

Influence of Temperatures Rise over 48-years on Sulaimaniyah Agroecosystem structure and Nematodes Distribution, Creation of a 48-Year Database Map

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Abstract

From a studied to collect data's for temperature degrees during 1973 until 2018 there is clear evidence that show climate change is happening in our region. Data's show that the average annual temperature rat has raised by almost 1°C, the average of warmest year for this period was recorded in 2010 and it was (21.55 OC). In 2016 average temperature degree was high (20.3 OC) as the global worm rising the lowest temperature in this period was (16.2 OC) recorded in 1992. Since 1973 until 1985 average worm was (18.39 OC) and since 1986 until 1998 worm average raised to (18.79 OC) then since 1999 until 2010 worm average raised again to (19.93 OC) but in period 2011 to 2018 worm average raised to (20.09 OC). The difference between warmest monthly average temperatures and the coldest month of the year or annual range in 1988 was the highest (31.9 OC) while in year 1973 was lowest (19.6 OC) but the rate for the period 1973 to 2018 was (27.9 OC). The absolute annual temperature range or differences between the maximum absolute temperature and the minimum absolute temperature during a year was wide like in 1973 was highest (53 OC) and in 1987 was the lowest (35 OC). Diurnal temperature variation or the daily difference between the maximum and minimum temperatures was limited in winter months almost (6 - 9 OC) but in summer months the ranges is bigger almost (15 - 18 OC). Over these years spatially from (2008 -2019) soils that affected with plant pathogenic nematodes increased dramatically by %50 in the study area 10km² because of rising temperatures degrees and need to use greenhouses instead of open field cultivation these greenhouses numbers influencing on agroecosystem structure for a long a terms. From the investigation farmers to control plant pathogenic nematodes in the effected soils greenhouses use kinds of chemical pesticides that cause damages to the soils and the yields as well as changing agroecosystem stricture. Agroecosystem structure for the study area has been changed relatively because of increasing the numbers of greenhouses that got almost 7000 greenhouse causing imbalance in acuaecosystem by using a huge amount of water (125m³ / greenhouse).

Keywords: climate changes, rising temperature, agroecosystem stricture, Plant-Parasitic Nematode