HEAT FLOW AND VOLCANIC TEMPERATURES

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SECTION 22

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Measurements of terrestrial heat flow have been made only in recent years. The first determinations of heat flow in the continents were published in 1939 by Bullard [**37**], and by Benfield [**73**], and results of oceanic heat-flow measurements were first given in 1952 by Revelle and Maxwell [**26**]. At present, about 2000 heat-flow observations are available and have been recently reviewed and analyzed by Lee and Uyeda [**115**]. The following list of data is based mostly on this work. (For a review of heat-flow measurement *see* [**115**].)

In early oceanic heat-flow measurements, temperature gradients were measured with metal probes equipped with temperature sensors that penetrated a few meters into the ocean bottom sediment. Conductivities were measured from cores taken at or near the site of temperature measurement. Recently, temperature sensors have been attached as outriggers to coring tubes. This technique combines coring (usually piston coring) and temperature-gradient measurement in one operation and offers deeper penetration. Although some thermal conductivities are estimated from the water or chlorine content of the bottom sediment, most of them are measured directly on cores, using a needle probe technique [**116**]. For a deep ocean station, it is common to correct conductivities measured in the laboratory by −4 per cent to bring them to ambient sea-bottom conditions. Since thermal conductivity of ocean sediments varies only slightly, some oceanic heat-flow values are determined by using the thermal conductivity of nearby stations. These values are enclosed in parentheses in the tables. Occasionally, a probe has not achieved full penetration into the sediments. Heat-flow values which are derived from these less reliable temperatures gradients are marked by an asterisk. A single oceanic determination, that at Eniwetok atoll, depends on temperature measurements in a borehole at depths between 3580 and 3980 feet [**95**]. At the Preliminary Mohole Site, 75 km east of Guadalupe Island, the measured heat flow is almost constant to a depth of 154 m, and the results agree well with nearby measurements made with a probe [**20**].

On the continents, annual and diurnal temperature fluctuations invalidate measurements of underground temperatures at very shallow depths, and relatively deep borings or workings are required for determination of heat flow. Other disturbances, which may penetrate to great depths, may be caused by circulation of ground water. It should be remarked that the validity of the oceanic measurements depends on the assumption that these types of disturbances do not affect the sea floor.

Some of the early measurements of heat flow were corrected by a large amount in order to take account of Pleistocene climatic fluctuations. A rediscussion of the problem by Birch [**101**] led to the conclusion that this correction should barely be perceptible at middle and low latitudes, and that the corrections which had been made previously were much too large. No correction for climatic change has been made in these tables.

In mountainous regions account must be taken of the effects of local topographic features. The geothermal gradient may also be affected by recent uplift and erosion. Corrections for these effects have been considered to be important in parts of the western United States, in the Alps, and in Australia and Tasmania.

A number of published measurements of heat flow on land have been omitted from the tables either because they have been superseded by later, more accurate work or because their accuracy was thought to be too low to merit inclusion. However, these omitted data can be found in Lee and Uyeda [**115**]. The references contain almost all articles reporting heat-flow observations, whether or not they are referred to in the tables.

Where the accuracy is in doubt or the heat flow seems to be disturbed, the value has been marked by a question mark. The reliability of the remaining entries in the table is

difficult to assess. The best values may be in error by less than 10 per cent, but it is not clear which determinations fall in this category. Disturbance of temperatures by circulating ground water may go undetected, and the estimate of conductivity may be in error because of inadequate and biased sampling. This latter difficulty is extreme where the local lithology is characterized by short-range fluctuations between units with sharply contrasting conductivities, a situation that is commonly encountered in coal-mining regions, for example. Oceanic heat-flow values may be affected by submarine slumping, local relief of the sea floor, and local variations in sediment thickness. Objective criteria for assessing reliability under these circumstances do not exist, and the reader is referred to the original literature in order to form his own opinion.

Estimates for the conductive part of heat flow in areas of thermal activity are given in Table 22-10. These values, although rough, show clearly that very high heat flow may occur locally on land, as well as at sea.

The temperatures recorded in Table 22-11 are the highest observed in volcanoes which emit lavas of a broadly basaltic character. As such, they are the highest sustained temperatures produced by nature at the earth's surface. More siliceous lavas, such as dacites, may emerge at temperatures hundreds of degrees lower than those given here.

In assessing these results, it must be remembered that observing conditions are far from ideal in the immediate vicinity of an active volcano. This circumstance inevitably affects the accuracy of the measurements.

Most of the satisfactory data on volcanic temperatures have been obtained with optical pyrometers. Temperatures measured in this way in daylight may be systematically too high [**105**]. Results are also dependent on the magnifying power of the pyrometer, since with higher magnification the instrument may be focused more precisely on the hottest part of the lava [**107**]. Pyrometric measurements must be corrected for the emissivity of the lava and for atmospheric absorption. The former correction has been found to amount to a few tens of degrees [**113**] and the latter can be determined if measurements can be made at several distances from the source.

The notation for Tables 22-1 to 22-10 are as follows:

Lat. = Station latitude in degrees and minutes
Long. = Station longitude in degrees and minutes
Elev. = Station elevation on land in meters
Depth = Station depth at sea in meters
∇T = Temperature gradient in 10^{-3} °C/cm
K = Thermal conductivity in 10^{-3} cal/cm sec °C
Q = Heat flow in 10^{-6} cal/cm^2 sec
No = Number of heat-flow values averaged together
Ref = Reference number in the References
Yr = Year of publication; e.g., 39 = 1939
( ) = Heat-flow value derived from estimated conductivity
* = Heat-flow value obtained when penetration of the temperature-gradient probe is partial
? = Heat-flow value is questionable

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TABLE 22-1. HEAT FLOW IN AFRICA

Station	Lat.	Long.	Elev.	∇T	K	Q	No.	Ref.	Yr.
Jacoba	27°18′ S	26°24′ E	1310	.128	7.46	.95	1	37	39
Doornhoutrivier	27°18′ S	26°24′ E	1300	.131	7.40	.97	1	37	39
Gerhardminnebron	26°30′ S	27°12′ E	1520	.095	13.5	1.28	1	37	39
Doornkloof	26°18′ S	27°30′ E	1660	.089	13.5	1.20	1	37	39
Reef-nigel	26°18′ S	28°18′ E	1565	.103	10.0	1.03	1	37	39
Dubbeldevlei	30°30′ S	21°30′ E	990	.223	6.80	1.52	1	37	39
HB 15	26°48′ S	26°54′ E	1310	.105	10.0	1.05	1	38	54
Roodepoort	26°54′ S	26°36′ E	1300	.119	7.2	.86	1	38	54
Messina	22°18′ S	30°06′ E	518	.269	5.1	1.37	1	38	54
Kestell	28°18′ S	28°42′ E	1980	.248	5.2	1.29	1	38	54
Sambokkraal	32°42′ S	21°18′ E	737	.183	7.6	1.39	1	39	63
Koegelfontein	33°00′ S	21°18′ E	726	.182	7.9	1.45	1	39	63
Bothadale	32°48′ S	22°36′ E	952	.178	7.1	1.28	1	39	63
Kalkkop	32°42′ S	24°24′ E	654	.196	6.1	1.21	1	39	63
Lake Nyasa	11°27′ S	34°29′ E	460	.62	1.6	1.0	20	40	65

TABLE 22-2. HEAT FLOW IN AMERICA

Station	Lat.	Long.	Elev.	∇T	K	Q	No.	Ref.	Yr.
United States									
Grass Valley, Calif.	39°12′ N	121°03′ W	667	.092	6.	.6	1	42	57
Bakersfield, Calif.	35°28′ N	119°45′ W	207	.350	3.7	1.29	1	43	47
Reeves Co., Texas	31°10′ N	103°14′ W	700	.083	13.	1.1	1	45	56
Regan County, Texas	31°15′ N	101°28′ W	700	.083	13.	1.1	12	45	56
Well 103	31°15′ N	101°28′ W	700	.090	13.	1.2	1	45	56
Well 115	31°15′ N	101°28′ W	700	.076	13.	1.0	1	45	56
Well 118	31°15′ N	101°28′ W	700	.079	13.	1.0	1	45	56
Well 119	31°15′ N	101°28′ W	700	.083	13.	1.1	1	45	56
Well 126	31°15′ N	101°28′ W	700	.083	13.	1.1	1	45	56
Well 127	31°15′ N	101°28′ W	700	.086	13.	1.1	1	45	56
Upton Co., Texas	31°23′ N	101°48′ W	700	.083	13.	1.1	1	45	56
Midland Co., Texas	31°39′ N	102°15′ W	700	.094	13.	1.2	1	45	56
Eddy Co., N. Mex.	32°29′ N	104°03′ W	700	.085	12.6	1.1	5	45	56
Sand. + Mills	32°38′ N	104°14′ W	700	.103	11.8	1.2	1	45	56
Superior No. 1	32°14′ N	104°07′ W	700	.101	11.8	1.2	1	45	56
N.M. Prod. Ref.	32°24′ N	104°16′ W	700	.073	13.	.9	1	45	56
Marland, Ohio	32°18′ N	103°45′ W	700	.077	13.	1.0	1	45	56
Getty No. 7	32°31′ N	104°09′ W	700	.080	13.	1.0	1	45	56
Lea Co., N. Mex.	32°47′ N	103°48′ W	1000	.092	13.	1.2?	1	45	56
Colorado Springs, Colo.	38°49′ N	104°49′ W	1885	.2	7.	1.4?	1	46	47
Griffin, Lagrange, Ga.	33° N	84° W	300	.143	7.	1.0?	2	51	63
Front Range, Colo.	40°15′ N	105°40′ W	2500	.22	7.8	1.7	1	47	50
San Manuel, Ariz.	32°37′ N	110°39′ W	970	.15	8.	1.2?	1	48	48
Calumet, Mich.	47°17′ N	88°28′ W	360	.186	5.0	.93	1	49	54
Butler, Penn.	40°59′ N	80°08′ W	200	.29	4.2	1.2?	1	50	60
Potter, Penn.	41°54′ N	77°56′ W	200	.37	3.8	1.4?	2	50	60
Doddridge, West Va.	39°17′ N	80°46′ W	200	.29	4.2	1.22?	1	50	60
Marion, West Va.	39°25′ N	80°05′ W	200	.34	3.5	1.20?	1	50	60
Harrison, West Va.	39°18′ N	80°14′ W	200	.37	3.4	1.26?	1	50	60
Oak Ridge, Tenn.	35°55′ N	84°19′ W	240	.12	6.1	.73	1	51	63
Washington, D.C.	39° N	77° W	30	.157	7.13	1.12	1	52	64
Boss, Mo.	37°39′ N	91°10′ W	375	.17	7.6	1.29	1	53	63
Bourbon, Mo.	38°09′ N	91°15′ W	290	.15	8.1	1.22	1	53	63
Delaware, Mich.	47°24′ N	88°01′ W	389	.16	5.3	.95	1	53	63
White Pine, Mich.	46°44′ N	89°34′ W	281	.16	6.7	1.07	3	53	63
DDH N55	46°45′ N	89°34′ W	279	.16	6.7	1.07	1	53	63
DDH N65	46°44′ N	89°34′ W	305	.16	6.6	1.06	1	53	63
DDH E27	46°44′ N	89°36′ W	260	.16	6.9	1.10	1	53	63
Metaline, Wash.	48°54′ N	117°21′ W	686	.20	11.6	2.31	4	53	63
DDH CS2	48°55′ N	117°20′ W	671	.24	11.	2.67	1	53	63
DDH CS9	48°53′ N	117°21′ W	734	.21	11.	2.31	1	53	63
DDH R1	48°54′ N	117°21′ W	664	.20	12.	2.38	1	53	63
DDH R4	48°54′ N	117°20′ W	675	.19	12.	2.25	1	53	63
Gov't Canyon, Utah	39°52′ N	112°04′ W	1860	.40	4.7	1.9	1	53	63
Eureka, Utah	39°57′ N	112°03′ W	1702	.80	4.4	3.51?	1	53	63
Yerington, Nevada	38°55′ N	119°04′ W	1034	.27	8.7	2.36	3	53	63
DDH L2	38°55′ N	119°04′ W	1459	.27	8.4	2.26	1	53	63
DDH L5	38°56′ N	119°04′ W	1410	.28	8.5	2.39	1	53	63
DDH L13	38°56′ N	119°04′ W	1434	.21	9.1	1.9	1	53	63
Barstow, Calif.	34°39′ N	116°21′ W	1245	.24	8.8	2.1	2	53	63
DDH M10	34°39′ N	116°41′ W	1246	.24	6.6	1.59	1	53	63
DDH M11	34°39′ N	116°21′ W	1245	.24	8.8	2.10	1	53	63
Alberta, Va.	36°52′ N	77°54′ W	116	.18	7.8	1.4	1	98	65
Aiken, S.C.	33°17′ N	81°40′ W	100	.15	6.7	1.0	6	97	65
Salt Valley, Utah	38°55′ N	109°50′ W	1500	.385	3.43	1.2	5	99	64
Reeder 1	38°55′ N	109°50′ W	1500	.374	3.54	1.32	1	99	64
Crescent	38°55′ N	109°50′ W	1500	.386	3.38	1.30	1	99	64
Brendell	38°55′ N	109°50′ W	1500	.394	3.38	1.33	1	99	64
Balsley	38°46′ N	109°38′ W	1500	.314	3.51	1.10	1	99	64
Hyde	38°51′ N	109°30′ W	1500	.194	5.23	1.01	1	99	64
Puerto Rico									
Mayaguez	18°09′ N	67°10′ W	30	.10	6.0	.6	1	54	64

TABLE 22-2. *Continued*

Station	Lat.	Long.	Elev.	∇T	K	Q	No.	Ref.	Yr.
Canada									
Toronto	43°42′ N	79°25′ W	100	.160	6.4	1.03	1	56	51
Sudbury	46°30′ N	81°01′ W	200	.158	6.4	1.01	1	56	51
Thetford	46°06′ N	71°18′ W	200	.157	6.7	1.05	1	56	51
Calumet Island	45°49′ N	74°41′ W	50	.156	8.5	1.32?	1	56	51
Kirkland Lake	48°10′ N	80°02′ W	200	.130	7.7	1.00	3	56	51
Lake Shore	48°10′ N	80°02′ W	200	.130	7.5	.97	1	56	51
Teck-Hughes	48°10′ N	80°02′ W	200	.130	7.9	1.03	1	56	51
Wright-Hargreave	48°10′ N	80°02′ W	200	.130	7.7	.99	1	56	51
Malartic	48°09′ N	78°09′ W	200	.101	6.8	.69	1	56	51
Larder Lake	48°06′ N	79°44′ W	200	.097	9.1	.88	1	56	51
Timmins	48°30′ N	81°20′ W	200	.091	8.0	.73	2	56	51
Delnite	48°30′ N	81°20′ W	200	.092	8.0	.73	1	56	51
McIntyre	48°30′ N	81°20′ W	200	.090	8.0	.73	1	56	51
Montreal	45°15′ N	73°57′ W	50	.062	12.0	.74	1	60	62
Ste. Rosalie	45°38′ N	72°40′ W	49	.159	5.06	.81	1	60	62
Lounan-Cartier	46°05′ N	73°08′ W	22	.269	3.03	.82	1	60	62
Leduc	53°23′ N	113°48′ W	700	.43	3.7	1.6	1	61	62
Redwater	53°59′ N	113°07′ W	700	.30	4.9	1.46	1	61	62
Norman Wells	65°18′ N	126°51′ W	100	.65	3.1	2.00	1	61	62
Flin Flon	54°47′ N	101°51′ W	200	.12	6.7	.8	1	62	62
Brent Crater	46°05′ N	78°29′ W	335	.133	5.6	.75	1	63	63

