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**Original article**

# Climate zoning Kermanshah, in line with its planned improvements

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ABSTRACT

Climate can be defined as a mean of the different components of the climate system. The climate of the region is composed of all the elements of its climate, and the divisions have all the elements, should be considered. Climatic zonation (ie, recognizing that climate zones are identical ), in order to achieve comprehensive development in various aspects of time - space is necessary and appropriate in order to create a climate that is suitable for homes and buildings. Since the Kermanshah Province, has a lot of potential in terms of nature, in order to develop the region, in the present climate zoning Kermanshah, to develop more of it, especially the manner of its construction, has been adjusted. Therefore, the required data (precipitation and temperature) 11 Climatology and synoptic stations of Kermanshah, the weather will get. Using Demartn model calculations have been carried out, and the software uses GIS, the results were graded in Kermanshah province. The results indicate that a large part of the Kermanshah Province, has formed a cold semi-arid climate, Mediterranean climate, then the range has expanded to be. The next time, the scope is dry. Lowest range belongs to the range is wet in the northwest province.

## 1. Introduction

Climate can be defined as a mean of the different components of the climate system, with components of variability over time, the average annual volatility also, to have a century (Azizi, 2001). The climate of the area, the area consisting of all elements of weather, and when you divide, you have all the elements, should be considered. All phenomena on Earth, where human lives are effective, are in territory geography study. Weather, one of the most important phenomena of human life (Saligheh, 2008). The overall climate of a region is the average weather in the area, and access to the average weather at a specific location, require a long-term meteorological data (Zabolabbasi, 2004). The natural characteristics of the area, especially the weather, could be involved in the planning and land use planning, role plays, and climatic zonation ( ie, identify the zones which have the same climate ), in order to develop all- time in various dimensions - space is essential (Geramimotlagh,2006) The best way to understand the environment in which we are, of building traditions of local people there. Building with nature, respecting the surrounding environment, ie, understanding the climate, taking into account the position of the land and the natural elements, the wind and sun, and other features of the property is its location (Zandi and Shaghayegh ,2010 ). Subject agricultural region, one of the interesting subjects in studies of climatic factors on housing and human living space. Architects in the past, due to the effects of wind and sun and rain experienced over the houses and buildings that are known, and interesting ways as well, to reduce the adverse effects of these factors are present. Contemporary architecture, environmental changes due to climate and sustainability standards emerge, each day becomes more important. The Ecology Building, building capacity to integrate environment and climate, and convert them to quality, comfort, space and form, are emphasized. If the design of a building for the storage of necessary points to be due to climatic conditions, the interior of the building itself, even with the natural thermal comfort, the external environment can have adverse temperature conditions, to create. Inconsistent with the terms of indoor climate, you can not even use the heating and cooling system, the reasonable cost, as well as setting. This man is influenced by natural factors, however, been able to a factor of intelligence, aptitude, and art, in a word, and means of organizing over centuries of evolution and progress of the move. Because of the consistent and flexible architecture, agriculture, climate, and temperature of each area is the best for comfort (Qarehnejad, 2002). Two centuries past, define climate zones, mainly thanks to a German scientist is. In 1817, Alexander von Hambolt, the mean annual temperature on the world map. Vladimir coupons (1940-4846), the corrected form, and in 1884, the amplitude of the seasonal temperature chart, which eventually led to his emergence as climate classification method. Before that, Carlos Linnaeus, 1735, and in 1802 Lavark Howard Plant Classification, Classification of clouds offered. In the United States, Van Torrent White (1963-1892), in 1931, a basic classification method based on the annual pattern of soil moisture introduced (Masoodian, Abulfazl,2003 ). and White and Perry, climate regions of the UK, according to data agroclima were classified. (White and Perry,1989). and classification of drought events in the northeastern United States, by cash received and colleagues (Poul) (Poul A. Knapp & Henri ,2002) and (Kavachi) to help distressed index, the blue areas on the Japanese classification is (Kavachi and Maruyama ,2001). Also work in the field by a constant ( Sabetiو 1969) Alijani (Alijani, , 1996 ) Iran's climate zones by Masoodian (2003 ), and drought Zoning Kermanshah Province by Soltani and Saadati ( Soltani, 2007) as well as climate zoning, Sistan and Baluchestan from Saligheh and colleagues ( 2008 ), and assessment of climate zoning Iran Tourism Farajzadeh and Mahmoodabadi [Farajzadeh, and Aamadabadi,2009) and zoning maximum daily rainfall Iran crude to Khamchinmoghadam et al (Khamchin, Sedghi, and Manshoori, Mohammad., 2010 ) pointed out.

