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Original Research Article

Investigating the Appropriate Period for Tourism in Chabahar Port Based on Climatic Conditions

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Abstract| The present study aims to evaluate and analyze climatic conditions in tourism processes, emphasizing factual data and the thermal comfort of tourists. For this purpose, Chabahar port was selected due to its profound importance in international communication, economy, tourism, and exceptional climatic conditions, making it particularly interesting to domestic and international tourists. This study seeks to provide a suitable tourism period calendar to improve the quality and development of tourism considering the climatic conditions of the southeastern coasts of the country. To this end, the Comfort or Tourism Climate Indicators of Tourism Climate Index and Physiological Equivalent Temperature were examined to provide a deeper understanding of the conditions by combining the results of the indicators (from 1990 to 2018). The results showed that in most months of the year in Chabahar port, the climatic and thermal conditions are outside the comfort zone, and heat stress creates restrictions for tourism activities. According to the output of investigating both indicators, the best time for tourism activities is mid-autumn and late winter, and in the three months of December, November, and March.

Keywords| *Tourism calendar, Chabahar port, Climatic conditions, PET index, TCI index.*

Introduction| Tourism plays a prominent role in the world economy (Scott, McBoyle & Schwartzentruber, 2004). It is the most significant and most rapidly developing industry, which has become one of the critical sectors of the global community over decades (Grillakis, Koutroulis & Tsanis, 2016). Climate as a part of our environment significantly affects the tourism sector and leisure time. Favorable climatic conditions are considered a potential source of the tourism industry improvement (Perch-Nielsen, Amelung & Knutti, 2010). The climate directly affects demand and satisfaction in tourism (De Freitas, Scott & McBoyle, 2008). An ideal destination for a wide range of leisure activities is determined by its climate (Bafaluy, Amengual, Romero & Homar, 2014). The reason lies in the fact that atmospheric conditions are a determining factor in selecting travel destinations for tourists. The suitable climatic condition of a destination raises the number of visitors, while an unfavorable one can increase the operational costs (Lin & Matzarakis, 2011). Therefore, the assessment of climatic conditions seems essential to undertake.

It is impossible to explain the effect of human psychological interpretation and physiological sense of weather by a variable such as temperature, precipitation, or humidity (Perkins, 2018). The reason lies in the complexity and multidimensional nature of such a climate effect on tourism. For this reason, bioclimatic indicators are commonly used for the evaluation of climatic conditions.

Chabahar port, as one of the coastal areas, due to its

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strategic communication situation and its ecotourism and cultural attractions, is regarded as a premier tourist destination in Iran (Ebrahimzadeh & Aghasizadeh , 2009).

Undoubtedly, one of the most critical factors in selecting a destination for tourists is climatic conditions. Therefore, taking cognizance of the weather conditions in different seasons can be an important factor in guiding tourists correctly. Different seasons demand unique tourists, and the knowledge of climatic conditions provides excellent help for tourists to select the proper destination or time and for managers to plan optimally. Therefore, it is necessary to understand the time and the appropriate tourism calendar by considering the climatic conditions in Chabahar port. This research aims to seek and determine the potentially suitable period for tourism in Chabahar city in terms of climate. In this article, the thermal comfort in different months in Chabahar is analyzed; the climatic potential of this city in terms of thermal and climatic comfort is evaluated, and a suitable tourism calendar is provided to pave the way for improving the quality and accelerating the development of tourism. Therefore, this study attempts to identify climatic and tourism potentials, determine climatic factors affecting human comfort, and present the tourism climate calendar in Chabahar.

Literature Review

The Tourism Climate Index (TCI), developed by (Mieczkowski, 1985), employs seven climatic parameters specifically for tourism climate purposes, and it is widely used by various researchers to assess climatic conditions. For instance, TCI was employed to evaluate the distribution of climatic resources in North America (ibid.), the future conditions of Mediterranean tourism under climate change scenarios (Amelung & Viner, 2006), tourism climatic conditions of Tbilisi (Amiranashvili, Matzarakis & Kartvelishvili, 2008) and Puerto Rico (Méndez-Lázaro, 2014), and assessing climate resources for China's tourism (Fang & Yin, 2015). In addition, several studies were conducted using TCI to assess the climatic conditions for tourism in different locations of Iran, including Chalus (Ramezanipour & Behzad Moghadam, 2012), Kerman province (Bakhtiari & Bakhtiari, 2013), Anzali Lagoon (Fadaee, Ramezani & Fadaee, 2013). Roshan, Yousefi & Fitchett (2016) examined the long-term trend of the TCI index to study the role of climate change on tourism in Iran.

