

ABSTRACTS

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Review the Structure for Continuity of the Two States Annual Precipitation in South Part of Iran, by Using Latent State of Markov Chain

Precipitation as the most important climatic element in Iran territory has faced with certain complexities. The aim of this study is using latent state model of Marcov chain for modeling the continuity of Iran two states conditions for the purpose of better recognition of wet and dry year condition to optimal management of water resources optimally in this part of the country. Therefore for conducting such modeling, the data related to the annual precipitation of three (3) synoptic meteorology stations of Bushehr, Jask and Shiraz , which have the longest data in south of Iran, were used. The indices derived from this model are: wet and dry separation indicator (WADSI), climate steady state indicator (SSI), steady state time index (SRT) and intensity indicator of continuing structure (SPS) and intensity indicator of continuing structure (SPS). The findings obtained from this model for annual precipitation in south of Iran are as the following:

Based on wet and dry separation indicator (WADSI), separation of wet and dry years for the three (3) under study stations in the south part of Iran is simply possible. The indicator value of climate steady state (SSI) for the three(3) under study stations on south of Iran indicates the weak steady state in dry and wet conditions for Shiraz station and medium steady state for Jask and Bushehr stations. The time period of the steady state of each dry and wet condition for the three under study areas is between 1-4 limit.

The final research model for annual precipitation of south of Iran based on the equal intensity of continuing structure of the stations (W, W, WADSI) was recognized that indicates a full probable structure for having a two states continuity.

Key words: Precipitation, Rain Fall Continuity, Latent Model of Marcov Chain, South of Iran.

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Comparative Assessment of Endowment Dduring Qajar and Pahlavi Periods

The issue of endowment and forming the endowment spaces has a long history in Tehran city. The endowment was started with Mehr Gord aqueduct endow by a Zeroastrian lady and has continued after Islam with different forms including religious, residential, commercial, cultural-educational, health, infrastructure facilities, real estate and properties in the form of traditional endowments up to great charity of foundations. The manner and type of spatial manifestation of endowments in Tehran city is being determined by the dominant social - cultural and physical conditions of the society. That is why that the endowment, while having similarities, has unique characteristics in each period of time. In this paper, it is tried to identify these similarities, characteristics, changes and their causes during Qajar and Pahlavi periods based on the obtained and available information and statistics.

Therefore the endowment objective, type of endowments and their spatial distribution in Tehran city have been studied and compared with each other in two periods. The obtained results in two periods of Qajar and Pahlavi were the main purpose of endowment, development and spread of Islam with dominant tendency to Shiite religious. although there are other goals in its autopsy. Furthermore the endowments were mainly of income type especially the stores. Endowment both in the aim and type has an evolutionary trend and in addition to traditional form has happened in charity foundation form.

Key words:Endowment, Endowments, Charity Foundation, Qajar Period, Pahlavi, Period.

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Qualitative Assessment of Water Resources at Upstream of Ajichai Catchment Area

Ajichai River is the largest river of the east part of Urimia Lake, which its main tributaries originate from Sabalan, Sahand and Bozghosh mountain chains. In addition to the main water ways, Ajaichai catchment area owns rich reservoirs of underground water. Usually the quality of water will change in contact with salty and marl foundations of middle parts of the catchment area and is changed to salty or even too salty waters. The aim of this study is the quality assessment of water at upstream of Ajichai catchment area from the view point of agriculture uses, for this purpose, the chemical analysis results of sample surface and underground waters, quality indices including (Ec, SAR, TDS, Cl, %Na, TH) and quality diagrams(piper, USSl) were used in June 2008. The maps were drawn in GIS environment. the findings of this research shows that a low amount of soft water (about 2%) exists in the aquifer of Sabalan foothills, and most of the areas' underground waters has a medium quality . salty and very salty waters form about 40% of the underground waters. Surface waters which has originated from Sabalan Mountains and has measured at the upstream of the catchment area, has a soft and fresh quality.

Key words: Qualitative Assessment of Water, Quality Indicators and Diagrams, Sabalan and Bozghosh Aquifer, Ajichai Catchment Area.

