GEOLOGICAL SURVEY CIRCULAR 821

Puerto Rico Seismic Network Data Report of
Earthquakes Located by the Programs HYP071
and HYPOELLIPSE

July 1, 1975–December 31, 1977

**Puerto Rico Seismic Network Data Report of
Earthquakes Located by the Programs HYP071
and HYPOELLIPSE**

July 1, 1975–December 31, 1977

**By R. L. Dart, A. C. Tarr, D. L. Carver,
and M. K. Wharton**

G E O L O G I C A L S U R V E Y C I R C U L A R 8 2 1

United States Department of the Interior

CECIL D. ANDRUS, *Secretary*

Geological Survey

H. William Menard, *Director*

CONTENTS

	Page
Introduction-----	1
Puerto Rico Seismic Program-----	1
Puerto Rico Seismic Network-----	1
Seismicity-----	1
Instrumentation-----	1
Data Analysis-----	1
Selected and Relocated Earthquakes-----	5
References-----	5

ILLUSTRATIONS

	Page
Figure 1. Puerto Rico Seismic Network-----	2
2. HYPO71-located earthquakes-----	3
3. Depth profile of earthquakes shown in figure 2-----	4
4. HYPOELLIPSE-located earthquakes, gap size ≤ 360 degrees-----	8
5. Depth profile of earthquakes shown in figure 4-----	9
6. HYPOELLIPSE-located earthquakes, gap size ≤ 270 degrees-----	10
7. Depth profile of earthquakes shown in figure 6-----	11
8. Frequency distribution of earthquake magnitudes-----	12

TABLES

	Page
Table 1. Network Stations-----	2
2. HYPOELLIPSE catalog, July 1-December 31, 1975-----	6
3. References for the 1975 HYPOELLIPSE catalog-----	8
4. Remarks for the 1975 HYPOELLIPSE catalog-----	8
5. HYPOELLIPSE catalog, 1976-----	13
6. References for the 1976 HYPOELLIPSE catalog-----	27
7. Remarks for the 1976 HYPOELLIPSE catalog-----	27
8. HYPOELLIPSE catalog, 1977-----	29
9. References for the 1977 HYPOELLIPSE catalog-----	41
10. Remarks for the 1977 HYPOELLIPSE catalog-----	42

PUERTO RICO SEISMIC NETWORK DATA REPORT OF
EARTHQUAKES LOCATED BY THE PROGRAMS HYP071
AND HYPOELLIPSE
JULY 1, 1975-DECEMBER 31, 1977

By Richard L. Dart, Arthur C. Tarr,
David L. Carver, and Mary Kay Wharton

INTRODUCTION

This report makes available to interested parties preliminary results of analysis of data on the best located earthquakes for a 30-month period, July 1, 1975, through December 31, 1977. The overall objective of the Puerto Rico Seismic Program, the regional seismicity, network instrumentation, data analysis, and selected earthquakes are briefly discussed.

PUERTO RICO SEISMIC PROGRAM

The Puerto Rico Seismic Program is managed by the U.S. Geological Survey, in cooperation with the Puerto Rico Water Resources Authority (PRWRA). The principal objective of the program is the assessment of regional and local seismicity of the Puerto Rico region and the associated seismic hazard (Tarr and King, 1976). A number of large, destructive, historical earthquakes have occurred in the vicinity of Puerto Rico; but, until the program began in 1974, little was understood about the relationship of the seismicity to known or suspected geological structures. Accomplishment of the program objective is fundamental to the assessment of the earthquake potential and the associated seismic risk of Puerto Rico.

PUERTO RICO SEISMIC NETWORK (PRSN)

The recording of seismic data began in August 1974 with the installation of a three-station temporary network. A permanent network of 10 stations began operation in November 1975. Presently the network consists of 15 stations (fig. 1). The station configuration is designed for detection and location of local and near-regional earthquakes. The PRSN is presently recording an average of 10 earthquakes per day, with an accuracy previously unobtainable (Schell and Tarr, 1978) (fig. 2). The entire list of stations, past and present, is found in table 1.

SEISMICITY

The Puerto Rico segment of the Antilles Arc is exceedingly complex (Tarr and King, 1976). The results from data collected by the PRSN have shed new light on the tectonics of the northeastern Caribbean region by firmly establishing the existence and configuration of the North American lithospheric plate below the Puerto Rico-Island block (Schell and Tarr, 1978). Intermediate-depth earthquakes located by PRSN form a prominent inclined seismic zone dipping about 45-60 degrees from the Puerto Rico Trench to a depth of about 150 km under the island (fig. 3) (Carver and Tarr, 1976). For more information, see Donnelly, 1964; Bracey and Vogt, 1970; Nagle, 1971; and Malfait and Dinkelman, 1972.

INSTRUMENTATION

The PRSN currently consists of 19 seismometers at 15 permanent station sites (15 vertical and 4 horizontal Geotech S-13 seismometers). Each station has one or more seismometers, an amplifier transmitter package, and an antenna tower. All stations transmit their data via FM radio telemetry and microwave link to the central recording site located at the San Juan Geophysical Observatory at Cayey, Puerto Rico. A 20-channel Develocorder (galvanometric, automatic film-developing recording system) at the observatory records all 19 data channels and WWVB timing onto a continuous 16-mm film (Tarr and King, 1976).

DATA ANALYSIS

Record interpretation, data processing, and collection of hypocenter data and related-event parameters were performed by the U.S. Geological Survey (Dart and others, 1979). All hypocenter data were first computed by the program HYP071 (Lee and Lahr, 1975). This program had been revised (N. S. Davids, unpub. data, 197-) and

Figure 1.--Region monitored by the Puerto Rico Seismic Network.
Station SJGC is located at the central recording site.

Table 1.--Puerto Rico Seismic Network stations

Code	Latitude N.		Longitude W.		Elevation	Dates of operation
	deg	min	deg	min	m	
CAG	18	14.37	66	02.12	350	08/16/74-07/17/75
DOS	18	19.77	66	40.73	400	08/16/74-07/17/75
MPR	18	12.77	67	08.36	10	09/--/73-11/14/75
PON	18	00.20	66	36.83	50	08/16/74-07/17/75
SJG	18	06.70	66	09.00	457	10/12/74-02/22/76
SJGC	18	06.70	66	09.00	457	01/22/76-PRESENT
CYP	18	06.70	66	09.00	457	08/30/76-03/07/77
APR	18	27.46	66	43.77	53	11/14/75-PRESENT
CSB	18	17.35	66	09.36	480	07/30/75-PRESENT
CDP	18	10.51	66	35.48	1300	07/30/75-PRESENT
EYP	18	18.76	65	47.47	1060	07/30/75-08/09/76
IMR	18	05.30	67	50.83	55	11/14/75-01/10/77

Table 1.--Puerto Rico Seismic Network stations--Continued

Code	Latitude N.		Longitude W.		Elevation	Dates of operation
	deg	min	deg	min	m	
MCP	18	25.14	67	06.64	250	11/14/75-PRESENT
LSP	18	10.66	67	05.17	390	11/14/75-PRESENT
CPD	18	05.33	65	54.93	370	07/30/75-PRESENT
PNP	18	03.50	66	41.02	200	07/30/75-PRESENT
LPR	18	18.53	65	52.18	580	08/10/76-PRESENT
MGP	18	00.46	67	05.35	60	11/14/75-PRESENT
CCA	18	04.18	66	19.58	269	02/15/77-PRESENT
MOV	18	16.92	66	22.00	485	02/15/77-PRESENT
LRS	18	17.60	66	50.70	440	02/15/77-PRESENT
IDE	18	23.19	67	29.77	218	02/15/77-PRESENT
IMO	18	06.69	67	54.51	84	02/15/77-PRESENT

Figure 2.--Earthquakes located within the Puerto Rico Region, July, 1, 1975-December 31, 1977, using the HYP071 program.

Figure 3.--Depth profile of the earthquakes plotted in figure 2 and within the area bounded by lat 17° and 19.5° N. and by long 65.5° and 67.5° W. Hypocenters are projected into a north-south plane through long 66.5° W. (See map insert.) Depth and horizontal distance are measured in kilometers.

made compatible with the U.S. Geological Survey's Honeywell MULTICS computer. All HYP071 hypocenter locations were then relocated using HYPOELLIPSE (Lahr, 1979) and are listed in tables 2, 5, and 8. Duration magnitudes were calculated for Puerto Rico earthquakes. The earthquake data catalog (tables 2, 5, and 8) for the Puerto Rico region (fig. 1) is considered complete for magnitudes above 3.1. This "completeness threshold" was determined from the cumulative frequency-of-occurrences graph (fig. 8). A b-value ($b=1.14 \pm 0.01$) was obtained from a fit of a straight line to the incremental curve of occurrences using a weighted least squares for occurrences and has the equation $\log N = 5.06 - 1.14 M$. This line was calculated for occurrences at 0.10 magnitude intervals (3.3-3.9). Detection and accurate location of earthquakes become increasingly more difficult for events with magnitudes below 3.3.

SELECTED AND RELOCATED EARTHQUAKES

The earthquakes listed in this report were initially selected on the basis of their location using their HYP071 hypocenter solutions; the constraints were for no less than four station observations and RMS (root-mean-square of the travel-time residuals, in seconds) ERH (standard error of the epicenter, in kilometers), and ERZ (standard error in depth, in kilometers) are constrained to values of less than or equal to 0.35 s, 25 km, and 50 km respectively. These selected events are plotted in figures 2 and 3. The selected earthquakes were then relocated using HYPOELLIPSE and the resulting data grouped according to the length of the maximum axis of the error ellipsoid (<10 km) and the gap size <270 and <360 degrees). Gap size is defined as the largest azimuthal separation between stations (Lee and Lahr, 1975). Groupings of the higher quality hypocenters locations are shown in figures 4, 5, 6, and 7, which illustrate changes within this higher quality data set when the gap size is controlled.

REFERENCES CITED

- Bracey, D. R. and Vogt, P. R., 1970, Plate tectonics in the Hispaniola area: Geological Society of America Bulletin, v. 81, p. 1855-2860.
- Carver, D. L., and Tarr, A. C., 1976, Recent seismicity of the Puerto Rico region [Abs.]: Geological Society of America Abstracts with Programs, v. 8, p. 805.
- Dart, R. L., Carver, D. L., Wharton, M. K., and Tarr, A. C., 1979, Puerto Rico Seismic Program seismological data summary: U.S. Geological Survey Open-File Report 79-870, 138 p.
- Davids, N. S., 1977, Seismic network analysis and processing system (SNAPS)--A user's guide, Honeywell MULTICS version (unpublished data): U.S. Geological Survey, 175 p.
- Donnelly, T. M., 1964, Evolution of the eastern greater Antillean Island Arc: American Association of Petroleum Geologists Bulletin, v. 48, p. 680-696.
- Lahr, J. C., 1979, HYPOELLIPSE--A computer program for determining local earthquake parameters, magnitude and first motion pattern: U.S. Geological Survey Open-File Report 79-431, 233 p.
- Lee, W. H. K., and Lahr, J. C., 1975, HYP071 (Revised)--A computer program for determining hypocenter, magnitude, and first motion pattern of local earthquakes: U.S. Geological Survey Open-File Report 75-311, 113 p.
- Malfait, B. T., and Dinkelman, M. G., 1972, Circum-Caribbean tectonics and igneous activity and the evolution of the Caribbean Plate: Geological Society of America Bulletin, v. 83, p. 251-272.
- Nagle, F., 1971, Caribbean geology, 1970: Marine Science Bulletin, v. 21, no. 2, p. 375-449.
- Schell, B. A., and Tarr, A. C., 1978, Plate tectonics of the northeastern Caribbean Sea region: Geologie Miljnbouw, v. 57, p. 319-324.
- Tarr, A. C., and King, K. W., 1976, Puerto Rico Seismic Program: U.S. Geological Survey Open-File Report 76-49, 23 p.

Table 2.--Catalog of 1975 earthquakes located by the HYPOELLIPSE program

[UTC, Coordinated Universal Time; negative latitudes and longitudes are south and west, respectively; M, duration magnitude; a, b, and c, principal axes of confidence ellipsoid; Tr, trend of axis in degrees; Pl, plunge of axis in degrees; %, confidence level; Rms, root mean square of residuals; No. ob, number of observations used in hypocenter computation; Gap, largest azimuthal separation between seismograph stations; DM, distance to third nearest station, in kilometers; Q, quality index; Hypo auth, hypocenter authority meaning person or institution responsible for hypocenter determination, cited by catalog name and authority number in table 4; *, remarks cited by catalog name and index in table 3; leaders (.....) designate instances when data values are unknown or not computed]

Catalog		Origin time (UTC)						North	East	Focal	Error ellipsoid axes												Rms No.		Hypo			
Name	Index	yr	mo	d	h	min	s	latitude (deg)	longitude (deg)	depth (km)	M	a(km)	Tr	Pl	b(km)	Tr	Pl	c(km)	Tr	Pl	%	(s)	ob	Gap	DM	Q	auth	*
PRN75	1	1975	7	30	16	55	7.020E	18.333	-66.093	1.4	1.1D	2.6	100	3	7.1	8	19	45.9	198	70	68	0.12	5	258	55	D	1	*
	2	1975	8	1	20	2	48.020	18.623	-66.581	2.8	2.0D	3.3	65	1	5.3	335	3	>99.9	174	86	68	0.19	7	300	63	D	1	
	3	1975	8	4	5	2	37.920	18.175	-66.989	9.2	2.2D	3.2	94	8	5.5	186	16	2.0	339	72	68	0.15	8	330	89	D	1	
	4	1975	8	4	7	36	26.970	18.853	-66.341	16.3	1.4D	3.2	240	0	7.4	330	1	>99.9	149	88	68	0.11	6	311	95	D	1	
	5	1975	8	9	7	18	19.550	18.879	-65.559	12.1	2.4D	10.5	315	3	7.0	223	30	51.1	51	59	68	0.16	6	329	..	D	1	
	6	1975	8	14	23	12	45.330	18.157	-67.050	9.8	2.7D	7.2	103	3	23.9	194	19	5.1	4	70	68	0.39	9	336	96	D	1	
	7	1975	8	23	17	27	23.070	18.601	-66.520	8.7	1.9D	0.8	60	28	1.3	309	34	2.3	180	43	68	0.08	9	276	67	C	1	
	8	1975	8	24	3	24	59.080	18.266	-66.609	15.8	1.0D	2.8	328	4	0.8	58	6	27.0	205	82	68	0.06	6	248	78	D	1	
	9	1975	8	25	8	16	51.100	17.667	-66.158	35.1	1.3D	1.9	259	8	3.9	167	13	11.7	20	74	68	0.09	6	276	71	D	1	
	10	1975	8	29	13	13	23.470	18.815	-65.128	23.9	3.0D	27.1	323	0	>99.9	233	8	10.3	53	82	68	0.13	4	341	..	D	1	
	11	1975	9	14	20	19	5.070	19.066	-65.329	4.8	2.7D	17.3	334	14	7.1	234	35	80.6	83	51	68	0.08	5	338	..	D	1	
	12	1975	9	15	2	41	7.120E	18.222	-67.120	0.4	2.6D	1.8	87	9	10.9	180	16	5.4	329	71	68	0.27	7	214	..	D	1	*
	13	1975	9	15	4	22	56.900	19.099	-67.488	18.2	3.1D	2.3	5	21	11.3	257	39	3.2	117	43	68	0.07	6	316	..	D	1	
	14	1975	9	15	22	46	50.070	19.057	-65.827	6.7	2.4D	5.5	328	11	12.3	64	28	3.7	219	59	68	0.12	6	318	..	D	1	
	15	1975	9	15	23	14	5.600	19.036	-65.739	1.1	2.4D	5.1	292	3	3.4	200	33	>99.9	27	56	68	0.10	6	327	..	D	1	
	16	1975	9	22	20	16	12.080	18.256	-66.511	8.5	1.0D	0.4	78	4	1.9	346	22	12.8	178	67	68	0.04	6	251	67	D	1	
	17	1975	10	1	20	17	25.770	18.954	-65.250	10.0	2.6D	15.1	307	11	5.6	211	30	56.0	55	57	68	0.22	6	338	..	D	1	
	18	1975	10	2	20	2	48.390	18.276	-66.535	13.3	0.9D	9.9	169	12	2.1	73	25	4.6	282	61	68	0.17	6	259	71	D	1	
	19	1975	10	14	00	33	56.980	18.086	-66.035	25.5	2.2D	4.3	319	8	2.2	223	33	3.7	61	55	68	0.09	6	297	69	D	1	
	20	1975	11	15	16	27	1.330E	18.328	-66.143	.....	...	2.5	266	0	4.6	356	0	>99.9	90	90	68	0.28	7	192	50	D	1	*
	21	1975	11	15	19	27	29.320	17.990	-66.466	16.2	1.1D	3.5	191	3	1.1	101	8	21.6	301	81	68	0.12	7	203	47	D	1	
	22	1975	11	15	19	54	4.310	18.110	-65.551	42.9	2.7D	11.6	352	30	50.3	103	32	6.6	230	43	68	0.35	8	307	63	D	1	
	23	1975	11	15	21	25	35.140	18.884	-65.349	8.6	2.2D	10.5	316	18	7.3	213	35	60.3	69	49	68	0.30	7	333	..	D	1	
	24	1975	11	16	12	51	56.350	17.850	-67.951	84.1	2.3D	16.5	353	1	3.0	263	30	8.2	85	59	68	0.10	7	348	..	D	1	
	25	1975	11	17	20	34	43.570	18.602	-67.000	20.1	1.7D	1.5	80	13	3.0	345	22	4.5	198	64	68	0.20	14	261	48	D	1	
	26	1975	11	18	19	12	28.170	17.805	-66.888	15.1	1.1D	5.7	179	3	2.1	88	24	2.5	275	65	68	0.22	8	279	46	D	1	
	27	1975	11	19	4	32	49.010	18.002	-66.462	16.0	0.7D	6.6	191	5	2.2	100	8	42.9	312	80	68	0.24	7	199	45	D	1	
	28	1975	11	19	7	10	22.690	18.716	-67.479	8.8	1.9D	4.3	120	6	7.3	211	12	3.1	3	76	68	0.24	10	316	89	D	1	
	29	1975	11	21	10	58	33.890	17.936	-66.280	7.0	1.0D	0.8	274	0	2.9	184	4	13.8	4	86	68	0.09	7	214	42	D	1	
	30	1975	11	22	21	35	38.760	18.889	-66.586	25.9	...	1.9	266	0	3.3	176	15	29.9	355	75	68	0.10	6	261	95	D	1	
	31	1975	11	23	12	21	32.160	18.110	-66.734	23.1	0.8D	2.7	351	0	0.8	261	14	3.9	81	76	68	0.08	7	143	38	C	1	
	32	1975	11	23	19	36	7.260	18.092	-66.541	16.3	0.7D	1.3	73	21	3.0	179	35	20.1	319	47	68	0.09	6	195	46	D	1	
	33	1975	11	24	5	15	25.230	18.139	-67.041	15.7	1.2D	36.7	214	21	7.9	323	40	4.1	103	42	68	0.28	6	217	48	D	1	
	34	1975	11	24	8	10	26.480	18.012	-67.087	20.2	0.7D	2.9	90	34	5.3	331	35	10.4	209	36	68	0.04	5	155	43	D	1	
	35	1975	11	24	14	50	37.090	18.106	-67.112	19.4	0.8D	1.2	57	32	3.1	301	36	9.8	177	38	68	0.06	6	274	56	D	1	

Table 2.--Catalog of 1975 earthquakes located by the HYPOELLIPSE program--Continued

Catalog		Origin time (UTC)						North	East	Focal	Error ellipsoid axes												Rms No.				Hypo	
Name	Index	yr	mo	d	h	min	s	latitude (deg)	longitude (deg)	depth (km)	M	a(km)	Tr	Pl	b(km)	Tr	Pl	c(km)	Tr	Pl	%	(s)	ob	Gap	DM	Q	auth	*
PRN75	36	1975	11	27	15	10	28.630	18.829	-67.466	5.6	2.3D	5.2	132	18	9.3	229	21	3.6	4	61	68	0.16	7	332	99	D	1	
	37	1975	11	28	00	42	42.510	18.036	-67.013	11.4	1.7D	1.8	3	20	1.0	104	28	2.4	243	54	68	0.16	10	159	35	C	1	
	38	1975	11	28	16	38	3.020	18.332	-67.374	14.6	1.3D	4.8	311	12	3.4	47	27	1.6	200	60	68	0.14	8	291	47	D	1	
	39	1975	11	29	4	50	19.660	18.068	-67.097	7.8	1.6D	1.5	338	9	1.7	75	38	3.3	237	50	68	0.22	11	185	39	C	1	
	40	1975	11	30	14	5	17.580	17.824	-66.767	3.0	1.5D	1.7	263	0	2.8	173	5	54.8	352	85	68	0.24	8	226	43	D	1	
	41	1975	12	1	11	5	55.960	18.036	-65.536	15.3	1.4D	4.5	24	0	5.8	294	35	>99.9	114	55	68	0.32	5	312	71	D	1	
	42	1975	12	1	19	44	37.910	18.420	-66.408	15.5	1.3D	55.4	349	1	2.8	259	6	3.7	89	83	68	....	4	262	49	D	1	
	43	1975	12	1	23	28	39.130	18.863	-67.812	16.6	3.2D	2.6	55	14	15.1	150	18	5.9	290	66	68	0.17	11	283	..	D	1	
	44	1975	12	2	11	31	47.800	17.836	-67.167	1.8	1.6D	3.6	107	4	6.8	200	37	13.9	11	52	68	0.26	8	300	57	D	1	
	45	1975	12	3	14	38	5.300	18.751	-66.829	62.9	1.7D	5.6	271	4	8.5	5	44	44.0	176	45	68	0.17	6	283	88	D	1	
	46	1975	12	4	20	28	29.990	18.002	-67.103	16.8	1.2D	1.7	104	18	2.9	358	40	7.0	212	44	68	0.12	7	277	45	D	1	
	47	1975	12	5	15	10	42.610	18.425	-65.941	15.3	1.1D	2.3	271	4	10.0	1	5	3.2	142	83	68	0.10	5	252	43	D	1	
	48	1975	12	5	20	40	38.030	17.874	-67.154	13.1	1.7D	7.5	14	0	2.6	284	29	2.3	104	61	68	0.17	7	297	54	D	1	
	49	1975	12	6	1	2	52.180	18.190	-66.566	14.3	0.8D	7.1	328	15	1.1	62	16	2.8	197	67	68	0.09	6	197	45	D	1	
	50	1975	12	6	4	32	8.000	18.033	-67.111	11.5	0.9D	2.6	305	0	3.8	35	34	11.7	215	56	68	0.24	5	220	43	D	1	
	51	1975	12	6	22	26	49.580	19.192	-66.564	15.5	2.3D	3.9	127	19	5.3	224	20	27.6	357	61	68	0.28	11	298	..	D	1	
	52	1975	12	7	15	16	52.080	18.831	-66.816	56.1	2.0D	3.9	67	12	6.4	333	18	13.2	188	68	68	0.28	11	276	76	D	1	
	53	1975	12	8	3	13	14.660	18.854	-65.347	9.9	3.1D	7.8	190	14	9.8	288	30	52.6	78	56	68	0.38	11	318	..	D	1	
	54	1975	12	8	18	31	10.230	17.849	-66.835	8.9	0.9D	1.6	264	1	4.1	174	7	24.6	3	82	68	0.10	6	267	44	D	1	
	55	1975	12	9	1	1	22.830	18.634	-66.816	73.8	1.8D	4.3	91	7	8.8	182	9	5.8	324	78	68	0.24	10	246	56	D	1	
	56	1975	12	9	20	55	39.750	17.998	-66.701	13.5	1.9D	5.8	270	22	12.2	15	32	2.5	151	49	68	0.22	5	270	66	D	1	
	57	1975	12	9	23	5	57.830	18.266	-66.266	10.2	2.1D	2.5	10	5	1.1	277	24	3.1	111	65	68	0.24	12	144	36	C	1	
	58	1975	12	10	3	41	34.140	17.881	-67.175	5.4	1.5D	4.4	128	22	19.8	22	34	7.0	244	47	68	0.27	7	284	56	D	1	
	59	1975	12	10	17	23	9.990	17.843	-66.763	3.8	1.1D	1.3	266	0	2.6	176	6	37.8	355	84	68	0.11	7	221	41	D	1	
	60	1975	12	11	00	36	47.250	18.441	-67.508	10.8	1.3D	70.1	112	7	6.5	204	16	4.0	0	72	68	0.13	6	316	65	D	1	
	61	1975	12	12	3	20	29.160	17.898	-66.274	1.5	0.9D	2.4	264	1	5.4	174	1	>99.9	39	88	68	0.18	6	225	46	D	1	
	62	1975	12	14	8	40	31.230	18.550	-66.949	17.9	1.5D	1.5	82	5	3.4	173	17	7.7	337	72	68	0.13	9	239	44	D	1	
	63	1975	12	17	22	55	20.480	18.338	-66.294	115.8	2.6D	3.8	270	20	13.4	168	28	7.5	31	54	68	0.19	9	167	36	D	1	
	64	1975	12	21	00	18	32.040	18.069	-67.106	11.5	1.2D	2.9	83	31	4.4	330	34	5.2	204	40	68	0.21	7	205	45	D	1	
	65	1975	12	23	5	22	7.140	18.708	-66.917	72.0	2.0D	4.4	65	23	32.1	176	39	7.4	313	41	68	0.23	8	273	76	D	1	
	66	1975	12	23	14	37	41.180	18.811	-64.611	7.0	2.8D	18.4	331	0	5.3	241	42	33.7	61	48	68	0.25	8	343	..	D	1	
	67	1975	12	24	10	6	51.020	18.573	-66.779	77.2	2.5D	1.7	87	6	4.5	178	13	2.8	333	75	68	0.15	13	249	54	D	1	
	68	1975	12	27	11	56	43.580	17.997	-66.976	29.3	1.1D	3.0	90	8	12.9	188	44	8.8	352	44	68	0.30	5	198	32	D	1	
	69	1975	12	28	16	45	9.950	17.905	-66.842	12.9	1.6D	4.9	91	20	23.3	347	33	7.8	206	49	68	0.42	7	212	40	D	1	
	70	1975	12	29	5	27	18.670	18.264	-67.635	25.9	2.0D	19.4	219	10	10.7	121	37	5.4	321	51	68	0.33	5	333	..	D	1	
	71	1975	12	29	8	14	31.210	19.173	-66.819	45.5	3.2D	5.4	76	4	39.0	167	20	29.2	336	69	68	0.24	9	297	..	D	1	
	72	1975	12	29	22	32	48.410	18.885	-67.465	30.8	2.0D	13.9	102	1	7.1	12	4	>99.9	206	85	68	0.05	5	318	..	D	1

Figure 4.--Earthquakes located within the Puerto Rico region, July, 1, 1975-December 31, 1977, using the HYPOELLIPSE program. All earthquakes plotted have the maximum axis of the error ellipsoid ≤ 10 km and a gap size of $\leq 360^\circ$.

Table 3.--References for catalog of 1975 earthquakes located by the HYPOELLIPSE program

[Cat, catalog; Auth no., authority number cited in table 2]

Cat	Auth	References
Name	no.	
PRN75	1	U.S. Geological Survey, this report.

Table 4.--Remarks for catalog of 1975 earthquakes located by the HYPOELLIPSE program

Catalog	Remarks
Name	Index
PRN75	1 Probable blast attributed to road construction or quarries.
	12 Do.
	20 Do.

Figure 5.--Depth profile of the earthquakes plotted in figure 4 and within the area bounded by lat 17° and 19.5° N. and by long 65.5° and 67.5° W. Hypocenters are projected into a north-south plane through long 66.5° W. (See map insert, fig. 3.) Depth and horizontal distance are measured in kilometers.

Figure 6.--Earthquakes located within the Puerto Rico region, July 1, 1975-December 31, 1977, using the HYPOELLIPSE program. All earthquakes plotted have the maximum axis of the error ellipsoid ≤ 10 km and a gap size of $\leq 270^\circ$.

Figure 7.--Depth profile of the earthquake plotted in figure 6 and within the area bounded by lat 17° and 19.5° N. and by long 66.5° and 67.5° W. Hypocenters are projected into a north-south plane through long 66.5° W. (See map insert, fig. 3.) Depth and horizontal distance are measured in kilometers.

Figure 8.--Incremental and cumulative frequency distribution for duration magnitudes of earthquakes recorded within the Puerto Rico region. Both graphs show a straight-line, weighted least-squares fit to the data. Slopes were calculated for occurrences at 0.10 magnitude intervals. Values for b were 1.14 and 1.55 for incremental and cumulative distributions, respectively.

