Evaluation of Self-Modifying Cellular Automata In Modelling Urban Growth In Nyeri (Kenya)

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Abstract

Urban growth modelling using cellular automata has blossomed due to the advancement in geographic information systems (GIS), remote sensing and computer technology. Among such urban growth models, our urban growth model (UGM), was modified from SLEUTH (**S**lope **L**and-use **T**ransport **H**ill-shade) model. UGM has been integratedin the XULU modelling frame-work (e**X**tendable **U**nified **L**and **U**se Modelling Platform). In this research we evaluated a modified UGM whose transition rules were modified. In order to arrive at urban growth modelling, we used multi-temporal Landsat satellite image sets for 1987 and 2010 to map urban land-use in Nyeri.We compared our results with a normal UGM simulation. Thus, we arrived at two urban growth simulations for

Differentiation of Some Crops in Leingarten and Moessingen, Baden-Wuerttemberg, Germany Using TerraSAR-X Data

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Abstract

The aim of this research was to try and differentiate some of the important crop cultures in the Baden-Wuerttemberg area by creating crop signatures from the backscatter values of the different crops from the different test sites. At the end it was also to establish whether the signatures of one crop (e.g. Maize) collected in one of the test site can be compared or transferred to another test site. This study was done using the TerraSAR-X data, with VV polarization, which was overlaid with crop fields' ground truth data that was collected from the fields. Images covering two test sites at Leingarten and Moessingen for the months of July and August were used. These test sites were located in different climatic regions that had different sowing times, crop development times and harvesting times as was elaborate in the "Klimaatlas maps". Only radiometric correction was carried out on the images. The speckle noise was not removed or minimized. The crops were classified according to the mean and standard deviation of their backscatter. The results obtained were then compared to results of other researches for checks and accuracies.

Keywords: TerrarSAR -X, radar backscatter, Crop signatures