

Assessing Vulnerability of Rural Settlements To Drought Phenomenon Using Kupros Multi-Criteria Decision-Making Model (Case study: Delfan County)

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Abstract

Identifying the accident-prone areas and vulnerable to environmental hazards will enable planners to make the best decisions in the shortest possible time. Accordingly, this research was carried out to assess and rank the rural settlements of Delfan County in terms of vulnerability to drought phenomenon using Kupros multi-criteria decision-making model. In this descriptive - analytical research, 21 vulnerability indices in physical, economic and social dimensions was studied. Data collection was done by rural administrators in 24 rural settlements, selected randomly. After weighing the indices using Shannon's entropy method, the villages were ranked by Kupros model. Results showed that, considering the diversity of vulnerability indices, Kupros model might have a great capability in ranking of settlements in terms of vulnerability to drought phenomenon. Golam Bahri and Kafraj had the most vulnerability, and Zafar Abad and Garmeh Khani had the least vulnerability to drought phenomenon.

Key Words: Multi-criteria decision-making model, Vulnerability, Environmental hazards, Drought, Delfan County.

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Landslide Using AHP Model In GIS (Case Study: Valley Village Qalandar Flour City Dehdez)

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Abstract

Landslides and erosion of natural phenomena in the evolution of land forms involved. When the human population is affected by this phenomenon can be dangerous incident. Causing loss of life and destruction Vazjmlh financial resources, the destruction of residential areas, destruction of farms and farmland and roads, destroying bridges, railways, closing the tunnels, dams break and damage the electrical tower and so on be. In this study, the landslide hazard zonation never valley village Qalandar using AHP model in GIS are discussed. Slope, aspect, elevation, land use, topography, rainfall as the main parameters affecting the landslide area were selected. After preparing the data layer using the above parameters for mapping landslide risk weighting model and the ARC GIS software was used to analyze the relationship of AHP. The results of weighting model AHP, and implement it with the slip occurred in the catchment area shows that Paramtrhsasyt erosion formations with the greatest weight (219/0) and land use (173/0) and the lowest height (052/0), the lowest weight gain and other indicators respectively, rainfall, altitude, and minimum weight of the layer's waterways. After overlay zoning landslide hazard map into 4 groups: very high, high, medium, low, very little was produced.

Key Words: Classification, Landslide, The AHP, GIS, Never valley village Qalandar.

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Hydro Geomorphology Effect of Nurabad Mamasani Plain Aquifer on The Region's Water Resources using GIS

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Abstract

Hydro geomorphology is a branch of physical geography (Physiography) that studies about roughness forms caused by water. The study area includes NURABAD plain aquifer within its catchment area under catchments of HANDIJAN JARAHI which are located in FARS province. The study aimed to determine the geomorphology factors of the plain and their relation to ground water resources and also providing useful maps in order to identify and manage the environment of the aquifer. The method of this research is statistical analysis. Interpolation method is used to study the geomorphology of the area and its relation to ground water resources of the plain and mapping them, and Spearman correlation is used to investigate the relationship between geomorphology forms with the parameters of water resources. The results showed that alluvial fans, flood plains, faults and path are effective factors of groundwater resources. The quality of water resources shows that the electrical conductivity in the southern and central parts (due to the formation of gypsum and marl aquifer) is more than other parts. And the acidity of the water is 7 which is neutral.

Key Words: Geomorphology, Underground Water Sources, Aquifer, Noorabad Mamasani Plain.

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Determining The Potential of Flooding Using Topsis Method (Case study Mazandaran Province, Galandrud Catchment)

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Abstract

Various factors such as morphometric of the basin, rainfall, soil type and vegetation have an important role in the potential of flooding. Flood hazard mapping is very important for catchment Management. Catchment morphometric parameters control its hydrologic response. Understanding a basin's response to high rainfall based on geomorphological indices can be valuable when studying flood hazard in ungauged catchments. The study area, Galandrud catchment is located in the northeastern Alborz, Mazandaran province and south of Royan city. In this research, Galandrud catchment divided to 12 sub- catchment. Twelve criteria were chosen; including catchment area, drainage density, compactness coefficient, circularity ratio, confluence ratio, area ratio, length ratio, basin slope, river gradient, concentration time, mean annual precipitation and curve number. To quantify potential of flood these parameters are integrated with a technique for order of preference by similarity to ideal solution (TOPSIS). The TOPSIS technique is one of the multi criteria decision making method, which, it is defined as the alternative that is simultaneously farthest from the negative ideal and closest to the ideal alternative. The weight for each indicator is determined based on Shannon's entropy. The results of the TOPSIS analyses indicated that sub-catchments 12, 10 and 3 with closeness coefficient 0.548, 0.486 and 0.462 have ranking 1, 2 and 3 respectively.

