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Application and evaluation of a shear wave velocity prediction model using machine learning techniques

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ABSTRACT

In performing probabilistic site response analyses for a rock site, a shear wave velocity profile down to the bedrock depth is required. However, because there was not enough deep shear wave velocity measurement data in domestic rock site, a deep shear wave velocity profile prediction models for rock sites were developed using machine learning techniques. In this study, the model was applied and evaluated to predict deep shear wave velocities in rock sites.

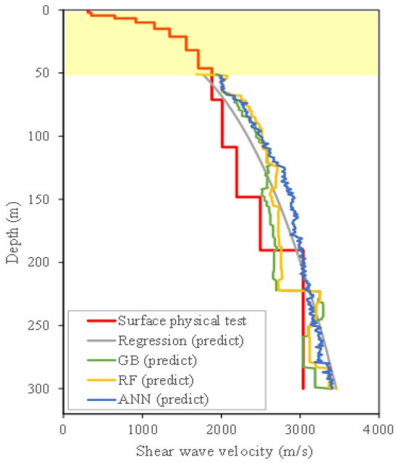

Fig. 1 Results of applicability evaluation of the prediction model

REFERENCES

Kim, J., K, B. and Cho, Y. (2025), "Predictive models of deep shear wave velocity profiles at excavated rock sites in Korea", *Journal of the EESK,* **29**(1_spc), 41-47.

USNRC (2007), "A performance-based approach to define the site-specific earthquake ground motion", Regulatory Guide 1.208.

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