

The Phenomena of Dimming And its effect on the Agricultural production in Iraq

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" In the name of God, the Beneficent, the Merciful"

Introduction

In the current time there is an increase in the global interest concerning the atmospheric changes in the world, threatening for a vanishing to the botanical and biological environments from the surface of the globe. The increase in pollution phenomena due to the development and the exaggeration in utilizing the natural resources and using methods and agricultural techniques both botanical and animal, show an environmental imbalance in increasing CO₂ in air and an increase in the non responsible human activities resulted an increase in the desertification area and the shortage in the rain quantity and the increase of the hidden gases that may cause a danger on the global atmosphere. As the process of heating for the higher layers Trobosfeer is a threat of a severe lack in the quantity of the solar radiation especially the thermal and visual rays on the earth which has a negative effect on the agricultural production and the environment in general.

All modern phenomena as the thermal retention phenomena, the phenomena of liquid whitening and dimming phenomena has the same characteristic which is

We will try in this study to prove Iraq's influence of with this phenomena which changes and is still changing in the atmosphere reflecting on the production of agricultural crops and on the production of palms and the rare or disappear of some kinds.

It is to mentioned that there are number of obstacles that faced the researcher including the non organized time period for the data and the shortage of stations besides the high financial cost

Research problem

The dimming phenomena is not exposed on the production of palms homogeneously but displayed differently regarding the extend of population for each and the size of phenomena's presentation depending on a clear differ of position to produce dates for each of this phenomena. This was a presentation in the research problem.

Research hypothesis

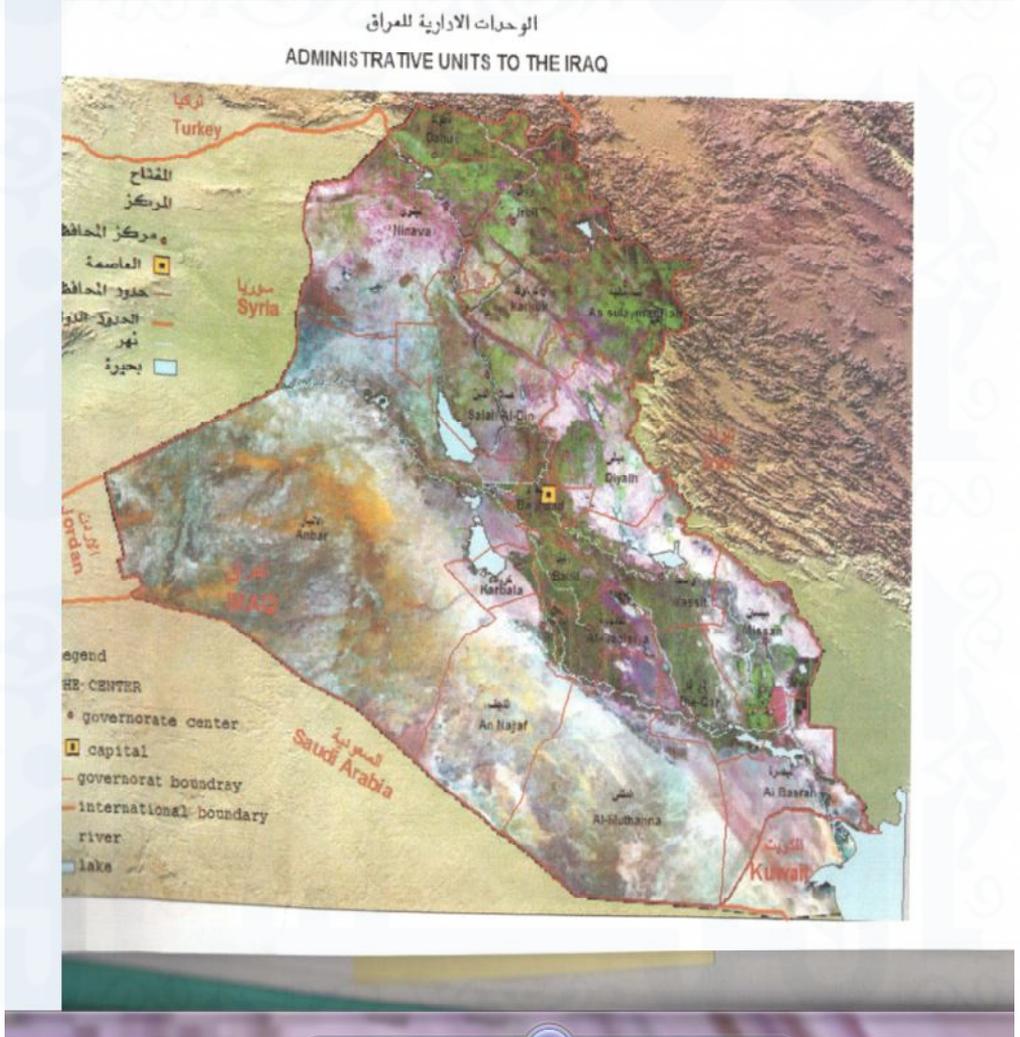
The explanation of this difference in population to the phenomena of dimming depends on a hypothesis of the relation between the position and the production of palms. This limitation of the research problem and hypothesis led to the following steps of the research.

Studying area boarders

The boarders of studying area represent in five main stations as the province of Mosul is between the geographical latitudes (15-30) , (30-37) and between the geographical longitudes (25-41) , (15-44) to the east, but the station in the western district represented by Rutba station is located between the two latitudes (31-35) and the two longitudes (39-44), while the southern district station represented by Naseriya station is located between the two longitudes (43.10- 44.20) and the two longitudes (46.32 – 48.02) and the two latitudes (32-33) , (25-32).

The middle district station represented by Baghdad station is located between the two longitudes (44.16-45.57) and the two latitudes (33.03-35.06), while the province of Kirkuk is located between the two longitudes(25-45.03) and the two latitudes(15-37.19)⁽¹⁾

Map no. 1



(1)Ministry of governorate, the administrative index of the Republic Of Iraq, parts1,2, ed.1 1989,180-350

Research period of Time

The used period of time was for thirty years due to non organized period for the stations, I depend upon the first measure for the station and the final measure for radiation, humidity and the major degree of temperature.

Reasons for choosing the research subject

The motive to choose the subject of the research is the atmospheric changes and its influence on the importance of agricultural production (palm in Iraq) and any agricultural programs to develop the agriculture of palm must display the atmospheric changes within the territory specific in palm agriculture. And to give a study regarding the position relation with palm production not because of the importance of these changes but also because of the concentration difference of this phenomena and its effect on the production of date palms.

Moreover it is important in choosing a specific crop and the limited effect of the atmospheric phenomena.

The motive also includes the lack to study this part in the studying area and explanation on the view of the exchange relation between the atmospheric change and the production of dates in Iraq, involving in covering this gap of knowledge.

Solar Dimming

Solar dimming or what is called the Global dimming is an atmospheric phenomena by which a decrease took place in the radiation reaching the earth due to air staining(Aerosol) emitted in the air cover by the different activities of the human being.

This phenomena was more clear within the large industrial countries and the population focused territories in the world as these districts distinguished by the increase of solid air stain and definitely the organic stain

It was clear the reduction of solar radiation in these districts limited by (2.7%) for each 10 years and for the millennium (1958-1992) ⁽¹⁾. And for the importance of this subject a mutual meeting was held between the union of American and Canadian Geophysics for the period from 17 till 21 May 2004 considering the start for observing to the scientific society and the media about the phenomena of solar dimming. ⁽²⁾

Many studies were explained regarding the mentioned phenomena, some explained the measure of the reduction in other sites of the world either by surface instruments for measuring the solar radiation or by satellites. Other studies explained the phenomena indirectly by the changes in other climate elements linked to the solar radiation as rains and evaporation. The results prove the solar reduction. ⁽³⁾

Reasons of Solar dimming

Many researches agree that the main cause for solar dimming is the Aerosol in air because of factories and the excessive use of fuel.

All these stain especially the organic as sulfate and soot effect on the atmospheric system by three physical operations.

First by reflection and absorption of sun rays, second by reflection and absorption sun rays then emitting thermal rays with long waves, third all these fine

(1)Gerald Stanhill, Shaptai Cohen, (2001) ,Global dimming, review of evidence for a widespread and significant radiation with discussion of its probable causes and possible agricultural consequences. Agricultural and forest Meteorology, Vol 107,p255-278.

(2)Shaptai Cohen, op, eit,p.362

(3)Fadel Baker Alhasanin- Atmospheric science university of Baghdad press 1983,p32-33

will be largely effected by the reduction in the production of the plant cover. ⁽¹⁾

Also these changes of solar radiation effected on the evaporation process from the water surfaces and soil surface, it was observed a continuous decrease in the value of evaporation during the last fifty years. ⁽²⁾

Exactly within the cold and medium latitudes and poles as these latitudes distinguished by the decrease of the quantity of solar radiation (due to the strength of sun rays inclination).

So within the districts after 23.5 to the north and to the south the rays are inclined reaching the layer of Terobosfeer to 8km, where reaches at the equator to 18km where the effect of thermal retention will be displayed in the districts where the layer of Ozon will be at the higher latitudes and the dimming phenomena will cover the regions between the north and the south of the equator.

Radiation system

The sun is the main source of heat for the air cover and responsible for heating the gas cover. The radiation reaching the earth is called Solar Insolation, the heavy gases as CO₂ and water vapor will heat the gas cover from down to up ⁽³⁾.

The researches distinguished the solar radiation to the earth in three categories:

(1)Gerald stanhill,op.cit,p.268.

(2)Hsin-1 chang,(2004), observation of effects of Aerosol loading on Carbon and water cycles over various landscapes. A thesis submitted to the Dept of Atmospheric, North carline state university,p9

(3)Michael B. Meelroy, the atmospheric environment ,princeton and oxfors, USA ,2002,p51.

- Thermal radiation as so called infra red rags ,being visual rays for the electromagnetic spectrum ,it is long geseaes (waves)rays ,the wave is 0.75-4.0 micron with percentage about 46%.
- Sun light rays, it is visual rays with a wave 0.40-0.74 micron and percentage 45%.
- Violet and ultra- violet rays so called vital rays with a wave of length 0.17-0.40 micron and percentage of 9%.

The solar radiation on the surface of the earth will transfer the thermal energy from the sun to the earth but not all radiation will reach the earth but will be absorbed and scattered⁽¹⁾ as in the past research.

The important thing in this research is by depending on the constant percentages to indicate the change in the atmosphere with the temperature which is the most effective properties on the plant growth, we will give evidences by analyzing the tables for the five stations.

The visual comparison of table (1) displayed the station of Naseriya , there is a large reduction in the quantity of thermal radiation reaching the surface of the earth as in the first millennium (1971-1980) was 36.71.1 MW/CM2 which is the highest percentage of thermal radiation in July reaching to 2858.210 MW/CM2 where the lowest mean in November reaching to 1237.722 MW/CM2.

