

HUBUNGAN ANTARA KARAKTERISTIK HUJAN DENGAN DEBIT ALIRAN RATA-RATA HARIAN DAN DEBIT SUSPENSI RATA-RATA HARIAN DI HUTAN PINUS DTA GAJAH MUNGKUR II

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INTISARI

Air hujan adalah sumber input utama dalam siklus hidrologi dalam suatu wilayah DAS. Hujan yang jatuh akan bergerak melalui penutupan lahan oleh vegetasi penyusun hutan. Penutupan vegetasi pada DTA Gajah Mungkur II berupa hutan pinus. Hutan yang mampu mengatur siklus hidrologi setempat akan mempengaruhi terhadap perubahan hasil air seperti debit aliran dan debit suspensi. Tujuan penelitian ini untuk mengetahui hubungan antara karakteristik hujan dengan debit aliran rata-rata harian dan debit suspensi rata-rata harian di hutan pinus.

Penelitian dilakukan dengan cara mengukur kecepatan aliran pada berbagai tinggi muka air dengan *current meter*, mengambil suspensi dengan cara mengambil contoh air dengan menggunakan *suspended sampler*. Untuk mengetahui karakteristik hujan berupa tebal hujan (X_1), lama hujan (X_2), dan intensitas hujan maksimum 30 menit (X_3) dengan cara menganalisis data curah hujan dari ARR (*Automatic Rainfall Recorder*). Untuk mendapatkan nilai debit aliran rata-rata (Q) harian dan debit suspensi rata-rata harian (Q_s) dilakukan analisis data stage hidrograf dari AWLR (*Automatic Water Level Recorder*). Untuk mengetahui keeratan dan hubungan antara karakteristik hujan sebagai variabel bebas dengan debit aliran rata-rata harian dan debit suspensi rata-rata harian sebagai variabel bergantung, dilakukan analisis statistik berupa uji korelasi dan regresi linear berganda dengan bantuan program *SPSS 15.0 for Windows Evaluation Version*.

Hasil dari penelitian menunjukkan bahwa karakteristik hujan yang berpengaruh terhadap debit aliran rata-rata harian dan debit suspensi rata-rata harian adalah tebal hujan. Sedangkan variabel lama hujan dan intensitas hujan maksimum 30 menit tidak berpengaruh terhadap debit aliran rata-rata harian dan debit suspensi rata-rata harian. Persamaan yang diperoleh adalah:

$$\begin{aligned} Q &= 4,288 + 0,207X_1 \\ Q_s &= -6,934 + 0,584X_1 \end{aligned}$$

Kata Kunci : Karakteristik hujan, debit aliran, debit suspensi, hutan pinus.

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**CORRELATION BETWEEN RAINFALL CHARACTERISTICS
WITH DAILY AVERAGE FLOW DISCHARGE AND
DAILY AVERAGE SUSPENSION DISCHARGE
IN PINE FOREST OF GAJAH MUNGKUR II CATCHMENT AREA**

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ABSTRACT

The rainwater is a main source of input the hydrological cycle in a watershed area. The rainfall will move through the land covered by the forest vegetation composer. Vegetation cover in Gajah Mungkur II catchment area is the pine forest. Forest which is able to control the local hydrological cycle will influence the water result changes such as flow discharge and suspension discharge. The purpose of this research are to know relation between rainfall characteristic with daily mean stream debit and daily mean suspension debit in pine forest.

This research was implemented by measuring the flow velocity in different water level with current meter, get suspension by taking the water sample with suspended sampler. In order to know rainfall characteristic such as rainfall depth (X_1), rainfall duration (X_2), and 30 minutes maximum intensity of rainfall (X_3) by analyzing rainfall record from ARR (Automatic Rainfall Recorder). Hydrograph data stage from AWLR (Automatic Water Level Recorder) was analyzed in order to get daily average flow discharge value (Q) and daily average suspension discharge value (Qs). To know the relation between rainfall characteristic as independent variable with daily average flow discharge and daily average suspension discharge as dependent variable, two kind of statistic analysis were done which are correlation test and bilinear regression with a software SPSS 15.0 for Windows Evaluation Version.

The result of this research show that rainfall characteristic which influences flow discharge and suspension discharge is rainfall depth. Two others variables which are rainfall duration and 30 minutes maximum rainfall intensity do not have any influence to flow discharge and suspension discharge. The functions which gained from this research are:

$$\begin{aligned} Q &= 4,288 + 0,207X_1 \\ Q_s &= -6,934 + 0,584X_1 \end{aligned}$$

Keyword : Rainfall characteristic, flow discharge, suspension discharge, pine forest.

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