

Prediction of Gully Erosion with Stochastic Modeling by using Geographic Information System and Remote Sensing Data in North of Iran

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Abstract : Gully erosion is a serious problem that threatening the sustainability of agricultural area and rangeland and water in a large part of Iran. This type of water erosion is the main source of sedimentation in many catchment areas in the north of Iran. Since in many national assessment approaches just qualitative models were applied the aim of this study is to predict the spatial distribution of gully erosion processes by means of detail terrain analysis and GIS -based logistic regression in the loess deposition in a case study in the Golestan Province. This study the DEM with 25 meter resolution from ASTER data has been used. The Landsat ETM data have been used to mapping of land use. The TreeNet model as a stochastic modeling was applied to prediction the susceptible area for gully erosion. In this model ROC we have set 20 % of data as learning and 20 % as learning data. Therefore, applying the GIS and satellite image analysis techniques has been used to derive the input information for these stochastic models. The result of this study showed a high accurate map of potential for gully erosion.

Keywords : TreeNet model, terrain analysis, Golestan Province, Iran

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