Where the radiation percentage reaching the earth in the second millennium amounted 17153.9 MW/CM2 which is a big difference with the first millennium (Form no.1). There is a lack in the quantity of radiation as the difference is 18917.2 MW/CM2 with percentage 32.2% of the sum of the radiation reaching the earth, we observed the highest level of radiation in Naseriya station was in July amounting 233.668 MW/CM2 where the

(1)Hasan abu alainen, Atmospheric Geography Egypt 1988, p82-83

lowest level in the same station was in December 676.522 MW/CM².

During the comparison process between the major temperature in the first millennium with the second millennium we find that the highest value was in July reserving its position but we find the lowest means for radiation were changed from November to December which means there is an atmospheric change in the thermal radiation which cause a change in the quantity of agricultural production especially the fruits of dates to become ripe which will be proved lately. ⁽¹⁾

So the difference is by existing a higher percentage of air within this station which will be proved by linking the averages of consumption as CO₂ due to burning.

Regarding the visual radiation in Naseriya station and as table (1) the sum of the visual radiation in the first millennium (1971-1980) was 244280.25 MW/CM² and in the second millennium (1981-1991) was 1717.37 MW/CM² so there is a big difference between the first and second millennium which is 22810.088 MW/CM² meaning that in the second millennium the averages of the visual radiation is decreased by 86.8% which is a big percentage with negative results on the atmosphere and on the vital side of the plant taking into consideration that the food processing of the plant is in the morning using the green material called the Klorofeel.

The plant absorbed CO₂ and take out O₂ in the morning ,on the contrary in the evening the data indicate that the reduction of O₂ in this district and the low level of rains because the water include two atoms of H₂ and one atom of O₂ connected by an electric voltage forming the water drops. ⁽²⁾ especially in Feb, Mar, and Apr, this

(1)Hasan Ahmed, Atmospheric geography Egypt ,1988, p82-83.

(2)<http://Wikimedia foundation.org>

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means that the district is heading towards stoppage of
desertification besides the increase of the
phenomena of soil storm which will be explained later.

Nasriya station

JAN	FEB	MAR	APR	MAY	JUNE	JUL	AUG	SEP	OCT	NOV	DEC	السنة
2807.800	3998.800	4256.900	5481.000	6109.500	4812.600	6213.500	6006.500	5103.900	3942.000	2690.700	2866.800	1971-1980
12391.588	1839.448	1958.174	2521.260	2808.070	2213.796	2858.210	2762.990	2347.794	1813.320	1237.722	1318.728	الحرارية
1263.510	1799.460	1915.605	2466.450	2747.025	2165.670	2796.075	2702.925	2296.755	1773.900	1210.815	1290.060	الحرارية
252.702	359.892	383.121	433.290	549.405	433.134	559.215	540.585	459.351	3547.180	242.163	258.012	التوقى التيفسجية
1907.500	2173.200	3537.900	3774.600	4585.900	4283.200	4855.800	4553.400	4153.800	2101.100	1762.900	1470.700	1981-1991
877.450	999.672	1227.434	1736.316	2109.514	1970.242	2233.668	2094.564	1450.748	966.506	810.934	676.522	الوشمة الحرارية
858.375	977.940	1592.055	1698.570	2063.655	1927.440	2185.110	2049.030	1419.210	945.495	793.305	661.185	الاشعة الحرارية
174.675	195.588	318.411	339.714	412.731	385.488	201.030	409.806	130.567	283.842	158.661	132.363	الاشعة التوقى التيفسجية

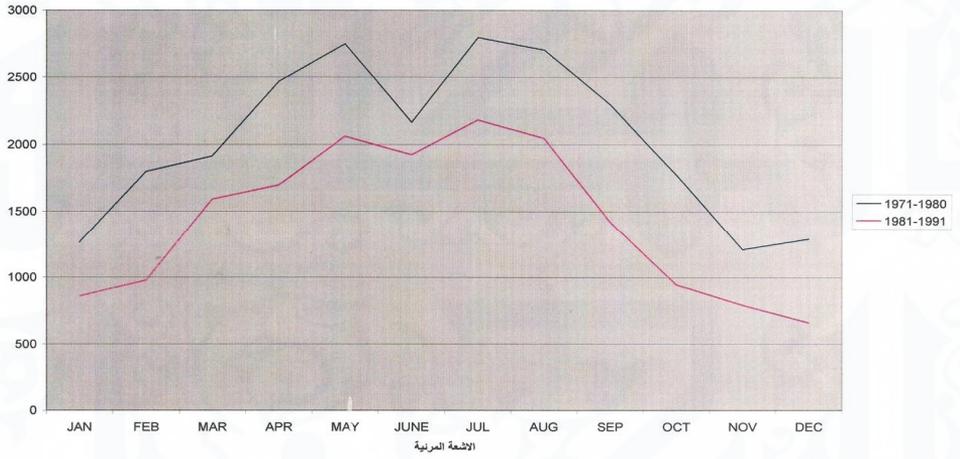
المصدر: بين عمل الباحث بالاعتماد على بيانات اذرا الحوية.

Table (1)

Nasriya Station

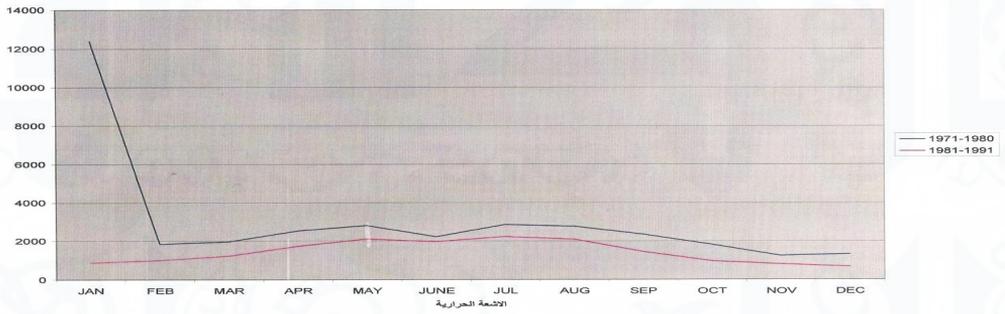
Source by the researcher according to the data from meteorology

Nasrya Station



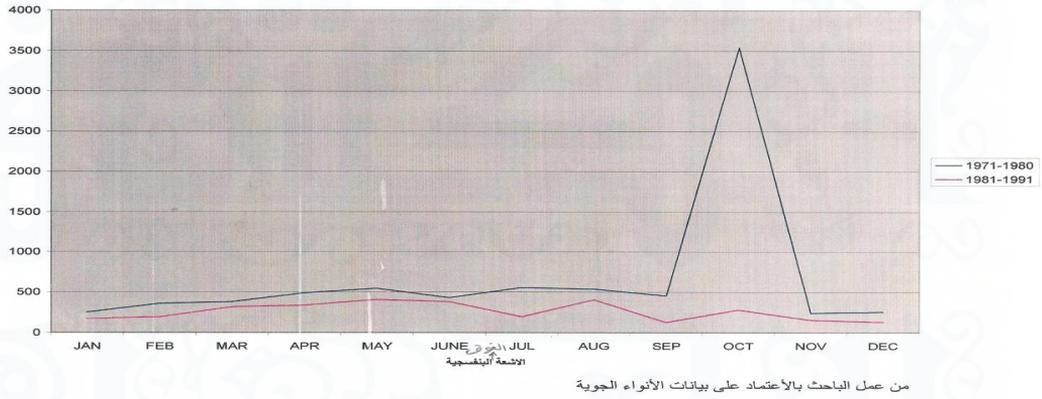
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Nasrya Station

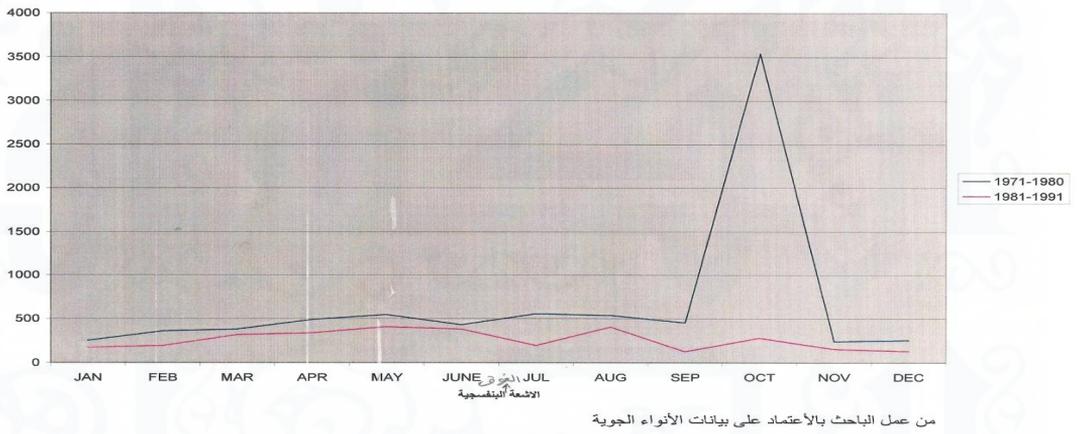


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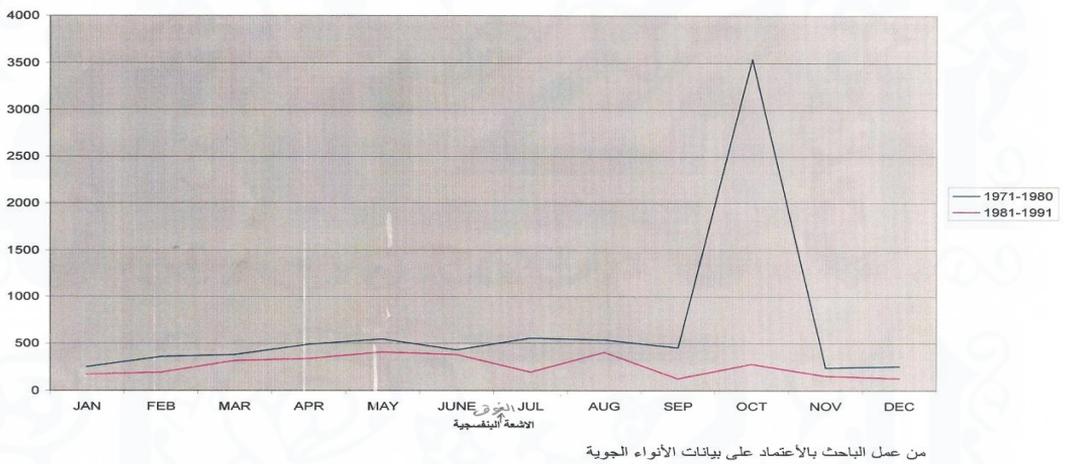
Nasrya Station



