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灾害地质

贵州关岭大寨崩滑碎屑流灾害初步研究

刘传正

中国地质环境监测院 北京 100081

摘要：

2010年6月28日,贵州省关岭县岗乌镇大寨村发生特大型崩滑碎屑(石)流灾害,造成99人死亡或失踪。通过现场考察崩滑区的地质环境与斜坡岩体结构,认为斜坡体由似"干砌块石结构"的裂隙化岩体组成是发生崩溃式破坏的主要内在原因。超常暴雨(过程雨量237mm)条件下斜坡岩体后缘裂缝充水形成持续的"水楔作用"是斜坡岩体松动、倾倒垮塌的主要外部引发因素。碎屑(石)流块度的空间分布具有从源头向沟口逐次减小,碎屑(石)流运动冲击高度逐步降低,冲击速度逐步减小,并显示4个能级4个冲程的特点。根据动势能守恒定律,计算了每个冲程的最大速度,得出第1冲程为高速崩滑,其它冲程属于碎屑(石)流动冲击。未发现区域天然地震、光照水库诱发地震与外围历史采矿活动与本次事件相关的直接证据。由于滑坡后缘仍存在不稳定岩体,碎屑(石)流堆积体上多处分布直径3~5m的堰塞塘,说明碎屑(石)空隙的排泄能力不足,在未来暴雨条件下引发新的崩滑或形成沟谷型泥石流的可能性是存在的。

关键词： 裂隙化岩体 干砌块石结构 水楔作用 碎屑(石)流 多能级多冲程

RESEARCH ON THE DAZHAI LANDSLIDE-DEBRIS DISASTER HAPPENED IN GUANLING,GUIZHOU,JUN. 28, 2010

LIU Chuanzheng

China Institute for Geo-Environment Monitoring,Beijing 100081

Abstract:

扩展功能

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The Dazhai event happened at Jun 28, 2010 in Guling county of Guizhou province of China.It is a sliding in rockfall and debris events(volume is about $78.8 \times 10^4 m^3$),and an oversize geological disaster(the number of missing and death is 99 residents).It is taken for that rockmass breakdown results mainly from "dry building block structure" in fissured rockmass in internality of Dazhai slope by through field looking into collapse phenomena.That sustaining "water wedge" pressure acts on the crown cracks by pouring rainwater from extreme rainstorm,process rainfall reach to 237mm,is main external triggering factor which result in slope rockmass loosening,toppling,rotating and falling finally.The grain size distribution of debris(crushed stone)flow is to change small gradually from rockfall headstream to stop outlet of the ditch.Still,its impact height is to knock down and strike velocity is to be decrease gradually.The total process of the debris(crushed stone)flow displays that multilevel of potential energy transform into same number of kinetic energy and accordingly occur in multi-strike paths.Based on the law of conservation of energy,maximum velocity in each strike path is calculated and obtain that first stage belongs to rockfall and slip in high velocity (V_1=24.25m·s^{-1}),others are debris(crushed stone) flows.It is not discovered that direct evidences of the event exist related with natural earthquakes,Guangzhao reservoir induced seismic activity and historic coal mining in the region.Moreover,it may be predicted that possibility of debris flow happening again is existent because there are unstable rockmasses in collapse area and dammed ponds in the debris deposits of 3~5m in diameter that show capacity for to drainage to be not enough in open space of crushed stones.

通讯作者:

作者简介:刘传正,主要从事地质灾害防治、工程地质评价等方面的研究工作.Email: liucz@mail.cigem.gov.cn
作者Email:

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