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IMPACT OF SOME ELEMENTS THE CLIMATE ON RELIGIOUS TOURISM IN GOVERNORATE HOLY KARBALA

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Abstract:

The study aims to know the extent of the influence of the elements of heat, relative humidity and wind as climatic factors on religious tourism in Karbala, and to identify the effects that limit the development of tourism as an economic resource, and the results of the study showedThe average temperature in the months (May, June, July, August and July) are uncomfortable months. to the point the heat Minor during night in Months (June, and July and father) she Months not Convenient, score recorded the heat Great during day in beginning Month April to end Month October the first Months not comfortable in governorate Karbala, and count Months (March, and Nissan, October the second) is within border Comforts that Feel with it the tourist. The relative humidity is within border Comforts in Months (March, and Nissan, October the second). and range Speed wind in Months chapters the year between(1.7 - 3.9M/tha)And fall within border Comforts that Feel with it The tourist, and the results of the wind chill equation showed that the month Canon the second mid Months Season winter Characterized ambiance cold and scored Month April mid Months Season the spring ambiance Latifa And refreshing July was the middle month of the season summer ambiance not comfortable Lane , as recorded in Month October the first mid Months Season autumn ambiance Latifa And refreshing.

Keywords: The climate, religious tourism, Karbala

INTRODUCTION:

The climate is one of the important factors that affect environmental conditions, which can be factors of attraction for tourism and factors of expulsion for it, including religious tourism in the holy Karbala, which is one of the global tourism areas that attract tourists throughout the year, as Karbala governorate is full of the most important religious monuments, shrines and shrines The immaculate imams, as well as libraries, schools, mosques, etc., and due to the importance of religious tourism from an economic point of view, appropriate conditions must be provided for it, and the presence of tourists in it does not require specific climatic and weather conditions, as tourists flock to it during the annual Hijri times, no matter how severe the climatic weather conditions are, and the importance and privacy of the city Karbala In the development of religious tourism and its role in the development of the state's economy, the climatic conditions that have a negative impact must be studied, which can be addressed to develop religious tourism in Karbala, Jerusalem.

The Problem Ofresearch:

1- Is there an effectClimate elements on religious tourism in Karbala?
2- Is there a variation in the impact of climate elements on religious tourism in Karbala?

Research hypothesis:

1- There is an impact of climate elements on religious tourism in Karbala.
2- There is a variation of the influence of climate elements on religious tourism in Karbala.

Importance search:

Religious tourism is one of the most important economic resources in Iraq, and Karbala governorate is one of the most famous touristic regions in the world. Therefore, it is necessary to study the climatic elements that affect religious tourism as it is one of the natural ingredients for tourism.

Goal search:

shed the light on Effect climatic elements on Religious tourism,And work on addressing and developing them in order to promote the religious and economic tourism aspect.

Structural search:

