Abstract

This study evaluated the skill of forecasting seasonal rainfall over the Greater Horn of Africa (GHA) using Ensemble Model Technique from a cluster of four General Circulation Climate Models (GCMs) from Global Producing Centers (GPCs). The spatial distribution of rainfall anomalies of the observed models output during extreme events showed that the ensemble model was able to simulate El-Niño (1997) and La-Niña (2000) years. The ensemble models did not show good skill in capturing the magnitude of the extreme events. The skill of the ensemble model was higher than that for the member models in terms of its ability to capture the rainfall peaks during the El-Niño Southern Oscillation (ENSO) phenomena. The analysis for the correlation coefficients showed higher values for the ensemble model output than for the individual models over the Equatorial region with the stations in the northern and southern sectors of the GHA comparatively giving low skill. The ensemble modeling technique significantly improved the skill of forecasting, including the sectors where individual models had low skill. In general, the skill of the models was relatively higher during the onset of the ENSO event and became low towards the decaying phase of the ENSO period. Generally, the study has shown that the ensemble seasonal forecasting significantly adds skill to the forecasts especially for October-December (OND) rainy seasons. From the study, ensemble seasonal forecasting significantly adds skill to the forecasts over the region. Blending dynamical ensemble forecasts with statistical forecast currently being produced during Regional Climate Outlook Forums (RCOFs) would add value to seasonal forecasts. This significantly reduces the impacts and damages associated with climate extremes over the region.