Quantitative Study on the Vegetation Landscape Characters of Chinese Buddhist Mountain Environments Based on eCognition Image Interpretation Technology: A Case Study of Jizu Mountain, Yunnan Province

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1 ABSTRACT

Chinese Buddhist mountains have become the symbols of large-scale Chinese traditional scenic spots and taken on striking diversiform landscape characters, with natural vegetation coexisting with artificial vegetation. As a newly-emerging smart image analysis technique, eCognition can help us conduct research on and analysis of the vegetation landscape characters and realize the instant output of the drawings and the corresponding vector data. This paper is about the quantitative analysis of and experiment conducted on the images of the vegetation landscape of the scenic area of Jizu Mountain on the basis of the multi-spectral remote-sensing satellite image data of China Resources (ZY-3). In the analysis and experiment, the eCognition object-oriented classification method is employed. With the spectral heterogeneity, multi-scale segmentation function and normalized vegetation index as the standards for image analysis, the mathematical algorithm suitable for the research on landscape is obtained by the membership function, with the characters of six kinds of vegetation landscapes extracted, such as the coniferous forest, broad-leaved forest, bamboo forest, sparse forest land, gardens, and orchards. The distribution of the vegetation landscape in Jizu Mountain is scientifically presented, with the algorithm description and drawing generation of vegetation landscape characteristics realized. Evaluated with the error matrix, the classification accuracy is great. The study provides a quantitative survey and analysis method for a highly spatial analysis of contemporary landscapes and analysis and design of urban green space ; it also provides valuable and promising remote sensing interpretation platforms and special technologies for scientific research on human settlements such as urban and rural planning and architecture.

1.1 Keywords

Chinese Buddhist mountain landscape; vegetation landscape character; eCognition; image interpretation technology; Jizu Mountain.

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