

黄丘区不同空间尺度地貌单元产沙特征及其动力机制

Characteristics and hydrodynamic mechanism of sediment yield in different topographical units of different spatial scales in Loess hilly-gully region

DOI:10.11766/trxb201205070172

中文关键词: [空间尺度](#) [地貌单元](#) [产沙](#) [动力机制](#) [黄丘区](#)

Key words: [Spatial scale](#) [Topographical unit](#) [Sediment yield](#) [Hydrodynamic mechanism](#) [the Loess Hilly-Gully region](#)

基金项目:国家重点基础研究发展规划(973计划)(2011CB403303)、水利部公益性行业专项(201201081)和黄河水利科学研究院基本业务费专项(HKY-JBYW-2010-19)资助

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中文摘要:

以黄土丘陵沟壑区桥沟流域为原型观测流域,利用流域内的水文站网、不同地貌单元大型径流场等观测设施,定量研究了黄土丘陵沟壑区不同空间尺度地貌单元产沙特征,揭示不同空间尺度地貌单元产沙机制。结果表明,侵蚀模数随着空间尺度的增加,呈现出“增加—峰值—减小”的涨落变化过程。在坡面尺度,侵蚀产沙主要与径流深有关,径流剪切力可以较好地描述其侵蚀产沙关系,输沙率随径流剪切力的增加而增加,而流域尺度的侵蚀产沙不仅与径流深有关,还与洪峰流量有关,径流侵蚀功率可以较好地表征其侵蚀产沙关系。

英文摘要:

Characteristics and hydrodynamic mechanism of sediment yield in different topographical units of different scales in Loess hilly-gully region were studied using Qiaogou Watershed in that region as prototype for observation and making use of the observation facilities therein including three hydrological stations and three large-scaled field runoff plots, which located in different topographical units. Results show that the soil erosion modulus displayed a trend of “rising-peaking-declining” with the escalation in spatial scale. At the slope scale, sediment yield was mainly related to depth of runoff. The relationship could be well described by runoff shear stress, with which sediment delivery rate increased. At the watershed scale, sediment yield was related not only to runoff depth but also to peak flood flow. Sediment delivery rate was a power function of the runoff erosion power at the watershed scale.

王玲玲,姚文艺,王文龙,杨春霞.黄丘区不同空间尺度地貌单元产沙特征及其动力机制[J].土壤学报,2013,50(2):275-280.Wang Lingling,Yao Wenyi,Wang Wenlong and Yang Chunxia.Characteristics and hydrodynamic mechanism of sediment yield in different topographical units of different spatial scales in Loess hilly-gully region[J].Acta Pedologica Sinica,2013,50(2):275-280

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