利用ASTER遥感资料提取南京城郊土地利用信息的研究

Extraction of land use classification information of suburb of Nanjing city using ASTER image

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作者	单位
郭文娟	中国气象科学研究院，北京 100081
张佳华	中国气象科学研究院，北京 100081

中文摘要：

土地资源是社会经济发展最基本的物质基础，利用遥感技术可对土地资源进行分类调查。在对地观测方面，高光谱遥感与一般遥感影像相比，能提供更高质量的信息源。先进的空间热辐射反射计(ASTER)覆盖可见光、近红外、短波红外和热红外的14个波段，分辨率从15 m到90 m，对长江流域环境监测、地表覆盖变化、短期气候预测、自然灾害监测等，对于了解该区资源、生态与环境具有重要的意义。该文利用2001年ASTER数据对南京城郊地区进行了土地利用分类，首先采用多元统计方法提取分类特征波段。然后以非监督分类获得初始训练样本，对训练区进行多次像元提纯后，运用监督分类方法对南京城郊土地利用信息进行分类。研究表明，多种分类方法相结合可从ASTER影像更好地提取土地利用信息，达到较好得分类精度。

英文摘要：

Land resources are essential substance foundation for development of society and economy. Land resources can be classified and investigated by using remote sensing information. It is shown that high spectrum resolution images can better offer higher quality information source in observing the earth's surface in comparing with previous common remote sensing images. ASTER is an advanced multi-spectral sensor with high spatial resolution on the Terra satellite. It is a general-purpose instrument that covers a wide spectral region from the visible to the thermal infrared by 14 spectral bands (with high resolution from 15 m to 90 m) for monitoring natural resource and ecological environment changes, i.e., land use and land cover, short-term climate variability, natural disasters in the Yangtze River Valley. The landuse classification of suburb of Nanjing city was studied using ASTER image. In this paper, the multivariate statistical analysis was used to retrieve classification band, and then initial training samples were derived from unsupervised classification. After purifying pixels in region of interest time after time, status map about suburb of Nanjing city was classified by using supervised classification method. The result of supervised classification shows that the classification method combined with other image treatment methods can better retrieve landuse information from ASTER image and obtain high precision.

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