Apart from climatic parameters, human thermal perception is influenced by individual characteristics and physical activities. That is why, indicators such as Physiological Equivalent Temperature (PET) (Matzarakis & Zaninovic, 1999), which draw upon data on the equilibrium of human body heat balance, are used to evaluate climatic conditions and identify tourism climate sources. Numerous studies have been conducted on different locations of the world using this method, including the Adriatic coast (Zaninovic & Matzarakis, 2004), Germany (Endler & Matzarakis, 2007), China and Taiwan (Lin & Matzarakis, 2011), Austria (Matzarakis, Hämmerle, Koch & Rudel, 2012 Greece (Matzarakis et al., 2014), and in Iran for northwestern Iran (Farajzadeh & Matzarakis, 2009), Ahvaz city (Ataei & Hasheminasab, 2013) and Mashhad city (Esmaili & Fallah Ghalhari, 2014).

Theoretical Principles

• The effects of climate on the tourism industry

Climate is a key factor in the development of tourism. Group tours are linked to weather conditions. In fact, the concept of tourism climate explains that climate, along with weather conditions, can be considered as a source for leisure, which in different times and places may be classified by a range from pleasant to unpleasant. Specifically, traveling depends directly on weather conditions. Climate is the most influential source of leisure time that can bring satisfaction or dissatisfaction to the traveler during the trip. In general, tourism relies on the climate (Ebrahimi, 2005). Climates and weather conditions, as local indicators, can affect the attractiveness of the region, the time-specific activities, and the convenience of tourists (Vasconcelons, Olivoeira & Gamboa, 2007.). Climate not only promotes tourism but also increases the tourist demand because most tourists prefer to spend their holidays in pleasant weather (Mohammadi, 2006, 174). De Freitas et al. (2008) use the TCI, which analyzes climatic parameters such as temperature, number of rainy days, humidity, wind, etc., to determine the most satisfactory climatic conditions for tourism throughout the year. In this method, climatic or human thermal comfort is the criterion.

• The effects of climate change on the tourism industry

Climate change and global warming continue to have numerous negative consequences on human life. This has been evidenced by the melting of Arctic and Antarctic ice, deadly floods, massive tsunamis, sea-level rise, and widespread conflagrations throughout the world. As an essential global phenomenon, the tourism industry is also affected by these climate changes. In 2003, a conference entitled "Climate Change and the Tourism Industry" was held by the United Nations in Tunisia with the participation of 18 states, which addressed the challenges confronting the tourism industry and climate.

The changes in aquatic and terrestrial ecosystems threatening human health were also discussed at this conference (Nicholls, 2004). Climate change can have a noticeable impact on how tourists choose their destination. For instance, with a rise in the global temperature, cold regions would be particularly desirable for tourists, especially during summer times. On the other hand, global warming can reduce the period suitable for developing winter sports such as skiing in cold and mountainous areas. Moreover, the quality of tourism in coastal areas declines by an increase in the possibility of harsh climatic conditions such as severe storms and tsunamis as a result of climate change, causing disruptions to the facilities of this industry (Mohammadi, Ranjbar & Hashemi, 2009).

Methodology

In evaluating the climatic situation of Chabahar city for tourism activities, the meteorological data was collected from the synoptic station of Chabahar in the statistical period 1990 to 2018.

The received data were selected based on the indicators used, which include maximum, average, and minimum temperature, average relative humidity, total precipitation, sunny hours, average wind speed, average cloudy days per year, and average vapor pressure. These data are obtained from the archive of the Iran Meteorological Organization. According to the research needs, the received data were processed in Microsoft Excel software, and the 20-year data were averaged.

TCI and PET indices were used to achieve the intended purpose. The climatic elements and environmental conditions, the thermal condition of the human body is taken into consideration.

