

**Development of Analysis Method of Tsunami Overflow and Scouring  
by Soil-water Coupled Analysis Using Mesh Free Method**

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The tsunami induced by 2011 earthquake off the Pacific coast of Tohoku caused a lot of tremendous damage to railway embankments. Furthermore, in recent years, heavy rainfalls near water catching terrain have caused overflow, erosion, and scouring in the embankment, indicating that heavy rainfall disasters have tended to become more serious. In this study, we developed an analysis method of tsunami overflow and scouring by soil-water coupled analysis using mesh free methods. Such a method can be an effective tool to predict the damage due to overflow and scouring in the embankment, evaluate countermeasures against the damage, and further deepen model experimental studies. This paper explains overview of the developed analysis method and then presents the results from reproduction analyses of a series of model experiments.