



Validation study on estimate method of permanent ground displacement near fault based on strong-motion earthquake accelerograms

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The obvious baseline drift problem is often faced by us in the near-fault strong ground motion records processing. Although a series of baseline correction methods were proposed, all of methods are not the final answer to solve the problem, because they often result to the uncertain permanent ground displacement for the parameters selection subjectively by experience. Some people even thought we could not estimate permanent ground displacement near fault based on strong-motion earthquake accelerograms.

In our work, a new shake-table experiment program was proposed to study the validation on estimating the permanent ground displacement near fault based on strong-motion earthquake accelerograms. In the program, we used the sliding mechanism on the shake-table to simulate the permanent displacement process near fault, then recorded the accelerogram by solid state accelerograph (Basalt) and the real displacement record basing on photogrammetry and digital image processing technology, at last study the validation by comparing the real displacement record and the displacement by integrating the baseline corrected accelerogram. The results showed it is validated, at least under laboratory conditions.