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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U.S. GEOLOGICAL SURVEY

Open-File Report 88-702

Menlo Park, California

1988

DEPARTMENT OF THE INTERIOR

DONALD PAUL HODEL, Secretary

U.S. GEOLOGICAL SURVEY

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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 = 1×10^{-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)	6.243×10^{-5}	pounds per cubic foot (lb/ft^3).

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

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

GEOLOGICAL SURVEY

345 Middlefield Road, Mail Stop 439
Menlo Park, California 94025

December 13, 1988

ERRATA SHEET FOR OPEN-FILE REPORT 88-702

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

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By

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

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°40′ and 45°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°C/km < uncorrected gradient < 5°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	122 06 49	45 09 32	-	US	08/08/85	311	40	4.5	10.6	23-40	1.60e	56.7	>43.6	>70	12
SE			(Roaring R. Campground)								(0.15)	(1.50)			
5S-6E-36	122 00 56	45 05 28	-	US	10/17/88	607	67	15	7.6	-	-	adv.	-	-	13
SE			(Oak Grove Work Cntr.)												
6S-1E-13	122 37 11	45 02 51	TWW	OR	10/06/76	326	140	-	14.9	95-140	1.38	34.8	37.8	44	14
SE												(0.67)			
									(1,2):	35-95	1.59	26.2	28.6	45	
										95-140	[1.17]	34.7	37.7	44	
6S-1E-35	122 39 26	45 00 20	MC-WW	OR	10/06/76	285	195	-	15.2	110-195	[1.17]	31.4	34.8	41	15
SW												(0.20)			
									(1,2):	95-195	[1.17]	30.9	34.3	40	
6S-2E-18	122 36 42	45 03 18	QWW	OR	10/06/76	259	92	7-10	11.7	55-92	1.30e	28.9	28.8	37	16
NW											(0.15)	(0.41)			
						(2):	90	-	-	55-90	-	29.1	29.0	-	
6S-6E-23	122 02 42	45 01 48	DH-5000	OR	11/04/75	487	24	<13	8.7	15-24	1.50e	69.6	56.1	[84]	17
SW											(0.25)	(2.80)			
						(2):	22	-	-	15-22	-	70.0	-	-	
6S-6E-23	122 02 42	45 01 49	-	OR	11/04/75	498	27	<8e	8.3	22-27	-	adv.	-	-	18
SW												90.5e			
6S-6E-34	122 03 46	44 59 57	RDHCRCDR	OR	09/30/76	487	150	-	20.9	15-150	1.64	81.4	64.7	106	19
SW											(0.04)	(0.29)			
									(1,2,4):	10-150	1.64	81.8	65.0	106	
6S-7E-04	121 57 36	45 04 18	RDHCRLKH	OR	07/25/77	666	38	-	7.6	-	-	iso.	-	-	-
SE															
					(1,2):	686	40	-	-	0-38	-	-	-	-	
6S-7E-04	121 57 25	45 04 21	-	US	09/22/85	625	22	15.3	15.9	-	-	adv.	-	-	20
SE			(L. Harriet Campground)												

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.
6S-7E-21	121 57 44	45 01 46	RDH-AHSE	OR	06/29/77	603	40	-	17.9	28-40	1.47	155.	109.	[160]	21
SW											(0.07)	(6.71)			
									(1,2,4):	10-40	1.47	231.6	162.8	240	
6S-7E-30	122 00 32	45 01 20	RDHCRAHS	OR	09/30/76	512	135	4-5	55.3	95-135	1.65	236.	166.	274	22
NW											(0.08)	(3.36)			
					(1,2,4):		132	-	-	95-130	1.65	240.7	169.5	279	
6S-7E-30	122 00 20	45 01 24	-	US	08/03/86	509	293	<15	82.1	146-293	1.50e	83.4	62.7	94	23
NW											(0.25)	(0.71)			
7S-1E-11	122 38 47	44 58 46	OW W1	OR	07/--/62	214	2379	-	-	-	-	-	-	-	-
NE															
									(1,2):	0-2379	[1.59]	26.0	26.0	41	
7S-5E-14	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
SE															
7S-5E-22	122 10 23	44 57 07	CR-BHS	OR	09/30/76	655	90	-	13.5	20-90	1.46	84.3	66.8	97	25
NE											(0.05)	(0.96)			
									(1,2,4):	20-90	1.46	84.3	66.8	97	
7S-5E-23	122 09 53	44 57 09	- (Bagby H.S. trailhead)	US	08/20/85	646	21	-	5.8	15-22	-	adv. 43.8e	-	-	26
NE															
(7S-7E-04)	121 57 01	44 58 59	EWEB-TS	OR	05/28/80	1273	194	50-55	5.3	25-194	-	adv. 11.0e	-	-	27
SE															
			(1,4):	OR	11/13/79	"	-	-	-	165-190	1.62	-	-	-	
			(2):	OR	05/28/80	"	194	-	-	165-190	1.62	-	-	-	
(7S-8E-05)	121 50 50	44 59 00	EWEB-PC	OR	05/28/80	975	187	10-15	6.4	-	-	iso.	-	-	-
SE															
			(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)	121 48 26	44 58 32	EWEB-CC	OR	05/30/80	1140	137	45	4.5	115-137	-	adv. 9.4e	-	-	28
NE															
			(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	122 42 32	44 53 19	H-1-WW	OR	10/08/76	303	218	15-20	15.8	95-215	1.72	27.6	27.6	47	29
SE												(0.14)			
									(1,2):	95-215	1.72	27.6	27.6	47	
8S-1E-09	122 41 38	44 53 28	WOLFF	OR	04/30/80	338	103	-	12.1	30-100	1.60e	38.3	38.3	[61]	30
NW											(0.15)	(2.89)			
									(2):	30-100	-	34.9	-	-	
8S-1E-17	122 42 18	44 52 18	SM-WW	OR	10/06/76	315	112	60-65	13.3	65-110	1.60e	45.7	45.7	[73]	31
SE											(0.15)	(2.03)			
									(2):	10-110	[1.59]	28.5	27.0	43	
8S-5E-31	122 14 47	44 49 52	CDR CK	OR	10/26/77	705	345	<5	17.2	25-345	1.80	32.3	28.6	51	32
SW											(0.33)	(0.10)			
									(1,2,4):	35-345	1.80	32.3	28.6	51	
8S-6E-01	122 00 51	44 54 19	-	US	10/20/88 (42 days after completion)	914	62	56	7.1	-	-	adv.	-	-	33
SE															
(8S-8E-06)	121 52 53	44 54 21	EWEB-SB	OR	04/29/80	860	460	<5	29.8	335-460	1.50e	50.1	44.7	67	34
SE											(0.25)	(0.93)			
			(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)	121 49 54	44 51 02	CTGH-1	UT	09/05/86	1170	1465	-	87.	655-1448	1.50e	72.9	72.9	109	35
SE											(0.25)	(0.29)			
	(4):	44 51 06		-	08/06/87	1146	-	-		500-1465	[1.38]	81.7	79.8	110	
(8S-8E-31)	121 52 52	44 50 01	RDH-CBCK	OR	07/31/80	1072	98	30	6.9	85-97	1.47	28.9	26.0	[38]	36
SW											(0.08)	(2.44)			
			(1,2,4):	OR	09/28/79	"	98	-	-	70-98	1.47	37.8	34.0	50	
9S-1E-25	122 37 19	44 45 11	-	US	08/11/86	463	100e	70	11.4	73-99	1.60e	20.7	22.8	[37]	37
SE											(0.15)	(1.96)			
9S-2E-16	122 34 25	44 47 24	-	US	08/05/86	216	110	5e	14.1	88-107	1.30e	35.4	33.1	43	38
NW											(0.15)	(1.42)			

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/m^2)	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/m^2)	Fig.
16S-4E-14 SE	122 17 30	44 10 27	BH-3Z	OR	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	OR	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		OR	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	OR	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	OR	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	OR	09/29/76	701	150	-	14.8	115-150	1.74 (0.03)	90.1 (2.44)	94.6	165	92
			(1,2):	OR	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	OR	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/m^2)	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-IH	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/m^2)	Fig.
3S-9E-03	121 39 44	45 19 57	MEADOWS	US	08/21/81	1634	601	29-30	29.8	430-601	2.02	81.7	81.7	165	115
SW											(0.08)	(1.66)			
									(3):	275-354	2.02	61.0	68.5	139	
3S-9E-06	121 42 30	45 19 53	CR-HH	OR	09/13/77	1798	110	-	2.6	-	-	iso.	-	-	-
SE															
			(3):	OR	09/14/76	"	-	-	-	10-115	1.85	-	-	-	
3S-9E-07	121 42 25	45 19 45	RDH-TBLG	OR	12/28/78	1761	226	-	10.6	210-226	[1.84]	171.	169.	[311]	116
NE												(1.56)			
			(3):	OR	12/13/78	"	-	-	-	195-225	[1.84]	201.7	201.7	371	
3S-9E-07	121 42 56	45 19 18	USGS-PUC	US	06/23/81	1640	1129	573	76.6	560-1129	1.79	67.1	72.4	130	117
SE											(0.03)	(0.42)			
			(3):	OR	08/15/81	1631	-	-	-	560-1125	1.79	67.2	67.2	121	
3S-9E-16	121 40 34	45 18 22	WHT RIVR	OR	07/02/81	1330	303	41-42	15.7	-	-	adv.	-	-	118
SW															
									(3):	250-303	2.37	10.2	10.2	24	
3S-9E-30	121 42 35	45 16 57	USGS-HWY	OR	10/22/79	1108	289	25	15.4	75-289	[1.76]	41.5	38.2	67	119
NE												(0.13)			
(3):	121 42 41	45 17 10			"	"	-	-	-	80-289	[1.76]	41.5	41.5	73	
East of the Cascade crest															
3S-11E-01	121 21 35	45 20 48	-	OR	05/08/79	920	126	-	14.2	50-126	1.65e	42.2	46.0	76	120
NE											(0.15)	(0.27)			
3S-13E-31	121 14 03	45 16 16	Palmer	US	05/27/88	418	87	11	25.2	34-87	1.60e	24.7	21.2	34	121
NW											(0.15)	(0.77)			
3S-14E-07	121 05 55	45 19 01	-	OR	07/14/77	835	65	40-45	12.4	45-65	1.60e	23.8	23.9	38	122
SE											(0.15)	(0.60)			

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.
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.	Heat Flow (mW/m^2)	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	Confederated 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	Confederated 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	53.8 (0.54)	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	31.3 (0.17)	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]	81.0 (0.99)	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. (°C/km)	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. (°C/km)	Heat Flow (mW/m^2)	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/m^2)	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	CENIWEST	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. (°C/km)	Heat Flow (mW/m^2)	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/m^2)	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/m^2)	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	PATTERSON	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-NW	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/m^2)	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/m^2)	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
195-5E-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-TM	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)	Thermal conductivity 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)

@ - 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 10/16/84	- 3.2	- .7	9,550 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 44 46 47	Breitenbush R. at CG	646	07/--/84 10/16/86	- 5.0	2.7 3.9	- -
(9S-7E-19) SE	121 59 41 44 46 43	Breitenbush R.	642	09/24/85	6.0	5.4	3,300
9S-7E-20 NW	121 59 10 44 47 00	Short Cr.	671	08/30/85	4.4	<1	27
9S-7E-20 NW	121 58 45 44 46 51	Breitenbush R.	667	08/30/85	-	-	2,700
9S-7E-20 NE	121 58 34 44 46 59	Mansfield Cr.	683	08/30/85	3.2	<1	25
9S-7E-20 SE	122 09 51 44 57 47	Devils Cr.	691	08/30/85	<3e	-	110
9S-7E-21 NW	121 57 47 44 46 48	N. Fork Breitenbush R.	687	08/31/85	<3e	-	1,250
9S-7E-21 NW	121 57 54 44 46 48	Breitenbush R.	685	07/--/84	-	.4	-
9S-7E-21 NW	121 58 01 44 46 52	Breitenbush R.	682	10/16/84	2.7	.4	-
9S-7E-21 NW	121 57 47 44 46 44	S. Fork Breitenbush R.	689	08/31/85	<3e	-	1,500
9S-7E-26 SE	121 54 22 44 45 23	Lake Cr.	874	08/19/86	3e	-	-
10S-4E-10 NW	122 18 42 44 43 11	Sevenmile Cr.	920	07/13/86	3e	-	-
10S-6E-16 SW	122 05 21 44 42 15	Boulder Cr.	509	05/24/88 08/31/88	1.9 2.9	.5 .6	- -
10S-6E-17 NW	122 06 06 44 42 30	N. Santiam R. below gage	481	07/--/84	-	.5	-
10S-6E-23 NW	122 02 40 44 41 41	McCoy Cr.	573	05/24/88 08/31/88	3.5 3.4	.7 .9	- -
11S-3E-26 SE	122 24 16 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 07/17/86	2.8 2e	- -	5,500 -
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 10/15/84	- 3.1	.5 .8	- 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 10/15/84	- 4.6	1.2 1.4	- 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 44 51 53	Warm Spr. R.	457	10/17/87	4.6	.5	-
8S-13E-19 NW	121 13 44 44 52 01	Warm Spr. R.	451	10/16/87	4.6	4.3	-
8S-13E-19 NE	121 13 06 44 52 00	Warm Spr. R.	445	09/18/85	6.8	1.9	-
8S-13E-20 SE	121 12 18 44 51 36	Warm Spr. R.	438	09/19/85	8.1	2.6	7,850
11S-9E-34 SE	121 38 24 44 34 06	Jefferson Cr. at gage	850	01/31/85	2.9	.5	-
11S-10E-12 SW	121 28 54 44 37 36	Metolius R.	607	01/31/85	6.3	1.3	-
12S-9E-02	121 37 12 44 33 24	Metolius R.	816	01/31/85 09/17/85	7.0 6.9	1.5 1.4	- 33,500
12S-12E-29 SE	121 19 12 44 29 54	Deschutes R. at gage	594	01/31/85	7.3	1.2	-
13S-8E-24 S	121 43 30 44 25 42	Lake Cr. at gage	1042	09/17/85	3.5	<1	-
13S-9E-10 NE	121 38 30 44 27 36	Metolius R.	889	01/31/85	7.4	1.4	-
13S-9E-10 SE	121 38 30 44 27 18	Metolius R.	892	09/16/85	8.7	1.6	-
13S-9E-10 SW	121 38 36 44 27 24	Lake Cr.	891	09/16/85	7.4	1.4	4,600
13S-9E-15 NE	121 38 24 44 27 00	Metolius R.	890	09/16/85	9.4	1.7	3,500
15S-10E-29 SW	121 34 00 44 14 00	Pole Cr.	1061	01/31/85	3.0	.5	-
17S-11E-23 SE	121 23 18 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 44 01 30	Soda Cr.	1653	09/18/85	2.4	-	-
19S-11E-16 NE	121 24 42 43 55 48	Deschutes R. at gage	1268	09/17/85	6.1	1.0	35,500
20S-10E-31 SE	121 34 18 43 47 48	Fall R.	1283	02/01/85	5.6	<.5	-
20S-11E-06 SE	121 27 06 43 51 48	Deschutes R.	1270	02/01/85	4.7	.6	-
21S-8E-21 NW	121 46 54 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	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	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 09/22/85	38	- -	- 21.	- 1.5	T 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	-	65.2	300e	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	210	08/01/86	37	-	6e	-	
NE				Co.				-	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	122 13 22	44 47 00	SP	unnamed	1292	08/06/86	-	-	2e	-	
NE								-	1e	-	
9S-6E-21	122 04 37	44 46 25	W	Willamette	597	09/24/85	45	-	-	-	T
SE				Natl.		08/31/87		-	5.9	.7	I
				Forest							
9S-6E-35	122 02 21	44 44 32	SP	unnamed	1140	07/15/86	-	-	83.	.4	I
SE						08/01/87		-	86.	1.1	C
						04/25/88		-	-	-	I
(9S-7E-03)	121 56 24	44 49 30	SP	unnamed	1359	10/17/79	-	-	2.6	.4	C,I
NE											
(9S-7E-09)	121 57 45	44 48 10	SP	unnamed	914	07/15/86	-	-	101.	1.3	I
SW						08/02/87		-	100.	5.9	C
						04/25/88		-	-	-	I
(9S-7E-14)	121 53 24	44 48 12	SP	unnamed	902	10/17/79	-	-	4.7	.5	C,I
NE											
9S-7E-20	121 58 10	44 46 58	W	Breitenbush	690	08/02/86	610	-	700e	-	
NE				Hot Sprs.							
				Resort							
9S-7E-20	121 58 37	44 47 02	W	Breitenbush	688	09/01/85	482	-	765	250e	T
NE				Hot Sprs.		08/06/86		-	-	-	T
				Resort							
(9S-7E-29)	121 58 12	44 45 48	SP	unnamed	853	10/18/79	-	-	3.8	.4	C,I
SE											
(9S-8E-02)	121 47 36	44 49 30	SP	Big Spr.	1460	10/17/79	-	-	4.6	2.4	C,I
NE						08/31/87		-	2.1	1.1	
								-	3.4	.8	
10S-3E-03	122 25 47	44 44 06	W	-	335	06/23/86	-	-	7e	-	
NW											
10S-3E-09	122 26 15	44 43 22	SP	unnamed	370	07/13/86	-	-	2.8	1.7e	I
NE											
10S-5E-01	122 08 45	44 44 22	SP	unnamed	491	06/21/86	-	-	2.8	1.2e	
NW											
10S-5E-15	122 10 32	44 42 18	W	-	487	07/01/86	29	-	3e	-	
NE				(Southshore		08/03/86		-	-	-	T
				Campground)							
10S-6E-17	122 06 34	44 42 40	W	Hiebert	483	07/01/86	13	-	4.0	1.1	
NW											
10S-6E-18	122 07 24	44 42 43	W	Willamette	488	07/01/86	19	-	3e	-	
NW				Natl. Frst.							

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 08/01/87	183	- -	73. 120	62. 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	122 30 38	44 23 24	W	Munts	243	07/21/86	38	-	270	200	I
SW						07/31/87		-	250	170	C
13S-3E-31	122 29 22	44 23 43	W	-	244	07/09/86	81	-	300e	-	T
SE						08/08/86		-	-	-	T
13S-3E-31	122 29 16	44 23 47	SP	unnamed	235	07/23/86	-	-	6e	-	
SE											
13S-3E-32	122 28 28	44 23 48	W	-	246	07/09/86	-	-	30e	-	
NW											
13S-3E-33	122 26 35	44 23 53	W	-	268	07/10/86	-	-	5e	-	
NE											
13S-4E-26	122 17 55	44 24 08	W	U.S. Forest Service	439	07/18/86	10	-	50e	-	
SW											
13S-4E-31	122 21 46	44 23 59	W	U.S. Forest Service	266	07/21/86	15	-	3e	-	
NE											
13S-4E-32	122 20 51	44 23 51	W	-	375	07/10/86	-	-	39.	78.	
NE				(Trout Cr. Campground)		07/31/87		-	52.	100	C
13S-4E-33	122 20 09	44 24 00	W	Willamette Natl. Forest	378	07/10/86	26	-	30e	-	
NW											
13S-5E-05	122 13 51	44 28 23	SP	unnamed	1102	07/22/86	-	-	3e	-	
NE											
13S-5E-07	122 14 58	44 26 52	SP	unnamed	933	07/22/86	-	-	4.0	1.0e	
SE											
13S-5E-32	122 14 42	44 23 34	W	-	483	07/10/86	<24e	-	10.	11.	
SW				(House Rock Campground)		07/31/87		-	12.	16.	C
13S-6E-31	122 07 55	44 23 51	SP	unnamed	1229	07/20/86	-	-	2e	-	
NE											
13S-6E-34	122 04 38	44 24 09	W	-	1008	07/10/86	<24	-	2e	-	
NE											
13S-7E-29	122 00 24	44 24 13	W	-	966	07/18/86	46	-	8.1	.4	
SW											
13S-7E-32	121 59 42	44 23 24	W	-	956	09/05/79	557	-	-	-	T
SE						--/--/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	-	5.3	.2	
								-	4.9	.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 (mg/L)	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	-	-	4.9	.3	
								-	4.7	.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 -	2.6 2.6	.6 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	>152	-	110	130	
						04/25/88		660	106	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	-	322	17.	2.8	C*
						10/16/87		230	19.	2.3	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 (mg/L)	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 08/31/87	77	60 -	2.7 .4	1.7 .2	C*
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 09/26/87	-	260 175	20. 19.	3.6 2.5	C*
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 (mg/L)	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 W	SP	Metolius Spr.	920	09/27/86 08/09/87	-	-	- 9.2	- 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 04/24/88	96	242 -	14. 15.	5.2 7.	C,I
13S-13E-34 SW	121 17 21	44 23 41 W	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 W	SP	unnamed	1024	07/26/87	-	30	3.9	.4	
14S-9E-09 SE	121 39 35	44 21 57 W	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. 1/4	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 4/23/88	12	140	10. 11.	7.2 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	92	150	9.0	1.5	C#
						07/27/87		105	11.	1.1	
15S-11E-03 NW	121 24 24	44 18 19	W	-	937	09/05/87	152	90	9.4	1.5	
								-	11.	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 04/23/88	-	25 39	- 3.6	7.2 1.	C,I
19S-10E-02 SE	121 29 04	43 57 03	SP	Kiwa Sprs.	1460	09/26/86 08/15/87	-	- 30	- 2.6	- .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	

* - 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 (°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 (°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 (^{o}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)	δD (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)	δD (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)	δD (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)	δD (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

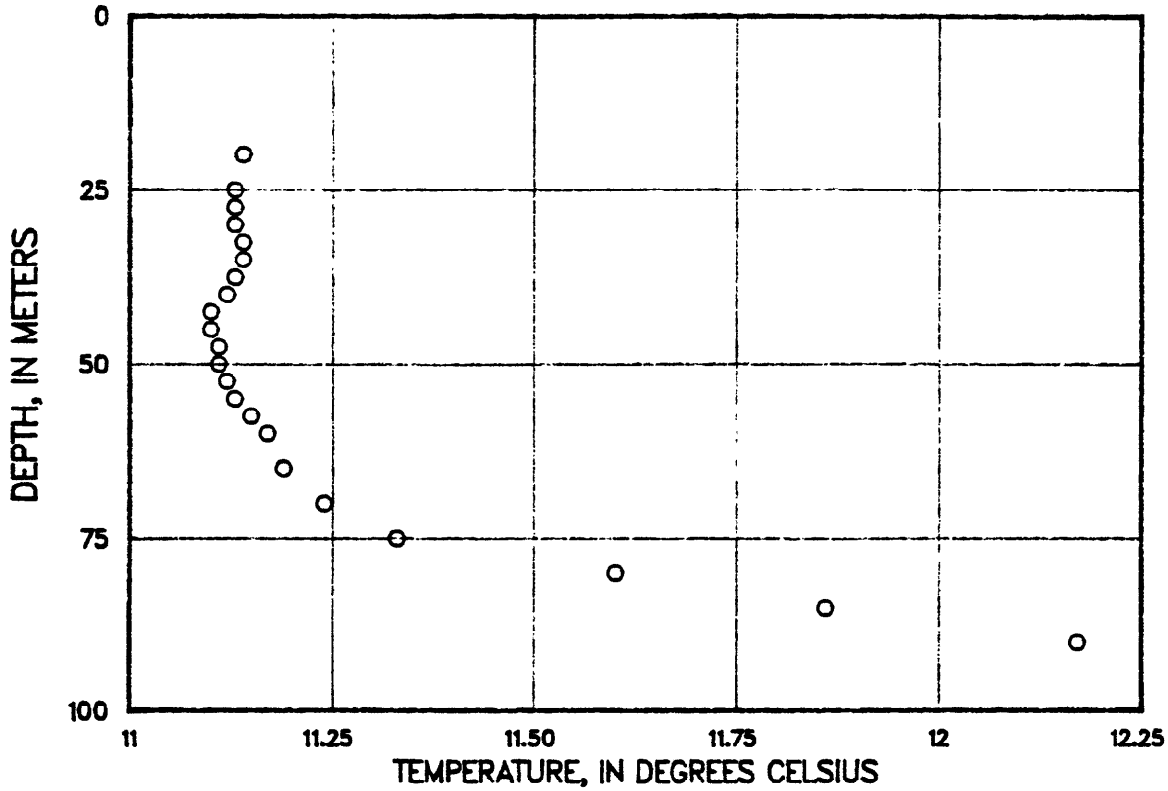

Fig. 1--Temperature profile from 3S-4E-03 NE.

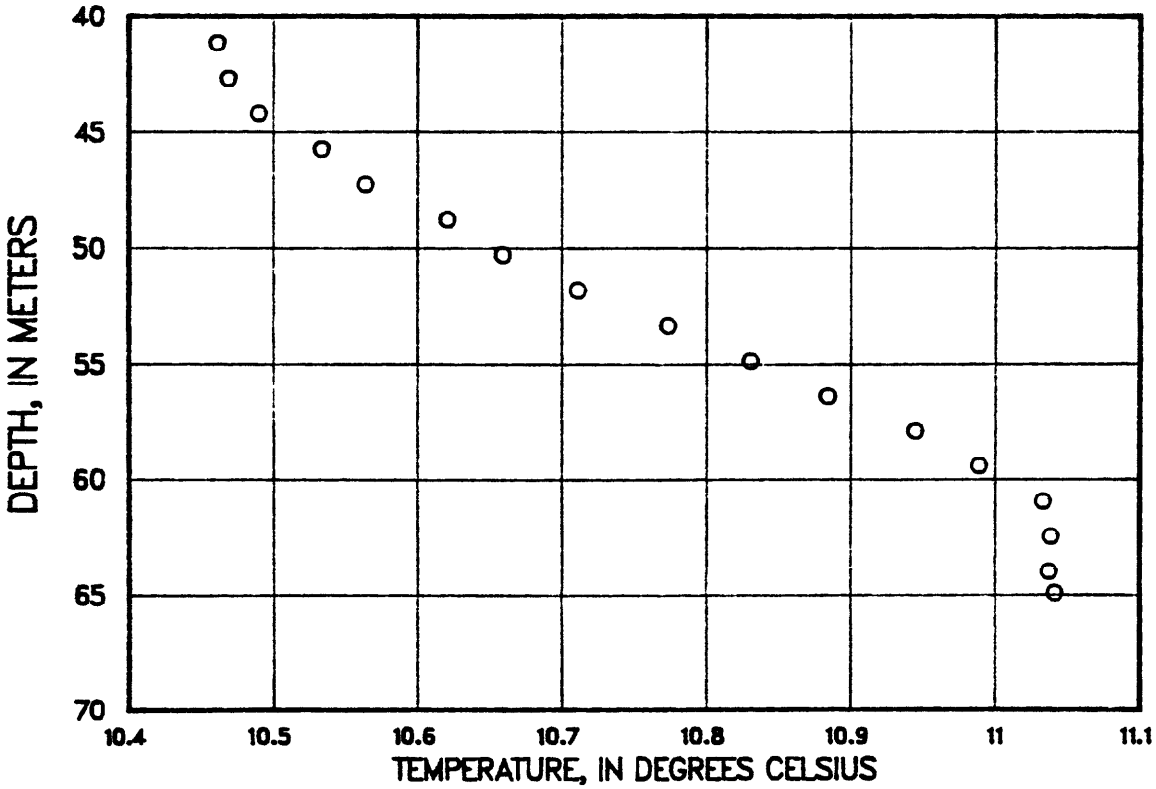

Fig. 2--Temperature profile from 3S-4E-18 NW.

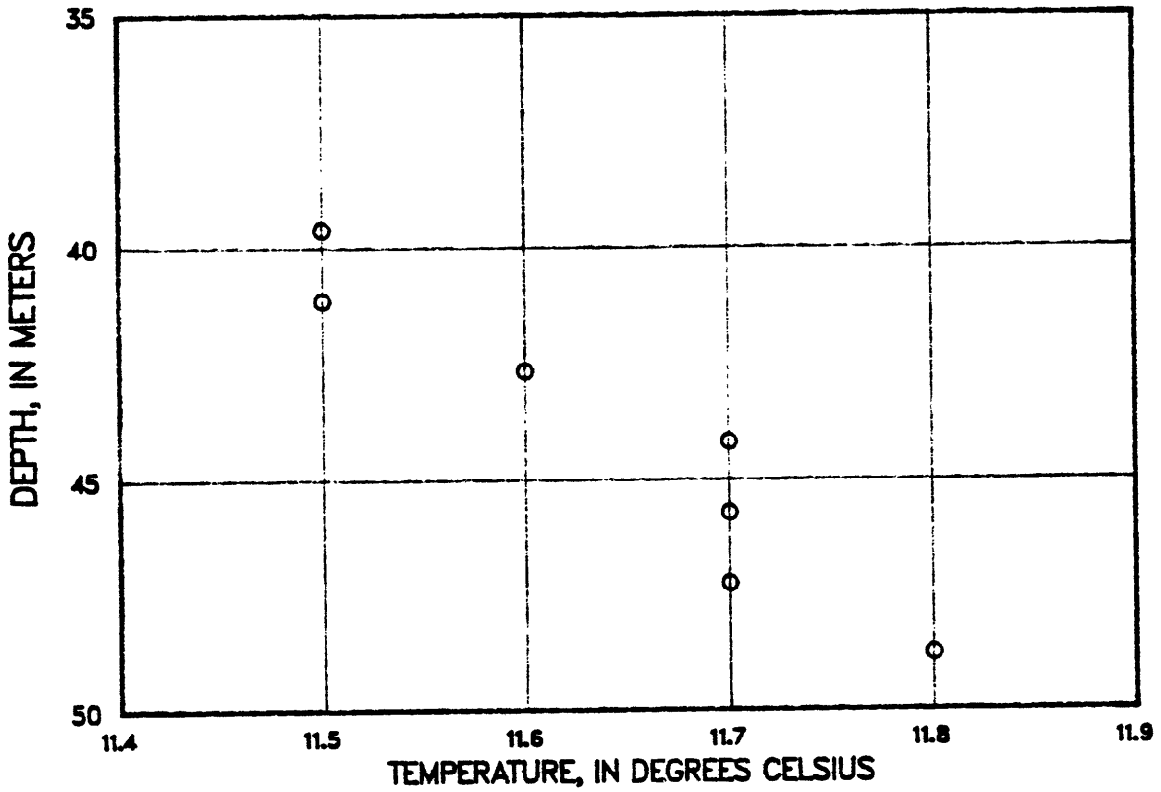

Fig. 3--Temperature profile from 3S-4E-23 SE.

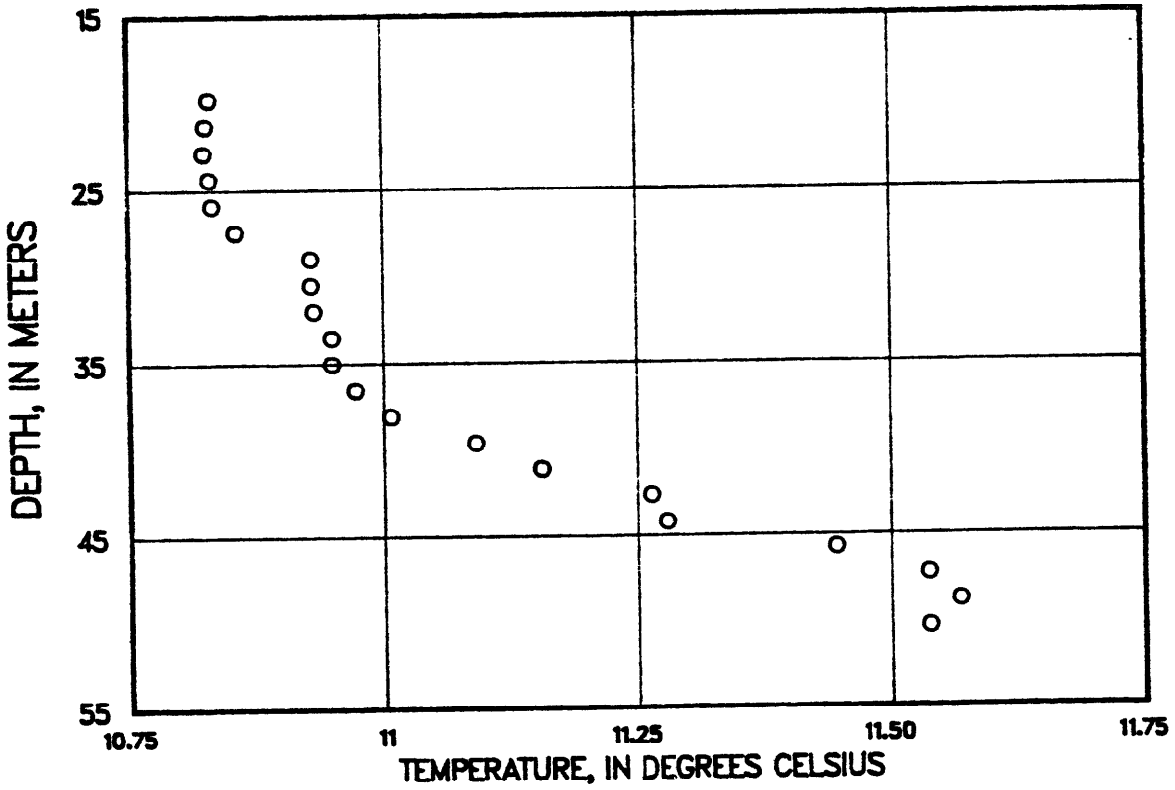

Fig. 4--Temperature profile from 3S-4E-27 SW.

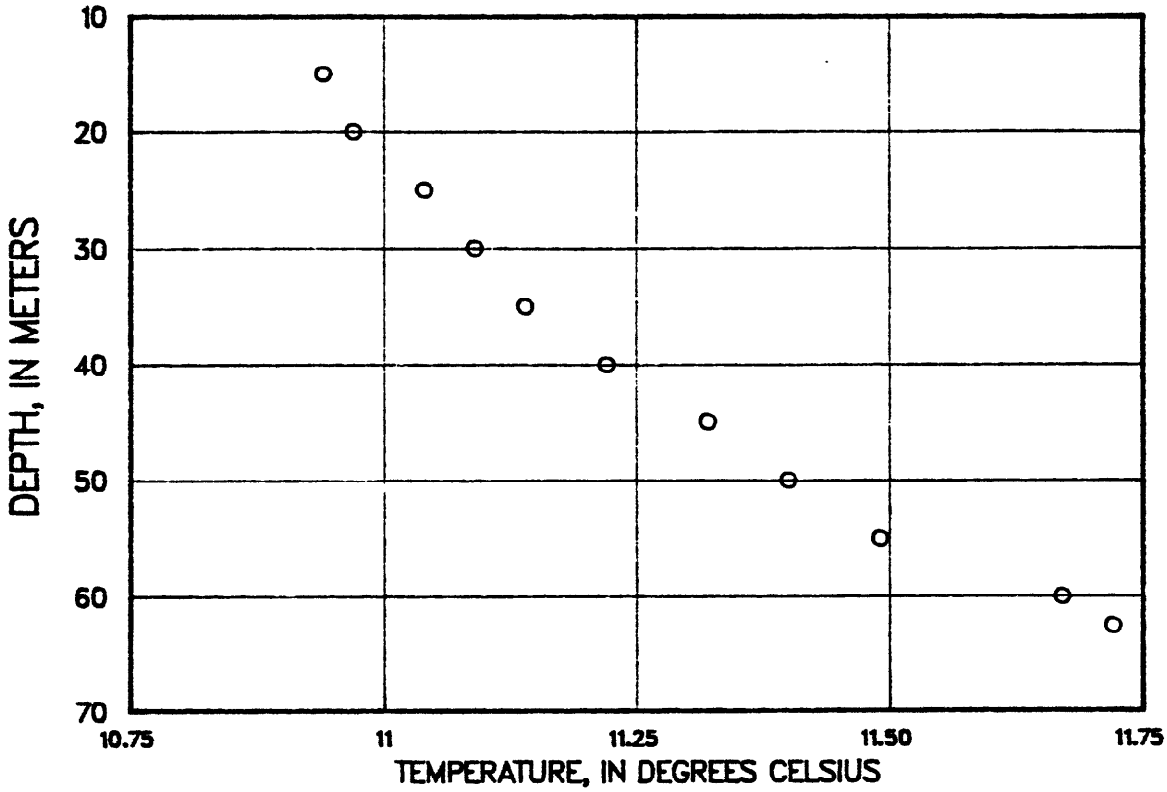

Fig. 5--Temperature profile from 3S-4E-28 NW.

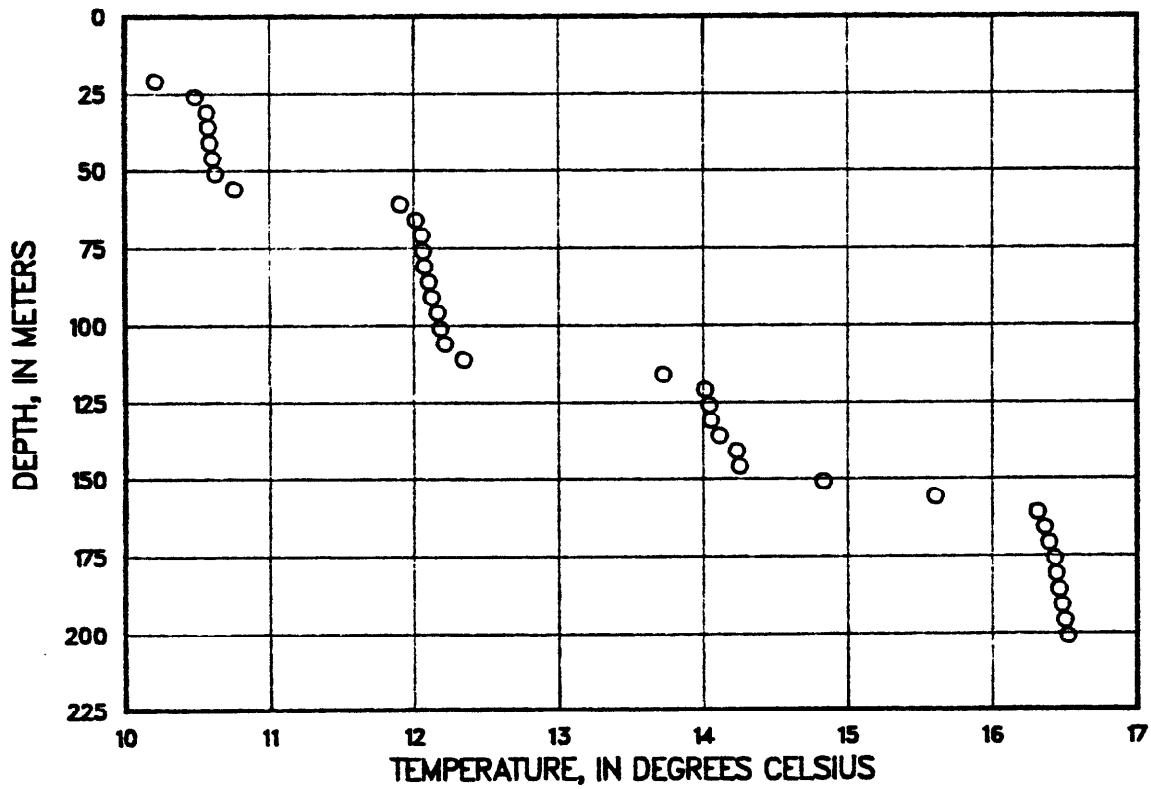

Fig. 6--Temperature profile from 3S-4E-29 NW.

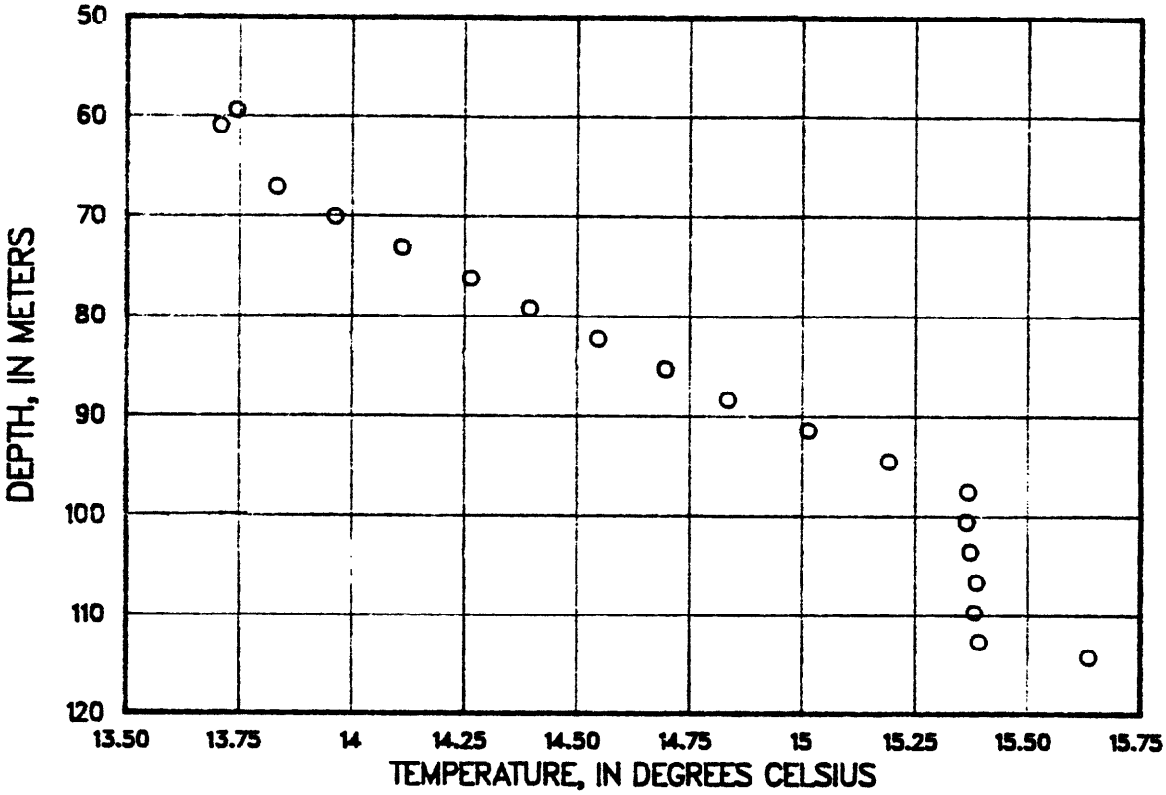

Fig. 7--Temperature profile from 3S-4E-33 NE.

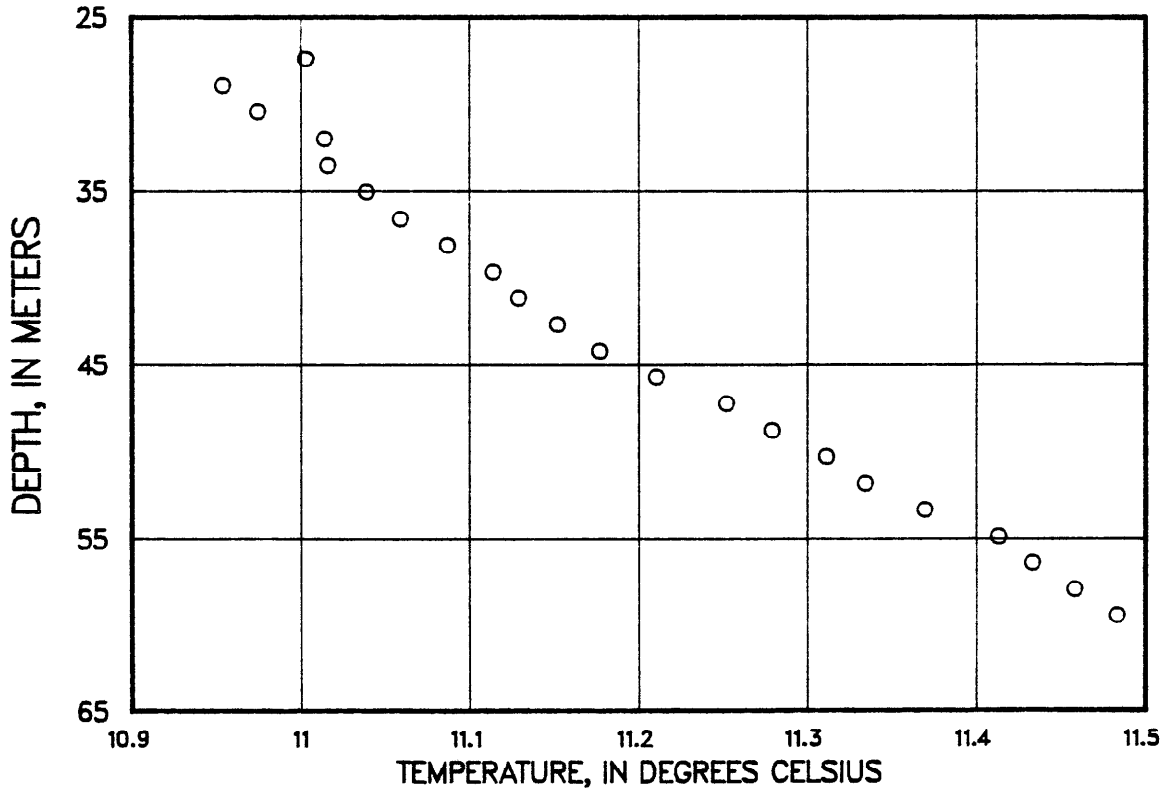

Fig. 8--Temperature profile from 3S-4E-35 SW.

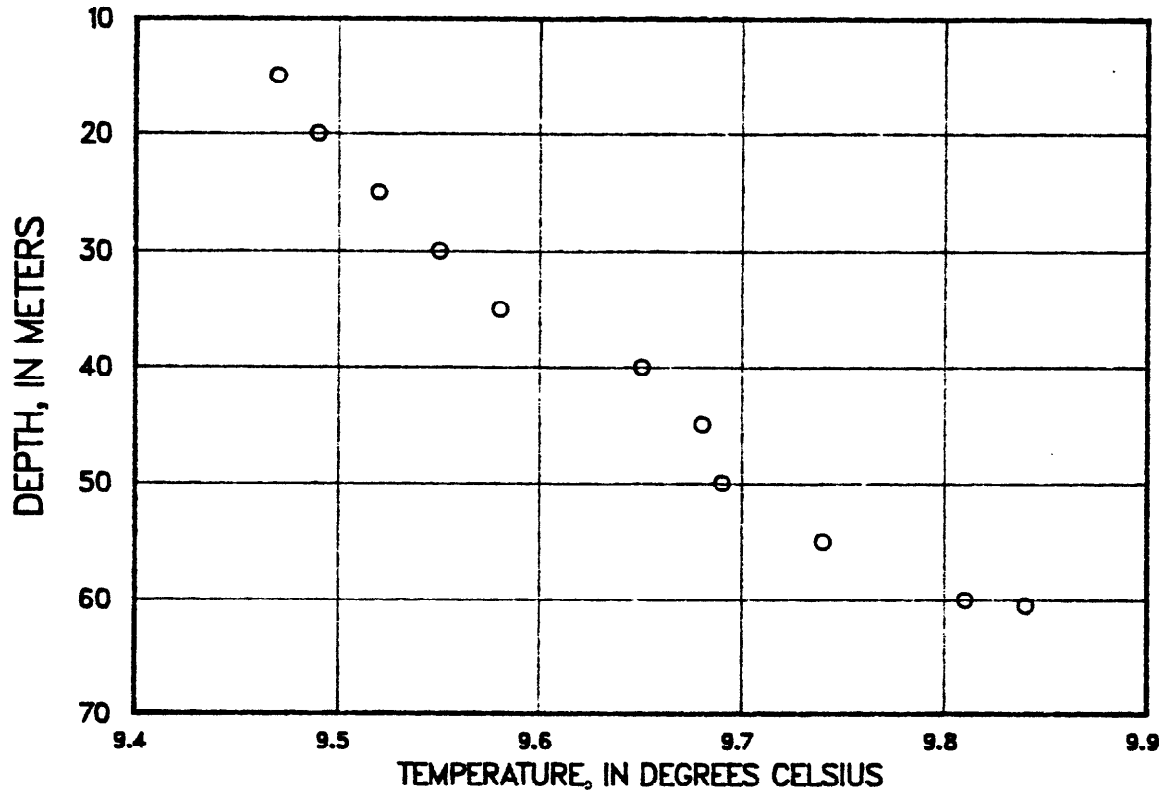

Fig. 9--Temperature profile from 3S-5E-20 NE.

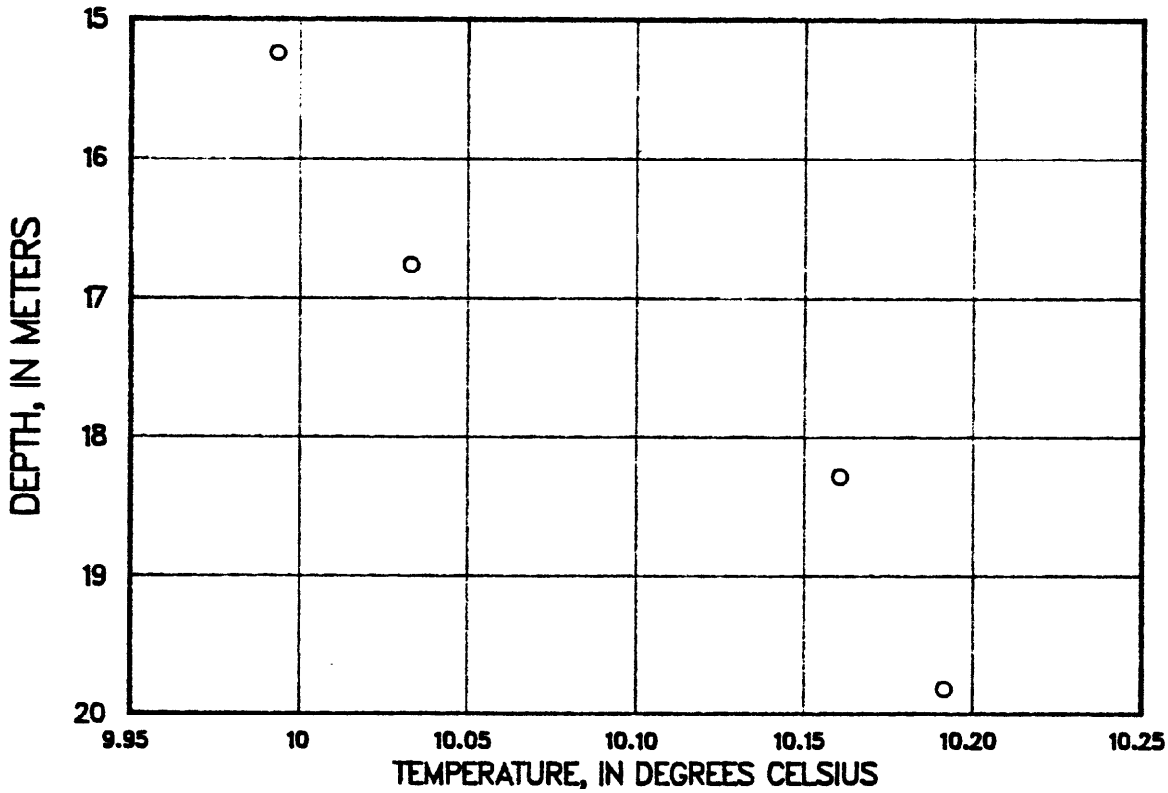

Fig. 10--Temperature profile from 4S-5E-29 NE.

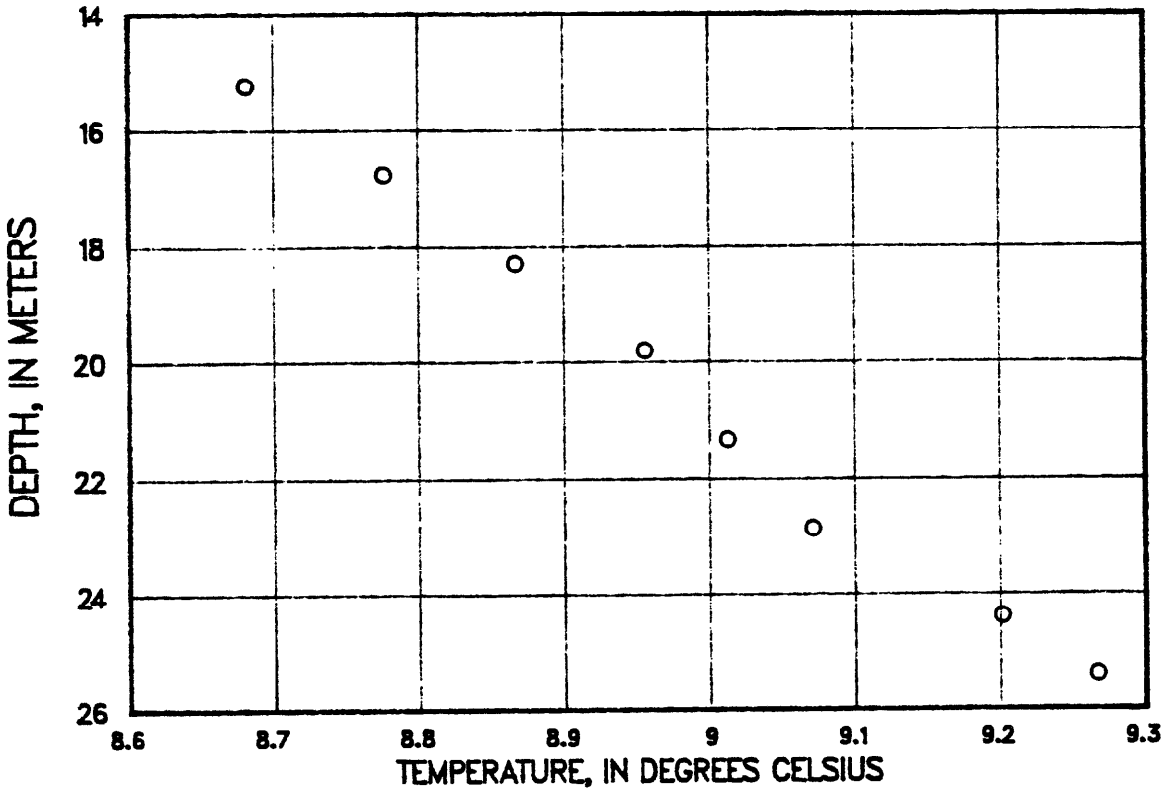

Fig. 11-Temperature profile from 5S-5E-02 SE.

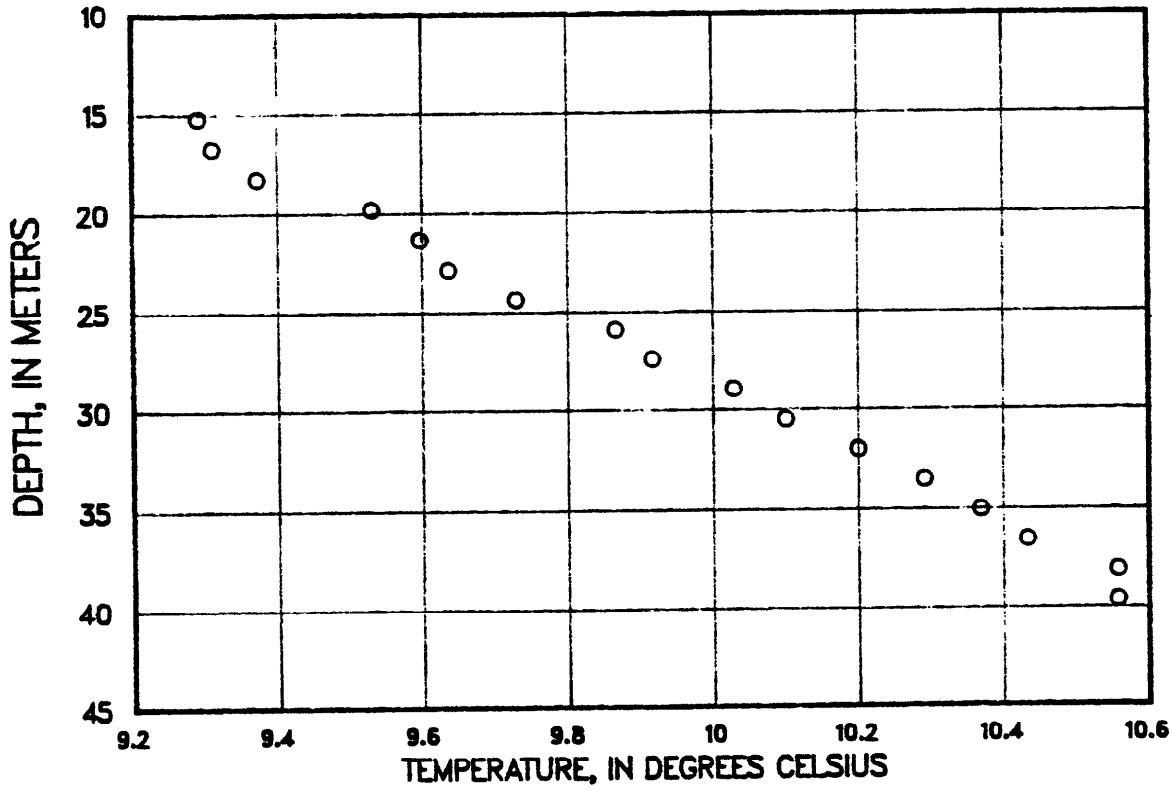

Fig. 12-Temperature profile from 5S-6E-06 SE.

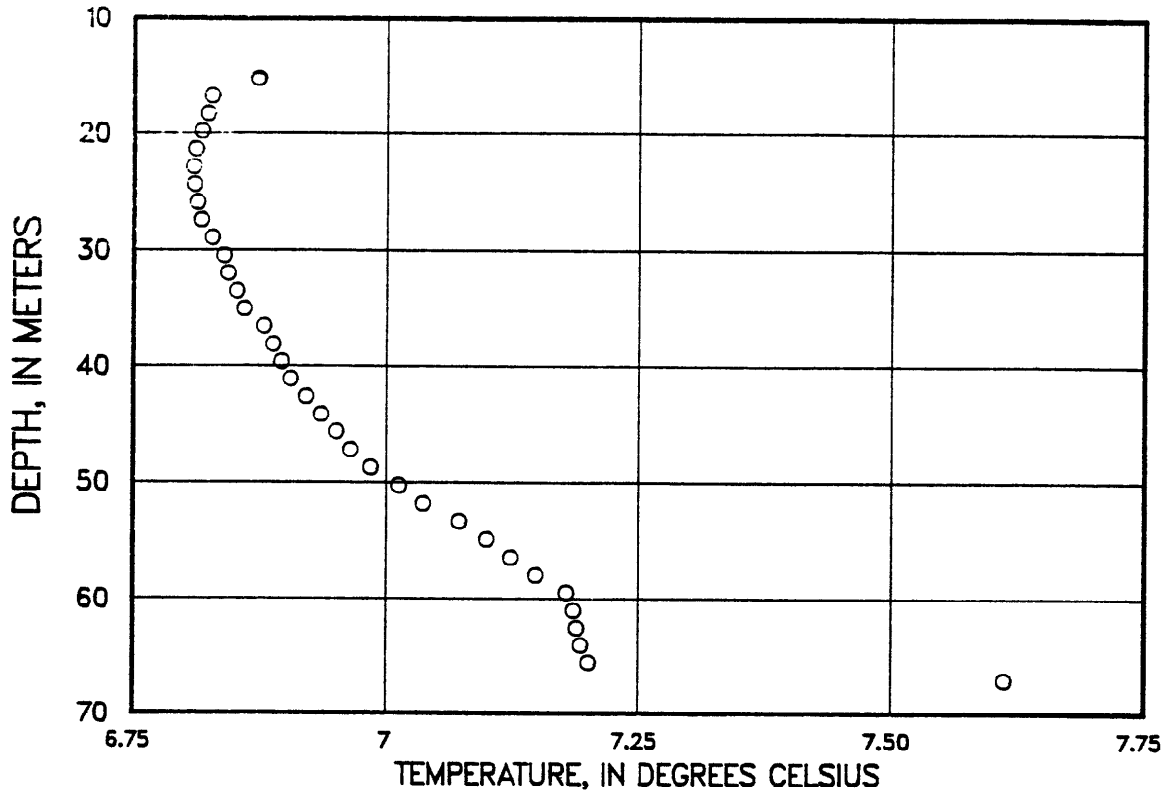

Fig. 13-Temperature profile from 5S-6E-36 SE.

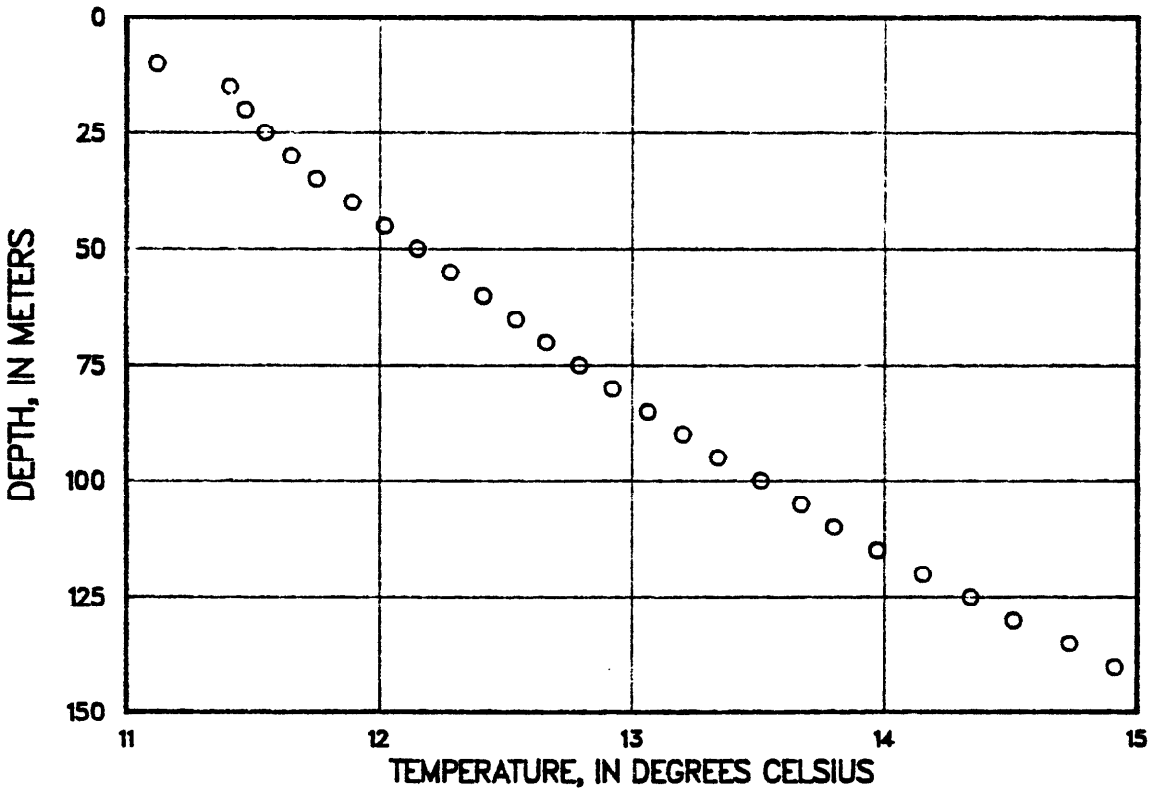

Fig. 14-Temperature profile from 6S-1E-13 SE.

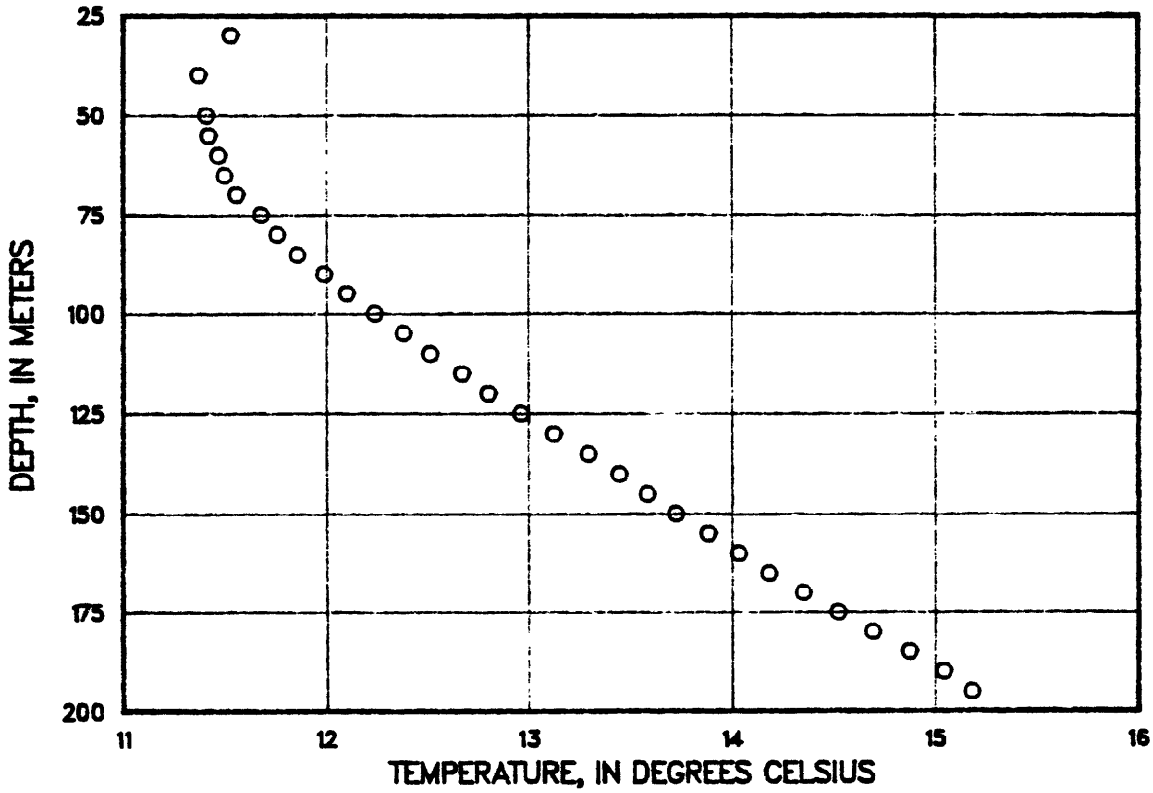

Fig. 15-Temperature profile from 6S-1E-35 SW.

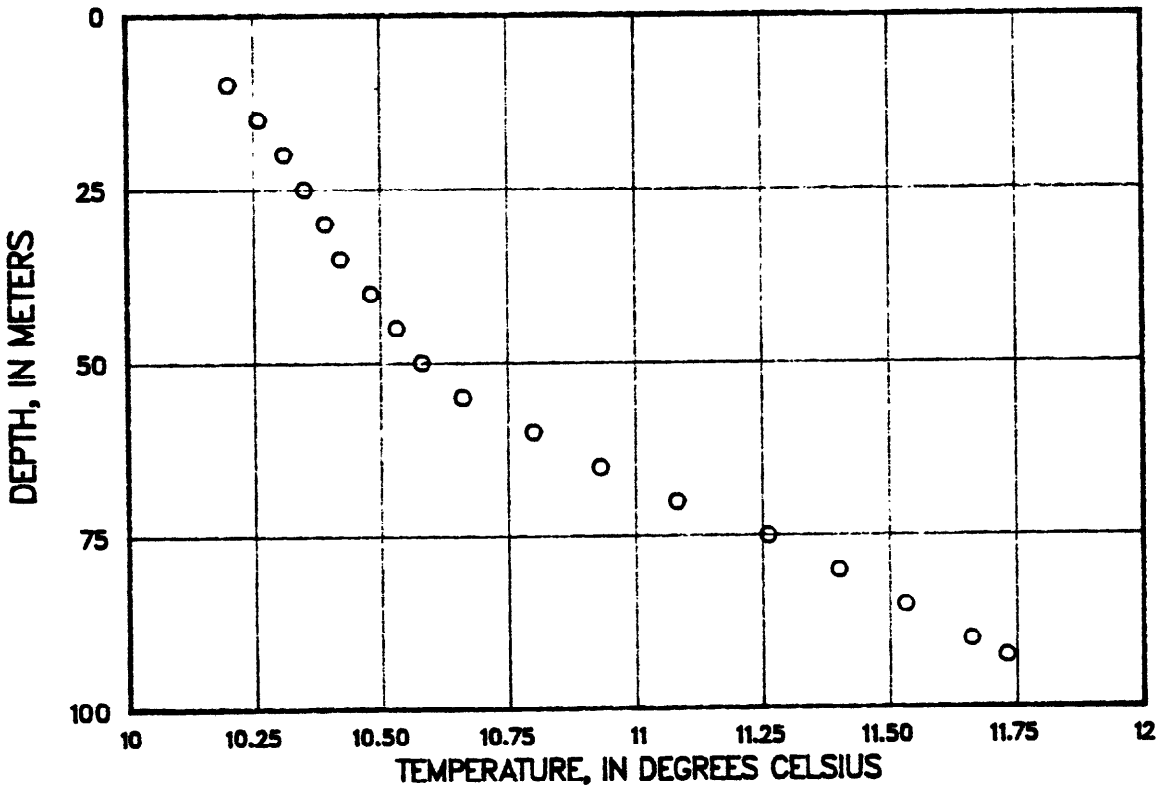

Fig. 16-Temperature profile from 6S-2E-18 NW.

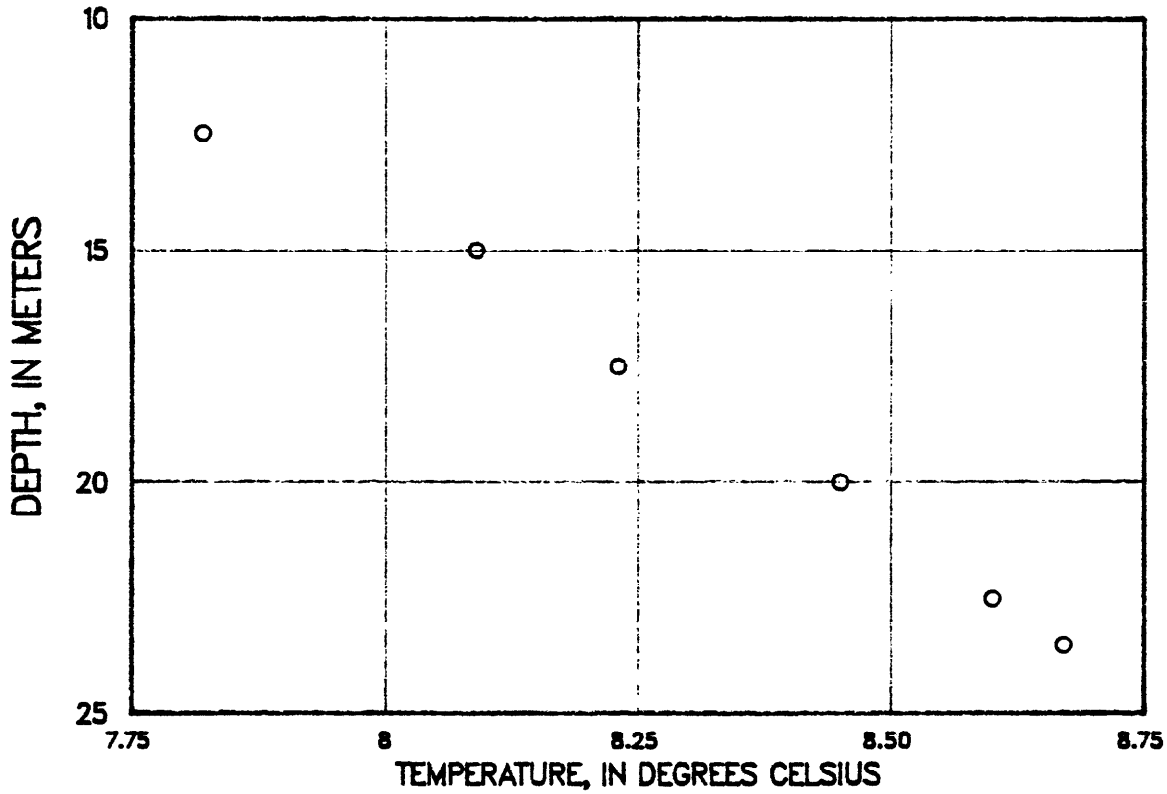

Fig. 17-Temperature profile from 6S-6E-23 SW.

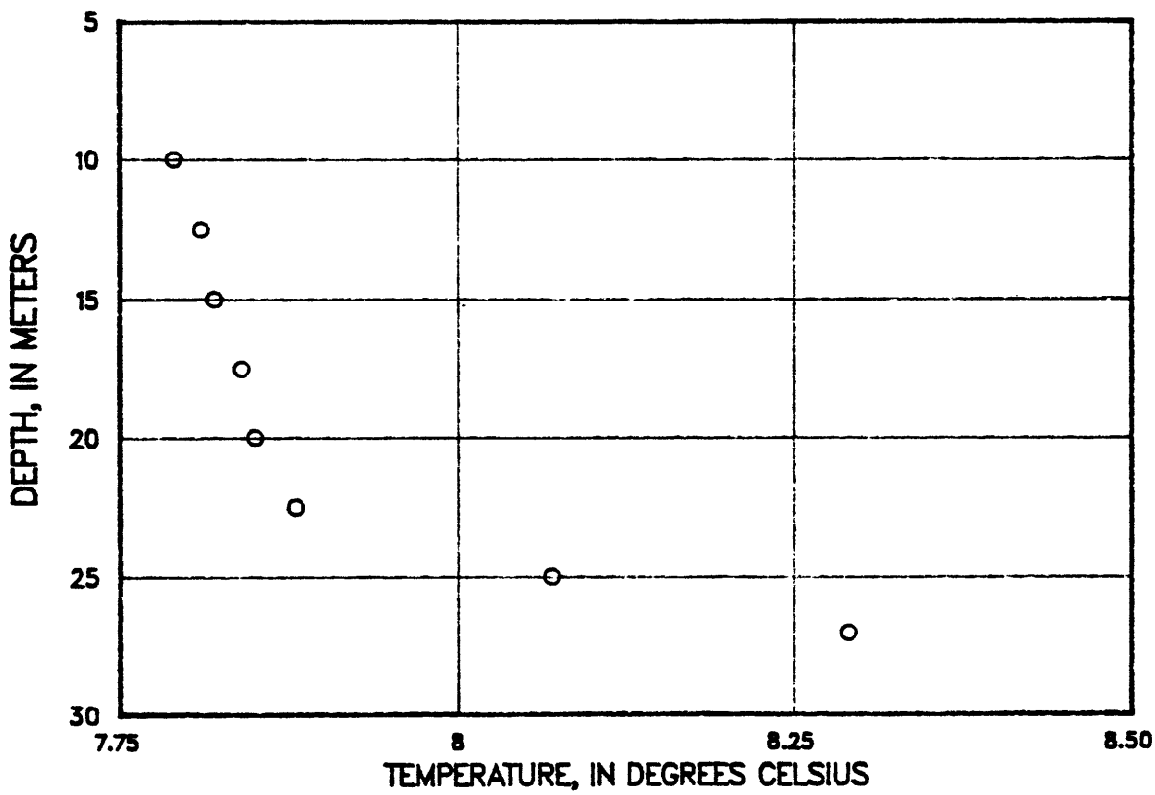

Fig. 18-Temperature profile from 6S-6E-23 SW.

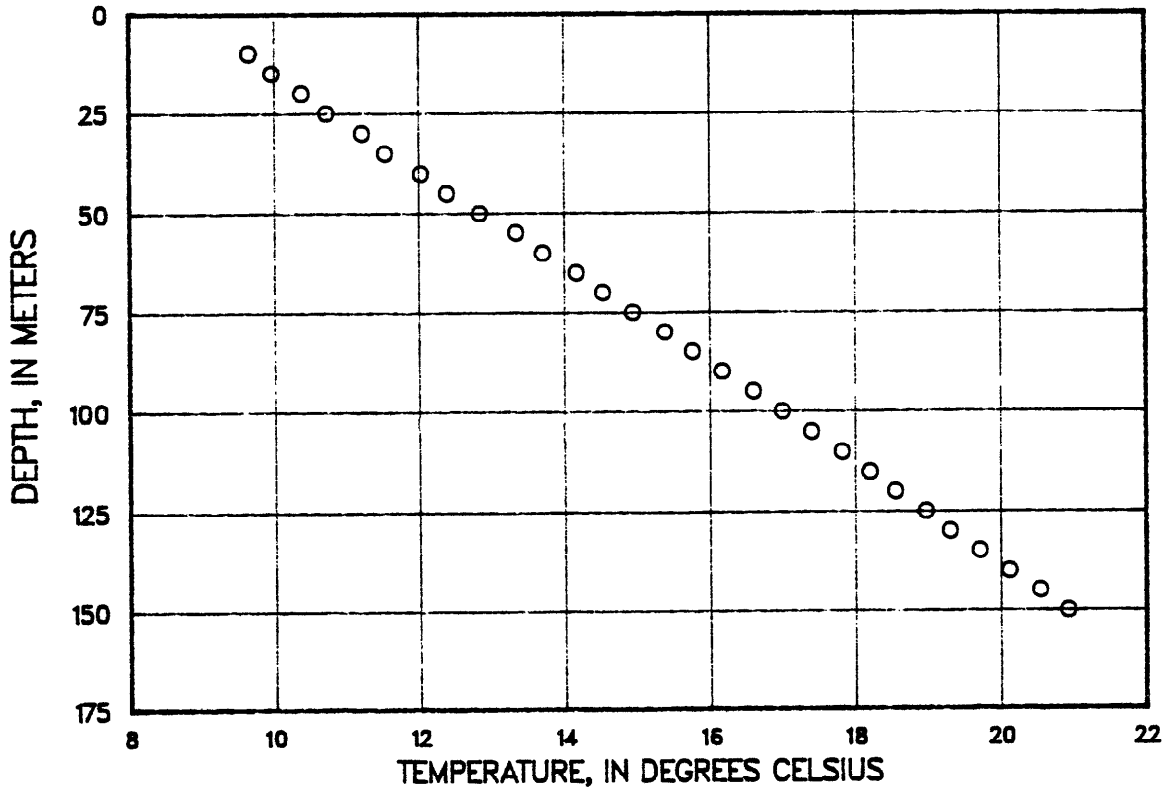

Fig. 19-Temperature profile from 6S-6E-34 SW.

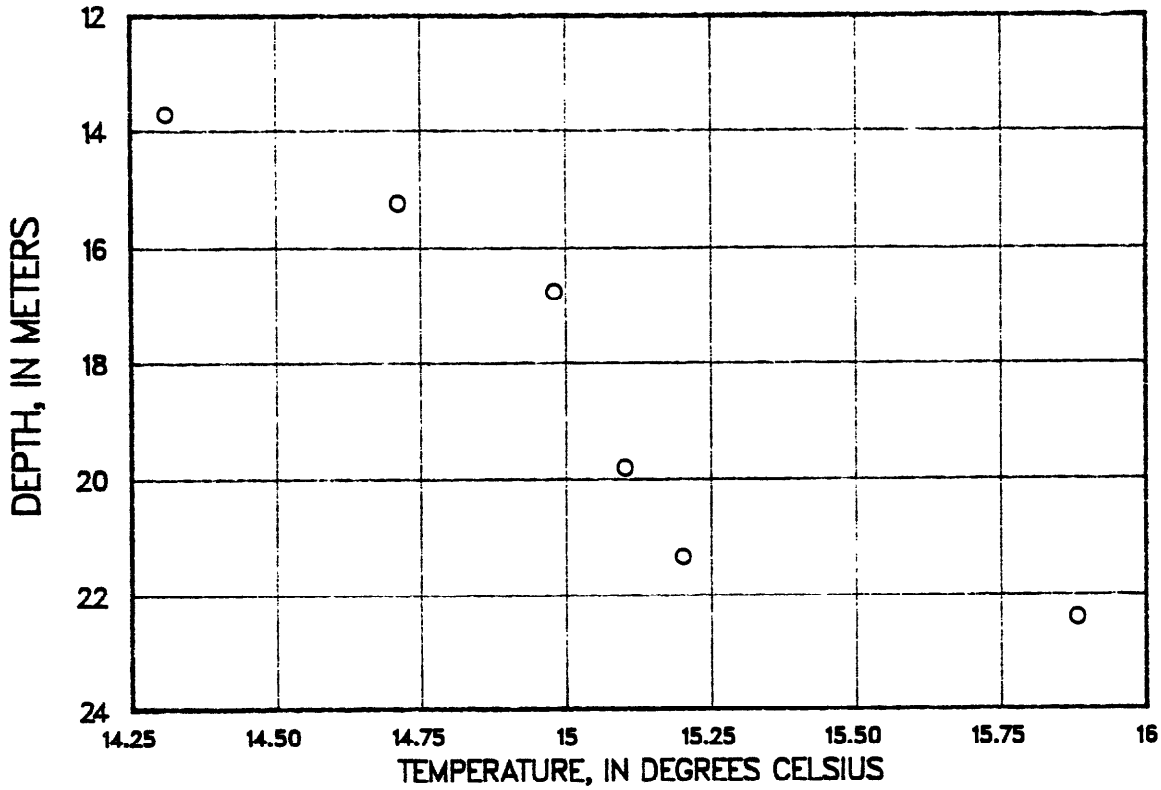

Fig. 20-Temperature profile from 6S-7E-04 SE.