Table 5.--Catalog of 1976 earthquakes located by the HYPOELLIPSE program

[UTC, Coordinated Universal Time; negative latitudes and longitudes are south and west, respectively; M, duration magnitude; a, b, and c, principal axes of confidence ellipsoid; Tr, trend of axis in degrees; Pl, plunge of axis in degrees; %, confidence level; Rms, root mean square of residuals; No. ob, number of observations used in hypocenter computation; Gap, largest azimuthal separation between seismograph stations; DM, distance to third nearest station, in kilometers; Q, quality index; Hypo auth, hypocenter authority meaning person or institution responsible for hypocenter determination, cited by catalog name and authority number in table 6; *, remarks cited by catalog name and index in table 7; leaders (.....) designate instances when data values are unknown or not computed]

Catalog		Origin time (UTC)						North	East	Focal	Error ellipsoid axes												Rms No.		Hypo			
Name	Index	yr	mo	d	h	min	s	latitude (deg)	longitude (deg)	depth (km)	M	a(km)	Tr	Pl	b(km)	Tr	Pl	c(km)	Tr	Pl	%	(s)	ob	Gap	DM	Q	auth	*
PRN76	1	1976	1	3	13	41	20.210	18.499	-65.824	14.8	2.3D	42.8	36	11	5.1	136	41	2.0	295	46	68	0.09	6	275	52	D		1
	2	1976	1	5	5	11	13.220	17.870	-66.289	.....	1.2D	1.9	267	0	4.1	357	0	>99.9	90	89	68	0.30	8	227	47	D		1
	3	1976	1	5	20	58	39.290	17.874	-66.276	24.5	1.1D	1.3	270	4	3.3	180	8	15.2	27	81	68	0.10	6	280	48	D		1
	4	1976	1	7	2	3	3.760	18.983	-64.943	17.7	2.9D	26.9	129	19	7.3	232	34	16.6	14	49	68	0.32	8	332	..	D		1
	5	1976	1	7	3	27	59.550	18.076	-67.060	21.0	1.0D	2.4	0	8	1.5	95	33	4.8	259	55	68	0.14	7	144	40	C		1
	6	1976	1	7	21	32	27.540	18.676	-66.720	25.6	1.7D	7.2	124	28	5.8	13	34	9.8	243	43	68	0.38	9	271	67	D		1
	7	1976	1	7	23	3	34.600	17.979	-66.883	7.2	2.0D	1.4	81	4	7.1	347	43	3.6	176	46	68	0.18	8	192	31	D		1
	8	1976	1	7	23	3	45.100	18.283	-66.221	67.7	1.2D	9.0	31	24	2.5	283	33	4.1	150	46	68	0.09	6	191	42	D		1
	9	1976	1	8	11	35	1.070	17.811	-66.809	15.1	0.8D	3.2	256	9	15.5	350	26	5.9	148	62	68	0.01	5	280	50	D		1
	10	1976	1	9	20	3	9.620	18.439	-66.810	22.1	1.0D	4.4	159	17	>99.9	61	24	12.7	280	59	68	0.10	4	295	..	D		1
	11	1976	1	11	1	57	45.400	18.591	-65.643	18.9	2.6D	16.0	228	10	2.6	320	16	6.8	106	71	68	0.10	8	303	68	D		1
	12	1976	1	12	1	31	53.470	18.062	-66.424	25.2	...	2.5	83	15	6.2	180	25	16.3	325	60	68	0.11	6	176	38	D		1
	13	1976	1	12	2	59	29.280	18.405	-65.903	15.3	2.5D	39.2	14	7	10.5	106	19	8.0	265	69	68	0.10	5	246	41	D		1
	14	1976	1	12	18	13	8.690	18.454	-65.705	20.1	2.5D	25.0	48	14	3.5	308	34	7.3	157	52	68	0.13	7	308	51	D		1
	15	1976	1	13	17	12	27.680	18.164	-67.006	16.6	1.2D	1.8	168	8	0.9	74	23	7.9	275	65	68	0.09	8	161	36	C		1
	16	1976	1	13	17	18	1.860	17.717	-67.033	0.2	2.7D	2.0	109	5	12.4	16	35	6.5	206	54	68	0.15	8	284	53	D		1
	17	1976	1	14	11	27	50.970	17.921	-66.286	6.6	1.6D	0.9	265	10	4.4	5	44	2.6	165	44	68	0.09	7	205	43	D		1
	18	1976	1	15	00	45	5.030	18.994	-66.824	50.4	2.3D	10.0	275	3	17.4	6	21	89.7	177	68	68	0.19	6	301	..	D		1
	19	1976	1	15	9	52	20.070	18.865	-67.309	22.2	2.4D	6.2	145	12	2.7	46	38	11.8	249	49	68	0.11	7	311	..	D		1
	20	1976	1	16	7	55	7.650	17.999	-66.592	16.7	1.6D	1.6	92	13	2.7	191	33	5.1	344	53	68	0.17	9	185	53	D		1
	21	1976	1	17	3	45	22.250	18.361	-66.228	70.2	2.7D	1.1	277	19	4.8	179	21	3.1	46	60	68	0.06	8	239	44	D		1
	22	1976	1	19	20	19	28.580	18.138	-66.540	17.4	0.9D	1.1	79	29	9.6	325	37	2.2	196	39	68	0.07	6	141	44	D		1
	23	1976	1	20	3	40	39.490	17.980	-66.594	16.1	1.7D	1.1	89	9	7.3	353	29	3.4	194	59	68	0.13	8	189	53	D		1
	24	1976	1	22	18	46	13.350	18.247	-66.474	29.5	1.0D	76.9	335	9	6.6	68	17	17.6	219	70	68	....	4	205	34	D		1
	25	1976	1	23	3	33	30.310	18.945	-65.533	9.0	3.1D	2.2	309	3	2.0	217	30	11.9	45	59	68	0.11	8	319	..	D		1
	26	1976	1	25	10	55	5.600	18.165	-67.297	14.3	1.6D	0.9	353	1	4.1	263	3	1.4	102	86	68	0.04	6	267	34	D		1
	27	1976	1	26	00	3	56.430	18.595	-65.770	13.5	2.3D	16.1	306	1	>99.9	37	28	>99.9	215	61	68	0.13	4	309	98	D		1
	28	1976	1	27	11	46	48.050	18.587	-66.480	93.3	2.7D	1.9	275	9	8.1	176	42	6.6	15	46	68	0.15	10	218	63	D		1
	29	1976	1	29	23	24	50.160	18.158	-67.442	37.0	2.4D	4.6	164	13	37.0	261	30	5.9	53	56	68	0.12	7	296	45	D		1
	30	1976	1	31	22	52	57.780	18.219	-66.915	39.0	1.0D	7.7	184	4	2.6	275	8	13.2	67	81	68	0.12	6	141	30	D		1
	31	1976	2	1	6	6	55.430	18.055	-67.102	25.4	0.7D	14.5	140	8	30.9	236	39	9.4	40	49	68	0.11	5	201	44	D		1
	32	1976	2	1	22	8	11.940	18.486	-67.865	64.5	2.4D	9.0	137	15	24.3	292	41	12.7	30	44	68	0.19	9	333	99	D		1
	33	1976	2	1	22	58	10.370	18.007	-66.879	3.2	1.3D	2.0	269	0	6.2	359	0	14.7	90	90	68	0.16	6	182	29	D		1
	34	1976	2	2	1	20	27.640	18.159	-66.946	28.3	...	10.2	86	20	26.7	344	29	46.6	205	53	68	0.30	5	163	30	D		1
	35	1976	2	5	8	7	36.470	18.048	-67.129	14.6	1.3D	0.7	350	3	3.4	258	27	0.4	86	62	68	0.03	6	241	47	D		1

Table 5.--Catalog of 1976 earthquakes located by the HYPOELLIPSE program--Continued

Catalog		Origin time (UTC)						North	East	Focal	Error ellipsoid axes												Rms No.			Hypo		
Name	Index	yr	mo	d	h	min	s	latitude (deg)	longitude (deg)	depth (km)	M	a(km)	Tr	Pl	b(km)	Tr	Pl	c(km)	Tr	Pl	%	(s)	ob	Gap	DM	Q	auth	*
PRN76	36	1976	2	5	20	5	4.230	18.359	-66.475	1.1	1.2D	4.2	264	0	14.6	354	2	>99.9	173	88	68	0.12	5	210	40	D	1	
	37	1976	2	6	10	42	5.120	18.441	-66.473	19.5	1.1D	8.8	61	10	22.5	325	30	66.8	168	58	68	0.15	5	269	48	D	1	
	38	1976	2	7	6	48	5.450	18.174	-67.024	18.7	2.6D	1.6	346	1	1.4	76	22	6.6	254	67	68	0.14	10	91	29	C	1	
	39	1976	2	8	17	38	19.070	18.371	-66.390	35.5	1.3D	6.5	82	6	32.5	350	18	16.8	189	70	68	0.28	6	245	46	D	1	
	40	1976	2	8	20	20	29.470	17.964	-65.497	0.2	2.1D	11.0	108	16	20.1	210	34	37.8	358	51	68	0.18	5	337	..	D	1	
	41	1976	2	9	22	16	24.160	18.085	-66.891	7.5	1.6D	4.5	357	0	1.8	87	7	6.3	267	83	68	0.32	10	150	23	C	1	
	42	1976	2	11	17	45	26.270	17.736	-66.746	14.6	1.3D	5.1	104	31	11.7	352	32	3.0	227	42	68	0.24	7	264	51	D	1	
	43	1976	2	13	2	49	33.700	18.883	-66.505	19.6	2.5D	10.4	87	4	>99.9	178	20	>99.9	347	69	68	0.01	5	300	79	D	1	
	44	1976	2	13	19	44	35.830	18.370	-66.467	10.5	0.9D	4.8	252	6	77.0	157	38	6.8	349	51	68	0.11	5	213	41	D	1	
	45	1976	2	15	21	18	14.210	17.821	-66.957	15.4	1.1D	20.8	211	11	7.8	308	30	4.8	103	57	68	0.05	5	278	42	D	1	
	46	1976	2	17	2	57	10.950	18.223	-67.412	13.7	1.2D	12.8	84	2	3.1	174	4	2.8	328	85	68	0.10	6	291	42	D	1	
	47	1976	2	19	13	47	48.290	18.119	-66.908	31.8	1.4D	5.9	75	1	62.0	167	44	26.5	344	45	68	0.04	5	202	34	D	1	
	48	1976	2	20	00	12	55.030	18.139	-67.354	31.2	2.0D	6.1	9	27	45.8	260	32	7.1	131	45	68	0.17	7	282	40	D	1	
	49	1976	2	20	9	34	45.870	18.328	-66.026	21.1	2.2D	0.4	122	6	3.6	30	17	0.6	230	71	68	0.02	6	258	62	D	1	
	50	1976	2	22	20	38	5.830	18.979	-65.863	45.3	2.3D	6.7	304	17	24.3	39	18	61.5	173	64	68	0.29	8	289	..	D	1	
	51	1976	2	23	20	13	3.410E	18.323	-66.149	0.8	1.3D	1.2	101	1	2.5	11	11	9.0	196	78	68	0.21	7	201	38	D	1	*
	52	1976	2	24	3	48	42.810	17.766	-66.679	6.4	1.2D	1.1	230	4	3.0	139	7	26.3	349	81	68	0.09	7	258	51	D	1	
	53	1976	2	24	4	32	44.350	17.769	-66.685	0.4	1.0D	1.2	262	0	2.7	172	1	>99.9	351	88	68	0.11	8	232	50	D	1	
	54	1976	2	28	21	12	15.250	18.000	-65.504	5.0	2.0D	5.4	87	32	6.1	199	32	10.2	323	41	68	0.28	9	314	70	D	1	
	55	1976	2	29	2	23	25.920	17.769	-66.793	1.6	1.3D	6.0	231	2	9.1	141	2	>99.9	6	87	68	0.14	5	253	89	D	1	
	56	1976	2	29	5	7	26.720	18.562	-66.142	67.9	1.6D	10.5	283	13	73.5	24	41	62.2	179	46	68	0.04	5	271	63	D	1	
	57	1976	3	5	1	12	48.850	17.822	-66.797	2.8	1.8D	0.9	95	1	3.2	186	2	40.7	339	87	68	0.11	9	228	45	D	1	
	58	1976	3	5	15	1	47.140	18.139	-66.006	15.1	2.4D	3.1	1	14	2.1	264	28	4.2	115	58	68	0.27	9	120	23	C	1	
	59	1976	3	6	4	55	34.850	18.142	-67.023	20.0	2.5D	3.6	7	19	2.6	106	26	9.8	245	57	68	0.25	9	101	32	C	1	
	60	1976	3	6	17	10	21.220	18.679	-66.844	15.9	2.0D	1.2	279	0	3.4	9	0	>99.9	90	90	68	0.06	7	290	71	D	1	
	61	1976	3	6	22	51	34.350	18.699	-66.802	64.1	2.0D	0.8	83	7	1.9	347	42	4.9	180	47	68	0.05	9	276	72	C	1	
	62	1976	3	7	23	11	39.950	18.666	-67.681	5.7	3.2D	7.9	158	19	1.2	59	25	3.3	281	57	68	0.14	10	268	83	D	1	
	63	1976	3	8	1	3	39.260	18.114	-66.019	23.7	0.5D	0.9	307	0	3.2	217	43	2.1	37	47	68	0.04	6	164	24	C	1	
	64	1976	3	8	2	32	12.520	18.197	-67.518	62.2	3.2D	8.8	174	6	3.4	82	19	13.5	280	70	68	0.19	9	169	50	D	1	
	65	1976	3	8	7	5	21.090	18.090	-67.036	10.6	2.0D	2.0	1	13	1.6	97	27	4.5	248	59	68	0.22	11	120	37	C	1	
	66	1976	3	8	12	5	45.050	18.429	-67.554	7.9	1.7D	20.7	104	14	8.3	1	43	7.9	207	43	68	0.18	6	318	68	D	1	
	67	1976	3	8	13	8	25.720	18.080	-66.217	20.3	1.0D	4.1	276	13	17.7	13	28	9.7	163	58	68	0.23	6	169	32	D	1	
	68	1976	3	9	22	10	14.690	17.569	-66.507	7.5	1.6D	5.6	353	13	1.7	259	16	3.5	121	69	68	0.13	8	276	71	D	1	
	69	1976	3	10	19	20	19.090	19.099	-65.424	10.0	2.8D	4.4	166	11	2.8	265	38	24.3	62	49	68	0.19	10	317	..	D	1	
	70	1976	3	10	23	16	34.090E	18.145	-65.695	0.1	2.5D	5.1	357	5	62.2	266	11	8.7	112	77	68	0.21	7	315	95	D	1	*
	71	1976	3	12	9	52	0.700	18.101	-66.901	24.7	0.8D	1.2	289	4	2.6	20	19	3.9	188	70	68	0.07	6	141	23	C	1	
	72	1976	3	12	23	29	8.980	18.172	-67.340	5.2	2.6D	14.5	78	4	3.3	168	7	5.4	319	81	68	0.23	9	277	37	D	1	
	73	1976	3	13	00	20	25.780	18.019	-67.046	11.9	2.5D	1.8	337	7	1.3	71	34	5.0	237	55	68	0.14	10	166	39	C	1	
	74	1976	3	13	00	59	5.910	17.967	-67.095	18.3	1.1D	1.0	105	23	2.7	212	36	1.5	350	45	68	0.07	7	281	45	D	1	
	75	1976	3	13	5	47	5.780	19.748	-66.764	25.8	2.5D	45.3	263	0	>99.9	353	0	>99.9	90	90	68	0.30	5	324	..	D	1	
	76	1976	3	13	8	14	13.900	17.975	-67.095	17.5	1.0D	0.8	100	22	3.2	205	33	1.4	343	48	68	0.06	7	280	45	D	1	
	77	1976	3	13	8	52	5.740	17.963	-67.109	18.5	0.5D	20.4	245	24	9.5	354	36	7.3	129	44	68	0.05	5	289	46	D	1	

Table 5.—Catalog of 1976 earthquakes located by the HYPOELLIPSE program--Continued

Catalog		Origin time (UTC)						North	East	Focal	Error ellipsoid axes												Rms No.				Hypo	
Name	Index	yr	mo	d	h	min	s	latitude (deg)	longitude (deg)	depth (km)	M	a(km)	Tr	Pl	b(km)	Tr	Pl	c(km)	Tr	Pl	%	(s)	ob	Cap	DM	Q	auth	*
PRN76	78	1976	3	14	10	16	31.110	18.688	-65.564	1.7	2.5D	>99.9	221	22	17.4	325	31	27.5	101	50	68	0.08	5	317	89	D	1	
	79	1976	3	14	22	43	52.260	17.955	-66.795	4.6	1.3D	1.1	82	1	3.1	173	31	6.7	351	58	68	0.19	11	196	32	D	1	
	80	1976	3	16	19	36	4.650	18.513	-67.401	15.8	1.4D	2.0	245	0	4.0	335	0	>99.9	90	89	68	0.11	7	311	65	D	1	
	81	1976	3	17	5	49	38.030	17.816	-66.809	0.2	1.2D	3.6	274	0	7.2	4	0	>99.9	90	90	68	0.28	7	230	50	D	1	
	82	1976	3	17	6	54	59.180	17.839	-66.794	1.4	1.7D	1.3	267	0	3.7	177	1	75.4	356	88	68	0.14	9	224	43	D	1	
	83	1976	3	17	7	53	31.080	18.098	-66.582	20.9	0.6D	11.7	333	23	5.8	83	38	3.7	220	42	68	0.16	6	183	50	D	1	
	84	1976	3	17	8	15	4.490	18.270	-67.366	73.4	1.4D	12.5	197	14	9.9	293	24	6.9	79	61	68	0.28	9	284	41	D	1	
	85	1976	3	18	19	3	17.740	18.224	-66.996	25.3	1.1D	1.6	4	5	1.2	95	15	4.5	257	74	68	0.06	6	127	26	B	1	
	86	1976	3	21	22	59	48.150	19.118	-66.821	5.5	2.9D	30.5	169	7	2.1	75	34	4.1	269	55	68	0.09	7	300	..	D	1	
	87	1976	3	22	14	9	28.830	18.688	-66.611	7.8	2.2D	0.7	92	2	2.6	183	36	1.8	0	53	68	0.11	10	252	65	D	1	
	88	1976	3	25	16	38	12.860	18.592	-66.629	85.0	2.1D	2.2	285	8	9.0	189	37	3.3	26	51	68	0.16	10	234	59	D	1	
	89	1976	3	25	19	1	17.870	18.312	-66.840	1.7	1.4D	4.4	261	0	9.1	171	1	>99.9	350	88	68	0.10	5	156	30	D	1	
	90	1976	3	25	22	6	4.870	19.159	-65.747	6.5	2.5D	8.5	120	4	3.1	212	31	54.7	23	58	68	0.17	8	324	..	D	1	
	91	1976	3	25	22	30	33.490	18.982	-65.874	2.7	2.7D	19.3	207	6	2.4	301	35	6.1	108	54	68	0.13	9	296	..	D	1	
	92	1976	3	26	13	37	26.390	18.489	-65.797	104.7	2.2D	10.6	43	6	31.8	137	35	4.7	305	54	68	0.12	6	291	51	D	1	
	93	1976	3	28	13	3	4.030	18.329	-66.509	30.7	0.8D	60.3	161	6	11.0	70	11	29.6	279	77	68	0.04	5	245	38	D	1	
	94	1976	3	28	20	32	49.360	17.970	-66.766	16.2	1.1D	0.6	254	13	3.5	160	18	1.7	19	67	68	0.05	7	235	35	D	1	
	95	1976	3	29	5	22	0.230	18.876	-67.557	20.0	3.3D	3.3	72	16	31.7	167	19	9.6	305	64	68	0.17	7	279	92	D	1	
	96	1976	3	29	5	25	21.250	18.526	-67.248	12.9	1.7D	>99.9	304	0	31.5	213	8	10.1	34	81	68	0.16	5	315	79	D	1	
	97	1976	3	29	5	33	56.600	18.875	-67.635	4.5	1.9D	37.9	43	3	9.2	310	43	22.1	137	46	68	0.01	5	335	..	D	1	
	98	1976	3	29	6	15	50.840	18.461	-65.557	56.3	3.6D	3.8	308	33	7.8	192	35	27.8	69	38	68	0.16	10	309	66	D	1	
	99	1976	3	29	9	12	5.860	18.721	-67.381	15.3	2.1D	6.7	250	0	17.5	340	0	>99.9	90	89	68	0.17	6	255	86	D	1	
	100	1976	3	29	20	15	20.010E	18.336	-66.132	.....	1.3D	3.2	320	0	12.4	230	0	>99.9	270	89	68	0.30	7	269	52	D	1	*
	101	1976	3	30	8	22	2.980	17.951	-67.101	17.4	0.8D	3.5	230	24	1.8	336	32	1.5	110	48	68	0.10	8	284	46	D	1	
	102	1976	3	31	2	19	58.890	18.678	-65.835	17.2	2.2D	3.8	264	2	6.4	354	10	27.9	162	79	68	0.30	11	286	71	D	1	
	103	1976	3	31	2	38	47.550	17.807	-66.783	9.1	1.5D	2.2	90	11	3.9	188	34	11.1	345	53	68	0.22	8	241	46	D	1	
	104	1976	3	31	13	39	35.380	18.923	-65.375	31.5	2.5D	16.7	47	2	25.8	317	6	>99.9	156	83	68	0.25	6	335	..	D	1	
	105	1976	3	31	16	13	20.050	18.399	-66.429	6.9	1.0D	2.0	274	5	3.5	5	7	23.1	148	81	68	0.15	6	201	46	D	1	
	106	1976	4	1	22	30	33.080	18.835	-67.026	51.6	1.6D	3.6	319	9	2.7	55	32	8.4	216	56	68	0.19	12	292	73	D	1	
	107	1976	4	2	7	2	40.170	18.656	-67.508	9.9	1.7D	35.0	202	12	20.8	105	31	8.1	310	56	68	0.31	6	326	..	D	1	
	108	1976	4	2	22	12	39.160	20.222	-68.699	21.8	3.1D	>99.9	232	0	>99.9	322	0	>99.9	90	89	68	0.01	3	355	..	D	1	
	109	1976	4	2	22	31	22.370E	18.407	-65.892	0.3	0.9D	9.2	14	0	1.8	284	1	>99.9	104	89	68	0.13	6	244	43	D	1	*
	110	1976	4	3	4	40	45.080	18.854	-67.304	24.6	3.1D	5.6	121	5	3.9	215	40	2.4	25	49	68	0.14	11	311	75	D	1	
	111	1976	4	3	4	57	4.740	18.379	-67.103	16.0	1.6D	14.3	214	10	11.4	117	36	>99.9	317	52	68	0.07	5	172	41	D	1	
	112	1976	4	3	5	55	30.170	18.670	-66.822	19.8	1.4D	2.5	86	4	6.1	355	10	9.1	197	79	68	0.24	11	253	60	D	1	
	113	1976	4	3	13	27	34.850	18.174	-66.859	33.1	1.4D	4.5	355	7	2.8	86	8	10.1	225	79	68	0.28	10	108	28	C	1	
	114	1976	4	3	14	26	26.240	17.863	-66.803	13.9	1.4D	5.6	257	5	28.3	165	23	37.0	358	66	68	0.08	5	265	41	D	1	
	115	1976	4	5	6	48	53.880	18.281	-67.071	23.2	...	>99.9	269	3	8.9	0	16	10.9	168	73	68	0.05	5	199	30	D	1	
	116	1976	4	6	17	34	14.510	18.050	-66.957	25.2	0.9D	1.6	98	4	4.2	7	15	6.6	202	74	68	0.12	7	163	29	C	1	
	117	1976	4	6	19	40	47.530E	18.340	-66.140	0.4	1.1D	1.6	292	0	2.2	22	3	36.3	202	87	68	0.27	8	206	37	D	1	*
	118	1976	4	6	20	21	57.590E	18.324	-66.151	0.1	1.0D	1.8	277	0	2.4	7	2	82.3	187	88	68	0.14	6	251	40	D	1	*
	119	1976	4	7	2	12	26.440	18.189	-66.747	11.5	0.6D	1.2	259	12	1.9	358	37	3.4	154	50	68	0.09	7	172	36	C	1	

Table 5.--Catalog of 1976 earthquakes located by the HYPOELLIPSE program--Continued

Catalog		Origin time (UTC)						North	East	Focal	Error ellipsoid axes												Rms No.			Hypo		
Name	Index	yr	mo	d	h	min	s	latitude (deg)	longitude (deg)	depth (km)	M	a(km)	Tr	Pl	b(km)	Tr	Pl	c(km)	Tr	Pl	%	(s)	ob	Gap	DM	Q	auth	*
PRN76	120	1976	4	7	10	44	0.390	18.341	-65.834	11.0	2.3D	9.3	33	14	9.7	133	35	3.6	285	51	68	0.34	8	222	34	D		1
	121	1976	4	7	13	22	50.780	18.415	-66.405	1.4	1.2D	6.5	286	0	13.1	16	1	>99.9	196	88	68	0.09	5	208	49	D		1
	122	1976	4	7	16	1	49.730	18.312	-66.861	5.1	0.9D	1.9	179	4	1.3	89	6	4.8	302	82	68	0.15	8	106	29	C		1
	123	1976	4	7	22	50	2.150	18.246	-67.420	8.1	1.5D	8.4	176	1	35.0	86	14	19.5	270	75	68	0.01	5	293	44	D		1
	124	1976	4	8	2	30	46.170	18.651	-65.652	18.8	2.1D	25.9	222	16	3.9	321	29	9.4	106	56	68	0.21	10	301	73	D		1
	125	1976	4	8	10	56	57.570	18.734	-67.173	17.5	2.7D	2.5	75	2	6.2	345	11	17.7	176	78	68	0.15	9	250	81	D		1
	126	1976	4	8	20	3	16.740	18.255	-66.253	58.4	1.4D	6.7	277	3	22.0	185	29	42.7	13	60	68	0.06	5	174	43	D		1
	127	1976	4	9	8	16	15.670	18.600	-66.212	81.1	1.6D	16.5	274	16	76.9	169	41	>99.9	21	44	68	0.15	5	270	78	D		1
	128	1976	4	9	21	51	17.180	18.490	-66.819	18.5	2.5D	1.1	266	13	1.7	165	39	5.6	11	48	68	0.11	10	212	42	D		1
	129	1976	4	10	12	41	52.440	18.691	-65.500	16.4	1.9D	>99.9	226	13	13.8	320	17	29.5	100	68	68	0.18	6	328	84	D		1
	130	1976	4	11	6	49	53.680	18.751	-67.323	9.2	1.4D	12.7	214	17	9.9	116	26	4.1	333	58	68	0.15	6	326	86	D		1
	131	1976	4	11	20	2	43.960	17.905	-67.333	18.3	2.2D	>99.9	57	3	23.2	325	36	16.4	152	53	68	0.01	5	325	71	D		1
	132	1976	4	11	20	29	10.440	18.459	-66.394	95.1	1.9D	3.6	104	7	8.9	196	16	6.9	352	72	68	0.23	11	223	46	D		1
	133	1976	4	11	23	10	22.660	18.709	-66.780	63.4	1.9D	2.0	91	6	4.3	355	45	8.6	186	44	68	0.20	14	258	67	D		1
	134	1976	4	13	13	35	21.090E	17.948	-66.152	0.6	2.3D	7.0	232	0	62.2	322	0	>99.9	90	89	68	0.16	4	283	58	D		1 *
	135	1976	4	13	13	36	2.890	17.797	-65.930	21.9	2.5D	77.8	163	11	13.9	256	16	43.7	39	70	68	0.06	5	286	59	D		1
	136	1976	4	13	21	56	3.410	18.216	-67.056	33.1	0.8D	3.4	10	22	2.3	111	25	9.7	244	55	68	0.09	6	129	23	C		1
	137	1976	4	13	23	10	9.460	17.984	-66.835	18.1	0.5D	2.0	260	7	10.3	165	39	5.5	358	50	68	0.09	6	213	33	D		1
	138	1976	4	14	7	57	55.380	19.410	-65.026	23.5	3.0D	6.9	315	0	95.8	45	0	>99.9	90	90	68	0.17	9	328	..	D		1
	139	1976	4	14	14	11	13.910	18.028	-67.088	40.3	2.6D	4.2	100	14	4.8	3	25	19.4	216	60	68	0.12	6	97	43	C		1
	140	1976	4	16	17	7	6.800	17.966	-66.989	14.4	0.4D	25.4	199	15	4.1	97	38	10.7	306	48	68	0.02	5	221	34	D		1
	141	1976	4	16	19	9	44.480	18.150	-67.202	97.2	2.2D	1.5	79	19	4.5	338	29	2.6	197	54	68	0.06	9	273	56	D		1
	142	1976	4	17	14	41	23.360	17.990	-67.114	14.2	1.4D	6.4	324	15	10.4	229	20	2.5	89	64	68	0.15	6	287	46	D		1
	143	1976	4	17	16	43	0.350	18.536	-65.573	36.8	1.2D	13.2	253	18	25.0	148	38	12.8	3	46	68	0.35	7	337	67	D		1
	144	1976	4	18	1	11	35.500	17.994	-68.031	70.0	2.6D	12.9	347	16	38.5	242	42	4.6	93	43	68	0.15	9	333	..	D		1
	145	1976	4	18	14	44	43.880	17.888	-67.148	11.5	1.1D	28.0	247	1	14.9	338	18	10.6	153	71	68	....	5	310	67	D		1
	146	1976	4	18	23	51	22.590	18.292	-65.042	98.4	2.1D	8.1	194	24	88.1	83	39	5.6	307	41	68	0.04	6	341	..	D		1
	147	1976	4	19	3	14	38.770	18.690	-65.522	4.8	2.4D	24.5	232	14	5.0	133	32	2.4	342	54	68	0.12	8	311	92	D		1
	148	1976	4	20	7	56	56.600	18.132	-66.090	25.3	1.6D	1.9	127	3	3.1	36	21	4.9	224	68	68	0.14	8	131	21	C		1
	149	1976	4	20	14	1	26.620	17.911	-66.860	25.4	2.0D	3.7	1	13	1.1	95	16	2.6	234	69	68	0.10	8	212	38	D		1
	150	1976	4	21	3	8	46.780	19.363	-68.444	90.8	3.4D	5.6	54	7	>99.9	320	33	31.6	155	56	68	0.07	6	320	..	D		1
	151	1976	4	21	18	50	57.510	17.891	-67.178	13.0	1.7D	20.1	98	1	22.9	8	16	6.8	191	73	68	0.11	5	296	59	D		1
	152	1976	4	21	20	57	31.830	18.655	-65.425	12.6	2.4D	>99.9	234	12	27.7	141	15	18.8	2	70	68	0.06	5	329	87	D		1
	153	1976	4	25	17	1	27.820	17.962	-67.030	1.2	2.4D	3.1	8	2	1.3	99	6	10.0	260	83	68	0.14	9	223	51	D		1
	154	1976	4	26	17	15	19.930	18.296	-66.117	64.8	1.9D	3.2	355	0	0.9	265	16	1.8	85	74	68	0.11	11	184	34	D		1
	155	1976	4	27	1	6	20.190	18.938	-67.345	7.2	2.2D	6.6	124	22	12.4	224	23	4.7	356	57	68	0.22	7	321	..	D		1
	156	1976	4	28	23	52	59.980	18.180	-67.207	6.5	1.1D	3.3	356	4	9.3	265	17	5.8	99	72	68	0.16	6	234	28	D		1
	157	1976	4	29	4	34	35.540	18.330	-67.302	18.7	2.4D	13.0	18	7	50.4	285	22	19.0	125	66	68	0.29	6	276	42	D		1
	158	1976	4	29	16	44	29.070	18.043	-67.856	50.3	2.1D	10.5	351	6	1.8	86	36	26.3	253	53	68	0.11	8	278	83	D		1
	159	1976	4	30	14	8	21.480	18.682	-66.417	73.3	1.9D	0.8	277	7	1.8	12	39	4.5	178	50	68	0.09	12	233	78	C		1
	160	1976	5	1	3	15	17.900	18.184	-67.127	18.6	1.7D	2.9	5	19	3.6	108	33	5.2	251	50	68	0.32	10	195	26	D		1
	161	1976	5	1	8	38	8.390	17.973	-66.889	8.6	1.1D	8.7	22	8	10.7	115	21	>99.9	273	67	68	....	5	306	55	D		1
	162	1976	5	5	18	22	54.160	18.368	-66.829	27.5	1.1D	5.8	111	6	8.6	204	19	29.0	4	69	68	0.22	5	176	34	D		1

Table 5.--Catalog of 1976 earthquakes located by the HYPOELLIPSE program--Continued