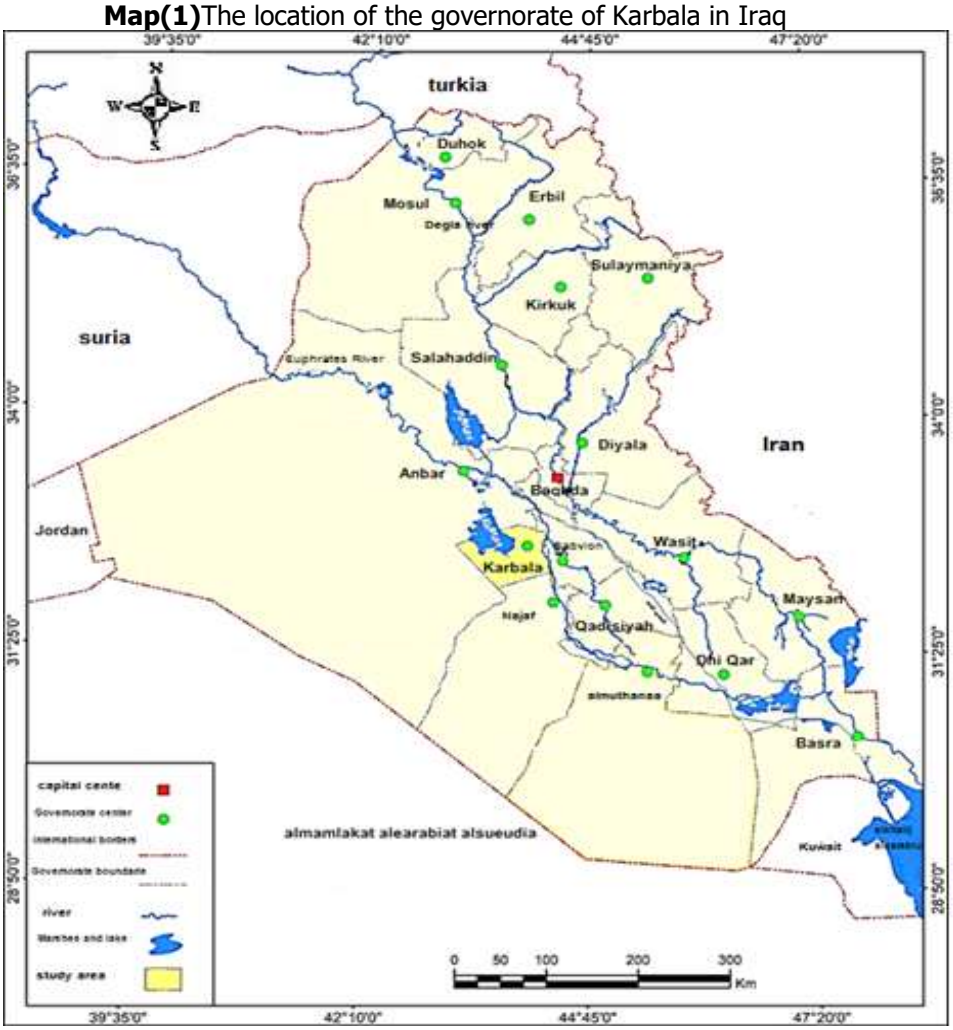
contain search on Two topics,He was The topic the first(Properties climatic to province Karbala),and contained The topic the second on(Climate impact on the religious tourist areas in Karbala Governorate)included search on Results and recommendations.

Border Search:

1- Spatial boundaries:

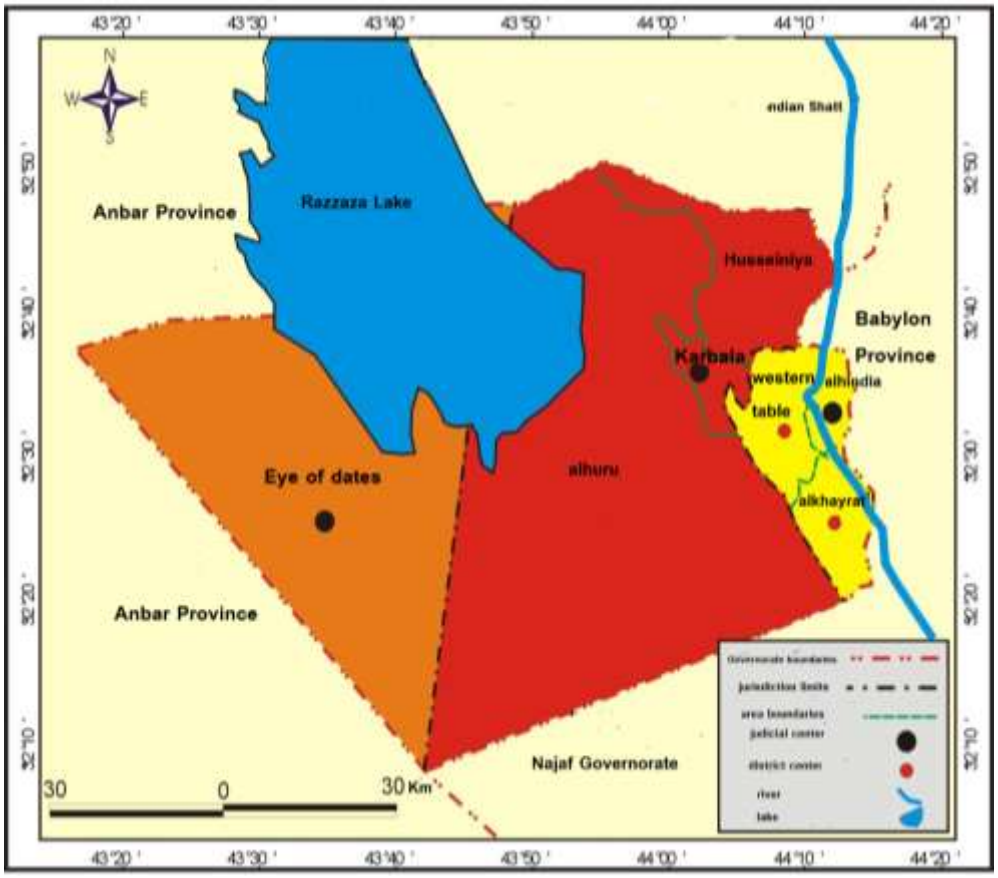
Located Karbala Governorate Geographically in Section northwest From the middle Euphrates in Iraq,and bounded from Anbar province to the north and west, Babylon province to the east, and Babylon province to the south Najaf.a map(1)It is located astronomically between longitudes (30,425) and (26,465).,And between latitudes (30, 325) and (35, 335) east..And to keep six districts she(Karbala,And the eye of dates, and the heat,And Husseiniya,and Hindi,and western table)And one district belonging to the district of Al-Hindiyah is the district of (Al-Khairat)..Map (2).

Map(1) The location of the governorate of Karbala in Iraq



Source: General Commission for Survey, Iraq Administrative Map 1/10000000, for the year 2017 .

Map (2) The location of the administrative units in the holy province of Karbala



Source: Ministry of Municipalities and Public Works, General Directorate of Urban Planning, Administrative Units Department, Karbala Governorate Map, 2003

2- Temporal boundaries:

The temporal limits of the research are the climate cycle (2000).–2022) based on meteorological data in Iraq.

3- Qualitative limits:

It includes the influence of climate elements (temperature, relative humidity, and wind) on religious tourism in Karbala Governorate.

Research Methodology :

The research relied on the descriptive and analytical approach for some climate elements and their impact on religious tourism areas. It also relied on the climatic sources and data of the holy city of Karbala. In addition to using the wind cooling equation.

Terminology :

1- **tourism :**It is the movement intended by the tourist, i.e. the trip with a purpose joy psychological comfort and renewal of activity, and does not aim at other purposes such as permanent residence or obtaining money (1)

2- **Religious tourism**:It is for a person to perform religious rituals such as Hajj and Umrah and visit holy shrines, whether that is in his homeland or outside his homeland, he seeks it for that, and they have designated appointments and sometimes he goes to them with intent.

(The first topic: the climatic characteristics of Karbala Governorate)

First: the temperature:

Temperature has a clear effect on other elements of the climate, and it is one of the important elements in its impact on human activities through its rise and fall.