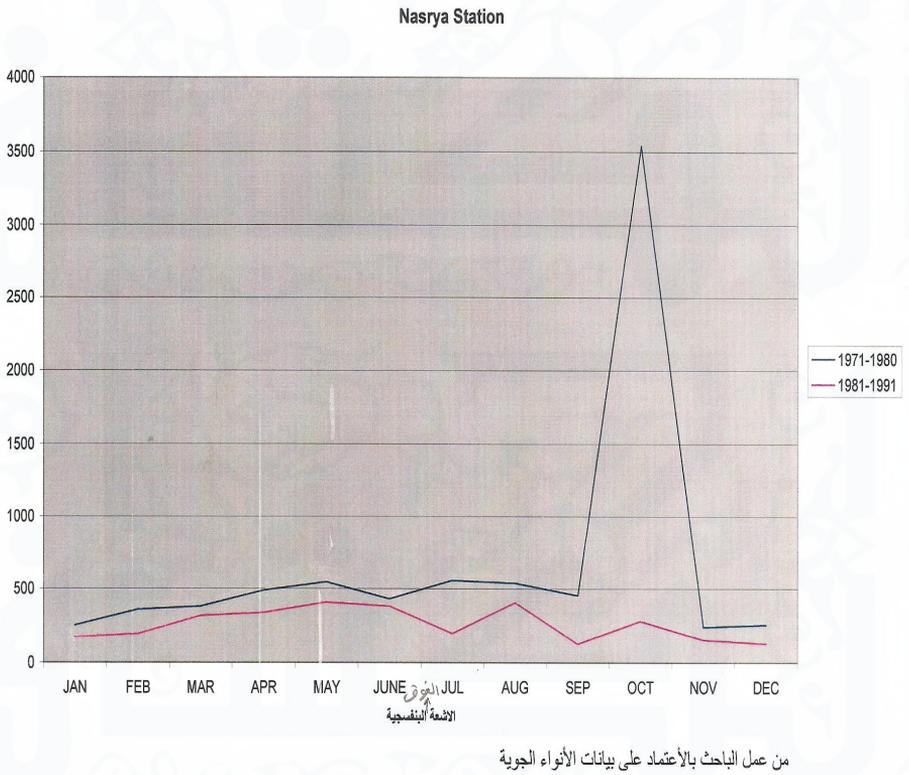
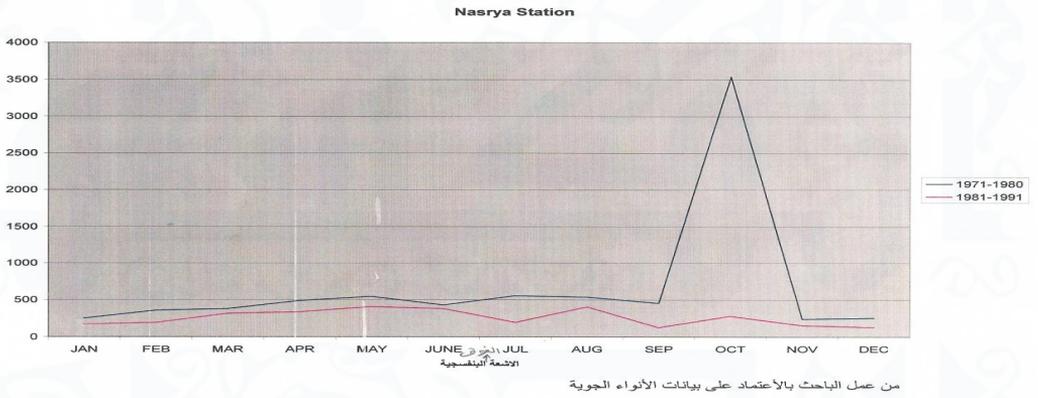
Nasrya Station



Nasrya Station



The Phenomena of Dimming ...



Graph no. (1)

Naseriya station

Ultraviolet rays for Naseriya station

Ultraviolet rays is an electromagnetic wave with a short wave length, it is visual but long than x-rays, the wave length starts from 400 nm to 10 nm, its energy starts from 3ev to 124ev and emitted by the arched electric method and the black light, which are lightening rays causing chemical reaction and made many materials bright having positive and negative points to the human being but what is necessary is its effect or reaction with the universe, as mentioned before that dimming process caused the lack of the percentage of the oxygen because of pollution reflecting over the quantity of rain where O₂ is the main components to form the water H₂O also the lack of O₂ over the ultraviolet rays has negative effect as these are empty rays and O₂ absorbed the wave lengths threatening the planting and biological environments. The most dangerous radiations are Uvb and Uvc with inverse proportion on the plant life, as the lack of plants means lack in lightening process which is the main source of oxygen in nature.⁽¹⁾

Regarding the path of rays in Naseriya station as in table (1) for the millennium (1971-1980) is the highest average of ultraviolet rays was in October amounting 3547.180 MW/CM² and the lowest average in November reaching to 242.163 MW/CM² where the highest average in (1981-1991) was in May reaching to 412.731 MW/CM² and the lowest average for ultraviolet rays was in December reaching to 132.363 MW/CM² as in table (3),

(1)wikipedia ,ultraviolet rays

By the visual comparison between the first and second millenniums we find that the averages of ultraviolet rays are in reduction after reaching the highest average 3547.180 MW/CM² in the first millennium and in the second millennium was 412.731 with a difference of 3134.499 MW/CM² ,this reduction and backing in the averages of rays is due to polluted material CO₂ and the increase of dust in the air which reflect and absorb these rays besides the involve of the oxygen in absorbing these rays taking into consideration the main activity in this district is the agricultural activity which will be explained lately.

Baghdad Station

Baghdad is located between the two latitudes, it is the capital of Iraq including the major consumption of energy, institutions and green strips. The visual comparison of the thermal rays is displayed in table (2) ,that in the first millennium (1976-1980) the sum of thermal rays was 42116.472 MW/CM² representing the highest average for the thermal rays in July amounting 5253.52 MW.CM² , and the lowest average in Dec amounting 1917.51 MW/CM².

As in the second millennium (1951-1990) the sum of thermal rays was 88990.926 MW/CM² representing the highest average for the thermal rays in Oct amounting 20583.54 MW.CM², and the lowest average in Dec amounting 1167.94 MW/CM².

During comparison between the first and second millenniums we observe an increase in the percentage of thermal radiation by 46784.454 MW/CM², due to the increase of percentage of forming fine gases CO₂, as in table (9) where this increase is considerable in Oct for the period (1981-1990).

Where the sum of radiation for the period (1991-2000) was 20282.794 MW/CM² a severe decrease in the former

periods is observed ,here the characteristics of dimming phenomena is clear recording the highest degree in June-July reaching to 573.20 MW/CM² and the lowest average was in Dec was 831.68 MW/CM².

Here there is a change in the highest and lowest degrees, as in the first period (1967-1980) the highest value of radiation was in Jul then the highest value was transferred to the second period (1981-1990) in Oct, i.e there is an advance for two months which has severe damages during the period of the dates ripen reflecting negative effects on the crop ,but in the second period and although the averages decrease but display the highest in June and July and the lowest in Dec, with a great difference in the thermal averages for the first and second periods.

BAGHDAD Station

	JAN	FEB	MAR	APR	MAY	JUNE	JUL	AUG	SEP	OCT	NOV	DEC	التعليق
	4311.70	5495.70	7176.30	8365.20	9684.80	10835.00	11420.70	10479.00	8273.50	6434.00	4860.90	4168.50	1967-1980
	1983.92	2598.02	3301.09	3847.99	4409.01	4984.10	5263.52	4820.34	3805.81	2999.69	2236.01	1917.51	الحرارية
	1940.27	2473.07	3229.34	3764.34	4313.16	4875.45	5139.32	4715.55	3723.08	2895.30	2184.41	1875.83	الحرارية
	388.053	494.61	646.87	752.87	862.63	975.15	1027.96	943.12	744.62	579.06	437.48	375.17	الطقس القاسمجة
	3044.10	3902.90	4842.70	5711.30	6402.00	7221.60	646.46	6601.00	5778.50	44649.00	2986.10	2539.00	1981-1990
	14002.86	17957.9	2227.64	2627.20	2944.92	3321.19	29737.16	3036.46	2658.11	20538.54	1373.61	1167.94	الاشعة الحرارية
	1369.85	1756.31	2179.22	2670.09	2880.90	3249.72	29090.70	2970.45	2600.33	20092.05	1343.75	1142.55	الاشعة الحرارية
	273.97	351.26	435.84	514.02	576.18	649.94	5818.14	594.09	520.07	4018.41	268.75	228.51	الاشعة فوق البنفسجية
	1134.90	1885.80	3789.50	4686.70	53576.00	5713.20	5646.30	5267.30	3856.10	2958.10	2415.90	1808.00	1991-2000
	618.654	867.47	1743.17	2155.88	2464.50	2597.30	2597.30	2160.99	173.81	1360.73	1111.31	831.68	الحرارية
	605.21	848.61	1705.28	2109.02	2410.92	2540.85	2114.01	2114.01	1735.25	1331.15	1087.16	813.60	الحرارية
	121.041	169.72	1705.28	421.80	482.18	508.17	422.80	422.80	347.05	266.23	217.43	162.72	الشمس البنفسجية

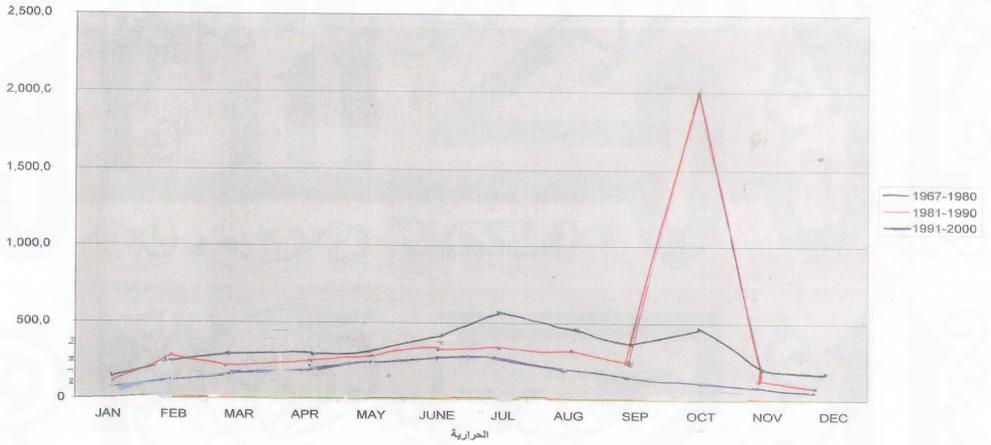
المصدر: من عمل الباحث بالاستناد على بيانات ايرودا الجوية

Table ()

