The influence of weathering on landslides in some granitic areas of Japan

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Landslides occurred in granitic rock areas are somehow affected by different weathering processes. However, only the climatic condition such as rainfall intensity was investigated well but weathering degrees are not quantified in the most of previous researchers. The present study describes weathering degrees by analyzing chemical and mineralogical properties, and considers their effects on landslides. Samples for analyses were collected sequentially from fresh to strongly weathered. Total 54 samples from Hiroshima (Hiroshima pref.), Nagiso (Nagano pref.), Yamaguchi (Yamaguchi pref.), Minakami (Gunma pref.), Iwakuni (Yamaguchi pref.), Yamada (Kagoshima pref.) and Ishigaki (Okinawa pref.) granitic areas were analyzed by using XRD (X-ray powder diffraction), Scanning Electron Microscope (SEM) and Energy Dispersive X-ray Spectrometry (EDS). As a result, typical weathering trends were observed by comparing both chemical and mineralogical data. The chemical changes like the concentration of K_2O, Na_2O, CaO, MgO, Al_2O_3, SiO_2, FeO changes and the presence of kaolinite, illite, smectite, vermiculite, chlorite along with quartz, k-feldspar, plagioclase, mica also showed the major causes of the formation of clay minerals.

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