

REVISIONAL INVESTIGATION OF THE GROUND MOTION
OF PAST MAJOR EARTHQUAKES

by

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We are trying to reinvestigate the seismograms of past major earthquakes, such as, the great Kwanto earthquake of Sept. 1, 1923, in order to establish the nature of the ground motion which may be a good reference in the field of the earthquake engineering. For an example, in Fig.1 is shown the copy of the Ewing's disk-record of the 1923 earthquake, showing the displacement of the ground motion for about 120 sec, the longest continuous record obtained in this earthquake. The calculation of the actual ground motion from this record was carried out in compliance with the procedures as diagrammatically shown in Fig.2.

In the digitization of the seismogram, the first procedure, a curve reader was used which was specially devised by us, and by means of which the waves in the disk-record were changed in rectilinear waves as shown in Fig.3. In Fig.4 are shown the acceleration, velocity, and the displacement of the 1923 earthquake. It will be seen that strong shocks occurred one after another for more than two minutes.

At Hongo, in up-town of Tokyo, the ground motion of the Kwanto earthquake was revealed that it had a maximum acceleration of 390 gal, and the maximum displacement of 46 cm. The major waves has periods of 11 14 sec.

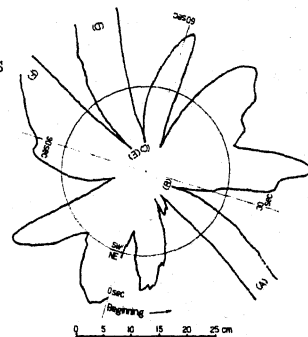


Fig. 1

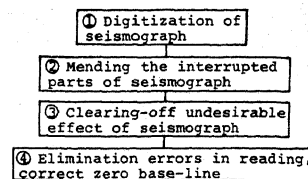


Fig. 2

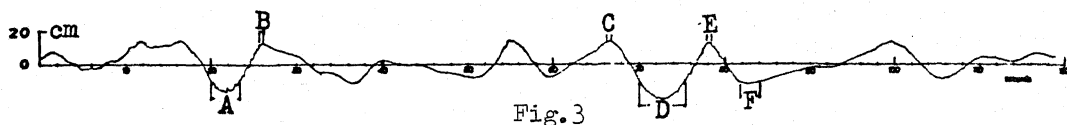


Fig. 3

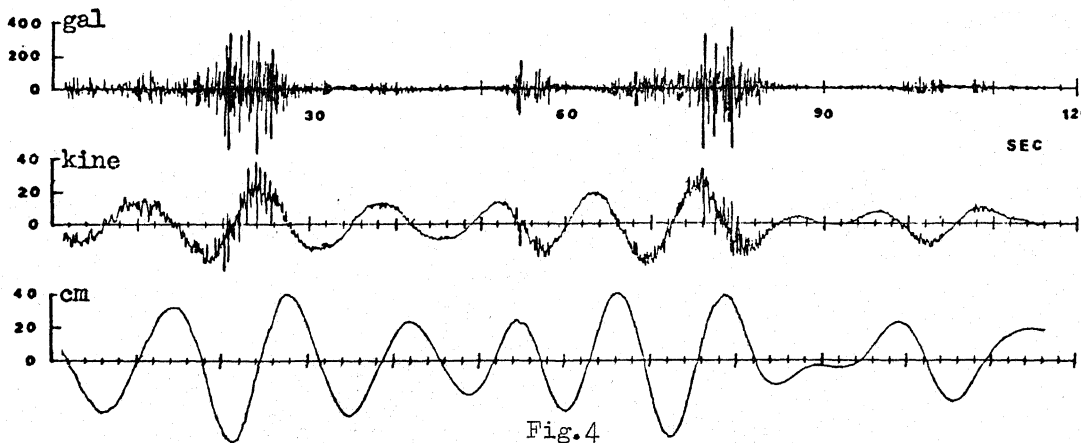


Fig. 4

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