# HEAT-FLOW AND WATER-CHEMISTRY DATA FROM THE CASCADE RANGE AND ADJACENT AREAS IN NORTH-CENTRAL OREGON

By S.E. Ingebritsen, R.H. Mariner, D.E. Cassidy, L.D. Shepherd, T.S. Presser, M.K.W. Pringle, and L.D. White

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For additional information write to:

Regional Hydrologist

U.S. Geological Survey

345 Middlefield Road, MS 470

Menlo Park, CA 94025

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## CONVERSION FACTORS

For readers who prefer to use English units or other "working units," conversion factors for terms used in this report are listed below:

| multiply | by | to obtain |
|---|---|---|
| meter (m) | 3.281 | feet (ft) |
| kilometer (km) | 0.6214 | miles (mi) |
| Watt per meter degree Kelvin (W/m·K) | 2.389 | thermal conductivity units (tcu; 1 tcu = $1 \times 10^{-3}$ mcal/cm·s·°C) |
| milliwatt per square meter ($mW/m^2$) | 0.02389 | heat-flow units (hfu) ($1\ hfu = 1\ ucal/cm^2 \cdot s$) |
| liter per second (L/s) | 0.03532 | cubic feet per second ($ft^3/s$) |
| milligram per liter (mg/L) | $6.243 \times 10^{-5}$ | pounds per cubic foot ($lb/ft^3$). |

For conversion of degrees Celsius (°C) to degrees Fahrenheit (°F), use the formula $°F = 9/5°C + 32$.

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Sea level: In this report "sea level" refers to the National Geodetic Vertical Datum of 1929 (NGVD of 1929)--a geodetic datum derived from a general adjustment of the first-order level nets of both the United States and Canada, formerly called "Sea Level Datum of 1929."

# United States Department of the Interior

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Page 19., first entry, change (19S-6E-25) to read (19S-5.5E-25).

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## ABSTRACT

The U.S. Geological Survey's Geothermal Research Program is conducting an ongoing, multidisciplinary study of the Cascade Range. One product of this effort is a large geologic, geophysical, geochemical, and hydrologic data set. Here we present heat-flow data from 253 sites and water-chemistry data from 773 sites in or near the Cascade Range in north-central Oregon between latitudes $43^{\circ}40'$ and $45^{\circ}20'$ N.

## INTRODUCTION

This report is a compilation of heat-flow and water-chemistry data from the Cascade Range and adjacent areas of north-central Oregon between latitudes $43^{\circ}40'$ and $45^{\circ}20'$ N. These data were collected and/or compiled as part of the U.S. Geological Survey's Geothermal Research Program between June 1985 and October 1988.

The Cascade Range may have high geothermal resource potential because of its continuing magmatic activity. However, the resource is essentially undeveloped and its magnitude is poorly known. The data presented in Tables 1-6 and Figures 1-210 should help to improve our understanding of the hydrothermal systems of the Oregon Cascades.

Table 1 includes heat-flow data from 253 sites and Tables 3-6 report water-chemistry data from 773 sites. Table 2 includes thermal-conductivity data from 100 sites. These data were used to estimate thermal conductivity at heat-flow sites where measurements from core or cuttings were not available.

Some of the heat-flow data in Table 1 were previously published but are reproduced here in order to present all of the publicly available data in a single report with a consistent format. Nonisothermal temperature-depth profiles described in Table 1 are illustrated in Figures 1-210. Near-isothermal profiles ($-5^{\circ}C/km <$ uncorrected gradient $< 5^{\circ}C/km$) are not shown.

The stream chemistry and discharge data in Table 3 were used to determine hot-spring discharges by a chloride-flux method (Ellis and Wilson, 1955) and to attempt to identify saline fluid discharges away from the hot springs. The well and spring

chemistry data in Tables 4-6 can be used to infer generalized patterns of ground-water flow, and were also used to search for previously unidentified saline fluid discharges.

All of the sites in Tables 5 (major-element chemistry) and 6 (stable-isotope values) are also listed in Table 4, which is a complete list of the well, spring, and stream headwater sampling sites. The final column in Table 4 indicates whether additional information about a particular site can be found in other tables. Tables 4-6 can also be cross-referenced using the cadastral (T-R-Sec.) locations.

Most of the chemical analyses were done by the Branch of Analytical Services, U.S. Geological Survey, Arvada, Colorado, or by T.S. Presser and M.K.W. Pringle. Stable-isotope determinations were done by L.D. White. A few of the chemical analyses were done in the analytical laboratories of the University of Utah Research Institute. Differing levels of precision reported for various dissolved constituents reflect the fact that the analyses were done in several laboratories. In general, cations were determined by atomic adsorption methods (Tables 3, 4 and 6) or by inductively coupled plasma (Table 5); bicarbonate by acid titration; chloride by colorimetry or mercurimetric titration; sulfate by turbidimetry; silica by atomic adsorption and molybdate blue; flouride by ion-selective electrode; and boron by dianthrimide.

As with the heat-flow data, an effort was made to compile all the publicly available water chemistry data for this part of the Cascade Range. However, we have omitted the major-element chemistry of the hot springs, which was previously reported by Mariner and others (1980).

The latitudes and longitudes in Tables 1, 3, 4 and 6 are referenced to the 1927 rather than the 1983 North American datum (NAD). The 1983 NAD is about 21 m north and 93 m east of the 1927 NAD.

## ACKNOWLEDGMENTS

We thank Gerald Black and George Priest of the Oregon Department of Geology and Mineral Industries (DOGAMI) for making DOGAMI's heat-flow files available to us; Joe Gonthier (U.S. Geological Survey, Portland, Oregon) for making available unpublished water-chemistry data from the Bend-Redmond area; David Sherrod (U.S. Geological Survey, Menlo Park, California) for his contributions to the thermal conductivity table; the Confederated Tribes of the Warm Springs Reservation for cooperating and assisting with field work; Milo Crumrine (U.S. Geological Survey, Portland, Oregon) and Richard Conrey (Washington State University) for assistance in the field; and several U.S. Forest Service employees for their help and advice. Finally, we thank numerous private citizens for allowing us to sample and make measurements in their wells and springs. Sherrod, Franklin Olmsted, and Michael Thompson provided helpful reviews of the manuscript.

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Table 1.—Heat-flow data from the Cascade Range and adjacent areas in north-central Oregon

[Some of these data have been published and analyzed previously. Where available, previously published information is shown below our analysis for the sake of comparison: (1) indicates information from Blackwell and others, 1982a; (2) = Black and others, 1983; (3) = Steele and others, 1982; (4) = Blackwell and Baker, 1988; and (5) = Brown and others, 1980. Names are from the referenced publications or from well logs on file with the Oregon Department of Water Resources. Dashes indicate the absence of data. Values followed by "e" are approximate. Sites are ordered by township, range, and section (**T-R-Sec.**). **Codes** indicate the source of data: OR = Oregon Department of Geology and Mineral Industries files, US = U.S. Geological Survey files, SU = Sunoco Energy Development Company, UT = University of Utah Research Institute. Elevation (**Elev.**) is land surface elevation, in meters (m) above sea level. **Depth** is the total depth of the drill hole, in meters (m). **Static water level** is reported in meters (m) below land surface. **Bottom-hole temperature** is reported in degrees Celsius (°C). **Interval** is the depth interval, in meters (m), over which the reported gradient was measured. Temperature profiles are shown in the indicated figures (**Fig.**). **Thermal conductivity** is reported in Watts per meter degree Kelvin (W/m·K). Previously published measured thermal conductivity values are used when available. Square brackets signify previously published estimated values. Values followed by "e" are estimated from the drill hole lithology based on the summary statistics of Table 2. The standard error is shown in parentheses. In cases where the measured values were published without any measure of error, or where we rely on published estimates, we have no basis for assigning uncertainties. In general, the previously published measured thermal conductivity values are ± 5-10 percent, and the summary statistics of Table 2 suggest that the estimated values are ± 20 percent or better, depending on the lithology. **Gradients** are reported in degrees Celsius per kilometer (°C/km). Near-isothermal temperature profiles are indicated by "iso.". Nonisothermal advectively disturbed profiles are indicated by "adv.". The standard deviation of the uncorrected gradient is shown in parentheses. Most of the terrain corrections were done with a two-dimensional numerical heat-conduction model (T.C. Lee, written commun., 1987). Where the topography could not readily be represented in two dimensions, the maximum possible two-dimensional correction was used, in order to bracket the actual corrected gradient. In these cases the corrected gradients (and heat flow values) are modified by ">" or "<" signs. Where the two-dimensional correction is a very poor approximation the corrected gradient is followed by an "e". **Heat flow** is reported in milliwatts per square meter (mW/m²) and is the product of thermal conductivity and the corrected gradient. Square brackets indicate poorer-quality estimates. The approximate reliability of the heat-flow estimates can be calculated from the standard deviation of the uncorrected gradient and some statistical measure of the standard error of the thermal conductivity (shown below); the terrain correction is an additional source of error that is difficult to quantify.]

| T-R-Sec. 1/4 | Longitude (° ' ") | Latitude (° ' ") | Name | Code | Date logged (mo/da/yr) | Elev. (m) | Depth (m) | Static water level (m) | Bottom-hole temp. (°C) | Interval (m) | Therm. Cond. (W/m·K) | Gradient Uncorr. (°C/km) | Gradient Corr. (°C/km) | Heat Flow (mW/m²) | Fig. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **West of the Cascade crest** | | | | | | | | | | | | | | | |
| 3S-4E-03 NE | 122 17 30 | 45 20 25 | - | OR | 07/27/77 | 287 | 92 | 10-13 | 12.2 | 75-90 | 1.35e (0.20) | 55.6 (1.52) | >51.0 | [>69] | 1 |
| 3S-4E-18 NW | 122 22 13 | 45 18 56 | - | US | 08/07/85 | 111 | 65 | 39.6 | 11.0 | - | - | adv. | - | - | 2 |

Table 1.--Heat-flow data from the Cascade Range and adjacent areas in north-central Oregon (continued)

| T-R-Sec. 1/4 | Longitude (° ' ") | Latitude (° ' ") | Name | Code | Date logged (mo/da/yr) | Elev. (m) | Depth (m) | Static water level (m) | Bottom-hole temp. (°C) | Interval (m) | Therm. Cond. (W/m·K) | Gradient Uncorr. (°C/km) | Gradient Corr. (°C/km) | Heat Flow ($mW/m^2$) | Fig. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 3S-4E-23 SE | 122 16 46 | 45 17 22 | - | US | 08/04/86 | 337 | 49 | 32 | 11.8 | 39-49 | 1.40e (0.20) | 32.8 (4.69) | 32.8 | [46] | 3 |
| 3S-4E-27 SW | 122 18 25 | 45 16 29 | - | US | 06/07/85 | 256 | 50 | - | 11.5 | 38-50 | 1.40e (0.20) | 49.1 (4.16) | 52.0 | [73] | 4 |
| 3S-4E-28 NW | 122 19 48 | 45 16 53 | Short | OR | 07/07/81 | 129 | 63 | 10-15 | 11.7 | 50-63 | 1.40e (0.20) | 26.8 (2.71) | >25.7 | [>36] | 5 |
| 3S-4E-29 NW | 122 20 31 | 45 17 08 | - | OR | 07/08/81 | 131 | 205 | 20 | 16.5 | 21-205 | 1.51e (0.20) | 39.9 (1.48) | >36.6 | >55 | 6 |
| 3S-4E-33 NE | 122 19 41 | 45 15 31 | - | US | 07/19/86 | 154 | 114 | 58.8 | 15.6 | - | - | adv. | - | - | 7 |
| 3S-4E-35 SW | 122 16 58 | 45 15 34 | - | US | 11/11/88 | 341 | 60 | 27 | 11.5 | 34-60 | 1.40e (0.20) | 18.7 (0.33) | >20.1 | >28 | 8 |
| 3S-5E-20 NE | 122 12 37 | 45 17 51 | Elliot | OR | 07/10 81 | 451 | 61 | 10-15 | 9.8 | 15-61 | 1.40e (0.20) | 7.8 (0.43) | 8.7 | [12] | 9 |
| 3S-5E-28 SW | 122 12 10 | 45 16 36 | - | US | 08/04/86 | 280 | 98 | 66 | 13.6 | - | - | iso. | - | - | - |
| 4S-5E-29 NE | 122 12 55 | 45 11 45 | U.S. Dept. of Agriculture | US | 08/13/85 | 207 | 20 | 4.3 | 10.2 | 15-20 | 1.60e (0.15) | 47.4 (8.60) | 34.1 | [55] | 10 |
| 5S-5E-02 SE | 122 09 05 | 45 09 43 | U.S. Dept. of Agriculture | US | 08/13/85 | 280 | 25 | 6.0 | 9.3 | 15-25 | 1.60e (0.15) | 55.3 (2.06) | >42.2 | [>68] | 11 |

Table 1.—Heat-flow data from the Cascade Range and adjacent areas in north-central Oregon (continued)

| T-R-Sec. 1/4 | Longitude (° ' ") | Latitude (° ' ") | Name | Code | Date logged (mo/da/yr) | Elev. (m) | Depth (m) | Static water level (m) | Bottom-hole temp. (°C) | Interval (m) | Therm. Cond. (W/m·K) | Gradient Uncorr. (°C/km) | Gradient Corr. (°C/km) | Heat Flow ($mW/m^2$) | Fig. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 5S-6E-06 SE | 122 06 49 | 45 09 32 | - (Roaring R. Campground) | US | 08/08/85 | 311 | 40 | 4.5 | 10.6 | 23-40 | 1.60e (0.15) | 56.7 (1.50) | >43.6 | >70 | 12 |
| 5S-6E-36 SE | 122 00 56 | 45 05 28 | - (Oak Grove Work Cntr.) | US | 10/17/88 | 607 | 67 | 15 | 7.6 | - | - | adv. | - | - | 13 |
| 6S-1E-13 SE | 122 37 11 | 45 02 51 | TWW | OR | 10/06/76 | 326 | 140 | - | 14.9 | 95-140 | 1.38 | 34.8 (0.67) | 37.8 | 44 | 14 |
| | | | | | | | | | (1,2): | 35-95 | 1.59 | 26.2 | 28.6 | 45 | |
| | | | | | | | | | | 95-140 | [1.17] | 34.7 | 37.7 | 44 | |
| 6S-1E-35 SW | 122 39 26 | 45 00 20 | MC-WW | OR | 10/06/76 | 285 | 195 | - | 15.2 | 110-195 | [1.17] | 31.4 (0.20) | 34.8 | 41 | 15 |
| | | | | | | | | | (1,2): | 95-195 | [1.17] | 30.9 | 34.3 | 40 | |
| 6S-2E-18 NW | 122 36 42 | 45 03 18 | QWW | OR | 10/06/76 | 259 | 92 | 7-10 | 11.7 | 55-92 | 1.30e (0.15) | 28.9 (0.41) | 28.8 | 37 | 16 |
| | | | | | | (2): | 90 | - | - | 55-90 | - | 29.1 | 29.0 | - | |
| 6S-6E-23 SW | 122 02 42 | 45 01 48 | DH-5000 | OR | 11/04/75 | 487 | 24 | <13 | 8.7 | 15-24 | 1.50e (0.25) | 69.6 (2.80) | 56.1 | [84] | 17 |
| | | | | | | (2): | 22 | - | - | 15-22 | - | 70.0 | - | - | |
| 6S-6E-23 SW | 122 02 42 | 45 01 49 | - | OR | 11/04/75 | 498 | 27 | <8e | 8.3 | 22-27 | - | adv. 90.5e | - | - | 18 |
| 6S-6E-34 SW | 122 03 46 | 44 59 57 | RDHCRCDR | OR | 09/30/76 | 487 | 150 | - | 20.9 | 15-150 | 1.64 (0.04) | 81.4 (0.29) | 64.7 | 106 | 19 |
| | | | | | | | | | (1,2,4): | 10-150 | 1.64 | 81.8 | 65.0 | 106 | |
| 6S-7E-04 SE | 121 57 36 | 45 04 18 | RDHCRLKH | OR | 07/25/77 | 666 | 38 | - | 7.6 | - | - | iso. | - | - | - |
| | | | | | (1,2): | 686 | 40 | - | - | 0-38 | - | - | - | - | |
| 6S-7E-04 SE | 121 57 25 | 45 04 21 | - (L. Harriet Campground) | US | 09/22/85 | 625 | 22 | 15.3 | 15.9 | - | - | adv. | - | - | 20 |

Table 1.--Heat-flow data from the Cascade Range and adjacent areas in north-central Oregon (continued)

| T-R-Sec. 1/4 | Longitude (° ' ") | Latitude (° ' ") | Name | Code | Date logged (mo/da/yr) | Elev. (m) | Depth (m) | Static water level (m) | Bottom-hole temp. (°C) | Interval (m) | Therm. Cond. (W/m·K) | Gradient Uncorr. (°C/km) | Gradient Corr. (°C/km) | Heat Flow (mW/m²) | Fig. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 6S-7E-21 SW | 121 57 44 | 45 01 46 | RDH-AHSE | OR | 06/29/77 | 603 | 40 | - | 17.9 | 28-40 | 1.47 (0.07) | 155. (6.71) | 109. | [160] | 21 |
| | | | | | (1,2,4): | | | | | 10-40 | 1.47 | 231.6 | 162.8 | 240 | |
| 6S-7E-30 NW | 122 00 32 | 45 01 20 | RDHCRAHS | OR | 09/30/76 | 512 | 135 | 4-5 | 55.3 | 95-135 | 1.65 (0.08) | 236. (3.36) | 166. | 274 | 22 |
| | | | | | (1,2,4): | | 132 | - | - | 95-130 | 1.65 | 240.7 | 169.5 | 279 | |
| 6S-7E-30 NW | 122 00 20 | 45 01 24 | - | US | 08/03/86 | 509 | 293 | <15 | 82.1 | 146-293 | 1.50e (0.25) | 83.4 (0.71) | 62.7 | 94 | 23 |
| 7S-1E-11 NE | 122 38 47 | 44 58 46 | OW W1 | OR | 07/--/62 | 214 | 2379 | - | - | - | - | - | - | - | - |
| | | | | | (1,2): | | 0-2379 | | [1.59] | | | 26.0 | 26.0 | 41 | |
| 7S-5E-14 SE | 122 09 51 | 44 57 47 | U.S. Forest Service | US | 08/15/85 | 616 | 18 | 6.1 | 5.5 | 15-18 | - | adv. 70.7e | - | - | 24 |
| 7S-5E-22 NE | 122 10 23 | 44 57 07 | CR-BHS | OR | 09/30/76 | 655 | 90 | - | 13.5 | 20-90 | 1.46 (0.05) | 84.3 (0.96) | 66.8 | 97 | 25 |
| | | | | | (1,2,4): | | | | | 20-90 | 1.46 | 84.3 | 66.8 | 97 | |
| 7S-5E-23 NE | 122 09 53 | 44 57 09 | - (Bagby H.S. trailhead) | US | 08/20/85 | 646 | 21 | - | 5.8 | 15-22 | - | adv. 43.8e | - | - | 26 |
| (7S-7E-04) SE | 121 57 01 | 44 58 59 | EWEB-TS | OR | 05/28/80 | 1273 | 194 | 50-55 | 5.3 | 25-194 | - | adv. 11.0e | - | - | 27 |
| | | | | (1,4): | OR 11/13/79 | " | - | - | - | 165-190 | 1.62 | - | - | - | |
| | | | | (2): | OR 05/28/80 | " | 194 | - | - | 165-190 | 1.62 | - | - | - | |
| (7S-8E-05) SE | 121 50 50 | 44 59 00 | EWEB-PC | OR | 05/28/80 | 975 | 187 | 10-15 | 6.4 | - | - | iso. | - | - | - |
| | | | | (1,4): | OR 10/30/79 | " | - | - | - | 70-185 | 1.58 | 4.5 | - | - | |
| | | | | (2): | OR 05/28/80 | - | 187 | - | - | 70-185 | 1.58 | - | - | - | |
| (7S-8E-10) NE | 121 48 26 | 44 58 32 | EWEB-CC | OR | 05/30/80 | 1140 | 137 | 45 | 4.5 | 115-137 | - | adv. 9.4e | - | - | 28 |
| | | | | (1,4): | OR 10/18/79 | " | - | - | - | 110-137 | 1.45 | - | - | - | |
| | | | | (2): | OR 05/30/80 | " | 137 | - | - | 110-137 | 1.45 | - | - | - | |

Table 1.--Heat-flow data from the Cascade Range and adjacent areas in north-central Oregon (continued)

| T-R-Sec. 1/4 | Longitude (° ' ") | Latitude (° ' ") | Name | Code | Date logged (mo/da/yr) | Elev. (m) | Depth (m) | Static water level (m) | Bottom-hole temp. (°C) | Interval (m) | Therm. Cond. (W/m·K) | Gradient Uncorr. (°C/km) | Gradient Corr. (°C/km) | Heat Flow (mW/m²) | Fig. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 8S-1E-08 SE | 122 42 32 | 44 53 19 | H-1-WW | OR | 10/08/76 | 303 | 218 | 15-20 | 15.8 | 95-215 | 1.72 (0.14) | 27.6 | 27.6 | 47 | 29 |
| | | | | | | | | | (1,2): | 95-215 | 1.72 | 27.6 | 27.6 | 47 | |
| 8S-1E-09 NW | 122 41 38 | 44 53 28 | WOLFF | OR | 04/30/80 | 338 | 103 | - | 12.1 | 30-100 | 1.60e (0.15) | 38.3 (2.89) | 38.3 | [61] | 30 |
| | | | | | | | | | (2): | 30-100 | - | 34.9 | - | - | |
| 8S-1E-17 SE | 122 42 18 | 44 52 18 | SM-WW | OR | 10/06/76 | 315 | 112 | 60-65 | 13.3 | 65-110 | 1.60e (0.15) | 45.7 (2.03) | 45.7 | [73] | 31 |
| | | | | | | | | | (2): | 10-110 | [1.59] | 28.5 | 27.0 | 43 | |
| 8S-5E-31 SW | 122 14 47 | 44 49 52 | CDR CK | OR | 10/26/77 | 705 | 345 | <5 | 17.2 | 25-345 | 1.80 (0.33) | 32.3 (0.10) | 28.6 | 51 | 32 |
| | | | | | | | | | (1,2,4): | 35-345 | 1.80 | 32.3 | 28.6 | 51 | |
| 8S-6E-01 SE | 122 00 51 | 44 54 19 | - | US | 10/20/88 (42 days after completion) | 914 | 62 | 56 | 7.1 | - | - | adv. | - | - | 33 |
| (8S-8E-06) SE | 121 52 53 | 44 54 21 | EWEB-SB | OR | 04/29/80 | 860 | 460 | <5 | 29.8 | 335-460 | 1.50e (0.25) | 50.1 (0.93) | 44.7 | 67 | 34 |
| | | | (1): | OR | 11/13/79 | " | - | - | - | 150-460 | 1.49 | 71.5 | 63.3 | 95 | |
| | | | (2,4): | OR | 04/29/80 | " | 460 | - | - | 150-460 | 1.49 | 71.5 | 63.3 | 94 | |
| (8S-8E-28) SE | 121 49 54 | 44 51 02 | CTGH-1 | UT | 09/05/86 | 1170 | 1465 | - | 87. | 655-1448 | 1.50e (0.25) | 72.9 (0.29) | 72.9 | 109 | 35 |
| | (4): | 44 51 06 | | - | 08/06/87 | 1146 | - | - | | 500-1465 | [1.38] | 81.7 | 79.8 | 110 | |
| (8S-8E-31) SW | 121 52 52 | 44 50 01 | RDH-CBCK | OR | 07/31/80 | 1072 | 98 | 30 | 6.9 | 85-97 | 1.47 (0.08) | 28.9 (2.44) | 26.0 | [38] | 36 |
| | | | (1,2,4): | OR | 09/28/79 | " | 98 | - | - | 70-98 | 1.47 | 37.8 | 34.0 | 50 | |
| 9S-1E-25 SE | 122 37 19 | 44 45 11 | - | US | 08/11/86 | 463 | 100e | 70 | 11.4 | 73-99 | 1.60e (0.15) | 20.7 (1.96) | 22.8 | [37] | 37 |
| 9S-2E-16 NW | 122 34 25 | 44 47 24 | - | US | 08/05/86 | 216 | 110 | 5e | 14.1 | 88-107 | 1.30e (0.15) | 35.4 (1.42) | 33.1 | 43 | 38 |

Table 1.--Heat-flow data from the Cascade Range and adjacent areas in north-central Oregon (continued)

| T-R-Sec. 1/4 | Longitude (° ' ") | Latitude (° ' ") | Name | Code | Date logged (mo/da/yr) | Elev. (m) | Depth (m) | Static water level (m) | Bottom-hole temp. (°C) | Interval (m) | Therm. Cond. (W/m·K) | Gradient Uncorr. (°C/km) | Gradient Corr. (°C/km) | Heat Flow (mW/m²) | Fig. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 9S-2E-21 SE | 122 33 35 | 44 46 11 | GI-WW | OR | 10/07/76 | 213 | 49 | 12-15 | 10.9 | 20-48 | 1.26 | 51.9 (2.13) | 46.3 | 58 | 39 |
| | | | | | (1,2): | | | | | 22-48 | 1.26 | 53.2 | 47.5 | 59 | |
| 9S-2E-29 NW | 122 35 08 | 44 45 40 | - | US | 07/14/86 | 218 | 76 | 6e | 13.6 | - | - | adv. | - | - | 40 |
| 9S-3E-11 NW | 122 24 31 | 44 48 28 | EV2-WW | OR | 10/14/76 | 317 | 85 | - | 11.4 | 60-85 | 1.34 | 29.9 (0.99) | 26.3 | 35 | 41 |
| | | | | | (1,2): | | | | | 48-85 | 1.34 | 27.3 | 24.0 | 32 | |
| 9S-3E-11 SW | 122 24 49 | 44 48 06 | EV1-WW | OR | 10/07/76 | 333 | 65 | 10-13 | 10.5 | 25-60 | 1.34 | 26.5 (0.14) | 23.6 | 31 | 42 |
| | | | | | (1,2): | | | | | 25-60 | 1.34 | 26.5 | 23.6 | 31 | |
| 9S-3E-28 SW | 122 27 06 | 44 45 24 | GR-WW | US | 08/05/86 | 268 | 54 | 10 | 12.5 | 30-52 | 1.30e (0.15) | 32.9 (1.46) | 30.7 | [40] | 43 |
| | | | (2): | OR | 10/14/76 | " | 55 | - | - | 25-52 | - | 30.0 | 28.0 | - | |
| 9S-3E-36 NW | 122 23 31 | 44 44 59 | - | US | 08/05/86 | 317 | 73 | 4.6 | 11.9 | 30-73 | 1.30e (0.15) | 22.0 (0.97) | 20.0 | 26 | 44 |
| 9S-6E-21 SE | 122 04 37 | 44 46 25 | Willamette National Forest | US | 09/24/85 | 597 | 45 | 9.6 | 8.3 | - | - | adv. | - | - | 45 |
| 9S-6E-23 NW | 122 02 25 | 44 46 59 | RDH-BHSW | OR | 09/30/76 | 594 | 108 | - | 14.7 | 40-105 | 1.61 (0.11) | 68.4 (0.30) | 56.4 | 91 | 46 |
| | | | | | (1,2): | 550 | 150 | - | - | 30-105 | 1.61 | 67.6 | 55.7 | 90 | |
| (9S-7E-03) SW | 121 56 03 | 44 49 08 | SUN-BRA1 | SU | 09/30/81 | 1220 | 138 | artesian | 12.1 | 40-138 | 1.50e (0.25) | 69.4 (0.53) | 65.6 | 98 | 47 |
| (4): | 121 56 06 | 44 49 06 | | | " | 1219 | - | - | - | 30-138 | [1.38] | 63.5 | 67.5 | 92 | |
| (9S-7E-07) SE | 121 59 30 | 44 48 06 | SUN-BR5 | SU | 09/30/81 | 957 | 149 | - | 11.7 | 35-149 | 1.50e (0.25) | 55.4 (0.23) | 53.3e | [80] | 48 |
| | | | | | | | | | | (4): 50-150 | [1.38] | 55.4 | 61.7 | 84 | |

Table 1.--Heat-flow data from the Cascade Range and adjacent areas in north-central Oregon (continued)

| T-R-Sec. 1/4 | Longitude (° ' ") | Latitude (° ' ") | Name | Code | Date logged (mo/da/yr) | Elev. (m) | Depth (m) | Static water level (m) | Bottom-hole temp. (°C) | Interval (m) | Therm. Cond. (W/m·K) | Gradient Uncorr. (°C/km) | Gradient Corr. (°C/km) | Heat Flow (mW/m²) | Fig. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 9S-7E-20 NE | 121 58 37 | 44 47 02 | Breitenbush Hot Springs Resort | US | 09/01/85, 08/06/86 | 688 | 482 | artesian | 77.9 | - | - | adv. | - | - | 49 |
| 9S-7E-20 NE | 121 58 15 | 44 46 48 | BEAMER 2 | US | 09/24/85 | 679 | 87 | 4.4 | 35.2 | 58-87 | 1.40e (0.20) | 299. (7.78) | 253. | 355 | 50 |
| (1,2,4): | 121 58 16 | 44 46 50 | | OR | 04/29/80 | 680 | 74 | - | - | 6-74 | 1.27 | 407.3 | 339.4 | 430 | |
| 9S-7E-20 NE | 121 58 20 | 44 47 04 | - | US | 08/02/86 | 725 | 433 | <60 | 83.7 | 378-433 | 1.50e (0.25) | 105. (2.60) | 101. | 151 | 51 |
| 9S-7E-20 NE | 121 58 22 | 44 46 55 | BEAMER 3 | OR | 04/29/80 | 677 | 310 | artesian | 89.2 | 255-310 | 1.50e (0.25) | 49.8 (0.31) | 44.1 | [66] | 52 |
| | | | | | | | | | | (1,2): 5-35 | 1.27 | 1300 | 1100 | 1393 | |
| | | | | | | | | | | (4): 5-35 | 1.27 | 1097 | 1097 | 1393 | |
| | | | | | | | | | | (1,2,4): 0-310 | 1.55 | <277.2 | <261.0 | <404 | |
| 9S-7E-20 NE | 121 58 33 | 44 46 52 | BEAMER 1 | OR | 02/06/78 | 686 | 150 | artesian | 104.8 | - | - | adv. | - | - | 53 |
| (1,2,4): | 121 58 37 | 44 46 52 | | | " | 682 | " | - | - | 0-150 | [1.46] | 600. | 521.7 | 763 | |
| (9S-7E-21) NE | 121 57 07 | 44 46 44 | RDH-BHSE | OR | 05/06/77 | 725 | 155 | - | 22.5 | 70-155 | 1.65 (0.15) | 91.9 (0.71) | 81.7 | 135 | 54 |
| | | | (1,2,4): | OR | 09/30/76 | " | " | - | - | 90-150 | 1.65 | 92.9 | 82.6 | 136 | |
| (9S-7E-28) SW | 121 57 50 | 44 45 30 | SUN-BR11 | SU | 09/16/80 | 878 | 152 | - | 27.2 | 110-152 | 1.50e (0.25) | 156. (3.26) | >142. | >213 | 55 |
| (4): | 127 57 51 | 44 45 30 | | | " | " | - | - | - | 120-153 | [1.38] | 146. | 130. | 180 | |
| (9S-7E-28) SE | 121 57 26 | 44 45 32 | SUNEDCO 58-28 | SU | 08/12/82 | 881 | 2457 | - | >141. | 1465-1715 | 2.2 (0.10) | 30.7 (0.35) | 30.7 | 68 | 56 |
| (4): | 121 57 33 | 44 45 33 | | | " | 823 | - | - | - | 250-856 | 1.51 | 148.0 | 148.0 | 222 | |
| | | | | | | | | | | 0-2457 | 1.88 | 56.0 | 56.0 | 105 | |
| (9S-7E-28) SE | 121 57 09 | 44 45 48 | SUN-BR10 | SU | 09/30/81 | 945 | 152 | - | 19.0 | 90-152 | 1.50e (0.25) | 101. (0.41) | 101. | 152 | 57 |
| (4): | 121 55 42 | 44 45 59 | | | " | 828 | - | - | - | 30-153 | [1.38] | 94.9 | 67.3 | 93 | |
| (9S-7E-29) SW | 121 59 12 | 44 45 36 | SUN-BR2 | SU | 09/30/81 | 927 | 84 | - | 7.9 | 75-84 | 1.50e (0.25) | 90.5 (0.40) | 90.9 | [136] | 58 |
| | | | | | (4): | 939 | - | - | - | 70-84 | [1.38] | 83.4 | 78.0 | 109 | |

Table 1.--Heat-flow data from the Cascade Range and adjacent areas in north-central Oregon (continued)

| T-R-Sec. 1/4 | Longitude (° ' ") | Latitude (° ' ") | Name | Code | Date logged (mo/da/yr) | Elev. (m) | Depth (m) | Static water level (m) | Bottom-hole temp. (°C) | Interval (m) | Therm. Cond. (W/m·K) | Gradient Uncorr. (°C/km) | Gradient Corr. (°C/km) | Heat Flow (mW/m²) | Fig. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| (9S-7E-34) SE | 121 56 06 | 44 44 53 | SUN-BRA4 | SU | 09/30/81 | 942 | 151 | - | 20.1 | 20-150 | 1.65e (0.15) | 104. (0.20) | 85.2 | 141 | 59 |
| (4): | 121 56 12 | 44 44 57 | | | " | 939 | - | - | - | 20-150 | [1.38] | 103.6 | 96.2 | 130 | |
| (9S-7E-36) NW | 121 53 48 | 44 45 16 | SUN-BR12 | SU | 10/02/81 | 1049 | 154 | - | 17.6 | 75-150 | 1.50e (0.25) | 89.0 (0.40) | 79.5 | 120 | 60 |
| (4): | 121 53 36 | 44 44 48 | | | " | 895 | - | - | - | 50-154 | [1.38] | 86.7 | 77.3 | 107 | |
| (9S-8E-12) SW | 121 46 53 | 44 48 12 | - (Olallie L. Campground) | US | 09/24/85 | 1506 | 70 | 66 | 3. | - | - | iso. | - | - | - |
| 10S-5E-02 SE | 122 09 25 | 44 43 57 | Ingram | US | 08/11/86 | 452 | 65 | 9 | 9.8 | 55-65 | 1.30e (0.15) | 28.1 (1.58) | 26.3 | [34] | 61 |
| 10S-5E-03 SE | 122 10 46 | 44 43 41 | FS-DRSWW | OR | 06/26/78 | 488 | 180 | 3 | 16.7 | - | - | adv. | - | - | 62 |
| | | | | (1,2,4): | | 518 | " | - | - | 10-170 | [1.17] | 52.0 | 43.0 | 51 | |
| 10S-5E-15 NE | 122 10 32 | 44 42 18 | - (Southshore Campground) | US | 08/03/86 | 487 | 29 | 4.6 | 9.1 | 24-29 | 1.30e (0.15) | 53.8 (1.86) | 41.7 | [54] | 63 |
| 10S-7E-09 NW | 121 57 57 | 44 43 33 | SUN-BRA5 | SU | 09/30/81 | 1329 | 152 | - | 13.5 | 100-152 | 1.65e (0.15) | 70.4 (0.68) | 83.8e | [138] | 64 |
| | | | | | | | | | (4): | 115-152 | [1.38] | 68.6 | 92.6 | 126 | |
| 10S-7E-11 NE | 121 54 26 | 44 43 22 | RDH-DVCK | OR | 11/05/79 | 1194 | 155 | 7 | 16.8 | 70-155 | 1.40 (0.04) | 83.2 (0.72) | 72.3 | 101 | 65 |
| | | | | | | | | | (1,2,4): | 70-150 | 1.40 | 83.5 | 72.6 | 102 | |
| 10S-7E-20 SW | 121 59 12 | 44 41 27 | SUN-BRA9 | SU | 09/30/81 | 640 | 154 | - | 20.6 | 75-150 | 1.50e (0.25) | 112. (1.10) | 90.3 | 135 | 66 |
| | | | | | | | | | (4): | 75-153 | [1.38] | 104.3 | 78.4 | 108 | |
| 10S-7E-23 NW | 121 55 33 | 44 41 36 | SUNBRA10 | SU | 09/30/81 | 817 | 152 | - | 20.4 | 80-150 | 1.65e (0.15) | 115. (0.47) | 83.3 | 138 | 67 |
| | | | | | | | | | (4): | 85-152 | [1.38] | 115.6 | 84.2 | 117 | |

Table 1.--Heat-flow data from the Cascade Range and adjacent areas in north-central Oregon (continued)

| T-R-Sec. 1/4 | Longitude (° ' ") | Latitude (° ' ") | Name | Code | Date logged (mo/da/yr) | Elev. (m) | Depth (m) | Static water level (m) | Bottom-hole temp. (°C) | Interval (m) | Therm. Cond. (W/m·K) | Gradient Uncorr. (°C/km) | Gradient Corr. (°C/km) | Heat Flow (mW/m²) | Fig. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 10S-7E-24 NE | 121 53 39 | 44 41 36 | SUNBRA11 | SU | 10/01/81 | 1000 | 147 | - | 16.6 | 45-145 | 1.65e (0.15) | 87.9 (0.47) | 79.2 | 131 | 68 |
| | | | | | (4): | 975 | - | - | - | 50-145 | [1.38] | 87.4 | 78.9 | 109 | |
| 10S-7E-34 NE | 121 55 57 | 44 39 54 | SUNBRA12 | SU | 09/30/81 | 780 | 153 | - | 18.6 | 50-150 | 1.65e (0.15) | 84.8 (0.36) | 73.7 | 122 | 69 |
| | | | | | | | | | (4): | 50-150 | [1.38] | 84.8 | 71.8 | 100 | |
| 11S-1E-07 SE | 122 43 19 | 44 37 28 | RL-WW | OR | 10/13/76 | 158 | 58 | 5-8 | 12.5 | 40-58 | 1.34 | 28.1 (1.38) | 26.7 | 35 | 70 |
| | | | | | | | | | (1,2): | 40-58 | 1.34 | 28.1 | 26.7 | 35 | |
| 11S-4E-19 SE | 122 22 19 | 44 35 20 | - | US | 08/07/86 | 415 | 28 | 3.7 | 9.6 | 15-28 | 1.75e (0.20) | 28.7 (1.13) | 19.3 | [34] | 71 |
| 11S-6E-22 SE | 122 03 23 | 44 36 01 | BUCK MTN | OR | 07/31/80 | 1223 | 77 | 10 | 8.1 | 65-77 | 1.21 (0.08) | 80.2 (1.85) | 72.9e | [88] | 72 |
| | | | | | (2): | 1333 | 152 | - | - | 30-50 | - | 90.8 | - | - | |
| | | | | (4): | OR 10/08/80 | " | - | - | - | 66-76 | 1.21 | 79.0 | 91.6 | 111 | |
| 11S-7E-10 SE | 121 56 07 | 44 37 35 | RDH-MTCK | OR | 07/31/80 | 762 | 109 | 25 | 16.1 | 45-109 | 1.64 (0.13) | 37.3 (1.79) | 34.9 | 57 | 73 |
| | | | | (1): | OR 11/05/79 | " | - | - | - | 33-48 | 1.64 | 68.4 | 64.0 | 105 | |
| | | | | (2): | OR 07/31/80 | " | - | - | - | 30-109 | 1.64 | 68.4 | 64.0 | 105 | |
| | | | | (4): | OR 10/07/80 | " | - | - | - | 0-108 | 1.64 | 68.4 | 64.0 | 105 | |
| (12S-7E-09) SE | 121 57 48 | 44 32 41 | EWEB-TM | OR | 05/29/80 | 1195 | 587 | 22 | 31.0 | 270-587 | 1.36 (0.08) | 72.2 (0.27) | 70.2 | 95 | 74 |
| | | | | (1): | OR 10/31/79 | " | - | - | - | 300-600 | 1.36 | 71.4 | 69.4 | 95 | |
| | | | | (2): | OR 05/29/80 | " | 600 | - | - | 300-600 | 1.36 | 71.4 | 69.4 | 94 | |
| 13S-1E-20 NW | 122 42 58 | 44 25 55 | MR-WW | OR | 08/11/76 | 402 | 130 | 120-125 | 13.1 | 90-130 | [1.34] | 33.6 (1.76) | 39.9 | 53 | 75 |
| | | | | | | | | | (1,2): | 90-130 | [1.34] | 33.6 | 39.9 | 53 | |
| 13S-1E-35 NE | 122 38 58 | 44 24 08 | MWW | OR | 08/11/76 | 310 | 150 | 17-20 | 13.8 | 75-150 | [1.34] | 31.3 (0.28) | 37.2 | 50 | 76 |
| | | | | | | | | | (1,2): | 90-150 | [1.34] | 31.5 | 37.4 | 50 | |
| 13S-2E-36 SW | 122 30 46 | 44 23 40 | - | US | 07/23/86 | 244 | 125 | 20.4 | 14.9 | 55-125 | 1.30e (0.15) | 32.3 (1.04) | 27.6 | 36 | 77 |

Table 1.--Heat-flow data from the Cascade Range and adjacent areas in north-central Oregon (continued)

| T-R-Sec. 1/4 | Longitude (° ' ") | Latitude (° ' ") | Name | Code | Date logged (mo/da/yr) | Elev. (m) | Depth (m) | Static water level (m) | Bottom-hole temp. (°C) | Interval (m) | Therm. Cond. (W/m°K) | Gradient Uncorr. (°C/km) | Gradient Corr. (°C/km) | Heat Flow (mW/m²) | Fig. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 13S-3E-31 SE | 122 29 22 | 44 23 43 | - | US | 08/08/86 | 244 | 78 | 2 | 12.5 | 21-78 | 1.42e (0.25) | 23.1 (0.17) | 18.9 | 27 | 78 |
| 13S-6E-17 NW | 122 07 17 | 44 26 30 | - | US | 09/07/88 (36 days after completion) | 945 | 46 | 12 | 10.2 | 27-46 | 1.50e (0.25) | 51.1 (1.36) | 38.1 | 57 | 79 |
| 13S-7E-09 NE | 121 58 30 | 44 27 42 | DETRO-FM | OR | 07/23/80 | 1128 | 55 | 15e | 3.7 | - | - | adv. | - | - | 80 |
| (2): | 121 58 58 | 44 27 42 | | | " | " | 79 | - | - | - | - | - | - | - | |
| 13S-7E-32 SW | 121 59 40 | 44 23 24 | EWEB-CL | OR | 09/05/79 | 955 | 557 | 20-25 | 24.9 | 485-555 | 1.50e (0.25) | 20.8 (0.27) | 37.5* | [56] | 81 |
| (1,2): | | 44 23 19 | | | " | " | " | - | - | 50-205 | 1.44 | 112.0 | 102.8 | 148 | |
| | | | | | | | | | | 0-555 | 1.40 | 25.6 | 23.9 | 33 | |
| 13S-7.5E-23 SE | 121 52 49 | 44 25 24 | - | US | 08/07/86 | 1453 | 121 | - | 3.2 | - | - | - | - | - | - |
| 14S-6E-32 SE | 122 07 16 | 44 18 12 | WOLF MDW | OR | 08/01/80 | 999 | 154 | 10 | 18.1 | 40-154 | 1.46 (0.13) | 89.4 (1.17) | 74.5 | 109 | 82 |
| (1): | | | | OR | 11/14/79 | " | - | - | - | 42-155 | 1.46 | 87.2 | 72.7 | 106 | |
| (2): | | | | OR | 08/01/80 | " | 155 | - | - | 42-155 | 1.46 | 87.2 | 72.7 | 110 | |
| (15S-6E-11) SE | 122 03 15 | 44 16 06 | RDHCRTBR | OR | 12/15/76 | 716 | 50 | - | 8.0 | - | - | adv. | - | - | 83 |
| (1,2): | | | | OR | 07/26/77 | " | 64 | - | - | 0-52 | - | - | - | - | |
| (15S-7E-28) NE | 121 58 24 | 44 14 48 | RDH-CRSM | OR | 07/26/77 | 1143 | 53 | - | 4.4 | - | - | adv. | - | - | 84 |
| | | | | | | | | | (1,2): | 0-53 | - | - | - | - | |
| 16S-2E-26 NW | 122 32 30 | 44 09 00 | OH-2Z | OR | 11/26/75 | 310 | 34 | - | 10.3 | 20-34 | 1.50e (0.25) | 24.7 (0.31) | 27.4 | [41] | 85 |
| | | | | | | (2): | 30 | - | - | 20-30 | - | 25.0 | - | - | |
| 16S-2E-26 NW | | | - | OR | 11/26/75 | - | 26 | - | 10.0 | 20-26 | - | adv. 35.5e | - | - | 86 |

Table 1.--Heat-flow data from the Cascade Range and adjacent areas in north-central Oregon (continued)

| T-R-Sec. 1/4 | Longitude (° ' ") | Latitude (° ' ") | Name | Code | Date logged (mo/da/yr) | Elev. (m) | Depth (m) | Static water level (m) | Bottom-hole temp. (°C) | Interval (m) | Therm. Cond. (W/m·K) | Gradient Uncorr. (°C/km) | Gradient Corr. (°C/km) | Heat Flow (mW/m²) | Fig. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 16S-4E-14 SE | 122 17 30 | 44 10 27 | BH-3Z | QR | 11/26/75 | 457 | 48 | - | 10.8 | 12-48 | 1.80 (0.33) | 37.7 (0.38) | 34.9 | 63 | 87 |
| | (1,2): | 44 10 03 | | | " | " | 45 | - | - | 12-45 | 1.80 | 37.8 | 35.0 | 63 | |
| 16S-4E-29 NW | 122 21 34 | 44 09 16 | - | US | 09/03/86 | 339 | 23 | 11.3 | 8.7 | - | - | iso. | - | - | - |
| 16S-5E-30 NE | 122 14 53 | 44 09 17 | DDH-15 | QR | 08/08/79 | 367 | 87 | 5-10 | 14.2 | 65-87 | 1.33 (0.15) | 96.5 (1.38) | 86.7 | 115 | 88 |
| | (1,2): | 44 09 12 | | QR | 06/26/78 | " | 85 | - | - | 15-85 | 1.33 | 54.0 | 51.0 | 68 | |
| 16S-5E-30 NE | 122 15 00 | 44 09 08 | ST DAM 1 | QR | 08/08/79 | 368 | 80 | <5 | 12.9 | 65-80 | [1.33] | 32.1 (3.87) | 30.4 | [40] | 89 |
| | | | | | | | | | (2): | 45-70 | - | 55.9 | 53.0 | - | |
| 16S-5E-30 NE | 122 14 36 | 44 09 18 | ST DAM 2 | QR | 08/08/79 | 389 | 61 | 5-10 | 11.7 | 30-61 | 1.32 | 57.1 (0.86) | 53.7 | 71 | 90 |
| | | | | | | (2): | 87 (sic) | - | - | 25-61 | 1.32 | 56.3 | 53.0 | 70 | |
| 16S-5E-31 SE | 122 14 29 | 44 07 47 | - | US | 09/04/86 | 382 | 79 | 6 | 10.0 | - | - | adv. | - | - | 91 |
| 16S-6E-02 SW | 122 02 58 | 44 12 08 | RDH-CRFP | QR | 09/29/76 | 701 | 150 | - | 14.8 | 115-150 | 1.74 (0.03) | 90.1 (2.44) | 94.6 | 165 | 92 |
| | | | (1,2): | QR | 08/05/76 | " | " | - | - | 100-150 | 1.74 | 84.1 | 88.3 | 153 | |
| 16S-6E-10 SW | 122 04 33 | 44 11 06 | Bigelow | US | 06/14/84 | 481 | 207 | - | 52. | - | - | adv. | - | - | 93 |
| 16S-6E-14 SW | 122 03 06 | 44 10 26 | - (Limberlost Campground) | US | 08/29/86 | 519 | 23 | 0 | 8.8 | 17-23 | 1.30e (0.15) | 29.5 (0.66) | 23.9 | [31] | 94 |
| 16S-6E-27 NW | 122 04 41 | 44 09 04 | RDH-CRHC | QR | 09/29/76 | 573 | 152 | - | 21.6 | 70-150 | 1.57 (0.05) | 89.8 (1.10) | 66.2 | 104 | 95 |
| | | | | | | | | | (1,2): | 30-150 | 1.57 | 96.2 | 70.9 | 111 | |

Table 1.—Heat-flow data from the Cascade Range and adjacent areas in north-central Oregon (continued)

| T-R-Sec. 1/4 | Longitude (° ' ") | Latitude (° ' ") | Name | Code | Date logged (mo/da/yr) | Elev. (m) | Depth (m) | Static water level (m) | Bottom-hole temp. (°C) | Interval (m) | Therm. Cond. (W/m·K) | Gradient Uncorr. (°C/km) | Gradient Corr. (°C/km) | Heat Flow (mW/m²) | Fig. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 17S-3E-02 NE | 122 24 46 | 44 07 20 | - | US | 09/03/86 | 288 | 125 | 3 | 13.9 | 58-125 | 1.50e (0.25) | 29.8 (0.07) | 25.3 | 38 | 96 |
| 17S-3E-04 SE | 122 26 58 | 44 06 54 | - | US | 09/03/86 | 291 | 61 | 1 | 11.4 | 30-61 | 2.70e (0.25) | 13.1 (0.14) | 11.1 | 30 | 97 |
| 17S-3E-10 NE | 122 25 40 | 44 06 37 | - | US | 09/02/86 | 298 | 111 | 40e | 11.6 | 40-111 | 2.70e (0.25) | 16.6 (0.14) | 14.7 | 40 | 98 |
| (17S-5E-08) NE | 122 13 28 | 44 06 24 | WALKER-CRK | OR | 08/15/80 | 585 | 154 | 15 | 13.1 | 105-154 | [1.59] | 53.2 (0.78) | 51.1 | 81 | 99 |
| (2): | 122 14 00 | 44 06 24 | | OR | 07/24/80 | " | 155 | - | - | 105-155 | [1.59] | 54.1 | 52.0 | 83 | |
| (17S-5E-20) NW | 122 13 51 | 44 04 54 | RIDER-CRK | OR | 07/31/80 | 536 | 154 | 10 | 24.8 | 120-154 | 1.64 (0.04) | 127. (2.49) | 102. | 166 | 100 |
| | | | | | | | | | (2): | 60-154 | 2.64 (sic) | 128.5 | 97.5 | 159 | |
| (17S-6E-25) NE | 122 01 22 | 44 03 54 | RDH-MQCK | OR | 09/24/80 | 1005 | 151 | 15 | 11.0 | 129-151 | 1.55 (0.06) | 75.3 (1.16) | 88.7 | 137 | 101 |
| | | | | | | | | | (1): | 131-151 | 1.55 | 76.3 | 89.9 | 139 | |
| | | | (2): | OR | 08/01/80 | " | 152 | - | - | 115-152 | 1.55 | 62.8 | 73.8 | 114 | |
| (18S-5E-11) NW | 122 09 49 | 44 01 07 | RDH-RBCK | OR | 10/30/80 | 890 | 150 | 80 | 14.4 | - | - | adv. | - | - | 102 |
| | | | (1): | OR | 09/24/80 | 780 | - | - | - | 96-152 | 1.42 | 61.1 | 65.0 | 92 | |
| | | | (2): | OR | 07/31/80 | " | 152 | - | - | 55-78 | 1.55 | 34.4 | 36.6 | 56 | |
| 19S-4E-29 SW | 122 22 09 | 43 53 00 | CHRS-CRK | OR | 09/17/80 | 579 | 153 | 20 | 16.8 | 71-153 | 1.75 (0.09) | 64.6 (0.24) | 52.8 | 92 | 103 |
| | | | (2): | OR | 07/31/80 | " | 154 | - | - | 70-154 | 1.75 | 64.0 | 52.3 | 92 | |
| 19S-5E-27 NW | 122 12 37 | 43 53 23 | BRCK-CRK | OR | 09/17/80 | 987 | 154 | 20 | 16.1 | 137-154 | 1.75 (0.09) | 69.7 (2.26) | 69.5 | 122 | 104 |
| | | | (2): | OR | 07/31/80 | " | " | - | - | 135-154 | 1.75 | 65.8 | 65.6 | 115 | |
| (19S-6E-08) NW | 122 01 51 | 43 56 58 | RDH-ELKCK | OR | 11/05/80 | 877 | 133 | 5e | 18.2 | 37-133 | 1.22 (0.04) | 39.8 (0.39) | 30.6 | 37 | 105 |
| | | | (1): | OR | 12/04/79 | " | - | - | - | 110-134 | 1.52 | 35.5 | 27.4 | 41 | |
| | | | (2): | OR | 07/09/80 | " | 135 | - | - | 40-135 | 1.22 | 43.2 | 33.3 | 41 | |

Table 1.—Heat-flow data from the Cascade Range and adjacent areas in north-central Oregon (continued)

| T-R-Sec. 1/4 | Longitude (° ' ") | Latitude (° ' ") | Name | Code | Date logged (mo/da/yr) | Elev. (m) | Depth (m) | Static water level (m) | Bottom-hole temp. (°C) | Interval (m) | Therm. Cond. (W/m·K) | Gradient Uncorr. (°C/km) | Gradient Corr. (°C/km) | Heat Flow (mW/m²) | Fig. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| (19S-6E-25) SE | 122 04 07 | 43 52 57 | N. FORK | OR | 07/31/80 | 951 | 154 | 25-30 | 18.9 | 90-154 | 1.35 (0.05) | 93.7 (3.16) | 82.5 | 111 | 106 |
| | | | | | | | | | (2): | 30-154 | 1.35 | 78.4 | 67.5 | 91 | |
| **Mount Hood area** | | | | | | | | | | | | | | | |
| 3S-7E-03 NE | 121 55 22 | 45 20 38 | RDH-RD19 | OR | 04/12/79 | 512 | 65 | - | 10.2 | 25-65 | [1.21] | 61.0 (5.70) | 57.1 | [69] | 107 |
| | | | | | (3): | 148 (sic) | - | - | - | 30-65 | [1.21] | 57.7 | 54.0 | 66 | |
| 3S-8E-14 NW | 121 47 42 | 45 18 56 | NNG-KC-1 | OR | 09/25/79 | 983 | 285 | <5 | 11.6 | 175-285 | 2.24 (0.08) | 19.4 (0.05) | 17.5 | 39 | 108 |
| | | | | | (3): | 953 | - | - | - | 100-285 | 2.24 | 18.1 | 16.4 | 37 | |
| 3S-8E-16 SW | 121 49 51 | 45 18 23 | CR-LH | OR | 02/07/77 | 762 | 126 | - | 10.2 | 80-125 | 2.18 (0.06) | 23.8 (0.49) | 24.8 | 54 | 109 |
| | | | | | | | | | (3): | 50-120 | 2.18 | 26.3 | 28.0 | 61 | |
| 3S-8E-24 NW | 121 46 27 | 45 18 08 | SKI-BOWL | OR | 05/25/77 | 1106 | 60 | artesian | 8.4 | - | - | adv. | - | - | 110 |
| | | | | | | | | | (3): | 0-60 | [1.67] | 60.0 | 55.0 | 92 | |
| 3S-8E-24 NE | 121 45 55 | 45 18 14 | THNDRHDL | OR | 08/19/80 | 1145 | 536 | - | 24.7 | 494-536 | [2.30] | 46.1 (1.06) | >40.8 | >94 | 111 |
| | | | | | (3): | 1127 | - | - | - | 500-536 | [2.30] | 48.7 | 48.7 | 112 | |
| 3S-8E-29 SE | 121 50 33 | 45 16 34 | RDH-SC | OR | 01/05/79 | 722 | 151 | - | 17.7 | 130-150 | - | 25.8 (0.81) | - | - | 112 |
| | | | | | | | | | (3): | 100-150 | 2.64 | 34.1 | 25.2 | 67 | |
| 3S-8.5E-25 NE | 121 43 41 | 45 17 15 | CR-SB | OR | 05/02/77 | 1167 | 82 | 4 | 7.1 | 65-82 | 1.67 (0.11) | 102. (5.81) | 102. | [170] | 113 |
| | | | | (3): | OR 02/07/77 | " | - | - | - | 0-82 | 1.67 | - | - | - | |
| 3S-8.5E-25 SW | 121 44 06 | 45 16 58 | NNG-TRLK | OR | 10/23/79 | 1109 | 315 | 5 | 21.0 | 175-315 | [1.76] | 54.1 (0.20) | 48.3 | 85 | 114 |
| | | | | | | | | | (3): | 180-315 | [1.76] | 53.9 | 53.9 | 95 | |

Table 1.--Heat-flow data from the Cascade Range and adjacent areas in north-central Oregon (continued)

| T-R-Sec. 1/4 | Longitude (° ' ") | Latitude (° ' ") | Name | Code | Date logged (mo/da/yr) | Elev. (m) | Depth (m) | Static water level (m) | Bottom-hole temp. (°C) | Interval (m) | Therm. Cond. (W/m·K) | Gradient Uncorr. (°C/km) | Gradient Corr. (°C/km) | Heat Flow (mW/m²) | Fig. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 3S-9E-03 SW | 121 39 44 | 45 19 57 | MEADOWS | US | 08/21/81 | 1634 | 601 | 29-30 | 29.8 | 430-601 | 2.02 (0.08) | 81.7 (1.66) | 81.7 | 165 | 115 |
| | | | | | (3): | | | | | 275-354 | 2.02 | 61.0 | 68.5 | 139 | |
| 3S-9E-06 SE | 121 42 30 | 45 19 53 | CR-HH | OR | 09/13/77 | 1798 | 110 | - | 2.6 | - | - | iso. | - | - | - |
| | | | | (3): | OR | 09/14/76 | " | - | - | - | 10-115 | 1.85 | - | - | - |
| 3S-9E-07 NE | 121 42 25 | 45 19 45 | RDH-TBLG | OR | 12/28/78 | 1761 | 226 | - | 10.6 | 210-226 | [1.84] | 171. (1.56) | 169. | [311] | 116 |
| | | | | (3): | OR | 12/13/78 | " | - | - | - | 195-225 | [1.84] | 201.7 | 201.7 | 371 | |
| 3S-9E-07 SE | 121 42 56 | 45 19 18 | USGS-PUC | US | 06/23/81 | 1640 | 1129 | 573 | 76.6 | 560-1129 | 1.79 (0.03) | 67.1 (0.42) | 72.4 | 130 | 117 |
| | | | | (3): | OR | 08/15/81 | 1631 | - | - | - | 560-1125 | 1.79 | 67.2 | 67.2 | 121 | |
| 3S-9E-16 SW | 121 40 34 | 45 18 22 | WHT RIVR | OR | 07/02/81 | 1330 | 303 | 41-42 | 15.7 | - | - | adv. | - | - | 118 |
| | | | | | (3): | | | | | 250-303 | 2.37 | 10.2 | 10.2 | 24 | |
| 3S-9E-30 NE | 121 42 35 | 45 16 57 | USGS-HWY | OR | 10/22/79 | 1108 | 289 | 25 | 15.4 | 75-289 | [1.76] | 41.5 (0.13) | 38.2 | 67 | 119 |
| (3): | 121 42 41 | 45 17 10 | | | " | " | - | - | - | 80-289 | [1.76] | 41.5 | 41.5 | 73 | |
| **East of the Cascade crest** | | | | | | | | | | | | | | | |
| 3S-11E-01 NE | 121 21 35 | 45 20 48 | - | OR | 05/08/79 | 920 | 126 | - | 14.2 | 50-126 | 1.65e (0.15) | 42.2 (0.27) | 46.0 | 76 | 120 |
| 3S-13E-31 NW | 121 14 03 | 45 16 16 | Palmer | US | 05/27/88 | 418 | 87 | 11 | 25.2 | 34-87 | 1.60e (0.15) | 24.7 (0.77) | 21.2 | 34 | 121 |
| 3S-14E-07 SE | 121 05 55 | 45 19 01 | - | OR | 07/14/77 | 835 | 65 | 40-45 | 12.4 | 45-65 | 1.60e (0.15) | 23.8 (0.60) | 23.9 | 38 | 122 |

Table 1.--Heat-flow data from the Cascade Range and adjacent areas in north-central Oregon (continued)

| T-R-Sec. 1/4 | Longitude (° ' ") | Latitude (° ' ") | Name | Code | Date logged (mo/da/yr) | Elev. (m) | Depth (m) | Static water level (m) | Bottom-hole temp. (°C) | Interval (m) | Therm. Cond. (W/m°K) | Gradient Uncorr. (°C/km) | Gradient Corr. (°C/km) | Heat Flow (mW/m²) | Fig. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 4S-9E-28 SE | 121 40 08 | 45 11 15 | - | OR | 05/07/79 | 1036 | 145 | - | 4.2 | - | - | iso. | - | - | - |
| 4S-12E-10 SE | 121 16 45 | 45 13 51 | - | OR | 06/10/77 | 532 | 90 | 60-65 | 14.3 | - | - | adv. | - | - | 123 |
| 4S-12E-17 NW | 121 20 04 | 45 13 29 | - | OR | 06/17/77 | 640 | 150 | - | 12.8 | 115-150 | 1.40e (0.20) | 15.1 (1.05) | <21.6 | <30 | 124 |
| 4S-12E-17 SW | 121 20 03 | 45 13 04 | - | OR | 06/17/77 | 637 | 184 | 125-130 | 14.5 | - | - | adv. | - | - | 125 |
| 4S-13E-01 SW | 121 07 27 | 45 14 55 | - | OR | 06/10/77 | 341 | 75 | 3 | 16.3 | - | - | adv. | - | - | 126 |
| 4S-13E-24 SW | 121 07 34 | 45 12 22 | - | OR | 06/09/77 | 506 | 136 | - | 11.3 | - | - | iso. | - | - | - |
| 4S-13E-24 SE | 121 07 07 | 45 12 14 | McElheran | US | 10/10/87 | 520 | 140 | 98 | 11.9 | - | - | iso. | - | - | - |
| 4S-13E-27 SW | 121 10 11 | 45 11 34 | - | US | 10/13/87 | 536 | 104 | 104 | 15.6 | - | - | - | - | - | - |
| 4S-13E-32 SE | 121 12 06 | 45 10 29 | - | OR | 06/09/77 | 549 | 145 | 70-75 | 18.6 | 130-145 | 1.65e (0.15) | 45.8 (2.07) | 45.8 | 76 | 127 |
| 4S-14E-19 NE | 121 05 49 | 45 12 38 | - | OR | 06/07/77 | 506 | 105 | - | 11.6 | - | - | iso. | - | - | - |

Table 1.—Heat-flow data from the Cascade Range and adjacent areas in north-central Oregon (continued)

| T-R-Sec. 1/4 | Longitude (° ' ") | Latitude (° ' ") | Name | Code | Date logged (mo/da/yr) | Elev. (m) | Depth (m) | Static water level (m) | Bottom-hole temp. (°C) | Interval (m) | Therm. Cond. (W/m·K) | Gradient Uncorr. (°C/km) | Gradient Corr. (°C/km) | Heat Flow (mW/m²) | Fig. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 4S-14E-33 SW | 121 04 10 | 45 10 36 | - | OR | 07/11/77 | 314 | 70 | 55-60 | 18.4 | 40-70 | - | adv. 53.9e | - | - | 128 |
| 5S-11E-14 SE | 121 22 45 | 45 07 48 | - | OR | 06/14/77 | 733 | 245 | - | 13.0 | 180-245 | - | 24.1 (2.42) | - | - | 129 |
| 5S-11E-25 SE | 121 22 41 | 45 06 17 | Harmon | US | 05/26/88 | 713 | 152 | 136 | 17.2 | 149-152 | 1.60e (0.15) | 62.3 (5.56) | 60.2 | [96] | 130 |
| 5S-11E-26 NE | 121 23 19 | 45 06 28 | Kimmel | US | 10/09/87 | 782 | 264 | 236 | 21.4 | 258-264 | 1.60e (0.15) | 50.7 (1.00) | 51.5 | [82] | 131 |
| 5S-12E-08 NW | 121 20 05 | 45 09 19 | - | OR | 06/16/77 | 629 | 35 | 30-35 | 11.7 | - | - | adv. | - | - | 132 |
| 5S-12E-31 NE | 121 20 20 | 45 05 55 | - | OR | 06/16/77 | 680 | 108 | 90-95 | 14.9 | - | - | adv. | - | - | 133 |
| 6S-11E-11 SW | 121 23 30 | 45 03 27 | Garner/ Rainbow Rock | US | 10/16/87 | 838 | 72 | 3 | 16.7 | 30-72 | 1.65e (0.15) | 95.2 (1.14) | 92.0 | 152 | 134 |
| 6S-14E-13 SE | 120 59 46 | 45 02 35 | CRITRN 1 | OR | 06/14/77 | 940 | 120 | 105-110 | 14.9 | 50-120 | [1.59] | 40.2 (1.56) | 44.3 | [70] | 135 |
| | | | | | | | | | (1): | 80-120 | [1.59] | 44.8 | 44.8 | 71 | |
| 6S-15E-05 NW | 120 57 52 | 45 04 57 | MCLEOD R | OR | 06/15/77 | 802 | 70 | 45-50 | 14.4 | 50-70 | [1.59] | 37.8 (0.95) | 38.6 | 61 | 136 |
| | | | | | | | | | (1): | 35-70 | [1.59] | 44.3 | 43.3 | 70 | |
| 7S-11E-14 SW | 121 23 37 | 44 57 40 | Confeder-ated Tribes | US | 10/13/87 | 695 | 30 | 4 | 15.2 | 17-30 | 1.30e (0.15) | 97.2 (6.84) | <80.9 | [<105] | 137 |

Table 1.--Heat-flow data from the Cascade Range and adjacent areas in north-central Oregon (continued)

| T-R-Sec. 1/4 | Longitude (° ' ") | Latitude (° ' ") | Name | Code | Date logged (mo/da/yr) | Elev. (m) | Depth (m) | Static water level (m) | Bottom-hole temp. (°C) | Interval (m) | Therm. Cond. (W/m·K) | Gradient Uncorr. (°C/km) | Gradient Corr. (°C/km) | Heat Flow ($mW/m^2$) | Fig. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 7S-11E-15 SE | 121 24 40 | 44 57 22 | Confeder-ated Tribes | US | 10/13/87 | 798 | 118 | 104 | 15.3 | - | - | adv. | - | - | 138 |
| 7S-12E-29 SW | 121 19 45 | 44 55 36 | Indian Health Service | US | 10/14/87 | 823 | 120 | 93 | 19.3 | 94-110 | 1.35e (0.20) | 75.1 (1.14) | 75.6 | [102] | 139 |
| 8S-12E-03 NE | 121 16 56 | 44 54 19 | Peters | US | 10/14/87 | 856 | 90 | 3 | 13.1 | 49-90 | 1.35e (0.20) | 22.9 (0.19) | 20.7 | 28 | 140 |
| 8S-12E-03 SW | 121 17 27 | 44 54 13 | Wolfe | US | 10/17/87 | 844 | 42 | 3 | 11.0 | 27-42 | 1.35e (0.20) | 102. (1.26) | >98.5 | >133 | 141 |
| 9S-11E-02 NW | 121 23 25 | 44 49 26 | Williams | US | 10/15/87 | 815 | 111 | 88 | 13.8 | 105-111 | 1.30e (0.15) | 24.6 (1.20) | 24.9 | [32] | 142 |
| 9S-12E-14 SE | 121 15 36 | 44 47 10 | Macy | US | 10/17/87 | 511 | 28 | 2 | 14.1 | - | - | adv. | - | - | 143 |
| 9S-12E-31 SW | 121 20 56 | 44 44 36 | Perthina | US | 10/14/87 | 591 | 62 | 3 | 17.5 | 40-62 | 1.30e (0.15) | 77.7 (1.65) | 64.5 | 84 | 144 |
| 9S-12E-34 SW | 121 17 32 | 44 44 43 | - | US | 05/26/88 | 494 | 24 | 2 | 11.9 | - | - | adv. | - | - | 145 |
| 9S-14E-23 NW | 121 01 30 | 44 46 39 | - | OR | 07/13/77 | 597 | 80 | 12-15 | 16.7 | 60-80 | 1.30e (0.15) | 61.0 (3.58) | 56.3 | [73] | 146 |
| 9S-14E-30 SW | 121 06 11 | 44 45 15 | Vibbert | US | 09/24/87 | 573 | 180 | 4 | 19.4 | 149-180 | 1.60e (0.15) | 37.2 (0.90) | 35.0 | 56 | 147 |

Table 1.—Heat-flow data from the Cascade Range and adjacent areas in north-central Oregon (continued)

| T-R-Sec. 1/4 | Longitude (° ' ") | Latitude (° ' ") | Name | Code | Date logged (mo/da/yr) | Elev. (m) | Depth (m) | Static water level (m) | Bottom-hole temp. (°C) | Interval (m) | Therm. Cond. (W/m·K) | Gradient Uncorr. (°C/km) | Gradient Corr. (°C/km) | Heat Flow (mW/m²) | Fig. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 11S-10E-05 NE | 121 33 28 | 44 38 47 | CASTLERX | OR | 10/09/80 | 1194 | 153 | 113e | 10.4 | 141-153 | 1.50e (0.25) | 17.5 (0.73) | >18.8 | [>28] | 148 |
| | | | | | | | | | (2): | 25-153 | - | 18.2 | - | - | |
| 11S-13E-01 NW | 121 07 25 | 44 38 51 | City of Madras | US | 09/25/87 | 693 | 162 | 89 | 17.0 | 149-162 | 1.30e (0.15) | 15.6 (1.31) | 14.7 | [19] | 149 |
| 11S-13E-07 SW | 121 13 34 | 44 37 21 | Belle | US | 09/23/87 | 817 | 242 | <235 | 15.9 | 235-242 | 1.30e (0.15) | 11.5 (0.41) | 11.7 | [15] | 150 |
| 11S-13E-24 NE | 121 06 49 | 44 36 21 | SCHNDR-1 | OR | 07/14/77 | 731 | 295 | 90-95 | 24.9 | 90-295 | 1.44 (0.54) | 53.8 | 53.1 | 76 | 151 |
| | | | | | | | | | (1): | 70-260 | 1.44 | 50.7 | 48.2 | 69 | |
| 11S-13E-24 NE | 121 06 50 | 44 36 06 | - | OR | 07/14/77 | 756e | 245 | 55-60 | 21.1 | 185-245 | 1.32e (0.20) | 51.5 (0.33) | 51.1 | 68 | 152 |
| 11S-15E-22 SW | 120 55 06 | 44 35 35 | HAYCK RN | OR | 08/10/77 | 963 | 820 | - | 47.7 | 600-820 | 2.72 (0.17) | 31.3 | 30.3 | 82 | 153 |
| | | | | | | | | | (1): | 605-820 | 2.72 | 31.3 | 31.3 | 85 | |
| 12S-9E-01 NW | 121 36 25 | 44 33 42 | GREENRDG | OR | 07/23/80 | 999 | 105 | - | 16.8 | 60-105 | [1.60] (0.99) | 81.0 | 64.8 | 104 | 154 |
| | | | | | | (2): | 152 | - | - | 70-105 | [1.60] | 79.2 | 63.4 | 101 | |
| 12S-11E-02 SW | 121 22 51 | 44 33 18 | Stills | US | 09/24/87 | 774 | 175 | 127 | 13.3 | 171-175 | - | adv. 12.3e | - | - | 155 |
| 12S-12E-04 NW | 121 18 02 | 44 33 41 | Wheeler | US | 09/23/87 | 792 | 189 | 170 | 11.7 | - | - | iso. | - | - | - |
| 12S-12E-20 NE | 121 19 12 | 44 31 02 | - | OR | 08/07/80 | 820 | 217 | 210-212 | 11.6 | - | - | iso. | - | - | - |

Table 1.--Heat-flow data from the Cascade Range and adjacent areas in north-central Oregon (continued)

| T-R-Sec. 1/4 | Longitude (° ' ") | Latitude (° ' ") | Name | Code | Date logged (mo/da/yr) | Elev. (m) | Depth (m) | Static water level (m) | Bottom-hole temp. (°C) | Interval (m) | Therm. Cond. (W/m·K) | Gradient Uncorr. (°C/km) | Gradient Corr. | Heat Flow (mW/m²) | Fig. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 13S-8E-27 SE | 121 45 41 | 44 24 56 | - (by Blue L. airstrip) | US | 08/12/86 | 1070 | 46 | 5.8 | 5.2 | - | - | adv. | - | - | 156 |
| 13S-10E-05 NE | 121 33 25 | 44 28 46 | FLY CRK | OR | 07/24/80 | 1195 | 105 | 73 | 7.3 | - | - | iso. | - | - | - |
| | | | | | | (2): | 120 | - | - | - | - | - | - | - | |
| 13S-12E-21 NE | 121 17 41 | 44 26 02 | Hart | US | 05/28/88 | 850 | 177 | 165 | 10.9 | - | - | iso. | - | - | - |
| 13S-14E-11 SW | 121 01 13 | 44 27 12 | - | OR | 08/05/77 | 988 | 50 | 20-25 | 13.9 | 25-50 | 1.30e (0.15) | 28.1 (1.83) | 27.3 | 36 | 157 |
| 13S-14E-11 SW | 121 01 24 | 44 26 58 | - | OR | 08/03/77 | 978 | 45 | 30-35 | 14.8 | - | - | adv. | - | - | 158 |
| 13S-14E-11 SW | 121 01 13 | 44 26 58 | - | OR | 08/03/77 | 997 | 45 | 25-30 | 14.8 | - | - | adv. | - | - | 159 |
| 14S-9E-08 NE | 121 40 41 | 44 22 37 | Kiewit Pacific Company | US | 08/02/87 | 1030 | 120 | 89 | 5.7 | - | - | iso. | - | - | - |
| 14S-9E-35 SW | 121 37 52 | 44 18 38 | Deschutes National Forest | US | 08/03/87 | 1040 | 43 | 40e | 6.5 | - | - | adv. | - | - | 160 |
| 14S-10E-07 SW | 121 35 32 | 44 22 09 | - | US | 09/16/87 | 987 | 180 | 77 | 8.8 | - | - | iso. | - | - | - |
| 14S-10E-08 NW | 121 34 17 | 44 22 19 | Gill | US | 08/05/87 | 984 | 66 | 22 | 8.2 | - | - | iso. | - | - | - |

Table 1.--Heat-flow data from the Cascade Range and adjacent areas in north-central Oregon (continued)

| T-R-Sec. 1/4 | Longitude (° ' ") | Latitude (° ' ") | Name | Code | Date logged (mo/da/yr) | Elev. (m) | Depth (m) | Static water level (m) | Bottom-hole temp. (°C) | Interval (m) | Therm. Cond. (W/m·K) | Gradient Uncorr. (°C/km) | Gradient Corr. | Heat Flow (mW/m²) | Fig. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 14S-10E-26 NE | 121 29 43 | 44 20 00 | Stangland | US | 08/04/87 | 963 | 203 | 171 | 10.1 | - | - | iso. | - | - | - |
| 14S-10E-28 SE | 121 32 15 | 44 19 31 | Mehring | US | 08/03/87 | 988 | 49 | 10 | 10.0 | - | - | adv. | - | - | 161 |
| 14S-10E-34 NW | 121 31 48 | 44 18 56 | Wagner | US | 08/04/87 | 975 | 42 | 24 | 8.4 | 27-41 | - | adv. 6.9e | - | - | 162 |
| 14S-11E-01 SE | 121 21 04 | 44 22 43 | Gillworth | US | 09/17/87 | 840 | 147 | 106 | 10.5 | - | - | iso. | - | - | - |
| 14S-11E-04 NW | 121 25 51 | 44 23 32 | Veeck | US | 08/12/87 | 838 | 87 | 58 | 9.9 | - | - | iso. | - | - | - |
| 14S-11E-28 NE | 121 24 46 | 44 20 00 | - | US | 09/07/87 | 948 | 188 | 155e | 10.2 | - | - | adv. | - | - | 163 |
| 14S-11E-28 SW | 121 25 20 | 44 19 35 | - | US | 09/17/87 | 933 | 167 | 133 | 10.1 | - | - | iso. | - | - | - |
| 14S-13E-14 NE | 121 08 08 | 44 21 33 | - | OR | 03/21/80 | 872 | 58 | 40-45 | 12.9 | 45-58 | 1.50e (0.25) | 14.7 (1.43) | >13.4 | [>20] | 164 |
| 14S-13E-29 SW | 121 12 22 | 44 19 33 | - | US | 08/12/87 | 864 | 58 | 38 | 12.3 | 40-58 | - | adv. 8.8e | - | - | 165 |
| 14S-14E-18 SW | 121 06 19 | 44 21 09 | SWIFT | OR | 04/18/80 | 874 | 60 | 45-50 | 12.3 | - | - | iso. | - | - | - |
| | | | | | | | | | (5): | 25-60 | - | 4.5 | - | - | |

Table 1.--Heat-flow data from the Cascade Range and adjacent areas in north-central Oregon (continued)

| T-R-Sec. 1/4 | Longitude (° ' ") | Latitude (° ' ") | Name | Code | Date logged (mo/da/yr) | Elev. (m) | Depth (m) | Static water level (m) | Bottom-hole temp. (°C) | Interval (m) | Therm. Cond. (W/m·K) | Gradient Uncorr. (°C/km) | Gradient Corr. | Heat Flow (mW/m²) | Fig. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 15S-10E-02 SE | 121 29 40 | 44 17 34 | - | US | 08/29/87 | 959 | 70 | 66 | 9.4 | - | - | iso. | - | - | - |
| 15S-10E-05 NW | 121 34 22 | 44 18 19 | CENTWEST | OR | 04/05/80 | 978 | 102 | 30-35 | 9.7 | - | - | iso. | - | - | 166 |
| | | | | | | (2): | 106 | - | - | 10-30 | - | 104.8 | - | - | |
| 15S-10E-06 NW | 121 35 16 | 44 18 13 | Reed | US | 08/04/87 | 989 | 61 | 43e | 8.8 | - | - | iso. | - | - | - |
| 15S-10E-11 NW | 121 30 12 | 44 17 23 | - | US | 08/05/87 | 957 | 69 | 52 | 9.4 | - | - | iso. | - | - | - |
| 15S-10E-36 SE | 121 28 24 | 44 13 29 | - | OR | 08/19/81 | 997 | 95 | - | 10.3 | - | - | adv. | - | - | 167 |
| 15S-11E-07 NW | 121 28 05 | 44 17 09 | - | OR | 03/17/80 | 944 | 130 | 105-110 | 10.2e | - | - | adv. | - | - | 168 |
| 15S-11E-09 NW | 121 25 26 | 44 17 28 | - | US | 08/25/87 | 933 | 123 | 96e | 10.4 | - | - | adv. | - | - | 169 |
| 15S-11E-16 NW | 121 25 33 | 44 16 24 | Mid-Oregon Crushing Co. | US | 08/29/87 | 890 | 86 | 43 | 7.0 | - | - | iso. | - | - | - |
| 15S-12E-03 NW | 121 17 13 | 44 18 03 | - | US | 08/29/87 | 872 | 88 | 77 | 7.2 | - | - | iso. | - | - | - |
| 15S-12E-04 NE | 121 17 42 | 44 17 58 | - | US | 08/29/87 | 866 | 104 | 88 | 7.1 | - | - | iso. | - | - | - |

Table 1.--Heat-flow data from the Cascade Range and adjacent areas in north-central Oregon (continued)

| T-R-Sec. 1/4 | Longitude (° ' ") | Latitude (° ' ") | Name | Code | Date logged (mo/da/yr) | Elev. (m) | Depth (m) | Static water level (m) | Bottom-hole temp. (°C) | Interval (m) | Therm. Cond. (W/m·K) | Gradient Uncorr. (°C/km) | Gradient Corr. | Heat Flow (mW/m²) | Fig. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 15S-12E-09 NW | 121 18 03 | 44 17 13 | - | OR | 09/04/80 | 922 | 156 | 100-105 | 10.5 | - | - | adv. | - | - | 170 |
| 15S-12E-23 NW | 121 15 43 | 44 15 39 | - | OR | 03/19/80 | 907 | 88 | 70-75 | 11.0 | - | - | adv. | - | - | 171 |
| 15S-13E-02 SW | 121 08 42 | 44 17 31 | - | US | 08/25/87 | 920 | 88 | 85 | 15.9 | - | - | adv. | - | - | - |
| 15S-13E-03 SE | 121 09 06 | 44 17 35 | - | OR | 03/25/80 | 916 | 154 | 80-85 | 17.2 | 35-154 | 1.65e (0.15) | 42.3 (1.85) | 42.3 | 70 | 172 |
| 15S-13E-03 SE | 121 09 06 | 44 17 35 | - | OR | 04/09/80 | 916 | 88 | 60-65 | 12.9 | - | - | adv. | - | - | 173 |
| 15S-13E-04 SW | 121 10 52 | 44 17 52 | - | US | 08/26/87 | 900 | 85 | 68 | 12.5 | - | - | iso. | - | - | - |
| 15S-13E-18 NW | 121 13 40 | 44 16 12 | - | OR | 04/04/80 | 916 | 64 | 64e | 11.2 | 55-64 | - | adv. 12.6e | - | - | 174 |
| 15S-13E-22 NE | 121 09 25 | 44 15 42 | - | US | 08/26/87 | 934 | 220 | 93e | 11.4 | - | - | iso. | - | - | - |
| 15S-14E-15 SE | 121 01 41 | 44 15 55 | CRABTREE | OR | 04/16/80 | 930 | 81 | 35-40 | 12.2 | - | - | adv. | - | - | 175 |
| | | | | | | | | | (5): 121.8 (sic) | - | - | - | - | - | |
| 15S-14E-36 NE | 120 59 36 | 44 13 14 | FHRNBKWW | OR | 09/22/78 | 1023 | 157 | 135-140 | 31.7 | - | - | adv. | - | - | 176 |
| | | | | | | | | | (1,5): | 20-155 | [1.46] | 128.4 | 120.5 | 176 | |

Table 1.—Heat-flow data from the Cascade Range and adjacent areas in north-central Oregon (continued)

| T-R-Sec. 1/4 | Longitude (° ' ") | Latitude (° ' ") | Name | Code | Date logged (mo/da/yr) | Elev. (m) | Depth (m) | Static water level (m) | Bottom-hole temp. (°C) | Interval (m) | Therm. Cond. (W/m·K) | Gradient Uncorr. (°C/km) | Gradient Corr. | Heat Flow (mW/m²) | Fig. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 15S-15E-11 SW | 120 53 48 | 44 16 50 | - | OR | 12/17/80 | 991 | 142 | 124 | 19.6 | 120-142 | 1.58e (0.25) | 45.4 (4.28) | 45.1 | 71 | 177 |
| 15S-15E-28 NE | 120 55 42 | 44 14 37 | KOOPS | OR | 08/11/80 | 998 | 149 | 80-85 | 20.3 | 40-149 | 1.50e (0.25) | 50.9 (0.50) | 49.7 | 74 | 178 |
| | | | | | | | | | (5): | 40-149 | - | 51.0 | - | - | |
| 15S-15E-31 NE | 120 58 31 | 44 13 41 | DEASON | OR | 04/06/80 | 1067 | 244 | 240-244 | 30.0 | 140-244 | 1.65e (0.15) | 54.1 (1.50) | 51.3 | 85 | 179 |
| | | | | | | | | | (5): | 40-244 | - | 68.7 | - | - | |
| 16S-11E-34 NW | 121 23 37 | 44 09 04 | - | OR | 08/20/81 | 1049 | 66 | 55-60 | 11.5 | - | - | adv. | - | - | 180 |
| 16S-11E-34 SW | 121 24 07 | 44 08 25 | - | OR | 08/19/81 | 1068 | 49 | - | 9.6 | - | - | adv. | - | - | 181 |
| 16S-11E-34 SW | 121 23 50 | 44 08 24 | - | OR | 08/19/81 | 1068 | 178 | 160-165 | 9.7 | - | - | iso. | - | - | - |
| 16S-11E-35 NE | 121 21 48 | 44 09 08 | - | OR | 08/20/81 | 1030 | 208 | 110-120 | 10.3 | - | - | iso. | - | - | - |
| 16S-12E-20 NE | 121 18 38 | 44 10 37 | Dearing | US | 08/12/87 | 1018 | 169 | 149 | 11.1 | - | - | iso. | - | - | - |
| 16S-12E-26 NW | 121 15 38 | 44 09 37 | - | US | 09/—/87 | 993 | 171 | 154 | 10.6 | 166-171 | 1.30e (0.15) | 49.3 (5.71) | >47.6 | [>62] | 182 |
| 16S-12E-29 SW | 121 18 58 | 44 09 25 | - | OR | 04/04/80 | 984 | 163 | 140-145 | 10.9 | - | - | iso. | - | - | - |

Table 1.—Heat-flow data from the Cascade Range and adjacent areas in north-central Oregon (continued)

| T-R-Sec. 1/4 | Longitude (° ' ") | Latitude (° ' ") | Name | Code | Date logged (mo/da/yr) | Elev. (m) | Depth (m) | Static water level (m) | Bottom-hole temp. (°C) | Interval (m) | Therm. Cond. (W/m°K) | Gradient Uncorr. (°C/km) | Gradient Corr. (°C/km) | Heat Flow (mW/m²) | Fig. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 16S-12E-31 SW | 121 20 25 | 44 08 39 | - | OR | 03/25/80 | 1024 | 100 | 75-80 | 10.3 | - | - | adv. | - | - | 183 |
| 16S-12E-31 SE | 121 19 38 | 44 08 37 | La Moin Brandt | US | 07/29/87 | 969 | 55 | 49 | 10.7 | - | - | iso. | - | - | - |
| 16S-13E-16 NE | 121 09 56 | 44 11 31 | Heierman | US | 08/25/87 | 964 | 146 | 133 | 10.6 | - | - | iso. | - | - | - |
| 16S-14E-16 NE | 121 02 59 | 44 11 38 | - | OR | 02/06/81 | 995 | 460 | 120-125 | 56.4 | 200-460 | 1.50e (0.25) | 76.4 (0.57) | 73.7 | 111 | 184 |
| 16S-14E-17 SE | 121 04 00 | 44 10 52 | ST HWY 1 | OR | 10/20/80 | 975 | 150 | 20 | 16.2 | - | - | adv. | - | - | 185 |
| | | | (5): | OR | 11/25/80 | " | - | - | " | - | - | - | - | - | |
| 16S-14E-20 NE | 121 04 20 | 44 10 29 | MILLER | OR | 08/12/80 | 963 | 30 | 5-10 | 12.6 | - | - | adv. | - | - | 186 |
| | | | | | | | | | (5): | 10-30 | - | -30.4 | - | - | |
| 16S-14E-20 SE | 121 03 58 | 44 10 22 | SLVDLR R | OR | 08/12/80 | 972 | 149 | 5-10 | 16.9 | 125-149 | - | 110. (10.4) | - | - | 187 |
| | | | | | | | | | (5): | 10-149 | - | -12.5 | - | - | |
| 16S-14E-35 SW | 121 01 05 | 44 08 34 | SBUTTE 2 | OR | 12/10/80 | 1035 | 142 | - | 24.0 | 95-142 | 1.65e (0.15) | 47.4 (0.84) | 45.9 | [76] | 188 |
| | | | (5): | OR | 10/20/80 | " | - | - | 24.1 | 90-140 | - | 47.3 | - | - | |
| 16S-15E-20 SW | 120 57 55 | 44 10 10 | SBUTTE 1 | OR | 12/10/80 | 1190 | 142 | - | 14.8 | 40-142 | 1.65e (0.15) | 29.4 (0.36) | 28.4 | 47 | 189 |
| | | | (5): | OR | 10/20/80 | " | - | - | " | 40-140 | - | 29.1 | - | - | |
| 16S-15E-26 SW | 120 54 18 | 44 08 56 | H MARTIN | OR | 08/19/80 | 1076 | 168 | 145-150 | 20.9 | 150-168 | 1.50e (0.25) | 36.7 (2.71) | 36.8 | [55] | 190 |
| | | | | | | | | | (5): | 40-165 | - | 55.9 | - | - | |

Table 1.--Heat-flow data from the Cascade Range and adjacent areas in north-central Oregon (continued)

| T-R-Sec. 1/4 | Longitude (° ' ") | Latitude (° ' ") | Name | Code | Date logged (mo/da/yr) | Elev. (m) | Depth (m) | Static water level (m) | Bottom-hole temp. (°C) | Interval (m) | Therm. Cond. (W/m·K) | Gradient Uncorr. (°C/km) | Gradient Corr. (°C/km) | Heat Flow (mW/m²) | Fig. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 16S-15E-29 SW | 120 57 38 | 44 08 58 | SHMWAY W | OR | 09/24/80 | 1104 | 96 | 20 | 20.9 | 75-96 | 1.50e (0.25) | 82.8 (1.50) | 80.3 | 120 | 191 |
| (5): | 120 57 54 | 44 10 10 | | OR | 10/20/80 | " | - | - | 21.3 | 20-95 | - | 105.6 | - | - | |
| 17S-12E-09 SE | 121 17 23 | 44 06 36 | Gisler | US | 09/04/80 | 1050 | 251 | 215e | 10.5 | - | - | iso. | - | - | - |
| 17S-13E-08 NW | 121 11 52 | 44 07 20 | - | OR | 05/01/80 | 1014 | 183 | 160-165 | 10.9 | - | - | adv. | - | - | 192 |
| 17S-14E-23 NE | 121 00 57 | 44 05 08 | LEWIS | OR | 08/20/80 | 1021 | 187 | 175-180 | 18.3 | - | - | adv. | - | - | 193 |
| | | | | | | | | | (5): | 135-170 | - | 68.7 | - | - | |
| 17S-15E-20 SW | 120 57 40 | 44 04 40 | BOWEN | OR | 04/16/80 | 1036 | 215 | 195-200 | 26.2 | - | - | adv. | - | - | 194 |
| | | | | | | | | | (5): | 10-120 | - | 34.2 | - | - | |
| 18S-11E-23 SW | 121 22 53 | 43 59 46 | Wolf | US | 08/27/87 | 1193 | 128 | 120 | 9.0 | 123-128 | 1.55e (0.35) | 35.8 (0.20) | 35.1 | [54] | 195 |
| 18S-11E-25 NW | 121 21 24 | 43 59 22 | PATTRSON | OR | 06/03/76 | 1195 | 130 | - | 9.2 | - | - | adv. | - | - | 196 |
| | | | | | | | | | (1): | 0-130 | - | - | - | - | |
| 18S-11E-27 NW | 121 24 10 | 43 59 17 | City of Bend | US | 08/20/87 | 1200 | 116 | 50 | 9.1 | - | - | iso. | - | - | - |
| 18S-11E-36 NE | 121 21 12 | 43 58 28 | Deschutes County | US | 08/24/87 | 1200 | 108 | 104 | 9.1 | - | - | iso. | - | - | - |
| 18S-12E-05 NW | 121 19 03 | 44 02 48 | BS-WW | US | 08/20/87 | 1102 | 223 | 106 | 10.3 | - | - | adv. | - | - | 197 |
| | | | (1): | OR | 05/02/76 | " | - | - | - | 0-230 | - | - | - | - | |

Table 1.—Heat-flow data from the Cascade Range and adjacent areas in north-central Oregon (continued)

| T-R-Sec. 1/4 | Longitude (° ' ") | Latitude (° ' ") | Name | Code | Date logged (mo/da/yr) | Elev. (m) | Depth (m) | Static water level (m) | Bottom-hole temp. (°C) | Interval (m) | Therm. Cond. (W/m·K) | Gradient Uncorr. (°C/km) | Gradient Corr. (°C/km) | Heat Flow (mW/m²) | Fig. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 19S-11E-16 NE | 121 24 47 | 43 55 48 | U.S. Forest Service | US | 08/22/87 | 1276 | 77 | 13 | 7.1 | - | - | adv. | - | - | 198 |
| 19S-11E-25 NW | 121 21 30 | 43 54 24 | LAVBUTTE | OR | 10/01/75 | 1373 | 123 | - | 9.2 | 93-123 | [1.59] | 39.5 (3.22) | >38.4 | [>61] | 199 |
| | | | | | | | | | (1): | 93-123 | [1.59] | 38.3 | 38.3 | 26 (sic) | |
| 19S-14E-02 SE | 121 00 33 | 43 57 06 | Moon | US | 08/22/87 | 1184 | 264 | 253e | 22.3 | - | - | adv. | - | - | 200 |
| 19S-14E-24 SE | 120 59 11 | 43 54 25 | Crane | OR | 12/15/81 | 1280 | 384 | 360 | 21.7 | 250-380 | 1.65e (0.15) | 30.9 (1.17) | 30.9 | 51 | 201 |
| (20S-7E-34) NE | 121 51 51 | 43 48 02 | U.S. Dept. of Agriculture | US | 07/30/87 | 1410 | 53 | 17 | 6.8 | 46-53 | 1.55e (0.35) | 14.1 (0.33) | >12.6 | [20] | 202 |
| 20S-14E-13 NE | 120 59 12 | 43 50 43 | - | OR | 12/02/80 | 1314 | 108 | - | 13.1 | 70-108 | 1.50e (0.25) | 30.9 (1.12) | 32.0 | 48 | 203 |
| 20S-14E-25 NE | 120 59 21 | 43 48 53 | BFZ-PMW | OR | 08/17/76 | 1428 | 125 | - | 14.3 | 65-125 | 1.65e (0.15) | 33.0 (0.27) | 32.2 | 53 | 204 |
| | | | | | | | | | (1): | 45-125 | <1.84 | 34.4 | 34.4 | <63 | |
| 21S-11E-25 NW | 121 21 42 | 43 43 56 | BFZ-MB | OR | 08/04/76 | 1515 | 35 | - | 8.3 | 28-35 | 1.51 | 67.6 (2.08) | >64.8 | [>98] | 205 |
| | | | | | | | | | (1,2): | 28-35 | 1.51 | 65.3 | 65.3 | 100 | |
| 21S-13E-31 SW | 121 13 31 | 43 42 26 | - (Newberry 2) | US | --/--/81 | 1950 | 932 | 8-9 | 265. | 842-932 | - | 449. (29.6) | - | - | 206 |
| 21S-13E-31 SW | 121 13 25 | 43 42 23 | - (RDO-1) | OR | 10/06/83 | 1960 | 351 | <15e | 158. | - | - | adv. | - | - | 207 |

Table 1.--Heat-flow data from the Cascade Range and adjacent areas in north-central Oregon (continued)

| T-R-Sec. 1/4 | Longitude (° ' ") | Latitude (° ' ") | Name | Code | Date logged (mo/da/yr) | Elev. (m) | Depth (m) | Static water level (m) | Bottom-hole temp. (°C) | Interval (m) | Therm. Cond. (W/m·K) | Gradient Uncorr. (°C/km) | Gradient Corr. (°C/km) | Heat Flow (mW/m²) | Fig. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 21S-15E-16 NE | 120 55 11 | 43 45 12 | BFZ-PMS | OR | 08/17/76 | 1476 | 152 | - | 14.5 | 70-152 | 1.76 (0.15) | 54.6 (0.36) | 52.2 | 92 | 208 |
| | | | | | | | | | (1): | 70-150 | 1.76 | 55.0 | 55.0 | 96 | |
| 22S-14E-03 NE | 121 02 15 | 43 41 55 | BFZ-CH | OR | 08/04/76 | 1580 | 75 | - | 5.8 | 52-75 | 1.55e (0.35) | 9.0 (0.24) | 8.0 | 12 | 209 |
| | | | | | | | | | (1): | 0-75 | - | - | - | - | |
| 22S-15E-35 NE | 120 52 36 | 43 37 30 | BFZ-QM | OR | 08/04/76 | 1660 | 40 | - | 7.6 | 15-40 | 1.65e (0.15) | 18.9 (1.01) | 18.0 | 30 | 210 |
| | | | | | | | | | (1): | 20-40 | - | 20.5 | 20.5 | - | |

* - "Background" gradient estimated by Ziagos and Blackwell (1986)
(T-R-Sec.) - Area not surveyed; approximate cadastral location from U.S. Forest Service National Forest Maps

Table 2.--Thermal conductivity measurements from the Cascade Range and adjacent areas, grouped by lithology and age

[Lithology and names are from the referenced publications. Dashes indicate absence of data and "nr" indicates that values were not reported. Values followed by "e" are approximate. Summary statistics at the end of the table were used to estimate thermal conductivity from lithology at heat-flow sites (Table 1) where measurements from core or cuttings were not available. Data from volcanic rocks in northern California and from depths greater than 1000 m were omitted in calculating the summary statistics, but are listed for purposes of comparison. **Location** is by township, range, and section in Oregon; only generalized locations are given for sites in Washington (WA) and California (CA). **Depth interval**, reported in meters (m) below land surface, is the interval within which samples for thermal conductivity measurements were obtained. **Age** is the approximate age of the rock unit, in Mega-annums (Ma). Thermal conductivity (**Thermal Cond.**) is reported in Watts per meter degree Kelvin (W/m°K).]

| Location | Name | Depth interval (m) | Age (Ma) | Lithology | No. of measure-ments | Thermal Cond. (W/m°K) | Reference |
|---|---|---|---|---|---|---|---|
| **Basalt** | | | | | | | |
| Rattlesnake, WA | RS-1 | 0 | >7 | basalt | 6 | 1.71 | Sass and Munroe, 1974 |
| Rattlesnake, WA | RS-2 | 44-124 | >7 | basalt | 14 | 1.71 | Sass and Munroe, 1974 |
| Richland, WA | DH-3 | 175-1041 | >7 | basalt | 31 | 1.59 | Sass and Munroe, 1974 |
| Richland, WA | DH-1 | 53-183 | >7 | basalt | 19 | 1.71 | Sass and Munroe, 1974 |
| 2S-8E-15 | OMF-7A | 930-1250 | >7 | Columbia River Basalt Group | nr | 1.83 | Blackwell and others, 1982b |
| 2S-8E-15 | OMF-7A | 1375-1415 | >7 | basalt | nr | 2.04 | Blackwell and others, 1982b |
| 7S-5E-22 | CR-BHS | 20-90 | >7 | basalt and claystone | 7 | 1.46 | Blackwell and others, 1982a |
| 7S-7E-04 | EWEB-TS | 165-190 | <7 | basalt | 10 | 1.62 | Blackwell and others, 1982a |
| 7S-8E-05 | EWEB-PC | 70-185 | <2 | basalt | 10 | 1.58 | Blackwell and others, 1982a |
| 7S-8E-10 | EWEB-CC | 110-137 | <2 | basalt | 10 | 1.45 | Blackwell and others, 1982a |
| 14S-6E-32 | WOLF MDW | 42-155 | >7 | altered basalt and breccia | 9 | 1.46 | Blackwell and others, 1982a |
| 19S-5E-27 | BRCK-CRK | 135-154 | >7 | olivine basalt flow | nr | 1.75 | Black and others, 1983 |
| 19S-6E-25 | N FORK | 30-154 | <7 | olivine basalt | nr | 1.35 | Black and others, 1983 |
| Mt. Shasta area, CA | MP-32 | 150-274 | - | basalt | nr | 1.98 | Mase and others, 1982 |
| Mt. Shasta area, CA | MP-36 | - | - | basalt | nr | 1.82 | Mase and others, 1982 |

Table 2.--Thermal conductivity measurements from the Cascade Range and adjacent areas (continued)

| Location | Name | Depth interval (m) | Age (Ma) | Lithology | No. of measure-ments | Thermal Cond. (W/m·K) | Reference |
|---|---|---|---|---|---|---|---|
| **Andesite** | | | | | | | |
| 2S-8E-15 | OMF-7A | 410-650 | >7 | andesite | nr | 1.65 | Blackwell and others, 1982b |
| 16S-6E-02 | RDH-CRFP | 100-150 | >7 | andesite | 11 | 1.74 | Blackwell and others, 1982a |
| 17S-5E-20 | RIDR-CRK | 60-154 | >7 | andesite | nr | 1.64 | Black and others, 1983 |
| 17S-6E-25 | RDH-MQCK | 131-151 | >7 | basaltic andesite | 5 | 1.55 | Blackwell and others, 1982a |
| 18S-5E-11 | RDH-RBCK | 55-78 | >7 | basaltic andesite | nr | 1.55 | Black and others, 1983 |
| Lassen area, CA | LSND | 0-105 | - | andesite | 9 | 1.88 | Mase and others, 1982 |
| Lassen area, CA | LSNE | 46-168 | - | andesite | 15 | 2.00 | Mase and others, 1982 |
| Lassen area, CA | LSNF | 30-224 | - | andesite | 19 | 2.51 | Mase and others, 1982 |
| Lassen area, CA | LSNG | 0-165 | - | andesite | 12 | 1.64 | Mase and others, 1982 |
| Lassen area, CA | LSNG | 165-172 | - | andesite | 1 | 1.64 | Mase and others, 1982 |
| Lassen area, CA | LSNH | 0-185 | - | andesite | 17 | 1.81 | Mase and others, 1982 |
| Lassen area, CA | LSNI | 0-186 | - | andesite | 15 | 2.15 | Mase and others, 1982 |
| Lassen area, CA | LSNL | 0-93 | - | andesite | 8 | 2.36 | Mase and others, 1982 |
| **Dacite** | | | | | | | |
| 19S-4E-29 | CHRS-CRK | 70-154 | >7 | silicified plug | nr | 1.75 | Black and others, 1983 |
| 21S-13E-31 | NEWBERRY 2 | 554-631 | <2 | @dacite | 15 | *1.6 | R.J. Munroe, wrtn. comm., 1986 |
| Lassen area, CA | LSNB | 0-165 | - | - | 15 | 2.3 | Mase and others, 1982 |
| Lassen area, CA | LSNC | 91-256 | - | - | 23 | 2.3 | Mase and others, 1982 |

Table 2.--Thermal conductivity measurements from the Cascade Range and adjacent areas (continued)

| Location | Name | Depth interval (m) | Age (Ma) | Lithology | No. of measure-ments | Thermal Cond. (W/m°K) | Reference |
|---|---|---|---|---|---|---|---|
| **Rhyolite** | | | | | | | |
| 21S-11E-25 | BFZ-MB | 28-35 | <2 | obsidian and rhyolite | 2 | 1.51 | Blackwell and others, 1982a |
| 21S-13E-31 | NEWBERRY 2 | 503-548 | <2 | @rhyodacite | 8 | *1.9 | R.J. Munroe, wrtn. comm., 1986 |
| 21S-17E-01 | BFZ-BR | 40-90 | <7 | rhyolite and rhyodacite | 4 | 1.00 | Blackwell and others, 1982a |
| **Tuff** | | | | | | | |
| Indian Heaven, WA | DGER-2 | 102 | >7 | tuff, ash flow | 2 | *1.44 | Schuster and others, 1978 |
| 9S-6E-23 | RDH-BHSW | 30-105 | >7 | crystal lithic tuff | 7 | 1.61 | Blackwell and others, 1982a |
| 9S-7E-28 | SUN NO. 58 | 369-753 | >7 | welded to cemented tuff | nr | *1.71 | Priest, 1987 |
| 9S-7E-28 | SUN NO. 58 | 936-1366 | >7 | tuff | nr | *2.10 | Priest, 1987 |
| 9S-7E-28 | SUN NO. 58 | 1457-2216 | >7 | welded to cemented tuff | nr | *2.69 | Priest, 1987 |
| 16S-5E-30 | ST DAM 2 | 25-61 | >7 | tuff | nr | 1.32 | Black and others, 1983 |
| 20S-4E-27 | WALL-CRK | 30-135 | >7 | tuff | nr | 1.13 | Black and others, 1983 |
| 21S-13E-31 | NEWBERRY 2 | 373-460 | <2 | @rhy. pumice lapilli tuffs and lithic breccia | 19 | *1.0 | R.J. Munroe, wrtn. comm., 1986 |
| **<7 Ma volcanic rocks, undifferentiated** | | | | | | | |
| 2S-8E-15 | OMF-7A | 90-335 | <7 | basalt and andesite | nr | 1.60 | Blackwell and others, 1982b |
| 3S-8.5E-25 | CR-SB | 0-82 | <7 | volcanics | 6 | 1.67 | Steele and others, 1982 |
| 3S-9E-16 | WHT RIVR | 100-303 | <7 | debris | 4 | 2.51 | Steele and others, 1982 |
| 8S-8E-06 | EWEB-SB | 150-460 | <7 | basalt and andesite | 20 | 1.49 | Blackwell and others, 1982a |
| 8S-8E-31 | RHD-CBCK | 70-98 | <7 | basalt and andesite | 3 | 1.47 | Blackwell and others, 1982a |

Table 2.--Thermal conductivity measurements from the Cascade Range and adjacent areas (continued)

| Location | Name | Depth interval (m) | Age (Ma) | Lithology | No. of measure-ments | Thermal Cond. (W/m°K) | Reference |
|---|---|---|---|---|---|---|---|
| 11S-7E-10 | RDH-MTCK | 30-109 | <7 | bs., andesite, and mudflows | nr | 1.64 | Black and others, 1983 |
| 12S-7E-09 | EWEB-IM | 300-600 | <7 | volcanics | 20 | 1.36 | Blackwell and others, 1982a |
| 13S-7E-32 | EWEB-CL | 0-555 | <7 | andesite and volcanics | 19 | 1.40 | Blackwell and others, 1982a |
| **>7 Ma volcanic rocks, undifferentiated** | | | | | | | |
| 2S-8E-15 | OMF-7A | 725-850 | >7 | Columbia R. bs. and andesite | nr | 1.60 | Blackwell and others, 1982b |
| 2S-8E-15 | OMF-7A | 1675-1730 | >7 | volcaniclastic | nr | 2.22 | Blackwell and others, 1982b |
| 2S-8E-15 | OMF-7A | 1745-1790 | >7 | greenstone (Eocene) | nr | 2.68 | Blackwell and others, 1982b |
| 6S-7E-21 | RDH-AHSE | 10-40 | >7 | basalt, tuff, and andesite | 4 | 1.47 | Blackwell and others, 1982a |
| 6S-7E-30 | RDHCRAHS | 90-135 | >7 | basalt, tuff and rhyolite | 9 | 1.65 | Blackwell and others, 1982a |
| 8S-5E-31 | CDR CRK | 35-345 | >7 | volcanics | 4 | 1.80 | Blackwell and others, 1982a |
| 10S-7E-11 | RDH-DVCK | 70-150 | >7 | volcanics | 10 | 1.40 | Blackwell and others, 1982a |
| 16S-4E-14 | BH-3Z | 12-45 | >7 | volcanics | 3 | 1.80 | Blackwell and others, 1982a |
| 16S-5E-30 | DDH-15 | 15-85 | >7 | tuff and basalt | 4 | 1.33 | Blackwell and others, 1982a |
| 16S-6E-27 | RDH-CRHC | 30-150 | >7 | basalt and tuff | 12 | 1.57 | Blackwell and others, 1982a |
| 22S-5E-26 | RDH-MHSW | 30-150 | >7 | basalt and andesite | 13 | 1.97 | Blackwell and others, 1982a |
| 23S-5E-08 | PNTO-CRK | 40-154 | >7 | andesite and tuff | nr | 1.52 | Black and others, 1983 |
| **>2 Ma sedimentary rocks** | | | | | | | |
| Indian Heaven, WA | DGER 2 | 109-126 | >7 | lahars | 3 | *1.42 | Schuster and others, 1978 |
| Indian Heaven, WA | DGER 2 | 138-152 | >7 | sandstone | 3 | *1.41 | Schuster and others, 1978 |
| Indian Heaven, WA | DGER 3 | 104 | >7 | siltstone | 1 | *1.1 | Schuster and others, 1978 |
| Indian Heaven, WA | DGER 3 | 110-130 | >7 | lahars | 3 | *1.30 | Schuster and others, 1978 |
| Indian Heaven, WA | DGER 4 | 84-151 | >7 | siltst., mudst., and sandst. | 6 | *1.18 | Schuster and others, 1978 |
| Indian Heaven, WA | DGER 5 | 106-116 | >7 | conglomerate | 2 | *1.09 | Schuster and others, 1978 |
| Indian Heaven, WA | DGER 5 | 126-153 | >7 | lahar | 4 | *1.32 | Schuster and others, 1978 |

Table 2.--Thermal conductivity measurements from the Cascade Range and adjacent areas (continued)

| Location | Name | Depth interval (m) | Age (Ma) | Lithology | No. of measure-ments | Thermal Cond. (W/m°K) | Reference |
|---|---|---|---|---|---|---|---|
| 9S-3E-11 | EV2-WW | 48-85 | >7 | clay | 1 | 1.34 | Blackwell and others, 1982a |
| 9S-3E-11 | EV1-WW | 25-60 | >7 | clay and sandstone | 2 | 1.34 | Blackwell and others, 1982a |
| 9S-7E-28 | SUN NO. 58 | 305-314 | <7 | tuffaceous sediments | nr | 1.50 | Priest, 1987 |
| 11S-1W-14 | BL-WW | 30-125 | >7 | claystone | 1 | 1.17 | Blackwell and others, 1982a |
| 11S-1E-07 | RL-WW | 40-58 | >7 | claystone | 1 | 1.34 | Blackwell and others, 1982a |
| 11S-13E-24 | SCHNDR-1 | 70-260 | >7 | pumiceous sandst. (Dalles Fm.) | 1 | 1.44 | Blackwell and others, 1982a |
| 12S-1W-04 | B-9 | 30-65 | >7 | volcanic conglomerate | nr | 1.34 | Black and others, 1983 |
| 13S-1W-10 | BJ-WW | 28-62 | >7 | claystone and sediments | 1 | 1.34 | Blackwell and others, 1982a |
| 22S-3E-10 | PCCPG-WW | 20-90 | >7 | clay, sands, and conglomerate | 1 | 1.33 | Blackwell and others, 1982a |
| **<2 Ma sediments and sedimentary rocks** | | | | | | | |
| 19S-6E-08 | RDHELKCK | 40-140 | <2 | alluvial sand and gravel | nr | 1.22 | Black and others, 1983 |
| 21S-13E-31 | NEWBERRY 2 | 313-319 | <2 | @basaltic siltstone and mudst. | 3 | *0.87 | R.J. Munroe, wrtn. comm., 1986 |
| 21S-13E-31 | NEWBERRY 2 | 326-360 | <2 | @pumiceous sand and gravel | 8 | *0.80 | R.J. Munroe, wrtn. comm., 1986 |
| Klamath Falls area | LS | 59-179 | <2 | lacustrine silty clay | 19 | 0.76 | Sass and Sammel, 1976 |
| Klamath Falls area | OC-1 | 53-176 | <2 | lacustrine silty clay | 10 | 0.77 | Sass and Sammel, 1976 |
| **Granitic rocks** | | | | | | | |
| Northern CA | CVN | 60-235 | - | granodiorite | 13 | 2.77 | Mase and others, 1982 |
| Northern CA | GRP | 91-189 | - | quartz monzonite | 21 | 2.74 | Mase and others, 1982 |
| Northern CA | IGO | 76-145 | - | granodiorite | 11 | 2.79 | Mase and others, 1982 |
| Northern CA | IGO | 145-229 | - | granodiorite | 16 | 3.06 | Mase and others, 1982 |
| Lassen area, CA | LSNM | 0-122 | - | quartz diorite | 10 | 2.43 | Mase and others, 1982 |
| Lassen area, CA | LSNM | 122-182 | - | quartz diorite | 5 | 2.43 | Mase and others, 1982 |

Table 2.--Thermal conductivity measurements from the Cascade Range and adjacent areas (continued)

| Location | Name | Depth interval (m) | Age (Ma) | Lithology | No. of measure-ments | Thermal Cond. (W/m°K) | Reference |
|---|---|---|---|---|---|---|---|
| Lassen area, CA | LSNO | 76-187 | - | granodiorite | 10 | 2.97 | Mase and others, 1982 |
| Northern CA | RVN | 160-229 | - | granodiorite | 10 | 2.41 | Mase and others, 1982 |
| Mt. Shasta area, CA | SHAS | 64-216 | - | quartz diorite | 13 | 2.52 | Mase and others, 1982 |
| Northern CA | WC1 | 283-310 | - | granodiorite | 3 | 3.05 | Mase and others, 1982 |

**Summary statistics**

| Lithology | Number of sites | Thermal conductivity mean(s.d) | assigned value | Corresponding map units# |
|---|---|---|---|---|
| <7 Ma volcanic rocks | 17 | 1.54(0.33) | 1.55e (0.35) | Qb(1-5), Qa(1-5), Qd(1-5), Qr(1-5), Tb(1), Ta(1), Td(1), Tr(1) |
| >7 Ma lava flows** (basalts and andesites) | 14 | 1.65(0.13) | 1.65e (0.15) | Tb(2-5), Ta(5), Ta(2) unpatterned, Td(2-5), Tr(2-5) |
| >7 Ma tuffs and lahars | 8 | 1.41(0.17) | 1.40e (0.20) | Ta(2) diamicton |
| >7 Ma rocks, undifferentiated | 43 | 1.49(0.21) | 1.50e (0.25) | Ta(3-4) |
| >2 Ma sedimentary rocks | 16 | 1.31(0.11) | 1.30e (0.15) | Ts(1-5) |
| Granitic rocks | 10 | 2.72(0.24) | 2.70e (0.25) | Ti |

Table 2.--Thermal conductivity measurements from the Cascade Range and adjacent areas (continued)

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@ - Lithology from MacLeod and Sherrod (1982)
* - Harmonic mean of individual measurements reported from specified depth interval
# - These map units appear on a detailed compilation map of the Cascade Range (in preparation) and are described by Sherrod (1987)
** - Following Blackwell and others (1982a), we have assigned a thermal conductivity value of 1.60e to rocks of the Columbia River Basalt Group (map units Tcu and Tcl) in Table 1

Table 3.--Sodium, chloride, and discharge data for selected streams in the Cascade Range of northern and central Oregon

[Dashes indicate absence of data. Values followed by "e" are approximate. Sites are ordered by township, range, and section (**T-R-Sec.**). Elevation (**Elev.**) is reported in meters (m) above sea level. **Date** is month, day, year (mo/da/yr) of sample collection. Sodium (**Na**) and chloride (**Cl**) values are reported in milligrams per liter (mg/L). **Discharge** measurements are reported in liters per second (L/s).]

| T-R-Sec. 1/4 | Longitude Latitude (° ' ") | Name | Elev. (m) | Date (mo/da/yr) | Na (mg/L) | Cl (mg/L) | Discharge (L/s) |
|---|---|---|---|---|---|---|---|
| **West of the Cascade Crest** | | | | | | | |
| 3S-5E-10 SE | 122 10 19 45 19 13 | Grabenheim Cr. | 436 | 06/26/86 | 3e | - | 15e |
| 3S-5E-12 SE | 122 08 09 45 19 15 | N. Fork Eagle Cr. | 509 | 06/26/86 | 3e | - | 30e |
| 3S-5E-16 SE | 122 11 22 45 18 24 | Little Eagle Cr. | 384 | 06/26/86 | 3e | - | 30e |
| 4S-5E-35 NW | 122 10 00 45 11 13 | unn. trib. Clackamas R. | 268 | 07/02/86 | 4e | - | - |
| 4S-6E-07 SW | 122 07 08 45 14 06 | Bedford Cr. | 924 | 06/30/86 | 2e | - | - |
| 5S-6E-21 NE | 122 04 18 45 07 30 | Clackamas R. at gage | 372 | 07/--/84 | - | 2.8 | - |
| | | | | 10/16/84 | 4.1 | 2.2 | 30,500 |
| 5S-7E-16 SE | 121 57 01 45 07 53 | unn. trib. Shellrock Cr. | 1024 | 07/03/86 | 2e | - | 0.1 |
| 5S-8.5E-36 NW | 121 44 55 45 05 55 | Clackamas L. at outlet | 1018 | 08/13/85 | 3.5 | <1 | 755 |
| 6S-5E-27 NE | 122 10 45 45 01 13 | Surprise L. at outlet | 1231 | 07/01/86 | 2e | - | - |
| 6S-6E-02 NW | 122 07 27 45 04 46 | Oak Grove Fk. Clackamas R. | 426 | 08/12/85 | 3.7 | <1 | 455 |
| 6S-6E-22 SE | 122 03 23 45 01 55 | Clackamas R. above Collawash R. | 441 | 08/15/85 | 7.4 | 5.5 | 9,400 |
| 6S-6E-22 SE | 122 03 31 45 01 56 | Clackamas R. above Collawash R. | 440 | 10/16/84 | 6.6 | 4.9 | - |
| 6S-6E-22 SE | 122 03 30 45 02 00 | Clackamas R. at Collawash R. | 440 | 07/--/84 | - | 4.7 | - |

