

1. In-situ Unsaturated Hydraulic Conductivity Tests and Advective Diffusion Analysis for Wide-area

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This study aimed at improving the accuracy of predicting groundwater contamination for wide-area due to tsunami deposits. We proposed the in-situ unsaturated hydraulic conductivity test and the numerical analysis method for wide-area. This test enables the identification of unsaturation characteristic parameters and saturated hydraulic conductivity efficiently through the simplified measurements by which surface pressure conditions can be determined arbitrarily. And this numerical method was also made concerning improvements to the Eulerian-Lagrangian (EL) method (separate calculation of diffusion and advection terms) in advective diffusion analysis of groundwater contamination for wide-area. The accuracy of this numerical method was verified based on the results of previous tests and a case study. As a result, it was verified that the proposed method was applicable to wide-area analysis.

Key words: in-situ unsaturated hydraulic conductivity tests, advective diffusion analysis, Eulerian-Lagrangian method