Table 22-3. Heat Flow in Australia

Station	Lat.	Long.	Elev.	∇T	K	Q	No.	Ref.	Yr.
Great Lake, Tasmania	41°58′ S	146°11′ E	1027	.4	5.	2.	6	65	63
DDH 5001	41°58′ S	146°11′ E	1027	.43	4.7	2.04	1	64	53
DDH 5084	41°58′ S	146°11′ E	1000	.338	5.4	1.9	1	65	63
DDH 5154	41°58′ S	146°11′ E	1000	.338	5.4	1.9	1	65	63
Storey Creek, Tasmania	42° S	146° E	900	.308	12.2	3.8	1	65	63
Rosebery, Tasmania	41°46′ S	145°34′ E	320	.29	8.6	2.5	1	65	63
Snowy Mountains	36°30′ S	148° E	1000	.226	8.6	2.	2	67	64
DDH 5010	36°30′ S	148° E	1000	.213	8.8	1.9	1	66	56
Eucumbene-Tumut	36°30′ S	148° E	1000	.239	8.4	2.0	1	67	64
Cobar	31°32′ S	145°50′ E	250	.205	10.6	2.18	1	68	62
Broken Hill	31°57′ S	141°28′ E	300	.199	9.70	1.93	18	69	63
DDH BH1205	31°57′ S	141°28′ E	300	.197	9.87	1.94	1	69	63
DDH BH1126	31°57′ S	141°28′ E	300	.200	9.53	1.91	1	69	63
DDH BH1093	31°57′ S	141°28′ E	300	.196	9.84	1.93	1	69	63
DDH BH1040	31°57′ S	141°28′ E	300	.193	10.4	2.01	1	69	63
DDH BH950	31°57′ S	141°28′ E	300	.198	10.5	2.07	1	69	63
DDH BHW1	31°57′ S	141°28′ E	300	.187	10.3	1.93	1	69	63
DDH BH305	31°57′ S	141°28′ E	300	.199	9.49	1.89	1	69	63
DDH BH678	31°57′ S	141°28′ E	300	.198	9.51	1.88	1	69	63
DDH G969	31°57′ S	141°28′ E	300	.200	10.1	2.03	1	69	63
DDH P814	31°57′ S	141°28′ E	300	.188	9.61	1.81	1	69	63
DDH P820	31°57′ S	141°28′ E	300	.193	9.93	1.92	1	69	63
DDH P831	31°57′ S	141°28′ E	300	.198	9.58	1.90	1	69	63
DDH P835	31°57′ S	141°28′ E	300	.189	9.84	1.86	1	69	63
DDH C834	31°57′ S	141°28′ E	300	.202	9.61	1.94	1	69	63
DDH 57LBH1	31°57′ S	141°28′ E	300	.211	9.47	2.00	1	69	63
DDH 57LBH6	31°57′ S	141°28′ E	300	.203	9.61	1.95	1	69	63
DDH 59P8	31°57′ S	141°28′ E	300	.206	9.61	1.98	1	69	63
DDH 55C6	31°57′ S	141°28′ E	300	.216	8.40	1.81	1	69	63
Kalgoorlie	30°45′ S	121°30′ E	380	.088	10.1	.89	1	67	64
Kalgoorlie	30°55′ S	121°33′ E	380	.098	10.1	.96	4	70	64
DDH SE10	30°55′ S	121°33′ E	380	.107	9.7	1.04	1	70	64
DDH SE12	30°55′ S	121°33′ E	380	.105	10.4	1.09	1	70	64
DDH SE6	30°55′ S	121°33′ E	380	.084	9.9	.83	1	70	64
DDH SE4	30°55′ S	121°33′ E	380	.096	9.2	.83	1	70	64
Coolgardie	30°57′ S	121°10′ E	423	.124	7.3	.90	2	67	64
DDH BV1	30°57′ S	121°10′ E	423	.142	7.7	1.09	1	70	64
DDH MLS1	30°57′ S	121°10′ E	423	.105	6.9	.72	1	70	64
Norseman	32°20′ S	121°37′ E	305	.119	7.5	.89	1	67	64
Norseman	32°20′ S	121°37′ E	305	.143	7.1	1.01	3	70	64
DDH C79	32°20′ S	121°37′ E	305	.151	6.9	1.04	1	70	64
DDH C80	32°20′ S	121°37′ E	305	.154	6.8	1.05	1	70	64
DDH PRS105	32°20′ S	121°37′ E	305	.125	7.5	.94	1	70	64
Rum Jungle	13° S	131° E	60	.19	10.5	2.0?	3	67	64
Tennant Creek	19°34′ S	134°13′ E	328	.225	10.2	2.3	1	67	64
Mount Isa	21° S	139° E	300	.189	9.5	1.8	1	67	64
Cue	27°27′ S	117°52′ E	454	.108	8.8	.95?	1	67	64
Mount Magnet	28° S	118° E	460	.113	11.4	1.3	1	67	64
Bullfinch	31°14′ S	119°19′ E	360	.139	8.8	1.2	1	67	64
Radium Hill	32°30′ S	140°30′ E	305	.230	7.8	1.8	1	67	64
Ravensthorpe	33°40′ S	120° E	180	.116	8.2	.95	1	67	64
Cabawin	27°30′ S	150°12′ E	300	.25	4.6	1.16?	1	71	64
Moonie	27°44′ S	150°13′ E	300	.22	4.6	1.01?	1	71	64
Canberra	35°17′ S	149°08′ E	560	.252	8.15	2.06	1	71	64
Whyalla	33°10′ S	137°30′ E	60	.21	10.3	2.16	1	71	64
Kanmantoo	35°05′ S	139°15′ E	150	.194	10.9	2.11	1	71	64
Stawell	37°03′ S	142°47′ E	300	.271	10.5	2.84	1	71	64
Castlemaine	37°03′ S	144°13′ E	165	.242	11.9	2.88	1	71	64

TABLE 22-4. HEAT FLOW IN ASIA

Station	Lat.	Long.	Elev.	∇T	K	Q	No.	Ref.	Yr.
India									
Kolar Gold Fields	12°55′ N	78°15′ E	600	.104	6.28	.66	1	90	65
Iran									
Masjid-i-Sulaiman	31°59′ N	49°18′ E	413	.151	5.8	.87	18	89	47
T171	31°59′ N	49°18′ E	580	.164	6.2	1.01	1	89	47
T230	31°59′ N	49°18′ E	565	.147	4.4	.65	1	89	47
K178	31°59′ N	49°18′ E	550	.123	6.5	.80	1	89	47
SH95	31°59′ N	49°18′ E	440	.113	4.7	.53	1	89	47
B162	31°59′ N	49°18′ E	350	.133	4.8	.64	1	89	47
B187	31°59′ N	49°18′ E	310	.114	7.3	.83	1	89	47
B212	31°59′ N	49°18′ E	335	.128	7.2	.93	1	89	47
T232	31°59′ N	49°18′ E	440	.125	6.4	.80	1	89	47
CS23	31°59′ N	49°18′ E	435	.127	8.9	1.13	1	89	47
B211	31°59′ N	49°18′ E	335	.106	6.2	.66	1	89	47
Q250	31°59′ N	49°18′ E	555	.180	5.1	.92	1	89	47
Q225	31°59′ N	49°18′ E	420	.214	5.7	1.22	1	89	47
C209	31°59′ N	49°18′ E	335	.181	5.2	.94	1	89	47
C229	31°59′ N	49°18′ E	315	.166	5.4	.90	1	89	47
C222	31°59′ N	49°18′ E	320	.155	6.0	.92	1	89	47
C240	31°59′ N	49°18′ E	335	.150	5.7	.85	1	89	47
A244	31°59′ N	49°18′ E	305	.186	5.2	.96	1	89	47
C235	31°59′ N	49°18′ E	510	.198	5.3	1.05	1	89	47
Japan									
Haboro	44°21′ N	141°52′ E	100	.45	4.12	1.87	1	18	64
Shimokawa	44°14′ N	142°41′ E	350	.30	5.63	1.71	1	18	64
Konomai	44°08′ N	143°21′ E	100	.40	6.41	2.54	1	18	64
Akabira	43°32′ N	142°02′ E	100	.25	4.31	1.07	1	18	64
Ashibetsu	43°33′ N	142°12′ E	100	.30	4.38	1.35	1	18	64
Yabase	39°44′ N	140°06′ E	10	.48	4.19	2.01	1	18	64
Innai	39°16′ N	139°58′ E	10	.48	3.11	1.49	1	18	64
Osarizawa	40°11′ N	140°45′ E	300	.33	6.70	2.24	1	18	64
Noda-Tamagawa	40°04′ N	141°50′ E	0	.14	8.28	1.14	1	18	64
Kamaishi	39°16′ N	141°42′ E	770	.09	5.66	.52	1	18	64
Hitachi	36°38′ N	140°38′ E	350	.11	6.62	.71	1	18	64
Katsuta	36°24′ N	140°30′ E	0	.30	3.02	.91	1	18	64
Kashima	35°57′ N	140°41′ E	0	.21	3.57	.76	1	18	64
Mobara	35°24′ N	140°20′ E	0	.18	2.94	.54	1	18	64
Tokyo	35°42′ N	139°46′ E	20	.22	3.36	.74	1	18	64
Ashio	36°39′ N	139°27′ E	700	.36	6.25	2.23	1	18	64
Chichibu	36°01′ N	138°48′ E	1020	.19	7.06	1.34	1	18	64
Sasago	35°37′ N	138°48′ E	650	.27	7.61	2.06	1	18	64
Kamioka	36°21′ N	137°19′ E	650	.28	6.49	1.80	1	18	64
Nakatatsu	35°52′ N	136°35′ E	600	.29	6.71	1.95	1	18	64
Kune	35°05′ N	137°50′ E	262	.20	8.14	1.60	1	18	64
Nako	35°03′ N	137°52′ E	285	.22	6.65	1.44	1	18	64
Minenosawa	35° N	137°51′ E	300	.29	6.13	1.79	1	18	64
Ikuno	35°10′ N	134°50′ E	370	.19	7.33	1.38	1	18	64
Nakaze	35°21′ N	134°57′ E	300	.34	6.51	2.21	1	18	64
Yanahara	34°57′ N	134°04′ E	100	.20	5.89	1.20	1	18	64
Isotake	35°11′ N	132°26′ E	100	.40	8.65	3.49?	1	18	64
Tsumo	34°34′ N	132° E	350	.18	6.08	1.09	1	18	64
Kawayama	34°15′ N	132°59′ E	350	.17	5.85	1.00	1	18	64
Naka	34°15′ N	135°25′ E	197	.30	5.90	1.79	1	18	64
Hidaka	33°57′ N	135°05′ E	0	.29	7.40	2.12	1	18	64
Kiwa	33°50′ N	135°53′ E	80	.18	7.06	1.31	1	18	64
Besshi	34°01′ N	133°09′ E	160	.25	4.89	1.22	1	18	64
Izuhara	34°13′ N	129°14′ E	150	.29	7.41	2.17	1	18	64
Takamatsu	33°52′ N	130°43′ E	450	.31	6.27	1.92	1	18	64
Taio	33°07′ N	130°52′ E	600	.17	6.16	1.05	1	18	64
Makimine	32°38′ N	131°27′ E	120	.26	6.95	1.79	1	18	64

TABLE 22-5. HEAT FLOW IN EUROPE

Station	Lat.	Long.	Elev.	∇T	K	Q	No.	Ref.	Yr.
Great Britain									
Balfour	56°08′ N	3°07′ W	0	.23	3.0	.68	1	73	39
Holford	53°20′ N	2°30′ W	30	.13	5.7	.74	1	73	39
Blythswood	55°53′ N	4°20′ W	20	.36	3.4	1.24	1	73	39
South Balgary	55°53′ N	4°20′ W	20	.46	3.3	1.53	1	73	39
Hankham	50°55′ N	0°15′ W	20	.234	3.0	.71	1	73	39
Cambridge	52°12′ N	0°00′ E	30	.13	9.8	1.28	1	76	56
Nottinghamshire	53°08′ N	0°53′ W	70	.38	4.1	1.57	6	75	51
Eakring 5	53°09′ N	0°59′ W	83	.743	3.7	2.73?	1	75	51
Eakring 6	53°09′ N	1°00′ W	86	.786	3.5	2.75?	1	75	51
Eakring 64	53°08′ N	0°59′ W	91	.573	3.4	1.97?	1	75	51
Eakring 141	53°09′ N	1°00′ W	79	.718	4.0	2.87?	1	75	51
Kelham Hills	53°07′ N	0°52′ W	52	.364	4.0	1.47	1	75	51
Caunton	53°08′ N	0°54′ W	30	.391	4.2	1.67	1	75	51
Yorkshire	54°34′ N	1°03′ W	39	.24	4.9	1.16	2	75	51
Kirckleatham	54°35′ N	1°05′ W	21	.209	5.5	1.15	1	75	51
Tocketts	54°33′ N	1°01′ W	57	.277	4.3	1.18	1	75	51
Bawtry	53°25′ N	1°00′ W	50	.36	5.3	1.91	4	77	57
Misson	53°25′ N	1°00′ W	50	.38	5.3	2.03	1	77	57
Ranby Camp	53°25′ N	1°00′ W	50	.36	5.5	1.98	1	77	57
Ranby Hall	53°25′ N	1°00′ W	50	.34	5.4	1.84	1	77	57
Scaftworth	53°25′ N	1°00′ W	50	.35	5.1	1.79	1	77	57
Nottingham	53°00′ N	1°10′ W	50	.32	5.0	1.61	2	77	57
Goosedale	53°00′ N	1°10′ W	50	.31	4.9	1.52	1	77	57
Papplewick	53°00′ N	1°10′ W	50	.34	5.0	1.69	1	77	57
Switzerland									
Gotthard tunnel	46°25′ N	8°35′ E	1154	.209	6.70	1.4	1	78	56
Simplon tunnel	46°25′ N	8°05′ E	705	.328	6.70	2.2	1	78	56
Loetschberg tunnel	46°35′ N	7°45′ E	1243	.244	7.77	1.9	1	78	56
Austria									
Arlberg tunnel	46°55′ N	10°10′ E	1300	.173	11.0	1.9	1	79	61
Tauern tunnel	46°50′ N	13°05′ E	1200	.230	7.83	1.8	1	79	61
Hungary									
Hosszuheteny	46°10′ N	18°22′ E	270	.41	6.1	2.49	2	80	64
Komlo-Zobak	46°12′ N	18°18′ E	300	.45	7.3	3.31	2	80	64
Bakonya	46°07′ N	18°04′ E	300			2.4	1	80	64
Nagylengyel	46°46′ N	16°45′ E	200	.46	4.4	1.9	1	80	64
Hajduszoboszlo	47°26′ N	21°23′ E	100			2.4	1	80	64
Szentendre	47°41′ N	19°05′ E	200			2.0	1	80	64
Czechoslovakia									
Banska Stiavnica	48°27′ N	18°53′ E	1000			2.6	1	80	64
Poland									
Ciechocinek	52°53′ N	18°47′ E	100	.23	5.3	1.23?	1	83	54
U.S.S.R.									
Krivoi Rog	48°02′ N	33°20′ E	100	.104	7.5	.78	3	94	64
KR 7554	48°02′ N	33°20′ E	100	.104	7.13	.74	1	94	64
KR 8123	47°55′ N	33°20′ E	100	.091	8.53	.78	1	94	64
KR 8500	47°55′ N	33°20′ E	100	.10	7.1	.71	1	94	64
Belaya Tserkov	49°50′ N	30°10′ E	100	.092	7.2	.66	1	94	64
Uman	48°45′ N	30°13′ E	200	.11	5.8	.63	1	94	64
Yakovlevsky	50°30′ N	36°30′ E	300	.15	9.7	1.45?	1	94	64
Mazesta-Hosta	43°35′ N	39°48′ E	500	.15	6.7	1. ?	2	94	64

TABLE 22-6. HEAT FLOW IN THE ATLANTIC OCEAN (INCLUDING BLACK SEA, CARIBBEAN SEA, AND MEDITERRANEAN SEA)

