

Use of Landsat Data for Mapping Spatial and Temporal Variation of Landscape Pattern from 1987 to 2017: Case Study of Lake Group Watershed in Central Yunnan Province

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Abstract: Watershed landscape pattern and vulnerability change have important influence on watershed ecological environment. In this paper, basing on RS and GIS technology, using Landsat images of 1987, 1997, 2007 and 2017, through the interpretation of images of Yunnan central lake group, using ENVI5.5 to distill information of land use types, with the help of software Fragstats4.3 landscape ecology landscape index calculation, deeply discussing the nearly 30 years' landscape pattern of land use dynamic changes of space and time. The results show that: the spatial distribution and gradient change of landscape fragmentation and diversity are consistent with each other and the high and low values of the two are matched. Landscape dominance shows different changing characteristics in the sample belt with different characteristics. The change is not only affected by patch area, but also greatly affected by land layout. The landscape connectivity is high in each sample belt, and the patch of landscape type is closely connected with each other. This study demonstrates a great significance to the study of land use dynamics and environmental evolution of Lake Group watershed in central Yunnan plateau.

Keywords: Landsat, Spatial and Temporal Variation, Landscape Patter, Image Texture