

Geospatial Modeling of Urban Growth in Shanghai

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In the dramatic urban growth process, to quantificationally measure the urban growth process and mitigate the side effect by rapid urbanization had significant meaning in supporting the growth management. It is a big challenge in simulating and modeling the urban growth process for a megacity like Shanghai, the traditional single-core model is incompetent in the geospatial modeling studies. This research aims to modeling the urban growth of Shanghai using geospatial techniques to contribute to the current efforts of improving modeling and understanding of the urban growth process.

To achieve this purpose, three specific objectives are established. 1) Land use/cover classification and change detection using supervised object-based image analysis (OBIA) techniques. 2) Potential underdeveloped area mapping with the nighttime satellite images. 3) Modeling the urban growth process with neural network machining learning algorithm, and predicting the future changes.

Keywords: artificial neural network, urban growth modeling