Tourism Climate Index (TCI)

Mieczkowski designed the TCI in 1985 to provide a quantitative measurement of the effect of climate on tourism activities. The principal tourism activity in this index is visiting sceneries and landscapes and shopping. This index provides information on the destination's weather conditions at different times of the year. Apart from selecting suitable areas for people intending to spend their holidays and leisure time, this index can be a practical guide to identifying potential locations for tourism climate to develop the tourism industry in those areas further. In this index, seven climatic variables, namely the average of maximum temperature, average temperature, the average of minimum relative humidity, average relative humidity, total monthly precipitation, average sunny hours, and the average wind velocity, are used. These seven variables using a standard scoring system, produce five sub-climatic indices, including CID (the average of maximum temperature and the average of minimum relative humidity), CIA (daily average of temperature and relative humidity), P (total precipitation), S (daily sunny hours), and W (average wind velocity).

Daily Comfort Index or CID is calculated by combining two components of maximum temperature and minimum relative humidity. First of all, it should be noted that all these five components mentioned above take a coefficient in the range of 0 to 5. Zero is for unsuitable, and five is for the ideal condition. The final coefficient of tourism climate is between 1 to 100, obtained from the sum of the coefficients of these five components. Each of these five indicators or components contributes a share of the final coefficients, among which CID, with 40 points out of 100, has the utmost importance in the tourism climate of a region. This means that if the initial coefficient of this index is 5, it will be 40 in the final formula of the tourism climate (in the final formula, the initial coefficient of the day comfort index is multiplied by 4).

All-day comfort index, or CIA is a 24-hour comfort index based on the information of two elements: average temperature and average relative humidity. CIA has the lowest share in calculating the tourism climate index (coefficient 10). The humidity comfort chart is used to obtain the CIA coefficient. The intersection point of the average relative humidity and temperature estimates the initial coefficient of the CIA.

P or precipitation indicates the monthly precipitation. Precipitation in the tourism climate is considered a negative factor. Therefore, lower precipitation offers an advantage to the tourism climate. For this reason, the coefficient of 5 is ideal, and zero represents dissatisfaction. The relevant table is used in calculating the precipitation coefficient. The corresponding coefficients of different ranges of monthly precipitations can be seen in Table 1. In this table, the final precipitation coefficient is 20.

S or sunshine illustrates the sunshine hours of an area or station. This index is generally regarded as a positive factor, but the scorching hot days with a risk of sunburn are assumed to be negative. In total, shifting from 5 to zero, the dissatisfaction increases. Table 2 is used to estimate the initial coefficient of sunshine hours. It should be noted that the numbers in the table reveal the number of sunshine hours per day. If the daily number of sunshine hours is unavailable, the initial coefficient of sunshine hours should be calculated by dividing monthly sunshine hours by the number of days in a month. The final coefficient of sunshine hours is 20.

Table 1. Classification of precipitation score in TCI. Source: Mieczkowski, 1985.

Precipitation Score	Total monthly precipitation (mm)
5	0-14.9
4.5	15-29.9
4	30-44.9
3.5	45-59.9
3	60-74.9
2.5	75-89.9
2	90-104.9
1.5	105-119.9
1	120-134.9
0.5	135-149.9
0	150-

Table 2. Classification of sunshine score in TCI. Source: Mieczkowski, 1985.

Sunshine Score	Mean monthly hours of sunshine per day
5	10-
4.5	9-9.59
4	8-8.59
3.5	7-7.59
3	6-6.59
2.5	5-5.59
2	4-4.59
1.5	3-3.59
1	2-2.59
0.5	1-1.59
0	0-0.59

Wind or W calculates the wind index for the tourist climate. The effect of this variable depends on the air temperature. In a hot climate, it produces a positive effect due to evaporation and cooling; on the contrary, in a cold climate, the wind harms human thermal comfort. In general, the wind serves a positive role as an essential factor in tourism. Nevertheless, as the speed increases, it causes discomfort and is thus considered a negative factor. For this reason, several rating systems for wind speed are considered in this index. The estimation method for wind scores varies in different climates. For a typical system, the average maximum air temperature should be between 15 and 24° C. The Elyse temperature system should be between 24 and 33, and the hot temperature system should be above 33 degrees. Due to the wind effect at low temperatures, the cooling chart is used to estimate wind scores in months when the average maximum temperature is below 15° C and the average wind speed is more than 8 km per hour. However, both conditions mentioned above must be satisfied. For example, the typical system would be used if the average maximum air temperature is less than 15 and the average wind speed is less than 8 km/h.

