OMICS Group Conferences
Accelerating Scientific Discovery

2nd International Conference on
Hydrology & Groundwater Expo
August 26-27, 2013 DoubleTree by Hilton, Raleigh, NC, USA

Application of GIS in flood potential zone recognition; Case study, TATT-SC

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Although there are lots of improvements in Flash Flood Monitoring Programs (FFMP) to anticipate the flood occurrence but there are still some uncertainties.

Using Geographic Information System (GIS) in order to create a reliable model for predicting hydrological phenomena can be a significant help for hydrologists. In this study, by the implementation of an automated geospatial model, flood potential zones at the Ten At The Top (TATT) counties, South Carolina, have been determined. The dynamic GIS parameters used in the model development are slope and flow accumulation (DEM derived), land cover and vegetation, Floodplains, Impervious surface, and precipitation. All these layers were transformed to raster datasets of same resolution if they were not raster, using the essential attribute field responsible for flooding potential analysis. Consequently, each individual layers were overlayed with a weighted sum analysis and joined as a table to catchment. Furthermore, for the better understanding of the model, statistical analysis have been done. Final output obtained is raster cells joined with catchment with indices of very high (most potential) to very Low (least potential) have shown a reasonable connectivity between chosen dynamic parameters and vulnerable areas. Finally, Ordinary Least Square (OLS) analysis has been conducted in order to evaluate the effect of dependent variables.

Biography

Farzam Safarzadeh Maleki has completed his B.Sc. from Amir Kabir University of Technology (Tehran Polytechnic) in Iran and currently is a Ph.D. student in Clemson University. He is working on numerical modeling of Sallow Water Equations for simulating flow as well as sediment transport combined with remote sensing softwares such as ArcGIS to find a better understanding of natural behavior of flows.

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Hydrol Current Res 2013
ISSN: 2157-7587, HYCR an open access journal

Hydrology-2013
August 26-27, 2013

Volume 4 Issue 2

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