A first-order spatial integer-valued autoregressive SINAR(1,1) model.

Abstract

Binomial thinning operator has a major role in modeling one-dimensional integer-valued autoregressive time series models. The purpose of this article is to extend the use of such operator to define a new stationary first-order spatial non negative, integer-valued autoregressive SINAR (1,1) model. We study some properties of this model like the mean, variance and autocorrelation function. Yule-Walker estimator of the model parameters is also obtained. Some numerical results of the model are presented and, moreover, this model is applied to a real data set.