Catalog		Origin time (UTC)						North	East	Focal	Error ellipsoid axes												Rms No.				Hypo		
Name	Index	yr	mo	d	h	min	s	latitude (deg)	longitude (deg)	depth (km)	M	a(km)	Tr	Pl	b(km)	Tr	Pl	c(km)	Tr	Pl	%	(s)	ob	Gap	DM	Q	auth	*	
PRN76	163	1976	5	6	15	17	2.720	18.231	-66.952	21.1	1.4D	0.7	83	6	1.0	352	9	5.0	206	79	68	0.06	7	138	34	C	1		
	164	1976	5	6	17	26	59.850	18.356	-66.234	95.7	1.9D	9.0	196	6	2.4	288	22	4.8	91	67	68	0.18	10	210	49	D	1		
	165	1976	5	7	5	37	55.820	18.110	-65.692	23.0	3.5D	1.9	206	4	9.4	114	22	2.2	305	67	68	0.10	8	277	48	D	1		
	166	1976	5	7	18	28	20.330E	18.318	-66.863	1.0	1.1D	1.4	275	0	3.0	5	0	>99.9	90	90	68	0.14	7	159	33	C	1	*	
	167	1976	5	8	3	48	2.940	18.416	-67.098	22.1	2.1D	13.9	205	16	39.5	307	37	6.5	95	48	68	0.17	5	174	45	D	1		
	168	1976	5	8	8	53	10.600	17.873	-67.072	1.3	2.3D	5.5	35	6	0.9	127	16	3.5	286	72	68	0.07	8	271	61	D	1		
	169	1976	5	8	10	57	4.070	18.572	-66.864	19.7	2.9D	1.2	86	5	4.0	179	24	7.1	346	65	68	0.12	9	236	50	D	1		
	170	1976	5	8	14	6	47.550	18.226	-67.211	13.6	2.1D	42.4	264	12	12.7	170	20	9.8	24	66	68	0.08	5	235	27	D	1		
	171	1976	5	9	15	4	20.020	17.767	-66.735	15.9	1.0D	10.1	257	0	30.3	347	0	>99.9	90	90	68	0.03	5	287	59	D	1		
	172	1976	5	10	1	56	32.910	17.967	-68.149	152.7	2.5D	74.8	136	27	>99.9	24	35	>99.9	253	42	68	0.07	5	337	..	D	1		
	173	1976	5	10	17	23	56.630	18.434	-67.047	86.7	1.6D	10.7	200	10	4.1	105	30	9.1	306	58	68	0.20	9	189	47	D	1		
	174	1976	5	12	2	51	31.410	18.381	-65.856	18.2	2.1D	64.0	236	0	12.9	326	6	42.7	145	84	68	0.13	5	274	43	D	1		
	175	1976	5	12	20	56	32.100E	18.167	-66.934	0.4	0.7D	5.6	155	6	3.8	64	7	18.6	285	80	68	0.22	5	126	36	D	1	*	
	176	1976	5	13	1	51	0.580	18.649	-65.759	4.3	2.6D	12.1	320	30	>99.9	211	30	24.3	86	45	68	0.04	5	295	72	D	1		
	177	1976	5	13	9	52	7.750	18.732	-65.530	38.9	3.1D	8.5	320	17	54.7	56	18	38.5	190	64	68	0.23	7	310	87	D	1		
	178	1976	5	13	19	57	16.700E	18.446	-67.121	0.2	1.3D	2.3	52	1	6.8	321	6	47.0	152	83	68	0.31	7	284	49	D	1	*	
	179	1976	5	14	16	39	50.330	18.081	-67.326	20.1	1.5D	11.4	28	0	8.1	118	23	16.5	298	67	68	0.16	6	319	68	D	1		
	180	1976	5	15	2	33	15.390	18.209	-66.118	78.5	1.6D	8.9	179	10	3.8	83	31	2.6	284	57	68	0.21	12	96	29	C	1		
	181	1976	5	15	2	35	17.670	18.659	-66.024	64.9	2.7D	4.9	32	13	2.2	296	23	9.0	150	63	68	0.15	11	250	62	D	1		
	182	1976	5	15	6	26	39.600	18.292	-66.247	23.2	0.7D	14.0	159	12	6.1	257	34	28.3	52	53	68	0.02	5	211	53	D	1		
	183	1976	5	15	7	5	0.470	18.528	-65.772	23.6	2.6D	22.4	213	15	6.4	317	41	15.7	107	45	68	0.25	7	279	56	D	1		
	184	1976	5	15	10	47	27.020	18.048	-67.069	11.5	1.1D	6.0	122	18	5.1	21	32	21.2	236	52	68	0.09	5	147	41	D	1		
	185	1976	5	15	17	36	23.840	18.892	-65.325	26.7	2.8D	13.9	320	0	>99.9	230	0	>99.9	270	89	68	0.30	7	319	..	D	1	*	
	186	1976	5	15	22	1	24.750	19.025	-65.197	7.5	3.8D	8.9	329	12	13.1	233	30	38.8	79	57	68	0.27	11	323	..	D	1	*	
	187	1976	5	16	4	30	57.560	18.310	-65.884	23.2	2.6D	11.3	188	10	6.2	285	37	16.6	85	51	68	0.39	7	168	30	D	1	*	
	188	1976	5	16	4	54	14.140	18.276	-66.245	20.8	0.7D	13.5	156	24	6.6	258	25	32.7	28	54	68	0.04	5	199	44	D	1		
	189	1976	5	16	10	36	37.920	19.128	-66.810	30.9	2.4D	5.8	77	2	36.9	347	12	65.4	177	77	68	0.17	7	300	..	D	1		
	190	1976	5	17	3	6	14.010	18.818	-65.448	2.5	3.4D	27.9	224	19	4.9	122	33	2.1	339	50	68	0.12	9	314	..	D	1		
	191	1976	5	17	17	37	8.690	18.057	-66.264	8.2	2.7D	1.5	258	16	4.2	353	16	4.6	125	67	68	0.20	9	173	37	C	1		
	192	1976	5	17	21	30	46.250	18.169	-67.478	8.5	2.7D	2.9	77	22	4.6	332	33	4.1	194	48	68	0.24	9	157	45	D	1		
	193	1976	5	17	22	17	42.360	18.211	-66.552	23.2	1.1D	35.0	328	17	4.0	65	19	9.7	200	63	68	0.18	5	212	43	D	1		
	194	1976	5	17	22	53	20.780	18.224	-66.570	73.5	1.4D	11.0	3	6	3.4	94	10	4.8	243	78	68	0.18	8	176	44	D	1		
	195	1976	5	18	6	16	14.620	18.289	-66.393	32.0	1.0D	2.6	76	1	12.1	346	13	8.1	171	76	68	0.20	7	211	32	D	1		
	196	1976	5	19	4	7	20.750	18.168	-67.539	126.7	2.1D	7.3	184	4	3.7	92	23	16.1	283	66	68	0.10	8	164	51	D	1		
	197	1976	5	21	22	59	5.840	18.026	-66.788	16.7	0.8D	4.3	258	9	13.8	355	40	34.1	157	48	68	0.02	5	194	32	D	1		
	198	1976	5	22	7	11	3.580	18.624	-66.524	11.3	1.8D	3.9	178	24	1.1	280	25	2.5	50	54	68	0.14	10	244	65	D	1		
	199	1976	5	23	8	10	31.940	18.769	-65.327	0.2	2.8D	49.0	236	17	8.7	138	22	3.8	1	61	68	0.20	8	319	..	D	1		
	200	1976	5	24	5	7	22.020	18.158	-67.128	10.5	2.0D	2.2	158	25	4.9	262	28	2.5	32	50	68	0.21	10	198	29	D	1		
	201	1976	5	24	20	7	1.520	18.151	-66.068	20.9	1.2D	3.4	299	4	7.2	208	15	10.0	44	74	68	0.23	7	159	20	D	1		
	202	1976	5	25	7	43	47.970	19.112	-66.925	69.6	2.9D	5.2	84	4	34.7	351	30	13.9	190	59	68	0.19	9	300	..	D	1		
	203	1976	5	25	10	14	26.080	18.138	-67.667	24.7	2.1D	8.5	341	21	2.6	81	25	7.0	216	56	68	0.20	8	168	63	D	1		
	204	1976	5	25	12	57	34.370	18.089	-66.833	13.2	0.8D	4.2	259	4	12.1	350	19	50.7	157	70	68	0.03	5	149	29	D	1		
	205	1976	5	25	21	37	48.680	17.834	-66.811	9.9	1.1D	1.0	164	8	0.2	256	14	0.5	45	73	68	0.01	6	271	44	C	1		

Table 5.--Catalog of 1976 earthquakes located by the HYPOELLIPSE program--Continued

Catalog		Origin time (UTC)						North	East	Focal	Error ellipsoid axes												Rms No.				Hypo			
Name	Index	yr	mo	d	h	min	s	latitude (deg)	longitude (deg)	depth (km)	M	a(km)	Tr	Pl	b(km)	Tr	Pl	c(km)	Tr	Pl	%	(s)	ob	Gap	DM	Q	auth	*		
PRN76	206	1976	5	26	5	4	11.150	18.438	-65.726	25.9	2.4D	9.9	193	13	15.4	96	28	2.8	305	58	68	0.25	10	293	49	D		1		
	207	1976	5	26	5	20	51.140	17.852	-66.815	10.7	1.1D	0.3	91	16	2.3	349	36	0.6	200	49	68	0.02	6	233	43	C		1		
	208	1976	5	27	7	12	20.080	18.569	-67.668	6.2	1.4D	20.1	24	12	>99.9	117	14	9.9	255	71	68	0.09	5	322	87	D		1		
	209	1976	5	28	4	28	11.180	17.332	-67.277	17.5	1.8D	3.7	133	28	10.9	248	38	14.7	17	39	68	0.17	8	307	..	D		1		
	210	1976	5	28	14	51	35.640	18.397	-66.396	10.0	1.1D	4.9	274	21	7.5	21	38	60.7	161	44	68	0.19	5	203	48	D		1		
	211	1976	5	28	15	56	59.500	18.345	-66.851	24.4	0.9D	2.8	98	3	7.0	188	4	17.8	332	85	68	0.13	6	183	33	D		1		
	212	1976	5	28	18	48	26.460	17.981	-67.086	3.0	1.5D	11.8	220	24	1.9	118	26	3.9	346	53	68	0.16	8	266	43	D		1		
	213	1976	5	28	20	55	57.990	18.176	-66.127	20.7	1.0D	0.5	303	5	0.7	210	33	2.0	41	56	68	0.04	7	138	27	B		1		
	214	1976	5	29	3	7	54.520	17.806	-66.920	0.4	1.3D	0.8	106	6	2.5	201	41	5.8	9	48	68	0.07	8	245	45	D		1		
	215	1976	5	29	9	5	22.770	18.038	-66.938	21.2	0.7D	6.2	96	3	13.3	5	18	46.3	195	71	68	0.08	5	173	27	D		1		
	216	1976	5	29	21	53	31.100	18.669	-67.001	55.0	1.2D	8.4	88	27	27.0	339	33	24.8	208	44	68	0.24	6	272	70	D		1		
	217	1976	5	30	11	4	2.450	18.257	-67.228	29.5	1.8D	3.7	13	22	16.7	264	38	2.9	126	43	68	0.19	10	243	31	D		1		
	218	1976	5	30	11	6	25.290	18.268	-67.161	23.8	1.6D	2.4	5	5	8.8	272	32	2.0	103	57	68	0.16	9	213	30	D		1		
	219	1976	5	31	11	58	10.430	18.262	-67.143	22.0	1.4D	2.7	33	26	2.1	141	33	7.9	273	45	68	0.19	10	203	29	D		1		
	220	1976	6	1	1	17	14.160	18.342	-67.238	9.3	1.1D	3.2	191	2	9.8	281	13	5.4	92	76	68	0.30	10	261	40	D		1		
	221	1976	6	1	3	15	5.940	17.806	-66.806	0.3	2.8D	1.1	90	1	4.6	181	5	14.1	349	84	68	0.14	10	232	47	D		1		
	222	1976	6	1	3	56	5.880	17.823	-66.817	2.4	1.2D	5.3	8	0	1.7	98	1	53.9	278	89	68	0.17	8	229	48	D		1		
	223	1976	6	1	11	44	17.650	17.819	-66.814	1.7	1.6D	1.5	280	0	3.8	190	1	63.8	10	88	68	0.17	10	230	46	D		1		
	224	1976	6	1	15	58	36.270	18.293	-66.863	5.2	1.4D	0.8	57	7	1.2	149	16	2.6	305	72	68	0.12	10	156	32	C		1		
	225	1976	6	1	18	5	10.220	17.979	-67.121	13.7	1.1D	4.9	350	5	14.0	258	21	5.3	93	68	68	0.18	6	282	47	D		1		
	226	1976	6	2	13	16	18.050	18.924	-64.787	10.4	3.1D	17.5	344	0	13.8	254	43	25.8	74	47	68	0.25	10	333	..	D		1		
	227	1976	6	3	21	26	19.550	18.910	-67.399	58.8	3.4D	4.3	62	26	43.7	317	27	10.5	188	50	68	0.16	10	309	88	D		1		
	228	1976	6	4	7	28	40.270	18.118	-66.144	13.6	1.0D	1.6	160	32	2.8	45	34	1.3	281	39	68	0.19	10	114	26	C		1		
	229	1976	6	4	16	50	16.490E	18.329	-66.141	.....	1.4D	3.0	305	0	5.4	35	0	>99.9	90	90	68	0.31	6	243	40	D		1	*	
	230	1976	6	4	20	27	39.250	18.127	-66.488	15.4	0.7D	14.9	194	18	4.0	89	39	63.8	303	45	68	0.13	5	151	36	D		1		
	231	1976	6	4	21	19	30.480	18.131	-67.062	28.2	0.8D	4.7	2	22	3.8	107	32	14.0	244	49	68	0.24	8	141	32	D		1		
	232	1976	6	5	8	14	29.490	18.972	-66.196	41.4	1.8D	2.0	289	4	11.9	20	5	16.7	160	83	68	0.11	9	286	95	D		1		
	233	1976	6	5	15	2	58.660	18.281	-67.284	32.1	1.0D	3.4	153	23	11.9	261	37	4.6	38	44	68	0.16	8	264	37	D		1		
	234	1976	6	5	18	7	22.100	17.873	-66.217	0.3	1.7D	1.4	258	2	3.5	168	3	9.9	22	86	68	0.19	10	219	47	D		1		
	235	1976	6	6	5	27	47.230	18.121	-66.996	23.3	1.0D	4.7	181	5	2.4	89	19	7.4	285	70	68	0.18	7	135	34	C		1		
	236	1976	6	6	15	7	45.810	18.254	-67.608	10.9	2.6D	>99.9	93	7	26.2	2	8	18.2	223	79	68	0.11	5	314	61	D		1		
	237	1976	6	6	18	9	23.600	18.183	-67.205	27.4	0.7D	23.3	82	4	8.9	351	7	10.1	201	81	68	0.08	5	233	28	D		1		
	238	1976	6	8	17	27	25.020	18.423	-65.413	4.6	2.5D	>99.9	245	14	43.6	150	19	23.1	10	66	68	0.02	5	332	85	D		1		
	239	1976	6	8	20	27	42.720	18.253	-67.404	12.2	0.8D	11.0	172	8	30.7	79	21	16.3	281	67	68	0.07	5	290	43	D		1		
	240	1976	6	9	8	57	0.610	19.020	-65.535	8.2	2.4D	4.6	306	9	3.0	211	30	23.0	51	58	68	0.18	10	311	..	D		1		
	241	1976	6	9	11	15	14.080	18.300	-66.004	20.9	2.0D	7.6	128	9	>99.9	32	29	18.8	233	59	68	0.23	4	256	64	D		1		
	242	1976	6	10	8	7	34.650	18.224	-66.068	83.4	1.5D	12.6	344	15	4.2	82	26	5.6	228	59	68	0.14	7	194	26	D		1		
	243	1976	6	10	20	10	52.440E	18.404	-66.407	0.9	1.4D	3.7	271	0	10.5	1	1	>99.9	181	88	68	0.10	5	204	48	D		1	*	
	244	1976	6	11	1	58	26.920	18.152	-66.514	12.6	2.4D	>99.9	100	9	7.3	8	11	6.8	228	75	68	0.34	5	274	61	D		1		
	245	1976	6	13	20	10	54.380	19.040	-67.851	0.3	3.2D	8.9	150	16	2.2	52	26	4.8	268	58	68	0.24	11	295	..	D		1	*	
	246	1976	6	13	20	28	56.910	18.421	-67.186	17.1	2.2D	20.7	74	30	>99.9	320	36	9.0	192	39	68	0.26	5	284	47	D		1	*	
	247	1976	6	13	21	13	10.150	18.621	-67.235	23.0	2.1D	33.8	144	12	3.9	46	34	11.0	250	53	68	0.17	7	301	70	D		1	*	

Table 5.--Catalog of 1976 earthquakes located by the HYPOELLIPSE program--Continued

Catalog		Origin time (UTC)						North	East	Focal	Error ellipsoid axes												Rms No.				Hypo	
Name	Index	yr	mo	d	h	min	s	latitude (deg)	longitude (deg)	depth (km)	M	a(km)	Tr	Pl	b(km)	Tr	Pl	c(km)	Tr	Pl	%	(s)	ob	Gap	DM	Q	auth	*
PRN76	248	1976	6	13	21	14	15.500	18.389	-67.114	12.7	...	14.9	17	5	>99.9	284	29	9.5	116	60	68	0.21	5	190	42	D	1	*
	249	1976	6	13	21	58	47.630	18.557	-67.252	56.2	...	34.5	67	19	>99.9	321	39	>99.9	178	44	68	....	4	317	82	D	1	*
	250	1976	6	13	22	10	34.610	18.590	-67.317	26.0	2.1D	>99.9	308	6	39.3	216	25	22.2	51	64	68	0.02	4	321	69	D	1	*
	251	1976	6	14	3	22	54.110	19.064	-67.786	19.2	...	23.9	41	2	>99.9	131	12	14.8	302	77	68	0.24	6	329	..	D	1	*
	252	1976	6	14	4	12	21.700	18.174	-67.229	15.8	0.8D	8.3	90	10	4.2	189	41	1.9	350	47	68	0.21	7	244	30	D	1	
	253	1976	6	14	4	36	17.110	18.954	-67.512	0.2	2.4D	27.8	138	18	3.9	239	31	1.5	22	53	68	0.07	8	320	..	D	1	*
	254	1976	6	14	4	37	11.170	18.897	-67.818	0.1	3.6D	16.5	149	15	2.7	51	30	5.3	262	55	68	0.24	11	285	..	D	1	*
	255	1976	6	14	5	51	14.250	18.782	-67.745	4.5	3.3D	13.8	152	16	1.9	53	30	3.8	266	55	68	0.18	11	276	97	D	1	*
	256	1976	6	15	00	27	33.520	18.882	-67.879	16.8	3.6D	50.3	134	10	11.1	41	17	14.1	253	70	68	0.37	10	288	..	D	1	*
	257	1976	6	15	00	34	10.710	18.361	-67.704	73.4	3.6D	19.1	167	21	11.2	63	32	40.9	284	50	68	0.37	10	237	68	D	1	*
	258	1976	6	16	16	15	51.490	18.024	-66.420	19.7	1.1D	1.3	97	10	5.0	190	12	15.9	329	74	68	0.16	7	189	40	D	1	
	259	1976	6	16	16	35	31.320	18.751	-67.742	18.8	4.2D	3.2	58	11	17.9	150	12	8.1	287	73	68	0.24	10	275	..	D	1	*
	260	1976	6	17	12	10	56.630	18.885	-67.850	2.6	3.7D	6.4	236	6	23.7	144	17	4.2	344	71	68	0.24	10	286	..	D	1	*
	261	1976	6	19	19	59	3.820	18.463	-67.444	11.2	1.7D	4.7	187	11	5.5	280	14	2.4	60	72	68	0.19	9	315	63	D	1	*
	262	1976	6	20	1	5	54.390	17.835	-66.818	14.1	0.6D	6.3	252	2	26.5	161	35	67.6	344	54	68	0.07	5	271	45	D	1	
	263	1976	6	20	17	43	4.530	18.621	-65.112	8.7	2.8D	6.1	333	17	3.2	233	30	19.1	89	54	68	0.26	16	329	..	D	1	
	264	1976	6	22	8	9	24.480	18.689	-66.415	24.4	1.4D	1.1	99	12	2.0	3	27	3.3	210	60	68	0.14	10	256	75	C	1	
	265	1976	6	23	7	48	23.120	18.153	-66.986	21.2	1.0D	2.4	1	11	1.5	95	19	6.1	243	67	68	0.19	9	132	32	C	1	
	266	1976	6	23	23	37	32.450	17.999	-67.172	18.2	0.6D	8.1	353	21	17.0	96	29	13.8	233	52	68	0.04	5	301	52	D	1	
	267	1976	6	25	00	19	16.960	17.958	-66.484	8.7	1.3D	0.7	275	0	1.5	185	19	3.1	5	71	68	0.19	18	193	39	C	1	
	268	1976	6	25	12	9	46.680	18.201	-66.724	128.8	2.0D	10.6	7	2	2.4	275	34	3.9	100	55	68	0.23	14	140	38	D	1	
	269	1976	6	25	14	26	31.060	18.803	-67.445	25.6	2.0D	8.3	45	11	10.3	139	16	3.4	283	70	68	0.07	6	331	96	D	1	
	270	1976	6	25	15	28	39.760	18.071	-67.080	13.5	1.6D	8.9	229	7	1.9	134	32	4.1	329	56	68	0.13	6	263	42	D	1	
	271	1976	6	26	2	3	19.360	18.113	-66.618	21.1	1.0D	2.4	328	10	0.9	233	27	1.6	77	60	68	0.06	8	133	50	C	1	
	272	1976	6	26	5	37	54.010	18.092	-66.921	24.3	1.0D	6.4	98	3	16.8	189	10	35.5	352	79	68	0.04	5	160	25	D	1	
	273	1976	6	27	00	48	4.410	18.283	-67.261	30.5	1.0D	12.5	283	20	4.1	182	27	8.0	45	55	68	0.22	7	257	36	D	1	
	274	1976	6	27	6	45	0.140	18.565	-67.476	17.7	2.4D	69.7	120	8	6.4	28	13	10.4	240	74	68	0.17	7	312	74	D	1	
	275	1976	6	28	5	10	31.190	18.761	-67.133	68.6	2.0D	5.9	304	6	4.1	38	38	8.7	207	51	68	0.29	12	300	65	D	1	
	276	1976	6	28	10	28	47.620	18.060	-67.115	24.7	0.7D	7.7	152	27	17.0	263	35	8.0	33	42	68	0.06	5	219	46	D	1	
	277	1976	6	28	12	33	32.430	19.014	-67.434	23.8	3.5D	16.1	142	7	4.0	49	29	6.0	244	60	68	0.17	9	319	..	D	1	
	278	1976	6	28	22	25	41.040E	18.216	-66.058	0.2	1.0D	0.8	349	0	2.6	259	0	>99.9	270	89	68	0.06	6	272	57	D	1	*
	279	1976	6	29	2	21	2.970	18.447	-65.621	25.7	1.4D	16.9	84	16	11.3	348	19	33.0	211	64	68	0.04	5	321	..	D	1	
	280	1976	6	29	5	10	22.240	18.102	-67.721	57.0	2.4D	5.4	266	5	6.6	174	22	10.3	9	67	68	0.24	13	323	73	D	1	
	281	1976	6	29	8	47	38.670	17.783	-66.223	0.1	1.8D	1.7	248	3	5.3	157	3	8.9	23	85	68	0.22	10	236	56	D	1	
	282	1976	6	30	2	6	0.390	18.029	-66.655	15.9	1.7D	1.3	90	12	2.6	188	34	2.4	344	53	68	0.20	14	178	46	C	1	
	283	1976	6	30	3	25	8.610	18.082	-67.045	16.4	1.0D	9.6	358	7	5.7	91	22	42.2	252	66	68	0.19	5	128	38	D	1	
	284	1976	6	30	19	9	27.490	18.441	-66.583	107.4	2.2D	7.8	190	4	2.1	99	8	4.7	306	81	68	0.20	15	194	44	D	1	
	285	1976	6	30	20	15	37.190	18.388	-66.456	10.1	1.1D	1.8	334	2	3.2	243	25	3.5	69	64	68	0.14	8	184	34	D	1	
	286	1976	7	1	6	32	32.680	18.114	-66.861	10.8	0.8D	1.2	102	1	4.2	193	31	1.9	10	58	68	0.15	8	136	27	C	1	
	287	1976	7	2	16	42	19.220	17.792	-66.731	14.0	1.1D	19.4	140	5	5.3	235	41	11.3	43	43	68	0.02	5	294	58	D	1	
	288	1976	7	3	4	44	30.620	17.774	-66.796	6.5	0.9D	5.2	275	2	8.0	185	10	>99.9	17	79	68	0.06	5	289	54	D	1	
	289	1976	7	3	9	38	8.380	18.101	-66.106	20.9	0.9D	5.8	142	2	14.9	51	25	21.8	236	64	68	0.02	5	175	21	D	1	
	290	1976	7	3	15	8	12.460	19.156	-65.375	0.7	3.2D	3.6	320	11	16.3	57	34	53.9	215	53	68	0.19	10	319	..	D	1	

Table 5.--Catalog of 1976 earthquakes located by the HYPOELLIPSE program--Continued

Catalog		Origin time (UTC)						North	East	Focal	Error ellipsoid axes												Rms No.				Hypo	
Name	Index	yr	mo	d	h	min	s	latitude (deg)	longitude (deg)	depth (km)	M	a(km)	Tr	Pl	b(km)	Tr	Pl	c(km)	Tr	Pl	%	(s)	ob	Gap	DM	O	auth	*
PRN76	291	1976	7	4	18	23	23.420	18.907	-67.832	0.7	3.8D	40.9	152	20	4.3	49	31	8.8	269	51	68	0.35	10	290	..	D	1	
	292	1976	7	5	00	22	40.660	17.737	-66.711	4.0	1.2D	4.7	229	4	10.9	139	6	>99.9	352	82	68	0.23	5	302	63	D	1	
	293	1976	7	5	6	40	53.390	18.539	-66.340	100.8	1.6D	3.2	73	14	14.8	168	19	3.7	309	66	68	0.22	12	262	51	D	1	
	294	1976	7	6	2	18	43.230	18.938	-66.075	47.1	2.3D	6.3	295	7	60.5	28	19	33.6	186	69	68	0.31	9	288	92	D	1	
	295	1976	7	6	2	46	1.950	18.869	-66.093	44.3	2.3D	5.5	296	8	41.7	30	29	27.7	193	59	68	0.27	9	283	84	D	1	
	296	1976	7	6	3	31	46.020	19.149	-66.016	19.8	2.7D	3.1	298	13	8.2	204	16	4.6	66	69	68	0.18	11	300	..	D	1	
	297	1976	7	6	6	54	3.550	18.672	-67.126	31.4	1.6D	5.4	153	27	6.3	46	30	13.5	276	47	68	0.16	7	328	74	D	1	
	298	1976	7	6	16	1	23.400	17.780	-66.712	18.4	1.3D	2.3	228	13	6.9	133	18	20.0	351	67	68	0.10	6	286	47	D	1	
	299	1976	7	6	18	29	7.880	17.843	-66.791	19.1	0.9D	2.6	243	13	6.2	142	40	15.4	347	47	68	0.11	6	270	42	D	1	
	300	1976	7	6	19	55	57.130	18.321	-66.862	3.3	0.9D	1.0	101	6	2.0	10	10	3.8	221	78	68	0.15	9	110	28	C	1	
	301	1976	7	9	16	7	44.130	18.344	-66.849	19.1	...	5.8	279	2	22.6	9	8	58.6	175	81	68	0.10	5	251	36	D	1	
	302	1976	7	10	4	9	53.250	18.411	-67.520	7.4	1.1D	14.5	212	6	31.4	303	8	>99.9	85	79	68	0.08	4	314	64	D	1	
	303	1976	7	10	18	55	24.400	17.776	-66.755	6.7	1.0D	2.8	249	4	6.2	158	12	53.5	357	77	68	0.14	6	246	47	D	1	
	304	1976	7	10	23	25	38.650	17.772	-66.707	15.4	1.2D	21.9	144	1	8.9	54	2	7.1	260	87	68	0.05	5	303	60	D	1	
	305	1976	7	11	2	51	53.830	17.982	-65.547	0.0	1.4D	11.9	101	27	37.8	352	33	16.8	221	44	68	0.20	5	336	73	D	1	
	306	1976	7	11	11	41	33.000	18.642	-67.486	17.0	2.7D	4.8	30	14	6.2	295	21	10.1	152	64	68	0.18	10	315	82	D	1	
	307	1976	7	12	6	00	48.570	17.763	-66.734	12.7	1.3D	0.4	345	20	0.2	244	27	0.2	107	55	68	0.01	6	296	59	C	1	
	308	1976	7	12	6	15	26.270	17.784	-66.748	13.2	1.0D	6.5	233	15	26.6	330	25	15.5	114	60	68	0.04	5	292	56	D	1	
	309	1976	7	13	20	22	21.620	18.301	-66.871	6.9	1.3D	1.2	93	3	1.7	183	3	4.5	318	85	68	0.20	12	104	28	C	1	
	310	1976	7	14	9	40	45.240	18.041	-67.068	12.3	0.3D	2.6	15	23	3.1	119	31	8.5	255	49	68	0.14	6	142	41	C	1	
	311	1976	7	14	19	4	47.020	18.383	-66.850	20.8	...	0.9	269	0	3.6	0	32	7.2	178	57	68	0.05	6	262	40	D	1	
	312	1976	7	16	3	30	35.350	18.620	-65.312	0.6	3.0D	>99.9	256	14	37.4	158	28	9.0	10	58	68	0.32	7	334	..	D	1	
	313	1976	7	16	21	5	10.250	18.417	-66.764	14.9	1.4D	0.7	303	18	0.7	196	42	2.8	51	42	68	0.16	7	129	37	B	1	
	314	1976	7	18	8	1	8.910	18.323	-67.287	0.1	0.9D	8.1	350	0	17.7	260	0	>99.9	270	90	68	0.25	5	271	41	D	1	
	315	1976	7	20	22	43	51.130E	18.054	-65.798	0.2	2.2D	5.7	160	3	12.9	70	7	19.5	273	82	68	0.20	6	326	85	D	1	*
	316	1976	7	21	4	51	48.200	18.000	-67.098	36.7	1.7D	3.5	18	16	1.9	114	18	5.8	250	65	68	0.21	13	270	44	D	1	
	317	1976	7	21	20	12	57.000E	18.111	-66.485	0.8	2.0D	1.4	91	1	5.9	181	1	>99.9	316	88	68	0.16	7	157	36	D	1	*
	318	1976	7	23	17	1	35.810E	18.236	-66.063	0.6	0.4D	4.6	144	1	6.9	54	1	>99.9	279	88	68	....	5	204	27	D	1	*
	319	1976	7	23	21	33	20.110	17.963	-66.064	2.6	0.8D	0.8	274	3	1.9	184	5	14.8	35	84	68	0.06	6	231	37	D	1	
	320	1976	7	24	8	29	39.320	18.213	-67.162	27.3	0.6D	6.0	169	16	13.0	68	35	27.0	279	50	68	0.08	5	212	24	D	1	
	321	1976	7	24	13	26	8.030	17.955	-65.906	13.3	1.3D	20.9	17	22	6.7	118	24	3.9	250	56	68	0.19	6	284	45	D	1	
	322	1976	7	27	21	53	53.970	18.139	-67.463	11.3	2.0D	3.7	291	5	1.8	23	21	1.4	189	68	68	0.09	8	300	48	D	1	
	323	1976	7	27	22	53	7.120	17.628	-65.979	16.0	3.4D	2.3	243	2	9.7	153	8	15.9	346	81	68	0.15	10	281	76	D	1	
	324	1976	7	28	1	39	31.150	17.638	-65.949	20.4	1.8D	2.1	242	11	3.0	149	16	7.2	6	70	68	0.10	9	306	90	D	1	
	325	1976	7	29	1	23	40.530	18.828	-65.399	0.1	2.1D	6.2	237	0	4.9	147	10	2.6	326	80	68	0.09	6	332	..	D	1	
	326	1976	7	29	6	26	51.220	18.745	-65.380	0.7	2.0D	>99.9	227	17	28.4	126	31	17.5	341	53	68	0.08	4	335	..	D	1	
	327	1976	8	1	21	48	16.600	18.726	-67.747	7.3	3.0D	18.4	323	5	2.7	56	30	8.3	225	59	68	0.15	7	277	92	D	1	
	328	1976	8	1	22	33	59.340	18.513	-67.421	46.2	3.3D	20.8	304	15	6.4	41	23	8.7	184	61	68	0.26	9	307	66	D	1	
	329	1976	8	2	5	34	.....	18.285	-66.042	125.1	1.7D	14.1	185	4	10.8	93	31	4.8	281	58	68	0.24	9	286	72	D	1	
	330	1976	8	5	00	20	3.100	18.239	-66.173	70.0	1.3D	33.3	36	14	12.6	292	42	15.1	141	44	68	0.27	5	129	58	D	1	
	331	1976	8	5	2	32	33.340	18.085	-67.096	11.6	0.8D	4.8	176	7	7.4	81	36	18.0	275	53	68	0.11	5	182	37	D	1	
	332	1976	8	5	2	32	56.920	18.086	-67.073	9.0	1.7D	1.5	18	15	1.7	117	30	4.5	265	55	68	0.22	12	162	37	C	1	
	333	1976	8	5	3	4	28.090	18.069	-67.139	17.3	2.1D	2.1	348	16	2.5	92	39	7.5	241	46	68	0.21	11	222	39	D	1	

Table 5.--Catalog of 1976 earthquakes located by the HYPOELLIPSE program--Continued

