Impacts Climate Change on Vegetation Distribution: A case study of Anuradhapura District

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ABSTRACT

The climate of an area determines the type of forest vegetation and changes in the climate alter the distribution pattern of the forest. The variation of mean annual rainfall and the mean annual temperature of the Anuradhapura district have been subjected to discernible variation through the period of 1870-2003. The present study was carried out to find the changes in the climatic parameters- mean annual rainfall and mean annual temperature, its impact on the existing forest and their distribution under the changed climatic condition. Mena annual rainfall and temperature of the period of 1870-2003 and were divided into 30-year subset data according to World Meteorological Association and analyzed separately using analysis of variance (ANOVA) to compare the variation between the subset of data. The subset of data were interpolated into 0.125 x 0.125 latitude and longitude resolution and interpolated data were used to constructs the contour map which were used to study the changed in the climate within the Anuradhapura district.

The study revealed that discernible fluctuation in mean annual rainfall and temperature within the distinct of Anuradhapura during the period of 1870-2003. The mean annual temperature gradually increased through the period of 1870-1980 and subsequent abrupt increase in mean annual rainfall was observed after 1980s and the mean annual rainfall gradually decreased. The changes in mean annual temperature and rainfall changed led to a shift in the distribution in forest vegetation The dry forest presently occupied in the northwestern part of the district is being shifting to semi-arid forest in the central part of the district. The dry forests in the north central and northeast of the district is shifted to northeast direction toward Mullaithvu district.