Key Word: Galandrud catchment, Mazandaran, Topsis, flood, GIS.

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A Comparative Analysis of Evolutions of Tectonical Activities in Banks of Hable, Jajrood, and Haji Arab Rivers Through Morphometric Methods

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Abstract

The study of active tectonic is significant due to assessment of the risk of earthquake in different areas, especially those where relatively high tectonic activity was observed in Holocene and Pleistocene. The objective of present study is to compare the tectonic activity levels in banks of Hable, Jajrood, and Haji Arab rivers through morphometric analyses. The ratios determined in the present study include the proportion of valley floor width to its height, mountain front-side sinuosity, and longitudinal slope of river, drainage basin asymmetry, and ratio of drainage basin shape, ratio of inverse topographic symmetry of the basin, ratio of drainage basin symmetry, and symmetry ratio of the basin all of which represent the tectonic activity of a region in four categories of low, medium, high and very high. For active tectonic estimation, topographic maps (1: 250,000 and 1: 50,000) along with geological maps (1: 20,000 and 1: 25,000) along with 10m DEM of the studied regions were used. For generation of basins on the studied region, ArcGIS Software was used to deal with a database of digital elevation model. Certain phenomena such as fault scarp, multi-generational alluvial fans, and linear valleys are among morphologic evidence that are abundantly found in basins with high and medium tectonic activity. The results suggest that among the examined basins, the Jajrood basin is more influenced by tectonic activities and this is due to the influence of Jajrood Fault on this basin.

Key Words: Active tectonic, Jajrood, Hablehroud and Hagy arab basin, Geomorphonic indices.

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The Role of Decision Support Systems In Managing Water Crisis In Tehran Through Vensim Software

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Abstract

At the future, certainly one of important problem in geopolitics about Territorial planning of country is water geography. Water waste has two parts: an actual part and a false part. The actual part includes waste of water from joints, transmission lines, and supply lines. The false part includes calculating process and unfair usage.

For optimum management of water resources, and to decrease water waste, using of decision support systems & software can considerable help in studying and recognition of supply & demand of drinking water about decrease appearance losses for control and management of water crisis.

Problem in this research, knowledge about decision support systems & designation of crisis management that etude ۲ Vensim۲software for Tehran water crisis that resulted of analysis chart, define without accommodating plan, after 2020, accidente calamitous & critical water crisis.

Finally, it should be mentioned that to have a proper management of drinking water in Tehran city, the monitoring of water waste and its control, also having a consumption criteria accepted and followed by the people are really necessary.

Key Words: Crisis management, Decision support systems, ۲ Vensim۲Software, Actual and false waste of water.

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In Traction Between East Khorasan Winds Regimes and Sistan 120 Days Winds

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Abstract

The main goal of this study is to investigate the inter action between East Khorasan winds regimes and Sistan120 Days winds. The climatic data of Synoptic stations used in the present study was obtained from khorasan razavi, khorasan Jon obi and Sistan and baluchestan meteorological organizations. The statistical period is from 2000 to 2011. To do synoptic analyses, the maps of sea level pressure, geo potential height of 850 Hectopascal level, wind direction and the relative vortices were used. The sample extract form the daily wind velocity data base of Zabol station and include the fourteen days with the highest velocity winds.

The results shows that the wind direction in the Khorasan Razavi province is from north. While, the direction changes toward Northwest as it arrives to Sistan plain. This change in the direction of wind is due to the topography and geographical location of the area. The geo potential height maps shown that the main reasons for the winds of 120 days are the core of the high pressure on the Caspian Sea and the core of the low pressure in Pakistan. Moreover, strengthening the low pressure intensifies the winds.

Key Words: Synoptic analysis, Sistan plain, East of Iran, 120 Days winds.

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Neotectonic Activities Survey of karaj Basin By Using Geomorphic Parameters

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Abstract

Drainages has been reacting to changes in stream bed to different forms. Case study area has located in Alborz state and in upper of the Mehr Shahr of Karaj. Since basin has located on the bound shake faults and as big and high population cities is in this area, so study of tectonic Activities position is essential in this area. In this paper has tried Neotectonic and its effects on the valleys and rivers direction to survey by using of Af, SL, S, BR, P, T, Smf and Hi parameters. Research method is being analytical ت comparison AL. For analysis has used WMS and Arc GIS software.س. For more careful survey of Neotectonic activities in area, case study basin has dispensed to four sub basin, such as Rajayishahr, Kamalshahr, Elahiyeh and Chahardangeh. The research result shown that tectonic has been achieving in different parts of basin, and since western sub basin of area (Chahardangeh sub basin) has weakly activity of tectonic in five geomorphic parameters, so this part of basin has relative equilibrium and to run from stage of erosion puberty.

Key words: Neotectonic, Geomorphic parameters, Karaj basin.