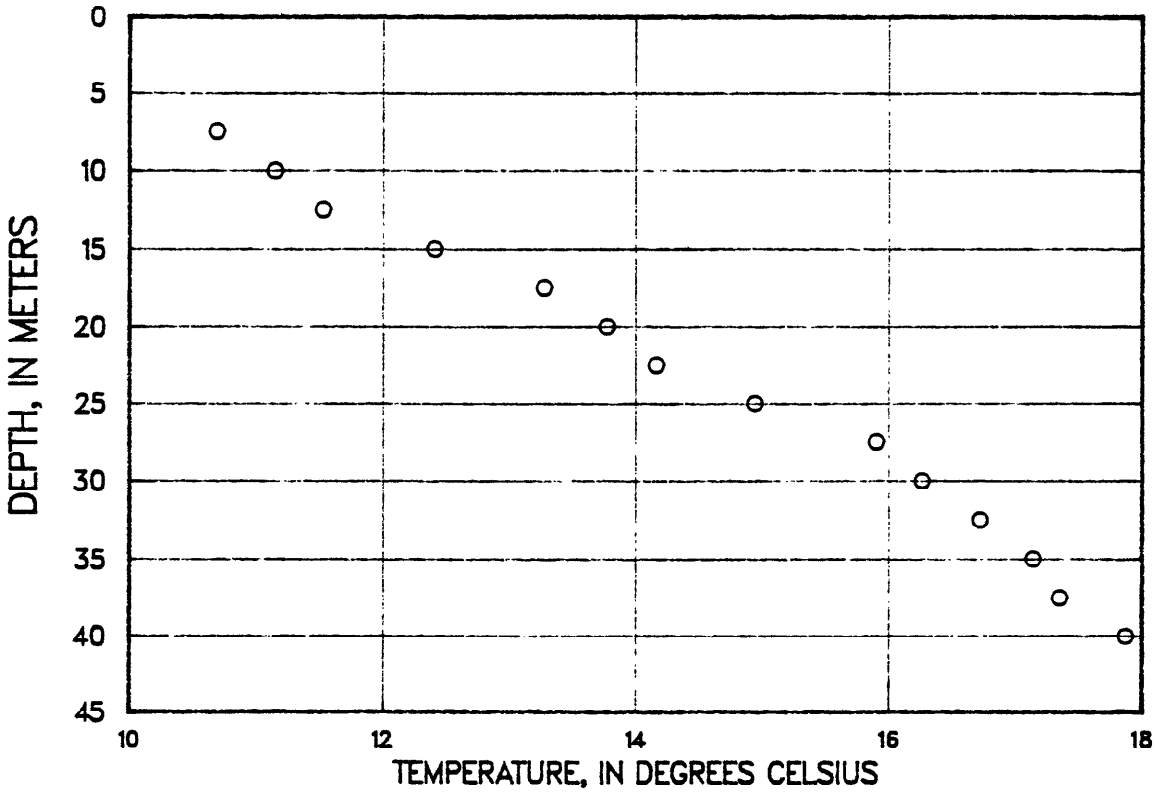

Fig. 21-Temperature profile from 6S-7E-21 SW.

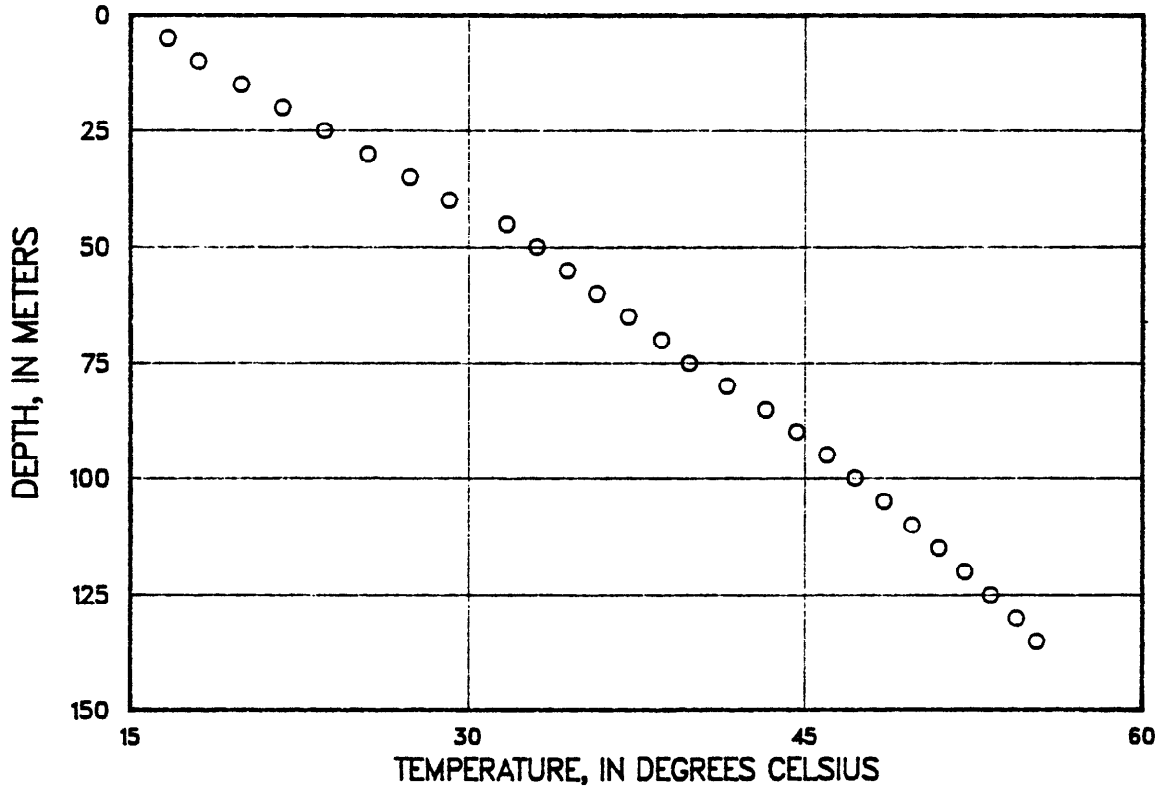

Fig. 22-Temperature profile from 6S-7E-30 NW.

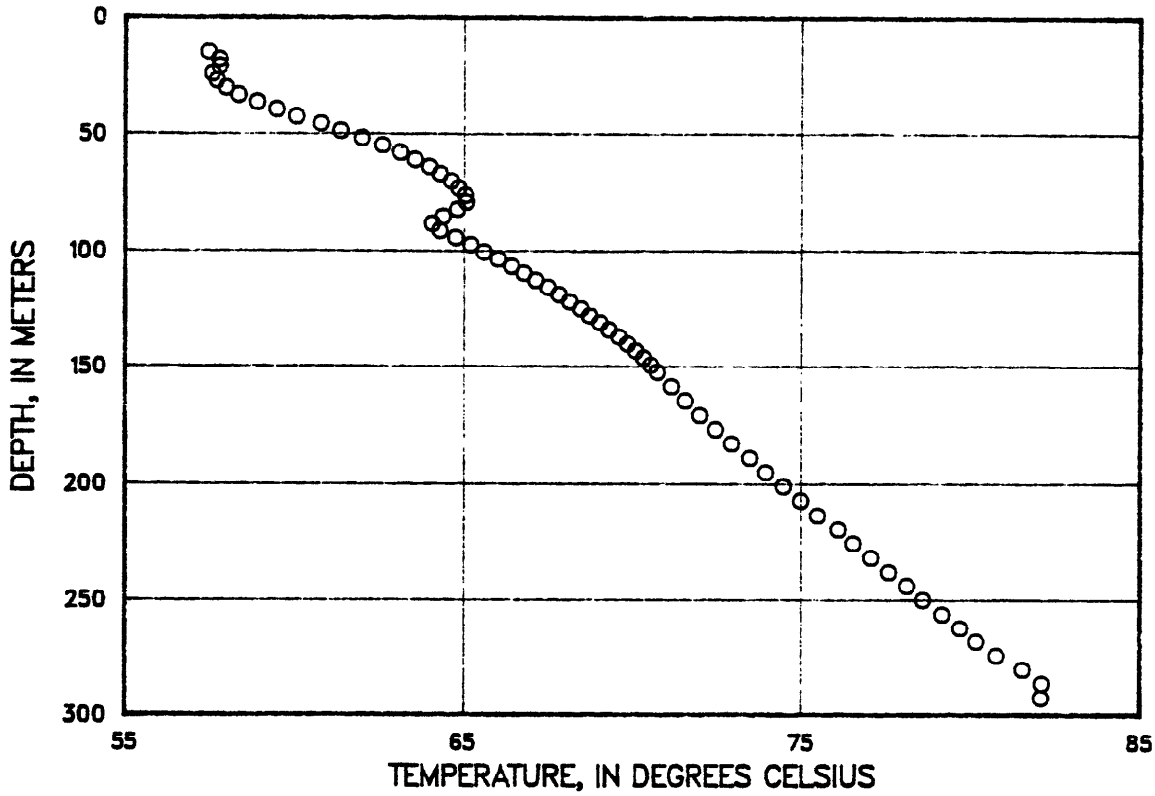

Fig. 23-Temperature profile from 6S-7E-30 NW.

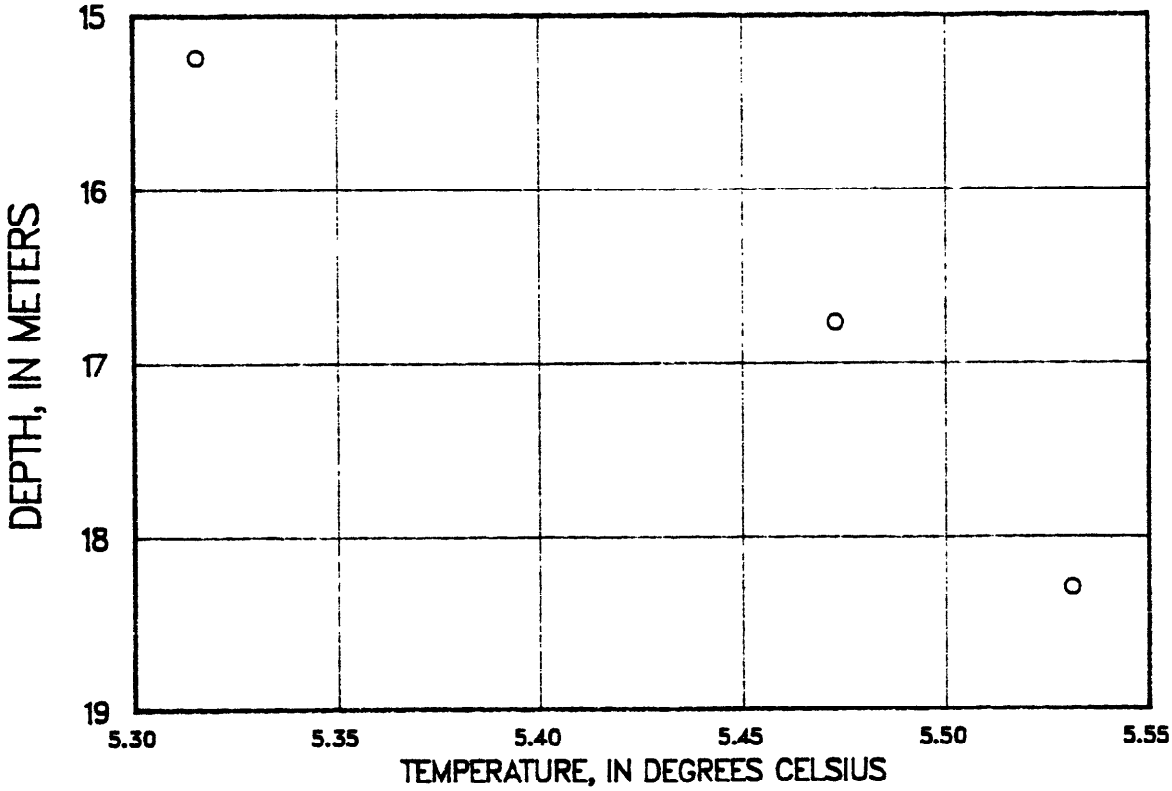

Fig. 24-Temperature profile from 7S-5E-14 SE.

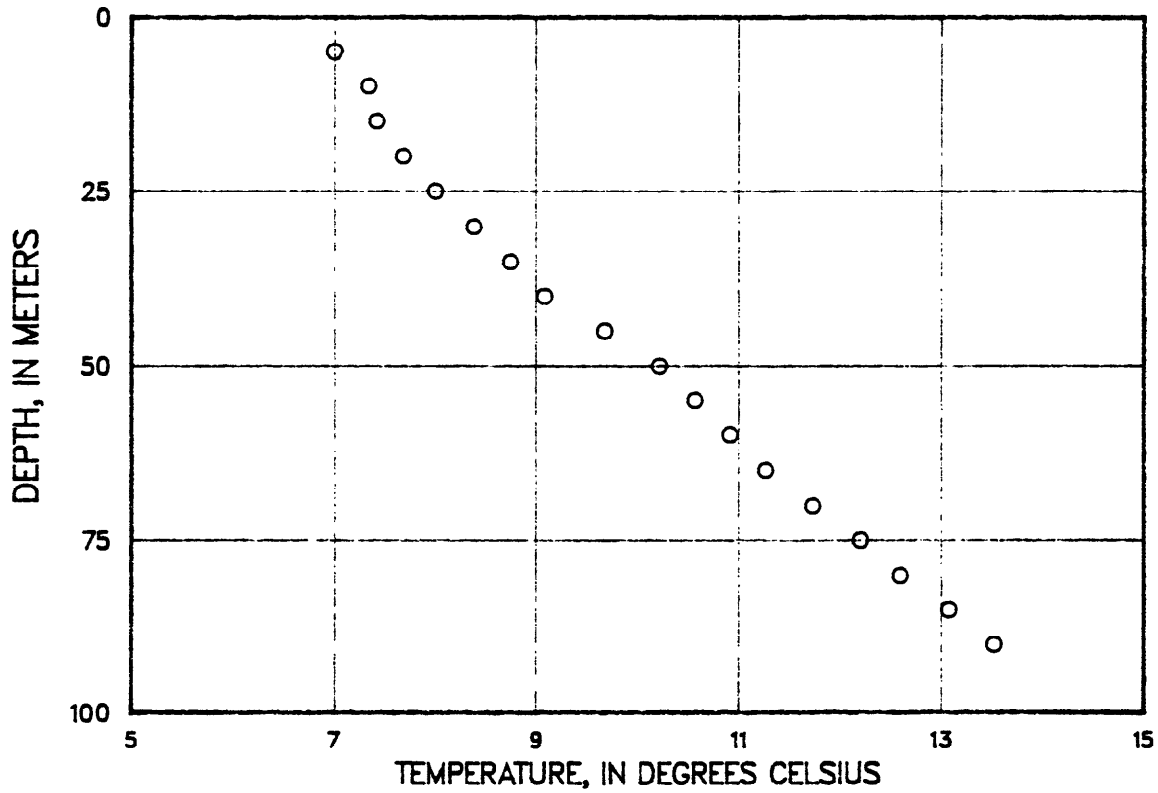

Fig. 25-Temperature profile from 7S-5E-22 NE.

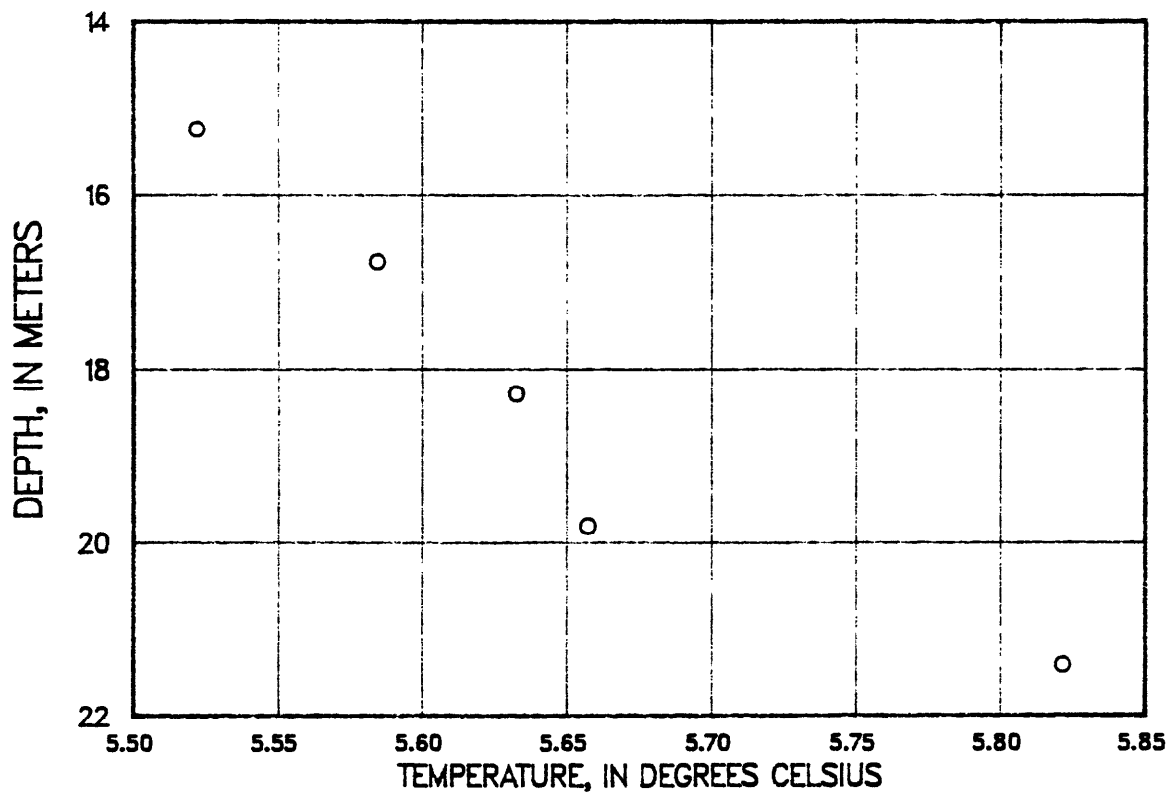

Fig. 26-Temperature profile from 7S-5E-23 NE.

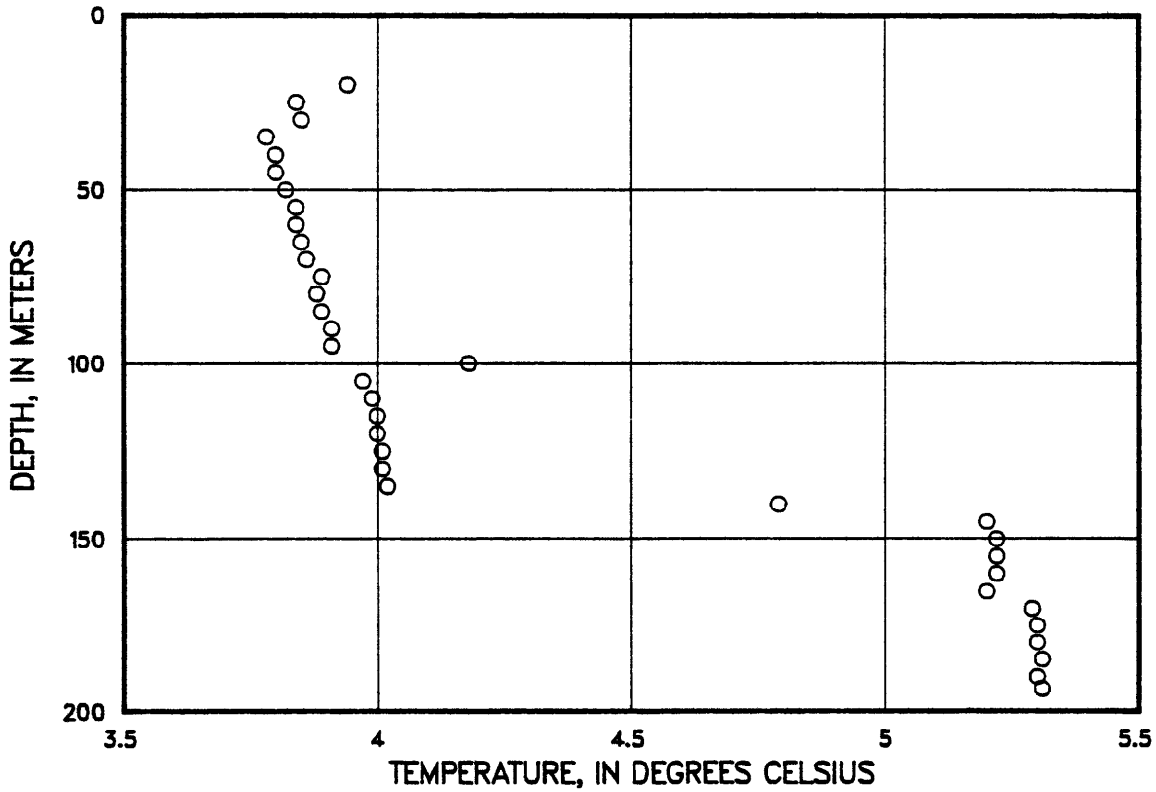

Fig. 27-Temperature profile from 7S-7E-04 SE.

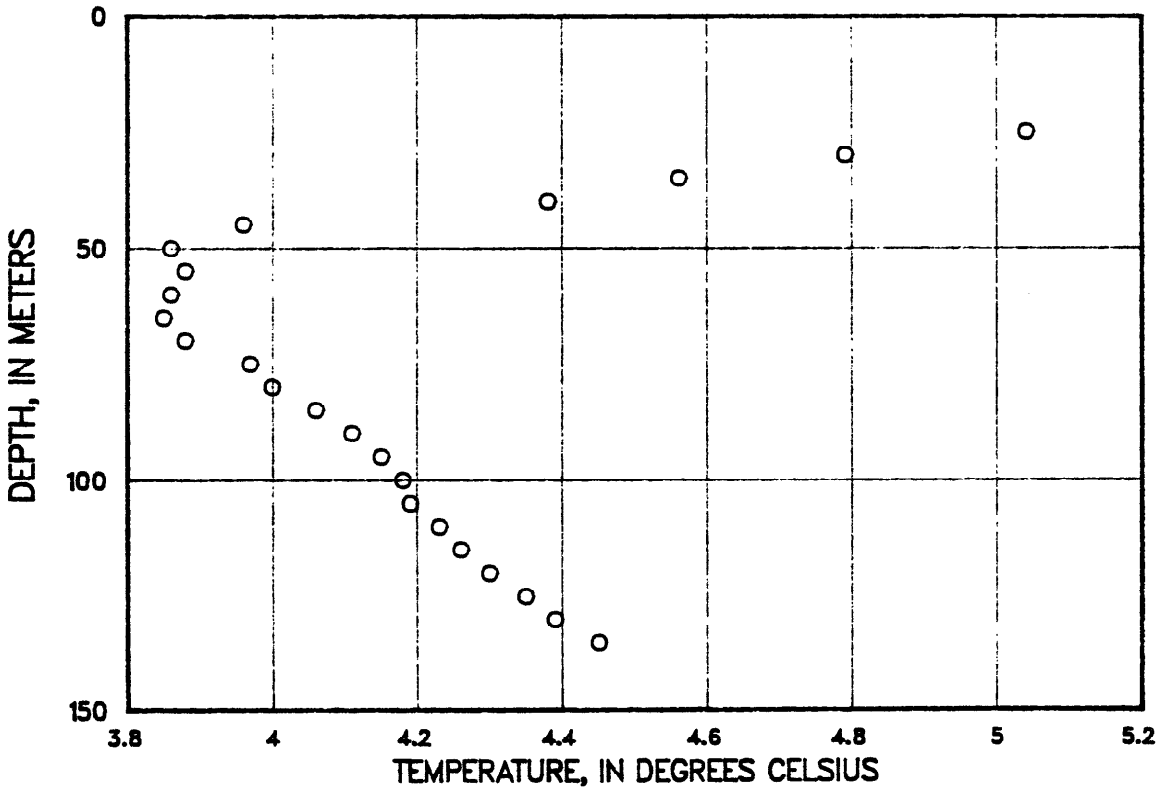

Fig. 28-Temperature profile from 7S-8E-10 NE.

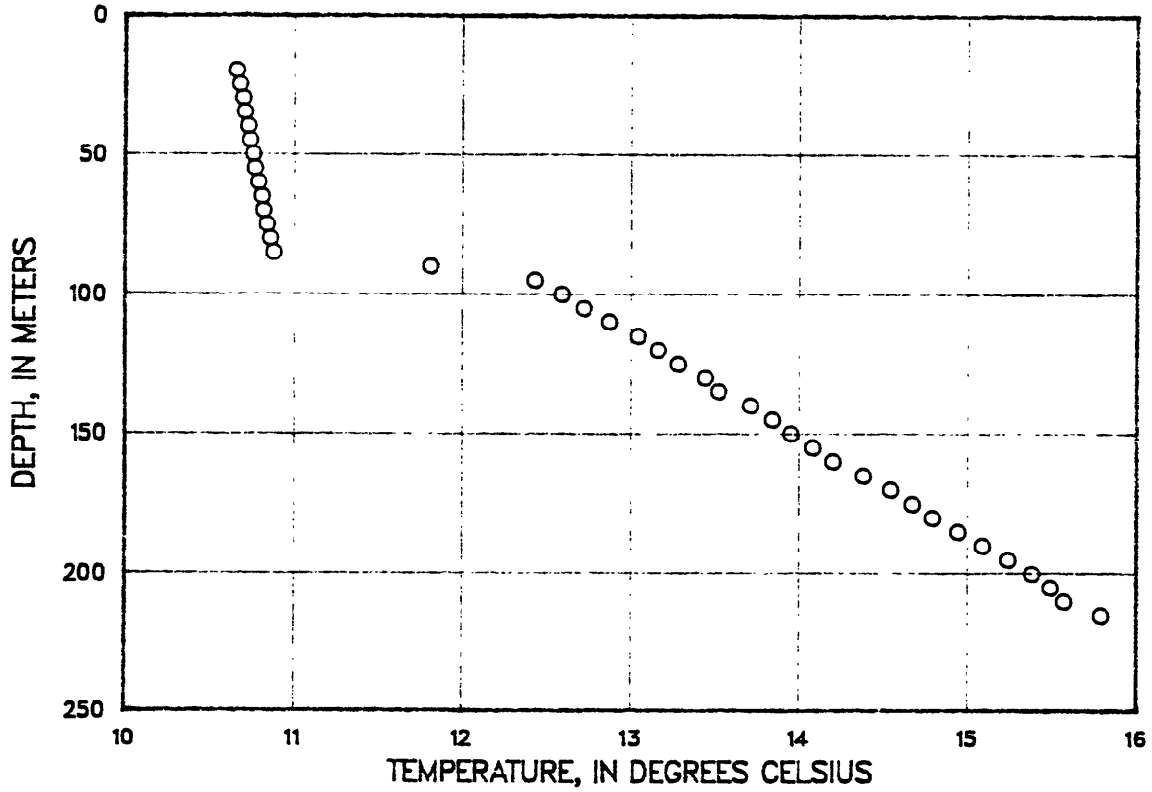

Fig. 29-Temperature profile from 8S-1E-08 SE.

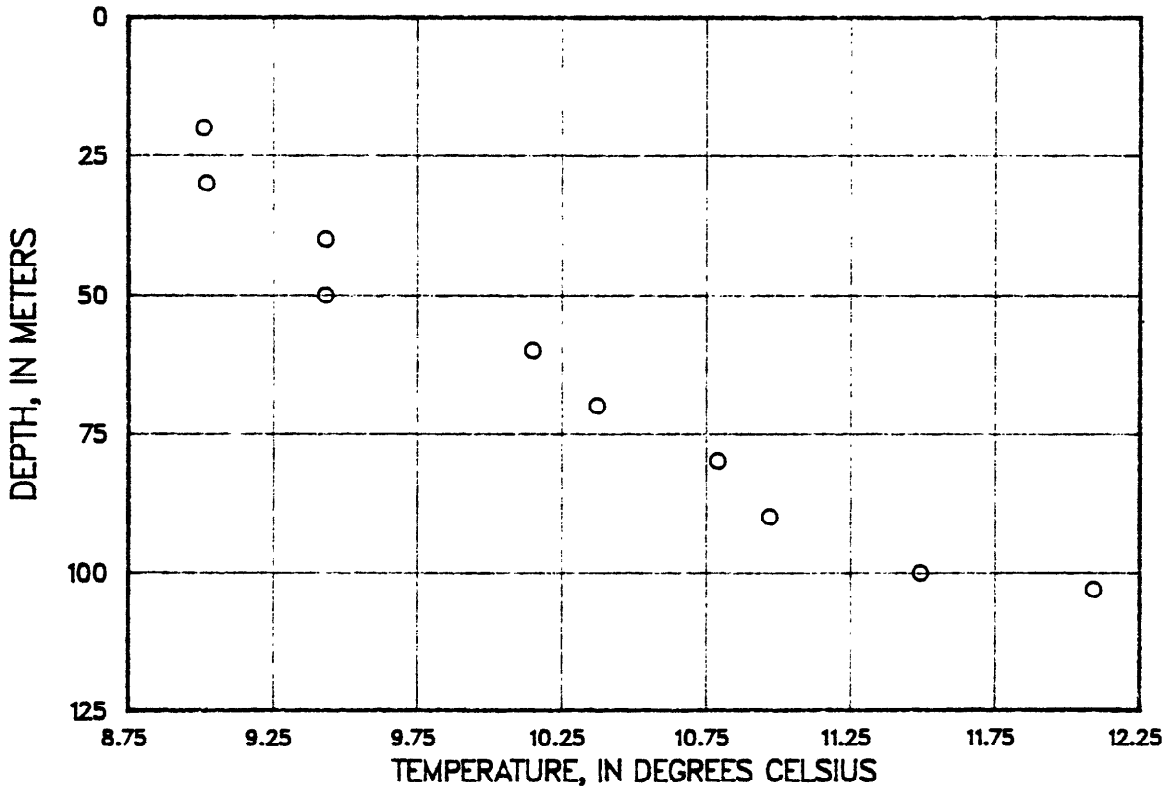

Fig. 30-Temperature profile from 8S-1E-09 NW.

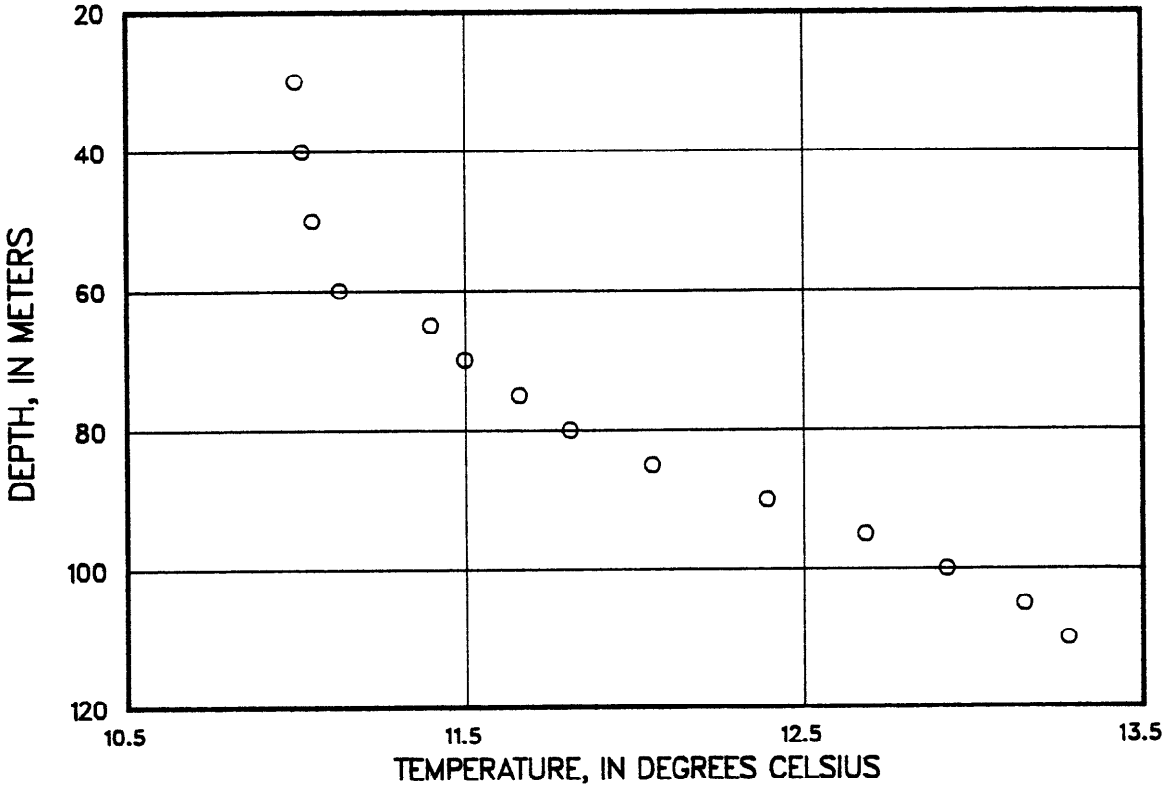

Fig. 31-Temperature profile from 8S-1E-17 SE.

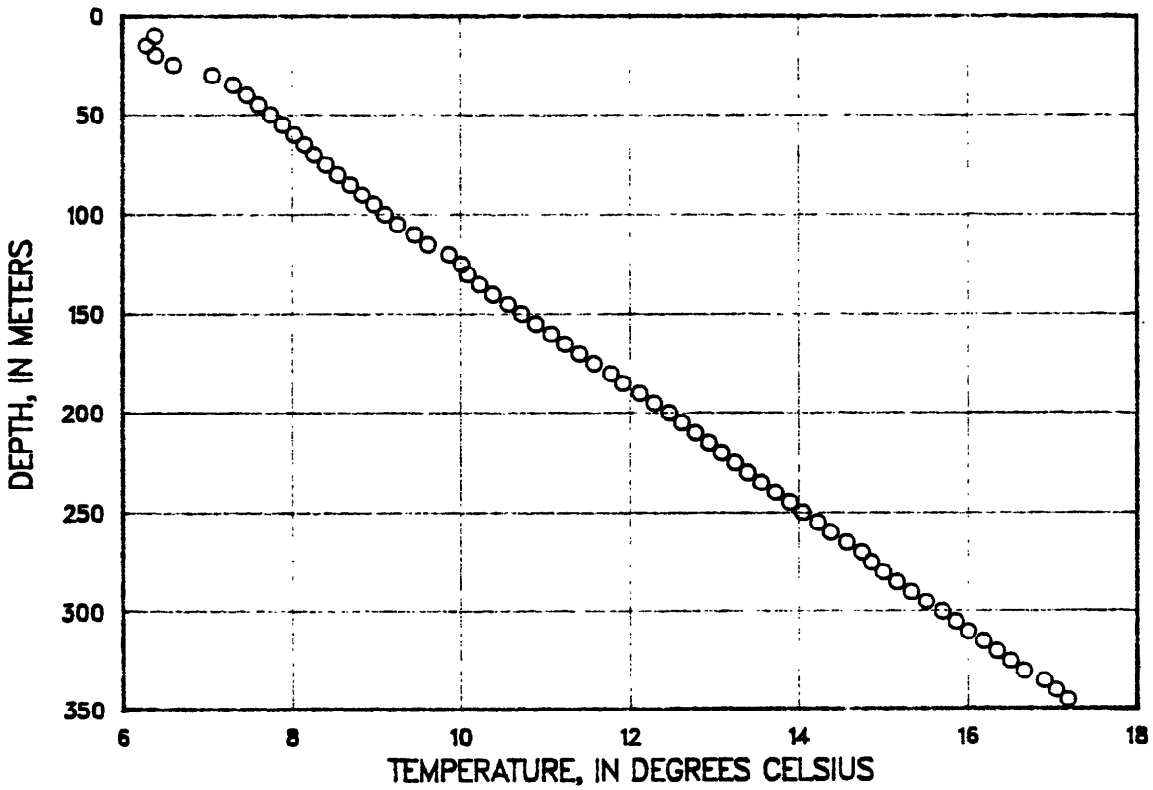

Fig. 32-Temperature profile from 8S-5E-31 SW.

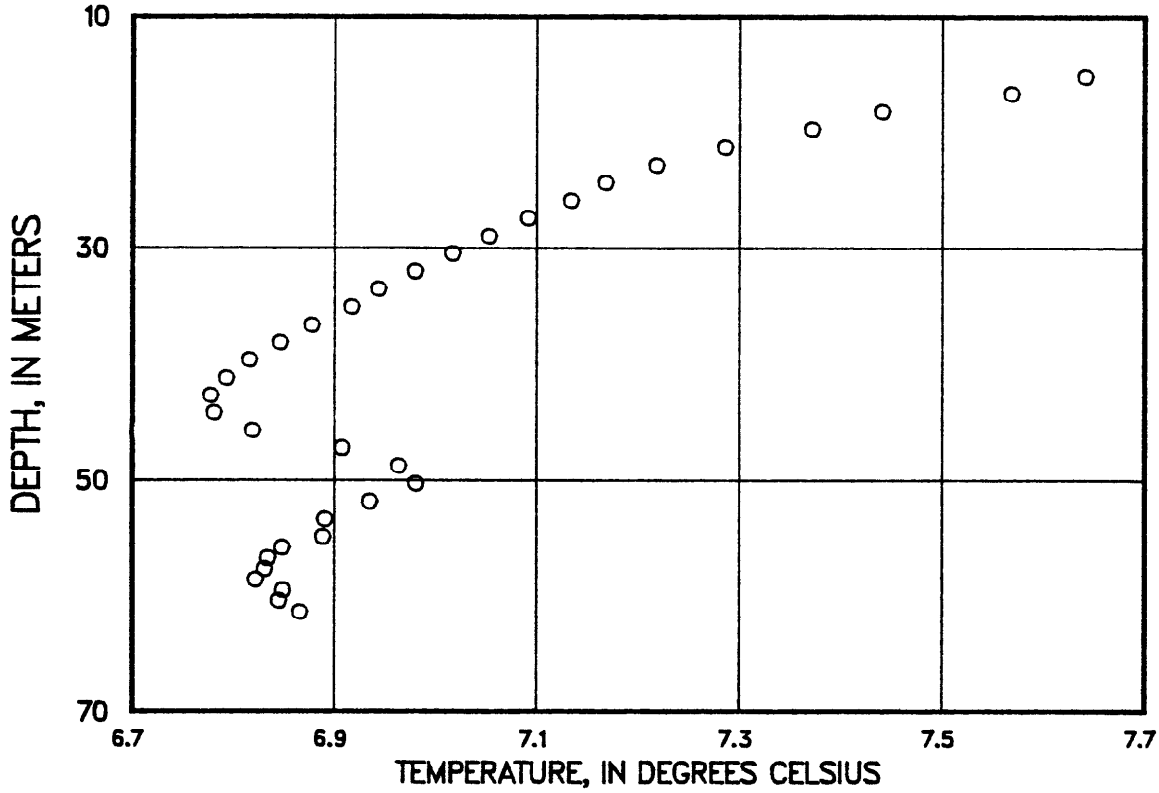

Fig. 33-Temperature profile from 8S-6E-01 SE.

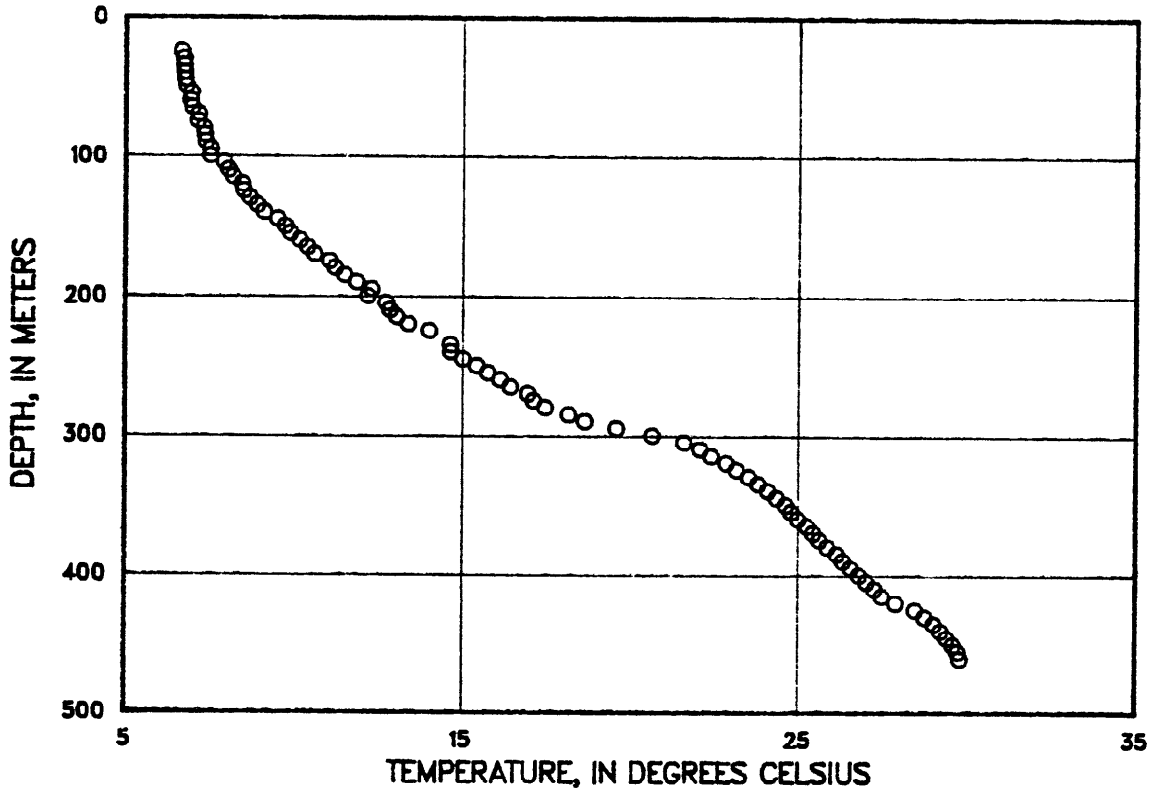

Fig. 34-Temperature profile from 8S-8E-06 SE.

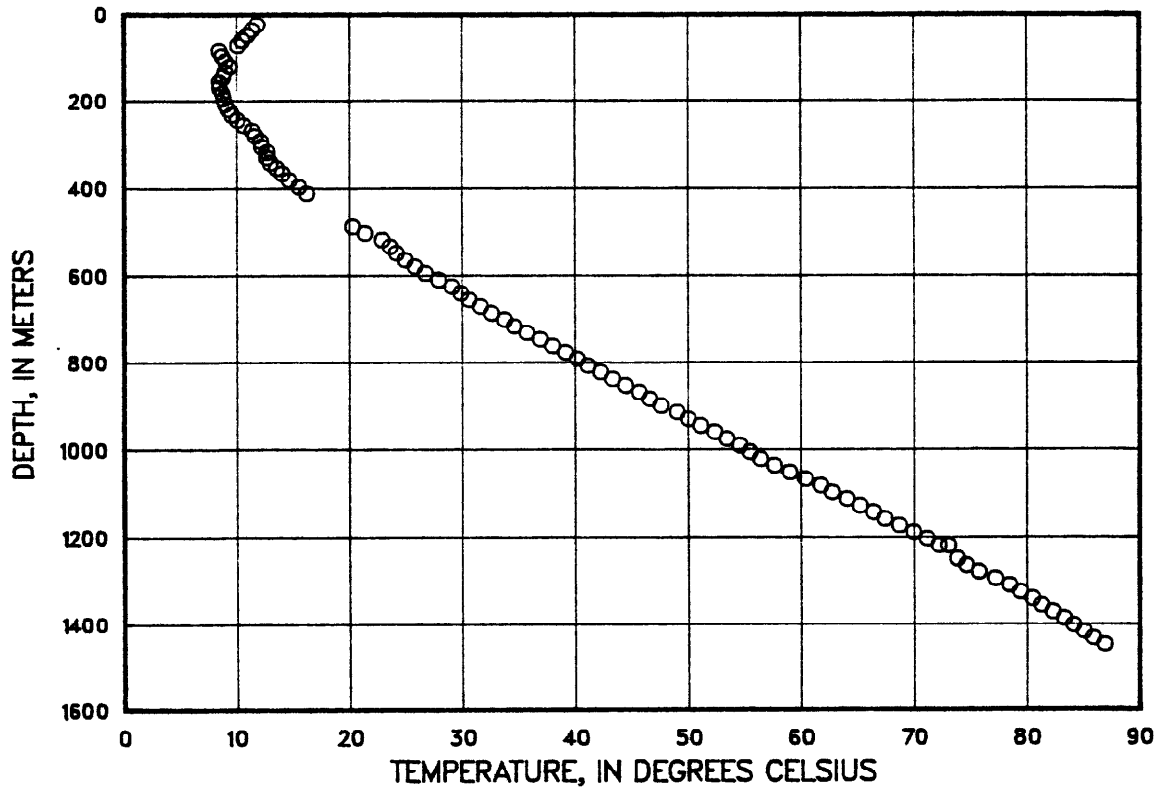

Fig. 35-Temperature profile from 8S-8E-28 SE.

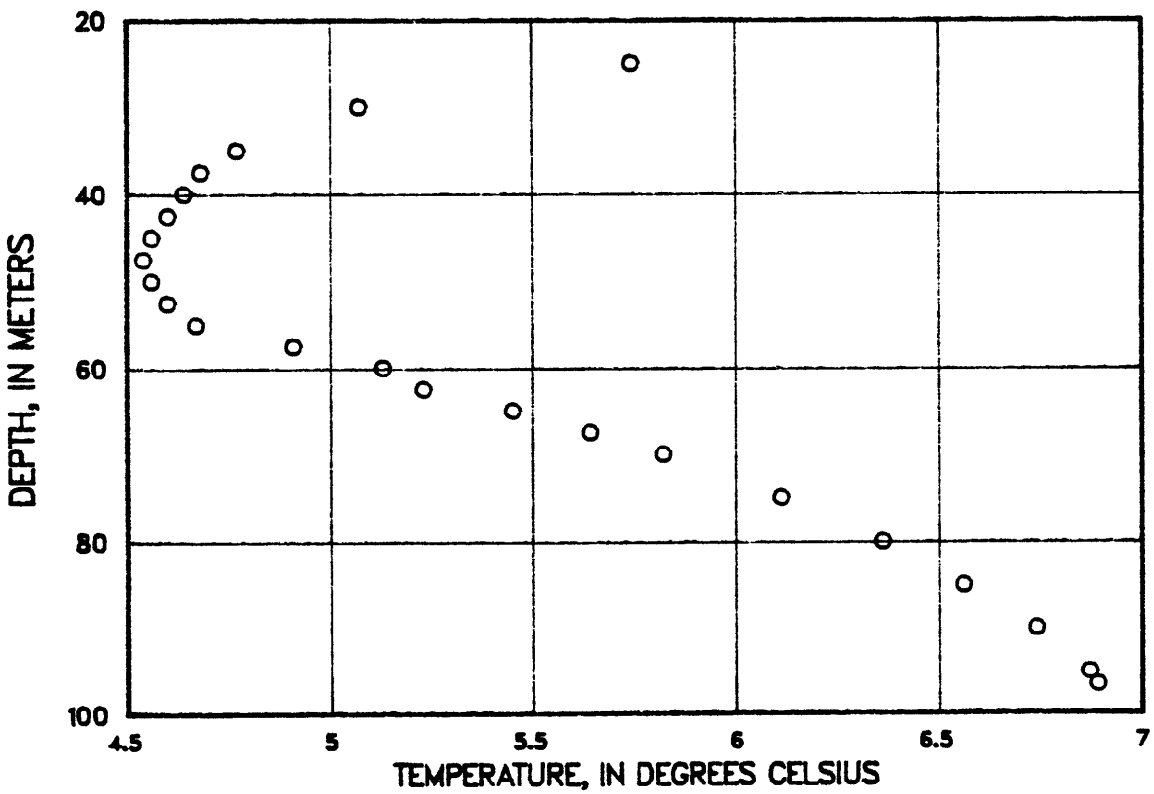

Fig. 36-Temperature profile from 8S-8E-31 SW.

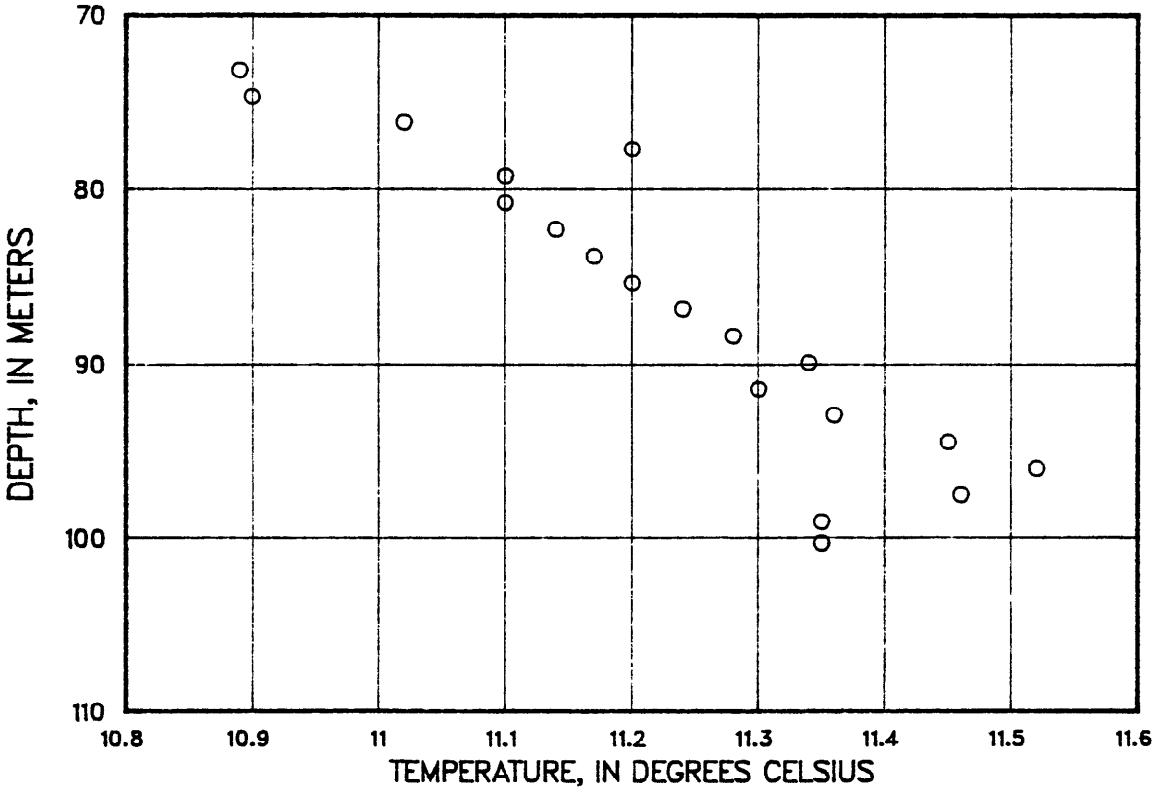

Fig. 37-Temperature profile from 9S-1E-25 SE.

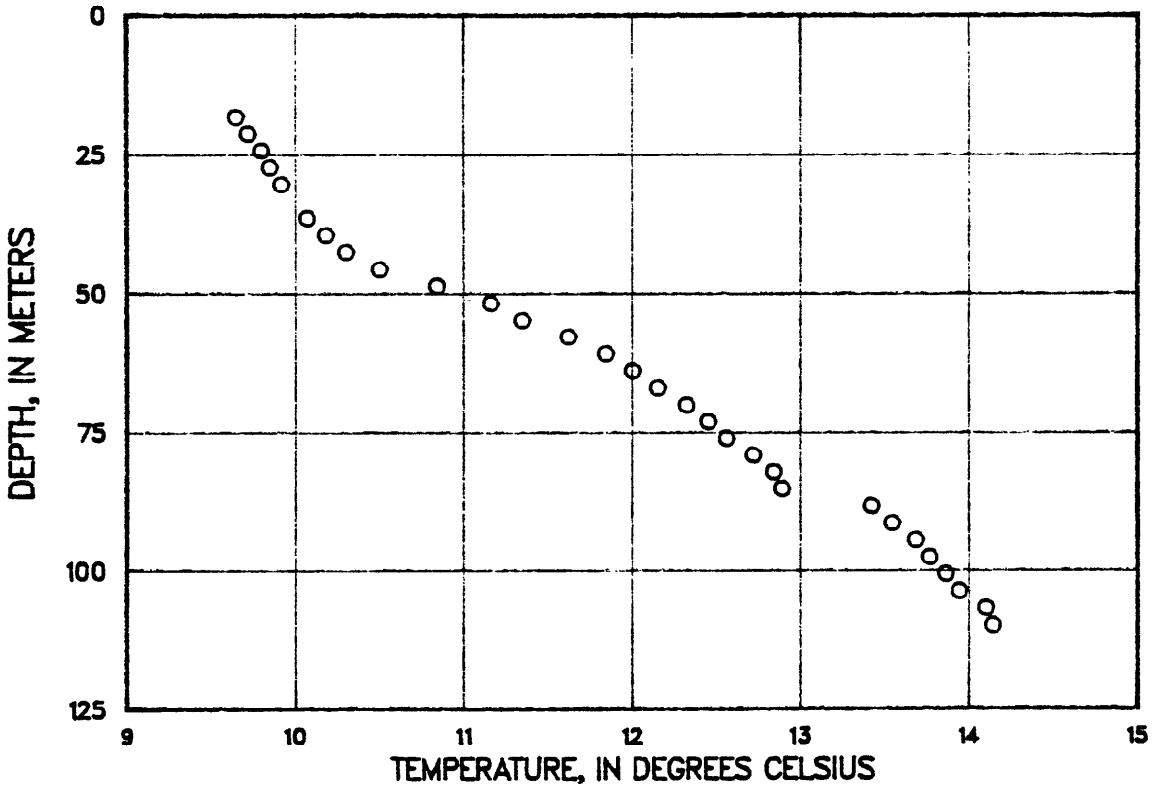

Fig. 38-Temperature profile from 9S-2E-16 NW.

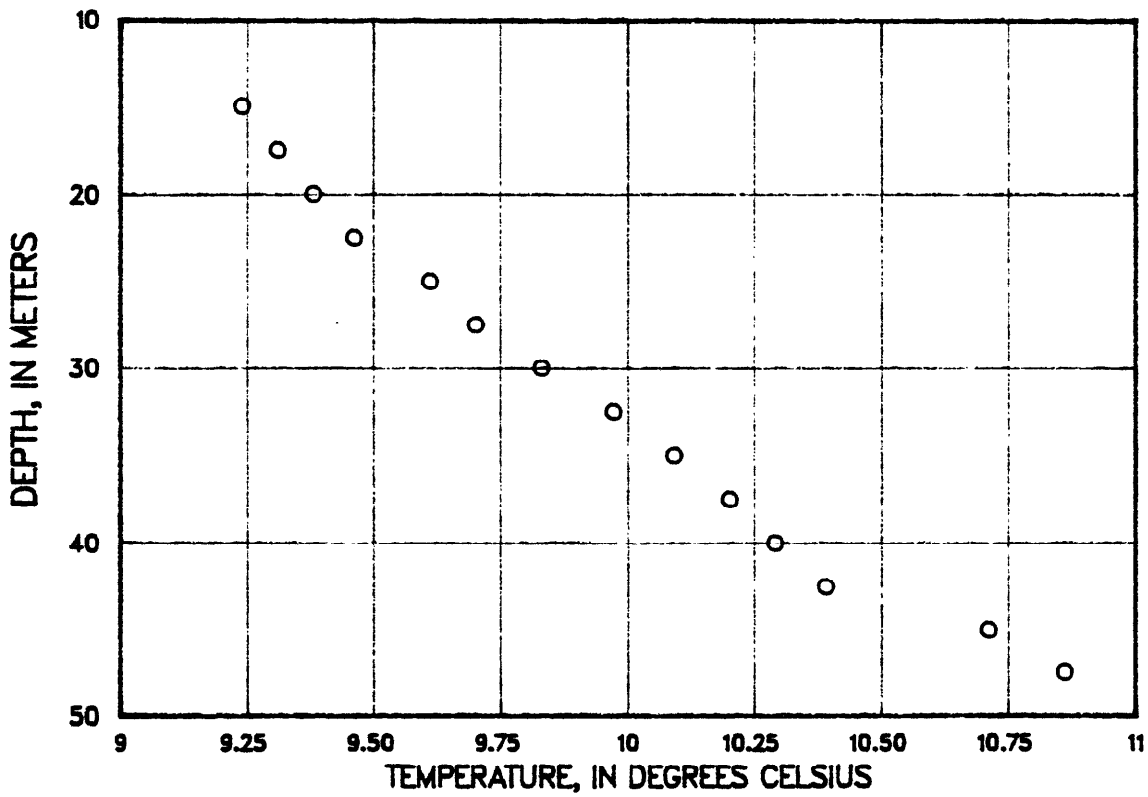

Fig. 39-Temperature profile from 9S-2E-21 SE.

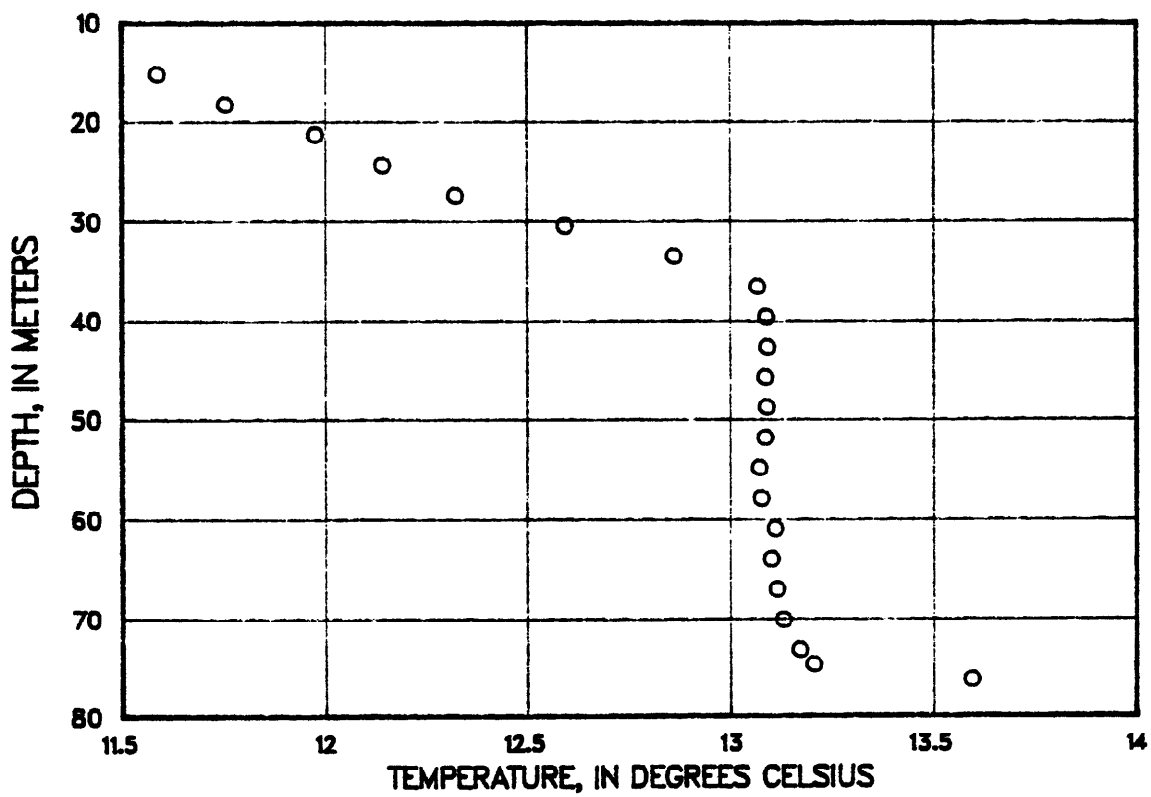

Fig. 40-Temperature profile from 9S-2E-29 NW.

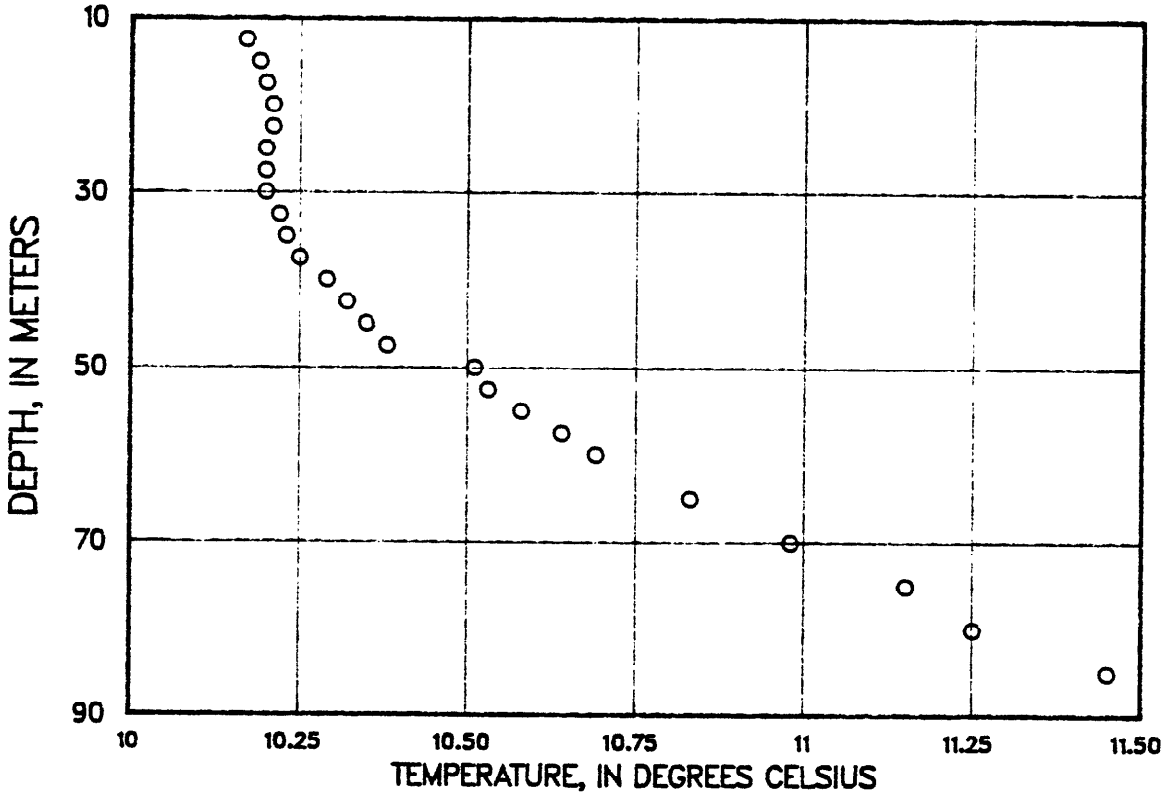

Fig. 41-Temperature profile from 9S-3E-11 NW.

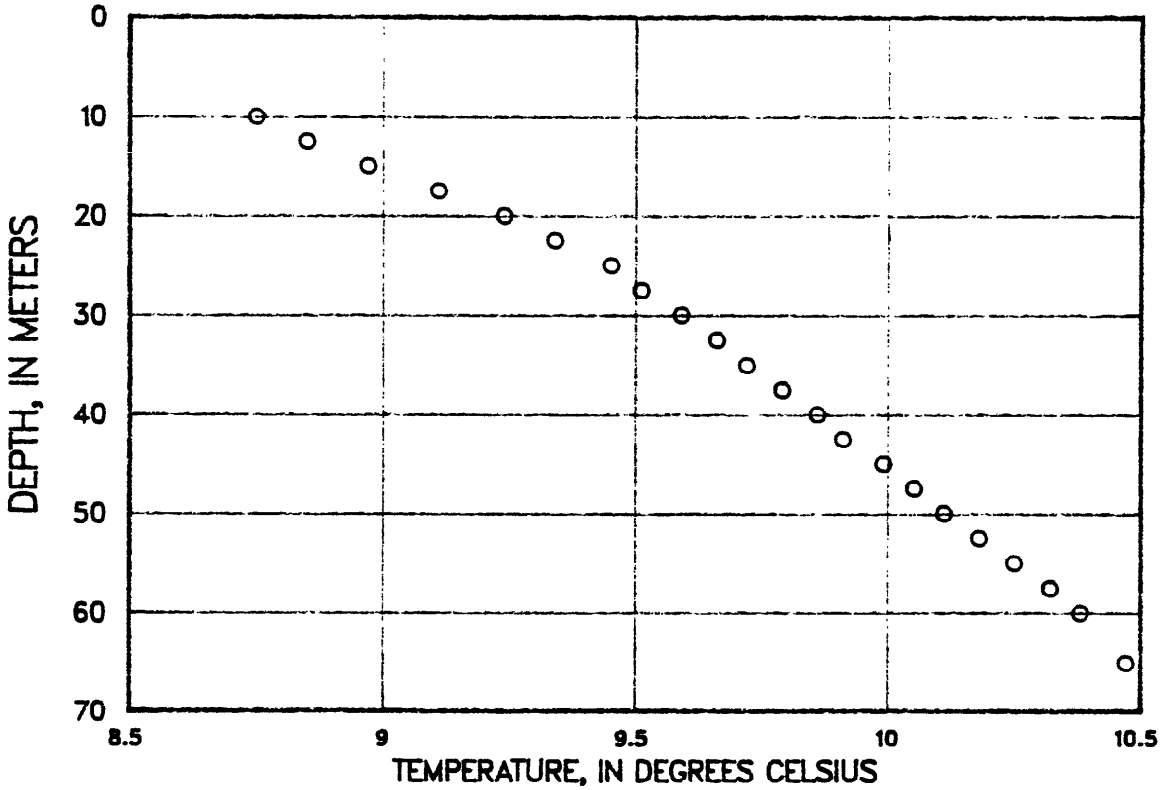

Fig. 42-Temperature profile from 9S-3E-11 SW.

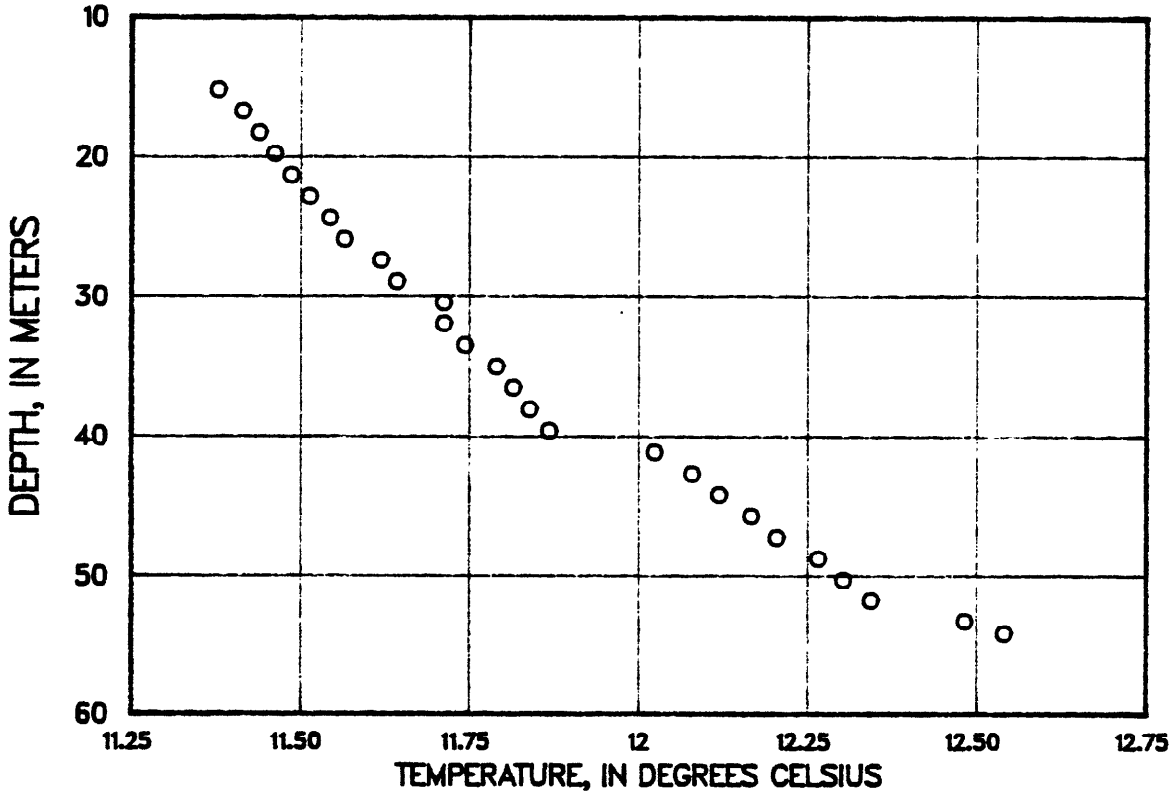

Fig. 43-Temperature profile from 9S-3E-28 SW.

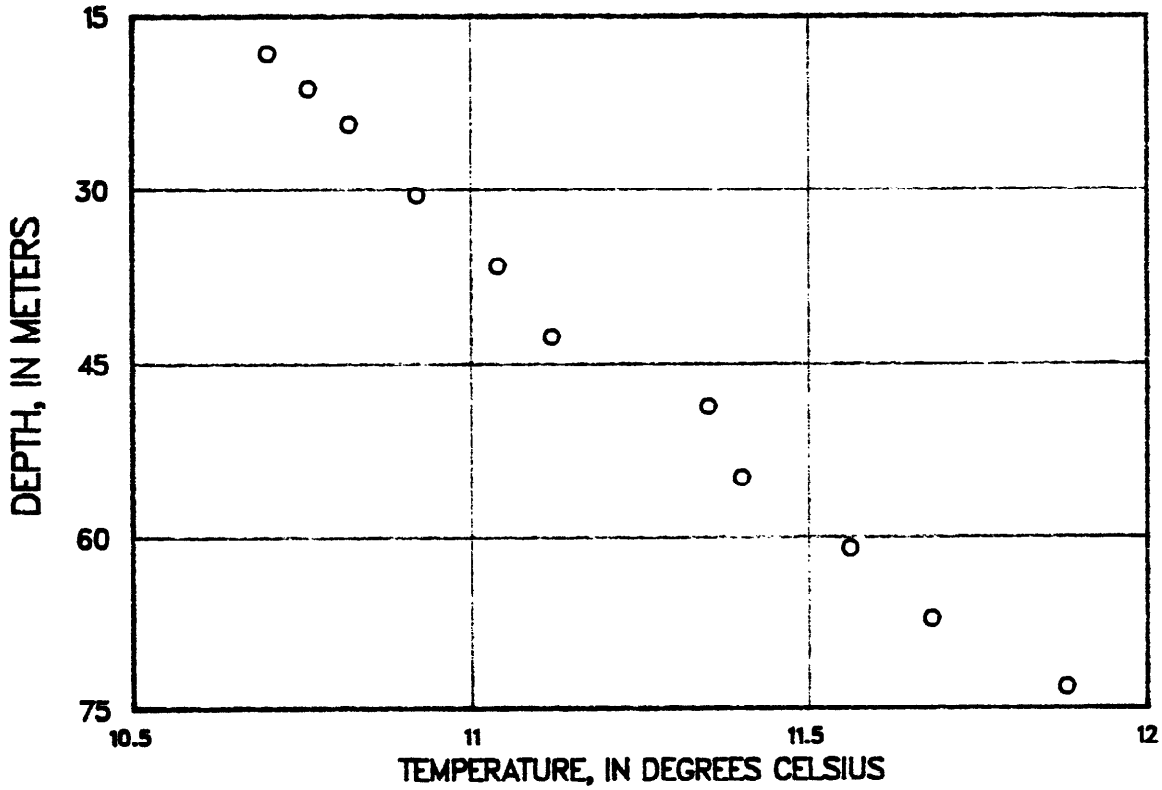

Fig. 44-Temperature profile from 9S-3E-36 NW.

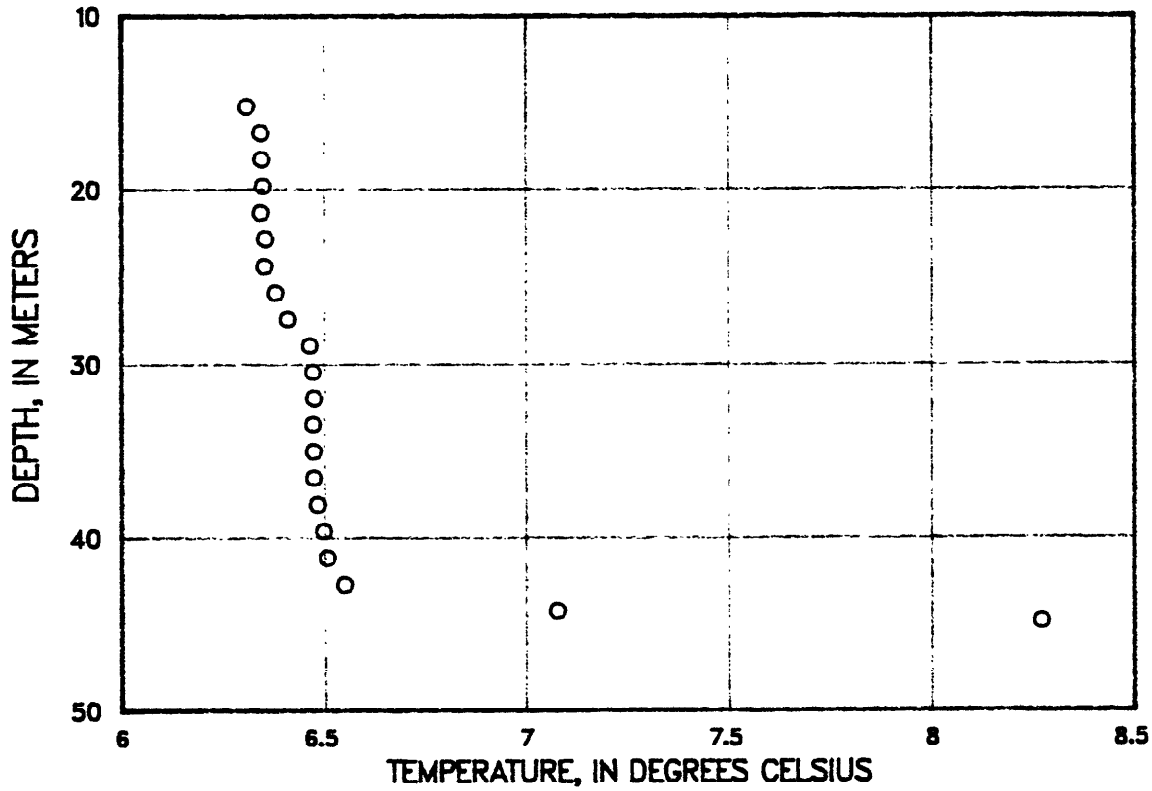

Fig. 45-Temperature profile from 9S-6E-21 SE.

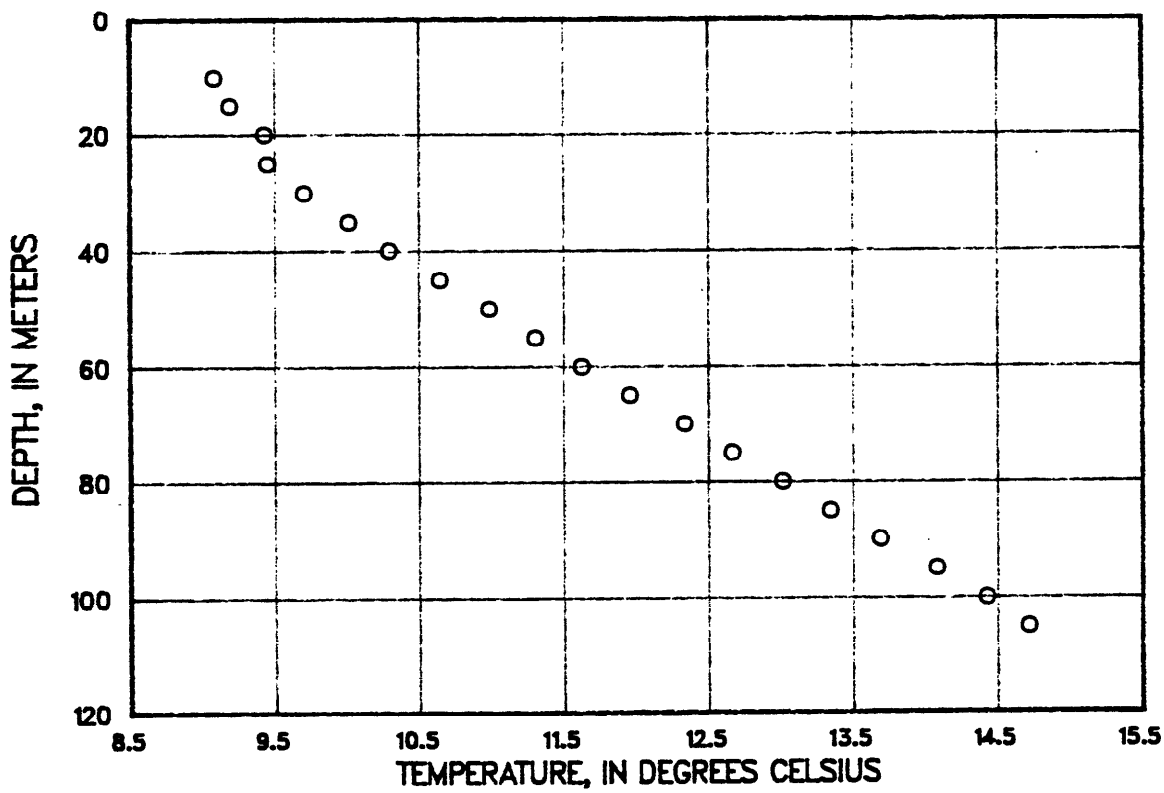

Fig. 46-Temperature profile from 9S-6E-23 NW.

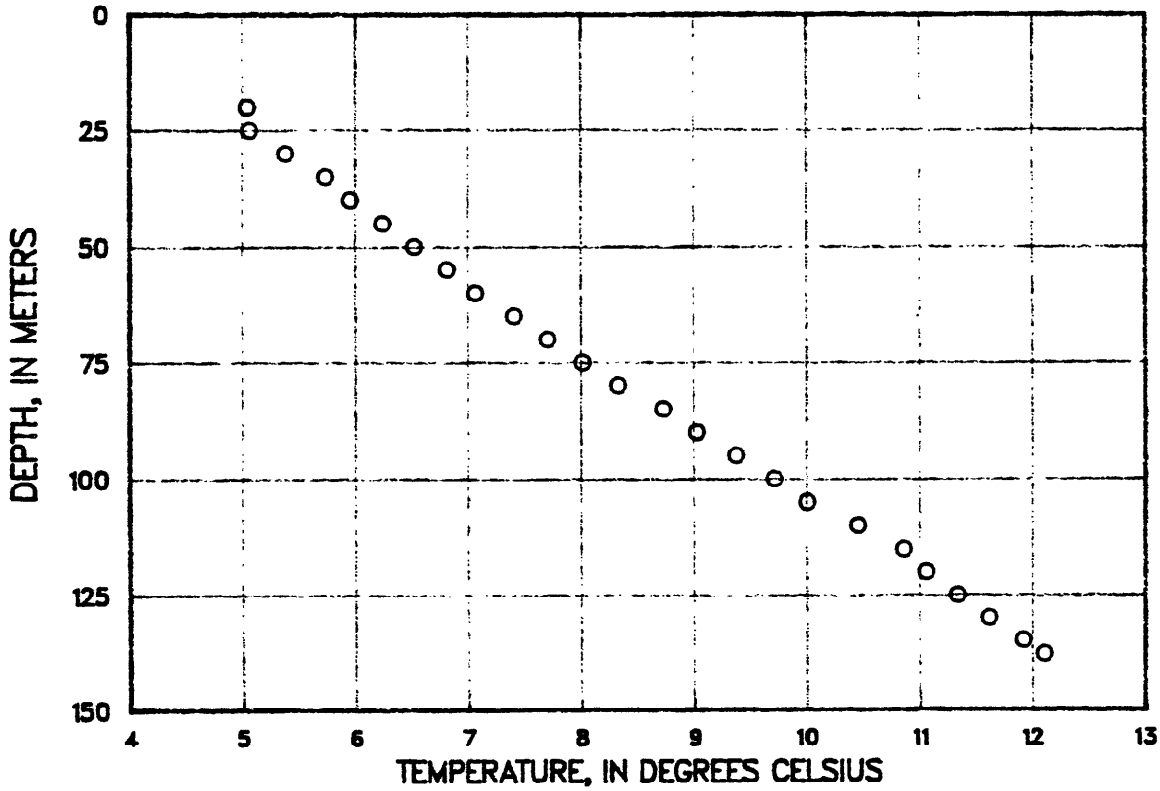

Fig. 47-Temperature profile from 9S-7E-03 SW.