Finally, after obtaining the initial coefficient of each index, the coefficients are placed in the final formula of TCI, and the final index is calculated:

$$TCI=2[(4\times CID) + CIA + (2\times P) + (2\times S) + W]$$

The optimal range of the index is from $-^{20}$ (unacceptable) to 100 (ideal). Table 3 demonstrates TCI and tourism conditions, calculated using the above-mentioned equation (Mieczkowski, 1985).

Physiological Equivalent Temperature (PET)

Several models and indicators have been developed

Table 3. Classification scheme for TCI. Source: Mieczkowski, 1985.

Tourism condition	TCI
Ideal	90-100
Excellent	80-89
Very good	70-79
Good	60-69
Acceptable	50-59
Marginal	40-49
Unfavorable	30-39
Very unfavorable	20-29
Extremely unfavorable	10-19
Impossible	-20-9

thus far to evaluate the impact of climate and thermal comfort. Among these, the models derived from the energy balance equation of the human body have received additional attention and approval. Physiological Equivalent Temperature (PET) is used because of its advantages and capabilities (presented in Celsius, the results are understandable for tourists and tourism planners who might not be familiar with biological terms).

The first thermal balance model was invented and described by Fanger in 1972 and is still in use today. Two decades later, Jendritzki et al. Succeeded in formulating Fanger's complex method by assigning appropriate variables to external conditions, which is now known as the MEMI[1] model (Ismaili, Gandhamkar & Habibi Nokhandan, 2011, 4). The details of the MEMI model are obtained from the following equation.

$$M + W + R + C + E_{Sw} + E_{Re} + E_D + S = 0$$

All the variables in this equation take the unit of W/m^2 W/m^2.

$M \rightarrow M \rightarrow$ The metabolic rate

$W \rightarrow$ The physical work output

$R \rightarrow R \rightarrow$ The net radiation of the body

$C \rightarrow C \rightarrow$ The convective heat flow

$E_D \rightarrow E_D \rightarrow$ The latent heat flow to evaporate water through the skin

$E_{Re} \rightarrow E_{Re} \rightarrow$ The sum of heat flows for heating and humidifying the inspired air

$E_{Sw} \rightarrow E_{Sw} \rightarrow$ The heat flow because of the evaporation of sweat

$S \rightarrow S \rightarrow$ The storage heat flow for heating or cooling the body mass

Indeed, if the body is gaining energy, the expressions in the equation will be positive, and if it is losing energy, they will have a negative value. $M\ M$ is ordinarily positive, but $WW\ E_D E_D$, and $E_{Sw} E_{Sw}$ are negative in most cases (Zulfiqari, 2007) The following meteorological variables control the above-mentioned equation (Hoppe, 1999, 74):

Air temperature: CC, $E_{Re} E_{Re}$

Air humidity: $E_D E_D$, $E_{Sw} E_{Sw}$, $E_{Re} E_{Re}$

Wind velocity: CC, $E_{Sw} E_S$

Mean radiant temperature: RR

The quantitative thresholds of this index, along with the descriptive status of physiological conditions and thermal perception, are given in Table 6.

The data required to calculate the PET index can be summarized in four categories of variables:

1- Topological variables: They include the meteorological station's latitude, longitude, and altitude.

2- Climatological elements: They include dry air temperature, water vapor pressure, relative humidity, wind velocity, cloudiness, and average radiant temperature. The variables of dry air temperature, water vapor pressure, relative humidity, wind speed, and cloudiness are readily available as synoptic stations record them. However, the average radiant temperature, as one of the most significant input variables in calculating the energy balance of the human body, is not recorded in meteorological stations. Therefore, it is necessary to consider the characteristics of radiation surfaces, geographic characteristics, and body conditions to calculate the average radiant temperature (Ismaili et al., 2008). The entire surface of the human body is divided into n isothermal levels $T_i = (i = 1:n)$ $T_i = (i = 1:n)$, and diffusion coefficient ($\in i \in i$). $F_i F_i$ is used as a weighting factor for any angular ratio of the object. Scattered longwave and shortwave radiation is emitted from each element n (Fanger, 1972, 122).

