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Analysis on Prediction Models of TBM Performance and Selection of Optimal Input Parameters

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Abstract : An accurate prediction of TBM(Tunnel Boring Machine) performance is very difficult for reliable estimation of the construction period and cost in preconstruction stage. For this purpose, the aim of this study is to analyze the evaluation process of various prediction models published since 2000 for TBM performance, and to select the optimal input parameters for the prediction model. A classification system of TBM performance prediction model and applied methodology are proposed in this research. Input and output parameters applied for prediction models are also represented. Based on these results, a statistical analysis is performed using the collected data from shield TBM tunnel in South Korea. By performing a simple regression and residual analysis utilizinFg statistical program, R, the optimal input parameters are selected. These results are expected to be used for development of prediction model of TBM performance.

Keywords : TBM performance prediction model, classification system, simple regression analysis, residual analysis, optimal input parameters
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