1- Average temperature:

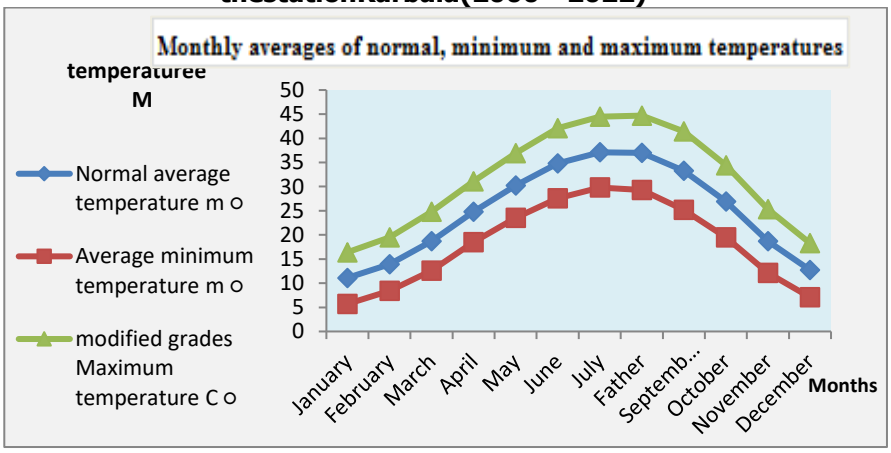
It is noted from Table (1) that the mean average temperature reached (24.93 Cm 5), as the temperature increased starting from the month of (March) reaching (18.7 Cm 5) and continued to rise to reach its maximum during the months of (May, June, July, and August), September (30.2, 34.8, 37.1, 37, 33.3 m 5), respectively. While the lowest temperature was recorded in January, when it reached (11.1 °C), where a decrease in temperatures was recorded starting from November, when it reached (18.7 °C), Figure (1).

Table (1) Monthly averages of normal, minimum and maximum temperatures in the study Karbala station (2000-2022).

Months	Normal average temperature m ○	Average minimum temperature m ○	modified grades Maximum temperature C ○
January	11.1	5.7	16.4
February	13.9	8.4	19.5
March	18.7	12.6	24.8
April	24.8	18.5	31.1
May	30.2	23.5	36.9
June	34.8	27.6	42.1
July	37.1	29.8	44.5
Father	37	29.3	44.7
September	33.3	25.2	41.4
October	26.9	19.5	34.4
November	18.7	12.1	25.3
December	12.7	7.1	18.3
annual rate	24.93	18.27	31.6

Source: Transport and Communications, the Iraqi General Meteorological Authority, Climate Department, unpublished data, 2022

Figure (1) Monthly averages of normal, minimum and maximum temperatures in the study area of thestationKarbala(2000 - 2022)



Source: the researcher based on table (1)

2- Minimum temperature:

jIt is shown in Table (1) and Figure (1).The average minimum temperature in Karbala station was (18.27 °C), the highest was recorded in the months of (July and August), when it reached (29.3 and 29.8 °C), respectively, while the lowest was recorded in January, when it reached (5.7 °C).

3- Maximum temperature:

The average annual maximum temperature was (31.6 °C),Table (1) and Figure (1),The highest recorded in the summer months in months (July and August), when it reached (44.5 and 44.7 m 5), respectively.Because of the solar gain during these months and the accompanying thermal depressions, such as the seasonal depression of Sudan and India, and the Arabian Peninsula, which have clear weather effects, and the lowest temperatures were recorded in the winter months in the month of (January), when it reached (16.4 °C).

Second: relative humidity:

Relative humidity is a measure applied in climate studies, which aims to know the extent of air saturation in a place with temperature (2)**.**

