The study location of the 500 hp level jet sterams and floods in Urmia lake basin

Nader Parvin: Asistant Prof, Climatology, department of geography, Payame Noor University

Abstract

The study of jet streams as one of the mean components of atmospheric circulation system that effects flood is important and necessary. The aim of this research is to identify atmospheric circulation patterns of rainy days and to study location of the 500 hp level jet streams over Uremia lake basin. After determining the flood spatial-temporal index for 189 days of rain tendency flood during 1370-1389, the 500 HPa level high data were processed with factor analysis method and Ward`s method clustering. Finally, seven synoptic patterns of atmospheric middle level were recognized. Research results show that the trough axis has been deepened while occurrence of spread floods and jet streams settled over Mediterranean Sea to northwest of Iran mostly in direction southwest-northeast between latitude 25 to 35 circles.

Key words: flood, factor analysis, synoptic pattern, jet stream, Uremia lake basin

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Production of Daily Cyclonicity Indices and its effect on temperature and precipitation over Khorasan region in 1948-2010 Period

Hadith Golmohammadian: MSc Agro meteorology, College of Agriculture, Shiraz University

Mohammad Reza Pishvaei: Assistant. Prof.**,** Water Eng. Dept, College of Agriculture, Shiraz University

Abstract

Cyclonicity Index in upper level (surface level) may indicate the effects of trough (cyclone) or ridge (anticyclone) pattern over an area. The goal is to create Daily Cyclonicity Indices (DCI) in 500 and 700hPa level over Khorasan province focusing on Mashhad in 1948-2010 period as well as to estimate the frequencies (days/year) of upper circulation types and effect of DCI on temperature and precipitation in region. Daily means of geopotential maps in 500 (and 700) hPa level (23011 numbers) were extracted from NCEP/NCAR Reanalysis Published by NOAA. In upper level five types of atmospheric circulation are diagnosed as follows: area influenced by trough line (TL), trough edge (TE), geopotential col or unclassified pattern (COL), ridge edge (RE) and ridge line (RL). Time series of DCI were then resulted. The frequency averages annually in the total period for the circulation types, TL, TE, COL, RE and RL, are respectively 67, 15, 111, 105 and 66 (days/year). This research showed that the Khorasan area are under: low geopotential height (trough pattern: TL+TE) in 23% of days/year, geopotential col (or unclassified) in 13% of days/year, high geopotential height (ridge pattern: RL+RE) in 47% of days/year. Coverage area of DCI is estimated to be about 300km radius from the center point (over 280,000km^2) that extracted from the mean of atmospheric wavelengths. Correlation coefficient between DCI and temperature (precipitation) in monthly scale is -81% (50%).

Key Words: Atmospheric circulation, Daily Cyclonicity Index, Khorasan, Low/High pressure system

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The Agroclimate Zoning of Grainy maize using GIS Techniques in Lorestan province

Moslem Seydi Shahivandi: M.Sc of Climatology،shahid Beheshti University
Shahryar Khaledi: Associat Proffesor، Geography Group، shahid Beheshti University
Ali Reza Shakiba: Assisant Prof،Geography Group،shahid Beheshti University
Babak mirbagheri: Instructor،Dep.of Remote Sensing and GIS،Shahid Beheshti University

Abstract

Climatic factors are the most important variables among effective factors in agricultural production. In this study, climatic parameters including temperature, precipitation, degree day and environmental parameters such as slop aspect, hydrographical network and distance to streams and soil are exerted. In order to achieve this goal, first the date of crop production, and then environmental are collected and finally their maps were produced using methods in Arc GIS software. These maps are standardized with fuzzy logic and criteria specified for grainy maize implant and then each of them is taken specific weight. In the next step, all of the standardized maps are integrated using AHP logic and subsequently, the appropriate location for grainy maize plantation zonation map in lorestan province is identified. Results reveal that, 299521 hectares are so suitable for grainy maize implants, 809956 hectares are suitable, 1040944 hectares have a medium capability, 529535 hectares are unsuitable, and 95930 hectares are so unsuitable for this purpose. Final result of this study indicates that each climatic and environmental factor according to the different regions have specific capability for grainy maize plantaion and these recognized capable areas needs to be considere for future plannings.

Key words: lorestan province, grainy maize, climate, fuzzy logic, AHP logic.

