

Characterization of changes in spatial patterns of urban built-up areas using remote sensing and landscape metrics

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The spatial patterns of urban built-up areas are essential in determining the regional environment and socioeconomic. This study focuses on the characterization of temporal changes in spatial patterns of urban built-up areas using Landsat satellite data and landscape metrics. The study area chosen was Nagoya city, the fourth largest city in Japan located in the middle of the island. During our study we created maps of urban built-up areas using land cover images from satellite data and quantified the urban structure by landscape metrics. Using the landscape metrics in combination with urban distribution data and administrative boundary data, we were successfully able to evaluate temporal changes of urban structure in and around the city. The results showed remarkable changes in urban structure of municipalities around Nagoya city and indicated that the integration of remote sensing and landscape metrics was highly efficient in the quantitative analysis of spatial patterns affecting urban changes.