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Application of UAV images for rainfall-induced slope stability analysis in urban areas

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ABSTRACT

In stability analysis of unsaturated soil slope in urban area, various results can be derived using Unmanned Aerial Vehicle (UAV) images. This study evaluates the predictions of disaster risks in urban area such as apartments and schools located along with soil slopes. An aerial photography analysis was conducted on the case where the slope of the retaining wall behind OO High School in Gwangju city, South Korea, collapsed in August 2018 due to heavy rain. At the time of the slope failure, infiltration of rainfall leaked from the site of the slope damage, and the saturated surface was destroyed. In order to analyse the cause, the changed terrain of the upper slope area, which could not be directly identified, was photographed using UAV. Digital Elevation Model (DEM) analysed by UAV images was used to predict the flow of water and the length and width of logging areas. The change in the instability of the unsaturated soil slope due to rainfall lasting 10 days was analysed through numerical analysis.

REFERENCES

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