The following equation obtains the average radiant temperature (Mat

$$T_{mrt} T_{mrt} = \left[\frac{1}{\sigma}\sum_{i=1}^{n}\left(E_i + a_k \frac{Di}{\epsilon p}\right) F_i\right]^{0.25}$$

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In this equation:

$E_i \rightarrow E_i \rightarrow$ Longwave radiation

$\sigma \rightarrow \sigma \rightarrow$ Stefan–Boltzmann constant $5.65 \times 10^{-8} \frac{W}{m^2 K^4} 5.65 \times 10^{-8} \frac{W}{m^2 K^4}$)

$p \rightarrow p \rightarrow$ The diffusion coefficient of the human body (its standard value is 0.97)

$Di \rightarrow Di \rightarrow$ Total diffused solar radiation and reflected global radiation

$a_k \rightarrow a_k \rightarrow$ The absorption coefficient of shortwave waves reflected on the surface of the human body (its standard value is 0.7)

If direct insolation exists, the equation is written as

$$T^*_{mrt} = \left[T^4_{mrt} + \frac{f_p a_k I^*}{(\varepsilon_p \sigma)}\right]^{0.25}$$

Where $I^* I^*$ represents the direct insolation on the surface perpendicular to the radiation, $f_p f_p$ is a function of the received radiation vector and the human body condition. $f_p f_p$ ranges from 0.308 to 0.082 for zero and 90° vector angles, respectively.

3- Individual-based variables: They include physiologic characteristics such as height, weight, age, and gender. These parameters are essential in calculating the amount of generated heat depending on the skin surface of the body, which is calculated by the following equation (Ghiabaklou, 2001):

$$A_{du} = 0.202 W^{0.425} \times H^{0.725}$$

Where $A_{du} A_{du}$ is the skin surface of the body in m^2 m^2, WW denotes the body weight in $kg kg$, and HH is the height in meters.

According to the statistical yearbook of Sistan-and-Baluchestan province (intra-provincial tourists) and the country's national census (extra-provincial tourists) in 2016, the average height and weight are 1. 76 m and 75 kg, and the average age ranges between 30 to 35. Furthermore, with a slight difference, the male gender dominates. These statistical data are used for the investigation in the present research.

4- The variables associated with the types of clothing and activity: These variables are used to determine the deficiency coefficient of clothing and the metabolism rate: Table 4 demonstrates the deficiency coefficients of various clothing items, and Table 5 shows the metabolism rate for different activities.

According to Tables 4 & 5, the deficiency coefficient of clothing was assumed to be 0.9 clo, and the average metabolism rate of the body to be 80 watts. Due to the complexity of the calculations, the Rayman software model designed by Professor Matzarakis has been used to solve related equations in this study. This software calculates the average radiant temperature and thus obtains the physiological equivalent temperature index (PET).

Results and Dscussion

Initially, the tourism climate of the studied location was examined by the TCI index to measure the climate of Chabahar city for tourism activities (Table 7). Results elucidate that climatic conditions of Chabahar are favorable in autumn and winter for seven months of the year, from October to April. In December, January, February, and March, the climatic conditions are "excellent" and close to the "ideal" (Fig. 2). The slight difference between mean and maximum temperature due to its small fluctuations, appropriateness of the monthly temperature (often less than 30 degrees) and relative humidity, higher daily sunshine hours (between 8 to 9 hours), and low monthly precipitation, especially in autumn from October to December (less than 9 mm), and moderate wind speeds (between 6 to 9 km/h), have made the climatic conditions favorable for tourism activities in this period of the year. From May to July, climatic conditions are unfavorable for tourism (Fig. 1). Despite the appropriate wind speed in this period, long sunshine hours (except for July), and high temperatures, the increase in relative humidity and decrease in precipitation reduced the value of CID and CIA indices, making the climate unfavorable for tourists. However, with a decrease in temperature and relative humidity in August and September, the climate condition improves slightly for tourism activities. In fact, despite the hot and humid summer weather in southern Iran, the climate for tourism in Chabahar in this season is almost acceptable or tolerable.

The thermal comfort in different months was analyzed through the PET index to conduct an accurate assessment of the tourism climate and include the physiological conditions and thermal balance of the body (Table 8).

The results of the PET index show that most months of the year in Chabahar city fall far from the range of thermal comfort. Only March, November, and December are within the thermal comfort range and have favorable climatic conditions. January and February have slightly cool conditions and are in the vicinity of the comfort zone. In the early spring (April), slight heat stress is felt, and it stands close to the thermal comfort range. Therefore, these months can be considered among the most favorable ones for tourism. Appropriate average temperature, moderate relative humidity, moderate wind velocity, and low cloudiness explain why these months

Table 4. Deficiency coefficients of various clothing items. Source: Ataei & Hasheminasab, 2013.

