

STUDI KARAKTERISTIK *RUNOFF* DI DAERAH ALIRAN SUNGAI OPAK OYO MENGGUNAKAN MODEL HIDROLOGI MOCK

INTISARI

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Pada Penelitian ini, Model hidrologi Mock digunakan untuk mempelajari karakteristik *runoff* di Daerah Aliran Sungai (DAS) Opak Oyo. Ketersediaan air dikaji berdasarkan curah hujan, evapotranspirasi dan keseimbangan air di dalam tanah. Metode aritmatik aljabar digunakan untuk menganalisis curah hujan, sedangkan metode Penman-Monteith digunakan untuk menganalisis evapotranspirasi. Model hidrologi Mock di kalibrasi menggunakan dua nilai indikator statistik yaitu koefisien korelasi ($R \geq 0,7$) dan koefisien efisiensi ($CE \geq 0,5$). Data debit sub-DAS Papringan pada 1995 dan 1996 yang berada di dalam wilayah DAS Opak Oyo digunakan untuk kalibrasi dan verifikasi model Mock. Nilai *Direct Runoff* (DRO) dan *Baseflow* (BSF) juga di ukur dalam model.

Hasil kalibrasi model Mock menunjukkan nilai R sebesar 0,83 dan nilai CE sebesar 0,62. Sedangkan hasil verifikasi menunjukkan nilai R 0,82 dan nilai CE sebesar 0,65. Nilai R dan CE yang tinggi, menunjukkan derajat hubungan asosiasi yang tinggi antara debit simulasi dengan debit observasi. Nilai DRO rata-rata yang dihasilkan sebesar 30 mm sedangkan nilai BSF sebesar 152 mm dengan hujan rata-rata sebesar 163 mm. Hasil $DRO < BSF$ menunjukkan DAS Opak Oyo memiliki kemampuan menyimpan air dengan baik.

Kata Kunci : Model Hidrologi Mock, *direct runoff*, *baseflow*

STUDY OF RUNOFF CHARACTERISTICS IN OPAK OYO WATERSHED BY USING HYDROLOGIC MODEL OF MOCK

ABSTRACT

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In this research, the hydrologic model of Mock was applied to find the runoff characteristics in the watershed of Opak Oyo. The water availability was measured based on the rainfall, evapotranspiration, and water balance in the soil system. The algebraic arithmetic method was used to analyse the rainfall, while the Penmann-Monteith method was used to analyse evapotranspiration. Hydrologic model of mock was calibrated by using two value of statistical indicators, i.e. coefficient of correlation ($R \geq 0,7$) and efficiency of correlation ($CE \geq 0,5$). Discharges data of Papringan sub-watershed in 1995 and 1996 which is located in Opak Oyo watershed system were used for calibration and verification of the mock model. The value of Direct Runoff (DRO) and Baseflow (BSF) was also measured in this model.

The result of model calibration showed that the value of R was 0.83 and CE was 0.62. Meanwhile, the verification result showed that the value of R was 0.82 and CE was 0.65. The high value of R and CE indicate the high degree of correlation between simulation and observation. The average value of Direct Runoff (DRO) was 30 millimetres, while the Baseflow (BSF) was 152 millimetres with average rainfall was about 163 millimetres. The value of DRO was lower than BSF means that the Opak Oyo watershed had a good ability to store water.

Key Word: Mock Hydrologic Model, Direct Runoff, Baseflow