

Abstract

Prediction schemes for forecasting of onset and cessation dates as well as seasonal amount of rainfall in the well known Kenyan “long rains” that extends from March to May (MAM) using Nairobi as the case study are proposed. In order to obtain onset and cessation dates that will be of practical usage for agriculture and water resources management, weekly crop water requirement (CWR) are utilized. The models proposed for the onset and cessation dates as well as seasonal rainfall amount are based on the anomalies of equivalent potential temperature, θ^e and their saturated components, θ^e_s . These parameters are capable of monitoring the daily, monthly and annual variations in the moisture content of the air over any station. The models are developed using 10 years of surface synoptic and upper air data. The predicted onset dates are generally within ± 15 days of actual onsets on at least 80 % of the occasions while correlation coefficient between actual and predicted seasonal rainfall amounts for the March-May period is greater than 0.5. This study, in particular, investigates the applicability of the empirical methods of seasonal rainfall prediction proposed and which are in use in Nigeria, West Africa since the year 2000 to the East African region. Results indicate the applicability of these schemes to Kenya in particular and East Africa in general.