

刘晓娜,李宪海,孙丹峰,李 红,张微微,周连第.SPOT5遥感影像城郊耕地景观提取与廊道立地分析[J].农业工程学报,2011,27(4):317-323

SPOT5遥感影像城郊耕地景观提取与廊道立地分析

Landscape extraction and corridor site assessment of farmland in urban fringe using SPOT5 remote sensing image

投稿时间: 8/23/2010 最后修改时间: 11/5/2010

中文关键词: [耕地](#) [景观](#) [廊道](#) [立地分析](#) [面向对象](#) [SPOT5](#) [城郊](#) [大兴区](#)

英文关键词: [farmland](#) [landscape](#) [corridor](#) [site assessment](#) [object-oriented](#) [SPOT5](#) [urban fringe](#) [Daxing district](#)

基金项目: 国家“十一五”科技支撑项目(2006BAB15B05); 北京市财政局项目支持

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中文摘要:

城郊耕地立地受多种因素影响复杂多变, 利用高分辨率遥感影像提取耕地及其廊道地类, 并分析耕地与廊道地类间关系, 对于耕地保护和基本农田划定具有重要意义。以北京市大兴区为例, 对2004年和2007年SPOT5遥感影像, 采用面向对象分类方法开展耕地与其他景观类型提取, 包括交通运输用地、河流水面、水工建筑用地、农田水利用地、农田防护林地, 并对道路提取宽度进行评价。采用景观生态学廊道的分析方法与GIS空间分析方法, 分析4年间5种廊道地类的数量变化和空间分布变化。借助目视解译评价分类总精度和Kappa系数都超过了90%, 道路提取宽度在4~70 m之间; 农田防护林地数量变化最为明显, 呈零散分布状态, 农业水利用地空间分布较为均匀, 而交通运输用地中二级道路较大变化, 主要分布在受城市化和工业化影响较大的研究区北部。研究表明: 面向对象分类方法能够充分利用地类相关特征, 提取过程即体现地类立地信息, 多尺度分割能够在不同层次提取不同地类; 廊道空间分布与耕地空间分布表现出一定的相关性, 农田防护林地和农业水利用地分布密集的地区耕地流失的可能性较小, 交通运输用地密度较高的地区也是耕地流失集中地区。

英文摘要:

The characteristics of farmland site are complicated and versatile affected by many factors in urban fringe. Extract farmland and its corridor landscape types using high resolution remote sensing image is a superior way to detect farmland change. It is significant for farmland protection and delineation of basic farmland to analyze the relationship between farmland and its corridor landscape types. Taking Daxing district of Beijing as a case, object-oriented classification approach was adopted to extract farmland and other landscape types from SPOT5 remote sensing image in year of 2004 and 2007, including transport land, river, hydraulic construction land, irrigational land, farmland shelterbelt. The extracted road width was also evaluated. Finally, quantitative changes and spatial distribution changes of the 5 corridors during 4 years simply were analyzed through methods of corridor analysis of landscape ecology and GIS spatial analysis. The results showed that the classification accuracy and Kappa coefficient were more than 90% with visual interpretation, and the width of road was from 4 to 70 m; Farmland shelterbelt suffered the most obvious quantitative changes, and became scattered. Agricultural irrigational land distributed evenly. Secondary class road took greater changes, which mainly distributed in the northern study area affected greatly by urbanization and industrialization. Therefore, the object-oriented classification approach can take full advantage of class-related features, which fuses class site information at different levels. The spatial distribution of corridors and farmland shows a certain correlation, that is, the higher density of farmland shelterbelt and agricultural irrigational land, the smaller loss probability of farmland; the higher density of transport land, the higher loss probability of farmland.

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