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Review the Climatic Synoptic Types of North East of Iran and Their Relation with Circular Systems of the Representative Day Case Study: Mashhad City

In this study, among the daily data sets, 6 climatic variables including maximum mean of daily temperature, minimum of daily temperature, daily precipitation, vapor pressure, circle wind phenomenon and Meridian elements were used. Statistical period of data is from 21, March, 1981 up to 19, March 2003 for 23 years. Firstly, data base was formed in Matlab software as $P_m * n$ matrix array. P matrix is a matrix data base in which rows (m) are time and columns (n) are climatic features. Then a cluster analysis has been performed for classification of data by integration method entering on standardized data matrix. Five distinctive types were determined for Mashhad station (temperate type, rainy, glacial, very hot and dry windy and hot and dry). A representative day was specified for each type. At the end, circular patterns of atmospheric intermediate level (500 hpa) of each type were determined. With respect to circular pattern maps, the role of high elevation systems of Saudi Arabia and south of Iran in creation of hot and dry conditions and the role of Mediterranean drop down, dropdown of Iran's north east and Siberian high pressure at the ground surface in creation of cold periods will be manifested.

Key words: Climate Type, Circular Patterns, Cluster Analysis, Masshad City.

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Review the Effect of Merging Village in to City, Samples of Villages Merged in to Kashan City

Human settlements are always faced with economical, social-cultural and physical changes. In rural settlements, in view of their particular features (smallness, close relationship with nature, influence of neighboring villages and cities and the like), the changes were more visible and these changes can be observed in different fields including change and alternation of activities, social, economical and physical characteristics, increase or decrease of functions, population depletion, population increase, converting to city or merging in to cities.

Physical expansion of cities and villages toward each other causes the integration of smaller settlements (villages) in to greater settlements (cities). Merging villages in to cities makes great effects on the merged villages to cities. These effects can be assessed positively or negatively. Among the positive effects, the empowerment of physical substructures condition, development of urban services and increase of construction can be referred. Change of agricultural land uses, changing producer population to consumer ones, increasing the expectation and consuming morale of people, increase of life costs are some samples of negative effects. In this paper which is conducted by analytical-descriptive method and by the use of field and documentary method (interview, visit and filling questionnaire of 260 families of merged villages) in seven merged settlements in Kashan city, revealed that the positive effects of merging villages is more than their negative effects and satisfaction of residents has increased.

Key words: Effects and Outcomes, Village, Incorporation, Village Merging, Physical Expansion of City, Kashan.

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Estimation and Comparison of Zones with Permanent Snow in Glacial and Interglacial Periods Case Study: Haraz Catchment Area

Alternation of cold and warm climatic periods is of distinguished features of quaternary in Iran. The present rough and uneven areas of Iran indicate the erosion processes in warm and cold conditions. Alborz mountain chain has numerous evidences which indicate the involvement of glacial and interglacial processes. These evidences are visible as deep and large holes also naked and destroyed rocky valleys. Review of zones with permanent snow in quaternary era can be the determinant of involvement limit of glacial and interglacial processes in Iran. This research has been performed to estimate the line changes of permanent snow of Haraz catchment area in central Alborz Mountains. To estimate the zones with permanent snow in the latest cold period, climatic heritages and morphological evidences have been identified by satellite photos and field observations. Then height of permanent snow has been determined by the use of Wright method. Day-degree method has been used for achieving temperature threshold of snow fallings and regression analysis has been used for estimating temperature differences of permanent snow limit in cold and warm periods. Through implementing NDSI index in MODIS sensing photos, the snow zones in March 2005-2008 years were recognized to be compared with temperature threshold of snow falling. The findings of the studies showed that in the last cold period, the zone of permanent snows has lowered up to height 1800m in this catchment area, and now this zone is about 3200m which indicates that more than 80% of the zones with cold periods were under the domination of glacial erosion. Also field visits confirms it. The average difference of air temperature in glacial periods was 6 Celsius degrees lower than the interglacial periods. In fact, the air temperature difference indicates the presence of two different forming systems in Haraz catchment area.

Key words: Permanent Snow Zone, Climatic Changes, Haraz Catchment Area.

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Study the Active Tectonic of Kefravar Catchment Area by Using Geomorphic Indices and Geomorphological Evidences

Kefravar catchment area is located in the north western Zagros in south of Kermanshah province. Geomorphologic evidences of the under study catchment area indicates the continuing of neo-tectonic activities in polio-quadernary period. The aim of this study is to evaluate the active tectonic of the area comparing the results obtained from geomorphic and geomorphological evidences (young fault head lands, triangular shapes, lack of foothills, moved and broken alluvial cones and lack of symmetry of Kefravar river, elevated terraces, river youngness). In this study, different field visits of land forms, geomorphic indices (T, Af, Vf, Smf, Facet, Bs and Sl), IAT classification indices, topographic maps, geology and aerial photos of the zone, IRS sensing photos have been used in analyzing neo tectonic activities. The study findings show that the resulting values of geomorphic indices and review of geomorphological evidences show the activeness of geotectonic in the catchment area, and the basin is placed in class 1 based on IAT classification index which shows the high and intensive neo tectonic activities in the basin. Quantitative values obtained from geomorphologic indices are being confirmed by geomorphological evidences of the area.

