Exploratory Analysis of Rainfall Occurrence in South Sulawesi Region Using Spatial Point Process

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Abstract: This paper study the probability of rainfall occurrence in round year in different segment in South Sulawesi region. In this research, rainfall occurrence in round year described by one line which has divided into 12 months. Each one of those months is assumed that the probability of a rainfall follow a homogeneous Poisson distribution. To modeling the rainfall occurrence in round year, a spatial point process is used. The parameter of the model is estimated by Seemingly Unrelated Regression (SUR) method and Ordinary Least Square (OLS) method with assume that two stations have a correlation in residual model. Results of case study on monthly rainfall data indicate that when the residual correlation (autocorrelation) on all models is weakly and not significant. Thus, it has not good enough to use the SUR method for increase efficiency compared with the OLS method. Moreover, results of the parameter estimation of the model for two selected stations (Paotere and Mandai) showed that the SUR method is more representative than the OLS method.

Keywords: Spatial Point Process, Ordinary Least Square, Seemingly Unrelated Regression