

高空间分辨率遥感数据变化检测

摘要

随着我国城市化进程脚步的加快,城市土地利用类型变化日新月异。而遥感技术在监测土地利用类型方面随着空间分辨率、时间分辨率以及光谱分辨率的增加,应用越来越广泛,由于传统的遥感技术对土地利用类型的变化检测会出现准确率低等缺点,研究新的方法对土地变化检测成为热点问题。高空间分辨率影像具有纹理、空间等信息丰富的优点,目前用于研究基于高分辨率遥感图像用于土地利用变化检测的新方法等成为热点问题,并且利用 eCognition 软件中的多尺度分割不仅避开了传统方法中因为分类时存在的同物异谱和同谱异物的分割问题,而且自动化程度比较高,人工干预相对较小,精度也较高。而 LBP 算子计算量相对较小,通过 LBP 算子对图像处理形成的纹理图更有助于图像分类。在变化检测时做波段差得出的灰度图表达出变化区域,此方法不仅操作简单而且结果直观。本文以天津滨海新区其中一块区域的高空间分辨率影像进行时间跨度的纹理研究,通过 ENVI 和 eCognition 软件,利用 LBP 算子对纹理特征提取和灰度共生矩阵提取提取纹理特征的统计量,基于面向对象的最邻近的监督分类方法,对滨海新区的高空间分辨率遥感影像研究区域进行分类,并利用做灰度差的变化检测和精度评价,从而得出天津滨海新区的变化区域。

关键词:LBP 灰度共生矩阵 面向对象方法 最邻近分类 灰度差

Abstract

With the acceleration of the pace of urbanization in China, the types of urban land use are changing with each passing day. However, remote sensing technology has become more and more widely used in monitoring land use types with increasing spatial resolution, temporal resolution and spectral resolution. Because of the remote sensing technology, the detection of land use types will have low accuracy. Researching new methods has become a hot issue for land change detection. High spatial resolution images have the advantages of rich information such as texture and space. At present, new methods for detecting land use change based on high resolution remote sensing images have become hot issues, and multi-scale segmentation in eCognition software is not only avoided. In the traditional method, the problem of the division of the isomers and the same-spectrum foreign bodies in the classification is carried out, and the degree of automation is relatively high, the manual intervention is relatively small, and the

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