Modeling On Climate Change

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Abstract: _The variation is the rule of Nature, occurs automatically balancing each and every component in universe. The connectivity of the components in atmosphere sustains the climate. Human activities affect the whole climate to shift from its real form and causes climate change. The parameters such as temperature, pressure, humidity are responsible for climate change in scale of measurable variables. As for instance, substantial increase of CO_2 in the atmosphere is the main contributer to global warming. Mathematical Modeling represents a very efficient and powerful instrument for comprehending the world and solving complex problems for the sake of society to be alert as well as awakened. In turn, climate models of varying degrees of complexity are used to predict the effect in climate change and variability on global and regional scales._

_Keyword__: Parameters, global warming, Degrees of complexity, Diffusivity_

I INTRODUCTION:

In present scenario, the climate changes affect the social, economical, political and Geographical regions. The stakeholders are anxious to resolve the burning issues. The mathematical modeling asserts the human-beings to be awaken observing the relation leading to forthcoming prediction.

II Global warming:- Global warming is directly proportional to temperature i.e. the function of temperature . If we denote Global warming as ω and temperature T, then

$\omega \propto$ T

or, ω = kT.. ...(1)

Where, k is a constant, if T_0 is initial temperature, the global warming is to be written as

ω =k(T$-T_0$)..(2)

Expanding in a power series

f(ω) = f(a + T)

$f(a + T) = f(a) + Tf'(a) + \frac{T^2}{2!}f''(a) + \ldots\ldots\ldots\ldots + \frac{T^2}{n!}f(0)\ldots\ldots\ldots$(3)

Where f(ω) is a function of temperature and a is any constant value-

This relation is related to Taylor's expansion refers Global warming can be at all points around a region. The first term in eqn. (3) represents the centre point, and the respective terms show the variants due to temperature change and the degree of the term also represent the fluctuation.

III Diffusion:

The phenomenon of mixing two or more than two gases at the same temperature and pressure is known as Diffusion. The diffusivity also causes the Global warming as

$D = \frac{1}{3}\lambda\bar{C}$ ....(4)

Where, λ is wavelength and $\bar{C}$ is average temperature.

But $\bar{C} \propto \sqrt{T}$ and $\lambda \propto \frac{T}{P}$

from (4) $D \propto \frac{1}{3}\frac{T}{P}\sqrt{T}$

$D \propto \frac{T^{3/2}}{P}$ ....(5)

from this relation (i) $D \propto T^{3/2}$

and (ii) $D \propto \frac{1}{P}$

and hence $D \propto \omega^{\frac{3}{2}}$.. ......(6)

IV DISCUSSION:

The whole discussion hold a prediction when temperature rises, diffusivity goes on increasing in addition to concentration whence temperature rises up causes Global warming.

IV CONCLUSION:

The Mathematical Modeling of eqn (3) and (6) turn the connectivity of parameters to a situation where Global warming is linked. When the growth rate of CO_2 increases in atmosphere, temperature rises up, produces global warming. So, the people of society are communicated through the relation obtained in equation (3) and (6) to be alert, and not to produce CO_2 in a large scale as well as diffusivity in near Future which may produce hazards. In fact mathematical modeling is useful as well as worthy to the human beings of a society in parametric scale.

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