.87 | 24.95 | 302 | 0.20 |
| 41 | 17.43 | 33.460 | 6.55 | 368 | 75 | 12.34 | 33.53 | 6.50 | 25.40 | 258 | 0.27 |
| 55 | 13.72 | 33.481 | 6.90 | 288 | 100 | 11.68 | 33.61 | 5.99 | 25.59 | 241 | 0.33 |
| 70 | 12.50 | 33.518 | 6.62 | 262 | 125 | 11.12 | 33.91 | 5.57 | 25.93 | 209 | 0.39 |
| 95 | 11.80 | 33.586 | 6.05 | 244 | 150 | 10.61 | 34.08 | 5.42 | 26.15 | 187 | 0.44 |
| 115 | 11.33 | 33.742 | 5.77 | 225 | 200 | 9.78 | 34.12 | 5.43 | 26.32 | 171 | 0.53 |
| 135 | 10.92 | 34.031 | 5.44 | 196 | 250 | 9.03 | 34.05 | 5.43 | 26.39 | 165 | 0.62 |
| 154 | 10.52 | 34.097 | 5.41 | 185 | 300 | 8.43 | 34.03 | 5.10 | 26.47 | 157 | 0.70 |
| 184 | 10.00 | 34.132 | 5.40 | 174 | 400 | 6.99 | 34.00 | 4.09 | 26.65 | 139 | 0.86 |
| 219 | 9.52 | 34.097 | 5.46 | 169 | 500 | 5.39 | 33.97 | 3.11 | 26.84 | 122 | 0.99 |
| 248 | 9.07 | 34.058 | 5.44 | 165 | 600 | 4.56 | 34.01 | 2.30 | 26.96 | 110 | 1.11 |
| 298 | 8.46 | 34.030 | 5.11 | 158 | | | | | | | |
| 352 | 7.78 | 34.024 | 4.57 | 148 | | | | | | | |
| 436 | 6.36 | 33.976 | 3.72 | 133 | | | | | | | |
| 521 | 5.12 | 33.970 | 2.96 | 119 | | | | | | | |
| 605 | 4.52 | 34.019 | 2.26 | 109 | | | | | | | |

| OBSERVED | | | | COMPUTED | INTERPOLATED | | | | COMPUTED | | |
|----------|----|---|----------------|----------------|--------------|----|---|----------------|----------------|----------------|-------|
| Z | T | S | O ₂ | δ _T | Z | T | S | O ₂ | σ _t | δ _T | ΔD |
| m | °C | ‰ | ml/L | cl/ton | m | °C | ‰ | ml/L | g/L | cl/ton | dyn m |

S10
CCOFI
6309

HORIZON; September 26, 1963; 1830 GCT; 39°09'N, 148°51'W; sounding, 2800+ fm; wind, 350°, force 3; weather, partly cloudy; sea, moderate; wire angle, 02°.

