

本期目录 | 下期目录 | 过刊浏览 | 高级检索

[打印本

页] [关闭]

论文

甘肃省舟曲8.7特大泥石流调查研究

余斌,杨永红,苏永超,黄文杰,王高峰

(成都理工大学 地质灾害防治与地质环境保护国家重点实验室 |成都 |610059)

摘要:

本文通过对甘肃省舟曲县城后山三眼峪沟和罗家峪沟特大泥石流灾害的现场调查,从泥石流形成的地形、地质和降雨条件入手,分析了特大泥石流灾害的特征与成因:三眼峪沟和罗家峪沟泥石流形成区在2010年8月7日23~24时的1h降雨量达77.3mm,暴雨形成强大洪水依次冲毁两条沟内的天然堆石坝和人工拦挡坝,形成规模巨大的高容重黏性泥石流,泥石流冲出总量和泥沙总量分别为 $144.2 \times 10^4 m^3$ 和 $97.7 \times 10^4 m^3$; 泥石流携带具有强大冲击力的巨石冲毁房屋5500余间; 在白龙江内形成长约550m,宽约70m,高约10m的堰塞坝并形成堰塞湖,堰塞湖回水长3km,使县城一半被淹; 泥石流造成1744人死亡和失踪。分析研究表明,三眼峪沟和罗家峪沟泥石流如果在近期遭遇强降雨还会暴发泥石流,但规模比8.7特大泥石流小; 如果强降雨发生在数年后,暴发的泥石流规模比8.7特大泥石流略小; 在20a或更长的时期内,没有发生新的地震影响下,在三眼峪沟和罗家峪沟经历一次大规模泥石流暴发后,泥石流的规模将回到汶川地震前的水平。

关键词: 舟曲,泥石流,堆石坝,地震,降雨

RESEARCH ON THE GIANT DEBRIS FLOW HAZARDS IN ZHOUQU COUNTY|GANSU PROVINCE ON AUGUST 7| 2010

YU Bin,YANG Yonghong,SU Yongchao,HUANG Wenjie,WANG Gaofeng

(State Key Laboratory of Geohazard Prevention and Geoenvironment Protection|Chengdu

扩展功能

本文信息

- Supporting info
- PDF(5800KB)
- [HTML全文]
- 参考文献 [PDF]
- 参考文献

服务与反馈

- 把本文推荐给朋友
- 加入我的书架
- 加入引用管理器
- 引用本文
- Email Alert
- 文章反馈
- 浏览反馈信息

本文关键词相关文章

- 舟曲,泥石流,堆石坝,地震,降雨

本文作者相关文章

PubMed

Abstract:

The reason of giant debris flow triggering was obtained by field investigation and analysis on the debris flow formation conditions: heavy rainfall happened in the upstream of Sanyanyu Gully and Luojiayu Gully. The recorded rainfall was 77.3mm in one hour from 23 to 24 o'clock, August 7, 2010. The heavy rain caused powerful flash flood in the catchments, which destroyed several natural dams and prevention dams in the two gullies. Then the giant debris flows were formed. The debris flows were high density viscous debris flows. The total volume of debris flows and the volume of sediment in debris flows were estimated at $144.2 \times 10^4 \text{ m}^3$ and $97.7 \times 10^4 \text{ m}^3$, respectively. The large boulder involving in debris flows moved with powerful impact force and destroyed more than 5500 houses in depositional fans. The debris flows produced a dam with 550m in length, 70m in width, and 10m in height in Bailongjiang River. The dam blocked the river and formed a lake with 3km in length and half of Zhouqu city was inundated. As of August 18, 2010, the debris flows claimed 1287 death, with further 457 listed as missing. The tendency of debris flow development was obtained by a preliminary analysis of the initiation conditions of debris flows: (1) The debris flows will be triggered if there is a heavy rainfall in the upstream of debris flows gullies recently, but the scale of debris flows will be less than the scale of debris flows on August 7, 2010; (2) The debris flows will be triggered if there is a heavy rainfall in the upstream of debris flows gullies in a few years, the scale of debris flows will be a little bit less than the scale of debris flows on August 7, 2010; (3) The scale of debris flows 20 years later will be the same as the scale of debris flows before Wenchuan Earthquake if there is no more earthquake effect this area and a event of large scale debris flow has happened in these