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基于RS与GIS混合编程的公路水毁灾情信息提取

Title: Road flooding information extraction based on mixed programming of remote sensing and geographic information system

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关键词：   公路水毁; 信息提取; 混合编程; 遥感; 地理信息系统

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摘要：   研究了基于高分辨率卫星遥感影像的公路水毁灾情信息提取模型,通过解决跨软件环境的开发问题,实现了基于遥感与地理信息系统混合编程的公路水毁灾情信息提取系统。使用高分辨率卫星遥感数据形成融合数据,通过分析融合图像的光谱、几何、纹理特征,建立了公路信息提取规则,构建了面向对象的公路信息提取模型。根据水在近红外和中红外波长范围内反射率极低的特性,同时考虑不同环境背景造成的信息提取复

杂性,研究了具有自适应特点的水面提取模型。通过建立组件式地理信息系统和遥感应用环境之间的通信和数据共享机制,实现了模型运行的交互式用户界面,并提供叠置空间分析功能,从灾后公路边界提取结果中去除水面部分,获得公路水毁信息。实际应用表明,系统可以满足相关工作对公路水毁灾情信息提取技术的要求。

Abstract: In this study, a road flooding information extraction model based on high resolution satellite remote sensing imagery was researched. A road flooding information extraction system was developed through the realization of inter-programming among different software environments by combining remote sensing and geographic information system technologies. First, road information extraction rules were built by analyzing spectral, geometrical and textural characteristics of fused image, which can be generated from original high resolution multi-spectral satellite remote sensing imagery. The rules were utilized to make an object-oriented road information extraction model. Second, with the knowledge of pure water's very low reflecting rate in near and mid-infrared electromagnetic wave band, and considering the complexity caused by different environmental background, an adaptive water information extraction model was built. On above bases, a component-based communication and data sharing mechanism between the application environment of remote