Catalog		Origin time (UTC)						North	East	Focal	Error ellipsoid axes												Rms No.			Hypo			
Name	Index	yr	mo	d	h	min	s	latitude (deg)	longitude (deg)	depth (km)	M	a(km)	Tr	Pl	b(km)	Tr	Pl	c(km)	Tr	Pl	%	(s)	ob	Gap	DM	Q	auth	*	
PRN76	334	1976	8	5	7	26	23.990	18.654	-66.121	71.8	1.8D	2.6	299	20	5.6	44	36	9.3	186	47	68	0.18	11	266	68	D	1		
	335	1976	8	5	22	46	51.490	18.069	-67.100	14.7	0.7D	8.4	163	11	40.4	258	26	4.3	52	61	68	0.02	5	197	44	D	1		
	336	1976	8	6	9	15	22.260	18.309	-67.161	15.3	1.1D	7.3	276	16	1.3	175	34	2.1	28	51	68	0.09	6	216	34	D	1		
	337	1976	8	6	16	46	24.040	18.424	-66.295	.....	1.2D	3.0	277	0	10.6	7	0	>99.9	90	90	68	0.14	6	267	42	D	1		
	338	1976	8	8	00	41	38.600	18.068	-67.150	17.3	0.6D	26.9	248	23	5.8	350	25	17.9	121	54	68	....	5	230	39	D	1		
	339	1976	8	8	11	3	0.310	18.066	-67.173	15.3	1.6D	9.0	241	10	3.1	146	22	1.8	353	65	68	0.26	10	244	40	D	1		
	340	1976	8	8	22	58	16.040	17.627	-65.993	14.4	3.4D	3.3	244	0	14.1	154	1	>99.9	333	88	68	0.18	9	280	75	D	1		
	341	1976	8	8	23	2	13.380	17.994	-66.734	14.5	0.8D	5.5	254	17	21.9	150	38	16.6	4	46	68	0.02	5	262	42	D	1		
	342	1976	8	8	23	21	9.740	18.794	-66.089	50.6	1.7D	3.3	285	6	4.3	18	26	37.7	183	63	68	0.20	9	291	87	D	1		
	343	1976	8	11	21	29	53.570	18.676	-66.887	15.8	1.5D	2.0	280	0	3.0	10	0	>99.9	90	90	68	0.13	8	310	72	D	1		
	344	1976	8	12	7	58	55.510	19.385	-67.242	14.5	3.8D	3.9	60	9	46.4	157	39	18.1	320	49	68	0.15	10	315	..	D	1		
	345	1976	8	12	8	46	17.530	19.288	-67.196	10.5	2.5D	2.7	195	23	4.5	92	26	28.7	320	53	68	0.15	10	312	..	D	1		
	346	1976	8	12	18	50	10.990	18.299	-66.853	3.3	...	1.4	357	13	0.8	91	16	3.9	230	69	68	0.08	7	153	32	C	1		
	347	1976	8	13	20	15	17.770	18.213	-66.177	8.2	1.2D	4.7	178	11	26.1	272	20	19.1	60	66	68	0.07	5	209	34	D	1		
	348	1976	8	13	21	48	39.940	18.526	-65.851	24.0	2.7D	14.2	98	32	20.6	211	32	4.6	335	41	68	0.25	8	309	93	D	1		
	349	1976	8	14	4	22	53.120	17.987	-67.009	13.0	1.1D	3.1	346	11	2.4	82	28	8.2	237	59	68	0.11	6	207	35	D	1		
	350	1976	8	14	13	21	54.560	17.653	-65.976	18.5	1.3D	4.7	135	2	2.2	225	3	42.2	11	86	68	0.18	9	292	73	D	1		
	351	1976	8	15	8	36	6.510	19.075	-66.590	44.5	...	28.0	3	0	2.9	93	3	12.6	273	87	68	0.10	7	295	98	D	1		
	352	1976	8	15	13	8	45.460	18.043	-66.807	13.2	2.3D	0.6	83	19	1.1	191	42	1.6	335	41	68	0.09	10	179	30	C	1		
	353	1976	8	15	15	19	12.110	19.135	-66.510	37.1	2.4D	6.3	295	3	9.4	25	10	37.7	189	79	68	0.28	10	300	..	D	1		
	354	1976	8	16	4	15	49.760	18.568	-66.750	18.3	2.5D	1.3	86	6	2.8	177	11	3.2	328	77	68	0.14	12	230	47	D	1		
	355	1976	8	16	4	58	33.490	18.913	-66.441	70.8	1.9D	7.2	261	2	9.8	353	42	75.6	168	47	68	0.23	6	297	98	D	1		
	356	1976	8	16	11	29	15.270	18.098	-65.750	8.4	1.8D	6.5	117	15	8.4	214	25	4.1	359	60	68	0.24	8	313	48	D	1		
	357	1976	8	16	12	3	17.840	17.832	-67.169	6.5	1.2D	7.2	178	4	22.3	268	7	49.2	58	81	68	0.07	5	309	57	D	1		
	358	1976	8	17	18	15	52.100	17.979	-67.070	16.2	0.7D	5.5	141	7	5.8	45	42	15.5	238	47	68	0.22	6	249	42	D	1		
	359	1976	8	18	00	25	2.730	17.396	-67.780	0.6	0.8D	40.2	50	18	4.4	311	24	3.5	173	59	68	0.05	6	322	<1	D	1		
	360	1976	8	18	19	17	11.420	18.309	-66.926	17.0	1.2D	3.2	176	5	1.8	85	10	16.3	292	78	68	0.15	7	148	38	C	1		
	361	1976	8	21	18	33	16.540	18.569	-66.905	19.6	2.1D	1.7	86	8	4.4	182	39	5.9	347	49	68	0.18	11	239	47	D	1		
	362	1976	8	21	23	21	18.780	18.257	-66.305	19.2	2.1D	2.5	190	5	1.0	280	8	4.5	68	80	68	0.20	14	141	32	C	1	*	
	363	1976	8	21	23	51	11.250	18.280	-66.307	20.2	0.9D	1.3	269	2	3.2	359	5	4.6	157	84	68	0.19	10	197	32	D	1	*	
	364	1976	8	22	2	16	27.580	18.243	-66.302	19.1	0.8D	5.3	352	0	2.9	262	12	7.6	82	78	68	0.28	9	175	32	D	1	*	
	365	1976	8	22	4	57	9.280	18.283	-66.295	64.1	1.4D	9.7	189	3	2.6	280	16	4.9	88	73	68	0.24	11	168	34	D	1		
	366	1976	8	22	5	55	43.210	19.007	-65.231	16.0	2.7D	46.3	312	0	>99.9	42	0	>99.9	90	90	68	0.12	4	343	..	D	1		
	367	1976	8	22	11	46	40.660	19.019	-65.577	26.5	3.3D	2.5	307	0	20.9	37	0	>99.9	90	90	68	0.08	9	311	..	D	1		
	368	1976	8	22	13	26	8.410	17.460	-67.340	7.9	2.1D	11.9	26	20	5.9	131	35	7.2	273	48	68	0.35	10	255	88	D	1		
	369	1976	8	22	21	17	5.370	18.362	-65.835	16.8	2.4D	49.6	47	27	4.2	295	37	5.4	164	41	68	0.20	7	292	37	D	1		
	370	1976	8	23	16	18	23.840	18.033	-66.188	0.4	0.4D	3.9	280	0	9.8	10	0	>99.9	90	90	68	0.11	5	202	45	D	1		
	371	1976	8	23	21	5	11.410	18.240	-67.047	22.3	0.8D	5.1	157	15	9.6	61	21	28.3	279	63	68	0.02	5	136	26	D	1		
	372	1976	8	24	10	40	11.250	18.224	-66.391	25.7	2.0D	1.7	280	12	4.1	182	32	4.6	28	55	68	0.29	12	128	28	C	1		
	373	1976	8	26	2	1	29.280	18.235	-66.929	15.1	0.8D	8.5	22	3	5.2	112	5	19.7	262	84	68	0.26	6	170	30	D	1		
	374	1976	8	26	9	13	16.250	18.278	-66.253	53.0	1.3D	1.9	285	6	5.2	191	31	4.7	25	58	68	0.22	10	152	41	D	1		
	375	1976	8	27	7	1	8.080	18.091	-66.236	15.5	0.7D	1.1	357	4	2.4	266	12	0.6	106	77	68	0.06	7	281	34	D	1		

Table 5.--Catalog of 1976 earthquakes located by the HYPOELLIPSE program--Continued

Catalog		Origin time (UTC)						North	East	Focal	Error ellipsoid axes												Rms No.			Hypo		
Name	Index	yr	mo	d	h	min	s	latitude (deg)	longitude (deg)	depth (km)	M	a(km)	Tr	Pl	b(km)	Tr	Pl	c(km)	Tr	Pl	%	(s)	ob	Gap	DM	Q	auth	*
PRN76	376	1976	8	27	8	2	50.540	18.456	-65.498	17.8	3.2D	62.5	242	16	5.3	347	41	10.7	135	44	68	0.23	9	314	72	D	1	
	377	1976	8	27	10	34	4.310	18.505	-66.647	15.0	2.9D	4.3	182	7	1.4	86	40	2.3	280	49	68	0.18	10	206	50	D	1	
	378	1976	8	27	14	4	34.590	18.409	-65.924	5.1	0.4D	5.4	290	6	22.8	198	10	38.6	51	78	68	0.01	5	263	41	D	1	
	379	1976	8	28	2	47	58.400	17.816	-66.957	10.1	1.1D	3.0	16	16	0.5	116	31	48.2	263	54	68	0.03	6	249	69	D	1	
	380	1976	8	28	18	59	41.110	18.157	-66.813	11.4	1.2D	0.4	85	9	1.2	352	18	0.9	200	69	68	0.06	9	143	34	C	1	
	381	1976	8	29	1	22	43.110	18.554	-65.639	36.5	1.5D	22.7	318	9	63.5	224	25	28.0	67	63	68	0.11	5	325	64	D	1	
	382	1976	8	30	1	00	11.640	17.957	-65.444	0.5	1.8D	3.2	86	16	6.5	341	42	3.9	191	43	68	0.07	6	329	77	D	1	
	383	1976	8	30	9	15	22.130	18.020	-65.609	14.6	1.0D	8.8	195	7	16.6	288	26	7.3	91	62	68	0.08	5	314	65	D	1	
	384	1976	9	1	17	18	27.070	18.308	-66.854	1.7	0.8D	3.6	87	1	15.7	357	1	>99.9	221	88	68	0.06	5	227	33	D	1	
	385	1976	9	1	22	47	49.120	17.864	-66.130	7.1	1.2D	1.2	266	3	2.8	175	11	12.0	12	78	68	0.13	9	240	47	D	1	
	386	1976	9	2	11	48	21.250	17.914	-66.264	.....	1.7D	0.9	264	0	3.0	354	0	>99.9	90	89	68	0.17	11	207	43	D	1	
	387	1976	9	3	7	56	42.690	18.148	-67.368	16.1	...	12.7	214	4	16.1	304	4	>99.9	78	84	68	0.10	5	285	41	D	1	
	388	1976	9	3	10	8	28.070	18.922	-67.010	21.5	2.2D	3.1	69	25	43.4	175	31	9.7	308	48	68	0.15	8	297	94	D	1	
	389	1976	9	5	7	1	49.440	18.320	-67.048	12.2	1.0D	8.8	236	10	3.2	143	15	23.4	358	71	68	0.01	5	158	48	D	1	
	390	1976	9	6	8	44	37.190	17.799	-66.163	14.2	1.3D	1.7	132	17	1.2	26	42	0.7	238	43	68	0.10	11	239	54	C	1	
	391	1976	9	7	20	57	20.760	17.803	-66.864	10.0	1.1D	4.7	86	4	13.9	177	16	>99.9	343	73	68	0.21	5	278	50	D	1	
	392	1976	9	8	22	2	5.040	18.842	-68.093	7.2	2.6D	17.1	143	26	53.1	38	28	>99.9	268	50	68	0.10	5	343	..	D	1	
	393	1976	9	10	3	22	38.600	18.347	-66.195	19.7	0.9D	1.3	206	15	2.6	302	23	1.0	85	62	68	0.03	6	287	35	D	1	
	394	1976	9	12	2	48	13.610	17.961	-67.109	14.7	1.3D	2.8	208	13	1.5	304	24	0.5	91	62	68	0.04	6	283	51	D	1	
	395	1976	9	13	23	30	35.350	18.027	-66.562	13.6	1.7D	1.7	0	16	1.0	256	42	0.9	107	43	68	0.11	10	179	45	C	1	
	396	1976	9	14	00	41	59.820	18.609	-66.111	77.5	1.7D	11.8	173	22	3.1	276	28	4.9	50	52	68	0.20	10	265	55	D	1	
	397	1976	9	14	6	15	10.730	19.243	-65.700	0.7	3.2D	29.9	214	13	5.1	115	34	2.0	321	52	68	0.11	9	311	..	D	1	
	398	1976	9	14	22	57	43.080	17.925	-67.011	13.9	0.1D	10.4	14	14	5.2	110	22	19.3	255	63	68	0.01	5	251	38	D	1	
	399	1976	9	15	2	39	44.370	17.953	-66.981	9.4	1.2D	2.5	359	14	0.8	93	15	3.7	228	69	68	0.11	9	228	34	D	1	
	400	1976	9	15	12	31	32.470	18.480	-65.989	121.7	1.9D	16.8	175	20	5.3	281	37	13.0	62	46	68	0.28	11	240	44	D	1	
	401	1976	9	15	14	49	31.520	18.104	-67.200	19.3	1.0D	3.7	32	2	4.2	124	45	7.7	301	44	68	0.11	6	283	55	D	1	
	402	1976	9	17	20	6	11.640	18.098	-66.479	1.6	1.3D	1.0	91	1	2.8	181	4	36.5	347	85	68	0.20	10	162	35	C	1	
	403	1976	9	17	20	40	18.860	18.072	-66.588	8.2	0.7D	4.7	219	4	9.4	127	25	22.8	317	64	68	0.15	5	177	47	D	1	
	404	1976	9	17	21	40	44.340	18.132	-66.472	14.3	0.4D	3.8	88	15	10.7	186	28	27.7	333	57	68	0.10	5	156	34	D	1	
	405	1976	9	18	3	51	32.930	19.150	-65.790	19.8	1.8D	>99.9	201	10	22.5	104	36	15.0	304	52	68	0.25	6	327	..	D	1	
	406	1976	9	18	12	16	56.400	18.171	-66.844	10.0	0.8D	2.4	269	1	9.0	179	41	4.9	1	48	68	0.26	7	170	27	D	1	
	407	1976	9	18	14	30	16.490	17.831	-66.786	7.0	1.6D	1.3	100	13	2.5	201	40	4.6	356	47	68	0.18	11	225	43	D	1	
	408	1976	9	21	15	36	35.460	18.058	-66.940	23.2	0.9D	1.4	96	11	2.9	0	27	7.4	206	60	68	0.07	6	161	27	C	1	
	409	1976	9	22	2	39	36.290	18.126	-66.524	54.5	1.3D	3.1	84	4	8.9	175	19	5.7	343	70	68	0.23	10	179	43	D	1	
	410	1976	9	22	13	46	51.810	17.377	-66.843	42.6	...	4.5	105	12	23.9	200	21	62.5	348	65	68	0.10	6	286	..	D	1	
	411	1976	9	23	3	44	16.550	18.122	-67.015	8.7	1.4D	3.7	356	3	1.6	88	38	6.6	263	51	68	0.32	12	110	34	C	1	
	412	1976	9	23	7	45	24.010	18.847	-66.245	25.3	1.6D	22.5	184	5	5.4	278	37	10.0	87	52	68	0.15	6	298	82	D	1	
	413	1976	9	24	1	40	22.670	18.117	-67.067	.....	1.4D	1.8	26	1	2.0	116	3	8.4	278	86	68	0.18	8	153	34	C	1	
	414	1976	9	26	5	25	24.200	18.757	-66.543	52.9	1.9D	1.9	267	1	2.7	358	33	10.7	175	56	68	0.22	15	263	66	D	1	
	415	1976	9	26	14	42	7.290	18.237	-67.066	15.1	0.4D	25.3	308	22	16.6	206	27	3.4	72	53	68	0.29	6	259	45	D	1	
416	1976	9	26	22	41	36.790	18.269	-66.264	65.4	2.0D	2.5	280	13	6.4	185	19	4.2	43	66	68	0.22	11	146	36	D	1		
417	1976	9	27	5	57	59.200	19.268	-66.087	10.0	...	18.3	281	5	90.9	15	39	>99.9	185	50	68	0.12	5	323	..	D	1		

Table 5.--Catalog of 1976 earthquakes located by the HYPOELLIPSE program--Continued

Catalog		Origin time (UTC)						North	East	Focal	Error ellipsoid axes												Rms No.				Hypo			
Name	Index	yr	mo	d	h	min	s	latitude (deg)	longitude (deg)	depth (km)	M	a(km)	Tr	Pl	b(km)	Tr	Pl	c(km)	Tr	Pl	%	(s)	ob	Gap	DM	Q	auth	*		
PRN76	418	1976	9	27	7	12	32.310	19.145	-66.638	31.0	2.3D	3.6	85	1	5.6	355	8	58.6	182	81	68	0.23	11	295	..	D		1		
	419	1976	9	30	20	5	31.720	18.105	-66.485	1.1	1.4D	1.4	91	1	4.4	181	2	72.4	335	87	68	0.27	10	159	35	C		1		
	420	1976	9	30	22	7	48.050	18.092	-66.455	0.3	0.8D	1.6	273	0	4.6	183	1	>99.9	3	88	68	0.26	9	165	32	C		1		
	421	1976	10	1	9	6	5.270	18.885	-65.709	16.3	2.2D	26.2	206	24	1.6	310	28	6.6	81	51	68	0.06	7	311	96	D		1		
	422	1976	10	2	1	45	2.490	17.885	-65.550	31.5	1.1D	49.7	195	18	16.0	98	21	33.5	322	61	68	0.39	6	327	68	D		1		
	423	1976	10	3	3	46	23.470	19.094	-66.103	18.3	3.0D	1.8	283	11	15.5	189	18	5.4	43	68	68	0.10	9	299	97	D		1		
	424	1976	10	3	10	4	8.240	18.141	-66.047	33.0	1.2D	1.6	263	1	1.9	353	6	3.0	163	83	68	0.10	8	124	20	B		1		
	425	1976	10	4	22	55	11.680	17.773	-66.732	0.7	...	6.3	238	0	22.8	148	1	>99.9	327	88	68	0.05	5	286	58	D		1		
	426	1976	10	5	4	40	12.910	18.928	-66.426	22.9	1.8D	5.3	31	6	2.6	298	22	9.1	136	67	68	0.20	9	279	95	D		1		
	427	1976	10	6	8	19	44.550	17.894	-65.986	9.7	1.0D	0.6	103	2	1.0	193	8	2.1	0	81	68	0.02	6	299	47	C		1		
	428	1976	10	6	8	21	7.790	17.881	-65.984	10.6	0.3D	0.6	264	9	1.0	167	35	2.5	7	53	68	0.02	6	303	49	C		1		
	429	1976	10	7	6	4	3.880	18.227	-67.161	16.1	3.3D	7.3	267	24	3.0	14	32	3.2	147	47	68	0.33	12	211	22	D		1		
	430	1976	10	7	6	12	54.760	18.249	-67.221	28.4	1.1D	2.8	176	8	8.5	267	8	7.3	41	78	68	0.24	8	239	30	D		1		
	431	1976	10	7	6	27	46.630	18.237	-67.165	22.0	1.5D	0.9	170	7	2.9	265	37	2.0	70	52	68	0.10	10	214	27	D		1		
	432	1976	10	7	23	16	35.850	18.227	-67.179	22.0	2.5D	1.2	85	5	1.6	353	32	1.5	182	57	68	0.14	12	121	22	B		1		
	433	1976	10	8	19	31	34.370	18.657	-66.902	18.6	1.7D	9.1	349	1	4.5	79	5	54.6	248	84	68	0.32	8	250	70	D		1		
	434	1976	10	8	22	18	43.220	17.892	-65.983	11.5	0.5D	6.7	268	16	12.1	167	34	43.2	20	51	68	0.03	5	300	48	D		1		
	435	1976	10	9	3	7	48.300	17.882	-65.989	9.2	0.4D	5.6	262	8	11.3	168	28	32.8	7	60	68	....	5	302	49	D		1		
	436	1976	10	9	21	27	38.070	18.983	-65.426	8.9	2.3D	15.3	313	16	7.1	213	30	73.0	68	55	68	0.17	6	321	..	D		1		
	437	1976	10	10	4	18	9.340	17.878	-65.988	9.6	0.2D	0.6	264	8	1.2	169	31	3.2	7	57	68	0.03	6	303	49	C		1		
	438	1976	10	10	12	45	4.040	18.227	-67.174	21.2	3.0D	2.0	170	4	1.7	79	15	2.7	274	74	68	0.21	14	120	22	C		1 *		
	439	1976	10	11	23	38	26.070	18.233	-67.181	20.9	2.5D	1.7	6	24	3.9	258	36	1.5	123	44	68	0.21	18	221	22	D		1		
	440	1976	10	12	4	46	30.710	18.584	-67.441	12.4	2.9D	4.8	136	8	2.3	44	13	1.4	256	74	68	0.10	11	311	74	D		1		
	441	1976	10	12	8	7	56.760	17.442	-66.169	11.7	2.9D	2.1	255	1	10.3	165	2	46.6	12	87	68	0.13	10	281	87	D		1		
	442	1976	10	13	16	13	48.240	18.544	-67.084	7.9	1.5D	25.1	305	16	10.3	47	35	30.7	195	50	68	....	5	297	59	D		1		
	443	1976	10	14	9	36	45.000	18.490	-66.724	121.3	2.0D	2.0	264	0	9.6	174	18	2.9	353	72	68	0.20	15	235	52	D		1		
	444	1976	10	14	10	51	3.340	17.940	-66.997	9.7	0.8D	3.5	5	2	1.0	95	11	4.7	265	78	68	0.07	6	239	36	D		1		
	445	1976	10	14	13	23	30.150	18.280	-65.815	12.0	2.4D	3.7	159	2	11.0	69	17	2.4	255	72	68	0.16	7	263	36	D		1		
	446	1976	10	15	9	48	47.180	18.812	-64.917	10.0	2.5D	43.3	336	23	15.3	229	34	>99.9	93	46	68	0.25	5	345	..	D		1		
	447	1976	10	15	15	54	38.920E	18.454	-67.118	0.1	1.1D	10.8	34	1	15.2	304	1	>99.9	169	88	68	0.34	5	317	49	D		1 *		
	448	1976	10	15	16	45	15.980	17.970	-67.127	15.4	1.3D	1.2	326	8	2.6	234	13	0.7	87	74	68	0.10	9	284	48	D		1		
	449	1976	10	16	00	41	9.580	18.008	-65.392	9.7	1.5D	20.6	346	5	10.6	77	8	8.1	225	80	68	0.01	5	330	81	D		1		
	450	1976	10	16	18	24	58.640	18.508	-66.278	82.1	2.0D	2.6	277	5	8.2	182	40	5.4	13	49	68	0.17	10	214	48	D		1		
	451	1976	10	17	19	2	41.840	17.757	-66.734	10.3	0.6D	5.6	232	9	21.6	140	10	73.4	4	76	68	0.08	5	297	49	D		1		
	452	1976	10	18	23	30	21.790	17.954	-66.776	15.9	0.7D	15.4	176	3	5.2	267	16	43.9	75	73	68	0.05	5	240	41	D		1		
	453	1976	10	19	1	41	18.240	18.618	-67.507	10.6	1.8D	6.6	52	7	10.9	145	27	3.4	309	62	68	0.24	9	315	81	D		1		
	454	1976	10	19	14	53	5.510	18.329	-65.895	36.3	1.6D	2.7	274	15	7.1	12	30	4.8	160	55	68	0.16	8	229	32	D		1		
	455	1976	10	19	20	9	26.650E	18.325	-66.144	.....	1.0D	1.7	246	0	3.6	336	0	>99.9	90	89	68	0.24	7	211	29	D		1 *		
	456	1976	10	20	2	46	11.320	18.777	-66.729	27.4	1.5D	2.4	247	0	9.8	337	0	>99.9	90	89	68	0.14	6	270	81	D		1		
	457	1976	10	21	17	26	28.490	18.230	-67.035	25.8	1.0D	5.5	359	3	>99.9	267	16	29.9	115	72	68	0.05	5	214	25	D		1		
	458	1976	10	23	2	57	50.530	17.989	-65.381	8.6	1.4D	17.2	216	4	33.3	307	16	9.9	112	73	68	0.02	5	331	83	D		1		
	459	1976	10	23	4	52	6.700	18.000	-65.404	6.7	1.4D	6.9	57	16	10.3	159	37	12.7	308	48	68	0.15	6	330	80	D		1		
	460	1976	10	24	2	00	38.970	17.785	-66.782	3.3	1.4D	5.3	253	2	3.6	162	20	9.1	348	69	68	0.24	8	262	54	D		1		

Table 5.--Catalog of 1976 earthquakes located by the HYPOELLIPSE program--Continued

Catalog		Origin time (UTC)						North	East	Focal	Error ellipsoid axes												Rms No.				Hypo		
Name	Index	yr	mo	d	h	min	s	latitude (deg)	longitude (deg)	depth (km)	M	a(km)	Tr	Pl	b(km)	Tr	Pl	c(km)	Tr	Pl	%	(s)	ob	Gap	DM	Q	auth	*	
PRN76	461	1976	10	26	4	38	47.250	18.987	-66.247	19.6	2.5D	1.3	280	17	3.2	181	26	4.1	40	58	68	0.12	13	277	97	D	1		
	462	1976	10	27	5	13	11.110	18.603	-66.375	104.2	1.8D	3.7	280	12	15.3	183	31	5.4	29	56	68	0.24	11	226	59	D	1		
	463	1976	10	27	5	17	13.240	17.846	-65.571	0.4	1.2D	3.2	27	0	1.5	117	1	>99.9	297	89	68	0.05	6	327	68	D	1		
	464	1976	10	27	21	24	5.600	18.580	-66.390	90.5	2.1D	2.4	271	1	10.0	180	21	4.6	4	68	68	0.21	12	222	58	D	1		
	465	1976	10	27	22	27	5.650	18.391	-66.451	103.6	1.8D	2.2	272	4	8.4	179	33	5.8	9	56	68	0.16	11	186	44	D	1		
	466	1976	10	29	3	8	49.410	17.980	-66.452	15.8	0.9D	2.9	8	0	0.9	98	1	>99.9	278	89	68	0.12	9	206	35	D	1		
	467	1976	10	29	5	53	38.400	17.999	-66.459	21.8	...	5.4	92	12	19.5	186	14	44.3	324	71	68	0.02	5	216	35	D	1		
	468	1976	10	29	16	29	55.940	19.358	-67.238	0.2	3.4D	14.1	148	9	4.4	53	31	6.6	252	57	68	0.22	12	314	..	D	1		
	469	1976	10	30	6	20	33.590	18.514	-65.405	12.4	2.0D	8.2	156	3	48.9	246	12	4.3	52	77	68	0.22	9	319	83	D	1		
	470	1976	10	30	11	17	53.040	18.692	-66.487	59.2	1.5D	3.2	278	5	5.6	11	31	9.2	179	58	68	0.20	10	238	58	D	1		
	471	1976	10	30	21	36	43.420	18.188	-67.113	14.0	1.4D	0.9	345	3	2.1	77	38	3.3	252	51	68	0.05	6	188	26	C	1		
	472	1976	10	31	13	30	33.850	17.991	-67.020	14.4	0.8D	2.5	87	18	13.6	184	20	8.1	319	62	68	0.03	5	206	36	D	1		
	473	1976	10	31	22	10	20.800	18.155	-67.330	11.0	2.0D	7.4	140	1	4.6	230	9	2.8	43	80	68	0.25	9	321	69	D	1		
	474	1976	11	2	12	12	13.770	19.074	-66.530	10.5	2.1D	4.7	119	18	6.7	218	24	62.1	357	59	68	0.26	8	290	..	D	1		
	475	1976	11	2	15	16	10.470	18.605	-66.948	13.6	0.8D	5.5	185	2	1.3	93	45	4.8	276	44	68	0.10	7	282	61	D	1		
	476	1976	11	3	00	47	45.030	18.222	-66.438	69.0	1.2D	10.6	180	11	3.3	272	13	6.4	50	72	68	0.24	10	149	32	D	1		
	477	1976	11	3	7	17	59.070	18.131	-67.607	37.1	2.0D	4.2	167	10	41.9	261	21	6.9	53	66	68	0.13	9	315	61	D	1		
	478	1976	11	3	10	12	57.880	17.986	-65.413	15.5	1.3D	19.4	211	6	19.8	305	33	>99.9	111	56	68	0.20	5	330	86	D	1		
	479	1976	11	3	19	32	14.400	18.711	-65.760	27.2	2.5D	4.0	14	18	5.9	116	34	1.7	261	50	68	0.15	11	311	76	D	1		
	480	1976	11	3	23	36	49.640	18.056	-66.218	10.5	0.9D	1.2	272	1	1.8	181	8	4.5	10	81	68	0.18	11	177	32	C	1		
	481	1976	11	6	11	41	58.250	18.334	-65.950	7.6	1.8D	18.0	5	10	4.9	270	28	11.9	113	60	68	0.13	5	211	32	D	1		
	482	1976	11	6	19	36	54.000	18.127	-66.041	23.3	0.7D	0.6	313	13	1.2	51	34	2.5	206	53	68	0.03	6	135	22	C	1		
	483	1976	11	8	12	28	13.310	18.545	-67.542	17.5	2.0D	3.8	217	3	5.0	307	3	58.8	81	85	68	0.14	8	326	76	D	1		
	484	1976	11	9	15	50	57.430	18.807	-66.080	48.8	2.1D	4.2	287	10	8.8	20	17	24.4	167	70	68	0.31	10	270	87	D	1		
	485	1976	11	9	21	20	41.970	17.972	-66.590	10.7	0.7D	3.3	219	18	14.2	325	40	6.4	110	44	68	0.15	6	275	53	D	1		
	486	1976	11	10	5	7	3.840	17.779	-66.771	8.7	1.2D	1.5	258	3	2.9	167	13	17.8	1	76	68	0.08	6	290	55	D	1		
	487	1976	11	11	00	20	56.030	18.198	-67.218	13.7	0.4D	8.4	80	5	3.1	349	18	3.8	185	71	68	0.17	6	238	27	D	1		
	488	1976	11	11	7	9	50.950	17.786	-65.829	16.2	1.2D	21.6	274	0	35.8	4	1	>99.9	184	89	68	0.09	5	321	58	D	1		
	489	1976	11	12	20	11	26.340	18.318	-66.139	0.0	1.8D	0.6	260	0	1.5	350	0	>99.9	90	90	68	0.15	8	176	39	C	1		
	490	1976	11	13	3	43	12.520	17.780	-66.747	9.9	1.1D	11.4	249	5	26.2	157	19	>99.9	353	70	68	0.07	5	292	57	D	1		
	491	1976	11	13	23	8	48.260	19.017	-65.899	21.6	2.2D	3.3	315	18	7.4	208	41	5.4	63	43	68	0.20	9	295	..	D	1		
	492	1976	11	14	8	57	15.340	17.815	-66.783	16.2	0.6D	5.9	252	3	17.0	162	4	>99.9	19	85	68	0.08	5	282	51	D	1		
	493	1976	11	14	9	6	24.710	18.781	-66.230	21.6	1.8D	2.5	281	5	4.0	11	11	35.8	166	77	68	0.10	7	293	75	D	1		
	494	1976	11	14	12	12	55.570	18.463	-65.479	85.9	1.8D	13.8	186	23	7.1	291	31	5.2	66	49	68	0.24	10	316	74	D	1		
	495	1976	11	15	4	9	55.210	19.190	-66.492	29.9	2.6D	3.6	271	0	8.4	1	3	>99.9	181	87	68	0.27	13	289	..	D	1		
	496	1976	11	20	9	17	1.960	18.601	-67.002	24.6	2.2D	2.4	327	25	1.0	73	31	2.7	206	48	68	0.17	16	255	48	D	1		
	497	1976	11	20	14	41	28.650	18.708	-67.398	26.9	2.3D	7.5	205	13	5.6	109	22	2.8	323	63	68	0.24	10	308	84	D	1		
	498	1976	11	21	2	45	17.750	18.454	-65.887	20.3	2.5D	48.4	30	17	7.1	288	34	22.3	143	50	68	0.29	6	285	46	D	1		
	499	1976	11	22	10	40	41.030	18.655	-65.769	49.4	3.1D	3.7	295	25	26.8	41	30	11.3	172	48	68	0.19	10	293	70	D	1		
	500	1976	11	22	22	55	19.780	18.313	-67.076	27.2	0.8D	1.5	163	14	1.8	64	31	3.2	274	55	68	0.15	10	158	34	C	1		
	501	1976	11	23	1	29	0.960	18.635	-66.457	88.2	1.6D	1.8	65	22	12.5	169	30	3.1	305	51	68	0.18	12	256	66	D	1		
	502	1976	11	24	14	9	57.530	17.623	-65.979	26.4	1.7D	9.9	134	10	4.8	231	31	5.6	28	56	68	0.21	7	305	77	D	1		
	503	1976	11	24	20	27	30.680	18.592	-66.448	14.1	1.5D	25.6	341	2	6.0	249	42	>99.9	74	47	68	0.16	4	294	64	D	1		

