

Calculation Technique to Reduce Drift Component in Integrating Ground Displacement from Seismic Acceleration Records

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Computing a residual displacement by measured acceleration is important for understanding the characteristics of an earthquake. However, such a residual displacement is not necessarily be obtained with a good accuracy. It is partly because the low-frequency component dominating the behavior of the residual displacement is often affected by the sensor's tilt and the measurement error. In this paper, a new methodology to get the acceleration without those undesirable effects is proposed. In addition, the integration method in frequency domain for computing displacement from the obtained acceleration is proposed, considering causality as a constraint to avoid the numerical error. Using these techniques, the estimation of residual displacement of Iwate-Miyagi Nairiku Earthquake (2008) is attempted.