Baghdad Station

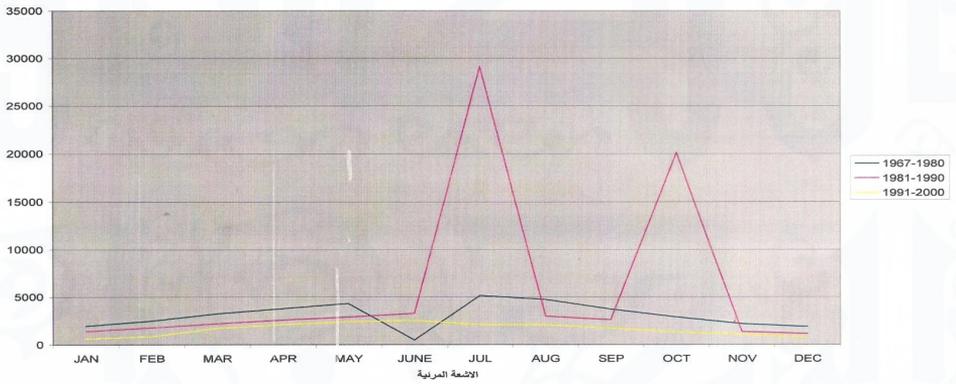
Source by the researcher according to the data from meteorology

Baghdad Station



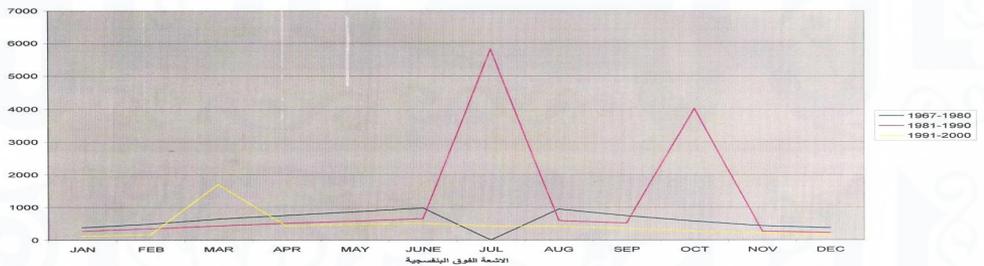
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Baghdad Station



من عمل الباحث بالاعتماد على بيانات الأنواء الجوية

Baghdad Station



من عمل الباحث بالاعتماد على بيانات الأنواء الجوية

Graph no. (2)

Baghdad Station

Visual rays for Baghdad Station

As in table(2) and the graph no. (5) the average of visual rays for the period (1967-1980) was 3674.67 MW/CM² representing the highest in July amounting 5139.32 MW/CM², and the lowest average in Dec amounting 1875.83 MW/CM². The sum of averages for visual rays for the period (1981-1990) was 71245.92 MW/CM² representing the highest average for in June amounting 3249.72 MW/CM², and the lowest degree in Dec amounting 1142.55 MW/CM². We observe an increase because of the clear air with no dust also the lack of water vapor which cause an increase in the probability of dryness for that period.

Regarding the period (1991-2000) the average of visual rays was 19415.07 MW/CM² which is less than the two stages where the highest degree was in June 2540.85 MW/CM² and the lowest degree in Jan was 605.21 MW/CM².

Here the visual comparison is considerable where the highest degree of visual rays for period (1967-1990) was in Jul and backing in June for the period (1981-1990) and continued for the same month during (1991-2000) despite the decrease in the averages of the visual rays where the optical comparison displayed that the averages of visual rays are less but the amount was the same for the period (1967-1991) backing in Jan, indicating the greatness of dimming phenomena and decrease in visual rays which has a big role in the process of lightening and forming the klorofeel the plant food besides the lack of O₂ in the air.

Ultraviolet rays for Baghdad station

Regarding the sum of averages of ultraviolet rays for the period (1981-1990) was 8226.493 MW/CM² as the highest value was in Jul amounting 1027.86 MW/CM² and the lowest average in Dec reaching to 375.17 MW/CM².

For the second period (1981-1990) there was an increase in the sum of ultraviolet rays and was 14249.18 MW/CM² which increase over the first period by 6.22.687 MW/CM², the highest value was in Jul 5818.14 MW/CM² and the lowest value was in Dec amounting 228.51 MW/CM², this indicates that the first period was rich of O₂ oxidizing lot of rays.

Regarding the period (1991-2000) there was a decrease in the quantity of ultraviolet rays ,where the sum was 5247.221 MW/CM² , the highest value was in June 508.17 MW/CM² and the lowest value was in Jan amounting 1210.41 MW/CM² .We observed that this period witnessed a great decrease in different kinds of rays in general due to the dimming phenomena as in the form (6).

The optical comparison is clear that in the first period there is conformity in the higher values for the first and second periods where in the second period there is conformity in the rays for the higher value backing to Jan concerning the lowest value of ultraviolet rays.

Kirkuk Station

As the optical comparison in table (3) and form (7) for thermal rays with sum amounting for the first period (1972-1980) was about 29396.4 MW/CM² representing the highest average in Dec amounting 8877.478 MW/CM² , and the lowest average in Jan amounting 857.642 MW/CM².

For the second period (1981-1990) the sum of the thermal rays was 21463.615 MW/CM² where the highest value was in June amounting 2962.9.6 MW/CM² and the lowest average was in Dec amounting 782.506 MW/CM². When comparing between the two periods we find that the thermal rays decreased which is an evidence of pollution in this district for the second period.

Regarding the visual rays and as in the optical comparison the sum for the first period (1972-1980) was about 20941.83 MW/CM2 which is highest value in June was 2880.315 MW/CM2 and the lowest degree in Dec was 868.185 MW/CM2. Regarding the second period the sum of visual rays was 21463.615 MW/CM2 indicating an increase in the percentage of visual rays means that there is a big lightening process in this district and O2 is available with enough quantities to form (water and rain drops) Form (8).

Regarding ultraviolet rays the sum for the period (1972-1980) was 4288.33 MW/CM2 where the highest value was in June amounting 576.063 MW/CM2 and the lowest value in Jan reaching to 167.896 MW/CM2.

For The second stage (1981-1990) the sum of ultraviolet rays was 4278.919 MW/CM2 where the highest value was in June reaching to 579.699 MW/CM2 and the lowest value was in December reaching to 153.099 MW/CM2 as in form (9),

By comparing the two periods we find that the highest value for the two periods was in June for the period (1972-1980) and continued having the same average for the same month despite the decrease the ultraviolet rays for the first period as in Jan transferred to Dec due to a big lack in O2 in Jan , we can say that the region in the second district is suffering from dryness which is a limitation to the agricultural activity in that district.

Kirkuk Station

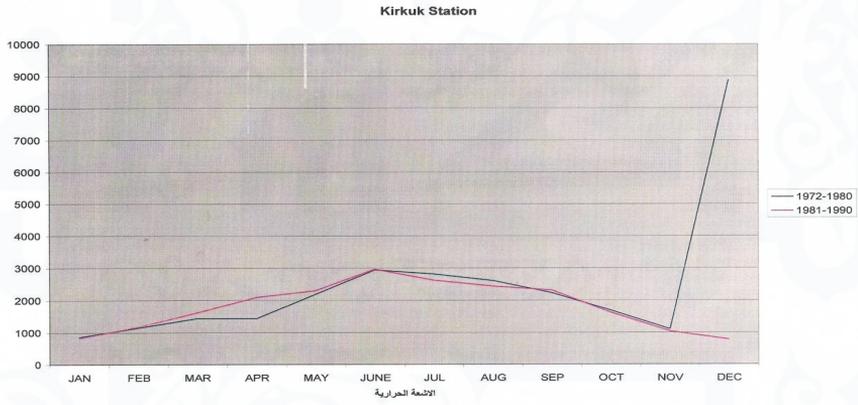
JAN	FEB	MAR	APR	MAY	JUNE	JUL	AUG	SEP	OCT	NOV	DEC	المجموع
1864,400	2510,400	3145,200	3144,500	4772,700	6400,700	6124,700	5681,600	4875,500	3681,200	2406,400	1929,300	1972-1980
857,624	1154,784	1446,492	1446,654	2195,442	2944,322	2817,362	2613,536	2242,914	1693,352	1106,944	887,478	الحزبية
838,980	1129,680	1415,340	1415,205	2147,716	2880,315	2756,115	2556,720	2194,155	1556,540	1082,880	868,165	الحزبية
167,796	226,936	383,098	283,041	429,543	576,063	551,223	511,344	438,795	331,308	216,576	173,637	الشيعة الشيعية
1793,940	2578,200	3526,700	456,422	5003,900	6441,100	5695,400	5306,800	5049,600	3627,100	2269,000	1701,100	1984-1990
824,946	1166,972	1622,282	2099,532	2301,380	2962,906	2619,884	2440,300	2322,816	1622,466	1043,740	782,506	الشيعة الحزبية
807,030	1169,190	1687,015	2053,890	2261,755	2898,495	2662,930	2367,250	2272,320	1587,195	1021,050	765,485	الشيعة الحزبية
161,406	232,038	317,403	416,778	450,351	579,699	512,586	477,450	454,461	317,439	204,210	153,089	الشيعة الشيعة الشيعية

المصدر: مجلس عمل الناجف بالاستناد على بيانات لاداء الحزبية

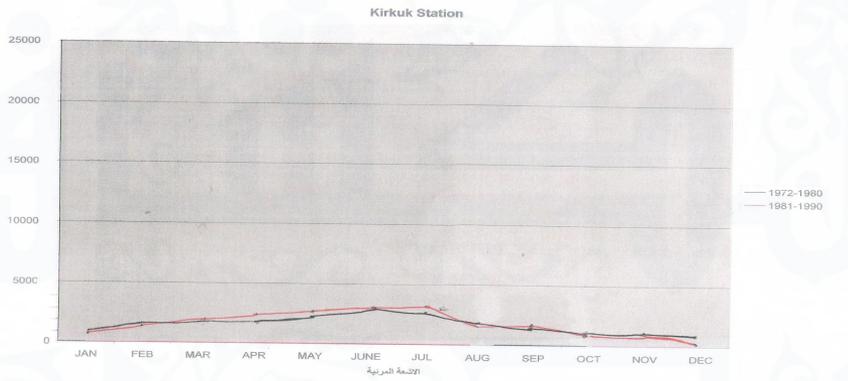
shape 3

Table (3)
Kirkuk Station

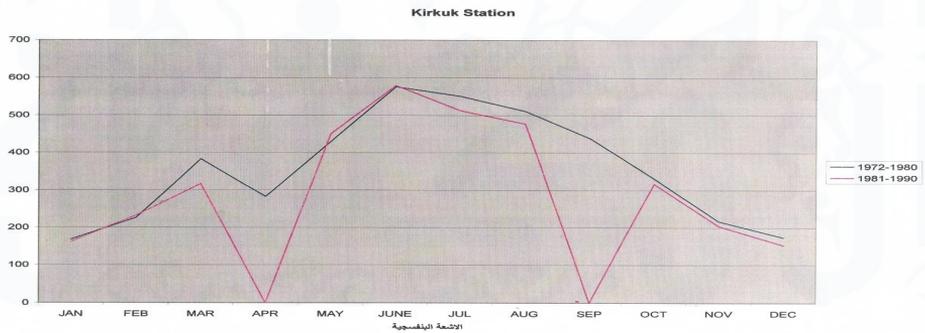
The Phenomena of Dimming ...