Clothing	Clothing deficiency coefficient (clo)
Unclothed	0
Walking shorts	0.1
Thin short-sleeve shirt, trousers	0.35-0.6
Long-sleeve shirt, trousers	1
Long-sleeve shirt, trousers, cotton/wool suit jacket	1.5
Wool clothes (Arctic clothing)	3.5

Table 5. Metabolism rate for different activities. Source: Ghiabaklou, 2001.

Activity	Metabolism rate (Watt)
Sleeping	41
Seated	58
Light work – driving, typing	80
Heavy work	230

Table 6. Ranges of PET index. Source: Esmaili et al., 2014.

PET index	Grade of stress	Thermal perception
Lower than 4	Extreme cold stress	Very cold
4	Strong cold stress	Cold
8	Moderate cold stress	Cool
13	Slight cold stress	Slightly cool
18	No thermal stress	Comfortable
23	Slight heat stress	Slightly warm
29	Moderate heat stress	Warm
35	Strong heat stress	Hot
41	Extreme heat stress	Very hot

are desirable in terms of thermal comfort. Gradually, from May, the thermal conditions of the region decline towards the undesirable conditions, and heat stress rises in May, June, July, and August (Fig. 2).

Increasing the temperature and humidity and decreasing the cloudiness are the main factors creating such conditions. Subsequently, the levels of dissatisfaction from the climatic conditions in tourism increase in the interval, but gradually, the temperature will return to acceptable conditions from October.

Conclusion

This study was conducted to investigate the climatic conditions for tourism activities through individual-based factors such as personal characteristics and

Table 7. Climatic condition for tourism in Chabahar port with TCI model. Source: Authors.

Tourism condition	Coef.	Month	Tourism condition	Coef.	Month
Marginal	42	JULY	Excellent	89	JAN.
Acceptable	52	AUG.	Excellent	89	FEB.
Acceptable	56	SEP.	Excellent	84	MAR.
Good	66	OCT.	Very good	68	APR.
Very good	78	NOV.	Marginal	48	MAY
Excellent	89	DEC.	Unfavorable	36	JUNE