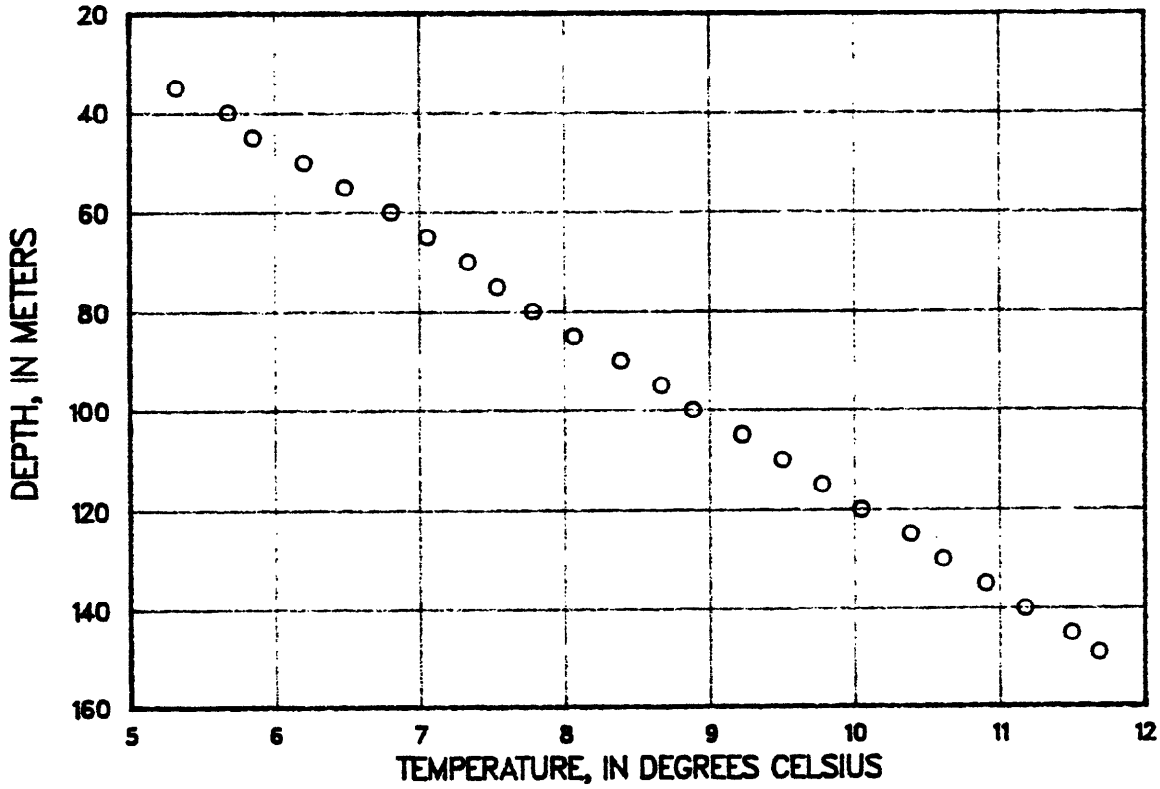

Fig. 48-Temperature profile from 9S-7E-07 SE.

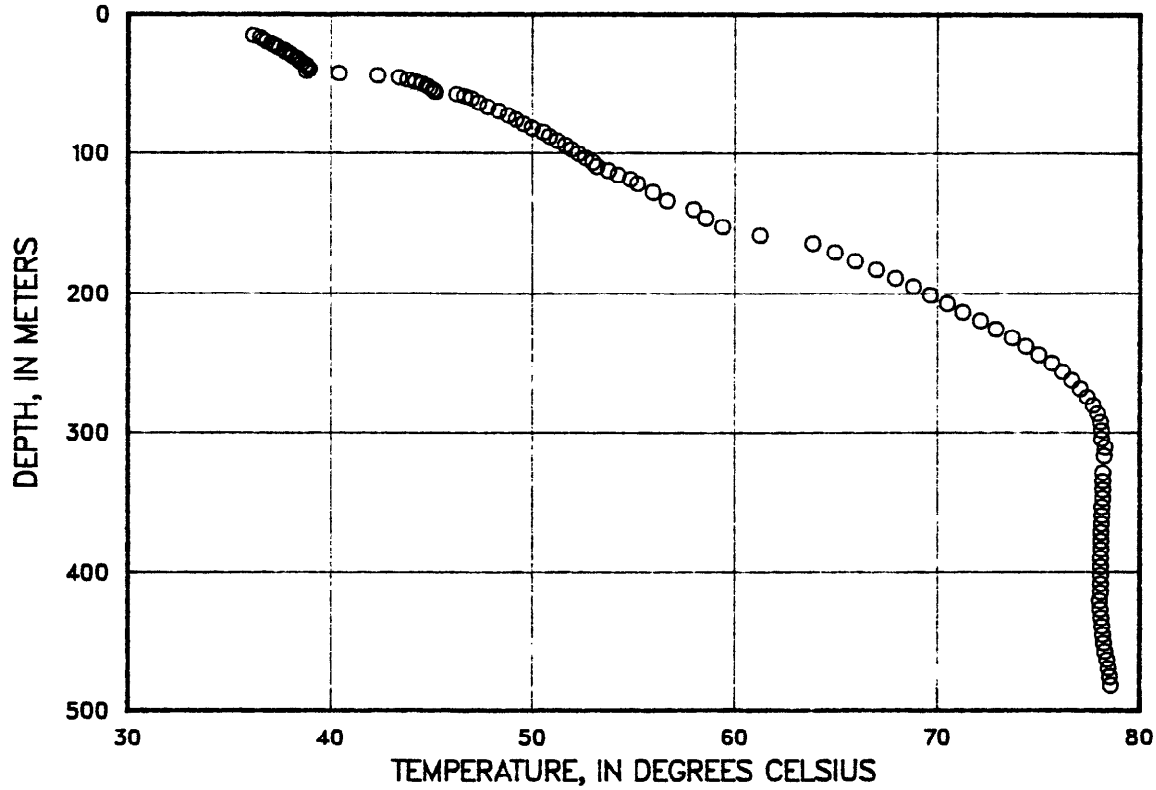

Fig. 49-Temperature profile from 9S-7E-20 NE.

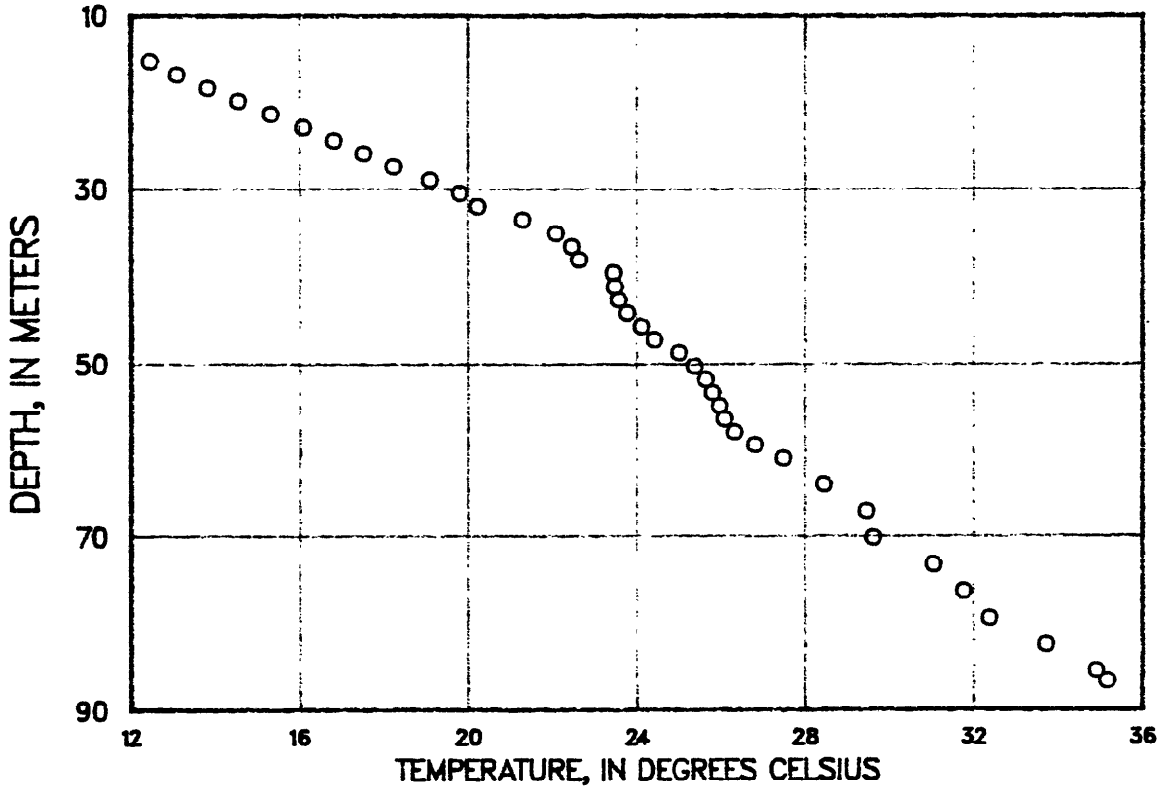

Fig. 50-Temperature profile from 9S-7E-20 NE.

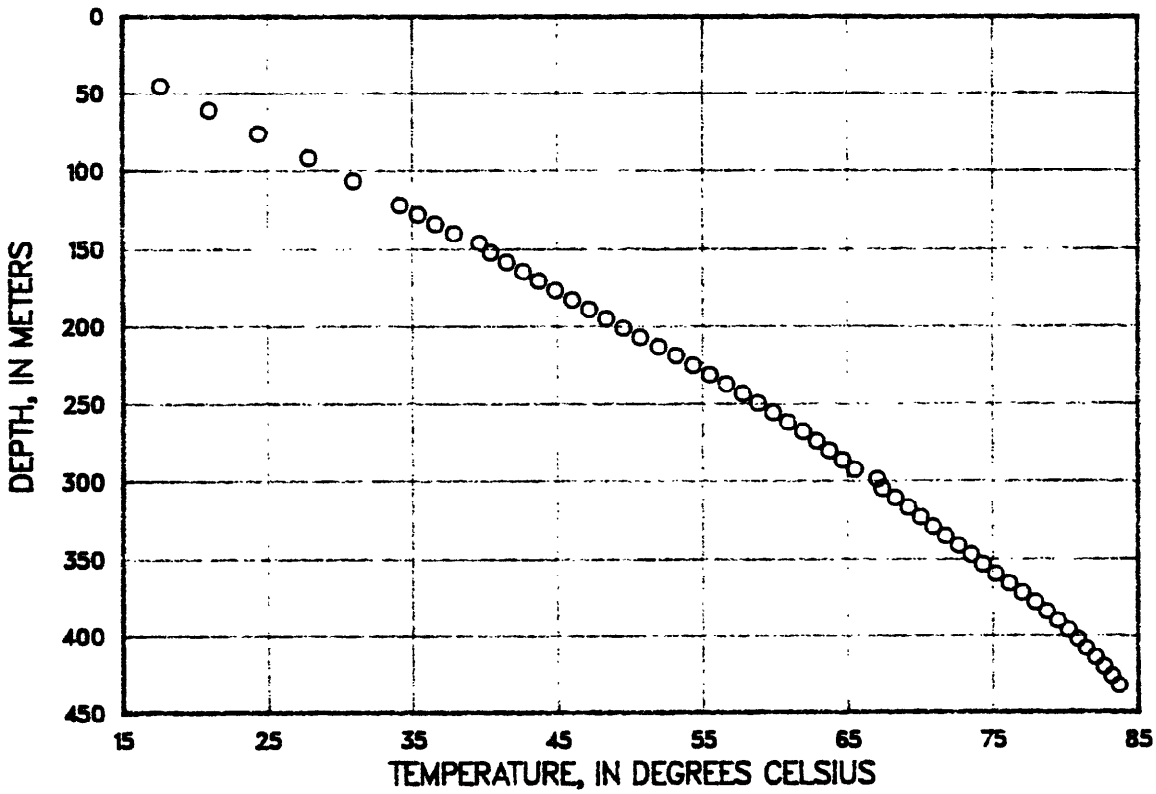

Fig. 51-Temperature profile from 9S-7E-20 NE.

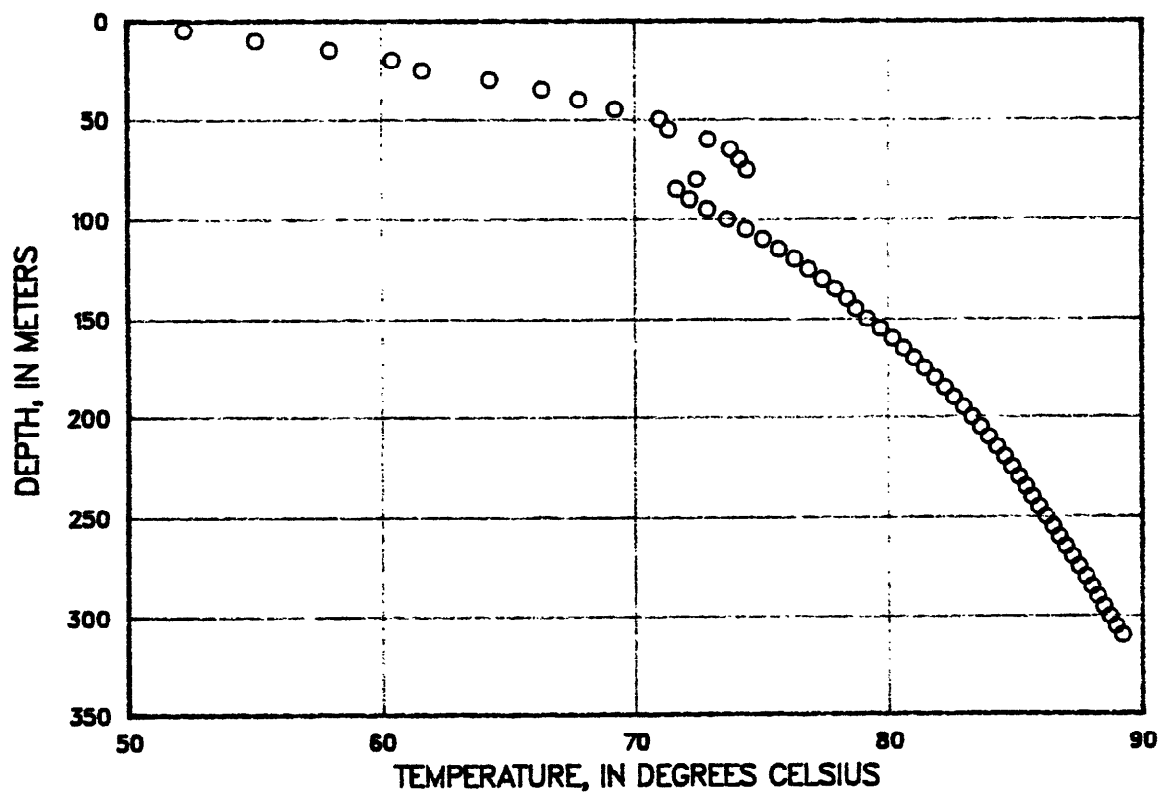

Fig. 52-Temperature profile from 9S-7E-20 NE.

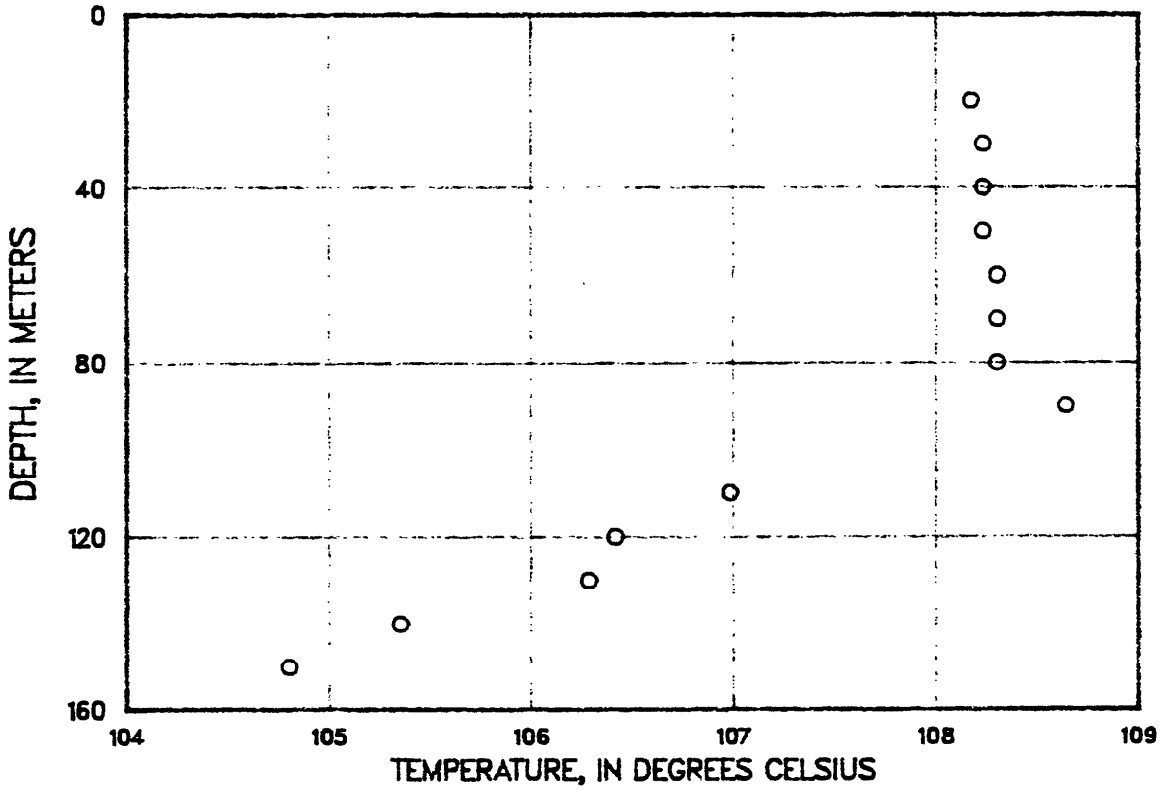

Fig. 53-Temperature profile from 9S-7E-20 NE.

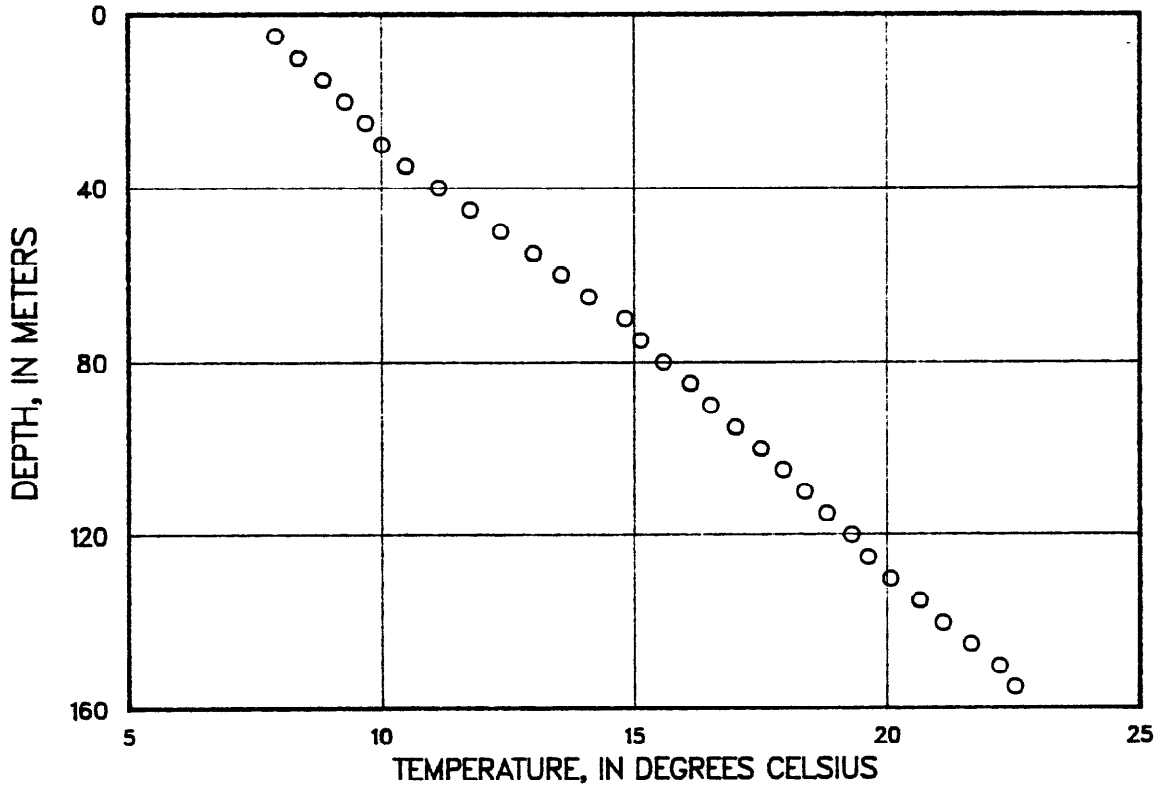

Fig. 54-Temperature profile from 9S-7E-21 NE.

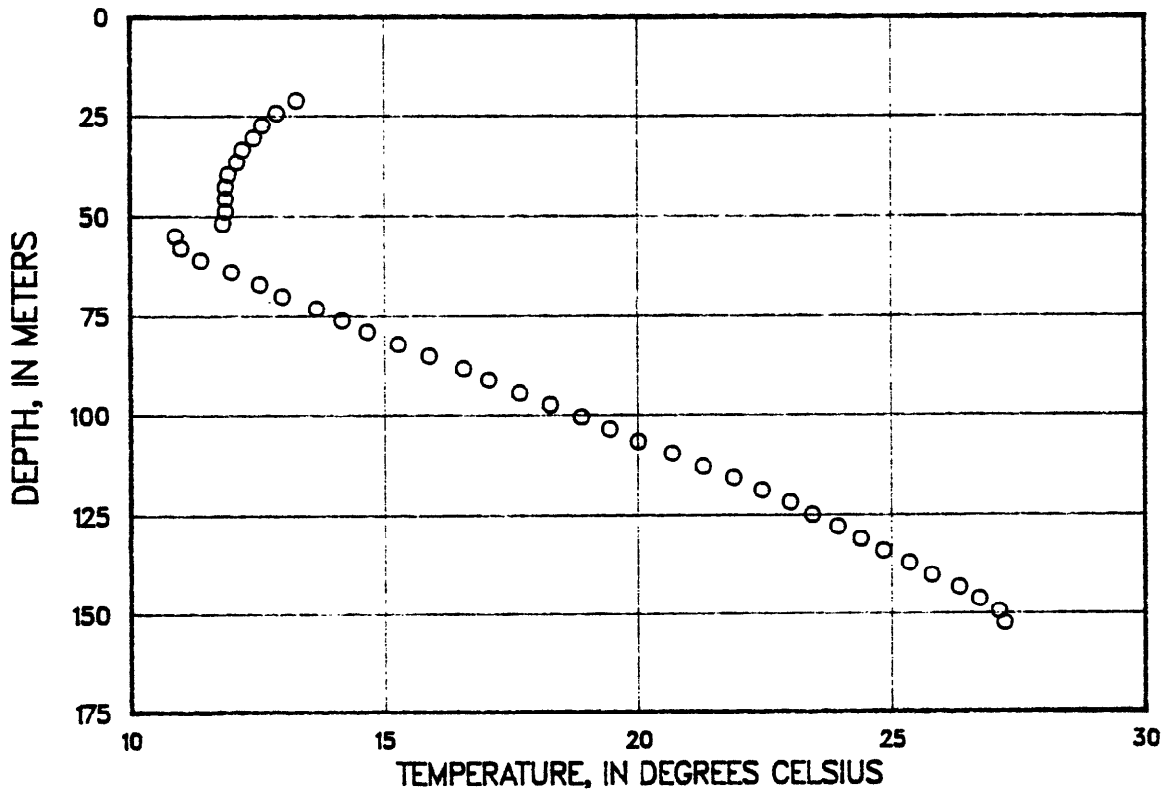

Fig. 55-Temperature profile from 9S-7E-28 SW.

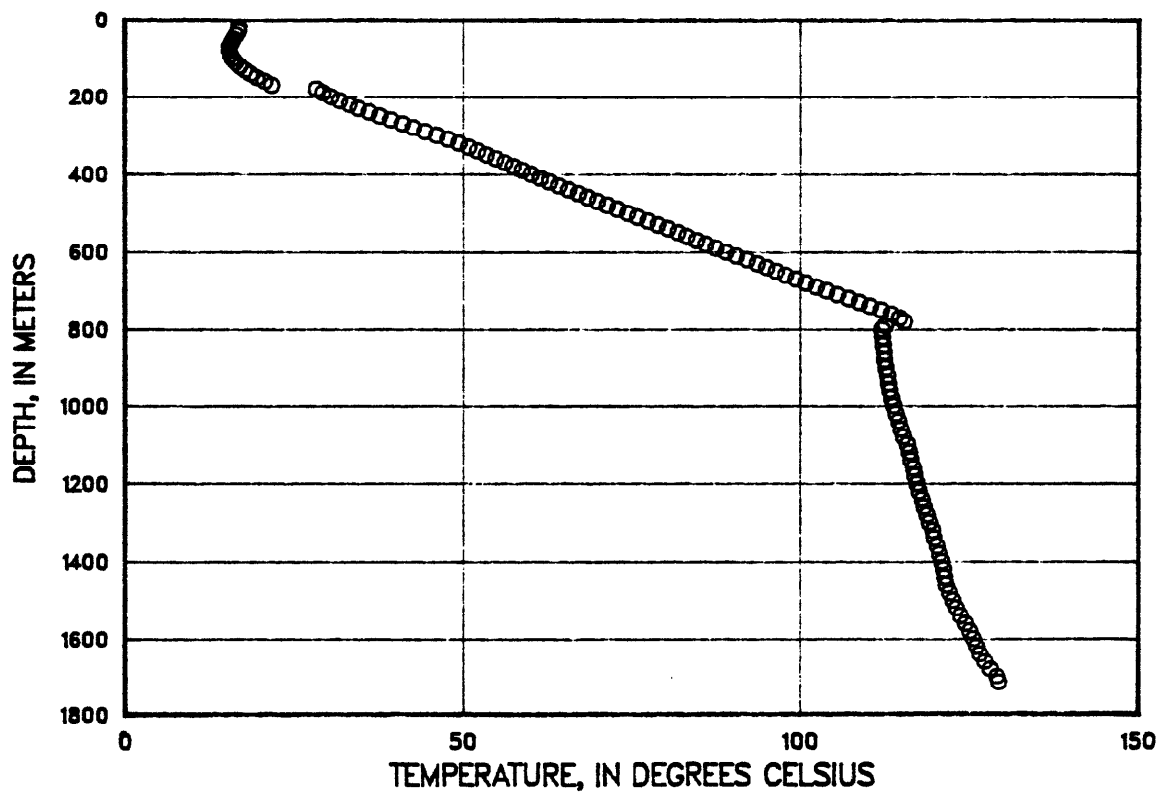

Fig. 56-Temperature profile from 9S-7E-28 SE.

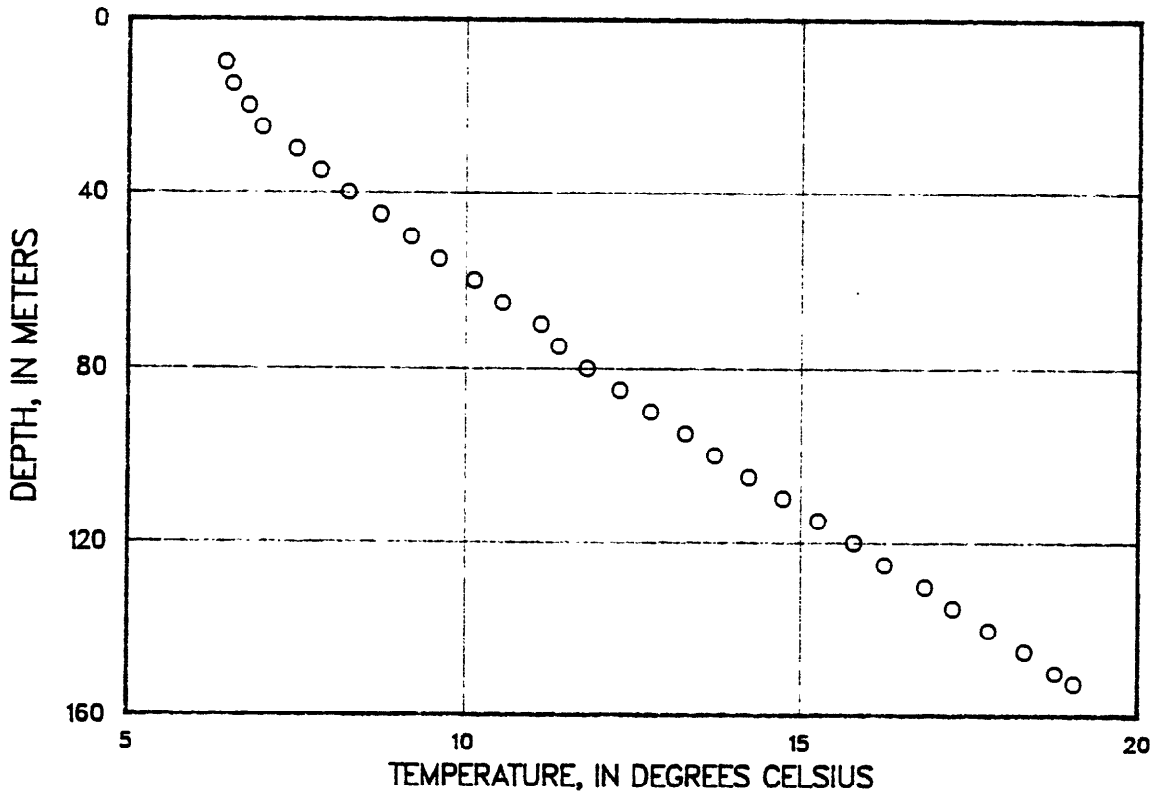

Fig. 57-Temperature profile from 9S-7E-28 SE.

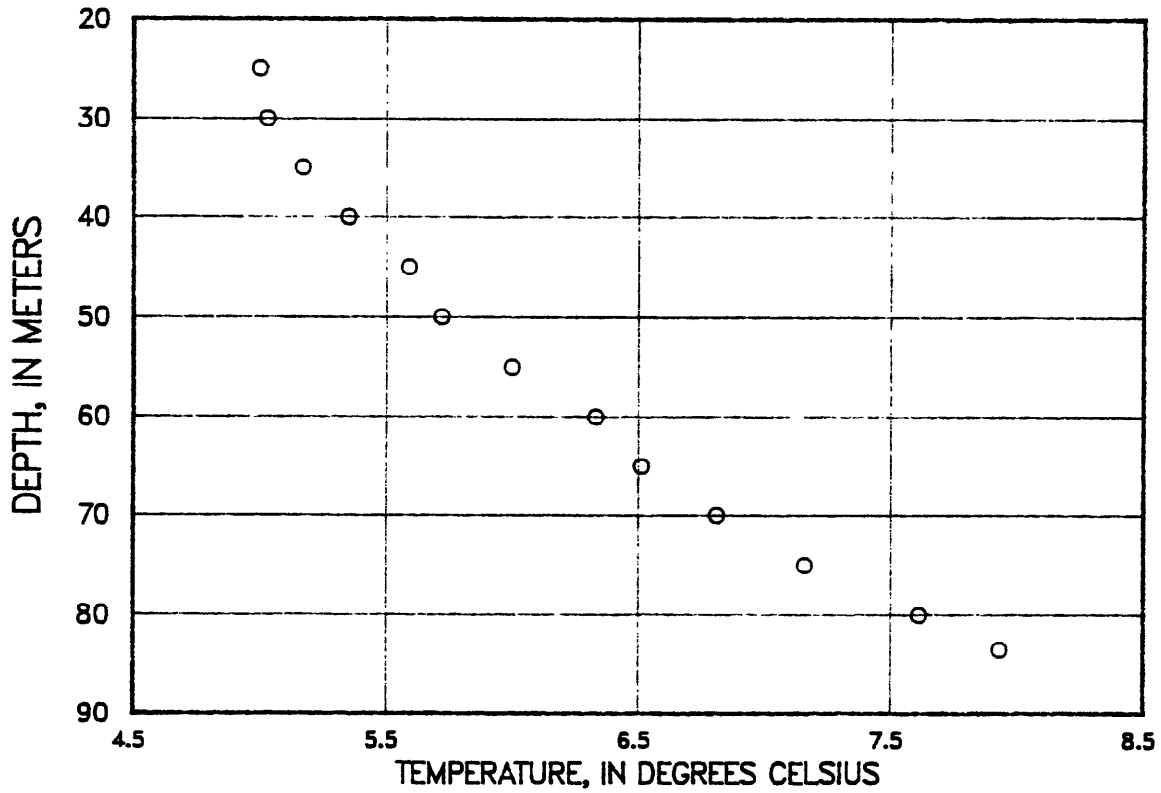

Fig. 58-Temperature profile from 9S-7E-29 SW.

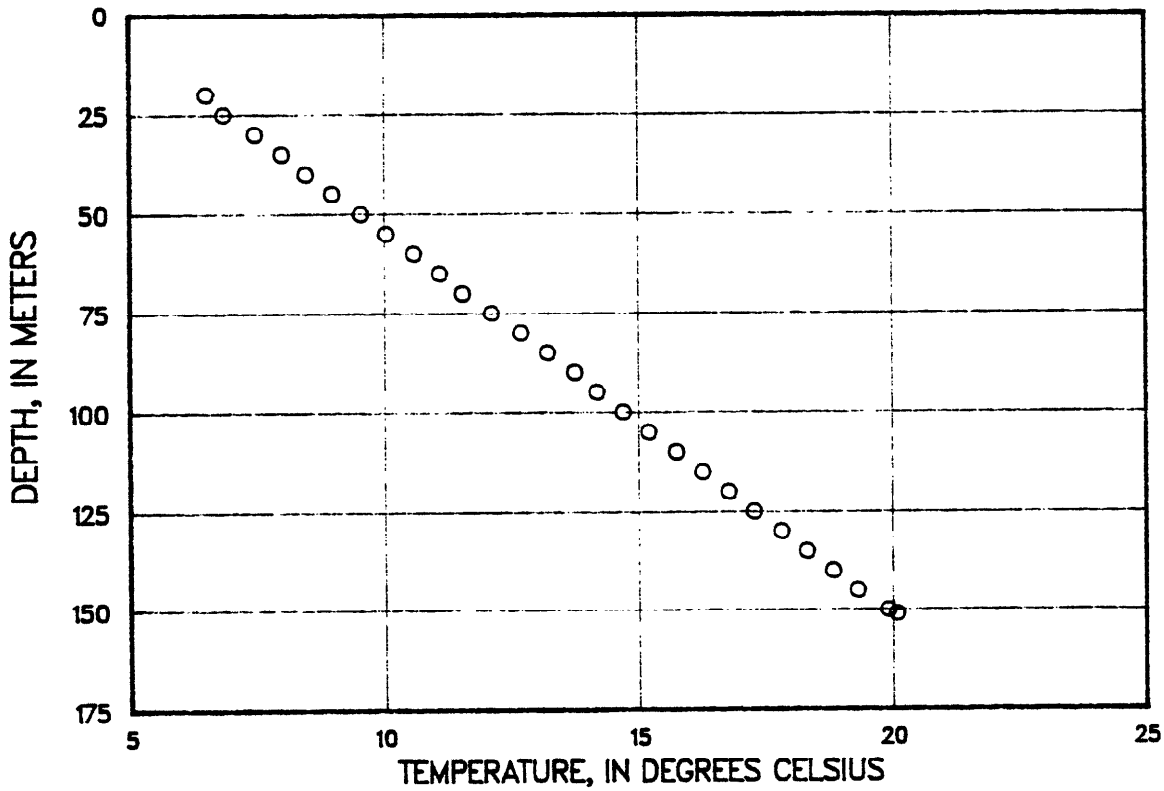

Fig. 59-Temperature profile from 9S-7E-34 SE.

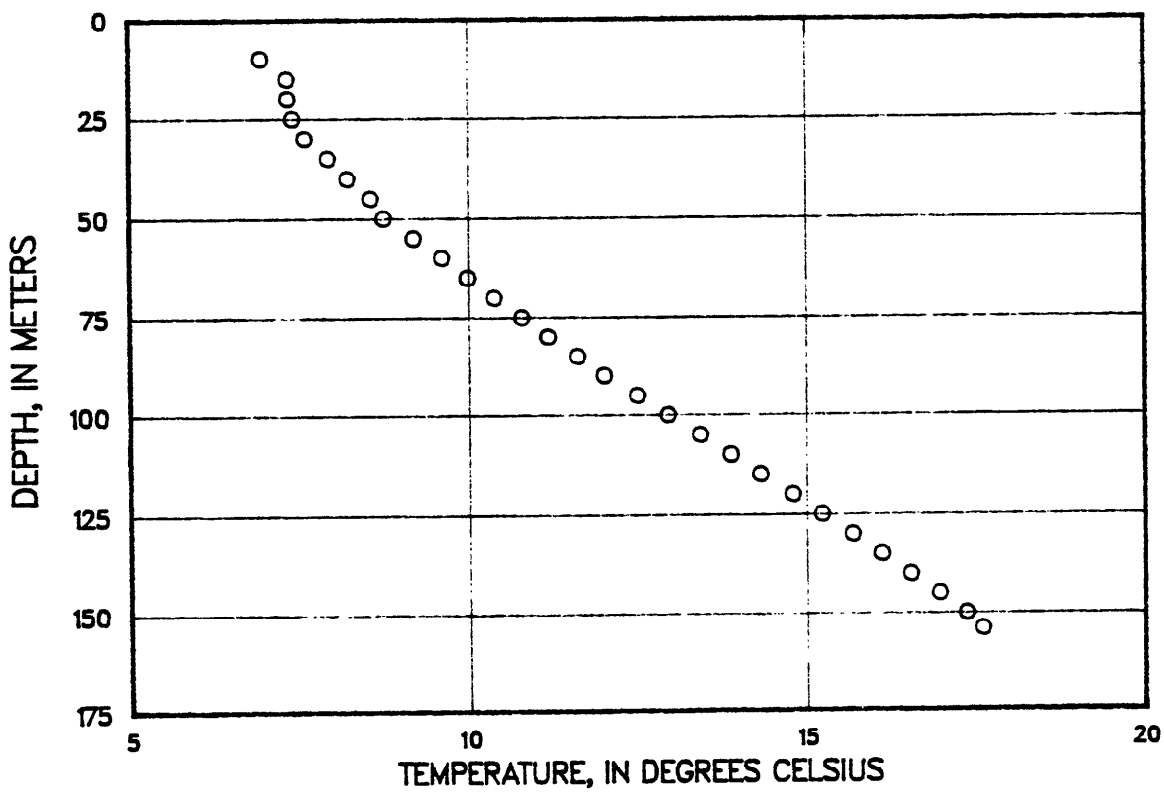

Fig. 60-Temperature profile from 9S-7E-36 NW.

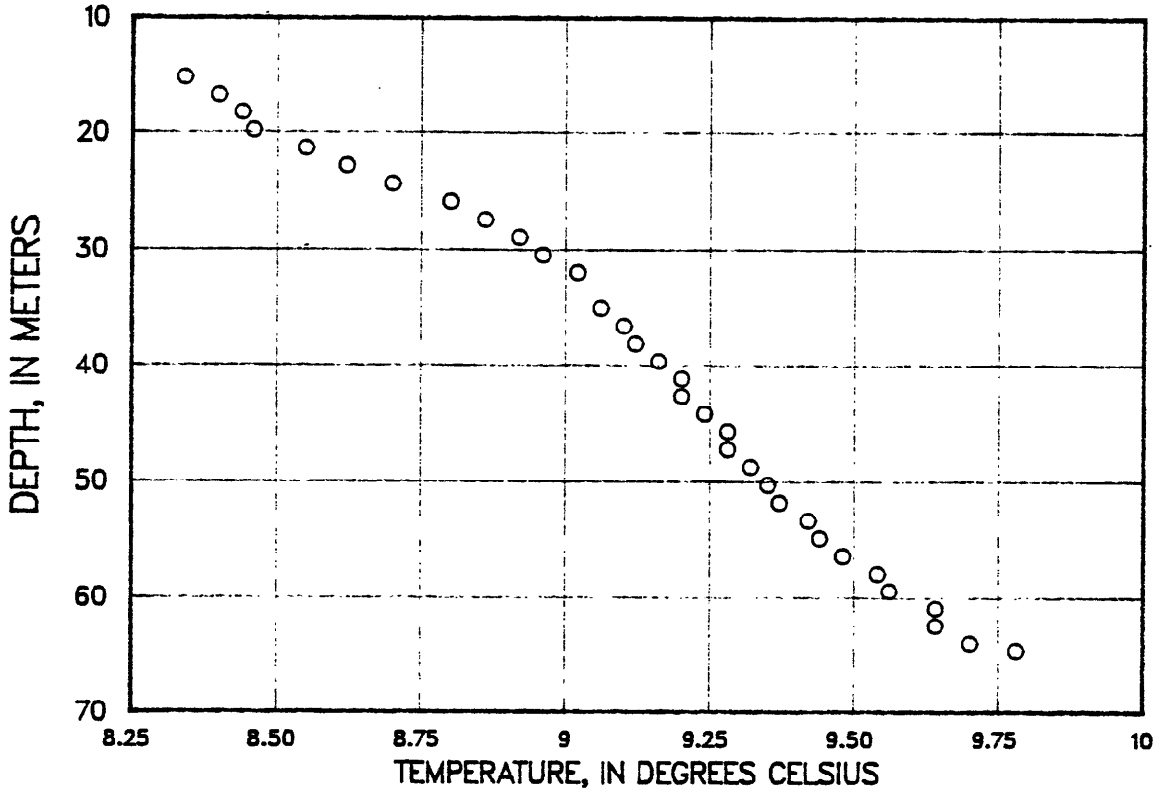

Fig. 61-Temperature profile from 10S-5E-02 SE.

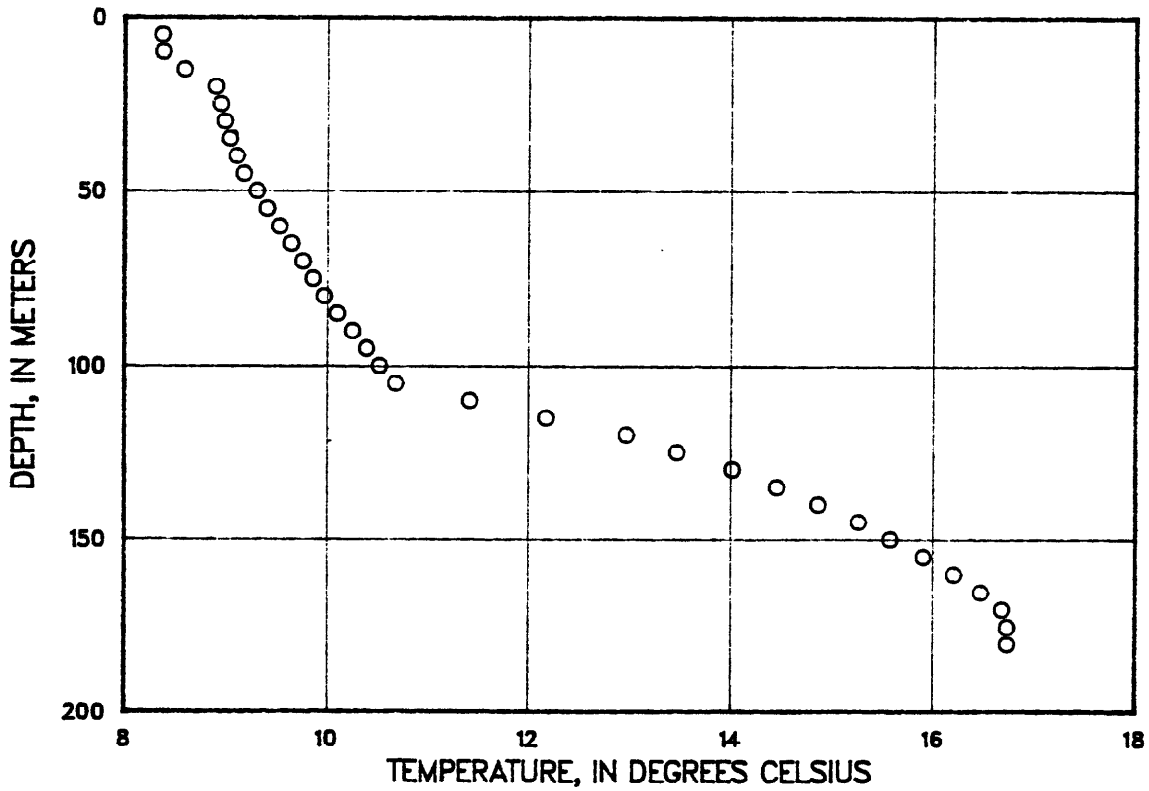

Fig. 62-Temperature profile from 10S-5E-03 SE.

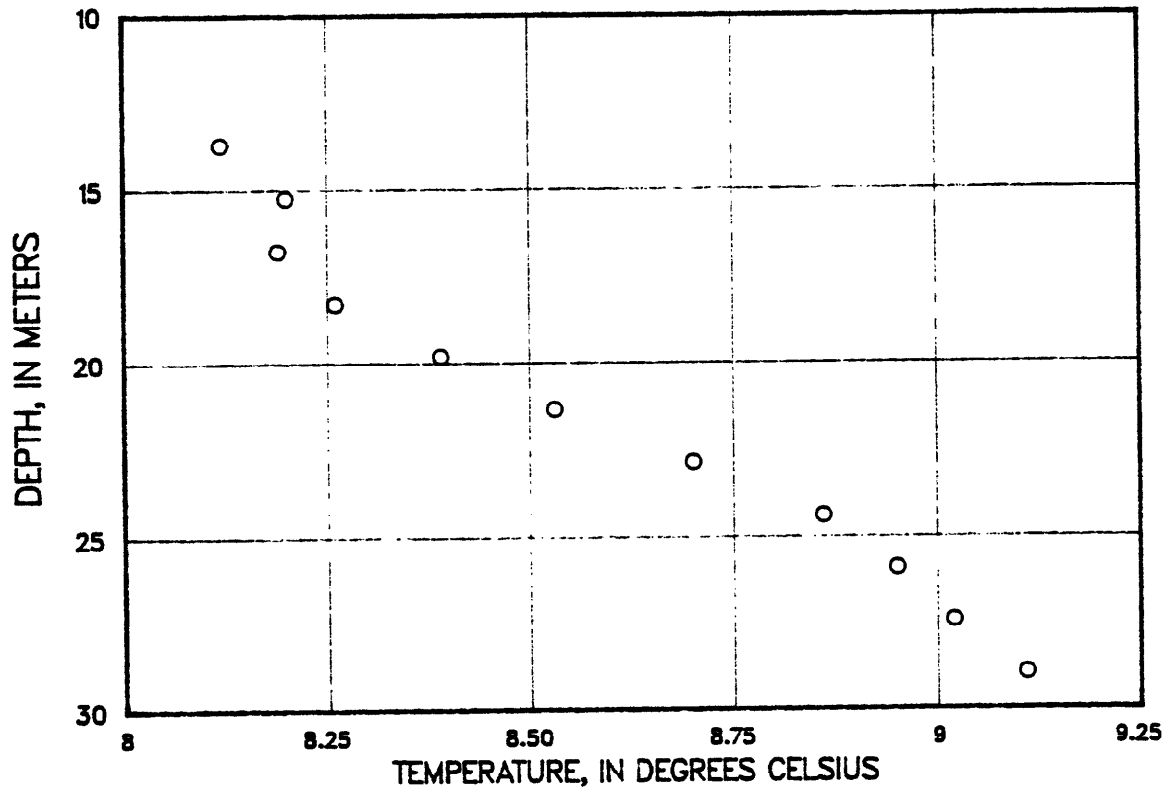

Fig. 63-Temperature profile from 10S-5E-15 NE.

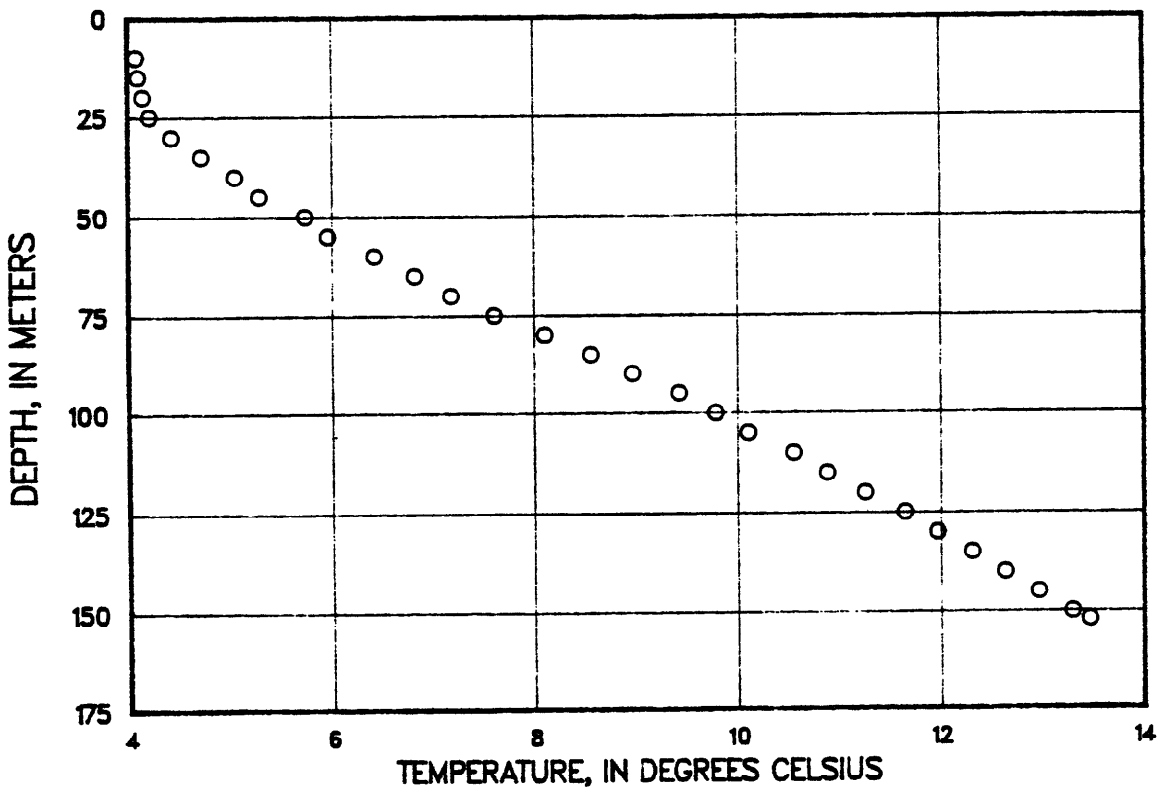

Fig. 64-Temperature profile from 10S-7E-09 NW.

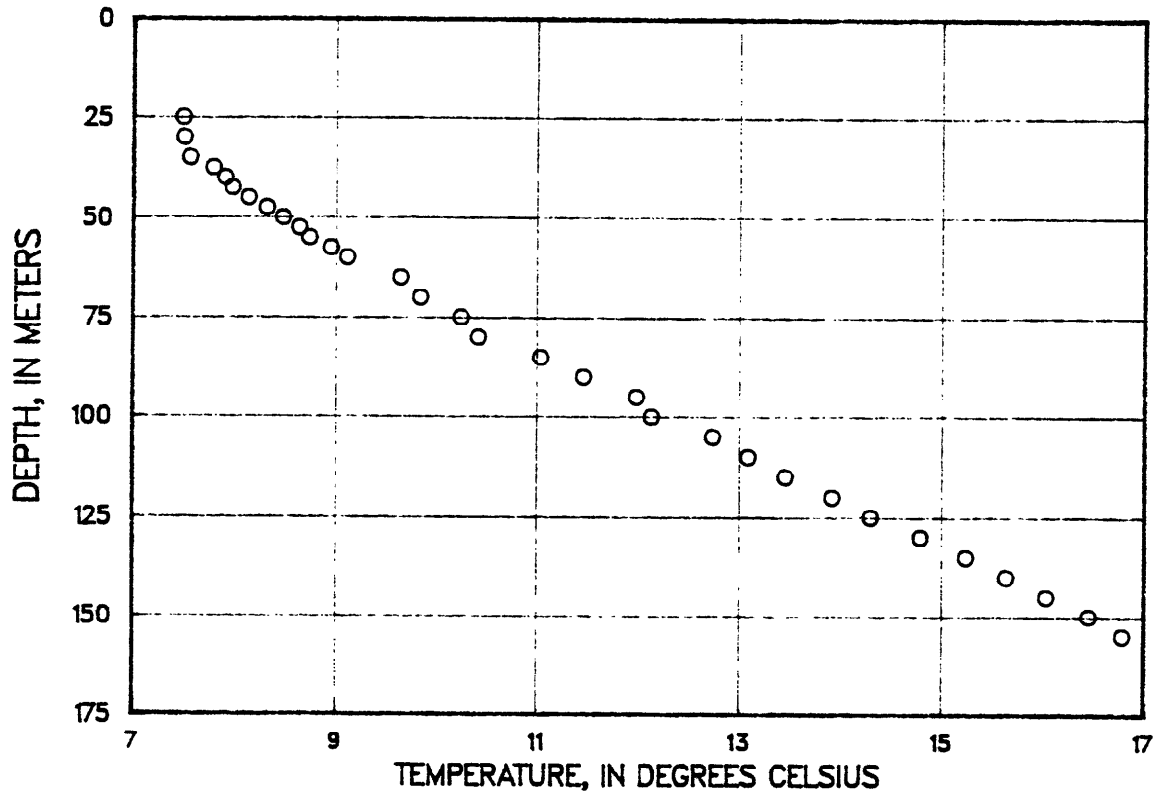

Fig. 65-Temperature profile from 10S-7E-11 NE.

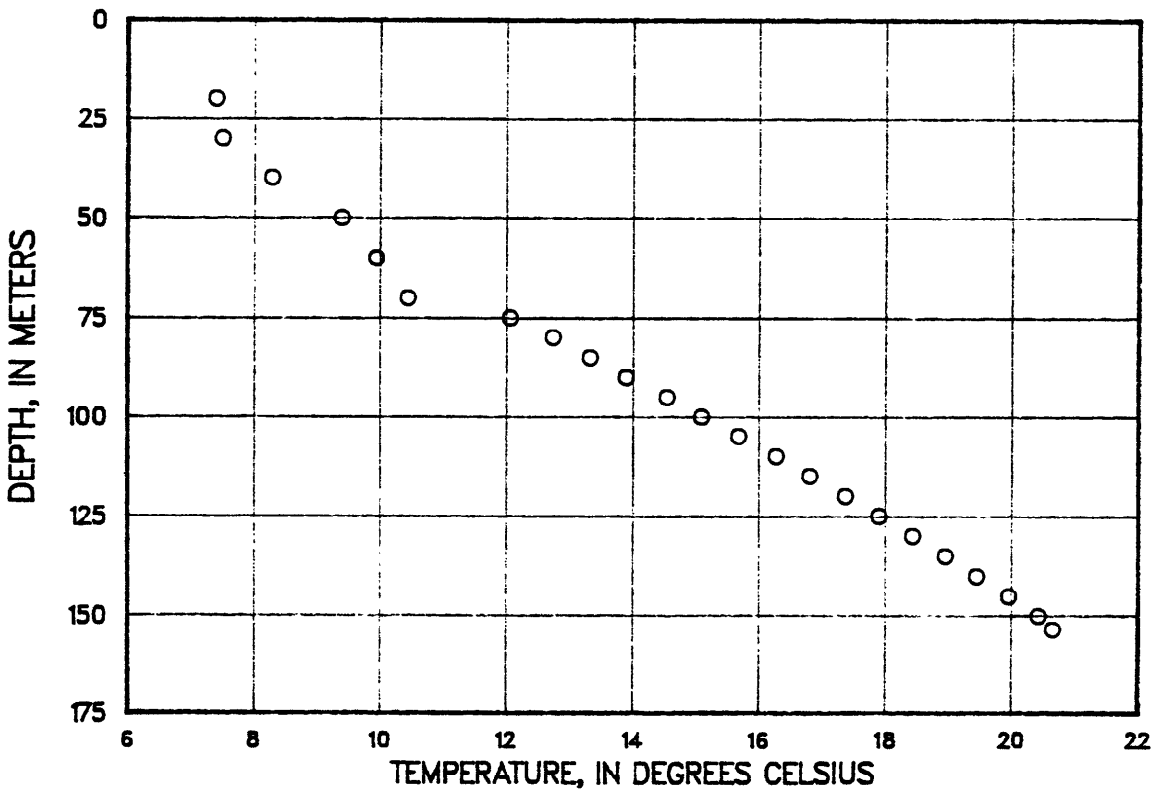

Fig. 66-Temperature profile from 10S-7E-20 SW.

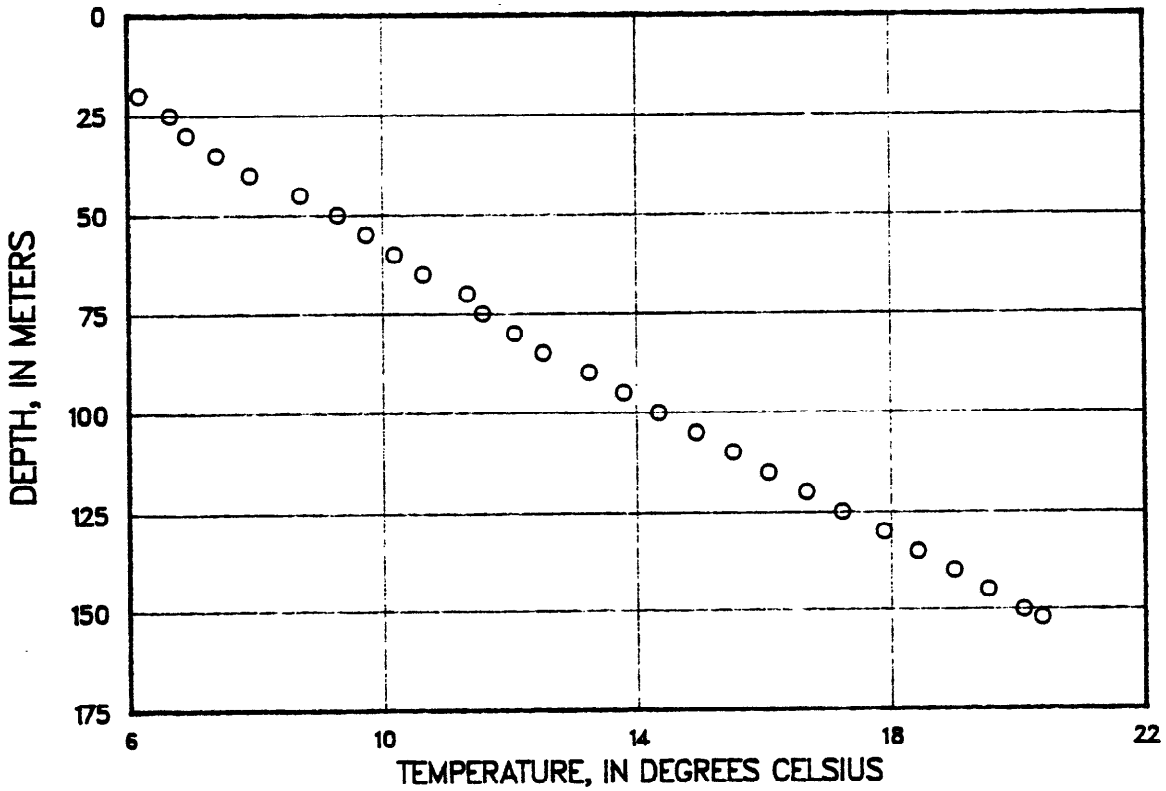

Fig. 67-Temperature profile from 10S-7E-23 NW.

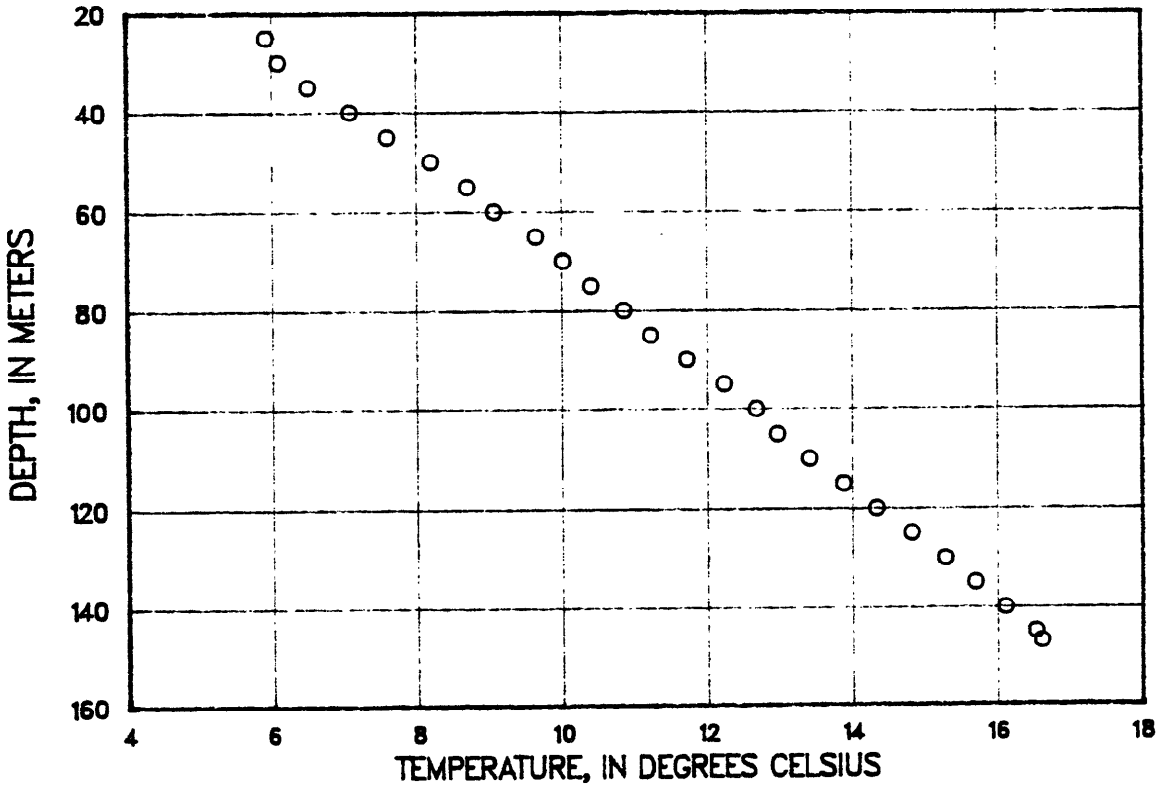

Fig. 68-Temperature profile from 10S-7E-24 NE.

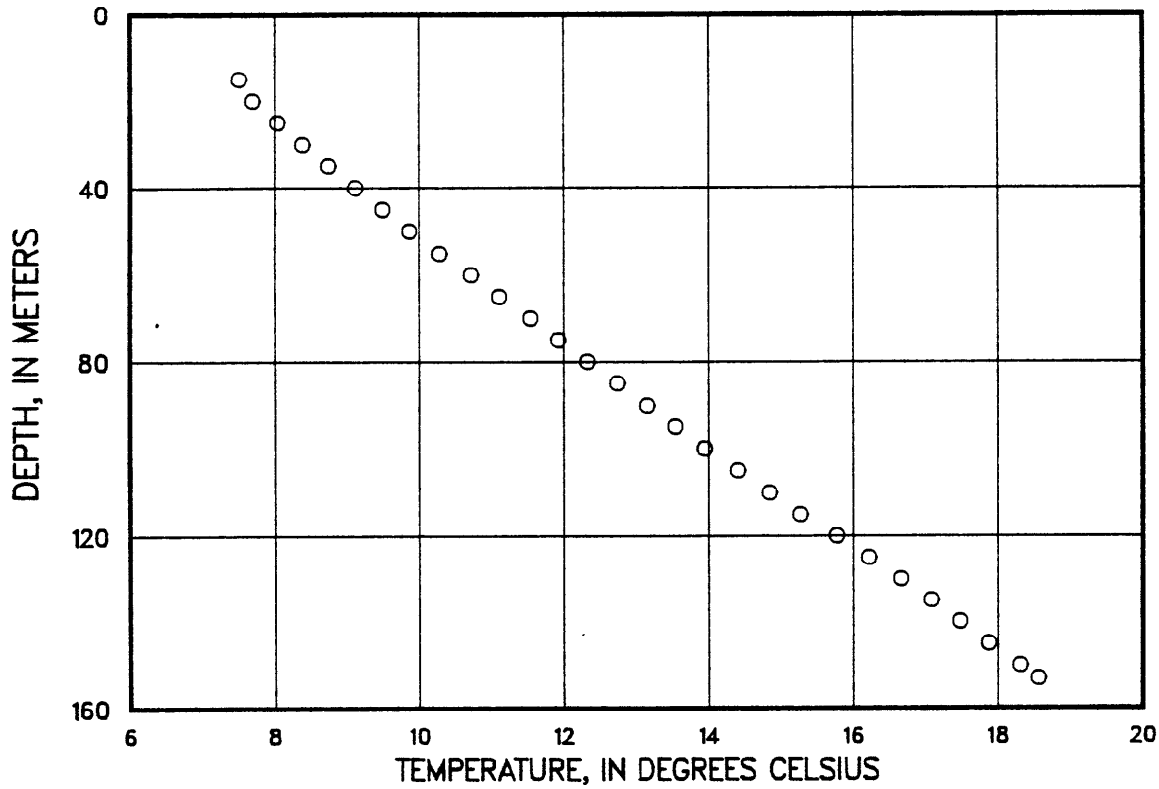

Fig. 69-Temperature profile from 10S-7E-34 NE.

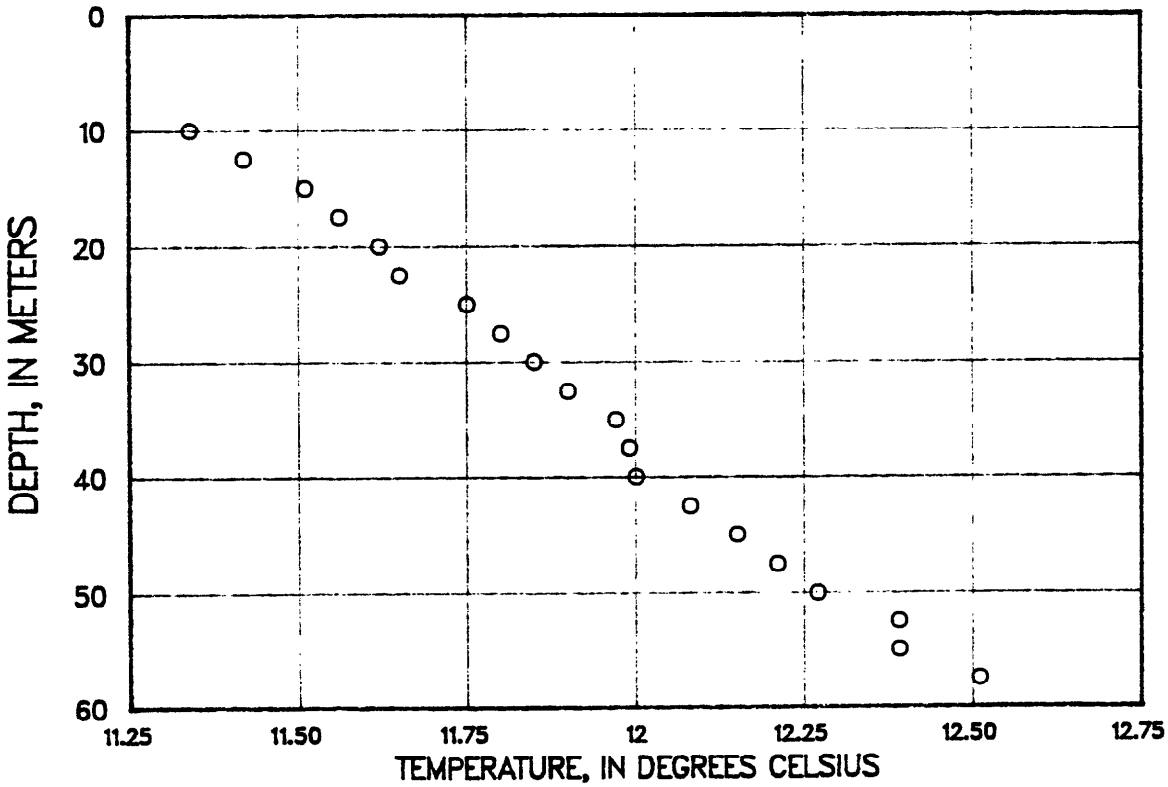

Fig. 70-Temperature profile from 11S-1E-07 SE.

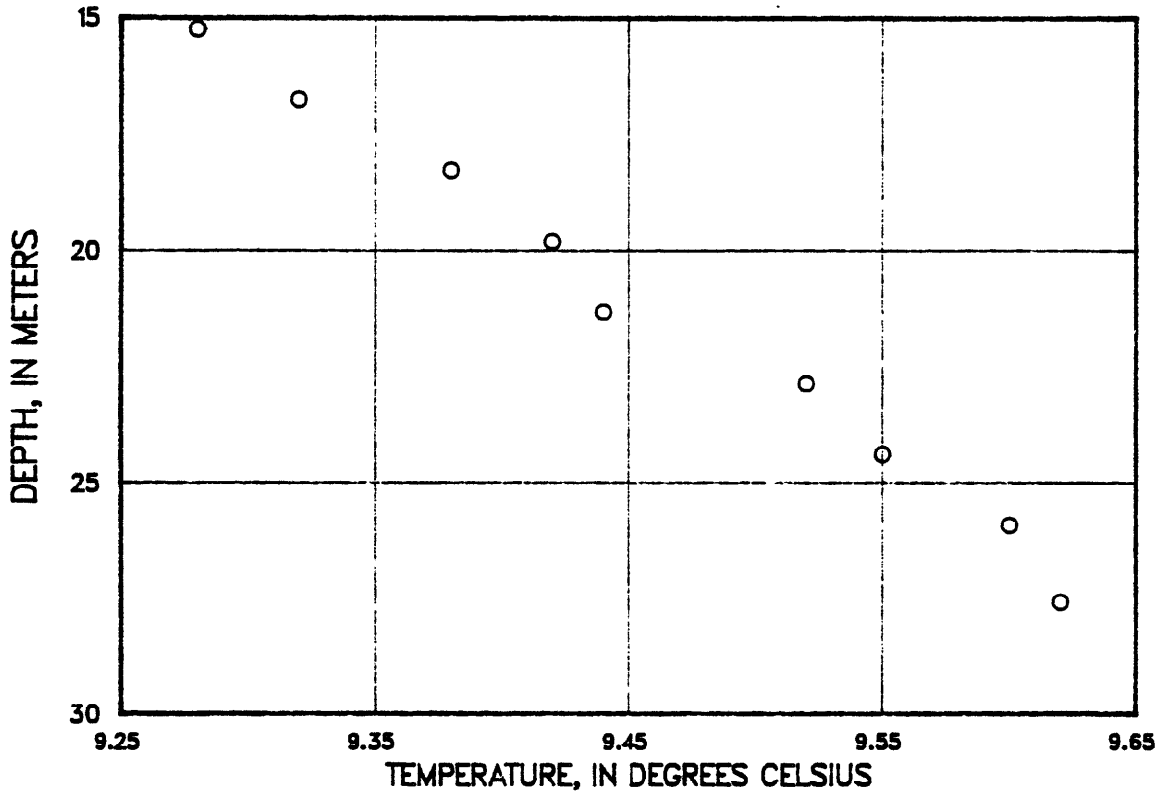

Fig. 71-Temperature profile from 11S-4E-19 SE.

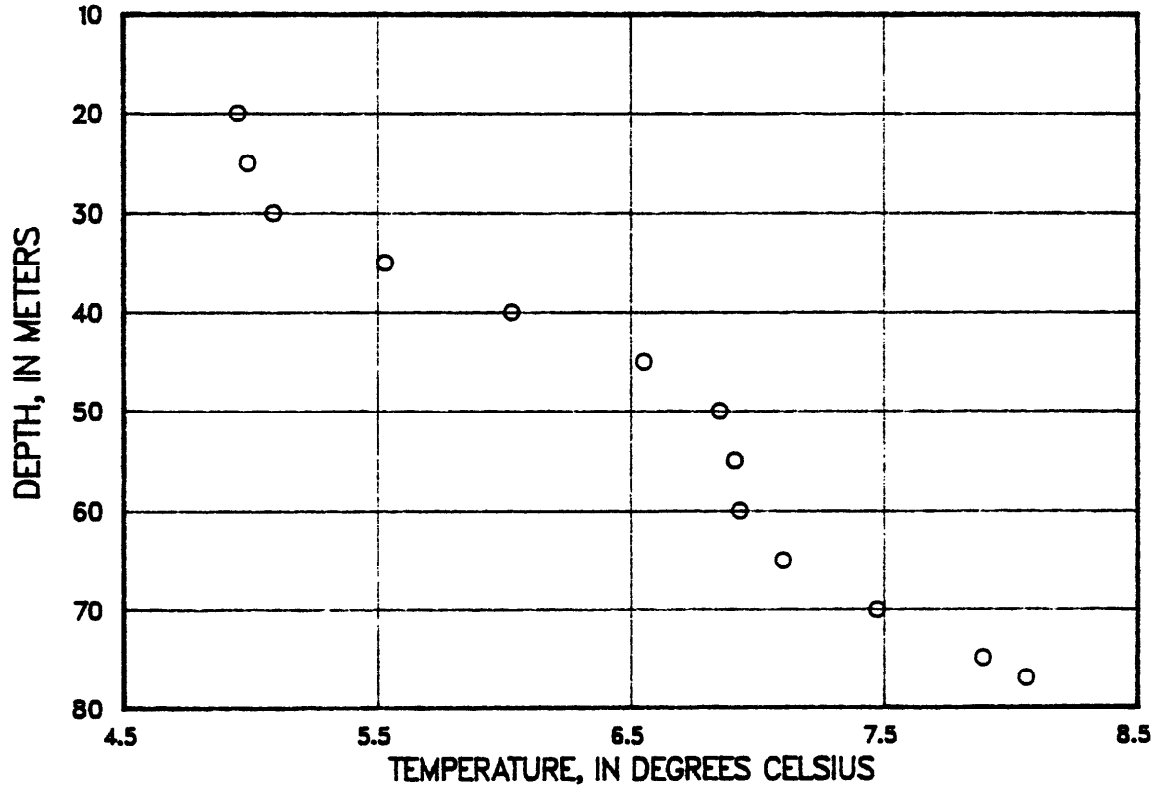

Fig. 72-Temperature profile from 11S-6E-22 SE.

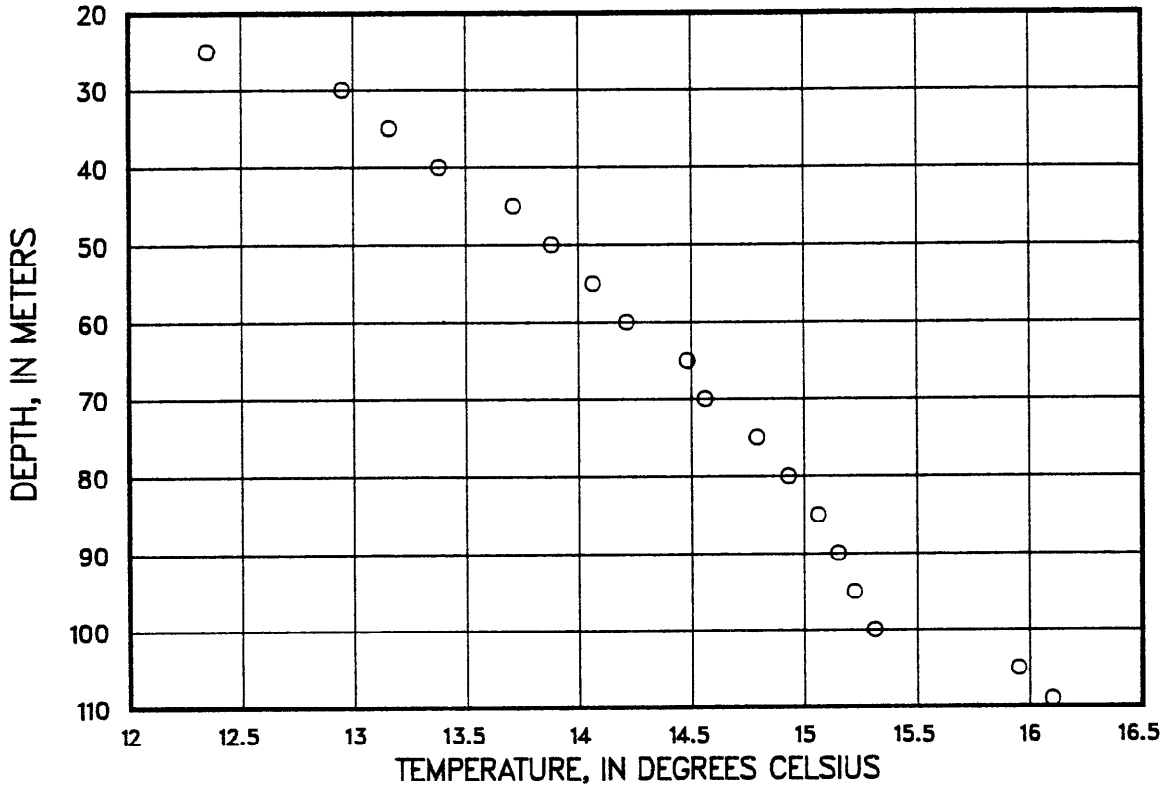

Fig. 73-Temperature profile from 11S-7E-10 SE.

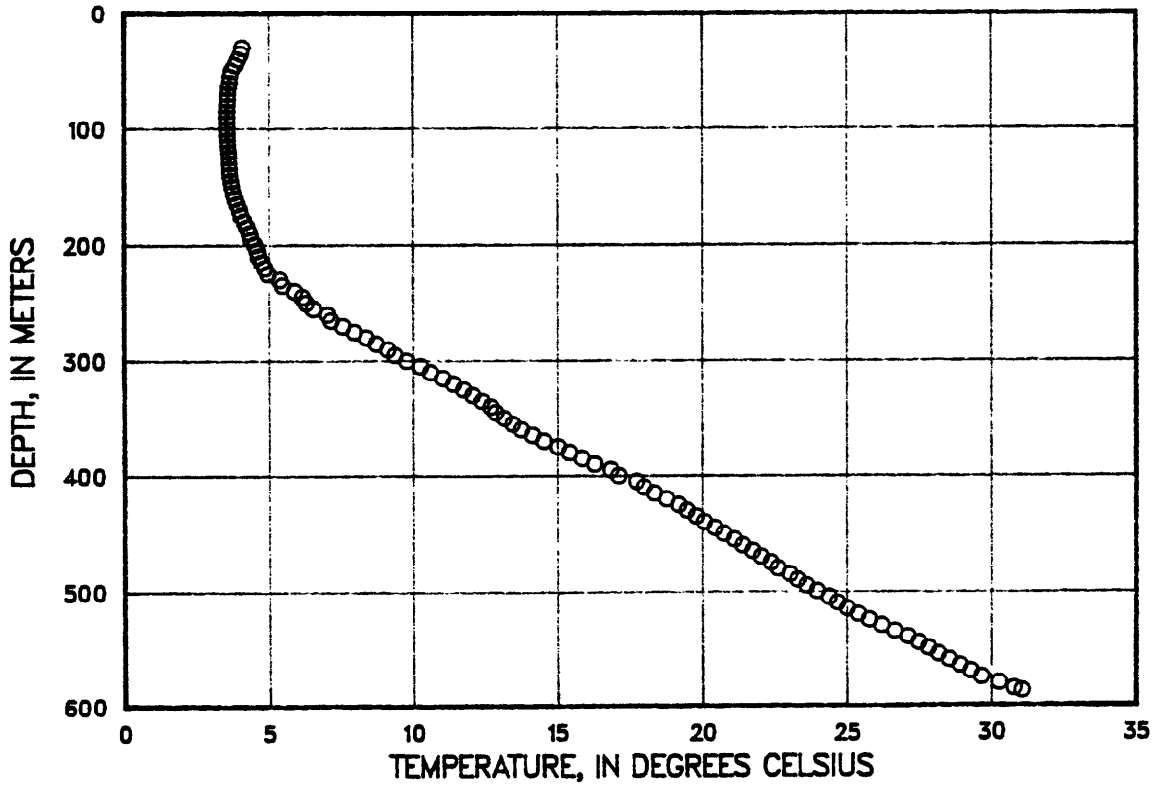

Fig. 74-Temperature profile from 12S-7E-09 SE.

