RIVER FLOW SIMULATION AT SETIU WETLAND USING GIS TECHNOLOGY (AVSWAT)

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By

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I certify that the report of this year project entitled as:

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Abstract

SWAT model was used to simulate river flow at Setiu Wetland catchment area. Before this, river flow was measured using flow meter and as technologies expand, the new way was created to simulate river flow using various input data. This technique was widely use in United States as they measured the impact of urbanization and deforestation towards the environment especially in preventing flash flood. This study was done to simulate river flow for Setiu Wetland catchment area for year 2005. This requires the weather data at least 4 years earlier to ensure the preciseness of the result. Other data such as land cover and soil characteristics also required. The results were compared to the river flow data from Department of Drainage and Irrigation Malaysia. The comparison shows not much different between the two data with the regression equal to 0.6838. The advantage of using this software is it also capable to predict the future flow as the input data was manipulated.

Abstrak

Model SWAT telah diaplikasikan untuk mengira arus sungai di kawasan Setiu Wetland. Sebelum ini, kaedah lama menggunakan meter arus banyak dijalankan tetapi apabila teknologi semakin berkembang, keadah baru untuk menyukat arus telah ditemui. Kaedah ini menggunakan data input untuk mengira arus sungai.Kaedah ini telah digunakan dengan meluas di Amerika Syarikat untuk mengkaji kesan pembangunan dan penebangan hutan terhadap alam sekitar terutamanya untuk mencegah banjir kilat. Kajian telah dijalankan untuk mengira arus sungai di kawasan Setiu untuk tahun 2005. Ini memerlukan data input sekurang-kurangnya empat tahun lebih awal untuk menghasilkan data yang jitu. Data input lain yang diperlukan ialah seperti data permukaan tanah dan cirri-ciri tanah. Data arus sungai yang dihasilkan dibandingkan dengan data daripada Jabatan Pengairan dan Saliran. Perbandingan yang dijalankan tidak menunjukkan perbezaan yang ketara dengan regrasi sebanyak 0.6838. Kelebihan model ini adalah ia juga boleh meramal arus sungai pada masa akan datang dengan mengubah data input.