

稀土元素(REE)示踪土壤侵蚀动态过程的降雨模拟试验研究

Rain simulation of dynamic soil erosion processes with rare earth element tracers

投稿时间: 2004-12-21 最后修改时间: 2005-8-11

稿件编号: 20060308

中文关键词: 稀土元素; 模拟降雨; 土壤侵蚀

英文关键词: rare earth element; rainfall simulation; soil erosion

基金项目: 教育部科学技术研究重大项目(ZD01-10); 中国科学院“引进国外杰出人才”项目(982602)

作者	单位
唐泽军	中国农业大学水利与土木工程学院, 北京 100083
雷廷武	中国农业大学水利与土木工程学院, 北京 100083; 中国科学院水利部水土保持研究所, 杨凌 712100
张晴雯	中国科学院水利部水土保持研究所, 杨凌 712100
赵军	中国科学院水利部水土保持研究所, 杨凌 712100

摘要点击次数: 170

全文下载次数: 38

中文摘要:

该文应用稀土元素(REE)示踪法研究土壤侵蚀发生和发展动态过程的方法,分析了土壤侵蚀沿坡面变化的规律。采用Dy、La、Sm、Yb、Ce、Eu、Nd、Tb等8个REE进行了一系列的人工降雨模拟试验,并采用3个雨强(50, 100和150 mm/h)和5个坡度(8.74%, 17.63%, 36.4%和46.63%),分I、II 2个降雨阶段进行,定量分析了土壤表面雨水动力特征与土壤侵蚀之间的动态平衡过程,揭示了土壤侵蚀发生和发展的过程及土壤侵蚀沿坡面分布的规律,结果表明雨强和坡度越大的条件下,侵蚀率越大的区段越靠近坡的顶端,这与细沟发生的部位完全吻合。

英文摘要:

A new idea was advanced to identify the initiation and the development of the dynamic soil erosion processes with the rare earth elements(REE) method under simulated rainfall conditions. A series of experiments were conducted with Dy, La, Sm, Yb, Ce, Eu, Nd and Tb under laboratory rainfall simulator conditions at three different rainfall intensity(50, 100 and 150 mm/h) and four slope gradients(8.74%, 17.63%, 36.4% and 46.63%). Two consecutive rainstorms were applied with a 24 hours interval. The initiation and development of soil erosion along slope was studied. And the dynamic equilibrium of runoff and soil erosion along slope was quantitatively analyzed. This paper revealed clearly the occurrence and development processes of soil erosion, and showed the development of the rill and soil erosion along slope. The results show that soil erosion mainly occurs the upper slope with the bigger rain intensity and slope, which is consistent with the gully erosion.

[查看全文](#)

[关闭](#)

[下载PDF阅读器](#)

您是第607235位访问者

主办单位: 中国农业工程学会 单位地址: 北京朝阳区麦子店街41号

服务热线: 010-65929451 传真: 010-65929451 邮编: 100026 Email: tcsae@tcsae.org

本系统由北京勤云科技发展有限公司设计