Station	Lat.	Long.	Depth	∇T	K	Q	No.	Ref.	Yr.
Black Sea	..	..	2269	.48	4.0	1.9?	7	87	61
CH21-1	29°51′ N	54°36′ W	5610	.50	2.08	1.04	1	3	64
CH21-4	28°56′ N	46°44′ W	4370	.30	2.24	.67	1	3	64
CH21-5	28°47′ N	44°55′ W	3940	.51	2.22	1.13	1	3	64
CH21-10	29°04′ N	43°12′ W	3080	.4	1.96	<.8	1	3	64
CH21-12	28°51′ N	42°49′ W	3520	.38	2.11	.81	1	3	64
CH21-13	29°02′ N	41°10′ W	4060	.2	1.94	.4	1	3	64
CH19-C	20°13′ N	66°35′ W	5810	.56	2.27	1.28	1	3	64
CH19-7-1	20°14′ N	66°35′ W	5770	.75	2.05	1.54	1	3	64
A-282-3	23°20′ N	70°02′ W	5480	.54	2.09	1.12	1	4	63
A-282-5	23°28′ N	72°18′ W	5300	.66	1.77	1.17	1	4	63
A-282-6	25°14′ N	73°16′ W	5310	.53	2.03	1.08	1	4	63
A-282-7	26°59′ N	72°13′ W	5150	.58	1.86	1.09	1	4	63
A-282-9	25°18′ N	69°01′ W	5580	.55	2.11	1.17	1	4	63
A-282-10	23°37′ N	67°54′ W	5650	.53	2.00	1.06	1	4	63
A-282-11	21°47′ N	68°51′ W	5560	.61	2.10	1.27	1	4	63
A-282-12	20°22′ N	67°23′ W	5410	.87	2.01	1.76	1	4	63
A-282-13	21°54′ N	66°37′ W	5640	.61	1.94	1.19	1	4	63
A-282-14	23°40′ N	65°37′ W	5800	.59	1.92	1.13	1	4	63
A-282-15	25°29′ N	64°34′ W	5680	.57	1.92	1.09	1	4	63
A-282-17	25°26′ N	66°40′ W	5580	.64	1.90	1.22	1	4	63
A-282-18	27°05′ N	67°56′ W	5200	.57	1.88	1.07	1	4	63
A-282-20	28°44′ N	69°05′ W	5330	.58	2.06	1.18	1	4	63
A-282-21	28°51′ N	66°50′ W	5240	.62	1.93	1.19	1	4	63
A-282-22	28°54′ N	64°39′ W	4900	.61	1.80	1.11	1	4	63
A-282-23	30°27′ N	67°58′ W	5230	.55	1.91	1.05	1	4	63
AII-1-1	32°02′ N	74°09′ W	4870	.40	2.05	.81	1	4	63
AII-1-3	30°56′ N	74°36′ W	3430	.47	1.99	.94	1	4	63
AII-1-5	29°10′ N	76°22′ W	4990	.46	2.51	1.17	1	4	63
C-36-1	21°08′ N	65°02′ W	5696	.53	1.82	.96	1	5	64
C-36-3	19°24′ N	61°30′ W	5468	.73	1.89	~1.37	1	5	64
C-36-5	16°45′ N	57°38′ W	5853	.12	2.28	>.27	1	5	64
C-36-6	16°47′ N	57°49′ W	5853	.15	2.0	>.3	1	5	64
C-36-7	16°34′ N	57°52′ W	4330	.54	1.96	1.06	1	5	64
C-36-8	16°35′ N	57°54′ W	4330	.54	1.93	1.05	1	5	64
C-36-9	16°57′ N	58°24′ W	5890	.22	2.01	>.44	1	5	64
C-36-10	16°18′ N	58°37′ W	5599	.60	1.86	1.11	1	5	64
ATS296-4	39°32′ N	65°50′ W	4330	.47	2.29	>1.08	1	5	64
ATS296-6	39°33′ N	66°17′ W	4325	.56	2.37	>1.33	1	5	64
ATS296-7	39°47′ N	65°16′ W	4467	.48	2.22	1.07	1	5	64
ATS296-8	39°26′ N	65°09′ W	4757	.54	2.10	1.14	1	5	64
ATS296-9	39°46′ N	66°28′ W	3922	.56	2.11	<1.18	1	5	64
C-39-1	29°00′ N	59°11′ W	5811	.47	1.96	.92	1	5	64
C-39-2	25°18′ N	55°44′ W	5932	.72	1.93	~1.39	1	5	64
C-39-3	24°04′ N	55°14′ W	5984	.33	1.82	.60	1	5	64
C-39-5	28°30′ N	57°59′ W	5800	.48	1.98	.95	1	5	64
C-39-6	29°56′ N	60°33′ W	5715	.72	1.84	1.33	1	5	64
C-39-7	29°47′ N	62°12′ W	4865	.66	1.81	1.19	1	5	64
B-D-6	39°36′ N	12°13′ W	3020	.46	2.30	1.06*	1	6	61
B-D-7	35°59′ N	9°59′ W	4534	.37	2.31	.87	1	6	61
B-D-8	35°58′ N	4°34′ W	1251	.57	2.13	1.22	1	6	61
B-D-9	45°28′ N	5°47′ W	4592	.33	2.26	.75	1	6	61
B-D-10	46°32′ N	13°04′ W	4413	.50	2.17	1.09	1	6	61
B-D-11	46°30′ N	22°58′ W	4084	.57	2.25	1.29	1	6	61
B-D-12	46°37′ N	27°18′ W	4109	3.15	2.07	6.52*	1	6	61
B-D-13	36°20′ N	21°00′ W	4844	.54	2.12	1.14	1	6	61
B-D-14	35°36′ N	19°02′ W	5375	.67	2.01	1.34*	1	6	61
B-D-15	35°34′ N	18°56′ W	5380	.46	2.01	.93*	1	6	61

TABLE 22-6. *Continued*

Station	Lat.	Long.	Depth	∇T	K	Q	No.	Ref.	Yr.
B-D-16	36°39′ N	17°21′ W	5146	.53	2.13	1.14	1	6	61
B-D-17	44°55′ N	10°45′ W	4844	.64	2.18	1.39	1	6	61
B-D-18	40°59′ N	15°09′ W	5305	.49	2.32	1.14*	1	6	61
B-D-19	42°18′ N	11°53′ W	3063	.36	2.18	.78	1	6	61
B-D-20	41°27′ N	14°40′ W	5260	.55	2.18	1.21*	1	6	61
B-D-21	43°42′ N	12°39′ W	5030	.51	2.29	1.16	1	6	61
CHAIN-1	35°35′ N	61°08′ W	4590	.62	1.92	1.20	1	7	61
CHAIN-2	35°35′ N	61°15′ W	4680	.68	1.92	1.31	1	7	61
CHAIN-3	51°18′ N	29°35′ W	3260	3.7	1.7	>6.2	1	7	61
CHAIN-4	53°53′ N	24°05′ W	3350	.73	2.10	1.54	1	7	61
V-15-3	00°59′ S	38°10′ W	4137	.66	2.31	1.52	1	8	62
V-15-4	00°12′ N	39°54′ W	4111	.48	2.23	1.07	1	8	62
V-15-5	02°30′ N	40°55′ W	4285	.63	2.19	1.38	1	8	62
V-15-6	05°04′ N	41°01′ W	4544	.83	2.23	1.85	1	8	62
V-15-7	06°59′ N	41°04′ W	4636	.90	2.25	2.03	1	8	62
V-15-8	10°45′ N	41°21′ W	5002	1.51	2.23	3.37	1	8	62
V-15-10	14°14′ N	57°06′ W	5002	.73	2.19	1.60	1	8	62
V-15-12	17°21′ N	65°11′ W	4169	.52	2.23	1.16	1	8	62
V-15-13	20°49′ N	66°25′ W	5227	.68	2.23	1.52	1	8	62
V-15-14	23°14′ N	66°36′ W	5605	.61	2.23	1.36	1	8	62
V-15-16	21°34′ N	67°06′ W	5115	.75	2.23	1.67	1	8	62
V-15-19	19°50′ N	65°53′ W	7934	.52	2.23	1.16	1	8	62
V-15-23	32°35′ N	74°24′ W	4521	.46	2.23	1.03	1	8	62
V-15-24	32°47′ N	74°49′ W	4462	.47	2.22	1.04	1	8	62
LSDA-55	33°45′ S	15°00′ E	4170	.77	2.45	1.88	1	9	64
LSDA-56	33°15′ S	11°59′ E	4630	.43	2.37	(1.01)	1	9	64
LSDA-57	32°30′ S	09°01′ E	5040	.40	2.01	.8*	1	9	64
LSDA-58B	32°00′ S	06°06′ E	5210	.55	2.01	(1.1)*	1	9	64
LSDA-59	31°37′ S	02°47′ E	4215	.04	2.18	(.09)	1	9	64
LSDA-60	31°21′ S	01°58′ E	4190	1.00	2.18	2.17	1	9	64
LSDA-61	30°52′ S	00°56′ W	3810	.41	2.18	(.90)	1	9	64
LSDA-63	30°16′ S	04°21′ W	4890	.46	2.15	.99	1	9	64
LSDA-64	30°06′ S	05°45′ W	4340	.34	2.19	(.74)	1	9	64
LSDA-65	29°43′ S	07°16′ W	4150	.22	2.23	.48	1	9	64
LSDA-66	29°48′ S	08°24′ W	4155	.12	2.23	(.27)	1	9	64
LSDA-67	29°51′ S	09°25′ W	3940	.21	2.32	.48	1	9	64
LSDA-68	29°49′ S	10°18′ W	3735	.51	2.28	(1.16)	1	9	64
LSDA-69	29°51′ S	11°07′ W	3690	.50	2.28	(1.15)	1	9	64
LSDA-70	29°55′ S	11°54′ W	3400	.18	2.28	(.41)	1	9	64
LSDA-71	29°51′ S	12°46′ W	3200	.50	2.24	1.12	1	9	64
LSDA-72B	29°45′ S	14°11′ W	3385	.48	2.24	(1.08)	1	9	64
LSDA-73	29°50′ S	14°51′ W	3735	.15	2.24	(.34)	1	9	64
LSDA-74	29°50′ S	15°33′ W	3405	.32	2.24	(.72)	1	9	64
LSDA-75	27°22′ S	12°34′ W	3520	.99	2.27	(2.24)	1	9	64
LSDA-76	27°27′ S	10°56′ W	3580	.59	2.27	1.34	1	9	64
LSDA-77	26°47′ S	13°54′ W	2480	.78	2.27	(1.7)*	1	9	64
LSDA-78	25°58′ S	14°51′ W	3785	.44	2.27	(1.0)*	1	9	64
LSDA-79	24°03′ S	15°32′ W	4100	.05	2.18	.10	1	9	64
LSDA-80	23°47′ S	14°27′ W	4000	.41	2.18	(.9)	1	9	64
LSDA-81	23°42′ S	12°12′ W	3580	.51	2.18	(1.12)	1	9	64
LSDA-82	22°43′ S	13°07′ W	3605	3.44	2.27	(7.8)*	1	9	64
LSDA-83	21°21′ S	11°35′ W	2515	3.58	2.27	8.14	1	9	64
LSDA-85	21°15′ S	10°39′ W	3535	.45	2.18	(.97)	1	9	64
LSDA-86	20°10′ S	11°30′ W	2925	3.35	2.18	(7.3)*	1	9	64
LSDA-87	19°53′ S	12°26′ W	2710	1.73	2.18	(3.78)	1	9	64
LSDA-88	19°44′ S	12°55′ W	3500	.48	2.18	1.04	1	9	64
LSDA-89	18°58′ S	12°49′ W	3125	.51	2.18	(1.11)	1	9	64
LSDA-90	18°58′ S	12°00′ W	2510	2.14	2.27	(4.85)	1	9	64

TABLE 22-6. *Continued*

Station	Lat.	Long.	Depth	∇T	K	Q	No.	Ref.	Yr.
LSDA-91	18°32′ S	10°15′ W	3395	.21	2.15	.45	1	9	64
LSDA-92	18°08′ S	11°15′ W	3305	.34	2.18	(.75)	1	9	64
LSDA-93	17°39′ S	12°22′ W	3440	.74	2.18	(1.61)	1	9	64
LSDA-94	17°15′ S	13°20′ W	3340	.22	2.18	(.47)	1	9	64
LSDA-95	16°46′ S	14°30′ W	3455	.62	2.18	(1.35)	1	9	64
LSDA-96	16°15′ S	15°45′ W	3435	.20	2.18	(.43)	1	9	64
LSDA-97	15°48′ S	16°50′ W	3820	1.07	2.18	(2.33)	1	9	64
LSDA-98	15°23′ S	17°54′ W	4390	.23	2.18	(.51)	1	9	64
LSDA-99	14°55′ S	19°22′ W	4230	.19	2.24	.43	1	9	64
LSDA-100	10°00′ S	15°26′ W	3595	.13	2.23	.29	1	9	64
LSDA-101	09°11′ S	13°20′ W	2690	.04	2.16	.08	1	9	64
LSDA-102	09°03′ S	10°29′ W	3550	.18	2.23	(.40)	1	9	64
LSDA-103	06°43′ S	13°27′ W	3245	.12	2.18	(.26)	1	9	64
LSDA-104	05°41′ S	11°12′ W	2905	1.18	2.18	2.58	1	9	64
LSDA-105	04°57′ S	09°28′ W	3500	.53	2.18	(1.15)	1	9	64
LSDA-106	00°56′ S	10°37′ W	4040	.50	2.12	(1.07)	1	9	64
LSDA-107	00°28′ S	10°51′ W	4350	.42	2.12	(.89)	1	9	64
LSDA-108	00°03′ N	11°02′ W	4125	.68	2.12	1.45	1	9	64
LSDA-109	00°26′ N	11°14′ W	4215	.85	2.12	(1.80)	1	9	64
LSDA-110	00°52′ N	11°28′ W	4950	.07	2.12	(.15)	1	9	64
LSDA-111	02°38′ N	12°12′ W	4735	.76	1.81	1.37	1	9	64
LSDA-112	05°01′ N	12°45′ W	4390	.82	1.91	1.56	1	9	64
LSDA-113	07°24′ N	17°08′ W	4800	.71	1.95	1.39	1	9	64
LSDA-114	06°47′ N	19°18′ W	4360	.46	2.09	.96	1	9	64
LSDA-115	06°21′ N	20°49′ W	3590	.58	2.12	(1.22)	1	9	64
LSDA-116	05°07′ N	25°15′ W	4360	.92	2.16	1.99	1	9	64
LSDA-117	03°21′ N	30°52′ W	2590	.16	2.34	.37	1	9	64
LSDA-118	03°18′ N	31°00′ W	2820	1.16	2.31	(2.68)	1	9	64
LSDA-119	03°15′ N	31°35′ W	2415	1.00	2.31	(2.3)*	1	9	64
LSDA-120	03°57′ N	34°04′ W	3340	.82	2.28	1.87	1	9	64
LSDA-121	05°42′ N	32°51′ W	2955	2.23	2.28	(5.08)	1	9	64
LSDA-122	05°59′ N	32°28′ W	3300	2.26	2.31	(5.22)	1	9	64
LSDA-124	08°26′ N	34°23′ W	4790	.76	2.04	1.56	1	9	64
LSDA-125	09°39′ N	37°40′ W	4045	.11	2.16	(.23)	1	9	64
LSDA-126	09°34′ N	39°32′ W	3340	.57	2.28	(1.31)	1	9	64
LSDA-127	09°41′ N	40°49′ W	2315	.74	2.28	(1.7)*	1	9	64
LSDA-128	09°45′ N	41°18′ W	3295	.74	2.28	(1.70)	1	9	64
LSDA-130	11°35′ N	44°03′ W	2755	1.05	2.28	(2.4)*	1	9	64
LSDA-131	11°34′ N	44°48′ W	3830	.40	2.12	.84	1	9	64
LSDA-132	11°34′ N	45°33′ W	4105	1.11	2.08	(2.30)	1	9	64
LSDA-133	12°17′ N	46°13′ W	4515	.22	2.08	(.46)	1	9	64
LSDA-134	14°59′ N	58°19′ W	3535	.32	2.22	.72	1	9	64
LSDA-135	15°04′ N	59°58′ W	4480	.32	2.20	.71	1	9	64
LSDA-136	15°04′ N	60°30′ W	2335	.93	2.15	2.0*	1	9	64
LSDA-137	15°02′ N	62°15′ W	2720	.93	2.15	(2.0)	1	9	64
LSDA-139	15°00′ N	63°50′ W	2082	.66	2.06	1.36	2	9	64
ZEP-4	13°36′ N	71°59′ W	4232	.72	2.0	1.4	1	10	64
ZEP-5	13°43′ N	68°38′ W	5042	.58	1.9	1.1	1	10	64
ZEP-8	14°22′ N	62°19′ W	2877	.70	1.9	1.3*	1	10	64
ZEP-9	16°24′ N	57°39′ W	4647	.39	1.8	.7?	1	10	64
ZEP-11	19°10′ N	52°03′ W	5344	.81	1.7	1.4	1	10	64
ZEP-12	20°12′ N	49°01′ W	4632	.30	1.5	.5	1	10	64
ZEP-13	21°06′ N	46°30′ W	3912	.16	1.9	.3	1	10	64
ZEP-14	21°04′ N	44°57′ W	3255	.84	2.1	1.8	1	10	64
ZEP-15	21°56′ N	45°46′ W	3372	3.24	2.0	6.5	1	10	64
ZEP-16	23°06′ N	45°39′ W	3983	1.48	2.0	3.0	1	10	64
ZEP-17	23°34′ N	44°14′ W	4960	.81	2.0	1.6	1	10	64
ZEP-18	23°57′ N	44°59′ W	3493	1.34	2.1	2.8*	1	10	64