من عمل الباحث بالاعتماد على بيانات الأنواء الجوية



من عمل الباحث بالاعتماد على بيانات الأنواء الجوية



من عمل الباحث بالاعتماد على بيانات الأنواء الجوية

Graph no. (3)

Kirkuk Station

Source by the researcher according to the data from meteorology

Rutba station

The thermal rays

The optical comparison of the table (3) and the form no. (10) is that the sum of the thermal rays for the first millennium (1971-1980) was 24066.554 MW/CM² as the highest value in July amounting 3080.436 MW.CM² , and the lowest average in June amounting 830.852 MW/CM².

Regarding the second millennium (1981-1991) the sum of thermal rays was 2661503.2 MW/CM² as the highest value in June amounting 2265.132 MW.CM² , and the lowest average in Dec amounting 1084.082 MW/CM².

Here we observe a great decrease in the average of radiation where it was 24066.554 MW/CM² in the first millennium amounted 22615.30 MW/CM² in the second millennium with a difference of 1451.254 MW/CM².

The dimming phenomena is clear as in the first millennium and recorded the highest value for thermal rays in July and backed in June for the second millennium.

The minimum average for thermal rays in the first millennium was in June and transferred to Dec was approximately by one month, this has its natural reaction in changing the temperatures from one month to another.

Regarding the sum of the visual rays reaching the earth for the first millennium (1971-1980) was 23543.955 MW/CM² as the highest value in July amounting 3013.470 MW/CM², and the lowest value in June amounting 812.79 MW/CM².

Where the sum of the visual rays for the second millennium (1981-1991) was 6476.355 MW/CM² as the highest value in was in May amounting 2484.135 MW.CM², and the lowest value was in Dec amounting 1060.515 MW/CM².

We observe that the highest value of average for the visual rays was in July for the first millennium (1970-1980) reach to May in the second millennium (1981-1991) so the averages went back in the second millennium which is a proof to an increase of polluted materials in air which will be indicated lately.

Concerning the lowest values for the visual rays recorded for the first millennium in Jan but transferred to Dec of the second millennium which is a back in the averages of visual rays for the studying district. Form (11).

Rutba Station

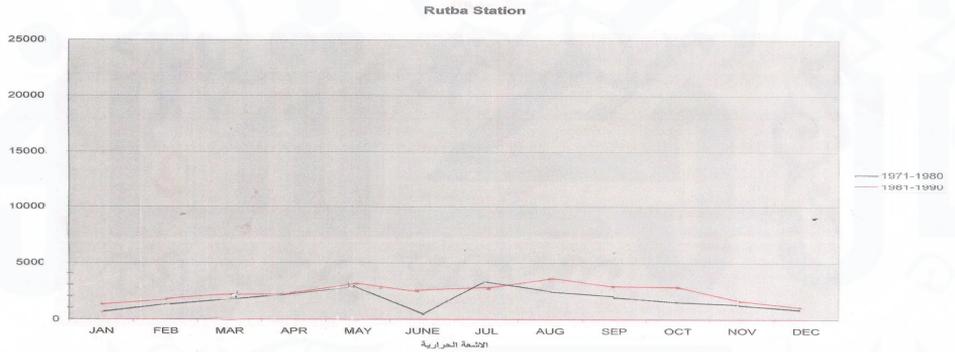
Year	JAN	FEB	MAR	APR	MAY	JUNE	JUL	AUG	SEP	OCT	NOV	DEC	Station
1806,200	2420,200	3327,600	4504,300	5406,600	6692,700	6692,700	6696,600	6048,000	5311,100	4694,900	3058,500	2343,200	1971-1980
830,842	1113,292	1530,096	2071,970	2487,036	3079,000	3079,000	3080,436	2782,080	2443,106	2159,654	1411,510	1077,872	القرية
812,790	1089,090	1497,420	2026,535	2432,970	3011,715	3011,715	3013,470	2721,600	2389,995	2112,705	1380,825	1054,440	القرية
162,558	217,818	299,454	405,387	485,594	602,343	602,343	602,594	544,320	477,999	422,591	276,165	210,888	المنطقة المتعددة
2555,400	2985,600	4394,800	4456,100	5520,300	4924,200	4826,700	5678,900	5357,100	3555,600	2542,300	2355,700	1981-1991	المنطقة القرية
1175,484	1373,776	2021,508	2049,806	2539,338	2265,132	2220,282	2612,294	2464,266	1640,176	1189,458	1084,082	المنطقة القرية	المنطقة القرية
1149,930	1343,520	1977,660	2005,245	2484,135	2215,890	2172,015	1205,505	2410,695	1604,520	1144,035	1060,515	المنطقة المتعددة	المنطقة المتعددة
229,386	268,704	395,532	401,049	496,877	443,178	434,403	511,101	482,139	320,904	228,807	212,103	المنطقة المتعددة	المنطقة المتعددة

المصدر: من عمل الباحث بإلا اعتماد على بيانات لادوا الحربية

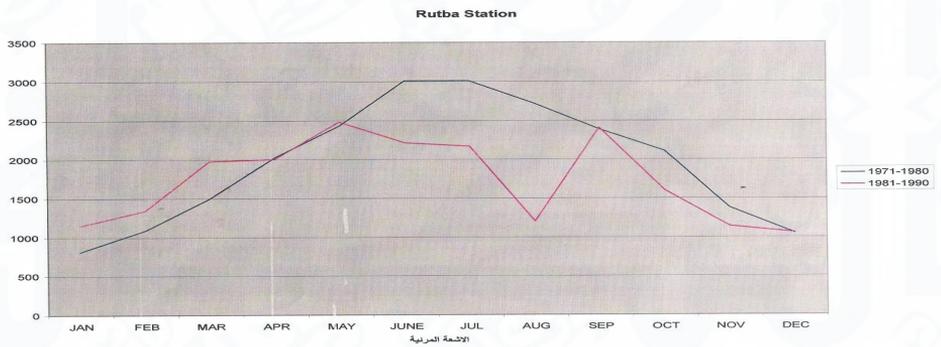
shape 4

Table (4)
RUTBA Station

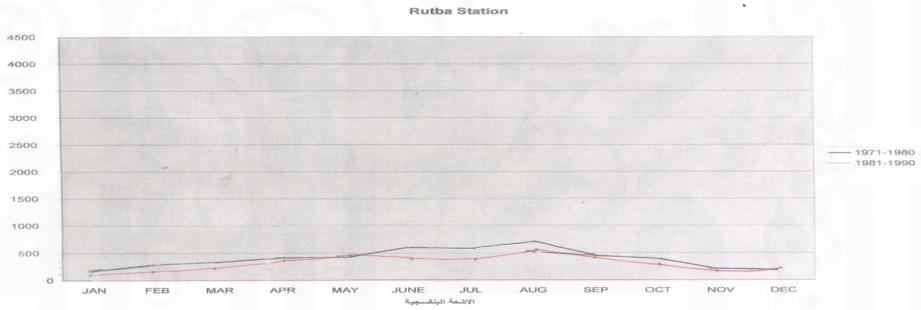
The Phenomena of Dimming ...



من عمل الباحث بالاعتماد على بيانات الأنواء الجوية



من عمل الباحث بالاعتماد على بيانات الأنواء الجوية



Graph no. (4)

Rutba Station

Source by the researcher according to the data from meteorology

Ultraviolet rays

Regarding the sum of ultraviolet rays for the millennium (1971-1980) was 4708.841 MW/CM² as the highest value was in Jul amounting 602.694 MW/CM² and the lowest average in Jan reaching to 162.558 MW/CM².

For the second period (1981-1991) the highest value was in Aug 51101.1 MW/CM² and the lowest value was in Dec amounting 212.103 MW/CM², the visual observation indicates that the highest value was in the first millennium in Jul and was advanced in Aug due to the increase of O₂ in Jul and the lack in Aug.

The lowest average for the ultraviolet rays recorded the lower average of the first millennium in June and transferred to Dec as in the form (13) where there is an advance in these rays from Jan to Dec due to the changes of O₂ percentage mentioned lately.

Mosul Station

The optical observation of table (5) and the form (13) show that the sum of the thermal rays for the first millennium (1971-1980) was 24171.738 MW/CM² as the highest value in June amounting 3069.530 MW/CM², and the lowest average in Dec amounting 892.952 MW/CM².

During the second millennium (1981-1990) the sum of the visual rays was 4762.607 MW/CM² as the highest value in June amounting 2785.70 MW/CM², and the lowest average in Dec amounting 780.5280 MW/CM².

Regarding the third millennium (1991-2000) the sum of the visual rays was 17305.08 MW/CM² as the highest value in June amounting 2550.102 MW/CM², and the lowest average in Dec amounting 63.732 MW/CM².

During the fourth millennium (2001-2008) the sum of the visual rays was 83321.955 MW/CM² as the highest

value in Aug amounting 1415.549 MW/CM² , and the lowest average in Jan amounting 2006.493 MW/CM².

From the above figure we observe that averages of the highest and lowest degrees reserved the same status for the months despite the increase in the percentage of rays for the second period (1981-1990) over the first period by a difference of 17590.869 MW/CM² due to the less of pollution in air at that period, but we observe a great decrease for the thermal rays in the third millennium (1991-2000) with a difference over the first period by 6866.83 MW/CM² and a difference amounting 34457.599 MW/CM² ,also in the first period the highest value was in Aug instead of June reflecting in the agricultural activity with some severe atmospheric changes also we find that the less value was in Dec and changed to Jan indicating the warm weather of the month instead of being cold .

May be because this period witnessed important events that effect on the global environment including the Gulf war where million tons of crude oil burned and the world went to the black passage.

During the forth period (2001-2008) the sum of the thermal rays was 8321.955 MW/CM² which is less than the three mentioned periods.

The highest value was in Aug amounting 1415.549 MW/CM², and the lowest degree in Jun amounting 206.493 MW/CM². This period is in conformity with the third period despite the great decrease in the quantity of rays .Table (5).

Here we observe the change and instead of displaying the highest value for the thermal rays in June it is transferred to Aug and the lowest value is transferred to Dec for the second millennium to Jan for the forth millennium.