Table 3.--Sodium, chloride, and discharge data for selected streams (continued)

| T-R-Sec. 1/4 | Longitude Latitude (° ' ") | Name | Elev. (m) | Date (mo/da/yr) | Na (mg/L) | Cl (mg/L) | Discharge (L/s) |
|---|---|---|---|---|---|---|---|
| 6S-6E-22 SE | 122 03 36 45 01 54 | Collawash R. at Clackamas R. | 440 | 07/--/84 | - | .6 | - |
| 6S-6E-22 SW | 122 03 39 45 01 49 | Collawash R. above Clackamas R. | 442 | 08/14/85 | 3.8 | <1 | 2,250 |
| 6S-6E-25 NE | 122 00 51 45 01 21 | Switch Cr. | 506 | 08/15/85 | 7e | - | 0.03 |
| 6S-7E-03 SW | 121 57 00 45 04 21 | Oak Grove Fk Clackamas R. | 625 | 08/12/85 | - | - | 9,550 |
| | | | | 10/16/84 | 3.2 | .7 | 10,500 |
| 6S-7E-26 SE | 122 55 00 45 01 00 | Clackamas R. | 627 | 07/--/84 | - | .6 | - |
| 6S-7E-26 SE | 121 55 10 45 01 00 | Clackamas R. | 627 | 10/16/84 | 3.5 | .7 | 9,850 |
| 6S-7E-30 NW | 122 00 28 45 01 25 | unn. str. at Clackamas R. | 512 | 07/03/86 | 8.3 | 1.9 | 0.1e |
| (6S-8E-32) NW | 121 49 32 45 01 47 | Peavine Cr. | 1247 | 08/27/85 | .8 | - | <3e |
| 7S-6E-03 SW | 122 03 55 44 59 20 | Collawash R. at gage | 500 | 10/16/84 | 2.7 | 1.2 | 4,200 |
| 7S-6E-03 SW | 122 04 14 44 59 07 | Hot Spr. Fk. Collawash R. | 515 | 08/14/85 | 3.7 | 1.2 | 690 |
| 7S-6E-03 SW | 122 03 41 44 59 01 | Collawash R. above Hot Spr. Fk. | 505 | 08/14/85 | 3.5 | <1 | 1,500 |
| 8S-4E-26 SW | 122 17 36 44 50 41 | Cedar Cr. | 463 | 07/24/86 | 2e | - | - |
| 8S-5E-15 NE | 122 10 30 44 52 58 | Whetstone Cr. | 872 | 07/09/86 | 2e | - | - |
| 8S-5E-19 SW | 122 15 26 44 51 34 | Little N. Santiam R. | 536 | 07/24/86 | 2e | - | - |
| 8S-5E-29 NW | 122 13 48 44 51 28 | unn. trib. Little N. Santiam R. | 610 | 08/06/86 | 2e | - | - |
| | | | | | 3e | - | - |
| 8S-6E-12 SE | 122 00 43 44 53 38 | unn. trib. Elk Lake Cr. | 829 | 07/09/86 | 3e | - | - |

Table 3.--Sodium, chloride, and discharge data for selected streams (continued)

| T-R-Sec. 1/4 | Longitude Latitude (° ' ") | Name | Elev. (m) | Date (mo/da/yr) | Na (mg/L) | Cl (mg/L) | Discharge (L/s) |
|---|---|---|---|---|---|---|---|
| (8S-7E-01) NE | 121 53 12 44 54 39 | Sisi Cr. | 832 | 08/16/85 | 5.2 | <1 | 6.05 |
| (8S-8E-07) SW | 121 53 23 44 54 48 | Clackamas R. | 777 | 08/21/85 | 3.4 | <1 | 1,850 |
| (8S-8E-20) NE | 121 50 38 44 52 08 | Squirrel Cr. | 1036 | 08/21/85 | 2.6 | - | 150 |
| (8S-8E-20) SW | 121 52 09 44 51 39 | unn. cr. below Cub and Wolf Sprs. | 1005 | 08/28/85 | 2.7 | - | 60e |
| (8S-8E-24) SW | 121 46 18 44 51 48 | Olallie Cr. | 1353 | 08/27/85 | 3.5 | <1 | 14 |
| 9S-2E-16 NW | 122 34 42 44 47 30 | Little N. Santiam R. at gage | 203 | 08/03/85 | 2.9 | 1.1 | 975 |
| 9S-2E-18 NW | 122 37 00 44 47 18 | N. Santiam R. at gage | 186 | 08/03/85 | 2.5 | - | 86,000 |
| 9S-4E-34 NE | 122 17 48 44 45 12 | N. Santiam R. at gage | 354 | 08/03/85 | 2.4 | - | - |
| 9S-5E-35 NE | 122 09 42 44 45 19 | French Cr. | 530 | 07/13/86 | 2e | - | - |
| 9S-5E-36 NE | 122 07 40 44 45 10 | Breitenbush R. at gage | 481 | 10/16/84 | 4.3 | 2.9 | 6,250 |
| 9S-6E-02 SE | 122 02 10 44 49 14 | unn. trib. E. Humbug Cr. | 780 | 07/09/86 | 4e | - | - |
| 9S-6E-28 NE | 122 04 38 44 46 04 | Cliffs Cr. at Breitenbush R. | 547 | 08/20/86 | 5.1 | .4 | - |
| 9S-6E-29 NW | 122 06 24 44 45 54 | Breitenbush R. | 512 | 07/--/84 | - | 2.2 | - |
| (9S-7E-02) SE | 121 55 10 44 49 00 | Sportsman Lake at outlet | 1243 | 07/15/86 | 2e | - | - |
| (9S-7E-05) NW | 121 58 19 44 49 24 | hdwtrs. Collawash R. | 1103 | 07/09/86 | 3e | - | - |
| (9S-7E-15) SE | 121 55 50 44 47 28 | unn. trib. to N. Fk. Breit. R. | 780 | 07/13/86 | 3e | - | - |

Table 3.--Sodium, chloride, and discharge data for selected streams (continued)

| T-R-Sec. 1/4 | Longitude Latitude (° ' ") | Name | Elev. (m) | Date (mo/da/yr) | Na (mg/L) | Cl (mg/L) | Discharge (L/s) |
|---|---|---|---|---|---|---|---|
| (9S-7E-19) NE | 121 59 35<br>44 46 47 | Breitenbush R. at CG | 646 | 07/--/84<br>10/16/86 | -<br>5.0 | 2.7<br>3.9 | -<br>- |
| (9S-7E-19) SE | 121 59 41<br>44 46 43 | Breitenbush R. | 642 | 09/24/85 | 6.0 | 5.4 | 3,300 |
| 9S-7E-20 NW | 121 59 10<br>44 47 00 | Short Cr. | 671 | 08/30/85 | 4.4 | <1 | 27 |
| 9S-7E-20 NW | 121 58 45<br>44 46 51 | Breitenbush R. | 667 | 08/30/85 | - | - | 2,700 |
| 9S-7E-20 NE | 121 58 34<br>44 46 59 | Mansfield Cr. | 683 | 08/30/85 | 3.2 | <1 | 25 |
| 9S-7E-20 SE | 122 09 51<br>44 57 47 | Devils Cr. | 691 | 08/30/85 | <3e | - | 110 |
| 9S-7E-21 NW | 121 57 47<br>44 46 48 | N. Fork Breitenbush R. | 687 | 08/31/85 | <3e | - | 1,250 |
| 9S-7E-21 NW | 121 57 54<br>44 46 48 | Breitenbush R. | 685 | 07/--/84 | - | .4 | - |
| 9S-7E-21 NW | 121 58 01<br>44 46 52 | Breitenbush R. | 682 | 10/16/84 | 2.7 | .4 | - |
| 9S-7E-21 NW | 121 57 47<br>44 46 44 | S. Fork Breitenbush R. | 689 | 08/31/85 | <3e | - | 1,500 |
| 9S-7E-26 SE | 121 54 22<br>44 45 23 | Lake Cr. | 874 | 08/19/86 | 3e | - | - |
| 10S-4E-10 NW | 122 18 42<br>44 43 11 | Sevenmile Cr. | 920 | 07/13/86 | 3e | - | - |
| 10S-6E-16 SW | 122 05 21<br>44 42 15 | Boulder Cr. | 509 | 05/24/88<br>08/31/88 | 1.9<br>2.9 | .5<br>.6 | -<br>- |
| 10S-6E-17 NW | 122 06 06<br>44 42 30 | N. Santiam R. below gage | 481 | 07/--/84 | - | .5 | - |
| 10S-6E-23 NW | 122 02 40<br>44 41 41 | McCoy Cr. | 573 | 05/24/88<br>08/31/88 | 3.5<br>3.4 | .7<br>.9 | -<br>- |
| 11S-3E-26 SE | 122 24 16<br>44 34 22 | unn. trib. Quartzville Cr. | 390 | 07/11/86 | 3e | - | 0.3e |

Table 3.--Sodium, chloride, and discharge data for selected streams (continued)

| T-R-Sec. 1/4 | Longitude Latitude (° ' ") | Name | Elev. (m) | Date (mo/da/yr) | Na (mg/L) | Cl (mg/L) | Discharge (L/s) |
|---|---|---|---|---|---|---|---|
| 11S-4E-36 NW | 122 16 33 44 34 16 | McQuade Cr. | 576 | 07/17/86 | 3e | - | 0.2e |
| (11S-5E-26) SE | 122 09 41 44 34 59 | unn. trib. Quartzville Cr. | 1049 | 07/17/86 | 3e | - | - |
| (11S-5E-29) SE | 122 13 19 44 35 07 | unn. trib. Quartzville Cr. | 738 | 07/17/86 | 3e | - | - |
| 11S-6E-06 NW | 122 07 42 44 39 06 | Blowout Cr. | 554 | 07/12/86 | 3.7 | .6 | - |
| 11S-6E-12 NW | 122 01 33 44 37 55 | Marys Cr. | 1170 | 07/12/86 | 2e | - | - |
| 11S-6E-29 NW | 122 06 12 44 35 38 | Lost Cr. | 849 | 07/12/86 | 3e | - | - |
| 11S-7E-13 SW | 121 54 11 44 36 44 | Minto Cr. | 940 | 07/11/86 | 2e | - | - |
| 11S-7E-16 NE | 121 57 20 44 37 27 | Nan-Scott Lake at outlet | 755 | 06/20/86 | 4.1 | .4 | - |
| 11S-7E-20 SE | 121 58 27 44 35 55 | Bugaboo Cr. | 820 | 07/11/86 | 3e | - | - |
| 11S-7E-22 NW | 121 57 02 44 36 36 | Horn Cr. | 757 | 07/11/86 | 3e | - | - |
| 12S-3E-10 NW | 122 26 06 44 32 24 | Quartzville Cr. at gage | 326 | 08/02/85<br>07/17/86 | 2.8<br>2e | -<br>- | 5,500<br>- |
| 12S-4E-19 NW | 122 22 37 44 30 37 | Middle Fk. Santiam R. | 312 | 07/17/86 | 3e | - | - |
| 13S-2E-28 SW | 122 34 33 44 24 21 | S. Santiam R. | 194 | 07/11/86 | 4e | - | - |
| 13S-2E-36 SE | 122 30 36 44 23 36 | S. Santiam R. at gage | 233 | 08/02/85 | 4.3 | 2.3 | 2,350 |
| 13S-3E-03 NE | 122 25 36 44 28 17 | Tally Cr. | 330 | 07/17/86 | 3e | - | - |
| 13S-3E-33 NE | 122 26 52 44 23 50 | Canyon Cr. | 261 | 07/21/86 | 3.7 | - | - |

Table 3.--Sodium, chloride, and discharge data for selected streams (continued)

| T-R-Sec. 1/4 | Longitude Latitude (° ' ") | Name | Elev. (m) | Date (mo/da/yr) | Na (mg/L) | Cl (mg/L) | Discharge (L/s) |
|---|---|---|---|---|---|---|---|
| 13S-3E-34 NW | 122 26 14 44 24 05 | South Santiam R. | 265 | 07/22/86 | 4e | - | - |
| 13S-4E-25 SW | 122 16 28 44 24 14 | unn. trib. S. Santiam R. | 439 | 07/10/86 | 4e | - | 3e |
| 13S-4E-25 SW | 122 17 06 44 24 18 | S. Santiam R. above Soda Fk. | 427 | 09/19/85 | 3.6 | - | 1,400 |
| 13S-4E-25 SW | 122 17 06 44 24 26 | Soda Fork | 427 | 09/19/85 | 3.2 | - | 855 |
| 13S-4E-26 SW | 122 18 00 44 24 12 | S. Santiam R. | 405 | 09/19/85 | 3.5 | 1.1 | 2,250 |
| 13S-5E-28 SW | 122 13 29 44 24 22 | Lamb Cr. | 687 | 07/10/86 | 4e | - | 3e |
| 13S-5E-32 SW | 122 14 26 44 23 40 | Sheep Cr. | 500 | 07/21/86 | 3.8 | .9 | - |
| 13S-5E-36 NW | 122 09 47 44 23 50 | hdwtrs. Snow Cr. | 1175 | 07/10/86 | 3e | - | 0.2e |
| 13S-6E-33 NE | 122 05 27 44 24 05 | unn. trib. Hackleman Cr. | 1063 | 07/10/86 | 3e | - | - |
| 14S-5E-13 SE | 122 09 14 44 20 58 | Sevenmile Cr. | 1199 | 07/20/86 | 3e | - | - |
| 14S-6E-16 SE | 122 05 31 44 21 06 | Browder Cr. | 969 | 07/20/86 | 2e | - | - |
| 14S-7E-20 NE | 122 59 51 44 20 35 | unn. cr. below Icecap Spr. | 840 | 10/09/85 | 3.9 | <1 | 170e |
| 14S-7E-31 NW | 122 01 32 44 18 42 | McKenzie R. | 715 | 10/08/85 | 5.2 | <1 | 2,000 |
| (15S-6E-01) NE | 122 01 48 44 17 54 | McKenzie R. | 678 | 07/--/84 | - | .9 | - |
| (15S-6E-13) NW | 122 02 55 44 16 05 | McKenzie R. | 610 | 10/15/84 | 4.3 | .7 | 20,500 |
| (15S-6E-13) NE | 122 02 23 44 15 53 | Anderson Cr. | 618 | 08/19/86 | 4.6 | .4 | - |

Table 3.--Sodium, chloride, and discharge data for selected streams (continued)

| T-R-Sec. 1/4 | Longitude Latitude (° ′ ″) | Name | Elev. (m) | Date (mo/da/yr) | Na (mg/L) | Cl (mg/L) | Discharge (L/s) |
|---|---|---|---|---|---|---|---|
| (15S-6E-13) SE | 122 02 21 44 15 30 | Olallie Cr. | 600 | 08/19/86 | 3.7 | .3 | - |
| (15S-6E-23) SE | 122 03 26 44 14 26 | Deer Cr. | 560 | 08/19/86 | 3e | - | - |
| 16S-2E-36 SW | 122 31 06 44 07 54 | McKenzie R. | 245 | 07/--/84 | - | 2.0 | - |
| 16S-4E-04 NW | 122 20 10 44 12 24 | Quartz Cr. | 675 | 08/15/86 | 3e | - | - |
| 16S-4E-28 NW | 122 20 24 44 09 18 | Blue R. | 320 | 07/--/84 | - | .9 | - |
| 16S-4E-28 NW | 122 19 43 44 09 05 | McKenzie R. | 320 | 10/15/84 | 4.2 | 1.4 | - |
| 16S-5E-24 SW | 122 09 05 44 09 45 | Horse Cr. | 429 | 10/15/84 | 5.3 | 1.9 | 11,500 |
| (16S-5E-31) NE | 122 14 50 44 08 10 | S. Fork McKenzie R. | 372 | 07/--/84<br>10/15/84 | -<br>3.1 | .5<br>.8 | -<br>27,500 |
| 16S-6E-02 NE | 122 02 27 44 12 23 | McKenzie R. | 515 | 10/15/84 | 4.3 | .9 | - |
| 16S-6E-15 NE | 122 03 30 44 11 01 | Lost Cr. | 1500 | 10/09/85 | 5.4 | 2.0 | 5,300 |
| 16S-6E-18 NW | 122 07 48 44 10 42 | McKenzie R. at gage | 433 | 07/--/84<br>10/15/84 | -<br>4.6 | 1.2<br>1.4 | -<br>35,000 |
| 16S-6E-21 SW | 122 05 37 44 09 20 | Horse Cr. | 498 | 08/20/86 | 5e | - | - |
| (16S-7E-19) SE | 122 01 03 44 09 33 | White Branch | 590 | 10/09/85 | 4.4 | 1.2 | 18 |
| 17S-3E-05 NE | 122 28 10 44 07 30 | McKenzie R. at gage | 263 | 10/15/84 | 3.8 | 1.3 | 98,500 |
| 17S-3E-09 NE | 122 27 18 44 06 35 | Deer Cr. | 266 | 08/28/86 | 3.4 | 1.1 | - |
| 17S-3E-11 NW | 122 25 07 44 06 36 | Ennis Cr. | 284 | 08/28/86 | 4e | - | - |

Table 3.--Sodium, chloride, and discharge data for selected streams (continued)

| T-R-Sec. 1/4 | Longitude Latitude (° ' ") | Name | Elev. (m) | Date (mo/da/yr) | Na (mg/L) | Cl (mg/L) | Discharge (L/s) |
|---|---|---|---|---|---|---|---|
| 17S-4E-06 NW | 122 22 37 44 07 22 | Quartz Cr. | 296 | 08/28/86 | 3e | - | - |
| 17S-4E-08 NW | 122 21 18 44 06 42 | Quartz Cr. | 327 | 09/19/85 | 2.9 | .8 | 710 |
| (17S-5E-04) SE | 122 12 21 44 07 04 | E. Fork McKenzie R. | 506 | 08/14/86 | 2e | - | - |
| (17S-5E-09) SW | 122 13 03 44 06 14 | Walker Cr. | 796 | 08/15/86 | 2e | - | - |
| (17S-5E-17) SW | 122 13 57 44 05 15 | Boone Cr. | 510 | 08/15/86 | 3e | - | - |
| (17S-5E-20) NW | 122 14 00 44 05 00 | Rider Cr. below hot spr. | 491 | 09/19/85 | 380 | 700 | 5.1 |
| (17S-5E-20) NW | 122 14 00 44 04 57 | unn. trib. Rider Cr. | 509 | 08/15/86 | 2e | - | - |
| (17S-5E-20) SE | 122 13 16 44 04 28 | Slide Cr. | 557 | 08/15/86 | 3e | - | - |
| (17S-5E-28) NW | 122 13 15 44 03 55 | Smith Cr. | 551 | 08/15/86 | 3e | - | - |
| (17S-5E-28) SW | 122 13 10 44 03 24 | S. Fork McKenzie R. | 502 | 08/15/86 | 3e | - | - |
| (17S-6E-01) W | 122 02 09 44 07 27 | Horse Cr. | 604 | 10/15/84 | 3.0 | .8 | - |
| (18S-5E-04) NE | 122 12 17 44 02 31 | French Pete Cr. | 545 | 08/15/86 | 3e | - | - |
| (18S-6E-26) SW | 122 02 53 43 58 31 | unn. trib. S. Fk. McKenzie R. | 1308 | 09/02/86 | 1e | - | - |
| (18S-6E-33) SE | 122 05 03 43 57 24 | S. Fork McKenzie R. | 772 | 08/31/86 | 3e | - | - |
| (18S-6E-33) SE | 122 05 14 43 57 09 | Roaring R. | 775 | 08/31/86 | 3e | - | - |
| 19S-7E-08 SW | 121 55 17 43 56 38 | Beaver Marsh | 1379 | 09/01/86 | 2e | - | - |

Table 3.--Sodium, chloride, and discharge data for selected streams (continued)

| T-R-Sec. 1/4 | Longitude Latitude (° ' ") | Name | Elev. (m) | Date (mo/da/yr) | Na (mg/L) | Cl (mg/L) | Discharge (L/s) |
|---|---|---|---|---|---|---|---|
| **East of the Cascade crest** | | | | | | | |
| 8S-12E-24 NE | 121 14 21<br>44 51 53 | Warm Spr. R. | 457 | 10/17/87 | 4.6 | .5 | - |
| 8S-13E-19 NW | 121 13 44<br>44 52 01 | Warm Spr. R. | 451 | 10/16/87 | 4.6 | 4.3 | - |
| 8S-13E-19 NE | 121 13 06<br>44 52 00 | Warm Spr. R. | 445 | 09/18/85 | 6.8 | 1.9 | - |
| 8S-13E-20 SE | 121 12 18<br>44 51 36 | Warm Spr. R. | 438 | 09/19/85 | 8.1 | 2.6 | 7,850 |
| 11S-9E-34 SE | 121 38 24<br>44 34 06 | Jefferson Cr. at gage | 850 | 01/31/85 | 2.9 | .5 | - |
| 11S-10E-12 SW | 121 28 54<br>44 37 36 | Metolius R. | 607 | 01/31/85 | 6.3 | 1.3 | - |
| 12S-9E-02 | 121 37 12<br>44 33 24 | Metolius R. | 816 | 01/31/85<br>09/17/85 | 7.0<br>6.9 | 1.5<br>1.4 | -<br>33,500 |
| 12S-12E-29 SE | 121 19 12<br>44 29 54 | Deschutes R. at gage | 594 | 01/31/85 | 7.3 | 1.2 | - |
| 13S-8E-24 S | 121 43 30<br>44 25 42 | Lake Cr. at gage | 1042 | 09/17/85 | 3.5 | <1 | - |
| 13S-9E-10 NE | 121 38 30<br>44 27 36 | Metolius R. | 889 | 01/31/85 | 7.4 | 1.4 | - |
| 13S-9E-10 SE | 121 38 30<br>44 27 18 | Metolius R. | 892 | 09/16/85 | 8.7 | 1.6 | - |
| 13S-9E-10 SW | 121 38 36<br>44 27 24 | Lake Cr. | 891 | 09/16/85 | 7.4 | 1.4 | 4,600 |
| 13S-9E-15 NE | 121 38 24<br>44 27 00 | Metolius R. | 890 | 09/16/85 | 9.4 | 1.7 | 3,500 |
| 15S-10E-29 SW | 121 34 00<br>44 14 00 | Pole Cr. | 1061 | 01/31/85 | 3.0 | .5 | - |
| 17S-11E-23 SE | 121 23 18<br>44 05 18 | Tumalo Cr. | 1087 | 02/01/85 | 3.7 | .4 | - |

Table 3.--Sodium, chloride, and discharge data for selected streams (continued)

| T-R-Sec. 1/4 | Longitude Latitude (° ′ ″) | Name | Elev. (m) | Date (mo/da/yr) | Na (mg/L) | Cl (mg/L) | Discharge (L/s) |
|---|---|---|---|---|---|---|---|
| 17S-12E-20 SE | 121 18 24 | Deschutes R. | 1076 | 02/01/85 | 6.0 | 1.1 | - |
| 18S-8E-12 SW | 121 42 30<br>44 01 30 | Soda Cr. | 1653 | 09/18/85 | 2.4 | - | - |
| 19S-11E-16 NE | 121 24 42<br>43 55 48 | Deschutes R. at gage | 1268 | 09/17/85 | 6.1 | 1.0 | 35,500 |
| 20S-10E-31 SE | 121 34 18<br>43 47 48 | Fall R. | 1283 | 02/01/85 | 5.6 | <.5 | - |
| 20S-11E-06 SE | 121 27 06<br>43 51 48 | Deschutes R. | 1270 | 02/01/85 | 4.7 | .6 | - |
| 21S-8E-21 NW | 121 46 54<br>43 44 42 | Deschutes R. | 1321 | 02/01/85 | 3.6 | .5 | - |

(T-R-Sec.) - Area not surveyed; approximate cadastral location from U.S. Forest Service National Forest Maps

Table 4.--Sodium, chloride, and conductivity values for selected wells, springs, streams, and lakes in the Cascade Range of northern and central Oregon

[Well names are from well logs on file with the Oregon Department of Water Resources. Dashes indicate absence of data. Values followed by "e" are approximate. Sites are ordered by township, range, and section (**T-R-Sec.**). **Codes** - W = wells, SP = springs, ST = streams, LK = lakes. Elevation (**Elev.**) is reported in meters (m) above sea level. **Date** is month, day, year (mo/da/yr) of sample collection. **Depth** is reported in meters (m) below land surface or lake level. Specific electrical conductance (**Cond.**) is reported in micromhos (umhos). Sodium (**Na**) and chloride (**Cl**) values are reported in milligrams per liter (mg/L). Entries are cross-referenced (**Ref.**) to other tables: T = Table 1 (heat flow data), C = Table 5 (chemical analyses), I = Table 6 (stable isotope data).]

| T-R-Sec. 1/4 | Longitude ( ° ' ") | Latitude ( ° ' ") | Code | Name | Elev. (m) | Date (mo/da/yr) | Depth (m) | Cond. (umhos) | Na (mg/L) | Cl (mg/L) | Ref. |
|---|---|---|---|---|---|---|---|---|---|---|---|
| **West of the Cascade crest** | | | | | | | | | | | |
| 3S-4E-01 SW | 122 15 45 | 45 20 10 | W | - | 332 | 08/05/85 | - | - | 4.1 | 2.0 | |
| 3S-4E-03 NE | 122 17 30 | 45 20 25 | W | - | 287 | 07/27/77 | 92 | - | - | - | T |
| | | | | | | 08/05/85 | | - | 3.6 | 1.6 | |
| 3S-4E-11 NE | 122 16 39 | 45 21 15 | W | - | 171 | 08/19/85 | 27 | - | 18. | 11e | |
| 3S-4E-12 NE | 122 15 17 | 45 21 13 | W | Raney | 378 | 06/24/86 | 217 | - | 9e | - | |
| 3S-4E-13 SW | 122 15 57 | 45 18 18 | W | Freese | 195 | 06/24/86 | 119 | - | 16e | - | |
| 3S-4E-14 SW | 122 17 21 | 45 18 11 | W | - | 317 | 06/24/86 | - | - | 9e | - | |
| 3S-4E-15 SE | 122 17 32 | 45 18 11 | W | - | 306 | 06/24/86 | - | - | 10e | - | |
| 3S-4E-18 NW | 122 22 13 | 45 18 56 | W | - | 111 | 08/07/85 | 65 | - | 37. | 4.7 | T |
| 3S-4E-21 NE | 122 18 53 | 45 17 47 | W | - | 280 | 06/24/86 | 17 | - | 5e | - | I |
| 3S-4E-22 SE | 122 17 59 | 45 17 42 | W | - | 276 | 06/24/86 | - | - | 8e | - | |
| 3S-4E-23 SE | 122 16 45 | 45 17 21 | W | - | 337 | 06/24/86 | - | - | 5e | - | |

Table 4.--Sodium, chloride, and conductivity values for selected wells, springs, streams, and lakes (continued)

| T-R-Sec. 1/4 | Longitude (° ' ") | Latitude (° ' ") | Code | Name | Elev. (m) | Date (mo/da/yr) | Depth (m) | Cond. (umhos) | Na (mg/L) | Cl (mg/L) | Ref. |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 3S-4E-24 NE | 122 15 17 | 45 19 13 | W | - | 329 | 06/24/86 | - | - | 5e | - | |
| 3S-4E-25 SW | 122 15 57 | 45 16 34 | W | - | 341 | 06/26/86 | - | - | 1e | - | |
| 3S-4E-26 NE | 122 16 43 | 45 16 46 | W | Kiggins | 354 | 06/25/86 | 37 | - | 2e | - | |
| 3S-4E-27 SW | 122 18 16 | 45 16 26 | W | Van Veen | 262 | 06/25/86 | 109 | - | 9e | - | |
| 3S-4E-28 NW | 122 19 24 | 45 17 10 | W | - | 216 | 06/25/86 | 69 | - | 21. | 13. | |
| 3S-4E-29 SW | 122 20 50 | 45 16 34 | W | - | 232 | 08/17/85 | 53 | - | 15. | 1.9 | |
| 3S-4E-32 SE | 122 20 05 | 45 15 32 | W | - | 326 | 06/25/86 | - | - | 3e | - | |
| 3S-4E-33 SW | 122 19 04 | 45 16 09 | W | - | 340 | 06/25/86 | - | - | 2e | - | |
| 3S-4E-34 NW | 122 18 38 | 45 15 54 | W | - | 155 | 06/25/86 | - | - | 10e | - | |
| 3S-4E-35 NE | 122 16 37 | 45 15 59 | W | Wheeler | 352 | 06/25/86 | 67 | - | 2e | - | |
| 3S-4E-36 NE | 122 15 26 | 45 16 10 | W | Wiese | 296 | 06/25/86 | 16 | - | 6e | - | |
| 3S-4E-36 SW | 122 18 06 | 45 15 54 | W | - | 354 | 08/14/85 | - | - | 8.6 | 1.9 | |
| 3S-5E-07 NE | 122 14 04 | 45 19 51 | W | Kern | 379 | 06/25/86 | 104 | - | 5e | - | |
| 3S-5E-08 NW | 122 13 36 | 45 19 48 | W | - | 384 | 06/26/86 | 27 | - | 2e | - | |
| 3S-5E-09 NW | 122 13 36 | 45 19 51 | W | - | 445 | 06/26/86 | - | - | 1e | - | |
| 3S-5E-10 NW | 122 10 40 | 45 19 43 | W | Cump | 378 | 06/26/86 | 58 | - | 12e | - | |

Table 4.--Sodium, chloride, and conductivity values for selected wells, springs, streams, and lakes (continued)

| T-R-Sec. 1/4 | Longitude (° ′ ″) | Latitude (° ′ ″) | Code | Name | Elev. (m) | Date (mo/da/yr) | Depth (m) | Cond. (umhos) | Na (mg/L) | Cl (mg/L) | Ref. |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 3S-5E-17 NW | 122 13 13 | 45 18 38 W | Day | | 378 | 06/27/86 | 46 | - | 3e | - | |
| 3S-5E-18 SW | 122 14 21 | 45 18 23 W | - | | 345 | 06/27/86 | - | - | 7e | - | |
| 3S-5E-19 SE | 122 14 10 | 45 18 38 W | - | | 370 | 06/27/86 | - | - | 6e | - | |
| 3S-5E-21 NW | 122 12 06 | 45 17 40 W | - | | 491 | 06/27/86 | - | - | 2e | - | |
| 3S-5E-22 SW | 122 10 49 | 45 17 35 W | - | | 536 | 06/27/86 | 180 | - | 8e | - | |
| 3S-5E-28 SW | 122 12 10 | 45 16 36 W | - | | 280 | 08/04/86 | 98 | - | 71. | 52. | T |
| | | | | | | 08/02/87 | | - | 71. | 42. | C |
| 3S-5E-29 NE | 122 12 34 | 45 16 18 W | - | | 375 | 06/27/86 | - | - | 8e | - | |
| 3S-5E-30 SE | 122 14 21 | 45 16 26 W | Swartzen-druber | | 366 | 06/27/86 | 110 | - | 5e | - | |
| 3S-5E-31 SE | 122 14 15 | 45 15 54 W | - | | 351 | 06/27/86 | - | - | 8e | - | |
| 3S-5E-32 NW | 122 13 23 | 45 16 09 W | Halle | | 390 | 06/30/86 | 81 | - | 8e | - | |
| 3S-5E-32 SE | 122 12 52 | 45 15 33 SP | unnamed | | 411 | 06/30/86 | - | - | 6e | - | I |
| 3S-5E-36 SE | 122 08 08 | 45 15 56 SP | unnamed | | 732 | 06/30/86 | - | - | 1e | - | I |
| 3S-6E-33 SE | 122 04 29 | 45 15 53 SP | unnamed | | 1103 | 06/30/86 | - | - | 1e | - | I |
| 3S-9E-29 SE | 121 41 32 | 45 16 39 SP | unnamed | | 1242 | 10/01/87 | - | 25 | 2.8 | .5 | |
| 4S-4E-01 SW | 122 15 44 | 45 14 43 W | - | | 354 | 06/30/86 | >110 | - | 9e | - | |
| 4S-4E-02 NE | 122 16 31 | 45 15 29 W | - | | 366 | 06/30/86 | <40 | - | 5e | - | |

Table 4.--Sodium, chloride, and conductivity values for selected wells, springs, streams, and lakes (continued)

| T-R-Sec. 1/4 | Longitude (° ' ") | Latitude (° ' ") | Code | Name | Elev. (m) | Date (mo/da/yr) | Depth (m) | Cond. (umhos) | Na (mg/L) | Cl (mg/L) | Ref. |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 4S-4E-04 NW | 122 19 14 | 45 15 44 W | | Millhouse | 331 | 06/27/86 | 51 | - | 2e | - | |
| 4S-4E-05 NE | 122 20 08 | 45 15 32 W | | Beisell | 331 | 06/24/86 | 146 | - | 20e | - | |
| 4S-4E-06 SE | 122 21 19 | 45 15 14 W | | Fisher | 302 | 06/24/86 | 79 | - | 5e | - | |
| 4S-4E-08 SW | 122 21 06 | 45 13 42 W | | Thompson | 315 | 06/24/86 | 134 | - | 1e | - | |
| 4S-4E-09 SW | 122 19 16 | 45 14 01 W | | Reagen | 335 | 06/24/86 | 87 | - | 8e | - | |
| 4S-4E-10 NE | 122 18 16 | 45 14 06 W | | Kalhar | 355 | 06/27/86 | 107 | - | 9e | - | |
| 4S-4E-11 SW | 122 17 09 | 45 13 44 W | | Piersall | 389 | 06/30/86 | 151 | - | 6e | - | |
| 4S-4E-12 NW | 122 15 47 | 45 14 29 W | SP | unnamed | 183 | 07/02/86 | - | - | 8e | - | |
| 4S-4E-14 SW | 122 17 11 | 45 12 35 W | | Frahm | 416 | 06/27/86 | 68 | - | 4e | - | |
| 4S-4E-15 SE | 122 17 36 | 45 12 27 W | | - | 418 | 06/27/86 | 21 | - | 3e | - | |
| 4S-4E-16 SE | 122 18 51 | 45 12 41 W | | Wey | 378 | 06/24/86 | 71 | - | 7e | - | |
| 4S-4E-17 SE | 122 20 03 | 45 12 49 W | | - | 314 | 06/24/86 | 70 | - | 8e | - | |
| 4S-4E-20 NW | 122 20 52 | 45 11 51 W | | - | 331 | 06/24/86 | 34 | - | 4e | - | |
| 4S-4E-21 NE | 122 19 04 | 45 12 06 W | | Prath | 384 | 06/27/86 | 51 | - | 4e | - | |
| 4S-4E-22 NW | 122 18 26 | 45 11 51 W | | Wilds | 392 | 06/27/86 | 81 | - | 4e | - | |
| 4S-4E-23 SE | 122 16 37 | 45 11 16 W | SP | unnamed | 460 | 06/27/86 | - | - | 3e | - | |

Table 4.--Sodium, chloride, and conductivity values for selected wells, springs, streams, and lakes (continued)

| T-R-Sec. 1/4 | Longitude (° ' ") | Latitude (° ' ") | Code | Name | Elev. (m) | Date (mo/da/yr) | Depth (m) | Cond. (umhos) | Na (mg/L) | Cl (mg/L) | Ref. |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 4S-4E-28 SW | 122 19 45 | 45 10 07 | W | Benzinger | 396 | 06/30/86 | 53 | - | 5e | - | |
| 4S-4E-29 NE | 122 20 08 | 45 10 58 | W | Pine | 381 | 06/24/86 | 127 | - | 9e | - | |
| 4S-4E-33 NE | 122 18 55 | 45 09 49 | W | Benthin | 521 | 06/30/86 | 92 | - | 6e | - | |
| 4S-5E-10 NW | 122 11 01 | 45 14 37 | W | - | 591 | 06/30/86 | 24 | - | 3e | - | |
| 4S-5E-10 NE | 122 10 27 | 45 13 33 | W | - | 610 | 08/14/85 | 75 | - | 6.3 | 1.9 | |
| 4S-5E-18 NW | 122 14 31 | 45 13 22 | W | Portland Gen. Elect. Co. | 232 | 07/01/86 | 30 | - | 7e | - | |
| 4S-5E-20 SW | 122 13 28 | 45 12 27 | SP | unnamed | 207 | 07/02/86 | - | - | 5e | - | |
| 4S-5E-27 NE | 122 10 44 | 45 11 49 | SP | unnamed | 232 | 07/02/86 | - | - | 4.2 | 1.6 | |
| 4S-5E-30 SW | 122 14 31 | 45 10 35 | SP | Hillockburn Spr. | 668 | 04/27/86 | - | - | 2e | - | |
| 4S-6E-13 NE | 122 00 24 | 45 13 49 | SP | Twin Sprs. | 1256 | 06/30/86 | - | - | 1e | - | |
| 4S-6E-22 NW | 122 03 56 | 45 12 44 | SP | Lookout Sprs. | 1203 | 06/30/86 | - | - | 1e | - | |
| 4S-7E-22 SE | 121 56 13 | 45 12 24 | SP | unnamed | 1183 | 07/03/86 | - | - | 2e | - | |
| 5S-4E-01 SW | 122 16 10 | 45 09 30 | SP | unnamed | 631 | 06/30/86 | - | - | 3e | - | I |
| 5S-4E-13 NW | 122 15 49 | 45 08 23 | SP | unnamed | 963 | 07/03/86 | - | - | 2e | - | |
| 5S-5E-02 SE | 122 09 05 | 45 09 43 | W | U.S. Dept. Agriculture | 280 | 08/13/85 | 25 | - | 43. | 1.5 | T |
| 5S-5E-19 NW | 122 14 47 | 45 07 17 | SP | unnamed | 975 | 07/03/86 | - | - | 3e | - | |

Table 4.--Sodium, chloride, and conductivity values for selected wells, springs, streams, and lakes (continued)

| T-R-Sec. 1/4 | Longitude (° ' ") | Latitude (° ' ") | Code | Name | Elev. (m) | Date (mo/da/yr) | Depth (m) | Cond. (umhos) | Na (mg/L) | Cl (mg/L) | Ref. |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 5S-5E-29 SE | 122 13 15 | 45 06 05 | SP | unnamed | 1085 | 07/03/86 | - | - | 2e | - | |
| 5S-6E-06 SE | 122 06 49 | 45 09 32 | W | - (Roaring R. Campground) | 311 | 08/08/85 | 40 | - | 23. | 1.4 | T |
| 5S-6E-08 NW | 122 05 48 | 45 08 59 | W | - (Sunstrip Campground) | 316 | 08/15/85 | 14 | - | 14. | 10. | |
| 5S-7E-12 NE | 121 53 37 | 45 09 24 | SP | High Rock Spr. | 1378 | 07/03/86 | - | - | 3e | - | I |
| 5S-7E-14 SW | 121 55 34 | 45 08 07 | SP | unnamed | 969 | 07/03/86 | - | - | 2e | - | |
| 5S-7E-16 SE | 121 57 01 | 45 07 53 | SP | unnamed | 1024 | 07/03/86 | - | - | 2e | - | |
| 5S-8E-24 SE | 121 46 11 | 45 06 56 | W | - (Oak Grove Campground) | 988 | 07/03/86 | - | - | 2e | - | |
| 5S-8.5E-11 SE | 121 44 59 | 45 08 53 | SP | unnamed (Clackamas L. Cmpgrnd.) | 991 | 10/01/87 | - | - | 2.6 | .5 | I |
| 5S-8.5E-35 NE | 121 44 42 | 45 05 51 | W | - | 1019 | 07/09/86 | 43 | - | 3e | - | I |
| 6S-5E-14 NE | 122 09 23 | 45 03 03 | SP | unnamed | 743 | 07/01/86 | - | - | 2e | - | I |
| 6S-5E-29 SW | 122 13 31 | 45 00 58 | SP | unnamed | 1113 | 07/01/86 | - | - | 2e | - | |
| 6S-7E-03 SW | 121 56 59 | 45 04 11 | SP | unnamed | 658 | 07/03/86 | - | - | 3e | - | |
| 6S-7E-04 SW | 121 57 42 | 45 04 33 | SP | unnamed | 658 | 07/03/86 | - | - | 3e | - | |
| 6S-7E-04 SE | 121 57 36 | 45 04 18 | W | - (L. Harriet Campground) | 666 | 07/25/77<br>09/22/85 | 38 | -<br>- | -<br>21. | -<br>1.5 | T<br>T |
| 6S-7E-13 NE | 121 53 36 | 45 03 08 | SP | Devils Spr. | 951 | 08/27/85 | - | - | 1.6 | - | |
| (6S-8E-22) | 121 48 44 | 45 01 53 | SP | Rock Sprs. | 1231 | 08/27/85 | - | - | 1.0 | - | |

Table 4.--Sodium, chloride, and conductivity values for selected wells, springs, streams, and lakes (continued)

| T-R-Sec. 1/4 | Longitude (° ' ") | Latitude (° ' ") | Code | Name | Elev. (m) | Date (mo/da/yr) | Depth (m) | Cond. (umhos) | Na (mg/L) | Cl (mg/L) | Ref. |
|---|---|---|---|---|---|---|---|---|---|---|---|
| (6S-8E-32) N | 121 51 31 | 45 00 31 | SP | Fire Sprs. | 1024 | 08/15/81 | - | - | 2.0 | <1 | C,I |
| | | | | | | 08/27/85 | | | 1.9 | | |
| 7S-5E-14 SE | 122 09 51 | 44 57 47 | W | U.S. Forest Service | 616 | 08/15/85 | 18 | - | 65. | 2300e | T |
| 7S-5E-28 SE | 122 12 05 | 44 55 42 | SP | unnamed | 765 | 07/09/86 | - | - | 2e | - | I |
| 7S-6E-09 NW | 122 05 24 | 44 58 38 | W | - (Kingfisher Campground) | 567 | 02/23/87 | - | - | 220 | 170 | I |
| | | | | | | 08/03/87 | | - | 220 | 160 | C |
| 7S-6E-14 NW | 122 02 51 | 44 57 57 | SP | unnamed | 591 | 07/09/86 | - | - | 4.2 | .2 | |
| (7S-7E-04) NW | 121 57 04 | 44 58 56 | SP | Tarzan Spr. | 1279 | 08/27/8 | - | - | 1.3 | - | |
| (7S-7E-09) SW | 121 57 48 | 44 58 36 | SP | unnamed | 1280 | 08/15/81 | - | - | 1.7 | <1 | C,I |
| (7S-7E-34) NW | 121 56 30 | 44 55 32 | SP | Fadeaway Spr. | 1213 | 07/15/86 | - | - | 2e | - | |
| (7S-8E-34) SE | 121 48 37 | 44 55 06 | SP | Bear Skull Spr. | 1292 | 08/26/85 | - | - | 2.8 | - | |
| 8S-3E-36 SE | 122 22 55 | 44 49 33 | W | - | 402 | 06/21/86 | 46 | - | 7e | - | |
| 8S-4E-31 NE | 122 21 38 | 44 50 15 | W | - | 366 | 07/24/86 | 37e | - | 14. | 9.1 | |
| | | | | | | 08/01/87 | | - | 11. | 6.3 | C |
| 8S-5E-30 NE | 122 14 12 | 44 51 28 | SP | unnamed | 610 | 08/06/86 | - | - | 6e | | |
| | | | | | | | | - | 5.8 | 1.3 | |
| (8S-8E-20) SW | 121 51 18 | 44 51 54 | SP | Cub Spr. | 1120 | 08/21/79 | - | - | 3.6 | .8 | C,I |
| (8S-8E-25) NE | 121 46 08 | 44 51 25 | SP | unnamed | 1375 | 07/15/86 | - | - | 3e | - | |
| (8S-8E-29) NW | 121 51 38 | 44 51 41 | SP | unnamed | 1070 | 08/29/85 | - | - | 3.4 | <1 | |
| 9S-2E-04 SE | 122 33 54 | 44 48 43 | W | Wagner | 544 | 08/01/86 | 62 | - | 20e | - | |
| | | | | | | | | - | 21. | 1.4e | |

Table 4.--Sodium, chloride, and conductivity values for selected wells, springs, streams, and lakes (continued)

| T-R-Sec. 1/4 | Longitude (° ' ") | Latitude (° ' ") | Code | Name | Elev. (m) | Date (mo/da/yr) | Depth (m) | Cond. (umhos) | Na (mg/L) | Cl (mg/L) | Ref. |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 9S-2E-07 | 122 36 14 | 44 48 07 | W | - | 323 | 08/01/86 | 37 | - | 4e | - | |
| SE | | | | | | | | - | 4e | - | |
| 9S-2E-08 | 122 35 27 | 44 48 25 | W | Roberts | 453 | 08/01/86 | 91 | - | 30e | - | |
| NW | | | | | | | | - | 30e | - | |
| 9S-2E-09 | 122 34 25 | 44 48 02 | W | - | 219 | 08/07/86 | 18 | - | 10e | - | |
| SW | | | | | | | | | | | |
| 9S-2E-11 | 122 30 56 | 44 48 02 | W | - | 256 | 08/07/86 | 9e | - | 4e | - | |
| SE | | | | | | | | | | | |
| 9S-2E-11 | 122 31 18 | 44 47 46 | W | Rice | 231 | 08/05/86 | 49 | - | 50e | - | |
| SE | | | | | | | | | | | |
| 9S-2E-15 | 122 32 58 | 44 47 39 | W | Mobley | 223 | 08/05/86 | 55 | - | 30e | - | |
| NW | | | | | | | | | | | |
| 9S-2E-16 | 122 34 24 | 44 47 31 | W | Wilson | 212 | 08/01/86 | 61 | - | 40e | - | |
| NW | | | | | | | | | | | |
| 9S-2E-16 | 122 34 25 | 44 47 24 | W | - | 216 | 08/01/86 | 107 | - | 20e | - | T |
| NW | | | | | | | | | | | |
| 9S-2E-17 | 122 34 53 | 44 47 41 | W | - | 216 | 08/01/86 | 81 | - | 430 | 920 | I |
| NE | | | | | | 08/01/87 | | - | 480 | 1000 | C |
| 9S-2E-18 | 122 36 01 | 44 47 43 | W | Mehama Egg Co. | 210 | 08/01/86 | 37 | - | 6e | - | |
| NE | | | | | | | | - | 5e | - | |
| 9S-2E-18 | 122 36 39 | 44 47 10 | W | - | 197 | 08/07/86 | 7e | - | 5e | - | |
| SW | | | | | | | | | | | |
| 9S-2E-20 | 122 34 44 | 44 46 34 | W | - | 209 | 08/07/86 | 50 | - | 70e | - | |
| NE | | | | | | | | | | | |
| 9S-2E-22 | 122 33 09 | 44 46 19 | W | - | 213 | 07/31/86 | 49 | - | 40e | - | |
| SW | | | | | | | | - | 40e | - | |
| 9S-2E-22 | 122 32 50 | 44 46 04 | W | - | 222 | 08/07/86 | - | - | 5e | - | |
| SW | | | | | | | | | | | |
| 9S-2E-23 | 122 31 23 | 44 46 31 | W | - | 244 | 07/14/86 | 24 | - | 30e | - | |
| NE | | | | | | | | | | | |
| 9S-2E-23 | 122 32 00 | 44 46 05 | W | - | 230 | 07/31/86 | 150 | - | 200e | - | |
| SW | | | | | | | | - | 200e | - | |

Table 4.--Sodium, chloride, and conductivity values for selected wells, springs, streams, and lakes (continued)

| T-R-Sec. 1/4 | Longitude (° ' ") | Latitude (° ' ") | Code | Name | Elev. (m) | Date (mo/da/yr) | Depth (m) | Cond. (umhos) | Na (mg/L) | Cl (mg/L) | Ref. |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 9S-2E-24 NW | 122 30 28 | 44 46 41 | SP | unnamed | 437 | 08/07/86 | - | - | 5e | - | I |
| 9S-2E-24 NW | 122 30 22 | 44 46 30 | W | Budlong | 491 | 08/07/86 | 57 | - | 40e | - | |
| 9S-2E-26 SE | 122 31 15 | 44 45 32 | W | - | 235 | 08/07/86 | 22 | - | 6e | - | |
| 9S-2E-27 NW | 122 33 05 | 44 45 54 | W | - | 220 | 08/07/86 | 53 | - | 300e | - | |
| | | | | | | 08/01/87 | | - | 330 | 560 | C |
| 9S-2E-27 SE | 122 32 29 | 44 45 10 | W | - | 256 | 08/05/86 | 35 | - | 50e | - | |
| 9S-2E-28 NE | 122 33 59 | 44 45 57 | W | Cruson | 229 | 06/26/86 | 116 | - | 9e | - | |
| 9S-2E-30 SW | 122 36 44 | 44 45 16 | W | - | 491 | 07/14/86 | 119 | - | 2e | - | |
| 9S-2E-31 NE | 122 36 11 | 44 44 53 | W | Toomb | 510 | 07/14/86 | 74 | - | 50e | - | |
| 9S-2E-35 NW | 122 31 56 | 44 44 57 | W | Hays | 280 | 06/26/86 | 40 | - | 80e | - | |
| 9S-2E-36 NW | 122 30 38 | 44 45 01 | W | N. Santiam Plywood Co. | 248 | 06/26/86 | 59 | - | 8.6 | 2.0e | |
| 9S-3E-02 SW | 122 24 33 | 44 49 00 | W | McNall | 360 | 06/21/86 | 37 | - | 10e | - | |
| 9S-3E-09 SE | 122 26 28 | 44 48 07 | W | Bureau Land Management | 314 | 06/22/86 | 49 | - | 8e | - | |
| 9S-3E-11 NW | 122 24 19 | 44 48 19 | W | Ceri | 323 | 06/21/86 | 66 | - | 110 | 34. | |
| | | | | | | | | - | 110 | 44.e | |
| | | | | | | 08/01/87 | | - | 110 | 37. | C |
| 9S-3E-18 NW | 122 29 09 | 44 47 40 | W | Wilber | 262 | 06/24/86 | 39 | - | 40e | - | |
| 9S-3E-25 SW | 122 23 10 | 44 45 17 | W | - | 293 | 06/25/86 | - | - | 14e | - | |
| 9S-3E-26 NE | 122 23 47 | 44 45 36 | W | - | 341 | 07/14/86 | 42 | - | 10e | - | |

Table 4.--Sodium, chloride, and conductivity values for selected wells, springs, streams, and lakes (continued)

| T-R-Sec. 1/4 | Longitude (° ' ") | Latitude (° ' ") | Code | Name | Elev. (m) | Date (mo/da/yr) | Depth (m) | Cond. (umhos) | Na (mg/L) | Cl (mg/L) | Ref. |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 9S-3E-27 NE | 122 25 10 | 44 45 39 W | Sowle | | 317 | 06/23/86 | 45 | - | 60e | - | |
| 9S-3E-28 SW | 122 27 06 | 44 45 24 W | - | | 268 | 10/14/76 | 54 | - | - | - | T |
| | | | | | | 08/05/86 | | - | 80e | - | T |
| 9S-3E-28 SE | 122 26 27 | 44 45 35 W | - | | 287 | 06/25/86 | >90e | - | 470 | 690 | I |
| | | | | | | | | - | 430 | 700e | |
| | | | | | | 08/01/87 | | - | 470 | 670 | C |
| 9S-3E-29 SW | 122 27 52 | 44 45 19 W | Mason | | 268 | 06/26/86 | 43 | - | 150e | - | |
| 9S-3E-30 SW | 122 29 21 | 44 45 21 W | - | | 250 | 06/25/86 | 19 | - | 5.0 | 2.2e | |
| 9S-3E-31 NW | 122 29 14 | 44 44 44 W | Youmans | | 252 | 07/24/86 | 33 | - | 6e | - | |
| 9S-3E-32 NW | 122 28 01 | 44 45 00 W | - | | 262 | 06/26/86 | 26 | - | 6e | - | |
| 9S-3E-33 NW | 122 27 00 | 44 44 57 W | - | | 268 | 06/26/86 | 24 | - | 5e | - | |
| 9S-3E-34 SW | 122 25 42 | 44 44 37 W | Blalock | | 308 | 06/23/86 | 67 | - | 4e | - | |
| 9S-3E-36 NW | 122 23 03 | 44 44 50 W | - | | 338 | 06/23/86 | >90e | - | 60e | - | |
| 9S-3E-36 NW | 122 23 34 | 44 44 58 W | - | | 317 | 08/05/86 | - | - | 6e | - | |
| 9S-4E-29 SW | 122 21 04 | 44 45 23 W | - | | 335 | 06/26/86 | 50 | - | 4e | - | |
| 9S-4E-30 NE | 122 21 41 | 44 45 42 | SP | unnamed | 311 | 07/24/86 | - | - | 8.8 | 2.1e | |
| 9S-4E-31 NE | 122 21 41 | 44 44 56 W | Kelle | | 339 | 06/23/86 | 20e | - | 10e | - | |
| 9S-4E-31 NE | 122 21 41 | 44 44 55 W | Kelle | | 339 | 06/23/86 | 62 | - | 86. | 2.7 | |
| 9S-4E-35 NE | 122 16 53 | 44 45 13 | SP | unnamed | 366 | 07/24/86 | - | - | 2e | - | |

Table 4.--Sodium, chloride, and conductivity values for selected wells, springs, streams, and lakes (continued)

| T-R-Sec. 1/4 | Longitude (° ' ") | Latitude (° ' ") | Code | Name | Elev. (m) | Date (mo/da/yr) | Depth (m) | Cond. (umhos) | Na (mg/L) | Cl (mg/L) | Ref. |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 9S-5E-20 NE | 122 13 22 | 44 47 00 | SP | unnamed | 1292 | 08/06/86 | - | - | 2e | - | |
| | | | | | | | | - | 1e | - | |
| 9S-6E-21 SE | 122 04 37 | 44 46 25 | W | Willamette Natl. Forest | 597 | 09/24/85 | 45 | - | - | - | T |
| | | | | | | 08/31/87 | | - | 5.9 | .7 | I |
| 9S-6E-35 SE | 122 02 21 | 44 44 32 | SP | unnamed | 1140 | 07/15/86 | - | - | 83. | .4 | I |
| | | | | | | 08/01/87 | | - | 86. | 1.1 | C |
| | | | | | | 04/25/88 | | - | - | - | I |
| (9S-7E-03) NE | 121 56 24 | 44 49 30 | SP | unnamed | 1359 | 10/17/79 | - | - | 2.6 | .4 | C,I |
| (9S-7E-09) SW | 121 57 45 | 44 48 10 | SP | unnamed | 914 | 07/15/86 | - | - | 101. | 1.3 | I |
| | | | | | | 08/02/87 | | - | 100. | 5.9 | C |
| | | | | | | 04/25/88 | | - | - | - | I |
| (9S-7E-14) NE | 121 53 24 | 44 48 12 | SP | unnamed | 902 | 10/17/79 | - | - | 4.7 | .5 | C,I |
| 9S-7E-20 NE | 121 58 10 | 44 46 58 | W | Breitenbush Hot Sprs. Resort | 690 | 08/02/86 | 610 | - | 700e | - | |
| 9S-7E-20 NE | 121 58 37 | 44 47 02 | W | Breitenbush Hot Sprs. Resort | 688 | 09/01/85 | 482 | - | 765 | 250e | T |
| | | | | | | 08/06/86 | | - | - | - | T |
| (9S-7E-29) SE | 121 58 12 | 44 45 48 | SP | unnamed | 853 | 10/18/79 | - | - | 3.8 | .4 | C,I |
| (9S-8E-02) NE | 121 47 36 | 44 49 30 | SP | Big Spr. | 1460 | 10/17/79 | - | - | 4.6 | 2.4 | C,I |
| | | | | | | 08/31/87 | | - | 2.1 | 1.1 | |
| | | | | | | | | - | 3.4 | .8 | |
| 10S-3E-03 NW | 122 25 47 | 44 44 06 | W | - | 335 | 06/23/86 | - | - | 7e | - | |
| 10S-3E-09 NE | 122 26 15 | 44 43 22 | SP | unnamed | 370 | 07/13/86 | - | - | 2.8 | 1.7e | I |
| 10S-5E-01 NW | 122 08 45 | 44 44 22 | SP | unnamed | 491 | 06/21/86 | - | - | 2.8 | 1.2e | |
| 10S-5E-15 NE | 122 10 32 | 44 42 18 | W | - (Southshore Campground) | 487 | 07/01/86 | 29 | - | 3e | - | |
| | | | | | | 08/03/86 | | - | - | - | T |
| 10S-6E-17 NW | 122 06 34 | 44 42 40 | W | Hiebert | 483 | 07/01/86 | 13 | - | 4.0 | 1.1 | |
| 10S-6E-18 NW | 122 07 24 | 44 42 43 | W | Willamette Natl. Frst. | 488 | 07/01/86 | 19 | - | 3e | - | |

Table 4.--Sodium, chloride, and conductivity values for selected wells, springs, streams, and lakes (continued)

| T-R-Sec. 1/4 | Longitude (° ' ") | Latitude (° ' ") | Code | Name | Elev. (m) | Date (mo/da/yr) | Depth (m) | Cond. (umhos) | Na (mg/L) | Cl (mg/L) | Ref. |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 10S-6E-22 NW | 122 03 43 | 44 41 43 | W | Green Veneer | 527 | 06/20/86<br>08/01/87 | 183 | -<br>- | 73.<br>120 | 62.<br>89. | C,I |
| 10S-7E-08 SW | 121 58 54 | 44 42 49 | SP | unnamed | 1091 | 07/10/86 | - | - | 2e | - | |
| 10S-7E-12 SE | 121 53 27 | 44 42 48 | SP | unnamed | 1286 | 07/10/86 | - | - | 2e | - | |
| (10S-8E-04) SW | 121 50 15 | 44 43 55 | SP | unnamed | 1536 | 08/29/85 | - | - | 1.5 | - | |
| (10S-8E-04) SW | 121 49 36 | 44 43 54 | SP | unnamed | 1830 | 09/18/82 | - | - | - | - | I |
| (10S-8E-05) NW | 121 50 43 | 44 44 09 | SP | unnamed | 1433 | 08/29/85 | - | - | 1.8 | - | |
| (10S-8E-05) NE | 121 51 18 | 44 44 24 | SP | unnamed | 1330 | 10/17/79 | - | - | 1.6 | .4 | C,I |
| (10S-8E-05) NE | 121 51 41 | 44 44 22 | SP | unnamed | 1207 | 08/29/85 | - | - | 1.5 | - | |
| (10S-8E-06) NE | 121 51 50 | 44 44 26 | SP | unnamed | 1182 | 08/29/85 | - | - | 2.2 | - | |
| (10S-8E-15) SW | 121 49 00 | 44 42 12 | SP | unnamed | 1760 | 08/14/81 | - | - | 1.4 | <1 | C,I |
| (10S-8E-31) SW | 121 52 30 | 44 39 36 | SP | unnamed | 1003 | 07/12/86 | - | - | 2e | - | |
| (10S-8E-32) SE | 121 51 08 | 44 39 20 | SP | unnamed | 1167 | 07/12/86 | - | - | 2e | - | |
| 11S-4E-19 SE | 122 22 18 | 44 35 23 | W | Bureau Land Management | 475 | 07/17/86 | 11 | - | 2e | - | |
| (11S-5E-17) SE | 122 13 10 | 44 36 46 | SP | unnamed | 1201 | 07/12/86 | - | - | 2e | - | I |
| 11S-6E-31 SW | 122 07 22 | 44 34 19 | SP | unnamed | 1274 | 07/17/86 | - | - | 3e | - | |
| 11S-7E-06 NE | 121 59 42 | 44 38 50 | SP | unnamed | 1244 | 07/12/86 | - | - | 2e | - | I |

Table 4.--Sodium, chloride, and conductivity values for selected wells, springs, streams, and lakes (continued)

| T-R-Sec. 1/4 | Longitude (° ' ") | Latitude (° ' ") | Code | Name | Elev. (m) | Date (mo/da/yr) | Depth (m) | Cond. (umhos) | Na (mg/L) | Cl (mg/L) | Ref. |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 11S-7E-13 SW | 121 54 13 | 44 36 57 | SP | unnamed | 951 | 07/11/86 | - | - | 3e | - | |
| 11S-7E-15 SW | 121 56 34 | 44 36 47 | SP | unnamed | 749 | 07/11/86 | - | - | 3e | - | |
| 11S-7E-27 SW | 121 56 45 | 44 35 11 | SP | unnamed | 1052 | 06/20/86 | - | - | 3e | - | I |
| 11S-7E-28 NW | 121 58 09 | 44 35 34 | SP | unnamed | 786 | 07/11/86 | - | - | 3e | - | |
| 12S-2E-36 NE | 122 30 24 | 44 28 48 | W | - | 311 | 07/11/86 | - | - | 2e | - | |
| 12S-3E-02 NW | 122 25 11 | 44 33 18 | W | - | 354 | 07/11/86 | - | - | 3e | - | |
| 12S-3E-21 NW | 122 27 31 | 44 30 29 | SP | unnamed | 354 | 07/11/86 | - | - | 3e | - | |
| (12S-5E-28) NE | 122 12 56 | 44 29 58 | SP | unnamed | 628 | 06/22/86 | - | - | 12. | .4 | |
| (12S-6E-12) SW | 122 02 17 | 44 32 09 | SP | unnamed | 1170 | 07/23/86 | - | - | 3e | - | |
| (12S-7E-09) NE | 121 58 08 | 44 32 42 | SP | unnamed | 1158 | 07/11/86 | - | - | 3e | - | |
| 12S-7E-28 SW | 121 58 29 | 44 29 50 | SP | unnamed | 1097 | 07/11/86 | - | - | 3e | - | |
| 13S-2E-15 NW | 122 33 42 | 44 26 42 | SP | unnamed | 262 | 07/11/86 | - | - | 4e | - | |
| 13S-2E-17 NE | 122 35 23 | 44 26 27 | SP | unnamed | 225 | 07/11/86 | - | - | 4e | - | |
| 13-2E-19 NE | 122 36 14 | 44 25 48 | W | - | 204 | 07/11/86 | <12 | - | 4e | - | |
| 13S-2E-32 NE | 122 35 02 | 44 24 02 | W | - | 201 | 07/10/86 | 24e | - | 20e | - | |
| 13S-2E-34 NE | 122 32 35 | 44 24 08 | W | - | 226 | 07/09/86 | 24e | - | 4e | - | |

Table 4.--Sodium, chloride, and conductivity values for selected wells, springs, streams, and lakes (continued)

| T-R-Sec. 1/4 | Longitude (° ' ") | Latitude (° ' ") | Code | Name | Elev. (m) | Date (mo/da/yr) | Depth (m) | Cond. (umhos) | Na (mg/L) | Cl (mg/L) | Ref. |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 13S-2E-36 SW | 122 30 38 | 44 23 24 W | | Munts | 243 | 07/21/86 | 38 | - | 270 | 200 | I |
| | | | | | | 07/31/87 | | - | 250 | 170 | C |
| 13S-3E-31 SE | 122 29 22 | 44 23 43 W | | - | 244 | 07/09/86 | 81 | - | 300e | - | T |
| | | | | | | 08/08/86 | | - | - | - | T |
| 13S-3E-31 SE | 122 29 16 | 44 23 47 | SP | unnamed | 235 | 07/23/86 | - | - | 6e | - | |
| 13S-3E-32 NW | 122 28 28 | 44 23 48 W | | - | 246 | 07/09/86 | - | - | 30e | - | |
| 13S-3E-33 NE | 122 26 35 | 44 23 53 W | | - | 268 | 07/10/86 | - | - | 5e | - | |
| 13S-4E-26 SW | 122 17 55 | 44 24 08 W | | U.S. Forest Service | 439 | 07/18/86 | 10 | - | 50e | - | |
| 13S-4E-31 NE | 122 21 46 | 44 23 59 W | | U.S. Forest Service | 266 | 07/21/86 | 15 | - | 3e | - | |
| 13S-4E-32 NE | 122 20 51 | 44 23 51 W | | - (Trout Cr. Campground) | 375 | 07/10/86 | - | - | 39. | 78. | |
| | | | | | | 07/31/87 | | - | 52. | 100 | C |
| 13S-4E-33 NW | 122 20 09 | 44 24 00 W | | Willamette Natl. Forest | 378 | 07/10/86 | 26 | - | 30e | - | |
| 13S-5E-05 NE | 122 13 51 | 44 28 23 | SP | unnamed | 1102 | 07/22/86 | - | - | 3e | - | |
| 13S-5E-07 SE | 122 14 58 | 44 26 52 | SP | unnamed | 933 | 07/22/86 | - | - | 4.0 | 1.0e | |
| 13S-5E-32 SW | 122 14 42 | 44 23 34 W | | - (House Rock Campground) | 483 | 07/10/86 | <24e | - | 10. | 11. | |
| | | | | | | 07/31/87 | | - | 12. | 16. | C |
| 13S-6E-31 NE | 122 07 55 | 44 23 51 | SP | unnamed | 1229 | 07/20/86 | - | - | 2e | - | |
| 13S-6E-34 NE | 122 04 38 | 44 24 09 W | | - | 1008 | 07/10/86 | <24 | - | 2e | - | |
| 13S-7E-29 SW | 122 00 24 | 44 24 13 W | | - | 966 | 07/18/86 | 46 | - | 8.1 | .4 | |
| 13S-7E-32 SE | 121 59 42 | 44 23 24 W | | - | 956 | 09/05/79 | 557 | - | - | - | T |
| | | | | | | --/--/80 | (200) | - | 32. | 4.2 | C |

Table 4.--Sodium, chloride, and conductivity values for selected wells, springs, streams, and lakes (continued)

| T-R-Sec. 1/4 | Longitude (° ' ") | Latitude (° ' ") | Code | Name | Elev. (m) | Date (mo/da/yr) | Depth (m) | Cond. (umhos) | Na (mg/L) | Cl (mg/L) | Ref. |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 13S-7.5E-23 SE | 121 52 49 | 44 25 18 | W | - | 1441 | 07/18/86 | <10e | - | 1e | - | I |
| 14S-2E-02 NE | 122 31 25 | 44 23 17 | W | Betts | 357 | 07/09/86 | 107 | - | 7.7 | 1.3e | I |
| 14S-3E-06 NW | 122 29 29 | 44 23 12 | SP | unnamed | 366 | 07/23/86 | - | - | 50e | - | |
| 14S-4E-10 NE | 122 18 26 | 44 22 02 | SP | unnamed | 1299 | 07/21/86 | - | - | 1e | - | I |
| 14S-6E-19 NE | 122 08 01 | 44 20 34 | SP | unnamed | 1248 | 07/20/86 | - | - | 2e | - | |
| 14S-7E-05 SE | 121 59 45 | 44 22 37 | SP | Great Spr. | 921 | 10/09/85 | - | - | 5.6 | <1 | |
| 14S-7E-06 SW | 122 01 44 | 44 22 38 | SP | unnamed | 1060 | 07/18/86 | - | - | 2e | - | |
| 14S-7E-09 SW | 121 59 15 | 44 21 50 | W | U.S.D.A.-Forest Service | 925 | 07/18/86 | 37 | -<br>- | 5.3<br>4.9 | .2<br>.8e | |
| 14S-7E-20 NE | 121 59 50 | 44 20 38 | SP | Icecap Spr. | 833 | 10/18/79 | - | - | 3.9 | .6 | C,I |
| 14S-7.5E-10 NE | 121 52 49 | 44 22 31 | LK | Big Lake | 1415 | 08/08/87 | - | 5 | .5 | .2 | |
| 14S-7.5E-25 SW | 121 51 04 | 44 19 24 | LK | Washington Ponds | 1753 | 08/13/86 | - | - | 1e | - | |
| 15S-4E-36 SE | 122 15 50 | 44 12 37 | W | Willamette Natl. Forest | 424 | 08/31/86 | 44 | - | 5e | - | |
| (15S-6E-04) NE | 122 05 51 | 44 17 10 | SP | unnamed | 802 | 10/18/79 | - | - | 2.4 | .6 | C,I |
| (15S-6E-13) SE | 122 02 18 | 44 15 20 | W | Willamette Natl. Forest | 600 | 07/18/86 | 18 | - | 3.5 | .4 | |
| (15S-7.5E-25) NW | 121 50 36 | 44 14 42 | SP | unnamed | 1540 | 10/18/79 | - | - | 1.7 | .4 | C,I |
| 16S-2E-26 NW | 122 32 38 | 44 09 00 | W | Potter | 353 | 08/13/86 | 59 | - | 10e | - | |

Table 4.--Sodium, chloride, and conductivity values for selected wells, springs, streams, and lakes (continued)

| T-R-Sec. 1/4 | Longitude (° ' ") | Latitude (° ' ") | Code | Name | Elev. (m) | Date (mo/da/yr) | Depth (m) | Cond. (umhos) | Na (mg/L) | Cl (mg/L) | Ref. |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 16S-2E-27 SW | 122 33 38 | 44 08 31 W | - | | 251 | 08/13/86 | - | - | 20e | - | |
| 16S-2E-28 SE | 122 33 57 | 44 08 40 W | Gustafsun | | 250 | 08/13/86 | 75 | - | 6e | - | |
| 16S-2E-29 SE | 122 35 26 | 44 08 31 W | Toy | | 235 | 08/12/86 | 67 | - | 260 | 420 | I |
| | | | | | | 07/31/87 | | - | 300 | 430 | C |
| 16S-2E-30 NE | 122 36 17 | 44 08 55 W | - | | 333 | 08/12/86 | - | - | 5e | - | |
| 16S-2E-31 SE | 122 36 50 | 44 07 49 W | - | | 227 | 08/12/86 | - | - | 4.9 | 2.2e | |
| 16S-2E-33 NW | 122 34 32 | 44 08 18 W | Veneski | | 277 | 08/13/86 | 104 | - | 30e | - | |
| 16S-2E-34 NW | 122 33 39 | 44 08 18 W | Sessions | | 239 | 08/13/86 | 37 | - | 10e | - | |
| 16S-2E-35 SW | 122 32 15 | 44 07 58 W | Rhyne | | 253 | 08/13/86 | 21 | - | 4e | - | |
| 16S-2E-36 SE | 122 30 40 | 44 08 00 W | Callaway | | 254 | 08/13/86 | 122 | - | 40e | - | |
| 16S-3E-31 SW | 122 30 12 | 44 07 56 W | Mross | | 268 | 08/07/86 | 168 | - | 20e | - | |
| 16S-3E-32 SW | 122 29 08 | 44 07 56 W | Walwyn | | 262 | 08/13/86 | 131 | - | 6.4 | 1.7e | |
| 16S-4E-04 SE | 122 19 53 | 44 11 57 SP | unnamed | | 601 | 08/15/86 | - | - | 3e | - | I |
| 16S-4E-16 NE | 122 19 48 | 44 10 38 SP | unnamed | | 363 | 08/15/86 | - | - | 3e | - | |
| 16S-4E-29 SW | 122 21 52 | 44 08 48 W | Blue R. Water District | | 303 | 08/14/86 | 42 | - | 6e | - | |
| 16S-4E-31 SW | 122 22 44 | 44 07 46 W | - | | 298 | 08/15/86 | 450e | - | 30e | 1.2 | |
| 16S-5E-13 NW | 122 09 03 | 44 10 49 W | CanCannon | | 430 | 08/30/86 | 18 | - | 4e | - | |

Table 4.--Sodium, chloride, and conductivity values for selected wells, springs, streams, and lakes (continued)

| T-R-Sec. 1/4 | Longitude (° ' ") | Latitude (° ' ") | Code | Name | Elev. (m) | Date (mo/da/yr) | Depth (m) | Cond. (umhos) | Na (mg/L) | Cl (mg/L) | Ref. |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 16S-5E-14 SW | 122 10 26 | 44 10 35 | W | Willamette Natl. Forest | 402 | 08/30/86 | 26 | - | 4e | - | |
| 16S-5E-15 SW | 122 11 43 | 44 10 22 | W | Detmering | 387 | 08/30/86 | 19 | - | 6e | - | |
| 16S-5E-16 NE | 122 12 26 | 44 10 40 | W | Tokatee Golf Course | 385 | 08/31/86 | 69e | - | 5e | - | |
| 16S-5E-16 SW | 122 13 00 | 44 10 24 | W | Giustina | 375 | 08/30/86 | 18 | - | 4e | - | |
| 16S-5E-17 NE | 122 13 13 | 44 10 43 | W | - | 382 | 08/30/86 | 60e | - | 5e | - | |
| 16S-5E-19 NE | 122 14 32 | 44 09 54 | W | Mosely | 358 | 08/31/86 | 12 | - | 4e | - | |
| 16S-5E-20 NW | 122 14 09 | 44 09 55 | W | - | 366 | 08/31/86 | 30e | - | 4e | - | |
| 16S-5E-21 NE | 122 12 23 | 44 10 08 | W | - | 385 | 08/30/86 | - | - | 9.6 | 19. | |
| | | | | | | 07/31/87 | | - | 12. | 26. | C |
| 16S-5E-22 NE | 122 11 10 | 44 10 07 | W | Behm | 400 | 08/30/86 | 21 | - | 5e | - | |
| 16S-5E-23 NE | 122 09 54 | 44 10 02 | W | McMaster | 418 | 08/30/86 | 18 | - | 5e | - | |
| 16S-5E-24 NW | 122 09 24 | 44 09 51 | W | Spencer | 436 | 08/30/86 | 47 | - | 4e | - | |
| 16S-6E-08 SE | 122 06 00 | 44 11 06 | W | - | 472 | 08/29/86 | 12e | - | 3e | - | |
| 16S-6E-10 SW | 122 04 33 | 44 11 06 | W | Bigelow | 481 | 06/14/84 | 209 | - | - | - | T |
| | | | | | | 08/29/86 | | - | 700e | - | |
| | | | | | | 09/29/86 | | - | 670 | 1400 | C,I |
| 16S-6E-11 NW | 122 03 00 | 44 11 30 | W | Nation | 493 | 08/29/86 | 17 | - | 20e | - | |
| 16S-6E-15 NE | 122 03 32 | 44 10 57 | W | - | 509 | 08/30/86 | - | - | 4e | - | |
| 16S-6E-15 NE | 122 03 48 | 44 10 58 | W | - | 512 | 08/31/86 | 11 | - | 3e | - | |

Table 4.--Sodium, chloride, and conductivity values for selected wells, springs, streams, and lakes (continued)

| T-R-Sec. 1/4 | Longitude (° ′ ″) | Latitude (° ′ ″) | Code | Name | Elev. (m) | Date (mo/da/yr) | Depth (m) | Cond. (umhos) | Na (mg/L) | Cl (mg/L) | Ref. |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 16S-6E-16 NE | 122 05 03 | 44 10 57 | W | Willamette Natl. Forest | 482 | 08/29/86 | 45e | - | 4e | - | |
| 16S-6E-18 NW | 122 08 12 | 44 10 37 | W | Owens | 431 | 08/30/86 | 19 | - | 3e | - | |
| 16S-6E-24 SE | 122 01 12 | 44 09 42 | SP | unnamed | 585 | 10/18/79 | - | - | 5.0 | 1.8 | C,I |
| (16S-7E-13) NW | 121 54 39 | 44 10 42 | SP | Alder Spr. | 1126 | 08/28/86 | - | - | 3.3 | .3 | |
| (16S-7E-16) SE | 121 57 33 | 44 10 14 | SP | Payne Spr. | 787 | 08/20/86 | - | - | 5e | - | |
| (16S-7E-21) SE | 121 57 48 | 44 09 51 | W | Eddings | 748 | 08/28/86 | 62 | - | 45. | 61. | |
| | | | | | | | | - | 43. | 55.e | |
| | | | | | | 07/31/87 | | - | 45. | 54. | C |
| (16S-8.5E-08) SE | 121 47 22 | 44 11 48 | SP | Minnie Scott Spr. | 2011 | 08/29/86 | - | - | 1e | - | |
| | | | | | | | | - | 1e | - | |
| (16S-8.5E-19) SE | 121 48 49 | 44 10 08 | SP | Sister Spr. | 2005 | 08/29/86 | - | - | 1e | - | |
| 17S-2E-02 NE | 122 31 54 | 44 07 19 | SP | unnamed | 297 | 08/13/86 | - | - | 1e | - | I |
| 17S-3E-02 NE | 122 24 39 | 44 07 20 | W | - | 285 | 08/15/86 | - | - | 3e | - | |
| 17S-3E-04 SE | 122 26 58 | 44 07 12 | SP | unnamed | 315 | 08/14/86 | - | - | 4e | - | |
| 17S-3E-05 NE | 122 28 05 | 44 07 31 | SP | unnamed | 294 | 08/14/86 | - | - | 3e | - | |
| 17S-3E-10 NE | 122 25 43 | 44 06 36 | W | Johnston | 291 | 08/14/86 | 157 | - | 9e | - | |
| 17S-4E-06 NW | 122 22 43 | 44 07 28 | W | Rosboro Lumber Co. | 294 | 08/14/86 | 61 | - | 20e | - | |
| (17S-5E-28) NE | 122 12 09 | 44 04 01 | SP | unnamed | 920 | 09/01/86 | - | - | 3.7 | .3 | |
| | | | | | | | | - | 3.6 | 1.6e | |
| (17S-6E-22) SE | 122 03 38 | 44 04 25 | SP | unnamed | 1526 | 08/14/86 | - | - | 2e | - | |

Table 4.--Sodium, chloride, and conductivity values for selected wells, springs, streams, and lakes (continued)

| T-R-Sec. 1/4 | Longitude (° ' ") | Latitude (° ' ") | Code | Name | Elev. (m) | Date (mo/da/yr) | Depth (m) | Cond. (umhos) | Na (mg/L) | Cl | Ref. |
|---|---|---|---|---|---|---|---|---|---|---|---|
| (17S-6E-28) SW | 122 05 39 | 44 03 36 | SP | Quaking Aspen Swamp | 1350 | 08/14/86 | - | - | 2e | - | |
| (17S-6E-34) NE | 122 03 33 | 44 03 03 | SP | unnamed | 1428 | 08/14/86 | - | - | 1e | - | |
| (17S-7E-01) | 121 49 33 | 44 07 56 | SP | Linton Spr. | 1817 | 08/28/86 | - | - | 3e | - | |
| (17S-7E-13) NE | 121 50 24 | 44 06 10 | SP | unnamed | 1756 | 08/28/86 | - | - | 3e | - | |
| (17S-8E-18) | 121 48 54 | 44 06 00 | SP | unnamed | 1905 | 08/12/81 | - | - | 4.2 | 1.0 | C,I |
| (17S-8E-19) | 121 48 54 | 44 04 54 | SP | unnamed | 1750 | 08/12/81 | - | - | 5.2 | <1 | C,I |
| (18S-6E-02) SE | 122 02 28 | 44 01 47 | SP | unnamed | 1453 | 08/14/86 | - | - | 1e | - | I |
| (18S-6E-26) SW | 122 03 13 | 43 58 09 | SP | unnamed | 1235 | 09/02/86 | - | - | 3.5 | .4 | |
| (18S-6E-35) SW | 122 03 35 | 43 57 17 | SP | unnamed | 933 | 08/31/86 | - | -<br>- | 4.9<br>4.7 | .3<br>.6e | |
| (18S-6.5E-01) | 121 57 22 | 44 02 12 | SP | unnamed | 1157 | 08/30/86 | - | - | 3e | - | |
| (18S-6.5E-25) NE | 121 57 07 | 43 58 38 | SP | Bill Gott Spr. | 1475 | 09/02/86 | - | - | 2e | - | I |
| **East of the Cascade crest** | | | | | | | | | | | |
| 3S-10E-05 NE | 121 34 09 | 45 20 28 | W | U.S. Dept. Agriculture | 1082 | 10/06/87 | 20 | 48 | 7.1 | 1.1 | |
| 3S-10E-08 SW | 121 34 47 | 45 19 13 | SP | unnamed | 1164 | 10/06/87 | - | 20 | 3.0 | .7 | |
| 3S-10E-20 SW | 121 34 54 | 45 17 23 | SP | unnamed | 1658 | 10/06/87 | - | 15 | 1.7 | .6 | I |
| 3S-11E-05 NE | 121 27 33 | 45 20 18 | SP | Three Bears Spr. | 1442 | 10/06/87 | - | 30 | 2.8 | .4 | |

Table 4.--Sodium, chloride, and conductivity values for selected wells, springs, streams, and lakes (continued)

| T-R-Sec. 1/4 | Longitude (° ' ") | Latitude (° ' ") | Code | Name | Elev. (m) | Date (mo/da/yr) | Depth (m) | Cond. (umhos) | Na (mg/L) | Cl (mg/L) | Ref. |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 3S-11E-18 NE | 121 27 50 | 45 18 41 | SP | Sunrise Sprs. | 1596 | 10/06/87 | - | 30 | 2.9 | .6 | I |
| 3S-12E-36 NE | 121 14 24 | 45 16 12 | W | Delco | 384 | 09/30/97 | 106 | 130 | 11. | 2.0 | |
| 3S-13E-05 NW | 121 12 27 | 45 20 21 | W | Smith | 710 | 09/28/87 | 105 | 160 | 10. | 1.4 | |
| 3S-13E-09 NW | 121 11 02 | 45 19 50 | W | Muller | 789 | 09/28/87 | 196 | 170 | 13. | 2.8 | |
| 3S-13E-10 NW | 121 09 51 | 45 19 28 | W | Hendricks | 826 | 09/28/87 | 293 | 160 | 13. | 3.3 | |
| 3S-13E-33 SW | 121 11 19 | 45 15 38 | W | Tywama Saddle Club | 369 | 09/30/87 | 40 | - | 15. | 2.3 | |
| 3S-13E-34 NW | 121 10 09 | 45 16 05 | SP | unnamed | 512 | 09/30/87 | - | 142 | 9.1 | 1.8 | I |
| 3S-14E-30 NW | 121 06 16 | 45 17 04 | SP | unnamed | 719 | 09/30/87 | - | 105 | 7.3 | 2.1 | |
| 3S-14E-31 NW | 121 06 38 | 45 16 12 | SP | unnamed | 488 | 10/08/87 | - | 90 | 11. | 3.2 | I |
| 4S-9E-17 SW | 121 41 39 | 45 13 14 | W | Mt. Hood Natl. Forest | 1676 | 10/01/87 | 73 | 32 | 2.9 | .5 | I |
| 4S-10E-11 NE | 121 30 11 | 45 14 26 | SP | Bell Spr. | 1256 | 10/07/87 | - | 30<br>- | 2.6<br>2.6 | .6<br>1.4 | |
| 4S-10E-15 SE | 121 31 21 | 45 12 58 | SP | unnamed | 1219 | 10/07/87 | - | 32 | 2.3 | .9 | I |
| 4S-10E-32 SW | 121 34 21 | 45 10 44 | SP | Faith Spr. | 899 | 10/01/87 | - | 50 | 4.3 | .9 | |
| 4S-10E-33 NW | 121 33 40 | 45 10 50 | SP | Charity Spr. | 1021 | 10/01/87 | - | 45 | 4.1 | .9 | |
| 4S-11E-13 NE | 121 22 38 | 45 13 36 | W | U.S. Forest Service | 689 | 10/07/87 | 246 | 130 | 25. | 1.5 | |
| 4S-12E-01 SW | 121 14 48 | 45 15 04 | W | Tidyman | 536 | 09/29/87 | 90 | - | 11. | 1.7 | |

Table 4.--Sodium, chloride, and conductivity values for selected wells, springs, streams, and lakes (continued)

| T-R-Sec. 1/4 | Longitude (° ' ") | Latitude (° ' ") | Code | Name | Elev. (m) | Date (mo/da/yr) | Depth (m) | Cond. (umhos) | Na (mg/L) | Cl (mg/L) | Ref. |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 4S-12E-03 NE | 121 16 42 | 45 15 26 | W | Archer | 474 | 09/29/87 | 61 | - | 13. | 2.6 | |
| 4S-12E-04 NE | 121 18 20 | 45 15 17 | W | Davis | 591 | 09/30/87 | 183 | 112 | 15. | 1.3 | |
| 4S-12E-07 SE | 121 20 23 | 45 13 52 | W | Metzentine | 642 | 09/29/87 | 104 | - | 6.4 | .5 | |
| 4S-12E-11 SW | 121 16 16 | 45 13 53 | W | Wamic Water Corp. | 549 | 09/29/87 | 104 | - | 11. | 2.3 | |
| 4S-12E-12 SW | 121 15 00 | 45 14 04 | W | Brittain | 518 | 09/29/87 | 74 | - | 5.6 | 1.3 | |
| 4S-12E-14 NW | 121 16 22 | 45 13 42 | W | Wamic Water Coop. Assn. | 514 | 09/29/87 | 78 | - | 12. | 2.5 | |
| 4S-12E-15 NE | 121 17 02 | 45 13 47 | W | Ashley | 542 | 09/29/87 | 152 | - | 9.5 | 1.2 | |
| 4S-12E-22 NW | 121 17 12 | 45 12 33 | W | Harvey and Jensen | 546 | 10/07/87 | 101 | - | 13. | 5.5 | |
| | | | | | | 04/25/88 | | 138 | 13. | 6. | C,I |
| 4S-12E-23 NW | 121 16 13 | 45 12 44 | W | Lindley | 536 | 10/07/87 | 96 | - | 11. | 1.9 | |
| 4S-12E-32 SW | 121 20 09 | 45 10 22 | W | Lichten-berger | 642 | 10/07/87 | 198 | 130 | 28. | 12. | |
| | | | | | | 04/25/88 | | 168 | 26. | 9. | C,I |
| 4S-13E-03 SW | 121 10 22 | 45 15 01 | W | - | 335 | 09/29/87 | 56 | - | 14. | 2.9 | |
| 4S-13E-06 NE | 121 12 56 | 45 15 25 | W | Coburn | 366 | 09/29/87 | 28 | - | 7.0 | 2.6 | |
| 4S-13E-10 SE | 121 09 20 | 45 14 07 | W | Mountain Fir Lumber | 328 | 09/30/87 | 44 | 230 | 41. | 8.2 | |
| 4S-13E-12 NE | 121 07 04 | 45 14 17 | W | Tygh Valley Sand and Gravel | 320 | 09/30/87 | 43 | 170 | 19. | 4.6 | |
| 4S-13E-14 SE | 121 07 58 | 45 13 09 | W | - | 504 | 09/30/87 | 101 | - | 7.1 | 1.6 | |
| 4S-13E-24 NW | 121 07 19 | 45 12 37 | W | Larsell | 507 | 09/30/87 | 139 | - | 6.8 | 1.6 | |

Table 4.--Sodium, chloride, and conductivity values for selected wells, springs, streams, and lakes (continued)

| T-R-Sec. 1/4 | Longitude (° ' ") | Latitude (° ' ") | Code | Name | Elev. (m) | Date (mo/da/yr) | Depth (m) | Cond. (umhos) | Na (mg/L) | Cl (mg/L) | Ref. |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 4S-13E-27 SW | 121 10 07 | 45 11 37 W | | Morelli | 533 | 09/30/87 | 131 | - | 19. | 5.7 | |
| 4S-13E-33 SW | 121 11 20 | 45 10 33 W | | Paulson | 553 | 09/30/87 | 151 | - | 20. | 5.9 | |
| 4S-13E-35 NE | 121 08 03 | 45 11 00 W | | Mayhew | 529 | 09/30/87 | 121 | - | 6.3 | 1.3 | |
| 4S-14E-17 SW | 121 05 00 | 45 13 07 | SP | unnamed | 341 | 09/30/87 | - | - | 6.9 | 1.5 | |
| 4S-14E-19 NE | 121 05 49 | 45 12 38 W | | Chastain | 507 | 09/30/87 | 169 | - | 8.1 | 1.9 | |
| 4S-14E-30 NW | 121 06 24 | 45 11 39 W | | Young | 515 | 09/30/87 | 128 | - | 7.2 | 1.6 | |
| 4S-14E-31 SE | 121 06 12 | 45 10 41 W | | Fleishmann | 500 | 10/02/87 | 180 | 125 | 8.8 | 3.2 | |
| 5S-10E-07 NE | 121 35 16 | 45 09 24 | SP | unnamed | 975 | 10/01/87 | - | 50 | 5.2 | .4 | |
| 5S-10E-18 NE | 121 35 08 | 45 08 23 | SP | unnamed | 974 | 10/01/87 | - | 22 | 2.7 | .9 | |
| 5S-10E-18 SW | 121 35 39 | 45 07 59 W | | Oregon State Hwy. Dept. | 1049 | 10/01/87 | 194 | 85 | 5.2 | 1.5 | |
| 5S-10E-22 SE | 121 31 32 | 45 06 54 | SP | unnamed | 927 | 10/01/87 | - | 50 | 4.7 | 1.6 | |
| 5S-11E-01 SW | 121 22 19 | 45 09 41 W | | Kennedy | 660 | 10/07/87 | 87 | 48 | 4.0 | 1.4 | |
| 5S-11E-13 SW | 121 22 31 | 45 08 05 W | | Endersby | 715 | 09/29/87 | 256 | - | 6.1 | 1.3 | |
| 5S-11E-25 SW | 121 22 10 | 45 06 04 W | | Pine Grove Water Dist. | 709 | 10/08/87 | 185 | 210 | 22. | 1.4 | |
| 5S-11E-26 SE | 121 22 53 | 45 06 12 W | | Hawkins | 741 | 10/02/87 | 161 | 182 | 31. | 1.5 | |
| 5S-11E-35 SE | 121 22 50 | 45 05 08 | SP | Kelly Spr. | 835 | 07/23/74 | - | 174 | 18. | 2.0 | C* |

Table 4.--Sodium, chloride, and conductivity values for selected wells, springs, streams, and lakes (continued)

| T-R-Sec. 1/4 | Longitude (° ' ") | Latitude (° ' ") | Code | Name | Elev. (m) | Date (mo/da/yr) | Depth (m) | Cond. (umhos) | Na (mg/L) | Cl (mg/L) | Ref. |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 5S-12E-02 SW | 121 16 23 | 45 09 32 W | | Hachler | 587 | 09/29/87 | 218 | 140 | 41. | 6.4 | |
| 5S-12E-06 NE | 121 20 27 | 45 10 18 W | | Thompson | 664 | 10/08/87<br>04/25/88 | >152 | -<br>660 | 110<br>106 | 130<br>130 | C,I |
| 5S-12E-07 NE | 121 20 29 | 45 09 21 W | | Porter | 637 | 10/08/87 | 197 | 60 | 4.8 | 2.6 | |
| 5S-12E-12 NW | 121 14 48 | 45 09 20 W | | Holman | 579 | 09/29/87 | 136 | 160 | 5.7 | 1.6 | |
| 5S-12E-13 SW | 121 14 45 | 45 08 07 W | | Williamson | 610 | 09/29/87 | 173 | 150 | 18. | 3.2 | |
| 5S-12E-18 SW | 121 21 22 | 45 08 01 W | | Dodge | 674 | 10/02/87 | 219 | - | 6.1 | 1.1 | |
| 5S-12E-23 NE | 121 15 41 | 45 07 37 W | | Andrews | 629 | 09/29/87 | 169 | 80 | 5.0 | 1.2 | |
| 5S-12E-24 NW | 121 15 13 | 45 07 41 W | | Carter | 629 | 09/29/87 | 213 | 120 | 18. | 3.5 | |
| 5S-12E-29 SW | 121 20 01 | 45 06 01 W | | Blake | 669 | 09/29/87 | 152 | 160 | 24. | 1.6 | |
| 5S-12E-31 NW | 121 20 53 | 45 05 35 W | | Musser | 725 | 09/29/87 | 111 | 170 | 17. | 1.3 | |
| 5S-15E-09 NE | 120 56 17 | 45 09 15 | SP | unnamed | 620 | 04/24/88 | - | - | 11. | 6. | I |
| 6S-9E-21 NW | 121 40 51 | 45 02 16 | SP | Willow Sprs. | 1189 | 07/24/74 | - | 42 | 1.8 | .8 | C* |
| (6S-10E-19) SW | 121 35 53 | 45 02 02 | SP | unnamed | 1167 | 10/16/87 | - | 28 | 3.5 | .6 | I |
| 6S-11E-03 NW | 121 24 51 | 45 04 57 | SP | Daniel Spr. | 853 | 07/23/74 | - | 252 | 15. | 2.2 | C* |
| 6S-11E-08 SE | 121 26 56 | 45 03 40 | SP | Coyote Spr. | 832 | 07/23/74<br>10/16/87 | - | 322<br>230 | 17.<br>19. | 2.8<br>2.3 | C*<br>I |
| 6S-11E-27 NE | 121 24 15 | 45 01 36 | SP | Log Spr. | 797 | 07/23/74 | - | 166 | 12. | 2.4 | C* |

Table 4.--Sodium, chloride, and conductivity values for selected wells, springs, streams, and lakes (continued)

| T-R-Sec. 1/4 | Longitude (° ' ") | Latitude (° ' ") | Code | Name | Elev. (m) | Date (mo/da/yr) | Depth (m) | Cond. (umhos) | Na (mg/L) | Cl (mg/L) | Ref. |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 6S-12E-27 NW | 121 17 38 | 45 01 24 | SP | Nena Spr. | 814 | 05/17/74 | - | 253 | 27. | 16. | C* |
| | | | | | | 10/13/87 | | - | 28. | 11. | I |
| 7S-10E-07 SE | 121 34 58 | 44 58 18 | SP | Big Spr. | 829 | 05/17/73 | - | 98 | 5.4 | 1.3 | C* |
| 7S-10E-25 SE | 121 29 00 | 44 55 55 | W | Wally** | 808 | 07/23/74 | 43 | 106 | 6.7 | 2.5 | C* |
| 7S-10E-35 SW | 121 31 07 | 44 55 00 | SP | Nellie Spr. | 843 | 10/15/87 | - | 48 | 5.6 | 1.7 | I |
| 7S-11E-32 NW | 121 27 10 | 44 55 05 | W | Comedown** | 797 | 07/25/74 | 22 | 104 | 1.9 | 1.6 | C* |
| 7S-11E-33 NE | 121 25 41 | 44 55 19 | SP | unnamed | 792 | 05/16/74 | - | 118 | 5.1 | 1.4 | C* |
| 7S-12E-07 SE | 121 20 53 | 44 58 28 | W | Simnasho** | 744 | 09/13/73 | 172 | 178 | 19. | 1.5 | C* |
| 7S-12E-34 SW | 121 17 27 | 44 55 02 | W | Suppah** | 857 | 12/02/55 | 91 | 136 | 13. | 2.8 | C* |
| 7S-13E-17 SE | 121 11 51 | 44 57 34 | SP | Eagle Sprs. | 1131 | 09/12/73 | - | 96 | 9.5 | 3.6 | C* |
| 7S-14E-08 NW | 121 05 11 | 44 58 55 | SP | unnamed | 433 | 09/11/73 | - | 204 | 31. | 2.4 | C* |
| | | | | | | 10/15/87 | | 168 | 32. | 2.0 | I |
| 7S-14E-17 NW | 121 05 22 | 44 58 00 | SP | unnamed | 402 | 09/11/73 | - | 93 | 13. | 1.3 | C* |
| 7S-15E-11 NW | 120 54 03 | 44 58 37 | SP | unnamed | 923 | 04/24/88 | - | - | 11. | 5. | I |
| 8S-11E-06 SW | 121 28 17 | 44 54 06 | W | Sidwalter** | 794 | 09/13/73 | 124 | 148 | 8.8 | 6.0 | C* |
| 8S-11E-16 SE | 121 25 31 | 44 52 16 | W | Guerin** | 797 | 01/24/74 | 63 | 142 | 11. | 1.4 | C* |
| 8S-11E-25 SW | 121 22 40 | 44 50 23 | W | Quinn** | 805 | 06/21/73 | 107 | 178 | 16. | 3.3 | C* |
| 8S-11E-33 SE | 121 25 14 | 44 45 36 | W | Wells** | 834 | 05/09/74 | 100 | 142 | 8.8 | 1.5 | C* |

Table 4.--Sodium, chloride, and conductivity values for selected wells, springs, streams, and lakes (continued)

| T-R-Sec. 1/4 | Longitude (° ' ") | Latitude (° ' ") | Code | Name | Elev. (m) | Date (mo/da/yr) | Depth (m) | Cond. (umhos) | Na (mg/L) | Cl (mg/L) | Ref. |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 8S-12E-03 NE | 121 16 54 | 44 54 18 | SP | unnamed | 853 | 07/31/74 | - | - | 7.8 | 2.5 | C* |
| 8S-12E-03 SW | 121 17 28 | 44 54 09 | W | Schoolie Flat 150-ft. test** | 841 | 08/19/74 | 46 | 273 | 19. | 4.5 | C* |
| 8S-12E-04 SE | 121 17 57 | 44 53 53 | W | Schoolie Flat well** | 829 | 09/12/73 | 46 | 198 | 13. | 4.7 | C* |
| 8S-12E-14 SE | 121 15 46 | 44 52 20 | SP | Kuckup Spr. | 762 | 09/11/73 | - | 216 | 22. | 7.9 | C* |
| 8S-12E-29 SE | 121 19 32 | 44 50 43 | SP | Buck Spr.** | 716 | 07/20/73 | - | 108 | 4.8 | 1.3 | C* |
| 8S-13E-01 NE | 121 07 06 | 44 54 42 | SP | unnamed | 512 | 05/09/74 | - | 634 | 130 | 16. | C* |
| 8S-13E-07 SW | 121 13 58 | 44 53 07 | SP | Wire Corral Spr.** | 558 | 06/08/73 | - | 122 | 14. | 2.9 | C* |
| 8S-13E-10 SW | 121 10 01 | 44 53 11 | SP | unnamed | 555 | 10/15/87 | - | 125 | 40. | 5.2 | I |
| 8S-13E-11 NW | 121 08 50 | 44 53 34 | SP | Charley Corral Spr.** | 591 | 09/11/73 | - | 228 | 43. | 5.2 | C* |
| 8S-13E-17 SE | 121 12 08 | 44 52 26 | W | Charley** | 482 | 05/17/73 | 37 | 443 | 100 | 11. | C* |
| 8S-13E-19 NW | 121 13 42 | 44 52 02 | SP | Kahneeta Sprs. (west) | 451 | 10/17/87 | - | 4000 | 410 | 230 | I |
| 8S-13E-30 NE | 121 13 02 | 44 51 16 | SP | unnamed | 652 | 05/17/73 | - | 311 | 27. | 4.7 | C* |
| 8S-13E-32 NW | 121 12 23 | 44 50 00 | W | McKinley** | 585 | 05/17/73 | - | 257 | 35. | 6.7 | C* |
| 8S-13E-33 SW | 121 11 21 | 44 49 52 | W | Frank** | 550 | 09/10/73 | 117 | 319 | 60. | 9.1 | C* |
| 8S-13E-35 NW | 121 09 06 | 44 50 14 | SP | Culpus** | 475 | 09/10/73 | - | 299 | 46. | 7.8 | C* |
| 8S-14E-20 NW | 121 05 32 | 44 52 06 | SP | Rattlesnake Spr.** | 408 | 04/12/73 | - | 137 | 14. | 2.1 | C* |

Table 4.--Sodium, chloride, and conductivity values for selected wells, springs, streams, and lakes (continued)

| T-R-Sec. 1/4 | Longitude (° ' ") | Latitude (° ' ") | Code | Name | Elev. (m) | Date (mo/da/yr) | Depth (m) | Cond. (umhos) | Na (mg/L) | Cl | Ref. |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 8S-14E-20 NW | 121 05 01 | 44 51 52 | W | Heath** | 393 | 04/12/73 | 38 | 491 | 96. | 6.5 | C* |
| 8S-14E-31 SW | 121 06 45 | 44 49 52 | SP | unnamed | 561 | 04/12/73 | - | 336 | 23. | 6.9 | C* |
| 8S-15E-15 SW | 120 55 30 | 44 52 01 | SP | unnamed | 823 | 04/24/88 | - | - | 13. | 6. | I |
| (9S-8E-11) NE | 121 46 54 | 44 48 10 | W | - | 1509 | 07/22/74 | 77 | 60 | 2.7 | 1.7 | C* |
| | | | | | | 08/31/87 | | - | .4 | .2 | |
| 9S-10E-31 NW | 121 35 32 | 44 44 45 | SP | unnamed | 1183 | 10/16/87 | - | 48 | 4.7 | .9 | I |
| 9S-11E-34 NW | 121 24 53 | 44 45 02 | SP | Seymore Sprs. | 882 | 10/16/87 | - | 85 | 6.1 | .6 | I |
| 9S-12E-01 SE | 121 14 13 | 44 48 58 | SP | unnamed | 536 | 04/11/73 | - | 284 | 34. | 6.9 | C* |
| 9S-12E-03 SW | 121 17 47 | 44 49 03 | SP | Tohet Spr.** | 518 | 0/11/73 | - | 256 | 25. | 4.8 | C* |
| 9S-12E-10 SW | 121 17 24 | 44 48 03 | SP | unnamed | 500 | 4/11/73 | - | 188 | 16. | 7.9 | C* |
| 9S-12E-13 SE | 121 14 17 | 44 47 16 | SP | unnamed | 472 | 04/11/73 | - | 508 | 78. | 15. | C* |
| 9S-12E-31 SW | 121 20 59 | 44 44 39 | SP | unnamed | 610 | 03/09/73 | - | 260 | 20. | 3.6 | C* |
| | | | | | | 09/26/87 | | 175 | 19. | 2.5 | |
| 9S-12E-32 SW | 121 19 43 | 44 44 26 | W | Switzler** | 561 | 01/23/74 | 40 | 382 | 65. | 5.5 | C* |
| 9S-13E-06 SW | 121 13 48 | 44 49 03 | SP | unnamed | 536 | 10/11/87 | - | 185 | 29. | 5.8 | I |
| (10S-8E-11) SE | 121 47 27 | 44 42 48 | SP | unnamed | 1798 | 08/18/86 | - | - | 2e | - | |
| (10S-8E-24) SE | 121 45 58 | 44 40 51 | ST | unnamed | 1999 | 06/27/88 | - | - | - | - | I |
| (10S-8E-35) NE | 121 47 16 | 44 39 23 | LK | unnamed | 2182 | 06/26/88 | - | - | - | - | I |

Table 4.--Sodium, chloride, and conductivity values for selected wells, springs, streams, and lakes (continued)

| T-R-Sec. 1/4 | Longitude (° ' ") | Latitude (° ' ") | Code | Name | Elev. (m) | Date (mo/da/yr) | Depth (m) | Cond. (umhos) | Na (mg/L) | Cl | Ref. |
|---|---|---|---|---|---|---|---|---|---|---|---|
| (10S-8E-35) NE | 121 47 15 | 44 39 23 | ST | unnamed | 2185 | 06/26/88 | - | - | - | - | I |
| (10S-8E-36) NE | 121 46 09 | 44 39 30 | ST | unnamed | 1902 | 06/26/88 | - | - | - | - | I |
| (10S-8.5E-25) SW | 121 44 38 | 44 40 09 | ST | Parker Cr. | 1658 | 06/26/88 | - | - | - | - | I |
| (10S-8.5E-25) SE | 121 43 56 | 44 40 19 | SP | unnamed | 1597 | 06/26/88 | - | - | - | - | I |
| (10S-8.5E-26) NW | 121 45 37 | 44 40 40 | ST | Milk Cr. | 1902 | 06/27/88 | - | - | - | - | I |
| (10S-8.5E-26) NW | 121 45 37 | 44 40 39 | ST | unnamed | 1902 | 06/27/88 | - | - | - | - | I |
| (10S-8.5E-26) SE | 121 44 47 | 44 40 01 | ST | unnamed | 1686 | 06/26/88 | - | - | - | - | I |
| (10S-8.5E-35) NE | 121 45 07 | 44 39 42 | ST | unnamed | 1768 | 06/26/88 | - | - | - | - | I |
| 10S-9E-28 NE | 121 40 06 | 44 40 35 | SP | unnamed | 1530 | 05/25/88 | - | - | 1.6 | .4 | I |
| 10S-9E-33 NW | 121 40 27 | 44 39 55 | SP | unnamed | 1658 | 07/25/74 | - | 32 | 1.7 | .6 | C* |
| | | | | | | 09/26/87 | | - | 2.0 | .4 | I |
| 10S-10E-04 SE | 121 32 30 | 44 43 41 | SP | unnamed | 1073 | 03/09/73 | - | 96 | 3.2 | 1.4 | C* |
| 10S-11E-30 SW | 121 28 32 | 44 40 24 | SP | Peters Spr. | 937 | 03/07/73 | - | 128 | 4.1 | 1.1 | C* |
| | | | | | | 09/26/87 | | 100 | 5.2 | .5 | I |
| 10S-12E-15 NW | 121 17 28 | 44 42 20 | W | Smith** | 655 | 05/07/74 | 88 | 266 | 20. | 4.2 | C* |
| 10S-12E-29 NE | 121 19 09 | 44 40 26 | W | Johnson** | 591 | 03/08/73 | 16 | 243 | 14. | 1.8 | C* |
| 10S-12E-30 NW | 121 21 10 | 44 40 42 | W | Miller** | 619 | 03/07/73 | 19 | 248 | 21. | 2.8 | C* |
| (11S-8E-04) NE | 121 46 28 | 44 38 54 | SP | unnamed | 1878 | 06/26/88 | - | - | - | - | I |

Table 4.--Sodium, chloride, and conductivity values for selected wells, springs, streams, and lakes (continued)

| T-R-Sec. 1/4 | Longitude (° ' ") | Latitude (° ' ") | Code | Name | Elev. (m) | Date (mo/da/yr) | Depth (m) | Cond. (umhos) | Na (mg/L) | Cl (mg/L) | Ref. |
|---|---|---|---|---|---|---|---|---|---|---|---|
| (11S-8E-23) N | 121 44 42 | 44 36 18 | SP | unnamed | 1731 | 09/27/86 | - | - | - | - | I |
| 11S-10E-16 SW | 121 32 40 | 44 36 57 | SP | Alder Spr. | 1210 | 08/16/87 | - | 75 | 4.5 | .9 | |
| 11S-11E-29 SW | 121 26 41 | 44 35 05 | W | Deschutes Natl. Forest | 597 | 08/16/87 | 36 | 100 | 8.3 | .9 | |
| 11S-11E-29 SW | 121 26 49 | 44 35 03 | SP | unnamed | 610 | 08/16/87 | - | 80 | 7.7 | .9 | |
| 11S-11E-30 SE | 121 27 08 | 44 35 01 | W | Deschutes Natl. Forest | 646 | 08/18/87 | 30 | - | 6.5 | .8 | |
| 11S-12E-02 SW | 121 16 02 | 44 38 29 | W | Simtustus Park** | 500 | 04/09/73 | 21 | 174 | 20. | 2.9 | C* |
| 11S-12E-08 NE | 121 19 04 | 44 38 16 | SP | Pipp Spr. | 689 | 10/14/87 | - | - | 17. | 3.2 | I |
| 11S-12E-18 SE | 122 20 22 | 44 36 42 | W | Estabrook** | 786 | 03/06/73 | 113 | 245 | 20. | 4.1 | C* |
| 11S-14E-02 NE | 121 00 48 | 44 38 35 | SP | Monner Spr. | 850 | 04/24/88 | - | - | 32. | 12. | I |
| (12S-8E-14) SE | 121 44 35 | 44 31 56 | SP | Two Sprs. | 1268 | 08/21/87 | - | 22 | 2.3 | .1 | |
| 12S-9E-09 SW | 121 40 00 | 44 32 30 | SP | Cold Spr. | 927 | 08/11/87 | - | 55 | 4.2 | .8 | |
| 12S-9E-11 SW | 121 37 32 | 44 32 22 | W | Inkster | 841 | 08/21/87 | 13 | 90 | 5.8 | 1.1 | |
| 12S-9E-18 SW | 121 42 27 | 44 31 36 | SP | Roaring Spr. | 1012 | 07/26/87 | - | 32 | 3.1 | .4 | |
| 12S-9E-19 NE | 121 41 50 | 44 31 19 | W | Deschutes Natl. Forest | 963 | 07/26/87 | 25 | 49 | 4.0 | .6 | |
| 12S-9E-28 NE | 121 39 24 | 44 30 11 | W | Lundgren | 881 | 08/11/87 | 22 | 50 | 5.6 | 1.0 | |
| 12S-9E-34 NW | 121 38 40 | 44 29 31 | SP | unnamed | 890 | 08/09/87 | - | - | 6.6 | 1.4 | |

Table 4.--Sodium, chloride, and conductivity values for selected wells, springs, streams, and lakes (continued)

| T-R-Sec. 1/4 | Longitude (° ' ") | Latitude (° ' ") | Code | Name | Elev. (m) | Date (mo/da/yr) | Depth (m) | Cond. (umhos) | Na (mg/L) | Cl (mg/L) | Ref. |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 12S-9E-34 NE | 121 38 34 | 44 29 22 | SP | unnamed | 887 | 08/09/87 | - | - | 6.1 | 1.3 | |
| 12S-10E-18 NE | 121 34 42 | 44 32 12 | SP | unnamed | 1292 | 08/11/87 | - | 50 | 4.2 | 1.1 | I |
| 12S-10E-30 SE | 121 34 48 | 44 29 56 | SP | Bear Spr. | 1292 | 08/16/87 | - | 80 | 4.7 | 1.3 | |
| 12S-12E-10 SW | 121 16 54 | 44 32 24 | W | State Hwy. Dept. | 610 | 08/17/87 | 46e | 165 | 17. | 3.3 | |
| 12S-12E-17 SE | 121 18 56 | 44 31 34 | W | - | 811 | 08/18/87 | 207e | 170 | 26. | 3.5 | |
| 12S-12E-20 NE | 121 18 57 | 44 31 16 | W | Hinchey | 817 | 08/17/87 | 215 | 180 | 21. | 5.1 | |
| 12S-12E-33 NE | 121 17 47 | 44 29 31 | SP | Upper Opal Spr. | 625 | 02/01/77 | - | 186 | 15. | 4.7 | C# |
| 13S-8E-01 NE | 121 43 21 | 44 28 39 | SP | unnamed | 986 | 08/21/87 | - | 35 | 4.1 | .2 | |
| 13S-8E-16 NW | 121 47 25 | 44 26 46 | W | Christian Youth Camp | 1341 | 07/26/87 | 26 | - | 2.5 | .7 | |
| 13S-8E-24 SE | 121 43 26 | 44 25 27 | W | Methodist Youth Camp | 1079 | 07/26/87 | 125 | - | 5.7 | .8 | |
| 13S-8E-26 NW | 121 45 12 | 44 24 59 | W | U.S.D.A.- Forest Service | 1049 | 07/28/87 | 20 | 63 | 4.5 | .8 | |
| 13S-8E-27 NW | 121 46 13 | 44 25 16 | SP | unnamed | 1366 | 08/08/87 | - | - | 3.7 | .6 | |
| 13S-8E-27 NE | 121 45 26 | 44 25 05 | W | Lovegren | 1061 | 08/08/87 | 18 | - | 5.2 | 4.4 | |
| | | | | | | 04/23/88 | | 60 | 4.2 | 3. | C,I |
| 13S-8E-27 SW | 121 46 10 | 44 24 40 | LK | Blue Lake | 1067 | 08/13/87 | 20 | | 3.8 | .6 | I |
| | | | | | | | 40 | | 3.8 | .6 | I |
| | | | | | | | 60 | | 3.7 | .6 | I |
| | | | | | | | 80 | | 3.7 | .6 | I |
| | | | | | | | 81.7 | | 3.7 | .6 | I |
| 13S-8E-27 SW | 121 46 09 | 44 24 40 | LK | Blue Lake | 1067 | 08/31/87 | 50e | | 4.0 | .4 | C |

Table 4.--Sodium, chloride, and conductivity values for selected wells, springs, streams, and lakes (continued)

| T-R-Sec. 1/4 | Longitude (° ' ") | Latitude (° ' ") | Code | Name | Elev. (m) | Date (mo/da/yr) | Depth (m) | Cond. (umhos) | Na (mg/L) | Cl (mg/L) | Ref. |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 13S-9E-03 NE | 121 38 16 | 44 28 33 W | | Rudd | 890 | 07/26/87 | 32 | 50 | 5.8 | 1.5 | |
| 13S-9E-10 SE | 121 38 31 | 44 27 19 W | | Gunson | 902 | 08/21/87 | 18 | 63 | 6.8 | 1.0 | |
| 13S-9E-15 NW | 121 39 08 | 44 26 45 W | | Grace | 908 | 08/08/87 | 18 | - | 5.8 | 1.5 | |
| 13S-9E-16 SE | 121 39 43 | 44 26 16 W | | Metolius Mdw. Prop. Own. Assoc. | 920 | 07/26/87 | 31 | 53 | 7.7 | .9 | |
| 13S-9E-22 NE | 121 38 18 | 44 26 03 | SP | Metolius Spr. | 920 | 09/27/86<br>08/09/87 | - | - | -<br>9.2 | -<br>1.6 | I |
| 13S-11E-15 NE | 121 23 43 | 44 26 47 W | | Alley | 815 | 09/23/87 | 151 | 125 | 9.3 | 2.0 | |
| 13S-12E-14 NE | 121 15 36 | 44 26 42 W | | - | 747 | 08/18/87 | 122 | - | 21. | 3.3 | |
| 13S-12E-29 NW | 121 19 42 | 44 24 53 W | | Clevenger | 805 | 08/17/87<br>04/24/88 | 96 | 242<br>- | 14.<br>15. | 5.2<br>7. | C,I |
| 13S-13E-34 SW | 121 17 21 | 44 23 41 | SP | unnamed | 756 | 02/01/77 | - | 217 | 15. | 3.5 | C# |
| 14S-9E-09 NW | 121 40 02 | 44 22 20 W | | Brooks Resources Corp. | 1021 | 07/23/87 | 31 | 30 | 4.1 | .5 | |
| 14S-9E-09 SW | 121 40 05 | 44 22 03 | SP | unnamed | 1024 | 07/26/87 | - | 30 | 3.9 | .4 | |
| 14S-9E-09 SE | 121 39 35 | 44 21 57 | SP | unnamed | 1024 | 07/26/87 | - | 35 | 4.3 | .5 | |
| 14S-9E-12 NE | 121 35 46 | 44 22 16 W | | Heath Logging Co. | 985 | 07/13/87 | 137 | 105 | 7.3 | 1.8 | |
| 14S-9E-13 NW | 121 36 36 | 44 21 28 W | | U.S. Forest Service | 988 | 07/13/87 | 15 | 55 | 5.2 | .8 | |
| 14S-9E-15 SE | 121 38 13 | 44 21 08 W | | Brooks Resources | 1006 | 07/23/87 | 94 | 30 | 4.9 | .9 | |
| 14S-9E-16 NE | 121 39 27 | 44 21 32 W | | Brooks Resources | 1024 | 07/23/87 | 87 | 35 | 4.9 | .8 | |

Table 4.--Sodium, chloride, and conductivity values for selected wells, springs, streams, and lakes (continued)

| T-R-Sec. l/4 | Longitude (° ' ") | Latitude (° ' ") | Code | Name | Elev. (m) | Date (mo/da/yr) | Depth (m) | Cond. (umhos) | Na (mg/L) | Cl (mg/L) | Ref. |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 14S-9E-35 SW | 121 37 46 | 44 18 40 W | | Deschutes Natl. Forest | 1036 | 07/09/87 | 20 | 40 | 4.3 | .5 | |
| 14S-9E-35 SW | 121 38 01 | 44 18 38 | SP | Cold Spr. | 1036 | 07/09/87 | - | 40 | 4.1 | .5 | I |
| 14S-10E-07 SE | 121 34 39 | 44 21 57 W | | - | 981 | 07/13/87 | 76 | 95 | 6.3 | 1.3 | |
| 14S-10E-08 SW | 121 34 09 | 44 22 08 W | | McIntire | 985 | 07/13/87 | 30 | 135 | 8.6 | 1.9 | |
| 14S-10E-17 NE | 121 33 41 | 44 21 32 W | | Slocum | 975 | 07/17/87 | 37 | 140 | 8.7 | 1.5 | |
| 14S-10E-21 SE | 121 32 15 | 44 20 24 W | | Indian Ford Land & Cattle Co. | 975 | 07/13/87<br>4/23/88 | 12 | 140 | 10.<br>11. | 7.2<br>7. | C,I |
| 14S-10E-24 SE | 121 28 41 | 44 20 10 W | | Ramsey | 966 | 07/09/87 | 207 | 150 | 12. | 3.5 | |
| 14S-10E-25 NW | 121 29 29 | 44 20 01 W | | - | 969 | 07/09/87 | 206 | 135 | 12. | 3.4 | |
| 14S-10E-26 SW | 121 30 20 | 44 19 25 W | | Pond | 896 | 07/17/87 | 37 | 130 | 12. | 1.3 | |
| 14S-10E-28 SE | 121 32 18 | 44 19 15 W | | Indian Ford Land & Cattle Co. | 960 | 07/22/87 | 42 | - | 7.3 | 1.0 | |
| 14S-10E-30 NE | 121 34 49 | 44 19 48 W | | Knudson | 978 | 07/17/87 | 43 | 110 | 8.2 | 1.1 | |
| 14S-10E-31 SW | 121 35 06 | 44 18 40 W | | Brooks Resources | 986 | 07/18/87 | 67 | 80 | 8.0 | 1.8 | |
| 14S-10E-33 NW | 121 33 02 | 44 18 53 W | | Burks | 965 | 07/14/87 | 55 | 118 | 7.8 | 2.4 | |
| 14S-10E-34 NE | 121 31 05 | 44 19 09 | SP | unnamed | 951 | 08/08/87 | - | - | 6.6 | 1.4 | |
| 14S-10E-34 NE | 121 30 49 | 44 19 04 W | | Paul | 914 | 07/17/87 | 35 | 140 | 9.5 | .4 | |
| 14S-10E-34 SW | 121 31 29 | 44 18 39 W | | Joseph | 975 | 07/14/87 | 75 | 70 | 7.1 | .9 | |

