TIME SERIES MODELING AND PROJECTION OF CLIMATE RESPONSE OF CORN YIELD IN ISABELA, PHILIPPINES

Erik Paolo M. de la Vega
Institute of Environmental Science & Meteorology
University of the Philippines – Diliman

Adviser: Gerry Bagtasa, PhD

ABSTRACT

Corn is the second most important crop in the Philippines (after rice). It is farmed by Filipinos for consumption and raw material for other various industries. Previous studies have established that temperature and precipitation are the two most crucial climatic factors affecting corn growth, development, and yield. This study aims to investigate the relationship of corn yield in Isabela, the country's top corn producer, to these two variables through time series modeling using historical corn production data from the Philippine Statistics Authority and past climate data from PAGASA. After which, future projection of corn yield with different climate scenarios (RCPs 4.5 and 8.5) from Global Circulation Models for the years 2040–2060 and 2080–2100 will be simulated using the generated statistical crop yield model. This and similar studies can contribute to the overall knowledge on the future projection of crops, which is a step towards an improved resilience of the Philippine agriculture sector to projected changes in the climate.

Keywords: time series modeling, corn yield, climate response