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## 台风作用下植被对斜坡稳定性影响的物理模拟(PDF)

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Title: Physical modeling of the effect of vegetation on slope stability under typhoon

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关键词: [边坡稳定性](#); [植被](#); [物理模拟](#); [台风](#)

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摘要: 在台风滑坡基本特征及失稳机理分析的基础上,采用物理模型试验对草本、灌木、乔木三种类型植被在相同降雨和风荷载作用下对斜坡稳定性的影响进行了研究。试验结果表明:灌木根系提高了土体的抗拉强度,并且灌木对风荷载的响应较弱,对斜坡的稳定性较为有利;乔木根系的固坡作用不明显,并由于植被向斜坡传递风力荷载而在土体中产生裂隙,增加了斜坡下滑力和土体的渗透力,对台风滑坡稳定性产生不利影响;草本类斜坡的变形破坏主要是受台风暴雨作用的影响,斜坡稳定性介于灌木和乔木类斜坡之间;该次试验现象与台风滑坡植被覆盖情况及成因机制分析较为吻合。

Abstract: On the basis of the basic characteristics and the mechanism of slope instability of the typhoon-induced landslides, physical model experiments were conducted with the goals of investigating the effect of herbs, shrubs and arbors on slope stability in the same rainfall and wind load. Experimental results show that the shrub's lateral root can increase the tensile strength of the soil. Meanwhile, the response of shrubs to wind load is weak, so the shrub is advantageous to the stability of the slope; the root reinforcement of the arbor to slope is unobvious, while the arbor can crack the soil by the wind load applied to the slope, which increases the sliding force of the slope and the seepage force of the soil, so the arbor is disadvantageous to the stability of the typhoon-induced landslides; the deformation and destruction of herb slopes is mainly affected by the typhoon rainstorm, and the stability of slopes lies between shrub slopes and arbor slopes;

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