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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 the decrease of oxygen on the earth planet threatening to seep away in the ground leading to destruction.

The phenomena of dimming is distinguished from others being a universal phenomena including large territories of the world as its effects cover continents which is the main phenomena deserved to be studied where the effect of the mentioned phenomena is only a phenomena extended to definite areas of the world.

In order to evaluate the dimming phenomena and indicate the real reasons of dimming we have to study this phenomena, the reasons and the main studies concerning this phenomena in general or in private , and to study the characteristic of solar radiation and the main radiations emitted by the sun ,its scattering and reflection, and to study the percentages of these reflections for five stations in Iraq according to the statistics and on scientific basis which has effect on animal breeding ,agricultural methods and the appropriate crops for this change which has a great and important effect on the increase and concentration of this phenomena, as the gas of methan resulted from the fields of rice marshes in the south of Iraq and the breeding of cows in the South of Iraq made the region more effected of this phenomena that will be explained widely and in accurate way in the research.

The effect of this phenomena on the atmospheric change especially the temperatures, soil winds all give one explanation that the mentioned phenomena has a great The increase in temperatures on the circumstances of the globe cover is due to the rays reflection because of pollution which make the circumstance in a permanent danger and has a negative effect on the heating of the cover and weakening the gravity exposing the earth to a burn by meteors or other planets which will cause an environmental change for the human interest without taking into consideration the results of this change.

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.

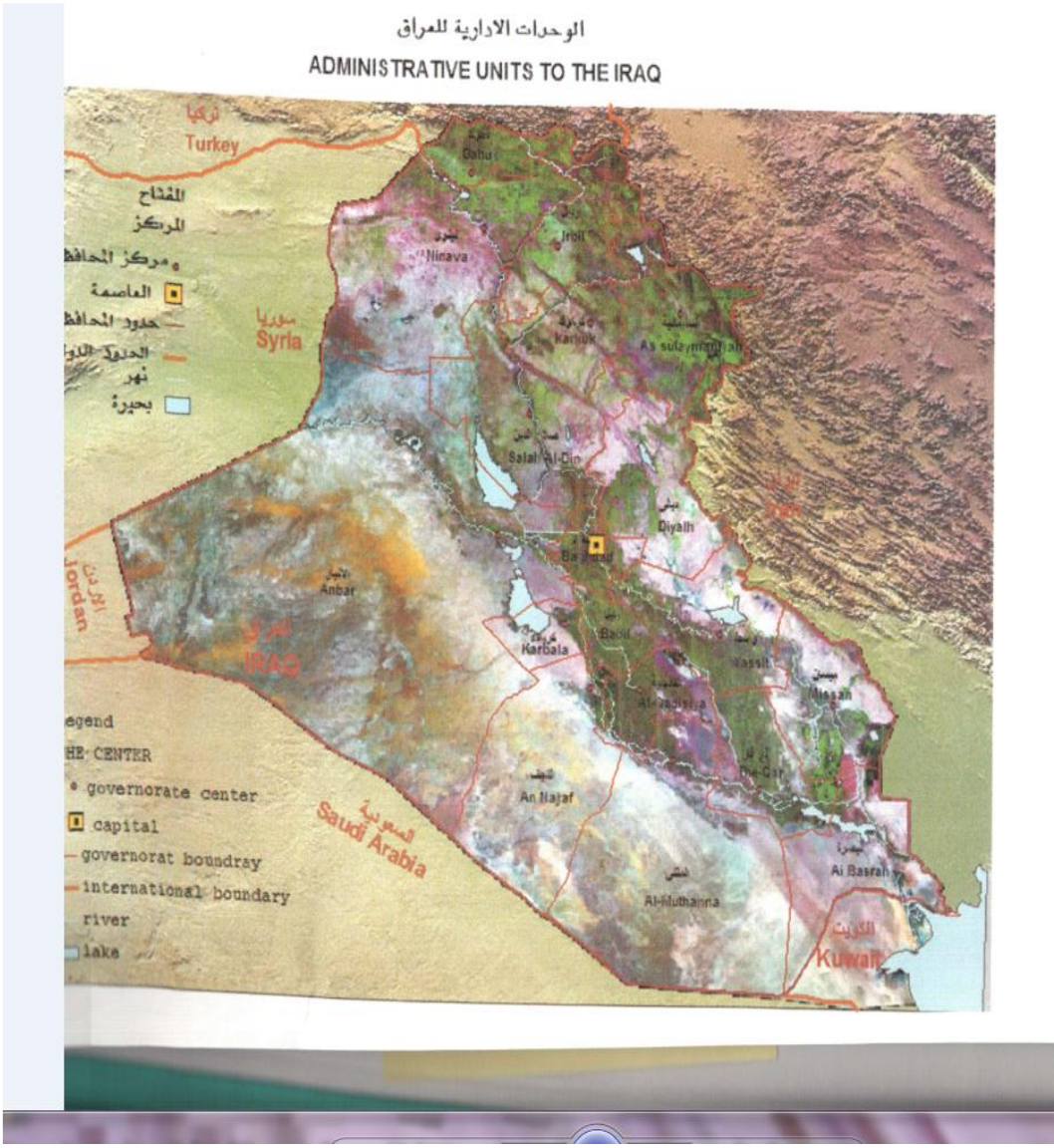
Studying area boarders

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



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

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

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

as sulfate and soot[1]due to the non complete burning of the coal and oil derivatives or any other materials.

The first explorations of the sun dimming

The reduction in the quantity of solar radiation to the earth was first explored in 1974, during this year number of researchers in American Smithsonian organization were able to study the nature of changes in solar radiation Sena peninsula and the result was a reduction about (12%) in radiation within this district[2].

Then many studies were presented getting the same results within different places of the world, the underlined was the study of (Galen) and his colleagues in 1998 subjected to (Average and the direction of the short sun rays worldwide) [3]

The study followed by another study by (Stanhill) in 2001 subjected to (the global dimming, view to proves regarding the decrease in the quantity of sun radiation with a discussion about the reasons of the problem and the different agricultural influences).The last study was the underlined studies concerning the subject of solar dimming widely, the study includes changes in solar radiation in Africa, Asia , South and north and the middle America, Australia, south of Pacific, Europe and the continent of Antarktika.

