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TOPSIS methods for development of desertification indicators system

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Abstract

UNEP/UN (1992), considered the process of desertification as: "Land degradation in arid, semi-arid and sub-humid areas resulting from various factors including climatic variations and human activities". Therefore, in combating desertification requires an improve understanding of its causes and impacts and specially the relation between desertification and climate, soil, water, land cover and socio-economic indicators. There are many methods for selecting, scoring, weighting and ranking of indicators for desertification monitoring in desertification assessment models. The main goal is relation to expert's opinion in weighting and priority of indicators on desertification process. Multi-Criteria Decision Making (MCDM) is a collection of methodologies to compare, select and rank multiple alternatives that involve incommensurate attributes. Technique for Order Preference by Similarity to Ideal Solution (TOPSIS) method is a multiple criteria method to identify solution from finite set of possible alternatives. The aim of this paper is to extend the TOPSIS decision making method for selecting of desertification indicators. A TOPSIS method an algorithm for determining the most preferable choice among all possible indicators on desertification was developed.

Geomorphological and sedimentological mapping of Jal Az-Zour escarpment in northern Kuwait, using GIS methods

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Abstract

Jal Az-Zor escarpment is one of the most important geomorphological features in northern Kuwait that is recognized and differentiated into different units from higher upland to lower flat coastal plain. The escarpment exhibit a wide variety of shape, sediment type and size.

The main aim of this study is to map the sedimentological and geomorphological regimes in this area with emphasis on recent surface deposits (Quaternary) and their geomorphological forms, using GIS application in conjunction with field/ground truth data. The study area was subdivided into five major geomorphological units, namely: back slope, crest, scarp, debris slope, and coastal plain with certain drainage pattern that determine the formation of these specific landscapes. The recent surface sediments were subdivided into coastal deposits which include tidal flat, sabkha and coastal dunes, and inland deposits, which include desert plain deposits, playa, gravel plain and ridges, rugged and smooth sand sheets, wadi, and alluvial fan deposits. The study shows that grains are more abundant in medium sand fractions while feldspar grains and rock fragments are more abundant in very coarse sand fractions.

Impact of environmental change on the spread of infectious vector-borne diseases

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The spread of infectious vector-borne diseases in the environment often cause changes in the transmission of tropical diseases. Vector-borne diseases are an ecosystem disturbance directly through waste generation. Visceral leishmaniasis (VL) is a major public health problem in 922. Landscape features and micro climate in urban areas were studied extensively over the last decade. The marked increase in urban development which has led to much ecological disturbance benefited from the analysis of satellite imagery taken over the last decade. Ecological data, factors underlying the disease

Urban expansion of the Dammam Metropolitan Area (DMA) and its impact on the coastal ecosystem

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The Dammam Metropolitan Area (DMA) has witnessed rapid urban expansion of the national and regional plans were implemented in the settlements. The DMA, because of its natural resources and investments which contributed to extensive urban expansion in Dammam, Al-Khubra and Ad-Dhahran) to a significant extent. The rapid growth including the ARAMCO industrial zone to Ad-Dammam, preparation and implementation of urban expansion in the coastal cities, expansion of the military base and other facilities. The implementation of these decisions and others to urban expansion of 2,340% during 1934-1956; and 309% during 1956-2004. The environmental degradation especially water pollution and urban expansion was based on the analysis of satellite imagery and GIS application. The study was based on the analysis of satellite imagery and GIS application to study the urban growth, its direction and impacts on coastal ecosystems. The study was analysed using Erdas imagine and GIS software. The study shows that coastal ecosystems between 1994 and 2004. The coastal ecosystems as a result of continuous land filling of the coastal habitats. Coastal ecosystems such as mangroves and wetlands have lost more than half of its area and more than 50% of its area. The continuous dry-out and land filling process

Arid ecosystems of the Dammam Metropolitan Area

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