Table 5.--Catalog of 1976 earthquakes located by the HYPOELLIPSE program--Continued

Catalog		Origin time (UTC)						North	East	Focal	Error ellipsoid axes												Rms No.				Hypo	
Name	Index	yr	mo	d	h	min	s	latitude (deg)	longitude (deg)	depth (km)	M	a(km)	Tr	Pl	b(km)	Tr	Pl	c(km)	Tr	Pl	%	(s)	ob	Gap	DM	Q	auth	*
PRN76	504	1976	11	26	6	43	6.260	17.737	-66.947	40.7	1.2D	0.4	98	12	2.3	359	34	0.6	204	53	68	0.01	6	272	51	C	1	
	505	1976	11	26	12	46	30.440	18.123	-68.008	114.7	3.1D	15.9	338	24	4.6	82	30	14.8	216	50	68	0.21	9	328	98	D	1	
	506	1976	11	26	15	42	27.370E	18.284	-66.131	0.2	1.5D	1.0	87	1	4.8	177	8	87.8	350	81	68	0.13	7	163	50	C	1	*
	507	1976	11	26	16	59	8.150	18.312	-67.243	18.7	1.1D	3.2	282	13	1.3	188	17	5.1	48	68	68	0.08	7	256	37	D	1	
	508	1976	11	27	16	55	15.020	18.536	-65.327	11.6	3.7D	4.6	339	7	14.7	76	44	79.5	242	45	68	0.19	10	322	92	D	1	
	509	1976	11	27	18	35	24.400	17.985	-67.049	6.1	1.7D	1.6	88	19	3.3	348	27	11.8	208	56	68	0.10	6	222	39	D	1	
	510	1976	11	27	19	42	7.360	17.789	-66.806	9.1	1.3D	2.5	239	8	6.1	146	17	31.6	353	71	68	0.19	7	281	48	D	1	
	511	1976	11	28	6	8	24.700	17.621	-65.963	23.7	1.3D	2.8	96	3	2.3	186	14	11.5	355	75	68	0.07	7	333	77	D	1	
	512	1976	11	28	17	50	5.610	19.331	-64.558	17.1	3.5D	40.3	322	0	>99.9	232	0	>99.9	270	90	68	0.32	8	336	..	D	1	*
	513	1976	11	29	21	35	21.020	19.060	-65.490	16.6	2.9D	10.4	7	14	5.8	265	40	20.9	113	46	68	0.32	11	314	..	D	1	*
	514	1976	11	30	3	52	5.580	19.098	-65.589	5.0	3.4D	3.5	309	5	19.1	42	30	49.9	211	59	68	0.15	10	311	..	D	1	*
	515	1976	11	30	4	53	22.790	18.767	-66.532	65.9	2.0D	2.6	84	4	5.7	351	39	18.0	179	50	68	0.27	12	264	83	D	1	*
	516	1976	11	30	7	7	36.470	18.069	-65.682	20.0	2.4D	6.3	189	10	9.9	284	24	>99.9	78	63	68	0.28	4	360	56	D	1	*
	517	1976	11	30	18	32	24.170	19.065	-66.415	5.7	2.5D	1.8	107	11	2.8	203	30	21.2	0	57	68	0.21	14	290	..	D	1	
	518	1976	12	1	11	27	59.130	19.070	-65.586	4.4	2.5D	4.3	26	11	10.0	120	21	2.3	270	66	68	0.14	8	323	..	D	1	*
	519	1976	12	1	22	13	5.990	18.589	-65.613	42.7	1.6D	16.5	309	0	9.8	39	45	23.2	219	45	68	0.26	6	328	69	D	1	*
	520	1976	12	2	20	34	58.510	18.079	-66.472	5.6	1.1D	0.9	94	7	1.8	185	12	19.4	335	76	68	0.11	7	170	34	C	1	
	521	1976	12	3	4	3	56.290	17.778	-66.015	12.7	1.1D	14.8	267	24	11.8	155	40	25.7	20	40	68	0.02	5	319	59	D	1	
	522	1976	12	3	17	51	21.900	18.337	-66.835	17.5	1.5D	4.2	127	2	8.3	217	4	43.5	10	85	68	0.19	6	225	35	D	1	
	523	1976	12	4	10	57	51.390	18.388	-66.337	43.4	1.4D	2.4	78	2	6.1	168	15	4.1	341	74	68	0.24	12	231	36	D	1	
	524	1976	12	4	16	1	59.410	18.387	-65.932	6.2	1.6D	1.7	278	16	5.3	174	41	4.6	25	44	68	0.20	9	251	38	D	1	
	525	1976	12	5	7	58	15.610	17.827	-67.012	15.5	1.3D	29.7	198	3	12.8	290	39	5.6	104	50	68	0.12	5	284	43	D	1	
	526	1976	12	5	11	24	22.050	17.796	-66.923	7.4	0.9D	4.4	97	4	12.2	188	18	75.3	355	71	68	0.05	5	282	46	D	1	
	527	1976	12	6	1	14	23.610	17.806	-67.043	43.0	1.2D	17.6	199	9	3.4	104	29	12.5	304	59	68	0.17	7	270	47	D	1	
	528	1976	12	6	6	11	48.470	18.727	-66.933	63.9	1.8D	2.8	81	19	6.9	184	34	4.4	327	49	68	0.27	15	263	63	D	1	
	529	1976	12	6	7	24	30.050	18.118	-67.016	24.2	0.8D	9.5	158	24	10.2	50	35	25.6	274	45	68	0.10	5	149	36	D	1	
	530	1976	12	6	8	4	48.850	18.125	-66.999	19.9	0.9D	2.9	348	6	1.9	81	24	10.1	245	65	68	0.18	8	114	34	C	1	
	531	1976	12	6	19	19	14.060	18.760	-65.324	27.5	2.4D	6.5	326	0	57.4	236	0	>99.9	270	89	68	0.16	7	319	..	D	1	
	532	1976	12	7	9	21	11.260E	18.253	-66.099	3.9	2.3D	1.6	193	3	1.0	283	4	3.0	66	85	68	0.15	10	132	25	B	1	*
	533	1976	12	7	17	54	53.910	18.306	-66.861	2.2	0.9D	1.0	97	6	2.0	6	15	4.2	208	73	68	0.14	9	154	32	C	1	
	534	1976	12	7	21	11	17.720	18.156	-67.137	18.6	0.4D	11.2	46	0	23.5	315	33	7.6	136	56	68	0.04	5	263	49	D	1	
	535	1976	12	8	9	39	3.690	18.068	-67.264	15.4	...	21.6	239	3	10.6	149	8	6.1	349	81	68	0.02	5	307	61	D	1	
	536	1976	12	8	17	20	48.270E	18.192	-67.147	0.8	0.8D	7.3	238	5	18.2	329	7	86.5	112	81	68	0.20	4	301	51	D	1	*
	537	1976	12	8	18	38	29.880	18.357	-66.832	28.2	...	2.3	110	1	5.6	200	5	15.2	8	84	68	0.16	7	205	33	D	1	
	538	1976	12	8	23	21	41.580	19.217	-67.214	18.1	2.8D	9.8	162	6	3.5	68	30	6.6	262	59	68	0.20	11	311	..	D	1	
	539	1976	12	9	19	22	0.210	17.997	-67.130	19.1	1.0D	3.7	233	21	2.5	131	29	1.5	353	53	68	0.06	6	291	48	D	1	
	540	1976	12	11	6	5	39.230	18.139	-66.048	23.6	1.8D	4.3	66	8	6.2	335	9	21.7	197	77	68	0.06	5	131	27	D	1	
	541	1976	12	11	6	41	8.310	18.252	-66.610	4.3	1.6D	0.7	77	2	1.7	347	12	7.3	177	77	68	0.13	12	156	51	C	1	
	542	1976	12	12	1	24	35.830	19.305	-66.298	22.5	2.5D	16.6	277	0	>99.9	7	0	>99.9	90	90	68	0.03	5	304	..	D	1	
	543	1976	12	12	6	32	29.970	18.492	-67.100	21.6	1.5D	2.4	45	28	7.3	295	33	13.1	167	44	68	0.15	7	280	54	D	1	
	544	1976	12	12	6	58	5.710	17.908	-65.658	21.8	1.3D	10.5	85	17	21.0	186	32	34.6	332	52	68	0.07	5	320	57	D	1	
	545	1976	12	13	1	30	49.940	17.986	-66.739	11.9	2.0D	6.0	343	33	1.2	100	35	1.9	223	37	68	0.19	11	188	37	D	1	
	546	1976	12	13	7	28	38.810	18.030	-65.576	12.9	1.2D	1.1	303	11	1.0	37	21	0.6	187	66	68	0.03	6	317	61	C	1	

Table 5.--Catalog of 1976 earthquakes located by the HYPOELLIPSE program--Continued

Catalog		Origin time (UTC)						North	East	Focal	Error ellipsoid axes												Rms No.			Hypo		
Name	Index	yr	mo	d	h	min	s	latitude (deg)	longitude (deg)	depth (km)	M	a(km)	Tr	Pl	b(km)	Tr	Pl	c(km)	Tr	Pl	%	(s)	ob	Gap	DM	Q	auth	*
PRN76	547	1976	12	13	7	30	48.070	18.277	-66.196	4.9	2.6D	0.8	274	13	1.5	8	19	3.1	151	66	68	0.12	10	181	40	C	1	
	548	1976	12	13	17	3	21.590	17.895	-66.590	14.1	0.8D	27.8	116	12	17.7	15	41	4.6	218	46	68	0.05	5	283	54	D	1	
	549	1976	12	13	21	00	36.440	18.110	-66.481	12.0	0.7D	1.2	93	17	4.6	353	29	3.4	209	55	68	0.13	7	158	35	C	1	
	550	1976	12	14	3	25	25.590	18.131	-66.056	29.6	0.9D	1.2	63	11	1.8	330	14	2.8	189	72	68	0.05	6	147	28	C	1	
	551	1976	12	14	12	27	42.720	18.445	-65.630	22.5	2.8D	5.1	56	6	2.9	149	23	1.3	313	66	68	0.06	8	315	66	D	1	
	552	1976	12	16	8	10	49.310	18.733	-66.267	60.7	3.3D	2.4	270	8	11.9	173	42	14.1	9	46	68	0.12	8	264	70	D	1	
	553	1976	12	16	19	19	50.530	18.835	-65.597	11.1	3.4D	4.8	311	3	29.9	43	27	82.1	216	62	68	0.11	7	310	94	D	1	
	554	1976	12	16	21	10	8.970	19.014	-65.880	8.1	2.5D	3.9	154	3	6.4	63	27	2.9	249	62	68	0.13	8	305	..	D	1	
	555	1976	12	17	18	8	39.820E	18.366	-66.473	1.1	1.1D	4.0	262	0	13.6	352	1	>99.9	171	89	68	0.08	5	212	41	D	1	*
	556	1976	12	17	22	16	18.340	17.942	-66.904	12.3	0.5D	4.0	89	9	19.5	354	29	31.7	194	59	68	0.31	5	229	32	D	1	
	557	1976	12	18	00	12	21.910	18.791	-65.583	13.0	2.4D	2.8	316	5	13.7	49	34	63.6	219	55	68	0.11	8	316	90	D	1	
	558	1976	12	18	12	41	13.320	17.888	-66.919	15.6	...	33.0	186	4	5.2	94	25	7.0	284	64	68	0.15	5	253	37	D	1	
	559	1976	12	19	4	27	52.350	18.412	-65.900	11.1	2.1D	17.4	199	1	5.4	290	39	13.9	107	50	68	0.23	6	274	41	D	1	
	560	1976	12	20	3	4	4.390	18.194	-67.300	23.1	1.0D	7.1	207	19	10.1	101	38	6.4	317	45	68	0.16	6	322	67	D	1	
	561	1976	12	21	20	9	14.700	18.396	-66.019	11.0	1.1D	3.9	269	3	30.0	176	41	14.0	3	48	68	0.04	5	251	41	D	1	
	562	1976	12	23	20	4	9.650	18.550	-66.778	18.5	2.1D	0.7	102	2	1.4	12	4	5.7	218	85	68	0.11	13	218	46	D	1	
	563	1976	12	24	11	29	25.280	18.810	-65.540	26.0	2.0D	7.1	292	13	4.1	196	25	13.5	48	61	68	0.21	9	327	94	D	1	
	564	1976	12	24	20	49	40.370	18.197	-67.530	8.0	1.4D	5.3	323	9	8.5	230	20	9.4	77	67	68	0.27	7	307	51	D	1	
	565	1976	12	24	23	23	51.380	18.969	-65.042	16.7	2.6D	13.7	131	16	3.2	234	38	8.6	22	47	68	0.20	10	340	..	D	1	
	566	1976	12	25	9	00	24.870	19.022	-66.908	44.6	2.9D	4.0	76	7	18.9	344	18	13.5	186	70	68	0.18	10	288	95	D	1	
	567	1976	12	25	21	1	51.980	18.322	-65.746	18.7	2.0D	24.2	64	16	7.3	162	27	6.1	307	58	68	0.29	9	291	43	D	1	
	568	1976	12	26	00	18	38.070	17.819	-66.759	3.1	2.8D	0.8	95	3	2.3	186	9	4.6	347	80	68	0.10	10	226	43	C	1	
	569	1976	12	26	4	6	55.580	18.158	-67.254	0.0	1.2D	3.1	355	1	10.6	264	19	8.4	88	70	68	0.33	10	254	33	D	1	
	570	1976	12	26	7	58	18.690	18.353	-67.218	20.7	1.5D	11.5	291	26	4.6	37	31	3.0	168	47	68	0.29	11	257	41	D	1	
	571	1976	12	26	11	25	3.070	18.373	-67.278	19.5	0.9D	7.0	100	5	2.8	192	22	4.3	358	67	68	0.25	11	280	45	D	1	
	572	1976	12	26	17	37	26.740	18.632	-65.587	14.3	2.1D	3.1	318	2	19.0	50	39	61.6	226	50	68	0.13	7	321	74	D	1	
	573	1976	12	27	7	4	7.580	19.127	-66.262	0.7	2.1D	7.0	13	8	5.4	109	39	3.0	274	49	68	0.23	10	296	..	D	1	
	574	1976	12	28	00	15	39.900	18.562	-67.233	52.4	1.6D	2.7	290	21	1.9	39	40	10.1	179	42	68	0.15	12	295	80	D	1	
	575	1976	12	28	1	51	11.090	18.130	-66.095	31.6	0.8D	11.2	233	7	5.9	325	22	20.5	126	66	68	0.07	5	222	31	D	1	
	576	1976	12	29	9	53	48.860	18.155	-66.176	17.6	1.3D	1.7	260	3	2.5	168	30	7.1	355	59	68	0.25	10	144	37	C	1	
	577	1976	12	30	00	29	5.930	18.029	-65.122	57.1	2.0D	25.5	10	1	14.3	100	30	>99.9	279	59	68	0.01	5	339	..	D	1	
	578	1976	12	30	2	40	5.140	18.009	-67.215	13.3	1.3D	11.6	340	1	23.1	250	18	4.8	74	71	68	0.12	5	306	57	D	1	
	579	1976	12	30	4	10	41.480	18.154	-66.159	14.3	0.6D	0.8	340	2	1.0	71	26	2.1	246	63	68	0.08	8	193	29	C	1	
	580	1976	12	30	10	8	6.690	17.830	-66.761	4.1	1.6D	1.6	91	6	4.0	184	23	7.2	348	66	68	0.18	9	224	42	D	1	
	581	1976	12	30	11	33	11.200	17.784	-66.729	13.1	1.3D	18.5	335	9	4.8	241	21	9.7	87	66	68	0.06	5	284	46	D	1	
	582	1976	12	30	13	22	27.480	18.823	-67.191	26.3	2.0D	11.7	320	16	4.7	224	21	8.8	85	63	68	0.27	9	299	91	D	1	
	583	1976	12	30	14	26	52.440	18.367	-65.855	15.6	2.6D	29.8	44	16	4.3	139	19	1.3	277	64	68	0.12	6	295	37	D	1	
	584	1976	12	31	10	4	19.320	17.790	-66.786	9.4	1.1D	6.2	255	2	31.6	165	3	84.5	19	86	68	0.01	5	281	47	D	1	
	585	1976	12	31	14	1	42.950	18.154	-66.178	17.9	2.0D	1.1	270	1	1.6	0	2	2.2	153	87	68	0.09	8	111	31	B	1	

Table 6.--References for catalog of 1976 earthquakes located by the HYPOELLIPSE program

[Cat, catalog; Auth no., authority number cited in table 5]

Cat Name	Auth no.	References
PRN76	1	U.S. Geological Survey, this report.

Table 7.--Remarks for catalog of 1976 earthquakes located by the HYPOELLIPSE program

Catalog Name	Index	Remarks
PRN76	51	Probable blast attributed to road construction or quarries.
	70	Do.
	100	Do.
	109	Do.
	117	Do.
	118	Do.
	134	Do.
	166	Do.
	175	Do.
	176	One of a large swarm of earthquakes that occurred between 05/12/76 and 05/16/76 in the Puerto Rico Trench, north of the Virgin Islands.
	177	Do.
	178	Probable blast attributed to road construction or quarries.
	185	One of a large swarm of earthquakes that occurred between 05/12/76 and 05/16/76 in the Puerto Rico Trench, north of the Virgin Islands.
	186	Do.
	187	Do.
	229	Probable blast attributed to road construction or quarries.
	243	Do.
	245	One of several hundred aftershocks that were recorded following a magnitude 4.6 earthquake northwest of Puerto Rico in the Puerto Rico Trench.
	246	Do.
	247	Do.
	248	Do.
	249	Do.
	250	Do.
	251	Do.
	253	Do.
	254	Do.
	255	Do.
	256	Do.
	257	Do.
	259	Do.
	260	Do.
	261	Do.
	278	Probable blast attributed to road construction or quarries.
	315	Do.
	317	Do.
	318	Do.
	434	One of a small swarm of earthquakes that were located north of the town of Barranquitas in northeast Puerto Rico.
	435	Do.
	436	Do.

Table 7.--Remarks for catalog of 1976 earthquakes located by the HYPOELLIPSE program--Continued

Catalog	Remarks
Name Index	
PRN76	437 One of a small swarm of earthquakes that were located north of the town of Barranquitas in northeast Puerto Rico.
	438 A large earthquake, magnitude 3.0, that was felt at Mayaguez and orginated ir the Mona Passage.
	447 Probable blast attributed to road construction or quarries.
	455 Do.
	489 Do.
	506 Do.
	512 One of a swarm of several dozen earthquakes that originated in the Puerto Rico Trench, north of the Virgin Islands.
	513 Do.
	514 Do.
	515 An aftershock of a large earthquake that occurred on 11/30/76, north of Puerto Rico in the Puerto Rico Trench.
	516 One of a swarm of several dozen earthquakes that originated in the Puerto Rico Trench, north of the Virgin Islands.
	518 Do.
	519 Do.
	536 Probable blast attributed to road construction or quarries.
	555 Do.

Table 8.--Catalog of 1977 earthquakes located by the HYPOELLIPSE program

[UTC, Coordinated Universal Time; negative latitudes and longitudes are south and west, respectively; M, duration magnitude; a, b, and c, principal axes of confidence ellipsoid; Tr, trend of axis in degrees; Pl, plunge of axis in degrees; %, confidence level; Rms, root mean square of residuals; No. ob, number of observations used in hypocenter computation; Gap, largest azimuthal separation between seismograph stations; DM, distance to third nearest station, in kilometers; Q, quality index; Hypo auth, hypocenter authority meaning person or institution responsible for hypocenter determination, cited by catalog name and authority number in table 9; *, remarks cited by catalog name and index in table 10; leaders (.....) designate instances when data values are unknown or not computed]

Catalog		Origin time (UTC)						North	East	Focal	Error ellipsoid axes										Rms No.		Hypo						
Name	Index	yr	mo	d	h	min	s	latitude (deg)	longitude (deg)	depth (km)	M	a(km)	Tr	Pl	b(km)	Tr	Pl	c(km)	Tr	Pl	%	(s)	ob	Gap	DM	Q	auth	*	
PRN77	1	1977	1	1	7	49	11.940	17.740	-66.770	10.8	1.3D	1.7	232	8	5.1	140	19	32.1	343	69	68	0.12	6	290	52	D	1		
	2	1977	1	1	7	49	48.360	17.765	-66.783	12.3	1.2D	0.8	240	8	2.9	147	15	8.7	357	72	68	0.09	6	286	50	D	1		
	3	1977	1	1	8	43	26.520	18.928	-66.370	42.5	2.0D	1.5	288	6	4.2	19	12	10.4	171	76	68	0.20	15	280	87	D	1		
	4	1977	1	1	10	00	20.410	18.631	-65.543	15.4	2.5D	5.5	323	5	25.9	56	34	>99.9	226	55	68	0.16	8	318	6	D	1		
	5	1977	1	1	13	8	40.490	18.902	-67.210	14.1	3.4D	2.3	56	3	18.0	323	42	36.2	150	47	68	0.13	9	302	..	D	1		
	6	1977	1	1	13	34	39.680	18.856	-67.247	26.5	2.8D	3.8	235	0	26.7	325	0	>99.9	90	89	68	0.16	9	303	95	D	1		
	7	1977	1	2	00	5	51.050	18.853	-66.116	38.4	2.0D	2.2	273	8	3.8	5	17	16.1	158	71	68	0.20	13	283	82	D	1		
	8	1977	1	2	2	14	20.840	17.980	-67.052	4.9	2.1D	3.2	359	19	0.9	101	31	2.7	243	52	68	0.16	11	221	40	D	1		
	9	1977	1	2	8	8	48.960	17.970	-66.512	12.1	0.9D	0.6	112	28	1.2	219	29	2.0	347	47	68	0.09	10	208	41	C	1		
	10	1977	1	2	8	9	40.180	17.957	-66.512	11.3	1.1D	0.7	107	8	2.6	9	43	1.3	205	45	68	0.13	12	210	42	D	1		
	11	1977	1	2	11	22	55.270	19.451	-66.735	28.3	2.6D	7.0	292	0	20.5	22	0	>99.9	90	89	68	0.26	6	320	..	D	1		
	12	1977	1	2	17	3	39.110	18.069	-67.168	23.0	0.8D	32.3	252	27	16.6	2	34	11.1	132	43	68	0.04	5	267	51	D	1		
	13	1977	1	2	23	5	10.550	18.240	-66.306	15.2	1.5D	4.5	357	14	1.5	261	24	2.5	115	61	68	0.27	11	133	31	C	1		
	14	1977	1	3	3	31	18.540E	18.027	-67.082	0.4	1.3D	1.9	131	8	0.9	40	9	5.1	262	77	68	0.10	7	157	42	C	1	*	
	15	1977	1	3	6	3	52.870	19.076	-66.087	48.0	1.9D	3.0	302	16	4.1	37	16	29.5	169	67	68	0.26	12	298	..	D	1		
	16	1977	1	3	8	7	16.440	18.387	-65.702	16.1	2.1D	42.0	237	2	6.7	327	21	9.0	141	68	68	0.20	7	309	49	D	1		
	17	1977	1	3	9	4	43.580	18.740	-67.205	49.6	1.6D	7.2	59	10	20.0	327	11	21.9	190	75	68	0.35	10	297	82	D	1		
	18	1977	1	3	17	11	18.620	17.828	-66.814	12.5	0.8D	1.6	264	1	7.0	174	21	13.2	356	68	68	0.08	6	273	45	D	1		
	19	1977	1	3	22	40	6.440	18.601	-66.990	78.9	...	3.6	198	17	1.6	92	41	1.9	305	43	68	0.06	8	286	63	D	1		
	20	1977	1	4	18	39	31.570	17.870	-65.590	9.7	1.8D	5.6	8	10	4.0	272	30	2.6	115	58	68	0.17	8	319	65	D	1		
	21	1977	1	5	6	3	54.920	18.654	-66.311	31.1	1.5D	3.0	78	1	6.1	348	23	15.7	171	66	68	0.24	8	280	61	D	1		
	22	1977	1	5	8	51	27.850	17.846	-65.604	10.9	1.4D	0.6	286	15	0.7	21	15	0.4	153	68	68	0.02	6	332	76	C	1		
	23	1977	1	5	12	59	45.540	18.573	-66.967	76.9	1.4D	30.5	311	11	46.0	212	42	11.6	53	46	68	0.22	5	281	64	D	1		
	24	1977	1	5	18	33	21.110	18.145	-66.176	16.2	1.5D	1.1	103	7	1.5	195	12	4.4	344	75	68	0.13	9	161	37	C	1		
	25	1977	1	6	10	45	29.990	18.239	-67.078	41.5	1.0D	8.4	98	21	18.4	204	36	12.4	345	46	68	0.23	6	288	46	D	1		
	26	1977	1	7	21	52	37.300	18.111	-66.006	17.8	1.3D	1.0	28	6	0.7	297	11	2.5	147	77	68	0.09	10	140	25	C	1		
	27	1977	1	8	1	3	16.140	18.457	-65.994	20.9	3.1D	>99.9	256	6	12.4	165	7	12.8	27	80	68	0.20	6	329	85	D	1		
	28	1977	1	8	6	8	39.130	18.089	-66.021	17.9	0.7D	2.0	32	7	1.1	301	9	4.1	160	78	68	0.16	10	163	26	C	1		
	29	1977	1	8	11	11	32.800E	18.105	-66.267	0.3	1.1D	8.2	334	0	11.3	244	0	>99.9	270	90	68	0.27	5	289	48	D	1	*	
	30	1977	1	8	17	12	50.920	17.805	-66.928	0.2	1.9D	1.3	94	3	2.8	184	13	7.9	352	76	68	0.20	10	246	45	D	1		
	31	1977	1	8	19	53	57.330	18.160	-67.462	2.2	1.2D	12.6	342	2	8.1	252	3	>99.9	106	86	68	0.11	5	334	83	D	1		
	32	1977	1	8	22	36	43.660	18.948	-67.212	9.7	2.8D	38.5	144	11	6.2	48	27	13.4	254	60	68	0.33	10	304	86	D	1		
	33	1977	1	9	5	49	24.340	17.789	-66.763	11.3	2.9D	4.6	359	23	1.3	103	29	2.7	237	51	68	0.15	10	232	46	D	1		
	34	1977	1	9	23	53	26.560	18.523	-65.512	15.5	2.4D	9.7	324	0	>99.9	234	0	>99.9	270	89	68	0.16	5	327	73	D	1		
	35	1977	1	10	7	8	10.090	17.998	-65.576	16.4	1.2D	1.9	43	2	2.8	134	2	54.0	269	87	68	0.10	7	319	62	D	1		

Table 8.--Catalog of 1977 earthquakes located by the HYPOELLIPSE program--Continued

