

Comparison of Mean Monthly Soil Temperature at (5 and 30 cm) Depths at Compton Experimental Site, West Midlands (UK), between 1976-2008

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Abstract : A comparison of soil temperature at (5 and 30 cm) depths at a research site over the period (1976-2008) was analyzed. Based on the statistical analysis of the database of (12,045) days of individual soil temperature measurements in sandy-loam of the (salwick series) soils, the mean soil temperature revealed a statistically significant increase of about -1.1 to 10.9°C at 5 cm depth in 1976 compared to 2008. Similarly, soil temperature at 30 cm depth increased by -0.1 to 2.1°C in 2008 compared to 1976. Although, rapid increase in soil temperature at all depths was observed during that period, but a thorough assessment of these conditions suggested that the soil temperature at 5 cm depth are progressively increasing over time. A typical example of those increases in soil temperature was provided for agriculture where Miscanthus (elephant) plant that grows within the study area is adversely affected by the mean soil temperature increase. The study concluded that these observations contribute to the growing mass of evidence of global warming and knowledge on secular trends. Therefore, there was statistically significant increase in soil temperature at Compton Experimental Site between 1976-2008.

Keywords : soil temperature, warming trend, environment science, climate and atmospheric sciences

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