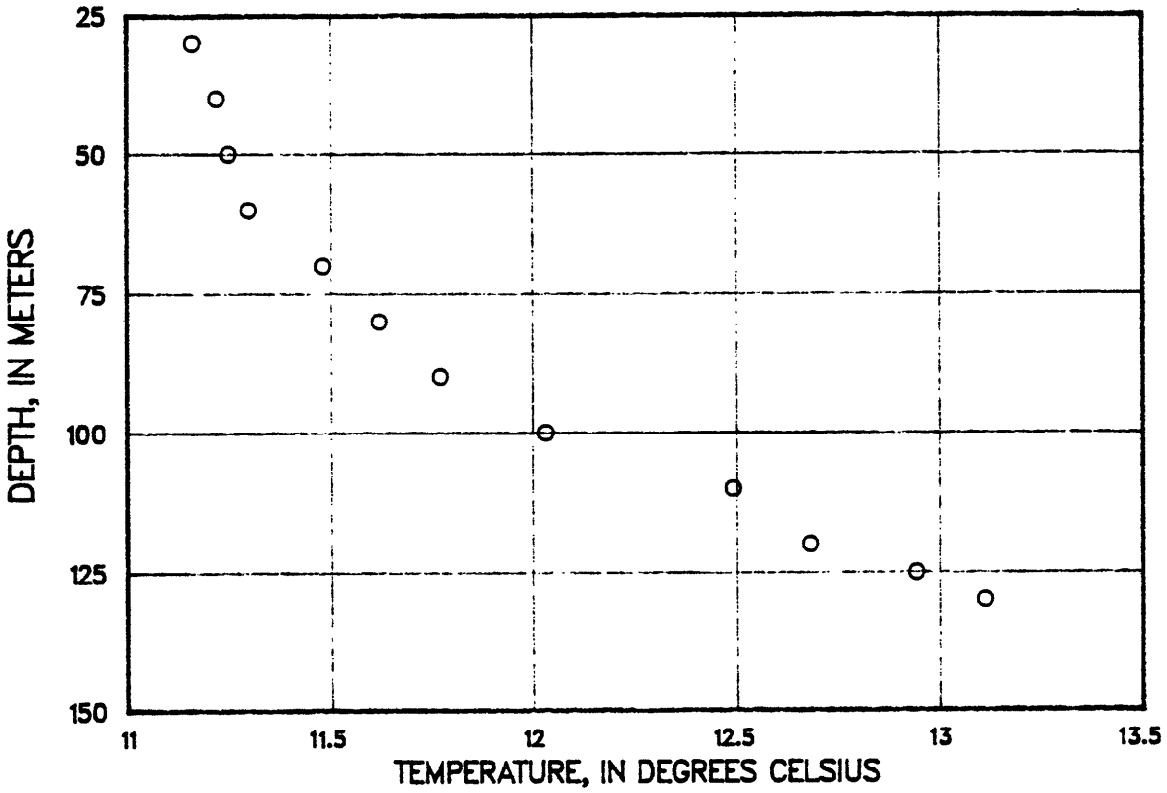

Fig. 75-Temperature profile from 13S-1E-20 NW.

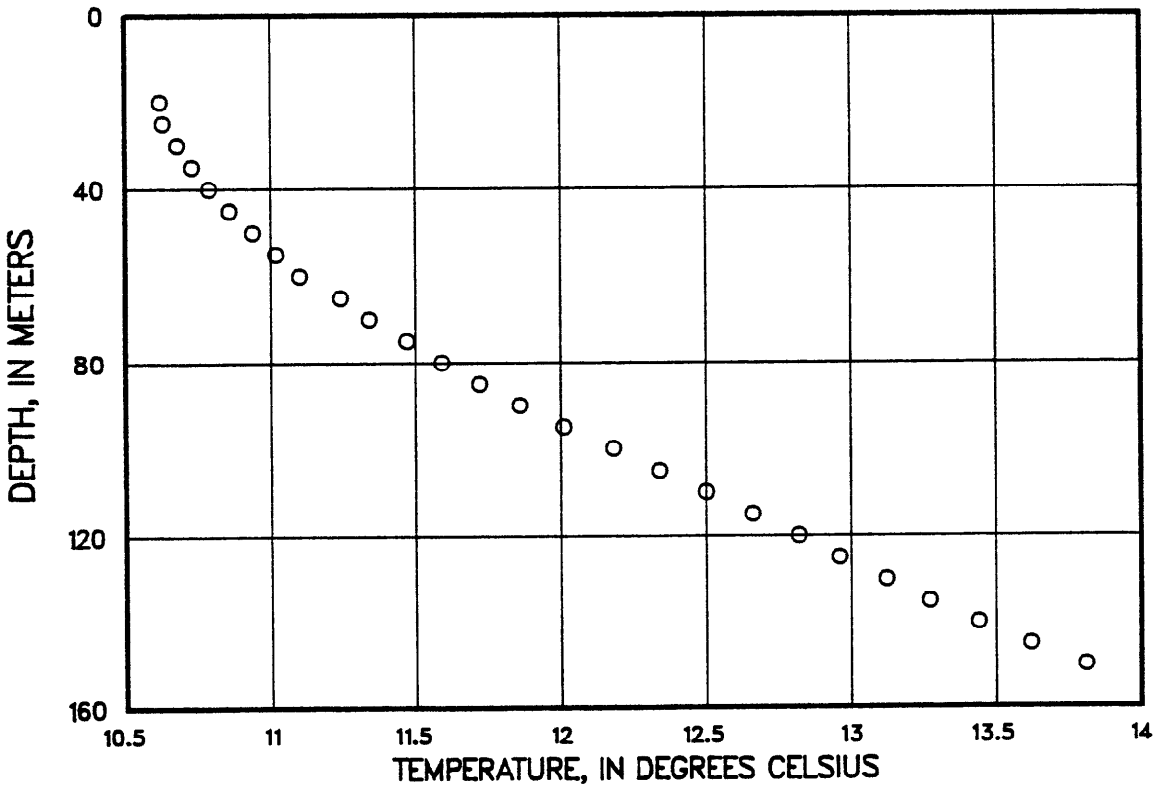

Fig. 76-Temperature profile from 13S-1E-35 NE.

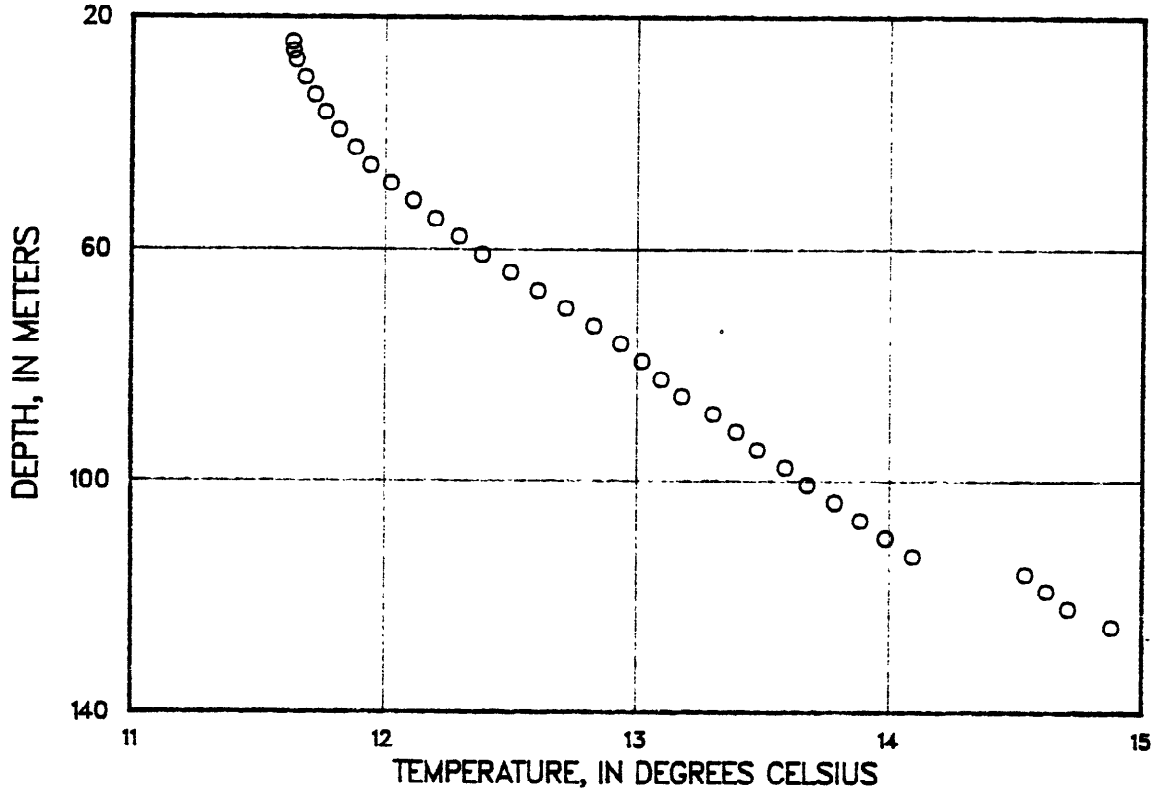

Fig. 77-Temperature profile from 13S-2E-36 SW.

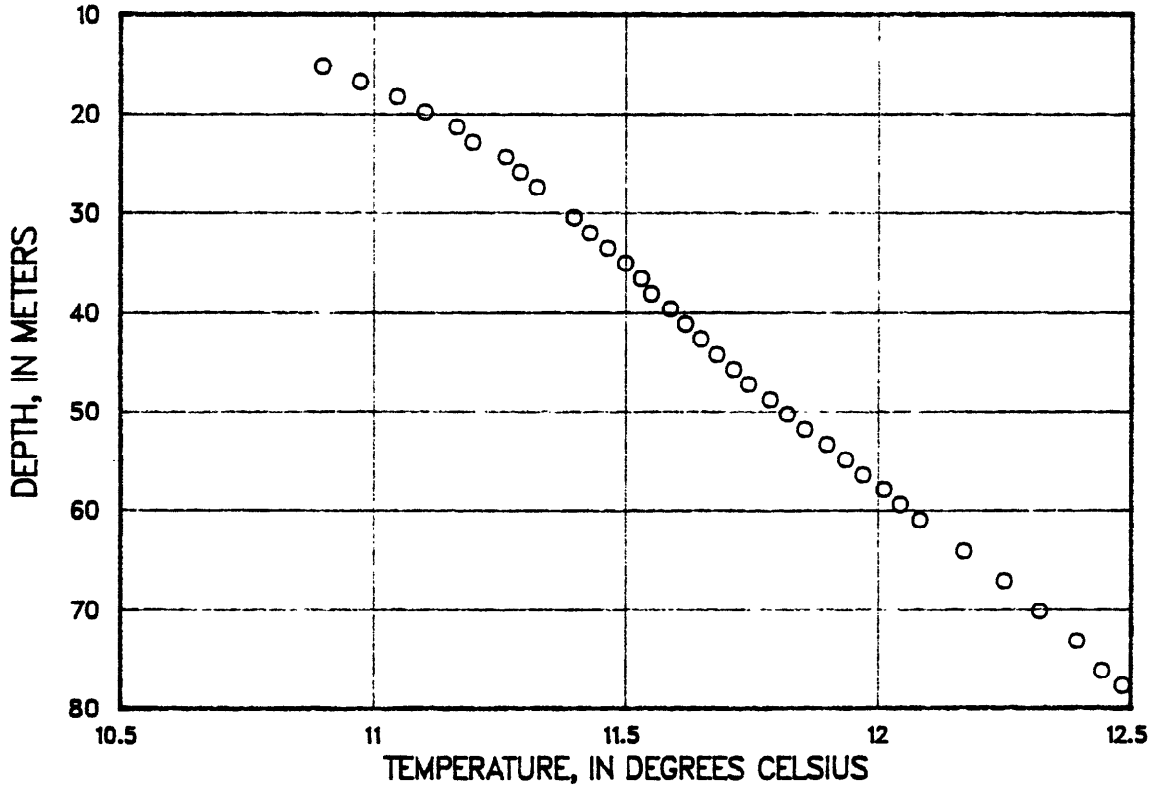

Fig. 78-Temperature profile from 13S-3E-31 SE.

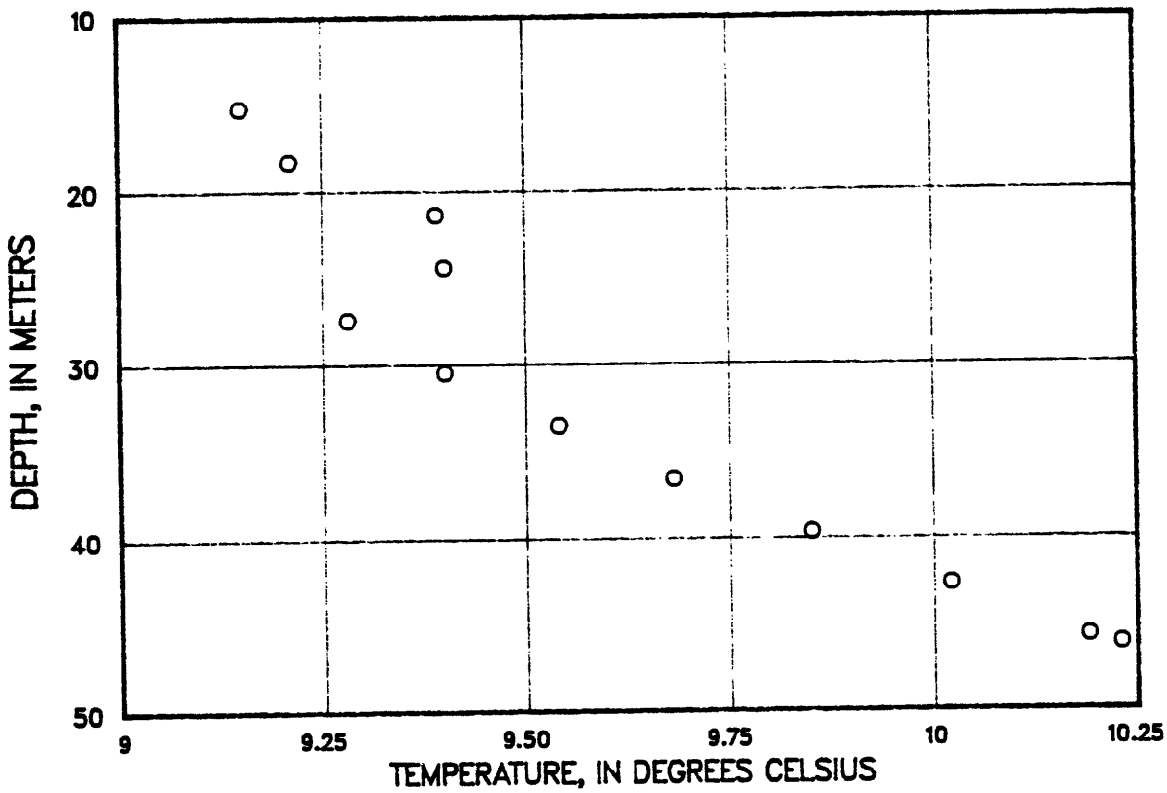

Fig. 79-Temperature profile from 13S-6E-17 NW.

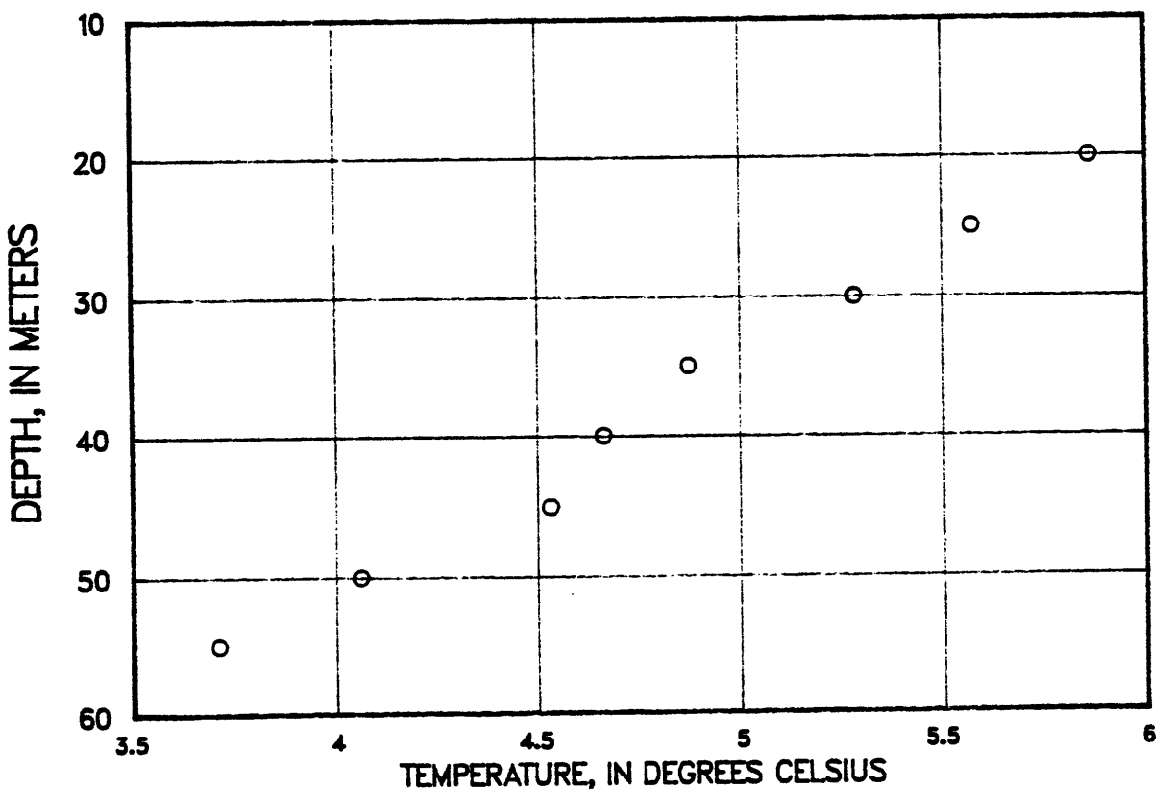

Fig. 80-Temperature profile from 13S-7E-09 NE.

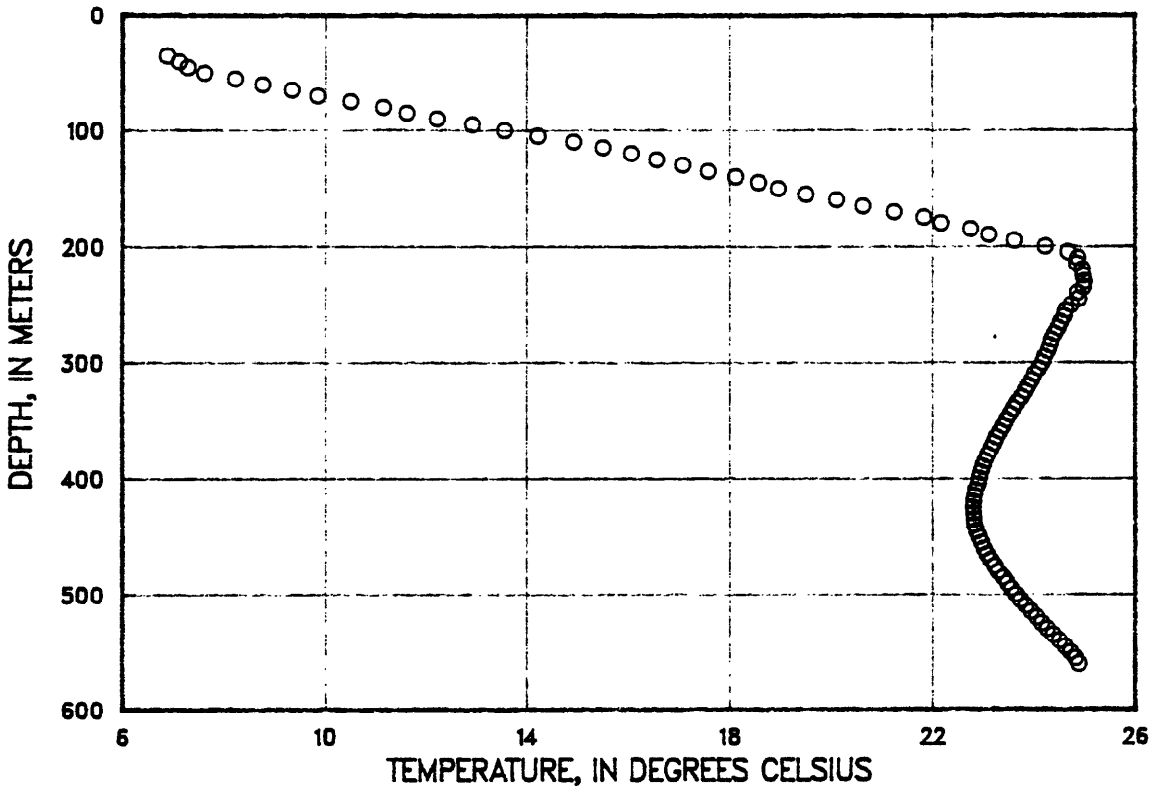

Fig. 81-Temperature profile from 13S-7E-32 SE.

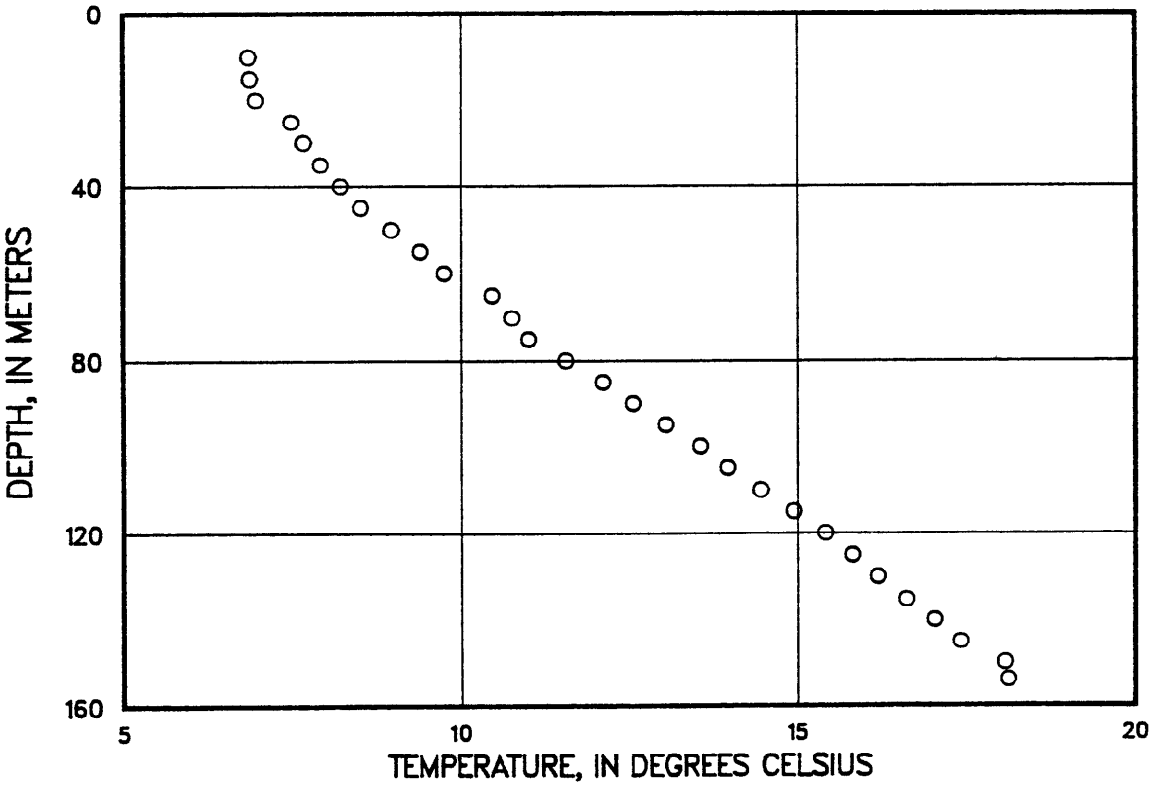

Fig. 82-Temperature profile from 14S-6E-32 SW.

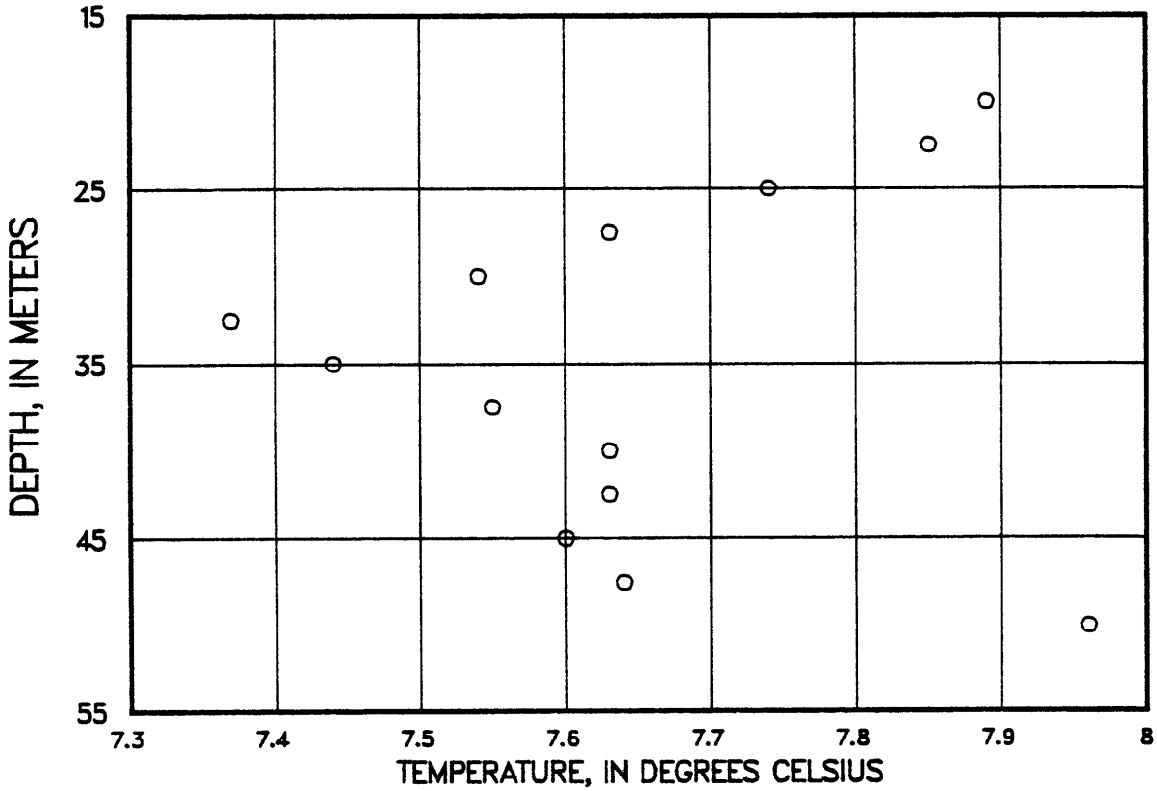

Fig. 83-Temperature profile from 15S-6E-11 SE.

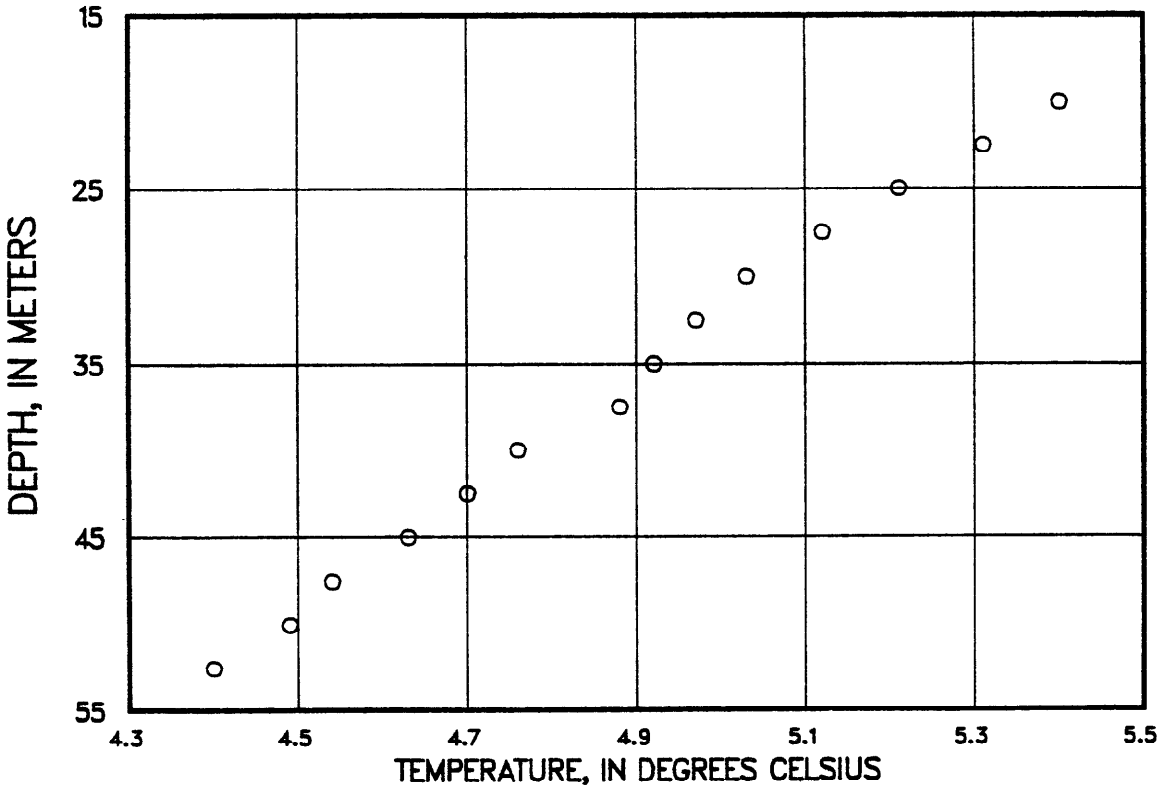

Fig. 84-Temperature profile from 15S-7E-28 NE.

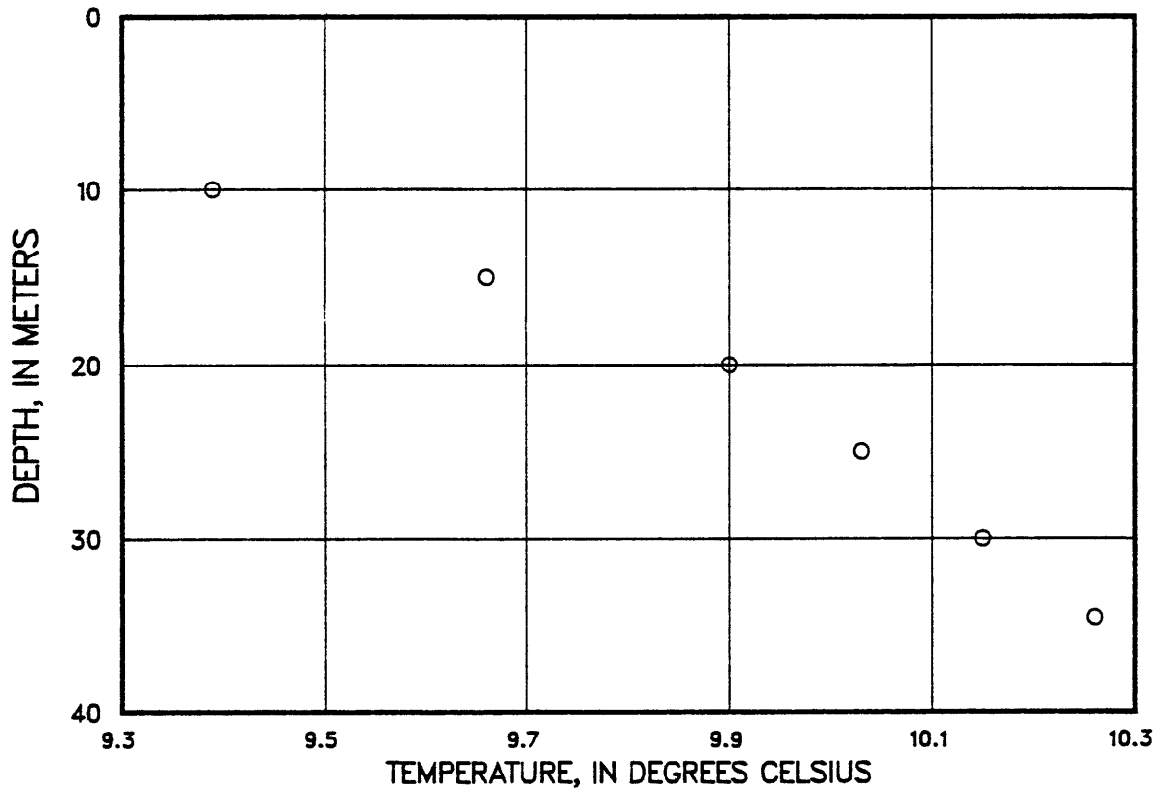

Fig. 85-Temperature profile from 16S-2E-26 NW.

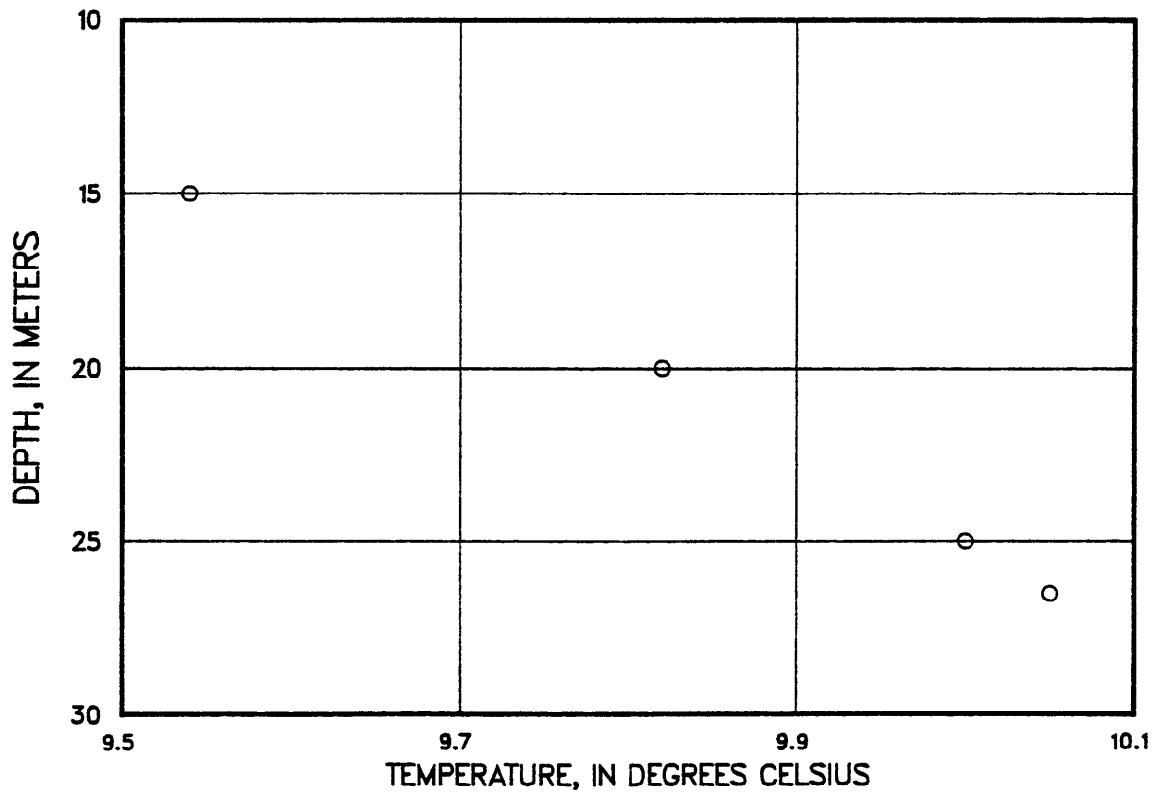

Fig. 86-Temperature profile from 16S-2E-26 NW.

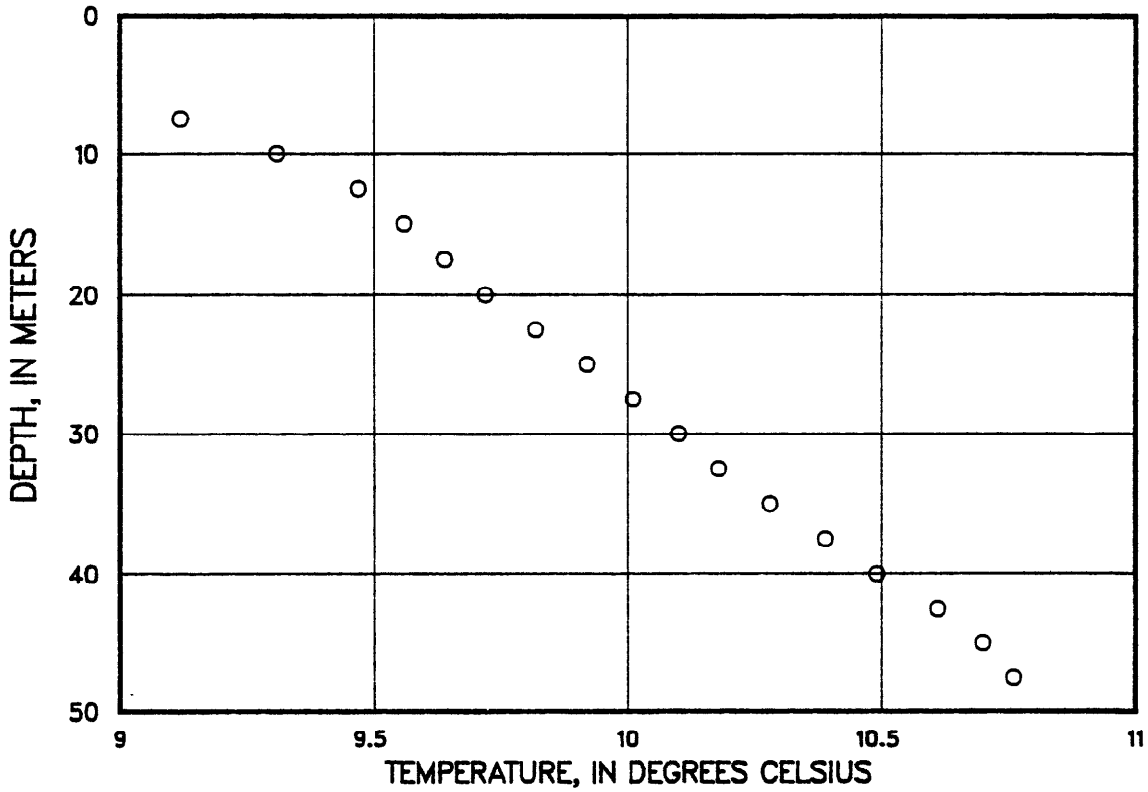

Fig. 87-Temperature profile from 16S-4E-14 SE.

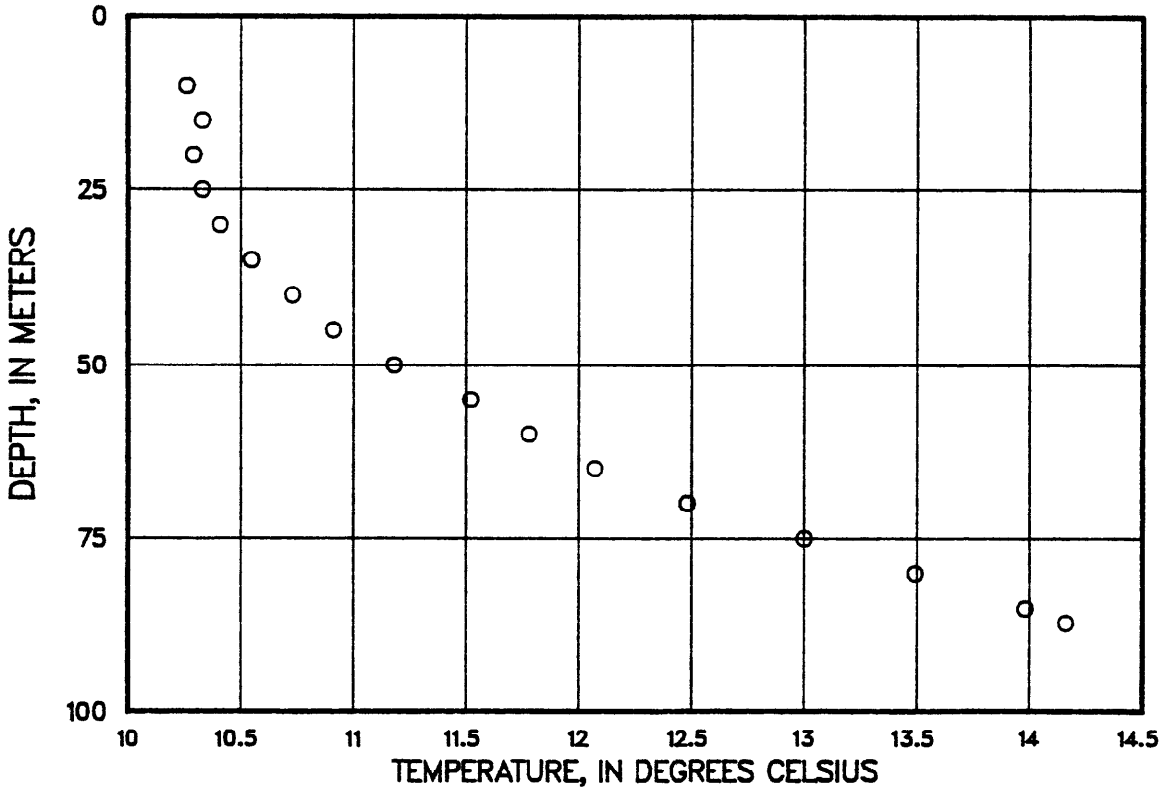

Fig. 88-Temperature profile from 16S-5E-30 NE.

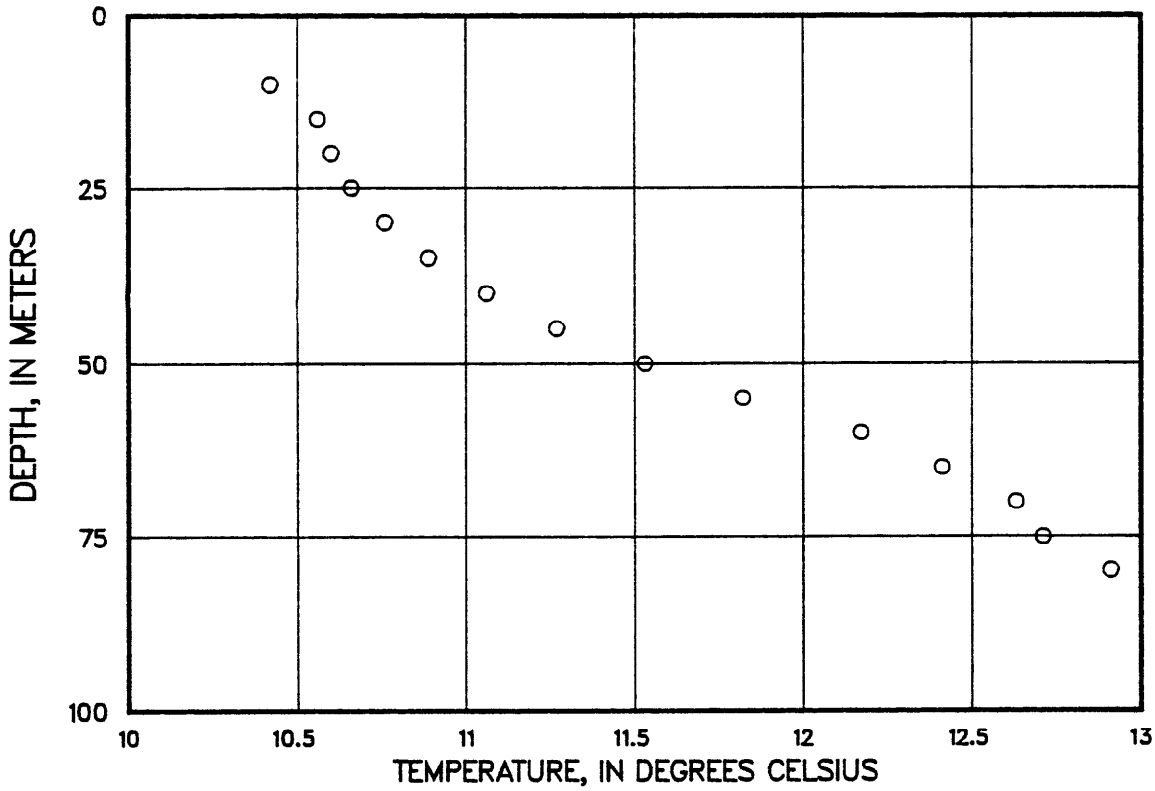

Fig. 89-Temperature profile from 16S-5E-30 NE.

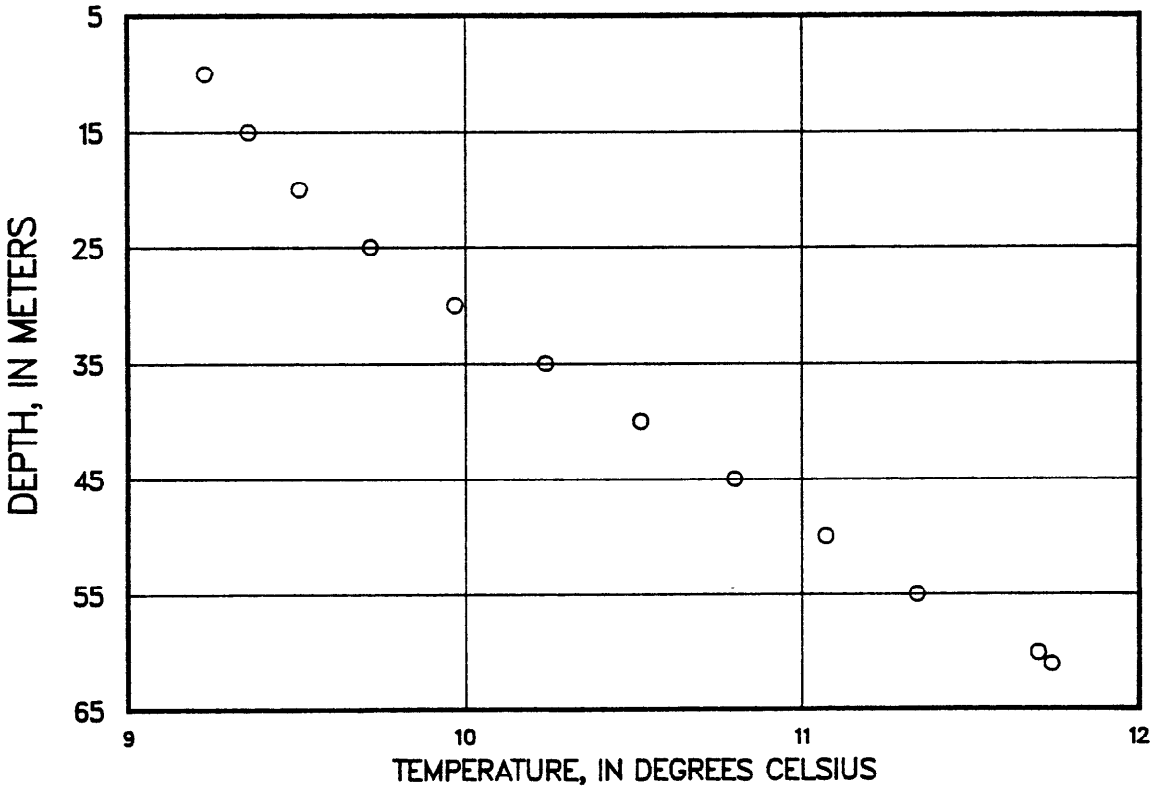

Fig. 90-Temperature profile from 16S-5E-30 NE.

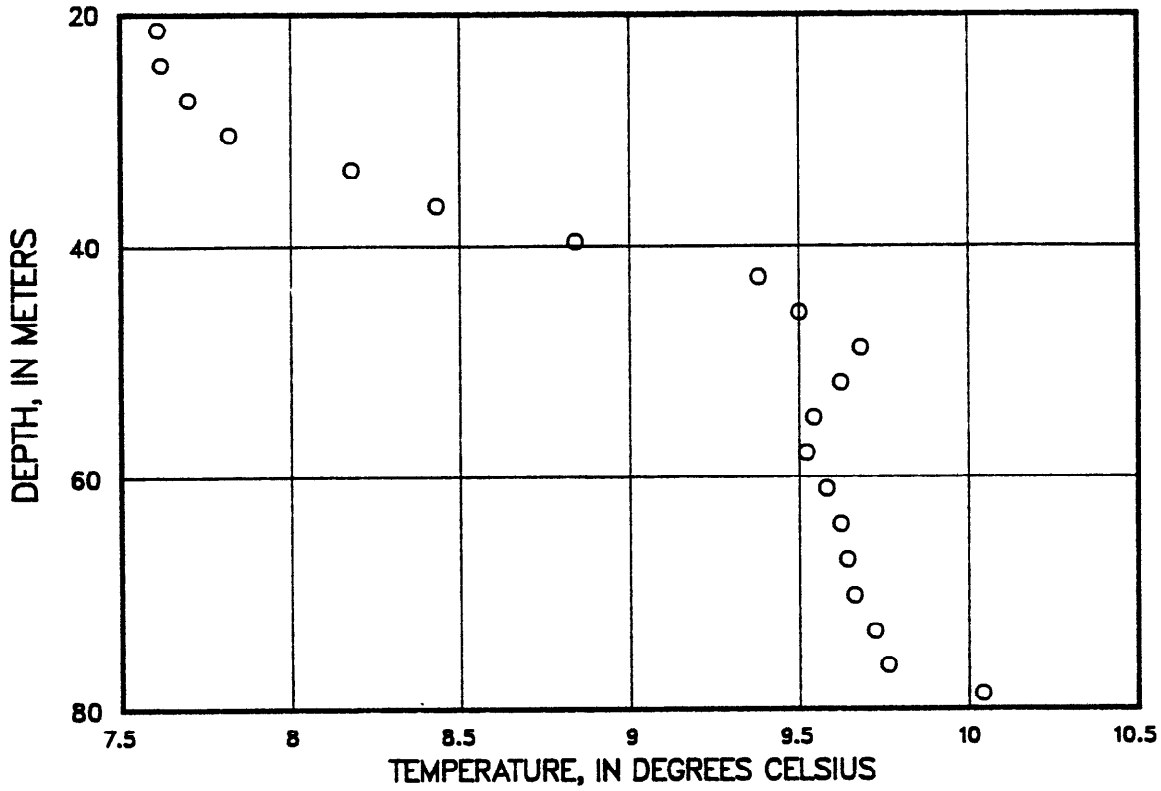

Fig. 91-Temperature profile from 16S-5E-31 SE.

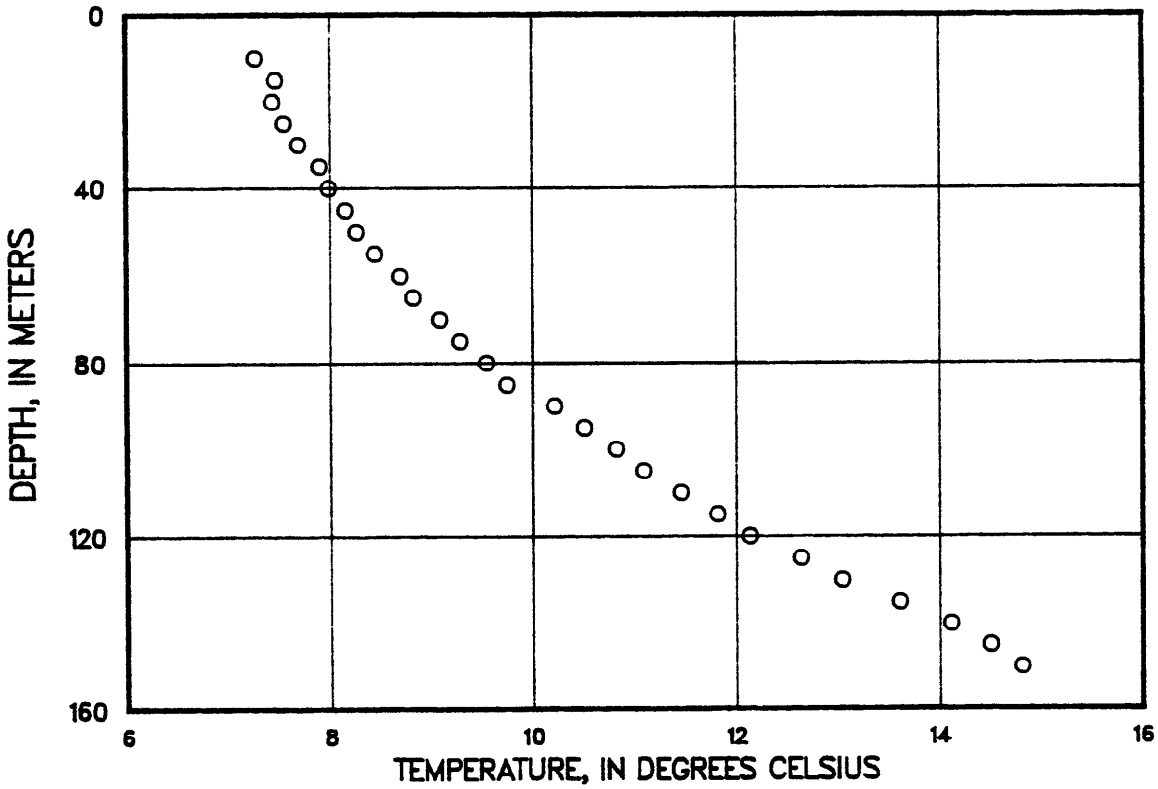

Fig. 92-Temperature profile from 16S-6E-02 SW.

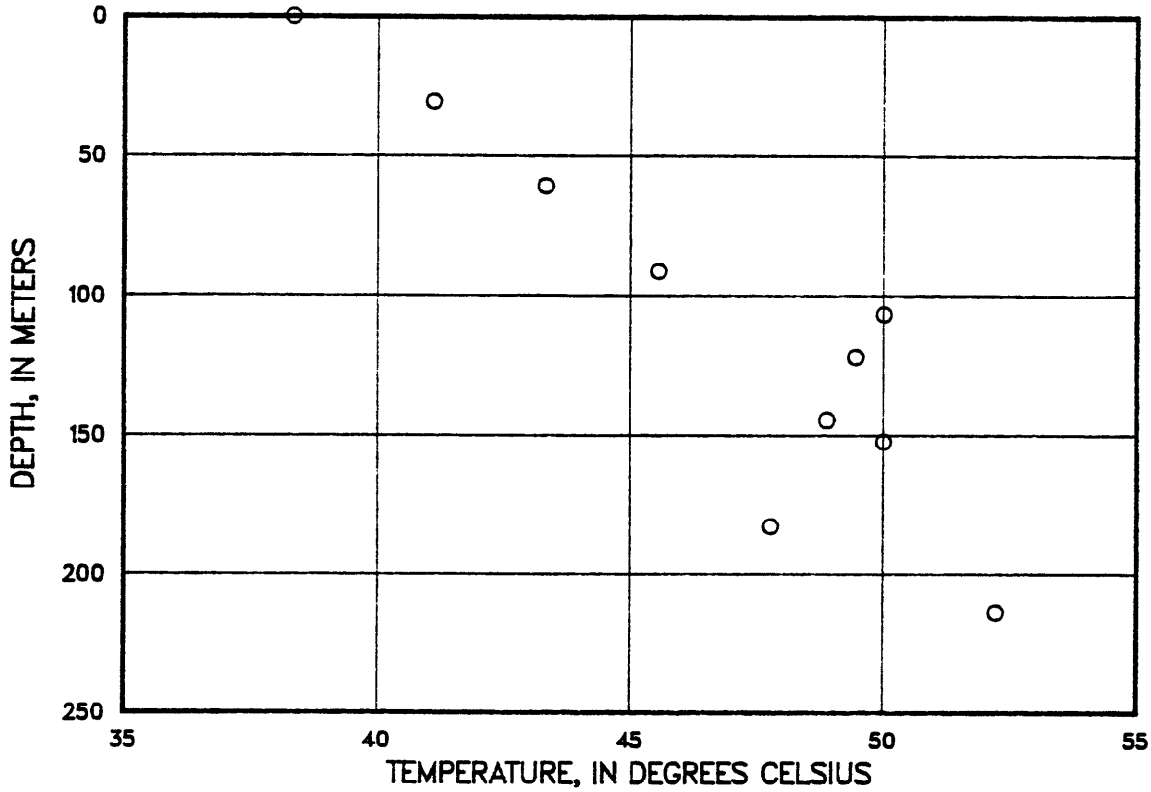

Fig. 93-Temperature profile from 16S-6E-10 SW.

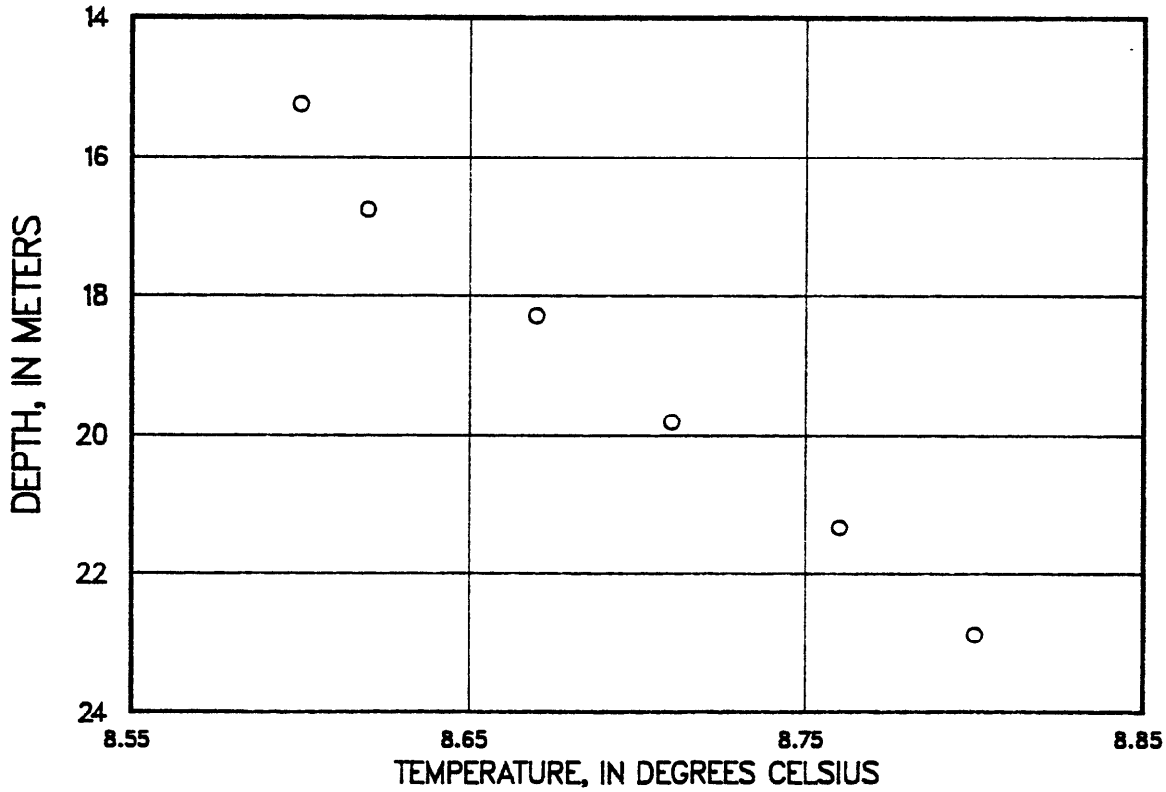

Fig. 94-Temperature profile from 16S-6E-14 SW.

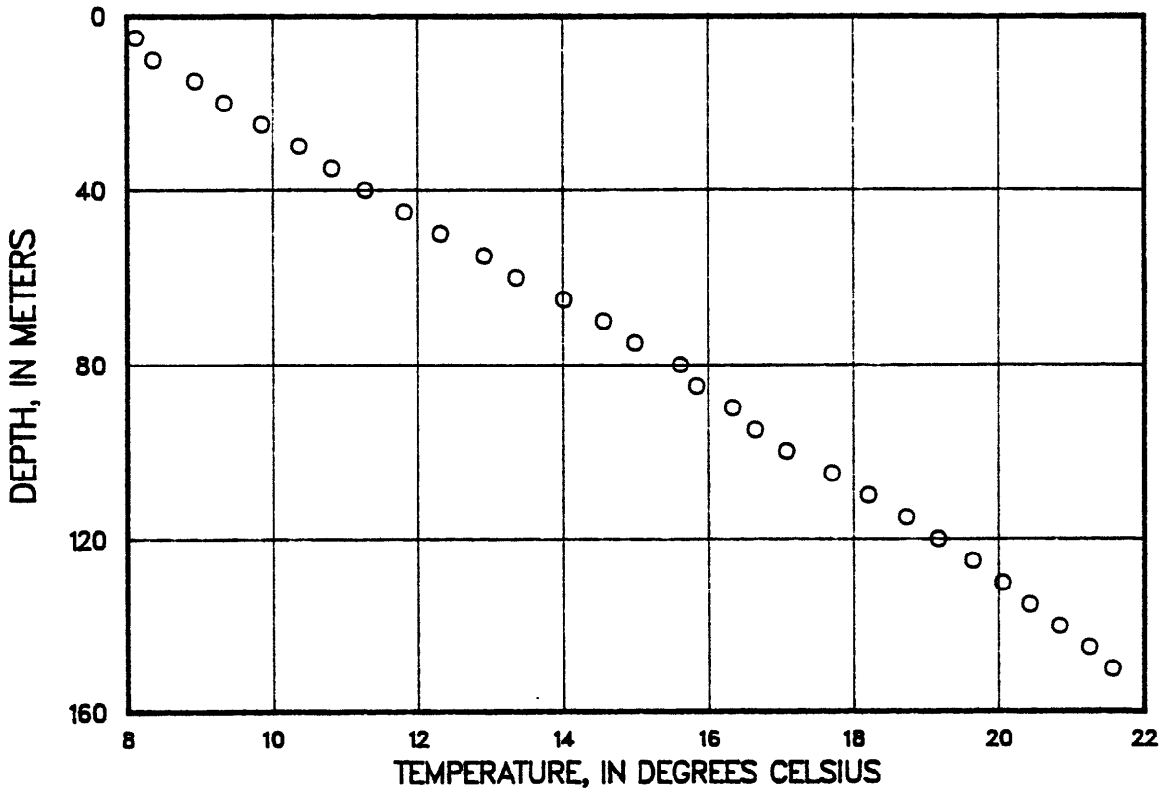

Fig. 95-Temperature profile from 16S-6E-27 NW.

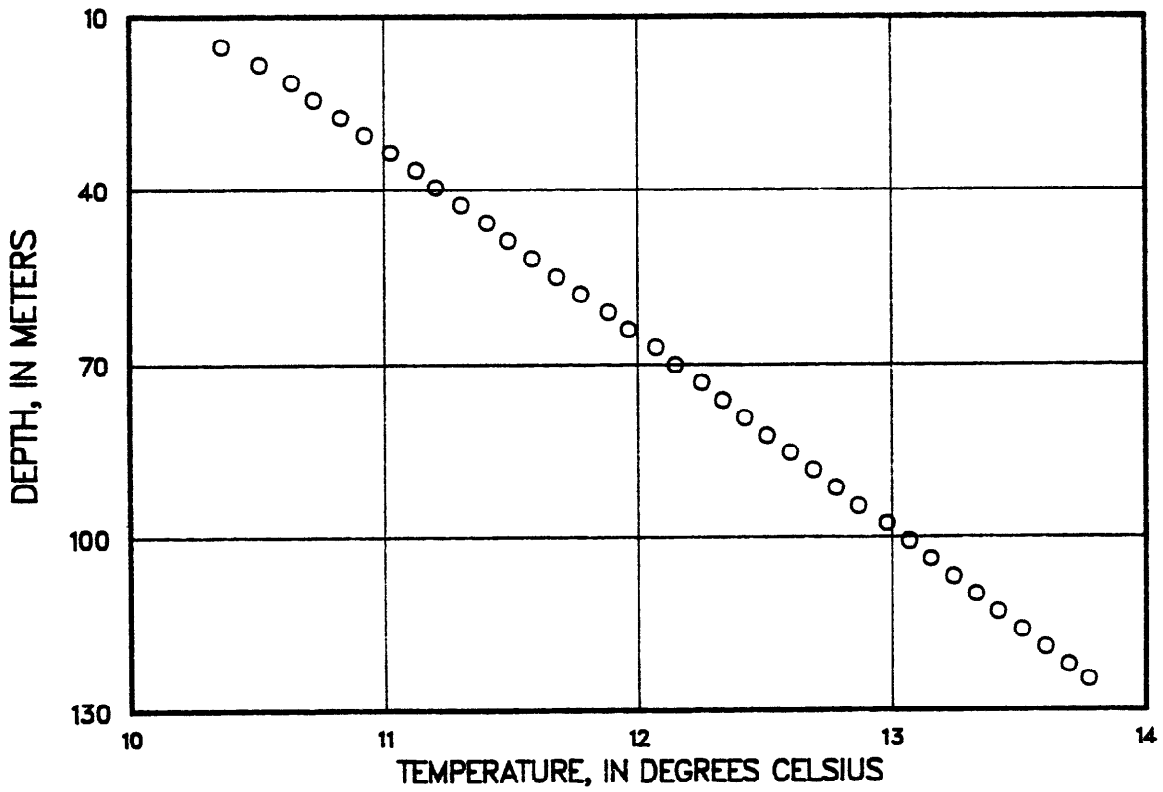

Fig. 96-Temperature profile from 17S-3E-02 NE.

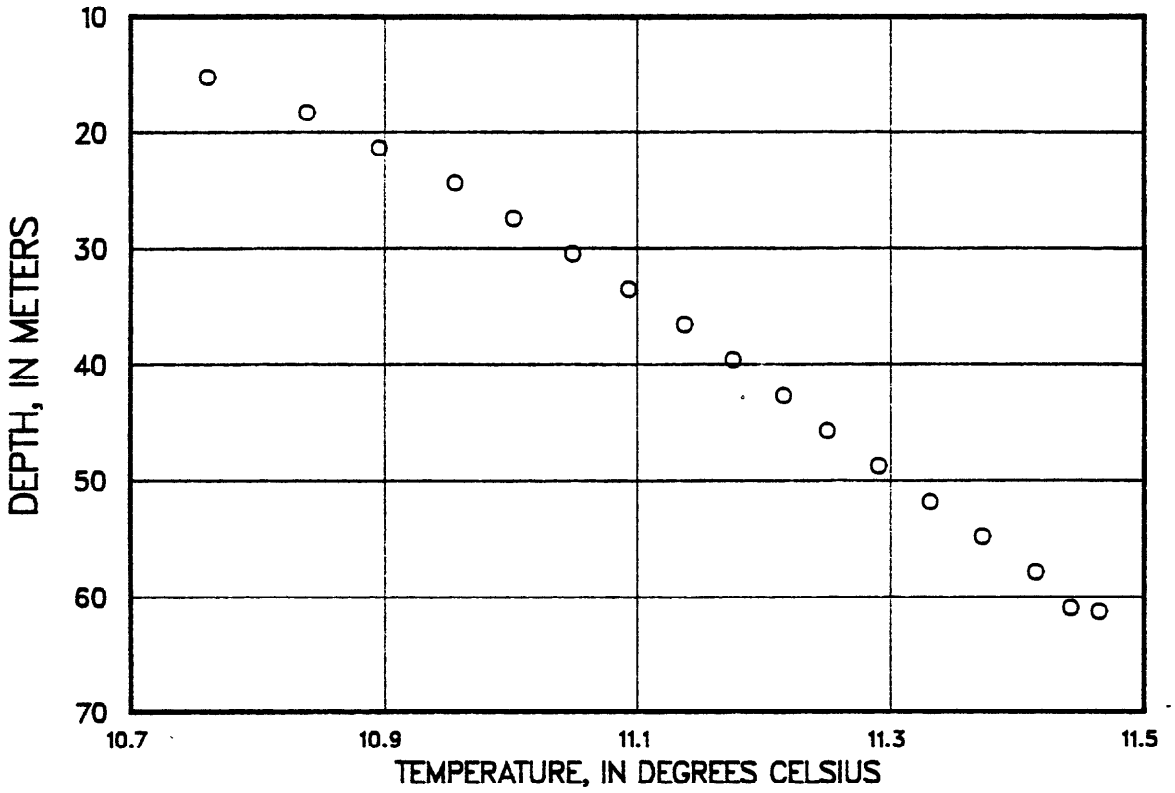

Fig. 97-Temperature profile from 17S-3E-04 SE.

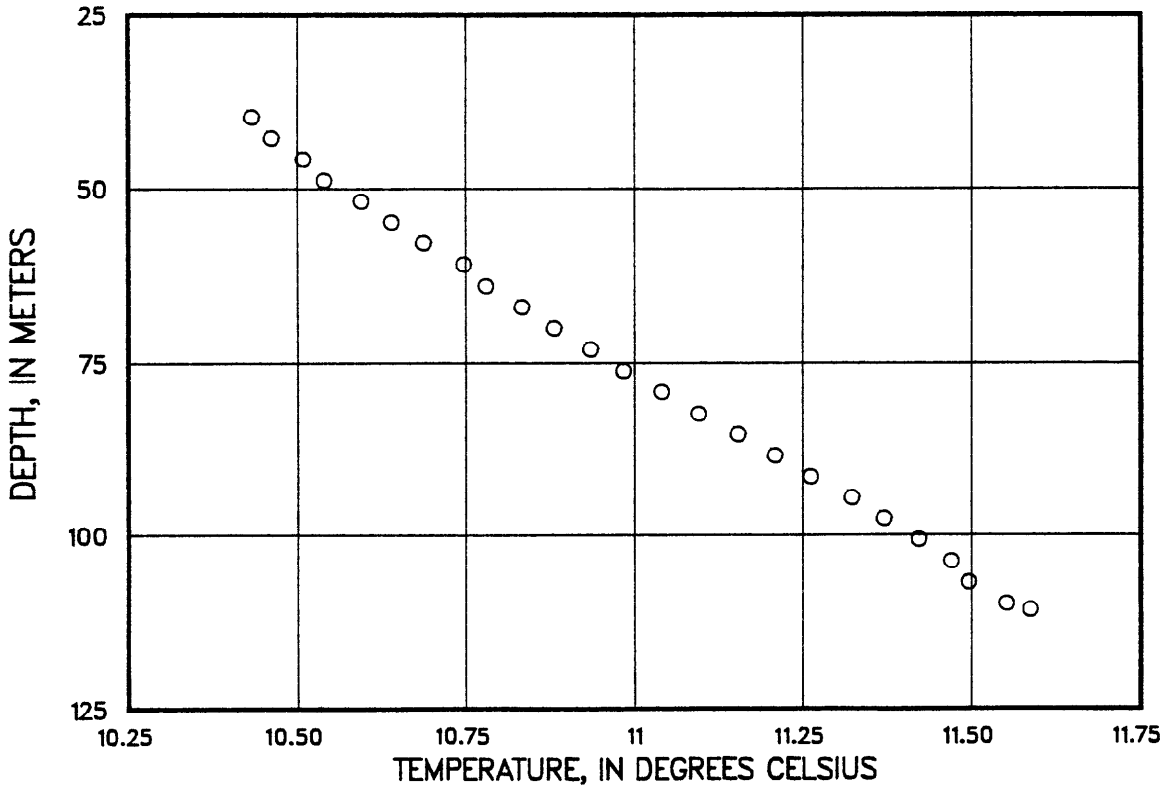

Fig. 98-Temperature profile from 17S-3E-10 NE.

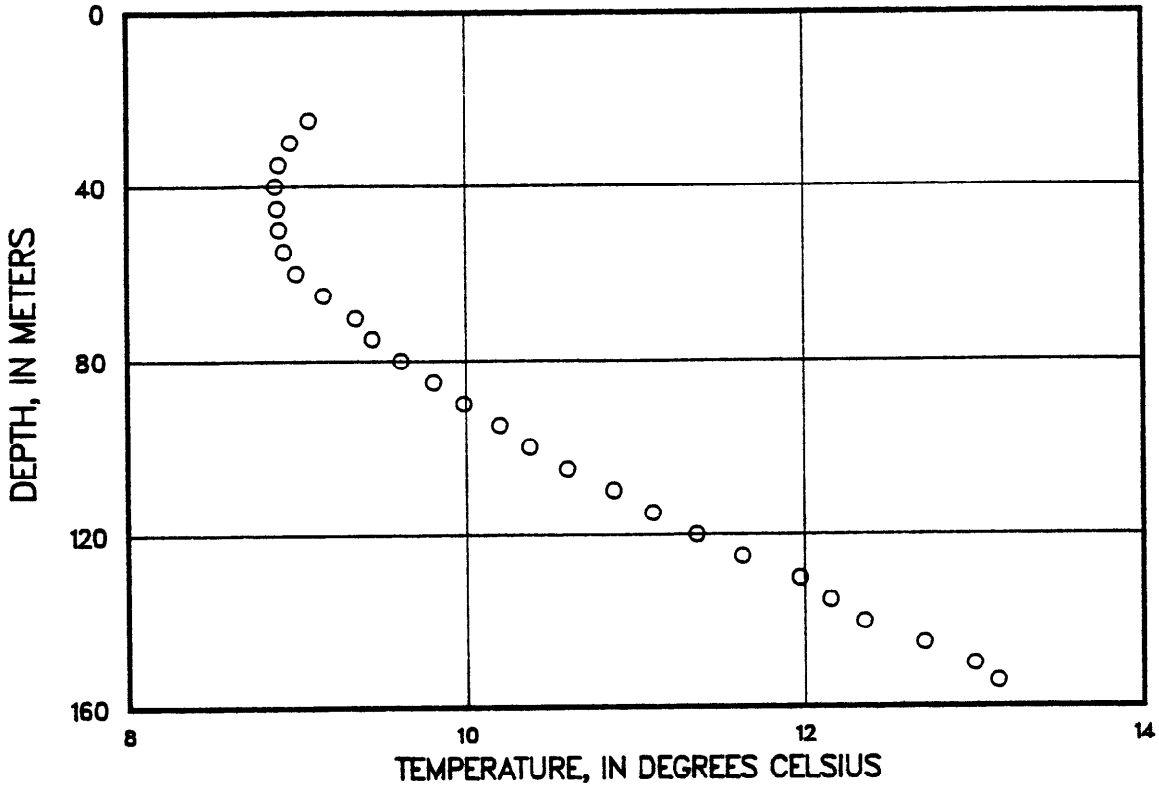

Fig. 99-Temperature profile from 17S-5E-08 NE.

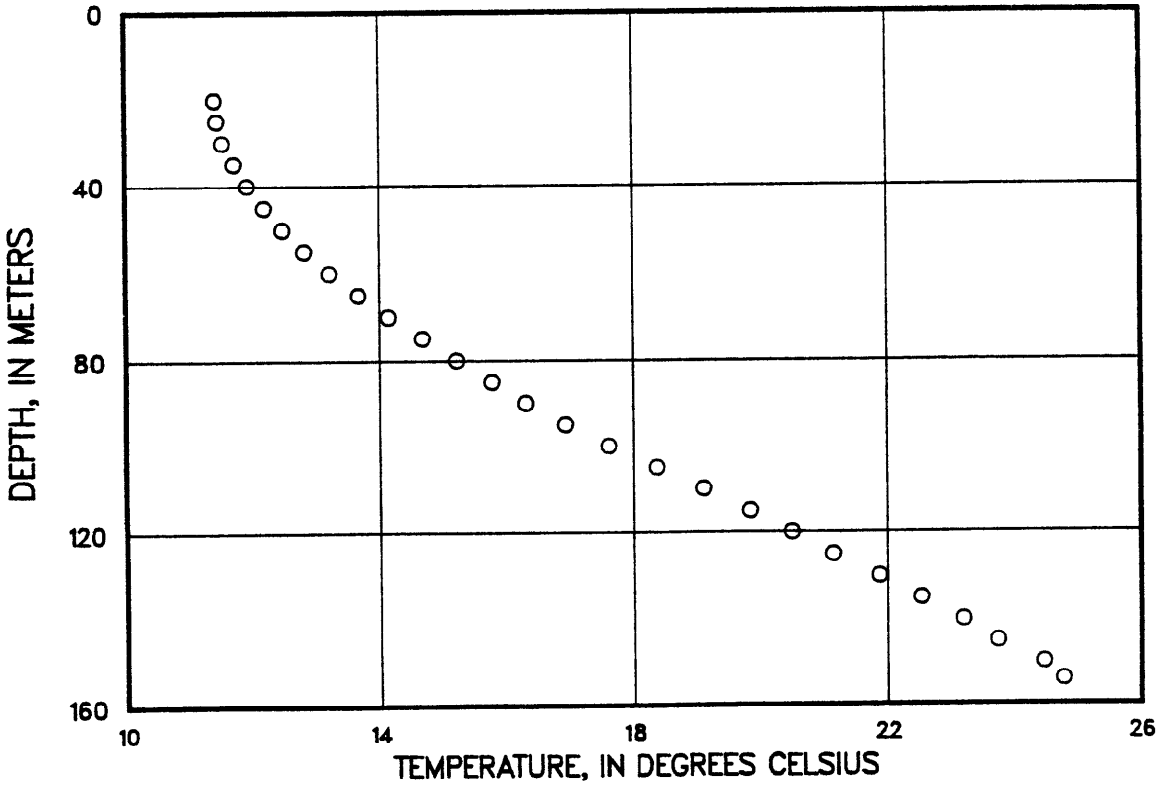

Fig. 100-Temperature profile from 17S-5E-20 NW.

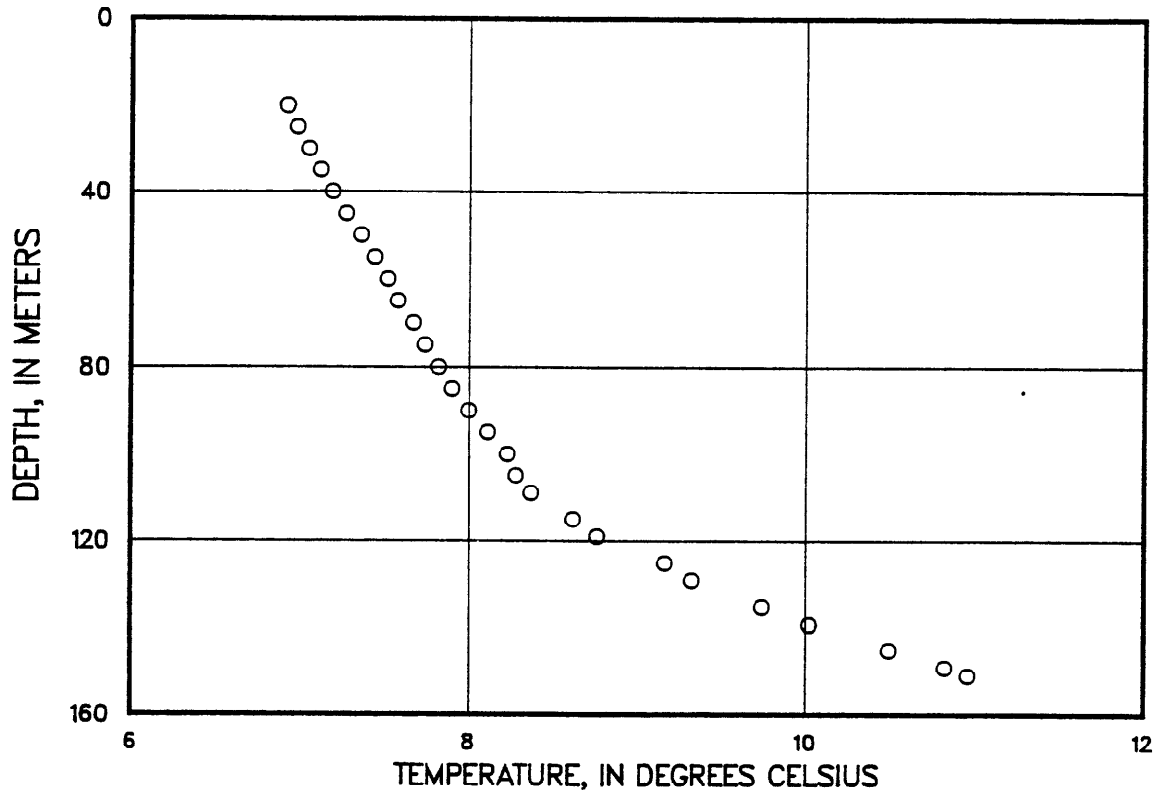

Fig. 101-Temperature profile from 17S-6E-25 NE.

