

ANALYSIS AND MODELING OF URBAN LAND COVER CHANGE IN SETÚBAL AND SESIMBRA, PORTUGAL

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KEY WORDS:

ABSTRACT:

In this paper we study urban land cover change in the municipalities of Setúbal and Sesimbra, Portugal, between the years 1990 and 2006. Land cover classes are extracted from LISS-III, SPOT and Landsat satellite images using an object-oriented approach. The urban class dynamics, both for pattern and quantities, is studied using selected landscape metrics and Shannon's Entropy index. Finally, we model urban growth using Cellular Automata Markov chain analysis. Results indicate that the study area has undergone a tremendous change in urban areas during the studied period. Simulation results for year 2020 reveal that the rate of urban growth tends to continue and may threaten large areas that are currently reserved for forest cover, farming lands and natural parks. The combined use of remote sensing, landscape metrics and modelling techniques provided a consistent building block for successful urban planning, for exploring how and when urban growth is occurring, to test what-if scenarios and for helping subsequent research works.

TOPIC: Change detection and process modelling

ALTERNATIVE TOPIC: Remote sensing applications