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Comparative Survey on the Sustainable Social Development indexes Tehran Metropolis district 6 &10

Mehrdad Navabakhsh: Associate Professor of Sociology- Islamic Azad University Science And Research Branch, Tehran
Sayed **Mousa Pourmosavi:** Assistant Professor of Geography & Urban Planning- Imam Hossein University
Zohreh Tajik: M.A of Sociology- Islamic Azad University (Science and Research Branch, Tehran)

Abstract

Social dimension of sustainable urban development approach based on the principle of social justice and within generation equality, are two efficient tools serving for urban cohesion, due to this, discussing the case of sustainable social development in Tehran metropolis has a significant importance, because nowadays the metropolis of Tehran has faced serious challenges for retaining and promoting the life quality of its citizens. The purpose of this research is to conduct a comparative survey on the social dimensions based on the sustainable urban development approach in Dist. 2, 6 and 10 of Tehran metropolis .This research is based on the descriptive-surveying method and the method of gathering information is through questionnaire. According to the categorized sampling, the number of responders in 2 districts (6 & 10) is 365. Based on the statistical analyses (F test) the research findings show the status of factors such as: citizens partnership, urban management operating performance, amount of accessibility to urban resources and facilities and the quality of life environment in dist. 6 is more constant than dist. 10 and these factors result in the disagreement and difference of 2 districts of 6 and 10 from the perspective of sustainable social development.

Keywords: Sustainable social development, citizens' partnership, quality of life environment, urban management performance, Tehran metropolis

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Utilization of Gray Clustering Analysis (GCA) in the modeling of urban public parking site selection (case study: Zoning the 6th district of Tehran)

Saham Mirzaei Turk: M.Sc. Student in RS & GIS, Faculty of Geography, University of Tehran.
Qadir Ashournejad: M.Sc. Student in RS & GIS, Faculty of Geography, University of Tehran.
Hasan Ali Faraji Sabokbar: Associate Prof., Faculty of Geography, University of Tehran

Abstract

With the urbanization growth and increasing in vehicle density in the last decades, traffic has become a serious problem in big cities. Public parking as one of the most important urban infrastructure plays an important role in traffic fluency and reduces marginal car parking. The aim of this study is to propose an optimum model for zoning urban areas from the parking deployment utility point of view by using Gray Clustering Analysis. After determining the effective parameters, Fuzzy Analytic Hierarchy Process (FAHP) was used for weighting parking parameters. The purpose of the study is to assess current public parking conditions and suggest some places for future development, in the 6th district of Tehran that has a lot of traveling attraction places and plays a Cross-region role. The model assessed based on field observations and gamma coefficient used to determine the similarity between the results of model and field observations. The gamma coefficient was 0.904 that shows strong relationship between them. The results of this study indicated the fact that the use of Gray Clustering model in the zoning and site based decision-making, along with GIS analysis functions, is very accurate.

Key words: Parking, Geographical information system (GIS), Fuzzy Analytic Hierarchy (FAHP), and Gray Clustering Analysis (GCA).

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Assessment of wind energy potentials in Kermanshah and Kordestan provinces

Firouz Mojarrad: Assist. Prof. Climatology of Geography Dept, Razi University, Kermanshah
Shahram Hemmati: M. Sc. in Climatology Geography Dept, Razi University, Kermanshah

Abstract

In recent years, the use of clean and renewable energies such as wind energy has become one of the most important strategies of countries because of the limitations and problems of exploitation of fossil fuels. In this study, wind energy potentials have been evaluated in Kermanshah and Kordestan provinces with the aim of identifying areas suitable for the establishment of wind turbines. Wind data analyses performed based on 3-hour intervals in 11 synoptic stations in the statistical period of every station. As the necessary speed for installation of a small wind turbine is about 3 to 4 m/s, and for an industrial turbine in the form of wind farm is 6 m/s, the total hours with speed less than 3 m/s were considered as calmness hours and with speeds more than that were considered as continuity hours. Afterwards by using the available methods, based on wind speed in height of 10 meters, wind speeds were estimated up to 100 meters heights. According to the tables, graphs and maps of wind continuity, wind speed and wind power density (WPD), Bijar station from the height of almost 50 meters (The usual height of a wind turbine tower) and Zarrine-obato station from the height of 100 meters and more, have the proper conditions for installation of commercial wind turbines in the form of wind farms. Other stations except Marivan and Sarpol-zahab have the capacity to use wind power in limited scale in different heights for consumptions like charging the batteries, wind water pumps and providing electricity for household usages.

Keywords: Potential, Wind Speed, Wind Power Density, Wind Turbine, West of Iran.

