

## **Abstract**

Desertification is one of the biggest challenges of environment in this period. This phenomenon is a global issue and its serious consequences are effective on biodiversity, environmental safety, eradication of poverty, social-economic stability and sustainable development in all over the world. The most appropriate style for determine the severity of the risk of desertification is using experimental models. The aim of this study is survey of the current state of desertification watershed of Shahmaran from Orzoeeyeh city with 33555/62<sub>hec</sub> space in Kerman state and provide maps of desertification in the region with useful from ESA<sub>s</sub> and IMDPA models and finally it is select the most appropriate model to satisfy the severity of desertification in the study area. For this, be paid in IMDPA model to study 5 criterious of water, soil, vegetation, climate and water erosion and in ESA<sub>s</sub> model to study 4 indicators vegetation of soil quality, climate, cover and land management and be used from GIS such as tool to achieve this goal. In this study, first according to integration of information related to topographic maps, geology, aerial photos and field observations of the study area was divided in to 11 geomorphologic that each geomorphologic considered such as the main unit evaluates the current state of desertification then addressing to evaluation criteria and considered in the geomorphology and scoring criteria. Results of ESA<sub>s</sub> model exhibited that quality climate and vegetation indicators had the greatest effect in desertification with the weighted average 1/84 and 1/57 respectively and also between indicators, rainfall, drought and soil protection against erosion have the greatest impact in desertification with the weighted average, 2,2 and 1/64 respectively. Final map of ESA<sub>s</sub> model showed that 59/4 percent of area contract in row of the average critical desertification (c2) and 40/6 percent contract in row of the average servant (c3). The criteria of climate and vegetation are most effective factors in desertification of the study area. In finally, results of this study exhibited that useful of IMDPA model for classification of desertification intensity area was the greatest and useful of this model for classification of desertification servant Iran is the more suitable.

**Keywords:** Desertification, gis, IMDPA, ESAs, shahmaran



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Models in Shahmaran Watershed, Kerman Province**

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