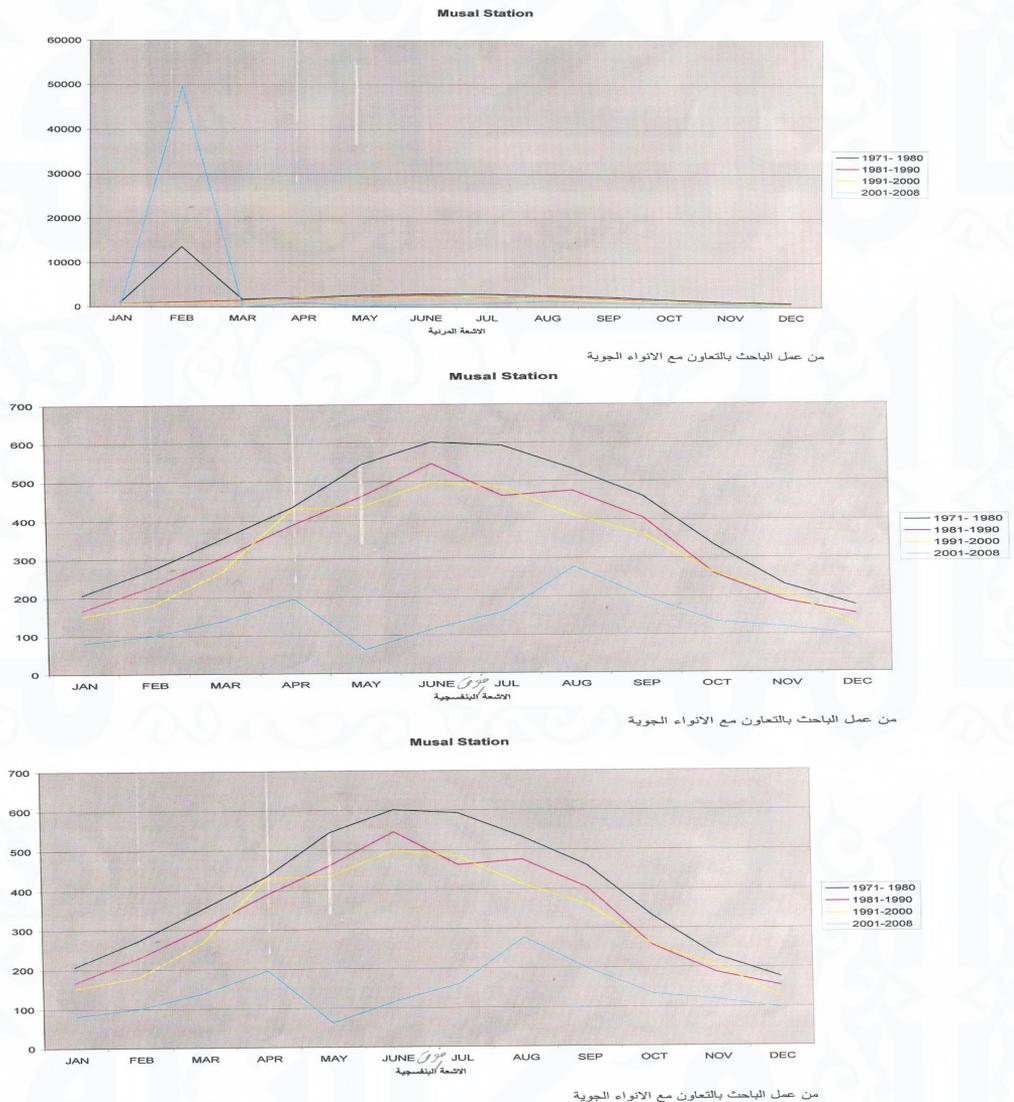
This change in temperature degrees will cause turmoil in the agricultural activity and damage to the corps and the over of some crops on others.

The phenomena of dimming is observed for the periods (1991-2000) and (2001-2008) due to the pollution widely.

Musul Station

السنة	JAN	FEB	MAR	APR	MAY	JUNE	JUL	AUG	SEP	OCT	NOV	DEC
1971-1980	2286.200	3025.500	3906.500	4818.500	6041.900	6672.900	6679.900	5907.800	5117.500	3704.500	2544.800	1941.200
الحرارية	1051.652	1391.730	1796.990	2216.540	2779.274	3069.530	3026.754	2717.588	2354.050	1704.070	1170.608	892.952
المرية	1028.790	1366.1975	1757.952	2169.325	2716.855	3002.903	2960.955	2655.510	2302.825	1667.025	1145.160	873.540
الطقس البقسجية	205.758	272.295	351.585	433.665	543.771	600.561	592.191	531.702	450.575	332.905	229.032	174.708
1981-1990	1842.500	2544.500	3359.500	4307.100	5135.000	6055.900	5133.400	5279.000	4491.700	2852.500	2079.200	1695.830
الاجسة الحرارية	847.550	1170.516	1545.370	1981.256	2362.604	2785.700	2321.385	2428.340	2056.192	1316.750	956.432	780.528
الاجسة الحرارية	829.125	1145.080	1511.775	1938.195	2311.246	2725.133	2310.030	2375.550	2021.265	1288.125	935.640	763.560
الاجسة التمت البقسجية	165.825	229.014	302.355	387.639	462.249	545.031	462.006	475.110	404.253	257.625	187.128	152.712
1991-2000	1683.500	2002.200	2967.700	4782.400	4836.200	5543.700	5370.600	4597.000	4015.600	2888.200	2273.100	1384.200
الحرارية	774.456	921.012	1365.142	2189.902	2224.192	2550.102	247.476	2114.620	1897.176	1328.572	1045.626	636.732
المرية	757.620	900.990	1335.465	2152.080	2175.840	2494.665	2416.770	2068.660	1807.020	1299.690	1022.895	622.890
الطقس البقسجية	151.524	180.198	267.093	430.416	435.168	498.933	483.354	413.730	361.404	256.932	204.579	124.578
2001-2008	883.680	1103.670	1526.700	2166.200	682.000	1292.450	1776.750	3077.280	2183.970	1472.120	1306.250	1064.020
الاجسة الحرارية	206.493	507.228	702.282	982.772	313.720	594.527	817.305	1415.649	1004.680	677.175	600.875	489.449
الاجسة الحرارية	387.656	499.0150	687.015	971.190	306.900	581.603	782.538	1384.776	984.745	797.464	587.813	478.809
الاجسة التمت البقسجية	79.531	99.240	137.403	194.238	61.360	116.321	159.908	276.955	196.548	132.408	117.563	95.762

Table (5)
Musul Station



Graph no. (5)

musul StationSource by the researcher according to the data from meteorology

Visual rays for Mosul Station

The optical observation of table (5) and the form (19) is that the sum of the visual rays for the first millennium (1971-1980) was 35946.715 MW/CM² as the highest value in June amounting 3002.803 MW.CM² , and the lowest average in Dec amounting 873.540 MW/CM².

As the second millennium (1981-1990) the sum of the visual rays was 20154.733 MW/CM² as the highest value in June amounting 2725.133 MW/CM² , and the lowest value in Dec amounting 763.560 MW/CM², so there is a conformity with the same month for the first period despite the decrease in the percentage of the visual rays for the second period than the first with a difference of 15791.982 MW/CM².

Regarding the third stage (1991-2000) the sum of the visual rays was 19054.575 MW/CM² as the highest value in June amounting 2494.665 MW/CM² , and the lowest average in Dec amounting 622.89 MW/CM².

So it is in continuous reduction even with this period and the same months concerning the highest and the lowest degree for visual rays.

During the forth period (2001-2008) the sum of the visual rays reaching the earth was 8466.71 MW/CM² as the highest value in Aug amounting 1348.776 MW/CM² , and the lowest average in Jan amounting 397.656 MW/CM². Here there is a change in the higher and lower values of visual rays where the higher values were in June for the three mentioned periods , transferred to Aug with a difference of one month and for the last three periods the lower average was in Dec, it went back in the first period within Jan where this period witnessed the lowest reduction for the visual rays, where the difference from the first period was 2740.0045 MW/CM² and from the second period 33295.89 MW/CM² and of the third period 10587.86 MW/CM² so the air pollution averages is in continuous increase making an imbalance radial for this district (Mosul) effecting on the stages of the growth of agricultural crops by the lighting process.

Ultraviolet rays for Mosul Station

We observe from the map and the mentioned form for the ultraviolet rays that the first period (1971-1980) the sum of ultraviolet rays was 4728.740 MW/CM²

For the second period (1981-1990) the sum of ultraviolet rays was 4.30 MW/CM² , the highest value was in May 426.249 MW/CM² and the lowest value was in Dec amounting 152.712 MW/CM².

Here we find that in the two periods the value of ultraviolet rays were decreased which means that within the period (1981-1990) there was an increase in the percentage of pollution in air reflecting on the months averages, where in the first period the highest value was in July went back to May and by reserving its position despite the decrease in value of the same month in Dec within the two periods.

Concerning the third period (1991-2000) the sum of ultraviolet rays was 4078.00 MW/CM² and the lowest value was in Dec amounting 124.5781 MW/CM².

About the forth period the sum of ultraviolet rays was 1667.257 MW/CM² which is the lowest percentage for the ultraviolet rays within the station for the four periods because of the increase in pollution as the difference between the first and the forth periods was 3061.483 MW/CM² and between the second and the forth was 2363.66 MW/CM² and between the third and the forth was 2410.745 MW/CM². Form no. (15).

Here the effect of air pollution is displayed on the three kinds of solar radiation.

The Extract

The problem of the research was represented by the effect of dimming phenomena on the agricultural production (the Palm). In order to investigate the correctness of the hypothesis we used the technique of analyzing the table of radial percentages in the main five stations, also we used the techniques of factors of simple linkage (Seberian) , where the relation between the causes of the phenomena was disposed. In my research I depend upon two sides which are important by the point of view of the researcher. The first is the quantity of fuel used for each province on the basis of the five main stations also I do depend on the animal wealth and to yield the gas of Methan in upbringing. The research then transferred to the second part where the researcher tried to measure the variables as the temperature, humidity and the effect of dimming phenomena on the palm production by using some techniques supporting the links between variables. The study exposed the influence of the dimming phenomena on the agricultural production with the support of human pollution and the consequences of imbalance of the environmental and radial systems, as the lack of radiation means the decrease of heat reaching the earth , and the decrease of visual rays averages means a decrease in the lighting process causing a decrease in oxygen quantity aiming the ultraviolet rays to reach the earth surface .The rays are vital causing to murder and is oxidized by the oxygen. So we can observe the dangerous of radial imbalance, assuring the correctness of the hypothesis of the research about the explanation of the effect of dimming phenomena on the agricultural production (Palm) according to the mutual relation between the quantity of the rays reaching the earth and palm production in Iraq.

Quality and quantity of the energy and usage purpose

Table (7) displayed that the highest consumption of other sources of energy are for the purpose of cooking as the southern district occupied the first level amounting (170) ton and the northern district occupied the second level (169) ton the western occupied the third amounting (138) ton and the middle was the last level amounting (34) ton.

Regarding the gas used for the same purpose the southern district occupied the first level of (883) ton and the northern occupied the second level of (529) ton. The third level was the western of (125) ton and the middle occupied the last level of (88) ton.

Regarding the consumption of oil ,the northern district occupied the first level amounting (842) thousand ton and the western district occupied the second level (450) thousand ton ,the southern occupied the third amounting (91) thousand ton and the middle was the last level for consuming the white oil for the purpose of cooking amounting (31) thousand ton.

Regarding the consumption of fuel for the purpose of lighting for other sources ,the southern district occupied the first level amounting (975) thousand ton and the northern district occupied the second level (772)thousand ton ,the western occupied the third amounting (169) thousand ton and the middle was the last level amounting (158) thousand ton. Form no. (6)

And about the consumption of fuel for the purpose of lighting for gas ,the southern district occupied the first level amounting (60) thousand ton and the northern district occupied the second level (11)thousand ton ,the middle occupied the third and no records for this use in the western district.

