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Climatic Variables Prediction Using Time Series Analysis of Zohre Watershed

(Manuscript received: May 27, 2013**, in final form:** October 18, 2014**)**

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Abstract

Climatic variables such as discharge, rainfall, temperature and evaporation, have autocorrelation, seasonality, trend and stochastic processes. In present study of time series analyses in prediction of climatic variables in monthly and seasonality scales were used. Zohre and Kheirabad subwatersheds were selected. In the first step, nonparametric tests such as kolmogorov-smirnov and Mann-Kendall tests, for determination of normalization and trend, was applied respectively. The result of Mann-Kendall test showed that discharge variable have a significant trend ($P<0.05$) while, variables of rainfall, temperature and evaporation, have not a significant trend ($P >0.05$). Also, the rainfall, discharge and evaporation variables have negative trend ($Z <0$) and the temperature variable have a positive trend ($Z>0$). In the next step, difference operator for converting non- static to static data, were used. The techniques of model identication which are most commonly used were propounded originally by Box and Jenkins. Their basic tools were the sample autocorrelation function and the partial autocorrelation function. Minimum and maximum P and Q between 0 and 2 changed, respectively and using of Akaike criteria the most appropriate model was selected. Then using maximum likelihood method, significant parameters confirmed. Results of validation test indicated that temperature and evaporation models have the height accuracy ($R>=0.98$) and Monthly scale is better than seasonally scale.

Keywords: Autocorrelation, Climate, SARIMA, Trend, Watershed

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Assessment of Plan of Tourism Aim Villages on Tourism development Shamshir and Khanghah villages in Paveh County

(Manuscript received: July 7, 2013**, in final form:** March 27, 2014**)**

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Abstract

Nowadays tourism as a profitable activity among developed and developing countries has earned a special place. Tourism has many components and parts that rural tourism is one of them. Rural tourism is a type of tourism, according to several studies has affected on the rural economy. The research in the village Khanghah and the Shamshir in central district of city of Kermanshah are done. Investigative method was descriptive-analysis and data collection was conducted in two method documentary and survey. In this research, the questionnaire was used that it included questions with Likert scale. Statistical society includes 888 households and statistical sample consisted of 200 individuals was selected. Sampling was random sampling. SPSS software was used for data analysis and techniques used include the mean, percentage, Wilcoxon's test. Findings show the positive impact of plan of tourism aim villages on rural infrastructure and it provides the background necessary for tourism development. This paper shows, plan has been accepted by the majority of respondents. The results show that the plan affects on the price of agricultural land and goods and it affect on quality life, too. It is suggested that government performs the necessary steps to solve these problems.

Key words: tourism development, plan of tourism aim villages, Shamshir and Khanghah villages, Paveh County, agricultural Land

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Calculation, evaluation and Analysis of the spatial distribution of the ultraviolet index (UVI) in the Iran

(Manuscript received: July 13, 2013**, in final form:** July 30, 2014**)**

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Abstract

Ultraviolet radiation in the short wavelength range has a lot of energy and can cause skin and eye disorders, genetic DNA damage, immune system dysfunction and premature aging in humans. In this study, in order to calculate the amount of ultraviolet radiation, 94 points selected that represent the best distribution of the range. The ultraviolet index calculated in the period 2011-2000 for all months. Monthly and quarterly index of spatial distribution of the UV was studied using spatial analysis the IDW interpolation method. The results showed that the warm period of the year, higher altitudes and lower latitudes, especially in the provinces of Sistan and Baluchestan, Kerman, Hormozgan and Fars higher levels of ultraviolet radiation and the risk of eye damage and skin diseases is high. The provinces of Gilan, Mazandaran, Golestan, Ardebil, East Azerbaijan and West Azerbaijan receive less light. Different geostatistical methods evaluated to determine the best way to map the annual average for UV index. The results showed that four-dimensional spherical model technique with ordinary kriging is the most appropriate model parameters to fit the average annual ultraviolet light across Iran. Final map showed that the annual average of 4 percent of the total area of the country has an ultraviolet index consists of Caspian provinces. Nationally, 54 percent of the northern half of the country, including high ultraviolet index receive 42 percent of the area. Generally encompasses the southern provinces of the country, the index is very high.

Keywords: Iran, UVI, spatial distribution, kriging, Tetra spherical model

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Wind Power Plants Site Selection Using ANP and FAHP Ardabil province, Iran

(Manuscript received: April 24, 2013**, in final form:** March 22, 2014**)**

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Abstract

Wind energy as a renewable energy resources used increasingly in many countries because of its low price and non-polluting characteristic against others. So in order to exploit the the wind potentials, site selection to establish the equipment and facilities is inevitable. This study assessed the land suitability of establishing wind farms in Ardabil province. The effective factors considered. The weights of the criteria and classes were determined using ANP and FAHP methods. Exclusionary areas for wind power plants are liminated. So using analytic functions in GIS environment, the study area is zoned for each criterion. The results show that the eastern area of Ardabil province can be considered as most suitable for establishment of wind turbines. The sensitivity analysis, map classification, and factor weights for the two methods show that FAHP model provides better results than ANP.

