

Abstract

This study investigates the contribution of Atlantic Ocean to the seasonal rainfall over Benin using Singular Value Decomposition (SVD) and correlation. The rainfall over the country is mainly unimodal, experienced in the months of June to September (JJAS). The SVD analysis on the anomalous JJAS rainfall and anomalous Sea Surface Temperature (SST) in the Atlantic Ocean reveals two dominant coupled modes. The first couple mode that dominates the covariability between the anomalous rainfall and the SST reveals positive covariability between anomalous rainfall in central Benin and anomalous SST in central Atlantic. The second couple mode that dominates the covariability between the anomalous rainfall and the SST reveals positive covariability between anomalous SST in central Atlantic and anomalous rainfall in northern Benin to be negative and to be positive to anomalous rainfall in the southern Benin. Generally, the correlation between rainfall over Benin and sea surface temperature over Atlantic Ocean is high and positive. Analysis shows that the years 1988, 1989, 2003, 2007 and 2008, were wet while the years 1982, 1983, 1984, 1986 were dry. The moist southwesterly air dominated the country during wet years. The country was characterized by dry northeasterly air during the dry years. Close observation of the evolution of sea surface temperature over Atlantic Ocean and wind flow over Benin is recommended, in the seasonal forecasting and updating of the forecast.