And the consumption of white oil ,the northern district occupied the first level amounting (105) thousand ton and

the southern district occupied the second level (63)thousand ton ,the middle occupied the third amounting (91) thousand ton and the western was the last level amounting (30) thousand ton.

The highest use for oil for the purpose of water heating of other sources recorded the southern district amounting (711) thousand ton and the northern district occupied the second level (536)thousand ton ,the western occupied the third amounting (211) thousand ton and the middle was the last level amounting (86) thousand ton.

Regarding the consumption of gas for the same purpose, the southern district occupied the first level amounting (205) thousand ton and the middle district occupied the second level (65) thousand ton, the northern occupied the third amounting (56) thousand ton and the western was the last level amounting (20) thousand ton.

Where the use of the white oil for the purpose of water heating recorded the northern district occupied the first level amounting (296) thousand ton and the southern district occupied the second level (222) thousand ton ,the western occupied the third level amounting (111) thousand ton and the middle was the last level for using the white oil for the purpose of water heating amounting (93) thousand ton.

Form no. (8).

Regarding the energy used for the purpose of heating we find that the highest value for other sources that the southern district occupied the first level amounting (737) thousand ton and the northern district occupied the second level (296) thousand ton the middle occupied the third amounting (76) thousand ton and the western was the last level amounting (61) thousand ton.

Regarding the consumption of gas for the same purpose, the southern district occupied the first level amounting (81) thousand ton and the middle district occupied the second level (60) thousand ton, the northern occupied the third amounting (46) thousand ton and the western was the last level amounting (30) thousand ton.

And about the consumption of white oil ,the southern district occupied the first level amounting (731) thousand ton and the northern district occupied the second level (583) thousand ton ,the middle occupied the third amounting (162) thousand ton and the western was the last level for using the oil for the purpose of heating amounting (108) thousand ton. Form no. (9).

Energy sources used in the studying area according to the quality, quantity(Ton) and the purpose of usage.

Table no. () Energy used for cooking purposes

Districts	Electricity generation	Gas	OIL White	Other Resources
North	52	259	842	117
Middle	30	88	31	4
Western	58	125	450	80
Southern	56	883	91	114

Energy used for lighting purposes

Districts	Electricity generation	Gas	OIL White	Other Resources
North	752	11	105	20
Middle	158	10	91	10
Western	169		30	
Southern	955	60	63	20

Energy used for water heating

Districts	Electricity generation	Gas	OIL White	Other Resources
North	463	46	296	73
Middle	66	65	93	20
Western	151	20	111	60
Southern	575	205	202	136

Energy used for heating

Districts	Electricity generation	Gas	OIL White	Other Resources
North	129	46	583	140
Middle	66	60	162	10
Western	40	30	108	21
Southern	197	81	731	540

The source: The researcher depends upon the data of the Central statistical Organization

The percentage for the fossil fuel according to the kind of the fuel used and the purpose using

Table no. () Energy used for cooking purposes

Districts	Electricity generation	Gas	OIL White	Other Resources
North	3.3	34.3	54.6	7.5
Middle	19.6	58.5	20.2	2.6
Western	8.1	17.5	63.1	11.2
Southern	4.8	77.1	7.9	9.9

Energy used for lighting purposes

Districts	Electricity generation	Gas	OIL White	Other Resources
North	84.6	1.2	11.8	2.2
Middle	58.7	3.7	33.8	3.7
Western	84.9		15.7	
Southern	86.9	5.4	5.7	1.1

Energy used for water heating

Districts	Electricity generation	Gas	OIL White	Other Resources
North	53.7	5.1	32.9	8.1
Middle	27	26.6	38.1	8.1
Western	44.1	5.8	32.4	17.5
Southern	51.4	18.3	18	12.1

Energy used for heating

Districts	Electricity generation	Gas	OIL White	Other Resources
North	14.3	5.1	64.9	15.5
Middle	22.1	20.1	54.3	3.3
Western	20.1	15	54.2	10.5
Southern	12.7	5.2	47.1	34.8

Energy used for lighting

مصادر الطاقة المستهلكة لأغراض الإضاءة



المصدر : من عمل الباحث بلاعتماد على بيانات الجهاز المركزي للإحصاء

مصادر الطاقة المستهلكة لأغراض التسخين



المصدر : من عمل الباحث بلاعتماد على بيانات الجهاز المركزي للإحصاء

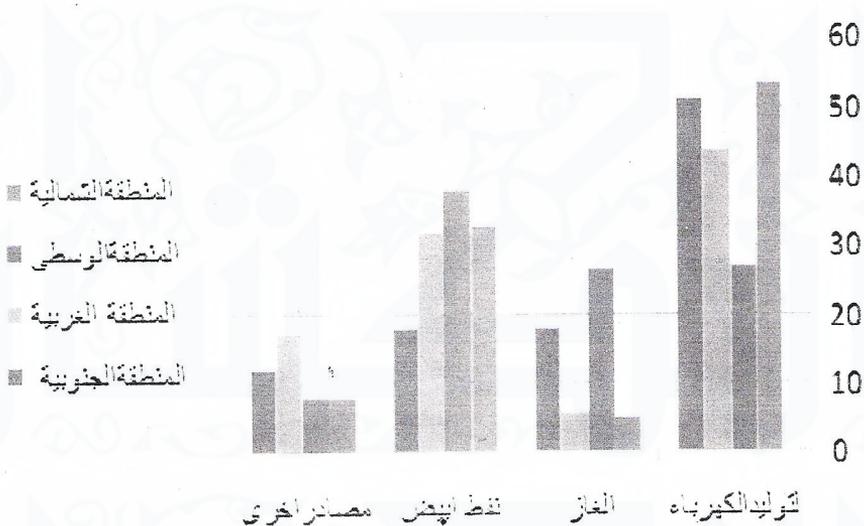
Energy used for cooking

مصادر الطاقة المستهلكة لأغراض التدفئة



المصدر : من عمل الباحث بالاعتماد على بيانات الجهاز المركزي للإحصاء

مصادر الطاقة المستهلكة لأغراض تسخين الماء



المصدر : من عمل الباحث بالاعتماد على بيانات الجهاز المركزي للإحصاء

Energy used for heating

Energy used for water heating

The temperatures and relation with the energy released from the fossil fuel

The temperatures are responsible for the atmospheric changes in the universe and an important factor in the plant growth ,and as it known the plants need to three active temperatures ,the first used for growing ,the second to bear the flowers and fruits and the third for ripping the fruits. These three temperatures are responsible for the success of agricultural process besides this research will include the quantity of energy released from fossil fuel burning for each district of study and the exchanged relation affirmed by the highest temperature degree and the energy resulted represented by the five stations ,displaying the effect the huge quantities of energy on the atmospheric changes and the gravitation and fears of exposing the earth to burning by the celestial bodies by human activity causing an altitude in the top levels for the layer of Terobosfeer ,and as the table (7) the highest percentage of fuel consumption for the purpose of cooking for other energy sources including the energy used for electric generation was in the middle, western and southern districts ,then the northern district (22.2%, 19.3% , 14.4% ,10.8%) and the consumption of natural gas in the southern , middle, northern and western districts for the same purpose amounting (77.1%, 58.5%, 34.3%, 17.5%) where the consumption of white oil for the same purpose in the western, northern, middle and southern districts (54.6%,63.1%,20.2\$,7.9%) ,and the

fuel used for the purpose of lighting for southern, northern, western and middle was (86.9%, 86.8%, 84.9%, 58.7%) where we find the highest percentage of consumption for gas for the purpose of lighting in southern , middle and northern districts amounting (5.4%

, 3.7%, 1.2%) and we did not find any representation for gas consumption in the western district.

Regarding the consumption of white oil for the same purpose in (middle , western , northern , southern) districts with percentage of (33.8% , 15.7%, 11.8% ,5.7%). and the fuel used for the purpose of water heating represented the (southern, northern, western ,middle) with percentage of (63.5%, 61.8%, 61.6%, 35.1%) where we find the highest percentage of consumption for gas for the same purpose in (middle, southern , western and northern) districts amounting (26.6% , 18.8%, 5.8% , 5.1%) , and the using of energy for heating in (southern, western, northern, middle) was (47.5%, 29.8%, 30.3%, 25.4%)where we find the percentage of using the gas for the purpose of heating in (middle, western, southern and northern) districts amounting (20.1% , 15%, 5.2% , 5.1%) where the percentage of the white oil used for the purpose of heating in (northern, middle, western and southern) was (64.9%, 54.3%, 54.2%, 47.1%).

The optical comparison from the tables (2-1) ,(2-4) that the northern district has the highest average to be linked with energy sources used for lighting as the average of simple linking was (0.9) which is a strong linking with expelled proportion direction which means however an increase in energy sources there will be an increase in the temperature , the northern district occupied the second level for the energy sources as the average of simple linkage was (0.5) which is a medium linkage with expelled proportion direction , the third was the energy sources used for the purpose of water heating amounting(-0.4) which is a weak relation with an inverse direction, which means that however increase in energy sources there will be a decrease in the temperature , in the forth level was the energy sources for the purpose of cooking amounting (-0.01) which is a weak relation and in inverse direction. The middle has the highest linkage

regarding the energy sources used for lighting purposes and amounting (0.4) which is a medium relation with expelled direction , then it came the strength linkage of the energy used for water heating amounting (0.05) which is a weak relation with an expelled direction, where the factor of simple linkage for the energy used for lighting was (0.04) is a weak linkage with an expelled direction, and the lowest degree of linkage for the energy used in cooking was (-0.4) a weak relation with an inverse direction. Regarding the western district the strongest factor of linkage in the energy sources used for the purpose of lighting amounting(0.7) which is a strong relation with an expelled direction, then it came the strength linkage of the energy used for water heating amounting (0.4) which is a medium relation with an expelled direction, where the less degree of energy linkage was for the purpose of cooking and heating was (-0.9) is a strong relation with inverse direction, where the linkage factor for the purpose of heating was (0.06) a strong relation with expelled direction.