Key words: Wind Power Plant, Fuzzy Analytic hierarchy Process, Analytic Network Process, Geographical Information System, Ardabil province

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Study on the relationship between Climatic Factors and Pterygium (An Eye Disease) in Mashhad

(Manuscript received: April 10, 2013**, in final form:** November 15, 2014**)**

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Abstract

Pterygium is one of the most common eye diseases causing astigmatism, eyesight limitation and some other skin diseases. Pterygium, with an outbreak of 22%, is of the highest rate of frequency of eye diseases in tropical areas. This study is to investigate the role of climatic factors spreading Pterygium during 1385-1390 in Mashhad. The data needed for the study has been gathered from the patients referred to Khatam Al-Anbiya Ophthalmology Department suffering from Pterygium during 1385-1390 in Mashhad, also the climatic data collected in Mashhad Synoptic Station has been used. At first the collected data were assessed by Minitab 16 software to have normal data, secondly the relationship between climatic factors and Pterygium has been analyzed by such different methods as statistical regression, Pearson correlation, multiple correlation, ANOVA model (ACF self correlation functions) as well as ultraviolet ray indication. The results of the study showed that monthly correlation between climatic elements of dust, sunny times, total radiation and wind speed with Pterygium is in its highest rates in Ordibehesht, Khordad, Azar, Dey and Bahman. Among the above parameters, the relationship between wind speed and sunny times with Pterygium has the highest correlation ($r=0.89$, $p=0.01$, & $r=0.63$, $p=0.1$). In addition, the results showed that climatic elements increase the disease rate according to the seasonal delay time, especially in the second half of the years.

Key words: disease, pterygium, climatic parameters, Mashhad, model ANOVA, functions ACF.

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The analysis of spatial-security of Iran's piplines (Oil and Gas piplines)

(Manuscript received: April 19, 2013**, in final form:** September 17, 2014**)**

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Abstract

The discrepancy between energy production and consumption sites is why there are various ways of energy transfer on different scales. Iran has always attempted to boost productivity both in consumption and in production via using piplines. Security issues should be taken into consideration when desgining these piplines. The present study tries to analyes the issue of implementing piplines in Iran in terms of security considerations. The method used here is a spatial-based one. Economic, social, environmental and geographical variations have been discussed in terms of security issue.

Keywords: Security, Geoeconomics, Geopolitics of energy, Oil and Gas.

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Identifying relative maximum humidity changes during the recent half century using Mann-Kendall Test

(Manuscript received: August 5, 2012**, in final form:** October 27, 2014**)**

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Abstract

Study of meteorological parameters changes trend within a long period has a significant importance on climate change and its detection studies. Based on this climatic view, the present survey aims at detecting the monthly changes of relative maximum humidity in Isfahan province during the recent half century. Accordingly, the relative humidity statistics of 21 synoptic and climatology stations inside and outside of the province during the period time 1961-2010. Being certain of the data abnormality using Darling-Anderson Test as well as the homogeneity of the data using Runs Test, non-parametric Mann-Kendall Test selected for calculation and trend analysis. Respecting that in the present survey the study of monthly changes as pixelis desired, the stations data was ranked on matrix at 600×21 dimensions and changed into the pixel data at spatial resolution 5×5 km using Kriging method by Surfer software. Then, new matrix at 4260×600 dimensions was arranged in T mode and transferred to Matlab software and the trend of each pixel computed at 95% confidence level using Mann-Kendall Test. Based on the findings resulted from this survey, the decreased trends of relative humidity has predominated the increased trends during the studied statistical period so that it has devoted more than 66.8% of the province area to itself. In addition, the highest rate of decreased relative humidity has occurred in February and the lowest in June.

Key words: Mann-Kendall Test,relative maximum humidity, trend, Kriging method, Isfahan province

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Assessing the Performance of Decision Tree Model in Predicting Precipitation in Kermanshah Synoptic Station

(Manuscript received: December 23, 2013**, in final form:** July 2, 2014**)**

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Abstract

Rainfall is one of the main components of the water balance and its prediction is useful in managing agricultural water supply and managing water resources in reservoirs. Decision tree model as being one of the prediction models, has several functions in rainfall modelling and results in law making. In this study, to evaluate the performance of the decision tree model for the precipitation to be predicted in Kermanshah synoptic stations, and the algorithm CART (Classification and regression tree), being a kind of the regression decision trees, was used to predict the rainfall for the next 30 months. The data used in this study collected from the monthly rainfall stats, evaporation, relative humidity, maximum temperature, average temperature and wind speed in the statistical period of 1970 to 2010. To assess the created trees in this study, different statistical criteria were used. Finally, the results show that in Kermanshah synoptic stations, the regression decision tree is a relatively efficient model in predicting rainfall in which the use of moving average leads to a significant increase in the performance of the model than other modes. And in the case of modification in the range of changes in the input data, it is able to precisely estimate the rainfall 30 months prior to its occurrence, which in the simulations done, whenever the average five-year movement is used to reinforce the data, the combination of the previous rain and the maximum temperature is identified as the most proper status.

