An Illustration of Generalised ARMA (GARMA) Time Series Modelling of Forest Area in Malaysia.

ABSTRACT

Forestry is the art and science of managing forests, tree plantations, and related natural resources. The main goal of forestry is to create and implement systems that allow forests to continue a sustainable provision of environmental supplies and services. Forest area is land under natural or planted stands of trees, whether productive or not. Forest area of Malaysia has been observed over the years and it can be modeled using time series models. A new class of GARMA models have been introduced in the time series literature to reveal some hidden features in time series data. For these models to be used widely in practice, we illustrate the fitting of GARMA $(1, 1; 1, \delta)$ model to the Annual Forest Area data of Malaysia which has been observed from 1987 to 2008. The estimation of the model was done using Hannan-Rissanen Algorithm, Whittle's Estimation and Maximum Likelihood Estimation.

Keyword: Forestry; GARMA Model; Hannan-Rissanen Algorithm; Whittle's Estimator; Maximum likelihood estimation.