

Abstract

Economic activities in Lake Victoria Basin such as agriculture, fishing, mining and transportation depend's heavily on the climatic conditions of the Lake and its Basin. Global climatic change caused by Greenhouse Gas emission (GHG) has resulted in a disruptive and erratic weather pattern for these economic activities. This unpredictable weather variations is responsible for loss of life and destruction of property. The primary cause of this negative impact is lack of a reliable information addressing climatic variation within the region. The main objective of this project was to identify a suitable time series model that can be used in predicting, forecasting and analyzing weather variations. The Box jenskin methodology is used to build ARIMA model for rainfall and temperature. Data obtained from the Kenya Meteorological Department's Kisumu, Lwak, and Migori for the years 2007 to 2014 produced An ARIMA (2,0,1) model for rainfall is using R package. Data for the years 2011 to 2013 were estimated using values from the years 2008 to 2010 and the relationship showed a strong positive relationship indicating a high accuracy level on predictability by the model.