Catalog		Origin time (UTC)						North	East	Focal	Error ellipsoid axes												Rms No.			Hypo		
Name	Index	yr	mo	d	h	min	s	latitude (deg)	longitude (deg)	depth (km)	M	a(km)	Tr	Pl	b(km)	Tr	Pl	c(km)	Tr	Pl	%	(s)	ob	Gap	DM	Q	auth	*
PRN77	36	1977	1	10	7	40	27.110	17.780	-66.723	16.1	1.1D	10.5	255	1	20.2	165	3	>99.9	4	86	68	0.15	5	295	59	D	1	
	37	1977	1	10	12	44	58.480	18.152	-66.951	18.7	0.5D	11.6	196	8	3.5	104	11	18.9	321	76	68	0.27	6	189	30	D	1	
	38	1977	1	11	14	12	56.780	18.140	-67.790	62.5	2.3D	3.3	286	18	6.4	183	36	10.1	38	48	68	0.20	12	326	78	D	1	
	39	1977	1	12	6	44	2.260	18.469	-67.461	10.1	1.8D	5.6	161	3	11.6	253	29	2.7	65	60	68	0.28	9	316	64	D	1	
	40	1977	1	12	7	11	11.570	17.905	-66.986	8.6	1.2D	23.6	18	3	4.1	108	18	20.9	279	71	68	0.01	5	254	36	D	1	
	41	1977	1	12	15	30	47.110	18.395	-66.409	6.6	...	4.7	266	4	17.1	356	9	>99.9	152	80	68	0.15	5	222	47	D	1	
	42	1977	1	12	19	32	40.660E	18.346	-66.065	0.1	1.4D	4.1	263	0	13.2	353	0	>99.9	90	90	68	0.19	5	210	27	D	1	*
	43	1977	1	13	18	39	4.200	18.698	-66.733	79.9	1.6D	1.0	86	8	4.8	178	15	2.7	329	72	68	0.06	7	243	85	D	1	
	44	1977	1	13	19	14	57.150	18.111	-65.755	0.0	2.6D	2.5	16	1	10.7	286	2	6.1	133	87	68	0.30	9	274	42	D	1	
	45	1977	1	13	22	26	9.880	18.514	-66.203	26.3	1.0D	11.8	43	30	51.0	153	31	6.5	279	44	68	0.11	5	258	45	D	1	
	46	1977	1	14	4	26	14.110	18.189	-67.253	110.3	1.8D	3.5	216	18	5.5	322	41	1.8	107	43	68	0.10	11	251	30	D	1	
	47	1977	1	14	11	35	39.620	17.956	-66.517	8.1	1.3D	1.1	96	13	2.1	191	18	4.2	333	67	68	0.13	8	194	53	C	1	
	48	1977	1	15	8	53	56.580	17.961	-66.285	7.0	1.4D	0.9	261	5	4.5	356	44	2.7	165	45	68	0.24	13	196	40	D	1	
	49	1977	1	15	15	36	6.850	18.088	-66.344	52.8	1.9D	32.3	316	8	16.6	222	29	39.1	60	59	68	0.03	5	327	56	D	1	
	50	1977	1	15	15	49	11.660	18.092	-67.205	24.5	1.0D	3.5	318	1	5.2	49	37	10.9	227	52	68	0.14	6	248	38	D	1	
	51	1977	1	17	16	00	4.380	18.115	-66.995	24.6	1.0D	5.9	197	14	2.9	101	23	10.2	315	62	68	0.18	6	155	34	D	1	
	52	1977	1	17	18	55	32.590	17.945	-66.297	1.9	2.1D	0.9	266	1	2.9	176	3	62.5	15	86	68	0.11	8	199	41	D	1	
	53	1977	1	18	4	19	20.240	18.168	-66.167	17.0	1.3D	2.0	353	0	2.2	83	14	2.6	263	76	68	0.26	11	94	30	C	1	
	54	1977	1	18	20	6	58.380	18.222	-67.273	9.5	1.4D	9.3	59	4	23.9	150	9	35.1	306	80	68	0.19	5	313	65	D	1	
	55	1977	1	18	21	15	0.850	17.977	-66.266	17.8	0.8D	4.5	262	12	11.0	163	35	57.7	8	52	68	....	5	202	41	D	1	
	56	1977	1	18	23	15	45.810	18.103	-66.954	18.8	0.6D	5.0	99	9	8.0	6	17	38.8	215	70	68	0.04	5	134	29	D	1	
	57	1977	1	20	17	45	14.960	18.299	-65.887	11.6	2.2D	7.8	356	4	12.2	89	35	3.2	261	54	68	0.36	8	139	29	D	1	
	58	1977	1	20	19	16	36.020	18.304	-66.868	4.9	1.3D	1.4	85	5	3.6	353	23	5.3	186	66	68	0.17	8	155	33	C	1	
	59	1977	1	20	21	28	49.230E	18.119	-66.482	0.8	1.3D	0.4	89	1	1.2	179	2	20.5	333	87	68	0.33	10	154	35	C	1	*
	60	1977	1	20	22	39	45.420	18.270	-66.041	5.7	1.1D	0.9	260	3	4.3	169	24	11.7	356	65	68	0.15	8	156	29	C	1	
	61	1977	1	21	00	1	7.970	18.823	-67.249	26.2	2.1D	14.1	142	10	3.6	44	38	5.4	244	50	68	0.21	10	302	92	D	1	
	62	1977	1	21	3	32	34.010	18.729	-66.259	60.4	2.9D	1.5	280	6	5.7	188	14	8.1	33	74	68	0.14	12	249	62	D	1	
	63	1977	1	21	4	2	5.950	17.948	-66.293	12.2	1.0D	1.3	91	8	5.0	357	27	3.9	196	61	68	0.19	9	210	40	D	1	
	64	1977	1	21	4	58	36.470	17.804	-66.800	0.2	1.0D	2.3	90	9	5.3	186	33	13.7	347	55	68	0.17	7	243	47	D	1	
	65	1977	1	21	16	52	16.840	18.083	-67.019	11.9	0.8D	2.1	347	6	1.6	79	19	5.8	241	70	68	0.19	8	128	36	C	1	
	66	1977	1	21	22	41	54.250	18.000	-65.846	9.2	1.3D	8.9	307	1	4.5	37	10	3.4	212	79	68	0.18	7	278	34	D	1	
	67	1977	1	22	6	54	14.900	18.611	-67.300	104.1	1.9D	10.0	175	19	4.3	75	26	40.2	296	56	68	0.11	7	301	70	D	1	
	68	1977	1	22	12	36	47.770	18.553	-65.490	15.3	2.9D	5.2	331	3	24.8	63	30	63.9	236	59	68	0.20	10	313	76	D	1	
	69	1977	1	22	22	19	47.230	17.760	-66.767	13.5	1.4D	0.5	248	10	1.7	343	26	1.1	138	61	68	0.02	6	294	50	C	1	
	70	1977	1	24	00	19	21.840	17.922	-65.744	12.3	1.4D	5.2	21	7	4.5	290	12	2.1	141	76	68	0.21	9	296	60	D	1	
	71	1977	1	24	1	48	26.140	17.907	-65.774	9.4	1.3D	6.0	83	26	7.6	336	31	3.2	205	47	68	0.17	7	293	58	D	1	
	72	1977	1	24	6	21	55.090	17.716	-66.752	9.9	1.1D	6.4	250	4	12.5	159	15	>99.9	353	73	53	0.11	5	301	62	D	1	
	73	1977	1	24	21	49	2.330	18.447	-67.442	9.0	1.4D	4.7	43	4	12.5	134	21	3.6	303	68	68	0.31	11	307	61	D	1	
	74	1977	1	25	20	46	26.240	18.845	-65.857	11.9	2.3D	29.0	213	4	3.5	306	43	7.4	118	46	68	0.15	7	291	87	D	1	
	75	1977	1	25	22	6	25.160	19.144	-65.922	18.1	2.1D	10.1	36	3	6.0	304	38	24.7	130	51	68	0.19	7	323	..	D	1	
	76	1977	1	25	22	51	21.360	18.772	-65.804	73.0	1.7D	43.9	193	24	15.3	84	35	6.9	309	45	68	0.27	7	304	82	D	1	
	77	1977	1	26	2	32	17.070	17.842	-66.799	3.0	1.2D	0.6	96	1	1.9	187	4	23.6	353	85	68	0.05	7	224	43	D	1	
	78	1977	1	26	2	59	46.540	17.900	-66.221	13.3	0.7D	2.0	274	1	7.9	4	3	3.9	165	86	68	0.17	7	243	44	D	1	

Table 8.--Catalog of 1977 earthquakes located by the HYPOELLIPSE program--Continued

Catalog		Origin time (UTC)						North	East	Focal	Error ellipsoid axes												Rms No.				Hypo	
Name	Index	yr	mo	d	h	min	s	latitude (deg)	longitude (deg)	depth (km)	M	a(km)	Tr	Pl	b(km)	Tr	Pl	c(km)	Tr	Pl	%	(s)	ob	Gap	DM	Q	auth	*
PRN77	79	1977	1	26	8	56	37.930	19.192	-66.466	7.3	1.9D	2.3	272	0	13.7	2	0	>99.9	90	90	68	0.13	9	289	..	D	1	
	80	1977	1	28	14	41	32.860	18.448	-65.926	10.9	1.9D	4.9	283	13	19.9	16	14	13.0	151	70	68	0.03	5	277	45	D	1	
	81	1977	1	29	11	22	44.630	17.960	-66.527	12.7	1.1D	6.8	252	27	23.3	5	37	4.5	135	40	68	0.04	5	210	64	D	1	
	82	1977	1	30	11	18	22.640	18.035	-67.143	16.1	0.7D	1.0	354	3	2.5	261	40	1.5	88	49	68	0.04	6	263	49	D	1	
	83	1977	1	30	17	6	17.380	18.457	-66.535	90.6	1.7D	6.5	3	0	2.3	93	3	3.7	273	87	68	0.22	14	193	44	D	1	
	84	1977	2	1	4	21	33.200E	18.034	-67.142	0.5	0.6D	18.5	59	2	3.8	329	3	>99.9	182	86	68	0.17	5	247	43	D	1	*
	85	1977	2	1	6	00	48.660	19.019	-65.440	4.6	2.8D	13.0	241	2	7.5	149	39	4.2	333	50	68	0.25	11	315	..	D	1	
	86	1977	2	2	10	26	39.250	18.111	-67.447	11.8	1.1D	6.6	165	5	11.7	71	41	3.8	260	48	68	0.19	6	299	49	D	1	
	87	1977	2	2	14	28	52.460	18.462	-65.890	9.7	1.4D	7.7	272	0	20.3	2	1	45.1	182	89	68	....	5	297	47	D	1	
	88	1977	2	3	14	16	38.460	17.951	-66.302	6.6	1.2D	1.1	269	0	3.3	359	1	20.5	178	89	68	0.14	8	210	42	D	1	
	89	1977	2	3	18	3	38.100	18.306	-66.853	15.6	...	4.4	115	21	14.1	12	31	6.3	233	51	68	0.05	5	183	31	D	1	
	90	1977	2	4	12	26	11.350	18.125	-67.259	20.8	...	8.3	346	1	19.4	77	33	11.9	255	56	68	0.27	5	260	36	D	1	
	91	1977	2	4	20	14	11.080	18.098	-66.484	.....	1.1D	1.4	266	0	4.7	356	0	>99.9	90	90	68	0.27	9	171	35	C	1	
	92	1977	2	4	20	40	36.060	17.967	-66.664	38.9	0.6D	8.8	252	23	28.8	353	25	43.8	124	54	68	0.04	5	257	45	D	1	
	93	1977	2	5	1	53	58.850	18.195	-67.254	14.2	...D	6.8	348	6	17.9	82	33	9.3	249	56	68	0.01	5	252	29	D	1	
	94	1977	2	5	8	6	24.510	18.266	-67.175	22.9	1.1D	3.0	1	1	10.3	270	29	2.6	93	60	68	0.26	11	220	30	D	1	
	95	1977	2	5	9	24	10.760	18.696	-67.448	11.9	2.0D	3.8	186	18	5.8	89	20	2.7	314	62	68	0.23	12	311	80	D	1	
	96	1977	2	5	14	11	7.230	18.668	-66.726	15.9	1.8D	0.9	89	1	2.1	359	13	8.7	183	76	68	0.19	17	238	66	D	1	
	97	1977	2	5	20	50	59.320	18.010	-66.858	9.7	0.6D	0.4	260	7	1.2	352	16	2.8	147	72	68	0.03	6	196	51	C	1	
	98	1977	2	6	2	47	6.300	18.715	-67.490	8.2	2.0D	3.5	94	3	5.7	186	24	2.1	358	65	68	0.19	12	313	85	D	1	
	99	1977	2	6	15	38	16.720	18.190	-67.093	16.9	0.6D	19.5	263	7	6.3	355	16	8.7	150	72	68	0.08	5	177	25	D	1	
	100	1977	2	6	22	1	12.880	17.835	-66.403	23.4	1.0D	1.2	95	3	3.0	186	25	7.9	359	64	68	0.15	10	209	38	D	1	
	101	1977	2	6	23	50	44.530	18.246	-67.437	74.2	1.7D	3.4	2	3	2.1	95	41	2.6	269	48	68	0.10	12	295	45	D	1	
	102	1977	2	7	1	15	11.540	18.188	-67.299	31.5	2.0D	30.2	272	30	6.2	159	34	3.8	33	41	68	0.18	9	292	67	D	1	
	103	1977	2	7	6	37	14.590	18.675	-65.403	19.5	2.3D	>99.9	230	13	17.4	131	35	7.7	337	52	68	0.23	8	325	90	D	1	
	104	1977	2	8	00	48	33.390	18.412	-67.425	20.2	1.4D	4.9	317	2	5.1	227	5	13.9	69	84	68	0.15	7	307	57	D	1	
	105	1977	2	8	21	54	40.080	18.410	-67.383	23.2	1.3D	2.8	342	2	4.3	250	39	11.7	75	50	68	0.13	7	303	54	D	1	
	106	1977	2	12	1	53	10.500	18.099	-67.073	22.1	1.1D	5.8	343	21	3.2	82	22	13.5	214	58	68	0.32	8	162	36	D	1	
	107	1977	2	12	22	23	3.930	18.242	-66.618	15.1	1.5D	1.4	164	6	2.8	259	40	0.6	66	49	68	0.17	14	135	27	C	1	
	108	1977	2	13	6	18	52.980	17.928	-65.842	16.9	1.1D	5.7	316	12	11.7	51	23	3.5	201	63	68	0.21	8	311	52	D	1	
	109	1977	2	13	8	29	1.190	17.783	-66.750	0.1	1.1D	1.8	89	1	3.7	180	3	13.3	341	86	68	0.26	11	232	46	D	1	
	110	1977	2	14	5	3	54.600	18.142	-67.414	48.2	1.3D	2.9	91	2	6.5	181	15	3.8	354	74	68	0.13	9	330	78	D	1	
	111	1977	2	14	5	28	26.740	18.067	-67.114	11.7	1.3D	1.6	357	23	2.4	108	40	5.2	246	41	68	0.12	7	203	39	D	1	
	112	1977	2	14	17	46	29.230	18.040	-67.150	18.5	1.1D	8.9	351	29	15.6	104	35	19.9	232	41	68	....	5	265	49	D	1	
	113	1977	2	16	1	4	13.160	18.039	-65.508	12.2	1.8D	2.2	25	5	2.4	293	18	1.5	130	71	68	0.12	8	322	68	D	1	
	114	1977	2	16	8	20	6.400	17.910	-67.072	10.1	1.3D	3.7	28	16	2.1	123	18	11.2	259	65	68	0.09	6	282	44	D	1	
	115	1977	2	16	11	49	3.230	17.981	-67.420	37.4	2.9D	1.8	125	14	7.8	220	23	5.9	5	62	68	0.14	11	264	45	D	1	
	116	1977	2	16	12	13	16.320	18.010	-67.403	38.3	2.4D	2.3	128	15	9.0	231	41	5.3	22	45	68	0.15	11	259	43	D	1	
	117	1977	2	17	11	19	3.980	18.333	-65.891	48.5	2.8D	2.6	261	25	10.1	153	33	14.1	21	46	68	0.08	6	239	33	D	1	
	118	1977	2	17	16	52	6.330E	18.407	-66.024	0.2	1.1D	9.0	346	0	32.0	256	1	>99.9	76	88	68	0.22	5	315	65	D	1	*
	119	1977	2	19	00	4	47.910	17.744	-66.781	5.5	1.1D	2.0	239	4	4.9	148	7	44.0	358	81	68	0.13	6	289	52	D	1	
	120	1977	2	19	7	53	39.190	17.684	-67.838	5.0	3.5D	8.4	342	9	43.7	74	16	1.9	224	71	68	0.10	9	336	..	D	1	

Table 8.--Catalog of 1977 earthquakes located by the HYPOELLIPSE program--Continued

Catalog		Origin time (UTC)						North	East	Focal	Error ellipsoid axes												Rms No.		Hypo			
Name	Index	yr	mo	d	h	min	s	latitude (deg)	longitude (deg)	depth (km)	M	a(km)	Tr	Pl	b(km)	Tr	Pl	c(km)	Tr	Pl	%	(s)	ob	Gap	DM	Q	auth	*
PRN77	121	1977	2	19	10	48	44.790	18.754	-65.572	16.5	3.3D	2.0	319	5	14.6	228	10	7.5	76	78	68	0.07	8	310	94	D	1	
	122	1977	2	19	14	11	37.540	18.736	-65.476	17.1	2.1D	26.3	313	1	>99.9	43	28	>99.9	222	61	68	0.04	5	336	90	D	1	
	123	1977	2	19	15	8	27.360	18.995	-65.245	7.8	2.2D	42.3	318	8	>99.9	223	35	>99.9	60	53	68	0.03	5	343	..	D	1	
	124	1977	2	19	23	8	18.010	18.559	-65.633	23.8	2.4D	18.3	225	3	1.6	318	40	2.6	131	49	68	0.03	6	320	65	D	1	
	125	1977	2	20	10	4	47.960	18.409	-66.029	67.6	1.4D	13.9	174	20	8.0	274	23	11.3	47	58	68	0.31	8	243	35	D	1	
	126	1977	2	20	23	59	46.980	18.364	-66.210	20.0	1.7D	6.1	275	13	>99.9	10	21	14.5	155	64	68	0.28	4	257	48	D	1	
	127	1977	2	21	5	19	15.110	17.987	-66.880	9.6	0.9D	1.1	83	5	5.6	352	12	3.1	195	76	68	0.16	8	207	30	D	1	
	128	1977	2	21	6	18	3.760	18.146	-66.306	18.5	1.2D	0.7	264	4	2.0	355	4	3.0	129	84	68	0.09	8	150	30	C	1	
	129	1977	2	21	10	8	31.130	18.490	-66.474	117.3	2.1D	1.9	86	5	7.4	177	13	4.1	336	76	68	0.12	11	204	45	D	1	
	130	1977	2	23	3	21	5.170	18.013	-65.793	9.6	1.7D	1.5	50	8	2.6	316	26	4.8	156	62	68	0.12	10	290	39	D	1	
	131	1977	2	23	6	47	1.940	18.051	-65.540	13.1	1.4D	2.6	70	1	2.1	339	32	1.2	162	57	68	0.13	9	319	65	D	1	
	132	1977	2	23	13	32	13.770	19.951	-64.336	80.7	2.8D	>99.9	312	3	>99.9	42	9	>99.9	204	80	68	0.13	5	349	..	D	1	
	133	1977	2	25	2	31	54.370	18.438	-66.087	19.2	1.7D	9.3	76	7	>99.9	340	40	18.1	175	49	68	0.13	4	278	37	D	1	
	134	1977	2	25	5	7	10.830	18.681	-65.513	13.9	2.3D	5.0	319	1	39.3	49	25	>99.9	227	64	68	0.14	8	319	83	D	1	
	135	1977	2	25	5	18	36.510	18.988	-65.163	3.7	2.3D	1.4	321	5	0.5	228	31	3.3	60	58	68	0.12	7	339	..	C	1	
	136	1977	2	25	15	21	48.700	17.920	-66.653	22.0	1.0D	2.4	109	27	5.4	219	34	14.4	350	43	68	0.16	7	280	38	D	1	
	137	1977	2	25	22	59	7.410	18.177	-66.494	94.4	1.5D	10.3	3	3	4.1	94	25	11.1	267	64	68	0.12	8	145	21	D	1	
	138	1977	2	25	23	11	3.390	18.165	-65.977	77.6	1.2D	10.5	148	12	7.3	54	21	5.4	266	65	68	0.21	8	119	20	C	1	
	139	1977	2	26	00	53	21.020	17.698	-65.978	11.0	1.3D	6.7	350	10	3.0	255	29	2.0	98	59	68	0.07	6	308	55	D	1	
	140	1977	2	27	5	38	33.990	18.831	-66.844	25.8	1.8D	2.2	227	6	2.7	134	20	33.2	332	68	68	0.15	10	280	94	D	1	
	141	1977	2	27	12	7	10.260	19.012	-65.373	4.4	3.0D	17.2	76	4	9.8	168	34	4.8	341	55	68	0.32	13	318	..	D	1	
	142	1977	3	2	21	9	0.140	17.960	-66.410	9.8	2.1D	1.1	262	20	4.7	4	30	2.6	143	52	68	0.22	14	194	31	D	1	
	143	1977	3	3	4	16	9.260	18.193	-66.084	35.0	1.1D	1.5	281	3	2.1	191	9	2.8	30	80	68	0.13	10	96	25	C	1	
	144	1977	3	3	8	41	46.840	18.989	-67.204	11.5	2.1D	2.0	238	0	4.7	148	39	16.5	327	51	68	0.14	13	304	91	D	1	
	145	1977	3	3	18	37	57.490E	18.299	-66.858	0.3	1.4D	1.0	272	2	1.9	2	2	10.8	137	87	68	0.35	14	101	28	C	1	*
	146	1977	3	7	6	25	54.530	18.674	-66.289	31.5	1.4D	2.2	271	10	2.4	4	16	7.9	150	70	68	0.09	8	309	64	D	1	
	147	1977	3	9	6	18	4.080	18.146	-66.016	18.0	1.4D	1.9	298	3	2.5	29	4	6.4	171	84	68	0.21	9	117	22	C	1	
	148	1977	3	10	1	35	30.480	18.284	-66.392	40.3	1.2D	2.7	30	31	4.2	276	35	8.8	151	39	68	0.14	8	284	32	D	1	
	149	1977	3	10	4	38	56.960	19.012	-65.152	7.1	2.1D	16.8	314	10	6.7	218	31	39.5	60	57	68	0.20	8	344	..	D	1	
	150	1977	3	13	8	43	32.770	18.683	-65.668	21.7	2.8D	34.2	213	20	4.2	317	34	11.4	98	49	68	0.17	9	303	76	D	1	*
	151	1977	3	13	8	46	47.790	18.963	-65.489	8.7	3.3D	3.1	320	7	16.0	57	41	38.3	223	48	68	0.15	13	311	..	D	1	*
	152	1977	3	13	12	29	12.820	19.053	-65.336	5.6	2.6D	18.0	311	4	11.9	219	31	80.6	48	58	68	0.23	7	336	..	D	1	*
	153	1977	3	13	18	31	31.900	18.039	-65.525	9.9	1.4D	6.9	183	11	4.4	281	36	2.3	78	51	68	0.17	8	321	67	D	1	
	154	1977	3	14	7	14	38.560	18.508	-67.388	12.4	1.6D	17.5	162	1	7.3	254	44	3.1	70	45	68	0.33	10	239	62	D	1	
	155	1977	3	15	1	23	55.090	18.291	-67.427	84.8	1.7D	6.2	7	17	2.7	109	34	3.9	255	50	68	0.18	13	201	48	D	1	
	156	1977	3	15	1	44	27.600	18.802	-66.177	32.5	1.5D	1.3	281	9	2.6	13	12	9.4	155	74	68	0.08	10	296	76	D	1	
	157	1977	3	15	5	35	55.690	18.661	-66.924	15.9	...	1.3	349	0	2.1	259	0	>99.9	270	99	68	0.06	7	313	91	D	1	
	158	1977	3	16	18	21	53.850	18.102	-66.460	14.7	0.6D	1.7	275	4	5.6	182	36	8.9	11	53	68	0.12	6	164	24	D	1	
	159	1977	3	19	8	45	12.330	18.548	-65.418	13.2	2.9D	4.7	330	4	65.4	237	43	16.6	65	46	68	0.14	9	326	83	D	1	
	160	1977	3	21	00	27	10.850	17.927	-66.719	12.4	1.3D	3.0	358	27	0.9	106	31	1.5	236	46	68	0.13	12	201	40	D	1	
	161	1977	3	21	1	48	42.940	18.872	-66.354	46.3	1.7D	3.1	283	12	4.1	17	18	16.2	161	68	68	0.13	9	300	87	D	1	
	162	1977	3	22	14	49	47.910	19.057	-66.014	27.5	2.4D	6.8	283	0	36.5	13	0	>99.9	90	90	68	0.20	7	300	..	D	1	
	163	1977	3	22	21	4	34.480	18.033	-67.109	5.4	1.8D	1.6	354	26	18.1	250	28	2.8	121	50	68	0.10	6	217	43	D	1	

Table 8.--Catalog of 1977 earthquakes located by the HYPOELLIPSE program--Continued

Catalog		Origin time (UTC)						North	East	Focal	Error ellipsoid axes.												Rms No.				Hypo		
Name	Index	yr	mo	d	h	min	s	latitude (deg)	longitude (deg)	depth (km)	M	a(km)	Tr	Pl	b(km)	Tr	Pl	c(km)	Tr	Pl	%	(s)	ob	Gap	DM	Q	auth	*	
PRN77	164	1977	3	23	15	54	50.480	17.832	-66.604	7.4	1.3D	1.0	94	9	1.9	189	32	3.6	351	56	68	0.13	12	250	39	C	1		
	165	1977	3	23	17	5	8.970E	18.326	-66.136	0.1	0.6D	4.9	240	0	29.2	330	3	>99.9	149	87	68	0.20	5	239	28	D	1	*	
	166	1977	3	24	16	41	1.110	17.904	-67.010	2.1	1.8D	1.5	116	12	4.3	215	39	7.1	12	48	68	0.29	11	234	47	D	1		
	167	1977	3	24	20	11	52.900	18.854	-66.321	48.1	1.6D	2.1	281	7	3.1	13	23	11.4	175	65	68	0.16	12	298	80	D	1		
	168	1977	3	25	3	36	37.780	19.304	-65.528	2.0	2.5D	5.9	295	19	2.4	194	29	27.0	54	54	68	0.18	8	323	..	D	1		
	169	1977	3	25	5	51	28.160	18.068	-65.543	13.1	1.3D	2.3	29	15	3.3	292	25	1.5	148	60	68	0.09	7	318	64	D	1		
	170	1977	3	25	20	00	58.900	18.221	-66.129	7.7	0.5D	2.9	179	9	5.9	88	11	9.5	307	75	68	0.28	7	108	27	C	1		
	171	1977	3	25	20	3	7.300	18.073	-66.490	10.4	0.8D	1.3	99	1	3.1	9	9	4.0	195	80	68	0.17	9	172	21	C	1		
	172	1977	3	27	3	5	57.420	18.301	-66.150	59.9	1.2D	4.0	5	5	2.5	273	19	3.2	110	70	68	0.17	12	183	23	D	1		
	173	1977	4	1	8	6	46.540	18.182	-66.149	63.3	1.2D	15.1	140	22	3.5	242	26	8.2	15	54	68	0.10	6	120	22	C	1		
	174	1977	4	1	9	5	29.560	18.493	-66.432	44.4	1.4D	15.5	53	4	70.8	145	26	29.1	315	63	68	0.05	5	302	52	D	1		
	175	1977	4	1	17	6	14.050E	18.351	-66.152	0.0	0.9D	3.8	231	0	11.8	321	0	>99.9	90	90	68	0.23	5	248	30	D	1	*	
	176	1977	4	1	23	2	18.320	17.661	-65.719	4.2	1.7D	22.2	236	2	>99.9	146	8	>99.9	339	81	68	0.08	5	318	74	D	1		
	177	1977	4	1	23	5	0.690	18.789	-66.379	57.5	1.9D	1.1	284	7	2.9	16	20	8.0	175	68	68	0.10	12	253	71	D	1		
	178	1977	4	2	3	56	0.090	17.998	-65.542	13.2	1.3D	3.2	220	6	4.4	312	14	1.8	107	74	68	0.12	8	321	66	D	1		
	179	1977	4	2	8	41	16.120	18.008	-66.662	32.3	0.9D	1.8	355	11	0.8	92	33	6.8	250	54	68	0.02	6	259	36	D	1		
	180	1977	4	2	10	59	26.010	18.104	-66.094	29.2	1.1D	1.0	280	0	1.3	10	23	2.0	190	67	68	0.09	10	150	22	C	1		
	181	1977	4	5	13	21	41.750	18.825	-65.318	3.3	3.0D	4.8	330	8	18.8	67	40	55.9	231	48	68	0.18	10	319	..	D	1		
	182	1977	4	7	11	51	23.030	18.786	-65.567	30.4	1.9D	4.5	291	4	3.2	21	7	18.8	171	81	68	0.19	11	327	91	D	1		
	183	1977	4	7	22	39	14.780	17.939	-66.261	8.9	2.4D	1.1	272	3	2.8	180	31	5.6	7	58	68	0.19	13	202	38	D	1	*	
	184	1977	4	7	22	43	16.440	17.921	-66.249	12.3	0.5D	7.1	357	4	2.4	90	36	3.6	262	53	68	0.18	7	264	38	D	1	*	
	185	1977	4	7	22	45	46.280	17.918	-66.254	8.5	0.7D	1.3	102	4	2.4	193	19	8.5	0	70	68	0.06	6	266	38	D	1	*	
	186	1977	4	8	2	6	23.280	17.914	-66.258	7.3	0.5D	5.9	94	1	12.7	185	15	87.5	0	74	68	0.01	5	268	39	D	1	*	
	187	1977	4	8	4	15	33.500	18.685	-65.411	69.3	2.0D	3.9	306	17	2.5	46	30	8.8	191	54	68	0.16	12	331	90	D	1		
	188	1977	4	8	9	37	29.500	17.952	-66.252	11.3	1.0D	1.8	100	4	3.8	191	9	7.7	347	80	68	0.21	9	254	37	D	1	*	
	189	1977	4	8	10	13	0.020	17.935	-66.251	13.0	1.1D	0.8	263	1	2.3	353	22	1.6	170	67	68	0.13	11	215	37	C	1	*	
	190	1977	4	9	16	18	4.410	18.759	-66.390	12.6	1.4D	2.0	321	4	3.1	229	26	0.9	60	63	68	0.05	7	337	74	D	1		
	191	1977	4	10	9	19	34.010	17.929	-66.251	11.0	0.9D	0.8	94	11	1.7	188	22	3.7	340	65	68	0.08	9	262	38	C	1		
	192	1977	4	10	9	20	4.840	17.927	-66.252	9.1	1.1D	0.6	103	11	1.4	196	20	3.1	346	67	68	0.05	8	263	38	C	1		
	193	1977	4	10	9	51	37.710	17.927	-66.249	9.8	0.7D	0.9	85	3	1.7	176	24	4.6	349	65	68	0.10	10	217	37	C	1		
194	1977	4	14	19	00	35.870	18.707	-66.394	60.2	2.1D	2.1	99	2	4.2	7	41	10.4	191	48	68	0.18	12	259	53	D	1			
195	1977	4	16	7	9	20.760	18.745	-65.241	68.0	2.1D	6.0	142	4	1.9	49	40	7.1	236	49	68	0.12	11	329	..	D	1			
196	1977	4	20	23	54	19.450	17.937	-66.165	14.4	0.8D	0.6	280	0	1.7	10	25	1.2	190	65	68	0.10	12	233	29	C	1			
197	1977	4	23	19	2	38.580E	18.298	-66.199	0.2	2.2D	1.0	279	0	2.0	9	0	69.6	90	90	68	0.16	10	161	21	C	1	*		
198	1977	4	25	20	56	4.410	18.605	-66.334	49.8	2.9D	2.5	103	4	6.2	194	16	12.3	0	73	68	0.14	9	235	45	D	1			
199	1977	4	26	20	45	18.920	18.331	-66.142	2.5	1.7D	1.1	281	4	1.8	12	20	4.8	181	69	68	0.18	6	198	24	C	1			
200	1977	4	27	13	13	41.310	18.604	-66.185	14.0	2.9D	10.2	175	4	1.6	268	26	2.3	76	63	68	0.10	7	273	47	D	1			
201	1977	4	28	23	34	58.060	18.516	-67.368	6.6	2.5D	7.0	179	29	4.4	290	32	2.2	56	43	68	0.34	18	236	48	D	1			
202	1977	4	29	21	28	21.430	18.197	-66.099	65.6	1.4D	20.3	347	16	5.6	246	33	13.2	99	52	68	0.25	7	108	27	C	1			
203	1977	4	30	11	51	21.610	18.531	-67.193	14.8	2.5D	6.8	173	11	2.3	73	44	5.1	273	44	68	0.33	14	217	41	D	1			
204	1977	5	2	2	44	17.570	18.115	-65.940	59.6	3.0D	2.9	5	7	1.6	272	26	7.0	109	62	68	0.07	8	144	23	C	1			
205	1977	5	2	16	00	56.360	19.113	-67.404	18.4	4.5D	2.2	72	15	11.3	168	19	5.0	307	65	68	0.20	15	273	..	D	1	*		
206	1977	5	4	10	1	22.110	19.223	-67.450	15.7	3.2D	2.9	81	16	6.5	181	31	15.3	328	54	68	0.20	12	280	..	D	1	*		

Table 8.--Catalog of 1977 earthquakes located by the HYPOELLIPSE program--Continued