Table 4.--Sodium, chloride, and conductivity values for selected wells, springs, streams, and lakes (continued)

| T-R-Sec. 1/4 | Longitude (° ' ") | Latitude (° ' ") | Code | Name | Elev. (m) | Date (mo/da/yr) | Depth (m) | Cond. (umhos) | Na (mg/L) | Cl (mg/L) | Ref. |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 14S-10E-36 SW | 121 29 14 | 44 18 43 W | | Boydston | 957 | 07/13/87 | 175 | 125 | 15. | 3.7 | |
| 14S-11E-13 SE | 121 21 17 | 44 21 10 W | | - | 829 | 09/17/87 | 77 | 115 | 12. | 2.0 | |
| 14S-11E-14 SE | 121 22 19 | 44 21 01 W | | - | 852 | 09/17/87 | 123 | 120 | 12. | .6 | |
| 14S-11E-21 SW | 121 25 41 | 44 20 15 W | | Miller | 956 | 09/06/87 | 171 | 78 | 9.2 | 1.5 | |
| 14S-11E-22 SW | 121 24 07 | 44 20 23 W | | Ferara | 940 | 09/06/87 | 166 | 155 | 12. | 2.7 | |
| 14S-11E-23 NE | 121 22 19 | 44 20 47 W | | Dawse | 838 | 09/12/87 | 76 | 95 | 11. | 1.9 | |
| 14S-11E-31 NE | 121 27 12 | 44 18 50 W | | - | 963 | 09/06/87 | 118 | 90 | 9.0 | 1.1 | |
| 14S-11E-32 NW | 121 27 03 | 44 19 02 W | | - | 939 | 09/07/87 | 144 | 82 | 9.4 | 1.5 | |
| 14S-11E-33 NE | 121 25 08 | 44 19 09 W | | Gisler | 937 | 09/06/87 | 149 | 103 | 10. | 1.7 | |
| 14S-12E-06 SE | 121 20 15 | 44 22 45 W | | - | 846 | 09/17/87 | 130 | 100 | 12. | 1.8 | |
| 14S-12E-07 NW | 121 20 53 | 44 22 31 W | | Stiles | 850 | 09/12/87 | 127 | 100 | 12. | 1.9 | |
| 14S-12E-21 SW | 121 18 33 | 44 20 10 W | | Deschutes Valley Farms | 817 | 08/17/87 | 53 | 100 | - | - | |
| 14S-13E-31 SW | 121 13 29 | 44 18 26 W | | - | 878 | 05/05/67 | 64 | - | 22. | 9.0 | C# |
| 15S-9E-01 SE | 121 35 45 | 44 17 36 W | | Miller | 1000 | 07/22/87 | 67 | 58 | 4.4 | .6 | |
| 15S-9E-14 NE | 121 36 57 | 44 16 17 | SP | unnamed | 1055 | 07/09/87 | - | 65 | 4.5 | .5 | |
| 15S-9E-34 NE | 121 38 23 | 44 13 36 | SP | Spruce Spr. | 1305 | 08/19/87 | - | 45 | 4.7 | .4 | |

Table 4.--Sodium, chloride, and conductivity values for selected wells, springs, streams, and lakes (continued)

| T-R-Sec. 1/4 | Longitude (° ' ") | Latitude (° ' ") | Code | Name | Elev. (m) | Date (mo/da/yr) | Depth (m) | Cond. (umhos) | Na (mg/L) | Cl (mg/L) | Ref. |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 15S-9E-34 SW | 121 38 49 | 44 13 17 | SP | unnamed | 1338 | 08/19/87 | - | 40 | 5.0 | .4 | |
| 15S-10E-01 SE | 121 28 27 | 44 17 37 | W | Mason | 948 | 07/22/87 | 141 | 95 | 9.9 | 1.7 | |
| 15S-10E-02 SE | 121 30 05 | 44 17 32 | W | Kallio | 958 | 07/13/87 | 59 | 120 | 13. | 2.9 | |
| 15S-10E-03 SE | 121 31 00 | 44 17 40 | W | Kristovich | 975 | 07/13/87 | 61 | 70 | 5.7 | 1.3 | |
| 15S-10E-05 NW | 121 34 15 | 44 18 13 | W | Brooks Resources Corp. | 977 | 07/18/87 | 105 | 85 | 10. | 1.8 | |
| 15S-10E-06 NW | 121 35 28 | 44 18 08 | W | Reed | 994 | 07/18/87 | 61 | 70 | 5.6 | .9 | |
| 15S-10E-07 SW | 121 35 28 | 44 16 42 | W | Poole | 1012 | 07/20/87 | 61 | 80 | 7.1 | 3.0 | |
| 15S-10E-08 NE | 121 33 34 | 44 17 06 | W | Hammond | 981 | 08/21/87 | 69 | 95 | 9.5 | 1.2 | |
| 15S-10E-09 SW | 121 33 03 | 44 16 57 | W | City of Sisters | 998 | 07/20/87 | 64 | 80 | 9.5 | 1.9 | |
| 15S-10E-10 SE | 121 30 50 | 44 16 39 | W | Lazy Z Ranch | 966 | 07/15/87 | 40 | 90 | 9.3 | 2.3 | |
| 15S-10E-11 NW | 121 30 39 | 44 17 27 | W | - | 951 | 07/18/87 | 72 | 100 | 11. | 1.3 | |
| 15S-10E-12 NE | 121 28 49 | 44 17 13 | W | Miller | 951 | 07/18/87 | 55 | - | 8.7 | 1.0 | |
| 15S-10E-13 NE | 121 28 30 | 44 16 35 | W | Cyrus | 951 | 07/18/87 | 94 | 35 | 2.8 | .4 | |
| 15S-10E-14 NW | 121 30 42 | 44 16 14 | W | Weekman | 969 | 07/20/87 | 75 | 105 | 7.5 | 2.9 | |
| 15S-10E-18 SW | 121 35 25 | 44 15 53 | W | Prichard | 1073 | 07/20/87 | 122 | 65 | 4.9 | 1.0 | |
| 15S-10E-20 SW | 121 34 13 | 44 15 03 | W | Dolson | 1049 | 07/21/87 | 113 | 75 | 6.7 | 1.0 | |

Table 4.--Sodium, chloride, and conductivity values for selected wells, springs, streams, and lakes (continued)

| T-R-Sec. 1/4 | Longitude (° ' ") | Latitude (° ' ") | Code | Name | Elev. (m) | Date (mo/da/yr) | Depth (m) | Cond. (umhos) | Na (mg/L) | Cl (mg/L) | Ref. |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 15S-10E-24 SW | 121 29 18 | 44 14 56 | W | Rodgers | 980 | 07/15/87 | 88 | 90 | 10. | 1.9 | |
| 15S-10E-25 SE | 121 28 31 | 44 14 03 | W | McDonald | 994 | 07/15/87 | 105 | 85 | 11. | 2.0 | |
| 15S-10E-26 NE | 121 29 39 | 44 14 49 | W | Severson | 985 | 07/20/87 | 88 | 85 | 9.1 | 1.6 | |
| 15S-10E-36 NE | 121 28 22 | 44 13 48 | W | McCulley | 993 | 08/31/78<br>07/27/87 | 92 | 150<br>105 | 9.0<br>11. | 1.5<br>1.1 | C# |
| 15S-11E-03 NW | 121 24 24 | 44 18 19 | W | - | 937 | 09/05/87 | 152 | 90<br>- | 9.4<br>11. | 1.5<br>1.8 | |
| 15S-11E-04 SW | 121 25 52 | 44 17 43 | W | Currier | 936 | 09/05/87 | 24 | 160 | 10. | 3.2 | |
| 15S-11E-05 NW | 121 26 54 | 44 18 14 | W | - | 938 | 09/05/87 | 140 | 95 | 8.6 | 1.5 | |
| 15S-11E-06 SW | 121 28 16 | 44 17 44 | W | - | 946 | 07/15/87 | 137 | 85 | 9.4 | 1.9 | |
| 15S-11E-07 NE | 121 27 09 | 44 17 22 | W | - | 940 | 09/05/87 | 114 | 80 | 8.3 | 1.5 | |
| 15S-11E-08 SW | 121 26 54 | 44 16 43 | W | Brockway | 937 | 09/05/87 | 110 | 70 | 8.6 | 1.2 | |
| 15S-11E-17 NW | 121 26 48 | 44 16 18 | W | Robertson | 939 | 09/19/87 | 101 | 75 | 9.3 | 1.5 | |
| 15S-11E-19 NE | 121 27 22 | 44 15 38 | W | Mason | 949 | 09/05/87 | 94 | 100 | 8.2 | .7 | |
| 15S-11E-28 SW | 121 25 23 | 44 14 22 | W | - | 963 | 09/06/87 | 64 | 90 | 10. | 1.8 | |
| 15S-11E-30 SW | 121 27 49 | 44 14 15 | W | Smith | 982 | 09/06/87 | 88 | 70 | 10. | 1.5 | |
| 15S-11E-32 SE | 121 26 12 | 44 13 10 | W | McCoy | 981 | 09/06/87 | 94 | 90 | 11. | 2.0 | |
| 15S-12E-10 NW | 121 16 51 | 44 17 23 | W | Morgan | 901 | 09/05/87 | 116 | 210 | 20. | 10. | |

Table 4.--Sodium, chloride, and conductivity values for selected wells, springs, streams, and lakes (continued)

| T-R-Sec. 1/4 | Longitude (° ' ") | Latitude (° ' ") | Code | Name | Elev. (m) | Date (mo/da/yr) | Depth (m) | Cond. (umhos) | Na (mg/L) | Cl (mg/L) | Ref. |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 15S-12E-11 SW | 121 15 46 | 44 16 55 W | | Skeen | 888 | 09/05/87 | 76 | 175 | 20. | 2.7 | |
| 15S-12E-15 NE | 121 16 24 | 44 16 34 W | | - | 904 | 09/05/87 | 87 | 150 | 16. | 3.0 | |
| 15S-12E-23 NE | 121 15 15 | 44 15 42 W | | - | 896 | 09/05/87 | 91 | 200 | 20. | 2.6 | |
| 15S-12E-23 SW | 121 16 01 | 44 15 16 W | | - | 920 | 09/04/87 | 75 | 160 | 19. | 6.7 | |
| | | | | | | 04/24/88 | | - | 19. | 8. | C,I |
| 16S-9E-13 NW | 121 36 16 | 44 11 43 | SP | Melvin Spr. | 1329 | 09/29/86 | - | - | - | - | I |
| | | | | | | 08/21/87 | | 52 | 5.0 | .2 | |
| 16S-9E-14 NE | 121 36 47 | 44 11 46 | SP | Black Pine Spr. | 1317 | 08/01/87 | - | 45 | 5.0 | .7 | |
| 16S-9E-18 SW | 121 41 50 | 44 11 11 | SP | Pole Cr. Spr. | 1609 | 08/19/87 | - | 35 | 4.4 | .1 | |
| 16S-11E-10 SW | 121 23 59 | 44 11 48 W | | - | 981 | 09/14/87 | 96 | 125 | 11. | 1.8 | |
| 16S-11E-11 SW | 121 22 37 | 44 12 07 W | | - | 998 | 09/14/87 | 130 | 125 | 14. | 2.0 | |
| 16S-11E-15 SE | 121 23 27 | 44 11 12 W | | - | 994 | 08/29/78 | 105 | 170 | 14. | 2.6 | C# |
| 16S-11E-19 SW | 121 27 42 | 44 10 15 W | | Pioch | 1064 | 09/14/87 | 123 | 82 | 9.5 | 2.0 | |
| 16S-11E-24 SW | 121 21 15 | 44 10 20 W | | - | 1000 | 09/14/87 | 190 | 150 | 14. | 7.6 | |
| | | | | | | 04/23/88 | | - | 13. | 7. | C,I |
| 16S-11E-25 SW | 121 21 12 | 44 09 32 W | | Ben. Franklin Fed. S & L | 1024 | 09/14/87 | 213 | 120 | 11. | 1.4 | |
| 16S-11E-26 SE | 121 21 46 | 44 09 18 W | | - | 1030 | 09/07/87 | 47 | 95 | 8.8 | 1.0 | |
| 16S-11E-30 NE | 121 26 39 | 44 09 49 W | | - | 1097 | 08/31/78 | 157 | 124 | 13. | 2.2 | C# |
| | | | | | | 09/14/87 | | 85 | 9.4 | 1.7 | |
| 16S-11E-33 NE | 121 24 22 | 44 09 00 W | | MacArthur | 1065 | 09/07/87 | 172 | 95 | 8.2 | 1.7 | |

Table 4.--Sodium, chloride, and conductivity values for selected wells, springs, streams, and lakes (continued)

| T-R-Sec. 1/4 | Longitude (° ' ") | Latitude (° ' ") | Code | Name | Elev. (m) | Date (mo/da/yr) | Depth (m) | Cond. (umhos) | Na (mg/L) | Cl (mg/L) | Ref. |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 16S-11E-35 NE | 121 21 57 | 44 08 50 | W | - | 1033 | 09/07/87 | 142 | 75 | 8.2 | 1.1 | |
| 16S-11E-36 SE | 121 20 45 | 44 08 24 | W | Bodtker | 1019 | 09/07/87 | 124 | 90 | 10. | 1.5 | |
| 16S-12E-18 SE | 121 19 53 | 44 11 06 | W | Kirkpatrick | 991 | 09/03/87 | 169 | 130 | 16. | 1.8 | |
| 16S-12E-29 NW | 121 18 55 | 44 09 54 | W | - | 994 | 05/24/67 | 130 | 241 | 19. | 4.0 | C# |
| 16S-12E-30 SW | 121 20 28 | 44 09 29 | W | - | 1012 | 09/03/87 | 221e | 125 | 17. | 1.8 | |
| 16S-12E-31 SW | 121 20 16 | 44 08 42 | W | Millard | 1019 | 09/03/87 | 126 | 135 | 18. | 2.1 | |
| (17S-9E-20) NE | 121 41 00 | 44 04 45 | SP | unnamed | 2410 | 08/13/81 | - | - | 1.3 | <1 | C,I |
| 17S-9E-28 NW | 121 39 36 | 44 04 30 | SP | unnamed | 2286 | 10/26/87 | - | - | 4.3 | .3 | C |
| 17S-9E-28 SW | 121 39 33 | 44 04 22 | SP | unnamed | 2243 | 09/09/87 | - | - | 1.1 | .4 | |
| | | | | | | 10/26/87 | | - | | | |
| 17S-9E-28 SE | 121 39 10 | 44 04 20 | SP | unnamed | 2164 | 09/09/87 | - | - | 4.1 | .3 | |
| | | | | | | 10/25/87 | | - | 4.1 | .4 | C |
| 17S-9E-35 NW | 121 37 19 | 44 03 50 | SP | unnamed | 1987 | 09/09/87 | - | - | 2.6 | .3 | |
| 17S-9E-36 NW | 121 36 11 | 44 03 42 | SP | unnamed | 1926 | 09/09/87 | - | 20 | 1.7 | .3 | |
| 17S-11E-02 NW | 121 22 53 | 44 08 00 | W | - | 1041 | 08/30/78 | 122 | 115 | 11. | 2.0 | C# |
| 17S-11E-03 SE | 122 23 06 | 44 07 39 | SP | unnamed | 1065 | 08/30/78 | - | 73 | 7.8 | 1.1 | C# |
| 17S-11E-10 NE | 121 23 06 | 44 07 16 | W | Moyer | 1077 | 08/10/87 | 32 | 45 | - | - | |
| 17S-11E-13 NE | 121 20 59 | 44 06 26 | SP | unnamed | 1061 | 08/30/78 | - | 133 | 7.5 | 1.2 | C# |

Table 4.--Sodium, chloride, and conductivity values for selected wells, springs, streams, and lakes (continued)

| T-R-Sec. 1/4 | Longitude (° ' ") | Latitude (° ' ") | Code | Name | Elev. (m) | Date (mo/da/yr) | Depth (m) | Cond. (umhos) | Na (mg/L) | Cl (mg/L) | Ref. |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 17S-11E-13 SE | 121 20 55 | 44 06 05 | W | - | 1077 | 08/30/78 | 16 | 405 | 31. | 3.6 | C# |
| 17S-11E-18 NE | 121 26 56 | 44 06 28 | SP | Bull Spr. | 1164 | 08/19/87 | - | 35 | - | - | I |
| 17S-11E-23 NW | 121 22 28 | 44 05 31 | W | - | 1128 | 08/25/78 | 112 | 119 | 10. | 2.0 | C# |
| 17S-11E-23 SW | 121 22 38 | 44 04 57 | W | - | 1103 | 08/25/78 | 70 | 106 | 10. | 2.0 | C# |
| 17S-11E-25 SW | 121 21 36 | 44 04 22 | W | - | 1140 | 02/18/77 | 109 | - | 8.5 | 4.5 | C# |
| 17S-12E-06 NW | 121 20 26 | 44 08 15 | W | - | 1027 | 09/03/87 | 142 | 96 | 14. | 1.1 | |
| 17S-12E-17 SW | 121 19 06 | 44 05 58 | W | - | 1067 | 01/25/67 | 33 | 130 | 8.4 | 2.0 | C# |
| 17S-12E-18 SE | 121 19 41 | 44 05 43 | W | - | 1061 | 05/23/67 | 203 | 83 | 6.0 | 1.0 | C# |
| 17S-12E-20 NE | 121 18 41 | 44 05 24 | W | - | 1079 | 08/25/78 | - | 131 | 9.4 | 1.6 | C# |
| 18S-8E-03 SW | 121 45 44 | 44 02 22 | SP | unnamed | 1720 | 08/28/86 | - | - | 2e | - | |
| 18S-8E-03 SW | 121 45 44 | 44 02 23 | SP | unnamed | 1710 | 08/13/81 | - | | 2.3 | <1 | C,I |
| | | | | | | 07/29/84 | | | - | - | I |
| | | | | | | 08/15/87 | | | 2.6 | .2 | I |
| 18S-8E-08 SE | 121 47 33 | 44 01 31 | SP | Blacktail Spr. | 1707 | 09/10/87 | - | | 2.1 | .3 | |
| 18S-8E-11 NW | 121 44 39 | 44 02 00 | SP | unnamed | 1667 | 09/10/87 | - | 25 | 5.4 | .3 | |
| 18S-8E-21 SW | 121 46 56 | 43 59 46 | W | - (Quinn Mdw. Horse Camp) | 1548 | 07/30/87 | 12 | 30 | - | .2 | |
| 18S-8E-21 SE | 121 46 17 | 43 59 58 | SP | unnamed | 1559 | 07/30/87 | - | 25 | 5.3 | 1.6 | |

Table 4.--Sodium, chloride, and conductivity values for selected wells, springs, streams, and lakes (continued)

| T-R-Sec. 1/4 | Longitude (° ' ") | Latitude (° ' ") | Code | Name | Elev. (m) | Date (mo/da/yr) | Depth (m) | Cond. (umhos) | Na (mg/L) | Cl (mg/L) | Ref. |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 18S-8E-29 SW | 121 48 18 | 43 58 59 | W | U.S. Forest Service | 1497 | 07/27/87 | 66 | 25 | 2.7 | .2 | |
| 18S-9E-03 SE | 121 37 54 | 44 02 17 | SP | unnamed | 1926 | 09/10/87 | - | - | 2.6 | .4 | |
| 18S-9E-08 NE | 121 40 14 | 44 02 02 | SP | unnamed | 1993 | 09/09/87 | - | 27 | 2.8 | .3 | |
| 18S-9E-17 NW | 121 40 55 | 44 01 23 | SP | unnamed | 1871 | 09/10/87 | - | 15 | 2.3 | .7 | |
| 18S-9E-20 NW | 121 40 46 | 44 00 24 | W | Mt. Bachelor Corp. | 1966 | 07/27/87 | 238 | 25 | 2.8 | .2 | |
| 18S-10E-10 NE | 121 30 51 | 44 02 09 | W | - | 1430 | 08/30/78 | 26 | 83 | 5.7 | .5 | C# |
| 18S-11E-23 SW | 121 22 31 | 43 59 55 | W | - | 1190 | 08/22/78 | 94 | 108 | 7.4 | 1.3 | C# |
| 18S-11E-23 SW | 121 22 28 | 43 59 48 | W | - | 1201 | 08/23/78 | 136 | 102 | 7.9 | 1.5 | C# |
| 19S-8E-22 SW | 121 45 59 | 43 54 52 | W | Frazee | 1448 | 07/23/87 | 60 | 45 | 4.8 | .5 | |
| 19S-8E-22 SW | 121 45 38 | 43 54 36 | W | U.S. Dept. Agriculture | 1448 | 07/30/87 | 23 | 35 | - | .4 | |
| 19S-8E-34 SW | 121 45 59 | 43 52 51 | SP | unnamed | 1414 | 07/30/87<br>04/23/88 | -<br> | 25<br>39 | -<br>3.6 | 7.2<br>1. | <br>C,I |
| 19S-10E-02 SE | 121 29 04 | 43 57 03 | SP | Kiwa Sprs. | 1460 | 09/26/86<br>08/15/87 | -<br> | -<br>30 | -<br>2.6 | -<br>.4 | I |
| 19S-10E-13 NW | 121 29 00 | 43 55 56 | SP | Coyote Spr. | 1416 | 08/15/87 | - | 35 | - | - | |
| 19S-11E-31 NW | 121 27 36 | 43 53 18 | SP | unnamed | 1265 | 08/23/78 | - | 133 | 12. | 3.8 | C# |
| (20S-7E-24) NE | 121 49 57 | 43 50 06 | W | U.S. Forest Service | 1426 | 07/27/87 | 36 | 30 | 1.9 | .3 | |

Table 4.--Sodium, chloride, and conductivity values for selected wells, springs, streams, and lakes (continued)

| T-R-Sec. 1/4 | Longitude (° ′ ″) | Latitude (° ′ ″) | Code | Name | Elev. (m) | Date (mo/da/yr) | Depth (m) | Cond. (umhos) | Na (mg/L) | Cl (mg/L) | Ref. |
|---|---|---|---|---|---|---|---|---|---|---|---|
| (20S-7E-34) NE | 121 51 51 | 43 48 02 W | | U.S. Forest Service | 1448 | 07/23/87 | 55 | 50 | 3.4 | .8 | T |
| (20S-8E-04) NE | 121 46 27 | 43 52 27 W | | U.S. Forest Service | 1410 | 07/27/87 | 32 | 38 | 3.5 | .3 | |
| (20S-8E-10) NW | 121 45 46 | 43 51 42 W | | U.S. Forest Service | 1393 | 07/27/87 | 35 | 45 | 2.9 | 1.0 | |
| (20S-8E-20) N | 121 47 42 | 43 50 06 | SP | unnamed | 1372 | 08/01/85 | - | - | 4.5 | <1 | I |
| (20S-8E-34) NW | 121 45 31 | 43 47 52 W | | Schatz | 1356 | 07/23/87 | 22 | 55 | 4.5 | .5 | |
| 20S-10E-01 SW | 121 28 42 | 43 51 49 W | | - | 1276 | 08/22/78 | 12 | 104 | 9.8 | 2.8 | C# |
| 20S-10E-01 SW | 121 28 30 | 43 51 54 | SP | unnamed | 1274 | 02/01/85 | - | - | 9.3 | 2.3 | |
| | | | | | | 09/17/85 | | - | 9.9 | 2.5 | |
| | | | | | | 09/28/86 | | - | - | - | I |
| 20S-10E-01 SW | 121 28 35 | 43 51 51 | SP | unnamed | 1273 | 08/22/78 | | 107 | 10. | 3.0 | C# |
| 20S-10E-01 SE | 121 28 17 | 43 51 53 W | | Saxon | 1274 | 07/24/87 | 28 | 75 | 10. | 2.9 | |
| 20S-10E-01 SE | 121 28 22 | 43 51 52 W | | - | 1274 | 07/24/87 | 43 | 70 | 10. | 2.8 | |
| 20S-10E-12 NW | 121 28 28 | 43 51 09 W | | - | 1273 | 07/24/87 | 20 | 90 | 8.0 | .8 | |
| 20S-10E-13 SW | 121 28 42 | 43 50 20 W | | - | 1274 | 07/24/87 | - | 70 | 6.7 | .6 | |
| 20S-10E-14 NE | 121 29 10 | 43 50 50 W | | McIntire | 1295 | 07/24/87 | 36 | 155 | 20. | 1.1 | |
| 20S-10E-23 SE | 121 29 34 | 43 49 32 W | | Stage Stop Inc. | 1274 | 07/24/87 | 83 | 75 | 5.6 | .6 | |
| 20S-10E-24 NW | 121 28 55 | 43 49 46 W | | - | 1273 | 07/24/87 | 70 | 70 | 10. | 2.7 | |

Table 4.--Sodium, chloride, and conductivity values for selected wells, springs, streams, and lakes (continued)

| T-R-Sec. 1/4 | Longitude (° ' ") | Latitude (° ' ") | Code | Name | Elev. (m) | Date (mo/da/yr) | Depth (m) | Cond. (umhos) | Na (mg/L) | Cl (mg/L) | Ref. |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 20S-10E-25 NW | 121 29 06 | 43 49 04 | W | Oregon Water Wonderland | 1271 | 07/31/87 | 197 | 335 | 82. | 2.6 | |
| 20S-10E-26 NE | 121 29 11 | 43 49 06 | W | - | 1271 | 07/31/87 | 209 | 205 | 40. | 2.9 | |
| | | | | | | 04/23/87 | | 327 | 40. | 3. | C,I |
| 20S-10E-31 SE | 121 34 16 | 43 47 34 | W | Green | 1295 | 07/31/87 | 64 | 55 | 8.1 | .6 | |
| 20S-10E-34 SE | 121 30 28 | 43 47 34 | W | Davis | 1272 | 08/07/87 | 75 | 155 | 42. | 1.4 | |
| 20S-11E-06 SE | 121 26 48 | 43 52 14 | W | - | 1268 | 08/23/78 | 55 | 140 | 16. | 2.7 | C# |
| (21S-7E-01) NW | 121 50 08 | 43 47 03 | W | - (Quinn R. Campground) | 1356 | 07/23/87 | 12 | 30 | 3.2 | .4 | |
| (21S-7E-01) NW | 121 50 07 | 43 47 01 | SP | unnamed | 1356 | 09/18/85 | - | - | 3.2 | <1 | |
| | | | | | | 08/15/87 | | - | - | - | |
| 21S-7E-12 NE | 121 49 59 | 43 46 07 | W | Deschutes Natl. Forest | 1359 | 07/23/87 | 12 | 30 | 3.5 | .4 | |
| 21S-8E-20 SE | 121 47 06 | 43 43 56 | W | Deschutes Natl. Forest | 1323 | 07/27/87 | 9 | 50 | - | .9 | |
| 21S-8E-33 NE | 121 46 15 | 43 42 42 | W | Deschutes Natl. Forest | 1323 | 07/27/87 | 64 | 175 | - | 1.4 | |
| 21S-9E-23 NE | 121 36 33 | 43 44 37 | W | Gisler | 1301 | 08/07/87 | 37 | 53 | 4.7 | .8 | |
| 22S-8E-18 SE | 121 48 45 | 43 39 27 | SP | unnamed | 1329 | 04/23/88 | - | 46 | 3.7 | 1. | C,I |
| 22S-10E-15 NE | 121 30 18 | 43 40 28 | W | Admin. School District #1 | 1289 | 08/07/87 | 445 | 80 | 9.9 | 1.1 | |

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* - Robison and Laenan (1976)
\# - Unpublished data, J.B. Gonthier, U.S. Geological Survey, Portland, Oregon
** - Names from Robison and Laenan (1976)
(T-R-Sec.) - Area not surveyed; approximate cadastral location from U.S. Forest Service National Forest Maps

Table 5. Chemical composition of springs and wells in the Cascade Range of northern and central Oregon

[Well names are from well logs on file with the Oregon Department of Water Resources. Dashes indicate the absence of data. Sites are ordered by township, range, and section (**T-R-Sec.**). **Codes** - W = wells, SP = springs, LK = lake. Temperatures (**T**) are in degrees Celsius ($^{o}$C). Concentrations are in milligrams per liter (mg/L). Additional information about most of these sites can be found in Table 4.]

| T-R-Sec. | Name | Code | T ($^{o}$C) | pH | Calcium (Ca) | Magnesium (Mg) | Sodium (Na) | Potassium (K) | Bicarbonate ($HCO_3$) | Chloride (Cl) | Sulfate ($SO_4$) | Silica ($SiO_2$) | Flouride (F) | Boron (B) | Lithium (Li) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **West of the Cascade crest** | | | | | | | | | | | | | | | |
| 3S-5E-28 | - | W | 18 | 9.0 | 1.8 | 0.61 | 71 | 0.4 | 106 | 42 | 5.4 | 26 | 0.4 | 0.11 | 0.029 |
| (6S-8E-32) | Fire | SP | 7 | 6.9 | 5.5 | 3.2 | 2.0 | .2 | 37 | <1 | <1 | 21 | <.1 | - | - |
| 7S-6E-09 | - | W | 14 | 9.7 | 5.0 | .04 | 230 | 3.5 | 83 | 160 | 180 | 16 | 1.1 | 1.8 | .02 |
| (7S-7E-09) | unnamed | SP | 3 | 7.1 | 3.2 | 1.1 | 1.7 | .6 | 19 | <1 | <1 | 17 | <.1 | - | - |
| 8S-4E-31 | - | W | 23 | 7.3 | 31 | .78 | 11 | .1 | 66 | 6.3 | 39 | 14 | .1 | .17 | .004 |
| (8S-8E-20) | Cub | SP | 6 | 7.7 | 4.4 | 1.3 | 3.6 | 1.4 | 29 | .8 | <1 | 29 | <.1 | - | - |
| 9S-2E-17 | - | W | 17 | 8.9 | 160 | <.1 | 480 | 2.8 | 14 | 1000 | 11 | 17 | .3 | 1.0 | .02 |
| 9S-2E-27 | - | W | 15 | 8.1 | 39 | .9 | 330 | 1.9 | 127 | 560 | 30 | 33 | .6 | 2.3 | .03 |
| 9S-3E-11 | Ceri | W | 15 | 8.9 | 8.5 | 1.4 | 110 | .9 | 260 | 37 | 10 | 17 | .2 | .67 | .004 |
| 9S-3E-28 | - | W | 18 | 8.4 | 53 | 13 | 470 | 1.6 | 288 | 670 | 40 | 29 | .2 | 2.5 | .15 |
| 9S-6E-35 | unnamed | SP | 9 | 9.9 | 1.0 | .10 | 86 | .5 | 228 | 1.1 | 2.1 | 31 | .4 | .22 | .015 |
| (9S-7E-03) | unnamed | SP | 4 | 7.1 | 6.6 | 1.3 | 2.6 | .2 | 32 | .4 | <1 | 15 | - | - | - |
| (9S-7E-09) | unnamed | SP | 8 | 9.0 | 2.9 | .57 | 100 | 2.2 | 293 | 5.9 | 3.9 | 33 | .3 | .04 | .057 |
| (9S-7E-14) | unnamed | SP | 7 | 7.2 | 7.2 | 1.1 | 4.7 | .4 | 40 | .5 | <1 | 17 | - | - | - |
| (9S-7E-29) | unnamed | SP | 8 | 7.7 | 10 | 3.6 | 3.8 | .8 | 59 | .4 | <1 | 26 | - | - | - |
| (9S-8E-02) | Big | SP | 5 | 6.6 | 7.3 | 2.6 | 4.6 | 1.4 | 44 | 2.4 | <1 | 42 | - | - | - |
| 10S-6E-22 | Green Veneer | W | 14 | 7.7 | 5.3 | 2.0 | 120 | 1.0 | 158 | 89 | 30 | 31 | .7 | .28 | .033 |
| (10S-8E-05) | unnamed | SP | 5 | 6.5 | 2.5 | .3 | 1.6 | .8 | 16 | .4 | <1 | 23 | - | - | - |
| (10S-8E-15) | unnamed | SP | 6 | 6.6 | 2.1 | .1 | 1.4 | .3 | 12 | <1 | <1 | 12 | <.1 | - | - |
| 13S-2E-36 | Munts | W | 12 | 6.7 | 36 | 11 | 250 | .6 | 520 | 170 | 30 | 40 | .8 | 2.3 | .2 |
| 13S-4E-32 | - | W | 11 | 6.5 | 36 | 2.1 | 52 | .2 | 66 | 100 | 5.1 | 19 | .4 | 1.0 | .047 |
| 13S-5E-32 | - | W | 12 | 5.8 | 14 | 3.6 | 12 | .6 | 63 | 16 | 2.0 | 26 | .2 | .14 | .004 |
| 13S-7E-32 | - | W@ | 25 | 8.0 | - | .1 | 32 | 2.6 | 73 | 4.2 | 1.0 | 48 | - | 1.0 | - |
| 14S-7E-20 | Icecap | SP | 4 | 7.7 | 3.5 | 1.8 | 3.9 | 1.2 | 30 | .6 | <1 | 26 | - | - | - |

Table 5. Chemical composition of springs and wells (continued)

| T-R-Sec. | Name | Code | T (°C) | pH | Ca | Mg | Na | K | $HCO_3$ | Cl | $SO_4$ | $SiO_2$ | F | B | Li |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| (15S-6E-04) | unnamed | SP | 7 | 7.1 | 6.2 | 2.3 | 2.4 | 1.0 | 35 | .6 | <1 | 22 | - | - | - |
| (15S-7.5E-25) | unnamed | SP | 5 | 6.3 | 2.1 | .7 | 1.7 | .6 | 12 | .4 | <1 | 12 | - | - | - |
| 16S-2E-29 | Toy | W | 18 | 7.8 | 32 | 7.2 | 300 | 6.7 | 160 | 430 | 13 | 16 | 1.3 | 1.2 | .19 |
| 16S-5E-21 | Bowman | W | 14 | 6.2 | 14 | 3.1 | 12 | .7 | 31 | 26 | 6.4 | 29 | .1 | .09 | <.004 |
| 16S-6E-24 | unnamed | SP | 6 | 7.1 | 3.1 | 1.6 | 5.0 | 1.1 | 27 | 1.8 | <1 | 24 | - | - | - |
| (16S-7E-21) | - | W | 14 | 7.3 | 6.8 | 5.0 | 45 | 3.2 | 68 | 54 | 4.1 | 25 | .1 | .15 | .007 |
| (17S-8E-18) | unnamed | SP | 3 | 6.7 | 2.2 | 1.4 | 4.2 | 1.2 | 19 | 1 | 2 | 31 | <.1 | - | - |
| (17S-8E-19) | unnamed | SP | 3 | 6.7 | 1.5 | 1.2 | 5.2 | 1.3 | 22 | <1 | 2 | 31 | <.1 | - | - |
| **East of the Cascade crest** | | | | | | | | | | | | | | | |
| 4S-12E-22 | Harvey&Jensen | W | 9 | 8.09 | 9.4 | 7.5 | 13 | 2.1 | 94 | 6.0 | - | 65 | .2 | - | - |
| 4S-12E-32 | Lichtenberger | W | 7 | 8.26 | 5.4 | 2.8 | 26 | 6.5 | 90 | 9.0 | - | 72 | .4 | .11 | - |
| 5S-11E-35 | Kelly | SP* | 14.5 | 7.5 | 16. | 3.2 | 18 | 4.3 | 103 | 2.0 | 2.5 | - | .2 | - | - |
| 5S-12E-06 | Thompson | W | 9 | 7.68 | 12. | 10. | 106 | 8.0 | 115 | 130. | - | 71 | 6.9 | 2.0 | - |
| 6S-9E-21 | Willow | SP* | 11.5 | 7.5 | 3.1 | 3.4 | 1.8 | .1 | 26 | .8 | 1.1 | 19 | <.1 | - | - |
| 6S-11E-03 | Daniel | SP* | 15.5 | 7.2 | 37 | 3.4 | 15 | 3.7 | 158 | 2.2 | 1.6 | 73 | .1 | - | - |
| 6S-11E-08 | Coyote | SP* | 15.5 | 7.6 | 41 | 8.4 | 17 | .8 | 210 | 2.8 | 1.9 | 44 | .2 | - | - |
| 6S-11E-27 | Log | SP* | 17.5 | 7.3 | 12 | 7.8 | 12 | 3.7 | 100 | 2.4 | 1.0 | 69 | .1 | - | - |
| 6S-12E-27 | Nena | SP* | 10.5 | 7.6 | 23 | 1.9 | 27 | 3.5 | 109 | 16 | 6.6 | 72 | .1 | .01 | - |
| 7S-10E-07 | Big | SP* | 9.5 | 7.9 | 8.5 | 4.4 | 5.4 | 1.5 | 66 | 1.3 | 2.0 | 38 | .1 | - | - |
| 7S-10E-25 | Wally** | W * | - | - | 6.8 | 6.5 | 6.7 | 7.5 | 67 | 2.5 | 2.6 | 30 | .2 | .25 | - |
| 7S-11E-32 | Comedown** | W * | 10.5 | 7.1 | 9.4 | 5.6 | 1.9 | 1.3 | 58 | 1.6 | 2.1 | 39 | .1 | .02 | - |
| 7S-11E-33 | unnamed | SP* | 10.0 | 7.3 | 11. | 4.7 | 5.1 | .7 | 70 | 1.4 | 2.1 | 35 | .7 | .004 | - |
| 7S-12E-07 | Simnasho** | W * | - | - | 19. | 1.8 | 19. | .7 | 105 | 1.5 | 6.2 | 33 | .3 | .01 | - |
| 7S-12E-34 | Suppah** | W * | - | - | 10. | 3.8 | 13. | 1.4 | 72 | 2.8 | 2.6 | 40 | 1.0 | - | - |
| 7S-13E-17 | Eagle | SP* | 11.8 | 7.5 | 7.0 | 2.6 | 9.5 | 1.7 | 54 | 3.6 | 1.1 | 43 | .1 | - | - |
| 7S-14E-08 | unnamed | SP* | 16.8 | 7.7 | 15. | .8 | 31. | .6 | 124 | 2.4 | 4.1 | 35 | .9 | - | - |
| 7S-14E-17 | unnamed | SP* | 17.0 | 7.7 | 5.2 | 1.1 | 13. | 1.3 | 44 | 1.3 | 4.1 | 46 | .2 | - | - |
| 8S-11E-06 | Sidwalter** | W * | - | - | 9.9 | 6.8 | 8.8 | 1.8 | 83 | 6.0 | 1.8 | 48 | .1 | .01 | - |
| 8S-11E-16 | Guerin** | W * | - | - | 9.4 | 6.0 | 11. | 1.5 | 85 | 1.4 | 1.8 | 49 | .3 | .003 | - |
| 8S-11E-25 | Quinn** | W * | 14.3 | 7.6 | 12. | 5.7 | 16. | 3.0 | 95 | 3.3 | 3.4 | 48 | .3 | .01 | - |
| 8S-11E-33 | Wells** | W * | 14.0 | 8.0 | 12. | 5.4 | 8.8 | 2.7 | 82 | 1.5 | 1.6 | 34 | 1.0 | <.01 | - |
| 8S-12E-03 | unnamed | SP* | 17.0 | 7.0 | 9.1 | 4.9 | 7.8 | 1.2 | 60 | 2.5 | 2.6 | 40 | .1 | .02 | - |

Table 5. Chemical composition of springs and wells (continued)

| T-R-Sec. | Name | Code | T (°C) | pH | Ca | Mg | Na | K | $HCO_3$ | Cl | $SO_4$ | $SiO_2$ | F | B | Li |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 8S-12E-03 | Schoolie Flat | W * | - | - | 23. | 9.6 | 19. | 2.2 | 166 | 4.5 | 4.4 | 54 | .3 | .01 | - |
| 8S-12E-04 | Schoolie Flat | W * | - | - | 18. | 7.6 | 13. | 2.2 | 115 | 4.7 | 2.9 | 59 | .3 | .01 | - |
| 8S-12E-14 | Kuckup | SP* | - | - | 15. | 6.0 | 22. | 2.0 | 117 | 7.9 | 3.3 | 65 | .6 | .01 | - |
| 8S-12E-29 | Buck** | SP* | 15.0 | 8.2 | 9.8 | 5.5 | 4.8 | 1.1 | 73 | 1.3 | 1.3 | 38 | .1 | .03 | - |
| 8S-13E-01 | unnamed | SP* | 17.0 | 8.4 | 12. | 3.3 | 130. | 6.5 | 368 | 16. | 17. | 73 | 1.1 | .02 | - |
| 8S-13E-07 | Wire Corral** | SP* | 16.0 | 7.6 | 8.6 | 2.1 | 14. | 1.3 | 60 | 2.9 | 6.0 | 45 | .5 | .02 | - |
| 8S-13E-11 | Charley** | SP* | 13.5 | 7.6 | 7.2 | 1.2 | 43. | 5.5 | 129 | 5.2 | 7.0 | 80 | .7 | - | - |
| 8S-13E-17 | Charley** | W * | 17.5 | 7.5 | 11. | .4 | 100. | .9 | 263 | 11. | 11. | 43 | 1.0 | - | - |
| 8S-13E-19 | unnamed | SP* | 83.5 | 8.1 | 13. | .3 | 400. | 11. | 603 | 240. | 31. | 78 | 21. | 5.6 | - |
| 8S-13E-20 | Kahneeta | SP* | 47.0 | 8.2 | 3.8 | .0 | 320. | 3.8 | 504 | 150. | 34. | 51 | 23. | 2.6 | - |
| 8S-13E-20 | unnamed | SP* | 55.5 | 8.8 | 5.2 | .2 | 380. | 1.3 | 595 | 220. | 39. | 58 | 27. | - | - |
| 8S-13E-30 | unnamed | SP* | 13.5 | 7.8 | 32. | 4.2 | 27. | 4.8 | 168 | 4.7 | 18. | 67 | .4 | - | - |
| 8S-13E-32 | McKinley** | W * | 15.5 | 7.5 | 14. | 3.9 | 35. | 5.1 | 138 | 6.7 | 6.9 | 76 | .5 | <.01 | - |
| 8S-13E-33 | Frank** | W * | - | 8.2 | 12. | 1.4 | 60. | 4.0 | 179 | 9.1 | 11. | 51 | .7 | .07 | - |
| 8S-13E-35 | Culpus** | W * | 16.6 | 7.8 | 17. | 2.0 | 46. | 7.6 | 162 | 7.8 | 10. | 88 | .7 | .05 | - |
| 8S-14E-20 | Rattlesnake** | SP* | 6.5 | 8.1 | 7.9 | 2.3 | 14. | 5.3 | 54 | 2.1 | 8.4 | 42 | .2 | - | - |
| 8S-14E-20 | Heath** | W * | - | 7.5 | 8.2 | .3 | 96. | 14. | 164 | 6.5 | 91. | 57 | .3 | .04 | - |
| 8S-14E-31 | unnamed | SP* | 13.0 | 8.1 | 31. | 13. | 23. | 4.2 | 188 | 6.9 | 8.9 | 54 | .6 | - | - |
| (9S-8E-11) | - | W * | 7.5 | 7.4 | 3.1 | 1.9 | 2.7 | .9 | 25 | 1.7 | 1.5 | 13 | <.1 | - | - |
| 9S-12E-01 | unnamed | SP* | 13.0 | 7.6 | 21. | 3.3 | 34. | 6.6 | 157 | 6.9 | 6.5 | 77 | .6 | - | - |
| 9S-12E-03 | Tohet** | SP* | 13.0 | 7.9 | 21. | 5.6 | 25. | 6.6 | 135 | 4.8 | 6.8 | 77 | .4 | - | - |
| 9S-12E-10 | unnamed | SP* | 16.5 | 7.7 | 13. | 5.4 | 16. | 4.4 | 100 | 7.9 | 4.1 | 69 | .3 | - | - |
| 9S-12E-13 | unnamed | SP* | 10.5 | 7.5 | 28. | 6.3 | 78. | 4.4 | 263 | 15. | 23. | 70 | .8 | - | - |
| 9S-12E-31 | unnamed | SP* | 9.3 | 7.6 | 20. | 10. | 20. | 4.1 | 164 | 3.6 | 3.5 | 73 | .4 | <.01 | - |
| 9S-12E-32 | Switzler** | W * | - | 7.7 | 20. | .4 | 65. | 7.4 | 229 | 5.5 | 7.6 | 51 | .4 | .04 | - |
| 10S-9E-33 | unnamed | SP* | 3.0 | 7.5 | 4.3 | 1.0 | 1.7 | .3 | 21 | .6 | .5 | 21 | <.1 | - | - |
| 10S-10E-04 | unnamed | SP* | 3.5 | 7.5 | 9.4 | 4.9 | 3.2 | .9 | 62 | 1.4 | 3.6 | 34 | .1 | - | - |
| 10S-11E-30 | Peters | SP* | 10.3 | 7.1 | 12. | 6.9 | 4.1 | 1.3 | 83 | 1.1 | 2.3 | 44 | .1 | - | - |
| 10S-12E-15 | Smith** | W * | - | 7.8 | 16. | 6.3 | 20. | 3.4 | 122 | 4.2 | 5.3 | 63 | .1 | .006 | - |
| 10S-12E-29 | Johnson** | W * | - | 7.1 | 17. | 12. | 14. | 4.3 | 159 | 1.8 | 2.4 | 55 | .2 | - | - |
| 10S-12E-30 | Miller** | W * | - | 7.4 | 15. | 8.9 | 21. | 6.2 | 152 | 2.8 | 2.8 | 69 | .2 | <.01 | - |
| 11S-12E-02 | Simtustus Park | W * | 13.0 | 8.3 | 8.7 | 6.4 | 20. | 3.0 | 107 | 2.9 | 5.4 | 20 | .2 | - | - |
| 11S-12E-18 | Estabrook | W * | - | 7.6 | 17. | 9.2 | 20. | 3.9 | 144 | 4.1 | 4.4 | 45 | .5 | <.01 | - |
| 12S-12E-33 | Upper Opal | SP# | - | 8.1 | - | - | 15. | 2.0 | 93 | 3.9 | 4.7 | - | - | - | - |

Table 5. Chemical composition of springs and wells (continued)

| T-R-Sec. | Name | Code | T (°C) | pH | Ca | Mg | Na | K | $HCO_3$ | Cl | $SO_4$ | $SiO_2$ | F | B | Li |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 13S-8E-27 | Blue Lake | LK | 15 | 7.0 | 5.2 | 2.1 | 4.0 | 1.4 | 28 | .4 | .2 | 26 | .1 | 0.01 | 0.004 |
| 13S-8E-27 | Lovegren | W | 8 | 7.82 | 6.2 | 2.8 | 4.2 | 1.6 | 46 | 3.0 | <1 | 32 | .08 | <.05 | <.04 |
| 13S-12E-29 | Clevenger | W | 7. | 7.80 | 29. | 23. | 15. | 3.9 | 155 | 7.0 | 28. | 54 | .2 | <.05 | <.04 |
| 13S-13E-34 | unnamed | SP# | 6. | 8.1 | - | - | 15. | 2.3 | 115 | 3.5 | 4.7 | - | - | - | - |
| 14S-10E-21 | Indian Fd. L&C | W | 13. | 7.10 | 18. | 14. | 11. | 1.6 | 120 | 7.0 | 5.2 | 50 | .2 | - | - |
| 14S-13E-31 | - | W # | 12. | 7.8 | 43. | 4.8 | 22. | 4.4 | 150 | 9.0 | 11. | - | - | - | - |
| 15S-10E-36 | McCulley | W # | 10.5 | 7.8 | 13. | 6.2 | 9.0 | 3.1 | 90 | 1.5 | 2.1 | 45 | .3 | - | - |
| 15S-12E-23 | - | W | 7. | 8.10 | 15. | 11. | 19. | 4.4 | 126 | 8.0 | 8.9 | 44 | .1 | - | - |
| 16S-11E-15 | - | W # | - | 8.0 | 9.6 | 7.2 | 14. | 2.8 | 85 | 2.6 | 3.5 | 43 | .2 | .01 | - |
| 16S-11E-24 | Kautz | W | 10. | 8.41 | 15. | 11. | 13. | 1.7 | 110 | 7.0 | 9.2 | 55 | .3 | - | - |
| 16S-11E-30 | - | W # | 11.0 | 7.8 | 6.2 | 5.7 | 13. | 1.9 | 69 | 2.2 | 1.7 | 38 | .2 | .07 | - |
| 16S-12E-29 | - | W # | 12. | 7.9 | 21. | 16. | 19. | 4.6 | 131 | 4.0 | 6.0 | - | - | - | - |
| 17S-9E-20 | unnamed | SP | 10 | 7.0 | 2.3 | 0.8 | 1.3 | 0.4 | 16 | <1 | <1 | 17 | <.1 | | |
| 17S-9E-28 | unnamed | SP | 3 | 6.04 | 13. | 4.0 | 4.3 | .5 | 25 | .3 | 49 | 44 | .1 | <.01 | <.004 |
| 17S-9E-28 | unnamed | SP | 6 | 6.34 | 16. | 5.7 | 4.1 | .6 | 10 | .4 | 53 | 47 | .1 | <.01 | <.004 |
| 17S-11E-02 | - | W # | 10.5 | 7.9 | 6.3 | 5.6 | 11. | 1.7 | 69 | 2.0 | 1.9 | 38 | .1 | .05 | - |
| 17S-11E-03 | unnamed | SP# | 9.5 | 7.7 | 4.0 | 3.7 | 7.8 | 1.5 | 44 | 1.1 | 1.3 | 37 | .1 | .01 | - |
| 17S-11E-13 | unnamed | SP# | 10.5 | 6.8 | 9.5 | 6.4 | 7.5 | 1.1 | 64 | 1.2 | 5.9 | 59 | .2 | .004 | - |
| 17S-11E-13 | - | W # | 10.0 | 7.5 | 23. | 15. | 31. | 1.8 | 170 | 3.6 | 23. | 51 | .5 | .05 | - |
| 17S-11E-23 | - | W # | 10.5 | 7.8 | 5.9 | 5.4 | 10. | 2.0 | 69 | 2.0 | 1.3 | 39 | .1 | .05 | - |
| 17S-11E-23 | - | W # | 10.5 | 7.8 | 5.6 | 5.1 | 10. | 1.8 | 66 | 2.0 | 1.0 | 37 | .1 | .05 | - |
| 17S-11E-25 | - | W # | - | - | 9.2 | 6.8 | 8.5 | - | 114 | 4.5 | 1.2 | 17 | .2 | - | - |
| 17S-12E-17 | - | W # | - | 7.4 | 8.8 | 12. | 8.4 | 1.3 | 69 | 2.0 | 2.0 | 40 | - | - | - |
| 17S-12E-18 | - | W # | 12. | 8.0 | 9.6 | 5.3 | 6.0 | 2.4 | 50 | 1.0 | 1.0 | - | - | - | - |
| 17S-12E-20 | - | W # | 12.4 | 8.2 | 7.8 | 6.3 | 9.4 | 3.2 | 80 | 1.6 | 1.7 | 40 | .1 | .02 | - |
| 18S-8E-03 | unnamed | SP | 3. | 6.4 | 1.1 | 0.6 | 2.3 | 0.9 | 13 | <1 | <1 | 27 | <.1 | - | - |
| 18S-10E-10 | - | W # | 7.9 | 7.6 | 6.1 | 2.6 | 5.7 | 1.9 | 45 | .5 | .3 | 41 | .1 | - | - |
| 18S-11E-23 | - | W # | 10.9 | 7.7 | 8.2 | 4.5 | 7.4 | - | 70 | 1.3 | .9 | 50 | .1 | - | - |
| 18S-11E-23 | - | W # | 11.2 | 7.6 | 5.3 | 4.3 | 7.9 | 1.8 | 63 | 1.5 | 1.0 | 37 | .1 | .04 | - |
| 19S-8E-34 | - | SP | 6. | 7.93 | 2.3 | 1.4 | 3.6 | .9 | 23 | 1.0 | - | 27 | .1 | - | - |
| 19S-11E-31 | unnamed | SP# | 8.8 | 7.6 | 7.4 | 5.5 | 12. | 2.2 | 74 | 3.8 | 1.6 | 40 | .1 | .07 | - |
| 20S-10E-01 | - | W # | 7.0 | 7.9 | 5.6 | 3.8 | 9.8 | 1.5 | 57 | 2.8 | .8 | 38 | .1 | .06 | - |
| 20S-10E-01 | unnamed | SP# | 7.0 | 8.0 | 5.3 | 3.6 | 10. | 1.5 | 57 | 3.0 | 1.4 | 34 | .1 | .06 | - |
| 20S-10E-26 | - | W | 8.0 | 8.00 | 12. | 10. | 40. | 3.8 | 219 | 3. | <1 | 37 | .4 | <.05 | <.04 |

Table 5. Chemical composition of springs and wells (continued)

| T-R-Sec. | Name | Code | T (°C) | pH | Ca | Mg | Na | K | $HCO_3$ | Cl | $SO_4$ | $SiO_2$ | F | B | Li |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 20S-11E-06 | - | W # | 8.5 | 8.2 | 6.2 | 5.0 | 16. | 2.6 | 81 | 2.7 | 1.3 | 27 | .1 | .05 | - |
| 22S-8E-18 | unnamed | SP | 9. | 7.55 | 4.1 | 1.6 | 3.7 | 1.4 | 30 | 1. | <1 | 13 | .07 | <.05 | <.04 |

@ - RU sample; lab pH
* - Robison and Laenen (1976)
# - unpublished data, J.B. Gonthier, USGS, Portland, Oregon
** - names from Robison and Laenen (1976)
(T-R-Sec.) - area not surveyed; approximate cadastral location from U.S. Forest Service National Forest Maps

Table 6. -- Stable-isotope values for selected springs, wells, streams, and lakes in the Cascade Range of northern and central Oregon

[Well names are from well logs on file with the Oregon Department of Water Resources. Dashes indicate the absence of data. Values followed by "e" are approximate. Sites are ordered by township, range, and section (**T-R-Sec.**). Elevation (**Elev.**) is reported in meters (m) above sea level. **Date** is month, day, year (mo/da/yr) of sample collection. Sodium (**Na**) and chloride (**Cl**) values are reported in milligrams per liter (mg/L). Isotope values are reported in per mil notation relative to SMOW. Additional information about most of these sites can be found in Table 4.]

| T-R-Sec. 1/4 | Longitude (° ' ") | Latitude (° ' ") | Name# | Elev. (m) | Depth (m) | Date (mo/da/yr) | Na (mg/L) | Cl (mg/L) | δD (o/oo) | $\delta^{18}O$ (o/oo) |
|---|---|---|---|---|---|---|---|---|---|---|
| **Cold springs and wells west of the Cascade crest** | | | | | | | | | | |
| 3S-4E-21 NE | 122 18 53 | 45 17 47 | (well) | 280 | 17 | 06/24/86 | 5e | - | -73 | -9.9 |
| 3S-5E-32 SE | 122 12 52 | 45 15 33 | unnamed spr. | 411 | -- | 06/30/86 | 6e | - | -72 | -10.4 |
| 3S-5E-36 SE | 122 08 08 | 45 15 56 | unnamed spr | 732 | -- | 06/30/86 | 1e | - | -72 | -10.5 |
| 3S-6E-33 SE | 122 04 29 | 45 15 53 | unnamed spr. | 1103 | -- | 06/30/86 | 1e | - | -73 | -10.2 |
| 5S-4E-01 SW | 122 16 10 | 45 09 30 | unnamed spr. | 631 | -- | 06/30/86 | 3e | - | -76 | -10.6 |
| 5S-7E-12 NE | 121 53 37 | 45 09 24 | High Rock Spr. | 1378 | -- | 07/03/86 | 3e | - | -87 | -12.5 |
| 5S-8.5E-11 SE | 121 44 59 | 45 08 53 | unnamed spr. | 991 | -- | 10/01/87 | 2.6 | 0.5 | -90 | -12.9 |
| 5S-8.5E-35 NE | 121 44 42 | 45 05 51 | (well) | 1019 | 43 | 07/09/86 | 3e | - | -94 | -12.7 |
| 6S-5E-14 NE | 122 09 23 | 45 03 03 | unnamed spr. | 743 | -- | 07/01/86 | 2e | - | -76 | -10.6 |
| (6S-8E-32 N) | 121 51 31 | 45 00 31 | Fire Sprs. | 1024 | -- | 08/15/81 | 2.0 | <1 | -91 | -13.0 |
| 7S-5E-28 SE | 122 12 05 | 44 55 42 | unnamed spr. | 765 | -- | 07/09/86 | 2e | - | -76 | -11.2 |
| 7S-6E-09 NW | 122 05 24 | 44 58 38 | (well) | 567 | -- | 02/23/87 | 220 | 170 | -89 | -12.5 |
| (7S-7E-09 SW) | 121 57 48 | 44 58 36 | unnamed spr. | 1280 | -- | 08/15/81 | 1.7 | <1 | -84 | -12.1 |
| 8S-8E-20 SW | 121 51 18 | 44 51 54 | Cub Spr. | 1120 | -- | 08/21/79 | 3.6 | .8 | -88 | -12.5 |
| 9S-2E-17 NE | 122 34 53 | 44 47 41 | (well) | 216 | 81 | 08/01/86 | 430 | 920 | -72 | -11.2 |
| 9S-2E-24 NW | 122 30 28 | 44 46 41 | unnamed spr. | 437 | -- | 08/07/86 | 5e | - | -69 | -10.4 |
| 9S-3E-28 SE | 122 26 27 | 44 45 35 | (well) | 287 | >90e | 06/25/86 | 470 | 690 | -74 | -10.6 |
| 9S-6E-21 SE | 122 04 37 | 44 46 25 | Willamette Nat. For. | 597 | 45 | 08/31/87 | 5.9 | .7 | -82 | -11.4 |
| 9S-6E-35 SE | 122 02 21 | 44 44 32 | unnamed spr. | 1140 | -- | 07/15/86 | 83. | .4 | -83 | -12.1 |
| | | | | | | 04/25/88 | - | - | -83 | -11.7 |
| (9S-7E-03 NE) | 121 56 24 | 44 49 30 | unnamed spr. | 1359 | -- | 10/17/79 | 2.6 | .4 | -87 | -12.2 |
| (9S-7E-09 SW) | 121 57 45 | 44 48 10 | unnamed spr. | 914 | -- | 07/15/86 | 101: | 1.3 | -82 | -12.1 |
| | | | | | | 04/25/88 | - | - | -81 | -11.4 |
| (9S-7E-14 NE) | 121 53 24 | 44 48 12 | unnamed spr. | 902 | -- | 10/17/79 | 4.7 | .5 | -89 | -12.0 |

Table 6. -- Stable-isotope values for selected springs, wells, streams, and lakes (continued)

| T-R-Sec. 1/4 | Longitude (° ' ") | Latitude (° ' ") | Name# | Elev. (m) | Depth (m) | Date (mo/da/yr) | Na (mg/L) | Cl (mg/L) | $\delta D$ (o/oo) | $\delta^{18}O$ (o/oo) |
|---|---|---|---|---|---|---|---|---|---|---|
| (9S-7E-29 SE) | 121 58 12 | 44 45 48 | unnamed spr. | 853 | -- | 10/18/79 | 3.8 | .4 | -88 | -11.9 |
| (9S-8E-02 NE) | 121 47 36 | 44 49 30 | Big Spr. | 1460 | -- | 10/17/79 | 4.6 | 2.4 | -86 | -12.0 |
| 10S-3E-09 NE | 122 26 15 | 44 43 22 | unnamed spr. | 370 | -- | 07/13/86 | 2.8 | *1.7 | -70 | -9.6 |
| 10S-6E-22 NW | 122 03 43 | 44 41 43 | Green Veneer well | 527 | 183 | 08/01/87 | 120. | 89 | -84 | -11.7 |
| (10S-8E-04 SW) | 121 49 36 | 44 43 54 | unnamed spr. | 1830 | -- | 09/18/82 | - | - | -96 | -12.8 |
| (10S-8E-05 NE) | 121 51 18 | 44 44 24 | unnamed spr. | 1330 | -- | 10/17/79 | 1.6 | .4 | -90 | -12.4 |
| (10S-8E-15 SW) | 121 49 00 | 44 42 12 | unnamed spr. | 1760 | -- | 08/14/81 | 1.4 | <1 | -90 | -12.5 |
| (11S-5E-17 SE) | 122 13 10 | 44 36 46 | unnamed spr. | 1201 | -- | 07/12/86 | 2e | - | -76 | -10.8 |
| 11S-7E-06 NE | 121 59 42 | 44 38 50 | unnamed spr. | 1244 | -- | 07/12/86 | 2e | - | -84 | -12.1 |
| 11S-7E-27 SW | 121 56 45 | 44 35 11 | unnamed spr. | 1052 | -- | 06/20/86 | 3e | - | -91 | -12.4 |
| 13S-2E-36 SW | 122 30 38 | 44 23 24 | Munts well | 243 | 38 | 07/21/87 | 270 | 200 | -73 | -10.4 |
| 13S-7.5E-23 SE | 121 52 49 | 44 25 18 | (well) | 1441 | <10e | 07/18/86 | 1e | - | -90 | -12.6 |
| 14S-2E-02 NE | 122 31 25 | 44 23 17 | Betts well | 357 | 107 | 07/09/86 | 7.7 | *1.3 | -65 | -7.5 |
| 14S-4E-10 NE | 122 18 26 | 44 22 02 | unnamed spr. | 1299 | -- | 07/21/86 | 1e | - | -76 | -11.6 |
| 14S-7E-20 NE | 121 59 50 | 44 20 38 | Icecap Spr. | 833 | -- | 10/18/79 | 3.9 | .6 | -95 | -12.5 |
| (15S-6E-04 NE) | 122 05 51 | 44 17 10 | unnamed spr. | 802 | -- | 10/18/79 | 2.4 | .6 | -84 | -11.2 |
| (15S-7.5E-25 NW) | 121 50 36 | 44 14 42 | unnamed spr. | 1540 | -- | 10/18/79 | 1.7 | .4 | -95 | -12.7 |
| 16S-2E-29 SE | 122 35 26 | 44 08 31 | Toy well | 235 | 67 | 08/12/86 | 260 | 420 | -75 | -11.0 |
| 16S-4E-04 SE | 122 19 53 | 44 11 57 | unnamed spr. | 601 | -- | 08/15/86 | 3e | - | -75 | -11.1 |
| 16S-6E-24 SE | 122 01 12 | 44 09 42 | unnamed spr. | 585 | -- | 10/18/79 | 5.0 | 1.8 | -91 | -12.7 |
| 17S-2E-02 NE | 122 31 54 | 44 07 19 | unnamed spr. | 297 | -- | 08/13/86 | 1e | - | -72 | -10.1 |
| (17S-8E 18) | 121 48 54 | 44 06 00 | unnamed spr. | 1905 | -- | 08/12/81 | 4.2 | 1.0 | -101 | -14.0 |
| (17S-8E 19) | 121 48 54 | 44 04 54 | unnamed spr. | 1750 | -- | 08/12/81 | 5.2 | <1 | -98 | -13.5 |
| (18S-6E-02 SE) | 122 02 28 | 44 01 47 | unnamed spr. | 1453 | -- | 08/14/86 | 1e | - | -87 | -12.4 |
| (18S-6.5E 25) | 121 57 07 | 43 58 38 | Bill Gott Spr. | 1475 | -- | 09/02/86 | 2e | - | -89 | -12.6 |
| **Cold springs, wells, streams, and lakes east of the Cascade crest** | | | | | | | | | | |
| 3S-10E-20 SW | 121 34 54 | 45 17 23 | unnamed spr. | 1658 | -- | 10/06/87 | 1.7 | .6 | -90 | -12.7 |
| 3S-11E-18 NE | 121 27 50 | 45 18 41 | Sunrise Sprs. | 1596 | -- | 10/06/87 | 2.9 | .6 | -97 | -13.7 |
| 3S-13E-34 NW | 121 10 09 | 45 16 05 | unnamed spr. | 512 | -- | 09/30/87 | 9.1 | 1.8 | -111 | -14.2 |
| 3S-14E-31 NW | 121 06 38 | 45 16 12 | unnamed spr. | 488 | -- | 10/08/87 | 11. | 3.2 | -104 | -13.7 |
| 4S-9E-17 SW | 121 41 39 | 45 13 14 | Mt. Hood Nat. F. well | 1676 | 73 | 10/01/87 | 2.9 | .5 | -85 | -12.3 |

Table 6. -- Stable-isotope values for selected springs, wells, streams, and lakes (continued)

| T-R-Sec. 1/4 | Longitude (° ' ") | Latitude (° ' ") | Name# | Elev. (m) | Depth (m) | Date (mo/da/yr) | Na (mg/L) | Cl (mg/L) | $\delta D$ (o/oo) | $\delta^{18}O$ (o/oo) |
|---|---|---|---|---|---|---|---|---|---|---|
| 4S-10E-15 SE | 121 31 21 | 45 12 58 | unnamed spr. | 1219 | -- | 10/07/87 | 2.3 | .9 | -95 | -13.4 |
| 4S-12E-22 NW | 121 17 12 | 45 12 33 | Harvey & Jensen well | 546 | 101 | 04/25/88 | 13. | 6. | -101 | -13.5 |
| 4S-12E-32 SW | 121 20 09 | 45 10 22 | Lichtenberger well | 642 | 198 | 04/25/88 | 26. | 9. | -102 | -14.0 |
| 5S-12E-06 NE | 121 20 27 | 45 10 18 | Thompson well | 664 | >152 | 04/25/88 | 106. | 130. | -107 | -13.2 |
| 5S-15E-09 NE | 120 56 17 | 45 09 15 | unnamed spr. | 620 | -- | 04/24/88 | 11. | 6. | -103 | -12.9 |
| (6S-10E-19 SW) | 121 35 53 | 45 02 02 | unnamed spr. | 1167 | -- | 10/16/87 | 3.5 | .6 | -93 | -13.2 |
| 6S-11E-08 SE | 121 26 56 | 45 03 40 | Coyote Spr. | 832 | -- | 10/16/87 | 19. | 2.3 | -106 | -13.7 |
| 6S-12E-27 NW | 121 17 38 | 45 01 24 | Nena Spr. | 814 | -- | 10/13/87 | 28. | 11. | -107 | -14.5 |
| 7S-10E-35 SW | 121 31 07 | 44 55 00 | Nellie Spr. | 843 | -- | 10/15/87 | 5.6 | 1.7 | -105 | -14.3 |
| 7S-14E-08 NW | 121 05 11 | 44 58 55 | unnamed spr. | 433 | -- | 10/15/87 | 32. | 2.0 | -104 | -13.3 |
| 7S-15E-11 NW | 120 54 03 | 44 58 37 | unnamed spr. | 923 | -- | 04/24/88 | 11. | 5. | -99 | -12.8 |
| 8S-13E-10 SW | 121 10 01 | 44 53 11 | unnamed spr. | 555 | -- | 10/15/87 | 40. | 5.2 | -117 | -14.3 |
| 8S-15E-15 SW | 120 55 30 | 44 52 01 | unnamed spr. | 823 | -- | 04/24/88 | 13. | 6. | -103 | -12.8 |
| 9S-10E-31 NW | 121 35 32 | 44 44 45 | unnamed spr. | 1183 | -- | 10/16/87 | 4.7 | .9 | -103 | -14.5 |
| 9S-11E-34 NW | 121 24 53 | 44 45 02 | Seymore Sprs. | 882 | -- | 10/16/87 | 6.1 | .6 | -103 | -13.6 |
| 9S-13E-06 SW | 121 13 48 | 44 49 03 | unnamed spr. | 536 | -- | 10/11/87 | 29. | 5.8 | -118 | -14.8 |
| (10S-8E-24 SE) | 121 45 58 | 44 40 51 | unnamed stream | 1999 | -- | 06/27/88 | - | - | -105 | -14.2 |
| (10S-8E-35 NE) | 121 47 16 | 44 39 23 | unnamed lake | 2182 | -- | 06/26/88 | - | - | -100 | -14.5 |
| (10S-8E-35 NE) | 121 47 15 | 44 39 23 | unnamed stream | 2185 | -- | 06/26/88 | - | - | -84 | -12.2 |
| (10S-8E-36 NE) | 121 46 09 | 44 39 30 | unnamed stream | 1902 | -- | 06/26/88 | - | - | -94 | -13.0 |
| (10S-8.5E-25 SW) | 121 44 38 | 44 40 09 | Parker Cr. | 1658 | -- | 06/26/88 | - | - | -104 | -14.7 |
| (10S-8.5E-25 SE) | 121 43 56 | 44 40 19 | unnamed spr. | 1597 | -- | 06/26/88 | - | - | -100 | -13.8 |
| (10S-8.5E-26 NW) | 121 45 37 | 44 40 40 | Milk Cr. | 1902 | -- | 06/27/88 | - | - | -109 | -14.7 |
| (10S-8.5E-26 NW) | 121 45 37 | 44 40 39 | unnamed stream | 1902 | -- | 06/27/88 | - | - | -103 | -14.5 |
| (10S-8.5E-26 SE) | 121 44 47 | 44 40 01 | unnamed stream | 1686 | -- | 06/26/88 | - | - | -94 | -13.4 |
| (10S-8.5E-35 NE) | 121 45 07 | 44 39 42 | unnamed stream | 1768 | -- | 06/26/88 | - | - | -96 | -13.8 |
| 10S-9E-28 NE | 121 40 06 | 44 40 35 | unnamed spr. | 1530 | -- | 05/25/88 | 1.6 | .4 | -95 | -13.1 |
| 10S-9E-33 NW | 121 40 27 | 44 39 55 | unnamed spr. | 1658 | -- | 09/26/87 | 2.0 | .4 | -104 | -14.2 |
| 10S-11E-30 SW | 121 28 32 | 44 40 42 | Peters Spr. | 937 | -- | 09/26/87 | 5.2 | .5 | -107 | -13.7 |
| (11S-8E-04 NE) | 121 46 28 | 44 38 54 | unnamed spr. | 1878 | -- | 06/26/88 | - | - | -96 | -13.2 |
| (11S-8E-23 N) | 121 44 42 | 44 36 18 | unnamed spr. | 1731 | -- | 09/27/86 | - | - | -97 | -13.3 |
| 11S-12E-08 NE | 121 19 04 | 44 38 16 | Pipp Spr. | 689 | -- | 10/14/87 | 17. | 3.2 | -107 | -13.6 |

Table 6. -- Stable-isotope values for selected springs, wells, streams, and lakes (continued)

| T-R-Sec. 1/4 | Longitude (° ' ") | Latitude (° ' ") | Name# | Elev. (m) | Depth (m) | Date (mo/da/yr) | Na (mg/L) | Cl (mg/L) | $\delta D$ (o/oo) | $\delta^{18}O$ (o/oo) |
|---|---|---|---|---|---|---|---|---|---|---|
| 11S-14E-02 NE | 121 00 48 | 44 38 35 | Monner Spr. | 850 | -- | 04/24/88 | 32. | 12. | -99 | -12.3 |
| 12S-10E-18 NE | 121 34 42 | 44 32 12 | unnamed spr. | 1292 | -- | 08/11/87 | 4.2 | 1.1 | -106 | -13.9 |
| 13S-8E-27 NE | 121 45 26 | 44 25 05 | Lovegren well | 1061 | 18 | 04/23/88 | 4.2 | 3. | -90 | -12.7 |
| 13S-8E-27 SW | 121 46 10 | 44 24 40 | Blue Lake | 1067 | 20 | 08/13/87 | 3.8 | .6 | -93 | -12.6 |
| | | | | | 40 | " | 3.8 | .6 | -91 | -12.7 |
| | | | | | 60 | " | 3.7 | .6 | -90 | -12.6 |
| | | | | | 80 | " | 3.7 | .6 | -94 | -13.0 |
| | | | | | 81.7 | " | 3.7 | .6 | -92 | -13.0 |
| 13S-9E-22 NE | 121 38 18 | 44 26 03 | Metolius Spr. | 920 | -- | 09/27/86 | 9.2 | 1.6 | -108 | -14.8 |
| 13S-12E-29 NW | 121 19 42 | 44 24 53 | Clevenger well | 805 | 96 | 04/24/88 | 15. | 7. | -99 | -13.3 |
| 14S-9E-35 SW | 121 38 01 | 44 18 38 | Cold Spr. | 1036 | -- | 07/09/87 | 4.1 | .5 | -97 | -13.2 |
| 14S-10E-21 SE | 121 32 15 | 44 20 24 | Indian Ford L&C Co. w. | 975 | 12 | 04/23/88 | 11. | 7. | -93 | -12.9 |
| 15S-12E-23 SW | 121 16 01 | 44 15 16 | (well) | 920 | 75 | 04/24/88 | 19. | 8. | -106 | -13.9 |
| 16S-9E-13 NW | 121 36 16 | 44 11 43 | Melvin Spr. | 1329 | -- | 09/29/86 | 5.0 | .2 | -115 | -15.0 |
| 16S-11E-24 SW | 121 21 15 | 44 10 20 | (well) | 1000 | 190 | 04/23/88 | 13. | 7. | -114 | -14.9 |
| (17S-9E-20 NE) | 121 41 00 | 44 04 45 | unnamed spr. | 2410 | -- | 08/13/81 | 1.3 | <1 | -116 | -13.6 |
| 17S-11E-18 NE | 121 26 56 | 44 06 28 | Bull Spr. | 1164 | -- | 08/19/87 | - | - | -108 | -14.6 |
| 18S-8E-03 SW | 121 45 44 | 44 02 23 | unnamed spr. | 1710 | -- | 08/13/81 | - | - | -103 | -14.0 |
| | | | | | | 07/29/84 | - | - | -96 | -14.0 |
| | | | | | | 08/15/87 | 2.6 | .2 | -96 | -14.1 |
| 19S-8E-34 SW | 121 45 59 | 43 52 51 | unnamed spr. | 1414 | -- | 04/23/88 | 3.6 | 1. | -99 | -14.1 |
| 19S-10E-02 SE | 121 29 04 | 43 57 03 | Kiwa Spr. | 1460 | -- | 09/29/86 | 2.6 | .4 | -114 | -15.1 |
| (20S-8E-20) | 121 47 42 | 43 50 06 | unnamed spr. | 1372 | -- | 08/01/85 | 4.5 | <1 | -111 | -14.2 |
| 20S-10E-01 SW | 121 28 30 | 43 51 54 | unnamed spr. | 1274 | -- | 09/28/86 | 9.3 | 2.3 | -112 | -14.6 |
| 20S-10E-26 NE | 121 29 11 | 43 49 06 | (well) | 1271 | 209 | 04/23/88 | 40. | 3.0 | -109 | -15.6 |
| 22S-8E-18 SE | 121 48 45 | 43 39 27 | unnamed spr. | 1329 | -- | 04/23/88 | 3.7 | 1. | -87 | -11.8 |
| **Hot springs and thermal wells** | | | | | | | | | | |
| 6S-7E-30 NW | 122 00 30 | 45 01 18 | Austin Springs | 509 | -- | 07/28/84 | 305 | 390 | -93 | -11.9 |
| (7S-5E-27 NE) | 122 10 21 | 44 56 09 | Bagby Hot Springs | 692 | -- | 09/18/77 | 53 | 14 | -89 | -12.4 |
| 9S-7E-20 NE | 121 58 32 | 44 46 52 | Breitenbush H. Spr. | 682 | -- | 08/21/79 | 745 | 1200 | -97 | -12.6 |

Table 6. -- Stable-isotope values for selected springs, wells, streams, and lakes (continued)

| T-R-Sec. 1/4 | Longitude (° ' ") | Latitude (° ' ") | Name# | Elev. (m) | Depth (m) | Date (mo/da/yr) | Na (mg/L) | Cl (mg/L) | $\delta D$ (o/oo) | $\delta^{18}O$ (o/oo) |
|---|---|---|---|---|---|---|---|---|---|---|
| 15S-6E-26 NW | 122 03 30 | 44 14 21 | unnamed hot spr. | 561 | -- | 07/26/84 | 675 | 1250 | -92 | -11.8 |
| 16S-6E-11 NE | 122 02 54 | 44 11 39 | Belknap Springs | 493 | -- | 07/27/84 | 660 | 1200 | -91 | -11.8 |
| 16S-6E-10 SW | 122 04 33 | 44 11 06 | Bigelow well | 481 | 209 | 09/29/86 | 670 | 1400 | -97 | -12.0 |
| 16S-6E-28 NW | 122 05 51 | 44 09 12 | Foley Springs | 536 | -- | 07/27/84 | 555 | 1350 | -94 | -12.3 |
| (17S-5E-20 NW) | 122 14 00 | 44 04 57 | unnamed hot spr. | 493 | -- | 07/26/84 | 405 | 790 | -89 | -12.2 |
| 8S-13E-19 NW | 121 13 42 | 44 52 02 | Kahneeta Sprs. (west) | 451 | -- | 10/17/87 | 410 | 230 | -116 | -14.2 |
| 8S-13E-20 E | 121 12 00 | 44 51 42 | Kahneeta Hot Spr. | 440 | -- | 08/--/79 | 325 | 155 | -119 | -14.8 |
| **Soda springs** | | | | | | | | | | |
| 13S-3E-32 NW | 122 28 28 | 44 23 48 | unn. spr. at Cascadia | 244 | -- | 09/19/77 | 2200 | 3300 | -66 | -9.0 |
| 13S-4E-26 SE | 122 17 03 | 44 24 17 | unn. spr. at Upp. Soda | 414 | -- | 09/19/85 | 2200 | 3500 | -73 | -10.5 |
| 18S-9E-06 S | 121 41 48 | 44 02 24 | unn. spr. on Soda Cr. | 1783 | -- | 08/19/79 | 50 | 5 | -104 | -13.9 |

# - (well) indicates sites where we do not have well logs
(T-R-Sec.) - Area not surveyed; approximate cadastral location from U.S Forest Service National Forest Maps

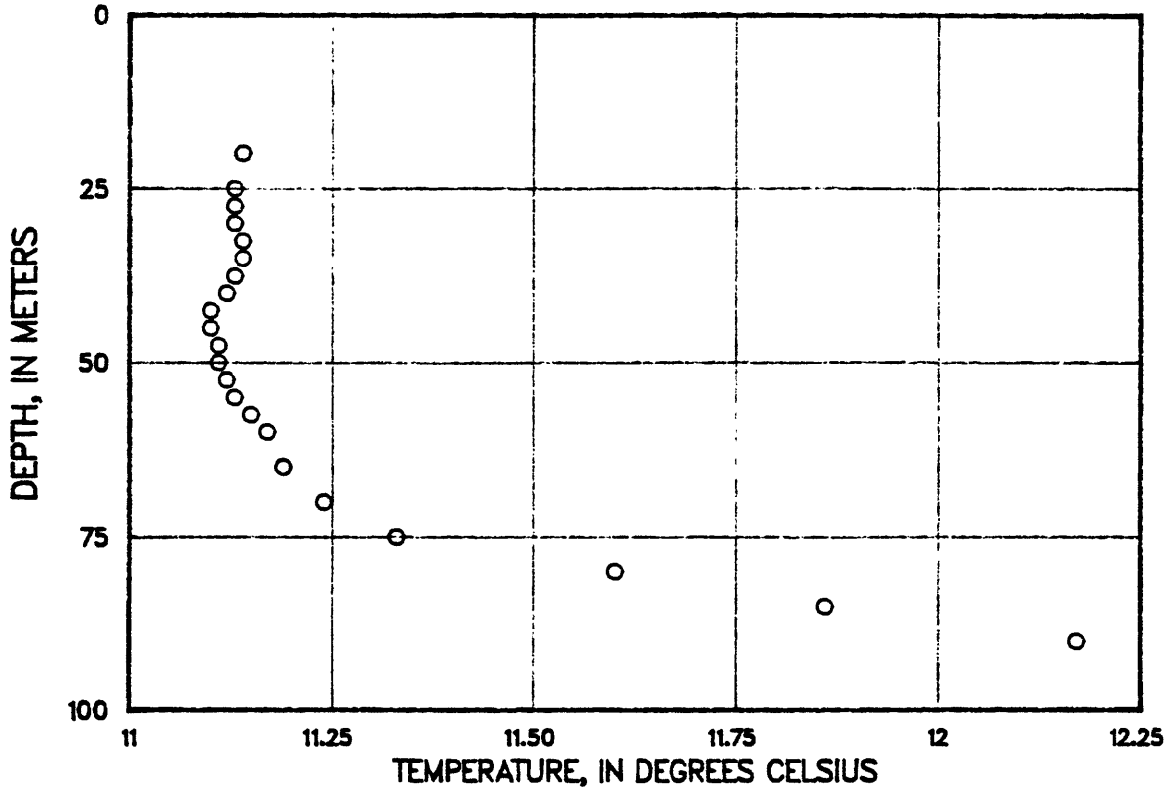


Fig. 1--Temperature profile from 3S-4E-03 NE.

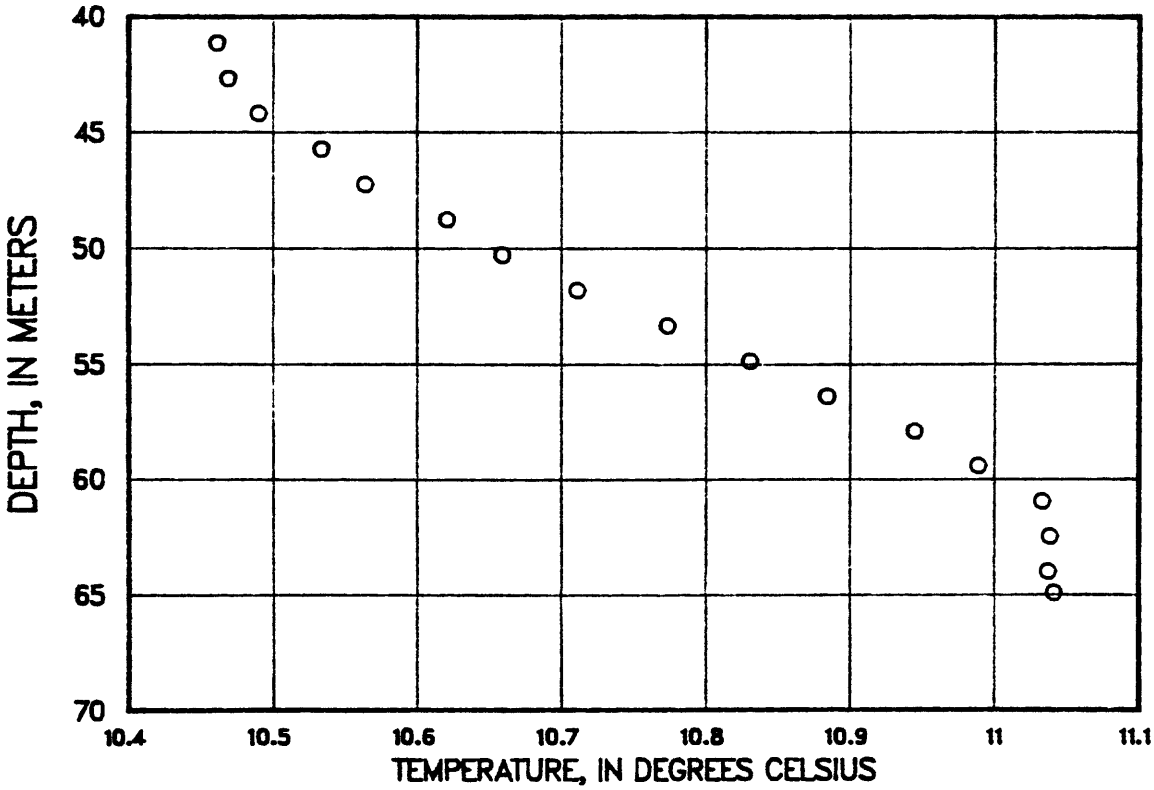


Fig. 2--Temperature profile from 3S-4E-18 NW.

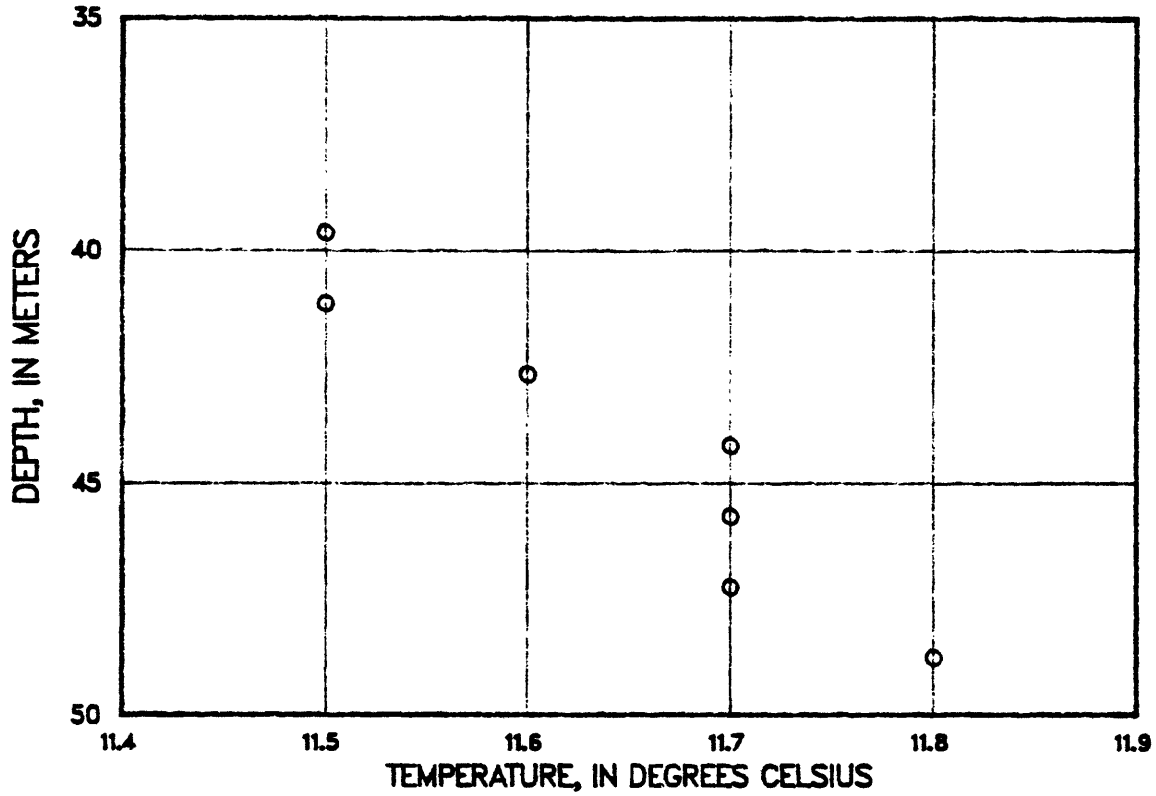


Fig. 3--Temperature profile from 3S-4E-23 SE.

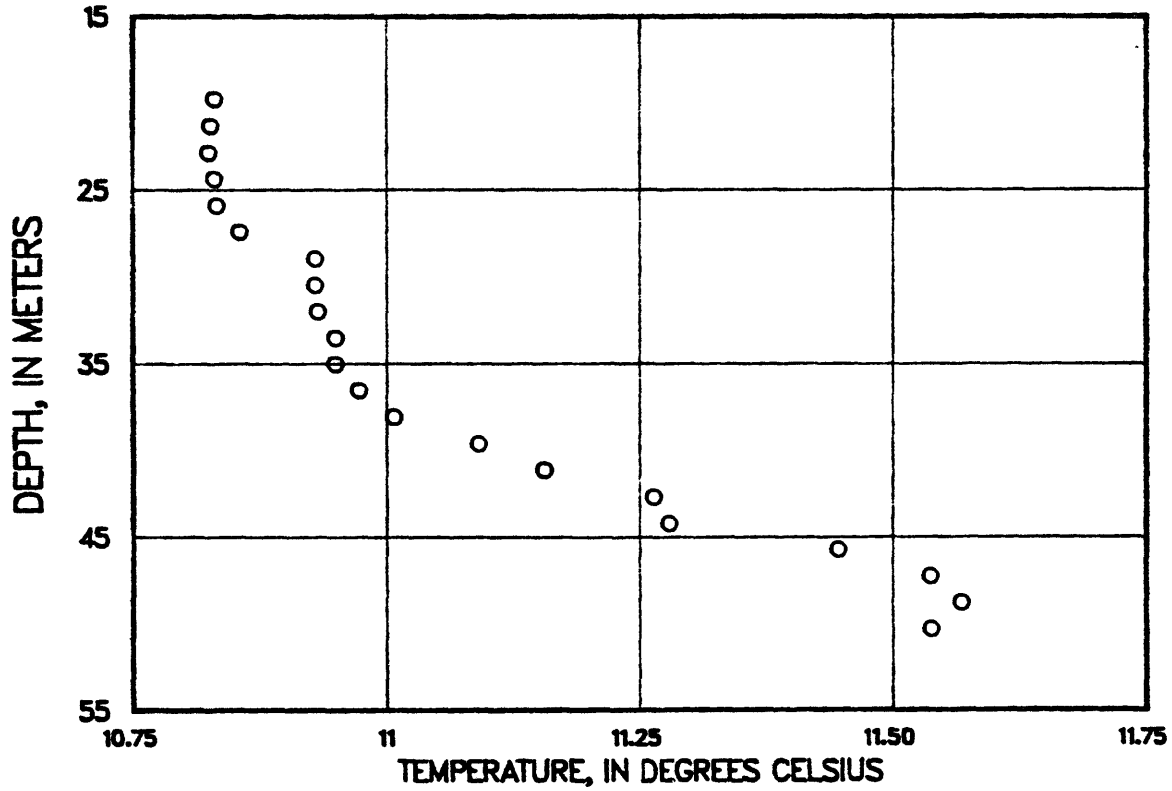


Fig. 4--Temperature profile from 3S-4E-27 SW.

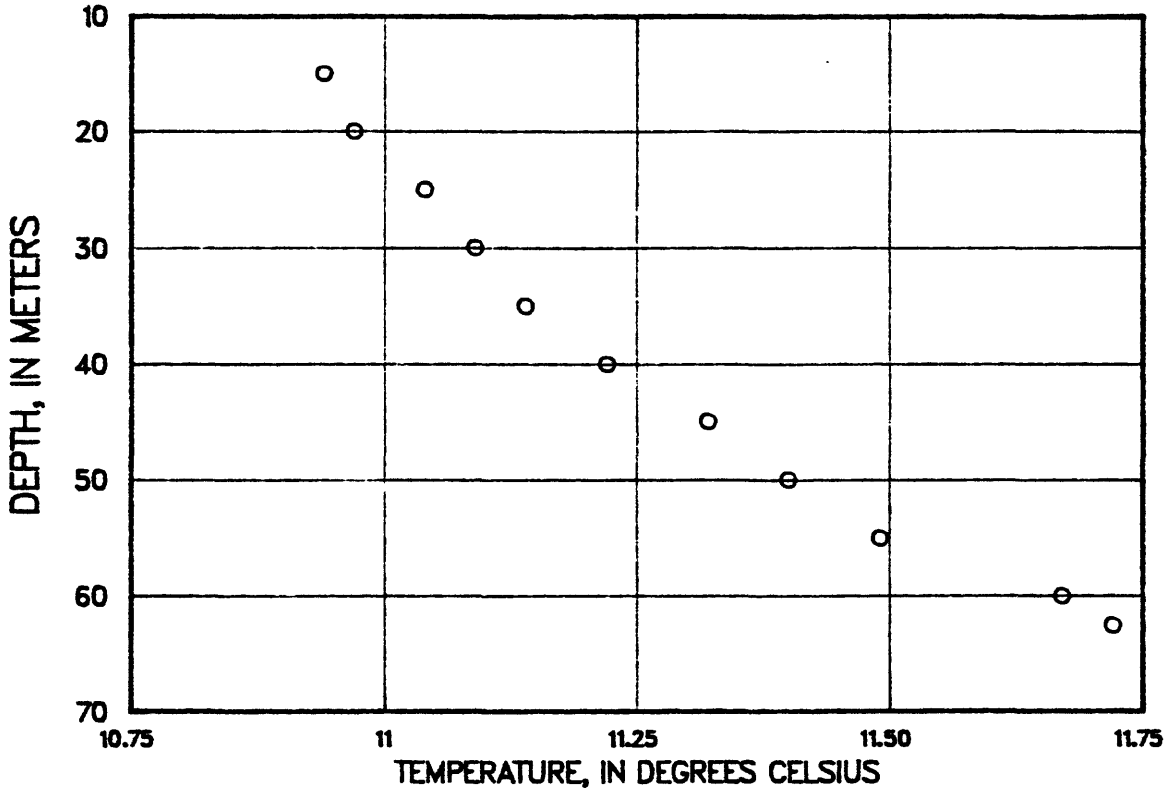


Fig. 5--Temperature profile from 3S-4E-28 NW.

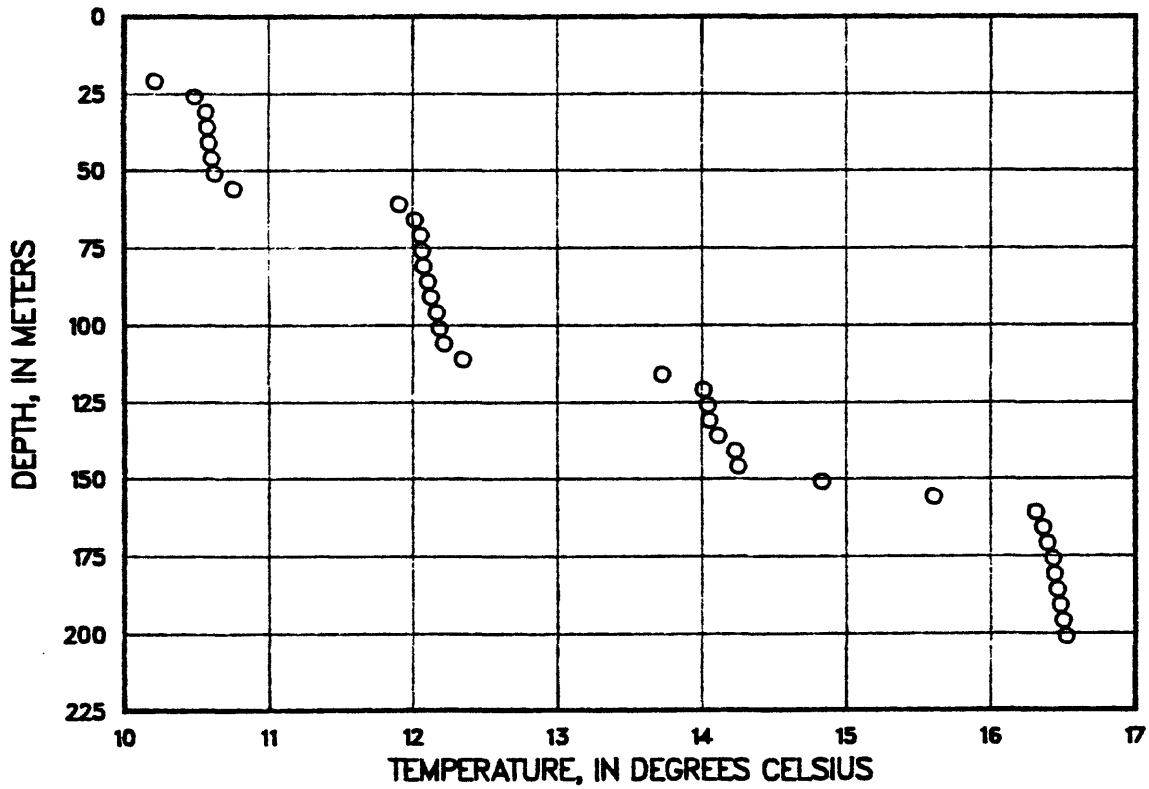


Fig. 6--Temperature profile from 3S-4E-29 NW.

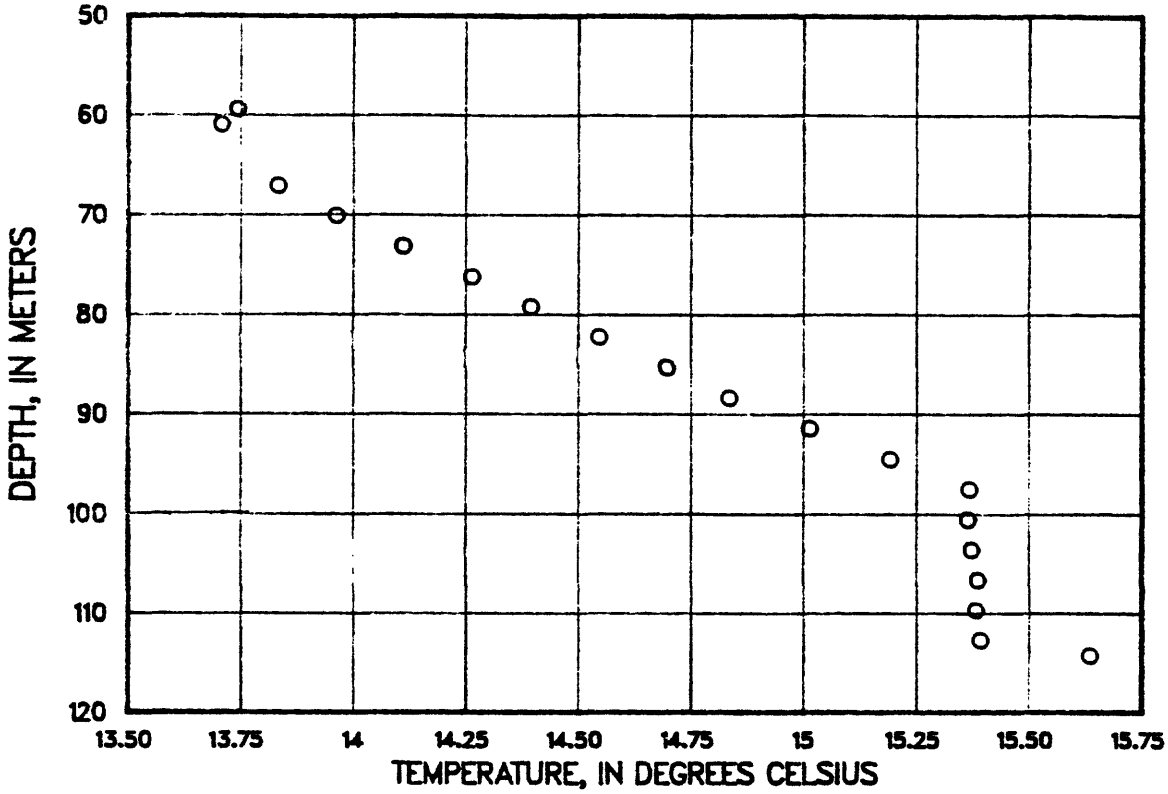


Fig. 7--Temperature profile from 3S-4E-33 NE.

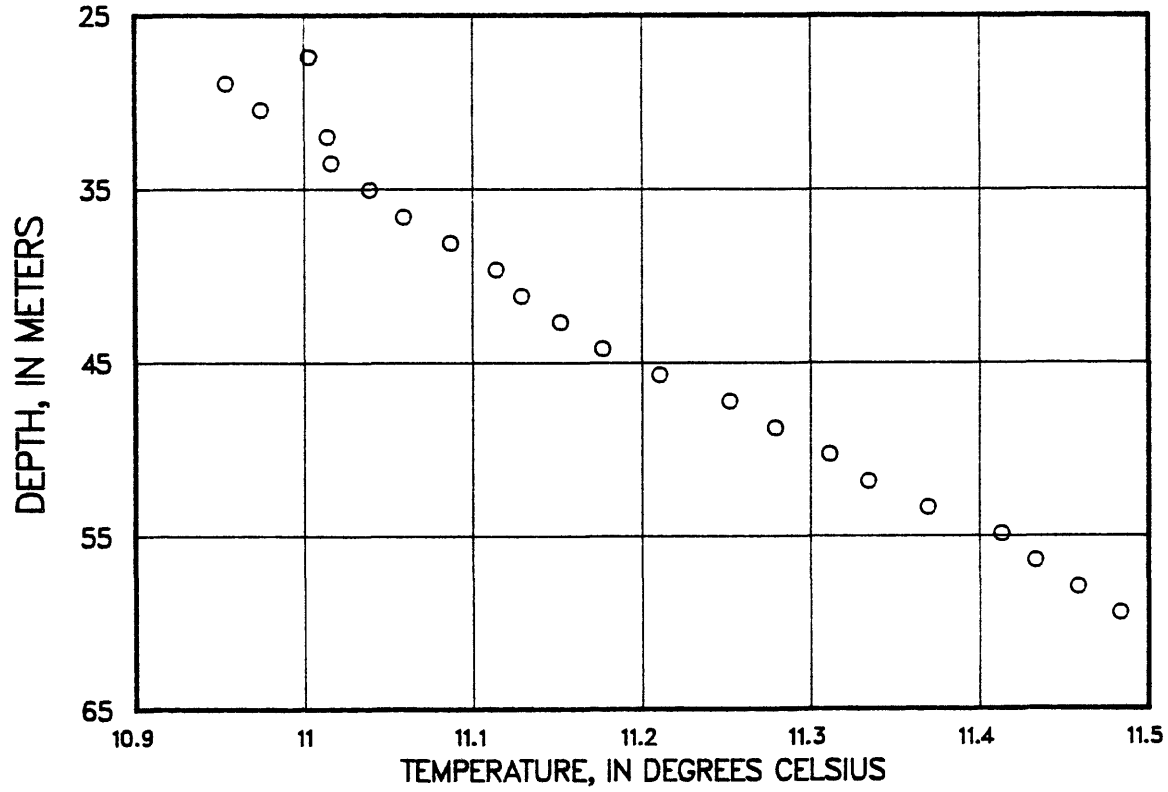


Fig. 8--Temperature profile from 3S-4E-35 SW.

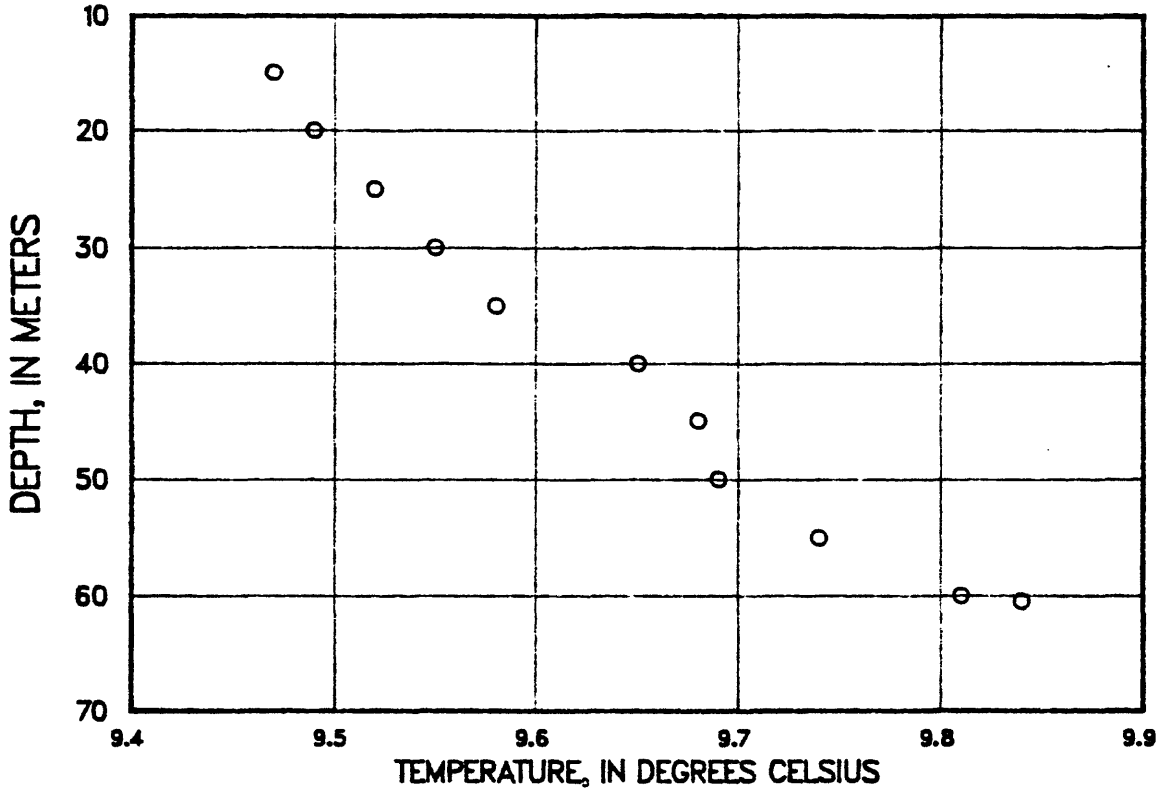


Fig. 9--Temperature profile from 3S-5E-20 NE.

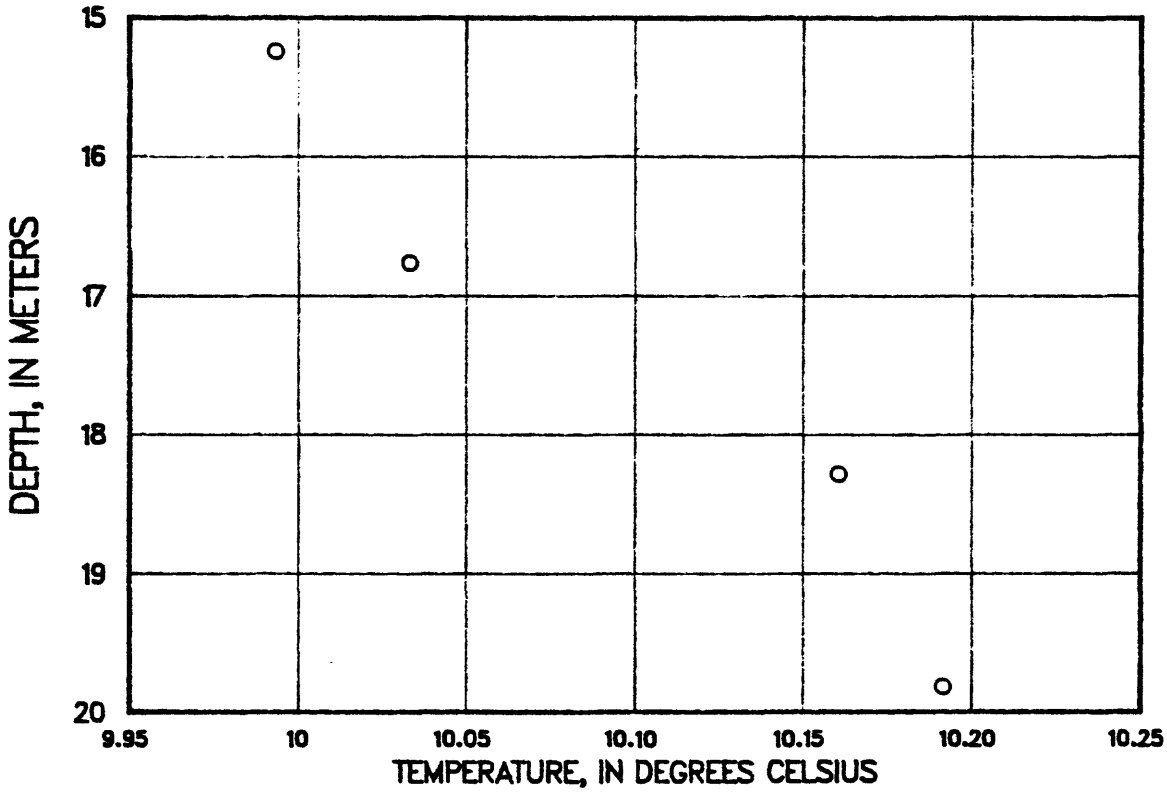


Fig. 10--Temperature profile from 4S-5E-29 NE.

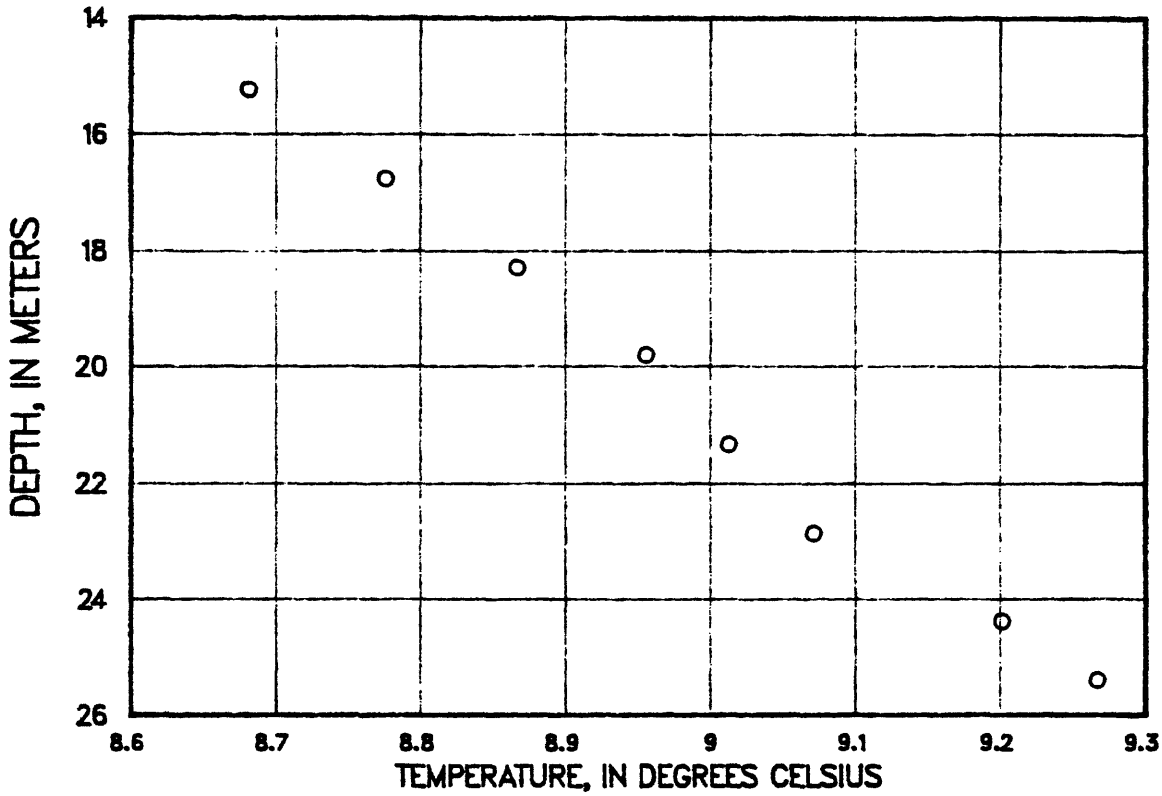


Fig. 11-Temperature profile from 5S-5E-02 SE.

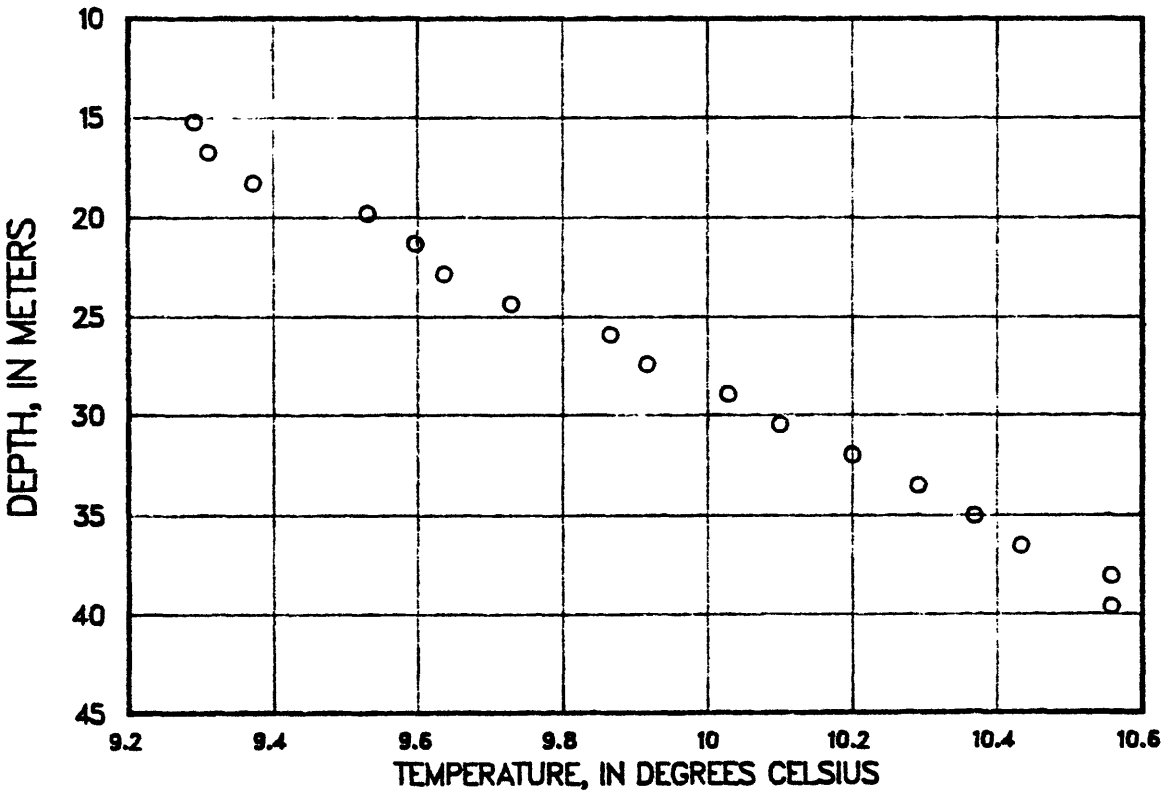


Fig. 12-Temperature profile from 5S-6E-06 SE.

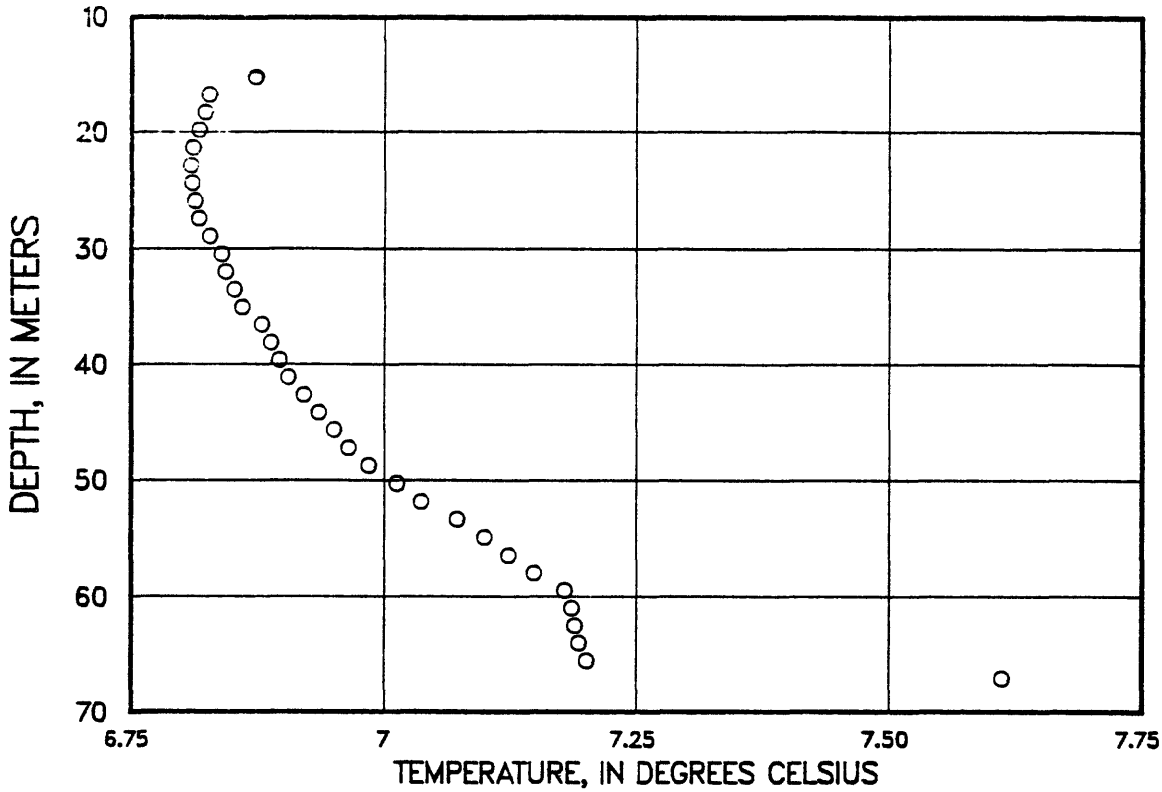


Fig. 13-Temperature profile from 5S-6E-36 SE.

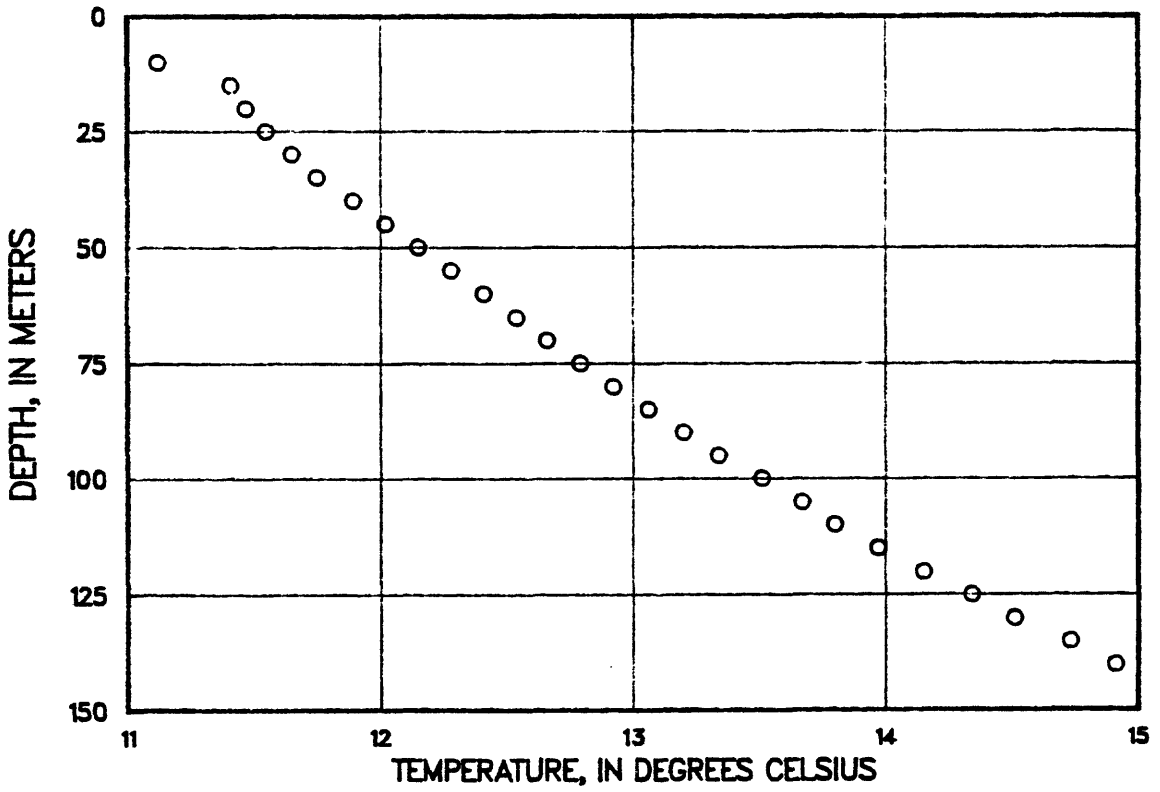


Fig. 14-Temperature profile from 6S-1E-13 SE.