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) [4].And for the importance of this

(1)Beate ,G Liepert, (2002) ,observed reduction of surface solar radiation at sites in United and worldwide from 1961 to 1990 ,Geophysical research letters ,vol.29,No.10,p61.
(2)Shaptai Cohen, (September 2004), Global dimming comes of age,Eos,Vol.85,No.21 P.362
(3)Ibid,P0 362
(4)Gerald stanhill, Shaptai Cohen, (2001) ,Global dimming, review of evidence for a widespread and significant radiation with

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. (1)

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. (2)

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 materials represent nucleons on which water vapor condensate inside clouds(3).

discussion of its probable causes and possible agricultural consequences. Agricultural and forest Meteorology, Vol 107,p255-278.

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

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

(3)U.Lahman, J.Feiehter,Global, (2005),indirect across effect a review, Atmospheric chemistry and physics, Vol.5,P0 71

The three physical operations for the fine organic pollutions gives the main explanation for the solar dimming and the thermal retention as the first physical operation for these materials involve in the reduction of solar radiation by reflecting to the outer space.

The third physical operation for these fine materials acting as condensed nucleons inside clouds, as in case of increasing pollution in air a large increase took place in the condensed nucleons inside clouds leading to a change in the properties of natural clouds.

The small drops will increase (more than the large drops) inside the clouds causing to an increase in the thickness then to be transferred to a mirror reflecting sun rays to the out space(1).

But there are some comments regarding this theory that the second physical operation for polluted materials (represented by reflecting and absorbing sun rays and emitting thermal rays of long waves) will increase the temperature of the higher layer of Terbosfeer because of absorbing the sun rays will increase the temperature of this part of the air cover exactly the level where the clouds exist and by increasing the temperature will be settled and clouds will disappear so the sun rays will not found any obstacle during entering the earth. (2)

But the real influence for solar dimming is focused on the botanical cover in the world either the nature or the agricultural as food processing by using luminary process will be largely effected by the reduction in the production of the plant cover. (3)

Also these changes of solar radiation effected on the evaporation process from the water surfaces and soil

(1)http:// education arm.gov/outreach publication /sgp / julou.pdf
(2)I BID, P.21
(3)Gerald stanhill,op.cit,p.268.

surface, it was observed a continuous decrease in the value of evaporation during the last fifty years. (1)

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 (2) .

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

- 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%.

(1)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

(2)Michael B. Meelroy, the atmospheric environment ,priceton and oxfors, USA ,2002,p51.

- 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 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

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

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

(1)Hasan Ahmed, Atmospheric geography Egypt ,1988, p82-83.
(2)http//Wikimedia foundation.org

Nasrya station

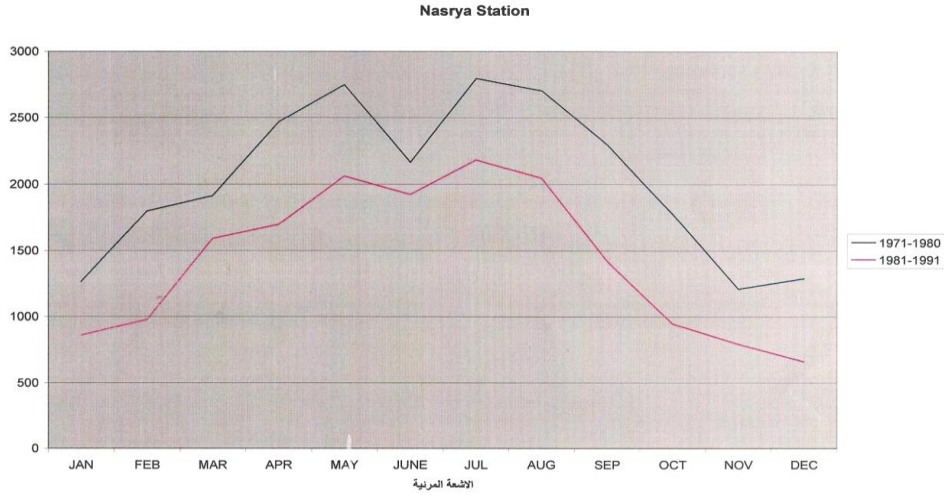
السنة	DEC	NOV	OCT	SEP	AUG	JUL	JUNE	MAY	APR	MAR	FEB	JAN
1971-1980	2866.800	2690.700	3942.000	5103.900	6006.500	6213.500	4812.600	6109.500	5481.000	4256.900	3998.800	2807.800
الحرارية	1318.728	1237.722	1813.320	2347.794	2762.990	2858.210	2213.796	2808.070	2521.260	1958.174	1839.448	12391.588
المرئية	1290.060	1210.815	1773.900	2296.755	2702.925	2796.075	2165.670	2747.025	2466.450	1915.605	1799.460	1263.510
الفرق المنفسجية	258.012	242.163	3547.180	459.351	540.585	559.215	433.134	549.405	493.290	383.121	359.892	252.702
1981-1991	1470.700	1762.900	2101.100	4153.800	4553.400	4855.800	4283.200	4585.900	3774.600	3537.900	2173.200	1907.500
الاشعة الحرارية	676.522	810.934	966.506	1450.748	2094.564	2233.668	1970.242	2109.514	1736.316	1227.434	999.672	877.450
الاشعة المرئية	661.185	793.305	945.495	1419.210	2049.030	2185.110	1927.440	2063.655	1698.570	1592.055	977.940	858.375
الاشعة الفرق المنفسجية	132.363	158.661	283.842	130.567	409.806	201.030	385.488	412.731	339.714	318.411	195.588	174.675

المصدر: من عمل الباحث بالاعتماد على بيانات الانواء الجوية.

