

汶川震区银厂沟区域8·18暴雨泥石流灾害成灾机理与特征

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MECHANISM AND CHARACTERISTICS ON DEBRIS FLOW HAZARDS IN YINCHANGGOU AREA TRIGGERED BY RAINSTORM ON AUGUST 18, 2012

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摘要 2012年8月18日汶川震区的银厂沟区域暴发群发性泥石流,造成人员伤亡,公路、房屋等基础设施严重受损。这场泥石流灾害发生在汶川地震极震区内,是地震与强降雨共同作用下的结果,因此研究其成灾机制和灾害特征对于进一步认识强震区泥石流活动具有重要意义。本研究采用地面调查和遥感解译方法,分析银厂沟区域泥石流形成条件的变化。研究结果表明强震条件下崩塌、滑坡等产生的松散固体物质,是泥石流活动的物质基础;沟道受松散岩土体堵塞,有利于泥石流规模放大;"快速激发型"的雨量特征为泥石流暴发提供了动力。在此基础上讨论了泥石流起动、运动和堆积过程,总结了泥石流活动特征,发现泥石流沿发震断裂呈"带状"分布,成因组合上属于"降雨控制型",尚处于"青年期",且在成灾模式上满足"致承耦合"效应。

关键词: 泥石流 成灾机理 活动特征 汶川地震 银厂沟区域

Abstract: A group of debris flow hazards occurred at Yinchanggou area on August 18, 2012. This area was part of the epicenter region of Wenchuan earthquake. These debris flows greatly impacted the community of the Yinchanggou area and produced some casualties. This event also damaged many roads and other infrastructures. Debris flow hazards resulted from the coaction of the rainstorm and earthquake. Therefore, it is significant for better understanding of characters of debris flows to conduct the research on the mechanism in extreme seismic area. Field investigation and interpretations of aerial photographs were used to analyze variation of debris flow factors. This study demonstrates that loose mass generated by the collapse and landslides provided abundant materials for debris flows. The blockage of channel increased the scale of debris flow. Rainstorm like rapid triggering response pattern provided power for debris flow initiation. After discussing initiation, motion and deposition process, this study discovers that debris flows distributed like a band along fault and were very young. The trigger and control factors depend mainly on the rainfall condition. Besides, these hazards resulted from the coaction of debris flow itself and community.

Key words: Debris flow Mechanism Activity characteristics Wenchuan earthquake Yinchanggou area

收稿日期: 2012-10-20;

基金资助:

科技部科技基础性工作专项项目(2011FY110100), 四川省教育厅自然科学重点项目(11ZA047)资助

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引用本文:

. 汶川震区银厂沟区域8·18暴雨泥石流灾害成灾机理与特征[J]. 工程地质学报, 2013, 21(5): 761-769.

. MECHANISM AND CHARACTERISTICS ON DEBRIS FLOW HAZARDS IN YINCHANGGOU AREA TRIGGERED BY RAINSTORM ON AUGUST 18, 2012[J]. Journal of Engineering Geology, 2013, 21(5): 761-769.




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