H-21

| | | | | | | | | | | | |
|-----|-------|--------|--------|-----|-----|---------|---------|--------|---------|-------|--------|
| 1 | 20.08 | 33.578 | 5.48 | 423 | 0 | (20.08) | (33.58) | (5.48) | (23.68) | (422) | (0.00) |
| 11 | 20.08 | 33.578 | 5.49 | 423 | 10 | 20.08 | 33.58 | 5.49 | 23.68 | 422 | 0.04 |
| 21 | 20.08 | 33.576 | 5.49 | 423 | 20 | 20.08 | 33.58 | 5.49 | 23.68 | 422 | 0.08 |
| 26 | 20.10 | 33.577 | 5.38 | 423 | 30 | 20.07 | 33.58 | 5.54 | 23.68 | 422 | 0.13 |
| 31 | 20.06 | 33.583 | 5.55 | 422 | 50 | 14.50 | 33.47 | 6.80 | 24.92 | 304 | 0.20 |
| 41 | 16.24 | 33.460 | 6.70 | 341 | 75 | 12.49 | 33.55 | 6.46 | 25.39 | 260 | 0.27 |
| 55 | 13.40 | 33.489 | 6.81 | 281 | 100 | 11.70 | 33.66 | 5.85 | 25.63 | 237 | 0.33 |
| 70 | 12.68 | 33.538 | 6.57 | 264 | 125 | 11.08 | 33.92 | 5.58 | 25.94 | 207 | 0.39 |
| 95 | 11.82 | 33.633 | 5.93 | 241 | 150 | 10.47 | 34.10 | 5.40 | 26.19 | 184 | 0.44 |
| 115 | 11.31 | 33.786 | 5.67 | 221 | 200 | 9.65 | 34.11 | 5.40 | 26.34 | 170 | 0.53 |
| 135 | 10.83 | 34.049 | 5.51 | 193 | 250 | 9.02 | 34.05 | 5.43 | 26.39 | 164 | 0.61 |
| 154 | 10.37 | 34.111 | 5.39 | 181 | 300 | 8.47 | 34.04 | 5.00 | 26.47 | 157 | 0.70 |
| 184 | 9.90 | 34.121 | 5.37 | 173 | 400 | 6.90 | 33.99 | 4.00 | 26.66 | 139 | 0.85 |
| 219 | 9.36 | 34.080 | 5.46 | 167 | 500 | 5.39 | 33.97 | 3.10 | 26.84 | 122 | 0.99 |
| 248 | 9.05 | 34.053 | 5.43 | 165 | 600 | 4.50 | 34.02 | 2.17 | 26.98 | 109 | 1.11 |
| 298 | 8.50 | 34.035 | 5.02 | 158 | | | | | | | |
| 351 | 7.79 | 34.024 | 4.46a) | 148 | | | | | | | |
| 435 | 6.29 | 33.975 | 3.64 | 132 | | | | | | | |
| 520 | 5.16 | 33.972 | 2.97 | 120 | | | | | | | |
| 604 | 4.48 | 34.024 | 2.14 | 108 | | | | | | | |

HORIZON; September 27, 1963; 1825 GCT; 39°06.5'N, 148°52.5'W; sounding, 2800+ fm; wind, direction missing, force 1; weather, cloudy; sea, moderate; wire angle, 02°.

H-22

| | | | | | | | | | | | |
|-----|-------|--------|------|-----|-----|---------|---------|--------|---------|-------|--------|
| 1 | 20.05 | 33.560 | 5.51 | 423 | 0 | (20.05) | (33.56) | (5.51) | (23.67) | (423) | (0.00) |
| 11 | 20.03 | 33.560 | 5.59 | 423 | 10 | 20.03 | 33.56 | 5.58 | 23.68 | 423 | 0.04 |
| 21 | 20.04 | 33.558 | 5.51 | 423 | 20 | 20.03 | 33.56 | 5.52 | 23.68 | 423 | 0.08 |
| 26 | 20.04 | 33.560 | 5.43 | 423 | 30 | 20.04 | 33.59 | 5.58 | 23.70 | 421 | 0.13 |
| 31 | 20.04 | 33.595 | 5.59 | 420 | 50 | 14.05 | 33.47 | 6.85 | 25.02 | 295 | 0.20 |
| 41 | 15.49 | 33.468 | 6.84 | 325 | 75 | 12.32 | 33.56 | 6.43 | 25.43 | 256 | 0.27 |
| 55 | 13.50 | 33.479 | 6.85 | 284 | 100 | 11.86 | 33.66 | 5.91 | 25.60 | 240 | 0.33 |
| 70 | 12.50 | 33.536 | 6.54 | 261 | 125 | 10.95 | 33.96 | 5.50 | 26.00 | 202 | 0.39 |
| 95 | 11.88 | 33.632 | 5.97 | 242 | 150 | 10.46 | 34.10 | 5.35 | 26.19 | 183 | 0.44 |
| 115 | 11.20 | 33.850 | 5.64 | 214 | 200 | 9.75 | 34.12 | 5.39 | 26.33 | 170 | 0.53 |
| 135 | 10.76 | 34.068 | 5.38 | 191 | 250 | 9.02 | 34.05 | 5.42 | 26.39 | 164 | 0.61 |
| 154 | 10.38 | 34.111 | 5.35 | 181 | 300 | 8.48 | 34.04 | 5.06 | 26.47 | 157 | 0.69 |
| 184 | 9.98 | 34.135 | 5.35 | 173 | 400 | 6.89 | 34.00 | 3.98 | 26.67 | 138 | 0.85 |
| 219 | 9.46 | 34.095 | 5.45 | 168 | 500 | 5.34 | 33.97 | 3.06 | 26.84 | 122 | 0.98 |
| 248 | 9.04 | 34.054 | 5.41 | 164 | 600 | 4.48 | 34.03 | 2.15 | 26.99 | 108 | 1.10 |
| 299 | 8.50 | 34.035 | 5.07 | 158 | | | | | | | |
| 352 | 7.71 | 34.024 | 4.48 | 147 | | | | | | | |
| 436 | 6.30 | 33.976 | 3.64 | 133 | | | | | | | |
| 520 | 5.07 | 33.972 | 2.89 | 119 | | | | | | | |
| 604 | 4.45 | 34.029 | 2.14 | 108 | | | | | | | |