Table (1)

Naseriya Station

Source by the researcher according to the data from meteorology



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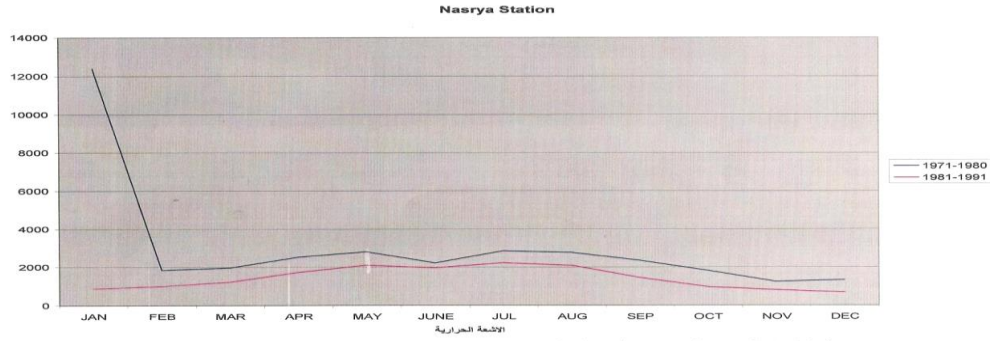

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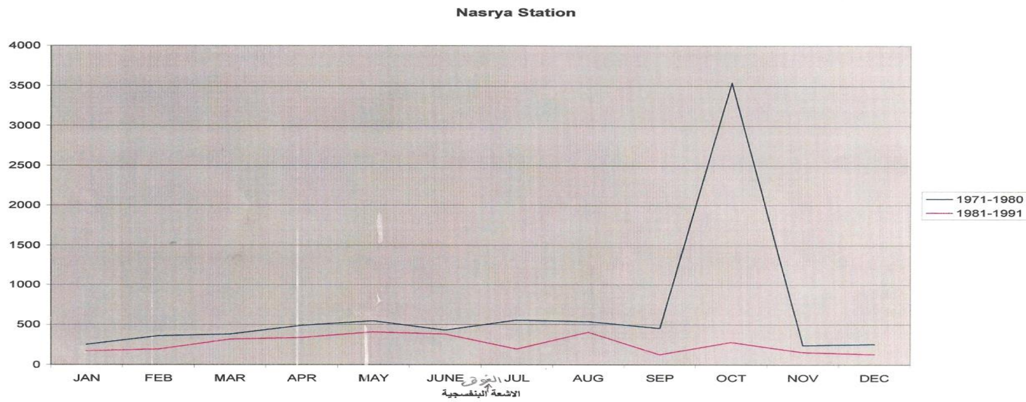

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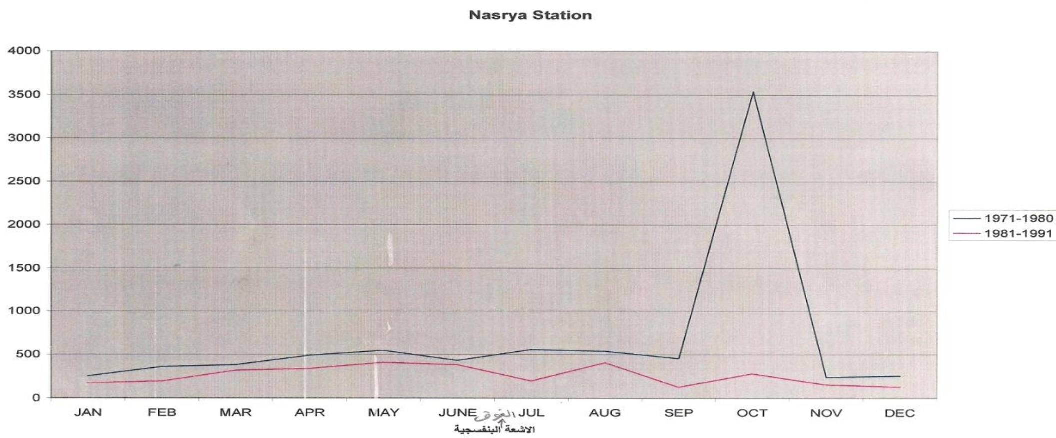

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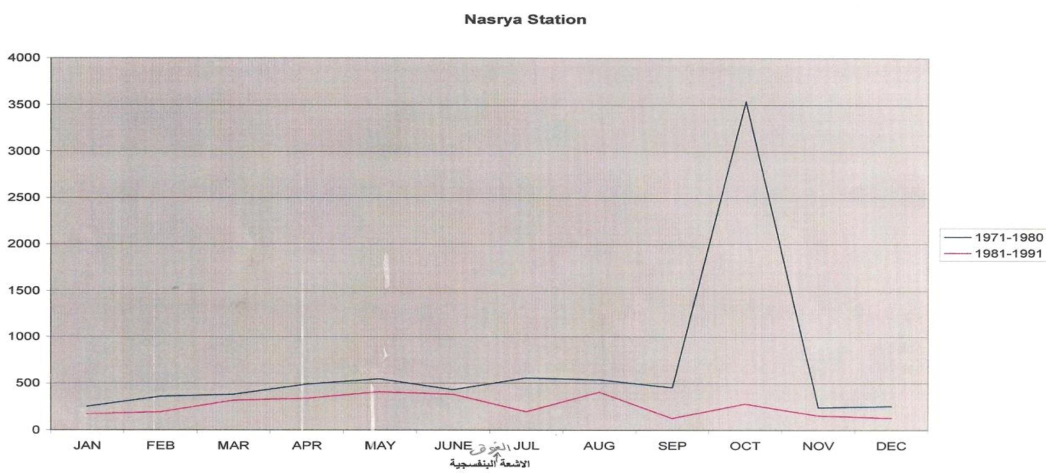

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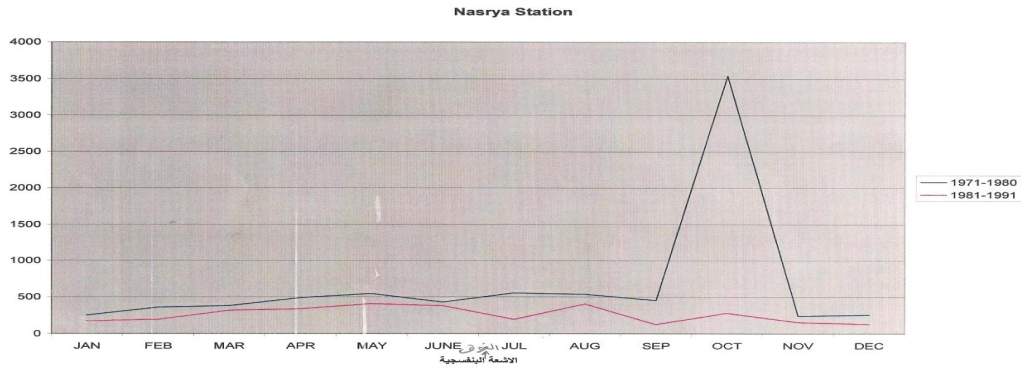