Key words: Neo Tectonic, Geomorphic Indices, GIS, Geomorphological Evidences, North Western Zagros, Kefravar Catchment Area.

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Climatology of Precipitation in North West of Iran

Climatology of precipitation can be defined as the dominant behavior of precipitation in any place. One of the methods for analyzing the precipitation climatology is the recognition of cyclic behavior of precipitation. This important issue is possible through analyzing and studying different accordants of precipitation. In fact conformes show different latent aspects in a time series. The importance of accordants is defined based on the diffraction of frequency features in a time series. In this study, it is tried to detect the latent aspects of precipitation in west part of Iran (west Azerbaijan, East Azerbaijan, Ardebil and Zanjan provinces). In this regard, 260 synoptic, climatology and udometer stations were used during statistical period of 1996-2005. In order to remove statistical deficiencies and compensate for length difference of statistical period, monthly precipitation maps were produced and arithmetic operations were made on the cells of these maps to obtain features of accordants. Annual precipitation of the north west part of Iran will increase from north east to south east. In spite of what expected, maximum rainfall will not occur in the heights of this area of country. In addition, spatial variations of precipitation are too great. Based on the used methods, it was cleared that two local synoptic systems justify up to more than 90 percent of north west precipitation. Maximum amount of precipitation due to synoptic systems occurs in northeast (low rainfall). therefore the share of precipitation resulting from local systems (convection precipitation, mountainous precipitation, local fronts and.) is more in this part. Mean while, proportionate to the increase of annual precipitation, the share of synoptic systems will also increase. South west parts receive greater maximum precipitation than synoptic systems. The time of maximum precipitation occurrence, due to synoptic systems in the northern, is early December but in Southern half is late December and early January.

Key words: Climatology, Precipitation, Precipitation of Iran's Northwest, Accordants, First and Second Accordant.

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Sand Hill Studies, Case Study: Yazd University

Sand hills are deposits which are formed at hillsides of some hills and mountains of the desert and semi desert areas. Previously, Sand hills were known as the product of wind processes. New studies show that although the role of wind has the first importance degree in emergence of such phenomenon but other processes including hill side and water processes are involved in its development. How the formation and accumulation of wind material and then the involvement of other geomorphologic factors and processes, with a certain layers compaction of hill side and flowing material (alluvial), each one are considered as the indicators of the past climatic or environmental conditions. Since the importance of this phenomenon has not been considered in geomorphologic studies of natural geography of Iran, therefore the purpose of this paper is to study and review the significant features of this phenomenon and introducing it to natural geography society of Iran. The study of physical conditions, settlement shape and sediment structure of such phenomenon in different geographical situations enable us to access useful information such as direction and intensity of wind blowing, trend of climatic change, erosion condition in the area and even the impact of some tectonic events and hill side movements. For more description of this phenomenon, while summing up the library studies, some examples of field studies in Yazd province have been indicated.

Key words: Sand Hill, Wind Processes, Yazd Province Geomorphology of Iran, Hill Side Processes.

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**The Effect of Diameter and Abundance Distribution of Sand Particles
on Transformation of the Main Parts of Sand Hill
Case Study: Maranjab Sand Hills**

Band e Rig Kashan is one the few large sand zones of Iran with various sand forms which is located at the south of salt lake. The area under study is a part of Band e Rig Kashan at south west of Maranjab with an area of 1.272 km². In this study, thirty typical sand hills were selected. The research method, based on field visits and sampling of sands in front head, tail, right and left arms of the understudy sand hills was performed in the two time periods of August and March 2008, and by the use of grading technique, sand particles were classified and their abundance were verified and analyzed.

The aim of this research was review and study of seasonal changes of sand particles diameter and their impact on the geometrical shape of sand hills. The findings show that due to changes of direction, speed and frequency of wind during a year, changes occur on diameter afflection of sand hills in main parts of sand hill which leads to the changes of geometrical shape of forehead and right and left arms of sand hill.

Key words: Grading, Particles' Diameter, Abundance, Sand Hill, Maranjab, Band e Rig Kashan.