TABLE 22-6. *Continued*

Station	Lat.	Long.	Depth	∇T	K	Q	No.	Ref.	Yr.
ZEP-19	23°36′ N	42°28′ W	4113	.23	2.1	.5*	1	10	64
ZEP-20	24°16′ N	39°06′ W	5439	.19	1.9	.4	1	10	64
ZEP-22	25°05′ N	34°13′ W	5602	.36	1.9	.7	1	10	64
ZEP-23	26°14′ N	26°27′ W	5210	.59	2.0	1.2	1	10	64
ZEP-25	26°57′ N	19°58′ W	4298	.46	2.1	1.0	1	10	64
ZEP-26	31°12′ N	11°50′ W	3210	.50	2.2	1.1*	1	10	64
ZEP-27	33°35′ N	9°43′ W	4340	.45	2.2	1.0	1	10	64
ZEP-32	40°37′ N	5°50′ E	2720	.56	2.2	1.2?	1	10	64
D 4775	29°02′ N	25°27′ W	5342	..	..	1.39	1	11	63
D 4777	28°60′ N	25°26′ W	5344	..	..	1.20	1	11	63
D 4778	29°03′ N	25°33′ W	5342	..	..	1.13	1	11	63
D 4784	29°04′ N	25°27′ W	5339	..	..	1.21	1	11	63
D 4788	29°05′ N	25°15′ W	5299	..	..	1.29	1	11	63
D 4809	28°51′ N	25°27′ W	4871	..	..	1.11	1	11	63
D 4813	28°50′ N	25°24′ W	4862	..	..	1.05	1	11	63
D 4817	29°34′ N	25°18′ W	5400	..	..	1.03	1	11	63
D 4821	29°35′ N	25°23′ W	5297	..	..	1.23	1	11	63
D 4822	29°08′ N	24°19′ W	5281	..	..	1.33	1	11	63
D 4528	45°19′ N	11°27′ W	4143	..	..	1.13	1	12	63
D 4531	45°19′ N	11°28′ W	4125	..	..	1.00	1	12	63
C19-6-17	31°54′ N	64°44′ W	4262	..	..	.97	1	12	63
CH21-8	29°04′ N	44°11′ W	..	..	..	+?	1	12	63
CH21-14	34°00′ N	15°51′ W	3810	..	..	.57	1	12	63
CH21-16	34°06′ N	14°24′ W	4315	..	..	.94	1	12	63
CH21-18	39°31′ N	05°26′ E	2826	..	..	>.87	1	12	63
CH21-19	42°14′ N	07°09′ E	2731	..	..	2.5	1	12	63
D 4790	27°10′ N	21°06′ W	4702	..	..	1.06	1	12	63
D 4794	27°10′ N	21°00′ W	4682	..	..	~1.2	1	12	63
D 4795	27°13′ N	21°05′ W	4707	..	..	.92	1	12	63
D 4805	29°35′ N	23°52′ W	5240	..	..	1.13	1	12	63
D 4824	43°06′ N	19°50′ W	5959	..	..	1.30	1	12	63
V18-151	19°51′ N	84°56′ W	4564	.7	2.0	(1.4)	1	13	64
V18-153	26°35′ N	88°49′ W	2582	.22	2.3	.5	1	13	64
V18-155	26°28′ N	68°25′ W	5284	.55	2.0	1.1	1	13	64
V18-158	38°45′ N	67°33′ W	4184	.55	1.8	1.0	1	13	64
V18-159	39°11′ N	65°26′ W	4730	.55	2.0	(1.1)	1	13	64
V19-1	34°50′ N	70°15′ W	4716	.42	1.9	(.8)	1	13	64
V19-2	32°36′ N	71°19′ W	5392	.63	1.9	(1.2)	1	13	64
V19-3	28°20′ N	68°06′ W	5261	.68	1.9	1.3	1	13	64
V19-4	27°28′ N	68°27′ W	2858	.47	1.9	.9	1	13	64
V19-5	24°16′ N	67°11′ W	5562	.63	1.9	(1.2)	1	13	64
V19-6	16°06′ N	66°29′ W	4520	.6	2.0	1.2	1	13	64
C7-2	13°06′ N	63°09′ W	1060	.55	2.0	(1.1)	1	13	64
C7-3	12°34′ N	66°18′ W	4529	.4	2.0	(.8)	1	13	64
C7-4	13°59′ N	71°43′ W	3948	.75	2.0	(1.5)	1	13	64
C7-5	12°04′ N	74°54′ W	3611	.5	2.0	(1.0)	1	13	64
C7-6	14°11′ N	76°32′ W	4087	.6	2.0	(1.2)	1	13	64
C7-9	14°50′ N	73°50′ W	3460	.5	2.0	(1.0)	1	13	64
C7-10	15°23′ N	73°17′ W	3324	.75	2.0	(1.5)	1	13	64
C7-11	16°08′ N	72°48′ W	2893	.55	2.0	(1.1)	1	13	64
C7-12	14°36′ N	70°57′ W	3525	.5	2.0	(1.0)	1	13	64
Bullard 1	49°46′ N	12°30′ W	2032	.426	2.59	1.10	1	15	54
Bullard 2	49°58′ N	18°33′ W	4017	.548	2.58	1.42	1	15	54
Bullard 3	49°09′ N	17°38′ W	4532	.237	2.43	.58	1	15	54
Bullard 4	48°14′ N	16°58′ W	4670	.254	2.28	.58	1	15	54
Bullard 5	48°52′ N	15°00′ W	4710	.455	2.64	1.20	1	15	54

TABLE 22-7. HEAT FLOW IN THE INDIAN OCEAN (INCLUDING ANDAMAN SEA, GULF OF ADEN, AND RED SEA)

Station	Lat.	Long.	Depth	∇T	K	Q	No.	Ref.	Yr.
MSN-12	9°14′ S	127°30′ E	3300	.81	2.09	1.69	1	1	65
MSN-15	7°46′ S	121°14′ E	4840	.84	2.02	1.7	1	1	65
MSN-16	11°58′ S	115°26′ E	5010	.63	1.77	1.12	1	1	65
MSN-17	12°48′ S	115°24′ E	5400	.64	1.65	1.05	1	1	65
MSN-18	10°11′ S	115°19′ E	4330	.24	1.63	.39	1	1	65
MSN-20	13°19′ S	109°34′ E	4630	.80	1.85	1.48	1	1	65
MSN-21	11°39′ S	109°35′ E	4605	1.00	1.87	1.87	1	1	65
MSN-23	8°49′ S	109°36′ E	3300	.26	1.88	.48	1	1	65
MSN-24	12°21′ S	101°25′ E	4745	.78	1.99	1.56	1	1	65
MSN-28	16°59′ S	93°29′ E	5230	.61	1.63	1.0	1	1	65
MSN-29	18°14′ S	86°42′ E	4455	.89	1.83	1.63	1	1	65
MSN-30	15°51′ S	81°10′ E	5000	1.01	1.71	1.73	1	1	65
MSN-32	14°05′ S	72°15′ E	5200	.77	1.55	1.20	1	1	65
MSN-33	14°56′ S	70°13′ E	4460	.07	2.06	.14	1	1	65
MSN-34	16°25′ S	66°01′ E	3660	1.40	1.99	2.78	1	1	65
MSN-35	16°58′ S	64°46′ E	4055	1.10	1.99	(2.19)	1	1	65
MSN-36	17°48′ S	62°40′ E	3740	.15	2.26	.34	1	1	65
MSN-38	26°22′ S	74°08′ E	4130	2.48	1.98	4.91	1	1	65
MSN-40	33°20′ S	72°37′ E	4220	.42	2.19	.91	1	1	65
MSN-41	37°44′ S	71°47′ E	4260	.66	2.08	1.38	1	1	65
MSN-42	42°09′ S	70°37′ E	4200	.80	2.08	1.67	1	1	65
MSN-43	39°50′ S	75°03′ E	3780	..	2.0	..?	1	1	65
MSN-44	38°26′ S	79°34′ E	3410	.25	2.0	(.5)	1	1	65
MSN-45	37°50′ S	85°22′ E	3600	.35	2.0	(.7)	1	1	65
MSN-46	37°18′ S	90°42′ E	3855	.65	2.0	(1.3)	1	1	65
MSN-47	36°19′ S	98°41′ E	4375	.39	1.93	.76	1	1	65
MSN-48	39°18′ S	119°52′ E	4895	.58	1.78	1.04	1	1	65
MSN-49	49°31′ S	132°14′ E	3500	.72	1.8	(1.3)	1	1	65
Z-1	12°27′ N	47°07′ E	1820	2.95	2.03	5.98	1	1	65
Z-2	12°57′ N	48°16′ E	2205	1.88	1.92	(3.62)	1	1	65
Z-3	13°17′ N	49°15′ E	2425	1.78	1.81	3.22	1	1	65
Z-4	12°54′ N	49°38′ E	2200	1.29	1.92	(2.47)	1	1	65
Z-5	12°25′ N	50°33′ E	2420	1.53	2.02	3.09	1	1	65
Z-6	9°08′ N	54°42′ E	3705	.79	2.11	1.66	1	1	65
Z-7	9°09′ N	57°30′ E	3265	.68	2.01	(1.37)	1	1	65
Z-8	9°16′ N	59°00′ E	3200	.91	1.91	1.74	1	1	65
Z-9	9°34′ N	59°52′ E	3895	.84	2.01	(1.68)	1	1	65
Z-10	9°32′ N	61°24′ E	4580	.45	2.10	.95	1	1	65
Z-11	9°34′ N	63°06′ E	4505	.10	2.25	(.23)*	1	1	65
Z-12	9°40′ N	66°19′ E	4450	.35	2.30	.8*	1	1	65
Z-13	9°48′ N	69°15′ E	4550	.69	2.17	1.49	1	1	65
Z-14	9°50′ N	71°50′ E	2370	.58	2.21	1.29	1	1	65
Z-15	9°56′ N	73°08′ E	1925	.81	2.09	1.70	1	1	65
Z-16	9°59′ N	74°50′ E	2285	.82	1.92	1.57	1	1	65
LSDA-1	8°13′ N	70°39′ E	4145	.71	2.03	1.44	1	1	65
LSDA-2	3°57′ N	70°49′ E	4130	.84	1.91	1.6*	1	1	65
LSDA-3	0°05′ S	71°50′ E	4200	.51	2.15	1.1*	1	1	65
LSDA-4	2°40′ S	73°16′ E	2980	.79	2.28	1.8*	1	1	65
LSDA-5	5°21′ S	75°08′ E	5220	.92	1.64	1.51	1	1	65
LSDA-6	5°23′ S	72°47′ E	2530	.84	2.28	1.92	1	1	65
LSDA-7	5°40′ S	70°17′ E	3935	.30	1.88	.57	1	1	65
LSDA-8	5°52′ S	66°36′ E	4370	.16	1.90	(.30)	1	1	65
LSDA-9	5°34′ S	63°42′ E	4210	.87	1.91	1.67	1	1	65
LSDA-10	5°26′ S	59°14′ E	3980	1.19	1.97	2.35*	2	1	65
LSDA-11	5°30′ S	57°56′ E	2525	.61	2.02	1.23	1	1	65
LSDA-12	9°56′ S	57°07′ E	4045	.76	2.03	(1.55)	2	1	65

TABLE 22-7. *Continued*

Station	Lat.	Long.	Depth	∇T	K	Q	No.	Ref.	Yr.
LSDA-13	10°21′ S	58°31′ E	3575	.46	2.02	.92	1	1	65
LSDA-14	10°34′ S	59°51′ E	2315	.71	2.04	1.44	1	1	65
LSDA-15	13°42′ S	59°42′ E	3900	.50	2.00	1.00	1	1	65
LSDA-16	17°20′ S	57°42′ E	4145	.60	2.21	1.32	1	1	65
LSDA-17	22°01′ S	57°34′ E	4750	.51	1.77	.90	1	1	65
LSDA-18	24°34′ S	57°26′ E	5000	.77	1.57	1.21	1	1	65
LSDA-19	26°53′ S	58°12′ E	5540	.58	1.58	.91	1	1	65
LSDA-20	29°53′ S	61°52′ E	4620	.41	1.70	.7	1	1	65
LSDA-21B	31°25′ S	61°56′ E	4420	.24	1.73	.42	1	1	65
LSDA-22	32°55′ S	62°25′ E	4745	.43	1.59	.68	1	1	65
LSDA-23B	39°44′ S	63°56′ E	4810	1.70	2.18	(3.7)*	1	1	65
LSDA-24	44°36′ S	70°57′ E	3580	.79	1.89	1.49	1	1	65
LSDA-25	35°47′ S	73°37′ E	4380	.20	1.93	.38	1	1	65
LSDA-26	36°52′ S	76°22′ E	3925	.94	2.17	2.03	1	1	65
LSDA-30	31°28′ S	114°24′ E	3740	.52	2.04	1.05	2	1	65
LSDA-32	29°42′ S	111°30′ E	5340	.82	2.18	(1.79)	1	1	65
LSDA-33	25°03′ S	104°12′ E	5100	.71	1.63	1.15	1	1	65
LSDA-34	16°25′ S	89°19′ E	5625	.85	1.64	1.39	1	1	65
LSDA-35	13°48′ S	90°50′ E	5200	.82	1.59	1.30	1	1	65
LSDA-36	13°09′ S	93°13′ E	5230	1.83	1.64	3.0*	1	1	65
LSDA-37	14°56′ S	108°09′ E	5580	.68	1.70	1.15	1	1	65
LSDA-38	13°46′ S	115°32′ E	5680	.69	1.65	1.14	1	1	65
LSDA-39	13°31′ S	118°29′ E	5680	.57	1.64	.93	1	1	65
LSDA-50	30°08′ S	37°47′ E	4990	.51	1.97	1.00	1	1	65
LSDA-51	31°04′ S	36°40′ E	4535	.98	2.26	(2.22)	1	1	65
LSDA-52	31°39′ S	35°57′ E	2545	.34	2.40	.82	1	1	65
LSDA-53	32°14′ S	34°16′ E	2660	.63	2.30	(1.45)	1	1	65
LSDA-54	32°22′ S	32°47′ E	3560	.02	2.12	.04	1	1	65
LSDH-1	9°07′ N	72°59′ E	2135	.77	2.08	1.61	1	1	65
LSDH-2	9°03′ N	73°10′ E	2110	.57	2.08	1.18	1	1	65
LSDH-3	7°24′ N	70°40′ E	4110	.66	2.19	1.44*	1	1	65
LSDH-4	5°22′ S	74°17′ E	4780	1.15	1.64	1.88	1	1	65
LSDH-5	5°40′ S	69°40′ E	3815	.00	2.00	.00	1	1	65
LSDH-6	5°53′ S	65°57′ E	4260	.61	1.90	1.16	1	1	65
LSDH-7	5°31′ S	63°04′ E	4255	1.16	1.94	(2.26)	1	1	65
LSDH-8	5°28′ S	60°02′ E	4100	.78	1.97	(1.54)	1	1	65
LSDH-9	5°26′ S	59°29′ E	3952	1.96	2.02	3.95*	2	1	65
LSDH-11	4°10′ S	57°15′ E	3765	.94	2.03	1.9*	1	1	65
LSDH-13	9°49′ S	56°28′ E	3885	.13	2.03	.27	1	1	65
LSDH-14	10°05′ S	57°53′ E	3935	.64	2.02	(1.29)	1	1	65
LSDH-15	10°30′ S	59°23′ E	2858	.66	1.94	1.28	2	1	65
LSDH-18	31°14′ S	62°58′ E	5062	.14	1.60	.22	2	1	65
LSDH-20	33°16′ S	61°43′ E	4695	1.13	1.56	1.77	1	1	65
LSDH-21	39°54′ S	67°53′ E	4065	.00	2.18	.00	1	1	65
LSDH-22	40°47′ S	72°46′ E	4000	.17	2.30	.40	1	1	65
LSDH-23	40°58′ S	75°08′ E	4030	.25	2.16	.54	1	1	65
LSDH-24	40°19′ S	76°32′ E	3020	.94	2.25	2.12	1	1	65
LSDH-25	36°05′ S	75°59′ E	3290	.80	2.17	(1.74)	1	1	65
LSDH-26	37°21′ S	76°35′ E	3380	.44	2.10	.92	1	1	65
LSDH-27	32°58′ S	96°02′ E	4030	.01	2.1	(.01)	1	1	65
LSDH-28	32°06′ S	100°20′ E	2450	1.22	2.37	2.9*	1	1	65
LSDH-29	32°45′ S	102°45′ E	4760	.54	1.71	.93	1	1	65
LSDH-30	32°59′ S	103°33′ E	5130	.75	1.70	1.27	1	1	65
LSDH-32	33°01′ S	111°11′ E	4390	2.34	2.26	(5.3)*	1	1	65
LSDH-33	32°17′ S	113°58′ E	4190	.44	2.26	.99	1	1	65
LSDH-34	29°16′ S	110°42′ E	5550	.92	2.18	2.0*	1	1	65