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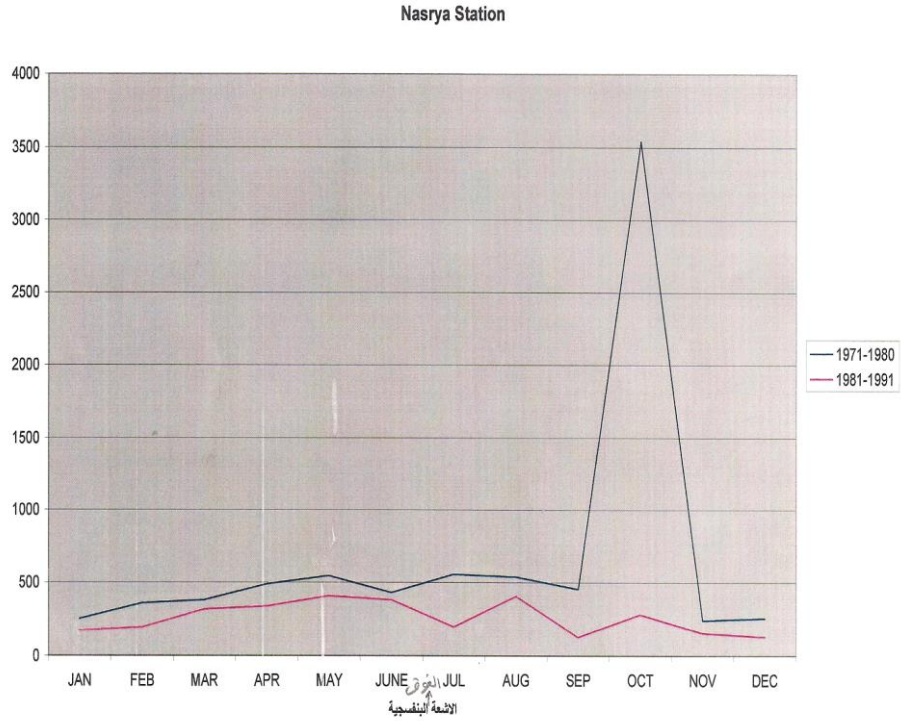


من عمل الباحث بالأعتماد على بيانات الأنواء الجوية

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.

BAGDGHAD station

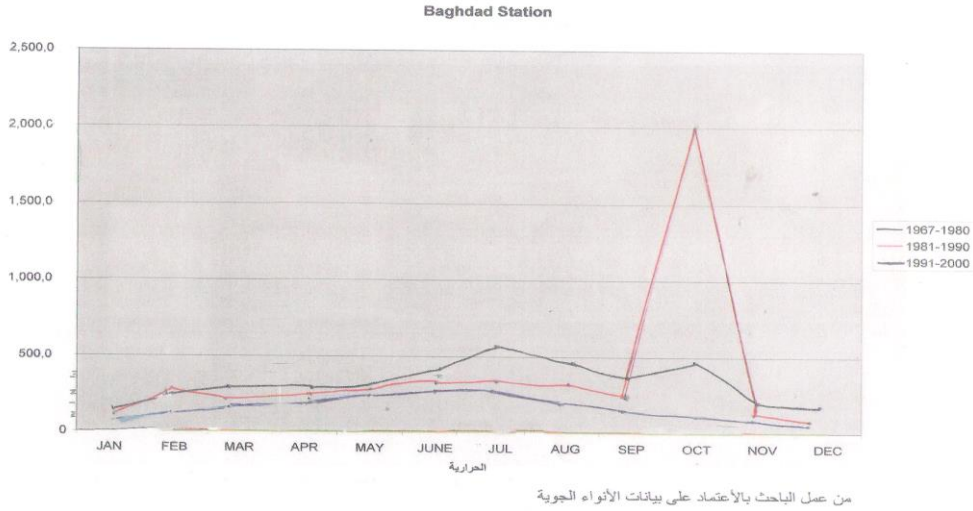
السنة	DEC	NOV	OCT	SEP	AUG	JUL	JUNE	MAY	APR	MAR	FEB	JAN
1967-1980	4168.50	4860.90	6434.00	8273.50	10479.00	11420.70	10835.00	9584.80	8365.20	7176.30	5495.70	4311.70
الحرارية	1917.51	2236.01	2959.69	3805.81	4920.34	5253.52	4984.10	4409.01	3847.99	3307.09	2598.02	1983.382
المرئية	1875.83	2184.41	2895.30	3723.08	4715.55	5139.32	4875.75	4313.16	3764.34	3229.34	2473.07	1940.27
الفوق البنفسجية	375.17	437.48	579.06	744.62	943.12	1027.86	975.15	862.63	752.87	645.87	494.61	388.053
1981-1990	2539.00	2986.10	44649.00	5778.50	6601.00	646.46	7221.60	6402.00	5711.30	4842.70	3902.90	3044.10
الاشعة الحرارية	1167.94	1373.61	20538.54	2658.11	3036.46	29737.16	3321.19	2944.92	2627.20	2227.64	17957.9	14002.86
الاشعة المرئية	1142.55	1343.75	20092.05	2600.33	2970.45	29090.70	3249.72	2880.90	2570.09	2179.22	1756.31	1369.85
الاشعة الفوق البنفسجية	228.51	268.75	4018.41	520.07	594.09	5818.14	649.94	576.18	514.02	435.84	351.26	273.97
1991-2000	1808.00	2415.90	2958.10	3856.10	5267.30	5646.30	5713.20	5357.00	4686.70	3789.50	1885.80	1134.90
الحرارية	831.68	1111.31	1360.73	1773.81	2160.99	2597.30	2597.30	2464.50	2155.88	1743.17	867.47	618.654
المرئية	813.60	1087.16	1331.15	1735.25	2114.01	2114.01	2540.85	2410.92	2109.02	1705.28	848.61	605.21
اللحف البنفسجية	162.72	217.43	266.23	347.05	422.80	422.80	508.17	482.18	421.80	1705.28	169.72	121.041