Consumed fuel (ton),kind of usage, its relation with the changes of the major temperatures (c) for the Iraqi main districts

Energy for cooking in the northern district table no. ()

Kind of Energy used	Energy Quantity (Ton)	Temperatures (C)	Simple linking factor
Other Sources	169	28.54	-0.01
Gas	529	27.4	
White Oil	842	28	

Energy used for the purpose of cooking in the middle district table no. ()

Kind of Energy used	Energy Quantity (Ton)	Temperatures (C)	Simple linking factor
Other Sources	34	30.8	-0.04
Gas	88	26.6	
White Oil	31	30.6	

Energy used for the purpose of cooking in the western district table no. ()

Kind of Energy used	Energy Quantity (Ton)	Temperatures (C)	Simple linking factor
Other Sources	138	27.06	-0.9
Gas	125	25.9	
White Oil	450	24.1	

Energy for cooking in the southern district table no.()

Kind of Energy used	Energy Quantity (Ton)	Temperatures (C)	Simple linking factor
Other Sources	170	42.7	-0.2
Gas	883	30.7	
White Oil	91	28.6	

Energy used for the purpose of lighting in the northern district table no. ()

Kind of Energy used	Energy Quantity (Ton)	Temperatures (C)	Simple linking factor
Other Sources	772	28.5	0.9
Gas	11	27.4	
White Oil	105	28.1	

Energy used for the purpose of lighting in the middle district table no. ()

Kind of Energy used	Energy Quantity (Ton)	Temperatures (C)	Simple linking factor
Other Sources	168	30.8	0.4
Gas	10	26.6	
White Oil	91	30.6	

Energy used for the purpose of cooking in the western district table no. ()

Kind of Energy used	Energy Quantity (Ton)	Temperatures (C)	Simple linking factor
Other Sources	169	27.6	-0.7
Gas	0	25.9	
White Oil	300	24.1	

Energy used for the purpose of lighting in the southern district table no. ()

Kind of Energy used	Energy Quantity	Temperatures (C)	Simple linking
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	(Ton)		factor
Other Sources	975	42.7	0.9
Gas	60	30.7	
Whit Oil	63	28.6	

Energy used for the purpose of heating in the northern district table no. ()

Kind of Energy used	Energy Quantity (Ton)	Temperatures (C)	Simple linking factor
Other Sources	269	28.54	0.5
Gas	46	27.4	
White Oil	583	28.1	

Energy used for the purpose of heating in the middle district table no. ()

Kind of Energy used	Energy Quantity (Ton)	Temperatures (C)	Simple linking factor
Other Sources	76	30.8	0.04
Gas	60	26.6	
White Oil	162	30.6	

Energy used for the purpose of heating in the western district table no. ()

Kind of Energy used	Energy Quantity (Ton)	Temperatures (C)	Simple linking factor
Other Sources	61	27.06	0.06
Gas	30	25.9	
White Oil	108	24.1	

Energy used for the purpose of heating in the southern district table no. ()

Kind of Energy used	Energy Quantity (Ton)	Temperatures (C)	Simple linking factor
Other Sources	727	42.7	0.38
Gas	81	30.7	
White Oil	731	28.6	

Energy used for the purpose of water heating in the northern district table no. ()

Kind of Energy used	Energy Quantity (Ton)	Temperatures (C)	Simple linking factor
Other Sources	536	28.54	-0.3
Gas	46	27.4	
White Oil	296	28.1	

Energy used for the purpose of water heating in the middle district table no. ()

Kind of Energy used	Energy Quantity (Ton)	Temperatures (C)	Simple linking factor
Other Sources	86	30.8	0.05
Gas	65	26.6	
White Oil	93	30.6	

Energy used for the purpose of water heating in the western district table no. ()

Kind of Energy used	Energy Quantity (Ton)	Temperatures (C)	Simple linking factor
Other Sources	211	27.06	0.4
Gas	20	25.9	
White Oil	111	24.1	

Energy used for the purpose of water heating in the southern district table no. ()

Kind of Energy used	Energy Quantity (Ton)	Temperatures (C)	Simple linking factor
Other Sources	711	42.7	0.9
Gas	205	30.7	
White Oil	202	28.6	

Summary and acknowledgement

The importance of the environment was connected with the activity of the human being and his scientific and technical progress resulting dangerous atmospheric changes which reflects negatively on the vital activities of the human being (agricultural activity) by the changes in the temperature during the growth period.

The phenomena of dimming is the main of these dangerous atmospheric changes in the meantime for the negative effects on the main activities of the human being including the (economical , agricultural social and political) and reflects the use of fuel both the fossil or other sources as wood which has a negative effect on the quantity of radiation reaching to the earth by quantity and quality, which could not be controlled which means continuation of the atmospheric changes and the danger of environment due to the imbalance in the quality of solar radiation reaching the earth, and from here the idea of the research started which is the phenomena of dimming and its effect on the studying area (Iraq).

By data analysis the study proves that the southern district may witness a big reduction in the quantity of radial rays and this changes was in the period of (1971-1991)and also for the visual and ultraviolet rays.

This is due to the events in the region as the use of other fuel sources is large for lighting, heating and water heating, and for that the data indicate the main reason for the sharp reduction by radiation.

Where the radiation data of the middle district show that the percentage of thermal radiation is getting to decrease relatively within the period (1967-2000) besides a non-advance increase for the visual rays for the period (1981-1991) then decreases ,the same is for violet rays because of using the fuel of gas emission (other sources) and the increase in using the clean sources of fuel as the

gas for different uses but with great energy of (35mj) and the increase in ultraviolet rays show a lack in oxygen due to the lack of green areas .

In the western district the percentage of radiation (thermal rays) show a considerable decrease for the period (1971-1990) also for the thermal rays and for the ultraviolet rays which is in conformity with the consumption of energy for all uses where the use of fuel from other resources is decreased and the use of gas increase which is a clear fuel despite the energy released when burning.

Regarding the northern-western area including Kirkuk and the northern including Mosul where the rays in the first district is characterized by relatively settled for thermal and visual rays where there is a decrease in the ultraviolet rays where in the second district in Mosul there is a decrease in the percentage of thermal rays especially for the period (1991-2008) and a decrease in the ultraviolet rays because of being a district of exhausting winds despite the increase in the fuel used from other sources as the oil also the evidences indicate that ultraviolet rays cause the increase in the percentage of the oxygen.

So we can say that the lower places (south of Iraq) and because of using fuel from other sources is the most district which are suffering from the phenomena of dimming and also this imbalance reflect on the clear sources of energy as the gas where the middle district show a decrease in the thermal rays and an increase in the visual rays and an increase in the ultraviolet rays because the middle district is the capital with a concentration of population and construction so we find that the radial evidences for ultraviolet rays has an increase in percentage which means a lack in the oxygen due to the lack of green areas where the western district is very little

influenced by the phenomena of dimming because of its large area and the less population and the less use of different fuels , where the northern districts show a decrease in the thermal and ultraviolet rays because of the higher area.

By this study we gain a group of acknowledgement

- Process practical steps to solve environmental problems that effect the agricultural activity causing a weakness in the quality and quantity of the production.
- The necessity of preparing green areas and decreasing the use of fuel releasing CO₂ especially in the southern and middle district.
- Taking into consideration all the results by the study and the interest to the agricultural activity and the use of a clean fuel without CO₂.

Acknowledgement

- 1-To follow an agricultural policy and to increase the green areas to limit the phenomena of desertification which resulted an increase in the percentages of ultraviolet rays due to the lack of the oxygen where the lighting process is the main source of the oxygen.
- 2-Increase the use of clean fuel sources as the vital fuel and to shorten the use of fossil fuel which is a reason for the pollution in the environment.
- 3-Present a study to monitor the agricultural production and to decrease the effect of dimming and to put an end to the reasons causing this phenomena and reform the agricultural planning.
- 4-Achieve an agricultural integration and coordinate between the development policy and the policy of the agricultural development.

- 5-Develop the agricultural activity in the field of investment in conformity with the requirements of population growth in order not to use agricultural land as residential lands.
- 6-Activate the role of the general and private sectors in agricultural investment by financial support and investment promotion.
- 7-Control the process of using the lands for other activities rather than agricultural and to prevent the trespass on the green areas.
- 8-Find the procedures appropriate to develop the agricultural environment.
- 9- Promote and support the agriculture for local production.
- 10- Distribute awareness to preserve the agricultural environment.
- 11- Direct the agricultural growth to the district suffering from the phenomena of desertification and an appropriate plan for the desert areas to involve in putting an end of the corrosion of agricultural lands.
- 12- Getting use of the vacated agricultural production to get the vital fuel.
- 13- Use the modern techniques to treat the environment and the technology in designing the green areas.
- 14- Using the cycle technique and to less the destruction of the environment.
- 15- A wide training course to provide the agricultural sector with the required techniques and skill.

A b s t r a c t

The significance of environment has been firmly connected with the human activity, scientific advancement and technology. This fact led to serious climatic changes that negatively affected the human vital activities including the agricultural activity due to changes in the particular temperatures required during the growth period.

At present, phenomenon of dimming represents the essence of those serious changes of climate, since it badly affects the human economic activities in the agricultural, social and political fields. The type of fuel used, be it a fossil or wood, has its negative effect on the volume of radiation reaching the earth in quality and quantity. Such an effect, being uncontrollable, will indicate continuous changes of climate and rapid environmental risks due to the irrelevant solar radiation coming to the surface of the earth. From this point, the problem of the study (Dimming) starts with its effect on the area of study (Iraq).

The study proves, through data analysis, that the southern region may experience a decrease in the volume of thermal radiation. This change has already started to appear in 1971 through 1991 and covered visible and ultraviolet rays.

That is attributed to the nature of events that the region experienced. Other sources of fuel have been widely used for illumination, heating and water heating. Here, the data available indicate the main reason behind this sharp decrease of radiation.

Meanwhile, the radiation data of the middle region showed that the thermal radiation started to relatively decrease in 1967 through 2000, with an unprecedented rise of visible radiation in 1981 through 1991, and then the rate went down. The same rates were true for the

ultraviolet radiation. Those findings were attributed to the lower use of gas-emitting fuel (the other sources) and the higher use of clean sources of fuel like gas for different purposes, though they release enormous energy amounting to 35 MJ, while the rise of the ultraviolet radiation is an indication of the lower quantity of oxygen produced due to the few green areas available.

In the western region, the radiation rate (visible radiation) showed a limited decrease in 1971 through 1990 and the same applied to the thermal and ultraviolet radiations. These findings appear to be relevant to the energy consumption for all purposes where fuel from other sources is less used and gas which represents a clean source is widely used, in spite of the high energy released during combustion.

In the north-west region including Kirkuk and the north region covering Mosul, the thermal and visible radiations in the first region appeared to be relatively stable, while the ultraviolet experienced remarkable decrease. The latter, Mosul, however, witnessed a decrease in the thermal radiation from 1991 through 2008; and so did the ultraviolet radiation because this region represents a wind drainage area and an elevated region, though the quantity of fuel used from other sources, including white Kerosene, was high. Moreover, evidence showed that the ultraviolet radiation is becoming lower due to the oxygen high rate.

Therefore, we can say that the low regions of southern Iraq are the most damage-inflicted areas by the dimming phenomenon and reflect the low use of clean energy sources like gas, while the middle region shows a decrease in the thermal radiation, an increase in the visible and ultraviolet radiations. These findings are attributed to the fact that the middle region represents the densely-populated Capital with its architectural and urban

manifestations where evidences show high rates of ultraviolet radiation; a matter which indicates low rates of oxygen due to the few green areas.

On the other hand, the western region is the least damaged by the dimming phenomenon due to the vast area available, the small population and the low volumes of fuel used.

The northern parts, however, are characterized with low rates of thermal, visible and ultraviolet radiations due to their elevated lands.

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