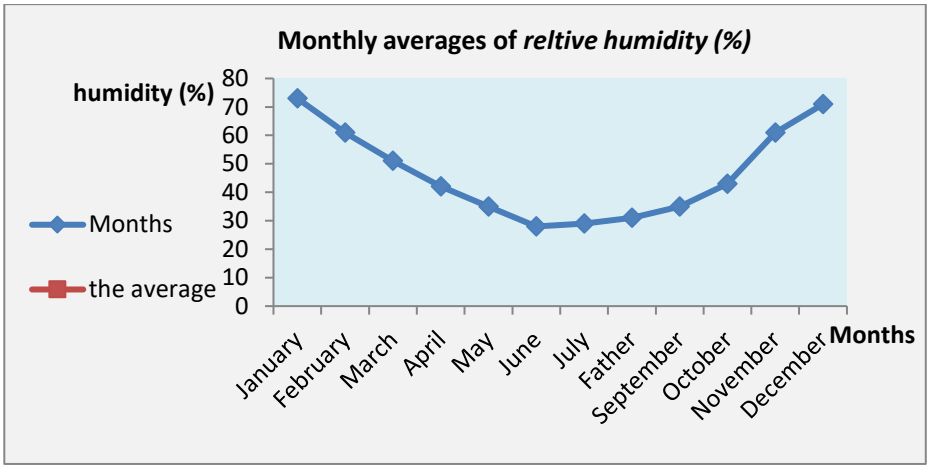
It is noted from Table (2) and Figure (2), that the annual average relative humidity was recorded (47%) The highest recorded in the winter months (December, January, and February), when it reached (71,

Table (2) Monthly averages of relative humidity (%) Karbala station for the period (2000 - 2022)

Months	January	Februar y	March	April	May	June	July	Father	Septem ber	October	Novemb er	Decemb er	annual rate
the average monthly	73	61	51	42	35	28	29	31	35	43	61	71	47

Source: Transport and Communications, the Iraqi General Meteorological Authority, Climate Department, unpublished data, 2022.

Figure (2) Monthly averages of relative humidity (%) atKarbalastation for the period (2000 - 2022)



Source: the researcher based on table (2)

73, 61%), respectivelybecause of drop degree the heat,In what decreased in summer months because of high degree the heat,so registered in Monthly(June,And July)moisture relative reached(28, 29(%.

Third: Wind speed and direction:

Winds play a major role in influencing other climate elements through their speed and direction. Table (3) shows that the average annual wind speed in the study area was (2.7 m/s), with the highest recorded starting from March, when the wind speed reached (3.0 m/s), and continued for the months (April, May, June, and July) when it reached (3.1, 3.2, 3.9, and 3.8 m/s), respectively. While the lowest wind speed was recorded starting from October, when it reached (1.7 m/s), and the months (November, December, and January) recorded low wind speeds (1.8, 1.9, and 2.1 m/s), respectively. .

Table (3) Monthly averages of wind speed (m/s) in the study area for the period (2000 2022)-

Months	rates monthly l wind speed (m/s))
January	2.1
February	2.5
March	3.0
April	3.1
May	3.2
June	3.9
July	3.8
Father	2.9
September	2.4
October	1.7
November	1.8
December	1.9
annual rate	2.7

Source: Transport and Communications, the Iraqi General Meteorological Authority, Climate Department, unpublished data, 2022.

Wind direction :

The northwestern winds are considered the dominant winds in the study area, and we can note from Table (4) that their percentage reached (22.5%), followed by the (western) winds, which amounted to (17.7%), and the northern winds ranked third, with a percentage of (15%). In its direction (southeasterly, easterly, southern, and northeastern) with a percentage of (10.9, 8.4, 5.9, 4.4%), while the southwesterly winds ranked last, with a rate of (3.1%).

Table:(4) pedigree painaw Yeh to rate repetition wind trends Prevailing for stationKarbala(2000-2022)

wind direction	north	west-North	western	southwest	southern	southeast	oriental	Northeast	stillness	thetotal
the average	15	22.5	17.7	3.1	5.9	10.9	8.4	4.4	12.1	% 100

Source: Ministry of Transport and Transportation, Commission the public for the Iraqi weather, to divide the climate, data not published, 2022.

(The second topic: the climate impact on the religious tourist areas in Karbala Governorate)

First: The spatial distribution of the religious tourist areas in Karbala Governorate:

There are many religious shrines in the Karbala governorate, the most prominent of which are the shrines of the two Imams (Al-Hussein bin Ali (PBUH) and his brother Al-Abbas (PBUH)), and therefore this governorate is characterized by religious tourism, as visitors and tourists flock to it throughout the year on all its religious occasions, and we will explain the most important shrines and religious centers in Karbala Governorate.