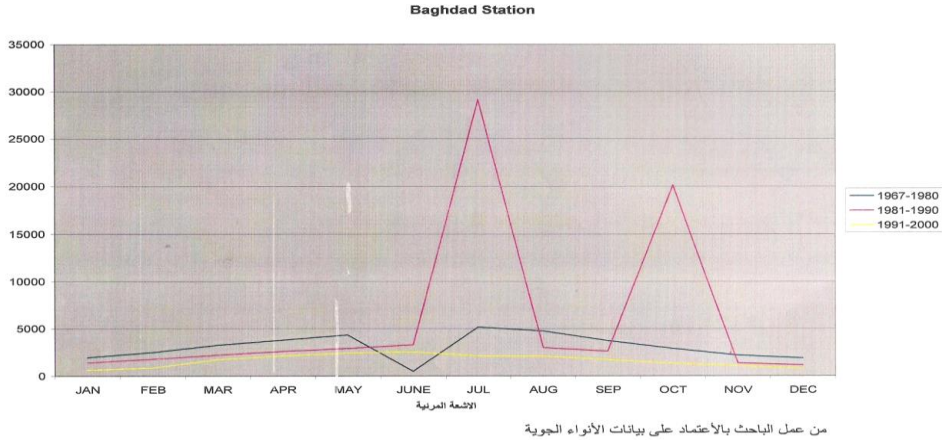
المصدر: من عمل الباحث بالاعتماد على بيانات الانواء الجوية

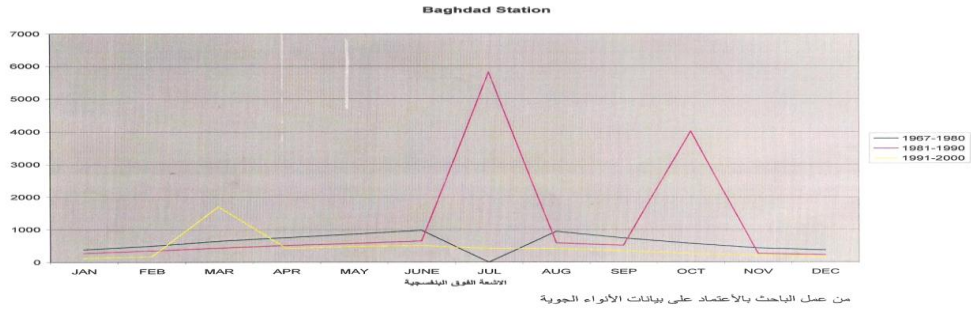
Table ( )

Baghdad Station

Source by the researcher according to the data from meteorology







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.

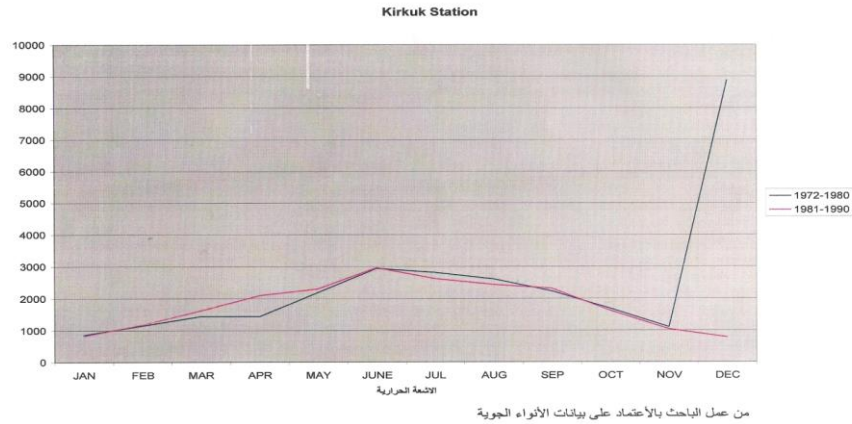
Kirkuk Station

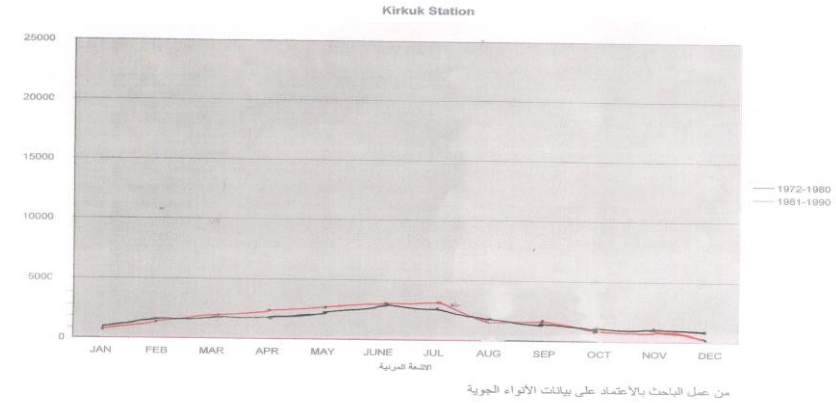
JAN	FEB	MAR	APR	MAY	JUNE	JUL	AUG	SEP	OCT	NOV	DEC	السنة
1864.400	2510.400	3145.200	3144.900	4772.700	6400.700	6124.700	5681.600	4875.500	3681.200	2406.400	1929.300	1972-1980
857.624	1154.784	1446.492	1446.654	2195.442	2944.322	2817.362	2613.536	2242.914	1693.352	1106.944	8877.478	الحرارية
838.980	1129.680	1415.340	1415.205	2147.715	2880.315	2756.115	2556.720	2194.155	1656.540	1082.880	868.185	المرئية
167.796	225.936	383.068	283.041	429.543	576.063	551.223	511.344	438.795	331.308	216.576	173.637	التحت البنفسجية
1793.940	2578.200	3526.700	456.42	5003.900	6441.100	5695.400	5305.800	5049.600	3527.100	2269.000	1701.100	1981-1990
824.946	1185.972	1622.282	2099.532	2301.380	2962.906	2619.884	2440.300	2322.816	1622.466	1043.740	782.506	الاشعة الحرارية
807.030	1169.190	1687.015	2053.890	2251.755	2898.495	2562.930	2387.250	2272.320	1587.195	1021.050	765.495	الاشعة المرئية
161.406	232.038	317.403	418.778	450.351	579.699	512.586	477.450	454.461	317.439	204.210	153.099	الاشعة التحت البنفسجية

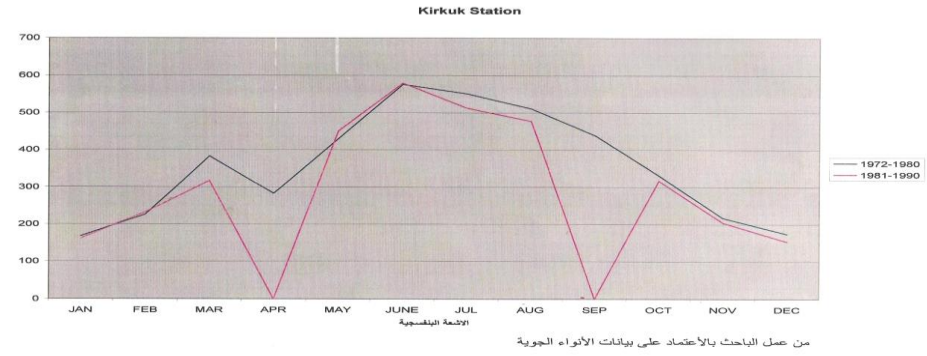
المصدر :من عمل الباحث بالاعتماد على بيانات لانوا الجوية .

shape 3

Table (3)
Kirkuk Station







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).

