

ADDENDA AND CORRECTIONS TO "MAGNITUDE OF GREAT SHALLOW EARTHQUAKES FROM 1904 to 1952"

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Since the paper by Geller and Kanamori (1977) was published, we have found additional data which enabled us to fill the blank columns left in Table 1 of Geller and Kanamori (1977). Table 1 of this paper lists the values obtained since then, and also two corrections (footnote *b*). The quantities in this table are described in the original paper.

For some earthquakes Geller and Kanamori listed the values of M_S and m_b

TABLE 1
EARTHQUAKE DATA—CORRECTIONS AND ADDITIONS

| No. | Date | Time | M_S | m_b | \bar{T} (sec) |
|-----|----------------------------|----------|------------------|------------------|--------------------|
| 9 | 1905, Apr. 4 | 00:50.0 | 8.1 | 8.1 | 9 |
| 10 | 1905, July 6 | 16:21.0 | 7.8 | 7.7 ^b | — |
| 11 | 1905, July 9 | 09:40.4 | 8.4 ^c | 7.7 | 9 |
| 12 | 1905, July 23 | 02:46.2 | 8.4 ^c | 8.2 | 14 |
| 17 | 1906, Sep. 14 | 16:04.3 | 8.1 | 7.8 | 5 |
| 32 | 1913, Aug. 6 ^a | 22:14.4 | 7.8 | 7.5 | 7 |
| 37 | 1916, Jan. 1 | 13:20.6 | 7.8 | 7.4 | 11 |
| 43 | 1918, Sep. 7 | 17:16:13 | 8.2 | 7.6 | 8 |
| 46 | 1919, Apr. 30 | 07:17:05 | 8.2 | 7.7 | 11 |
| 47 | 1919, May 6 | 19:41:12 | 7.9 | 7.6 | 7 |
| 48 | 1920, June 5 | 04:21:28 | 8.0 | 7.8 | 5 |
| 50 | 1920, Dec. 16 | 12:05:48 | 8.6 | 7.9 | 10 |
| 51 | 1922, Nov. 11 | 04:32:6 | 8.3 | — | — |
| 53 | 1923, Sep. 1 | 02:58:36 | 8.2 ^c | 7.7 | 9 |
| 60 | 1929, Mar. 7 ^a | 01:34:39 | 7.5 ^c | 7.9 ^c | 9 ^c |
| 61 | 1929, June 27 | 12:47:05 | 7.7 | 7.8 | 8 |
| 69 | 1933, Mar. 2 | 17:30:54 | 8.5 ^c | 8.3 ^c | 12 |
| 71 | 1934, July 18 | 19:40:15 | 8.1 | 7.3 ^b | 10 |
| 72 | 1935, Sep. 20 | 01:46:33 | 7.9 | 7.6 | 7 |
| 76 | 1939, Jan. 25 ^a | 03:32:14 | 7.8 | 7.6 | 5 |

^a Hypocentral depth 40–60 km.

^b Corrections to Geller and Kanamori (1977).

^c In Geller and Kanamori (1977), the values determined by investigators other than Gutenberg and Richter are listed in these columns. The values in this table are calculated from unpublished material of Gutenberg and Richter and are listed for reference.

determined by investigators other than Gutenberg and Richter. In Table 1 we list, for comparison, the values for these events calculated from the unpublished material of Gutenberg and Richter (footnote *c*). The value of M_S for the July 9, 1905 event is based on one station and is not reliable.

These additions and corrections do not affect the major conclusions of Geller and Kanamori (1977).

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REFERENCE

Geller, R. J. and H. Kanamori (1977). Magnitude of great shallow earthquakes from 1904 to 1952, *Bull. Seism. Soc. Am.* **67**, 587-598.

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