## 2. Position of kermanshah province

Kermanshah province in the extreme west of the country, bordered on three sides with the Interior Provinces ( Luristan, Kurdistan, Ilam, Hamedan ), and from one side of the international border with Iraq, its geographical coordinates between 36 and 33 degrees, and 15 and 35 degrees north and 24 degrees east longitude and 45 degrees to 30 and 48, is located.Given the history of geological periods, and a central Zagros mountains, Formations outcrop in the mountains, with certain natural properties exist, with a maximum of 3390 m peaks, deep valleys, plains mail, with a maximum height 180 meters (2310

feet elevation difference), has led to widespread Kermanshah province, with an area 2/463/600 acres, from 800/000 hectares of forest cover, and 933/091 hectares of agricultural land has adult population the 1/778/596 people.

In this province, under humid Mediterranean diet, with an average annual rainfall of 300 to 800 mm according to Coupon climate classification, Kermanshah province in four different climates :

mild winters and hot, dry summer, the city of Qasr-eshirin – Sarpolzohab and azgaleh Village, southwest of peers

cold winters and cool summers ( Paveh – Javanrood and Karand gharb )

Semi-arid and steppe, cool, Songhor district and Poshtdarband village of Kermanshah

Semi- dry and warm steppe includes Kangavar - Sahneh – Harsin

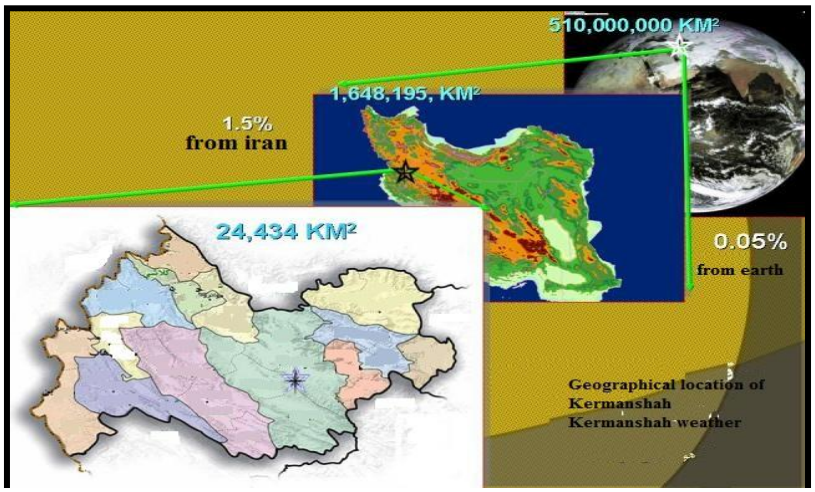


**Fig. 1.** Location of Kermanshah.

## 3. Methods

Since the identification of the characteristics of each region can be involved in planning and land use planning, to play a major role, climate zoning to achieve comprehensive development in various aspects of time - where it is necessary, and also, because of Kermanshah, in many capacities for regional development is normal, in the present climate zoning Kermanshah, has been set for further development.

**Table 1**
Data used to calculate.

| Station | Temperature | Precipitation | Demartn |
|---|---|---|---|
| Eslamabad gharb | 13.6 | 483 | 20.4 |
| Kangavar | 12.8 | 400 | 17.5 |
| kermanshah | 14.2 | 447 | 18.4 |
| Sarpolzohab | 19.4 | 484 | 16.4 |
| Ravansar | 14.6 | 529 | 21.5 |
| Qasrshirin | 22 | 375 | 11.7 |
| Gilangharb | 20.3 | 429 | 14 |
| Paveh | 15.1 | 755.5 | 30 |
| Soomar | 21 | 290 | 9 |
| Songhor | 12.8 | 535 | 23 |
| Tazehabad | 15.8 | 490 | 19 |