TABLE 22-7. *Continued*

Station	Lat.	Long.	Depth	∇T	K	Q	No.	Ref.	Yr.
LSDH-35	25°40′ S	105°22′ E	4830	.69	1.63	(1.13)	1	1	65
LSDH-36	24°33′ S	103°39′ E	5400	.64	1.63	(1.04)	1	1	65
LSDH-37	20°11′ S	96°22′ E	4910	.66	1.59	1.05	1	1	65
LSDH-38	14°12′ S	89°50′ E	5315	.66	1.63	1.07	1	1	65
LSDH-39	13°39′ S	91°31′ E	5150	.93	1.59	(1.48)	1	1	65
LSDH-40	13°23′ S	92°32′ E	5200	1.85	1.73	3.20	1	1	65
LSDH-43	14°06′ S	101°22′ E	5110	1.11	1.63	1.81	1	1	65
LSDH-44	14°56′ S	107°16′ E	5805	.79	1.74	1.37	1	1	65
LSDH-45	14°58′ S	109°12′ E	5630	.65	1.74	(1.13)	1	1	65
LSDH-46	14°13′ S	114°54′ E	5670	.63	1.62	1.02	1	1	65
LSDH-47	13°09′ S	116°29′ E	5670	.69	1.60	1.11	1	1	65
LSDH-48	13°41′ S	117°23′ E	5715	.58	1.62	(.94)	1	1	65
V18-54	36°55′ S	23°24′ E	5064	.63	2.42	1.53	1	1	65
V18-55	38°59′ S	29°56′ E	4202	.62	2.52	1.57	1	1	65
V18-58	31°12′ S	48°05′ E	4395	.74	2.23	1.65	1	1	65
V18-59	26°42′ S	50°28′ E	5266	1.08	1.68	1.81	1	1	65
V18-60	23°59′ S	51°11′ E	4928	.87	1.92	1.67	1	1	65
V18-61	21°26′ S	51°37′ E	4959	.73	1.99	1.46	1	1	65
V18-63	20°35′ S	63°32′ E	3296	.16	2.67	.43	1	1	65
V18-67	25°29′ S	85°09′ E	4559	.96	2.74	>2.64	1	1	65
V18-69	25°47′ S	93°43′ E	4435	.74	1.75	1.30	1	1	65
V18-70	25°46′ S	95°58′ E	4937	.75	1.81	1.35	1	1	65
V18-71	25°41′ S	99°04′ E	5365	.68	1.76	1.20	1	1	65
V18-72	25°41′ S	101°56′ E	4720	.85	1.82	1.54	1	1	65
V18-73	27°59′ S	108°40′ E	5148	.63	2.00	1.26	1	1	65
V18-74	36°07′ S	118°47′ E	4590	.47	2.19	1.02	1	1	65
V18-76	37°27′ S	133°40′ E	5570	.52	2.22	>1.15	1	1	65
V19-54	7°43′ S	103°15′ E	6411	.96	2.03	1.95	1	1	65
V19-55	7°16′ S	102°02′ E	5663	.91	1.89	1.72	1	1	65
V19-57	14°31′ S	101°21′ E	5363	.71	1.69	1.20	1	1	65
V19-58	16°20′ S	100°33′ E	5906	.60	1.86	1.12	1	1	65
V19-59	18°11′ S	99°24′ E	5754	.70	1.81	1.26	1	1	65
V19-60	19°02′ S	97°15′ E	5500	.89	1.91	1.70	1	1	65
V19-61	20°56′ S	91°12′ E	4840	.83	1.87	1.55	1	1	65
V19-64	18°23′ S	82°08′ E	5224	.85	1.63	1.38	1	1	65
V19-65	16°11′ S	82°06′ E	5380	.37	1.77	.66	1	1	65
V19-66	14°11′ S	82°08′ E	4798	.74	1.84	1.36	1	1	65
V19-67	12°44′ S	82°01′ E	..	1.20	1.68	~2.02	1	1	65
V19-68	10°13′ S	81°37′ E	5107	.97	1.63	1.58	1	1	65
V19-69	7°54′ S	81°25′ E	5229	.58	1.76	1.02	1	1	65
V19-70	7°04′ S	80°46′ E	5045	.77	1.79	1.38	1	1	65
V19-72	7°07′ N	76°33′ E	1770	.49	2.22	1.09	1	1	65
V19-73	7°35′ N	74°13′ E	2769	.80	2.15	1.72	1	1	65
V19-74	8°07′ N	73°15′ E	2186	.71	2.32	1.65	1	1	65
V19-75	8°09′ N	70°38′ E	4128	.76	2.36	1.80	1	1	65
V19-76	8°09′ N	69°15′ E	4650	.90	2.11	1.90	1	1	65
V19-78	8°07′ N	62°47′ E	4325	.49	2.32	1.13	1	1	65
V19-79	7°26′ N	61°04′ E	3605	1.19	2.50	2.98	1	1	65
V19-80	6°42′ N	59°20′ E	2857	.28	2.30	.64	1	1	65
V19-82	7°04′ N	60°55′ E	2680	.61	2.02	1.23	1	1	65
V19-83	6°52′ N	60°42′ E	3356	.25	2.41	.61	1	1	65
V19-84	6°37′ N	59°48′ E	2923	.91	2.33	2.12	1	1	65
V19-85	6°10′ N	57°10′ E	4128	.50	2.31	1.16	1	1	65
V19-87	4°43′ N	52°05′ E	5111	.54	1.96	1.05	1	1	65
V19-88	2°29′ N	51°28′ E	5095	.63	1.78	1.12	1	1	65
V19-89	0°29′ S	53°41′ E	4857	.93	1.92	1.78	1	1	65

TABLE 22-7. *Continued*

Station	Lat.	Long.	Depth	∇T	K	Q	No.	Ref.	Yr.
V19-90	2°40′ S	54°45′ E	4186	.74	2.30	1.71	1	1	65
V19-91	3°34′ S	51°51′ E	5056	.88	1.89	(1.66)	1	1	65
V19-92	3°24′ S	48°46′ E	4987	.58	1.99	~1.15	1	1	65
V19-93	3°11′ S	45°49′ E	4607	.61	1.90	1.15	1	1	65
V19-94	3°43′ S	43°52′ E	4089	.56	2.32	1.30	1	1	65
V19-95	4°13′ S	41°33′ E	2722	.52	2.44	1.27	1	1	65
V19-96	5°20′ S	40°26′ E	1863	.74	2.34	1.72	1	1	65
V19-97	6°59′ S	41°11′ E	3369	.62	2.39	1.48	1	1	65
V19-98	9°28′ S	43°19′ E	3643	.69	2.18	1.50	1	1	65
V19-100	13°08′ S	44°09′ E	3548	.65	2.10	1.37	1	1	65
V19-101	14°53′ S	42°51′ E	3250	.58	2.30	1.33	1	1	65
V19-102	16°56′ S	41°06′ E	2548	.29	2.51	.72	1	1	65
V19-103	17°54′ S	39°30′ E	2314	.50	2.23	1.12	1	1	65
V19-106	22°57′ S	42°10′ E	3175	.64	2.18	1.40	1	1	65
V19-107	22°58′ S	41°22′ E	3885	..	..	..?	1	1	65
V19-108	23°11′ S	39°58′ E	3345	.70	2.19	1.54	1	1	65
V19-109	23°22′ S	38°51′ E	3087	.61	2.36	1.44	1	1	65
V19-110	23°31′ S	37°51′ E	2903	.80	1.99	1.60	1	1	65
V19-111	25°20′ S	36°47′ E	2203	.56	2.34	1.32	1	1	65
V19-112	31°42′ S	38°10′ E	5018	.59	2.03	1.20	1	1	65
V19-114	34°24′ S	31°25′ E	4124	.67	2.23	~1.50	1	1	65
V19-115	35°30′ S	29°57′ E	4565	.53	2.49	1.32	1	1	65
V19-116	35°55′ S	27°45′ E	4656	.63	2.67	1.68	1	1	65
AND-1	10°01′ N	93°45′ E	4206	3.1	1.70	5.27	1	2	64
AND-2	11°01′ N	93°42′ E	2562	1.3	1.83	2.38	1	2	64
AND-3	11°56′ N	93°22′ E	1390	.5	1.79	.90	1	2	64
AND-4	12°44′ N	93°58′ E	2151	1.1	1.76	1.94	1	2	64
DIS 5116	5°35′ N	61°57′ E	3560	.663	2.02	1.34	1	88	65
DIS 5122	5°35′ N	61°56′ E	3560	.642	2.01	1.29	1	88	65
DIS 5125	2°45′ N	60°15′ E	4806	.265	1.70	.45	1	88	65
DIS 5135	2°55′ N	59°53′ E	4697	.412	1.77	.73	1	88	65
DIS 5139	1°54′ N	56°10′ E	4812	.728	1.73	1.26	1	88	65
DIS 5144	1°41′ S	42°13′ E	2255	.700	2.00	1.40	1	88	65
DIS 5149	2°24′ S	43°24′ E	3552	.643	1.96	1.26	1	88	65
DIS 5152	2°32′ S	44°56′ E	4160	.618	1.86	1.15	1	88	65
DIS 5155	2°48′ S	47°03′ E	4812	.610	1.77	1.08	1	88	65
DIS 5160	3°30′ S	49°40′ E	5042	.723	1.77	1.28	1	88	65
DIS 5165	3°33′ S	51°29′ E	5100	.418	1.70	.71	1	88	65
DIS 5171	2°10′ S	57°25′ E	4402	.221	2.26	.50?	1	88	65
DIS 5177	2°12′ S	57°20′ E	4402	.519	2.12	1.10	1	88	65
DIS 5180	6°39′ S	54°16′ E	3824	.748	2.06	1.54	1	88	65
DIS 5190	2°51′ S	47°00′ E	4800	.659	1.82	1.20	1	88	65
DIS 5194	2°34′ S	44°53′ E	4180	.597	1.91	1.14	1	88	65
DIS 5201	1°42′ S	42°15′ E	2046	.613	2.04	1.25	1	88	65
DIS 5204	3°31′ S	48°23′ E	4940	.761	1.80	1.37	1	88	65
DIS 5207	3°34′ S	50°29′ E	5082	.710	1.83	1.30	1	88	65
DIS 5215	2°25′ S	54°45′ E	4360	.750	2.00	(1.50)	1	88	65
DIS 5226	11°07′ N	54°03′ E	4028	.745	2.09	1.55	1	88	65
DIS 5227	11°39′ N	47°50′ E	1900	1.80	2.14	3.85	1	88	65
DIS 5229	12°29′ N	47°02′ E	2197	2.69	2.29	6.15	1	88	65
DIS 5230	12°56′ N	46°36′ E	1600	1.50	2.16	3.25	1	88	65
DIS 5231	15°58′ N	41°31′ E	1735	1.81	2.31	4.18	1	88	65
DIS 5232	18°24′ N	39°47′ E	1480	.404	2.62	1.06	1	88	65
DIS 5234	20°27′ N	37°55′ E	0870	..	2.75	+ ?	1	88	65

TABLE 22-8. HEAT FLOW IN THE PACIFIC OCEAN (INCLUDING JAPAN SEA, BERING SEA, AND GULF OF CALIFORNIA)

Station	Lat.	Long.	Depth	∇T	K	Q	No.	Ref.	Yr.
Eniwetok	11°30′ N	162°15′ E	0	.18	5.	.9	1	95	56
E1	38°09′ N	142°58′ E	1710	.130	2.10	.27	1	34	62
E2	37°59′ N	143°58′ E	7345	.542	2.11	1.14	1	34	62
E6	38°12′ N	147°55′ E	5631	1.05	1.95	2.05	1	34	62
F20	33°39′ N	161°39′ E	5605	.681	2.00	(1.36)	1	18	64
F23	34°23′ N	142°15′ E	7490	.630	2.21	1.39	1	18	64
F24	34°04′ N	142°56′ E	5110	.598	2.07	1.24*	1	18	64
F25	33°53′ N	145°26′ E	5770	.549	1.81	.99*	1	18	64
Akko 7	39°22′ N	150°03′ E	5480	1.74	1.90	3.30*	1	18	64
Akko 8	39°30′ N	143°28′ E	2800	.546	2.16	~1.18	1	18	64
MYJ 1	34°32′ N	139°46′ E	1710	.574	2.54	1.46*	1	18	64
Akko 11	29°53′ N	137°56′ E	3960	.397	2.06	.82	1	18	64
Akko 12	32°35′ N	138°06′ E	3970	1.20	2.42	2.88*	1	18	64
G1	40°02′ N	142°31′ E	810	.702	1.75	1.26*?	1	18	64
G12	43°26′ N	148°15′ E	5175	.407	1.53	.62	1	18	64
G202	40°28′ N	142°59′ E	1550	.464	2.16	1.00*?	1	18	64
G*2	39°42′ N	145°25′ E	5315	.610	1.82	1.11	1	18	64
G*5	40°24′ N	145°40′ E	5215	.344	1.67	.58	1	18	64
G*10	41°52′ N	145°09′ E	4435	.356	1.80	.64*	1	18	64
G*11	41°02′ N	146°00′ E	5495	.568	2.44	1.38	1	18	64
Akko M1	38°11′ N	133°45′ E	0970	1.08	1.98	2.13?	1	86	65
Akko M2	40°47′ N	132°04′ E	3080	.35	1.78	.63	1	86	65
Akko M3	40°48′ N	134°24′ E	3400	1.30	1.79	2.33	1	86	65
Akko M4	38°01′ N	135°57′ E	2550	1.39	1.75	2.44	1	86	65
Akko M5	40°13′ N	136°52′ E	2525	.80	1.70	1.40	1	86	65
Akko M6	40°59′ N	137°24′ E	3422	.96	2.08	1.98	1	86	65
Akko M7	40°23′ N	139°11′ E	2670	1.18	1.95	2.02	1	86	65
Akko M8	39°29′ N	137°59′ E	2508	.72	1.81	1.30	1	86	65
EN 1	39°00′ N	139°10′ E	0720	.83	1.67	1.4?	1	86	65
EN 2	38°32′ N	139°10′ E	0320	.26	1.82	.5?	1	86	65
H 11	39°50′ N	153°52′ E	5560	.50	1.74	.88	1	86	65
H 12	40°05′ N	152°01′ E	5475	.51	1.68	.86	1	86	65
H 14A	40°02′ N	146°02′ E	5150	.59	1.59	.94*	1	86	65
Makko 1	37°21′ N	134°07′ E	2440	1.45	1.83	2.66	1	86	65
Makko 2	39°10′ N	133°02′ E	2720	1.18	1.57	1.84	1	86	65
Saiko 3	40°01′ N	132°29′ E	3330	1.36	1.65	2.24	1	86	65
Saiko 4	41°01′ N	131°54′ E	3470	1.34	1.59	2.13	1	86	65
Saiko 5	41°20′ N	132°48′ E	3600	1.21	1.56	1.89*	1	86	65
Makko 3	41°34′ N	133°35′ E	3650	1.29	1.56	2.08	1	86	65
Makko 4	39°55′ N	134°50′ E	1450	1.09	1.65	1.80?	1	86	65
Makko 5	38°58′ N	135°25′ E	3180	1.23	1.69	2.08	1	86	65
Makko 6	38°02′ N	135°57′ E	2740	1.35	1.65	2.23	1	86	65
Makko 7	38°13′ N	137°52′ E	1970	1.25	1.80	2.25?	1	86	65
Makko 8	39°13′ N	132°25′ E	2340	1.06	1.96	2.07	1	86	65
Makko 9	40°08′ N	136°44′ E	2650	1.47	1.78	2.62	1	86	65
Makko 10	41°03′ N	136°06′ E	3450	1.25	1.55	1.95	1	86	65
Makko 11	42°00′ N	138°10′ E	3670	1.33	1.88	2.51	1	86	65
Makko 12	41°59′ N	139°23′ E	1480	1.41	1.92	2.70?	1	86	65
Makko 13	43°32′ N	140°20′ E	0700	1.15	1.62	1.87?	1	86	65
Makko 14	43°59′ N	139°20′ E	1710	1.22	1.80	2.19?	1	86	65
Makko 15	44°31′ N	138°26′ E	2430	1.13	1.72	1.94	1	86	65
Makko 16	44°59′ N	137°29′ E	1630	1.34	1.73	2.32?	1	86	65
Makko 17	45°00′ N	138°36′ E	2150	.45	1.80	.79*	1	86	65
Makko 18	45°02′ N	139°37′ E	0885	1.00	1.92	1.92?	1	86	65
Makko 19	45°05′ N	140°44′ E	0330	1.31	2.04	2.66*?	1	86	65