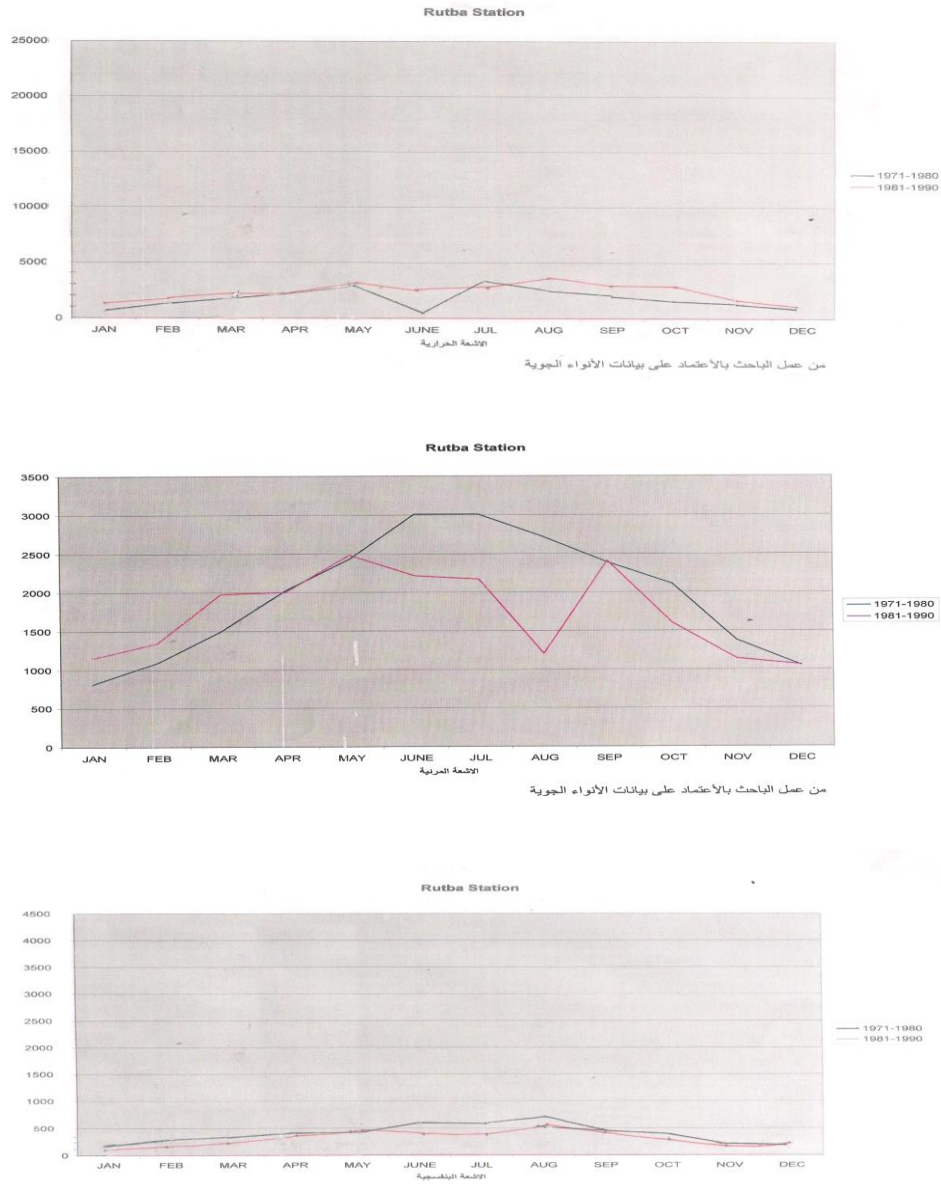
Rutba Station

السنة	DEC	NOV	OCT	SEP	AUG	JUL	JUNE	MAY	APR	MAR	FEB	JAN
1971-1980	2343.200	3068.500	4694.900	5311.100	6048.000	6696.600	6692.700	5406.600	4504.300	3327.600	2420.200	1806.200
الحرارية	1077.872	1411.510	2159.654	2443.106	2782.080	3080.436	3079.642	2487.036	2071.978	1530.096	1113.292	830.852
المرئية	1054.440	1380.825	2112.705	2389.995	2721.600	3013.470	3011.715	2432.970	2026.935	1497.420	1089.090	812.790
الخت التفاضلية	210.888	276.165	422.591	477.999	544.320	602.694	602.343	486.594	405.387	299.484	217.818	162.558
الاشعة الحرارية	1084.082	1159.458	1690.176	2464.266	2512.294	2220.282	2265.132	2539.338	2049.806	2021.608	1373.476	1175.484
الاشعة المرئية	1060.515	1144.035	1604.520	2410.695	2205.505	2172.015	2215.890	2484.135	2005.245	1977.660	1343.520	1149.930
الاشعة الخت التفاضلية	212.103	228.807	320.904	482.139	511.101	434.403	443.178	496.827	401.049	395.532	268.704	229.986

المصدر: من عمل الباحث بالاعتماد على بيانات لانوا الجوية.

shape 4

Table (4)
RUTBA Station



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 forth 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.