Catalog		Origin time (UTC)						North	East	Focal	Error ellipsoid axes												Rms No.			Hypo		
Name	Index	yr	mo	d	h	min	s	latitude (deg)	longitude (deg)	depth (km)	M	a(km)	Tr	Pl	b(km)	Tr	Pl	c(km)	Tr	Pl	%	(s)	ob	Gap	DM	Q	auth	*
PRN77	207	1977	5	7	19	24	47.150	17.994	-66.738	8.3	2.0D	0.8	92	7	1.5	189	44	2.3	355	45	68	0.20	22	186	35	C	1	
	208	1977	5	8	13	43	54.640	17.839	-66.837	9.2	1.8D	4.7	4	21	1.3	105	26	2.3	241	55	68	0.20	13	247	45	D	1	
	209	1977	5	9	4	46	38.840	18.020	-66.762	11.1	1.1D	11.2	303	9	5.5	36	22	2.8	193	66	68	0.23	8	327	46	D	1	
	210	1977	5	9	6	59	59.020	17.940	-66.733	8.4	1.2D	4.9	262	14	7.9	5	40	2.0	156	46	68	0.25	11	299	45	D	1	
	211	1977	5	9	8	4	11.630	17.892	-66.021	9.0	1.7D	0.9	258	6	2.2	167	8	4.7	25	79	68	0.09	10	250	38	C	1	
	212	1977	5	9	8	53	17.950	17.799	-66.787	2.1	1.6D	1.1	98	3	2.4	189	11	5.2	353	78	68	0.20	15	232	47	D	1	
	213	1977	5	9	11	28	43.140	17.899	-66.031	6.0	1.6D	1.6	259	7	6.7	168	7	14.0	34	80	68	0.09	6	263	37	D	1	
	214	1977	5	9	11	30	34.350	17.894	-66.025	4.4	1.3D	1.6	64	1	2.7	154	9	35.1	328	80	68	0.11	7	282	46	D	1	
	215	1977	5	10	1	22	37.150	18.156	-66.124	81.5	1.3D	8.6	352	14	5.2	91	31	4.1	241	55	68	0.23	11	89	23	C	1	
	216	1977	5	10	5	14	24.650	18.569	-66.576	83.5	1.9D	2.2	89	3	8.1	180	31	3.5	355	58	68	0.08	8	240	54	D	1	
	217	1977	5	10	6	13	31.240	17.981	-66.598	14.2	2.3D	4.7	359	15	1.5	96	26	2.0	242	59	68	0.24	13	188	30	D	1	
	218	1977	5	10	20	13	47.350	18.102	-66.496	9.2	0.8D	3.2	89	1	16.2	358	3	25.7	197	86	68	0.26	6	155	20	D	1	
	219	1977	5	13	00	55	38.700	18.419	-66.769	13.0	1.9D	1.8	189	1	1.0	99	18	1.3	282	71	68	0.22	18	134	33	B	1	
	220	1977	5	13	9	51	17.740	19.028	-65.116	20.0	2.5D	58.2	135	4	>99.9	225	11	44.2	25	78	68	0.09	4	344	..	D	1	
	221	1977	5	14	19	13	44.290	18.006	-65.629	12.9	1.1D	11.4	283	5	9.2	15	19	5.9	178	70	68	0.30	6	314	56	D	1	
	222	1977	5	20	16	54	55.210	18.426	-66.069	89.0	1.4D	64.6	180	5	29.7	88	22	16.3	282	67	68	0.12	5	270	46	D	1	
	223	1977	5	22	2	55	0.700	18.155	-66.693	54.3	2.5D	0.6	96	9	1.7	0	33	2.3	199	55	68	0.06	13	82	22	B	1	
	224	1977	5	23	22	47	24.880	18.695	-65.654	67.2	1.9D	7.8	273	4	7.3	181	37	2.6	9	52	68	0.10	7	331	78	D	1	
	225	1977	5	26	2	7	22.610	18.698	-66.119	76.6	1.5D	8.2	169	19	3.7	268	26	4.7	46	57	68	0.06	6	311	73	D	1	
	226	1977	5	26	15	55	16.080	19.161	-66.399	18.3	2.2D	2.3	301	0	3.1	31	11	4.2	211	79	68	0.14	11	305	..	D	1	
	227	1977	5	27	17	40	42.520	18.978	-66.750	31.5	2.1D	2.6	95	1	6.8	5	8	28.3	192	81	68	0.27	15	259	87	D	1	
	228	1977	5	29	10	31	58.240	18.664	-66.875	17.2	1.3D	1.8	259	0	2.0	349	2	59.5	168	88	68	0.06	10	315	70	D	1	
	229	1977	5	29	16	19	2.550	18.010	-65.564	7.6	1.5D	>99.9	296	12	23.6	36	40	10.6	193	47	68	..	4	319	63	D	1	
	230	1977	5	29	22	30	58.500	17.917	-65.833	13.6	0.8D	4.3	331	17	1.9	68	21	0.9	206	62	68	0.05	6	293	44	D	1	
	231	1977	5	31	7	11	2.930	18.443	-67.573	6.6	2.8D	11.0	335	4	3.1	67	19	4.0	234	70	68	0.23	11	225	89	D	1	
	232	1977	6	1	21	36	54.900	17.467	-67.572	21.8	2.4D	1.2	119	18	6.1	18	29	4.0	236	54	68	0.13	11	263	94	D	1	
	233	1977	6	3	00	50	29.830	17.980	-66.408	13.0	1.5D	4.0	359	0	1.4	89	16	2.4	269	74	68	0.18	10	204	30	D	1	
	234	1977	6	3	18	41	31.330	17.986	-67.307	1.4	2.5D	0.6	85	1	1.5	176	25	2.0	353	64	68	0.10	8	197	65	C	1	
	235	1977	6	4	18	54	52.420	18.336	-65.715	15.9	3.4D	3.6	137	1	13.2	47	15	5.8	230	74	68	0.18	9	308	52	D	1	
	236	1977	6	4	22	49	35.350	18.606	-65.230	25.8	3.2D	8.2	15	5	5.7	107	16	4.0	269	73	68	0.10	7	325	..	D	1	
	237	1977	6	7	8	42	19.870	18.512	-68.005	25.5	2.9D	10.6	129	1	3.5	39	38	77.8	220	51	68	0.09	4	304	..	D	1	
	238	1977	6	7	16	7	22.600	18.788	-68.868	33.6	3.5D	9.2	274	2	52.1	4	2	>99.9	139	87	68	0.26	7	347	..	D	1	
	239	1977	6	7	23	28	13.720	18.984	-65.815	27.5	2.4D	1.4	339	0	1.9	249	0	>99.9	270	89	68	0.06	9	322	97	D	1	
	240	1977	6	8	16	21	30.790	18.446	-67.338	40.9	2.2D	8.2	352	9	1.1	85	14	1.7	231	73	68	0.08	7	211	71	D	1	
	241	1977	6	8	23	29	20.040	18.885	-65.493	18.5	2.7D	2.5	273	4	2.0	4	19	4.3	171	70	68	0.08	9	312	..	D	1	
	242	1977	6	9	7	42	18.940	18.372	-67.710	51.0	2.6D	0.9	71	29	2.8	183	34	5.0	311	42	68	0.11	13	229	64	D	1	
	243	1977	6	10	2	29	9.160	19.223	-67.523	41.7	2.3D	2.9	46	10	9.0	313	12	29.4	175	74	68	0.17	8	303	..	D	1	
	244	1977	6	10	9	11	36.700	18.435	-65.654	51.7	1.9D	3.6	80	3	2.7	172	33	1.7	346	56	68	0.06	8	315	55	D	1	*
	245	1977	6	12	1	36	6.220	18.576	-65.690	22.0	2.8D	2.1	282	7	2.7	18	41	7.6	185	48	68	0.09	8	306	64	D	1	*
	246	1977	6	12	3	19	39.730	18.783	-65.550	10.0	2.5D	3.3	26	6	6.6	118	23	1.9	283	66	68	0.05	6	324	98	D	1	*
	247	1977	6	12	14	34	22.620	18.744	-65.344	22.1	2.6D	1.0	234	3	4.0	324	3	1.2	98	85	68	0.05	8	349	..	D	1	*
	248	1977	6	12	14	54	34.450	18.716	-65.569	17.6	2.7D	3.5	49	15	4.2	308	33	16.4	160	52	68	0.07	6	324	91	D	1	*
	249	1977	6	12	19	27	54.840	18.955	-65.351	3.7	3.3D	5.8	81	12	6.5	178	29	1.9	332	58	68	0.10	9	323	..	D	1	*

Table 8.--Catalog of 1977 earthquakes located by the HYPOELLIPSE program--Continued

Catalog		Origin time (UTC)						North	East	Focal	Error ellipsoid axes												Rms No.			Hypo		
Name	Index	yr	mo	d	h	min	s	latitude (deg)	longitude (deg)	depth (km)	M	a(km)	Tr	Pl	b(km)	Tr	Pl	c(km)	Tr	Pl	%	(s)	ob	Gap	DM	O	auth	*
PRN77	250	1977	6	12	19	29	44.110	18.764	-65.580	17.0	2.7D	3.5	265	21	2.2	4	22	18.2	135	58	68	0.05	6	313	..	D	1	*
	251	1977	6	12	19	32	53.080	18.852	-65.320	6.4	3.2D	6.8	65	9	10.7	159	25	2.8	317	63	68	0.17	9	328	..	D	1	*
	252	1977	6	12	19	50	45.230	18.399	-65.828	15.5	2.7D	16.5	7	1	10.6	97	27	2.5	276	62	68	0.02	5	313	47	D	1	*
	253	1977	6	12	19	56	11.850	18.289	-65.241	16.5	2.5D	2.3	258	0	6.2	168	1	>99.9	347	88	68	0.09	7	346	98	D	1	*
	254	1977	6	13	17	00	54.370E	18.232	-65.831	0.6	2.5D	1.0	190	1	2.8	280	1	40.9	54	88	68	0.12	7	274	35	D	1	*
	255	1977	6	13	17	30	40.420	18.168	-67.149	34.0	2.5D	1.9	105	15	4.1	11	16	7.1	236	67	68	0.22	12	144	35	C	1	
	256	1977	6	14	7	55	19.950	18.873	-65.333	11.0	2.6D	4.5	310	3	2.4	218	32	>99.9	45	57	68	0.09	7	335	..	D	1	*
	257	1977	6	17	4	17	34.840	18.310	-65.794	27.0	2.6D	3.2	64	15	1.8	320	43	2.6	169	43	68	0.12	9	294	38	D	1	
	258	1977	6	18	12	26	43.300	18.681	-66.524	25.5	2.2D	1.1	76	23	2.0	330	33	3.0	194	47	68	0.10	11	260	56	C	1	
	259	1977	6	18	13	35	41.390	18.631	-67.938	14.9	3.2D	3.9	217	11	10.9	120	35	38.3	321	52	68	0.15	5	282	..	D	1	
	260	1977	6	23	1	52	35.640	19.050	-67.923	58.9	2.7D	4.3	311	12	2.5	45	18	68.5	190	68	68	0.13	7	295	..	D	1	
	261	1977	6	23	6	5	18.310	18.039	-66.832	14.3	1.4D	0.6	93	28	1.1	202	31	1.4	330	45	68	0.10	10	176	54	C	1	
	262	1977	6	24	14	8	54.920	18.708	-65.399	19.4	2.6D	4.9	136	15	2.6	235	31	3.6	23	54	68	0.09	8	331	92	D	1	
	263	1977	6	25	7	59	27.130	17.962	-67.386	32.8	2.5D	2.0	106	7	4.0	198	15	7.9	352	73	68	0.10	6	205	58	D	1	
	264	1977	6	26	10	16	5.560	18.884	-67.361	2.8	3.7D	65.6	25	8	>99.9	120	35	58.6	284	53	68	0.01	4	354	..	D	1	
	265	1977	6	26	13	21	32.400	19.013	-67.931	1.0	3.7D	3.2	157	14	19.2	253	21	2.4	35	64	68	0.15	10	324	..	D	1	
	266	1977	6	27	17	17	11.530	18.090	-65.811	41.8	1.9D	5.9	316	5	15.8	48	21	8.6	214	68	68	0.06	5	302	55	D	1	
	267	1977	6	29	5	51	20.970	18.241	-67.816	26.6	3.4D	5.4	326	17	1.3	71	40	2.0	219	45	68	0.13	9	211	77	D	1	
	268	1977	6	29	14	8	15.020	18.672	-68.045	1.7	3.1D	3.2	24	28	10.9	130	28	52.5	257	48	68	0.18	5	301	..	D	1	
	269	1977	7	3	1	1	2.940	18.835	-65.342	27.5	2.5D	1.5	242	0	3.9	332	0	>99.9	90	90	68	0.03	5	340	..	D	1	
	270	1977	7	3	15	58	42.960	18.145	-65.993	15.7	2.6D	4.6	14	9	5.9	112	43	2.2	275	45	68	0.27	8	112	22	C	1	
	271	1977	7	5	4	54	6.600	18.729	-65.714	19.3	2.5D	2.4	303	4	26.0	35	24	21.0	205	65	68	0.09	6	321	79	D	1	
	272	1977	7	6	00	9	41.970	18.515	-66.895	17.5	2.3D	1.0	268	1	2.2	178	1	4.6	43	88	68	0.16	11	213	25	C	1	
	273	1977	7	6	8	32	24.030	18.726	-65.647	20.6	2.9D	4.6	266	19	2.8	4	23	10.9	140	59	68	0.11	8	318	86	D	1	
	274	1977	7	8	20	53	47.350	18.338	-67.451	33.1	3.2D	1.9	84	11	10.4	346	36	4.6	188	51	68	0.14	7	150	55	D	1	
	275	1977	7	8	23	12	46.120	18.276	-65.996	123.3	1.8D	9.7	343	4	4.1	252	10	2.6	95	79	68	0.11	8	163	24	D	1	
	276	1977	7	9	5	37	23.360	18.422	-67.493	17.2	2.9D	1.7	77	10	10.5	343	21	3.9	190	66	68	0.11	6	297	99	D	1	
	277	1977	7	11	9	51	59.260	18.158	-65.959	26.7	1.7D	3.0	45	9	1.6	312	16	4.1	164	71	68	0.08	6	131	25	C	1	
	278	1977	7	11	18	49	41.960	18.345	-65.895	16.6	2.8D	1.1	273	21	1.8	174	22	3.1	43	58	68	0.05	6	245	34	C	1	
	279	1977	7	11	23	18	22.710	17.881	-66.548	0.4	1.8D	2.6	272	0	13.6	182	1	>99.9	2	88	68	0.08	5	265	49	D	1	
	280	1977	7	12	7	13	23.860	18.121	-65.996	27.6	1.5D	1.4	195	3	1.2	285	18	2.9	95	71	68	0.07	7	124	25	B	1	
	281	1977	7	12	12	20	44.200	18.042	-66.818	12.1	1.7D	0.8	103	10	1.3	8	27	1.1	211	60	68	0.10	10	176	29	C	1	
	282	1977	7	13	9	10	2.710	18.703	-66.664	10.0	2.0D	3.3	167	7	1.3	73	28	2.6	269	60	68	0.15	10	267	71	D	1	
	283	1977	7	13	12	6	46.130	17.972	-65.556	1.1	3.1D	1.7	314	8	1.4	48	24	0.7	207	64	68	0.05	11	316	65	C	1	
	284	1977	7	13	14	44	56.320	18.533	-68.328	22.4	2.9D	2.4	115	26	1.5	7	33	4.3	235	45	68	0.05	6	323	..	D	1	
	285	1977	7	15	00	11	29.520	18.768	-65.043	20.0	3.1D	22.5	328	0	>99.9	238	0	>99.9	270	89	68	0.05	4	340	..	D	1	
	286	1977	7	15	4	22	45.910	17.906	-65.411	7.0	2.0D	3.5	32	11	4.3	292	43	2.1	134	44	68	0.10	7	328	82	D	1	
	287	1977	7	15	5	9	28.510	17.920	-65.413	8.3	2.0D	2.0	306	17	3.0	44	25	1.2	186	59	68	0.05	6	328	89	D	1	
	288	1977	7	15	6	3	41.310	18.942	-64.673	51.9	2.7D	37.7	149	11	9.5	56	14	>99.9	275	72	68	0.10	5	352	..	D	1	
	289	1977	7	15	6	6	3.510	18.010	-65.586	16.8	2.0D	7.0	340	0	6.0	70	4	53.8	250	86	68	0.18	6	317	61	D	1	
	290	1977	7	15	10	57	10.620	17.958	-65.512	7.0	2.1D	0.8	293	7	1.0	29	36	0.6	194	52	68	0.03	8	322	70	C	1	
	291	1977	7	18	2	29	13.440	17.796	-68.085	42.4	2.9D	4.6	247	14	2.0	145	42	54.9	351	44	68	0.19	7	305	..	D	1	
	292	1977	7	19	1	21	51.940	18.574	-66.478	80.8	1.6D	2.5	271	14	6.2	173	32	1.8	22	54	68	0.10	9	279	46	D	1	

Table 8.--Catalog of 1977 earthquakes located by the HYPOELLIPSE program--Continued

Catalog		Origin time (UTC)						North	East	Focal	Error ellipsoid axes												Rms No.			Hypo		
Name	Index	yr	mo	d	h	min	s	(deg)	(deg)	(km)	M	a(km)	Tr	Pl	b(km)	Tr	Pl	c(km)	Tr	Pl	%	(s)	ob	Gap	DM	O	auth	*
PRN77	293	1977	7	19	4	13	54.900	18.766	-66.124	16.0	1.3D	0.5	261	0	0.7	351	0	71.2	90	90	68	0.06	7	306	72	D		1
	294	1977	7	19	23	22	3.220	19.414	-67.436	50.0	2.6D	9.0	72	9	85.2	340	9	>99.9	205	77	68	0.01	4	310	..	D		1
	295	1977	7	20	7	41	15.660	18.021	-66.776	16.6	1.1D	3.4	351	0	1.8	81	2	97.5	261	88	68	0.21	8	184	49	D		1
	296	1977	7	20	15	34	57.840	18.719	-67.297	21.7	2.3D	2.0	65	28	4.4	316	30	11.1	188	46	68	0.22	9	264	..	D		1
	297	1977	7	21	2	47	40.120	17.505	-67.890	3.1	3.4D	6.8	348	5	37.9	254	41	4.0	84	48	68	0.10	5	291	..	D		1
	298	1977	7	21	20	6	48.980	18.030	-66.206	15.9	1.8D	0.7	97	10	1.2	4	19	2.3	213	68	68	0.08	9	201	29	C		1
	299	1977	7	21	20	46	46.670	18.281	-66.249	30.4	2.1D	3.1	244	3	8.2	153	27	5.0	339	62	68	0.07	5	193	38	D		1
	300	1977	7	22	11	12	1.670	17.889	-68.692	48.0	3.4D	2.1	246	25	14.2	350	27	5.1	119	51	68	0.07	7	348	..	D		1
	301	1977	7	23	8	39	49.450	18.681	-68.377	0.3	3.2D	11.4	256	21	4.8	355	22	8.7	126	58	68	0.07	5	323	..	D		1
	302	1977	7	25	7	27	31.280	18.113	-67.733	46.1	3.1D	7.9	181	11	2.8	87	21	14.9	297	66	68	0.15	7	176	74	D		1
	303	1977	7	26	00	23	19.830	18.198	-66.163	78.0	1.6D	8.3	347	23	4.4	94	35	3.2	231	46	68	0.10	7	134	22	C		1
	304	1977	7	26	16	32	53.380	18.013	-65.731	9.3	2.9D	3.2	125	12	1.7	32	14	1.1	254	71	68	0.05	6	303	46	D		1
	305	1977	7	28	00	3	33.000	17.517	-65.758	29.7	1.7D	5.3	109	5	4.6	199	7	39.0	344	81	68	0.11	6	323	88	D		1
	306	1977	7	28	19	37	24.780	18.420	-66.222	62.4	1.3D	15.8	359	0	8.8	88	11	6.6	269	78	68	0.14	5	314	53	D		1
	307	1977	7	29	14	40	1.920	18.828	-65.329	19.1	2.8D	>99.9	69	11	8.5	329	40	54.1	172	47	68	0.15	4	319	..	D		1
	308	1977	7	30	16	20	0.190	17.905	-67.322	34.2	2.6D	2.4	93	4	4.7	185	18	58.9	351	71	68	0.15	6	211	66	D		1
	309	1977	7	31	4	50	26.240	18.810	-65.818	106.3	2.3D	30.7	110	15	18.3	208	29	6.7	356	56	68	0.07	5	341	86	D		1
	310	1977	8	6	11	33	49.990	17.913	-67.786	78.1	3.0D	8.4	4	8	2.1	99	31	6.5	262	57	68	0.13	8	247	91	D		1
	311	1977	8	6	16	41	32.680	18.610	-67.644	26.5	3.6D	>99.9	145	4	3.0	53	28	7.7	242	61	68	0.07	5	320	..	D		1
	312	1977	8	7	5	4	17.260	17.887	-66.260	20.9	1.4D	2.3	103	4	4.5	194	11	7.9	354	78	68	0.22	10	276	40	D		1
	313	1977	8	7	10	54	27.920	18.123	-65.934	42.9	1.8D	3.9	239	7	17.3	331	19	9.3	129	69	68	....	5	249	30	D		1
	314	1977	8	8	14	33	2.880	18.374	-65.946	2.4	1.2D	10.5	7	2	2.0	276	4	20.1	124	85	68	0.03	5	262	37	D		1
	315	1977	8	8	20	16	10.840	18.135	-68.089	11.7	2.2D	28.6	201	29	>99.9	91	32	>99.9	323	44	68	....	4	349	..	D		1
	316	1977	8	9	7	9	27.660	19.077	-66.381	2.1	1.8D	1.3	299	34	2.5	55	34	1.9	177	38	68	0.08	8	312	..	D		1
	317	1977	8	9	9	25	28.800	19.124	-66.389	27.1	1.8D	2.7	97	7	2.3	190	22	55.8	351	66	68	0.13	10	317	..	D		1
	318	1977	8	9	18	13	32.990	18.585	-66.127	74.9	2.0D	2.4	88	5	7.4	182	34	3.4	351	55	68	0.12	8	271	42	D		1
	319	1977	8	9	18	35	59.050	18.698	-67.716	26.6	3.3D	13.2	163	7	4.2	71	15	7.1	277	73	68	0.26	8	268	71	D		1
	320	1977	8	9	20	22	51.880	18.099	-66.497	12.0	1.1D	1.2	99	19	3.3	354	37	2.5	210	46	68	0.15	8	161	20	C		1
	321	1977	8	10	11	37	4.680	17.234	-67.585	17.7	2.8D	6.3	24	1	3.3	114	22	49.8	292	67	68	0.15	6	277	..	D		1
	322	1977	8	13	11	19	11.110	17.914	-65.959	17.5	2.4D	3.5	237	11	6.9	336	37	44.7	133	50	68	0.25	4	275	43	D		1
	323	1977	8	13	12	13	49.610	18.905	-65.345	19.3	3.0D	>99.9	228	10	22.5	136	12	9.4	356	74	68	0.04	5	343	..	D		1
	324	1977	8	12	6	29	17.420	18.412	-66.149	88.7	2.9D	1.6	281	0	5.0	191	11	3.1	11	79	68	0.11	10	201	42	D		1
	325	1977	8	14	15	53	9.560	18.714	-68.446	12.7	3.9D	3.5	28	8	22.9	126	43	17.0	290	45	68	0.10	7	323	..	D		1
	326	1977	8	14	16	14	9.430	18.015	-65.505	9.3	1.5D	1.7	308	6	2.0	39	13	1.2	194	75	68	0.09	9	323	69	D		1
	327	1977	8	15	10	8	15.320	18.025	-65.514	8.4	1.5D	1.5	281	18	2.1	23	34	1.2	167	50	68	0.08	9	322	68	D		1
	328	1977	8	16	3	15	27.260	17.818	-66.252	11.9	1.6D	3.3	347	17	1.3	83	19	2.3	219	64	68	0.15	10	263	43	D		1
	329	1977	8	16	10	6	33.550	13.855	-57.642	47.4	2.8D	3.6	73	6	7.0	338	41	21.4	170	48	68	0.37	11	284	88	D		1
	330	1977	8	16	22	5	8.660	19.277	-67.226	22.8	2.7D	2.1	115	13	2.7	209	16	42.2	348	69	68	0.09	8	299	..	D		1
	331	1977	8	17	20	5	42.160	18.170	-68.220	19.7	2.8D	5.0	12	3	2.7	279	45	7.8	105	44	68	0.14	7	343	..	D		1
	332	1977	8	18	9	49	31.620	19.073	-64.839	19.4	2.9D	38.5	318	0	8.5	227	22	>99.9	48	67	68	0.22	5	350	..	D		1
	333	1977	8	19	4	21	2.800	17.865	-66.868	8.5	1.6D	0.4	269	5	2.2	2	37	0.7	172	52	68	0.06	10	233	45	C		1
	334	1977	8	19	19	5	12.180	18.612	-66.748	19.0	2.4D	1.6	84	4	2.4	353	21	3.9	184	68	68	0.18	12	229	51	D		1
	335	1977	8	21	8	13	57.660	18.517	-65.632	15.8	2.4D	12.0	329	0	>99.9	239	0	>99.9	270	89	68	0.07	5	336	71	D		1

Table 8.--Catalog of 1977 earthquakes located by the HYPOELLIPSE program--Continued

Catalog		Origin time (UTC)						North	East	Focal	Error ellipsoid axes												Rms No.			Hypo		
Name	Index	yr	mo	d	h	min	s	latitude (deg)	longitude (deg)	depth (km)	M	a(km)	Tr	Pl	b(km)	Tr	Pl	c(km)	Tr	Pl	%	(s)	ob	Gap	DM	Q	auth	*
PRN77	336	1977	8	22	12	16	4.040	18.862	-67.113	17.0	2.1D	2.7	63	1	4.1	333	2	>99.9	180	87	68	0.18	8	317	69	D	1	
	337	1977	8	23	20	4	26.280E	18.082	-66.485	0.0	1.7D	0.8	276	0	2.1	6	0	>99.9	90	90	68	0.25	10	168	21	C	1	*
	338	1977	8	24	16	34	19.870	18.811	-67.847	5.8	2.9D	15.6	144	26	3.3	39	29	11.6	268	49	68	0.34	9	280	89	D	1	
	339	1977	8	25	3	17	20.060	18.122	-66.336	22.2	0.9D	2.6	310	24	1.9	56	32	6.2	191	48	68	0.13	7	180	20	D	1	
	340	1977	8	25	9	51	3.300	18.424	-68.439	28.1	2.9D	3.4	69	2	7.0	339	4	>99.9	185	85	68	0.13	8	331	..	D	1	
	341	1977	8	26	15	17	20.690	18.184	-67.580	55.7	2.2D	1.7	90	15	4.9	193	40	9.3	344	46	68	0.19	12	162	56	D	1	
	342	1977	8	26	17	16	27.460	18.352	-66.142	1.7	0.7D	1.2	258	0	3.6	348	0	53.9	90	89	68	0.11	6	208	37	D	1	
	343	1977	8	27	00	23	13.730E	18.240	-66.072	0.8	2.3D	2.3	254	5	3.3	346	22	7.0	151	67	68	0.30	9	290	32	D	1	*
	344	1977	8	27	15	12	43.870	19.143	-66.472	8.3	2.7D	1.8	284	0	9.2	14	0	>99.9	90	89	68	0.09	9	289	..	D	1	
	345	1977	8	27	15	15	0.380	19.062	-66.425	65.6	2.0D	3.3	294	21	3.6	33	24	35.3	167	57	68	0.11	7	315	..	D	1	
	346	1977	8	28	8	34	8.300	18.116	-65.523	9.5	2.1D	7.6	256	22	11.9	2	34	4.6	139	47	68	0.02	5	326	70	D	1	
	347	1977	8	29	7	38	39.190	18.681	-65.460	22.4	3.0D	3.0	22	33	3.8	264	35	9.3	142	37	68	0.18	13	329	..	D	1	
	348	1977	8	30	3	40	23.820	19.252	-66.368	26.8	2.3D	7.2	230	14	4.1	136	17	85.6	357	67	68	0.20	8	308	..	D	1	
	349	1977	8	30	9	29	21.750	18.101	-66.881	14.9	1.2D	0.5	204	13	0.4	105	34	0.5	311	52	68	0.04	8	151	24	B	1	
	350	1977	8	31	6	29	50.210	18.035	-65.686	13.7	1.4D	2.7	301	8	1.6	35	21	1.1	192	67	68	0.09	8	304	50	D	1	
	351	1977	8	31	17	7	55.270	19.057	-65.347	1.3	3.1D	2.7	357	24	4.5	100	27	1.9	232	52	68	0.14	12	316	..	D	1	
	352	1977	8	31	20	14	8.990	18.201	-66.046	24.5	1.1D	1.5	239	2	17.0	148	12	4.4	338	77	68	0.10	6	173	33	D	1	
	353	1977	9	2	3	58	32.070	19.135	-66.830	13.6	2.4D	2.9	109	11	4.1	204	26	22.6	359	61	68	0.18	9	282	..	D	1	
	354	1977	9	2	9	34	31.700	18.161	-66.155	32.2	0.9D	1.0	81	6	1.5	350	9	2.0	204	79	68	0.11	11	66	21	B	1	
	355	1977	9	2	16	52	3.670	18.405	-66.172	13.5	0.8D	2.2	262	3	7.4	171	6	18.6	19	83	68	0.10	5	232	34	D	1	
	356	1977	9	4	3	19	2.630	18.427	-66.548	84.3	2.6D	5.5	180	4	1.4	89	5	3.2	308	83	68	0.14	13	204	43	D	1	
	357	1977	9	5	3	00	10.930	17.988	-66.751	106.0	1.9D	5.4	100	7	15.4	8	18	29.3	210	70	68	0.02	5	187	36	D	1	
	358	1977	9	6	19	23	41.760	18.185	-66.863	16.0	1.9D	0.7	101	4	1.5	192	10	3.5	350	79	68	0.11	10	128	31	B	1	
	359	1977	9	8	2	48	12.900	17.970	-65.379	10.1	2.1D	2.6	148	11	3.8	54	18	1.3	267	68	68	0.05	6	330	83	D	1	
	360	1977	9	8	5	35	10.240	18.033	-65.404	11.1	1.9D	4.9	249	8	12.8	341	12	4.0	126	75	68	0.08	5	331	79	D	1	
	361	1977	9	8	8	4	11.090	18.292	-67.881	22.2	3.8D	9.7	313	13	2.6	52	36	5.5	207	51	68	0.19	9	248	83	D	1	
	362	1977	9	11	7	13	0.740	17.874	-66.139	13.6	1.1D	3.4	330	18	1.7	230	29	1.1	88	55	68	0.08	7	320	46	D	1	
	363	1977	9	11	19	45	35.030	17.874	-68.359	12.5	3.1D	3.1	337	9	1.3	72	32	0.6	234	56	68	0.04	8	333	..	D	1	
	364	1977	9	12	21	58	2.380	18.167	-66.203	40.3	0.8D	2.4	76	15	3.8	176	33	4.9	326	52	68	0.13	7	169	17	C	1	
	365	1977	9	12	23	17	59.070	18.795	-65.129	4.9	3.8D	6.5	181	10	4.4	280	42	25.3	80	46	68	0.28	12	325	..	D	1	
	366	1977	9	13	1	2	49.610	18.923	-64.991	20.0	2.9D	26.2	325	1	>99.9	234	11	12.9	61	78	68	0.07	4	341	..	D	1	
	367	1977	9	13	8	31	41.990	17.295	-65.078	4.2	2.7D	4.4	201	19	1.3	304	33	9.5	86	50	68	0.07	8	340	..	D	1	
	368	1977	9	14	12	46	18.140	18.089	-66.066	26.3	1.5D	0.7	81	3	1.0	350	8	1.6	191	81	68	0.08	10	156	24	C	1	
	369	1977	9	14	14	19	24.180	18.187	-67.351	14.1	2.5D	5.9	227	9	1.7	133	21	2.9	338	66	68	0.25	10	203	34	D	1	
	370	1977	9	14	17	27	56.750	18.138	-65.300	3.5	2.0D	1.2	200	13	0.9	104	28	1.7	312	58	68	0.02	6	333	92	C	1	
	371	1977	9	16	7	47	16.220	18.072	-66.355	57.5	1.6D	2.6	4	14	1.7	99	21	1.9	243	64	68	0.11	12	262	23	D	1	
	372	1977	9	17	19	36	48.780	18.343	-66.142	66.7	2.1D	6.0	179	28	3.1	289	33	3.8	57	44	68	0.18	9	176	29	D	1	
	373	1977	9	18	11	45	4.470	18.702	-67.103	83.5	2.3D	18.3	197	25	2.4	94	27	3.9	323	51	68	0.17	9	302	53	D	1	
	374	1977	9	20	16	21	10.210	18.033	-65.506	5.6	2.7D	5.1	183	15	3.3	88	19	6.0	308	65	68	0.19	9	322	69	D	1	
	375	1977	9	20	18	37	43.330	19.651	-65.925	70.6	2.0D	5.5	186	33	2.8	69	35	2.4	306	37	68	0.09	8	303	64	D	1	
	376	1977	9	22	9	15	36.540	18.618	-67.006	27.3	2.4D	1.8	324	3	4.3	233	34	1.0	59	55	68	0.07	8	311	..	D	1	
	377	1977	9	22	15	8	59.730	18.240	-67.192	21.7	1.9D	2.8	268	22	1.0	18	39	1.1	156	42	68	0.10	9	227	28	D	1	

