工程与应用

二维散点–分类NDVI法的邛海湖面积估算研究

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摘要   针对采用MODIS卫星遥感影像进行水体面积估算时存在大量混合像元的问题，提出了二维散点–分类NDVI法进行小面积水体的面积估算。方法在对250 m分辨率的MODIS第1、2波段数据二维可视化分析的基础上，选取目测即可区分的地物样本点集训练BP神经网络并对实验区像元进行分类判别，提取混合像元。应用线性光谱混合像元分解模型实现水体面积计算。对四川省邛海湖进行面积估算的结果表明，二维散点–分类NDVI法较其他的水体提取方法具有更好的适应性，在小面积水体定量计算上有更高的精度，适用于小型湖泊、水库等较小水体的实时监控。

关键词   邛海湖 二维散点 BP神经网络 线性分解 面积估算

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Area estimation of Qionghai by using 2-D scattered points-classification NDVI method

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Abstract

For the existent mixed pixels which appear in using MODIS for area estimation of the small water body，2-D scattered points-classification NDVI method is proposed.This method firstly analyzes band 1 and band 2 of MODIS data through 2-dimensional visualization，secondly selects sample point sets of ground features distinguished by vision to train BP Neural Network，and then discriminates and classifies pixels in the test areas to get mixed pixels，finally estimates water body area by using linear spectral mixed pixels decomposition model.Above-mentioned method is applied to estimate area of the Qionghai Lake in Sichuan province and discuss the error in detail.The results show that 2-D scattered points-classification NDVI method，has a better adaptability than some other water information extraction method and a higher precision in quantitative calculation of small water area，is applicable to real-time monitoring of small size water such as small lakes and reservoirs.

Key words Qinghai Lake 2-D scatter diagram BP Neural Network linear decomposition water area estimation

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