TABLE 22-8. *Continued*

Station	Lat.	Long.	Depth	∇T	K	Q	No.	Ref.	Yr.
Tokko-1	31°58′ N	140°29′ E	..	1.58	2.10	<3.2*	1	86	65
Tokko-3	33°44′ N	139°34′ E	..	1.54	1.60	2.46*	1	86	65
Tokko-4	33°55′ N	139°14′ E	..	1.12	1.60	1.79	1	86	65
Men-2A	33°45′ N	119°31′ W	1900	.72	2.00	1.43	1	19	64
Men-3	33°58′ N	122°34′ W	4200	.30	1.89	.57	1	19	64
Men-4	34°02′ N	125°15′ W	4640	.60	1.81	1.08	1	19	64
Men-5	36°04′ N	125°04′ W	4450	.50	1.87	.94	1	19	64
Men-6	38°25′ N	126°09′ W	4230	1.70	2.03	3.45	1	19	64
Men-7	39°47′ N	126°21′ W	4140	.96	2.04	1.96	1	19	64
Men-8	40°33′ N	126°31′ W	3150	1.89	2.06	3.9*	1	19	64
Men-9	40°56′ N	126°31′ W	3120	2.35	1.96	4.60	1	19	64
Men-10	41°30′ N	126°32′ W	2960	3.06	1.89	5.79	1	19	64
Men-11	40°36′ N	127°25′ W	3280	2.84	1.96	5.56	1	19	64
Men-12	40°07′ N	128°10′ W	4510	.98	1.92	1.88	1	19	64
Men-13	40°40′ N	129°13′ W	3220	2.01	2.05	4.12	1	19	64
Men-14	40°00′ N	131°00′ W	4520	.60	1.90	1.14	1	19	64
Men-15	42°02′ N	133°07′ W	3870	.40	1.87	.75	1	19	64
Men-16	40°25′ N	133°06′ W	4070	.36	2.00	.72	1	19	64
Men-17	39°30′ N	133°05′ W	4750	.17	2.07	.35	1	19	64
Men-18	41°06′ N	135°32′ W	4060	.48	2.08	1.00	1	19	64
Men-19	41°07′ N	151°22′ W	5100	.91	2.03	1.84	1	19	64
Men-20	39°21′ N	149°56° W	5500	.19	2.04	.39	1	19	64
Men-21	40°38′ N	149°01′ W	4840	.91	2.07	1.88	1	19	64
Men-22	40°47′ N	146°00′ W	4720	.50	2.11	1.05	1	19	64
Men-23	40°41′ N	142°52′ W	4730	.61	1.96	1.19	1	19	64
Men-24	40°44′ N	139°22′ W	4520	.91	2.06	1.88	1	19	64
Men-26	38°40′ N	142°36′ W	5290	.63	2.02	1.27	1	19	64
Men-27	39°05′ N	139°26′ W	5290	.87	2.05	1.78	1	19	64
Men-28	38°02′ N	137°58′ W	5380	.86	1.97	1.69	1	19	64
Men-29	39°33′ N	135°59′ W	5140	.49	2.00	(.98)	1	19	64
Men-30	38°00′ N	134°00′ W	4810	.85	2.02	1.72	1	19	64
Men-31	39°32′ N	133°05′ W	4740	.05	2.07	.10	1	19	64
Men-33	39°30′ N	131°47′ W	4510	.23	2.02	.46	1	19	64
Men-34	40°44′ N	131°45′ W	3640	.49	1.95	.95	1	19	64
Men-36	39°36′ N	129°31′ W	4540	.59	1.90	(1.12)	1	19	64
Men-37	38°01′ N	128°46′ W	4750	.83	2.03	(1.68)	1	19	64
Men-38	32°36′ N	118°06′ W	2010	.99	1.97	1.96	1	19	64
Men-39	32°32′ N	117°31′ W	1240	1.1	1.83	2.03	1	19	64
GU-1	32°32′ N	117°31′ W	1230	1.41	1.83	(2.58)	1	19	64
GU-2	32°29′ N	118°03′ W	1890	1.47	1.89	2.78	1	19	64
GU-3	32°14′ N	118°27′ W	1630	.95	1.88	1.78	1	19	64
GU-4	32°03′ N	118°50′ W	1480	.95	1.99	1.89	1	19	64
GU-5	31°50′ N	119°06′ W	1690	1.15	1.88	2.16	1	19	64
GU-6	31°37′ N	119°35′ W	3720	.44	1.93	.84	1	19	64
GU-7	31°26′ N	120°04′ W	3970	.89	1.87	1.66	1	19	64
GU-8	31°14′ N	120°32′ W	3840	.87	1.88	1.64	1	19	64
GU-9B	31°01′ N	120°55′ W	3970	1.30	1.98	2.58	1	19	64
GU-10	30°48′ N	121°31′ W	4100	1.20	2.02	2.42	1	19	64
GU-11	29°03′ N	121°04′ W	4160	.15	2.10	.31	1	19	64
GU-12	29°09′ N	120°35′ W	3910	.83	1.97	1.64	1	19	64
GU-13	29°16′ N	120°04′ W	3830	2.30	1.93	4.43	1	19	64
GU-14	29°22′ N	119°35′ W	3710	1.20	1.99	2.39	1	19	64
GU-15B	29°35′ N	118°56′ W	3800	.81	2.02	1.64	1	19	64
GU-16	29°37′ N	118°27′ W	3570	.19	2.06	.39	1	19	64
GU-17	29°33′ N	117°59′ W	3580	1.29	2.02	2.61	1	19	64
GU-18	28°59′ N	117°28′ W	3542	1.48	1.94	2.87	6	19	64

TABLE 22-8. *Continued*

Station	Lat.	Long.	Depth	∇T	K	Q	No.	Ref.	Yr.
GU-19	28°52′ N	117°26′ W	3550	2.11	1.94	(4.09)	1	19	64
GU-20	28°58′ N	117°21′ W	3550	.92	1.94	(1.79)	1	19	64
GU-21	29°06′ N	117°28′ W	3620	.97	1.94	(1.89)	1	19	64
GU-22	29°54′ N	117°36′ W	2840	1.12	2.08	2.34	1	19	64
SB-1	31°16′ N	117°45′ W	1930	1.06	2.12	2.25	1	19	64
SB-2	31°15′ N	117°46′ W	1950	1.58	2.12	3.35	1	19	64
SB-3	30°54′ N	117°53′ W	2050	.92	2.03	1.87	1	19	64
SB-4	30°53′ N	117°53′ W	2040	.98	2.03	1.99	1	19	64
SB-5	30°18′ N	117°31′ W	3250	1.42	2.04	2.90	1	19	64
SB-6A	29°18′ N	117°29′ W	3950	1.58	2.03	3.20	1	19	64
SB-8	28°57′ N	117°31′ W	3480	1.14	2.07	2.37	1	19	64
SB-9	29°09′ N	116°43′ W	4060	1.29	2.08	2.69	1	19	64
SB-10	29°08′ N	116°42′ W	4070	1.33	2.08	2.77	1	19	64
SB-11	30°30′ N	116°30′ W	2840	1.50	2.04	3.07	1	19	64
SB-12	30°31′ N	116°33′ W	2840	1.39	2.04	2.84	1	19	64
H-1	31°27′ N	120°59′ W	3835	.53	1.89	1.01	1	19	64
H-2	29°41′ N	121°36′ W	4000	.96	1.95	(1.88)	1	19	64
T-1	32°35′ N	117°31′ W	1225	1.12	1.83	(2.05)	1	19	64
T-2	32°33′ N	117°31′ W	1220	1.08	1.83	(1.98)	1	19	64
EHF-1	31°11′ N	119°16′ W	3690	.63	2.04	1.28	1	19	64
Mohole	28°59′ N	117°30′ W	3570	1.38	2.04	2.81	1	20	64
V-1	27°08′ N	111°38′ W	1840	1.58	1.77	2.80	1	21	63
V-2	27°17′ N	111°22′ W	1870	1.78	1.65	2.94	1	21	63
V-3	27°38′ N	111°44′ W	1775	2.55	1.64	4.19	1	21	63
V-4	26°46′ N	111°04′ W	1750	1.68	1.75	2.95	1	21	63
V-5	24°09′ N	108°55′ W	3020	2.13	1.99	4.24	1	21	63
V-6	22°58′ N	108°04′ W	2900	.34	1.81	.62	1	21	63
V-7	21°59′ N	107°41′ W	3055	2.96	1.86	5.51	1	21	63
V-8	21°00′ N	107°04′ W	3300	2.11	1.89	3.98	1	21	63
V-9	20°55′ N	106°25′ W	4450	1.07	2.00	2.14	1	21	63
V-10	20°10′ N	107°43′ W	3290	.71	1.76	1.25	1	21	63
V-11	19°45′ N	108°28′ W	2600	.79	1.82	1.43	1	21	63
V-12	20°48′ N	109°34′ W	2910	1.33	1.81	2.40	1	21	63
V-13	22°33′ N	109°29′ W	2860	2.96	2.08	6.15	1	21	63
D-1	1°23′ S	131°31′ W	4450	.06	2.29	.14	1	22	59
D-2	14°59′ S	136°01′ W	4510	.35	1.86	~.65	1	22	59
D-3	21°40′ S	147°41′ W	4760	.56	1.74	.97	1	22	59
D-4	40°37′ S	132°52′ W	5120	.61	1.80	1.1	1	22	59
D-5	42°16′ S	125°50′ W	4620	.08	1.71	.14	1	22	59
D-6	46°44′ S	123°18′ W	4140	.35	2.09	.73	1	22	59
D-7	44°27′ S	110°44′ W	3180	.92	2.24	2.06	1	22	59
D-8	43°43′ S	107°33′ W	3180	1.34	2.28	3.06	1	22	59
D-9	43°44′ S	104°25′ W	3850	1.03	2.03	2.09	1	22	59
D-10	42°44′ S	96°03′ W	4580	1.48	1.55	2.30	1	22	59
D-11	41°06′ S	86°38′ W	3310	.51	2.0	1.0	1	22	59
D-12	23°23′ S	72°10′ W	4110	.49	1.82	>.89	1	22	59
D-13	23°28′ S	72°58′ W	3750	.41	1.96	.80	1	22	59
D-14	21°33′ S	79°09′ W	4550	.89	1.82	1.62	1	22	59
D-15	20°49′ S	81°08′ W	2340	.35	2.26	.79	1	22	59
D-16	20°48′ S	81°09′ W	2400	.68	2.26	1.54	1	22	59
D-17	13°35′ S	79°09′ W	4440	.79	1.84	1.46	1	22	59
D-18	12°49′ S	77°53′ W	2260	1.35	2.02	2.72	1	22	59
D-19	12°54′ S	78°06′ W	3700	.56	1.91	1.07	1	22	59
D-20	12°38′ S	78°38′ W	5950	.08	2.09	.17	1	22	59
D-21	12°59′ S	78°21′ W	5900	.08	1.94	.17	1	22	59
D-22	18°26′ S	78°16′ W	4220	.14	1.86	.26	1	22	59

TABLE 22-8. *Continued*

Station	Lat.	Long.	Depth	∇T	K	Q	No.	Ref.	Yr.
D-23	18°20′ S	79°21′ W	3090	.46	2.14	.98	1	22	59
D-24	19°01′ S	81°29′ W	4230	.55	1.86	1.02	1	22	59
D-25	27°04′ S	88°53′ W	3880	1.04	2.04	2.12	1	22	59
D-26	28°00′ S	96°20′ W	3200	.10	2.25	.23	1	22	59
D-27	27°55′ S	106°57′ W	2910	2.10	2.16	4.54	1	22	59
D-28	23°15′ S	117°48′ W	3500	.92	1.90	~1.76	1	22	59
D-29	14°44′ S	112°06′ W	3060	3.45	2.22	7.66	1	22	59
D-30	13°30′ S	108°31′ W	3580	.43	2.34	1.01	1	22	59
D-31	11°39′ S	109°48′ W	3280	3.61	2.24	8.09	1	22	59
D-32	9°55′ S	110°39′ W	2840	3.90	2.04	7.95	1	22	59
D-33	5°56′ S	112°29′ W	4040	.44	2.00	.87	1	22	59
D-34	3°40′ S	114°13′ W	4330	.94	1.82	1.71	1	22	59
D-35	1°28′ N	116°04′ W	3810	.28	1.97	.56	1	22	59
D-36	4°06′ N	115°41′ W	4200	.20	2.13	.43	1	22	59
LFG-1	33°13′ N	118°36′ W	1300	1.00	1.8	1.8	1	23	62
LFG-2	36°40′ N	123°03′ W	3320	1.1	2.0	2.2	1	23	62
LFG-3	36°39′ N	123°16′ W	3470	1.10	2.1	2.3	1	23	62
LFG-5	36°34′ N	123°41′ W	3770	1.10	2.1	(2.3)	1	23	62
LFG-7	44°17′ N	138°36′ W	4220	.45	2.2	1.0	1	23	62
LFG-8	48°20′ N	157°22′ W	5220	.25	2.0	.5	1	23	62
LFG-11	52°33′ N	175°09′ W	3240	.59	1.7	1.0	1	23	62
LFG-12	54°17′ N	176°15′ W	3740	.60	1.5	.9	1	23	62
LFG-13	55°41′ N	177°40′ W	4160	.81	1.6	1.3	1	23	62
LFG-14A	56°05′ N	176°10′ W	3690	.69	1.6	1.1	1	23	62
LFG-14B	56°13′ N	176°18′ W	3670	.62	1.6	1.0	1	23	62
LFG-16	53°23′ N	163°20′ W	4230	.21	1.9	.4	1	23	62
LFG-17	54°08′ N	156°52′ W	5680	1.42	1.9	(2.7)	1	23	62
LFG-19	57°11′ N	149°38′ W	2950	.55	2.0	1.1	1	23	62
LFG-20	57°34′ N	147°37′ W	4880	.50	2.4	(1.2)	1	23	62
LFG-22	59°05′ N	145°05′ W	4220	.92	2.4	2.2	1	23	62
LFG-24	59°07′ N	144°20′ W	4000	.56	2.7	1.5	1	23	62
LFG-25	59°09′ N	143°39′ W	3920	.74	2.3	1.7	1	23	62
LFG-27	59°14′ N	142°50′ W	2670	.62	2.1	1.3	1	23	62
LFG-28	58°11′ N	139°31′ W	2910	.68	2.2	1.5	1	23	62
LFG-29	57°42′ N	140°08′ W	3310	.72	1.8	1.3	1	23	62
LFG-30	56°58′ N	139°12′ W	3340	.92	2.4	2.2	1	23	62
LFG-35	54°27′ N	134°41′ W	2560	1.86	2.2	(4.1)	1	23	62
LFG-37	54°13′ N	135°27′ W	2900	1.35	2.0	2.7	1	23	62
LFG-38	54°07′ N	135°51′ W	2740	1.22	1.8	2.2	1	23	62
LFG-39	53°07′ N	133°27′ W	2900	.94	1.7	1.6	1	23	62
LFG-40	53°15′ N	133°30′ W	2910	.61	1.8	1.1	1	23	62
LFG-41	50°04′ N	132°25′ W	3100	.30	2.3	.7	1	23	62
LFG-42	48°19′ N	131°38′ W	3050	.52	2.3	1.2	1	23	62
LFG-43	46°15′ N	131°59′ W	3290	.36	2.2	.8	1	23	62
LFG-44	43°51′ N	130°55′ W	3320	1.45	2.2	3.2	1	23	62
LFG-45	42°19′ N	130°39′ W	3430	.24	2.1	.5	1	23	62
LFG-46	40°36′ N	130°26′ W	3760	.05	2.0	.1?	1	23	62
LFG-47	40°35′ N	129°22′ W	3240	1.71	2.1	3.6	1	23	62
LFG-48	38°35′ N	127°45′ W	4630	.30	2.0	.6	1	23	62
LFG-50	36°19′ N	125°56′ W	4620	1.11	1.8	2.0	1	23	62
MSN-2	23°15′ N	130°46′ W	4930	.11	2.04	.22	1	24	63
MSN-3	20°02′ N	135°11′ W	5180	.75	2.08	1.56	1	24	63
MSN-64	10°34′ S	151°05′ W	5070	.73	1.62	1.18	1	24	63
MSN-65	8°17′ S	151°36′ W	5190	.87	1.65	1.44	1	24	63
MSN-66	5°55′ S	149°39′ W	5160	.47	1.59	.75	1	24	63
MSN-67	4°22′ S	149°29′ W	4600	.44	1.69	.74	1	24	63

