Imaging of crustal structure in Kanto area using large-scale shaking table

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A common midpoint (CMP) reflection method is widely used to image the heterogeneous crustal structure in the active seismic profiling. If the large-scale shaking table is used as a source and the telemeter seismic stations are used as receivers, the preparation of survey is costless than usual CMP survey, and we can carry out the experiments with the same source and receiver geometry at regular time intervals. The reflection survey using the large-scale shaking table at National Research Institute for Earth Science and Disaster Prevention (NIED) were carried out from Jan. 24 to Jan. 31. We used the shaking table as seismic sources with a sweep length of 60 s with 1-20 Hz signals. We deployed the seismic array, which is consisted of 19 seismometers distributed two dimensionally with a receiver spacing of 30 m. Each channel was equipped with three-component seismometers, each with a natural frequency of 10 Hz. The signal was recorded with the Strata Visor digital telemetry system at a sampling rate of 8 ms. Since the large-scale shaking table is manually operated, the source wave forms are different with each other. To obtain waveforms of each sweep signal and decide shot times, we recorded the acceleration and displacement of the vibration table and the control signal for it. Their waveform data were merged with those from permanent telemeter stations in Kanto area. All data were edited into event data by the list of shot time. We applied the usual CMP method to these data. We can recognize the reflected waves from the mid-crust in the waveform of Tsukuba Hi-net station, to which the distance from NIED is about 10 km.