

DISTRIBUTED CONCEPTUAL MODEL DEVELOPMENT FOR FLOW ROUTING - CASE STUDY IN BE RIVER BASIN

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Summary

The lumped model considers basin or sub-basin as a unique and the average output values is assigned for whole physical features of basin. Therefore, the hydrographic information in spanning space is not sufficiently detailed to support the decision makers in water resource and land use management field in context the demand and exploitation of human in increasing rapidly. The FRASC distribution model is developed as a "compromise" with the mean input value allocated for all spatial in basin, and then the basin is separated into elements in the form of matrix grid from DEM data. The flow direction data set up the output value for each element base on flow routing in connected with the adjacent element, from which it is possible to predict the effects of land cover change, land use change and climate change to the hydrological characteristics of the basin by temporal and spatial data. The validated results in a variety of climates show that FRASC performed very good with reliable output by coefficient of mass residual, CRM, and model coefficient of efficiency, R^2 . This paper presents the FRASC's principles and application to the Be river basin. In this case study, the CRM $<5\%$ and $R^2 > 0.8$ represent good simulation of flow under different scenarios and ensure the reliability of FRASC.

Keywords: *Be river basin, distributed conceptual model, flow routing, FRASC.*