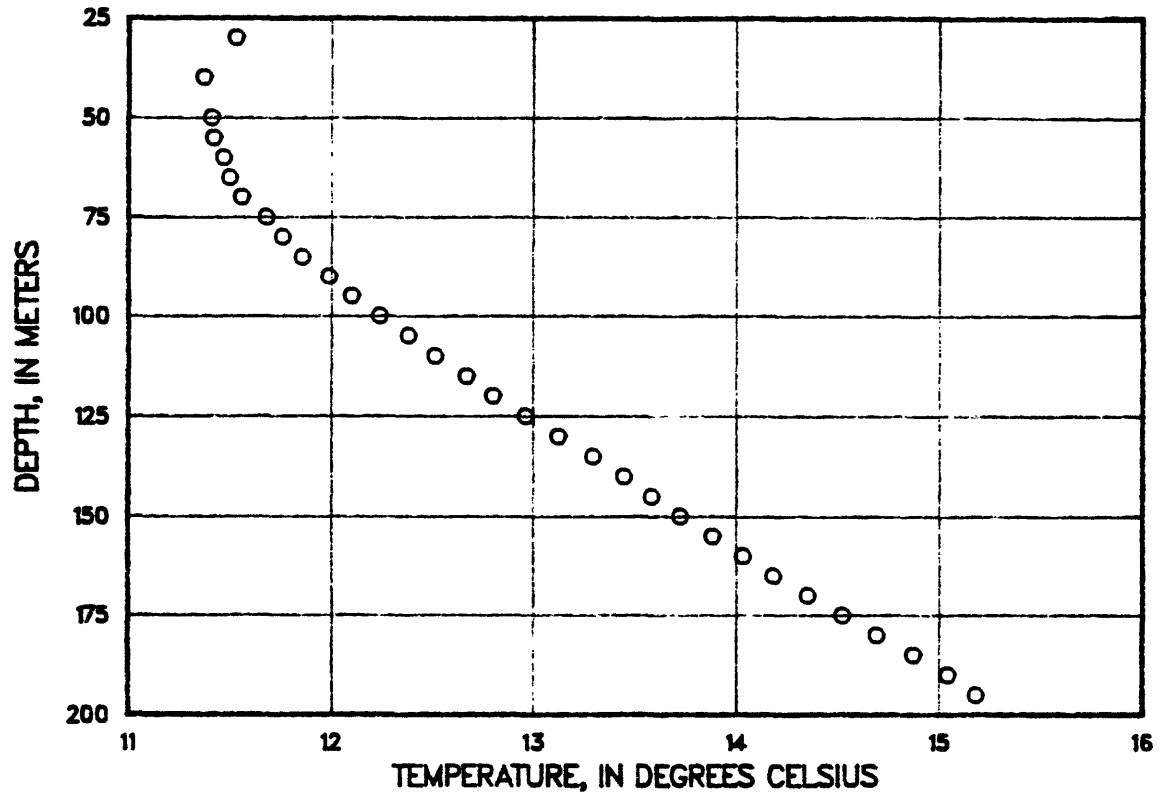


Fig. 15-Temperature profile from 6S-1E-35 SW.

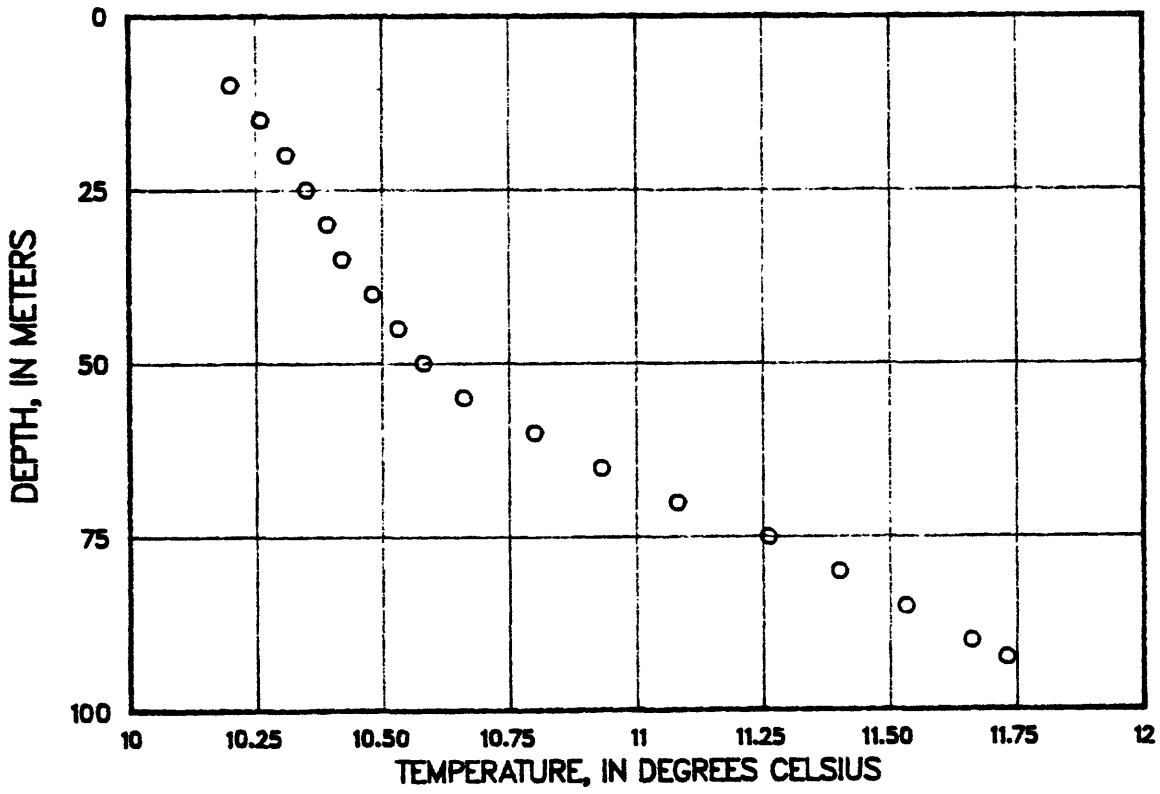


Fig. 16-Temperature profile from 6S-2E-18 NW.

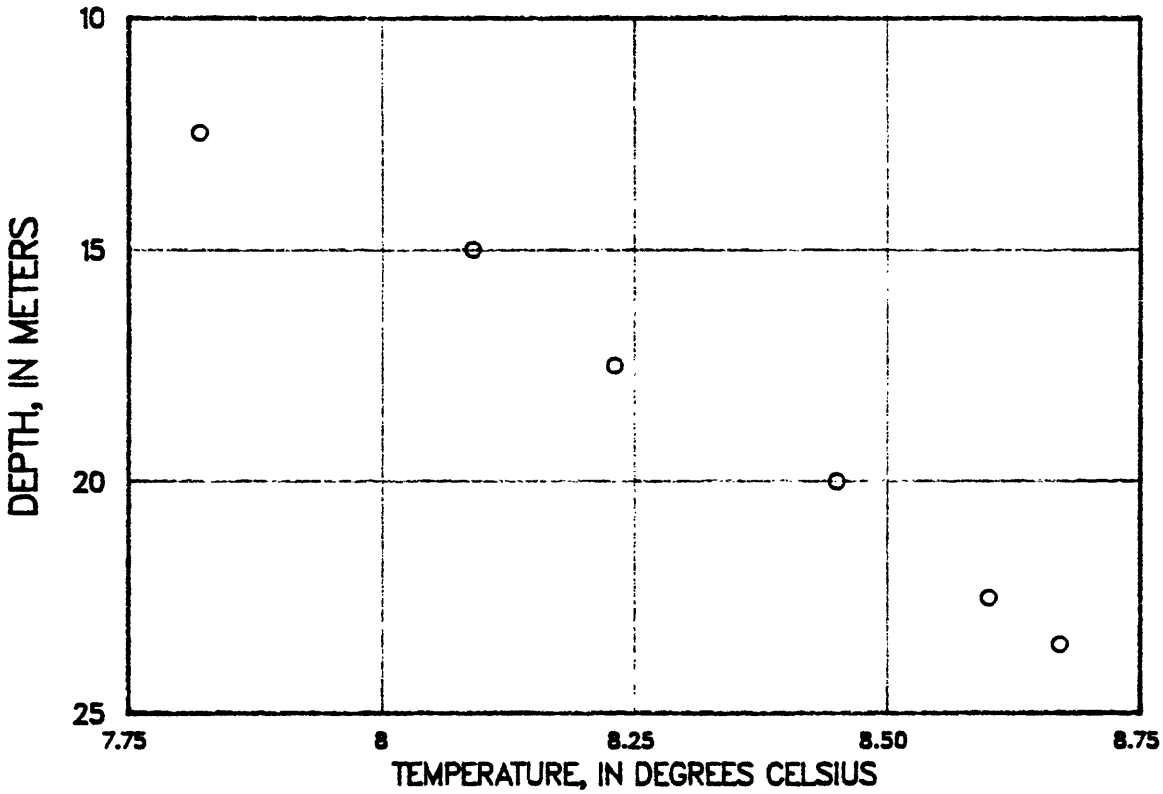


Fig. 17-Temperature profile from 6S-6E-23 SW.

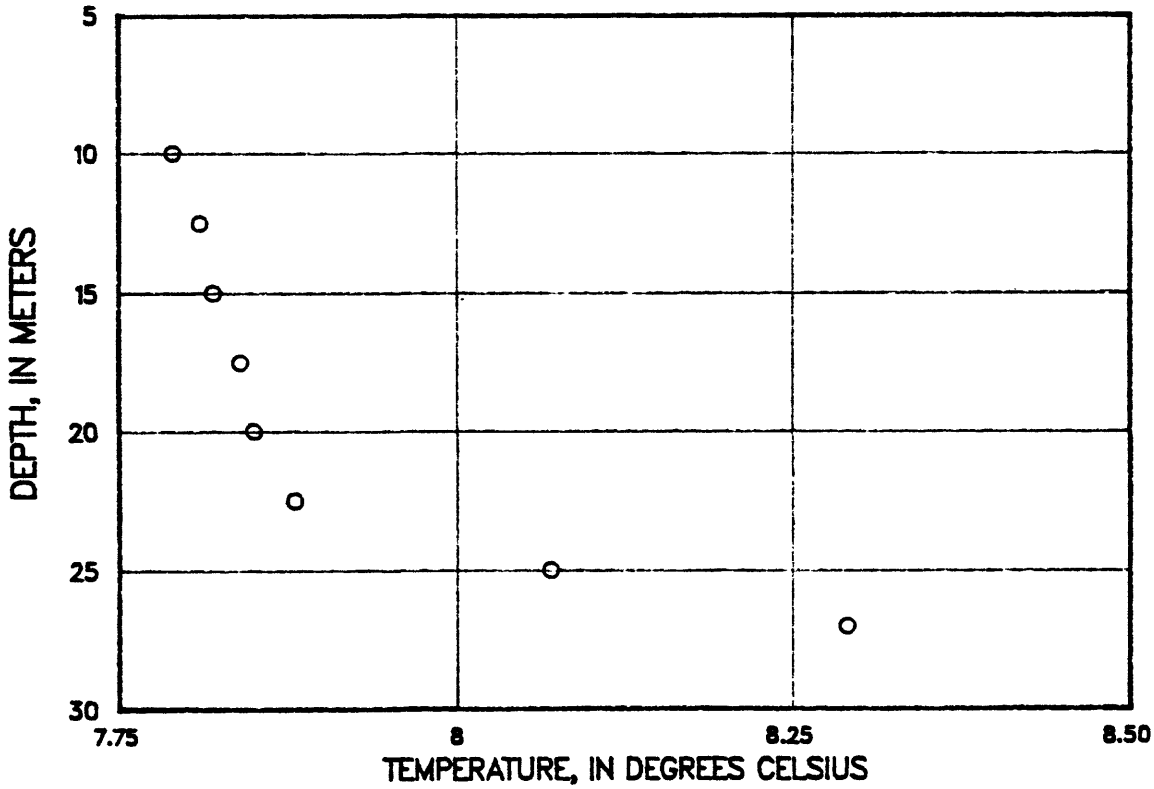


Fig. 18-Temperature profile from 6S-6E-23 SW.

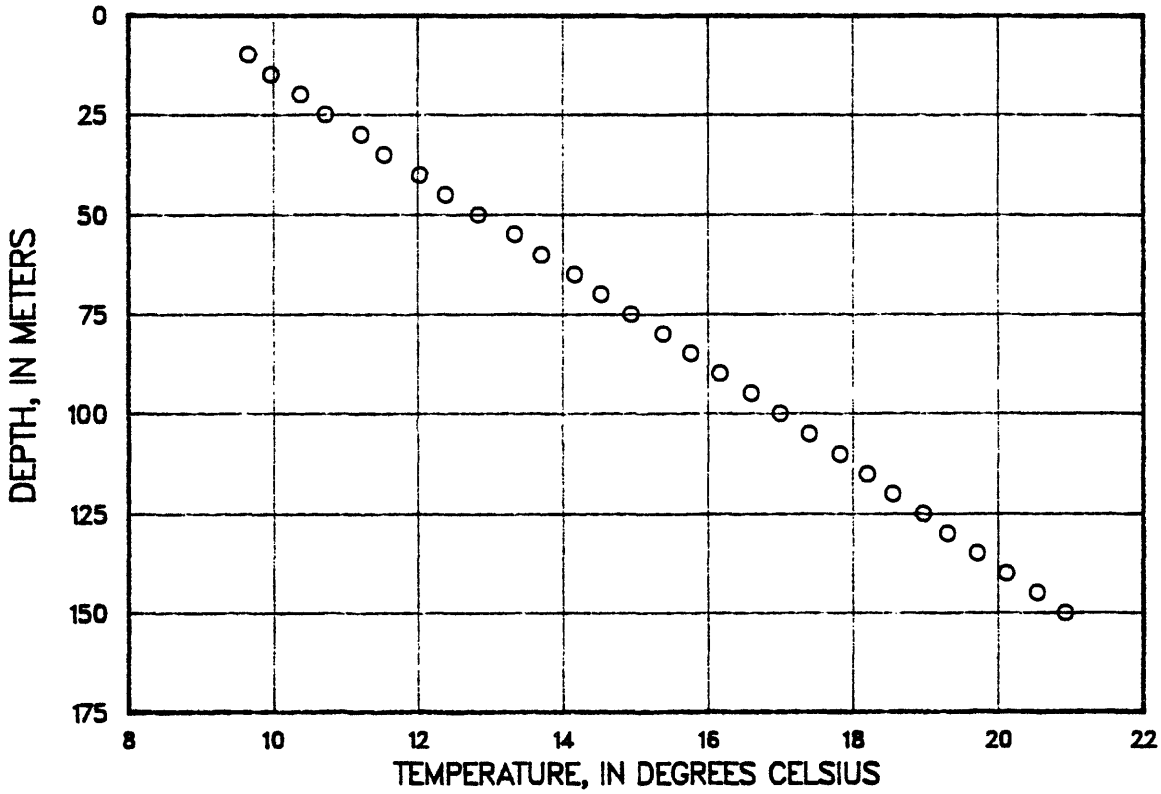


Fig. 19-Temperature profile from 6S-6E-34 SW.

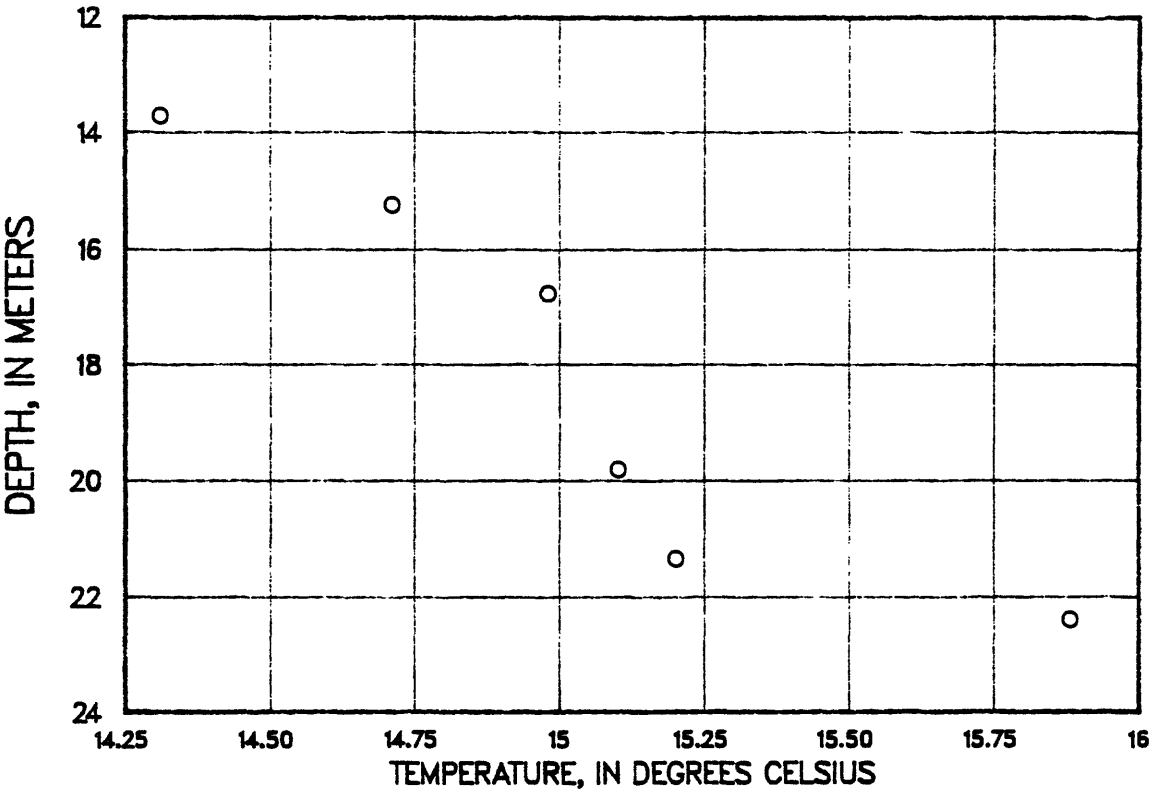


Fig. 20-Temperature profile from 6S-7E-04 SE.

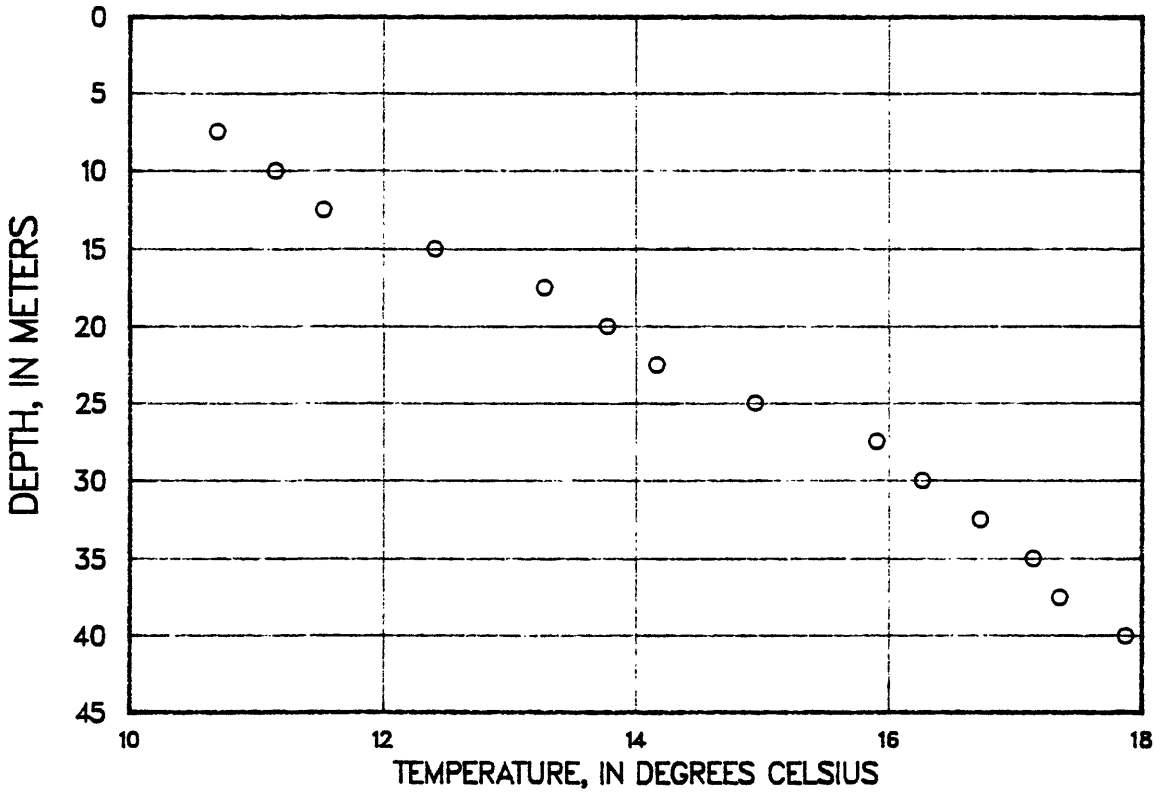


Fig. 21-Temperature profile from 6S-7E-21 SW.

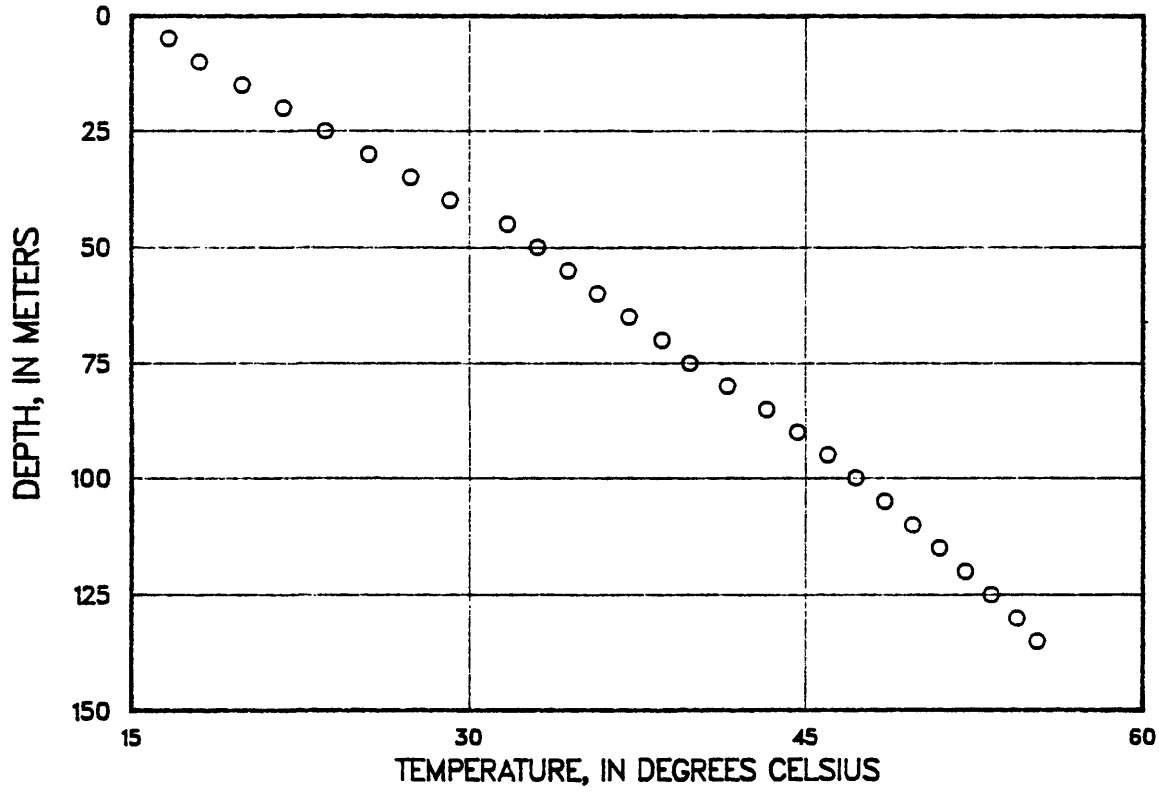


Fig. 22-Temperature profile from 6S-7E-30 NW.

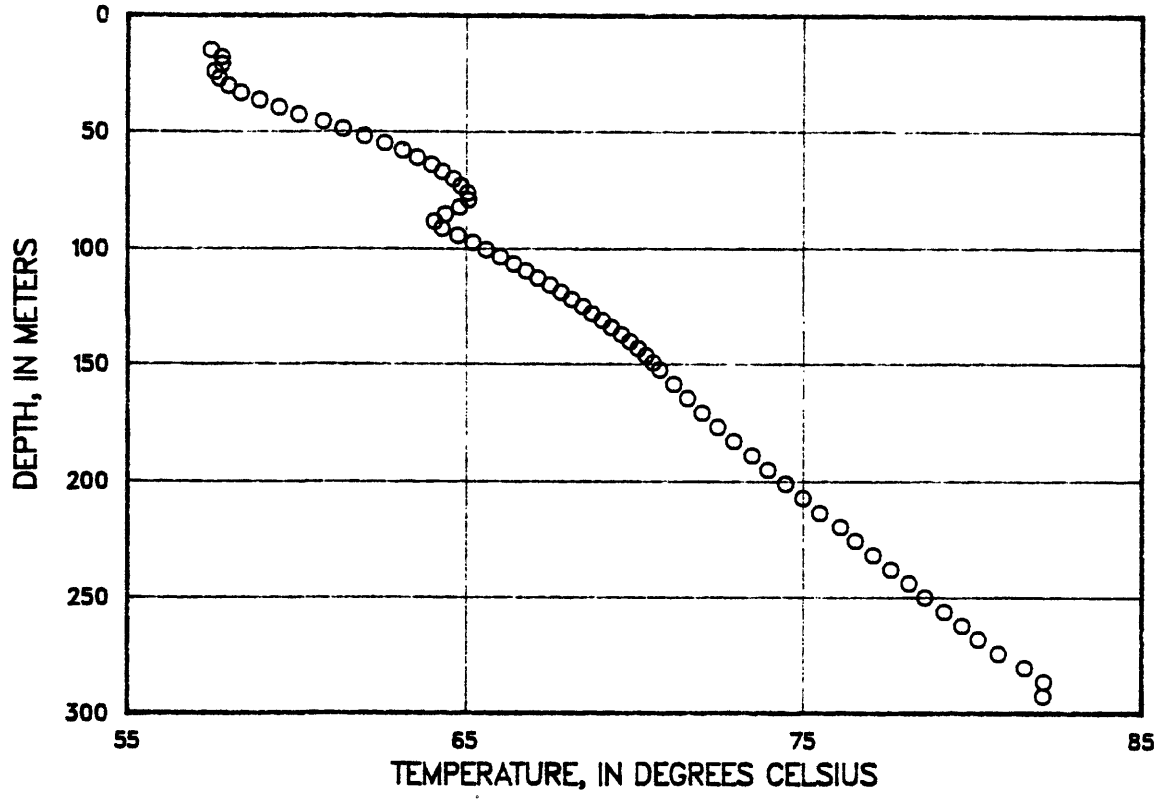


Fig. 23-Temperature profile from 6S-7E-30 NW.

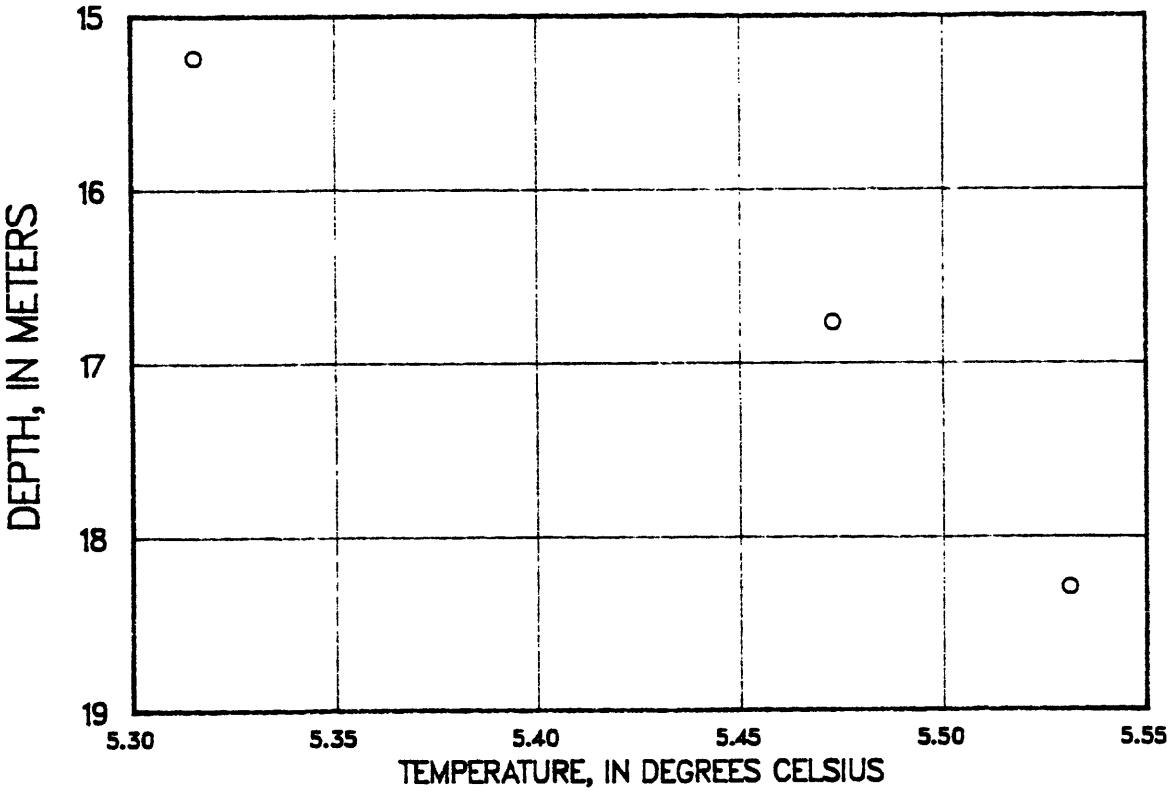


Fig. 24-Temperature profile from 7S-5E-14 SE.

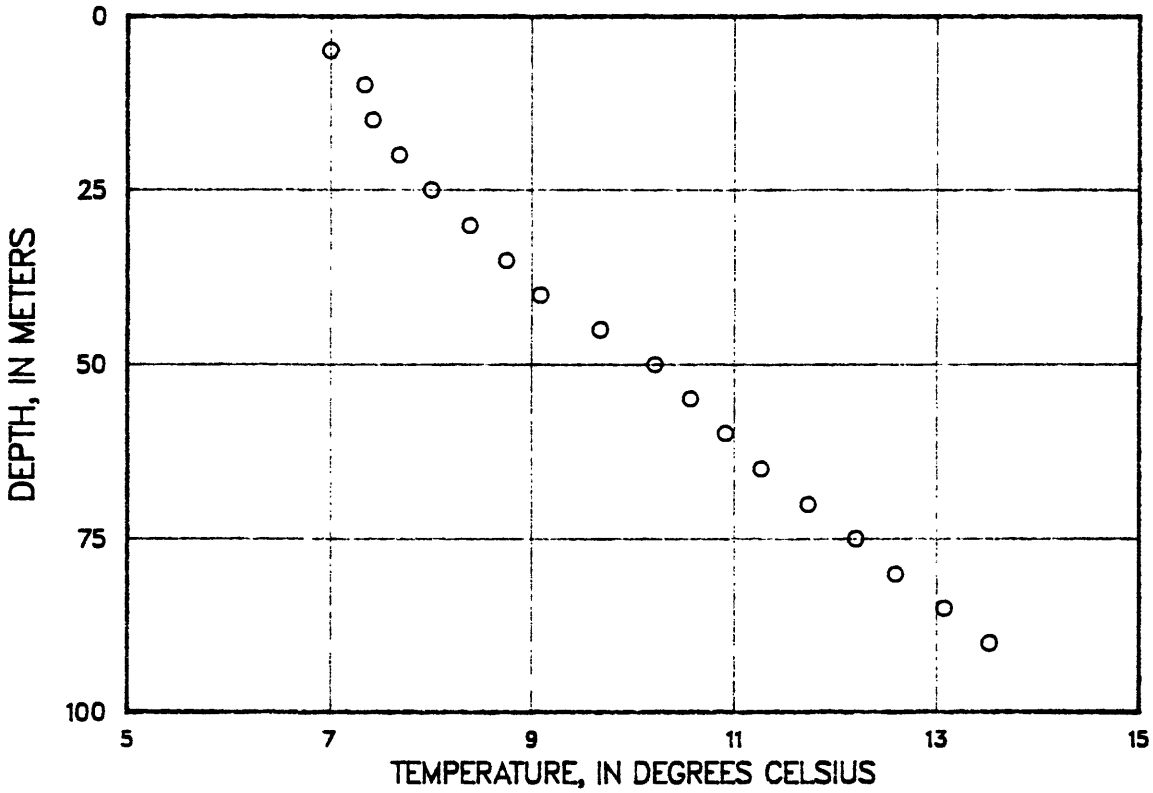


Fig. 25-Temperature profile from 7S-5E-22 NE.

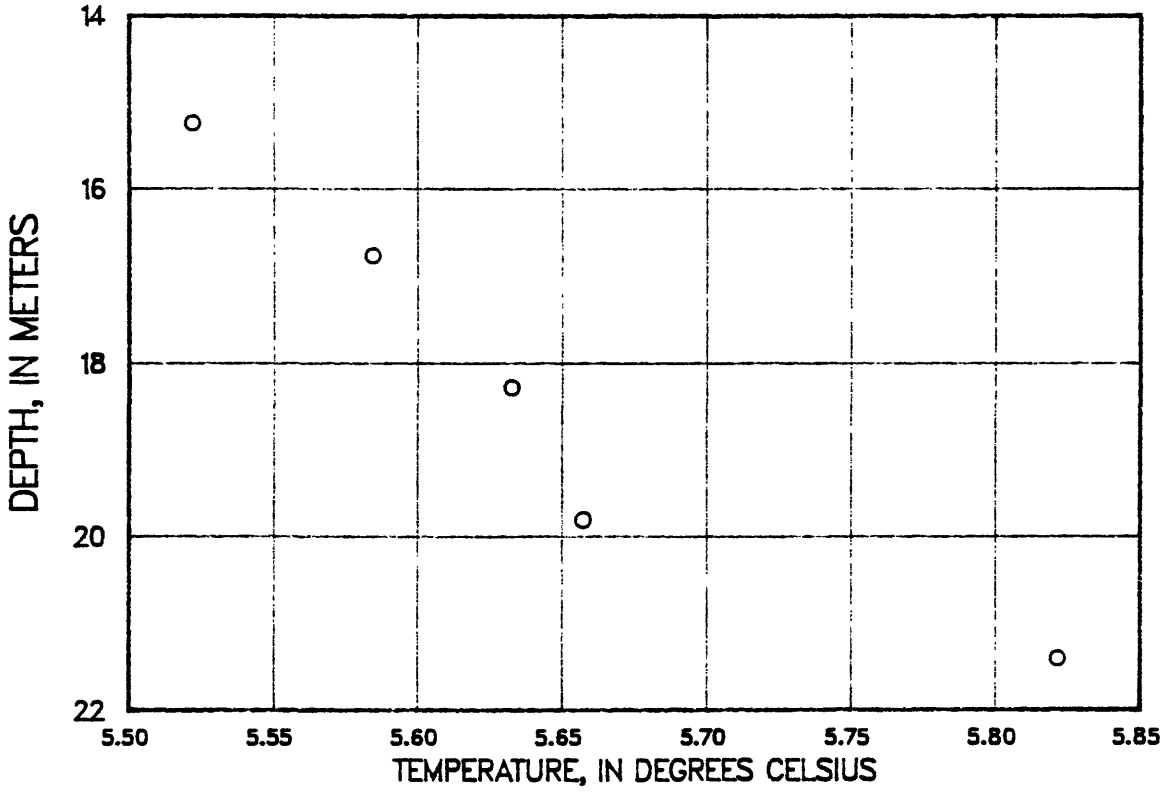


Fig. 26-Temperature profile from 7S-5E-23 NE.

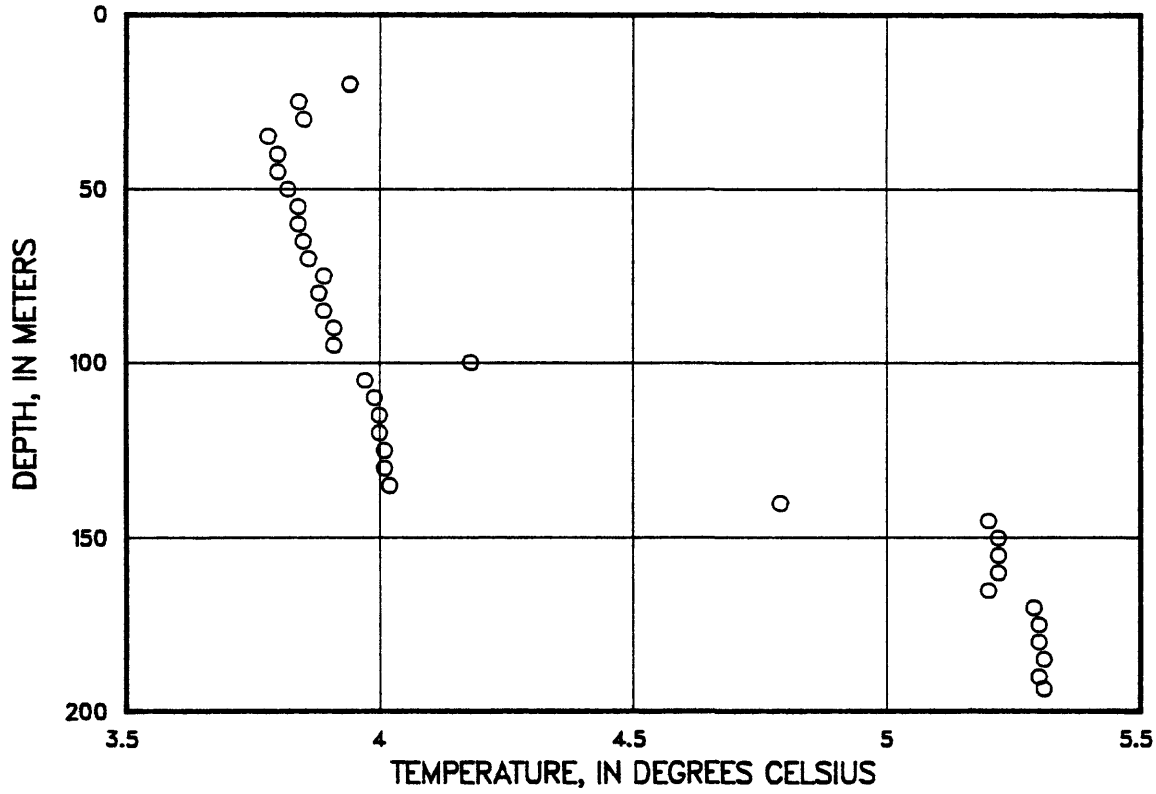


Fig. 27-Temperature profile from 7S-7E-04 SE.

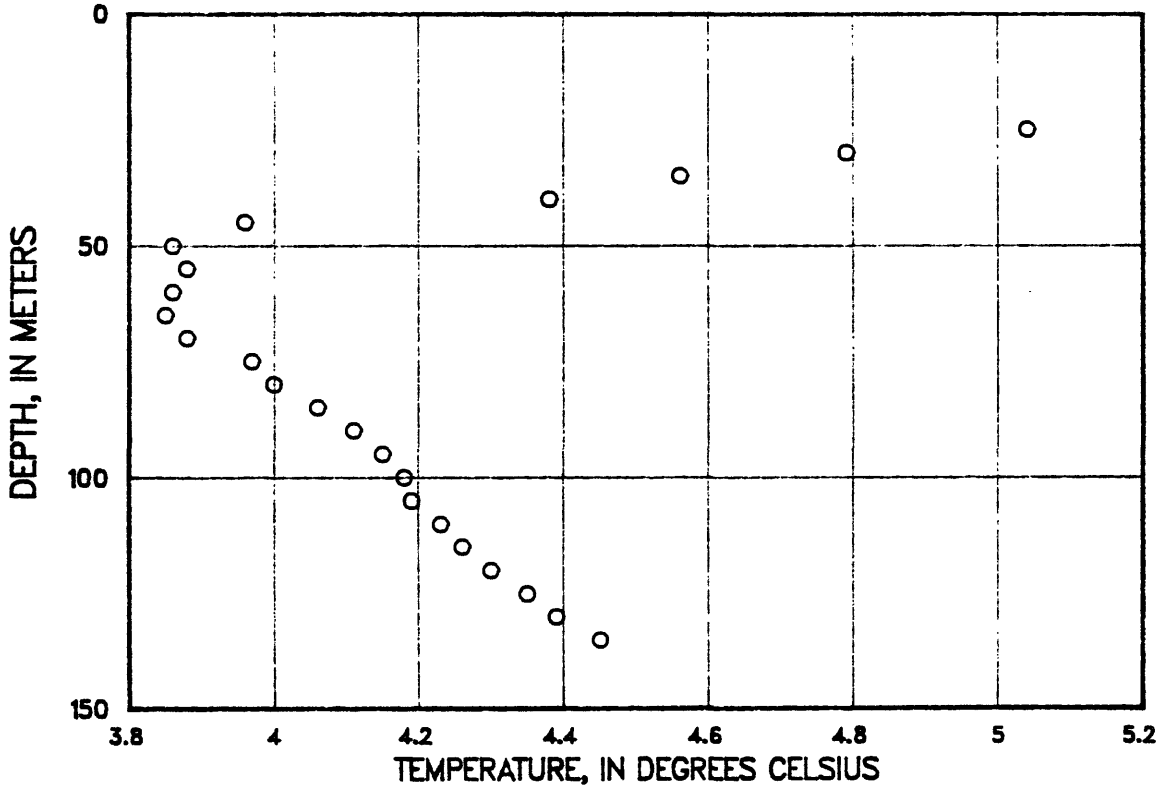


Fig. 28-Temperature profile from 7S-8E-10 NE.

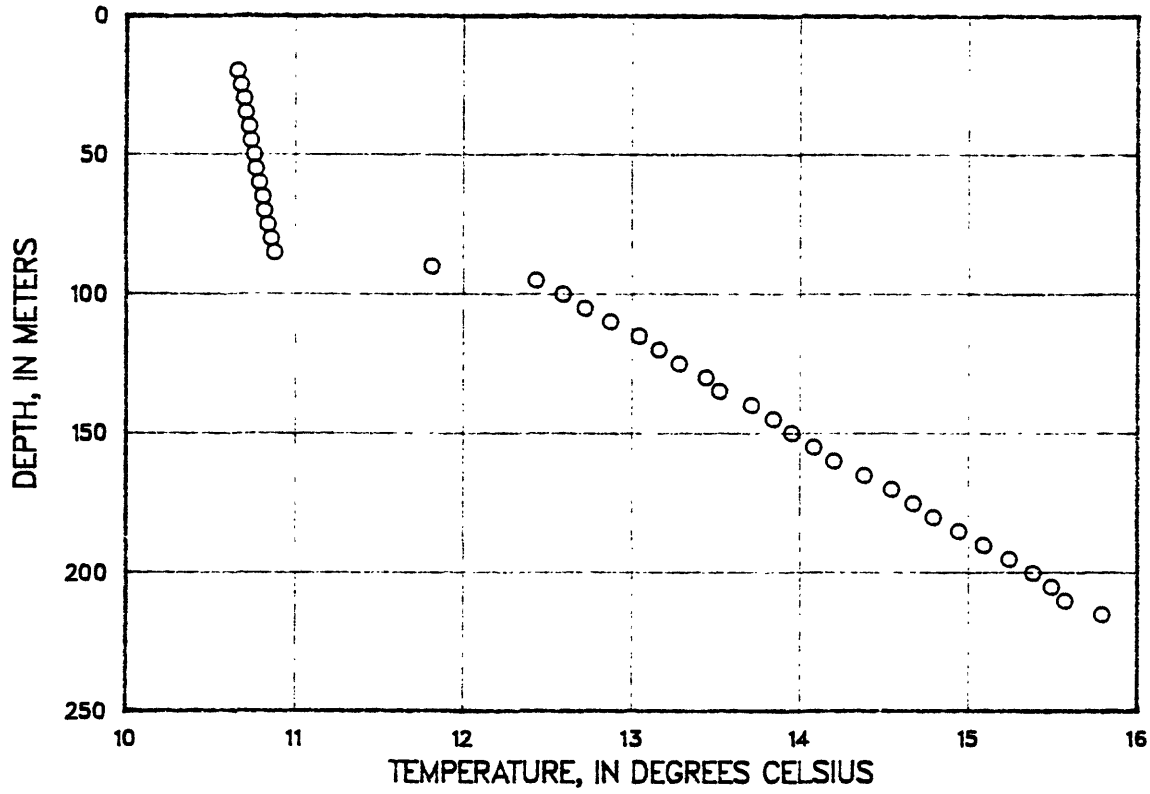


Fig. 29-Temperature profile from 8S-1E-08 SE.

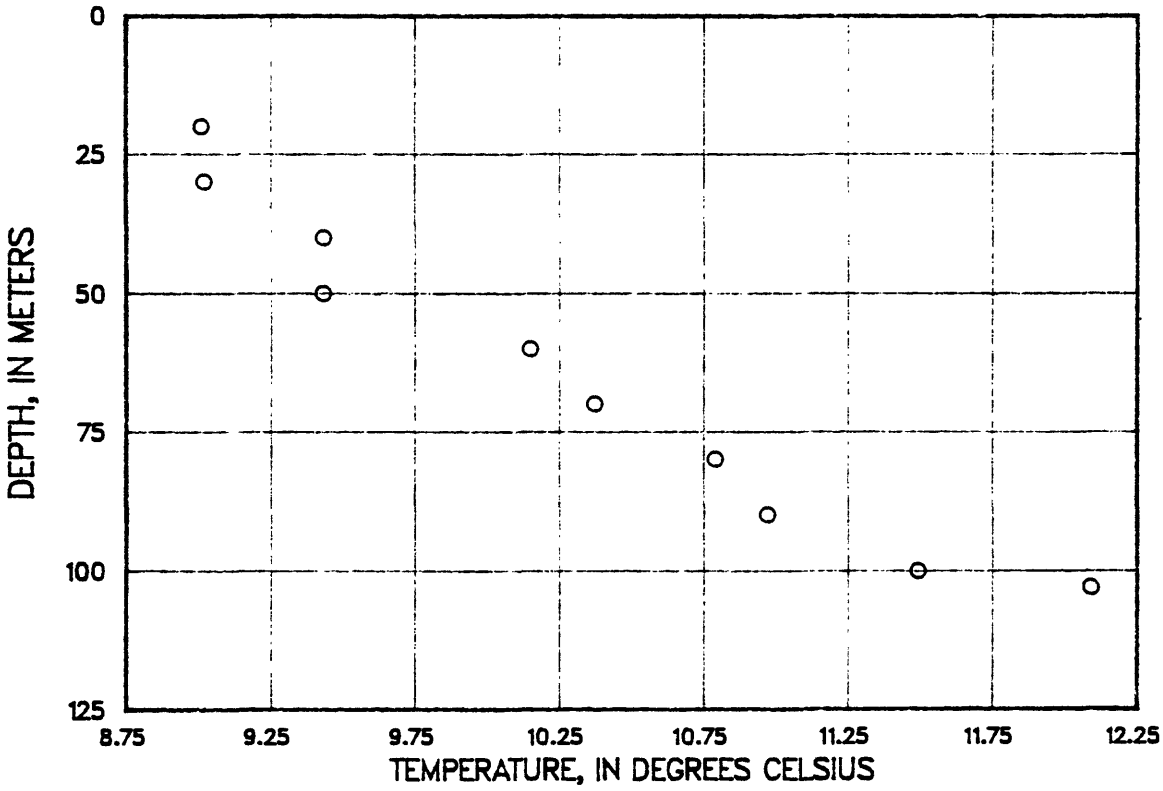


Fig. 30-Temperature profile from 8S-1E-09 NW.

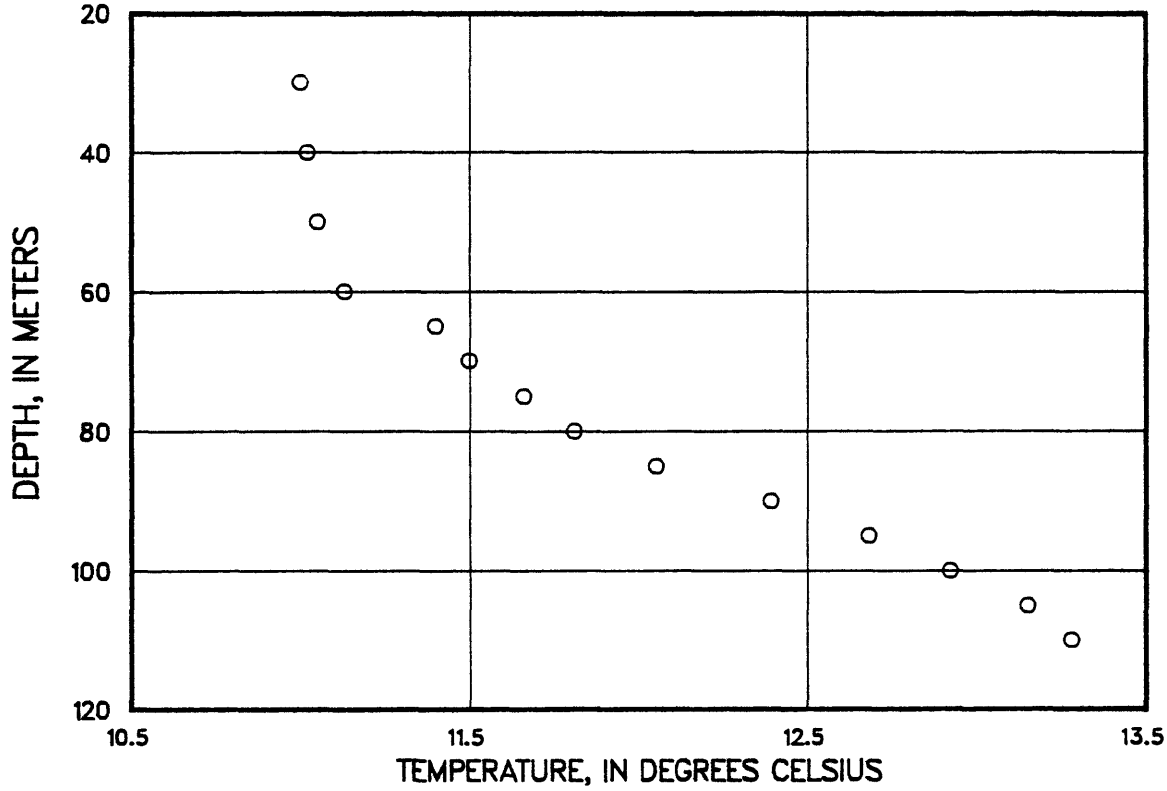


Fig. 31-Temperature profile from 8S-1E-17 SE.

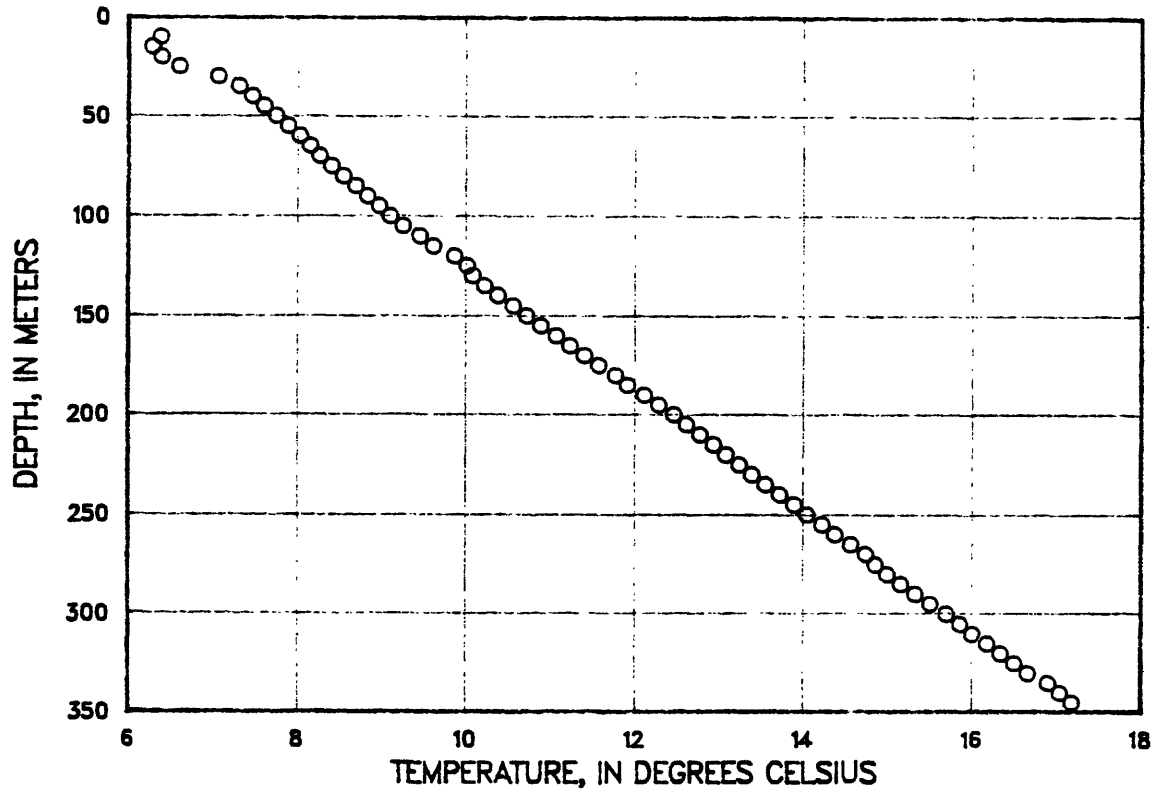


Fig. 32-Temperature profile from 8S-5E-31 SW.

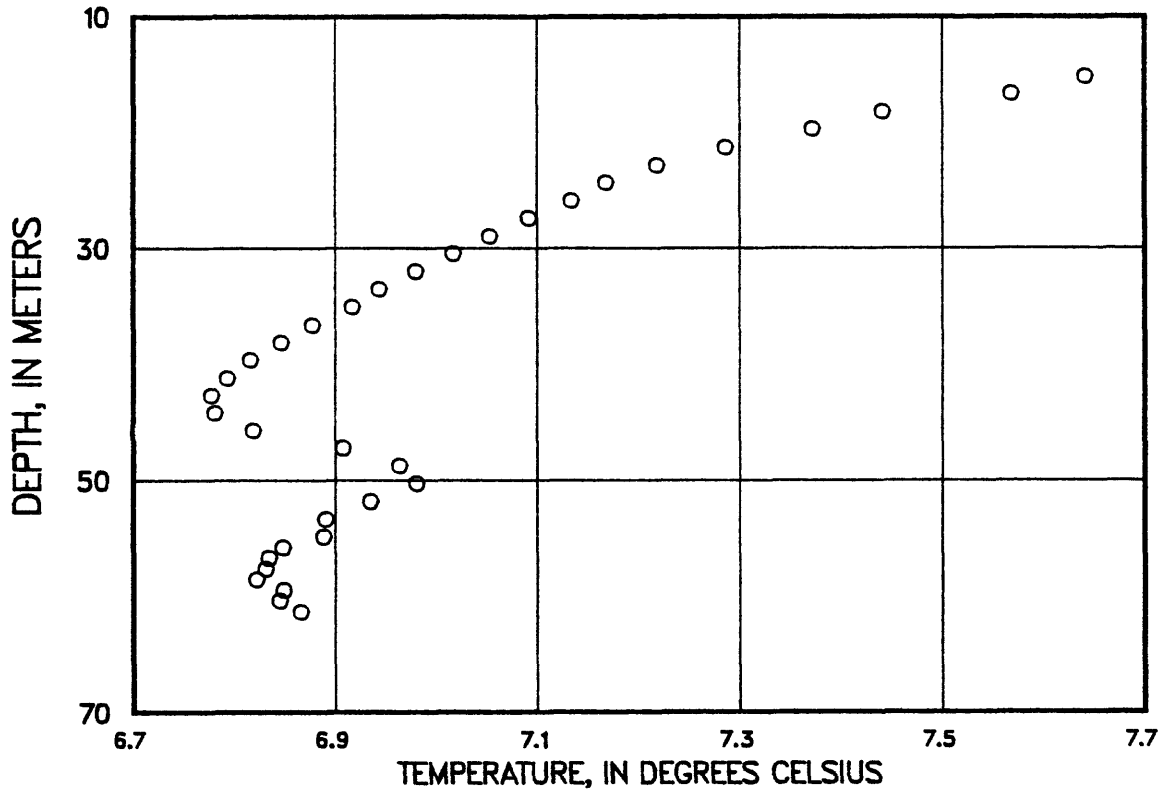


Fig. 33-Temperature profile from 8S-6E-01 SE.

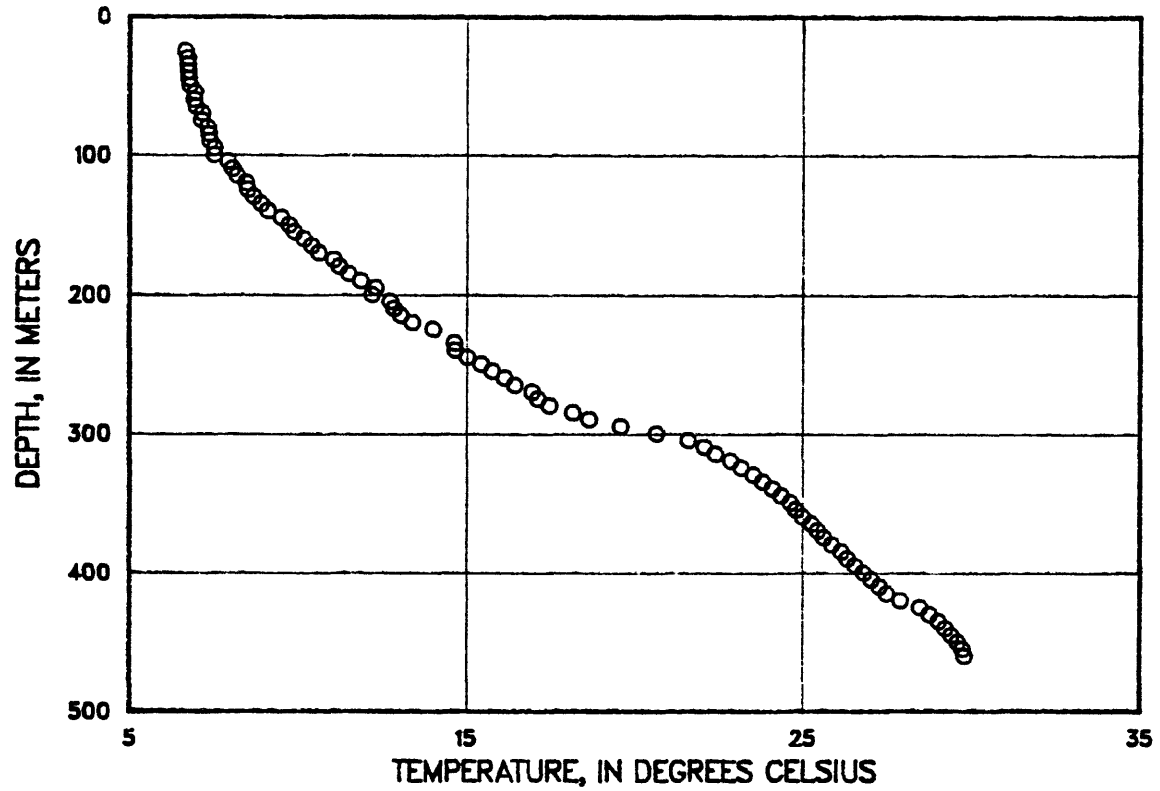


Fig. 34-Temperature profile from 8S-8E-06 SE.

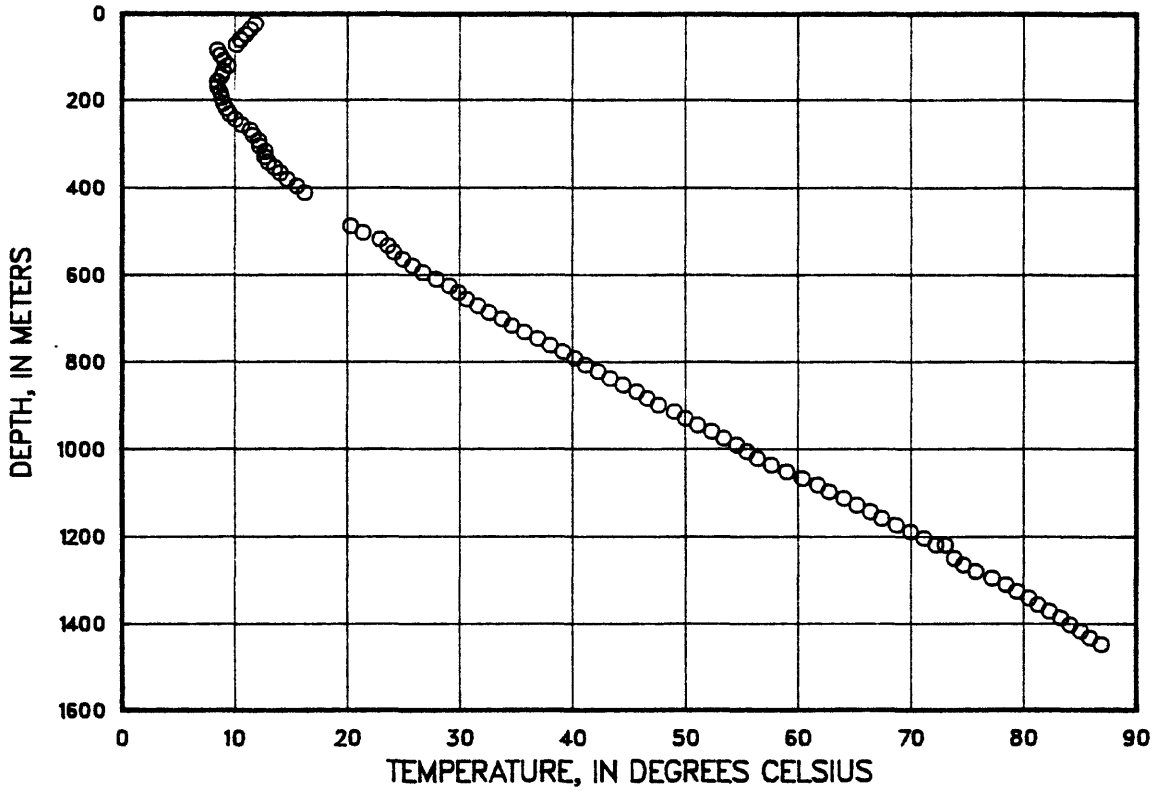


Fig. 35-Temperature profile from 8S-8E-28 SE.

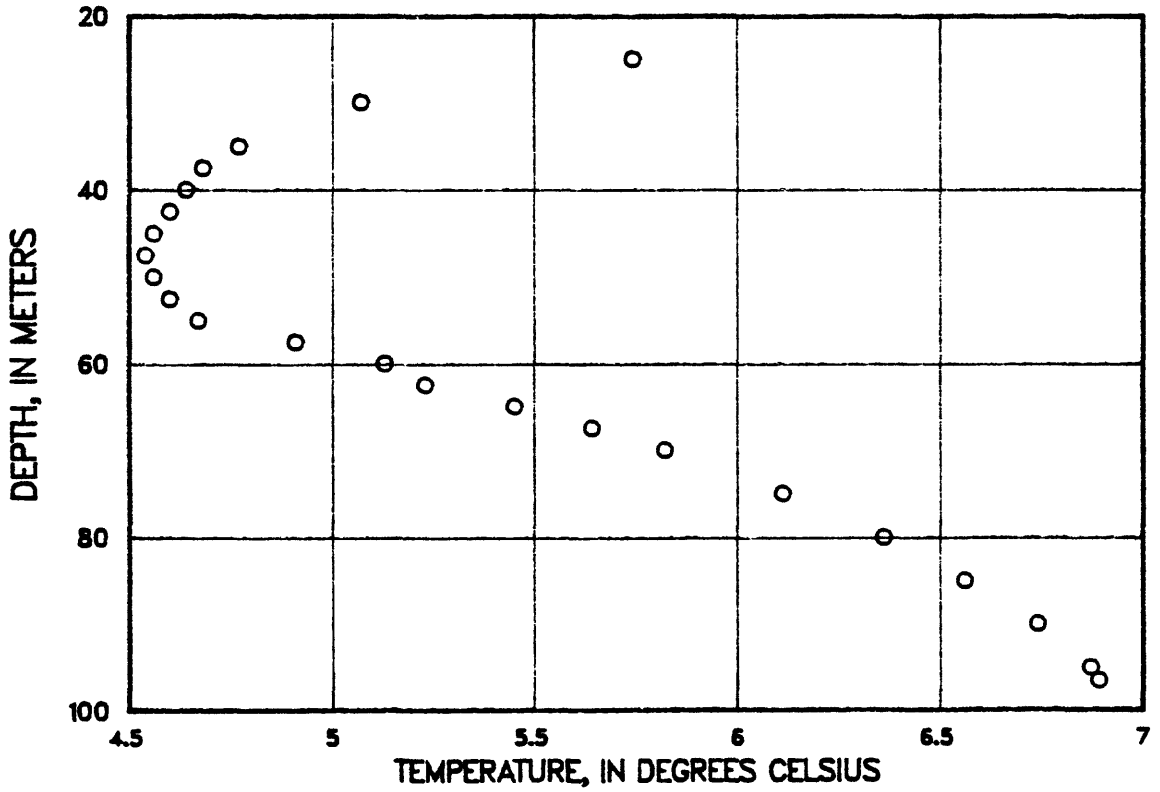


Fig. 36-Temperature profile from 8S-8E-31 SW.

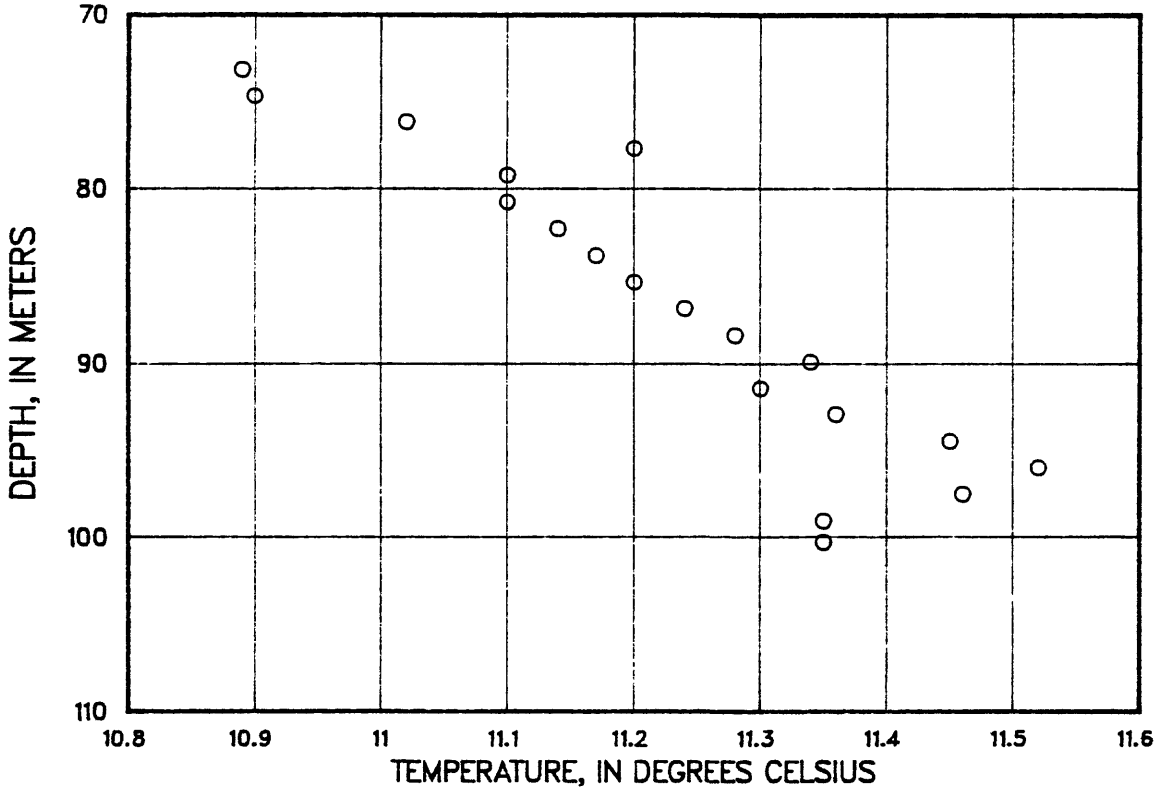


Fig. 37-Temperature profile from 9S-1E-25 SE.

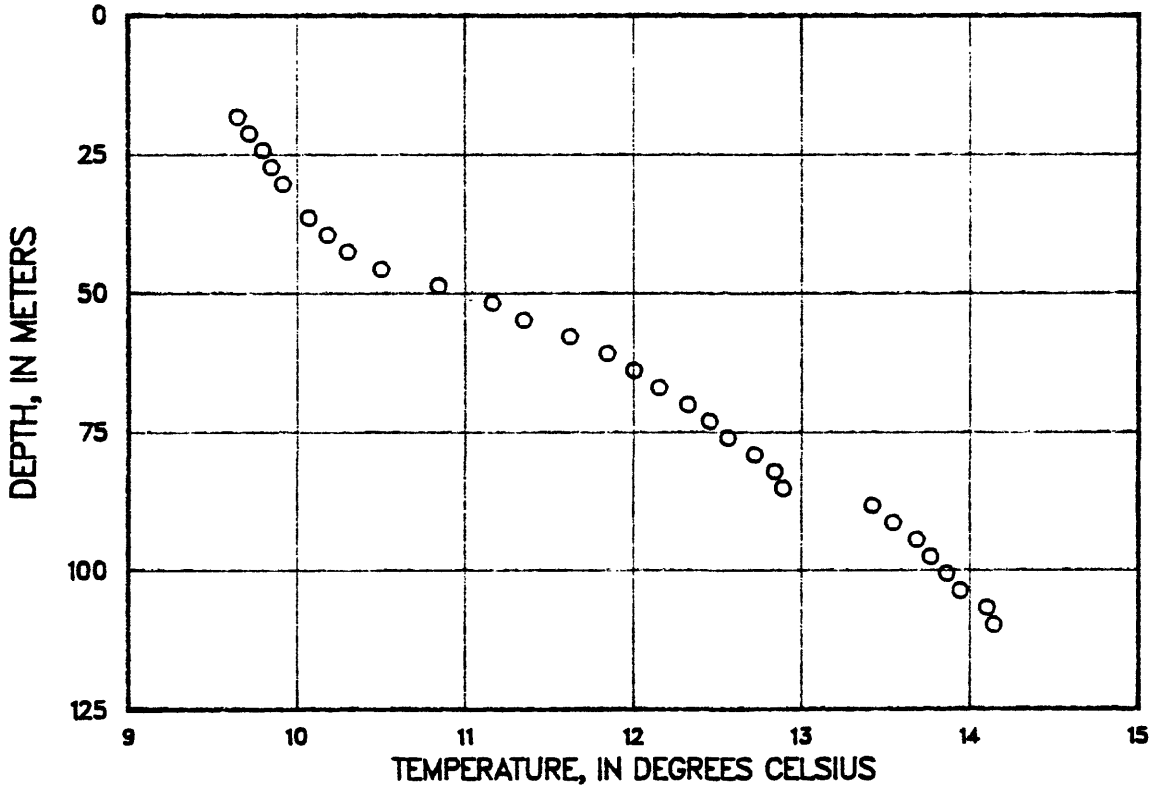


Fig. 38-Temperature profile from 9S-2E-16 NW.

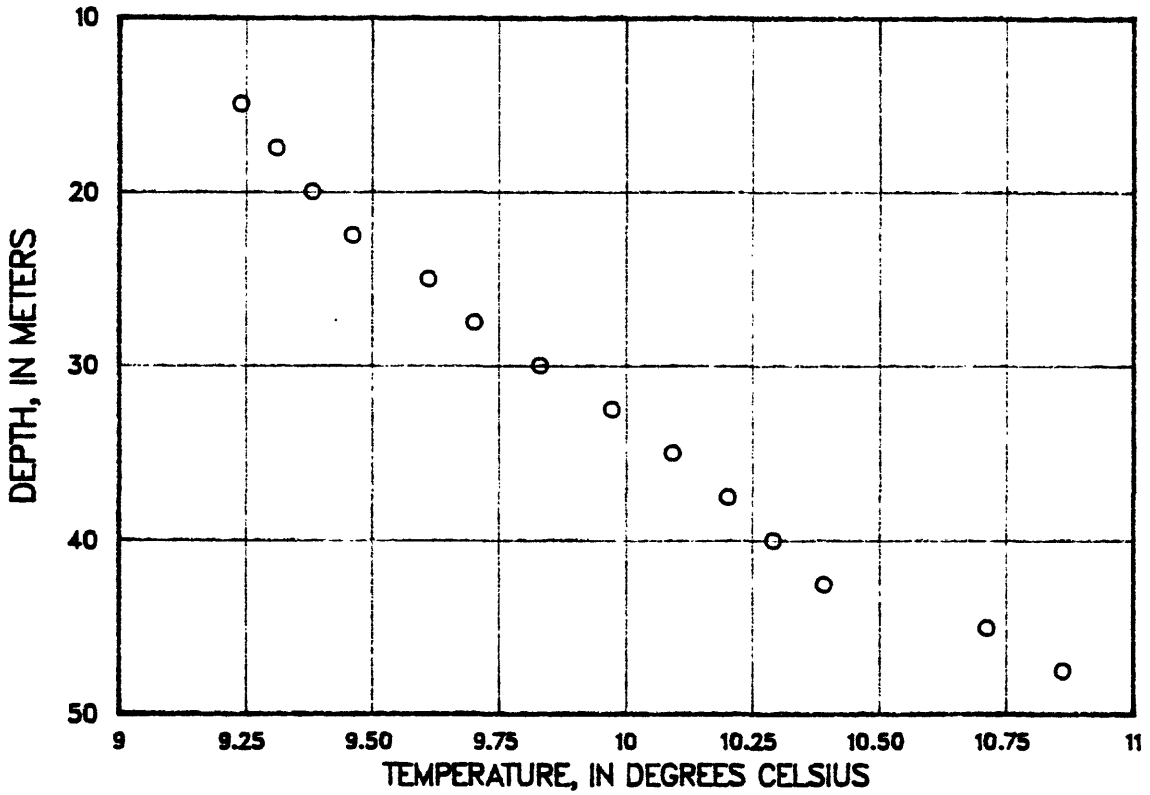


Fig. 39-Temperature profile from 9S-2E-21 SE.

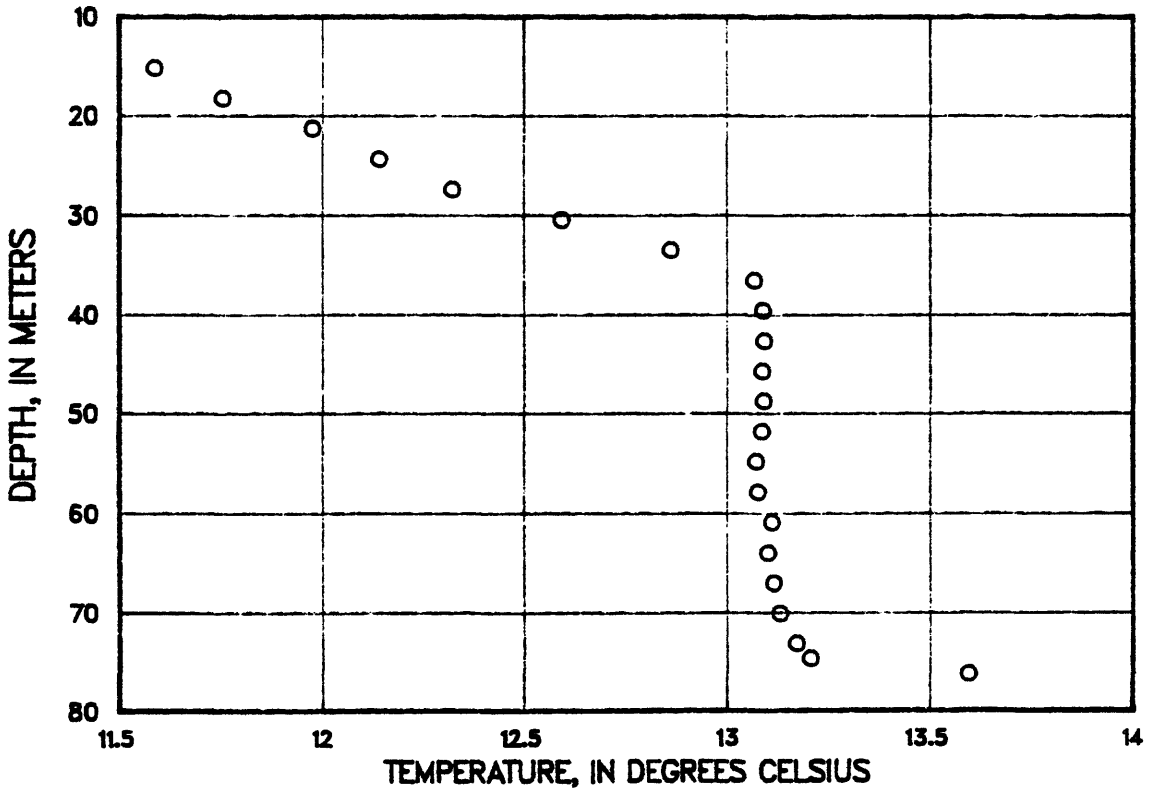


Fig. 40-Temperature profile from 9S-2E-29 NW.

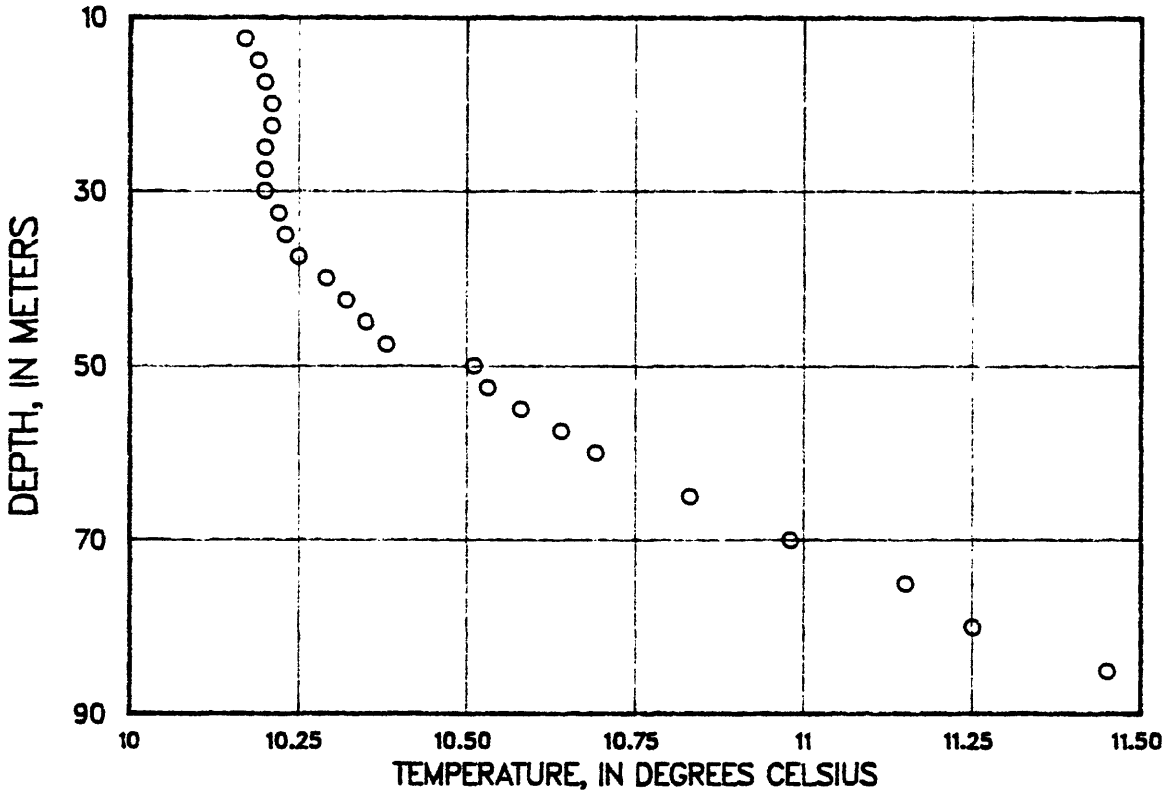


Fig. 41-Temperature profile from 9S-3E-11 NW.

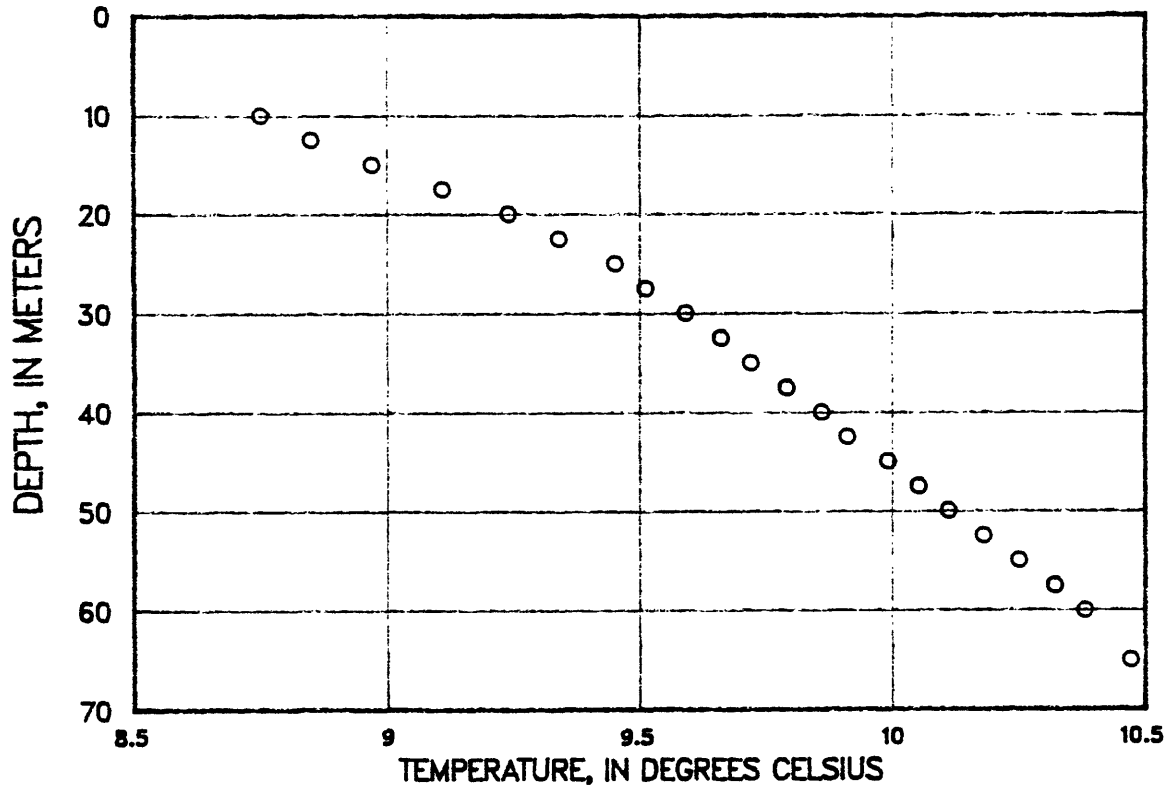


Fig. 42-Temperature profile from 9S-3E-11 SW.

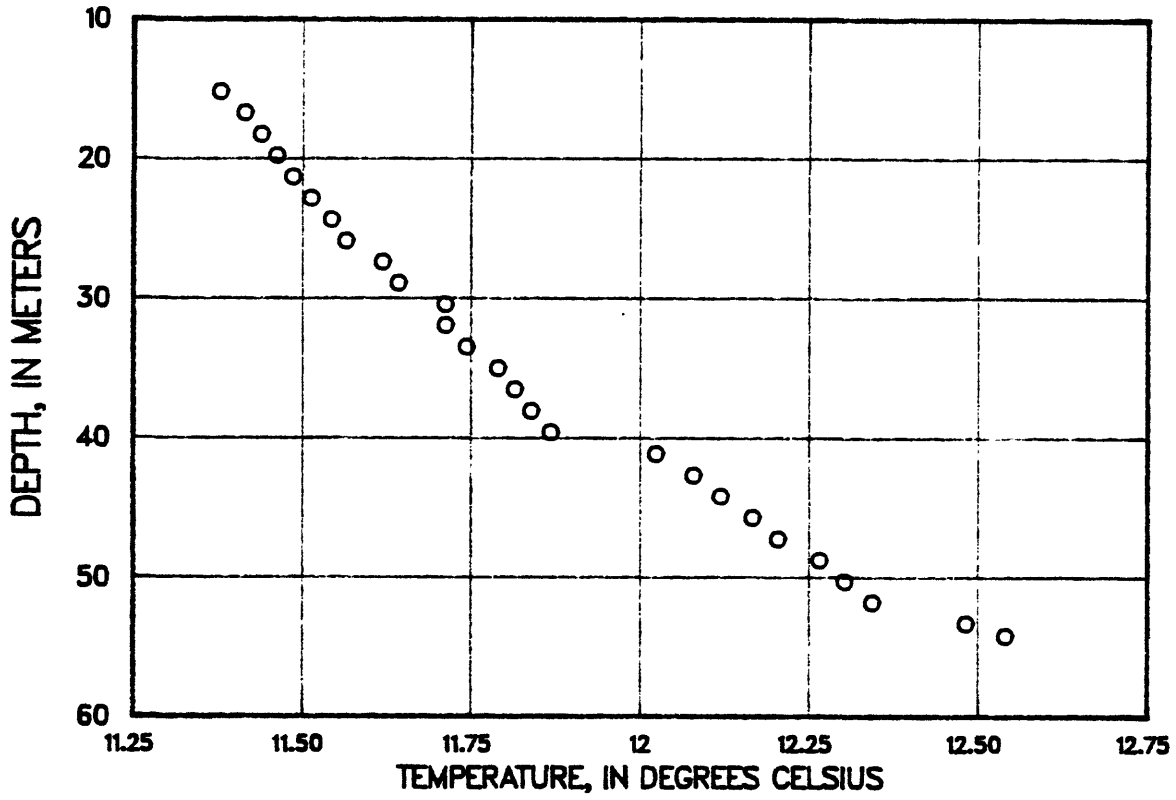


Fig. 43-Temperature profile from 9S-3E-28 SW.

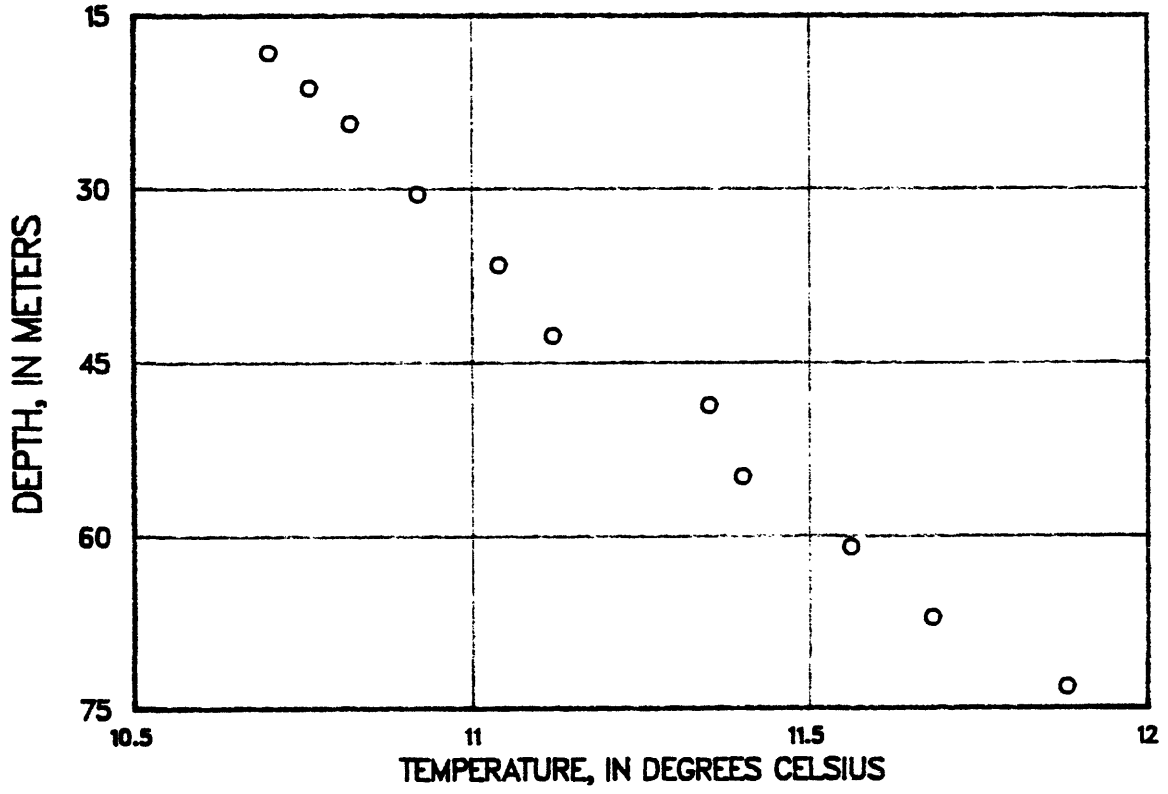


Fig. 44-Temperature profile from 9S-3E-36 NW.

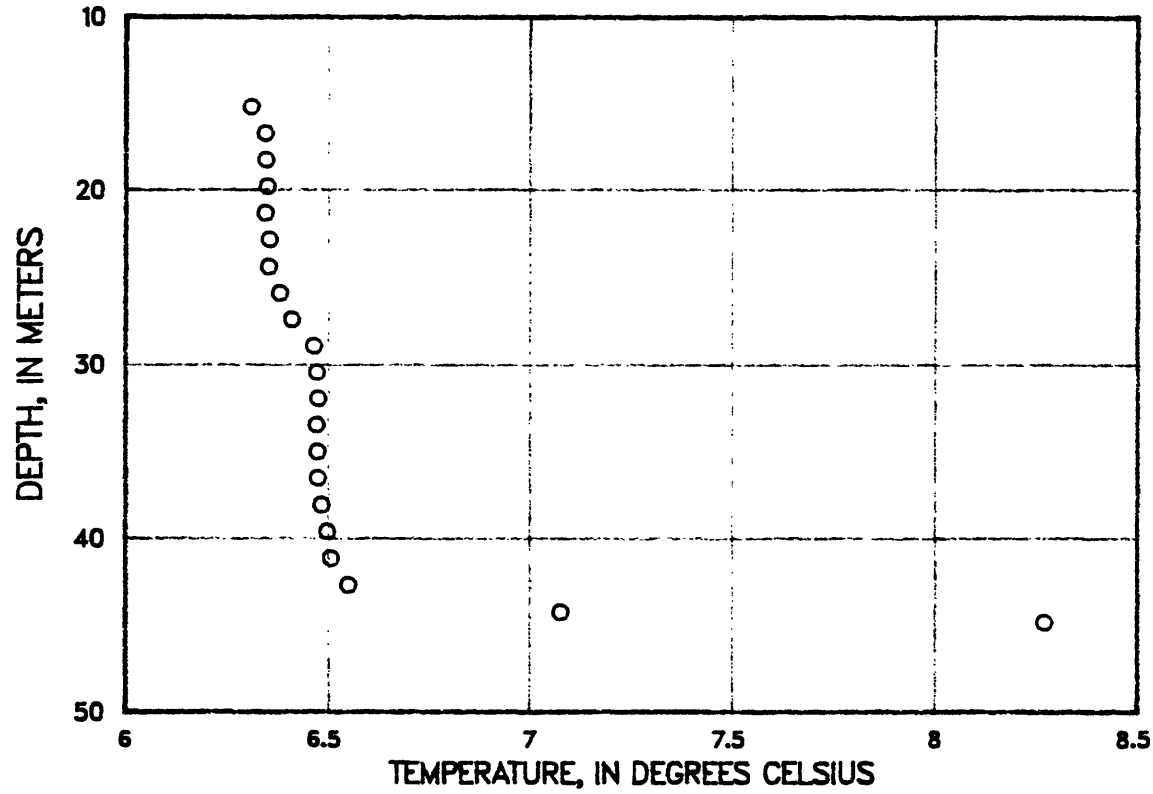


Fig. 45-Temperature profile from 9S-6E-21 SE.

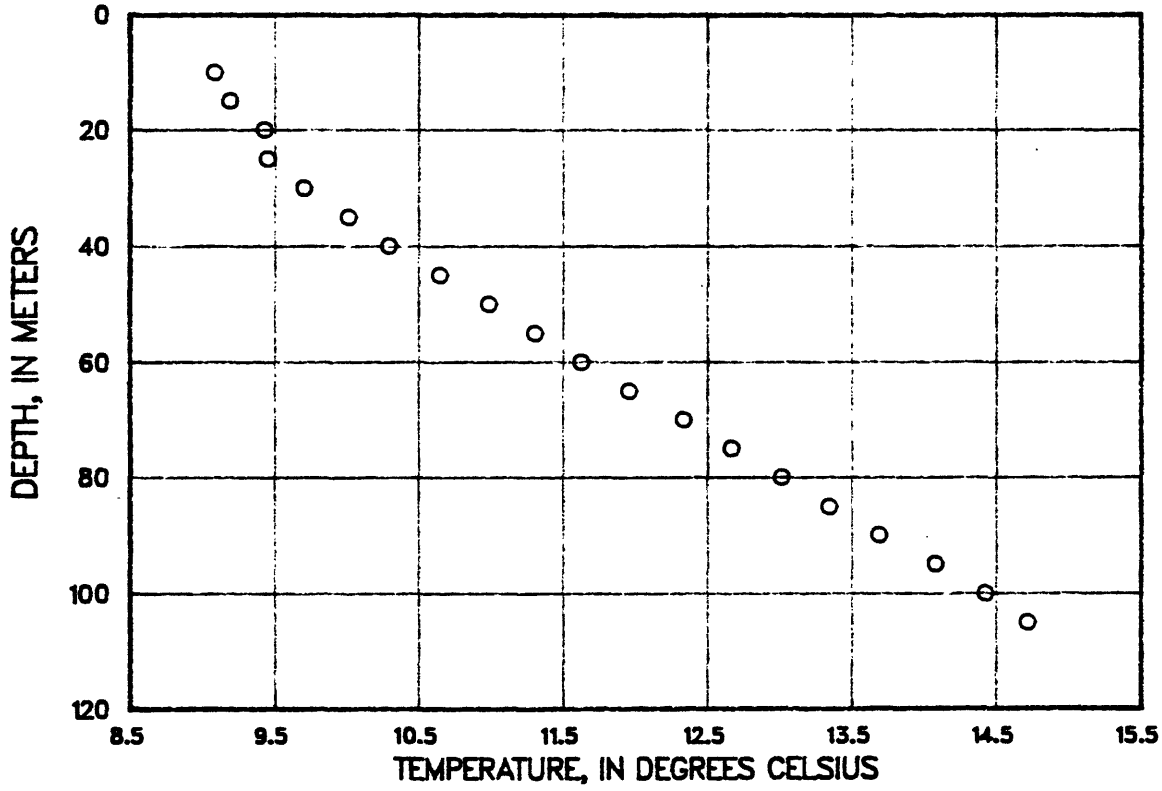


Fig. 46-Temperature profile from 9S-6E-23 NW.

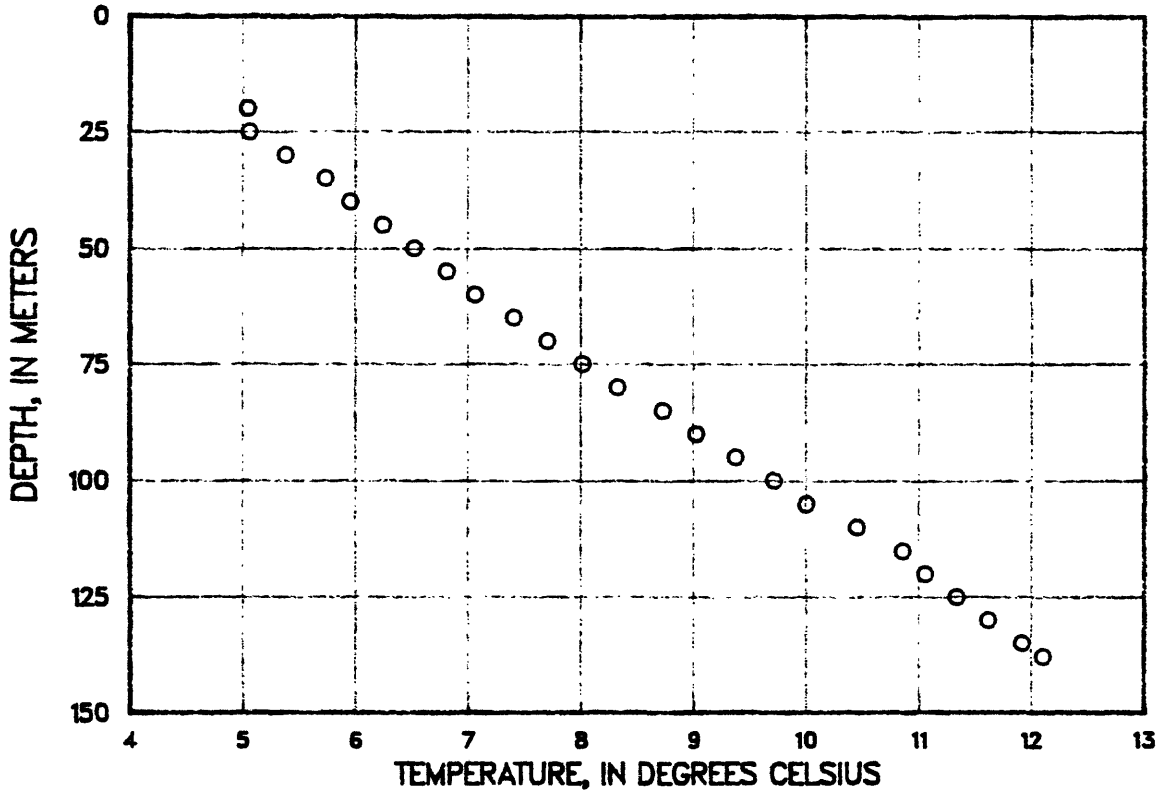


Fig. 47-Temperature profile from 9S-7E-03 SW.

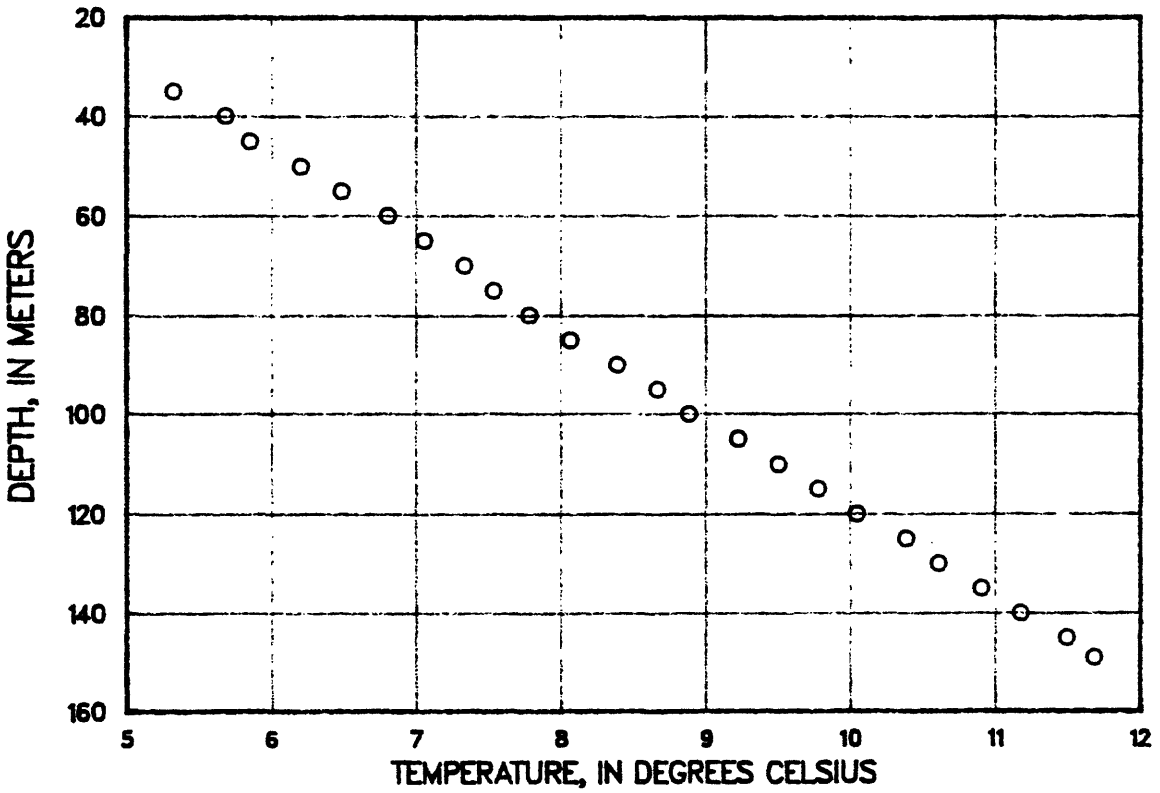


Fig. 48-Temperature profile from 9S-7E-07 SE.

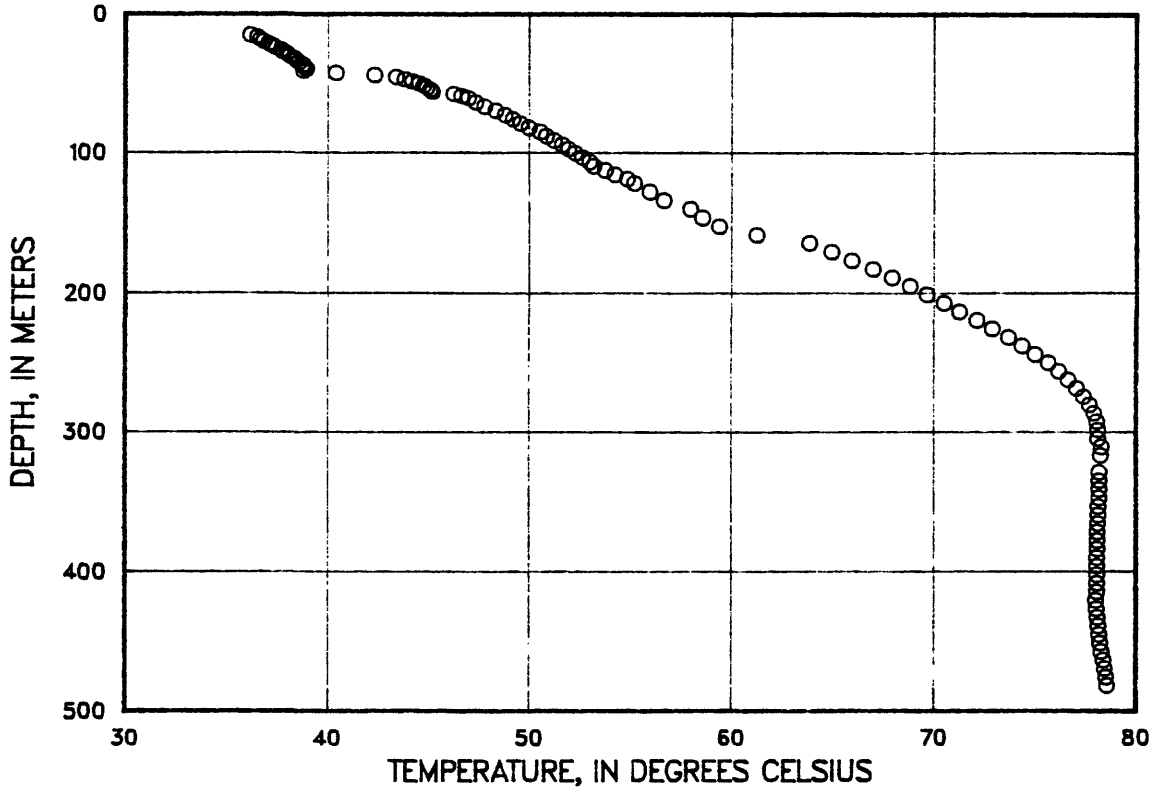


Fig. 49-Temperature profile from 9S-7E-20 NE.

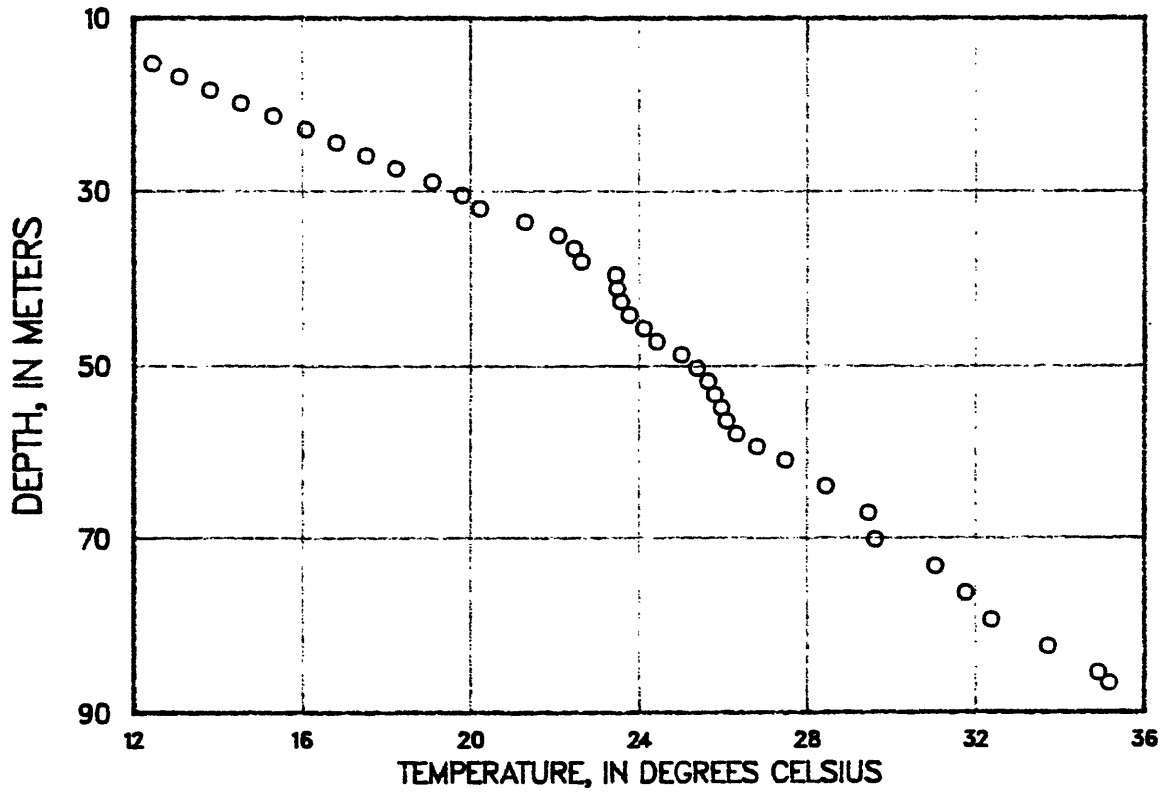


Fig. 50-Temperature profile from 9S-7E-20 NE.

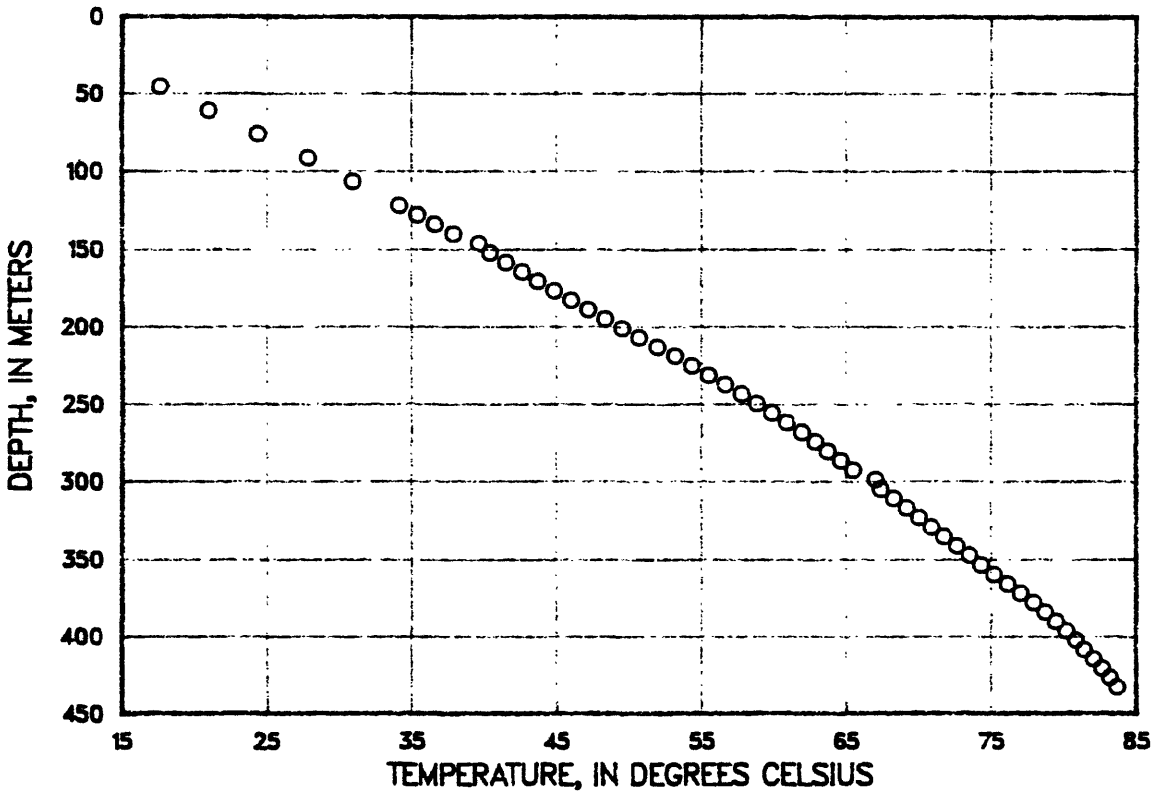


Fig. 51-Temperature profile from 9S-7E-20 NE.

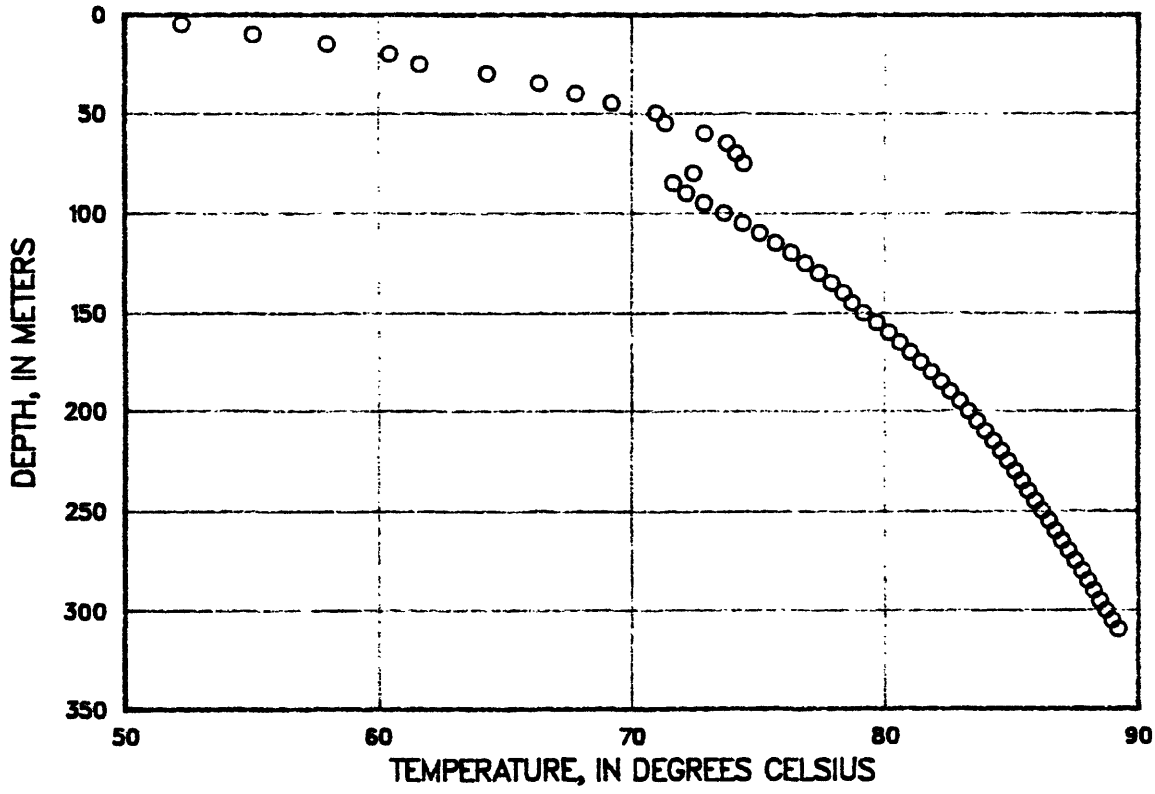


Fig. 52-Temperature profile from 9S-7E-20 NE.

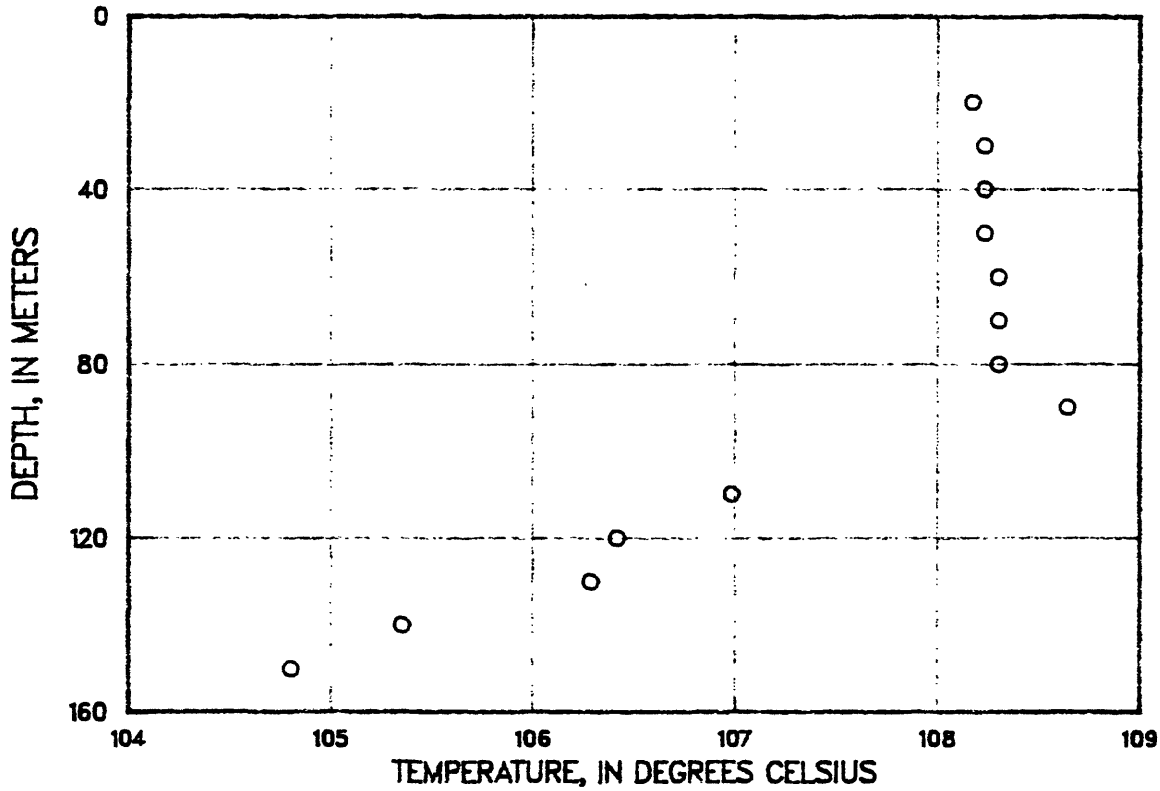


Fig. 53-Temperature profile from 9S-7E-20 NE.

