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Modelling River Geomorphlogy Change Using Artifitial Neural Network and GIS, Case study:Gavbandy river in south of iran

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Geomorphology here includes the study of water, wind and ice acting under gravitational forces to sculpt the surface of the land. Rivers and Hillslope processes provide central themes of geomorphology (Leopold et al.1964). In this study, behavior of Gavbandy River in Parsian flood plain in southern Iran has been studied. Review of arial photos related to the years of 1967 until 1993 and also reviews of satellite images related to the years of 2008, determined that the Cross-section of Gavbndy river has changed about 1700 meters in Parsian flood plain and has been consolidated huge platform flood with width section of 1400 meters. Meandering and fluvial structure of Gavbandy River with considering of geological conditions governing low-gradient lowland area Persian (syncline filled with fine sediments, marl and limestone) has been changed the position of the river flow. Study the hydrologic data of river and also review of the information from aerial photos, satellite images and field visiting for Predicting future trends of river flow in lowland and also changing river level for the period of 20 years later, cause formation of decision matrix in Matlab Software with neural network method.
Data and information that has been used in the smart decision matrix are included these parameters: precipitation data from climatology station in Gavbandy basin area, information discharche from hydrometry stations, Land use of privacy level in the river floodplain environments , geology, sedimenthology and other environmental data . In this study, ArcGis software has been used for study of river cross section and other spatial analysis.
Consequently analysis software on environmental data and field visits identified that ,the sedimentary structures and low-gradient coastal plain region of Parsian and torrential flow of the river plains Gavbndy in time period 20-year level cross river bed about 180 to 200 meters with a coefficient of error of $\pm$15.5 percent to the south along the current situation should be.

Key words: Gavbandy River, RiverGeomorphology,GIS, Artificial Neural Network, Bed Cross Section Change