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Remote sensing monitoring and driving force analysis of urban expansion in Guangzhou City, China

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Based on Land-satellite remote sensing data and by means of specific extraction and supervised classification of remote sensing information, a dynamic study was carried out on urban expansion of the built-up area of Guangzhou City, China in different periods. A detailed analysis was made of the area, orientation and rate of variation of urban expansion of Guangzhou City, China in the period of 23 years lasting from 1979 to 2002, and a model for urban expansion was proposed in this paper. As demonstrated by our research results, urban expansion of Guangzhou City, China is very fast with high speed development of the economy. In the 23 years period, the built-up area of Guangzhou City, China attains a net increase of 325.5 km², and reaches 397.4 km² in 2002, which is nearly 4.5 times of that in 1979 and means an annual average expansion of 14.2 km² and an annual growth rate of 19.7%. The model of urban expansion in Guangzhou City, China is basically characterized by radial expansion centered on the old city town, which takes the form of expansion in rings, in layers and along major traffic routes. Here the rate of urban expansion varies in different periods, and is the most outstanding in various periods in the east of the city. The built-up area of Guangzhou City, China is highly correlated with the gross domestic product (GDP), total population, urban resident income and urban traffic of the city, which are the dominating driving factors for expansion of the built-up urban area of Guangzhou City, China.

Biography

Ruisong Xu graduated in Space and Earth Sciences department from Chinese Sciences and Technology University in 1976. He is a Doctorate in Geochemistry and a Senior Scientist in biogeochemical remote sensing in Guangzhou Institute of Geochemistry, Chinese Academy of Sciences between 1977 to now. There are more than 150 research papers of him has been published in SCI academy journal. His 7 research monographic has been published. He has finished more than 30 national research programs in remote sensing application, geochemistry, nature resources, environment and ocean. He is a member of World ESCH expert group and a national scientist. He got 15 Chinese, USA, Japanese, Russia, Australia, European etc. patents. He has been awarded 16 Sciences and Technology awards by National of China.

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