a) Mean value of 4.41 and 4.52 ml/L.

SIO
CCOFI
6309

| OBSERVED | | | | COMPUTED | INTERPOLATED | | | | COMPUTED | | |
|----------|----|---|----------------|----------------|--------------|----|---|----------------|----------------|----------------|-------|
| Z | T | S | O ₂ | δ _T | Z | T | S | O ₂ | σ _t | δ _T | ΔD |
| m | °C | ‰ | ml/L | cl/ton | m | °C | ‰ | ml/L | g/L | cl/ton | dyn m |

H-23

HORIZON; September 29, 1963; 0752 GCT; 39°05.5'N, 148°51'W; sounding, 2800+ fm; wind, 320°, force 5; weather, missing; sea, high; wire angle, 03°.

| | | | | | | | | | | | |
|------|-------|--------|------|-----|------|---------|---------|--------|---------|-------|--------|
| 1 | 19.86 | 33.594 | 5.50 | 416 | 0 | (19.86) | (33.59) | (5.50) | (23.74) | (416) | (0.00) |
| 11 | 19.86 | 33.589 | 5.50 | 416 | 10 | 19.86 | 33.59 | 5.50 | 23.74 | 416 | 0.04 |
| 31 | 19.87 | 33.582 | 5.51 | 417 | 20 | 19.87 | 33.59 | 5.50 | 23.74 | 417 | 0.08 |
| 41 | 15.32 | 33.496 | 6.72 | 319 | 30 | 19.87 | 33.58 | 5.51 | 23.73 | 417 | 0.13 |
| 55 | 13.18 | 33.509 | 6.77 | 275 | 50 | 13.90 | 33.50 | 6.76 | 25.07 | 290 | 0.20 |
| 70 | 12.42 | 33.518 | 6.57 | 261 | 75 | 12.28 | 33.52 | 6.49 | 25.41 | 258 | 0.26 |
| 95 | 11.80 | 33.573 | 6.11 | 245 | 100 | 11.74 | 33.60 | 6.03 | 25.57 | 242 | 0.33 |
| 110 | 11.64 | 33.686 | 5.85 | 234 | 125 | 11.28 | 33.88 | 5.57 | 25.87 | 214 | 0.39 |
| 139 | 10.74 | 34.070 | 5.33 | 190 | 150 | 10.56 | 34.10 | 5.32 | 26.17 | 185 | 0.44 |
| 165 | 10.34 | 34.122 | 5.32 | 180 | 200 | 9.79 | 34.10 | 5.40 | 26.31 | 173 | 0.53 |
| 228 | 9.39 | 34.075 | 5.42 | 168 | 250 | 9.13 | 34.06 | 5.37 | 26.38 | 165 | 0.61 |
| 298 | 8.56 | 34.044 | 5.10 | 158 | 300 | 8.53 | 34.04 | 5.06 | 26.46 | 158 | 0.70 |
| 397 | 6.99 | 33.992 | 4.09 | 140 | 400 | 6.94 | 33.99 | 4.06 | 26.65 | 140 | 0.85 |
| 471 | 5.88 | 33.966 | 3.45 | 128 | 500 | 5.44 | 33.96 | 3.16 | 26.82 | 124 | 0.99 |
| 520 | 5.18 | 33.965 | 2.90 | 120 | 600 | 4.47 | 34.03 | 2.10 | 26.99 | 108 | 1.11 |
| 593 | 4.51 | 34.022 | 2.14 | 109 | 700 | 4.05 | 34.14 | 1.31 | 27.12 | 95 | 1.22 |
| 743 | 3.91 | 34.177 | 1.06 | 91 | 800 | 3.75 | 34.21 | 0.91 | 27.21 | 87 | 1.32 |
| 891 | 3.50 | 34.264 | 0.70 | 81 | 1000 | 3.19 | 34.35 | 0.65 | 27.37 | 72 | 1.49 |
| 1038 | 3.10 | 34.349 | 0.63 | 71 | 1200 | (2.83) | (34.40) | | (27.44) | (65) | (1.64) |
| 1187 | 2.85 | 34.394 | 0.59 | 65 | | | | | | | |

