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The study of urban environments using methods of analysis of benthic intertidal environments

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The objective of this research was to explore the applicability of the methodology used for the study marine organisms of the reef areas in the intertidal region of the broad study of Yellow House Square, Recife (PE, Brazil). Comparing the coastal reef areas to urban areas, it appears that variations in environmental factors also affect reef organisms, especially those living in the region substrates intertidal. The connection between architecture and biology is the starting point of architectural biomimicry, investigate the nature, to emulate or take inspiration how to solve human problems sustainably. The field for application of the methodology of ecological studies for the study of urban areas is promising with obvious cost advantages and ease of application but is still underexplored. We used the software Coral Point V4.1 (CPCE) to calculate the coverage area of vegetation and substrate types; cement, asphalt, concrete, paving, and ground. Measured too air temperature, relative humidity, wind speed, brightness, loudness, rainfall and sunshine. The intervention projects if they are based on environmental analysis and the identification of the uses and functions of urban space, present greater potential. The intervention projects if they are based on environmental analysis and the identification of the uses and functions of urban space present greater potential to promote ownership by the population that space, increase tourism and social inclusion of stall holders. The results demonstrated the feasibility of using the study methodology reef areas to assist in the development of projects of urban design and deployment of urban green areas.

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Mapping the Brazilian Amazon ecosystem integrity: A Bayesian spatial modelling approach

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The relationship between biodiversity loss and the impacts on ecosystem services of tropical forests, in face of the ongoing global climate change needs to be better quantified. In this work, we considered the concept of Ecosystem Integrity (IE), which represents the connection of biodiversity with the ability of ecosystems to sustain the processes of self organization. Bayesian Networks (BBN-Bayesian Belief Network) can provide metrics for the generation of ecosystem integrity index, from the training of probabilistic relationships of evidence obtained through field data, Remote sensing data and GIS. The objective of this work is to present the methodological approach and the results of IE mapping, elaborated at the regional scale for different patterns of phyto-ecologic landscape of the Brazilian Amazon. The modeling was based on learning from the parameters (data-driven model) through the use of the Expectation Maximization algorithm. For the validation of this probabilistic model, an evaluation was carried out in controlled areas, with field observation and comparison with the IE model based on knowledge (knowledge driven), prepared by experts.

Biography

Margareth Simoes is a senior researcher at Embrapa where is the coordinator of several Projects on Geomatics for Environmental and Agriculture Planning. From 2010-2012 she was a researcher at Embrapa LabEx Europe Program, where was responsible for the research area of Agriculture Sustainability and Natural Resources, coordinating projects and international articulations in Europe. By that time, she was a research fellow at la Maison de la Télédétection (UMR TETIS Territoires, Environnement, Télédétection et Information Spatiale). She is also professor at the Department of Computer Engineering and thesis supervisor at the Post graduate (Ph.D.) Course on Environment at Rio de Janeiro State University, Brazil.

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