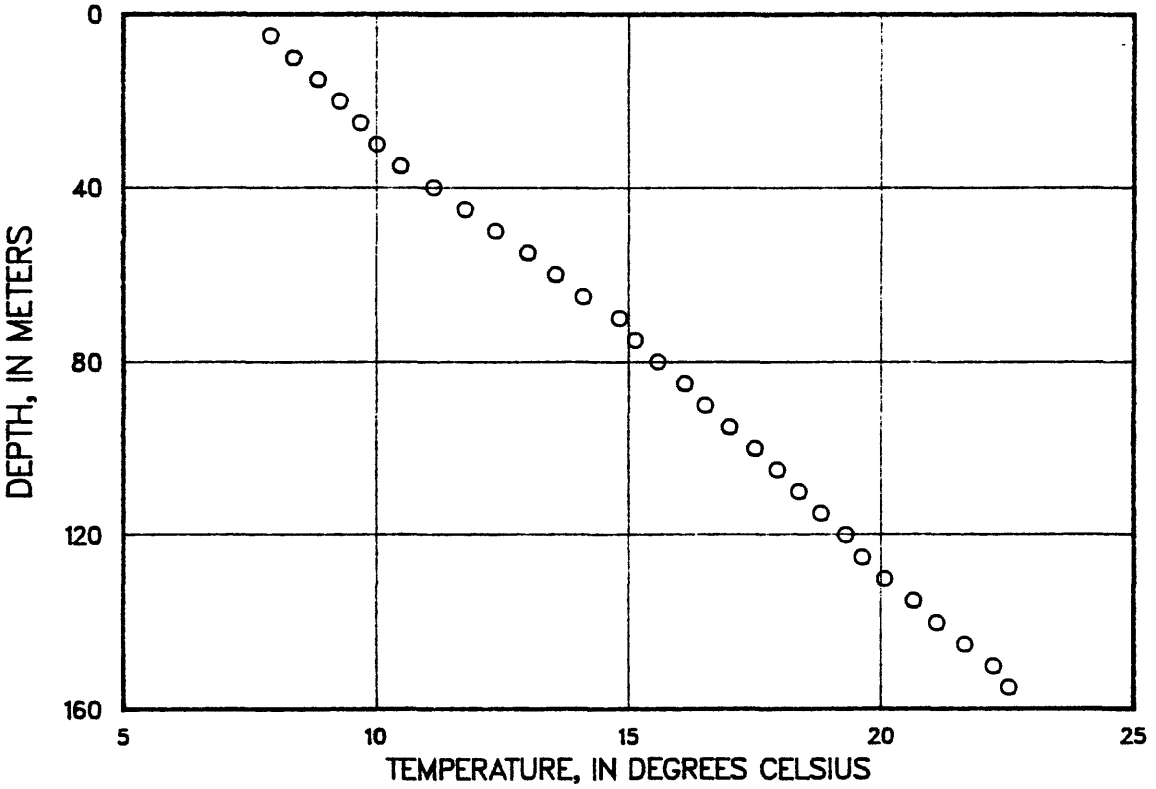


Fig. 54-Temperature profile from 9S-7E-21 NE.

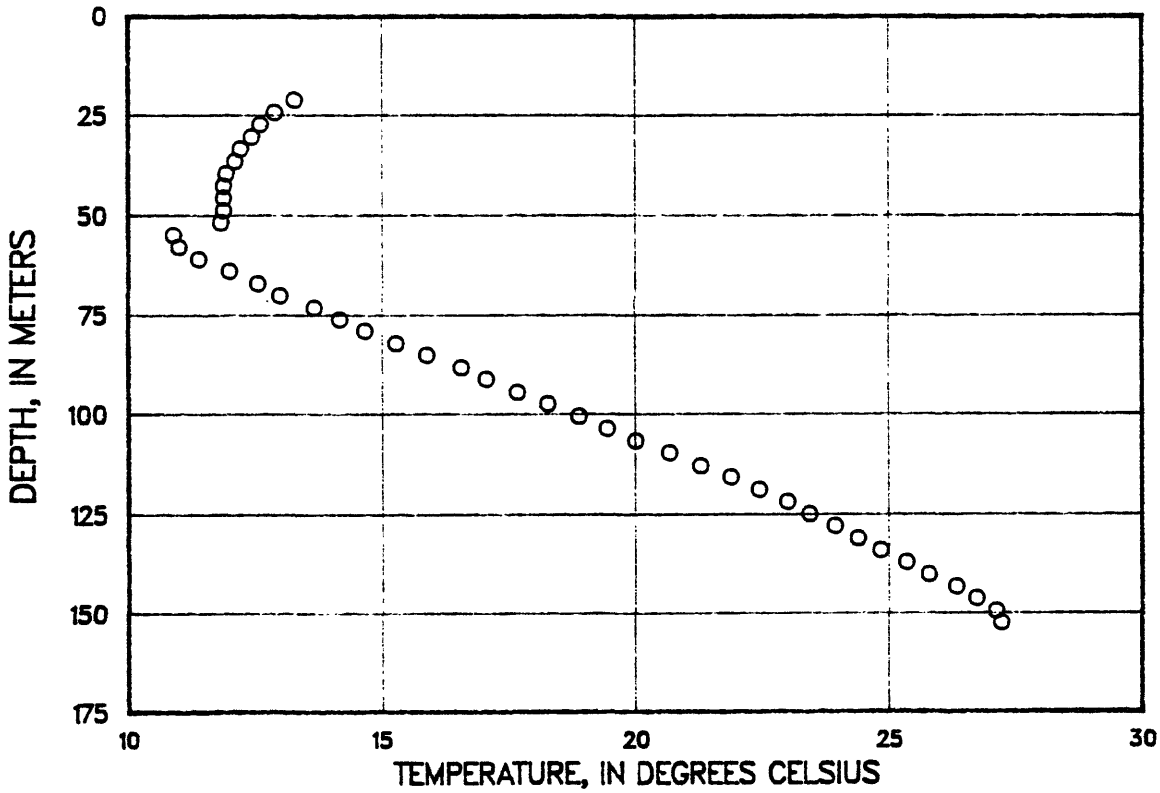


Fig. 55-Temperature profile from 9S-7E-28 SW.

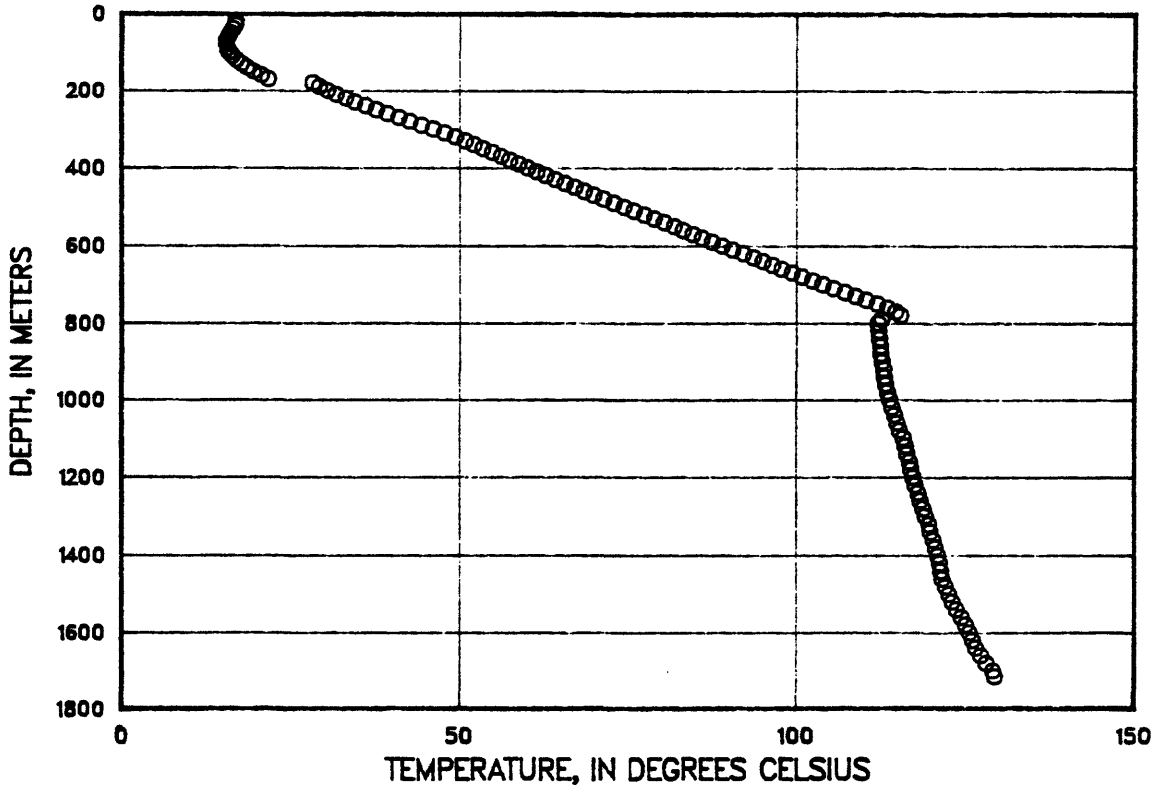


Fig. 56-Temperature profile from 9S-7E-28 SE.

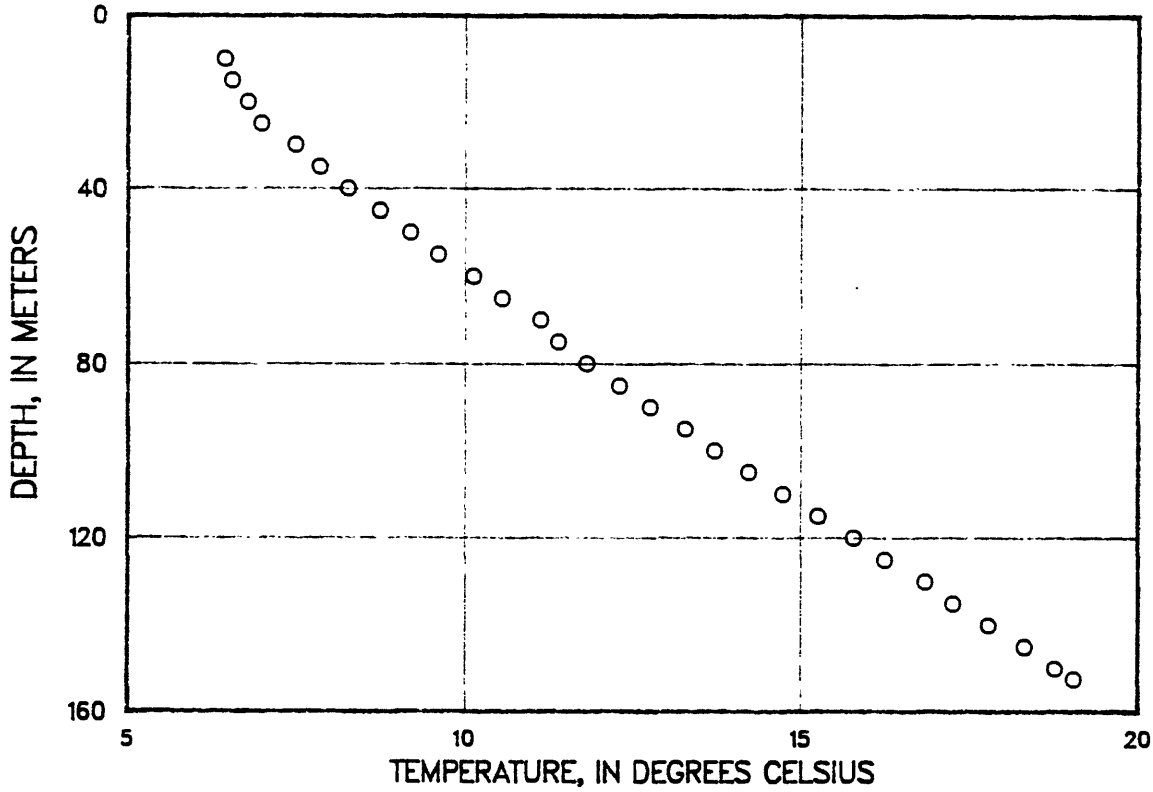


Fig. 57-Temperature profile from 9S-7E-28 SE.

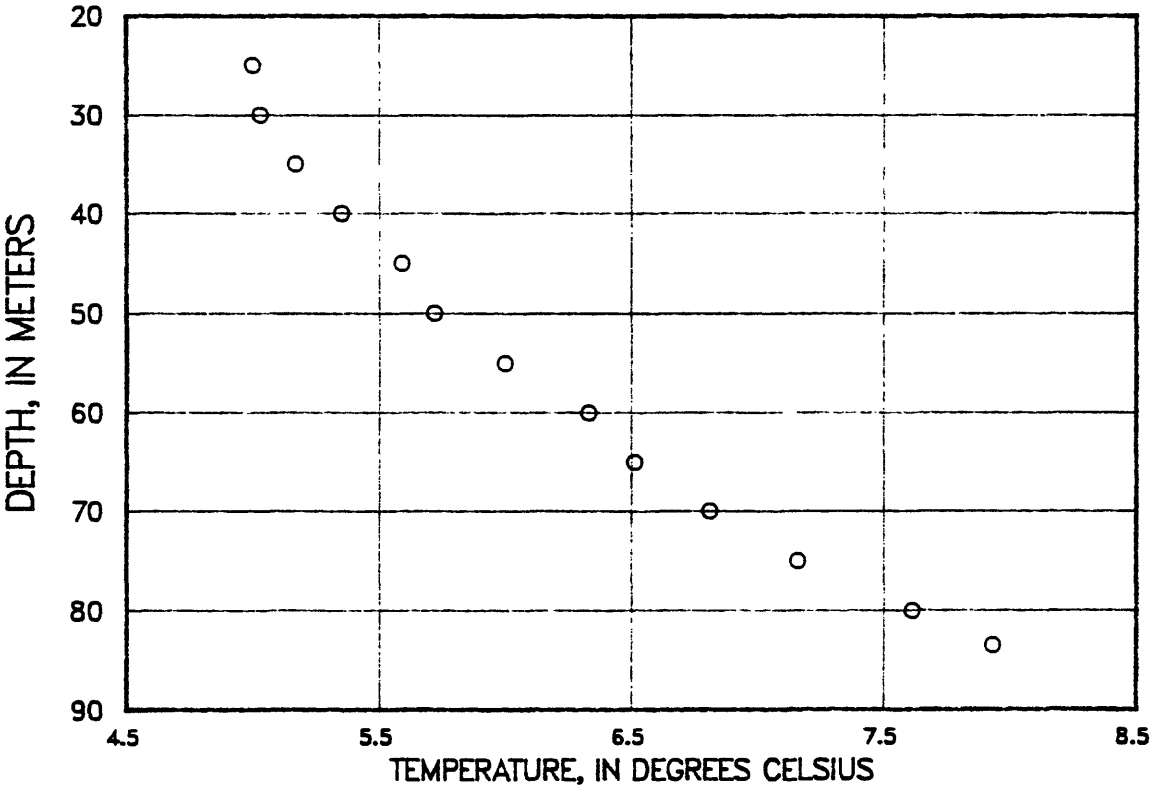


Fig. 58-Temperature profile from 9S-7E-29 SW.

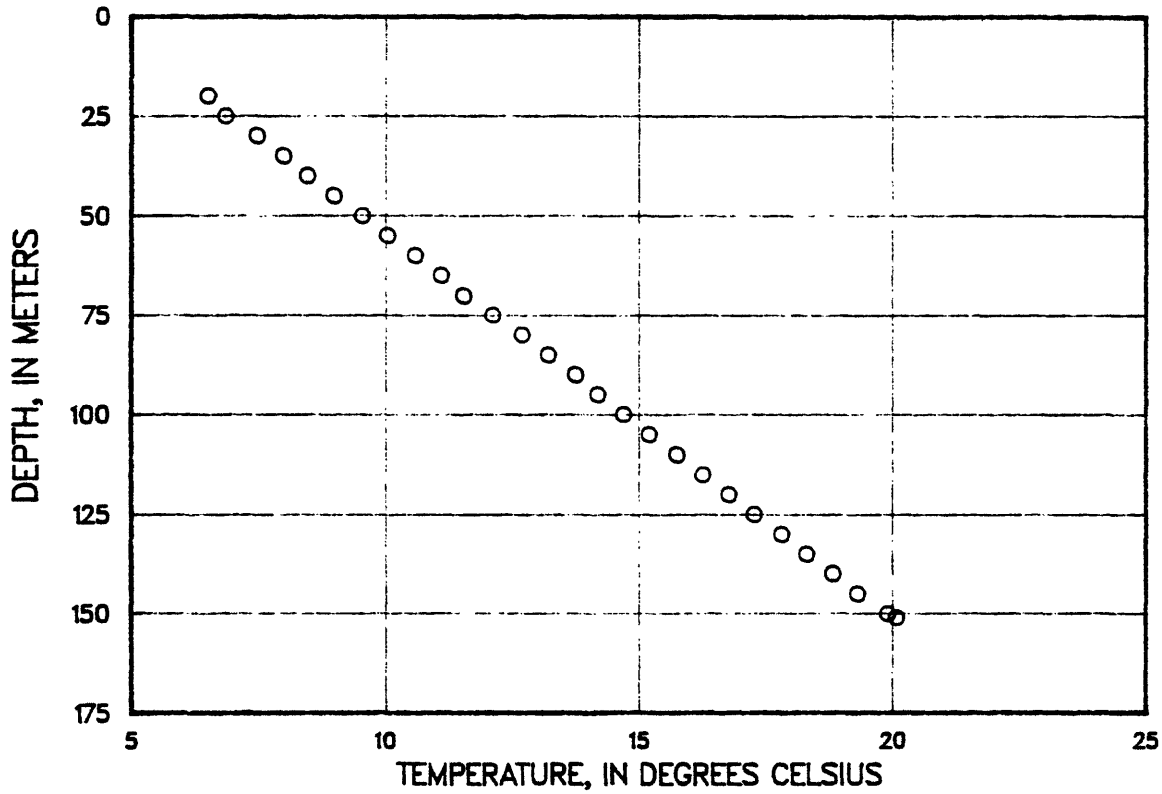


Fig. 59-Temperature profile from 9S-7E-34 SE.

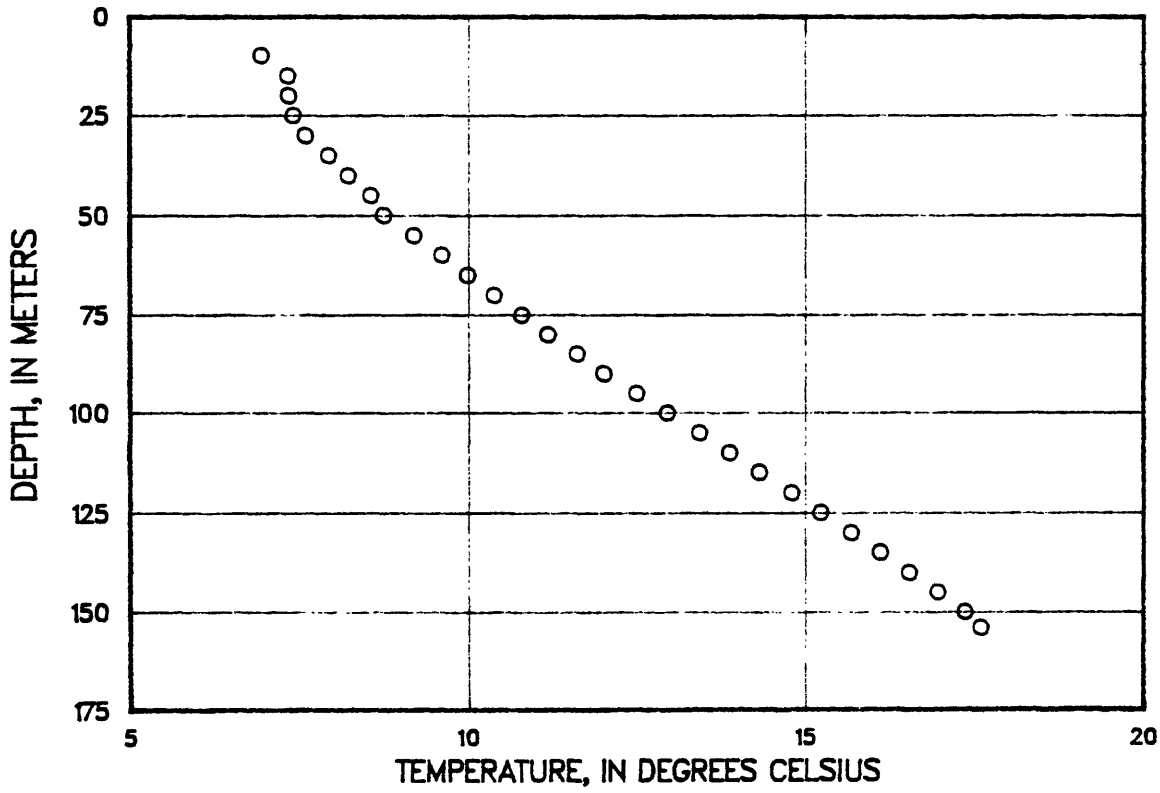


Fig. 60-Temperature profile from 9S-7E-36 NW.

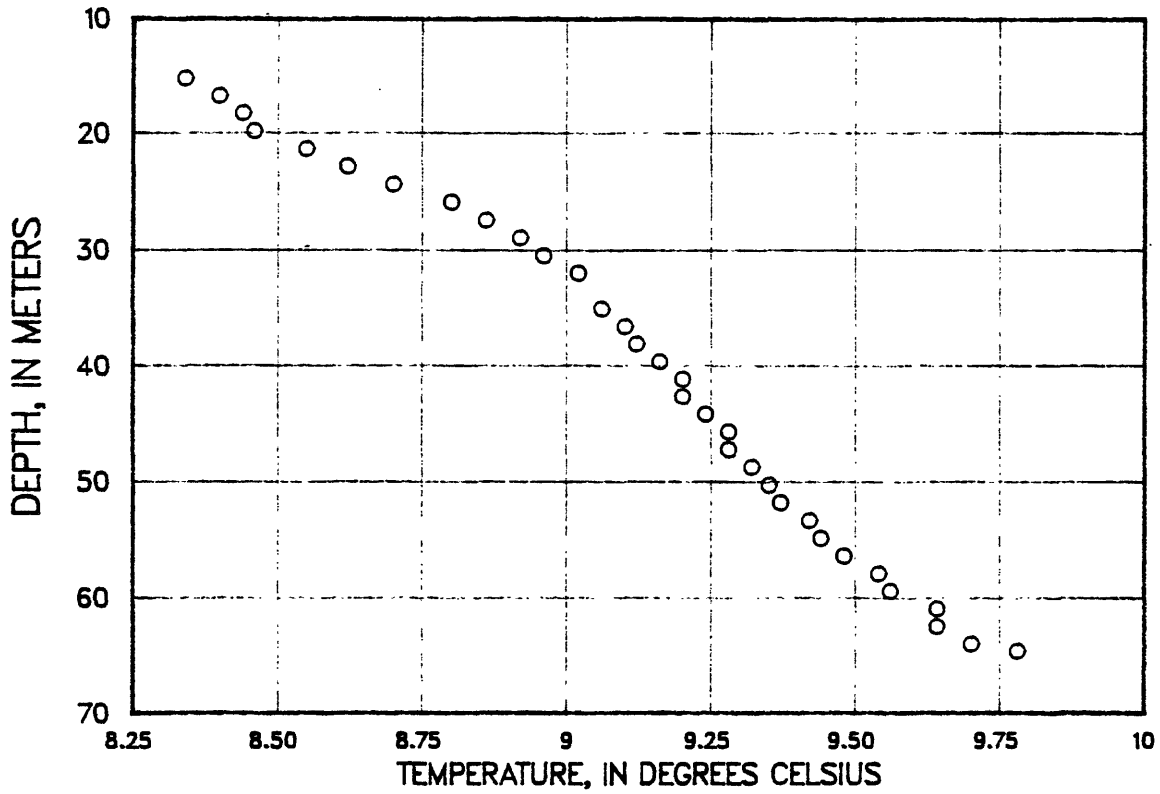


Fig. 61-Temperature profile from 10S-5E-02 SE.

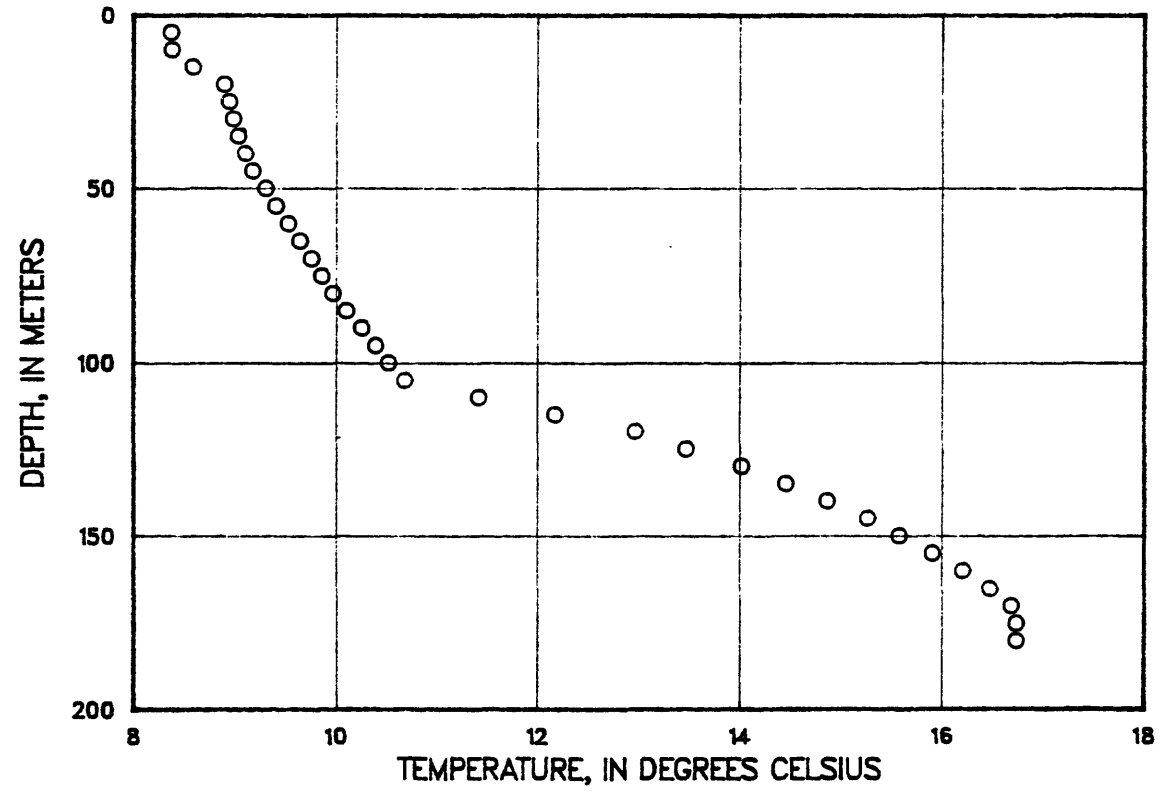


Fig. 62-Temperature profile from 10S-5E-03 SE.

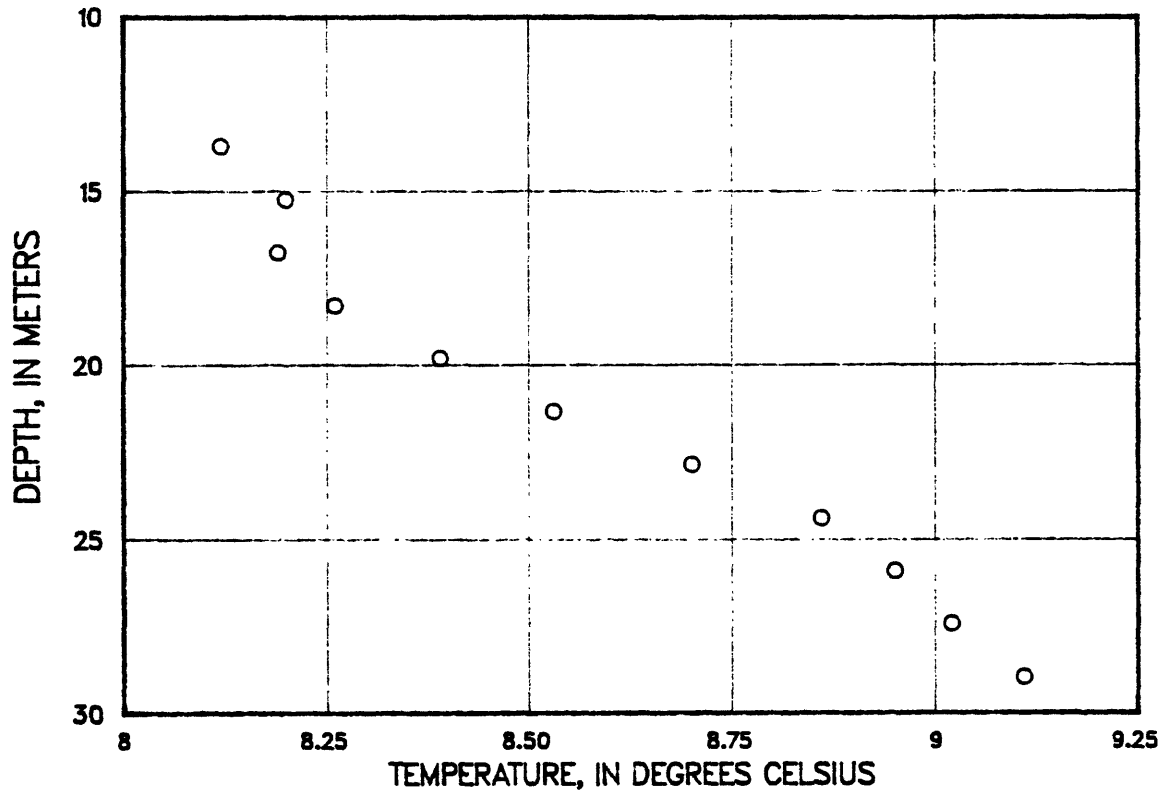


Fig. 63-Temperature profile from 10S-5E-15 NE.

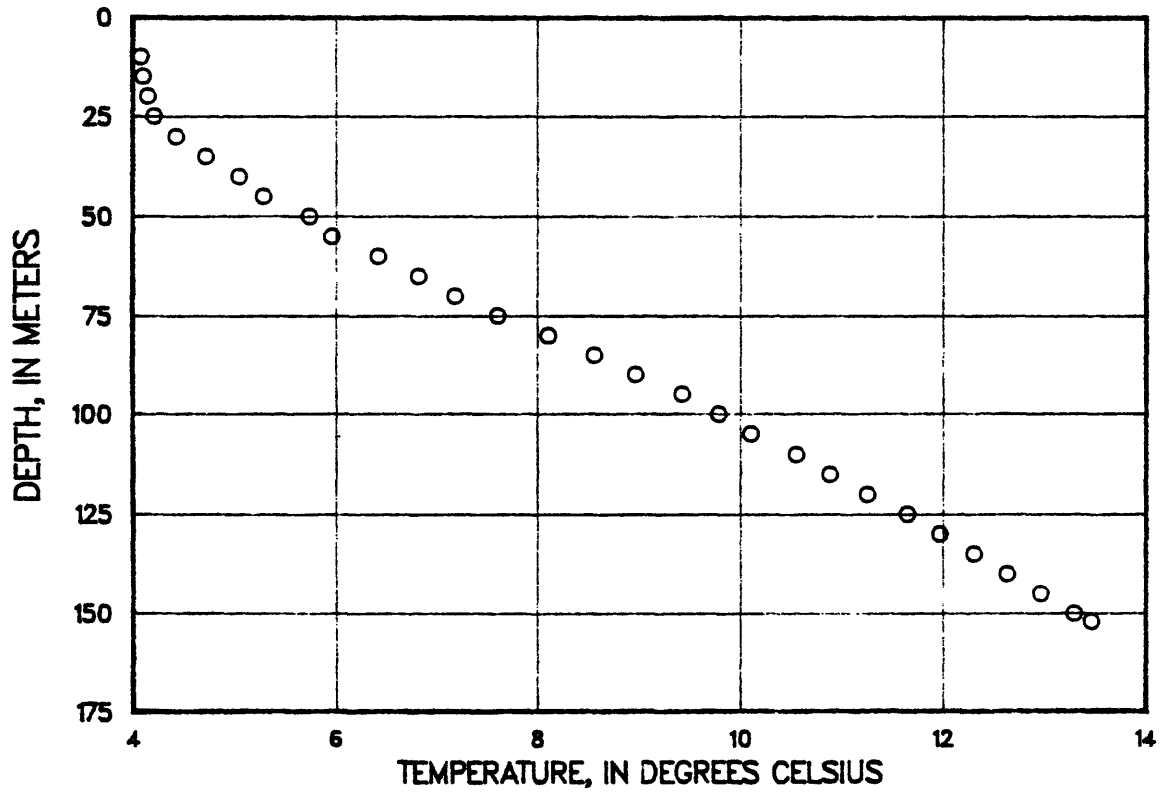


Fig. 64-Temperature profile from 10S-7E-09 NW.

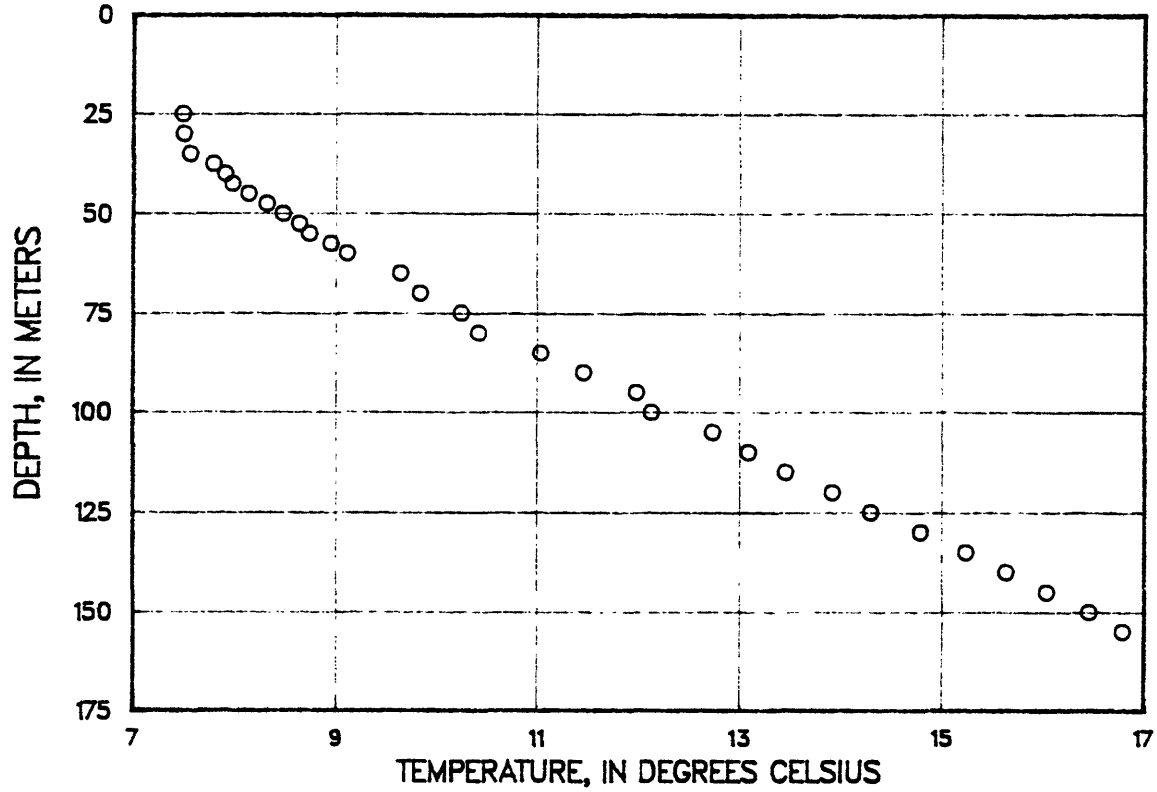


Fig. 65-Temperature profile from 10S-7E-11 NE.

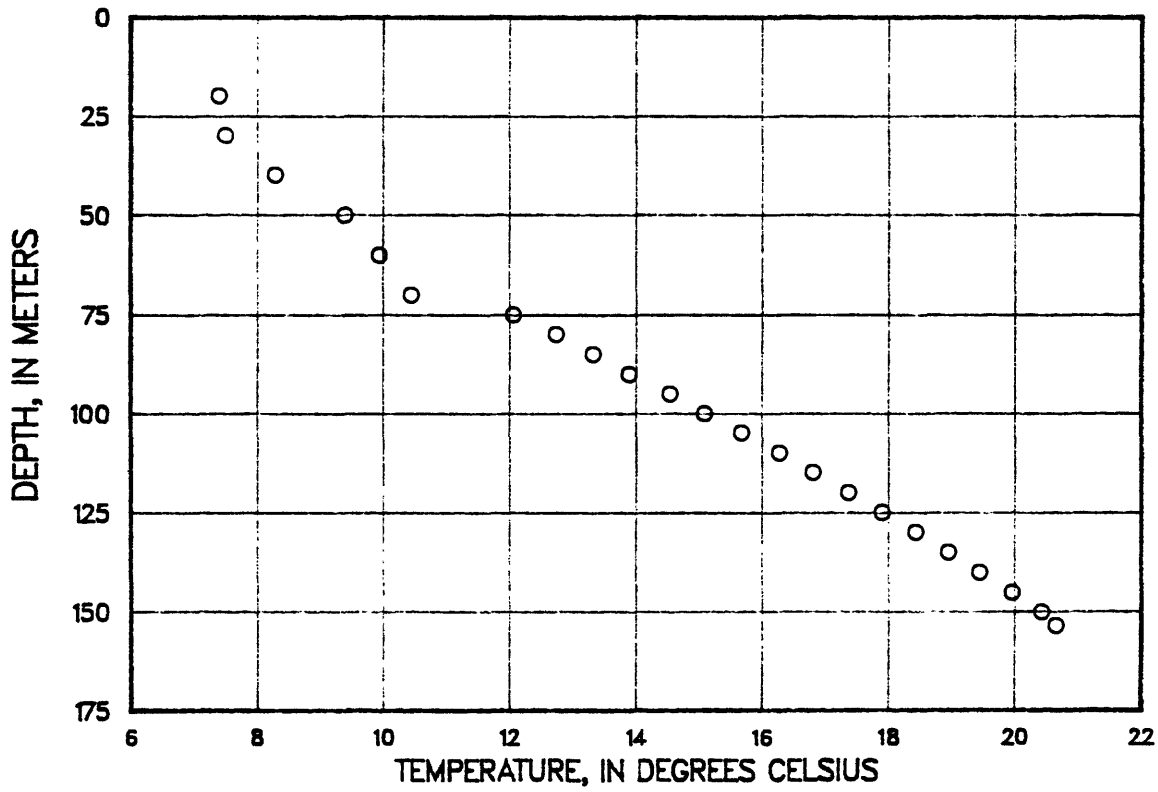


Fig. 66-Temperature profile from 10S-7E-20 SW.

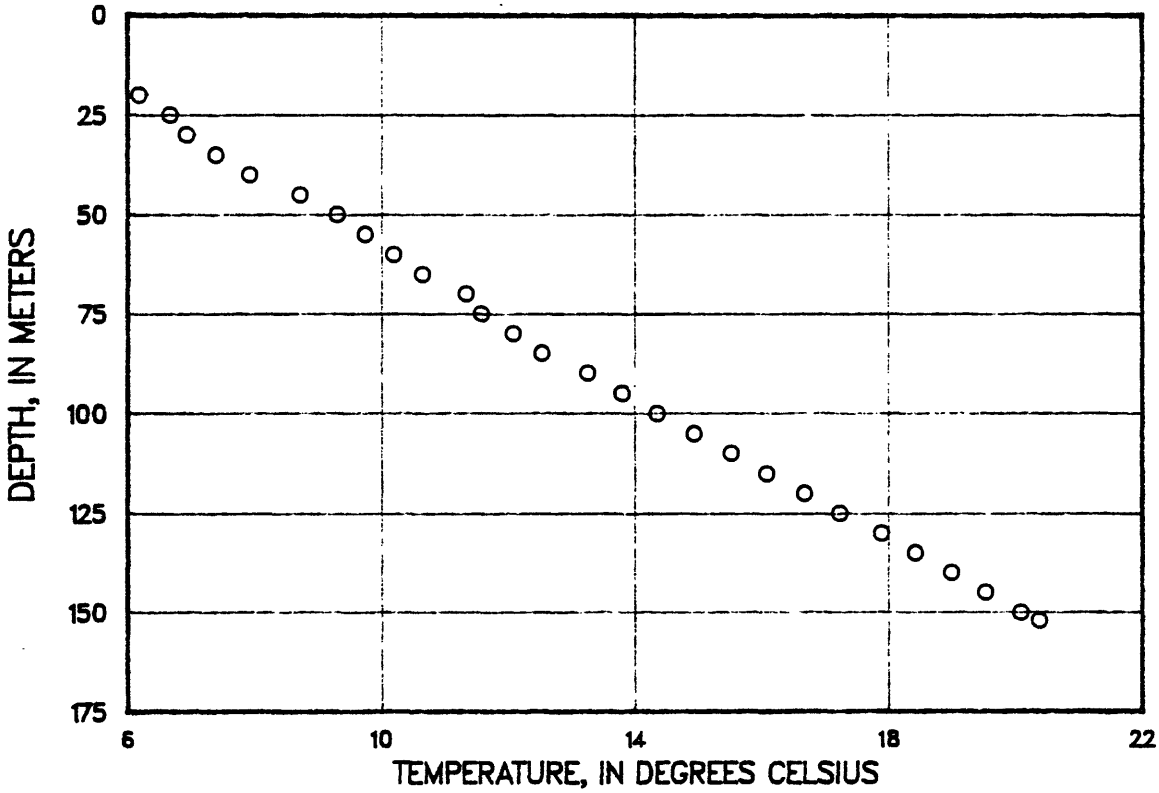


Fig. 67-Temperature profile from 10S-7E-23 NW.

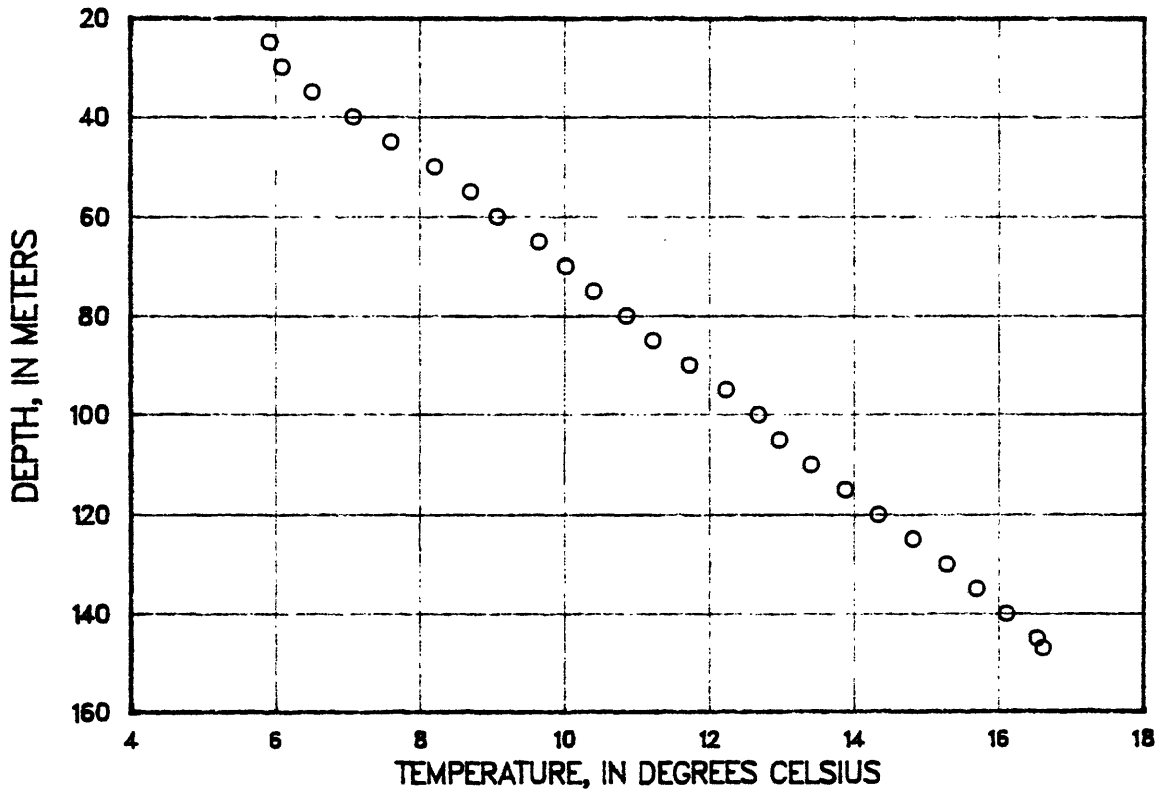


Fig. 68-Temperature profile from 10S-7E-24 NE.

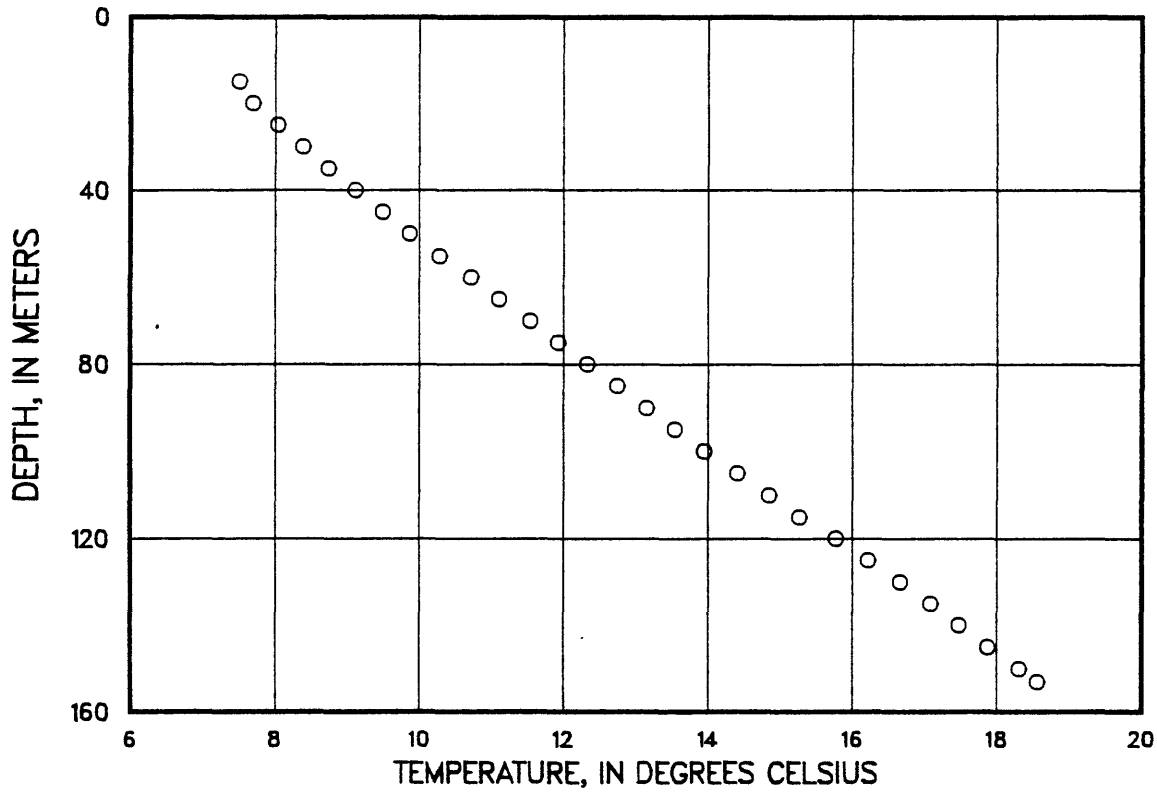


Fig. 69-Temperature profile from 10S-7E-34 NE.

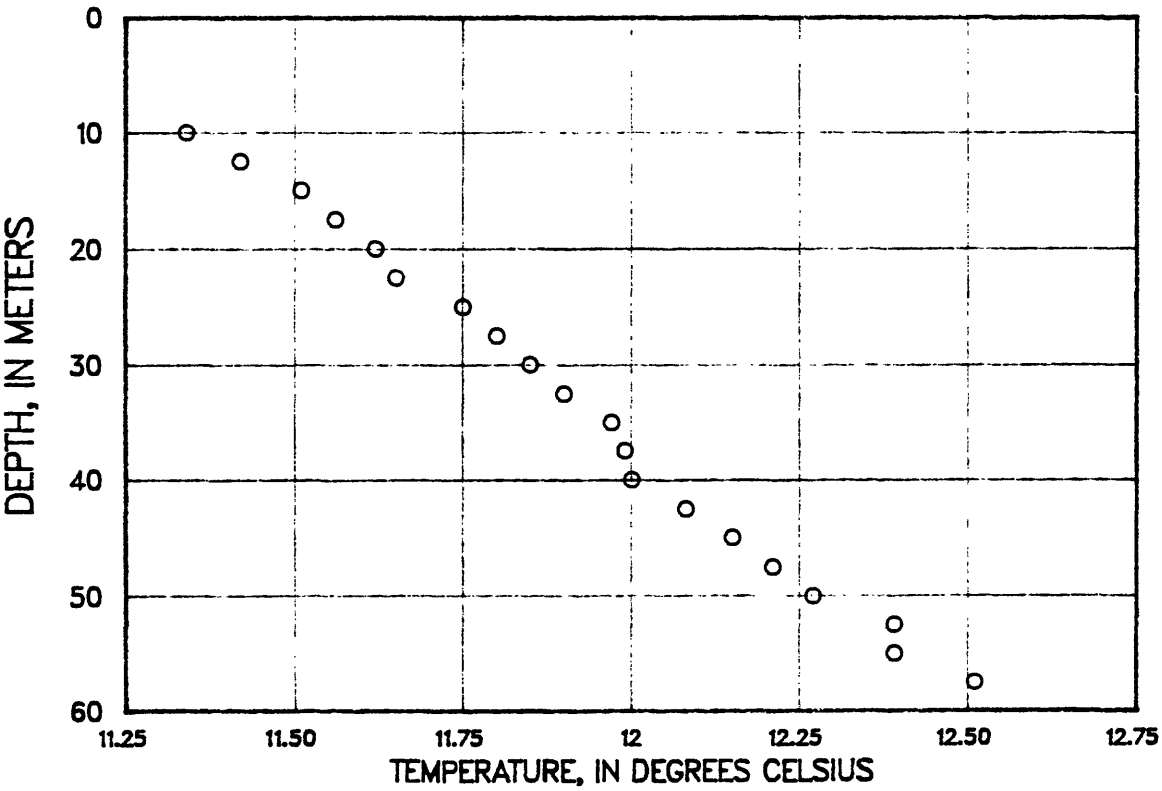


Fig. 70-Temperature profile from 11S-1E-07 SE.

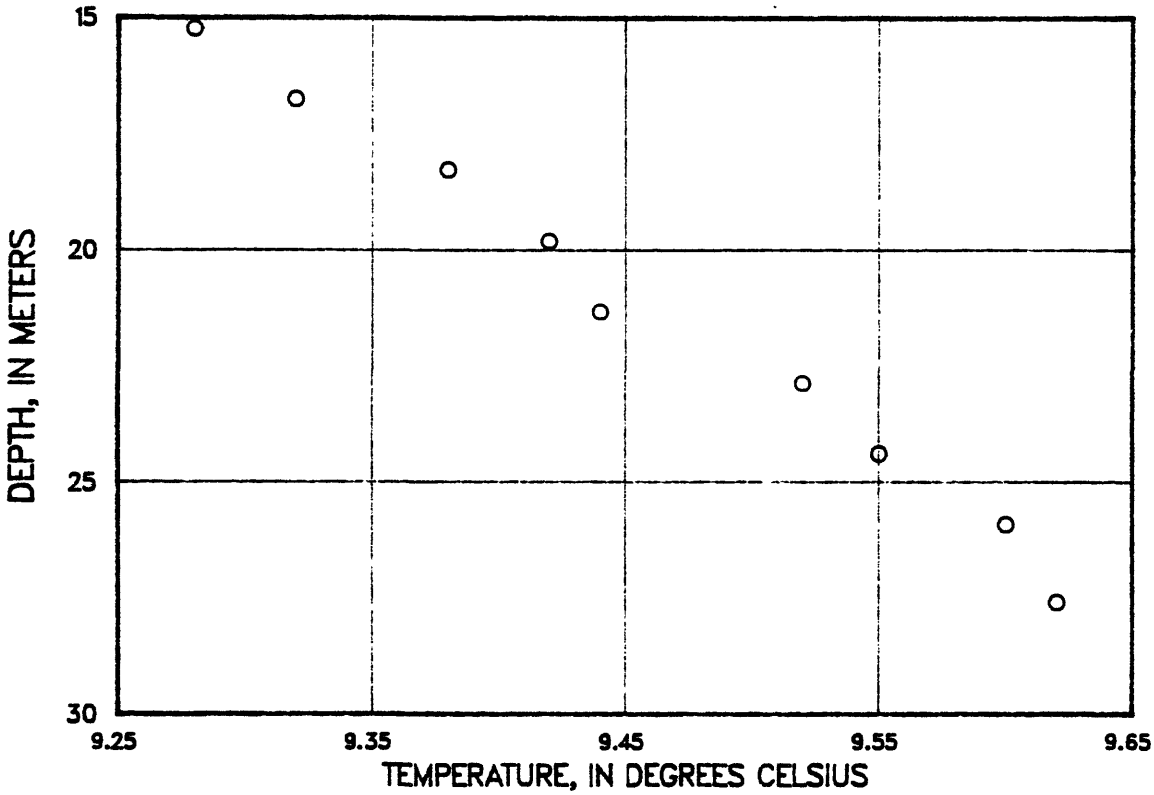


Fig. 71-Temperature profile from 11S-4E-19 SE.

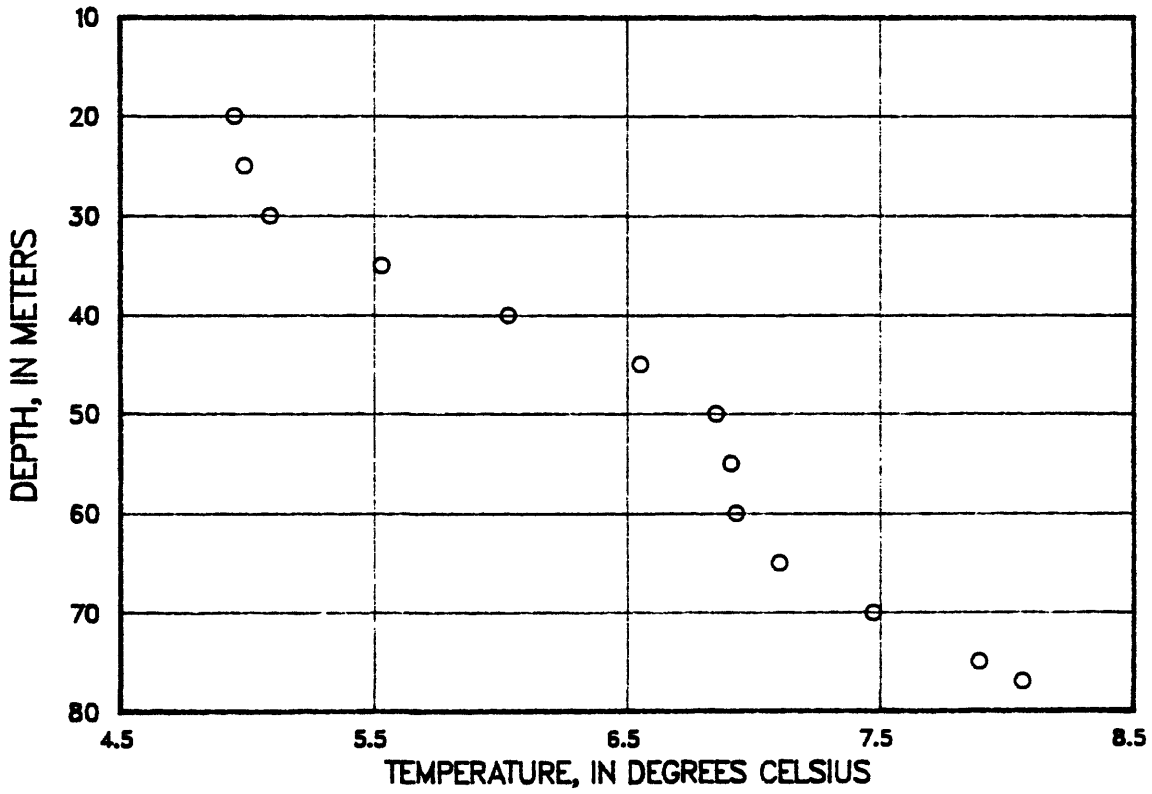


Fig. 72-Temperature profile from 11S-6E-22 SE.

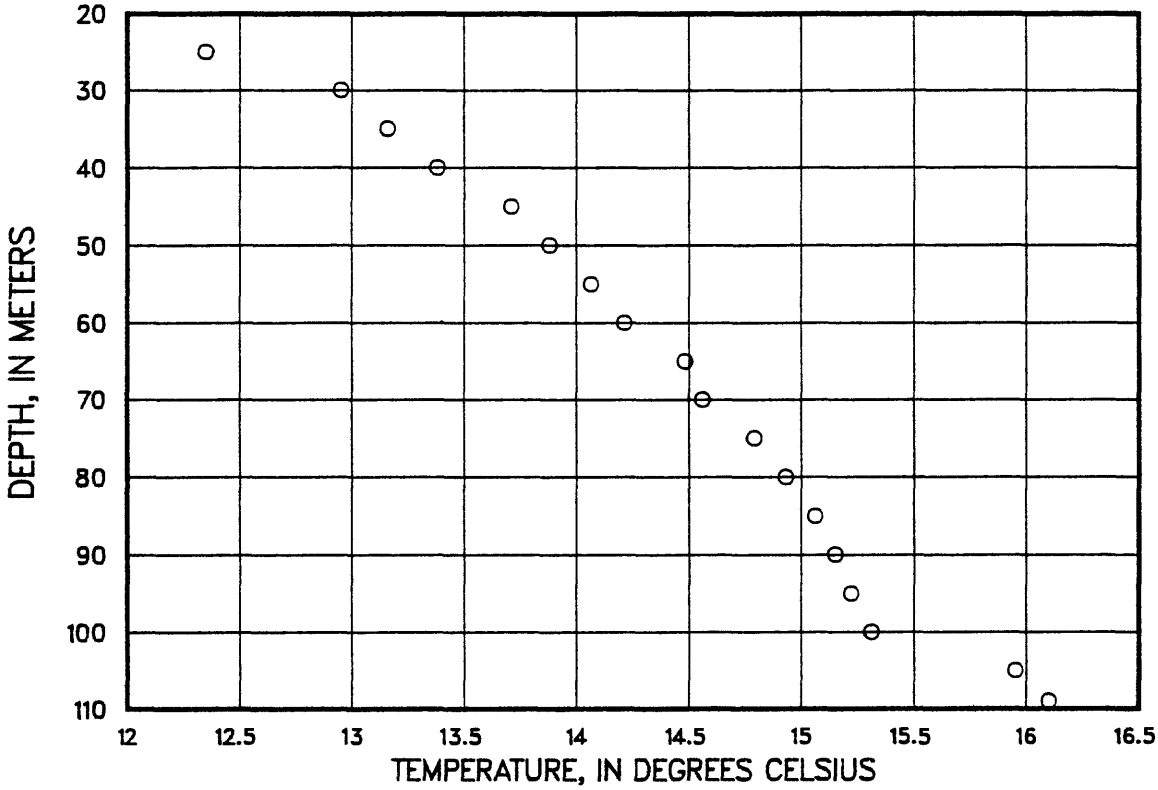


Fig. 73-Temperature profile from 11S-7E-10 SE.

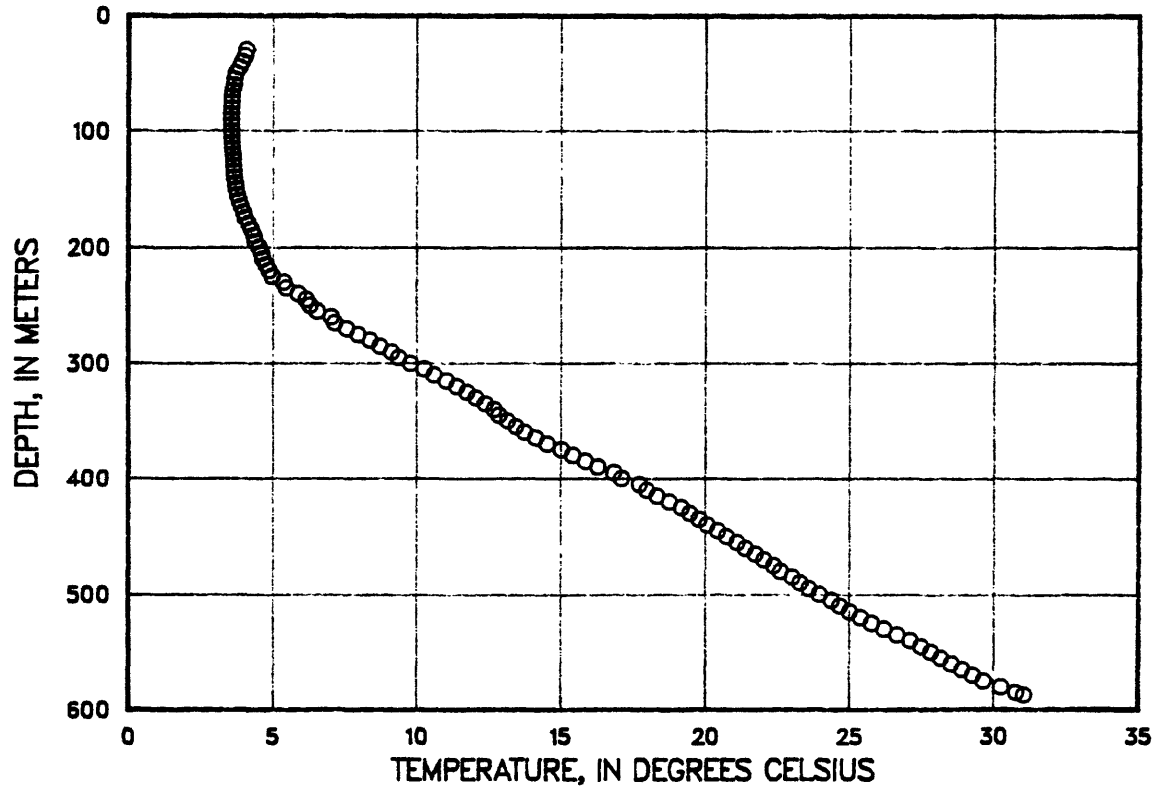


Fig. 74-Temperature profile from 12S-7E-09 SE.

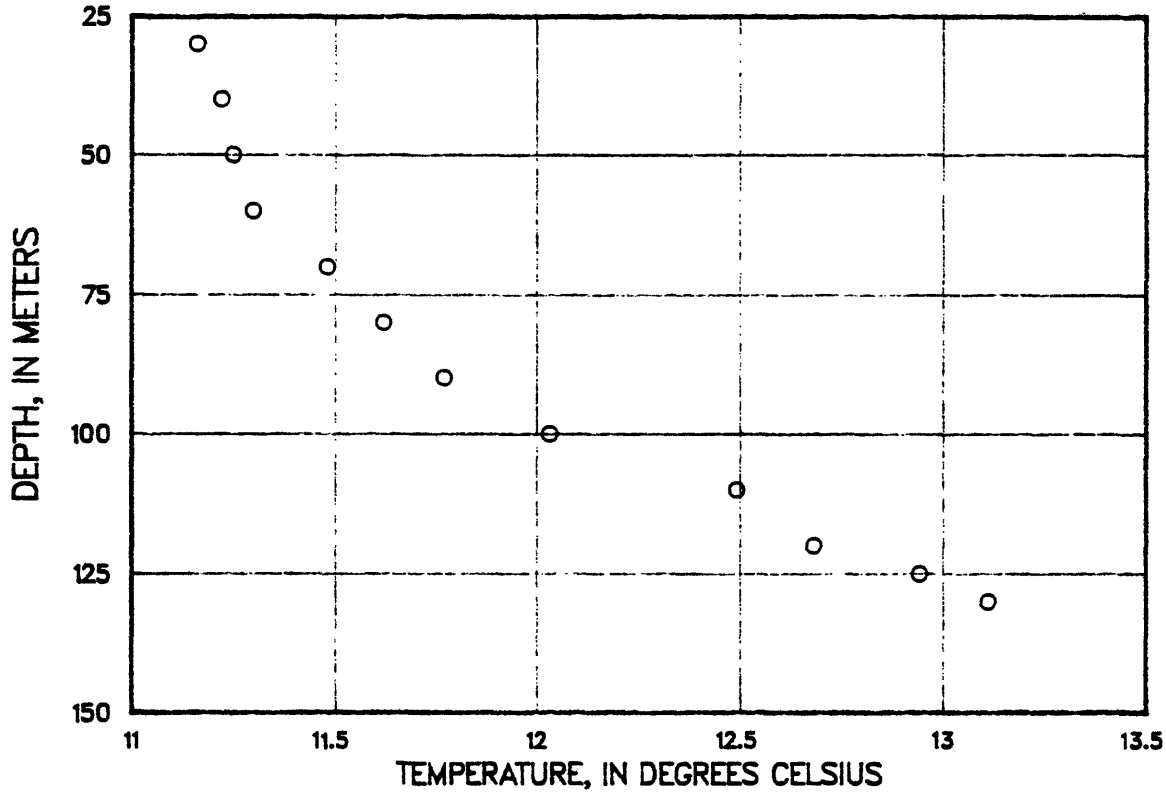


Fig. 75-Temperature profile from 13S-1E-20 NW.

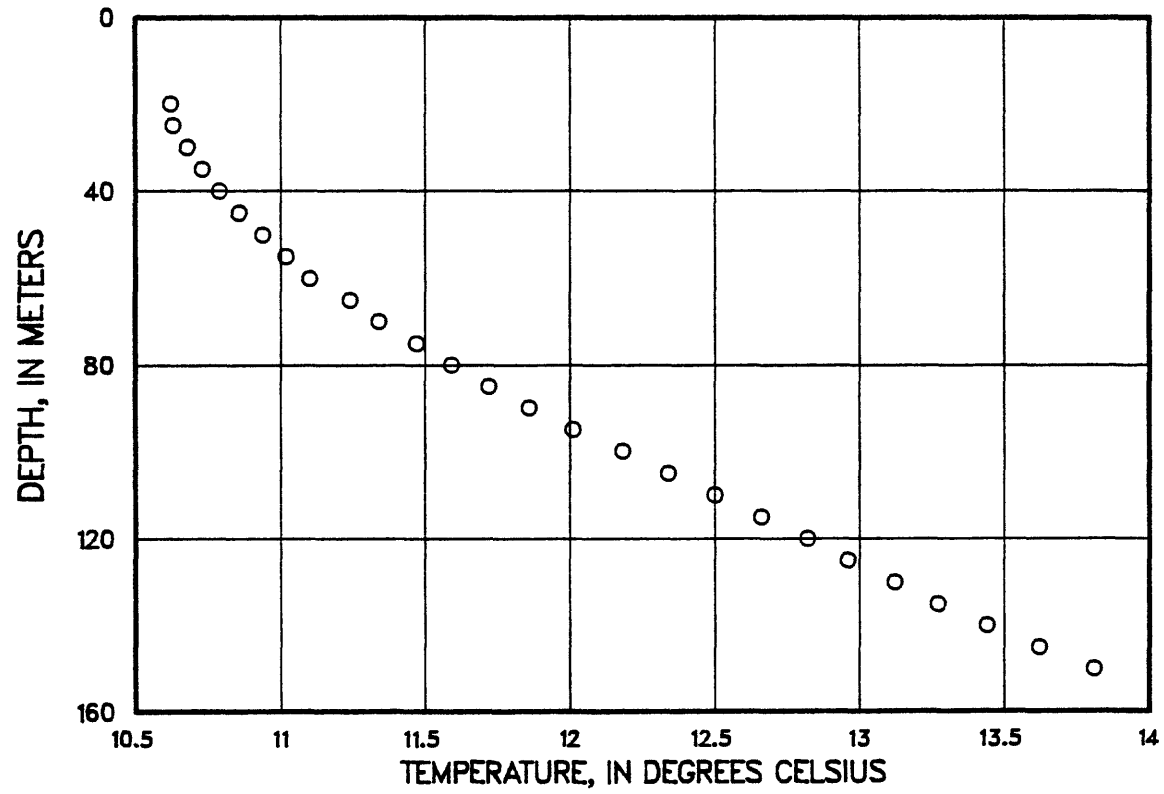


Fig. 76-Temperature profile from 13S-1E-35 NE.

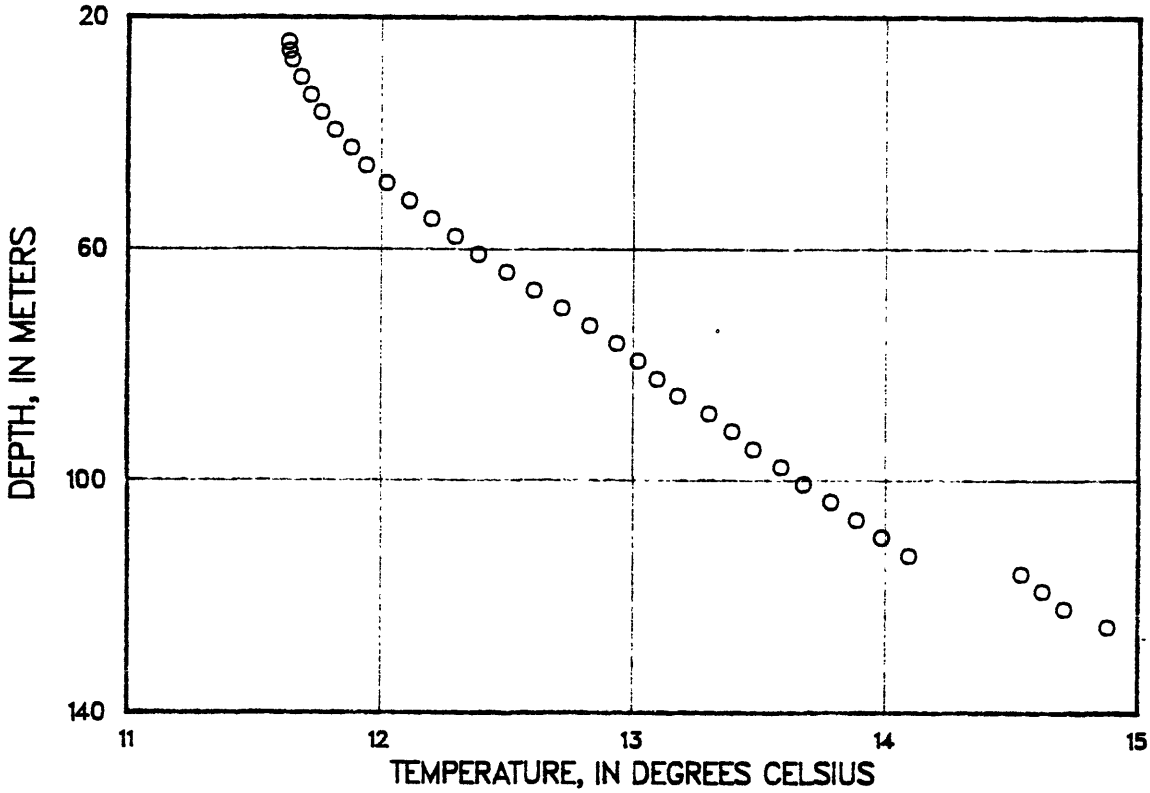


Fig. 77-Temperature profile from 13S-2E-36 SW.

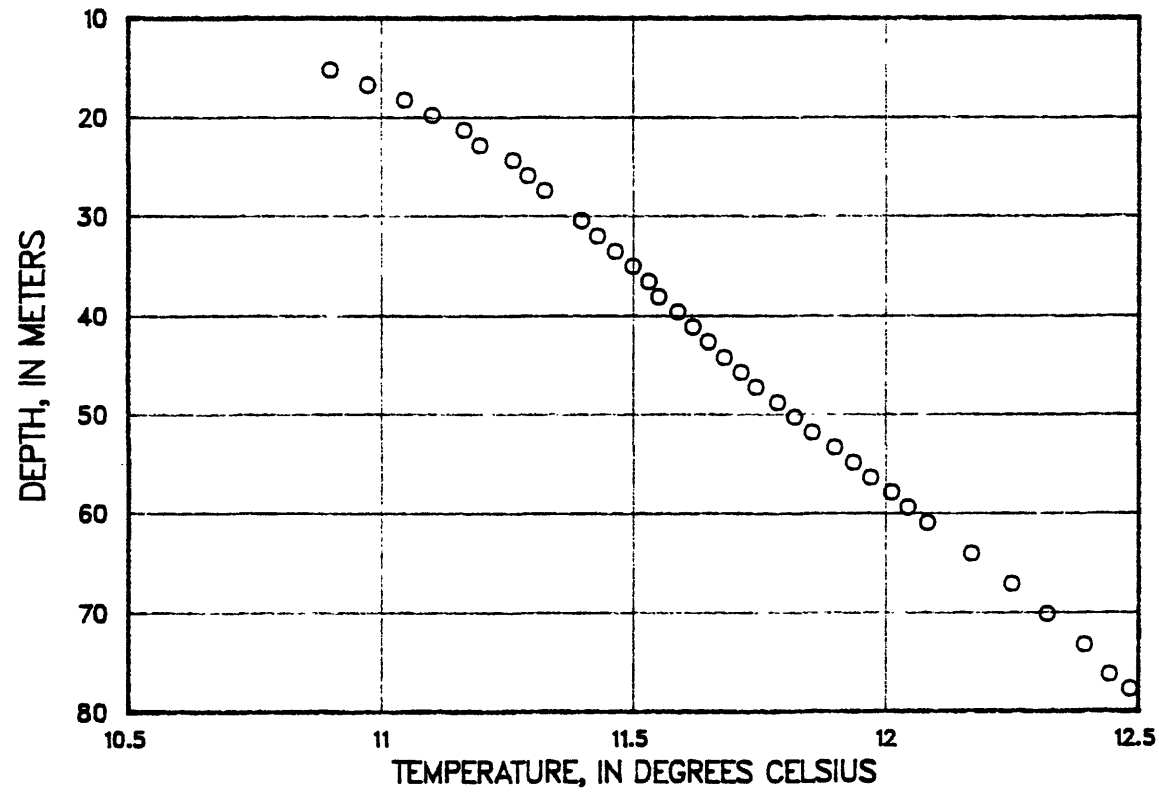


Fig. 78-Temperature profile from 13S-3E-31 SE.

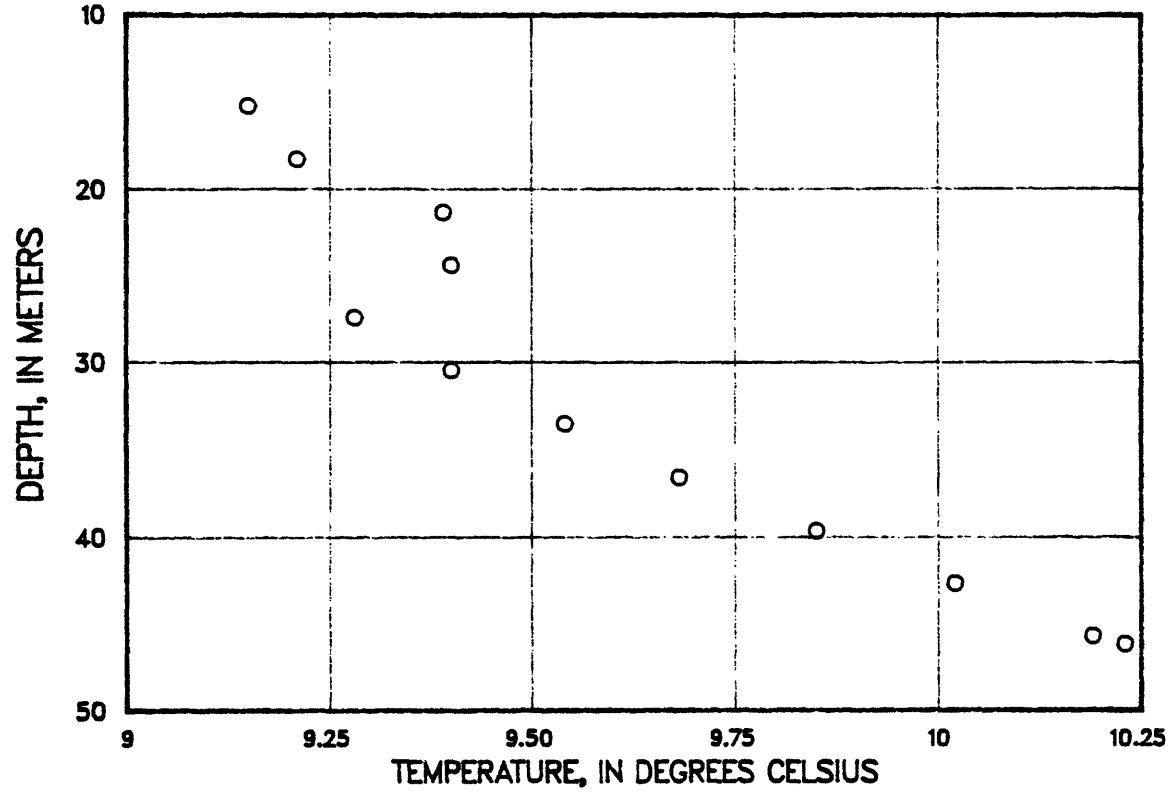


Fig. 79-Temperature profile from 13S-6E-17 NW.

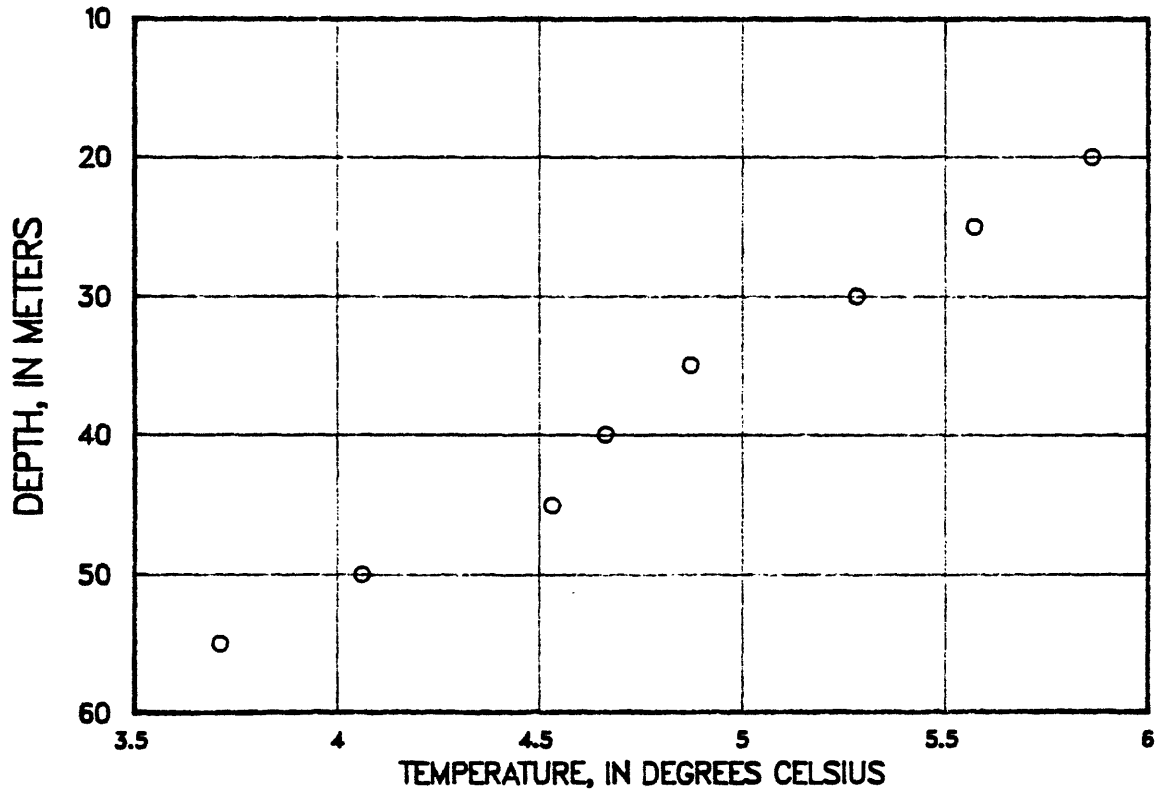


Fig. 80-Temperature profile from 13S-7E-09 NE.

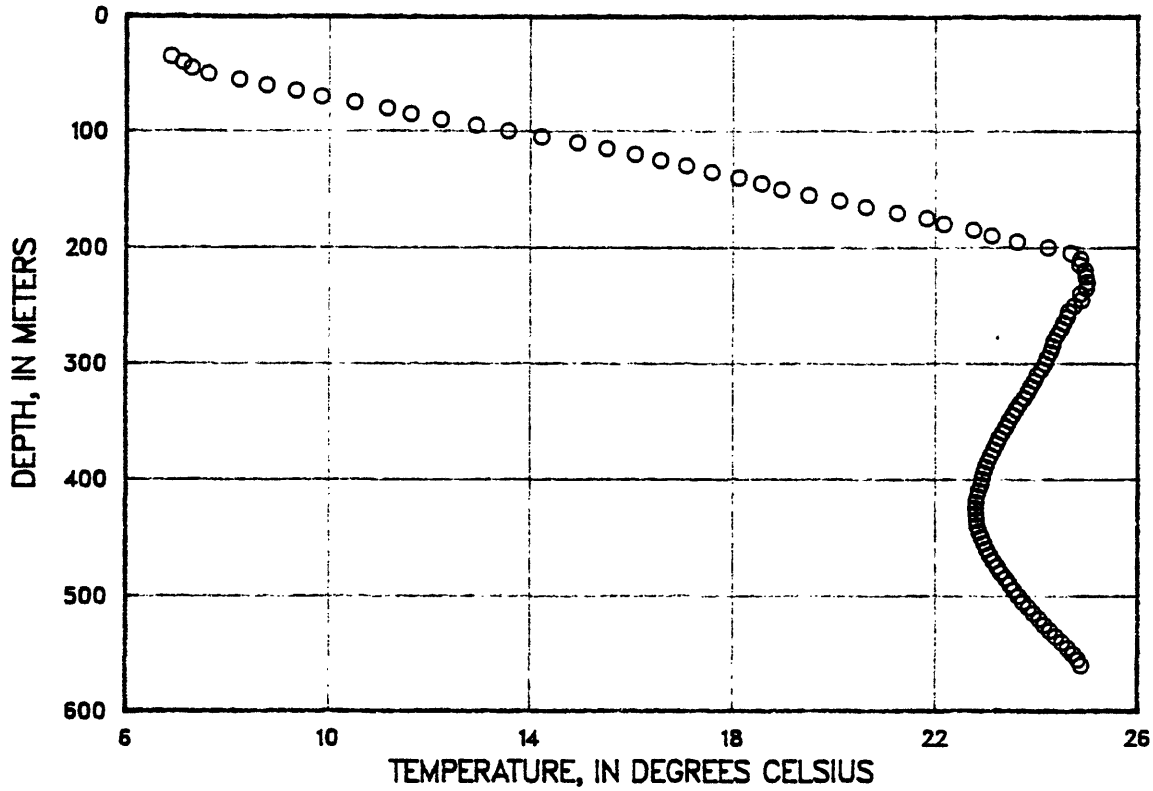


Fig. 81-Temperature profile from 13S-7E-32 SE.

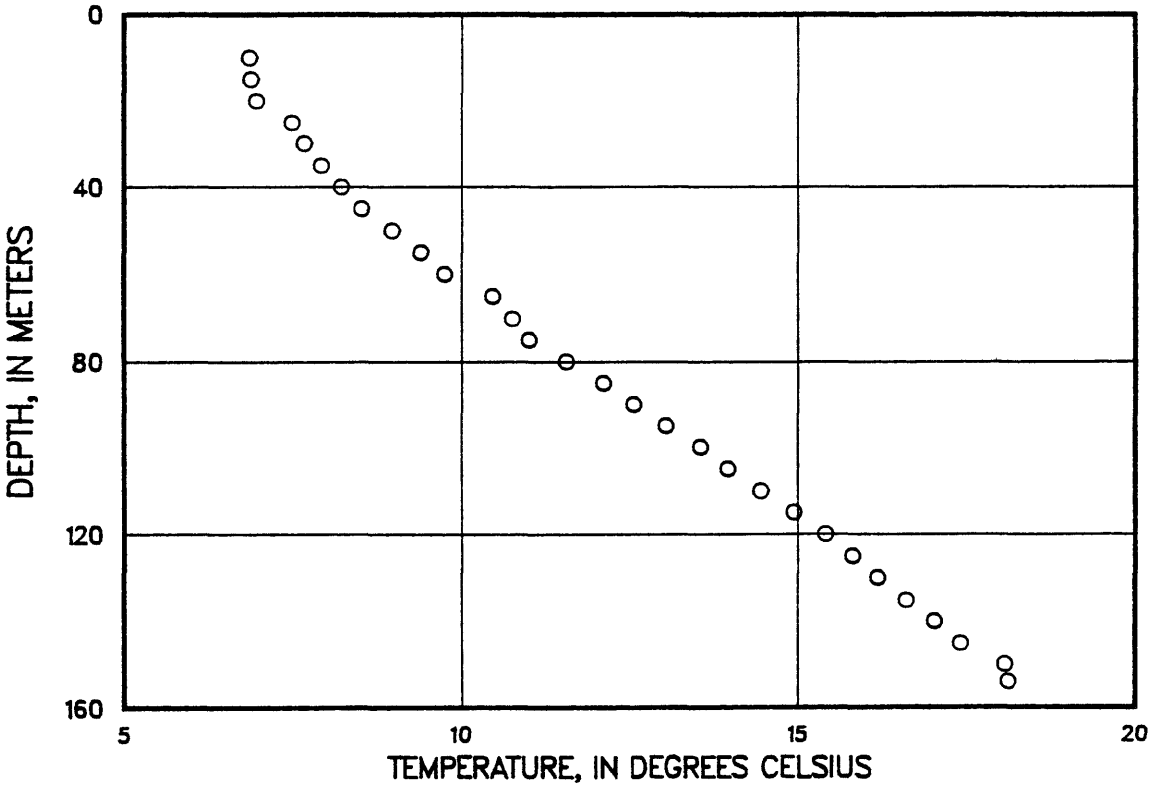


Fig. 82-Temperature profile from 14S-6E-32 SW.

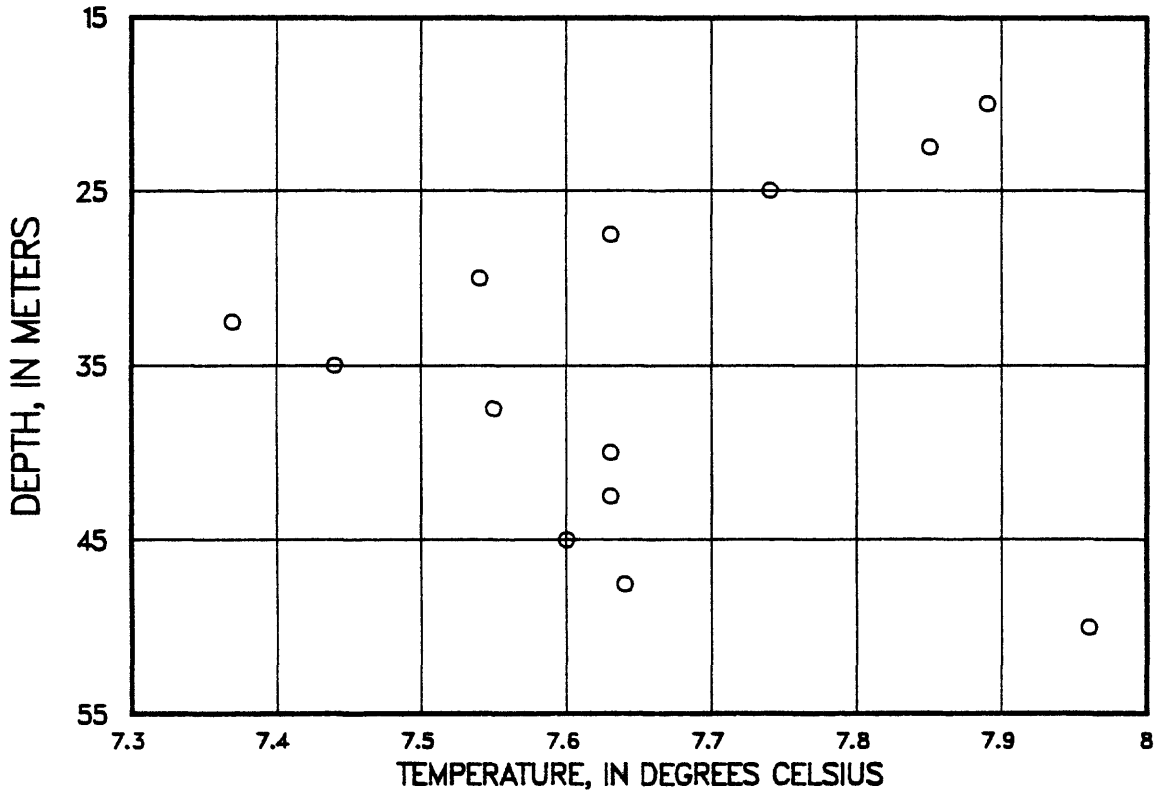


Fig. 83-Temperature profile from 15S-6E-11 SE.

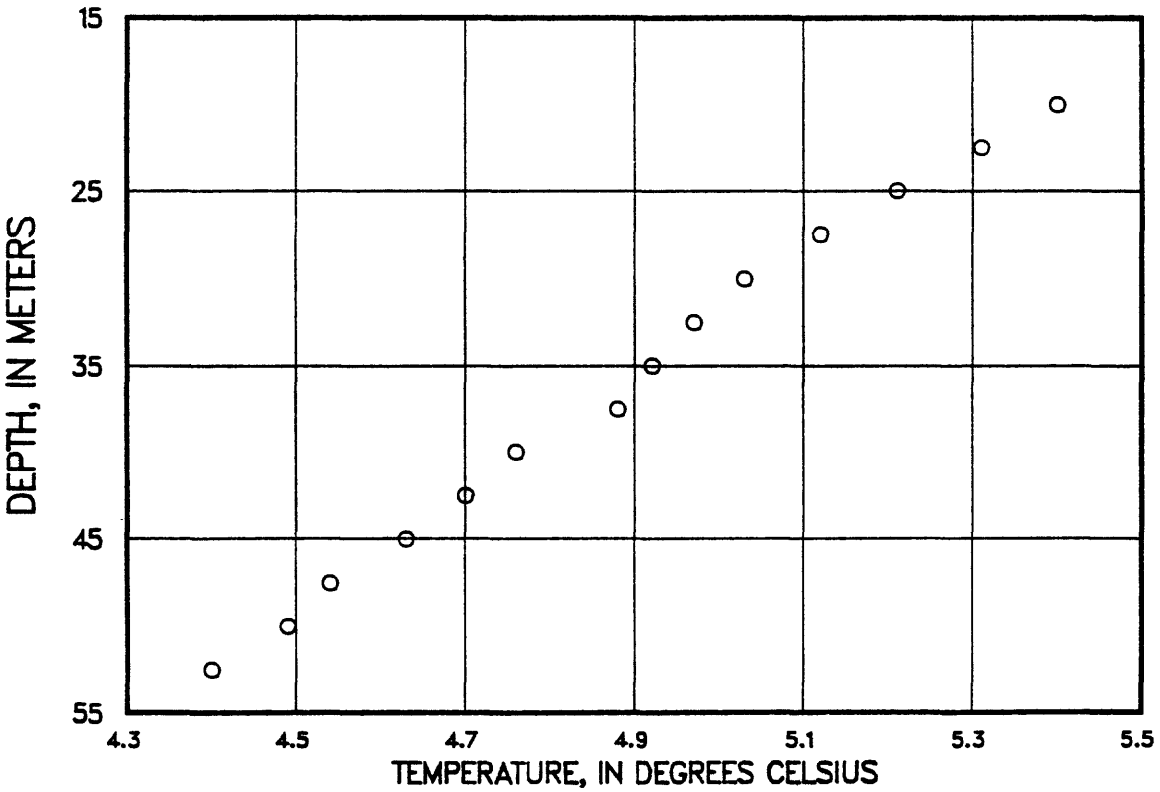


Fig. 84-Temperature profile from 15S-7E-28 NE.

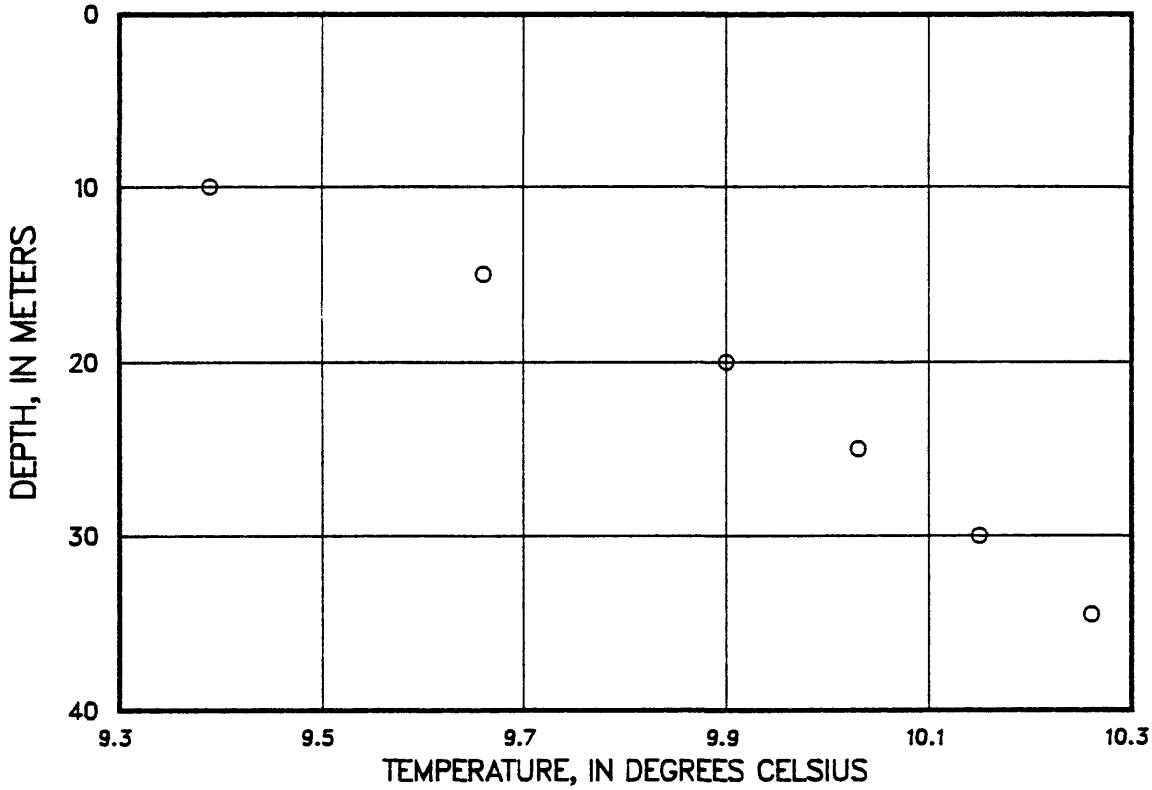


Fig. 85-Temperature profile from 16S-2E-26 NW.

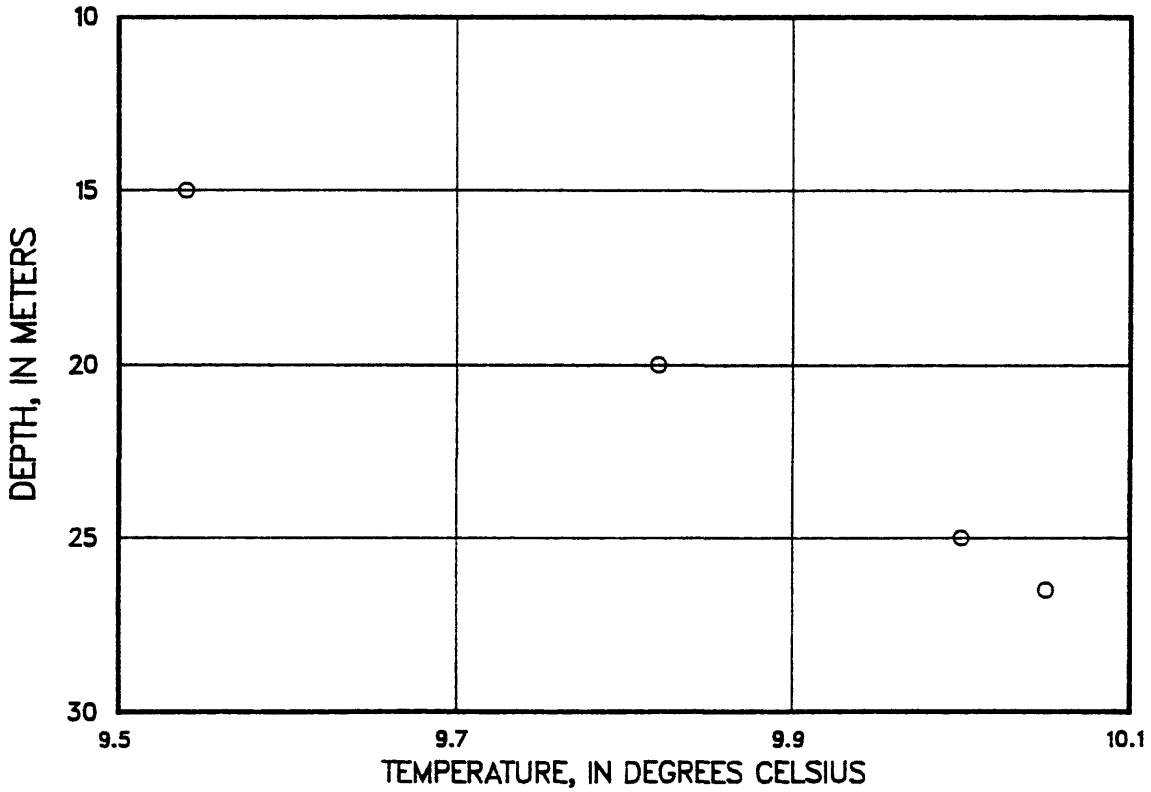


Fig. 86-Temperature profile from 16S-2E-26 NW.

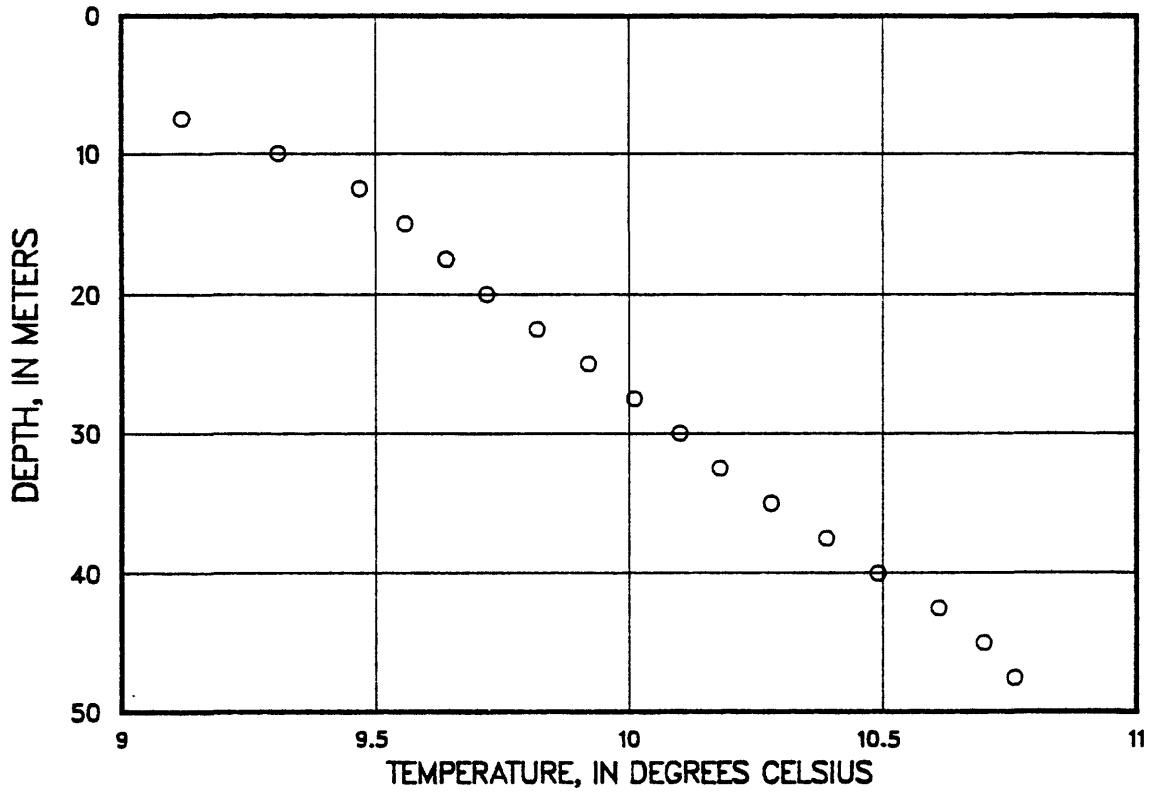


Fig. 87-Temperature profile from 16S-4E-14 SE.

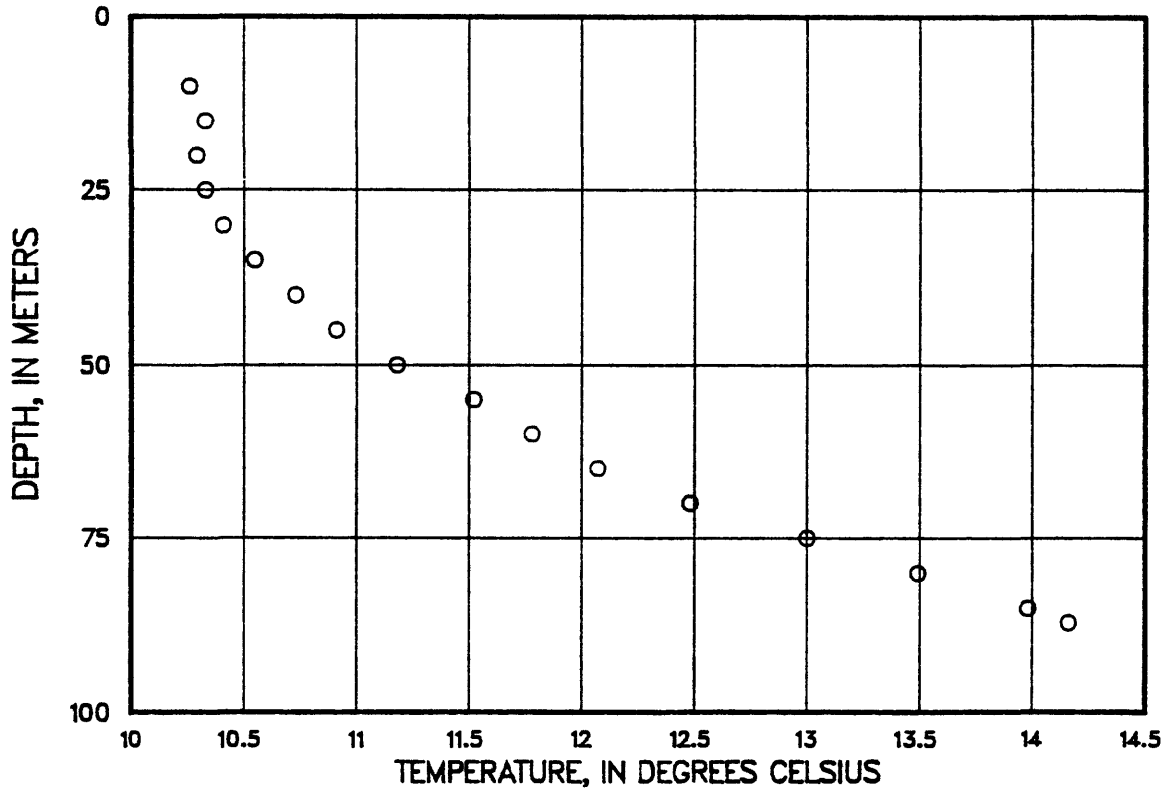


Fig. 88-Temperature profile from 16S-5E-30 NE.

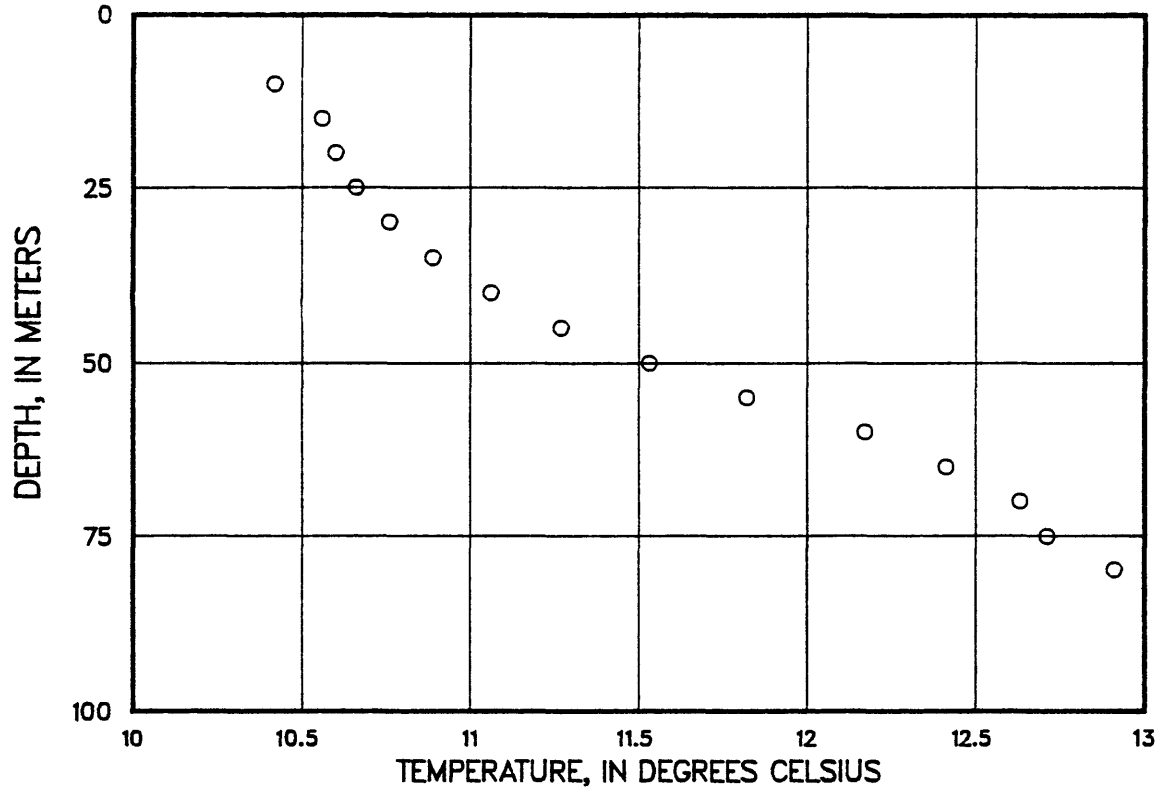


Fig. 89-Temperature profile from 16S-5E-30 NE.

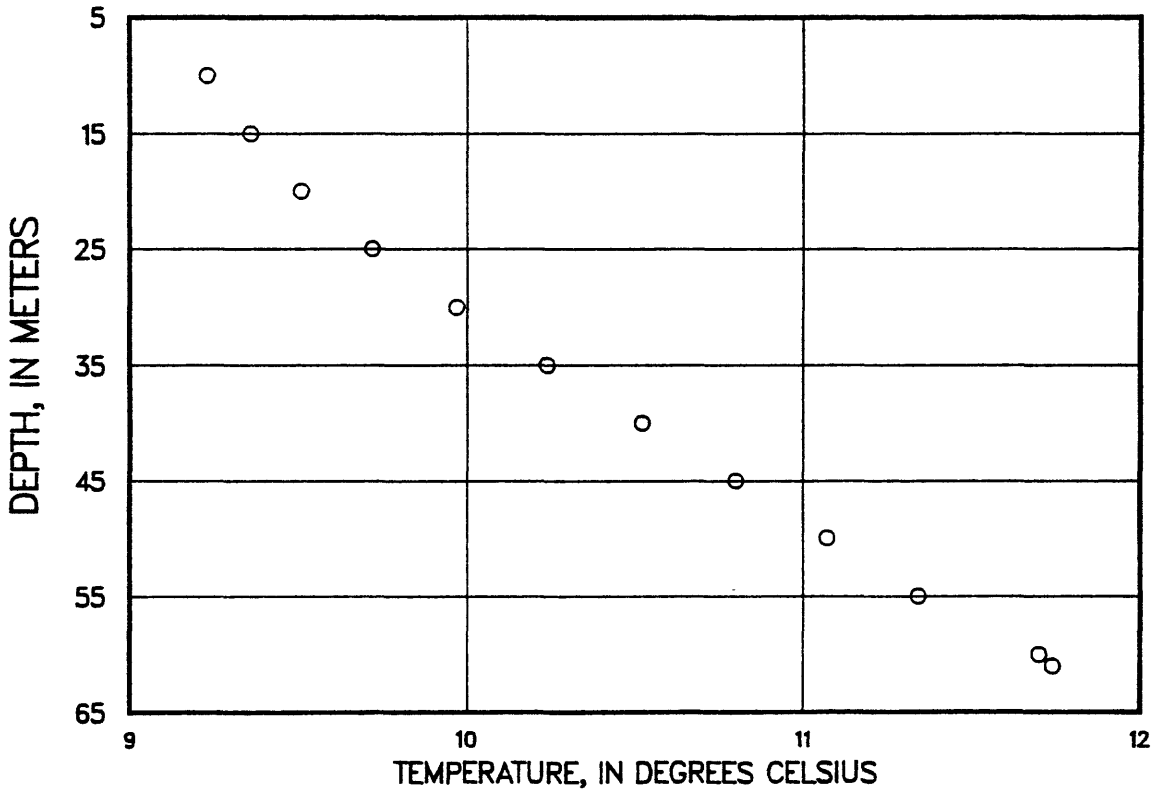


Fig. 90-Temperature profile from 16S-5E-30 NE.

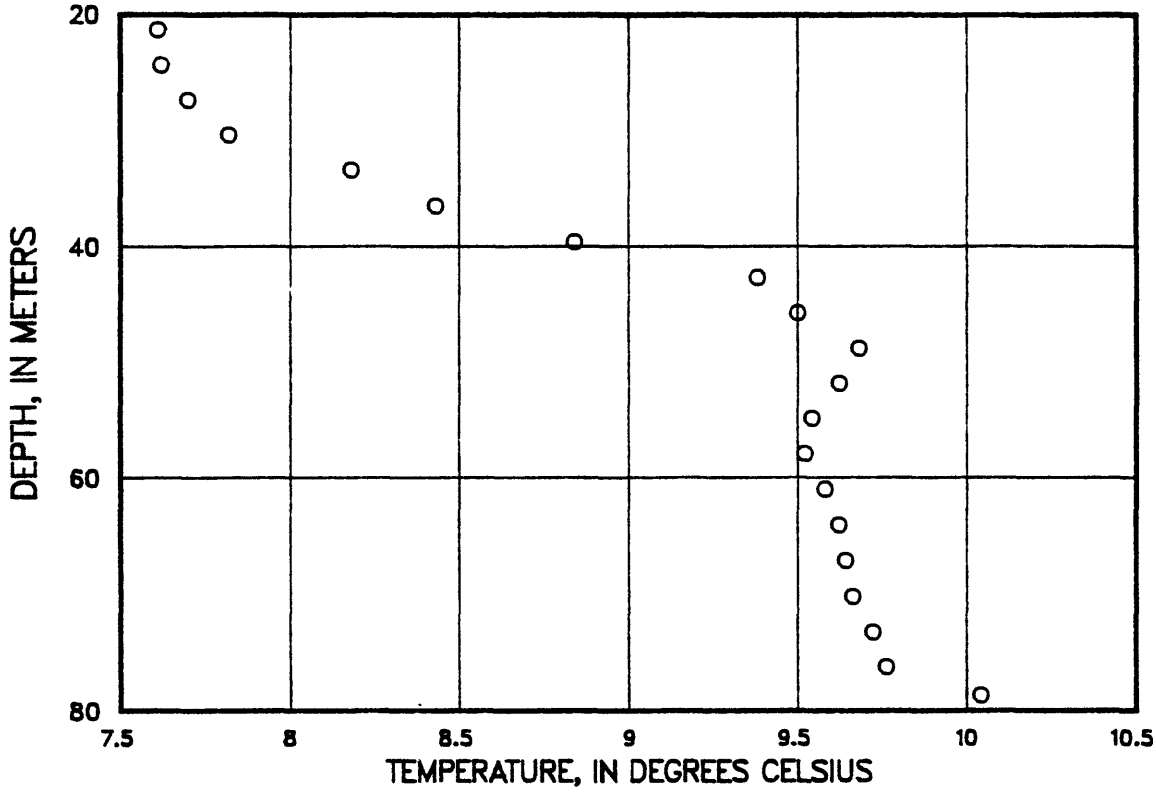


Fig. 91-Temperature profile from 16S-5E-31 SE.

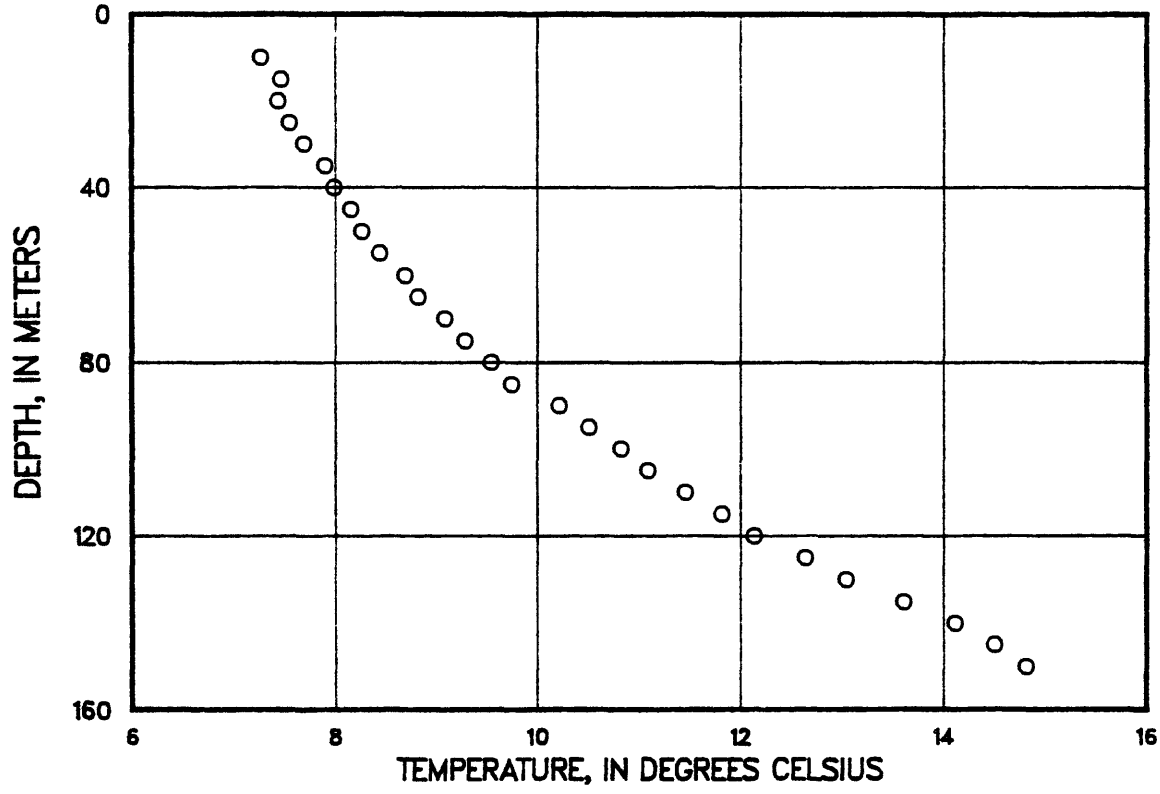


Fig. 92-Temperature profile from 16S-6E-02 SW.