125.44
I

ALEXANDER AGASSIZ; September 9, 1963; 2011 GCT; 26°49.5'N, 114°56.5'W; sounding, 1900 fm; wind, 320°, force 2; weather, clear; sea, moderate; wire angle, 05°.

| | | | | | | | | | | | |
|-----|-------|--------|--------|-----|-----|---------|---------|-------|---------|-------|--------|
| 1 | 23.46 | 33.862 | 4.7 | 491 | 0 | (23.46) | (33.86) | (4.7) | (22.96) | (491) | (0.00) |
| 11 | 22.73 | 33.864 | 3.9 | 471 | 10 | 22.80 | 33.86 | 3.9 | 23.15 | 473 | 0.05 |
| 31 | 21.68 | 34.002 | 4.9 a) | 433 | 20 | 22.30 | 33.91 | 4.2 | 23.33 | 456 | 0.09 |
| 41 | 19.77 | 33.751 | 5.4 | 402 | 30 | 21.74 | 34.00 | 4.8 | 23.55 | 435 | 0.14 |
| 56 | 16.90 | 33.703 | 5.7 b) | 338 | 50 | 17.88 | 33.70 | 5.7 | 24.33 | 361 | 0.22 |
| 71 | 15.34 | 33.716 | 5.4 | 303 | 75 | 14.92 | 33.72 | 5.2 | 25.02 | 294 | 0.30 |
| 97 | 12.97 | 33.731 | 4.0 | 255 | 100 | 12.70 | 33.75 | 3.7 | 25.50 | 249 | 0.37 |
| 115 | 11.82 | 33.877 | 2.7 | 223 | 125 | 11.44 | 33.96 | 2.3 | 25.91 | 210 | 0.43 |
| 135 | 11.10 | 34.016 | 2.1 | 200 | 150 | 10.60 | 34.04 | 2.1 | 26.12 | 190 | 0.48 |
| 154 | 10.49 | 34.053 | 2.1 | 187 | 200 | 10.10 | 34.30 | 1.2 | 26.41 | 163 | 0.57 |
| 185 | 10.20 | 34.227 | 1.5 | 170 | 250 | 9.73 | 34.40 | 0.8 | 26.55 | 149 | 0.65 |
| 219 | 9.97 | 34.359 | 1.0 | 156 | 300 | 9.17 | 34.42 | 0.5 | 26.66 | 139 | 0.72 |
| 248 | 9.75 | 34.402 | 0.8 | 150 | 400 | 8.34 | 34.46 | 0.3 | 26.82 | 124 | 0.86 |
| 297 | 9.19 | 34.420 | 0.5 | 140 | 500 | 7.25 | 34.45 | 0.2 | 26.97 | 109 | 0.99 |
| 351 | 8.82 | 34.478 | 0.3 | 130 | 600 | 6.27 | 34.46 | 0.1 | 27.11 | 96 | 1.10 |
| 435 | 7.96 | 34.448 | 0.3 | 119 | | | | | | | |
| 519 | 7.06 | 34.457 | 0.2 | 106 | | | | | | | |
| 605 | 6.23 | 34.458 | 0.1 | 96 | | | | | | | |

