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遥感在滑坡灾害研究中的应用进展 [点此下载全文](#)

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摘要:

在对常用的光学遥感卫星影像、InSAR, LiDAR等遥感技术方法介绍的基础上, 综述了这些方法在滑坡研究中的最新应用进展, 从滑坡风险评估中的基础地形数据获取、滑坡编录与制图、监测、滑坡因素制图、承灾体制图等5个方面阐述遥感技术在滑坡风险中的支撑技术作用与应用前景。从遥感影像在滑坡风险评估中的作用、解译能力、影响解译的因素、精度评价和遥感数据源选择等角度阐述了常用遥感技术在滑坡风险评估应用中存在的问题, 认为: ① 遥感技术在滑坡风险评估中的主要作用为数据、信息的获取与更新; ② 滑坡的遥感影像解译能力取决于影像空间分辨率与待识别滑坡大小的相对关系, 影像的时间分辨率、滑坡与其周边环境的对比度、立体影像的获取能力是利用遥感影像开展滑坡探测、识别与制图的关键要素; 解译方法和解译员的专业素质是滑坡遥感解译的重要影响因素; ③ 遥感影像与GIS空间分析、3D可视化的综合可有效增强滑坡识别与制图的效率和精度; ④ 对于遥感解译滑坡的精度评价应针对具体影像的可解译性从有效解译, 错误解译和遗漏解译三个方面予以客观评价; ⑤ 滑坡风险评估应针对具体应用, 从成本效益比的角度, 本着“够用为止”原则合理选用遥感数据源。

关键词: [遥感](#) [滑坡灾害](#) [InSAR](#) [LiDAR](#) [DEM](#)

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Abstract:

Based on the introduction of remote sensing techniques and method as normal optical satellite remote sensing imagery, InSAR, LiDAR and etc, this paper reviews the newly application and development of remote sensing for landslide study. From each of the landslide risk assessment 5 phases: basic topographical data acquisition and extraction, landslide inventory and mapping, monitoring and landslide diagnostic factors mapping and element at risk mapping, this paper states the RS techniques offer a solid technique infrastructure, and exploits its potential development for landslide risk assessment. From the role of RS in landslide study, interpretability, causative condition that influence landslide identification, accuracy assessment and RS data source selection, the author states and discuss some questionable and arguable aspects, and as well presents that: ① the mainly use of remote sensing for landslide study is data and information acquisition and update; ② the interpretability of landslides from remote sensing images depends in the first place on the spatial resolution of the images in relation to the size of the features which are characterizing the slope movement and which can be recognized or identified. The following aspects are key features for recognizing landslides from remote sensing images: temporal resolution, the existing contrast between the slope movement and its background, the ability of stereo imagery acquisition and the interpretability is also influenced by the interpretation method, professional experience of the interpreter; ③ the integration of remote sensing imagery, GIS spatial analysis and 3d visualization can enhance the landslide recognition and mapping efficiency and accuracy; ④ the accuracy assessment of landslide interpreted from remote sensing imagery should be objectively assessed from valid, misidentification, omission aspects according to the specific interpretability of the image; ⑤ as for remote sensing data selection for landslide risk assessment, which should follow sufficient is best for the specific application and take cost effective into account.

Keywords: [Remote sensing](#) [INSAR](#) [LiDAR](#) [DEM](#) [Landslide Risk Assessment](#)

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