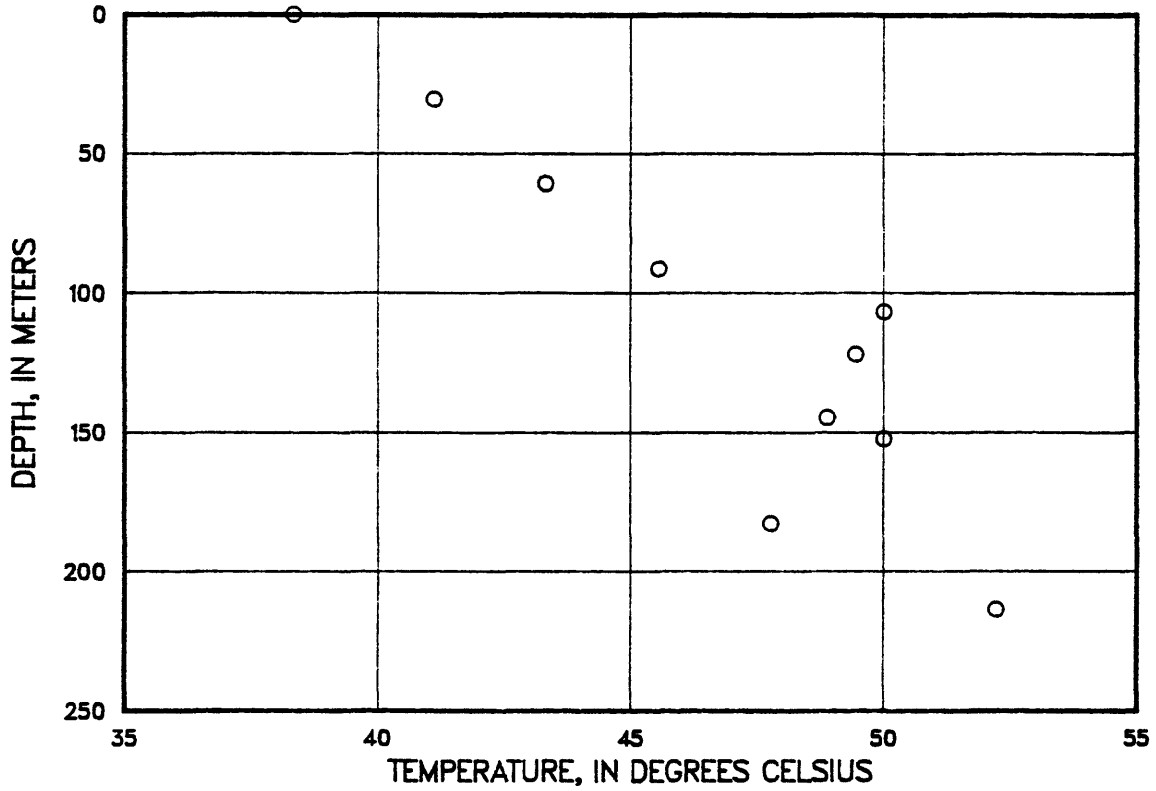


Fig. 93-Temperature profile from 16S-6E-10 SW.

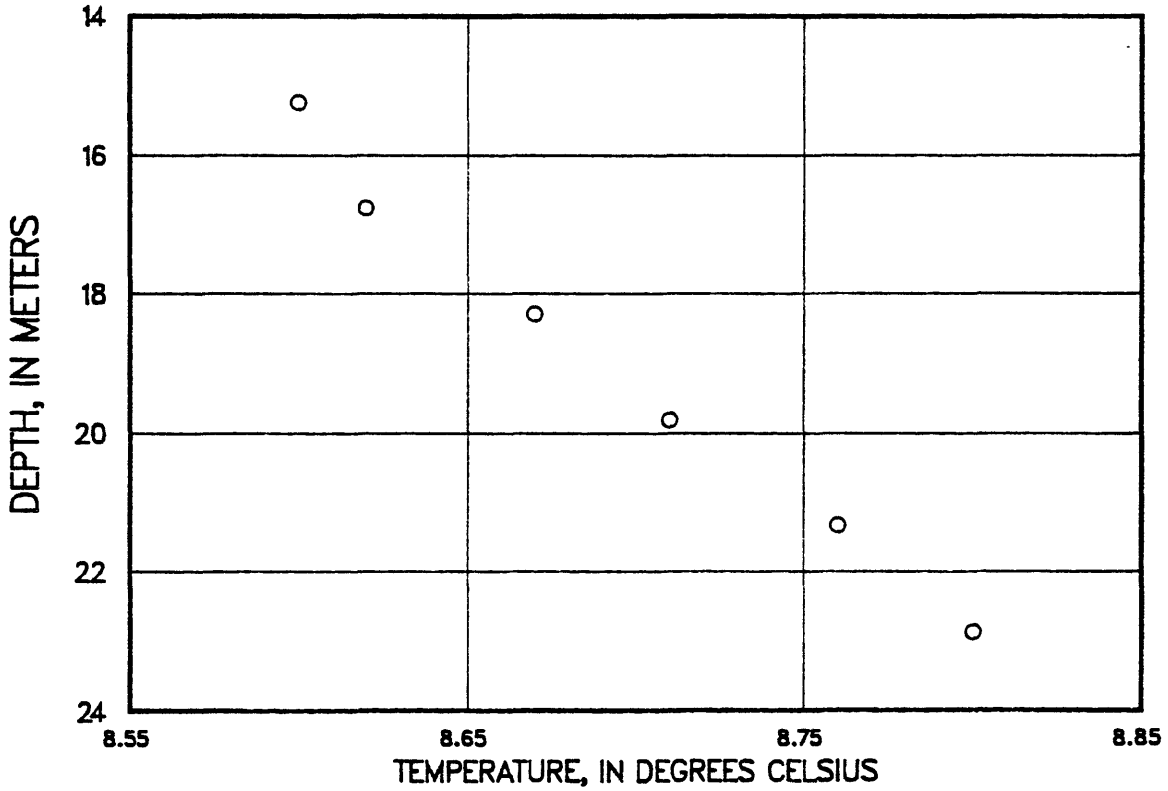


Fig. 94-Temperature profile from 16S-6E-14 SW.

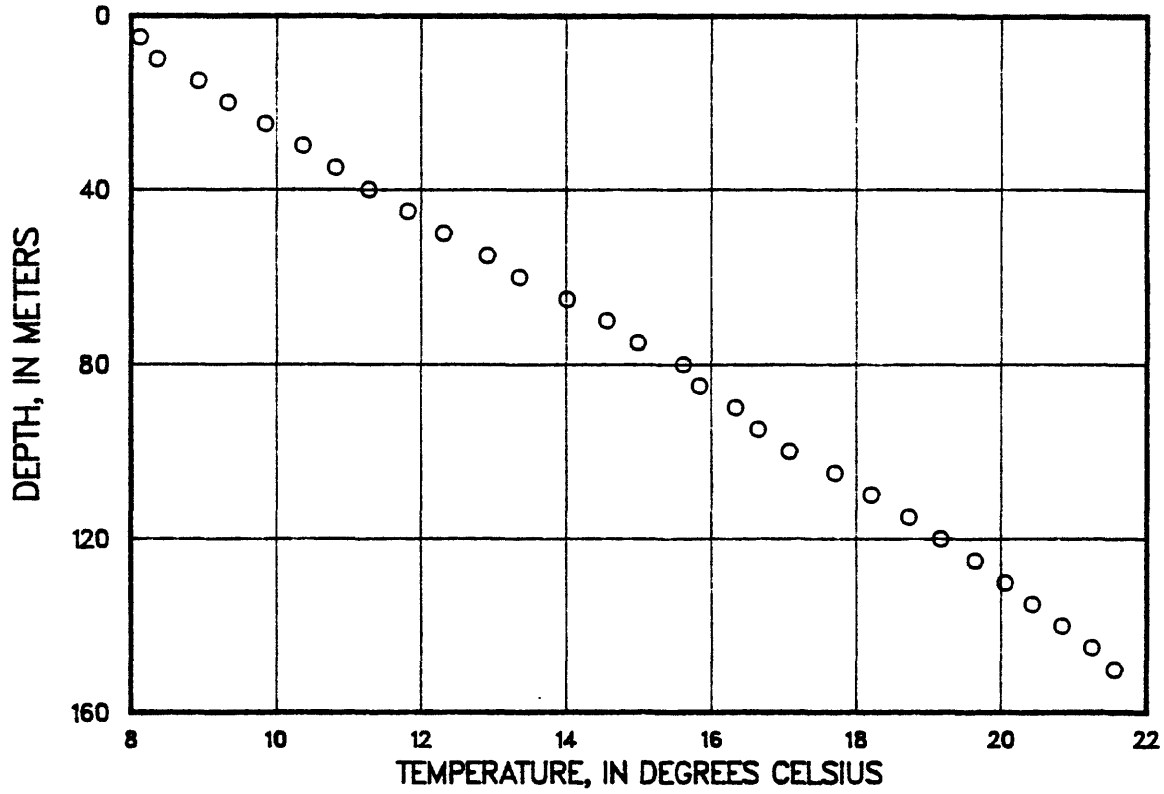


Fig. 95-Temperature profile from 16S-6E-27 NW.

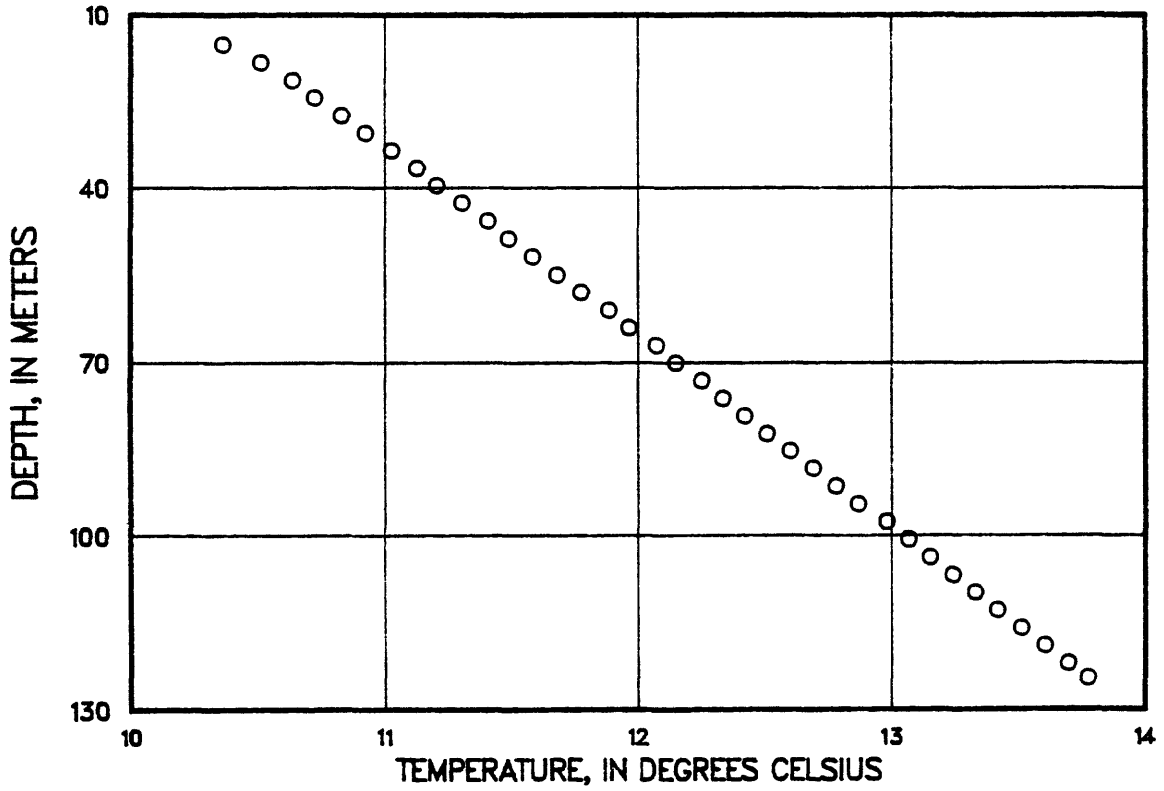


Fig. 96-Temperature profile from 17S-3E-02 NE.

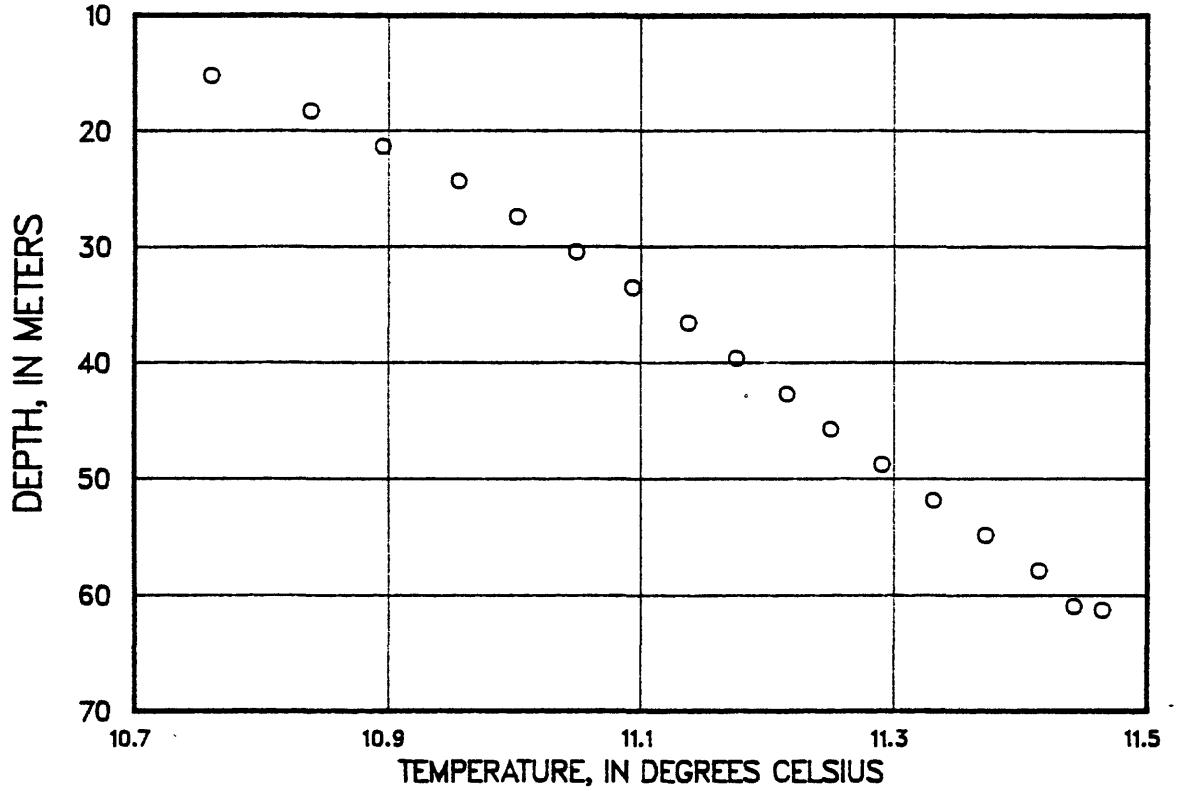


Fig. 97-Temperature profile from 17S-3E-04 SE.

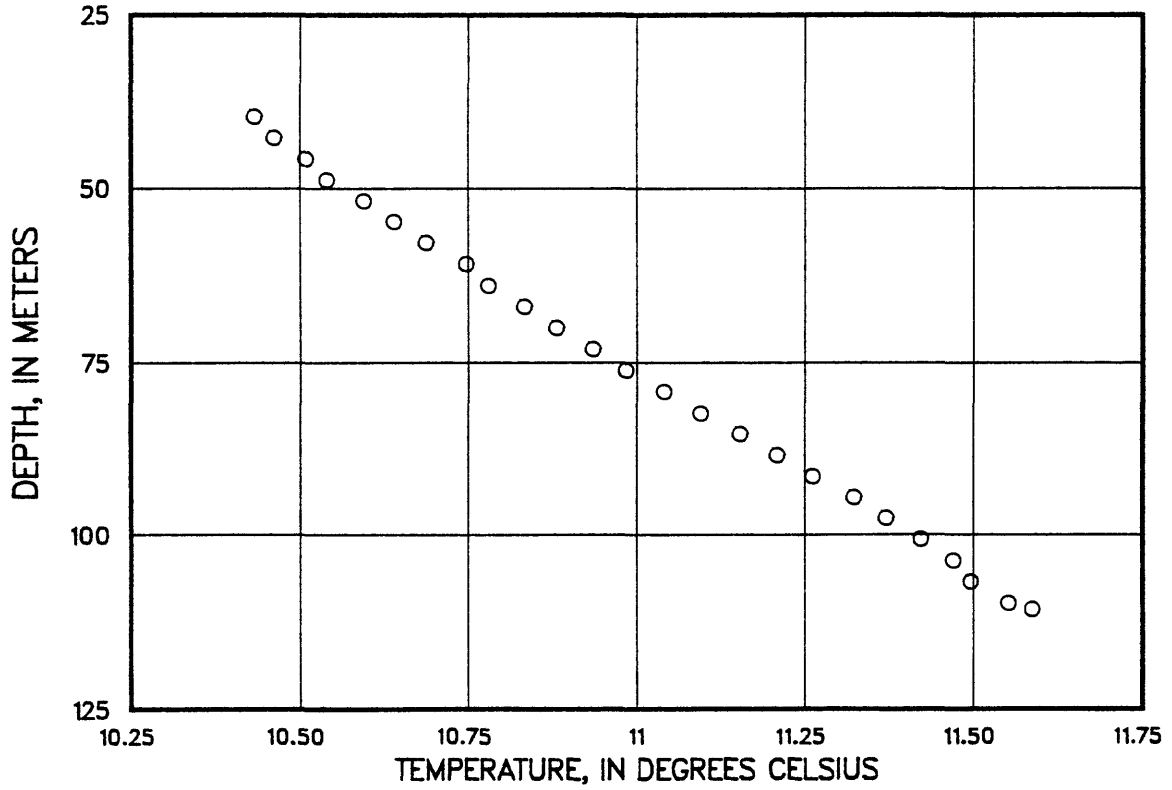


Fig. 98-Temperature profile from 17S-3E-10 NE.

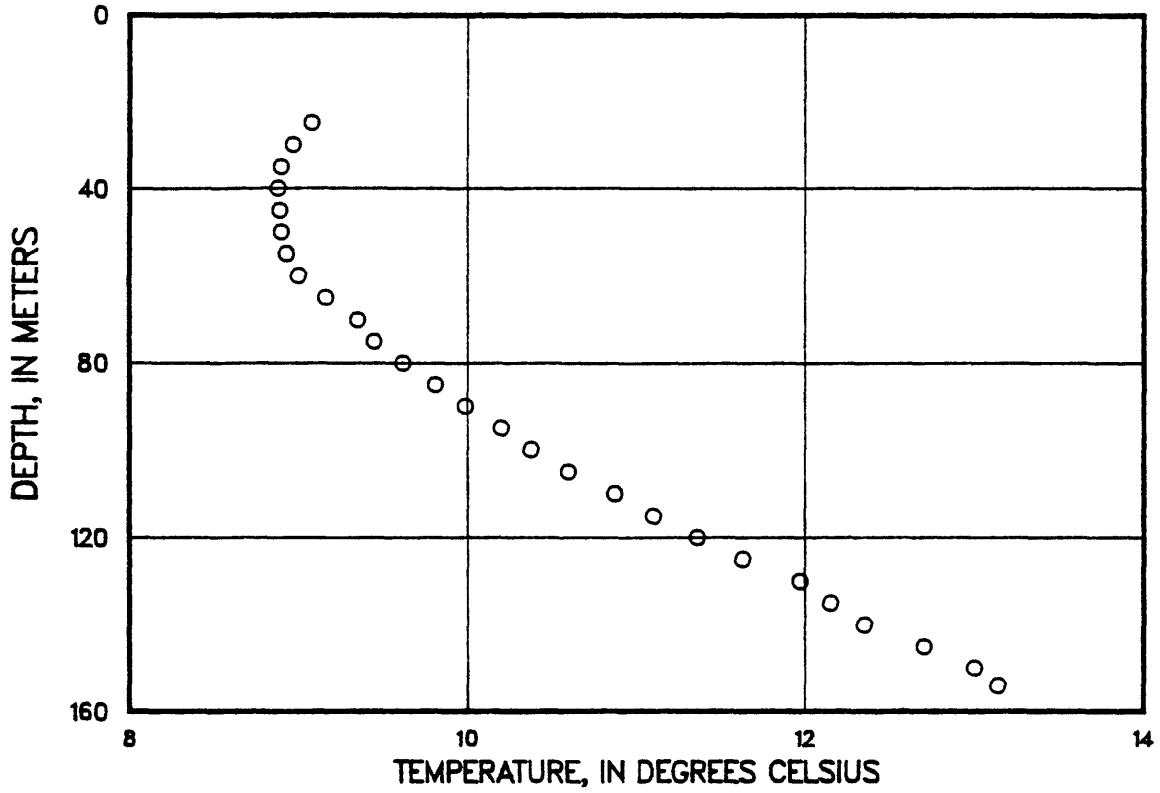


Fig. 99-Temperature profile from 17S-5E-08 NE.

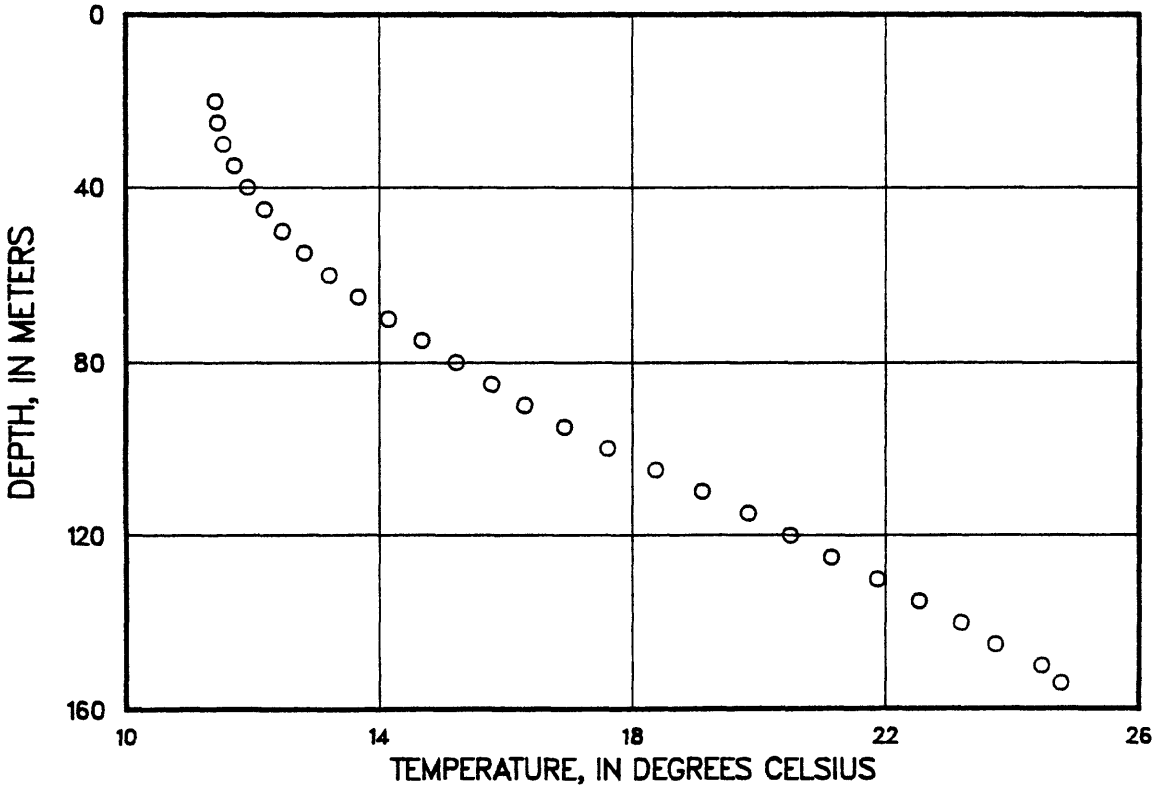


Fig. 100-Temperature profile from 17S-5E-20 NW.

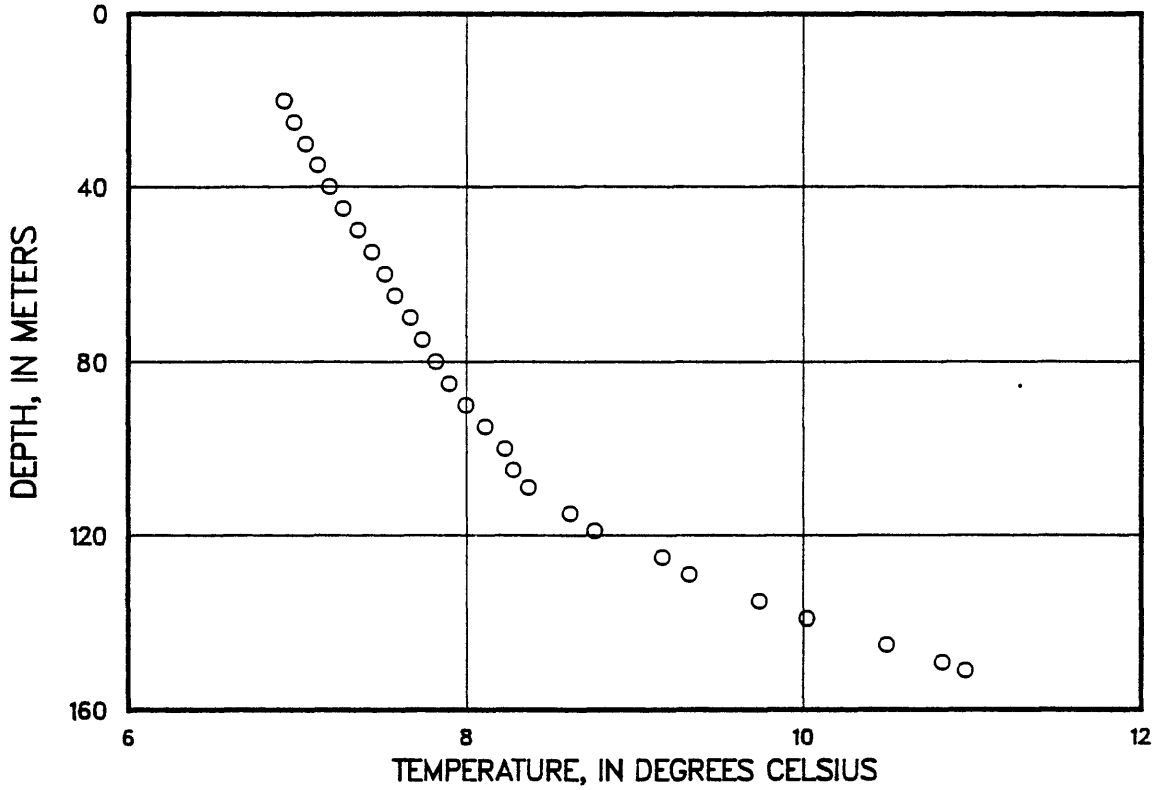


Fig. 101-Temperature profile from 17S-6E-25 NE.

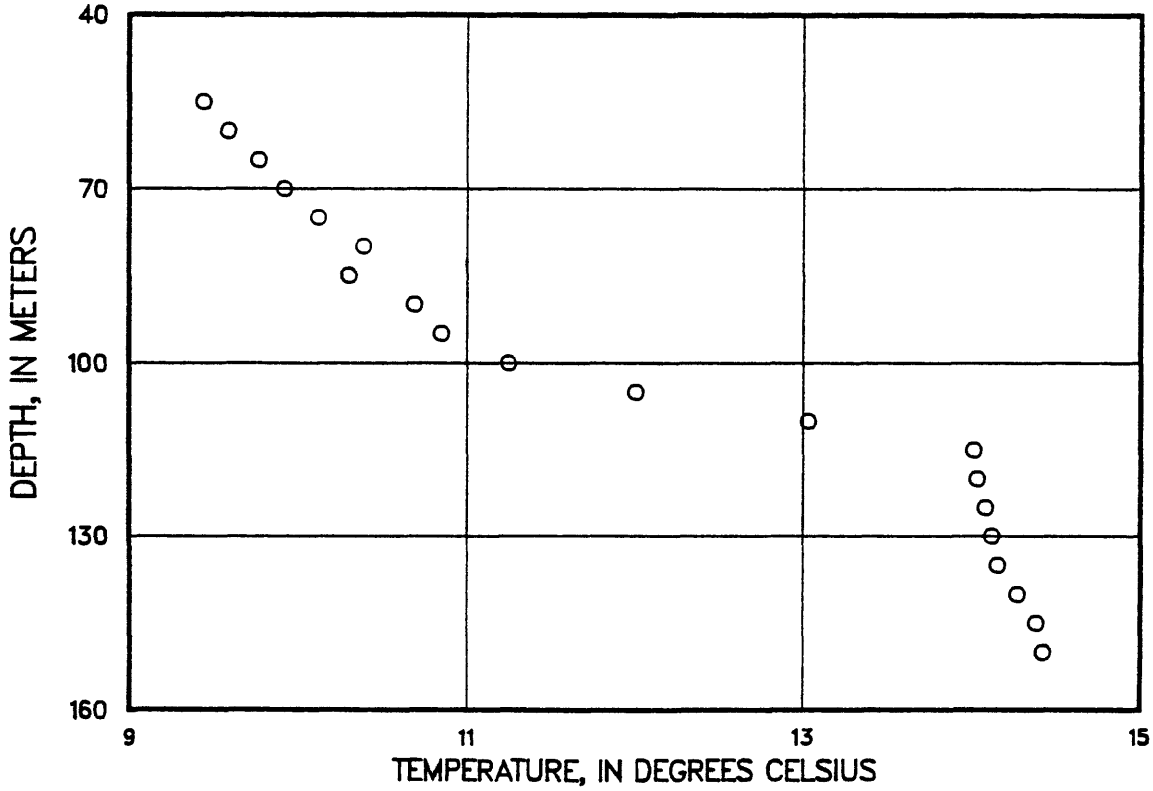


Fig. 102-Temperature profile from 18S-5E-11 NW.

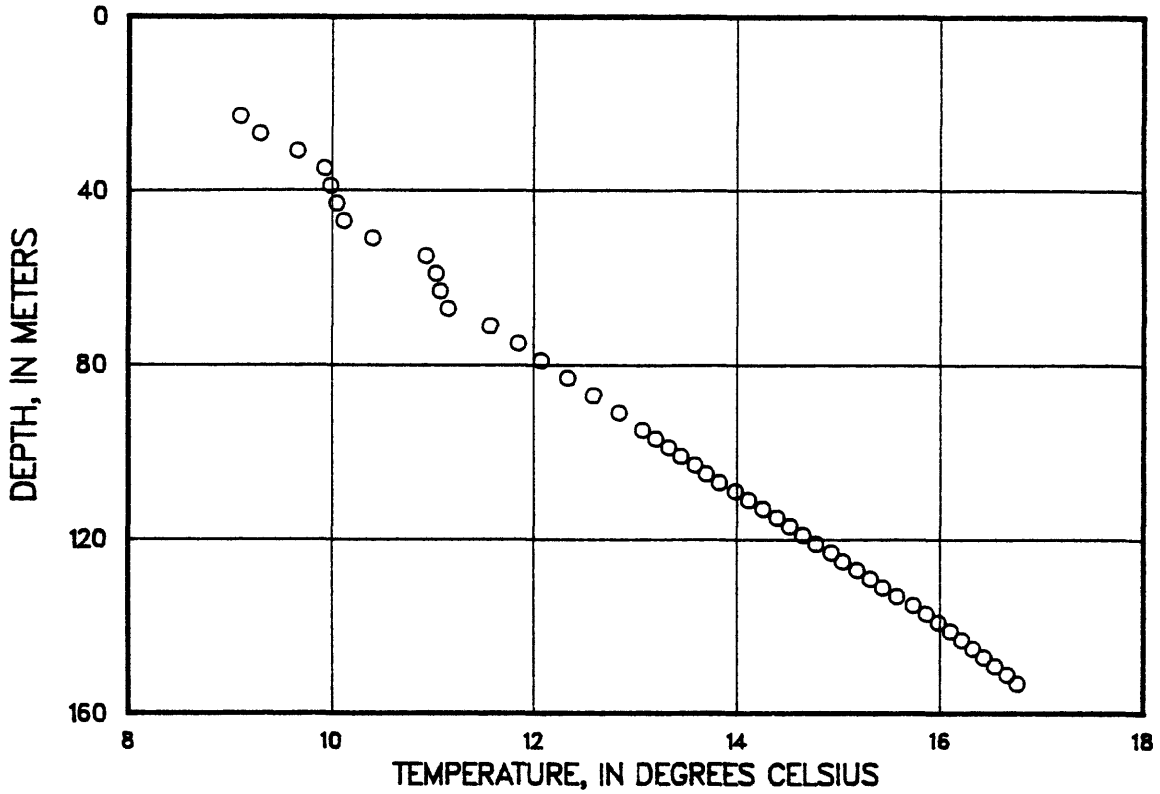


Fig. 103-Temperature profile from 19S-4E-29 SW.

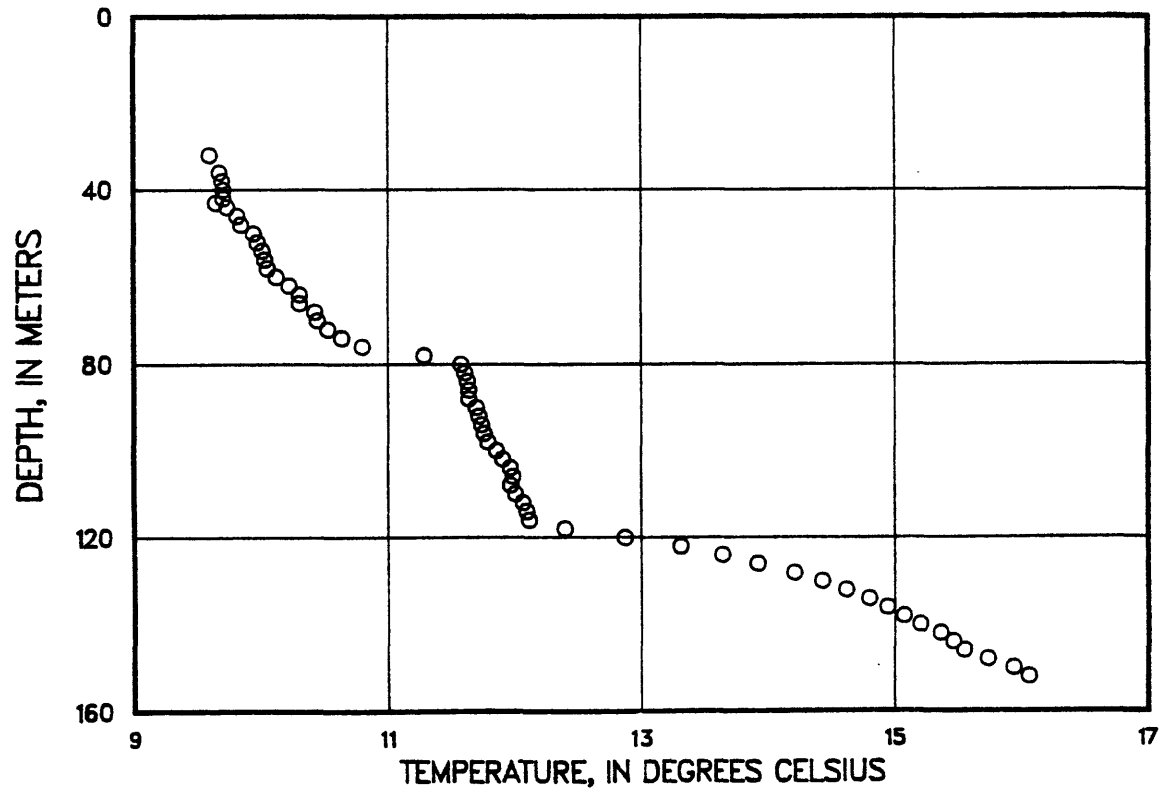


Fig. 104-Temperature profile from 19S-5E-27 NW.

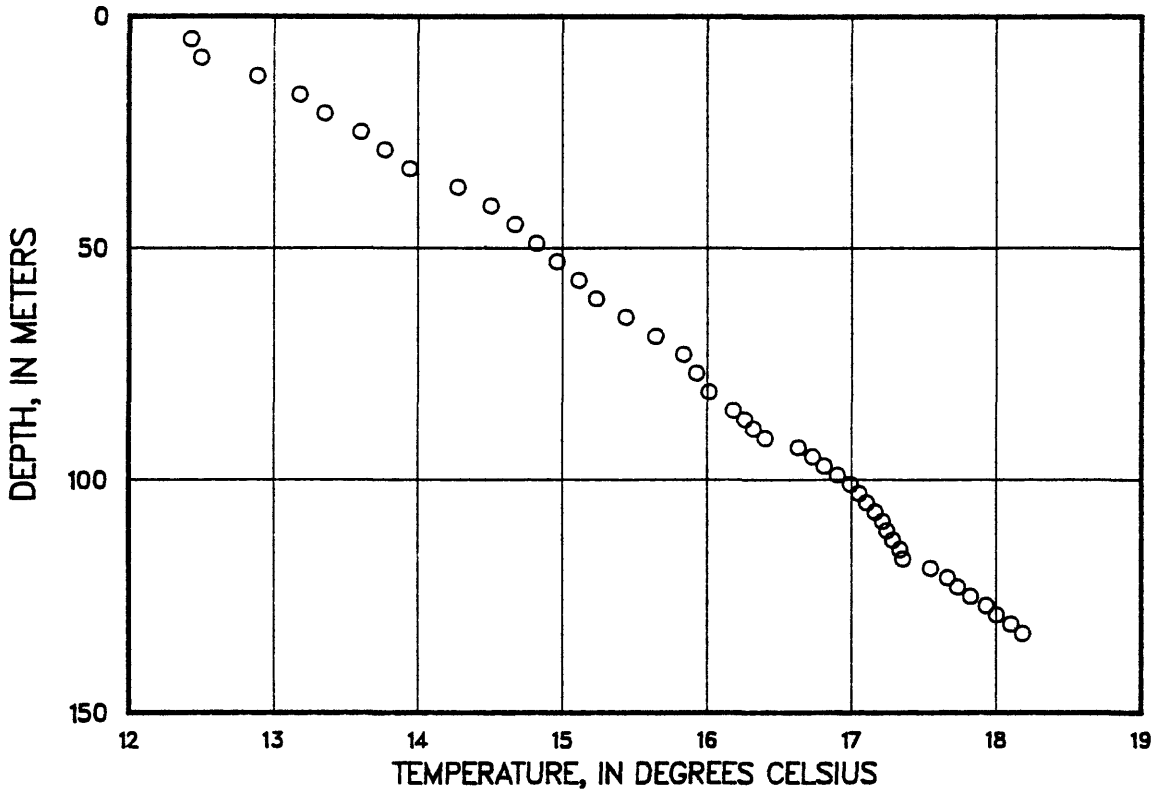


Fig. 105-Temperature profile from 19S-6E-08 NW.

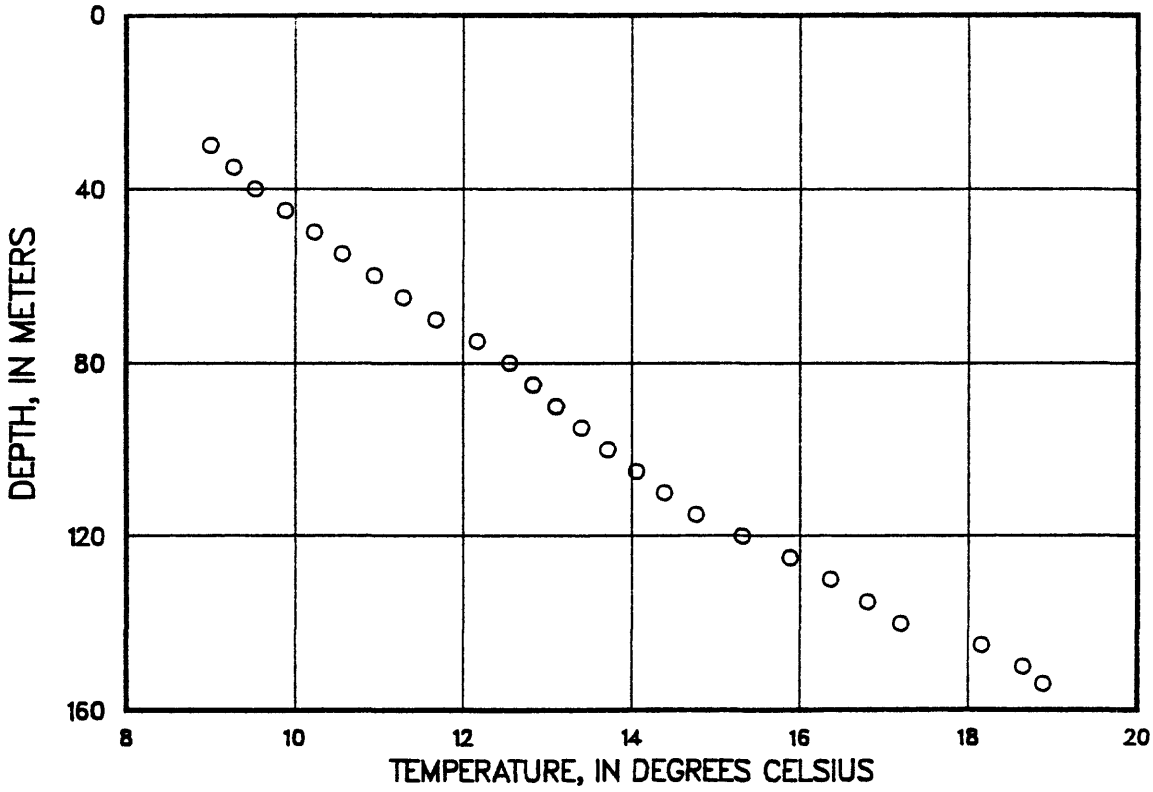


Fig. 106-Temperature profile from 19S-6E-25 SE.

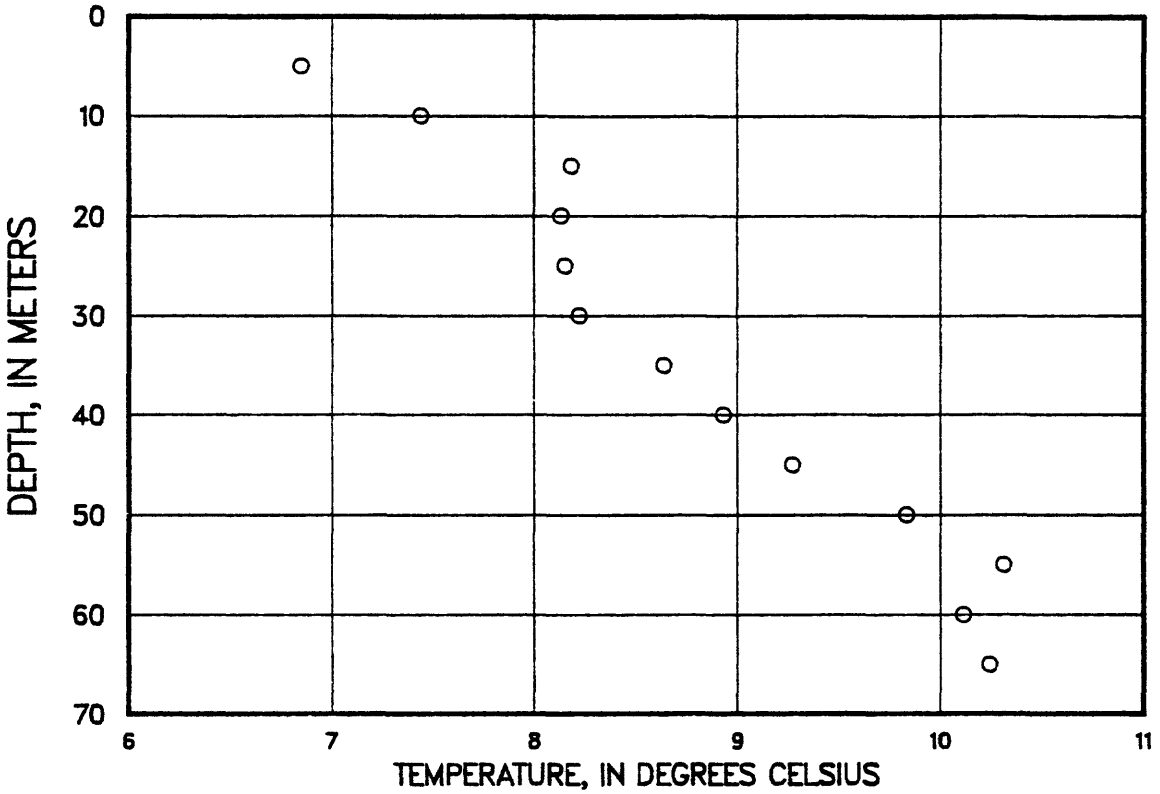


Fig. 107-Temperature profile from 3S-7E-03 NE.

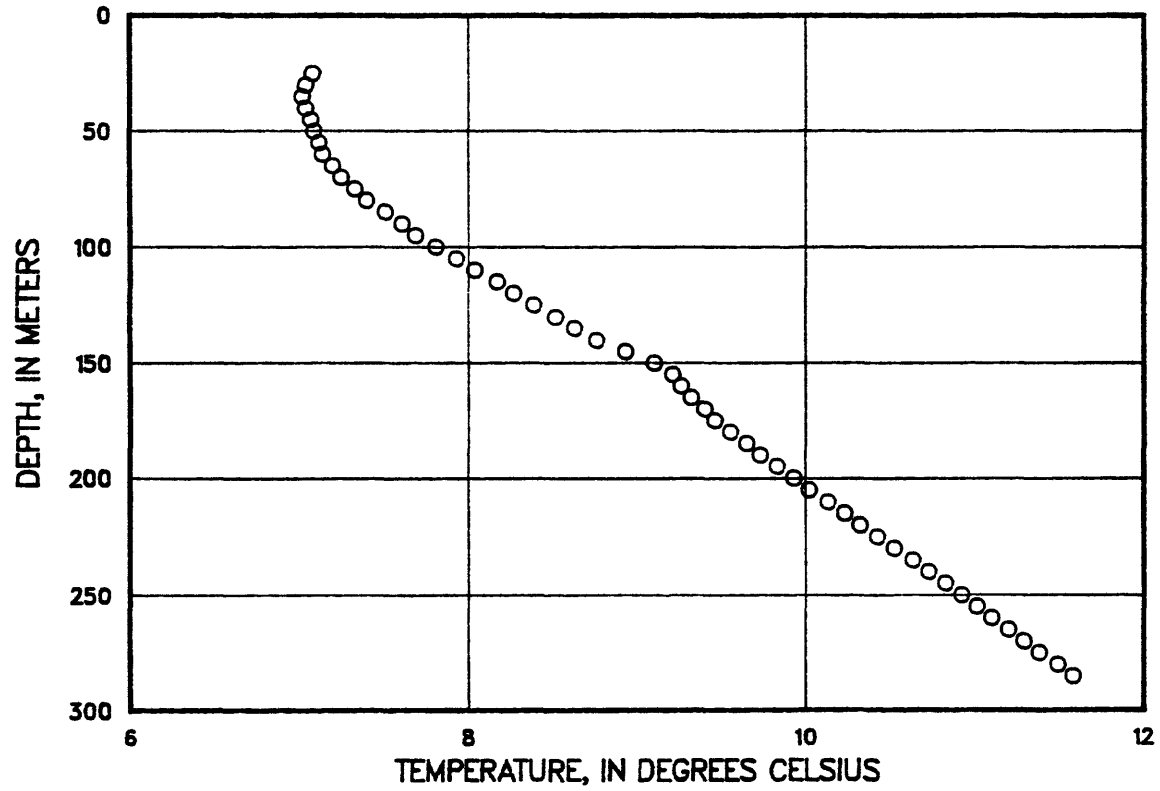


Fig. 108-Temperature profile from 3S-8E-14 NW.

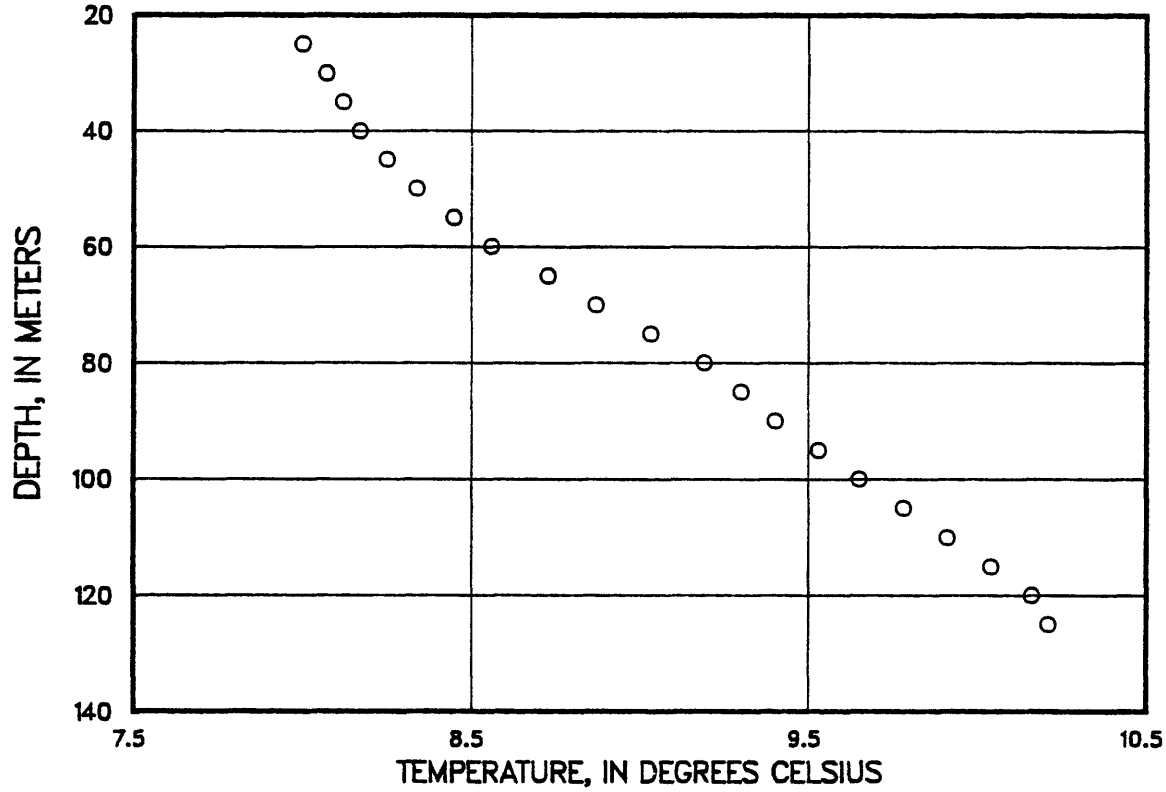


Fig. 109-Temperature profile from 3S-8E-16 SW.

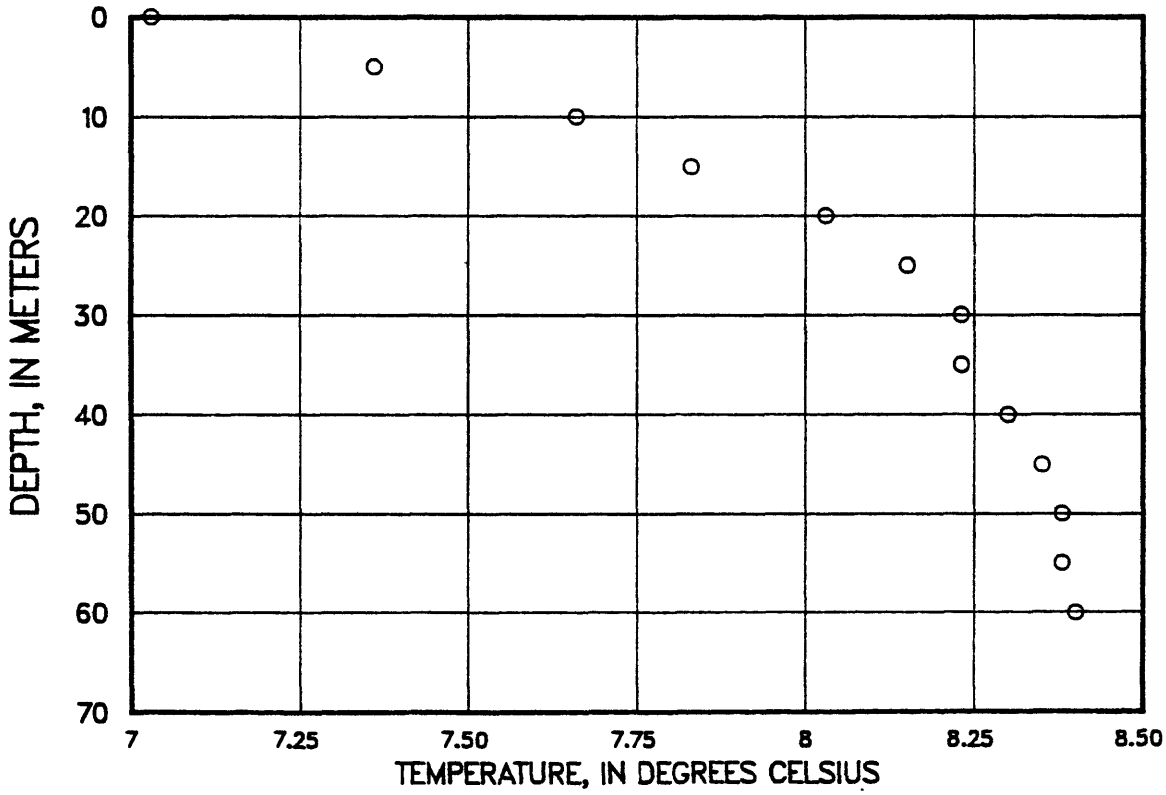


Fig. 110-Temperature profile from 3S-8E-24 NW.

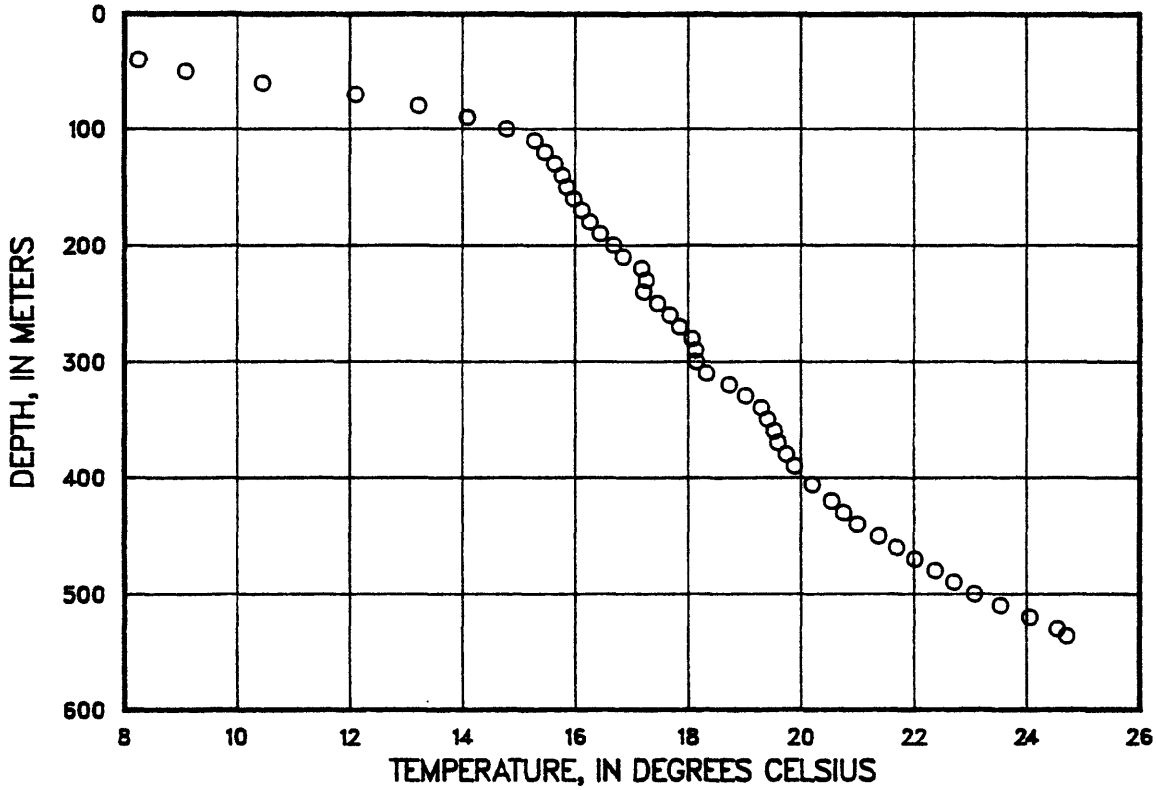


Fig. 111-Temperature profile from 3S-8E-24 NE.

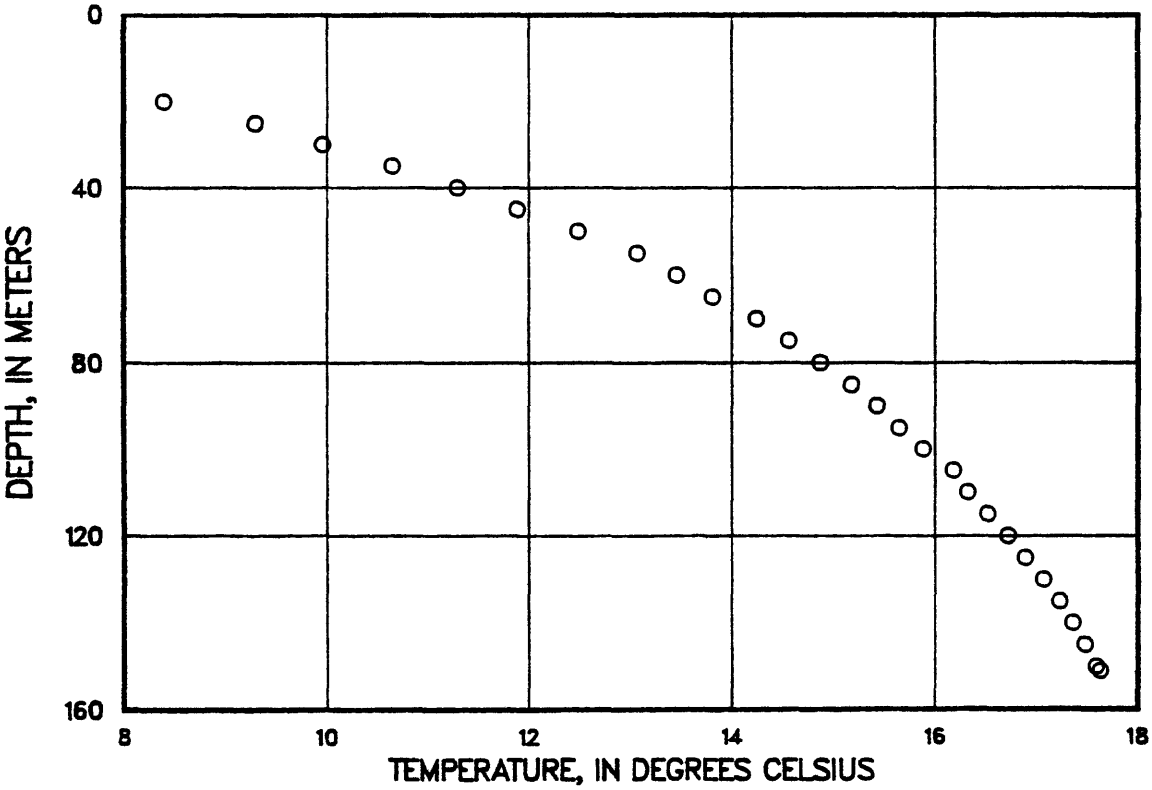


Fig. 112-Temperature profile from 3S-8E-29 SE.

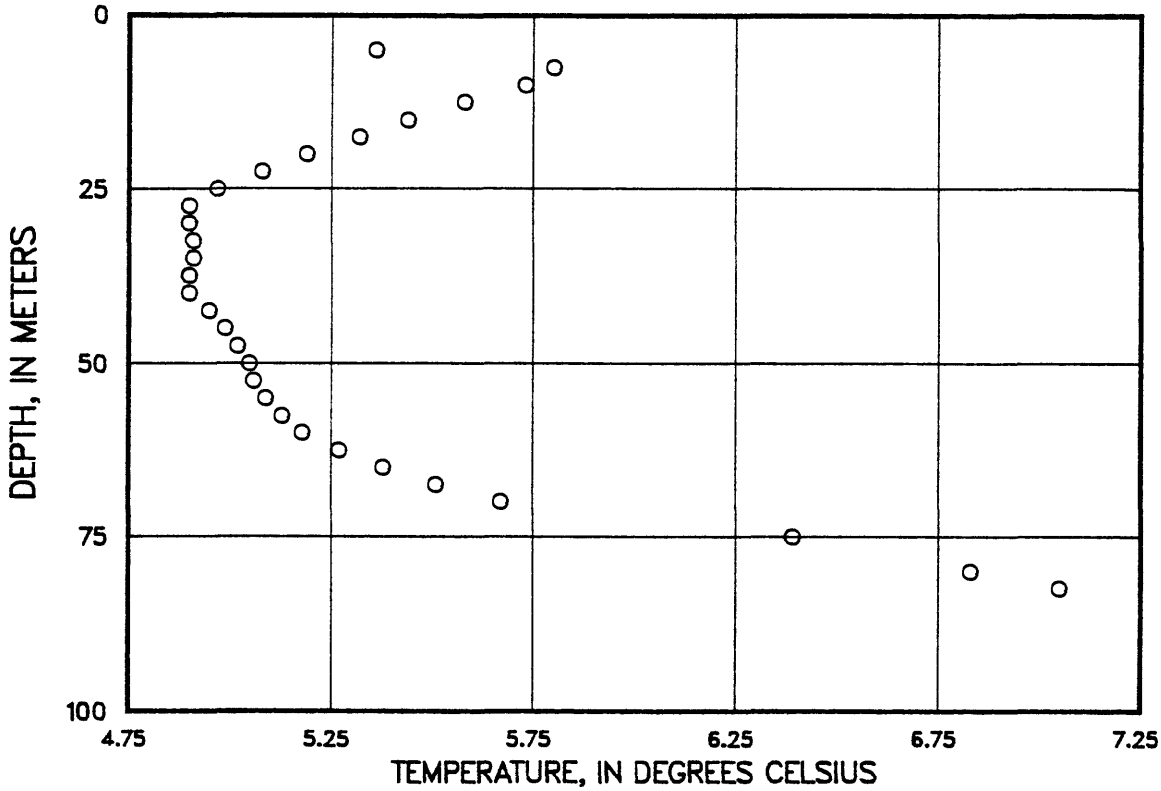


Fig. 113-Temperature profile from 3S-8.5E-25 NE.

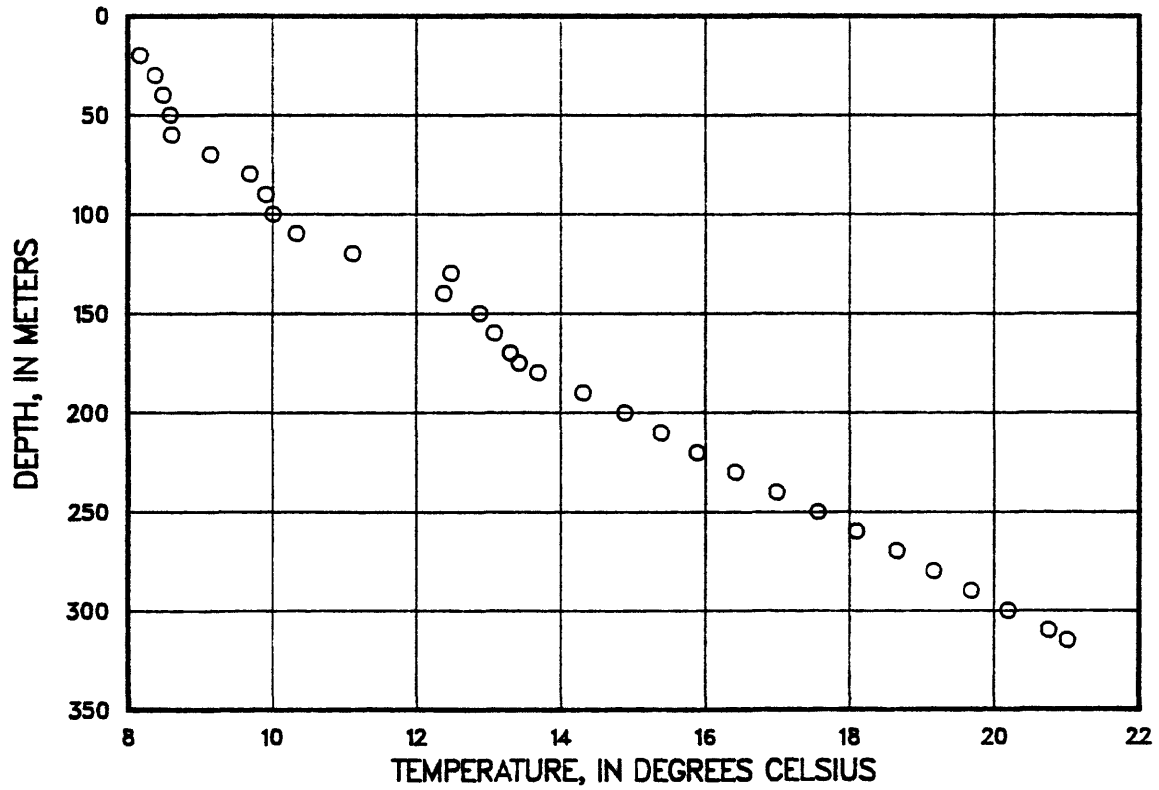


Fig. 114-Temperature profile from 3S-8.5E-25 SW.

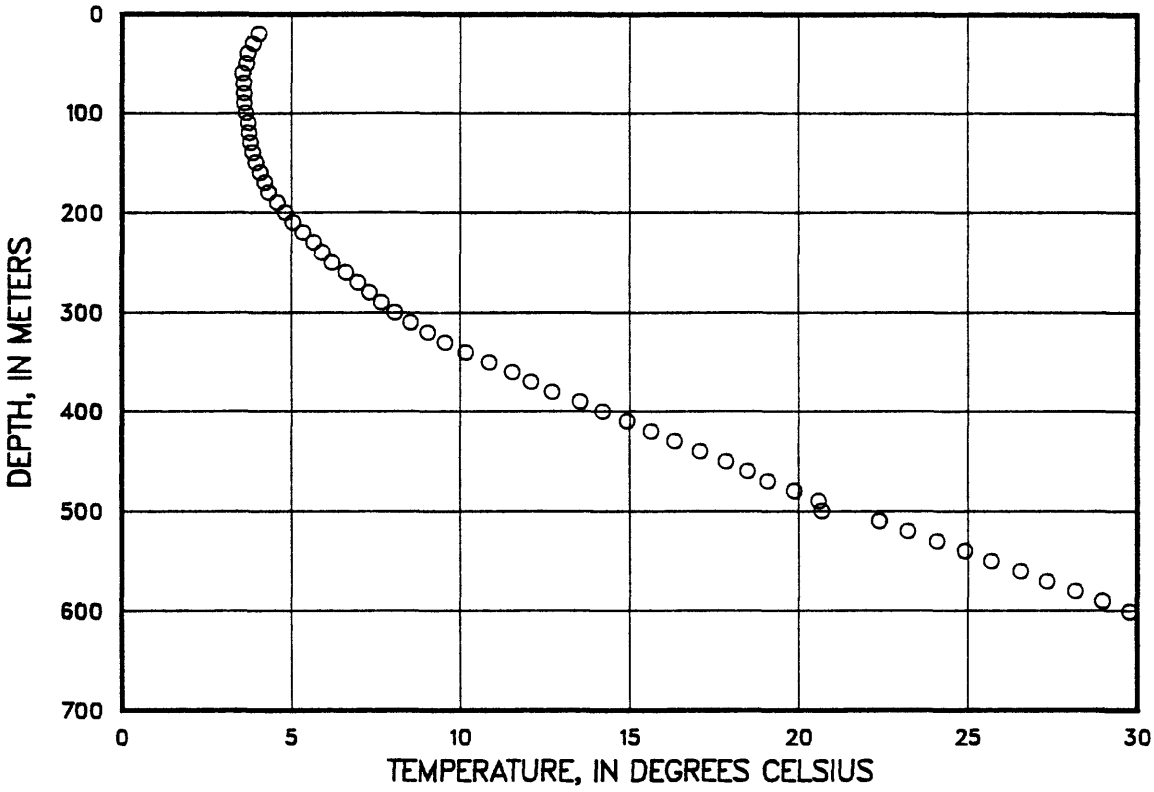


Fig. 115-Temperature profile from 3S-9E-03 SW.

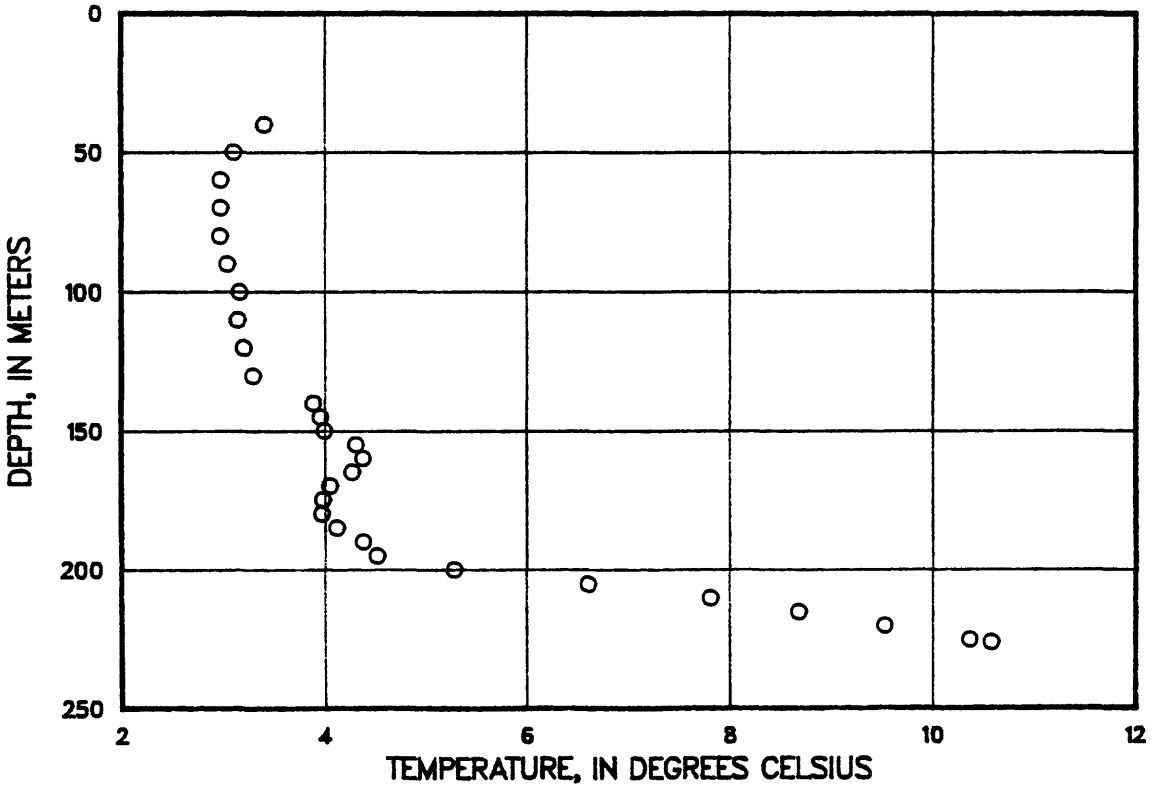


Fig. 116-Temperature profile from 3S-9E-07 NE.

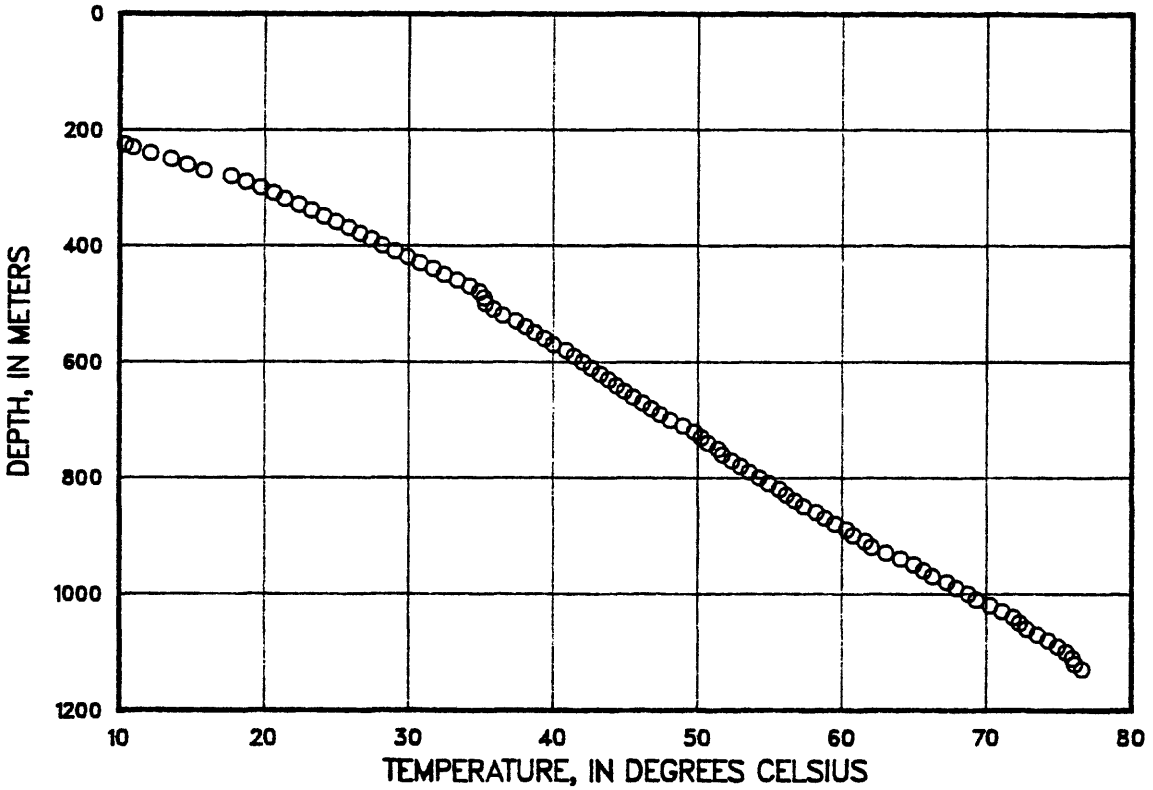


Fig. 117-Temperature profile from 3S-9E-07 SE.

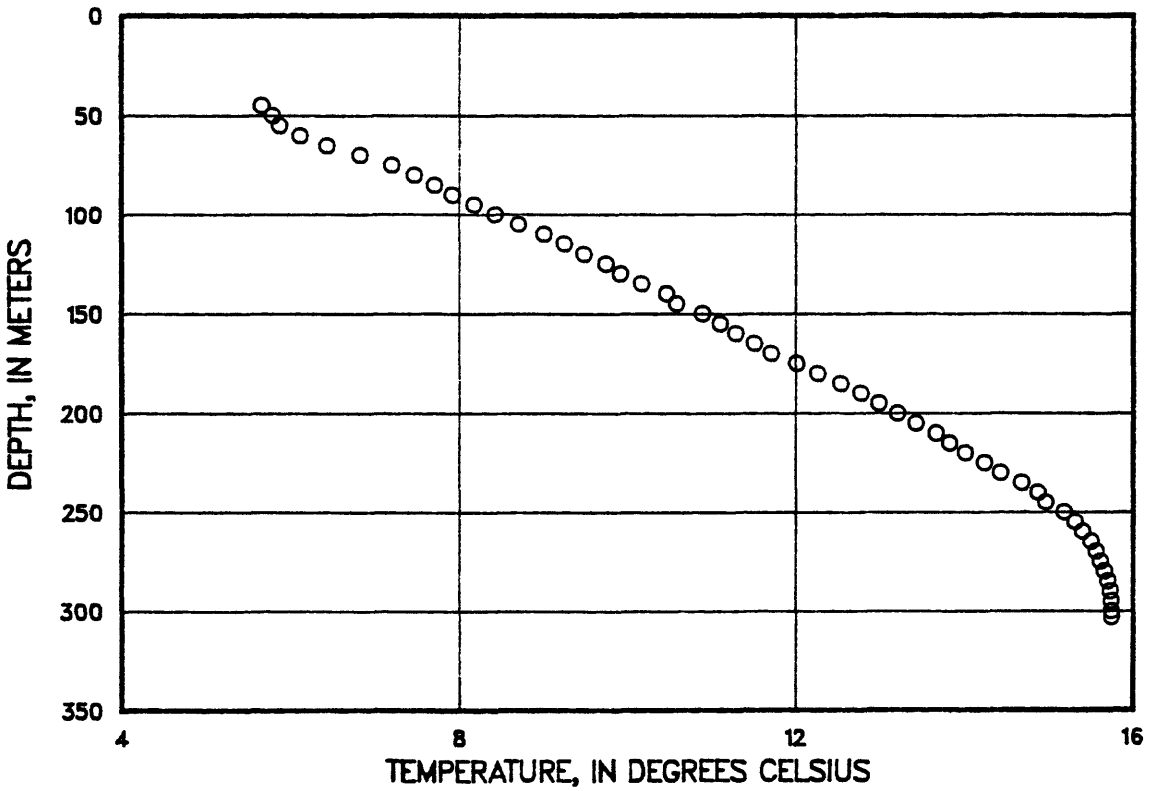


Fig. 118-Temperature profile from 3S-9E-16 SW.

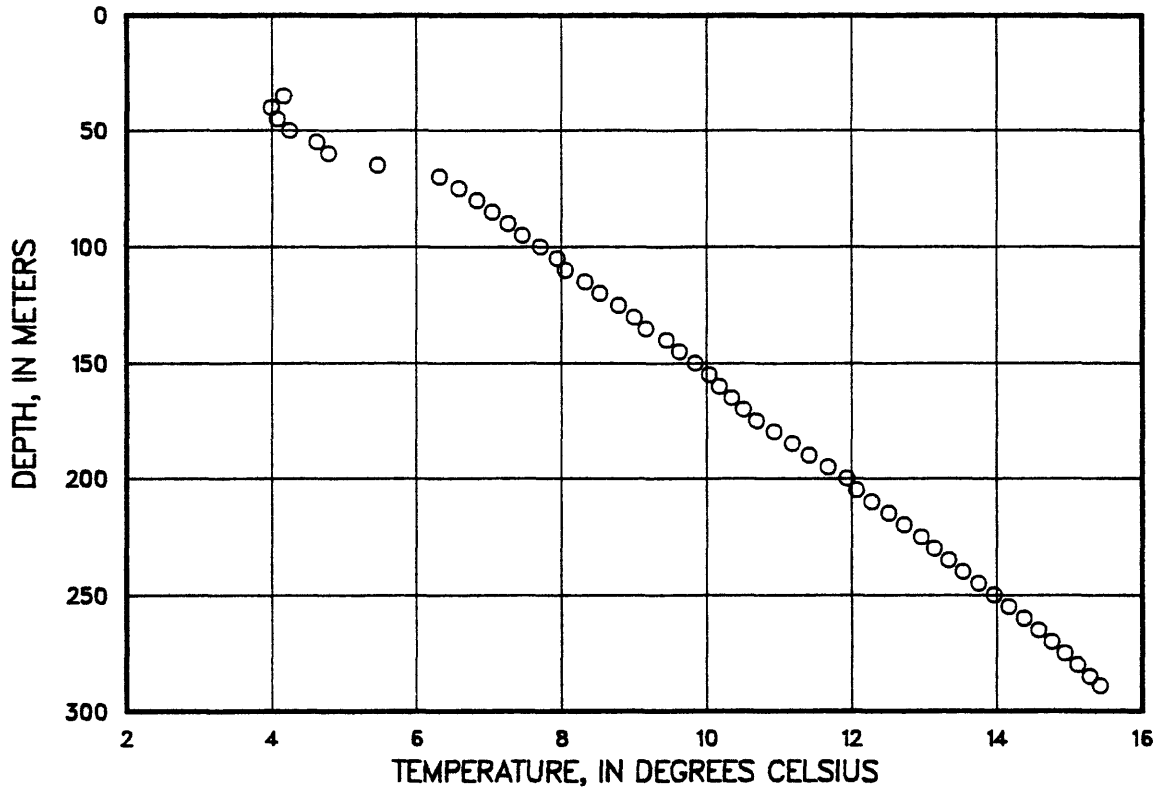


Fig. 119-Temperature profile from 3S-9E-30 NE.

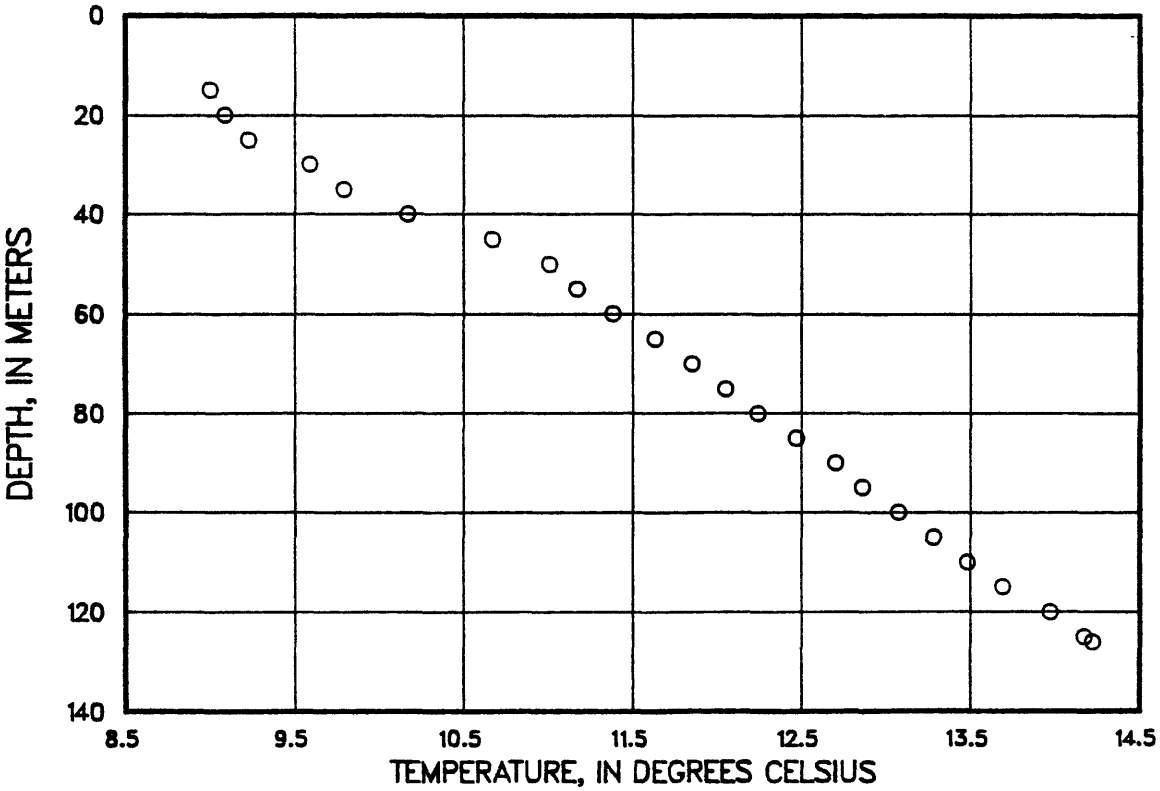


Fig. 120-Temperature profile from 3S-11E-01 NE.

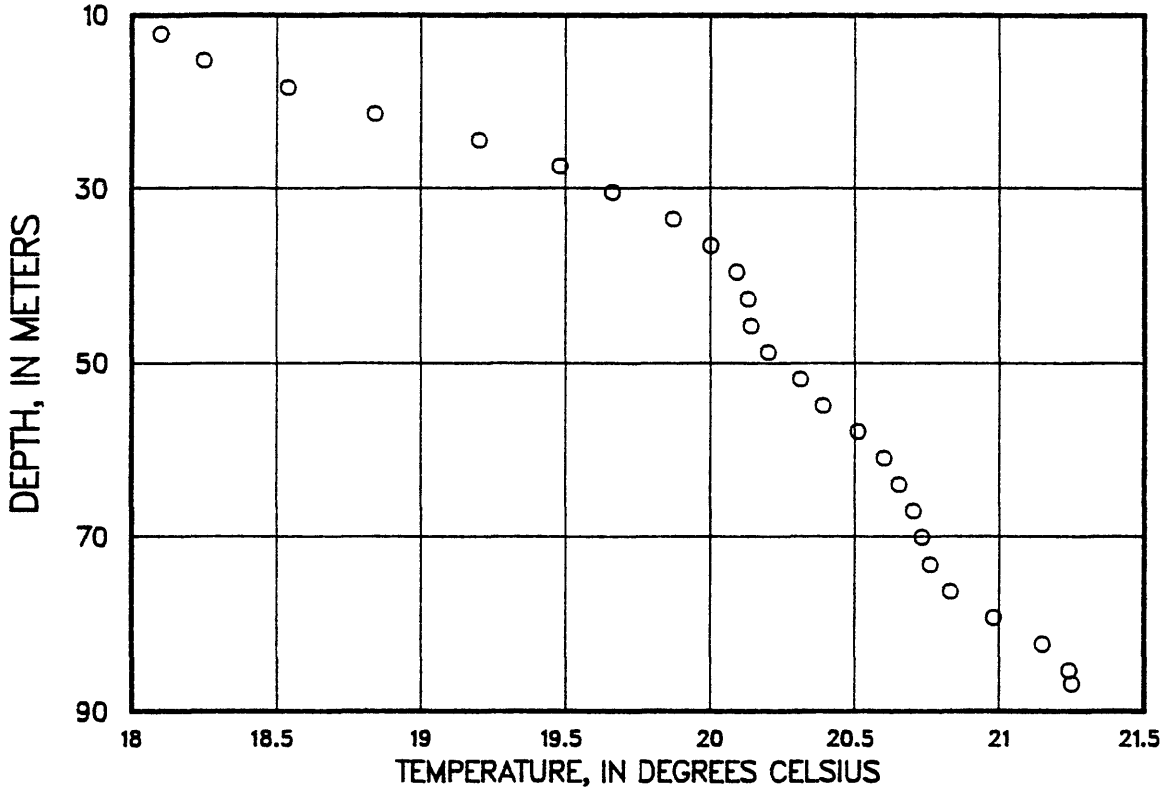


Fig. 121-Temperature profile from 3S-13E-31 NW.

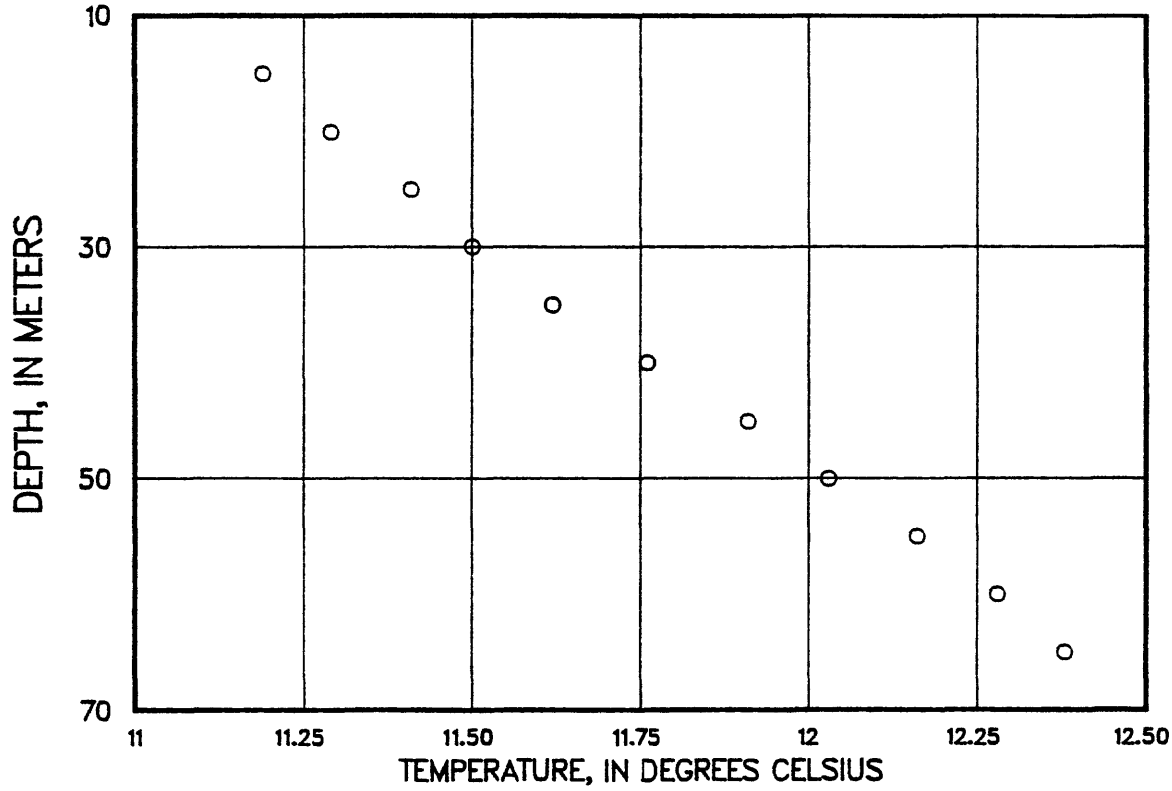


Fig. 122-Temperature profile from 3S-14E-07 SE.

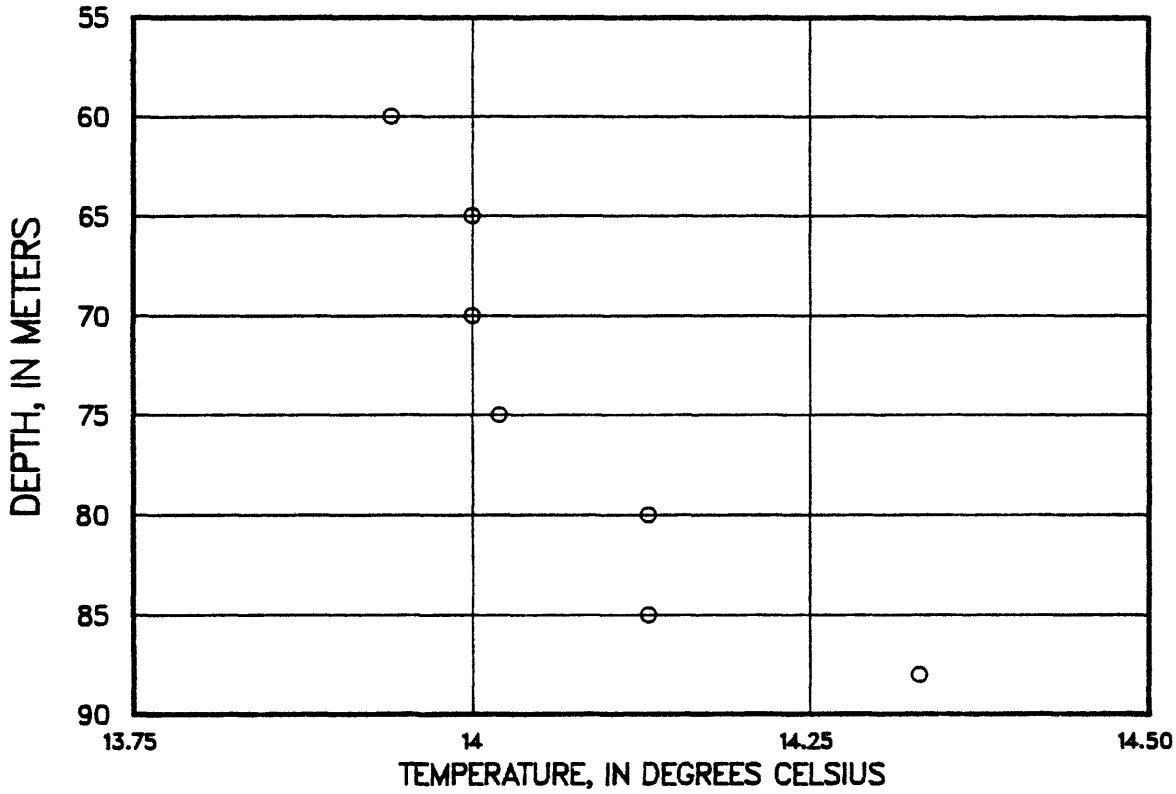


Fig. 123-Temperature profile from 4S-12E-10 SE.

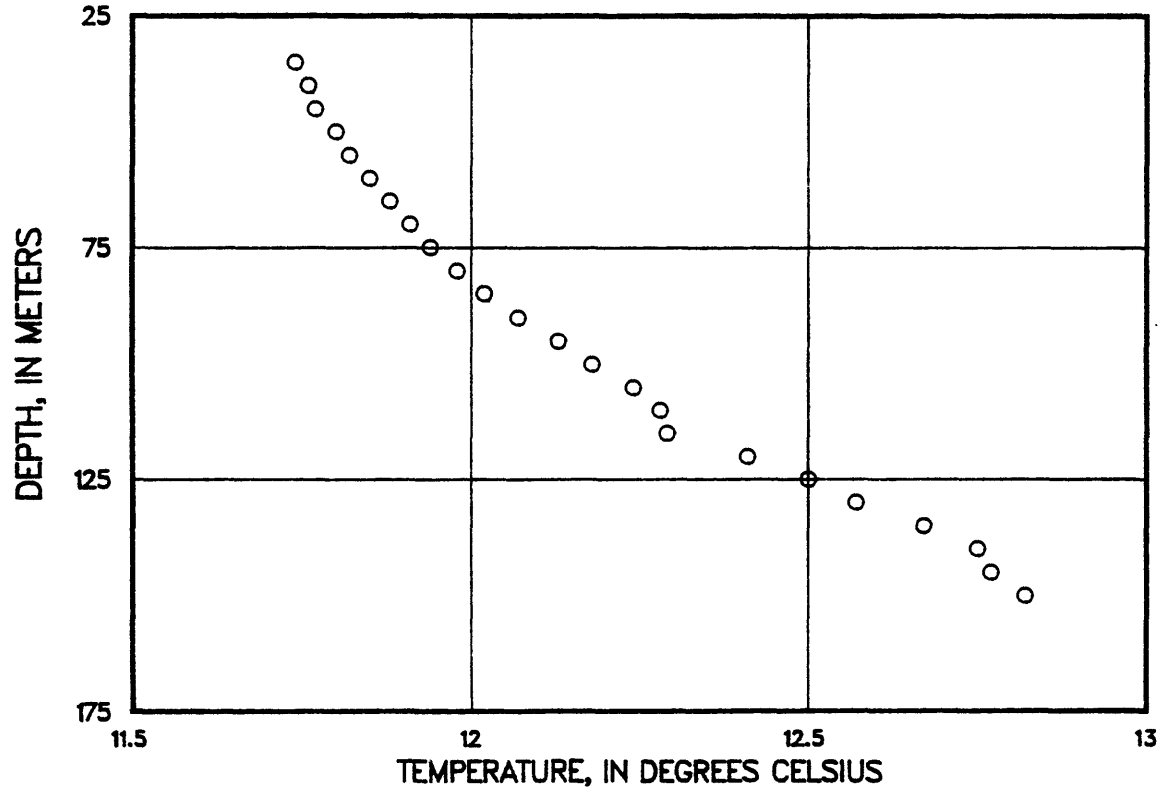


Fig. 124-Temperature profile from 4S-12E-17 NW.

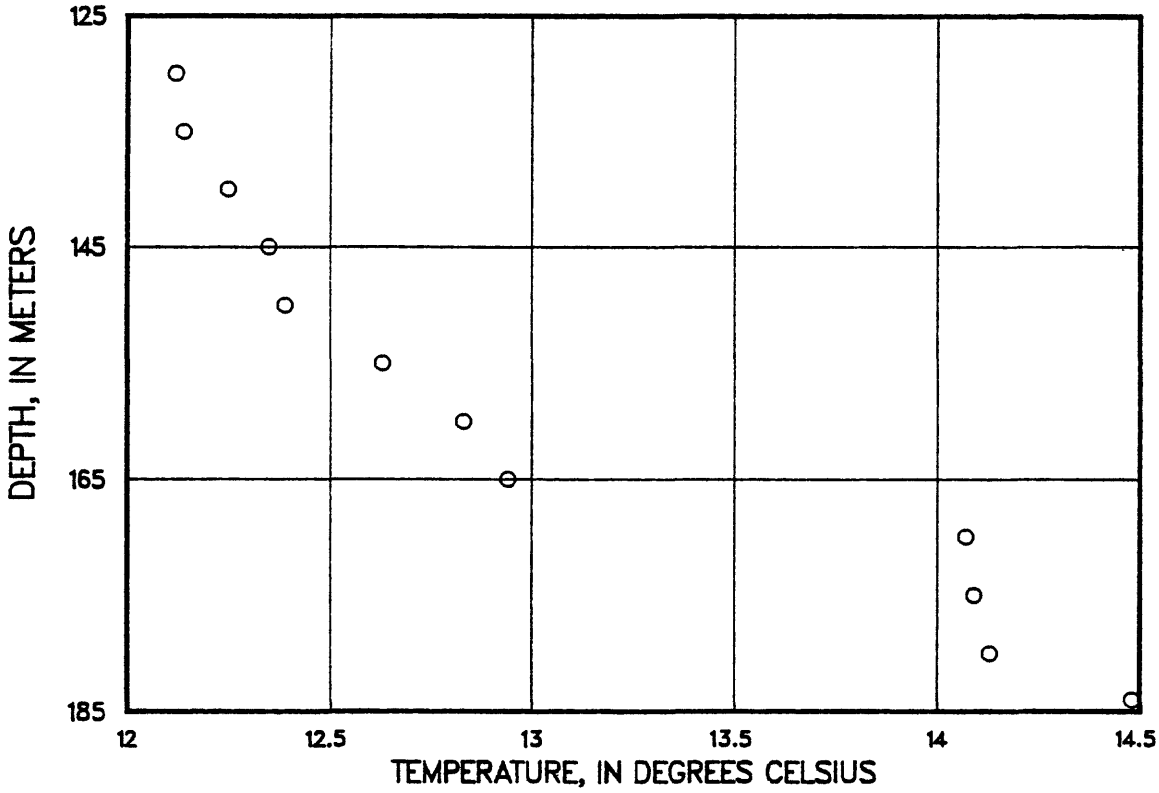


Fig. 125-Temperature profile from 4S-12E-17 SW.

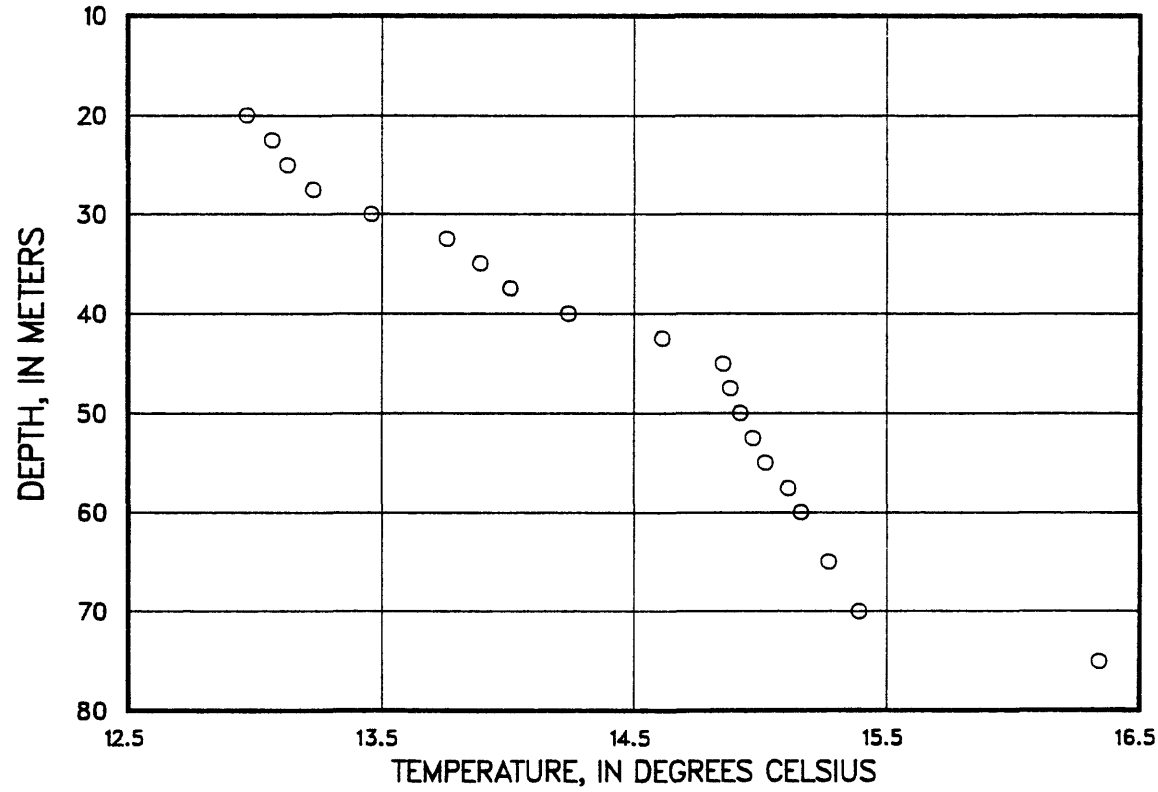


Fig. 126-Temperature profile from 4S-13E-01 SW.

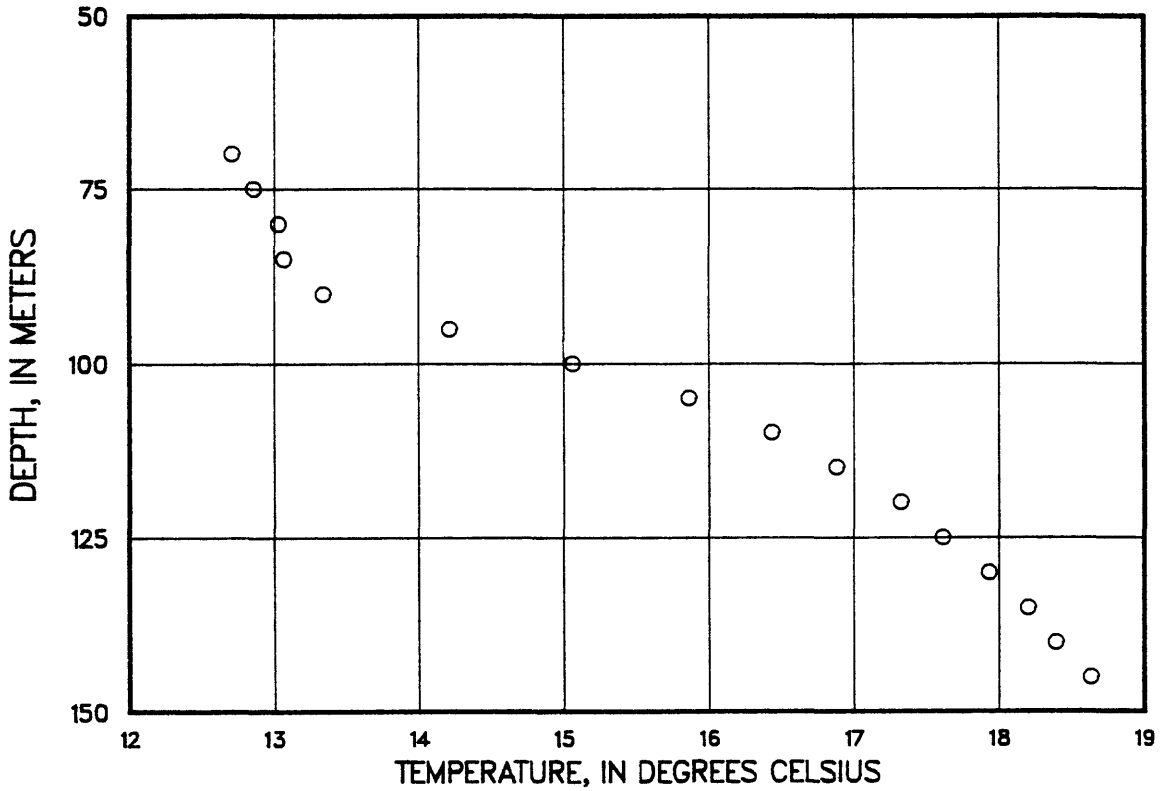


Fig. 127-Temperature profile from 4S-13E-32 SE.

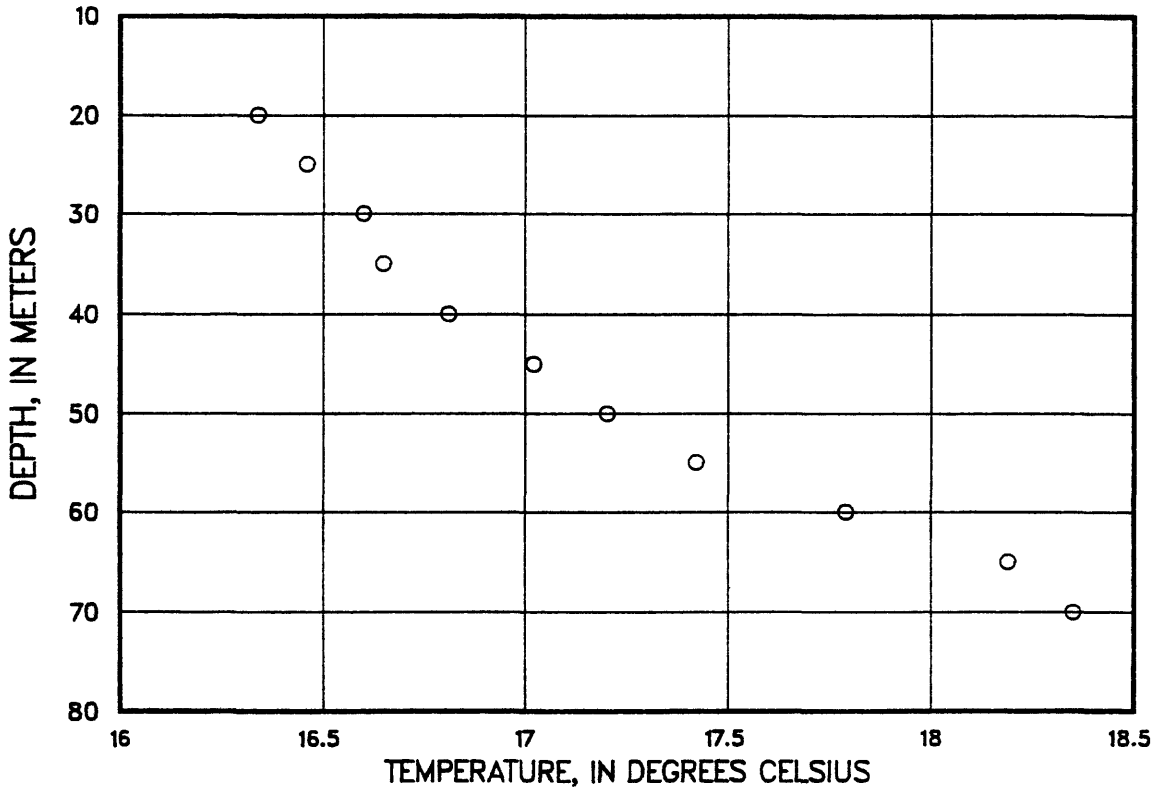


Fig. 128-Temperature profile from 4S-14E-33 SW.

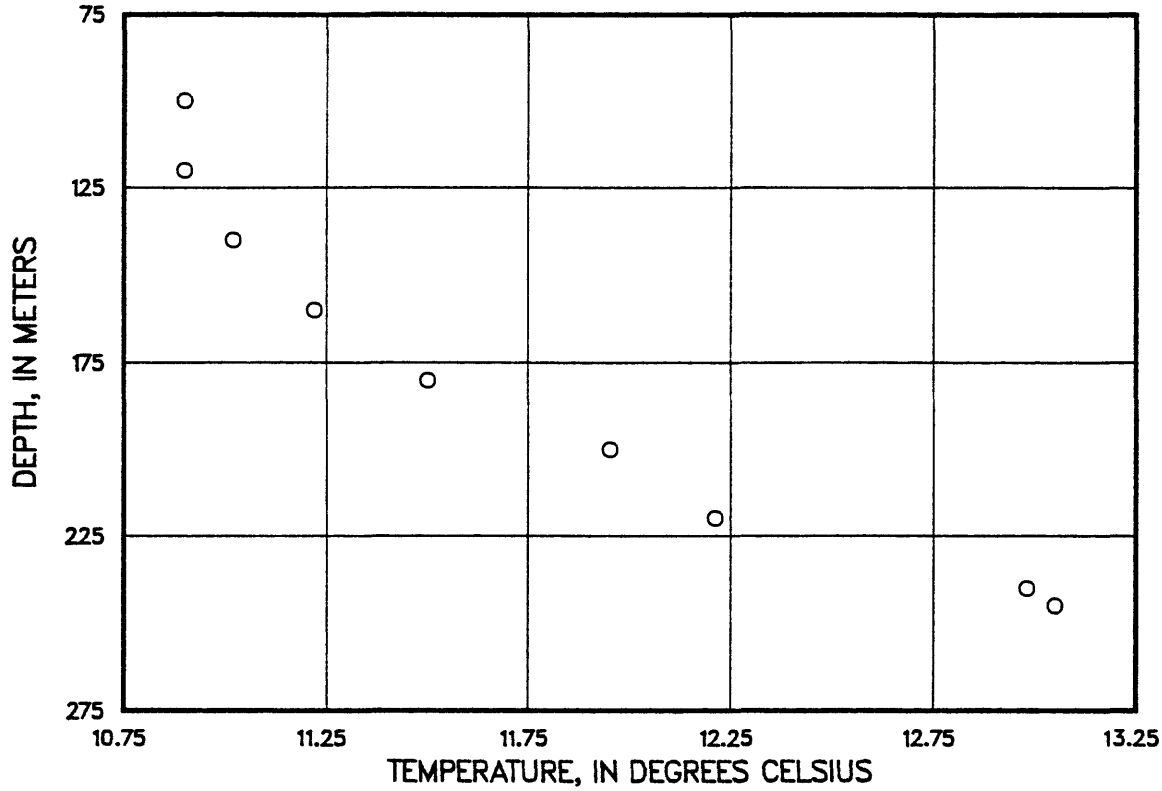


Fig. 129-Temperature profile from 5S-11E-14 SE.

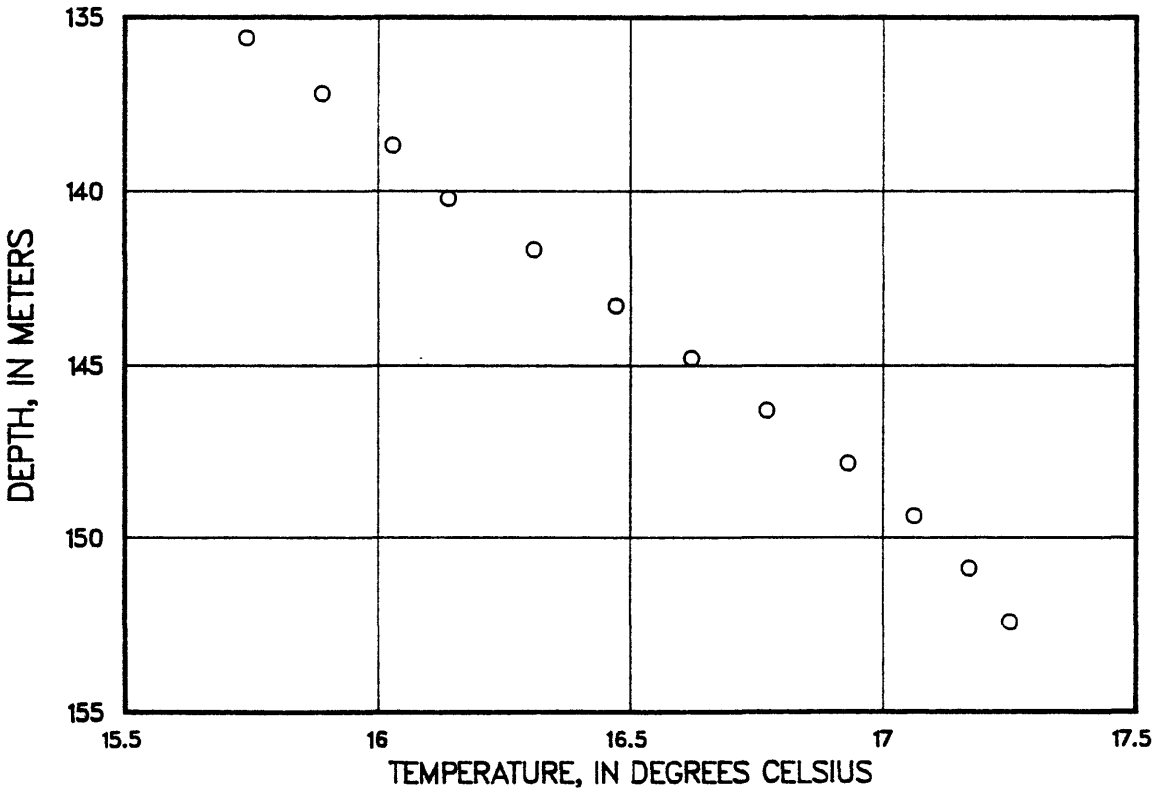


Fig. 130-Temperature profile from 5S-11E-25 SE.

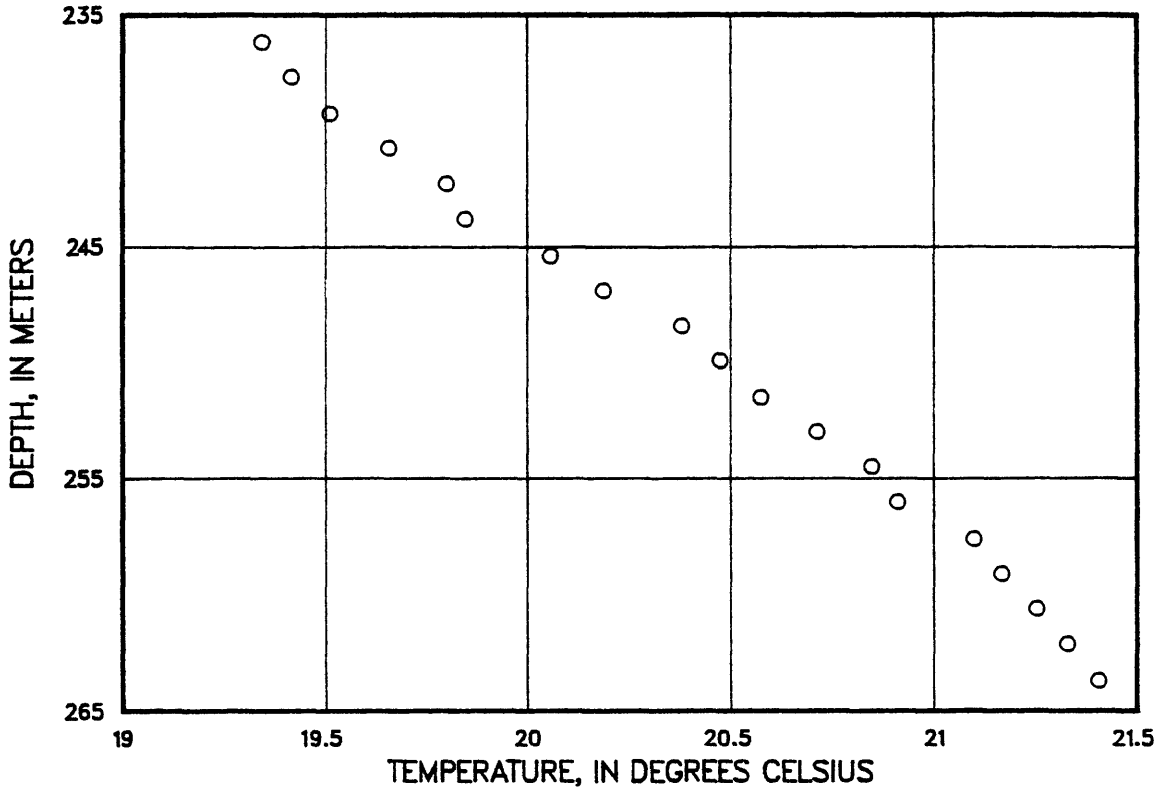


Fig. 131-Temperature profile from 5S-11E-26 NE.

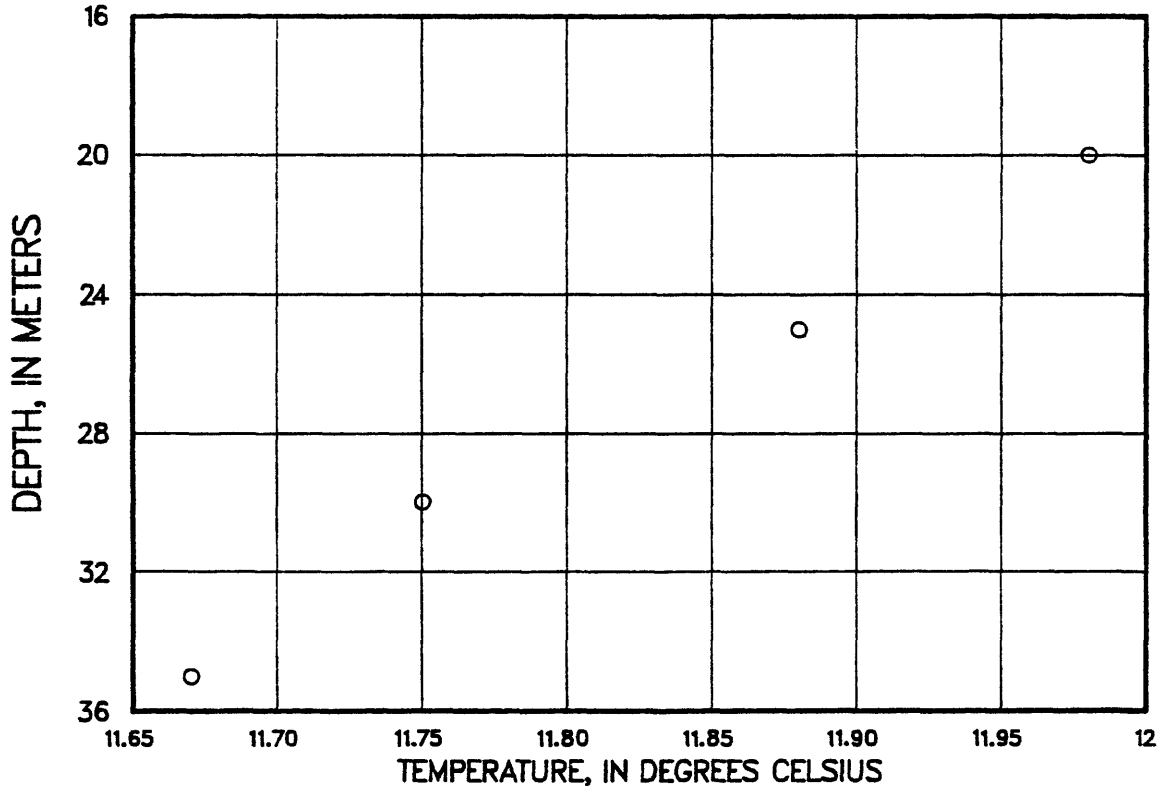


Fig. 132-Temperature profile from 5S-12E-08 NW.

