



Potential sites of large, catastrophic landslides in non-glaciated areas from the view point of slope development

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Landslides vary from very small, shallow ones to gigantic ones in scale and from slow to very rapid, catastrophic ones in movement. Among these, potential sites of catastrophic landslides must be predicted in order to mitigate devastating disaster induced by these and its prediction must be based on geology and geomorphology because they are strictly controlled by geological structures and could not be predicted by geotechnical models without precise geological information. We here propose a methodology to predict the potential sites of large, catastrophic landslides from the view point of slope development on the basis of the case studies made in sedimentary rock areas in Japan and Taiwan. Study sites are Kyushu, Shikoku, and Kii in Japan and the watershed of the Dahan River in northern Taiwan. These areas are underlain by Cretaceous to Miocene sedimentary rocks, mainly sandstone and hard mudstone, and are tectonically active and uprising rapidly. Common topographic features of the sites of the large landslides in these areas are that they occurred along convex slope breaks surrounding gentle slopes, some of which are the remnants of peneplains. The slope breaks are made by rejuvenation of rivers; these areas had no glaciers in Quaternary age. In addition, catastrophic landslides are preceded by scarplets with small displacements, which indicates that the slopes were at critical condition just before catastrophic failure.