The most important religious tourist centers in the holy city of Karbala:

1- Shrine of Imam Hussein (pbuh):

The building of the shrine of Al-Hussein is located in the center of the city of Karbala, and the area of the shrine is about (50,000 square meters) and at the top of the shrine is a dome with a height of (37 m), and at the top of the dome is a mast that rises to (2 m), and the dome and the mast are made of gold, in addition to two minarets covered with gold and surrounded The shrine has four porticoes of white marble. (3) The shrine includes shrines attached to it, which are:

İ- Shrine of (Habib Ibn Mazahir):

It is located on the left side of the shrine of Al-Hussein (PBUH), and he is one of the prominent braves who supported him on the day of kindness, when he went out in disguise until he reached Kufa, and it is one of the important shrines that visitors visit (4)

B- Shrine (Ibrahim Al-Mujab):

It is located inside the shrine of Al-Hussein (PBUH) in its northwest corner.

C- Shrine of (Tuff Martyrs):

It is located in the eastern side of the shrine of Al-Hussein (PBUH), and contains (120) martyrs. (5)

D- The position of (Ali al-Akbar, peace be upon him):

It is 230 meters away from the shrine of Al-Hussein (PBUH) in Bab Al-Taq.

E - The position of (Ali Al-Asghar, peace be upon him):

It is 102 meters away from the shrine of Imam Hussein (PBUH).

2-Shrine of Imam (Al-Abbas) a.s.:

The shrine of Al-Abbas bin Ali (PBUH) is 350 meters away from the shrine of his brother Al-Hussain (PBUH), who bears the standard on the day of Ashura, and who was martyred at the Al-Alqami River (Euphrates River). Inscribed with Quranic verses. (6) And near the shrine of Al-Abbas (pbuh) are the shrines of the shrouds, which represent the location of the shrine of the shrouds, as follows:

- **İ- Right palm:**It is located northeast of the honorable Abbasid shrine.
- **ب- left palm:**It is a distance of (50 meters) from the shrine of Al-Abbas, peace be upon him, from the direction of the Qibla Gate.

There are many shrines near the shrines of Al-Hussein and Al-Abbas, peace be upon them both, including:

1- The shrine of Al-Hussein (PBUH) in which he met with Saad to negotiate.
2- The shrine of Al-Zeinabi Hill.
3- The shrine of Imam Mahdi aj.
4- The shrine of Imam (Jaafar Al-Sadiq, peace be upon him).

5- Husseini camp.

There are also some holy shrines some kilometers away, including:

1- (Tomb of Aoun bin Abdullah (1)):
It is about (12 km) away, and its lineage is attributed to Jaafar Al-Tayyar (pbuh).

2- (Tomb of Aoun bin Abdullah (2)):
It is 7 miles away, and its lineage goes back to Al-Hussein (PBUH).

3- (Al-Hurr Al-Riyahi shrine):
It is 7 km west of Karbala in the city of Al-Hur, which was named after him.

4- **(The shrine of Mr. Ahmed Abu Hashem)**His lineage goes back to Musa bin Jaafar (Imam Al-Kadhim, peace be upon him).

5- **(The shrine of Ibn al-Hamza):**His lineage is attributed to Al-Abbas (pbuh).

6- And the tomb of Fahd al-Hilli.

In addition to many shrines, including (Al-Qattara shrine), which is attributed to the Imam (peace be upon him), and there are many libraries, mosques and religious schools.

Second: the climatic effects on religious tourism in the study area:

The climate of Karbala is characterized as a continental climate, as Karbala is located according to the Köppen classification within the dry desert climate region, as it is characterized by the presence of a dry season due to the absence of rain in it due to the interruption of the combined and intermediate frontal depressions, and it is also characterized by a rainy season from the beginning of October to the month of May, but it is characterized by its fluctuations It is characterized by the length of the hot season compared to the cold season, with the lack of clarity of the transitional seasons, which has an impact on the tourism side.

