

Estimation of the Natural Period of Surface Ground Using the Discrete Soil Investigation Data

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It is important to identify the seismic amplification of the surface ground for the improvement of the accuracy of the seismic ground motion estimation. This amplification is expressed with the natural period of the surface ground in the seismic design and risk assessment for the railway structures. It is necessary to estimate the period at each site from the limited information which can be obtained in advance. For this purpose, an estimation method modeled by simple parameters such as the micro-zonation and altitudes has been proposed. However, it is confirmed that the estimation errors of this method are relatively large. Therefore, we use the Kriging method which modifies the period estimated by the simplified method by the period evaluated by soil investigation data, in order to reduce the errors. In this paper, we estimate the periods by the proposed method and confirm the validation of this method in the southern of Kanto area where the high-density investigation data exist.