
Applications of Remote Sensing and GIS to Monitoring of Urban Sprawl: A Case Study in *Wuxi* City, China

Shan Yang¹, Yong Zha¹ and Jay Gao²

¹College of Geographic Sciences, Nanjing Normal University, Nanjing, China

²Department of Geography, University of Auckland, Auckland, New Zealand

Abstract

Built-up areas in *Wuxi* City, eastern China over the period of 1966-1998 were derived from a topographic map, a land use thematic map, and three multitemporal Landsat TM images using visual interpretation and automatic classification. The overlay of the five results revealed that the built-up area of the city expanded by more than tenfold from 11.6 to 136.1 km² during the 32-year period. The most drastic expansion occurred between 1977-1984 at a rate of 282.8%. Of the eight urban factors examined, total road length, urban population and per capita dwelling space are closely correlated with built-up area at a Pearson correlation coefficient of 0.95 or higher. Urban built-up area is most accurately modelled from per capita dwelling space, followed by total population and road length. If jointly modelled from the three variables, the modelling can be achieved at an accuracy of 99.84 percent.
