

An empirical model for studies in global change

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In the present study, an attempt has been made to develop an empirical model and study the empirical aspects of global change by applying the mass energy concept to earth atmosphere system, assuming that the atmosphere is in hydrostatic balance. The presence of the gas in the atmosphere keeps some of the radiant energy received by the earth from being returned to space, thus producing the so-called greenhouse effect. The results of the study pointed out that the global temperature changes due to increase in mass as a whole of earth atmosphere system for the period 1900-2050. These changes in global warming are due to temperature increases from 0.053°C to 0.84°C. The predicted changes are in good agreement with the observed global warming (IPCC, 1990). The temperature changes due to doubling of CO₂ are only 0.02°C by 2050. The global warming due to temperature changes may be attributed to increase in mass as a whole including green house gases (CO₂, water vapour, particulate and other CFC's) and human activity and feedbacks. The main feedbacks which have been identified are due to changes in water vapour, sea ice, clouds and oceans.