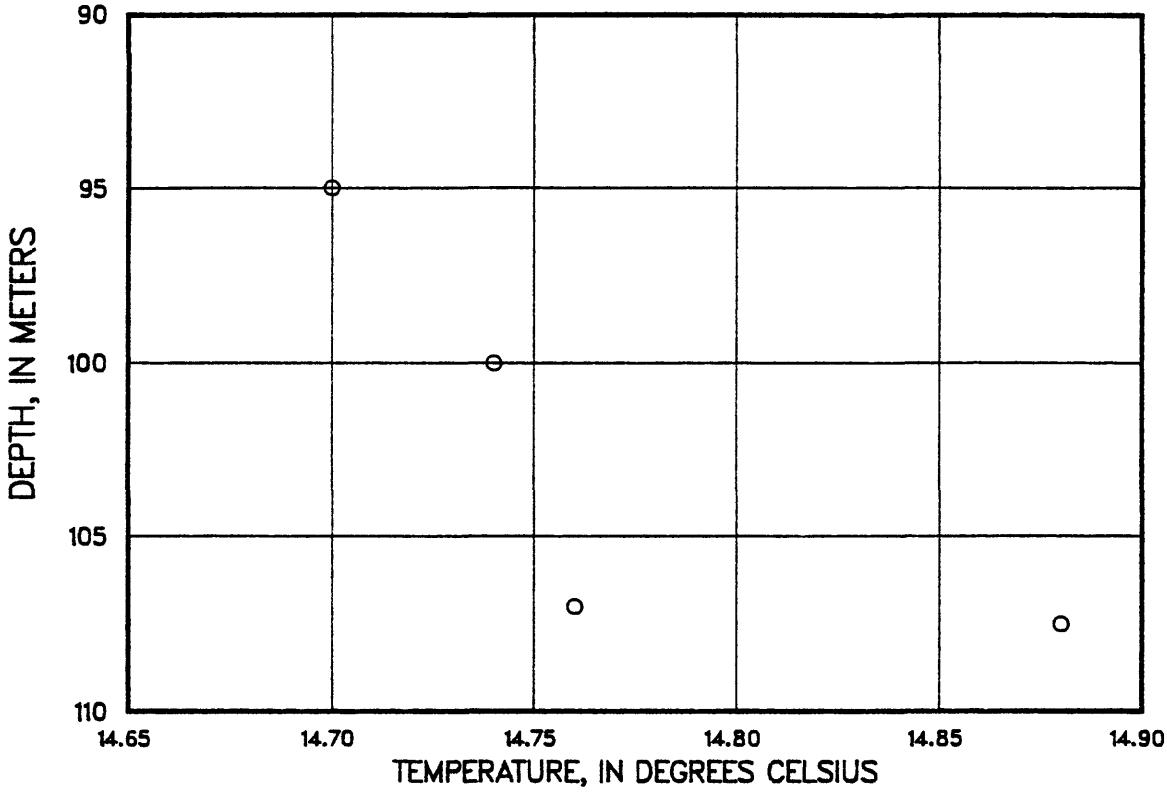


Fig. 133-Temperature profile from 5S-12E-31 NE.

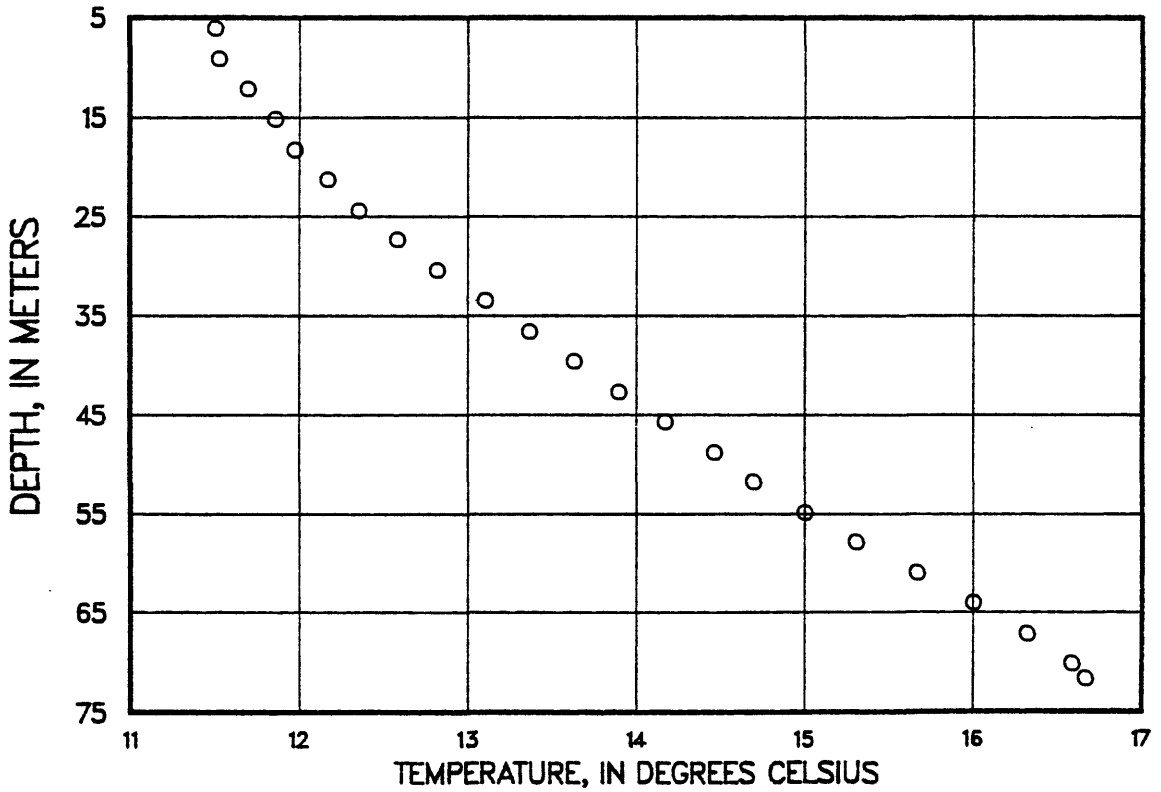


Fig. 134-Temperature profile from 6S-11E-11 SW.

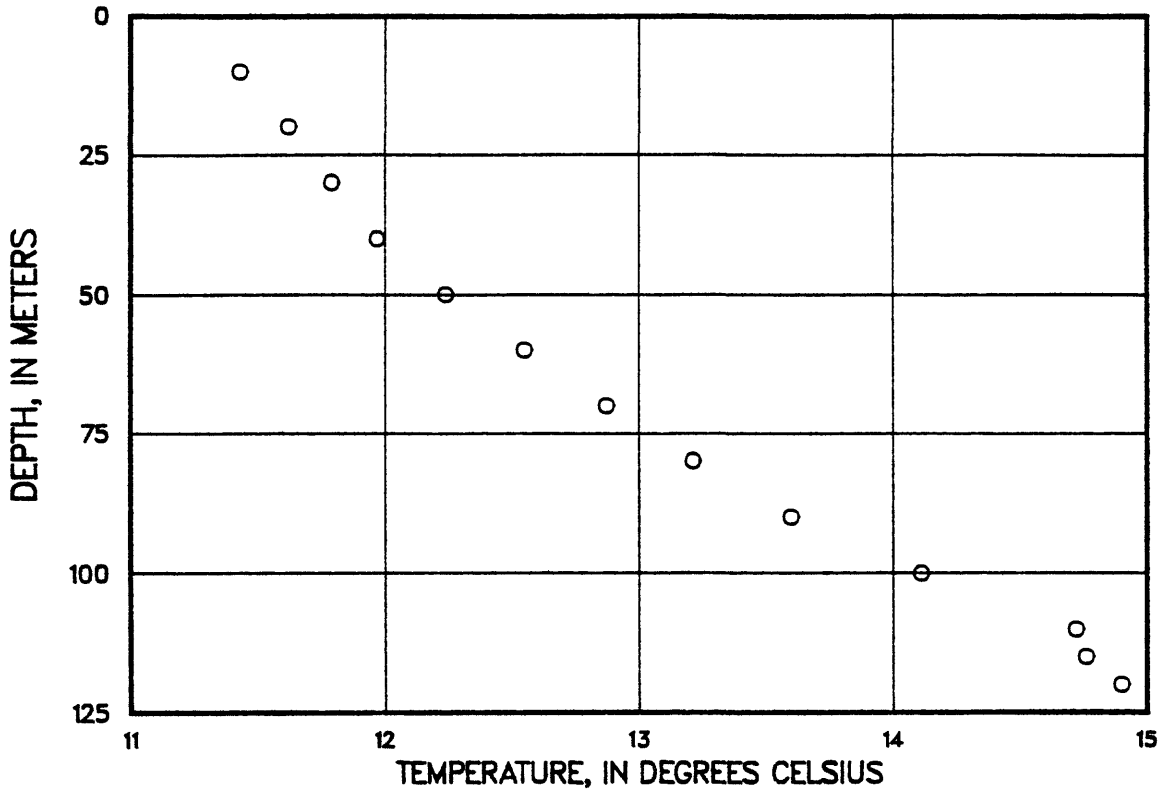


Fig. 135-Temperature profile from 6S-14E-13 SE.

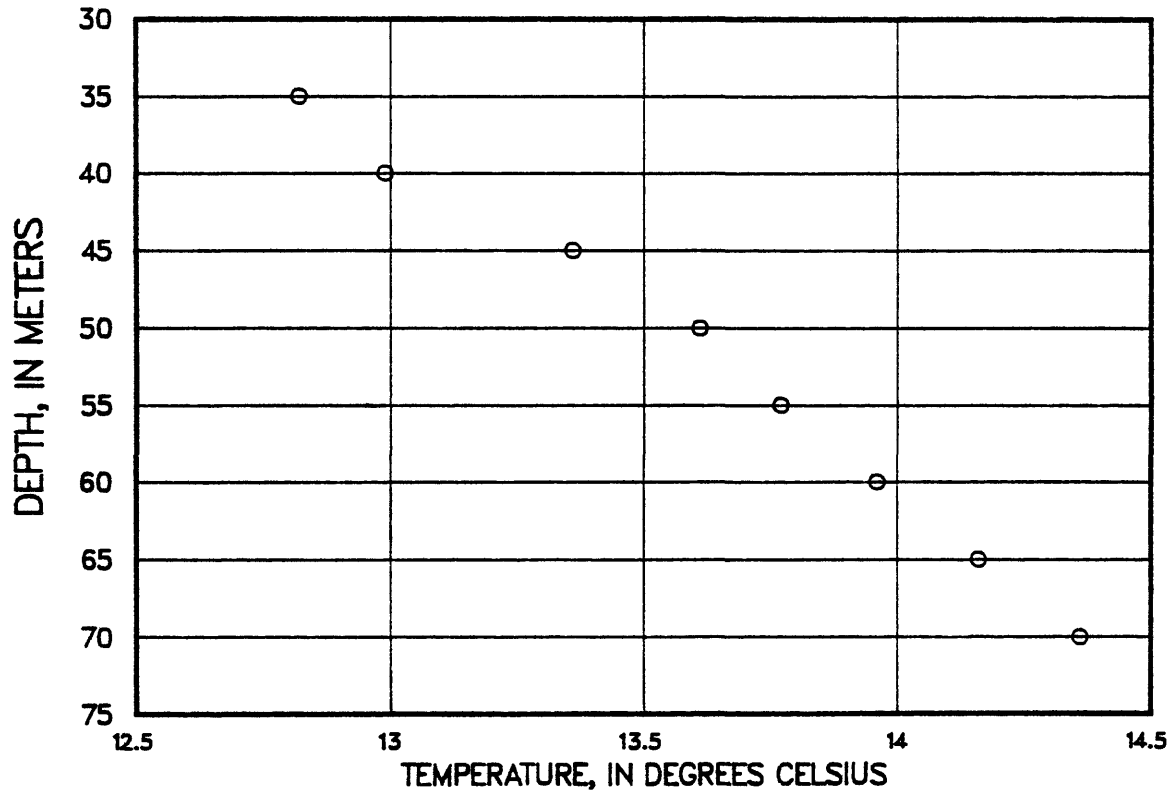


Fig. 136-Temperature profile from 6S-15E-05 NW.

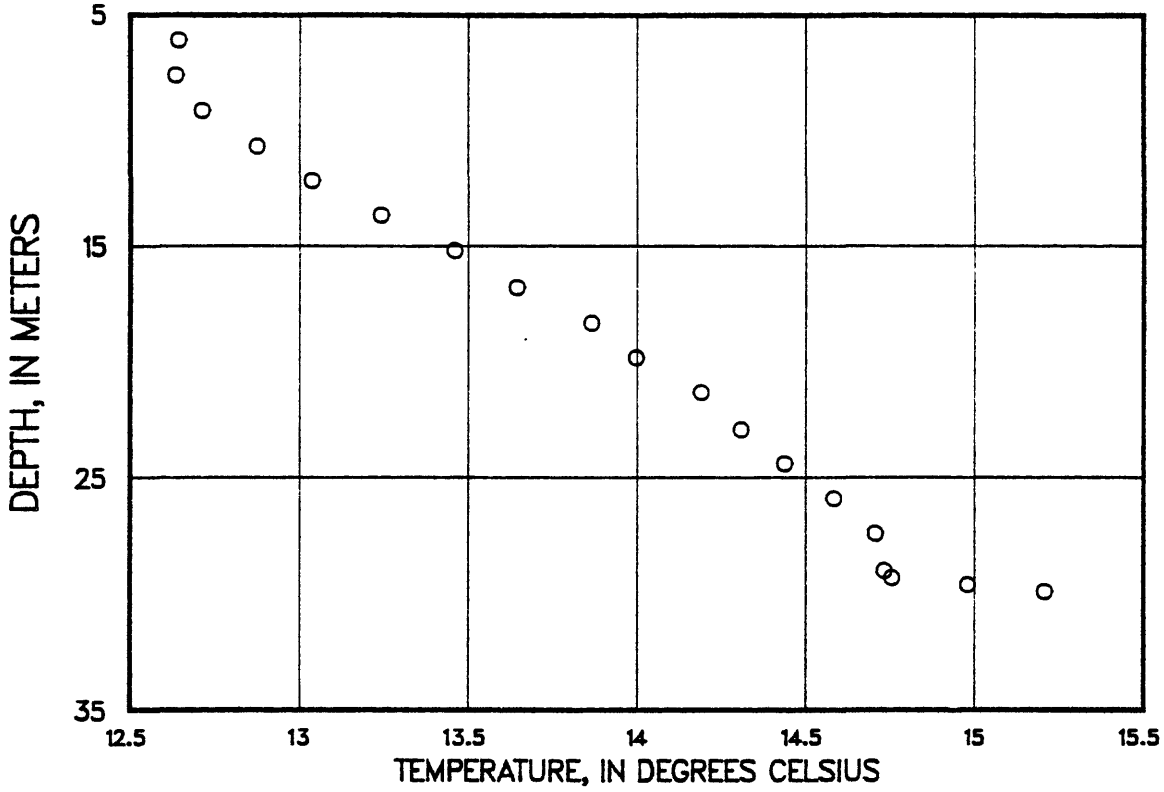


Fig. 137-Temperature profile from 7S-11E-14 SW.

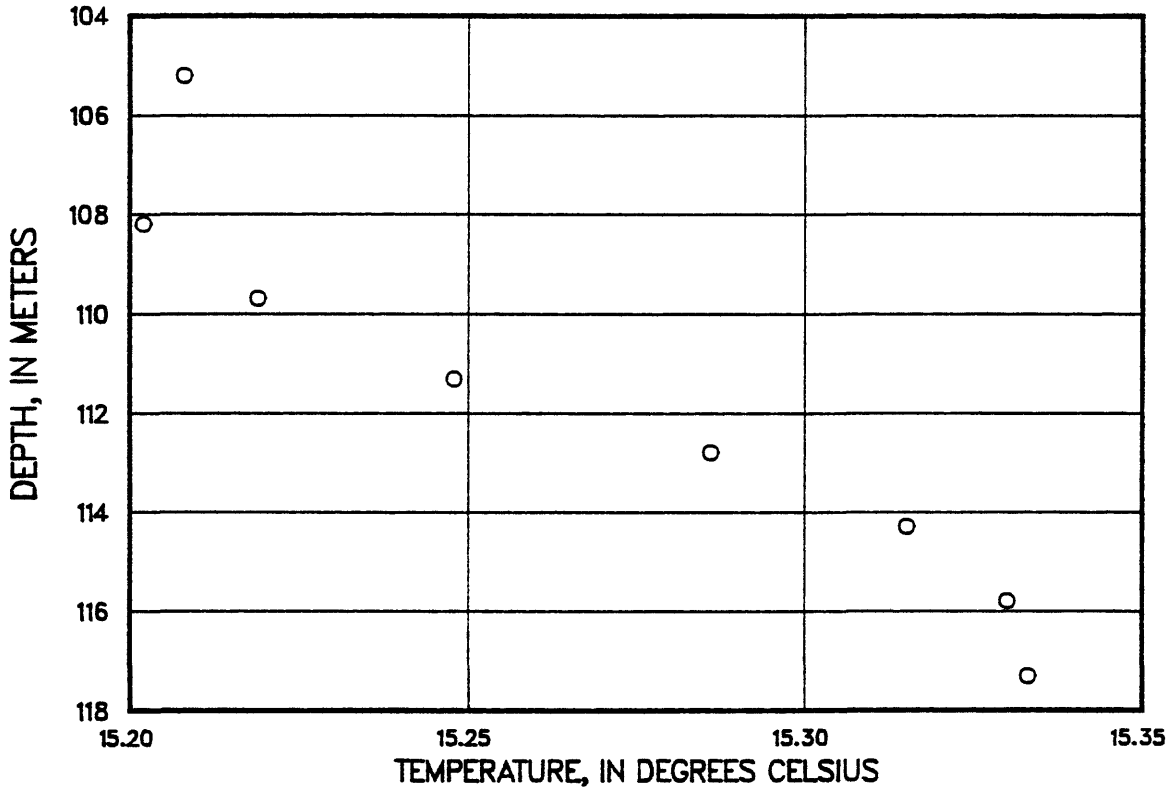


Fig. 138-Temperature profile from 7S-11E-15 SE.

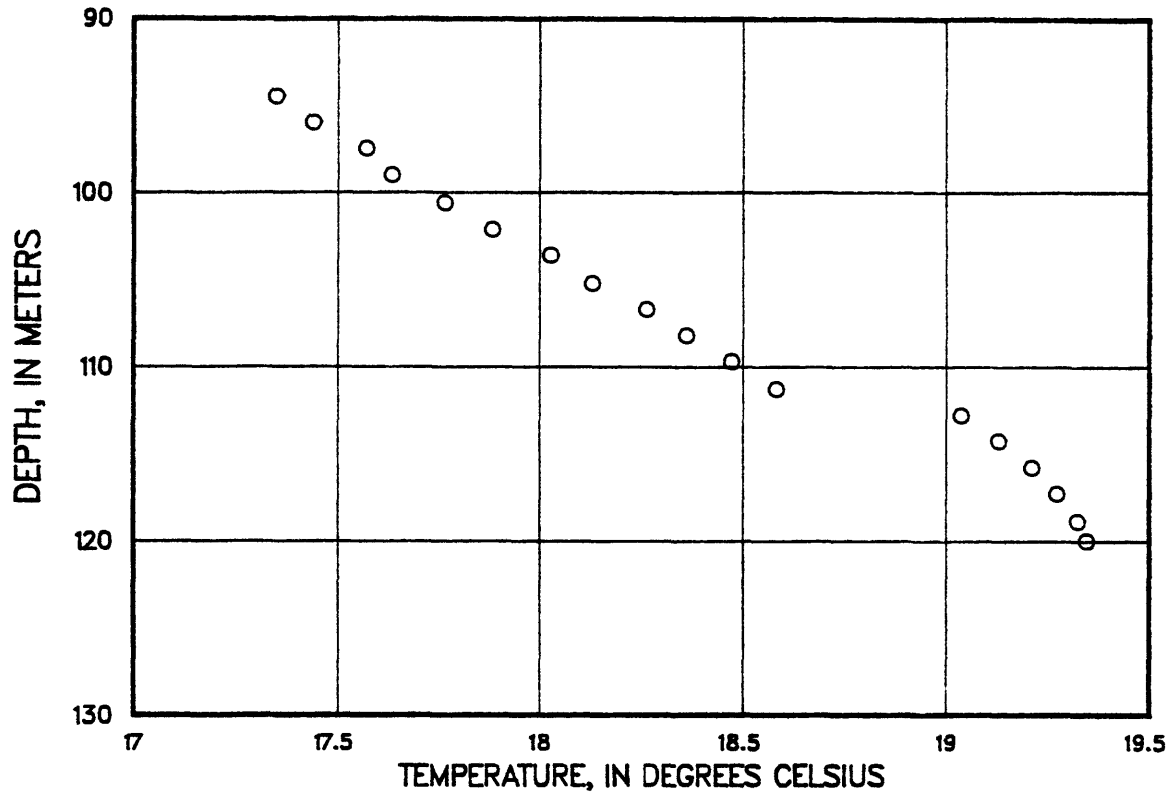


Fig. 139-Temperature profile from 7S-12E-29 SW.

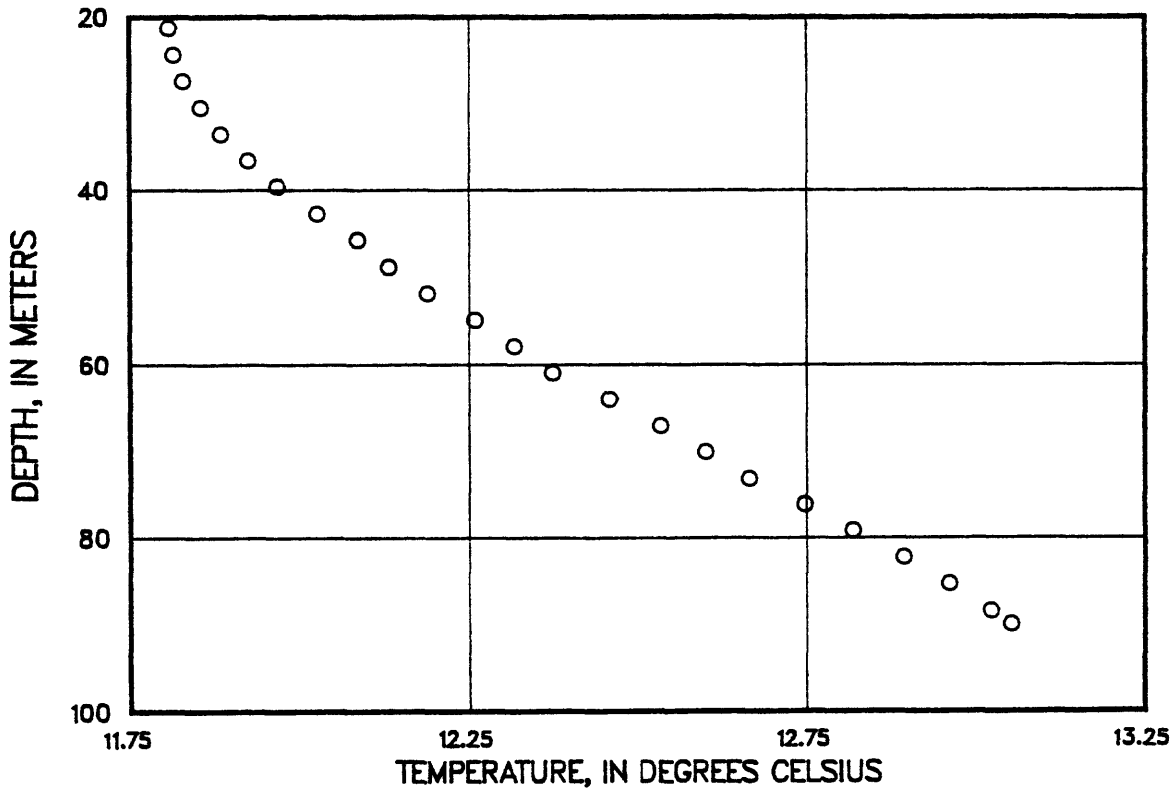


Fig. 140-Temperature profile from 8S-12E-03 NE.

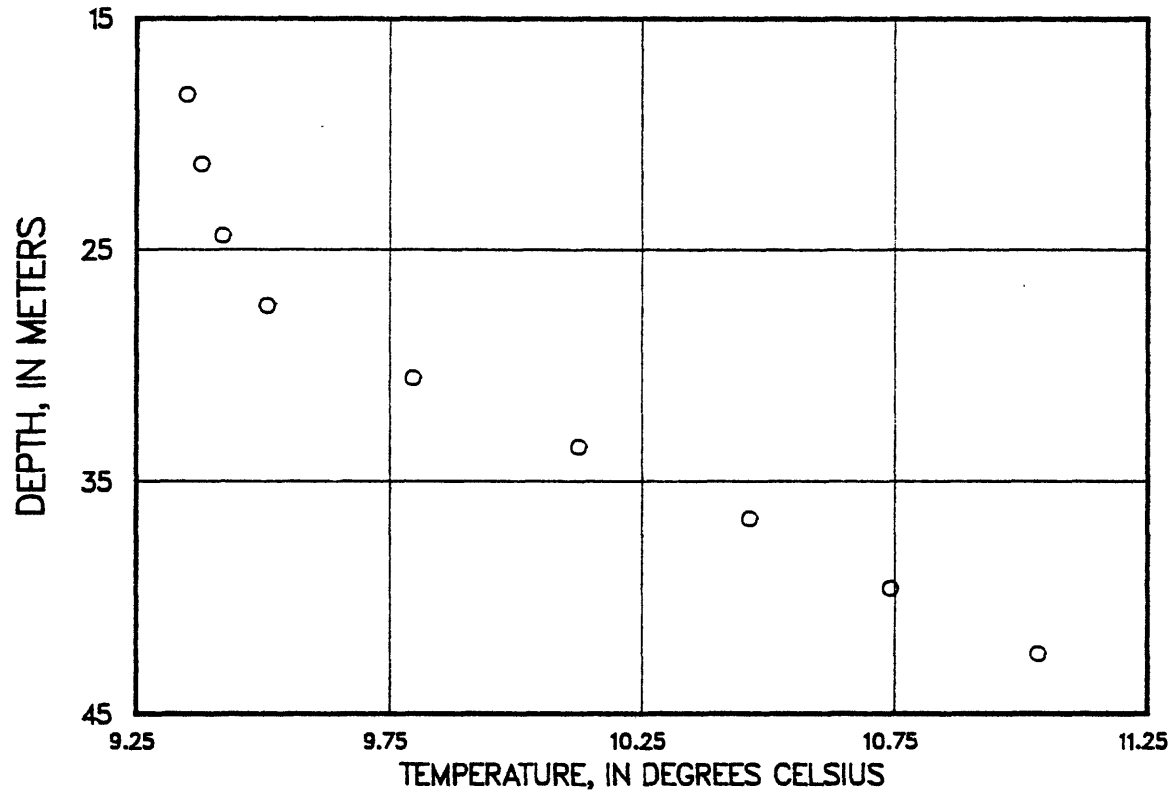


Fig. 141-Temperature profile from 8S-12E-03 SW.

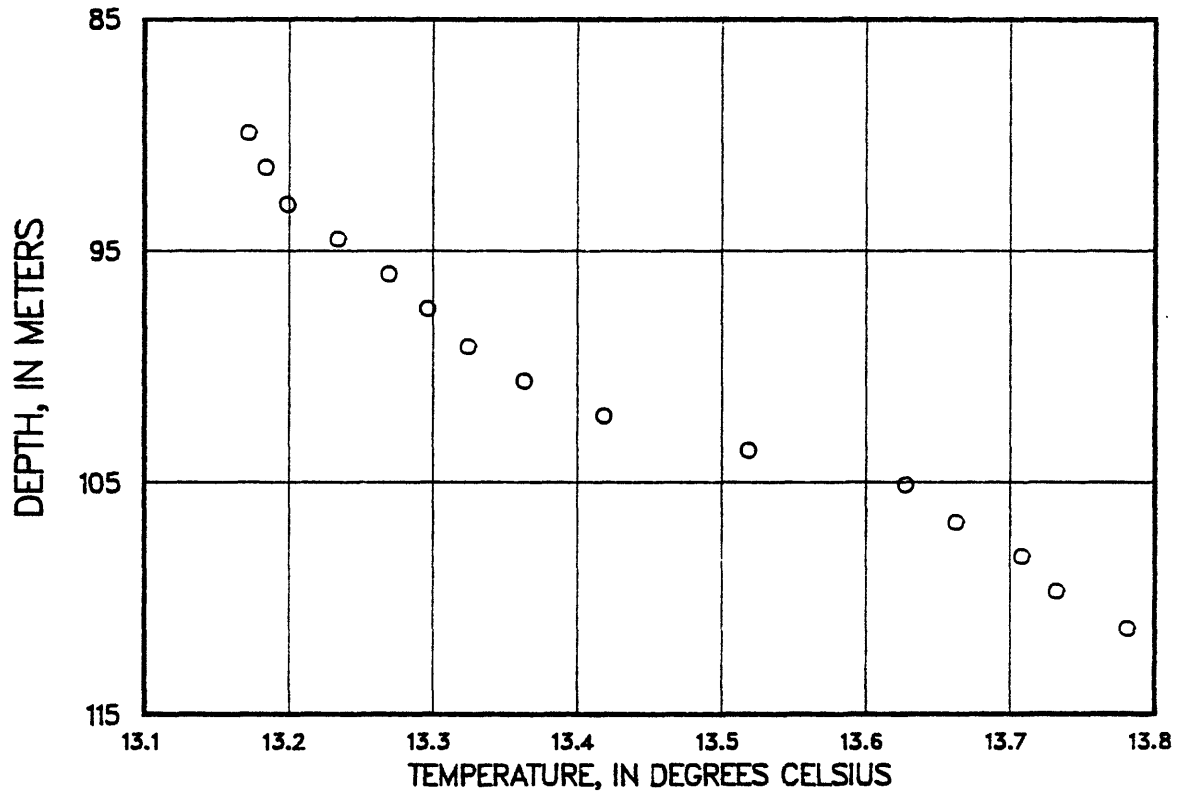


Fig. 142-Temperature profile from 9S-11E-02 NW.

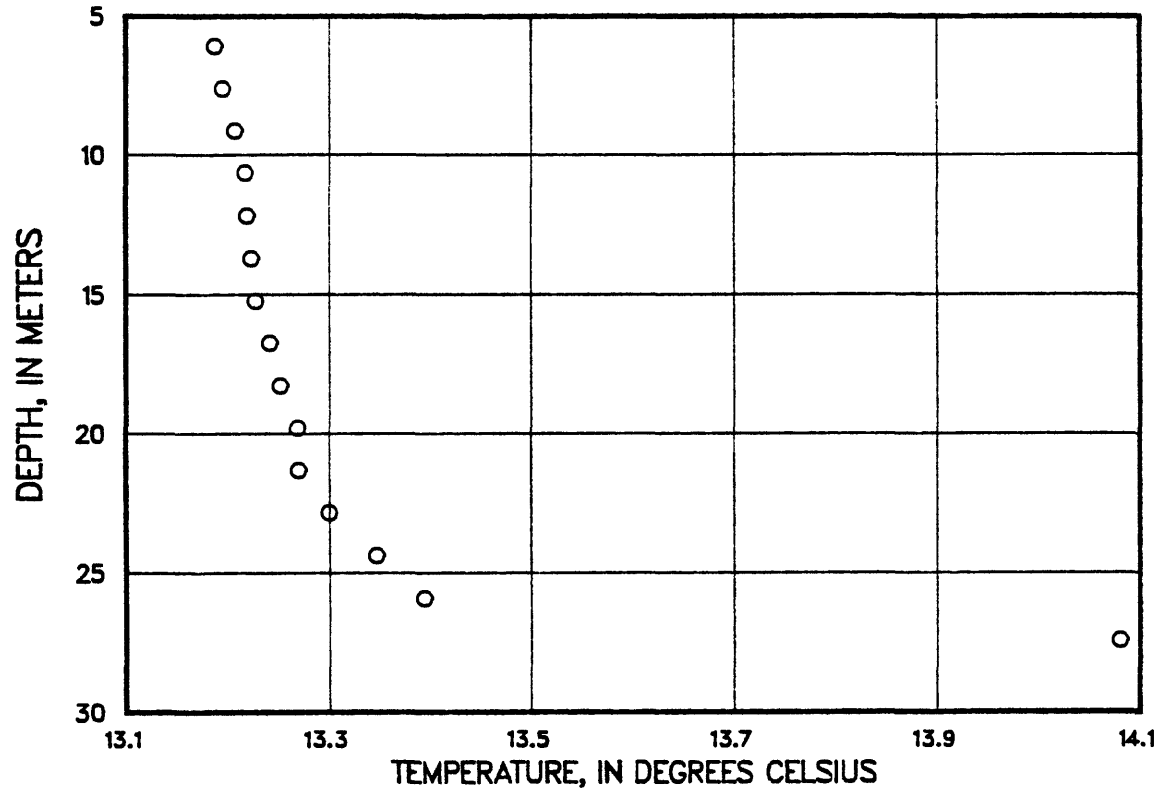


Fig. 143-Temperature profile from 9S-12E-14 SE.

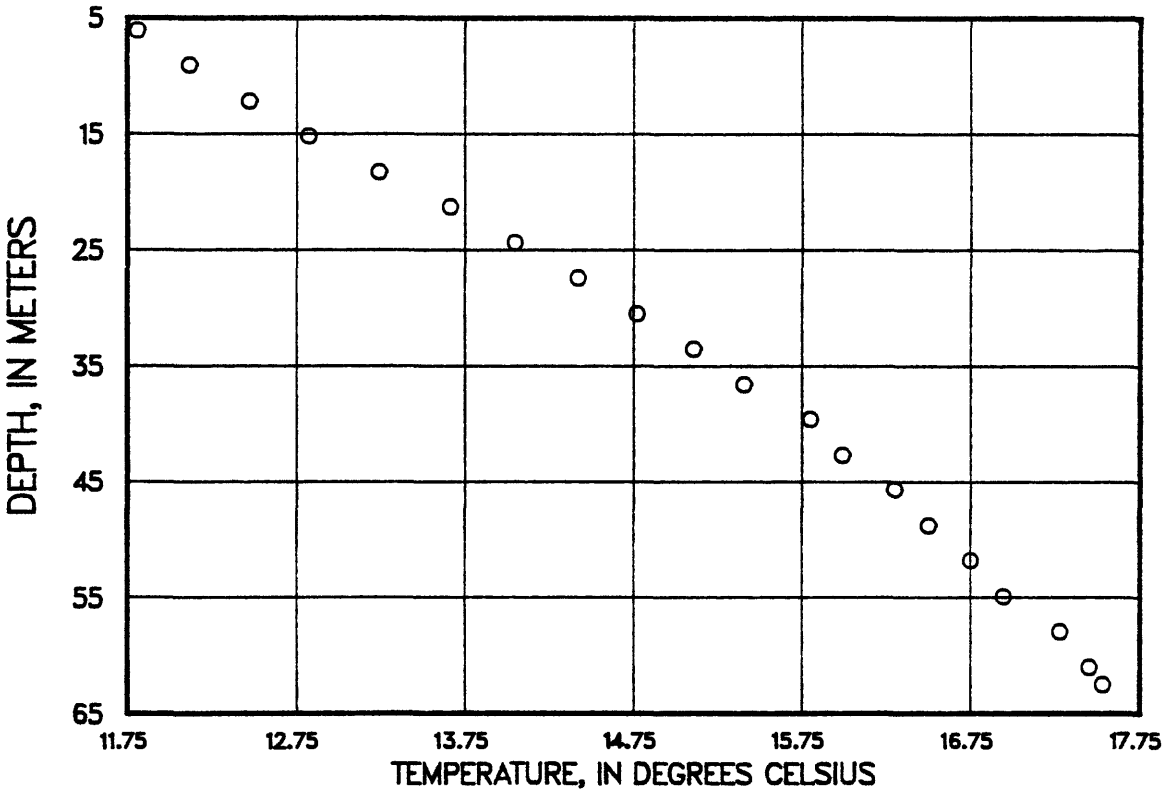


Fig. 144-Temperature profile from 9S-12E-31 SW.

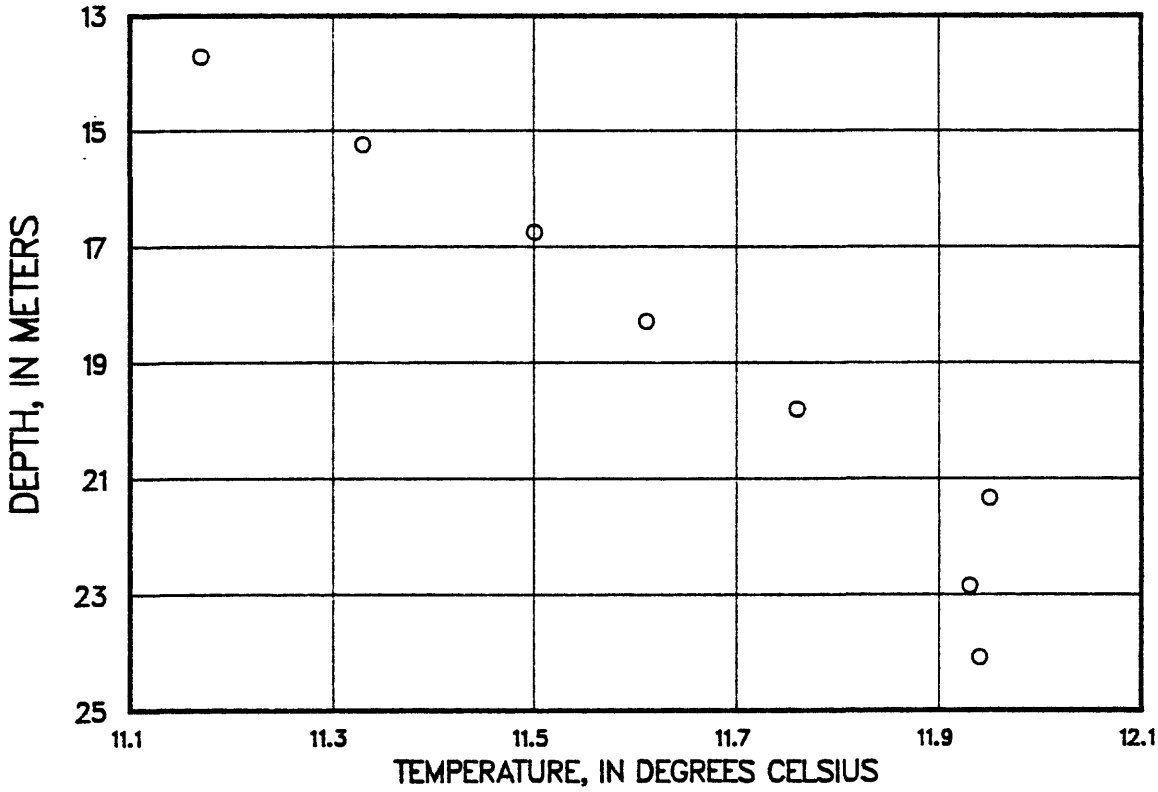


Fig. 145-Temperature profile from 9S-12E-34 SW.

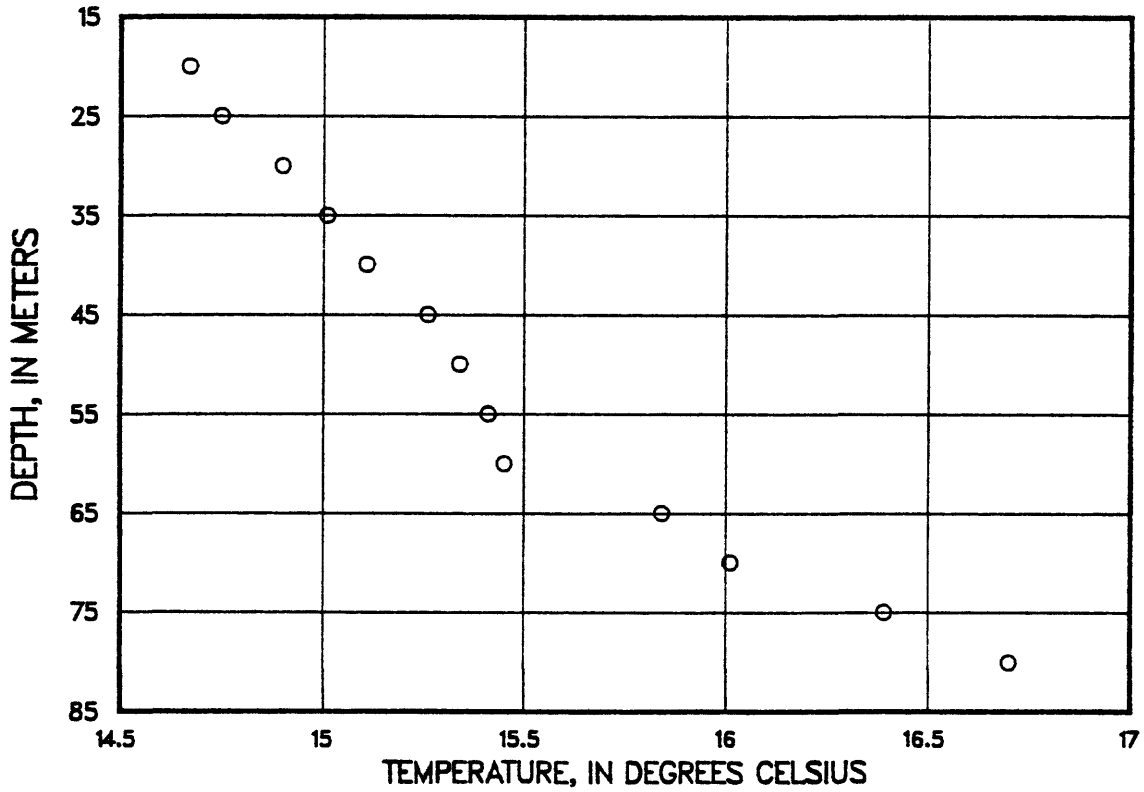


Fig. 146-Temperature profile from 9S-14E-23 NW.

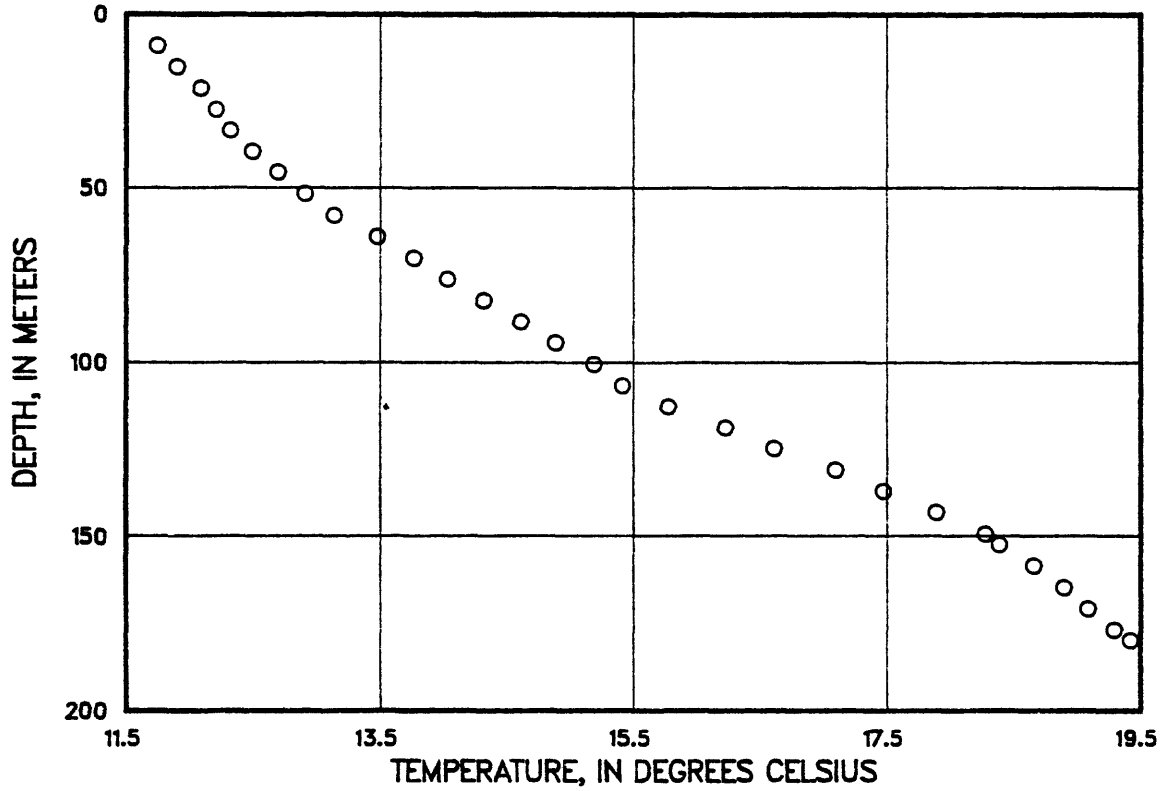


Fig. 147-Temperature profile from 9S-14E-30 SW.

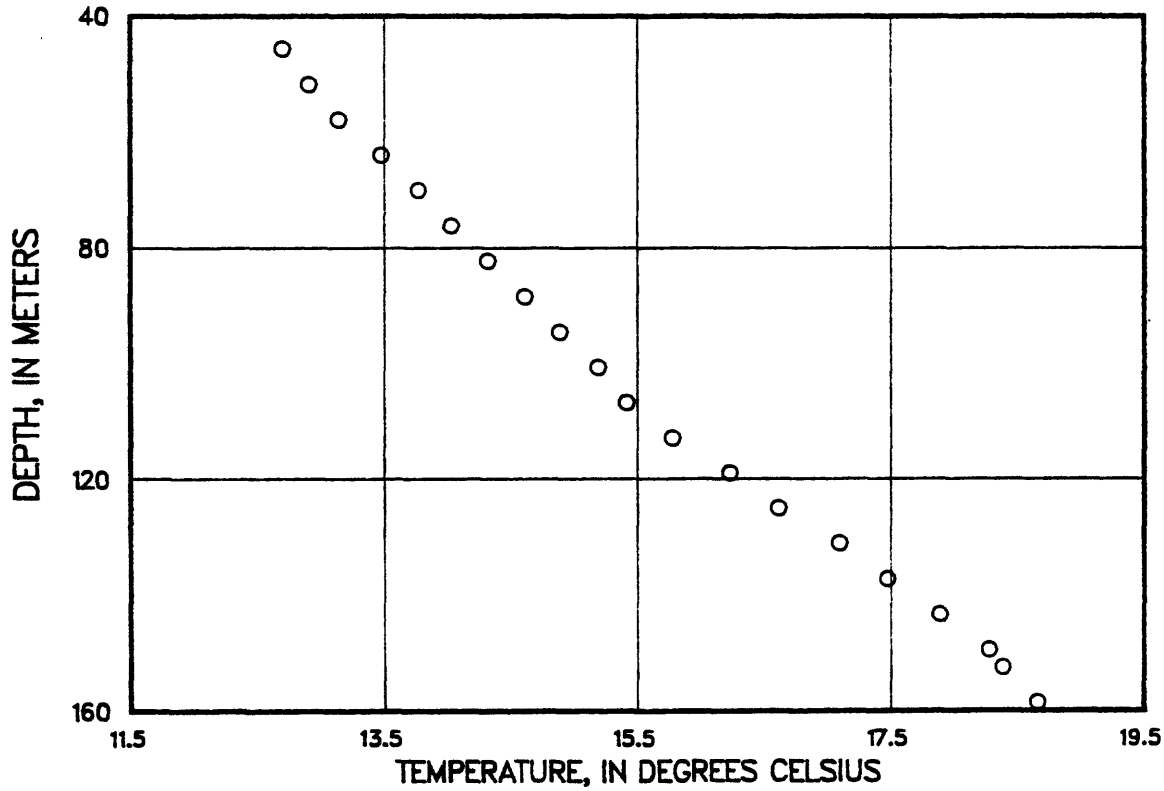


Fig. 148-Temperature profile from 11S-10E-05 NE.

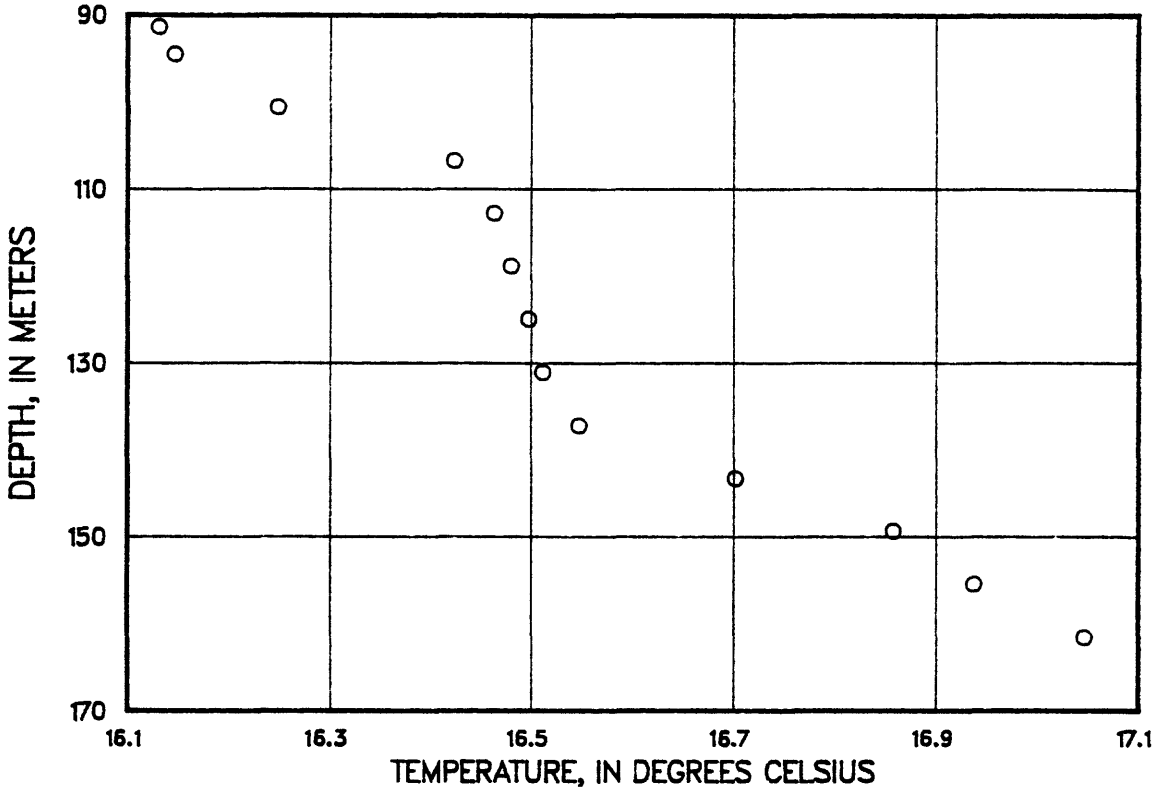


Fig. 149-Temperature profile from 11S-13E-01 NW.

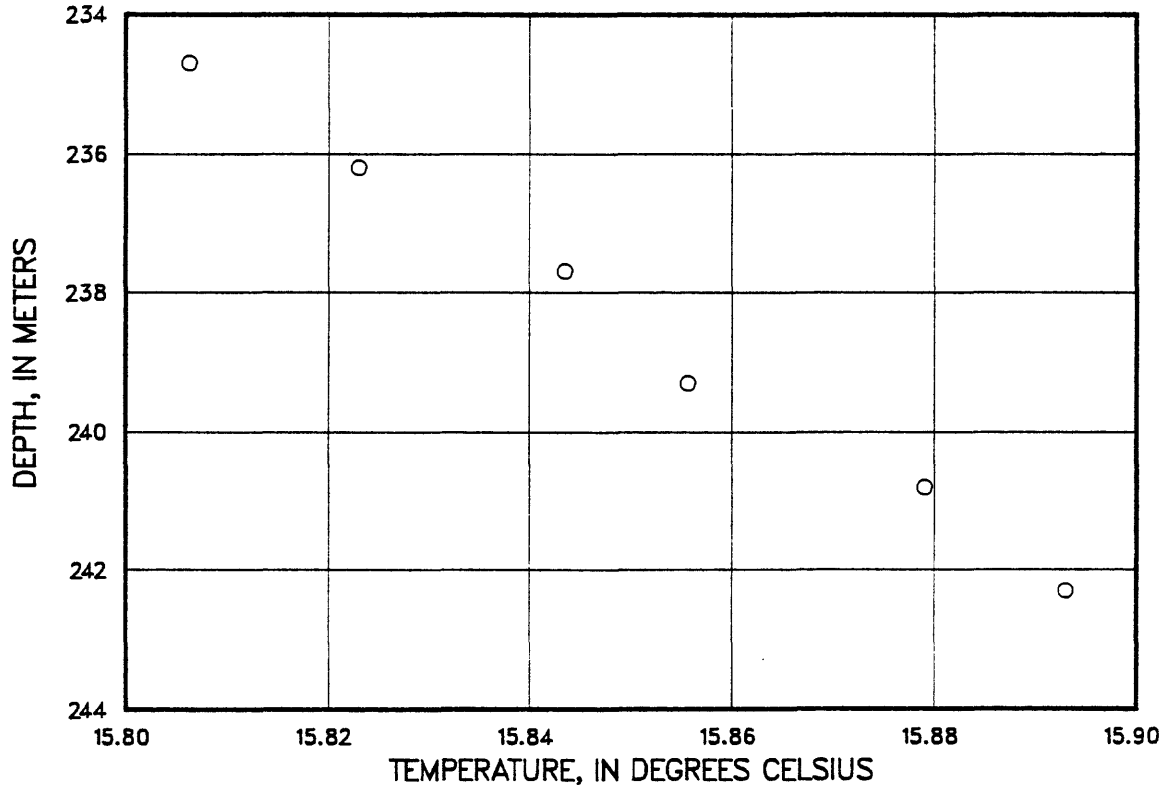


Fig. 150-Temperature profile from 11S-13E-07 SW.

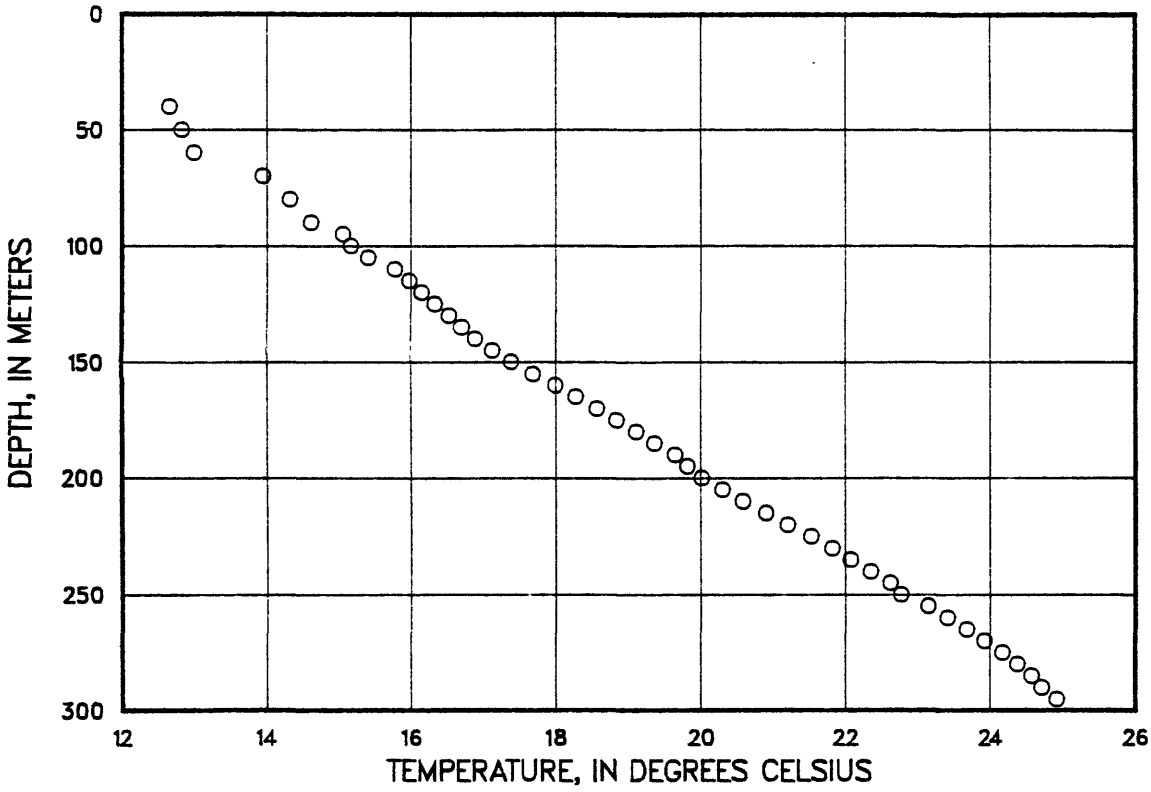


Fig. 151-Temperature profile from 11S-13E-24 NE.

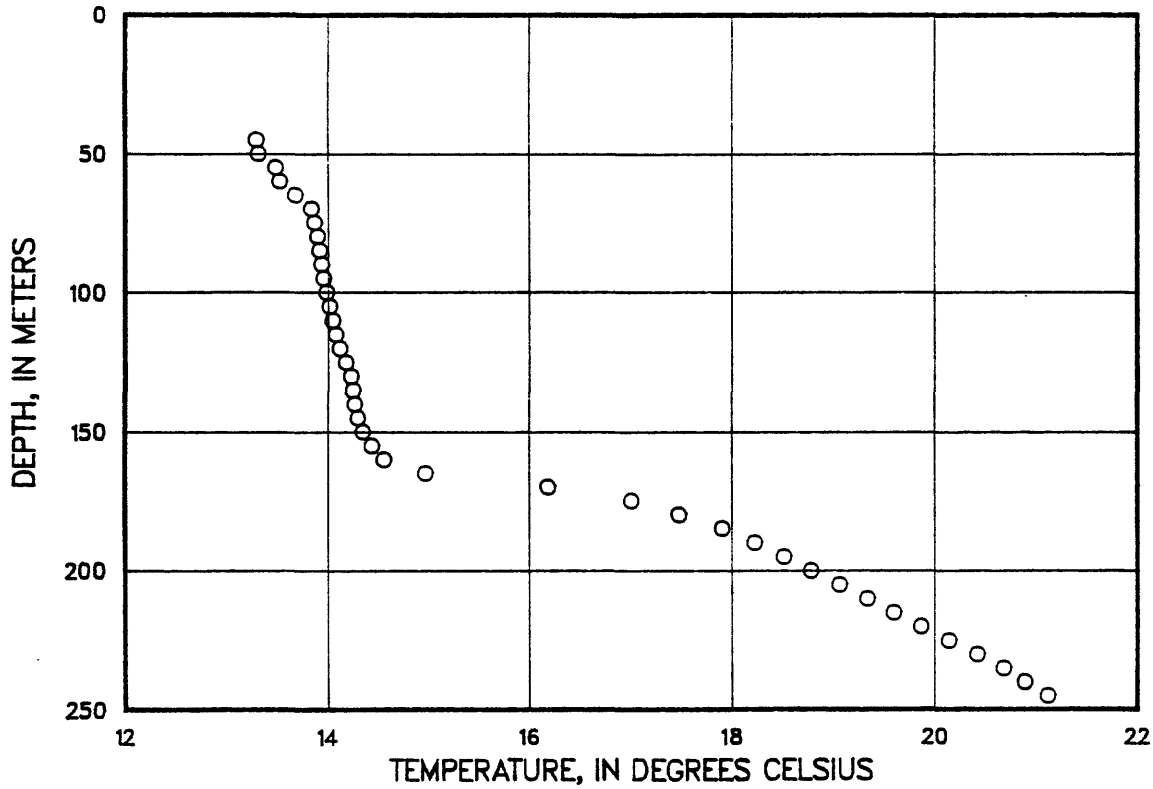


Fig. 152-Temperature profile from 11S-13E-24 NE.

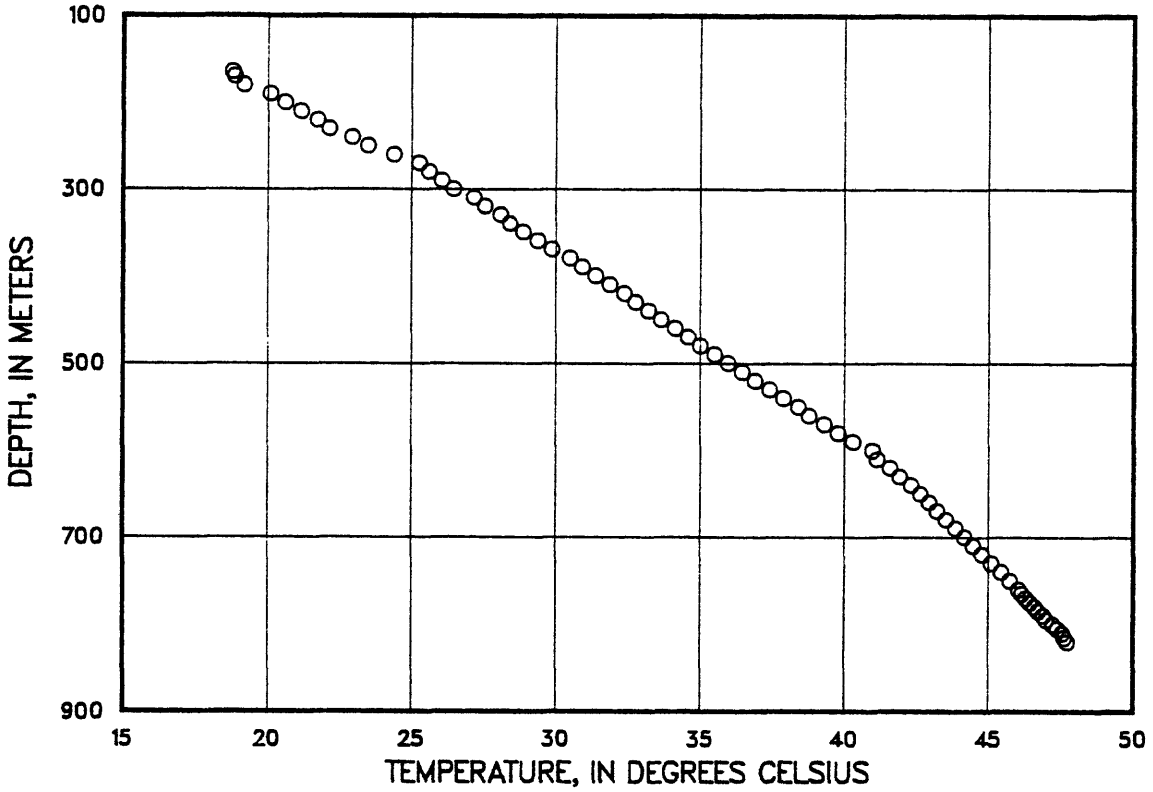


Fig. 153-Temperature profile from 11S-15E-22 SW.

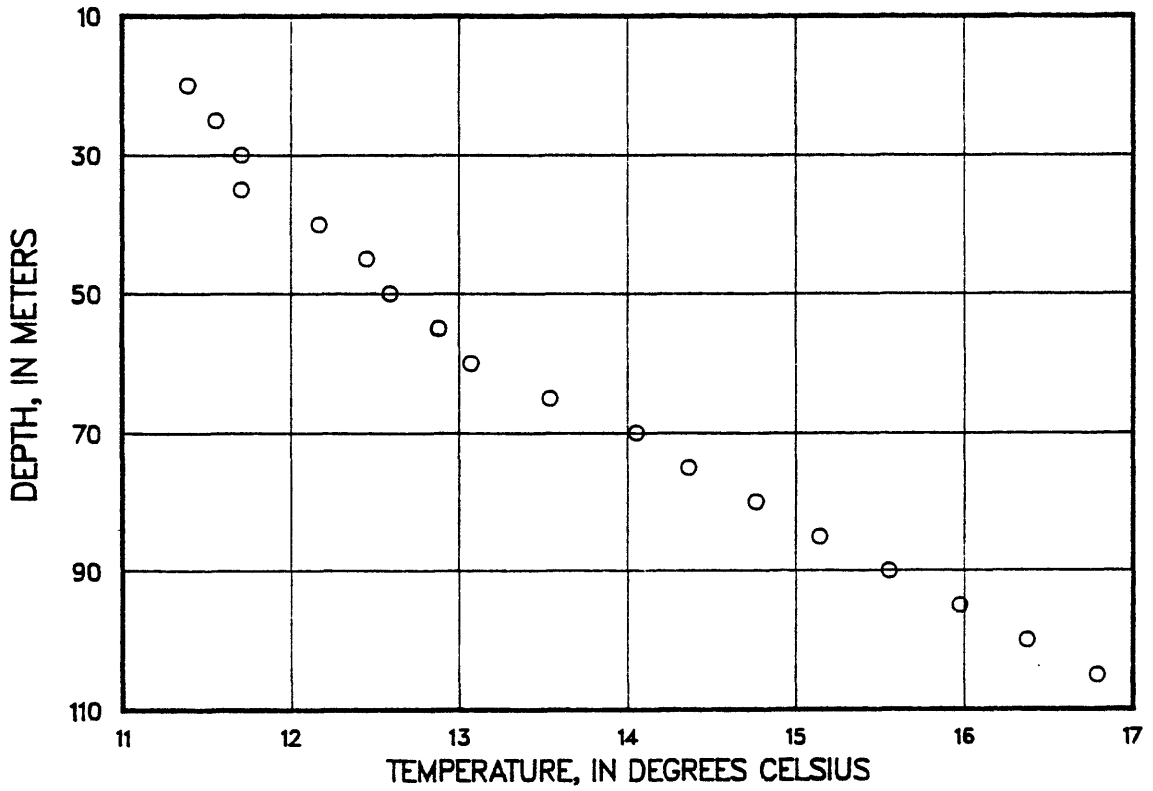


Fig. 154-Temperature profile from 12S-9E-01 NW.

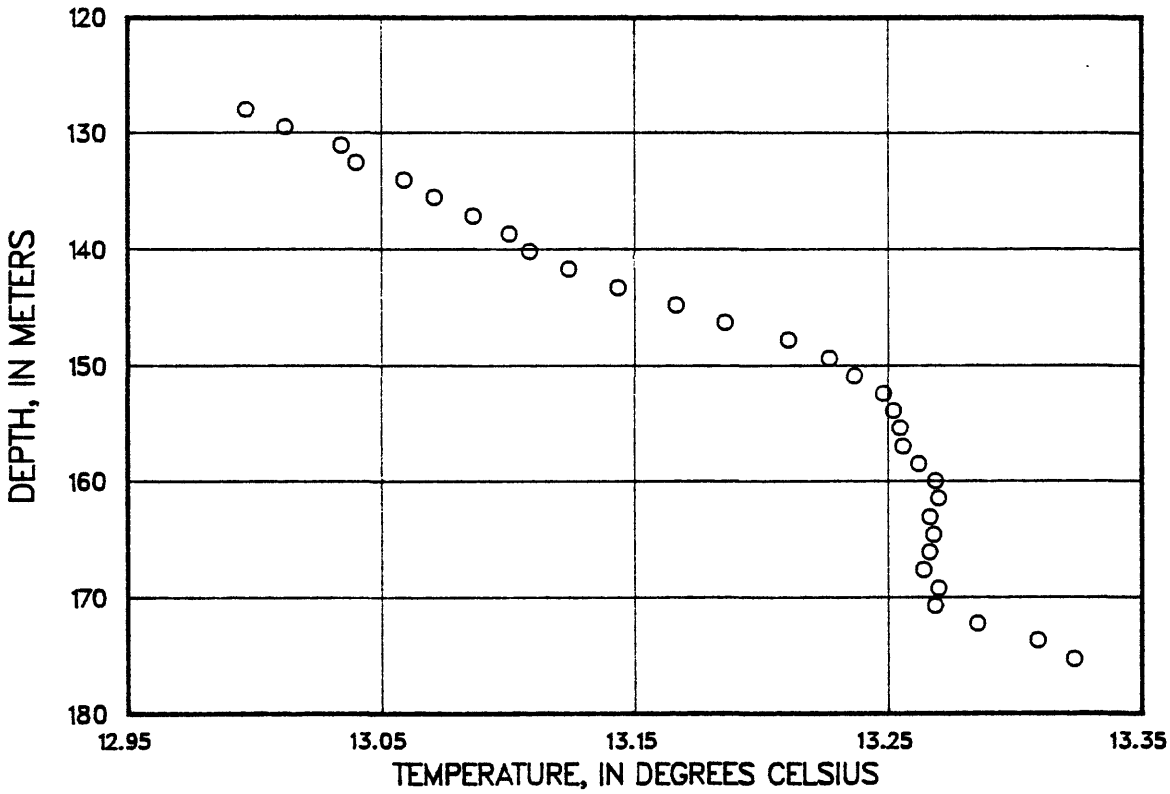


Fig. 155-Temperature profile from 12S-11E-02 SW.

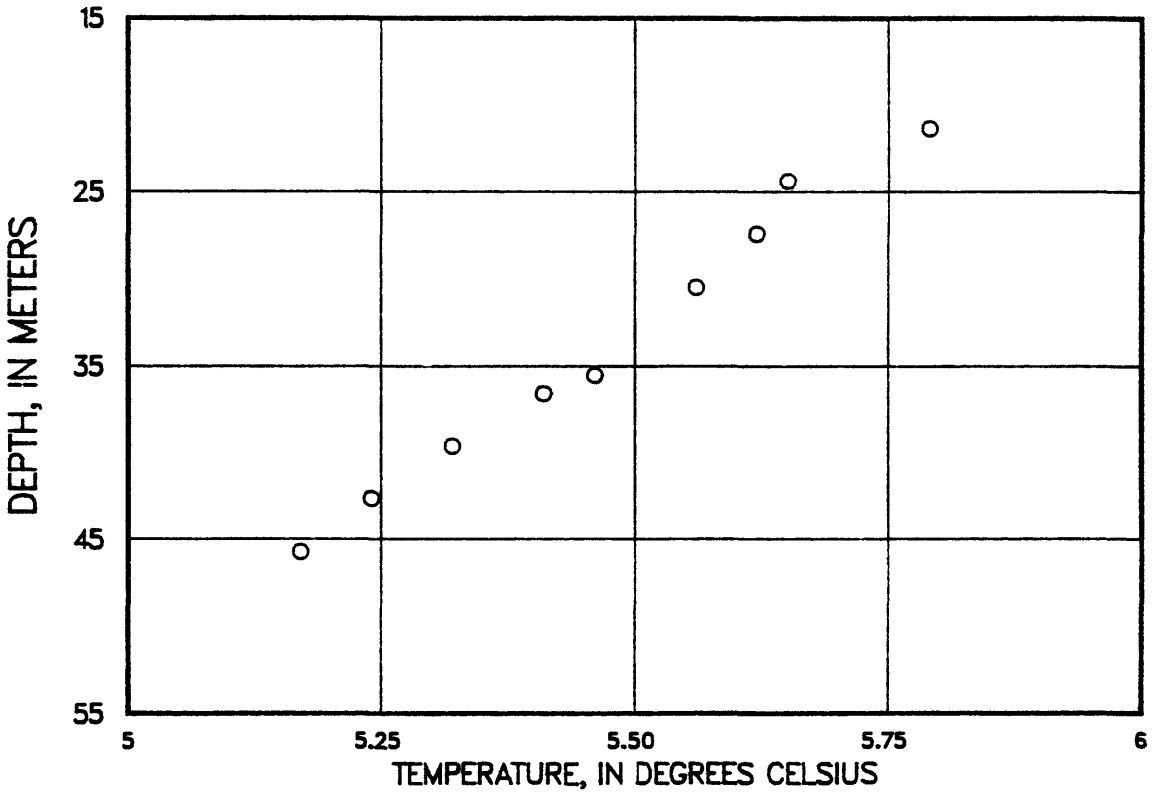


Fig. 156-Temperature profile from 13S-8E-27 SE.

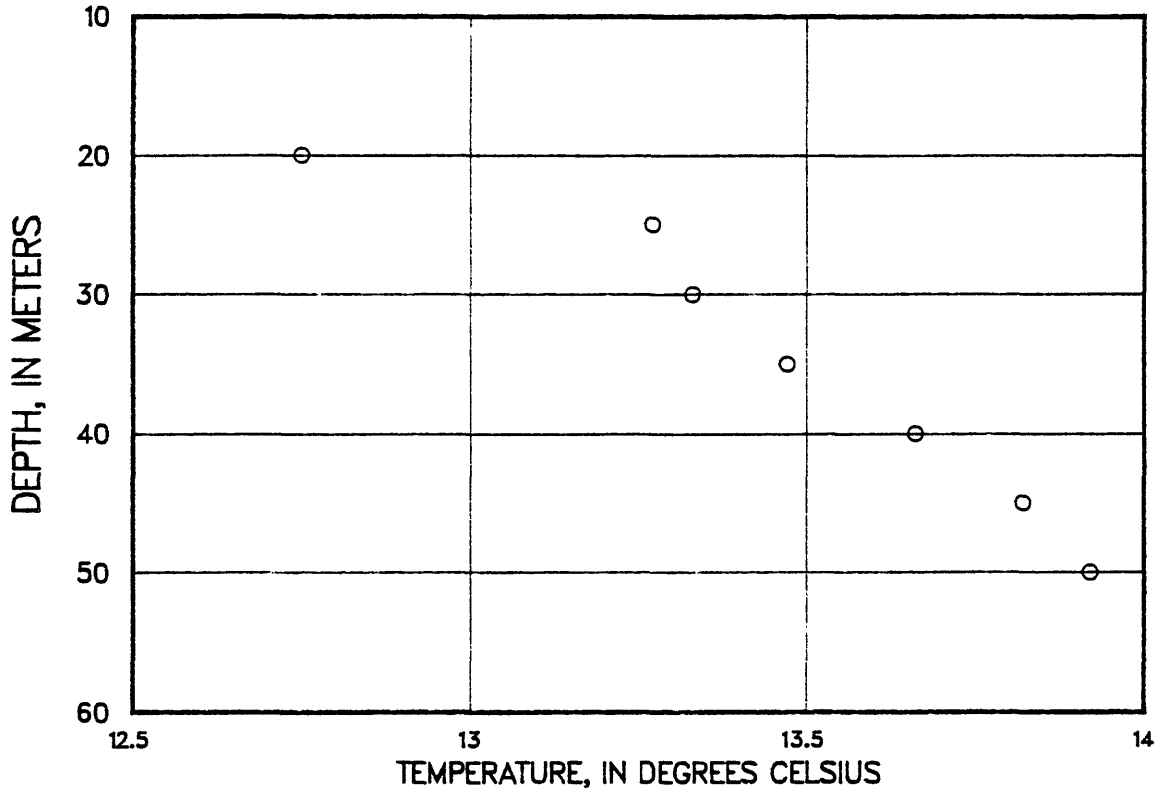


Fig. 157-Temperature profile from 13S-14E-11 SW.

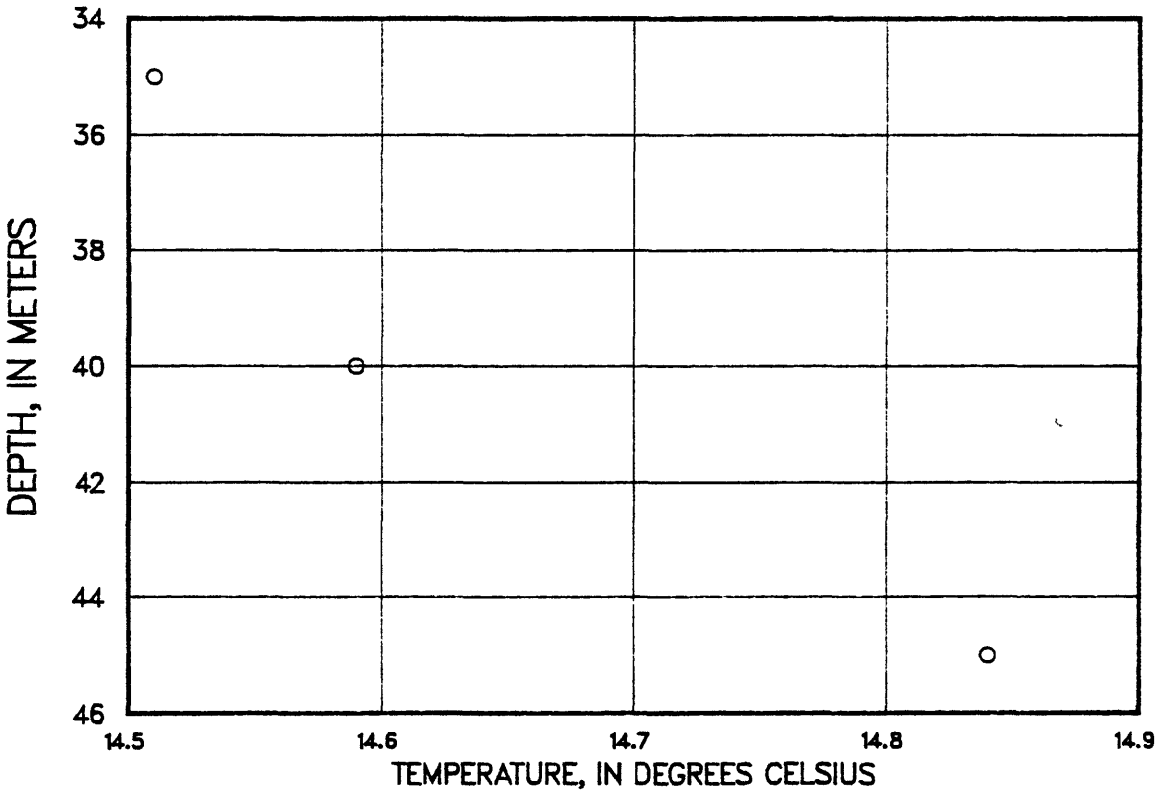


Fig. 158-Temperature profile from 13S-14E-11 SW.

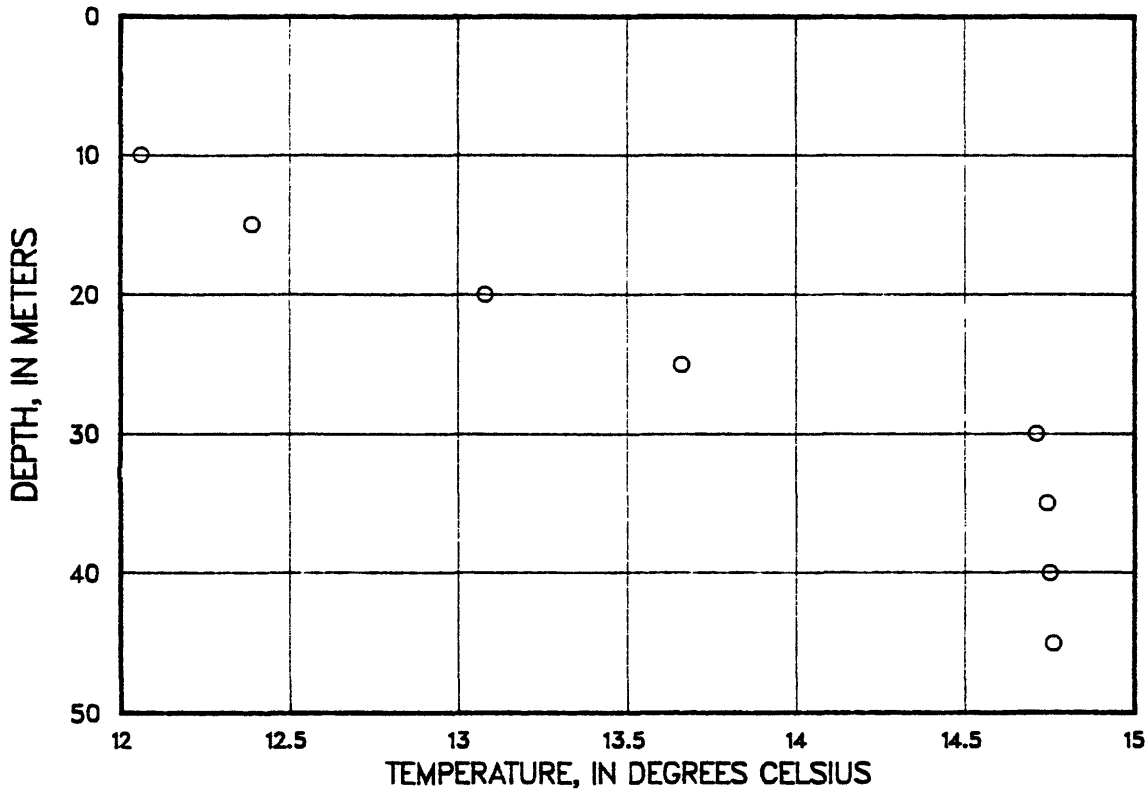


Fig. 159-Temperature profile from 13S-14E-11 SW.

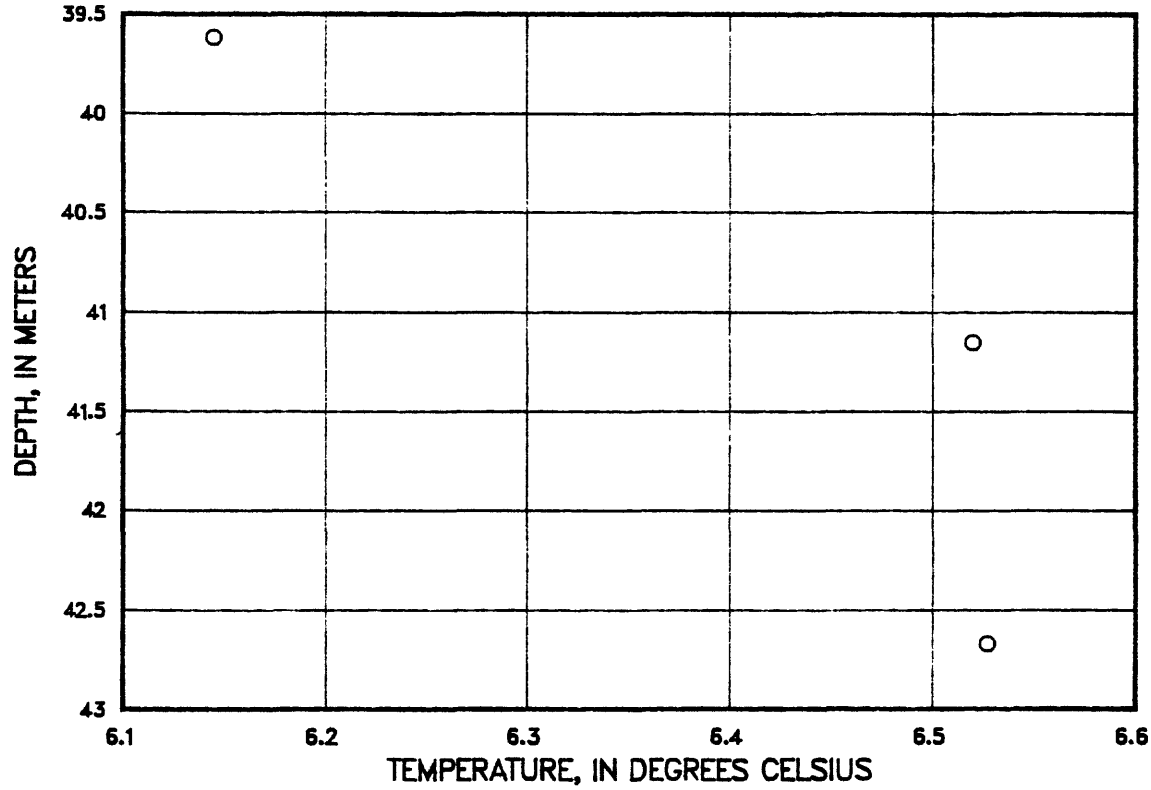


Fig. 160-Temperature profile from 14S-9E-35 SW.

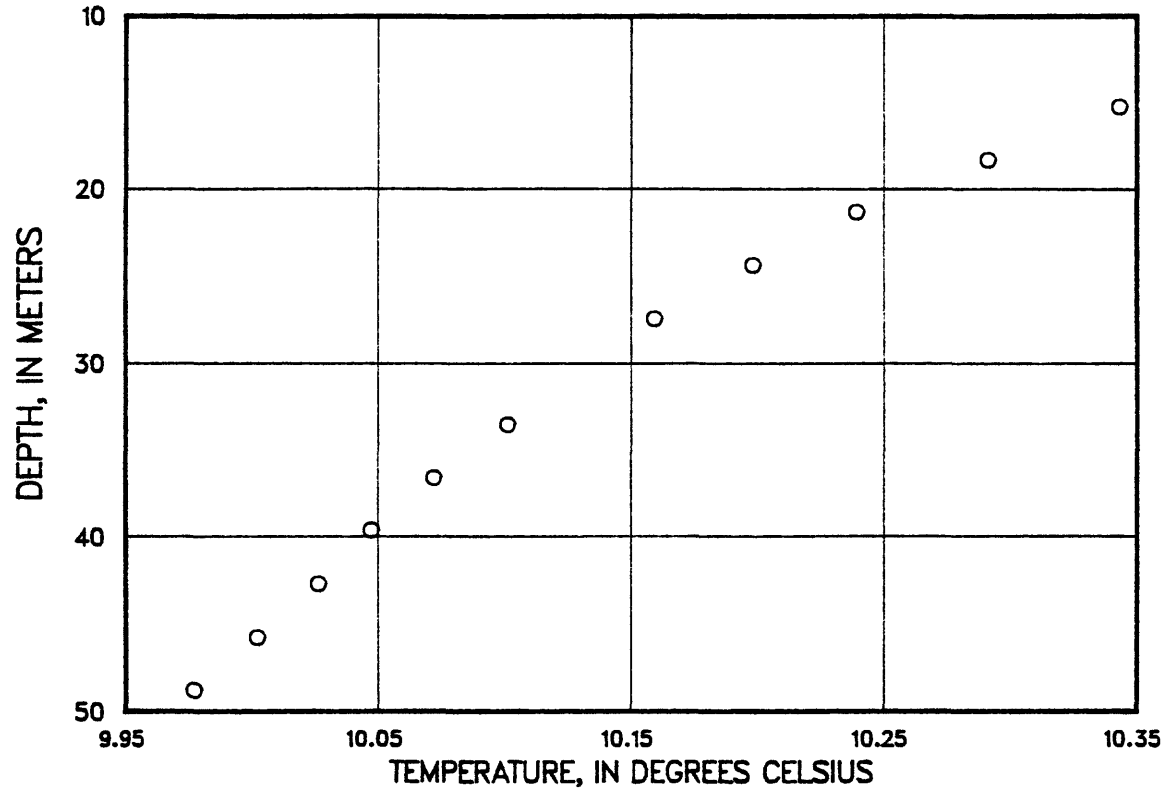


Fig. 161-Temperature profile from 14S-10E-28 SE.

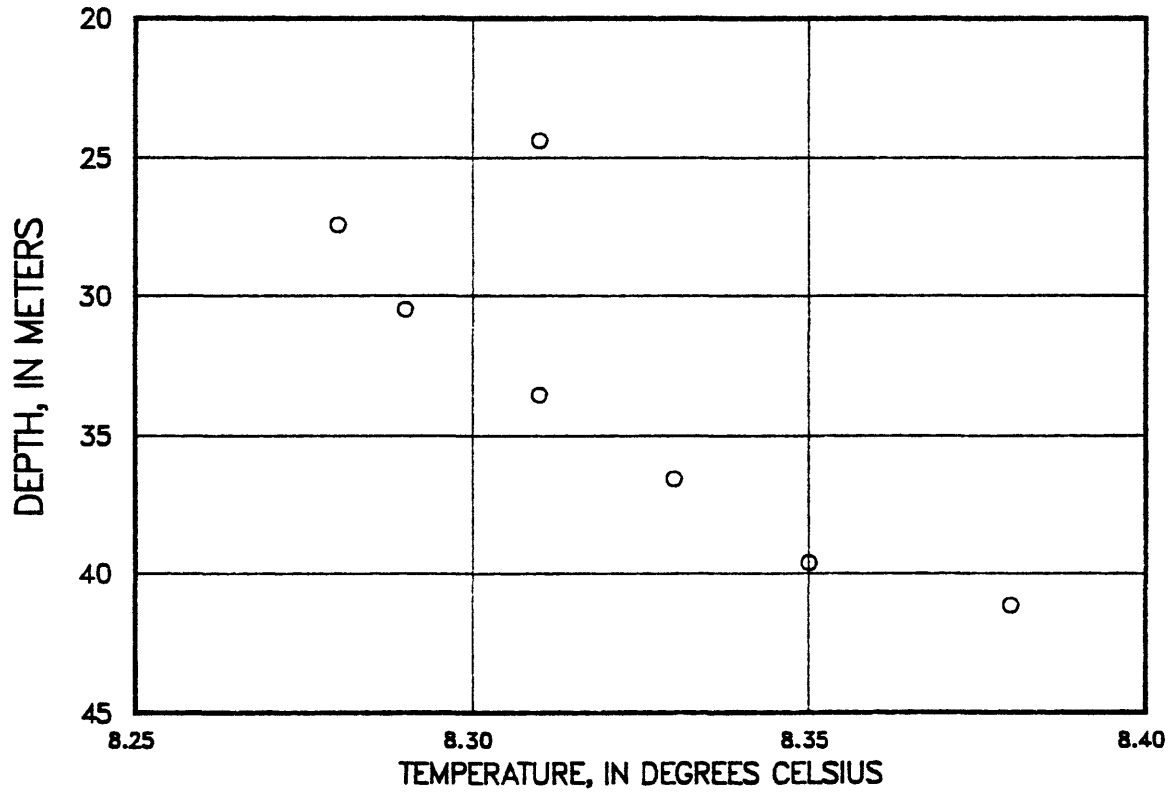


Fig. 162-Temperature profile from 14S-10E-34 NW.

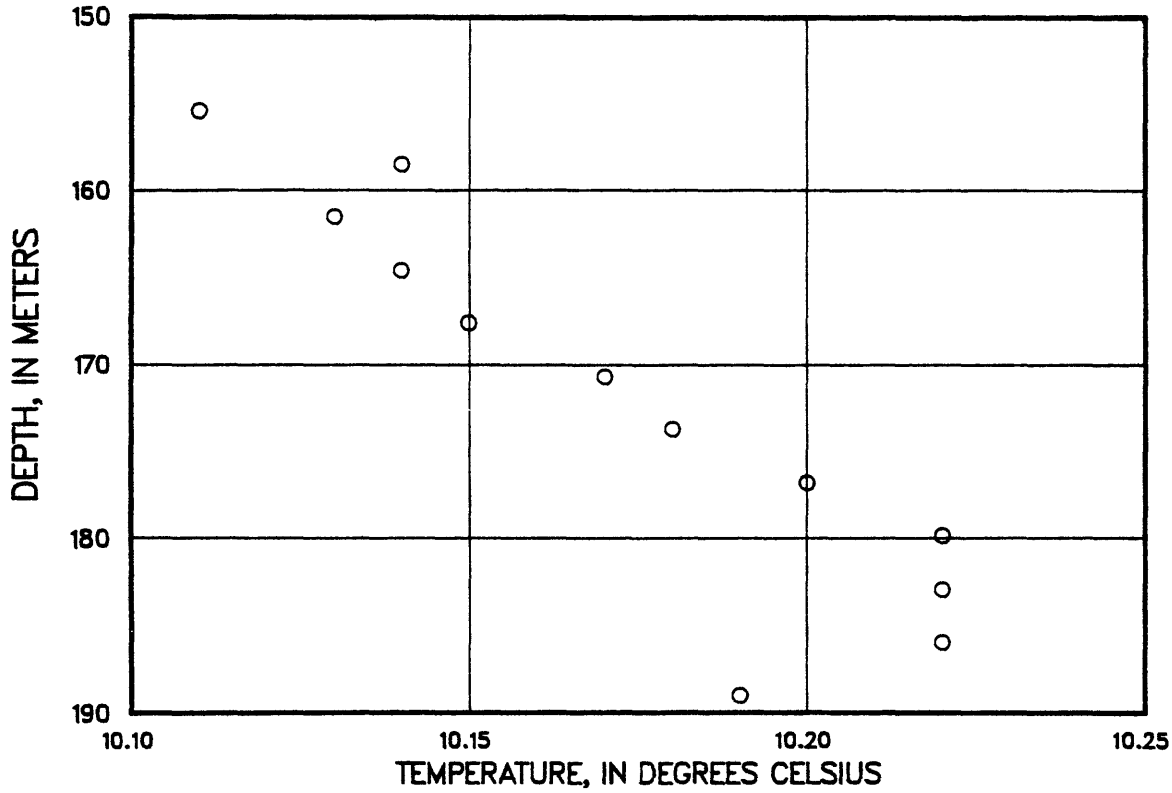


Fig. 163-Temperature profile from 14S-11E-28 NE.

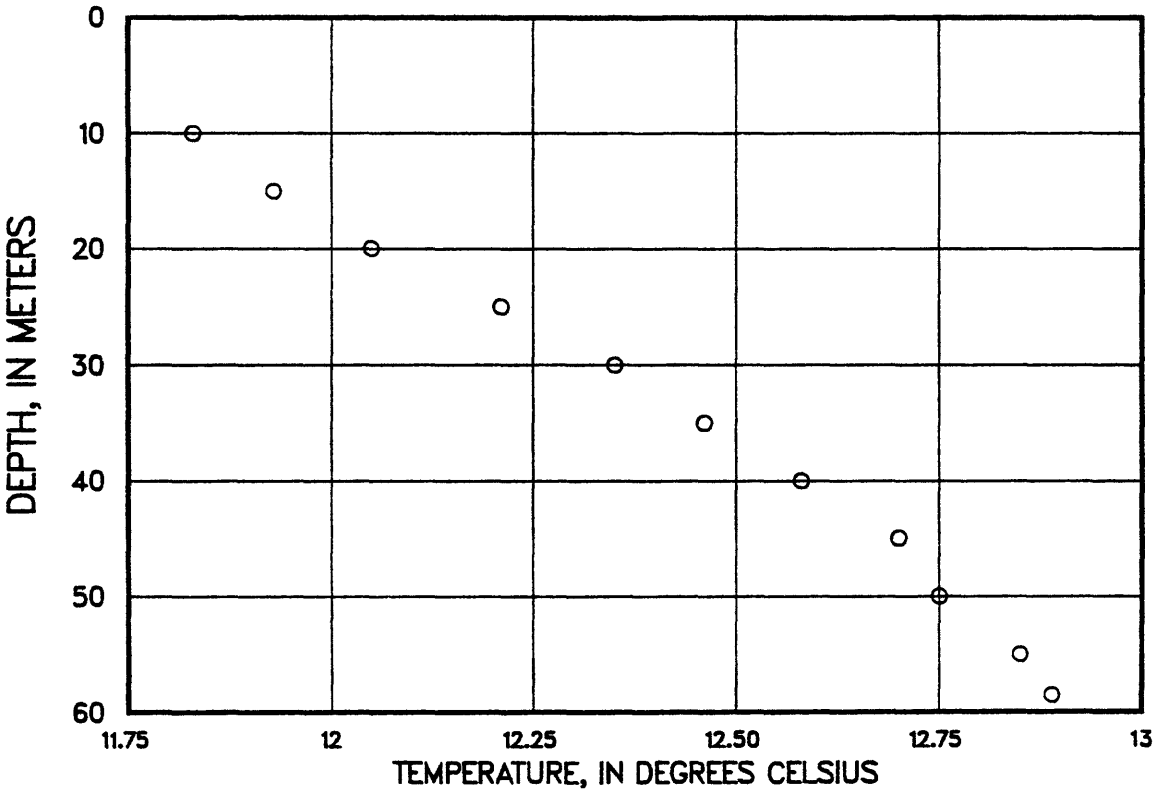


Fig. 164-Temperature profile from 14S-13E-14 NE.

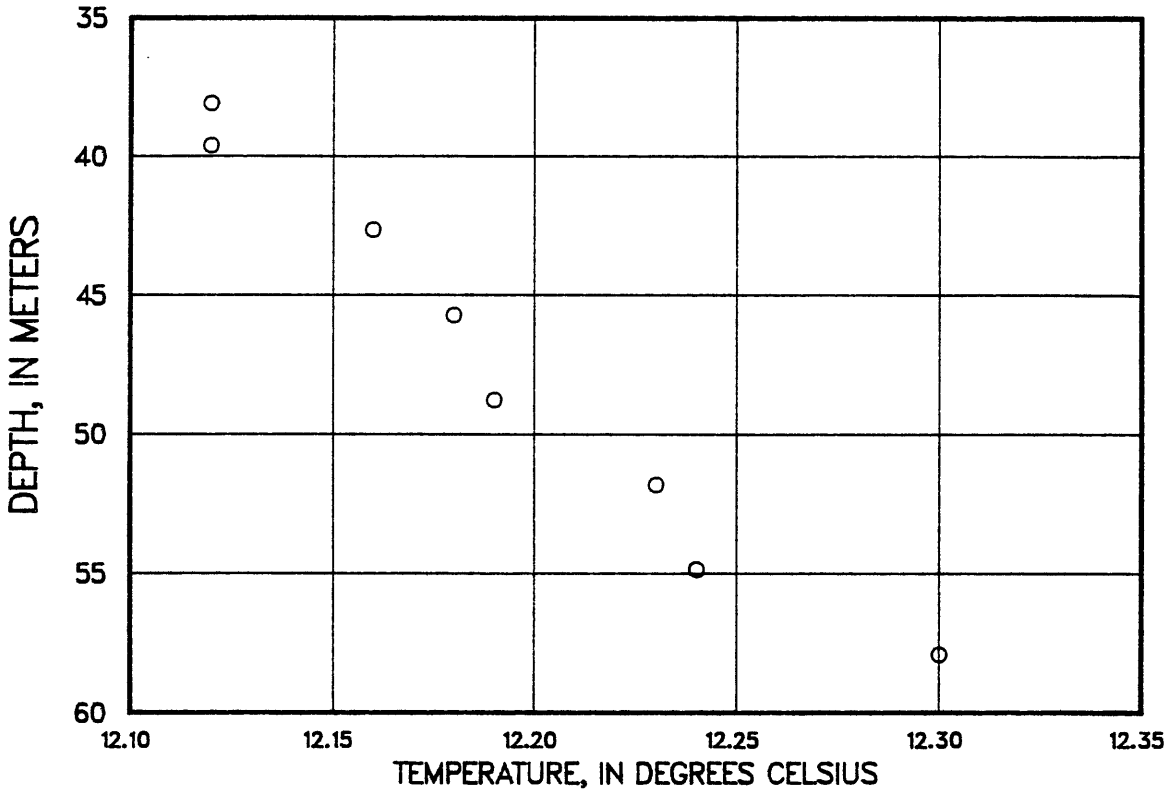


Fig. 165-Temperature profile from 14S-13E-29 SW.

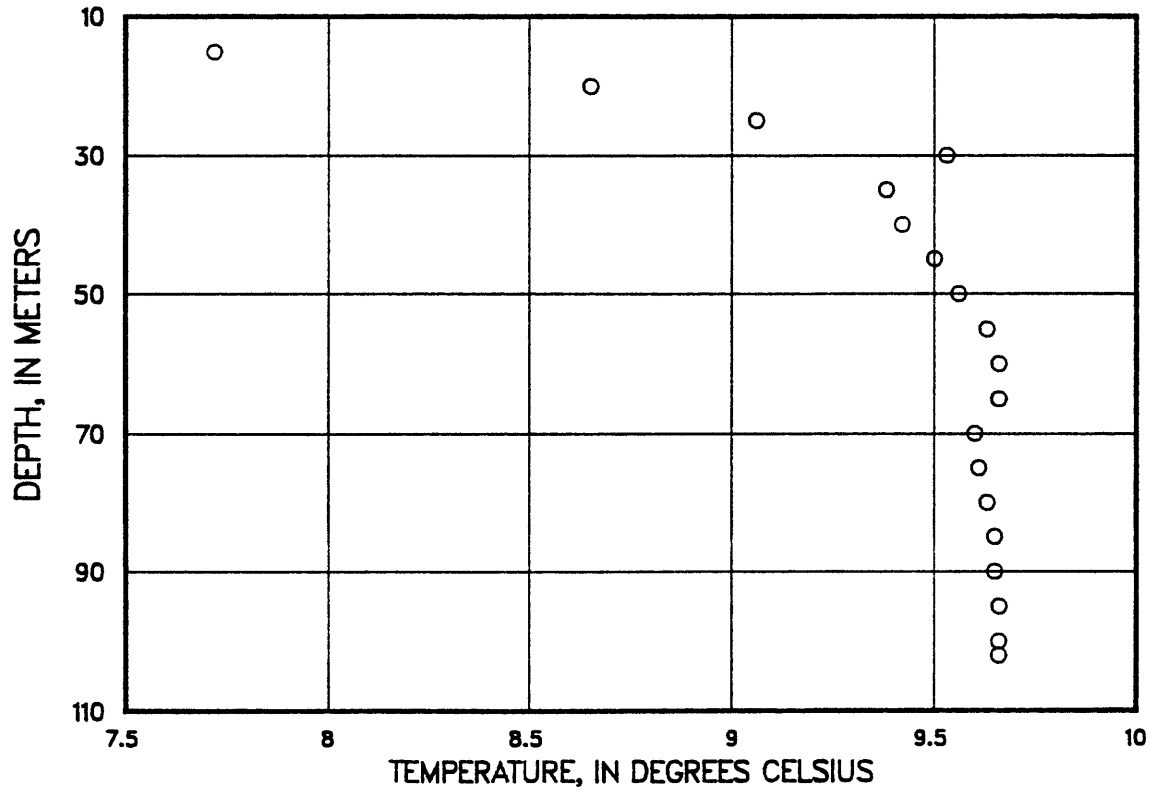


Fig. 166-Temperature profile from 15S-10E-05 NW.

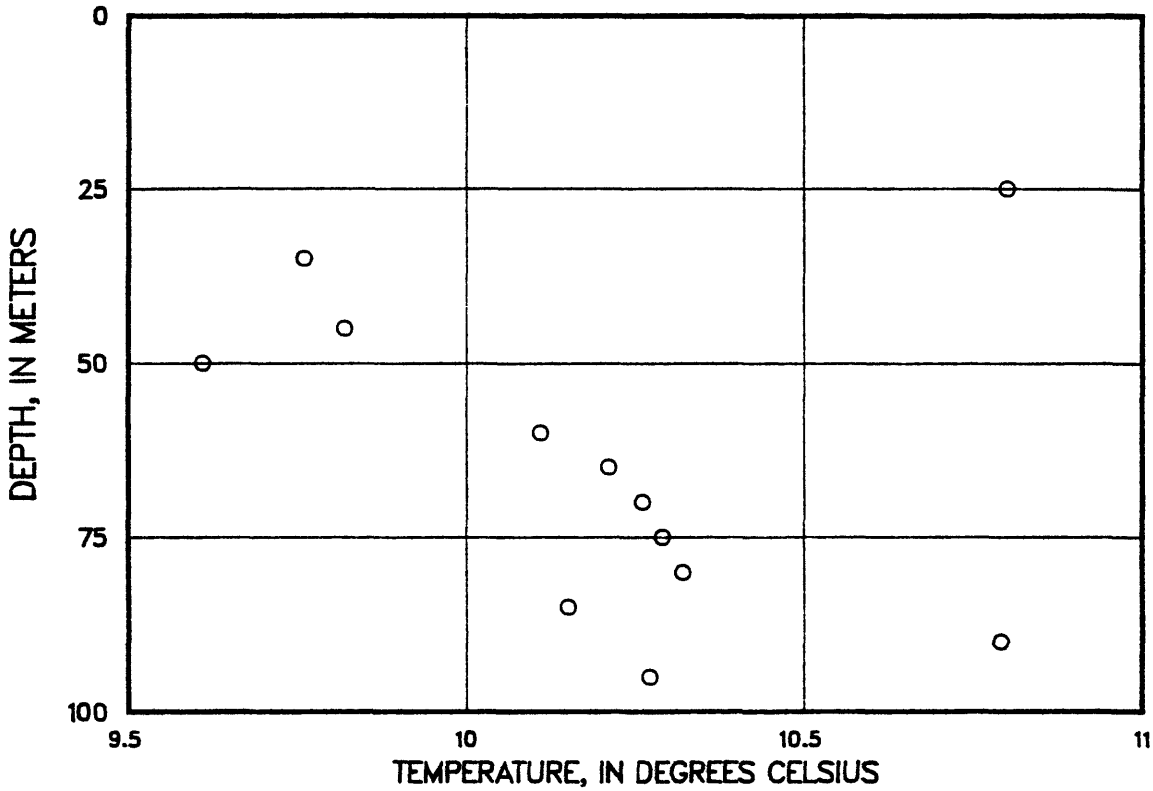


Fig. 167-Temperature profile from 15S-10E-36 SE.

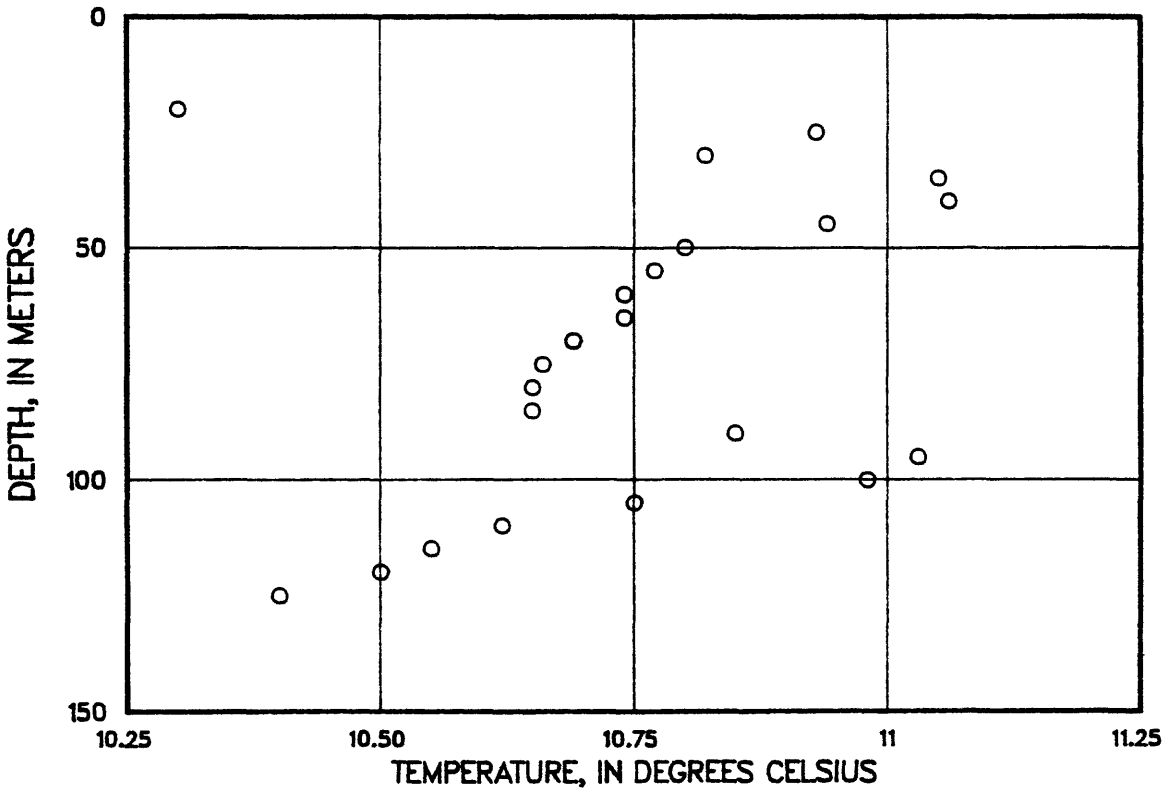


Fig. 168-Temperature profile from 15S-11E-07 NW.

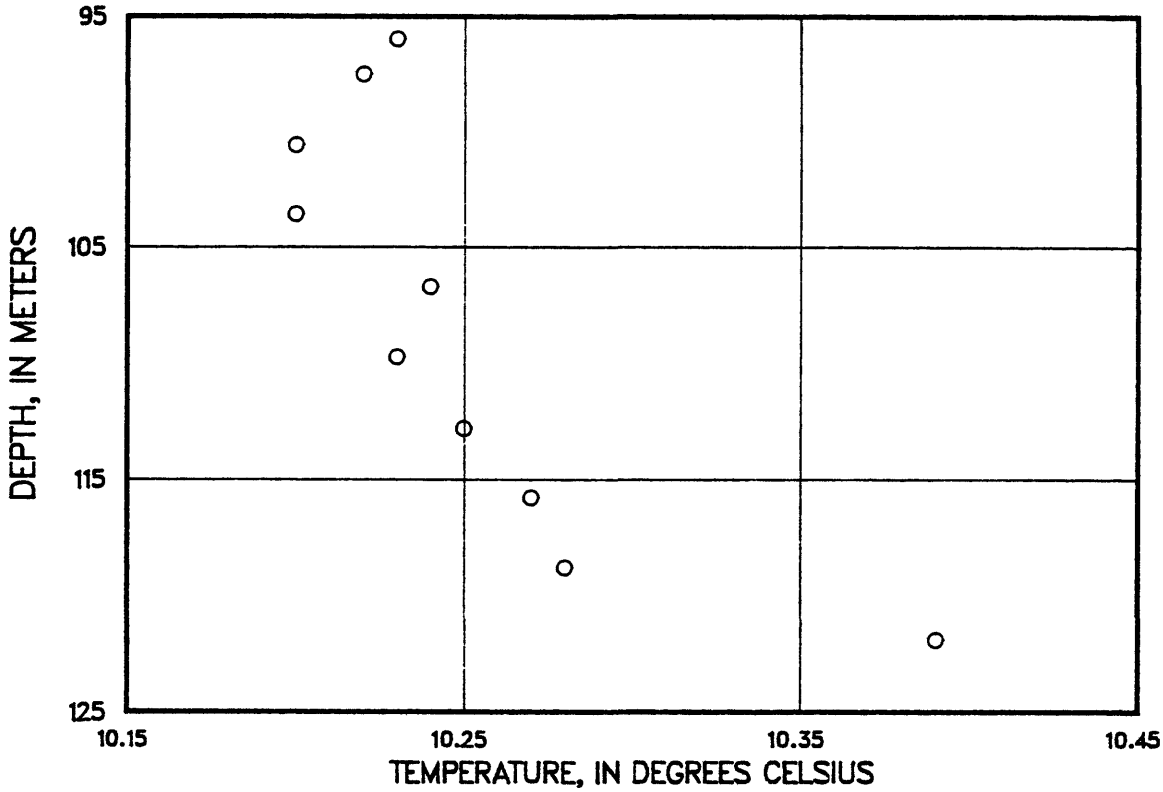


Fig. 169-Temperature profile from 15S-11E-09 NW.

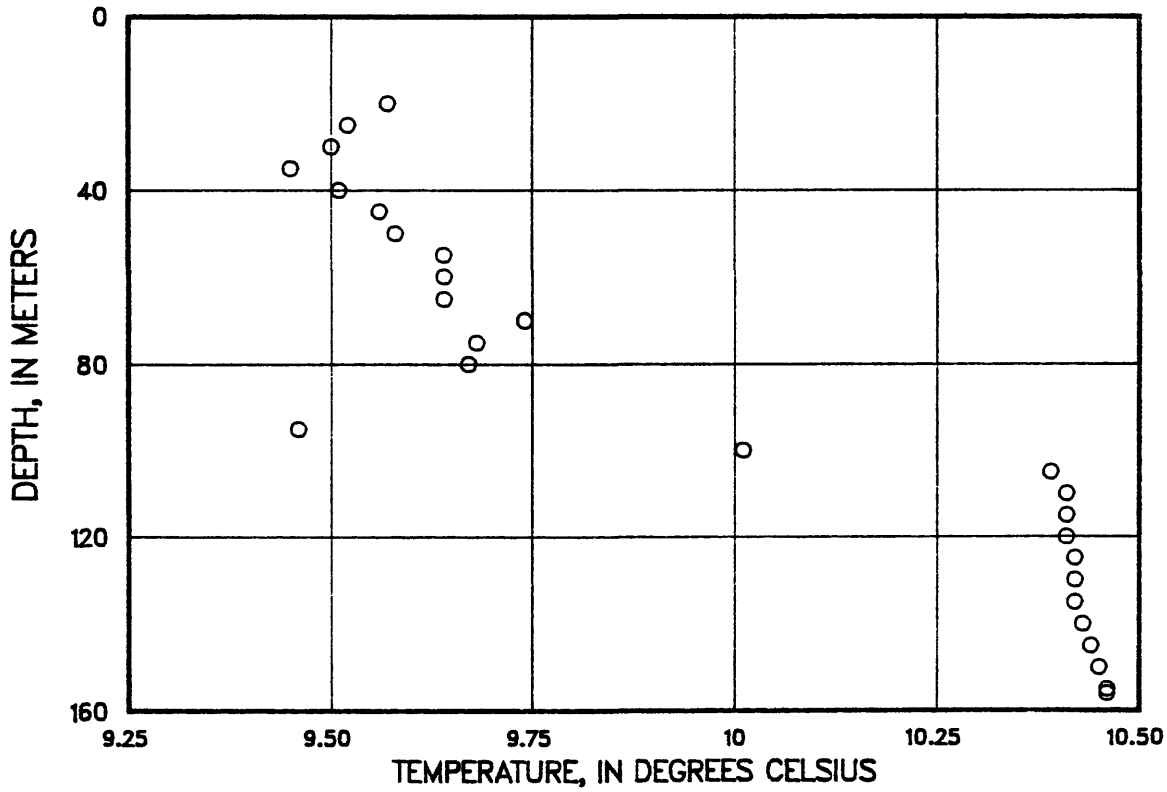


Fig. 170-Temperature profile from 15S-12E-09 NW.

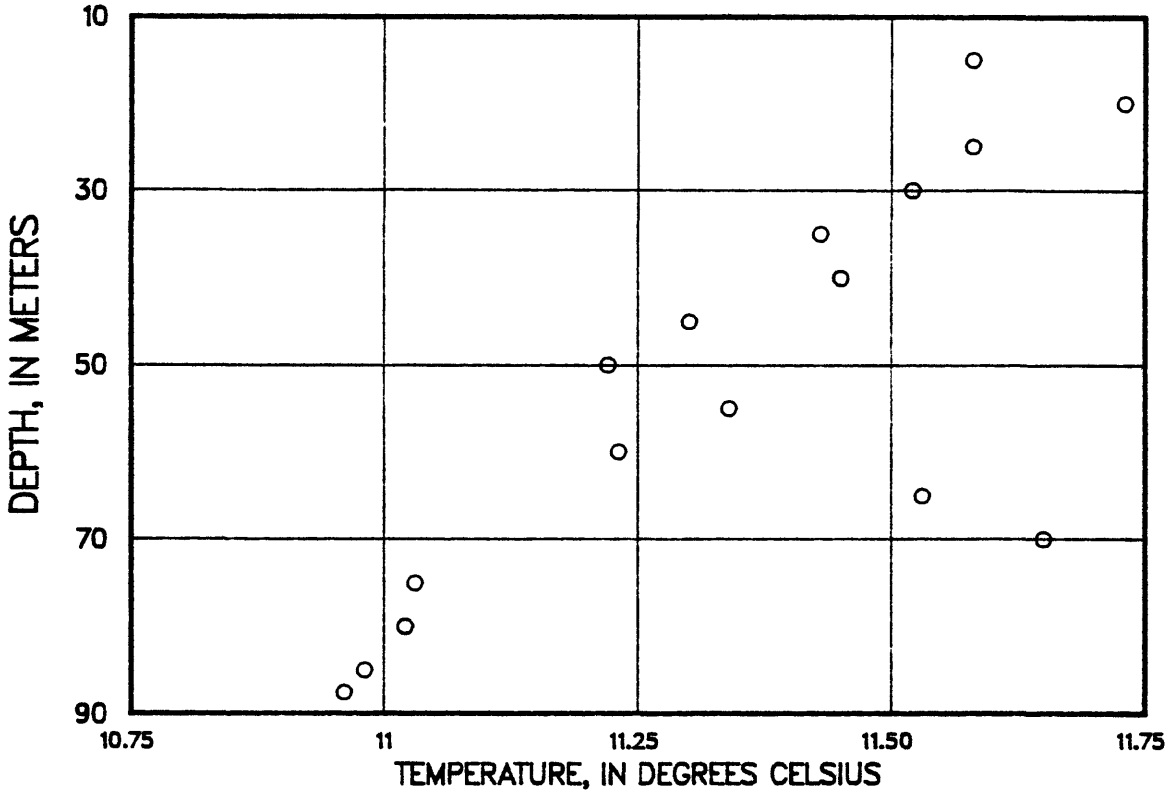


Fig. 171-Temperature profile from 15S-12E-23 NW.

