



Effects of Geology on Slope Angles in Japan based on GIS Analysis

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Quantitative analysis with DEMs based on GIS (Geographic Information System) is a valid method to prove relationships among slope angle and bedrock geology. This study contributes spatial analysis with DEMs and 1:200,000 seamless geological map of Japan. The average altitude, average slope angle and altitude-slope relationship of each geological unit was examined. Based on the initial results of the spatial analysis, most terrains in the study area have similar altitude-slope relationships irrespective of bedrock geology indicating that geology plays a relatively minor role in determining slope angles. However, as a result of analysis of reclassified seamless geological maps based on geological structure, the terrains underlain by some specific rocks, however, are highly susceptible to slow gravitational landslides and thus have markedly reduced slope angles than other terrains with similar altitudes. This result is the same trend as kawabata et al (2001).