Keywords: Decision tree, Precipitation predictions, Algorithm CART, Kermanshah synoptic stations

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Quantitative modeling of access to urban parks with spatial justice approach, urban parks in Zone 6 in Tehran

(Manuscript received: September 19, 2012**, in final form:** January 2, 2014**)**

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Abstract

The spatial equity of urban public facility is an important goal to urban planners. Therefore, spatial justice measuring in terms of access to public spaces, such as green spaces and urban parks, is a need of urban management. In this study, for assessment of spatial equity by using Geographic's information systems (GIS) technology and network analysis have been presented a quantitative method for measuring the accessibility to urban parks in the zone 6 in Tehran municipality. Gravity or weight of each park, the network distance of urban blocks and radius of access is the main criteria of this research. The results showed, with regard to network distance, instead of direct distance, spatial distribution and development of parks in zone 6 have been unjust and there is poor access to the parks. The proposed analysis method has the ability of a Quantitative comparison between urban blocks in terms of their accessability to urban parks and their ability to identify the blocks with the least access.

Keywords: urban public facilities, inequity, spatial separation, network analysis, spatial distribution

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Analysis of the distribution and prioritization of the tourism infrastructures of Yazd province by using models of TOPSIS, GIS and HDI

(Manuscript received: January 25, 2014**, in final form:** May 6, 2014**)**

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Abstract

Tourism industry is one of the most booming mining industries and has become the highest earning industries in the Third Millennium of world. Tourism as a social - economy phenomenon in recent decades as the "industry" has been a significant role to play in economic and cultural exchanges. The most countries that have the least to be a tourist attraction, the investment have done in tourism infrastructure. While some of in Iran province for example Yazd province, including the infrastructure is not work or if the work is performed Imbalance. This imbalance in infrastructure, tourism and attracting the attention of the elements tourism is catchy. The research is developmental- applied and its method is combination of (descriptive, documentary and analytical),has been study and examine the issue to evaluate and prioritize the development of tourism infrastructure in the city of Yazd, using 30 variables and by using models TOPSIS, GIS and HDI and Excel and SPSS software. The results showed that TOPSIS technique of Yazd city TOPSIS, 0/921 percent is of the primary development also townshops of Ardekan, Tabas, Taft and Bafgh are development of the Middle and townshops of Meybod, Mehriz, Sadough, Abarkouh and Khatam with TOPSIS, 0/052 percent are lowest level development. In addition, show results of HDI to townshops of Khatam 0/057 percent HDI and Yazd townshop 0/909 percent of the constituents representing the lowest and highest index of infrastructure, tourism facilities in the province.

Keywords: Tourism infrastructure, distribution and prioritization, TOPSIS, HDI, GIS, Province Yazd.

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The Impact of Social Capital on Rural Development of Chahar Dangeh District

(Manuscript received: May 31, 2013**, in final form:** June 8, 2014**)**

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Abstract

The main aim of this paper is analysing the role of social capital on rural development. Research study area is Chahar Dangeh district in Savejbolagh County of Alborz province. Research sample is determined through Cochran's model as 380 households. Required data has been collected based on field study and some documents. Research questionnaire validity is calculated through Cranach's alpha (0/75) and its reliability is measured through viewpoints of experts. Collected data are analyzed through statistical test including T-test, Regression and neural network model. Result shows that there is meaningful relationship between level of social capital and rural development, in which, components of participation, Knowledge and trust are more determinants factor. Results of neural network model depicted those variables such as participation, trust and knowledge has the most important role on the development process, while the role of social coherence and social network is more limited.

Key Words: Social Capital, Development, neural network model, Chahar Dangeh district.

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Temporal - Spatial Variation and Trend of Reference Evapotranspiration in Iran

(**Manuscript received**: January 8, 2014**, in final form**: September 9, 2014)

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Abstract

The calculation of temporal-spatial variations of the evapotranspiration is very important, because of its effects over water resources management , the irrigation planning and crop water needed. In this study, in order to calculate the potential evapotranspiration, the FAO Penman-Monteith method is used; as it has higher accuracy than other methods. To calculate daily values of the evapotranspiration, meteorological data related to 50 synoptic stations during a period of 29-years (1981-2009) was used. First, the monthly and annual values of the evapotranspiration during statistical period were calculated and then their mean values were used to examine the monthly and seasonal variations. By the Mann-kendall nonparametric test and in confidence level 95%, the monthly and annual trend of evapotranspiration was extracted. The results show that the evapotranspiration trend is increasing in Iran. The maximum changes of the annual trend and the evaporanspiration increase were detected in Birjand, Shahrood, Ghazvin, Jask, Semnan, Babolsar, Doshantapeh and Sanandaj stations and also, its minimum has been observed in Fasa and Kish Stations where the evapotranspiration values have remained almost unchanged. The highest monthly trend change has occurred in July in the dry stations, and also the lowest monthly trend change has occurred in the December and January.

Key words: Evapotranspiration, FAO Penman-Monteith, Trend, Mann-Kendall Test, Iran

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