

Landslide susceptible areas identification using IDW and Ordinary Kriging interpolation techniques from hard soil depth at middle western Central Java, Indonesia

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Abstract	Initial assessment of landslide susceptible areas is important in designing landslide mitigation measures. This study, a part of our study on the developing a landslide spatial model, aims to identify landslide susceptible areas using hard soil depth. In here, hard soil depth, defined as the depth interpreted from cone penetration test where the tip resistance reaches up to 250 kg/cm(2), was used to identify landslide susceptible areas in a relatively small mountainous region in the middle western Central Java where landslides frequently occur. To this end, hard soil depth was interpolated using two different methods: inverse distance weighting and ordinary kriging (OK). The method producing the least errors and the most similar data distribution was selected. The result shows that OK is the best fitting model and exhibits clear pattern related to the recorded landslide sites. From interpolated hard soil depth in the landslide sites, it can be surmised that landslide susceptible areas are places possessing hard soil depth of 2.6-13.4 m. This finding is advantageous for policy makers in planning and designing efforts for landslide mitigation in middle western Central Java and should be applicable for other regions.
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