

## USE OF MULTIVARIATE TIME SERIES MODEL TO ANALYZE THE EFFECT OF THE GLOBAL WARMING PHENOMINON IN COLOMBO DISTRICT

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In recent years many scientists started to analyze the global warming effect in different regions in the world. They identified that the increased emission of greenhouse gasses has contributed to a manmade rise in global temperature and sea level, which causes long lasting and least reversible problems in the weather patterns around the world.

In this study average temperature and rainfall data in Colombo district, collected by the Department of Meteorology, were analyzed using multivariate Time Series techniques. First the non-stationary time series was converted to a stationary series by using the "difference method". The Burg algorithm was used to fit an *autoregressive model* for the mean corrected data. The order of the model was decided by the minimum AICC. The Residual auto- correlation and cross-correlation graphs showed the suitability of the fitted model. After validating the fitted model, it was used to forecast the Temperature and Rainfall for the Colombo District up to year 2007.

The results were also used to consider the existence of trends and any possible patterns which comply with the Global Warming effect. The average increase between the fitted values and the existing actual values was calculated, and this average effect was compared with the Global effect obtained by other researchers.

*The Postgraduate Institute of Science is acknowledged for providing facilities.*

