UNIVERSITI TEKNOLOGI MARA

APPLICATION OF HYDROLOGICAL MODELING TO ESTIMATE FLOW USING XPSWMM

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Thesis submitted in fulfillment
of the requirements for the degree of
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AUTHOR'S DECLARATION

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ABSTRACT

The impact of flow during extreme weather like heavy rainfall in short period of time may cause flash flood that the water discharged contains of soil. The aim of this research is to estimate the magnitude of flow using hydrological modeling in UiTM Arau. The data collection was obtained from site measurements. The measurement of drainage was taken with the depth and length of the drainage. The results of flow measurements can be obtained from the simulation of XPSWMM. This study is to analysis of the graph analysis and the estimation of flow in UiTM Perlis either it high or low the water discharge specifically in campus area. The results will display in graph analysis between RMSE Observed and RMSE Model. RMSE Model for Catchment 1 is $0.38m^3/s$ while RMSE Observed is $0.40m^3/s$ and the different is only $0.04m^3/s$. While for Catchment 2, RMSE Model is $0.65m^3/s$ and RMSE Observed is $0.77m^3/s$. Lastly, RMSE Model for Catchment 3 is $0.50m^3/s$ and RMSE Observed is $0.517m^3/s$. The different between reading Catchment 2 and Catchment 3 are $0.11m^3/s$ and $0.012m^3/s$ respectively. It is shown that the RMSE Model is smaller than RMSE Observed. In conclusion, the results obtained to prove that the data model is more accurate compare to data observed. Therefore, it proves that the entire data model is better and accurate beside it also can be the best line for Root Mean Square Error.

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