KAJIAN KARAKTERISTIK DERET BERKALA HUJAN, TATAGUNA LAHAN DAN DEBIT BANJIR BERDASARKAN MODEL ARIMA BOX-JENKINS

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ABSTRACT

Indonesia located in tropic area consists of wet season and dry season. However, in last few years, in river discharge in dry season is very little, but in contrary, in wet season, frequency of flood increases with sharp peak and increasingly great water elevation. The increased flood discharge may occur due to change in land use or change in rainfall characteristic. Both matters should get clarity. Therefore, a research should be done to analyze rainfall characteristic, land use and flood discharge in some watershed area (DAS) quantitatively from time series data.

The research was conducted in DAS Gintung in Parakankidang, DAS Gung in Danawarih, DAS Rambut in Cipero, DAS Kemiri in Sidapurna and DAS Comal in Nambo, located in Tegal Regency and Pemalang Regency in Central Java Province. This research activity consisted of three main steps: input, DAS system and output. Input is DAS determination and selection and searching secondary data. DAS system is early secondary data processing consisting of rainfall analysis, HSS GAMA I parameter, land type analysis and DAS land use. Output is final processing step that consisting of calculation of Tadashi Tanimoto, USSCS effective rainfall, flood discharge, ARIMA analysis, result analysis and conclusion. Analytical calculation of ARIMA Box-Jenkins time series used software Number Cruncher Statistical Systems and Power Analysis Sample Size (NCSS-PASS) version 2000, which result in time series characteristic in form of time series pattern, mean square errors (MSE), root mean square (RMS), autocorrelation of residual and trend.

Result of this research indicates that composite CN and flood discharge is proportional that means when composite CN trend increase then flood discharge trend also increase and vice versa. Meanwhile, decrease of rainfall trend is not always followed with decrease in flood discharge trend. Dominant factors causing change in flood discharge characteristic is DAS management characteristic, not change in rainfall characteristic.

Key Word:
rainfall, land use, flood discharge, time series, dominant factor