1- temperature :

Temperature is related to human comfort, and temperatures between (18-25) Cm 5 are the ideal degree for human comfort, and there is difficulty in providing such limits except at altitudes between (500–2000 m), which we find in the tropics in its high parts. (7). As for most researchers, they prefer that the upper limit of human comfort is at a temperature of (25 °C), while the lower limit varies according to the human habitat, his activity, and the type of food and drink. (8) Therefore, the months (May, June, July, August, and July) are uncomfortable months, as the average temperature was recorded (30.2, 34.8, 37.1, 37, 33.3 C) respectively, Table (1) as for the minimum temperature During the night, the months (June, July and August) are counted, which recorded (27.6, 29.8, 29.3 m 5) respectively, so they are also uncomfortable months.Andmay select theGeographersSuitable and ideal climatic characteristics, which are:BModerate temperaturesSunshine and moisturerelativelowAnd accompany hera movementairlightthataltitude in degrees the heat leads to injury with a stroke the sun When it exceeds the human body temperature(37M), Especially if it is accompanied by an increase in Humidity Especially to more than (70%), as it is difficult for the air to absorb the moisture resulting from the body due to the high temperature, and this leads to the feeling of Upset and uncomfortable , But if accompanied by a decrease in moisture Relativity It leads to a feeling of dehydration and peeling problem Skin , If The opposite happened and went down the heat to less from heat the body It leads to a shortage blood flow towards the skin when human, This explains the reason for the low temperatures of the parties. (9)**.** In what She was degree the heat Great during day in beginning Month April to end Month October the first she Months not comfortable in governorate Karbala.

2- relative humidity:

Relative humidity is strongly correlated with temperature, and therefore its effect on tourism is related to temperature, and the ratio is (40–60% of the humidity is suitable for the human body, and if the percentage is increased to (70%), it creates unsuitable conditions through the sensation of a higher temperature. (10) The months (March, April, and October), which recorded relative humidity amounting to (51, 42, and 43%), respectively, are months within the limits of comfort felt by the tourist, and relative humidity plays a major role in healing from many diseases. , so that doctors advise patients to travel to places with low relative humidity. (11)As forif decreasedrelative humidity to (40%)And accompany herto risein degreesthe heatThen it becomesit's hot,But it is lessaOozedivoryfrom weather conditionssevereHheat and highHHumidity ,As for the decrease in relative humidity with a decrease in temperatureto from (5 pm[5])And less,It gives disturbing and uncomfortable climatic conditions that a person feels in a cold atmosphere.

3- wind:

The wind element is an important factor in the tourism aspect, as the wind speed (5m/s) is an attractive factor as it moderates the temperature and gives a feeling of comfort to the human being and not to feel the high temperature.–1.5 m/s)It is the best wind blowingAnd beBappearancelight breezewhen its speed(6.1 - 3.3 m/s),And a breeze Nicewhen its speed(4.3-5 m/s).[(12)]. Karbala governorate, according to Table (3), is almost within comfort limits, as wind speeds range in the months of the year between (1.7–3.9 m / s), WR's influence is not limitedjHurry upTaha Only, but on the changes that occur in other climatic elements.Certainly, the weather conditions do not remain in a

stable state throughout the year, but rather vary between their stability and calmness due to their exposure to low atmospheric pressure with violent horizontal and vertical movements that depend on the depth of the prevailing depressions and the severity of the pressure drop.. (13).

Climatic comfort measures:

There are some equations and measurements that determine the type of comfort in a person, including what is measured in closed areas as an index of temperature and humidity (the sensory thermometer) and others, and in open areas as an index of wind chill. What interests us in this research is the open spaces, so we suffice with applying the wind cooling equation in the middle months of the year in the holy city of Karbala.