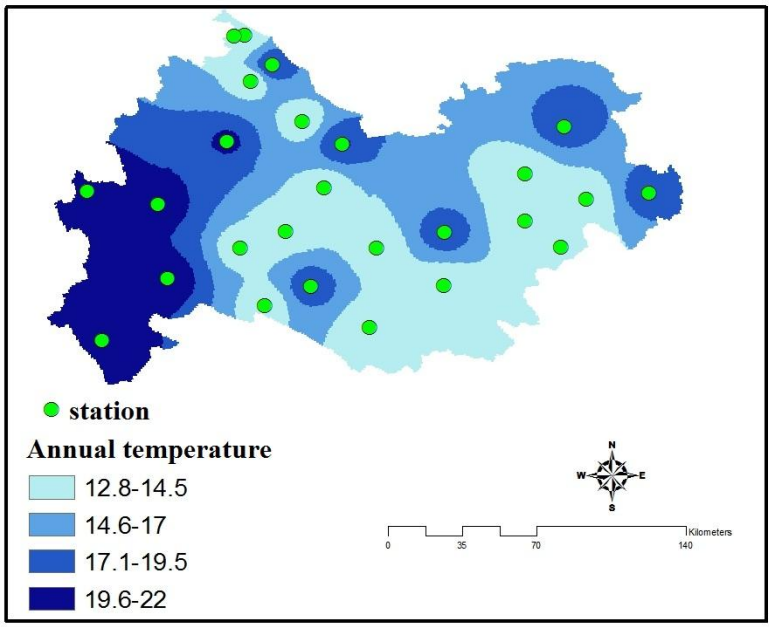


**Fig. 3.** Zone temperature Kermanshah Province.

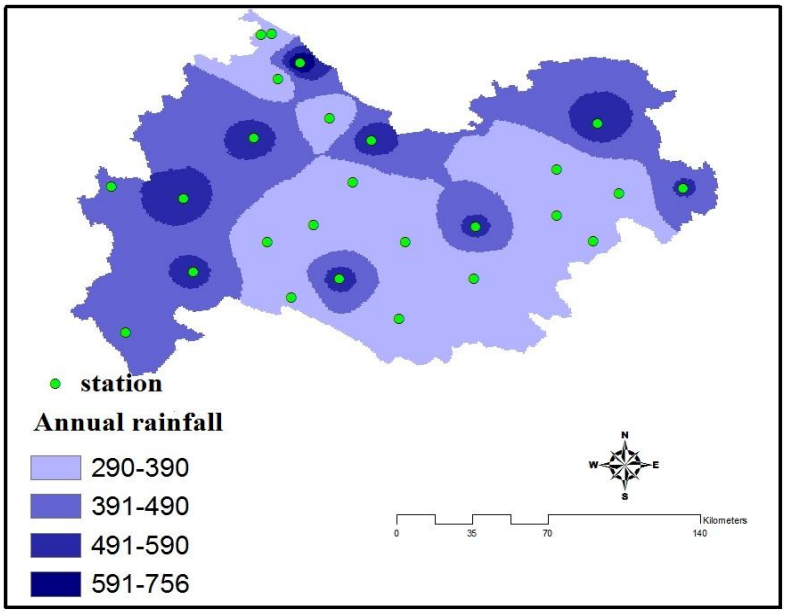


**Fig. 2.** Precipitation lines Kermanshah Province.

To do this required data (precipitation and temperature), 11 Climatology and synoptic stations of Kermanshah, the weather will get. Using Demartn model calculations have been carried out, and the software uses GIS, the results were graded in Kermanshah province. Local stations studied, and the required data is presented in Table 1.

**4. Kermanshah climate zoning system, demartn**

In this way, temperature and annual precipitation or monthly basis moisture index is calculated, based on different values of this index are separated by boundaries of different climates. This index is defined as follows:

I = P / (T +10)

T annual or monthly temperatures, in degrees Celsius, P precipitation annually or monthly, and I is the moisture index. Threshold for different climates, by Demartn is specified as follows:

**Table 2**
Classification stiffness coefficient Demartn.

| Stiffness coefficient Demartn | Climate type |
|---|---|
| Less than 10 | dry |
| 10 to 19/9 | Semi-Arid |
| 20 to 23/9 | Mediterranean |
| 24 to 27/9 | semi-humid |
| 28 to 34/9 | wet |
| Greater than 35 | very wet |