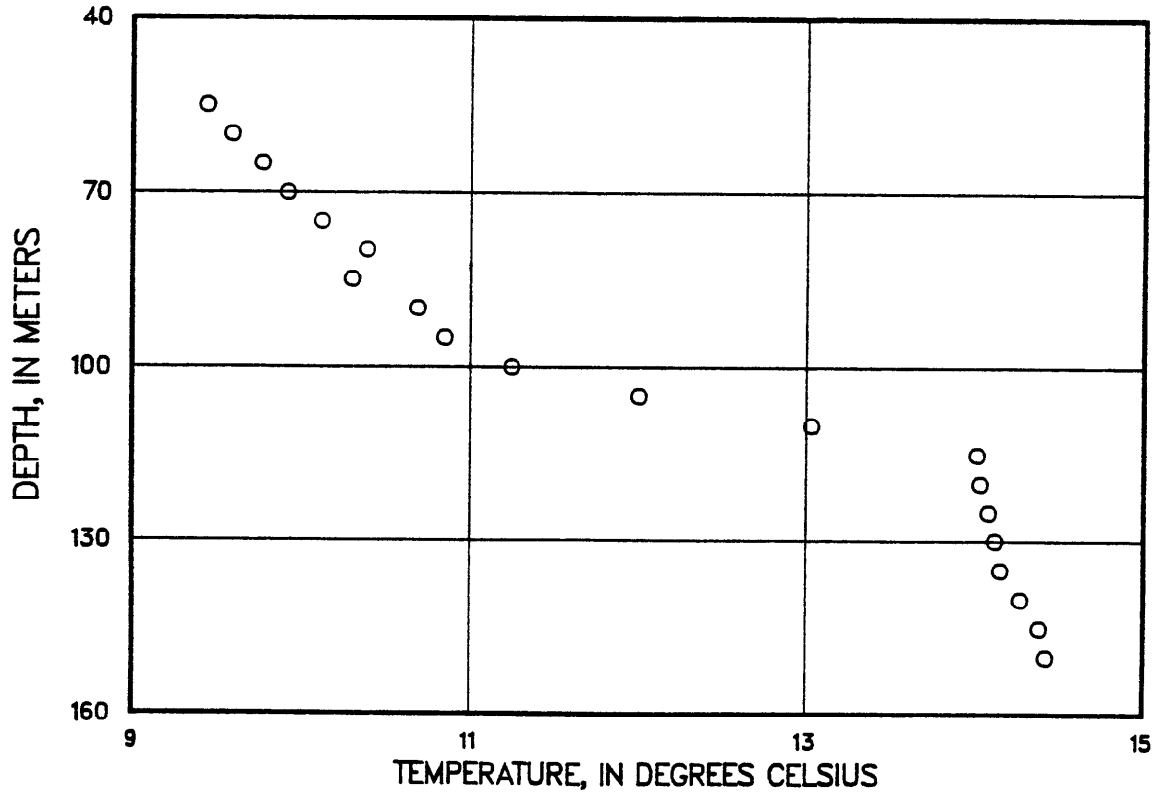

Fig. 102-Temperature profile from 18S-5E-11 NW.

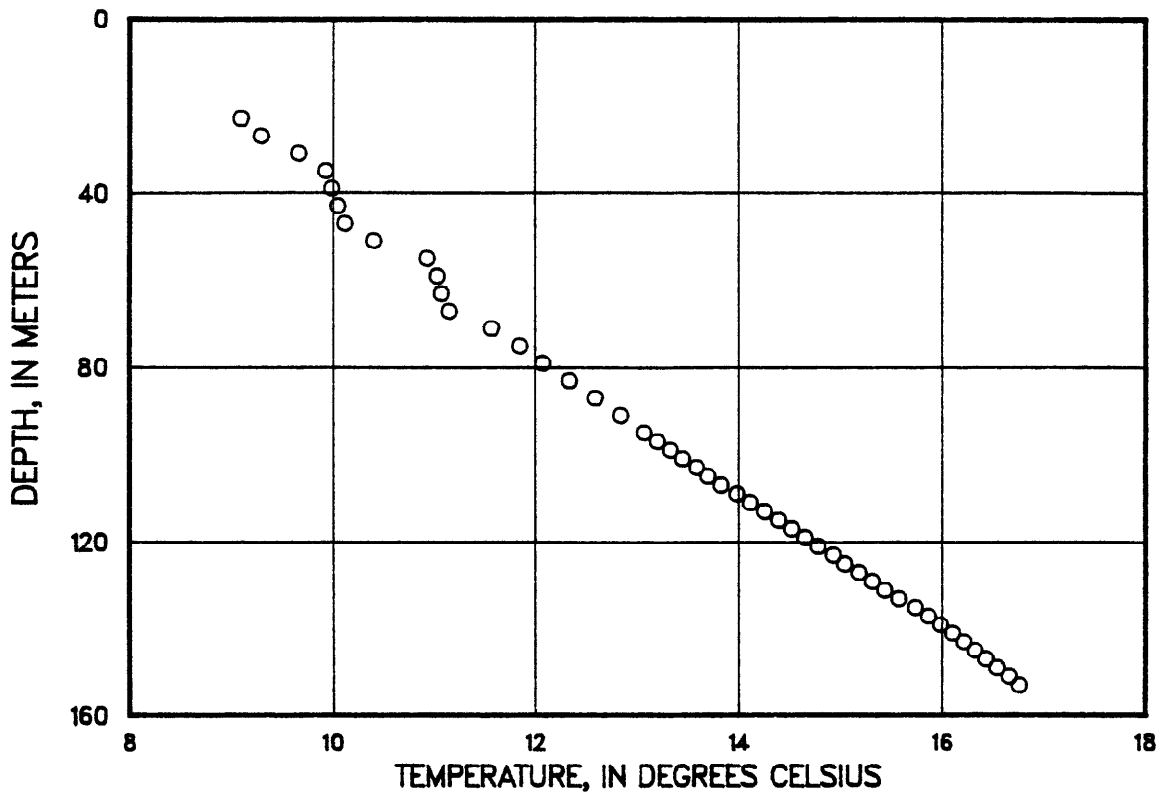

Fig. 103-Temperature profile from 19S-4E-29 SW.

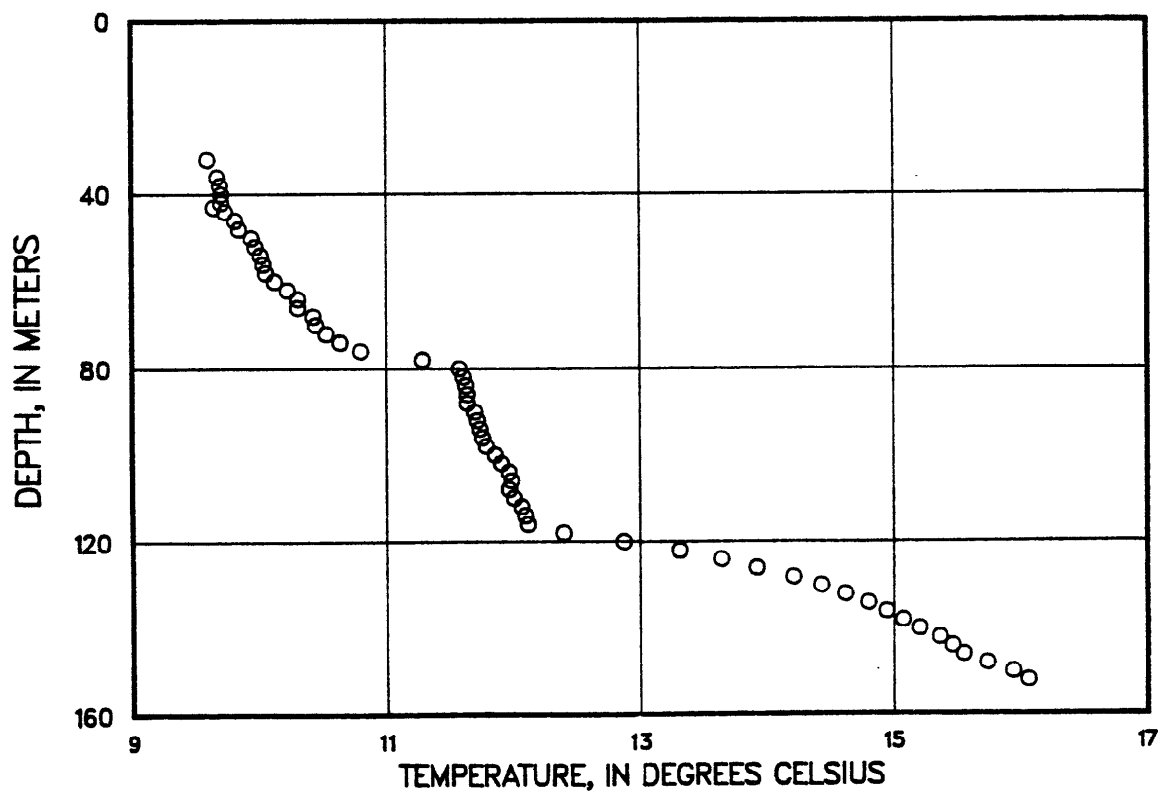

Fig. 104-Temperature profile from 19S-5E-27 NW.

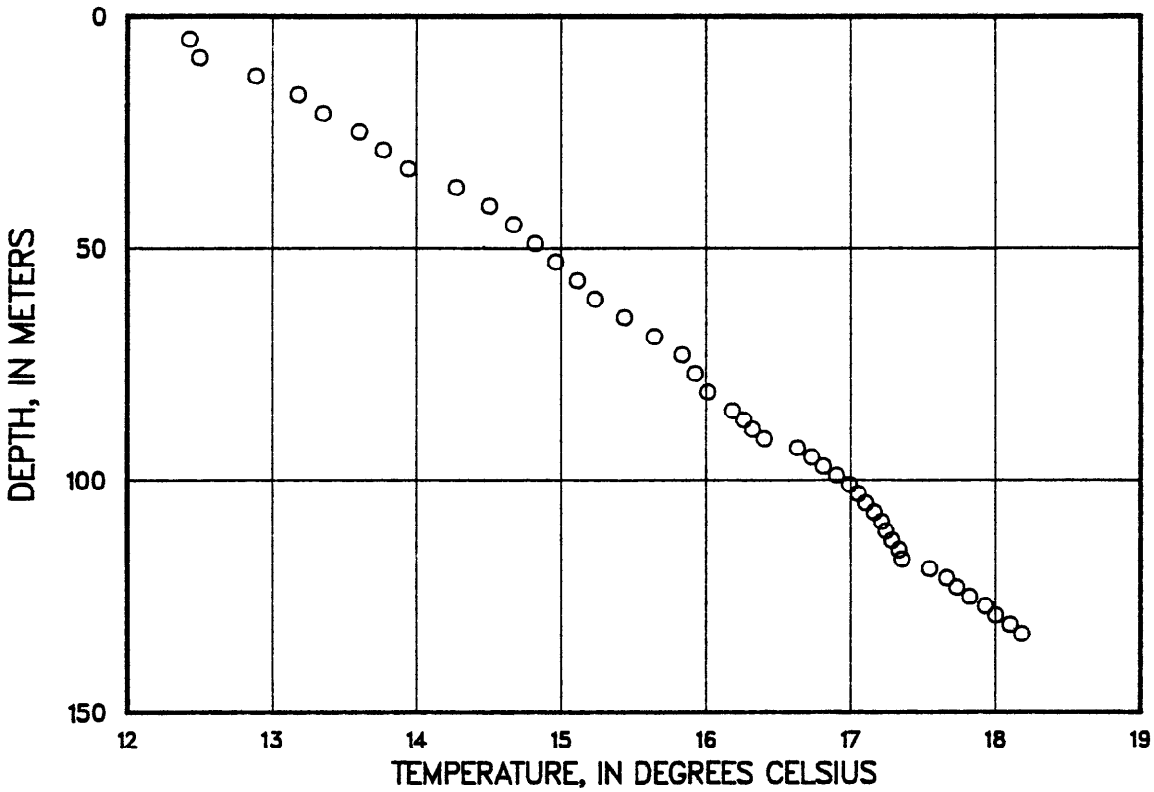

Fig. 105-Temperature profile from 19S-6E-08 NW.

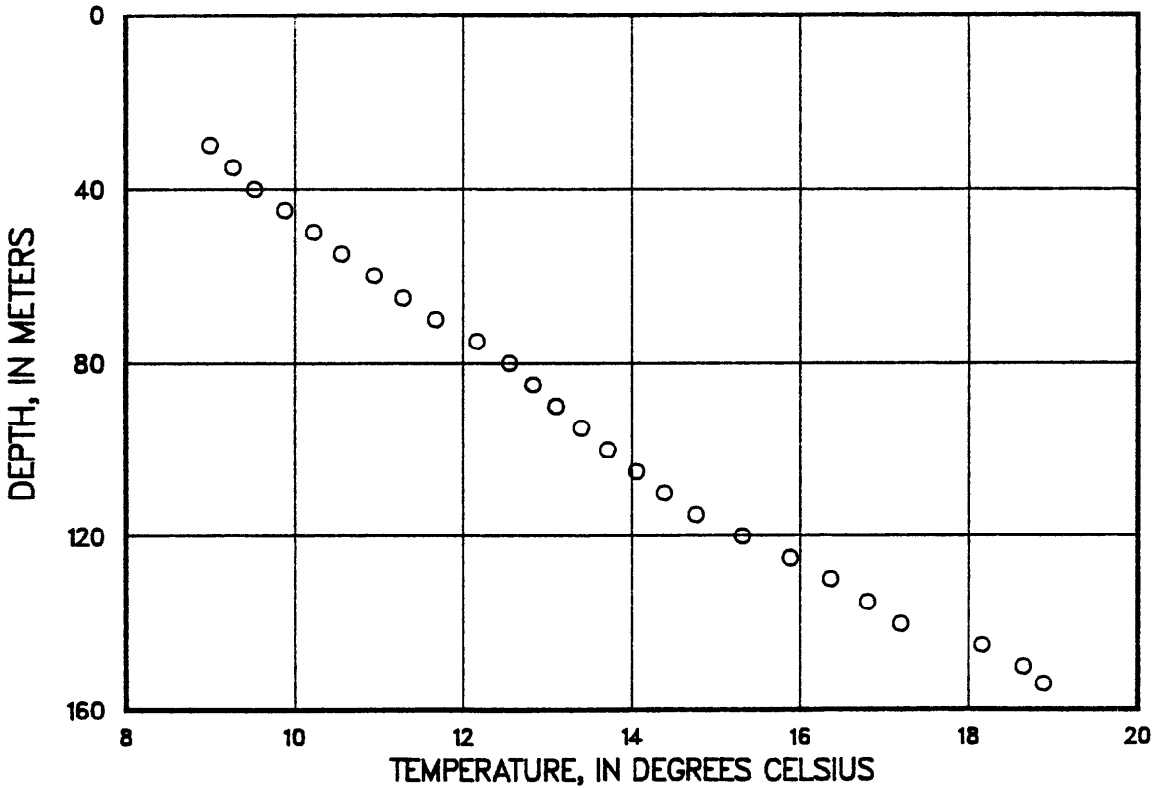

Fig. 106-Temperature profile from 19S-6E-25 SE.

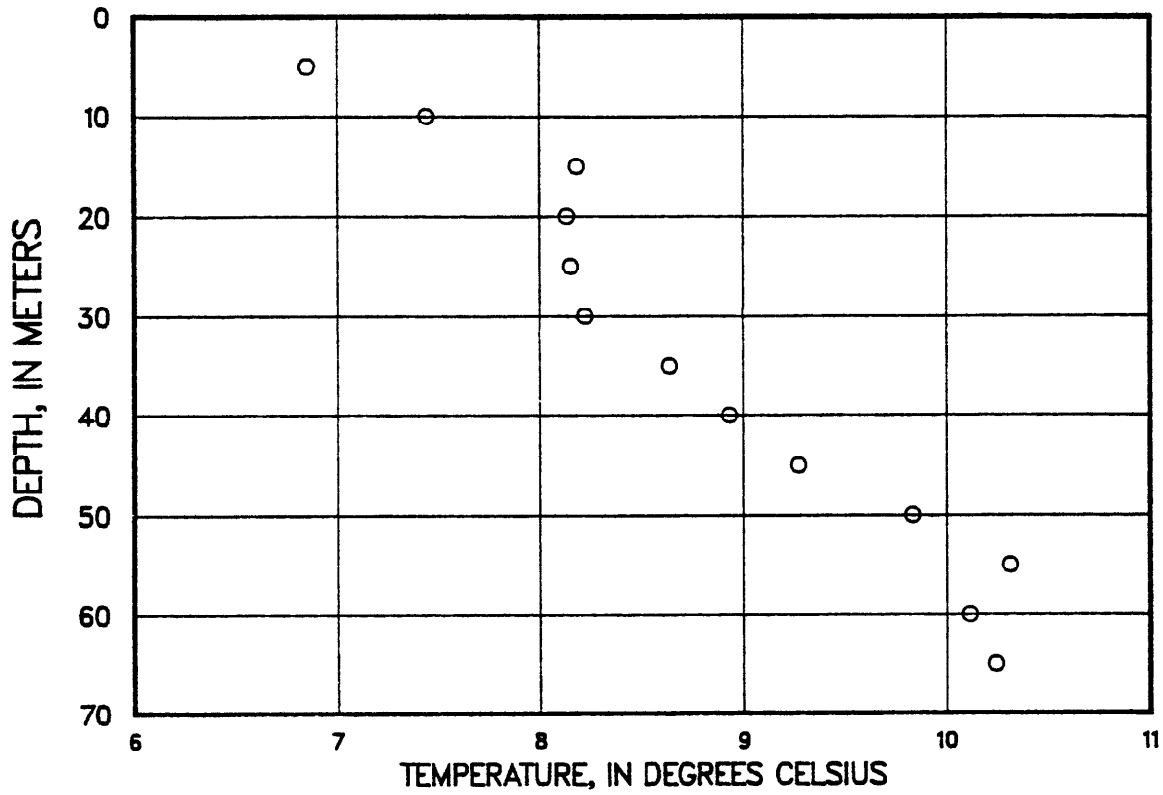

Fig. 107-Temperature profile from 3S-7E-03 NE.

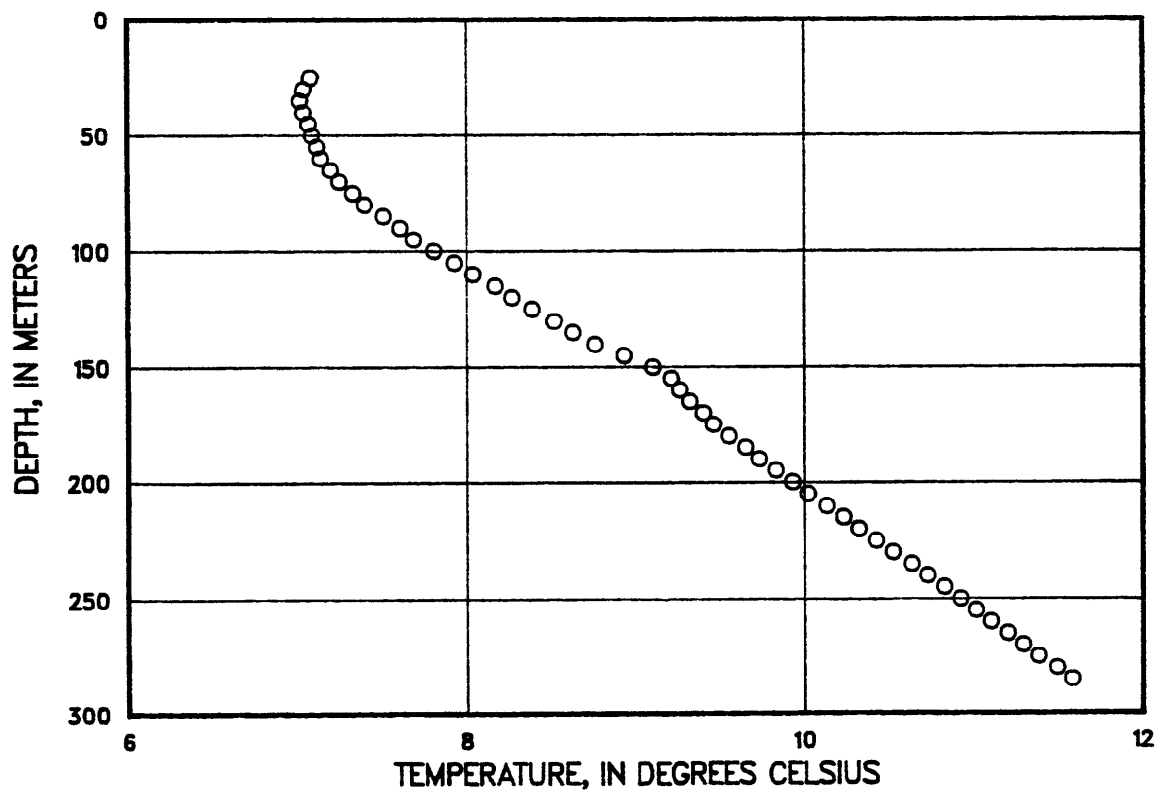

Fig. 108-Temperature profile from 3S-8E-14 NW.

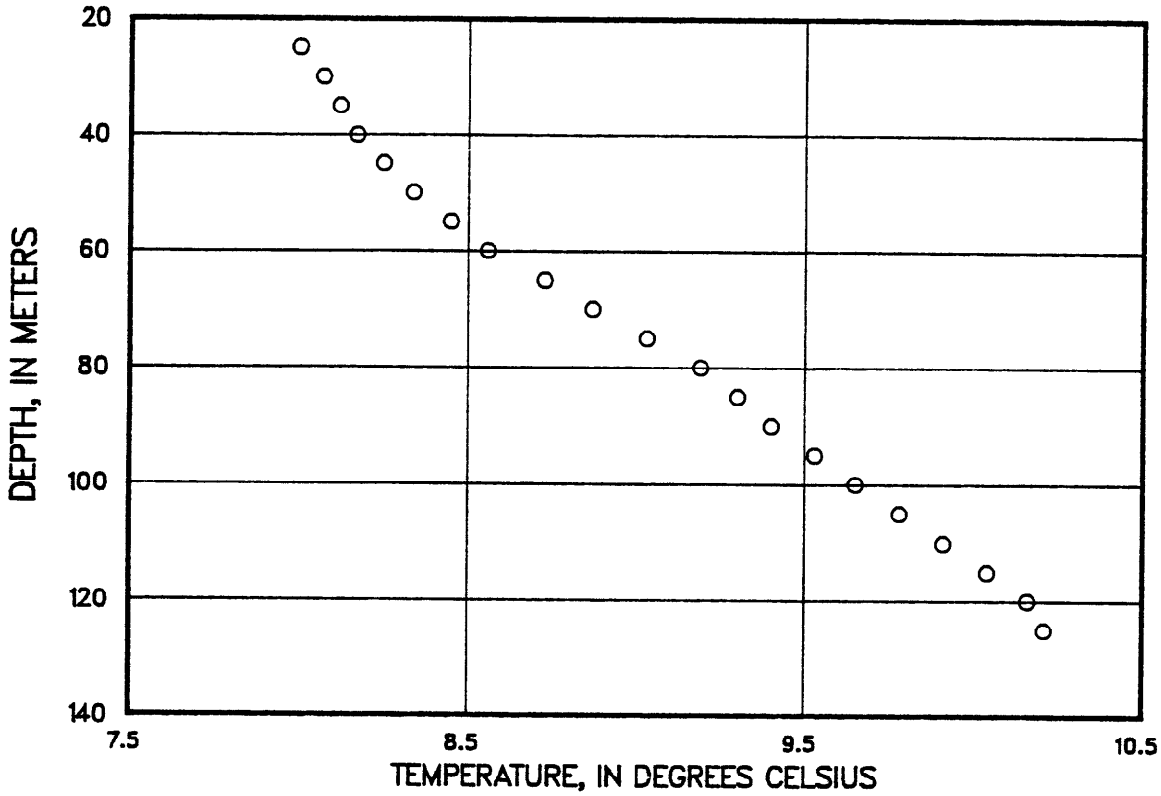

Fig. 109-Temperature profile from 3S-8E-16 SW.

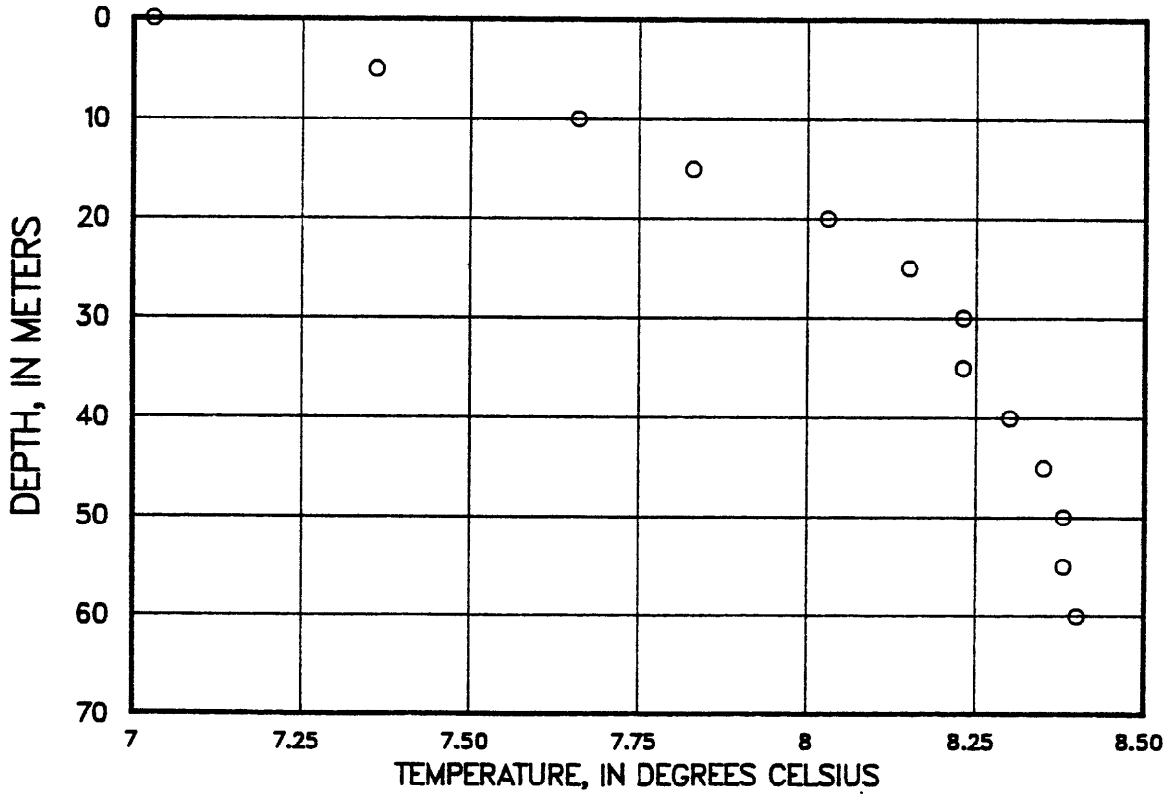

Fig. 110-Temperature profile from 3S-8E-24 NW.

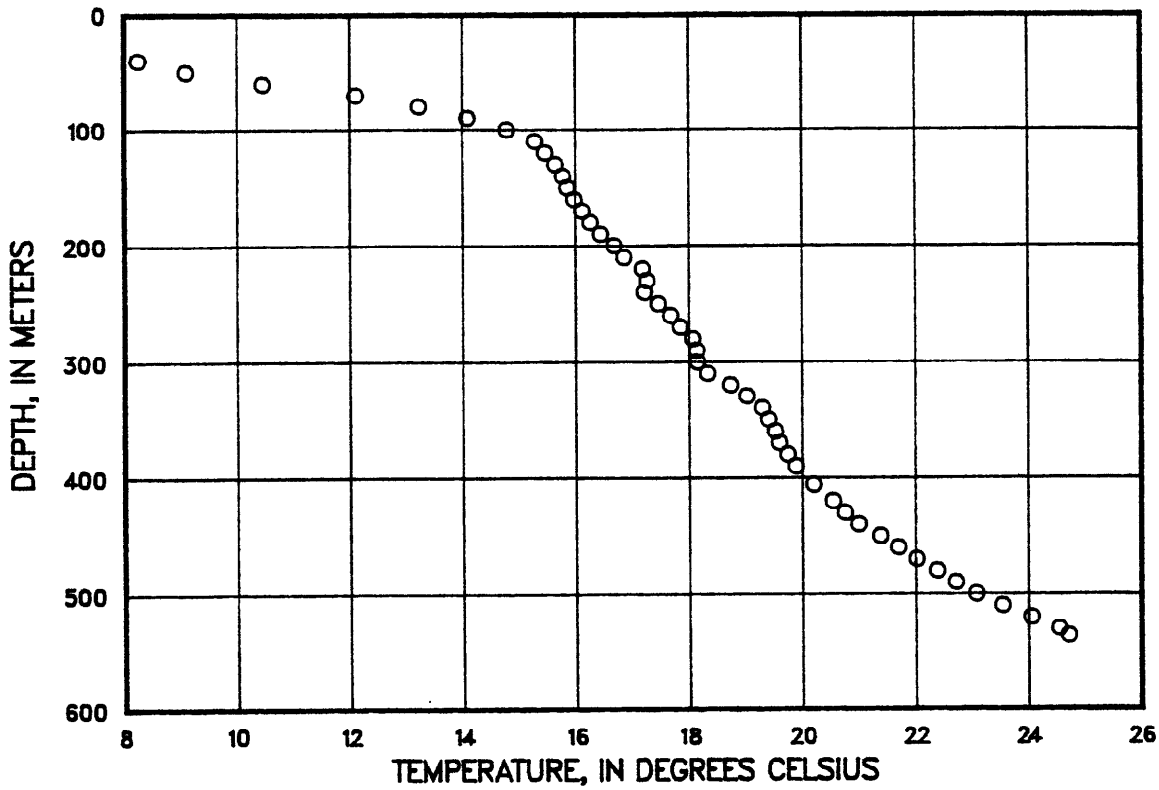

Fig. 111-Temperature profile from 3S-8E-24 NE.

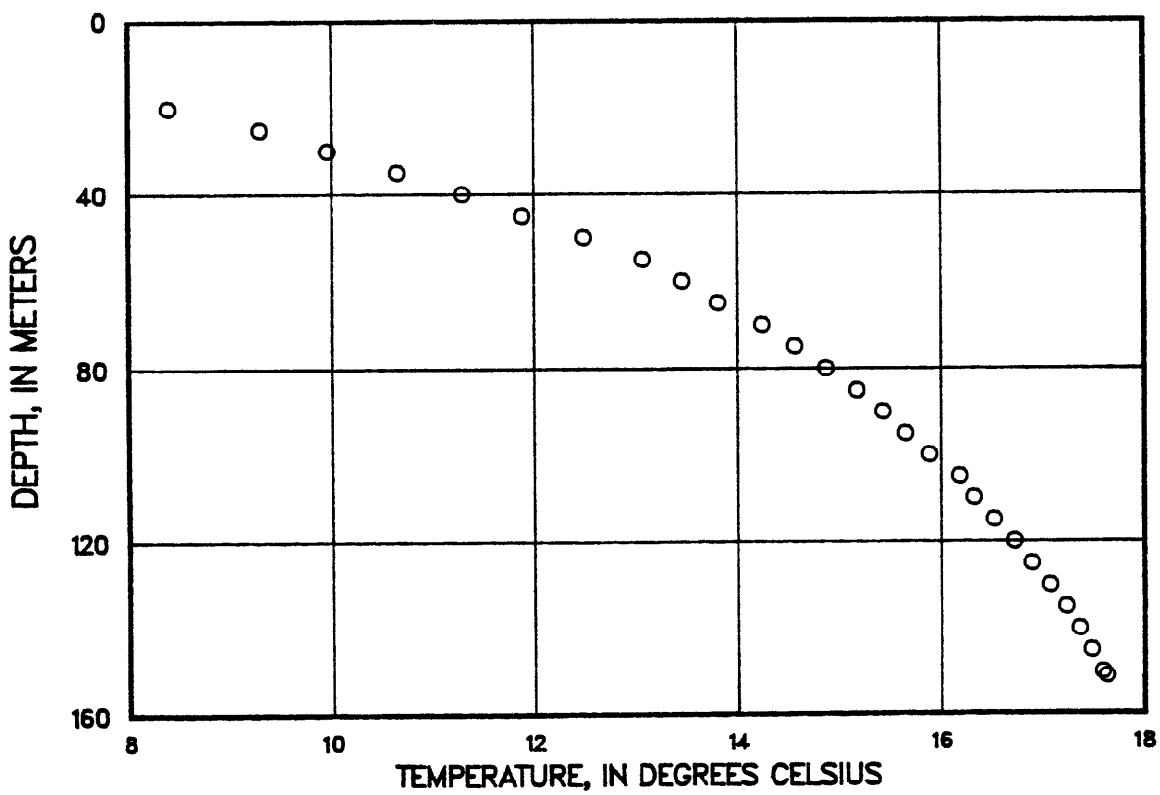

Fig. 112-Temperature profile from 3S-8E-29 SE.

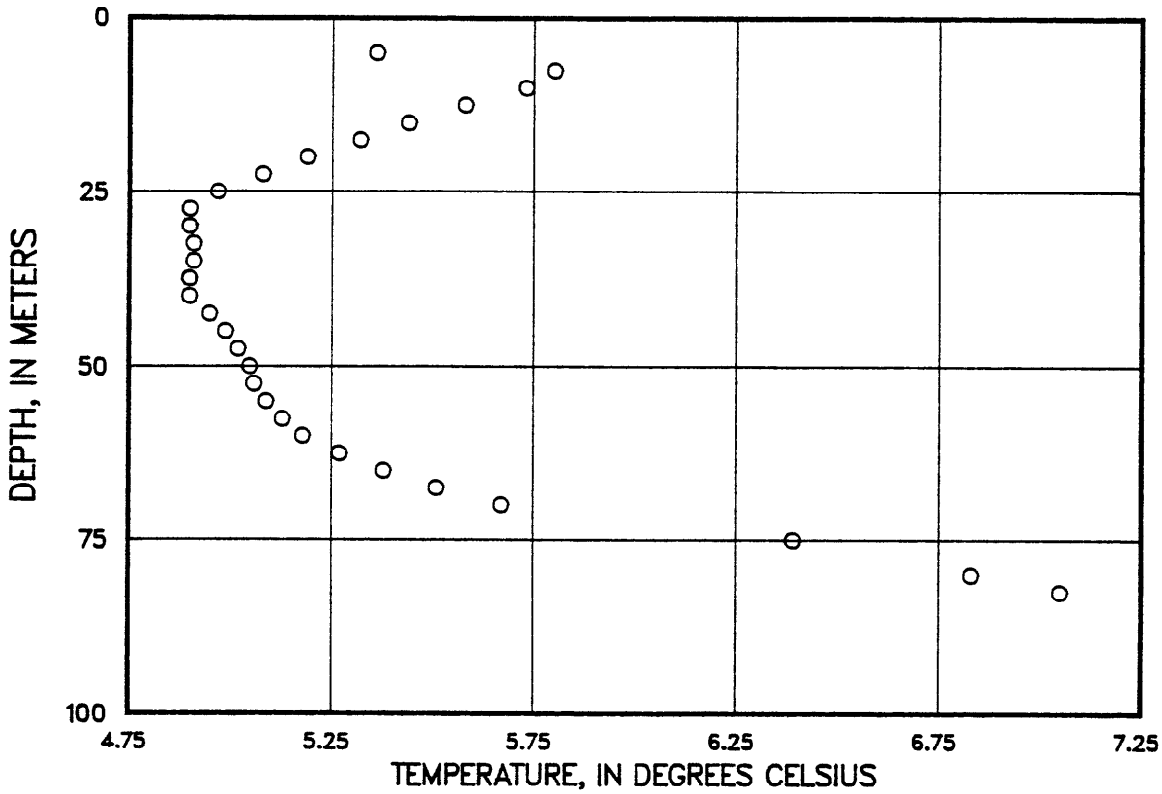

Fig. 113-Temperature profile from 3S-8.5E-25 NE.

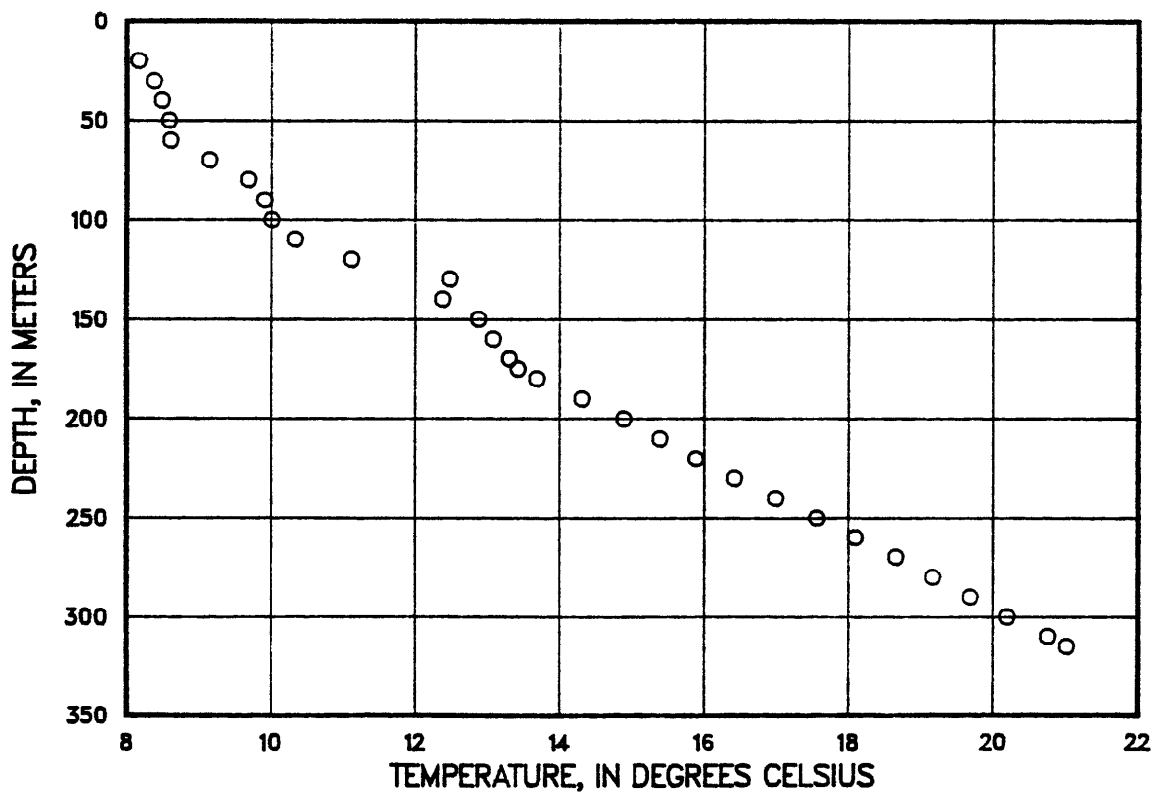

Fig. 114-Temperature profile from 3S-8.5E-25 SW.

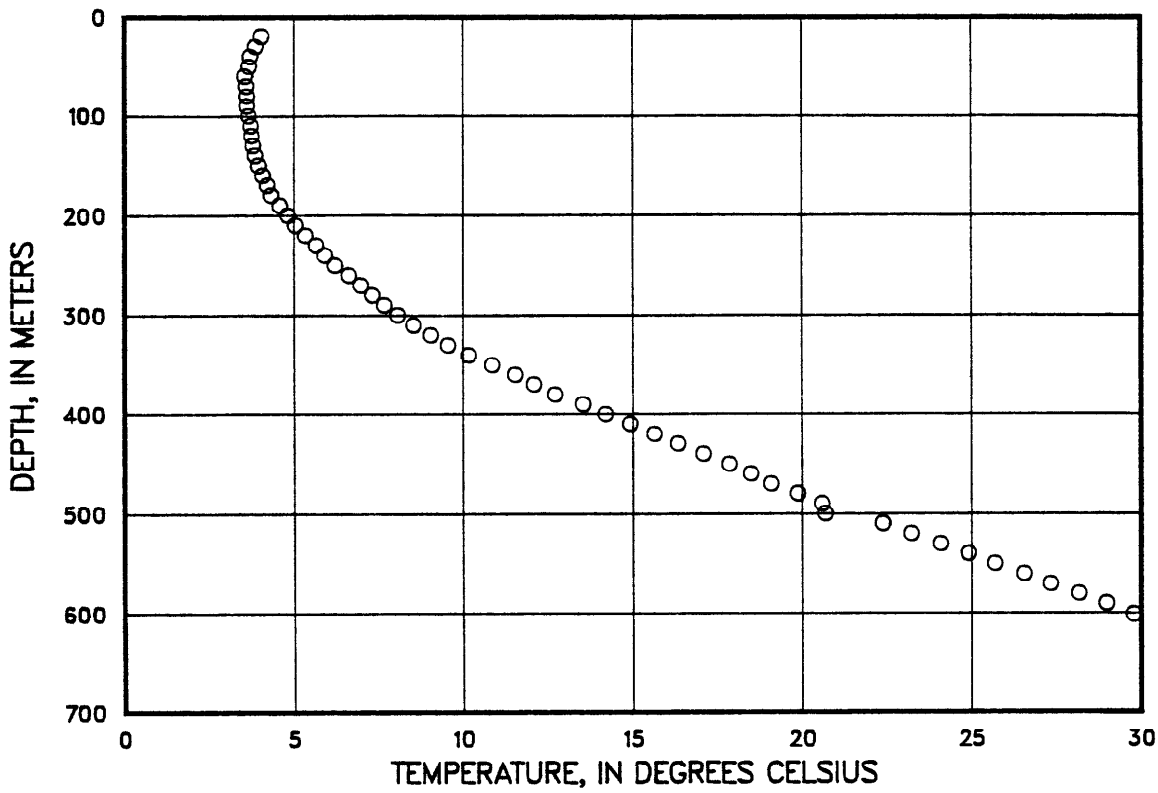

Fig. 115-Temperature profile from 3S-9E-03 SW.

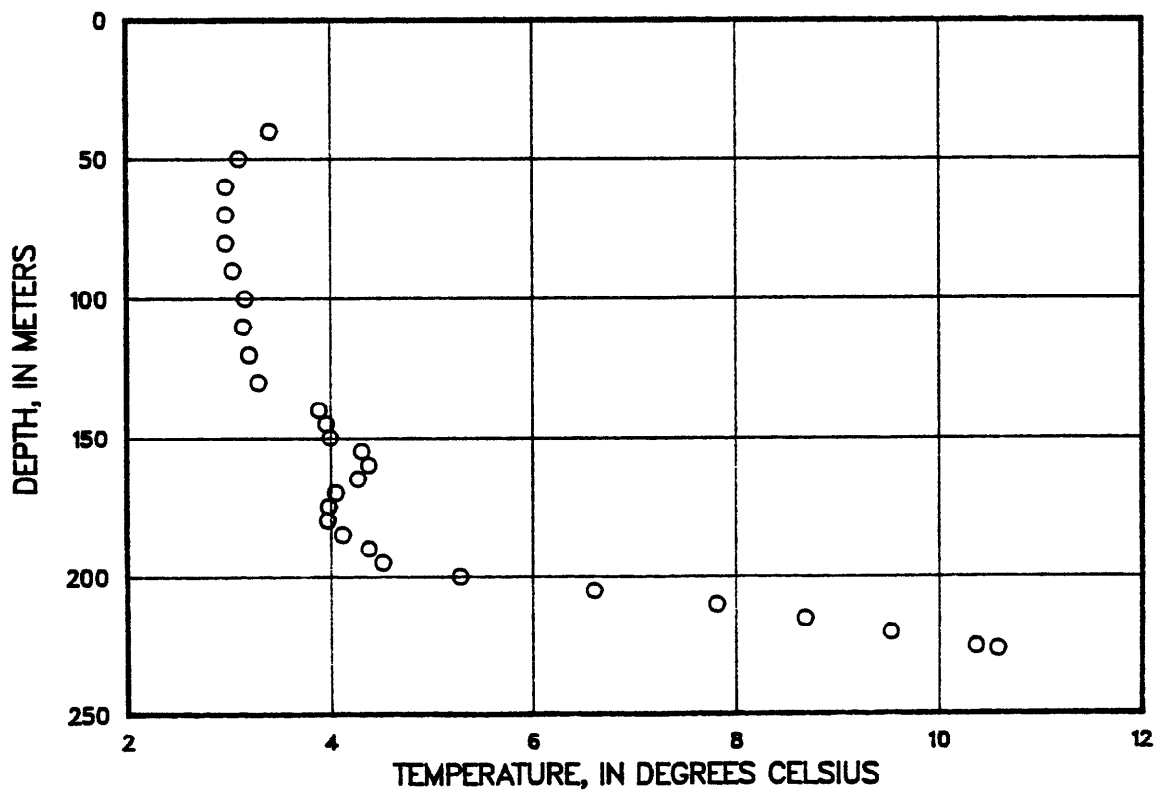

Fig. 116-Temperature profile from 3S-9E-07 NE.

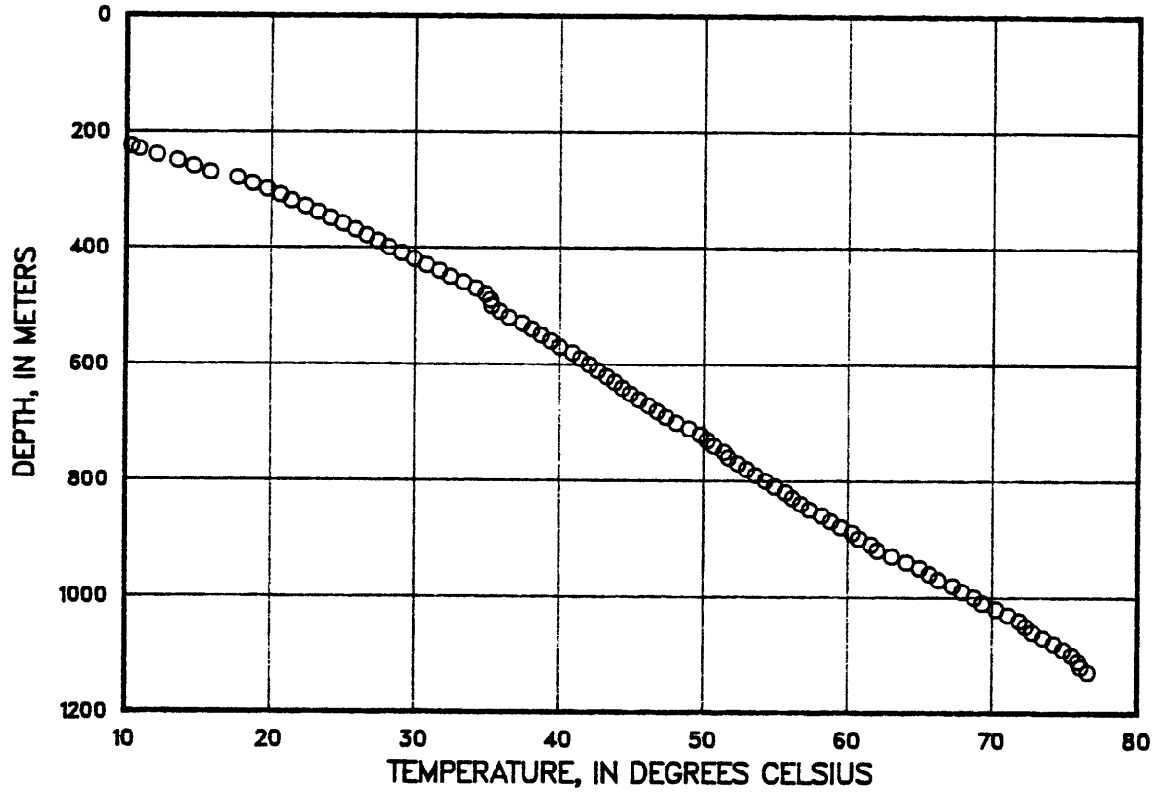

Fig. 117-Temperature profile from 3S-9E-07 SE.

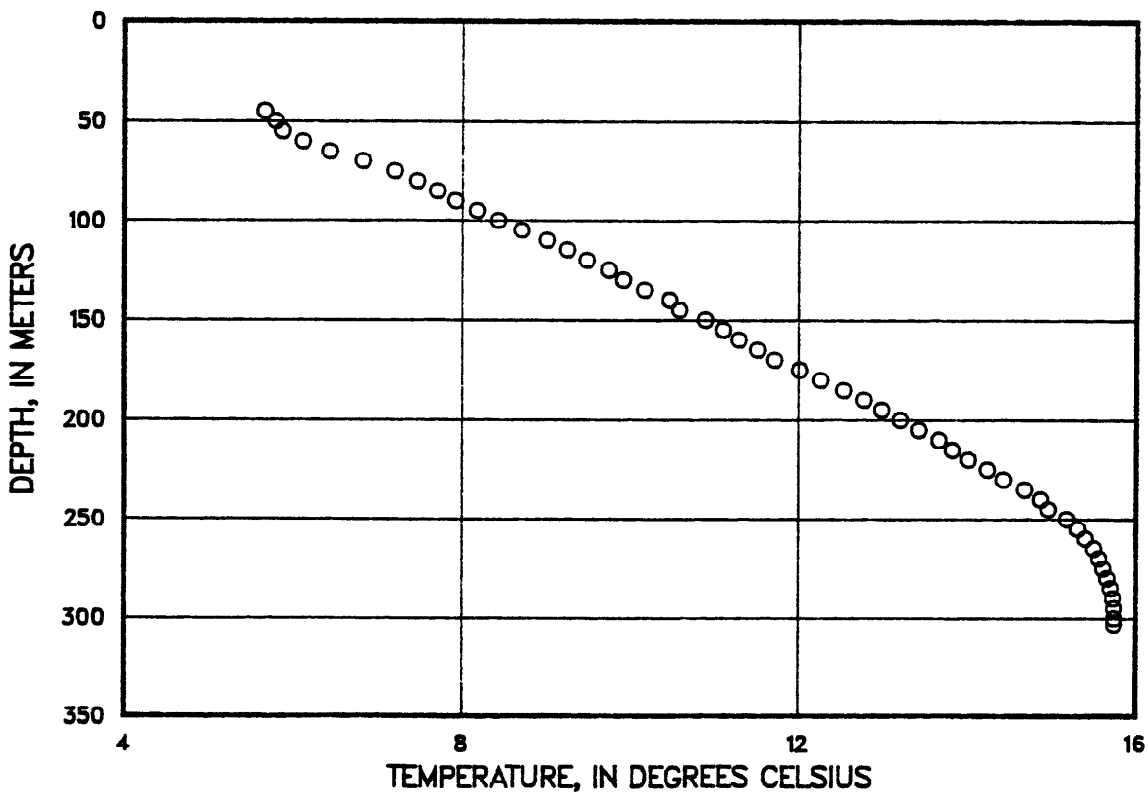

Fig. 118-Temperature profile from 3S-9E-16 SW.

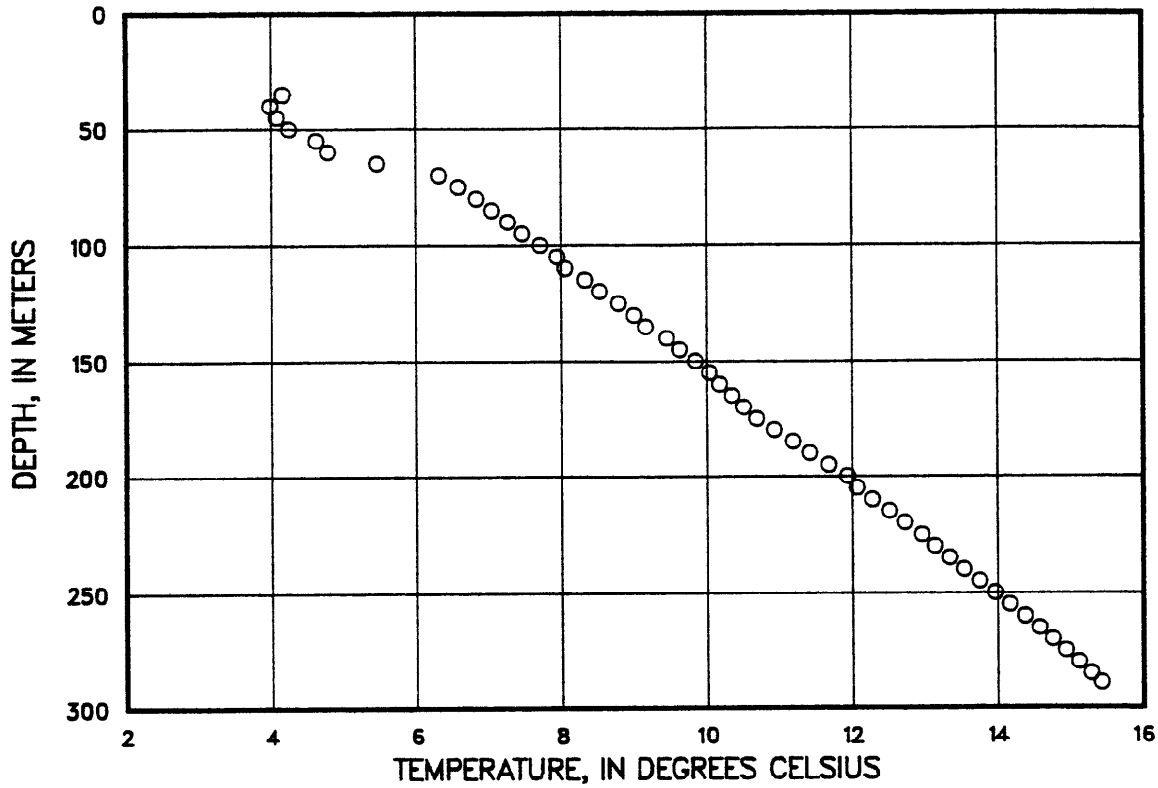

Fig. 119-Temperature profile from 3S-9E-30 NE.

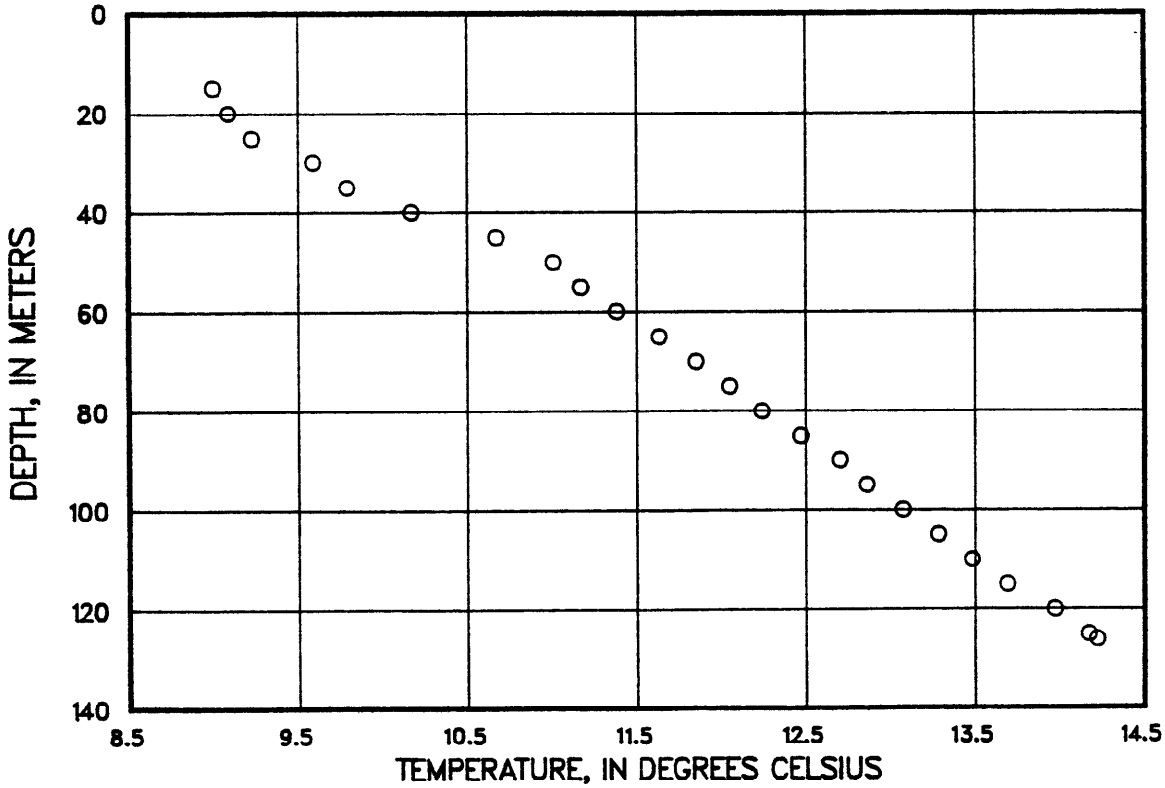

Fig. 120-Temperature profile from 3S-11E-01 NE.

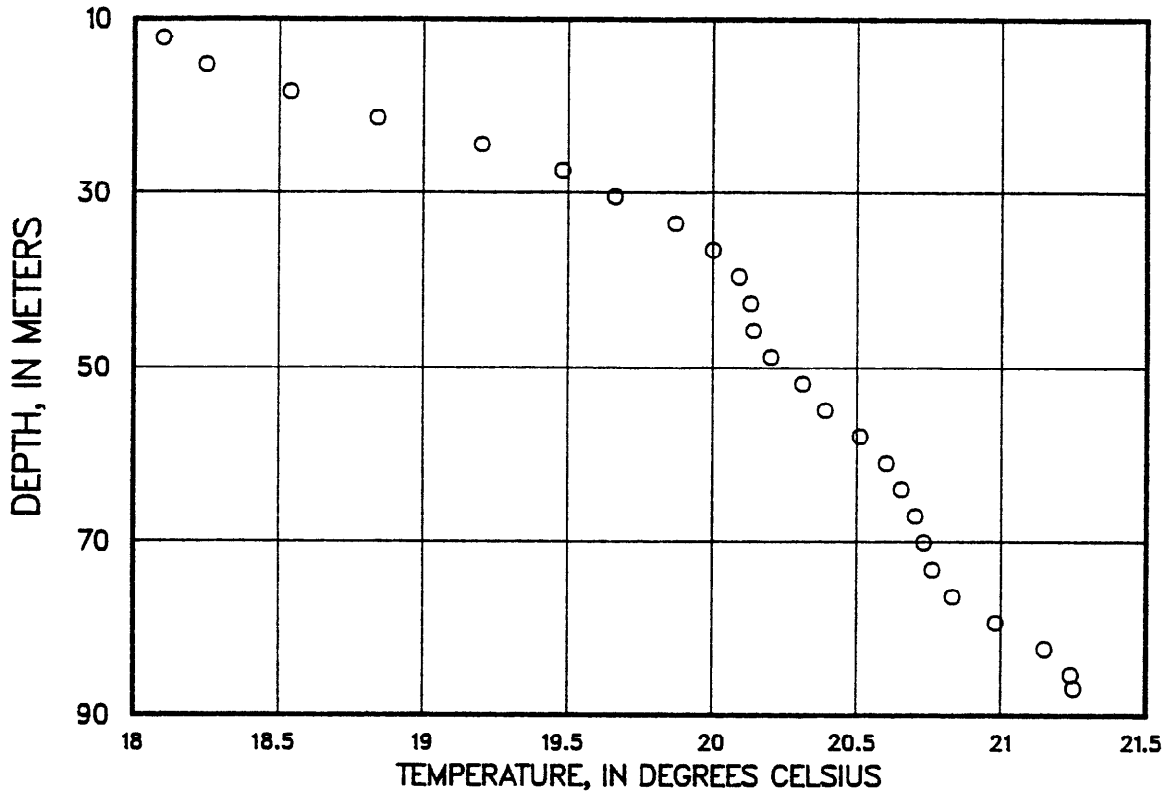

Fig. 121-Temperature profile from 3S-13E-31 NW.

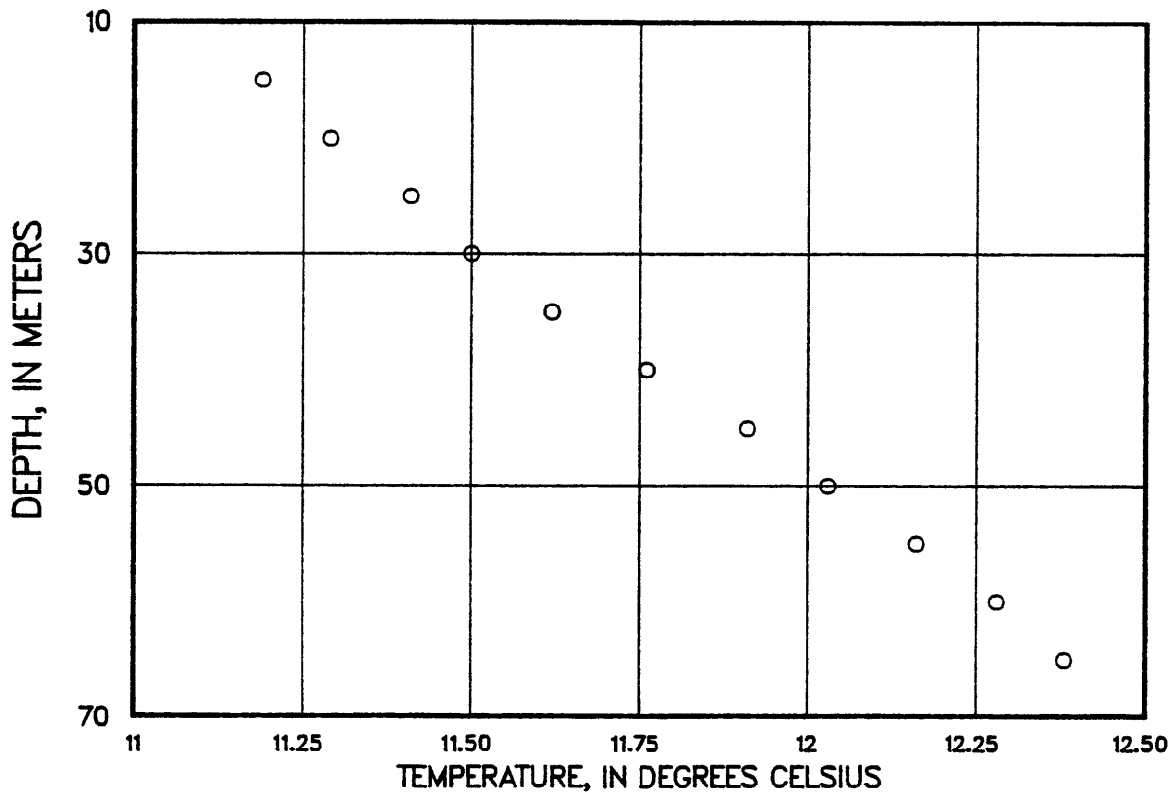

Fig. 122-Temperature profile from 3S-14E-07 SE.

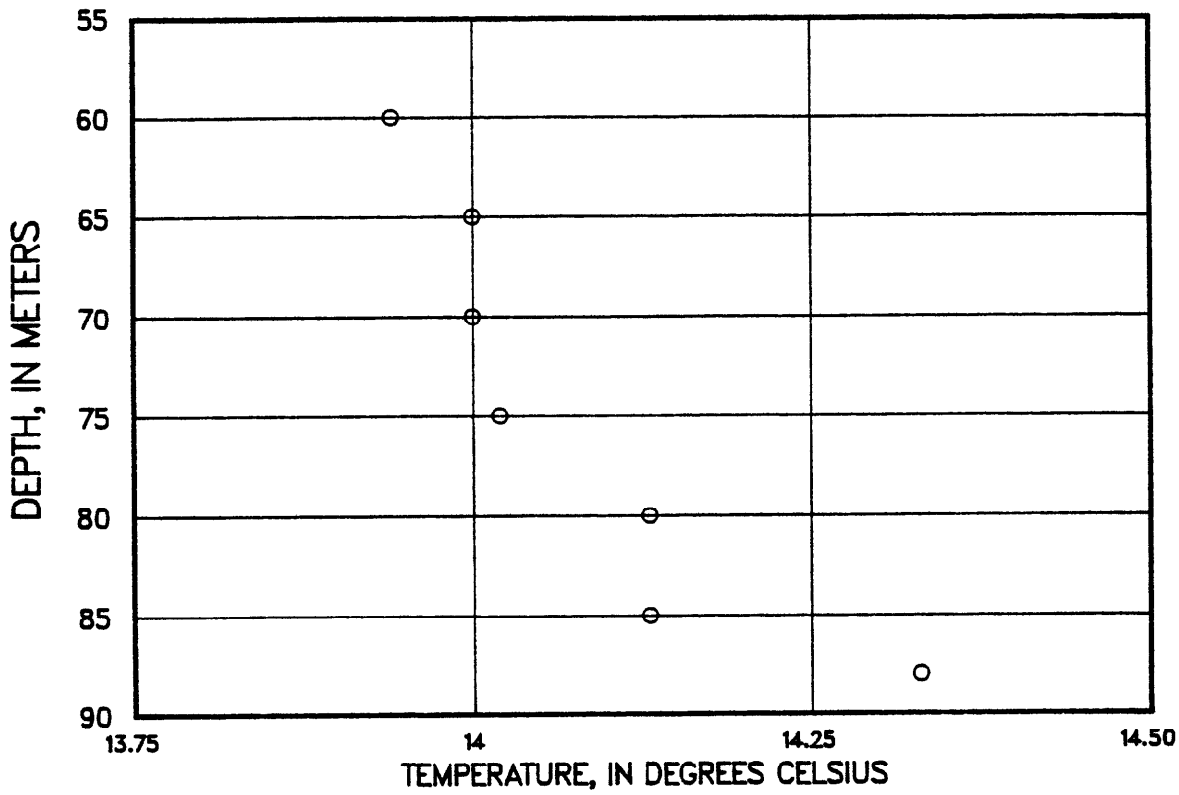

Fig. 123-Temperature profile from 4S-12E-10 SE.

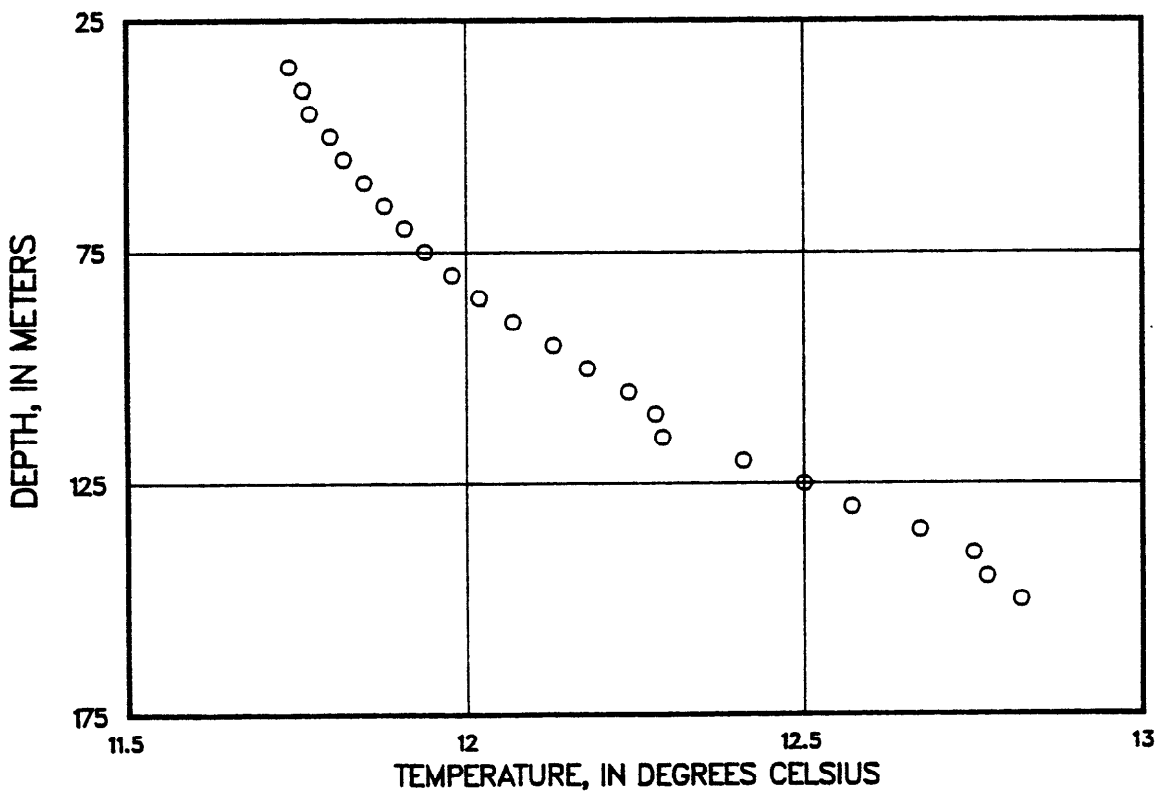

Fig. 124-Temperature profile from 4S-12E-17 NW.

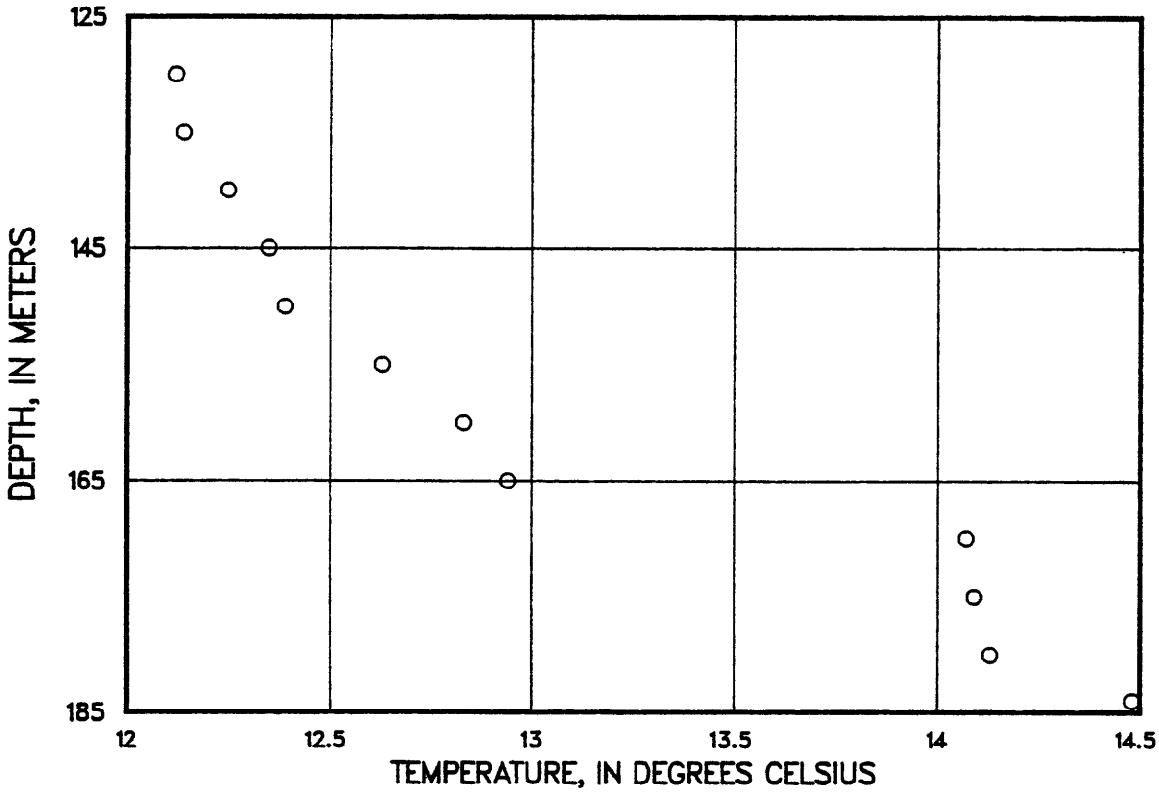

Fig. 125-Temperature profile from 4S-12E-17 SW.

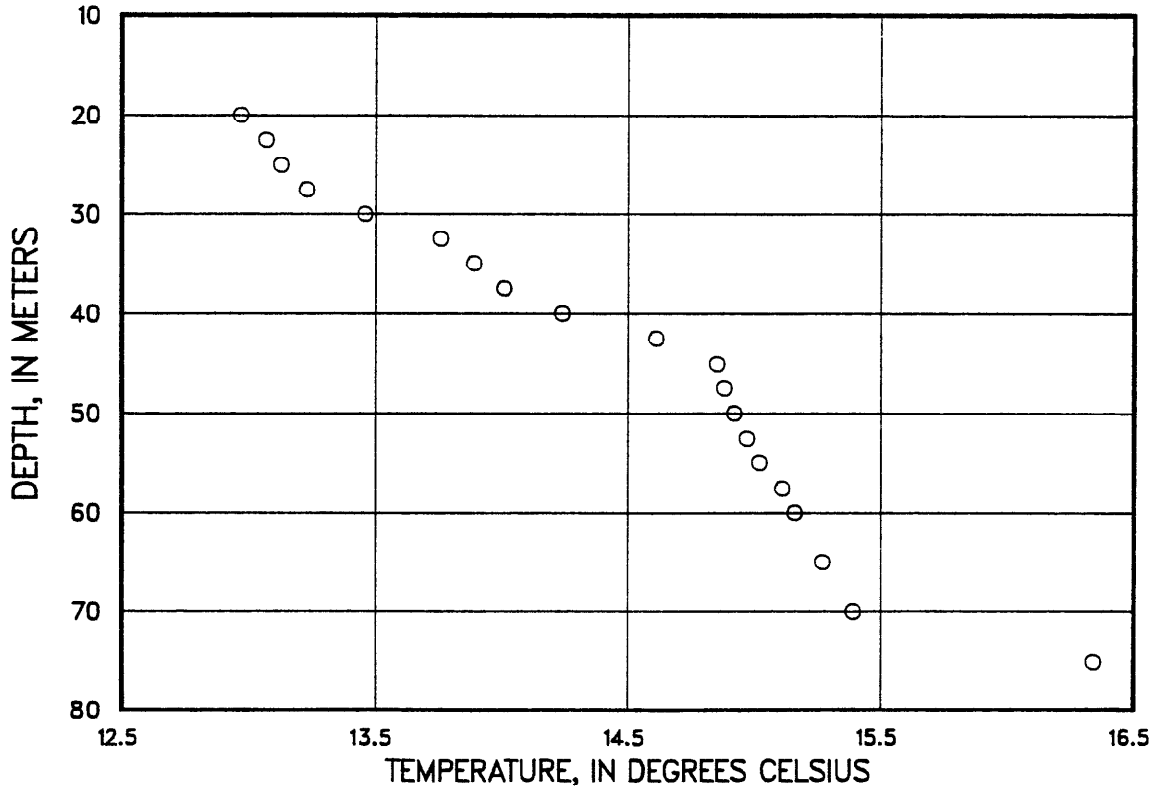

Fig. 126-Temperature profile from 4S-13E-01 SW.

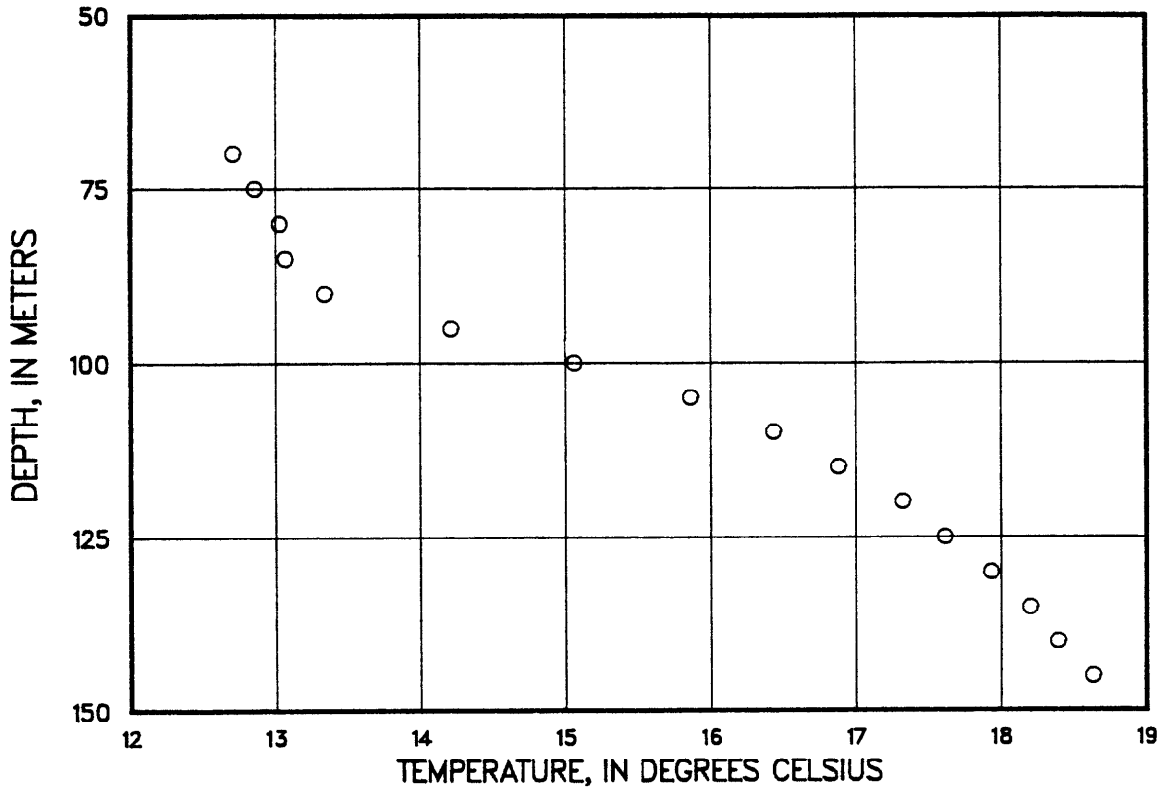

Fig. 127-Temperature profile from 4S-13E-32 SE.

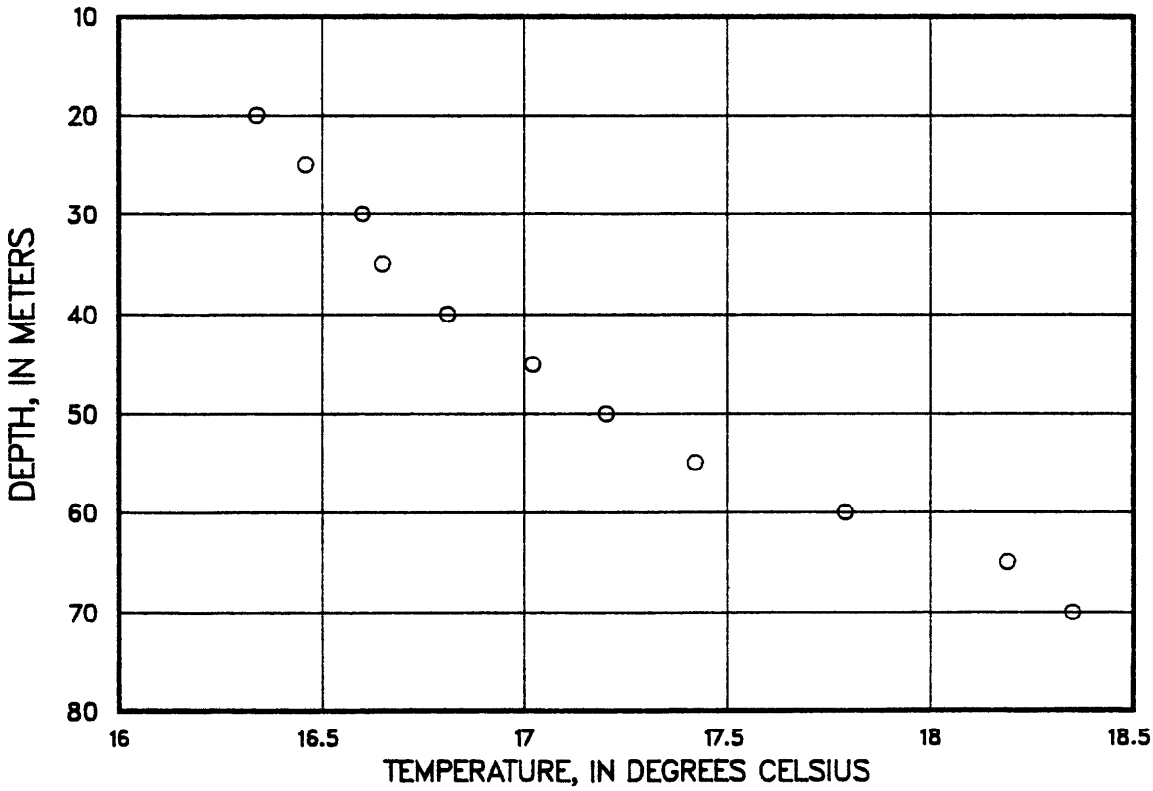

Fig. 128-Temperature profile from 4S-14E-33 SW.

