KALIBRASI SUB DAS CIRASEA PADA DAS CITARUM DENGAN MODEL HEC-HMS

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ABSTRAK

Bencana banjir sering terjadi di musim penghujan yang merebak di berbagai daerah aliran sungai. HEC-HMS merupakan salah satu model hidrologi yang dikembangkan oleh Us Army Corps Engineers (USACE-HEC) untuk mensimulasi hujan aliran pada daerah yang berpotensi banjir serta terdapat fasilitas kalibrasi. Penelitian dilakukan di Sub DAS Cirasea, Kabupaten Bandung, Jawa Barat. Kalibrasi ini bertujuan untuk mengetahui model hidrograf hujan aliran yang mendekati kondisi Sub DAS, bagaimana karakteristik banjir serta besaran debit puncak banjir yang mungkin terjadi pada Sub DAS Cirasea. Model hidrograf aliran langsung menggunakan metode Soil Conservation Service (SCS) Unit Hydrograph, Clark Unit Hydrograph dan Snyder Unit Hydrograph dan dengan aliran dasar menggunakan metode constant monthly. Dari hasil uji kemiripan (Nash dan Sutcliffe), maka model hidrograf hujan aliran yang paling mendekati kondisi Sub DAS Cirasea diberikan oleh metode Snyder. Nilai NS yang diberikan sebesar 0,628 menunjukkan tingkat kemiripan sedang. Metode ini memberikan karakteristik banjir yaitu resapan awal (Ia) sebesar 60,092 mm, bilangan kurva (CN) sebesar 81.115, time lag (tl) sebesar 2,7543 jam dan koefisien puncak yaitu sebesar 0,51017. Besaran debit puncak banjir (Qp) Sub DAS Cirasea masing-masing periode ulang yaitu: Q_2= 19,00 m^3/s, Q_5= 38,70 m^3/s, Q_{10}= 74,60 m^3/s, Q_{20}= 110,90 m^3/s, Q_{25}=132,70 m^3/s, Q_{50}= 181,20 m^3/s dan Q_{100}= 232,10 m^3/s.

Kata kunci: Kalibrasi, hidrograf, *model HEC-HMS*, banjir.

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CALIBRATION OF CIRASEA WATERSHED IN CITARUM WATERSHED WITH HEC-HMS MODEL

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ABSTRACT

Flood disaster is often happen in rainy season which spread in watershed. HEC-HMS is one of hydrology modelling developed by Us Army Corps Engineers (USACE-HEC) to simulated rainfall runoff area flood potential and can perform a calibration. This research conducted at Cirasea watershed, Bandung, West Java. The calibration is to determine the runoff hydrograph model which close to condition, how the flood characteristic and determine the flood peak discharge of Cirasea watershed. Direct runoff hydrograph model used Soil Conservation Service (SCS) Unit Hydrograph, Clark Unit Hydrograph, and Snyder Unit Hydrograph and the baseflow model used constant monthly method. From the Nash and Sutcliffe test, the runoff hydrograph model which close to condition given by Snyder method. NS value given 0,628 that refer medium similarity level. The flood characteristic in Cirasea watershed are the initial abstraction value is 60,092 mm, the curve number (CN) is 81,115, the time lag (tlag) is 2,7543 hour, and the peaking coefficient (Cp) value is 0,51017 hour. The flood peak discharge (Qp) for Cirasea watershed frequent period are: Q_2=19,00 m^3/s, Q_5= 38,70 m^3/s, Q_{10}= 74,60 m^3/s, Q_{20}= 110,90 m^3/s, Q_{25}=132,70 m^3/s, Q_{50}= 181,20 m^3/s and Q_{100}= 232,10 m^3/s.

Key words: *Calibration, hydrograph, HEC-HMS model, flood.*

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