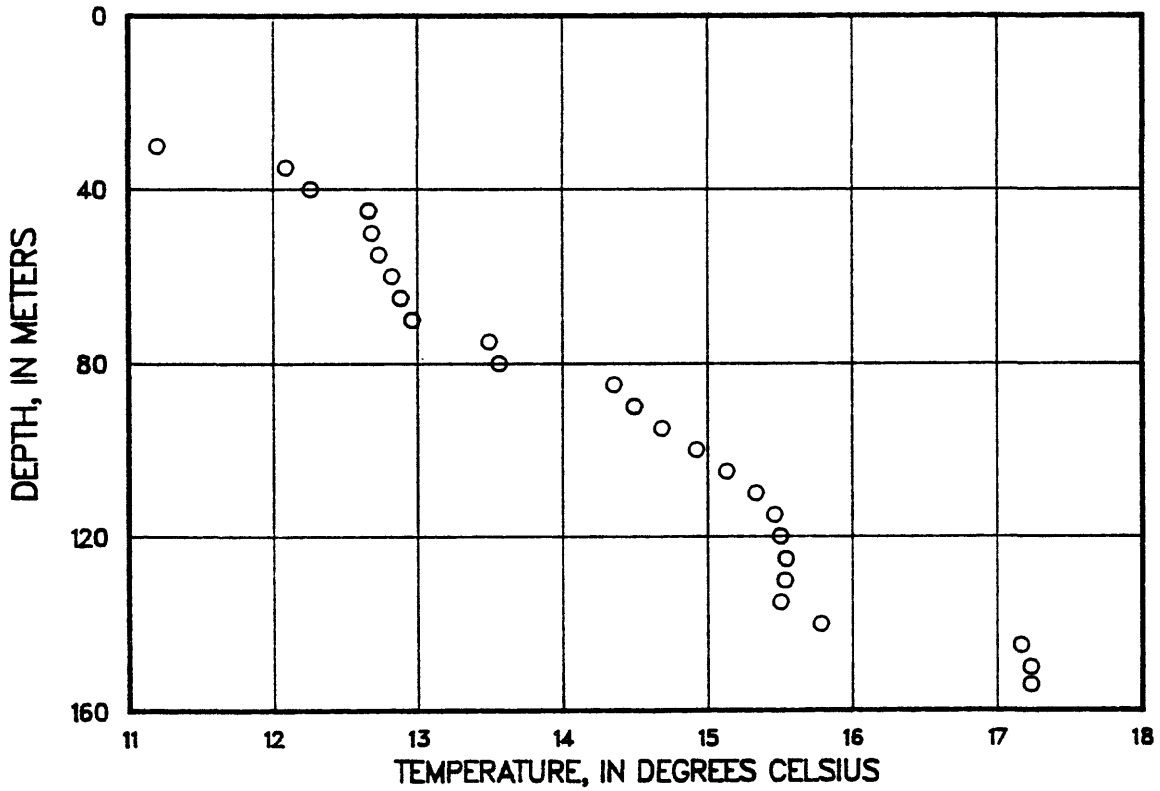


Fig. 172-Temperature profile from 15S-13E-03 SE.

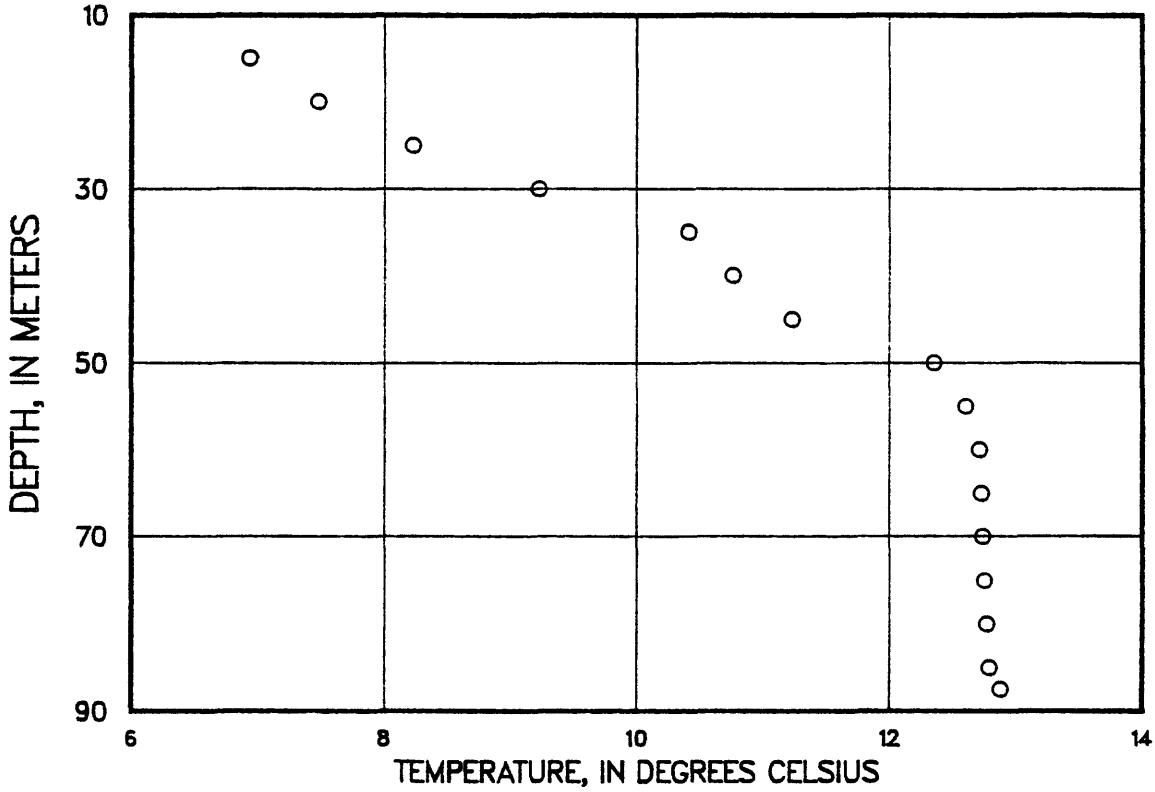


Fig. 173-Temperature profile from 15S-13E-03 SE.

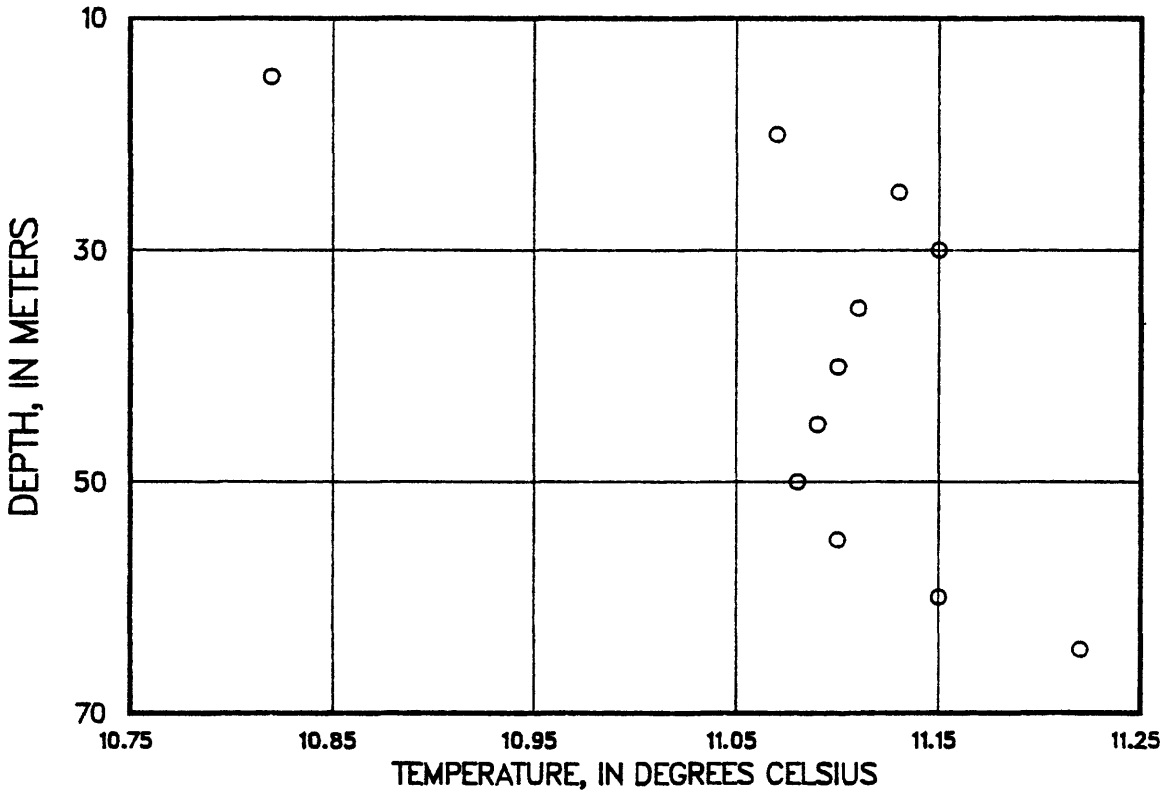


Fig. 174-Temperature profile from 15S-13E-18 NW.

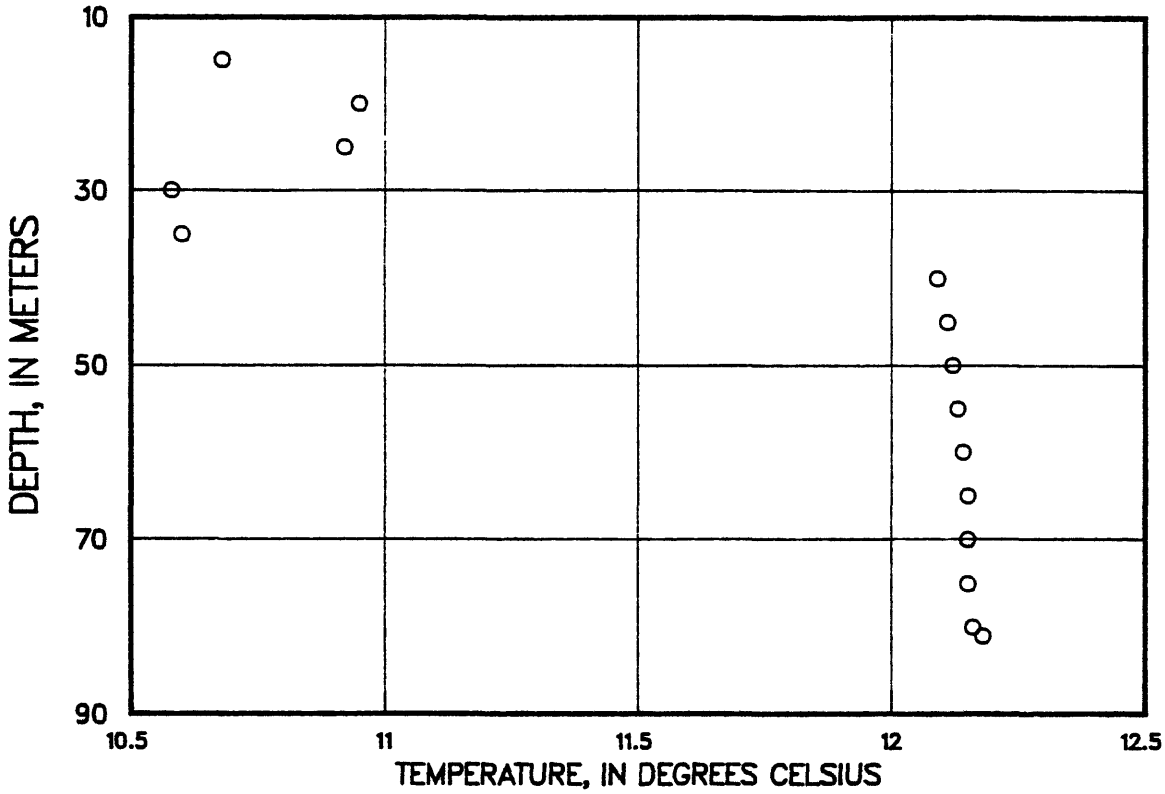


Fig. 175-Temperature profile from 15S-14E-15 SE.

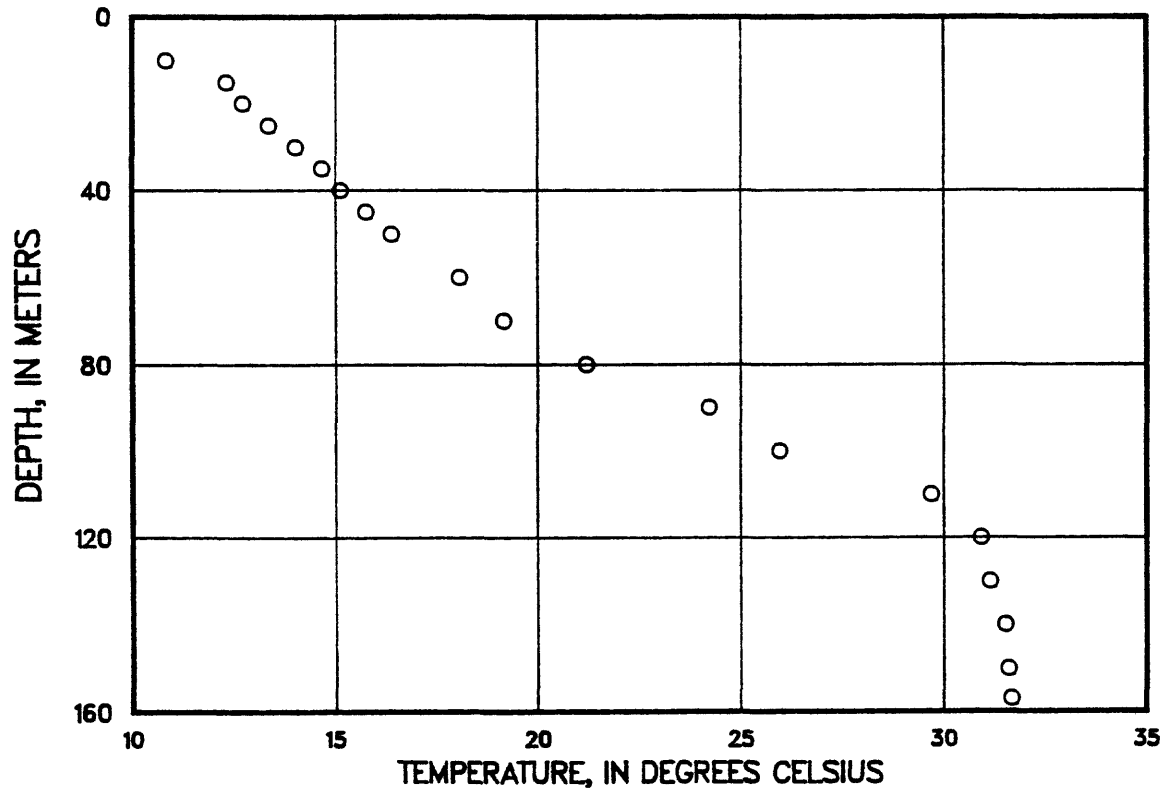


Fig. 176-Temperature profile from 15S-14E-36 NE.

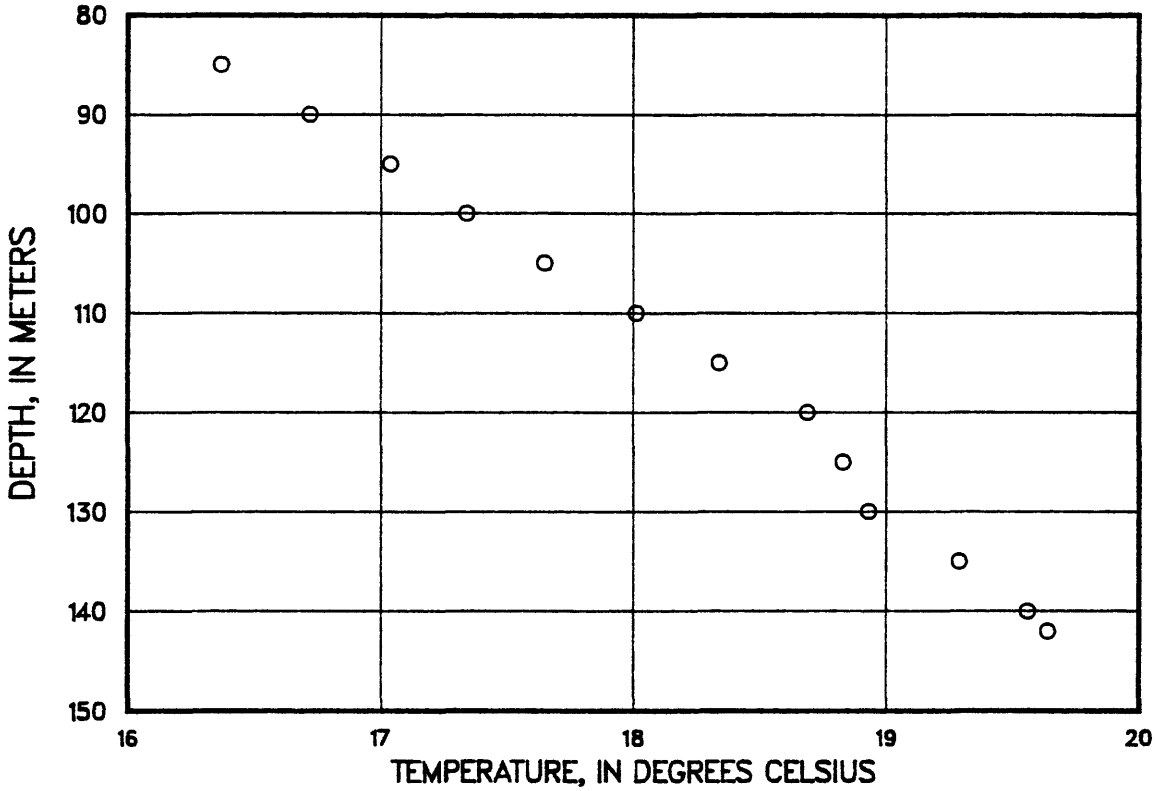


Fig. 177-Temperature profile from 15S-15E-11 SW.

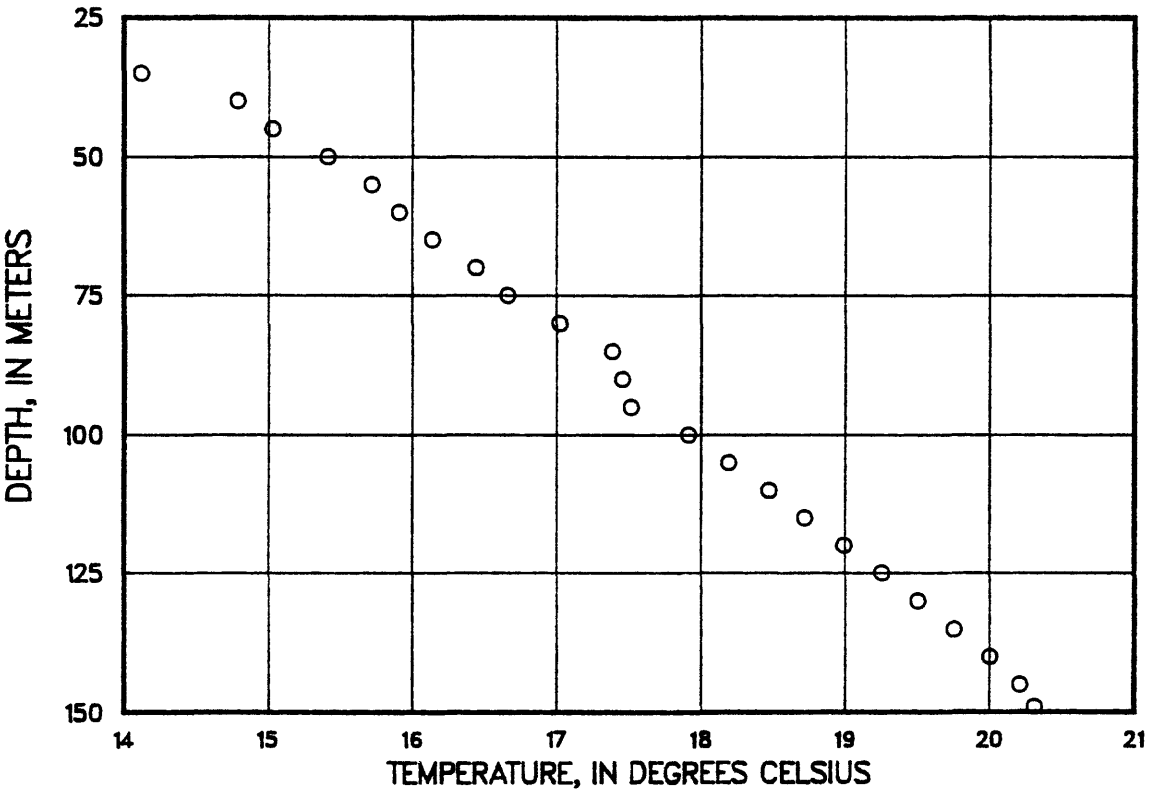


Fig. 178-Temperature profile from 15S-15E-28 NE.

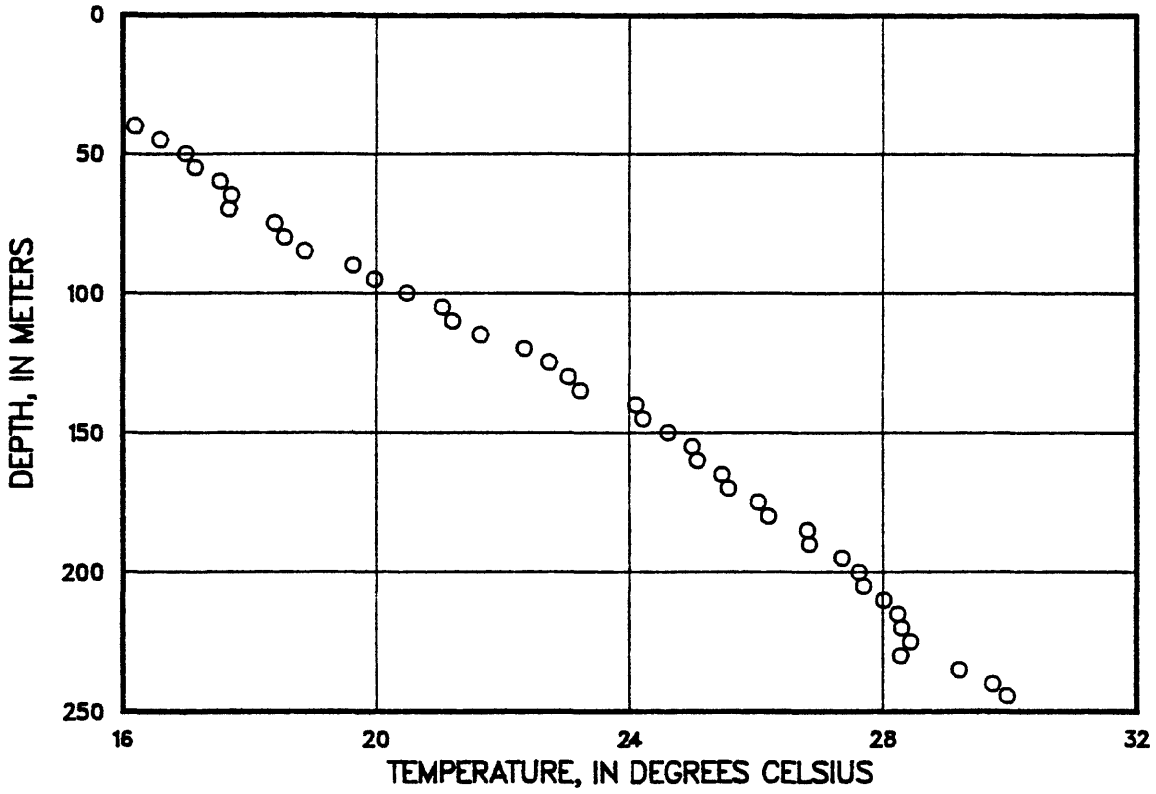


Fig. 179-Temperature profile from 15S-15E-31 NE.

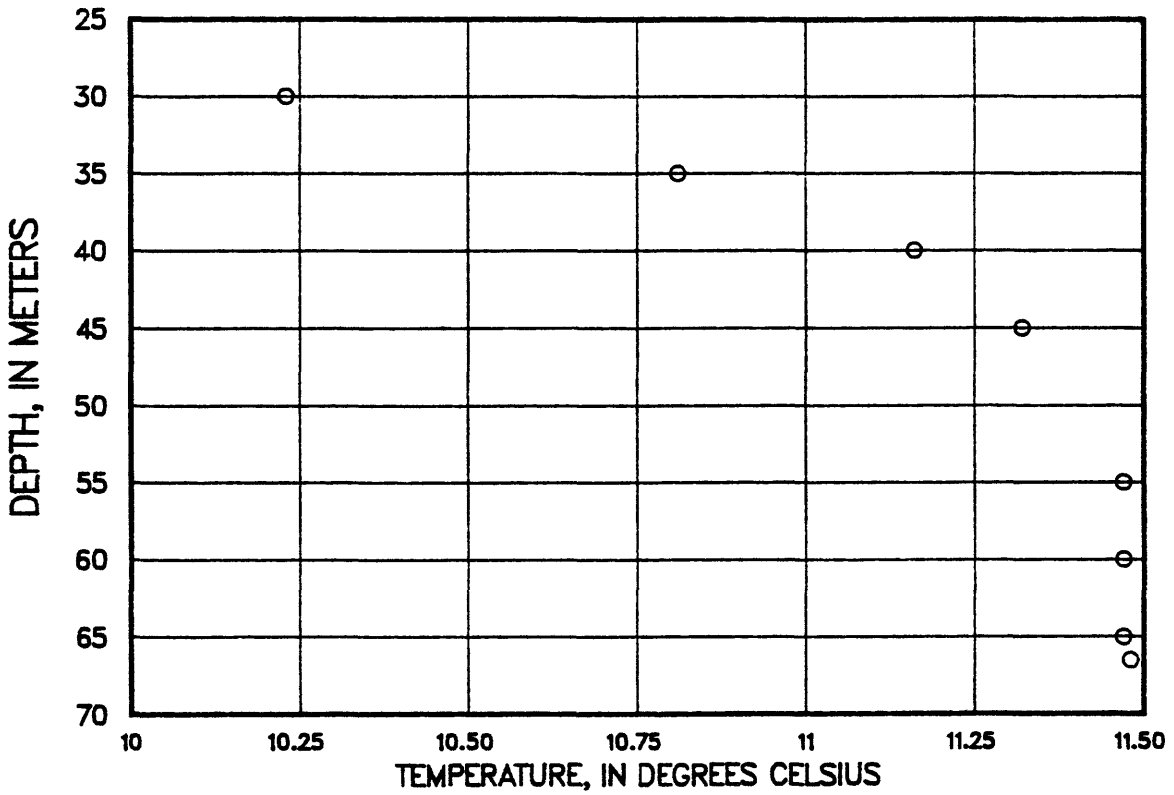


Fig. 180-Temperature profile from 16S-11E-34 NW.

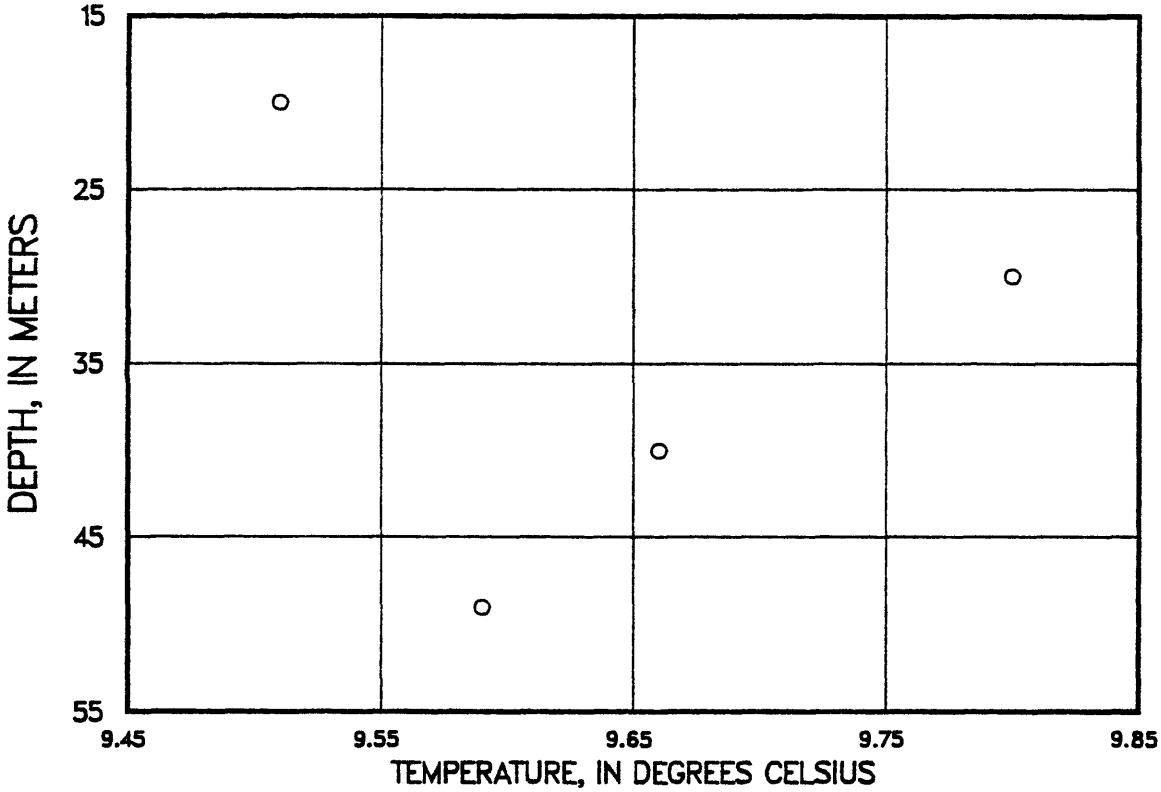


Fig. 181-Temperature profile from 16S-11E-34 SW.

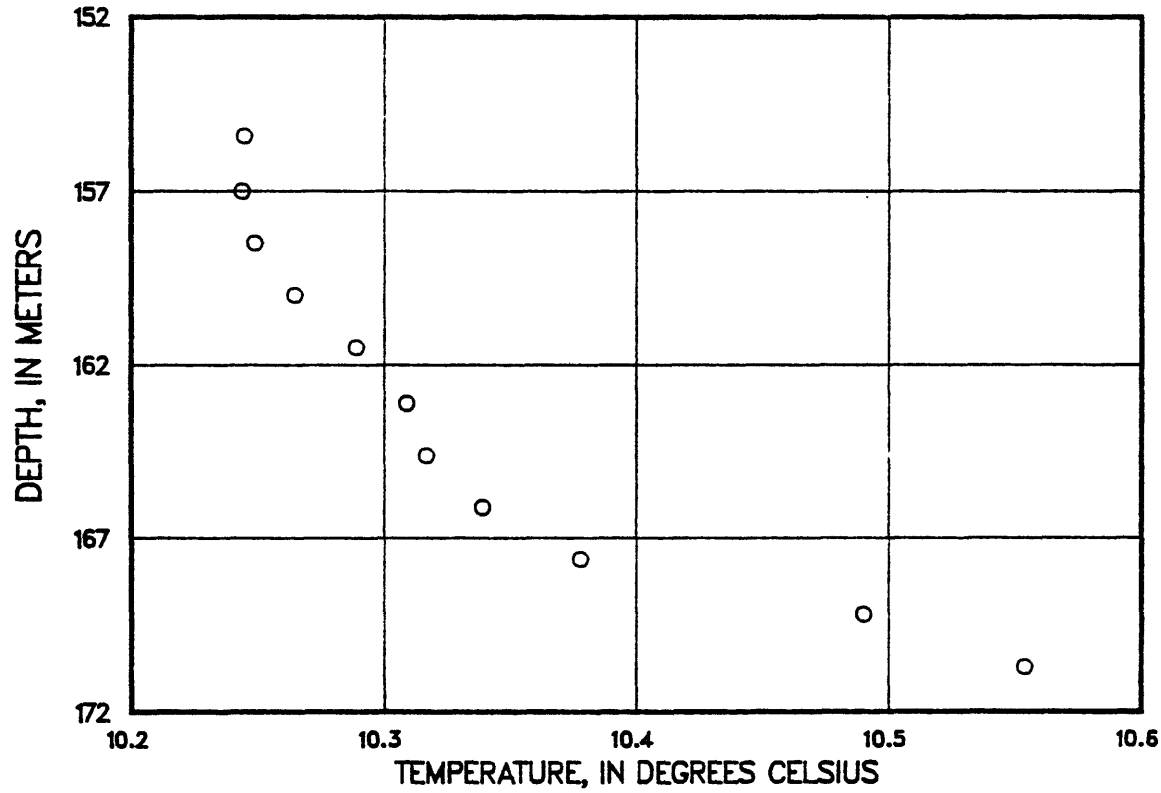


Fig. 182-Temperature profile from 16S-12E-26 NW.

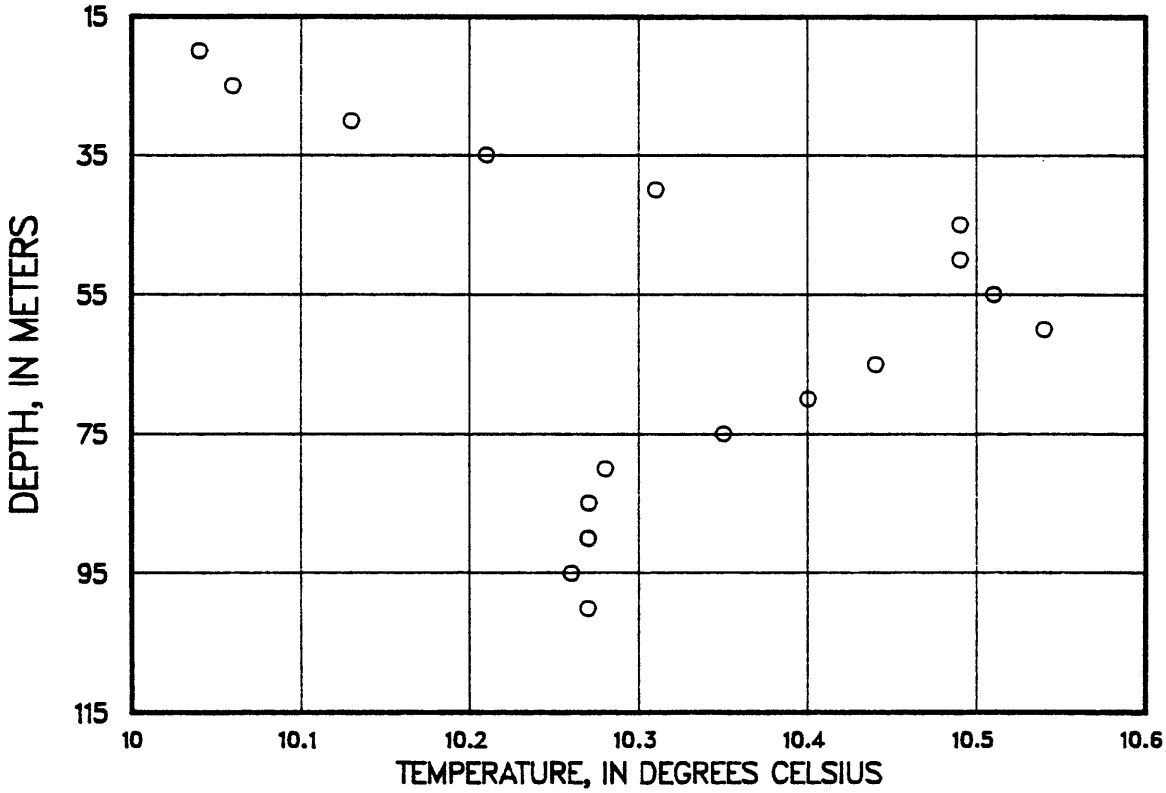


Fig. 183-Temperature profile from 16S-12E-31 SW.

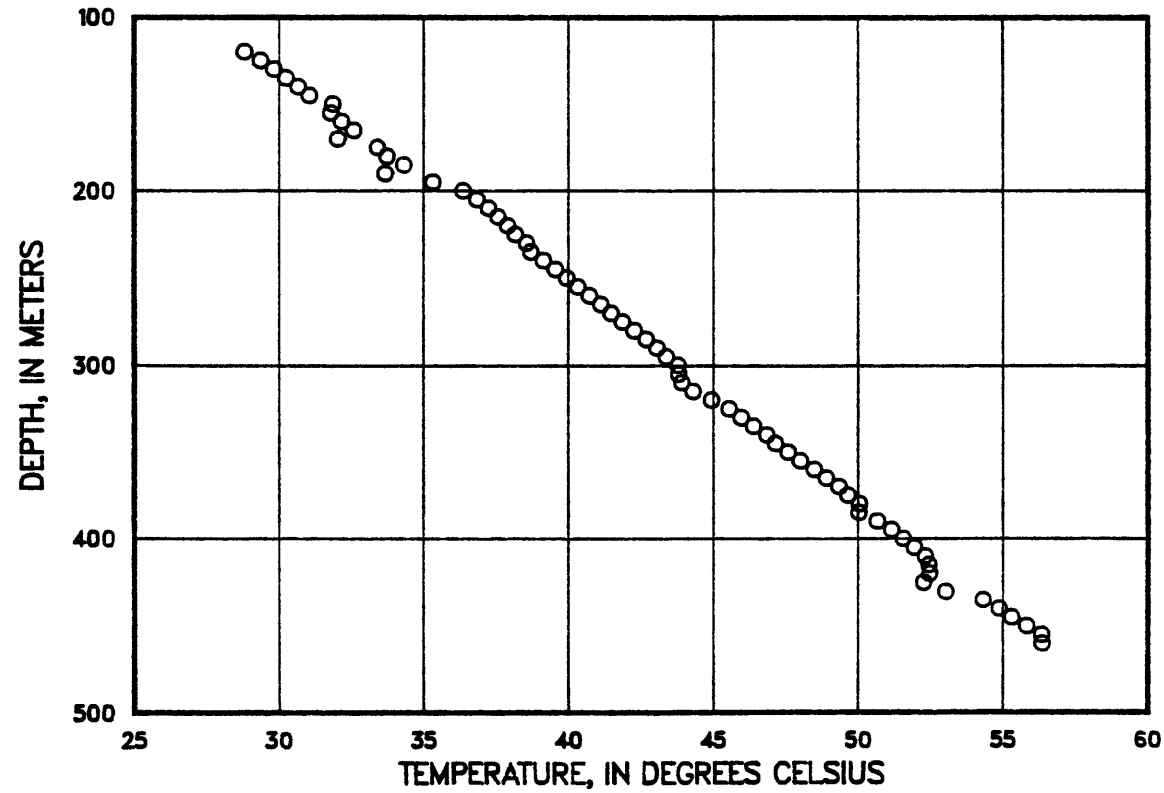


Fig. 184-Temperature profile from 16S-14E-16 NE.

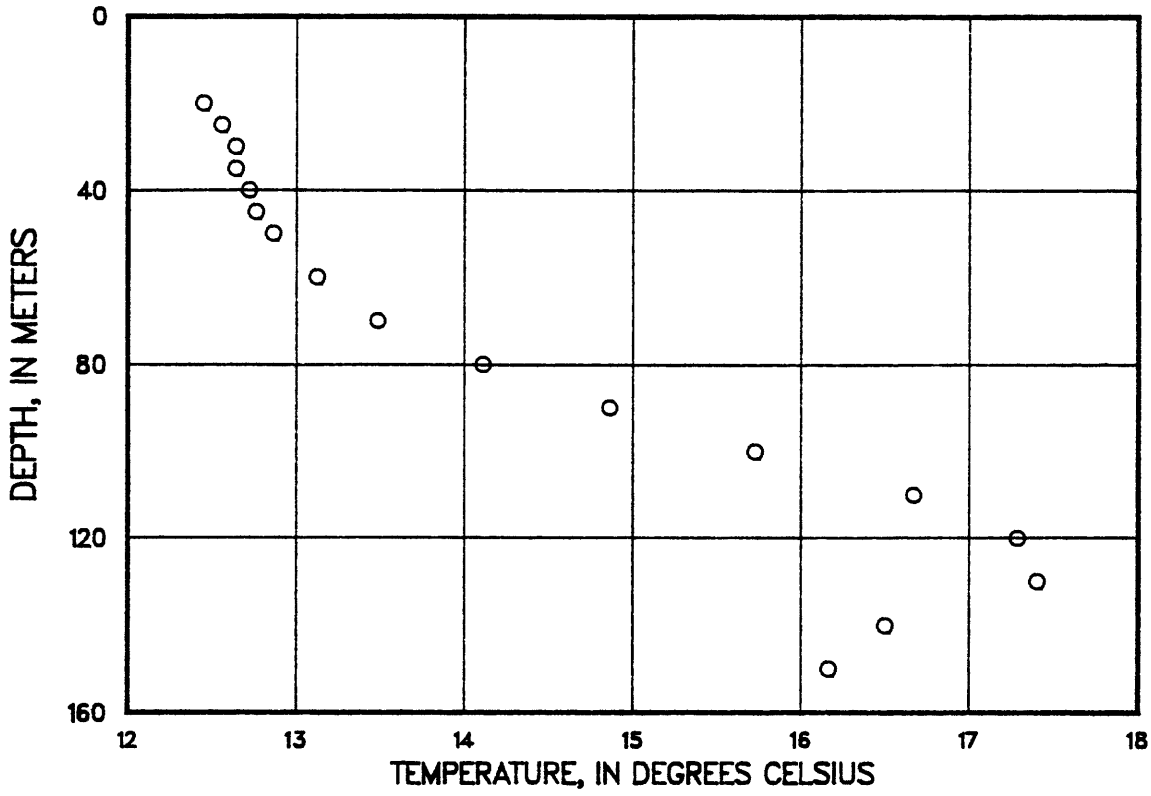


Fig. 185-Temperature profile from 16S-14E-17 SE.

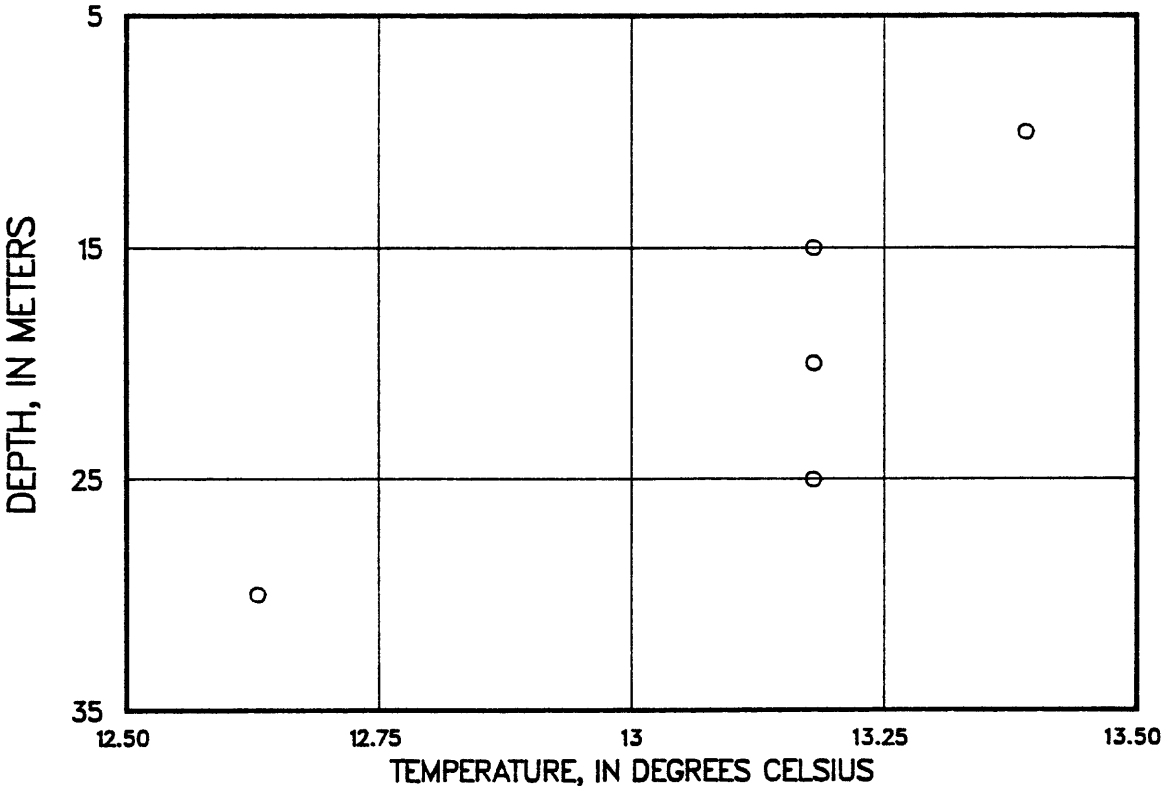


Fig. 186-Temperature profile from 16S-14E-20 NE.

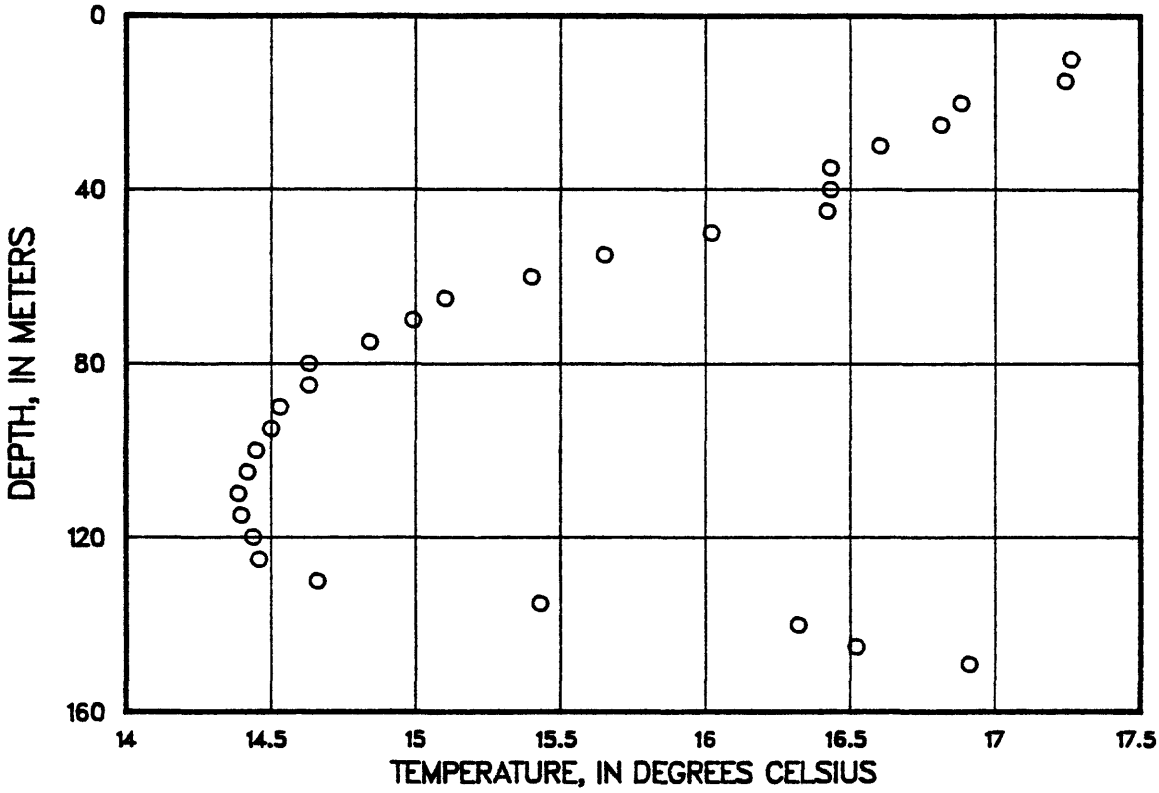


Fig. 187-Temperature profile from 16S-14E-20 SE.

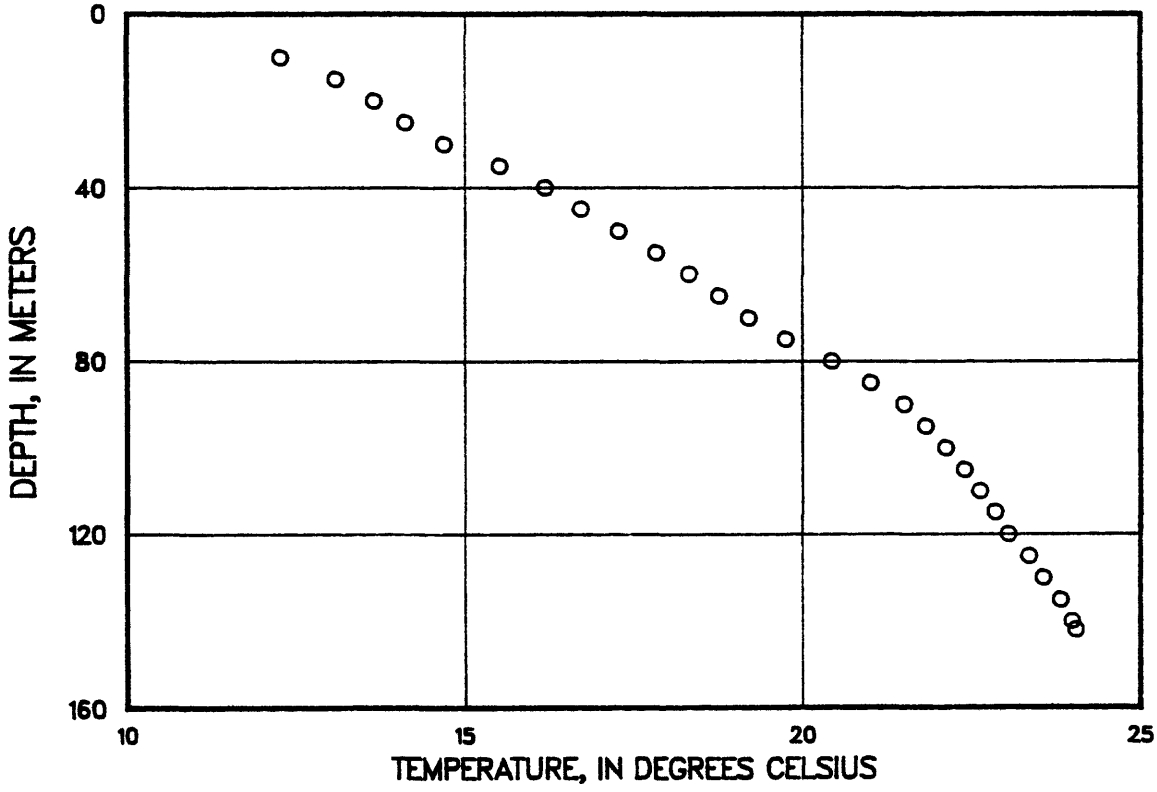


Fig. 188-Temperature profile from 16S-14E-35 SW.

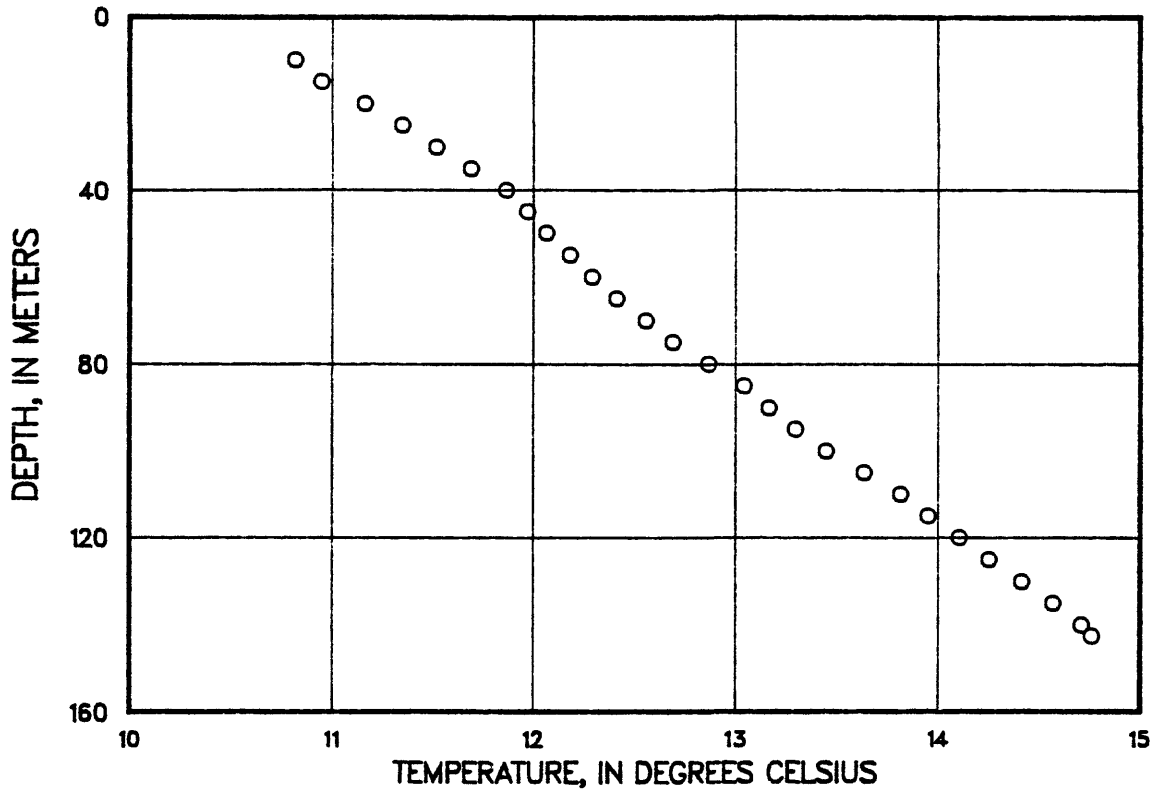


Fig. 189-Temperature profile from 16S-15E-20 SW.

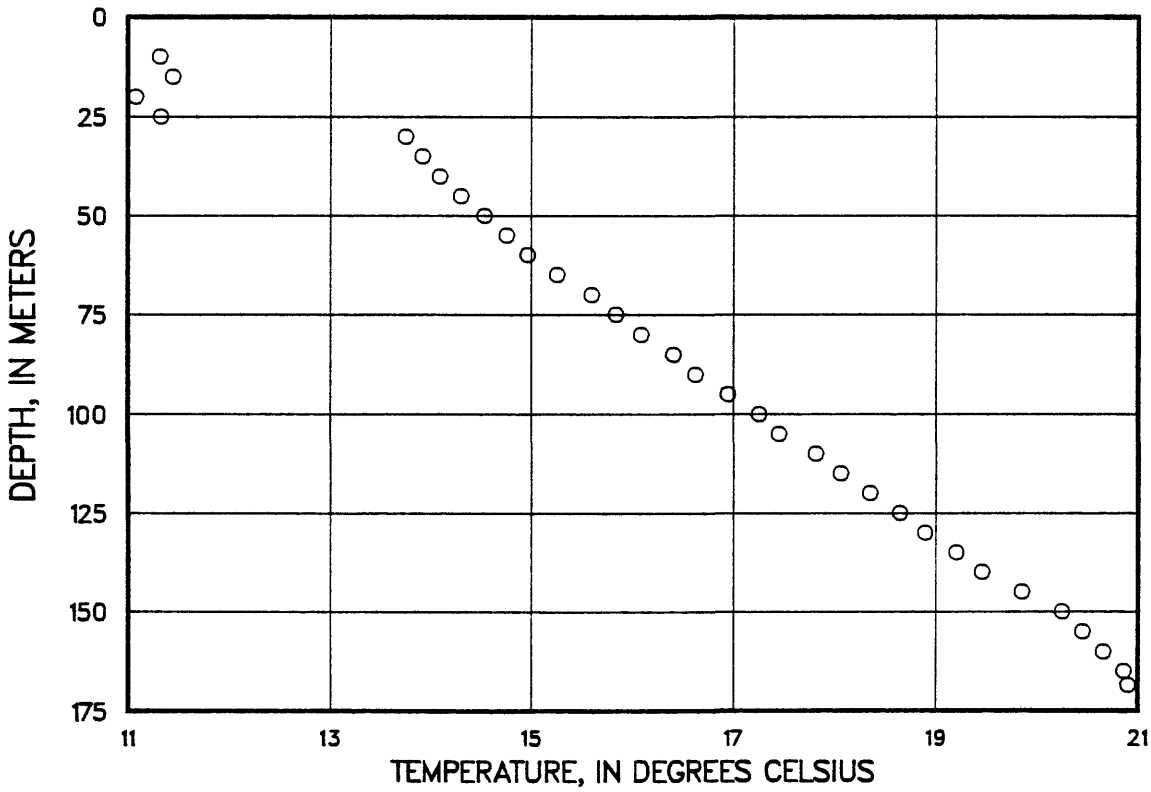


Fig. 190-Temperature profile from 16S-15E-26 SW.

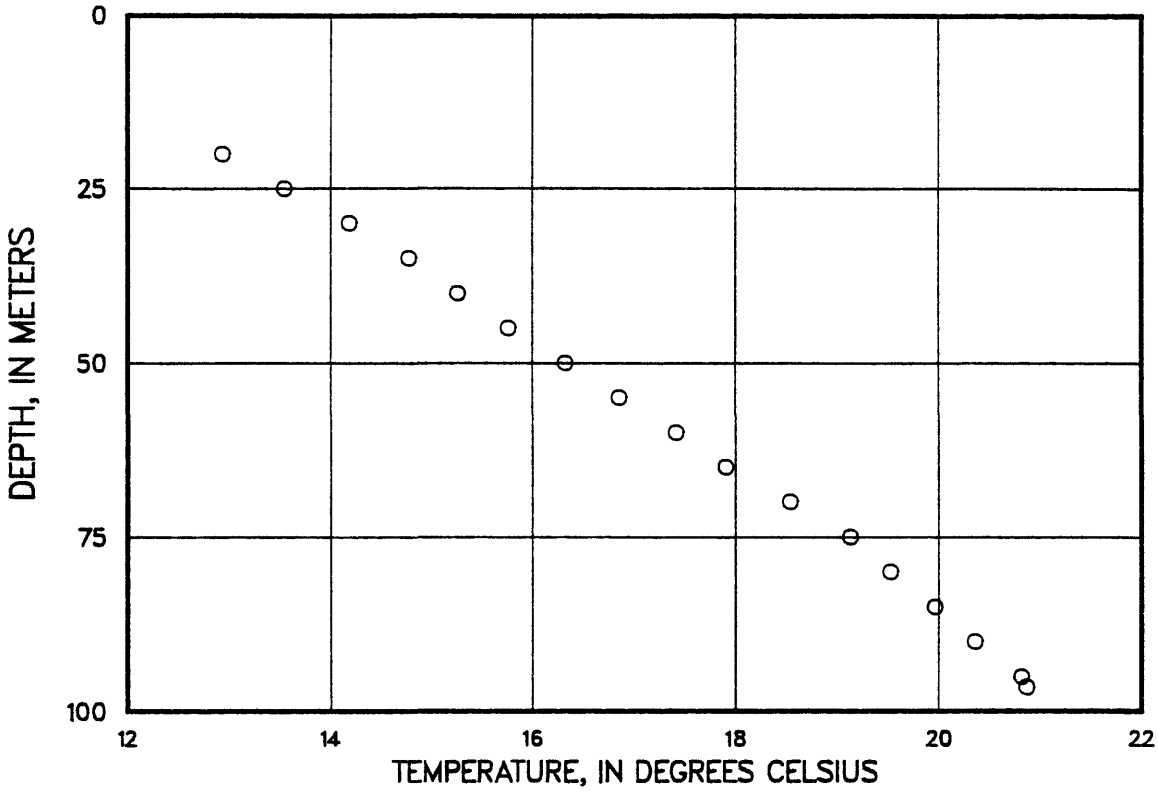


Fig. 191-Temperature profile from 16S-15E-29 SW.

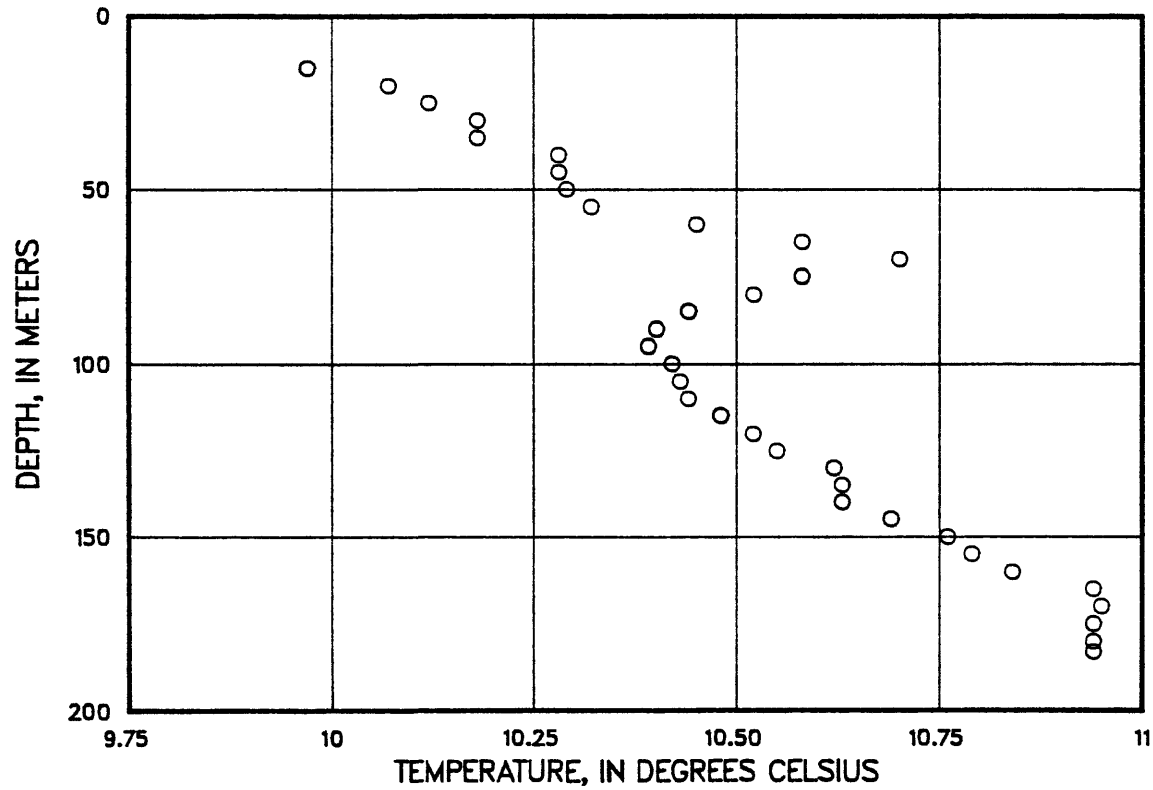


Fig. 192-Temperature profile from 17S-13E-08 NW.

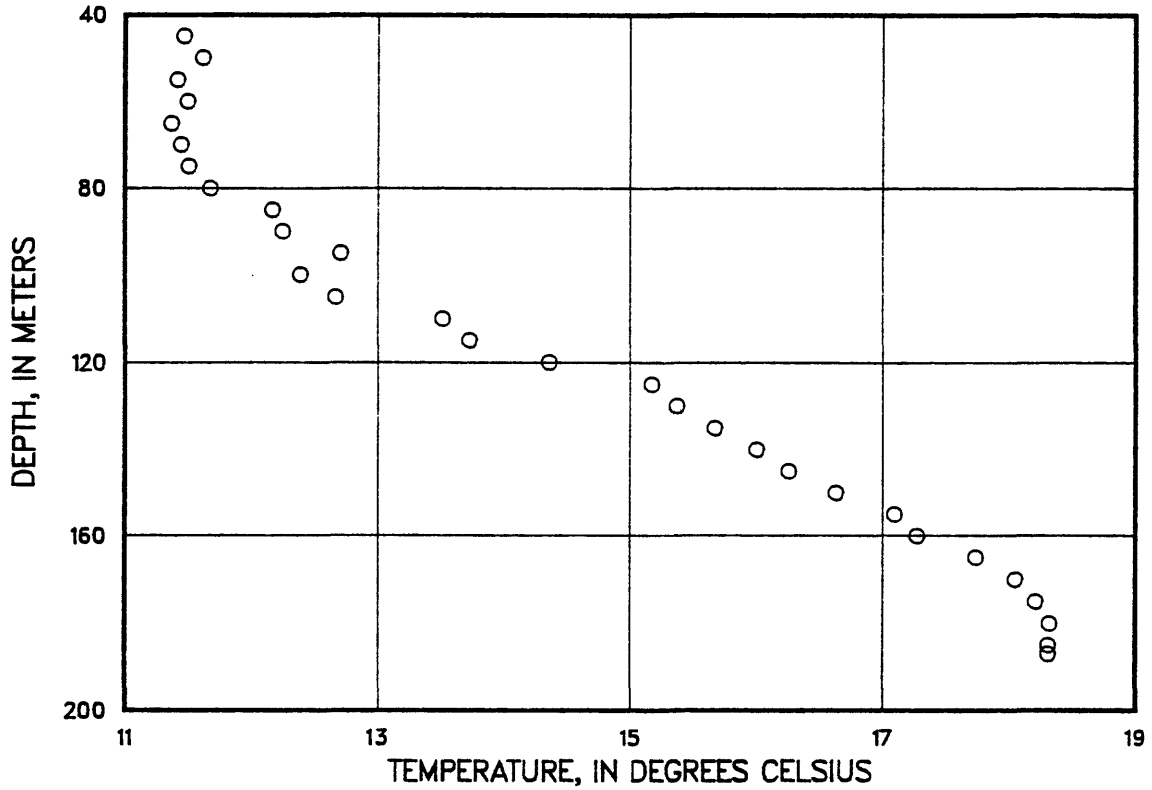


Fig. 193-Temperature profile from 17S-14E-23 NE.

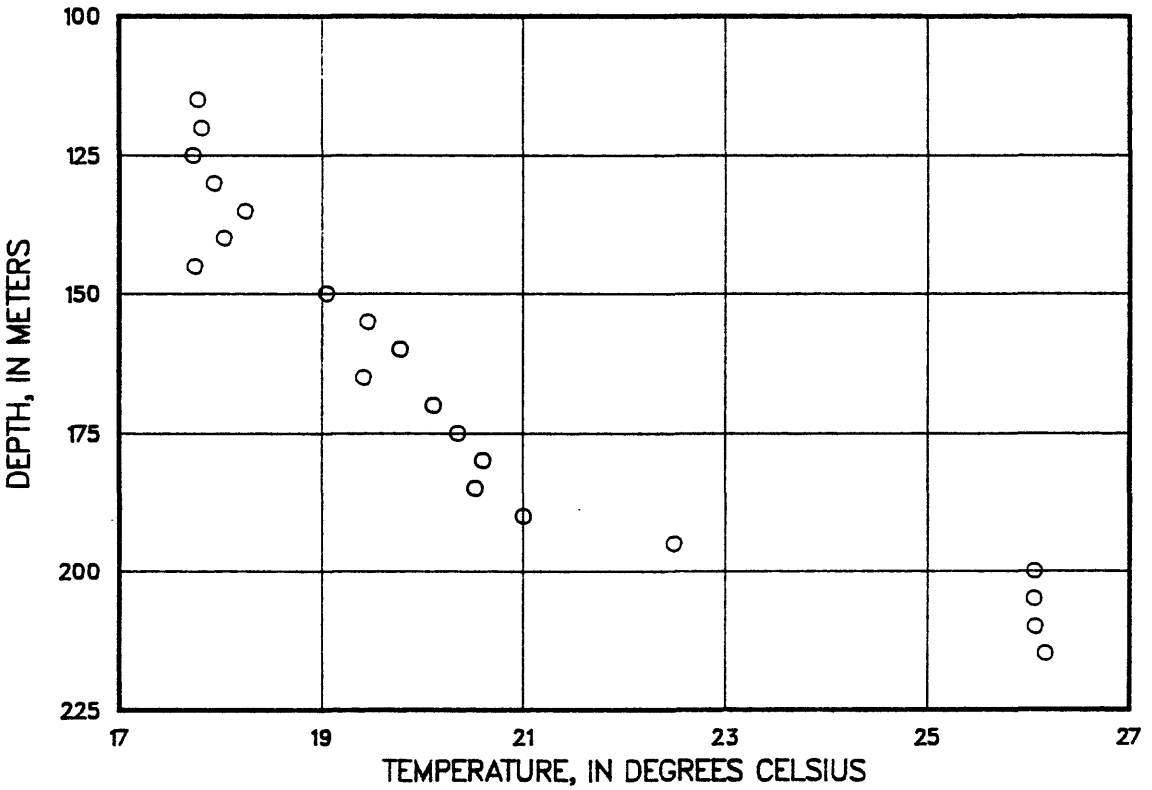


Fig. 194-Temperature profile from 17S-15E-20 SW.

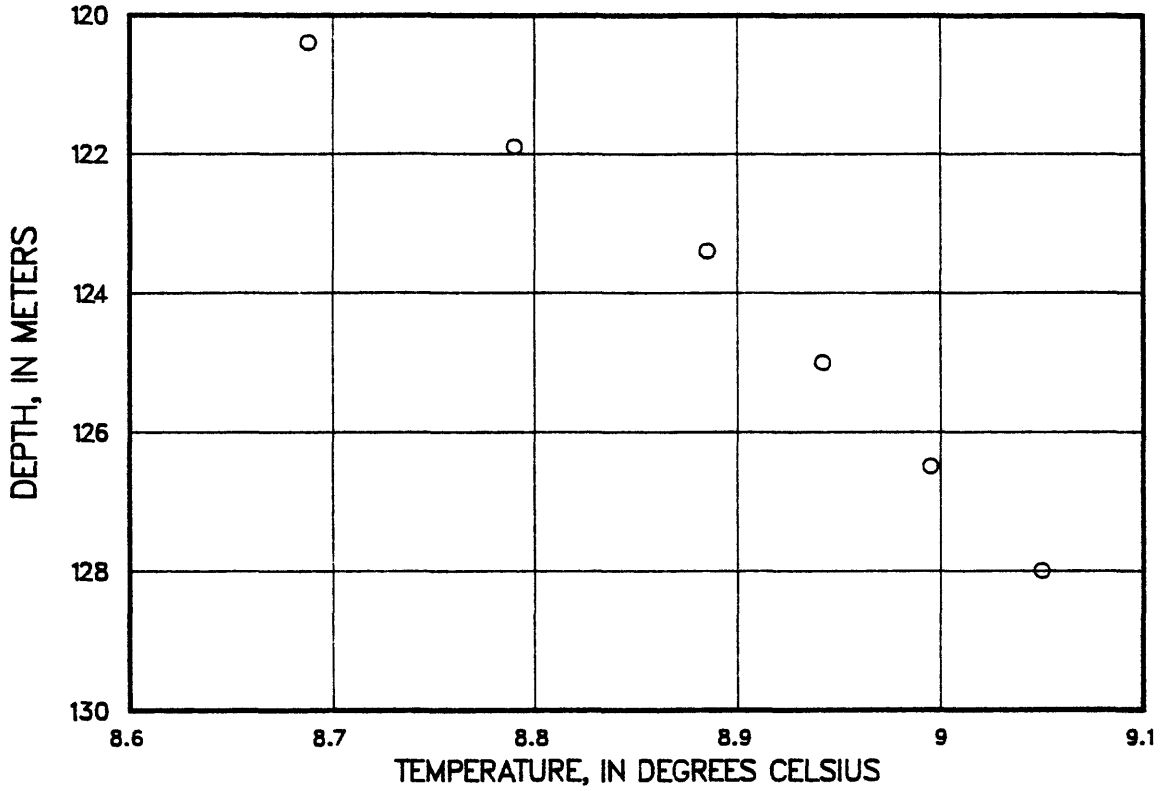


Fig. 195-Temperature profile from 18S-11E-23 SW.

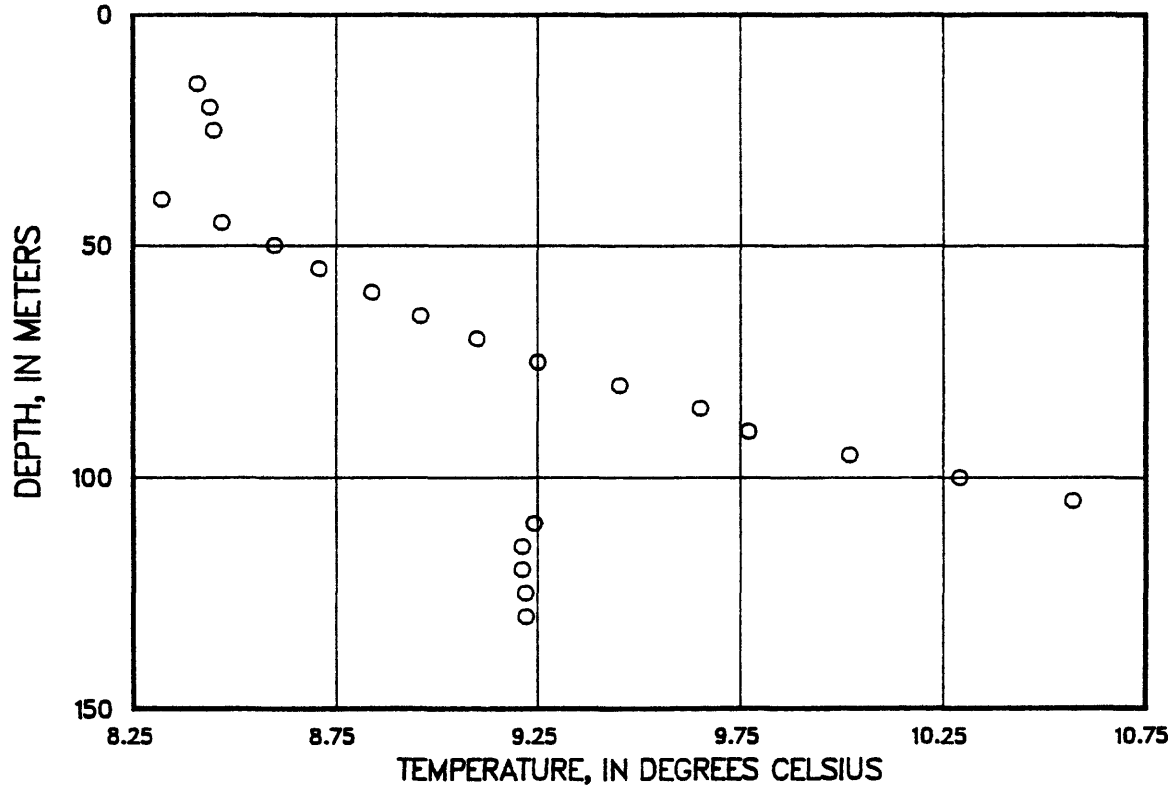


Fig. 196-Temperature profile from 18S-11E-25 NW.

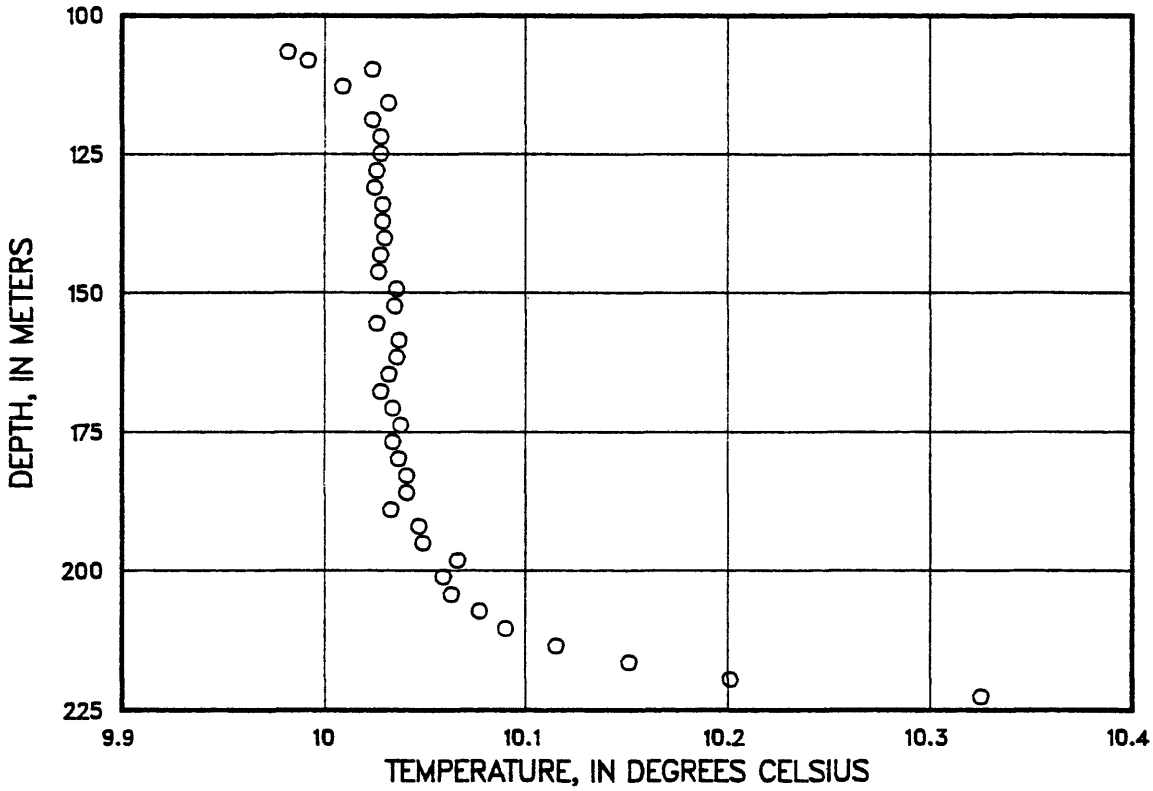


Fig. 197-Temperature profile from 18S-12E-05 NW.

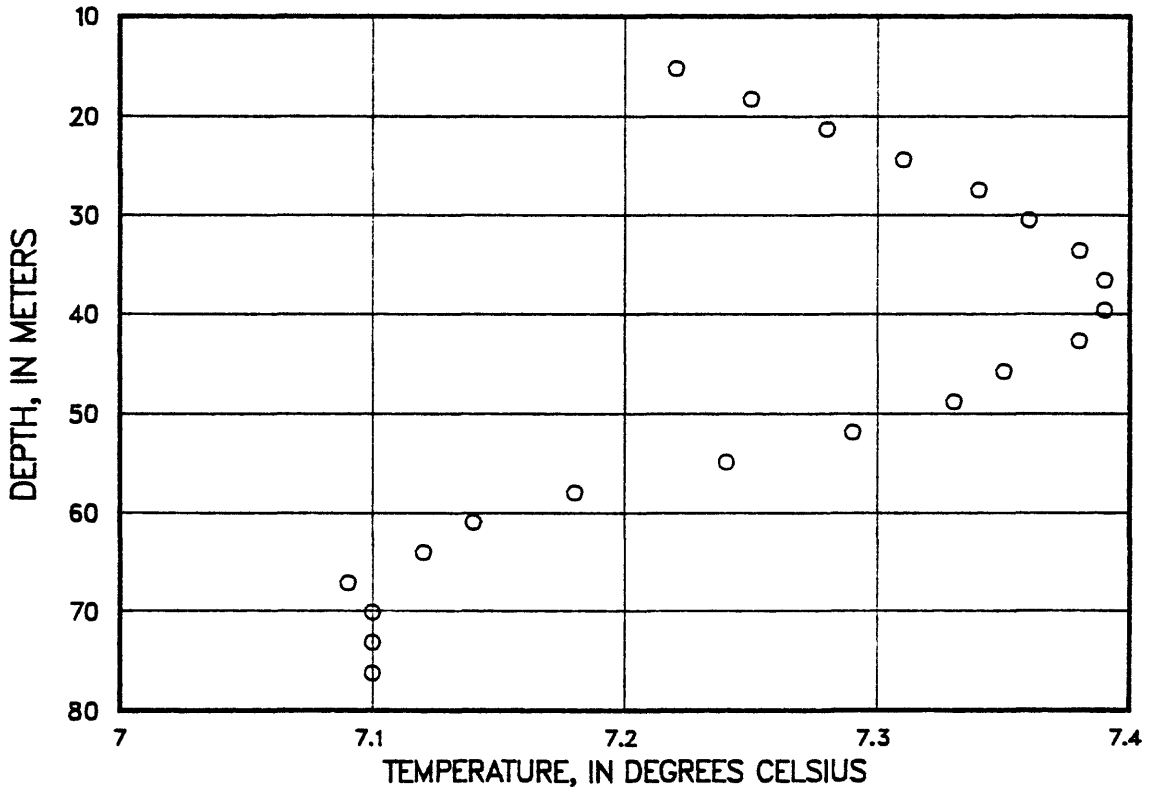


Fig. 198-Temperature profile from 19S-11E-16 NE.

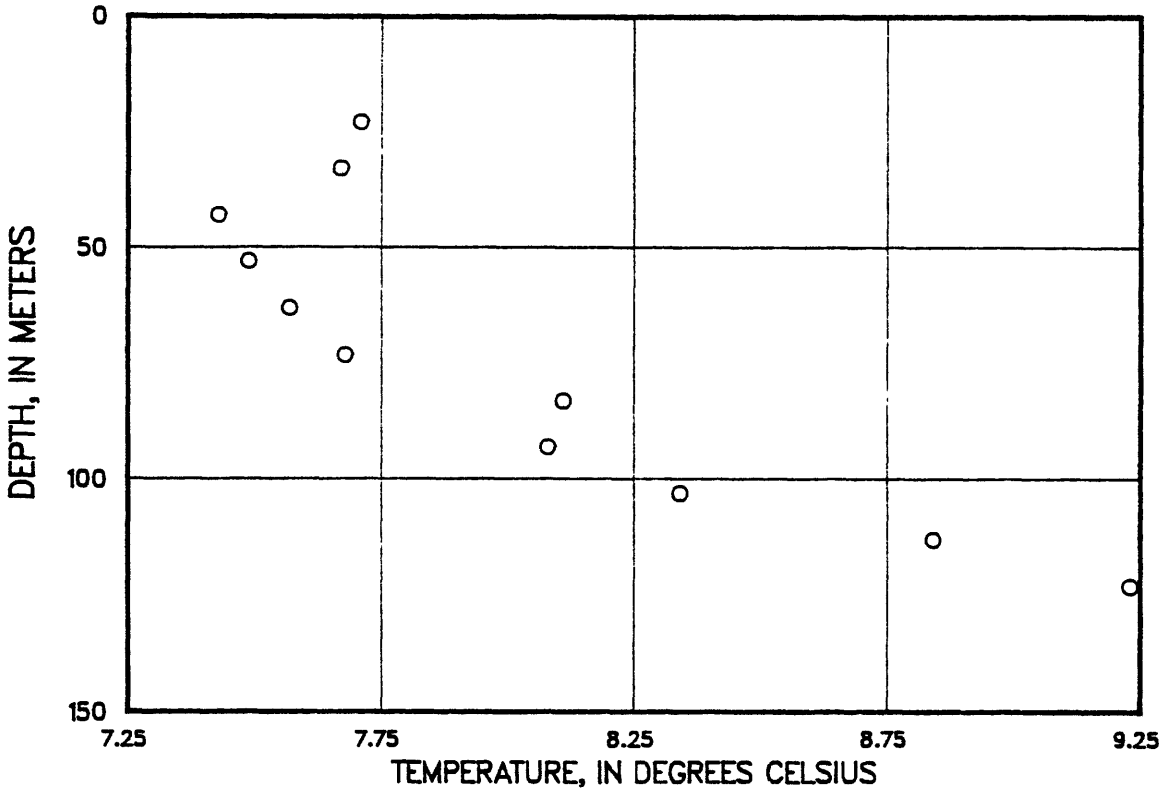


Fig. 199-Temperature profile from 19S-11E-25 NW.

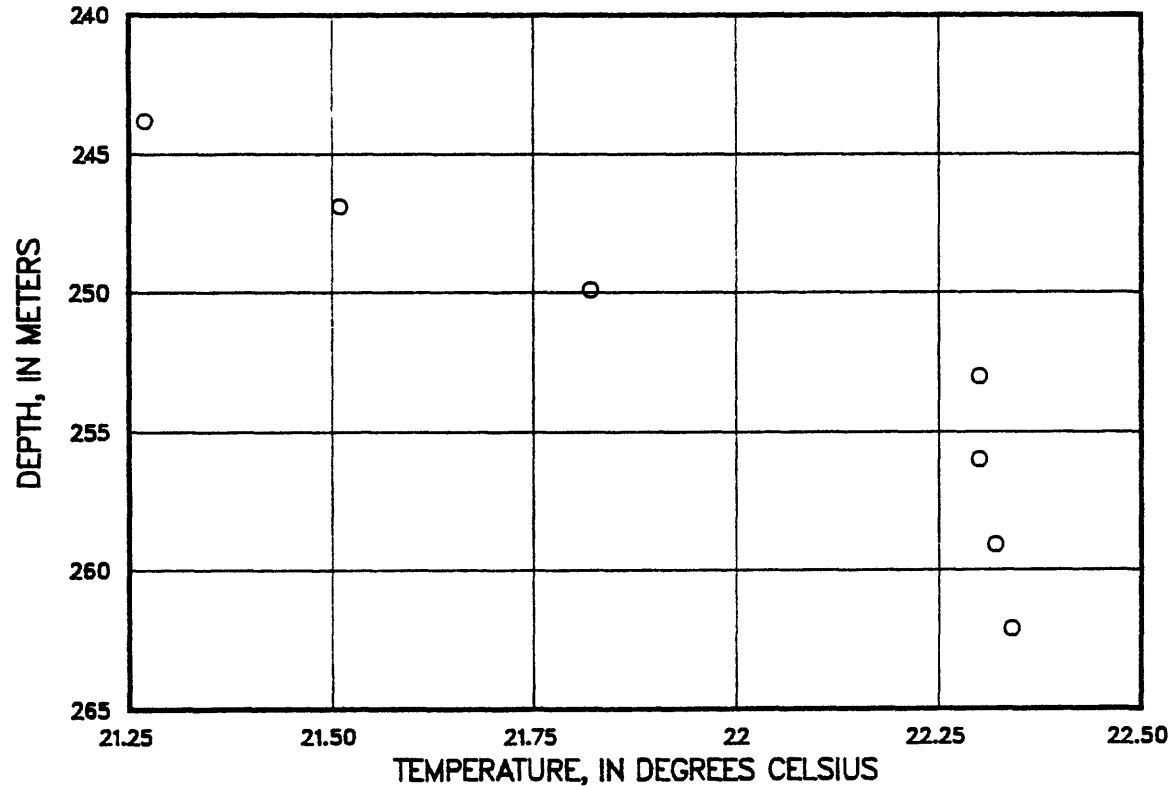


Fig. 200-Temperature profile from 19S-14E-02 SE.

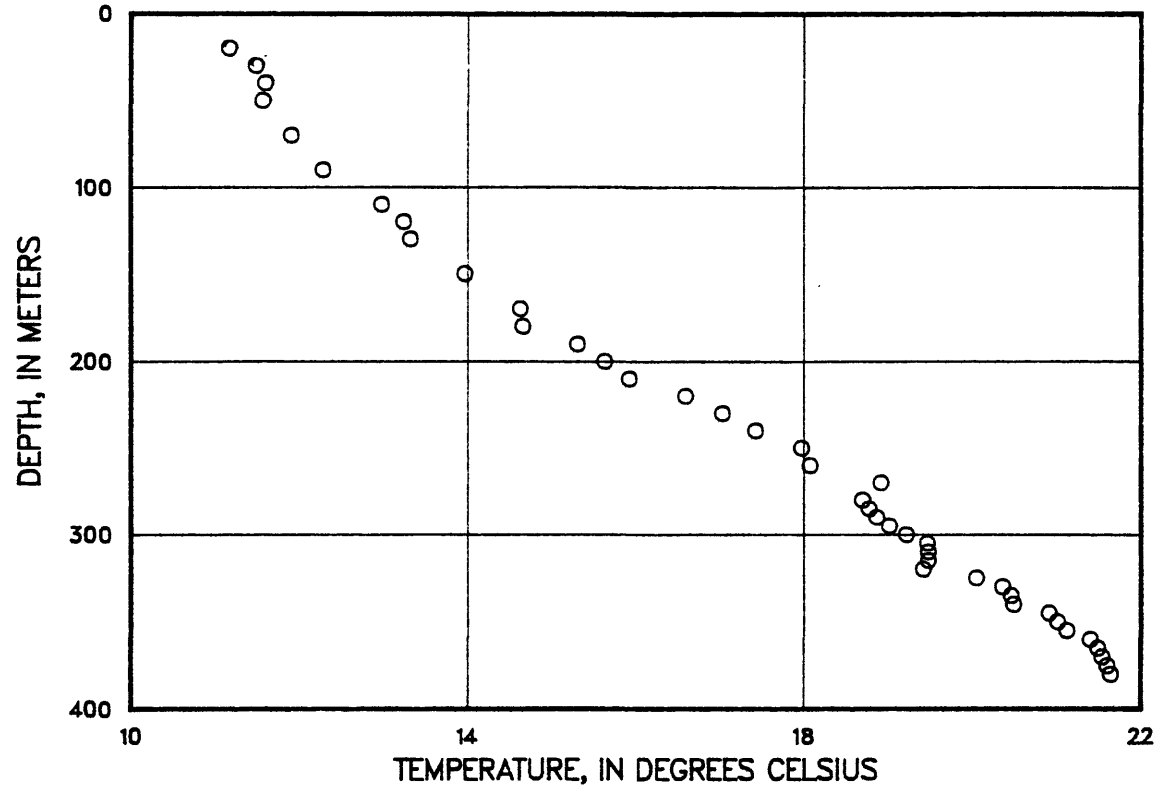


Fig. 201-Temperature profile from 19S-14E-24 SE.

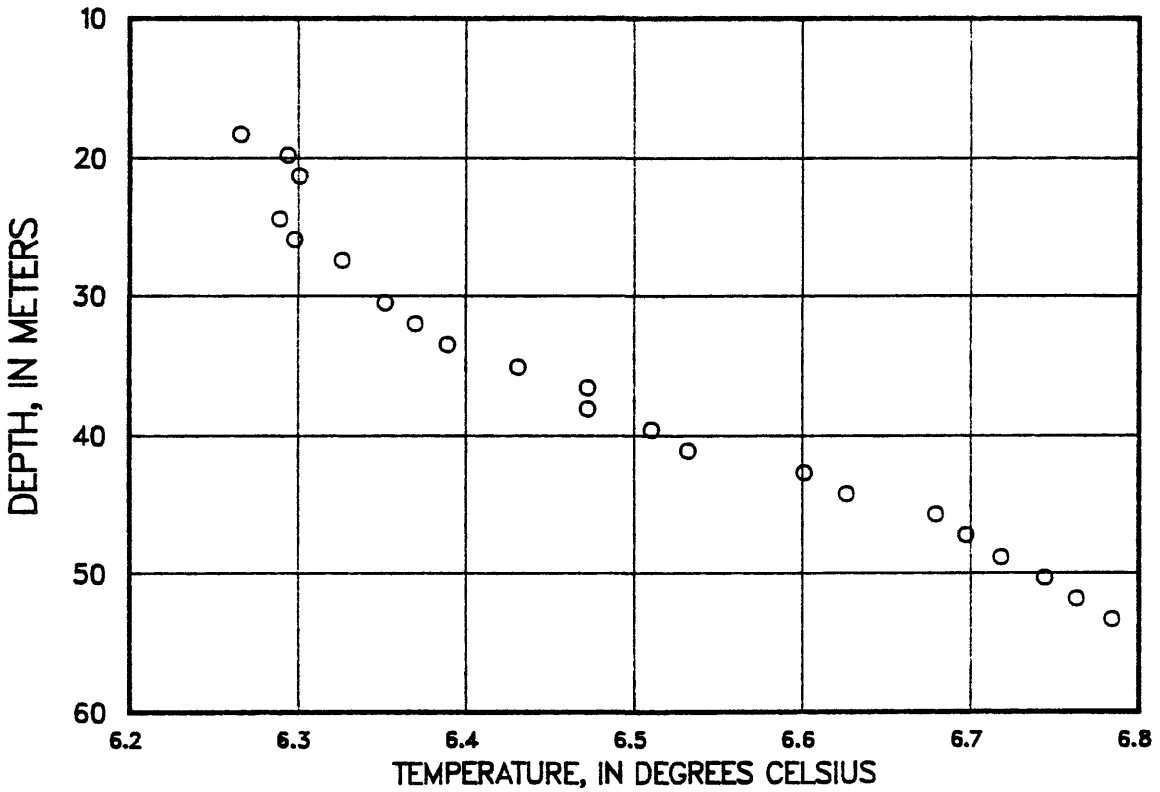


Fig. 202-Temperature profile from 20S-7E-34 NE.

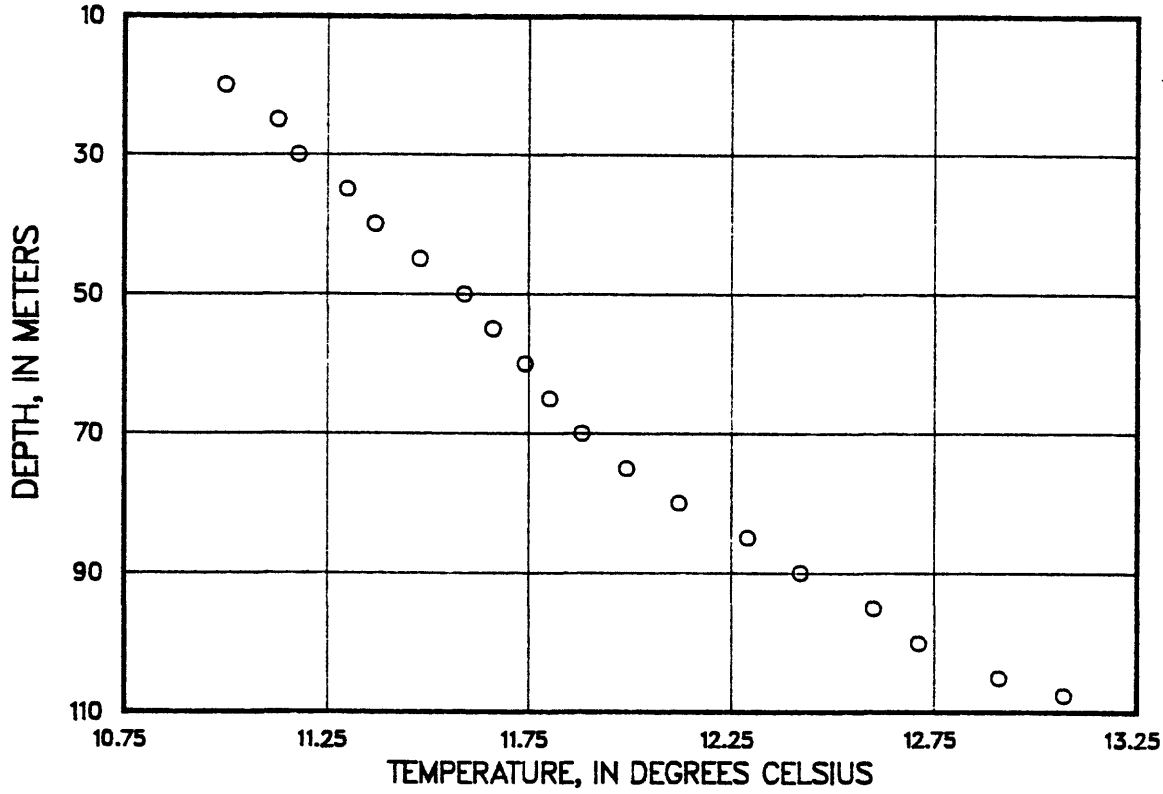


Fig. 203-Temperature profile from 20S-14E-13 NE.

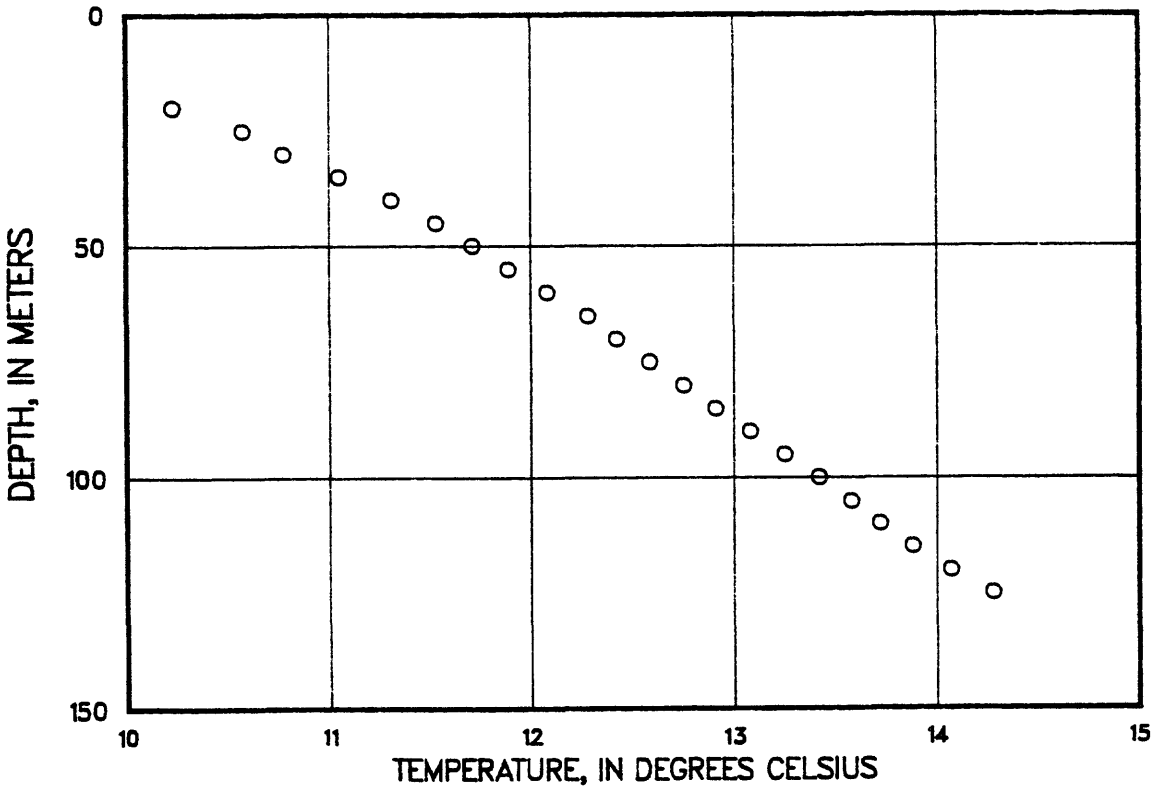


Fig. 204-Temperature profile from 20S-14E-25 NE.

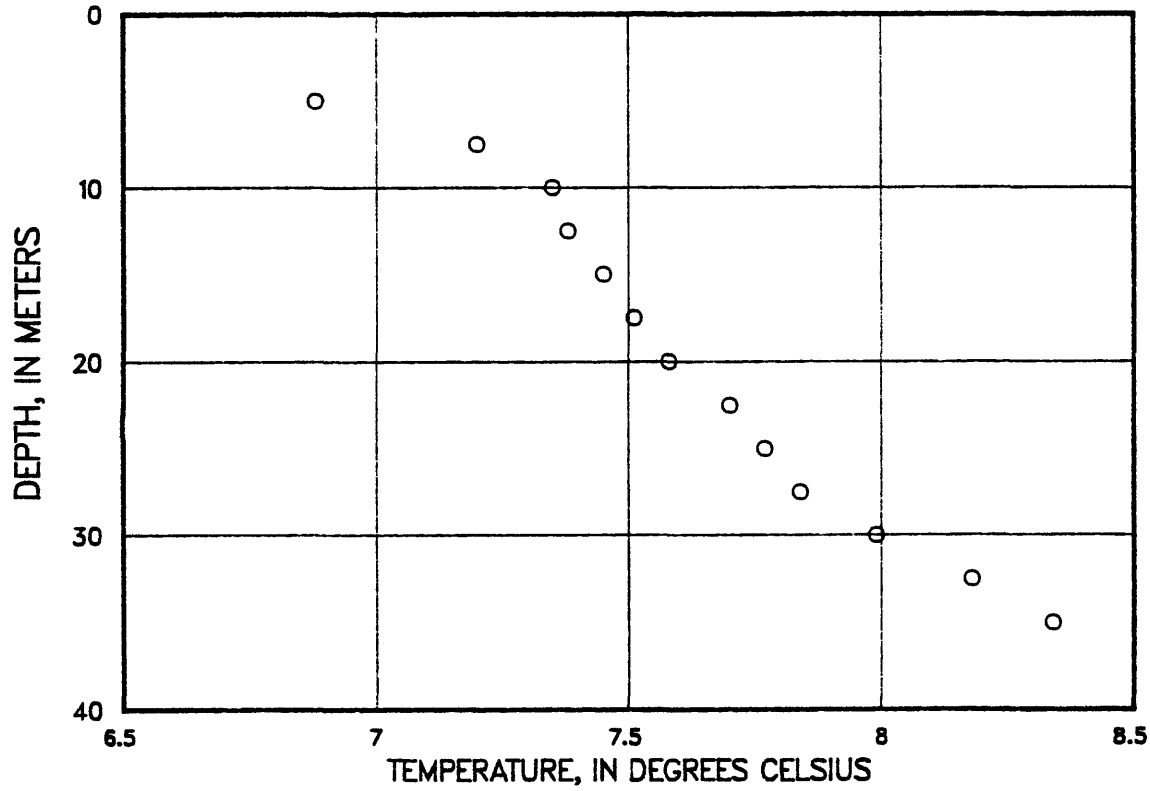


Fig. 205-Temperature profile from 21S-11E-25 NW.

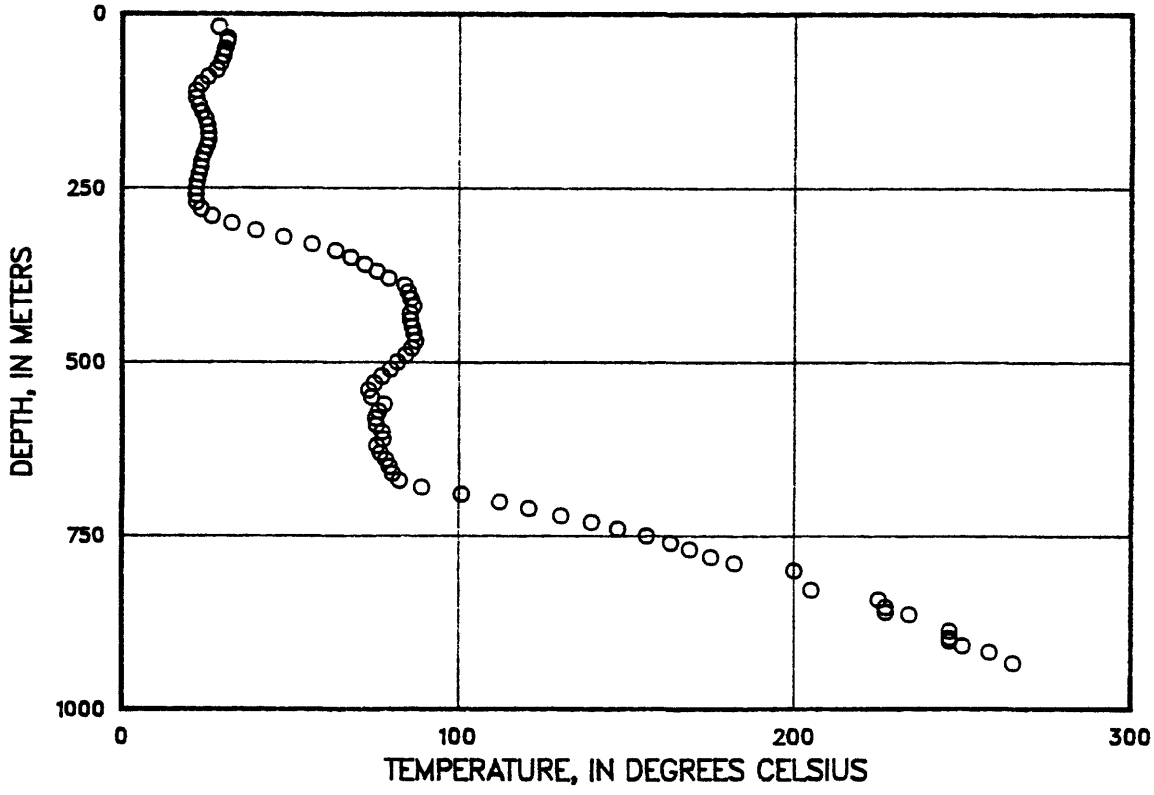


Fig. 206-Temperature profile from 21S-13E-31 SW.

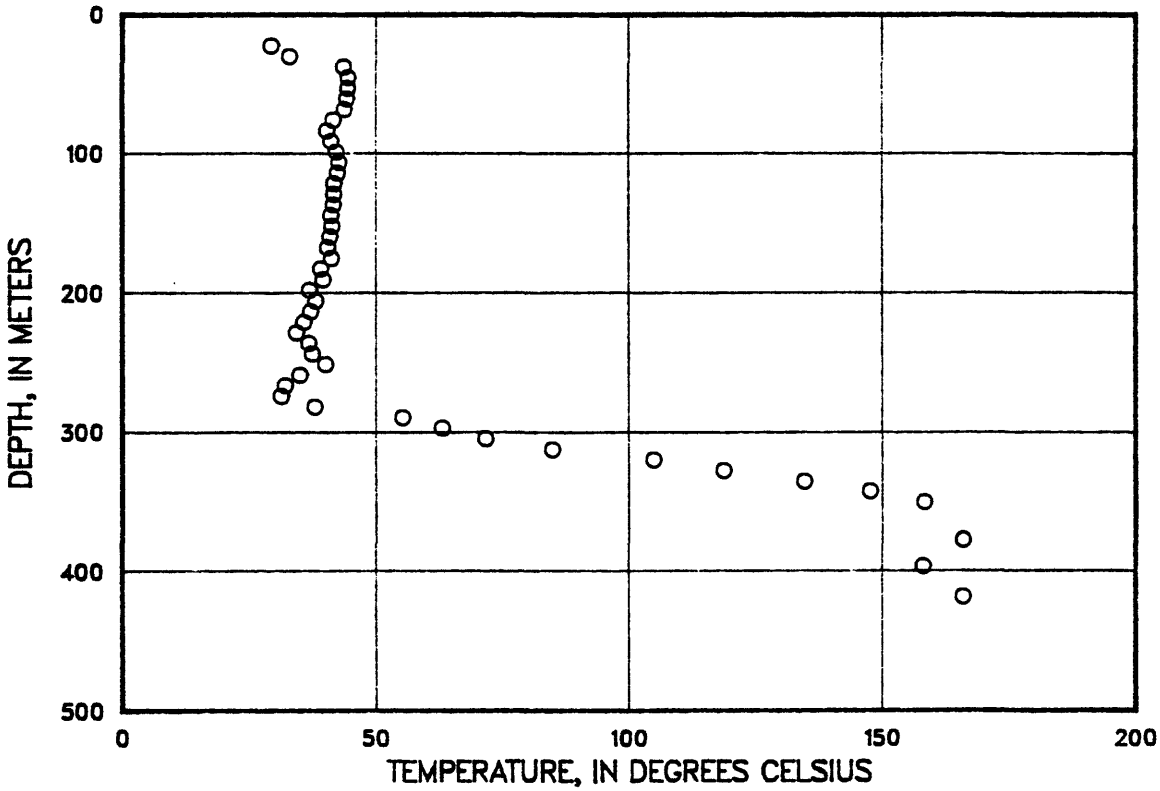


Fig. 207-Temperature profile from 21S-13E-31 SW.

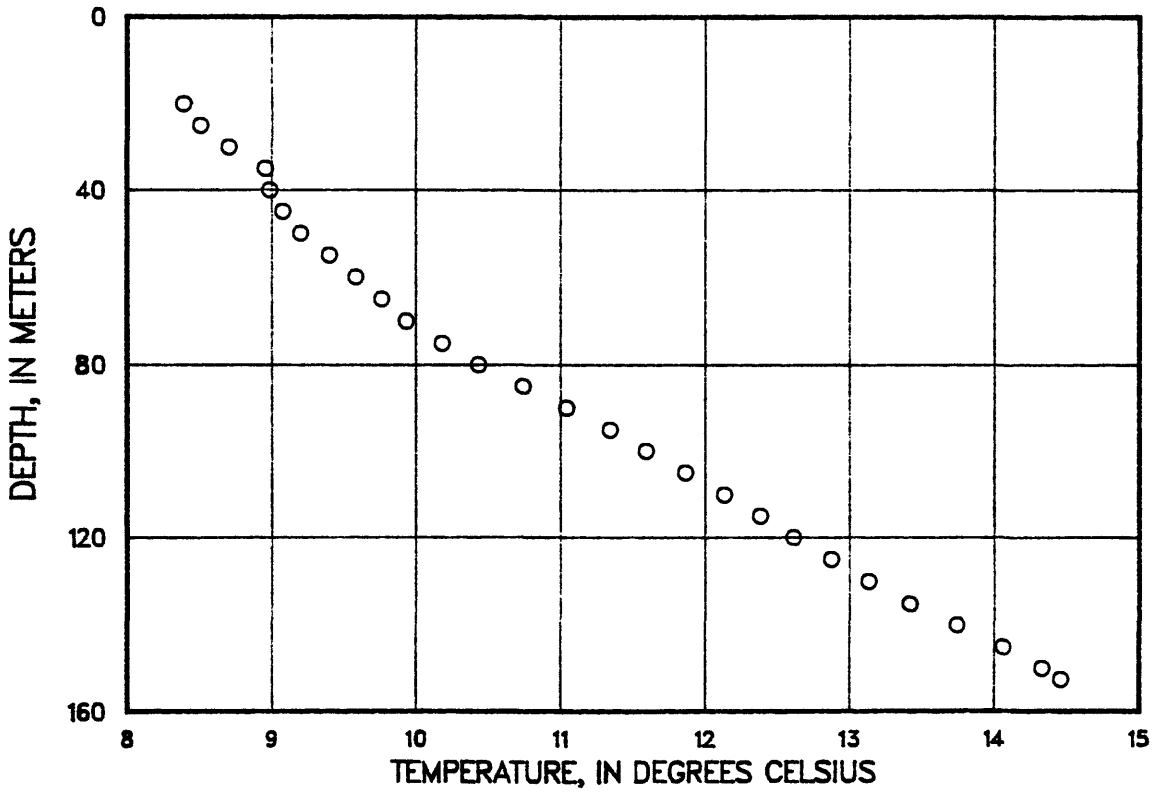


Fig. 208-Temperature profile from 21S-15E-16 NE.

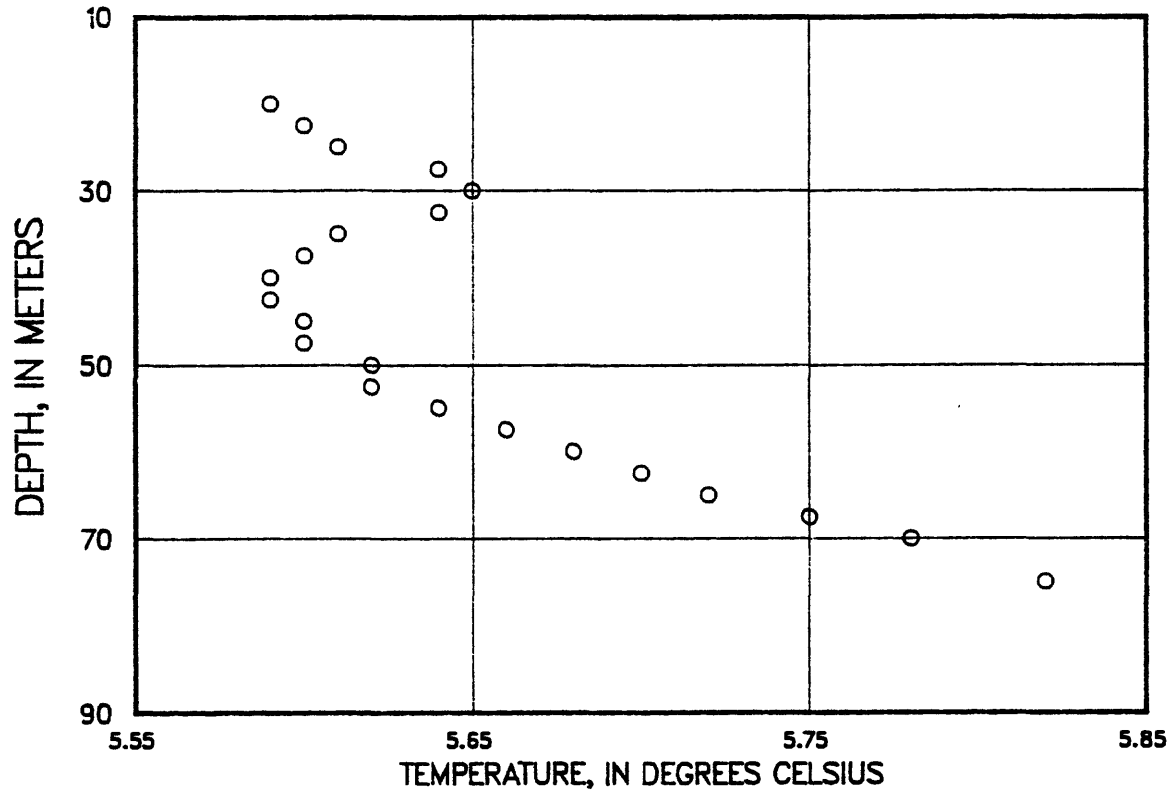


Fig. 209-Temperature profile from 22S-14E-03 NE.

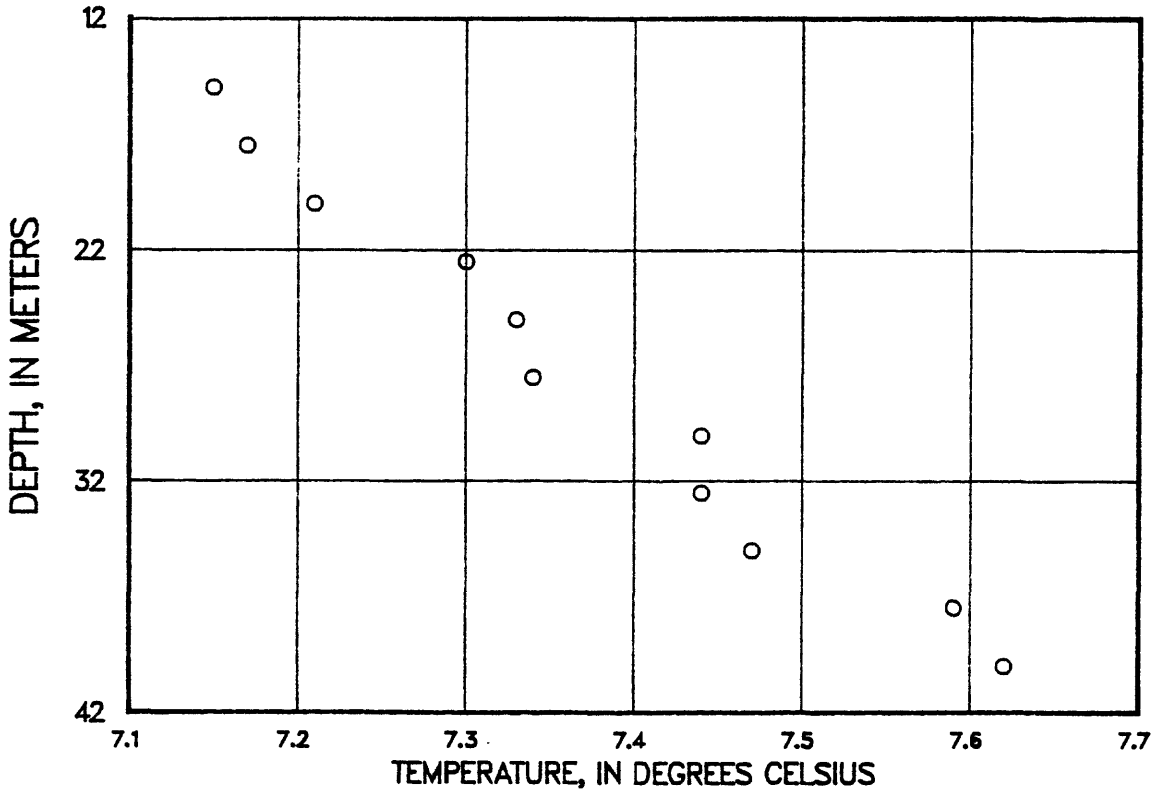


Fig. 210-Temperature profile from 22S-15E-35 NE.