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论文

金沙江龙蟠右岸变形体的地震学研究

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摘要 拟建中的虎跳峡水电站水库蓄水后距虎跳峡上游20 km处的龙蟠右岸变形体是否会突然失稳崩滑为许多人关注.本文在折射波勘探方法获得龙蟠变形体底界形态、埋深、规模的基础上，进一步利用折射波勘探已经采集的炮集记录识别的反射波、面波、折射波等来研究变形体的内部结构和弹性及非弹性参数，获得变形体内部存在纵向横向结构的依据以及面波和折射波衰减系数，进而估算了变形体介质横波和纵波的非弹性性质参数与弹性性质参数的比值分别为0 000184和0 000144.由此判断水库蓄水后因变形体介质大量孔隙充水，造成孔隙压增加和剪切强度降低，进而导致变形体可能发生稳定非弹性变形或滑动，但稳定变形或滑动是否会演化成突然的非稳定滑动尚缺乏资料的支持.

关键词 虎跳峡水电站 龙蟠右岸 变形体内部结构 非弹性性质 地震学研究

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A seismic study of the deformable body on the Longpan right band of the Jinsha River

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Abstract Geologists highly concern whether the deformable body on Longpan's right band locate at the upper stream 20 km from the Hutiao gorge could lose the stability suddenly or not after the Hutiao gorge reservoir is impounded. Based on the shape, buried depth, scale and the border of the deformable body determined by seismic refraction exploration, we identify the reflective wave, surface wave, and refraction wave further from the shot gathered data acquired with refraction exploration, then use them to interpret the interior structures of the deformable body and to calculate elastic and non_elastic parameters. With decay coefficients of surface wave and refraction wave, the ratios are calculated between non_elastic parameter and the elastic parameter of shear wave and P wave in the deformable body, which are 0 000184 and 0 000144, respectively. We infer that the deformable body will distort steadily caused by non_elastic deformation or slide after the reservoir is impounded, because the pore pressure will be increased and the shear strength will be decreased after the pore in the deformable body is water_bearing enough, but we can not make sure whether the stable distort or sliding could cause a non_steady slide suddenly or not because we don't have enough data to prove it.

Key words Hutiao gorge hydropower station; Longpan right band; Structure of deformable body; Non_elastic character; Seismological research

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