- Wind cooling equation:

It is one of the equations that measure comfort conditions in open areas, in which wind speed and temperature are used, which were developed by researchers (Subul and Basel) and are expressed in the following formula: (15)

$$k = \left(\sqrt{100V} + 10.45 - V\right)(33 - ta)$$

K=sheAir cooling powerhow much /Its price/m2/hour

V = wind speedm / s

ta= temperature (°C) .

33= Temperature of visible parts**1**0.45= constants100= constants.

And when tIt is applied to Karbala governorate based on Table (1, 3) through the middle months of the year (January represents the middle of the winter months, April represents the middle of the spring months, July represents the middle of the summer months, and October represents the middle of the autumn months). table (5)

When analyzing the results based on Table (5) and the cold scale, Table (6), it becomes clear that:

The month of January, the middle month of the winter season, is characterized by cold weather, as the results of wind cooling reached (499.3 kilocalories m2/hour), while the month of April records a pleasant and refreshing atmosphere, as it amounted to (204.59 kilocalories m2/hour). In the month of July, in the middle of the summer months, the atmosphere was uncomfortable and hot, as it recorded (107.4 kilocalories m/2 hour), and in the month of October, in the middle of the autumn months, the atmosphere was pleasant and refreshing, as it reached (221.85 kilocalories m/2 hour). .

Table:(5)Results of wind cooling power for the middle months of the year in Karbala Governorate 2022

Months	temperature C	lWind speed (m/s)	wind cooling power
January	11.1	2.1	499.3
April	24.8	3.1	204.59
July	37.1	3.8	107.4
October	26.9	1.7	221.85

Source: Depending on theTable(1.3)

Table:(6) The digital guide to the wind chill equation

equation results	Feeling comfortable
50-99	hot
100-199	warm
200-399	Nice and refreshing
400-599	cold
600-and more	Very cold

Source: Ali Sahib Talib al-Musawi, Abd al-Hasan buried Abu Rahil, Applied Climate Science, Dar al-Diyaa for Printing and Design, Najaf al-Ashraf, 2011, p. 394

Conclusions:

1- Prepare Months(Mays,And June , and July , and app,and September)she Months not comfortable so registered middle degree the heat(30.2 , 34.8 , 37.1 , 37 , 33.3M[5])on respectively .
2- with regards to the point the heat Minor during the night So you count Months(June,and july, and father),which registered(27,6 , 29,8 , 29,3M[5])on respectively Months not comfortable.
3- Prepare degree the heat Great during day in beginning Month April to end Month October the first she Months not comfortable in governorate Karbala .
4- Prepare Months(March,and Nissan,October the first)which registered moisture relative reached(51 , 42 , 43 %)respectively , is within border Comforts that Feel with it the tourist .
5- Prepare governorate Karbala According to the table of climatic characteristics in which it is within border Comforts almost so range Speed wind in Months chapters the year between(1.7 - 3.9M/tha).
6- And at analysis Results by adoption on Scale coldness It turned out that:
   - month features Canon the second mid Months Season winter ambiance cold so reached results cooling equation wind(499.3kilo calories refractory M2/the hour).

ب- register Month April mid Months Season the spring ambiance Latifa And refreshing so reached(204.59).kilo calories refractory M/2the hour).

ت- Distinguish Month July mid Months Season summer ambiance not comfortable lane.,so registered(107.4kilo calories refractory M/2the hour).

ث- registered in Month October the first mid Months Season autumn ambiance Latifa And refreshing so reached(221.85).kilo calories refractory M/2the hour)

Proposals :

1- Increasing the vegetation cover and following the approach of the Holy Shrine in its agricultural projects to reduce the temperature.
2- Work to encourage scientific research by holding conferences and not neglecting the scientific material contained in the research.
3- The study of climatic factors and their treatment is of importance in the development of religious tourism and its economic development.
4- Coordinating between the authorities responsible for tourism and those concerned with the climate to organize the work accurately and provide comfort for tourists, and develop the leisure sector by finding ways of comfort for tourists.

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