Indicator value of vegetation in monitoring changes in the rural urban interface region

M. Ghribi
International Centre for Science and High Technology (ICS), Trieste, Italy
mounir.ghribi@ics.trieste.it

The present research is making use of satellite images to focus on the land cover changes of the coastal area of the Gulf of Tunis through a time series analysis (TSA), which is addressed to different vegetation indices such as: the standard normalized difference vegetation index (NDVI), the enhanced vegetation index (EVI), the soil adjusted vegetation index (SAVI) and the green vegetation index (GVI). It evaluates the impacts of climatic conditions and anthropogenic activities on the landscape.

The research started with a global view of the state of vegetation through the NDVI dynamics using NOAA-AVHRR data. Then it has expand to focus on the use of GIS, remote sensing (RS) and DSS for dynamic modelling of land cover changes, where the future state of a pixel is predicted according to its current state and that of its neighbours. For doing this, Multi-Criteria Evaluation and Analysis were applied for each land cover categories to produce suitability maps that are used as transition suitability image collection for the Cellular Automata- Markov Change.

The potential use of Multi-Criteria Evaluation, Multi-Objective Land Allocation, Markovian Transition Estimator, Cellular Automata, Markov dynamic modelling and land cover prediction, represents the converging streams of the present research.

The research has contributed in improving the integration of diversified data (optical, radar and ancillary data) and different technological tools (GIS, RS and DSS) for data extraction. Methods for database construction and "data mining" for both remotely sensed data and ancillary data were applied through a real case study application. This is a required approach for an efficient environmental management.

Land surface (Poster)