a) Alternate value, 5.1 ml/L, not used in interpolation.

b) Alternate value, 5.4 ml/L, not used in interpolation.

| OBSERVED | | | | COMPUTED | INTERPOLATED | | | | COMPUTED | | |
|----------|----|---|----------------|----------------|--------------|----|---|----------------|----------------|----------------|-------|
| Z | T | S | O ₂ | δ _T | Z | T | S | O ₂ | σ _t | δ _T | ΔD |
| m | °C | ‰ | ml/L | cl/ton | m | °C | ‰ | ml/L | g/L | cl/ton | dyn m |

S10
CCOFI
6309

ALEXANDER AGASSIZ; September 11, 1963; 0132 GCT; 26°49.5'N, 114°56.5'W; sounding, 2140 fm; wind, 320°, force 4; weather, partly cloudy; sea, very rough; wire angle, 18°.

125.44
I

| | | | | | | | | | | | |
|-----|-------|----------|------|-----|-----|---------|---------|--------|---------|-------|--------|
| 1 | 23.54 | 33.860 | 4.91 | 494 | 0 | (23.54) | (33.86) | (4.91) | (22.94) | (494) | (0.00) |
| 11 | 22.87 | 33.848 | 4.35 | 476 | 10 | 22.93 | 33.85 | 4.37 | 23.10 | 477 | 0.05 |
| 29 | 21.62 | 33.809 | 5.15 | 445 | 20 | 22.33 | 33.83 | 4.71 | 23.26 | 463 | 0.10 |
| 39 | 19.28 | 33.679 | 5.63 | 396 | 30 | 21.45 | 33.80 | 5.19 | 23.48 | 442 | 0.14 |
| 53 | 17.39 | 33.675 | 5.75 | 351 | 50 | 17.75 | 33.68 | 5.74 | 24.34 | 359 | 0.22 |
| 68 | 15.86 | 33.674 | 5.63 | 318 | 75 | 15.00 | 33.68 | 5.24 | 24.97 | 299 | 0.30 |
| 92 | 13.38 | 33.704 | 4.31 | 265 | 100 | 12.75 | 33.75 | 3.77 | 25.49 | 250 | 0.37 |
| 111 | 12.10 | 33.822 | 3.10 | 232 | 125 | 11.50 | 33.92 | 2.62 | 25.86 | 214 | 0.43 |
| 130 | 11.29 | 33.93 a) | 2.58 | 210 | 150 | 10.60 | 33.93 | 2.60 | 26.03 | 198 | 0.48 |
| 149 | 10.62 | 33.925 | 2.62 | 199 | 200 | 10.15 | 34.30 | 1.27 | 26.40 | 164 | 0.58 |
| 177 | 10.51 | 34.26 a) | 1.48 | 172 | 250 | 9.95 | 34.43 | 0.71 | 26.54 | 151 | 0.66 |
| 211 | 10.05 | 34.322 | 1.18 | 160 | 300 | 9.32 | 34.47 | 0.43 | 26.67 | 138 | 0.73 |
| 239 | 10.10 | 34.432 | 0.77 | 153 | 400 | 8.55 | 34.51 | 0.28 | 26.83 | 123 | 0.87 |
| 286 | 9.32 | 34.424 | 0.57 | 141 | 500 | 7.39 | 34.47 | 0.13 | 26.97 | 110 | 0.99 |
| 339 | 9.40 | 34.570 | 0.20 | 132 | 600 | (6.45) | (34.47) | | (27.10) | (97) | (1.11) |
| 421 | 8.26 | 34.487 | 0.29 | 121 | | | | | | | |
| 503 | 7.35 | 34.471 | 0.12 | 109 | | | | | | | |
| 587 | 6.56 | 34.466 | 0.18 | 99 | | | | | | | |