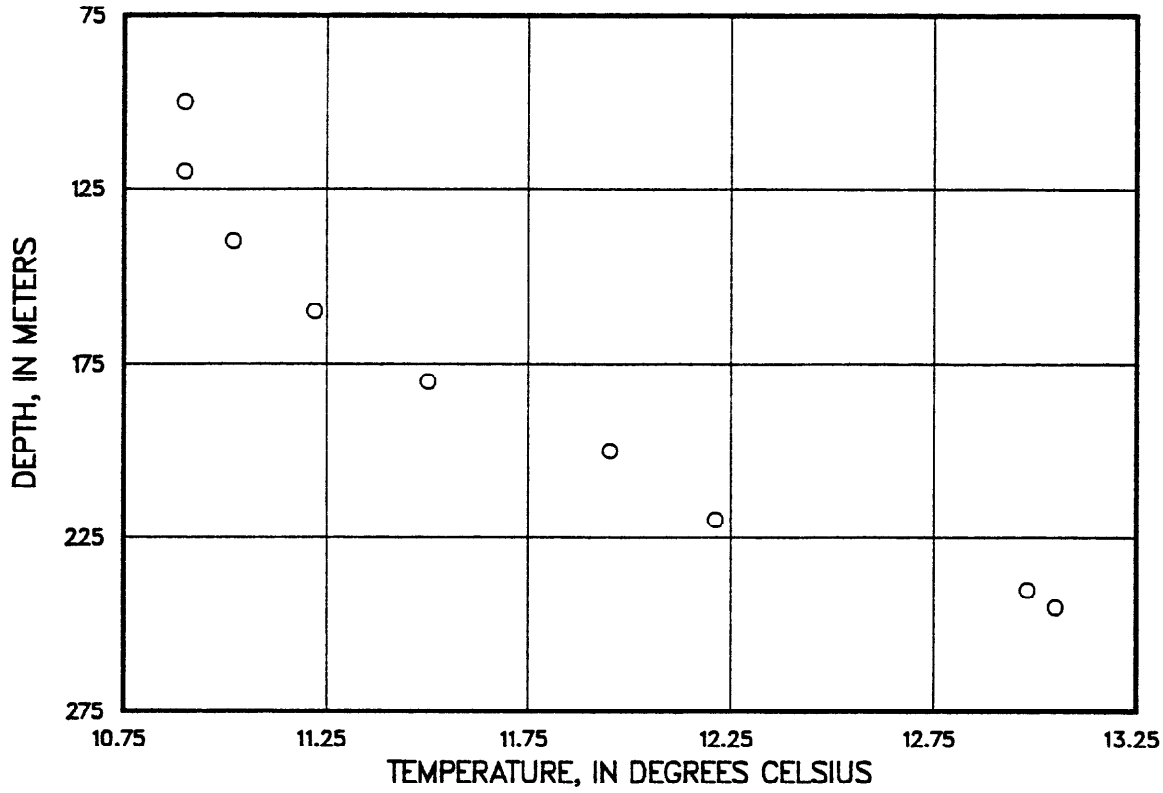

Fig. 129-Temperature profile from 5S-11E-14 SE.

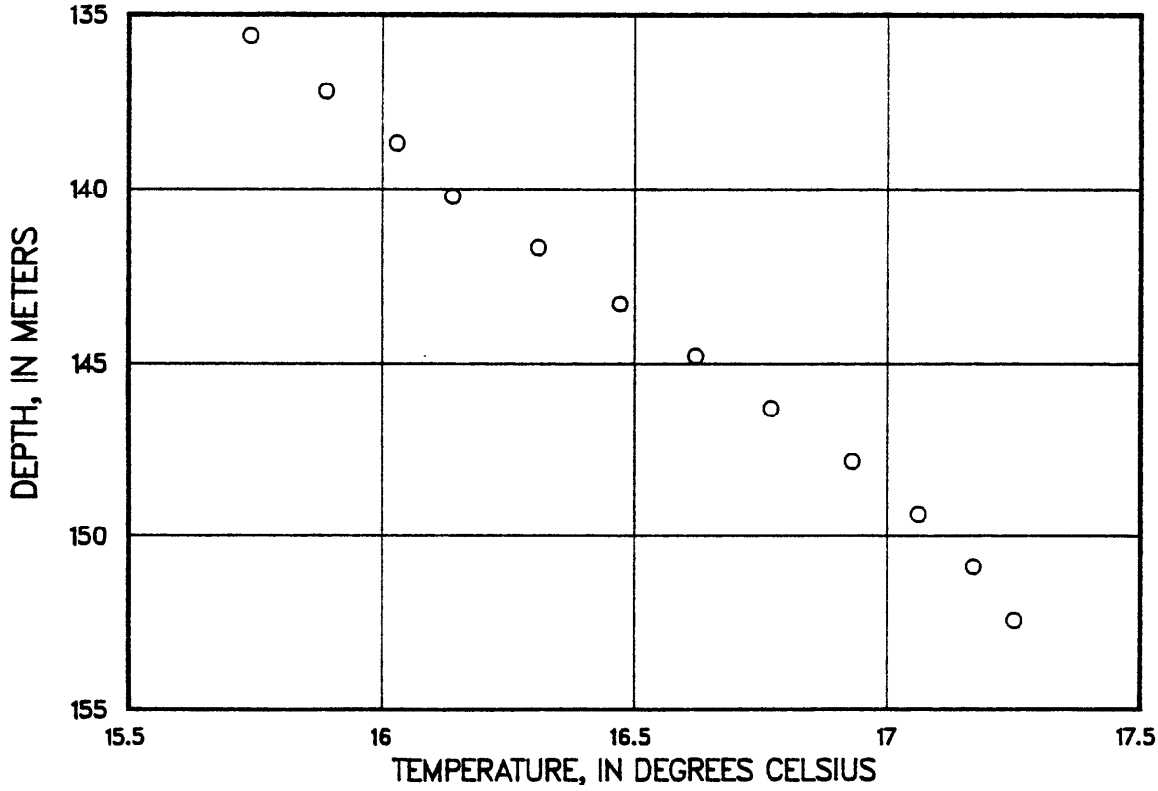

Fig. 130-Temperature profile from 5S-11E-25 SE.

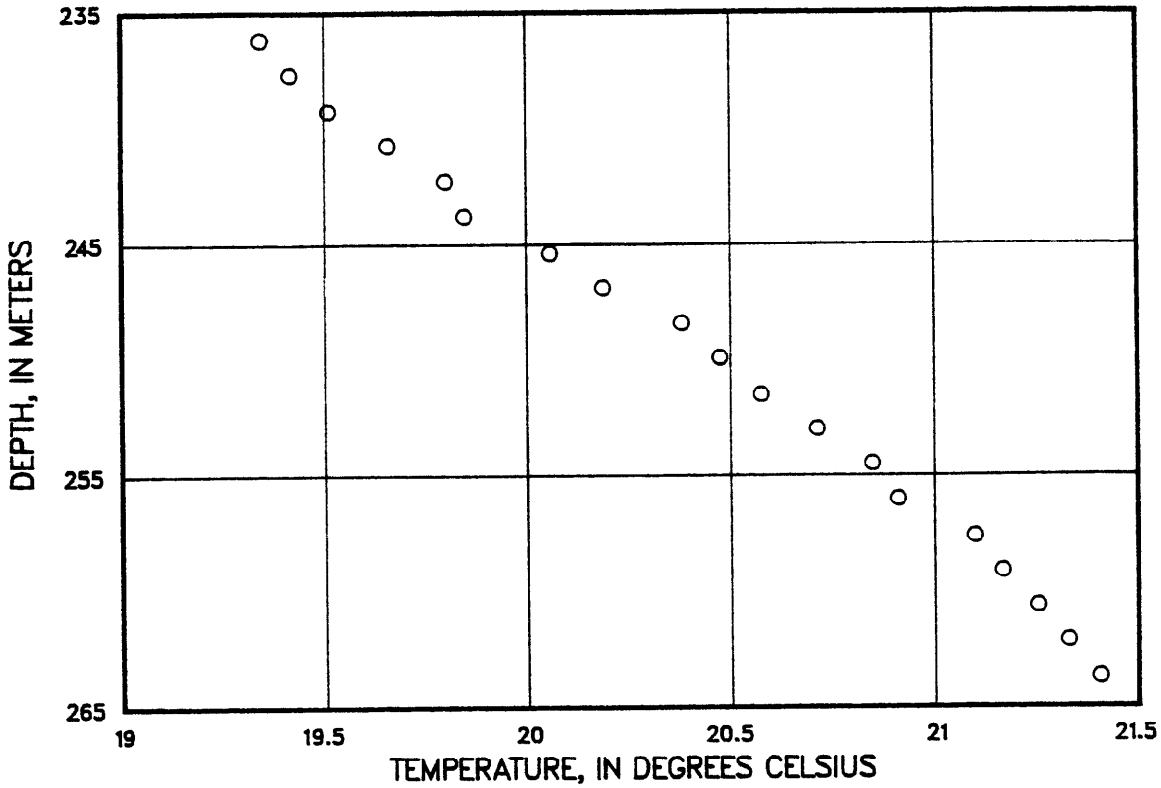

Fig. 131-Temperature profile from 5S-11E-26 NE.

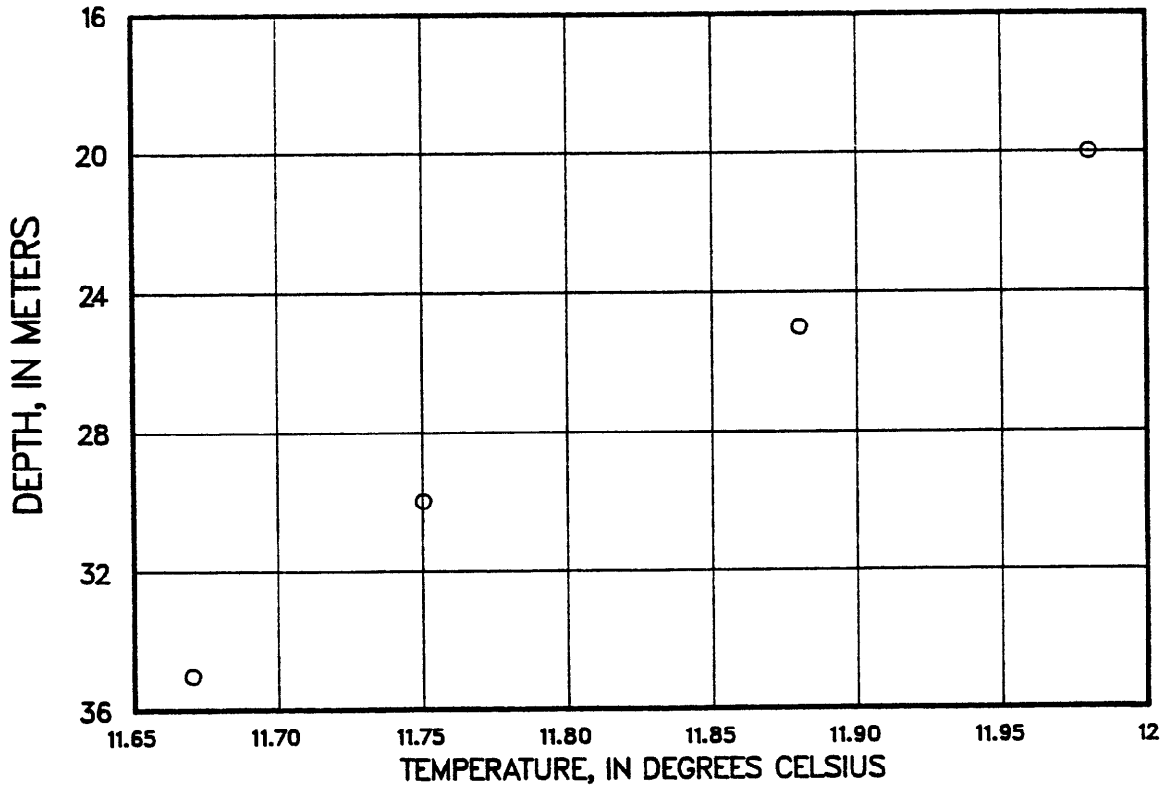

Fig. 132-Temperature profile from 5S-12E-08 NW.

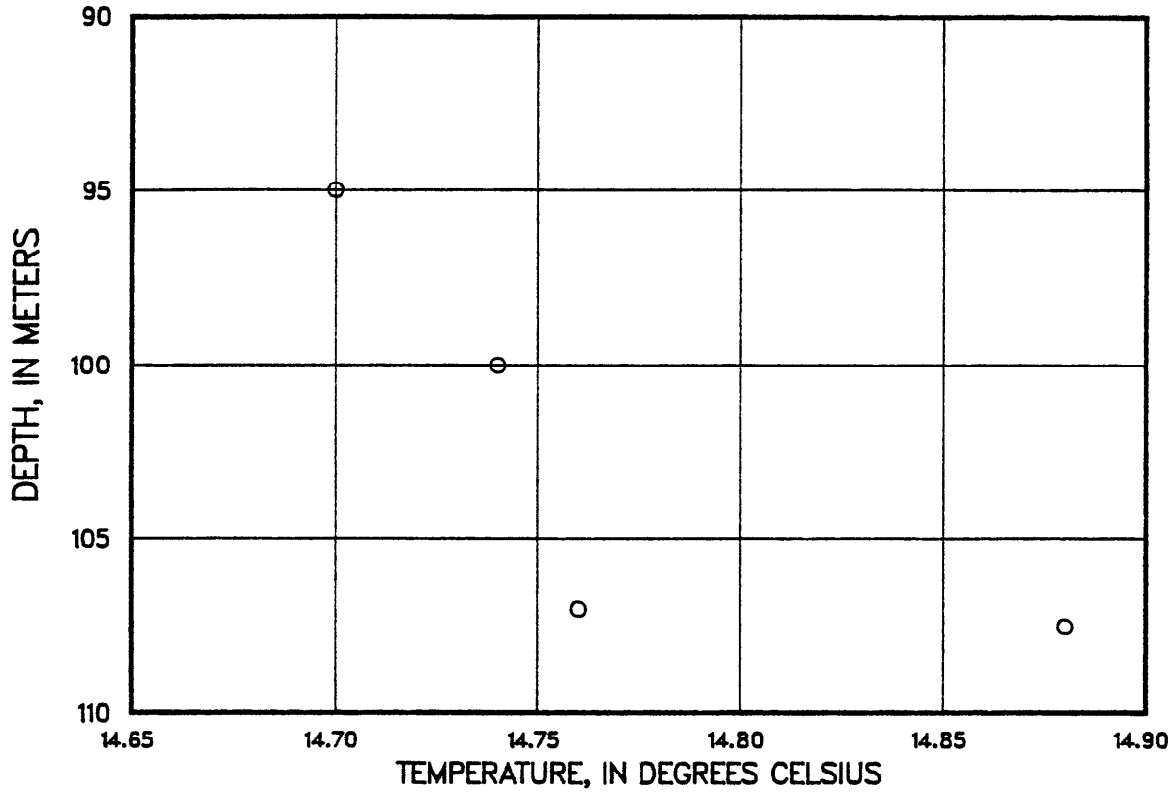

Fig. 133-Temperature profile from 5S-12E-31 NE.

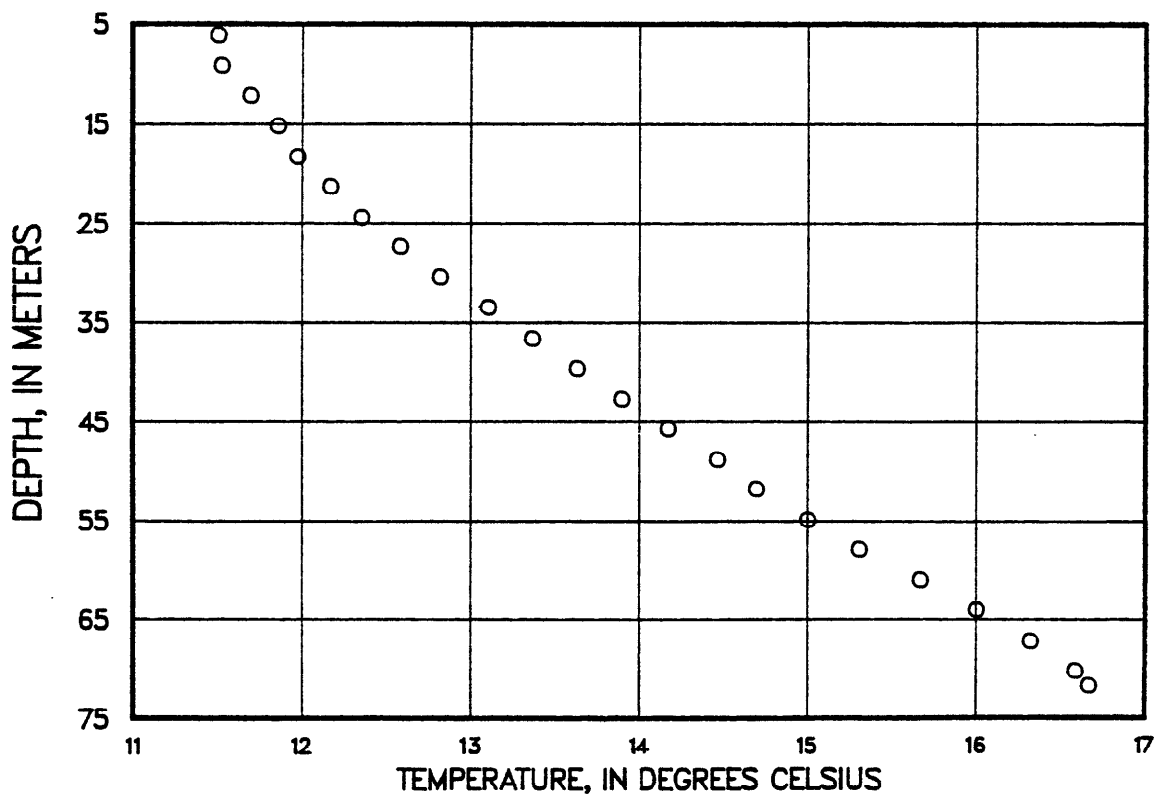

Fig. 134-Temperature profile from 6S-11E-11 SW.

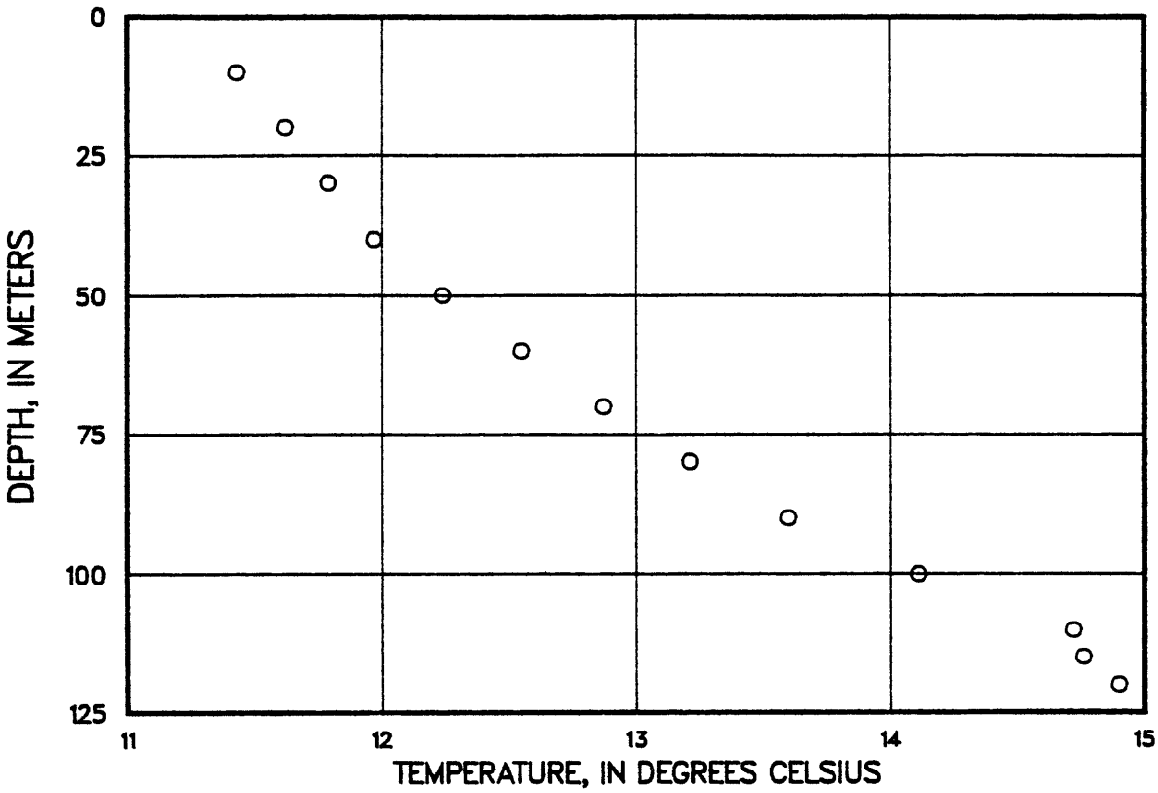

Fig. 135-Temperature profile from 6S-14E-13 SE.

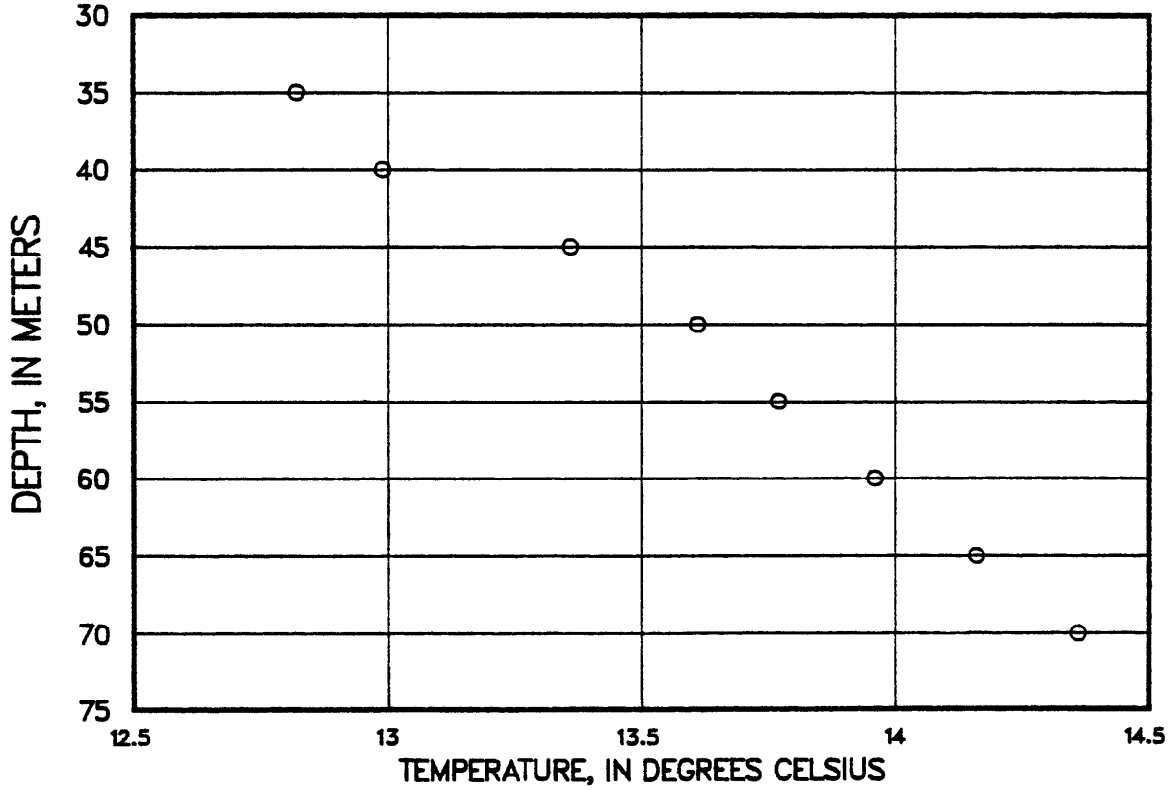

Fig. 136-Temperature profile from 6S-15E-05 NW.

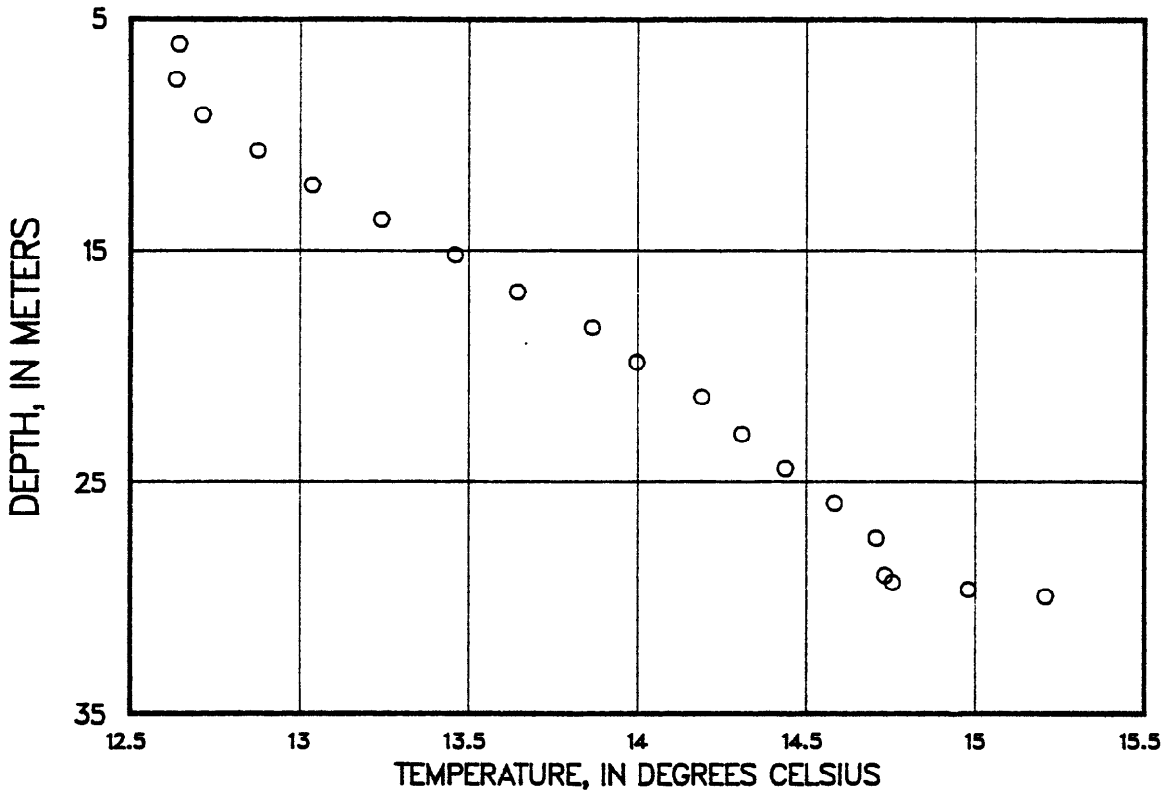

Fig. 137-Temperature profile from 7S-11E-14 SW.

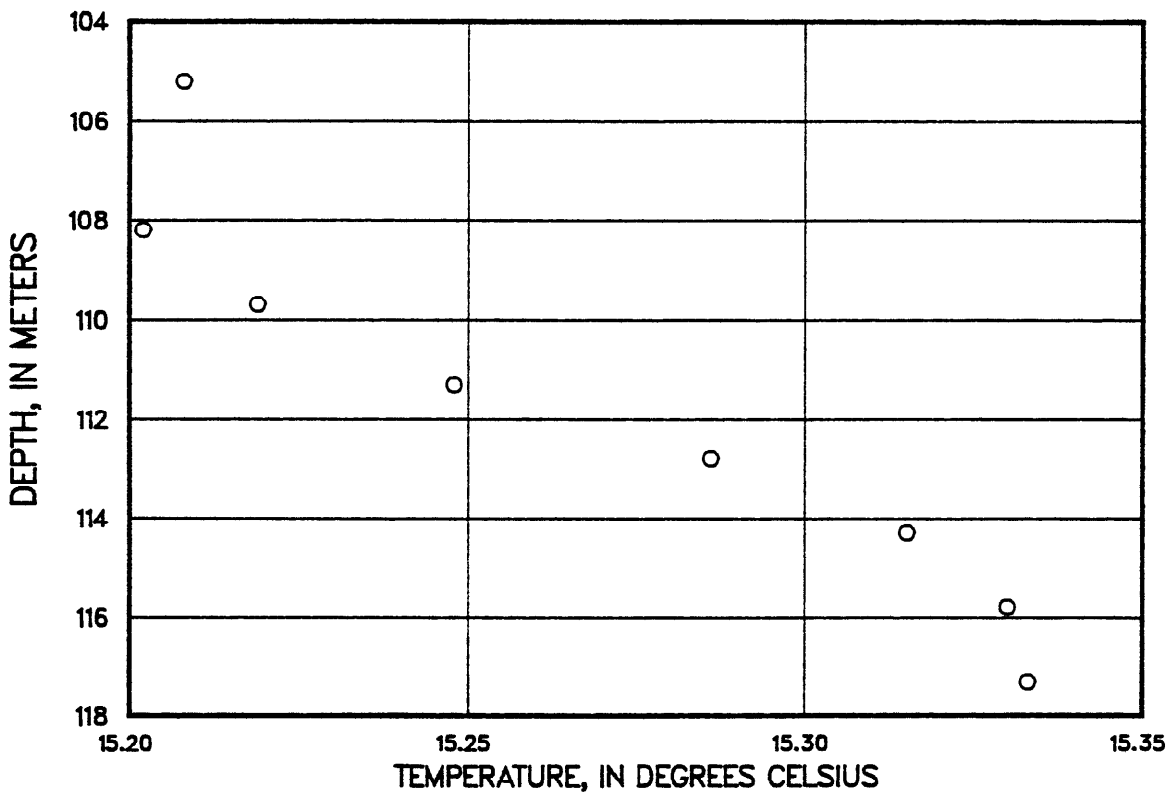

Fig. 138-Temperature profile from 7S-11E-15 SE.

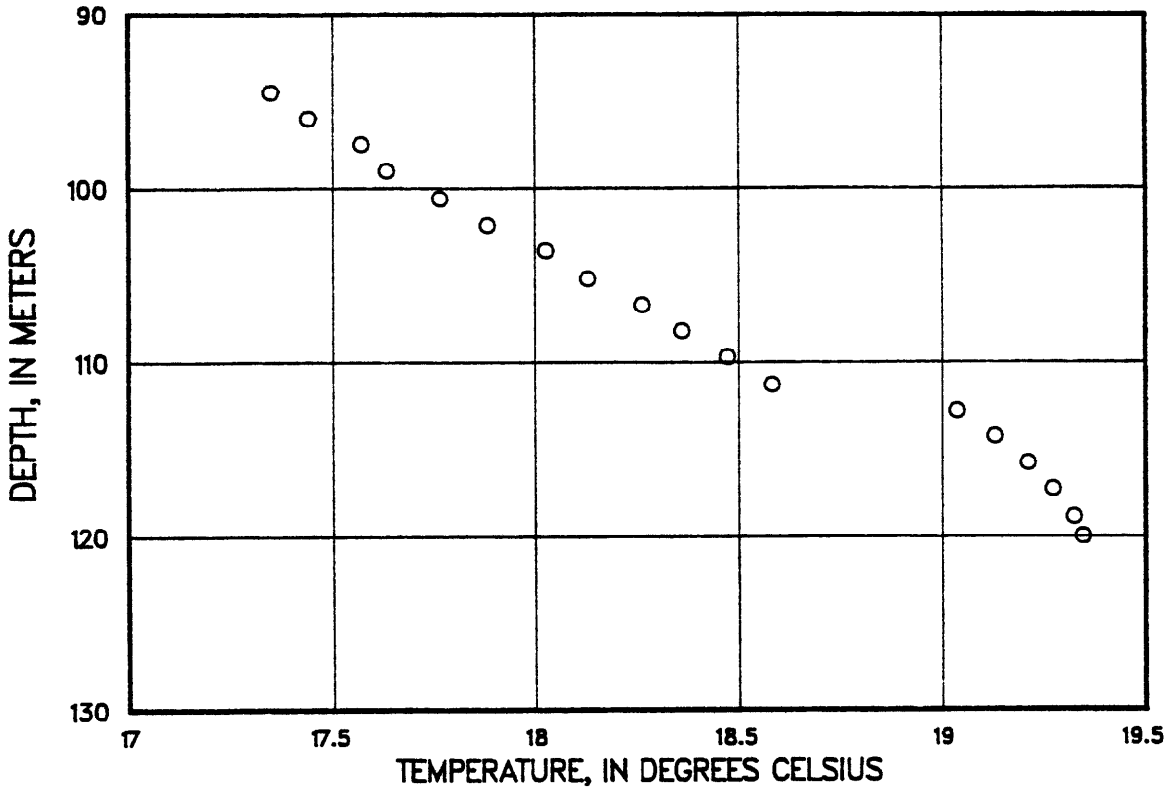

Fig. 139-Temperature profile from 7S-12E-29 SW.

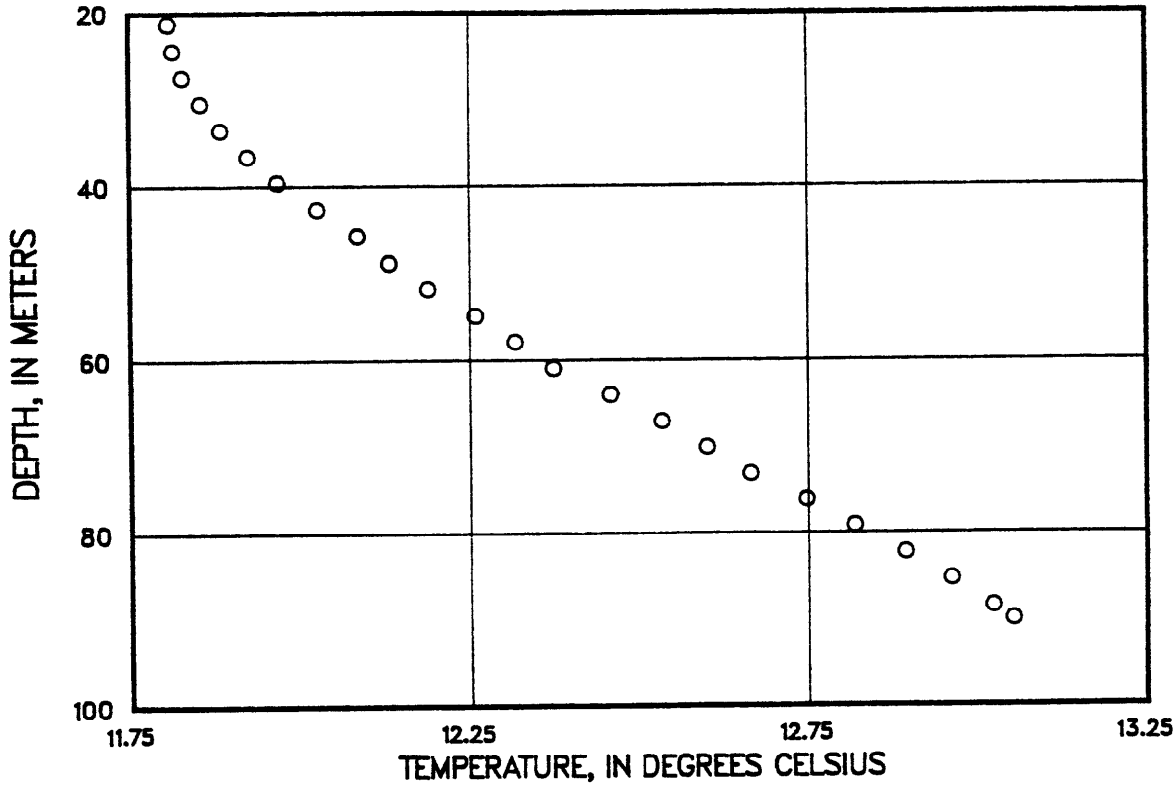

Fig. 140-Temperature profile from 8S-12E-03 NE.

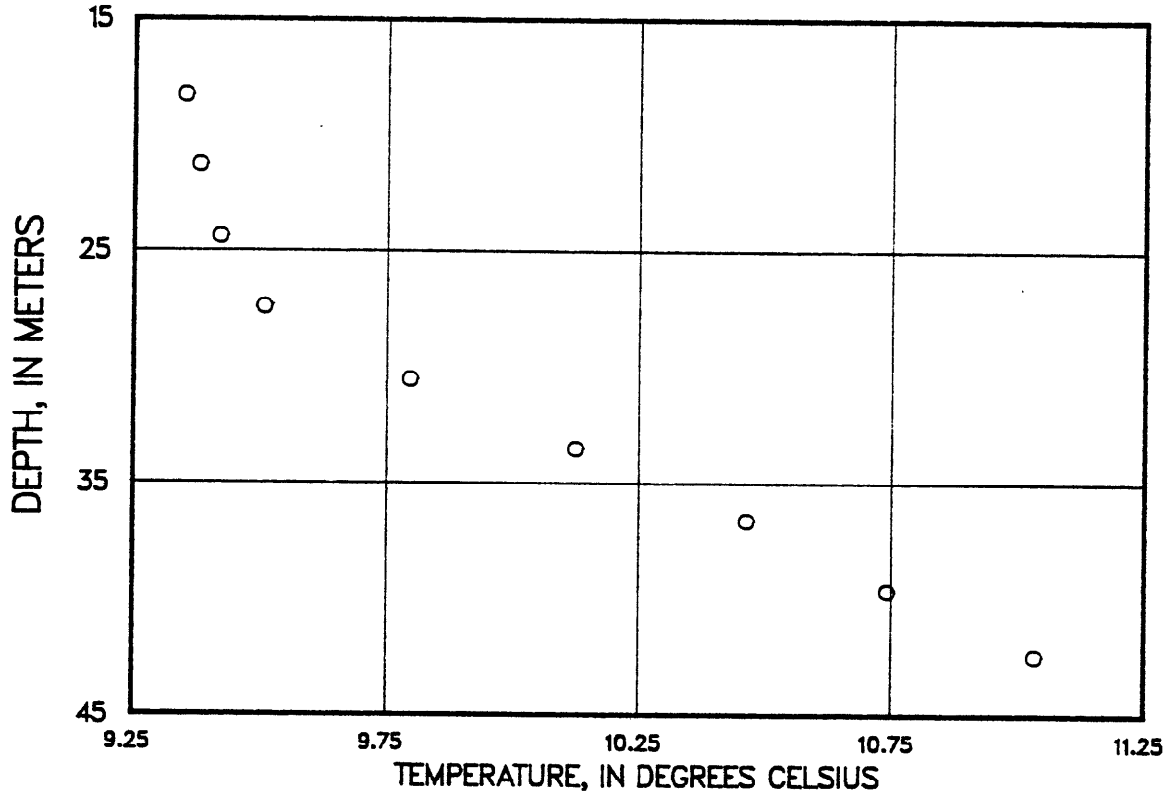

Fig. 141-Temperature profile from 8S-12E-03 SW.

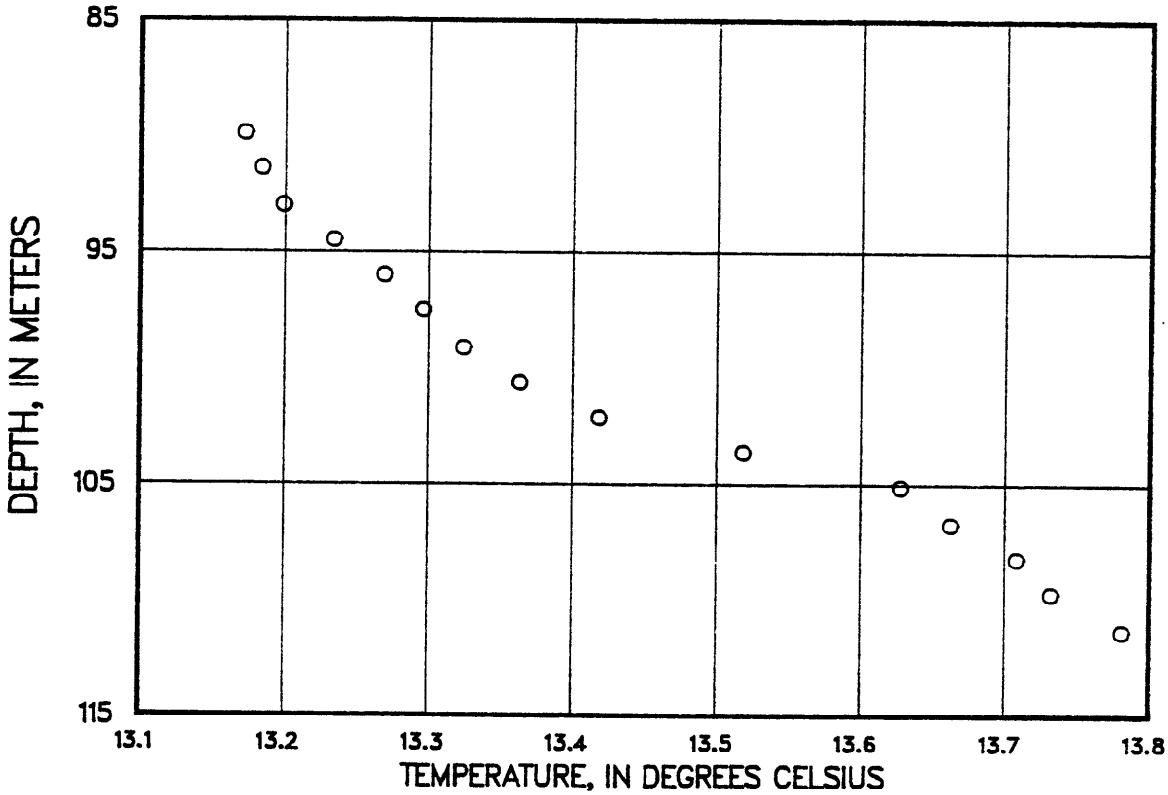

Fig. 142-Temperature profile from 9S-11E-02 NW.

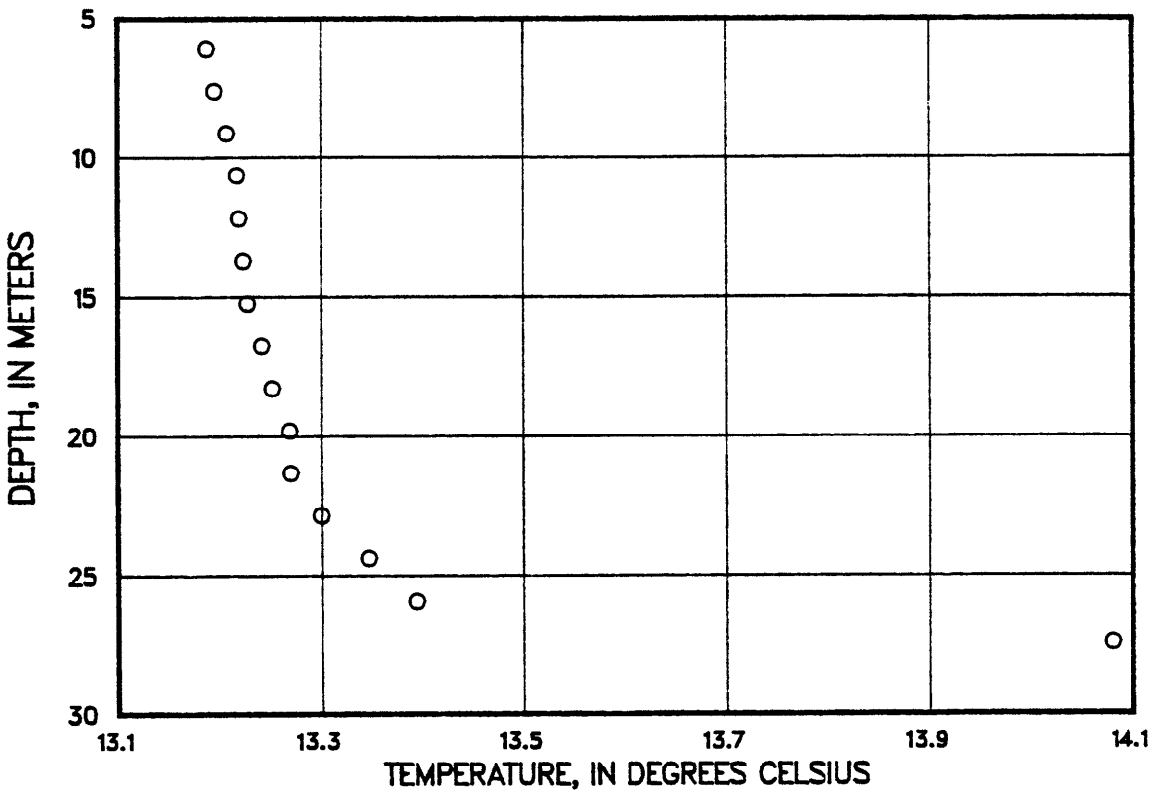

Fig. 143-Temperature profile from 9S-12E-14 SE.

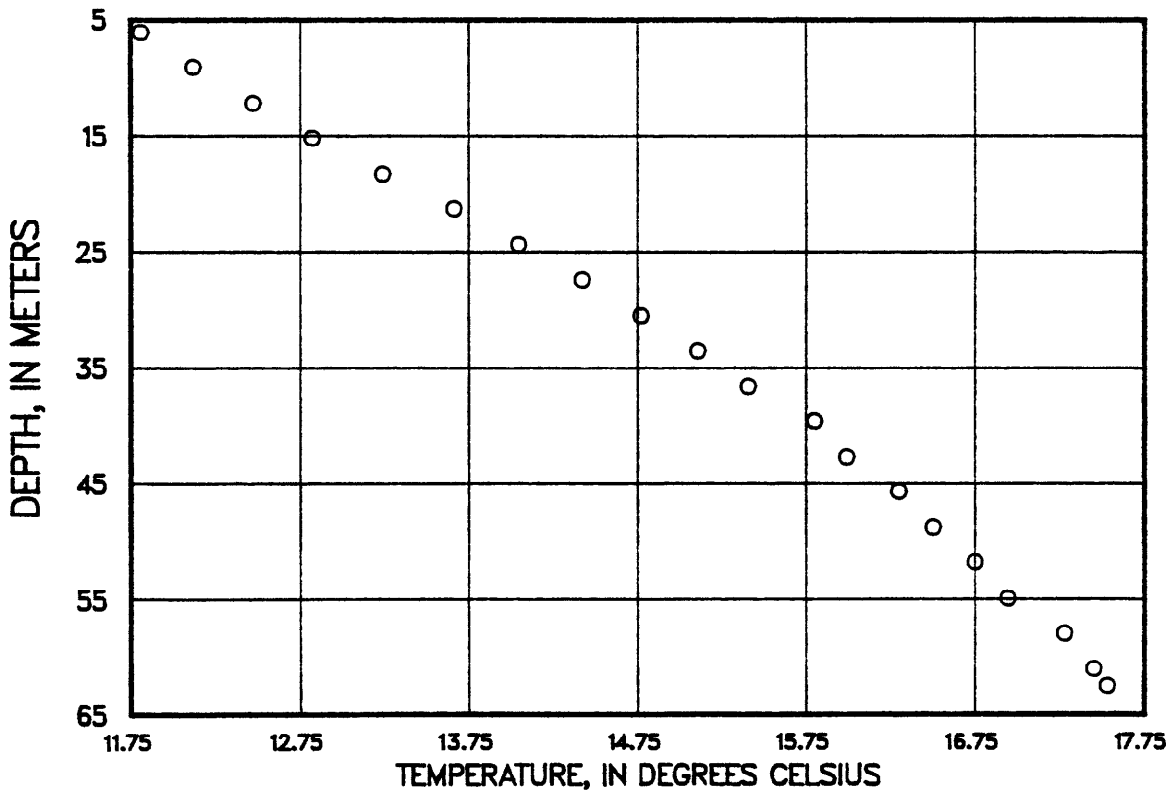

Fig. 144-Temperature profile from 9S-12E-31 SW.

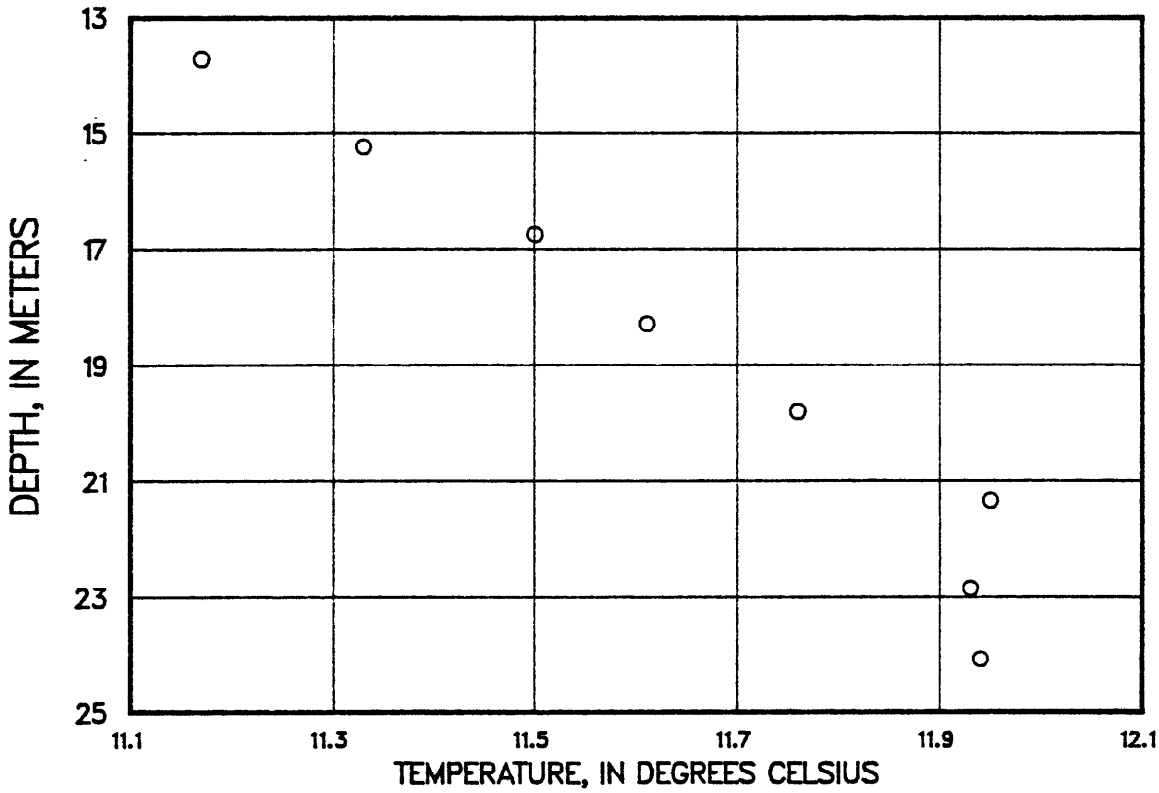

Fig. 145-Temperature profile from 9S-12E-34 SW.

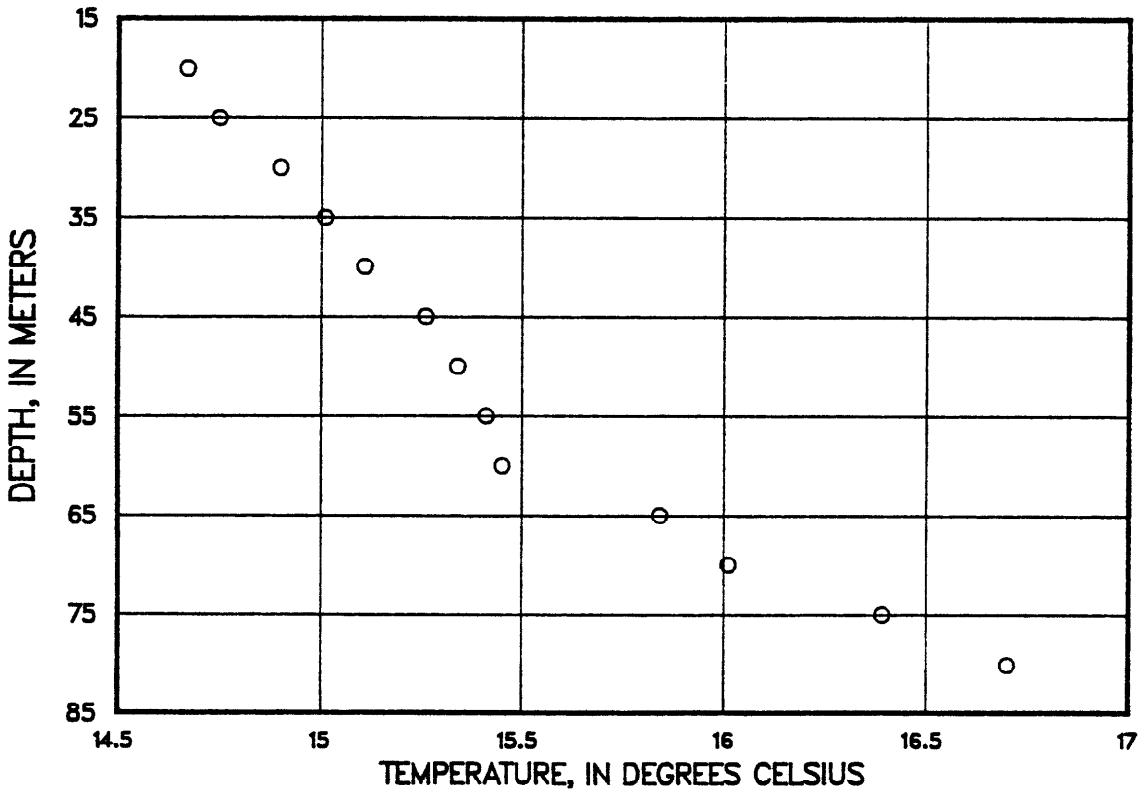

Fig. 146-Temperature profile from 9S-14E-23 NW.

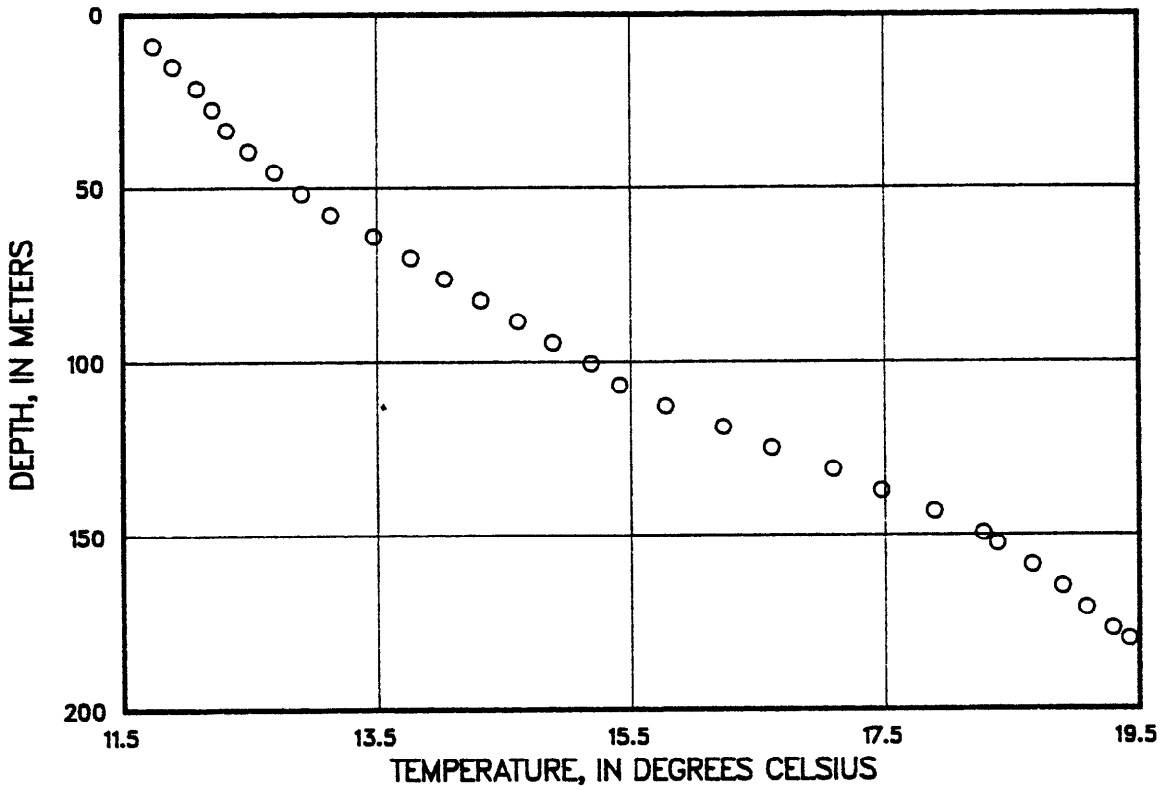

Fig. 147-Temperature profile from 9S-14E-30 SW.

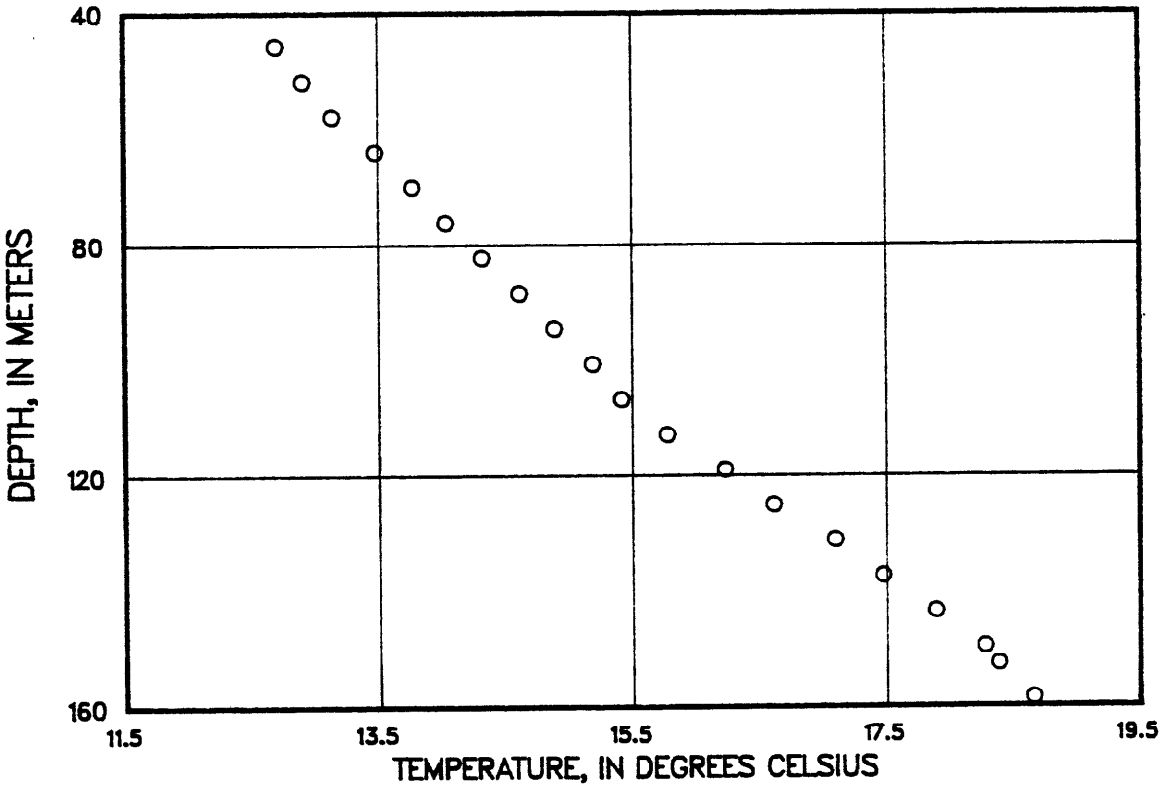

Fig. 148-Temperature profile from 11S-10E-05 NE.

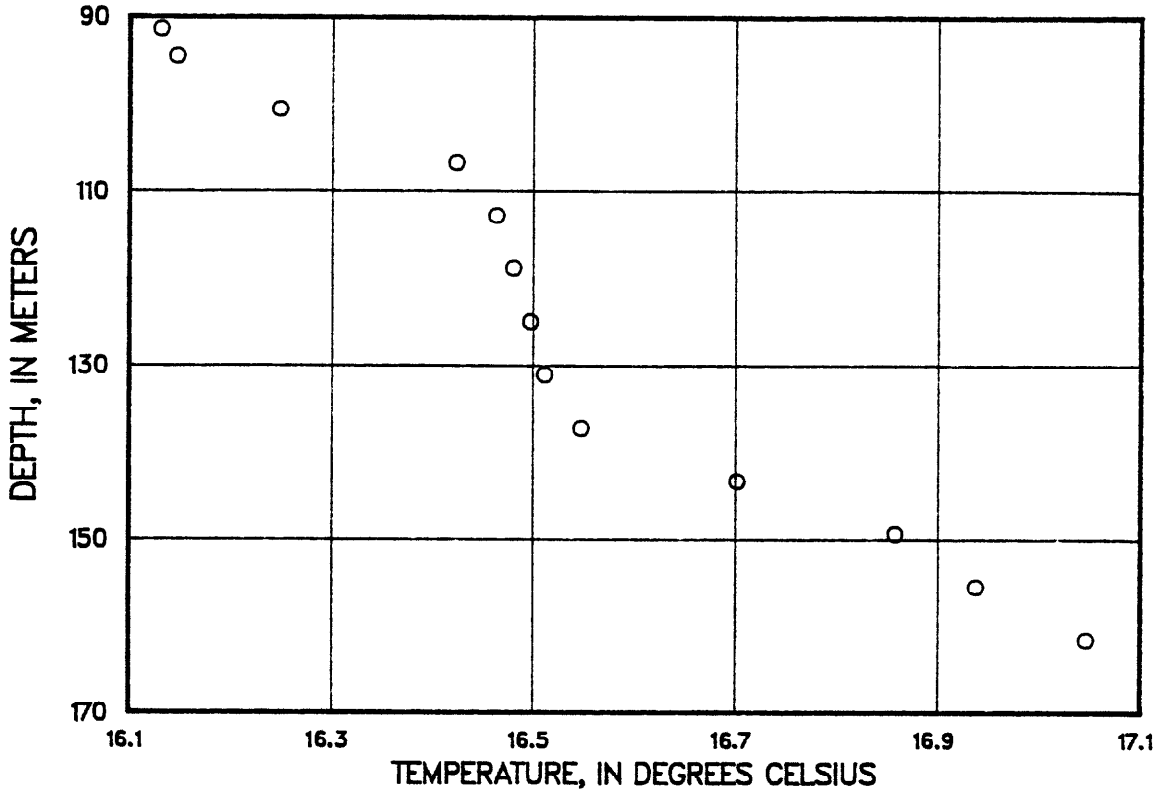

Fig. 149-Temperature profile from 11S-13E-01 NW.

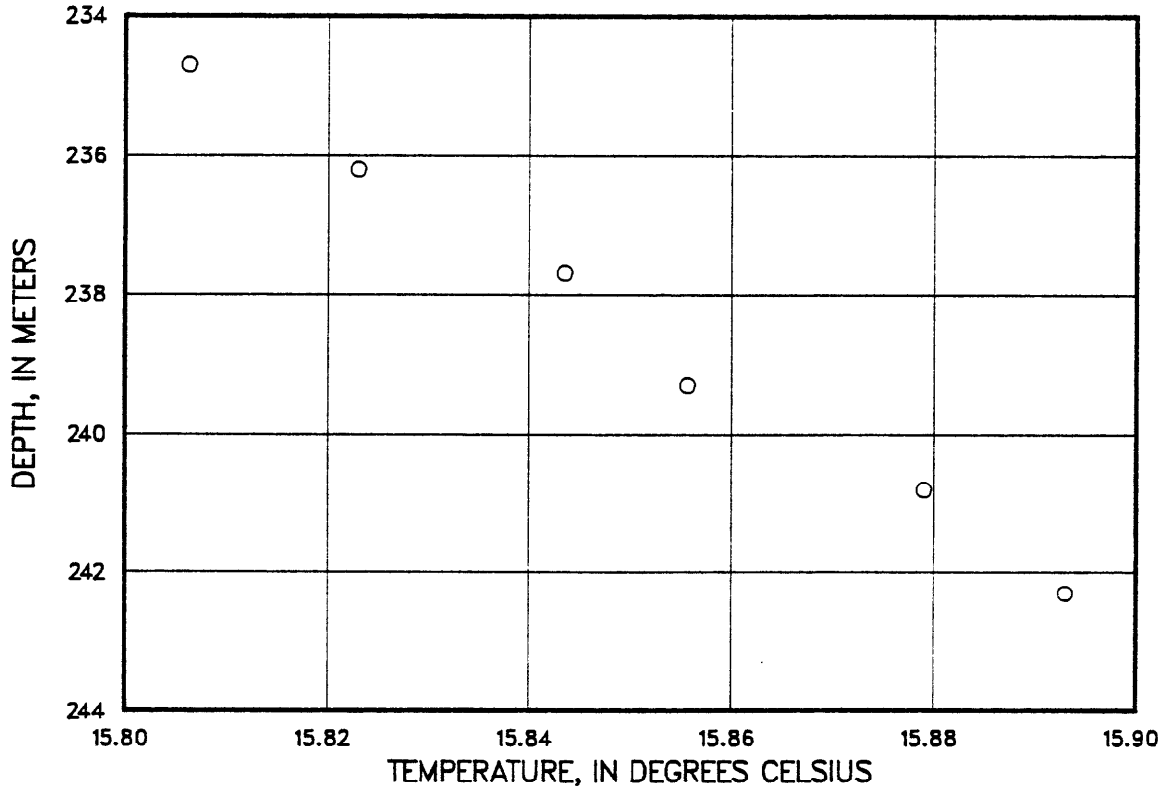

Fig. 150-Temperature profile from 11S-13E-07 SW.

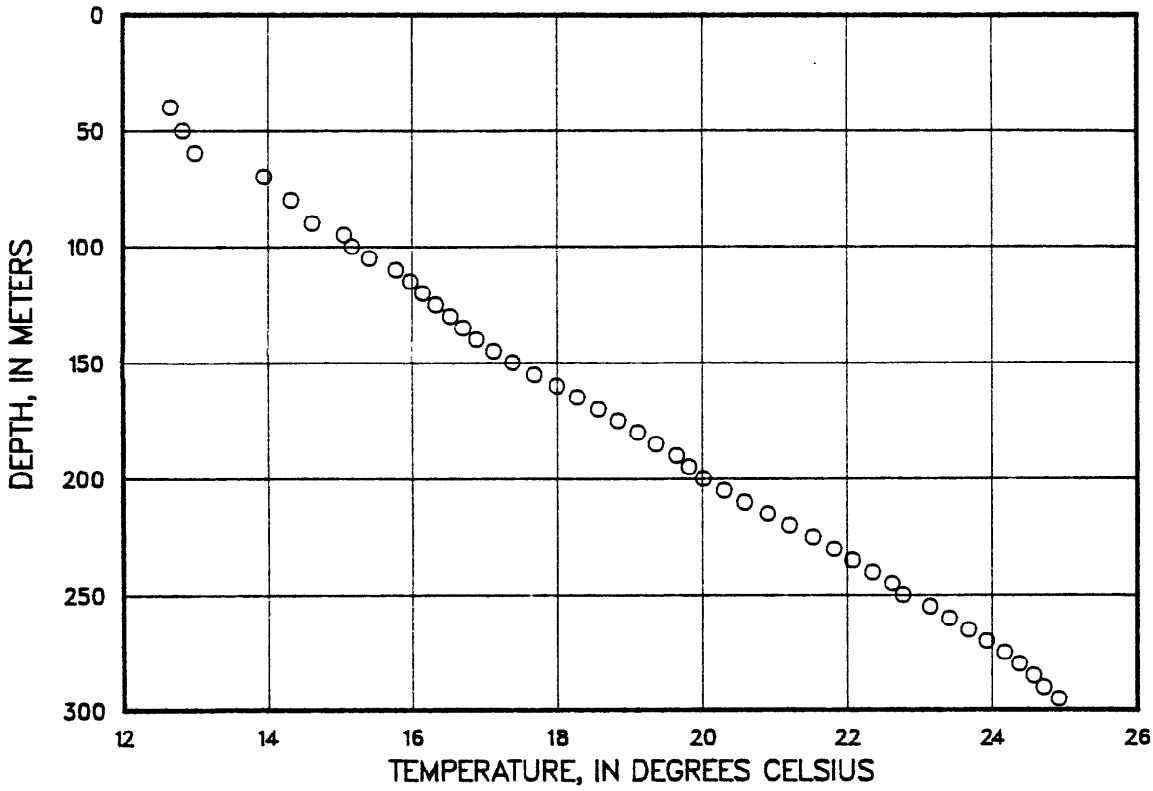

Fig. 151-Temperature profile from 11S-13E-24 NE.

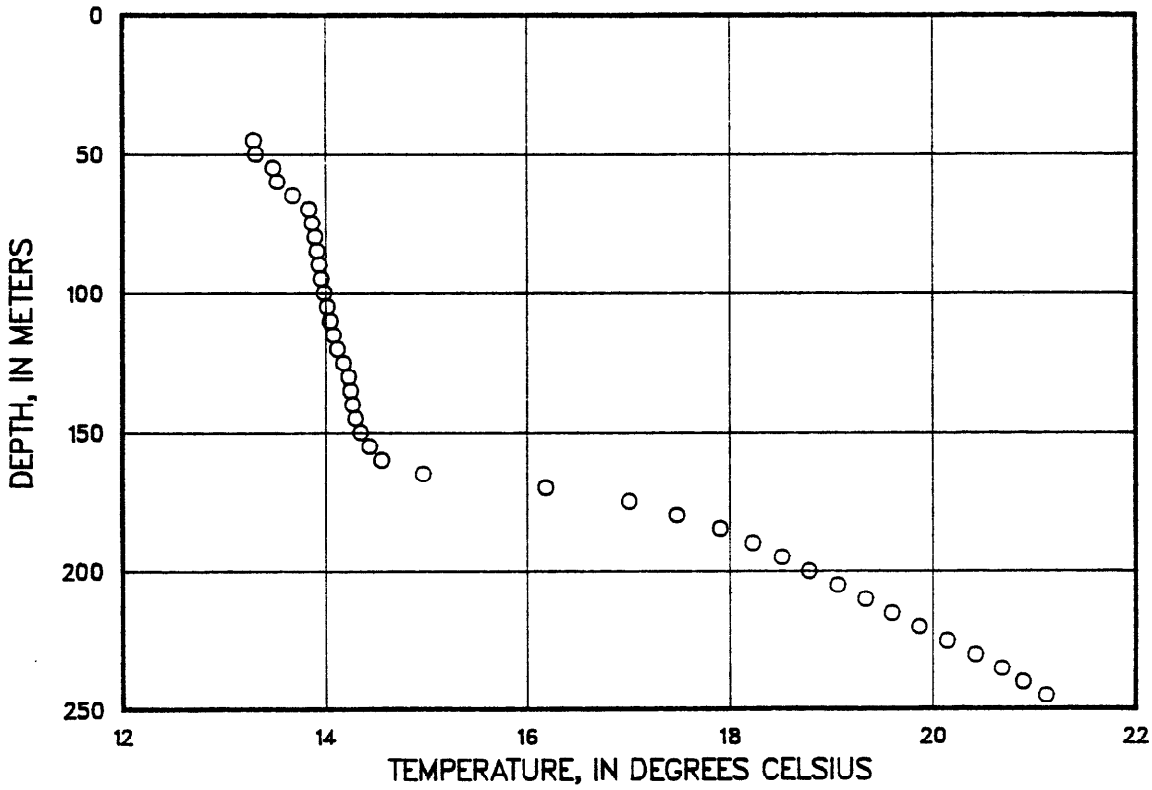

Fig. 152-Temperature profile from 11S-13E-24 NE.

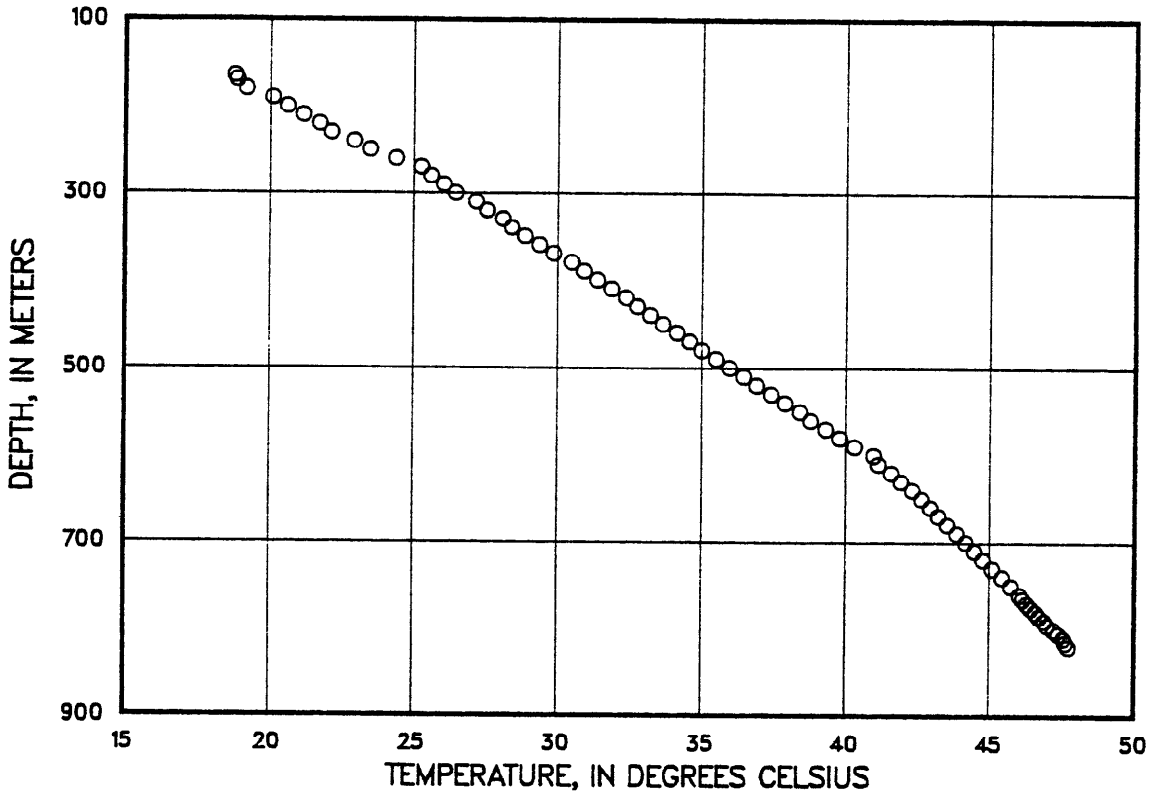

Fig. 153-Temperature profile from 11S-15E-22 SW.

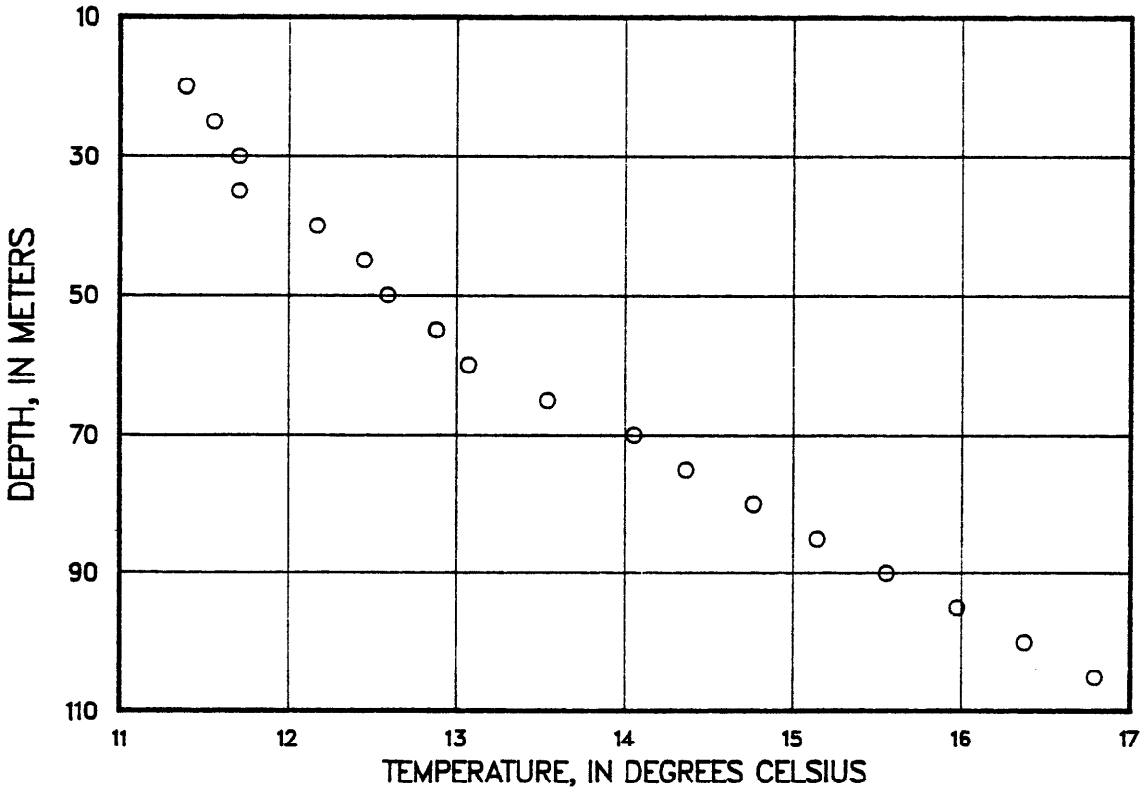

Fig. 154-Temperature profile from 12S-9E-01 NW.

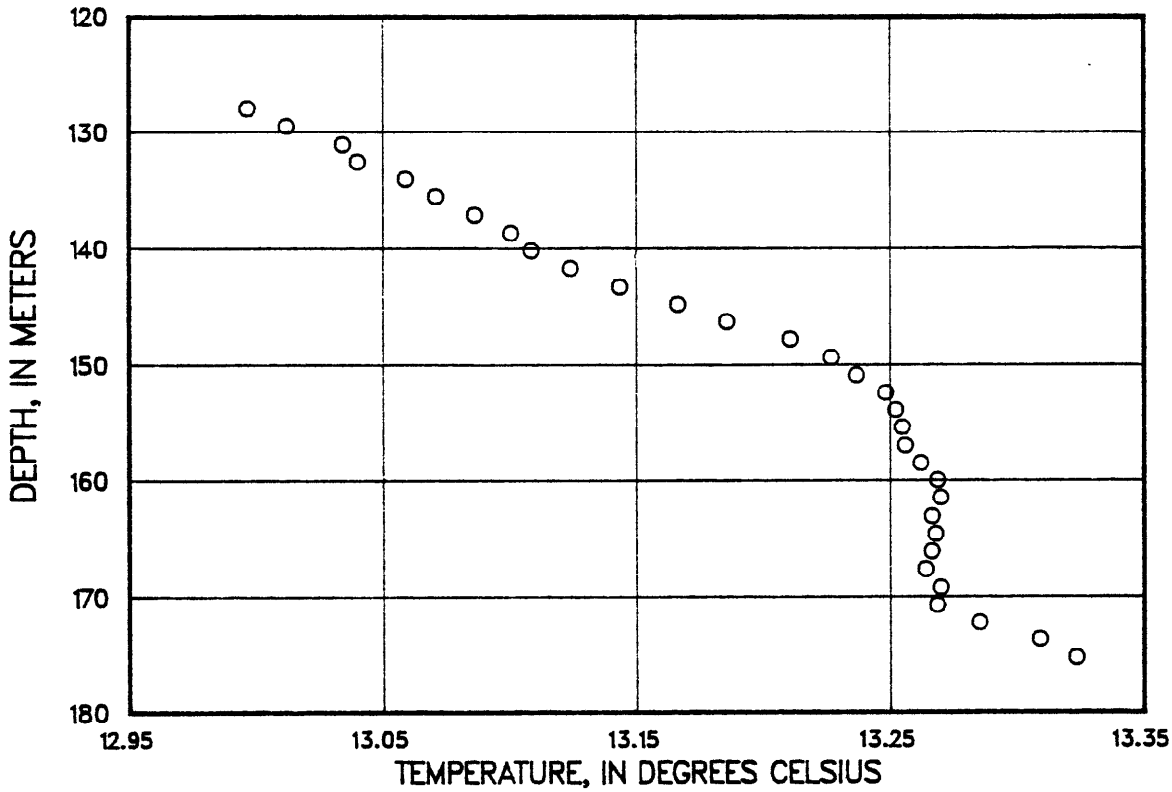

Fig. 155-Temperature profile from 12S-11E-02 SW.

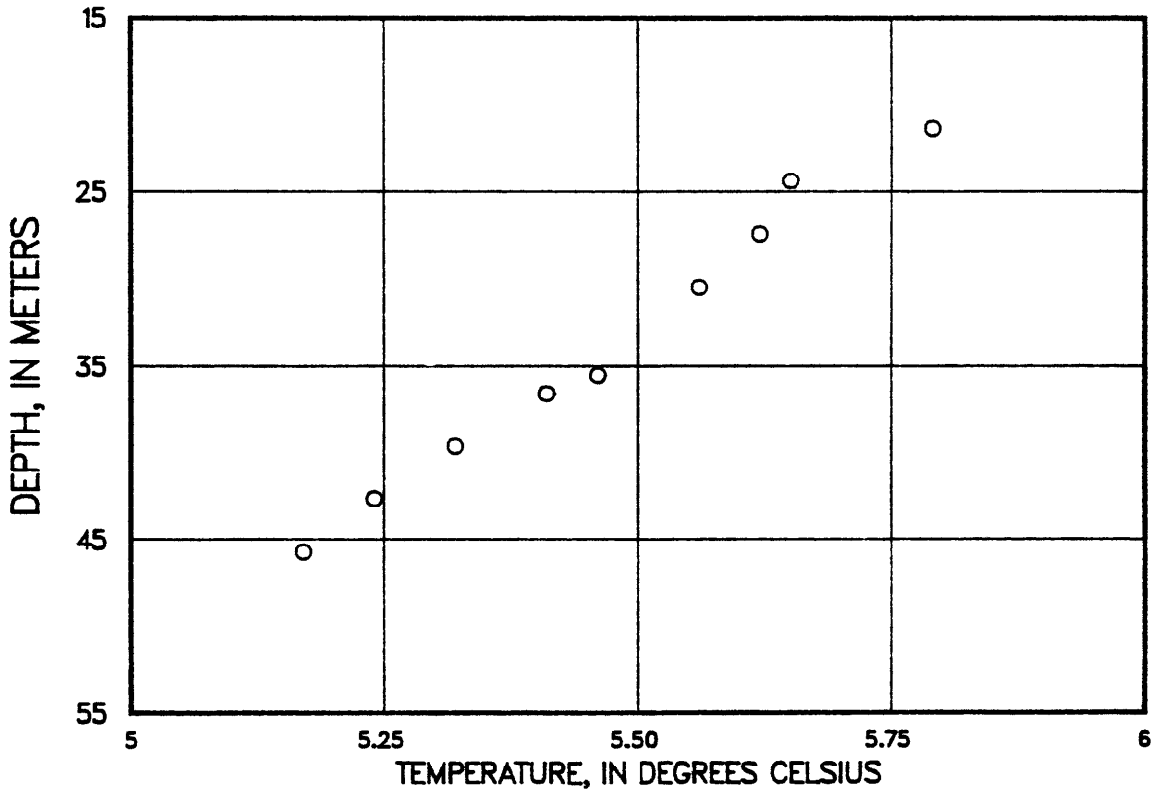

Fig. 156-Temperature profile from 13S-8E-27 SE.

