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Maximum Likelihood Estimation For Integer Valued Time Series Models

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Abstract Integer valued time series are useful models for describing dependence structures over time for count data for which classical time series models are inappropriate. Such models have been used for a variety of applications. Difficulties arise in attempting to estimate the parameters via maximum likelihood due to the complicated expressions of the quantities involved. The purpose of this paper is to describe EM type algorithms to estimate the parameters of such models. Their derivation is based on properties of the processes that generated the data. The results are illustrated on a real set of environmental data.

Keywords: INAR model; SINAR model; discrete time series models; EM algorithm; environmental data;