ALEXANDER AGASSIZ; September 15, 1963; 1322 GCT; 19°15'N, 105°27'W; sounding, 790 fm; wind, 300°, force 3; weather, cloudy; sea, very rough; wire angle, 08°.

II

| | | | | | | | | | | | |
|-----|-------|--------|------|-----|-----|---------|---------|--------|---------|-------|--------|
| 1 | 29.24 | 34.111 | 4.11 | 646 | 0 | (29.24) | (34.11) | (4.11) | (21.34) | (647) | (0.00) |
| 11 | 29.27 | 34.113 | 3.98 | 647 | 10 | 29.27 | 34.11 | 4.00 | 21.33 | 648 | 0.06 |
| 31 | 29.31 | 34.131 | 4.23 | 647 | 20 | 29.29 | 34.12 | 4.10 | 21.33 | 647 | 0.13 |
| 41 | 27.73 | 34.399 | 4.59 | 578 | 30 | 29.31 | 34.13 | 4.22 | 21.33 | 647 | 0.19 |
| 57 | 24.98 | 34.473 | 4.49 | 490 | 50 | 26.20 | 34.46 | 4.56 | 22.59 | 527 | 0.31 |
| 72 | 20.76 | 34.465 | 3.01 | 376 | 75 | 19.85 | 34.49 | 2.48 | 24.43 | 351 | 0.42 |
| 96 | 16.19 | 34.657 | 0.32 | 253 | 100 | 15.80 | 34.68 | 0.20 | 25.57 | 243 | 0.50 |
| 115 | 14.68 | 34.716 | 0.03 | 217 | 125 | 14.10 | 34.76 | 0.03 | 26.00 | 202 | 0.55 |
| 135 | 13.68 | 34.792 | 0.03 | 191 | 150 | 13.31 | 34.81 | 0.04 | 26.20 | 182 | 0.60 |
| 155 | 13.21 | 34.808 | 0.04 | 181 | 200 | 12.44 | 34.81 | 0.04 | 26.38 | 166 | 0.69 |
| 184 | 12.64 | 34.811 | 0.04 | 170 | 250 | 11.72 | 34.80 | 0.03 | 26.51 | 154 | 0.77 |
| 218 | 12.25 | 34.804 | 0.04 | 163 | 300 | 11.07 | 34.76 | 0.04 | 26.60 | 145 | 0.85 |
| 248 | 11.76 | 34.803 | 0.03 | 154 | 400 | 9.18 | 34.71 | 0.02 | 26.88 | 118 | 0.99 |
| 298 | 11.10 | 34.756 | 0.04 | 146 | 500 | 7.49 | 34.57 | 0.04 | 27.03 | 104 | 1.11 |
| 352 | 10.16 | 34.771 | 0.03 | 129 | 600 | 6.44 | 34.53 | 0.04 | 27.15 | 93 | 1.22 |
| 436 | 8.50 | 34.646 | 0.02 | 112 | | | | | | | |
| 520 | 7.22 | 34.541 | 0.05 | 102 | | | | | | | |
| 605 | 6.40 | 34.525 | 0.04 | 93 | | | | | | | |

a) Cracked bottle; value falls on property curve.

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