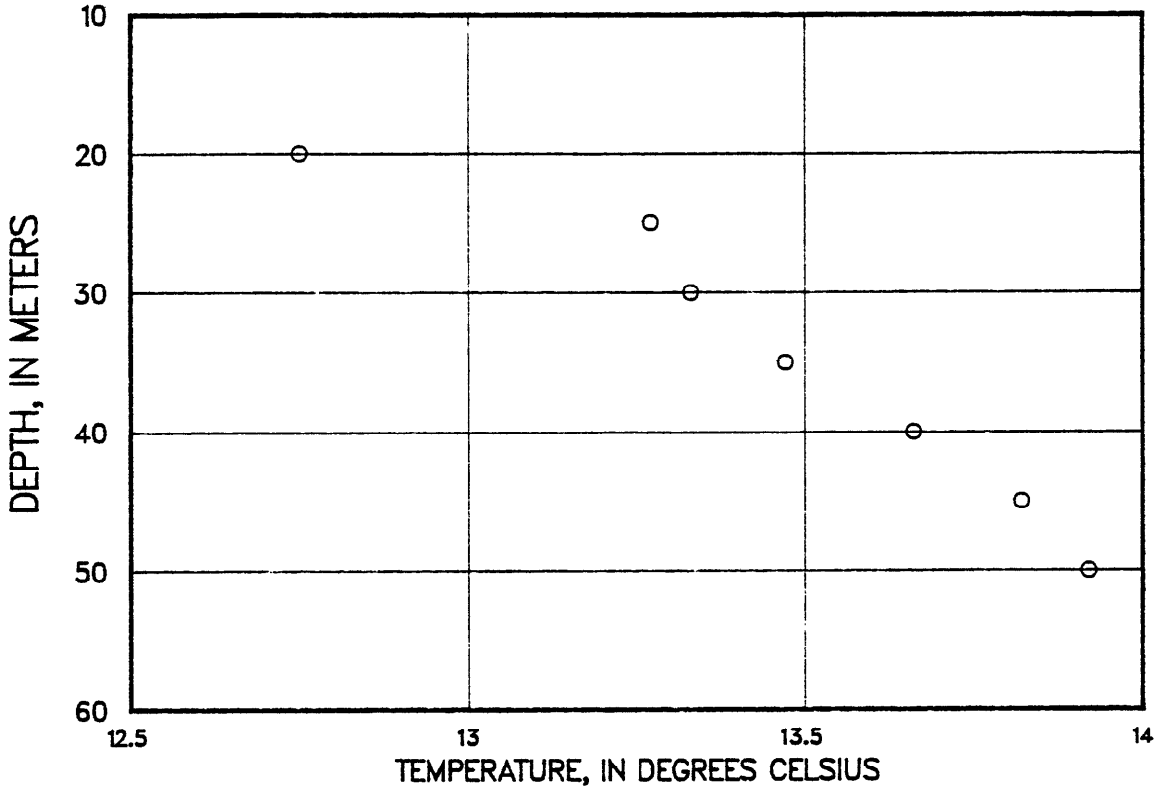

Fig. 157-Temperature profile from 13S-14E-11 SW.

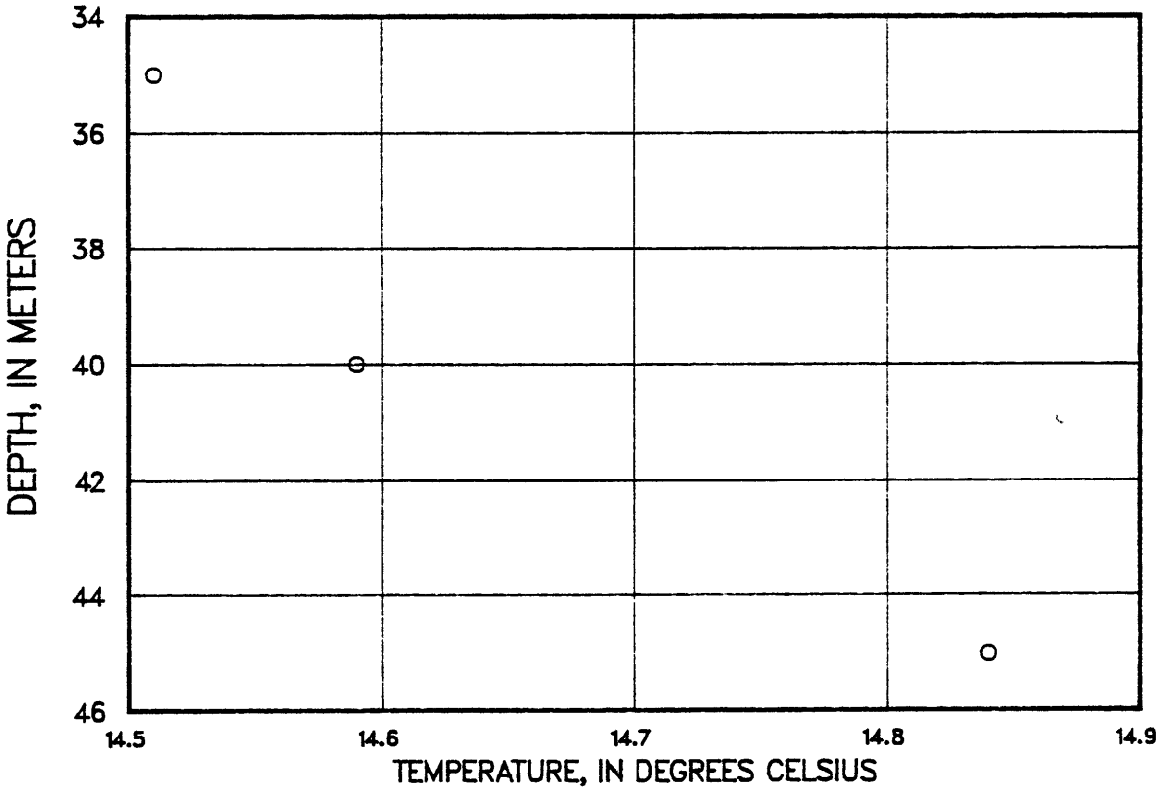

Fig. 158-Temperature profile from 13S-14E-11 SW.

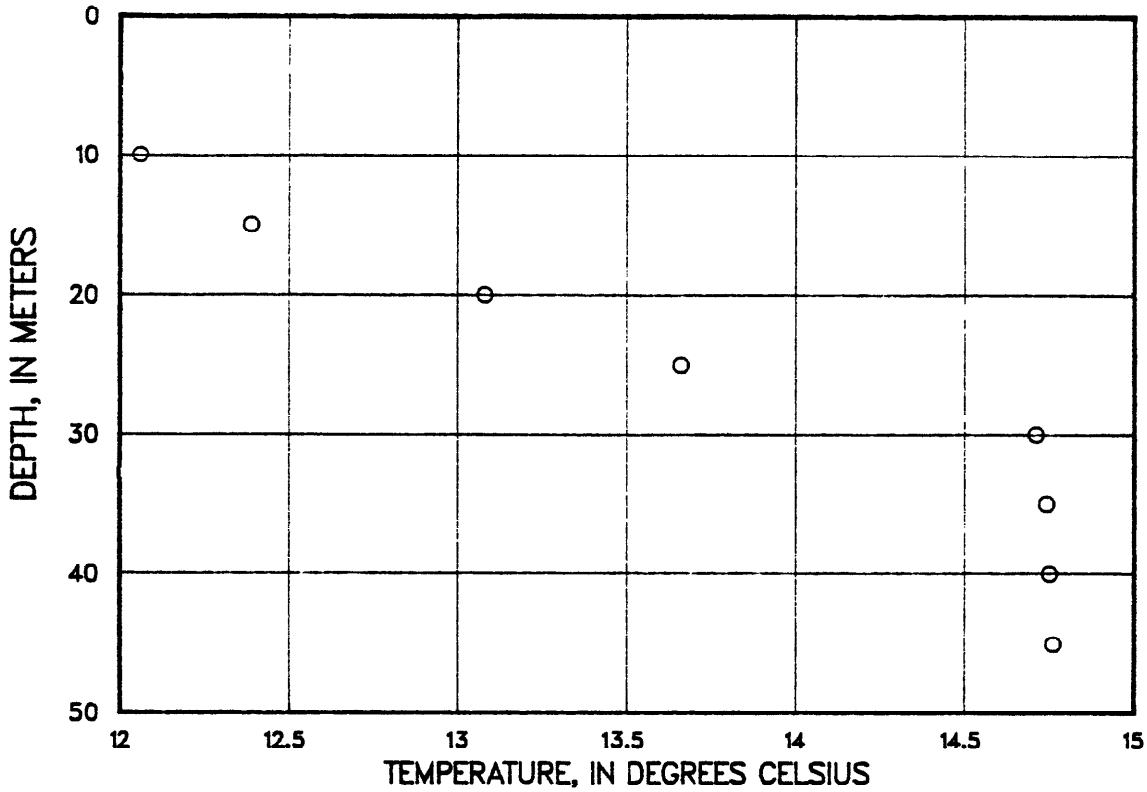

Fig. 159-Temperature profile from 13S-14E-11 SW.

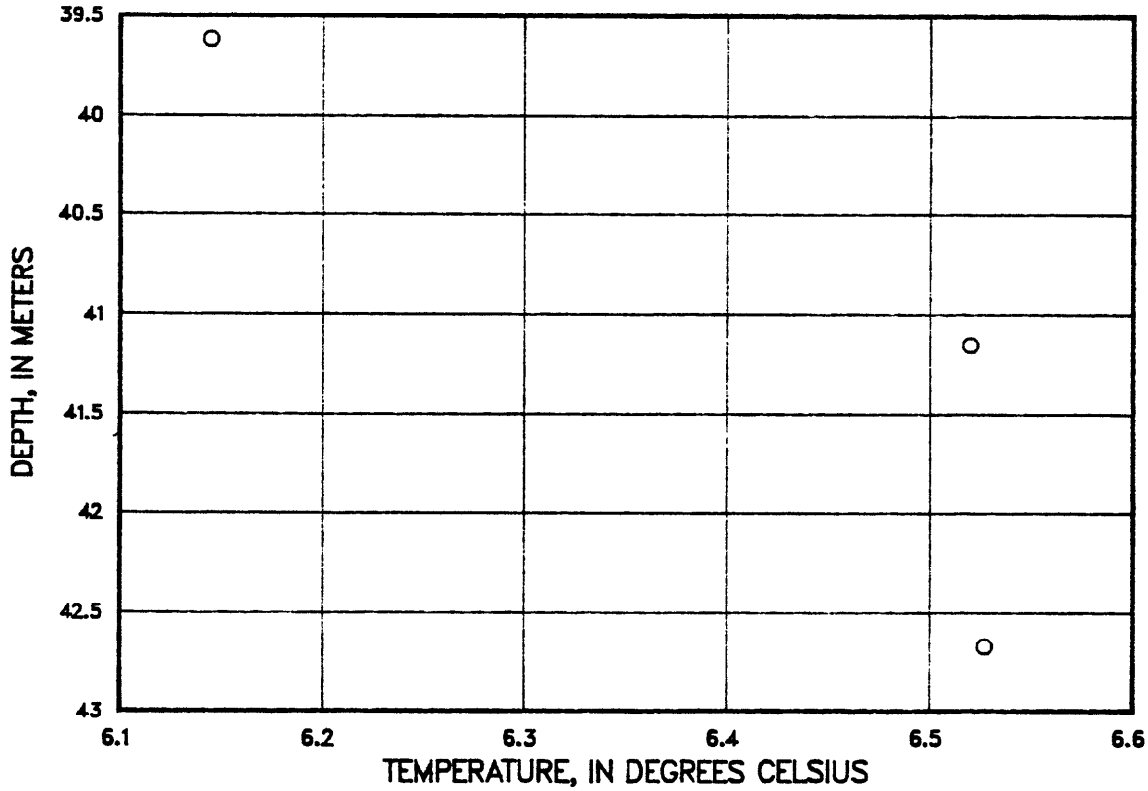

Fig. 160-Temperature profile from 14S-9E-35 SW.

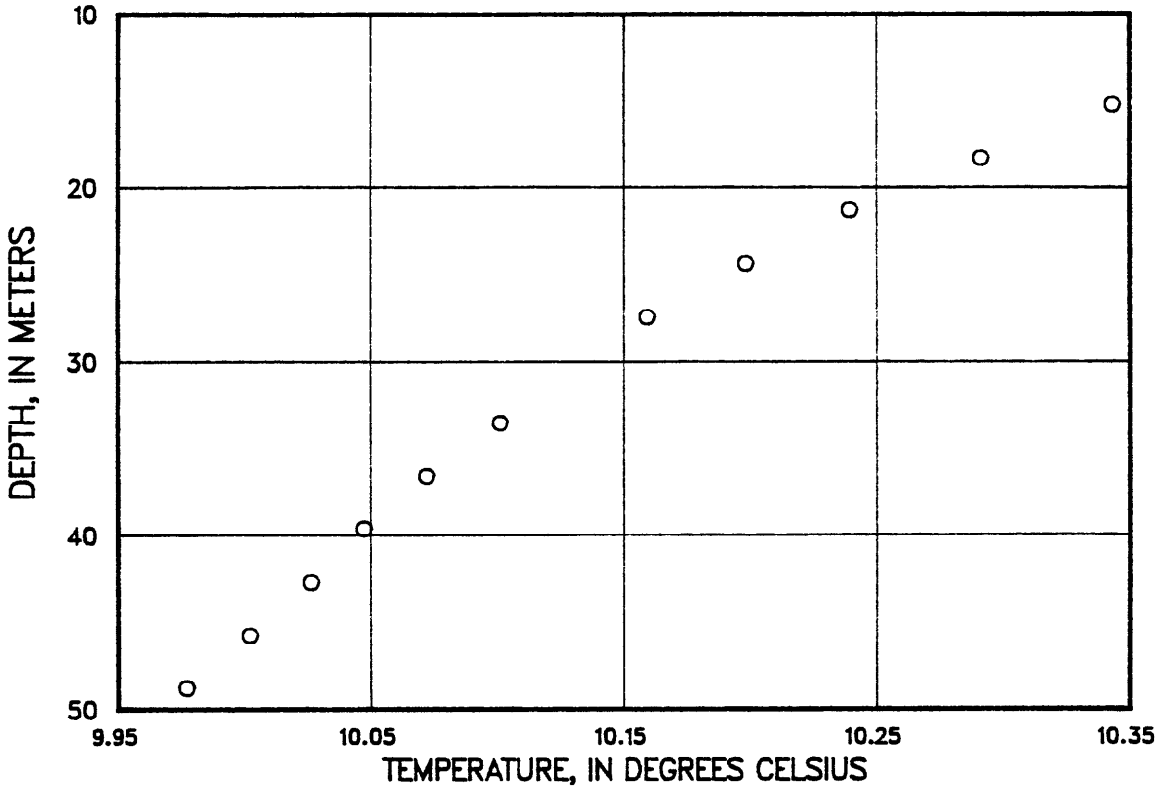

Fig. 161-Temperature profile from 14S-10E-28 SE.

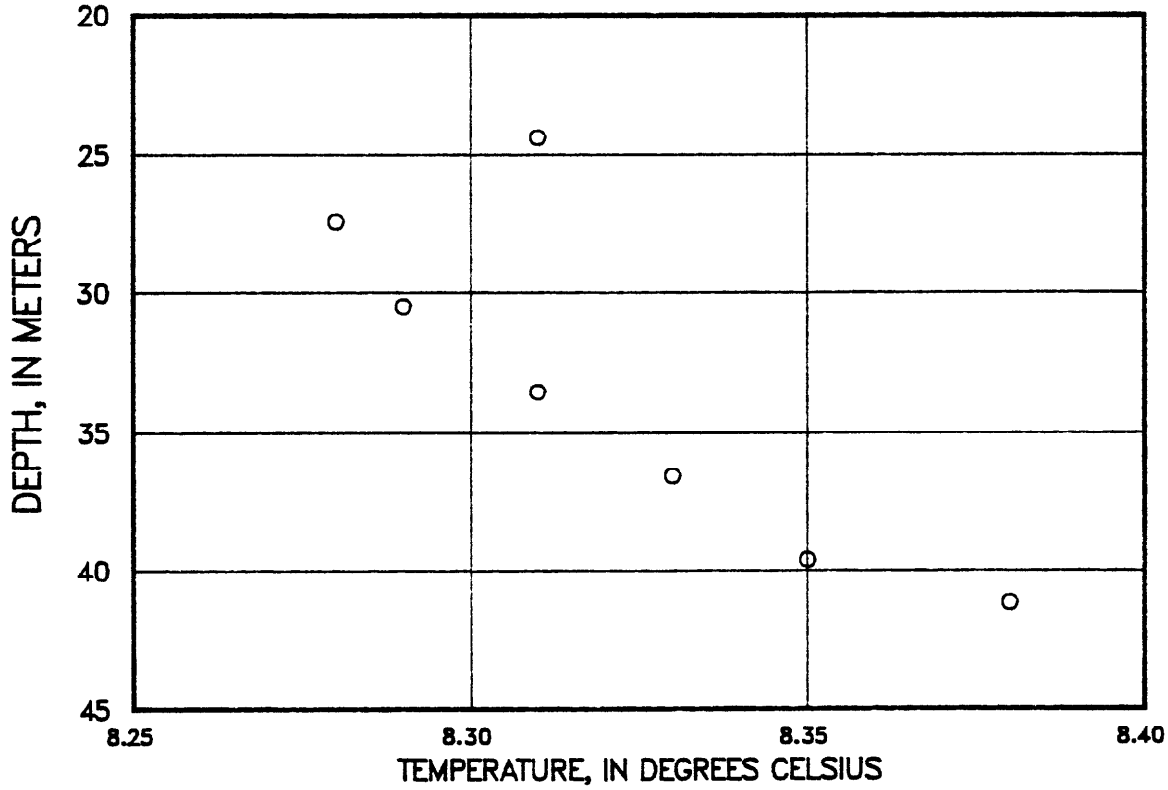

Fig. 162-Temperature profile from 14S-10E-34 NW.

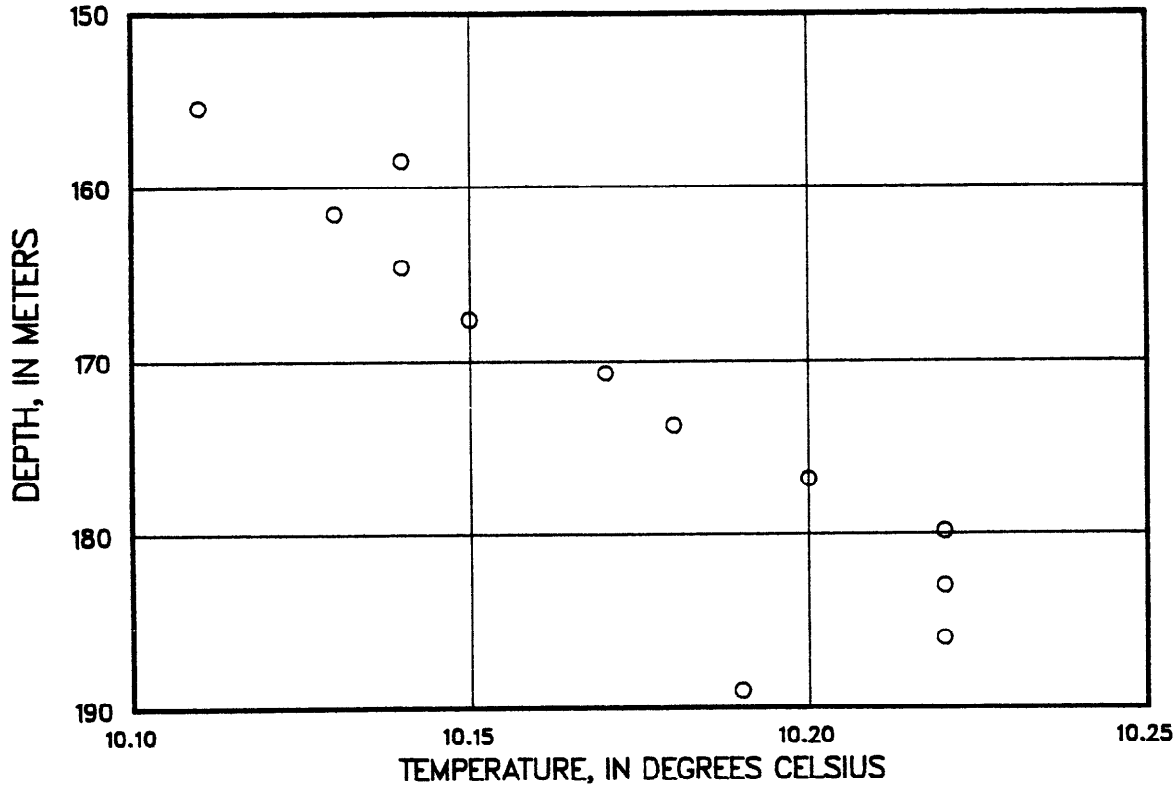

Fig. 163-Temperature profile from 14S-11E-28 NE.

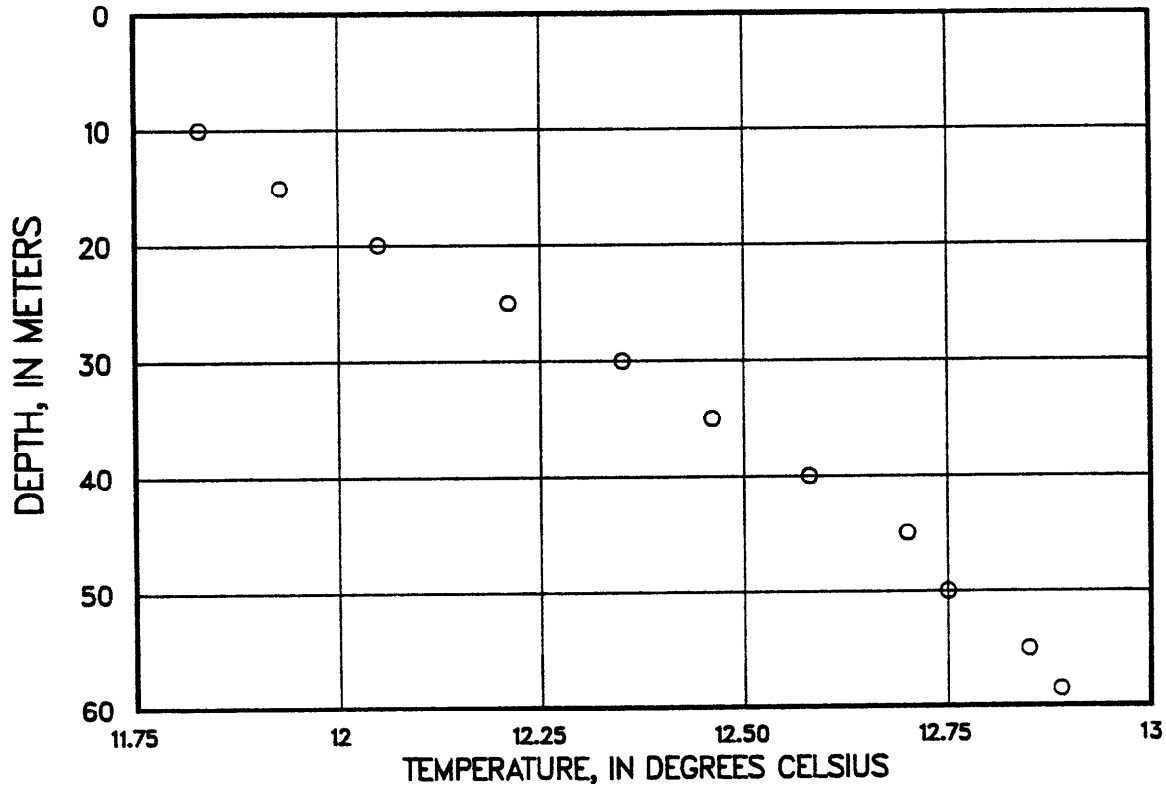

Fig. 164-Temperature profile from 14S-13E-14 NE.

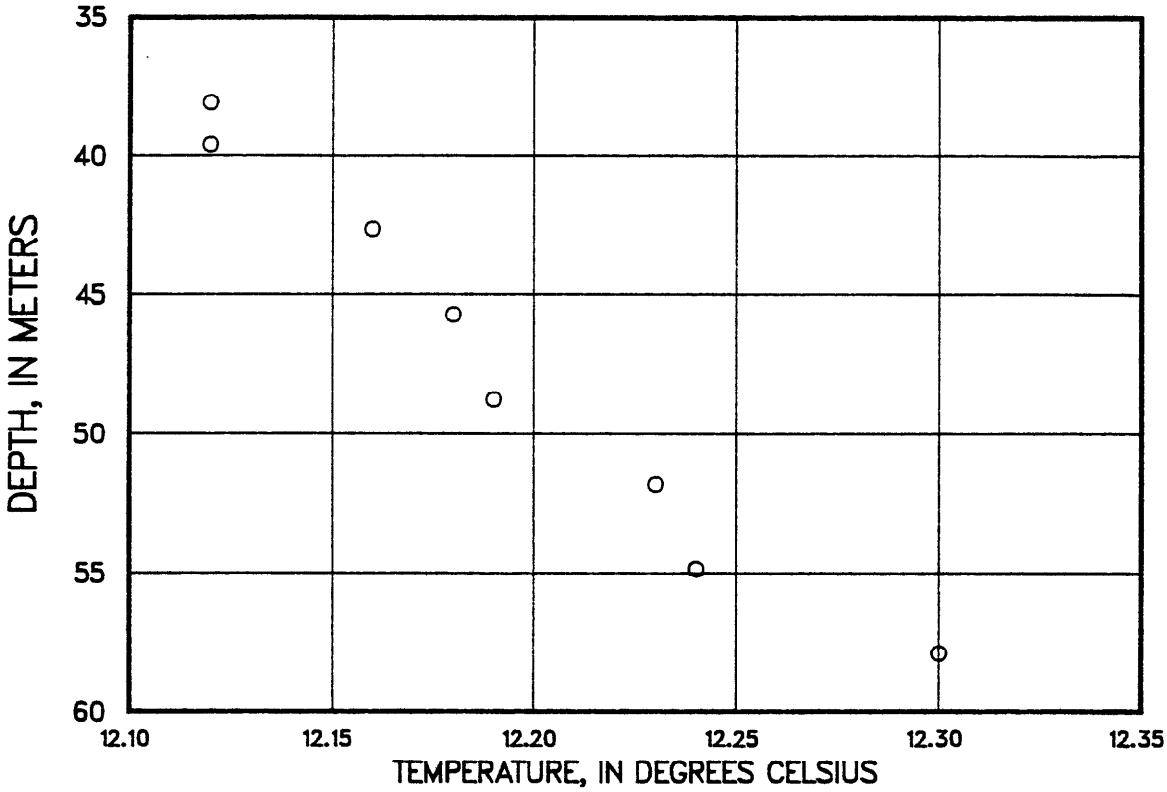

Fig. 165-Temperature profile from 14S-13E-29 SW.

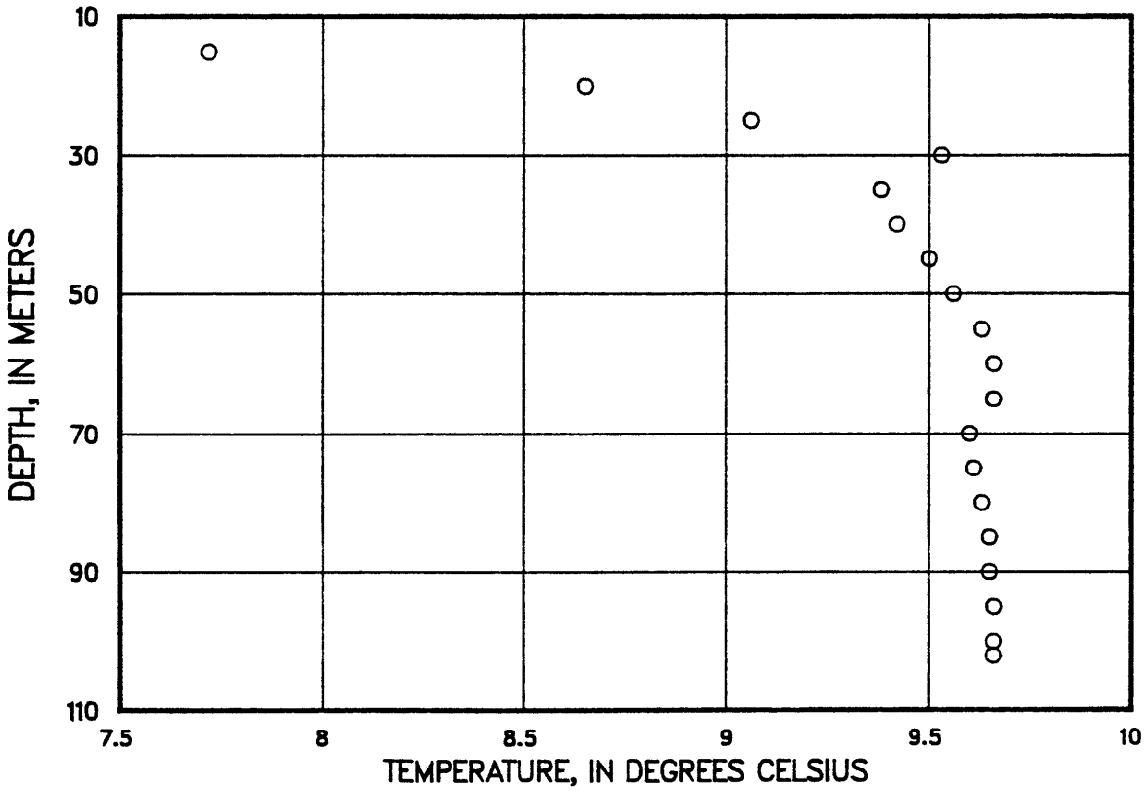

Fig. 166-Temperature profile from 15S-10E-05 NW.

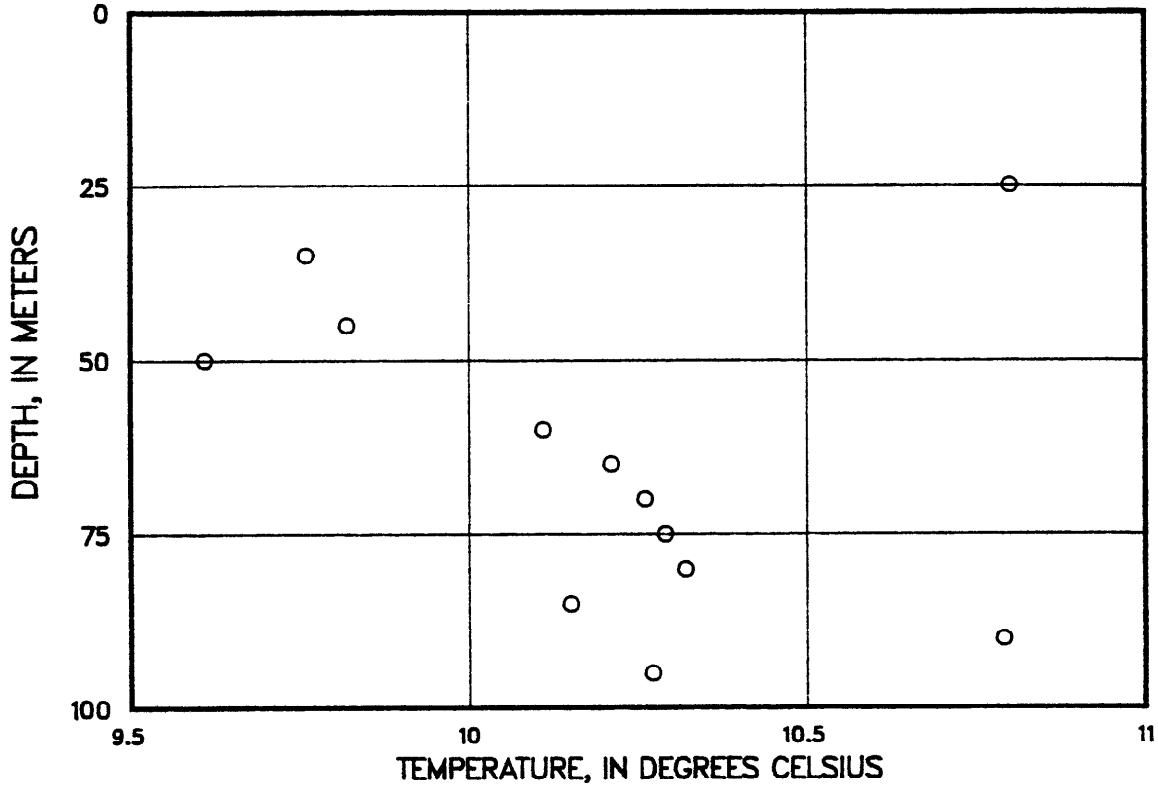

Fig. 167-Temperature profile from 15S-10E-36 SE.

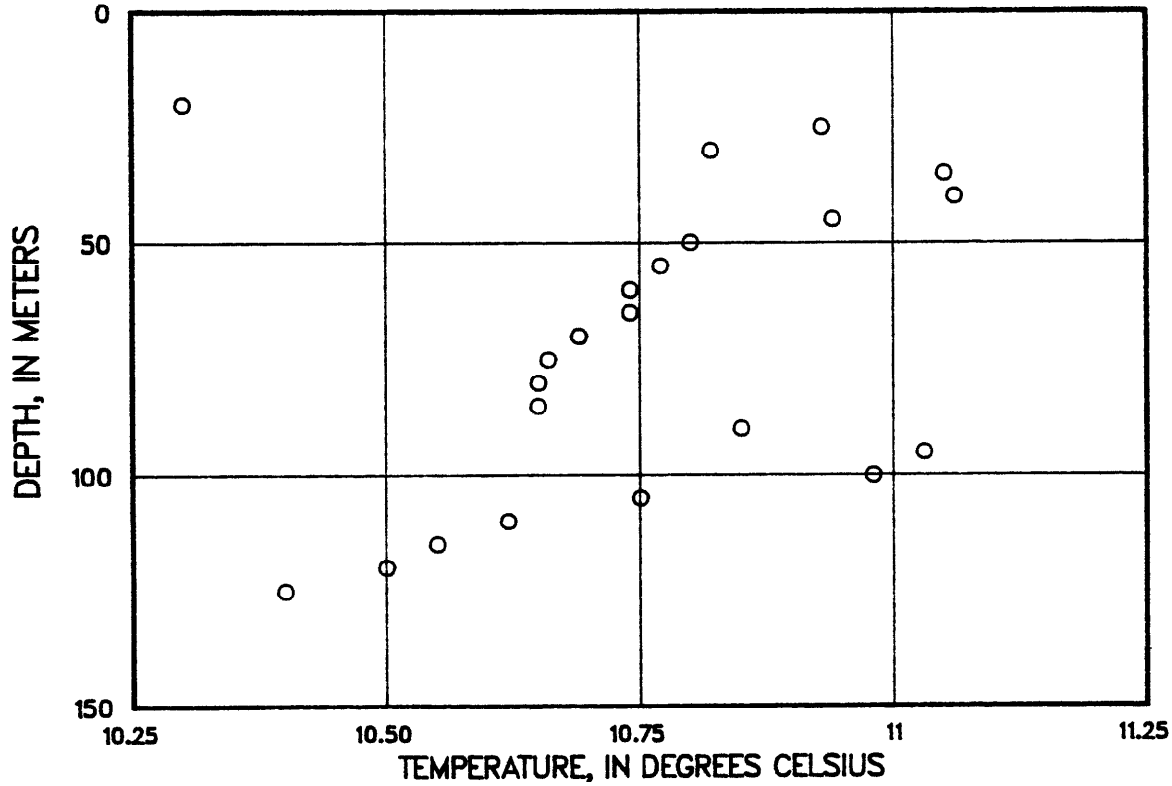

Fig. 168-Temperature profile from 15S-11E-07 NW.

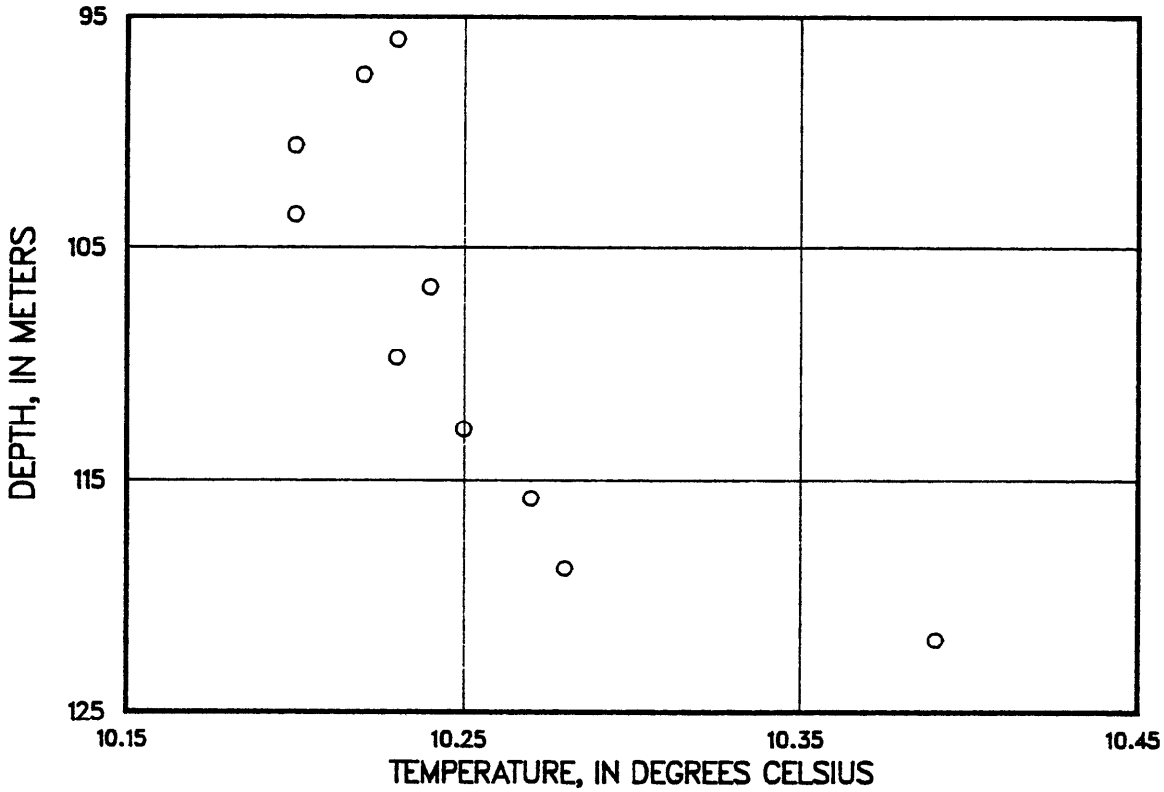

Fig. 169-Temperature profile from 15S-11E-09 NW.

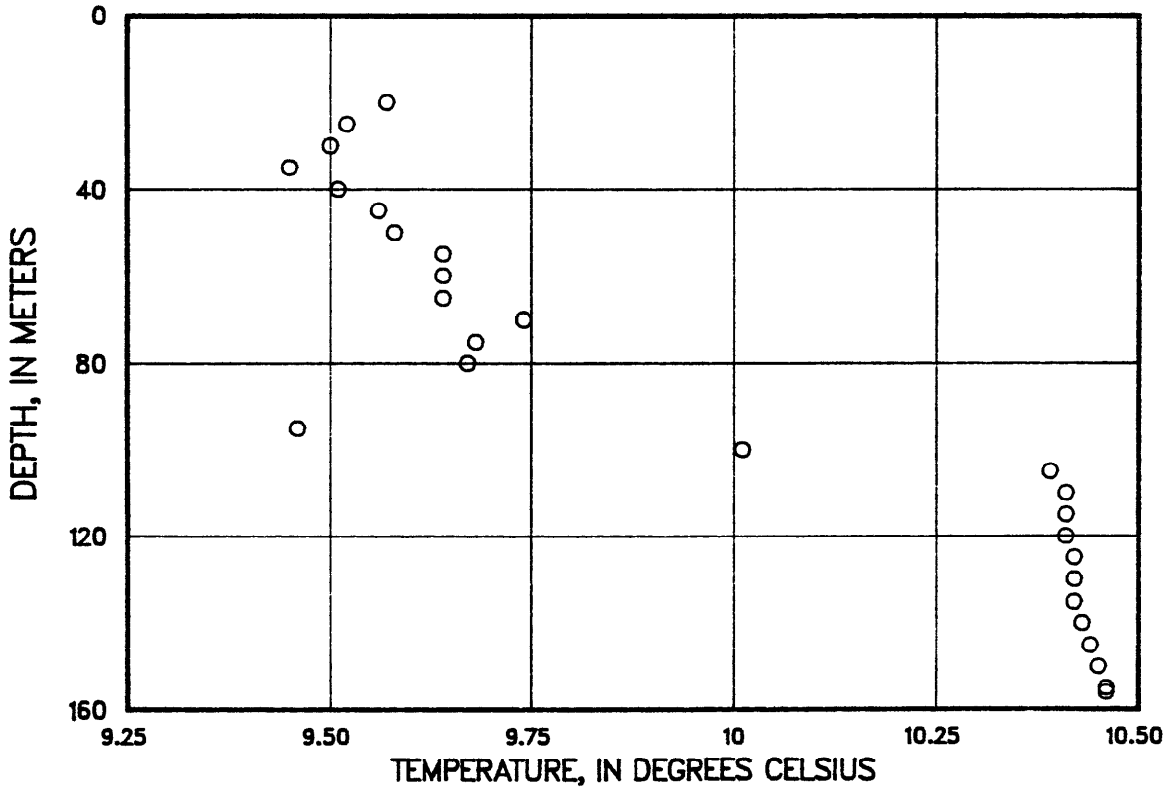

Fig. 170-Temperature profile from 15S-12E-09 NW.

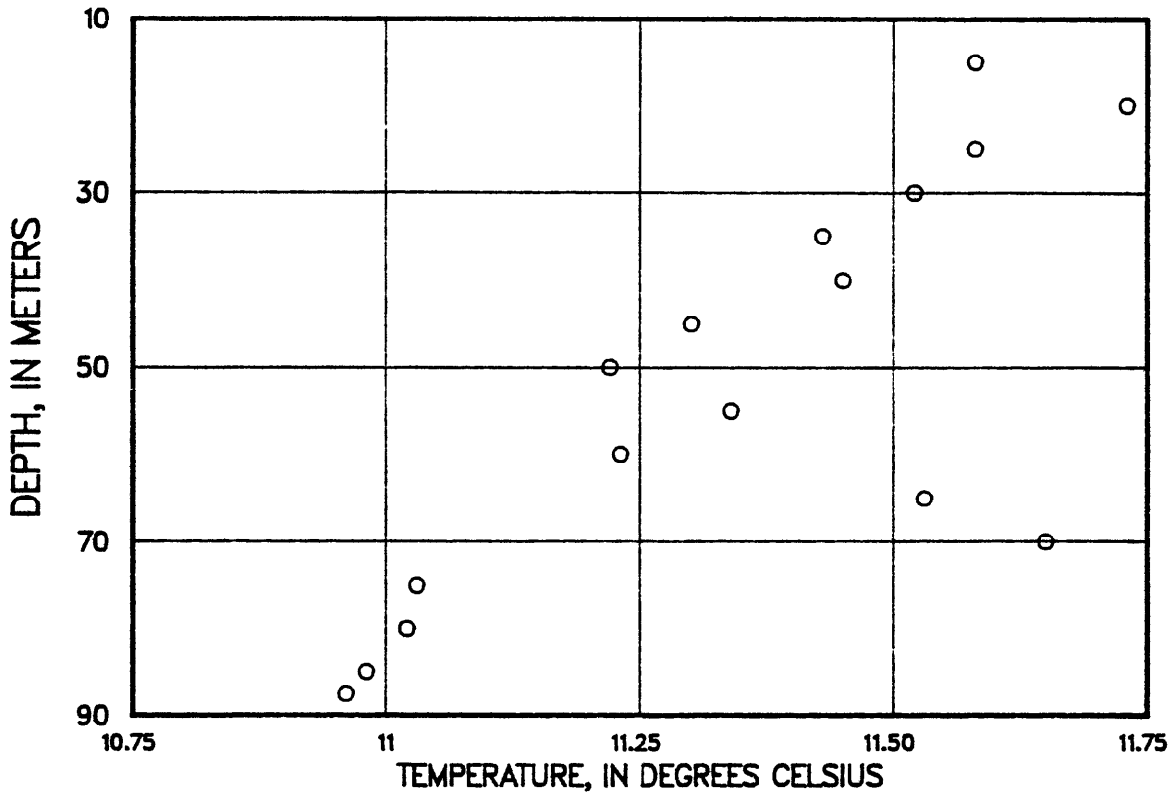

Fig. 171-Temperature profile from 15S-12E-23 NW.

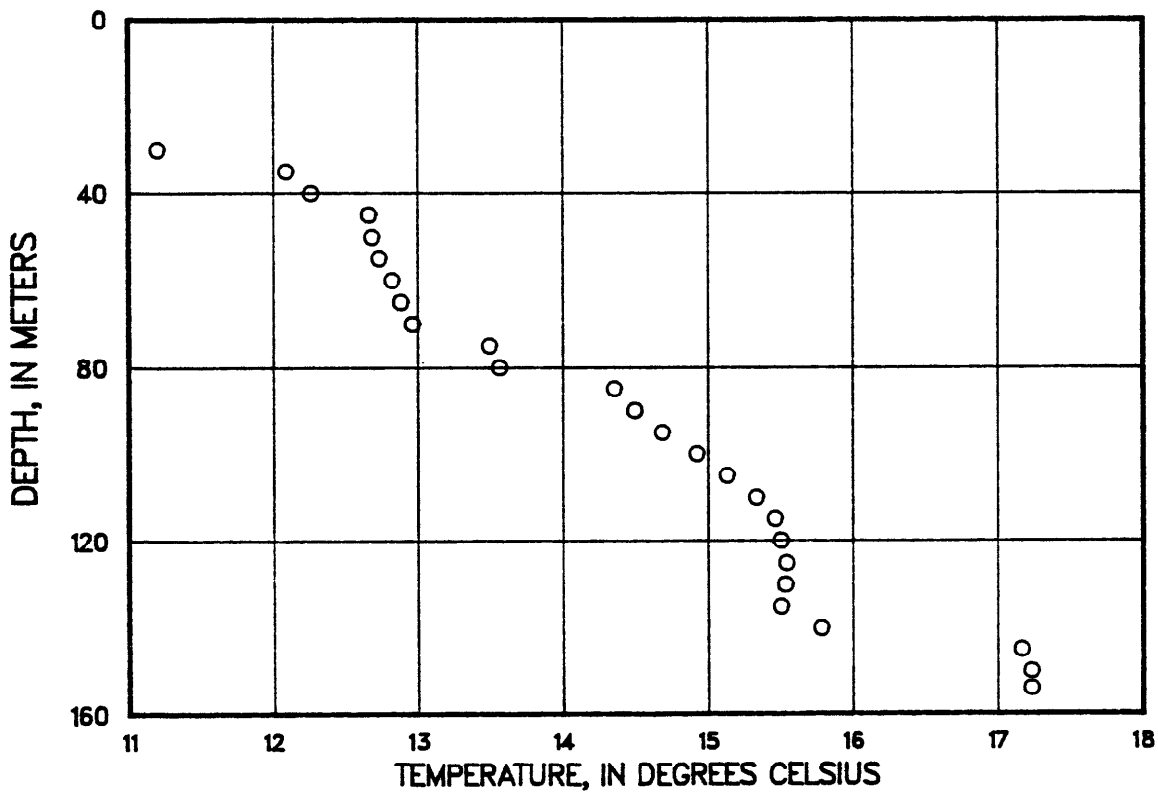

Fig. 172-Temperature profile from 15S-13E-03 SE.

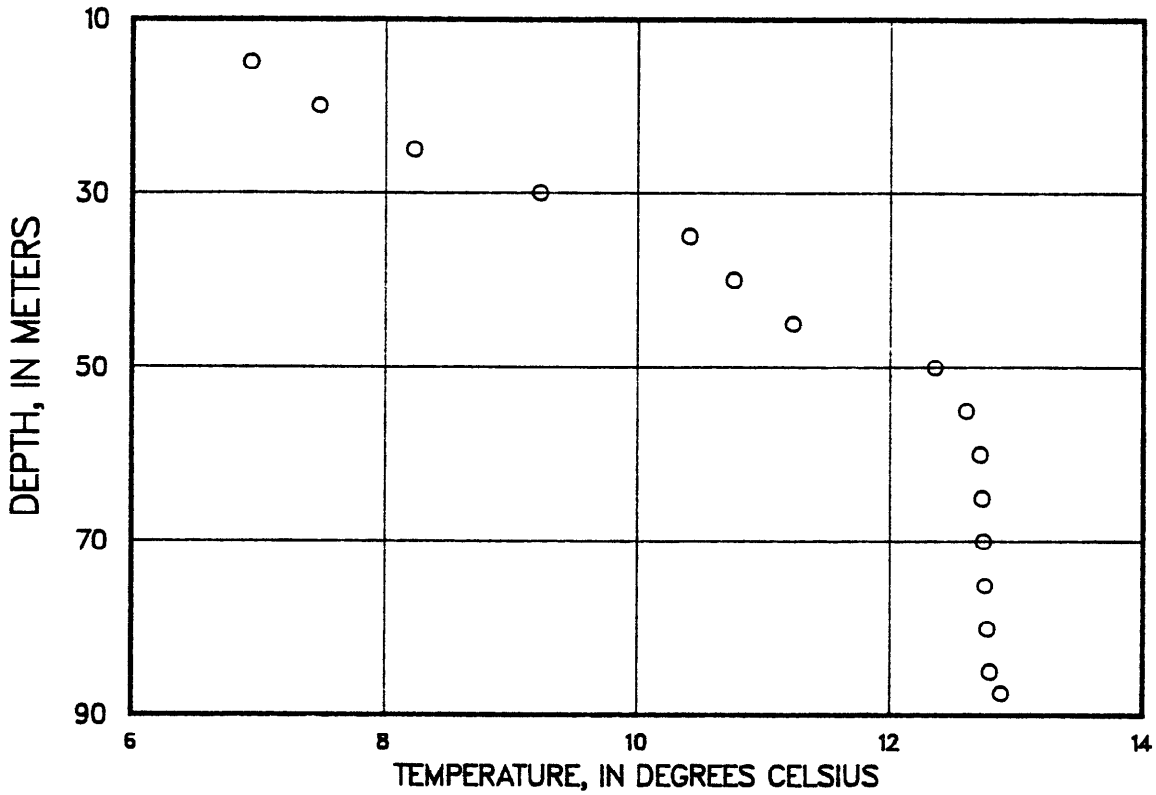

Fig. 173-Temperature profile from 15S-13E-03 SE.

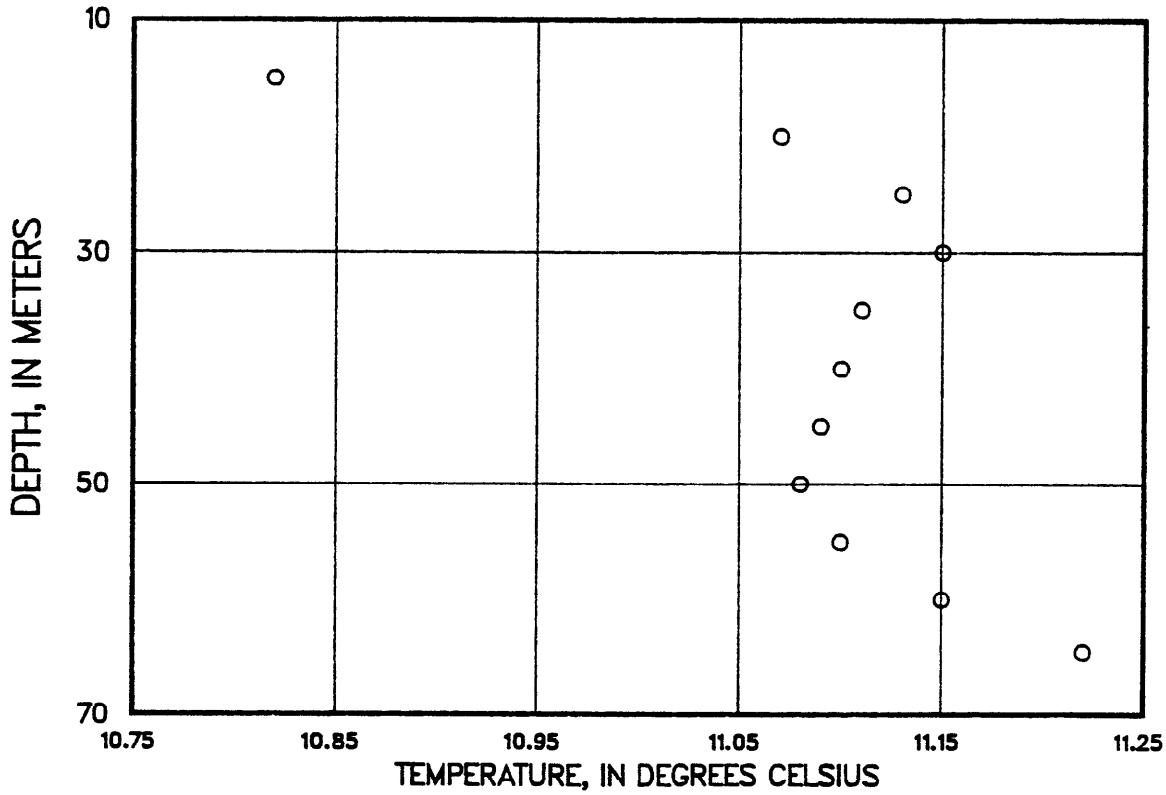

Fig. 174-Temperature profile from 15S-13E-18 NW.

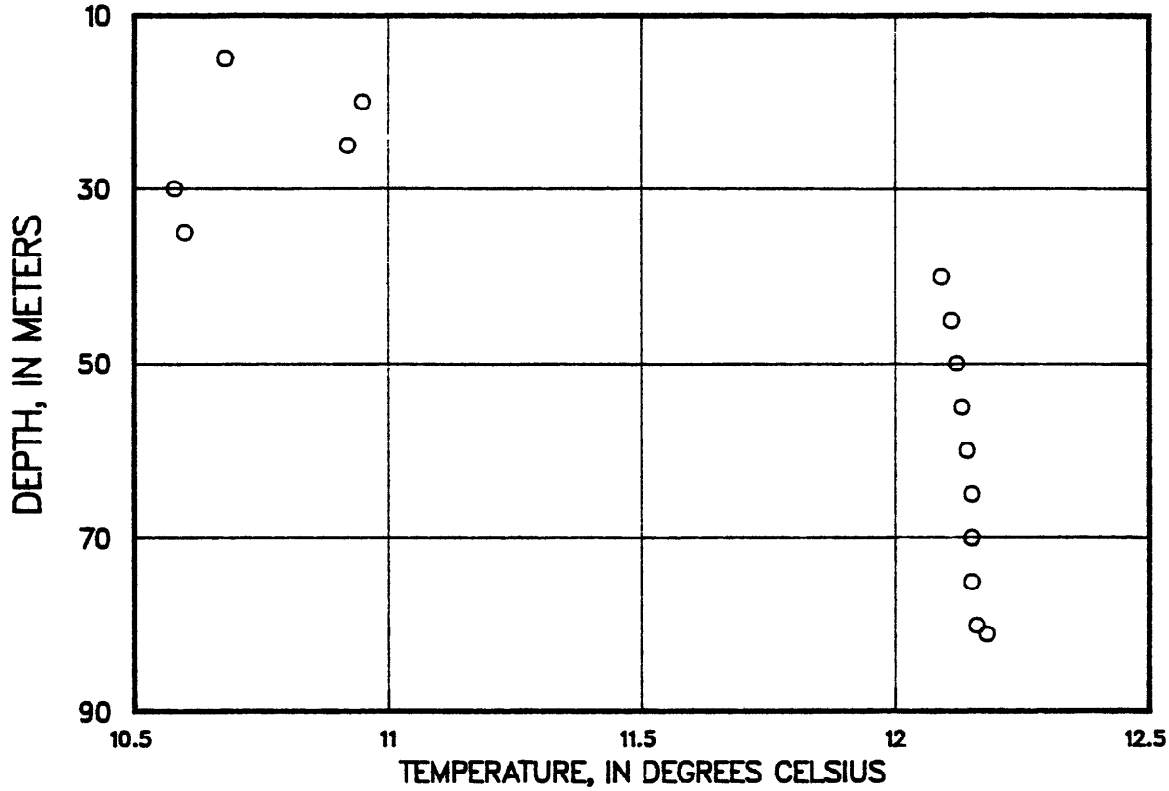

Fig. 175-Temperature profile from 15S-14E-15 SE.

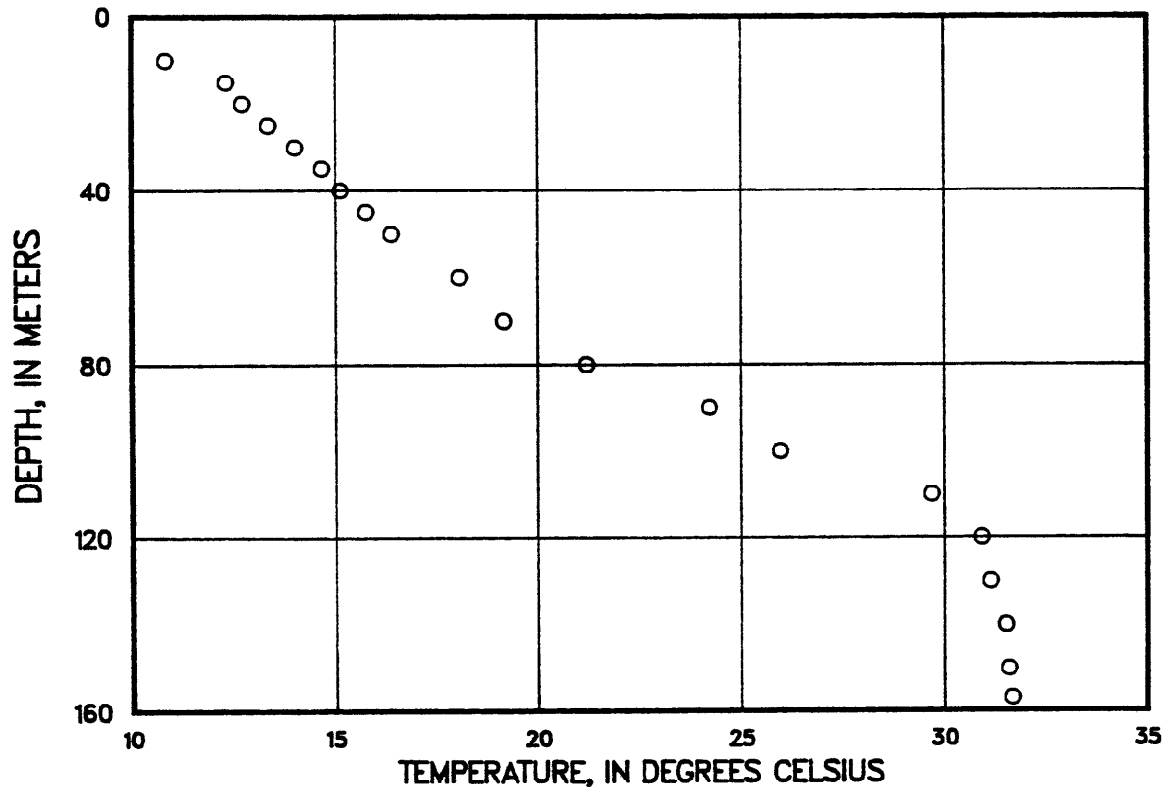

Fig. 176-Temperature profile from 15S-14E-36 NE.

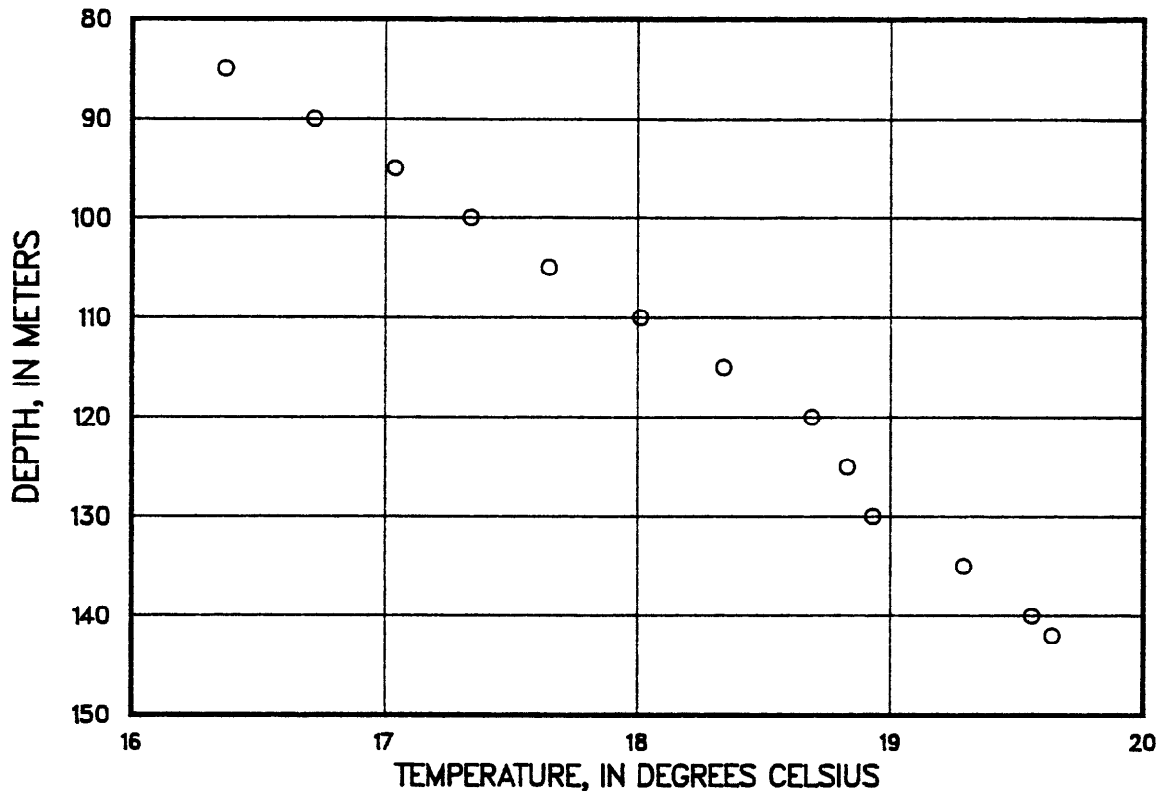

Fig. 177-Temperature profile from 15S-15E-11 SW.

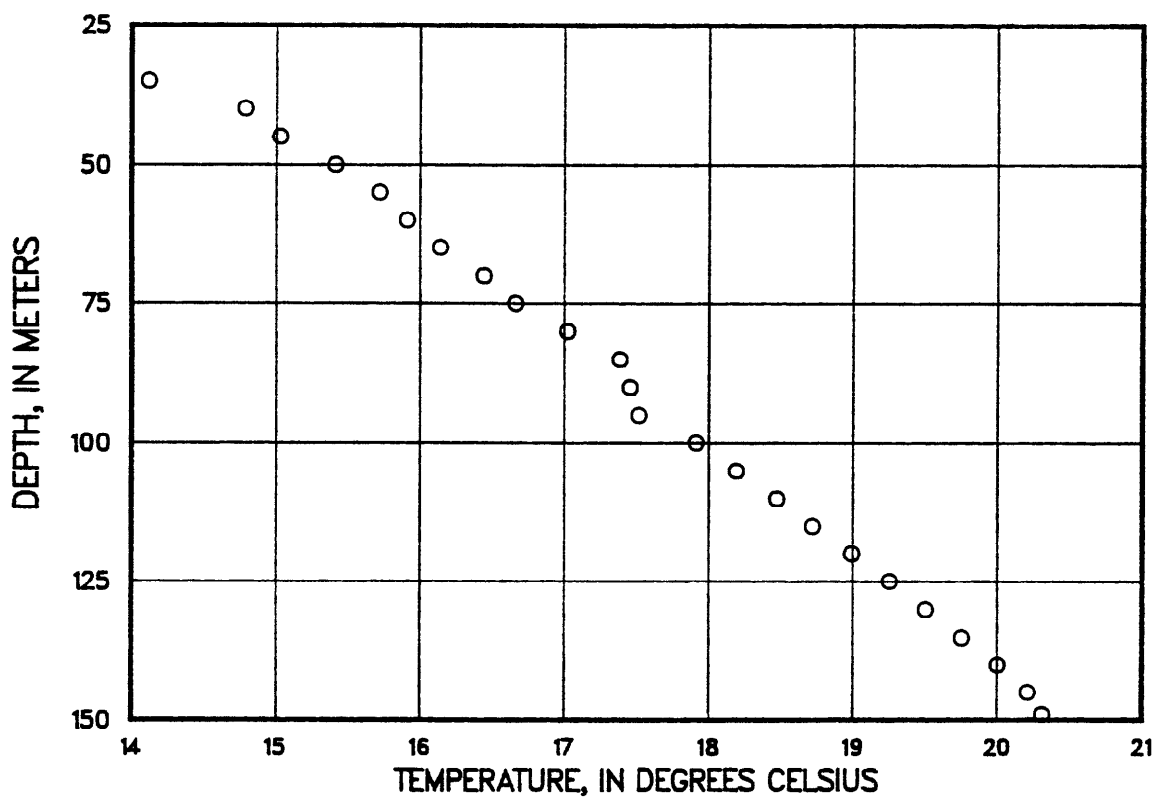

Fig. 178-Temperature profile from 15S-15E-28 NE.

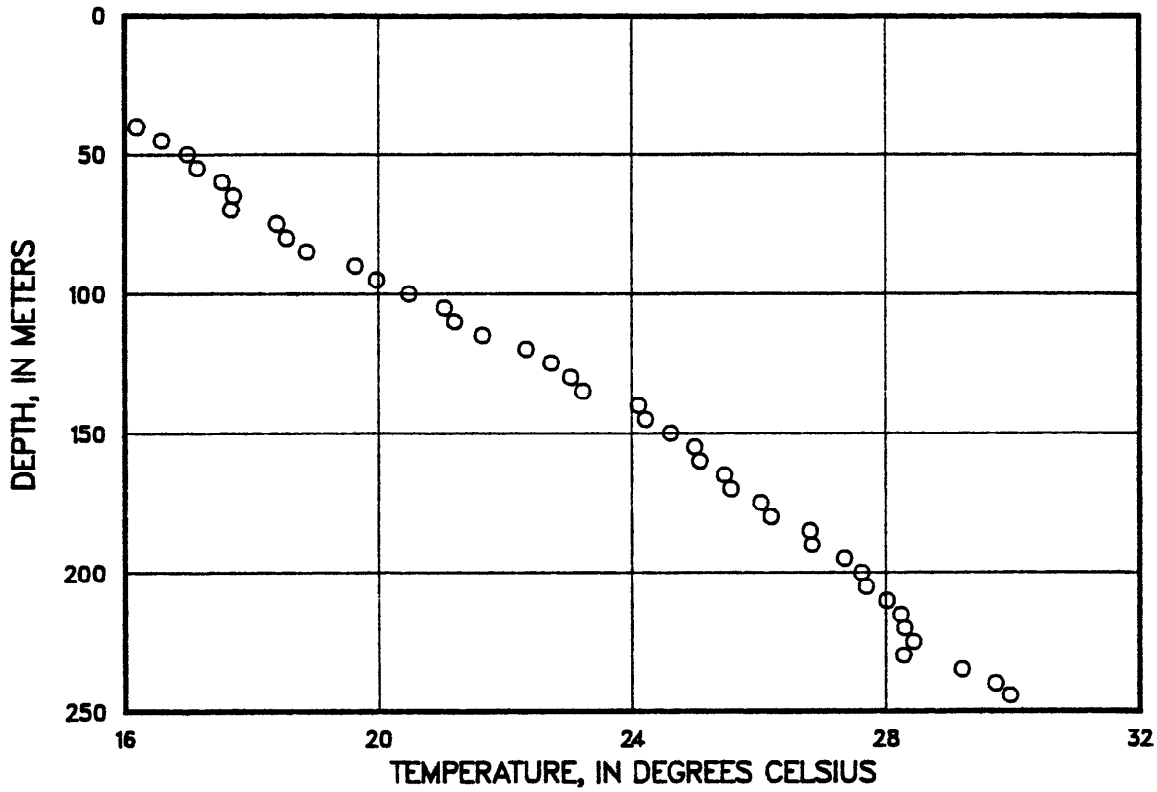

Fig. 179-Temperature profile from 15S-15E-31 NE.

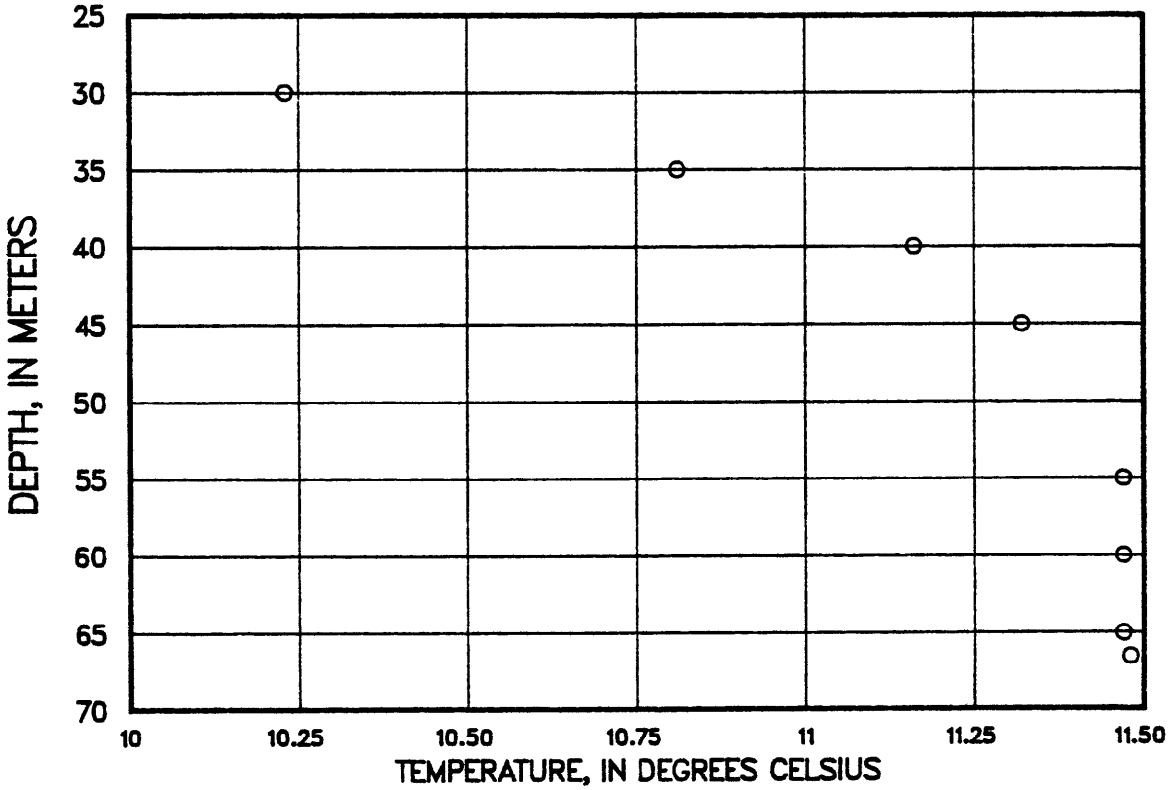

Fig. 180-Temperature profile from 16S-11E-34 NW.

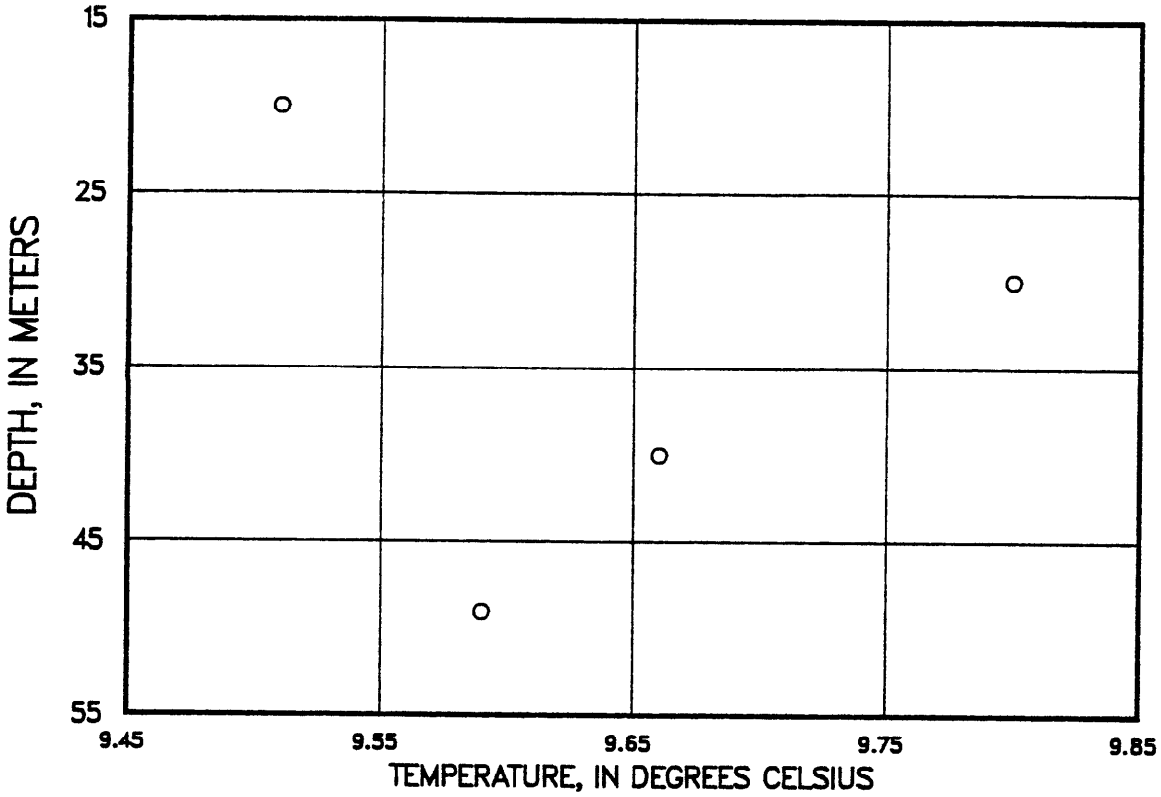

Fig. 181-Temperature profile from 16S-11E-34 SW.

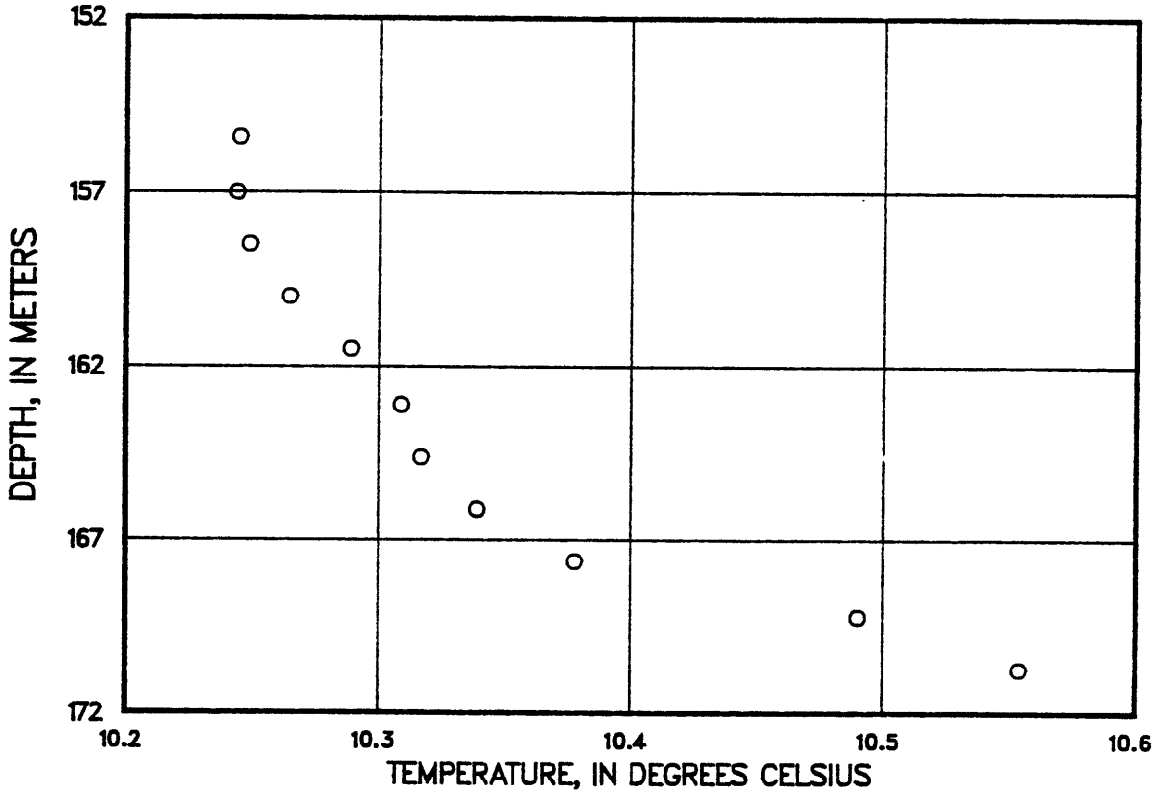

Fig. 182-Temperature profile from 16S-12E-26 NW.

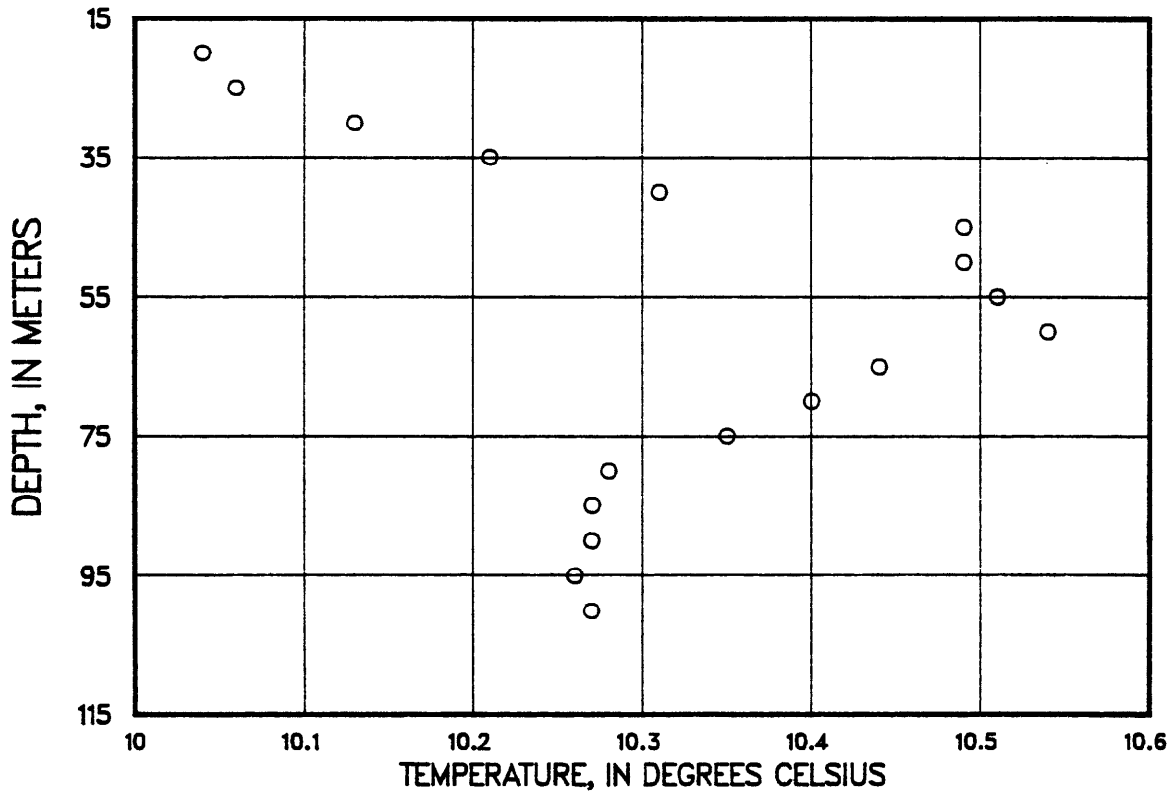

Fig. 183-Temperature profile from 16S-12E-31 SW.

