

基于多时相IRS-P6卫星AWiFS影像的水稻种植面积提取方法

Acquisition of paddy rice coverage based on multi-temporal IRS-P6 satellite AWiFS RS-data

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中文摘要:

水稻是中国的第一大粮食作物, 准确的获得水稻种植面积具有重要的现实意义。IRS-P6卫星数据产品是近年来中等分辨率数据中有广泛应用前景的数据源之一, 但是它在农作物种植面积提取方面的应用还有待进一步验证。选取中国典型水稻种植区安徽省怀远县作为试验区, 利用2005年6月24日和9月9日的两个水稻典型物候期的IRS-P6卫星AWiFS数据对水稻种植面积识别进行了试验研究, 根据两期水稻提取结果进行分区提取得到了较准确的水稻种植面积。经过与IRS-P6高分辨率LISS-3识别结果进行对比分析, 测量结果总体像元精度为88.58%, 区域总量一致性为97.63%, 略低于高分辨率识别结果。通过试验研究得到以下初步结论: 1) 利用多时相的IRS-P6卫星AWiFS数据分别分类后结果, 进行分区提取的方法可以较精确的提取水稻的种植面积; 2) 水稻种植面积同样可以利用乳熟期的IRS-P6卫星AWiFS单期影像较准确的获得; 3) IRS-P6卫星影像数据在农作物种植面积提取应用中有巨大的应用潜力。

英文摘要:

Paddy rice is the first main crop in China. Acquiring paddy rice coverage exactly plays a practical and significant role to the nation. And for the purpose of acquiring paddy rice coverage exactly, IRS-P6 satellite data are excellent middle spatial resolution data which have an extensive application in crop coverage estimation. But its application of acquiring crop coverage still needs verifying. This paper takes China typical paddy rice field, Huaiyuan county, Anhui Province, as the study area. Paddy rice coverage has been acquired based on two significant phenology's IRS-P6 satellite AWiFS RS-data which are respectively achieved on Jun. 24th and Sept. 9th in 2005. First, respectively the two data were classified, and then the paddy rice coverage was divisionally acquired, finally, the subarea's results were combined together as the final result. By comparing with the result based on high spatial resolution data, the overall pixel accuracy of paddy rice coverage is 88.58% and regional total accordance of paddy rice coverage is 97.63%, which is a little lower than that of high resolution result. Three important advancements have been found from the process of acquiring paddy rice coverage: 1) The very exact paddy rice coverage can be easily obtained by significant phenology's Multi-temporal IRS-P6 Satellite AWiFS RS-data through divisional acquiring method. 2) Paddy rice coverage could be acquired very exactly by using IRS-P6 satellite AWiFS RS-data on paddy rice near maturity; 3) IRS-P6 satellite AWiFS RS-data have a great potential in the application of crop coverage measurement.

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