Table 8.--Catalog of 1977 earthquakes located by the HYPOELLIPSE program--Continued

Catalog		Origin time (UTC)						North	East	Focal	Error ellipsoid axes												Rms No.				Hypo	
Name	Index	yr	mo	d	h	min	s	latitude (deg)	longitude (deg)	depth (km)	M	a(km)	Tr	Pl	b(km)	Tr	Pl	c(km)	Tr	Pl	%	(s)	ob	Gap	DM	Q	auth	*
PRN77	378	1977	9	23	14	59	26.310	18.606	-65.433	21.5	3.8D	>99.9	243	8	18.8	151	17	8.1	357	71	68	0.04	5	337	93	D	1	
	379	1977	9	25	22	9	5.700	18.996	-66.044	56.6	2.6D	11.8	52	18	6.7	313	26	58.4	173	57	68	0.18	6	299	..	D	1	
	380	1977	9	27	4	16	38.580	18.219	-65.892	16.1	2.0D	0.4	150	4	0.2	242	27	1.8	52	62	68	0.01	6	233	30	C	1	
	381	1977	9	27	17	17	40.430	18.235	-65.865	15.0	1.7D	3.9	87	26	1.5	333	38	1.2	201	40	68	0.07	6	197	31	D	1	
	382	1977	9	27	19	54	23.320	18.084	-66.480	8.5	1.9D	1.0	98	2	2.5	8	5	4.3	209	84	68	0.16	10	167	22	C	1	
	383	1977	9	28	5	25	15.510	18.636	-65.511	30.1	3.5D	>99.9	64	15	11.7	328	19	33.4	189	65	68	0.11	5	331	..	D	1	
	384	1977	9	28	7	36	11.140	18.026	-66.435	19.9	2.0D	0.7	261	1	1.6	351	2	2.6	144	87	68	0.10	11	205	29	C	1	
	385	1977	9	29	16	9	43.790F	18.328	-66.163	0.3	1.9D	2.1	272	1	3.5	2	3	75.4	163	86	68	0.12	5	280	24	D	1	*
	386	1977	9	29	17	1	35.350E	18.351	-66.177	1.4	1.4D	2.7	48	4	5.9	317	13	36.7	155	76	68	0.06	5	284	33	D	1	*
	387	1977	9	30	1	17	43.920	18.684	-66.118	75.4	2.2D	2.5	289	27	2.8	42	36	8.8	172	41	68	0.16	12	267	52	D	1	
	388	1977	9	30	11	48	2.990	18.399	-67.347	11.0	2.9D	2.6	178	2	1.1	268	3	1.6	54	86	68	0.19	13	180	37	C	1	
	389	1977	9	30	13	28	22.140	18.533	-64.974	17.2	2.6D	4.7	80	12	86.0	347	14	7.3	209	71	68	0.13	6	354	..	D	1	
	390	1977	10	1	6	24	18.010	18.583	-66.243	35.8	2.6D	1.7	276	2	3.4	6	13	7.1	177	76	68	0.21	14	229	53	D	1	
	391	1977	10	5	10	56	17.760	18.639	-67.487	9.9	3.7D	2.3	67	1	12.7	157	15	4.0	334	74	68	0.18	7	251	..	D	1	
	392	1977	10	5	12	16	28.590	18.228	-67.579	15.9	2.7D	1.6	80	1	3.1	170	21	7.8	348	68	68	0.24	10	198	52	D	1	
	393	1977	10	6	18	29	44.030	18.006	-65.558	6.6	2.5D	0.9	356	1	0.5	87	21	0.6	264	68	68	0.03	9	320	71	C	1	
	394	1977	10	6	18	39	55.840	17.713	-65.576	38.2	2.4D	2.7	137	13	3.7	231	16	>99.9	9	69	68	0.16	6	332	..	D	1	
	395	1977	10	6	21	26	27.020	17.981	-65.271	7.8	3.3D	13.5	118	18	38.9	19	27	6.9	237	56	68	0.22	6	335	..	D	1	
	396	1977	10	6	23	21	36.540	18.101	-67.444	22.2	2.4D	7.9	228	11	2.0	134	19	4.1	346	67	68	0.21	8	248	..	D	1	
	397	1977	10	7	00	39	50.530	17.913	-66.535	10.9	2.5D	11.6	2	2	2.6	93	15	4.0	265	74	68	0.19	7	260	53	D	1	
	398	1977	10	7	16	24	59.300	17.809	-67.990	19.3	3.3D	27.2	37	13	2.7	136	33	8.8	289	53	68	0.16	8	294	..	D	1	
	399	1977	10	8	12	00	27.630	18.451	-66.230	102.2	3.2D	1.7	93	9	7.8	185	17	4.3	337	70	68	0.13	10	205	41	D	1	
	400	1977	10	11	17	9	32.220	18.110	-65.983	15.8	1.5D	3.9	15	5	6.6	283	19	12.1	120	70	68	0.03	5	306	37	D	1	
	401	1977	10	11	19	27	5.350	18.284	-66.436	37.5	1.7D	1.6	274	5	3.2	6	24	4.7	172	65	68	0.13	8	147	36	C	1	
	402	1977	10	11	20	7	17.030	18.124	-65.993	27.5	2.2D	1.0	238	3	8.7	329	13	2.9	135	76	68	0.06	6	228	36	D	1	
	403	1977	10	12	15	9	54.730	19.220	-67.257	11.4	3.8D	3.6	85	13	6.1	180	20	20.3	325	65	68	0.20	11	297	..	D	1	
	404	1977	10	12	20	32	38.010	18.064	-66.486	5.8	2.1D	1.2	93	2	2.7	183	4	7.9	337	85	68	0.14	7	181	21	D	1	
	405	1977	10	13	6	31	50.230	18.597	-65.554	37.6	2.5D	88.1	142	13	6.7	44	31	11.8	251	55	68	0.01	5	352	..	D	1	
	406	1977	10	13	10	13	5.070	17.861	-66.161	14.7	2.1D	7.7	347	11	9.9	248	41	2.2	90	47	68	0.09	5	291	58	D	1	
	407	1977	10	14	14	43	35.580	19.242	-66.405	20.0	3.3D	6.3	273	0	44.6	3	0	>99.9	90	90	68	0.08	5	300	..	D	1	
	408	1977	10	14	20	53	52.420	17.874	-65.945	13.9	1.7D	2.8	63	1	6.7	153	19	93.2	331	70	68	0.04	5	289	49	D	1	
	409	1977	10	15	7	4	52.640	18.889	-66.776	28.5	2.2D	5.8	61	1	6.7	331	1	>99.9	195	88	68	0.09	5	318	..	D	1	
	410	1977	10	16	15	27	7.900	17.655	-67.500	10.8	3.3D	4.5	288	2	5.6	19	23	42.4	194	66	68	0.34	8	249	94	D	1	
	411	1977	10	17	21	19	47.300	18.743	-65.020	21.0	2.9D	15.5	152	4	3.3	243	19	4.2	50	70	68	0.15	8	349	..	D	1	
	412	1977	10	18	21	10	40.350	19.020	-65.244	0.5	4.1D	15.2	121	19	6.5	23	21	3.9	249	60	68	0.17	7	329	..	D	1	
	413	1977	10	19	9	9	40.110	18.395	-67.282	7.9	2.5D	3.1	357	1	1.3	87	6	3.4	258	83	68	0.18	9	174	32	C	1	
	414	1977	10	19	20	10	47.170E	18.354	-66.153	1.3	2.1D	1.2	68	1	2.1	338	5	16.9	170	84	68	0.16	8	209	27	D	1	*
	415	1977	10	22	15	29	51.340	19.159	-65.389	56.5	2.9D	7.6	291	3	2.9	22	23	21.4	194	66	68	0.06	6	337	..	D	1	
	416	1977	10	22	19	39	19.330	19.026	-68.505	4.7	3.2D	2.9	35	13	>99.9	299	23	49.2	153	63	68	0.09	7	320	..	D	1	
	417	1977	10	23	2	23	39.540	18.383	-65.919	41.3	1.6D	0.8	258	15	1.2	157	34	1.1	8	51	68	0.05	10	260	38	C	1	
	418	1977	10	23	16	5	27.070	18.285	-66.302	22.7	1.7D	1.0	90	5	1.9	182	23	2.6	349	66	68	0.17	13	181	24	C	1	
	419	1977	10	23	20	24	35.640	18.791	-65.354	18.8	3.4D	4.0	354	26	10.9	106	38	3.8	239	41	68	0.17	9	318	..	D	1	

Table 8.--Catalog of 1977 earthquakes located by the HYPOELLIPSE program--Continued

Catalog		Origin time (UTC)						North	East	Focal	Error ellipsoid axes												Rms No.				Hypo	
Name	Index	yr	mo	d	h	min	s	latitude (deg)	longitude (deg)	depth (km)	M	a(km)	Tr	Pl	b(km)	Tr	Pl	c(km)	Tr	Pl	%	(s)	ob	Gap	DM	Q	auth	*
PRN77	420	1977	10	23	22	44	19.370	18.706	-65.214	6.7	3.3D	6.3	110	12	3.9	17	16	2.8	235	69	68	0.21	15	324	..	D	1	
	421	1977	10	24	22	15	0.350	18.598	-64.380	3.9	3.4D	51.0	344	0	>99.9	254	0	>99.9	270	90	68	0.11	4	349	..	D	1	
	422	1977	10	25	4	00	41.020	18.609	-67.568	27.4	2.7D	7.6	282	0	35.2	12	0	>99.9	90	90	68	0.26	6	349	..	D	1	
	423	1977	10	26	12	58	35.780	17.892	-66.921	11.0	1.9D	0.4	93	18	2.8	350	36	0.8	204	48	68	0.14	6	233	47	D	1	
	424	1977	10	27	17	28	6.200	18.743	-65.669	73.6	2.8D	3.5	73	11	2.8	335	36	11.3	178	51	68	0.16	12	302	82	D	1	
	425	1977	10	29	2	36	13.160	18.551	-66.504	65.4	3.8D	1.8	276	1	4.3	6	7	6.7	177	82	68	0.16	12	228	46	D	1	
	426	1977	10	30	4	48	15.450	18.574	-66.807	14.9	2.5D	2.9	339	19	1.0	84	35	5.6	227	48	68	0.13	8	233	50	D	1	
	427	1977	10	30	8	31	51.630	18.735	-67.040	0.1	2.6D	1.4	90	3	2.6	359	13	4.7	192	76	68	0.08	6	248	87	D	1	
	428	1977	10	31	20	26	48.820	18.557	-65.403	25.5	3.0D	14.0	326	0	>99.9	236	0	>99.9	270	89	68	0.12	4	334	93	D	1	
	429	1977	11	1	12	42	24.690	18.321	-66.173	62.6	3.5D	1.3	280	7	2.9	14	29	3.6	177	59	68	0.14	13	168	41	C	1	
	430	1977	11	2	4	55	34.400	19.166	-66.506	7.5	2.9D	1.8	275	0	7.7	5	0	>99.9	90	90	68	0.12	11	275	..	D	1	
	431	1977	11	2	5	12	47.350	19.104	-66.513	17.0	2.8D	1.2	283	2	1.7	13	8	4.6	179	81	68	0.13	16	270	98	C	1	
	432	1977	11	2	7	32	21.550	19.045	-66.495	27.5	2.8D	1.5	279	0	3.0	9	0	>99.9	90	90	68	0.14	12	266	91	D	1	
	433	1977	11	2	9	10	50.820	19.128	-66.550	36.5	2.6D	2.6	301	5	5.1	32	9	>99.9	183	79	68	0.10	6	317	..	D	1	
	434	1977	11	2	11	40	3.950	19.116	-66.505	15.9	2.5D	0.7	286	0	1.0	16	0	>99.9	90	90	68	0.08	14	271	99	D	1	
	435	1977	11	2	13	51	42.530	19.113	-66.494	17.1	2.8D	1.3	50	1	2.0	320	1	>99.9	184	88	68	0.08	9	301	..	D	1	
	436	1977	11	2	16	38	48.040	18.958	-66.274	53.9	2.6D	5.2	71	5	5.0	337	35	29.6	169	54	68	0.10	6	326	84	D	1	
	437	1977	11	2	23	7	25.530	19.207	-66.523	43.9	3.3D	3.2	86	5	4.7	355	18	31.7	191	71	68	0.22	11	290	..	D	1	
	438	1977	11	2	23	23	5.320	19.108	-66.513	16.3	3.2D	0.8	291	0	1.3	21	0	>99.9	90	89	68	0.11	16	271	98	D	1	
	439	1977	11	2	23	45	44.930	19.109	-66.533	27.0	2.7D	6.9	234	5	3.6	141	22	>99.9	336	67	68	0.11	6	347	..	D	1	
	440	1977	11	3	2	43	14.490	19.057	-66.564	42.3	2.6D	4.3	78	2	2.9	347	14	29.9	176	75	68	0.10	7	332	..	D	1	
	441	1977	11	3	4	37	7.830	18.758	-66.638	67.2	3.5D	1.8	283	0	8.2	193	37	3.4	13	53	68	0.13	9	259	62	D	1	
	442	1977	11	3	5	2	27.130	19.234	-66.515	1.9	3.2D	1.6	276	0	8.1	6	0	>99.9	90	90	68	0.12	12	279	..	D	1	
	443	1977	11	3	5	5	37.390	19.105	-66.514	15.8	3.1D	1.3	284	0	2.4	14	0	>99.9	90	89	68	0.16	17	270	96	D	1	
	444	1977	11	3	6	27	13.210	18.123	-66.958	14.3	2.4D	1.7	22	12	1.2	283	39	0.7	126	48	68	0.12	13	230	37	C	1	
	445	1977	11	3	8	1	59.200	19.129	-66.539	19.8	2.8D	0.6	72	1	0.9	342	3	>99.9	180	86	68	0.02	6	303	..	D	1	
	446	1977	11	3	8	18	35.740	19.118	-66.406	1.9	2.7D	3.5	2	32	9.0	248	34	7.3	124	39	68	0.12	6	330	..	D	1	
	447	1977	11	3	9	14	50.720	19.103	-66.517	16.1	3.0D	1.8	267	0	2.3	357	0	>99.9	90	89	68	0.15	13	270	98	D	1	
	448	1977	11	4	3	25	2.910	19.366	-66.519	27.1	2.5D	5.3	243	5	3.1	151	22	>99.9	345	67	68	0.14	9	326	..	D	1	
	449	1977	11	5	19	17	34.130	18.173	-67.685	13.0	3.8D	5.0	230	2	9.8	321	37	2.3	137	52	68	0.20	11	306	90	D	1	
	450	1977	11	6	2	00	53.890	19.186	-67.866	87.7	3.4D	6.1	300	19	18.9	40	26	92.7	178	56	68	0.19	7	346	..	D	1	
	451	1977	11	6	3	7	45.620	18.316	-65.942	49.8	2.2D	13.6	205	32	5.9	321	34	82.3	84	39	68	0.44	4	322	32	D	1	
	452	1977	11	7	20	3	13.950E	18.379	-66.123	0.2	2.1D	3.7	324	0	11.0	234	0	>99.9	270	89	68	0.20	5	298	30	D	1	*
	453	1977	11	8	20	2	53.100	18.342	-66.160	21.1	2.1D	2.5	54	3	7.8	322	34	>99.9	149	55	68	0.08	5	279	35	D	1	
	454	1977	11	8	23	40	39.220	19.206	-67.464	13.9	3.4D	3.8	206	18	2.2	103	34	19.8	318	50	68	0.22	16	300	..	D	1	
	455	1977	11	9	20	14	50.280	18.828	-65.041	20.0	3.0D	25.8	325	3	>99.9	234	10	11.5	72	79	68	0.06	5	343	..	D	1	
	456	1977	11	14	20	45	26.170	19.085	-66.440	20.6	2.8D	4.2	297	3	5.4	27	3	>99.9	162	85	68	0.16	7	332	..	D	1	
	457	1977	11	16	4	41	41.550	18.031	-67.001	32.9	2.6D	5.8	165	8	2.5	256	10	3.8	36	77	68	0.18	14	341	72	D	1	
	458	1977	11	16	13	38	28.520	18.057	-66.797	12.4	3.0D	1.3	271	5	3.1	2	17	2.1	165	72	68	0.26	15	169	31	C	1	
	459	1977	11	18	4	36	59.140	17.892	-56.013	11.5	1.6D	1.6	252	10	3.3	159	16	5.9	13	70	68	0.15	9	268	39	D	1	
	460	1977	11	18	4	39	32.070	18.530	-66.269	103.8	2.3D	3.4	88	2	9.3	179	25	2.9	354	64	68	0.16	11	233	49	D	1	
	461	1977	11	19	1	8	40.640	18.780	-67.211	26.4	3.1D	1.9	70	31	6.3	185	35	4.1	311	39	68	0.26	15	257	66	D	1	

Table 8.--Catalog of 1977 earthquakes located by the HYPOELLIPSE program--Continued

Catalog		Origin time (UTC)						North	East	Focal	Error ellipsoid axes												Rms No.			Hypo		
Name	Index	yr	mo	d	h	min	s	latitude (deg)	longitude (deg)	depth (km)	M	a(km)	Tr	Pl	b(km)	Tr	Pl	c(km)	Tr	Pl	%	(s)	ob	Gap	DM	Q	auth	*
PRN77	462	1977	11	20	1	51	0.260	18.849	-66.068	39.8	2.3D	2.9	55	9	2.2	320	28	13.5	162	60	68	0.05	6	323	82	D	1	
	463	1977	11	20	19	5	22.320	18.036	-66.819	6.7	1.8D	1.3	132	11	2.1	228	29	3.9	23	58	68	0.12	9	269	52	C	1	
	464	1977	11	22	2	52	47.630	18.542	-66.538	22.0	2.4D	2.9	91	5	9.4	0	10	26.0	207	78	68	0.21	7	255	49	D	1	
	465	1977	11	27	18	29	50.600	18.872	-64.788	22.6	3.2D	80.5	331	1	9.8	240	22	>99.9	64	67	68	0.18	5	354	..	D	1	
	466	1977	11	28	18	16	8.190	18.444	-68.045	72.3	3.2D	3.8	80	16	13.1	176	23	8.2	318	61	68	0.29	13	293	99	D	1	
	467	1977	12	1	6	17	24.830	17.874	-67.618	20.0	3.3D	30.4	346	0	>99.9	256	0	>99.9	270	90	68	0.15	5	350	..	D	1	
	468	1977	12	1	19	36	51.320	18.353	-66.151	11.9	1.7D	2.0	257	3	3.7	347	9	14.9	148	80	68	0.13	6	208	30	D	1	
	469	1977	12	1	19	47	22.520	19.126	-66.127	16.4	2.7D	2.4	302	0	3.3	32	0	>99.9	90	90	68	0.24	7	335	..	D	1	
	470	1977	12	1	21	22	2.920	19.224	-66.135	15.9	2.8D	5.3	335	0	6.0	245	0	>99.9	270	89	68	0.26	9	322	..	D	1	
	471	1977	12	1	22	56	7.780	19.201	-66.091	14.9	2.6D	4.4	270	1	2.7	179	33	>99.9	2	56	68	0.17	8	331	..	D	1	
	472	1977	12	1	23	43	44.380	19.048	-66.486	4.1	2.7D	14.3	205	5	8.2	299	31	5.3	106	58	68	0.06	5	330	..	D	1	
	473	1977	12	2	00	34	23.150	18.918	-65.314	44.5	3.1D	7.1	49	19	21.6	306	33	85.6	164	50	68	0.10	5	352	..	D	1	
	474	1977	12	2	00	45	9.710	19.113	-66.447	2.9	2.6D	3.2	168	4	5.7	258	6	2.9	44	82	68	0.09	6	341	..	D	1	
	475	1977	12	2	1	6	4.170	19.106	-66.517	7.9	3.3D	1.7	264	9	2.8	169	28	19.4	11	60	68	0.17	12	270	98	D	1	
	476	1977	12	2	1	7	53.010	19.150	-66.441	40.3	2.7D	4.9	251	2	3.3	341	12	48.7	151	77	68	0.08	6	333	..	D	1	
	477	1977	12	2	1	41	13.780	17.617	-66.450	81.8	2.3D	16.9	104	20	7.2	211	40	>99.9	354	43	68	0.15	4	344	..	D	1	
	478	1977	12	2	1	58	22.260	18.382	-66.230	3.4	2.6D	3.5	257	10	6.2	350	13	41.3	130	73	68	0.08	5	306	36	D	1	
	479	1977	12	2	3	44	53.170	19.189	-66.494	31.0	3.0D	5.4	290	1	10.6	20	2	>99.9	173	87	68	0.24	7	289	..	D	1	
	480	1977	12	2	4	00	2.390	18.150	-67.344	0.5	3.0D	2.4	185	7	1.7	94	8	6.3	315	79	68	0.18	7	168	60	C	1	
	481	1977	12	2	20	12	15.490E	18.340	-66.140	1.3	1.9D	1.5	72	2	3.1	342	10	17.2	174	79	68	0.17	7	202	25	D	1	*
	482	1977	12	2	20	26	36.720E	18.096	-66.489	1.1	1.9D	2.3	187	1	1.0	97	2	48.7	303	87	68	0.21	10	159	21	C	1	*
	483	1977	12	3	2	52	41.730	17.957	-66.228	7.1	1.8D	3.6	192	3	1.7	101	5	11.1	312	84	68	0.20	8	245	34	D	1	
	484	1977	12	3	3	41	49.850	19.124	-66.484	18.9	2.6D	16.1	27	1	7.3	297	2	>99.9	144	87	68	0.04	5	332	..	D	1	
	485	1977	12	3	5	00	46.610	19.058	-66.953	34.1	3.1D	1.1	83	5	2.5	352	14	26.9	192	75	68	0.19	11	269	93	D	1	
	486	1977	12	3	11	2	10.820	19.180	-66.533	27.7	2.8D	4.6	319	0	9.0	229	0	>99.9	270	89	68	0.10	6	334	..	D	1	
	487	1977	12	3	12	35	58.920	18.790	-68.385	19.6	4.2D	12.9	136	11	3.8	39	35	9.2	240	52	68	0.13	7	321	..	D	1	
	488	1977	12	3	14	15	41.580	19.144	-66.513	6.7	3.5D	2.1	260	11	4.2	164	27	23.1	11	60	68	0.18	10	273	..	D	1	
	489	1977	12	3	16	33	55.790	18.521	-67.539	19.2	3.3D	2.1	71	9	4.5	333	44	6.5	171	44	68	0.36	17	234	60	D	1	
	490	1977	12	3	16	39	5.380	18.714	-67.568	5.0	2.7D	1.9	65	19	4.6	170	36	3.8	313	47	68	0.26	11	259	76	D	1	
	491	1977	12	4	8	42	26.820	19.177	-66.507	14.8	3.1D	1.6	109	10	4.1	206	33	15.4	4	55	68	0.14	11	275	..	D	1	
	492	1977	12	4	11	51	33.950	18.970	-67.667	3.6	2.9D	18.4	140	20	5.1	242	30	8.7	21	52	68	0.23	6	280	98	D	1	
	493	1977	12	6	5	31	40.990	18.971	-65.745	20.0	2.8D	4.4	18	4	8.2	288	4	>99.9	153	84	68	0.15	7	339	..	D	1	
	494	1977	12	7	8	38	9.760	18.318	-66.079	14.4	1.8D	0.8	257	1	1.5	166	4	2.1	1	85	68	0.12	10	190	24	C	1	
	495	1977	12	7	8	41	30.110	18.106	-66.083	26.2	1.5D	1.0	80	1	1.4	350	2	2.8	196	87	68	0.10	9	148	22	C	1	
	496	1977	12	7	23	18	28.600	18.930	-66.674	42.5	2.6D	1.4	92	2	2.8	0	27	11.6	185	62	68	0.15	14	283	79	D	1	
	497	1977	12	8	7	29	44.400	17.979	-66.244	6.7	2.2D	6.9	12	4	3.0	103	6	26.0	249	82	68	0.18	6	240	35	D	1	
	498	1977	12	8	9	32	43.740	17.999	-57.179	12.1	2.4D	2.6	240	34	1.1	121	36	5.1	359	35	68	0.23	14	238	48	D	1	
	499	1977	12	8	10	34	37.540	18.914	-66.702	25.2	2.7D	4.3	176	18	2.1	76	28	8.7	294	55	68	0.22	10	269	90	D	1	
	500	1977	12	8	13	7	38.630	18.037	-66.175	14.1	2.6D	0.5	78	4	0.9	168	4	1.8	303	84	68	0.05	8	236	28	C	1	
	501	1977	12	8	16	59	25.760	18.268	-66.085	20.5	1.5D	2.5	243	9	79.1	145	40	12.0	343	48	68	....	4	209	34	D	1	
	502	1977	12	11	1	50	14.170	18.841	-65.515	11.0	3.2D	3.4	316	3	2.5	224	31	19.6	51	58	68	0.12	9	319	98	D	1	
	503	1977	12	11	2	00	5.440	17.787	-65.548	17.0	2.8D	5.3	170	1	16.1	260	1	>99.9	34	88	68	0.01	4	351	85	D	1	
	504	1977	12	11	3	30	52.020	18.822	-66.332	17.9	2.2D	2.1	57	1	2.8	327	2	66.9	174	87	68	0.13	8	316	75	D	1	

Table 8.--Catalog of 1977 earthquakes located by the HYPOELLIPSE program--Continued

Catalog		Origin time (UTC)						North	East	Focal	Error ellipsoid axes												Rms No.			Hypo		
Name	Index	yr	mo	d	h	min	s	latitude (deg)	longitude (deg)	depth (km)	M	a(km)	Tr	Pl	b(km)	Tr	Pl	c(km)	Tr	Pl	%	(s)	ob	Gap	DM	Q	auth	*
PRN77	505	1977	12	11	9	6	24.400	19.210	-66.420	35.7	2.8D	3.3	47	5	4.4	317	6	61.4	177	82	68	0.20	9	333	..	D	1	
	506	1977	12	11	14	42	57.990	18.715	-65.057	5.1	3.0D	54.0	330	3	5.8	238	32	>99.9	65	57	68	0.11	5	354	..	D	1	
	507	1977	12	12	5	9	0.350	18.072	-66.207	15.3	2.3D	5.0	162	6	1.5	254	20	1.2	56	69	68	0.12	7	215	25	D	1	
	508	1977	12	12	5	50	14.590	18.865	-65.266	5.9	3.3D	7.4	333	7	2.5	239	31	38.4	75	58	68	0.12	8	330	..	D	1	
	509	1977	12	14	2	6	1.670	17.922	-66.277	7.1	1.6D	1.6	97	4	2.1	188	13	5.7	351	76	68	0.10	8	310	41	D	1	
	510	1977	12	14	14	34	19.660	17.800	-65.136	42.2	2.9D	15.9	201	4	7.6	110	9	48.9	314	80	68	0.20	7	337	..	D	1	
	511	1977	12	15	19	4	12.340	18.169	-68.069	107.5	3.5D	12.4	180	5	6.1	273	36	4.1	83	53	68	0.23	11	318	..	D	1	
	512	1977	12	16	20	13	49.760	18.341	-66.150	1.4	1.7D	1.5	74	1	3.0	344	10	17.6	170	79	68	0.13	6	203	25	D	1	
	513	1977	12	18	18	46	12.530	18.458	-66.087	109.8	2.2D	7.3	182	27	3.1	290	32	2.1	60	45	68	0.10	10	246	35	D	1	
	514	1977	12	20	7	58	25.010	18.858	-67.333	4.8	2.5D	3.9	66	30	11.2	182	37	4.7	309	38	68	0.23	8	285	81	D	1	
	515	1977	12	20	13	1	18.090	18.172	-67.946	53.7	2.8D	5.5	317	30	9.4	206	32	2.9	80	43	68	0.17	8	275	91	D	1	
	516	1977	12	20	13	30	2.040E	18.134	-66.524	0.5	2.5D	0.8	284	0	2.7	14	0	>99.9	90	89	68	0.15	9	188	40	D	1	*
	517	1977	12	20	13	46	24.240	18.768	-67.420	10.9	2.6D	1.3	61	34	3.5	178	34	1.6	300	37	68	0.15	11	252	74	D	1	
	518	1977	12	20	15	1	3.020	18.417	-66.108	83.6	2.7D	1.1	295	9	5.0	201	19	7.3	49	68	68	0.03	6	240	47	D	1	
	519	1977	12	21	2	36	39.890	17.765	-66.701	9.4	2.1D	2.0	41	9	2.3	303	39	1.2	142	49	68	0.14	11	307	52	D	1	
	520	1977	12	23	2	11	9.770	17.931	-67.223	20.8	3.1D	21.3	344	3	>99.9	74	9	9.0	236	80	68	0.06	5	346	..	D	1	
	521	1977	12	24	2	59	37.640	18.828	-66.491	25.8	2.1D	80.1	151	6	9.2	243	20	6.1	45	69	68	0.02	5	323	86	D	1	
	522	1977	12	25	12	14	21.960	18.193	-66.071	13.5	1.9D	0.8	91	1	1.1	1	1	2.6	226	88	68	0.15	12	99	24	B	1	
	523	1977	12	26	18	3	49.610	18.101	-64.966	15.9	2.8D	4.2	277	0	9.2	7	0	>99.9	90	90	68	0.20	7	343	..	D	1	
	524	1977	12	27	5	42	39.750	17.790	-66.648	11.5	2.3D	1.0	233	25	1.5	343	36	0.6	116	43	68	0.05	8	297	46	C	1	
	525	1977	12	31	23	2	1.050	18.970	-66.275	20.6	2.7D	2.4	278	0	3.5	8	4	52.2	188	86	68	0.22	12	290	85	D	1	

Table 9.--References for catalog of 1977 earthquakes located by the HYPOELLIPSE program

[Cat, catalog; Auth no., authority number cited in table 8]

Cat	Auth	References
Name	no.	
PRN77	1	U.S. Geological Survey, this report.

Table 10.--Remarks for catalog of 1977 earthquakes located by the HYPOELLIPSE program

Catalog	Remarks
Name Index	
PRN77	14 Probable blast attributed to road construction or quarries.
	29 Do.
	42 Do.
	59 Do.
	84 Do.
	118 Do.
	145 Do.
	150 One of a 12-earthquake swarm that occurred north of the Virgin Islands in the Puerto Rico Trench.
	151 Do.
	152 Do.
	165 Probable blast attributed to road construction or quarries.
	175 Do.
	183 One of a small swarm of earthquakes that were located on the south coast of Puerto Rico near the town of Central Aguirre.
	184 Do.
	185 Do.
	186 Do.
	188 Do.
	189 Do.
	197 Probable blast attributed to road construction or quarries.
	205 A large earthquake, magnitude 4.5, that originated in the Puerto Rico Trench, northeast of Puerto Rico.
	206 An aftershock of the magnitude 4.5 earthquake.
	244 One of a small swarm of earthquakes that were located in the Puerto Rico Trench, northeast of Puerto Rico.
	245 Do.
	246 Do.
	247 Do.
	248 Do.
	249 Do.
	250 Do.
	251 Do.
	252 Do.
	253 Do.
	254 Probable blast attributed to road construction or quarries.
	256 One of a swarm of earthquakes that were located in the Puerto Rico Trench, northeast of Puerto Rico.
	337 Probable blast attributed to road construction or quarries.
	343 Do.
	385 Do.
	386 Do.
	414 Do.

Table 10.--Remarks for catalog of 1977 earthquakes located by the HYPOELLIPSE program--Continued

Catalog			Remarks
Name	Index		
PRN77	452	Do.	
	481	Do.	
	482	Do.	
	516	Do.	