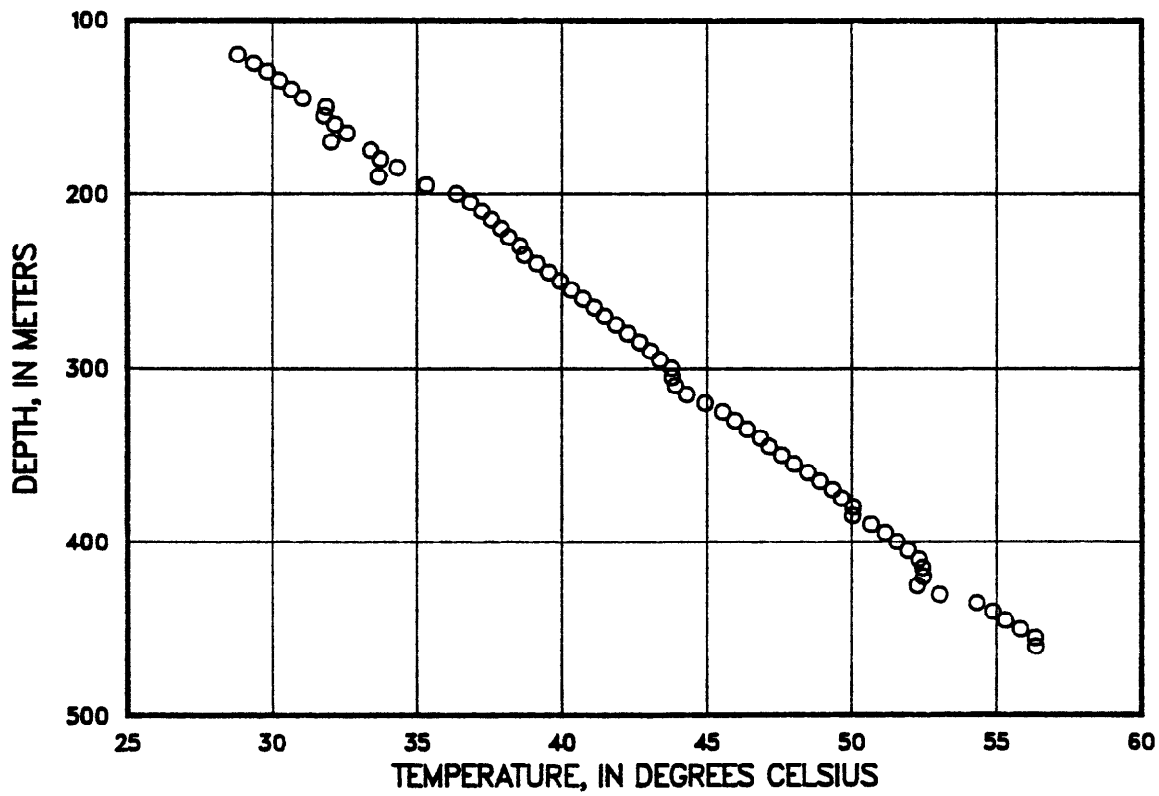

Fig. 184-Temperature profile from 16S-14E-16 NE.

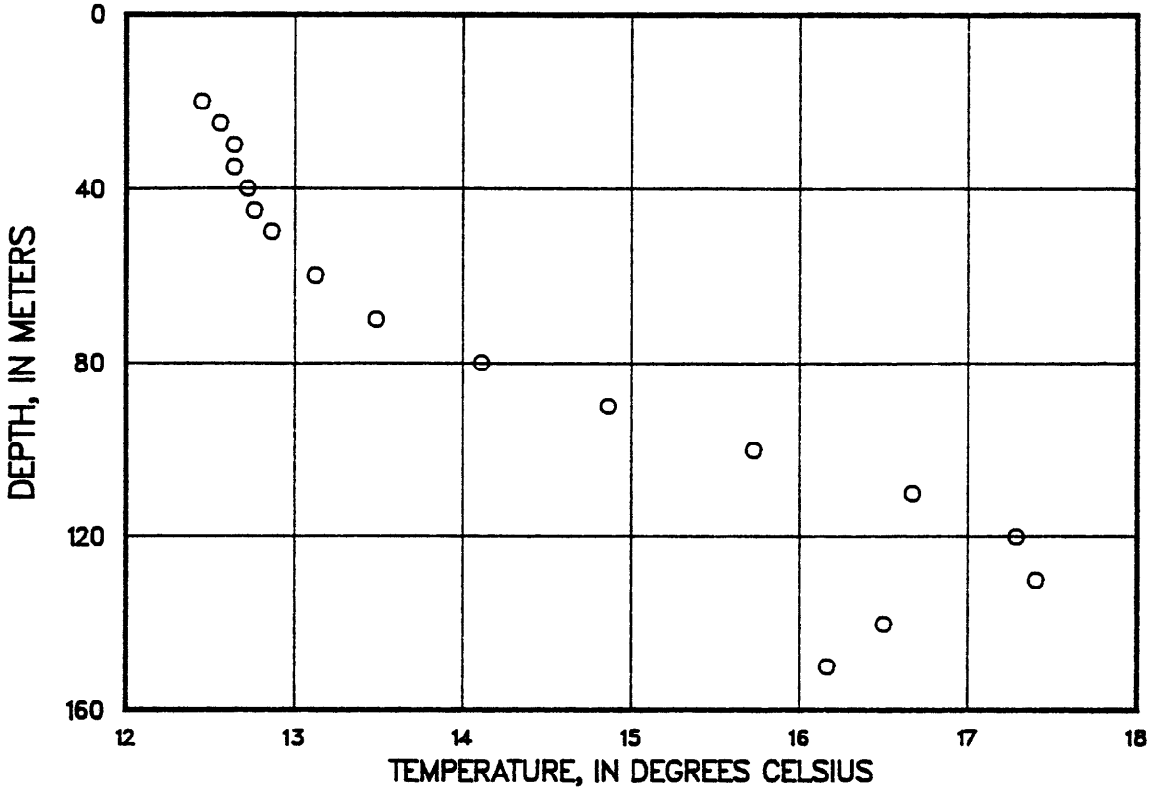

Fig. 185-Temperature profile from 16S-14E-17 SE.

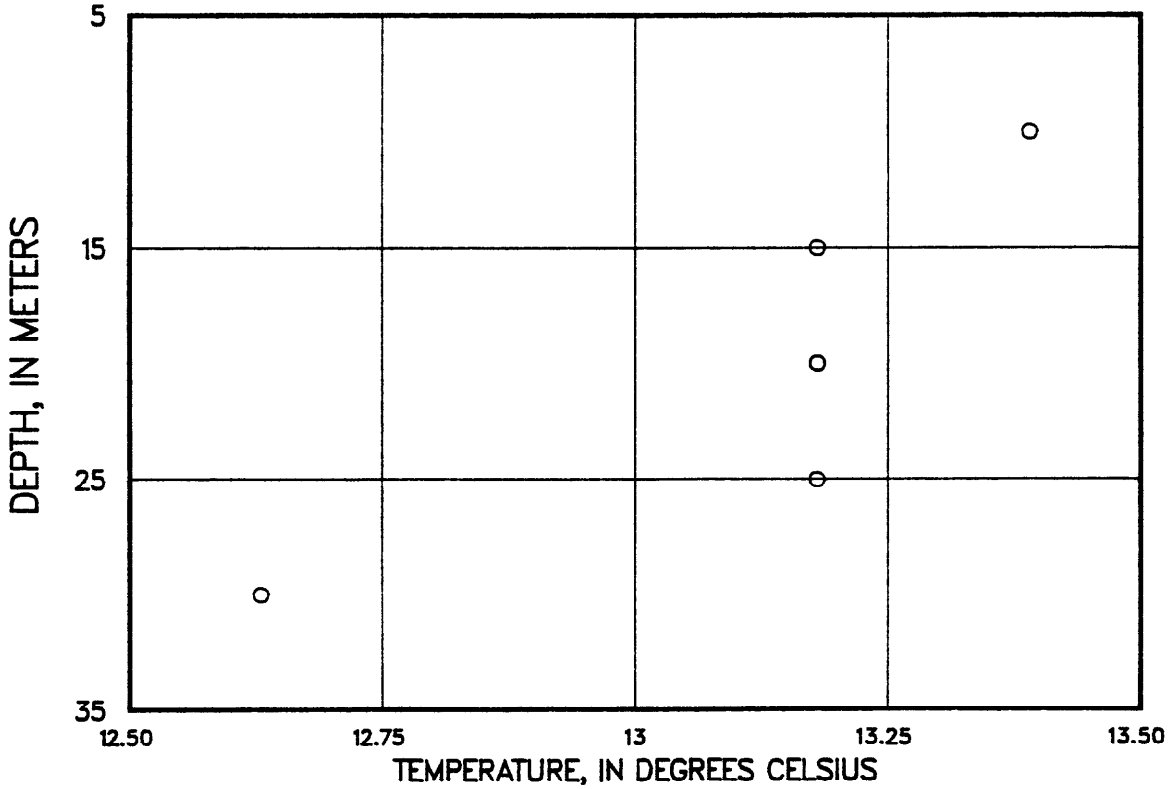

Fig. 186-Temperature profile from 16S-14E-20 NE.

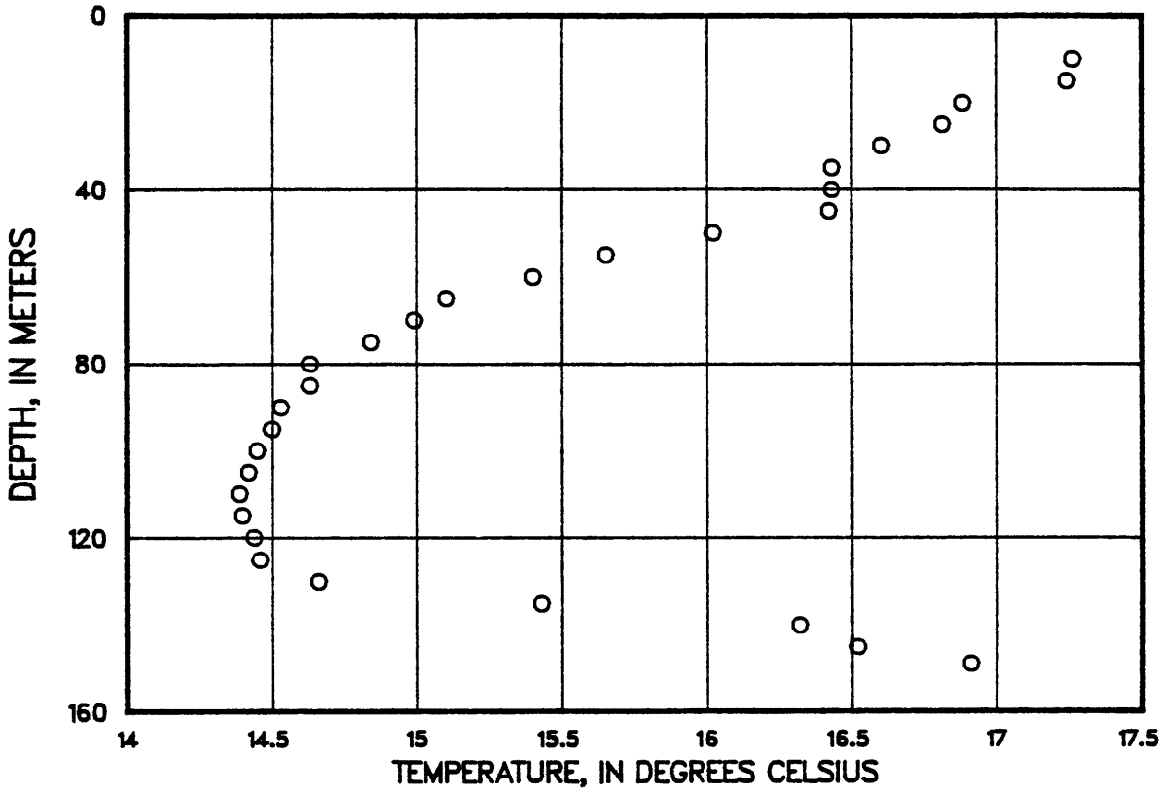

Fig. 187-Temperature profile from 16S-14E-20 SE.

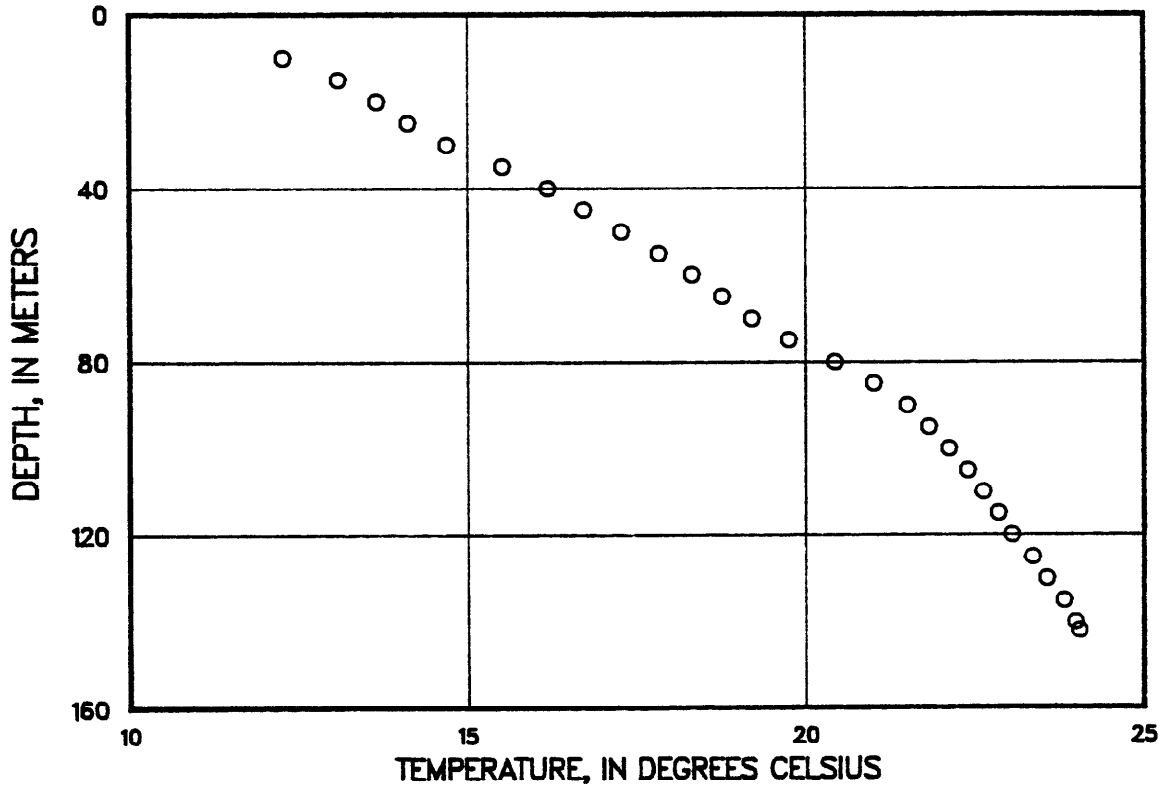

Fig. 188-Temperature profile from 16S-14E-35 SW.

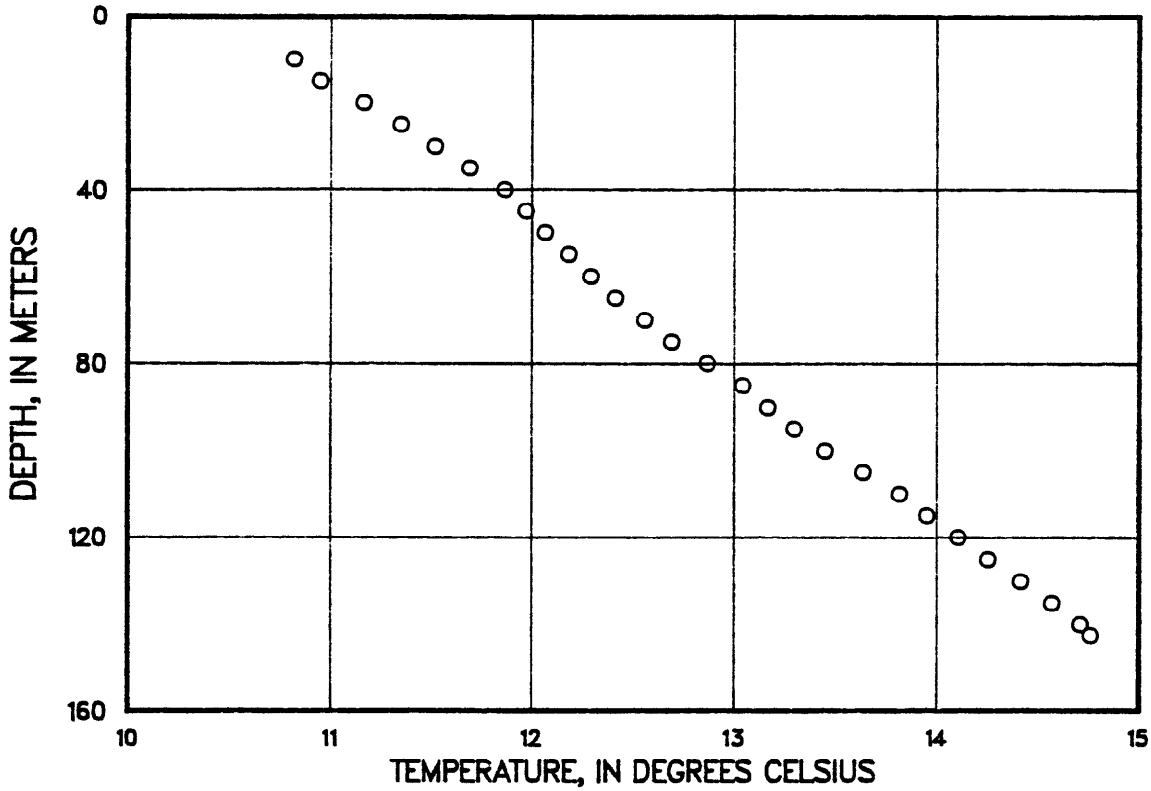

Fig. 189-Temperature profile from 16S-15E-20 SW.

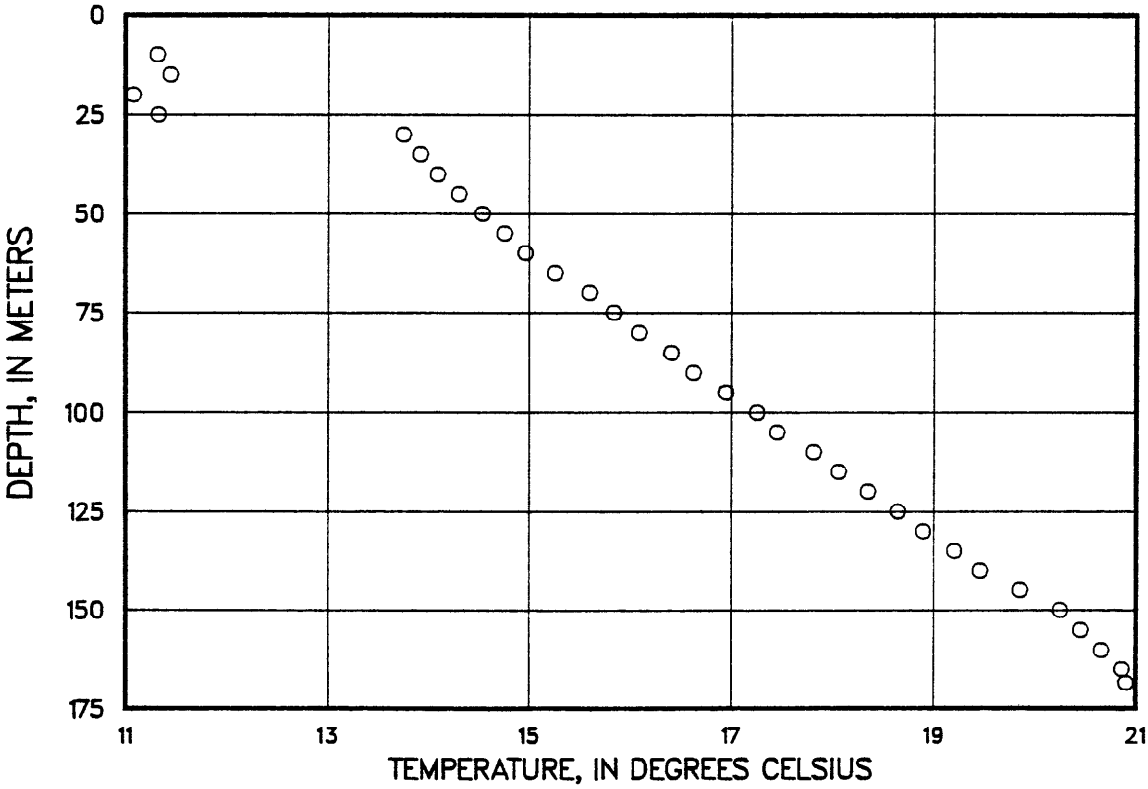

Fig. 190-Temperature profile from 16S-15E-26 SW.

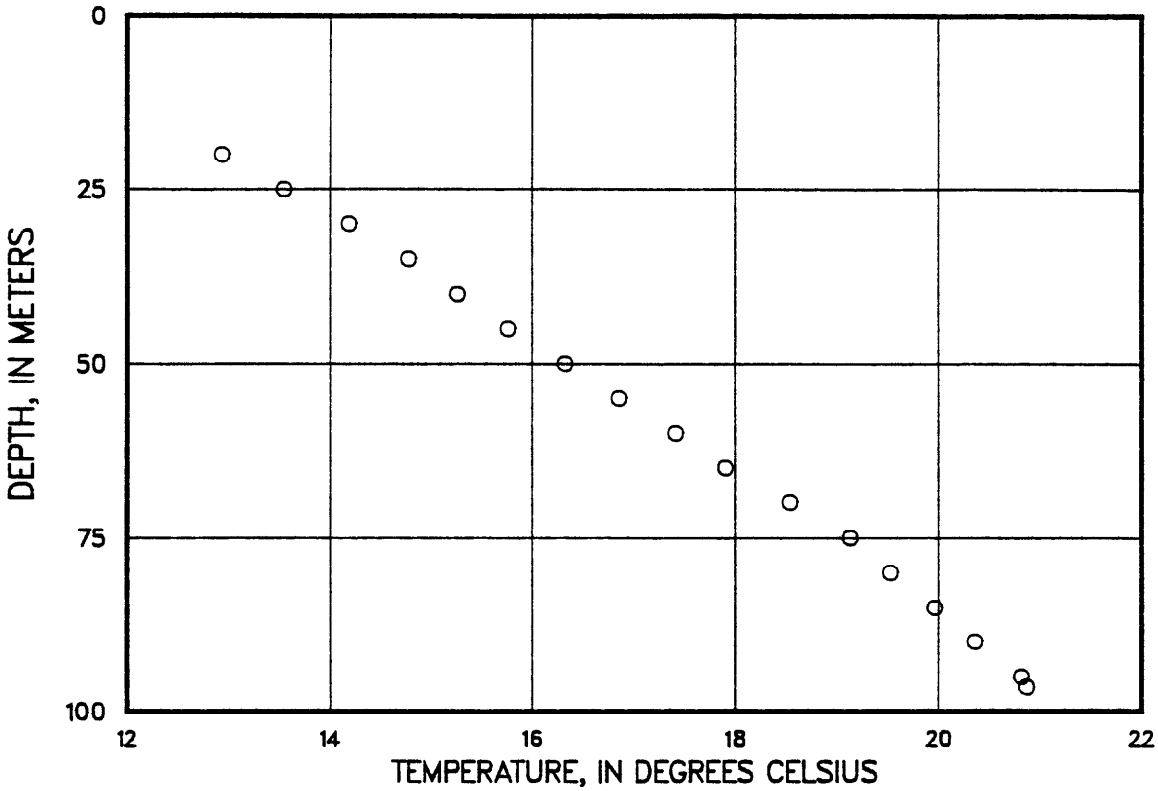

Fig. 191-Temperature profile from 16S-15E-29 SW.

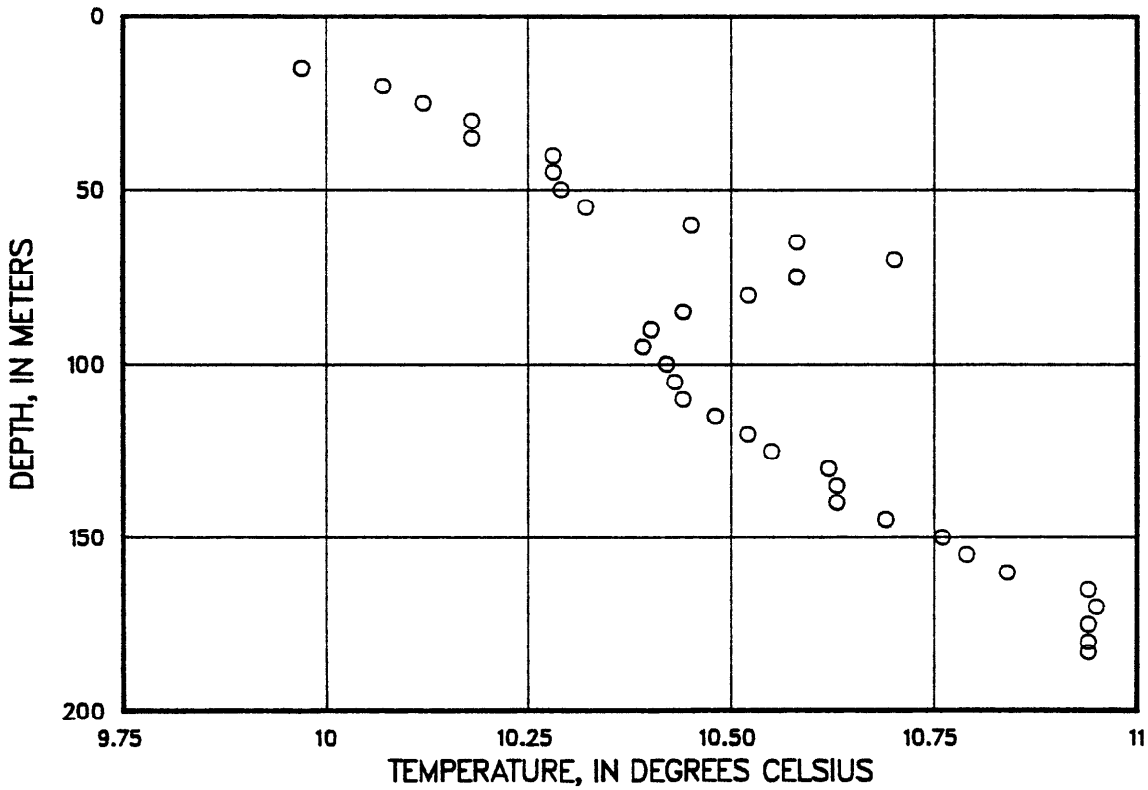

Fig. 192-Temperature profile from 17S-13E-08 NW.

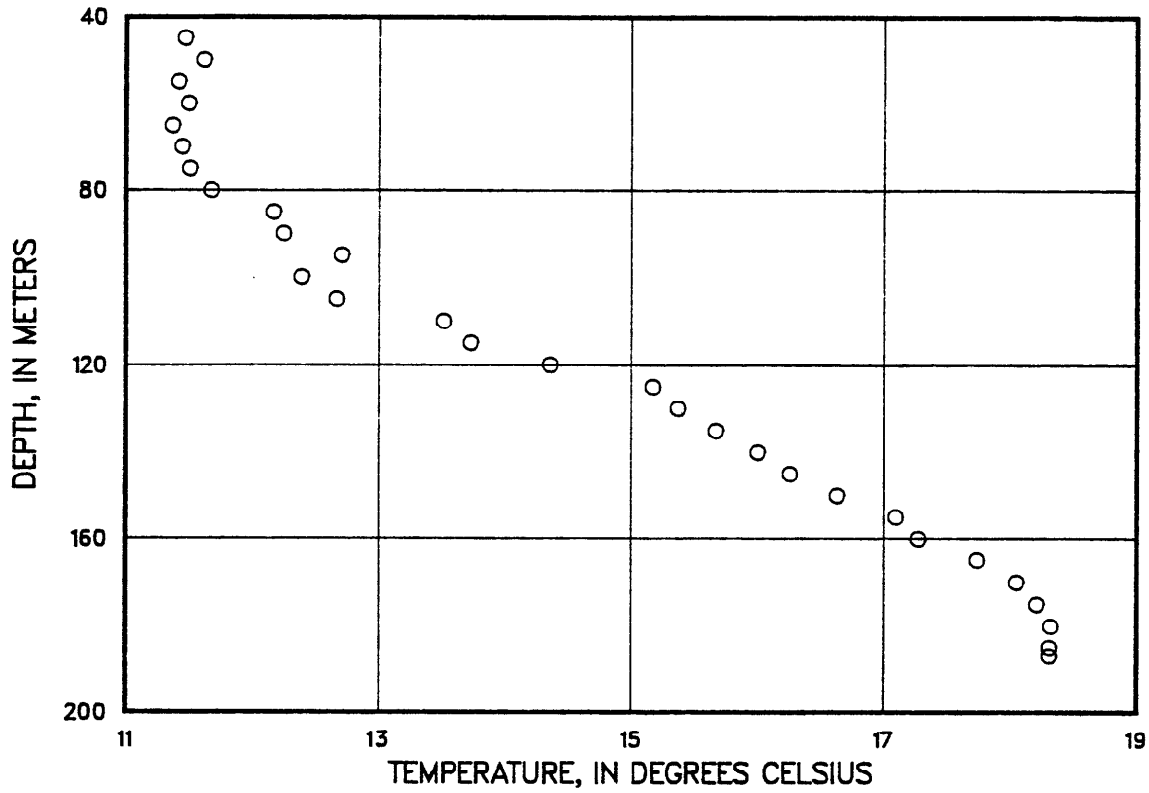

Fig. 193-Temperature profile from 17S-14E-23 NE.

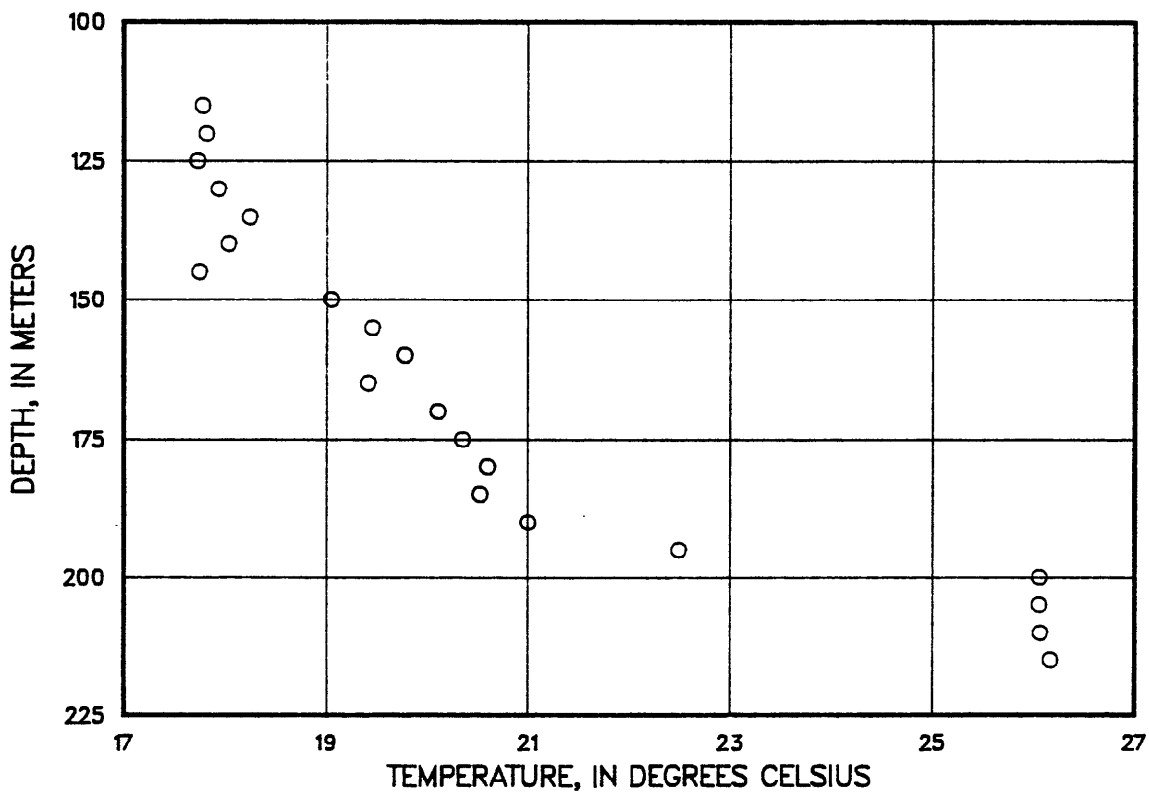

Fig. 194-Temperature profile from 17S-15E-20 SW.

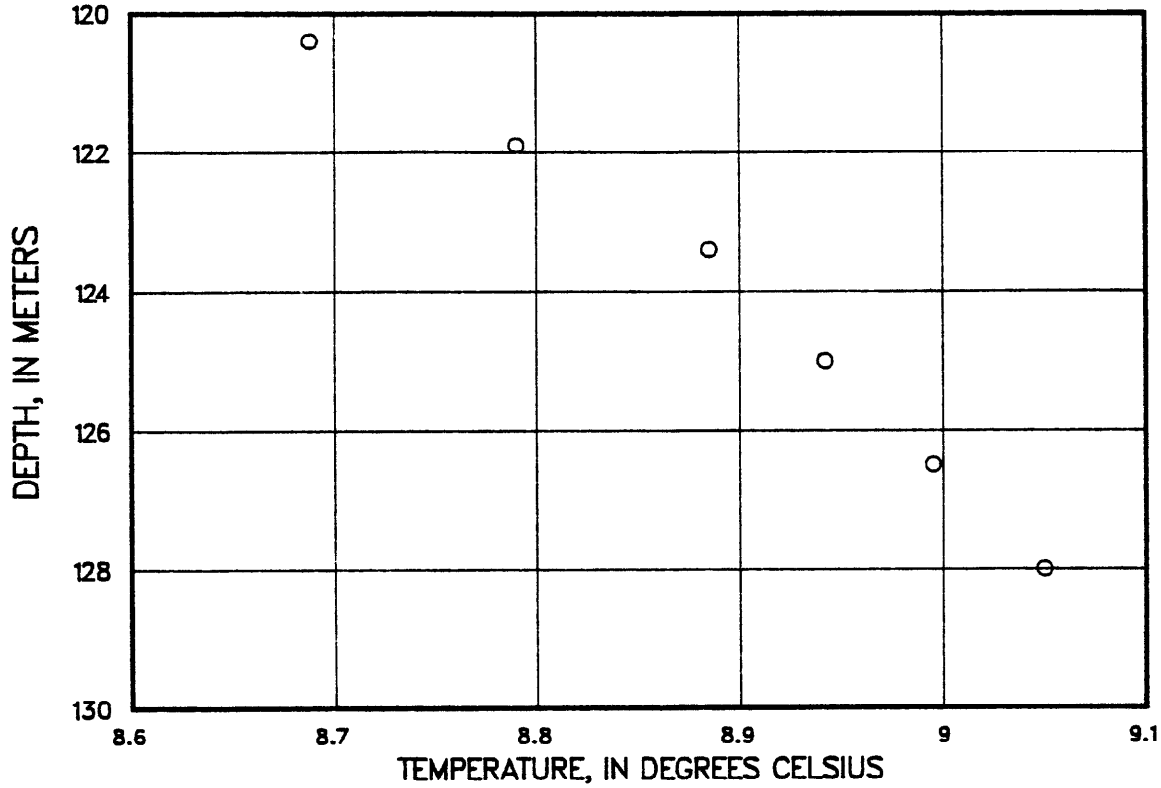

Fig. 195-Temperature profile from 18S-11E-23 SW.

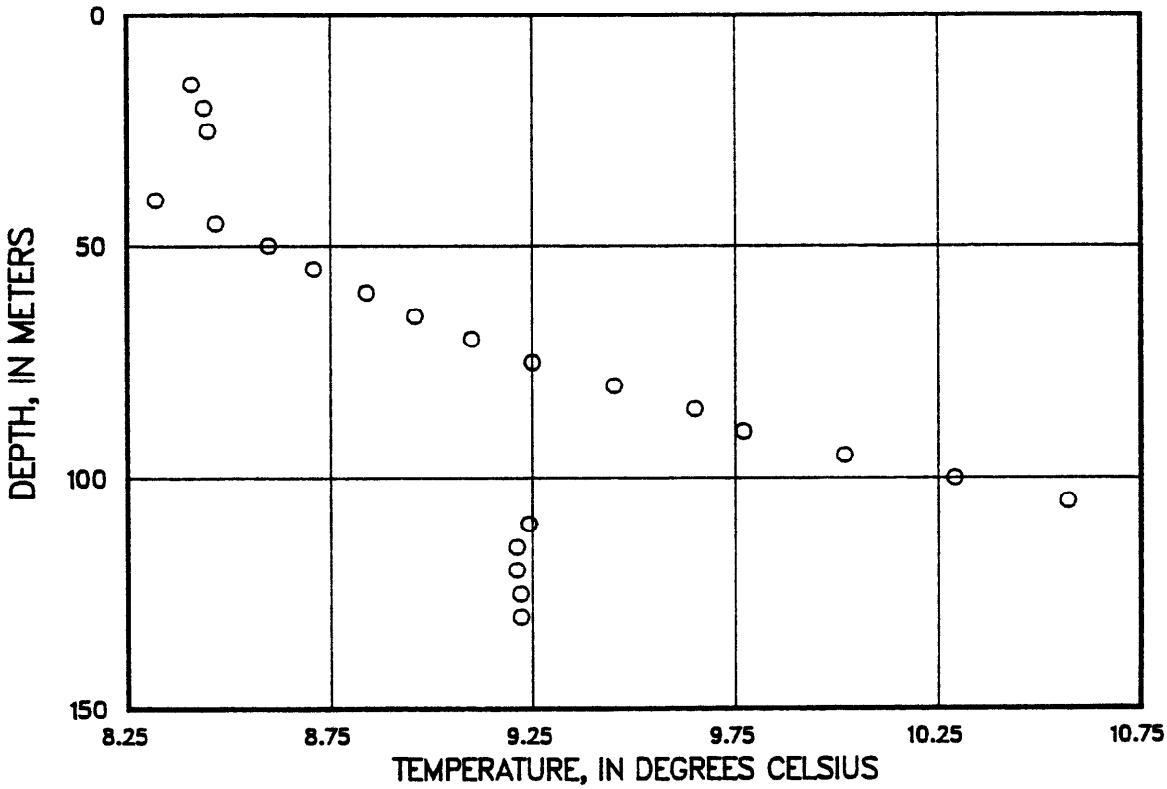

Fig. 196-Temperature profile from 18S-11E-25 NW.

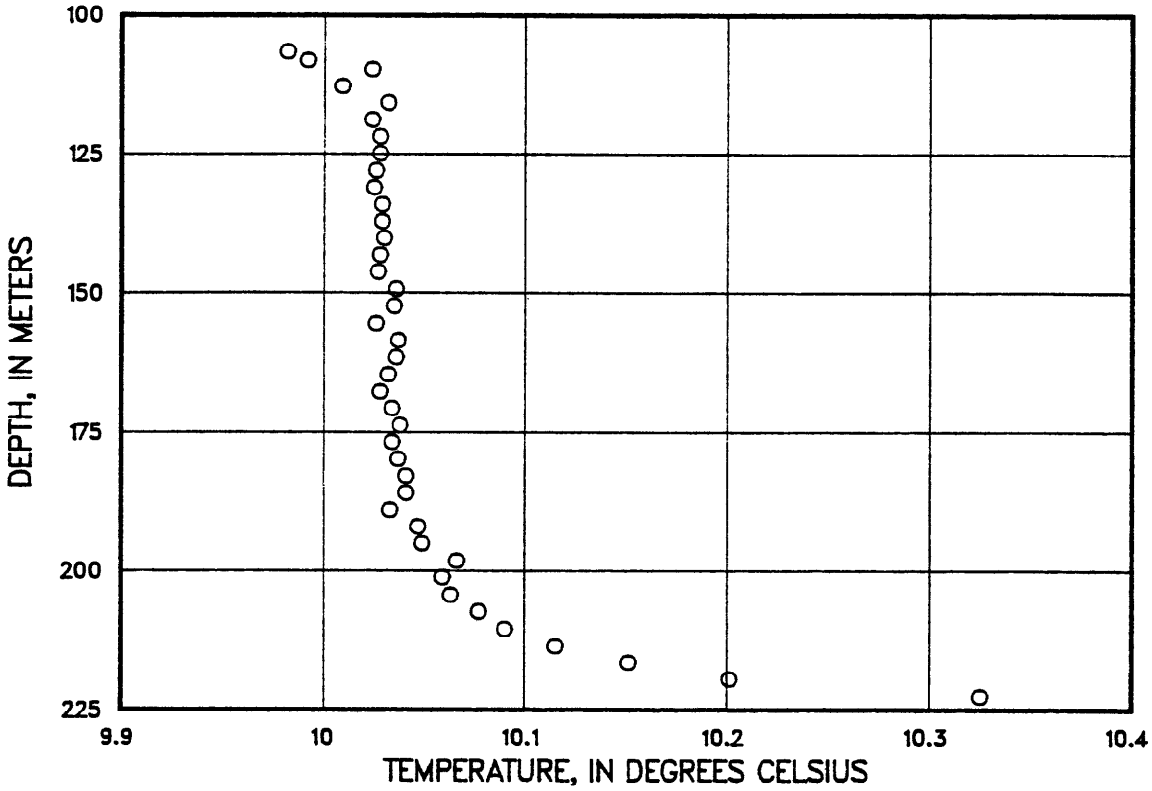

Fig. 197-Temperature profile from 18S-12E-05 NW.

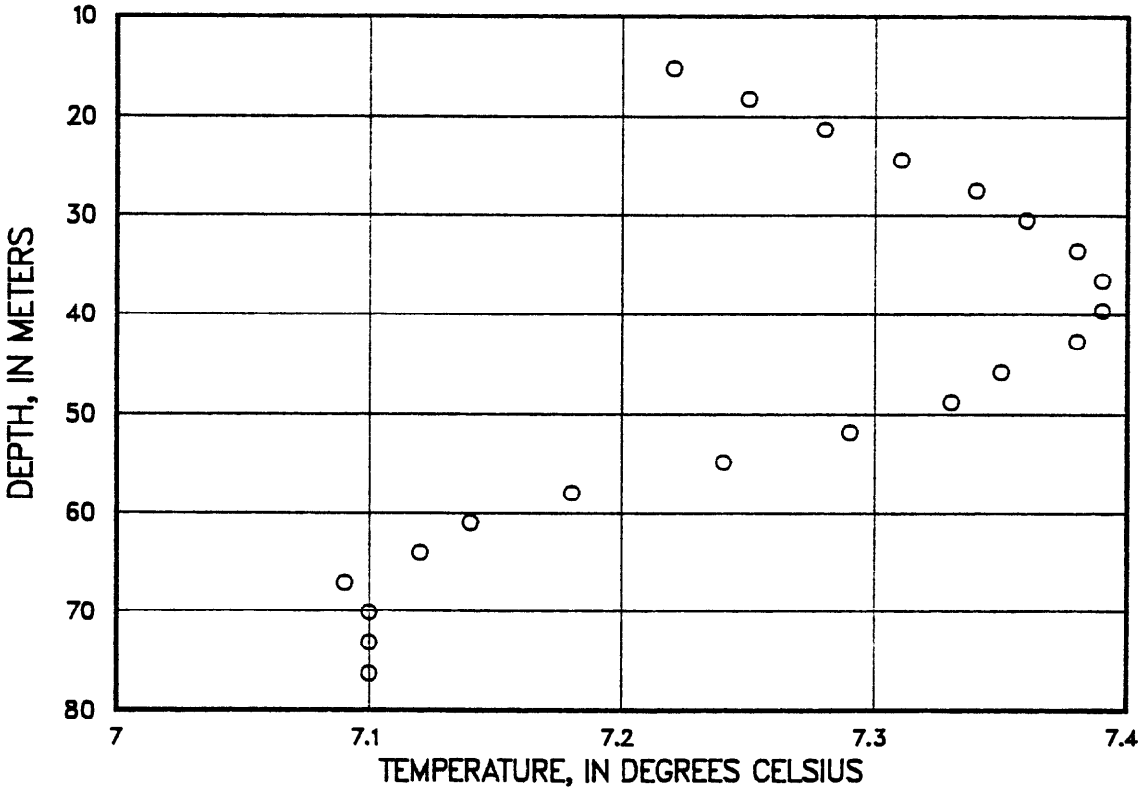

Fig. 198-Temperature profile from 19S-11E-16 NE.

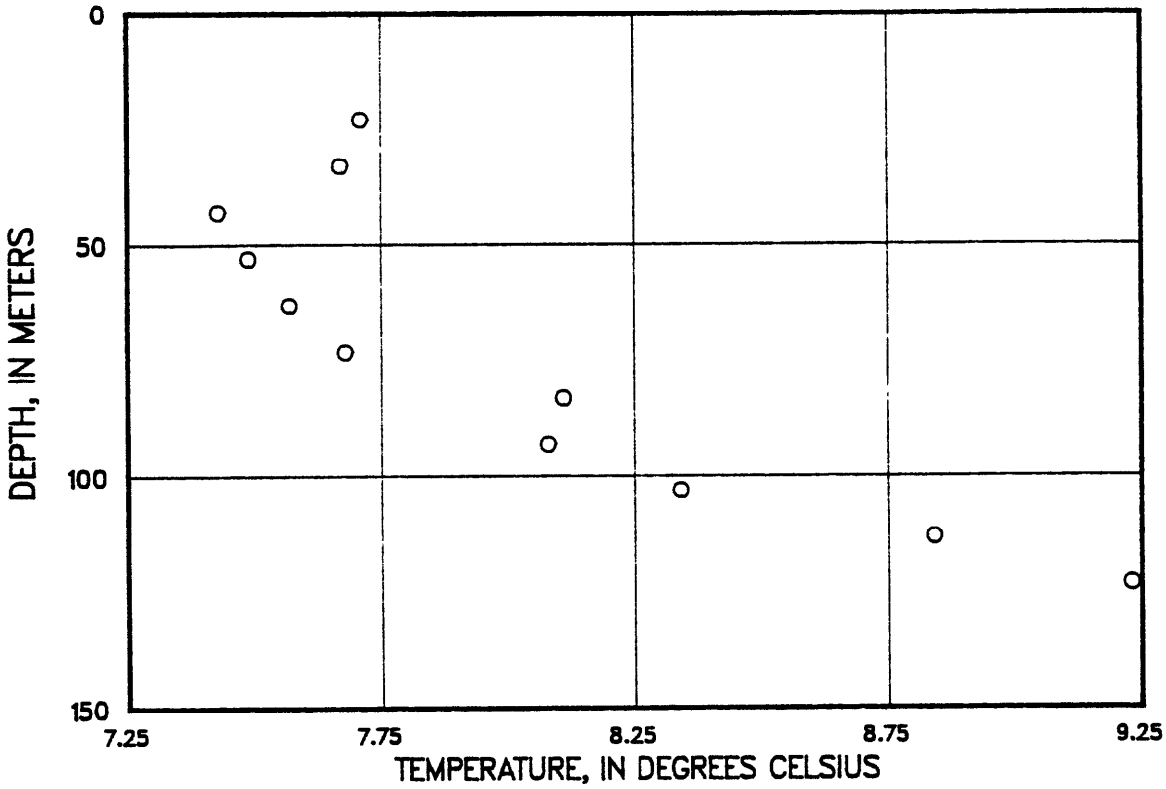

Fig. 199-Temperature profile from 19S-11E-25 NW.

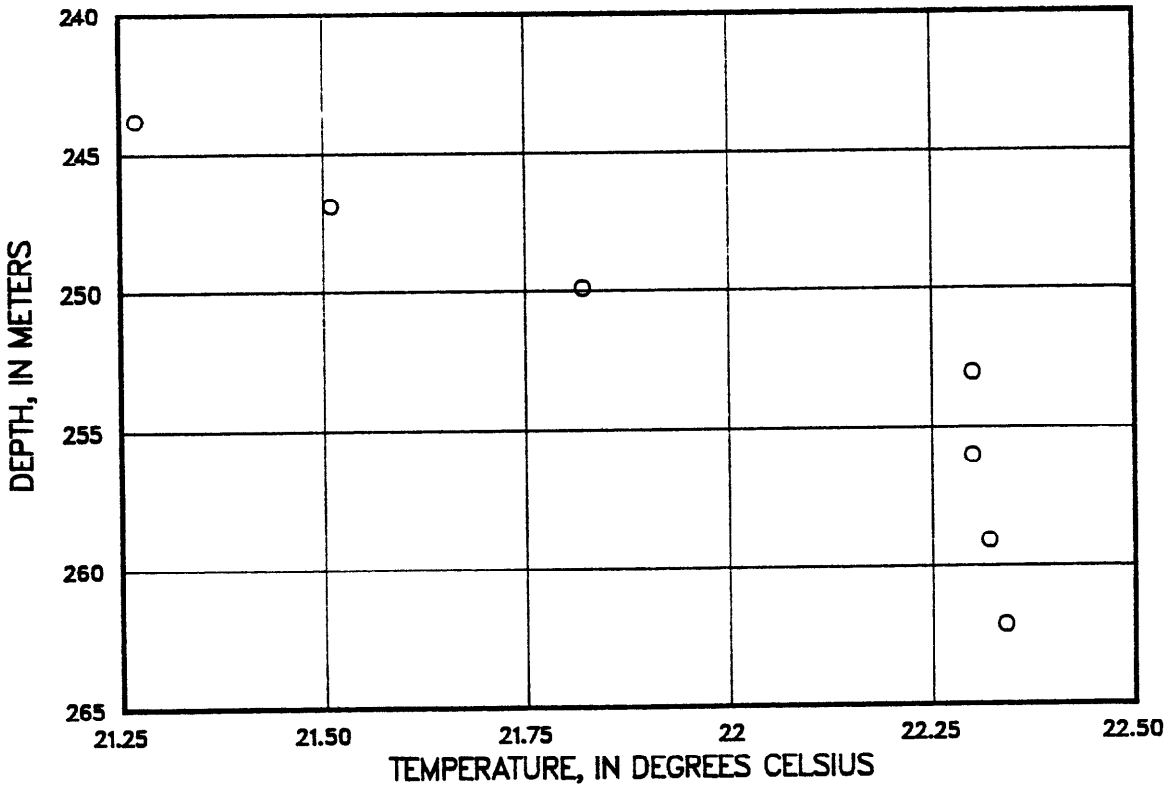

Fig. 200-Temperature profile from 19S-14E-02 SE.

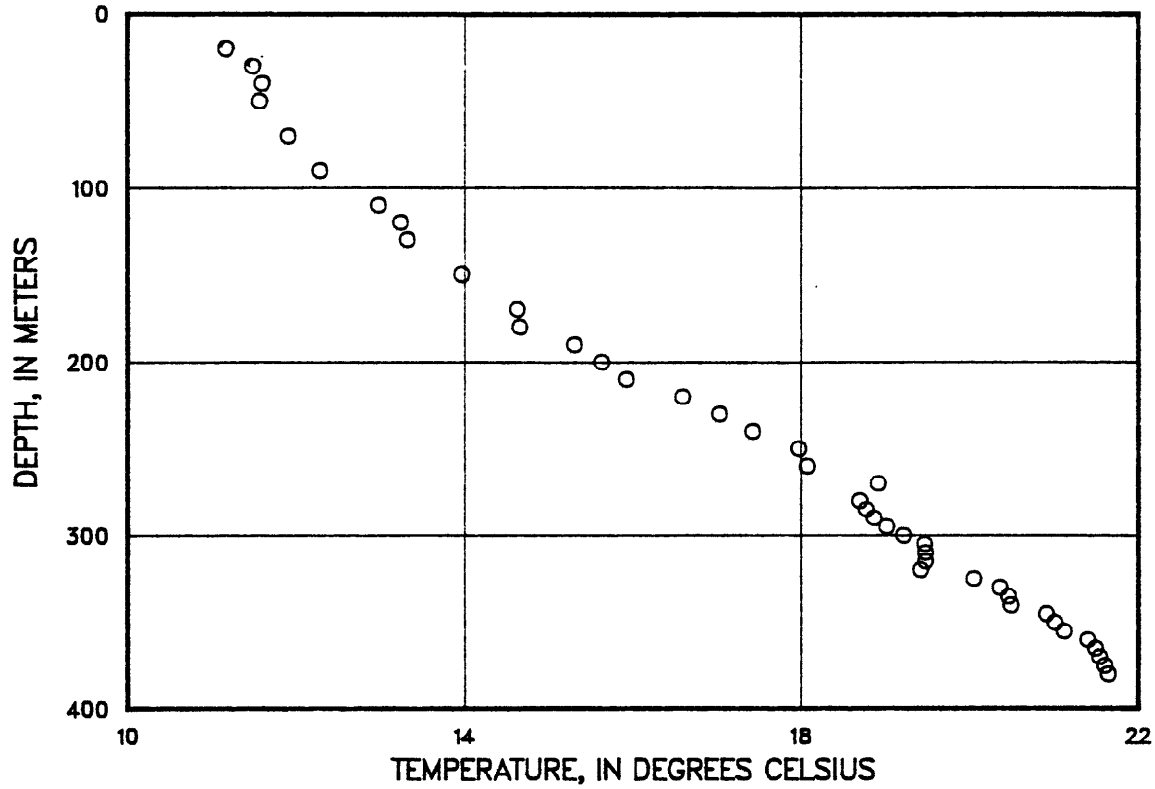

Fig. 201-Temperature profile from 19S-14E-24 SE.

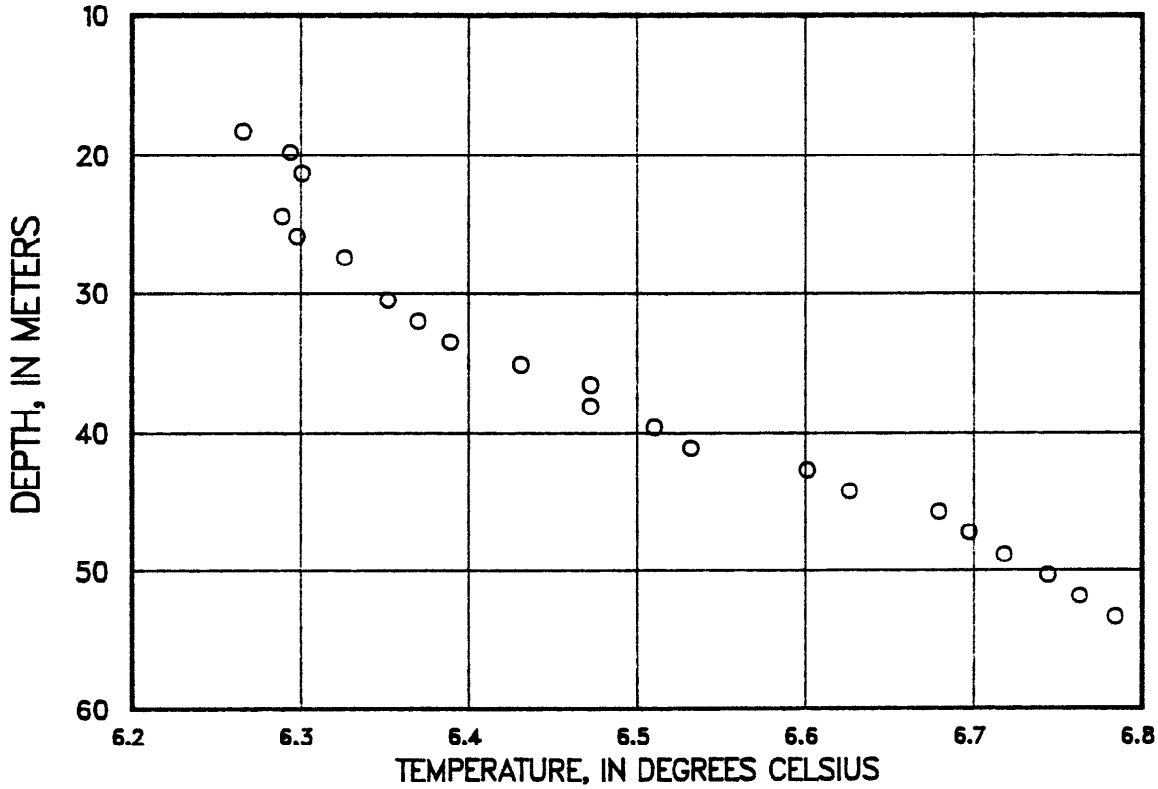

Fig. 202-Temperature profile from 20S-7E-34 NE.

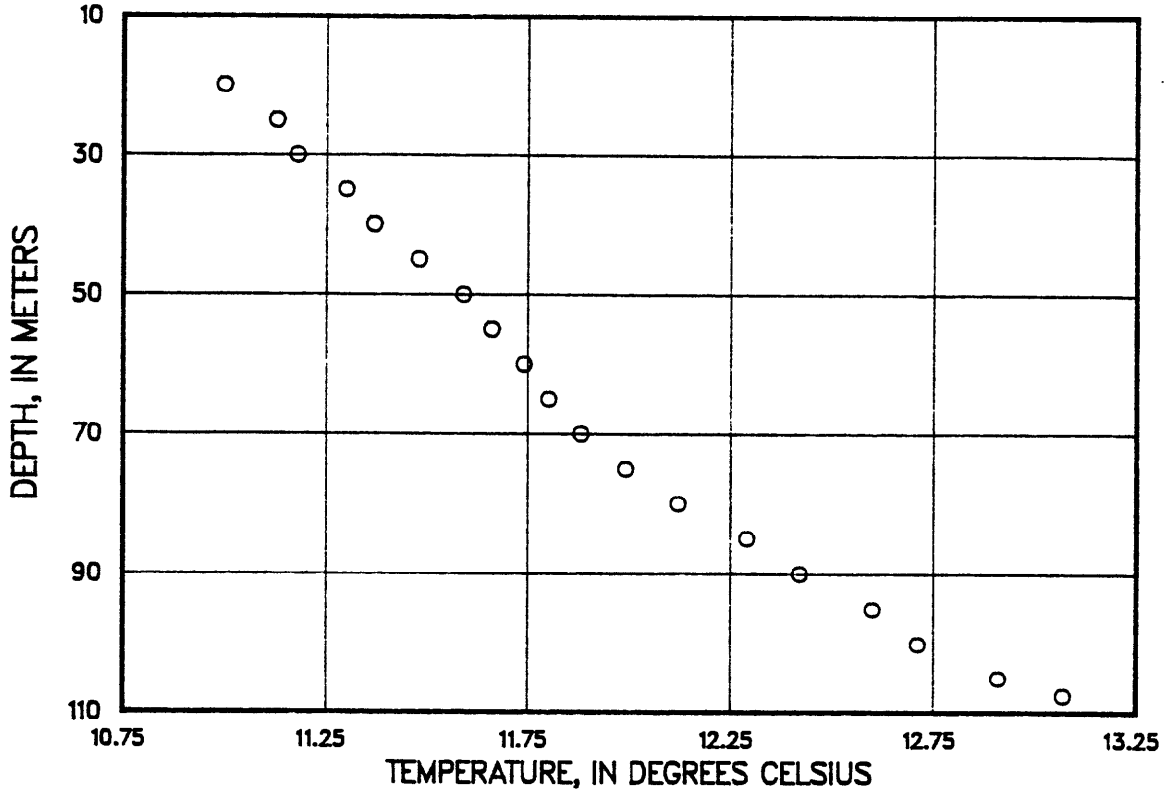

Fig. 203-Temperature profile from 20S-14E-13 NE.

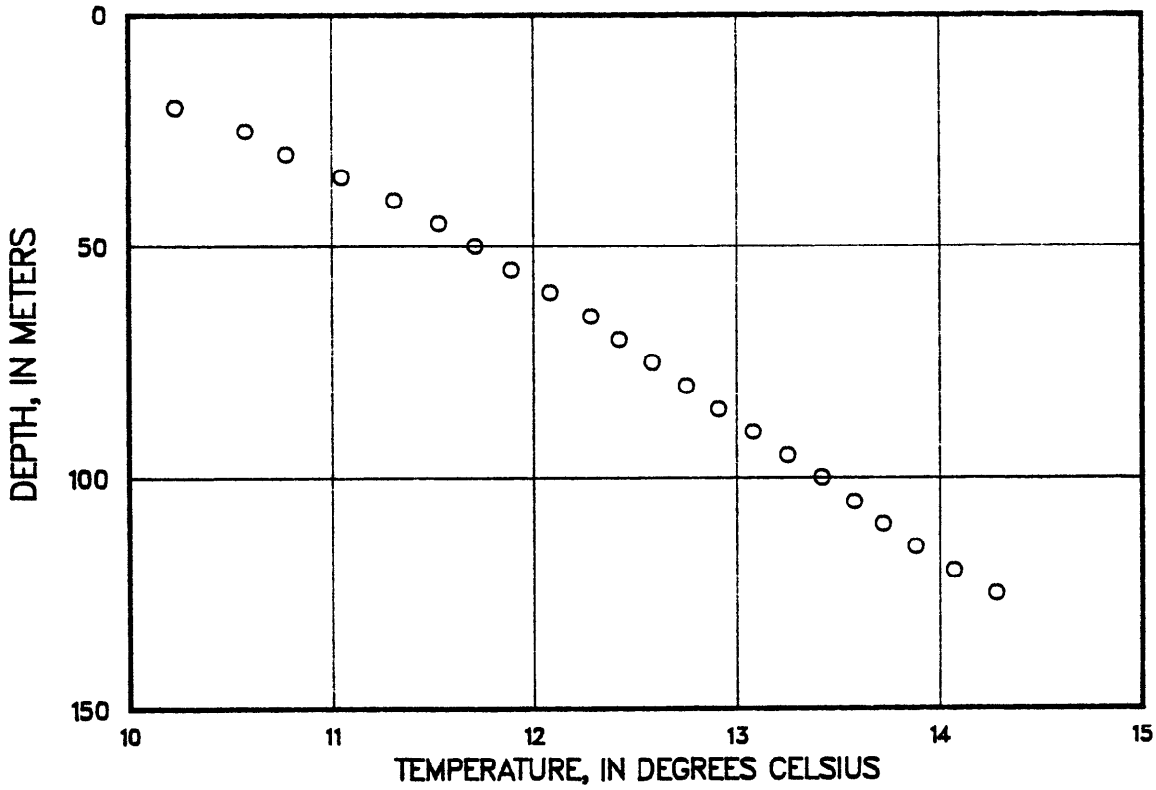

Fig. 204-Temperature profile from 20S-14E-25 NE.

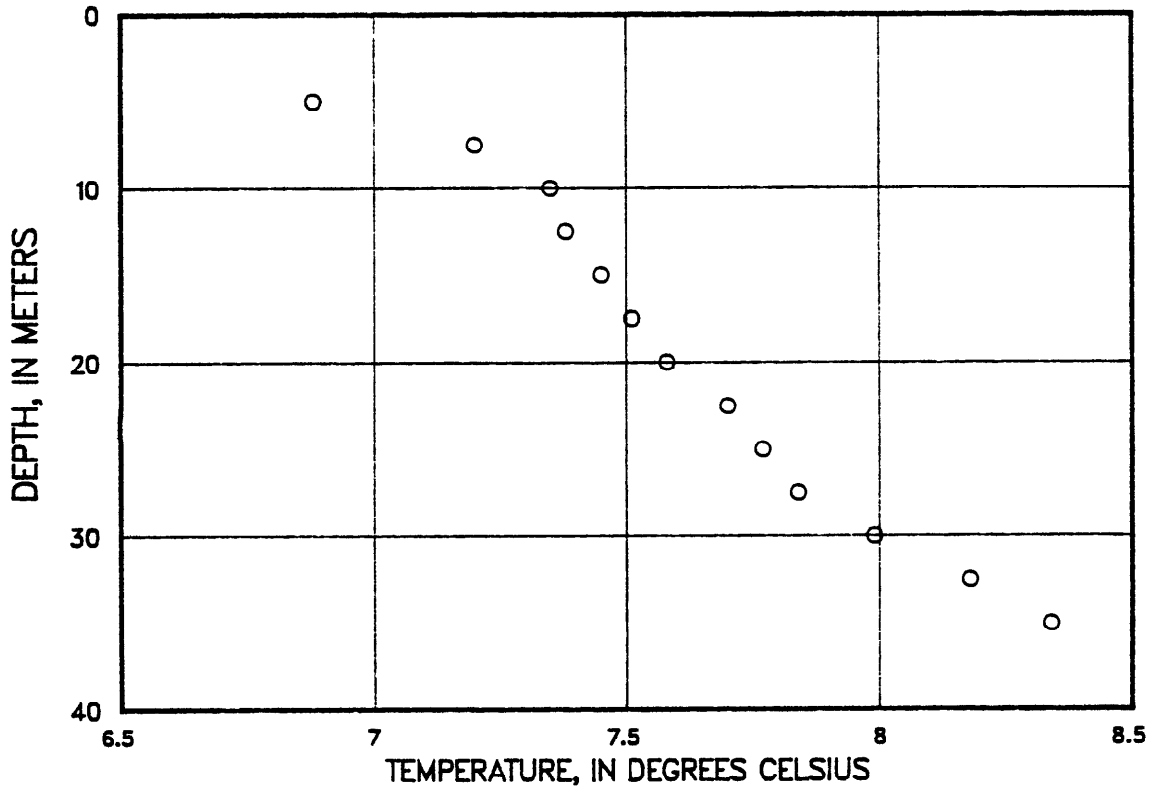

Fig. 205-Temperature profile from 21S-11E-25 NW.

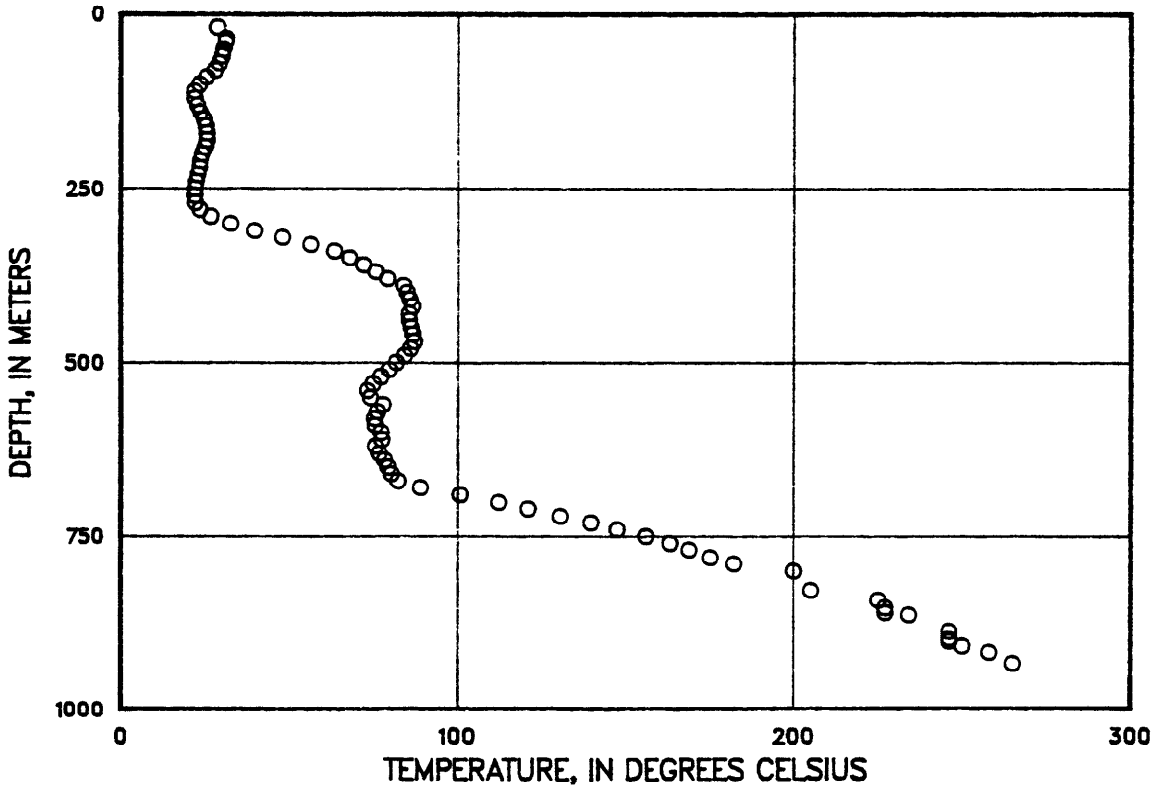

Fig. 206-Temperature profile from 21S-13E-31 SW.

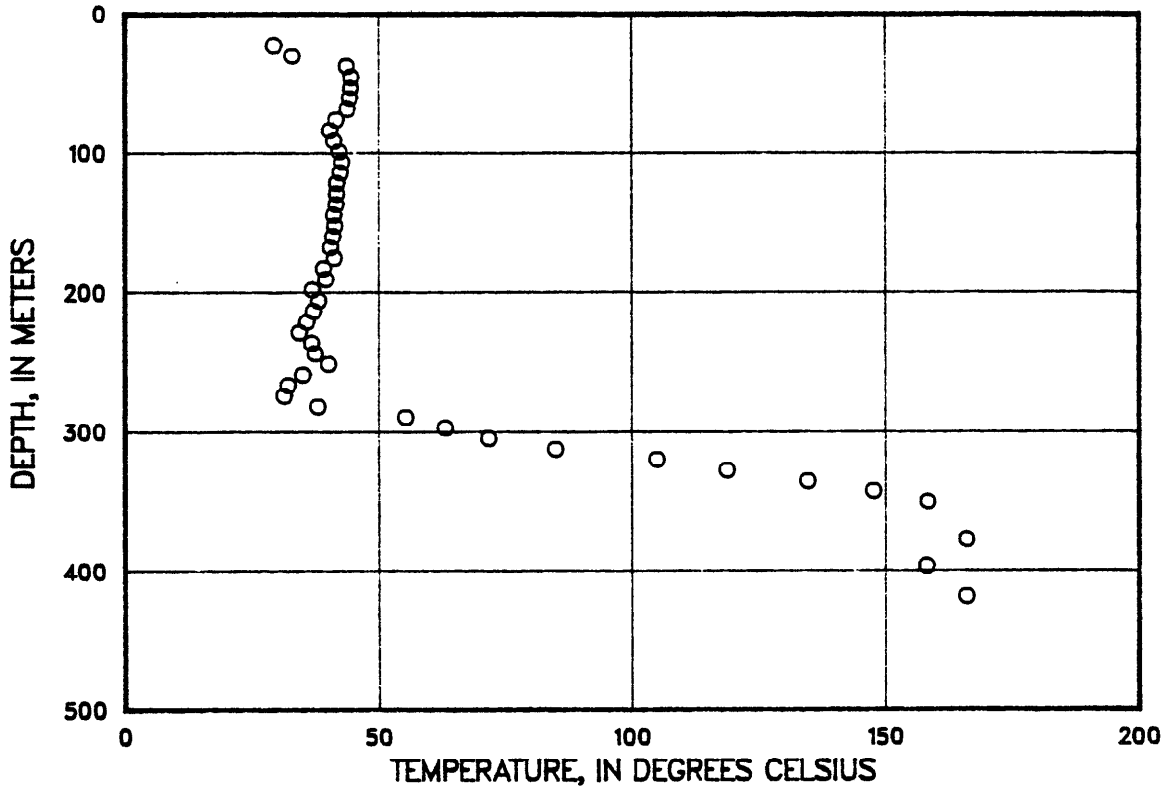

Fig. 207-Temperature profile from 21S-13E-31 SW.

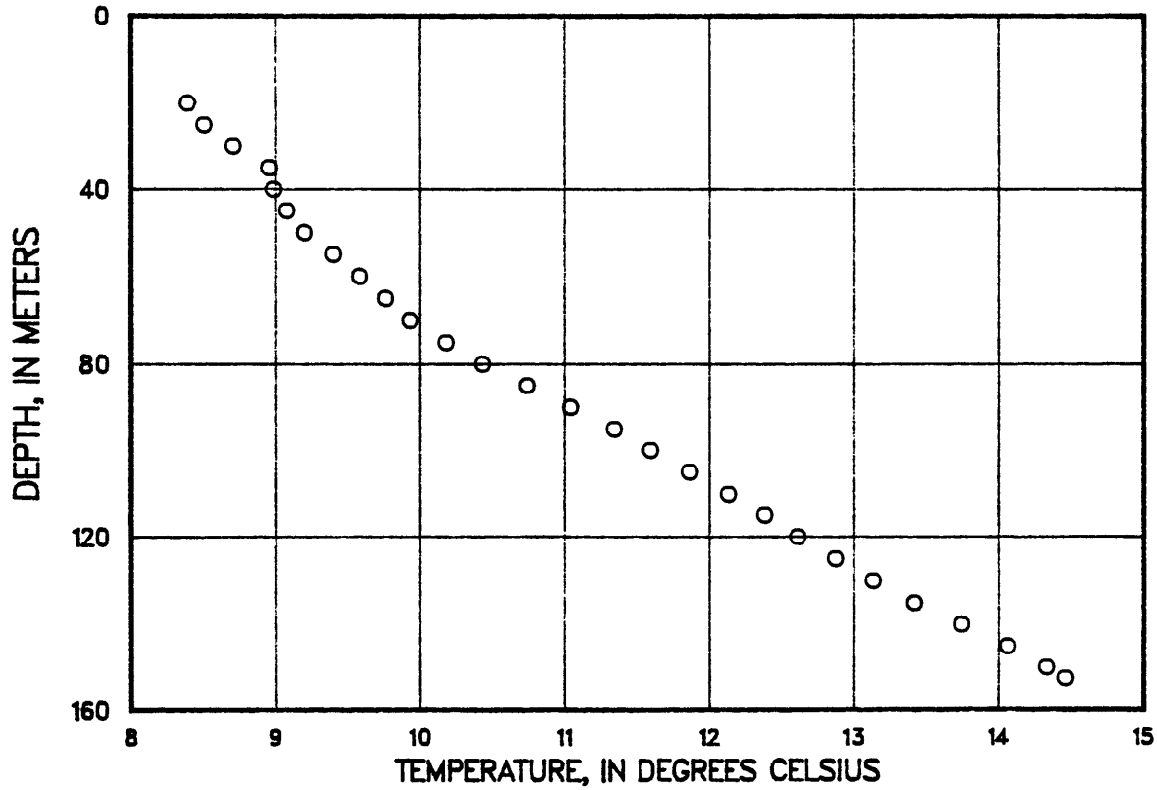

Fig. 208-Temperature profile from 21S-15E-16 NE.

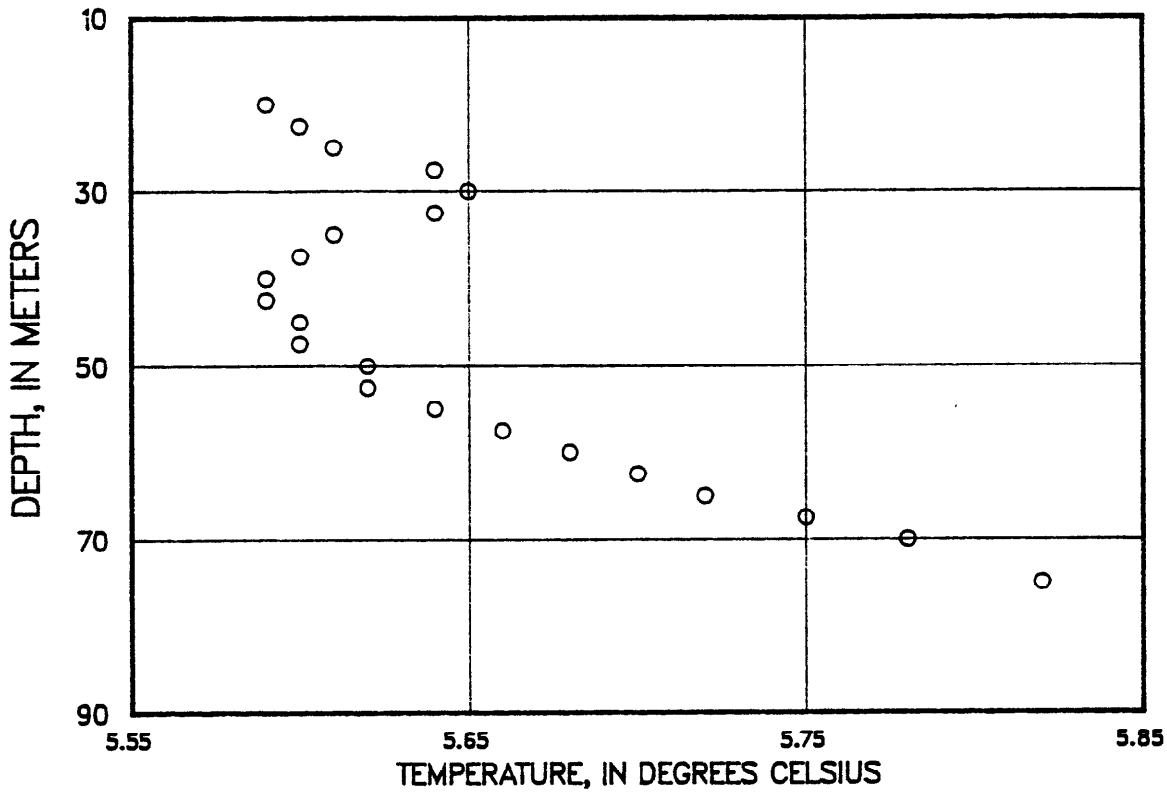

Fig. 209-Temperature profile from 22S-14E-03 NE.

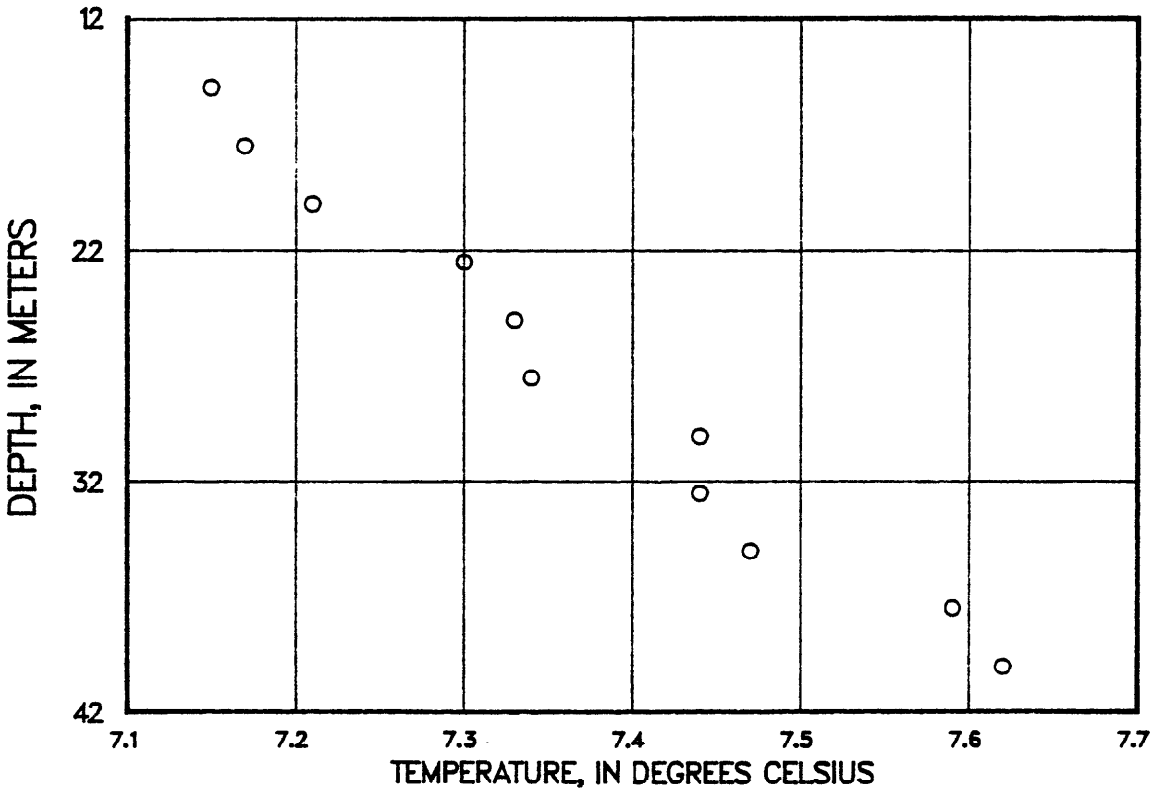

Fig. 210-Temperature profile from 22S-15E-35 NE.