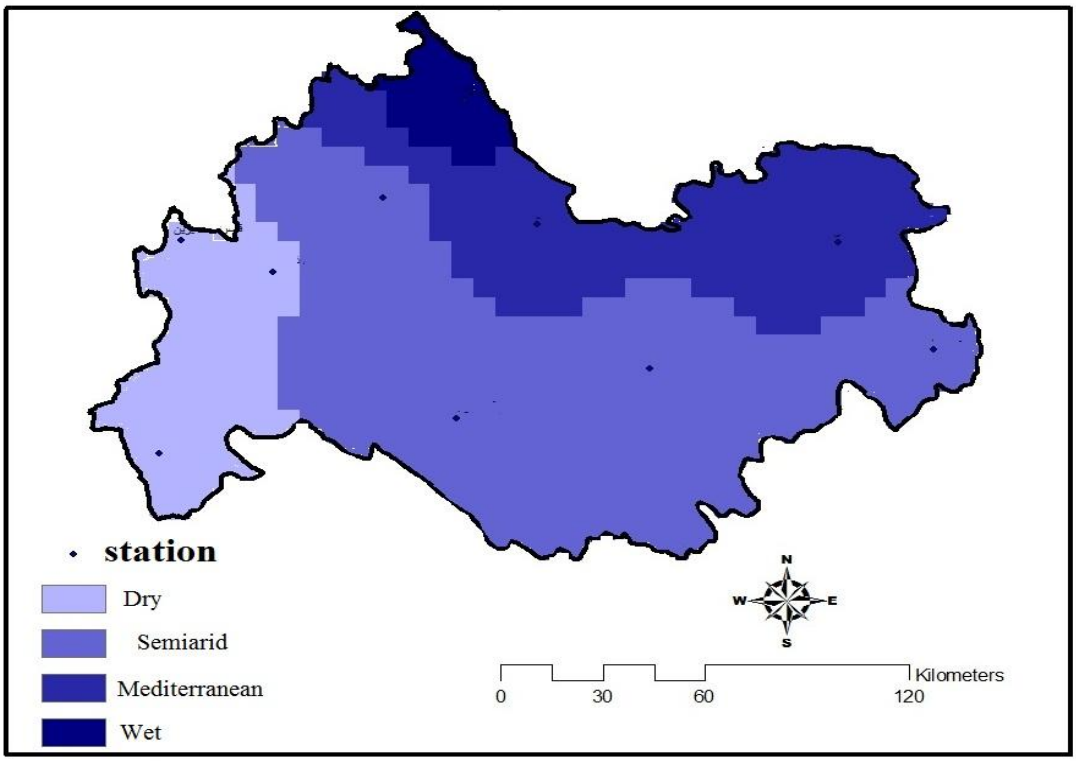


**Fig. 4.** Kermanshah climate zoning criteria Demartn.

Based on the above, it is observed that a large part of the Kermanshah province, semi-arid climate is cold- formed, and then a range of Mediterranean climate, with greater breadth is. The next time, the scope is dry. Lowest range belongs to the range is wet in the northwest province. The watershed in Kermanshah province, climates wet and cold semiarid temperate, accounting for 18/7 and 16/2 percent of the total area of highest relative frequency are, and warm temperate climates Very dry only 0/1 percent of the province, is covered. Kermanshah, in terms of climate and climate issues, vary greatly according to climate Demartn Exterior Trim, 12 climate, and based on Amberjeh, 8 different climate types, the range has been ruling watershed in Kermanshah province. Climate variability, the climates very wet

type cold to warm temperate Very dry could yield potential of the province, agriculture, natural resources, tourism and... Increase is.

**5. Conclusion**

Kermanshah Province, is a mountainous region between the Iranian Plateau and the plains of Mesopotamia has been around the mountains and highlands of the Zagros mountain range covered. Zagros mountain range, the limits of this State, a series of parallel mountain, paralleled the high mountain plains, the intermediate formed and important passages in the Zagros basin has created. Kermanshah Province, located at the Mediterranean wet fronts, in dealing with the Zagros mountains, rain and snow provide the grounds. Kermanshah Province, four different climates can be distinguished :

mild winters and hot, dry summer, the city of Qasr-eshirin – Sarpolzohab and azgaleh Village, southwest of peers

cold winters and cool summers ( Paveh – Javanrood and Karand gharb )

Semi-arid and steppe, cool, Songhor district and Poshtdarband village of Kermanshah

Semi- dry and warm steppe includes Kangavar - Sahneh – HarsinSince the identification of the characteristics of each region can be involved in planning and land use planning, role plays, climate zoning to achieve comprehensive development in various aspects of time - where it is necessary and appropriate to build homes, crops and buildings where the climate is suitable. The results indicate that a large part of the Kermanshah Province, has formed a cold semi-arid climate, Mediterranean climate, then the range has expanded to be. The next time, the scope is dry. Range from the lowest humidity range in the northwest, is.

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