

Shaking table tests on seismic response of microbarograph

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As already discussed in the papers, sensitive Microbarographs can detect seismic waves without going off the scale and supplemental measurements made with accelerometers. Pressure change response to seismic acceleration is considered to be made by gravitational pressure by which barograph move up and down and air vibration (dynamic pressure) excited by earthquake ground motion and instrument response by earthquake directly shake barograph.

Earthquake of Mj3.7 occurred at a depth of 5.2km, and its seismic signal was observed by both the microbarograph and accelerometer. The distance between the epicenter and the observation site is approximately 20 km. This case showed that in start shaking the microbarograph recorded similar waveforms to that of the accelerometer, and pressure change was much greater than gravitational pressure. To learn component of pressure change in detail, we vibrated vertically and horizontally the above microbarograph and accelerometer on the shake table. This microbarograph is attached a coiled tube tipped with air joint at air hole as a dumper, in order not to destroy inside mechanism by a mechanical shock while installing a microbarograph in a case and excessively torque while tightening air joint. We introduce the result of vibration experiment, such as the effect of a tube by fixed the tube to the shake table and instrument response by covered a tube to block outside air.

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