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BUILD-UP AREA INFORMATION EXTRACTION USING LONG TIME SERIES LANDSAT REMOTE SENSING IMAGES

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THEME: Socioeconomic issues including health, urbanization and human heritage

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ABSTRACT:

In the past few decades, urbanization of the city is very fast all over the world. Mapping the dynamic expansion of the build-up area in both time and space is very critical to understand the urbanization process, land-cover and land-use change, and their impacts on the ecological environment. Landsat series satellites provide the necessary spatial details and temporal frequency for mapping build-up area expansion over the past four decades. The ability and efficiency of long time series Landsat remote sensing data processing has become a prominent problem of remote sensing applications. This paper studies build-up area extraction framework based on decision fusion and increment information mining on the basis of analyzing and summarizing the research history and actuality of build-up area extraction technology from Landsat remote sensing images. First, the build-up area information of the first temporal was extracted by decision fusion. The pixel-based thematic index method and object-oriented method were integrated through decision fusion mechanism. Second, the build-up area of the next temporal was obtained by increment information mining form the build-up area information of the previous temporal. The method was tested in Ningbo, one of the fastest urban growth cities in China. The three decades Landsat remote sensing data was collected and the build-up area maps were obtained. Experimental results show that the framework based on decision fusion and increment information mining for build-up area extraction from Landsat remote sensing data can make full use of the irreversible characteristic of build-up area, and finally obtain the higher overall accuracy.

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