TABLE 22-8. *Continued*

Station	Lat.	Long.	Depth	∇T	K	Q	No.	Ref.	Yr.
MSN-68	5°20′ N	146°13′ W	5090	.64	1.62	1.03	1	24	63
MSN-69	7°02′ N	145°38′ W	5100	.91	1.66	1.51	1	24	63
MSN-70	8°07′ N	145°24′ W	5000	.80	1.67	1.34	1	24	63
MSN-71	9°06′ N	145°18′ W	5300	.79	1.77	1.40	1	24	63
MSN-72	10°59′ N	142°37′ W	4890	2.77	1.61	(4.46)	1	24	63
MSN-73	11°03′ N	142°28′ W	5000	.66	1.61	1.06	1	24	63
MSN-74	13°04′ N	138°59′ W	5000	.41	1.58	.64	1	24	63
MSN-75	15°11′ N	136°52′ W	4990	.70	1.83	1.28	1	24	63
MSN-76	24°18′ N	126°30′ W	4750	.43	2.10	.90	1	24	63
MSN-77	29°07′ N	121°03′ W	4080	.10	2.00	.19	1	24	63
MSN-78	31°01′ N	119°04′ W	3620	1.43	1.91	2.73	1	24	63
RIS-1	28°02′ N	117°12′ W	3900	1.22	2.07	2.52	1	24	63
RIS-2	26°11′ N	117°18′ W	4000	.91	2.14	1.95	1	24	63
RIS-3	24°12′ N	117°23′ W	3935	.62	2.02	1.26	1	24	63
RIS-4	22°13′ N	117°21′ W	3890	1.29	2.08	2.69	1	24	63
RIS-5	20°18′ N	117°27′ W	4010	.33	1.83	.60	1	24	63
RIS-6	18°46′ N	117°14′ W	4090	1.20	1.80	2.16	1	24	63
RIS-8	14°26′ N	117°12′ W	4110	1.60	1.76	2.82	1	24	63
RIS-9	12°54′ N	117°24′ W	4230	.24	1.69	.41	1	24	63
RIS-10	11°28′ N	117°38′ W	4310	.52	1.90	.99	1	24	63
RIS-11	9°43′ N	117°32′ W	4230	.33	1.63	.54	1	24	63
RIS-12	8°06′ N	117°51′ W	3880	.59	1.95	1.15	1	24	63
RIS-13	6°45′ N	117°51′ W	4000	.41	1.87	.76	1	24	63
RIS-14	5°20′ N	117°52′ W	4355	.38	1.88	.71	1	24	63
RIS-15	3°54′ N	118°08′ W	4110	.35	1.99	.69	1	24	63
RIS-16	4°03′ N	117°01′ W	4160	.46	1.99	(.91)	1	24	63
RIS-17	4°03′ N	115°53′ W	4120	.78	2.13	(1.66)	1	24	63
RIS-18	4°03′ N	115°36′ W	4170	.19	2.13	(.40)	1	24	63
RIS-19	4°13′ N	114°58′ W	4210	.34	2.06	(.70)	1	24	63
RIS-20	4°25′ N	113°41′ W	3980	.30	1.98	.60	1	24	63
RIS-21	4°34′ N	112°31′ W	3950	.54	1.98	(1.07)	1	24	63
RIS-22	4°44′ N	111°33′ W	4060	.65	1.87	1.21	1	24	63
RIS-24B	5°04′ N	109°11′ W	3980	1.25	2.06	2.57	1	24	63
RIS-25	5°13′ N	107°59′ W	3760	.98	2.04	(1.99)	1	24	63
RIS-26	5°14′ N	106°33′ W	3820	1.15	2.02	2.32	1	24	63
RIS-27	5°24′ N	105°41′ W	3645	.79	1.95	(1.55)	1	24	63
RIS-28	5°37′ N	104°27′ W	3570	.86	1.87	1.61	1	24	63
RIS-29	5°43′ N	103°29′ W	3305	2.26	1.76	(3.98)	1	24	63
RIS-30	5°37′ N	104°03′ W	3400	.87	1.87	(1.63)	1	24	63
RIS-31	5°34′ N	103°08′ W	3300	.90	1.76	1.58	1	24	63
RIS-32B	5°41′ N	102°36′ W	3130	2.76	1.76	(4.86)	1	24	63
RIS-33	5°39′ N	102°06′ W	3175	4.24	1.75	7.42	1	24	63
RIS-34B	5°42′ N	101°43′ W	3440	.36	1.84	(.67)	1	24	63
RIS-35	5°36′ N	101°09′ W	3250	.92	1.93	1.78	1	24	63
RIS-36	5°41′ N	100°50′ W	3405	.64	1.94	(1.25)	1	24	63
RIS-37	5°44′ N	101°56′ W	3285	.69	1.75	(1.20)	1	24	63
RIS-38	5°43′ N	99°55′ W	3420	.58	1.94	1.12	1	24	63
RIS-39	6°05′ N	98°47′ W	3470	.54	1.74	(.94)	1	24	63
RIS-40	6°41′ N	97°25′ W	3520	.21	1.74	.37	1	24	63
RIS-41	6°58′ N	96°06′ W	3785	.05	1.67	(.08)	1	24	63
RIS-42	6°57′ N	94°58′ W	3740	.73	1.60	1.17	1	24	63
RIS-43	5°05′ N	93°56′ W	3540	.66	1.72	(1.13)	1	24	63
RIS-44	4°07′ N	92°09′ W	3150	.28	1.95	.55	1	24	63
RIS-45	3°16′ N	90°42′ W	2360	.44	2.00	(.87)	1	24	63
RIS-46	2°17′ N	89°28′ W	2160	.24	2.09	.51	1	24	63
RIS-47B	1°13′ N	88°32′ W	2480	2.79	1.89	5.27	1	24	63

TABLE 22-8. *Continued*

Station	Lat.	Long.	Depth	∇T	K	Q	No.	Ref.	Yr.
RIS-48B	0°15′ N	86°23′ W	2760	2.52	1.85	(4.66)	1	24	63
RIS-49	0°09′ S	85°58′ W	2750	.36	1.81	.65	1	24	63
RIS-50	1°41′ S	85°33′ W	2440	3.11	1.91	(5.94)	1	24	63
RIS-51	1°45′ S	85°31′ W	2385	1.00	1.98	(1.98)	1	24	63
RIS-52	2°44′ S	85°29′ W	3220	1.53	1.98	3.03	1	24	63
RIS-53	3°52′ S	84°50′ W	3395	1.22	1.98	(2.42)	1	24	63
RIS-54	9°07′ S	81°33′ W	4700	.50	1.75	.87	1	24	63
RIS-55	8°51′ S	80°53′ W	6280	.46	2.00	(.91)	1	24	63
RIS-56	8°47′ S	80°35′ W	2975	.54	2.00	(1.07)	1	24	63
RIS-57	12°34′ S	78°35′ W	5940	.12	2.09	(.26)	1	24	63
RIS-58	12°46′ S	80°00′ W	4630	.64	1.79	(1.14)	1	24	63
RIS-59	12°59′ S	81°32′ W	4800	1.21	1.68	2.04	1	24	63
RIS-60	13°04′ S	82°58′ W	4990	1.51	1.70	(2.56)	1	24	63
RIS-61	13°11′ S	84°25′ W	4740	.86	1.72	1.48	1	24	63
RIS-62B	13°24′ S	86°15′ W	4500	.21	1.69	(.36)	1	24	63
RIS-63	13°32′ S	87°26′ W	4240	.29	1.66	.48	1	24	63
RIS-64	13°33′ S	89°05′ W	4080	.58	1.80	(1.05)	1	24	63
RIS-65	13°43′ S	90°30′ W	3900	.08	1.93	.15	1	24	63
RIS-66	13°40′ S	92°00′ W	3830	.78	2.01	(1.57)	1	24	63
RIS-67	13°35′ S	93°28′ W	3880	1.55	2.08	3.22	1	24	63
RIS-68	13°37′ S	94°58′ W	3720	1.00	2.08	(2.08)	1	24	63
RIS-69	13°37′ S	96°44′ W	4150	1.10	1.86	2.04	1	24	63
RIS-70	13°32′ S	97°48′ W	3740	.62	2.05	1.28	1	24	63
RIS-71	13°26′ S	99°11′ W	3950	.87	1.91	(1.66)	1	24	63
RIS-72	13°23′ S	100°30′ W	4210	.22	1.77	.39	1	24	63
RIS-73	13°16′ S	101°24′ W	4300	1.74	1.80	(3.14)	1	24	63
RIS-74B	13°18′ S	102°18′ W	4430	.79	2.22	1.75	1	24	63
RIS-75	13°11′ S	103°30′ W	4170	.78	2.10	(1.63)	1	24	63
RIS-76	13°03′ S	104°41′ W	3720	.40	1.98	.79	1	24	63
RIS-77	12°59′ S	105°31′ W	3910	.64	2.13	(1.37)	1	24	63
RIS-78	12°54′ S	106°29′ W	3720	1.33	2.27	3.02	1	24	63
RIS-79	12°50′ S	107°31′ W	3710	.41	2.22	(.92)	1	24	63
RIS-80	12°48′ S	107°59′ W	3550	.50	2.16	1.09	1	24	63
RIS-81	12°43′ S	108°32′ W	3550	.98	2.17	(2.13)	1	24	63
RIS-82	12°44′ S	109°02′ W	3415	.91	2.17	(1.97)	1	24	63
RIS-83	12°40′ S	109°30′ W	3405	1.06	2.17	(2.31)	1	24	63
RIS-84	12°39′ S	110°01′ W	3255	1.34	2.18	2.93	1	24	63
RIS-85	12°35′ S	110°29′ W	3180	2.17	2.18	(4.74)	1	24	63
RIS-86	12°35′ S	110°15′ W	3165	1.36	2.18	(2.96)	1	24	63
RIS-87	12°33′ S	110°47′ W	3010	1.20	1.82	(2.18)	1	24	63
RIS-88B	12°33′ S	111°13′ W	3105	1.52	1.82	2.76	1	24	63
RIS-89	12°32′ S	111°29′ W	3030	1.64	1.88	(3.08)	1	24	63
RIS-90	12°33′ S	112°01′ W	3075	3.27	1.94	(6.35)	1	24	63
RIS-91	12°32′ S	112°16′ W	3175	1.75	2.00	(3.50)	1	24	63
RIS-92	12°30′ S	112°37′ W	3170	.98	2.05	2.00	1	24	63
RIS-93	12°26′ S	113°05′ W	3230	1.43	2.05	(2.94)	1	24	63
RIS-94	12°25′ S	113°31′ W	3325	.87	2.05	(1.79)	1	24	63
RIS-95	13°02′ S	113°17′ W	3240	2.10	1.90	(4.00)	1	24	63
RIS-96	13°36′ S	112°42′ W	3025	1.85	1.75	3.24	1	24	63
RIS-97	14°02′ S	112°20′ W	2960	1.48	1.75	(2.59)	1	24	63
RIS-98	14°47′ S	112°32′ W	3020	.60	2.22	(1.34)	1	24	63
RIS-99	14°47′ S	112°54′ W	3065	.92	2.09	(1.93)	1	24	63
RIS-100	14°41′ S	113°30′ W	3010	3.62	1.96	7.10	1	24	63
RIS-101	14°40′ S	113°45′ W	3170	4.10	1.96	(8.04)	1	24	63
RIS-102	14°38′ S	114°02′ W	2975	2.38	1.95	(4.65)	1	24	63
RIS-103	14°15′ S	113°11′ W	3045	3.14	1.85	(5.80)	1	24	63

TABLE 22-8. *Continued*

Station	Lat.	Long.	Depth	∇T	K	Q	No.	Ref.	Yr.
RIS-104	14°15′ S	113°33′ W	3020	2.07	1.95	(4.03)	1	24	63
RIS-105	14°15′ S	113°50′ W	3045	.43	1.94	.84	1	24	63
RIS-106	14°15′ S	114°09′ W	3015	1.69	1.94	(3.27)	1	24	63
RIS-107	14°17′ S	114°32′ W	3120	.96	1.94	(1.87)	1	24	63
RIS-108	14°17′ S	114°59′ W	3210	.57	2.04	(1.17)	1	24	63
RIS-109	14°18′ S	115°37′ W	3440	.45	2.14	.97	1	24	63
RIS-110	14°15′ S	116°23′ W	3280	.79	2.17	(1.72)	1	24	63
RIS-111	14°14′ S	117°35′ W	3440	.45	2.20	1.00	1	24	63
RIS-112	13°59′ S	118°33′ W	3380	.32	2.19	(.70)	1	24	63
RIS-113	14°00′ S	119°39′ W	3270	.06	2.19	.13	1	24	63
RIS-114B	14°04′ S	120°16′ W	3600	.69	2.13	(1.48)	1	24	63
RIS-115	14°03′ S	121°17′ W	3680	.31	2.13	(.67)	1	24	63
RIS-116	14°01′ S	122°28′ W	3935	.03	2.07	.07	1	24	63
RIS-117	14°07′ S	123°47′ W	3860	.67	2.07	(1.39)	1	24	63
RIS-118	13°33′ S	121°48′ W	3640	.75	2.13	(1.60)	1	24	63
RIS-119	13°33′ S	121°50′ W	3665	.12	2.13	(.25)	1	24	63
RIS-120	13°52′ S	125°20′ W	3680	.47	2.20	1.04	1	24	63
RIS-121	14°02′ S	127°07′ W	3930	.09	2.05	(.18)	1	24	63
RIS-122	14°02′ S	128°25′ W	3995	.54	1.90	1.02	1	24	63
RIS-123	14°02′ S	129°48′ W	4120	1.49	1.74	(2.60)	1	24	63
RIS-124	14°03′ S	130°18′ W	4090	.47	1.74	(.82)	1	24	63
RIS-125	14°03′ S	131°44′ W	4010	.30	1.58	.48	1	24	63
RIS-127	14°02′ S	133°45′ W	4290	.50	1.57	(.79)	1	24	63
RIS-128	14°02′ S	134°55′ W	4220	.75	1.56	1.17	1	24	63
RIS-129	14°03′ S	136°34′ W	4290	.36	1.56	(.57)	1	24	63
RIS-130	14°09′ S	138°06′ W	4040	1.10	1.55	1.70	1	24	63
RIS-131	14°03′ S	139°35′ W	3925	.86	1.94	1.67	1	24	63
RIS-132	14°55′ S	141°34′ W	2610	.84	2.15	(1.8)	1	24	63
RIS-133	15°15′ S	142°26′ W	3725	.52	2.15	1.12	1	24	63
RIS-134	16°30′ S	145°07′ W	1440	.79	2.14	~1.70	1	24	63
RIS-135	16°52′ S	145°49′ W	2750	.66	2.05	1.35	1	24	63
RIS-136	17°05′ S	147°13′ W	4190	.12	1.72	.21	1	24	63
RIS-137	16°46′ S	148°52′ W	4200	.09	1.75	(.16)	1	24	63
RIS-138	16°34′ S	148°30′ W	4250	.65	1.75	1.13	1	24	63
RIS-140	14°43′ S	145°40′ W	2770	.54	2.20	1.20	1	24	63
RIS-141	13°37′ S	145°03′ W	4390	.17	1.72	.29	1	24	63
RIS-142	13°03′ S	144°03′ W	4960	.58	2.24	1.29	1	24	63
RIS-143	12°46′ S	143°34′ W	4480	.64	1.71	(1.10)	1	24	63
RIS-144	11°58′ S	142°27′ W	4520	.73	1.62	1.19	1	24	63
RIS-145	11°05′ S	140°57′ W	4270	.22	2.11	(.46)	1	24	63
RIS-146	10°30′ S	139°59′ W	4140	.18	2.11	.37	1	24	63
RIS-147	8°38′ S	138°18′ W	4080	.83	2.01	1.67	1	24	63
RIS-148	7°27′ S	137°11′ W	4400	.43	1.82	~.78	1	24	63
RIS-149	6°23′ S	136°11′ W	4350	.80	1.64	1.31	1	24	63
RIS-151	4°06′ S	133°59′ W	4445	.63	1.95	1.22	1	24	63
RIS-152	2°46′ S	132°58′ W	4350	.82	1.98	(1.63)	1	24	63
RIS-153	1°40′ S	131°52′ W	4345	.31	2.01	.63	1	24	63
RIS-154	1°21′ S	131°31′ W	4510	.11	2.01	(.23)	1	24	63
RIS-155	1°25′ S	131°04′ W	4480	.37	2.01	(.74)	1	24	63
RIS-156	1°27′ S	130°34′ W	4580	.20	2.01	(.40)	1	24	63
RIS-157	0°47′ S	131°42′ W	4425	.39	2.01	(.78)	1	24	63
RIS-158	0°18′ N	132°00′ W	4410	.41	1.96	(.80)	1	24	63
RIS-159	2°04′ N	132°32′ W	4305	.22	1.91	.42	1	24	63
RIS-160	3°36′ N	133°00′ W	4375	.00	2.00	(.01)?	1	24	63
RIS-161	3°58′ N	133°09′ W	4375	.10	2.00	(.19)	1	24	63
RIS-162	5°38′ N	133°26′ W	4390	.21	2.08	.44	1	24	63