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Landuse determination process of extracted lands from transformed incompatible land uses Case study: GhalehMorghy base

Kazem Afradi: Master of Urban Planning, College of Fine Arts, University of Tehran

Abstract

One of the important topics in urban planning domain, in recent years, is the transformation of incompatible landuses from residential areas. This landuses, which often includes kinds of factories, military bases, the slaughterhouses and prisons, during its presence in the residential areas, provide numerous safeties, environmental and social problems. Now, in our country, initial studies indicates, at least there isn't clear, transparent and approved mechanism for landuse determination of this lands and limited samples that are running goes on informal, non-unit and non-approved mechanism. The study with considering this defect has aimed to define a clear, unit and specified process, that is regard to the specific characteristics of each site and its surrounding areas, through analytical - practical technique propose process for such land use determination of this sites. This steps that defined in five stages, includes, need assessment, capability assessment, smoothness, systemization and synchronization, synchronization proposed Based on data collection methods, structurization and synchronization, with the appeal of the limited resources available studies. Finally, steps implemented in line with the requirements of Master Plan (2006) and detailed plan of Tehran for Ghalehmorghi military base at Region 19 and its land use structure proposed

Key words: Incompatible land uses, Extracted lands, Land use structure, Region19 Tehran city, Ghalehmorghi military base

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The research about effective process on the Anabraching formation in Mahabad River

Hadi nayyeri: Assistant Professer physical geography-Geomorphology department Faculty of Natural Recourses - University of Kurdistan - Faculty of Natural Recourses –sanandaj, P.O. Box416, Iran.

Abstract

Mahabad River is located in south part of Urmia Lake. The River is deformed to Anabranching in the region between the upstream of Mahabad dam and downstream of detour dam. The aim of this research is evaluation of the factors that affects the formation of this kind of channel. For this purpose, multiple physical variables including wide bed, stream power, channel slope and the amount of the bank clays were studied. The form of channel were assessed at two different times before and after build of the dam based on 1346 and 1382 aerial photographs. The aerial photographs scanned and processed in Geographic Information System, in order to extract of the wide channel. Finally, the effect of the dam on river and changes after the construction of the dam were determined. The results showed that increasing recent period's runoff potential and basin erosion were provided the necessary potential for Anabranching formation in this area. But, the most important factor for construction the Anabranching was the dam building causes decreasing peak flow and increasing bed-material deposing rate. The river adjusted by deformation in response to deposition of bed-materials as a result of decreasing stream power. On the other hand, decreasing island length and nonoccurrence of Anabranching channel to Nanson and Knighton model was the result of the presence of the detour dam on downstream.

Keywords: Anabraching Channel, Dam construction, geomorphologic changes, Adjustment of River, depositnal islands.

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Study on the Impact of climate signals on the Precipitation of the central of Iran using Artificial Neural Network

Zahra hejazizadeh: professor of Climatology faculty of Geographical Sciences Kharazmi University, Tehran
Ebrahim fatahi: Associate professor Climatology Member of scientific board of meteoroloyical institute.
Mohammad saligheh: Associate Professor of Climatology faculty of Geographical Sciences Kharazmi University, Tehran
Fatemeh arsalani: Graduate student, Kharazmi University of Tehran

Abstract

Climate signals are large-scale models of abnormalities in circulation and pressure and spread over wide geographical area. These signals are very important in translating the climate behaviour. In this research the relationship between precipitation and the climate signals (AO, NAO, SOI, and ENSO) in the Central Iranian zone, has been studied. The signals data are acquired from the NCEP Data Centre; also the aggregate data of the monthly precipitation are obtained from the Automation Centre in Iran Meteorological Organisation. Monthly data gathered through a 30-year statistical period (between 1978 to 2008). Finally, by exploiting Artificial Neural Network method, the simulation models for 0,3 and 6 months intervals were created. The results indicated that among the investigated signals, signal ENSO has a meaningful impact on precipitation in NINO1.2 and NINO3 zones, and the 3 and 6 month delay has strengthened the correlation coefficient of the ENSO index in zones NINO1.2 and NINO3 in relation to precipitation in the studied stations. The 6-month delay has resulted in negative correlation coefficient between ENSO index in NINO1.2 and NINO3 zones. According to the presented models, ENSO signal in NINO1.2 and NINO3 zones combined with other effective parameters could regard as a precipitation forecast model. Other climate signals do not have a meaningful impact of precipitation in the stations under study.

