滇中地区小流域治理前后水土流失变化规律的研究

Change law in runoff and soil erosion from a watershed in the central Yunnan Province after conservation implementation

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中文摘要：

通过生物措施、工程措施和耕作措施对滇中地区典型小流域—王家箐进行综合治理，观测了治理前后气象、水文、土壤侵蚀资料，分析了治理前后试验区降雨与径流、侵蚀之间的关系及变化。结果表明，试验区的水土流失主要集中在5～10月，区内次降雨的径流量、侵蚀量与降雨量和最大30 min雨强乘积的相关性最好，其关系式为一元三次方函数，相关系数在0.956到0.993之间(极显著相关)；月径流量、月侵蚀量与月降雨量之间的关系为一元幂函数，相关系数在0.819到0.985之间(极显著相关)。采取生物措施、工程措施和耕作措施相结合的综合治理方式，能有效抑制以坡耕地为主的小流域的水土流失，但不改变流域降雨径流侵蚀函数关系式，只改变其系数。

英文摘要：

In order to control soil and water loss in the small Wangjiajing watershed in the central Yunnan Province, engineering, biological and crop cultivation measures have been implemented. The data of climate, hydrology and soil erosion have been collected and analyzed. It is concluded that rainfall, runoff and soil erosion in the small Wangjiajing Watershed are concentrated from May to October. And there are significant positive correlations between value of multiplying rainfall and maximum 30-minute rainfall intensity and runoff, and sediment for a single rainfall(R=0.956**, 0.993**). The relationship is expressed as unitary cubic equation. The equation for monthly rainfall and runoff and sediment is unitary power function (R=0.819**, 0.985**). It is indicated that engineering, biological and crop cultivation measures are effective to reduce soil and water loss in this small watershed.