TABLE 22-8. *Continued*

Station	Lat.	Long.	Depth	∇T	K	Q	No.	Ref.	Yr.
RIS-163	7°14′ N	133°47′ W	4410	.82	2.08	(1.7)	1	24	63
RIS-164	9°03′ N	133°40′ W	4980	1.08	1.67	1.80	1	24	63
RIS-165	10°57′ N	133°56′ W	4910	.85	1.67	(1.42)	1	24	63
RIS-166	12°56′ N	133°36′ W	4810	.64	1.67	(1.07)	1	24	63
RIS-167	14°58′ N	133°42′ W	4775	.74	1.82	1.34	1	24	63
RIS-169	18°15′ N	133°06′ W	5190	1.05	1.91	2.00	1	24	63
RIS-170	19°59′ N	133°03′ W	5060	.64	1.91	(1.23)	1	24	63
RIS-172	23°30′ N	132°43′ W	4880	.61	2.02	(1.23)	1	24	63
RIS-173	25°19′ N	132°37′ W	4530	.38	2.13	.80	1	24	63
RIS-174	27°15′ N	132°28′ W	4815	.49	2.10	(1.02)	1	24	63
RIS-175	28°26′ N	135°54′ W	4740	.77	2.07	1.59	1	24	63
RIS-176	28°29′ N	134°35′ W	4660	.36	2.00	(.71)	1	24	63
RIS-177	28°18′ N	133°21′ W	4385	.74	1.92	1.43	1	24	63
RIS-178	27°54′ N	132°37′ W	3700	.51	1.92	(.98)	1	24	63
RIS-180	28°10′ N	131°04′ W	4550	1.10	1.96	(2.16)	1	24	63
RIS-181	28°17′ N	129°36′ W	4740	.52	2.00	1.05	1	24	63
RIS-182	28°21′ N	127°59′ W	4660	.97	1.98	(1.92)	1	24	63
RIS-183	28°27′ N	126°37′ W	4500	.88	1.96	1.73	1	24	63
RIS-184	28°35′ N	125°00′ W	4445	1.13	1.96	(2.22)	1	24	63
RIS-185	28°47′ N	123°37′ W	4370	.94	1.77	1.66	1	24	63
RIS-186	28°56′ N	122°27′ W	4220	1.10	1.96	(2.16)	1	24	63
RIS-187	29°33′ N	121°44′ W	4005	1.15	2.05	(2.36)	1	24	63
MP-21	20°48′ N	159°42′ W	4500	.65	1.79	1.16	1	25	58
MP-32	18°18′ N	173°23′ W	3900	.35	2.05	.72	1	25	58
MP-35-2	19°28′ N	174°35′ W	4900	.62	2.07	1.29	1	25	58
MP-36	16°45′ N	176°24′ W	5040	.66	1.80	1.19	1	25	58
MP-38	19°02′ N	177°19′ W	4750	.69	1.57	1.09	1	25	58
STN-1	32°35′ N	122°30′ W	4000	.67	1.90	(1.27)	1	25	58
CAP-2B	0°40′ N	169°17′ E	4310	.76	2.48	1.88	1	25	58
CAP-5B	9°04′ S	174°51′ E	5000	.72	1.87	1.35	1	25	58
CAP-9B	18°59′ S	177°36′ E	2700	.63	2.40	1.51	1	25	58
CAP-10B	21°56′ S	178°33′ E	3900	1.25	2.07	2.58	1	25	58
CAP-31B	17°28′ S	158°40′ W	4880	.86	1.83	1.58	1	25	58
CAP-33B	12°48′ S	143°33′ W	4300	.21	1.71	.36	1	25	58
CAP-40B	14°45′ S	112°11′ W	3020	2.15	2.44	5.25	1	25	58
CAP-48B	5°52′ N	123°55′ W	4100	.73	2.26	1.65	1	25	58
CAP-50B	14°59′ N	124°12′ W	4350	1.24	1.96	2.43	1	25	58
ACA-B5-1	13°08′ N	91°57′ W	6170	.24	1.92	.47	1	25	58
ACA-B6	11°55′ N	91°37′ W	3600	.46	1.67	.76	1	25	58
ACA-B8	9°49′ N	93°02′ W	3730	.14	1.76	.25	1	25	58
ACA-B9	12°14′ N	98°44′ W	3500	.40	1.72	.69	1	25	58
ACA-B11	10°52′ N	105°04′ W	3300	1.83	1.95	>3.57	1	25	58
ACA-B11B	10°54′ N	104°25′ W	2950	1.40	1.95	(2.73)	1	25	58
ACA-B13	12°12′ N	111°04′ W	3600	.48	1.95	(.93)	1	25	58
ACA-B13A	20°44′ N	115°42′ W	3910	.59	2.02	1.19	1	25	58
GUA-P6	25°01′ N	123°04′ W	4300	.48	2.30	1.11	1	25	58
GUA-P7	24°54′ N	123°05′ W	4200	.49	2.30	1.13	1	25	58
V18-100	09°42′ S	136°28′ W	4329	.96	1.72	1.65	1	28	65
V18-101	08°00′ S	133°50′ W	4696	1.24	1.56	1.93	1	28	65
V18-102	07°20′ S	133°03′ W	4477	.99	1.52	1.50	1	28	65
V18-105	05°19′ S	130°22′ W	4661	.57	1.65	.94	1	28	65
V18-107	03°37′ S	127°41′ W	4564	.23	1.66	.38	1	28	65
V18-108	02°51′ S	126°12′ W	4612	.36	1.78	.59	1	28	65
V18-109	01°06′ S	124°37′ W	4550	.28	2.16	.60	1	28	65
V18-110	01°14′ S	122°55′ W	4389	.48	2.33	1.12	1	28	65
V18-111	01°03′ N	120°46′ W	4371	.36	2.31	.83	1	28	65

TABLE 22-8. *Continued*

Station	Lat.	Long.	Depth	∇T	K	Q	No.	Ref.	Yr.
V18-112	02°12′ N	119°40′ W	4332	1.52	2.30	(3.50)	1	28	65
V18-113	03°10′ N	118°28′ W	4217	.71	2.13	1.51	1	28	65
V18-114	04°14′ N	117°00′ W	4161	.42	2.19	.82	1	28	65
V18-116	06°23′ N	113°32′ W	4104	.15	1.85	.28	1	28	65
V18-118	08°01′ N	109°18′ W	4065	1.92	1.67	3.21	1	28	65
V18-119	08°46′ N	107°09′ W	3488	1.74	1.83	3.18	1	28	65
V18-122	10°16′ N	103°05′ W	3190	1.91	1.55	2.96	1	28	65
V18-125	11°54′ N	100°44′ W	3360	1.22	1.65	2.01	1	28	65
V18-126	12°38′ N	99°27′ W	3426	1.78	1.64	2.62	1	28	65
V18-127	12°54′ N	98°52′ W	3342	.96	1.80	(1.73)	1	28	65
V18-128	12°49′ N	97°47′ W	3720	.42	1.72	.46	1	28	65
V18-129	13°09′ N	97°07′ W	3590	.64	1.80	(1.15)	1	28	65
V18-130	13°19′ N	96°51′ W	2757	5.78	1.85	10. ?	1	28	65
V18-131	14°31′ N	96°18′ W	3890	1.55	1.91	2.96	1	28	65
V18-134	12°47′ N	96°17′ W	3987	.76	1.82	1.38	1	28	65
V18-135	08°49′ N	97°16′ W	3793	.66	1.61	1.06	1	28	65
V18-140	06°37′ N	88°24′ W	3247	1.91	1.60	3.06	1	28	65
V18-141	06°44′ N	86°30′ W	2892	.56	1.82	1.02	1	28	65
V18-142	06°04′ N	85°43′ W	1819	1.53	1.97	3.01	1	28	65
V18-143	05°42′ N	85°16′ W	1840	1.41	2.15	3.03	1	28	65
V18-144	05°18′ N	84°45′ W	3005	1.40	1.78	2.50	1	28	65
V18-145	05°34′ N	83°24′ W	3064	1.95	1.76	3.43	1	28	65
V18-146	06°06′ N	82°05′ W	3031	1.91	1.80	(3.44)	1	28	65
V18-148	06°42′ N	80°42′ W	3424	1.70	1.80	(3.06)	1	28	65
V19-8	07°04′ N	78°59′ W	3345	1.63	1.69	2.75	1	28	65
V19-9	04°56′ N	78°16′ W	3819	2.83	2.16	6.11	1	28	65
V19-10	03°12′ N	80°08′ W	1711	.91	2.08	1.89	1	28	65
V19-11	02°28′ N	81°42′ W	2398	1.12	1.79	2.00	1	28	65
V19-14	02°22′ S	84°39′ W	2724	.07	1.78	.12	1	28	65
V19-15	03°35′ S	83°56′ W	3153	1.17	1.67	1.95	1	28	65
V19-19	11°59′ S	81°31′ W	4749	1.21	1.53	1.85	1	28	65
V19-23	13°13′ S	92°53′ W	3647	.83	2.19	1.82	1	28	65
V19-26	16°21′ S	104°48′ W	4199	.78	2.42	1.8	1	28	65
V19-27	17°01′ S	108°52′ W	3624	.76	2.49	1.9	1	28	65
V19-28	17°01′ S	110°23′ W	3449	.71	2.1	(1.5)	1	28	65
V19-29	17°00′ S	110°51′ W	3438	.58	2.23	1.3	1	28	65
V19-30	17°00′ S	111°12′ W	3537	.44	2.06	.9	1	28	65
V19-31	17°01′ S	111°33′ W	3320	.57	2.1	(1.2)	1	28	65
V19-32	17°02′ S	111°53′ W	3256	.67	2.1	(1.4)	1	28	65
V19-33	17°02′ S	112°12′ W	3184	1.57	2.1	(3.3)	1	28	65
V19-34	17°01′ S	112°34′ W	2981	1.10	2.1	(2.3)	1	28	65
V19-35	17°01′ S	112°55′ W	3175	.81	2.1	(1.7)	1	28	65
V19-36	17°01′ S	113°31′ W	3056	.86	2.1	(1.8)	1	28	65
V19-37	17°02′ S	113°54′ W	2830	1.67	2.1	(3.5)	1	28	65
V19-38	17°00′ S	114°11′ W	3177	.76	2.1	(1.6)	1	28	65
V19-39	17°00′ S	114°32′ W	3139	1.00	2.1	(2.1)	1	28	65
V19-40	17°00′ S	114°53′ W	3157	.76	2.1	(1.6)	1	28	65
V19-41	16°58′ S	115°12′ W	3270	.24	2.1	(.5)	1	28	65
V19-42	16°58′ S	115°33′ W	3300	3.38	2.1	(7.1)	1	28	65
V19-43	16°58′ S	115°56′ W	3336	1.00	2.1	(2.1)	1	28	65
V19-44	16°57′ S	116°18′ W	3407	.71	2.1	(1.4)	1	28	65
V19-45	16°58′ S	116°48′ W	3374	1.05	2.1	(2.2)	1	28	65
V19-46	16°59′ S	117°53′ W	3422	.76	2.1	(1.6)	1	28	65
V19-48	16°39′ S	124°23′ W	3760	.43	2.1	(.9)	1	28	65
H-4	28°14′ N	127°38′ W	4580	.710	2.07	1.47	1	29	64
H-5	24°46′ N	134°30′ W	4530	.632	1.97	1.25	2	29	64

TABLE 22-8. *Continued*

Station	Lat.	Long.	Depth	∇T	K	Q	No.	Ref.	Yr.
H-7	23°03′ N	137°55′ W	5295	.935	2.00	(1.87)	1	29	64
H-8	23°00′ N	143°58′ W	4850	1.32	2.10	2.78	1	29	64
H-9	22°58′ N	148°24′ W	5470	.726	1.90	(1.38)	1	29	64
H-10	23°00′ N	150°38′ W	5580	.763	1.86	1.42	1	29	64
H-11	22°59′ N	152°59′ W	5060	.860	1.86	1.6*	1	29	64
H-12	22°29′ N	154°26′ W	4390	.758	1.98	(1.5)*	1	29	64
H-15	19°08′ N	157°20′ W	4610	1.04	1.68	1.74*	1	29	64
H-17	23°36′ N	156°07′ W	4260	.695	1.87	1.30	1	29	64
H-18	21°56′ N	154°48′ W	4660	.353	2.01	.71	1	29	64
H-19	23°07′ N	156°07′ W	4260	.742	1.90	1.41	1	29	64
LSDH-68	20°15′ N	154°13′ W	5480	.527	1.67	.88*	1	29	64
LSDH-69	19°59′ N	151°09′ W	5305	.773	1.85	1.43	1	29	64
LSDH-70	20°06′ N	145°16′ W	5410	.774	1.90	1.47	1	29	64
LSDH-71	21°26′ N	140°23′ W	5200	.672	2.04	1.37	1	29	64
LSDH-72	22°12′ N	138°57′ W	5100	.721	2.08	1.50	2	29	64
LSDH-73	23°10′ N	130°58′ W	4870	.659	2.07	1.36	2	29	64
LSDH-74	27°30′ N	125°47′ W	4483	.441	2.02	.89	2	29	64

TABLE 22-9. HEAT FLOW IN THE ARCTIC OCEAN

Station	Lat.	Long.	Depth	∇T	K	Q	No.	Ref.	Yr.
FL-1	82°30′ N	156°26′ W	3747	.683	2.13	1.45	1	35	65
FL-2	82°12′ N	156°24′ W	3742	.674	2.07	1.40	1	35	65
FL-3	82°31′ N	156°54′ W	3741	.672	2.20	1.48	1	35	65
FL-6	82°42′ N	158°04′ W	3740	.625	2.11	1.32	1	35	65
FL-8	82°39′ N	157°28′ W	3742	.665	2.19	1.46	1	35	65
FL-9	82°46′ N	156°51′ W	3743	.634	2.16	1.37	1	35	65
FL-10	82°57′ N	155°54′ W	3507	.496	2.72	1.35	1	35	65
FL-11	83°00′ N	156°07′ W	3520	.547	2.60	1.42	1	35	65
FL-12	83°06′ N	156°01′ W	3473	.552	2.67	1.47	1	35	65
FL-13	83°08′ N	156°47′ W	3577	.540	2.60	1.40	1	35	65
FL-14	83°08′ N	157°18′ W	3216	.394	2.76	1.09	1	35	65
FL-15	82°60′ N	158°16′ W	3137	.295	2.63	.78	1	35	65
FL-16	83°01′ N	159°03′ W	2247	.338	2.68	.91	1	35	65
FL-17	82°60′ N	159°02′ W	2215	.296	2.61	.77	1	35	65
FL-19	83°03′ N	162°52′ W	3417	.440	2.43	1.07	1	35	65
FL-21	83°01′ N	163°37′ W	3494	.478	2.66	1.27	1	35	65
FL-22	82°53′ N	163°17′ W	3750	.666	2.14	1.43	1	35	65
FL-23	82°39′ N	162°49′ W	3748	.676	2.18	1.47	1	35	65
FL-24	82°22′ N	162°07′ W	3743	.570	2.52	1.44	1	35	65
FL-25	82°26′ N	160°40′ W	3760	.631	2.10	1.32	1	35	65

TABLE 22-10. HEAT FLOW IN GEOTHERMAL AREAS

Station	Lat.	Long.	Elev.	∇T	K	Q	No.	Ref.	Yr.
Iceland	65° N	18° W	500	.9	5.	~4.5	1	72	55
Italy									
Larderello	43°12′ N	10°54′ E	300	3.4	3.2	10.6	9	81	63
Japan									
Matsukawa Area	40° N	141° E	500	..	..	15.	1	18	64
Shirane Volcano	36°37′ N	138°34′ E	1600	2.47	4.48	10.8	1	18	64
Toyoha	42°54′ N	141°05′ E	500	1.13	5.	5.6	1	18	64
New Zealand									
Orakei Korako Area	37°30′ S	175° E	300	30.	3.	100.	1	102	59
Wairakei Area	38°30′ S	177° E	300	25.	1.6	40.	1	120	64

TABLE 22-11. MAXIMUM OBSERVED TEMPERATURES OF BASALTIC LAVAS

Locality and rock type	Temperature (°C)	Remarks	Ref.
Halemaumau, 1912, basalt, Lava lake	1210	Optical pyrometer; 25-degree correction for emissivity included; measured in daylight	104
Halemaumau, 1917, basalt, Lava lake	1120–1170	Seger cones in iron pipe 3.8 cm in internal diameter. Immersed for 8 minutes to depths from 8 to 13 m in Lava lake. Correction of 200° for failure of cones to attain temperature of lava included	106
Nyamuragira, 1938, Leucite basalt, fountains	1095	Optical pyrometer; 25-degree correction for emissivity included; measured in daylight	113
Paricutin, 1944, basalt	1200–1250 1110	Optical pyrometer; measured in daylight; no correction for emissivity Thermocouple in porcelain tube, 10 cm into lava; 3 miles from source of flow	114
Mauna Loa, 1950, basalt dome fountain throat of spatter cone	 1085–1105 1115–1135	Optical pyrometer; 25-degree correction for emissivity included; measured at night	105
Mihara, 1950, basalt, fountain	1240	Optical pyrometer; 30-degree correction for emissivity included; measured in daylight	112
Mihara, 1951, basalt, flow	1125	Platinum/platinum-rhodium thermocouple, hot junction unprotected	109
Kilauea, 1952, basalt, fountains	1145	Glowing-filament optical pyrometer; 25-degree correction for emissivity included; measured at night	107
Kilauea, 1955, basalt, fountains	1110	Glowing-filament optical pyrometer; 25-degree correction for emissivity included. Extrapolated from distance of 200–300 feet to correct for atmospheric absorption; measured at night	108
Nyiragongo, 1956, Nephelinite fountain in Lava lake	980	Optical pyrometer; 20-degree correction for emissivity included; measured at night	111
Capelinhos, Azores, 1957, basalt, fountains	1005	Optical pyrometer; 20-degree correction for emissivity included; measured at night	110