



Analysis of the spatial discretization modeling watershed using the hydrology distributed model CEQUEAU

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Today, the use of hydrological models is essential, since they can be used to analyze various aspects such as runoff, flooding, the operation of dams and supply systems, water use, and use and protection of groundwater. In this research, we examined the effect on the spatial variation of the discretization in sixteen watersheds on distributed hydrological model simulations CEQUEAU. The overall objective was to propose criteria for determining the optimum size of mesh for the watershed discretization. The main methodological steps that were undertaken focused on the selection of hydrometric stations, the creation of hydrometeorological databases through the acquisition and adaptation of geodata. Furthermore, within the framework of research, we developed a new hydrogeomatic module that works in GIS Idrisi, which was part of the information used in hydrological modeling. The model CEQUEAU was performed in watershed study, using the Nash criterion for evaluating the results of simulations. Finally, statistical analysis was performed of the results, to propose criteria to determine the optimal size of mesh. The results of the analysis of spatial discretization were broadly satisfactory, because, in the simulations were obtained on average Nash coefficient between 0.6538 and 0.9823. The application of statistical techniques to the results of the analysis of spatial discretization, there were two multiple linear regression models with R² values for each of 0.780 and 0.817. These equations obtained can be used as a criterion for determining the optimum size of spatial discretization watershed.