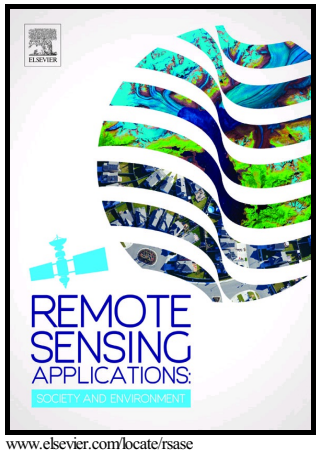

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Application of Cellular automata and Markov-chain model in geospatial environmental modeling- A review

Pramit Ghosh[1], Anirban Mukhopadhyay[1*], Abhra Chanda[1], Parimal Mondal[1], Anirban Akhand[1], Sandip Mukherjee[1], S.K. Nayak[2], Subhajit Ghosh[1], Debasish Mitra[3], Tuhin Ghosh[1], Sugata Hazra[1]

[1]School of Oceanographic studies, Jadavpur University, Kolkata, India

[2]Geological Survey of India, CHQ, Kolkata, India

[3]Indian Institute of Remote Sensing, Dehradun, India

[*]Corresponding Author: School of Oceanographic studies, Jadavpur University, 188 Raja SCM Road, Kolkata-700032, India. Tel.: +91 9831432302. anirban_iirs@yahoo.com

Abstract

Cellular Automata (CA) & Markov-Chain modeling are concepts that are utilized in numerous branches of science. Powerful as they are independently, these two theoretical concepts can be of immense use when fused together and applied in practical situations. CA and Markov models have spread their wraths over geosciences and with the advancement of remote sensing and GIS technologies along with an exponential increase in computing and modeling power. Over the last few years, these concepts have found a solid ground for research in this domain of geospatial environmental modeling in earth sciences. It is widely used to characterize the dynamics of land use/cover, forest cover, urban sprawl, wetland landscape, plant growth and modeling of watershed management, suitable site selection, coastal zone management and so forth. This paper aims to categorize these researches into broad categories. This paper discusses the concepts of CA-Markov modeling and their backgrounds and is followed by a classification of the researches conducted in this domain into two broad groups, one being the development of concepts and the adopted methodologies, while the other discusses the application of these methods in solving and studying real world scenarios. Recent developments in this domain have