



Delineation of potential deep seated landslides in a watershed using environmental index

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The extreme rainfall induced deep seated landslides cause more attentions recently. Extreme rainfall can accelerate soil moisture content and surface runoff in slopeland which usually results in severe headward erosion and slope failures in an upstream watershed. It's a crucial issue for disaster prevention to extract the sites of potential deep seated landslide dynamically. Landslide risk and scale in a watershed were well discussed in this study. Risk of landslide occurrence in a watershed can be calculated from the multiplication of hazard and vulnerability for a certain event. A synthesis indicator derived from the indices of inverted extreme rainfall, road development and inverted normalized difference vegetation index can be effectively used as vulnerability for a watershed before the event. Landslide scale estimated from the indices of soil depth, headward erosion, river concave and dip slope could be applied to locate the hotspots of deep seated landslide in a watershed. The events of Typhoon Morakot in 2009 and Soudelor in 2015 were also selected in this study to verify the delineation accuracy of the model for the references of related authorities.