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水岩化学作用对斜坡水文地质及滑坡的影响(PDF)

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Title: Effect of chemical water-rock interaction on hydrogeology and landslide of slope

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关键词: [斜坡](#); [水岩化学作用](#); [腐岩](#); [水文地质](#); [滑坡](#)

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摘要: 在温湿气候区,水岩化学作用对岩质斜坡的水文地质演化及失稳-夷平进程具有重要的控制作用。从地表到新鲜岩体,随着水岩化学作用程度的逐渐减弱,斜坡剖面可依次划分为土层、腐岩带和风化岩带,各带之间多是渐变过渡的。土层多由枯枝落叶层和土壤层组成,有时底部含有残坡积物;腐岩是由岩浆岩、沉积岩或变质岩经等容风化形成的风化软岩;风化岩带是腐岩带的前身,其特征是含有较高数量的核心石。斜坡垂向分带主要是地下水引起的,而这种分带反过来又会强烈影响地下水自身的埋藏与分布。土层可贮存上层滞水,风化岩带则可赋存潜水或承压水。上层滞水是浅层滑坡的主要控制因素。由于形成条件宽松,但规模不大,上层滞水控制的滑坡灾害多具群发性特点,同时,由于其含水介质为松散土体,失稳含水层很容易转化为泥石流。降雨期间,风化岩带内潜水水位上升甚至承压,导致岩体抗剪强度降低并诱发深层滑坡。

Abstract: In humid, temperate or humid wet tropical environments, chemical water-rock interaction plays an important role in rocky slope hydrogeology evolution and landslide pregnancy. From the earth's surface to fresh bedrock the profile of slope may be divided into soil zone, saprolite zone and weathered rock zone. Soil is made of dry branches and fallen leaves layer and earth layer, but some times contains residuum material. Saprolite is isovolumetrically weathered soft rock. Weathered rock is the predecessor of saprolite and is mainly made of corestones surrounded by saprolite crust. It is by chemical water-rock interaction that slope zoning is caused and the zoning affects strongly the distribution of groundwater. Soil zone can keep perched water and phreatic water or confined water may occur in weathered rock zone. Perched water is the main controlling factor of shallow slope failures and the phreatic water or confined water in weathered rock zone can bring out deep-seated landslides.

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