植物生态学报
Chinese Journal of Plant Ecology
ISSN 1005-264X
CN 11-3397/Q
邮发代号：82-5

植物生态学报 » 2011, Vol. 35 » Issue (6) :615-622 DOI: 10.3724/SP.J.1258.2011.00615

研究论文

内蒙古草原植被覆盖度遥感估算

朱敬芳[1*], 邢白灵[1], 居为民[1], 朱高龙[1,2], 柳艺博[1]

[1]南京大学国际地球系统科学研究所, 南京 210093;
[2]闽江学院地理科学系, 福州 350108

ZHU Jing-Fang[1*], XING Bai-Ling[1], JU Wei-Min[1], ZHU Gao-Long[1,2], LIU Yi-Bo[1]

[1]*International Institute for Earth System Science, Nanjing University, Nanjing 210093, China;*
[2]*School of Geographic Sciences, Minjing University, Fuzhou350108, China*

摘要 以内蒙古锡林浩特市南部中国科学院草原生态系统定位研究站周围的草场为研究对象，分析比较了统计模型和亚像元分解模型进行草地植被覆盖度(vegetation coverage, *VC*)遥感估算的适用性。结果表明，根据Landsat-5 TM影像数据计算的比值植被指数(simple ratio vegetation index, *SR*)与观测的*VC*的相关性最高(R^2 = 0.761)；统计模型和亚像元分解模型生成的*VC*空间分布特征相似，但亚像元分解模型得到的*VC*平均值比统计模型的结果高0.091；在*VC*的低值和高值区，两种方法得到的*VC*结果相似；但在*VC*的中值区，亚像元模型得到的结果较统计模型的结果偏高。

关键词： 内蒙古白音锡勒草原 草地植被覆盖度 Landsat-5 TM影像 统计模型 亚像元分解模型

Abstract: *Aims* Our objective was to estimate grassland vegetation coverage (*VC*) in Inner Mongolia prairie, China, using a statistical model and a sub-pixel model and determine which model was more applicable in this area.

Methods Field experiments were conducted around three experimental stations in the Inner Mongolia prairie using a digital camera and a LAI-2000 plant canopy analyzer. A spectrum information model was used to extract the measured *VC* value from the photos. Statistical models were built between those *VC* values and six vegetation indexes. Then the *VC* map was made by using the model with the highest R^2. The measured leaf area index (*LAI*) values were used in the sub-pixel model to make another *VC* map.

Important findings The simple ratio vegetation index extracted from the Landsat-5 TM (thematic mapper) image had the higher correlation with *VC* values calculated from the photos taken in the field (R^2 = 0.761). The *VC* spatial distribution maps generated by the two models were generally similar, but the *VC* average value gained from the statistical model was 0.09 lower than that of *VC* values retrieved by the sub-pixel model. These two methods had similar results in the areas with higher and lower *VC* values, but the results from the sub-pixel model were higher than the statistical model with mid *VC* values.

Keywords: Baiyanxile grassland in Inner Mongolia, grassland vegetation coverage, Landsat-5 TM image, statistical model, sub-pixel model

收稿日期: 2010-11-08; **出版日期**: 2011-06-01

基金资助:

863 植被叶片聚集度系数和叶面积指数多角度遥感反演;973

通讯作者 朱敬芳 Email: zdzhujingfang@163.com

引用本文:

朱敬芳, 邢白灵, 居为民, 朱高龙, 柳艺博. 内蒙古草原植被覆盖度遥感估算. 植物生态学报, 2011,35(6): 615-622.

ZHU Jing-Fang, XING Bai-Ling, JU Wei-Min, ZHU Gao-Long, LIU Yi-Bo. Remote-sensing estimation of grassland vegetation coverage in Inner Mongolia, China. Chinese Journal of Plant Ecology, 2011,35(6): 615-622.

链接本文:

没有本文参考文献

没有找到本文相关文献