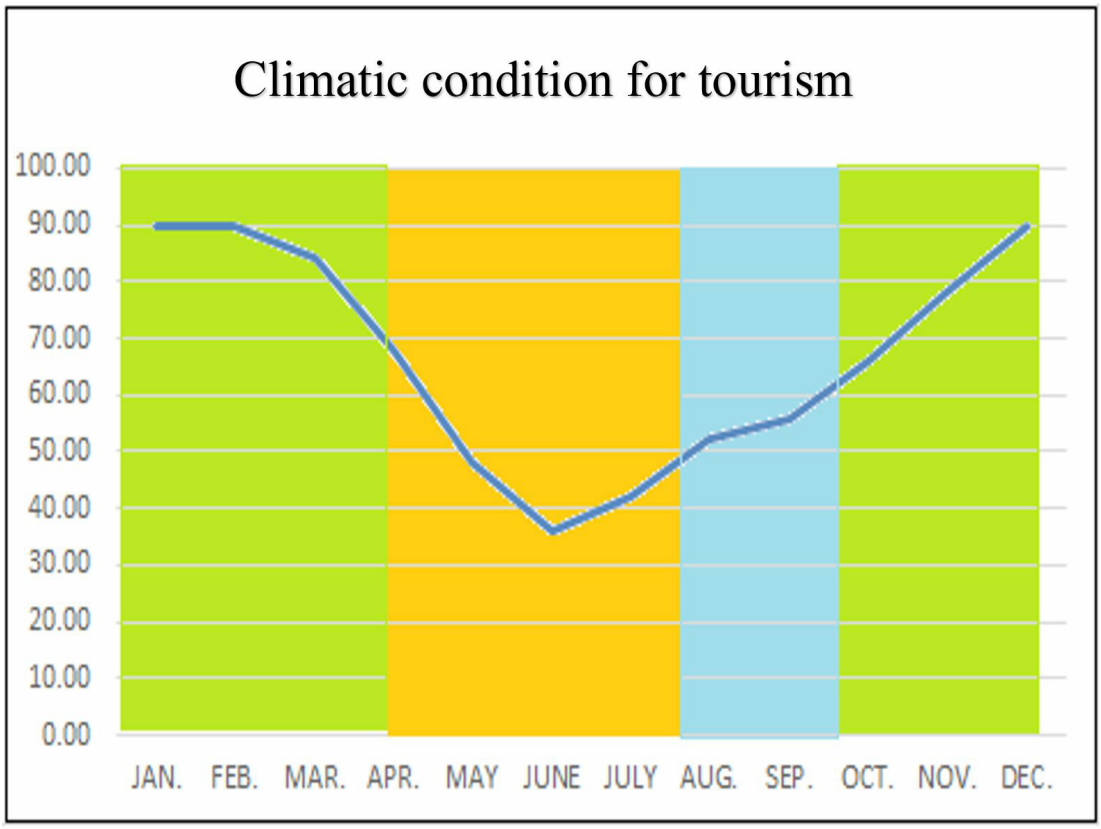

Fig. 1. Climatic condition chart for tourism activities in Chabahar port with TCI model. Source: Authors.

physical activities, considering meteorological data on the southeastern coast of Iran (Chabahar port). This study was conducted to investigate the climatic conditions for tourism activities through individual-based factors such as personal characteristics and physical activities, considering meteorological data on the southeastern coast of Iran (Chabahar port). Therefore, two bioclimatic indicators were implemented: TCI (evaluation of climate condition for tourism) and PET (estimation of thermal perception Based on Energy Balance Equation). According to the results of the TCI, the climatic conditions of Chabahar during the autumn and winter seasons from October to April are favorable for seven months of the year. This situation is ideal for the cold months of the year (December, January, February, and March), during which the TCI scores reach over 80. Appropriateness of monthly temperature (often less than 30 degrees) and relative humidity, longer sunshine hours (between 8 to 9 hours), low monthly precipitation, especially in autumn, and moderate wind velocity, are the reasons making the climate favorable for tourism activities in this period of the year.

Since human thermal perception, in addition to the climatic parameters, is a function of personal characteristics and physical activities, the thermal conditions of Chabahar port were evaluated by the PET index. This investigation section revealed that the thermal conditions in most months of the year in Chabahar city are outside the thermal comfort range. Heat stress poses limitations to human activities.

Table 8. Thermal comfort of Chabahar port based on the monthly value of PET index. Source: Authors.

Thermal perception	PET	Month	Thermal perception	PET	Month
Hot	40	JULY	Slightly cool	16	JAN.
Warm	34	AUG.	Slightly cool	17.8	FEB.
Warm	30.6	SEP.	Comfortable	20.3	MAR.
Slightly warm	27.2	OCT.	Slightly warm	26.8	APR.
Comfortable	22.8	NOV.	Warm	32.9	MAY
Comfortable	198	DEC.	Hot	37.4	JUNE

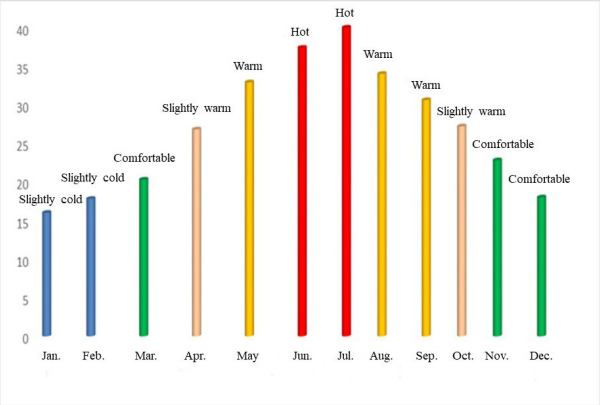

Fig. 2. Thermal conditions of Chabahar port based on the PET index. Source: Authors.

According to the PET index, the best periods for tourism in the region are mid-autumn and late winter, and in the three months of December, November, and March. During these months, the climatic conditions allow tourists to experience positive thermal perceptions. However, due to the low heat stress in January, February, and April, they can also be considered favorable periods for tourism. The underlying reasons for the creation of these conditions are the appropriate average temperature, moderate relative humidity, wind velocity, and lower cloudiness during these months.

Endnote

1.Munich Energy Balance Model for Individuals

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