Keywords: precipitation, artificial neural network, arctic oscillation (AO), north Atlantic oscillation (NAO), ENSO

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Study on the economic impacts of smuggling on the border towns Case Study; Marivan, Kurdistan

Seyed Hadi shabby: PhD student in Geography and Rural Planning, Ferdowsi University of Mashhad and Plan lecturer
Hamid Shayan: Associate of Geography and Rural Planning, Department of Geography, University of Mashhad

Abstract

This study examines the effects of smuggling on the economics of Marivan,a border town , that is placed in the western frontier of Kurdistan province in Iran and is bordering the Iraq country. The Smuggling is a kind of customs frauds that includes the illegal transportation of goods across the customs border through the secret ways and to evade customs controls. Nowadays, the issue of free trade and attention to marketing and customer's attraction is considered as one of the most influencing factors in the economic growth and development. However, this global activity is always at risk and exposing with serious damages. Because of geographical conditions for goods import and export, and lack of stability in the neighboring countries, the smuggling issue is so noteworthy in Iran. The purpose of this research is surveying the economic impacts of smuggling on the city of Marivan, In terms of income and employment. The methodology of this study is functional in purpose aspect and including descriptive – analytical method. The residents of Marivan city are the statistical population of this research and the number of samples was calculated by using 315 Cochran formulas. In this study, as the first step we collected library information of resources; then, data and information about the area of study were gathered. After that, preparing and completing of the questionnaire along with observation was accomplished among the residents of Marivan city. For drawing the maps, Arc GIS software was used. Finally the collected data were analyzed by using SPSS and Excel software and conclusions are presented. The results of this study indicate positive and high effects of smuggling on the employment and income of residents of Marivan and also on the other sectors of this area economy.

Keywords: border cities, smuggling, Marivan, the urban economy, Kurdistan.

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Evaluation of the Role of Social Capital in Rural area development Case study: Mashhad Maighan County in Arak Township

Hossein Farahani: Assistant professor in Geography and Rural Planning, University of Zanjan
Jamshid einali: Assistant professor in Geography and Rural Planning, University of Zanjan.
Somaye abdoli: M. A student in Geography and Rural Planning, University of Zanjan.

Abstract

The concept of social capital, as an interdisciplinary concept, has been considered by many branches of humanities. This concept has been studied in the social and economical analysis related to the development of rural communities and it emphasize on the available resources in rural. These sources include human relations, networks and institutions in the social structure. Therefore, in order to achieve stable rural development, access to social is essential. This study enamines & analysis the role of social capital in rural development according to three Pantum idenes (trust, partnerships and networks). The influential role of social capital on the quality of life cannot be in this study back ground variables such as the subjective quality of life and disregarded. So, objective quality of life and social capital was measured. In this research descriptive statistics and inferential analysis based on obtained data from survey. The data was analysis through methods of statistical correlation, t-test, kruskal-wallis, multiple regression, analysis of variance, path analysis, Maurice model. And TOPSIS model is used. For the purpose of these study 25 rurals from Mashhad-e- Meighan County in Arak Province, trough sampling was selected. The required data collected through two questionnaires including 135 household and 13 authorities. The findings indicated that there is a significant relationship between social capital and the increase in the quality of life in the region studied. And it showed that there is a significant relationship between the increase of social capital and the social and physical dimensions of rural development. Social participate largely affected high quality of life in Mashhad mighan country.

Key words: Social capital, Quality of life, rural development, Mashhad Myghan.

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Backscatter coefficient execution and analysis over the temporal radar double polarization signal (VV and HH) for wheat crop monitoring

Mohammad sharifikia: Assistant professor Department of Remote Sensing and GIS tarbit modares University
Parviz Ziaeian Firoozabadi: Associate Professor of Remote Sensing and GIS faculty of Geographical Sciences Kharazmi University, Tehran
Marzih chaji: Graduate Student Department of Remote Sensing and GIS tarbit modares University

Abstract

Wheat Crops monitoring, is an important task that many researchers as well as RS researchers have been focused on and several algorithms have been introduced and applied in this field. Radar signals processing and analyzing in different wavelengths and polarizations for indicator extraction is a technique to monitoring this importance agricultural product. Out of several researchers which are deal with this task, a few Iranian was attending and none published research can found to exit in this field. The present study is deal with backscatter coefficient execution from temporal ASAR C band double polarization data for wheat mentoring in part of North-East Iran namely Shirvan-Faroj Plane. The research outcome was shown acceptable capability of backscatter coefficient in both polarizations for wheat monitoring in an area such as study area .The detailed of research result was shown that compare between HH and VV polarization, the lack of signal sensitivity in HH polarization for soil moisture can provide a better result. Furthermore, conform uncorrelated between backscatter coefficient and plant growing in HH polarization over the rainfed wheat has been observed in this research. This is mainly because of signal penetration and backscatter reducing due to low density and fine texture of rainfed wheat compare to irrigate. It is also observed that backscatter coefficient was increases until the plants reach to heading stage, but it is decreases after this stage due to plant daring.

Keywords: ASAR Radar data, backscattering coefficient, wheat monitoring, polarization, Farvj – Shirvan plane

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