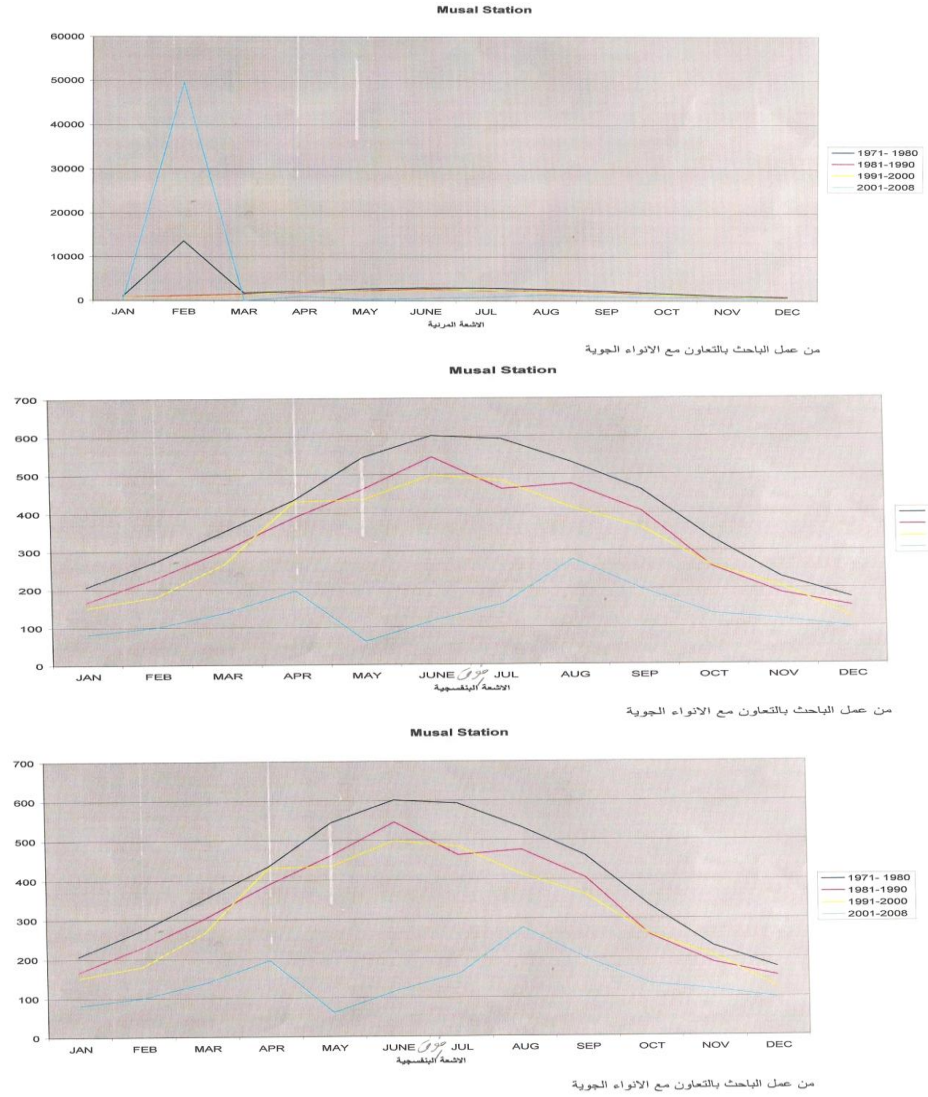
This change in temperature degrees will cause turmoil in the agricultural activity and damage to the corps and the over of some crops on others.

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

Musol Station

JAN	FEB	MAR	APR	MAY	JUNE	JUL	AUG	SEP	OCT	NOV	DEC	السنة
2286.200	3025.500	3906.500	4818.600	6041.900	6672.900	6579.900	5907.800	5117.500	3704.500	2544.800	1941.200	1971-1980
1051.652	1391.730	1796.990	2216.540	2779.274	3069.930	3026.754	2717.588	2354.050	1704.070	1170.608	892.952	الحرارية
1028.790	13661.975	1757.952	2168.325	2718.855	3002.803	2960.955	2659.510	2302.825	1667.025	1145.160	873.540	المرئية
205.758	272.295	351.585	433.665	543.771	600.561	592.191	531.702	460.575	332.905	229.032	174.708	الفوق البنفسجية
1842.500	2544.600	3359.500	4307.100	5136.000	6055.900	5133.400	5279.000	4491.700	2862.500	2079.200	1696.830	1981-1990
847.550	1170.516	1545.370	1981.266	2362.604	2785.700	23621.364	2428.340	2066.182	1316.750	956.432	780.528	الاشعة الحرارية
829.125	1145.090	1511.775	1938.195	2311.245	2725.133	2310.030	2375.550	2021.265	1288.125	935.640	763.560	الاشعة المرئية
165.825	229.014	302.355	387.639	462.249	545.031	462.006	475.110	404.253	257.625	187.128	152.712	الاشعة تحت البنفسجية
1683.600	2002.200	2967.700	4782.400	4836.200	5543.700	5370.600	4597.000	4015.600	2388.200	2273.100	1384.200	1991-2000
774.456	921.012	1365.142	2199.902	2224.192	2550.102	247.476	2114.620	1897.176	1328.572	1045.626	636.732	الحرارية
757.620	900.990	1335.465	2152.080	2175.840	2494.665	2416.770	2068.660	1807.020	1299.690	1022.895	622.890	المرئية
151.524	180.198	267.093	430.416	435.168	498.933	483.354	413.730	361.404	259.932	204.579	124.578	الفوق البنفسجية
883.680	1103.670	1526.700	2158.200	682.000	1292.450	1776.750	3077.280	2183.870	1472.120	1306.250	1064.020	2001-2008
206.493	607.228	702.282	992.772	313.720	594.527	817.305	1415.649	1004.680	677.175	600.875	489.449	الاشعة الحرارية
397.656	495.150	687.015	971.190	306.900	581.603	792.538	1384.776	984.745	797.464	687.813	478.809	الاشعة المرئية
79.531	99.240	137.403	194.238	61.380	116.321	159.908	276.955	196.548	132.408	117.563	95.762	الاشعة فوق البنفسجية

Table (5)
Mosul Station



Graph no. (5)

musal 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	Gas	OIL Whit	Other Resources

	generation		e	
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

District	Electricit	Gas	OIL	Other

s	y generation		Whit e	Resources
North	3.3	34.3	54.6	7.5
Middle	19.6	58.5	20.2	2.6
Wester n	8.1	17.5	63.1	11.2
Souther n	4.8	77.1	7.9	9.9

Energy used for lighting purposes

District s	Electricit y generation	Gas	OIL Whit e	Other Resources
North	84.6	1.2	11.8	2.2
Middle	58.7	3.7	33.8	3.7
Wester n	84.9		15.7	
Souther n	86.9	5.4	5.7	1.1

Energy used for water heating

District s	Electricit y generation	Gas	OIL Whit e	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

