

A STUDY OF STRONG GROUND MOTION FROM A SET OF NICARAGUAN EARTHQUAKES AND THEIR RELATION TO DAMAGE

by

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Eight Nicaraguan earthquakes in the magnitude range from 4.1 to 6.2 recorded in Managua in the period 1968-1973 on accelerographs of the U.S. Geological Survey have been digitized and analyzed. The response spectra for 0, 5, and 10% of critical damping have been evaluated, and they can be used to obtain design response spectra for Managua using a new technique. The time-duration dependence (1, 2) of these recordings was truncated (Fig. 1) where the root-mean-square acceleration as a function of time starts a smooth descent. The response spectra, correlograms, and Fourier amplitude spectra were evaluated for the strong-motion records digitized, see Fig. 2. Acceleration spectra on the average show large peaks in a period range of 0.3 to 0.7 sec. Similar results were obtained from aftershock data (3). The strong-motion predominant periods and the time-durations can be used as parameters related to damage in Managua and vicinity (4).

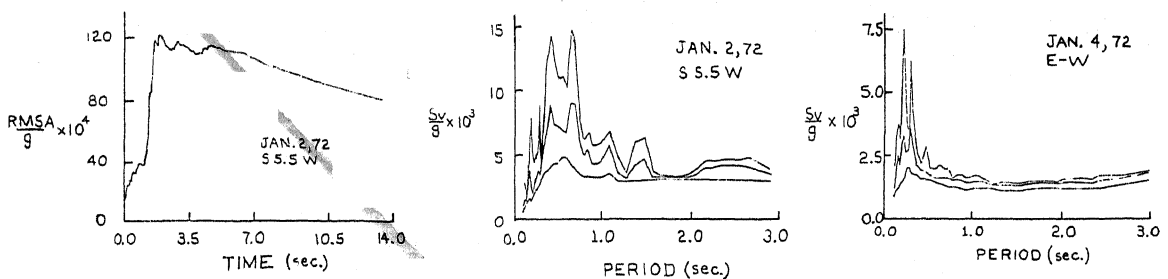


Fig. 1. Time duration determined from Root Mean Square acceleration.

Fig. 2. Sample of velocity spectra for 0, 5, and 10% damping ratios for two different earthquakes.

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