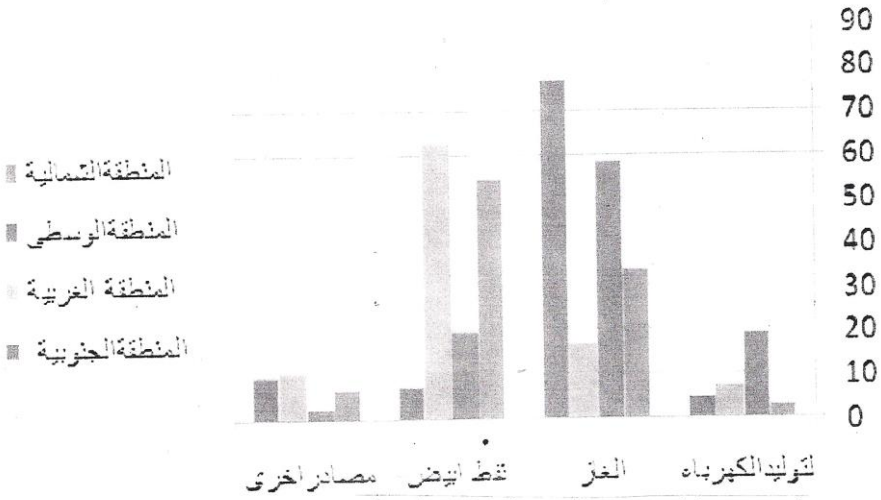
Districts	Electricity generation	Gas	OIL White	Other Resources
North	14.3	5.1	64.9	15.5
Middle	22.1	20.1	54.3	3.3
Western	20.1	15	54.2	10.5
Southern	12.7	5.2	47.1	34.8

Energy used for lighting

مصادر الطاقة المستهلكة لأغراض الإنارة

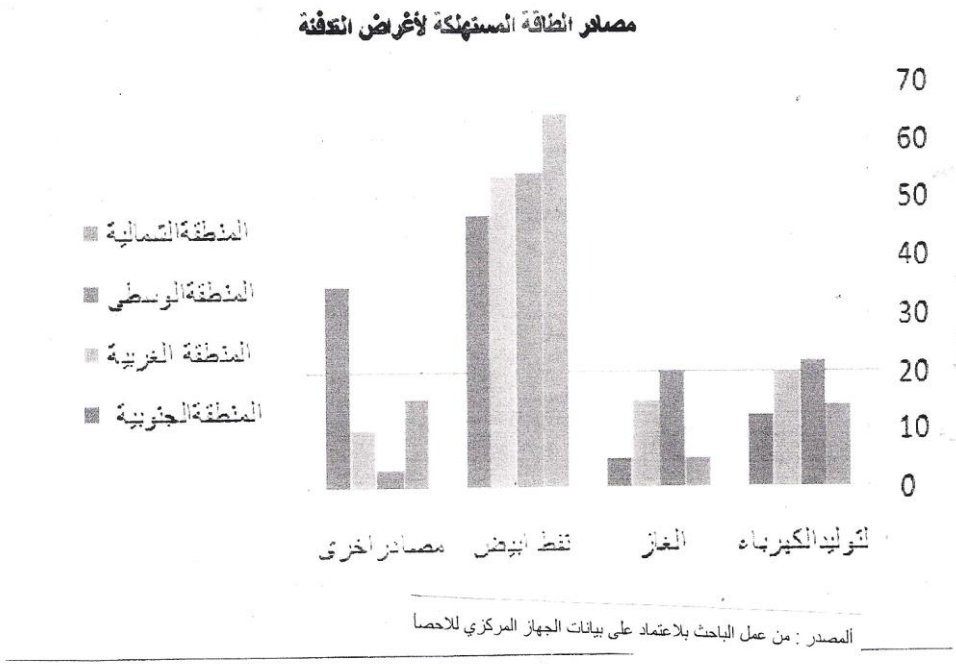
المصدر : من عمل الباحث بلاعتماد على بيانات الجهاز المركزي للاحصا

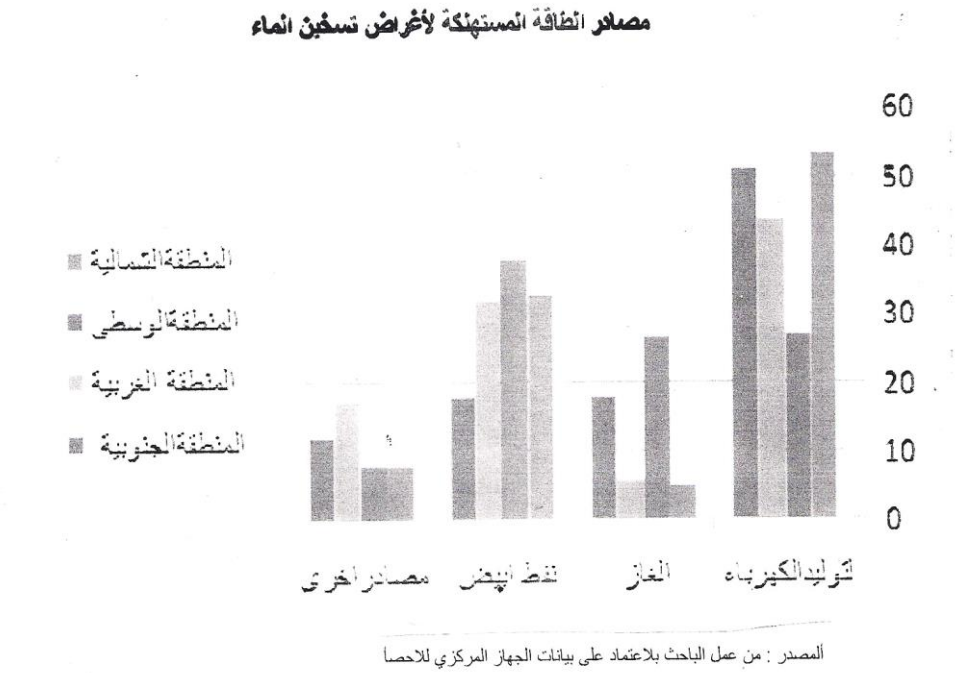
مصادر الطاقة المستهلكة لأغراض الطبخ



المصدر : من عمل الباحث بلاعتماد على بيانات الجهاز المركزي للاحصا

Energy used for cooking





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	Temperatures (C)	Simple linking factor

	(Ton)		
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 (Ton)	Temperatures (C)	Simple linking 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-Increse 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.

Abstract

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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